PART 2 PACKAGE

# CONSTRUCTION DRAWINGS
# FOR
# RIVERTOWN WATER TREATMENT PLANT
# WELL NOs. 1, 2, AND BACKUP WELL NO. 3

PART 2 - WELLHEAD MECHANICAL AND FACILITIES
VOLUME II
JEA PROJ NO.: 8003981


IMAGE OBTAINED FROM GOOGLE EARTH JANUARY 2020

**VICINITY MAP**
NOT TO SCALE

PREPARED BY:


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ISSUED FOR BID
DECEMBER 2020

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| NOT APPLICABLE | APPLICABLE | DRAWING NUMBER | DRAWING TITLE |
|---|---|---|---|
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NOTE:

STANDARD DRAWINGS ARE APPLICABLE FOR ALL PROJECTS, INCORPORATED BY REFERENCE AND ARE AVAILABLE AT JEA.COM



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:41 PM

DESIGNED BY: L GUNN
DRAWN BY: N PATTERSON
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY:
APPROVED BY: L GUNN
DATE: DECEMBER 2020

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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

GENERAL

INDEX TO DRAWINGS

DATE: 01/2021
Lawrence Bradley Gunn
PE NO. 65967

PROJECT NO. 6103-237938
JACOBS FILE NAME: 0-G-002_D3270100.dgn

SHEET NO.
G-2

ISSUED FOR BID

## SURVEY AND LOCATE DATA:

1. ELEVATIONS ARE BASED ON N.A.V.D. 88.
2. EXISTING WATER AND SEWER LINES ARE SHOWN AS PER FIELD LOCATES AND ROADWAY AND SUBDIVISION AS BUILT PLANS.
3. BENCHMARK DATA:
   SEE EXISTING SURVEY FOR APPLICABLE BENCHMARK LOCATIONS AND DATA.

## PERMIT REQUIREMENTS (NOT ALL INCLUSIVE):

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CONSUMPTIVE USE PERMIT (C.U.P.) THROUGH THE ST. JOHNS WATER MANAGEMENT DISTRICT SHOULD DEWATERING ACTIVITIES BE REQUIRED.
2. THE FDEP, SJRWMD, JEA AND ST JOHNS COUNTY ARE TO BE NOTIFIED IN ADVANCE OF CONSTRUCTION PER THEIR RESPECTIVE PERMIT CONDITIONS. THE CONTRACTOR SHALL NOT BEGIN WORK UNTIL ALL ENVIRONMENTAL PERMITS HAVE BEEN ISSUED.
3. ALL WORK SHALL BE IN ACCORDANCE WITH BID DOCUMENTS, JEA WATER AND SEWER STANDARDS, DETAILS AND MATERIALS MANUAL, LATEST EDITION, AND ST JOHNS COUNTY STANDARDS AND DETAILS MANUAL, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL REGULATIONS.
4. THE CONTRACTOR SHALL NOTIFY APPLICABLE UTILITY CONTACT PERSONNEL NOT LESS THAN ONE WEEK PRIOR TO CONSTRUCTION OF FACILITIES IN THEIR RESPECTIVE AREAS.
5. THE CONTRACTOR SHALL LOCATE THE DRAINAGE INLET STRUCTURES IN THE PROJECT AREA AND ERECT SEDIMENTATION CONTROL DEVICES AS NECESSARY PER THE ST JOHNS COUNTY, FDOT, AND FDEP REQUIREMENTS.
6. CONTRACTOR TO COORDINATE WORK WITH OTHER UTILITIES DURING CONSTRUCTION.
7. SJRWMD ERP PERMIT AND ARMY CORPS OF ENGINEERS 404 PERMIT/NATIONWIDE PERMIT (TBD) TO BE ACQUIRED PRIOR TO COMMENCEMENT OF WORK WITHIN WETLANDS.

## RESTORATION NOTES:

1. THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR, REGISTERED IN THE STATE OF FLORIDA, TO REFERENCE AND RESTORE PROPERTY CORNERS AND LANDMARKS WHICH MAY BE DISTURBED BY CONSTRUCTION.
2. THE CONTRACTOR SHALL RESTORE/REPLACE ALL CULVERTS, HEADWALLS AND STORM DRAIN INLETS REMOVED OR DISTURBED BY THE CONSTRUCTION OPERATION.

## UTILITY CONTACTS:

| | |
|---|---|
| A. AT&T ~ GENERAL NUMBER | 904-519-2529 |
| B. AT&T ~ ADAM DUGAN ~ NORTH DISTRICT | 904-781-0741 |
| C. AT&T ~ BILL LAKE ~ SOUTH DISTRICT | 904-303-8754 |
| D. ST JOHNS COUNTY ~ ENGINEERING | 904-209-0110 |
| E. ST JOHNS COUNTY ~ ROAD AND BRIDGE | 904-209-0246 |
| F. FLORIDA DEPT. OF TRANSPORTATION | 904-360-5200 |
| G. JEA ~ WATER COLLECTION & DISTRIBUTION | 904-665-8484 |
| H. JEA ~ SEWER COLLECTION & DISTRIBUTION ~ JOSH PARKER | 904-665-6052 |
| I. JEA ~ GENERAL INFORMATION | 904-665-6000 |
| J. JEA ~ PROJECT OUTREACH | 904-665-7500 |
| K. JEA ~ POWER OUTAGES | 904-665-6000 |
| L. JEA ~ SEWER PROBLEMS | 904-665-4802 |
| M. JEA ~ WATER PROBLEMS | 904-665-4801 |
| N. JEA ~ WATER & SEWER LOCATES | 904-665-8410 |
| O. ST JOHNS COUNTY UTILITY DEPT. | 904-209-2700 |
| P. SUNSHINE ONE CALL | 811 |

## EXISTING UTILITY PROTECTION:

1. IN ORDER TO REDUCE THE DISRUPTION AND COST OF UTILITY DAMAGES OCCURRING IN THE ST JOHNS COUNTY RIGHT-OF-WAY AND EASEMENTS, THE CONTRACTOR SHALL PREVENT DAMAGES TO EXISTING UTILITIES CAUSED BY HIS WORK THROUGH FIELD VERIFICATION OF THE LOCATION OF THE EXISTING UTILITIES, IN THE CASE OF OPEN EXCAVATION, VERIFICATION MAY BE PERFORMED DURING THE CONTRACTORS WORK. IN THE CASE OF DIRECTIONAL DRILLING, VERIFICATION SHALL TAKE PLACE PRIOR TO MOBILIZATION OF THE DRILLING EQUIPMENT.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES AS NEEDED TO AVOID CONTACT. EXISTING UTILITIES SHALL BE EXPOSED USING DETECTION EQUIPMENT OR OTHER ACCEPTABLE MEANS. SUCH METHODS MAY INCLUDE BUT SHALL NOT BE LIMITED TO "SOFT DIG" EQUIPMENT AND GROUND PENETRATING RADAR (GPR). THE EXCAVATOR SHALL BE HELD LIABLE FOR DAMAGES CAUSED TO THE CITY'S/JEA'S INFRASTRUCTURE AND THE EXISTING FACILITIES OF OTHER UTILITY COMPANIES.
3. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND AVOID ALL UTILITIES, OTHER STRUCTURES AND OBSTRUCTIONS BOTH ABOVE AND BELOW GROUND SURFACE. ALL DAMAGE RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

## CIVIL LEGEND

| | EXISTING | PROPOSED |
|---|---|---|
| RIGHT OF WAY LINE | | |
| CENTER LINE | | |
| LIMITS OF CONSTRUCTION | | L.O.C. |
| FENCE (HEIGHT & MAT'L. INDICATED) | 6' CHAIN LINK | 6' CHAIN LINK |
| FLOW DIRECTION | | |
| DRAIN PIPE | D | D |
| CATCH BASIN | | |
| STORM DRAIN GRATE | | |
| WATER MAIN SIZE, TYPE INDICATED | | |
| WATER MAIN (IN CASE 10 TRENCH) SIZE, TYPE INDICATED | | |
| GRAVITY OR SANITARY SEWER SIZE, TYPE INDICATED | S | |
| STORM DRAIN | SD | SD |
| SEWER FORCE MAIN SIZE, TYPE INDICATED | FM | |
| LINE VALVE | | |
| CHECK VALVE | | |
| FIRE HYDRANT | | |
| VALVE (TYPE INDICATED) | | |
| END CAP | | |
| PLUG (AT END OF LINE) | | |
| REDUCER | | |
| FIRE HYDRANT | | OR |
| DOUBLE CHECK VALVE ASSEMBLY | | |
| MANHOLE - TYPE (IF INDICATED ) E - ELECTRIC S - SANITARY D - STORM T - TELEPHONE | | MH1 |
| CLEAN OUT | C.O. | |
| SPRINKLER HEAD | SPR | |
| TEMPORARY SAMPLING TAP POINT (BACTERIOLOGICAL SAMPLING POINT) | | SAMPLE TAP NO. TAP NO. |
| SPOT ELEVATION | | ⊗ 158.5 |
| CONTOUR LINE | | 155 |
| PROPERTY LINE | | |
| WETLAND LIMITS | | |
| TEST HOLE | | |

## UTILITY SYMBOLS

| | |
|---|---|
| WOOD POWER POLE | WPP |
| ELECTRIC POLE OR S.B.T. POLE (CONC.) | PP OR PP (WITH LIGHT) |
| CONCRETE POWER POLE | CPP |
| GUY WIRE | |
| TRAFFIC SIGNAL POLE | TS |
| IRON PIPE | I.P. |
| OVERHEAD ELECTRIC | -OHU- |
| UNDERGROUND ELECTRIC | -EX- |
| OVERHEAD TELEPHONE | -OT- |
| UNDERGROUND TELEPHONE | -UGT- |
| GAS MAIN (SIZE & MAT'L. INDICATED) | -GAS- |
| CABLE TELEVISION | CATV |
| FIBER OPTIC LINE | FO |
| UNDERGROUND CABLE (TYPE UNDETERMINED) | -UG- |
| WATER METER | WM |
| WATER METER WITH TOUCHREAD | WM(TR) |
| CONCRETE MONUMENT | CM |
| GAS VALVE | |
| SOIL BORING (NUMBER INDICATED) | SB-1 |
| SOFT DIG (NUMBER INDICATED) | SD1 |
| TREE, SIZE & TYPE INDICATED | 12" O |
| MAIL BOX | MB |
| SIGN - TYPE INDICATED | OR SIGN |
| BUSH, SHRUB OR HEDGE | SHRUB |
| FULL DEPTH ASPHALT PAVEMENT REPLACEMENT | |
| ASPHALT PAVEMENT OVERLAY | |
| INDICATES DRIVEWAY/SIDEWALK TO BE AND REPLACED | |
| CENTER LINE, BUILDING, ROAD, ETC. | |
| SILT FENCE | |
| STRUCTURE, BUILDING OR FACILITY LOCATION POINT - COORDINATES | N 1000.00 E 1000.00 |
| DEMOLITION | OR |

## ABBREVIATIONS:

| | | | |
|---|---|---|---|
| AC | ASBESTOS CEMENT | INT. | INTERSECTION |
| A.G. | ALLEY GRATE | INV. | INVERT |
| ℄ | BASE LINE | I.P. | IRON PIPE |
| B.M. | BENCH MARK | J.W.W. | JACKSONVILLE WATER |
| BC | BOTTOM OF CURVE | | WORKS |
| C.B. | CATCH BASIN | LT. | LEFT |
| C.I. | CAST IRON | MB | MAIL BOX |
| ℄ | CENTER LINE | M.H. | MANHOLE |
| C.E.P. | CITY ELECTRIC POLE | N.T.S. | NOT TO SCALE |
| CLDI | CEMENT-LINED DUCTILE IRON | O.E. | OVERHEAD ELECTRIC |
| CONC. | CONCRETE | O.T. | OVERHEAD TELEPHONE |
| CONST. | CONSTRUCTION | P.R.M. | PERMANENT REFERENCE |
| C.M.P. | CORRUGATED METAL PIPE | | MONUMENT |
| C.M.P.A. | CORRUGATED METAL PIPE ARCH | P.V.C. | POLYVINYL CHLORIDE |
| CULV. | CULVERT | r | RADIUS |
| C&G | CURB & GUTTER | R | RATE |
| C | CUT | R.C.P. | REINFORCED CONCRETE PIPE |
| D.B.I. | DITCH BOTTOM INVERT | RT | RIGHT |
| D.W. OR DR | DRIVEWAY | R/W | RIGHT OF WAY |
| D.I. | DUCTILE IRON | RW | RAW WATER MAIN |
| E.O.P. | EDGE OF PAVEMENT | R.D. | ROOF DRAIN |
| ELEV. | ELEVATION | S/W | SIDE WALK |
| ERCP | ELLIPTICAL REINFORCED CONC. PIPE | S.B.T. | SOUTHERN BELL TELEPHONE |
| | | SST | STAINLESS STEEL |
| EXP. JT. | EXPANSION JOINT | STA | STATION |
| F | FILL | TC | TOP OF CURVE |
| F.H. | FIRE HYDRANT | U.G.E. | UNDERGROUND ELECTRIC |
| ℉ | FLOW LINE | U.G.T. | UNDERGROUND TELEPHONE |
| FM | FORCE MAIN | U.S.C. & G.S. | UNITED STATES COASTAL & GEODETIC SURVEY |
| GALV./GLV | GALVANIZED | | |
| G | GAS LINE | V.C. | VITRIFIED CLAY |
| G.V. | GAS VALVE | WM | WATER METER |
| HDPE | HIGH DENSITY POLYETHYLENE PIPE | W.V. | WATER VALVE |
| | | WLP | WOOD LIGHT POLE |
| H.W. | HEAD WALL | WPP | WOOD POWER POLE |
| H.C. | HIGH CURB | WTP | WOOD TELEPHONE POLE |



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:43 PM

DESIGNED BY: D DYKES
DRAWN BY: N PATTERSON
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY:
APPROVED BY: R MORRISON
DATE: DECEMBER 2020

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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

GENERAL

CIVIL AND YARD PIPING LEGEND AND GENERAL NTOES

DATE: 01/2021
RICHARD THOMAS MORRISON
PE NO. 67713

PROJECT NO. 6103-237938
JACOBS FILE NAME: 0-G-010_D3270100.dgn

SHEET NO.
G-3

ISSUED FOR BID

# DESIGN CRITERIA

1. APPLICABLE CODE: FLORIDA BUILDING CODE SIXTH EDITION (2017), AS AMENDED BY APPLICABLE LOCAL AGENCIES.
2. REFER TO THE DRAWINGS FOR ADDITIONAL AND SPECIFIC STRUCTURE LOADINGS AND REQUIREMENTS.
3. ALL LOADS SHOWN ARE SERVICE LEVEL (UNFACTORED) UNLESS SPECIFICALLY NOTED OTHERWISE.
4. DEAD LOADS: = SELF WEIGHT
5. LIVE LOADS:
   SLABS AND WALKWAYS = 100 PSF
6. WIND LOADS:
   BASIC WIND SPEED
   Vult = 135 MPH (3 SECOND GUST)
   Vasd = 105 MPH
   RISK CATEGORY = III
   WIND EXPOSURE CATEGORY = C
7. SNOW LOAD:
   GROUND SNOW LOAD, Pg = 0 PSF

# GENERAL INFORMATION

1. FOR ABBREVIATIONS NOT LISTED, SEE ASME Y14.38 "ABBREVIATIONS AND ACRONYMS: PUBLICATION AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).
2. DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE INDIVIDUALLY CALLED OUT.
3. VERIFY AND COORDINATE FINAL OPENING DIMENSIONS WITH OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION.
4. FOR NUMBER, TYPE, SIZE, ARRANGEMENT, AND/OR LOCATION OF EQUIPMENT PADS, SEE OTHER DISCIPLINE DRAWINGS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO PLACING SLABS, WALLS AND FOUNDATIONS. COORDINATE PIPING OPENINGS WITH OTHER DISCIPLINE DRAWINGS.
5. DO NOT CUT OR MODIFY STRUCTURAL MEMBERS FOR PIPES, DUCTS, ETC, UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.
6. VISITS TO THE JOB SITE BY THE ENGINEER TO OBSERVE THE CONSTRUCTION DO NOT IN ANY WAY MEAN THAT ENGINEER IS GUARANTOR OF CONSTRUCTOR'S WORK, NOR RESPONSIBLE FOR THE COMPREHENSIVE OR SPECIAL INSPECTIONS, COORDINATION, SUPERVISION, OR SAFETY AT THE JOB SITE.

# INSPECTION AND TESTING

1. THE CONTRACTOR SHALL SCHEDULE INSPECTIONS.
2. CONCRETE AND OTHER MATERIAL TESTING RELATED TO INSPECTION DURING CONSTRUCTION WILL BE OWNER FURNISHED.
3. SPECIFIED LABORATORY TEST MIXES AND SIMILAR TEST RESULTS TO VERIFY MATERIAL QUALITY AND CONFORMANCE TO SPECIFICATIONS, AND SUBMITTED FOR REVIEW PRIOR TO ACCEPTANCE FOR USE ON THE PROJECT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. INSPECTION AND TESTING (OWNER FURNISHED) WILL BE IN ACCORDANCE WITH FBC SECTION 110. INSPECTION AND TESTING WILL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF FBC.

# FOUNDATIONS

1. EXCAVATIONS SHALL BE SHORED TO PREVENT SUBSIDENCE OR DAMAGE TO ADJACENT EXISTING STRUCTURES, ROADS, UTILITIES, ETC.
2. FOUNDATION SLABS AND SLABS-ON-GRADE SHALL BEAR ON 6" COMPACTED GRANULAR FILL, UNLESS OTHERWISE NOTED.

# FORMWORK, SHORING, AND BRACING

1. STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. DESIGN SHOWN DOES NOT INCLUDE NECESSARY COMPONENTS OR EQUIPMENT FOR STABILITY OF THE STRUCTURES DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.
2. PATCH FORM TIE HOLES WITH NONSHRINK GROUT.

# CONCRETE REINFORCING

1. REINFORCING STEEL = DEFORMED BARS: ASTM A615, GRADE 60
2. FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI MSP-1 "MANUAL OF STANDARD PRACTICE"AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
3. CONCRETE COVER FOR REINFORCING, UNLESS SHOWN OTHERWISE, SHALL BE:
   SURFACE PLACED AGAINST GROUND = 3"
   OTHER CONCRETE SURFACES = 2"
4. 90 DEGREE BENDS, UNLESS OTHERWISE SHOWN, SHALL BE ACI 318 STANDARD HOOKS.
5. PROVIDE ADDITIONAL STEEL REINFORCEMENT AROUND OPENINGS IN ACCORDANCE WITH DETAIL 8, SHEET 94-M-001.
6. REINFORCEMENT EMBEDMENTS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:

| CONCRETE DESIGN STRENGTH = 4,000 PSI MIN AT 28 DAYS | | GRADE 60 REINFORCING STEEL | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BAR SIZE | | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | #11 |
| LAP SPLICE LENGTH | | | | | | | | | | |
| SPACING < 6" | TOP BAR | 1'-4" | 1'-8" | 2'-1" | 3'-0" | 5'-2" | 6'-8" | 8'-6" | 10'-10" | 13'-4" |
| | OTHER BAR | 1'-4" | 1'-4" | 1'-8" | 2'-4" | 4'-0" | 5'-2" | 6'-7" | 8'-4" | 10'-3" |
| SPACING ≥ 6" | TOP BAR | 1'-4" | 1'-8" | 2'-0" | 2'-5" | 3'-6" | 4'-0" | 5'-0" | 6'-2" | 7'-5" |
| | OTHER BAR | 1'-4" | 1'-4" | 1'-7" | 1'-10" | 2'-9" | 3'-1" | 3'-10" | 4'-9" | 5'-8" |
| EMBEDMENT LENGTH | | | | | | | | | | |
| SPACING < 6" | TOP BAR | 1'-0" | 1'-3" | 1'-8" | 2'-4" | 4'-0" | 5'-2" | 6'-7" | 8'-4" | 10'-3" |
| | OTHER BAR | 1'-0" | 1'-0" | 1'-3" | 1'-10" | 3'-1" | 4'-0" | 5'-1" | 6'-5" | 7'-11" |
| SPACING ≥ 6" | TOP BAR | 1'-0" | 1'-3" | 1'-7" | 1'-10" | 2'-9" | 3'-1" | 3'-10" | 4'-9" | 5'-8" |
| | OTHER BAR | 1'-0" | 1'-0" | 1'-3" | 1'-5" | 2'-1" | 2'-5" | 3'-0" | 3'-8" | 4'-5" |

   1. TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.

# CAST IN PLACE CONCRETE

1. CONCRETE MIX DESIGN SHALL BE IN ACCORDANCE WITH ACI 301-10:
   A. CONCRETE:
      a. MINIMUM COMPRESSIVE STRENGTH f 4,000 PSI AT 28 DAYS.
      b. W/CM RATIO SHALL NOT EXCEED 0.45.
      c. SLUMP SHALL BE 4 ± 1 INCH.
      d. EXPOSURE CLASS AND CATEGORY F1S0W0C0.
   B. PORTLAND CEMENT SHALL CONFORM TO ASTM C150 TYPE I OR II.
   C. AGGREGATE SHALL COMPLY WITH ASTM C33, CLASS DESIGNATION 4M AND NON-REACTIVE AS DETERMINED USING ONE OF THE FOLLOWING:
      - ASTM C1260
      - ASTM C1293
      - ASTM 1567
   D. SUBMIT DOCUMENTATION OF AVERAGE STRENGTH FOR EACH PROPOSED MIX DESIGN IN ACCORDANCE WITH ACI 301.
   E. STRENGTH TESTS:
      a. ONE SPECIMEN AT 7 DAYS FOR INFORMATION.
      b. TWO 6 INCH DIAMETER OR THREE 4 INCH DIAMETER TEST SPECIMENS AT 28 DAYS FOR ACCEPTANCE.
      c. PROVIDE MINIMUM OF ONE SPARE TEST SPECIMEN PER SAMPLE.
   F. PROVIDE TROWEL FINISH UNLESS OTHERWISE NOTED. DO NOT SPRINKLE WATER OR CEMENT ON SURFACE WHEN FINISHING.
   G. APPLY ASTM C309 TYPE 1 OR 1-D CURING COMPOUND IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS. SUPER DIAMOND CLEAR VOX BY EUCLID CHEMICAL COMPANY..
   H. CHAMFER EXPOSED EDGES OF CONCRETE 3/4 INCH UNLESS OTHERWISE NOTED.
   I. CONCRETE REPAIR: PATCH SURFACE DEFECTS THAT INCLUDE HONEYCOMBING, ROCK POCKETS, INDENTATIONS AND SURFACE VOIDS WITH SIKATOP 123 PLUS BY SIKA CORP.
2. FINISH SLAB: BULL FLOAT WITH WOOD FLOAT, WOOD TROWEL, AND LIGHTLY TROWEL WITH STEEL TROWEL. FINISH WITH BROOM TO OBTAIN NONSKID SURFACE.



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:40 PM

DESIGNED BY: C ANSON
DRAWN BY: N PATTERSON
SHEET CHK'D BY: D EVERSON
CROSS CHK'D BY:
APPROVED BY: C ANSON
DATE: DECEMBER 2020

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Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

GENERAL

STRUCTURAL GENERAL NOTES

DATE: 01/2021
CLEMENT W. ANSON
PE NO. 75167

PROJECT NO. 6103-237938
JACOBS FILE NAME: 0-G-020_D3270100.dgn

SHEET NO.
G-4

ISSUED FOR BID

# PIPE AND FITTING SYMBOLS

| DOUBLE LINE | SINGLE LINE | |
|---|---|---|
| | | EXISTING PIPE |
| | | NEW PIPE |
| | | EXISTING PIPE TO BE ABANDONED |
| | | EXISTING PIPE TO BE REMOVED |
| | | WELDED JOINT |
| | | GROOVED END JOINT |
| | | FLANGED JOINT |
| | | MECHANICAL JOINT & PROPRIETARY RESTRAINED JOINT |
| | | BELL & SPIGOT JOINT (LEADED) |
| | | HUB & SPIGOT JOINT (RUBBER GASKET) |
| | | BALL JOINT |
| | | ADAPTER SIDE GROOVED END ADAPTER FLANGE |
| | | FLANGED COUPLING ADAPTER |
| | | FLEXIBLE COUPLING |
| | | METAL BELLOWS EXP JOINT |
| | | ELASTOMER BELLOWS EXP JOINT |
| | | ELBOW UP |
| | | ELBOW DOWN |
| | | TEE UP |
| | | TEE DOWN |
| | | LATERAL UP |
| | | LATERAL DOWN |
| | | CONCENTRIC REDUCER |
| | | |

| DOUBLE LINE | SINGLE LINE | |
|---|---|---|
| | | REDUCING BUSHING |
| | | UNION |
| | | CAP |
| | | ANCHOR |
| | | ELBOW, 90 DEGREE |
| | | CROSS |
| | | TEE |
| | | ELBOW, 45 DEGREE |
| | | LATERAL |

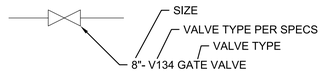
NOTES:

1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS. FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS.
2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.
3. EXISTING PIPE AND EQUIPMENT IS SHOWN LIGHT-LINED AND/OR SCREENED AND IS NOTED AS EXISTING. NEW PIPING AND EQUIPMENT IS SHOWN HEAVY-LINED.

# VALVE SYMBOLS

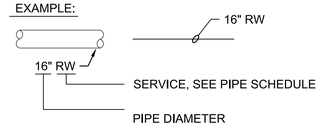
| SINGLE LINE | DOUBLE LINE |
|---|---|
| GATE | |
| KNIFE GATE | OR |
| BUTTERFLY | OR |
| GLOBE | OR |
| BALL | OR |
| SEATING PORT | |
| ECCENTRIC PLUG | OR |
| PLUG OR COCK | OR |
| NEEDLE | OR |
| DIAPHRAGM | OR |
| PINCH | OR |
| SWING CHECK | OR |
| BALL CHECK | OR |
| HOSE VALVE (HV- X) OR (V-X) X = NO. IN SPECS | |
| SAMPLE | |
| MUD | |
| PRESSURE RELIEF | |
| AIR AND/OR VACUUM RELEASE | |

# VALVE DESIGNATIONS




# PIPING DESIGNATION

EXAMPLE:




# PRESSURE GAUGE

1. LOCAL PRESSURE GAUGE
   - A. 4-1/2" DIAL, POINTER VIBRATION REDUCTION, GLYCERIN FILLED.
   - B. WETTED PARTS STAINLESS STEEL.
   - C. RANGE AS CALLED OUT ON MECHANICAL DRAWING.
   - D. ACCURACY PLUS OR MINUS 0.5% OF FULL SCALE.
   - E. SIZE ½-INCH MNTP, PROVIDE REDUCING BUSHING AS SHOWN ON MECHANICAL DETAIL 4
   - F. THROTTLING DEVICE REQUIRED
   - G. MANUFACTURER: ASHCROFT DURAGAUGE MODEL 1279 PLUS!.

# GENERAL PIPING NOTES

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. CONTRACTOR SHALL DESIGN SUPPORTS AS SPECIFIED.
4. ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
5. ALL FLEXIBLE CONNECTORS AND COUPLING ADAPTERS SHALL BE RESTRAINED UNLESS OTHERWISE NOTED. RESTRAINED JOINTS SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS, WHEREVER APPLICABLE. NOT ALL OF THE VARIOUS PIPING COMPONENTS ARE NECESSARILY USED IN THE PROJECT.
7. NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
8. WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.
9. ALL BURIED AND EXPOSED PRESSURE PIPING ON THE WATER TREATMENT PLANT SITE SHALL BE RESTRAINED.
10. ALL VERTICAL ELEVATIONS ARE NAVD 88.

NOTE:
FLOW STREAM IDENTIFICATIONS ARE SHOWN ON THE INSTRUMENTATION AND CONTROL LEGENDS



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:26 PM

DESIGNED BY: R ANGLEY
DRAWN BY: N PATTERSON
SHEET CHK'D BY: L GUNN
CROSS CHK'D BY:
APPROVED BY: L GUNN
DATE: DECEMBER 2020

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FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

GENERAL

PROCESS MECHANICAL LEGEND AND GENERAL NOTES

DATE: 01/2021
Lawrence Bradley Gunn
PE NO. 65967

PROJECT NO. 6103-237938
JACOBS FILE NAME: 0-G-040_D3270100.dgn

SHEET NO.
G-5

ISSUED FOR BID

## ELECTRICAL SYMBOLS

CONNECTION POINT TO EQUIPMENT SPECIFIED. RACEWAY, CONDUCTOR,TERMINATION AND CONNECTION IN THIS DIVISION.

MCC-A — MAJOR ELECTRICAL COMPONENT OR DEVICE - NAME OR IDENTIFYING SYMBOL AS SHOWN.

LP A — PANELBOARD - SURFACE MOUNTED

PANELBOARD LETTER

LP - LIGHTING PANEL
DP - DISTRIBUTION PANEL

PANELBOARD - FLUSH MOUNTED

TERMINAL JUNCTION BOX

HP — MOTOR, SQUIRREL CAGE INDUCTION HP AS INDICATED

G — GENERATOR

LPA-2 — HOME RUN - DESTINATION SHOWN

or G — EXPOSED CONDUIT AND CONDUCTORS*

or G — CONCEALED CONDUIT AND CONDUCTORS*

NOTE:
ALL UNMARKED CONDUIT RUNS CONSIST OF TWO NO. 12, ONE NO. 12 GROUND CONDUCTORS IN 3/4" CONDUIT. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF NO. 12 CONDUCTORS. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE.

[A1] — CONDUCTOR AND RACEWAY CALLOUT - FOR CONDUIT AND CONDUCTORS, SEE LEGEND.

CONDUIT DOWN

CONDUIT UP

CONDUIT, STUBBED AND CAPPED AS SHOWN

CONDUIT TERMINATION AT CABLE TRAY

EX — EXISTING CONDUIT/ DUCK BANK

CT — CABLE TRAY - SEE SPECIFICATIONS

BD — BUS DUCT - SEE SPECIFICATIONS

DB — DIRECT BURIED CONDUIT

FO — FIBER OPTIC CONDUIT

CE — CONCRETE ENCASED DUCT BANK

HT — HEAT TRACE

J or HH — GENERAL CONTROL OR WIRING DEVICE. LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE.

CS — CONTROL STATION, SEE CONTROL DIAGRAMS FOR CONTROL DEVICE(S) REQUIRED.

30 / X — NONFUSED DISCONNECT SWITCH, SIZE INDICATED, 3 POLE, X = NEMA RATING

60/40 F X — FUSED DISCONNECT SWITCH, SIZE INDICATED (60/40, 60 = SWITCH RATING: 40 = FUSE RATING) 3 POLE , X = NEMA RATING

2 — COMBINATION CIRCUIT BREAKER AND MAGNETIC STARTER, NEMA SIZE INDICATED

T — TRANSFORMER

3 POSITION SELECTOR SWITCH MAINTAINED CONTACT

SPD — SURGE PROTECTION DEVICE

SH — SPACE HEATER

## ELECTRICAL SYMBOLS (CONT)

DELTA GROUNDED WYE

GFR — GROUND FAULT RELAY WITH CURRENT TRANSFORMER

400 — CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE, UNO

AS/AF OR AT/AF — CIRCUIT BREAKER, STATIC TRIP UNIT, SENSOR AMP TRIP AND FRAME RATINGS SHOWN, 3 POLE, UNO

100/M — CIRCUIT BREAKER, MAGNETIC TRIP ONLY, FRAME SIZE SHOWN, 3 POLE, UNO

ST — CIRCUIT BREAKER WITH SHUNT TRIP UNIT

400 225 — FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE, UNO

100 — SWITCH - CURRENT RATING INDICATED, 3 POLE, UNO

60 (3) — FUSE, RATING AND QUANTITY INDICATED

1 — MAGNETIC STARTER WITH OVERLOAD, NEMA SIZE INDICATED

AFD — ELECTRONIC STARTER/SPEED CONTROL
SS = AC SOLID STATE SOFT STARTER
AFD = AC ADJUSTABLE FREQUENCY DRIVE
RVSS, AFD, or DC
DC = DC ADJUSTABLE SPEED DRIVE

CABLE OR BUS CONNECTION POINT

GROUND

120/240V 15 KVA 1 PH — TRANSFORMER, SECONDARY VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE

GROUND ROD

GROUND ROD IN TEST WELL

G — GROUNDING CONDUCTOR, SIZE AS INDICATED

TA — CABLE TO CABLE TEE

XA — CABLE TO CABLE CROSS

XJ — CABLE TO REINFORCING STEEL

GP — CABLE TO PIPE (BOLTED CONNECTION)

WA — CABLE TO STEEL SURFACE

GR — CABLE TO TOP OF GROUND ROD

PIGTAIL FOR CONNECTION TO EQUIPMENT CABINET OR FRAME

G — EQUIPMENT GROUND BUS

N — EQUIPMENT NEUTRAL BUS

LA — CABLE TO LUG

DUPLEX RECEPTACLE

## ELECTRICAL LIGHTING SYMBOLS

DPM — DIGITAL POWER METER

T HVAC — HVAC THERMOSTAT

LPI-17 — CONVENIENCE RECEPTACLE, DUPLEX, CIRCUIT INDICATED
WP = WEATHERPROOF
TL = TWIST LOCK
GFCI = GROUND FAULT CIRCUIT INTERRUPTER

DUPLEX CONVENIENCE RECEPTACLE, FLUSH IN FLOOR

TELEPHONE RECEPTACLE

DATA RECEPTACLE

COMBINATION DATA/TELEPHONE RECEPTACLE

COMBINATION DATA/TELEPHONE RECEPTACLE FLUSH IN FLOOR

LUMINAIRE, SEE LUMINAIRE SCHEDULE

LUMINAIRE WITH EMERGENCY LIGHTING BATTERY PACK, SEE LUMINAIRE SCHEDULE

PC — POLE MOUNTED LUMINAIRE, SEE LUMINAIRE SCHEDULE "PC" INDICATES FIXTURES CONTROLLED VIA REMOTE PHOTOCELL OR PHOTOCELL CONTROLLED CONTACTOR

PC — WALL MOUNTED LUMINAIRE, SEE LUMINAIRE SCHEDULE "PC" INDICATES FIXTURES CONTROLLED VIA REMOTE PHOTOCELL OR PHOTOCELL CONTROLLED CONTACTOR

EMERGENCY LIGHTING UNIT, SEE LUMINAIRE SCHEDULE

EXIT LIGHTS: FILLED SECTION INDICATES FACE ORIENTATION, ARROWS INDICATE EXIT CHEVRON DIRECTION, SEE SCHEDULE

a 3 -3 — SMALL LETTER SUBSCRIPT AT SWITCH AND LUMINAIRE INDICATES SWITCHING. NUMBER LOCATED TOP RIGHT OF LUMINAIRE INDICATES FIXTURE TYPE PER LUMINAIRE SCHEDULE. NUMBER BOTTOM RIGHT OF FIXTURE INDICATES CIRCUIT IN PANELBOARD.

S — WALL SWITCH:
2- DOUBLE POLE
3- THREE WAY
4- FOUR WAY
CRE- CORROSION RESISTANT
D- DIMMER
K- KEY OPERATED
P- PILOT LIGHT
WP- WEATHERPROOF
EP- EXPLOSION PROOF

PC — PHOTOCELL

LC — LIGHTING CONTACTOR

OS — OCCUPANCY SENSOR

RC — ROOM CONTROLLER

TS — TIMER SWITCH

ETM — ELAPSED TIME METER

X — PUSH-TO-TEST PILOT LIGHT
X = A: AMBER
R: RED
G: GREEN

## GENERAL NOTES:

1. COMPLY WITH LATEST NATIONAL ELECTRICAL CODE (NEC) AND WITH ALL LOCAL CODES AND ORDINANCES, INCLUDING CLIENT'S ENGINEERING STANDARDS. IN CASE OF CONFLICT BETWEEN REQUIREMENTS, CONFORM WITH THE MOST RESTRICTIVE.
2. VERIFY ALL ELECTRICAL REQUIREMENTS AND EXACT LOCATION OF EQUIPMENT WITH DRAWINGS AND SPECIFICATIONS. CHECK AND VERIFY ALL DIMENSIONS IN THE FIELD.
3. CONDUIT ROUTINGS WHERE SHOWN, ARE DIAGRAMATIC. COORDINATE ACTUAL ROUTINGS TO AVOID INTERFERENCES WITH ALL OTHER TRADES, AND TO ADJUST TO EXISTING CONDITIONS.

## ABBREVIATIONS

| | |
|---|---|
| CB | CIRCUIT BREAKER |
| CPT | CURRENT POWER TRANSFORMER |
| CR | RELAY CONTACT |
| DC | DIRECT CURRENT |
| FLA | FULL LOAD AMP |
| FT | FEET |
| FU | FUSE |
| GND | GROUND |
| HP | HORSE POWER |
| HVAC | HEATING VENTILATION AIR CONDITIONING |
| LCP | LOCAL CONTROL PANEL |
| LOR | LOCAL-OFF-REMOTE |
| MCP | MOTOR CIRCUIT PROTECTOR |
| MIN | MINIMUM |
| MSC | MANUFACTURER SUPPLIED CABLE |
| MTS | MANUAL TRANSFER SWITCH |
| NB | NOMINAL BORE |
| NC | NORMALLY CLOSED |
| NEU | NEUTRAL |
| NO | NORMALY OPEN |
| NOTC | NORMALLY OPEN TIMED CLOSED |
| NOTO | NORMALLY CLOSED TIMED OPEN |
| PLC | PROGRAMMABLE LOGIC CONTROLLER |
| PNL | PANEL |
| PSIG | POUND PER SQUARE INCH, GAUGE |
| PTFE | POLYTETRAFLUOROETHYLENE |
| RVSS | REDUCED VOLTAGE SOLID STATE SOFT STARTER |
| T/M | THERMAL MAGNETIC |
| TYP | TYPICAL |
| V | VOLTS |
| VDC | VOLTS DIRECT CURRENT |
| XFMR | TRANSFORMER |



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:37 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

GENERAL

ELECTRICAL LEGEND

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 0-G-070_D3270100.dgn

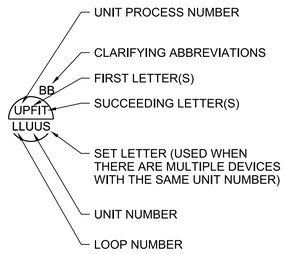
SHEET NO.
G-6

ISSUED FOR BID

# INSTRUMENT IDENTIFICATION

## INSTRUMENT IDENTIFICATION LETTERS TABLE

## EXAMPLE SYMBOLS




| LETTER | FIRST-LETTER: PROCESS OR INITIATING VARIABLE | FIRST-LETTER: MODIFIER | SUCCEEDING-LETTERS: READOUT OR PASSIVE FUNCTION | SUCCEEDING-LETTERS: READOUT OR PASSIVE FUNCTION | SUCCEEDING-LETTERS: READOUT OR PASSIVE FUNCTION |
|---|---|---|---|---|---|
| A | ANALYSIS (+) | | ALARM | | |
| B | BURNER, COMBUSTION | | USER'S CHOICE (*) | USER'S CHOICE (*) | USER'S CHOICE (*) |
| C | USER'S CHOICE (*) | | | CONTROL | |
| D | DENSITY (S.G.) | DIFFERENTIAL | | | |
| E | VOLTAGE | | PRIMARY ELEMENT, SENSOR | | |
| F | FLOW RATE | RATIO (FRACTION) | | | |
| G | USER'S CHOICE (*) | | GLASS, GAUGE VIEWING DEVICE | GATE | |
| H | HAND (MANUAL) | | | | HIGH |
| I | CURRENT (ELECTRICAL) | | INDICATE | | |
| J | POWER | SCAN | | | |
| K | TIME, TIME SCHEDULE | TIME RATE OF CHANGE | | CONTROL STATION | |
| L | LEVEL | | LIGHT (PILOT) | | LOW |
| M | MOTION | MOMENTARY | | | MIDDLE, INTERMEDIATE |
| N | TORQUE | | USER'S CHOICE (*) | USER'S CHOICE (*) | USER'S CHOICE (*) |
| O | USER'S CHOICE (*) | | ORIFICE, RESTRICTION | | |
| P | PRESSURE, VACUUM | | POINT (TEST) CONNECTION | | |
| Q | QUANTITY | INTEGRATE, TOTALIZE | | | |
| R | RADIATION | | RECORD OR PRINT | | |
| S | SPEED, FREQUENCY | SAFETY | | SWITCH | |
| T | TEMPERATURE | | | TRANSMIT | |
| U | MULTI VARIABLE | | MULTI FUNCTION | MULTI FUNCTION | MULTI FUNCTION |
| V | VIBRATION, MECHANICAL ANALYSIS | | | VALVE, DAMPER, LOUVER | |
| W | WEIGHT, FORCE | | WELL | | |
| X | UNCLASSIFIED (*) | X AXIS | UNCLASSIFIED (*) | UNCLASSIFIED (*) | UNCLASSIFIED (*) |
| Y | EVENT, STATE OR PRESENCE | Y AXIS | | RELAY, COMPUTE, CONVERT | |
| Z | POSITION | Z AXIS | | DRIVE, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT | |

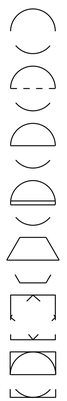
TABLE BASED ON THE INSTERNATION SOCIETY OF AUTOMATION (ISA) STANDARD.

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.
(*) WHEN USED, DEFINE THE MEANING HERE FOR THE PROJECT.

## DIGITAL SYSTEM INTERFACES

- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT
- $\triangle_X$ DISCRETE INPUT
- $\nabla_X$ DISCRETE OUTPUT

## GENERAL INSTRUMENT OR FUNCTIONAL SYMBOLS



- FIELD MOUNTED
- REAR-OF-PANEL MOUNTED (OPERATOR INACCESSIBLE)
- PANEL MOUNTED (OPERATOR ACCESSIBLE)
- MCC MOUNTED
- COMPUTER FUNCTION
- PLC FUNCTION
- SHARED DISPLAY, SHARED CONTROL

## TRANSDUCERS

| | | | |
|---|---|---|---|
| A | ANALOG | I | CURRENT |
| D | DIGITAL | P | PNEUMATIC |
| E | VOLTAGE | PF | PULSE FREQUENCY |
| F | FREQUENCY | PD | PULSE DURATION |
| H | HYDRAULIC | R | RESISTANCE |

EXAMPLE


CURRENT TO PNEUMATIC TRANSDUCER (BACK OF PANEL, IN A FLOW LOOP)

## ACCESSORY DEVICES

| | |
|---|---|
| A | ALARM |
| C | CONTROLLER |
| I | INDICATOR |
| R | RECORDER |
| S | SWITCH |
| T | TRANSMITTER |
| X | UNCLASSIFIED |

EXAMPLE


TRANSMITTER AS AN ACCESSORY TO A FLOW ELEMENT

## SPECIAL CASES


ON AND OFF EVENT LIGHTS

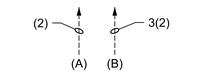

ON-OFF HAND SWITCH, MAINTAINED CONTACT SWITCH (CONTROLLED DEVICE WILL RESTART ON RETURN OF POWER AFTER POWER FAILURE).


STOP-START HAND SWITCH MOMENTARY CONTACT SWITCHES (CONTROLLED DEVICE WILL NOT RESTART ON RETURN OF POWER AFTER POWER FAILURE).

# LINE LEGEND

- PRIMARY PROCESS (CLOSED CONDUIT, DASHED LINE INDICATES ALTERNATE FLOW STREAM)
- SECONDARY PROCESS
- BYPASS PROCESS
- PROCESS (OPEN CHANNEL)
- ANALOG SIGNAL (4 TO 20 mAdc, ETC.)
- DISCRETE (ON/OFF, ETC.)
- PNEUMATIC SIGNAL
- FILLED SYSTEM SIGNAL
- HYDRAULIC SYSTEM SIGNAL
- FO — FIBEROPTIC CABLE
- BUILDING OR FACILITY BOUNDARY
- PACKAGE SYSTEM EQUIPMENT
- TYPICAL BREAK
- P — POWER
- B — PROFINET CAT 6 CABLE
- MSC — MANUFACTURER SUPPLIED CABLE

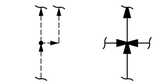
PARALLELING LINES




(A) TOTAL OF 2 SIGNALS

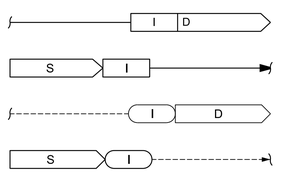
(B) 3 TYPICAL SETS OF 2 SIGNALS EACH, TOTAL OF 6 SIGNALS.

CONNECTING LINES



NON-CONNECTING LINES

# INTERFACE SYMBOLS




I INTERFACE IDENTIFIER

D DESTINATION DRAWING NO.

S SOURCE DRAWING NO.




# SELF CONTAINED VALVE & EQUIPMENT TAG NUMBERS

W-D-X-Y

| | | |
|---|---|---|
| W | | UNIT PROCESS NUMBER |
| D | ARV | AIR RELEASE VALVE |
| | AVRV | AIR AND VACUUM RELEASE VALVE |
| | E | EJECTOR |
| | G | GATE |
| | M | MECHANICAL EQUIPMENT |
| | P | PUMP |
| | T | TANK |
| X | | LOOP NUMBER |
| Y | | UNIT NUMBER |

# ABBREVIATIONS & LETTER SYMBOLS

| | |
|---|---|
| AC | ALTERNATING CURRENT |
| AM | AUTO-MANUAL |
| CAM | COMPUTER-AUTO-MANUAL |
| CCS | CENTRAL CONTROL SYSTEM |
| $CL_2$ etc. | CHLORINE (TYPICAL: USE STANDARD CHEMICAL ELEMENT ABBREVIATIONS) |
| CM | COMPUTER-MANUAL |
| COD | CHEMICAL OXYGEN DEMAND |
| CP-X | CONTROL PANEL NO. X |
| DC | DIRECT CURRENT |
| DCS | DISTRIBUTED CONTROL SYSTEM |
| DCU | DISTRIBUTED CONTROL UNIT |
| DO | DISSOLVED OXYGEN |
| $FCL_2$ | FREE CHLORINE RESIDUAL |
| FOS | FAST-OFF-SLOW |
| FOSA | FAST-OFF-SLOW-AUTO |
| FOSR | FAST-OFF-SLOW-REMOTE |
| FP-W-X | FIELD PANEL NO. WX (W=UNIT PROCESS NUMBER X=PANEL NUMBER) |
| FR | FORWARD-REVERSE |
| HOA | HAND-OFF-AUTO |
| HOR | HAND-OFF-REMOTE |
| ISR | INTRINSICALLY SAFE RELAY |
| LEL | LOWER EXPLOSIVE LIMIT |
| LOS | LOCKOUT STOP |
| LR | LOCAL-REMOTE |
| MA | MANUAL-AUTO |
| MC | MODULATE-CLOSE |
| MCC-X | MOTOR CONTROL CENTER NO. X |
| MSC | MANUFACTURER SUPPLIED CABLE |
| OC | OPEN-CLOSE(D) |
| OCA | OPEN-CLOSE-AUTO |
| OCR | OPEN-CLOSE-REMOTE |
| OO | ON-OFF |
| OOA | ON-OFF-AUTO |
| OOR | ON-OFF-REMOTE |
| ORP | OXIDATION REDUCTION POTENTIAL |
| OSC | OPEN-STOP-CLOSE |
| pH | HYDROGEN ION CONCENTRATION |
| PLC | PROGRAMMABLE LOGIC CONTROLLER |
| RIO | REMOTE I/O UNIT |
| RM-X | REMOTE MULTIPLEXING MODULE NO. X |
| RTU-X | REMOTE TELEMETRY UNIT NO. X |
| RVSS | REDUCED VOLTAGE SOFT STARTER |
| SF | SLOWER-FASTER |
| SS | START-STOP |
| SSC | SUPERVISORY SET POINT CONTROL |
| $TCL_2$ | TOTAL CHLORINE RESIDUAL |
| TOC | TOTAL ORGANIC CARBON |
| TOD | TOTAL OXYGEN DEMAND |
| TURB | TURBIDITY |
| VFD | VARIABLE FREQUENCY DRIVE |
| VHC | VOLATILE HYDROCARBONS |
| VIB | VIBRATION |
| $\triangle$ | DIFFERENCE |
| $\Sigma$ | SUM |
| × | MULTIPLY |
| ÷ | DIVIDE |
| F(X) | CHARACTERIZED |
| $X^n$ | RAISED TO THE Nth POWER |
| $\sqrt{\ }$ | SQUARE ROOT |
| AVG | AVERAGE |
| 1:1 | REPEAT OR BOOST |
| > | SELECT HIGHEST SIGNAL |
| < | SELECT LOWEST SIGNAL |
| } | BIAS |
| % | GAIN OR ATTENUATE |

# GENERAL NOTES

1. COMPONENTS AND PANELS SHOWN WITH A SINGLE ASTERISK ( ∗ ) ARE TO BE PROVIDED AS PART OF A PACKAGE SYSTEM.
2. COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK ( ∗∗ ) ARE TO BE PROVIDED UNDER DIVISION 26, ELECTRICAL.
3. THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THIS INFORMATION MAY BE USED ON THE PROJECT.

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:39 PM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EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

GENERAL

INSTRUMENTATION AND CONTROL LEGEND 1

PROJECT NO. 6103-237938
JACOBS FILE NAME: 0-G-080_D3270100.dgn

SHEET NO.
G-7

ISSUED FOR BID

# VALVE SYMBOLS

- GATE
- KNIFE GATE
- BUTTERFLY
- GLOBE
- BALL
- VEE-BALL
- PLUG
- SEAT PORT ECCENTRIC PLUG
- DIAPHRAGM
- PINCH
- NEEDLE
- SWING CHECK
- BALL CHECK
- BACKFLOW PREVENTER
- ROTARY
- TELESCOPE
- SAMPLE
- MUD
- PRESSURE RELIEF
- AIR AND/OR VACUUM RELEASE
- REGULATED SIDE PRESSURE CONTROL
- PRESSURE REGULATION (CLAY-TYPE)
- MULTI-PORT VALVE (GATE VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.) SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- ANGLE GATE

# GATE SYMBOLS

- SLUICE
- BUTTERFLY
- FABRICATED SLIDE
- FLAP
- STOP LOG
- SHEAR

# ACTUATOR SYMBOLS

- PNEUMATIC DIAPHRAGM SPRING-OPPOSED, SINGLE OR DOUBLE ACTING
- PNEUMATIC CYLINDER SINGLE OR DOUBLE ACTING ACTUATED BY ONE INPUT
- ELECTRIC MOTOR
- SOLENOID
- VALVE POSITIONER
- HYDRAULIC
- DIAPHRAGM, DIFFERENTIAL PRESSURE
- ELECTROHYDRAULIC
- MANUAL

NOTE:
ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL, OR HYDRAULIC)

XX:
- FO FAIL OPEN
- FC FAIL CLOSED
- FLP FAIL TO LAST POSITION

# PRIMARY ELEMENT SYMBOLS

- PARSHALL FLUME
- WEIR
- ORFICE PLATE
- FLOW TUBE
- PITOT-STATIC
- VORTEX METER
- ULTRASONIC FLOWMETER
- ELECTROMAGNETIC FLOWMETER
- PROPELLER OR TURBINE METER
- THERMAL FLOWMETER
- LEVEL (BUBBLER TUBE)
- LEVEL (FLOAT)
- ROTAMETER
- DENSITY METER
- GENERIC
- LEVEL

# MISCELLANEOUS SYMBOLS

- VENT TO ATMOSPHERE
- AIR GAP
- DRIP TRAP
- PIG INSERT POINT
- PIG CATCH POINT
- SELF CONTAINED AIR SUPPLY
- AIR PURGE SET
- FLUSHING CONNECTION
- SEAL WATER SET
- WATER PURGE SET
- FLEXIBLE CONNECTION
- AERATOR
- DIAPHRAGM SEAL
- ANNULAR DIAPHRAGM SEAL
- COMPOSITE SAMPLER
- FLAME TRAP
- CALIBRATION COLUMN
- INLINE SILENCER
- BLIND FLANGE
- PIPE CAP
- STRAINER
- BASKET STRAINER
- FILTER
- PULSATION DAMPENER
- EXPANSION CHAMBER
- PANEL CONTINUED ON SAME OR OTHER DRAWING (FFLCPLLLX)
- PANEL OUTLINE
- PANEL NAME
- 120 VOLT, 60 HZ POWER
- 480 VOLT, 60 HZ POWER
- AIR SET XX = SUPPLY PRESSURE IN PSIG.
- PLUG
- RECEPTACLE
- RUPTURE DISK (VACUUM)
- RUPTURE DISK (PRESSURE)
- TV MONITOR
- TV CAMERA
- LOGIC ELEMENT: IF A AND NOT B THEN C
- LOGIC ELEMENT: IF A OR B THEN C
- RADIO ANTENNA
- INTERLOCK, SEE CONTROL DIAGRAMS
- VOICE COMMUNICATION POINT
- SKIMMING MECHANISM
- SCREW CONVEYOR
- MIXER
- ELECTRIC MOTOR

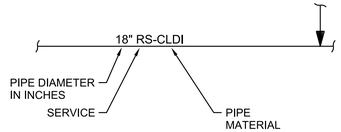
# PUMP AND COMPRESSOR SYMBOLS

- CENTRIFUGAL PUMP (DRY PIT)
- CENTRIFUGAL WET PIT PUMP OR TURBINE PUMP
- RECIPROCATING OR METERING PUMP (POSITIVE DISPLACEMENT)
- DIAPHRAGM PUMP
- GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- PROGESSING CAVITY PUMP
- COMPRESSOR (CENTRIFUGAL)
- COMPRESSOR (PISTON)
- BLOWER OR FAN (CENTRIFUGAL)
- EJECTOR
- PISTON PUMP
- SUBMERSIBLE SUMP PUMP
- ROTARY PUMP
- VACUUM PUMP
- SCREW PUMP

XX:
- AS ADJUSTABLE SPEED
- CS-1 CONSTANT SPEED (SINGLE SPEED)
- CS-2 CONSTANT SPEED (TWO SPEED)

# LINE SIZE AND MATERIAL IDENTIFICATION

(FOR REFERENCE ONLY. SEE SITE AND MECHANICAL DRAWINGS)



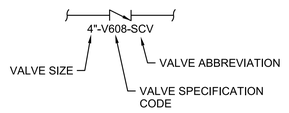

| | |
|---|---|
| CI | CAST IRON |
| CISP | CAST IRON SOIL PIPE |
| CLDI | CEMENT LINED DUCTILE IRON |
| CLSTL | CEMENT LINED STEEL |
| CU | COPPER |
| FRP | FIBERGLASS REINFORCED PLASTIC |
| PE | POLYETHYLENE TUBING |
| PVC | POLYVINYL CHLORIDE |
| SST | STAINLESS STEEL |
| STL | STEEL |

# FLOW STREAM IDENTIFICATION

| | |
|---|---|
| DR | DRAIN |
| IRR | IRRIGATION |
| RW | RAW WATER |
| V | VENT |
| W1 | NO. 1 WATER (POTABLE) |
| W3 | NO. 3 WATER (NON-POTABLE) |

# VALVE IDENTIFICATION

(FOR REFERENCE ONLY. SEE SITE AND MECHANICAL DRAWINGS)




ABBREVIATIONS:

| | |
|---|---|
| GATE | - GV |
| KNIFE GATE | - KV |
| BUTTERFLY | - BFV |
| GLOBE | - GV |
| BALL | - BV |
| VEE-BALL | - VV |
| PLUG | - PV |
| EFFECNTRIC PLUG | - EPV |
| DIAPHRAGM | - DV |
| KEYLOCK VALVE | - KLV |
| PINCH | - PNV |
| NEEDLE | - NV |
| SWING-CHECK | - SCV |
| CHECK VALVE | - CV |
| BALL CHECK | - BCV |
| BACKFLOW PREVENTOR | - BFP |



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:11 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020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EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

GENERAL

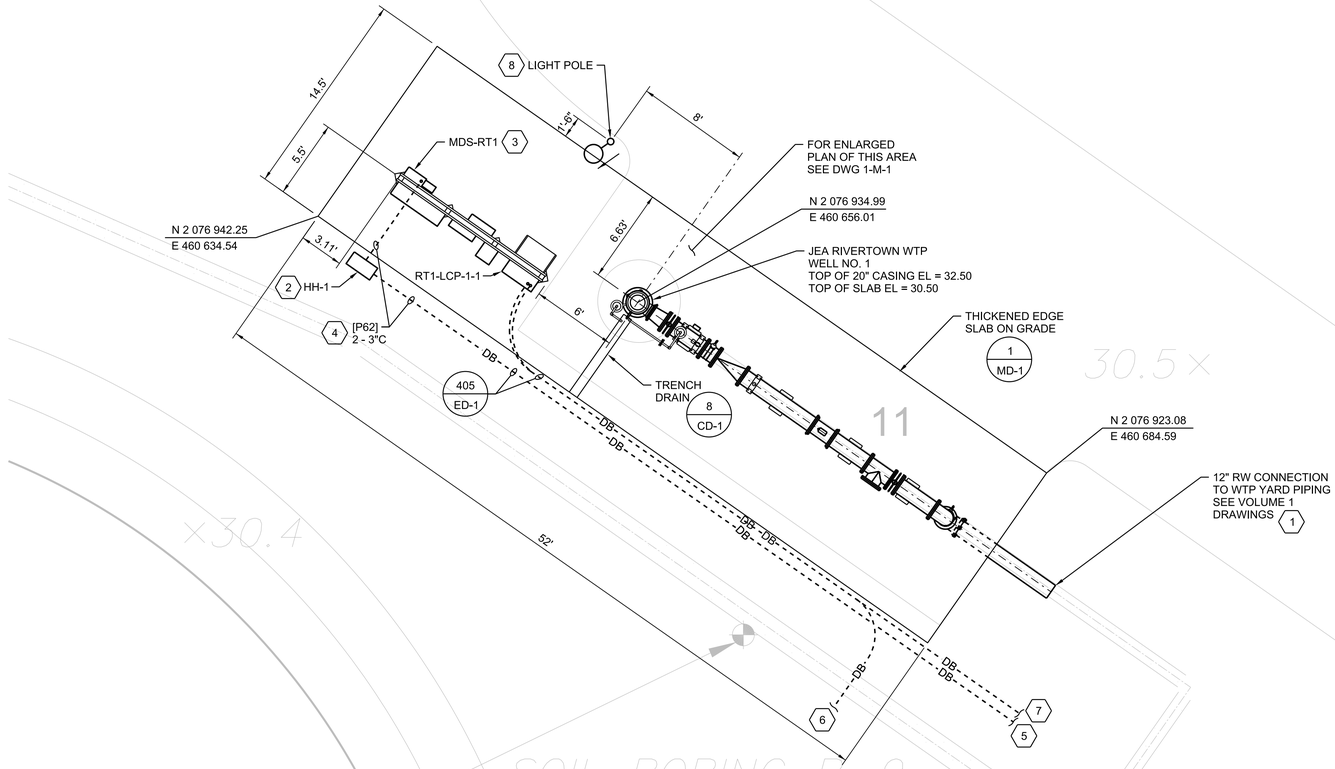
INSTRUMENTATION AND CONTROL LEGEND 2

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 0-G-081_D3270100.dgn

SHEET NO.
G-8

ISSUED FOR BID




N

# PLAN

1"=5'

0 5 10 15

Scale In Feet

## SHEET KEYNOTES

1. CONTRACTOR SHALL REFER TO VOLUME 1 WATER TREATMENT PLANT, SHEET C-4 AND C-5 FOR YARD PIPING, SITE GRADING, AND CIVIL FEATURES PERTAINING TO THE CONSTRUCTION OF WELL NO. 1.
2. HANDHOLE HH-1 FURNISHED AND INSTALLED BY CONTRACTOR. HANDHOLE SHALL BE PRECAST CONCRETE, H-20 RATED, OPEN-BOTTOM AS MANUFACTURED BY OLDCASTLE/CHRISTY OR APPROVED EQUAL. REFER TO TABLE 4A OF DETAIL 406 FOR SIZING INFO.
3. WELLHEAD DISCONNECT SWITCH: MDS-RT1. 200 AMP/3P, 600VAC, FUSED, HEAVY DUTY, NEMA-4X 304 S/S ENCLOSURE. SEE DWG. 1-E-6.
4. FEEDER CIRCUIT CONDUITS TO BE ROUTED TO AVOID THE NEW UNDERGROUND WATER PIPING. CONTRACTOR TO COORDINATE INSTALLATION WITH THE WTP CONSTRUCTION, ADJUSTING ROUTING FROM THAT SHOWN ON THE DRAWING AS NEEDED. ALL SWEEPS TO BE GENTLE TO AVOID CONDUIT BENDS WITHIN THE HORIZONTAL RUN. CONTRACTOR TO INSTALL TWO (2) 3" PVC SCH. 80 CONDUITS BETWEEN THE HIGH SERVICE PUMP BUILDING, HANDHOLE HH-1, AND THE WELLHEAD DISCONNECT SWITCH. ONE (1) 3"CONDUIT SHALL BE A SPARE. REFER TO DWG. 1-E-3 FOR ADDITIONAL INFORMATION.
5. EXTEND TWO (2) 3"PVC-80 CONDUITS TO THE HIGH SERVICE PUMP BUILDING FOR CONNECTION TO FEEDER CIRCUIT STUB-OUTS. COORDINATE INSTALLATION WITH THE WTP CONSTRUCTION. REFER TO KEYNOTE 4, THIS DRAWING. CABLING FURNISHED/INSTALLED ON WTP DOCUMENT. TERMINATIONS AT WELLHEAD BY WELLHEAD CONTRACTOR.
6. EXTEND ONE (1) 1" PVC-80 CONDUIT TO THE GROUND STORAGE TANK RIO CONTROL PANEL. REFER TO WTP DOCUMENTS FOR CONTINUATION. FO CABLE AND WELLHEAD TERMINATIONS FURNISH/INSTALLED ON WTP DOCUMENT.
7. EXTEND ONE (1) 1" PVC-80 CONDUIT TO THE HIGH SERVICE PUMP BUILDING FOR CONNECTION TO THE GENERATOR FIBER OPTIC INTERFACE PANEL. REFER TO WTP DOCUMENTS FOR CONTINUATION. FO CABLE AND WELLHEAD TERMINATIONS FURNISH/INSTALLED ON WTP DOCUMENT.
8. LOCATION OF WELLHEAD SWITCHED ILLUMINATION. ARROW INDICATES AIMING DIRECTION OF POLE TOP LUMINAIRE.

## GENERAL NOTES

1. ALL DISTURBED AREAS ADJACENT TO HARD SURFACES OR ON SIDE SLOPES EXCEEDING 1V:6H SHALL BE SODDED (10' MINIMUM WIDTH WHEN ADJACENT TO HARD SURFACES AND STAKED WHEN ON SLOPES) IN ACCORDANCE WITH JEA WATER AND WASTEWATER STANDARDS, SECTION 441.
2. EXCESS EXCAVATED MATERIAL SHALL BE HAULED OFFSITE.
3. IMPORT SUITABLE FILL MATERIAL IF REQUIRED.
4. SEED ALL AREAS NOT RECEIVING HARD SURFACE OR SOD IN ACCORDANCE WITH JEA WATER AND WASTEWATER STANDARDS, SECTION 441.

DATE: 01/2021
MARC P. GOSLOW
PE NO. 41733

DATE: 01/2021
RICHARD THOMAS MORRISON
PE NO. 67713



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:46 PM

DESIGNED BY: B DYKES
DRAWN BY: N PATTERSON
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER 2020

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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

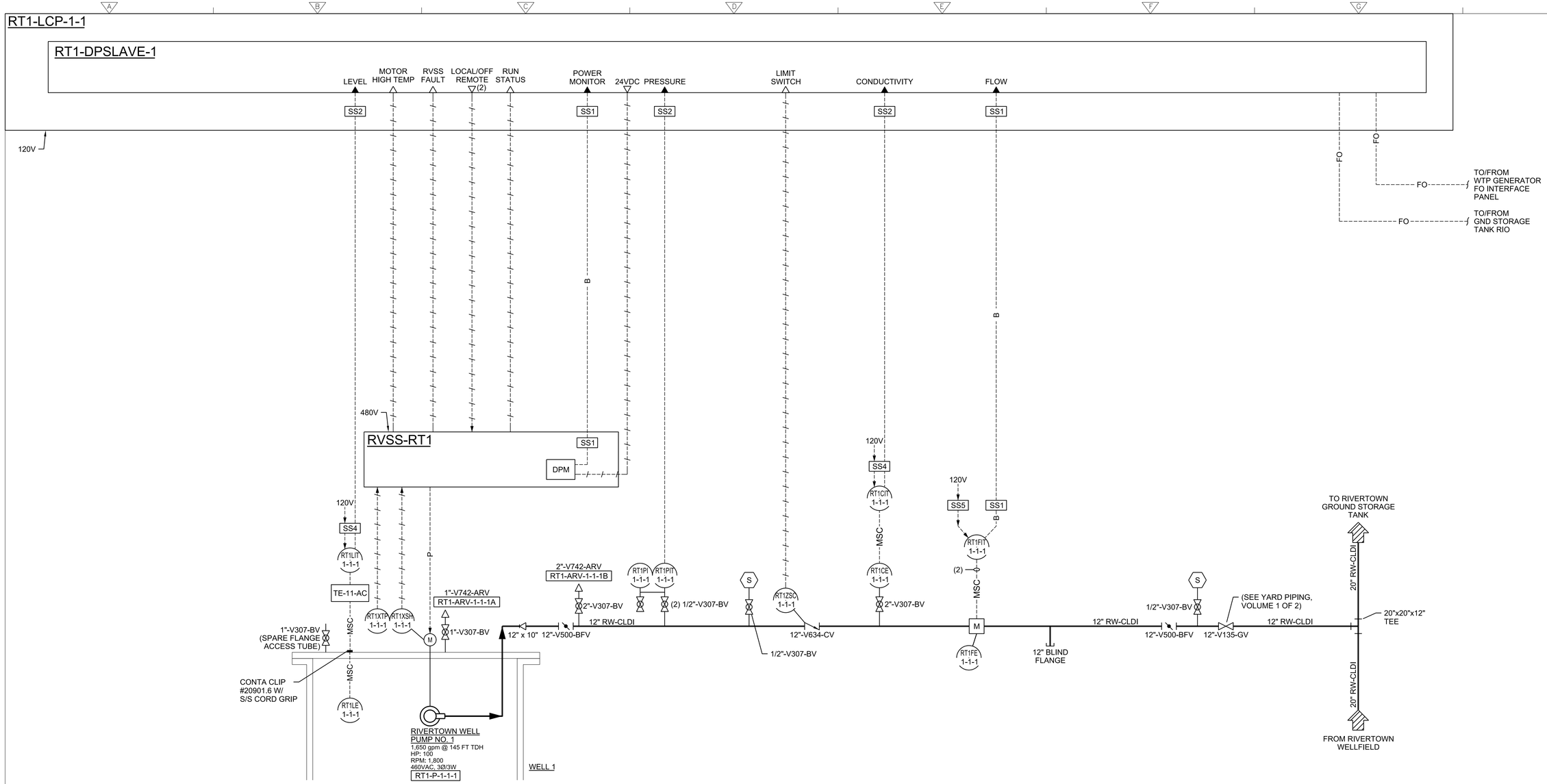
CIVIL/ELECTRICAL

WELLHEAD NO. 1
SITE PLAN

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1001-C-001_D3270100.dgn

SHEET NO.
1-C-1

ISSUED FOR BID




LEGEND:

| | |
|---|---|
| SS1 | - PROFINET SURGE SUPPRESSOR PHOENIX CONTACT 2881007 |
| SS2 | - SURGE SUPPRESSOR CITEL DLAW-24D3 |
| SS3 | - SURGE SUPPRESSOR CITEL DS42S-120 W/ DS40G (120VAC DISCRETE) |
| SS4 | - SURGE SUPPRESSOR CITEL DS42S-120 W/ DS40G DLAW-24D3 |
| SS5 | - SURGE SUPPRESSOR CITEL DS42S-120 W/DS40G |

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:10 PM

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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

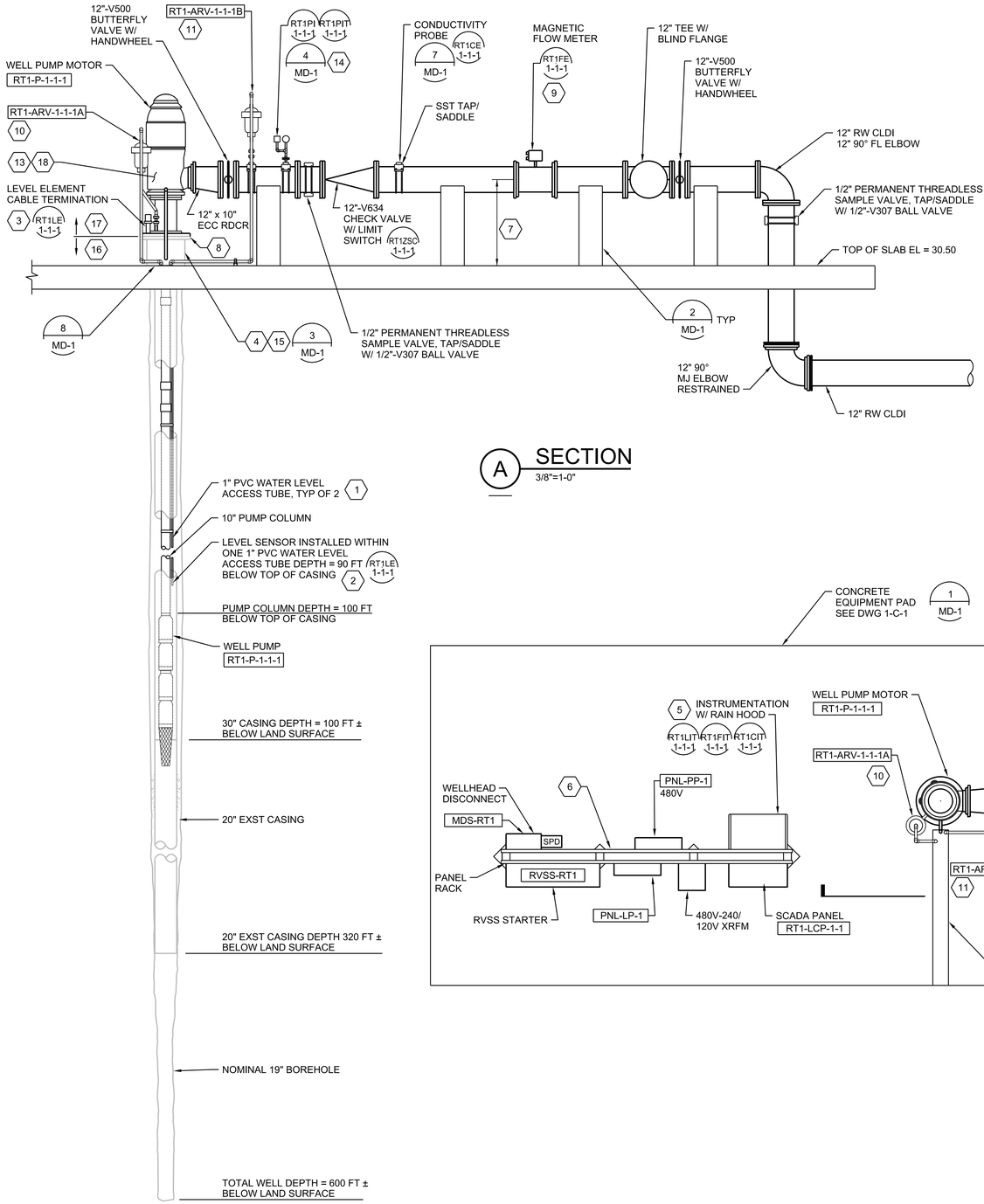
INSTRUMENTATION AND CONTROL

WELLHEAD NO.1
P&ID

PROJECT NO. 6103-237938
JACOBS FILE NAME: CDM_Jk_Bdr_D3270100.dgn

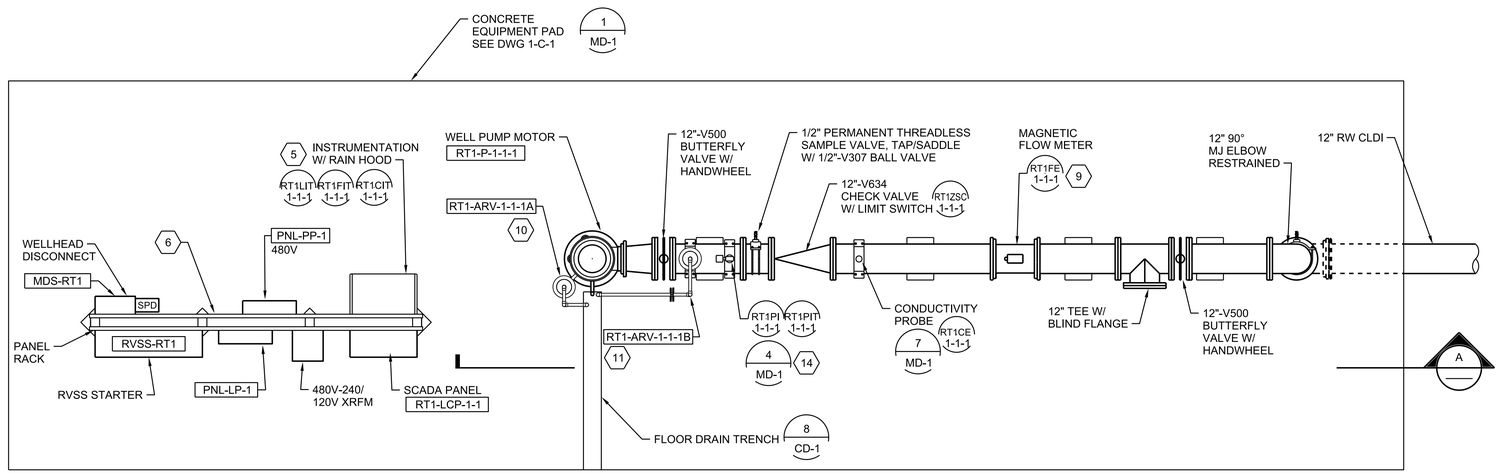
SHEET NO.
1-N-1

ISSUED FOR BID




A SECTION
3/8"=1-0"




N
PLAN
3/8"=1'-0"

## SHEET KEYNOTES

1. THREAD THE (2) 1-INCH PVC WATER LEVEL ACCESS TUBES INTO UNDERSIDE OF DISCHARGE HEAD. STRAP(SST) ACCESS TUBES TO PUMP COLUMN EVERY 10-FEET. TERMINATE ACCESS TUBES 5-FEET ABOVE THE PUMP BOWLS. CAP BOTTOM OF ACCESS TUBES. DRILL 1/4-INCH HOLES THROUGH ACCESS TUBES EVERY 3-FEET THROUGHOUT THE TUBE. DRILL 1/4-INCH HOLE THROUGH BOTTOM CAP.
2. MARK SENSOR CABLE WITH COLORED TAPE AT SPECIFIED DEPTH OF SUBMERGENCE.
3. INSTALL LEVEL SENSOR PER MANUFACTURER'S RECOMMENDATION, USING WATER TIGHT CABLE GLAND AT WELLHEAD. PROVIDE STRAIGHT MALE CORD CONNECTOR CONTA-CLIP CATALOG NUMBER 20901.
4. PROVIDE (3) 1" SST THREADED ACCESS PORTS AND (2) 1"-V307 BALL VALVE. 1"-V307 BALL VALVE SHOULD BE INSTALLED ON ARV ACCESS PORT AND SPARE ACCESS PORT. DO NOT INSTALL BALL VALVE ON LEVEL PROBE ACCESS PORT.
5. FASTEN PHENOLIC NAMEPLATE INSIDE RAINHOOD NEAR LEVEL TRANSMITTER, INSCRIBED WITH THE PROBE AND DROP PIPE DEPTHS.
6. PRIOR TO CONSTRUCTION, WELLHEAD CONTRACTOR SHALL SUBMIT A PLAN PRESENTING CONTROL AND INSTRUMENTATION PANEL AND CONDUIT LAYOUT.
7. ACTUAL CENTERLINE ELEVATION OF WELLHEAD PIPING WILL VARY DEPENDING ON ACTUAL DIMENSIONS AND LAYOUT OF SELECTED PUMP DISCHARGE HEAD.
8. CONTRACTOR TO COORDINATE CONNECTION TO WELL CASING TOP FLANGE TO ASSURE BOLT HOLE ORIENTATION AND ALIGNMENT WITH THE WELL PUMP BASE.
9. SEE DRAWING 1-E-4 FOR FLOW METER REQUIREMENTS.
10. 1"-V742 AIR/VACUUM VALVE, 1"-V307 BALL VALVE AND 1" SST PIPING INSTALLED ON ACCESS PORT. 1/2" PVC DISCHARGE PIPING TO BE TERMINATED AT THE TRENCH DRAIN. CONTRACTOR TO SUPPORT ASSEMBLY AS NEEDED.
11. 2"-V742 AIR/VACUUM VALVE, 2"-V307 BALL VALVE AND 2" SST PIPING INSTALLED ON PIPE SADDLE. 1/2" PVC DISCHARGE PIPING TO BE TERMINATED AT THE TRENCH DRAIN. CONTRACTOR TO SUPPORT ASSEMBLY AS NEEDED.
12. NOT USED.
13. THE PUMP PERFORMANCE TEST SHALL BE CONDUCTED AFTER THE WELLHEAD HAS BEEN CLEARED BY JEA LABORATORIES AND THE NEW WELLHEAD PUMP IS RUNNING.
14. PRESSURE GAUGE 0-60 PSI RANGE, SEE DWG 0-G-040 FOR THE PRESSURE GAUGE SPECIFICATION OF ASHCROFT DURAGAUGE 1279 PLUS.
15. LICENSED WELL CONTRACTOR TO CUT 20" CASING AND INSTALL FINAL CASING FLANGE. FIELD VERIFY ELEVATION OF CASING FLANGE IS A MINIMUM OF 1'-3" ABOVE THE HIGH POINT OF THE WELLHEAD SLAB. FIELD VERIFY THE CASING FLANGE IS HORIZONTAL AND LEVEL AS REQUIRED BY THE PUMP MANUFACTURER AND SECTION 44 42 56 03.
16. FIELD COAT WITH SYSTEM 6 AS DETAILED ON SHEET MS-1.
17. FIELD COAT WITH SYSTEM 5A AS DETAILED ON SHEET MS-1.
18. PROVIDE SAFETY GUARD AT ROTATING SHAFT.



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: R ANGLEY
DRAWN BY: N PATTERSON
SHEET CHK'D BY: L GUNN
CROSS CHK'D BY:
APPROVED BY: L GUNN
DATE: DECEMBER 2020

PLOT DATE: 1/12/2021 PLOT TIME: 1:08:37 AM

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Tel: (904) 731-7109
FL COA No, EB-0000020

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200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

PROCESS MECHANICAL

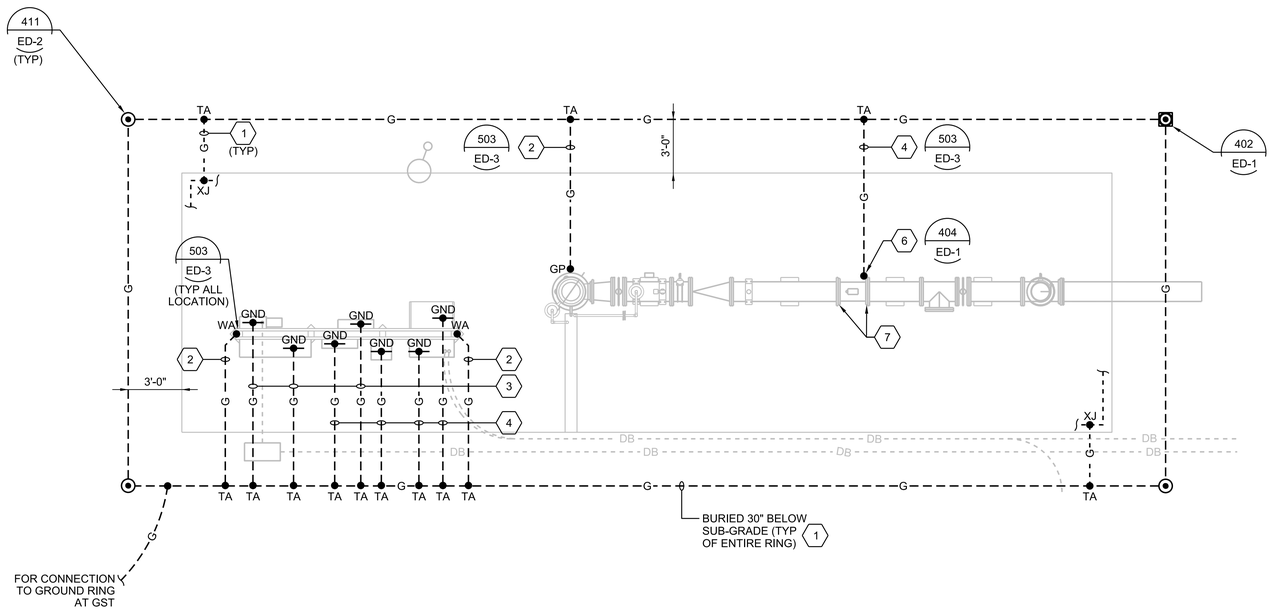
WELLHEAD NO.1
PLAN AND SECTION

DATE: 01/2021
Lawrence Bradley Gunn
PE NO. 65967

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1040-M-001_D3270100.dgn

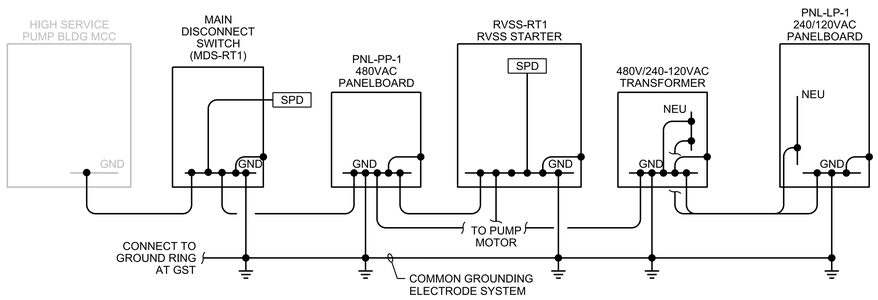
SHEET NO.
1-M-1

ISSUED FOR BID




## GROUNDING ELECTRODE AND EQUIPMENT BONDING PLAN

1/4" = 1'-0"




## GROUNDING ELECTRODE AND EQUIPMENT BONDING SCHEMATIC

NTS

## GENERAL NOTES

1. ALL EQUIPMENT AND MATERIALS SHALL BE, AS A MINIMUM, PER JEA'S MOST CURRENT EDITION OF STANDARDS AND METHODS OF INSTALLATION.
2. REFER TO DWG. 1-C-1 FOR DIMENSION DETAILS OF THE EQUIPMENT PAD.
3. ROUTE ALL GROUNDING ELECTRODE CONDUCTORS FROM EQUIPMENT GROUND BUSSES, STRUCTURAL SUPPORT FRAMES, EQUIPMENT PEDESTALS, AND THE WELL CASING TO THE GROUNDING ELECTRODE SYSTEM IN 1-INCH PVC SC 40 CONDUIT. CONNECTIONS FROM STRUCTURAL MEMBERS, EQUIPMENT PEDESTALS AND THE WELL CASING SHALL BE IN CONDUIT FROM 3-INCHES ABOVE THE CONCRETE SLAB TO A MINIMUM OF 6-INCHES BEYOND THE OUTSIDE EDGE OF THE SLAB. CONNECTIONS FROM EQUIPMENT GROUND BUSSES SHALL BE ROUTED IN CONDUIT FULL LENGTH FROM THE ENCLOSURE TO A MINIMUM OF 6-INCHES BEYOND THE OUTSIDE OF THE EDGE OF THE SLAB. FURNISH AND INSTALL THE APPROPRIATE CONDUIT FITTING FOR EACH ENCLOSURE PENETRATION. DO NOT ROUTE GROUNDING ELECTRODE CONDUCTORS ACROSS THE CONCRETE SURFACE.
4. THE GROUNDING ELECTRODE SYSTEM AND ELECTRODE GROUNDING CONDUCTORS SHALL BE SIZED AND INSTALLED AS SHOWN ON THE PLANS AND IN THE KEYNOTES. ALL BELOW GRADE AND REBAR BONDING CONNECTIONS SHALL BE EXOTHERMICALLY MADE, ERICO CADWELD OR CADWELD EXOLEN, NO SUBSTITUTIONS. ABOVE GRADE CONNECTIONS SHALL BE STANDARD GROUND BUS LUGS WITHIN THE EQUIPMENT ENCLOSURES. STRUCTURAL CONNECTIONS SHALL BE MECHANICAL SPLIT-BOLT, SADDLE, OR CONE SCREW TYPE: BURNDY OR THOMAS AND BETTS.
5. GROUND RODS SHALL BE TWO-SECTION, COPPER-CLAD, ¾-INCH DIAMETER, 20-FEET IN LENGTH.
6. GROUND WELL TEST BOX SHALL BE CHRISTY NO. G5 OR EQUIVALENT.
7. MAXIMUM RESISTANCE TO REMOTE EARTH OF THE GROUNDING ELECTRODE SYSTEM SHALL BE 5 OHMS AS MEASURED WITH A CLAMP-ON GROUND RESISTANCE TESTER SUCH AS AN AEMC 3711, FLUKE 1630 OR GREENLEE CMGRT-100 OR EQUIVALENT DEVICE. 3 AND 4-POINT FALL OF POTENTIAL TESTS ARE NOT ACCEPTABLE. GROUND TEST MONITOR MUST HAVE CERTIFICATE OF CALIBRATION NOT EXCEEDING 12 MONTHS PRIOR TO TESTING THE INSTALLATION. CONTRACTOR SHALL FURNISH A WRITTEN REPORT OF THE GROUND TEST TO THE OWNER'S ENGINEER. CONTACT OWNER'S ENGINEER FOR LOCATION OF TEST MEASUREMENT.

