



**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**  
**Solicitation Number: CO-00197**  
**Job No.: 17-6508**

**ADDENDUM 3**  
**September 19, 2018**

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.

<b>RESPONSES TO QUESTIONS RECEIVED</b>
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**1. Bid Form: Will SAWS pay over the \$10k allowance for locates as stated in the bid form?**

**Response:** SAWS does not anticipate paying over \$10,000.00 for locates.

**2. Spec 40 05 07: What areas are considered to be "corrosive"? What needs to have vinylester coating?**

**Response:** The Disinfection and Dechlorination Buildings are considered corrosive areas. Per Section 40 05 07, Paragraph 2.1.C.12, all fiberglass channel should be provided with a polyester surface veil.

**3. Bid Proposal: Contract duration states 400 days. What is substantial? Final? When does 2 year warranty start?**

**Response:** Contract duration is 400 days to Final Completion. The 2-year (24-month) warranty will start with Conditional Letter of Acceptance at each major milestone. If the major milestone is at Final Completion, the warranty will start at Final Completion.

**4. Spec 40 05 13 1.3A: Is a Boiler Certified welder required for all small diameter pipe welding?**

**Response:** Yes, a Boiler Certified welder is required for all small diameter pipe welding. Additional welding requirements have been added to this section by this addendum.

**5. DWG 08-I107: Regarding the lines that connect Evaporators 4-6 to Chlorinators 6-10. There appears to be no indication as to the type and/or material to be used on these lines. Please specify.**

**Response:** Piping from Evaporators 4-6 to Vacuum Regulators 4-6 shall be CLGP. Piping from Vacuum Regulators 4-6 to Chlorinators 6-10 shall be CLGV. Please reference DWG 01-G005 and Specification 40 23 39.1 – Process Piping Schedule.

**6. DWG 08-I203: Regarding the lines coming out of Sulfonators 1-3 and the lines coming out of Injectors 1-3. They are labelled "SLGV" and "SLS" respectively. The corresponding Table: Process Piping Schedule (40 23 39.1 Supplement) does not show either abbreviation. Please specify.**

**Response:** The label identifier "SLGV" shall be changed to "SO2GV", and label identifier "SLS" shall be changed to "SO2S" to match Specification 40 23 39.1 – Process Piping Schedule.

7. **DWG 05-C301: Is anything being done with Pipe 8A?**

**Response:** Pipe 8A is being abandoned in place. Reference notes on DWG 05-X301. Proposed piping legends have been modified in this addendum to show Pipe 8a as existing.

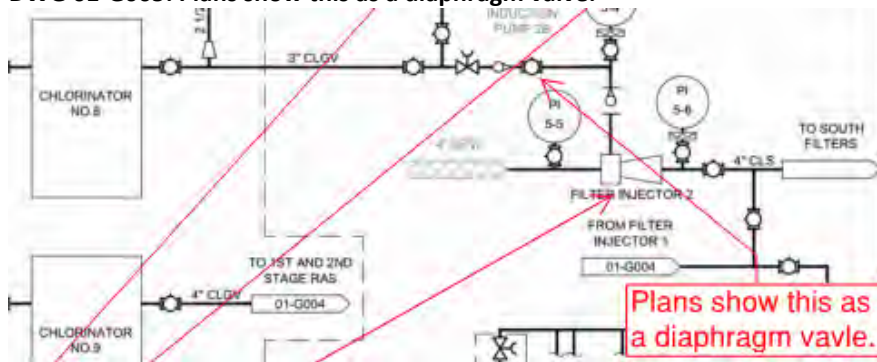
8. **DWG 01-G005: Where on the plans are these (Injector 2A, Injector 2B, Filter Injector 2, and Recycle Injector 2) located? Can you relate these to the Line #'s in the Piping Legend on 05-C301? Same issue on 01-G004.**

**Response:** Injectors 1A, 1B, 2A, and 2B are existing injectors in Chlorine Contact Basins 1A, 1B, 2A, and 2B, respectively. These injectors are not being modified and are not shown in the plans. Filter Injectors 1 and 2 are located on the Filter Injection Panel, reference revised DWGs 05-C301 and 05-C501, issued in this addendum. Recycle Injectors 1 and 2 are located on the new Recycled Water Injector Panel (see DWG 05-C101 and revised DWG 05-C502, Details 3 and 4, issued in this addendum) to the south of the existing Recycled Water Injector Panel (see revised DWG 05-C301).

9. **DWG 01-G005: Gauge PI 5-4 is not shown on mechanical plans.**

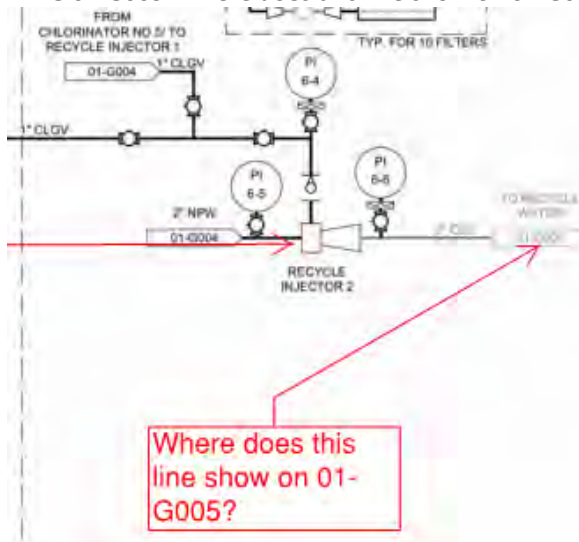
**Response:** This gauge has been added to revised DWG 05-C501, Detail 6, issued in this addendum.

10. **DWG 01-G005: Plans show this as a diaphragm valve:**



**Response:** This is intended to be a ball valve. Valve call-outs have been updated on revised DWG 05-C501, Detail 6, issued in this addendum.

11. **DWG 01-G005: Where does this line show on 01-G005?**



**Response:** This line shows on 01-G004 as the line "FROM RECYCLE INJECTOR 2" that combines with the CLS line from Recycle Injector 1.

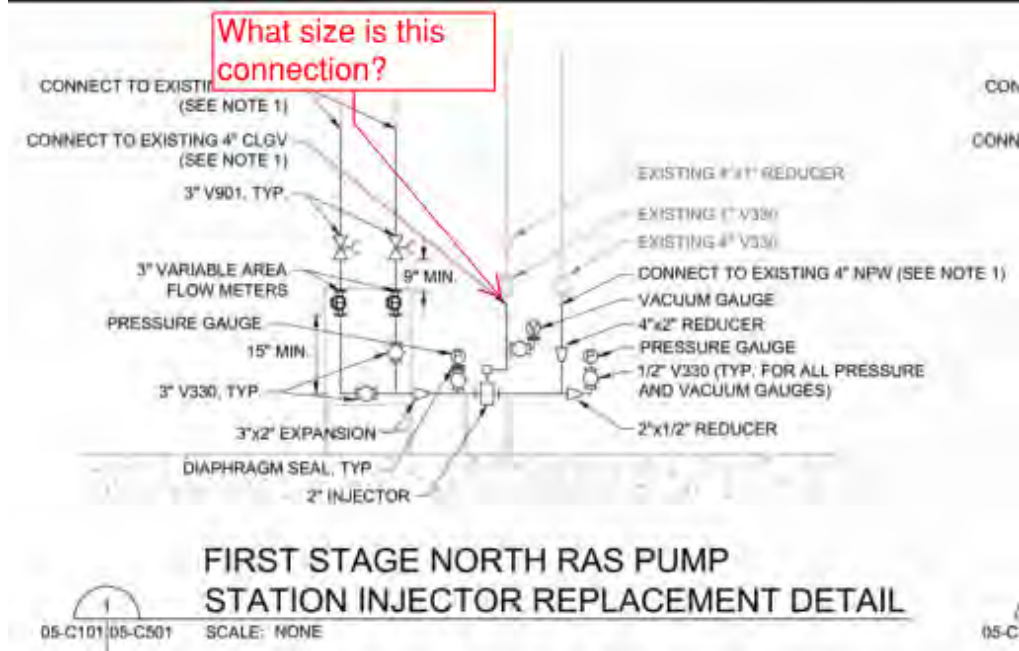
12. DWG 05-C301: What do these lines (1, 2, 3, 9, 8c, 8d) connect to?

**Response:** Lines 1, 2, 3, and 9 connect to the Chlorine Contact Basin Distribution Panels, and lines 8c and 8d connect to the new Recycled Water Injector Panel. Call-outs have been added to revised DWGs 05-C301 and 05-C502, issued in this addendum.

13. DWG 05-C303, Section 1: Are lines 1 and 9 reversed? See Sections 2, 3, and 4.

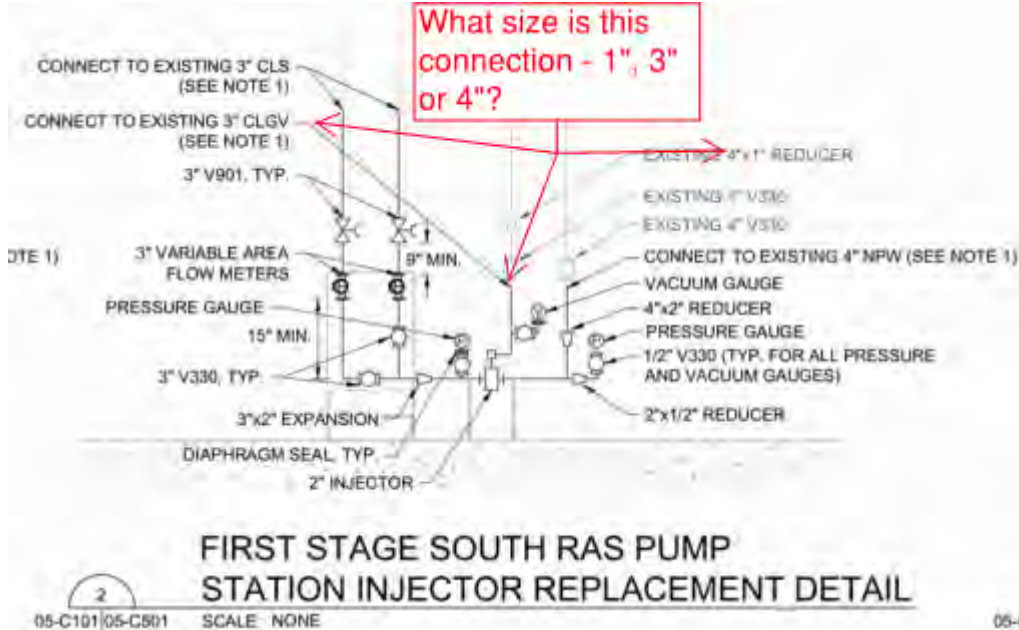
**Response:** Yes. Reference revised DWG 05-C303, issued in this addendum.

14. DWG 05-C501, Detail 1: What size is this connection?



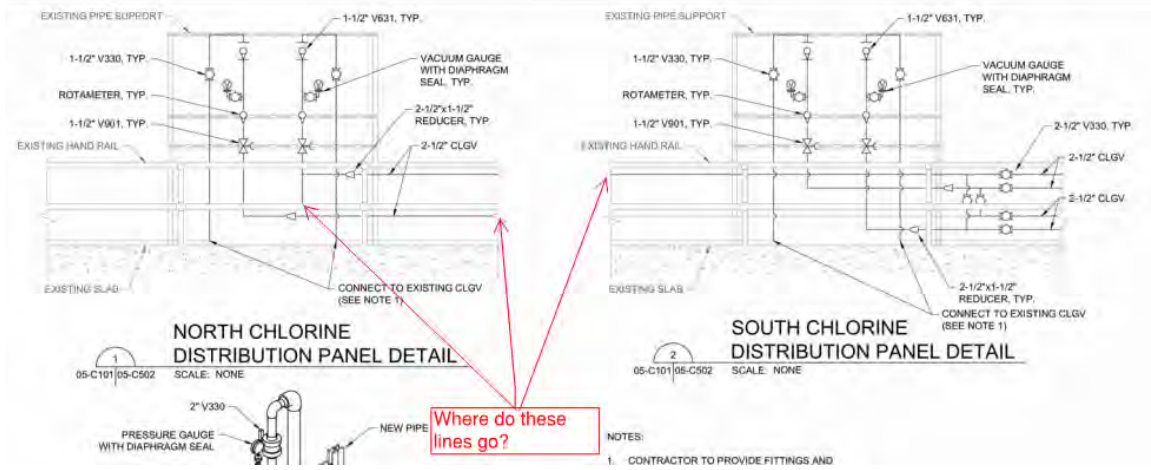
**Response:** This is a 1" connection. Please reference revised DWG 05-C501, issued in this addendum.

15. DWG 05-C501, Detail 2: What size is this connection?



**Response:** This is a 1" connection. Please reference revised DWG 05-C501, issued in this addendum.

16. DWG 05-C502, Details 1 and 2: Where do these lines go?

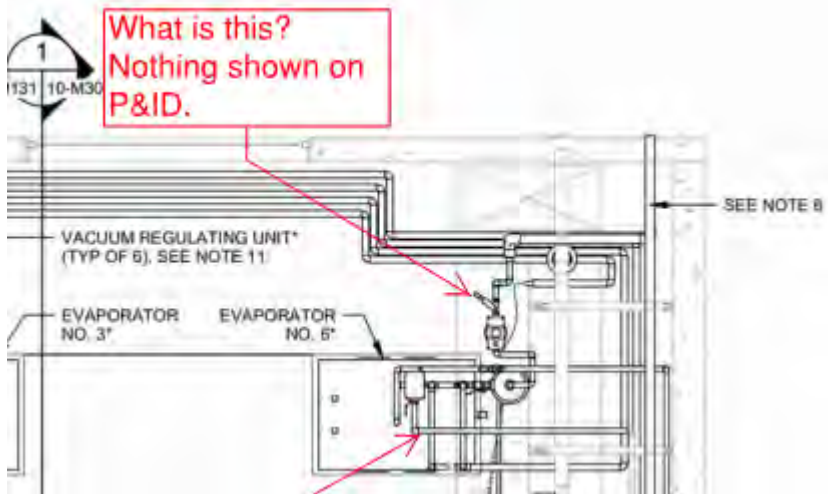


**Response:** These lines run along the handrail at the top of the disinfection channel from the South Chlorine Distribution Panel to the North Chlorine Distribution Panel. See revised DWGs 05-C301 and 05-C502, issued in this addendum.

17. DWG 10-M131: Can you provide a section in this direction (North-South, facing west) so we can see the pipe layout that is not hidden by the chlorinators in Section 1/10-M301?

**Response:** The requested section has been added to DWG 10-M301 in this addendum.

18. DWG 10-M131: What is this? Nothing shown on P&ID.



**Response:** This is a gas strainer that would be supplied as part of the Chlorine Equipment Manufacturer’s vacuum regulating unit package. Its location has been adjusted as shown in revised drawings 01-G004, 01-G005, 10-M131, 10-M302, and 10-M503 issued in this addendum.

19. DWG 10-M131: What size is the N2 pipe?

**Response:** All N2 pipe in the Disinfection Building is 1”-diameter. Please reference revised DWGs 01-G004, 1-G005, and 10-M131, issued in this addendum.

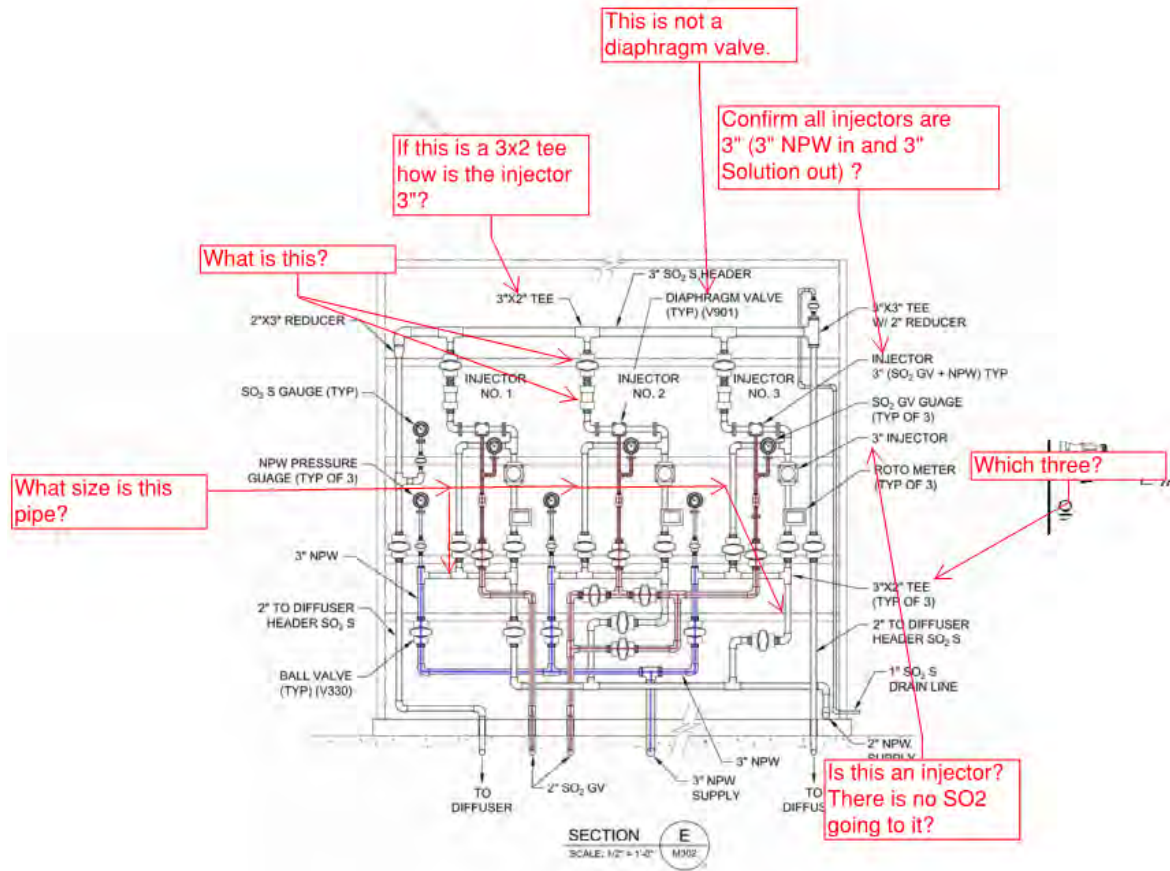
20. DWG 10-M131: Please label all Evaporator Room Piping.

**Response:** Piping labels have been added to representative evaporators on the revised DWG 10-M131, issued in this addendum.

21. DWG 20-M301, Section A: Where does the nitrogen purge line come from? What size? Not shown on 20-M132

Response: Refer to revised DWGs 20-M132 and 20-M301. Information pertaining to the purge line was added.

22. DWG 20-M302, Section E: Please clarify the following items:



Response: Refer to revised DWG 20-M302. Section view was modified to clarify line sizes, etc.

## CHANGES TO THE CONTRACT DOCUMENTS

### 1. Section BP - Bid Proposal

- a. **Remove** the Bid Proposal in its entirety and replace with the attached. Bid Item 6 was added.

## MODIFICATIONS TO THE SPECIFICATIONS

### 1. Section 01 10 00 – SUMMARY

**Replace** Section 01 10 00.1.7.F.5.a with the following:

“a. There is one (1) existing Chlorine Injector Station with one (1) existing injector for the Recycled Water. The Contractor shall complete the installation of the new Chlorine Injector Station with two (2) injectors on a new panel to the south of the existing Chlorine Injector Panel before demolishing the existing Chlorine Injector Station. All associated piping connections shall be completed within three (3) calendar days.”

### 2. Section 01 22 13 – MEASUREMENT AND PAYMENT

**Remove** Section 01 22 13 in its entirety and replace with the attached. Bid Item 6 was added.

### 3. Section 40 05 13 – COMMON WORK RESULTS FOR PROCESS PIPING

**Revise** Section 40 05 13.1.3.B as follows:

- a. Add “Welding procedures and welder qualifications for dry chlorine piping systems shall be in accordance with ASME BPV-IX (13.2.10) and ASME B31.3 (13.2.8).”

### 4. Section 40 23 43 – PROCESS VALVES

**Revise** Section 40 23 43.2.1.A as follows:

- a. Delete “For operator specifications, see Sections 40 92 13 MOTORIZED OPERATORS, and 40 92 16 VALVE AND GATE OPERATORS.”

### 5. Section 46 31 11 – CHLORINE GAS FEED SYSTEM

**Revise** Section 46 31 11 as follows:

- a. Replace paragraph 2.1.E.1.d with the following: “Ball valves shall be provided in accordance with the requirements of Section 40 23 43. Quarter-turn electric actuators for open-close service shall be provided for each ball valve. The electric motor shall be specifically designed for valve actuator service with a high starting torque and totally enclosed non-ventilated construction. Motor insulation shall be NEMA Class F, minimum, with a maximum continuous temperature rating of 155 degrees Celsius, rise plus ambient. The enclosure shall have a NEMA 4X rating.”
- b. Add the following to paragraph 2.1.E.2.b: “The pressure switch and electronic ball valves shall be provided as described in paragraph 2.1.E.1.”
- c. In paragraph 2.2.B.1, delete “b. Halogen Valve Systems, Inc.”
- d. Add the following to paragraph 2.2.B.2: “The actuator shall include integral leak detection for automatic shutdown.”
- e. In paragraph 2.2.B.6.a, delete “OR”
- f. Replace paragraph 2.2.B.6.b with the following: “Furnish one wall-mounted control panel for each bank of chlorine cylinders. The enclosure shall be fiberglass or polycarbonate with a NEMA 4X rating. The enclosure shall house terminals to connect to each actuator, terminals for power supply, and terminals for remote contact inputs from leak detectors. The remote leak detector signal shall close all actuators. The enclosure shall include batteries, dual battery charger, isolation relay, power light, and a panic button. The batteries and automatic battery charger shall be designed to operate all actuators simultaneously and maintain operation of the actuators for a period of four hours in the event of

power failure. All wires and terminals shall have a minimum voltage rating of 300 volts. Terminals shall be provided for field connection of actuators, incoming 120 VAC power, and 6 signals per actuator from the Plant HMI.”

6. Section 46 31 13 – SULFUR DIOXIDE FEED EQUIPMENT

**Revise** Section 46 31 13 as follows:

- a. Replace paragraph 2.1.D.1.e with the following: “Ball valves shall be provided in accordance with the requirements of Section 40 23 43. Quarter-turn electric actuators for open-close service shall be provided for each ball valve. The electric motor shall be specifically designed for valve actuator service with a high starting torque and totally enclosed non-ventilated construction. Motor insulation shall be NEMA Class F, minimum, with a maximum continuous temperature rating of 155 degrees Celsius, rise plus ambient. The enclosure shall have a NEMA 4X rating.”
- b. Add the following to paragraph 2.1.D.2.b: “The pressure switch and electronic ball valves shall be provided as described in paragraph 2.1.D.1.”
- c. In paragraph 2.2.B.1, delete “b. Halogen Valve Systems, Inc.”
- d. Add the following to paragraph 2.2.B.2: “The actuator shall include integral leak detection for automatic shutdown.”
- e. In paragraph 2.2.B.6.a, delete “OR”
- f. Replace paragraph 2.2.B.6.b with the following: “Furnish one wall-mounted control panel for each bank of chlorine cylinders. The enclosure shall be fiberglass or polycarbonate with a NEMA 4X rating. The enclosure shall house terminals to connect to each actuator, terminals for power supply, and terminals for remote contact inputs from leak detectors. The remote leak detector signal shall close all actuators. The enclosure shall include batteries, dual battery charger, isolation relay, power light, and a panic button. The batteries and automatic battery charger shall be designed to operate all actuators simultaneously and maintain operation of the actuators for a period of four hours in the event of power failure. All wires and terminals shall have a minimum voltage rating of 300 volts. Terminals shall be provided for field connection of actuators, incoming 120 VAC power, and 6 signals per actuator from the Plant HMI.”

## MODIFICATIONS TO THE PLANS

1. Sheet 01-G004
  - a. Replace the sheet with the attached.
2. Sheet 01-G005
  - a. Replace the sheet with the attached.
3. Sheet 01-G006
  - a. Replace the sheet with the attached.
4. Sheet 01-G009
  - a. Add the abbreviation "PW" and corresponding description "Water, Potable" to the Flow Stream Identification list.
5. Sheet 01-G010
  - a. Replace tachometer generator symbol with a horn symbol.
6. Sheet 05-C301
  - a. Replace the sheet with the attached.
7. Sheet 05-C303
  - a. Replace the sheet with the attached.
8. Sheets 05-C302 and 05-C304
  - a. Modify the Proposed Piping Legend to show line # 8a as existing.
9. Sheet 05-C501
  - a. Replace the sheet with the attached.
10. Sheet 05-C502
  - a. Replace the sheet with the attached.
11. Sheet 05-E103
  - a. Replace the sheet with the attached.
12. Sheet 08-I104
  - a. Add "General Notes: 1. Refer to Process Flow Diagram Sheets 01-G004 and 01-G005 for more information about pipe lines and mechanical devices."
  - b. Correct sheet reference on liquid line feeders From Bank 1 and 2 Common Header from "08-I105" to "08-I103".
13. Sheet 08-I105
  - a. Add "General Notes: 1. Refer to Process Flow Diagram Sheets 01-G004 and 01-G-005 for more information about pipe lines and mechanical devices."
  - b. Correct sheet reference on liquid line feeders From Evaporator No. 1-2 Common Header and From Evaporator No. 2-3 Common Header from "08-I106" to "08-I104".
14. Sheet 08-I107
  - a. Add "General Notes: 1. Refer to Process Flow Diagram Sheets 01-G004 and 01-G-005 for more information about pipe lines and mechanical devices."
  - b. Correct sheet reference on liquid line feeders From Bank 4 and 5 Common Header from "08-I108" to "08-I106".
  - c. Remove sheet reference from Nitrogen Purge Line.
15. Sheet 08-I108
  - a. Add "General Notes: 1. Refer to Process Flow Diagram Sheets 01-G004 and 01-G-005 for more information about pipe lines and mechanical devices."
  - b. Correct sheet reference on liquid line feeders From Evaporator No. 1-2 Common Header and From Evaporator No. 2-3 Common Header from "08-I109" to "08-I107".
16. Sheet 08-I202
  - a. Correct sheet reference on liquid line feeders From Bank No. 1 Common Header from "08-I202" to "08-I201".



