



SAN ANTONIO WATER SYSTEM  
DSP Southeast Tank and Pump Station Project  
SAWS Job Nos. 13-6102 (DSP) & 13-6005  
Solicitation No. CO-00006

ADDENDUM NO. 2

August 3, 2015

**TO BIDDER OF RECORD:**

**The following changes, additions, and/or deletions are hereby made as part of the Contract Documents for the DSP Southeast Tank and Pump Station Project, for the San Antonio Water System, San Antonio, Texas, dated September 2014, as fully and completely as if the same were set forth therein.**

**PART 1 – BIDDING AND CONTRACT DOCUMENTS (NOT USED)**

**PART 2 – TECHNICAL SPECIFICATIONS**

**1. SECTION 04220, CONCRETE UNIT MASONRY:**

a. ADD Paragraph 2.02. E:

“E. Applied Water Repellents

1. Siloxane, Penetrating Water Repellent: Clear, containing **10** percent or more solids of oligomeric alkylalkoxysiloxanes; with alcohol, ethanol, mineral spirits, water, or other proprietary solvent carrier; and with 600 g/L or less of VOCs.

Basis of Design: Prosoco Weather Seal Siloxane WB Concentrate, Prosoco Inc. or comparable product by:

Diedrich Technology

TK Products”

**2. SECTION 16424, LOW VOLTAGE DISTRIBUTION SWITCHBOARDS:**

- a. REPLACE this specification in its entirety with the attached specification.

**3. SECTION 16481, LOW VOLTAGE MOTOR CONTROLLERS AND CONTACTORS:**

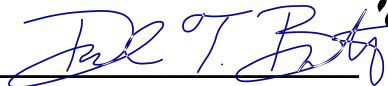
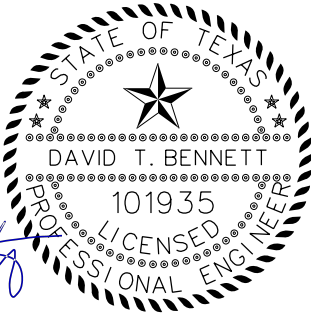
- a. DELETE Paragraph 2.03.B.2 in its entirety.
- b. DELETE Paragraph 2.03.B.3 in its entirety.
- c. DELETE Paragraph 2.03.B.4 in its entirety.
- d. DELETE Paragraph 2.03.B.6 in its entirety.

- e. DELETE Paragraph 2.03.B.7 in its entirety.
- f. DELETE Paragraph 2.03.B.8 in its entirety.
- g. RE-NUMBER Paragraph 2.03.B.5 as “2.03.B.2”

### **PART 3 – DRAWINGS**

- 1. SHEET C-22:
  - a. REPLACE this drawing in its entirety with the attached drawing.
- 2. SHEET SD-3:
  - a. REPLACE this drawing in its entirety with the attached drawing.
- 3. SHEET A-7:
  - a. REPLACE Chlorine Building Door Schedule and ADD Door Types and Frame Types. See Figure A-7a, attached. The Electrical Building’s Door Schedule, Door Types, and Frame Types remain as noted on Sheet A-7.
- 4. SHEET E-8:
  - a. REPLACE this drawing in its entirety with the attached drawing.
- 5. SHEET E-10:
  - a. REPLACE this drawing in its entirety with the attached drawing.
- 6. SHEET E-12:
  - a. REPLACE this drawing in its entirety with the attached drawing.
- 7. SHEET E-14:
  - a. REPLACE this drawing in its entirety with the attached drawing.

ALL BIDDERS SHALL ACKNOWLEDGE RECEIPT OF ADDENDUM NO. 2 IN THE BID FORM AND BY HIS/HER SIGNATURE AFFIXED HERETO AND TO FILE SAME AS AN ATTCHMENT TO HIS/HER BID. BID FORMS SUBMITTED WITHOUT THIS ACKNOWLEDGEMENT WILL BE CONSIDERED INFORMAL.

  
 08-03-15

**David T. Bennett, P.E.**

Freese and Nichols, Inc.

FREESE AND NICHOLS, INC.  
TEXAS REGISTERED  
ENGINEERING FIRM  
F-2144

**ACKNOWLEDGEMENT BY BIDDER**

THE UNDERSIGNED ACKNOWLEDGES RECEIPT OF THIS ADDENDUM NO. 2 AND THE BID SUBMITTED HERewith IS IN ACCORDANCE WITH THE INFORMATION AND STIPULATION SET FORTH.

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Date

Signature of bidder

Appended hereto and part of Addendum No. 2 is:

1. SPECIFICATION 16424, LOW VOLTAGE DISTRIBUTION SWITCHBOARDS
2. SHEET C-22
3. SHEET SD-3
4. SHEET A-7
5. SHEET E-8
6. SHEET E-10
7. SHEET E-12
8. SHEET E-14
9. CONTRACTOR QUESTIONS AND ANSWERS DOCUMENT

END OF ADDENDUM NO. 2

## SECTION 16424

### LOW VOLTAGE DISTRIBUTION SWITCHBOARDS

#### PART 1 GENERAL

##### 1.01 SCOPE OF WORK

- A. The Contractor shall furnish and install assemblies of low voltage switchboard together with appurtenances and associated equipment as specified herein, complete and operable, and as shown on the Contract Drawings.

##### 1.02 RELATED WORK

- A. Section 16000 Electrical – General Provisions
- B. Section 16045 Electrical Support Hardware
- C. Section 16105 Power System Study
- D. Section 16196 Low Voltage AC Surge Protective Devices (SPDs)
- E. Section 16195 Power Metering and Protective Relays

##### 1.03 SUBMITTALS

- A. Submittals shall be made in accordance with the requirements of Division 1, Section 16000 and as specified herein.
- B. Provide systems engineering with coordination curves, to demonstrate coordination between proposed breakers and/or fuses submitted, such that protective device coordination is accomplished. Such curves and settings shall be included as a part of these submittals.
- C. Submittals shall also contain information on related equipment to be furnished under this Specification but described in the related sections listed in the Related Work paragraph above. Incomplete submittals not containing the required information on the related equipment will also be returned unreviewed.
- D. Shop Drawings and Product Data. The following information shall be submitted to the Engineer:
  - 1. Equipment outline drawings showing elevation and plan views, dimensions, weight, shipping splits and metering layouts. Indicate all options, special features, ratings and deviations from the Specifications.
  - 2. Conduit entrance drawings, including floor penetrations.
  - 3. Bus arrangement drawings.
  - 4. Unit summary tables showing detailed equipment description and nameplate data for each compartment.

5. Product data sheets and catalog numbers for overcurrent protective devices, motor starters, control relays, control stations, meters, pilot lights, etc. List all options, trip adjustments and accessories furnished specifically for this project. Clearly mark each sheet to indicate which items apply and/or those items that do not apply.
6. Provide control systems engineering to produce custom unit elementary drawings showing interwiring and interlocking between units and to remotely mounted devices. Show wire and terminal numbers. Indicate special identifications for electrical devices per the Drawings.
7. Master drawing index
8. Front view elevation
9. Floor plan
10. Top view
11. Single line
12. Schematic diagram
13. Nameplate schedule
14. UL Listing of the completed assembly.
15. Component list with detailed component information, including original manufacturer's part number.
16. Conduit entry/exit locations
17. Assembly ratings including:
  - a. Short-circuit rating
  - b. Voltage
  - c. Continuous current
18. Major component ratings including:
  - a. Voltage
  - b. Continuous current
  - c. Interrupting ratings
19. Descriptive bulletins
20. Product data sheets.
21. Number and size of cables per phase, neutral if present, ground and all cable terminal sizes.
22. Key interlock scheme drawing, if used, and sequence of operations
23. Floor mat

- E. Factory Tests. Submittals shall be made for factory tests specified herein.
- F. Field Test Reports. Submittals shall be made for field tests specified herein.
- G. Operation and Maintenance Manuals.
  - 1. Operation and maintenance manuals shall include the following information:
    - a. Manufacturer's contact address and telephone number for parts and service.
    - b. Instruction books and/or leaflets
    - c. Recommended renewal parts list
    - d. Record Documents for the information required by the Submittals paragraph above.
    - e. Field Test Reports
- H. The manufacturer shall submit for approval, a training agenda for all training specified herein. Training agenda shall not be submitted until final approval of the Operation and Maintenance Manual.

#### **1.04 REFERENCE CODES AND STANDARDS**

- A. The low voltage distribution switchboard assembly and all components in this specification shall be designed and manufactured according to latest revision of the following standards (unless otherwise noted):
  - 1. ANSI/NFPA 70 – National Electrical Code (NEC)
  - 2. NEMA Standard PB 2 - Deadfront Distribution Switchboards
  - 3. UL 891 - Standard for Dead Front Switchboards
  - 4. UL 489 – Standard for Safety for Molded-Case Circuit Breakers
- D. All equipment components and completed assemblies specified in this Section of the Specifications shall bear the appropriate label of Underwriters Laboratories.
- E. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.
- F. In the case of conflict between the requirements of this Section and those of the listed documents, the requirements of this Section shall prevail.

#### **1.05 QUALITY ASSURANCE**

- A. The manufacturer of this equipment shall have produced similar equipment for a minimum period of ten (10) years. When requested by the Engineer, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.
- B. The manufacturer of the assembly shall be the manufacturer of the major components within the assembly. All assemblies shall be of the same manufacturer. Equipment that is manufactured by a third party and “brand labeled” will not be acceptable.

- C. All components and material shall be new and of the latest field proven design and in current production. Obsolete components or components scheduled for immediate discontinuation shall not be used.
- D. Equipment submitted shall fit within the space shown on the Drawings. Equipment which does not fit within the space is not acceptable.
- E. For the equipment specified herein, the manufacturer shall be ISO 9001 2000 certified.

#### **1.06 JOBSITE DELIVERY, STORAGE AND HANDLING**

- A. Prior to jobsite delivery, the Contractor shall have successfully completed all submittal requirements, and present to the Owner/Engineer upon delivery of the equipment, an approved copy of all such submittals. Delivery of incomplete constructed equipment, or equipment which failed any factory tests, will not be permitted.
- B. Equipment shall be handled and stored in accordance with manufacturer's instructions. Two (2) copies of these instructions shall be included with the equipment at time of shipment, and shall be made available to the Contractor and Owner.
- C. Shipping groups shall be designed to be shipped by truck, rail, or ship. Indoor groups shall be bolted to skids. Breakers and accessories shall be packaged and shipped separately.
- D. Equipment shall be equipped to be handled by crane as recommended by the manufacturer. Where cranes are not available, or not recommended by the manufacturer, equipment shall be suitable for skidding in place on rollers using jacks to raise and lower the groups.
- E. Equipment shall be installed in its permanent finished location shown on the Drawings within seven (7) calendar days of arriving onsite. If the equipment cannot be installed within seven (7) calendar days, the equipment shall not be delivered to the site, but stored offsite, at the Contractor's expense, until such time that the site is ready for permanent installation of the equipment.
- F. Where space heaters are provided in equipment, provide temporary electrical power and operate space heaters during jobsite storage, and after equipment is installed in permanent location, until equipment is placed in service.

#### **1.07 WARRANTY**

- A. The Manufacturer shall warrant the equipment to be free from defects in material and workmanship for two (2) years from date of final acceptance of the switchboard. Within such period of warranty the Manufacturer shall promptly furnish all material and labor necessary to return the switchboard to new operating condition. Any warranty work requiring shipping or transporting of the equipment shall be performed by the Manufacturer, at no expense to the Owner.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Subject to compliance with the Contract Documents, the following Manufacturers are acceptable:
  - 1. General Electric Co.
  - 2. Eaton / Cutler-Hammer
  - 3. Square D
  - 4. Siemens
- B. The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety.

### **2.02 RATINGS**

- A. Switchboard
  - 1. The switchboards described in this specification shall be designed for operation on the voltage systems as shown on the Drawings.
  - 2. The switchboards and protective devices shall be fully rated for a short circuit current of 42,000 rms symmetrical amperes (minimum) or greater if shown on the Drawings. Systems employing series connected ratings shall not be used.
  - 3. Where a switchboard shown on the Drawings is identified as having Main Power Circuit Breaker(s), the switchboard, power circuit breakers, bus and all associated equipment, shall be fully 30 cycle withstand rated.
  - 4. The manufacturer shall design the switchboard, including devices, for continuous operation at its rated current in a 40 degree C ambient temperature.
  - 5. Where a switchboard is shown or used as service entrance equipment on the Drawings, the switchboard shall be suitable for use as service entrance equipment and shall be labeled in accordance with UL requirements.

### **2.03 CONSTRUCTION**

- A. General
    - 1. The switchboards described in this specification shall contain factory assembled and operational tested circuit breakers and accessories and be self-supporting in a manner to be installed on a level concrete pad.
    - 2. Refer to Drawings for: actual layout and location of equipment and components; current ratings of devices, bus bars, components; protective relays, voltage ratings of devices, components and assemblies; and other required details.
    - 3. Where the equipment contains a programmable logic controller (PLC) or a uninterruptible power supply (UPS), the equipment manufacturer shall furnish
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factory installed, a dedicated Point of Utilization Device (SPD), as specified in Section 16196, Individual Control Panel and Related Equipment Protection (Type 3).

4 Nameplates

a. External

- 1) Furnish nameplates for each device as specified herein and as indicated on the Drawings. All nameplates shall be laminated plastic, black lettering on a white background, attached with stainless steel screws. There shall be a master nameplate that indicates equipment ratings, manufacturer's name, shop order number and general information. Cubicle nameplates shall be mounted on the front face.

b. Internal

- 1) Control components mounted within the assembly, such as fuse blocks, relays, pushbuttons, switches, etc., shall be suitably marked for identification, corresponding to appropriate designations on manufacturer's wiring diagrams.
- 2) The manufacturer shall not remove, reuse, alter, or replace original equipment nameplates or equipment tags associated with equipment or components supplied by the manufacturer's suppliers and sub-suppliers.

c. Special

- 1) Identification nameplates shall be white with black letters, caution nameplates shall be yellow with black letters, and warning nameplates shall be red with white letters.

5. Control Devices and Indicators

- a. All operating control devices, indicators, and instruments shall be securely mounted on the panel door.
- b. Furnish nameplates for each device. All nameplates shall be laminated plastic, black lettering on a white background, attached with stainless steel screws. Device mounted nameplates are not acceptable.
- c. The manufacturer shall not remove, reuse, alter, or replace original equipment nameplates or equipment tags associated with equipment or components supplied by the manufacturer's suppliers and sub-suppliers.