## SHEET KEYNOTES

1. #4/0 AWG STRANDED. BARE, TIN-PLATED COPPER.
2. #2/0 AWG STRANDED. XHHW-2 INSULATED, 600VAC.
3. #1/0 AWG STRANDED. XHHW-2 INSULATED, 600VAC.
4. #2 AWG STRANDED. XHHW-2 INSULATED, 600VAC.
5. NOT USED.
6. GROUNDING ELECTRODE CONDUCTOR SHALL BE ROUTED IN CONDUIT FULL LENGTH FROM FLOW METER POTENTIAL EQUALIZATION TO THE GROUNDING ELECTRODE SYSTEM.
7. PROVIDE POTENTIAL EQUALIZATION BY BONDING PIPE FLANGES (TWO EACH SIDE) AND SENSOR HOUSING GROUND LUG TOGETHER. CONNECT BONDED SYSTEM TO GROUNDING ELECTRODE VIA KEYED NOTE 6.

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:09 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

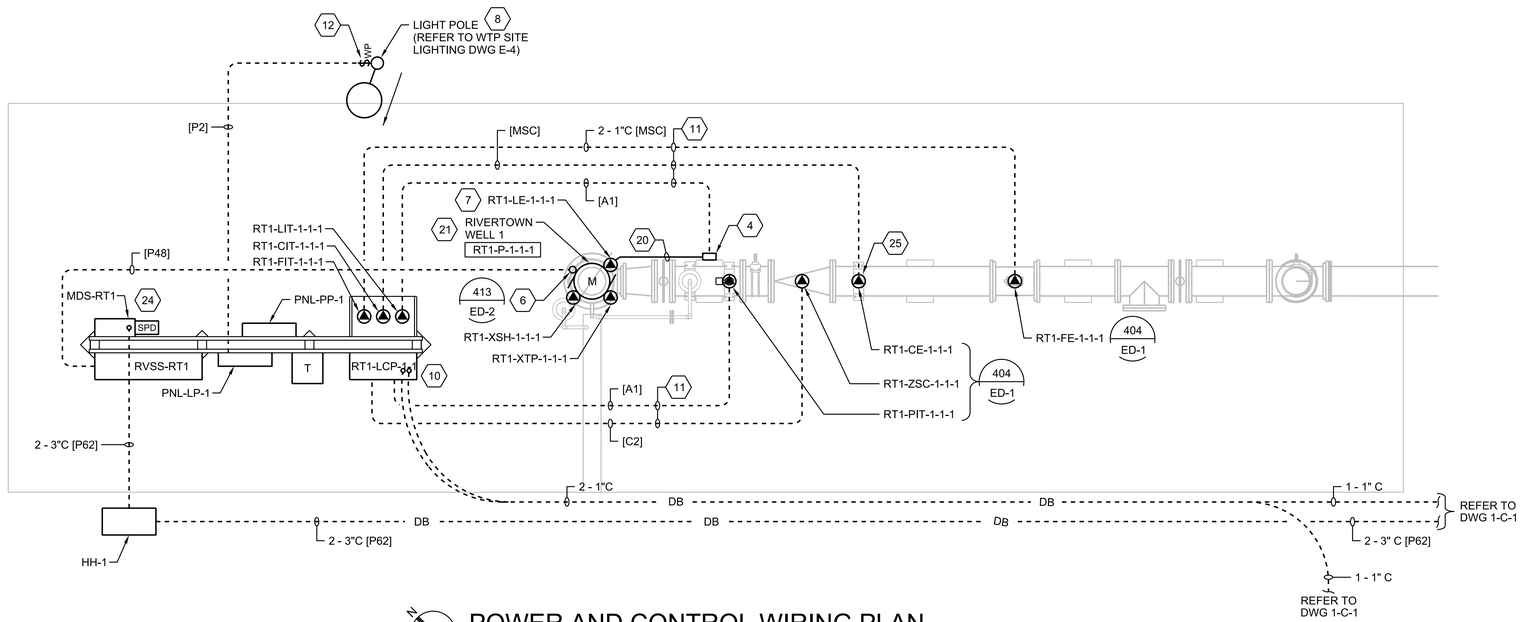
ELECTRICAL

WELLHEAD NO.1
GROUNDING PLAN &
GROUNDING SCHEMATIC

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-001_D3270100.dgn

SHEET NO.
1-E-1

ISSUED FOR BID




## POWER AND CONTROL WIRING PLAN

3/8"=1'-0"

## GENERAL SHEET NOTES

1. KEYNOTES APPLY TO BOTH THIS DRAWING AND DWG 1-E-3.

## SHEET KEYNOTES

1. NOT USED.
2. FURNISH AND INSTALL SIGNAGE INDICATING THE 200AMP, FUSED, MAIN DISCONNECT SWITCH (MDS-RT1) AS THE "WELLHEAD DISCONNECT SWITCH". SIGNAGE SHALL BE 6" BY 4" IN SIZE, RED LAMINATE, ETCHED TO A WHITE CORE, LETTERING APPROPRIATELY SIZED FOR THE SIGNAGE, AND ATTACHED TO THE FRONT EXTERIOR OF THE MDS-RT1 WITH S/S HARDWARE.
3. SURGE PROTECTIVE DEVICE: TYPE 2, CAT C "TRUE" 10 MODE W/DEDICATED PROTECTIVE ELEMENT IN EACH MODE. SSI CAT# LSEB3N4-E1-X2-S. NO SUBSTITUTION. MOUNT SPD TO SIDE OF DISCONNECT SWITCH, NIPPLE THRU WITH LEADS NOT TO EXCEED 12-INCH.
4. LEVEL PROBE TERMINAL CABINET SHALL BE PMC TYPE TE-11-AC. MOUNT CABINET ON EAST FACE OF CONCRETE PIPE SUPPORT WITH BOTTOM AT 12" AFS. SEE DETAILS 408, 409, AND 413 ON DWG ED-2.
5. SPD SHALL BE AS MANUFACTURED BY SURGE SUPPRESSION, INC (SSI), CAT. #SMLB3N4X2. SPD SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. CONTACT MANUFACTURER PRIOR TO BEGINNING CONSTRUCTION ON THE WELLHEAD TO COORDINATE ALL INSTALLATION REQUIREMENTS. SPD SHALL BE INCORPORATED INTO PANEL DESIGN AND FABRICATION.

## SHEET KEYNOTES

6. UG CONDUIT FOR THE PUMP MOTOR POWER, SPACE HEATER AND WINDING THERMAL PROTECTION SHALL EXTEND ABOVE FINISHED SLAB 2-INCHES, AND THEN TRANSITION TO TYPE LNFC-B CONDUIT FOR CONNECTION TO THE MOTOR HOUSING. SEE DETAIL 413 ON DWG. ED-2.
7. WELL FLANGE CABLING SHALL BE SEALED TO PREVENT LEAKAGE. FURNISH AND INSTALL CONTA CLIP #20901.6 W/ S/S CORD GRIP FOR LEVEL PROBE TO PREVENT LEAKAGE.
8. POLE, FOUNDATION, AND LUMINAIRE SHALL BE IDENTICAL TO THE WTP SITE LIGHTING SHOWN ON WTP DWG. E-4 AND ASSOCIATED WTP ELECTRICAL DETAILS 'L1' AND 'L3'. ARROW INDICATES AIMING DIRECTION, SEE DWG 1-C-1 FOR LOCATION. LUMINAIRE TYPE 'H': HUBBELL VIPER S, CAT #VPS/48L-110/4K7/3/UNV/AD/PS/7PR-TL.
9. NOT USED.
10. FURNISH AND INSTALL THE SCADA FIELD PANEL AND ALL ASSOCIATED CONDUIT AND WIRING AS SHOWN ON THESE PLANS AND IN ACCORDANCE WITH SPECIFICATION 40.90.11 AND JEA REQUIREMENTS. JEA SHALL BE RESPONSIBLE FOR ALL PROGRAMMING ASSOCIATED WITH THE SCADA PANEL, ALONG WITH THE PROFINET COMMUNICATION . CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE REQUIRED SCHEDULE WITH JEA.
11. WIRING FOR THE INSTRUMENTATION PROBES, ELEMENTS, TRANSMITTERS AND TRANSDUCERS SHALL BE AS REQUIRED BY THE MANUFACTURES. REFER TO DETAILS 412, 501 & 502 ON DWG. ED-2 & ED-3.
12. MOUNT LIGHT SWITCH IN A NEMA-3R BOX AND COVER. BOX AND COVER TO BE DIE CAST ALUMINUM MOUNTED AT 48-INCHES AFS. SWITCH SHALL BE LEFT IN THE 'ON' POSITION TO ALLOW PEC OF KEYNOTE 8 TO OPERATE.
13. DIGITAL POWER MONITOR: SENTRON PAC3200 W/ PROFINET HARDWIRE INTERFACE. NO SUBSTITUTION.
14. REFER TO RVSS CONTROL WIRING SCHEMATIC ON DWG. 1-E-4.
15. REFER TO MDS-RT1 REQUIREMENTS ON DWG. 1-E-6.
16. REFER TO RVSS STARTER CABINET REQUIREMENT ON DWG. 1-E-6.
17. STEPDOWN TRANSFORMER TO BE:

    480/240-120V, 1-PHASE, 10KVA SEALED UNIT, FULLY ENCAPSULATED NEMA4X ENCLOSURE 304 S/S, FRAMED MOUNTED, EATON PN S48DIIS10SS4X. CONTRACTOR TO ADJUST SECONDARY TAPS TO OBTAIN PROPER SECONDARY VOLTAGE AT PNL-LP-1
18. 240/120VAC, 1P/3W, 100AMP INTERIOR, 50AMP, 2-POLE MAIN CIRCUIT BREAKER, 10KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND AND NEUTRAL BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE, PANEL SCHEDULE AS SHOWN ON DWG. 1-E-7. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P1C225BB18CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
19. 480VAC, 3P/3W, 225AMP INTERIOR, MAIN LUG ONLY, 18KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P3E250LB6CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
20. ROUTE ABOVE GRADE IN LNFC-B CONDUIT OR AS DIRECTED BY JEA.
21. SEE DWG ES-2 FOR MOTOR SPECIFICATIONS, AND MOTOR DATA SHEET OF VERTICAL TURBINE PUMP SPEC.
22. MOTOR LEAD CONNECTIONS SHALL BE T & B BLACKBURN COMPRESSION MOTOR LEAD DISCONNECTS. TYPE KUBE, NO SUBSTITUTIONS.
23. NOT USED.
24. STUB SPARE 3" CONDUIT 6-INCHES AFS BENEATH MDS-RT1 AND CAP FOR FUTURE USE. SEE DWG 1-E-3 FOR ADDITIONAL INFORMATION.
25. ALLOW FOR 30-INCHES OF SLACK [MSC] AND LNFC-B CONDUIT TO PERMIT REMOVAL OF CONDUCTIVITY PROBE WITHOUT DISCONNECTION.

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:18 PM

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Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

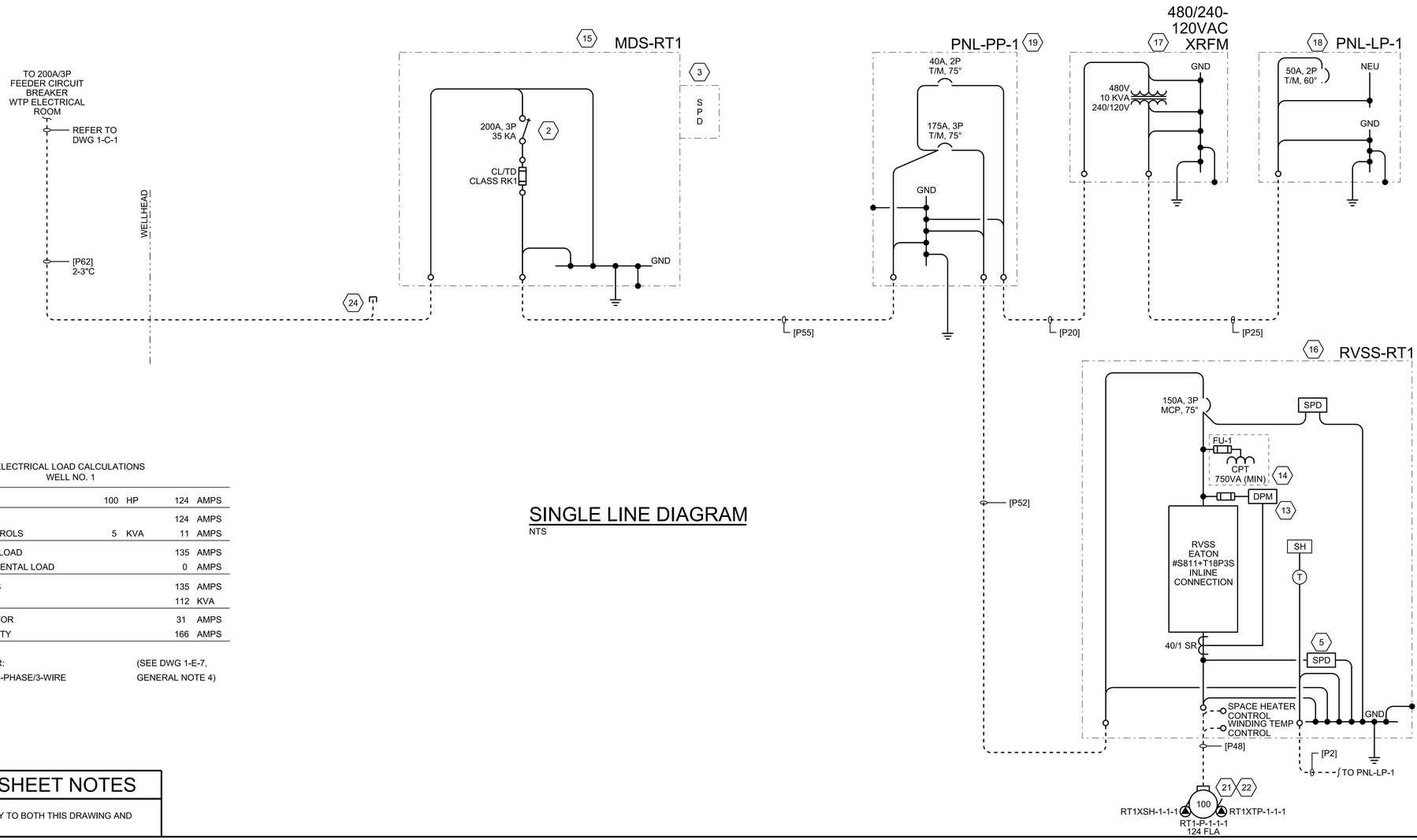
ELECTRICAL

WELLHEAD NO.1
POWER PLAN

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-002_D3270100.dgn

SHEET NO.
1-E-2

ISSUED FOR BID




# SINGLE LINE DIAGRAM

NTS

ELECTRICAL LOAD CALCULATIONS
WELL NO. 1

| | | | | |
|---|---|---|---|---|
| WELL PUMP 1 | 100 | HP | 124 | AMPS |
| TOTAL MOTOR LOAD | | | 124 | AMPS |
| LIGHTING AND CONTROLS | 5 | KVA | 11 | AMPS |
| TOTAL CONNECTED LOAD | | | 135 | AMPS |
| TOTAL NON-COINCIDENTAL LOAD | | | 0 | AMPS |
| PEAK DEMAND AMPS | | | 135 | AMPS |
| PEAK DEMAND KVA | | | 112 | KVA |
| 0.25 X LARGEST MOTOR | | | 31 | AMPS |
| MIN FEEDER AMPACITY | | | 166 | AMPS |

ELECTRICAL FEEDER: (SEE DWG 1-E-7,
200 AMP, 480 VOLT, 3-PHASE/3-WIRE GENERAL NOTE 4)

## GENERAL SHEET NOTES

1. KEYNOTES APPLY TO BOTH THIS DRAWING AND DWG 1-E-2.

## SHEET KEYNOTES

1. NOT USED.
2. FURNISH AND INSTALL SIGNAGE INDICATING THE 200AMP, FUSED, MAIN DISCONNECT SWITCH (MDS-RT1) AS THE "WELLHEAD DISCONNECT SWITCH". SIGNAGE SHALL BE 6" BY 4" IN SIZE, RED LAMINATE, ETCHED TO A WHITE CORE, LETTERING APPROPRIATELY SIZED FOR THE SIGNAGE, AND ATTACHED TO THE FRONT EXTERIOR OF THE MDS-RT1 WITH S/S HARDWARE.
3. SURGE PROTECTIVE DEVICE: TYPE 2, CAT C "TRUE" 10 MODE W/DEDICATED PROTECTIVE ELEMENT IN EACH MODE. SSI CAT# LSEB3N4-E1-X2-S. NO SUBSTITUTION. MOUNT SPD TO SIDE OF DISCONNECT SWITCH, NIPPLE THRU WITH LEADS NOT TO EXCEED 12-INCHES.
4. LEVEL PROBE TERMINAL CABINET SHALL BE PMC TYPE TE-11-AC. MOUNT CABINET ON EAST FACE OF CONCRETE PIPE SUPPORT WITH BOTTOM AT 12" AFS. SEE DETAILS 408, 409, AND 413 ON DWG ED-2.
5. SPD SHALL BE AS MANUFACTURED BY SURGE SUPPRESSION, INC (SSI), CAT. #SMLB3N4X2. SPD SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. CONTACT MANUFACTURER PRIOR TO BEGINNING CONSTRUCTION ON THE WELLHEAD TO COORDINATE ALL INSTALLATION REQUIREMENTS. SPD SHALL BE INCORPORATED INTO PANEL DESIGN AND FABRICATION.
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7. WELL FLANGE CABLING SHALL BE SEALED TO PREVENT LEAKAGE. FURNISH AND INSTALL CONTA CLIP #20901.6 W/ S/S CORD GRIP FOR LEVEL PROBE TO PREVENT LEAKAGE.
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9. NOT USED.
10. FURNISH AND INSTALL THE SCADA FIELD PANEL AND ALL ASSOCIATED CONDUIT AND WIRING AS SHOWN ON THESE PLANS AND IN ACCORDANCE WITH SPECIFICATION 40.90.11 AND JEA REQUIREMENTS. JEA SHALL BE RESPONSIBLE FOR ALL PROGRAMMING ASSOCIATED WITH THE SCADA PANEL, ALONG WITH THE PROFINET COMMUNICATION . CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE REQUIRED SCHEDULE WITH JEA.
11. WIRING FOR THE INSTRUMENTATION PROBES, ELEMENTS, TRANSMITTERS AND TRANSDUCERS SHALL BE AS REQUIRED BY THE MANUFUACTUERS. REFER TO DETAILS 412, 501 & 502 ON DWG. ED-2 & ED-3.
12. MOUNT LIGHT SWITCH IN A NEMA-3R BOX AND COVER. BOX AND COVER TO BE DIE CAST ALUMINUM MOUNTED AT 48-INCHES AFS.
13. DIGITAL POWER MONITOR: SENTRON PAC3200 W/ PROFINET HARDWIRE INTERFACE. NO SUBSTITUTION.
14. REFER TO RVSS CONTROL WIRING SCHEMATIC ON DWG. 1-E-4.
15. REFER TO MDS-RT1 REQUIREMENTS ON DWG. 1-E-6.
16. REFER TO RVSS STARTER CABINET REQUIREMENT ON DWG. 1-E-6.
17. STEPDOWN TRANSFORMER TO BE:

    480/240-120V, 1-PHASE, 10KVA SEALED UNIT, FULLY ENCAPSULATED NEMA4X ENCLOSURE 304 S/S, FRAMED MOUNTED, EATON PN S48DIIS10SS4X. CONTRACTOR TO ADJUST SECONDARY TAPS TO OBTAIN PROPER SECONDARY VOLTAGE AT PNL-LP-1
18. 240/120VAC, 1P/3W, 100AMP INTERIOR, 50AMP, 2-POLE MAIN CIRCUIT BREAKER, 10KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND AND NEUTRAL BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE, PANEL SCHEDULE AS SHOWN ON DWG. 1-E-7. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P1C225BB18CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
19. 480VAC, 3P/3W, 225AMP INTERIOR, MAIN LUG ONLY, 18KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P3E250LB6CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
20. ROUTE ABOVE GRADE IN LNFC-B CONDUIT OR AS DIRECTED BY JEA.
21. SEE DWG ES-2 FOR MOTOR SPECIFICATIONS, AND MOTOR DATA SHEET OF VERTICAL TURBINE PUMP SPEC.
22. MOTOR LEAD CONNECTIONS SHALL BE T & B BLACKBURN COMPRESSION MOTOR LEAD DISCONNECTS. TYPE KUBE, NO SUBSTITUTIONS.
23. NOT USED
24. STUB SPARE 3" CONDUIT 6-INCHES AFS BENEATH MDS-RT1 AND CAP FOR FUTURE USE. SEE DWG 1-E-3 FOR ADDITIONAL INFORMATION.
25. ALLOW FOR 30-INCHES OF SLACK [MSC] AND LNFC-B CONDUIT TO PERMIT REMOVAL OF CONDUCTIVITY PROBE WITHOUT DISCONNECTION.

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:09 PM

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Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

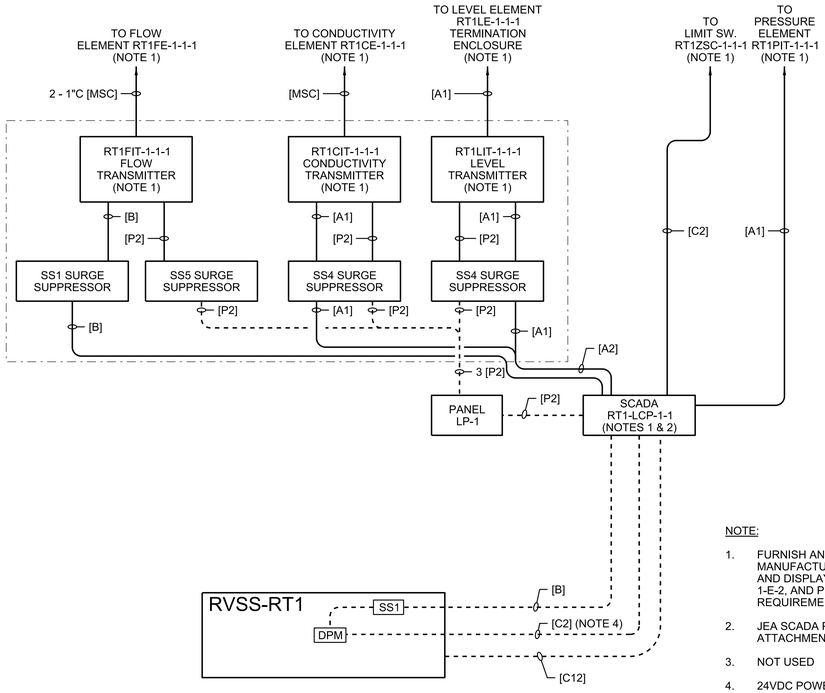
WELLHEAD NO.1
SINGLE LINE DIAGRAM

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-003_D3270100.dgn

SHEET NO.
1-E-3

ISSUED FOR BID




NOTE:

1. FURNISH AND INSTALL ALL INSTRUMENTATION, MANUFACTURER CABLES, TERMINAL ENCLOSURES, AND DISPLAYS AS SHOWN BELOW, ON DWG. 1-E-2, AND PER JEA MOST RECENT REQUIREMENTS.
2. JEA SCADA PANEL DESIGN INCORPORATED BY ATTACHMENT.
3. NOT USED
4. 24VDC POWER FOR DPM.
5. CONTRACTOR'S PROCESS CONTROL INTEGRATOR FOR THE WTP SHALL BE RESPONSIBLE FOR SETUP AND CALIBRATION OF ALL WELLHEAD INSTRUMENTATION AND CONTROLS, INCLUSIVE OF THE SCADA PANEL.

# INSTRUMENTATION WIRING SCHEMATIC

NTS

INSTRUMENT PROBES/TRANSMITTERS
BASIS OF DESIGN:

CONDUCTIVITY:
ROSEMOUNT SENSOR: MODEL 228-02-20-54-62, W/ ADAPTER 23311-01 (RT1CE-1-1-1)
ROSEMOUNT INPUT ANALYZER: MODEL 1056-01-21-38-AN (RT1CIT-1-1-1)

FLOW:
ENDRESS + HAUSER PROLINE PROMAG W 500, FULL BORE, REMOTE MOUNT
5W5B3H-AAEIRABBBFAAABDUA1S2BA2+AAJA71 (RT1FE-1-1-1 & RT1FIT-1-1-1)

INCLUDE:
- 12" NB
- POLYURETHANE LINER
- TANTALUM ELECTRODES
- COATED AL HOUSINGS
- FIXED FLANGE, S/S CONNECTIONS
- 0.2% CALIBRATION
- 60 FT MSC CABLE

LEVEL:
SUBMERSIBLE TRANSMITTER: PMC MINIATURE MTM 3213-100PSIG-0.1%-105' (RT1LE-1-1-1), 0.1%; 100 PSIG; LOCATED 90-FEET BELOW WELLHEAD.
TERMINATION ENCLOSURE: PMC TE-11-AC W/ MP-11
ENDRESS + HAUSER PROCESS DISPLAY: RIA46-1530/0-A, A1, B , B1 (RT1LIT-1-1-1)

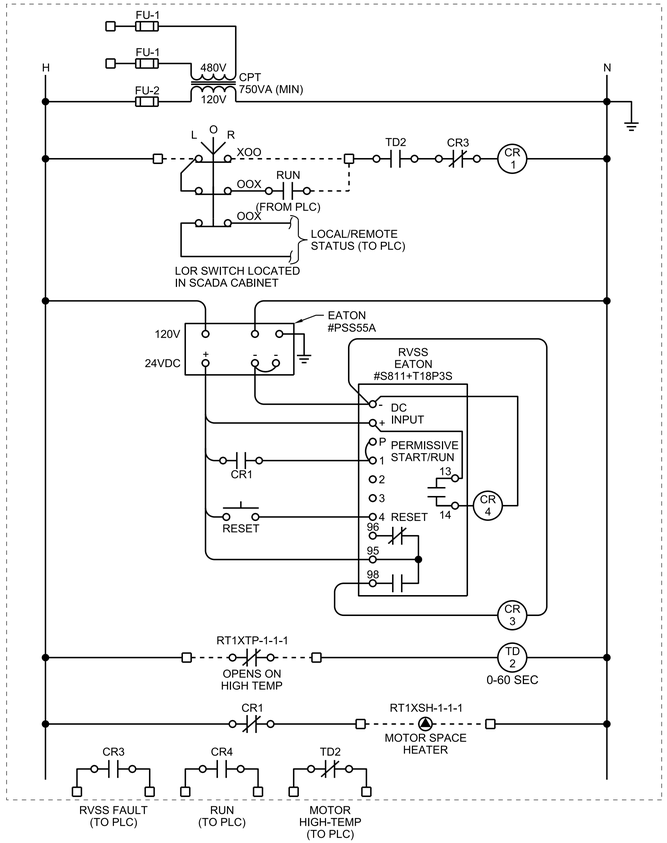
PRESSURE:
ROSEMOUNT INLINE TRANSMITTER: MODEL 305ITG-2A-2B21J-M4-Q4 (RT1PT-1-1-1)

INCLUDE:
- FACTORY CALIBRATION
- FACTORY SET ENGR. UNITS = PSIG

NOTES:

CONTRACTOR TO CONFIRM ALL DEVICES WITH OWNER PRIOR TO PURCHASE.

SEE MECHANICAL DRAWINGS AND SPECIFICATION SECTIONS 40 90 01 AND 40 90 11 FOR ADDITIONAL DETAIL.




NOTE:

1. REFER TO DWG 1-E-7 FOR CIRCUIT CALLOUTS AND CONDUIT/CABLE SCHEDULE.
2. REFER TO DWG 1-E-6 FOR RVSS-RT1 ENCLOSURE DESIGN.
3. TD2 INITIAL SETTING SHALL BE 30 SEC. FINAL SETTING BY JEA.

# RVSS-RT1 CONTROL SCHEMATIC

NTS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:56 PM

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

WELLHEAD NO.1
MOTOR CONTROL SCHEMATIC AND INSTRUMENTATION RISER DIAGRAM

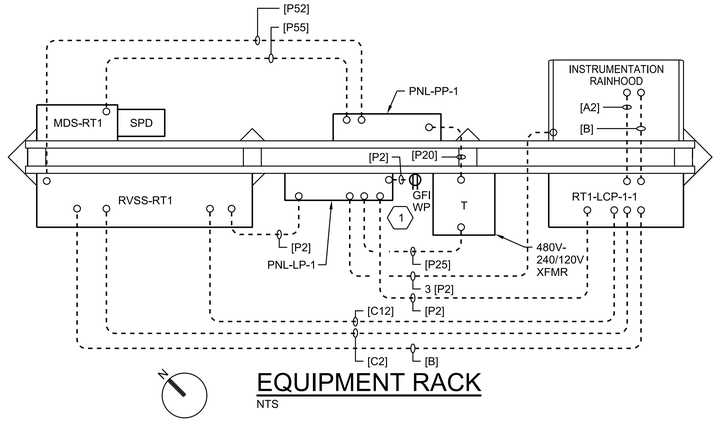
PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-004_D3270100.dgn

SHEET NO.
1-E-4

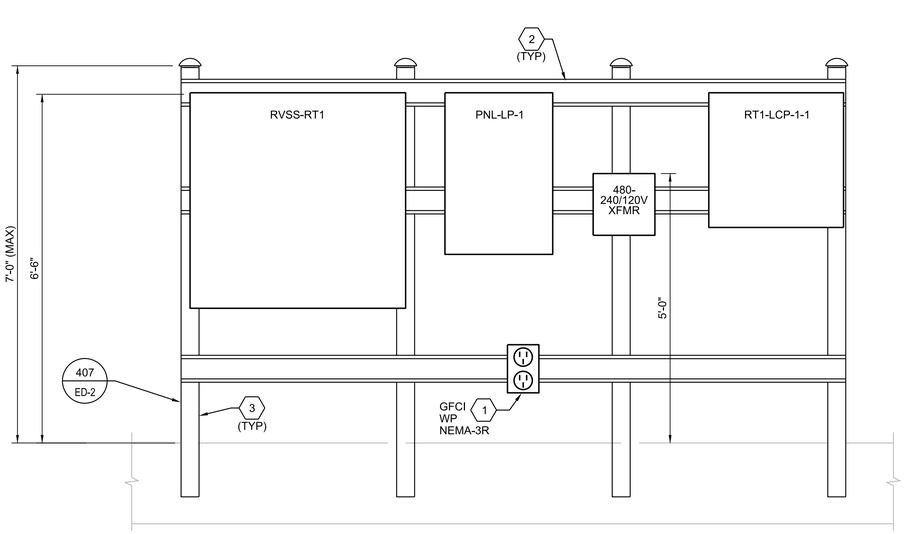
ISSUED FOR BID

## SHEET KEYNOTES

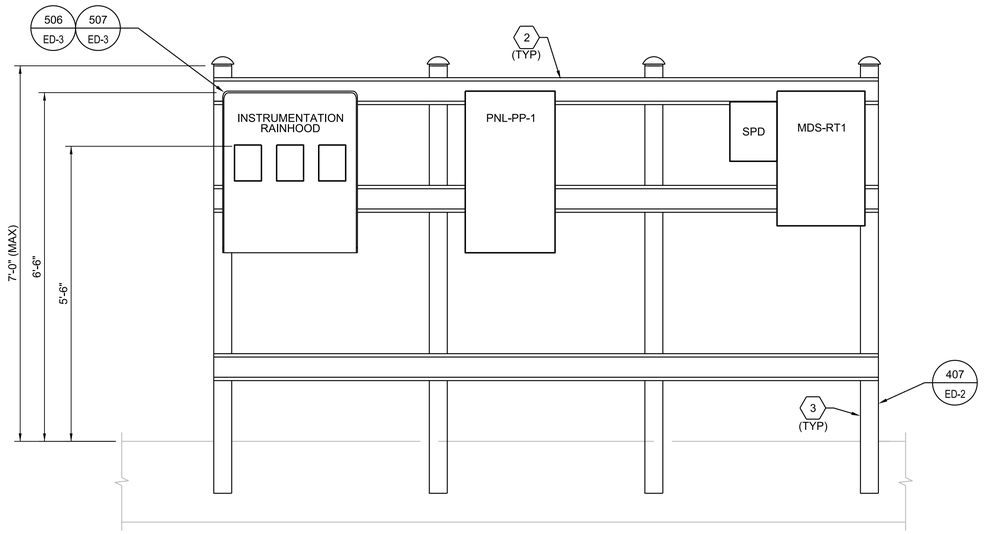
1. FURNISH AND INSTALL ONE (1) 120VAC, 20 AMP DUPLEX RECEPTACLE RATED CLASS A, 4-6mA GFCI AND WR. INSTALL IN NEMA-3R IN-USE BOX WITH COVER. BOX AND COVER TO BE DIE CAST ALUMINUM. MOUNT MINIMUM 18"-AFS AND BELOW PNL-LP-1.
2. FURNISH AND INSTALL 1/2" x 3" ALUMINUM SUPPORT BARS AS REQUIRED TO PROPERLY SUPPORT RACK MOUNTED EQUIPMENT. ELEVATION VIEWS FOR EXAMPLE ONLY.
3. MASTIC SEAL. TYPICAL FOR ALL ALUMINUM POSTS AS SHOWN IN DETAIL 407 ON DWG ED-2.




## EQUIPMENT RACK
NTS




## WEST ELEVATION
NTS




## EAST ELEVATION
NTS



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:09 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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200 FORSYTH ST, SUITE 1520
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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

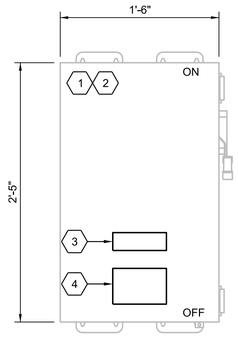
WELLHEAD NO.1
EQUIPMENT RACK ELEVATIONS

DATE: 10/2020
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-005_D3270100.dgn

SHEET NO.
1-E-5

ISSUED FOR BID



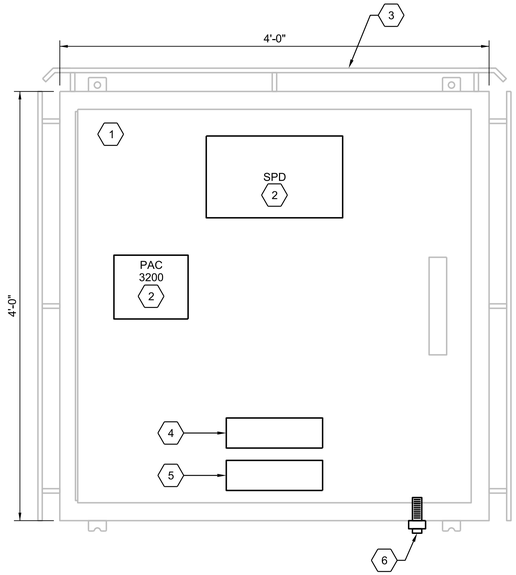

## MDS-RT1 FRONT EXTERIOR
NTS

## SHEET KEYNOTES

1. 200AMP, FUSIBLE, SAFETY SWITCH, HEAVY DUTY TYPE, NEMA 4X, STAINLESS STEEL. EATON CAT #DH364FWKLW WITH DS200GK GROUND KIT AND REJECTION CLIP ADAPTERS, OR SQUARE D EQUIVALENT.
2. FUSING SHALL BE TIME-DELAY, CURRENT LIMITING, CLASS RK1. USE EITHER BUSSMAN LOW-PEAK YELLOW, CL/TD CLASS RK1 PN: LPS-RK-200SPI OR MERSEN AMP-TRAP, CL/TD CLASS RK1 PN: A6D200R.
3. NAMEPLATE #1 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):

   MDS-RT1
4. NAMEPLATE #2 (REFER TO DWG 1-E-3, NOTE 2 AND DWG. ES-1 FOR SPECIFICATIONS):

   WELLHEAD DISCONNECT SWITCH




## RVSS-RT1 FRONT EXTERIOR
NTS

## GENERAL NOTES

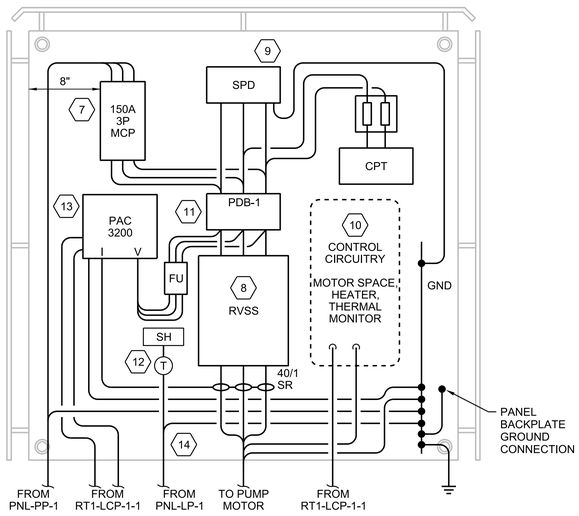
1. FULLY ASSEMBLED ENCLOSURE SHALL BEAR AN UL-508A LABEL, AND A SCCR LABEL INDICATING THE ASSEMBLED UNIT HAS A SHORT CIRCUIT WITHSTAND OF 10KA.
2. EXPOSED INTERIOR LIVE COMPONENTS SHALL BE COVERED WITH A CLEAR PLEXIGLASS COVER, HINGED ON ONE SIDE, LATCHED ON THE OTHER, TO PREVENT ACCIDENTAL CONTACT OF ENERGIZED COMPONENTS WHILE ALLOWING FOR MANUAL OPERATION OF THE CIRCUIT BREAKER.
3. APPROVED ENCLOSURE MANUFACTURERS ARE:
   a. ECS
      RALPH SINN
      904.367.5000
      RALPH@ECSCONTROLPANELS.COM
   b. EG CONTROLS, INC.
      BRIAN DAIL
      904.292.0110
      BDAIL@EGCONTROLS.COM
   c. SUNCOAST
      MARK OWENS
      904.693.3318
      MOWENS@SUNCOASTCONTROLS.BIZ
   d. SUN STATE SYTEMS, INC.
      BARNEY MESSER
      904.269.2544
      BMESSER@SUNSTATESYSTEMS.COM
   e. INFAMATION TECHNOLOGIES GROUP
      DALE YOUNG
      904.425.4760
      DYOUNG@INFAMATION.COM

## SHEET KEYNOTES

1. ENCLOSURE SHALL BE PENTAIR/HOFFMAN, TYPE A48H4812WFSSLP3PT-MOD, 304 S/S, NEMA-4X FOR OUTDOOR USE. DIMENSIONS TO BE 48"Wx48"H WITH MINIMUM DEPTH OF 10". INTERIOR AND EXTERIOR SHALL HAVE FINISH TYPE A1, COLOR S078: WHITE (HOFFMAN #60) - SMOOTH GLOSSY. ENCLOSURE SHALL BE EQUIPPED WITH AN APPROPRIATE BACKPLATE FOR EQUIPMENT MOUNTING, FINISH TO BE SAME AS ENCLOSURE.
2. EXTERIOR VIEWING WINDOW, PENTAIR/HOFFMAN FRAME STYLE #1 TYPE APWK95NFSS, 9"X5.5", NEMA-4X. WINDOW TO BE USED TO VIEW THE SPD STATUS AND ONE WINDOW WILL BE USED TO VIEW THE POWER MONITOR.
3. TOP AND SIDE SUN HEAT SHIELDS, MARINE GRADE ALUMINUM, POLYESTER POWER COAT FINISH: WHITE.
4. NAMEPLATE #1 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):

   RVSS-RT1
5. NAMEPLATE #2 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):

   MAY BE ENERGIZED FROM THREE DIFFERENT SOURCES
   PNL-PP-1
   PNL-LP-1
   RT1-LCP-1-1
6. ONE-WAY BREATHER/DRAIN, T&B # ECD15-TB.
7. MOTOR CIRCUIT PROTECTOR: SQUARE D CAT# HJL36150M74.
8. REDUCED VOLTAGE MOTOR STARTER: EATON CAT #S811+T18P3S, INLINE CONNECTION. NO SUBSTITUTION.
9. SURGE PROTECTIVE DEVICE: TYPE 2, CAT. B "TRUE"10 MODE W/ DEDICATED PROTECTIVE ELEMENT IN EACH MODE. SSI CAT# LSEA3N4-E1-X2-S. NO SUBSTITUTION.
10. REFER TO DWG. 1-E-4 FOR CONTROL SCHEMATIC INFORMATION.
11. POWER DISTRIBUTION BLOCK: BUSSMAN HIGH SCCR SERIES. CAT# PDB371-3
12. THERMOSTATICALLY CONTROLLED SPACE HEATER. SPACE HEATER TO BE RATED 400W, 240VAC.
13. DIGITAL POWER MONITOR: SENTRON, PAC3200 W/ PROFINET HARDWIRE INTERFACE PN:7KM9300-0AE01-0AA0. NO SUBSTITUTION. (24VDC POWERED)
14. SEE DWG 1-E-3, KEYNOTE 5 FOR ADDITIONAL SPD REQUIREMENT. SPD SHALL BE INCORPORATED INTO PANEL DESIGN AND FABRICATION.




## RVSS-RT1 FRONT INTERIOR
NTS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:04 PM

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

WELLHEAD NO.1
EQUIPMENT PANEL LAYOUTS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-006_D3270100.dgn

SHEET NO.
1-E-6

ISSUED FOR BID

| CIRCUIT CALLOUTS | |
|---|---|
| [P2] | [3/4"C, 2#12, 1#12G] |
| [P20] | [1"C, 2#8, 1#10G] |
| [P25] | [1"C, 2#6, 1#6 NEU, 1#10G] |
| [P48] | [2"C, 3#1/0, 1#6G, 2#12, 2#14, 1#12G] |
| [P52] | [2"C, 3#2/0, 1-#6G] |
| [P55] | [2 1/2"C, 3#3/0, 1#6G] |
| [P62] | [3"C, 3#4/0, 1#2 GND], [3"C, SPARE] |
| [C2] | [1"C, 2#14, 1#14G] |
| [C4] | [1"C, 4#14, 1#14G] |
| [C6] | [1"C, 6#14, 1#14G] |
| [C12] | [1"C, 12#14, 1#14G] |
| [A1] | [1"C, 1 TYPE 3] |
| [A2] | [1"C, 2 TYPE 3] |
| [A3] | [[1"C, 3 TYPE 3] |
| [B] | [1"C, CAT6 + FAST CONNECT] |
| [MSC] | [1"C, MANUFACTURER SUPPLIED CABLE] |

**LP-1** — **PANEL BOARD SCHEDULE** — **LP-1**

240/120 VOLTS | MCB 50A | 1 Phase | 3 WIRE | NEMA 4X | KAIC = 10

| CKT NBR | EQUIPMENT PROTECTED | CKT BKR POLE | CKT BKR TRIP | Nbr Sets | WIRE AND CONDUIT ** Phase | Neu | Grd | Cond | PHASE KVA A | PHASE KVA B | WIRE AND CONDUIT ** Phase | Neu | Grd | Cond | Nbr Sets | CKT BKR TRIP | CKT BKR POLE | EQUIPMENT PROTECTED | CKT NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | RT1-LCP-1-1 | 1 | 20 | | | | | | 1.5 | 0.6 | | | | | | 20 | 1 | RT1CIT-1-1-1 | 2 |
| 3 | POLE LIGHT | 1 | 20 | | | | | | - | - | 0.5 | 0.6 | | | | 20 | 1 | RT1LIT-1-1-1 | 4 |
| 5 | WP GFI RECEPTACLE | 1 | 20 | | | | | | 0.5 | 0.6 | - | - | | | | 20 | 1 | RT1FIT-1-1-1 | 6 |
| 7 | SPARE | 1 | 20 | | | | | | - | - | - | 0.1 | | | | 20 | 1 | SPARE | 8 |
| 9 | SPARE | 1 | 20 | | | | | | - | - | - | - | | | | 20 | 1 | SPARE | 10 |
| 11 | SPARE | 1 | 20 | | | | | | - | - | - | - | | | | 20 | 1 | SPARE | 12 |
| 13 | RVSS SPACE HEATER | 2 | 20 | | | | | | 0.2 | - | - | - | | | | 20 | 2 | SPARE | 14 |
| 15 | | | | | | | | | - | - | 0.2 | - | | | | | | | 16 |
| 17 | SPARE | 1 | 20 | | | | | | - | - | - | - | | | | 20 | 1 | SPARE | 18 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | CONNECTED KVA = | | | | 3.4 | 1.4 | | | | | | | | | |

** PROVIDE #12 PHASE (QTY=CB POLES) AND GROUND IN 3/4" CONDUIT UNLESS DIFFERENT NUMBER AND/OR GREATER SIZES ARE SHOWN ON DRAWINGS.

## CONDUIT/CABLE SCHEDULE

| FROM | TO | CONDUCTOR | CONDUIT |
|---|---|---|---|
| WTP MCC | MDS-RT1 | 3- #4/0, 1-#2 GND | 1-3"/1-3" SPARE |
| MDS-RT1 | PNL-PP-1 | 3 - #3/0, 1 - #6 GND | 2 1/2" |
| PNL-PP-1 | RVSS-RT1 | 3 - #2/0, 1 - #6 GND | 2" |
| PNL-PP-1 | 480/240-120VAC XRFM | 2 - #8, 1 - #10 GND | 1" |
| RVSS-RT1 | RT1-P-1-1-1 | 3 - #1/0, 1 - #6 GND,<br>2 - #12, 2 - #14, 1 - #12 GND | 2" |
| RVSS-RT1 | RT1-LCP-1-1 | 12 - #14, 1#14 GND | 1" |
| RVSS-RT1 (PAC3200) | RT1-LCP-1-1 | 2 - #14, 1 - #14 GND | 1" |
| RVSS-RT1 (PAC3200) | RT1-LCP-1-1 | CAT 6 + FAST CONNECT | 1" |
| 480/240-120VAC XRFM | PNL-LP-1 | 2 - #6, 1- #6 NEU,<br>1 - #10 GND | 1" |
| PNL-LP-1 | RT1-LCP-1-1 | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RT1-CIT-1-1-1 | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RT1-LIT-1-1-1 | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RT1-FIT-1-1-1 | 2- #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | POLE LIGHT | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | GFCI RECPT. | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RVSS SPACE HEATER | 2 - #12, 1 - #12 GND | 3/4" |
| | | | |
| RT1-LCP-1-1 | WTP MCP | SEE DWG 1-C-1 | 1" |
| RT1-LCP-1-1 | STORAGE TANK RIO PNL | SEE DWG 1-C-1 | 1" |
| RT1-LCP-1-1 | RT1-PIT-1-1-1 | 1 TYPE 3 | 1" |
| RT1-LCP-1-1 | RT1-ZSC-1-1-1 | 2 - #14, 1 - #14 GND | 1" |
| RT1-LCP-1-1 | RT1-LIT-1-1-1 | 2 TYPE 3 | 1" |
| RT1-LCP-1-1 | RT1-CIT-1-1-1 | | |
| RT1-LCP-1-1 | RT1-FIT-1-1-1 | CAT 6 + FAST CONNECT | 1" |
| RT1-LIT-1-1-1 | TE-11-AC | 1 TYPE 3 | 1" |
| RT1-CIT-1-1-1 | RT1-CE-1-1-1 | MSC | 1" |
| RT1-FIT-1-1-1 | RT1-FE-1-1-1 | MSC (COIL CABLE) | 1" |
| RT1-FIT-1-1-1 | RT1-FE-1-1-1 | MSC (SIGNAL CABLE) | 1" |
| RT1-LE-1-1-1 | TE-11-AC | MSC | 1" |

# GENERAL NOTES

1. ALL EQUIPMENT AND MATERIALS SHALL BE, AS A MINIMUM, PER JEA'S MOST CURRENT EDITION OF STANDARDS AND METHODS OF INSTALLATION.
2. REFER TO DWG. 1-C-1 FOR DIMENSION DETAILS OF THE EQUIPMENT PAD.
3. REFER TO DWG. 1-C-1 FOR PAD ORIENTATION.
4. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL PERFORM AND SUBMIT TO ENGINEER THE ELECTRICAL SYSTEMS ANALYSIS AS REQUIRED BY SECTION 26.05.70 ON DWG ES-1.
5. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL TO THE ENGINEER AND JEA INDICATING THE EQUIPMENT LAYOUT AND CONDUIT ROUTING FOR THE EQUIPMENT RACK, TERMINAL JUNCTION BOXES, THE WELL PUMP, THE LIGHT POLE, AND ALL INSTRUMENTATION.
6. ALL CONDUITS SHALL BE ROUTED FROM SOURCE TO LOAD VIA UNDERGROUND, INCLUSIVE OF CABINET-TO-CABINET WIRING LOCATED ON THE COMMON EQUIPMENT SUPPORT FRAME. CONDUIT SHALL NOT BE ROUTED ACROSS THE SLAB OR ALONG THE SUPPORT FRAME. ONLY EXCEPTION IS THE DUPLEX RECEPTACLE WHICH SHALL BE LOCATED DIRECTLY BELOW THE 240/120VAC PANELBOARD.
7. ALL ABOVE GRADE CONDUIT SHALL BE RIGID ALUMINUM. ALL ABOVE GRADE TO BELOW GRADE TRANSITIONS, AND BELOW GRADE ELBOWS, SHALL BE RIGID ALUMINUM INCLUSIVE OF TWO MASTIC COATS ON THE EXTERIOR AND ALL AROUND THE UNDERGROUND COUPLING. ALL BELOW GRADE CONDUIT SHALL BE PVC SHC. 80 UNLESS NOTED OTHERWISE ON THE PLANS. PROVIDE PULLSTRINGS IN ALL EMPTY CONDUITS, AND CAP BOTH ENDS OF EMPTY CONDUITS. HORIZONTAL UNDERGROUND CONDUIT RUNS ARE NOT TO BE EMBEDDED IN THE CONCRETE SLAB.
8. ALUMINUM CONDUIT SHALL NOT BE INSTALLED IN DIRECT CONTACT WITH CONCRETE OR SOIL. CONTRACTOR SHALL PROVIDE FOR A 6-INCH SEPARATION BETWEEN THE CONCRETE SLAB AND THE START OF ANY ALUMINUM CONDUIT.
9. ALL UTILIZED CONDUITS ENTERING AND EXITING ALL ENCLOSURES SHALL BE FIRESTOPPED WITH A UL LISTED PRODUCT.
10. ALL CONDUIT PENETRATIONS INTO PANELS, BOXES, AND EQUIPMENT ENCLOSURES SHALL BE FROM THE BOTTOM. SIDE AND TOP PENETRATIONS ARE NOT ALLOWED.
11. EQUIPMENT AND CONDUIT SUPPORT STRUCTURES, DETAILS 401, 404 AND 407 ON DWGS ED-1 & ED-2, SHALL UTILIZE RIGID ALUMINUM STRUCTURAL MEMBERS. WHENEVER THE ALUMINUM MAY COME IN DIRECT CONTACT WITH THE CONCRETE SLAB OR SOIL, THE ALUMINUM SHALL BE COATED WITH A BITUMINOUS COATING OVER THE CONTACT AREA. FOR ALUMINUM POSTS THAT WILL BE EMBEDDED IN THE CONCRETE, THE POSTS SHALL BE COATED OVER THE CONTACT AREA AND UP TO 6-INCHES ABOVE THE CONCRETE SLAB.
12. CONDUCTORS SHALL BE:

    AS MANUFACTURED BY SOUTHWIRE OR OKONITE:

    #10AWG AND SMALLER SHALL BE SOLID COPPER. #8 AWG AND LARGER SHALL BE STRANDED COPPER. ALL POWER CONDUCTORS SHALL BE TYPE XHHW-2, 600VAC INSULATED. ALL DISCRETE CONTROL CONDUCTORS SHALL BE TYPE THWN-2/VW-1

    AS MANUFACTURED BY BELDEN, ALPHA OR OKONITE:

    ALL TYPE 3 ANALOG CONTROL CONDUCTORS SHALL BE #16AWG, TWISTED SHIELDED-PAIR INSTRUMENTATION CABLE, WC-57 RATED, COPPER DRAIN WIRE, COLORED BLACK AND RED.

    AS MANUFACTURED BY SIEMENS:

    PROFINET FASTCONNECT INDUSTRIAL ETHERNET CABLE, PN: 6XV1878-2A

    PROFINET FASTCONNECT IDUSTRIAL RJ45 ETHERNET CONNECTORS,
    PN: 6GK1901-1BB10-2AA0
13. APPLY CIRCUIT IDENTIFICATION SLEEVES ON ALL INSTRUMENTATION AND CONTROL CONDUCTORS, BOTH ENDS. UTILIZE PERMANENT PVC, YELLOW, WITH MACHINE PRINTED BLACK MARKINGS.
14. SEAL ENDS OF ALL OPEN CONDUITS, NOT TERMINATING INTO AN ENCLOSURE, WITH THE APPROPRIATE WATER-TIGHT HUB FOR CABLE TRANSITION FROM CONDUIT TO AIR.



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:02 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

WELLHEAD NO.1
CIRCUIT CALLOUT, PANEL AND CONDUIT/CABLE SCHEUDLES

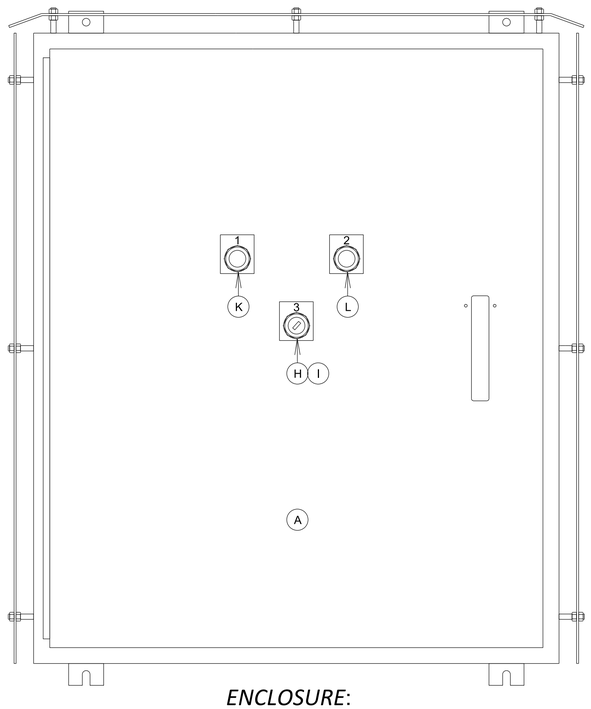
DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-007_D3270100.dgn

SHEET NO.
1-E-7

ISSUED FOR BID

# FRONT VIEW

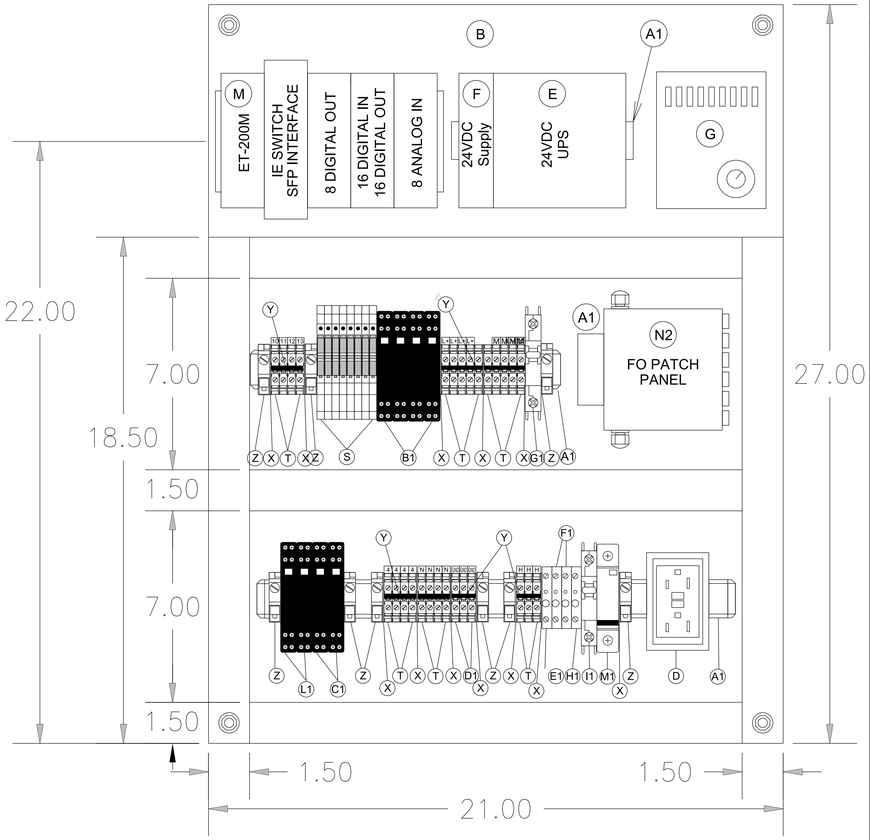



*ENCLOSURE*:
30"H x 30"W x 12"D NEMA 12/3R Rated
Fabricated from .125"
Marine Grade Aluminum with white
polyester powder coat finish and
Fitted with Padlockable 3-Point Latch.
With Back, Top and Side Heat Shields

DRAWING LAYER COLOR LEGEND:

GREY - NOTES
BLACK - ELECTRICAL SCHEMATIC WIRING DIAGRAMS AND DEVICES
BLUE - PART IDENTIFICATION
PURPLE - WIRE NUMBERS
GREEN - FIELD DEVICES AND WIRING OUTSIDE ENCLOSURE (DASHED)
RED - FUTURE DEVICES AND WIRING
TEAL - DIMENSIONS

# BACK PANEL




*BACKPANEL*: (27"H x 21"W) Fabricated from .125 Aluminum
with white powder coat finish

## NAMEPLATES

| MARK # | Line 1 | Line 2 |
|---|---|---|
| 1 | ON | - |
| 2 | FAULT | - |
| 3 | OFF | LOCAL REMOTE |
| 4 | - | - |

MAY BE ENERGIZED FROM
TWO DIFFERENT SOURCES:
PNL-LP-1
RVSS-RT1

| MARK # | QTY | MANUFACTURE | PART NUMBER | DESCRIPTION |
|---|---|---|---|---|
| A | 1 | OEM Supplied | Enclosure | Reference this sheet for details |
| B | 1 | OEM Supplied | Back Panel | Reference this sheet for details |
| C | | | | |
| D | 1 | Hubbell | DRUBGFI15 | GFCI Duplex Receptacles |
| E | 1 | Puls | UBC10.241 | 24VDC UPS with 5Ah Battery Backup |
| F | 1 | Puls | CS5.241 | Power Supply 120VAC / 24VDC, 5A |
| G | 1 | Hoffman | DAH1001A | 115VAC, 100Watt Heater |
| H | 1 | Allen Bradley | 800T-J44A | 3 Position Keyed Switch |
| I | 1 | Allen Bradley | 800T-XA | Contactors for Keyed Switch |
| J | | | | |
| K | 1 | Siemens | 52PT6D2AB | Red, Push to test Indicator Light, LED |
| L | 1 | Siemens | 52PT6D9AB | Amber, Push to test Indicator Light, LED |
| M | 1 | Siemens | 6ES7 390-1AE80-0AA0 | 122mm Mount Rail for ET 200M |
| | 1 | Siemens | 6ES7 153-4AA01-0XB0 | Simatic DP, Connection ET 200M iM 153-4 |
| | 1 | Siemens | 6ES7 953-8LF31-0AA0 | Simatic S7, Micro Memory Card 64kB |
| | 1 | Siemens | 6GK5206-2GS00-2AC2 | Scalance XC206-2SFP, iE Switch w/ SFP/RJ-45 Interface |
| | 2 | Siemens | 6GK5992-1AG00-BAA0 | Scalance X-Plug-in Transceiver SFP992-1+ |
| | 1 | Siemens | 6GK1900-0AB10 | Scalance XC206-2, C-Plug Memory 32MB |
| | 1 | Siemens | 6ES7 331-7KF02-0AB0 | Simatic S7-300, 8 AI Card |
| | 1 | Siemens | 6ES7 323-1BL00-0AA0 | Simatic S7-300,16DI/16DO Card |
| | 1 | Siemens | 6ES7 322-5HF00-0AB0 | Simatic S7-300, 8 DO Card |
| | 1 | Siemens | 6ES7 392-1AJ00-0AA0 | 20 Pin Screw Connector |
| | 2 | Siemens | 6ES7 392-1AM00-0AA0 | 40 Pin Screw Connector |
| | 2 | Siemens | 6XV1843-5EH10-0AA0 | MM FO Cord LC/LC, 50/125 |
| S | 8 | Finder | 38.51.3.125.0060 | Relay, Status, Screw, SPDT, 120VAC |
| T | 25 | Weidmuller | 1020 10 0000 | Terminal, WDU4, Screw, Color Beige |
| X | 12 | Weidmuller | 1050000000 | End Plate / Partition Plate, Color Beige |
| Y | 7 | Weidmuller | 1758260000 | 10 pole cross connection, Yellow, For Terminals |
| Z | 8 | Weidmuller | 1061200000 | End Bracket, Color Beige |
| A1 | 4 | Weidmuller | 0514500000 | 35mm, Din Rail, Steel,Galvinized, Passivated, Slotted |
| B1 | 4 | Citel | DLAW-24D3 | 24VDC Analog Surge Protection |
| C1 | 2 | Phoenix Contact | DT-Lan-Cat.6-2881007 | Cat.6 Ethernet Surge Protector |
| D1 | 3 | Weidmuller | 1010100000 | Terminal Ground, WDU4, Screw, Color Green |
| E1 | 1 | Weidmuller | 9926-25-1000 | CB, 1 Pole, 0.5A, Branch Rated UL489 (120VAC) |
| F1 | 2 | Weidmuller | 9926-25-1001 | CB, 1 Pole, 1A, Branch Rated UL489 (120VAC) |
| G1 | 1 | Weidmuller | 9926-25-1905 | CB, 1 Pole, 5A, Branch Rated UL489 (24VDC) |
| H1 | 1 | Weidmuller | 9926-25-1015 | CB, 1 Pole, 15A, Branch Rated UL489 (120VAC) |
| I1 | 1 | Weidmuller | 9926251020 | CB, 1 Pole, 20A, Branch Rated UL489 (120VAC) |
| J1 | 1 | Weidmuller | 1794060000 | 10 pole cross connection, pluggable, Black, For Relays |
| K1 | 2 | Panduit | Hinged Cover Wide Finger | Width = 1.5", Height = 2.0" ,Length = 6', Grey |
| L1 | 2 | Phoenix Contact | 100-RJ/RJ-2313931 | FL Isolator |
| M1 | 1 | Citel | DS41S-120 | 120VAC Surge Suppressor, Base |
| N1 | - | - | - | - |
| N2 | 1 | DIN Space | SNAP-24LC-MM-OM3 | FO Patch Panel |

CONTROL WIRE UL508A COLOR:

RED - 120 VAC
WHITE - NEUTRAL
BLUE - +24 VDC
WHITE / BLUE STRIPE - 0 VDC

| NO. | BY | DATE | REVISIONS |
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ELECTRICAL SCHEMATIC
MANUFACTURER
ADDRESS1
ADDRESS2
CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

DESIGNER: MARC GOSLOW, PE
DRAWN BY: A PASTRANA
DATE: 09/2020
CHECKED BY: NC
DATE: NC
ON BEHALF OF JEA

SHEET TITLE: FRONT/BACK PANEL VIEW
PROJECT: RIVERTOWN WELL #1
WELLHEAD SCADA PANEL
JOB No:
SHEET 1 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:42 PM


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Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

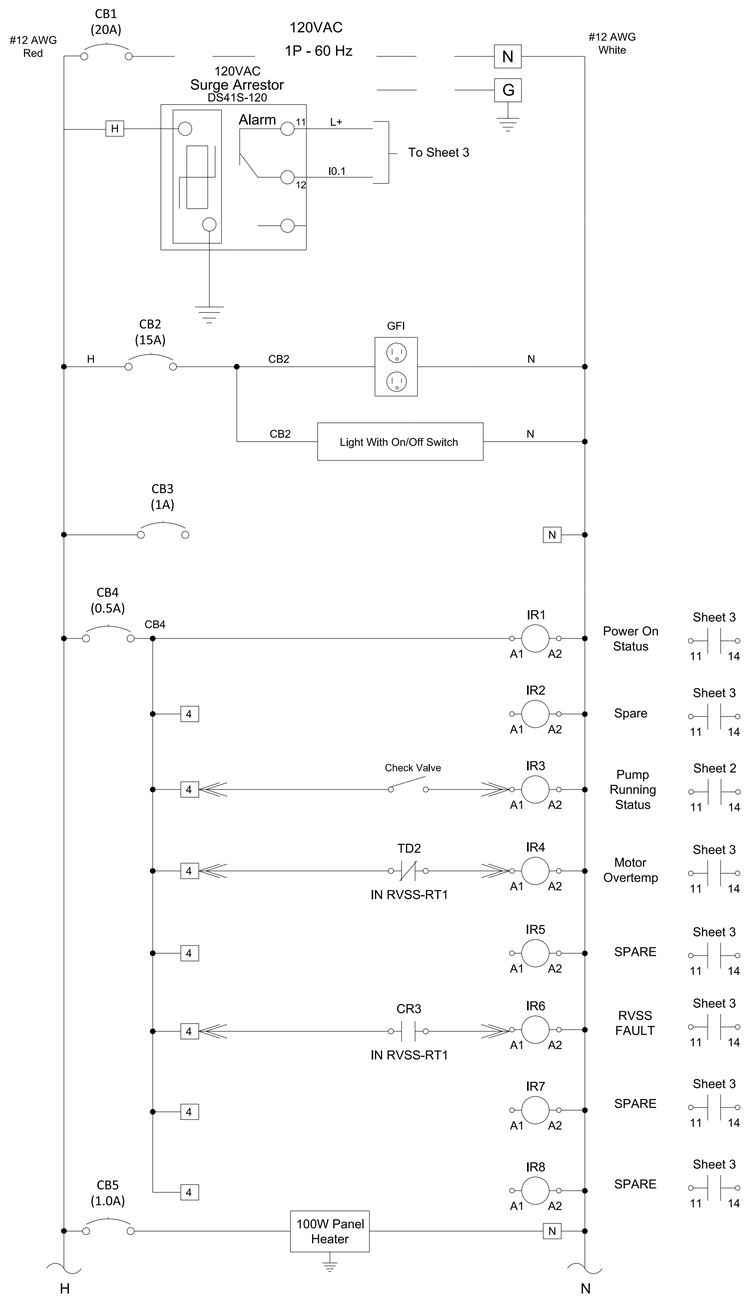
JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

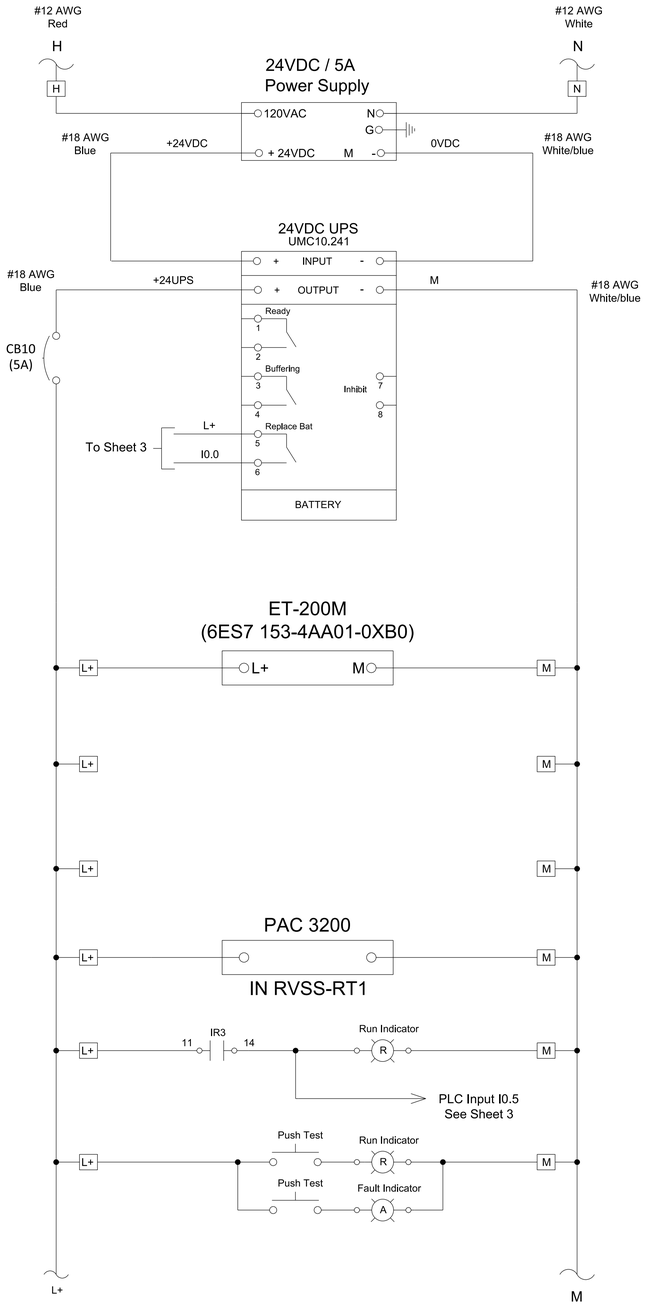

JEA
RIVERTOWN WATER TREATMENT PLANT PROJECT

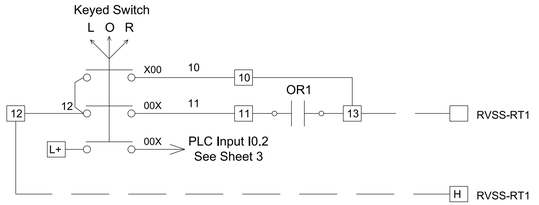
SCADA PANEL
WELLHEAD NO.1
FRONT/BACK PANEL

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-008_D3270100.dgn
SHEET NO. 1-E-8

ISSUED FOR BID




| NO. | BY | DATE | REVISIONS |
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ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: INPUT POWER CIRCUITS

PROJECT:
RIVERTOWN WELL #1
WELLHEAD SCADA PANEL

JOB No:

SHEET 2 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:38 PM


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FL COA No. EB-0000020

JACOBS
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EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

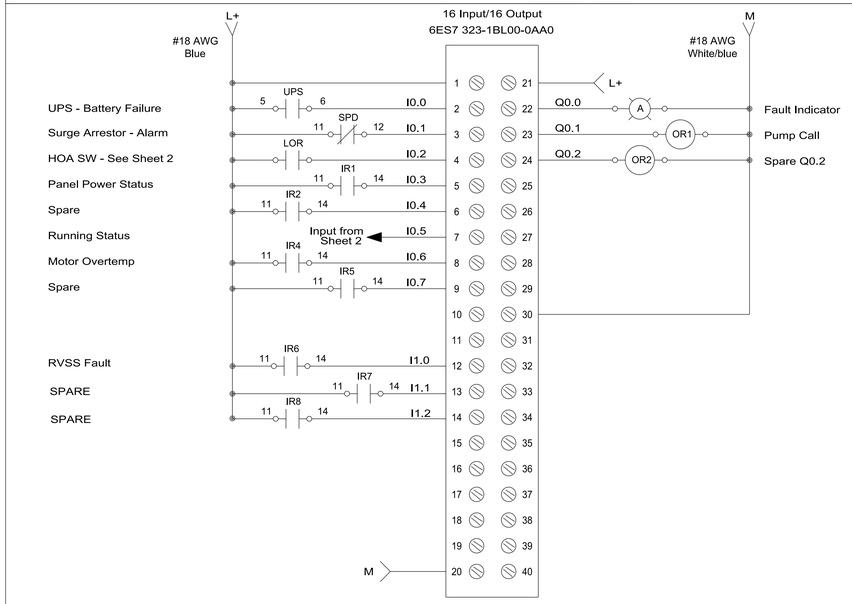
WELLHEAD NO.1
INPUT POWER CIRCUIT

PROJECT NO. 6103-237938
JACOBS FILE NAME:
1070-E-009_D3270100.dgn

SHEET NO.
1-E-9

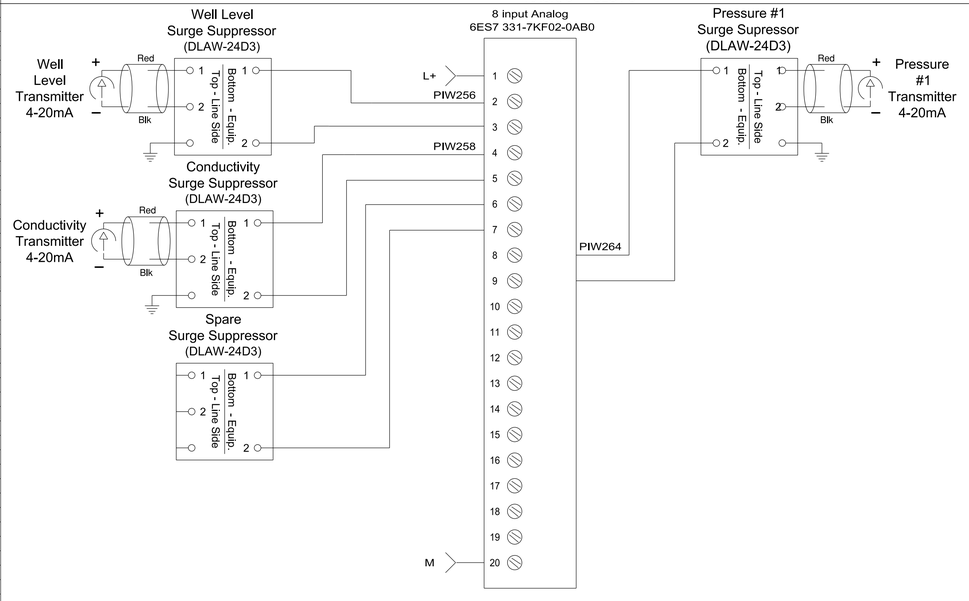
ISSUED FOR BID

RACK: 0 SLOT 4




| | 16 Input/16 Output |
|---|---|
| | 6ES7 323-1BL00-0AA0 |
| 1 | 1L+ = +24V |
| 2 | INPUT 0.0 |
| 3 | INPUT 0.1 |
| 4 | INPUT 0.2 |
| 5 | INPUT 0.3 |
| 6 | INPUT 0.4 |
| 7 | INPUT 0.5 |
| 8 | INPUT 0.6 |
| 9 | INPUT 0.7 |
| 10 | |
| 11 | |
| 12 | INPUT 1.0 |
| 13 | INPUT 1.1 |
| 14 | INPUT 1.2 |
| 15 | INPUT 1.3 |
| 16 | INPUT 1.4 |
| 17 | INPUT 1.5 |
| 18 | INPUT 1.6 |
| 19 | INPUT 1.7 |
| 20 | 1M = DC COM |
| 21 | 2L+ = +24V |
| 22 | OUTPUT 0.0 |
| 23 | OUTPUT 0.1 |
| 24 | OUTPUT 0.2 |
| 25 | OUTPUT 0.3 |
| 26 | OUTPUT 0.4 |
| 27 | OUTPUT 0.5 |
| 28 | OUTPUT 0.6 |
| 29 | OUTPUT 0.7 |
| 30 | 2M = DC COM |
| 31 | 3L+ = +24V |
| 32 | OUTPUT 1.0 |
| 33 | OUTPUT 1.1 |
| 34 | OUTPUT 1.2 |
| 35 | OUTPUT 1.3 |
| 36 | OUTPUT 1.4 |
| 37 | OUTPUT 1.5 |
| 38 | OUTPUT 1.6 |
| 39 | OUTPUT 1.7 |
| 40 | 3M = DC COM |

RACK: 0 SLOT 5




| | 8 input Analog |
|---|---|
| | 6ES7 331-7KF02-0AB0 |
| 1 | L+ |
| 2 | M0+ |
| 3 | M0- |
| 4 | M1+ |
| 5 | M1- |
| 6 | M2+ |
| 7 | M2- |
| 8 | M3+ |
| 9 | M3- |
| 10 | COMP+ |
| 11 | MANA |
| 12 | M4+ |
| 13 | M4- |
| 14 | M5+ |
| 15 | M5- |
| 16 | M6+ |
| 17 | M6- |
| 18 | M7+ |
| 19 | M7- |
| 20 | M |
| - | - |
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RACK: 0 SLOT 6

PROFINET CONNECTION DIAGRAM




| | - |
|---|---|
| | FUNCTION |
| 1 | - |
| 2 | - |
| 3 | - |
| 4 | - |
| 5 | - |
| 6 | - |
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ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: DIGITAL AND ANALOG I/O

PROJECT:
RIVERTOWN WELL #1
WELLHEAD SCADA PANEL

JOB No:

SHEET 3 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:02 PM


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EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

WELLHEAD NO.1
DIGITAL AND ANALOG I/O

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-010_D3270100.dgn

SHEET NO. 1-E-10

ISSUED FOR BID

PROFINET CAT 6+-SURGE PROTECTOR DPM

PROFINET CAT 6+-SURGE PROTECTOR FLOW

100-RJ/RJ ISOLATOR FLOW METER

100-RJ/RJ ISOLATOR DIGITAL POWER MONITOR

## GENERAL NOTES:

1. ALL TERMINALS, RELAYS, SURGE SUPPRESSORS, BREAKERS, AND OTHER DEVICES MUST BE LABELED.
2. INSTALL PLUGGABLE JUMPERS (Y) ON TERMINALS WHERE INDICATED. APPLY DIELECTRIC GREASE TO JUMPERS TO PREVENT CORROSION.

GFI-DUPLEX RECEPTACLE

120VAC-SURGE PROTECTOR

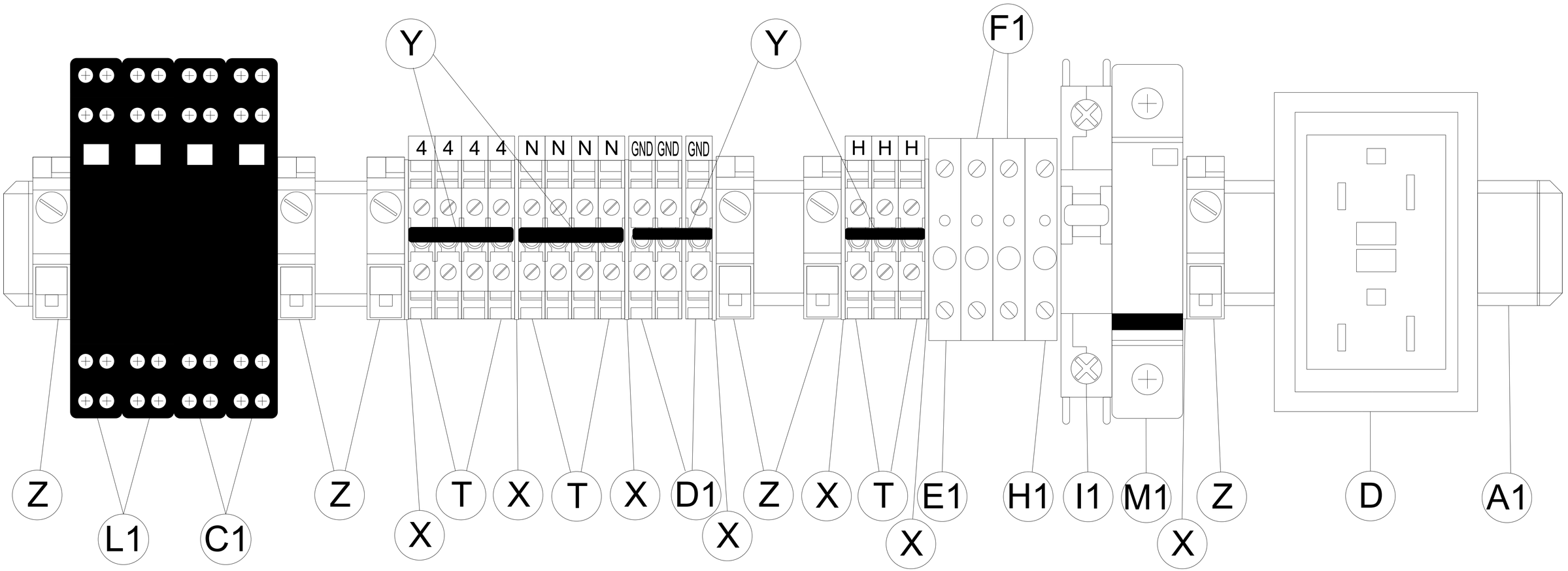
CB1-CIRCUIT BREAKER (20A)

CB2-CIRCUIT BREAKER (15A)

CB3-CIRCUIT BREAKER (1A)

CB5-CIRCUIT BREAKER (1A)

CB4-CIRCUIT BREAKER (0.5A)




| NO. | BY | DATE | REVISIONS |
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ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: TERMINAL BLOCK LAYOUT

PROJECT: RIVERTOWN WELL #1
WELLHEAD SCADA PANEL

JOB No:

SHEET 4 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
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PLOT DATE: 1/11/2021 PLOT TIME: 5:03:39 PM

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| DESIGNED BY: | M GOSLOW |
| DRAWN BY: | A PASTRANA |
| SHEET CHK'D BY: | D NICHOLSON |
| CROSS CHK'D BY: | |
| APPROVED BY: | M GOSLOW |
| DATE: | DECEMBER 2020 |


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Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

WELLHEAD NO.1
TERMINAL BLOCK LAYOUT

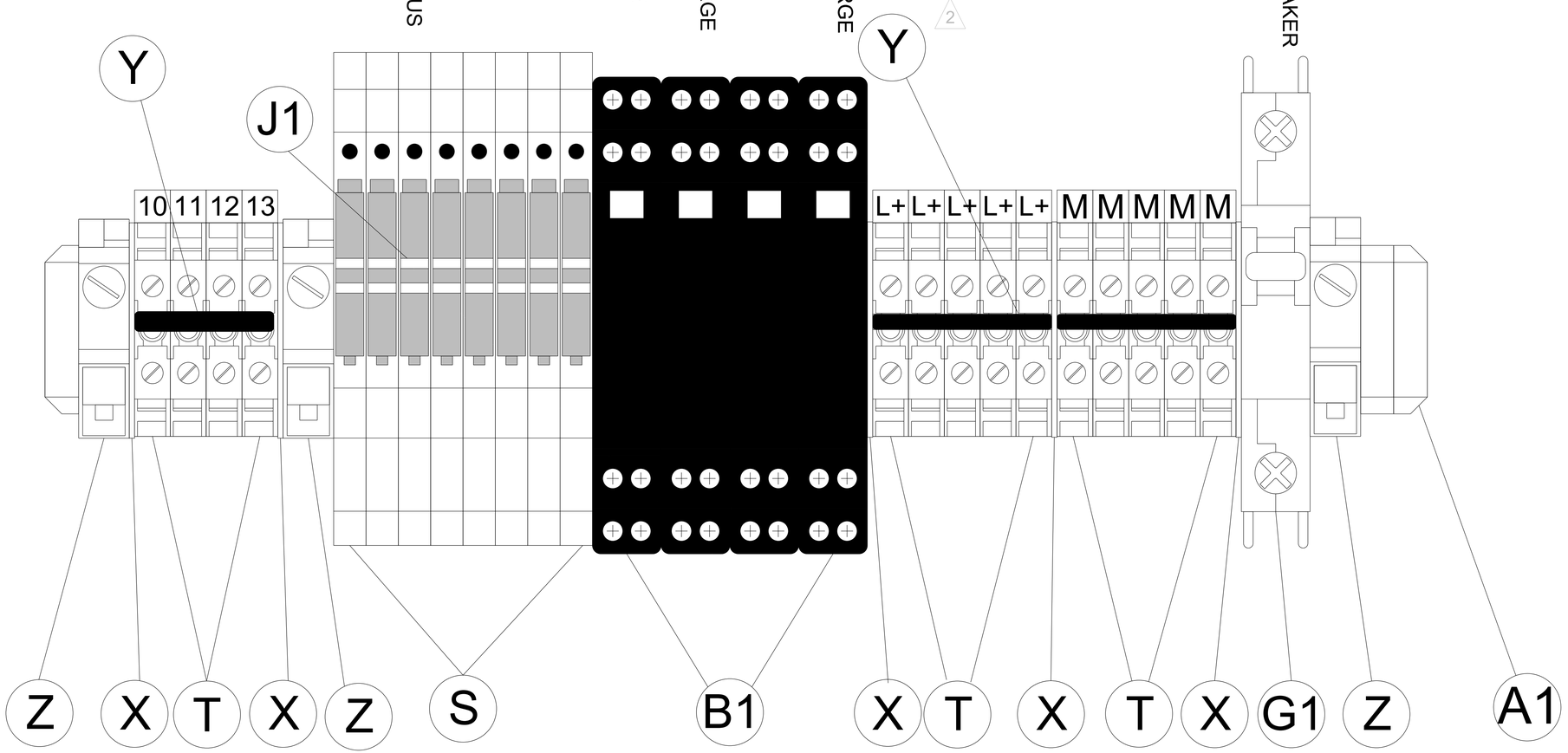
PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-011_D3270100.dgn

SHEET NO. 1-E-11

ISSUED FOR BID

## GENERAL NOTES:

1. ALL TERMINALS, RELAYS, SURGE SUPPRESSORS, BREAKERS, AND OTHER DEVICES MUST BE LABELED.
2. INSTALL PLUGGABLE JUMPERS (Y) ON TERMINALS WHERE INDICATED. APPLY DIELECTRIC GREASE TO JUMPERS TO PREVENT CORROSION.




| NO. | BY | DATE | REVISIONS |
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ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: TERMINAL BLOCK LAYOUT

PROJECT: RIVERTOWN WELL #1 WELLHEAD SCADA PANEL

JOB No:

SHEET 5 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
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PLOT DATE: 1/11/2021 PLOT TIME: 5:03:39 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020


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EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

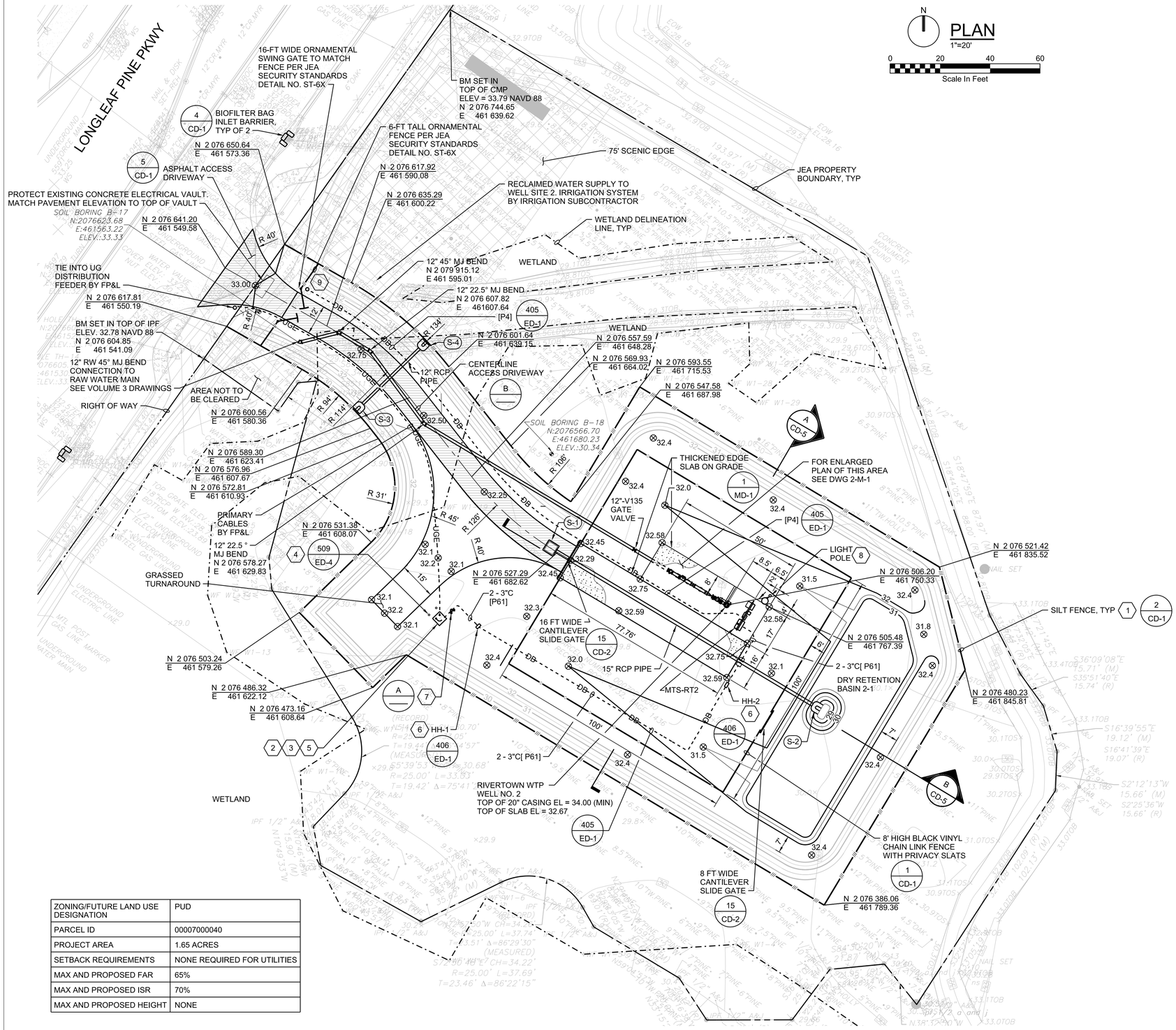
SCADA PANEL

WELLHEAD NO.1
TERMINAL BLOCK LAYOUT

PROJECT NO. 6103-237938
JACOBS FILE NAME: 1070-E-012_D3270100.dgn

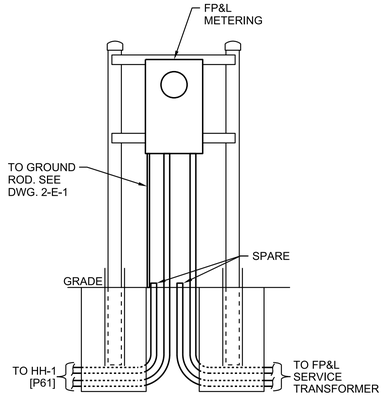
SHEET NO. 1-E-12

ISSUED FOR BID




## PLAN
1"=20'

0 20 40 60
Scale In Feet




NOTE:
SEE DETAIL 407, ED-2.

