WATER PRODUCTION FACILITIES ELECTRICAL UPGRADES PROJECT
Solicitation Number: CO-00523
Job No.: 21-6007

ADDENDUM No. 3

January 20, 2023

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bid proposal, plans and specifications and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the Addendum number and issue date on the space provided in submitted copies of the bid proposal.

RESPONSES TO QUESTIONS

1. **Will you have a need for gas phase filtration in your electrical/motor control centers, or at wet wells/lift stations?**
   RESPONSE: This system is not required for this project.

2. **Specification Section 17410 Section 1.05 A – Refers to Appendix A for the field instrument list. Please provide this Appendix.**
   RESPONSE: Specification Section 17410 Appendix A is attached to this addendum. Refer to "Changes to the Specifications", item 16 in this addendum.

3. **Specification Section 16770 1.02 B calls for Lightning Protection to be installed on the Electrical and SCADA Building at La Rosa. Please clarify whether his is specifically for Electrical Buildings at Tippecanoe and Bear Springs Sites. And no other structures will require Lightning Protection.**
   RESPONSE: Lightning protection systems shall be installed for the Electrical Buildings at the Tippecanoe and Bear Springs Sites, and no other structures per the modified specification section 16770. Refer to "Changes to the Specifications", item 12 in this addendum.

4. **Please provide specifications for Cable Tray Rated Cable as specified in Section 16120.**
   RESPONSE: The tray rated cable is specified as TC type per the modified specification section 16120. Refer to "Changes to the Specifications", item 8 in this addendum.

5. **Sheet E17 & E18 photo B calls for demolition of the Chorine Analyzer to be demolished, however, E26 calls for Existing Chlorine Analyzer to be retained. Please clarify.**
   RESPONSE: New chlorine and fluoride analyzers shall be furnished and installed at both Tippecanoe and Bear Springs per specification 17310 and per modified plans sheets E6, E22 and E26. Refer to "Changes to the Plans", items 7, 17 & 19 in this addendum.

6. **Please provide further information regarding the sizing of underground handholes to be furnished. Site layout dimensions are shown to be approximately 2'x2' but E36 detail C calls out for Spring Assist Access Hatch which would make the handholes 4'x4' or larger. If this is the case, the handhole shown on the southside of proposed electrical building on E6 will be partially in the roadway.**
   RESPONSE: The spring assist access hatch is required and the proposed manhole on the southwest corner of the Tippecanoe electrical building will be removed from the project per modified plans sheet E6. Refer to "Changes to the Plans", item 7 in this addendum.

7. **Please provide installation elevation of the cable trays in electrical buildings.**

RESPONSE: The bottom of the cable trays shall be 8 feet above the finished floor per modified plans sheets E7 & E23. Refer to "Changes to the Plans", items 8 & 18 in this addendum.

8. **Please provide the height of the electrical buildings as plans does not show the building interior heights**
   RESPONSE: Ceiling shall be 12 feet per modified plans sheets E7 & E23. Refer to "Changes to the Plans", items 8 & 18 in this addendum.

9. **Sheet E14-E16 does not address the demolition of the underground ductbanks & conduits. Are they to be cut flush and capped with concrete after removal of wires & cables? Please clarify.**
   RESPONSE: Existing underground ductbanks & conduits are to be entirely removed per modified plans sheet E14. Refer to "Changes to the Plans", item 14 in this addendum.

10. **Sheet E17-E19 does not address the demolition of the underground ductbanks & conduits. Are the only underground conduits to be demolished are where the new ductbanks & underground conduits to be installed? Can the remaining underground conduits to be abandoned in place, cut flush and capped with concrete after wire & cable removal?**
    RESPONSE: Existing underground ductbanks & conduits are to be entirely removed per modified plans sheet E17. Refer to "Changes to the Plans", item 15 in this addendum.

11. **Sheet E37 Detail E for the site light poles does not show ground rods associated with the light poles, which seems not to be in line with SAWS Standards. Please confirm ground rods are not required for the light poles.**
    RESPONSE: Every light pole will require a ground rod per modified plans sheet E37. Refer to "Changes to the Plans", item 23 in this addendum.

12. **On drawing #I-8 The 8ch AI Module. Is this new or existing?**
    RESPONSE: The 8ch AI module is existing per modified plans sheet I8. Refer to "Changes to the Plans", item 27 in this addendum.

13. **On drawing #I-10 – I-13 The 32pt DI Module. Is this new or existing?**
    RESPONSE: The 32pt DI module is existing per modified plans sheet I10. Refer to "Changes to the Plans", item 28 in this addendum.

14. **On drawing #I-15 & I-16 The 32pt DO Module. Is this new or existing?**
    RESPONSE: The 32pt DO module is existing. Refer to "Changes to the Plans" per modified plans sheets I15 & I16, items 30 & 31 in this addendum.

15. **In spec section #17410 Field Instrument List. They talk about an Appendix A instrument list. Will there be an instrument list provided?**
    RESPONSE: Please see response to question 2.

16. **On drawing I-2 you show (1) TIT-100 & (1) TEMP-100. I don't see them in spec section #17310. Please add them.**
    RESPONSE: The temperature transmitters have been added to specification 17310. Refer to "Changes to the Specifications", item 13 in this addendum.

17. **On drawing I-2 you show (2) Door Switches #DS-01 & 02. I don't see them in spec section #17310. Please add them.**
    RESPONSE: The door switches have been added to specification 17310. Refer to "Changes to the Specifications", item 13 in this addendum.

18. **On drawing I-6 you show (1) TIT-100 & (1) TEMP-100. I don't see them in spec section #17310. Please add them.**
    RESPONSE: Please see response to question 16.

19. **On drawing I-6 you show (3) Door Switches #DS-01, 02 & 03. I don't see them in spec section #17310. Please add them.**
    RESPONSE: Please see response to question 17.

20. **On drawing I-6 you show (1) Level Ind Transmitter #LIT-100. I don't see it in spec section #17310. Please add it.**

RESPONSE: The level indicating transmitter has been added to specification 17310. Refer to "Changes to the Specifications", item 13 in this addendum.

21. **On drawing I-6 you show (1) Pressure Ind Transmitter #PIT-100. I don't see it in spec section #17310. Please add it.**
RESPONSE: The pressure indicating transmitter has been added to specification 17310. Refer to "Changes to the Specifications", item 13 in this addendum.

22. **On drawing I-6 you show (2) Liquid Level Relays #LR1 & LR2. I don't see them in spec section #17310. Please add it.**
RESPONSE: Refer to drawing E38 detail D for liquid level relay manufacturer and model numbers.

23. **On drawing I-17 you show NOTES: in the SCADA Control Panel Layout. Note 2: says that the existing UPS, Battery Packs & Shelf shall be removed and Panel loads with connect to New UPS per sheet I-16. I-16 doesn't show a UPS it shows an existing DO Module for Bear Springs. Please advise.**
RESPONSE: The drawing cross-reference should be sheet I14 detail B instead of I-16. The cross-reference is corrected in this addendum. Refer to "Changes to the Plans", item 32 in this addendum.

24. **Sheet E6 shows camera # 3 to be a pole mounted, but not on a light pole, please provide installation details including the foundation requirements.**
RESPONSE: The camera will be pole mounted to a light pole per modified plans sheet E37. A light will not be included for the pole. Refer to "Changes to the Plans", item 23 in this addendum.

25. **Sheet E6 Keynote #9 states Fluoride bulk tank transfer pump and instrumentation shall be connected to proposed power panel and SCADA panel, however, DB section 8 & 9 to the Fluoride Bulk tank only shows conduit from Fluoride Building Power Panel. Please clarify if conduits are needed for I&C.**
RESPONSE: No cables will be routed from the fluoride bulk transfer pump and instrumentation to the SCADA panel per modified plans sheet E6. Refer to "Changes to the Plans", item 7 in this addendum.

26. **Contract documents do not show or specify ductbank ground cable, which does not seem to be a SAWS Standards. However, detail A on Sheet E38 seems to indicate a grounding connection from the new service pole to the electrical building. Please clarify.**
RESPONSE: Grounding is shown individually for the electrical buildings and racks. The grounding for the electrical service rack will be tied to the electrical building grounding per modified plans sheet E38. Refer to "Changes to the Plans", item 24 in this addendum.

27. **Sheet E12 ductbank section 17 is missing circuits from ductbank section 15. They are subsequently shown in section 19 and 26. Please confirm.**
RESPONSE: Cable/conduit are added to ductbank section 17 per modified plans sheets E12 & E13. Refer to "Changes to the Plans", items 12 & 13 in this addendum.

28. **Sheet E37 detail C and panel schedules shows 120V Convenience outlet at the well pumps, however ductbank Sections to the well pump locations does not show any circuits for the receptacles. Please clarify.**
RESPONSE: Additional cable are added to conduit serving heat trace panel at well pump rack per modified plans sheets E12, E13, E31 & E32. Refer to "Changes to the Plans", items 12, 13, 21 & 22 in this addendum.