6. Control and Instrument Power Transformers

- a. Control power transformers shall be provided where shown on the Drawings.
- b. Control power transformers shall be 120 volt grounded secondary. Primary side of the transformer shall be fused in both legs. One leg of the transformer secondary shall be solidly grounded while the other leg shall be fused.

B. Enclosures

1. Enclosures shall be indoor NEMA 1 or outdoor NEMA 3R non-walk-in, unless otherwise shown on the Drawings, freestanding, metal enclosed assemblies, consisting of dead front, completely metal enclosed vertical sections.
  2. Switchboard shall consist of the required number of vertical sections bolted together to form a rigid assembly. The sides and rear shall be covered with removable bolt-on covers. All edges of front covers or hinged front panels shall be formed. Provide adequate ventilation within the enclosure.
  3. All sections of the switchboard shall be front and rear aligned. Devices shall be front removable and load connections front accessible. Distribution sections shall have group mounted devices thru 1200A and individually mounted devices above 1200A.
  4. The assembly shall be provided with adequate lifting means.
  5. The switchboard shall be arranged so that the uppermost operating handle shall not exceed 6-ft-6-in from the floor when the switchboard is mounted on a 4-in high equipment pad.
  6. Where a cable pull section for utility and/or generator requirements, they shall be as shown on the Drawings.
  7. Where switchboards are shown outdoors, enclosure shall be non-walk-in or walk-in, as shown on the Drawings, and meet applicable NEMA 3R requirements of UL.
    - a. The enclosure shall be provided with bolt-on rear covers for each section. Each section shall have front access.
    - b. Doors shall have provisions for padlocking.
    - c. Each cubicle bay shall be supported on a heavy gauge, welded steel channel base extending around all four sides, constructed to exclude rodents, vermin, and dust. Apply a non-flammable undercoating to the base and to the underside of the cubicle floor plates.
    - d. Roof structure shall be watertight with a continuous drip edge channel on the front. Roof shall slope to the rear for water drainage. Holes for lifting eyes shall be blind tapped.
    - e. Provide tamper resistant, padlockable, weathertight, gasketed cubicle doors and switch handle covers, with stainless steel hinge pins.
    - f. Raintight, corrosion resistant ventilation louvers shall provide air circulation within the structure, while excluding insects, vermin, dust and sand if required by the manufacturer.
    - g. Each cubicle shall have heavy duty, 120 VAC, space heaters, thermostat controlled, of sufficient capacity to prevent condensation with the equipment de-energized, while operating at half their rated voltage. Heaters shall be provided with perforated metal guards and a circuit breaker disconnect. Provision shall be made for an externally powered 120 Volt or 240 Volt
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circuit.

- h. If ventilation openings are required by the manufacturer, they shall be provided complete with replaceable fiber glass air filters.

#### C. Busses

1. All busses, including neutral and ground busses, shall be tin plated copper, sized as shown on the Drawings. Neutral bus shall be fully rated.
2. Busses shall be braced for the specified equipment short circuit current rating.
3. All joint connections shall be joined with bolts and conical spring-type washers.
4. Feeder sections shall have full height vertical bus.
5. Provide a tin plated copper ground bus, minimum  $\frac{1}{4}$  x 2 inches, extending throughout the entire length of the switchboard, equipped with sufficient provisions for lugs for external ground connections, cable grounding conductors and conduit grounding, and sized for cables shown on the Drawings.
6. Unused spaces, or spaces indicated for future devices shall include doors, bus, device supports or mounting plates and connections.

#### D Wiring and Terminations

1. Small wiring, necessary fuse blocks and terminal blocks within the switchboard shall be furnished as required. Control components mounted within the assembly, such as fuse blocks, relays, pushbuttons, switches, etc., shall be suitably marked for identification corresponding to appropriate designations on the manufacturer's wiring diagrams.
2. Mechanical-type terminals shall be provided for all line and load terminations, except for main incoming conductors, suitable for copper cable rated for 75 degrees C of the size as indicated on the drawings. Main incoming conductors shall have compression type lugs.
3. Lugs shall be provided in the incoming line section for connection of the main grounding conductor. Additional lugs for connection of external ground connections, cable grounding conductors and conduit grounding, and sized for cables shown on the Drawings.
4. All control wire shall be type SIS, bundled and secured with nylon ties. Insulated locking spade terminals shall be provided for all control connections, except where saddle type terminals are provided integral to a device. All current transformer secondary leads shall first, be connected to conveniently accessible short-circuit terminal blocks, before connecting to any other device. All groups of control wires leaving the switchboard shall be provided with terminal blocks with suitable numbering strips. Provide wire markers at each end of all control wiring. Wire tags shall be heat shrink type "Brady" or approved equal with the tag numbers typed with an indelible marking process. Character size shall be a minimum of 1/8" in height. Hand written tags shall not be acceptable. Tags relying on adhesives or taped-on markers are not acceptable.

#### E. Main Section

1. Where the main incoming conductors are shown to terminate in the main breaker section, sufficient vertical space shall be provided to route the cables from the conduit entry to the main compression type lugs without exceeding the cable manufacturer's minimum bending radius of any of the incoming cables. Entry of incoming cables shall be as shown or noted on the Drawings.
2. Where an auxiliary or incoming cable pull section is shown on the Drawings, provide bus extensions and compression lugs for the number and size of incoming cables. Sufficient vertical space shall be provided to route the cables from the conduit entry to the main compression type lugs without exceeding the cable manufacturer's minimum bending radius of any of the incoming cables. Incoming cables shall be top entry or bottom entry as shown or noted on the Drawings.
3. Where the switchboard is served by an incoming busway, the switchboard manufacturer shall be responsible for coordination, proper phasing and internal bussing to the incoming busway.

#### F. Surge Protective Devices

1. Furnish where shown on the Drawings, or specified herein, a manufacturer provided and installed, Low Voltage Surge protective Devices (SPD) (Type 2), specified in Section 16196 of these Specifications. Connection to the switchboard shall be with a surge rated disconnect, mounted integral to the switchboard.
2. Where the equipment contains a programmable logic controller (PLC) or a uninterruptible power supply (UPS), the equipment manufacturer shall furnish factory installed, a dedicated Point of Utilization Device (SPD), as specified in Section 16196, Individual Control Panel and Related Equipment Protection (Type 3).

#### G. Main Circuit Protective Devices

1. Unless otherwise shown on the Drawings, single main or main-tie-main circuit breakers, 1200 amperes and larger, shall be individually mounted, insulated case (ICCB), 3 Pole, 600 Volt and electrically operated where shown. Trip device shall be solid state with adjustable long time pickup, and delay; adjustable short time pickup and delay; short time  $i^2t$  switch; high range instantaneous (fixed at the breaker's short-time withstand rating), [adjustable ground fault pickup and delay; ground fault delay and pickup trips for selective tripping], and overload, short circuit, and ground fault indicator lights,
2. Where shown on the Drawings Main and Tie circuit breakers shall have an alternate maintenance setting switch, (AMS), which shall allow the breaker to be placed in a trip mode, equivalent to the unrestrained clearing time of the instantaneous maximum clearing time of the circuit breaker. The AMS shall have a lockable OFF/ON maintenance mode local switch with Maintenance Mode "ON" indicating light, and "ON" dry contact for remote status. All lights shall be of the LED type. Where the AMS is indicated as remote to the circuit breaker, the switch

and all lights indicated above shall be located at the location shown on the Drawings, and with a “Maintenance Mode ON” indication on the circuit breaker enclosure, provide signals to SCADA.

3. Molded and insulated case breakers shall have a UL 489 listing.
4. Power Circuit Breakers (ICCB) shall have a UL 1066 listing.
5. Main devices shall be equipped with contacts for remote status trip indication and “inhibit” function as shown on the Drawings. Device rating shall be as shown on the Drawings.]
6. For additional ratings and construction notes, refer to the Drawings.

J. Control and Instrument Power Transformers

1. Control power transformers, encapsulated, shall be provided where shown on the Drawings or as required by the manufacturer for operation.
2. Control power transformers shall be 120 volt grounded secondary. Primary side of the transformer shall be fused in both legs. One leg of the transformer secondary shall be solidly grounded while the other leg shall be fused.

L. Feeder Protective Devices

1. Unless otherwise shown on the Drawings, circuit breakers shall be group mounted through 1200A, and individually mounted, insulated case (ICCB), molded case type, 3 Pole, 600 Volt. Trip device shall be solid state with adjustable long time pickup, and delay; adjustable short time pickup and delay; short time i<sup>2</sup>t switch; high range instantaneous (fixed at the breaker’s short-time withstand rating), [adjustable ground fault pickup and delay; ground fault delay and pickup trips for selective tripping], and overload, short circuit, and ground fault indicator lights,
2. Where shown on the Drawings or specified herein, circuit breakers shall have an alternate maintenance setting switch, (AMS), which shall allow the breaker to be placed in a trip mode, equivalent to the unrestrained clearing time of the instantaneous maximum clearing time of the circuit breaker. The AMS shall have a lockable OFF/ON maintenance mode local switch with Maintenance Mode “ON” indicating light, and “ON” dry contact for remote status. All lights shall be of the LED type. Where the AMS is indicated as remote to the circuit breaker, the switch and all lights indicated above shall be located at the location shown on the Drawings, in a 4X 316 stainless steel enclosure, and with a “Maintenance Mode ON” indication on the circuit breaker enclosure.
3. Molded case and Insulated case breakers shall have a UL 489 listing.
4. For additional ratings and construction notes, refer to the Drawings.

## 2.04 METERING – MAIN BREAKERS

- A. Furnish where show on the Drawings, a Power Quality Meter, for each Main and Feeder Breaker, as shown on the Drawings and as specified in Section 16195 Power

Metering and Protective Relays.

## **2.05 REMOTE MONITORING AND CONTROL INTERFACE**

- A. General: All control and interconnection points from the equipment to the plant control and monitoring system shall be brought to a separate connection box. No field connections shall be made directly to the equipment control devices. Functions to be brought out shall be as described in the Control Strategies in Section 1317400.
- B. The equipment manufacturer shall factory enter the proper IP Address for such connection. Upon request by the Contractor, the Owner/Engineer will provide the proper Internet Protocol Address (IP Address), to be configured by the equipment manufacturer.
- C. Refer to Section 1317405 Instrumentation Input Output List for monitored parameters.
- D. Communication
  - 1. For remote monitoring, one of the following communication capabilities shall be provided:
    - a. One (1) integral 10/100BaseT Ethernet port supporting Modbus TCP, Ethernet IP protocols.
    - b. One (1) media protocol converter, interfacing the provided equipment to a 10/100BaseT Ethernet port supporting Modbus TCP, Ethernet IP.

## **2.06 FACTORY TESTING**

- A. The following standard factory tests shall be performed on the equipment provided under this section. All tests shall be in accordance with the latest version of ANSI and NEMA standards.
  - 1. The switchboard shall be completely assembled, wired, adjusted, and tested at the factory. After assembly, the complete switchboard shall be tested for operation under simulated service conditions to assure the accuracy of the wiring and the functioning of all equipment. The main circuits shall be given a dielectric test of 2200 volts for one (1) minute between live parts and ground, and between opposite polarities. The wiring and control circuits shall be given a dielectric test of 1500 volts for one (1) minute between live parts and ground.
- B. The manufacturer shall provide three (3) certified copies of factory test reports as specified in Paragraph 1.03D.

## **2.07 SPARE PARTS**

- A. Provide the following spare parts:
  - 1. 3 – Control fuses of type used.
  - 2. One dozen each of cover bolts, spring nuts and door fasteners.
  - 3. One quart of touch-up paint.

- B. Spare parts shall be boxed or packaged for long term storage and clearly identified on the exterior of package. Identify each item with manufacturers name, description and part number.

## **2.08 ACCESSORIES**

- A. Provide the following accessories:

- 1. Furnish and install a non-conducting switchboard floor mat, minimum 3/8 inch thick by 3 feet wide, meeting ANSI/ASTM D-178-01 Type 2 Class 3, Wearwell 702 or equal, and extending the full length of the equipment lineup.

## **PART 3 EXECUTION**

### **3.01 MANUFACTURER'S REPRESENTATIVE**

- A. Provide the services of a qualified factory-trained manufacturer's field engineer to assist the Contractor in installation and start-up of the equipment specified under this section for a period of not less than 2 working days, with not less than one working day per switchboard. The manufacturer's field engineer shall provide technical direction and assistance to the Contractor in general assembly of the equipment, connections and adjustments, and testing of the assembly and components contained therein.
- B. The Contractor shall provide three (3) copies of the manufacturer's field start-up report.

### **3.02 INSTALLER'S QUALIFICATIONS**

- A. Installer shall be specialized in installing low voltage switchboards with minimum 5 years documented experience. Experience documentation shall be submitted for approval prior to beginning work on this project.

### **3.03 EXAMINATION**

- A. Examine installation area to assure there is enough clearance to install the switchboard.
- B. Check concrete pads and baseplates for uniformity and level surface.
- C. Verify that the switchboard is ready to install.
- D. Verify field measurements are as instructed by manufacturer.

### **3.04 INSTALLATION**

- A. The Contractor shall install all equipment per the manufacturer's recommendations and Contract Drawings.
- B. Install required safety labels.

### **3.05 FIELD QUALITY CONTROL**

- A. Inspect installed switchboard for anchoring, alignment, grounding and physical damage.
- B. Check tightness of all accessible electrical connections. Minimum acceptable values are specified in manufacturer's instructions.

### **3.06 FIELD ADJUSTING**

- A. Adjust all circuit breakers, switches, access doors, operating handles for free mechanical and electrical operation as described in manufacturer's instructions.
- B. The Power Monitoring and Protective Relays shall be set in the field by a qualified representative of the manufacturer, retained by the Contractor, in accordance with settings designated in a coordinated study of the system as required in Section 16105 Power System Study. All such settings, including the application of arc flash labels, shall have been made and Approved by the Owner/Engineer, prior to energizing of the equipment.

### **3.07 FIELD TESTING**

- A. Perform all electrical field tests recommended by the manufacturer. Disconnect all connections to solid-state equipment prior to testing.
- B. Megger and record phase to phase and phase to ground insulation resistance of each bus section. Megger for 1 minute for each measurement at minimum voltage of 1000 VDC. Measured Insulation resistance shall be at least 100 megohm.
- C. Test each key interlock system for proper functioning.