## A DETAIL
NTS

| | |
|---|---|
| ZONING/FUTURE LAND USE DESIGNATION | PUD |
| PARCEL ID | 00007000040 |
| PROJECT AREA | 1.65 ACRES |
| SETBACK REQUIREMENTS | NONE REQUIRED FOR UTILITIES |
| MAX AND PROPOSED FAR | 65% |
| MAX AND PROPOSED ISR | 70% |
| MAX AND PROPOSED HEIGHT | NONE |

## SHEET KEYNOTES

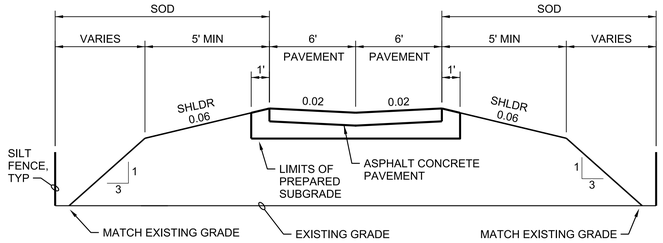
1. CONTRACTOR PROHIBITED FROM CLEARING OR DISTURBING SITE OUTSIDE OF SILT FENCE. ANY CLEARING OR DISTURBANCE THAT OCCURS OUTSIDE OF DEFINED LIMITS SHALL BE RE-PLANTED AND RESTORED TO MATCH EXISTING, UNDISTURBED CONDITION.
2. LOCATION OF PADMOUNT SERVICE TRANSFORMER IS APPROXIMATE. COORDINATE ACTUAL LOCATION WITH THE CIVIL DESIGN AND SUPPLYING ELECTRIC UTILITY (FP&L), CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT AS REQUIRED BY THE UTILITY INCLUSIVE OF, BUT NOT LIMITED TO TRANSFORMER PAD, PRIMARY CONDUITS, SECONDARY CONDUITS, METERING FRAME, AND METERING ENCLOSURE. DESIGN IS FOR 150KVA PADMOUNT TRANSFORMER, BUT PAD SHALL ACCOMMODATE UP TO A 300KVA UNIT.
3. BOTH THE PADMOUNT TRANSFORMER AND THE METERING FRAME SHALL FACE THE DRIVEWAY TURNAROUND UNLESS DIRECTED DIFFERENTLY BY THE SUPPLYING ELECTRIC UTILITY.
4. FURNISH/INSTALL 8-INCH CONCRETE PROTECTIVE POSTS PER DETAIL. COORDINATE POST LOCATIONS WITH SUPPLYING ELECTRIC UTILITY. TYPICAL OF TWO LOCATIONS. POSTS SHALL PROVIDE PROTECTION FOR THE PADMOUNT TRANSFORMER WITHOUT BLOCKING OPENING OF THE CABLE COMPARTMENT DOORS A FULL 120-DEGS.
5. CONTRACTOR TO CONTACT FP&L UTILITY ENGINEER PRIOR TO STARTING ANY WORK TO VERIFY SERVICE REQUIREMENTS. SERVICE DELIVERY TO BE 480/277VAC, 3P/4W, SOLIDLY-GROUNDED WYE, 150KVA.
6. HANDHOLE HH-1 AND HH-2 FURNISHED AND INSTALLED BY CONTRACTOR. HANDHOLES SHALL BE PRECAST CONCRETE, H-20 RATED, OPEN-BOTTOM AS MANUFACTURED BY OLD CASTLE/CHRISTY OR APPROVED EQUAL. REFER TO TABLE 4A OF DETAIL 406 FOR SIZING INFO.
7. FP&L REVENUE METER TO BE LOCATED ON SUPPORT FRAME AS SHOWN IN DETAIL 'A', THIS DRAWING. CONTRACTOR TO FURNISH AND INSTALL SUPPORT FRAME PER DETAIL 407 ON DWG. ED-2 UTILIZING TWO (2) POSTS WITH A 36-INCH CENTER-TO-CENTER SEPARATION. FURNISH AND INSTALL METERING CAN PER FP&L ELECTRIC SERVICE STANDARDS DATED MARCH, 2017. ROUTE 2-3"C BETWEEN FP&L SERVICE TRANSFORMER AND THE METERING FRAME, AND HH-1 AND THE METERING FRAME. ONE CONDUIT IN EACH DIRECTION SHALL BE A SPARE. STUB THE SPARE CONDUIT FROM EACH HANDHOLE (TOTAL OF 2) BENEATH THE METER BOX 6-INCHES AFG AND CAP. APPLY A S/S TAG TO EACH FOR IDENTIFICATION AS SPARE CONDUIT.
8. LOCATION OF WELLHEAD ILLUMINATION. ARROW INDICATES AIMING DIRECTION OF POLE TOP LUMINAIRE.
9. CONDUIT AND CONDUCTORS BETWEEN PANEL PNL-LP-1 AND PERIMETER GATE BY WELLHEAD ELECTRICAL CONTRACTOR. FURNISH AN ADDITIONAL SIX-FEET OF CONDUCTOR LENGTH AT GATE END. FOR CONTINUATION AND TERMINATION BY IRRIGATION SUB-CONTRACTOR.

(S-1) TYPE C DBI INLET
FDOT INDEX NO. 425
RIM = 32.09
INV = 29.00

(S-2) MITERED END SECTION
FDOT INDEX NO. 430
INV = 28.50

(S-3) MITERED END SECTION
FDOT INDEX NO. 430
INV = 29.50

(S-4) MITERED END SECTION
FDOT INDEX NO. 430
INV = 29.50




## B TYPICAL SECTION
NTS



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:58 PM

DESIGNED BY: B DYKES
DRAWN BY: N PATTERSON
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER 2020

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Tel: (904) 731-7109
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JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

CIVIL/ELECTRICAL

WELLHEAD NO. 2
SITE PLAN

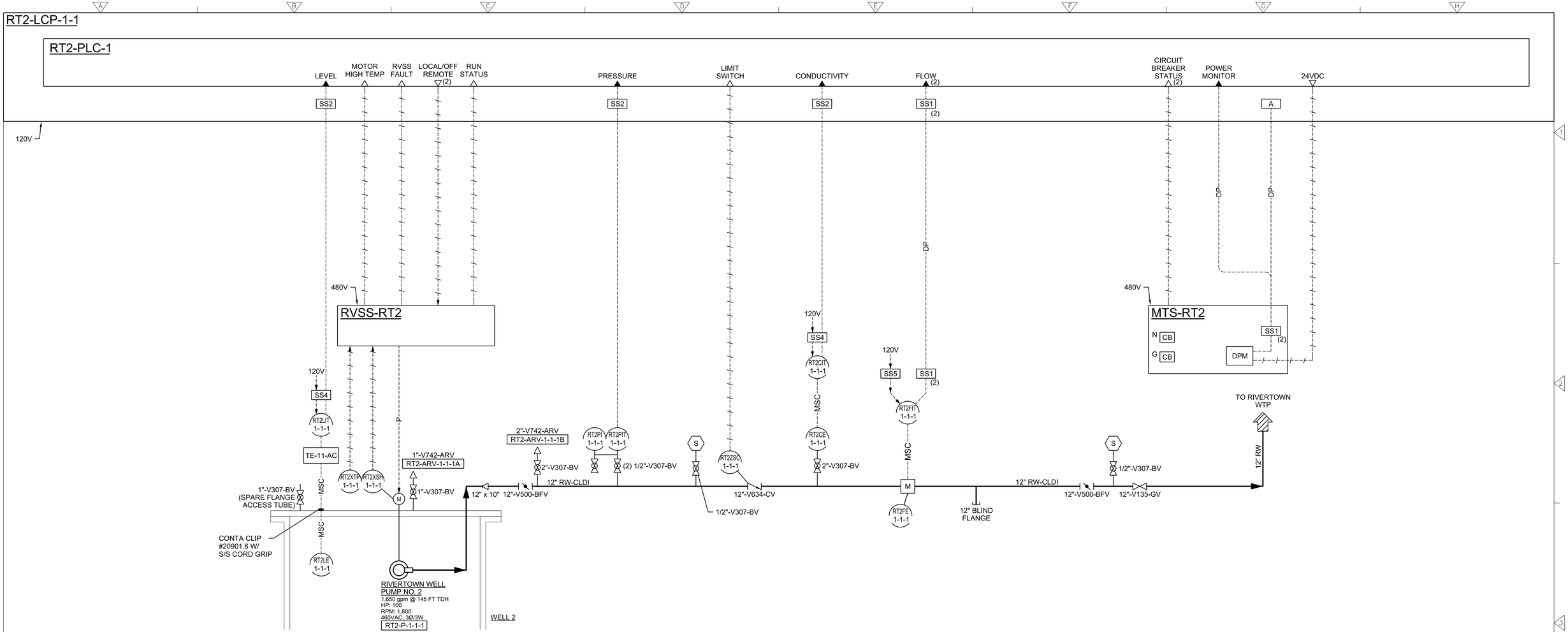
DATE: 01/2021
MARC P. GOSLOW
PE NO. 41733

DATE: 01/2021
RICHARD THOMAS MORRISON
PE NO. 67713

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2001-C-001_D3270100.dgn

SHEET NO.
2-C-1

ISSUED FOR BID




LEGEND:

| | |
|---|---|
| A | - PROFIBUS TERMINAL PROCENTEC 101-00211A |
| SS1 | - SURGE SUPPRESSOR CITEL DLA-12DBC |
| SS2 | - SURGE SUPPRESSOR CITEL DLAW-24D3 |
| SS3 | - SURGE SUPPRESSOR CITEL DS42S-120 W/ DS40G (120VAC DISCRETE) |
| SS4 | - SURGE SUPPRESSOR CITEL DS42S-120 W/ DS40G DLAW-24D3 |
| SS5 | - SURGE SUPPRESSOR CITEL DS42S-120 W/DS40G |



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:56 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

CDM Smith
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FL COA No. EB-0000020

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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

INSTRUMENTATION AND CONTROL

WELLHEAD NO.2
P&ID

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

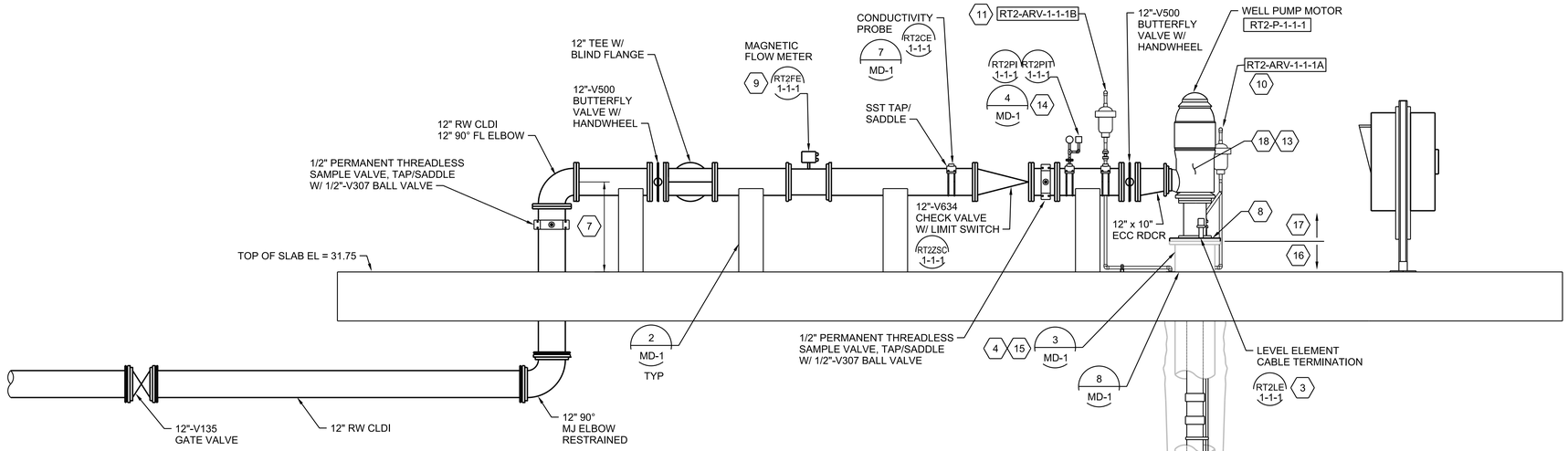
PROJECT NO. 6103-237938
JACOBS FILE NAME: 2030-N-001_D3270100.dgn

SHEET NO.
2-N-1

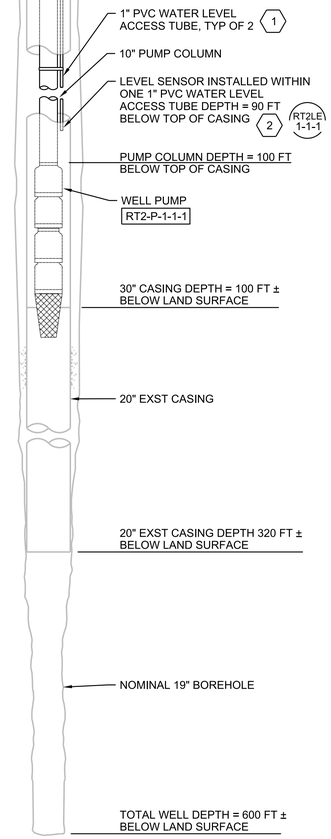
ISSUED FOR BID

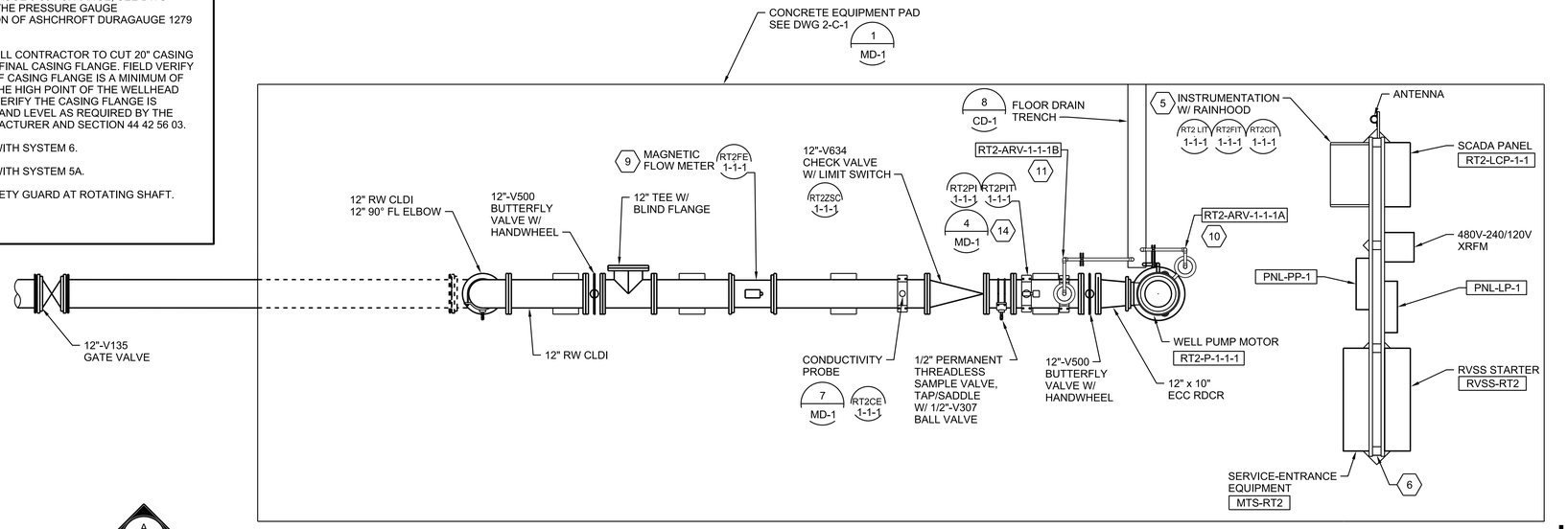
# SHEET KEYNOTES

1. THREAD THE (2) 1-INCH PVC WATER LEVEL ACCESS TUBES INTO UNDERSIDE OF DISCHARGE HEAD. STRAP(SST) ACCESS TUBES TO PUMP COLUMN EVERY 10-FEET. TERMINATE ACCESS TUBES 5-FEET ABOVE THE PUMP BOWLS. CAP BOTTOM OF ACCESS TUBES. DRILL 1/4-INCH HOLES THROUGH ACCESS TUBES EVERY 3-FEET THROUGHOUT THE TUBE. DRILL 1/4-INCH HOLE THROUGH BOTTOM CAP.
2. MARK SENSOR CABLE WITH COLORED TAPE AT SPECIFIED DEPTH OF SUBMERGENCE.
3. INSTALL LEVEL SENSOR PER MANUFACTURER'S RECOMMENDATION, USING WATER TIGHT CABLE GLAND AT WELLHEAD. PROVIDE STRAIGHT MALE CORD CONNECTOR CONTA-CLIP CATALOG NUMBER 20901.
4. PROVIDE (3) 1" SST THREADED ACCESS PORTS AND (2) 1"-V307 BALL VALVE. 1"-V307 BALL VALVE SHOULD BE INSTALLED ON ARV ACCESS PORT AND SPARE ACCESS PORT. DO NOT INSTALL BALL VALVE ON LEVEL PROBE ACCESS PORT.
5. FASTEN PHENOLIC NAMEPLATE INSIDE RAINHOOD NEAR LEVEL TRANSMITTER, INSCRIBED WITH THE PROBE AND DROP PIPE DEPTHS.
6. PRIOR TO CONSTRUCTION, WELLHEAD CONTRACTOR SHALL SUBMIT A PLAN PRESENTING CONTROL AND INSTRUMENTATION PANEL AND CONDUIT LAYOUT.
7. ACTUAL CENTERLINE ELEVATION OF WELLHEAD PIPING WILL VARY DEPENDING ON ACTUAL DIMENSIONS AND LAYOUT OF SELECTED PUMP DISCHARGE HEAD.
8. CONTRACTOR TO COORDINATE CONNECTION TO WELL CASING TOP FLANGE TO ASSURE BOLT HOLE ORIENTATION AND ALIGNMENT WITH THE WELL PUMP BASE.
9. SEE DRAWING 2-E-4 FOR FLOW METER REQUIREMENTS.
10. 1"-V742 AIR/VACUUM VALVE, 1"-V307 BALL VALVE AND 1" SST PIPING INSTALLED ON ACCESS PORT. 1/2" PVC DISCHARGE PIPING TO BE TERMINATED AT THE TRENCH DRAIN. CONTRACTOR TO SUPPORT ASSEMBLY AS NEEDED.
11. 2"-V742 AIR/VACUUM VALVE, 2"-V307 BALL VALVE AND 2" SST PIPING INSTALLED ON PIPE SADDLE. 1/2" PVC DISCHARGE PIPING TO BE TERMINATED AT THE TRENCH DRAIN. CONTRACTOR TO SUPPORT ASSEMBLY AS NEEDED.
12. NOT USED.
13. THE PUMP PERFORMANCE TEST SHALL BE CONDUCTED AFTER THE WELLHEAD HAS BEEN CLEARED BY JEA LABORATORIES AND THE NEW WELLHEAD PUMP IS RUNNING.
14. PRESSURE GAUGE 0-60 PSI RANGE, SEE DWG 0-G-040 FOR THE PRESSURE GAUGE SPECIFICATION OF ASHCHROFT DURAGAUGE 1279 PLUS.
15. LICENSED WELL CONTRACTOR TO CUT 20" CASING AND INSTALL FINAL CASING FLANGE. FIELD VERIFY ELEVATION OF CASING FLANGE IS A MINIMUM OF 1'-3" ABOVE THE HIGH POINT OF THE WELLHEAD SLAB. FIELD VERIFY THE CASING FLANGE IS HORIZONTAL AND LEVEL AS REQUIRED BY THE PUMP MANUFACTURER AND SECTION 44 42 56 03.
16. FIELD COAT WITH SYSTEM 6.
17. FIELD COAT WITH SYSTEM 5A.
18. PROVIDE SAFETY GUARD AT ROTATING SHAFT.




## A SECTION
3/8"=1'-0"




A

## PLAN
3/8"=1'-0"

DATE: 01/2021
Lawrence Bradley Gunn
PE NO. 65967

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:11 PM

DESIGNED BY: R ANGLEY
DRAWN BY: N PATTERSON
SHEET CHK'D BY: L GUNN
CROSS CHK'D BY:
APPROVED BY: L GUNN
DATE: DECEMBER 2020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Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

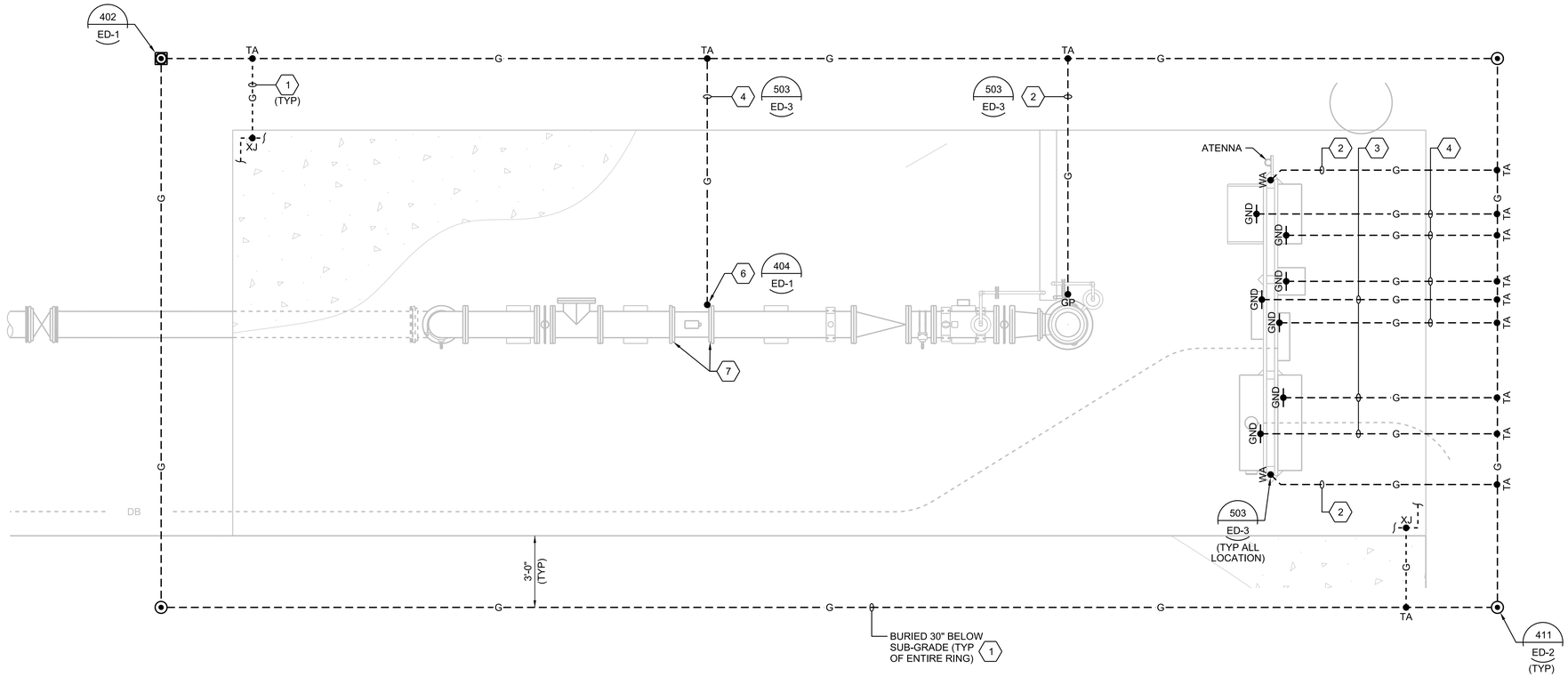
PROCESS MECHANICAL

WELLHEAD NO.2
PLAN AND SECTION

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2040-M-001_D3270100.dgn

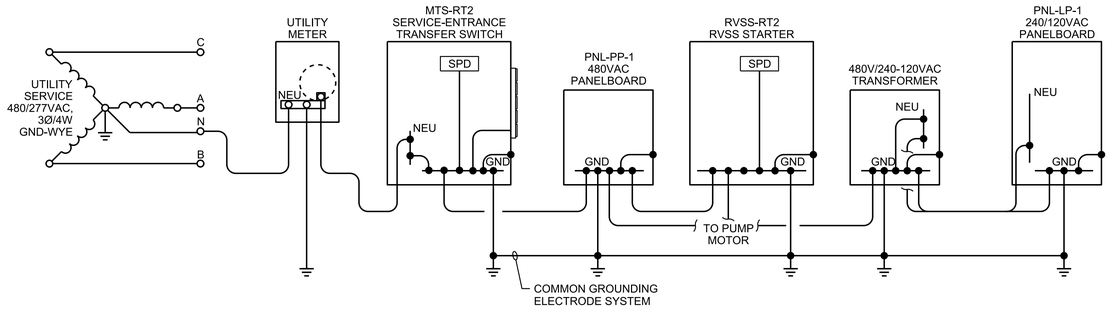
SHEET NO.
2-M-1

ISSUED FOR BID




## GROUNDING ELECTRODE AND EQUIPMENT BONDING PLAN

3/8"=1'-0"




## GROUNDING ELECTRODE AND EQUIPMENT BONDING SCHEMATIC

NTS

## GENERAL NOTES

1. ALL EQUIPMENT AND MATERIALS SHALL BE, AS A MINIMUM, PER JEA'S MOST CURRENT EDITION OF STANDARDS AND METHODS OF INSTALLATION.
2. REFER TO DWG. 2-C-1 FOR DIMENSION DETAILS OF THE EQUIPMENT PAD.
3. ROUTE ALL GROUNDING ELECTRODE CONDUCTORS FROM EQUIPMENT GROUND BUSSES, STRUCTURAL SUPPORT FRAMES, EQUIPMENT PEDESTALS, AND THE WELL CASING TO THE GROUNDING ELECTRODE SYSTEM IN 1-INCH PVC SCH 40 CONDUIT. CONNECTIONS FROM STRUCTURAL MEMBERS, EQUIPMENT PEDESTALS AND THE WELL CASING SHALL BE IN CONDUIT FROM 3-INCHES ABOVE THE CONCRETE SLAB TO A MINIMUM OF 6-INCHES BEYOND THE OUTSIDE EDGE OF THE SLAB. CONNECTIONS FROM EQUIPMENT GROUND BUSSES SHALL BE ROUTED IN CONDUIT FULL LENGTH FROM THE ENCLOSURE TO A MINIMUM OF 6-INCHES BEYOND THE OUTSIDE OF THE EDGE OF THE SLAB. FURNISH AND INSTALL THE APPROPRIATE CONDUIT FITTING FOR EACH ENCLOSURE PENETRATION. DO NOT ROUTE GROUNDING ELECTRODE CONDUCTORS ACROSS THE CONCRETE SURFACE.
4. THE GROUNDING ELECTRODE SYSTEM AND ELECTRODE GROUNDING CONDUCTORS SHALL BE SIZED AND INSTALLED AS SHOWN ON THE PLANS AND IN THE KEYNOTES. ALL BELOW GRADE AND REBAR BONDING CONNECTIONS SHALL BE EXOTHERMICALLY MADE, ERICO CADWELD OR CADWELD EXOLEN, NO SUBSTITUTIONS. ABOVE GRADE CONNECTIONS SHALL BE STANDARD GROUND BUS LUGS WITHIN THE EQUIPMENT ENCLOSURES. STRUCTURAL CONNECTIONS SHALL BE MECHANICAL SPLIT-BOLT, SADDLE, OR CONE SCREW TYPE: BURNDY OR THOMAS AND BETTS.
5. GROUND RODS SHALL BE TWO-SECTION, COPPER-CLAD, ¾-INCH DIAMETER, 20-FEET IN LENGTH.
6. GROUND WELL TEST BOX SHALL BE CHRISTY NO. G5 OR EQUIVALENT.
7. MAXIMUM RESISTANCE TO REMOTE EARTH OF THE GROUNDING ELECTRODE SYSTEM SHALL BE 5 OHMS AS MEASURED WITH A CLAMP-ON GROUND RESISTANCE TESTER SUCH AS AN AEMC 3711, FLUKE 1630 OR GREENLEE CMGRT-100 OR EQUIVALENT DEVICE. 3 AND 4-POINT FALL OF POTENTIAL TESTS ARE NOT ACCEPTABLE. GROUND TEST MONITOR MUST HAVE CERTIFICATE OF CALIBRATION NOT EXCEEDING 12 MONTHS PRIOR TO TESTING THE INSTALLATION. CONTRACTOR SHALL FURNISH A WRITTEN REPORT OF THE GROUND TEST TO THE OWNER'S ENGINEER. CONTACT OWNER'S ENGINEER FOR LOCATION OF TEST MEASUREMENT.

## SHEET KEYNOTES

1. #4/0 AWG STRANDED. BARE, TIN-PLATED COPPER.
2. #2/0 AWG STRANDED. XHHW-2 INSULATED, 600VAC.
3. #1/0 AWG STRANDED. XHHW-2 INSULATED, 600VAC.
4. #2 AWG STRANDED. XHHW-2 INSULATED, 600VAC.
5. NOT USED.
6. GROUNDING ELECTRODE CONDUCTOR SHALL BE ROUTED IN CONDUIT FULL LENGTH FROM FLOW METER POTENTIAL EQUALIZING RINGS TO THE GROUNDING ELECTRODE SYSTEM.
7. POTENTIAL EQUALIZING RINGS (2) FURNISHED WITH FLOW ELEMENT. INSTALL PER MANUFACTURER'S DIRECTIONS.



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:05:11 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

WELLHEAD NO.2
GROUNDING PLAN & GROUNDING SCHEMATIC

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2070-E-001_D3270100.dgn

SHEET NO.
2-E-1

ISSUED FOR BID

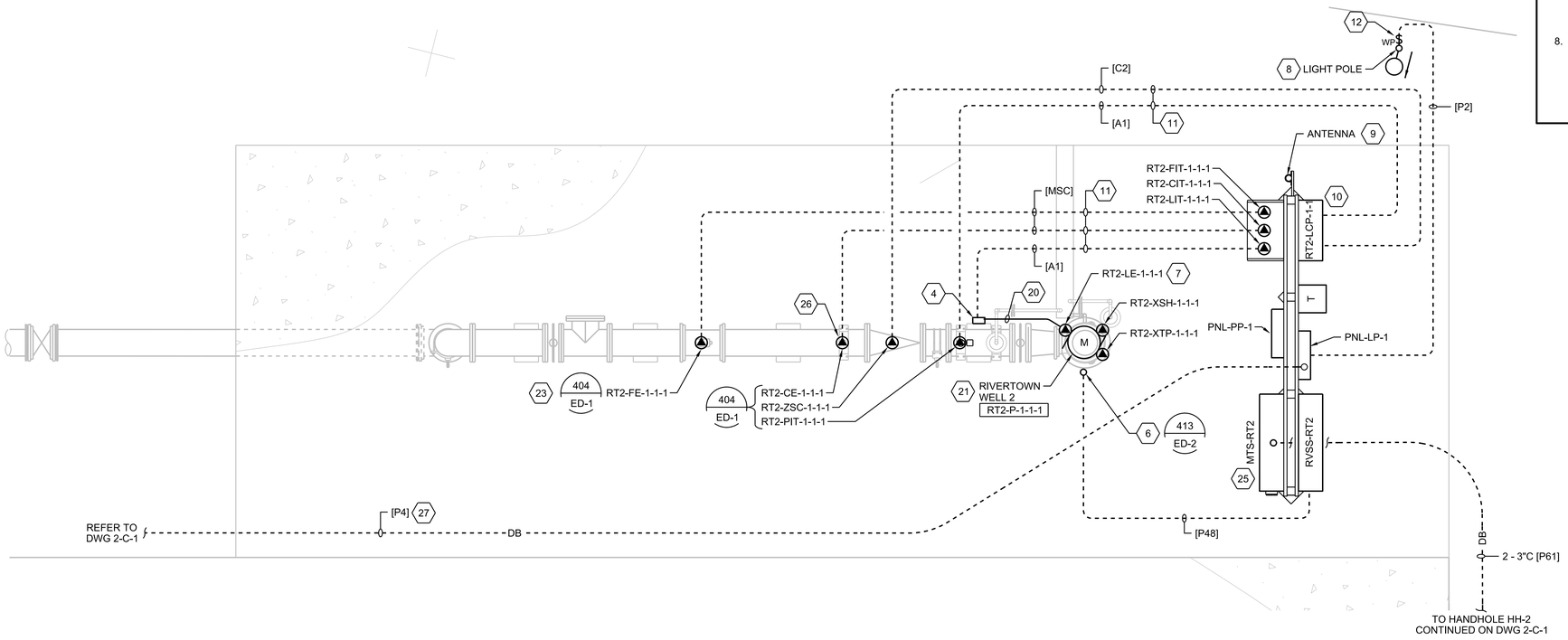
## GENERAL SHEET NOTES

1. KEYNOTES APPLY TO BOTH THIS DRAWING AND DWG 2-E-3.

## SHEET KEYNOTES

1. FURNISH AND INSTALL METERING CAN, HANDHOLES, CONDUIT AND WIRING PER FP&L AND JEA REQUIREMENTS AND STANDARDS. COORDINATE WITH JEA FOR PHYSICAL LOCATION AND DETAILS. REFER TO DWG. 2-C-1 FOR ADDITIONAL DETAILS. CONTRACTOR SHALL COORDINATE WITH FP&L ALL ASPECTS ASSOCIATED WITH THE ELECTRIC SERVICE DELIVERY, FINAL INSPECTION, AND ESTABLISHING SERVICE TO THE WELLHEAD, SEE DWG 2-C-1, KEYED NOTE 5.
2. FURNISH AND INSTALL SIGNAGE INDICATING THE 200AMP MAIN CIRCUIT BREAKER IN THE MTS AS THE SERVICE DISCONNECT. SIGNAGE SHALL BE 6"BY 4"IN SIZE, RED LAMINATE, ETCHED TO A WHITE CORE. LETTERING APPROPRIATELY SIZED FOR THE SIGNAGE, AND ATTACHED TO THE FRONT EXTERIOR OF THE MTS WITH S/S HARDWARE.
3. NOT USED.
4. LEVEL PROBE TERMINAL CABINET SHALL BE PMC TYPE TE-11-AC. MOUNT CABINET ON EAST FACE OF CONCRETE PIPE SUPPORT WITH BOTTOM AT 12" AFS. SEE DETAILS 408, 409, AND 413 ON DWG ED-2.
5. SPD SHALL BE AS MANUFACTURED BY SURGE SUPPRESSION, INC (SSI), CAT. #SMLB3N4X2. SPD SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. CONTACT MANUFACTURER PRIOR TO BEGINNING CONSTRUCTION ON THE WELLHEAD TO COORDINATE ALL INSTALLATION REQUIREMENTS. SPD SHALL BE INCORPORATED INTO PANEL DESIGN AND FABRICATION.
6. UG CONDUIT FOR THE PUMP MOTOR POWER, SPACE HEATER, AND WINDING THERMAL PROTECTION SHALL EXTEND ABOVE FINISHED SLAB 2-INCHES, AND THEN TRANSITION TO TYPE LNFC-B CONDUIT FOR CONNECTION TO THE MOTOR HOUSING. SEE DETAIL 413 ON DWG. ED-2.
7. WELL FLANGE CABLING SHALL BE SEALED TO PREVENT LEAKAGE. FURNISH AND INSTALL CONTA CLIP #20901.6 W/ S/S CORD GRIP FOR LEVEL PROBE TO PREVENT LEAKAGE.
8. COORDINATE POLE LOCATION AND AIMING DIRECTION ON THE EXTERIOR LUMINAIRE WITH JEA PRIOR TO INSTALLATION. FURNISH AND INSTALL 23'-3" - FOOT PRECAST CONCRETE POLE, LUMINAIRE AND MOUNTING CAP. REFER TO DETAIL 504 ON DWG. ED-3. ARROW INDICATES AIMING DIRECTION. SEE DWG 2-C-1 FOR LOCATION.
9. FURNISH AND INSTALL NEW ANTENNA POLE, COAX CABLE, AND ANTENNA. INSTALL ANTENNA POLE, ANTENNA, CABLE, AND OTHER ASSOCIATED ITEMS PER JEA STANDARD DETAILS. FIELD VERIFY EXACT LOCATION OF POLE AND ANTENNA WITH JEA BASED ON RADIO PATHWAY ANALYSIS AS PERFORMED BY CONTRACTOR. REFER TO WTP CONTRACT DOCUMENTS VOL. 1 FOR DETAILS. GROUND POLE IN ACCORDANCE WITH STANDARD DETAILS. SEE DETAIL 508 ON DWG ED-4.
10. FURNISH AND INSTALL THE SCADA FIELD PANEL AND ALL ASSOCIATED CONDUIT AND WIRING AS SHOWN ON THESE PLANS AND IN ACCORDANCE WITH SPECIFICATION 40.90.11 AND JEA REQUIREMENTS. JEA SHALL BE RESPONSIBLE FOR ALL PROGRAMMING ASSOCIATED WITH THE SCADA PANEL, ALONG WITH THE PROFIBUS COMMUNICATION WITH THE POWER MONITOR. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE REQUIRED SCHEDULE WITH JEA.
11. WIRING FOR THE INSTRUMENTATION PROBES, ELEMENTS, TRANSMITTERS AND TRANSDUCERS SHALL BE AS REQUIRED BY THE MANUFUACTUERS. REFER TO DETAILS 412, 501 & 502 ON DWG. ED-2 & ED-3.
12. MOUNT LIGHT SWITCH IN A NEMA-3R BOX AND COVER. BOX AND COVER TO BE DIE CAST ALUMINUM MOUNTED AT 48-INCHES AFS.
13. NOT USED.
14. REFER TO RVSS CONTROL WIRING SCHEMATIC ON DWG. 2-E-4.
15. REFER TO MTS CABINET REQUIREMENTS ON DWG. 2-E-6.
16. REFER TO RVSS STARTER CABINET REQUIREMENT ON DWG. 2-E-6.
17. STEPDOWN TRANSFORMER TO BE:

    480/240-120V, 1-PHASE, 10KVA SEALED UNIT, FULLY ENCAPSULATED NEMA4X ENCLOSURE 304 S/S, FRAME MOUNTED EATON PN S48DIIS10SS4X. CONTRACTOR TO ADJUST SECONDARY TAPS TO OBTAIN PROPER SECONDARY VOLTAGE AT PNL-LP-1
18. 240/120VAC, 1P/3W, 100AMP INTERIOR, 50AMP, 2-POLE MAIN CIRCUIT BREAKER, 10KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND AND NEUTRAL BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE, PANEL SCHEDULE AS SHOWN ON DWG. 2-E-7. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P1C225BB18CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
19. 480VAC, 3P/3W, 225AMP INTERIOR, MAIN LUG ONLY, 18KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P3E250LB6CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
20. ROUTE ABOVE GRADE IN LNFC-B CONDUIT OR AS DIRECTED BY JEA.
21. SEE DWG ES-2 FOR MOTOR SPECIFICATIONS, AND MOTOR DATA SHEET OF VERTICAL TURBINE PUMP SPEC.
22. MOTOR LEAD CONNECTIONS SHALL BE T & B BLACKBURN COMPRESSION MOTOR LEAD DISCONNECTS. TYPE KUBE, NO SUBSTITUTIONS.
23. FURNISH AND INSTALL PROTECTIVE COVER FOR FLOW ELEMENT. SEE MANUFACTURERS INSTRUCTIONS.
24. STUB SPARE 3" CONDUIT 6-INCHES AFG BENEATH METER AND CAP FOR FUTURE USE. SEE DWG 2-C-1 FOR ADDITIONAL INFORMATION.
25. STUB SPARE 3" CONDUIT 6-INCHES AFG BENEATH MTS-RT2 AND CAP FOR FUTURE USE.
26. ALLOW FOR 30-INCHES OF SLACK [MSC] AND LNFC-B CONDUIT TO PERMIT REMOVAL OF CONDUCTIVITY PROBE WITHOUT DISCONNECTION.
27. TWO BRANCH CIRCUITS FOR IRRIGATION CONTROLLER AND BACKFLOW PREVENTER HEAT TAPE. SEE KEYNOTE 9 ON DWG 2-C-1.




## POWER AND CONTROL WIRING PLAN

3/8"=1'-0"

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:59 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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Tel: (904) 731-7109
FL COA No. EB-0000020

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JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

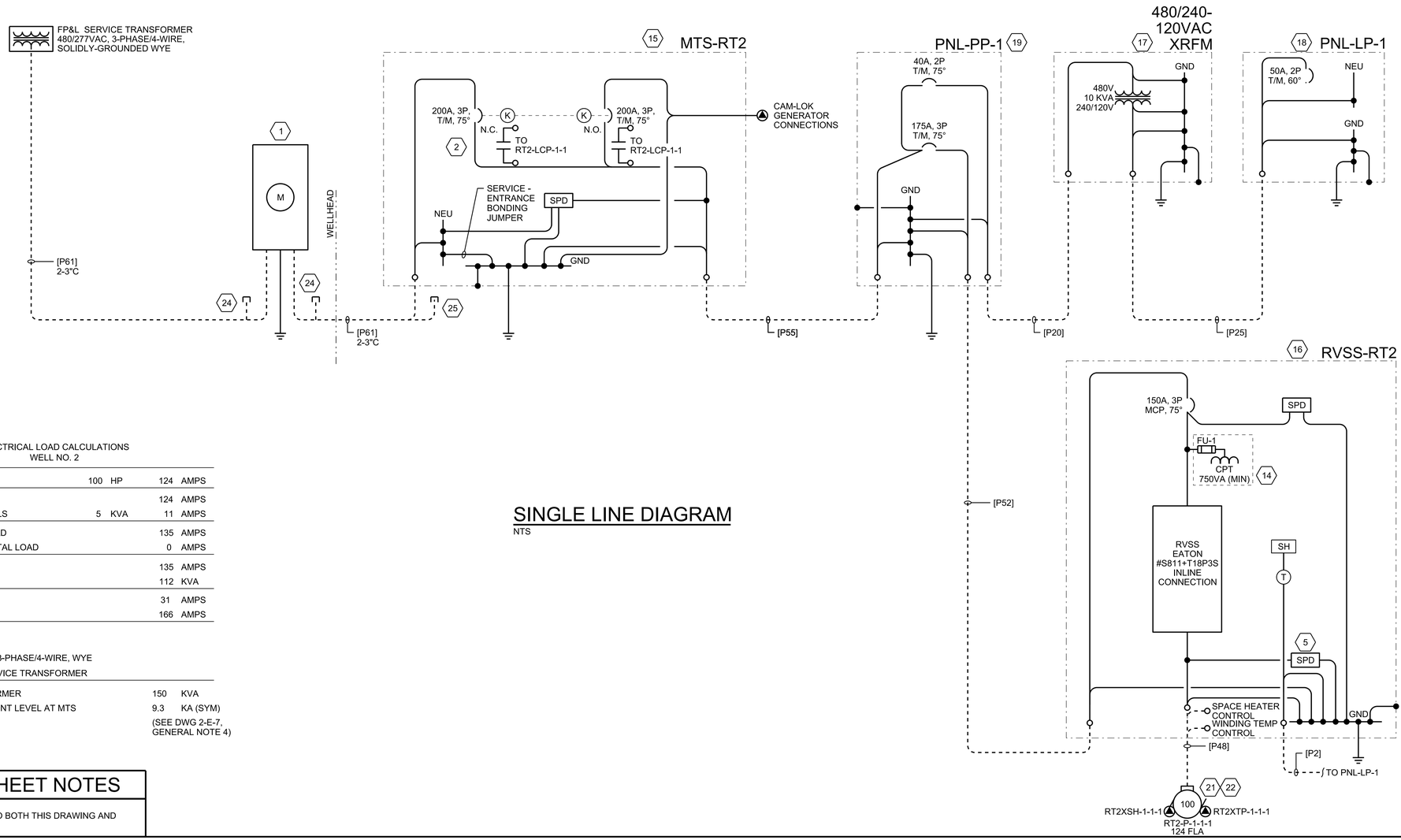
ELECTRICAL

WELLHEAD NO.2
POWER PLAN

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2070-E-002_D3270100.dgn

SHEET NO.
2-E-2

ISSUED FOR BID




# SINGLE LINE DIAGRAM

NTS

ELECTRICAL LOAD CALCULATIONS
WELL NO. 2

| | | | | |
|---|---|---|---|---|
| WELL PUMP 2 | 100 | HP | 124 | AMPS |
| TOTAL MOTOR LOAD | | | 124 | AMPS |
| LIGHTING AND CONTROLS | 5 | KVA | 11 | AMPS |
| TOTAL CONNECTED LOAD | | | 135 | AMPS |
| TOTAL NON-COINCIDENTAL LOAD | | | 0 | AMPS |
| PEAK DEMAND AMPS | | | 135 | AMPS |
| PEAK DEMAND KVA | | | 112 | KVA |
| 0.25 X LARGEST MOTOR | | | 31 | AMPS |
| MIN SERVICE AMPACITY | | | 166 | AMPS |

ELECTRICAL SERVICE:
200 AMP, 480/277 VOLT, 3-PHASE/4-WIRE, WYE

ELECTRICAL SERVICE TRANSFORMER

| | | |
|---|---|---|
| FPL SERVICE TRANSFORMER | 150 | KVA |
| MAXIMUM FAULT CURRENT LEVEL AT MTS | 9.3 | KA (SYM) |

(SEE DWG 2-E-7, GENERAL NOTE 4)

## GENERAL SHEET NOTES

1. KEYNOTES APPLY TO BOTH THIS DRAWING AND DWG 2-E-2.

## SHEET KEYNOTES

1. FURNISH AND INSTALL METERING CAN, HANDHOLES, CONDUIT AND WIRING PER FP&L AND JEA REQUIREMENTS AND STANDARDS. COORDINATE WITH JEA FOR PHYSICAL LOCATION AND DETAILS. REFER TO DWG. 2-C-1 FOR ADDITIONAL DETAILS. CONTRACTOR SHALL COORDINATE WITH FP&L ALL ASPECTS ASSOCIATED WITH THE ELECTRIC SERVICE DELIVERY, FINAL INSPECTION, AND ESTABLISHING SERVICE TO THE WELLHEAD, SEE DWG 2-C-1, KEYED NOTE 5.
2. FURNISH AND INSTALL SIGNAGE INDICATING THE 200AMP MAIN CIRCUIT BREAKER IN THE MTS AS THE SERVICE DISCONNECT. SIGNAGE SHALL BE 6"BY 4"IN SIZE, RED LAMINATE, ETCHED TO A WHITE CORE. LETTERING APPROPRIATELY SIZED FOR THE SIGNAGE, AND ATTACHED TO THE FRONT EXTERIOR OF THE MTS WITH S/S HARDWARE.
3. NOT USED.
4. LEVEL PROBE TERMINAL CABINET SHALL BE PMC TYPE TE-11-AC. MOUNT CABINET ON EAST FACE OF CONCRETE PIPE SUPPORT WITH BOTTOM AT 12" AFS. SEE DETAILS 408, 409, AND 413 ON DWG ED-2.
5. SPD SHALL BE AS MANUFACTURED BY SURGE SUPPRESSION, INC (SSI), CAT. #SMLB3N4X2. SPD SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. CONTACT MANUFACTURER PRIOR TO BEGINNING CONSTRUCTION ON THE WELLHEAD TO COORDINATE ALL INSTALLATION REQUIREMENTS. SPD SHALL BE INCORPORATED INTO PANEL DESIGN AND FABRICATION.
6. UG CONDUIT FOR THE PUMP MOTOR POWER, SPACE HEATER, AND WINDING THERMAL PROTECTION SHALL EXTEND ABOVE FINISHED SLAB 2-INCHES, AND THEN TRANSITION TO TYPE LNFC-B CONDUIT FOR CONNECTION TO THE MOTOR HOUSING. SEE DETAIL 413 ON DWG. ED-2.
7. WELL FLANGE CABLING SHALL BE SEALED TO PREVENT LEAKAGE. FURNISH AND INSTALL CONTA CLIP #20901.6 W/ S/S CORD GRIP FOR LEVEL PROBE TO PREVENT LEAKAGE.
8. COORDINATE POLE LOCATION AND AIMING DIRECTION ON THE EXTERIOR LUMINAIRE WITH JEA PRIOR TO INSTALLATION. FURNISH AND INSTALL 23'-3" PRECAST CONCRETE POLE, LUMINAIRE AND MOUNTING CAP. REFER TO DETAIL 504 ON DWG. ED-3. ARROW INDICATES AIMING DIRECTION. SEE DWG 2-C-1 FOR LOCATION.
9. FURNISH AND INSTALL NEW ANTENNA POLE, COAX CABLE, AND ANTENNA. INSTALL ANTENNA POLE, ANTENNA, CABLE, AND OTHER ASSOCIATED ITEMS PER JEA STANDARD DETAILS. FIELD VERIFY EXACT LOCATION OF POLE AND ANTENNA WITH JEA BASED ON RADIO PATHWAY ANALYSIS AS PERFORMED BY CONTRACTOR. REFER TO WTP CONTRACT DOCUMENTS VOL. 1 FOR DETAILS. GROUND POLE IN ACCORDANCE WITH STANDARD DETAILS. SEE DETAIL 508 ON DWG ED-4.
10. FURNISH AND INSTALL THE SCADA FIELD PANEL AND ALL ASSOCIATED CONDUIT AND WIRING AS SHOWN ON THESE PLANS AND IN ACCORDANCE WITH SPECIFICATION 40.90.11 AND JEA REQUIREMENTS. JEA SHALL BE RESPONSIBLE FOR ALL PROGRAMMING ASSOCIATED WITH THE SCADA PANEL, ALONG WITH THE PROFIBUS COMMUNICATION WITH THE POWER MONITOR. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE REQUIRED SCHEDULE WITH JEA.
11. WIRING FOR THE INSTRUMENTATION PROBES, ELEMENTS, TRANSMITTERS AND TRANSDUCERS SHALL BE AS REQUIRED BY THE MANUFUACTUERS. REFER TO DETAILS 412, 501 & 502 ON DWG. ED-2 & ED-3.
12. MOUNT LIGHT SWITCH IN A NEMA-3R BOX AND COVER. BOX AND COVER TO BE DIE CAST ALUMINUM MOUNTED AT 48-INCHES AFS.
13. NOT USED.
14. REFER TO RVSS CONTROL WIRING SCHEMATIC ON DWG. 2-E-4.
15. REFER TO MTS CABINET REQUIREMENTS ON DWG. 2-E-6.
16. REFER TO RVSS STARTER CABINET REQUIREMENT ON DWG. 2-E-6.
17. STEPDOWN TRANSFORMER TO BE:

    480/240-120V, 1-PHASE, 10KVA SEALED UNIT, FULLY ENCAPSULATED NEMA4X ENCLOSURE 304 S/S, FRAME MOUNTED EATON PN S48DIIS10SS4X. CONTRACTOR TO ADJUST SECONDARY TAPS TO OBTAIN PROPER SECONDARY VOLTAGE AT PNL-LP-1
18. 240/120VAC, 1P/3W, 100AMP INTERIOR, 50AMP, 2-POLE MAIN CIRCUIT BREAKER, 10KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND AND NEUTRAL BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE. PANEL SCHEDULE AS SHOWN ON DWG. 2-E-7. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P1C225BB18CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
19. 480VAC, 3P/3W, 225AMP INTERIOR, MAIN LUG ONLY, 18KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P3E250LB6CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASPS.
20. ROUTE ABOVE GRADE IN LNFC-B CONDUIT OR AS DIRECTED BY JEA.
21. SEE DWG ES-2 FOR MOTOR SPECIFICATIONS, AND MOTOR DATA SHEET OF VERTICAL TURBINE PUMP SPEC.
22. MOTOR LEAD CONNECTIONS SHALL BE T & B BLACKBURN COMPRESSION MOTOR LEAD DISCONNECTS. TYPE KUBE, NO SUBSTITUTIONS.
23. FURNISH AND INSTALL PROTECTIVE COVER FOR FLOW ELEMENT. SEE MANUFACTURERS INSTRUCTIONS.
24. STUB SPARE 3" CONDUIT 6-INCHES AFG BENEATH METER AND CAP FOR FUTURE USE. SEE DWG 2-C-1 FOR ADDITIONAL INFORMATION.
25. STUB SPARE 3" CONDUIT 6-INCHES AFS BENEATH MTS-RT2 AND CAP FOR FUTURE USE.
26. ALLOW FOR 30-INCHES OF SLACK [MSC] AND LNFC-B CONDUIT TO PERMIT REMOVAL OF CONDUCTIVITY PROBE WITHOUT DISCONNECTION.



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:15 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

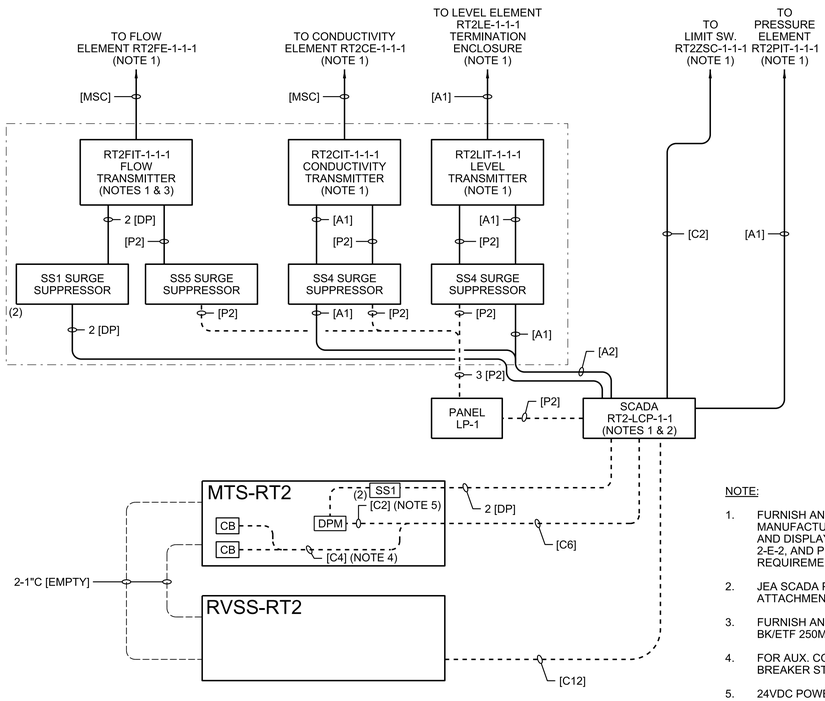
WELLHEAD NO.2
SINGLE LINE DIAGRAM

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME:

SHEET NO.
2-E-3

ISSUED FOR BID




NOTE:

1. FURNISH AND INSTALL ALL INSTRUMENTATION, MANUFACTURER CABLES, TERMINAL ENCLOSURES, AND DISPLAYS AS SHOWN BELOW, ON DWG. 2-E-2, AND PER JEA MOST RECENT REQUIREMENTS.
2. JEA SCADA PANEL DESIGN INCORPORATED BY ATTACHMENT.
3. FURNISH AND INSTALL FUSING. BUSSMAN PN: BK/ETF 250MA.
4. FOR AUX. CONTACTS TO MONITOR OPEN/CLOSE BREAKER STATUS.
5. 24VDC POWER FOR DPM.
6. CONTRACTOR'S PROCESS CONTROL INTEGRATOR FOR THE WTP SHALL BE RESPONSIBLE FOR SETUP AND CALIBRATION OF ALL WELLHEAD INSTRUMENTATION AND CONTROLS, INCLUSIVE OF THE SCADA PANEL.

## INSTRUMENTATION WIRING SCHEMATIC

NTS

INSTRUMENT PROBES/TRANSMITTERS
BASIS OF DESIGN:

CONDUCTIVITY:
ROSEMOUNT SENSOR: MODEL 228-02-20-54-62, W/ ADAPTER 23311-01 (RT2CE-1-1-1)
ROSEMOUNT INPUT ANALYZER: MODEL 1056-01-21-38-AN (RT2CIT-1-1-1)

FLOW:
ABB WATER MASTER FLOWMETER SYSTEM, FULL BORE, REMOTE MOUNT
FEW32-5-300A1S4-A1D1B1A-3P-3B3-G-1-M5 (RT2FE-1-1-1 & RT2FIT-1-1-1)

INCLUDE:
- 12" NB
- PTFE LINER
- S/S ELECTRODES
- (2) POTENTIAL EQUALIZING RINGS
- CLASS 1 CALIBRATION
- 60 FT MSC CABLE

LEVEL:
SUBMERSIBLE TRANSMITTER: PMC MINIATURE MTM 3213-100PSIG-0.1%-105' (RT2LE-1-1-1), 0.1%; 100 PSIG; LOCATED 90-FEET BELOW WELLHEAD.
TERMINATION ENCLOSURE: PMC TE-11-AC W/ MP-11
ENDRESS AND HAUSER PROCESS DISPLAY: RIA46-1530/0-A, A1, B , B1 (RT2LIT-1-1-1)

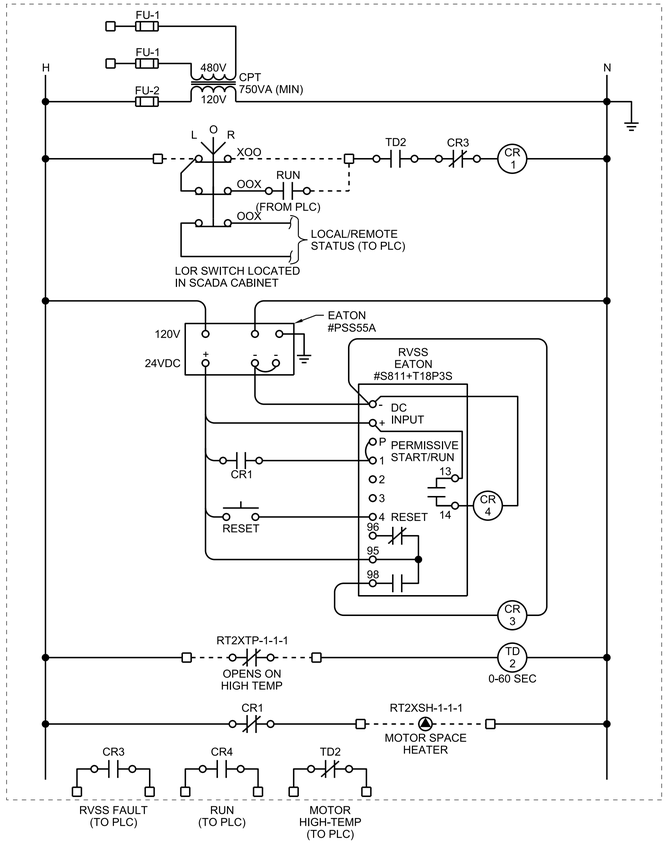
PRESSURE:
ROSEMOUNT INLINE TRANSMITTER: MODEL 305ITG-2A-2B21J-M4-Q4 (RT2PT-1-1-1)

INCLUDE:
- FACTORY CALIBRATION
- FACTORY SET ENGR. UNITS = PSIG

NOTES:

CONTRACTOR TO CONFIRM ALL DEVICES WITH OWNER PRIOR TO PURCHASE.

SEE MECHANICAL DRAWINGS AND SPECIFICATION SECTIONS 40 90 01 AND 40 90 11 FOR ADDITIONAL DETAIL.




NOTE:

1. REFER TO DWG 2-E-7 FOR CIRCUIT CALLOUTS AND CONDUIT/CABLE SCHEDULE.
2. REFER TO DWG 2-E-6 FOR RVSS-RT2 ENCLOSURE DESIGN.
3. TD2 INITIAL SETTING SHALL BE 30 SEC. FINAL SETTING BY JEA.

## RVSS-RT2 CONTROL SCHEMATIC

NTS



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:07 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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FL COA No, EB-0000020

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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

WELLHEAD NO.2
MOTOR CONTROL SCHEMATIC AND INSTRUMENTATION RISER DIAGRAM

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

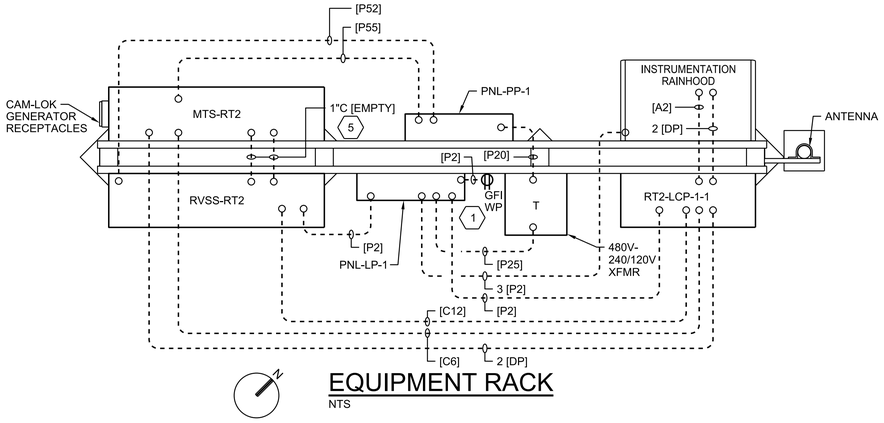
PROJECT NO. 6103-237938
JACOBS FILE NAME: 2070-E-004_D3270100.dgn

SHEET NO.
2-E-4

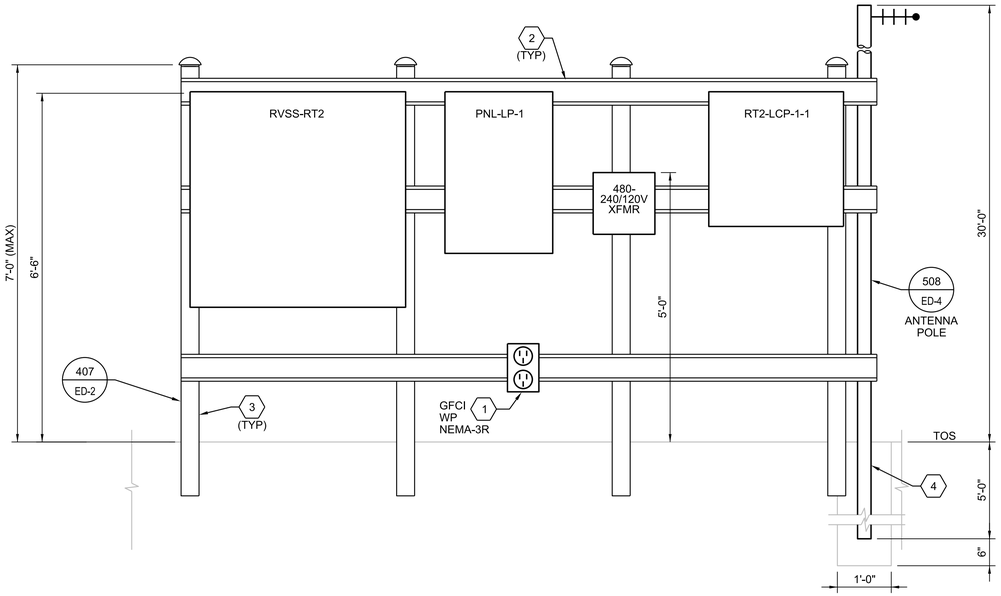
ISSUED FOR BID

## SHEET KEYNOTES

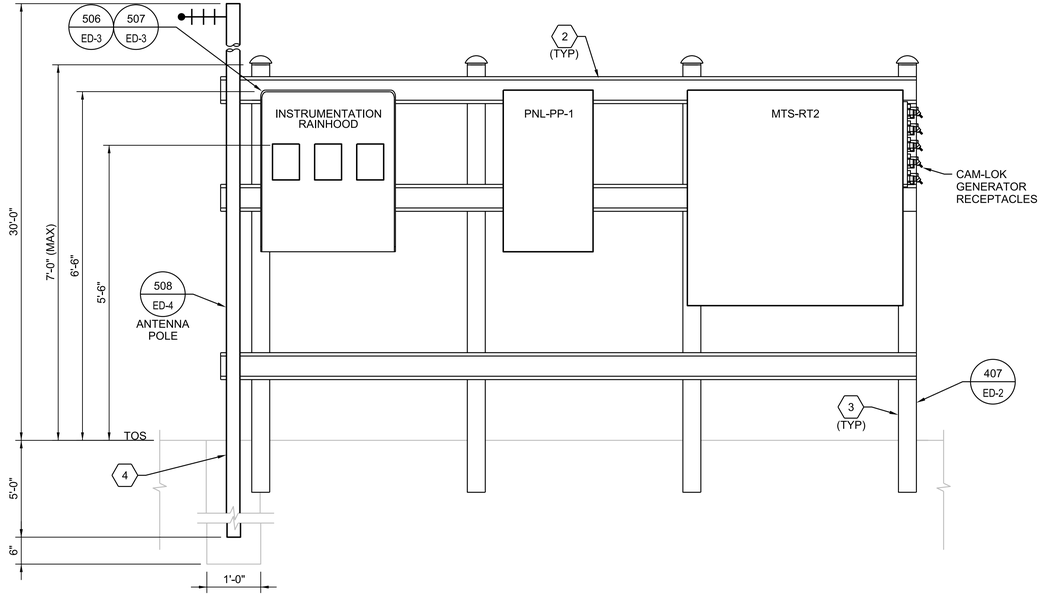
1. FURNISH AND INSTALL ONE (1) 120VAC, 20 AMP DUPLEX RECEPTACLE RATED CLASS A, 4-6mA GFCI AND WR. INSTALL IN NEMA-3R IN-USE BOX WITH COVER. BOX AND COVER TO BE DIE CAST ALUMINUM. MOUNT MINIMUM 18"-AFS AND BELOW PNL-LP-1.
2. FURNISH AND INSTALL 1/2" x 3" ALUMINUM SUPPORT BARS AS REQUIRED TO PROPERLY SUPPORT RACK MOUNTED EQUIPMENT. ELEVATION VIEWS FOR EXAMPLE ONLY.
3. MASTIC SEAL. TYPICAL FOR ALL ALUMINUM POSTS AS SHOWN IN DETAIL 407 ON DWG ED-2.
4. REFER TO NOTE 4 OF DETAIL 508 ON DWG. ED-4 FOR SLEEVING REQUIREMENT.
5. EMPTY CONDUIT FOR FUTURE USE.




## EQUIPMENT RACK
NTS




## EAST ELEVATION
NTS




## WEST ELEVATION
NTS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:26 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

WELLHEAD NO.2
EQUIPMENT RACK ELEVATIONS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2070-E-005_D3270100.dgn

SHEET NO.
2-E-5

ISSUED FOR BID

# GENERAL NOTES

1. FULLY ASSEMBLED ENCLOSURE SHALL BE RATED AS SERVICE-ENTRANCE EQUIPMENT AND BEAR A UL LABEL TO THAT EFFECT. THE ENCLOSURE SHALL COMPLY WITH UL-508A WITH EXCEPTION OF KEY-LOCK CIRCUIT BREAKERS, AND BEAR A SCCR LABEL INDICATING THE ASSEMBLED UNIT HAS A SHORT CIRCUIT WITHSTAND OF 18KA.

2. EXPOSED INTERIOR LIVE COMPONENTS SHALL BE COVERED WITH A CLEAR PLEXIGLASS COVER, HINGED ON ONE SIDE, LATCHED ON THE OTHER, TO PREVENT ACCIDENTAL CONTACT OF ENERGIZED COMPONENTS WHILE ALLOWING FOR MANUAL OPERATION OF THE TWO CIRCUIT BREAKERS.

# GENERAL NOTES

3. APPROVED ENCLOSURE MANUFACTURERS ARE:

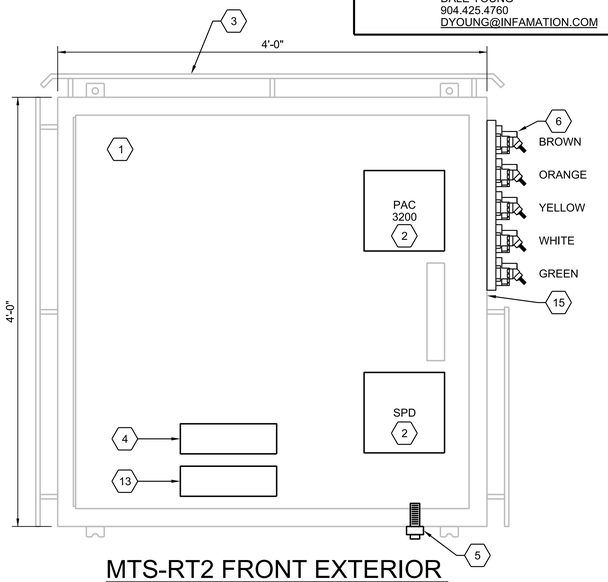
   a. ECS
   RALPH SINN
   904.367.5000
   RALPH@ECSCONTROLPANELS.COM

   b. EG CONTROLS, INC.
   BRIAN DAIL
   904.292.0110
   BDAIL@EGCONTROLS.COM

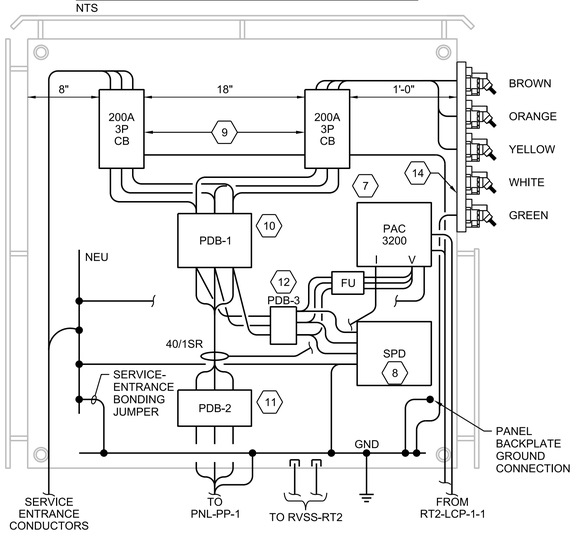
   c. SUNCOAST
   MARK OWENS
   904.693.3318
   MOWENS@SUNCOASTCONTROLS.BIZ

   d. SUN STATE SYTEMS, INC.
   BARNEY MESSER
   904.269.2544
   BMESSER@SUNSTATESYSTEMS.COM

   e. INFAMATION TECHNOLOGIES GROUP
   DALE YOUNG
   904.425.4760
   DYOUNG@INFAMATION.COM




## MTS-RT2 FRONT EXTERIOR
NTS




## MTS-RT2 FRONT INTERIOR
NTS

# SHEET KEYNOTES

1. ENCLOSURE SHALL BE PENTAIR/HOFFMAN, TYPE A48H4812WFSSLP3PT-MOD, 304 S/S, NEMA-4X FOR OUTDOOR USE. DIMENSIONS TO BE 48"WX48"H WITH MINIMUM DEPTH OF 10". INTERIOR AND EXTERIOR SHALL HAVE FINISH TYPE A1, COLOR S078: WHITE (HOFFMAN #60) - SMOOTH GLOSSY. ENCLOSURE SHALL BE EQUIPPED WITH AN APPROPRIATE BACKPLATE FOR EQUIPMENT MOUNTING, FINISH TO BE SAME AS ENCLOSURE.

2. EXTERIOR VIEWING WINDOW, PENTAIR/HOFFMAN FRAME STYLE #1 TYPE APWK95NFSS, 9"X5.5", NEMA-4X. ONE WINDOW WILL BE USED TO VIEW THE SPD STATUS, AND ONE WINDOW WILL BE USED TO VIEW THE POWER MONITOR.

3. TOP AND SIDE SUN HEAT SHIELDS, MARINE GRADE ALUMINUM, POLYESTER POWER COAT FINISH: WHITE.

4. NAMEPLATE #1 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):
   MTS-RT2

5. ONE-WAY BREATHER/DRAIN, T&B # ECD15-TB.

6 GENERATOR RECEPTACLES: CAM-LOK PANEL. PANEL PLATE SHALL BE 24"H X 6.25"W X .125"THICK, MADE FROM HIGH GRADE ALUMINUM (NON-FERROUS) WITH A POWDER COAT FINISH, TYPE A1, COLOR S078: WHITE, SMOOTH GLOSSY. RECEPTACLES SHALL BE EATON CAM-LOK, 400AMP, 480/277VAC, J-SERIES E1016, ELASTOMERIC, 45-DEG ANGLED, DOUBLE-SET SCREWS. RECEPTACLES SHALL BE ARRANGED PHASE-OVER-PHASE, COLORED CODED TOP-TO-BOTTOM: BROWN/ORANGE/YELLOW/ WHITE/GREEN. PHASE RECEPTACLES SHALL BE MALE-STYLE, PART NO. E1016-170XS45 WHERE 'X' REPRESENTS THE REQUIRED COLOR. NEUTRAL/GROUND RECEPTACLES SHALL BE FEMALE-STYLE, PART NO. E1016-17XXS45 WHERE 'XX' REPRESENTS THE REQUIRED COLOR. FURNISH THE APPROPRIATE MALE OR FEMALE PROTECTIVE CAP AND LANYARD FOR EACH RECEPTACLE, COLOR CODED THE SAME AS EACH RECEPTACLE. PART NO. A10060X-XX WHERE 'X' REPRESENTS THE MALE/FEMALE STYLE AND 'XX' REPRESENTS THE REQUIRES COLOR. PROVIDE A 2"VERTICAL SEPARATION BETWEEN EACH RECEPTACLE MOUNTING PLATE.

   ON THE STAINLESS STEEL ENCLOSURE, PROVIDE A SINGLE RECTANGULAR CUTOUT, VERTICALLY ORIENTED, MAX OPENING TO BE 22"H X 4.25"W. INDIVIDUAL RECEPTACLE CUTOUTS IN THE STAINLESS STEEL IS NOT ACCEPTABLE. CUTOUT TO BE CENTERED HORIZONTALLY ON THE ENCLOSURE, AND AS CLOSE TO THE TOP AS POSSIBLE. MOUNT ALUMINUM PANEL PLATE TO ENCLOSURE WITH STAINLESS STEEL HARDWARE IN A MANNER TO PROVIDE, AS A MINIMUM, A NEMA-3 OVERALL ENCLOSURE RATING.

7. DIGITAL POWER MONITOR: SENTRON PAC3200 W/ PROFIBUS DP HARDWIRED INTERFACE. NO SUBSTITUTION. (24VDC POWERED)

8. SURGE PROTECTIVE DEVICE: TYPE 2, CAT. C "TRUE" 10 MODE W/ DEDICATED PROTECTIVE ELEMENT IN EACH MODE. SSI CAT# LSEB3Y2-E1-X2-S. NO SUBSTITUTION.

9. CIRCUIT BREAKER: SQUARE D CAT# JDL36200. KEY-INTELOCKED. WITH AUXILIARY SWITCH 1A1B CAT. #S29450.

10. POWER DISTRIBUTION BLOCK: BUSSMAN HIGH SCCR SERIES. CAT# PDB371-3

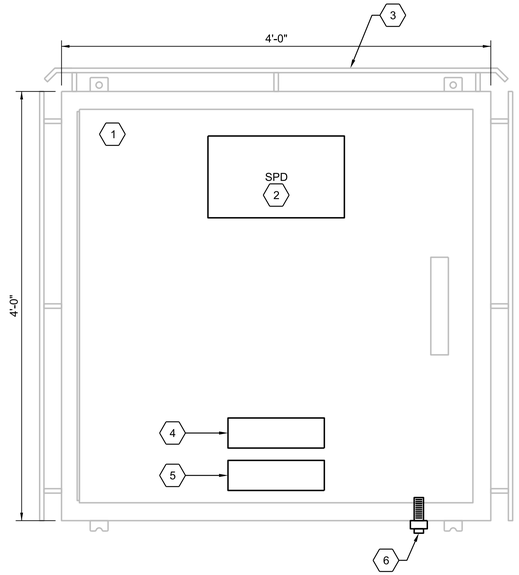
11. POWER DISTRIBUTION BLOCK: BUSSMAN HIGH SCCR SERIES. CAT# PDB204-3

12. POWER DISTRIBUTION BLOCK: BUSSMAN HIGH SCCR SERIES. CAT# PDB321-3.

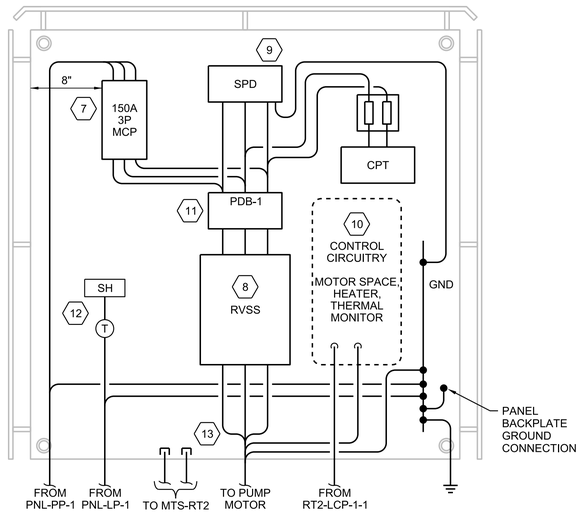
13. NAMEPLATE #2 (REFER TO DWG 2-E-3, NOTE 2 AND DWG. ES-1 FOR SPECIFICATIONS):
    SERVICE ENTRANCE DISCONNECT LOCATED INSIDE

14. THE INTERIOR BARREL OF THE GROUNDED PHASE RECEPTACLE (WHITE) SHALL BE FULLY INSULATED, BUT NOT CONNECTED WITHIN THE PANEL. THIS SHALL BE A DEAD-END CONNECTION.

15. NAMEPLATE #3 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):
    WARNING:
    FOR CONNECTION OF A SEPARATELY DERIVED (BONDED NEUTRAL) SYSTEM




## RVSS-RT2 FRONT EXTERIOR
NTS




## RVSS-RT2 FRONT INTERIOR
NTS

# GENERAL NOTES

1. FULLY ASSEMBLED ENCLOSURE SHALL BEAR AN UL-508A LABEL, AND A SCCR LABEL INDICATING THE ASSEMBLED UNIT HAS A SHORT CIRCUIT WITHSTAND OF 10KA.

2. EXPOSED INTERIOR LIVE COMPONENTS SHALL BE COVERED WITH A CLEAR PLEXIGLASS COVER, HINGED ON ONE SIDE, LATCHED ON THE OTHER, TO PREVENT ACCIDENTAL CONTACT OF ENERGIZED COMPONENTS WHILE ALLOWING FOR MANUAL OPERATION OF THE CIRCUIT BREAKER.

3. APPROVED ENCLOSURE MANUFACTURERS ARE:

   a. ECS
   RALPH SINN
   904.367.5000
   RALPH@ECSCONTROLPANELS.COM

   b. EG CONTROLS, INC.
   BRIAN DAIL
   904.292.0110
   BDAIL@EGCONTROLS.COM

   c. SUNCOAST
   MARK OWENS
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   d. SUN STATE SYTEMS, INC.
   BARNEY MESSER
   904.269.2544
   BMESSER@SUNSTATESYSTEMS.COM

   e. INFAMATION TECHNOLOGIES GROUP
   DALE YOUNG
   904.425.4760
   DYOUNG@INFAMATION.COM

# SHEET KEYNOTES

1. ENCLOSURE SHALL BE PENTAIR/HOFFMAN, TYPE A48H4812WFSSLP3PT-MOD, 304 S/S, NEMA-4X FOR OUTDOOR USE. DIMENSIONS TO BE 48"Wx48"H WITH MINIMUM DEPTH OF 10". INTERIOR AND EXTERIOR SHALL HAVE FINISH TYPE A1, COLOR S078: WHITE (HOFFMAN #60) - SMOOTH GLOSSY. ENCLOSURE SHALL BE EQUIPPED WITH AN APPROPRIATE BACKPLATE FOR EQUIPMENT MOUNTING, FINISH TO BE SAME AS ENCLOSURE.