29. **Drawings does not clearly define new vs existing equipment, particularly in the P&ID's. i.e., Tippecanoe Flow Meter is bolded as if new, all other drawings show as existing. Similarly, the Chlorine Analyzer for Bear Spring on I6 shows as new vs. E-26 shows to be existing. Please clarify.**
RESPONSE: All of the flowmeters for the project are existing to be re-connected to power and SCADA. All analyzers are new per modified plans sheet E26. Refer to "Changes to the Plans", item 19 in this addendum.

30. **Other than a ground indication shown on 1-line diagram on E5, there are no other grounding system for the Generator detailed. Please clarify the grounding requirements.**
RESPONSE: The generator for the Tippecanoe site is removed in this addendum per modified plans sheets E5 & E6. Refer to "Changes to the Plans", items 6 & 7 in this addendum.

31. **Special Condition SC3. - Site security: Specifies security guard from a SAWS Security approved security contractor. It refers to section 01500 - Construction Facilities and Water Temporary Control for further details. However, section 01500 does not list the SAWS approved security contractors. Please provide a list of approved security contractors.**
RESPONSE: The approved contractor is Allied Universal Security. Please contact Mr. Eric Huss for guard support. Email: Eric.Huss@aus.com per the modified specification section 01500. Refer to "Changes to the Specifications", item 5 in this addendum.

32. **Sheet E12 ductbank section 5A is missing circuits from gate operator and gate card reader to security cabinet. Also on the same sheet ductbank 5B is missing. Please update.**
RESPONSE: Ductbank sections 5A and 5B are removed and ductbank section 5 will be extended into the electrical building per modified plans sheets E6 & E12. Refer to "Changes to the Plans", items 7 & 12 in this addendum.

33. **Sheet E2 Keynote 5 calls for chlorine building external conduit and cables to be replaced and Sheet E6 Keynote 5 states that chlorine building equipment shall pe connected to proposed power panel and proposed SCADA panel. Is it the intention of the documents to splice existing cables at the building external conduit fittings or are we to extend new cabling completely all the way to the equipment in existing conduit internal to the building? Please clarify.**
RESPONSE: New cable shall be extended completely to the equipment per modified plans sheet E2. No splicing is allowed. Refer to "Changes to the Plans", item 5 in this addendum.

34. **Like the above question regarding fluoride building, Sheet E2 Keynote 6, and Sheet E6 Keynote 8, addresses only the fluoride building external conduits & cables. Please clarify.**
RESPONSE: New cable shall be extended completely to the equipment per modified plans sheet E2. No splicing is allowed. Refer to "Changes to the Plans", item 5 in this addendum.

35. **Above questions 33 & 34 also apply to Bear Springs site chlorine and fluoride buildings.**
RESPONSE: New cable shall be extended completely to the equipment per modified plans sheet E17. No splicing is allowed. Refer to "Changes to the Plans", item 15 in this addendum.

36. **Sheet E31 ductbank section 8 shows a total of 4-4" and 4-1" conduits associated for future generator. But does not reflect the conduit associated with the generator annunciator panel. Should the conduits in ductbank section 8 going to the future area also include conduit to ATS from utility breaker for future use and additional length of cable be provided coiled in the electrical hand hole to re-route to the ATS for future use? And at the same time, sheet E23 does not reflect the same number of conduits to the west of the MCC section where area reserved for future ATS is shown. Please review and advise.**
RESPONSE: The generator annunciator panel and the ATS are no longer planned to be located in the electrical building and the associated callouts will be removed *per modified plans sheets E22, E23 & E32*. *Refer to "Changes to the Plans", items 17, 18 & 22 in this addendum.*

CHANGES TO THE SPECIFICATIONS

1. Technical specification Table of Contents
   A. REMOVE specification section 16501 AUTOMATIC TRANSFER SWITCH WITH BYPASS ISOLATION SWITCH.
   B. REMOVE specification section 16600 STANDBY GENERATOR.
2. Schedule of Manufacturers and Suppliers for Major Equipment
   A. REMOVE and REPLACE this schedule in its entirety with the corresponding schedule attached to this addendum. Bidder shall utilize the revised Schedule of Manufacturers and Suppliers for Major Equipment when submitting a bid for this project.
3. Special Conditions
   A. SC7. Tippecanoe Substantial Completion Requirements Variance – REMOVE this special condition and REPLACE with the following:
   "**SC7. Coordination with On-Site Personnel**: The Contractor agrees to cooperate and coordinate its work with the work conducted by other supplier(s), contractor(s) and/or SAWS Operations staff within the project area so that this project can be completed in an orderly and coordinated manner, reasonably free of significant disruption to any party. Without limitation of the foregoing, the Contractor understands and agrees that access

areas to the project site may be utilized by other supplier(s) and/or contractor(s). All parties shall be solely required and obligated to coordinate and cooperate with each other to accomplish the scope of work required by their respective contracts, meaning SAWS shall have no duty to administer, perform or supervise the coordination for the use of the project site by all suppliers/contractors. The Contractor agrees that any delay or hindrance caused by or contributed to by failure to cooperate and/or coordinate among all parties will be governed by this Section and Security Procedures of this contract."

4. Specification Section 01301 – Contractor's Submittals 01301-3 2.04 A.
   A. REMOVE item no. 1 Generator.
   B. REMOVE item no. 3 Automatic Transfer Switch with Bypass Isolation Switch.
   C. RENUMBER remaining items sequentially.
5. Specification section 01500 – Construction Facilities and Temporary Control 01500-5 1.08
   A. ADD the following item C
      "The approved security contractor is Allied Universal Security. Please contact Mr. Eric Huss for guard support. Email: Eric.Huss@aus.com."
6. Specification section 01620 – Equipment Schedule 01620-1 3.01.
   A. REMOVE row in entirety for Specification Section 16501 Automatic Transfer Switch with Isolated Bypass Switch.
   B. REMOVE row in entirety for specification 16600 Standby Generator.
7. Specification Section 16010 – Basic Electrical Requirements.
   A. 16010-3 1.03 B. 17
      1. REMOVE item e. Automatic Transfer Switch with Bypass Isolation Switch.
      2. REMOVE item f. Standby Generator.
      3. RENUMBER remaining items sequentially.
   B. 16010-3 1.04 A.
      1. REMOVE item 8. Automatic Transfer Switch.
      2. REMOVE item 9. Standby Generator.
      3. RENUMBER remaining items sequentially.
8. Specification 16120 – Conductors
   A. 16120-1 2.01 F.
      1. ADD "Cable shall be Tray Cable (TC) rated when installed in cable trays."
9. Specification Section 16411 – Power System Study.
   A. 16411-1 1.1 A. 2. – REMOVE "and generator,".
   B. 16411-2 1.1 B. 8. – REMOVE entire sentence.
   C. 16411-4 3.1 C. – REMOVE entire sentence.
   D. 16411-4 3.4 B. 1. e. – REMOVE entire section and REPLACE with the following: "Nameplate ratings of all motors with their subtransient reactances."
   E. 16411-4 3.4 B. 1. f. – REMOVE entire sentence and REPLACE with the following: "Sources of short circuit currents such as utility ties and induction motors."
10. Specification Section 16501 – Automatic Transfer & Bypass Isolation Switches – REMOVE the entire section.
11. Specification Section 16600 – Standby Generators – REMOVE the entire section.
12. Specification Section 16770 – Lightning Protection Systems.
    A. REMOVE and REPLACE entire section 1.02.B with the following:
       "Systems shall be installed on the Electrical Buildings at the Tippecanoe and Bear Springs Facilities."
13. Specification Section 17310 – Field Instruments
    A. ADD the following paragraph 2.03
       "2.03 TEMPERATURE SENSOR
          A. Temperature sensor shall be Weed Instrument model # 753-PD-X1-(0° to 150°) transmitter with 753-PC-X5-(0° to 150°) RTD."
    B. ADD the following paragraph 2.04
       "2.04 PANEL MOUNTED DOOR SWITCH
          A. General:
             1. Internal door switch with electrical contact output activated when door is opened and deactivated when door is closed.
          B. Ratings:
             1. 120/250 VAC
             2. 10 Amp
          C. Physical:
             1. Mounts on enclosure frame and includes mounting hardware

2. Mounting plate is 14 gauge

D. Accessories:
   1. Provide all necessary mounting hardware and wiring.

E. Manufacturer:
   1. Nvent Hoffman
   2. Approved equal."

C. ADD the following paragraph 2.05

"2.05 BUILDING MOUNTED DOOR SWITCH

A. General:
   1. Internal door switch with electrical contact output activated when door is opened and deactivated when door is closed.