17. Sheet 08-I203
  - a. Correct sheet reference on liquid line feeders From SO2 Evaporator Common Header from “08-I203” to “08-I202”.
  - b. Change label identifier “SLGV” to “SO2GV”.
  - c. Change label identifier “SLS” to “SO2S”
18. Sheet 08-I301
  - a. Replace the sheet with the attached.
19. Sheet 10-X104
  - a. Add title to photograph A: “Chlorine Gas Sensor and Transmitter”
  - b. Add title to photograph B: “Evaporator Disconnect”
  - c. Add title to photograph C: “Chlorine Gas Sensor and Transmitter”
  - d. Add title to photograph D: “Hose Bibb”
20. Sheet 10-X107
  - a. Add title to photograph A: “Chlorine Switchover Control Panels Skids 2, 4, 6, 8”
  - b. Add title to photograph B: “Chlorine Switchover Control Panels Skids 1, 3, 5, 7”
  - c. Add title to photograph C: “Weight Indicators”
  - d. Add title to photograph D: “Bank Flow and Safety Valves and Safety Valve Control Panel”
  - e. Add title to photograph E: “Roll Up Door Controls”
  - f. Add title to photograph G: “Q Line Panel”
21. Sheet 10-X504
  - a. Change note-by-symbol 7 text to: “Note Not Used.”
22. Sheet 10-X506
  - a. Replace the sheet with the attached.
23. Sheet 10-X509
  - a. Change note-by-symbol 4 text to:” Note Not Used.”
  - b. Change note-by-symbol 5 text to: “Note Not Used.”
24. Sheet 10-M131
  - a. Replace the sheet with the attached.
25. Sheet 10-M301
  - a. Replace the sheet with the attached.
26. Sheet 10-M302
  - a. Replace the sheet with the attached.
27. Sheet 10-M503
  - a. Replace the sheet with the attached.
28. Sheet 10-E131
  - a. Change table title from “Chlorine Area” to “Chlorine Area Gas Leak Equipment Table”
29. Sheet 10-E138
  - a. Change reference on Detail Callout 1 from “10-E404” to “10-E402”
  - b. Change reference on Detail Callout 2 from “10-E404” to “10-E402”
30. Sheet 10-E401
  - a. Change title on panel from “New RIO CL2” to “Chlorine Remote I/O RIO-CL”
31. Sheet 10-E402
  - a. Add note-by-symbol 2 to Riser A
  - b. Remove note-by-symbol 2 from Detail 1.
  - c. Change reference for Detail 1 from “10-E404” to “10-E137”
  - d. Remove note-by-symbol 3 from Detail 2.
  - e. Change reference for Detail 2 from “10-E404” to “10-E137”
32. Sheet 10-E405
  - a. Change wire count for Panel MV 2-2 from “10 #14” to “12 #14”
33. Sheet 10-E407
  - a. Remove note-by-symbol 7 from Detail 1.
34. Sheet 10-E408
  - a. Add note-by-symbol 1 to Riser 1
  - b. Remove repeated text “Located in SO2 Building” from SO2 Gas Leak Alarm Termination Enclosure box in Riser 1

35. Sheet 10-E502
  - a. Change feeder number 5 serving Feed to Automatic Transfer Switch (MCC-EF2) to be existing.
  - b. Change note-by-symbol 3 text to: "Note Not Used."
36. Sheet 10-E506
  - a. Change table title from "Chlorine Area" to "Chlorine Area Gas Leak Equipment Table"
  - b. Change table title from "Sulphur Dioxide Area" to "Sulfur Dioxide Area Gas Leak Equipment Table"
37. Sheet 10-E507
  - a. Change table title from "Chlorine Area" to "Chlorine Area Gas Leak Equipment Table"
  - b. Change table title from " Sulphur Dioxide Area" to "Sulfur Dioxide Area Gas Leak Equipment Table"
  - c. Correct top continuation legend on the left schematic from "Continued Below left" to "Continued From 10-E506"
  - d. Correct bottom continuation legend on the left schematic from "Continued on 10-E507" to "Continued Above Right"
  - e. Correct top continuation legend on the right schematic from "Continued From 10-E506" to "Continued Below Left"
  - f. Correct bottom continuation legend on the right schematic from "Continued Above Right" to "Continued on 10-E508"
38. Sheet 10-E508
  - a. Change table title from "Chlorine Area" to "Chlorine Area Gas Leak Equipment Table"
  - b. Change table title from "Sulphur Dioxide Area" to "Sulfur Dioxide Area Gas Leak Equipment Table"
  - c. Correct top continuation legend on the left schematic from "Continued Below left" to "Continued from 10-E507"
39. Sheet 20-X102
  - a. Replace the sheet with the attached. Changed callout on Section 4 from "Reuse Existing Scale" to "Remove Existing Dual Cylinder Scale".
40. Sheet 20-X104
  - a. Replace the sheet with the attached. Added Section 9 to show demolition of existing SO<sub>2</sub> Cylinder Room Overhead Door.
41. Sheet 20-M131
  - a. Replace the sheet with the attached. Modifications are summarized as follows:
    - Added callout to show location of new SO<sub>2</sub> Cylinder Room Roll-Up Door.
    - Deleted callout "Re-Use Single-Cylinder Scale (Typ. Of 3)".
    - Changed Key Note D from "Existing Single Cylinder Scale (To Remain)" to "Existing Dual Cylinder Scale (Remove and Replace with New Scales)".
42. Sheet 20-M132
  - a. Replace the sheet with the attached. Modifications are summarized as follows:
    - Added individual vent lines from each of the evaporator vacuum regulators to the scrubber canister.
    - Clarified location of existing 3-inch and 1/2-inch Potable Water (PW). PW line will be connected to the evaporator. Existing PW in the Evaporator and Sulfonator Room shall be reused and not demolished.
    - Clarified location of existing 1-inch Nitrogen (N<sub>2</sub>) Purge Line. N<sub>2</sub> Purge Lines will be connected to each evaporator. Existing N<sub>2</sub> lines in the Evaporator Room shall be reused and not demolished.
    - Additional notes were provided.
43. Sheet 20-M133
  - a. Replace the sheet with the attached. Added detail to show SO<sub>2</sub> Cylinder Room Roll-Up Door.
44. Sheet 20-M301
  - a. Replace the sheet with the attached. Summary of modifications are noted below.
    - Added ½-inch PW Connection to each evaporator as well as connection point.
    - Clarified location of 1-1/4-inch Vapor Vent.
    - Clarified connection to existing N<sub>2</sub> Purge line.
    - Modified Sulfur Dioxide Scrubber Canister to show additional vent lines from Evaporator Room. Provided additional details to clarify modifications required at canister.

- 45. Sheet 20-M302
  - a. Replace the sheet with the attached. Section E was modified to clarify pipe sizes at the injector panel.
- 46. Sheet 20-E133
  - a. Change reference on Detail B from "20-E134" to "20-E133"
- 47. Sheet 20-E134
  - a. Corrected scale reference bar to match the scale reference shown on the rest of the drawing.
- 48. Sheet 20-E402
  - a. Correct reference in note-by-symbol 1 text from "20-E136" to "20-E134"

This Addendum, including these eleven (11) pages, is thirty-eight (38) pages with attachments in its entirety.

Attachments: Contract Documents: BP-Bid Proposal  
 Specification Sections: 01 22 13 - Measurement and Payment  
 Plan Sheets: 01-G004, 01-G005, 01-G006, 05-C301, 05-C303, 05-C501, 05-C502, 05-E103, 08-I301, 10-X506, 10-M131, 10-M301, 10-M302, 10-M503, 20-X102, 20-X104, 20-M131, 20-M132, 20-M133, 20-M301, and 20-M302.



Digitally Signed: September 19, 2018  
 Greg T. Swoboda, P.E. 76706  
 Garver, LLC.  
 Registration No.



Digitally Signed: September 19, 2018  
 Javier Garcia, P.E. 83920  
 Garcia Infrastructure Consultants, LLC  
 Registration No. 17794



Digitally Signed: September 19, 2018  
 Verinder K. Gupta, P.E. 53097  
 Gupta & Associates, Inc.  
 Registration No. 2593

**BID PROPOSAL**

PROPOSAL OF \_\_\_\_\_

, a corporation a partnership consisting of \_\_\_\_\_

an individual doing business as \_\_\_\_\_

THE SAN ANTONIO WATER SYSTEM:

Pursuant to Instructions and Invitation to Bidders, the undersigned proposes to furnish all labor and materials as specified and perform the work required for the project as specified, in accordance with the Plans and Specifications for the following prices to wit:

***(PLEASE SEE ATTACHED LIST OF BID ITEMS)***

**TOTAL BID PRICE** \$ \_\_\_\_\_

Mobilization and demobilization shall be limited to the maximum percentage shown. **If the percentage exceeds the allowable maximum stated for mobilization and demobilization, SAWS reserves the right to cap the amount at the percentages shown and adjust the extensions of the bid items accordingly.**

\_\_\_\_\_  
BIDDER'S SIGNATURE & TITLE

\_\_\_\_\_  
FIRM'S NAME (TYPE OR PRINT)

\_\_\_\_\_  
FIRM'S ADDRESS

\_\_\_\_\_  
FIRM'S PHONE NO. /FAX NO.

\_\_\_\_\_  
FIRM'S EMAIL ADDRESS

The Contractor herein acknowledges receipt of the following:  
Addendum Nos. \_\_\_\_\_

OWNER RESERVES THE RIGHT TO ACCEPT THE OVERALL MOST RESPONSIBLE BID.

The bidder offers to construct the Project in accordance with the Contract Documents for the contract price, and to complete the Project within **400** calendar days after the start date, as set forth in the Authorization to Proceed. **The bidder understands and accepts the provisions of the Contract Documents relating to liquidated damages of the project if not completed on time.**

Complete the additional requirements of the Bid Proposal, which are included on the following pages.

DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS  
Solicitation No. CO-00197

Item No.	Quote Category	SOV Item	Item Description	Unit	Quantity	Unit Bid Price	Total Price
1	General Water Bid Item	01.4600.00.0002 - Construction	Civil/Demolition for Chlorine and Sulfur Dioxide Systems: All costs associated with demolition for preparation for installation of pipelines, feed systems, injectors, roll-up doors and their components. It shall include demolition, saw cutting, hauling, temporary erosion controls, salvage, disposal of all items unused/removed in accordance with the Contract Documents, complete in-place for the lump sum price.	LS	1.00	\$	\$
2	General Water Bid Item	01.4600.00.0002 - Construction	Civil/Structural/ Mechanical for Chlorine and Sulfur Dioxide Systems: All costs associated with fabrication, delivery, installation, and testing of the chlorine and sulfur dioxide systems. It shall include procurement, installation, structural items, field testing, start-up and commissioning, performance testing, training, manufacturer's field services, submittals and O&M manuals in accordance with the Contract Documents, complete in-place for the lump sum price.	LS	1.00	\$	\$
3	General Water Bid Item	01.4600.00.0002 - Construction	Civil/Structural/ Mechanical for Roll-up Doors: All costs associated with fabrication, delivery, installation, and testing of the roll-up doors. It shall include procurement, installation, structural items, field testing, start-up and commissioning, performance testing, training, manufacturer's field services, submittals and O&M manuals in accordance with the Contract Documents, complete in-place for the lump sum price.	LS	1.00	\$	\$
4	General Water Bid Item	01.4600.00.0002 - Construction	Civil/Structural/ HVAC for Chlorine and Sulfur Dioxide Storage Rooms: All costs associated with fabrication, delivery, installation, and testing of the heating units. It shall include procurement, installation, structural items, field testing, start-up and commissioning, performance testing, training, manufacturer's field services, submittals and O&M manuals in accordance with the Contract Documents, complete in-place for the lump sum price.	LS	1.00	\$	\$
5	General Water Bid Item	01.4600.00.0002 - Construction	Electrical/I&C Improvements for Chlorine and Sulfur Dioxide System: All costs associated with the demolition and replacement of the chlorine and sulfur dioxide systems including work associated with control panels, leak detection systems, heating units and roll-up doors to include electrical, conduit, wiring/cables, instrumentation, connections, submittals, manufacturer's field services, testing, startup, training, and commissioning, complete in-place for the lump sum price.	LS	1.00	\$	\$

DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS  
Solicitation No. CO-00197

Item No.	Quote Category	SOV Item	Item Description	Unit	Quantity	Unit Bid Price	Total Price
6	General Water Bid Item	01.4600.00.0002 - Construction	Emergency valve shut-off systems associated with the chlorine gas feed system and sulfur dioxide feed equipment for the project. This shall include furnishing all equipment, materials, incidentals and start-up and operator training services required for the emergency valve shut-off systems.	LS	1.00	\$	\$
7	General Water Bid Item	01.4600.00.0002 - Construction	Pre-startup/Commissioning: Construction Items: Allowance for \$200,000 for unforeseen construction related items (not included in the scope) associated with pre-start up and start-up services necessary to provide for an operational and functional system. It shall include furnishing all labor, materials, tools, equipment and incidentals required to construct these project related items at SAWS request, and to be negotiated under the contract terms and conditions, complete in place.	LS	1.00	\$200,000.00	\$200,000.00
8	General Water Bid Item	01.4600.00.0002 - Construction	Emerson Process Management Services: Allowance for Emerson Process Management in the amount of \$664,789.00 associated with the project. This shall include furnishing all labor, materials, tools, equipment and incidentals required to construct the I&C related items, complete in place.	LS	1.00	\$664,789.00	\$664,789.00
9	General Water Bid Item	01.4600.00.0002 - Construction	Permitting Fees: Allowance for \$5,000 for fees associated with this project. This shall include furnishing all labor, materials, tools, equipment, incidentals, required to obtain all necessary permits. Contractor to pay and be reimbursed actual amount by SAWS.	LS	1.00	\$5,000.00	\$5,000.00
10	General Water Bid Item	01.4600.00.0002 - Construction	Subsurface Utility Investigation: Allowance for \$10,000 for completion of a subsurface utility investigation. This shall include furnishing all tools, labor, materials, equipment and incidentals necessary for the completion of this item that does not harm the existing utilities. Contractor to pay and be reimbursed actual amount by SAWS.	LS	1.00	\$10,000.00	\$10,000.00
11	General Water Bid Item	01.4600.00.0002 - Construction	Mobilization and Demobilization: This item shall include project move-in and move-out of personnel and equipment, for all work including furnishing all labor, materials, tools, equipment and incidentals required to mobilize, demobilize, clean site upon project completion, and bond and insure the Work in accordance with the Contract Documents, complete in place. Maximum of 10% of the total of Line Items 1 through 6.	LS	1.00	\$	\$

## SECTION 01 22 13 – MEASUREMENT AND PAYMENT

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Scope:
1. Items listed starting in Article 1.3 of this Section refer to and are the same pay items listed in the Bid Form and constitute all pay items for completing the Work.
  2. No direct or separate payment will be made for providing miscellaneous temporary or accessory works, plant or facility services, Contractor's or Engineer's field offices, layout surveys, project signs, sanitary requirements, testing, safety provisions and safety devices, submittals and record drawings, water supplies, power and fuel, maintenance of traffic, removal of waste, security, coordination with Owner's operations, information technology (including hardware, software, and services) required during construction, commissioning where specified, bonds, insurance, or other requirements of the General Conditions, Supplementary Conditions, Division 01 Specifications, and other requirements of the Contract Documents.
  3. Compensation for all services, items, materials, and equipment shall be included in prices stipulated for lump sum and unit price pay items listed in this Section and included in the Contract.
- B. Each lump sum and unit price, as bid, shall include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

#### 1.2 RELATED PROVISIONS

- A. Payments to Contractor: Refer to General Conditions, Supplementary Conditions, Agreement, and Section 01 29 00, Payment Procedures.
- B. Changes in Contract Price: Refer to General Conditions and Supplementary Conditions.
- C. Schedule of Values: Refer to General Conditions, Supplementary Conditions, and Section 01 29 73, Schedule of Values.

#### 1.3 CONTRACT NO. 1 – GENERAL CONSTRUCTION

- A. Item 1 – Civil/Demolition for Chlorine and Sulfur Dioxide Systems:
1. Measurement: All costs associated with demolition for preparation for installation of pipelines, feed systems, injectors, roll-up doors and their components. It shall include demolition, saw cutting, hauling, temporary erosion controls, salvage, disposal of all items unused/removed in accordance with the Contract Documents, complete in-place for the lump sum price.
  2. Payment: Lump sum payment for Item 1 will be full compensation for completing the Work, as shown or indicated under Division 01 through Division 46. Additional work items that Contractor may be ordered by Owner to perform are described below.
- B. Item 2 – Civil/Structural/Mechanical for Chlorine and Sulfur Dioxide Systems:
1. Measurement: All costs associated with fabrication, delivery, installation, and testing of the chlorine and sulfur dioxide systems. It shall include procurement, installation, structural items, field testing, start-up and commissioning, performance testing, training, manufacturer's field services, submittals and O&M manuals in accordance with the Contract Documents, complete in-place for the lump sum price.

2. Payment: Lump sum payment for Item 2 will be full compensation for completing the Work, as shown or indicated under Division 01 through Division 46. Additional work items that Contractor may be ordered by Owner to perform are described below.
- C. Item 3 – Civil/Structural/Mechanical for Roll-up Doors:
1. Measurement: All costs associated with fabrication, delivery, installation, and testing of the roll-up doors. It shall include procurement, installation, structural items, field testing, start-up and commissioning, performance testing, training, manufacturer's field services, submittals and O&M manuals in accordance with the Contract Documents, complete in-place for the lump sum price.
  2. Payment: Lump sum payment for Item 3 will be full compensation for completing the Work, as shown or indicated under Division 01 through Division 46. Additional work items that Contractor may be ordered by Owner to perform are described below.
- D. Item 4 – Civil/Structural/HVAC for Chlorine and Sulfur Dioxide Storage Rooms:
1. Measurement: All costs associated with fabrication, delivery, installation, and testing of the heating units. It shall include procurement, installation, structural items, field testing, start-up and commissioning, performance testing, training, manufacturer's field services, submittals and O&M manuals in accordance with the Contract Documents, complete in-place for the lump sum price.
  2. Payment: Lump sum payment for Item 4 will be full compensation for completing the Work, as shown or indicated under Division 01 through Division 46. Additional work items that Contractor may be ordered by Owner to perform are described below.
- E. Item 5 – Electrical/I&C Improvements for Chlorine and Sulfur Dioxide Systems:
1. Measurement: All costs associated with the demolition and replacement of the chlorine and sulfur dioxide systems including work associated with control panels, leak detection systems, heating units and roll-up doors to include electrical, conduit, wiring/cables, instrumentation, connections, submittals, manufacturer's field services, testing, startup, training, and commissioning, complete in-place for the lump sum price.
  2. Payment: Lump sum payment for Item 5 will be full compensation for completing the Work, as shown or indicated under Division 01 through Division 46. Additional work items that Contractor may be ordered by Owner to perform are described below.
- F. Item 6 – Emergency Valve Shut-off Systems:
1. Measurement: Emergency valve shut-off systems associated with the chlorine gas feed system and sulfur dioxide feed equipment for the project. This shall include furnishing all equipment, materials, incidentals, and start-up and operator training services required for the emergency valve shut-off systems.
  2. Payment: Lump sum payment for Item 6 will be full compensation for completing the Work, as shown or indicated under Division 01 through Division 46. Additional work items that Contractor may be ordered by Owner to perform are described below.
- G. Item 7 – Pre-startup/Commissioning Construction Items:
1. Measurement: Allowance for \$200,000.00 for unforeseen construction related items (not included in the scope) associated with pre-start up and start-up services necessary to provide for an operational and functional system. It shall include furnishing all labor, materials, tools, equipment and incidentals required to construct these project related items at SAWS request, and to be negotiated under the contract terms and conditions, complete in place.
  2. Payment: Contractor to pay lump sum and be reimbursed for negotiated actual amount by SAWS.



- H. Item 8 – Emerson Process Management Services:
  - 1. Measurement: Emerson Process Management Services: Allowance for Emerson Process management in the amount of \$664,789.00 associated with the project. This shall include furnishing all labor, materials, tools, equipment and incidentals required to construct the I&C related items, complete in place.
  - 2. Payment: Contractor to pay lump sum and be reimbursed for actual amount by SAWS.
  
- I. Item 9 – Permitting Fees:
  - 1. Measurement: Allowance for \$5,000.00 fees associated with this project. This shall include furnishing all labor, materials, tools, equipment, incidentals, required to obtain all necessary permits. Contractor to pay and be reimbursed actual amount by SAWS.
  - 2. Payment: Contractor to pay lump sum and be reimbursed for actual amount by SAWS.
  
- J. Item 10 – Subsurface Utility Investigation:
  - 1. Measurement: Allowance for \$10,000.00 for completion of a subsurface utility investigation. This shall include furnishing all tools, labor, materials, equipment and incidentals necessary for the completion of this item that does not harm the existing utilities. Contractor to pay and be reimbursed actual amount by SAWS.
  - 2. Payment: Contractor to pay lump sum and be reimbursed for actual amount by SAWS.
  
- K. Item 11 – Mobilization and Demobilization:
  - 1. Measurement: This item shall include project move-in and move-out of personnel and equipment, for all work including furnishing all labor, materials, tools, equipment and incidentals required to mobilize, demobilize, clean site upon project completion, and bond and insure the Work in accordance with the Contract Documents, complete in place. Maximum of 10% of the total of Line Items 1 through 6.
  - 2. Payment: Lump sum payment for Item 9 will be full compensation for completing the Work, as shown or indicated under Division 01 through Division 46. Additional work items that Contractor may be ordered by Owner to perform are described below.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION



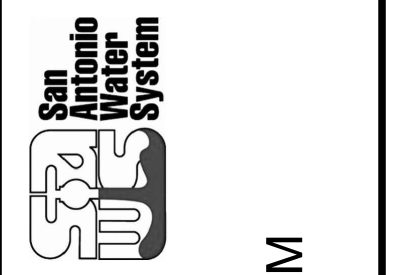
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REGISTRATION NO. F-5713



DIGITALLY SIGNED 9/19/18

REV.	DATE	DESCRIPTION	BY
1	09/19/18	ADDENDUM NO. 3	ADP



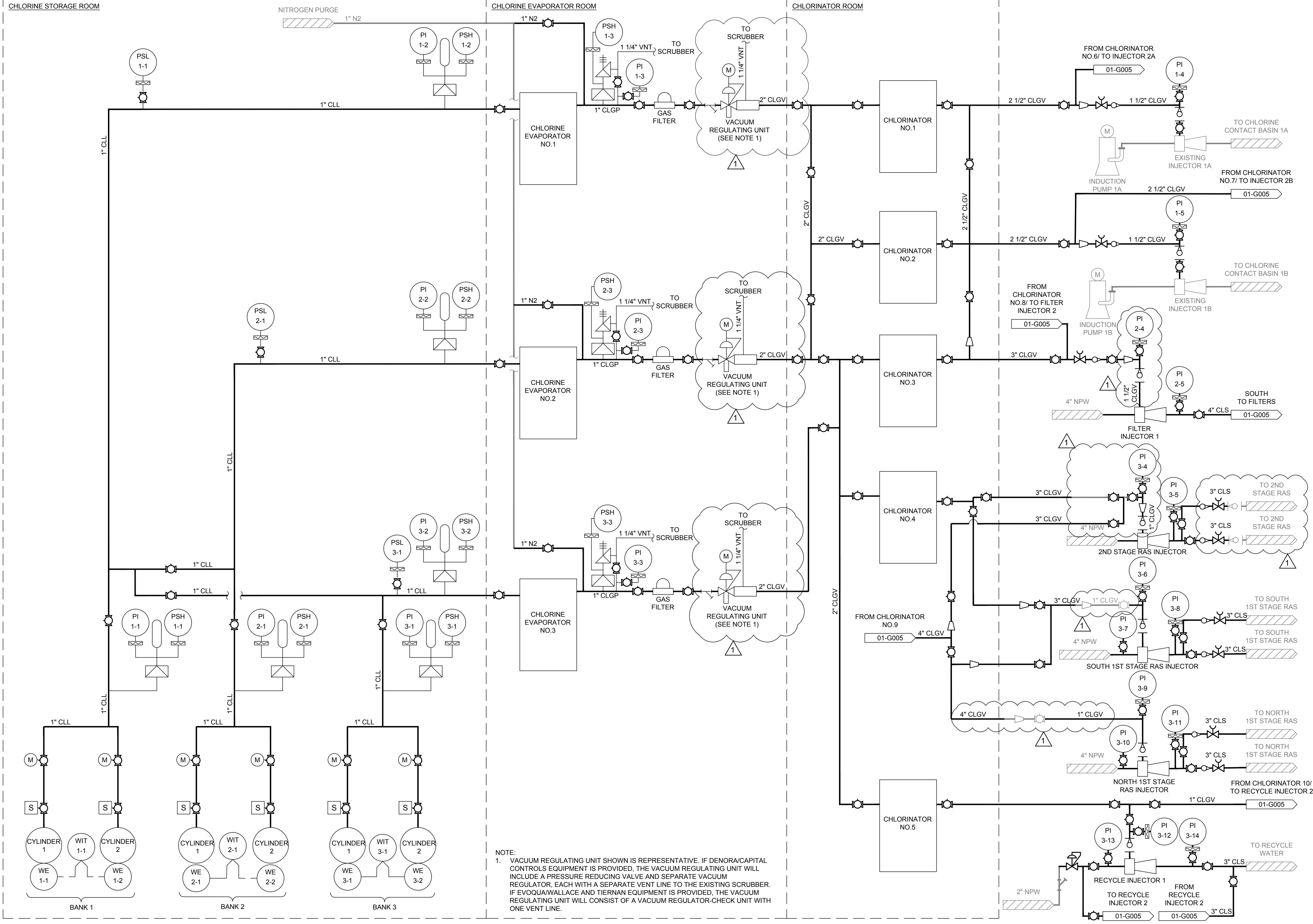
**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

PROCESS FLOW DIAGRAM - CHLORINE FEED SYSTEM BANKS 1-3

JOB NO.: 17238115  
 DATE: AUG. 2018  
 DESIGNED BY: ADP  
 DRAWN BY: EAF

BAR IS ONE INCH ON ORIGINAL DRAWING  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER **01-G004**  
 SHEET NUMBER **04**



NOTE:  
 1. VACUUM REGULATING UNIT SHOWN IS REPRESENTATIVE. IF DENORA/CAPITAL CONTROLS EQUIPMENT IS PROVIDED, THE VACUUM REGULATING UNIT WILL INCLUDE A PRESSURE REDUCING VALVE AND SEPARATE VACUUM REGULATOR, EACH WITH A SEPARATE VENT LINE TO THE EXISTING SCRUBBER. IF EVOQUA/WALLACE AND TIERNAN EQUIPMENT IS PROVIDED, THE VACUUM REGULATING UNIT WILL CONSIST OF A VACUUM REGULATOR-CHECK UNIT WITH ONE VENT LINE.