### **3.08 CLEANING**

- A. Clean interiors of switchboards, panels, separate enclosures to remove construction debris, dirt, shipping materials.

### **3.09 EQUIPMENT PROTECTION AND RESTORATION**

- A. Touch-up and restore damaged surfaces to factory finish, as approved by the manufacturer. If the damaged surface cannot be returned to factory specification, the surface shall be replaced.

### **3.10 MANUFACTURER'S CERTIFICATION**

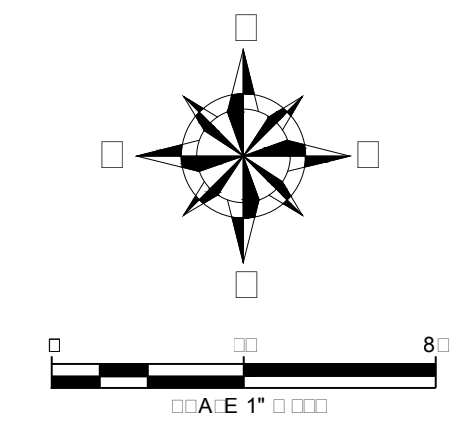
- A. A qualified factory-trained manufacturer's representative shall personally inspect the equipment at the jobsite and shall certify in writing that the equipment has been installed, adjusted, and tested, in accordance with the manufacturer's recommendations, including all settings designated in the Power System Study.
- B. The Contractor shall provide three (3) copies of the manufacturer's representative's certification.

### **3.11 TRAINING**

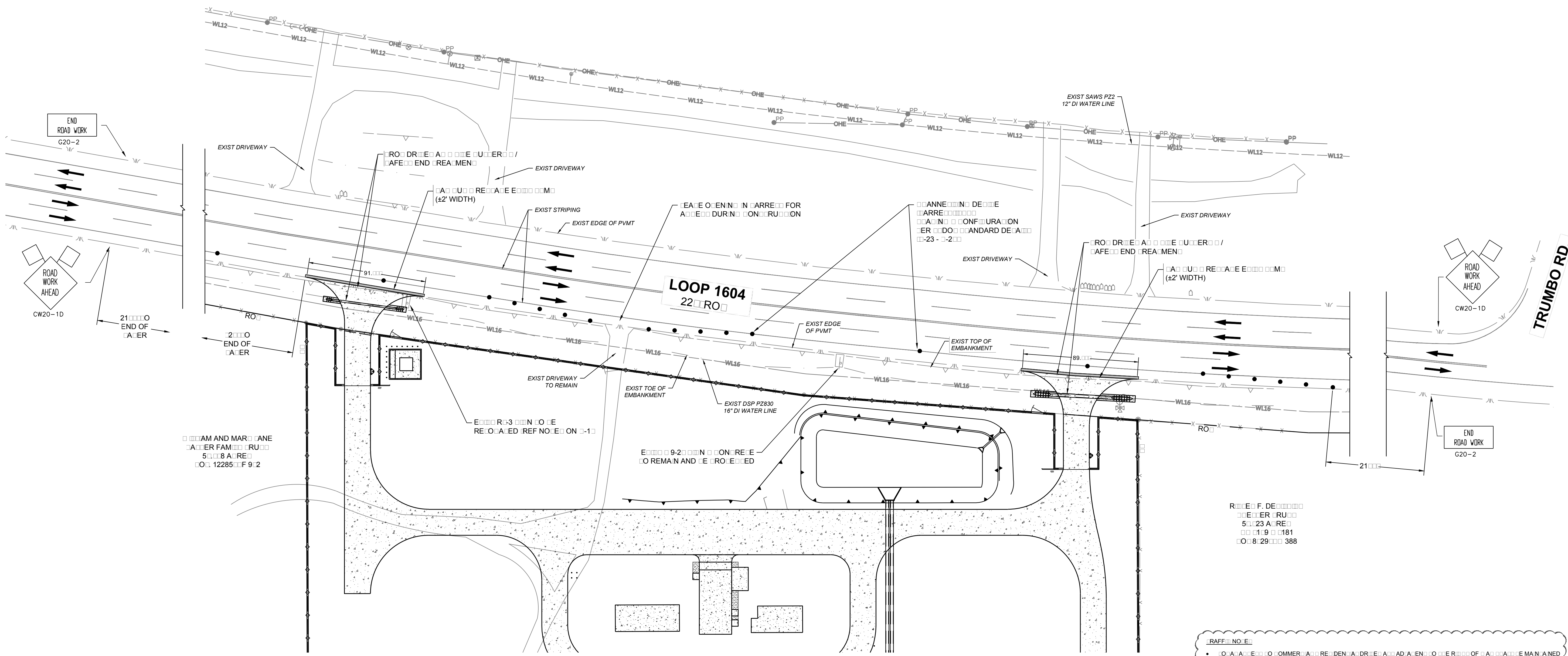


- A. Provide manufacturer's services for training of plant personnel in operation and maintenance of the equipment furnished under this Section.
- B. The training shall be for a period of not less than one (1) eight hour day.
- C. The cost of training program to be conducted with Owner's personnel shall be included in the Contract Price. The training and instruction, insofar as practicable, shall be directly related to the system being supplied.
- D. Provide detailed O&M manuals to supplement the training course. The manuals shall include specific details of equipment supplied and operations specific to the project.
- E. The training session shall be conducted by a manufacturer's qualified representative. Training program shall include instructions on the assembly, circuit breaker, protective devices, metering, and other major components.
- F. The Owner reserves the right to videotape the training sessions for the Owner's use.

**END OF SECTION**



App. MDS		Freese And Nichols, Inc. Job No. SWB13497	
Revisions			
No.	Date	ADDENDUM 2 REVISION NO.	Checked by: MBH
1	8/12/15		8/3/2015



Date:	5/1/2015
Designed by:	MDS
Drawn by:	MDS
Checked by:	MBH

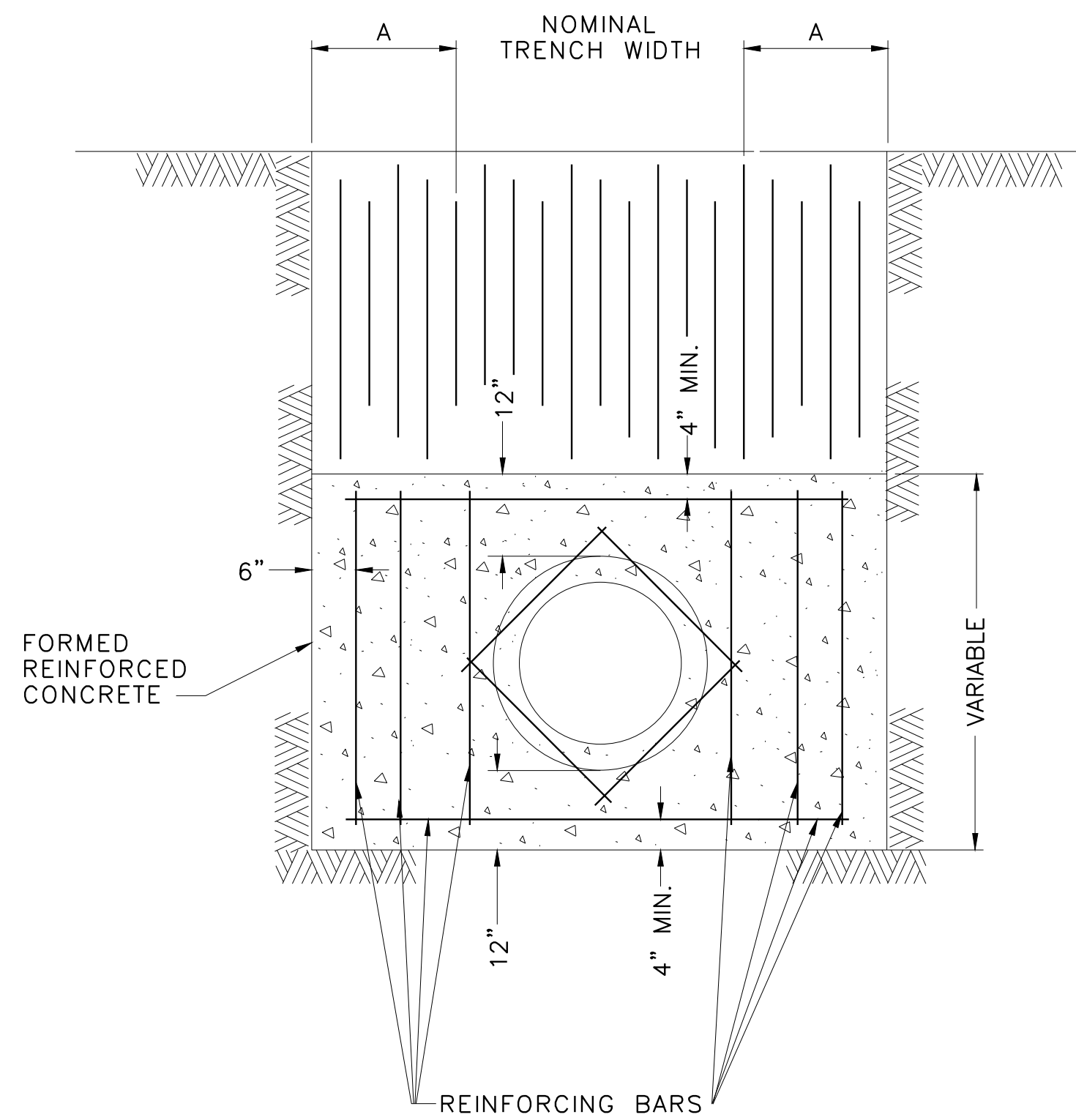
**FREISE & NICHOLS**  
 4540 Broadway Blvd., Suite 600  
 San Antonio, Texas 78209-6350  
 Phone - (210) 298-3600  
 Fax - (210) 298-3601

**SAN ANTONIO WATER SYSTEM**

SAWS JOB NO. 13-6102(DSP) & NO. 13-6005  
 SOUTHEAST TANK AND  
 PUMP STATION  
 TCP LAYOUT

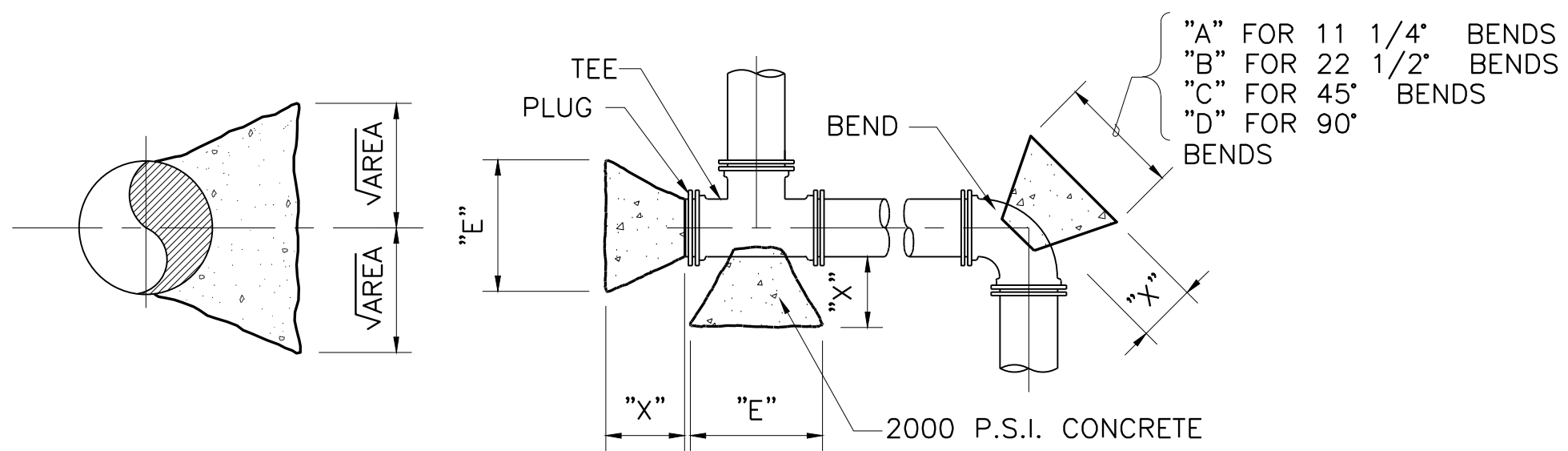
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1 END VIEW OF REACTION BLOCK  
NTS

MAIN SIZE	A (MIN.)	REINFORCING BAR SIZE	BEARING SURFACE REQUIRED (IN SQ. FT.)
6"	12"	#4	3
8"	12"	#4	5
12"	18"	#4	8
16"	18"	#4	12
20"	28"	#5	16
24"	28"	#5	23
30"	36"	#5	35
36"	36"	#5	50
42"	36"	#5	70