B. Ratings:
   1. 30 VDC Switching

C. Physical:
   1. Mounts on door frame and includes mounting hardware
   2. Brushed anodized aluminum enclosure with ABS plastic end caps

D. Accessories:
   2. Provide all necessary mounting hardware and wiring.

E. Manufacturer:
   1. Edwards Signaling & Security Systems
   2. Approved equal."

D. ADD the following paragraph 2.06

"2.06 PRESSURE TRANSMITTER (TANK LEVEL):

A. Electronic Gage Pressure Transmitter:
   1. Local and remote indication.
   2. Provide with Ray self-cleaning pressure snubbers.
   3. Input isolated with silicone filled stainless steel diaphragms.
   4. Local indication LCD meter scaled in FEET and mounted integral to the transmitter. Transmitter operation ranges should operate at bottom 25% of full-scale range of transmitter.
   5. Outdoor application:
      a. NEMA 4 housing
      b. View port for local indication
      c. Stainless steel flanges
      d. 2" pipe mount
   6. Stainless Steel certification tag for Factory Mutual (FM) Explosion Proof rating.

B. Ratings:
   1. Overpressure Limit without damage: 1500 psi
   2. Input Range: 150 psi
   3. Accuracy: +/- 0.075% of span
   4. Analog Output: 4 – 20 mA
   5. Power Supply: 24 Vdc
   6. Operating Temperature Limits: -4° to 175°F

C. Manufacturer: Rosemount, Model: 2088, Model Number 2088 G 2 S 22 A 1 M4 B4 DW."

E. ADD the following paragraph 2.07

"2.07 PRESSURE TRANSMITTER (PRESSURE IN PSI):

A. Electronic Gage Pressure Transmitter:
   1. Local and remote indication.
   2. Provide with Ray self-cleaning pressure snubbers.
   3. Input isolated with silicone filled stainless steel diaphragms.
   4. Local indication LCD meter scaled in PSI (0-150PSI) and mounted integral to the transmitter. Transmitter operation ranges should operate at bottom 25% of full-scale range of transmitter.
   5. Outdoor application:
      a. NEMA 4 housing
      b. View port for local indication
      c. Stainless steel flanges
      d. 2" pipe mount
   6. Stainless Steel certification tag for Factory Mutual (FM) Explosion Proof rating.

B. Ratings:
    1. Overpressure Limit without damage: 1500 psi
    2. Input Range: 150 psi
    3. Accuracy: +/- 0.075% of span
    4. Analog Output: 4 – 20 mA
    5. Power Supply: 24 Vdc
    6. Operating Temperature Limits: -4° to 175°F
C. Manufacturer: Rosemount, Model: 2088, Model Number 2088 G 2 S 22 A 1 M4 B4 DW."

14. Specification Section 17400 – Control Loop Descriptions.
    A. 17400-2 1.05 B. 6. – REMOVE entire sentence.
    B. 17400-2 1.05 B. 7. – RENUMBER to 1.05 B. 6.
    C. 17400-2 1.05 B. 8. – RENUMBER to 1.05 B. 7.
    D. 17400-11 2.12 – REMOVE entire section.
    E. 17400-11 2.13 – REMOVE entire section.
15. Specification section 17405 Appendix A I/O List Tippecanoe. – REMOVE all rows beginning with row entitled "Generator" through and including row entitled "ATS General Alarm". Change total for Digital Inputs from 22 to 16.
16. Specification section 17410 Appendix A Field Instrument List – ADD Appendix A for Tippecanoe and Bear Springs. (Attached to this addendum.)

CHANGES TO THE PLANS

1. Drawing C4 – Civil Proposed Plans – Tippecanoe
    A. REMOVE and REPLACE this sheet in its entirety with the corresponding sheet attached to this addendum.

2. Drawing C5 – Civil Grading Plans – Tippecanoe
    A. REMOVE and REPLACE this sheet in its entirety with the corresponding sheet attached to this addendum.

3. Drawing TP2 – Tree Preservation Plan – Tippecanoe
    A. REMOVE and REPLACE this sheet in its entirety with the corresponding sheet attached to this addendum.

4. Drawing S3 – Generator Foundation at Tippecanoe
    A. REMOVE this sheet in its entirety.
    B. RENUMBER structural sheets from S4 through S8 to S3 through S7, respectively.

5. Drawing E2 – Demolition Site Plan – Tippecanoe
    A. ADD General Note 3 as follows: "All existing underground ductbanks, conduits and cables shall be entirely removed.
    B. REMOVE and REPLACE keyed note 5 verbiage with the following: "Chlorine building external conduit and cables shall be replaced. Cables shall be replaced in entirety to equipment. No splices will be allowed."
    C. REMOVE and REPLACE keyed note 6 verbiage with the following: "Fluoride building disconnect switch, external conduit and cables shall be replaced. Cables shall be replaced in entirety to equipment. No splices will be allowed."

6. Drawing E5 – Proposed One-Line Diagram Tippecanoe
    A. REMOVE and REPLACE this sheet in its entirety with the corresponding sheet attached to this addendum.

7. Drawing E6 – Proposed Site Plan – Tippecanoe
    A. REMOVE Proposed Standby Generator with Containment and associated keyed note 11.
    B. REMOVE underground ductbank 6.
    C. REMOVE electrical manhole at southwest corner of proposed electrical building.
    D. REMOVE ductbanks 5A and 5B and extend ductbank 5 into the electrical building.
    E. Under Keyed Notes –
        1) REMOVE and REPLACE keyed note 7 verbiage with the following: "Proposed chlorine and fluoride analyzer location. Analyzer sample and drain lines shall be extended from new sample point per civil drawings and sanitary sewer per civil drawings, respectively."
        2) REMOVE and REPLACE keyed note 9 verbiage with the following: "Fluoride bulk tank, transfer pump and instrumentation shall be connected to proposed power panel."

3) REMOVE and REPLACE keyed note 11 verbiage with the following: “Not Used”

8. Drawing E7 – Proposed Building Plan Electrical – Tippecanoe
   A. REMOVE ATS with Isolation Bypass.
   B. REMOVE Generator Annunciator Panel.
   C. ADD General Note 10 as follows: “Cable tray shall be installed 8 feet above the finished floor.
   D. ADD General Note 11 as follows “Building ceiling height shall be 12 feet.”

9. Drawing E8 – Proposed Building Plan Lighting – Tippecanoe
   A. REMOVE ATS with Isolation Bypass.
   B. REMOVE Generator Annunciator Panel.

10. Drawing E9 – Proposed Building Interconnection Diagram – Tippecanoe
    A. Detail A
       a. REMOVE ATS with Bypass Isolation and associated housekeeping slab.
    B. Detail B
       a. REMOVE ATS with Bypass Isolation and associated cable connection to SCADA Panel.

11. Drawing E11 – Power Panel Schedule – Tippecanoe
    A. Circuit 33,35:
       1) REMOVE and REPLACE label with “SPARE”.
       2) REMOVE load value and REPLACE with “-“.
    B. Circuit 37:
       1) REMOVE and REPLACE label with “SPARE”.
       2) REMOVE load value and REPLACE with “-“.
    C. CHANGE load total for odd circuits from “11.228kW” to “9.628kW.”
    D. CHANGE load total for power panel ‘A’ from “24.531 kW” to “22.931 kW.”

12. Drawing E12 – Ductbank Sections (1 of 2) – Tippecanoe
    A. REMOVE ductbank section 6 entirely.
    B. REMOVE ductbank section 5A entirely.
    C. ADD conduit 8 to ductbank section 17. Ductbank shall include cable/conduit per ductbank section 15 conduit 1.
    D. ADD two (2) #10 & one (1) #10 GND to ductbank section 16 conduit 3. REMOVE associated description and REPLACE with the following: “Power to well pump #1 heat trace panel and to control rack receptacle.
    E. ADD two (2) #10 & one (1) #10 GND to ductbank section 17 conduit 7. REMOVE associated description and REPLACE with the following: “Power to well pump #1 heat trace panel and to control rack receptacle.
    F. ADD one (1) #16 TW/SH/PR to ductbank section 18 conduit 2 for the fluoride residual to SCADA.

13. Drawing E13 – Ductbank Sections (2 of 2) – Tippecanoe
    A. ADD two (2) #10 & one (1) #10 GND to ductbank section 19 conduit 7. REMOVE associated description and REPLACE with the following: “Power to well pump #1 heat trace panel and to control rack receptacle.
    B. ADD one (1) #16 TW/SH/PR to ductbank section 19 conduit 9 for the fluoride residual to SCADA.
    C. ADD two (2) #10 & one (1) #10 GND to ductbank section 26 conduit 7. REMOVE associated description and REPLACE with the following: “Power to well pump #1 heat trace panel and to control rack receptacle.
    D. ADD one (1) #16 TW/SH/PR to ductbank section 26 conduit 9 for the fluoride residual to SCADA.

14. Drawing E14 – Demolition Site Plan – Bear Creek
    A. ADD General Note 3 as follows: “All existing underground ductbanks, conduits and cables shall be entirely removed.”

15. Drawing E17 – Demolition Site Plan – Bear Springs
    A. ADD General Note 3 as follows: “All existing underground ductbanks, conduits and cables shall be entirely removed.”
    B. REMOVE and REPLACE keyed note 7 verbiage with the following: “Chlorine building external conduit and cables shall be replaced. Cables shall be replaced in entirety to equipment. No splices will be allowed.”