2. EXTERIOR VIEWING WINDOW, PENTAIR/HOFFMAN FRAME STYLE #1 TYPE APWK95NFSS, 9"X5.5", NEMA-4X. WINDOW TO BE USED TO VIEW THE SPD STATUS.

3. TOP AND SIDE SUN HEAT SHIELDS, MARINE GRADE ALUMINUM, POLYESTER POWER COAT FINISH: WHITE.

4. NAMEPLATE #1 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):
   RVSS-RT2

5. NAMEPLATE #2 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):
   MAY BE ENERGIZED FROM THREE DIFFERENT SOURCES
   PNL-PP-1
   PNL-LP-1
   RT2-LCP-1-1

6. ONE-WAY BREATHER/DRAIN, T&B # ECD15-TB.

7. MOTOR CIRCUIT PROTECTOR: SQUARE D CAT# HJL36150M74.

8. REDUCED VOLTAGE MOTOR STARTER: EATON CAT #S811+T18P3S. INLINE CONNECTION. NO SUBSTITUTION.

9. SURGE PROTECTIVE DEVICE: TYPE 2, CAT. B "TRUE"10 MODE W/ DEDICATED PROTECTIVE ELEMENT IN EACH MODE. SSI CAT# LSEA3N4-E1-X2-S. NO SUBSTITUTION.

10. REFER TO DWG. 2-E-4 FOR CONTROL SCHEMATIC INFORMATION.

11. POWER DISTRIBUTION BLOCK: BUSSMAN HIGH SCCR SERIES. CAT# PDB371-3

12. THERMOSTATICALLY CONTROLLED SPACE HEATER. SPACE HEATER TO BE RATED 400W, 240VAC.

13. SEE DWG 2-E-3, KEYNOTE 5 FOR ADDITIONAL SPD REQUIREMENT. SPD SHALL BE INCORPORATED INTO PANEL DESIGN AND FABRICATION.

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:41 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

WELLHEAD NO.2
EQUIPMENT PANEL LAYOUTS

PROJECT NO. 6103-237938
JACOBS FILE NAME:

SHEET NO.
2-E-6

ISSUED FOR BID

| CIRCUIT CALLOUTS | |
|---|---|
| [P2] | [3/4"C, 2#12, 1#12G] |
| [P4] | [1"C, 4#10, 2#10G] |
| [P20] | [1"C, 2#8, 1#10G] |
| [P25] | [1"C, 2#6, 1#6 NEU, 1#10G] |
| [P48] | [2"C, 3#1/0, 1#6G, 2#12, 2#14, 1#12G] |
| [P52] | [2"C, 3#2/0, 1-#6G] |
| [P55] | [2 1/2"C, 3#3/0, 1#6G] |
| [P61] | [3"C, 3#4/0, 1#2 NEU], [3"C, SPARE] |
| [C2] | [1"C, 2#14, 1#14G] |
| [C4] | [1"C, 4#14, 1#14G] |
| [C6] | [1"C, 6#14, 1#14G] |
| [C12] | [1"C, 12#14, 1#14G] |
| [A1] | [1"C, 1 TYPE 3] |
| [A2] | [1"C, 2 TYPE 3] |
| [A3] | [[1"C, 3 TYPE 3] |
| [DP] | [1-1/2"C, PROFIBUS DP FAST CONNECT] |
| [MSC] | [1"C, MANUFACTURER SUPPLIED CABLE] |

## LP-1 — PANEL BOARD SCHEDULE — LP-1

240/120 VOLTS | MCB 50A | 1 Phase | 3 WIRE | NEMA 4X | KAIC = 10

| CKT NBR | EQUIPMENT PROTECTED | CKT BKR POLE | CKT BKR TRIP | Nbr Sets | WIRE AND CONDUIT ** Phase | Neu | Grd | Cond | PHASE KVA A | PHASE KVA B | WIRE AND CONDUIT ** Phase | Neu | Grd | Cond | Nbr Sets | CKT BKR TRIP | CKT BKR POLE | EQUIPMENT PROTECTED | CKT NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | RT2-LCP-1-1 | 1 | 20 | | | | | | 1.5 | 0.6 | | | | | | 20 | 1 | RT2CIT-1-1-1 | 2 |
| 3 | POLE LIGHT | 1 | 20 | | | | | | - | - | 0.5 | 0.6 | | | | 20 | 1 | RT2LIT-1-1-1 | 4 |
| 5 | WP GFI RECEPTACLE | 1 | 20 | | | | | | 0.5 | 0.6 | - | - | | | | 20 | 1 | RT2FIT-1-1-1 | 6 |
| 7 | SPARE | 1 | 20 | | | | | | - | - | - | 0.1 | | | | 15 | 1 | IRRIGATION CONTROLLER | 8 |
| 9 | SPARE | 1 | 20 | | | | | | - | - | - | - | | | | 15 | 1 | IRRIGATION BACKFLOW PREVENTER HEAT TAP | 10 ∗ |
| 11 | SPARE | 1 | 20 | | | | | | - | - | - | - | | | | 20 | 1 | SPARE | 12 |
| 13 | RVSS SPACE HEATER | 2 | 20 | | | | | | 0.2 | - | - | - | | | | 20 | 2 | SPARE | 14 |
| 15 | | | | | | | | | - | - | 0.2 | - | | | | | | | 16 |
| 17 | SPARE | 1 | 20 | | | | | | - | - | - | - | | | | 20 | 1 | SPARE | 18 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | CONNECTED KVA = | | | | 3.4 | | 1.4 | | | | | | | | |

** PROVIDE #12 PHASE (QTY=CB POLES) AND GROUND IN 3/4" CONDUIT UNLESS DIFFERENT NUMBER AND/OR GREATER SIZES ARE SHOWN ON DRAWINGS.

∗ - CIRCUIT BREAKER TO BE CLASS A, 4-6mA GFCI

## CONDUIT/CABLE SCHEDULE

| FROM | TO | CONDUCTOR | CONDUIT |
|---|---|---|---|
| UTILITY HH-1 | MTS-RT2 | 3- #4/0, 1-#2 NEU | 1-3"/1-3" SPARE |
| MTS-RT2 | PNL-PP-1 | 3 - #3/0, 1 - #6 GND | 2 1/2" |
| MTS-RT2 | RVSS-RT2 | EMPTY | 1" |
| MTS-RT2 | RVSS-RT2 | EMPTY | 1" |
| MTS-RT2 | RT2-LCP-1-1 | Profibus DP Fast Connect | 1 1/2" |
| MTS-RT2 | RT2-LCP-1-1 | Profibus DP Fast Connect | |
| MTS-RT2 | RT2-LCP-1-1 | 6 - #14, 1 #14 GND | 1" |
| PNL-PP-1 | RVSS-RT2 | 3 - #2/0, 1 - #6 GND | 2" |
| PNL-PP-1 | 480/240-120VAC XRFM | 2 - #8, 1 - #10 GND | 1" |
| RVSS-RT2 | RT2-P-1-1-1 | 3 - #1/0, 1 - #6 GND, 2 - #12, 2 - #14, 1 - #12 GND | 2" |
| RVSS-RT2 | RT2-LCP-1-1 | 12 - #14, 1#14 GND | 1" |
| 480/240-120VAC XRFM | PNL-LP-1 | 2 - #6, 1- #6 NEU, 1 - #10 GND | 1" |
| PNL-LP-1 | RT2-LCP-1-1 | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RT2-CIT-1-1-1 | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RT2-LIT-1-1-1 | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RT2-FIT-1-1-1 | 2- #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | POLE LIGHT | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | GFCI RECPT. | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RVSS SPACE HEATER | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | IRRIGATION CONTROLLER | 2 - #10, 1 - #10 GND | 1" |
| PNL-LP-1 | IRRIGATION BACKFLOW PREVENTER HEAT TAPE | 2 - #10, 1 - #10 GND | |
| | | | |
| RT2-LCP-1-1 | RT2-PIT-1-1-1 | 1 TYPE 3 | 1" |
| RT2-LCP-1-1 | RT2-ZSC-1-1-1 | 2 - #14, 1 - #14 GND | 1" |
| RT2-LCP-1-1 | RT2-LIT-1-1-1 | 2 TYPE 3 | 1" |
| RT2-LCP-1-1 | RT2-CIT-1-1-1 | | |
| RT2-LCP-1-1 | RT2-FIT-1-1-1 | PROFIBUS DP FAST CONNECT | 1 1/2" |
| RT2-LCP-1-1 | RT2-FIT-1-1-1 | PROFIBUS DP FAST CONNECT | |
| RT2-LIT-1-1-1 | TE-11-AC | 1 TYPE 3 | 1" |
| RT2-CIT-1-1-1 | RT2-CE-1-1-1 | MSC | 1" |
| RT2-FIT-1-1-1 | RT2-FE-1-1-1 | MSC | 1" |
| RT2-LE-1-1-1 | TE-11-AC | MSC | 1" |

## GENERAL NOTES

1. ALL EQUIPMENT AND MATERIALS SHALL BE, AS MINIMUM PER JEA'S MOST CURRENT EDITION OF STANDARD AND METHODS OF INSTALLATION. REFER TO FP&L RULES AND REGULATIONS FOR ELECTRIC SERVICE, FOR INSTALLATION REQUIREMENTS ASSOCIATED WITH THE ELECTRIC SERVICE.
2. REFER TO DWG. 2-C-1 FOR DIMENSION DETAILS OF THE EQUIPMENT PAD.
3. REFER TO DWG. 2-C-1 FOR PAD ORIENTATION.
4. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL PERFORM AND SUBMIT TO ENGINEER THE ELECTRICAL SYSTEMS ANALYSIS AS REQUIRED BY SECTION 26.05.70 ON DWG ES-1.
5. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL TO THE ENGINEER AND JEA INDICATING THE EQUIPMENT LAYOUT AND CONDUIT ROUTING FOR THE EQUIPMENT RACK, TERMINAL JUNCTION BOXES, THE WELL PUMP, THE LIGHT POLE, AND ALL INSTRUMENTATION.
6. ALL CONDUITS SHALL BE ROUTED FROM SOURCE TO LOAD VIA UNDERGROUND, INCLUSIVE OF CABINET-TO-CABINET WIRING LOCATED ON THE COMMON EQUIPMENT SUPPORT FRAME. CONDUIT SHALL NOT BE ROUTED ACROSS THE SLAB OR ALONG THE SUPPORT FRAME. ONLY EXCEPTION IS THE DUPLEX RECEPTACLE WHICH SHALL BE LOCATED DIRECTLY BELOW THE 240/120VAC PANELBOARD.
7. ALL ABOVE GRADE CONDUIT SHALL BE RIGID ALUMINUM. ALL ABOVE GRADE TO BELOW GRADE TRANSITIONS, AND BELOW GRADE ELBOWS, SHALL BE RIGID ALUMINUM INCLUSIVE OF TWO MASTIC COATS ON THE EXTERIOR AND ALL AROUND THE UNDERGROUND COUPLING. ALL BELOW GRADE CONDUIT SHALL BE PVC SHC. 80 UNLESS NOTED OTHERWISE ON THE PLANS. PROVIDE PULLSTRINGS IN ALL EMPTY CONDUITS, AND CAP BOTH ENDS OF EMPTY CONDUITS. HORIZONTAL UNDERGROUND CONDUIT RUNS ARE NOT TO BE EMBEDDED IN THE CONCRETE SLAB.
8. ALUMINUM CONDUIT SHALL NOT BE INSTALLED IN DIRECT CONTACT WITH CONCRETE OR SOIL. CONTRACTOR SHALL PROVIDE FOR A 6-INCH SEPARATION BETWEEN THE CONCRETE SLAB AND THE START OF ANY ALUMINUM CONDUIT.
9. ALL UTILIZED CONDUITS ENTERING AND EXITING ALL ENCLOSURES SHALL BE FIRESTOPPED WITH A UL LISTED PRODUCT.
10. ALL CONDUIT PENETRATIONS INTO PANELS, BOXES, AND EQUIPMENT ENCLOSURES SHALL BE FROM THE BOTTOM. SIDE AND TOP PENETRATIONS ARE NOT ALLOWED.
11. EQUIPMENT AND CONDUIT SUPPORT STRUCTURES, DETAILS 401, 404 AND 407 ON DWGS ED-1 & ED-2, SHALL UTILIZE RIGID ALUMINUM STRUCTURAL MEMBERS. WHENEVER THE ALUMINUM MAY COME IN DIRECT CONTACT WITH THE CONCRETE SLAB OR SOIL, THE ALUMINUM SHALL BE COATED WITH A BITUMINOUS COATING OVER THE CONTACT AREA. FOR ALUMINUM POSTS THAT WILL BE EMBEDDED IN THE CONCRETE, THE POSTS SHALL BE COATED OVER THE CONTACT AREA AND UP TO 6-INCHES ABOVE THE CONCRETE SLAB.
12. CONDUCTORS SHALL BE:

    AS MANUFACTURED BY SOUTHWIRE OR OKONITE:

    #10AWG AND SMALLER SHALL BE SOLID COPPER. #8 AWG AND LARGER SHALL BE STRANDED COPPER. ALL POWER CONDUCTORS SHALL BE TYPE XHHW-2, 600VAC INSULATED. ALL DISCRETE CONTROL CONDUCTORS SHALL BE TYPE THWN-2/VW-1

    AS MANUFACTURED BY BELDEN, ALPHA OR OKONITE:

    ALL TYPE 3 ANALOG CONTROL CONDUCTORS SHALL BE #16AWG, TWISTED SHIELDED-PAIR INSTRUMENTATION CABLE, WC-57 RATED, COPPER DRAIN WIRE, COLORED BLACK AND RED.

    AS MANUFACTURED BY SIEMENS:

    PROFIBUS DP FASTCONNECT STANDARD CABLE ARTICLE #6XV1 830-0EHI0
13. APPLY CIRCUIT IDENTIFICATION SLEEVES ON ALL INSTRUMENTATION AND CONTROL CONDUCTORS, BOTH ENDS. UTILIZE PERMANENT PVC, YELLOW, WITH MACHINE PRINTED BLACK MARKINGS.
14. SEAL ENDS OF ALL OPEN CONDUITS, NOT TERMINATING INTO AN ENCLOSURE, WITH THE APPROPRIATE WATER-TIGHT HUB FOR CABLE TRANSITION FROM CONDUIT TO AIR.

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:23 PM

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

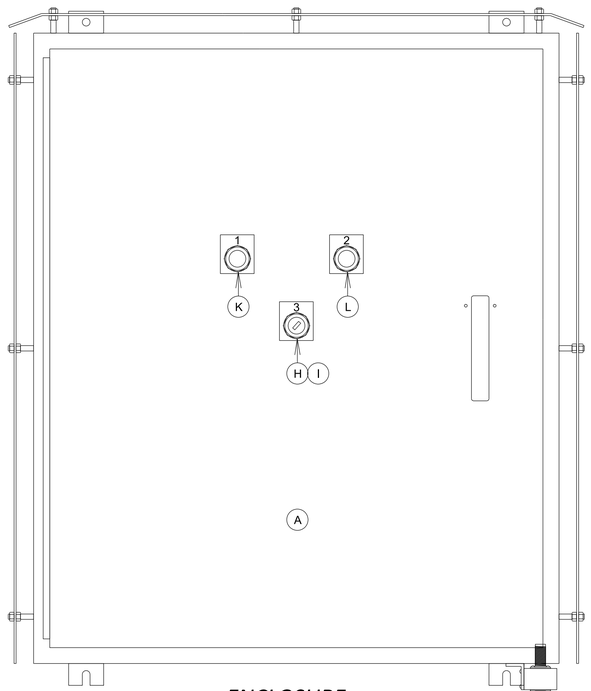
WELLHEAD NO.2
CIRCUIT CALLOUT, PANEL AND CONDUIT/CABLE SCHEUDLES

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2070-E-007_D3270100.dgn

SHEET NO.
2-E-7

ISSUED FOR BID

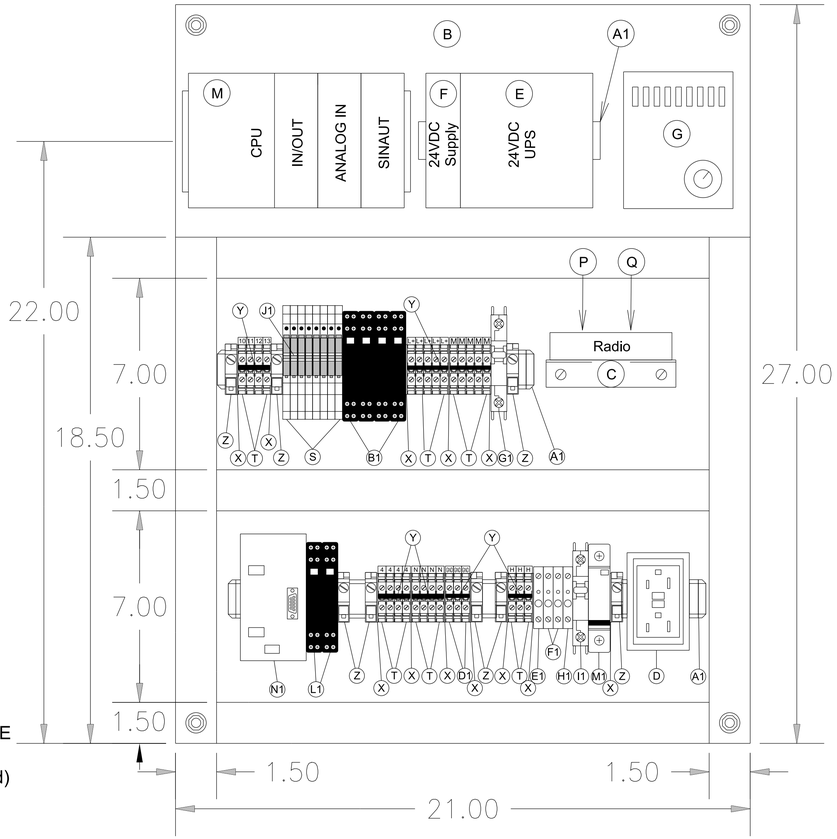
# FRONT VIEW




*ENCLOSURE*:
30"H x 30"W x 12"D NEMA 12/3R Rated
Fabricated from .125"
Marine Grade Aluminum with white
polyester powder coat finish and
Fitted with Padlockable 3-Point Latch.
With Back, Top and Side Heat Shields

RADIO SURGE ARRESTOR (J) (Field Installed)

# BACK PANEL




*BACKPANEL*: (27"H x 21"W) Fabricated from .125 Aluminum
with white powder coat finish

## NAMEPLATES

| MARK # | Line 1 | Line 2 |
|---|---|---|
| 1 | ON | - |
| 2 | FAULT | - |
| 3 | OFF | LOCAL REMOTE |
| 4 | - | - |

MAY BE ENERGIZED FROM
TWO DIFFERENT SOURCES:
PNL-LP-1
RVSS-RT2

| MARK # | QTY | MANUFACTURE | PART NUMBER | DESCRIPTION |
|---|---|---|---|---|
| A | 1 | OEM Supplied | Enclosure | Reference this sheet for details |
| B | 1 | OEM Supplied | Back Panel | Reference this sheet for details |
| C | 1 | OEM Supplied | Radio Shelf | Hold the Radio in place |
| D | 1 | Hubbell | DRUBGFI15 | GFCI Duplex Receptacles |
| E | 1 | Puls | UBC10.241 | 24VDC UPS with 5Ah Battery Backup |
| F | 1 | Puls | CS5.241 | Power Supply 120VAC / 24VDC, 5A |
| G | 1 | Hoffman | DAH1001A | 115VAC, 100Watt Heater |
| H | 1 | Allen Bradley | 800T-J44A | 3 Position Keyed Switch |
| I | 1 | Allen Bradley | 800T-XA | Contactors for Keyed Switch |
| J | 1 | Poly Phaser | IS-B50LN-C2 | Antenna Surge Arrestor |
| K | 1 | Siemens | 52PT6D2AB | Red, Push to test Indicator Light, LED |
| L | 1 | Siemens | 52PT6D9AB | Amber, Push to test Indicator Light, LED |
| M | 1 | Siemens | 6ES7 390-1AE80-0AA0 | 122mm Mount Rail for PLC |
| | 1 | Siemens | 6ES7 313-6CF03-0AB0 | CPU313C-2 DP 16DI/16DO PLC |
| | 1 | Siemens | 6ES7 953-8LG11-0AA0 | Micro Memory Card, 128K |
| | 1 | Siemens | 6ES7 331-7KF02-0AB0 | 8 Input Analog Card |
| | 1 | Siemens | 6NH7 800-3CA00 | SINAUT ST7, TIM 3V-IE |
| | 1 | Siemens | 6ES7 392-1AJ00-0AA0 | 20 Pin Screw connector |
| | 1 | Siemens | 6ES7 392-1AM00-0AA0 | 40 Pin Screw connector |
| N | 1 | Molex | 1201 03 0001 | Profibus Connector 90 degree with PG Port |
| O | 2 | Molex | 1201 03 5001 | Profibus Connector 180 degree |
| P | 1 | M D S | MDS 9810 | Spread Spectrum Unlicensed with Store / Forward |
| Q | 1 | TFS, INC (NOTE 1) | 9 Pin - 25 Pin RS232 Cable | SINAUT to MDS9810 Null Cable |
| R | - | - | - | - |
| S | 8 | Finder | 38.51.3.125.0060 | Relay, Status, Screw, SPDT, 120VAC |
| T | 25 | Weidmuller | 1020 10 0000 | Terminal, WDU4, Screw, Color Beige |
| X | 12 | Weidmuller | 1050000000 | End Plate / Partition Plate, Color Beige |
| Y | 7 | Weidmuller | 1758260000 | 10 pole cross connection, Yellow, For Terminals |
| Z | 8 | Weidmuller | 1061200000 | End Bracket, Color Beige |
| A1 | 3 | Weidmuller | 0514500000 | 35mm, Din Rail, Steel,Galvinized, Passivated, Slotted |
| B1 | 4 | Citel | DLAW-24D3 | 24VDC Analog Surge Protection |
| C1 | - | - | - | - |
| D1 | 3 | Weidmuller | 1010100000 | Terminal Ground, WDU4, Screw, Color Green |
| E1 | 1 | Weidmuller | 9926-25-1000 | CB, 1 Pole, 0.5A, Branch Rated UL489 (120VAC) |
| F1 | 2 | Weidmuller | 9926-25-1001 | CB, 1 Pole, 1A, Branch Rated UL489 (120VAC) |
| G1 | 1 | Weidmuller | 9926-25-1905 | CB, 1 Pole, 5A, Branch Rated UL489 (24VDC) |
| H1 | 1 | Weidmuller | 9926-25-1015 | CB, 1 Pole, 15A, Branch Rated UL489 (120VAC) |
| I1 | 1 | Weidmuller | 9926251020 | CB, 1 Pole, 20A, Branch Rated UL489 (120VAC) |
| J1 | 1 | Weidmuller | 1794060000 | 10 pole cross connection, pluggable, Black, For Relays |
| K1 | 2 | Panduit | Hinged Cover Wide Finger | Width = 1.5", Height = 2.0" ,Length = 6', Grey |
| L1 | 2 | Citel | DLA-12DBC | Surge Protection for Profibus |
| M1 | 1 | Citel | DS41S-120 | 120VAC Surge Suppressor, Base |
| N1 | 1 | Procentec | 101-00211A | Profibus Terminator Resistor |
| | | | | |

Note 1: Technical Field Services Inc. (904)278-5250, Jacksonville, Florida

DRAWING LAYER COLOR LEGEND:

GREY - NOTES
BLACK - ELECTRICAL SCHEMATIC WIRING DIAGRAMS AND DEVICES
BLUE - PART IDENTIFICATION
PURPLE - WIRE NUMBERS
GREEN - FIELD DEVICES AND WIRING OUTSIDE ENCLOSURE (DASHED)
RED - FUTURE DEVICES AND WIRING
TEAL - DIMENSIONS

CONTROL WIRE UL508A COLOR:

RED - 120 VAC
WHITE - NEUTRAL
BLUE - +24 VDC
WHITE / BLUE STRIPE - 0 VDC

| NO. | BY | DATE | REVISIONS |
|---|---|---|---|
| 6. | | | |
| 5. | | | |
| 4. | | | |
| 3. | | | |
| 2. | | | |
| 1. | | | |

ELECTRICAL SCHEMATIC
MANUFACTURER
ADDRESS1
ADDRESS2
CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: FRONT/BACK PANEL VIEW
PROJECT: RIVERTOWN WELL #2 WELLHEAD SCADA PANEL
JOB No:
SHEET 1 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:44 PM


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

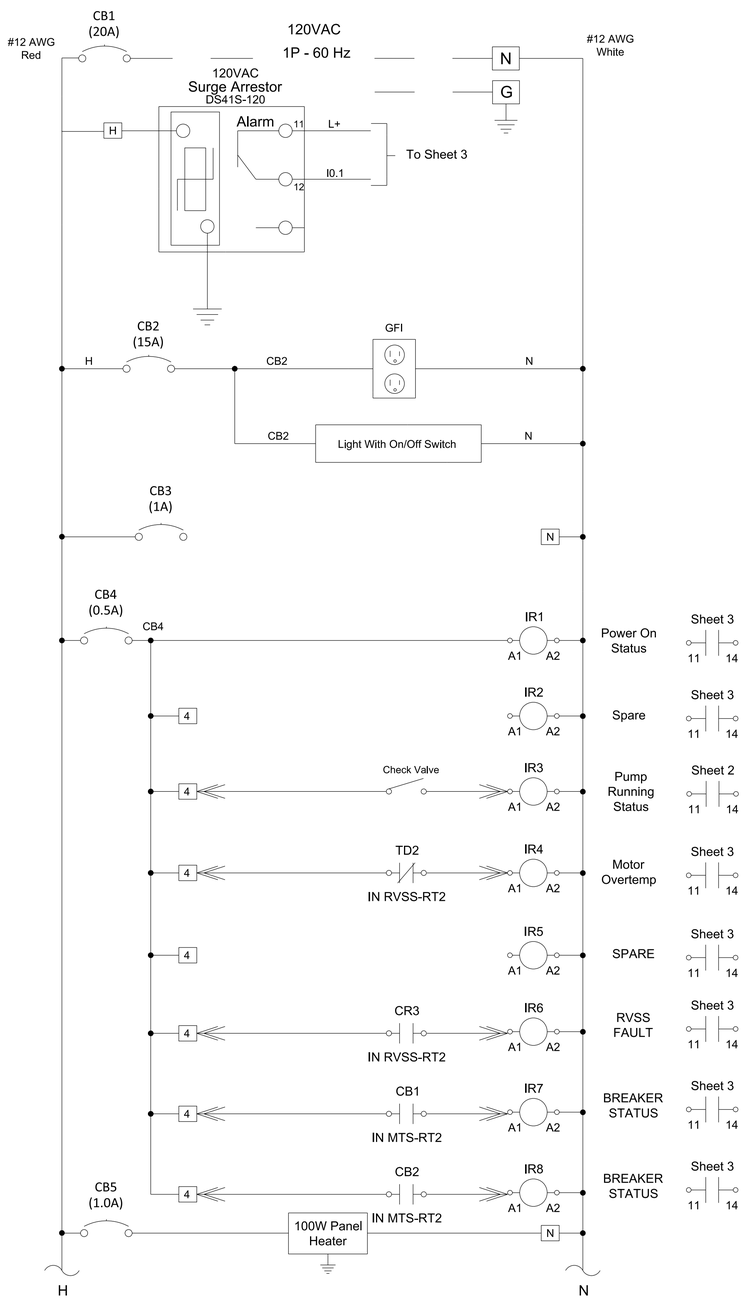
JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA
RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL
WELLHEAD NO.2
FRONT/BACK PANEL

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2070-E-008_D3270100.dgn
SHEET NO. 2-E-8

ISSUED FOR BID




| NO. | BY | DATE | REVISIONS |
|---|---|---|---|
| 6. | | | |
| 5. | | | |
| 4. | | | |
| 3. | | | |
| 2. | | | |
| 1. | | | |

ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: INPUT POWER CIRCUITS

PROJECT:
RIVERTOWN WELL #2
WELLHEAD SCADA PANEL

JOB No:

SHEET 2 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:32 PM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EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

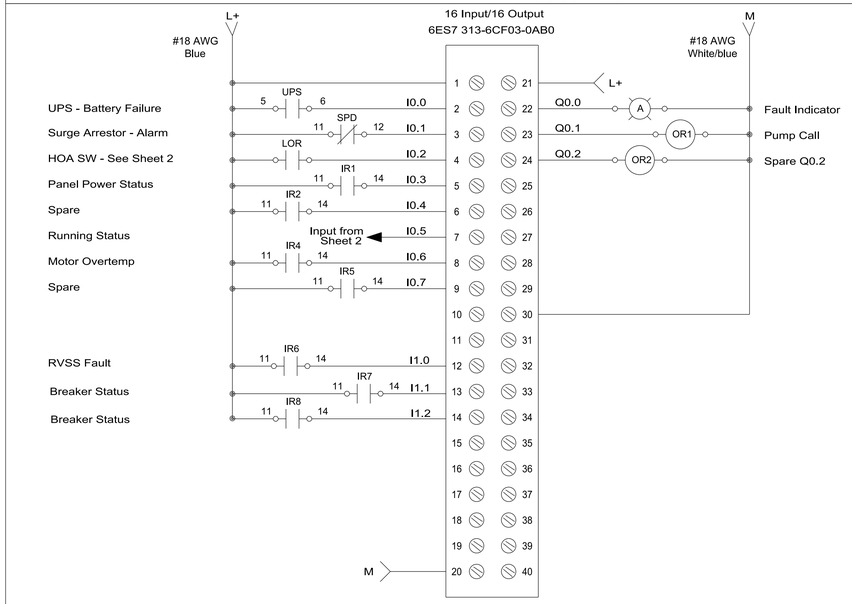
WELLHEAD NO.2
INPUT POWER CIRCUIT

PROJECT NO. 6103-237938
JACOBS FILE NAME:
2070-E-009_D3270100.dgn

SHEET NO.
2-E-9

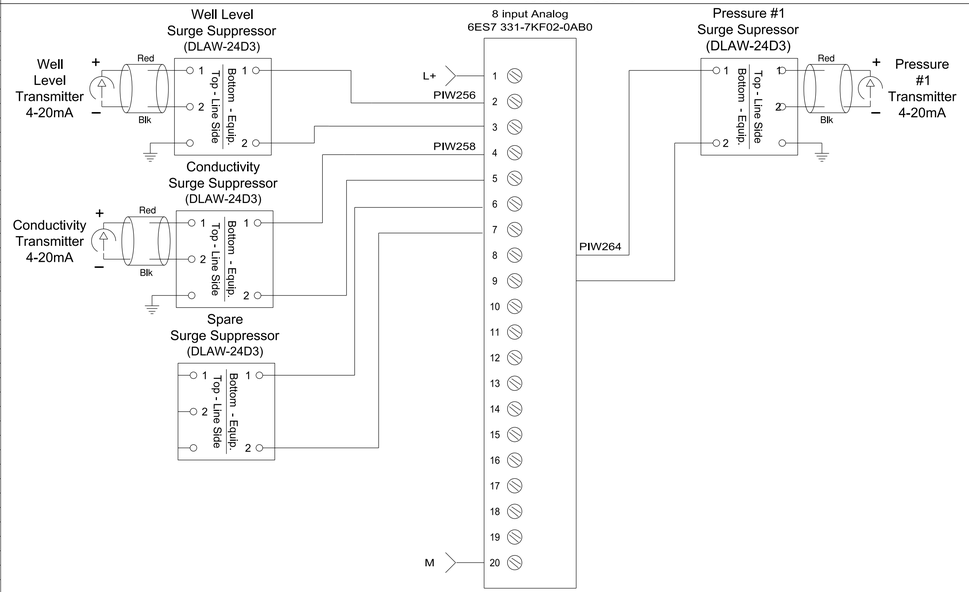
ISSUED FOR BID

RACK: 0 SLOT 4




| | 16 Input/16 Output |
|---|---|
| | 6ES7 313-6CF03-0AB0 |
| 1 | 1L+ = +24V |
| 2 | INPUT 0.0 |
| 3 | INPUT 0.1 |
| 4 | INPUT 0.2 |
| 5 | INPUT 0.3 |
| 6 | INPUT 0.4 |
| 7 | INPUT 0.5 |
| 8 | INPUT 0.6 |
| 9 | INPUT 0.7 |
| 10 | |
| 11 | |
| 12 | INPUT 1.0 |
| 13 | INPUT 1.1 |
| 14 | INPUT 1.2 |
| 15 | INPUT 1.3 |
| 16 | INPUT 1.4 |
| 17 | INPUT 1.5 |
| 18 | INPUT 1.6 |
| 19 | INPUT 1.7 |
| 20 | 1M = DC COM |
| 21 | 2L+ = +24V |
| 22 | OUTPUT 0.0 |
| 23 | OUTPUT 0.1 |
| 24 | OUTPUT 0.2 |
| 25 | OUTPUT 0.3 |
| 26 | OUTPUT 0.4 |
| 27 | OUTPUT 0.5 |
| 28 | OUTPUT 0.6 |
| 29 | OUTPUT 0.7 |
| 30 | 2M = DC COM |
| 31 | 3L+ = +24V |
| 32 | OUTPUT 1.0 |
| 33 | OUTPUT 1.1 |
| 34 | OUTPUT 1.2 |
| 35 | OUTPUT 1.3 |
| 36 | OUTPUT 1.4 |
| 37 | OUTPUT 1.5 |
| 38 | OUTPUT 1.6 |
| 39 | OUTPUT 1.7 |
| 40 | 3M = DC COM |

RACK: 0 SLOT 5




| | 8 input Analog |
|---|---|
| | 6ES7 331-7KF02-0AB0 |
| 1 | L+ |
| 2 | M0+ |
| 3 | M0- |
| 4 | M1+ |
| 5 | M1- |
| 6 | M2+ |
| 7 | M2- |
| 8 | M3+ |
| 9 | M3- |
| 10 | COMP+ |
| 11 | MANA |
| 12 | M4+ |
| 13 | M4- |
| 14 | M5+ |
| 15 | M5- |
| 16 | M6+ |
| 17 | M6- |
| 18 | M7+ |
| 19 | M7- |
| 20 | M |
| - | - |
| - | - |
| - | - |
| - | - |
| - | - |
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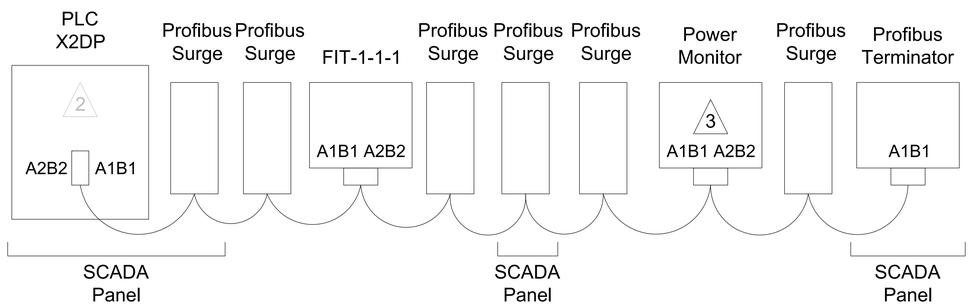
| - | - |

RACK: 0 SLOT 6




| | SINAUT -> TIM3V-IE |
|---|---|
| | 6NH7800-3CA00 |
| | |
| | RS-232 Pinout |
| 1 | DCD - Input |
| 2 | RXD - Input |
| 3 | TXD - Output |
| 4 | DTR - Output |
| 5 | GND |
| 6 | - |
| 7 | RTS - Output |
| 8 | CTS - Input |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | RJ-45 Pinout |
| 1 | TXD+ -> Output |
| 2 | TXD- -> Output |
| 3 | RXD+ -> Input |
| 4 | - |
| 5 | - |
| 6 | RXD- -> Input |
| 7 | - |
| 8 | - |
| | |
| | |
| | Power Connector |
| L+ | +24VDC |
| M | DC Common |

## Profibus Connection Diagram




## GENERAL NOTES:

1. SET SEGMENT DP3 AND TERMINATOR DP1 SWITCHES TO THE "ON" POSITION.
2. SET PROFIBUS CONNECTOR RESISTOR SWITCH TO THE "ON" POSITION.
3. SET PROFIBUS CONNECTOR RESISTOR SWITCH TO THE "OFF" POSITION.

| | - |
|---|---|
| | FUNCTION |
| 1 | - |
| 2 | - |
| 3 | - |
| 4 | - |
| 5 | - |
| 6 | - |
| 7 | - |
| 8 | - |
| 9 | - |
| 10 | - |
| 11 | - |
| 12 | - |
| 13 | - |
| 14 | - |
| 15 | - |
| 16 | - |
| 17 | - |
| 18 | - |
| 19 | - |
| 20 | - |
| 21 | - |
| 22 | - |
| 23 | - |
| 24 | - |
| 25 | - |
| 26 | - |
| 27 | - |
| 28 | - |
| 29 | - |
| 30 | - |
| 31 | - |
| 32 | - |
| 33 | - |
| 34 | - |
| 35 | - |
| 36 | - |
| 37 | - |
| 38 | - |
| 39 | - |
| 40 | - |

| NO. | BY | DATE | REVISIONS |
|---|---|---|---|
| 6. | | | 6 |
| 5. | | | |
| 4. | | | |
| 3. | | | |
| 2. | | | |
| 1. | | | |

ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: DIGITAL AND ANALOG I/O

PROJECT:
RIVERTOWN WELL #2
WELLHEAD SCADA PANEL

JOB No:

SHEET 3 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:12 PM


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

WELLHEAD NO.2
DIGITAL AND ANALOG I/O

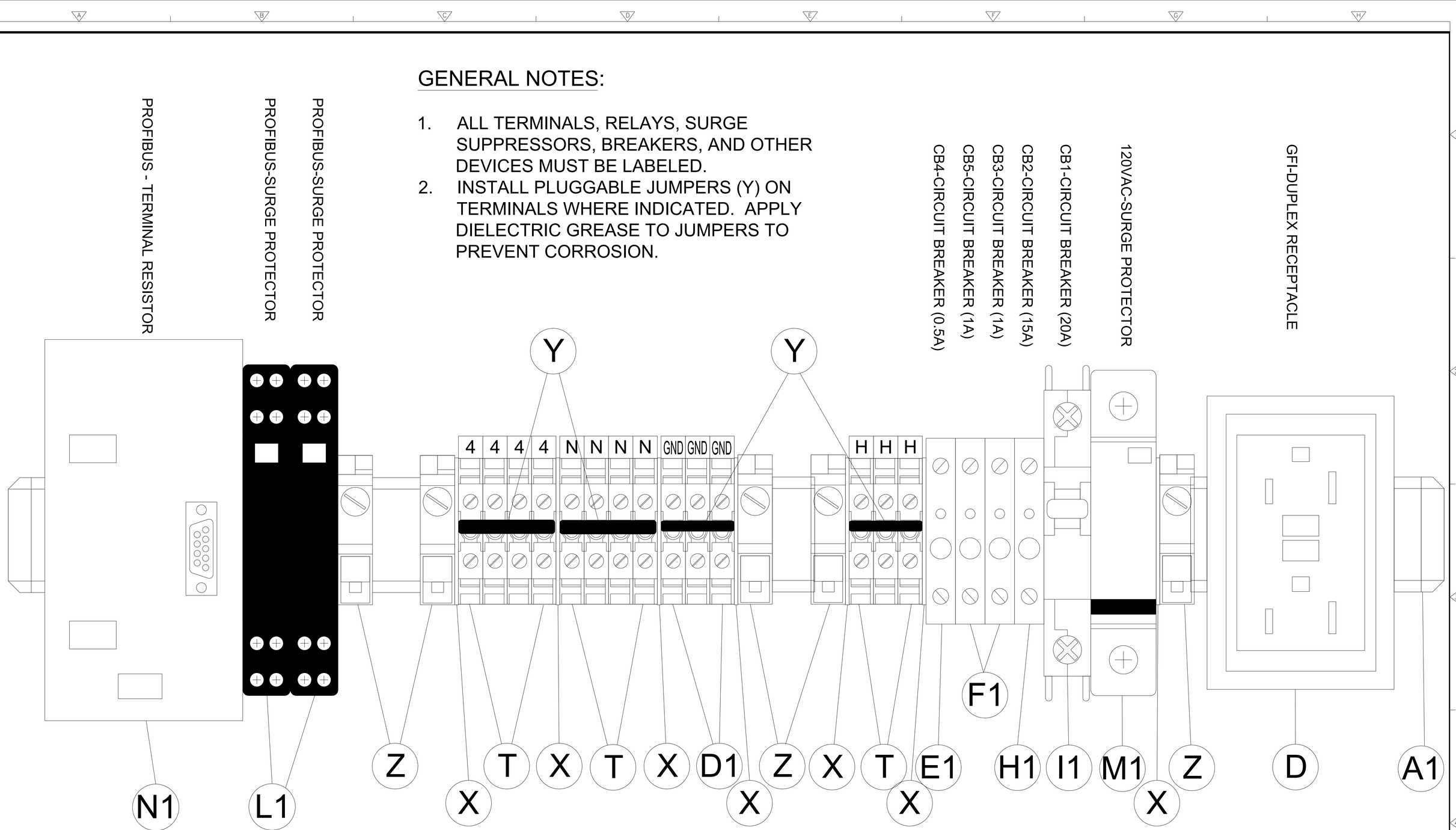
PROJECT NO. 6103-237938
JACOBS FILE NAME:

SHEET NO. 2-E-10

ISSUED FOR BID

## GENERAL NOTES:

1. ALL TERMINALS, RELAYS, SURGE SUPPRESSORS, BREAKERS, AND OTHER DEVICES MUST BE LABELED.
2. INSTALL PLUGGABLE JUMPERS (Y) ON TERMINALS WHERE INDICATED. APPLY DIELECTRIC GREASE TO JUMPERS TO PREVENT CORROSION.




| NO. | BY | DATE | REVISIONS |
|---|---|---|---|
| 6. | | | |
| 5. | | | |
| 4. | | | |
| 3. | | | |
| 2. | | | |
| 1. | | | |

ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA sm
Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: TERMINAL BLOCK LAYOUT

PROJECT: RIVERTOWN WELL #2
WELLHEAD SCADA PANEL

JOB No:

SHEET 4 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:31 PM


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

WELLHEAD NO.2
TERMINAL BLOCK LAYOUT

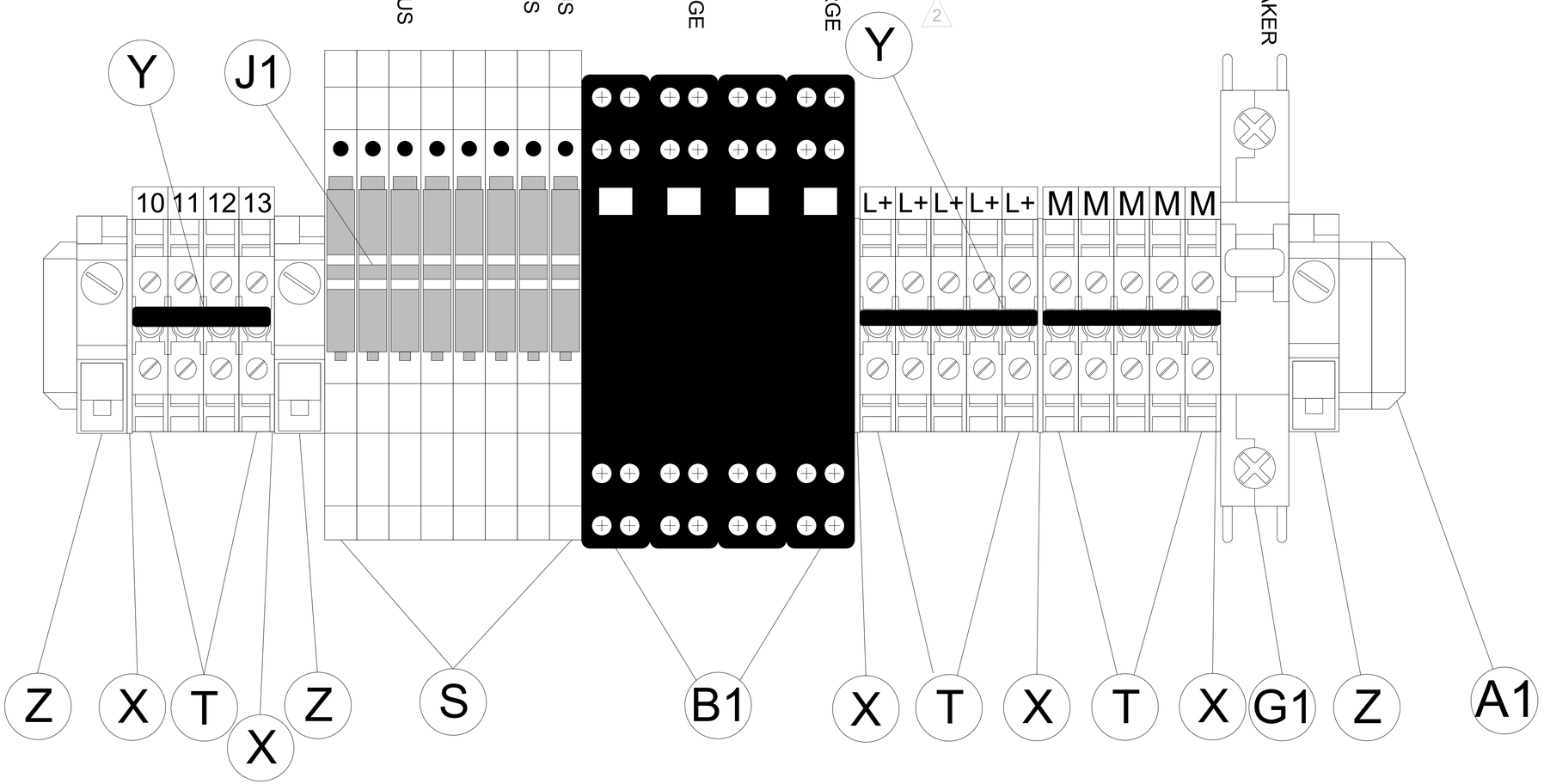
PROJECT NO. 6103-237938
JACOBS FILE NAME:

SHEET NO. 2-E-11

ISSUED FOR BID

## GENERAL NOTES:

1. ALL TERMINALS, RELAYS, SURGE SUPPRESSORS, BREAKERS, AND OTHER DEVICES MUST BE LABELED.
2. INSTALL PLUGGABLE JUMPERS (Y) ON TERMINALS WHERE INDICATED. APPLY DIELECTRIC GREASE TO JUMPERS TO PREVENT CORROSION.




| NO. | BY | DATE | REVISIONS |
|---|---|---|---|
| 6. | | | |
| 5. | | | |
| 4. | | | |
| 3. | | | |
| 2. | | | |
| 1. | | | |

ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: TERMINAL BLOCK LAYOUT

PROJECT: RIVERTOWN WELL #2 WELLHEAD SCADA PANEL

JOB No: | SHEET 5 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:30 PM


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

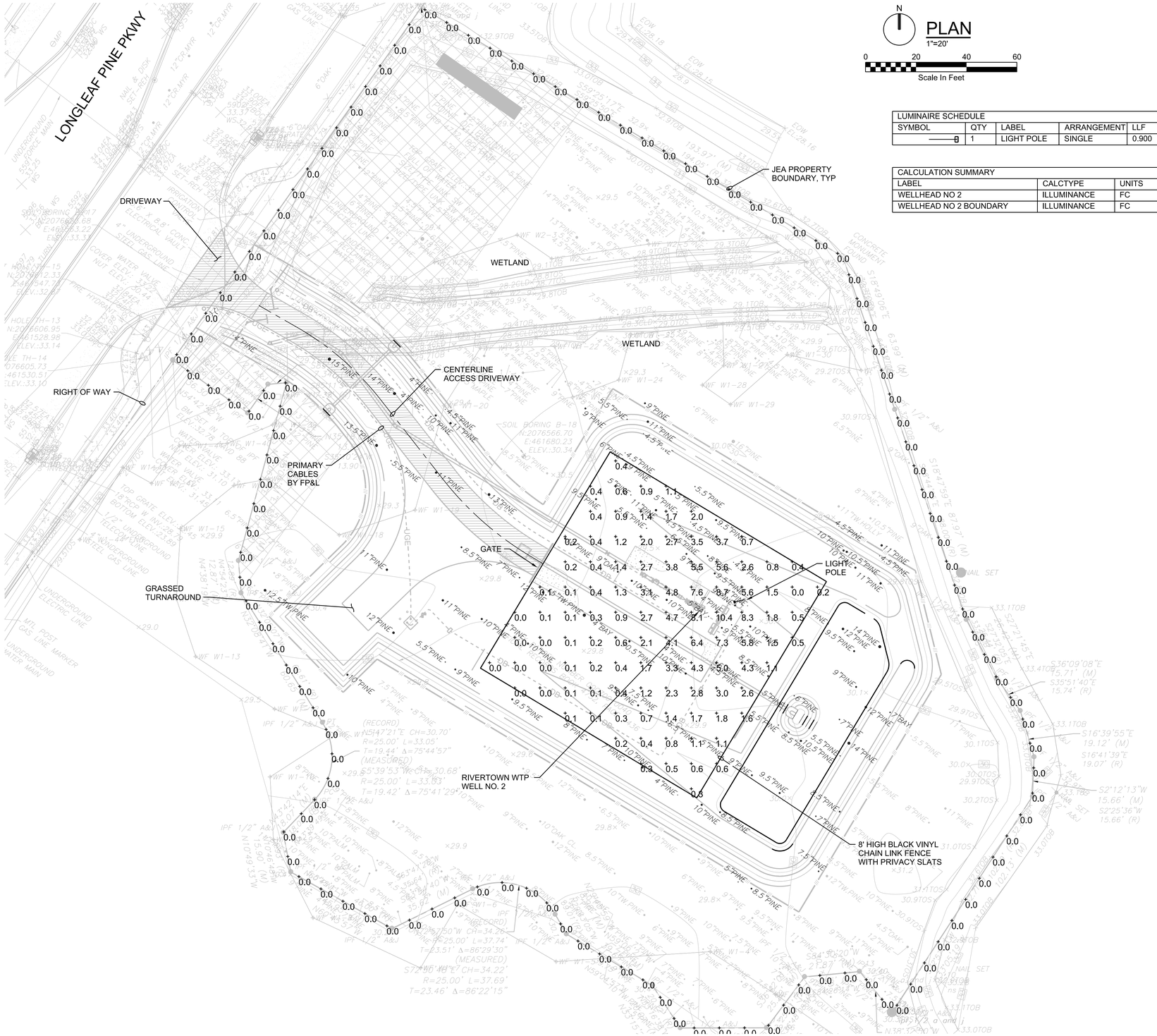
SCADA PANEL

WELLHEAD NO.2
TERMINAL BLOCK LAYOUT

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2070-E-012_D3270100.dgn

SHEET NO. 2-E-12

ISSUED FOR BID




N

# PLAN

1"=20'

0 20 40 60

Scale In Feet

| LUMINAIRE SCHEDULE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SYMBOL | QTY | LABEL | ARRANGEMENT | LLF | LUM. WATTS | LUMINAIRE MANUFACTURER | LUMINAIRE MODEL NUMBER | LUMINAIRE LUMENS |
| ——▯ | 1 | LIGHT POLE | SINGLE | 0.900 | 254 | AMERICAN ELECTRIC LIGHTING | ATB2 60BLEDE13 XXXXX R4 4K/5K HSS | 23640 |

| CALCULATION SUMMARY | | | | | | | |
|---|---|---|---|---|---|---|---|
| LABEL | CALCTYPE | UNITS | AVG | MAX | MIN | AVG/MIN | MAX/MIN |
| WELLHEAD NO 2 | ILLUMINANCE | FC | 1.87 | 10.4 | 0.0 | N.A. | N.A. |
| WELLHEAD NO 2 BOUNDARY | ILLUMINANCE | FC | 0.00 | 0.0 | 0.0 | N.A. | N.A. |



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:41 PM

DESIGNED BY: C HAMER
DRAWN BY: C HAMER
SHEET CHK'D BY: A QUINONES
CROSS CHK'D BY: X
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

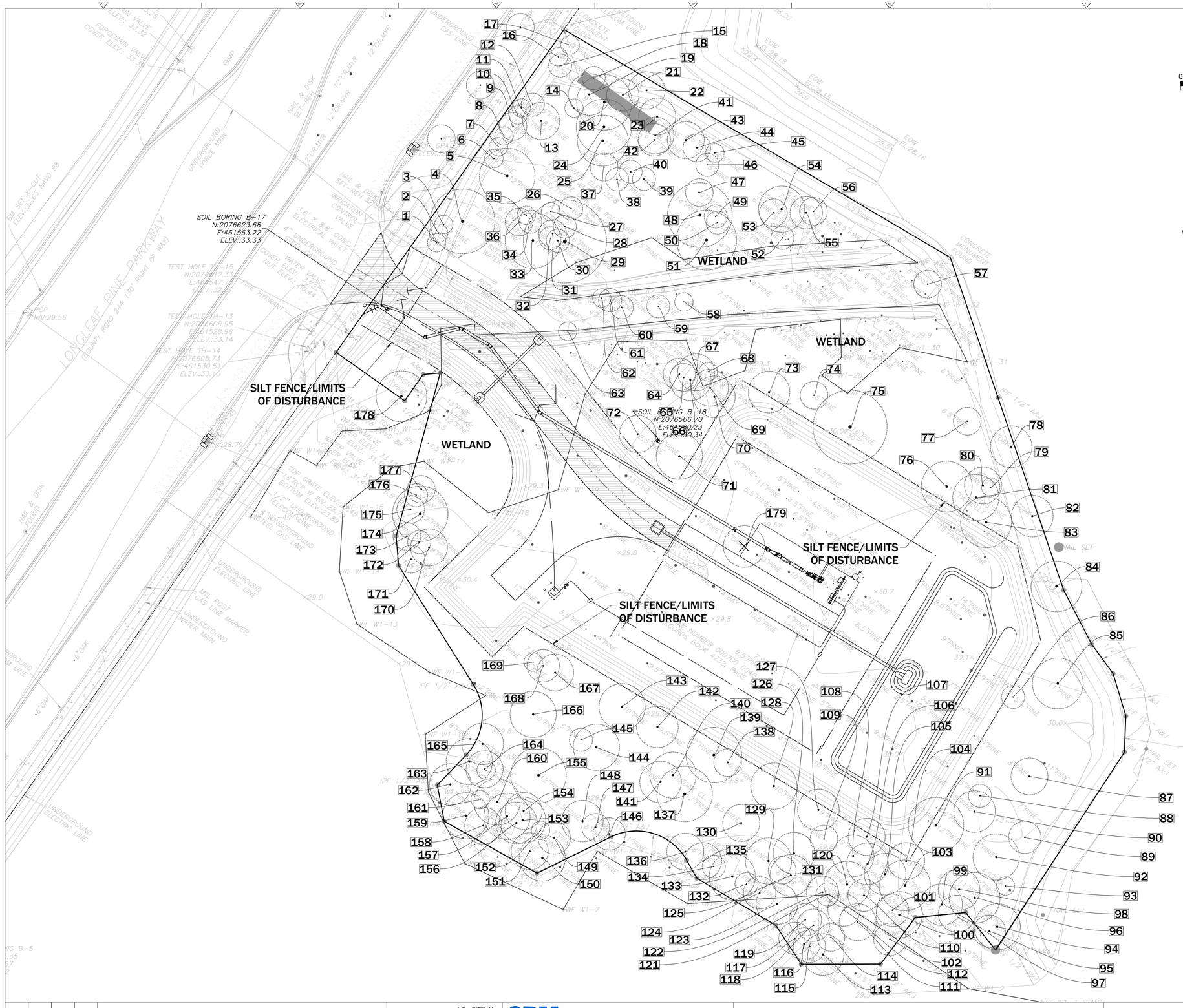
WELLHEAD NO. 2
SITE LIGHTING PHOTOMETRIC PLAN

DATE: 01/2021
MARC P. GOSLOW
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2070-E-013_D3270100.dgn

SHEET NO.
2-E-13

ISSUED FOR BID




N

# PLAN

1"=20'

0 20 40 60

Scale In Feet

= Existing non-protected tree to be removed

= Existing protected tree to be removed

= Existing tree preserved for credit

= Tree barricade or silt fence

Install tree protection barricade according to the detail in these plans and prior to site clearing and construction activity. Leave barricade intact and in place during construction and remove only when irrigation and landscape plans are ready for installation. Silt fence may be used for tree protection when located at the Limits of Disturbance.

## SHEET KEYNOTES

**LANDSCAPE NOTES**
**(Sec. 6.06.02 D, E)**

a. Vegetation that exceeds twenty-five (25) feet in height at maturity should not be planted closer than fifteen (15) feet of the vertical plan of an existing power line, excluding service wires.

b. Balled and burlapped strapping wire, and any synthetic material shall be removed prior to final inspection. Wire baskets should be cut away from the top $\frac{1}{3}$ of the root ball.

c. Non-canopy Trees shall not be planted closer than 10-feet from other Trees and Canopy Trees no closer than 20-30 feet, depending on species.

d. Plant material shall confirm to the standards of Grade #1 or better as given in the latest "Grades and Standards for Nursery Plants, Part I and II," Florida Department of Agriculture and Consumer Services or to the standards as given in the latest "American Standard for Nursery Stock," American National Standards Institute.

e. Pine bark or pine straw much shall be provided a minimum of three inches in depth around all newly planted landscaping.

f. A mulch ring for all newly planted trees shall be provided at least five (5) feet in diameter and not closer than six (6) inches from the tree trunk.

g. Shrubs are to be planted at the required minimum height, not by container size.

h. Tree islands shall have suitable soil at a minimum uniform depth of 18" and void of any construction debris or unsuitable materials.

i. Trees shall not be planted closer than 7.5' from the centerline of underground utilities.

j. Unless noted on plans, all disturbed areas shall be seeded or sodded with Argentine Bahiagrass.

k. Trees installed to meet code requirements shall have a minimum height of eight (8) to ten (10) feet and two (2) inches caliper.

811 Know what's below. Call before you dig.

Pittman
LANDSCAPE ARCHITECTURE
Landscape Architect Business LC26000443
ISA Certified Arborist FL-5742A
4049 San Servera Dr N
Jacksonville, Florida
32217
ph 904 327 7718
fax 904 739 3068
www.PittmanLA.com

**ISSUED FOR BID**

REGISTERED LANDSCAPE ARCHITECT
ALFRED B. BUCKNER PITTMAN
LA 1601
STATE OF FLORIDA

DATE: 12/2020
ALFRED B. PITTMAN
LA NO. LA-1601

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

DESIGNED BY: A.B. PITTMAN
DRAWN BY: A.B. PITTMAN
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER, 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
245 RIVERSIDE AVE, SUITE 300
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

**RIVERTOWN WATER TREATMENT PLANT PROJECT**

CIVIL/ELECTRICAL

WELLHEAD NO. 2
TREE REMOVAL AND PROTECTION PLAN

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2001_C-001_D3270100.dgn

SHEET NO.
**2-L-1**

# Tree Inventory
# Rivertown JEA Well Site 2

| Tree Number | Tree Size (DBH) | Botanical Name | Common Name | Protected Status Per Ordinance | Recommended Action | Tree Inches Removed From Lot Area | Tree Inches Preserved In Lot Area | Tree Inches Removed From Infrastructure Area | Tree Inches Preserved In Infrastructure Area | Bonus Inches Preserved In Infrastructure Area |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 2 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 3 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 4 | 14 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 14 | |
| 5 | 12 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 12 | |
| 6 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 7 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 8 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 9 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 10 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 11 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 12 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 13 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 14 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 15 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 16 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 17 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 18 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 19 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 20 | 12 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 12 | |
| 21 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 22 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 23 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 24 | 12 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 12 | |
| 25 | 11 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 11 | |
| 26 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 27 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 28 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 29 | 18 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 18 | |
| 30 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 31 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 32 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 33 | 12 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 12 | |
| 34 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 35 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 36 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 37 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 38 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 39 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 40 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 41 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 42 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 43 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 44 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 45 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 46 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 47 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 48 | 14 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 14 | |
| 49 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 50 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 51 | 13 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 13 | |
| 52 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 53 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 54 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 55 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 56 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 57 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 58 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 59 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 60 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 61 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 62 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 63 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 64 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 65 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 66 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 67 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 68 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 69 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 70 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 71 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 72 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 73 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 74 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 75 | 16 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 16 | |
| 76 | 11 | Ilex spp. | Holly | Protected | Preserve | | | | 11 | |
| 77 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 78 | 9 | Quercus spp. | Oak | Protected | Preserve | | | | 9 | |
| 79 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 80 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 81 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 82 | 9 | Quercus spp. | Oak | Protected | Preserve | | | | 9 | |
| 83 | 11 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 11 | |
| 84 | 11 | Quercus spp. | Oak | Protected | Preserve | | | | 11 | |
| 85 | 11 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 11 | |
| 86 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 87 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 88 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 89 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 90 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 91 | 12 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 12 | |
| 92 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 93 | 4 | Quercus spp. | Oak | Non-Protected | Preserve | | | | 4 | |
| 94 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 95 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 96 | 11 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 11 | |
| 97 | 13 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 13 | |
| 98 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 99 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 100 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 101 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 102 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 103 | 11 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 11 | |
| 104 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 105 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 106 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 107 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 108 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 109 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 110 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 111 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 112 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 113 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 114 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 115 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 116 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 117 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 118 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 119 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 120 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 121 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 122 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 123 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 124 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 125 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 126 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 127 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 128 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 129 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 130 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 131 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 132 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 133 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 134 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 135 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 136 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 137 | 12 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 12 | |
| 138 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 139 | 12 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 12 | |
| 140 | 10 | Quercus spp. | Oak | Protected | Preserve | | | | 10 | |
| 141 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 142 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 143 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 144 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 145 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 146 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 147 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 148 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 149 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 150 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 151 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 152 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 153 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 154 | 8 | Sabal palmetto | Palm | Protected | Preserve | | | | 8 | |
| 155 | 12 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 12 | |
| 156 | 9 | Sabal palmetto | Palm | Protected | Preserve | | | | 9 | |

## SHEET KEYNOTES

**LANDSCAPE NOTES**
**(Sec. 6.06.02 D, E)**

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g. Shrubs are to be planted at the required minimum height, not by container size.

h. Tree islands shall have suitable soil at a minimum uniform depth of 18" and void of any construction debris or unsuitable materials.

i. Trees shall not be planted closer than 7.5' from the centerline of underground utilities.

j. Unless noted on plans, all disturbed areas shall be seeded or sodded with Argentine Bahiagrass.

k. Trees installed to meet code requirements shall have a minimum height of eight (8) to ten (10) feet and two (2) inches caliper.

811 Know what's below. Call before you dig.


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4049 San Servera Dr N
Jacksonville, Florida
32217
ph 904 327 7718
fax 904 739 3068
www.PittmanLA.com


**ISSUED FOR BID**

REGISTERED LANDSCAPE ARCHITECT ALFRED BUCKNER PITTMAN LA 1601 STATE OF FLORIDA

DATE: 12/2020
ALFRED B. PITTMAN
LA NO. LA-1601



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

DESIGNED BY: A.B. PITTMAN
DRAWN BY: A.B. PITTMAN
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER, 2020


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
245 RIVERSIDE AVE, SUITE 300
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

**RIVERTOWN WATER TREATMENT PLANT PROJECT**

CIVIL/ELECTRICAL

WELLHEAD NO. 2
TREE INVENTORY TABLE

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2001_C-001_D3270100.dgn

SHEET NO.
**2-L-2**

| Tree Number | Tree Size (DBH) | Botanical Name | Common Name | Protected Status Per Ordinance | Recommended Action | Tree Inches Removed From Lot Area | Tree Inches Preserved In Lot Area | Tree Inches Removed From Infrastructure Area | Tree Inches Preserved In Infrastructure Area | Bonus Inches Preserved In Infrastructure Area |
|---|---|---|---|---|---|---|---|---|---|---|
| 157 | 10 | Sabal palmetto | Palm | Protected | Preserve | | | | 10 | |
| 158 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 159 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 160 | 10 | Sabal palmetto | Palm | Protected | Preserve | | | | 10 | |
| 161 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 162 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 163 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 164 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 165 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 166 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 167 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 168 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 169 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 170 | 8 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 8 | |
| 171 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 172 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 173 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 174 | 12 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 12 | |
| 175 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 176 | 5 | Gordonia spp. | Bay | Non-Protected | Preserve | | | | 5 | |
| 177 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 178 | 11 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 11 | |
| 179 | 9 | Quercus spp. | Oak | Protected | Remove | | | 9 | | |
| | | **Total Removed Inches** | | | | **0** | | **9** | | |
| | | **Total Preserved Inches** | | | | | **0** | | **1340** | **0** |

# SHEET KEYNOTES

**LANDSCAPE NOTES**
**(Sec. 6.06.02 D, E)**

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DATE: 12/2020
ALFRED B. PITTMAN
LA NO. LA-1601



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: A.B. PITTMAN
DRAWN BY: A.B. PITTMAN
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER, 2020
PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME


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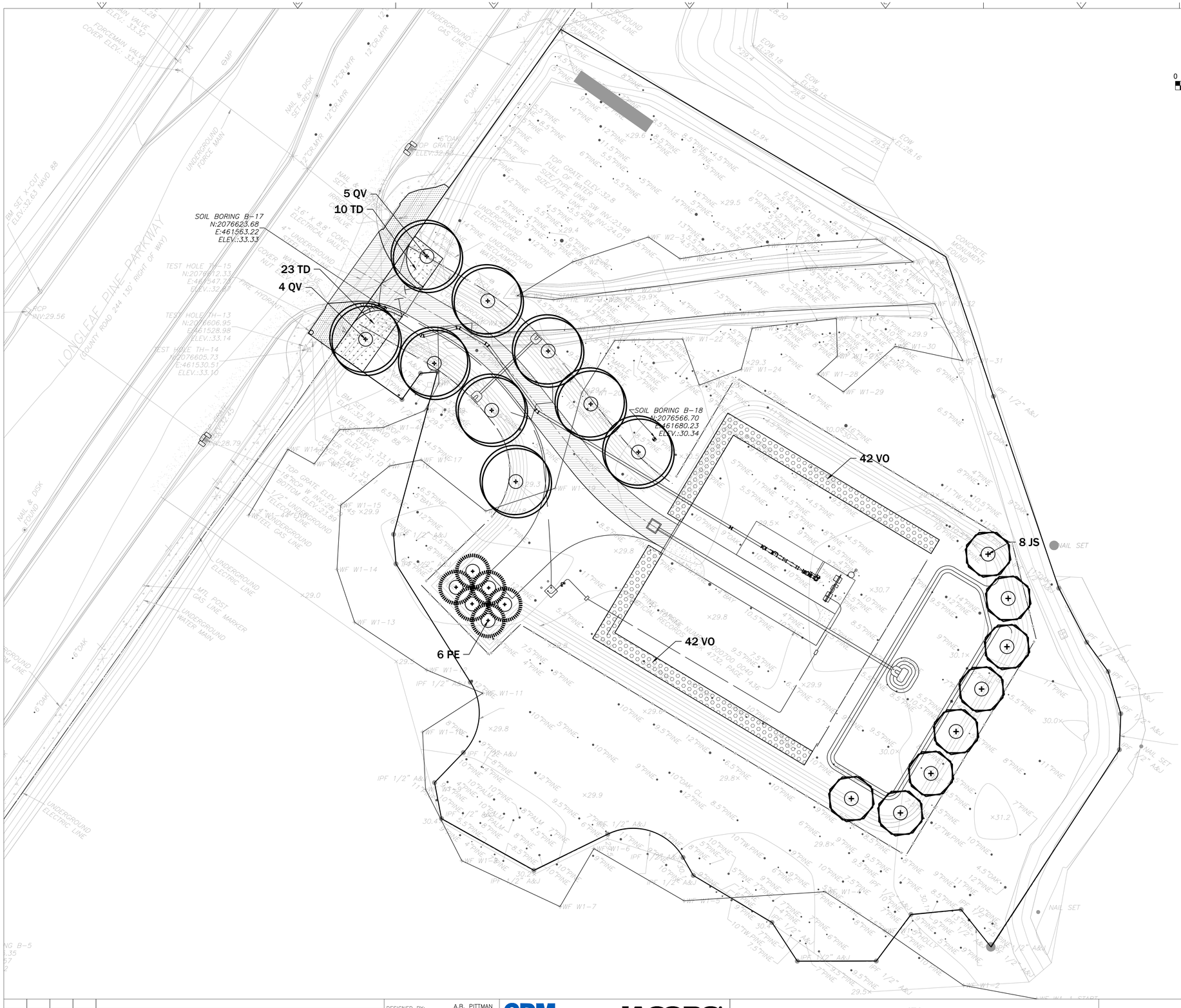
**RIVERTOWN WATER TREATMENT PLANT PROJECT**

CIVIL/ELECTRICAL

WELLHEAD NO. 2
TREE INVENTORY TABLE

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2001_C-001_D3270100.dgn

SHEET NO.
**2-L-3**




N

PLAN
1"=20'

0 20 40 60
Scale In Feet

Know what's **below.**
**Call** before you dig.

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**LANDSCAPE NOTES**
**(Sec. 6.06.02 D, E)**

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k. Trees installed to meet code requirements shall have a minimum height of eight (8) to ten (10) feet and two (2) inches caliper.

Supplemental Note:

Contractor shall allow for installation of up to five (5) additional plants/shrubs at developer's discretion

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DATE: 12/2020
ALFRED B. PITTMAN
LA NO. LA-1601

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

DESIGNED BY: A.B. PITTMAN
DRAWN BY: A.B. PITTMAN
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
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**RIVERTOWN WATER TREATMENT PLANT PROJECT**

CIVIL/ELECTRICAL

WELLHEAD NO. 2
LANDSCAPE PLAN

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2001_C-001_D3270100.dgn

SHEET NO.
**2-L-4**

# LANDSCAPE SPECIFICATIONS

**GENERAL INSTALLATION INSTRUCTIONS**

1. Contractor shall furnish all labor, materials, and insurance to complete the work as shown in the plan.
2. Contractor is responsible for acquiring all required permits and associated fees to complete the work.
3. Contractor shall locate and visibly mark all buried utilities prior to construction and notify the landscape architect of any conflicts.
4. Contractor shall demolish and remove from the premises all pavement, sod and other materials required to implement the plan.
5. All work shall be completed in a timely manner and in accordance with standard industry practices.
6. Contractor shall coordinate a work plan with the owner or agent and the landscape architect prior to starting work and shall comply with all state and federal requirements for work safety.
7. Contractor shall coordinate an approved staging area with the owner prior to starting the work and shall maintain a clean and orderly site throughout the construction period and shall properly dispose of all trash and removed materials.
8. Contractor shall proceed with approved work in an orderly and timely fashion.
9. Contractor shall prevent offsite erosion, both by wind and rain, during construction using adequate means such as silt fencing, hay bales, and drain socks.
10. Contractor shall provide all new materials in first quality condition.
11. Substitutions shall be rejected unless approved by the landscape architect prior to installation.
12. Contractor shall repair and/or replace at contractor's cost and in an expedient manner any utilities, pipes, conduit, cables, fences, pavement, plant material, or any other existing property within or abutting the project site damaged by contractor during the course of the project.
13. Contractor shall notify the owner and landscape architect at least one week in advance for a substantial completion inspection. The landscape architect shall provide a punch list to the contractor outlining items to be completed by the contractor. Contractor shall complete punch list items in timely manner before calling for a final inspection by the owner and the landscape architect.
14. Final payment for the work shall not be issued until a final inspection is completed and approved by the landscape architect and/or the owner.
15. All work shall be warranted against defects and failure for at least 1 year following the final acceptance.
16. Contractor shall clean site of all construction debris, materials, and trash. Disturbed areas shall be fine-graded and landscaped according to the plans, or sodded with specified sod. Site must be clean and neat before a final acceptance and payment will be issued.

**TREE AND EXISTING VEGETATION PROTECTION**

1. Contractor shall ensure protection of exiting trees and plants to be preserved within the project area and along the project boundaries prior to all clearing or construction activity using a tree barricade as specified in the plans, or if not specified in the plans, according to Florida Department of Transportation **index Number 544 Landscape Installation** (http://www.fdot.gov). A silt fence may serve as a barricade where such measures are required and provide full protection of the critical protection zone as defined in Index 544.
2. Provide 6" pine straw mulch to uniformly cover all bare, cleared, eroded, or disturbed areas within each tree protection area. Keep mulch 12" away from base of each tree.
3. Notify the landscape architect prior to any construction activity where protection cannot be provided or must be modified to due to conflicting construction activity.
4. Notify the landscape architect prior to site clearing and construction of any trees or otherwise valuable plants not noted on the plans that may warrant protection, especially large trees located on adjacent properties whose roots and canopy occupy space within the project area.
5. Tree barricade shall remain in place for the duration of the project until landscape installation commences whereupon the contractor may remove barricades as needed to prepare final grades and install landscaping according to the plans. Remaining tree barricades shall be removed at the completion of the project.

**PLANT INSTALLATION**

1. Install all plants according to Florida Department of Transportation **Index Number 544 Landscape Installation** (http://www.fdot.gov).
2. Do not install groundcovers or shrubs on top of or into the rootball of new trees.
3. Contractor shall verify project site conditinos and final quantities based on the plans prior to bidding and pricing. In the occurrence of a discrepancy between the plans and the plant list, the plans shall take precedence.
4. All plants shall conform to the specifications on the plant list or plant schedule.
5. All plants shall be Florida No. 1 Grade or better according to the Florida Grades and Standards Handbook.
6. All plants shall be nursery-grown containerized or b&b stock.
7. All plants shall be in good health, vigorous, evenly branched, and thickly foliated when in leaf. All plants shall be free of disease, insects, including eggs and larvae, as well as have a healthy, developed root system. They should also be free of physical damage or adverse conditions that would prevent thriving growth.
8. Plant material, tree locations, and bed outlines shall be staked or flagged on site by the contractor and shall be adjusted as required to fit actual as-built conditions on site and approved by the owner or owner's representative prior to installation.
9. Unless otherwise specified, all existing plant material within the areas of new construction as shown on the plans shall be removed and properly disposed of off of the project site. Plant material outside of these areas shall remain and shall be replaced with like kind if killed or damaged via landscape installation activities (see general installation instructions and tree and existing vegetation protection).
10. Planting beds shall be shovel-cut to form a uniform, clean line between beds and lawn areas.
11. Remove all synthetic material surrounding the rootball, including strapping, and remove all material including burlap and wire basket from top third of root ball prior to backfilling. Failure to take these measures will result in rejection of the installed tree.
12. Shade trees shall be planted a minimum of 4 feet from any edge of pavement and 15 feet from overhead electric lines as measured from the at-grade centerline (refer to local provider to verify specific requirements).
13. All plant material shall be warranted for a period of one year from the date of Final Acceptance of the work and not the date on which it was installed.
14. Contractor shall provide all fine surface grading preparation for planting and shall maintain all finished grade requirements according to the plans, and ensure positive drainage. Report any drainage problems associated with finished grade or finished soil characteristics to the owner and the landscape architect.
15. Coordinate construction of planting areas with installation of irrigation system or hose bibs as specified.
16. Contractor shall provide mulch for all newly installed landscape areas. Provide a minimum 5' diameter mulch ring for all installed trees. Provide uniform coverage for all landscape beds at the specified depth maintain at least 6" clearance from all woody trunks and stems.
    16.1. Mulch shall be pine straw.
    16.2. Mulch shall be 6" uniform depth.
17. Install sod as specified in the plans, according to the Florida Department of Transportation Standard Specification **Section 570 Performance Turf** (http://www.fdot.gov) unless otherwise stated herein.
18. Contractor shall provide certified, healthy sod, free of weeds, disease, fungus, insects, or nematodes.
    18.1. Sod shall be 18.1.2 below:
    18.1.1. Celebration bermuda (*Cynodon dactylon 'Celebration'*)
    18.1.2. Argentine bahia (*Paspalum notatum 'Argentine'*)
    18.1.3. Palmetto St. Augustine (*Stenotaphurum secundatum 'Palmetto'*)
    18.1.4. Empire zoysia (*Zoysia japonica 'Empire'*)
19. Contractor shall provide plant maintenance during the construction period through Final Acceptance and the owner shall provide maintenance during the warranty period following Final Acceptance, unless otherwise specified in the contract documents.
20. Contractor shall maintain all staking and guying materials and correct tree leaning or tilting during the warranty period. Contractor shall ensure that tree trunks and branches are not damaged or growth restricted by strapping or guying materials. Contractor shall be responsible for removal of all above-ground staking and guying material at the end of the warranty period.

**SOILS**

1. Contractor shall minimize soil compaction to all new planting areas by limiting access to those areas designated for planting purposes only. Contractor shall not store, clean, or empty equipment or materials within any area specified for preservation or new plant installation.
2. Prior to plant installation, contractor shall conduct a soil test in at least three locations on the site that best represent the plant distribution and conditions shown on the planting plan. The soil test shall be conducted by an independent laboratory qualified to test soils. The test shall be conducted to determine:
    2.1. Soil type
    2.2. Soil pH
    2.3. Nutrient content
    2.4. Recommended amendments
3. Contractor shall furnish a copy of the soil report(s) along with the contractor's recommended amendments to the landscape architect and the owner prior to initiating plant installation. Contractor shall not initiate plant installation without a written or verbal response from the landscape architect or owner indicating receipt of the report and agreement with the amendment approach.
4. At a minimum, contractor shall provide 5-8 percent organic pine bark compost uniformly throughout the planting soils prior to plant installation. Do not apply synthetic fertilizer to any planting area without the approval of the landscape architect or owner.

# ST. JOHNS COUNTY
## LAND DEVELOPMENT CODE
## LANDSCAPE REQUIREMENTS

**TREES AND OTHER VEGETATION**
**(Sec. 4.01.05)**

**DEVELOPMENT TYPE**

Public Utility

**SITE AREAS**

Total site area: 1.98 AC
Wetland area: 0.19 ac
Upland Development Area: 1.79 ac.

**TREE MITIGATION**

Minimum Requirements
UDA @ 80" per acre = 1.79 x 80 = 144"
Removed protected tree inches: 9"
Preserved UDA inches: 1.340"
Replacement inches required: 144"
Replacement inches provided:
1,340" Preserved
34" Planted
1,340" Total
Replacement deficit: 0"

Tree Fund Payment @ $25 per inch: = $0.00

LANDSCAPE REQUIREMENTS
Maximum species distribution (50%): 39%
Minimum native species composition (50%): 100%
Minimum canopy tree composition (70%): 74%

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# IRRIGATION SPECIFICATIONS

**IRRIGATION INSTALLATION**

1. Contractor shall provide a fully automatic irrigation system to deliver 100% head-to-head coverage of all required landscaping within the project area. Irrigation source shall be municipal potable source with irrigation meter
2. Upon completion, contractor shall submit an as-built plan of the installed irrigation system, location of all components and sleeves to the owner (and municipal authority if required).
3. Contractor shall provide a double-check backflow preventer equal to a DCA-100 (or approved equal), mounted in a rectangular valve box on the serving side and adjacent to the meter, and shall provide freeze protection.
4. All pipe and wire under paving shall be placed in Schedule 40 PVC sleeves from the full pavement coverage length and shall be at least 24" below finished grade.
5. Main lines shall be installed at least 18" below finished grade and lateral lines shall be installed at least 12" below finished grade.
6. Contractor shall reroute piping to avoid existing plants and tree roots and hand-dig pipes under or through tree roots within the canopy area of existing trees that cannot be avoided. Mechanical trenching through tree roots within the canopy area of preserved trees shall not be permitted.
7. Contractor shall be responsible for all applicable permits and fees.
8. Contractor shall comply with all state and local codes and shall clarify any discrepancies on the plan prior to bidding.
9. Prior to final acceptance, contractor shall show owner or maintenance superintendent how to operate and maintain the system.
10. Contractor shall furnish all warranty, maintenance equipment, and operating instructions.

**LANDSCAPE IRRIGATION AND WATERING SCHEDULE**

All required landscaping show on these plans will be watered manually using hose bibbs disprsed throughout the development so that every required landscape area is within 75' of a hose bibb. Trees shall be watered as needed to prevent decline, and at a minimum three times weekly during no-rain periods for the first 60 days. Water thereafter according to the following 180-day schedule:

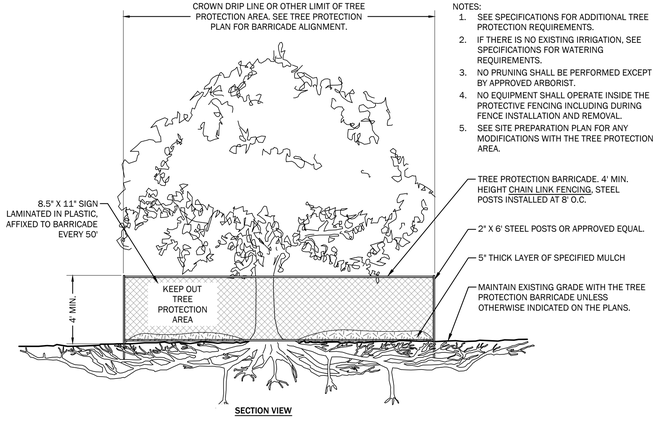
Large trees and palms: 30 gal/application
Small trees: 20 gal/application
Shrubs and sod: as needed to prevent wilting

1st 8 weeks: 3 waterings per week (24 total)
2nd 8 weeks: 2 waterings per week (16 total)
Final 10 weeks: 1 watering per week (10 total)

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
LAWN AND IRRIGATION RULE:

Irrigation of new landscape is allowed at any time of day on any day for the initial 30 days following installation, and every other day for the next 30 days, for a total of one 60-day period, provided the irrigation is limited to the minimum amount necessary for establishment.

Know what's below. Call before you dig.




NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
2. IF THERE IS NO EXISTING IRRIGATION, SEE SPECIFICATIONS FOR WATERING REQUIREMENTS.
3. NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
4. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
5. SEE SITE PREPARATION PLAN FOR ANY MODIFICATIONS WITH THE TREE PROTECTION AREA.

## TREE PROTECTION BARRICADE

NTS

# PLANT LIST

| QTY | PCT | ABV | BOTANICAL NAME | COMMON NAME | SIZE / SPECS | SPACING | CANOPY | ORIGIN | INCHES/AREA |
|---|---|---|---|---|---|---|---|---|---|
| | | | **TREES** | | | | | | |
| 8 | 35 | JS | *Junipus silicicola* | Southern red cedar | 2" cal / 10-12' ht | As shown | Yes | Native | 16 |
| 6 | 26 | PE | *Pinus elliottii* | Slash pine | 2" cal / 10-12' ht | As shown | No | Native | |
| 9 | 39 | QV | *Quercus virginiana* | Live oak | 2" cal / 10-12' ht | As shown | Yes | Native | 18 |
| 23 | 100 | | | | | | | Total: | 34 |
| | | | **SHRUBS** | | | | | | |
| 33 | | TD | *Tripsacum dactyloides* | Fakahatchee grass | 3 gal / 18-24" ht | 4' OC | | Native | |
| 84 | | VO | *Viburnum odoratissimum* | Sweet viburnum | 3 gal / 24-36" ht | 5' OC | | Native | |
| | | | **GROUNDCOVERS** | | | | | | |
| | | SOD | *Paspalum notatum 'Argentine'* | Argentine bahiagrass | Certified Solid Sod | SF | | Exotic | |

# SHEET KEYNOTES

**LANDSCAPE NOTES**
**(Sec. 6.06.02 D, E)**

a. Vegetation that exceeds twenty-five (25) feet in height at maturity should not be planted closer than fifteen (15) feet of the vertical plan of an existing power line, excluding service wires.
b. Balled and burlapped strapping wire, and any synthetic material shall be removed prior to final inspection. Wire baskets should be cut away from the top $\frac{1}{3}$ of the root ball.
c. Non-canopy Trees shall not be planted closer than 10-feet from other Trees and Canopy Trees no closer than 20-30 feet, depending on species.
d. Plant material shall confirm to the standards of Grade #1 or better as given in the latest "Grades and Standards for Nursery Plants, Part I and II," Florida Department of Agriculture and Consumer Services or to the standards as given in the latest "American Standard for Nursery Stock," American National Standards Institute.
e. Pine bark or pine straw much shall be provided a minimum of three inches in depth around all newly planted landscaping.
f. A mulch ring for all newly planted trees shall be provided at least five (5) feet in diameter and not closer than six (6) inches from the tree trunk.
g. Shrubs are to be planted at the required minimum height, not by container size.
h. Tree islands shall have suitable soil at a minimum uniform depth of 18" and void of any construction debris or unsuitable materials.
i. Trees shall not be planted closer than 7.5' from the centerline of underground utilities.
j. Unless noted on plans, all disturbed areas shall be seeded or sodded with Argentine Bahiagrass.
k. Trees installed to meet code requirements shall have a minimum height of eight (8) to ten (10) feet and two (2) inches caliper.