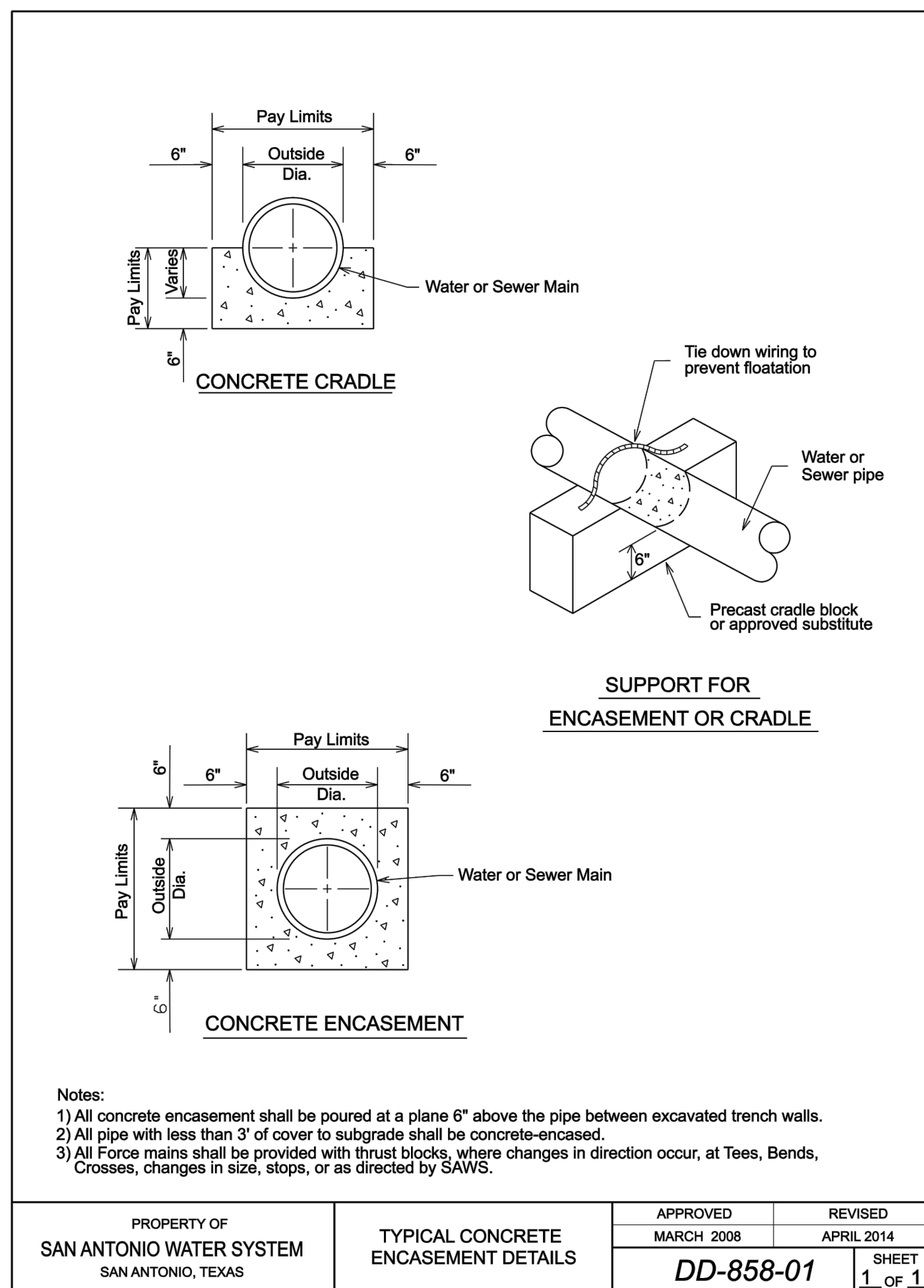
CONCRETE HORIZONTAL THRUST BLOCKING

PIPE SIZE	"X" FT.	11 1/4"				22 1/2"				45"				TEE & PLUG	
		"A" IN.	MIN. AREA, FT.2	"B" IN.	MIN. AREA, FT.2	"C" IN.	MIN. AREA, FT.2	"D" IN.	MIN. AREA, FT.2	"E" IN.	MIN. AREA, FT.2				
6"	1.0	9	1.04	13	2.07	18	4.05	24	7.49	20	10.59				
8"	1.0	12	1.85	17	3.67	24	7.20	32	13.31	27	18.82				
10"	1.0	15	2.88	21	5.74	29	11.25	40	20.79	34	29.41				
12"	1.25	18	4.15	25	8.26	35	16.20	48	29.94	40	42.34				
14"	1.5	24	7.38	34	14.68	47	28.81	64	53.23	54	75.28				
16"	1.5	24	7.38	34	14.68	47	28.81	64	53.23	54	75.28				
20"	2.0	36	16.60	50	33.04	71	64.82	96	119.77	81	169.38				
24"	2.0	36	16.60	50	33.04	71	64.82	96	119.77	81	169.38				
30"	2.25	-	25.94	-	51.63	-	101.28	-	187.14	-	264.65				
36"	2.75	-	37.36	-	74.35	-	145.83	-	269.47	-	381.09				
42"	3.0	-	50.84	-	101.20	-	198.50	-	366.78	-	518.71				

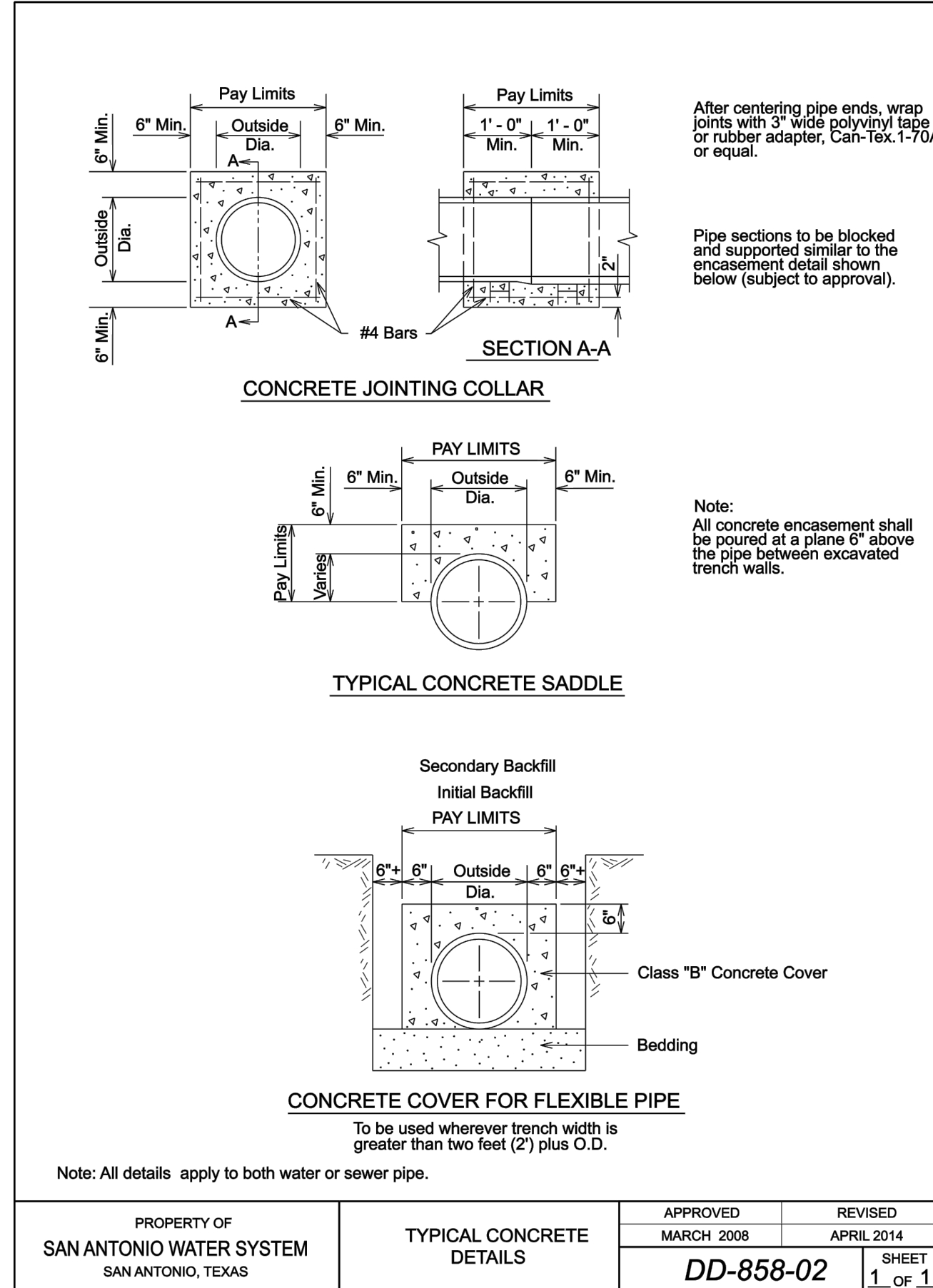
NOTES:

- THRUST AT BENDS, TEES, PLUGS, OR OTHER FITTINGS SHALL BE RESISTED BY RESTRAINED JOINTS. IF THRUST CANNOT BE ACCOMMODATED USING RESTRAINED JOINTS, THRUST BLOCKING OR CONCRETE ANCHORS TO RESTRAIN THRUST MAY BE USED ON A CASE-BY-CASE BASIS WHEN APPROVED BY THE ENGINEER.
- CONTRACTOR SHALL VERIFY ALL SOIL BEARING STRENGTHS.
- BEARING AREAS SHOWN ARE BASED ON 150 P.S.I. TEST AND 2,000 P.S.F. SOIL BEARING VALUE.
- THE EARTH BEARING SURFACE SHALL BE UNDISTURBED MATERIAL. KEEP ALL FITTING HARDWARE FREE FROM CONCRETE. THRUST BLOCKS ARE TO BE CONSTRUCTED OF 2,000 P.S.I. (28 DAY) CONCRETE AND PLACED AS SHOWN ON TYPICAL THRUST BLOCKING DETAIL.
- ALL VALUES ARE MINIMUM. IF SOIL BEARING VALUE IS LESS THAN 2,000 P.S.F., CONTRACTOR SHALL HAVE A TEXAS REGISTERED PROFESSIONAL ENGINEER DESIGN THE NECESSARY THRUST BLOCKING AT NO ADDITIONAL COST.
- VERTICAL DIMENSION OF BLOCKING SHALL BE IDENTICAL TO THE APPLICABLE HORIZONTAL (A,B,D,C,E) DIMENSION AS LISTED IN TABLE, OR GREATER.
- DIMENSION "X" MAY VARY IF NECESSARY TO PROVIDE BEARING AGAINST UNDISTURBED TRENCH WALL.