C. REMOVE and REPLACE keyed note 8 verbiage with the following: “Fluoride building disconnect switch, external conduit and cables shall be replaced. Cables shall be replaced in entirety to equipment. No splices will be allowed.”

16. Drawing E21 – Proposed One-Line Diagram – Bear Springs
    A. The conduit size from the CPS Energy transformer to the main breaker and from the main breaker to the MCC shall be CHANGED from 3-1/2” to 4”.

17. Drawing E22 – Proposed Site Plan – Bear Springs
    A. REMOVE and REPLACE keyed note 22 verbiage with the following: “Existing chlorine analyzer panel location. Remove existing analyzer panel and replace with new panel including proposed chlorine and fluoride analyzers per specification 17310. Analyzers sample lines shall be extended from new sample point per civil drawings.”
    B. Add ductbank 30 from electrical building southwest side and stub out beyond the sidewalk.
    C. Add ductbank 31 from electrical building southwest side and stub out beyond the sidewalk.

18. Drawing E23 – Proposed Building Plan Electrical – Bear Springs
    A. ADD General Note 8 as follows: “Cable tray shall be installed 8 feet above the finished floor.
    B. ADD General Note 9 as follows “Building ceiling height shall be 12 feet.”
    C. REMOVE the following callout: “Reserved area for generator annunciator panel.”
    D. REMOVE the following callout: “Reserved area for ATS with isolation bypass.
    E. REMOVE and REPLACE the callout for the 2-4” conduits and replace with the following: “2-2” conduits for future 480 volt power source.”

19. Drawing E26 – Existing Pump Building Plan Proposed Electrical – Bear Springs
    A. REMOVE and REPLACE analyzer callout with the following: “Existing chlorine analyzer panel location. Refer to E22 keyed note 22.”

20. Drawing E30 – Ductbank Sections (1 of 3) – Bear Springs
    A. ADD one (1) #16 TW/SH/PR to ductbank section 6 conduit 15 for the fluoride residual to SCADA.
    B. ADD one (1) #16 TW/SH/PR to ductbank section 6A conduit 15 for the fluoride residual to SCADA.
    C. ADD one (1) #16 TW/SH/PR to ductbank section 7A conduit 17 for the fluoride residual to SCADA.

21. Drawing E31 – Ductbank Sections (2 of 3) – Bear Springs
    A. REMOVE conduits 2, 3 & 4 from ductbank section 8.
    B. ADD two (2) #10 & one (1) #10 GND to ductbank section 9 conduit 6. REMOVE associated description and REPLACE with the following: “Power to well pump #1 heat trace panel and to control rack receptacle.
    C. ADD two (2) #10 & one (1) #10 GND to ductbank section 12 conduit 6. REMOVE associated description and REPLACE with the following: “Power to well pump #1 heat trace panel and to control rack receptacle.
    D. ADD two (2) #10 & one (1) #10 GND to ductbank section 13 conduit 1. REMOVE associated description and REPLACE with the following: “Power to well pump #1 heat trace panel and to control rack receptacle.
    E. ADD two (2) #10 & one (1) #10 GND to ductbank section 14 conduit 1. REMOVE associated description and REPLACE with the following: “Power to well pump #1 heat trace panel and to control rack receptacle.
    F. ADD two (2) #10 & one (1) #10 GND to ductbank section 19 conduit 4. REMOVE associated description and REPLACE with the following: “Power to well pump #2 heat trace panel and to control rack receptacle.

22. Drawing E32 – Ductbank Sections (3 of 3) – Bear Springs
    A. ADD two (2) #10 & one (1) #10 GND to ductbank section 21 conduit 6. REMOVE associated description and REPLACE with the following: “Power to well pump #2 heat trace panel and to control rack receptacle.
    B. ADD two (2) #10 & one (1) #10 GND to ductbank sections 27 & 28 conduit 6. REMOVE associated description and REPLACE with the following: “Power to well pump #2 heat trace panel and to control rack receptacle.
    C. ADD ductbank section 30 to include two (2) – 2” spare conduits from the SCADA panel.
    D. ADD ductbank section 31 to include two (2) – 2” spare conduits from the electrical building for 480 volt auxiliary power.

23. Drawing E37 – Miscellaneous Details (2 of 3)
    A. Detail E
        1) ADD 3/4” x 10’ ground rod with Cadweld connection to #8 bare copper ground wire continuous.

2) Route #8 bare copper ground wire through PVC sleeve along the light pole foundation to the light pole anchor bolt and connect to the anchor bolt.
3) REMOVE and REPLACE detail name with the following: “Light Pole/Camera Pole”.

24. Drawing E38 – Miscellaneous Details (3 of 3)
    A. Detail A
        1) ADD the following callout to the ground wire: “Connect to building grounding system.”

25. Drawing I2 – Process and Instrumentation Diagram Overall - Tippecanoe
    A. REMOVE all I/O associated with the standby generator and the automatic transfer switch.

26. Drawing I4 – PLC Connection Diagram – SCADA Digital I/O & Power Distribution – Tippecanoe
    A. REMOVE all conductors and associated relays and contacts connected to PLC points IN16 through In 21 and replace with “Spare” tag per I/O point.

27. Drawing I8 – PLC Connection Diagram – SCADA Analog Inputs – (1 of 2) Bear Springs
    A. ADD Note 3 as follows: “Analog input card as shown on this sheet is existing.”

28. Drawing I10 – PLC Connection Diagram – SCADA Digital Inputs (1 of 5) – Bear Springs
    A. ADD Note 1 as follows: “Digital input card as shown on this sheet is existing.”

29. Drawing I14 – PLC Connection Diagram – SCADA Digital Inputs & Misc. (5 of 5) – Bear Springs
    A. Detail B – MOVE 120VAC GFI UPS to the outside of the SCADA panel and show as provided in an enclosure.

30. Drawing I15 – PLC Connection Diagram – SCADA Digital Outputs (1 of 2) – Bear Springs
    A. ADD Note 1 as follows: “Digital output card as shown on this sheet is existing.”

31. Drawing I16 – PLC Connection Diagram – SCADA Digital Outputs (2 of 2) – Bear Springs
    A. ADD Note 1 as follows: “Digital output card as shown on this sheet is existing.”

32. Drawing I17 – SCADA Panel Layout & Communications – Bear Springs
    A. REMOVE and REPLACE note 2 verbiage with the following: “UPS, battery packs and shelf shall be removed from panel and panel loads connected to new UPS per sheet I14 detail B.”

END OF ADDENDUM

This Addendum is seventeen (17) page(s) in its entirety.

Attachments:

1) Schedule of Manufacturers and Suppliers for Major Equipment
2) Section 17410 Appendix A Field Instrument List
3) Drawing C4 – Civil Proposed Plans – Tippecanoe
4) Drawing C5 – Civil Grading Plans – Tippecanoe
5) Drawing TP2 – Tree Preservation Plan – Tippecanoe
6) Drawing E5 – Proposed One-Line Diagram Tippecanoe

Steven Mouser, P.E.
Grubb Engineering, Inc.
TBPE Firm No. 3904

SCHEDULE OF MANUFACTURERS AND SUPPLIERS FOR MAJOR EQUIPMENT

The Contract Documents are based upon the equipment or products available for the manufacturers/suppliers denoted as "1", "2", "3", etc., below. Respondent must indicate in the Proposal which manufacturer/supplier the Proposal was based upon and which Proposal is intended for use for each item of equipment listed below by circling one of the listed suppliers/manufacturers. If the Respondent circles more than one listed supplier, the Respondent must use the first supplier circled (unless an alternate is approved). If the Respondent does not circle one of the listed suppliers/manufacturers for an item of equipment, the Respondent must use the first listed supplier/manufacturer for that item.

Specification Number	Equipment	Manufacturer or Supplier
09902	Pipe Coatings	1. Sherwin-Williams Co. 2. Carboline Co. 3. Scotchkote 4. Tnemec Co. 5. SAWS-approved equal
11201	Vertical Lineshaft Well Pumps	1. Floway 2. Goulds by Gicon 3. Flowserve 4. Peerless Pumps 5. Simflo
13120	Pre-cast Concrete Building	1. Lonestar Prestress Manufacturing 2. Fibrebond Corporation 3. Modular Connections
16406	AC Induction Motors – 250HP – 1000HP	1. Nidec 2. Teco-Westinghouse Motor Co. 3. Toshiba 4. Reliance (Baldor) 5. Siemens
16421	Soft Start Motor Controller	1. Square D 2. Siemens 3. General Electric 4. ABB 5. Eaton
16431	Low Voltage Motor Control Center	1. Eaton 2. Siemens 3. Square D 4. General Electric 5. ABB
16461	Transformers – General Purpose – 3-Phase	1. Eaton 2. Square D 3. FPT (Federal Pacific) 4. General Electric 5. Siemens
17500	Programmable Logic Controller	1. Allen Bradley 1769 with RSLogix Studio 5000 with the latest version in use by SAWS