File: L:\2017\17238115 - SAWS Dos Rios WRC Chlorine System\Drawings\SAWS-01-G004.dwg, Last Save: 9/18/2018 4:53 PM, Last saved by: EAFlores  
 Last plotted by: Flores, Ernesto A., Plot Style: AECmon.ctb, Plot Scale: 1/0, 4255, Plot Date: 9/18/2018 4:56 PM, Plotter Used: DWG To PDF.pc3



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REGISTRATION NO. F-5713



DIGITALLY SIGNED 9/19/18

REV.	DATE	DESCRIPTION	BY
1	09/19/18	ADDENDUM NO. 3	ADP

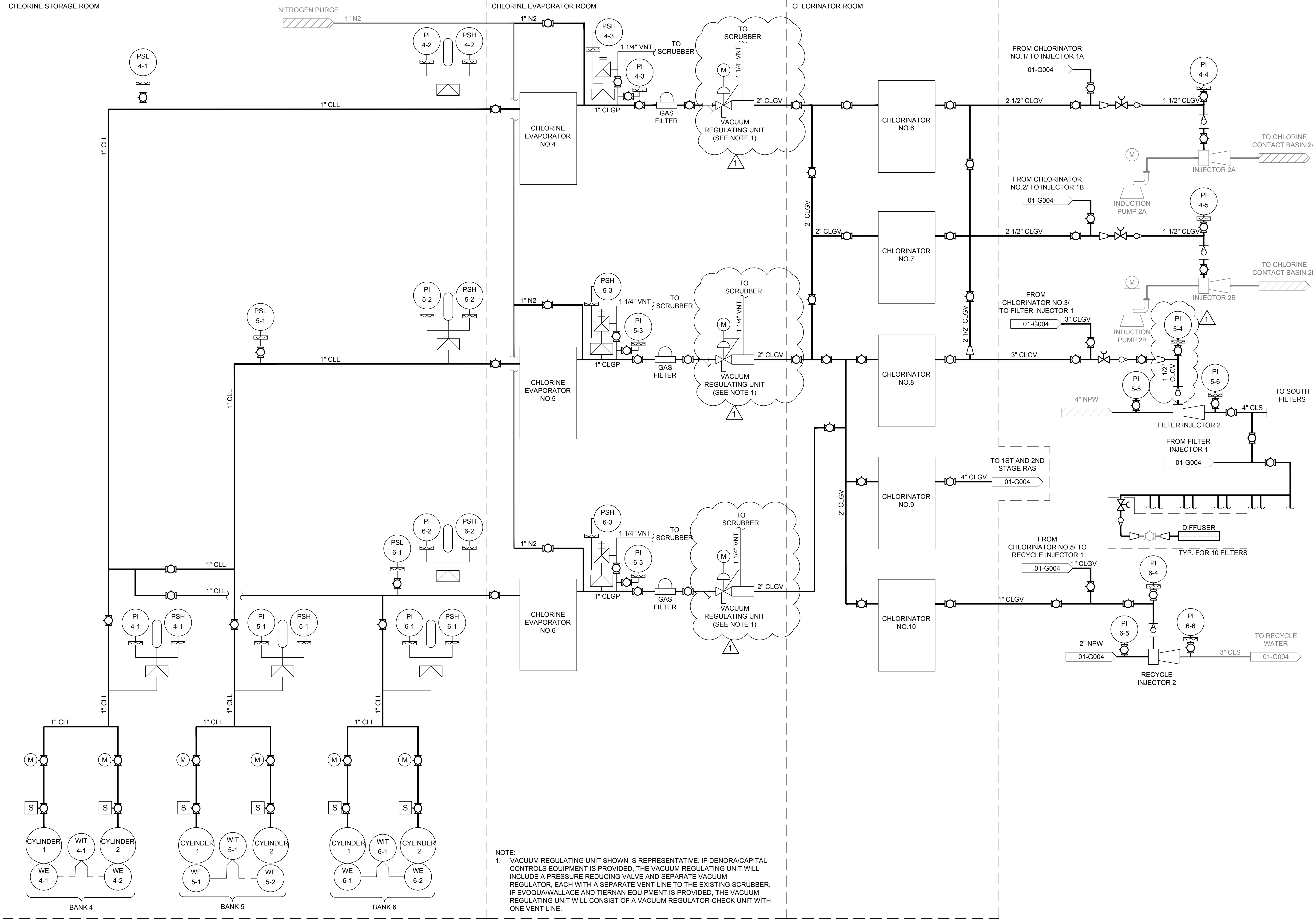


**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

PROCESS FLOW DIAGRAM - CHLORINE FEED SYSTEM BANKS 4-6

JOB NO.: 17238115  
 DATE: AUG. 2018  
 DESIGNED BY: ADP  
 DRAWN BY: EAF

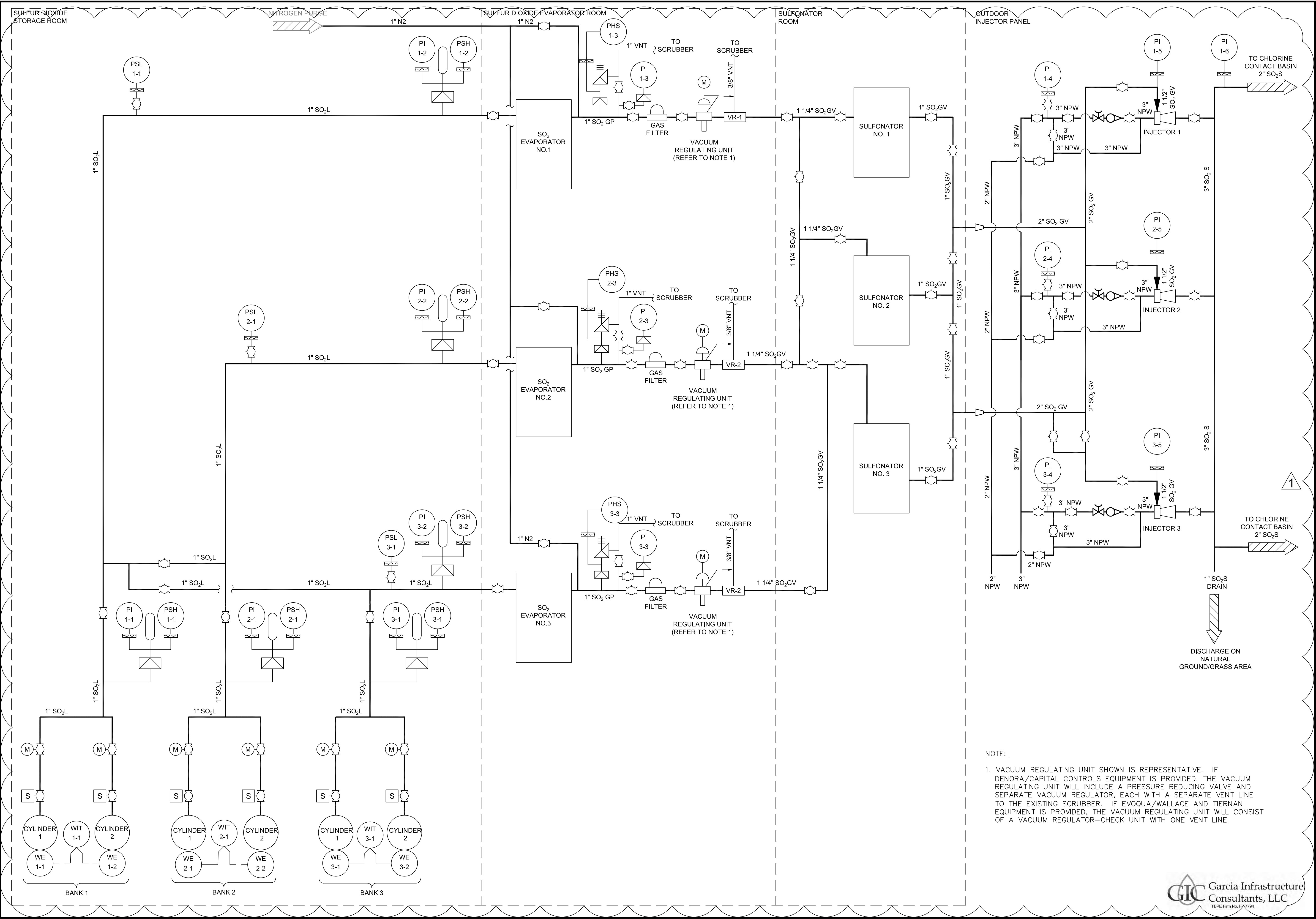
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 DRAWING NUMBER  
**01-G005**  
 SHEET NUMBER  
**05**



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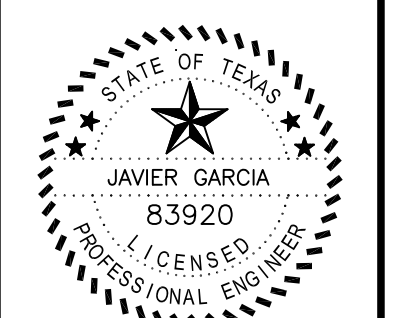


**NOTE:**  
 1. VACUUM REGULATING UNIT SHOWN IS REPRESENTATIVE. IF DENORA/CAPITAL CONTROLS EQUIPMENT IS PROVIDED, THE VACUUM REGULATING UNIT WILL INCLUDE A PRESSURE REDUCING VALVE AND SEPARATE VACUUM REGULATOR, EACH WITH A SEPARATE VENT LINE TO THE EXISTING SCRUBBER. IF EVOQUA/WALLACE AND TIERNAN EQUIPMENT IS PROVIDED, THE VACUUM REGULATING UNIT WILL CONSIST OF A VACUUM REGULATOR-CHECK UNIT WITH ONE VENT LINE.



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REGISTRATION NO. F-5713



Signature: *Javier Garcia*  
 9/19/18

REV.	DATE	DESCRIPTION	BY
1	9/19/18	ADDENDUM NO. 3	J.G.



**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

SO<sub>2</sub> FACILITIES  
 PROCESS FLOW  
 DIAGRAM - SO<sub>2</sub> FEED  
 SYSTEM BANKS 1-3

JOB NO.: 17238115  
 DATE: JUNE 2018  
 DESIGNED BY: JG  
 DRAWN BY: H3

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DRAWING NUMBER  
**01-G006**

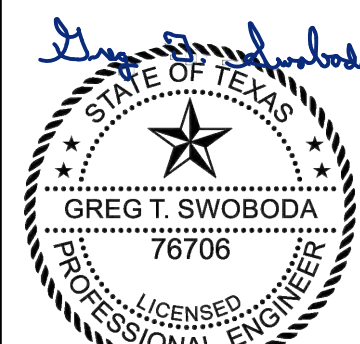
SHEET NUMBER  
**6**





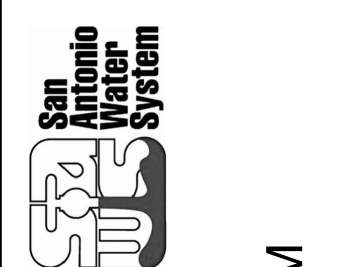
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REGISTRATION NO. F-5713



DIGITALLY SIGNED 9/19/18

REV.	DATE	DESCRIPTION	BY	GTS
1	09/19/18	ADDENDUM NO. 3		

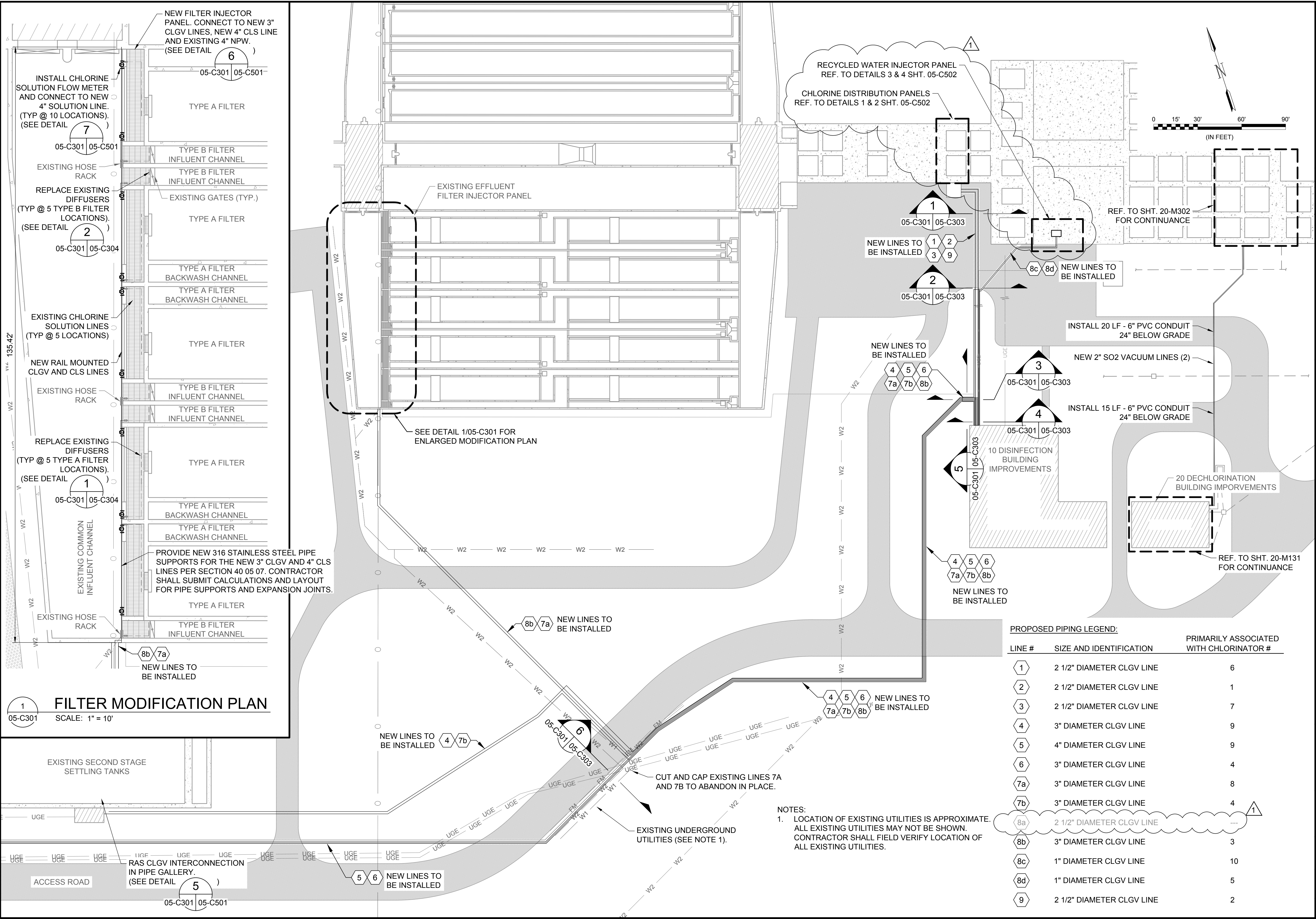


**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

YARD PIPING PLAN 1

JOB NO.: 17238115  
 DATE: AUG. 2018  
 DESIGNED BY: GTS  
 DRAWN BY: PLJ

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 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.  
 DRAWING NUMBER  
**05-C301**  
 SHEET NUMBER  
**20**



**PROPOSED PIPING LEGEND:**

LINE #	SIZE AND IDENTIFICATION	PRIMARILY ASSOCIATED WITH CHLORINATOR #
1	2 1/2" DIAMETER CLGV LINE	6
2	2 1/2" DIAMETER CLGV LINE	1
3	2 1/2" DIAMETER CLGV LINE	7
4	3" DIAMETER CLGV LINE	9
5	4" DIAMETER CLGV LINE	9
6	3" DIAMETER CLGV LINE	4
7a	3" DIAMETER CLGV LINE	8
7b	3" DIAMETER CLGV LINE	4
8a	2 1/2" DIAMETER CLGV LINE	—
8b	3" DIAMETER CLGV LINE	3
8c	1" DIAMETER CLGV LINE	10
8d	1" DIAMETER CLGV LINE	5
9	2 1/2" DIAMETER CLGV LINE	2

**NOTES:**  
 1. LOCATION OF EXISTING UTILITIES IS APPROXIMATE. ALL EXISTING UTILITIES MAY NOT BE SHOWN. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES.

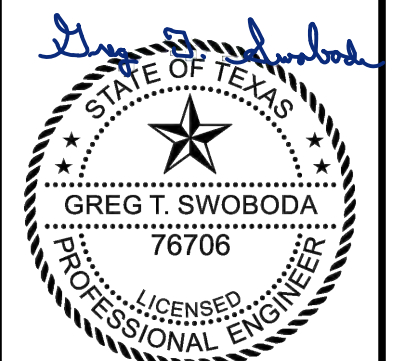
**1 FILTER MODIFICATION PLAN**  
 SCALE: 1" = 10'

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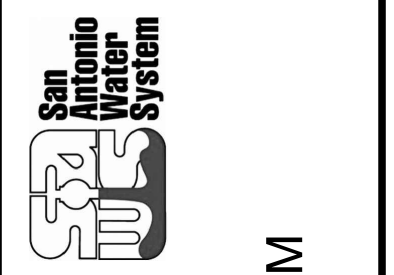
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REGISTRATION NO. F-5713



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BY	GTS		
DESCRIPTION	ADDENDUM NO. 3		
DATE	09/19/18		
REV.	A		



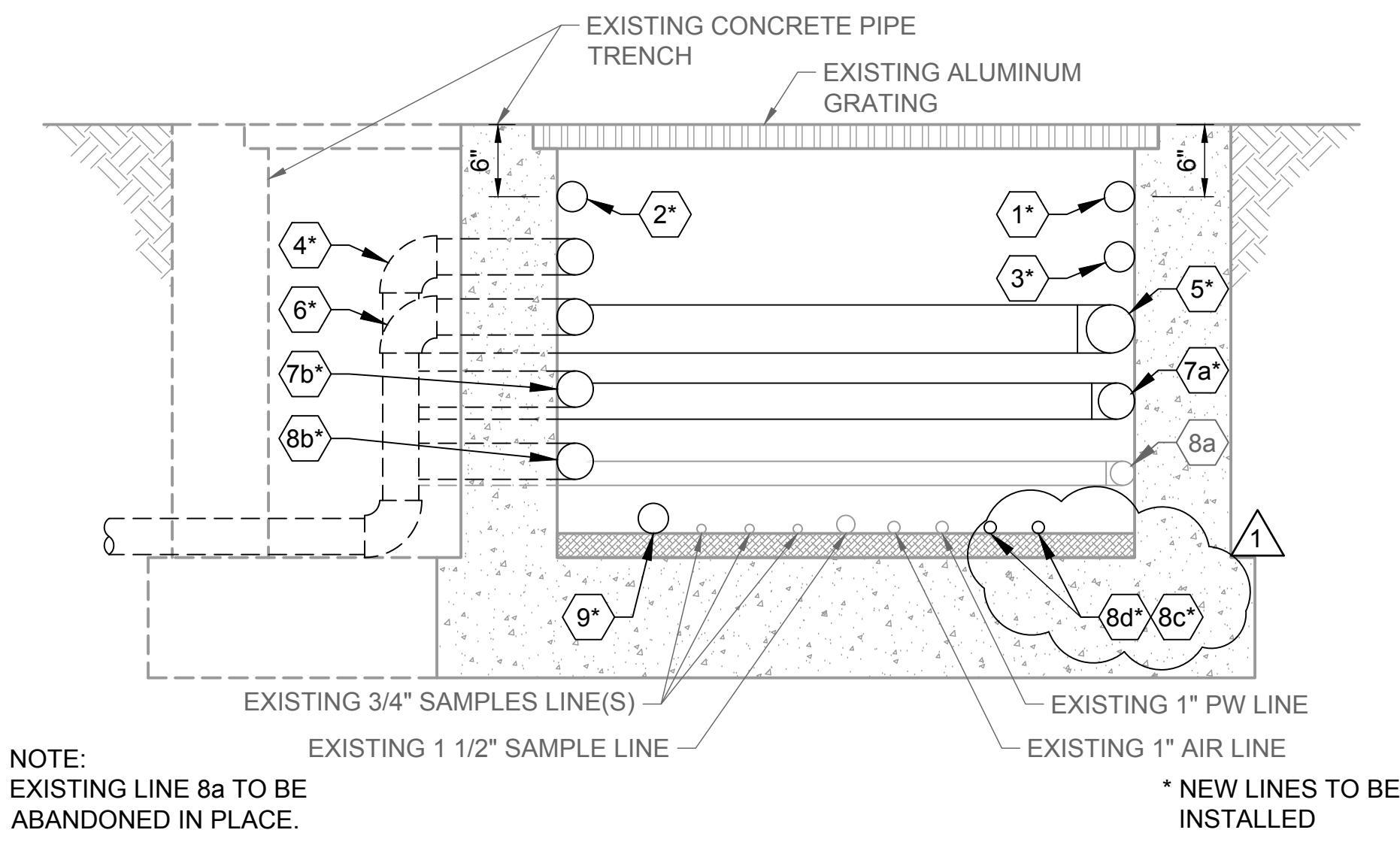
**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

MODIFIED YARD PIPING SECTIONS 1

JOB NO.: 17238115  
 DATE: AUG. 2018  
 DESIGNED BY: GTS  
 DRAWN BY: PLJ

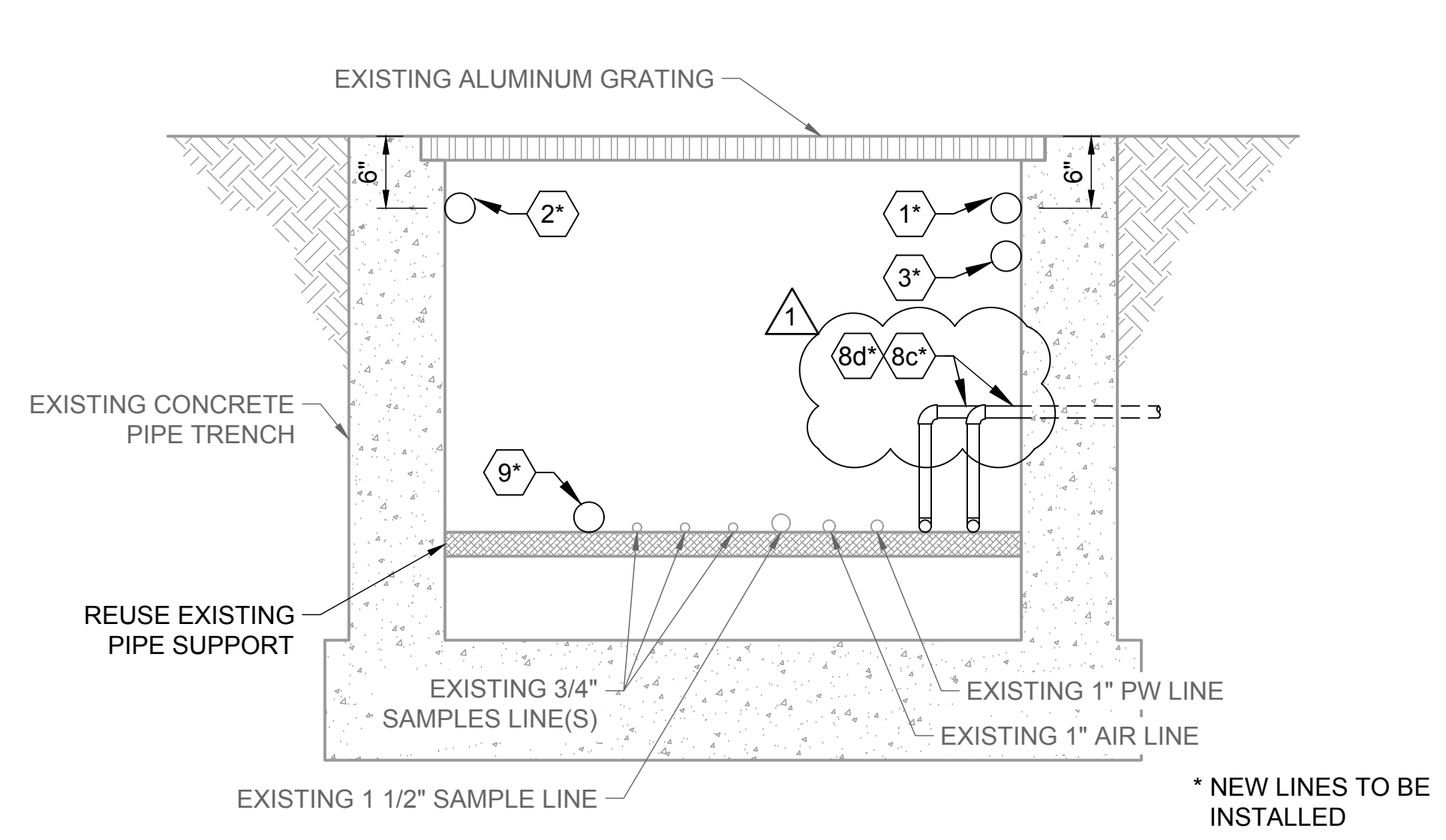
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DRAWING NUMBER  
**05-C303**  
 SHEET NUMBER  
**22**