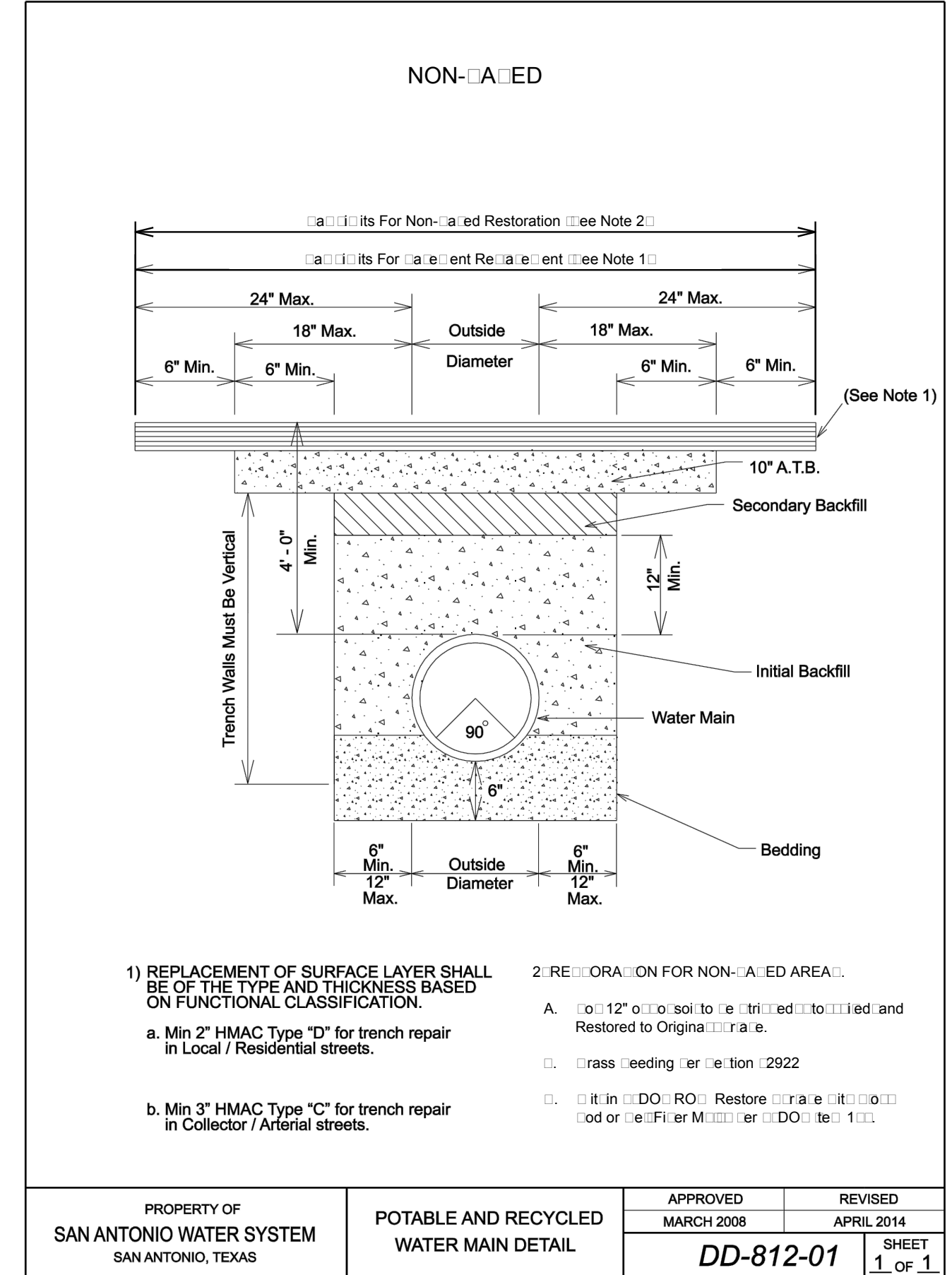
2 HORIZONTAL BLOCKING DETAIL  
NTS



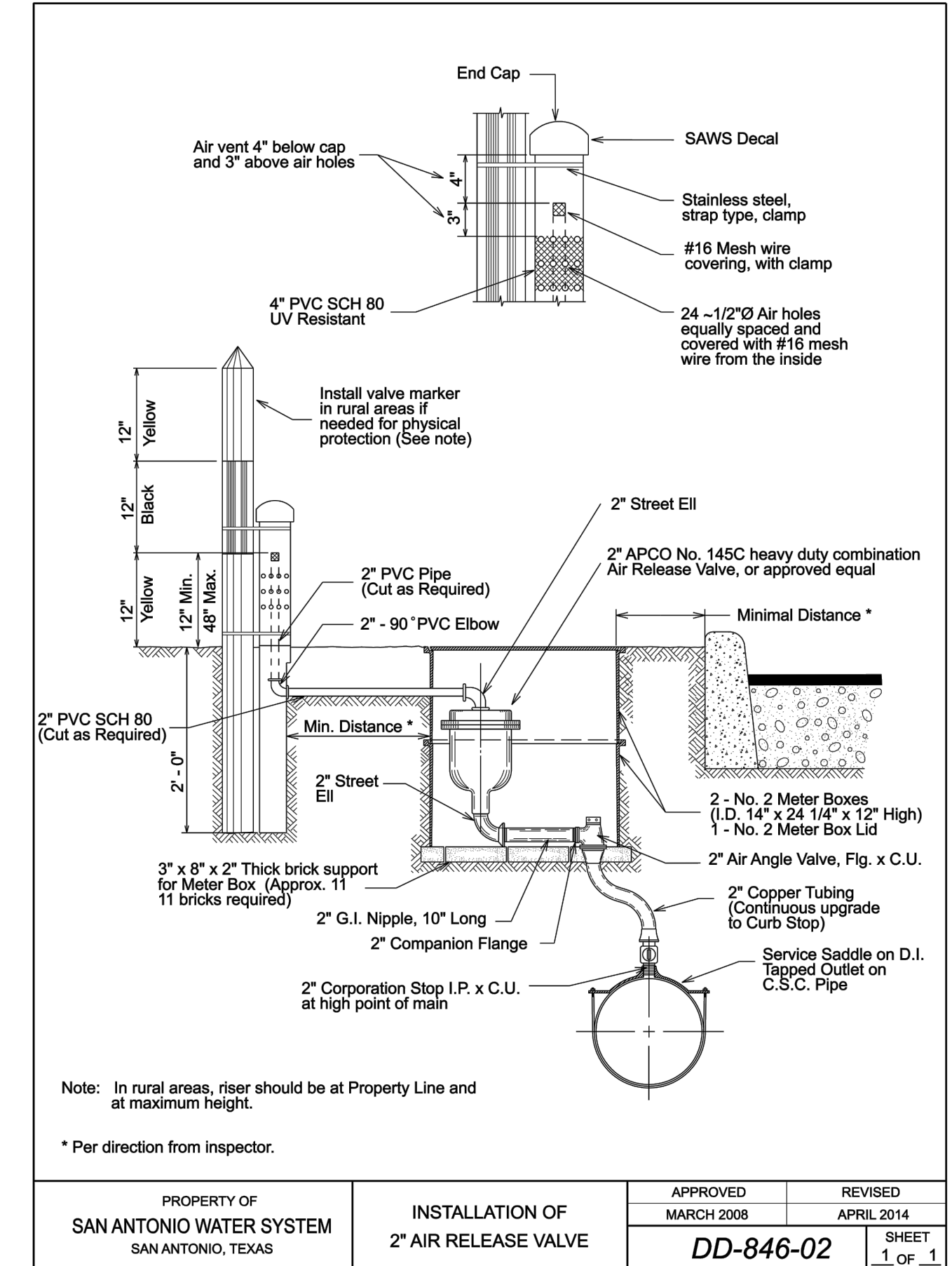
3 TYPICAL CONCRETE ENCASEMENT DETAILS  
NTS



4 TYPICAL CONCRETE DETAILS  
NTS



5 WATER MAIN TRENCH DETAIL  
NTS



6 2" AIR RELEASE VALVE  
NTS

App. DTB  
Revisions  
Date 8/3/15  
ADDENDUM NO. 2  
Freese and Nichols, Inc. F-2144  
Texas Registered Engineering Firm  
SWB13497  
101935  
DAVID T. BENNETT  
PROFESSIONAL ENGINEER  
08-03-15

Date: 8/3/2015  
Designed by: DIB  
Drawn by: NC  
Checked by: ERB  
Scale: N.T.S.

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San Antonio, Texas 78209-6350  
Phone - (210) 298-3800  
Fax - (210) 298-3801

**SAN ANTONIO WATER SYSTEM**

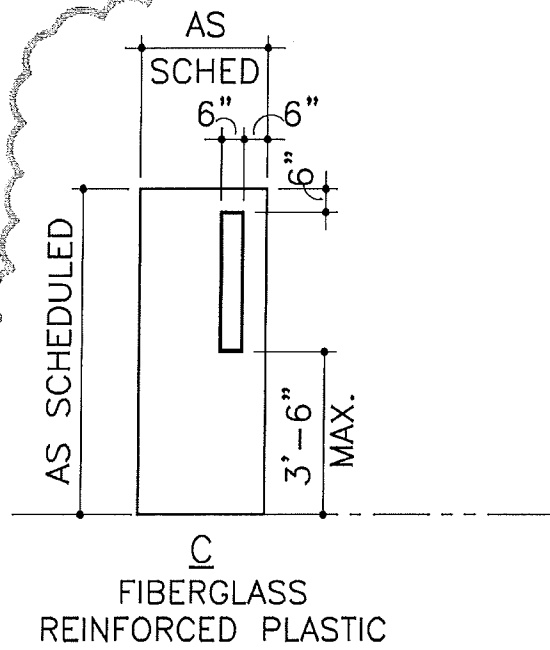
SAWS JOB NO. 13-6102(DSP) & NO. 13-6005  
SOUTHEAST TANK AND PUMP STATION  
MISCELLANEOUS DETAILS - 3

N:\UTIL\DRAWINGS\UT-SAWS-DT-MISC01.DWG  
 Jul 31, 2015 - 12:53pm  
 REFERENCES: 34BORDER, DTB-SEAL, 101935

# DOOR AND FRAME SCHEDULE

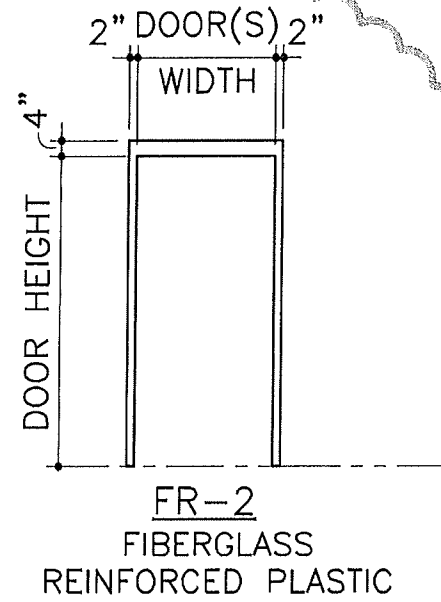
MARK	DOOR DESCRIPTION				FRAME DESCRIPTION				UL LABEL	HARDWARE NUMBER	REMARKS	
	SIZE WIDTH x HEIGHT x THICKNESS	MAT	TYPE	MAT	TYPE	DOOR DETAILS						
						HEAD	JAMB	JAMB				SILL
CHLORINE BUILDING												
C101	3'-0" x 7'-0" x 1 3/4"	FRP	C	FRP	FR-2	1/A-7	2/A-7	2/A-7	3/A-7	-	-	
C102	3'-0" x 7'-0" x 1 3/4"	FRP	C	FRP	FR-2	1/A-7	2/A-7	2/A-7	3/A-7	-	-	
C103	3'-0" x 7'-0" x 1 3/4"	FRP	C	FRP	FR-2	1/A-7	2/A-7	2/A-7	3/A-7	-	-	

NOTE:  
1. FRP: FIBERGLASS REINFORCED PLASTIC



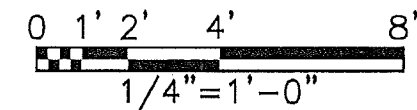
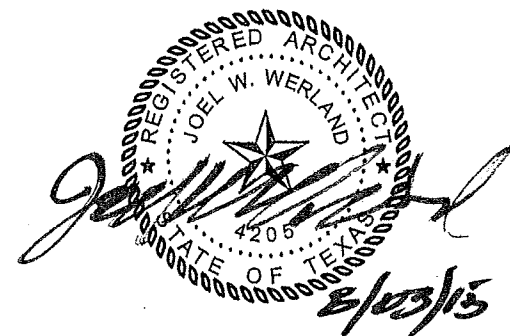
### DOOR TYPES

1/4" = 1'-0"



### FRAME TYPES

1/4" = 1'-0"



ADDENDUM No. 2

Freese and Nichols, Inc.  
 Texas Registered Engineering Firm F-2144  
 F&N JOB NO. SWB13497  
 DATE 08/03/15  
 SCALE AS SHOWN  
 DESIGNED RM  
 DRAFTED RM  
 FILE AR-EIB-SH-DOOR.DWG

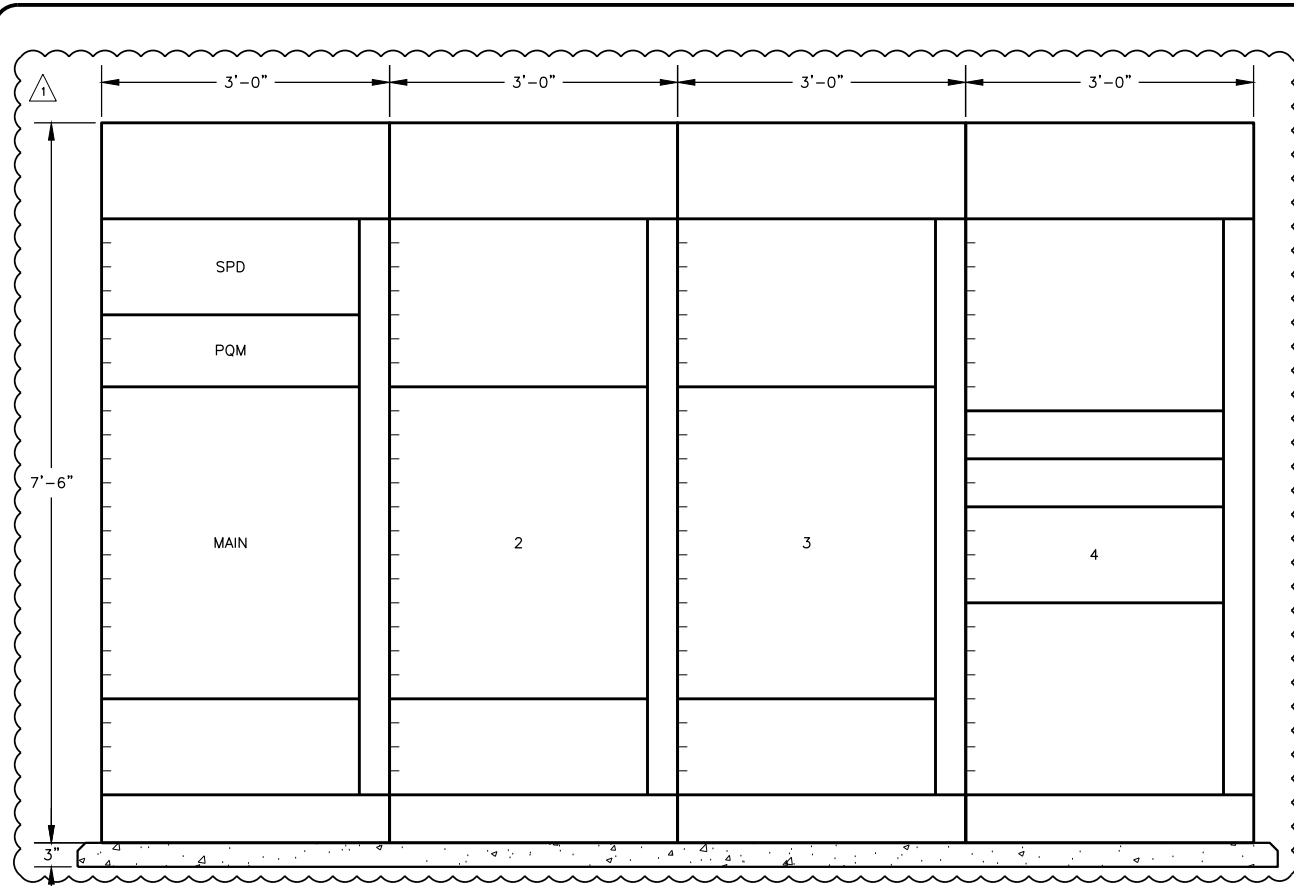
SAN ANTONIO WATER SYSTEMS  
 DSP SOUTHWEST TANK AND PUMP STATION  
 ARCHITECTURE  
 CHLORINE BUILDING  
 DOOR SCHEDULE AND DETAILS