FIELD INSTRUMENT LIST

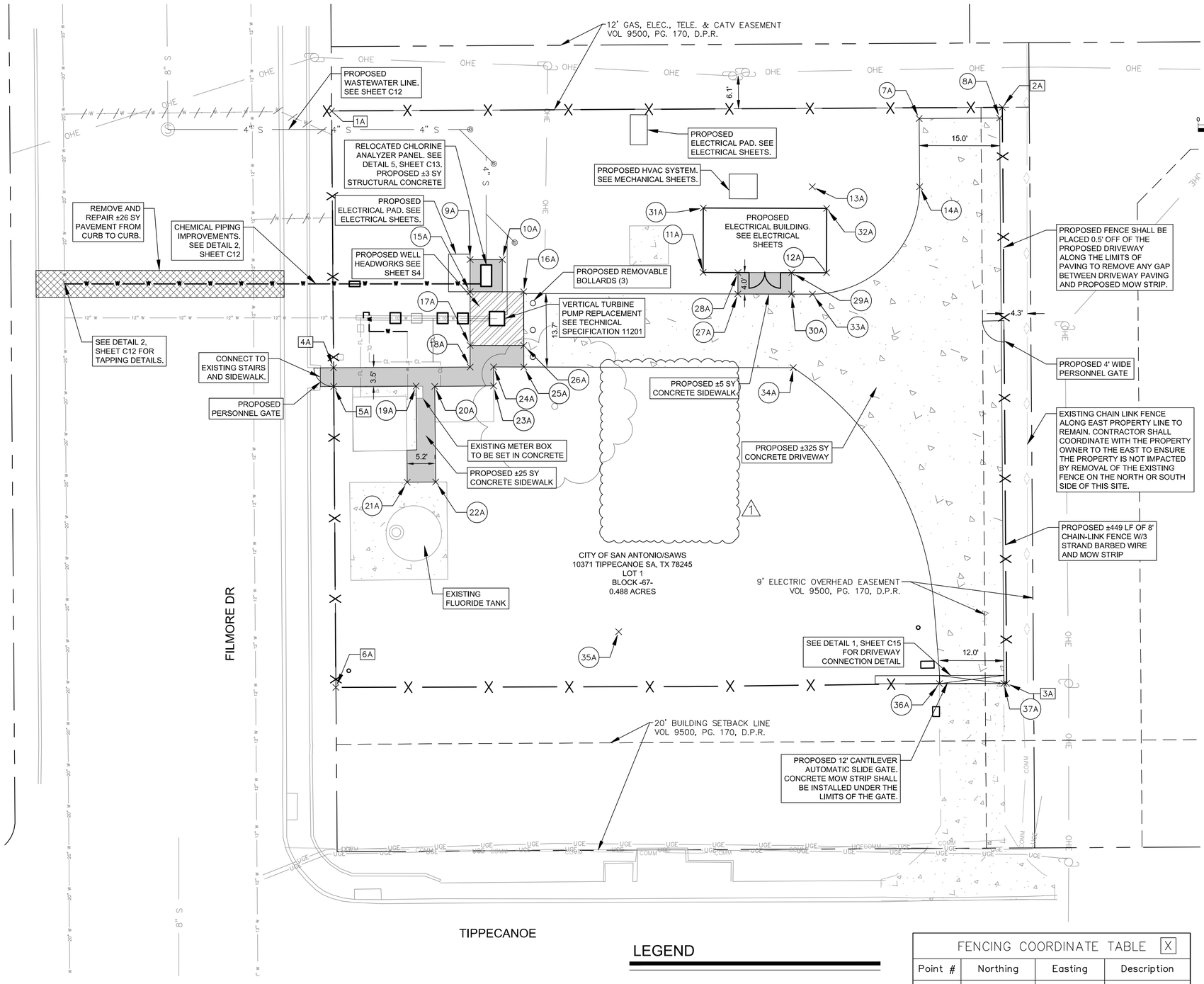
FIELD INSTRUMENT LIST				
Item No.	**Instrument Tag**	**Description**	**Instrument Type**	**Instrument Range or Setpoint Engineering Units (Refer to note below.)**
1	FIT-201	Well Pump Flow Rate	Magnetic Flow Transmitter (Existing)	MGD
2	AIT-201	Chlorine Residual	Analyzer	PPM
3	AIT-202	Fluoride Residual	Analyzer	PPM
4	AIT-203	Chlorine Concentration	Chlorine Gas Sensor (Existing)	PPM
5	TIT-101	Electrical Room Temperature	Building Temperature Transmitter	DEG
6	TIT-100	SCADA Panel Internal Temperature	Temperature Transmitter	DEG
7	DS-01	Electrical Building Door Intrusion	Door Switch	
8	DS-02	SCADA Panel Intrusion	Door Switch	
14	DS-03	Security Panel Front Door Intrusion	Door Switch	
15	DS-04	Security Panel Rear Door Intrusion	Door Switch	

Note: Contractor shall coordinate with SAWS to determine instrument ranges.

FIELD INSTRUMENT LIST

FIELD INSTRUMENT LIST				
Item No.	**Instrument Tag**	**Description**	**Instrument Type**	**Instrument Range or Setpoint Engineering Units (Refer to note below.)**
1	LIT-GST	GST Level	Pressure Transmitter	FT
2	AIT	Chlorine Concentration	Chlorine Gas Sensor (Existing)	PPM
3	PIT-SYSTEM	System Pressure	Pressure Transmitter	PSI
4	AIT-CL2	Chlorine Residual	Analyzer	PPM
5	TIT-101	Electrical Room Temperature	Building Temperature Transmitter	DEG
6	TIT-100	SCADA Panel Internal Temperature	Temperature Transmitter (Existing - Not Shown)	DEG
7	FIT-100	HSP 1 Flow Rate	Magnetic Flow Transmitter (Existing)	MGD
8	FIT-200	HSP 2 Flow Rate	Magnetic Flow Transmitter (Existing)	MGD
9	DS-01	Electrical Building Door #1 Intrusion	Door Switch	
10	DS-02	Electrical Building Door #2 Intrusion	Door Switch	
11	DS-03	SCADA Panel Intrusion	Door Switch	
12	DS-04	Security Panel Front Door Intrusion	Door Switch	
13	DS-05	Security Panel Rear Door Intrusion	Door Switch	
14	LE-100	GST Level Well #1 Start	Level Probe (Existing)	FT
15	LE-101	GST Level Well #2 Start	Level Probe (Existing)	FT
16	PSL-100	HSP 1 Low Water Cutoff	Pressure Switch (Existing)	PSI
17	PSL-101	HSP 2 Low Water Cutoff	Pressure Switch (Existing)	PSI
18	PSL-102	HSP 3 Low Water Cutoff	Pressure Switch (Existing)	PSI

Note: Contractor shall coordinate with SAWS to determine instrument ranges.



NOTES

1. CONTRACTOR SHALL LOCATE ALL EXISTING DUCT BANKS PRIOR TO CONSTRUCTION AND NOTIFY SAWS AND THE ENGINEER OF ANY POTENTIAL CONFLICTS.
2. PROPOSED BOLLARDS SHALL BE PLACED IN A MANNER THAT DOES NOT CONFLICT WITH EXISTING OR PROPOSED UTILITIES. SEE DETAIL 2 ON SHEET C15 FOR BOLLARD INSTALLATION.
3. THE LIMITS OF CONSTRUCTION ARE DEFINED BY THE PROPERTY LINE.
4. SEE SHEET C2 FOR THE TIPPECANOE SITE BENCHMARKS.
5. RE-COAT AND INSULATE ALL EXPOSED ABOVE GROUND PIPING AND APPURTENANCES. INSTALL THERMAL JACKETING ON VALVES, METERS, AND PROCESS PIPING (N.S.P.I.).
6. ANY EXISTING PIPING THAT IS IMPACTED BY PROPOSED PAVEMENT AND SIDEWALK INSTALLATION SHALL BE LOWERED OR REPAIRED AS NEEDED (N.S.P.I.).
7. SEE SPECIFICATION 02519 FOR DISINFECTION AND SAMPLING PROCEDURE REQUIREMENTS.
8. CONTRACTOR SHALL PROTECT CONTROL POINTS ON SITE IN ACCORDANCE WITH NOTE 8 ON SHEET C1. (1)

LEGEND

- PROPOSED CHAIN-LINK FENCE
- PROPOSED CONCRETE DRIVEWAY
- PROPOSED CONCRETE
- PROPOSED HEADWORKS CONCRETE
- PROPOSED PAVEMENT REPAIR
- PROPOSED BOLLARD

FENCING COORDINATE TABLE (X)

Point #	Northing	Easting	Description
1A	13707039.17	2067760.39	FENCE CORNER
2A	13707040.13	2067885.37	FENCE CORNER
3A	13706932.82	2067886.41	FENCE CORNER
4A	13706991.33	2067760.85	GATE CORNER
5A	13706987.83	2067760.88	GATE CORNER
6A	13706931.78	2067761.42	FENCE CORNER

PAVING/SLAB COORDINATE TABLE (X)