Supplemental Note:

Contractor shall allow for installation of up to five (5) additional plants/shrubs at developer's discretion


Pittman
LANDSCAPE ARCHITECTURE
Landscape Architect Business LC26000443
ISA Certified Arborist FL-5742A
4049 San Servera Dr N
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**ISSUED FOR BID**

REGISTERED LANDSCAPE ARCHITECT ALFRED BUCKNER PITTMAN LA 1601 STATE OF FLORIDA

DATE: 12/2020
ALFRED B. PITTMAN
LA NO. LA-1601

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: A. B. PITTMAN
DRAWN BY: A. B. PITTMAN
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER 2020


CDM Smith
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EB0000072 AAC001992 LC26000188


JEA

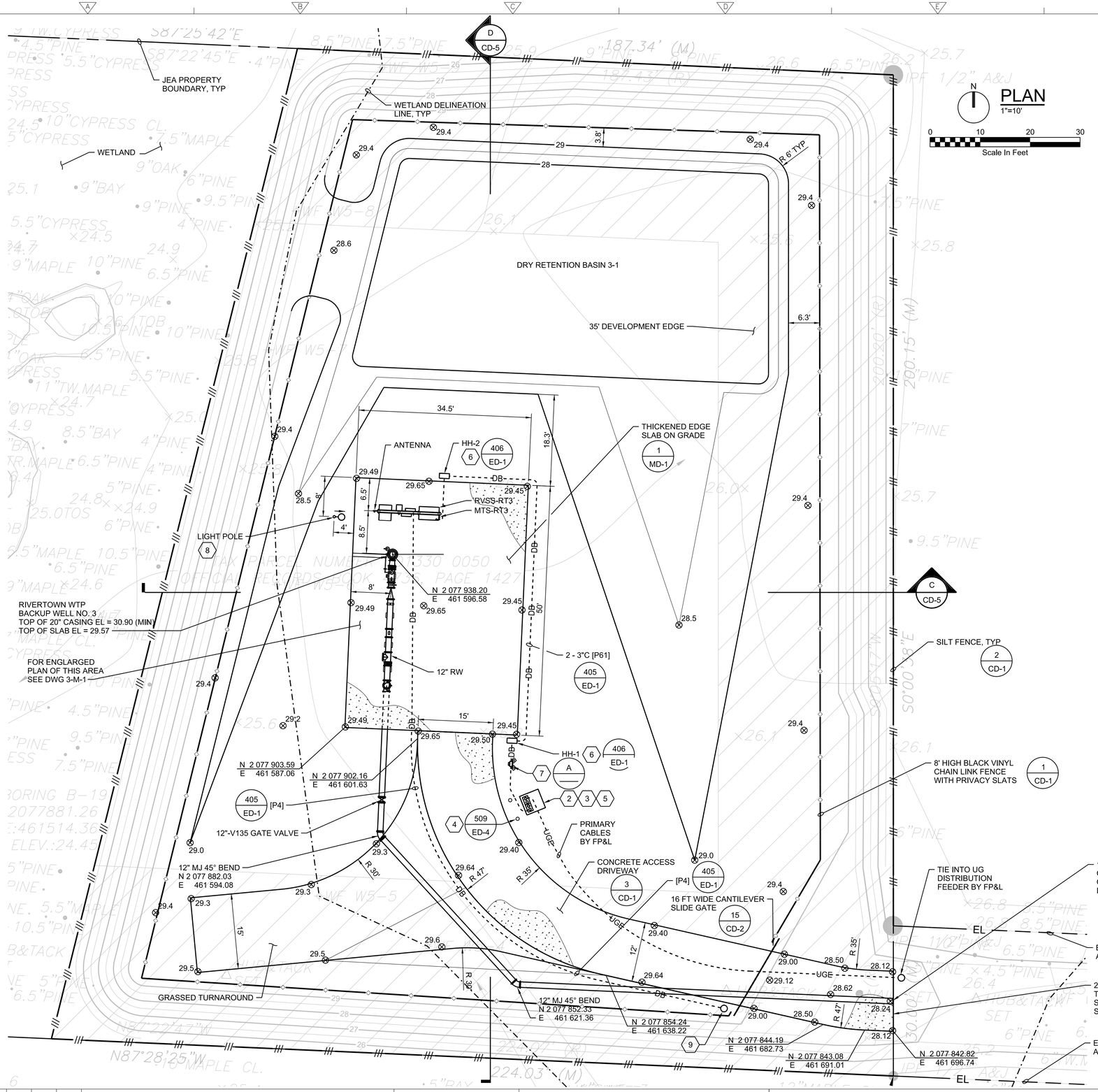
**RIVERTOWN WATER TREATMENT PLANT PROJECT**

CIVIL/ELECTRICAL

WELLHEAD NO. 2
LANDSCAPE SPECIFICATIONS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2001_C-001_D3270100.dgn

SHEET NO.
**2-L-5**


JEA PROPERTY BOUNDARY, TYP
WETLAND DELINEATION LINE, TYP
WETLAND
DRY RETENTION BASIN 3-1
35' DEVELOPMENT EDGE
THICKENED EDGE SLAB ON GRADE
ANTENNA
HH-2
LIGHT POLE
RVSS-RT3
MTS-RT3
RIVERTOWN WTP
BACKUP WELL NO. 3
TOP OF 20" CASING EL = 30.90 (MIN)
TOP OF SLAB EL = 29.57
FOR ENGLARGED PLAN OF THIS AREA SEE DWG 3-M-1
12" RW
2 - 3"C [P61]
HH-1
8' HIGH BLACK VINYL CHAIN LINK FENCE WITH PRIVACY SLATS
12"-V135 GATE VALVE
PRIMARY CABLES BY FP&L
12" MJ 45° BEND
N 2 077 882.03
E 461 594.08
CONCRETE ACCESS DRIVEWAY
16 FT WIDE CANTILEVER SLIDE GATE
TIE INTO UG DISTRIBUTION FEEDER BY FP&L
12" RAW WATER MAIN CONNECTION SEE SHEET C-6 IN THE VOLUME III DRAWINGS
EXISTING 30' ACCESS EASEMENT
2" RECLAIMED WATER SUPPLY TO BACKUP WELL SITE 3. IRRIGATION SYSTEM BY IRRIGATION SUBCONTRACTOR. SEE SHEET C-6 IN THE VOLUME III DRAWINGS
GRASSED TURNAROUND
SILT FENCE, TYP
N 2 077 938.20
E 461 596.58
N 2 077 903.59
E 461 587.06
N 2 077 902.16
E 461 601.63
N 2 077 854.24
E 461 638.22
N 2 077 844.19
E 461 682.73
N 2 077 843.08
E 461 691.01
N 2 077 842.82
E 461 696.74
12" MJ 45° BEND
N 2 077 852.33
E 461 621.36
[P4]
[P61]
SEE DETAIL 407, ED-2
SEE DETAIL 509, ED-4
SEE DETAIL 406, ED-1
SEE DETAIL 405, ED-1
SEE DETAIL 1, CD-1
SEE DETAIL 2, CD-1
SEE DETAIL 3, CD-1
SEE DETAIL 15, CD-2
SEE DETAIL 1, MD-1
SEE DETAIL 7, A
SEE DETAIL 9, A
SEE DETAIL D, CD-5
SEE DETAIL C, CD-5
SEE DETAIL 6, ED-1
SEE DETAIL 4, ED-4
SEE DETAIL 8
SEE DETAIL 5, ED-1
SEE DETAIL 2, ED-1
SEE DETAIL 3, ED-1
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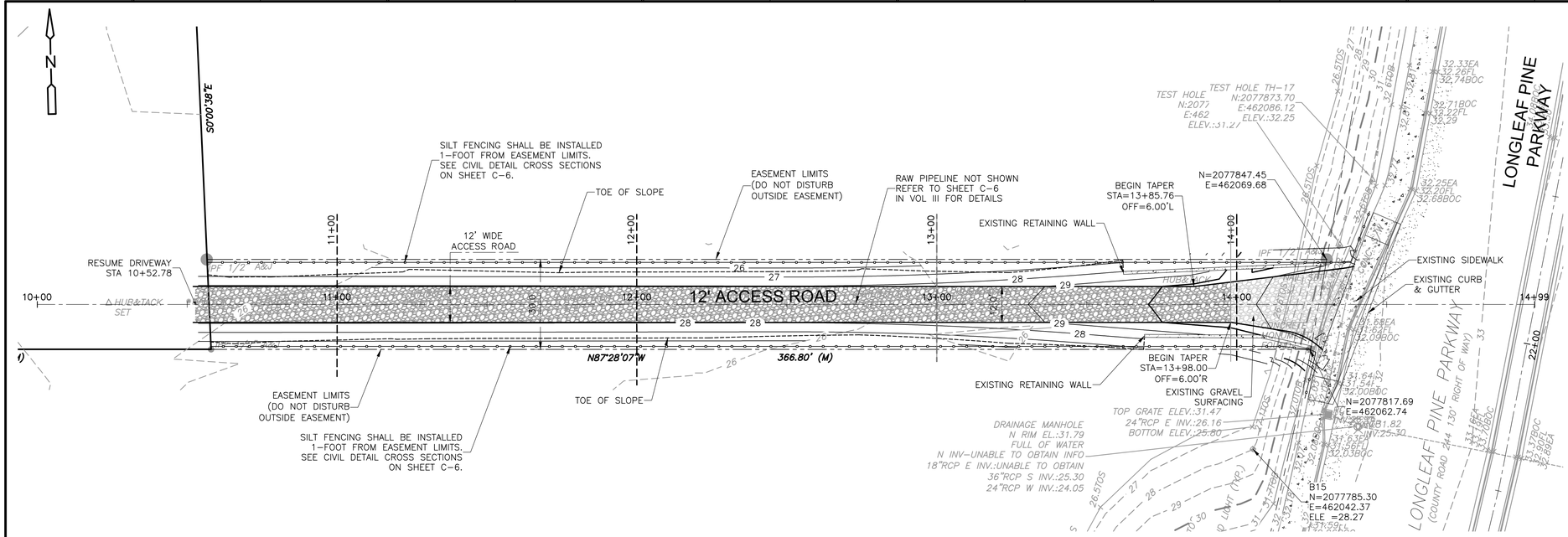
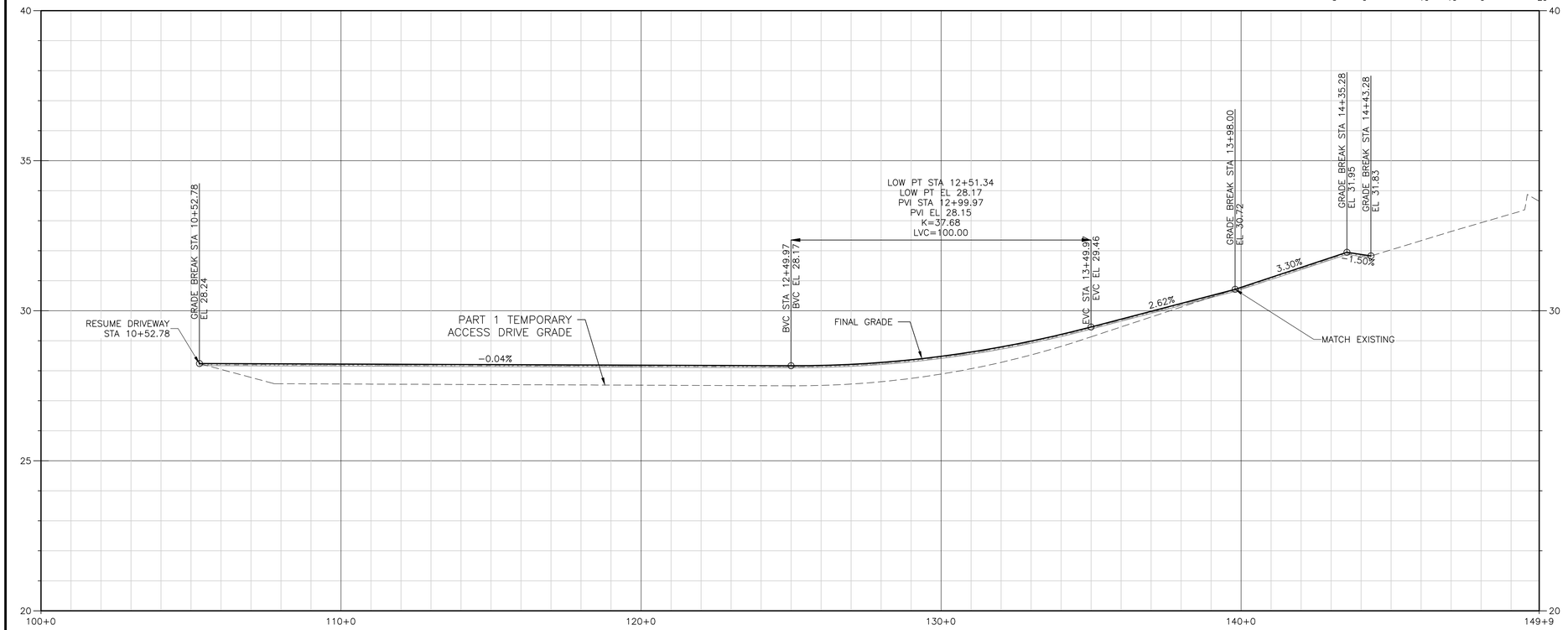
SEE DETAIL 11, ED-1
SEE DETAIL




# GENERAL NOTES

SUBGRADE PREPARATION:

1. PERFORM APPLICABLE TASKS IN GENERAL ACCORDANCE WITH THE LATEST EDITION AND EMBANKMENT – UNLESS SPECIFIED OTHERWISE HEREIN.
2. CONTRACTOR SHALL FURNISH, INSTALL, AND OPERATE GROUNDWATER CONTROL AND LOWERING MEASURES TO LOWER THE GROUNDWATER A MINIMUM OF 2 FEET BELOW THE BOTTOM OF EXCAVATION SUCH THAT COMPACTED REQUIREMENTS ARE ACHIEVED AS SPECIFIED.
3. BRING SUBGRADE TO PROPER GRADE AND CROSS-SECTION IN A UNIFORMLY COMPACTED SURFACE.
4. AFTER THE EXCAVATION GRADE IS OBTAINED AND IN THE PRESENCE OF THE ENGINEER, PROOF-ROLL THE SUBGRADE WITH A LOADED HAUL TRUCK (OR OTHER HEAVY EQUIPMENT ACCEPTABLE TO THE ENGINEER), TO IDENTIFY AREAS OF WEAK OR SOFT SUBGRADE. SUBGRADE SHALL BE FIRM AND UNYIELDING PRIOR TO COMMENCING PLACEMENT OF SUBSEQUENT FILL LIFTS.
5. COMPACT THE UPPER 6 INCHES OF THE ENTIRE SUBGRADE UNDER THE EMBANKMENT TO 95 PERCENT RELATIVE COMPACTION AS DETERMINED BY ASTM D1557 FILL AND BACKFILL:
6. PERFORM FILL AND BACKFILL IN GENERAL ACCORDANCE WITH THE LATEST EDITION OF THE FDOT STANDARD SPECIFICATIONS SECTION 120-EXCAVATION AND EMBANKMENT – UNLESS SPECIFIED OTHERWISE HEREIN.
7. PRODUCTS: EMBANKMENT FILL SHALL BE SAND TO SILTY SAND, WITH NO MORE THAN 25% NONPLASTIC FINES, CLASSIFIED AS SP TO SM IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487).
8. PLACEMENT: PLACE AND COMPACT EMBANKMENT FILL ACROSS FULL WIDTH OF EMBANKMENT FILL MATERIAL SHALL BE PLACED IN CONTINUOUS HORIZONTAL LIFTS EXTENDING THE FULL WIDTH OF THE CROSS SECTION WERE PRACTICABLE.
9. LIFT THICKNESS: NOT TO EXCEED 12-INCHES LOOSE LIFT THICKNESS.
10. COMPACTION: COMPACT EACH LIFT TO A MINIMUM OF 95 PERCENT RELATIVE COMPACTION AS DETERMINED IN ACCORDANCE WITH ASTM D1557.
11. TESTING:
    A. MODIFIED PROCTOR MAXIMUM DENSITY (ASTM D1557): ONE PER SOIL TYPE.
    B. SOIL CLASSIFICATION (ASTM D6913): ONE PER MODIFIED PROCTOR MAXIMUM DENSITY.
    C. DENSITY TESTING (ASTM D6928): TEST THE FULL THICKNESS OF THE LIFT A MINIMUM OF 2 TEST PER LIFT OR EVERY 500 CUBIC YARDS, WHICHEVER IS GREATER.
12. SUBMIT TEST RESULTS AS SOON AS AVAILABLE TO OWNER OR ENGINEER.
13. GRADING:
    SHAPE, TRIM AND FINISHED SLOPES TO CONFORM WITH LINES, GRADES, AND CROSS-SECTIONS SHOWN, WITH PROPER ALLOWANCE FOR TOPSOIL OR SLOPE PROTECTION, WHERE SHOWN.
14. FINISH ANY DISTURBED SLOPES WITH A MINIMUM OF 4 INCHES OF TOP SOIL IN ACCORDANCE WITH FDOT STANDARD SPECIFICATION SECTION 162 AND 987.
15. PRIOR TO COMMENCING ANY EXCAVATION OR GRADING. THE CONTRACTOR SHALL OBTAIN ALL GEOTECHNICAL AND TOPOGRAPHIC SURVEY DATA AND LOCATIONS OF ABOVE GROUND AND UNDERGROUND UTILITIES. SHOULD THE CONTRACTOR DISCOVER ANY INACCURACIES ERRORS, OR OMISSIONS IN THE SURVEY DATA, HE SHALL IMMEDIATELY NOTIFY THE DESIGN ENGINEER IN ORDER THAT PROPER ADJUSTMENTS CAN BE ANTICIPATED AND ORDERED.
16. SOD AND STAKE/SEED AND MULCH:
    SOD AND STAKE ANY DISTURBED SIDE SLOPES OF NEWLY CONSTRUCTED SITE
    AREA AND ACCESS ROAD. SOD SHALL EXTENDED FROM THE TOE OF THE SLOPE TO 3' BEYOND THE INSIDE OF TOP OF SLOPE ALONG THE PERIMETER OF THE NEWLY CONSTRUCTED RAISED SITE. RESTORE ANY DISTURBED AREAS OF EXISTING RIGHT OF WAY. SEE CIVIL SECTIONS ON DRAWINGS SP-C-301 FOR GENERAL GUIDANCE ON SODDING LIMITS.
17. CONTRACTOR SHALL SEED AND MULCH ALL REMAINING DISTURBED PORTIONS OF THE SITE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS SECTIONS 570. ALL SEED SHALL BE BAHIA SEED.
18. CONTRACTOR SHALL REPLACE AT THEIR OWN COST ANY DAMAGE TO THE EXISTING CURBS AND GUTTER AND/OR SIDEWALK THAT OCCURS DURING CONSTRUCTION.

DATE:
DAVID J. PRAH
PE NO. 43393

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: E. VARGAS
DRAWN BY: R. FLORES
SHEET CHK'D BY: S. SIDDIQUI
CROSS CHK'D BY: D. PRAH
APPROVED BY: I. POLEMATIDIS
DATE: DECEMBER 2020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EB0000072 AAC001992 LC26000188

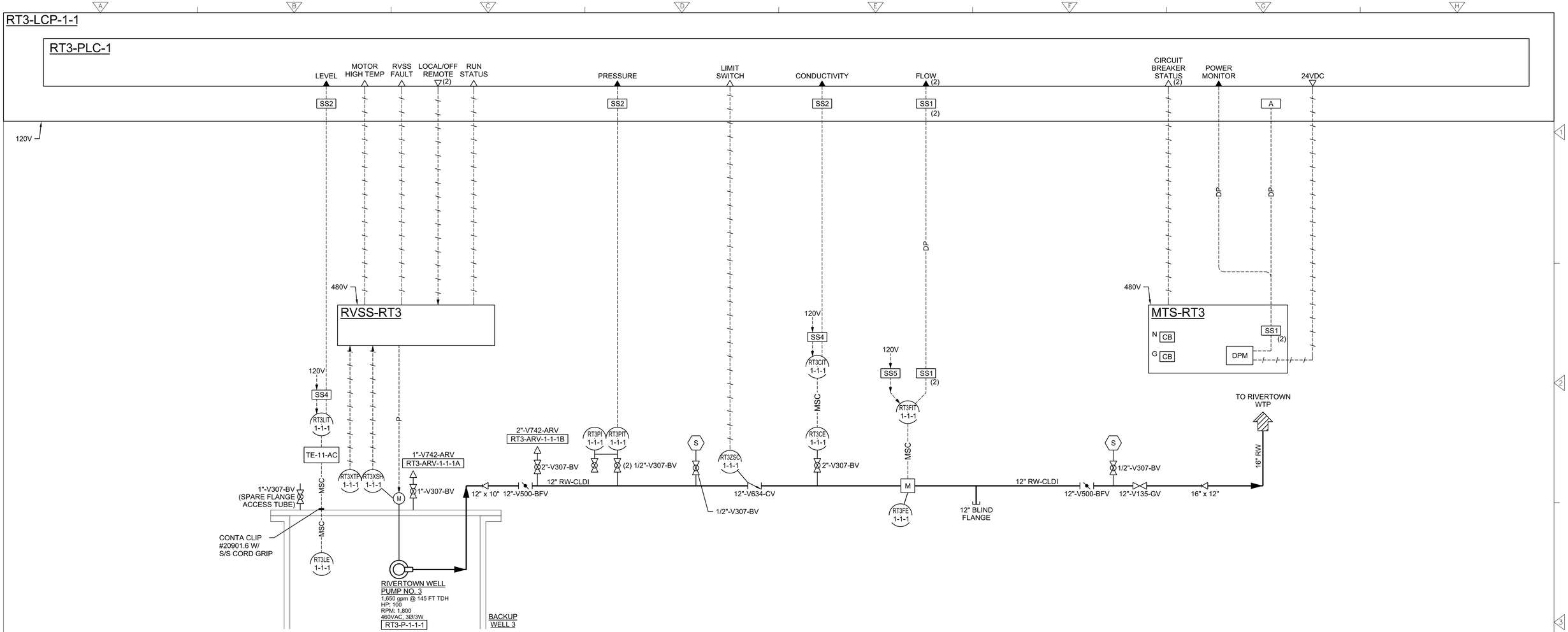

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

BACKUP WELL NO. 3 ACCESS DRIVEWAY

PROJECT NO. 6103-237938
FILE NAME: C-3-2.DWG
SHEET NO. 3-C-2

ISSUED FOR BID




LEGEND:

| | |
|---|---|
| A | - PROFIBUS TERMINAL PROCENTEC 101-00211A |
| SS1 | - SURGE SUPPRESSOR CITEL DLA-12DBC |
| SS2 | - SURGE SUPPRESSOR CITEL DLAW-24D3 |
| SS3 | - SURGE SUPPRESSOR CITEL DS42S-120 W/ DS40G (120VAC DISCRETE) |
| SS4 | - SURGE SUPPRESSOR CITEL DS42S-120 W/ DS40G DLAW-24D3 |
| SS5 | - SURGE SUPPRESSOR CITEL DS42S-120 W/DS40G |



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:49 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

INSTRUMENTATION AND CONTROL

BACKUP WELLHEAD NO.3
P&ID

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

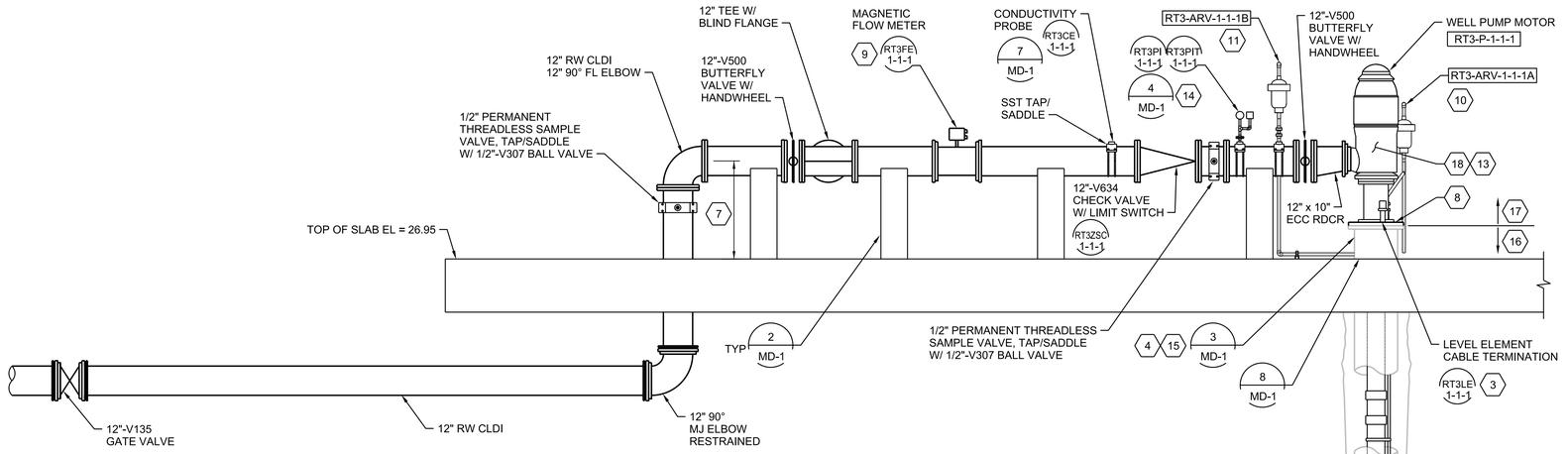
PROJECT NO. 6103-237938
JACOBS FILE NAME: 3030-N-001_D3270100.dgn

SHEET NO.
3-N-1

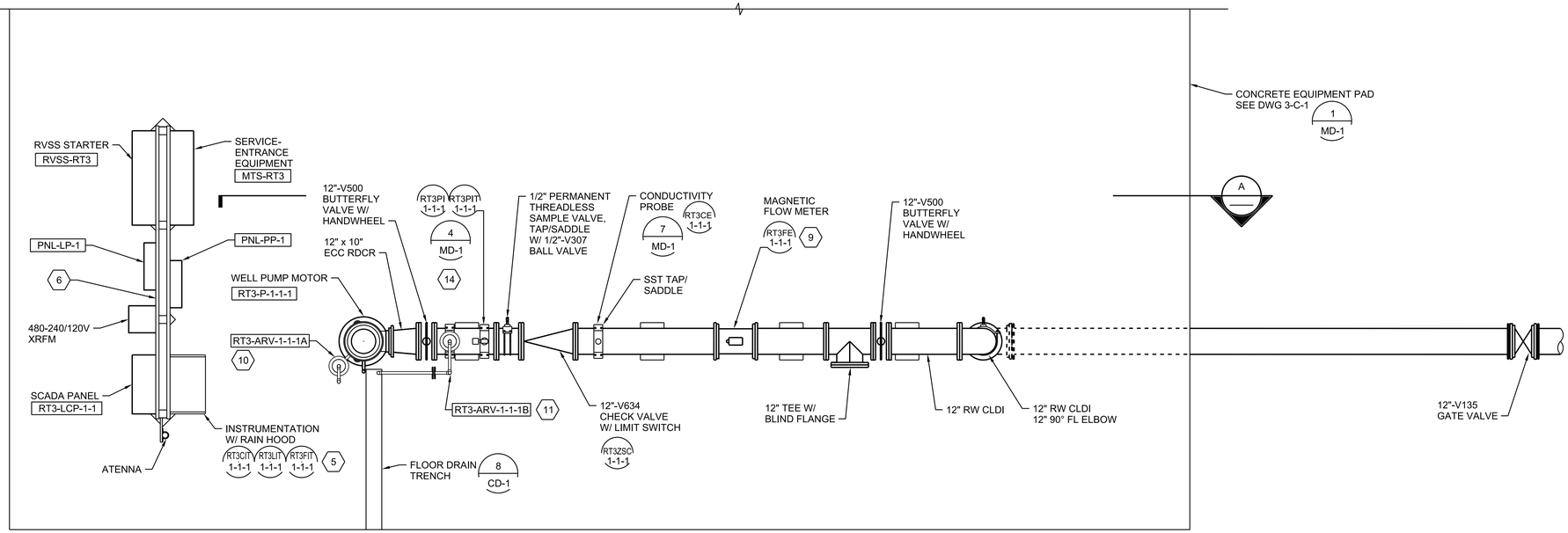
ISSUED FOR BID

# SHEET KEYNOTES

1. THREAD THE (2) 1-INCH PVC WATER LEVEL ACCESS TUBES INTO UNDERSIDE OF DISCHARGE HEAD. STRAP(SST) ACCESS TUBES TO PUMP COLUMN EVERY 10-FEET. TERMINATE ACCESS TUBES 5-FEET ABOVE THE PUMP BOWLS. CAP BOTTOM OF ACCESS TUBES. DRILL 1/4-INCH HOLES THROUGH ACCESS TUBES EVERY 3-FEET THROUGHOUT THE TUBE. DRILL 1/4-INCH HOLE THROUGH BOTTOM CAP.
2. MARK SENSOR CABLE WITH COLORED TAPE AT SPECIFIED DEPTH OF SUBMERGENCE.
3. INSTALL LEVEL SENSOR PER MANUFACTURER'S RECOMMENDATION, USING WATER TIGHT CABLE GLAND AT WELLHEAD. PROVIDE STRAIGHT MALE CORD CONNECTOR CONTA-CLIP CATALOG NUMBER 20901.
4. PROVIDE (3) 1" SST THREADED ACCESS PORTS AND (2) 1"-V307 BALL VALVE. 1"-V307 BALL VALVE SHOULD BE INSTALLED ON ARV ACCESS PORT AND SPARE ACCESS PORT. DO NOT INSTALL BALL VALVE ON LEVEL PROBE ACCESS PORT.
5. FASTEN PHENOLIC NAMEPLATE INSIDE RAINHOOD NEAR LEVEL TRANSMITTER, INSCRIBED WITH THE PROBE AND DROP PIPE DEPTHS.
6. PRIOR TO CONSTRUCTION, WELLHEAD CONTRACTOR SHALL SUBMIT A PLAN PRESENTING CONTROL AND INSTRUMENTATION PANEL AND CONDUIT LAYOUT.
7. ACTUAL CENTERLINE ELEVATION OF WELLHEAD PIPING WILL VARY DEPENDING ON ACTUAL DIMENSIONS AND LAYOUT OF SELECTED PUMP DISCHARGE HEAD.
8. CONTRACTOR TO COORDINATE CONNECTION TO WELL CASING TOP FLANGE TO ASSURE BOLT HOLE ORIENTATION AND ALIGNMENT WITH THE WELL PUMP BASE.
9. SEE DRAWING 3-E-4 FOR FLOW METER REQUIREMENTS.
10. 1"-V742 AIR/VACUUM VALVE, 1"-V307 BALL VALVE AND 1" SST PIPING INSTALLED ON ACCESS PORT. 1/2" PVC DISCHARGE PIPING TO BE TERMINATED AT THE TRENCH DRAIN. CONTRACTOR TO SUPPORT ASSEMBLY AS NEEDED.
11. 2"-V742 AIR/VACUUM VALVE, 2"-V307 BALL VALVE AND 2" SST PIPING INSTALLED ON PIPE SADDLE. 1/2" PVC DISCHARGE PIPING TO BE TERMINATED AT THE TRENCH DRAIN. CONTRACTOR TO SUPPORT ASSEMBLY AS NEEDED.
12. NOT USED.
13. THE PUMP PERFORMANCE TEST SHALL BE CONDUCTED AFTER THE WELLHEAD HAS BEEN CLEARED BY JEA LABORATORIES AND THE NEW WELLHEAD PUMP IS RUNNING.
14. PRESSURE GAUGE 0-60 PSI RANGE, SEE DWG 0-G-040 FOR THE PRESSURE GAUGE SPECIFICATION OF ASHCHROFT DURAGAUGE 1279 PLUS.
15. LICENSED WELL CONTRACTOR TO CUT 20" CASING AND INSTALL FINAL CASING FLANGE. FIELD VERIFY ELEVATION OF CASING FLANGE IS A MINIMUM OF 1'-3" ABOVE THE HIGH POINT OF THE WELLHEAD SLAB. FIELD VERIFY THE CASING FLANGE IS HORIZONTAL AND LEVEL AS REQUIRED BY THE PUMP MANUFACTURER AND SECTION 44 42 56 03.
16. FIELD COAT WITH SYSTEM 6.
17. FIELD COAT WITH SYSTEM 5A.
18. PROVIDE SAFETY GUARD AT ROTATING SHAFT.




A SECTION
3/8"=1-0"




N PLAN
3/8"=1'-0"



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:27 PM

DESIGNED BY: R ANGLEY
DRAWN BY: N PATTERSON
SHEET CHK'D BY: L GUNN
CROSS CHK'D BY:
APPROVED BY: L GUNN
DATE: DECEMBER 2020

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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

PROCESS MECHANICAL

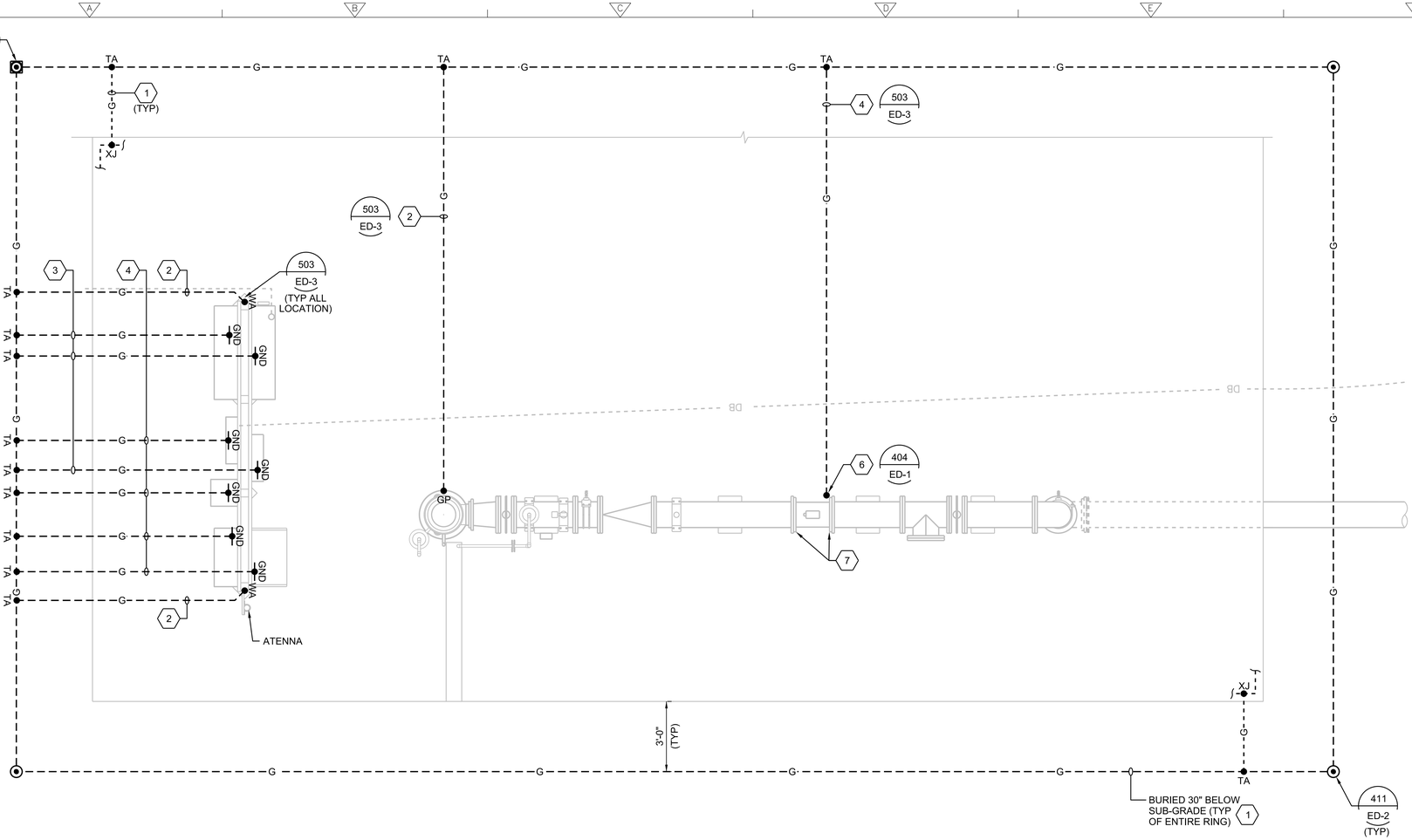
BACKUP WELLHEAD NO.3
PLAN AND SECTION

DATE: 01/2021
Lawrence Bradley Gunn
PE NO. 65967

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3040-M-001_D3270100.dgn

SHEET NO.
3-M-1

ISSUED FOR BID




# GENERAL NOTES

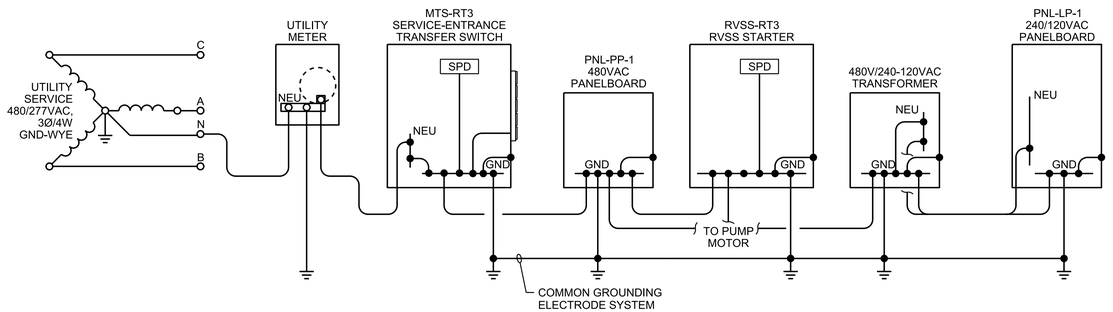
1. ALL EQUIPMENT AND MATERIALS SHALL BE, AS A MINIMUM, PER JEA'S MOST CURRENT EDITION OF STANDARDS AND METHODS OF INSTALLATION.
2. REFER TO DWG. 3-C-001 FOR DIMENSION DETAILS OF THE EQUIPMENT PAD.
3. ROUTE ALL GROUNDING ELECTRODE CONDUCTORS FROM EQUIPMENT GROUND BUSSES, STRUCTURAL SUPPORT FRAMES, EQUIPMENT PEDESTALS, AND THE WELL CASING TO THE GROUNDING ELECTRODE SYSTEM IN 1-INCH PVC SCH 40 CONDUIT. CONNECTIONS FROM STRUCTURAL MEMBERS, EQUIPMENT PEDESTALS AND THE WELL CASING SHALL BE IN CONDUIT FROM 3-INCHES ABOVE THE CONCRETE SLAB TO A MINIMUM OF 6-INCHES BEYOND THE OUTSIDE EDGE OF THE SLAB. CONNECTIONS FROM EQUIPMENT GROUND BUSSES SHALL BE ROUTED IN CONDUIT FULL LENGTH FROM THE ENCLOSURE TO A MINIMUM OF 6-INCHES BEYOND THE OUTSIDE OF THE EDGE OF THE SLAB. FURNISH AND INSTALL THE APPROPRIATE CONDUIT FITTING FOR EACH ENCLOSURE PENETRATION. DO NOT ROUTE GROUNDING ELECTRODE CONDUCTORS ACROSS THE CONCRETE SURFACE.
4. THE GROUNDING ELECTRODE SYSTEM AND ELECTRODE GROUNDING CONDUCTORS SHALL BE SIZED AND INSTALLED AS SHOWN ON THE PLANS AND IN THE KEYNOTES. ALL BELOW GRADE AND REBAR BONDING CONNECTIONS SHALL BE EXOTHERMICALLY MADE, ERICO CADWELD OR CADWELD EXOLEN, NO SUBSTITUTIONS. ABOVE GRADE CONNECTIONS SHALL BE STANDARD GROUND BUS LUGS WITHIN THE EQUIPMENT ENCLOSURES. STRUCTURAL CONNECTIONS SHALL BE MECHANICAL SPLIT-BOLT, SADDLE, OR CONE SCREW TYPE: BURNDY OR THOMAS AND BETTS.
5. GROUND RODS SHALL BE TWO-SECTION, COPPER-CLAD, ¾-INCH DIAMETER, 20-FEET IN LENGTH.
6. GROUND WELL TEST BOX SHALL BE CHRISTY NO. G5 OR EQUIVALENT.
7. MAXIMUM RESISTANCE TO REMOTE EARTH OF THE GROUNDING ELECTRODE SYSTEM SHALL BE 5 OHMS AS MEASURED WITH A CLAMP-ON GROUND RESISTANCE TESTER SUCH AS AN AEMC 3711, FLUKE 1630 OR GREENLEE CMGRT-100 OR EQUIVALENT DEVICE. 3 AND 4 POINT FALL OF POTENTIAL TESTS ARE NOT ACCEPTABLE. GROUND TEST MONITOR MUST HAVE CERTIFICATE OF CALIBRATION NOT EXCEEDING 12 MONTHS PRIOR TO TESTING THE INSTALLATION. CONTRACTOR SHALL FURNISH A WRITTEN REPORT OF THE GROUND TEST TO THE OWNER'S ENGINEER. CONTACT OWNER'S ENGINEER FOR LOCATION OF TEST MEASUREMENT.

# SHEET KEYNOTES

1. #4/0 AWG STRANDED. BARE, TIN-PLATED COPPER.
2. #2/0 AWG STRANDED. XHHW-2 INSULATED, 600VAC.
3. #1/0 AWG STRANDED. XHHW-2 INSULATED, 600VAC.
4. #2 AWG STRANDED. XHHW-2 INSULATED, 600VAC.
5. NOT USED.
6. GROUNDING ELECTRODE CONDUCTOR SHALL BE ROUTED IN CONDUIT FULL LENGTH FROM FLOW METER POTENTIAL EQUALIZING RINGS TO THE GROUNDING ELECTRODE SYSTEM.
7. POTENTIAL EQUALIZING RINGS (2) FURNISHED WITH FLOW ELEMENT. INSTALL PER MANUFACTURER'S DIRECTIONS.

## GROUNDING ELECTRODE AND EQUIPMENT BONDING PLAN

3/8"=1'-0"




## GROUNDING ELECTRODE AND EQUIPMENT BONDING SCHEMATIC

NTS



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:55 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

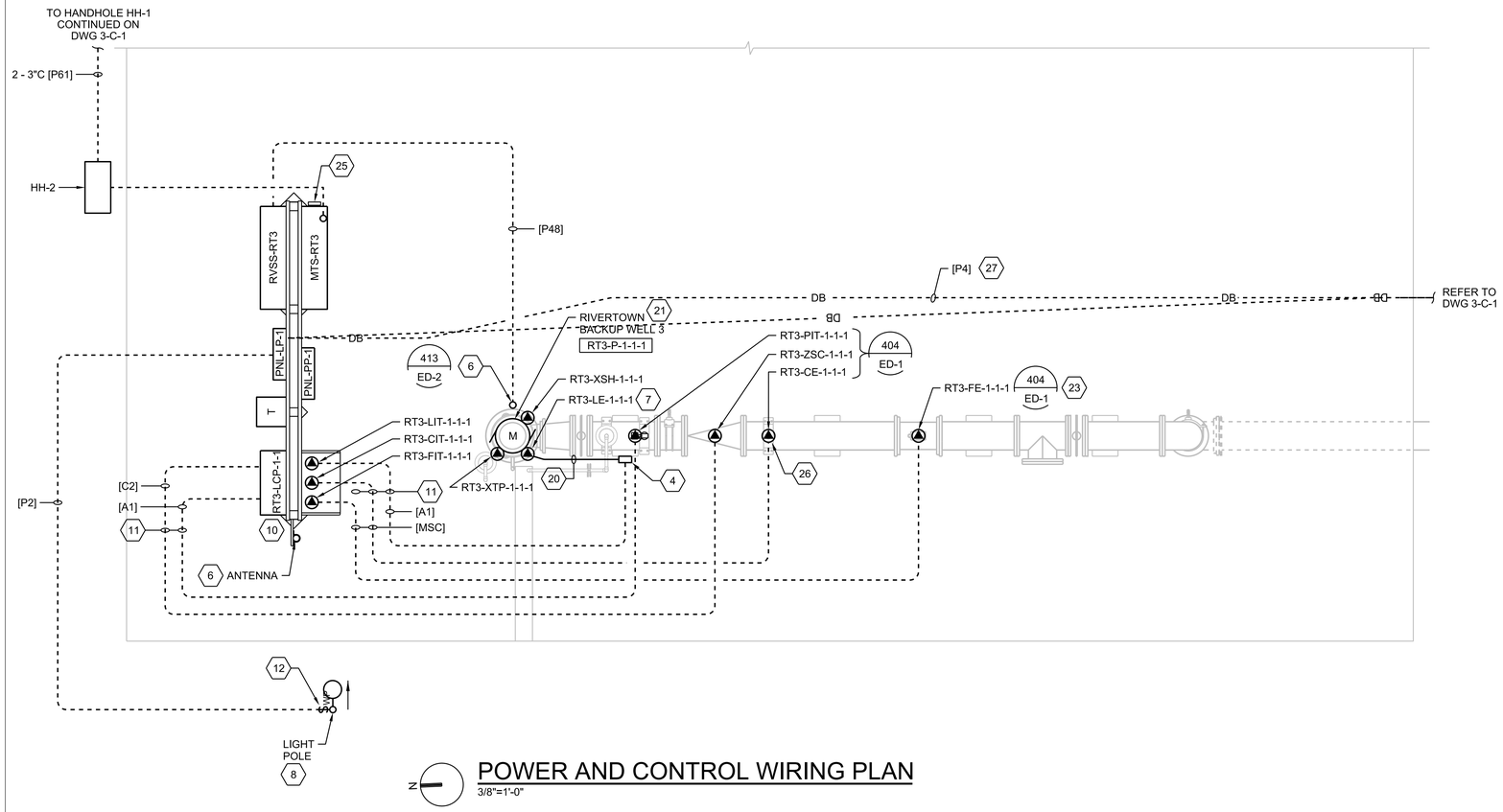
BACKUP WELLHEAD NO.3
GROUNDING PLAN & GROUNDING SCHEMATIC

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-001_D3270100.dgn

SHEET NO.
3-E-1

ISSUED FOR BID




N

## POWER AND CONTROL WIRING PLAN

3/8"=1'-0"

## GENERAL SHEET NOTES

1. KEYNOTES APPLY TO BOTH THIS DRAWING AND DWG 3-E-3.

## SHEET KEYNOTES

1. FURNISH AND INSTALL METERING CAN, HANDHOLES, CONDUIT AND WIRING PER FP&L AND JEA REQUIREMENTS AND STANDARDS. COORDINATE WITH JEA FOR PHYSICAL LOCATION AND DETAILS. REFER TO DWG. 3-C-1 FOR ADDITIONAL DETAILS. CONTRACTOR SHALL COORDINATE WITH FP&L ALL ASPECTS ASSOCIATED WITH THE ELECTRIC SERVICE DELIVERY, FINAL INSPECTION, AND ESTABLISHING SERVICE TO THE WELLHEAD, SEE DWG 3-C-1, KEYED NOTE 5.
2. FURNISH AND INSTALL SIGNAGE INDICATING THE 200AMP MAIN CIRCUIT BREAKER IN THE MTS AS THE SERVICE DISCONNECT. SIGNAGE SHALL BE 6"BY 4"IN SIZE, RED LAMINATE, ETCHED TO A WHITE CORE. LETTERING APPROPRIATELY SIZED FOR THE SIGNAGE, AND ATTACHED TO THE FRONT EXTERIOR OF THE MTS WITH S/S HARDWARE.
3. NOT USED.
4. LEVEL PROBE TERMINAL CABINET SHALL BE PMC TYPE TE-11-AC. MOUNT CABINET ON WEST FACE OF CONCRETE PIPE SUPPORT WITH BOTTOM AT 12" AFS. SEE DETAILS 408, 409, AND 413 ON DWG ED-2.
5. SPD SHALL BE AS MANUFACTURED BY SURGE SUPPRESSION, INC (SSI), CAT. #SMLB3N4X2. SPD SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. CONTACT MANUFACTURER PRIOR TO BEGINNING CONSTRUCTION ON THE WELLHEAD TO COORDINATE ALL INSTALLATION REQUIREMENTS. SPD SHALL BE INCORPORATED INTO PANEL DESIGN AND FABRICATION
6. UG CONDUIT FOR THE PUMP MOTOR POWER, SPACE HEATER, AND WINDING THERMAL PROTECTION SHALL EXTEND ABOVE FINISHED SLAB 2-INCHES, AND THEN TRANSITION TO TYPE LNFC-B CONDUIT FOR CONNECTION TO THE MOTOR HOUSING. SEE DETAIL 413 ON DWG. ED-2.
7. WELL FLANGE CABLING SHALL BE SEALED TO PREVENT LEAKAGE. FURNISH AND INSTALL CONTA CLIP #20901.6 W/ S/S CORD GRIP FOR LEVEL PROBE TO PREVENT LEAKAGE.
8. COORDINATE POLE LOCATION AND AIMING DIRECTION ON THE EXTERIOR LUMINAIRE WITH JEA PRIOR TO INSTALLATION. FURNISH AND INSTALL 23'-3" -FOOT PRECAST CONCRETE POLE, LUMINAIRE AND MOUNTING CAP. REFER TO DETAIL 504 ON DWG. ED-3. ARROW INDICATES AIMING DIRECTION. SEE DWG 3-C-1 FOR LOCATION.

## SHEET KEYNOTES

9. FURNISH AND INSTALL NEW ANTENNA POLE, COAX CABLE, AND ANTENNA. INSTALL ANTENNA POLE, ANTENNA, CABLE, AND OTHER ASSOCIATED ITEMS PER JEA STANDARD DETAILS. FIELD VERIFY EXACT LOCATION OF POLE AND ANTENNA WITH JEA BASED ON RADIO PATHWAY ANALYSIS AS PERFORMED BY CONTRACTOR. REFER TO WTP CONTRACT DOCUMENTS VOL. 1 FOR DETAILS. GROUND POLE IN ACCORDANCE WITH STANDARD DETAILS. SEE DETAIL 508 ON DWG ED-4.
10. FURNISH AND INSTALL THE SCADA FIELD PANEL AND ALL ASSOCIATED CONDUIT AND WIRING AS SHOWN ON THESE PLANS AND IN ACCORDANCE WITH SPECIFICATION 40.90.11 AND JEA REQUIREMENTS. JEA SHALL BE RESPONSIBLE FOR ALL PROGRAMMING ASSOCIATED WITH THE SCADA PANEL, ALONG WITH THE PROFIBUS COMMUNICATION WITH THE POWER MONITOR. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE REQUIRED SCHEDULE WITH JEA.
11. WIRING FOR THE INSTRUMENTATION PROBES, ELEMENTS, TRANSMITTERS AND TRANSDUCERS SHALL BE AS REQUIRED BY THE MANUFUACTUERS. REFER TO DETAILS 412, 501 & 502 ON DWG. ED-2 & ED-3.
12. MOUNT LIGHT SWITCH IN A NEMA-3R BOX AND COVER. BOX AND COVER TO BE DIE CAST ALUMINUM MOUNTED AT 48-INCHES AFS.
13. NOT USED.
14. REFER TO RVSS CONTROL WIRING SCHEMATIC ON DWG. 3-E-4.
15. REFER TO MTS CABINET REQUIREMENTS ON DWG. 3-E-6.
16. REFER TO RVSS STARTER CABINET REQUIREMENT ON DWG. 3-E-6.
17. STEPDOWN TRANSFORMER TO BE:

    480/240-120V, 1-PHASE, 10KVA SEALED UNIT, FULLY ENCAPSULATED NEMA4X ENCLOSURE 304 S/S, FRAME MOUNTED EATON PN S48DIIS10SS4X. CONTRACTOR TO ADJUST SECONDARY TAPS TO OBTAIN PROPER SECONDARY VOLTAGE AT PNL-LP-1
18. 240/120VAC, 1P/3W, 100AMP INTERIOR, 50AMP, 2-POLE MAIN CIRCUIT BREAKER, 10KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND AND NEUTRAL BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE, PANEL SCHEDULE AS SHOWN ON DWG. 3-E-7. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P1C225BB18CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
19. 480VAC, 3P/3W, 225AMP INTERIOR, MAIN LUG ONLY, 18KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P3E250LB6CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
20. ROUTE ABOVE GRADE IN LNFC-B CONDUIT OR AS DIRECTED BY JEA.
21. SEE DWG ES-2 FOR MOTOR SPECIFICATIONS, AND MOTOR DATA SHEET OF VERTICAL TURBINE PUMP SPEC.
22. MOTOR LEAD CONNECTIONS SHALL BE T & B BLACKBURN COMPRESSION MOTOR LEAD DISCONNECTS. TYPE KUBE, NO SUBSTITUTIONS.
23. FURNISH AND INSTALL PROTECTIVE COVER FOR FLOW ELEMENT. SEE MANUFACTURERS INSTRUCTIONS.
24. STUB SPARE 3" CONDUIT 6-INCHES AFG BENEATH METER AND CAP FOR FUTURE USE. SEE DWG 3-C-1 FOR ADDITIONAL INFORMATION.
25. STUB SPARE 3" CONDUIT 6-INCHES AFS BENEATH MTS-RT3 AND CAP FOR FUTURE USE.
26. ALLOW FOR 30-INCHES OF SLACK [MSC] AND LNFC-B CONDUIT TO PERMIT REMOVAL OF CONDUCTIVITY PROBE WITHOUT DISCONNECTION.
27. TWO BRANCH CIRCUITS FOR IRRIGATION CONTROLLER AND BACKFLOW PREVENTER HEAT TAPE. SEE KEYNOTE 9 ON DWG 3-C-1.

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:48 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

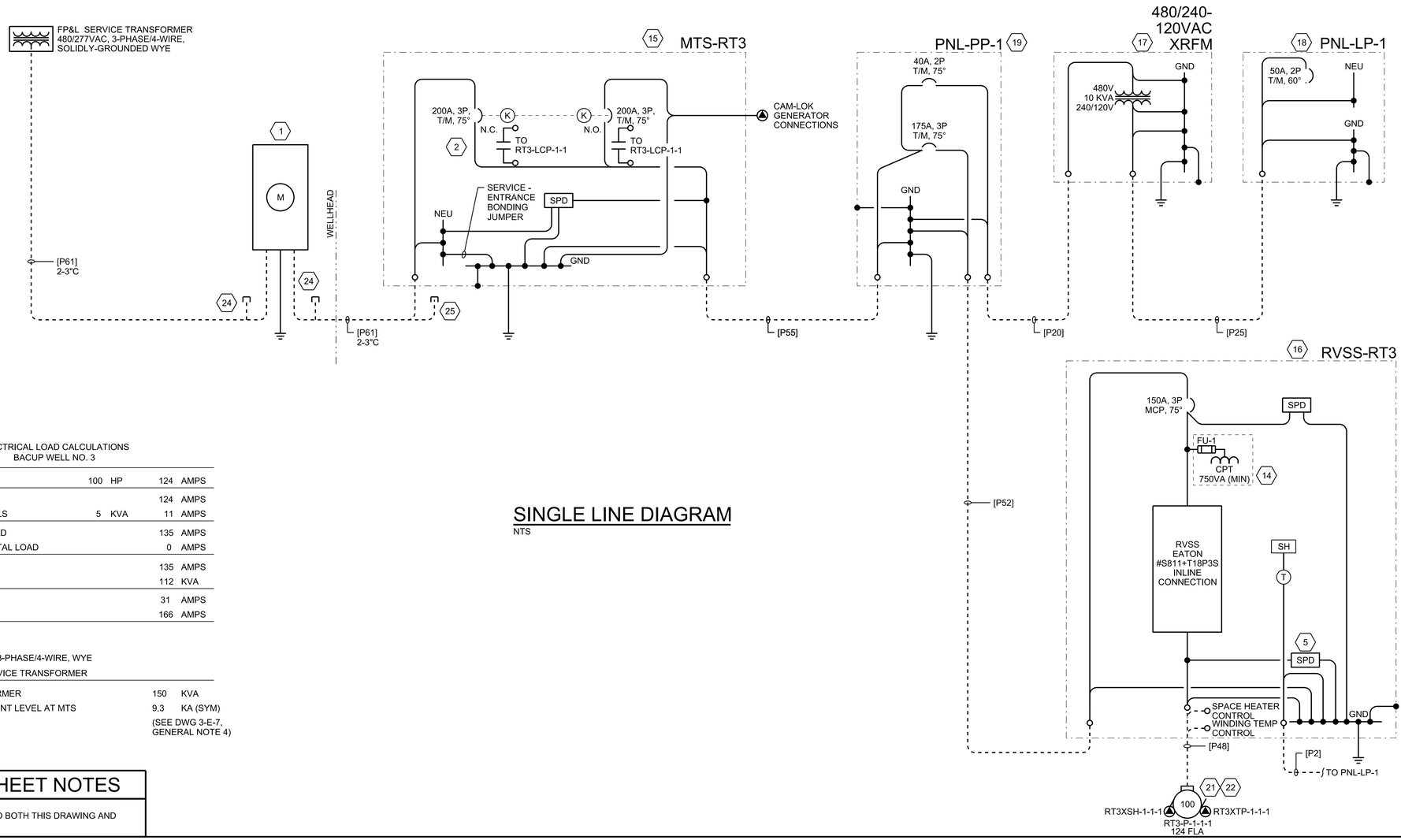
ELECTRICAL

BACKUP WELLHEAD NO.3
POWER PLAN

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-002_D3270100.dgn

SHEET NO.
3-E-2

ISSUED FOR BID




# SINGLE LINE DIAGRAM

NTS

ELECTRICAL LOAD CALCULATIONS
BACUP WELL NO. 3

| | | | | |
|---|---|---|---|---|
| WELL PUMP 3 | 100 | HP | 124 | AMPS |
| TOTAL MOTOR LOAD | | | 124 | AMPS |
| LIGHTING AND CONTROLS | 5 | KVA | 11 | AMPS |
| TOTAL CONNECTED LOAD | | | 135 | AMPS |
| TOTAL NON-COINCIDENTAL LOAD | | | 0 | AMPS |
| PEAK DEMAND AMPS | | | 135 | AMPS |
| PEAK DEMAND KVA | | | 112 | KVA |
| 0.25 X LARGEST MOTOR | | | 31 | AMPS |
| MIN SERVICE AMPACITY | | | 166 | AMPS |

ELECTRICAL SERVICE:
200 AMP, 480/277 VOLT, 3-PHASE/4-WIRE, WYE

ELECTRICAL SERVICE TRANSFORMER

| | | |
|---|---|---|
| FPL SERVICE TRANSFORMER | 150 | KVA |
| MAXIMUM FAULT CURRENT LEVEL AT MTS | 9.3 | KA (SYM) |

(SEE DWG 3-E-7, GENERAL NOTE 4)

## GENERAL SHEET NOTES

1. KEYNOTES APPLY TO BOTH THIS DRAWING AND DWG 3-E-2.

## SHEET KEYNOTES

1. FURNISH AND INSTALL METERING CAN, HANDHOLES, CONDUIT AND WIRING PER FP&L AND JEA REQUIREMENTS AND STANDARDS. COORDINATE WITH JEA FOR PHYSICAL LOCATION AND DETAILS. REFER TO DWG. 3-C-1 FOR ADDITIONAL DETAILS. CONTRACTOR SHALL COORDINATE WITH FP&L ALL ASPECTS ASSOCIATED WITH THE ELECTRIC SERVICE DELIVERY, FINAL INSPECTION, AND ESTABLISHING SERVICE TO THE WELLHEAD, SEE DWG 3-C-1, KEYED NOTE 5.
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3. NOT USED.
4. LEVEL PROBE TERMINAL CABINET SHALL BE PMC TYPE TE-11-AC. MOUNT CABINET ON WEST FACE OF CONCRETE PIPE SUPPORT WITH BOTTOM AT 12" AFS. SEE DETAILS 408, 409, AND 413 ON DWG ED-2.
5. SPD SHALL BE AS MANUFACTURED BY SURGE SUPPRESSION, INC (SSI), CAT. #SMLB3N4X2. SPD SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. CONTACT MANUFACTURER PRIOR TO BEGINNING CONSTRUCTION ON THE WELLHEAD TO COORDINATE ALL INSTALLATION REQUIREMENTS. SPD SHALL BE INCORPORATED INTO PANEL DESIGN AND FABRICATION.
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7. WELL FLANGE CABLING SHALL BE SEALED TO PREVENT LEAKAGE. FURNISH AND INSTALL CONTA CLIP #20901.6 W/ S/S CORD GRIP FOR LEVEL PROBE TO PREVENT LEAKAGE.
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13. NOT USED.
14. REFER TO RVSS CONTROL WIRING SCHEMATIC ON DWG. 3-E-4.
15. REFER TO MTS CABINET REQUIREMENTS ON DWG. 3-E-6.
16. REFER TO RVSS STARTER CABINET REQUIREMENT ON DWG. 3-E-6.
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18. 240/120VAC, 1P/3W, 100AMP INTERIOR, 50AMP, 2-POLE MAIN CIRCUIT BREAKER, 10KA FULLY RATED BOLT-ON CIRCUIT BREAKERS, TIN-PLATED COPPER BUS, COPPER GROUND AND NEUTRAL BUS, TYPED CIRCUIT DIRECTORY WITH SLEEVE, PANEL SCHEDULE AS SHOWN ON DWG. 3-E-7. 304 S/S ENCLOSURE, NEMA-4X EATON TYPE P1C225BB18CH4X W/ N4X2436N ENCLOSURE SYSTEM WITH A PAD-LOCKABLE HASP.
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20. ROUTE ABOVE GRADE IN LNFC-B CONDUIT OR AS DIRECTED BY JEA.
21. SEE DWG ES-2 FOR MOTOR SPECIFICATIONS, AND MOTOR DATA SHEET OF VERTICAL TURBINE PUMP SPEC.
22. MOTOR LEAD CONNECTIONS SHALL BE T & B BLACKBURN COMPRESSION MOTOR LEAD DISCONNECTS. TYPE KUBE, NO SUBSTITUTIONS.
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25. STUB SPARE 3" CONDUIT 6-INCHES AFS BENEATH MTS-RT3 AND CAP FOR FUTURE USE.
26. ALLOW FOR 30-INCHES OF SLACK [MSC] AND LNFC-B CONDUIT TO PERMIT REMOVAL OF CONDUCTIVITY PROBE WITHOUT DISCONNECTION.



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:32 PM

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

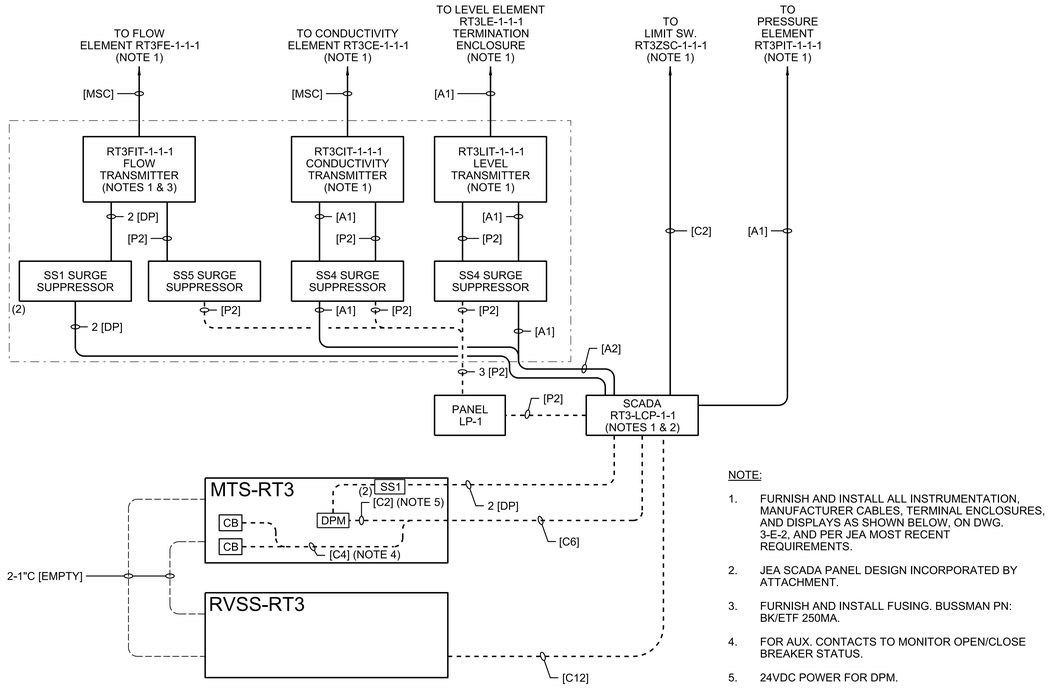
BACKUP WELLHEAD NO.3
SINGLE LINE DIAGRAM

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-003_D3270100.dgn

SHEET NO.
3-E-3

ISSUED FOR BID




NOTE:

1. FURNISH AND INSTALL ALL INSTRUMENTATION, MANUFACTURER CABLES, TERMINAL ENCLOSURES, AND DISPLAYS AS SHOWN BELOW, ON DWG. 3-E-2, AND PER JEA MOST RECENT REQUIREMENTS.
2. JEA SCADA PANEL DESIGN INCORPORATED BY ATTACHMENT.
3. FURNISH AND INSTALL FUSING. BUSSMAN PN: BK/ETF 250MA.
4. FOR AUX. CONTACTS TO MONITOR OPEN/CLOSE BREAKER STATUS.
5. 24VDC POWER FOR DPM.
6. CONTRACTOR'S PROCESS CONTROL INTEGRATOR FOR THE WTP SHALL BE RESPONSIBLE FOR SETUP AND CALIBRATION OF ALL WELLHEAD INSTRUMENTATION AND CONTROLS, INCLUSIVE OF THE SCADA PANEL.

## INSTRUMENTATION WIRING SCHEMATIC

NTS

INSTRUMENT PROBES/TRANSMITTERS
BASIS OF DESIGN:

CONDUCTIVITY:
ROSEMOUNT SENSOR: MODEL 228-02-20-54-62, W/ ADAPTER 23311-01 (RT3CE-1-1-1)
ROSEMOUNT INPUT ANALYZER: MODEL 1056-01-21-38-AN (RT3CIT-1-1-1)

FLOW:
ABB WATER MASTER FLOWMETER SYSTEM, FULL BORE, REMOTE MOUNT
FEW32-5-300A1S4-A1D1B1A-3P-3B3-G-1-M5 (RT3FE-1-1-1 & RT3FIT-1-1-1)

INCLUDE:
- 12" NB
- PTFE LINER
- S/S ELECTRODES
- (2) POTENTIAL EQUALIZING RINGS
- CLASS 1 CALIBRATION
- 60 FT MSC CABLE

LEVEL:
SUBMERSIBLE TRANSMITTER: PMC MINIATURE MTM 3213-100PSIG-0.1%-105' (RT3LE-1-1-1), 0.1%; 100 PSIG; LOCATED 90-FEET BELOW WELLHEAD.
TERMINATION ENCLOSURE: PMC TE-11-AC W/ MP-11
ENDRESS AND HAUSER PROCESS DISPLAY: RIA46-1530/0-A, A1, B , B1 (RT3LIT-1-1-1)

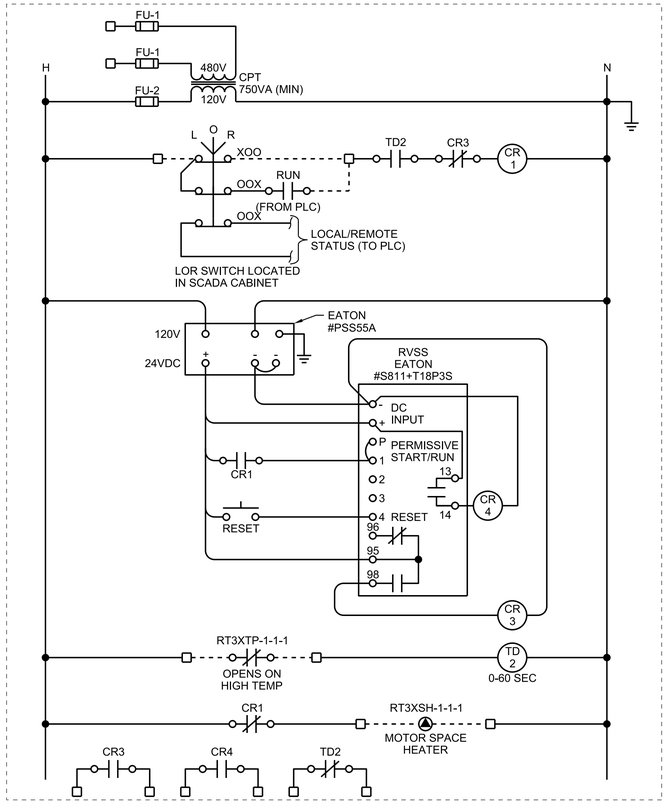
PRESSURE:
ROSEMOUNT INLINE TRANSMITTER: MODEL 305ITG-2A-2B21J-M4-Q4 (RT3PT-1-1-1)

INCLUDE:
- FACTORY CALIBRATION
- FACTORY SET ENGR. UNITS = PSIG

NOTES:

CONTRACTOR TO CONFIRM ALL DEVICES WITH OWNER PRIOR TO PURCHASE.

SEE MECHANICAL DRAWINGS AND SPECIFICATION SECTIONS 40 90 01 AND 40 90 11 FOR ADDITIONAL DETAIL.




NOTE:

1. REFER TO DWG 3\-E-7 FOR CIRCUIT CALLOUTS AND CONDUIT/CABLE SCHEDULE.
2. REFER TO DWG 3-E-6 FOR RVSS-RT3 ENCLOSURE DESIGN.
3. TD2 INITIAL SETTING SHALL BE 30 SEC. FINAL SETTING BY JEA.

## RVSS-RT3 CONTROL SCHEMATIC

NTS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:10 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

BACKUP WELLHEAD NO.3
MOTOR CONTROL SCHEMATIC AND
INSTRUMENTATION RISER DIAGRAM

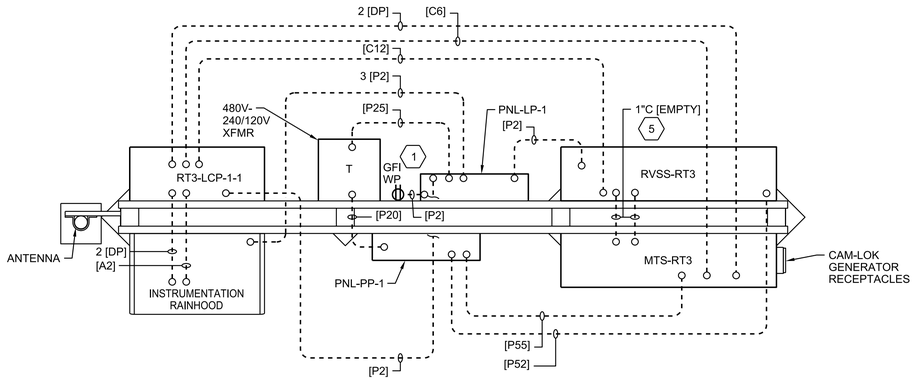
PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-004_D3270100.dgn

SHEET NO.
3-E-4

ISSUED FOR BID

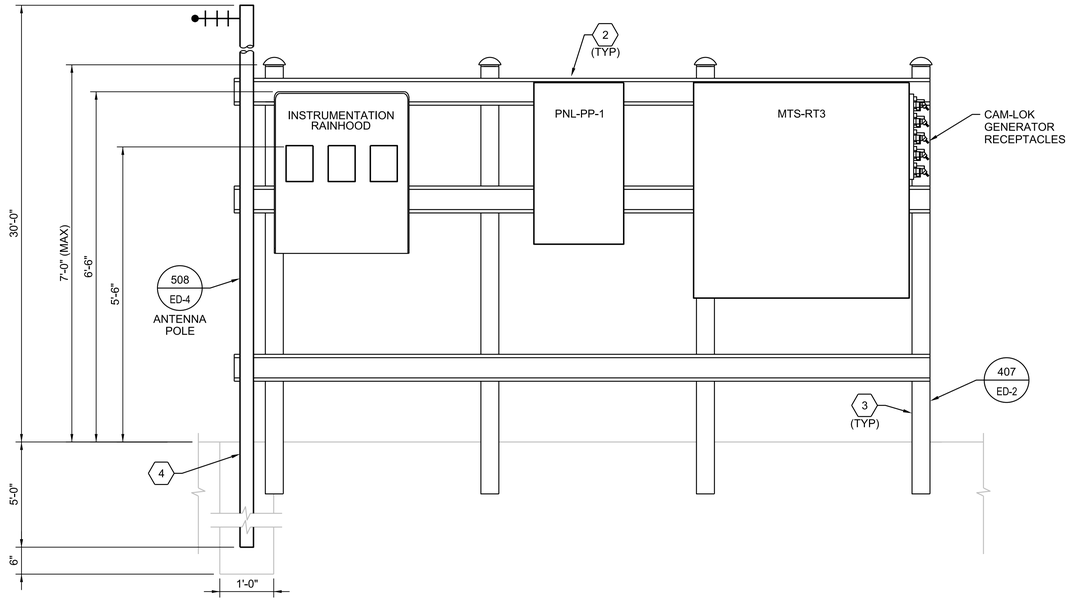
## SHEET KEYNOTES

1. FURNISH AND INSTALL ONE (1) 120VAC, 20 AMP DUPLEX RECEPTACLE RATED CLASS A, 4-6mA GFCI AND WR. INSTALL IN NEMA-3R IN-USE BOX WITH COVER. BOX AND COVER TO BE DIE CAST ALUMINUM. MOUNT MINIMUM 18"-AFS AND BELOW PNL-LP-1.
2. FURNISH AND INSTALL 1/2" x 3" ALUMINUM SUPPORT BARS AS REQUIRED TO PROPERLY SUPPORT RACK MOUNTED EQUIPMENT. ELEVATION VIEWS FOR EXAMPLE ONLY.
3. MASTIC SEAL. TYPICAL FOR ALL ALUMINUM POSTS AS SHOWN IN DETAIL 407 ON DWG ED-2.
4. REFER TO NOTE 4 OF DETAIL 508 ON DWG. ED-4 FOR SLEEVING REQUIREMENT.
5. EMPTY CONDUIT FOR FUTURE USE.

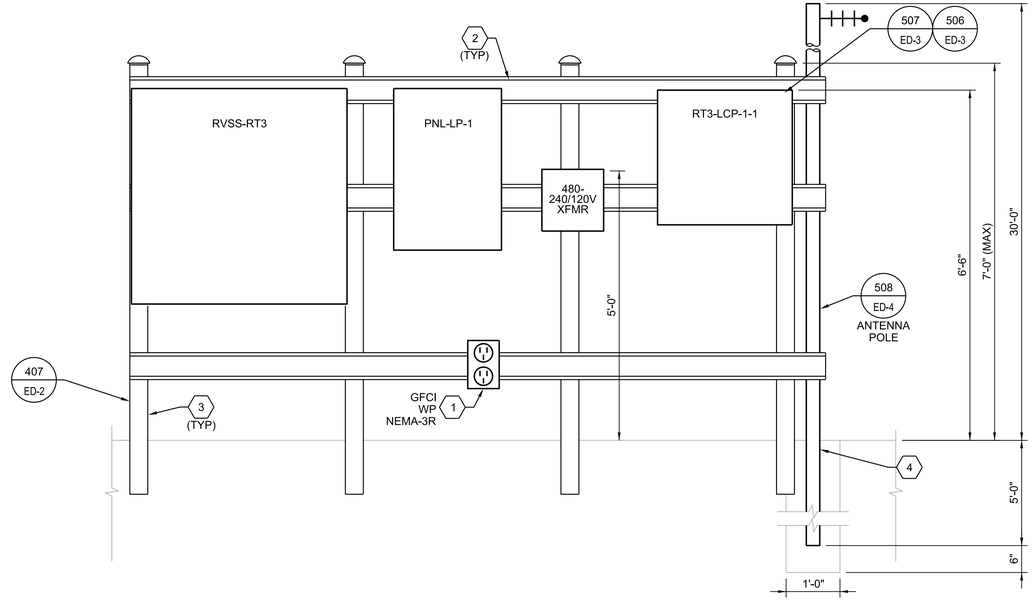



N

## EQUIPMENT RACK
NTS




## SOUTH ELEVATION
NTS




## NORTH ELEVATION
NTS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:45 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

BACKUP WELLHEAD NO.3
EQUIPMENT RACK ELEVATIONS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-005_D3270100.dgn

SHEET NO.
3-E-5

ISSUED FOR BID

# GENERAL NOTES

1. FULLY ASSEMBLED ENCLOSURE SHALL BE RATED AS SERVICE-ENTRANCE EQUIPMENT AND BEAR A UL LABEL TO THAT EFFECT. THE ENCLOSURE SHALL COMPLY WITH UL-508A WITH EXCEPTION OF KEY-LOCK CIRCUIT BREAKERS, AND BEAR A SCCR LABEL INDICATING THE ASSEMBLED UNIT HAS A SHORT CIRCUIT WITHSTAND OF 18KA.

2. EXPOSED INTERIOR LIVE COMPONENTS SHALL BE COVERED WITH A CLEAR PLEXIGLASS COVER, HINGED ON ONE SIDE, LATCHED ON THE OTHER, TO PREVENT ACCIDENTAL CONTACT OF ENERGIZED COMPONENTS WHILE ALLOWING FOR MANUAL OPERATION OF THE TWO CIRCUIT BREAKERS.

# GENERAL NOTES

3. APPROVED ENCLOSURE MANUFACTURERS ARE:

   a. ECS
   RALPH SINN
   904.367.5000
   RALPH@ECSCONTROLPANELS.COM

   b. EG CONTROLS, INC.
   BRIAN DAIL
   904.292.0110
   BDAIL@EGCONTROLS.COM

   c. SUNCOAST
   MARK OWENS
   904.693.3318
   MOWENS@SUNCOASTCONTROLS.BIZ

   d. SUN STATE SYTEMS, INC.
   BARNEY MESSER
   904.269.2544
   BMESSER@SUNSTATESYSTEMS.COM

   e. INFAMATION TECHNOLOGIES GROUP
   DALE YOUNG
   904.425.4760
   DYOUNG@INFAMATION.COM

# SHEET KEYNOTES

1. ENCLOSURE SHALL BE PENTAIR/HOFFMAN, TYPE A48H4812WFSSLP3PT-MOD, 304 S/S, NEMA-4X FOR OUTDOOR USE. DIMENSIONS TO BE 48"WX48"H WITH MINIMUM DEPTH OF 10". INTERIOR AND EXTERIOR SHALL HAVE FINISH TYPE A1, COLOR S078: WHITE (HOFFMAN #60) - SMOOTH GLOSSY. ENCLOSURE SHALL BE EQUIPPED WITH AN APPROPRIATE BACKPLATE FOR EQUIPMENT MOUNTING, FINISH TO BE SAME AS ENCLOSURE.
2. EXTERIOR VIEWING WINDOW, PENTAIR/HOFFMAN FRAME STYLE #1 TYPE APWK95NFSS, 9"X5.5", NEMA-4X. ONE WINDOW WILL BE USED TO VIEW THE SPD STATUS, AND ONE WINDOW WILL BE USED TO VIEW THE POWER MONITOR.
3. TOP AND SIDE SUN HEAT SHIELDS, MARINE GRADE ALUMINUM, POLYESTER POWER COAT FINISH: WHITE.
4. NAMEPLATE #1 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):

   MTS-RT3

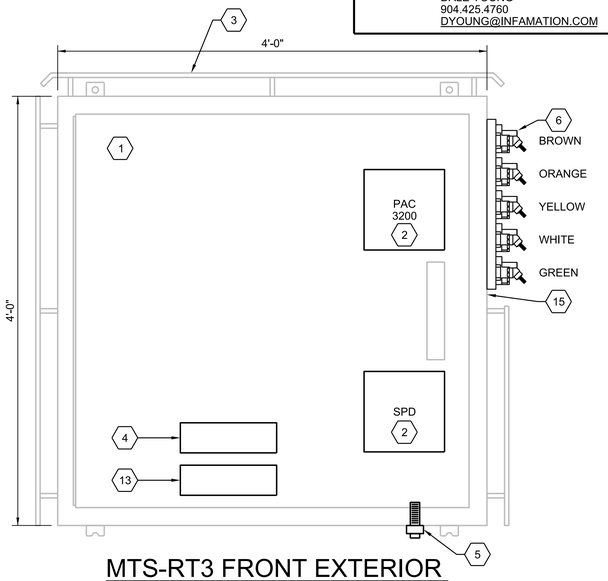
5. ONE-WAY BREATHER/DRAIN, T&B # ECD15-TB.
6 GENERATOR RECEPTACLES: CAM-LOK PANEL. PANEL PLATE SHALL BE 24"H X 6.25"W X .125"THICK, MADE FROM HIGH GRADE ALUMINUM (NON-FERROUS) WITH A POWDER COAT FINISH, TYPE A1, COLOR S078: WHITE, SMOOTH GLOSSY. RECEPTACLES SHALL BE EATON CAM-LOK, 400AMP, 480/277VAC, J-SERIES E1016, ELASTOMERIC, 45-DEG ANGLED, DOUBLE-SET SCREWS. RECEPTACLES SHALL BE ARRANGED PHASE-OVER-PHASE, COLORED CODED TOP-TO-BOTTOM: BROWN/ORANGE/YELLOW/ WHITE/GREEN. PHASE RECEPTACLES SHALL BE MALE-STYLE, PART NO. E1016-170XS45 WHERE 'X' REPRESENTS THE REQUIRED COLOR. NEUTRAL/GROUND RECEPTACLES SHALL BE FEMALE-STYLE, PART NO. E1016-17XXS45 WHERE 'XX' REPRESENTS THE REQUIRED COLOR. FURNISH THE APPROPRIATE MALE OR FEMALE PROTECTIVE CAP AND LANYARD FOR EACH RECEPTACLE, COLOR CODED THE SAME AS EACH RECEPTACLE. PART NO. A10060X-XX WHERE 'X' REPRESENTS THE MALE/FEMALE STYLE AND 'XX' REPRESENTS THE REQUIRES COLOR. PROVIDE A 2"VERTICAL SEPARATION BETWEEN EACH RECEPTACLE MOUNTING PLATE.