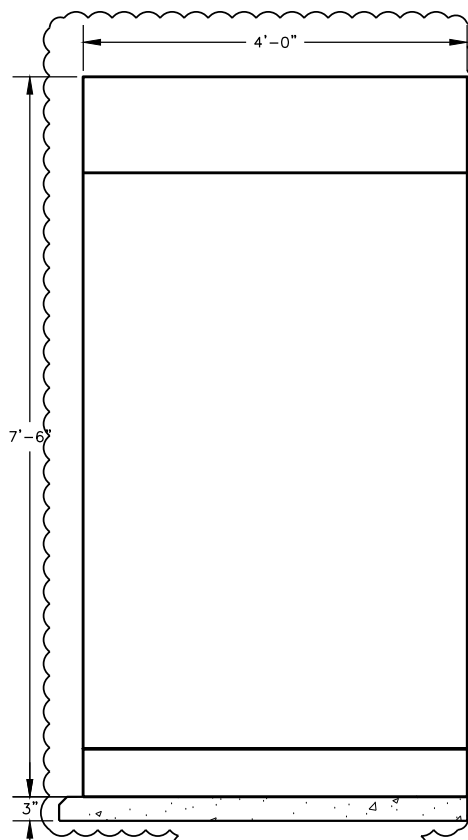
A-7a

FIGURE

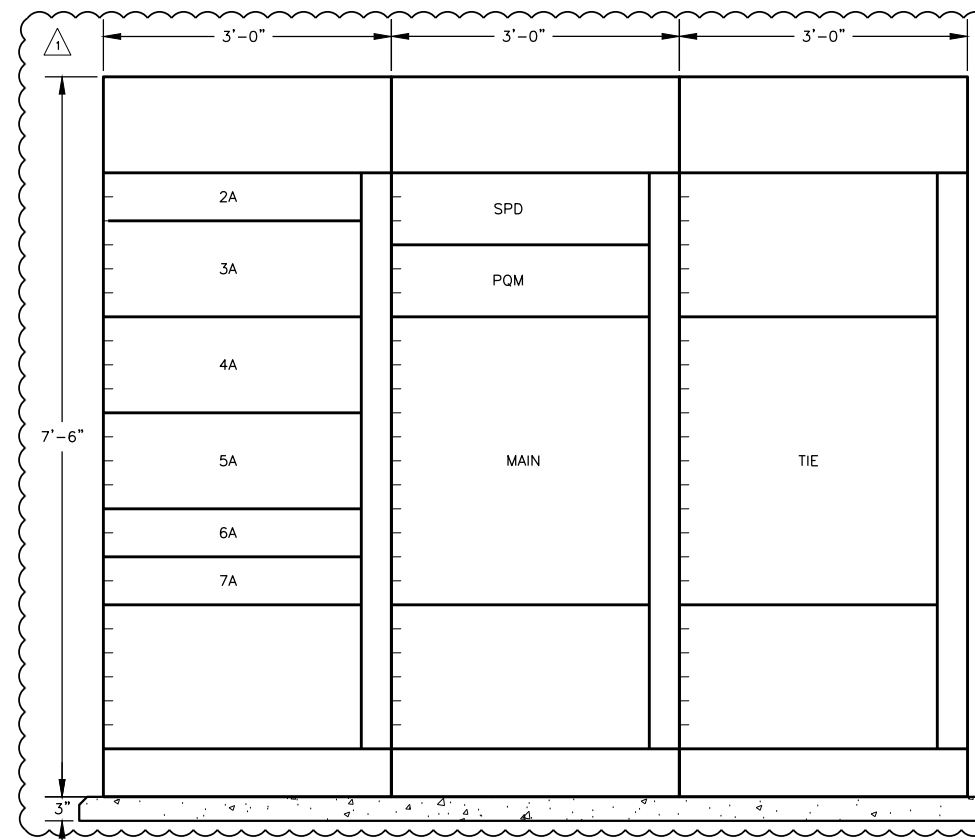




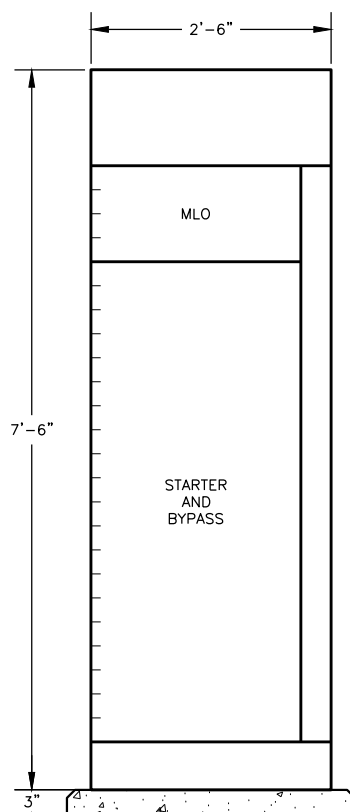
SWITCHBOARD SWBD-MSB (NEMA 3R)  
**ELEVATION**  
 SCALE: NTS



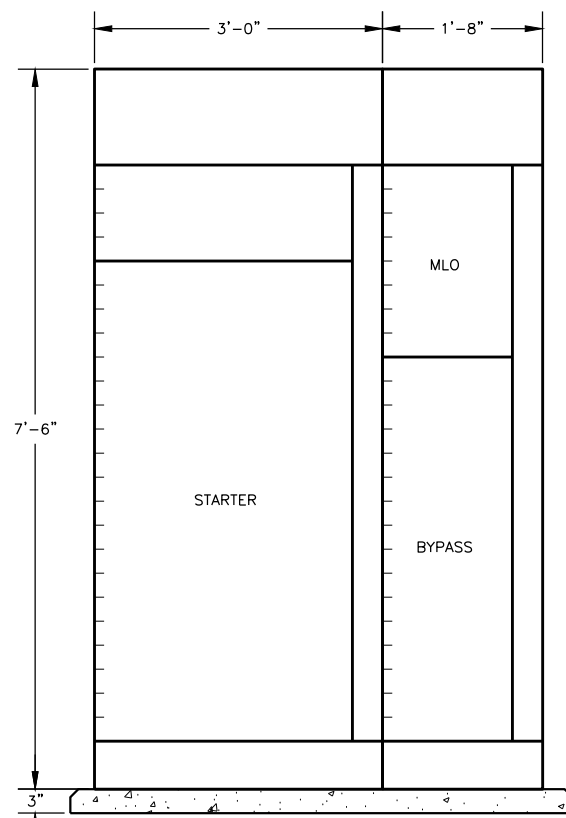
SWBD-MSB (SIDEVIEW)  
**ELEVATION**  
 SCALE: NTS



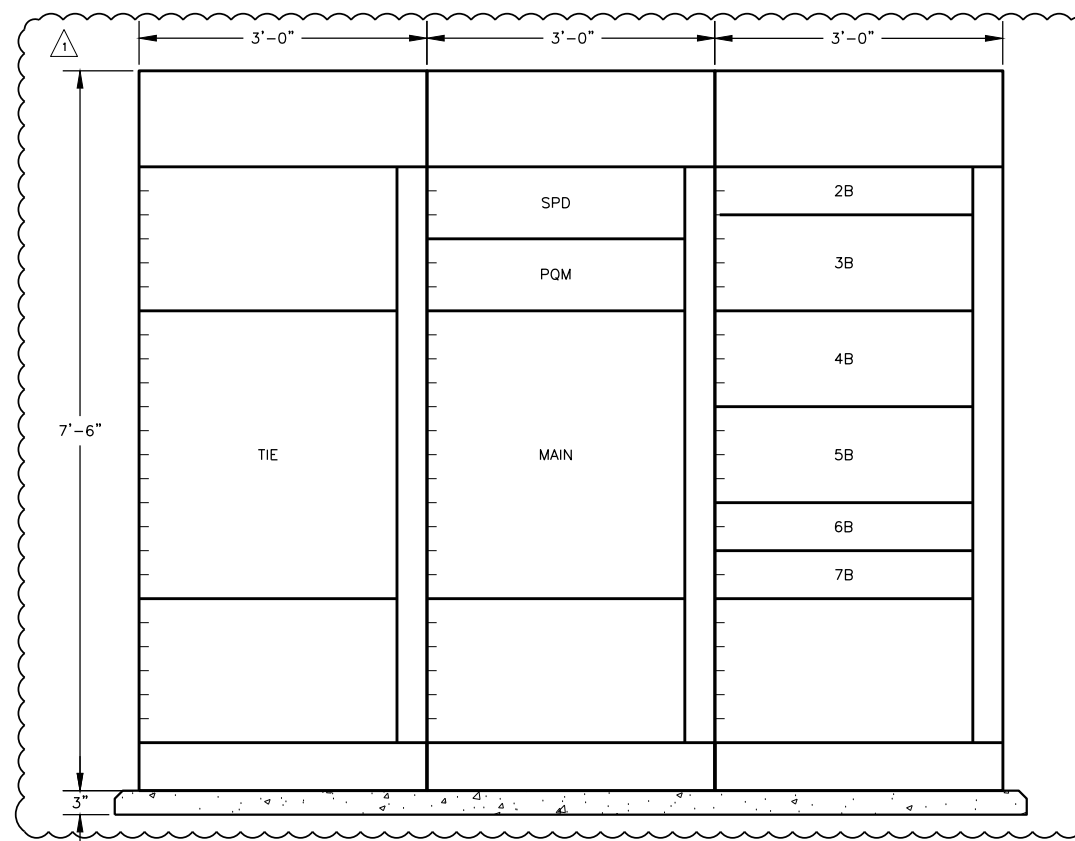
SWITCHBOARD SWBD-SA  
**ELEVATION**  
 SCALE: NTS



100HP-RVS  
**ELEVATION**  
 SCALE: NTS



200HP-RVS  
**ELEVATION**  
 SCALE: NTS



SWITCHBOARD SWBD-SB  
**ELEVATION**  
 SCALE: NTS

App.	MA
Revisions	ADDENDUM NO.2
Date	8/31/15
No.	1

Freese And Nichols, Inc.  
 Job No. SWB13497  
 5/1/2015  
  
 Motil L. Aggarwal  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF TEXAS  
 License No. 45314

Date: 5/1/2015  
 Designed by: WA  
 Drawn by: ER  
 Checked by: VKG  
 Scale: N.T.S.

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**SAN ANTONIO WATER SYSTEM**

SAWS JOB NO. 13-6102(DSP) & NO. 13-6005  
 SOUTHEAST TANK AND PUMP STATION  
 ELECTRICAL SWITCHBOARD ELEVATIONS

App.	MA
Revisions	ADDENDUM NO.2
Date	8/31/15
No.	A

Freese And Nichols, Inc.  
Job No. SWB13497

5/1/2015

- NOTES BY SYMBOL "⬡":
- PAD SHALL BE SIZED FOR THE EQUIPMENT PROVIDED.
  - CONDUCTORS SHALL BE FURNISHED BY THE MECHANICAL CONTACTOR.
  - REFER TO SHEET EY-05 FOR ELECTRICAL SCHEMATIC.
  - REFER TO SHEET EY-05 FOR ELECTRICAL SCHEMATIC AND E-13 FOR RISER DIAGRAM.

Date: 5/1/2015  
Designed by: MA  
Drawn by: MAC  
Checked by: VKG  
Scale: N.T.S.

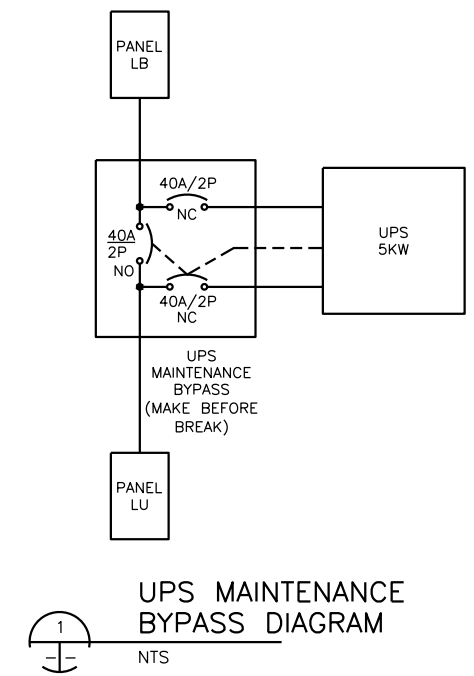
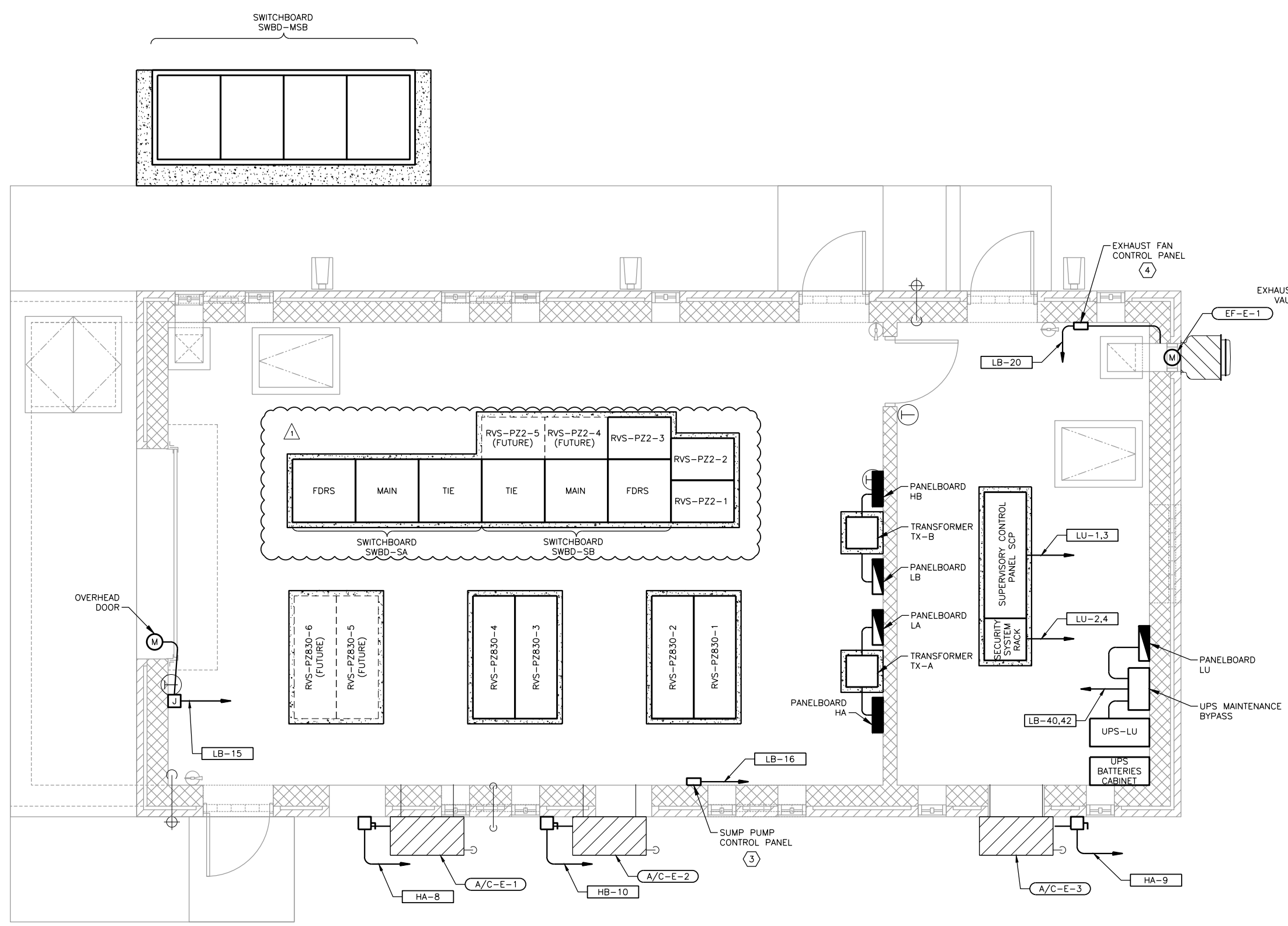
**GAI**  
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**SAN ANTONIO WATER SYSTEM**

SAWS JOB NO. 13-6102(DSP) & NO. 13-6005  
SOUTHEAST TANK AND PUMP STATION  
ELECTRICAL  
PROPOSED BUILDING FLOOR PLAN


Sheet F-10



**ELECTRICAL BUILDING POWER PLAN**  
3/8" = 1'-0"

NOTES BY SYMBOL "Ⓢ":

1. THIS SWITCH CONTROLS THE CRAWL SPACE LIGHTS AND EXHAUST FAN. REFER TO SHEET E-13 RISER DIAGRAM.
2. ALL OUTDOOR RECEPTACLES SHALL BE INSTALLED 36" AFG AND SHALL BE WP/GFI WITH WHILE IN-USE COVER.
3. WALL MOUNT TYPE "F" FIXTURE AT 10'-0" AFF TO BOTTOM OF FIXTURE.
4. REFER TO SHEET E-29 FOR LIGHT FIXTURE SCHEDULE.
5. LOCATED IN VAULT 6" BELOW OPENING.