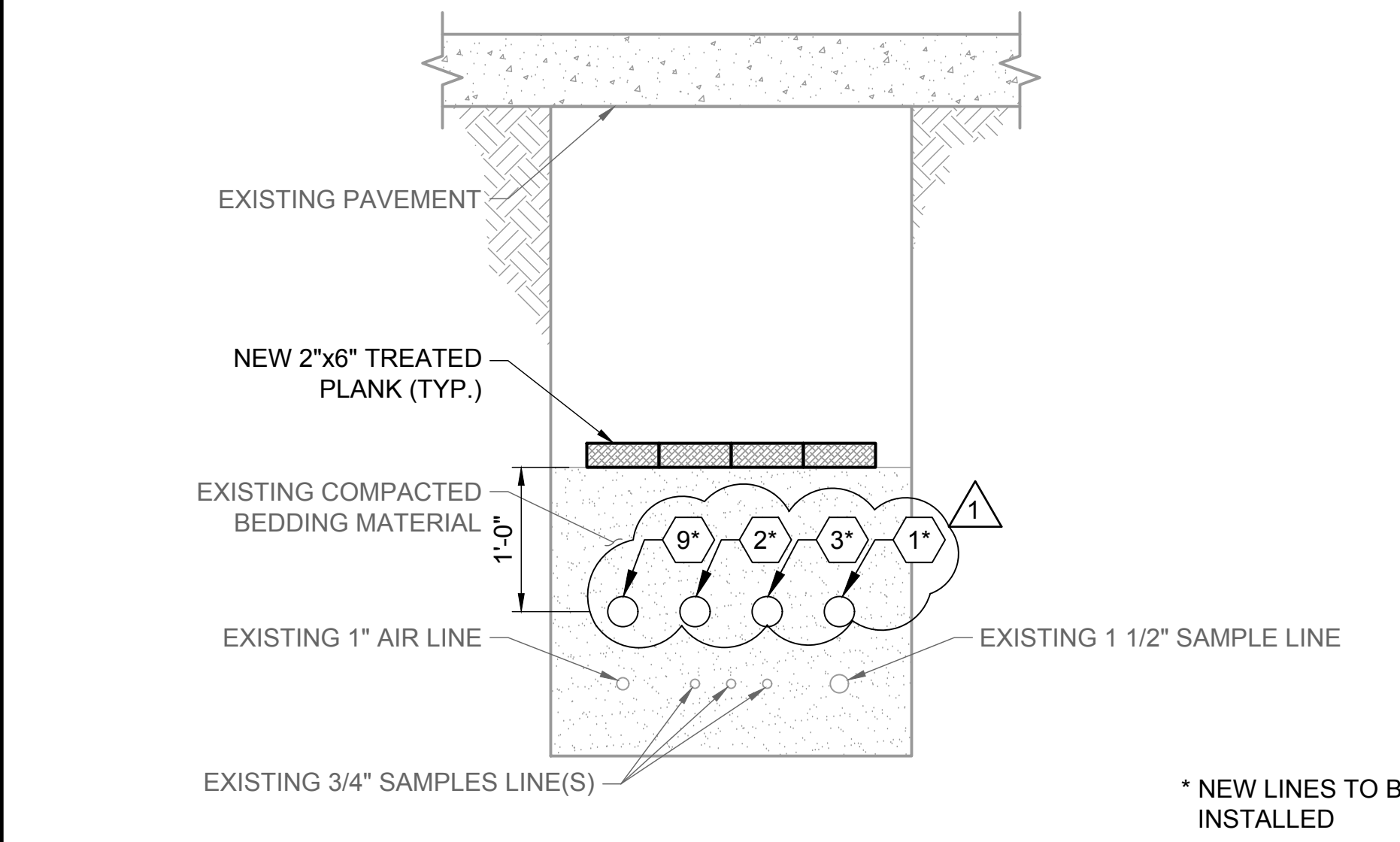
NOTE: EXISTING LINE 8a TO BE ABANDONED IN PLACE. \* NEW LINES TO BE INSTALLED

3 PIPING SECTION  
 05-C301 | 05-C303 SCALE: 1" = 1'-0"



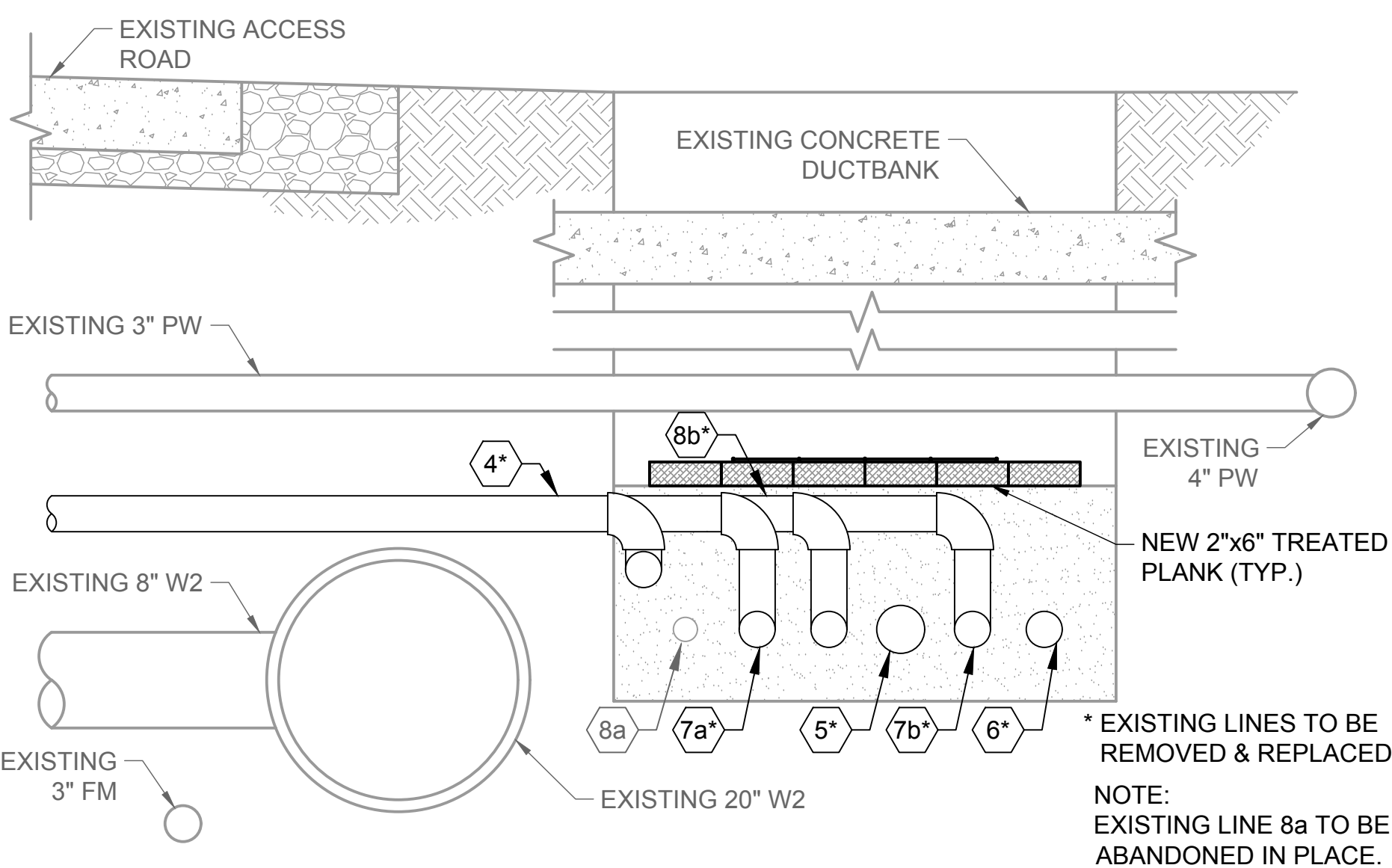
\* NEW LINES TO BE INSTALLED

2 PIPING SECTION  
 05-C301 | 05-C303 SCALE: 1" = 1'-0"



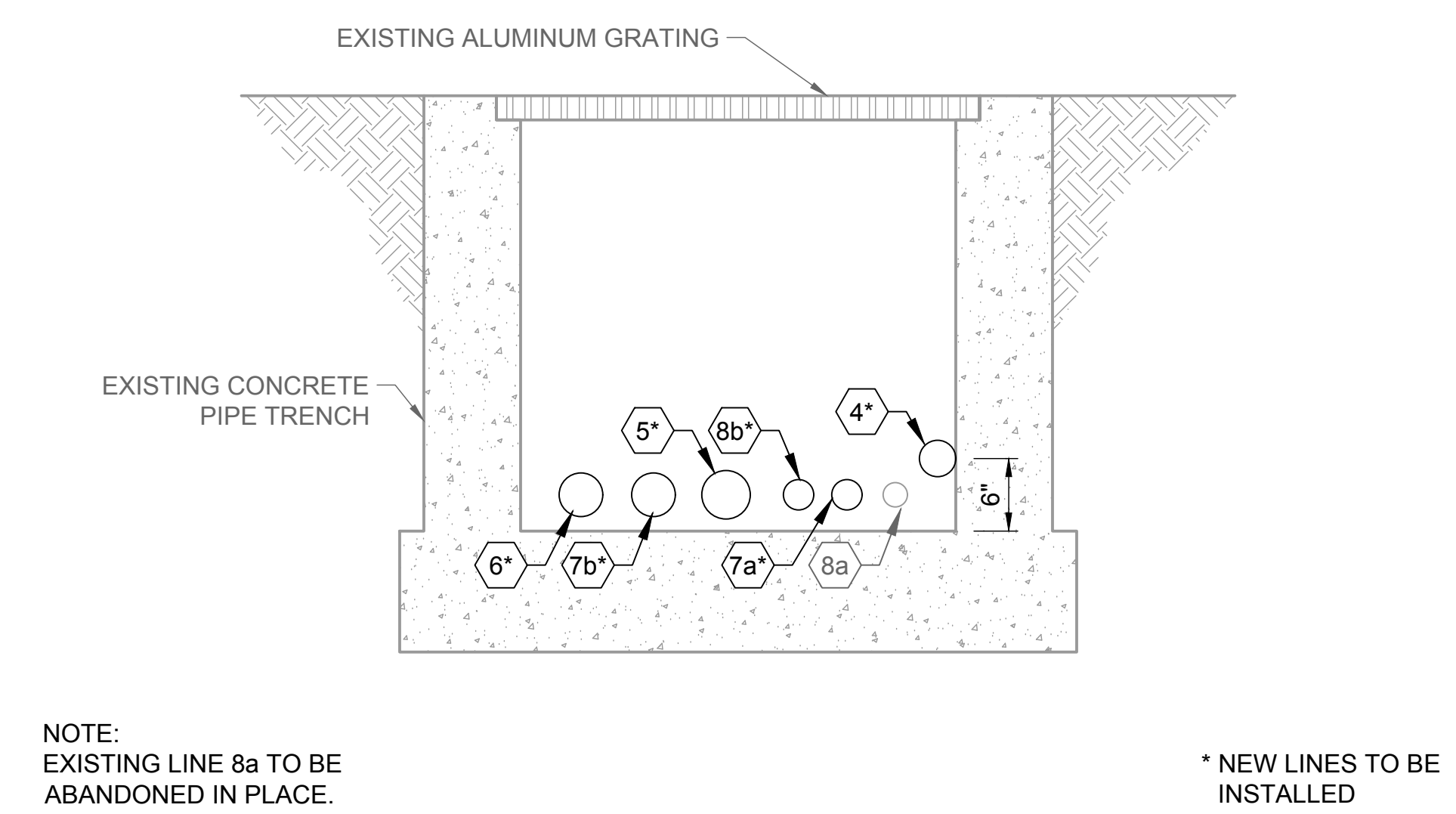
\* NEW LINES TO BE INSTALLED

1 PIPING SECTION  
 05-C301 | 05-C303 SCALE: 1" = 1'-0"



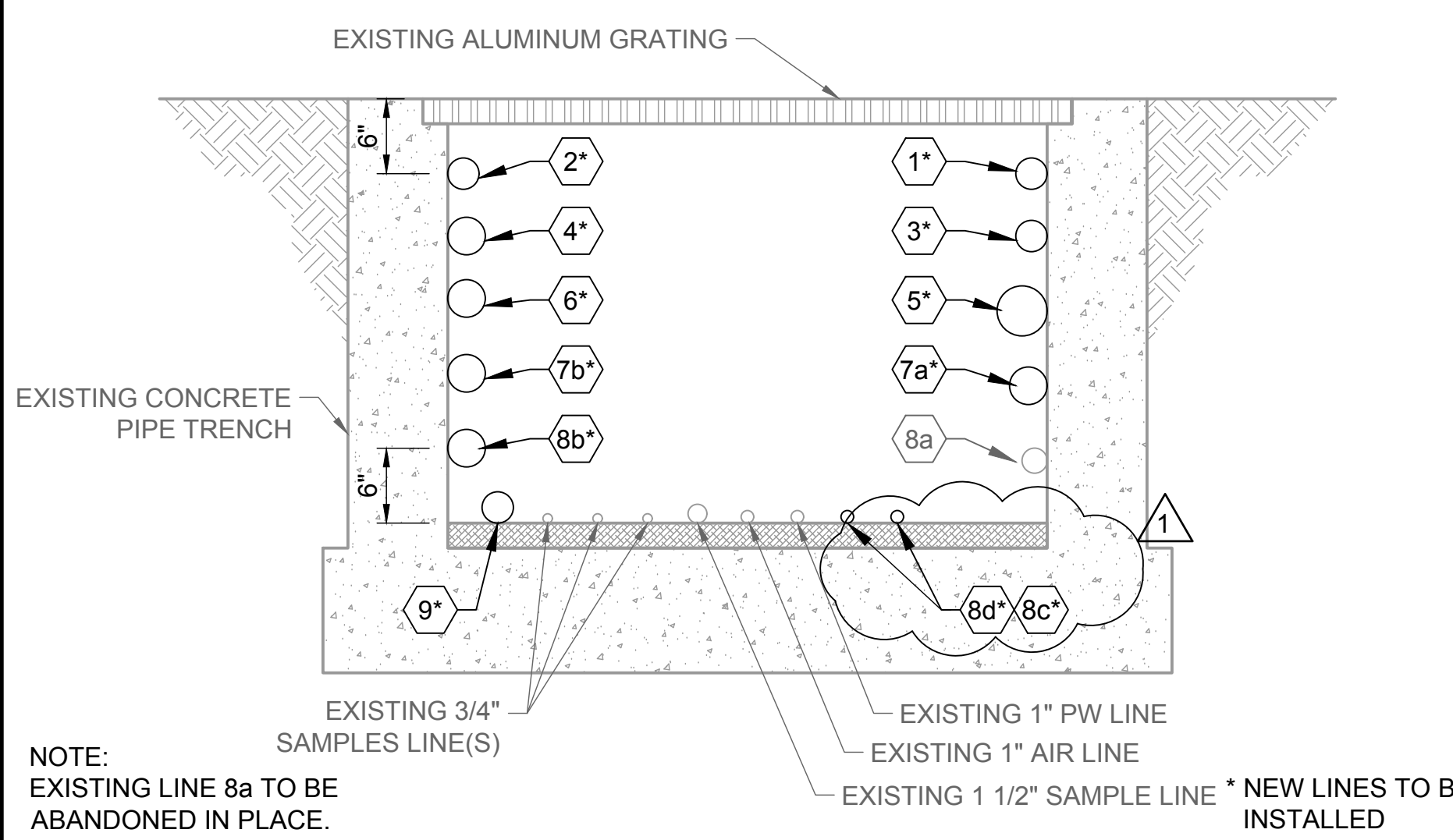
\* EXISTING LINES TO BE REMOVED & REPLACED  
 NOTE: EXISTING LINE 8a TO BE ABANDONED IN PLACE.

6 PIPING SECTION  
 05-C301 | 05-C303 SCALE: 1" = 1'-0"



\* NEW LINES TO BE INSTALLED

5 PIPING SECTION  
 05-C301 | 05-C303 SCALE: 1" = 1'-0"



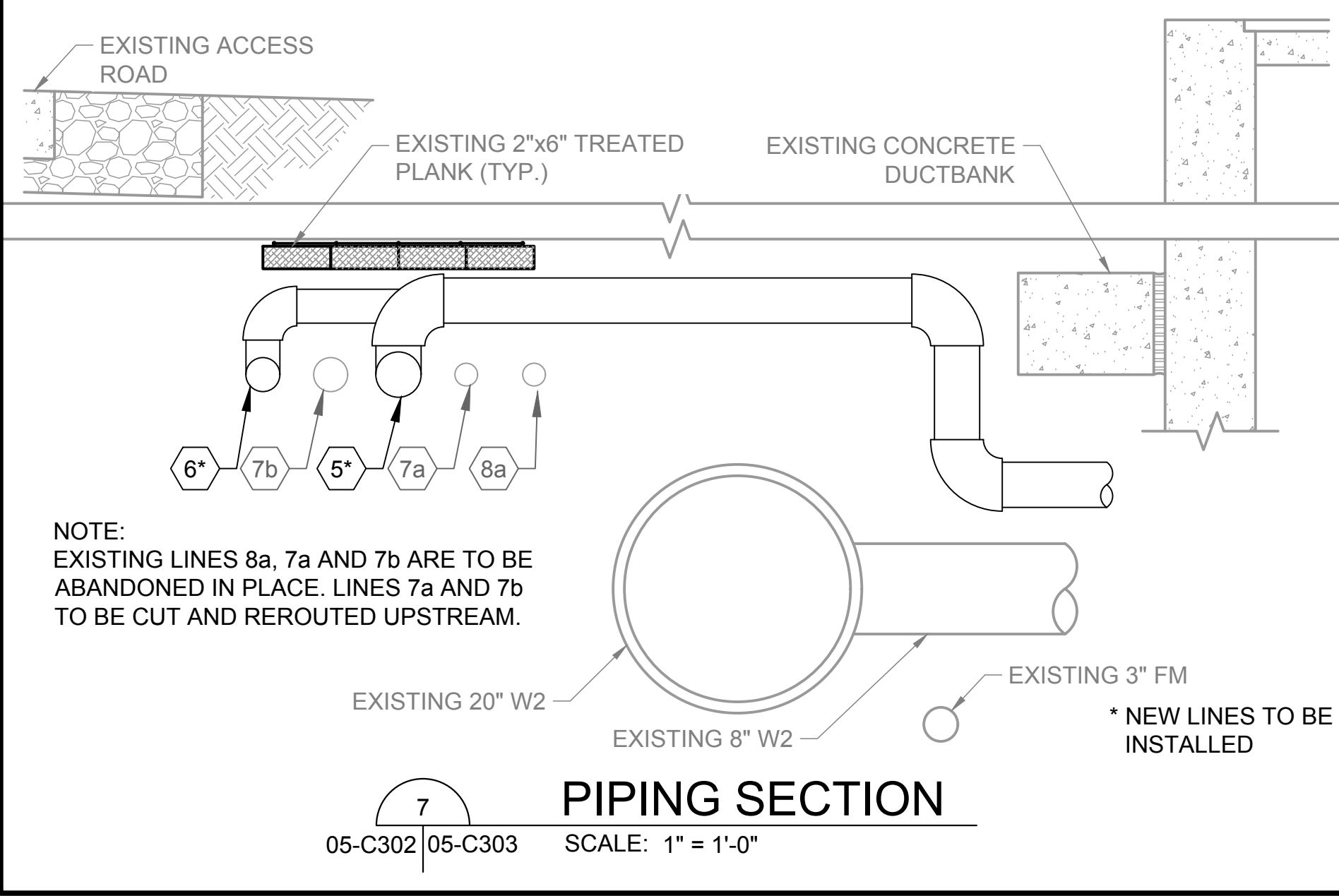
\* NEW LINES TO BE INSTALLED  
 NOTE: EXISTING LINE 8a TO BE ABANDONED IN PLACE.

4 PIPING SECTION  
 05-C301 | 05-C303 SCALE: 1" = 1'-0"

PROPOSED PIPING LEGEND:

LINE #	SIZE AND IDENTIFICATION	PRIMARILY ASSOCIATED WITH CHLORINATOR #
1	2 1/2" DIAMETER CLGV LINE	6
2	2 1/2" DIAMETER CLGV LINE	1
3	2 1/2" DIAMETER CLGV LINE	7
4	3" DIAMETER CLGV LINE	9
5	4" DIAMETER CLGV LINE	9
6	3" DIAMETER CLGV LINE	4
7a	3" DIAMETER CLGV LINE	8
7b	3" DIAMETER CLGV LINE	4
8a	2 1/2" DIAMETER CLGV LINE	---
8b	3" DIAMETER CLGV LINE	3
8c	1" DIAMETER CLGV LINE	10
8d	1" DIAMETER CLGV LINE	5
9	2 1/2" DIAMETER CLGV LINE	2

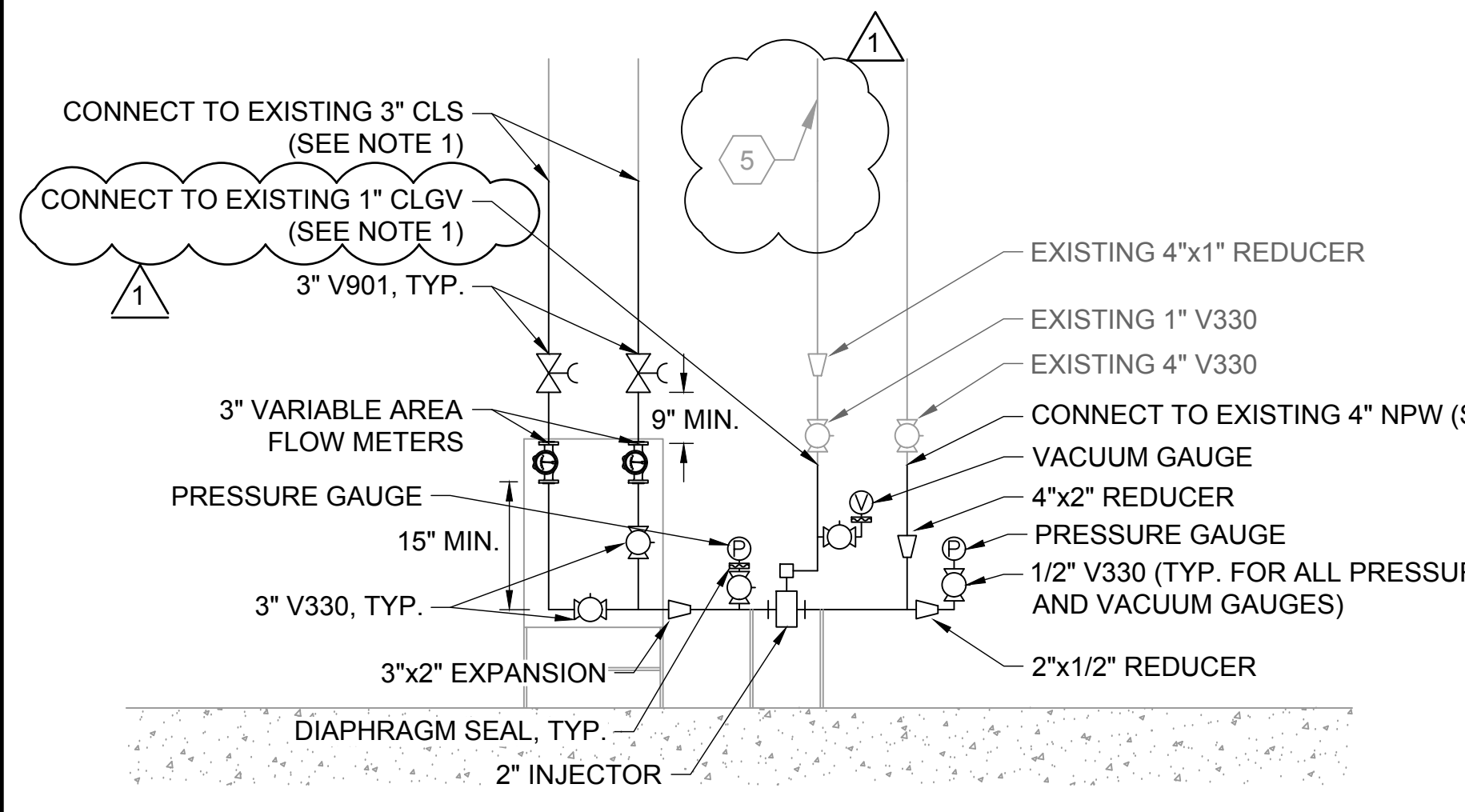
- NOTES:
- EMBEDDED PIPE SUPPORT CHANNELS ARE SPACED APPROXIMATELY 2'-0" ON CENTER OVER THE LENGTH OF THE PIPE TRENCH. USE THE EXISTING EMBEDDED CHANNELS AND NEW STAINLESS STEEL PIPE CLAMPS TO SUPPORT EACH NEW PIPE.
  - PIPE SPACING SHALL BE A MINIMUM OF 5" ON CENTER WITHIN THE TRENCH AND 6" ON CENTER FOR BURIED PIPING.
  - REUSE EXISTING WALL SLEEVES WHEN REPLACING EXISTING PIPES WITH NEW PIPES OF THE SAME SIZE. FOR OTHER NEW PIPES, PROVIDE NEW WALL SLEEVES IN ACCORDANCE WITH D40/2400-007
  - SEE SPECIFICATION SECTION 01 10 00 FOR WORK SEQUENCING.