Point #	Northing	Easting	Description
7A	13707038.01	2067869.89	EDGE OF PAVEMENT
8A	13707038.12	2067884.89	EDGE OF PAVEMENT
9A	13707011.54	2067786.25	EDGE OF PAVEMENT
10A	13707011.56	2067792.25	EDGE OF PAVEMENT
11A	13707009.24	2067829.67	CORNER OF BUILDING
12A	13707009.24	2067852.67	CORNER OF BUILDING
13A	13707025.24	2067850.01	CENTER OF RADIUS 20'
14A	13707025.29	2067870.01	PC OF 20' RADIUS
15A	13707005.54	2067786.26	EDGE OF HEADWORKS
16A	13707005.56	2067796.26	EDGE OF HEADWORKS
17A	13706995.54	2067786.28	EDGE OF HEADWORKS
18A	13706991.51	2067786.29	EDGE OF PAVEMENT
19A	13706987.94	2067776.23	EDGE OF PAVEMENT
20A	13706987.89	2067779.70	EDGE OF PAVEMENT
21A	13706970.04	2067774.61	EDGE OF PAVEMENT
22A	13706970.08	2067779.93	EDGE OF PAVEMENT
23A	13706988.01	2067790.67	EDGE OF PAVEMENT
24A	13706991.55	2067790.67	EDGE OF PAVEMENT
25A	13706991.54	2067796.29	EDGE OF PAVEMENT
26A	13706995.56	2067796.28	EDGE OF HEADWORKS
27A	13707005.24	2067836.17	EDGE OF PAVEMENT
28A	13707009.24	2067836.17	EDGE OF PAVEMENT
29A	13707009.24	2067846.17	EDGE OF PAVEMENT
30A	13707005.24	2067846.17	EDGE OF PAVEMENT
31A	13707021.24	2067829.67	CORNER OF BUILDING
32A	13707021.24	2067852.67	CORNER OF BUILDING
33A	13707005.24	2067850.06	PT OF 20' RADIUS
34A	13706991.54	2067846.51	PC OF 59' RADIUS
35A	13706942.28	2067814.08	CENTER OF RADIUS 59'
36A	13706932.74	2067873.91	PT OF 59' RADIUS/GATE CORNER
37A	13706932.82	2067885.91	EDGE OF PAVEMENT/GATE CORNER

JOB NO. 21-6007

STATE OF TEXAS
MARIO A. VALDEZ
121595
REGISTERED
PROFESSIONAL ENGINEER
1/9/2023

REVISIONS

No.	Description	Drn.	Approved	Date
1	REMOVE GENERATOR	SMM	MAV	1/9/23

INFORMATION

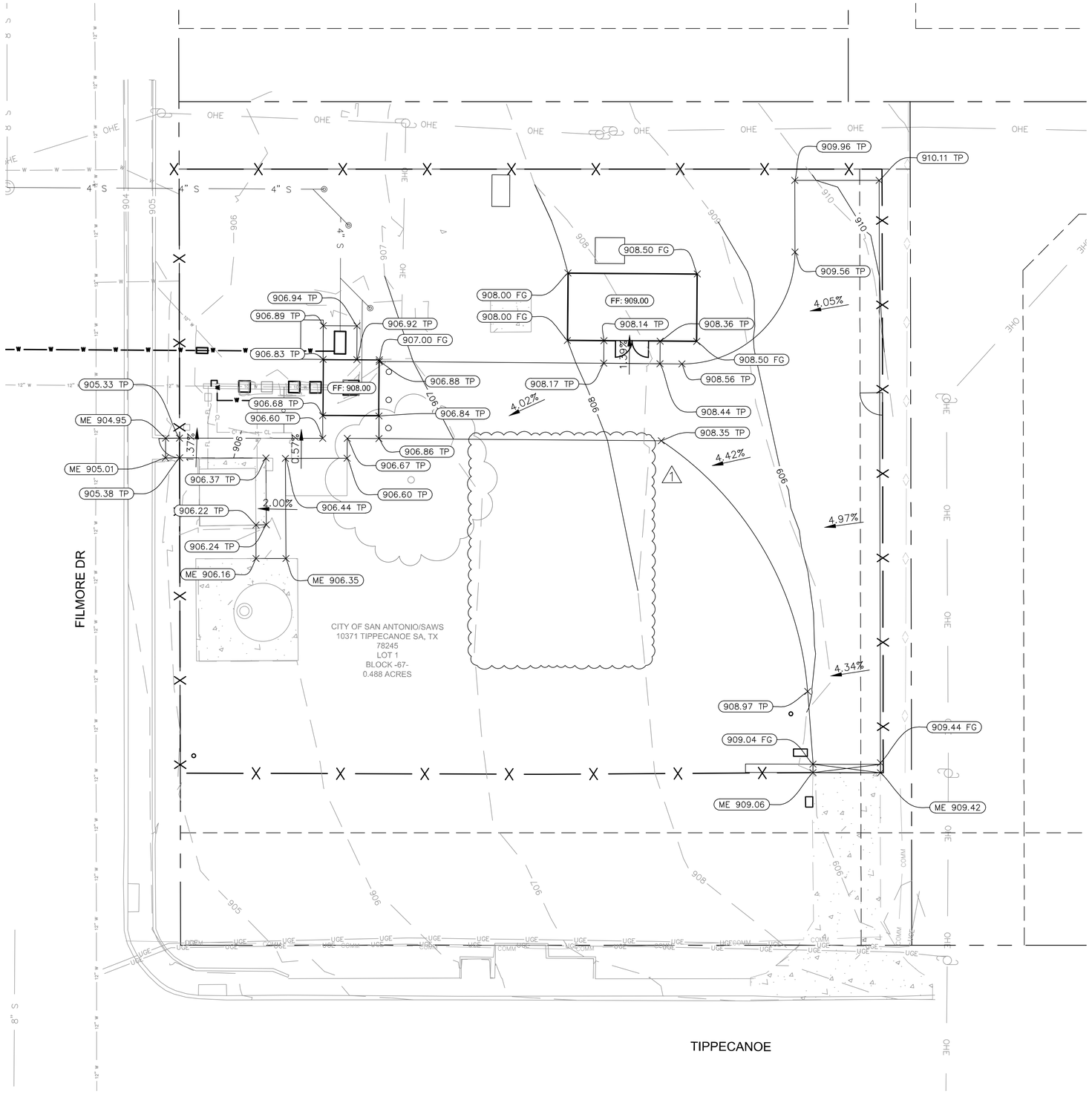
Date: JANUARY 2023
Drawn by: SMM
Designed by: MAV
Checked by: VRS
Scale: SHOWN ON SHEET

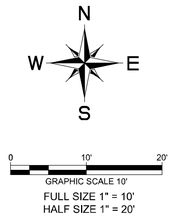
Kimley»Horn
TEXAS REGISTERED FIRM. NO. F-928

San Antonio Water System

SAN ANTONIO WATER SYSTEM
Water Production Facilities Electrical Upgrades
CIVIL PROPOSED PLANS - TIPPECANOE

DRAWING NO. C4





LEGEND

905	EXISTING CONTOURS
905	PROPOSED CONTOURS
890.50 FG	PROPOSED SPOT GRADE (FINISHED GROUND)
890.50 TP	PROPOSED SPOT GRADE (TOP OF PAVEMENT)
ME 890.50	MATCH EXISTING ELEVATION SPOT GRADE
R	RIDGE LINE

NOTES

1. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES AND PROVIDE AND MAINTAIN EROSION PROTECTION IN AND ADJACENT TO THE CONSTRUCTION LIMITS.
2. ALL STRUCTURES SHALL HAVE 6" OF CLEARANCE BETWEEN TOP OF SLAB AND PROPOSED NATURAL GROUND.
3. CONTRACTOR SHALL GRADE THE SITE TO PROVIDE POSITIVE DRAINAGE AROUND ALL STRUCTURES AND SLABS.
4. CONTRACTOR SHALL REESTABLISH ANY PROPERTY MARKERS, BENCHMARKS, ETC. DISTURBED DURING CONSTRUCTION TO ITS ORIGINAL LOCATION.
5. THE CONTRACTOR SHALL HAUL AWAY AND PROPERLY DISPOSE OF SURPLUS EXCAVATED MATERIALS AT NO COST TO THE OWNER. ANY REQUIRED PERMITS, OR OTHER ASSOCIATED DISPOSAL REQUIREMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
6. DISTURBED SOILS SHALL BE STABILIZED BY VEGETATION.
7. CONTRACTOR SHALL PROTECT EXISTING STORM SEWER INLETS ON SITES AND IN ADJACENT ROW AND PHASE CONSTRUCTION SUCH THAT INLET PROTECTION REMAINS IN PLACE UNTIL THE PROPOSED SYSTEM HAS BEEN SUBSTANTIALLY INSTALLED, AND RUNOFF DIVERTED.
8. ALL SPOTS GRADES ARE TO TOP OF PAVEMENT (TP) OR FINISHED GROUND (FG).
9. MAXIMUM RUNNING SLOPE SHALL NOT EXCEED 5% AND CROSS SLOPE SHALL NOT EXCEED 2% ON ALL SIDEWALKS UNLESS OTHERWISE NOTED. RUNNING SLOPE MAY EXCEED 5% IN PUBLIC ROW IF EXISTING ROAD SLOPE EXCEEDS 5%.
10. EXISTING MANHOLE TOPS, VALVE BOXES, ETC, ARE TO BE ADJUSTED AS REQUIRED TO MATCH PROPOSED GRADES IF NECESSARY. READJUSTMENTS SHALL BE PERFORMED UPON COMPLETION OF PAVING AND FINE GRADING TO ENSURE A SMOOTH TRANSITION.
11. CONTRACTOR TO MATCH EX. NATURAL GRADE AROUND ALL SLABS & STRUCTURES THAT ARE TO REMAIN.
12. CONTRACTOR SHALL GRADE UPSTREAM/DOWNSTREAM OF PROPOSED CULVERTS AS NEEDED TO PROVIDE POSITIVE DRAINAGE AND NO PONDING.
13. REFERENCE TO SHEET TP2 FOR THE TREES THAT SHALL BE PROTECTED.