App.	MA	Freese And Nichols, Inc. Job No.
Revisions	ADDENDUM NO. 2	SWB13497
Date	8/31/15	5/1/2015
No.	A	

Date: 5/1/2015  
 Designed by: WA  
 Drawn by: MAC  
 Checked by: VKG  
 Scale: N.T.S.

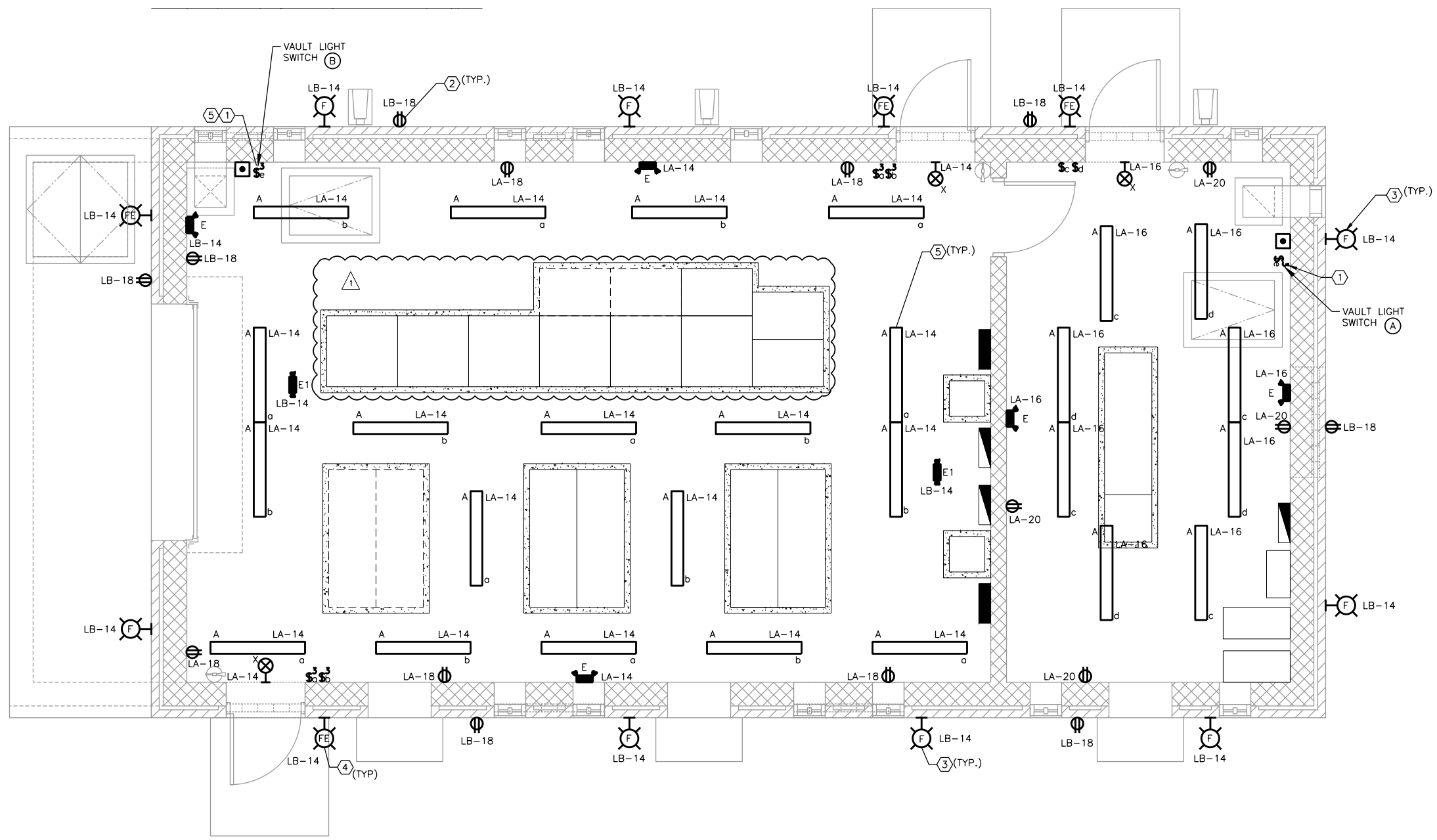
**GAI**  
 Gupta & Associates, Inc.  
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**SAN ANTONIO WATER SYSTEM**  


SAWS JOB NO. 13-6102(DSP) & NO. 13-6005  
 SOUTHEAST TANK AND PUMP STATION  
 ELECTRICAL BUILDING LIGHTING AND RECEPTACLE PLAN

Sheet F-12



 **ELECTRICAL BUILDING LIGHTING & RECEPTACLE PLAN**  
 3/8"=1'-0"

App.	MA
Revisions	ADDENDUM NO. 2
Date	8/31/15
No.	A

Freese And Nichols, Inc.  
Job No.

SWB13497

5/1/2015



Date: 5/1/2015  
Designed by: MA  
Drawn by: MAC  
Checked by: VKG  
Scale: N.T.S.

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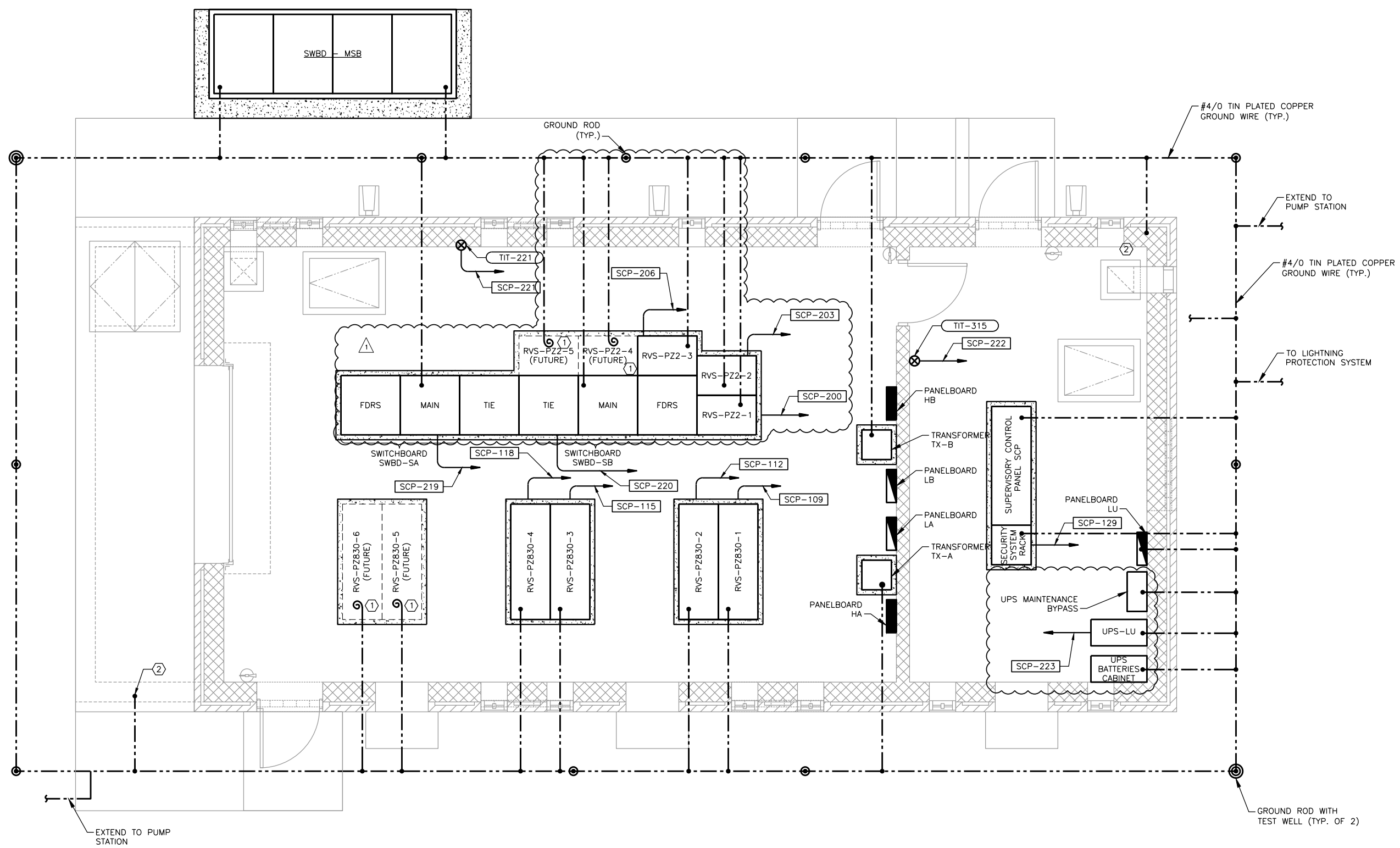
**SAN ANTONIO WATER SYSTEM**

SAWS JOB NO. 13-6102(DSP) & NO. 13-6005  
SOUTHEAST TANK AND PUMP STATION  
ELECTRICAL BUILDING FLOOR PLAN & GROUNDING PLAN

Sheet F-14

NOTES BY SYMBOL "⊕":

1. PROVIDE GROUND WIRE, COILED (10') FOR FUTURE EQUIPMENT, IN CRAWL SPACE.
2. GROUND STEEL IN SLAB.



**ELECTRICAL BUILDING GROUNDING PLAN**  
3/8"=1'-0"



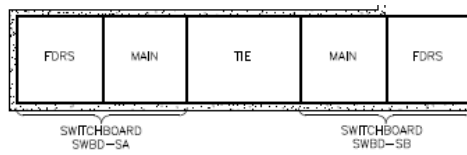
## QUESTIONS AND ANSWERS

1. **Question:** 02626-2.02,A.3. - "Inside Diameter: The inside diameter shall be a minimum of the nominal diameter specified,...."

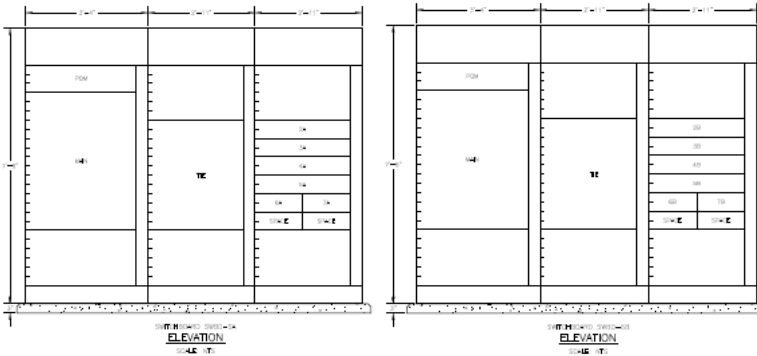
For the small diameters on this project, the 24" thru 14" pipe comes in OD sizes and 12" and smaller comes in ID sizes. In order to provide the 24" thru 14" pipe in ID size we will have to provide the next size up. So 14" would be 16" and 16" would be 18" and so forth. Is this the intent of the specification for these small sizes or will the standard nominal OD be adequate?

1. **Answer:** The inside diameter shall be a minimum of the nominal diameter of the pipe as specified in Section 02626, 2.02.A.3. Pipe with standards sizes based upon OD will not be acceptable.
  
2. **Question:** In reference to specification section 15116 – Sleeve Valves, it seems that the engineer is sole sourcing this valve. As stated in section 1.02A the only manufacturers allowed will be Henry Pratt. Will there be a separate bid item with an allowance give for this? If not, the sleeve valve manufacturer’s representative will be very likely to package all of the other valves up with this sleeve valve which would cause the bid to not be competitive at all. There are other sleeve valve manufacturers, more than capable of producing the same or higher quality valve, such as Bailey Valve. Bailey is in the process of supplying the 24” Sleeve Valve for the SAWS Twin Oaks Project that was bid competitively with both Pratt and Bailey in the specification. We respectfully ask that Bailey Valve be added to the specification 15116 – Sleeve Valves or that a allowance be written into the bid documents to allow for a competitive bid on the rest of the valves.
  2. **Answer:** The sleeve valve manufacturer shall be as specified in Section 15116. Per paragraph 5.11 “Equal Materials” of the General Conditions (page GC-30), requests for product substitutions will not be accepted until after the Contract has been awarded. There shall be no product approval during the bid phase other than what is already stated in the Specifications.
  
3. **Question:** Item No 3: City of San Antonio (COSA) Sitework permit allowance. Does this item include any building permits?
  3. **Answer:** No, the COSA Sitework Permit Allowance does not include an allowance for COSA building permits.

4. **Question:** Drawing E-10 shows Switchboard SA and SB having a total of 5 Sections see snap shot picture below.

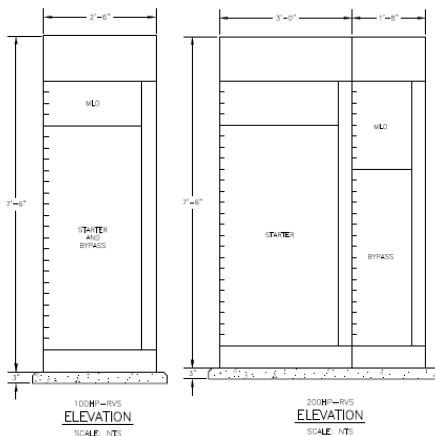


Drawing E-8 has Switchboard SA with 3 Sections and Switchboard SB with 3 Sections, seems the second Tie Breaker was not taking into account in Switchboard SB see snap shot pictures below. If the Tie breaker is not to be included in Switchboard SB should the Switchboard be configured as a Main-Tie-Main Switchboard and bus Switchboard SA and SB together?