\* NEW LINES TO BE INSTALLED  
 NOTE: EXISTING LINES 8a, 7a AND 7b ARE TO BE ABANDONED IN PLACE. LINES 7a AND 7b TO BE CUT AND REROUTED UPSTREAM.

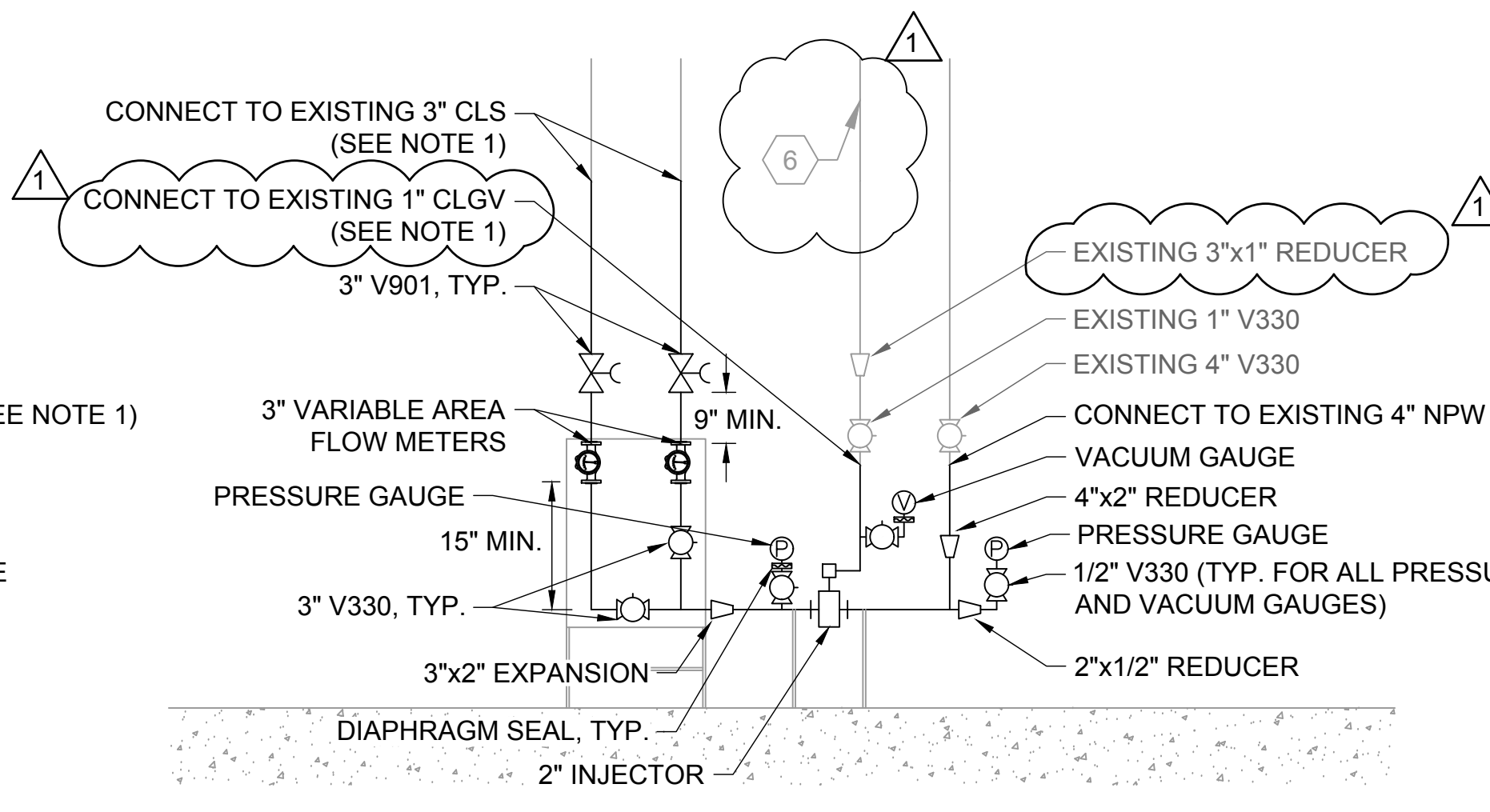
7 PIPING SECTION  
 05-C302 | 05-C303 SCALE: 1" = 1'-0"

File: L:\2017\17238115 - SAWS Dos Rios WRC Chlorine System\Drawings\SAWS-05-C303.dwg Last Save: 9/18/2018 11:33 AM Last saved by: EAFlores  
 Last plotted by: Flores, Ernesto A. Plot Style: AECmono.ctb Plot Scale: 1:0.4255 Plot Date: 9/18/2018 4:56 PM Plotter used: DWG To PDF.pc3



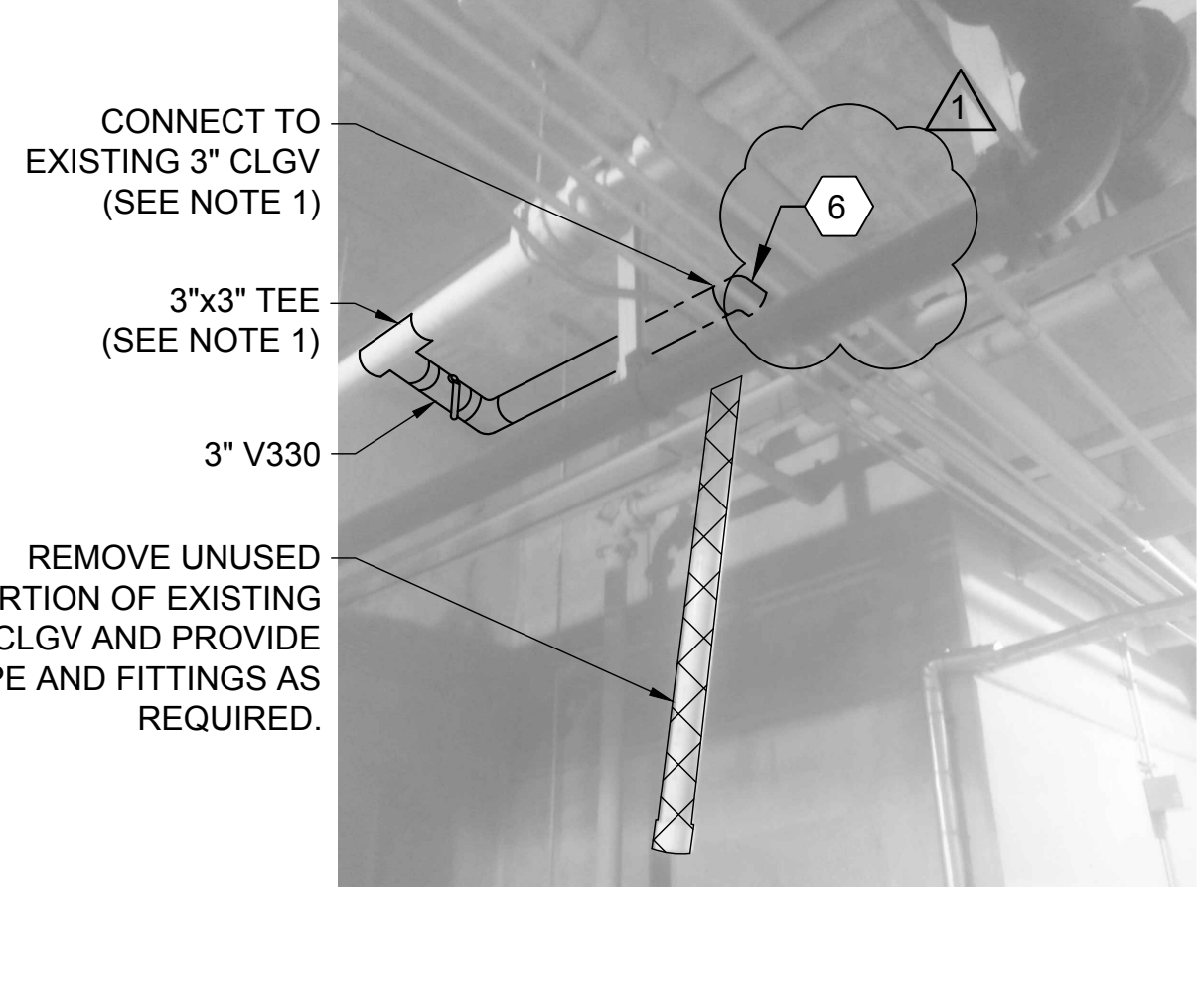
**FIRST STAGE NORTH RAS PUMP STATION INJECTOR REPLACEMENT DETAIL**

05-C101|05-C501 SCALE: NONE



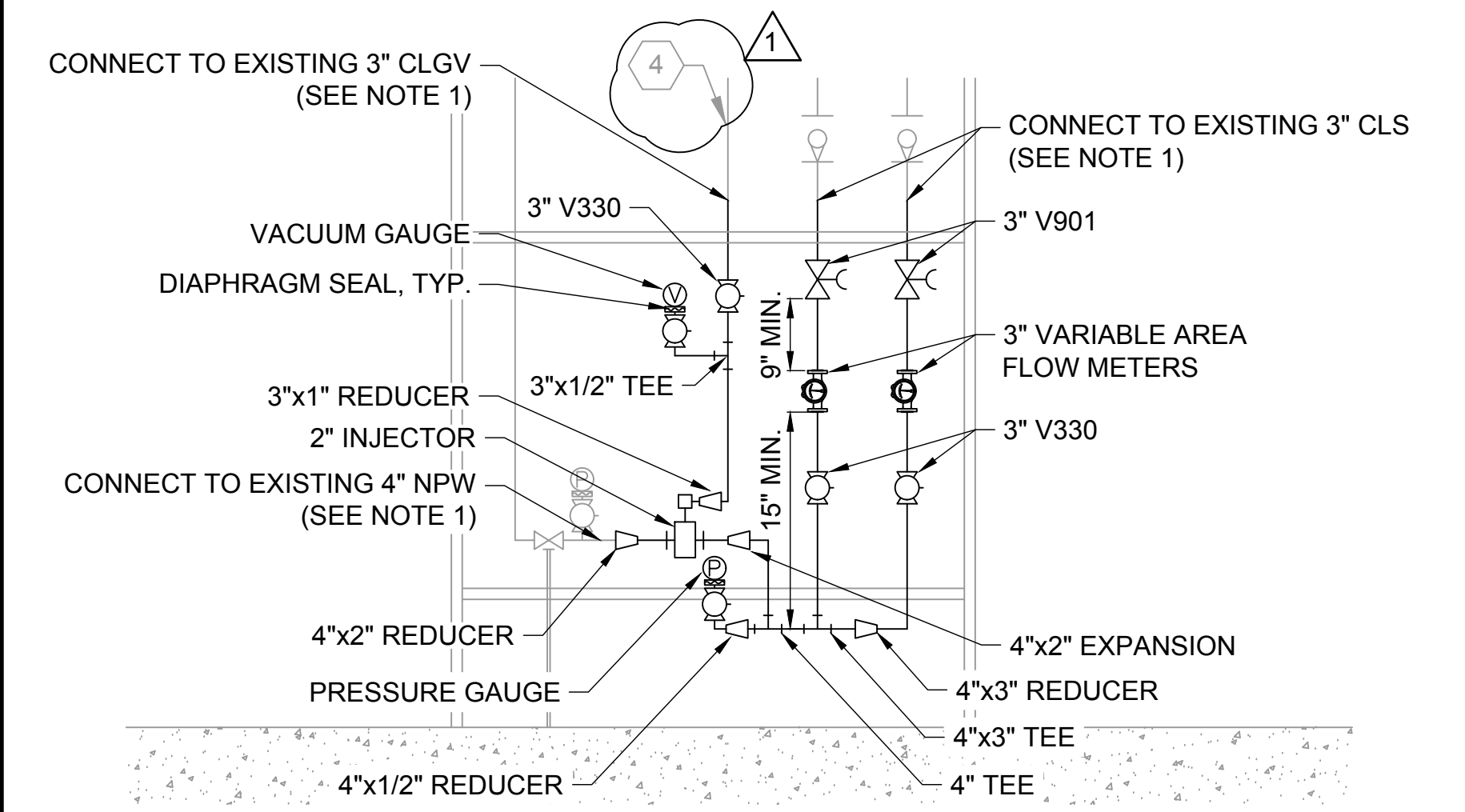
**FIRST STAGE SOUTH RAS PUMP STATION INJECTOR REPLACEMENT DETAIL**

05-C101|05-C501 SCALE: NONE



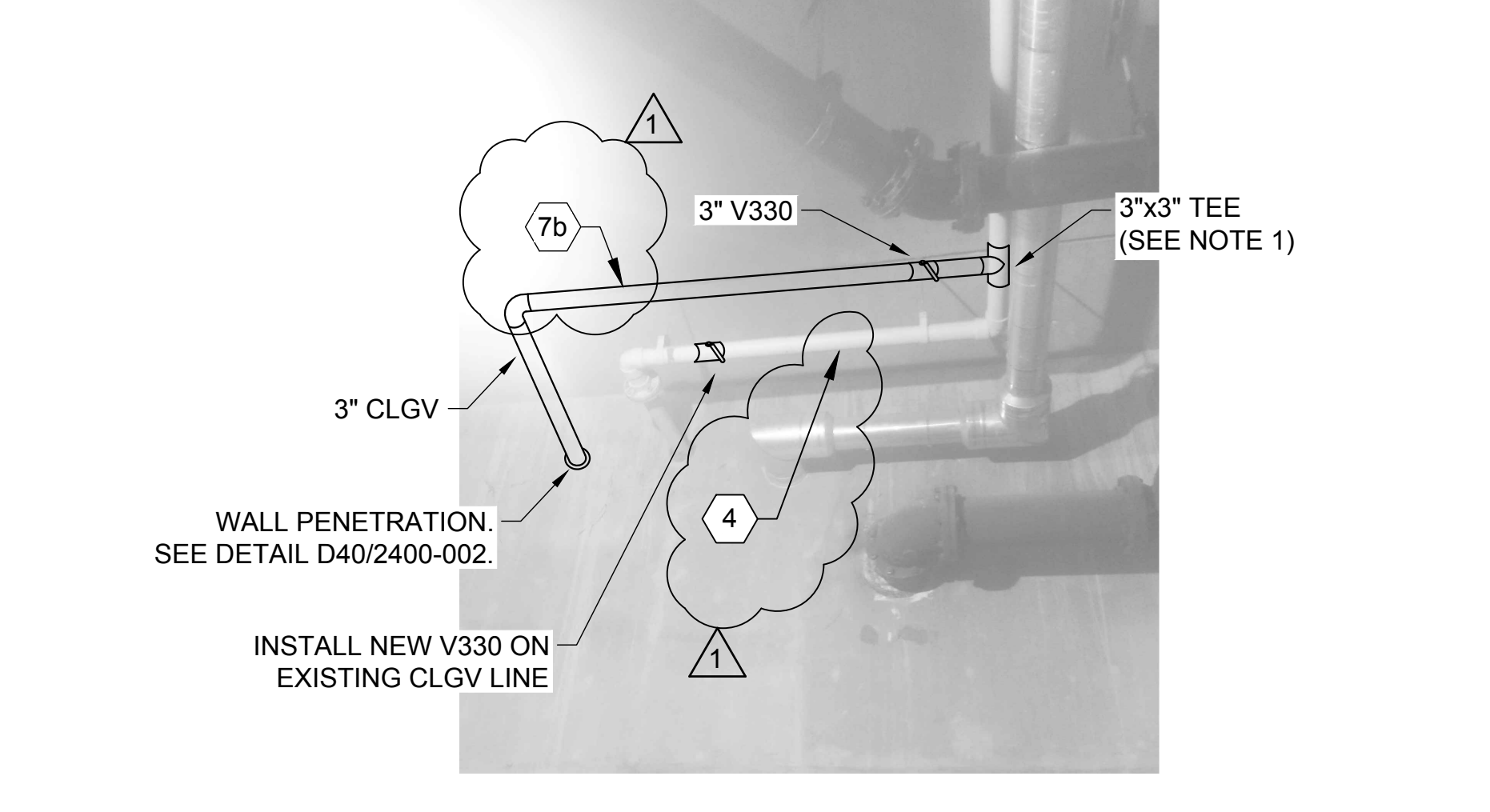
**FIRST STAGE SOUTH RAS PUMP STATION**

05-C101|05-C501 SCALE: NONE



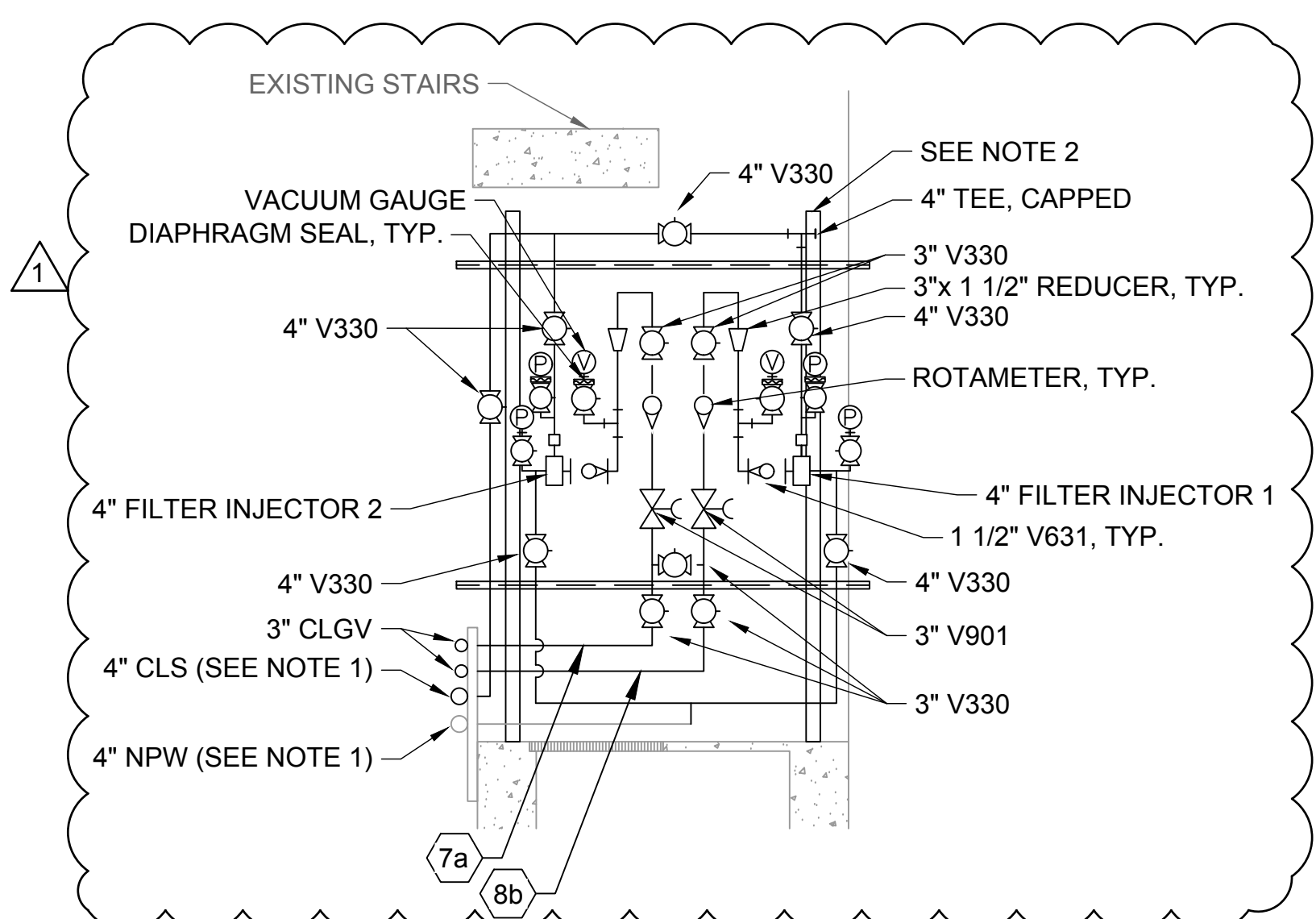
**SECOND STAGE RAS PUMP STATION INJECTOR REPLACEMENT DETAIL**

05-C101|05-C501 SCALE: NONE



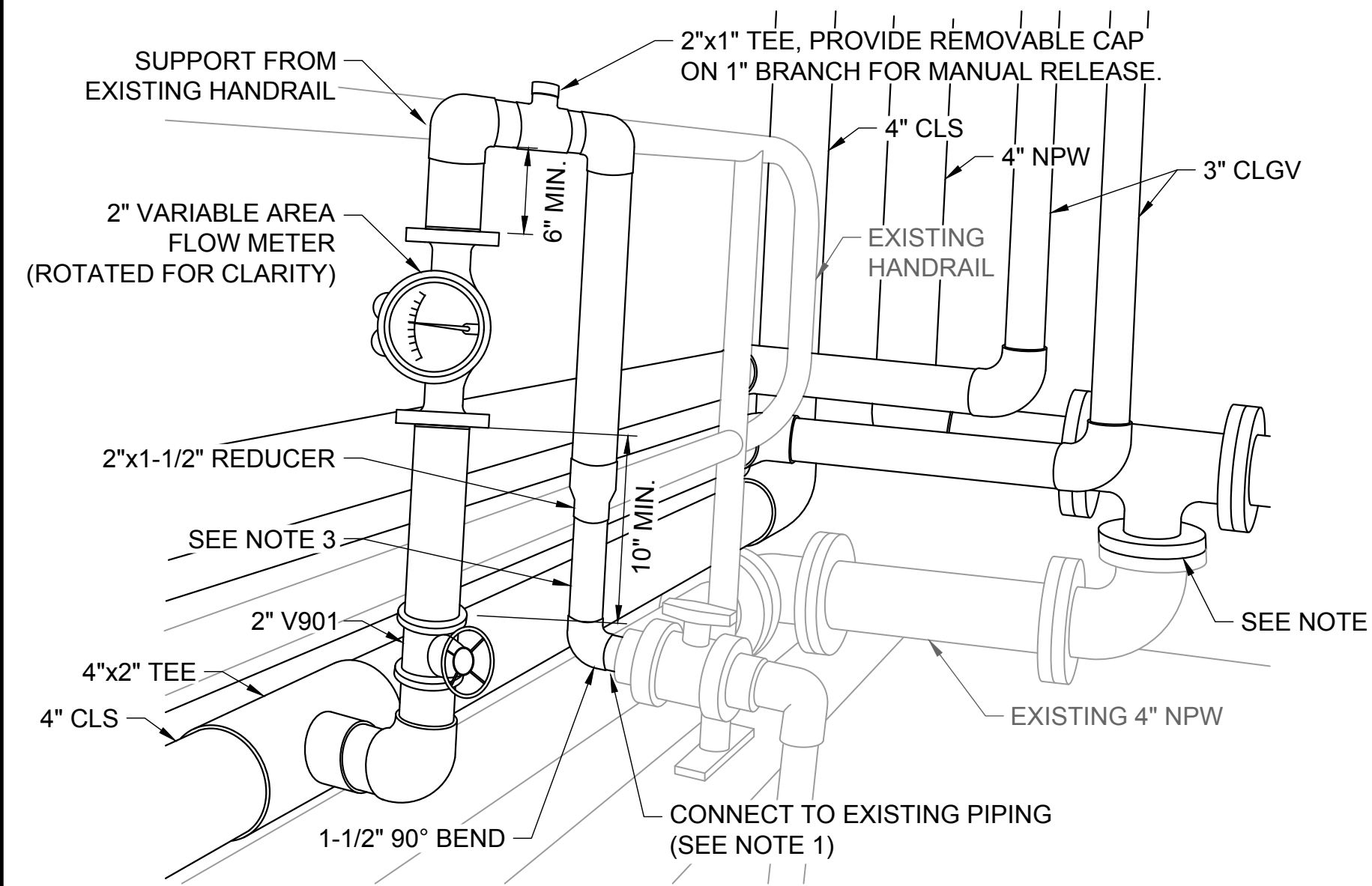
**SECOND STAGE RAS PUMP STATION WALL PENETRATION DETAIL**

05-C301|05-C501 SCALE: NONE



**FILTER INJECTION PANEL DETAIL**

05-C101|05-C501 SCALE: NONE



**CHLORINE SOLUTION FLOW METER DETAIL**

05-C101|05-C501 SCALE: NONE

**PROPOSED PIPING LEGEND:**

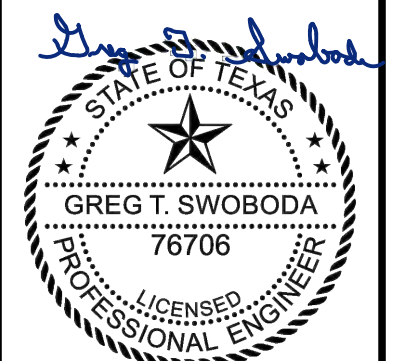
LINE #	SIZE AND IDENTIFICATION	PRIMARY ASSOCIATED WITH CHLORINATOR #
1	2 1/2" DIAMETER CLGV LINE	6
2	2 1/2" DIAMETER CLGV LINE	1
3	2 1/2" DIAMETER CLGV LINE	7
4	3" DIAMETER CLGV LINE	9
5	4" DIAMETER CLGV LINE	9
6	3" DIAMETER CLGV LINE	4
7a	3" DIAMETER CLGV LINE	8
7b	3" DIAMETER CLGV LINE	4
8a	2 1/2" DIAMETER CLGV LINE	---
8b	3" DIAMETER CLGV LINE	3
8c	1" DIAMETER CLGV LINE	10
8d	1" DIAMETER CLGV LINE	5
9	2 1/2" DIAMETER CLGV LINE	2

- NOTE:**
- CONTRACTOR TO PROVIDE FITTINGS AND CONNECT TO EXISTING LINE(S).
  - SUPPORTS SHOWN ARE REPRESENTATIVE. SUPPORT INJECTOR PANEL PIPING AND COMPONENTS WITH A SYSTEM OF 316 STAINLESS STEEL CHANNELS, CLAMPS, AND HARDWARE. THE SUPPORT SYSTEM SHALL MEET THE REQUIREMENTS OF SECTION 40 05 07.
  - FIELD ROUTE PIPING TO AVOID EXISTING COLUMNS, HOSE RACKS, AND ELECTRICAL EQUIPMENT.
  - SEE SPECIFICATION SECTION 01 10 00 FOR WORK SEQUENCING.
  - SEE SPECIAL CONDITIONS FOR WORK IN THE RAS PUMP STATION AREA.