JOB NO.
21-6007

STATE OF TEXAS
MARIO A. VALDEZ
121595
REGISTERED
PROFESSIONAL ENGINEER
1/9/2023

REVISIONS

No.	Description	Drn.	Approved	Date
1	REMOVE GENERATOR	SMM	MAV	1/9/23

INFORMATION

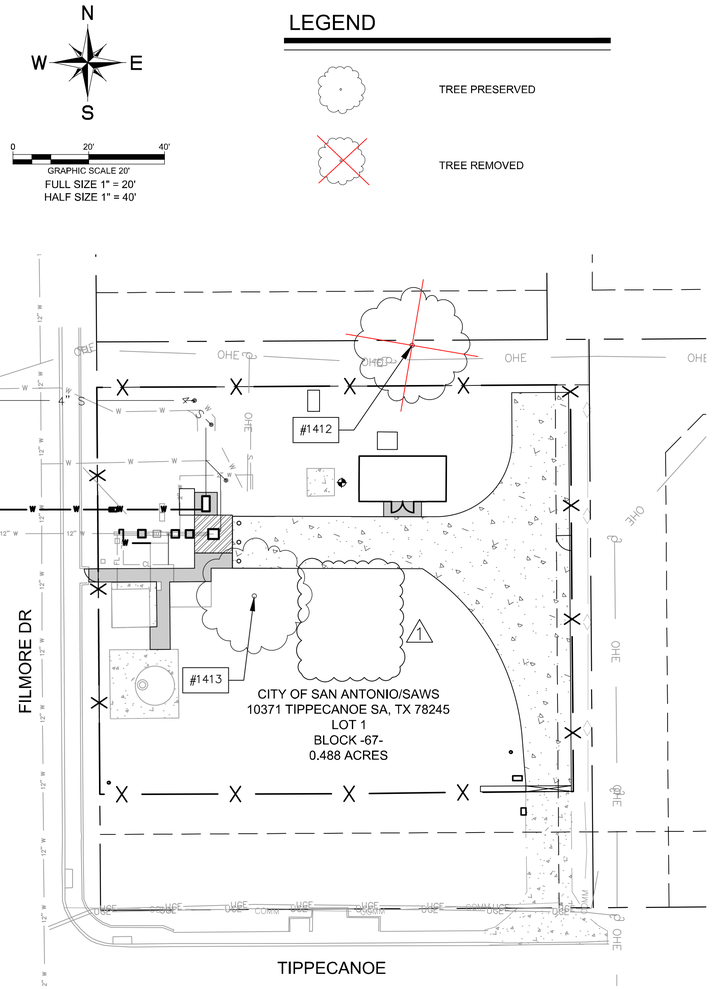
Kimley»Horn
TEXAS REGISTERED FIRM. NO. F-928

Date: JANUARY 2023
Drawn by: SMM
Designed by: MAV
Checked by: VRS
Scale: SHOWN ON SHEET

San Antonio Water System

SAN ANTONIO WATER SYSTEM
Water Production Facilities Electrical Upgrades
CIVIL GRADING PLANS - TIPPECANOE

DRAWING NO.
C5



TREE PRESERVATION SUMMARY									
		SMALL DIAMETER***		SIGNIFICANT TREE***		HERITAGE 3:1		HERITAGE 1:1	
		REMOVED	PRESERVED	REMOVED	PRESERVED	REMOVED	PRESERVED	REMOVED	PRESERVED
UPLANDS	TOTAL (INCHES)	20	0	0	0	0	0	0	0
	PRESERVATION %	0.0%		100.0%		100.0%		100.0%	
	ALLOWED %	0.0%		25.0%		100.0%		100.0%	
	MITIGATION REQUIRED (INCHES)	0		0		0		0	
	MITIGATION PROVIDED (INCHES)								
	TOTAL REQUIRED MITIGATION (INCHES)	0							
FLOODPLAIN	TOTAL (INCHES)	0	0	0	0	0	0	0	0
	PRESERVATION %	100.0%		100.0%		100.0%		100.0%	
	ALLOWED %	0.0%		80.0%		100.0%		100.0%	
	MITIGATION REQUIRED (INCHES)	0		0		0		0	
	MITIGATION PROVIDED (INCHES)								
	TOTAL REQUIRED MITIGATION (INCHES)	0							
RIPARIAN	TOTAL (INCHES)	0	0	0	0	0	0	0	0
	PRESERVATION %	100.0%		100.0%		100.0%		100.0%	
	ALLOWED %	0.0%		80.0%		100.0%		100.0%	
	MITIGATION REQUIRED (INCHES)	0		0		0		0	
	MITIGATION PROVIDED (INCHES)								
	TOTAL REQUIRED MITIGATION (INCHES)	0							
TOTAL REQUIRED MITIGATION (INCHES)									
0									

NO CATEGORY TO FALL BELOW 20%

PRESERVED- TREE TO REMAIN THAT MEETS ROOT PROTECTION ZONE REQUIREMENTS

MITIGATION- 1:1 FOR SIGNIFICANT TREES BELOW MINIMUM PRESERVATION REQUIREMENTS

*ENVIRONMENTAL BUFFER IS A 30 FEET BUFFER FROM THE 100 YEAR FLOODPLAIN THAT SHALL BE CALCULATED SEPARATELY FROM THE FLOODPLAIN AND UPLANDS AREAS

***SMALL SPECIES: CORDALIA, REBUD, TX. MOUNTAIN LAUREL, TX. PERSIMINON, HAWTHORN, POSSOMHAW PROECTED AT 5" DBH, HERITAGE AT 12" AND MITIGATED AT 1:1 HERITAGE

***ASHE JUNIPER, HUISACHE, AIZONA ASH, HACKBERRY PROTECTED AT 10" AND MITIGATED AT 1:1 HERITAGE

****NON-NATIVE: CHINESE, PISTACHE, CHINABERRY, CHINESE TALLOW, TREE OF HEAVE, SALT CEDAR, JAPANESE LINGUSTRUM ARE NOT PROTECTED AND NOT COUNTED IN PRESERVATION OR MITIGATION CALCULATIONS

TREE INVENTORY																			
SHEET	TAG#	SPECIES ****	SIZE (INCHES)	SIGNIFICANT	HERITAGE	HERITAGE 3:1 (Y/N)	HERITAGE 1:1 (Y/N)	FLOODPLAIN (Y/N)	RIPARIAN (Y/N)	PROTECTION LEVEL	EXEMPT CODE	SMALL DIAMETER ***		SIGNIFICANT TREE***		HERITAGE 3:1		HERITAGE 1:1***	
												REMOVED	PRESERVED	REMOVED	PRESERVED	REMOVED	PRESERVED	REMOVED	PRESERVED
1	1412	MESQUITE	20	N	N	N	N	N	N	REMOVE		20							
1	1413	TALLOW	23	N	N	N	N	N	N	1									

TREE TOTALS								
	SMALL DIAMETER ***		SIGNIFICANT TREE ***		HERITAGE 3:1		HERITAGE 1:1***	
	REMOVED	PRESERVED	REMOVED	PRESERVED	REMOVED	PRESERVED	REMOVED	PRESERVED
UPLANDS	20	0	0	0	0	0	0	0
FLOODPLAIN	0	0	0	0	0	0	0	0
RIPARIAN	0	0	0	0	0	0	0	0

NO CATEGORY TO FALL BELOW 20%

PRESERVED- TREE TO REMAIN THAT MEETS ROOT PROTECTION ZONE REQUIREMENTS

MITIGATION- 1:1 FOR SIGNIFICANT TREES BELOW MINIMUM PRESERVATION REQUIREMENTS

*ENVIRONMENTAL BUFFER IS A 30 FEET BUFFER FROM THE 100 YEAR FLOODPLAIN THAT SHALL BE CALCULATED SEPARATELY FROM THE FLOODPLAIN AND UPLANDS AREAS

***SMALL SPECIES: CORDALIA, REBUD, TX. MOUNTAIN LAUREL, TX. PERSIMINON, HAWTHORN, POSSOMHAW PROECTED AT 5" DBH, HERITAGE AT 12" AND MITIGATED AT 1:1 HERITAGE

***ASHE JUNIPER, HUISACHE, AIZONA ASH, HACKBERRY PROTECTED AT 10" AND MITIGATED AT 1:1 HERITAGE

****NON-NATIVE: SHINESE, PISTACHE, CHINABERRY, CHINESE TALLOW, TREE OF HEAVE, SALT CEDAR, JAPANESE LINGUSTRUM ARE NOT PROTECTED AND NOT COUNTED IN PRESERVATION OR MITIGATION CALCULATIONS

EXEMPTIONS

1. TREE IS DEAD

2. TREE IS IN POOR HEALTH

3. TREE DETERMINED TO BE EXEMPT BY COSA

JOB NO.