   ON THE STAINLESS STEEL ENCLOSURE, PROVIDE A SINGLE RECTANGULAR CUTOUT, VERTICALLY ORIENTED, MAX OPENING TO BE 22"H X 4.25"W. INDIVIDUAL RECEPTACLE CUTOUTS IN THE STAINLESS STEEL IS NOT ACCEPTABLE. CUTOUT TO BE CENTERED HORIZONTALLY ON THE ENCLOSURE, AND AS CLOSE TO THE TOP AS POSSIBLE. MOUNT ALUMINUM PANEL PLATE TO ENCLOSURE WITH STAINLESS STEEL HARDWARE IN A MANNER TO PROVIDE, AS A MINIMUM, A NEMA-3 OVERALL ENCLOSURE RATING.
7. DIGITAL POWER MONITOR: SENTRON PAC3200 W/ PROFIBUS DP HARDWIRED INTERFACE. NO SUBSTITUTION. (24VDC POWERED)
8. SURGE PROTECTIVE DEVICE: TYPE 2, CAT. C "TRUE" 10 MODE W/ DEDICATED PROTECTIVE ELEMENT IN EACH MODE. SSI CAT# LSEB3Y2-E1-X2-S. NO SUBSTITUTION.
9. CIRCUIT BREAKER: SQUARE D CAT# JDL36200. KEY-INTELOCKED. WITH AUXILIARY SWITCH 1A1B CAT. #S29450.
10. POWER DISTRIBUTION BLOCK: BUSSMAN HIGH SCCR SERIES. CAT# PDB371-3
11. POWER DISTRIBUTION BLOCK: BUSSMAN HIGH SCCR SERIES. CAT# PDB204-3
12. POWER DISTRIBUTION BLOCK: BUSSMAN HIGH SCCR SERIES. CAT# PDB321-3.
13. NAMEPLATE #2 (REFER TO DWG 3-E-3, NOTE 2 AND DWG. ES-1 FOR SPECIFICATIONS):

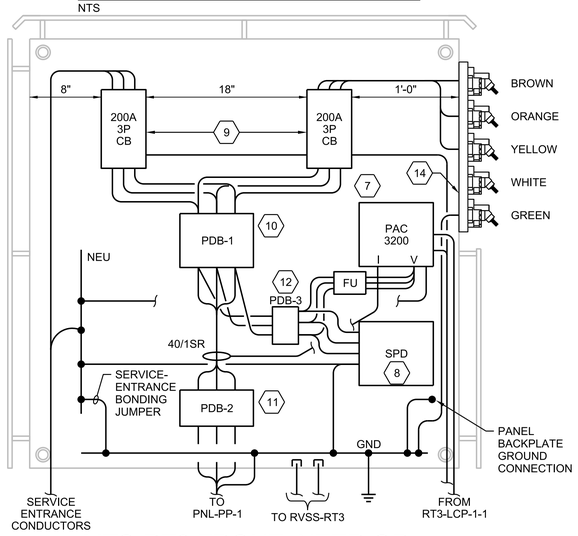
    SERVICE ENTRANCE DISCONNECT LOCATED INSIDE

14. THE INTERIOR BARREL OF THE GROUNDED PHASE RECEPTACLE (WHITE) SHALL BE FULLY INSULATED, BUT NOT CONNECTED WITHIN THE PANEL. THIS SHALL BE A DEAD-END CONNECTION.
15. NAMEPLATE #3 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):

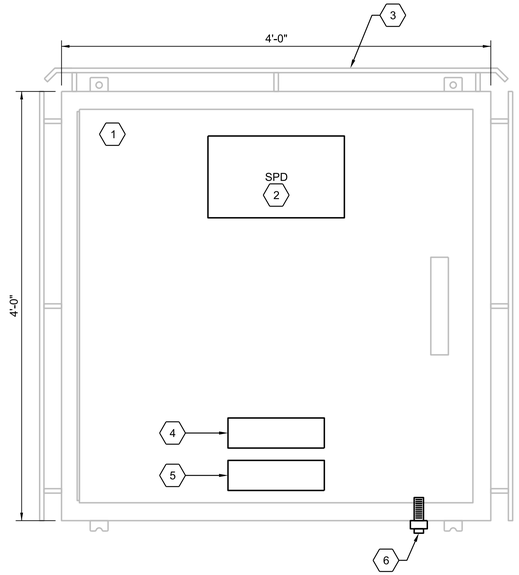
    WARNING:
    FOR CONNECTION OF A SEPARATELY DERIVED (BONDED NEUTRAL) SYSTEM



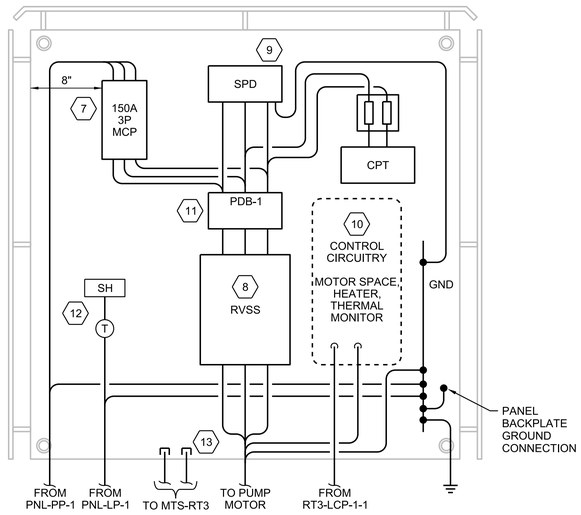

MTS-RT3 FRONT EXTERIOR
NTS




MTS-RT3 FRONT INTERIOR
NTS




RVSS-RT3 FRONT EXTERIOR
NTS




RVSS-RT3 FRONT INTERIOR
NTS

# GENERAL NOTES

1. FULLY ASSEMBLED ENCLOSURE SHALL BEAR AN UL-508A LABEL, AND A SCCR LABEL INDICATING THE ASSEMBLED UNIT HAS A SHORT CIRCUIT WITHSTAND OF 10KA.
2. EXPOSED INTERIOR LIVE COMPONENTS SHALL BE COVERED WITH A CLEAR PLEXIGLASS COVER, HINGED ON ONE SIDE, LATCHED ON THE OTHER, TO PREVENT ACCIDENTAL CONTACT OF ENERGIZED COMPONENTS WHILE ALLOWING FOR MANUAL OPERATION OF THE CIRCUIT BREAKER.
3. APPROVED ENCLOSURE MANUFACTURERS ARE:

   a. ECS
   RALPH SINN
   904.367.5000
   RALPH@ECSCONTROLPANELS.COM

   b. EG CONTROLS, INC.
   BRIAN DAIL
   904.292.0110
   BDAIL@EGCONTROLS.COM

   c. SUNCOAST
   MARK OWENS
   904.693.3318
   MOWENS@SUNCOASTCONTROLS.BIZ

   d. SUN STATE SYTEMS, INC.
   BARNEY MESSER
   904.269.2544
   BMESSER@SUNSTATESYSTEMS.COM

   e. INFAMATION TECHNOLOGIES GROUP
   DALE YOUNG
   904.425.4760
   DYOUNG@INFAMATION.COM

# SHEET KEYNOTES

1. ENCLOSURE SHALL BE PENTAIR/HOFFMAN, TYPE A48H4812WFSSLP3PT-MOD, 304 S/S, NEMA-4X FOR OUTDOOR USE. DIMENSIONS TO BE 48"Wx48"H WITH MINIMUM DEPTH OF 10". INTERIOR AND EXTERIOR SHALL HAVE FINISH TYPE A1, COLOR S078: WHITE (HOFFMAN #60) - SMOOTH GLOSSY. ENCLOSURE SHALL BE EQUIPPED WITH AN APPROPRIATE BACKPLATE FOR EQUIPMENT MOUNTING, FINISH TO BE SAME AS ENCLOSURE.
2. EXTERIOR VIEWING WINDOW, PENTAIR/HOFFMAN FRAME STYLE #1 TYPE APWK95NFSS, 9"X5.5", NEMA-4X. WINDOW TO BE USED TO VIEW THE SPD STATUS.
3. TOP AND SIDE SUN HEAT SHIELDS, MARINE GRADE ALUMINUM, POLYESTER POWER COAT FINISH: WHITE.
4. NAMEPLATE #1 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):

   RVSS-RT3

5. NAMEPLATE #2 (REFER TO DWG. ES-1 FOR SPECIFICATIONS):

   MAY BE ENERGIZED FROM THREE DIFFERENT SOURCES
   PNL-PP-1
   PNL-LP-1
   RT3-LCP-1-1

6. ONE-WAY BREATHER/DRAIN, T&B # ECD15-TB.
7. MOTOR CIRCUIT PROTECTOR: SQUARE D CAT# HJL36150M74.
8. REDUCED VOLTAGE MOTOR STARTER: EATON CAT #S811+T18P3S. INLINE CONNECTION. NO SUBSTITUTION.
9. SURGE PROTECTIVE DEVICE: TYPE 2, CAT. B "TRUE"10 MODE W/ DEDICATED PROTECTIVE ELEMENT IN EACH MODE. SSI CAT# LSEA3N4-E1-X2-S. NO SUBSTITUTION.
10. REFER TO DWG. 3-E-4 FOR CONTROL SCHEMATIC INFORMATION.
11. POWER DISTRIBUTION BLOCK: BUSSMAN HIGH SCCR SERIES. CAT# PDB371-3
12. THERMOSTATICALLY CONTROLLED SPACE HEATER. SPACE HEATER TO BE RATED 400W, 240VAC.
13. SEE DWG 3-E-3, KEYNOTE 5 FOR ADDITIONAL SPD REQUIREMENT. SPD SHALL BE INCORPORATED INTO PANEL DESIGN AND FABRICATION.

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:21 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

BACKUP WELLHEAD NO.3
EQUIPMENT PANEL LAYOUTS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-006_D3270100.dgn

SHEET NO.
3-E-6

ISSUED FOR BID

| CIRCUIT CALLOUTS | |
|---|---|
| [P2] | [3/4"C, 2#12, 1#12G] |
| [P4] | [1"C, 4#10, 2#10G] |
| [P20] | [1"C, 2#8, 1#10G] |
| [P25] | [1"C, 2#6, 1#6 NEU, 1#10G] |
| [P48] | [2"C, 3#1/0, 1#6G, 2#12, 2#14, 1#12G] |
| [P52] | [2"C, 3#2/0, 1-#6G] |
| [P55] | [2 1/2"C, 3#3/0, 1#6G] |
| [P61] | [3"C, 3#4/0, 1#2 NEU], [3"C, SPARE] |
| [C2] | [1"C, 2#14, 1#14G] |
| [C4] | [1"C, 4#14, 1#14G] |
| [C6] | [1"C, 6#14, 1#14G] |
| [C12] | [1"C, 12#14, 1#14G] |
| [A1] | [1"C, 1 TYPE 3] |
| [A2] | [1"C, 2 TYPE 3] |
| [A3] | [[1"C, 3 TYPE 3] |
| [DP] | [1-1/2"C, PROFIBUS DP FAST CONNECT] |
| [MSC] | [1"C, MANUFACTURER SUPPLIED CABLE] |

**LP-1** — **PANEL BOARD SCHEDULE** — **LP-1**

240/120 VOLTS | MCB 50A | 1 Phase | 3 WIRE | NEMA 4X | KAIC = 10

| CKT NBR | EQUIPMENT PROTECTED | CKT BKR POLE | CKT BKR TRIP | Nbr Sets | WIRE AND CONDUIT ** Phase | Neu | Grd | Cond | PHASE KVA A | PHASE KVA B | WIRE AND CONDUIT ** Phase | Neu | Grd | Cond | Nbr Sets | CKT BKR TRIP | CKT BKR POLE | EQUIPMENT PROTECTED | CKT NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | RT3-LCP-1-1 | 1 | 20 | | | | | | 1.5 | 0.6 | | | | | | 20 | 1 | RT3CIT-1-1-1 | 2 |
| 3 | POLE LIGHT | 1 | 20 | | | | | | - | - | 0.5 | 0.6 | | | | 20 | 1 | RT3LIT-1-1-1 | 4 |
| 5 | WP GFI RECEPTACLE | 1 | 20 | | | | | | 0.5 | 0.6 | - | - | | | | 20 | 1 | RT3FIT-1-1-1 | 6 |
| 7 | SPARE | 1 | 20 | | | | | | - | - | - | 0.1 | | | | 15 | 1 | IRRIGATION CONTROLLER | 8 |
| 9 | SPARE | 1 | 20 | | | | | | - | - | - | - | | | | 15 | 1 | IRRIGATION BACKFLOW PREVENTOR HEAT TAPE | 10 ✳ |
| 11 | SPARE | 1 | 20 | | | | | | - | - | - | - | | | | 20 | 1 | SPARE | 12 |
| 13 | RVSS SPACE HEATER | 2 | 20 | | | | | | 0.2 | - | - | - | | | | 20 | 2 | SPARE | 14 |
| 15 | | | | | | | | | - | - | 0.2 | - | | | | | | | 16 |
| 17 | SPACE | 1 | 20 | | | | | | - | - | - | - | | | | 20 | 1 | SPACE | 18 |
| | | | | | CONNECTED KVA = | | | | 3.4 | | 1.4 | | | | | | | | |

** PROVIDE #12 PHASE (QTY=CB POLES) AND GROUND IN 3/4" CONDUIT UNLESS DIFFERENT NUMBER AND/OR GREATER SIZES ARE SHOWN ON DRAWINGS.

✳ - CIRCUIT BREAKER TO BE CLASS A, 4-6mA GFCI

## CONDUIT/CABLE SCHEDULE

| FROM | TO | CONDUCTOR | CONDUIT |
|---|---|---|---|
| UTILITY HH-1 | MTS-RT3 | 3- #4/0, 1-#2 NEU | 1-3"/1-3" SPARE |
| MTS-RT3 | PNL-PP-1 | 3 - #3/0, 1 - #6 GND | 2 1/2" |
| MTS-RT3 | RVSS-RT3 | EMPTY | 1" |
| MTS-RT3 | RVSS-RT3 | EMPTY | 1" |
| MTS-RT3 | RT3-LCP-1-1 | Profibus DP Fast Connect | 1 1/2" |
| MTS-RT3 | RT3-LCP-1-1 | Profibus DP Fast Connect | |
| MTS-RT3 | RT3-LCP-1-1 | 6 - #14, 1 #14 GND | 1" |
| PNL-PP-1 | RVSS-RT3 | 3 - #2/0, 1 - #6 GND | 2" |
| PNL-PP-1 | 480/240-120VAC XRFM | 2 - #8, 1 - #10 GND | 1" |
| RVSS-RT3 | RT3-P-1-1-1 | 3 - #1/0, 1 - #6 GND, 2 - #12, 2 - #14, 1 - #12 GND | 2" |
| RVSS-RT3 | RT3-LCP-1-1 | 12 - #14, 1#14 GND | 1" |
| 480/240-120VAC XRFM | PNL-LP-1 | 2 - #6, 1- #6 NEU, 1 - #10 GND | 1" |
| PNL-LP-1 | RT3-LCP-1-1 | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RT3-CIT-1-1-1 | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RT3-LIT-1-1-1 | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RT3-FIT-1-1-1 | 2- #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | POLE LIGHT | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | GFCI RECPT. | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | RVSS SPACE HEATER | 2 - #12, 1 - #12 GND | 3/4" |
| PNL-LP-1 | IRRIGATION CONTROLLER | 2 - #1/0, 1 - #10 GND | 1" |
| PNL-LP-1 | IRRIGATION BACKFLOW PREVENTER HEAT TAPE | 2 - #1/0, 1 - #10 GND | |
| | | | |
| RT3-LCP-1-1 | RT3-PIT-1-1-1 | 1 TYPE 3 | 1" |
| RT3-LCP-1-1 | RT3-ZSC-1-1-1 | 2 - #14, 1 - #14 GND | 1" |
| RT3-LCP-1-1 | RT3-LIT-1-1-1 | 2 TYPE 3 | 1" |
| RT3-LCP-1-1 | RT3-CIT-1-1-1 | | |
| RT3-LCP-1-1 | RT3-FIT-1-1-1 | PROFIBUS DP FAST CONNECT | 1 1/2" |
| RT3-LCP-1-1 | RT3-FIT-1-1-1 | PROFIBUS DP FAST CONNECT | |
| RT3-LIT-1-1-1 | TE-11-AC | 1 TYPE 3 | 1" |
| RT3-CIT-1-1-1 | RT3-CE-1-1-1 | MSC | 1" |
| RT3-FIT-1-1-1 | RT3-FE-1-1-1 | MSC | 1" |
| RT3-LE-1-1-1 | TE-11-AC | MSC | 1" |

# GENERAL NOTES

1. ALL EQUIPMENT AND MATERIALS SHALL BE, AS MINIMUM PER JEA'S MOST CURRENT EDITION OF STANDARD AND METHODS OF INSTALLATION. REFER TO FP&L RULES AND REGULATIONS FOR ELECTRIC SERVICE, FOR INSTALLATION REQUIREMENTS ASSOCIATED WITH THE ELECTRIC SERVICE.
2. REFER TO DWG. 3-C-1 FOR DIMENSION DETAILS OF THE EQUIPMENT PAD.
3. REFER TO DWG. 3-C-1 FOR PAD ORIENTATION.
4. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL PERFORM AND SUBMIT TO ENGINEER THE ELECTRICAL SYSTEMS ANALYSIS AS REQUIRED BY SECTION 26.05.70 ON DWG ES-1.
5. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL TO THE ENGINEER AND JEA INDICATING THE EQUIPMENT LAYOUT AND CONDUIT ROUTING FOR THE EQUIPMENT RACK, TERMINAL JUNCTION BOXES, THE WELL PUMP, THE LIGHT POLE, AND ALL INSTRUMENTATION.
6. ALL CONDUITS SHALL BE ROUTED FROM SOURCE TO LOAD VIA UNDERGROUND, INCLUSIVE OF CABINET-TO-CABINET WIRING LOCATED ON THE COMMON EQUIPMENT SUPPORT FRAME. CONDUIT SHALL NOT BE ROUTED ACROSS THE SLAB OR ALONG THE SUPPORT FRAME. ONLY EXCEPTION IS THE DUPLEX RECEPTACLE WHICH SHALL BE LOCATED DIRECTLY BELOW THE 240/120VAC PANELBOARD.
7. ALL ABOVE GRADE CONDUIT SHALL BE RIGID ALUMINUM. ALL ABOVE GRADE TO BELOW GRADE TRANSITIONS, AND BELOW GRADE ELBOWS, SHALL BE RIGID ALUMINUM INCLUSIVE OF TWO MASTIC COATS ON THE EXTERIOR AND ALL AROUND THE UNDERGROUND COUPLING. ALL BELOW GRADE CONDUIT SHALL BE PVC SHC. 80 UNLESS NOTED OTHERWISE ON THE PLANS. PROVIDE PULLSTRINGS IN ALL EMPTY CONDUITS, AND CAP BOTH ENDS OF EMPTY CONDUITS. HORIZONTAL UNDERGROUND CONDUIT RUNS ARE NOT TO BE EMBEDDED IN THE CONCRETE SLAB.
8. ALUMINUM CONDUIT SHALL NOT BE INSTALLED IN DIRECT CONTACT WITH CONCRETE OR SOIL. CONTRACTOR SHALL PROVIDE FOR A 6-INCH SEPARATION BETWEEN THE CONCRETE SLAB AND THE START OF ANY ALUMINUM CONDUIT.
9. ALL UTILIZED CONDUITS ENTERING AND EXITING ALL ENCLOSURES SHALL BE FIRESTOPPED WITH A UL LISTED PRODUCT.
10. ALL CONDUIT PENETRATIONS INTO PANELS, BOXES, AND EQUIPMENT ENCLOSURES SHALL BE FROM THE BOTTOM. SIDE AND TOP PENETRATIONS ARE NOT ALLOWED.
11. EQUIPMENT AND CONDUIT SUPPORT STRUCTURES, DETAILS 401, 404 AND 407 ON DWGS ED-1 & ED-2, SHALL UTILIZE RIGID ALUMINUM STRUCTURAL MEMBERS. WHENEVER THE ALUMINUM MAY COME IN DIRECT CONTACT WITH THE CONCRETE SLAB OR SOIL, THE ALUMINUM SHALL BE COATED WITH A BITUMINOUS COATING OVER THE CONTACT AREA. FOR ALUMINUM POSTS THAT WILL BE EMBEDDED IN THE CONCRETE, THE POSTS SHALL BE COATED OVER THE CONTACT AREA AND UP TO 6-INCHES ABOVE THE CONCRETE SLAB.
12. CONDUCTORS SHALL BE:

    AS MANUFACTURED BY SOUTHWIRE OR OKONITE:

    #10AWG AND SMALLER SHALL BE SOLID COPPER. #8 AWG AND LARGER SHALL BE STRANDED COPPER. ALL POWER CONDUCTORS SHALL BE TYPE XHHW-2, 600VAC INSULATED. ALL DISCRETE CONTROL CONDUCTORS SHALL BE TYPE THWN-2/VW-1

    AS MANUFACTURED BY BELDEN, ALPHA OR OKONITE:

    ALL TYPE 3 ANALOG CONTROL CONDUCTORS SHALL BE #16AWG, TWISTED SHIELDED-PAIR INSTRUMENTATION CABLE, WC-57 RATED, COPPER DRAIN WIRE, COLORED BLACK AND RED.

    AS MANUFACTURED BY SIEMENS:

    PROFIBUS DP FASTCONNECT STANDARD CABLE ARTICLE #6XV1 830-0EHI0
13. APPLY CIRCUIT IDENTIFICATION SLEEVES ON ALL INSTRUMENTATION AND CONTROL CONDUCTORS, BOTH ENDS. UTILIZE PERMANENT PVC, YELLOW, WITH MACHINE PRINTED BLACK MARKINGS.
14. SEAL ENDS OF ALL OPEN CONDUITS, NOT TERMINATING INTO AN ENCLOSURE, WITH THE APPROPRIATE WATER-TIGHT HUB FOR CABLE TRANSITION FROM CONDUIT TO AIR.

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:57 PM

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

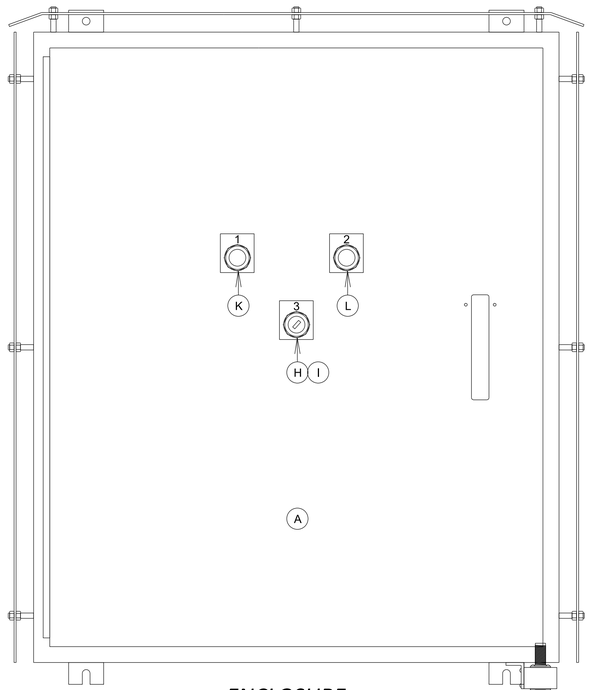
BACKUP WELLHEAD NO.3
CIRCUIT CALLOUT, PANEL AND CONDUIT/CABLE SCHEUDLES

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-007_D3270100.dgn

SHEET NO. 3-E-7

ISSUED FOR BID

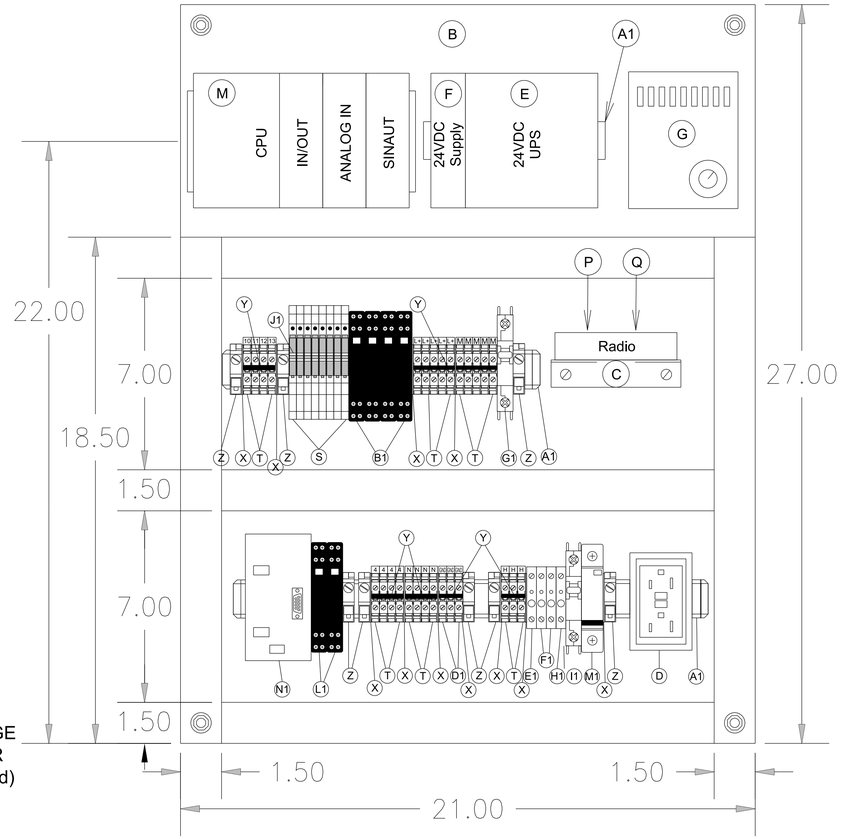
# FRONT VIEW




*ENCLOSURE*:
30"H x 30"W x 12"D NEMA 12/3R Rated
Fabricated from .125"
Marine Grade Aluminum with white
polyester powder coat finish and
Fitted with Padlockable 3-Point Latch.
With Back, Top and Side Heat Shields

RADIO SURGE ARRESTOR (J) (Field Installed)

# BACK PANEL




*BACKPANEL*: (27"H x 21"W) Fabricated from .125 Aluminum
with white powder coat finish

## NAMEPLATES

| MARK # | Line 1 | Line 2 |
|---|---|---|
| 1 | ON | - |
| 2 | FAULT | - |
| 3 | OFF | LOCAL REMOTE |
| 4 | - | - |

MAY BE ENERGIZED FROM
TWO DIFFERENT SOURCES:
PNL-LP-1
RVSS-RT3

| MARK # | QTY | MANUFACTURE | PART NUMBER | DESCRIPTION |
|---|---|---|---|---|
| A | 1 | OEM Supplied | Enclosure | Reference this sheet for details |
| B | 1 | OEM Supplied | Back Panel | Reference this sheet for details |
| C | 1 | OEM Supplied | Radio Shelf | Hold the Radio in place |
| D | 1 | Hubbell | DRUBGFI15 | GFCI Duplex Receptacles |
| E | 1 | Puls | UBC10.241 | 24VDC UPS with 5Ah Battery Backup |
| F | 1 | Puls | CS5.241 | Power Supply 120VAC / 24VDC, 5A |
| G | 1 | Hoffman | DAH1001A | 115VAC, 100Watt Heater |
| H | 1 | Allen Bradley | 800T-J44A | 3 Position Keyed Switch |
| I | 1 | Allen Bradley | 800T-XA | Contactors for Keyed Switch |
| J | 1 | Poly Phaser | IS-B50LN-C2 | Antenna Surge Arrestor |
| K | 1 | Siemens | 52PT6D2AB | Red, Push to test Indicator Light, LED |
| L | 1 | Siemens | 52PT6D9AB | Amber, Push to test Indicator Light, LED |
| M | 1 | Siemens | 6ES7 390-1AE80-0AA0 | 122mm Mount Rail for PLC |
| | 1 | Siemens | 6ES7 313-6CF03-0AB0 | CPU313C-2 DP 16DI/16DO PLC |
| | 1 | Siemens | 6ES7 953-8LG11-0AA0 | Micro Memory Card, 128K |
| | 1 | Siemens | 6ES7 331-7KF02-0AB0 | 8 Input Analog Card |
| | 1 | Siemens | 6NH7 800-3CA00 | SINAUT ST7, TIM 3V-IE |
| | 1 | Siemens | 6ES7 392-1AJ00-0AA0 | 20 Pin Screw connector |
| | 1 | Siemens | 6ES7 392-1AM00-0AA0 | 40 Pin Screw connector |
| N | 1 | Molex | 1201 03 0001 | Profibus Connector 90 degree with PG Port |
| O | 2 | Molex | 1201 03 5001 | Profibus Connector 180 degree |
| P | 1 | M D S | MDS 9810 | Spread Spectrum Unlicensed with Store / Forward |
| Q | 1 | TFS, INC (NOTE 1) | 9 Pin - 25 Pin RS232 Cable | SINAUT to MDS9810 Null Cable |
| R | - | - | - | - |
| S | 8 | Finder | 38.51.3.125.0060 | Relay, Status, Screw, SPDT, 120VAC |
| T | 25 | Weidmuller | 1020 10 0000 | Terminal, WDU4, Screw, Color Beige |
| X | 12 | Weidmuller | 1050000000 | End Plate / Partition Plate, Color Beige |
| Y | 8 | Weidmuller | 1758260000 | 10 pole cross connection, Yellow, For Terminals |
| Z | 7 | Weidmuller | 1061200000 | End Bracket, Color Beige |
| A1 | 3 | Weidmuller | 0514500000 | 35mm, Din Rail, Steel,Galvinized, Passivated, Slotted |
| B1 | 4 | Citel | DLAW-24D3 | 24VDC Analog Surge Protection |
| C1 | - | - | - | - |
| D1 | 3 | Weidmuller | 1010100000 | Terminal Ground, WDU4, Screw, Color Green |
| E1 | 1 | Weidmuller | 9926-25-1000 | CB, 1 Pole, 0.5A, Branch Rated UL489 (120VAC) |
| F1 | 2 | Weidmuller | 9926-25-1001 | CB, 1 Pole, 1A, Branch Rated UL489 (120VAC) |
| G1 | 1 | Weidmuller | 9926-25-1905 | CB, 1 Pole, 5A, Branch Rated UL489 (24VDC) |
| H1 | 1 | Weidmuller | 9926-25-1015 | CB, 1 Pole, 15A, Branch Rated UL489 (120VAC) |
| I1 | 1 | Weidmuller | 9926251020 | CB, 1 Pole, 20A, Branch Rated UL489 (120VAC) |
| J1 | 1 | Weidmuller | 1794060000 | 10 pole cross connection, pluggable, Black, For Relays |
| K1 | 2 | Panduit | Hinged Cover Wide Finger | Width = 1.5", Height = 2.0" ,Length = 6', Grey |
| L1 | 2 | Citel | DLA-12DBC | Surge Protection for Profibus |
| M1 | 1 | Citel | DS41S-120 | 120VAC Surge Suppressor, Base |
| N1 | 1 | Procentec | 101-00211A | Profibus Terminator Resistor |
| | | | | |

Note 1: Technical Field Services Inc. (904)278-5250, Jacksonville, Florida

DRAWING LAYER COLOR LEGEND:

GREY - NOTES
BLACK - ELECTRICAL SCHEMATIC WIRING DIAGRAMS AND DEVICES
BLUE - PART IDENTIFICATION
PURPLE - WIRE NUMBERS
GREEN - FIELD DEVICES AND WIRING OUTSIDE ENCLOSURE (DASHED)
RED - FUTURE DEVICES AND WIRING
TEAL - DIMENSIONS

CONTROL WIRE UL508A COLOR:

RED - 120 VAC
WHITE - NEUTRAL
BLUE - +24 VDC
WHITE / BLUE STRIPE - 0 VDC

| NO. | BY | DATE | REVISIONS |
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ELECTRICAL SCHEMATIC
MANUFACTURER
ADDRESS1
ADDRESS2
CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

DESIGNER: MARC GOSLOW, PE
DRAWN BY: A PASTRANA
DATE: 09/2020
CHECKED BY: NC
DATE: NC
ON BEHALF OF JEA

SHEET TITLE: FRONT/BACK PANEL VIEW
PROJECT: RIVERTOWN BACKUP WELLHEAD #3
WELLHEAD SCADA PANEL
JOB No:
SHEET 1 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:51 PM


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

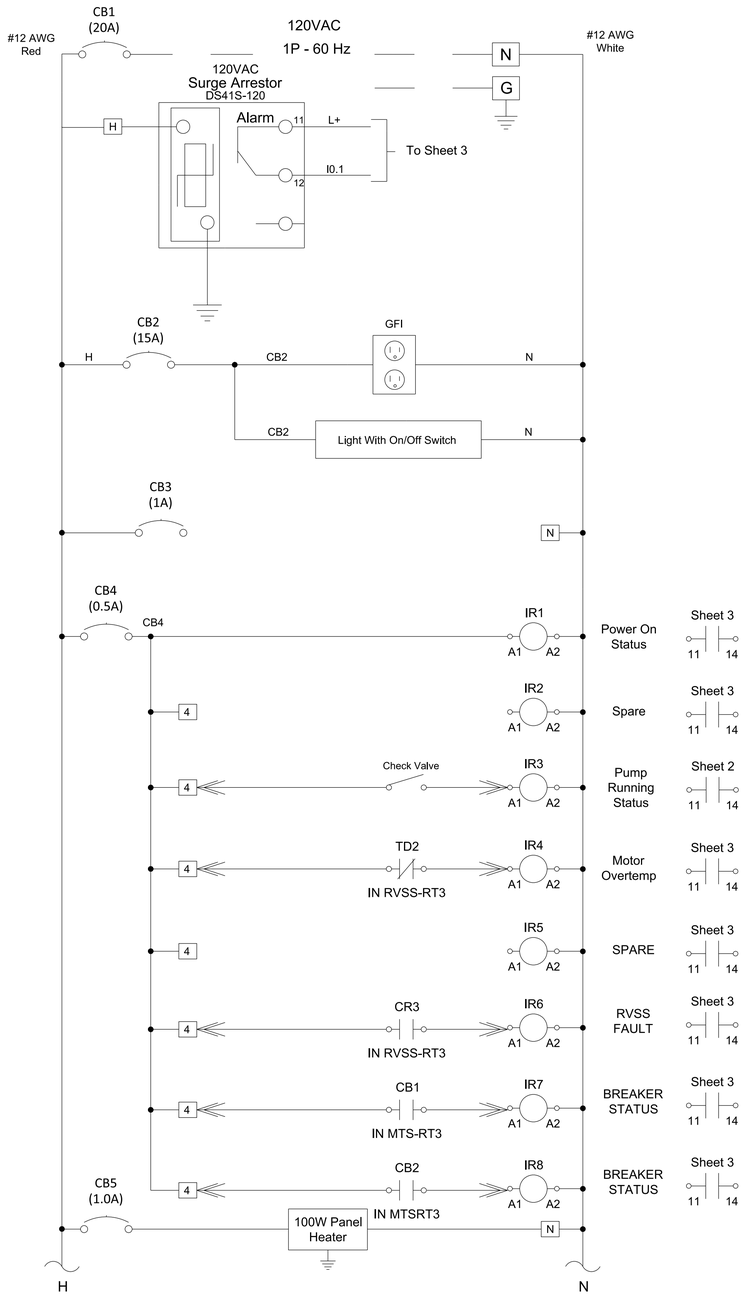
RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

BACKUP WELLHEAD NO.3
FRONT/BACK PANEL

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-008_D3270100.dgn
SHEET NO. 3-E-8

ISSUED FOR BID




| NO. | BY | DATE | REVISIONS |
|---|---|---|---|
| 6. | | | |
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| 1. | | | |

ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: INPUT POWER CIRCUITS

PROJECT: RIVERTOWN BACKUP WELLHEAD #3
WELLHEAD SCADA PANEL

JOB No:

SHEET 2 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:13 PM

CDM Smith
4651 Salisbury Road, Suite 420
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Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

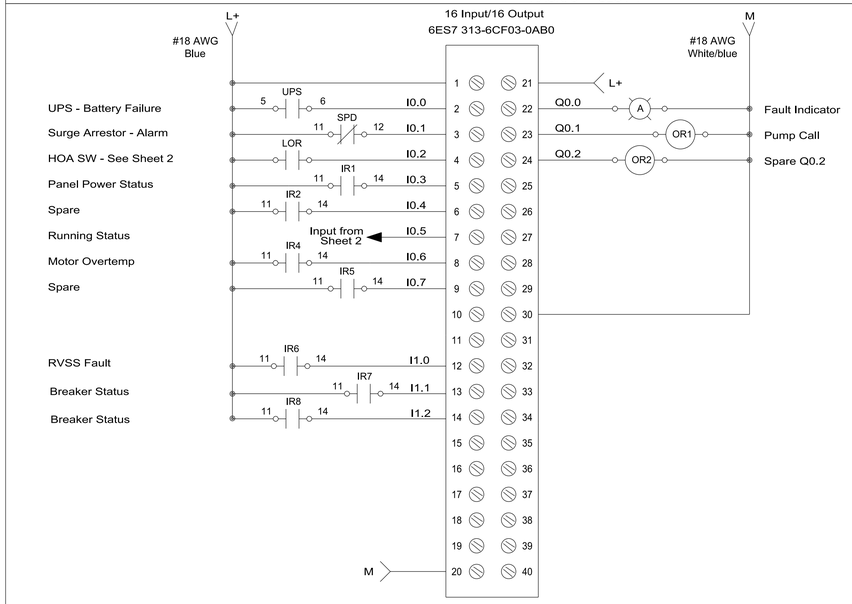
BACKUP WELLHEAD NO.3
INPUT POWER CIRCUIT

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-009_D3270100.dgn

SHEET NO. 3-E-9

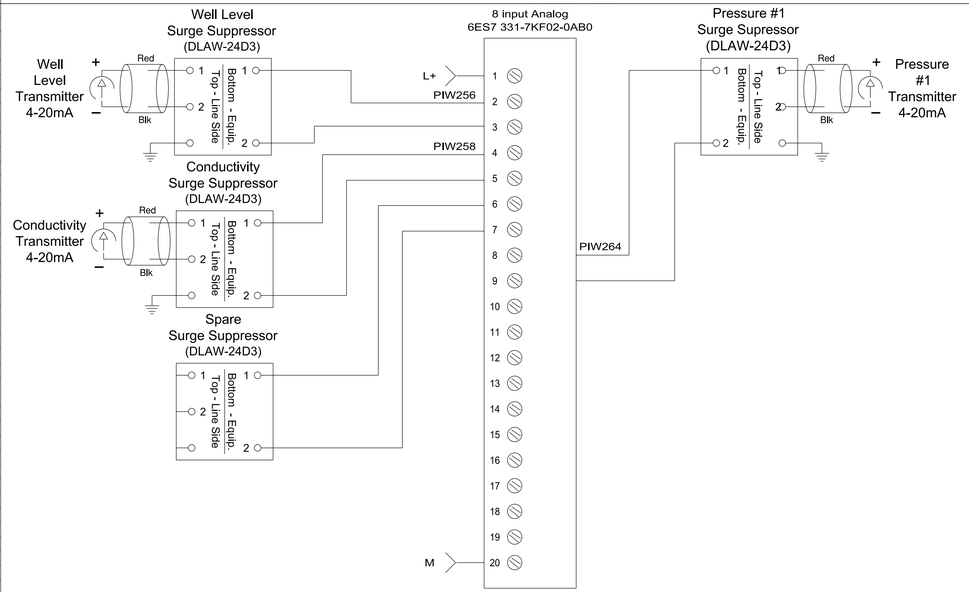
ISSUED FOR BID

RACK: 0 SLOT 4




| | 16 Input/16 Output |
|---|---|
| | 6ES7 313-6CF03-0AB0 |
| 1 | 1L+ = +24V |
| 2 | INPUT 0.0 |
| 3 | INPUT 0.1 |
| 4 | INPUT 0.2 |
| 5 | INPUT 0.3 |
| 6 | INPUT 0.4 |
| 7 | INPUT 0.5 |
| 8 | INPUT 0.6 |
| 9 | INPUT 0.7 |
| 10 | |
| 11 | |
| 12 | INPUT 1.0 |
| 13 | INPUT 1.1 |
| 14 | INPUT 1.2 |
| 15 | INPUT 1.3 |
| 16 | INPUT 1.4 |
| 17 | INPUT 1.5 |
| 18 | INPUT 1.6 |
| 19 | INPUT 1.7 |
| 20 | 1M = DC COM |
| 21 | 2L+ = +24V |
| 22 | OUTPUT 0.0 |
| 23 | OUTPUT 0.1 |
| 24 | OUTPUT 0.2 |
| 25 | OUTPUT 0.3 |
| 26 | OUTPUT 0.4 |
| 27 | OUTPUT 0.5 |
| 28 | OUTPUT 0.6 |
| 29 | OUTPUT 0.7 |
| 30 | 2M = DC COM |
| 31 | 3L+ = +24V |
| 32 | OUTPUT 1.0 |
| 33 | OUTPUT 1.1 |
| 34 | OUTPUT 1.2 |
| 35 | OUTPUT 1.3 |
| 36 | OUTPUT 1.4 |
| 37 | OUTPUT 1.5 |
| 38 | OUTPUT 1.6 |
| 39 | OUTPUT 1.7 |
| 40 | 3M = DC COM |

RACK: 0 SLOT 5




| | 8 input Analog |
|---|---|
| | 6ES7 331-7KF02-0AB0 |
| 1 | L+ |
| 2 | M0+ |
| 3 | M0- |
| 4 | M1+ |
| 5 | M1- |
| 6 | M2+ |
| 7 | M2- |
| 8 | M3+ |
| 9 | M3- |
| 10 | COMP+ |
| 11 | MANA |
| 12 | M4+ |
| 13 | M4- |
| 14 | M5+ |
| 15 | M5- |
| 16 | M6+ |
| 17 | M6- |
| 18 | M7+ |
| 19 | M7- |
| 20 | M |
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RACK: 0 SLOT 6




| | SINAUT -> TIM3V-IE |
|---|---|
| | 6NH7800-3CA00 |
| | |
| | RS-232 Pinout |
| 1 | DCD - Input |
| 2 | RXD - Input |
| 3 | TXD - Output |
| 4 | DTR - Output |
| 5 | GND |
| 6 | - |
| 7 | RTS - Output |
| 8 | CTS - Input |
| | |
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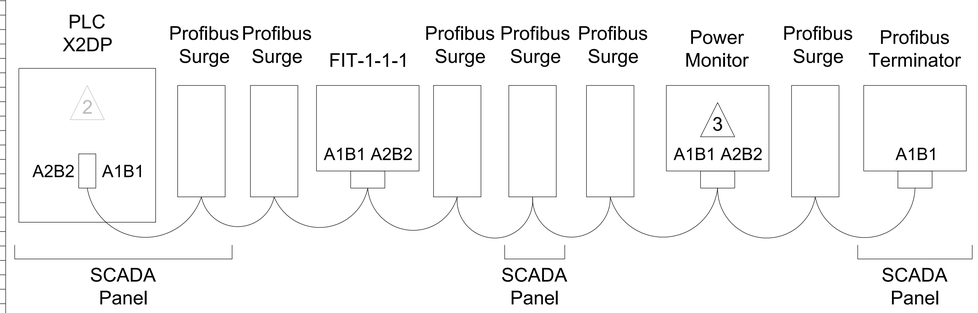
| | |
| | RJ-45 Pinout |
| 1 | TXD+ -> Output |
| 2 | TXD- -> Output |
| 3 | RXD+ -> Input |
| 4 | - |
| 5 | - |
| 6 | RXD- -> Input |
| 7 | - |
| 8 | - |
| | |
| | |
| | Power Connector |
| L+ | +24VDC |
| M | DC Common |

## Profibus Connection Diagram




## GENERAL NOTES:

1. SET SEGMENT DP3 AND TERMINATOR DP1 SWITCHES TO THE "ON" POSITION.
2. SET PROFIBUS CONNECTOR RESISTOR SWITCH TO THE "ON" POSITION.
3. SET PROFIBUS CONNECTOR RESISTOR SWITCH TO THE "OFF" POSITION.

| | - |
|---|---|
| | FUNCTION |
| 1 | - |
| 2 | - |
| 3 | - |
| 4 | - |
| 5 | - |
| 6 | - |
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| NO. | BY | DATE | REVISIONS |
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ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA sm
Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: DIGITAL AND ANALOG I/O

PROJECT:
RIVERTOWN BACKUP WELLHEAD #3
WELLHEAD SCADA PANEL

JOB No:

SHEET 3 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:45 PM

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

BACKUP WELLHEAD NO.3
DIGITAL AND ANALOG I/O

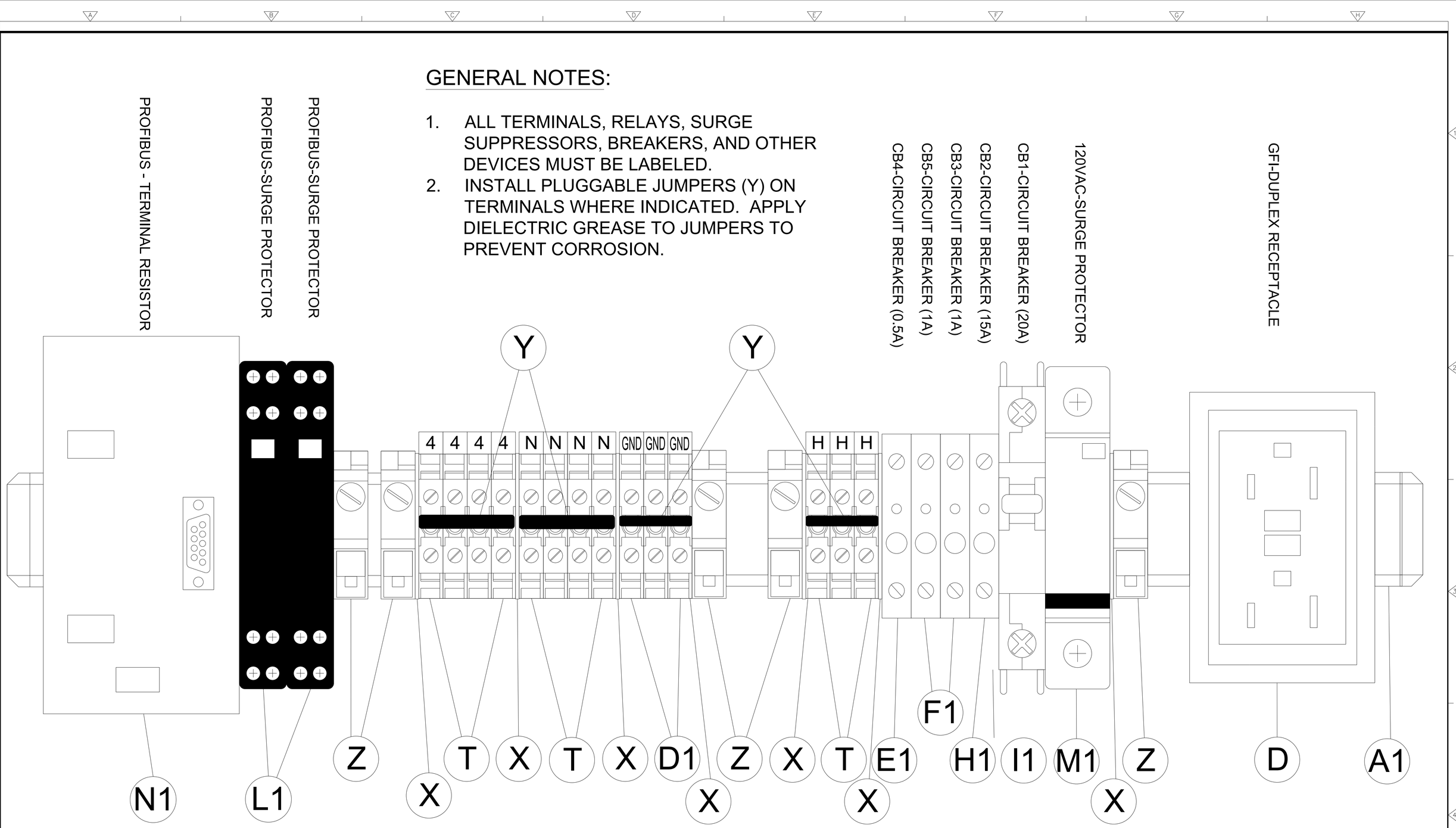
PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-010_D3270100.dgn

SHEET NO. 3-E-10

ISSUED FOR BID

## GENERAL NOTES:

1. ALL TERMINALS, RELAYS, SURGE SUPPRESSORS, BREAKERS, AND OTHER DEVICES MUST BE LABELED.
2. INSTALL PLUGGABLE JUMPERS (Y) ON TERMINALS WHERE INDICATED. APPLY DIELECTRIC GREASE TO JUMPERS TO PREVENT CORROSION.




| NO. | BY | DATE | REVISIONS |
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ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: TERMINAL BLOCK LAYOUT

PROJECT: RIVERTOWN BACKUP WELLHEAD #3
WELLHEAD SCADA PANEL

JOB No:

SHEET 4 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:27 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

SCADA PANEL

BACKUP WELLHEAD NO.3
TERMINAL BLOCK LAYOUT

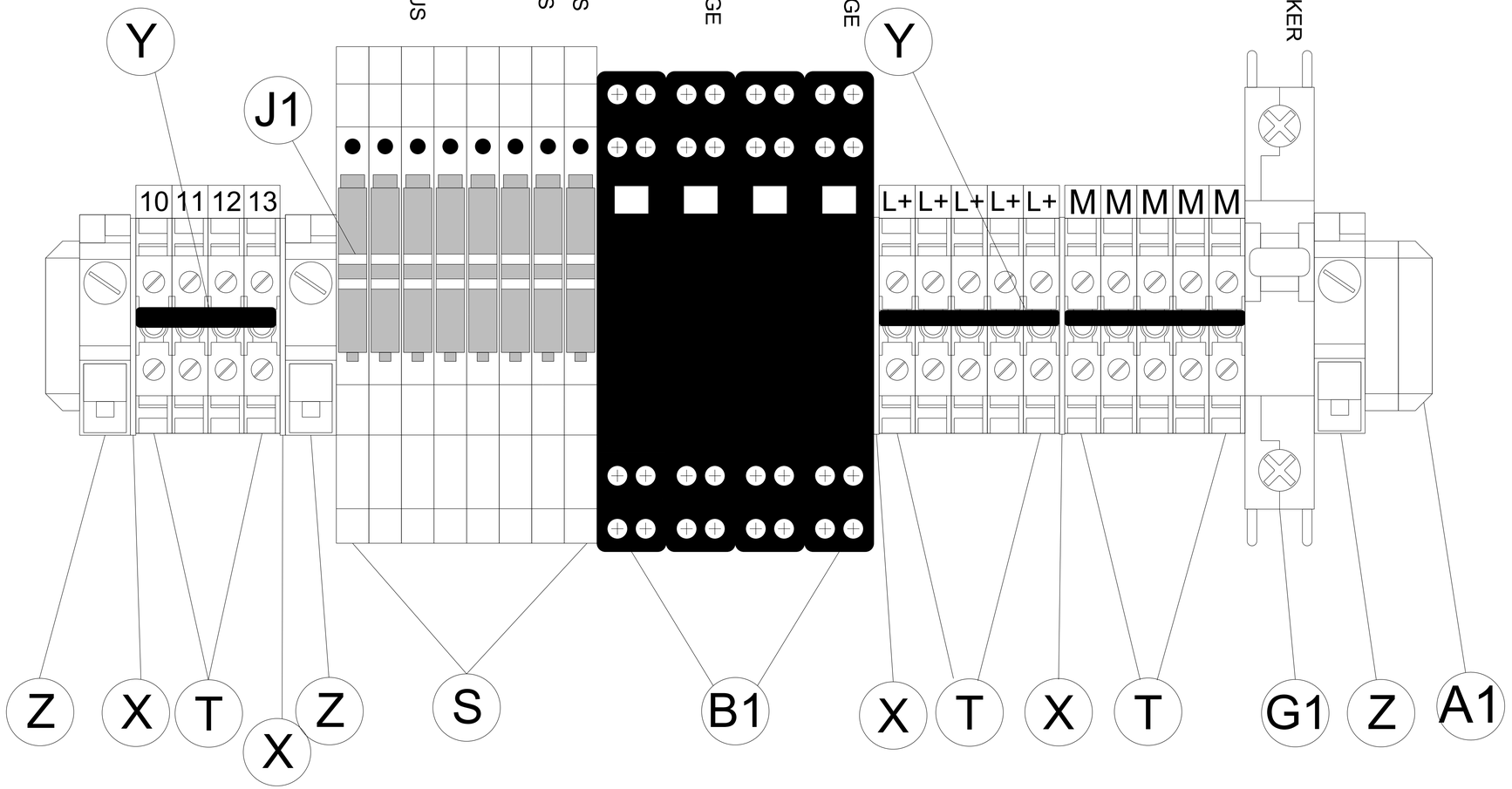
PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-011_D3270100.dgn

SHEET NO. 3-E-11

ISSUED FOR BID

## GENERAL NOTES:

1. ALL TERMINALS, RELAYS, SURGE SUPPRESSORS, BREAKERS, AND OTHER DEVICES MUST BE LABELED.
2. INSTALL PLUGGABLE JUMPERS (Y) ON TERMINALS WHERE INDICATED. APPLY DIELECTRIC GREASE TO JUMPERS TO PREVENT CORROSION.




| NO. | BY | DATE | REVISIONS |
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ELECTRICAL SCHEMATIC

MANUFACTURER
ADDRESS1
ADDRESS2

CONTACT_NAME
CONTACT_NUMBER

JEA Building Community sm

| | |
|---|---|
| DESIGNER: | MARC GOSLOW, PE |
| DRAWN BY: | A PASTRANA |
| DATE: | 09/2020 |
| CHECKED BY: | NC |
| DATE: | NC |
| ON BEHALF OF JEA | |

SHEET TITLE: TERMINAL BLOCK LAYOUT

PROJECT: RIVERTOWN BACKUP WELLHEAD #3 WELLHEAD SCADA PANEL

JOB No: | SHEET 5 OF 5

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:06 PM


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

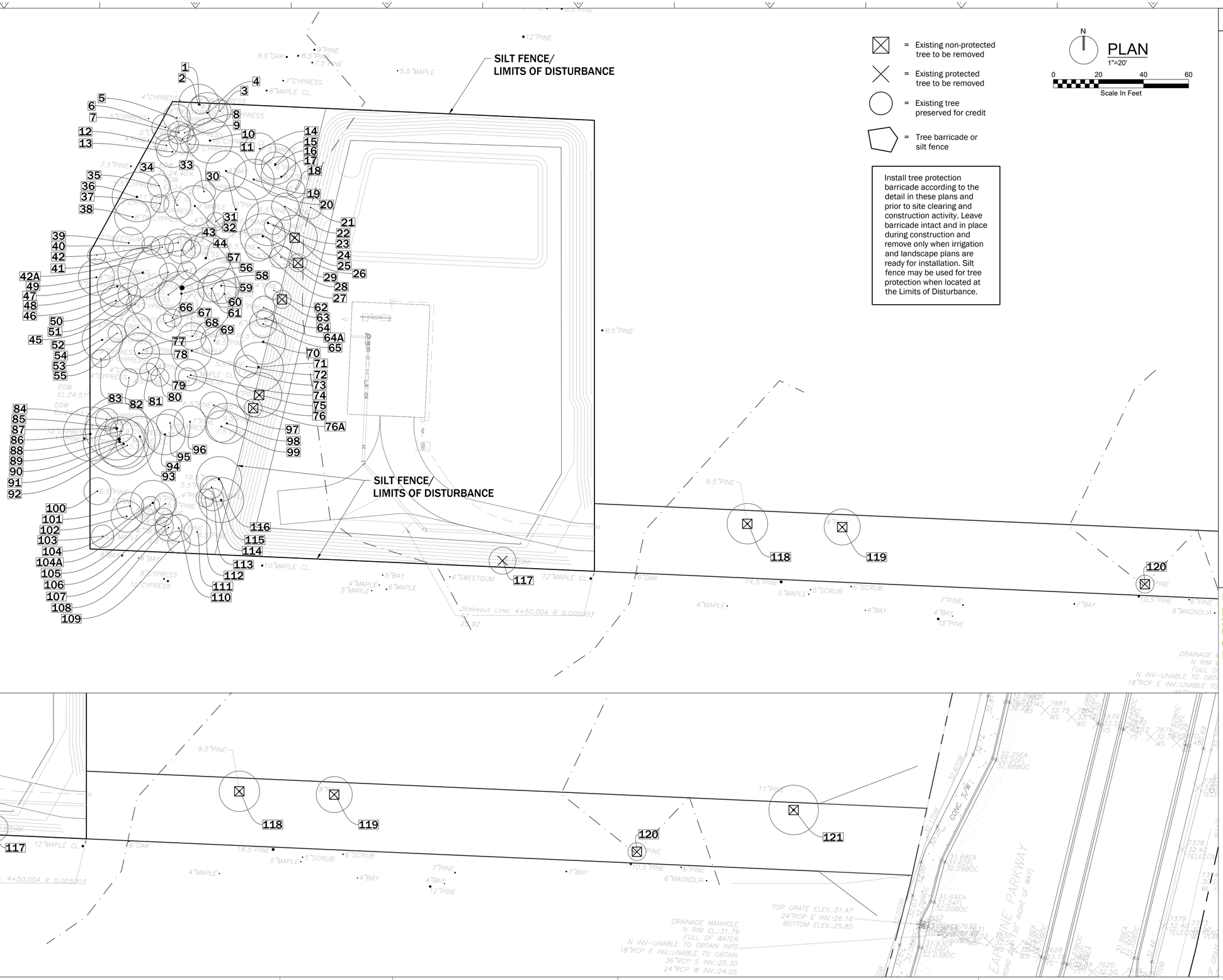
SCADA PANEL

BACKUP WELLHEAD NO.3
TERMINAL BLOCK LAYOUT

PROJECT NO. 6103-237938
JACOBS FILE NAME: 3070-E-012_D3270100.dgn

SHEET NO. 3-E-12

ISSUED FOR BID




## SHEET KEYNOTES

**LANDSCAPE NOTES**
**(Sec. 6.06.02 D, E)**

a. Vegetation that exceeds twenty-five (25) feet in height at maturity should not be planted closer than fifteen (15) feet of the vertical plan of an existing power line, excluding service wires.

b. Balled and burlapped strapping wire, and any synthetic material shall be removed prior to final inspection. Wire baskets should be cut away from the top $\frac{1}{3}$ of the root ball.

c. Non-canopy Trees shall not be planted closer than 10-feet from other Trees and Canopy Trees no closer than 20-30 feet, depending on species.

d. Plant material shall confirm to the standards of Grade #1 or better as given in the latest "Grades and Standards for Nursery Plants, Part I and II," Florida Department of Agriculture and Consumer Services or to the standards as given in the latest "American Standard for Nursery Stock," American National Standards Institute.

e. Pine bark or pine straw much shall be provided a minimum of three inches in depth around all newly planted landscaping.

f. A mulch ring for all newly planted trees shall be provided at least five (5) feet in diameter and not closer than six (6) inches from the tree trunk.

g. Shrubs are to be planted at the required minimum height, not by container size.

h. Tree islands shall have suitable soil at a minimum uniform depth of 18" and void of any construction debris or unsuitable materials.

i. Trees shall not be planted closer than 7.5' from the centerline of underground utilities.

j. Unless noted on plans, all disturbed areas shall be seeded or sodded with Argentine Bahiagrass.

k. Trees installed to meet code requirements shall have a minimum height of eight (8) to ten (10) feet and two (2) inches caliper.

811 Know what's below. Call before you dig.

Pittman
LANDSCAPE ARCHITECTURE
Landscape Architect Business LC26000443
ISA Certified Arborist FL-5742A
4049 San Servera Dr N
Jacksonville, Florida
32217
ph 904 327 7718
fax 904 739 3068
www.PittmanLA.com

**ISSUED FOR BID**

REGISTERED LANDSCAPE ARCHITECT
ALFRED BUCKNER PITTMAN
LA 1601
STATE OF FLORIDA

DATE: 12/2020
ALFRED B. PITTMAN
LA NO. LA–1601

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

DESIGNED BY: A. B. PITTMAN
DRAWN BY: A. B. PITTMAN
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
245 RIVERSIDE AVE, SUITE 300
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

**RIVERTOWN WATER TREATMENT PLANT PROJECT**

CIVIL/ELECTRICAL

BACKUP WELLHEAD NO. 3
TREE REMOVAL AND PROTECTION PLAN

PROJECT NO. 6103–237938
JACOBS FILE NAME: 2001_C–001_03270100.dgn

SHEET NO.
**3-L-1**

# Tree Inventory
## Rivertown JEA Well Site 3

| Tree Number | Tree Size (DBH) | Botanical Name | Common Name | Protected Status Per Ordinance | Recommended Action | Tree Inches Removed From Lot Area | Tree Inches Preserved In Lot Area | Tree Inches Removed From Infrastructure Area | Tree Inches Preserved In Infrastructure Area | Bonus Inches Preserved In Infrastructure Area |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 2 | 9 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 9 | |
| 3 | 5 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 5 | |
| 4 | 9 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 9 | |
| 5 | 6 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 6 | |
| 6 | 6 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 6 | |
| 7 | 5 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 5 | |
| 8 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 9 | 6 | Unknown | Scrub | Non-Protected | Preserve | | | | 6 | |
| 10 | 10 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 10 | |
| 11 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 12 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 13 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 14 | 14 | Acer spp. | Maple | Non-Protected | Preserve | | | | 14 | |
| 15 | 9 | Quercus spp. | Oak | Non-Protected | Preserve | | | | 9 | |
| 16 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 17 | 9.5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 18 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 19 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 20 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 21 | 9 | Gordonia spp. | Bay | Non-Protected | Preserve | | | | 9 | |
| 22 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 23 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 24 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 25 | 10 | Pinus, spp. | Pine | Non-Protected | Remove | | | | | |
| 26 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 27 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 28 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 29 | 4 | Pinus, spp. | Pine | Non-Protected | Remove | | | | | |
| 30 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 31 | 4 | Quercus spp. | Oak | Non-Protected | Preserve | | | | 4 | |
| 32 | 9 | Acer spp. | Maple | Non-Protected | Preserve | | | | 9 | |
| 33 | 5 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 5 | |
| 34 | 6 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 6 | |
| 35 | 5 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 5 | |
| 36 | 11 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 11 | |
| 37 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 38 | 8 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 8 | |
| 39 | 7 | Liquidambar styraciflua | Sweetgum | Non-Protected | Preserve | | | | 7 | |
| 40 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 41 | 5 | Gordonia spp. | Bay | Non-Protected | Preserve | | | | 5 | |
| 42 | 6 | Acer spp. | Maple | Non-Protected | Preserve | | | | 6 | |
| 42A | 6 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 6 | |
| 43 | 4 | Quercus spp. | Oak | Non-Protected | Preserve | | | | 4 | |
| 44 | 11 | Acer spp. | Maple | Non-Protected | Preserve | | | | 11 | |
| 45 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 46 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 47 | 11 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 11 | |
| 48 | 9 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 9 | |
| 49 | 8 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 8 | |
| 50 | 7 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 7 | |
| 51 | 5 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 5 | |
| 52 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 53 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 54 | 9 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 9 | |
| 55 | 6 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 6 | |
| 56 | 24 | Acer spp. | Maple | Non-Protected | Preserve | | | | 24 | |
| 57 | 6 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 6 | |
| 58 | 10 | Acer spp. | Maple | Non-Protected | Preserve | | | | 10 | |
| 59 | 8 | Gordonia spp. | Bay | Non-Protected | Preserve | | | | 8 | |
| 60 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 61 | 6 | Gordonia spp. | Bay | Non-Protected | Preserve | | | | 6 | |
| 62 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 63 | 4 | Pinus, spp. | Pine | Non-Protected | Remove | | | | | |
| 64 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 64A | 4 | Quercus spp. | Oak | Non-Protected | Preserve | | | | 4 | |
| 65 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 66 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 67 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 68 | 6 | Acer spp. | Maple | Non-Protected | Preserve | | | | 6 | |
| 69 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 70 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 71 | 11 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 11 | |
| 72 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 73 | 9 | Acer spp. | Maple | Non-Protected | Preserve | | | | 9 | |
| 74 | 7 | Acer spp. | Maple | Non-Protected | Preserve | | | | 7 | |
| 75 | 10 | Pinus, spp. | Pine | Non-Protected | Remove | | | | | |
| 76 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 76A | 4 | Pinus, spp. | Pine | Non-Protected | Remove | | | | | |
| 77 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 78 | 9 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 9 | |
| 79 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 80 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 81 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 82 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 83 | 4 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 4 | |
| 84 | 5 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 5 | |
| 85 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 86 | 12 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 12 | |
| 87 | 14 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 14 | |
| 88 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 89 | 17 | Acer spp. | Maple | Non-Protected | Preserve | | | | 17 | |
| 90 | 11 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 11 | |
| 91 | 11 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 11 | |
| 92 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 93 | 9 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 9 | |
| 94 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 95 | 6 | Taxodium, spp. | Cypress | Non-Protected | Preserve | | | | 6 | |
| 96 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 97 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 98 | 9 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 9 | |
| 99 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 100 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 101 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 102 | 7 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 7 | |
| 103 | 5 | Acer spp. | Maple | Non-Protected | Preserve | | | | 5 | |
| 104 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 104A | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 105 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 106 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 107 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 108 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 109 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 110 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 111 | 6 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 6 | |
| 112 | 4 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 4 | |
| 113 | 5 | Acer spp. | Maple | Non-Protected | Preserve | | | | 5 | |
| 114 | 5 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 5 | |
| 115 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 116 | 10 | Pinus, spp. | Pine | Non-Protected | Preserve | | | | 10 | |
| 117 | 6 | Quercus spp. | Oak | Protected | Remove | | | 6 | | |
| 118 | 9 | Pinus, spp. | Pine | Non-Protected | Remove | | | | | |
| 119 | 8 | Pinus, spp. | Pine | Non-Protected | Remove | | | | | |
| 120 | 4 | Pinus, spp. | Pine | Non-Protected | Remove | | | | | |
| 121 | 11 | Pinus, spp. | Pine | Non-Protected | Remove | | | | | |
| Total Removed Inches | | | | | | 0 | | 6 | | |
| Total Preserved Inches | | | | | | | 0 | | 785 | 0 |

## SHEET KEYNOTES

**LANDSCAPE NOTES**
**(Sec. 6.06.02 D, E)**

a. Vegetation that exceeds twenty-five (25) feet in height at maturity should not be planted closer than fifteen (15) feet of the vertical plan of an existing power line, excluding service wires.

b. Balled and burlapped strapping wire, and any synthetic material shall be removed prior to final inspection. Wire baskets should be cut away from the top $\frac{1}{3}$ of the root ball.

c. Non-canopy Trees shall not be planted closer than 10-feet from other Trees and Canopy Trees no closer than 20-30 feet, depending on species.

d. Plant material shall confirm to the standards of Grade #1 or better as given in the latest "Grades and Standards for Nursery Plants, Part I and II," Florida Department of Agriculture and Consumer Services or to the standards as given in the latest "American Standard for Nursery Stock," American National Standards Institute.

e. Pine bark or pine straw much shall be provided a minimum of three inches in depth around all newly planted landscaping.

f. A mulch ring for all newly planted trees shall be provided at least five (5) feet in diameter and not closer than six (6) inches from the tree trunk.

g. Shrubs are to be planted at the required minimum height, not by container size.

h. Tree islands shall have suitable soil at a minimum uniform depth of 18" and void of any construction debris or unsuitable materials.

i. Trees shall not be planted closer than 7.5' from the centerline of underground utilities.

j. Unless noted on plans, all disturbed areas shall be seeded or sodded with Argentine Bahiagrass.

k. Trees installed to meet code requirements shall have a minimum height of eight (8) to ten (10) feet and two (2) inches caliper.

811 Know what's **below.** **Call** before you dig.


Pittman LANDSCAPE ARCHITECTURE
Landscape Architect Business LC26000443
ISA Certified Arborist FL-5742A
4049 San Servera Dr N
Jacksonville, Florida
32217
ph 904 327 7718
fax 904 739 3068
www.PittmanLA.com


**ISSUED FOR BID**

REGISTERED LANDSCAPE ARCHITECT ALFRED BUCKNER PITTMAN LA 1601 STATE OF FLORIDA

DATE: 12/2020
ALFRED B. PITTMAN
LA NO. LA-1601



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

DESIGNED BY: A. B. PITTMAN
DRAWN BY: A. B. PITTMAN
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER 2020


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
245 RIVERSIDE AVE, SUITE 300
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

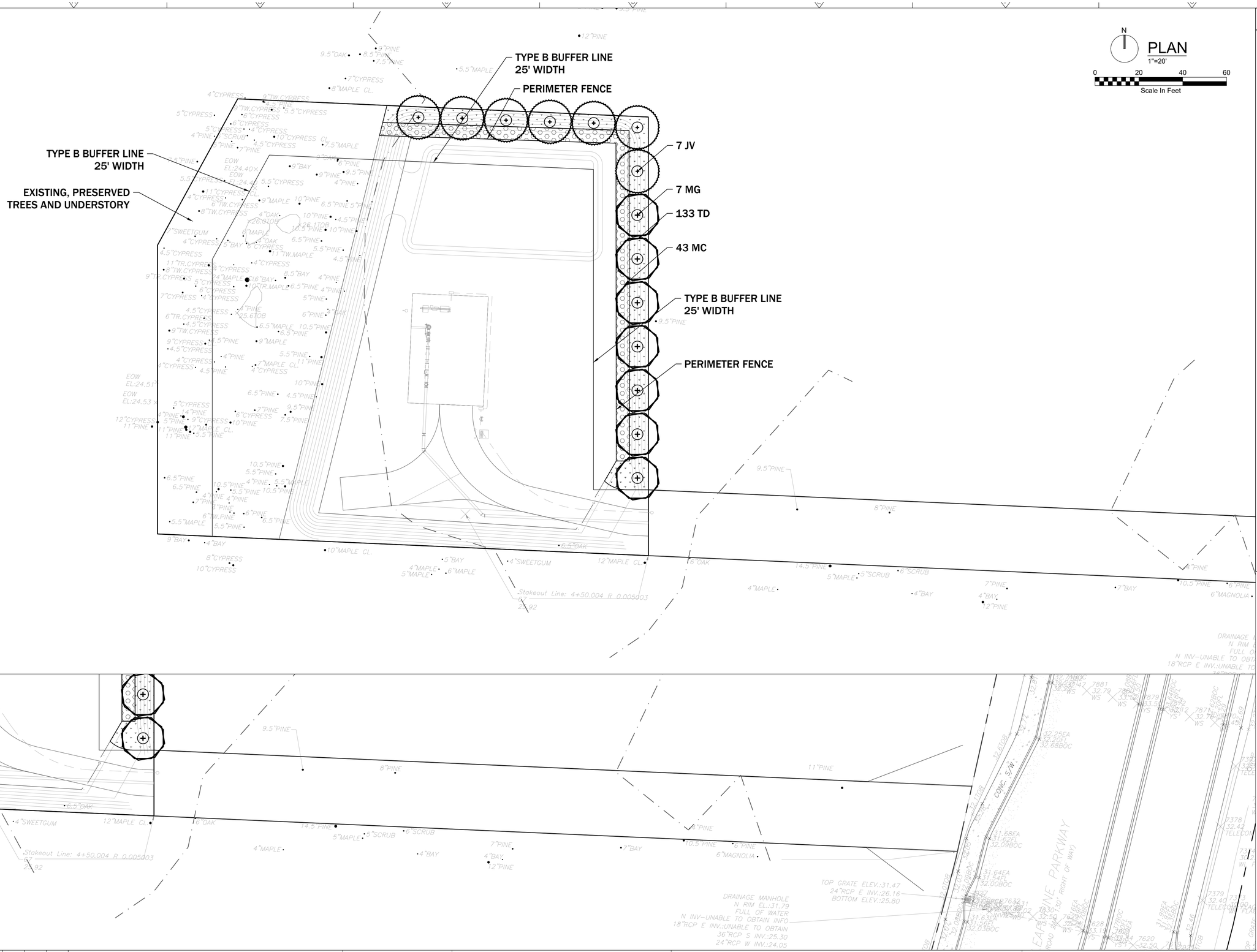
**RIVERTOWN WATER TREATMENT PLANT PROJECT**

CIVIL/ELECTRICAL

BACKUP WELLHEAD NO. 3
TREE INVENTORY TABLE

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2001_C-001_D3270100.dgn

SHEET NO.
**3-L-2**




N

# PLAN
1"=20'

0 20 40 60
Scale In Feet

## SHEET KEYNOTES

**LANDSCAPE NOTES**
**(Sec. 6.06.02 D, E)**

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d. Plant material shall confirm to the standards of Grade #1 or better as given in the latest "Grades and Standards for Nursery Plants, Part I and II," Florida Department of Agriculture and Consumer Services or to the standards as given in the latest "American Standard for Nursery Stock," American National Standards Institute.

e. Pine bark or pine straw much shall be provided a minimum of three inches in depth around all newly planted landscaping.

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g. Shrubs are to be planted at the required minimum height, not by container size.

h. Tree islands shall have suitable soil at a minimum uniform depth of 18" and void of any construction debris or unsuitable materials.

i. Trees shall not be planted closer than 7.5' from the centerline of underground utilities.

j. Unless noted on plans, all disturbed areas shall be seeded or sodded with Argentine Bahiagrass.

k. Trees installed to meet code requirements shall have a minimum height of eight (8) to ten (10) feet and two (2) inches caliper.

Supplemental Note:

Contractor shall allow for installation of up to five (5) additional plants/shrubs at developer's discretion

811 Know what's **below.** **Call** before you dig.


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ISA Certified Arborist FL-5742A
4049 San Servera Dr N
Jacksonville, Florida
32217
ph 904 327 7718
fax 904 739 3068
www.PittmanLA.com


REGISTERED LANDSCAPE ARCHITECT
ALFRED BUCKNER PITTMAN
LA 1601
STATE OF FLORIDA

**ISSUED FOR BID**

DATE: 12/2020
ALFRED B. PITTMAN
LA NO. LA-1601



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: *PLOTDATE* PLOT TIME: *PLOTTIME*

DESIGNED BY: A. B. PITTMAN
DRAWN BY: A. B. PITTMAN
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER 2020


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
245 RIVERSIDE AVE, SUITE 300
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

**RIVERTOWN WATER TREATMENT PLANT PROJECT**

CIVIL/ELECTRICAL

BACKUP WELLHEAD NO. 3
LANDSCAPE PLAN

PROJECT NO. 6103-237938
JACOBS FILE NAME: 2001_C-001_D3270100.dgn

SHEET NO.
**3-L-3**

# LANDSCAPE SPECIFICATIONS

**GENERAL INSTALLATION INSTRUCTIONS**

1. Contractor shall furnish all labor, materials, and insurance to complete the work as shown in the plan.
2. Contractor is responsible for acquiring all required permits and associated fees to complete the work.
3. Contractor shall locate and visibly mark all buried utilities prior to construction and notify the landscape architect of any conflicts.
4. Contractor shall demolish and remove from the premises all pavement, sod and other materials required to implement the plan.
5. All work shall be completed in a timely manner and in accordance with standard industry practices.
6. Contractor shall coordinate a work plan with the owner or agent and the landscape architect prior to starting work and shall comply with all state and federal requirements for work safety.
7. Contractor shall coordinate an approved staging area with the owner prior to starting the work and shall maintain a clean and orderly site throughout the construction period and shall properly dispose of all trash and removed materials.
8. Contractor shall proceed with approved work in an orderly and timely fashion.
9. Contractor shall prevent offsite erosion, both by wind and rain, during construction using adequate means such as silt fencing, hay bales, and drain socks.
10. Contractor shall provide all new materials in first quality condition.
11. Substitutions shall be rejected unless approved by the landscape architect prior to installation.
12. Contractor shall repair and/or replace at contractor's cost and in an expedient manner any utilities, pipes, conduit, cables, fences, pavement, plant material, or any other existing property within or abutting the project site damaged by contractor during the course of the project.
13. Contractor shall notify the owner and landscape architect at least one week in advance for a substantial completion inspection. The landscape architect shall provide a punch list to the contractor outlining items to be completed by the contractor. Contractor shall complete punch list items in timely manner before calling for a final inspection by the owner and the landscape architect.
14. Final payment for the work shall not be issued until a final inspection is completed and approved by the landscape architect and/or the owner.
15. All work shall be warranted against defects and failure for at least 1 year following the final acceptance.
16. Contractor shall clean site of all construction debris, materials, and trash. Disturbed areas shall be fine-graded and landscaped according to the plans, or sodded with specified sod. Site must be clean and neat before a final acceptance and payment will be issued.

**TREE AND EXISTING VEGETATION PROTECTION**

1. Contractor shall ensure protection of exiting trees and plants to be preserved within the project area and along the project boundaries prior to all clearing or construction activity using a tree barricade as specified in the plans, or if not specified in the plans, according to Florida Department of Transportation **index Number 544 Landscape Installation** (http://www.fdot.gov). A silt fence may serve as a barricade where such measures are required and provide full protection of the critical protection zone as defined in Index 544.
2. Provide 6" pine straw mulch to uniformly cover all bare, cleared, eroded, or disturbed areas within each tree protection area. Keep mulch 12" away from base of each tree.
3. Notify the landscape architect prior to any construction activity where protection cannot be provided or must be modified to due to conflicting construction activity.
4. Notify the landscape architect prior to site clearing and construction of any trees or otherwise valuable plants not noted on the plans that may warrant protection, especially large trees located on adjacent properties whose roots and canopy occupy space within the project area.
5. Tree barricade shall remain in place for the duration of the project until landscape installation commences whereupon the contractor may remove barricades as needed to prepare final grades and install landscaping according to the plans. Remaining tree barricades shall be removed at the completion of the project.

**PLANT INSTALLATION**

1. Install all plants according to Florida Department of Transportation **Index Number 544 Landscape Installation** (http://www.fdot.gov).
2. Do not install groundcovers or shrubs on top of or into the rootball of new trees.
3. Contractor shall verify project site conditinos and final quantities based on the plans prior to bidding and pricing. In the occurrence of a discrepancy between the plans and the plant list, the plans shall take precedence.
4. All plants shall conform to the specifications on the plant list or plant schedule.
5. All plants shall be Florida No. 1 Grade or better according to the Florida Grades and Standards Handbook.
6. All plants shall be nursery-grown containerized or b&b stock.
7. All plants shall be in good health, vigorous, evenly branched, and thickly foliated when in leaf. All plants shall be free of disease, insects, including eggs and larvae, as well as have a healthy, developed root system. They should also be free of physical damage or adverse conditions that would prevent thriving growth.
8. Plant material, tree locations, and bed outlines shall be staked or flagged on site by the contractor and shall be adjusted as required to fit actual as-built conditions on site and approved by the owner or owner's representative prior to installation.
9. Unless otherwise specified, all existing plant material within the areas of new construction as shown on the plans shall be removed and properly disposed of off of the project site. Plant material outside of these areas shall remain and shall be replaced with like kind if killed or damaged via landscape installation activities (see general installation instructions and tree and existing vegetation protection).
10. Planting beds shall be shovel-cut to form a uniform, clean line between beds and lawn areas.
11. Remove all synthetic material surrounding the rootball, including strapping, and remove all material including burlap and wire basket from top third of root ball prior to backfilling. Failure to take these measures will result in rejection of the installed tree.
12. Shade trees shall be planted a minimum of 4 feet from any edge of pavement and 15 feet from overhead electric lines as measured from the at-grade centerline (refer to local provider to verify specific requirements).
13. All plant material shall be warranted for a period of one year from the date of Final Acceptance of the work and not the date on which it was installed.
14. Contractor shall provide all fine surface grading preparation for planting and shall maintain all finished grade requirements according to the plans, and ensure positive drainage. Report any drainage problems associated with finished grade or finished soil characteristics to the owner and the landscape architect.
15. Coordinate construction of planting areas with installation of irrigation system or hose bibs as specified.
16. Contractor shall provide mulch for all newly installed landscape areas. Provide a minimum 5' diameter mulch ring for all installed trees. Provide uniform coverage for all landscape beds at the specified depth maintain at least 6" clearance from all woody trunks and stems.
    16.1. Mulch shall be pine straw.
    16.2. Mulch shall be 6" uniform depth.
17. Install sod as specified in the plans, according to the Florida Department of Transportation Standard Specification **Section 570 Performance Turf** (http://www.fdot.gov) unless otherwise stated herein.
18. Contractor shall provide certified, healthy sod, free of weeds, disease, fungus, insects, or nematodes.
    18.1. Sod shall be 18.1.2 below:
    18.1.1. Celebration bermuda (*Cynodon dactylon 'Celebration'*)
    18.1.2. Argentine bahia (*Paspalum notatum 'Argentine'*)
    18.1.3. Palmetto St. Augustine (*Stenotaphurum secundatum 'Palmetto'*)
    18.1.4. Empire zoysia (*Zoysia japonica 'Empire'*)
19. Contractor shall provide plant maintenance during the construction period through Final Acceptance and the owner shall provide maintenance during the warranty period following Final Acceptance, unless otherwise specified in the contract documents.
20. Contractor shall maintain all staking and guying materials and correct tree leaning or tilting during the warranty period. Contractor shall ensure that tree trunks and branches are not damaged or growth restricted by strapping or guying materials. Contractor shall be responsible for removal of all above-ground staking and guying material at the end of the warranty period.

**SOILS**

1. Contractor shall minimize soil compaction to all new planting areas by limiting access to those areas designated for planting purposes only. Contractor shall not store, clean, or empty equipment or materials within any area specified for preservation or new plant installation.
2. Prior to plant installation, contractor shall conduct a soil test in at least three locations on the site that best represent the plant distribution and conditions shown on the planting plan. The soil test shall be conducted by an independent laboratory qualified to test soils. The test shall be conducted to determine:
    2.1. Soil type
    2.2. Soil pH
    2.3. Nutrient content
    2.4. Recommended amendments
3. Contractor shall furnish a copy of the soil report(s) along with the contractor's recommended amendments to the landscape architect and the owner prior to initiating plant installation. Contractor shall not initiate plant installation without a written or verbal response from the landscape architect or owner indicating receipt of the report and agreement with the amendment approach.
4. At a minimum, contractor shall provide 5-8 percent organic pine bark compost uniformly throughout the planting soils prior to plant installation. Do not apply synthetic fertilizer to any planting area without the approval of the landscape architect or owner.

# ST. JOHNS COUNTY
## LAND DEVELOPMENT CODE
## LANDSCAPE REQUIREMENTS

**TREES AND OTHER VEGETATION (Sec. 4.01.05)**

**DEVELOPMENT TYPE**

Public Utility

**SITE AREAS**

Total site area: 1.25 ac
Wetland preserve area: 0.34 ac
Upland Development Area: 0.91 ac.

**TREE MITIGATION**

Minimum Requirements
UDA @ 80" per acre = 0.91 x 80 = 73"
Removed protected tree inches: 6"
Preserved UDA inches: 785"
Replacement inches required: 73"
Replacement inches provided:
785" Preserved
28" Planted
813" Total
Replacement deficit: 0"

Tree Fund Payment @ $25 per inch: = $0.00

LANDSCAPE REQUIREMENTS
Maximum species distribution (50%): 50%
Minimum native species composition (50%): 100%
Minimum canopy tree composition (70%): 100%

TYPE B BUFFER
Perimeter (West, North, East): 566 LF
Required buffer area (20'/LF): 11,320 SF
Provided buffer area: 11,320 SF
Required trees (1/20 LF): 29 Canopy
Provided trees: 48 (34 preserved*, new)
*Preserved Buffer Trees: 1-14, 36-39, 48-49, 50-51, 53-54, 84-92, 100-103

**LANDSCAPE NOTES (Sec. 6.06.02 D, E)**

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k. Trees installed to meet code requirements shall have a minimum height of eight (8) to ten (10) feet and two (2) inches caliper.

# IRRIGATION SPECIFICATIONS

**IRRIGATION INSTALLATION**

1. Contractor shall provide a fully automatic irrigation system to deliver 100% head-to-head coverage of all required landscaping within the project area. Irrigation source shall be municipal potable source with irrigation meter.
2. Upon completion, contractor shall submit an as-built plan of the installed irrigation system, location of all components and sleeves to the owner (and municipal authority if required).
3. Contractor shall provide a double-check backflow preventer equal to a DCA-100 (or approved equal), mounted in a rectangular valve box on the serving side and adjacent to the meter, and shall provide freeze protection.
4. All pipe and wire under paving shall be placed in Schedule 40 PVC sleeves from the full pavement coverage length and shall be at least 24" below finished grade.
5. Main lines shall be installed at least 18" below finished grade and lateral lines shall be installed at least 12" below finished grade.
6. Contractor shall reroute piping to avoid existing plants and tree roots and hand-dig pipes under or through tree roots within the canopy area of existing trees that cannot be avoided. Mechanical trenching through tree roots within the canopy area of preserved trees shall not be permitted.
7. Contractor shall be responsible for all applicable permits and fees.
8. Contractor shall comply with all state and local codes and shall clarify any discrepancies on the plan prior to bidding.
9. Prior to final acceptance, contractor shall show owner or maintenance superintendent how to operate and maintain the system.
10. Contractor shall furnish all warranty, maintenance equipment, and operating instructions.

**LANDSCAPE IRRIGATION AND WATERING SCHEDULE**

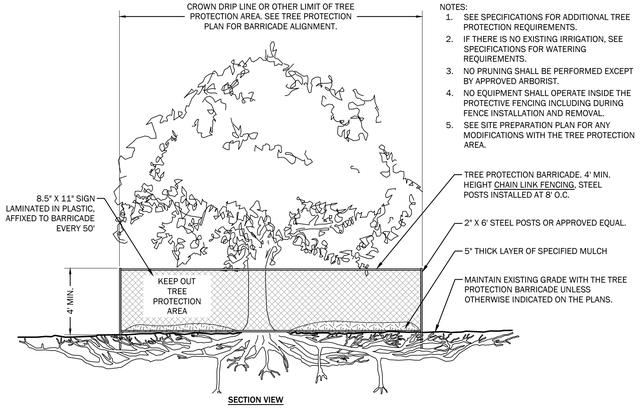
All required landscaping show on these plans will be watered manually using hose bibbs dispursed throughout the development so that every required landscape area is within 75' of a hose bibb. Trees shall be watered as needed to prevent decline, and at a minimum three times weekly during no-rain periods for the first 60 days. Water thereafter according to the following 180-day schedule:

Large trees and palms: 30 gal/application
Small trees: 20 gal/application
Shrubs and sod: as needed to prevent wilting

1st 8 weeks: 3 waterings per week (24 total)
2nd 8 weeks: 2 waterings per week (16 total)
Final 10 weeks: 1 watering per week (10 total)

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
LAWN AND IRRIGATION RULE:

Irrigation of new landscape is allowed at any time of day on any day for the initial 30 days following installation, and every other day for the next 30 days, for a total of one 60-day period, provided the irrigation is limited to the minimum amount necessary for establishment.




NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
2. IF THERE IS NO EXISTING IRRIGATION, SEE SPECIFICATIONS FOR WATERING REQUIREMENTS.
3. NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
4. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
5. SEE SITE PREPARATION PLAN FOR ANY MODIFICATIONS WITH THE TREE PROTECTION AREA.

SECTION VIEW

## TREE PROTECTION BARRICADE

NTS

# PLANT LIST

| QTY | PCT | ABV | BOTANICAL NAME | COMMON NAME | SIZE / SPECS | SPACING | CANOPY | ORIGIN | INCHES/AREA |
|---|---|---|---|---|---|---|---|---|---|
| | | | **TREES** | | | | | | |
| 7 | 50 | JV | *Juniperus virginiana* | Eastern red cedar | 2" cal / 10-12' ht | As shown | Yes | Native | 14 |
| 7 | 50 | MG | *Magnolia grandiflora 'Brackens'* | Brackens magnolia | 2" cal / 10-12' ht | As shown | Yes | Native | 14 |
| 28 | 100 | | | | | | | Total: | 28 |
| | | | **SHRUBS** | | | | | | |
| 43 | | MC | *Myrica cerifera* | Wax myrtle | 30 gal / 6' min ht | 6' OC | | Native | |
| 133 | | TD | *Tripsacum dactyloides* | Fakahatchee grass | 3 gal / 18-24" ht | 4' OC | | Native | |
| | | | **GROUNDCOVERS** | | | | | | |
| | | SOD | *Paspalum notatum 'Argentine'* | Argentine bahiagrass | Certified Solid Sod | SF | | Exotic | |

# SHEET KEYNOTES

**LANDSCAPE NOTES (Sec. 6.06.02 D, E)**

a. Vegetation that exceeds twenty-five (25) feet in height at maturity should not be planted closer than fifteen (15) feet of the vertical plan of an existing power line, excluding service wires.
b. Balled and burlapped strapping wire, and any synthetic material shall be removed prior to final inspection. Wire baskets should be cut away from the top $\frac{1}{3}$ of the root ball.
c. Non-canopy Trees shall not be planted closer than 10-feet from other Trees and Canopy Trees no closer than 20-30 feet, depending on species.
d. Plant material shall confirm to the standards of Grade #1 or better as given in the latest "Grades and Standards for Nursery Plants, Part I and II," Florida Department of Agriculture and Consumer Services or to the standards as given in the latest "American Standard for Nursery Stock," American National Standards Institute.
e. Pine bark or pine straw much shall be provided a minimum of three inches in depth around all newly planted landscaping.
f. A mulch ring for all newly planted trees shall be provided at least five (5) feet in diameter and not closer than six (6) inches from the tree trunk.
g. Shrubs are to be planted at the required minimum height, not by container size.
h. Tree islands shall have suitable soil at a minimum uniform depth of 18" and void of any construction debris or unsuitable materials.
i. Trees shall not be planted closer than 7.5' from the centerline of underground utilities.
j. Unless noted on plans, all disturbed areas shall be seeded or sodded with Argentine Bahiagrass.
k. Trees installed to meet code requirements shall have a minimum height of eight (8) to ten (10) feet and two (2) inches caliper.