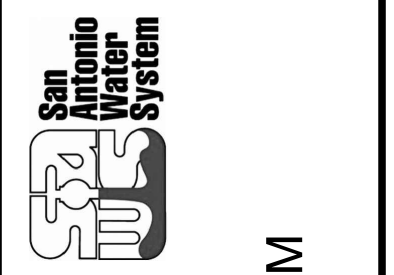
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REGISTRATION NO. F-5713



DIGITALLY SIGNED 9/19/18

REV.	DATE	DESCRIPTION	BY	GTS
1	09/19/18	ADDENDUM NO. 3		



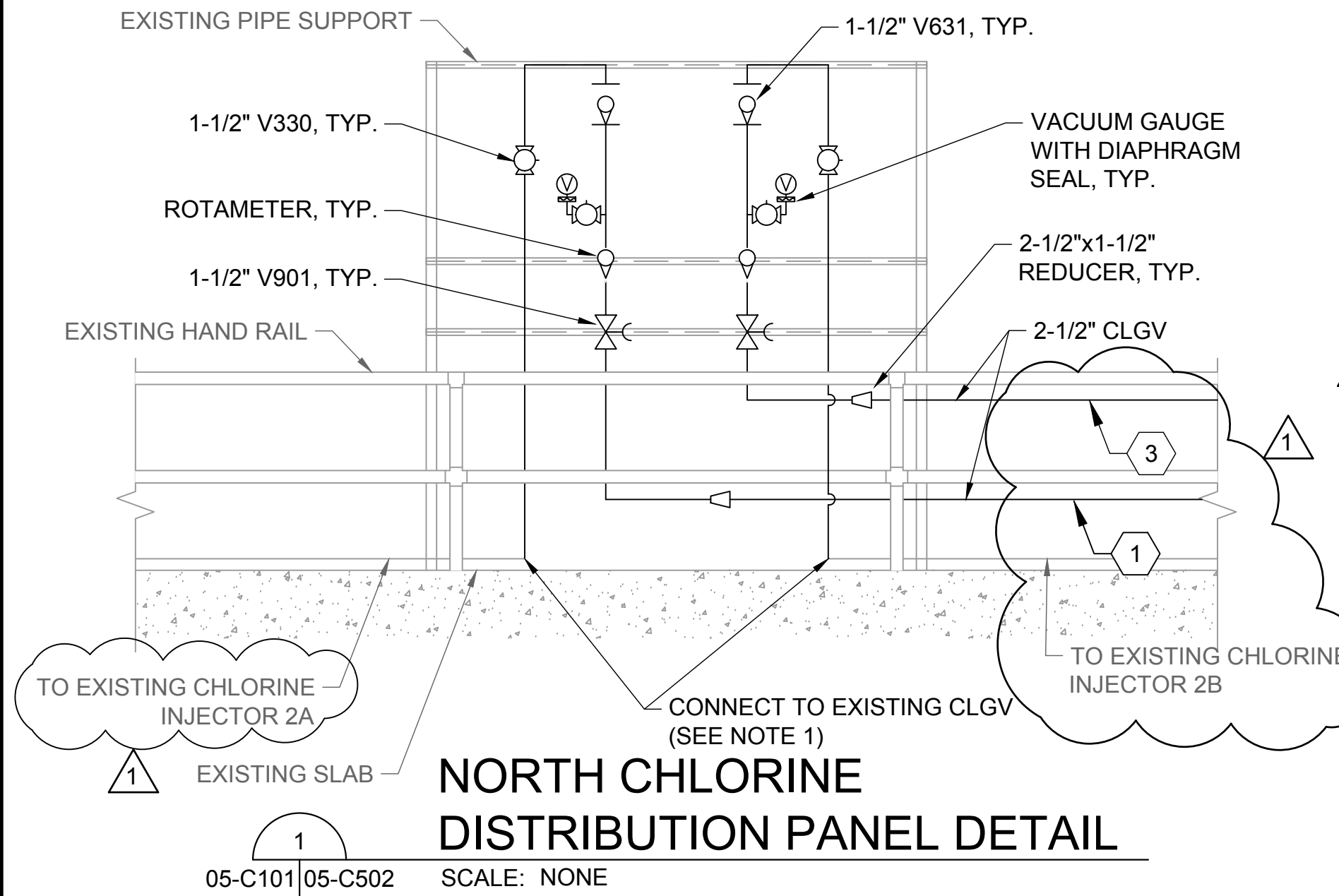
**SAN ANTONIO WATER SYSTEM**  
SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

MODIFIED YARD PIPING DETAILS 1

JOB NO.: 17238115  
DATE: AUG. 2018  
DESIGNED BY: GTS  
DRAWN BY: PLJ

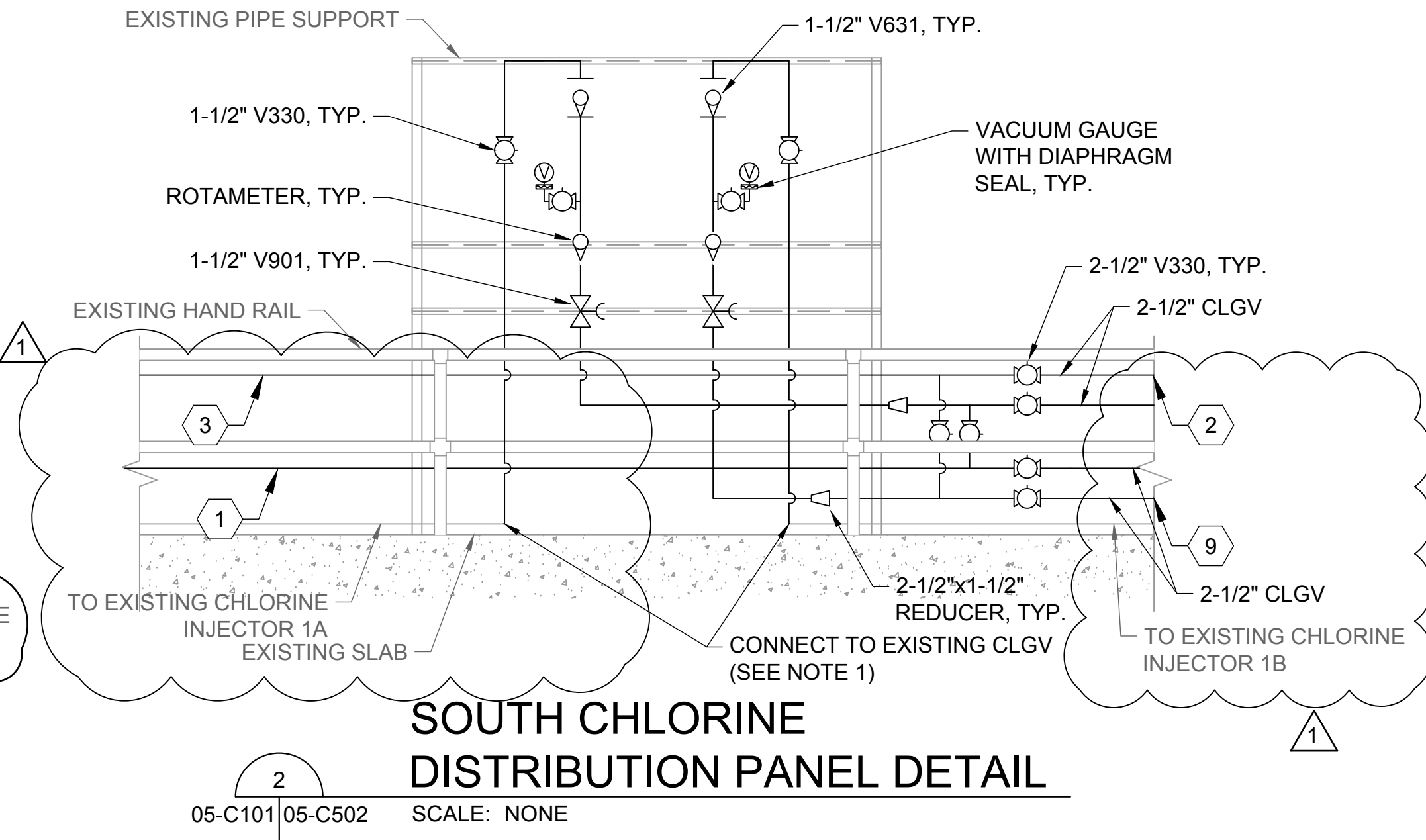
BAR IS ONE INCH ON ORIGINAL DRAWING  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.  
DRAWING NUMBER  
**05-C501**  
SHEET NUMBER  
**24**

File: L:\2017\17238115 - SAWS Dos Rios WRC Chlorine System\Drawings\SAWS-05-C501.dwg, Last Save: 9/18/2018 11:33 AM, Last saved by: EAFlores, Last plotted by: Flores, Ernesto A., Plot Style: AECmono.ctb, Plot Scale: 1:0, 4/25/18, Plot Date: 9/18/2018 4:56 PM, Plotter Used: DWG To PDF.pc3



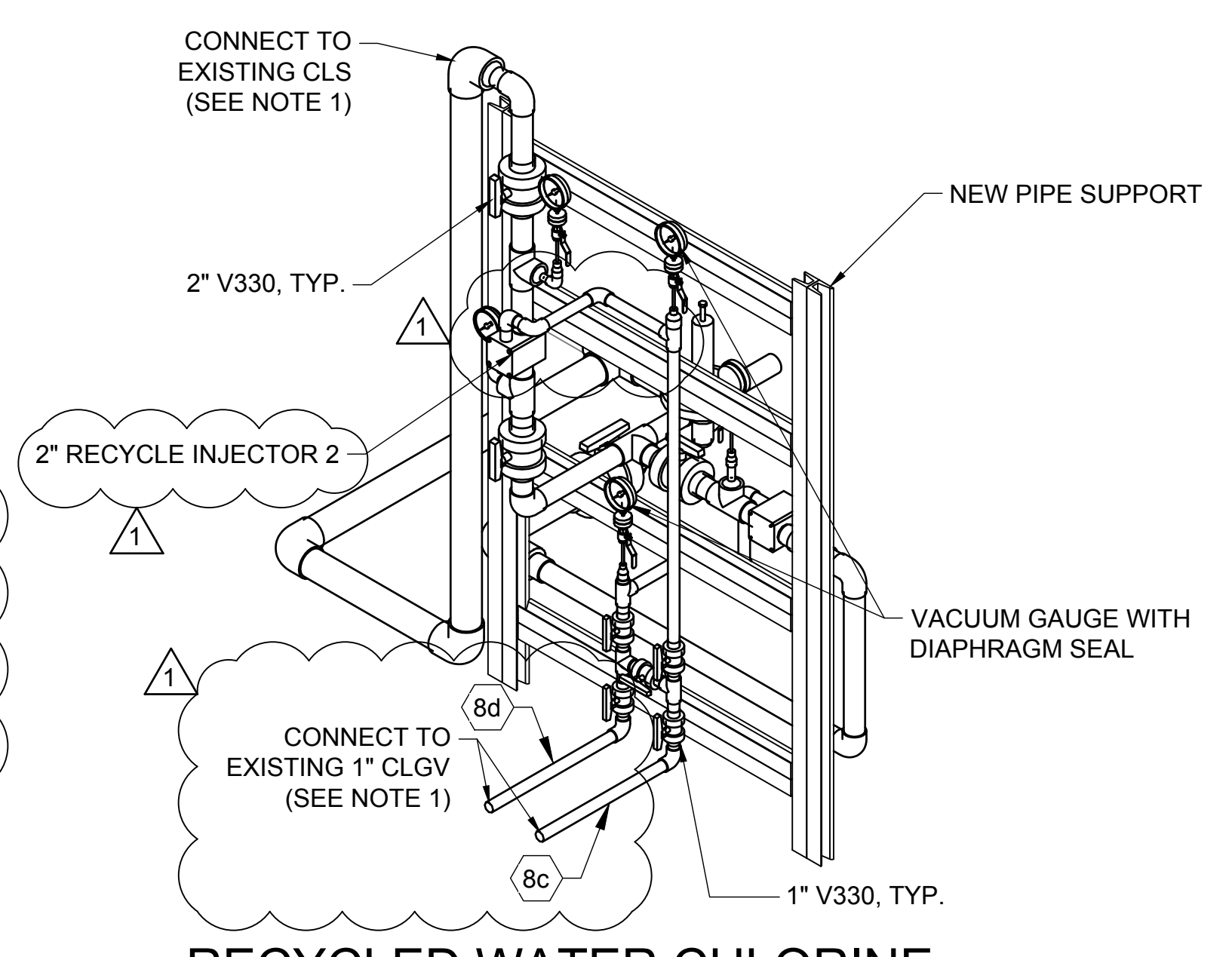
**NORTH CHLORINE DISTRIBUTION PANEL DETAIL**

05-C101|05-C502 SCALE: NONE



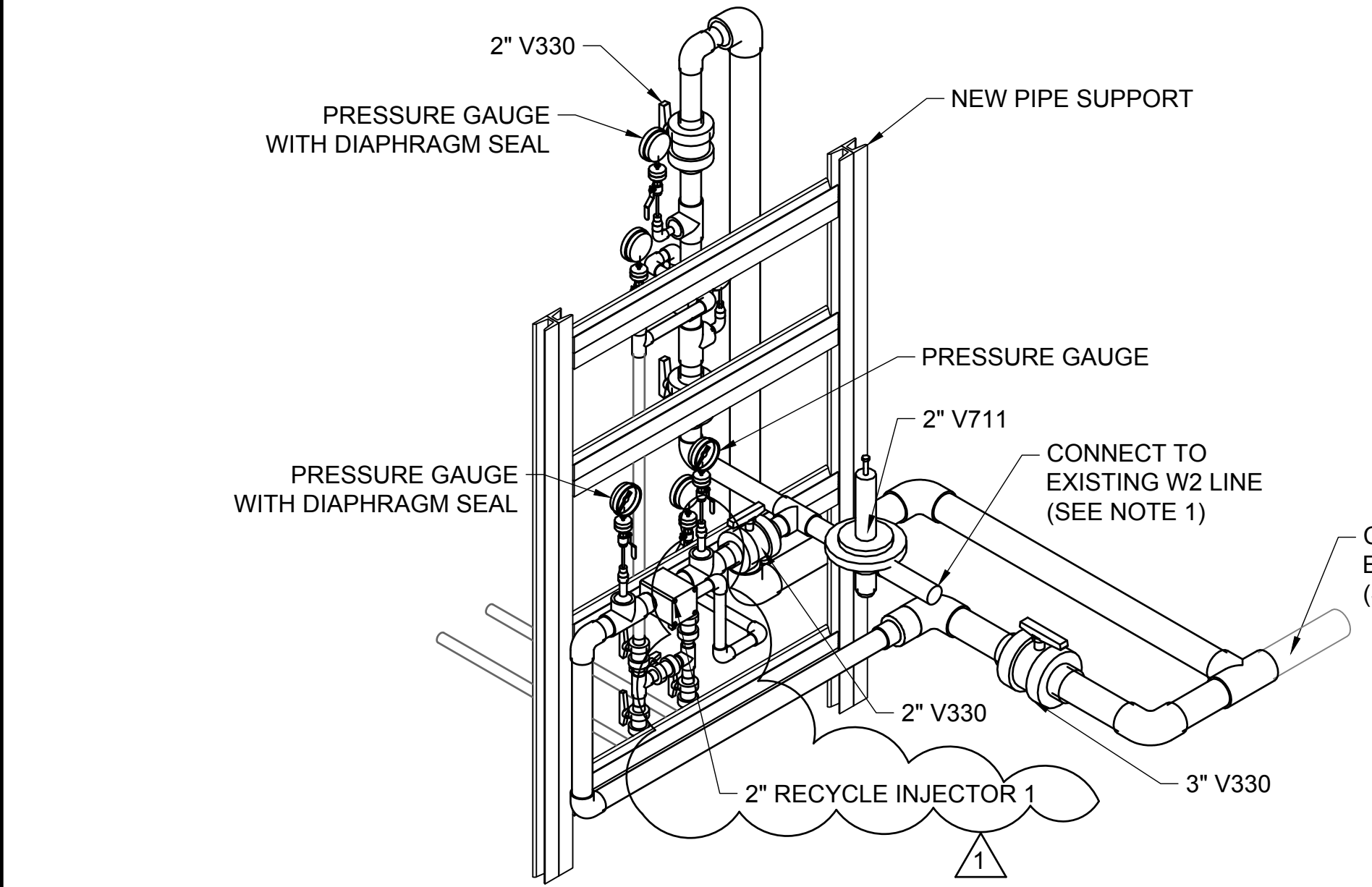
**SOUTH CHLORINE DISTRIBUTION PANEL DETAIL**

05-C101|05-C502 SCALE: NONE



**RECYCLED WATER CHLORINE INJECTOR PANEL DETAIL**

05-C101|05-C502 SCALE: NONE



**RECYCLED WATER CHLORINE INJECTOR PANEL DETAIL**

05-C101|05-C502 SCALE: NONE

- NOTES:
- CONTRACTOR TO PROVIDE FITTINGS AND CONNECT TO EXISTING LINE(S).
  - SEE SPECIFICATION SECTION 01 10 00 FOR WORK SEQUENCING.

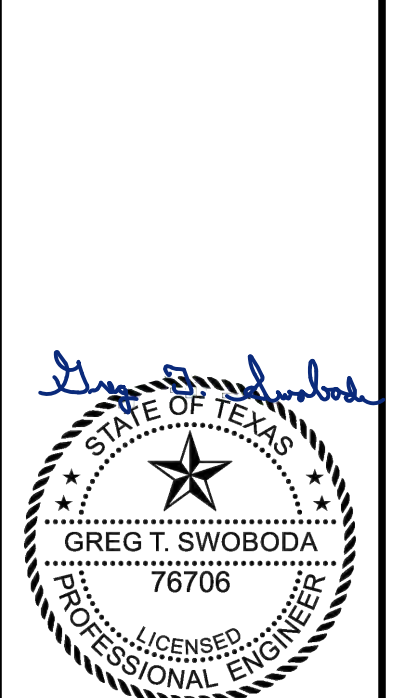
**PROPOSED PIPING LEGEND:**

LINE #	SIZE AND IDENTIFICATION	PRIMARILY ASSOCIATED WITH CHLORINATOR #
1	2 1/2" DIAMETER CLGV LINE	6
2	2 1/2" DIAMETER CLGV LINE	1
3	2 1/2" DIAMETER CLGV LINE	7
4	3" DIAMETER CLGV LINE	9
5	4" DIAMETER CLGV LINE	9
6	3" DIAMETER CLGV LINE	4
7a	3" DIAMETER CLGV LINE	8
7b	3" DIAMETER CLGV LINE	4
8a	2 1/2" DIAMETER CLGV LINE	--
8b	3" DIAMETER CLGV LINE	3
8c	1" DIAMETER CLGV LINE	10
8d	1" DIAMETER CLGV LINE	5
9	2 1/2" DIAMETER CLGV LINE	2



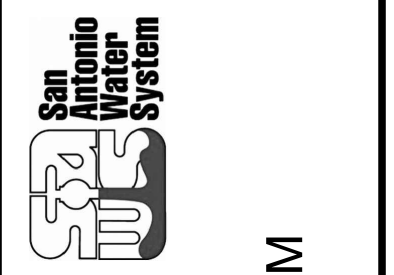
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REGISTRATION NO. F-5713



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1	09/19/18	ADDENDUM NO. 3	GTS



**SAN ANTONIO WATER SYSTEM**  
SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

MODIFIED YARD PIPING DETAILS 2

JOB NO.: 17238115  
DATE: AUG. 2018  
DESIGNED BY: GTS  
DRAWN BY: PLJ

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DRAWING NUMBER  
**05-C502**

SHEET NUMBER  
**25**

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1	09/19/18	ADDENDUM NO. 3		



**SAN ANTONIO WATER SYSTEM**  
SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

**CHLORINE CONTACT BASIN DETAILS & SCHEMATICS**

JOB NO.: 17238115  
DATE: AUG. 2018  
DESIGNED BY: TH  
DRAWN BY: JH

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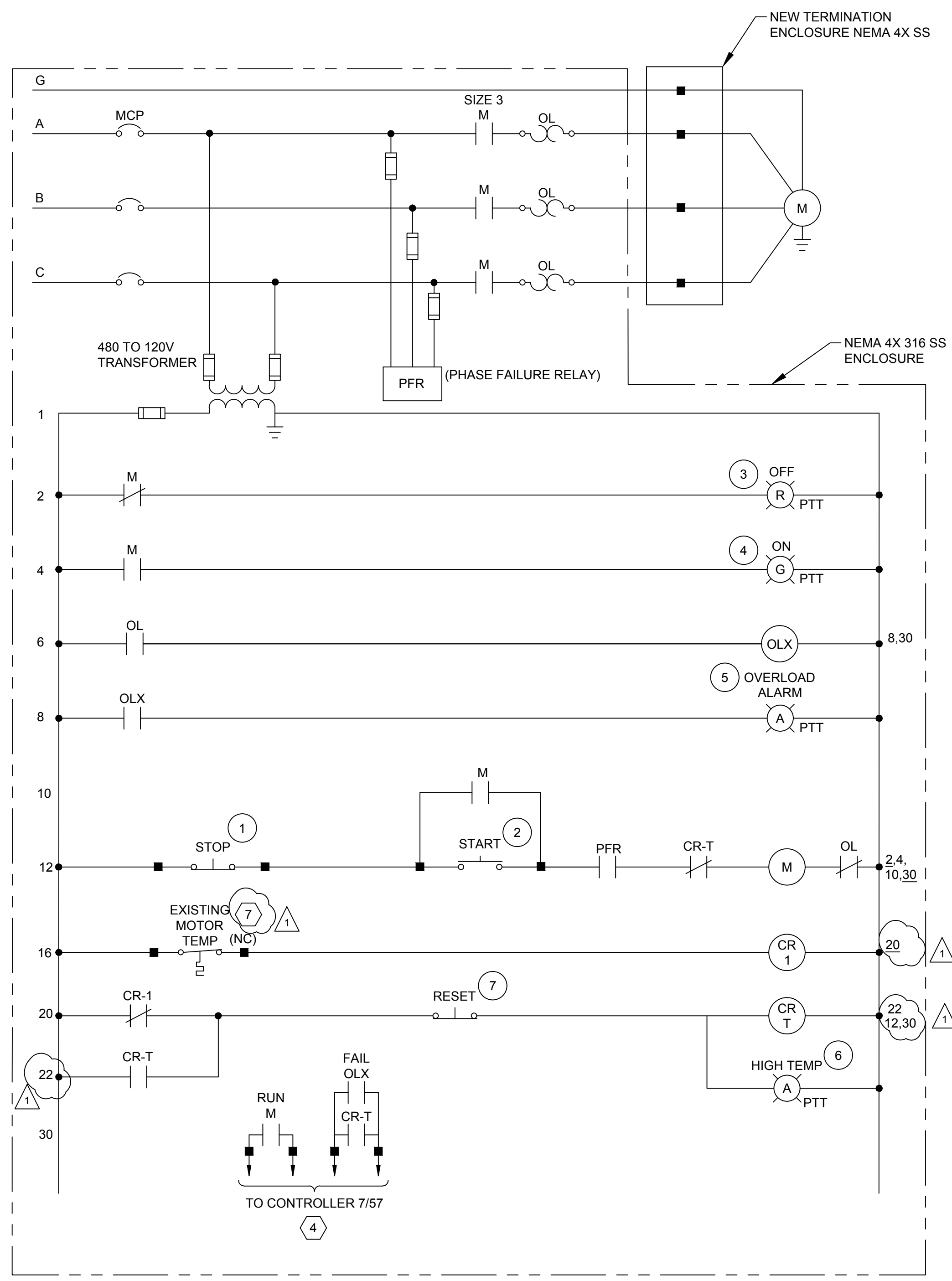
DRAWING NUMBER  
**05-E103**  
SHEET NUMBER  
**28**



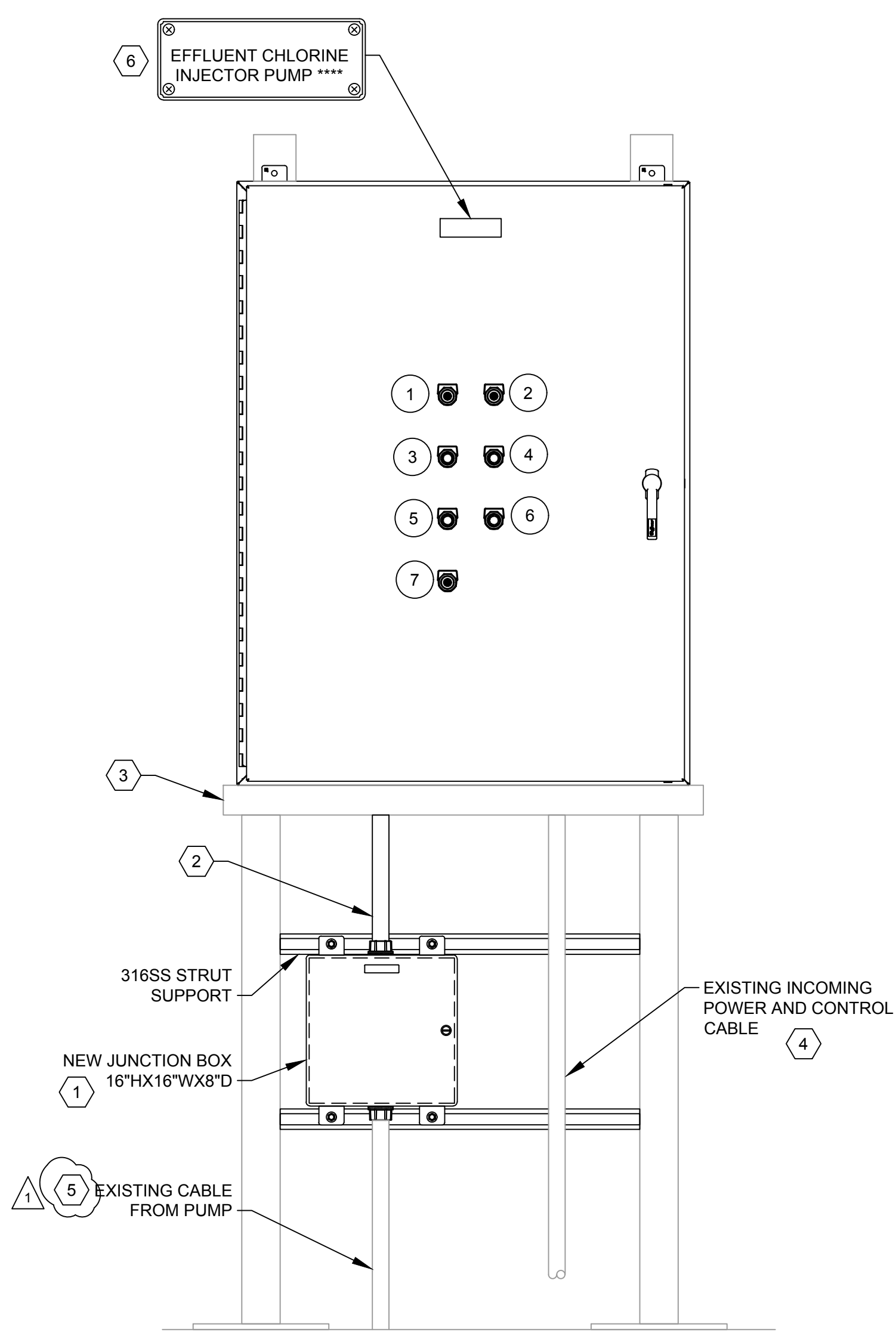
**GAI**  
Gupta & Associates, Inc.  
CONSULTING ENGINEERING  
Registration No. F-2593

13717 Neutron Road  
Dallas, Texas 75244  
Tel: 972-490-7661  
Fax: 972-490-7125  
email: kgupta@gaiconsulting.com

- NOTES:
- 1 INSTALL A NEW TERMINATION BOX FOR WIRES FROM THE PUMP.
  - 2 NEW WIRE AND CONDUIT TO THE NEW STARTER.
  - 3 INSTALL NEW STARTER ON EXISTING SUPPORTS.
  - 4 REUSE EXISTING CONTROL WIRES BETWEEN NEW STARTER AND CONTROLLER 7/57 IN CHLORINE BUILDING.
  - 5 REUSE EXISTING POWER WIRE BETWEEN NEW STARTER AND EXISTING MCC IN CHLORINE BUILDING. REFER TO SHEET 10-E501 & 10-E502 FOR SOURCE OF POWER.
  - 6 NAME PLATE SHALL MATCH EXISTING.
  - 7 FIELD VERIFY THE PUMP MOTOR PROTECTION SYSTEM AND MODIFY THE SCHEMATIC AS NECESSARY TO PROVIDE PROPER CONTROL OPERATIONS.