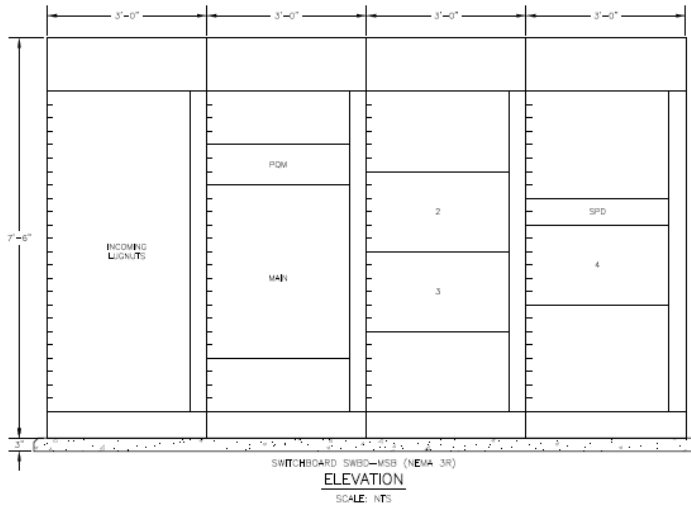


4. **Answer:** The layout for switchboards SWBD-SA and SWBD-SB are rearranged, see drawings E-8, E-10, E-12 and E-14. These changes are made under Addendum No. 2, Part 3, Item Nos. 4 through 7.

5. **Question:** Drawing E-8 has the RVS Units in a Motor Control Center Design. Can these Units be provided as Enclosed Panel Mounted Design such as in a Hoffman and or similar enclosure in lieu of MCC? See Snap Shot on how currently depicted on Drawing E-8.



5. **Answer:** The RVS units can be mounted in enclosed panels as long as these units can fit in allocated spaces.
6. **Question:** Drawing E-7 and E-8 has Switchboard MSB shown as a conventional UL891 Switchboard with an Incoming Lug Section. Incoming Cables can come into the Main Breaker Compartment eliminating the Incoming Lug Section, can this be provide without the Incoming Lug Section?



6. **Answer:** Incoming cables can come into the main circuit breaker for switchboard ‘MSB.’ See revised drawing E-8, per Addendum No. 2, Part 3, Item No. 4.
7. **Question:** Drawing E-8 SPD is shown to be in the fourth Section on the elevation drawing. Could place the SPD above the Main closer to the incoming source would this be more preferable since the SPD Cable Length should be kept as short as possible?
7. **Answer:** The SPDs will be mounted above main breakers, see revised drawing E-8 per Addendum No. 2, Part 3, Item No. 4.
8. **Question:** Drawing E-7 and E-8 shows the Switchboards as Conventional UL891 with Fixed Mounted Breakers, specification 16424 calls for the Switchboards to be Compartmentalized Construction with Drawout Circuit Breakers. Should the Switchboards be Compartmentalized as called for in the specification or not?
8. **Answer:** Switchboards “MSB”, “SWBD-SA” and “SWBD-SB” are conventional UL891 with fixed mounted breakers. The main and tie breakers shall be insulated case breakers type for switchboards “SWBD-SA” and “SWBD-SB.” For switchboard “MSB”, the main and 2000 Amps feeder breakers shall be insulated case breakers.

9. **Question:** Drawing E-8 shows the depth of Switchboard MSB as 4'-0" which would be for a Conventional UL891 Switchboard in a NEMA 1 Enclosure. The Enclosure Depth for a UL891 Compartmentalized Switchboard would be 129.25" Deep. Advise Group Mounted Design or Compartmentalized? NEMA 3R Group Mounted Switchboard Design for MSB would have floor depth of 59.5"D.

9. **Answer:** The switchboard "MSB" is conventional UL891, group mounted in NEMA 3R construction. The pad size shall be adjusted for the equipment submitted.

10. **Question: 02626-1.02,C.2.** - reference is made to "Heat Shrink Joint Manufacturer's representative". Is this acceptable for repair of the coating on field welded pipe? We cannot find any information in the specifications for heat shrink material.

10. **Answer:** Heat Shrink materials are to be in accordance with AWWA C216 as stated in Section 02626, 1.04.A, and provided per Section 02626, 3.01.F.

11. **Question:** In reference to 15114-1 Pressure Sustaining Valves on the above referenced project, we would like respectfully request that the engineer consider adding Bermad to the list of approved manufacturers for the 14" Pressure Sustaining Valve shown on sheet P-11. Bermad has provided valves to numerous SAWS facilities and can provided a valve equal to what Cla-Val will provide. In addition, it would seem that this would be sole sourcing the valve from a single manufacturer which would allow the provider of the sleeve valve even more clout in packaging these valves with the rest since the representative for Cla-Val and Pratt is the same company. Assuming that this is a competitive bid, will there be a bid allowance given for the 14" pressure sustaining valve if another manufacturer is not added or an "or equal" clause not added to the spec?

11. **Answer:** The pressure sustaining valve manufacturer shall be as specified in Section 15114. Per paragraph 5.11 "Equal Materials" of the General Conditions (page GC-30), requests for product substitutions will not be accepted until after the Contract has been awarded. There shall be no product approval during the bid phase other than what is already stated in the Specifications.

12. **Question:** My name is Anthony Dennis, owner of Dennis Security and Professional Services (DSAPS). We area license security guard service provider by the Texas Department of Public Safety, Regulatory Services Division, Private Security Program. Our license number is C14884. My specific question is:

How do I get DSAPS listed/classified as a SAWS Security approved security contractor?

12. **Answer:** The security services are managed by the SAWS Security Department and the SAWS Purchasing Department. To learn more about any future bid opportunities for security services, please visit our website at [http://www.saws.org/business\\_center/](http://www.saws.org/business_center/) or contact Mr. Clifford Gorman at 210-233-3206 or email [Clifford.Gorman@saws.org](mailto:Clifford.Gorman@saws.org).
13. **Question:** Please consider addition time for delivery of proposal on the above referenced RFP. Alterman, Inc. is a registered with SAWS for notification of upcoming bid solicitations; however, for reasons unbeknownst to us, the notification was not received at the time of publication. Postponing will allow, all parties involved, time accurately procure the necessary quantifications for assembling the bid. Thank you for your time.
13. **Answer:** The proposal opening date has been extended per Addendum No. 1, issued July 31, 2015.
14. **Question:** Is the site address 1194 S. Loop 1604 that was given in the Pre-Bid meeting the final SAWS site address for this project? We are asking this to verify if the site plat has been mapped so we can start the process of bringing permanent power to the site through CPS.
14. **Answer:** No. The address provided is the approximate location since this site has not been provided an assigned address.
15. **Question:** Has the design for CPS to bring permanent power to the site been started? And has any time required for CPS to complete the design been accounted for in the 540 day project completion date?
15. **Answer:** Gupta and Associates, Inc., Freese and Nichols' electrical subconsultant, has coordinated the power and required infrastructure with CPS. Installation and service on site, contractor to coordinate with CPS.
16. **Question:** Will the traffic control shown on drawings C-22 thru C-27 be required for the duration of the project? Or will this only be required when working in the TX-Dot right-of-way?
16. **Answer:** At a minimum, the traffic control measures and signage must be in place whenever working in TxDOT ROW (i.e. fence removal, utility relocation, driveway installation, etc.). Depending on how the contractor phases their work will determine the times at which the TCP measures will be needed. The contractor should coordinate with TxDOT on any required signs for site ingress and egress. Driveway permit acquisition is the responsibility of the contractor. Sheet C-22 is revised per Addendum No. 2, Part 3, Item No. 1.

17. **Question:** Please clarify if the chlorine building and electrical building exterior split-face CMU walls get coated with a clear sealer?

17. **Answer:** Split-face CMU walls will get coated with clear sealer. See Addendum No. 2, Part 2, Item No. 1.

18. **Question:** Do the doors at both buildings get coated?

18. **Answer:** No, doors do not need a clear sealer. They will be factory finished.

19. **Question:** Sheet SD-3 is missing details 4 and 5?

19. **Answer:** Sheet SD-3 is revised per Addendum No. 2, Part 3, Item No. 2.

20. **Question:** Drawing A-7 lists all doors and frames to be Hollow Metal. There is a Specification section 08220 for Corrosive Resistant Doors, where are the Corrosive Resistant Doors to be installed? Please correct the Door schedule to reflect the changes?

20. **Answer:** Corrosive Resistant Doors will be installed at the chlorine building. Sheet A-7 is revised per Addendum No. 2, Part 3, Item No. 3.

21. **Question:** Please confirm pipe material for Existing 16" DSP PZ830 is Ductile Iron pipe per drawings P-10 & P-13?

21. **Answer:** The existing pipe material is noted on sheets P-10 and P-13.

22. **Question:** What is the determining factor in the need for the \$6,750/day Liquidated Damages? If certain aspects of this project are of a more critical nature than others we would like to understand those so we can plan and schedule accordingly.

22. **Answer:** The calculated values are determined by the beneficial loss of water services if the project is not completed on time. It includes the loss of water revenues to SAWS since this new pump station shall deliver water to two service levels and convey water from the new SAWS Water Regional Interconnect Program pipeline. It includes the cost for engineering services from Consultant and SAWS Production, Recycle and Treatment staff.

23. **Question:** Will SAWS consider reducing their \$6,750/day Liquidated Damage rate? The above average rate may adversely impact each contractor's final price as each contractor speculates risk and the impact of liquidated damages.

23. **Answer:** SAWS has determined that the Liquidated Damage rate shall remain.

24. **Question:** Please define what permits will be paid from bid item #3? For example can TXDoT, Traffic Control, Tree Removal, or Hauling be paid out of the allowance or is the contractor to carry these cost in the bid?

24. **Answer:** Only the COSA Sitework Permit will be paid with bid item #3.

25. **Question:** We would like to request the bid date be extended about four weeks (9/3/15) to allow adequate time for suppliers and subcontractors prepare competitive proposals?

25. **Answer:** The proposal opening date has been extended per Addendum No. 1, issued July 31, 2015.

26. **Question:** Per specification 01311 contractor is to submit monthly a cost loaded CPM schedule. A cost loaded schedule requires considerable more management time for the contractor and SAWS personnel to manage. This additional time equates to additional costs for the project. Please confirm that this requirement will be enforced on this project? Or is a monthly updated billing projection acceptable?

26. **Answer:** Specification 01311 does not require a cost loaded schedule. Monthly updated billing projections will be acceptable.

27. **Question:** Please confirm that SAWS is requiring additional cost be borne by the contractor and included in our bid for a geotechnical report when SAWS has already completed a through geotechnical report?

27. **Answer:** Contractor shall hire an independent Geotechnical Engineer per Special Conditions Item SC-2 and Specification Section 13541, 1.07.

28. **Question:** If contractor is required to provide a geotechnical report and a stamped foundation design. In order to provide SAWS best value for this project please extend the bid date 30 days to allow contractor sufficient time to contract a geotechnical engineer, analyze site, design foundation and accurately price a competitive foundation bid?

28. **Answer:** The proposal opening date has been extended per Addendum No. 1, issued July 31, 2015.

29. **Question:** Excavation depth:

The minimum-excavation recommendations in Table 5 (page 9), and the third paragraph on page 11 of the geotechnical report (**3 feet** below existing grade or elevation **604.5'** – whichever is deeper) *still* leave a thin layer of moderate-to-high PI material immediately below the excavation to a depth as low as elevation 601.2'.

Suggestion: *We therefore respectfully suggest that the specified minimum excavation depth be revised to **3 feet** below existing grade or elevation **601.0'** – whichever is lower.*

29. **Answer:** The geotechnical report provided is for informational purposes only per Specification Section 13541, 1.07. Contractor shall hire an independent Geotechnical Engineer per Special Conditions Item SC-2 and Specification Section 13541, 1.07, to provide recommendations for the design of the tank foundation and subgrade. The Contractor shall determine if additional excavation is required in excess of the minimum criteria. No additional payment will be made for additional excavation required beyond the minimum criteria.

30. **Question:** Permanent drainage:

Section 13541-1.05.H.11 of the tank specs requires a 4”-diameter perforated perimeter drain as shown in the Typical Wall Section of Sheet T-4.

The stated purpose of this perimeter drain pipe is leak detection. In addition, however, according to Section 13541-1.05.H.11(c), the tank manufacturer must also investigate if a perimeter drain system (presumably in addition to or different from the 4” pipe) is required “to maintain external seepage or subsurface water below the internal water level in the tank.”. Based on all the pertinent information contained in the available project documents, there is no evidence of where such “external seepage or subsurface water” might come from.

Question: *Is there a specific requirement for a drain system in addition to the 4” pipe specified in Section 13541-1.05.H.11 and shown in Sheet T-4?*

30. **Answer:** The tank manufacturer is responsible for designing the drain system per Specification 13541, Section 1.05.H.11. The tank manufacturer shall retain an independent geotechnical engineer to determine if the improvements need to be in excess of the minimum criteria specified per Section 1.07.A.3.

31. **Question:** Specification 16461 Article 1.04 - This specification section does not take into account that on January 1, 2016, all Transformers 10 KVA up 2500KVA must comply with the DOE 2016 Energy Efficiency Mandate (10 CFR Part 431).

This would apply to the 30KVA 480V Delta to 208Y/120V Transformers as shown on Drawings E-7 and E-10 and may effect the Pad Mounted Transformer that CPS Energy would provide that will feed SWBD-MSB.

31. **Answer:** The dry-type transformer(s) and all components shall be designed, manufactured and tested in accordance with the latest applicable NEMA, DOE and ANSI standards and comply with DOE 2016 Energy Efficiency Mandate (10 CFR Part 431) .

CPS may not be affected by this regulation for their pad mounted transformer. Transformers shown on drawings E-7 and E-10 shall follow new regulations.



32. **Question:** Section 01400 Quality Requirements 1.01 Contractor's Responsibilities C. states the following:

- C. Provide and pay for the services of an approved professional materials testing laboratory acceptable to the Owner to insure that Work fully complies with the Contract Documents in accordance with Article V., Section 5.3.1 of the General Conditions. Provide services of a testing laboratory capable of performing a full range of testing procedures complying with the standards for testing procedures specified. Provide personnel certified to perform the test required. Obtain Owners' approval for the testing laboratory before testing is performed.
- D. ~~The technical Specifications govern if any requirements of this Section conflict with the~~

Section 01401 IBC Special Inspections 1.01 Overview Part A.2 states:

- 2. IBC Special Inspections may not be performed by the Contractor.

If I understand these requirements, the General Contractor will have a testing laboratory doing testing/inspections as required and SAWS will have a firm doing just the Special Inspections and Testing as needed.

Please verify that my understanding is correct.

- 32. **Answer:** The Contractor will be responsible for hiring an independent inspector to perform Special Inspections.