Supplemental Note:

Contractor shall allow for installation of up to five (5) additional plants/shrubs at developer's discretion

811 Know what's below. Call before you dig.


Pittman LANDSCAPE ARCHITECTURE
Landscape Architect Business LC26000443
ISA Certified Arborist FL-5742A
4049 San Servera Dr N
Jacksonville, Florida
32217
ph 904 327 7718
fax 904 739 3068
www.PittmanLA.com


**ISSUED FOR BID**

REGISTERED LANDSCAPE ARCHITECT ALFRED BUCKNER PITTMAN 2337 LA 1601 STATE OF FLORIDA

DATE: 12/2020
ALFRED B. PITTMAN
LA NO. LA–1601



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

DESIGNED BY: A. B. PITTMAN
DRAWN BY: A. B. PITTMAN
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY: X
APPROVED BY: R MORRISON
DATE: DECEMBER 2020


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
245 RIVERSIDE AVE, SUITE 300
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

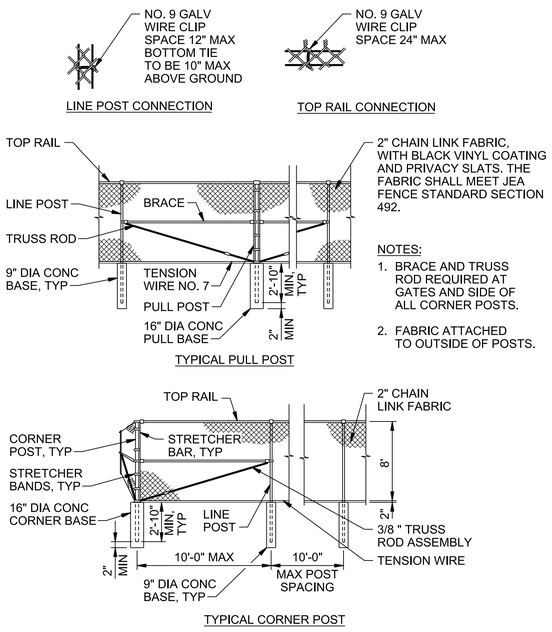
**RIVERTOWN WATER TREATMENT PLANT PROJECT**

CIVIL/ELECTRICAL

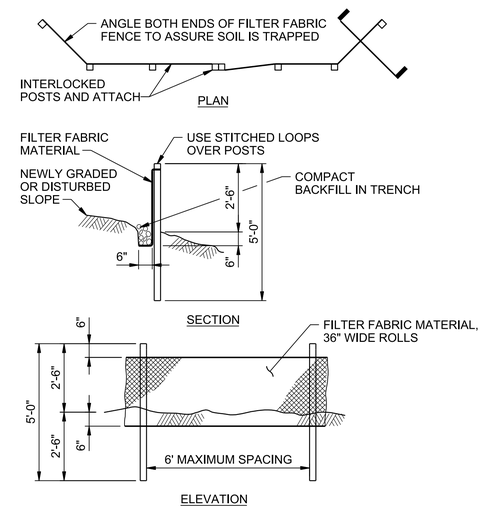
BACKUP WELLHEAD NO. 3
LANDSCAPE SPECIFICATIONS

PROJECT NO. 6103–237938
JACOBS FILE NAME: 2001_C–001_D3270100.dgn

SHEET NO.
**3-L-4**

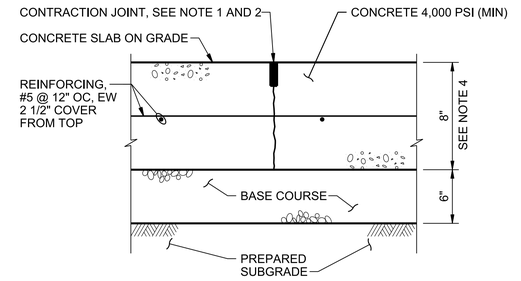



# 1 CHAIN LINK FENCE
NTS



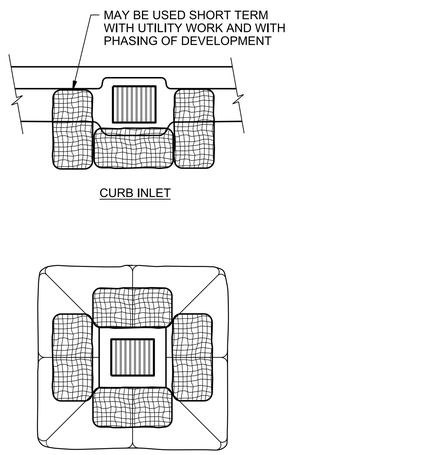

NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. WOOD OR STEEL FENCE POSTS.
3. STITCHED LOOPS TO BE INSTALLED DOWNHILL SIDE OF SLOPE.
4. COMPACT ALL AREAS OF FILTER FABRIC TRENCH.

# 2 SILT FENCE
NTS

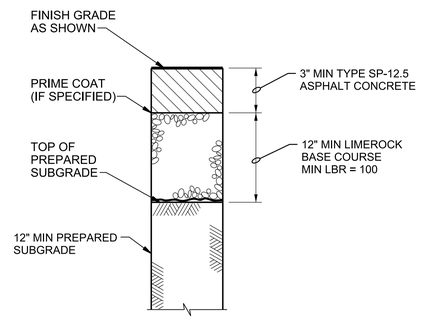



NOTES:
1. CONTRACTION JOINT SHALL BE MADE, CLEANED WITH COMPRESSED AIR, INSTALL BACKER-ROD AND AND FILL SAWCUT WITH SIKAFLEX 1A.
2. CONCRETE JOINT SPACING: AS SHOWN OR MAXIMUM 8'x8'.
3. INSTALL 1/2" PREMOLDED JOINT FILLER FULL DEPTH WHERE CONCRETE PAVEMENT ABUTS CONCRETE CURB, BUILDING OR ANY RIGID STRUCTURE.
4. PROVIDE A 12" THICK BY 18" WIDE THICKENED EDGE AROUND PERIMETER OF SLAB. SEE DETAIL 1, DWG MD-1.

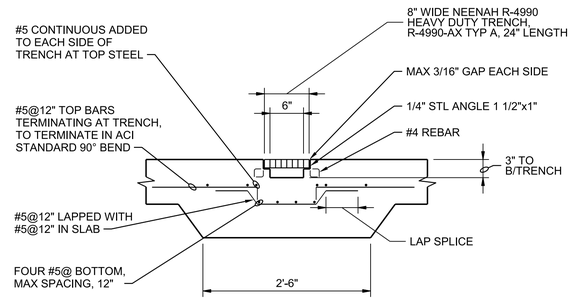
# 3 CONCRETE DRIVEWAY
NTS




# 4 BIOFILTER BAG INLET BARRIER
NTS




# 5 ASPHALT CONCRETE PAVEMENT
NTS




# 8 TYPICAL SLAB SECTION AT TRENCH DRAIN
NTS



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:08 PM

DESIGNED BY: B DYKES
DRAWN BY: N PATTERSON
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY:
APPROVED BY: R MORRISON
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

STANDARD DETAILS

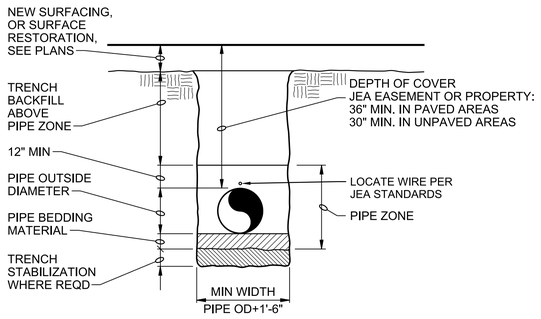
CIVIL STANDARD DETAILS

DATE: 10/2020
RICHARD THOMAS MORRISON
PE NO. 67713

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9000-CD-001_D3270100.dgn

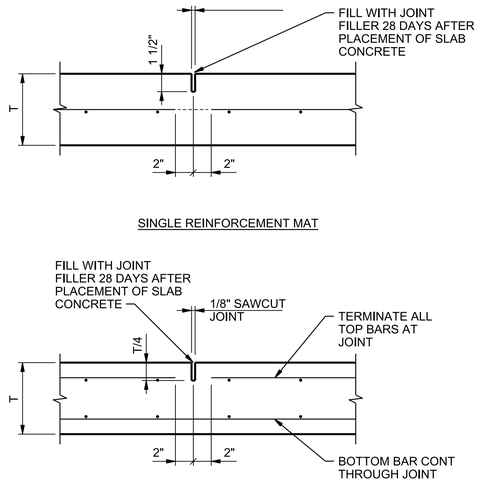
SHEET NO.
CD-1

ISSUED FOR BID




## 9 TYPICAL TRENCH

NTS




SINGLE REINFORCEMENT MAT



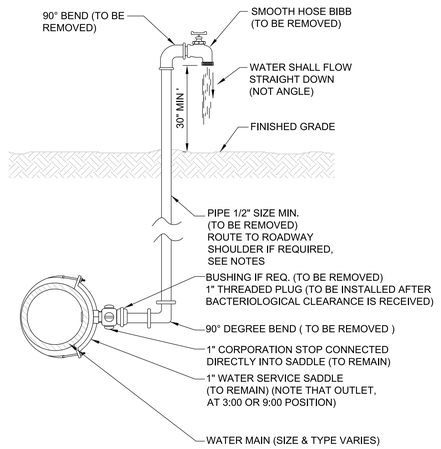

DOUBLE REINFORCEMENT MAT

NOTES:

1. CONTRACTOR SHALL USE STRING LINE OR OTHER POSITIVE MEANS TO PLACE REINFORCEMENT AND LOCATE SAWCUT.

## 11 SLAB ON GRADE CONTROL JOINT

NTS

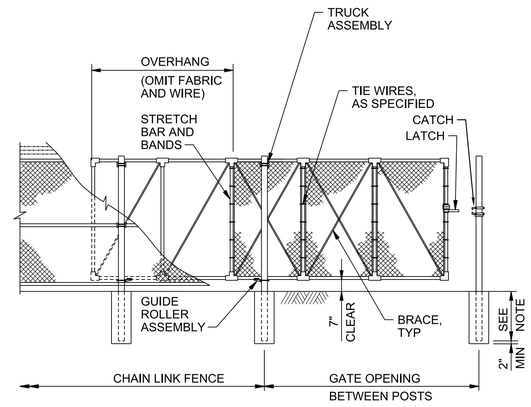



NOTES:

1. LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN THE ROADWAY BUT ROUTED TO THE ROADWAY SHOULDERS (NON-TRAFFIC AREAS).
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY PIPING & FITTINGS (AS NOTED), AFTER BACTERIOLOGICAL CLEARANCE IS RECEIVED.
3. PIPE AND FITTINGS SHALL BE PVC SCH 40 OR GALV MATERIAL.
4. THE USE OF THE ABOVE CONSTRUCTION FOR A TEMPORARY SAMPLE POINT SHALL BE LIMITED TO AREAS WHERE A SAMPLE TAP BY ALTERNATIVE METHODS (SEE W-24) IS NOT FEASIBLE OR IF DIRECTED OTHERWISE BY JEA.
5. THE CONTRACTOR SHALL COMPLY WITH ALL JEA RULES AND POLICIES AS AS OUTLINED BY JEA'S ENVIRONMENTAL RESPONSE COORDINATOR (ERC) AND OTHER ASSOCIATED JEA STANDARDS.

## 12 TEMPORARY SAMPLE TAP

NTS

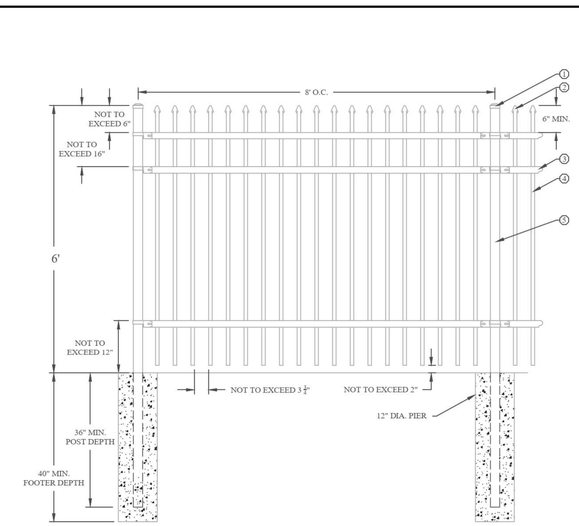


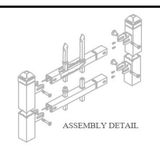

NOTES:

1. POST SETS PER MANUFACTURER'S RECOMMENDATIONS FOR GATE OPENING AND GATE POST SIZES.
2. ONE (1) FLEXIBLE BONDING JUMPER WITH MECHANICAL POST CLAMPS SHALL BE ATTACHED BETWEEN EACH GATE POST AND ITS ASSOCIATED GATE FRAME. PRODUCT SHALL BE ERICO ERITECH FLEXIBLE JUMPER. #2 AWG.

## 15 CANTILEVER SLIDE GATE

NTS




| KEYED NOTES | |
|---|---|
| 1 | PRESS ON POST CAP. |
| 2 | PICKET TOP POINTED SPEAR DESIGN. |
| 3 | RAIL 2" X 2" 13GA STEEL CONSTRUCTION MIN. |
| 4 | PICKET 1" X 1" 14GA STEEL CONSTRUCTION MIN. |
| 5 | POST 3" 14GA STEEL CONSTRUCTION MIN. |

| GENERAL NOTES: |
|---|
| FENCE 6' - 3 RAIL STEEL CONSTRUCTION |
| ALL FENCE MATERIAL SHALL BE FACTORY COATED TO PREVENT CORROSION. |
| WHERE CUTTING, DRILLING OR UNCOATED STEEL IS EXPOSED. FACTORY APPROVED METHODS FOR TOUCH SHALL BE USED FOR EXPOSED AREAS. |
| FENCING SYSTEM SHALL ALLOW FOR "RAKING" OF PANELS TO ADJUST FOR ELEVATION CHANGES AS "STAIR STEPPING" OF FENCE PANELS WILL NOT BE ALLOWED. |
| CONCRETE SHALL BE A MINIMUM OF 2,000 PSI OR GREATER. |

| APPROVED MANUFACTURES: |
|---|
| AMERISTAR |
| GUARDIAR USA |

1 6' – 3 RAIL ORNAMENTAL FENCE
NOT TO SCALE

| NO. | DATE | REVISIONS |
|---|---|---|
| | | |

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


N. Stephen Jones and Associates, Inc.
"Professional Integrated Security Solutions"
11945 San Jose Blvd., Ste. 201
Jacksonville FL 32223
P:904.260.0024


JEA Building Community

| | |
|---|---|
| HSJ PROJECT NO.: | 430-1401 |
| DATE: | 03/13/19 |
| SCALE: | NTS |

SECURITY TYPICAL
6' - 3 RAIL ORNAMENTAL FENCE

SHEET NO.: ST-6X

DATE: 01/2021
RICHARD THOMAS MORRISON
PE NO. 67713

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:38 PM

DESIGNED BY: B DYKES
DRAWN BY: N PATTERSON
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY:
APPROVED BY: R MORRISON
DATE: DECEMBER 2020


CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188


JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

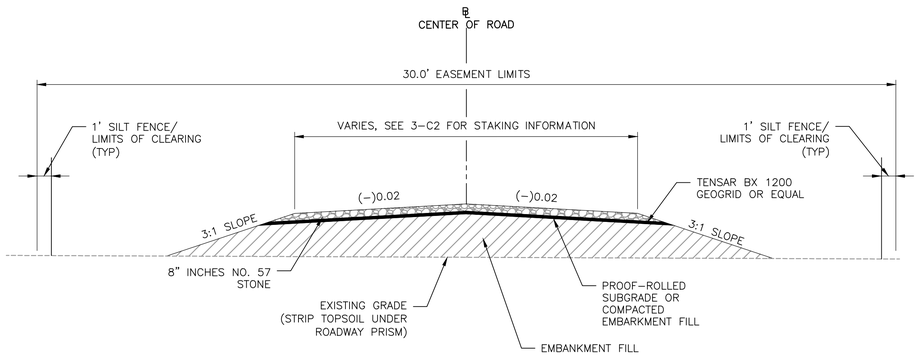
STANDARD DETAILS

CIVIL STANDARD DETAILS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9000-CD-002_D3270100.dgn

SHEET NO. CD-2

ISSUED FOR BID

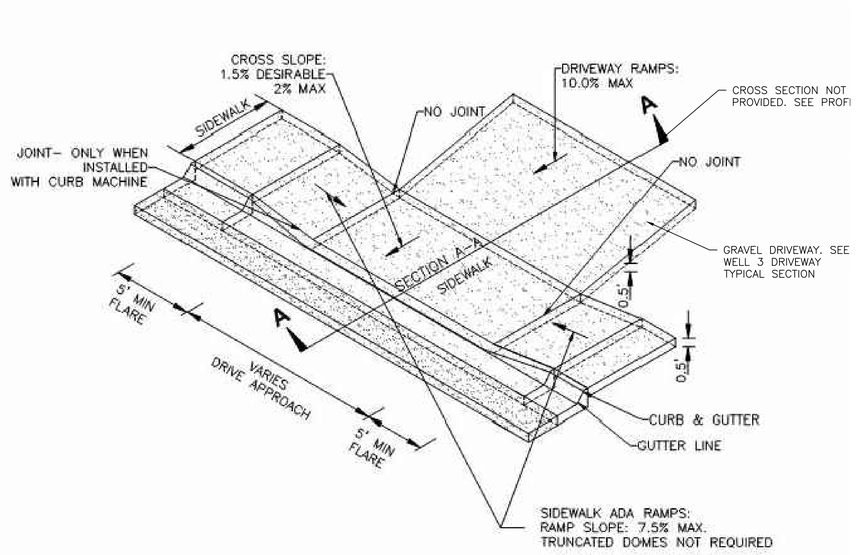



NOTE:

1. SOD 3:1 SIDE SLOPE FROM EXISTING GRADE TO EDGE OF STABILIZED ROADWAY.

## 2 WELL 3 DRIVEWAY 8" No. 57 STONE TYPICAL SECTION
NTS

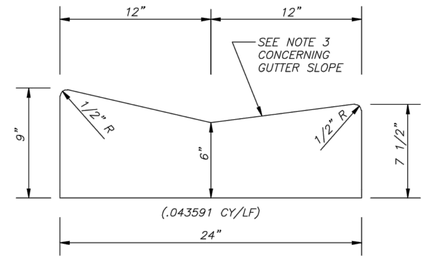
STA 10+52 TO SIDEWALK




## DRIVEWAY GRADING DETAIL

*GENERAL NOTES:*

1. *MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.*
2. *CONCRETE SHALL BE CLASS I CONCRETE WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.*
3. *WHEN USED ON THE HIGH SIDE OF ROADWAY SECTIONS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT. WHERE THIS CONDITION IS ENCOUNTERED, THE FRONT FACE VERTICAL DIMENSION SHALL REMAIN AS SHOWN FOR NORMAL SECTIONS SHOWN HEREON.*
4. INCLUDE 12" MIN OF COMPACTED SUBGRADE BELOW CURB.




*24" LOW PROFILE CURB AND GUTTER*

*SPECIFIC USE: MAJOR COLLECTOR ROADWAY CLASSES*

ST JOHN'S COUNTY PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION - DETAIL NO. 115

## CURB AND GUTTER DETAIL

DATE:
DAVID J. PRAH
PE NO. 43393

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: EV
DRAWN BY: RF
SHEET CHK'D BY: SS
CROSS CHK'D BY: D. PRAH
APPROVED BY: I. POLEMATIDIS
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
245 RIVERSIDE AVE, SUITE 300
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

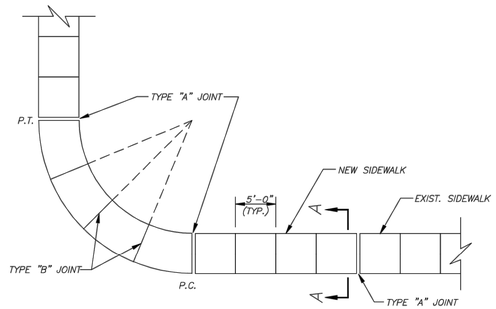
RIVERTOWN WATER TREATMENT PLANT PROJECT

BACKUP WELL NO. 3 ACCESS DRIVEWAY DETAIL

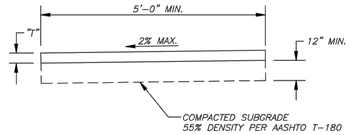
PROJECT NO. 6103-237938
FILE NAME: CD03ADWD.DWG

SHEET NO.
CD-3

ISSUED FOR BID

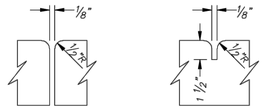



PLAN




SECTION A-A

CONCRETE TO BE CLASS I, 3000 psi



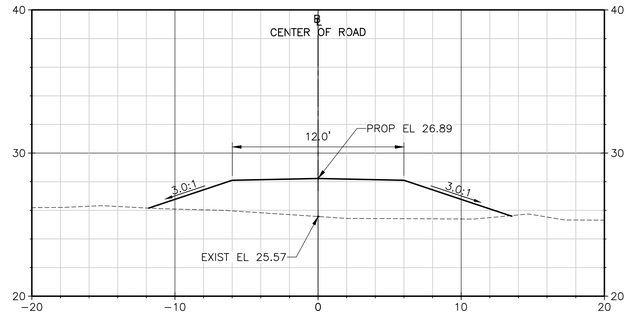

SIDEWALK JOINTS

| TABLE OF SIDEWALK THICKNESS- "T" | |
|---|---|
| LOCATION | "T" |
| RESIDENTIAL AREAS | 4" |
| AT DRIVEWAYS AND OTHER AREAS | 6" |

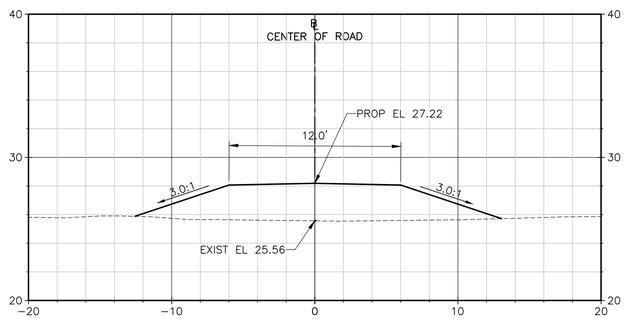
| TABLE OF SIDEWALK JOINTS | |
|---|---|
| TYPE | LOCATION |
| "A" | P.C. AND P.T. OF CURVES |
| "B" | 5'-0" CENTER TO CENTER ON SIDEWALKS |

ST JOHN'S COUNTY PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION - DETAIL NO. 118

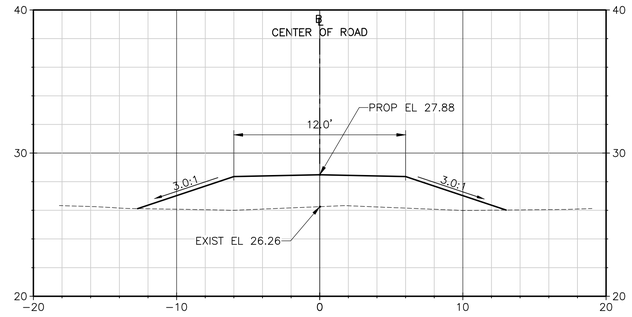
SIDEWALK DETAIL



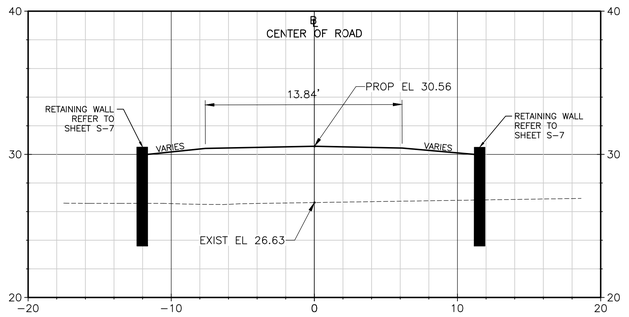

STATION 11+00




STATION 12+00



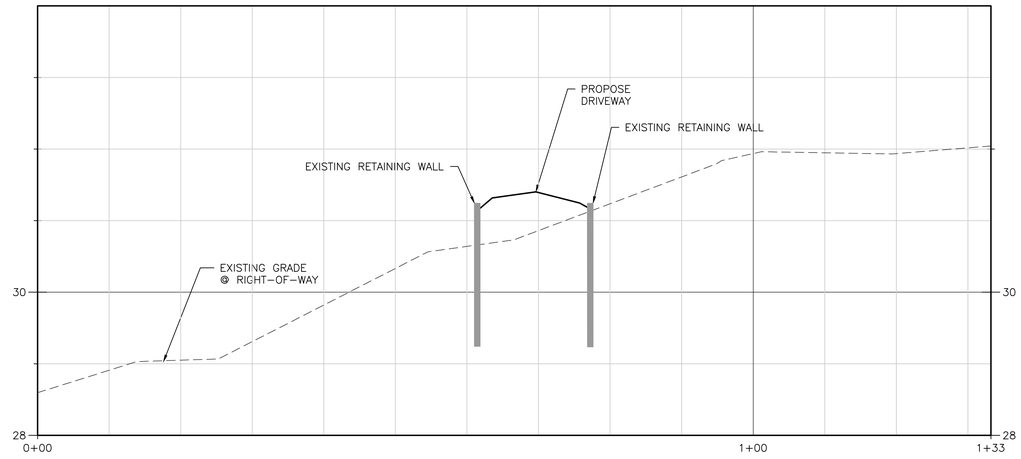

STATION 13+00




STATION 14+00

VERT 1" = 1'
1 0 2

HORZ 1" = 5'
2.5 0 5




2 RIGHT-OF-WAY PROFILE

SCALE=10 (LOOKING EAST)

VERT 1" = 5'
2.5 0 5

HORZ 1" = 10'
5 0 10

DATE:
DAVID J. PRAH
PE NO. 43393

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

DESIGNED BY: E. VARGAS
DRAWN BY: R. FLORES
SHEET CHK'D BY: S. SIDDIQUI
CROSS CHK'D BY: D. PRAH
APPROVED BY: I. POLEMATIDIS
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
245 RIVERSIDE AVE, SUITE 300
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

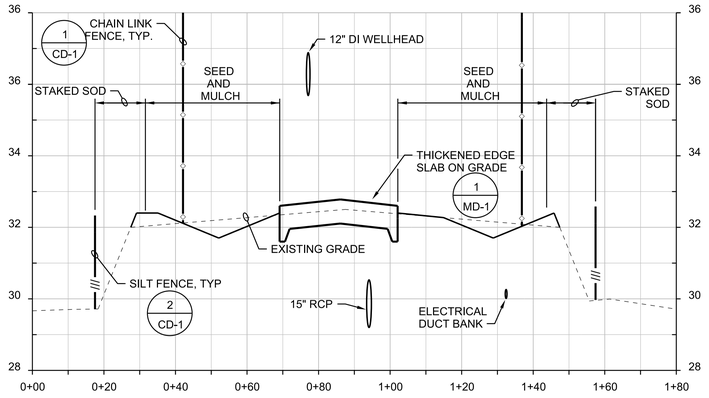
RIVERTOWN WATER TREATMENT PLANT PROJECT

BACKUP WELL NO. 3 ACCESS DRIVEWAY DETAIL

PROJECT NO. 6103-237938
FILE NAME: CD04ADWD.DWG

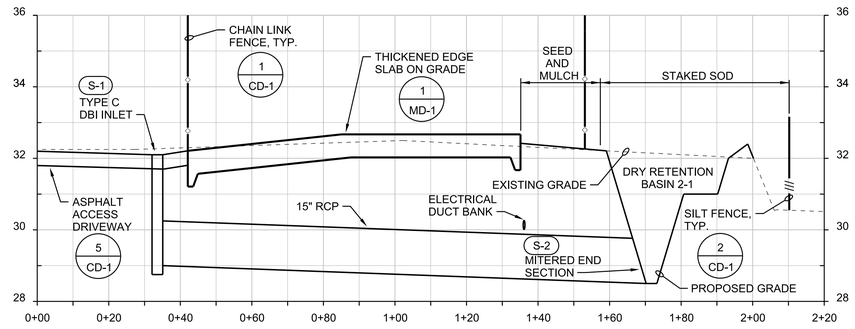
SHEET NO.
CD-4

ISSUED FOR BID



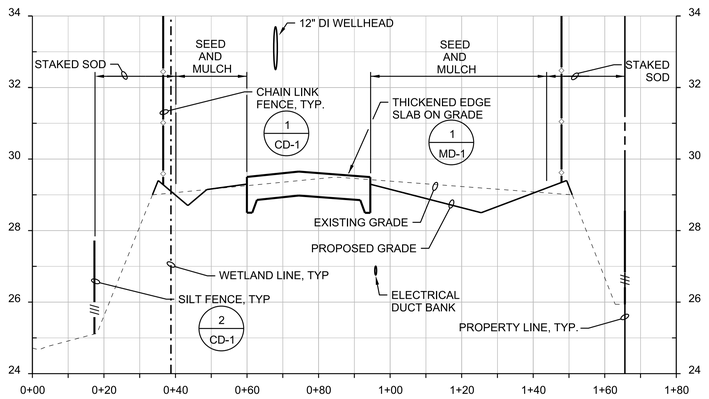

A 2-C-1 **WELL NO. 2 SECTION**

SCALE: 1" = 20' HORIZ
1" = 2' VERT



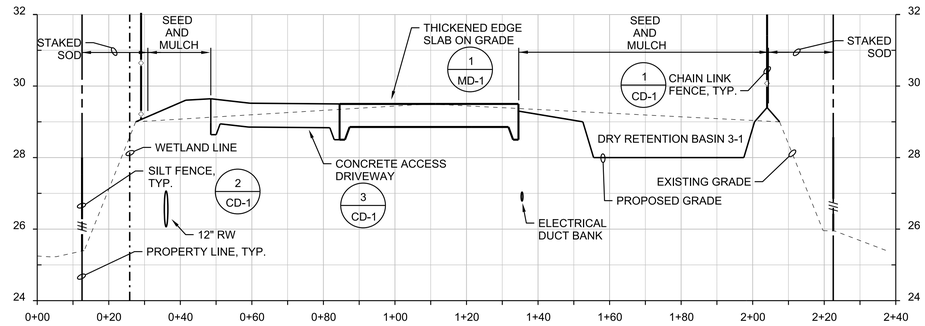

B 2-C-1 **WELL NO. 2 SECTION**

SCALE: 1" = 20' HORIZ
1" = 2' VERT




C 3-C-1 **WELL NO. 3 SECTION**

SCALE: 1" = 20' HORIZ
1" = 2' VERT




D 3-C-1 **WELL NO. 3 SECTION**

SCALE: 1" = 20' HORIZ
1" = 2' VERT



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

PLOT DATE: 1/11/2021 PLOT TIME: 5:02:44 PM

DESIGNED BY: B DYKES
DRAWN BY: N PATTERSON
SHEET CHK'D BY: R MORRISON
CROSS CHK'D BY:
APPROVED BY: R MORRISON
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No. EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

CIVIL

SECTIONS

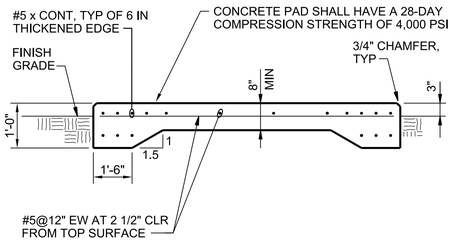
DATE: mm/2020
MARC P. GOSLOW
PE NO. 41733

DATE: 01/2021
RICHARD THOMAS MORRISON
PE NO. 67713

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9000-CD-005_D3270100.dgn

SHEET NO.
CD-5

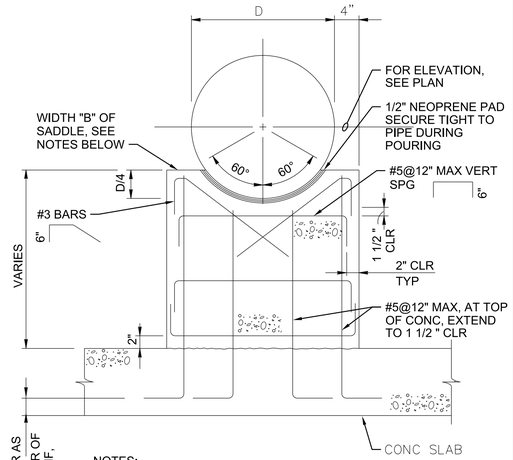
ISSUED FOR BID




NOTE:

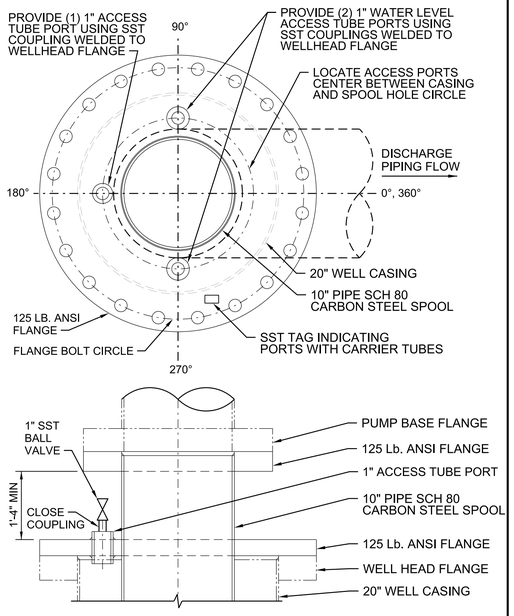
WHEN ANCHORAGE OF EQUIPMENT TO PAD IS REQUIRED, USE CONCRETE ANCHORS SPECIFIED BY MANUFACTURER OR PROJECT SPECIFICATIONS, WHICHEVER IS GREATER.

## 1 CONCRETE EQUIPMENT PAD
NTS

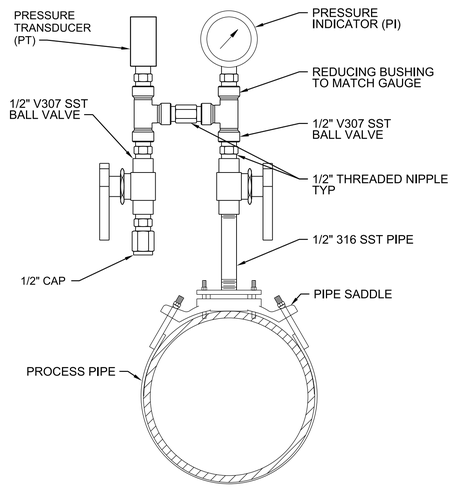



NOTES:
1. THICKNESS "B" OF SADDLE
   B=9" WHEN D ≤12"
   B=10" WHEN 24"<D≤36"
   B=12" WHEN 36"<D≤48"
2. FOR "B"=10" OR THICKER, USE 2 LAYERS OF REINF, TURN HORIZ BARS 90° TO HOOK AROUND VERTS 1 1/2 " CLR OF CONCRETE

## 2 CONCRETE PIPE SUPPORT
NTS

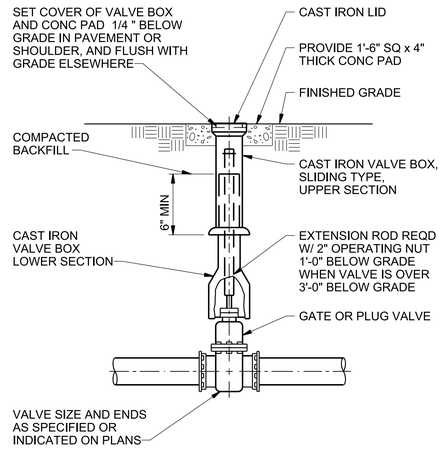



## 3 WELL HEAD FLANGE AND ACCESS PORT ARRANGEMENT
NTS



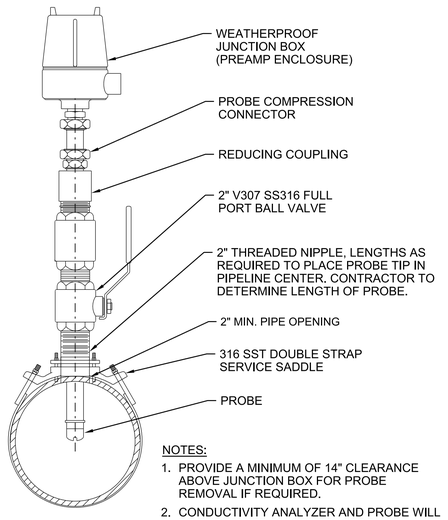

NOTES:
1. ALL PIPING/ FITTINGS SHALL BE 316 SST.

## 4 PRESSURE CONNECTION INSTALLATION DETAIL
NTS



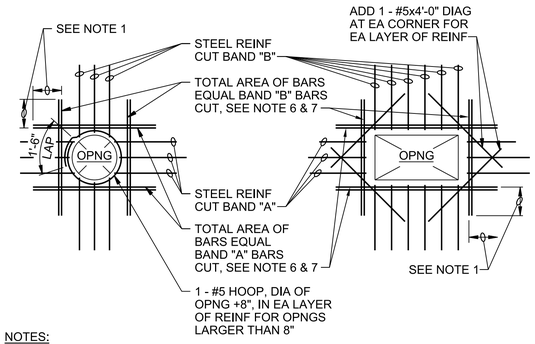

## 5 BURIED GATE VALVE BOX
NTS

## 6 NOT USED
NTS




NOTES:
1. PROVIDE A MINIMUM OF 14" CLEARANCE ABOVE JUNCTION BOX FOR PROBE REMOVAL IF REQUIRED.
2. CONDUCTIVITY ANALYZER AND PROBE WILL BE FURNISHED BY CONTRACTOR. COORDINATE PROBE LENGTH WITH JEA.
3. ALL PIPING/ FITTINGS SHALL BE 316 SST.

## 7 CONDUCTIVITY ANALYZER INSTALLATION
NTS




NOTES:
1. PROVIDE MINIMUM LAP, SEE GENERAL STRUCTURAL NOTES.
2. TYPICAL FOR ALL OPENINGS IN CONCRETE WALLS OF BELOW GRADE AND HYDRAULIC STRUCTURES AND ALL STRUCTURAL CONCRETE SLABS UNLESS INDICATED OTHERWISE ON PLANS.
3. DO NOT WELD REINFORCEMENT TO PIPE SLEEVES AND INSERTS.
4. PROVIDE A MINIMUM OF 2 "A" BARS AND 2 "B" BARS EACH SIDE OF OPENING (1 EACH FACE), INCLUDING DOWELS AND CORNER BARS, TYPICAL.
5. FOR OPENINGS LARGER THAN 8'-0", REINFORCE SAME AS FOR 8'-0" OPENINGS.
6. SPACE AT 3 BAR DIAMETERS (OR 3" MINIMUM) ON CENTER. LOCATE HALF OF TOTAL AREA ON EACH SIDE OF OPENING.
7. AT OPENINGS WITHIN 12" OF AN INTERSECTING WALL OR SLAB, PROVIDE ONLY THE EXTRA REINFORCEMENT WHICH WILL FIT, AT THE BAR SPACING IN NOTE 6.

## 8 SLAB OPENING
NTS

DATE: 01/2021
CLEMENT W. ANSON
PE NO. 41733

DATE: 01/2021
Lawrence Bradley Gunn
PE NO. 65967



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/12/2021 PLOT TIME: 1:08:34 AM

DESIGNED BY: R ANGLEY
DRAWN BY: N PATTERSON
SHEET CHK'D BY: L GUNN
CROSS CHK'D BY:
APPROVED BY: L GUNN
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

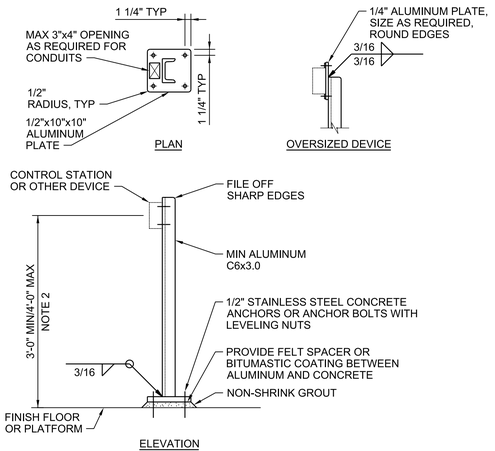
STANDARD DETAILS

PROCESS MECHANICAL STANDARD DETAILS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9400-MD-001_D3270100.dgn

SHEET NO.
MD-1

ISSUED FOR BID

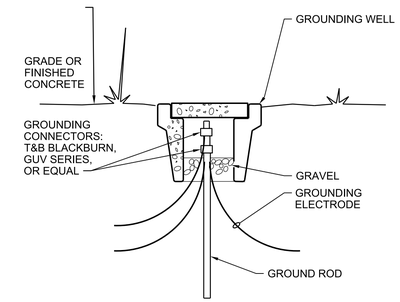



NOTES:

1. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL. USE WASHERS AND SPLIT-LOCK WASHERS UNDER ALL NUTS AND BOLTS.
2. FOR HEIGHTS EXCEEDING 4'-0" OR WEIGHTS OF MOUNTED EQUIPMENT EXCEEDING 200 LBS, SIZE POST AND CONNECTION FOR LATERAL LOADS. EXTEND POSTS TO STRUCTURE ABOVE WHERE REQUIRED BY CALCULATION.

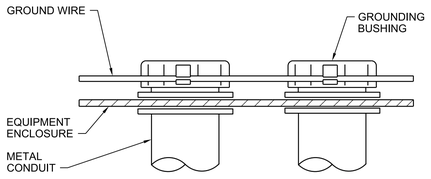
## 401 PEDESTAL MOUNTED DEVICE

NTS




## 402 GROUND TEST WELL

NTS

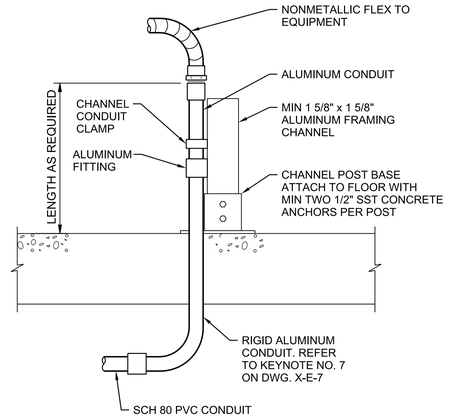



NOTE:

THE ENDS OF ALL CONDUITS REQUIRED TO BE GROUNDED BY THE SPECIFICATIONS SHALL BE GROUNDED IN ACCORDANCE WITH THIS DETAIL.

## 403 CONDUIT GROUNDING

NTS

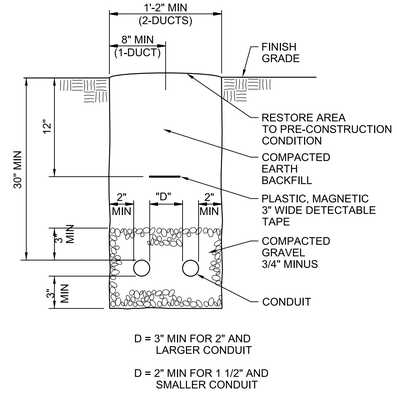



NOTES:

1. PROVIDE SUPPORT FOR ALL METAL CONDUITS WHICH EXTEND 18 INCHES OR MORE OUT OF THE SLAB WITHIN 3 INCHES OF THE END OF THE CONDUIT.
2. PROVIDE SUPPORT FOR ALL PVC CONDUIT WITHIN 3 INCHES OF THE END OF THE CONDUIT.

## 404 CONDUIT TRANSITION AND SUPPORT

NTS




D = 3" MIN FOR 2" AND LARGER CONDUIT

D = 2" MIN FOR 1 1/2" AND SMALLER CONDUIT

## 405 TRENCH AND CONDUIT PLACEMENT

NTS

## TABLE 4A

CONDUIT AND SERVICE BOX REQUIREMENTS
FOR UNDERGROUND COMMERCIAL SERVICES FROM AN OVERHEAD POLE

| SERVICE SIZE | CONDUIT SIZE (FROM SERVICE BOX TO JEA OVERHEAD POLE) | SERVICE BOX SIZE |
|---|---|---|
| 20A-150A | 1-2 IN | 13"x24"x18"d |
| 151A-200A | 1-4 IN | 17"x30"x18"d |
| 201A-399A | 1-4 IN | 24"x36"x18"d |
| 400A-800A | 400A = 1-4 IN<br>401-800A= 2-4 IN | 30"x48"x24"d MANHOLE |
| 801A-1400A | 801-1000A = 2-4 IN<br>1001-1400A= 3-4 IN | 36"x60"x36"d MANHOLE |

NOTE:

1. ALL CONDUITS TO BE SCH 40 PVC WITH CHAMFERED EDGES REQ. CONDUIT SIZE AND NUMBER DOES NOT HAVE TO MATCH CUSTOMERS' SERVICE CONDUIT SIZE, TYPE AND NUMBER.
2. ALL CONDUIT RADIUS TO BE 24 INCH MINIMUM.
3. FP&L WILL ALLOW THE OPTION OF PURCHASING THESE BOXES FROM AN ELECTRICAL SUPPLY HOUSE. THESE BOXES MUST MEET THE FOLLOWING SPECIFICATIONS.
5. SERVICE BOX SIZE MAY VARY FOR 3 PHASE APPLICATIONS.
4. CONTACT FP&L SERVICE ENGINEER FOR CONDUIT AND BOX LOCATION.

TECHNICAL SPECIFICATIONS

MATERIAL SPECIFICATIONS:

SERVICE BOX

1. TOP: COMPRESSION MOLDED POLYMER CONCRETE WITH MINIMUM THICKNESS OF TWO INCHES.
2. BODY: REINFORCED PLASTIC MORTAR (RPM) CONSISTING OF FIBERGLASS AND ISOPHOLIC RESIN. THE BASE WILL HAVE A FLANGE OF TWO INCHES FROM THE INSIDE WALL.
3. RING: THE RING WILL BE OF POLYMER CONCRETE AND WILL BE PERMANENTLY FUSED TO THE BODY DURING THE CURING PROCESS.

MANHOLE

1. MANHOLE BODY SHALL BE ON ONE PIECE CONSTRUCTION WITH A SOLID COVER.
2. MANHOLE DIMENSIONS SHALL BE 60"L x 36"W x 36"D.

LOAD RATING:

1. LOAD RATING; H-10 (INCIDENTAL TRAFFIC).
2. LOAD RATING SHALL BE IN ACCORDANCE WITH ASTM, C-857-87 (STD. PRACTICE FOR MINIMUM STRUCTURAL DESIGN LOADING FOR UG PRECAST CONCRETE UTILITY STRUCTURES) AASHTO AND WESTERN UNDERGROUND COMMITTEE RECOMMENDED GUIDELINES RULE 3.6 DATED 6-15-87.

MISCELLANEOUS REQUIREMENTS:

1. HARDWARE: TWO CAPTIVE STAINLESS PENTA HEAD BOLTS FOR SECURING TOP. BOLT HEADS WITH BE FLUSH WITH TOP OF COVER.
2. IDENTIFICATION: EACH TOP WILL HAVE THE WORD "ELECTRIC" PERMANENTLY MARKED INTO THE TOP.

## 406 COMMERCIAL SERVICE ABOVE 100 AMPS & MULTI-METERED UNDERGROUND SERVICE FROM AN OVERHEAD POLE

NTS



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:03:37 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

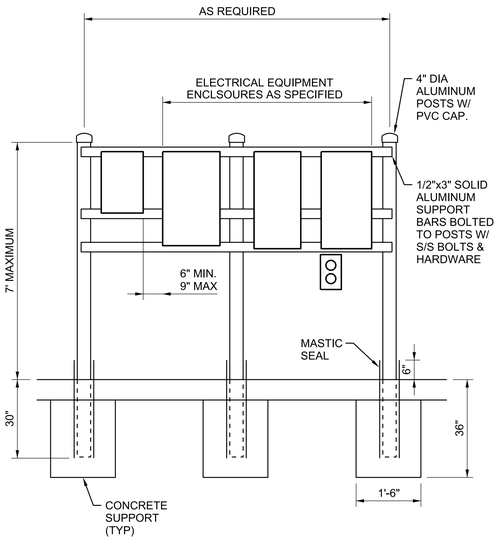
RIVERTOWN WELLS 1, 2, 3
ELECTRICAL DETAILS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9700-ED-001_D3270100.dgn

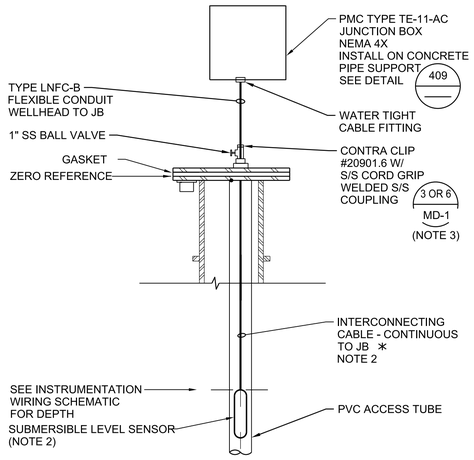
SHEET NO.
ED-1

ISSUED FOR BID




## 407 ELECTRICAL EQUIPMENT RACK DETAIL

NTS

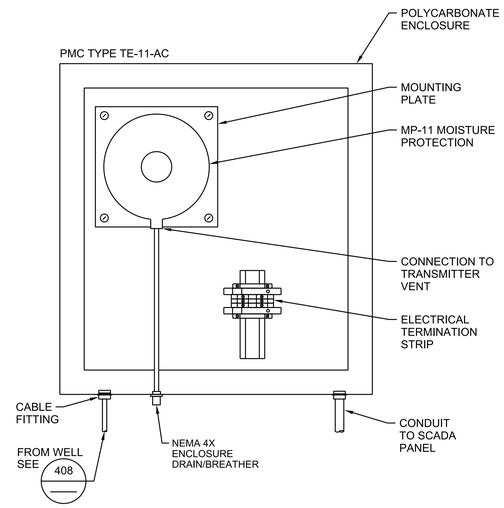



NOTES:

1. COMPONENTS DESIGNATED BY ∗ ARE SUPPLIED BY INSTRUMENT MANUFACTURER.
2. SEE MECHANICAL DRAWINGS FOR STILLING WELL DETAILS.
3. REFER TO DWG X-M-1 OF EACH WELLHEAD TO DETERMINE THE APPROPRIATE MECHANICAL DETAIL.

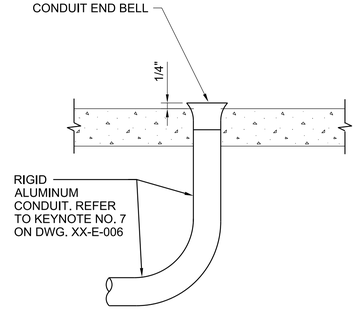
## 408 SUBMERSIBLE LEVEL TRANSMITTER INSTALLATION

NTS




## 409 SUBMERSIBLE LEVEL PROBE CABLE TERMINATION

NTS

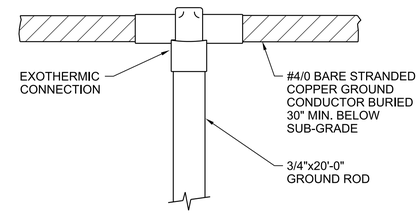



NOTES:

1. CONDUIT END BELL TO PROTRUDE ABOVE SLAB APPROX. 1/4", CONDUIT TO BE LOCATED IN ORDER TO MINIMIZE CONDUCTOR BENDING.

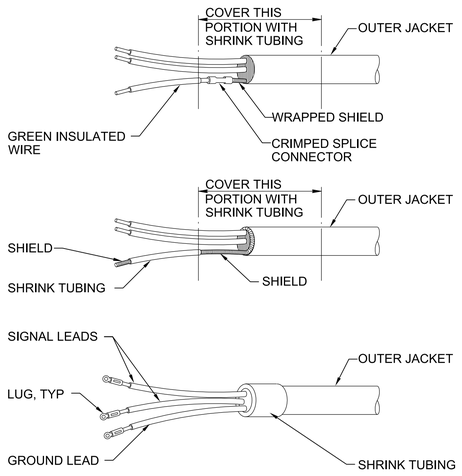
## 410 CONDUIT ENTERING THE FREE-STANDING ENCLOSURES

THIS DETAIL SHALL BE USED FOR CONDUIT GREATER THAN 2" DIA ENTERING MCC




## 411 GROUND ROD

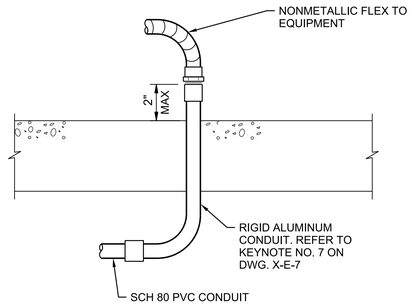
NTS




NOTE:
ALL SHIELDED INSTRUMENTATION CABLE SHALL BE TERMINATED IN ACCORDANCE WITH THIS DETAIL WHERE GROUNDING IS REQUIRED.

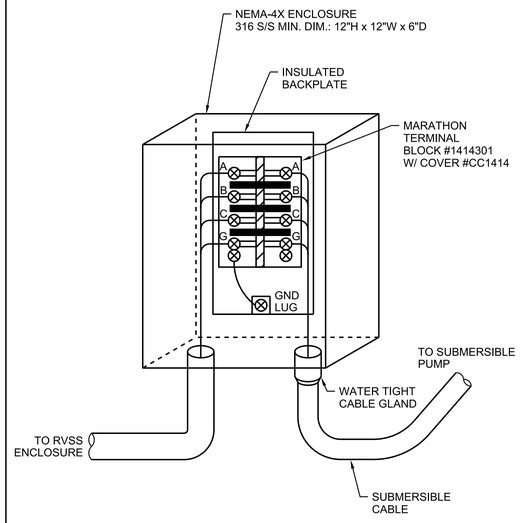
## 412 TERMINATION OF SHIELDED INSTRUMENTATION CABLE

NTS




## 413 CONDUIT TRANSITION AND SUPPORT

NTS




NOTES:

1. FOR SUBMERSIBLE PUMP APPLICATIONS ONLY.

## 414 PUMP MOTOR TERMINAL JUNCTION BOX

NTS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:28 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

CDM Smith
4651 Salisbury Road, Suite 420
Jacksonville, FL 32256
Tel: (904) 731-7109
FL COA No, EB-0000020

JACOBS
200 FORSYTH ST, SUITE 1520
JACKSONVILLE, FLORIDA 32202
EB0000072 AAC001992 LC26000188

JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

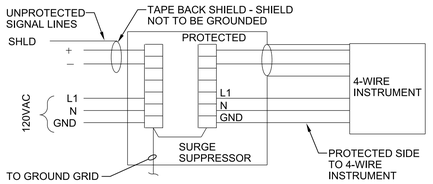
ELECTRICAL

RIVERTOWN WELLS 1, 2, 3
ELECTRICAL DETAILS

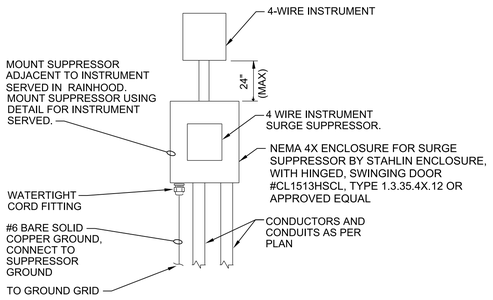
PROJECT NO. 6103-237938
JACOBS FILE NAME: 9700-ED-002_D3270100.dgn

SHEET NO.
ED-2

ISSUED FOR BID

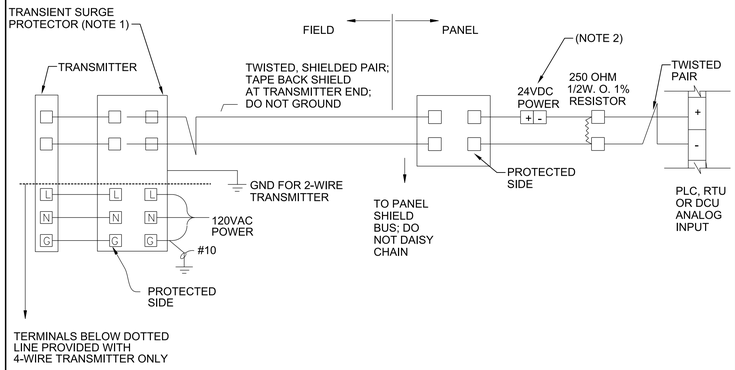



WIRING DIAGRAM




# TYPE 'B' SURGE SUPPRESSOR INSTALLATION 4-WIRE INSTRUMENT

501 NTS

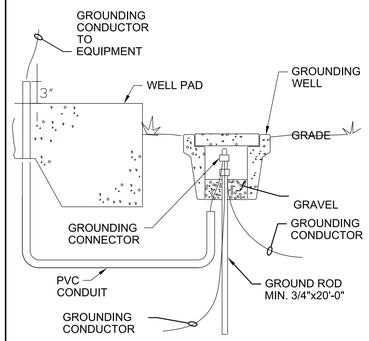



NOTES:

1. ELECTRICAL TRANSIENT PROTECTION PER SPECIFICATION.
2. 120VAC POWER REQUIRED FOR 4-WIRE TRANSMITTER ONLY. 24VDC REQUIRED FOR 2-WIRE TRANSMITTER ONLY.

# TYPICAL OUTDOOR 2 OF 4-WIRE TRANSMITTERS

502 NTS

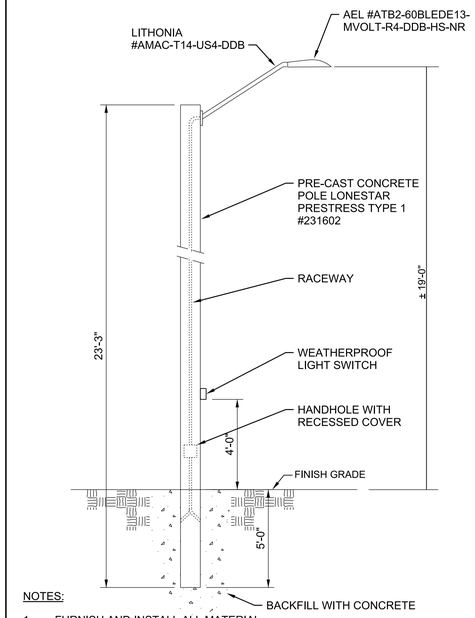



NOTES:

1. BOND CONDUCTOR TO GROUND ROD OR GROUNDING CONDUCTOR AS SHOWN ON PLANS.

# GROUNDING CONNECTOR

503 NTS

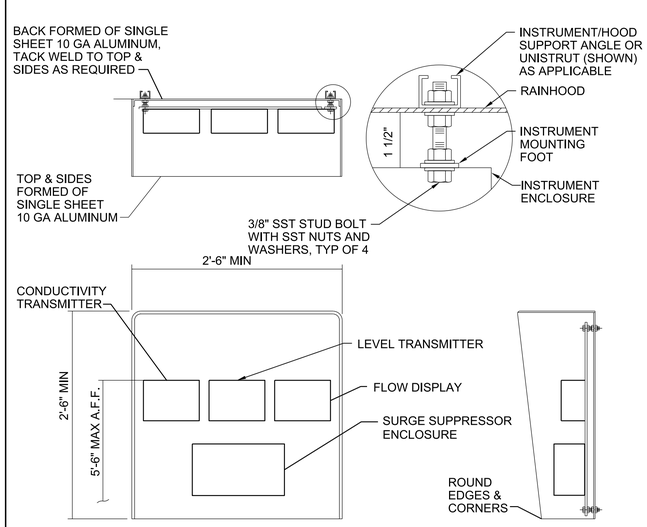



NOTES:

1. FURNISH AND INSTALL ALL MATERIAL.
2. AIM LUMINAIRE AS SHOWN ON PLAN VIEW.

# PRECAST CONCRETE POLE

504 NTS

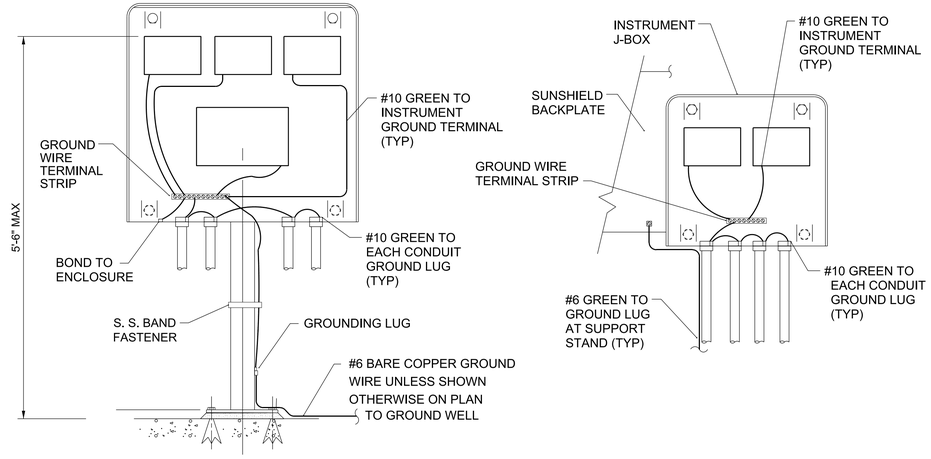



NOTES:

1. ALL EXPOSED EDGES TO BE GROUND SMOOTH AND BURR FREE.
2. MOUNT RAIN HOOD BETWEEN INSTRUMENT AND MOUNTING BRACKET. DRILL HOLES IN RAIN HOOD AS PER MOUNTING HOLES FOR INSTRUMENT.

# RAIN HOOD INSTALLATION

506 NTS




NOTES:

1. GROUNDING SHALL COMPLY WITH NEC ARTICLE 250 AND ANY LOCAL APPLICABLE CODES.
2. INSTALL GROUND WIRE CONTINUOUSLY THROUGH GROUND LUG. TIGHTEN LUG SCREW. GROUND WIRE SHALL EXTEND UP SUPPORT POST, AROUND SUNSHIELD TO BE TERMINATED ON GROUND WIRE TERMINAL STRIP WITHIN INSTRUMENT ENCLOSURE. SECURE GROUND WIRE TO SUPPORT POST VIA STAINLESS STEEL BAND FASTENERS WITH SCREW TYPE TIGHTENING MECHANISM.
3. ALL GROUND FASTENERS, REGARDLESS OF TYPE (SECURING TO POST OR TO CONCRETE), SHALL BE STAINLESS STEEL.

# TYPICAL GROUNDING DETAILS

507 NTS



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
| | | | | |

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:09 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

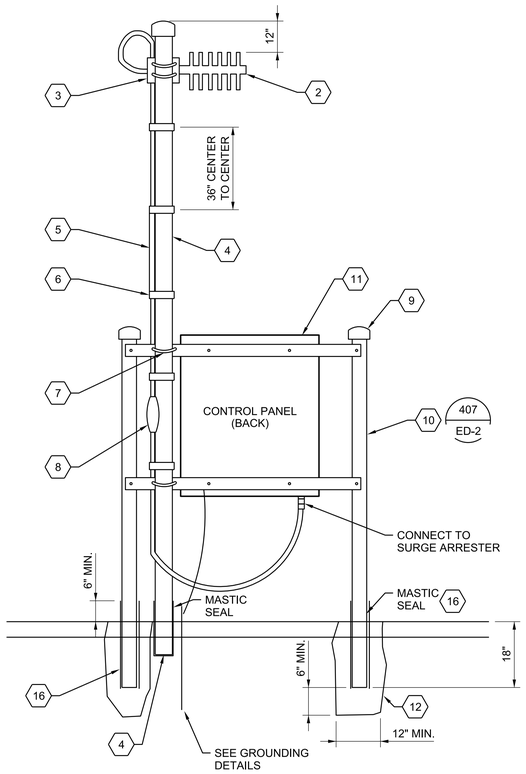
RIVERTOWN WELLS 1, 2, 3
ELECTRICAL DETAILS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9700-ED-003_D3270100.dgn

SHEET NO.
ED-3

ISSUED FOR BID

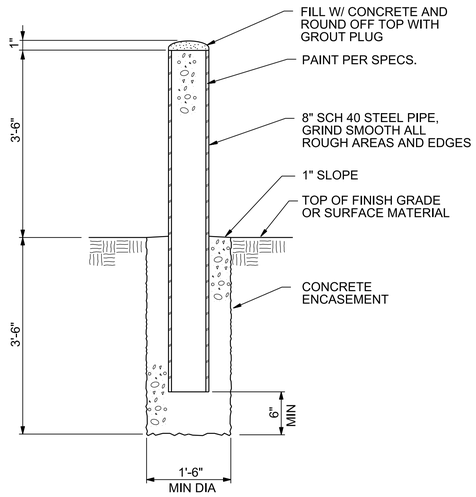



NOTES:

1. SEE PUMP STATION SITE DRAWINGS FOR POLE OR TOWER SPECIFICATIONS.
2. YAGI ANTENNA CONES W/ MOUNTING HARDWARE (MAST SHALL BE SLEEVED THRU CONCRETE TO ALLOW ROTATION (DO NOT USE WOOD POLE MOUNT)
   MANUFACTURER: SCALA
   MODEL NUMBER: TY-900
3. COAX CONNECTOR
   MANUFACTURER: WIRELESS SOLUTIONS
   MODEL NUMBER: NM50V-1/2
4. 2 AND 3/8" O.D. SCH. 40 ALUMINUM 35' POLE. POLE SHALL BE SLEEVED THROUGH CONCRETE TO ALLOW FOR ROTATION. SEE ELEVATION ON DWG. X-E-5 FOR SPECIFIC REQUIREMENTS.
5. COAXIAL CABLE SHALL BE ONE CONTINUOUS CABLE.
   MANUFACTURER: ANDREW
   MODEL NUMBER: LDF4-50A
6. STAINLESS STEEL STRAPS 3" O/C
   MANUFACTURER: WIRELESS SOLUTIONS
   MODEL NUMBER: RM-A300
7. 316 STAINLESS STEEL U-BOLTS
   MANUFACTURER: ANY DOMESTIC BRAND
   MODEL NUMBER: N/A
8. COAXIAL CABLE GROUND
   MANUFACTURER: TESSCO
   MODEL NUMBER: 41669
9. 4" PVC CAPS
10. 4" DIA. ALUMINUM POST.
11. 1/2"x3" SOLID ALUMINUM SUPPORT CARS (2 TOTAL) BOLTED TO POST W/ 5/8" S.S ANCHOR BOLTS. DRILL 2 HOLES (AS DIMENSIONED ON DETAIL) IN TOP & BOTTOM SUPPORTS ONLY.
12. BURY ALUMINUM POST IN CONCRETE AS SHOWN ON DRAWING.
13. INSTALL RTU MOUNT SO THAT WHEN CABINET IS ATTACHED DOOR IS FACING NORTH UNLESS DOOR HAS SUN SHIELD. IN ALL INSTANCES JEA PREFERS THE DOOR TO FACE NORTH IF POSSIBLE.
14. CABINET SHALL HAVE CLEARANCE TO OPEN DOOR COMPLETELY.
15. SCADA SYSTEM WOOD POLE ALTERNATE DETAIL TO BE USED ONLY WHEN ADDITIONAL ANTENNA HEIGHT IS REQUIRED, AND APPROVED.
16. MASTIC SEAL ALL POSTS WHICH ARE EMBEDDED IN CONCRETE.
17. ALL MATERIALS MUST MEET OR EXCEED JEA SPECIFICATIONS.

## 508 SCADA INSTALLATION DETAIL

NTS
FOR POLE HEIGHTS LESS THAN 30 FEET




## 509 PERMANENT GUARD POST

NTS



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

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ELECTRICAL

RIVERTOWN WELLS 1, 2, 3
ELECTRICAL DETAILS

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PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9700-ED-004_D3270100.dgn

SHEET NO.
ED-4

ISSUED FOR BID

## SECTION 40 27 02 VALVES

1. ALL MATERIALS THAT COME IN CONTACT WITH FINISHED OR RAW WATER SHALL BE NSF 61 APPROVED. PROVIDE NSF 61 CERTIFICATE FOR EACH VALVE.

2. UNLESS OTHERWISE SPECIFIED, ALL VALVES SHALL CONFORM TO JEA WATER AND SEWER STANDARDS, LATEST EDITION.

3. VALVE FACTORY FINISHING EPOXY LINING AND COATING
   A. SHALL BE IN ACCORDANCE WITH AWWA C550

   B. SHALL BE EITHER TWO-PART LIQUID MATERIAL OR HEAT-ACTIVATED (FUSION) MATERIAL EXCEPT ONLY HEAT-ACTIVATED MATERIAL IF SPECIFIED AS "FUSION"OR "FUSION BONDED"EPOXY.

   C. MINIMUM 7-MIL DRY FILM THICKNESS EXCEPT WHERE LIMITED BY VALVE OPERATING TOLERANCES

GATE VALVES:

4. TYPE V135 RESILIENT SEATED DUCTILE IRON GATE VALVES: SHALL BE IN ACCORDANCE TO JEA WATER AND SEWER STANDARDS SECTION 351, LATEST EDITION.

BALL VALVES:

5. TYPE V304 BALL VALVE 2 INCHES AND SMALLER FOR GENERAL WATER AND AIR SERVICE: SHALL BE IN ACCORDANCE TO JEA WATER AND SEWER STANDARDS-SECTION 351, LATEST EDITION.

6. TYPE V307 STAINLESS STEEL BALL VALVE 2 INCHES AND SMALLER:

   A. THREE-PIECE, FULL PORT, ASTM A276 GR 316 OR ASTM A351/A351M GR CF8M STAINLESS STEEL BODY AND END PIECES, TYPE 316 STAINLESS STEEL BALL, NPT THREADED ENDS, REINFORCED PTFE SEATS, SEALS, AND PACKING, ADJUSTABLE PACKING GLAND, BLOWOUT-PROOF STAINLESS STEEL STEM, STAINLESS STEEL LEVER OPERATOR WITH VINYL GRIP, RATED 800 PSIG TO 1,000 PSIG CWP, COMPLIES WITH MSS SP 110.

   B. MANUFACTURERS AND PRODUCTS:

      I. CONBRACO APOLLO; 86R-100/86-500 SERIES.

      II. NIBCO; T-595-S6-R-66-LL.

BUTTERLY VALVES:

7. TYPE V500 BUTTERFLY VALVE WATER WORKS SERVICE

   A. AWWA C504, CLASS 250B.

   B. SHORT BODY TYPE, FLANGED ENDS.

   C. CAST-IRON BODY, CAST OR DUCTILE IRON DISC, TYPE 304 STAINLESS STEEL SHAFTS, SELF-ADJUSTING SHAFT SEALS, BUNA N RUBBER SEAT BONDED OR MOLDED IN BODY ONLY, AND STAINLESS STEEL SEATING SURFACE.

   D. MANUFACTURERS AND PRODUCTS:

      I. GA; 800 SERIES.

      II. M&H; CL SERIES.

   E. PROVIDE TRAVELING NUT OR WORM GEAR ACTUATOR WITH HAND WHEEL. VALVE ACTUATORS TO CONFORM TO AWWA C504.

CHECK VALVES:

8. TYPE V634 RUBBER FLAPPER CHECK VALVE 2 INCHES TO 24 INCHES:

   A. IRON BODY, ASME B16.1, CLASS 125 FLANGES, STEEL-REINFORCED BUNA-N FLAPPER RAISED SEATING RING, RATED 150POUND CWP.

   B. MANUFACTURERS AND PRODUCTS:

      1) VAL-MATIC; 500 SERIES "SWINGFLEX" WITH LIMIT SWITCH

      2) GA; FIGURE 200 WITH LIMIT SWITCH

   C. LIMIT SWITCH SHALL BE FACTORY INSTALLED NEMA 4X LIMIT SWITCH BY ACTUATOR MANUFACTURER. SPST RATED AT 5 AMPS, 120 VOLTS AC, SWITCH CLOSES WHEN VALVE FULLY CLOSED. FURNISH ON EACH TYPE V634 VALVE

AIR VACUUM VALVES:

9. TYPE V742 AIR AND VACUMM VALVE FOR WELL SERVICE:

   A. 1/2 INCH THROUGH 3 INCHES EQUIPPED WITH STAINLESS STEEL DIFFUSER SCREEN TO BREAK UP SOLID WATER COLUMN BEFORE COMING IN CONTACT WITH FLOAT, 150 WSP ANGLE PATTERN GLOVE VALVE WITH LOCK SHIELD IN THE NPT OUTLET FOR THROTTLING.

   B. RATED 150 PSI WORKING PRESSURE, CAST IRON DUCTILE IRON OR SEMISTEEL BODY, COVER WITH STAINLESS STEEL FLOAT AND TRIM.

   C. MANUFACTURERS AND PRODUCTS

      I. WELL CASING FLANGE: VAL-MATIC VALVE, 1-INCH. MODEL: VM22.9DISV.

      II. WELL DISCHARGE: VAL-MATIC VALVE, 2 -INCH. MODEL: VM38.2DISV.

## SECTION 40 27 00 PIPING

1. ALL MATERIALS THAT COME IN CONTACT WITH FINISHED OR RAW WATER SHALL BE NSF 61 APPROVED.

2. ALL PIPING MATERIAL AND INSTALLATION SHALL CONFORM TO JEA WATER AND SEWER STANDARDS, LATEST EDITION.

3. PRESSURE TESTING AND FLUSHING: PER JEA STANDARDS- SECTION 350, POTABLE WATER PIPING, LATEST EDITION.

4. DISINFECTION: PER JEA STANDARDS- SECTION 350, POTABLE WATER PIPING, LATEST EDITION.

5. ALL DUCTILE IRON AND PVC PIPE SHALL CONFORM TO JEA STANDARDS-SECTION 350, POTABLE WATER PIPING. DUCTILE IRON PIPE SHALL BE LINED WITH CEMENT-MORTAR CONFORMING TO AWWA C104/A21.4-9

6. ALL PIPING ON THE WELL SITE SHALL BE RESTRAINED. ALL BURIED PIPING WITHIN THE WELL SITE SHALL BE RESTRAINED PER JEA'S DUCTILE IRON PIPE RESTRAINT JOINT SCHEDULE (PLATE W-31B). RESTRAINTS SHALL CONFORM TO JEA STANDARDS-SECTION 350, POTABLE WATER PIPING, LATEST EDITION.

7. ALL STAINLESS STEEL PIPE AND FITTINGS SHALL CONFORM TO SECTION 40 27 00 08 ON THIS SHEET.

8. SERVICE SADDLES: REQUIRED ON ALL DUCTILE IRON PIPE TAPS.

   A. DOUBLE-STRAP DESIGN RATED 150 PSI MINIMUM WORKNG PRESSURE.

   B. RUN DIAMETERS COMPATIBLE WITH THE OUTSIDE DIAMETER OF THE PIPE ON WHICH THE SADDLE IS INSTALLED.

   C. TAPS WITH IRON PIPE THREADS.

   D. MANUFACTURERS AND MODELS: PER JEA STANDARDS APPROVED MATERIAL.

9. ALL DUCTILE IRON PIPE AND VALVES SHALL COME FACTORY PRIMED WITH 4 TO 6 MDFT WITH TNEMEC SERIES N 140 POTA POX PLUS.

10. LOCAL PRESSURE GAUGE
    A. 4-1/2 INCH DIAL, POINTER VIBRATION REDUCTION, GLYCERINE FILLED.
    B. WETTED PARTS STAINLESS STEEL.
    C. RANGE AS CALLED OUT ON MECHANICAL DRAWING.
    D. ACCURACY PLUS OR MINUS 0.5% OF FULL SCALE.
    E. SIZE: ½-INCH MNTP. PROVIDE REDUCING BUSHING AS SHOWN ON MECHANICAL DETAIL 4.
    F. THROTTLING DEVICE REQUIRED.
    G. MANUFACTURER: ASHCROFT DURAGAUGE MODEL 1279 PLUS!

## SECTION 09 90 00 PAINTING AND COATING

1. COLOR: PER JEA WATER AND SEWER STANDARDS, LATEST EDITION.

| | |
|---|---|
| WELLS TO AERATORS/STORAGE: RAW WATER PUMPS AND PIPING | OLIVE GREEN FED STD 5958 #34258 |
| ALL ELECTRIC MOTORS | RED FED STD 595B #11350 |
| DO NOT PAINT ANY STAINLESS STEEL PIPING | |

2. SYSTEM NO. 10 GALVANIZED METAL CONDITIONING: USE ON GALVANIZED SURFACES REQUIRING PAINTING.

| SURFACE PREP. | PAINT MATERIAL | MIN. COATS, COVER |
|---|---|---|
| SOLVENT CLEAN (SP 1) FOLLOWED BY HAND TOOL (SP 2) OR POWER TOOL (SP 3) | WASH PRIMER OR COATING MANUFACTURER'S RECOMMENDATION | 1 COAT, 0.4 MD FT |

3. SYSTEM NO. 25 EXPOSED FRP, PVC: USE ON ALL EXPOSED-TO-VIEW PVC AND CPVC SURFACES, AND FRP SURFACES WITHOUT INTEGRAL UV-RESISTANT GEL COAT.

| SURFACE PREP. | PAINT MATERIAL | MIN. COATS, COVER |
|---|---|---|
| IN ACCORDANCE WITH PARAGRAPH PLASTIC AND FRP SURFACE PREPARATION | ACRYLIC LATEX FLAT | 2 COATS, 320 SFPG PC |

4. SYSTEM NO. 27 ALUMINUM AND DISSIMILAR METAL INSULATION: USE ON CONCRETE EMBEDDED ALUMINUM SURFACES.

| SURFACE PREP. | PAINT MATERIAL | MIN. COATS, COVER |
|---|---|---|
| SOLVENT CLEAN (SP1) | WASH PRIMER | 1 COAT, 0.4 MDFT |
| | BITUMINOUS PAINT | 1 COAT, 10 MDFT |

5. SYSTEM NO. 5A: EXPOSED AND SUBMERGED DUCTILE IRON PIPE AND VALVES

| SURFACE PREP. | PAINT MATERIAL | MIN. COATS, COVER |
|---|---|---|
| SOLVENT CLEAN (SP 1), FOLLOWED BY POWER TOOL (SP 3), ABRADE ALL SURFACES PER RECOMMENDED SURFACE PROFILE | PRIME COAT: ALL FACTORY PRIMED METAL WITH TNEMEC SERIES N 140 POTA POX PLUS | 1 COAT, 3-5 MDFT |
| | STRIPE COAT: ALL EDGES WITH A 2-INCH ROLLER USING TNEMEC SERIES N 140 POTA POX PLUS | 1 COAT, 3 - 5 MDFT |
| | FINAL FINISH COAT: ALL EXPOSED SURFACES WITH TNEMEC SERIES 1095 | 1 COAT, 3 - 5 MDFT |

6. SYSTEM NO. 6: EXPOSED AND CONCRETE ENCASED PORTIONS OF WELL CASING, WELLHEAD FLANGE AND ACCESS PORT ARRANGEMENT.

| SURFACE PREP. | PAINT MATERIAL | MIN. COATS, COVER |
|---|---|---|
| REMOVE ALL DIRT, OILS, GREASE BY HIGH PRESSURE WATER BLAST CLEANING, (3,000 PSI, 3 - 5 GPM)<br><br>GRIND ALL WELD SEAMS AND ROUGH EDGES SMOOTH<br><br>REMOVE ALL LOOSE RUST AND REMAINING OLD COATINGS WITH SP 10, NEAR-WHITE BLAST CLEANING | PRIME COAT: ALL BARE METAL WITH TNEMEC SERIES 135 | 1 COAT, 4 - 6 MDFT |
| | STRIPE COAT: ALL EDGES WITH A 2-INCH ROLLER USING TNEMEC SERIES 135 | 1 COAT, 4 - 6 MDFT |
| | FINAL FINISH COAT: ALL EXPOSED SURFACES WITH TNEMEC SERIES 1095 | 1 COAT, 3 - 5 MDFT |

## SECTION 09 90 00 PAINTING AND COATING (CONTINUED)

7. SYSTEM NO. 7: EXPOSED METAL INCLUDING MCC CABINET

| SURFACE PREP. | PAINT MATERIAL | MIN. COATS, COVER |
|---|---|---|
| REMOVE ALL GREASE. OILS, AND LOOSE RUST WITH SOLVENT CLEANING (SP 1) AND HAND TOOL (SP 2) | STRIPE COAT ALL SHARP EDGES WITH TNEMEC SERIES 135 USING A 2-INCH ROLLER | 1 COAT, 3-5 MDFT |
| | FULL PRIME ALL EXTERIOR SURFACES WITH TNEMEC SERIES 135 | 1 COAT, 3 - 5 MDFT |
| | FULL FINISH ALL EXTERIOR SURFACES WITH TNEMEC SERIES 1095, SEMI-GLOSS.PROVIDE A COLOR CHART FOR OWNER SELECTION OF FINISH COLOR. | 1 COAT, 2.5 - 4.0 MDFT |

## SECTION 40 27 00 08
## STAINLESS STEEL PIPE AND FITTINGS - GENERAL SERVICE

| ITEM | SIZE | DESCRIPTION |
|---|---|---|
| PIPE | 2" & SMALLER | SCHEDULE 40S: ASTM A312/A312M, TYPE 316 SEAMLESS, PICKLED AND PASSIVATED. |
| JOINTS | 2 INCH & SMALLER | THREADED OR FLANGED AT EQUIPMENT AS REQUIRED OR SHOWN. |
| FITTINGS | 2 INCH & SMALLER | THREADED: FORGED 1,000 CWP MINIMUM, ASTM A182/A182M, REV C GRADE F316L. |
| BRANCH CONNECTIONS | 2 INCH & SMALLER | TEE OR REDUCING TEE IN CONFORMANCE WITH FITTINGS ABOVE. |
| FLANGES | ALL | FORGED STAINLESS STEEL: ASTM A182/A182M, GRADE F316L, ASME B16.5 CLASS 150 OR CLASS 300, SLIP-ON WELD NECK OR RAISED FACE. WELD SLIP-ON FLANGES INSIDE AND OUTSIDE. CAST CARBON STEEL: ASTM A216/A216M GRADE WCA, DRILLED, ASME B16.5 CLASS 150 OR CLASS 300 VAN STONE TYPE WITH STAINLESS STEEL STUB ENDS, ASTM A240 TYPE 316L "AS-WELDED GRADE", CONFORMING TO MSS SP 43, WALL THICKNESS SAME AS PIPE. |
| UNIONS | 2 INCH & SMALLER | THREADED FORGED: ASTM A182/A182M, GRADE F316, 2,000-POUND OR 3,000-POUND WOG, INTEGRAL GROUND SEATS, AAR DESIGN MEETING THE REQUIREMENTS OF ASME B16.11, BORE TO MATCH PIPE. |
| BOLTING | ALL | FORGED FLANGES: TYPE 316 STAINLESS STEEL, ASTM A320/A320M GRADE B8M HEX HEAD BOLTS, ASTM A194/A194M GRADE 8M HEX HEAD NUTS AND ASTM F436/F436M TYPE 3 ALLOY WASHERS AT NUTS AND BOLT HEADS. ACHIEVE 40 PERCENT TO 60 PERCENT OF BOLT MINIMUM YIELD STRESS. VAN STONE FLANGES AND ANYWHERE MATING FLANGE ON EQUIPMENT IS CAST IRON AND GASKET IS FLAT RING: CARBON STEEL ASTM A307 GRADE B HEX HEAD BOLTS, ASTM A563 GRADE A HEX HEAD NUTS AND ASTM F436/F436M HARDENED STEEL WASHERS AT NUTS AND BOLT HEADS. ACHIEVE 40 PERCENT TO 60 PERCENT OF BOLT MINIMUM YIELD STRESS. |
| GASKETS | ALL FLANGES | FLANGED, WATER AND SEWAGE SERVICES: 1/8 INCH THICK, RED RUBBER (SBR), HARDNESS 80 (SHORE A), RATED TO 200 DEGREES F, CONFORMING TO ASME B16.21, AWWA C207, AND ASTM D1330, GRADE 1 AND 2. BLIND FLANGES SHALL BE GASKETED COVERING ENTIRE INSIDE FACE WITH GASKET CEMENTED TO BLIND FLANGE. |
| THREAD LUBRICANT | 2 INCH & SMALLER | GENERAL SERVICE: 100 PERCENT VIRGIN PTFE TEFLON TAPE. |

DATE: 01/2021
Lawrence Bradley Gunn
PE NO. 65967



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|
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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

PROCESS MECHANICAL

RIVERTOWN WELLS 1, 2, 3
PROCESS MECHANICAL SPECIFICAITONS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9900-MS-01_D3270100.dgn

SHEET NO.
MS-1

ISSUED FOR BID

**1.01 GENERAL NOTES:**
**01010 SUMMARY OF WORK**

A. THE COMPLETE WORK INCLUDES THE FOLLOWING:

a. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS, EQUIPMENT AND SUPPLIES AS SHOWN ON THE PLANS, DESCRIBED IN THE INSTRUMENTATION AND CONTROLS SPECIFICATIONS, AND AS MAY OTHERWISE BE REQUIRED TO PROVIDE OWNER WITH A COMPLETE AND FUNCTIONAL ELECTRICAL AND CONTROL SYSTEM FOR ITS RAW WATER WELLHEAD.

b. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED CONTACT AND COORDINATION WITH THE SUPPLYING ELECTRIC UTILITY (FP&L) FOR THE ESTABLISHMENT OF A NEW, OR MODIFIED, SERVICE FOR THE WELLHEAD AT 480/277VAC, 3P/4W. THIS SHALL INCLUDE ALL REQUIRED PERMITTING AND FEES.

c. PROVIDE FOR ALL TRENCH EXCAVATION, WATER PUMPING AND DRAINING, BACKFILLING AS INDICATED ON THE PLANS, CONSOLIDATION AND COMPACTION REQUIRED FOR ALL UNDERGROUND ELECTRICAL WORK.

d. THE CONTRACTOR SHALL CONTACT AND COORDINATE WITH THE OWNER FOR THE PROGRAMMING, TESTING AND CHECKOUT OF THE SCADA PANEL AND TELEMETRY. ALL WORK IS RESPONSIBLILITY OF OWNER.

e. THE CONTRACTOR SHALL APPLY THE APPROPRIATE RELAY SETTINGS AS FURNISHED BY THE ENGINEER, AND SHALL PROVIDE A COMPLETE CHECKOUT AND TESTING OF THE INSTALLED SYSTEM PRIOR TO ENERGIZATION OF THE WELL PUMP.

f. THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER AS REQUIRED FOR THIS AND OTHER DISCIPLINES THROUGHOUT THE PROJECT. THE CONTRACTOR SHALL COORDINATE ALL TEMPORARY POWER REQUIREMENTS WITH THE SUPPLYING ELECTRIC UTILITY (FP&L).