**2 INJECTOR PUMP SCHEMATIC**  
SCALE: NONE  
(TYP. OF 4)



**1 INJECTOR PUMP TERMINATION PANEL**  
SCALE: NONE  
(TYP. OF 4)

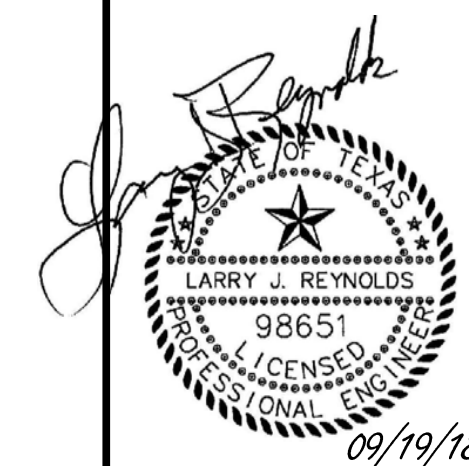
TABLE FOR DETAIL-1	
PUMP 1A	
PUMP 1B	
PUMP 2A	
PUMP 2B	

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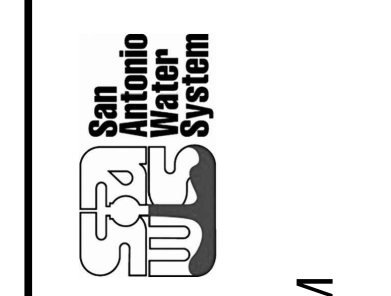


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**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

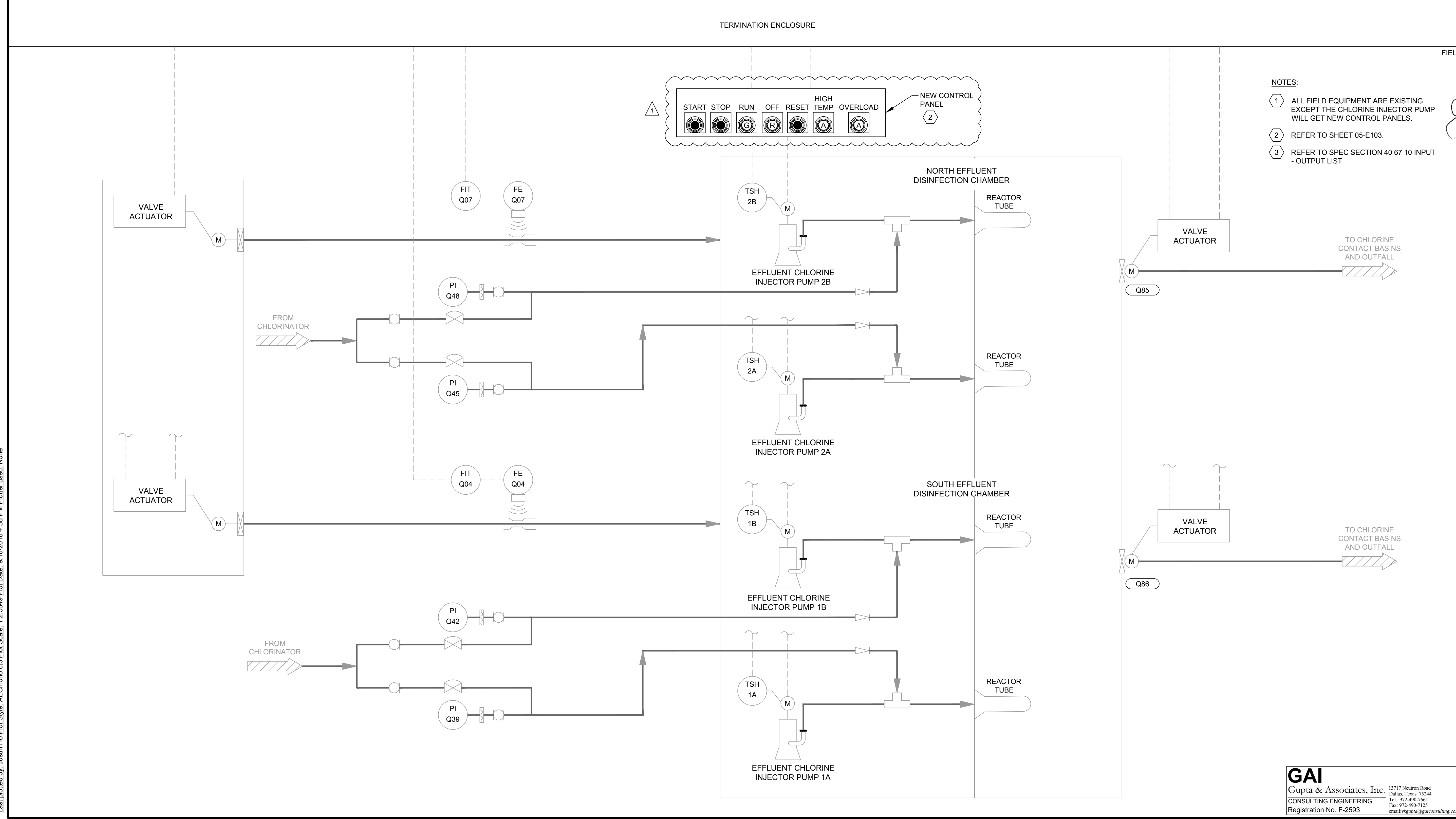
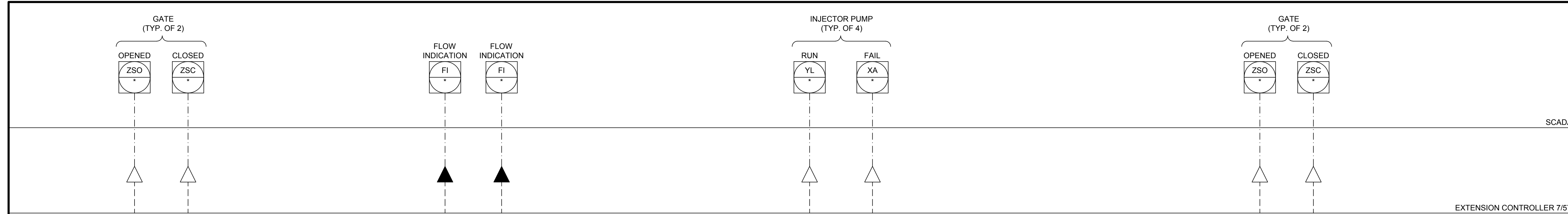
**CHLORINE CONTACT BASIN P&ID**

JOB NO.: 17238115  
 DATE: JULY 2018  
 DESIGNED BY: FA  
 DRAWN BY: RV

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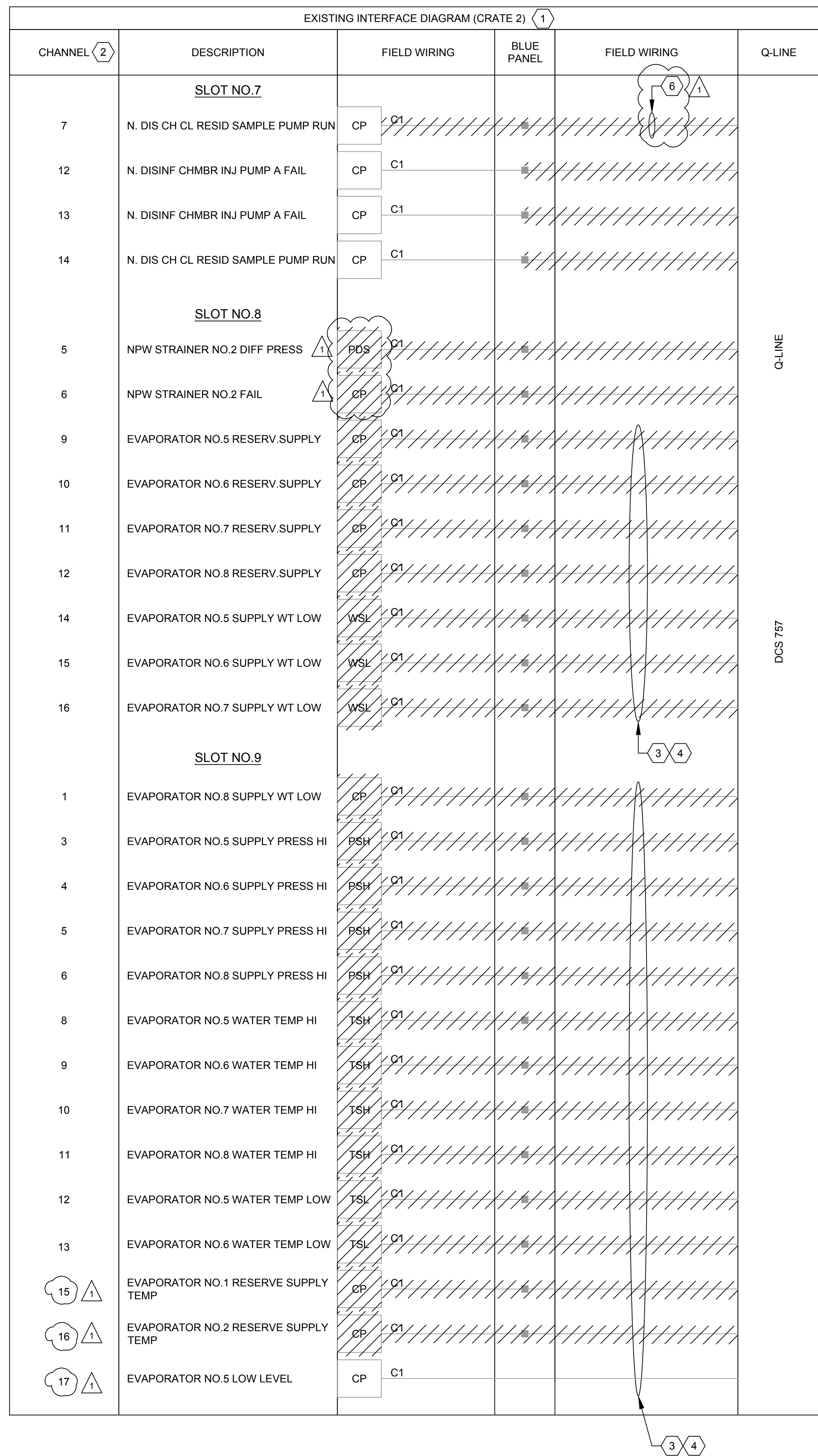
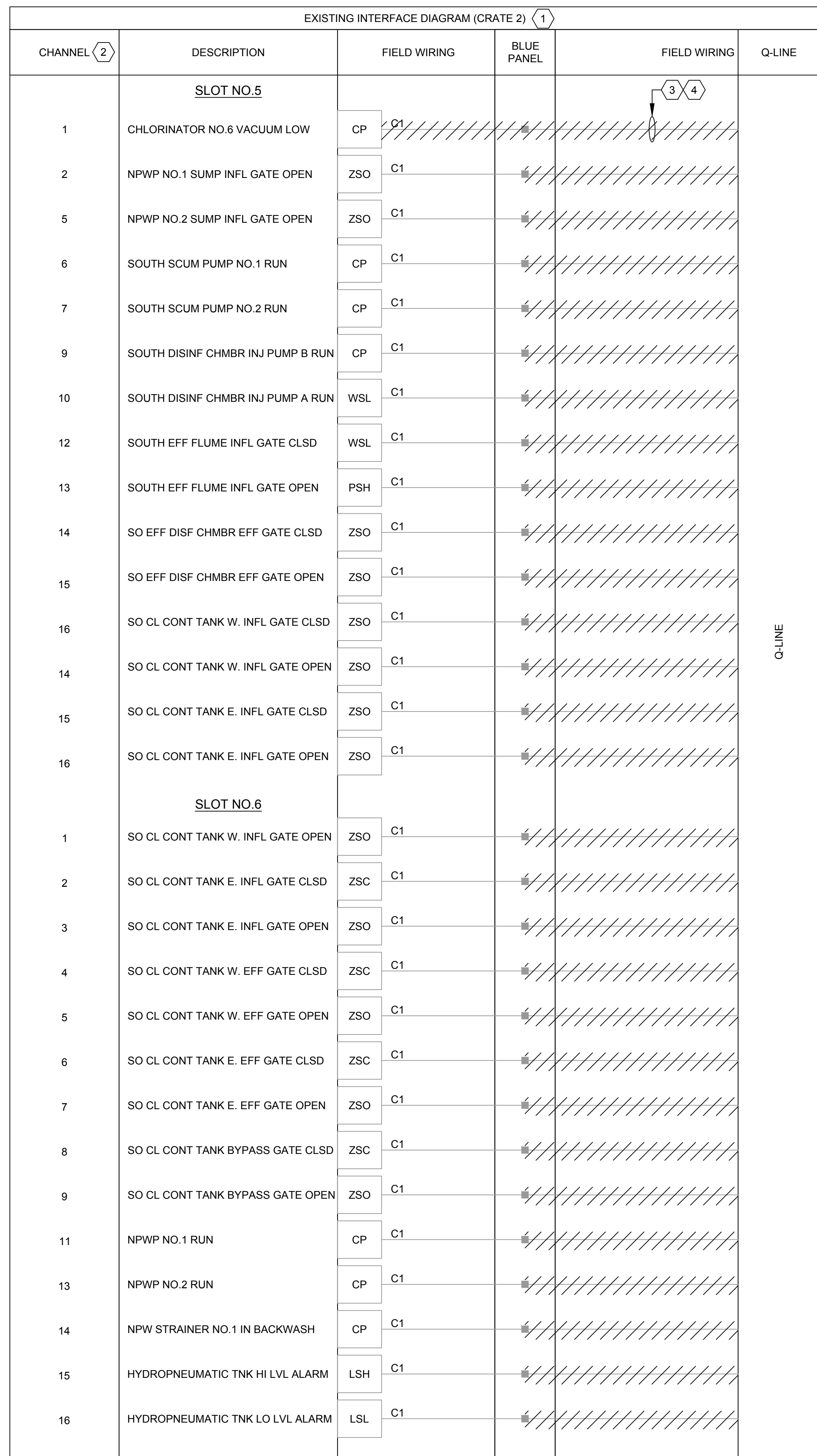
DRAWING NUMBER  
**08-1301**  
 SHEET NUMBER  
**43**

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 CONSULTING ENGINEERING Dallas, Texas 75244  
 Registration No. F-2593 Tel: 972-490-7661  
 Fax: 972-490-7125 email: agupta@gaiconsulting.com



File: Z:\1960\_SAVS\_Dos Rios WRC Chlorine System Improvements\Drawings\Instrumentation and Control\Working\1960\_08-1301.dwg  
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 Last saved by: jho  
 Last plotted by: Justin Ho  
 Plot Style: AECmonochrome.ctb  
 Plot Scale: 1:2,594,9  
 Plot Date: 9/18/2018 4:38 PM  
 Plotter used: None

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Last plotted by: Justin Ho Plot Style: AECmonochrome.ctb Plot Scale: 1:2.5949 Plot Date: 9/18/2018 4:38 PM Plotter used: None



- GENERAL NOTES:**
- REFER TO THE I/O LISTING IN SPECIFICATION 40 67 10.
  - THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY THE WIRES FROM THE EQUIPMENT TO THE TERMINATION PANEL.
  - ALL WORK SHALL BE COORDINATED WITH THE OWNER.
  - REFER TO DEMOLITION SEQUENCE IN THE SPECIFICATIONS.
  - ALL DEMOLITION TO BE COORDINATED WITH EMERSON.
- NOTES:**
- EXISTING INTERFACE DIAGRAM IS BASED ON PLANT DOCUMENTATION. CONTRACTOR SHALL FIELD VERIFY ALL CONNECTIONS.
  - THE SLOT AND CHANNEL SIGNIFIES THE POSITION IN Q. LINE PANEL.
  - CHLORINE EQUIPMENT IS BEING DEMOLISHED AND REPLACED. THE EXISTING SIGNALS ASSOCIATED WITH CHLORINE SYSTEM SHOULD BE DEMOLISHED FROM END TO END.
  - NEW EQUIPMENT WILL BE INSTALLED AND THE NEW SIGNALS SHALL BE CONNECTED TO NEW RIO CL2.
  - CONDUIT SIZES SHOWN ARE MINIMUM. COMBINATION OF SIMILAR CIRCUIT TYPES PERMISSIBLE. ADJUST CONDUIT SIZING ACCORDINGLY AND REFLECT FINAL CONFIGURATION ON AS-BUILT DOCUMENTATION.
  - THESE WIRES SHALL BE REMOVED. EQUIPMENT DOESNT EXIST ANYMORE.

**CONTROL & INSTRUMENTATION WIRE/CONDUIT SCHEDULE (5)**

C#	WIRE	CONDUIT	DESCRIPTION
C1	2#14, 3/4"C	A1	1-1P#16 TSP, 3/4"C
C2	4#14, 3/4"C	A2	2-1P#16 TSP, 3/4"C
C3	6#14, 1"C	A3	3-1P#16 TSP, 3/4"C
C4	8#14, 1"C	A4	4-1P#16 TSP, 1"C
C5	10#14, 1"C	A5	5-1P#16 TSP, 1"C
C6	12#14, 1-1/4"C	A6	6-1P#16 TSP, 1-1/2"C
C7	14#14, 1-1/4"C	A7	7-1P#16 TSP, 2"C
C8	16#14, 1-1/4"C	A8	8-1P#16 TSP, 2"C
C9	18#14, 1-1/4"C	A9	9-1P#16 TSP, 2"C
C10	20#14, 1-1/4"C	A10	10-1P#16 TSP, 2"C
C11	22#14, 1-1/2"C	A11	11-1P#16 TSP, 2"C
C12	24#14, 1-1/4"C	M1	1-CAT-5e, 1"C
C14	28#14, 1-1/4"C	M2	2-CAT-5e, 1-1/2"C
C30	60#14, 3-1/2"C	M3	3-CAT-5e, 2"C
C37	74#14, 4"C	M4	4-CAT-5e, 2"C

**CONTROL & INSTRUMENTATION WIRE/CONDUIT TABLE NOTES:**

1) NOT ALL POSSIBLE COMBINATIONS ARE LISTED. INCLUDE A SEPARATE GROUND WIRE IN EACH CONDUIT RUN.

# REPRESENTS PAIR OF WIRE  
 EXAMPLE C10 = 20#14 WIRES  
 EXAMPLE C20 = 40#14 WIRES

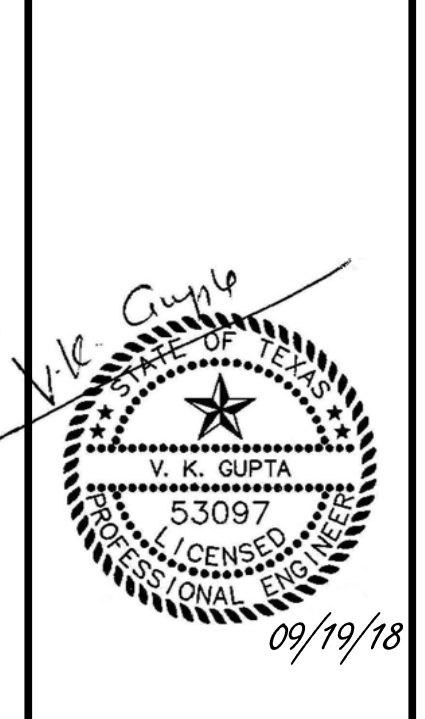
C#  
 C = CONTROL

2) ANALOG CABLES ARE INTENDED TO BE INDIVIDUALLY INSULATED TWISTED SHIELDED PAIRS UNLESS OTHERWISE NOTED ON THE DRAWING.



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REGISTRATION NO. F-5713



REV.	DATE	DESCRIPTION
1	09/19/18	ADDENDUM NO. 3

**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

PLC INTERFACE DIAGRAM DEMOLITION 2

JOB NO.: 17238115  
 DATE: AUG. 2018  
 DESIGNED BY: TH  
 DRAWN BY: RV

BAR IS ONE INCH ON ORIGINAL DRAWING  
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DRAWING NUMBER  
**10-X506**

SHEET NUMBER  
**58**

**GAI**  
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 CONSULTING ENGINEERING  
 Registration No. F-2593

13717 Neutron Road  
 Dallas, Texas 75244  
 Tel: 972-490-7661  
 Fax: 972-490-7125  
 email: agupta@gaiconsulting.com

NOTES:

- \* SUPPLIED AS PART OF CHLORINE EQUIPMENT MANUFACTURER'S EQUIPMENT PACKAGE.
- PIPE SUPPORTS SHALL BE PROVIDED WITH SPACING PER SECTION 400507.
- CONTRACTOR MAY REUSE EXISTING PIPE SUPPORTS WHERE PRACTICAL. DAMAGED OR CORRODED PIPE SUPPORTS SHALL BE REPLACED IN ACCORDANCE WITH SECTION 400507 AND DIV. 40 STANDARD DETAILS.
- ALL PIPE SUPPORTS, FASTENERS, AND ANCILLARY ITEMS WITHIN CHEMICAL AREAS SHALL BE OF NON-METALLIC CONSTRUCTION.
- SOUTH WALL OF CHLORINATOR ROOM IS CONGESTED WITH EXISTING CONDUIT, DUCTWORK, PIPING, AND EQUIPMENT.
- CONTRACTOR SHALL TEMPORARILY REMOVE EXISTING DUCTWORK AS REQUIRED FOR REMOVAL AND REPLACEMENT OF CLGV PIPING. IF DUCTWORK IS DAMAGED DURING REMOVAL, CONTRACTOR SHALL REPLACE DUCTWORK TO MATCH EXISTING DUCTWORK MATERIAL TYPE, GAUGE THICKNESS, AND SIZE. PAINT EXTERIOR OF DUCTWORK TO MATCH EXISTING. IF EXISTING DUCTWORK DAMPERS, INSTRUMENTS, AND/OR CONTROLS ARE REMOVED, THEY SHALL BE REINSTALLED. CONTROL DEVICES DAMAGED DURING REMOVAL SHALL BE REPLACED NEW OF SAME MANUFACTURER AND MODEL NUMBER AS EXISTING DEVICES. AFTER REINSTALLATION, THE DUCTWORK AND DAMPER SYSTEM SHALL BE TESTED TO CONFIRM PROPER OPERATION. NOTIFY OWNER PRIOR TO TESTING.
- CHLORINATOR DIMENSIONS SHOWN ARE REPRESENTATIVE. INSTALL CHLORINATORS ON EXISTING CONCRETE PADS TO PROVIDE A MINIMUM 4-FT BETWEEN CHLORINATORS AND EXISTING WALLS.
- EVAPORATOR DIMENSIONS SHOWN ARE REPRESENTATIVE. PROVIDE A MINIMUM CLEARANCE OF 4-FT BETWEEN EVAPORATORS AND BETWEEN EVAPORATORS AND EXISTING WALLS. EVAPORATORS SHALL NOT IMPEDE ACCESS TO DOORS OR THE SAFETY SHOWER AND EYEWASH.
- REFER TO SECTION 01 10 00 FOR WORK SEQUENCING.
- USE EXTREME CARE AND CAUTION WHEN WORKING IN CHLORINATION BUILDING. OBSERVE ALL SAFETY RULES AND REGULATIONS. SEE SPECIAL CONDITIONS FOR WORK IN THIS AREA.
- VACUUM REGULATING UNIT SHOWN IS REPRESENTATIVE. PROVIDE FITTINGS AS NEEDED TO CONNECT TO UPSTREAM 1" CLGP AND DOWNSTREAM 2" CLGV. IF DENORA/CAPITAL CONTROLS EQUIPMENT IS PROVIDED, A SEPARATE PRESSURE REDUCING VALVE WITH A SEPARATE VENT LINE WILL BE PROVIDED AS PART OF EACH VACUUM REGULATING UNIT. THE ADDITIONAL VENT LINE SHALL BE ROUTED TO THE SCRUBBER HEADER.