21-6007

MARIO A. VALDEZ 121595 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

1/9/2023

REVISIONS

No.	Description	Drn.	Approved	Date
1	REMOVE GENERATOR	SMM	MAV	1/9/23

INFORMATION

Kimley»Horn

TEXAS REGISTERED FIRM. NO. F-928

Date: JANUARY 2023
Drawn by: SMM
Designed by: MAV
Checked by: VRS
Scale: SHOWN ON SHEET

San Antonio Water System

SAN ANTONIO WATER SYSTEM

Water Production Facilities Electrical Upgrades

TREE PRESERVATION PLAN - TIPPECANOE

DRAWING NO.

TP2

LOAD SCHEDULE	XFMR CONNECTED	DEMAND
DESCRIPTION	LOAD	LOAD
250 HP WP1	251 KVA	251 KVA
XFMR A	45 KVA	30 KVA
25% LARGEST PUMP	63 KVA	63 KVA
	359 KVA	344 KVA

LEGEND

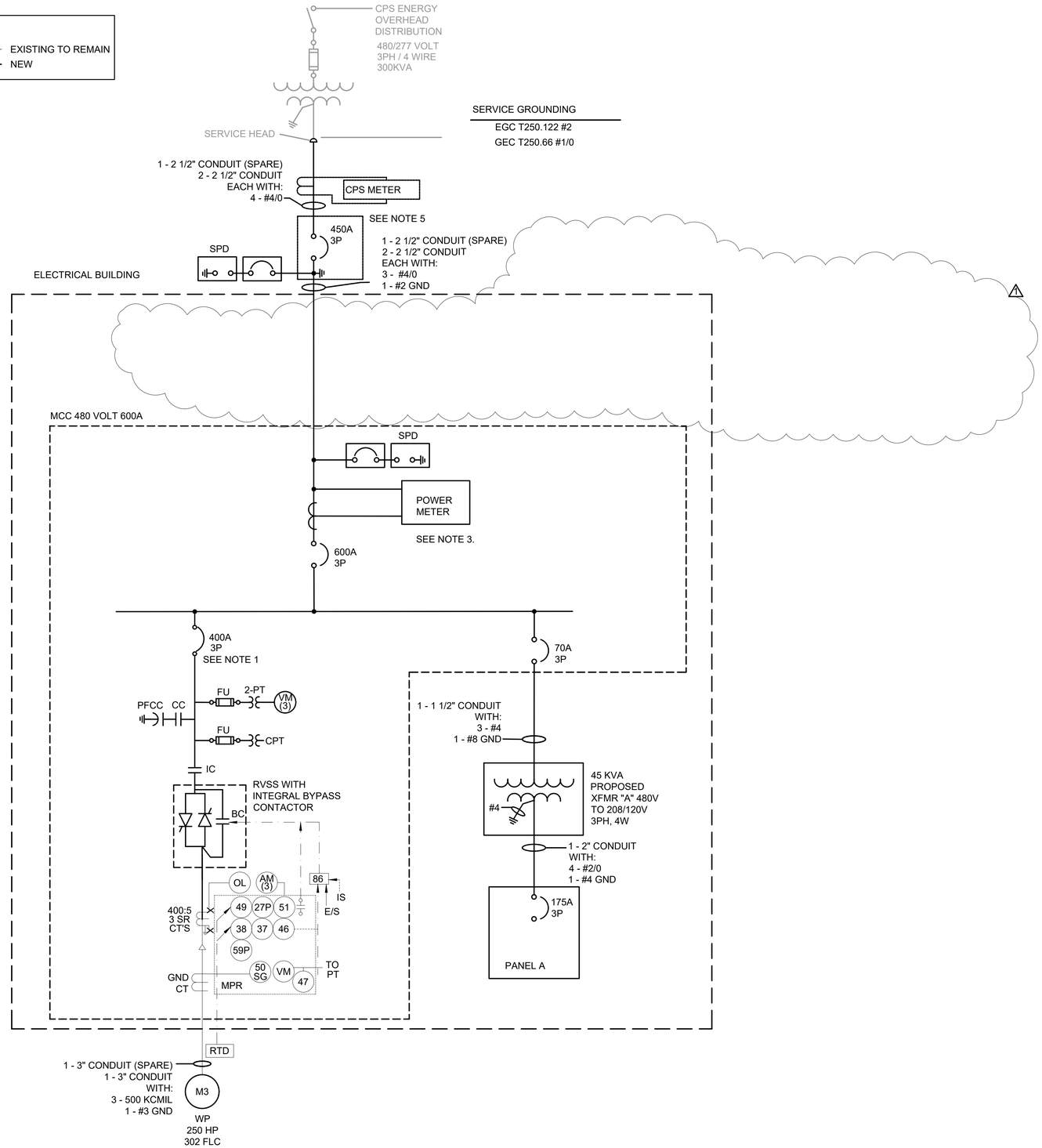
- EXISTING TO REMAIN
- NEW

SHEET NOTES:

1. INVERSE TIME BREAKER, NEC 430.52(C)(1).
2. NOT USED.
3. INCOMING LINE POWER MONITORING IS MULTILIN PQM-II.
4. IF PROVIDED PUMPS ARE NOT SIZED PER PROJECT PLANS, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ENGINEERING REQUIRED FOR RESIZING ALL EQUIPMENT AT NO CHARGE TO SAWS.
5. SERVICE ENTRANCE RATED.

LEGEND

AS - AMMETER SWITCH	SPD - SURGE PROTECTIVE DEVICE
AM - AMMETER	SF - SERVICE FACTOR
ATS - AUTOMATIC TRANSFER SWITCH	SRCT - SINGLE RATIO CURRENT TRANSFORMER
BT - BEARING TEMPERATURE RELAY	VM - VOLTMETER
CD - CAPACITOR TRIP DEVICE	VS - VOLTMETER SWITCH
CPT - CONTROL POWER TRANSFORMER	27P - PHASE UNDERVOLTAGE RELAY
CT - CURRENT TRANSFORMER	38 - BEARING RTD
FLC - FULL LOAD CURRENT	46 - REVERSE PHASE OR PHASE BALANCE CURRENT RELAY
FMR - FEEDER MANAGEMENT RELAY	47 - PHASE SEQUENCE OR PHASE BALANCE VOLTAGE RELAY
FU - FUSE	49 - THERMAL OVERLOAD RELAY (FOR RTDS)
G - GENERATOR	50GS - INSTANTANEOUS GROUND SENSOR RELAY (FOR ALARM ONLY)
HP - HORSEPOWER	51P - PHASE OVERCURRENT RELAY
HSP - HIGH SERVICE PUMP	59P - PHASE OVERVOLTAGE RELAY
KI - KEYED MECHANICAL INTERLOCK	86 - LOCKOUT RELAY
L - LOAD	
LRA - LOCKED ROTOR AMPS	
MPR - MOTOR PROTECTION RELAY	
N - NORMAL	
OL - OVERLOADS	
PFCC - POWER FACTOR CORRECTION CAPACITOR	
PT - POTENTIAL TRANSFORMER	
PRR - PHASE REVERSAL RELAY	
PLR - PHASE LOSS RELAY	
RTD - RESISTIVE TEMP DEVICE	
RVSS- REDUCED VOLTAGE SOFT START	



A PROPOSED ELECTRICAL ONE-LINE DIAGRAM

SCALE: N.T.S.

JOB NO.

21-6007

STATE OF TEXAS
ROBERT D. GRUBB
16779
REGISTERED
PROFESSIONAL
ENGINEER

1/20/23

REVISIONS

No.	Description	Drn.	Approved	Date
1	ADDENDUM #2	SG	RDG	1/20/23

INFORMATION

GRUBB ENGINEERING, INC.
ELECTRICAL POWER SYSTEMS
DESIGN AND TESTING

TBPE FIRM REGISTRATION NO. 3904

Date: September 7, 2021
Drawn by: SG, CG
Designed by: CG, MG
Checked by: SM
Scale: NOT TO SCALE
Approved by: MG

San Antonio Water System

SAN ANTONIO WATER SYSTEM

Water Production Facilities Electrical Upgrades

PROPOSED ONE-LINE DIAGRAM
TIPPECANOE

DRAWING NO.

E5