B. GENERAL REQUIREMENTS

a. THE SPECIFICATIONS AND DRAWINGS SHALL BE CONSIDERED AS SUPPLEMENTARY TO EACH OTHER, REQUIRING MATERIALS AND LABOR INDICATED, SPECIFIED, OR IMPLIED BY EITHER THE SPECIFICATIONS OR DRAWINGS. CONTRADICTIONS NOTED BY THE SUBCONTRACTOR SHALL BE PRESENTED TO THE PRIME CONTRACTOR'S ENGINEER FOR RESOLUTION.

b. ANSI/NFPA.70-2017 (THE NATIONAL ELECTRICAL CODE) AND THE FLORIDA BUILDING CODE SHALL ESTABLISH THE MINIMUM REQUIREMENTS FOR THE INSTALLATION. WHERE THE PLANS OR THESE SPECIFICATIONS PROVIDE A MORE RIGID REQUIREMENT FOR THE INSTALLATION, THEN THE PLANS AND/OR SPECIFICATIONS SHALL PREVAIL.

c. INTERPRETATION OF THE SPECIFICATIONS OR PLANS WHERE DEEMED NECESSARY AT THE CONTRACTOR'S REQUEST SHALL BE MADE ONLY BY THE OWNER'S ENGINEER.

d. THE FOLLOWING SPECIFICATIONS ARE PERSCRIPTIVE, MEANING THAT THERE ARE SPECIFIC MANUFACTURER PRODUCTS CALLED OUT AND REQUIRED FOR THIS WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO READ, UNDERSTAND AND PROCURE THE MATERIAL ITEMS PRESCRIPTIVELY IDENTIFIED IN THE FOLLOWING SPECIFICATIONS. FAILURE BY THE CONTRACTOR TO PROCURE AND INSTALL RESPECTIVE MANUFACTURED MATERIALS AS IDENTIFIED HERE IN WILL BE CAUSE FOR REJECTION OF THE WORK.

C. DEFINITIONS
a. STANDARD SUPPLIER: THE PARTY UNDER CONTRACT WITH THE JEA FOR FURNISHING THE PRODUCTS COVERED BY THIS CONTRACT.

b. INSTALLING CONTRACTOR: THE PARTY UNDER CONTRACT WITH THE JEA TO INSTALL THE PRODUCT (S) FURNISHED UNDER THIS CONTRACT.

c. FOR THIS PROJECT, THE STANDARD SUPPLIER AND THE INSTALLING CONTRACTOR SHALL BE THE SAME PARTY.

**01040 COORDINATION**

A. THE CONTRACTOR THAT PERFORMS THE WORK HEREIN IS HENCEFORTH REFERRED TO BE THE WELLHEAD CONTRACTOR, INSTALLING CONTRACTOR, CONTRACTOR, STANDARD SUPPLIER, OR ELECTRICAL SUB-CONTRACTOR.

B. OTHER WORK THAT IS EITHER DIRECTLY OR INDIRECTLY RELATED TO THE SCHEDULED PERFORMANCE OF WORK UNDER THESE CONTRACT DOCUMENTS, LISTED HENCEFORTH, IS ANTICIPATED TO BE PERFORMED AT SITE BY OTHERS.

C. COORDINTATE THE WORK OF THESE CONTRACT DOCUMENTS WITH WORK OF OTHERS.

D. INCLUDE SEQUENCING CONSTRAINTS SPECIFIED HEREIN AS A PART OF PROGRESS SCHEDULE.

E. REFERENCE PLANS AND SPECIFICATIONS FOR LIMITS OF WORK PROVIDED BY OTHERS, PARTICULARLY WITH RESPECT TO SITE UTILITIES AT THIS SITE.

F. REFER TO COORDINATION REQUIREMENTS WITH THE SUPPLYING ELECTRIC UTILITY (JEA) IN NOTE(S) 01010.A OF THESE GENERAL NOTES.

**01300 SUBMITTALS**

A. THE OWNER (JEA) RESERVES THE RIGHT TO MODIFY THE PROCEDURES AND REQUIREMENTS FOR SUBMITTALS, AS NEEDED, TO ACCOMPLISH SPECIFIC PURPOSES. DIRECT INQUIRES TO THE OWNER (JEA) REGARDING THE PROCEDURE, PURPOSE AND/OR EXTENT OF ANY SUBMITTAL.

B. REVIEW, ACCEPTANCE OR APPROVAL OF SUBSTITUTIONS, SCHEDULES, SHOP DRAWINGS, LIST OF MATERIALS AND PROCEDURES SUBMITTED OR REQUESTED BY THE STANDARD SUPPLIER SHALL NOT ADD TO THE CONTACT AMOUNT, AND ADDITIONAL COSTS WHICH MAY RESULT SHALL SOLELY BE THE OBLIGATION OF THE STANDARD SUPPLIER.

C. THE OWNER (JEA) IS NOT PRECLUDED, BY VIRTUE OF REVIEW, ACCEPTANCE OR APPROVAL FROM OBTAINING A CREDIT FOR SAVINGS RESULTING FROM ALLOWED CONCESSIONS IN THE WORK OR MATERIALS, OR FROM THE REDUCTION IN QUANTITIES OF COMPONENTS.

D. ALL APPROVED DOCUMENTS SHALL BE SUBMITTED TO THE OWNER (JEA) IN THE "NATIVE FORM"SO THAT THE OWNER WILL HAVE THE ABILITY TO EDIT THEM AS NEEDED. REFER TO THE PROJECT SPECIFICATIONS FOR PROCEDURES AND REQUIREMENTS CONCERNING SHOP DRAWINGS.

E. SHOP DRAWINGS:

a. SHALL BE DEFINED AS DRAWINGS, DIAGRAMS, ILLUSTRATIONS, SCHEDULES AND OTHER DATA WHICH ARE SPECIFICALLY PREPARED BY/FOR STANDARD SUPPLIER TO ILLUSTRATE THE WORK TO BE DONE OR MATERIAL/EQUIPMENT TO BE PROVIDED.

b. REFER TO THE PROJECT SPECIFICATIONS FOR PROCEDURES AND REQUIREMENTS CONCERNING SHOP DRAWINGS.

F. QUALITY CONTROL SUBMITTALS:

a. FURNISH MANUFACTURER'S CERTIFICATION OF PROPER INSTALLATION STATING SYSTEM/EQUIPMENT HAS BEEN INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND HAS BEEN INSPECTED BY A MANUFACTURER'S AUTHORIZED REPRESENTATIVE.

b. FUNCTIONAL TEST CERTIFICATE SHALL BE REQUIRED WITH THE MANUFACTURER MONITORING THE TEST AND CERTIFYING IN WRITING THAT THE EQUIPMENT TESTED IS BOTH FUNCTIONAL AND READY FOR CONTINUOUS OPERATION.

c. REFER TO THE PROJECT SPECIFICATIONS FOR PROCEDURES AND REQUIREMENTS CONCERNING QUALITY CONTROL SUBMITTALS.

G. OPERATION AND MAINTENANCE DATA:

a. FURNISH FOR EACH SYSTEM OR ITEM EQUIPMENT AS NECESSARY FOR THE OWNER (JEA) TO BE ABLE TO PROPERLY OPERATE AND MAINTAIN THE EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

b. REFER TO THE PROJECT SPECIFICATIONS FOR PROCEDURES AND REQUIREMENTS CONCERNING OPERATION AND MAINTENANCE DATA.

**01600 PRODUCT SHIPMENT, HANDLING, STORAGE AND PROTECTION**

A. STANDARD SUPPLIER SHALL PROVIDE ADVANCE NOTICE OF SHIPMENT AT LEAST SEVEN (7) DAYS PRIOR TO SHIPMENT.

B. ALL PRODUCTS, WHERE PRACTICAL, SHALL BE FULLY FACTORY ASSEMBLED

C. PACKAGE OR CRATE PRODUCTS TO PROVIDE PROTECTION FROM DAMAGE DURING SHIPPING, HANDLING AND STORAGE.

D. MARK SPARE PARTS AND SPECIAL TOOLS TO IDENTIFY THE ASSOCIATED PRODUCTS BY NAME, EQUIPMENT AND PART NUMBER.

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING AND INSPECTING THE DELIVERED CONDITION, AND OFFLOADING AT THE JOBSITE.

**01640 MANUFACTURER'S SERVICES**

A. AS REQUIRED AND SHOWN ON THE PLANS, DESCRIBED ELSEWHERE IN THESE GENERAL NOTES, AND AS DESCRIBED IN THE SPECIFICATIONS.

**2.01 PRODUCTS - INSTRUMENTATION AND CONTROLS:**
**40.80.01 PROCESS INSTRUMENTATION AND CONTROL SYSTEMS (PICS)**

A. REFER TO PROJECT SPECIFICATION OF SAME NAME AND NUMBER FOR INFORMATION.

**40.90.11 COMPONENTS AND PANELS SUBSYSTEM (CPS)**

A. REFER TO PROJECT SPECIFICATION OF SAME NAME AND NUMBER FOR INFORMATION.

**2.02 PRODUCTS / STUDIES - ELECTRICAL:**
**26.05.02 BASIC ELECTRICAL REQUIREMENTS**

A. ALL MATERIALS AND EQUIPMENT PROVIDED SHALL BE NEW, LISTED/LABELED BY A NATIONALLY RECOGNIZED TEST LABORATORY (NRTL) TO THE APPROPRIATE UL STANDARDS WHEREVER STANDARDS HAVE BEEN ESTABLISHED BY THAT AGENCY.

B. WHERE TWO OR MORE UNITS OF THE SAME CLASS OF MATERIAL OR EQUIPMENT ARE REQUIRED, FURNISH PRODUCTS OF A SINGLE MANUFACTURER. COMPONENT PARTS OF MATERIAL OR EQUIPMENT NEED NOT BE PRODUCTS OF THE SAME MANUFACTURER.

C. MATERIALS AND EQUIPMENT INSTALLED OUTDOORS SHALL BE CAPABLE OF CONTINUOUS OPERATION AT THEIR SPECIFIED RATING WITHIN THE AMBIENT TEMPERATURE RANGE OF 25°F TO 104°F.

D. WHERE MATERIALS, EQUIPMENT, APPARATUS OR OTHER PRODUCTS ARE SPECIFIED BY MANUFACTURER, BRAND NAME, TYPE OR CATALOG NUMBER, SUCH DESIGNATION IS TO ESTABLISH A STANDARD OF QUALITY OR A DESIGN BASIS AND SHALL BE USED AS THE BASIS FOR THE CONTRACTOR'S BID. WHERE THREE OR MORE DESIGNATIONS ARE SPECIFIED, THE CHOICE WILL BE OPTIONAL. WHERE ONLY ONE DESIGNATION IS SPECIFIED, ALTERNATIVES MAY BE SUBMITTED TO THE OWNER'S ENGINEER DURING THE BIDDING PROCESS FOR CONSIDERATION.

E. PROVIDE MANUFACTURER'S STANDARD FINISH AND COLOR UNLESS NOTED OTHERWISW ON THE PLANS OR IN THESE GENERAL NOTES.

F. MANUFACTURER EQUIPMENT NAMEPLATES SHALL BE IMPRINTED #316 STAINLESS STEEL (S/S) AND SECURED WITH S/S HARDWARE.

G. EQUIPMENT IDENTIFICATION LABELS SHALL BE IN ACCORDANCE WITH NEMA Z535.4, LAMINATED PLASTIC, WHITE BACKGROUND, ENGRAVED TO A BLACK CORE. LABELS SHALL BE SECURED TO THE EQUIPMENT WITH S/S HARDWARE. FOR SMALL DEVICES, LETTERING SHALL BE 1/8", FOR PANELS AND LARGER EQUIPMENT, LETTERING SHALL BE 1/4".

H. THE MTS ENCLOSURE SHALL HAVE AN ADDITIONAL IDENTIFICATION LABEL FOR THE SERVICE-ENTRANCE DISCONNECT. THIS LABEL SHALL BE MANUFACTURED AS IN 'I' ABOVE, BUT WILL HAVE A RED BACKGROUND, ENGRAVED TO A WHITE CORE.

I. PROVIDE CHECKOUT AND STARTUP SERVICES TO INCLUDE GROUND RESISTANCE MEASUREMENTS FOR THE GROUNDING ELECTRODE SYSTEM, FEEDER CONDUCTOR INSULATION TESTS (MEGGAR), VOLTAGE FIELD TESTING UNDER NO-LOAD AND LOAD CONDITIONS, AND EQUIPMENT LINE CURRENT TESTS. CORRECT FOR IMPROPER CONDITIONS/OPERATION AND PROVIDE FINAL WRITTEN VERIFICATION OF THE FINAL OPERATING CONDITION.

J. PROTECT ALL MATERIALS AND EQUIPMENT FROM CORROSION, PHYSICAL DAMAGE AND AMBIENT CONDITIONS UNTIL THE INSTALLATION IS TURNED OVER TO THE OWNER. THOROUGHLY CLEAN THE INTERIOR AND EXTERIOR OF ALL EQUIPMENT AND DEVICES, AND TOUCH UP SCRATCHES, SCRAPES AND CHIPS AS THEY OCCUR.

**26.05.04 BASIC ELECTRICAL MATERIALS AND METHODS**

A. PUSHBUTTON, INDICATING LIGHT, AND SELECTOR SWITCH

a. CONTACT RATING: 7,200VA MAKE, 720VA BREAK, AT 600V, NEMA ICS 5 DESIGNATION A600.

b. SELECTOR SWITCH OPERATING LEVER: STANDARD.

c. INDICATING LIGHT: PUSH-TO-TEST, LED, FULL-VOLTAGE.

d. PUSHBUTTON COLOR: ON OR START: GREEN. OFF OR STOP: RED.

e. PUSHBUTTON AND SELECTOR SWITCH LOCKABLE IN OFF POSITION WHERE INDICATED.

f. LEGEND PLATE: MATERIAL: ALUMINUM.
- ENGRAVING: ENAMEL FILLED IN HIGH CONTRASTING COLOR.
- TEXT ARRANGEMENT: 11CHARACTER/SPACES ON ONE LINE, 14CHARACTER/SPACES ON EACH OF TWO LINES, AS REQUIRED, INDICATING SPECIFIC FUNCTION.
- LETTER HEIGHT: 7/64INCH.

g. MANUFACTURERS AND PRODUCTS:
- HEAVY-DUTY, OIL-TIGHT TYPE: EATON/CUTLER-HAMMER; TYPE 10250T.
- HEAVY-DUTY, WATERTIGHT, AND CORROSION-RESISTANT TYPE: EATON/CUTLER-HAMMER; TYPE E34.

B. TERMINAL BLOCK, 600 VOLTS

a. UL 486E AND UL 1059.

b. SIZE COMPONENTS TO ALLOW INSERTION OF NECESSARY WIRE SIZES.

c. CAPABLE OF TERMINATION OF CONTROL CIRCUITS ENTERING OR LEAVING EQUIPMENT, PANELS, OR BOXES.

d. SCREW CLAMP COMPRESSION, DEAD FRONT BARRIER TYPE, WITH CURRENT BAR PROVIDING DIRECT CONTACT WITH WIRE BETWEEN COMPRESSION SCREW AND YOKE.

e. YOKE, CURRENT BAR, AND CLAMPING SCREW OF HIGH STRENGTH AND HIGH CONDUCTIVITY METAL.

f. YOKE SHALL GUIDE ALL STRANDS OF WIRE INTO TERMINAL.

g. CURRENT BAR SHALL ENSURE VIBRATION-PROOF CONNECTION.

h. TERMINALS:

i. CAPABLE OF WIRE CONNECTIONS WITHOUT SPECIAL PREPARATION OTHER THAN STRIPPING.

j. CAPABLE OF JUMPER INSTALLATION WITH NO LOSS OF TERMINAL OR RAIL SPACE.

k. INDIVIDUAL, RAIL MOUNTED.

l. MARKING SYSTEM, ALLOWING USE OF PREPRINTED OR FIELD-MARKED TAGS.

m. MANUFACTURERS:
- WEIDMULLER, INC.
- IDEAL
- ELECTROVERT USA CORP.

C. MAGNETIC CONTROL RELAY

a. INDUSTRIAL CONTROL WITH FIELD CONVERTIBLE CONTACTS RATED 10 AMPS CONTINUOUS, 7,200VA \ MAKE, 720VA BREAK.

b. NEMA ICS 2, DESIGNATION: A600 (600 VOLTS).

c. TIME DELAY RELAY ATTACHMENT: PNEUMATIC TYPE, TIMER ADJUSTABLE FROM 0.2 SECOND TO 60 SECONDS (MINIMUM).

d. LATCHING ATTACHMENT: MECHANICAL LATCH, HAVING UNLATCHING COIL AND COIL CLEARING CONTACTS.

e. MANUFACTURERS AND PRODUCTS: EATON/CUTLER-HAMMER; TYPE M600.

D. TIME DELAY RELAY

a. INDUSTRIAL RELAY WITH CONTACTS RATED 5 AMPS CONTINUOUS, 3,600VA MAKE, 360VA BREAK.

b. NEMA ICS 2 DESIGNATION: B150 (150 VOLTS).

c. SOLID-STATE ELECTRONIC, FIELD CONVERTIBLE ON/OFF DELAY.

d. ONE NORMALLY OPEN AND ONE NORMALLY CLOSED CONTACT (MINIMUM).

e. REPEAT ACCURACY PLUS OR MINUS 2 PERCENT.

f. TIMER ADJUSTMENT FROM 1 SECOND TO 60 SECONDS, UNLESS OTHERWISE INDICATED ON DRAWINGS.

g. MANUFACTURERS AND PRODUCTS: EATON/CUTLER-HAMMER.

E. RESET TIMER

a. DRIVE: SYNCHRONOUS MOTOR, SOLENOID-OPERATED CLUTCH.

b. MOUNTING: SEMIFLUSH PANEL.

c. CONTACTS: 10 AMPS, 120 VOLTS.

d. MANUFACTURERS AND PRODUCTS:
- EAGLE SIGNAL CONTROLS; BULLETIN 125.
- AUTOMATIC TIMING AND CONTROLS; BULLETIN 305.

F. ELAPSED TIME METER

a. DRIVE: SYNCHRONOUS MOTOR.

b. RANGE: 0 HOUR TO 99,999.9 HOURS, NONRESET TYPE.

c. MOUNTING: SEMIFLUSH PANEL.

d. MANUFACTURERS AND PRODUCTS:
- GENERAL ELECTRIC CO.; TYPE 240, 21/2INCH BIG LOOK.
- EAGLE SIGNAL CONTROLS; BULLETIN 705.

G. MAGNETIC CONTACTOR

a. UL LISTED.

b. ELECTRICALLY OPERATED, ELECTRICALLY HELD.

c. MAIN CONTACTS:

d. POWER DRIVEN IN ONE DIRECTION WITH MECHANICAL SPRING DROPOUT.

e. SILVER ALLOY WITH WIPING ACTION AND ARC QUENCHERS.

f. CONTINUOUS-DUTY, RATED 20 AMPERES.

g. POLES: FOUR.

h. CONTROL: TWO WIRE.

i. AUXILIARY CONTACTS: QUANTITY AS SHOWN RATED 7200VA MAKE, 720VA BREAK, AT 600V, A600 PER NEMA ICS 5.

j. MANUFACTURERS AND PRODUCTS: EATON/CUTLER-HAMMER; CLASS A201.

H. PHASE MONITOR RELAY

a. VOLTAGE AND PHASE MONITOR RELAY SHALL DROP OUT ON LOW VOLTAGE, VOLTAGE UNBALANCE, LOSS OF PHASE, OR PHASE REVERSAL.

b. CONTACTS: SINGLE-POLE, DOUBLE-THROW, 10 AMPERES, 120/240V AC. WHERE ADDITIONAL \ CONTACTS ARE SHOWN OR REQUIRED, PROVIDE MAGNETIC CONTROL RELAYS.

c. ADJUSTABLE TRIP AND TIME DELAY SETTINGS.

d. TRANSIENT PROTECTION: 1,000V AC.

e. MOUNTING: MULTIPIN PLUG-IN SOCKET BASE.

f. MANUFACTURER AND PRODUCT: AUTOMATIC TIMING AND CONTROLS; SLD SERIES.

I. SUPPORT AND FRAMING CHANNELS

a. MATERIAL: EXTRUDED FROM TYPE 6063T6 ALUMINUM ALLOY.

b. FITTINGS FABRICATED FROM ALLOY 5052H32.

c. MANUFACTURERS:
- BLINE SYSTEMS, INC.
- UNISTRUT CORP.
- AICKINSTRUT.

J. FIRESTOPS

a. PROVIDE UL 1479 CLASSIFIED HOURLY FIRE-RATING \ EQUAL TO, OR GREATER THAN, THE ASSEMBLY PENETRATED.

b. PREVENT THE PASSAGE OF COLD SMOKE, TOXIC FUMES, AND WATER BEFORE AND AFTER EXPOSURE TO FLAME.

c. SEALANTS AND ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES IN ACCORDANCE WITH ASTM E814, BY UNDERWRITERS LABORATORIES INC., OR OTHER TESTING AND INSPECTION AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

d. FORMULATED FOR USE IN THROUGH-PENETRATION FIRE STOPPING AROUND CABLES, CONDUIT, PIPES, AND DUCT PENETRATIONS THROUGH FIRE-RATED \ WALLS AND FLOORS.

e. FILL, VOID, OR CAVITY MATERIAL: 3M BRAND FIRE BARRIER CAULK CP25, PUTTY 303, WRAP/STRIP FS195, COMPOSITE SHEET CS195 AND PENETRATION SEALING SYSTEMS 7902 AND 7904 SERIES.

f. TWO-PART, FOAMED-IN-PLACE, SILICONE SEALANT: DOW CORNING CORP. FIRE STOP FOAM, GENERAL ELECTRIC CO. PENSIL 851.

**26.05.70 ELECTRICAL SYSTEMS ANALYSIS**

A. GENERAL STUDY REQUIREMENTS

a. EQUIPMENT AND COMPONENT TITLES USED IN THE STUDIES SHALL BE IDENTICAL TO EQUIPMENT AND COMPONENT TITLES SHOWN ON DRAWINGS.

b. PERFORM STUDIES USING SKM POWER TOOLS FOR WINDOWS.

c. PERFORM COMPLETE FAULT CALCULATIONS FOR EACH PROPOSED SOURCE COMBINATION.

d. UTILIZE PROPOSED FAULT CALCULATIONS FOR STUDY FROM CONTRACT DOCUMENTS.

B. SHORT CIRCUIT STUDY

a. GENERAL;
- PREPARE IN ACCORDANCE WITH IEEE 399.
- USE CABLE IMPEDANCES BASED ON COPPER CONDUCTORS.
- USE BUS IMPEDANCES BASED ON COPPER BUS BARS.
- USE CABLE AND BUS RESISTANCES CALCULATED AT 25 DEGREES C.
- USE 600VOLT CABLE REACTANCES BASED ON USE OF TYPICAL DIMENSIONS OF XHHW-2 CONDUCTORS.
- USE TRANSFORMER IMPEDANCES 92.5 PERCENT OF "NOMINAL" IMPEDANCE BASED ON TOLERANCES SPECIFIED IN IEEE C57.12.00.

b. PROVIDE:
- CALCULATION METHODS AND ASSUMPTIONS.
- TYPICAL CALCULATION.
- TABULATIONS OF CALCULATED QUANTITIES.
- RESULTS, CONCLUSIONS, AND RECOMMENDATIONS.
- SELECTED BASE PER UNIT QUANTITIES.
- ONE-LINE DIAGRAMS.
- SOURCE IMPEDANCE DATA, INCLUDING ELECTRIC UTILITY SYSTEM AND MOTOR FAULT CONTRIBUTION CHARACTERISTICS.
- IMPEDANCE DIAGRAMS.
- ZERO-SEQUENCE IMPEDANCE DIAGRAMS.

c. CALCULATE SHORT CIRCUIT INTERRUPTING AND MOMENTARY (WHEN APPLICABLE) DUTIES FOR AN ASSUMED THREE-PHASE BOLTED FAULT AT EACH:
- ELECTRIC UTILITY'S POINT OF SERVICE
- SERVICE-ENTRANCE EQUIPMENT
- MOTOR STARTER ENCLOSURE
- 480VAC POWER DISTRIBUTION PANELBOARD
- 240/120VAC DISTRIBUTION PANELBOARD

d. PROVIDE BOLTED LINE-TO-GROUND FAULT CURRENT STUDY FOR AREAS AS DEFINED FOR THREE-PHASE BOLTED FAULT SHORT CIRCUIT STUDY.

e. PROVIDE BOLTED LINE-TO-LINE FAULT CURRENT STUDY FOR AREAS AS DEFINED FOR THREE-PHASE BOLTED FAULT SHORT CIRCUIT STUDY.



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
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PLOT DATE: 1/11/2021 PLOT TIME: 5:03:47 PM

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
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DATE: DECEMBER 2020

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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

RIVERTOWN WELLS 1, 2, 3
ELECTRICAL SPECIFICATIONS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9910-ES-001_D3270100.dgn

SHEET NO.
ES-1

ISSUED FOR BID

f. VERIFY:
- EQUIPMENT AND PROTECTIVE DEVICES ARE APPLIED WITHIN THEIR RATINGS.
- ADEQUACY OF SWITCHBOARD AND VFD INSTALLATION.
- ADEQUACY OF TRANSFORMER WINDINGS TO WITHSTAND SHORT CIRCUIT STRESSES.
- CABLE SIZES FOR ABILITY TO WITHSTAND SHORT CIRCUIT HEATING, IN ADDITION TO NORMAL LOAD CURRENTS.

g. TABULATIONS:
- GENERAL DATA:
  - SHORT CIRCUIT REACTANCES OF ROTATING MACHINES.
  - CABLE AND CONDUIT MATERIAL DATA.
  - BUS DATA.
  - TRANSFORMER DATA.
  - CIRCUIT RESISTANCE AND REACTANCE VALUES.
- SHORT CIRCUIT DATA (FOR EACH SOURCE COMBINATION):
  - FAULT IMPEDANCES.
  - X TO R RATIOS.
  - ASYMMETRY FACTORS.
  - MOTOR CONTRIBUTIONS.
  - SHORT CIRCUIT KVA.
  - SYMMETRICAL AND ASYMMETRICAL FAULT CURRENTS.
- EQUIPMENT EVALUATION:
  - EQUIPMENT BUS BRACING, EQUIPMENT SHORT CIRCUIT RATING, TRANSFORMER, CABLE, BUSWAY.
  - MAXIMUM FAULT CURRENT AVAILABLE.

h. WRITTEN SUMMARY:
- SCOPE OF STUDIES PERFORMED.
- EXPLANATION OF BUS AND BRANCH NUMBERING SYSTEM.
- PREVAILING CONDITIONS.
- SELECTED EQUIPMENT DEFICIENCIES.
- RESULTS OF SHORT CIRCUIT STUDY.
- COMMENTS OR SUGGESTIONS.

i. SUGGEST CHANGES AND ADDITIONS TO EQUIPMENT RATING AND/OR CHARACTERISTICS.

j. NOTIFY ENGINEER IN WRITING OF EXISTING CIRCUIT PROTECTIVE DEVICES IMPROPERLY RATED FOR NEW FAULT CONDITIONS.

k. REVISE DATA FOR "AS-INSTALLED"CONDITION.

C. PROTECTIVE DEVICE COORDINATION STUDY

a. GENERAL:
- PREPARE IN ACCORDANCE WITH IEEE 242.
- PROPOSED PROTECTIVE DEVICE COORDINATION TIME-CURRENT CURVES FOR DISTRIBUTION SYSTEM, GRAPHICALLY DISPLAYED ON CONVENTIONAL LOG LOG CURVE SHEETS.
  - PROVIDE SEPARATE CURVE SHEETS FOR PHASE AND GROUND FAULT COORDINATION FOR EACH SCENARIO.
  - EACH CURVE SHEET TO HAVE TITLE AND ONE LINE DIAGRAM THAT APPLIES TO SPECIFIC PORTION OF SYSTEM ASSOCIATED WITH TIME CURRENT CURVES ON THAT SHEET. LIMIT NUMBER OF DEVICES SHOWN TO FOUR TO SIX.
  - IDENTIFY DEVICE ASSOCIATED WITH EACH CURVE BY MANUFACTURER TYPE, FUNCTION, AND, IF APPLICABLE, RECOMMENDED TAP, TIME DELAY, INSTANTANEOUS AND OTHER SETTINGS RECOMMENDED.
  - TERMINATE DEVICE CHARACTERISTIC CURVES AT A POINT REFLECTING MAXIMUM SYMMETRICAL OR ASYMMETRICAL FAULT CURRENT TO WHICH DEVICE IS EXPOSED.
  - APPLY MOTOR PROTECTION METHODS THAT COMPLY WITH NFPA 70.

b. PLOT CHARACTERISTICS ON CURVE SHEETS:
- ELECTRIC UTILITY'S RELAYS.
- ELECTRIC UTILITY'S FUSES INCLUDING MANUFACTURER'S MINIMUM MELT, TOTAL CLEARING, TOLERANCE, AND DAMAGE BANDS.
- MEDIUM-VOLTAGE EQUIPMENT RELAYS.
- MEDIUM-VOLTAGE AND LOW-VOLTAGE FUSES INCLUDING MANUFACTURER'S MINIMUM MELT, TOTAL CLEARING, TOLERANCE, AND DAMAGE BANDS.
- LOW-VOLTAGE EQUIPMENT CIRCUIT BREAKER TRIP DEVICES, INCLUDING MANUFACTURER'S TOLERANCE BANDS.
- PERTINENT TRANSFORMER FULL-LOAD CURRENTS AT 100 PERCENT.
- TRANSFORMER MAGNETIZING INRUSH CURRENTS.
- TRANSFORMER DAMAGE CURVES; APPROPRIATE FOR SYSTEM OPERATION AND LOCATION.
- ANSI TRANSFORMER WITHSTAND PARAMETERS.
- SIGNIFICANT SYMMETRICAL AND ASYMMETRICAL FAULT CURRENTS.
- MOTOR OVERLOAD RELAY SETTINGS.
- GROUND FAULT PROTECTIVE DEVICE SETTINGS.
- OTHER SYSTEM LOAD PROTECTIVE DEVICES FOR LARGEST BRANCH CIRCUIT AND FEEDER CIRCUIT BREAKER IN EACH MOTOR CONTROL CENTER.

c. PRIMARY PROTECTIVE DEVICE SETTINGS FOR DELTA-WYE CONNECTED TRANSFORMER
- SECONDARY LINE-TO-GROUND FAULT PROTECTION: PRIMARY PROTECTIVE DEVICE OPERATING BAND WITHIN TRANSFORMER'S CHARACTERISTICS CURVE, INCLUDING A POINT EQUAL TO 58 PERCENT OF IEEE C57.12.00 WITHSTAND POINT.
- SECONDARY LINE-TO-LINE FAULTS: 16 PERCENT CURRENT MARGIN BETWEEN PRIMARY PROTECTIVE DEVICE AND ASSOCIATED SECONDARY DEVICE CHARACTERISTIC CURVES.

d. TABULATE RECOMMENDED PROTECTIVE DEVICE SETTINGS:
- RELAYS:
  - CURRENT TAP
  - TIME DIAL
  - INSTANTANEOUS PICKUP
  - ELECTRONIC SETTINGS DATA FILE
- CIRCUIT BREAKERS
  - ADJUSTABLE PICKUPS
  - ADJUSTABLE TCC
  - ADJUSTABLE TIME DELAYS
  - ADJUSTABLE INSTANTANEOUS PICKUPS
  - $I^2T$ IN/OUT
  - ELECTRONIC SETTINGS DATA FILE

e. WRITTEN SUMMARY
- SCOPE OF SERVICES PROVIDED
- SUMMARY OF PROTECTIVE DEVICE COORDINATION METHODOLOGY
- PREVAILING CONDITIONS
- SELECTED EQUIPMENT DEFICIENCIES
- RESULTS OF COORDINATION STUDY
- APPENDIX OF COMPLETE RELAY AND CIRCUIT BREAKER ELECTRONIC SETTING FILES.
- COMMENTS OR SUGGESTIONS

D. ARC FLASH STUDY

a. PERFORM ARC FLASH HAZARD STUDY AFTER SHORT CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDY HAS BEEN COMPLETED.

b. PERFORM ARC FLASH STUDY IN ACCORDANCE WITH NFPA 70E, OSHA 29 CFR, PART 1910 SUBPART S, AND IEEE 1584.

c. BASE CALCULATION: FOR EACH MAJOR PART OF ELECTRICAL POWER SYSTEM, DETERMINE THE FOLLOWING:
- ARC FLASH HAZARD AND INCIDENT ENERGY.
- SHOCK HAZARD.
- FLASH HAZARD PROTECTION BOUNDRY.
- LIMITED APPROACH BOUNDARY.
- RESTRICTED APPROACH BOUNDARY.
- PROHIBITED APPROACH BOUNDARY.
- INCIDENT ENERGY LEVEL.
- PERSONAL PROTECTION EQUIPMENT (PPE) HAZARD/RISK CATEGORY.
- TYPE OF PPE REQUIRE.

d. PRODUCE ARC FLASH WARNING LABELS THAT LIST ITEMS IN PARAGRAPH BASE CALCULATION, INCLUSIVE OF BUS NAME, BUS VOLTAGE AND CALCULATION METHOD. LABEL TO BE PRINTED IN MULTICOLOR ADHESIVE-BACKED LABELS AND INSTALL ON EXTERIOR OF PANELS.

e. PRODUCE BUS DETAIL SHEETS THAT LIST ITEM IN PARAGRAPH BASE CALCULATION, INCLUSIVE OF BUS NAME, UPSTREAM PROTECTIVE DEVICE NAME, AND BUS LINE-TO-LINE VOLTAGE.

f. PRODUCE ARC FLASH EVALUATION SUMMARY SHEET.

g. ANALYZE SHORT CIRCUIT, PROTECTIVE DEVICE COORDINATION, AND ARC FLASH CALCULATIONS AND HIGHLIGHT EQUIPMENT THAT IS DETERMINED TO BE UNDERRATED OR CAUSES INCIDENT ENERGY VALUES GREATER THAN 8 CAL/CM$^2$. PROPOSE APPROACHES TO REDUCE ENERGY LEVELS.

h. PREPARE REPORT SUMMARIZING ARC FLASH STUDY WITH CONCLUSIONS AND RECOMMENDATIONS WHICH MAY AFFECT INTEGRITY OF ELECTRIC POWER DISTRIBUTION SYSTEM.

**26.20.00 LOW VOLTAGE AC INDUCTION MOTORS**

A. MANUFACTURERS SHALL BE GENERAL ELECTRIC, SIEMENS, BALDOR, U.S. ELECTRIC OR TECO-WESTINGHOUSE.

B. REFER TO INDUCTION MOTOR DATA SHEET INCLUDED AT THE END OF SPECIFICATION 44.42.56.03.

C. GENERAL:

a. FOR MULTIPLE UNITS OF THE SAME TYPE OF EQUIPMENT, FURNISH IDENTICAL MOTORS AND ACCESSORIES OF A SINGLE MANUFACTURER. IN ORDER TO OBTAIN SINGLE SOURCE RESPONSIBILITY, USE A SINGLE SUPPLIER TO PROVIDE DRIVE MOTOR, ITS DRIVEN EQUIPMENT, AND SPECIFIED MOTOR ACCESSORIES.

b. MEET GENERAL REQUIREMENTS OF NEMA MG 1, AND REQUIREMENTS OF PART 31 FOR INVERTER DUTY MOTORS.

c. LIFTING LUGS ON MOTORS WEIGHING 100 POUNDS OR MORE.

d. OPERATING CONDITIONS SHALL BE FOR A MAXIMUM AMBIENT TEMPERATURE OF 40°C WITHOUT A REDUCTION IN NAMEPLATE RATED HORSEPOWER OR RATED TEMPERATURE RISE.

D. HORSEPOWER RATING AS SHOWN ON THE PLANS.

E. DUAL SERVICE FACTOR: 1.15 FOR CONVENTIONAL OPERATION, 1.00 FOR INVERTER DUTY OPERATION.

F. SYSTEM NOMINAL OPERATING VOLTAGE SHALL BE 480VAC, 3P/3W, 60HZ.

G. EFFICIENCY AND POWER FACTOR RATING SHALL BE AS REQUIRED BY NEMA MG 1 FOR PREMIUM EFFICIENCY MOTORS.

H. LOCKED ROTOR RATING SHALL BE CODE F OR LOWER.

I. INSULATION SYSTEM SHALL BE EITHER CLASS B OR CLASS F AND MOTOR NAMEPLATE AND OPERATING CONDITIONS.

J. MOTOR ENCLOSURE SHALL BE TYPE WP-1.

K. TERMINAL BOXES:

A. ONE TERMINAL BOX FOR POWER CONDUCTORS, WINDING THERMAL PROTECTION CONDUCTORS, AND SPACE HEATER CONDUCTORS INCLUSIVELY.

B. OVERSIZED MAIN TERMINAL BOXES FOR MOTOR, WITH 1-1/2"CONDUIT OPENING IN THE BOTTOM.

C. DIAGONNALY SPLIT, ROTATABLE TO EACH OF FOUR, 90-DEG POSITIONS. THREADED HUBS FOR CONDUIT ATTACHMENT.

D. FURNISH GASKETS BETWEEN BOX HALVES AND BETWEEN BOX AND MOTOR FRAME.

E. TERMINAL FOR EQUIPMENT GROUND CONNECTION.

L. BEARINGS AND LUBRICATION:

A. THRUST BEARINGS ANTIFRICTION, STD LUBRICATION, MIN. 50,000HRS L-10 BEARING LIFE.

B. GUIDE BEARINGS STD BEARING TYPE AND LUBRICATION, MIN. 100,000HRS L-10 BEARING LIFE.

C. BEARING ISOLATION ELECTRICALLY ISOLATED BEARINGS FOR INVERTER DUTY OPERATION.

M. NOISE SHALL NOT EXCEED PUBLISHED VALUES FOR NEMA MG 1, OR 3 DBA HIGHER UNDER INTERVTER DUTY OPERATION.

N. EQUIPMENT FINISH SHALL BE MANUFACTURER'S STANDARD FOR THE SERVICE CONDITIONS.

O. FURNISH CORROSION-RESISTANT SCREEN OVER AIR OPENINGS AND ATTACH WITH S/S SCREWS.

P. WINDING THERMAL PROTECTION SHALL BE BI-METAL DISK OR ROD TYPE THERMOSTATS EMBEDED IN THE STATOR WINDINGS. SHALL BE AUTOMATIC RESET CONTACTS RATED 120VAC, 5AMP MIN OPENING ON HIGH WINDING TEMPERATURE. WIRED TO COMMON TERMINAL BOX IN 'K' ABOVE.

Q. SPACE HEATERS SHALL BE RATED 120VAC, AND SIZED FOR THE MOTOR FRAME. WIRED TO COMMON TERMINAL BOX IN 'K' ABOVE.

**3.01EXECUTION - ELECTRICAL:**
**26.05.02 BASIC ELECTRICAL REQUIREMENTS**

A. GENERAL
a. ELECTRICAL DRAWINGS SHOW GENERAL LOCATIONS OF EQUIPMENT, DEVICES, AND RACEWAY, UNLESS SPECIFICALLY DIMENSIONED. CONTRACTOR SHALL BE RESPONSIBLE FOR ACTUAL LOCATION OF EQUIPMENT AND DEVICES AND FOR PROPER ROUTING AND SUPPORT OF RACEWAYS, SUBJECT TO APPROVAL OF ENGINEER.

b. CHECK APPROXIMATE LOCATIONS OF LUMINAIRES, WIRING DEVICES, EQUIPMENT, AND OTHER ELECTRICAL SYSTEM COMPONENTS SHOWN ON DRAWINGS FOR CONFLICTS WITH OPENINGS, STRUCTURAL MEMBERS, COMPONENTS OF OTHER SYSTEMS, AND EQUIPMENT HAVING FIXED LOCATIONS. IN THE EVENT OF CONFLICTS, NOTIFY ENGINEER IN WRITING.

c. INSTALL WORK IN ACCORDANCE WITH NECA STANDARD OF INSTALLATION, UNLESS OTHERWISE SPECIFIED.

d. KEEP OPENINGS IN BOXES AND EQUIPMENT CLOSED DURING CONSTRUCTION.

e. LAY OUT WORK CAREFULLY IN ADVANCE. DO NOT CUT OR NOTCH ANY STRUCTURAL MEMBER OR BUILDING SURFACE WITHOUT SPECIFIC APPROVAL OF ENGINEER. CAREFULLY PERFORM CUTTING, CHANNELING, CHASING, OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS, PAVING, OR OTHER SURFACES REQUIRED FOR THE INSTALLATION, SUPPORT, OR ANCHORAGE OF CONDUIT, RACEWAYS, OR OTHER ELECTRICAL MATERIALS AND EQUIPMENT. FOLLOWING SUCH WORK, RESTORE SURFACES TO ORIGINAL CONDITION.

B. NAMEPLATES, SIGNS AND LABELS
a ARC FLASH PROTECTION WARNING SIGNS
- FIELD MARK SERVICE-ENTRANCE ENCLOSURES, MOTOR CONTROL ENCLOSURES, PANELBOARDS AND DISCONNECT SWITCHES TO WARN QUALIFIED PERSONS OF POTENTIAL ARC FLASH HAZARDS. LOCATE MARKING TO BE CLEARLY VISIBLE TO PERSONS PRIOR TO OPENING ENERGIZED EQUIPMENT.
- USE ARC FLASH HAZARD BOUNDARY, ENERGY LEVEL, PPE LEVEL AND DESCRIPTION, SHOCK HAZARD, BOLTED FAULT CURRENT, AND EQUIPMENT NAME, FROM STUDY REQUIRED IN SECTION 26 05 70, ELECTRICAL SYSTEMS ANALYSIS AS BASIS FOR WARNING SIGNS.

b. MULTIPLE POWER SUPPLY SIGN: INSTALL PERMANENT PLAQUE OR DIRECTORY AT EACH SERVICE DISCONNECT LOCATION DENOTING OTHER SERVICES, FEEDERS, AND BRANCH CIRCUITS SUPPLYING THE INSTALLATION, AND THE AREA SERVED BY EACH.

c. EQUIPMENT NAMEPLATES:
- FURNISH AND INSTALL NAMEPLATES TO IDENTIFY ALL ELECTRICAL EQUIPMENT BY ITS EQUIPMENT DESIGNATION INCLUDING SERCICE-ENTRANCE ENCLOSURE, MOTOR CONTROL ENCLOSURE, PANELBOARDS, TRANSFORMERS, TERMINAL JUNCTION BOXES, DISCONNECT SWITCHES, SCADA PANEL, AND INSTRUMENTATION DISPLAYS.
- THE SERVICE-ENTRANCE ENCLOSURE, MOTOR CONTROL ENCLOSURE AND PANELBOARD NAMEPLATES SHALL FURTHER INCLUDE OPERATIONAL VOLTAGE AND PHASES.

C. CLEANING AND TOUCHUP PAINTING

a. CLEANING: THROUGHOUT THE WORK, CLEAN INTERIOR AND EXTERIOR OF DEVICES AND EQUIPMENT BY REMOVING DEBRIS AND VACUUMING.

b. TOUCHUP SCRATCHES, SCRAPES AND CHIPS ON EXTERIOR AND INTERIOR SURFACES OF DEVICES AND EQUIPMENT WITH FINISH MATCHING TYPE, COLOR, AND CONSISTENCY AND TYPE OF SURFACE OF ORIGINAL FINISH.

c. IF EXTENSIVE DAMAGE IS DONE TO EQUIPMENT PAINT SURFACES, REFINISH ENTIRE EQUIPMENT IN A MANNER THAT PROVIDES A FINISH EQUAL TO OR BETTER THAN FACTORY FINISH, THAT MEETS REQUIREMENTS OF SPECIFICATION, AND IS ACCEPTABLE TO ENGINEER.

D. PROTECTION FOLLOWING INSTALLATION

a. PROTECT MATERIALS AND EQUIPMENT FROM CORROSION, PHYSICAL DAMAGE, AND EFFECTS OF MOISTURE ON INSULATION AND CONTACT SURFACES.

**26.05.04 BASIC ELECTRICALMATERIALS AND METHODS**

A. GENERAL

a. INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

B. SUPPORT AND FRAMING CHANNEL

a. INSTALL WHERE REQUIRED FOR MOUNTING AND SUPPORTING ELECTRICAL EQUIPMENT, RACEWAY, AND CABLE TRAY SYSTEMS.
b. CHANNEL TYPE: OUTDOOR, NON-CORROSIVE LOCATIONS SHALL BE ALUMINUM.

c. PAINT CUT ENDS PRIOR TO INSTALLATION WITH THE FOLLOWING RUST INHIBITING EPOXY OR ACRYLIC PAINT FOR PAINTED CHANNEL, AND PVC PATCH FOR PVC-COATED CHANNEL.

C. FIRESTOP

a. INSTALL IN STRICT CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS. COMPLY WITH INSTALLATION REQUIREMENTS ESTABLISHED BY TESTING AND INSPECTING AGENCY.

b. SEALANT: INSTALL SEALANT, INCLUDING FORMING, PACKING, AND OTHER ACCESSORY MATERIALS, TO FILL OPENINGS AROUND ELECTRICAL SERVICES PENETRATING FLOORS AND WALLS. TO PROVIDE FIRESTOPS WITH FIRE-RESISTANCE RATINGS INDICATED FOR FLOOR OR WALL ASSEMBLY IN WHICH PENETRATION OCCURS.

**26.05.04 CONDUCTORS**

A. GENERAL

a. CONDUCTOR INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

b. DO NOT EXCEED CABLE MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM PULLING TENSIONS AND MINIMUM BENDING RADII.

c. TERMINATE CONDUCTORS AND CABLES, UNLESS OTHERWISE INDICATED.

d. TIGHTEN SCREWS AND TERMINAL BOLTS IN ACCORDANCE WITH UL 486A486B FOR COPPER CONDUCTORS.

e. CABLE LUGS: PROVIDE WITH CORRECT NUMBER OF HOLES, BOLT SIZE, AND CENTER-TO-CENTER SPACING AS REQUIRED BY EQUIPMENT TERMINALS.

f. REAM, REMOVE BURRS, AND CLEAR INTERIOR OF INSTALLED CONDUIT BEFORE PULLING WIRES OR CABLES.

B. POWER CONDUCTOR COLOR CODING

a. 6 AWG AND LARGER: APPLY GENERAL PURPOSE, FLAME RETARDANT TAPE AT EACH END, AND AT ACCESSIBLE LOCATIONS WRAPPED AT LEAST SIX FULL OVERLAPPING TURNS, COVERING AREA 1-1/2 INCHES TO 2 INCHES WIDE.

b. 8 AWG AND SMALLER: PROVIDE COLORED CONDUCTORS.

c. 480/277VAC, 3P/4W: A-BROWN / B-ORANGE / C-YELLOW / NEU-WHITE / EGC-GREEN.

d. 208/120VAC, 3P/4W: A-BLACK / B-RED / C-BLUE / NEU-WHITE / EGC-GREEN.

e. 240/120VAC, 3P/4W: A-BLACK / B-ORANGE (HIGH LEG) / C-BLUE / GND PHASE-WHITE / EGC-GREEN

f. 240/120VAC, 1P/3W: H1-BLACK / H2-RED / GND PHASE-WHITE / EGC-GREEN

C. CIRCUIT IDENTIFICATION

a. IDENTIFY POWER, INSTRUMENTATION, AND CONTROL CONDUCTOR CIRCUITS AT EACH TERMINATION, AND IN ACCESSIBLE LOCATIONS SUCH AS MANHOLES, HANDHOLES, PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, PULL BOXES, AND TERMINAL BOXES.

b. CIRCUITS APPEARING IN CIRCUIT SCHEDULES: IDENTIFY USING CIRCUIT SCHEDULE DESIGNATIONS.

c. ASSIGN CIRCUIT NAME BASED ON DEVICE OR EQUIPMENT AT LOAD END OF CIRCUIT. WHERE THIS WOULD RESULT IN SAME NAME BEING ASSIGNED TO MORE THAN ONE CIRCUIT, ADD NUMBER OR LETTER TO EACH OTHERWISE IDENTICAL CIRCUIT NAME TO MAKE IT UNIQUE.

d. CONDUCTORS 3 AWG AND SMALLER: IDENTIFY WITH SLEEVES OR HEAT BOND MARKERS.

e. CABLES AND CONDUCTORS 2 AWG AND LARGER: IDENTIFY WITH MARKER PLATES OR TIE-ON CABLE MARKER TAGS, AND ATTACH WITH A NYLON CORD.

f. TAPED-ON MARKERS OR TAGS RELYING ON ADHESIVES NOT PERMITTED.

D. CONDUCTORS 600VAC AND BELOW

a. DO NOT SPLICE INCOMING SERVICE CONDUCTORS AND BRANCH POWER DISTRIBUTION CONDUCTORS 6 AWG AND LARGER, UNLESS SPECIFICALLY INDICATED OR APPROVED BY ENGINEER.

b. CONNECTIONS AND TERMINATIONS
– INSTALL WIRE NUTS ONLY ON SOLID CONDUCTORS. WIRE NUTS ARE NOT ALLOWED ON STRANDED CONDUCTORS.
- INSTALL NYLON SELF-INSULATED CRIMP CONNECTORS AND TERMINATORS FOR INSTRUMENTATION AND CONTROL, CIRCUIT CONDUCTORS.
– INSTALL SELF-INSULATED, SET SCREW WIRE CONNECTORS FOR TWO-WAY CONNECTION OF POWER CIRCUIT CONDUCTORS 12 AWG AND SMALLER.
- INSTALL UNINSULATED CRIMP CONNECTORS AND TERMINATORS FOR INSTRUMENTATION, CONTROL, AND POWER CIRCUIT CONDUCTORS 4 AWG THROUGH 2/0 AWG.
- INSTALL UNINSULATED, BOLTED, TWO-WAY CONNECTORS AND TERMINATORS FOR POWER CIRCUIT CONDUCTORS 3/0 AWG AND LARGER.
- INSTALL UNINSULATED TERMINATORS BOLTED TOGETHER ON MOTOR CIRCUIT CONDUCTORS 10 AWG AND LARGER.
- PLACE NO MORE THAN ONE CONDUCTOR IN ANY SINGLE-BARREL PRESSURE CONNECTION.
- INSTALL CRIMP CONNECTORS WITH TOOLS APPROVED BY CONNECTOR MANUFACTURER.
- INSTALL TERMINALS AND CONNECTORS ACCEPTABLE FOR TYPE OF MATERIAL USED.
- COMPRESSION LUGS SHALL BE ATTACHED WITH A TOOL SPECIFICALLY DESIGNED FOR PURPOSE. TOOL SHALL PROVIDE COMPLETE, CONTROLLED CRIMP AND SHALL NOT RELEASE UNTIL CRIMP IS COMPLETE. PLIER TYPE CRIMPERS NOT ALLOWED.

c. DO NOT USE SOLDERED MECHANICAL JOINTS.

d. SPLICES ARE NOT PERMITTED EXCEPT WHERE NOTED ON THE PLANS.

e. CAP SPARE CONDUCTORS WITH UL LISTED END CAPS.

f. WHERE CONDUCTORS PASS THROUGH OPENINGS OR OVER EDGES IN METAL ENCLOSURES, REMOVE BURRS, CHAMFER EDGES, AND INSTALL BUSHINGS AND PROTECTIVE STRIPS OF INSULATING MATERIAL TO PROTECT THE CONDUCTORS.

g. CONTROL AND INSTRUMENTATION WIRING
– WHERE TERMINALS PROVIDED WILL ACCEPT SUCH LUGS, TERMINATE CONTROL AND INSTRUMENTATION WIRING, EXCEPT SOLID THERMOCOUPLE LEADS, WITH INSULATED, LOCKING-FORK COMPRESSION LUGS.
– TERMINATE WITH METHODS CONSISTENT WITH TERMINALS PROVIDED, AND IN ACCORDANCE WITH TERMINAL MANUFACTURER'S INSTRUCTIONS.
– WHERE CONNECTIONS OF CABLES INSTALLED UNDER THIS SECTION ARE TO BE MADE UNDER SECTION 40 90 00, INSTRUMENTATION AND CONTROL FOR PROCESS SYSTEMS, LEAVE PIGTAILS OF ADEQUATE LENGTH FOR BUNDLED CONNECTIONS.

h. EXTRA CONDUCTOR LENGTH: FOR CONDUCTORS TO BE CONNECTED BY OTHERS, INSTALL MINIMUM 6 FEET OF EXTRA CONDUCTOR IN FREESTANDING PANELS AND MINIMUM 2 FEET IN OTHER ASSEMBLIES.

DATE: 01/2021
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

RIVERTOWN WELLS 1, 2, 3
ELECTRICAL SPECIFICATIONS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9910-ES-002_D3270100.dgn

SHEET NO.
ES-2

ISSUED FOR BID

**26.05.26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

A. GENERAL

a. GROUNDING SHALL BE IN COMPLIANCE WITH NFPA 70 AND IEEE C2.

b. GROUND ELECTRICAL SERVICE NEUTRAL AT SERVICE ENTRANCE EQUIPMENT WITH GROUNDING ELECTRODE CONDUCTOR TO GROUNDING ELECTRODE SYSTEM.

c. GROUND EACH SEPARATELY DERIVED SYSTEM NEUTRAL WITH COMMON GROUNDING ELECTRODE CONDUCTOR TO GROUNDING ELECTRODE SYSTEM.

d. BOND TOGETHER SYSTEM NEUTRALS, SERVICE EQUIPMENT ENCLOSURES, EXPOSED NONCURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAYS, GROUND CONDUCTOR IN RACEWAYS AND CABLES, RECEPTACLE GROUND CONNECTIONS, AND METAL PIPING SYSTEMS.

e. SHIELDED INSTRUMENTATION CABLES: GROUND SHIELD TO GROUND BUS AT POWER SUPPLY FOR ANALOG SIGNAL, AND EXPOSE SHIELD A MINIMUM 1 INCH AT TERMINATION AT FIELD INSTRUMENT AND APPLY HEAT SHRINK TUBE. DO NOT GROUND INSTRUMENTATION CABLE SHIELD AT MORE THAN ONE POINT.

B. WIRE CONNECTIONS

a. EQUIPMENT GROUNDING CONDUCTORS: INSTALL IN CONDUIT CONTAINING POWER CONDUCTORS AND CONTROL CIRCUITS ABOVE 50 VOLTS.

b. NONMETALLIC RACEWAYS AND FLEXIBLE TUBING: INSTALL EQUIPMENT GROUNDING CONDUCTOR CONNECTED AT BOTH ENDS TO NONCURRENT CARRYING GROUNDING BUS.

c. CONNECT GROUND CONDUCTORS TO RACEWAY GROUNDING BUSHINGS.

d. EXTEND AND CONNECT GROUND CONDUCTORS TO GROUND BUS IN ALL EQUIPMENT CONTAINING A GROUND BUS.

e. CONNECT ENCLOSURE OF EQUIPMENT CONTAINING GROUND BUS TO THAT BUS.

f. BOLT CONNECTIONS TO EQUIPMENT GROUND BUS.

g. BOND GROUNDING CONDUCTORS TO METALLIC ENCLOSURES AT EACH END, AND TO INTERMEDIATE METALLIC ENCLOSURES.

h. JUNCTION BOXES: FURNISH MATERIALS AND CONNECT TO EQUIPMENT GROUNDING SYSTEM WITH GROUNDING CLIPS MOUNTED DIRECTLY ON BOX, OR WITH 3/8INCH MACHINE SCREWS.

i. METALLIC EQUIPMENT ENCLOSURES: USE FURNISHED GROUND LUG; IF NONE FURNISHED, TAP EQUIPMENT HOUSING AND INSTALL SOLDERLESS TERMINAL CONNECTED TO BOX WITH MACHINE SCREW. FOR CIRCUITS GREATER THAN 20 AMPS USE MINIMUM 5/16INCH DIAMETER BOLT.

C. MOTOR GROUNDING

a. EXTEND EQUIPMENT GROUND BUS VIA GROUNDING CONDUCTOR INSTALLED IN MOTOR FEEDER RACEWAY; CONNECT TO MOTOR FRAME.

b. NONMETALLIC RACEWAYS AND FLEXIBLE TUBING: INSTALL AN EQUIPMENT GROUNDING CONDUCTOR CONNECTED AT BOTH ENDS TO NONCURRENT CARRYING GROUNDING BUS.

c. MOTORS 10 HP AND ABOVE: USE FURNISHED GROUND LUG IN MOTOR CONNECTION BOX; IF NONE FURNISHED, TAP MOTOR FRAME OR EQUIPMENT HOUSING; FURNISH COMPRESSION, ONEHOLE, LUG TYPE TERMINAL CONNECTED WITH MINIMUM 5/16INCH BRASS THREADED STUD WITH BOLT AND WASHER.

D. CIRCUITS 20 AMPS OR ABOVE: TAP MOTOR FRAME OR EQUIPMENT HOUSING; INSTALL SOLDERLESS TERMINAL WITH MINIMUM 5/16INCH DIAMETER BOLT.

D. GROUND RODS

a. INSTALL FULL LENGTH WITH CONDUCTOR CONNECTION AT UPPER END.

b. INSTALL WITH CONNECTION POINT BELOW FINISHED GRADE AS SHOWN ON THE DRAWINGS.

c. SPACE MULTIPLE GROUND RODS AS SHOWN ON THE DRAWINGS.

E. GROUNDING WELLS SHALL BE INSTALLED WITH THE RISER RING AND COVER FLUSH TO THE FINSHED GRADE OR SURFACE, WITH 6 INCHES OF CRUSHED ROCK IN THE BOTTOM OF EACH WELL.

F. METAL STRUCTURE GROUNDING

a. BOND METAL SHEATHING AND EXPOSED METAL VERTICAL STRUCTURAL ELEMENTS TO GROUNDING SYSTEM.

b. BOND ELECTRICAL EQUIPMENT SUPPORTED BY METAL PLATFORMS TO THE PLATFORMS.

C. PROVIDE ELECTRICAL CONTACT BETWEEN METAL FRAMES AND RAILINGS SUPPORTING PUSHBUTTON STATIONS, RECEPTACLES, AND INSTRUMENT CABINETS, AND RACEWAYS CARRYING CIRCUITS TO THESE DEVICES.

**26.05.33 RACEWAY AND BOXES**

A. GENERAL

a. COMPLY WITH NECA INSTALLATION STANDARDS.

b. CRUSHED OR DEFORMED RACEWAYS NOT PERMITTED.

c. MAINTAIN RACEWAY ENTIRELY FREE OF OBSTRUCTIONS AND MOISTURE.

d. IMMEDIATELY AFTER INSTALLATION, PLUG OR CAP RACEWAY ENDS WITH WATERTIGHT AND DUST-TIGHT SEALS UNTIL TIME FOR PULLING IN CONDUCTORS.

e. PAINT THREADS AND CUT ENDS, BEFORE ASSEMBLY OF FITTINGS OR PVC-COATED GALVANIZED CONDUIT INSTALLED IN EXPOSED OR DAMP LOCATIONS WITH ZINC-RICH PAINT OR LIQUID GALVANIZING COMPOUND.

f. METAL CONDUIT SHALL BE REAMED, BURRS REMOVED, AND CLEANED BEFORE INSTALLATION OF CONDUCTORS, WIRES, OR CABLES.

g. DO NOT INSTALL RACEWAYS IN CONCRETE EQUIPMENT PADS, FOUNDATIONS, OR BEAMS WITHOUT ENGINEER APPROVAL.

h. HORIZONTAL RACEWAYS INSTALLED UNDER SLABS SHALL LIE COMPLETELY UNDER SLAB, WITH NO PART EMBEDDED WITHIN SLAB.

i. INSTALL CONCEALED, EMBEDDED, AND BURIED RACEWAYS SO THAT THEY EMERGE AT RIGHT ANGLES TO SURFACE AND HAVE NO CURVED PORTION EXPOSED.

B. SUPPORT

a. SUPPORT FROM STRUCTURAL MEMBERS ONLY, AT INTERVALS NOT EXCEEDING ANSI/NFPA 70-2014 REQUIREMENTS. DO NOT EXCEED 8 FEET IN ANY APPLICATION. DO NOT SUPPORT FROM PIPING, PIPE SUPPORTS, OR OTHER RACEWAYS.

b. APPLICATION/TYPE OF CONDUIT STRAP: ALUMINUM.

c. NAILS OR WOODEN PLUGS INSERTED IN CONCRETE OR MASONRY FOR ATTACHING RACEWAY NOT PERMITTED. DO NOT WELD RACEWAYS OR PIPE STRAPS TO STEEL STRUCTURES. DO NOT USE WIRE IN LIEU OF STRAPS OR HANGERS.

d. SUPPORT ALUMINUM CONDUIT ON CONCRETE SURFACES WITH STAINLESS STEEL OR NONMETALLIC SPACERS, OR ALUMINUM OR NONMETALLIC FRAMING CHANNEL.

C. BENDS

a. INSTALL CONCEALED RACEWAYS WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE.

b. MAKE BENDS AND OFFSETS OF LONGEST PRACTICAL RADIUS. BENDS IN CONDUITS AND DUCTS BEING INSTALLED FOR FIBER OPTIC CABLES SHALL BE NOT LESS THAN 20 TIMES CABLE DIAMETER, 15 INCHES MINIMUM.

c. INSTALL WITH SYMMETRICAL BENDS OR CAST METAL FITTINGS.

d. AVOID FIELD-MADE BENDS AND OFFSETS, BUT WHERE NECESSARY, MAKE WITH ACCEPTABLE HICKEY OR BENDING MACHINE. DO NOT HEAT METAL RACEWAYS TO FACILITATE BENDING.

e. MAKE BENDS IN PARALLEL OR BANKED RUNS FROM SAME CENTER OR CENTERLINE WITH SAME RADIUS SO THAT BENDS ARE PARALLEL.

f. FACTORY ELBOWS MAY BE INSTALLED IN PARALLEL OR BANKED RACEWAYS IF THERE IS CHANGE IN PLANE OF RUN, AND RACEWAYS ARE SAME SIZE.

g. PVC CONDUIT:
- BENDS 30 DEGREES AND LARGER: PROVIDE FACTORY-MADE ELBOWS.
- 90 DEGREE BENDS: PROVIDE RIGID STEEL ELBOWS, PVC-COATED WHERE DIRECT BURIED.
- USE MANUFACTURER'S RECOMMENDED METHOD FOR FORMING SMALLER BENDS.

h. FLEXIBLE CONDUIT: DO NOT MAKE BENDS THAT EXCEED ALLOWABLE CONDUCTOR BENDING RADIUS OF CABLE TO BE INSTALLED OR THAT SIGNIFICANTLY RESTRICTS CONDUIT FLEXIBILITY.

D. PVC CONDUIT

a. SOLVENT WELDING: APPLY MANUFACTURER RECOMMENDED SOLVENT TO JOINTS, AND INSTALL IN ORDER THAT JOINT IS WATER TIGHT.

b. ADAPTERS: 1) PVC TO METALLIC FITTINGS: PVC TERMINAL TYPE, 2) PVC TO RIGID METAL CONDUIT OR IMC: PVC FEMALE ADAPTER, 3) BELLED-END CONDUIT: BEVEL UNBELLED END OF JOINT PRIOR TO JOINING.

E. PVC COATED REGID STEEL AND RIGID ALUMINUM CONDUIT

a. TOOLS AND EQUIPMENT USED IN CUTTING, BENDING, THREADING AND INSTALLATION OF PVCCOATED RIGID CONDUIT SHALL BE DESIGNED TO LIMIT DAMAGE TO PVC COATING.

b. PROVIDE PVC BOOT TO COVER EXPOSED THREADING.

F. TERMINATIONS AT ENCLOSURES

a. CAST METAL ENCLOSURE: INSTALL MANUFACTURER'S PREMOLDED INSULATING SLEEVE INSIDE METALLIC CONDUIT TERMINATING IN THREADED HUBS.

b. FREE STANDING ENCLOSURES: TERMINATE METAL CONDUIT ENTERING BOTTOM WITH GROUNDING BUSHING; PROVIDE GROUNDING JUMPER EXTENDING TO EQUIPMENT GROUND BUS OR GROUNDING PAD. TERMINATE PVC CONDUIT ENTERING BOTTOM WITH BELL END FITTINGS.

G. UNDERGROUND RACEWAYS

a. GRADE: MAINTAIN MINIMUM GRADE OF 4 INCHES IN 100 FEET, EITHER FROM ONE MANHOLE, HANDHOLE, OR PULL BOX TO THE NEXT, OR FROM A HIGH POINT BETWEEN THEM, DEPENDING ON SURFACE CONTOUR.

b. COVER: MAINTAIN MINIMUM 2 FEET COVER ABOVE CONDUIT UNLESS OTHERWISE SHOWN.

c. MAKE ROUTING CHANGES AS NECESSARY TO AVOID OBSTRUCTIONS OR CONFLICTS.

d. COUPLINGS: IN MULTIPLE CONDUIT RUNS, STAGGER SO COUPLINGS IN ADJACENT RUNS ARE NOT IN SAME TRANSVERSE LINE.

e. UNION TYPE FITTINGS NOT PERMITTED.

f. SUPPORT CONDUIT SO AS TO PREVENT BENDING OR DISPLACEMENT DURING BACKFILLING OR CONCRETE PLACEMENT.

g. BACKFILL: AS SPECIFIED IN SECTION 31 23 23.15, TRENCH BACKFILL. CONTROLLED LOW STRENGTH FILL IS AN ACCEPTABLE BEDDING AND PIPE ZONE MATERIAL. REFER TO DETAIL ON DRAWINGS.

H. UNDERSLAB RACEWAYS

a. MAKE ROUTING CHANGES AS NECESSARY TO AVOID OBSTRUCTIONS OR CONFLICTS.

b. SUPPORT RACEWAYS SO AS TO PREVENT BENDING OR DISPLACEMENT DURING BACKFILLING OR CONCRETE PLACEMENT.

c. INSTALL RACEWAYS WITH NO PART EMBEDDED WITHIN SLAB AND WITH NO INTERFERENCE WITH SLAB ON GRADE CONSTRUCTION.

d. UNDER SLAB RACEWAYS THAT EMERGE FROM BELOW SLAB TO TOP OF SLAB AS EXPOSED, SHALL BE LOCATED TO AVOID CONFLICTS WITH STRUCTURAL SLAB REBAR. COORDINATE RACEWAY STUB UPS WITH LOCATION OF STRUCTURAL REBAR.

E. FITTINGS:
- UNION TYPE FITTINGS ARE NOT PERMITTED.
- PROVIDE EXPANSION/DEFLECTION FITTINGS IN RACEWAY RUNS THAT EXIT BUILDING OR STRUCTURE BELOW SLAB. LOCATE FITTINGS 18 INCHES, MAXIMUM, BEYOND EXTERIOR WALL. RACEWAY TYPE BETWEEN BUILDING EXTERIOR WALL TO FITTING SHALL BE PVC-COATED RIGID STEEL.
- COUPLINGS: IN MULTIPLE RACEWAY RUNS, STAGGER SO COUPLINGS IN ADJACENT RUNS ARE NOT IN SAME TRAVERSE LINE.

I. OUTLET AND DEVICE BOXES

a. INSTALL PLUMB AND LEVEL.

b. INSTALL SUITABLE FOR CONDITIONS ENCOUNTERED AT EACH OUTLET OR DEVICE IN WIRING OR RACEWAY SYSTEM, SIZED TO MEET ANSI/NFPA 70-2014 REQUIREMENTS.

c. DEPTH: MINIMUM 2 INCHES, UNLESS OTHERWISE REQUIRED BY STRUCTURAL CONDITIONS. BOX EXTENSIONS NOT PERMITTED.

d. SWITCH AND RECEPTACLE: MINIMUM 2INCH BY 4INCH DEVICE BOX.

e. SUPPORTS: SUPPORT BOXES INDEPENDENTLY OF CONDUIT BY ATTACHMENT TO STRUCTURAL MEMBER.

J. JUNCTION AND PULL BOXES

a. INSTALL PLUMB AND LEVEL.

b. INSTALLED BOXES SHALL BE ACCESSIBLE.

c. USE OUTLET BOXES AS JUNCTION AND PULL BOXES WHEREVER POSSIBLE AND ALLOWED BY APPLICABLE CODES.

d. INSTALL PULL BOXES WHERE NECESSARY IN RACEWAY SYSTEM TO FACILITATE CONDUCTOR INSTALLATION.

e. MOUNTING HARDWARE: STAINLESS STEEL.

f. SUPPORT BOXES INDEPENDENTLY OF CONDUIT BY ATTACHMENT TO STRUCTURAL MEMBER.

K. MANHOLES AND HANDHOLES

a. EXCAVATE, SHORE, BRACE, BACKFILL, AND FINAL GRADE IN ACCORDANCE WITH SECTION 31 23 16, EXCAVATION, AND SECTION 31 23 23.15, TRENCH BACKFILL.

b. DO NOT INSTALL UNTIL FINAL RACEWAY GRADING HAS BEEN DETERMINED.

c. INSTALL SUCH THAT RACEWAY ENTERS AT NEARLY RIGHT ANGLE AND AS NEAR AS POSSIBLE TO END OF WALL, UNLESS OTHERWISE SHOWN.

d. IDENTIFICATION: FIELD STAMP COVERS WITH MANHOLE OR HANDHOLE NUMBER AS SHOWN. STAMPED NUMBERS TO BE 1INCH MINIMUM HEIGHT.

L. EMPTY RACEWAYS

a. PROVIDE PERMANENT, REMOVABLE CAP OVER EACH END.

b. PROVIDE PVC PLUG WITH PULL TAB FOR UNDERGROUND RACEWAYS WITH END BELLS.

c. PROVIDE NYLON PULL CORD.

d. IDENTIFY, AS SPECIFIED IN ARTICLE IDENTIFICATION DEVICES, WITH WATERPROOF TAGS ATTACHED TO PULL CORD AT EACH END, AND AT INTERMEDIATE PULL POINT.

M. RACEWAY IDENTIFICATION DEVICES

a. IDENTIFY ORIGIN AND DESTINATION.

b. FOR EXPOSED RACEWAYS, INSTALL TAGS AT EACH TERMINUS, NEAR MIDPOINT, AND AT MINIMUM INTERVALS OF EVERY 50 FEET, WHETHER IN CEILING SPACE OR SURFACE MOUNTED.

c. INSTALL TAGS AT EACH TERMINUS FOR CONCEALED RACEWAYS.

d. PROVIDE NYLON STRAP FOR ATTACHMENT.

e. WARNING TAPE: INSTALL APPROXIMATELY 12 INCHES ABOVE UNDERGROUND OR CONCRETEENCASED RACEWAYS. ALIGN PARALLEL TO, AND WITHIN 12 INCHES OF, CENTERLINE OF RUN.

N. PROTECTION OF INSTALLED WORK

a. PROTECT PRODUCTS FROM EFFECTS OF MOISTURE, CORROSION, AND PHYSICAL DAMAGE DURING CONSTRUCTION.

b. PROVIDE AND MAINTAIN MANUFACTURED WATERTIGHT AND DUST-TIGHT SEALS OVER CONDUIT OPENINGS DURING CONSTRUCTION.

c. TOUCH UP PAINTED CONDUIT THREADS AFTER ASSEMBLY TO COVER NICKS OR SCARS.

d. TOUCH UP COATING DAMAGE TO PVC-COATED CONDUIT WITH PATCHING COMPOUND APPROVED BY MANUFACTURER. COMPOUND SHALL BE KEPT REFRIGERATED ACCORDING TO MANUFACTURERS' INSTRUCTIONS UNTIL TIME OF USE.

**26.05.70 ELECTRICAL SYSTEMS ANALYSIS**

A. GENERAL

a. ADJUST RELAY AND PROTECTIVE DEVICE SETTINGS ACCORDING TO VALUES ESTABLISHED BY COORDINATION STUDY.

b. MAKE MINOR MODIFICATIONS TO EQUIPMENT AS REQUIRED TO ACCOMPLISH CONFORMANCE WITH SHORT CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDIES.

c. NOTIFY ENGINEER IN WRITING OF REQUIRED MAJOR EQUIPMENT MODIFICATIONS.

d. PROVIDE LAMINATED ONE-LINE DIAGRAMS (MINIMUM SIZE 11 INCHES BY 17 INCHES) TO POST ON INTERIOR OF ELECTRICAL ROOM DOORS.

e. PROVIDE ARC FLASH WARNING LABELS ON EXTERIOR OF EQUIPMENT AS SPECIFIED IN THIS SECTION.

**26.20.00 LOW-VOLTAGE AC INDUCTION MOTORS**

A. INSTALLATION

a. IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

b. ALIGN MOTOR CAREFULLY AND PROPERLY WITH DRIVEN EQUIPMENT.

c. SECURE EQUIPMENT TO MOUNTING SURFACE WITH ANCHOR BOLTS.

B. MANUFACTURER'S SERVICES

a. FURNISH MANUFACTURER'S REPRESENTATIVE AT SITE IN ACCORDANCE FOR INSTALLATION ASSISTANCE, INSPECTION, EQUIPMENT TESTING, AND STARTUP ASSISTANCE.

b. MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION.

**26.08.00 COMMISSIONING OF ELECTRICAL SYSTEMS**

A. GENERAL

a. TESTS AND INSPECTIONS SHALL ESTABLISH:
- ELECTRICAL EQUIPMENT IS OPERATIONAL WITHIN INDUSTRY AND MANUFACTURER'S TOLERANCES AND STANDARDS.
- INSTALLATION OPERATES PROPERLY.
- EQUIPMENT IS SUITABLE FOR ENERGIZATION.
- INSTALLATION CONFORMS TO REQUIREMENTS OF CONTRACT DOCUMENTS AND NFPA 70, NFPA 70E, AND NFPA 101.

b. PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH NETA ATS, INDUSTRY STANDARDS, AND MANUFACTURER'S RECOMMENDATIONS.

c. SET, TEST, AND CALIBRATE PROTECTIVE RELAYS, CIRCUIT BREAKERS, FUSES, POWER MONITORING METERS, AND OTHER APPLICABLE DEVICES IN ACCORDANCE WITH VALUES ESTABLISHED BY SHORT CIRCUIT, COORDINATION, AND HARMONICS STUDIES AS SPECIFIED IN SECTION 26 05 70, ELECTRICAL SYSTEMS ANALYSIS.

d. ADJUST MECHANISMS AND MOVING PARTS OF EQUIPMENT FOR FREE MECHANICAL MOVEMENT.

e. ADJUST AND SET ELECTROMECHANICAL ELECTRONIC RELAYS AND SENSORS TO CORRESPOND TO OPERATING CONDITIONS, OR AS RECOMMENDED BY MANUFACTURER.

f. VERIFY NAMEPLATE DATA FOR CONFORMANCE TO CONTRACT DOCUMENTS AND APPROVED SUBMITTALS.

g. REALIGN EQUIPMENT NOT PROPERLY ALIGNED AND CORRECT UNLEVELNESS.

h. TIGHTEN ACCESSIBLE BOLTED CONNECTIONS, INCLUDING WIRING CONNECTIONS, WITH CALIBRATED TORQUE WRENCH/SCREW DRIVER TO MANUFACTURER'S RECOMMENDATIONS, OR AS OTHERWISE SPECIFIED IN NETA ATS.

i. CLEAN CONTAMINATED SURFACES WITH CLEANING SOLVENTS AS RECOMMENDED BY MANUFACTURER.

j. PROVIDE PROPER LUBRICATION OF APPLICABLE MOVING PARTS.

k. INVESTIGATE AND REPAIR OR REPLACE ELECTRICAL ITEMS THAT FAIL TESTS, ACTIVE COMPONENTS NOT OPERATING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, DAMAGED ELECTRICAL EQUIPMENT.

l. REMOVE FOREIGN MATERIAL AND MOISTURE FROM ENCLOSURE INTERIOR, VACUUM AND WIPE CLEAN ENCLOSURE INTERIOR, REMOVE CORROSION FOUND ON METAL SURFACES, AND REPAIR/REPLACE AS DETERMINED BY OWNER DOOR AND PANEL SECTIONS HAVING DENTED SERVICES OR POOR FITTING. REPAIR/REPLACE IMPROPER LATCHING, LOCKING, NAD INTERLOCKING DEVICES AND REPLACE DAMAGED HARDWARE.

m. REPLACE FUSES AND CIRCUIT BREAKERS THAT DO NOT CONFORM TO SIZE AND TYPE REQUIRED.

B. CHECKOUT AND STARTUP

a. VOLTAGE FIELD TEST
- CHECK VOLTAGE AT POINT OF TERMINATION OF POWER COMPANY SUPPLY SYSTEM TO PROJECT WHEN INSTALLATION IS ESSENTIALLY COMPLETE AND IS IN OPERATION.
- CHECK VOLTAGE AMPLITUDE AND BALANCE BETWEEN PHASES FOR LOADED AND UNLOADED CONDITIONS.
- SUBMIT VOLTAGE FIELD TEST REPORT WITHIN 5 DAYS OF TEST.

b. EQUIPMENT LINE CURRENT TESTS
- CHECK LINE CURRENT IN EACH PHASE FOR EACH PIECE OF EQUIPMENT.
- MAKE LINE CURRENT CHECK AFTER POWER COMPANY HAS MADE FINAL ADJUSTMENTS TO SUPPLY VOLTAGE MAGNITUDE OR BALANCE.
- IF PHASE CURRENT FOR A PIECE OF EQUIPMENT IS ABOVE RATED NAMEPLATE CURRENT, PREPARE EQUIPMENT LINE PHASE CURRENT REPORT THAT IDENTIFIES CAUSE OF PROBLEM AND CORRECTIVE ACTION TAKEN.

C. PANELBOARDS

a. VISUAL AND MECHANICAL INSPECTION: INSPECTING FOR DEFECTS AND PHYSICAL DAMAGE, LABELING, AND NAMEPLATE COMPLIANCE WITH REQUIREMENTS OF UP-TO-DATE DRAWINGS AND PANELBOARD SCHEDULES.

b. ELECTRICAL TESTS INCLUDING THE FOLLOWING ITEMS PERFORMED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION:
- INSULATION RESISTANCE TESTS FOR PHASE TO PHASE AND PHASE-TO-GROUND FOR MINIMUM OF 1 MINUTE.
- GROUND CONTINUITY TEST GROUND BUS TO SYSTEM GROUND.

DATE: 10/2020
Marc P. Goslow
PE NO. 41733



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|---|---|---|---|---|

DESIGNED BY: M GOSLOW
DRAWN BY: A PASTRANA
SHEET CHK'D BY: D NICHOLSON
CROSS CHK'D BY:
APPROVED BY: M GOSLOW
DATE: DECEMBER 2020

PLOT DATE: 1/11/2021 PLOT TIME: 5:04:46 PM

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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

RIVERTOWN WELLS 1, 2, 3
ELECTRICAL SPECIFICATIONS

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9910-ES-003_D3270100.dgn

SHEET NO.
ES-3

ISSUED FOR BID

D. DRY TYPE TRANSFORMERS

a. VISUAL AND MECHANICAL INSPECTION: PHYSICAL AND INSULATOR DAMAGE, PROPER WINDING CONNECTIONS, REMOVAL OF SHIPPING BRACKETS, FIXTURES, OR BRACING, FREE AND PROPERLY INSTALLED RESILIENT MOUNTS, VERIFY TAP CHANGER IS SET AT CORRECT RATIO FOR RATED OUTPUT VOLTAGE UNDER NORMAL OPERATING CONDITIONS, VERIFY PROPER SECONDARY VOLTAGE PHASE-TO-PHASE AND PHASE-TO-GROUND AFTER ENERGIZATION AND PRIOR TO LOADING.

b. ELECTRICAL TESTS INCLUDING THE FOLLOWING ITEMS PERFORMED IN ACCORDANCE WITH MIANUFACUTER'S INSTRUCITON:
- APPLIED MEGOHMMETER DC VOLTAGE IN ACCORDANCE WITH NETA ATS, TABLE 100.5 FOR EACH WINDING-TO-WINDING AND WINDING-TO GROUND.
- TEST DURATION OF 10 MINUTES WITH RESISTANCE RECORDED AT 30 SECONDS, 1 MINUTE AND 10 MINUTE.

E. LOW-VOLTAGE CABLES, 600VAC MAXIMUM

a. VISUAL AND MECHANICAL INSPECTION: PHYSICAL DAMAGE, PROPER CONNECTIONS IN ACCORDANCE WITH THE PLANS, CABLE BENDS NOT IN CONFORMANCE WITH MANUFACTURER'S MINIMUM ALLOWABLE BENDING RADIUS WHERE APPLICABLE, COLOR CODING CONFORMANCE WITH SPECIFICATION, PROPER CIRCUIT IDENTIFICATION.

b. VISUAL AND MECHANICAL INSPECTION: PROPER LUG TYPE AND INSTALLATION.

c. VISUAL AND MECHANICAL INSPECTION: PROPER SHIELD GROUNDING, TERMINATIONS AND CIRCUIT IDENTIFICATION.

d. ELECTRICAL TESTS FOR #4 AWG CONDUCTORS AND LARGER"
- INSULATION RESISTANCE TESTS
- CONTINUITY TEST

F. MOLDED CASE CIRCUIT BREAKERS

a. VISUAL AND MECHANICAL INSPECTION FOR PROPER MOUNTING, CONDUCTOR SIZE, FEEDER DESIGNATION ACCORDING TO THE PLANS.

b. ELECTRICAL TESTS:
- INSULATION RESISTANCE TESTS
- CONTACT RESISTANCE TESTS

G. GROUNDING SYSTEMS

a. RESISTANCE TO REMOTE EARTH AS DESCRIBED ON THE PLANS.

H. AC INDUCTION MOTORS

a. VISUAL AND MECHANICAL INSPECTION TO INCLUDE PROPER ELECTRICAL AND GROUNDING CONNECTIONS, SHAFT ALIGNMENT, BLOCKAGE OF VENTILATING AIR PASSAGEWAYS, OPERATION, ROTATION, NOISE LEVEL, OVERHEATING, AND OPERATION OF SPACE HEATERS.

b. ELECTRICAL TESTS:
- INSULATION RESISTANCE TESTS
- MEASURE RUNNING CURRENT AND VOLTAGE, AND EVALUATE RELATIVE TO LOAD CONDITIONS AND NAMEPLATE FULL-LOAD AMPERES.



| REV. NO. | DATE | DRWN | CHKD | REMARKS |
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PLOT DATE: 1/11/2021 PLOT TIME: 5:04:42 PM

DESIGNED BY: M GOSLOW
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JEA

RIVERTOWN WATER TREATMENT PLANT PROJECT

ELECTRICAL

RIVERTOWN WELLS 1, 2, 3
ELECTRICAL SPECIFICATIONS

DATE: 01/2021
Marc P. Goslow
PE NO. 41733

PROJECT NO. 6103-237938
JACOBS FILE NAME: 9910-ES-004_D3270100.dgn

SHEET NO.
ES-4

ISSUED FOR BID