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REGISTRATION NO. F-5713



*Ashley Pifer*

DIGITALLY SIGNED 9/19/18

REV	DATE	DESCRIPTION
BY	ADP	
DATE	09/19/18	ADDENDUM NO. 3



SAN ANTONIO WATER SYSTEM  
SAN ANTONIO, TEXAS  
DOS RIOS WRC  
CHLORINE SYSTEM IMPROVEMENTS

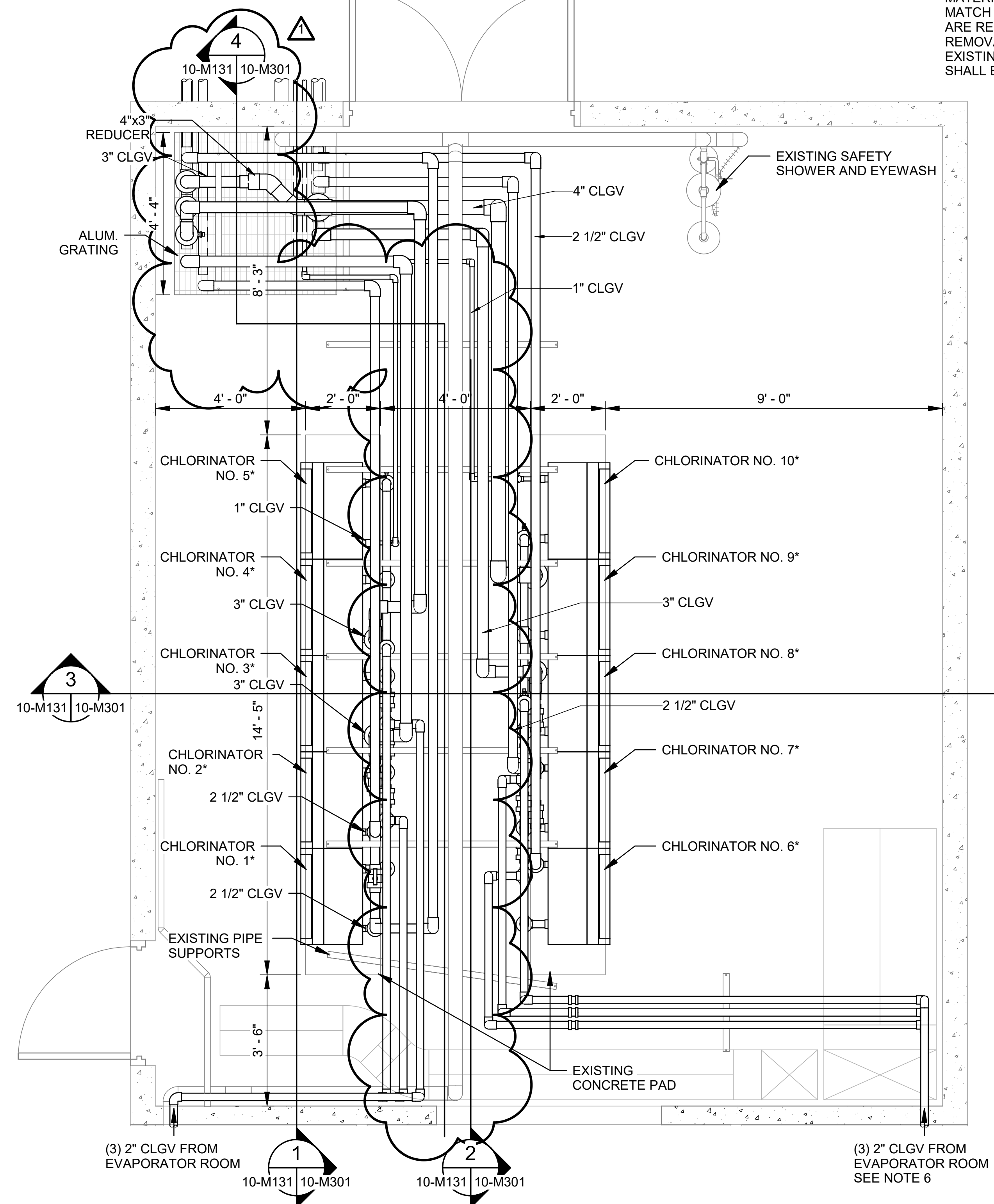
CHLORINE FACILITIES  
PLAN 1

JOB NO.: 17238115  
DATE: AUG. 2018  
DESIGNED BY: ADP  
DRAWN BY: JAG

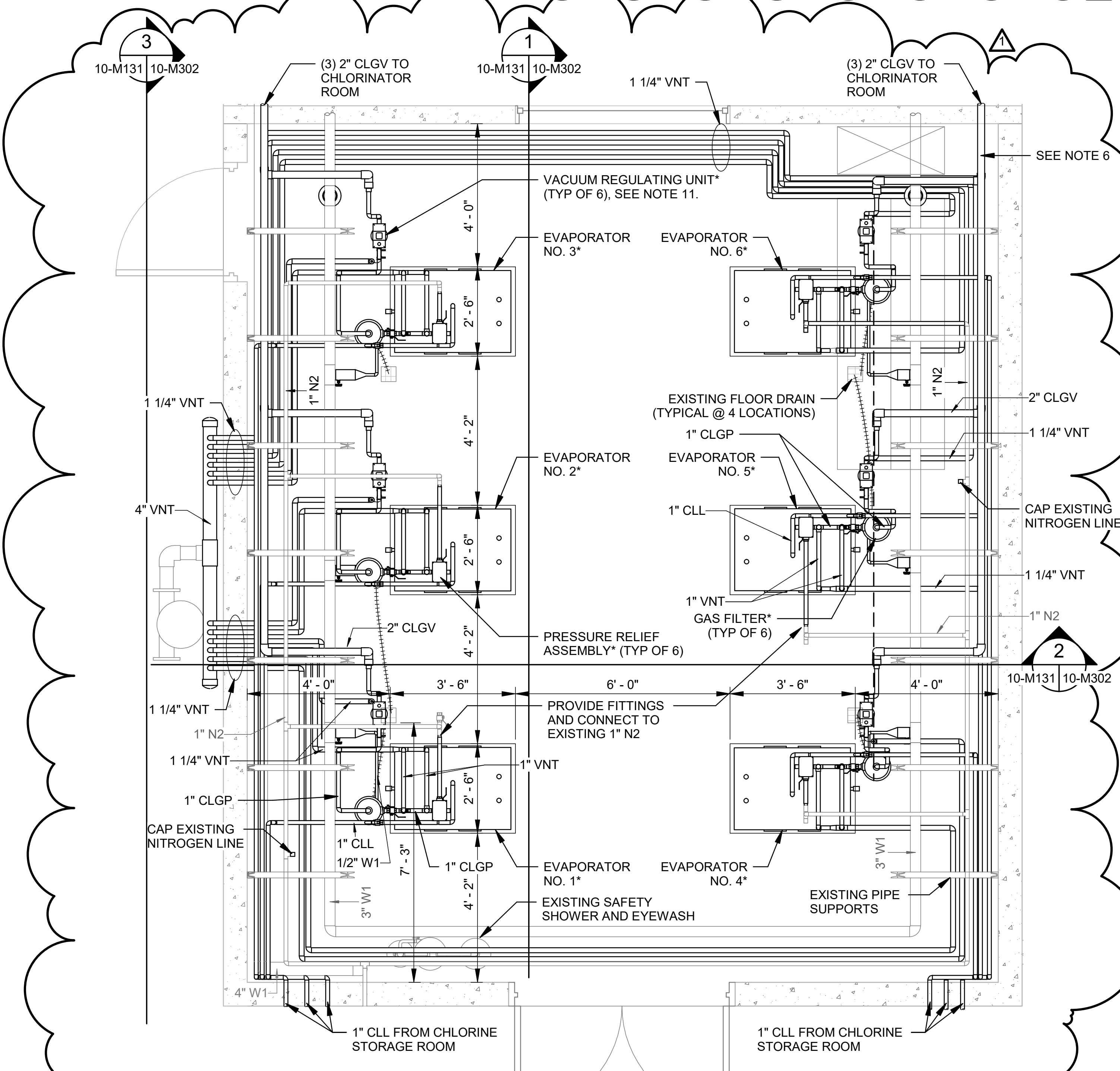
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**10-M131**  
SHEET NUMBER  
**62**

FOR CONTINUATION, SEE YARD PIPING PLAN.



**CHLORINATOR ROOM MODIFIED PLAN**  
SCALE: 1/2" = 1'-0"  
PROJECT NORTH



**EVAPORATOR ROOM MODIFIED PLAN**  
SCALE: 1/2" = 1'-0"  
PROJECT NORTH

Revit File: L:\2017\17238115 - SAWS Dos Rios WRC Chlorine System Imps\Drawings\REVIT\SAWS\_Dos Rios Proposal v2.rvt  
Plot Date: 9/18/2018 4:54:38 PM



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BY	ADP	
DESCRIPTION	ADDENDUM NO. 3	
DATE	09/19/18	



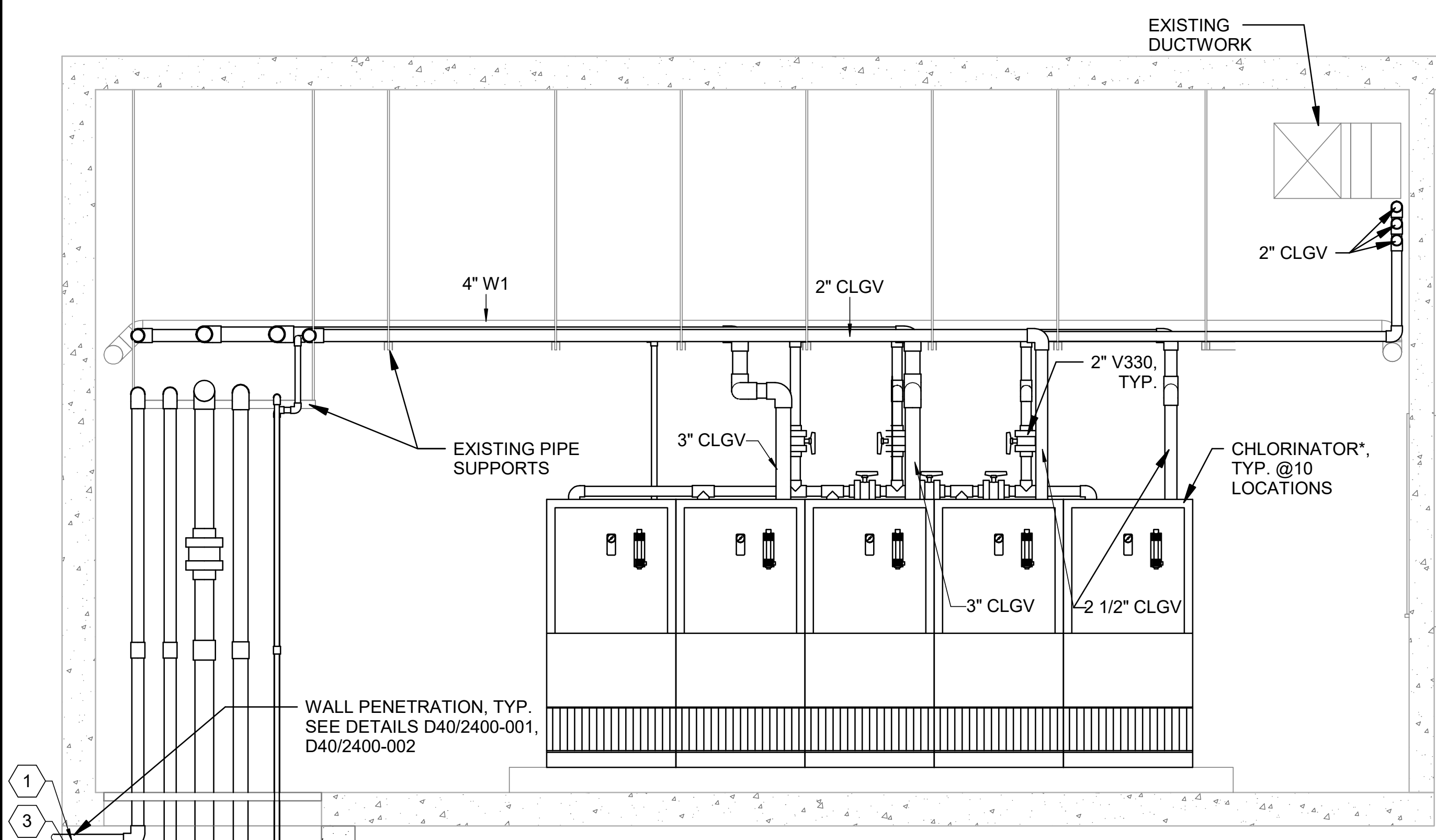
SAN ANTONIO WATER SYSTEM  
 SAN ANTONIO, TEXAS  
 DOS RIOS WRC  
 CHLORINE SYSTEM IMPROVEMENTS

CHLORINE FACILITIES SECTIONS 1

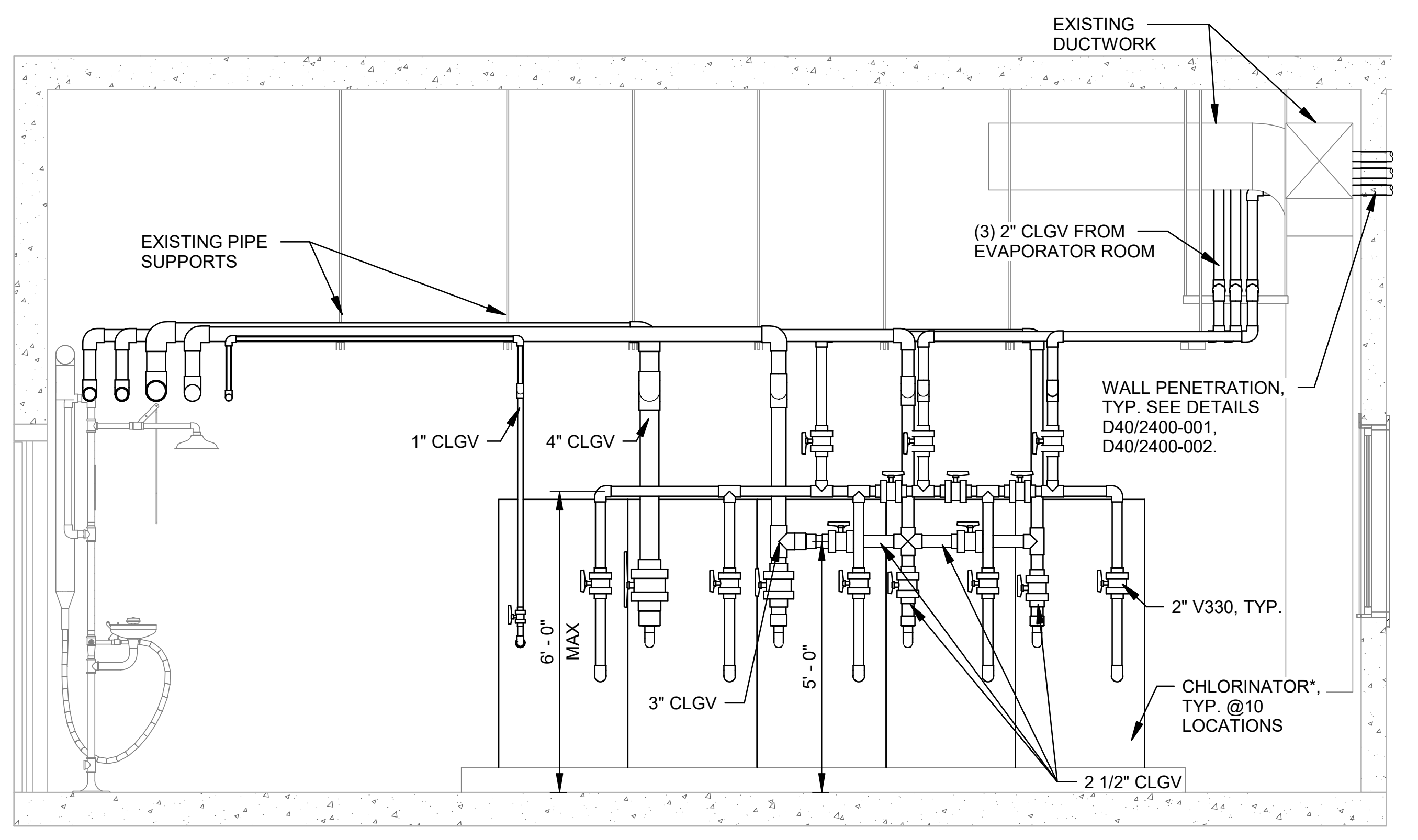
JOB NO.: 17238115  
 DATE: AUG. 2018  
 DESIGNED BY: ADP  
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**10-M301**  
 SHEET NUMBER  
**64**

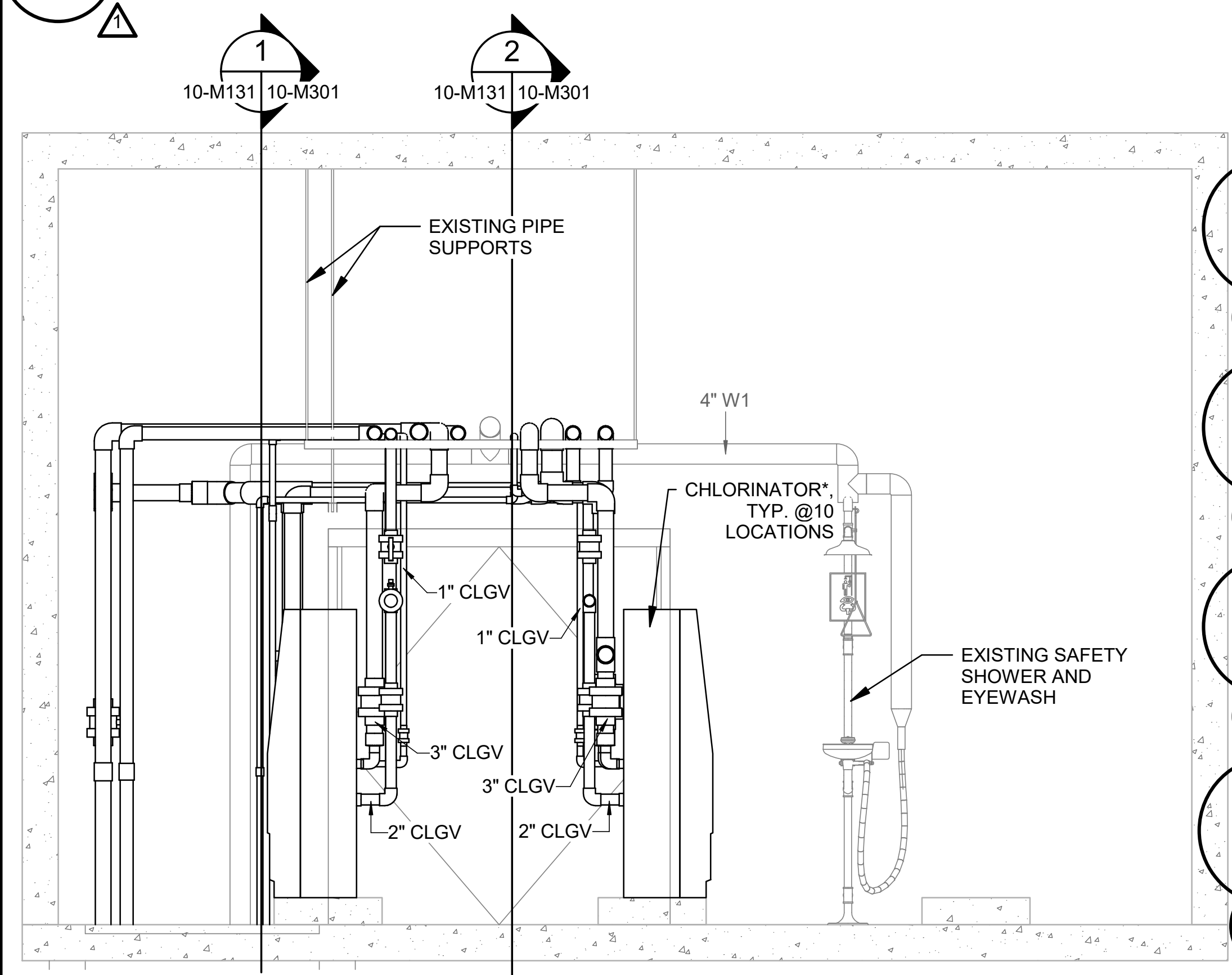


**CHLORINATOR ROOM MODIFIED SECTION**  
 10-M131 | 10-M301 SCALE: 1/2" = 1'-0"

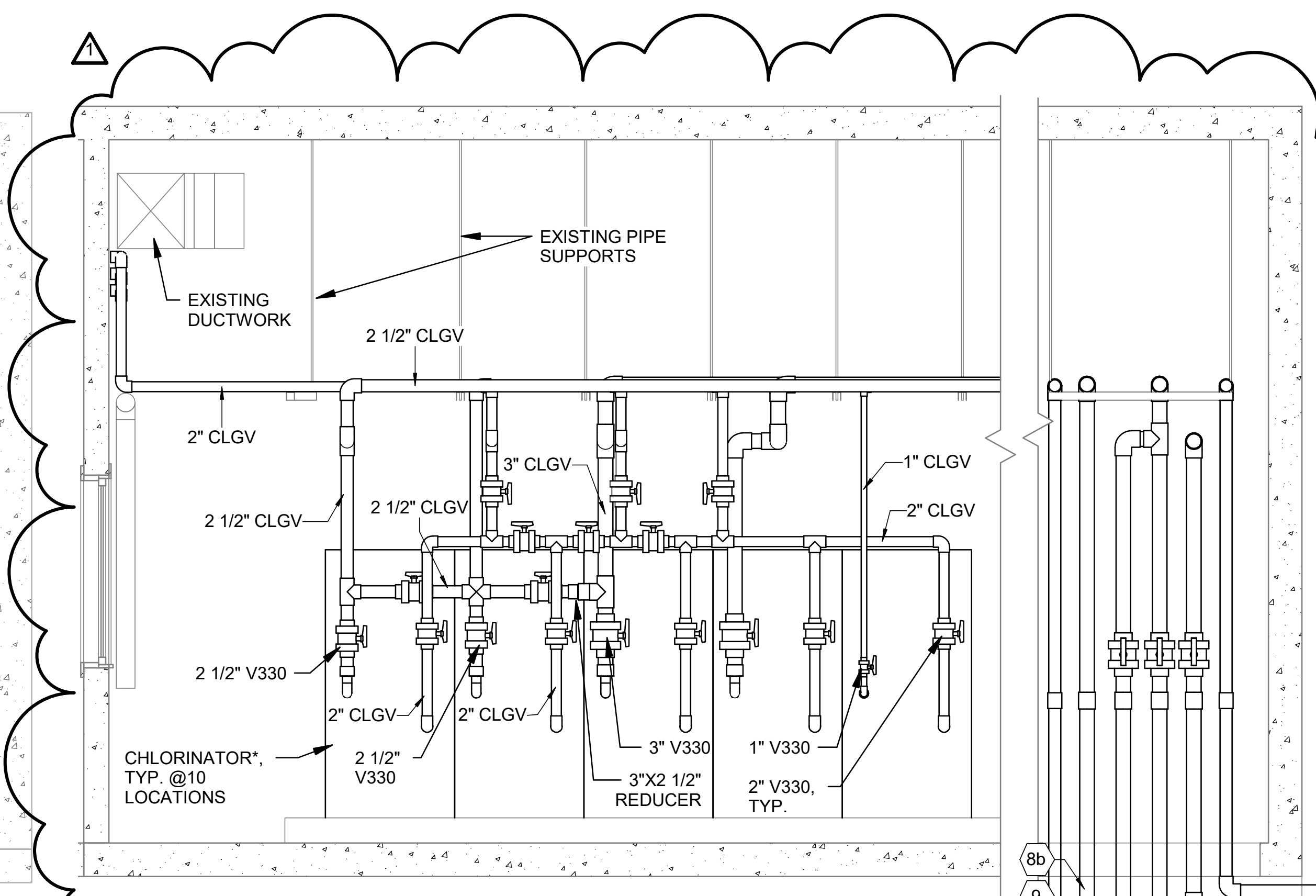


**CHLORINATOR ROOM MODIFIED SECTION**  
 2 | 10-M131 | 10-M301 SCALE: 1/2" = 1'-0"

- NOTES
- CHLORINATOR DIMENSIONS AND LOCATIONS OF CONNECTIONS ARE REPRESENTATIVE. VERIFY ALL DIMENSIONS WITH EQUIPMENT MANUFACTURERS. \*SUPPLIED AS PART OF CHLORINE EQUIPMENT MANUFACTURER'S EQUIPMENT.



**CHLORINATOR ROOM MODIFIED SECTION**  
 3 | 10-M131 | 10-M301 SCALE: 1/2" = 1'-0"



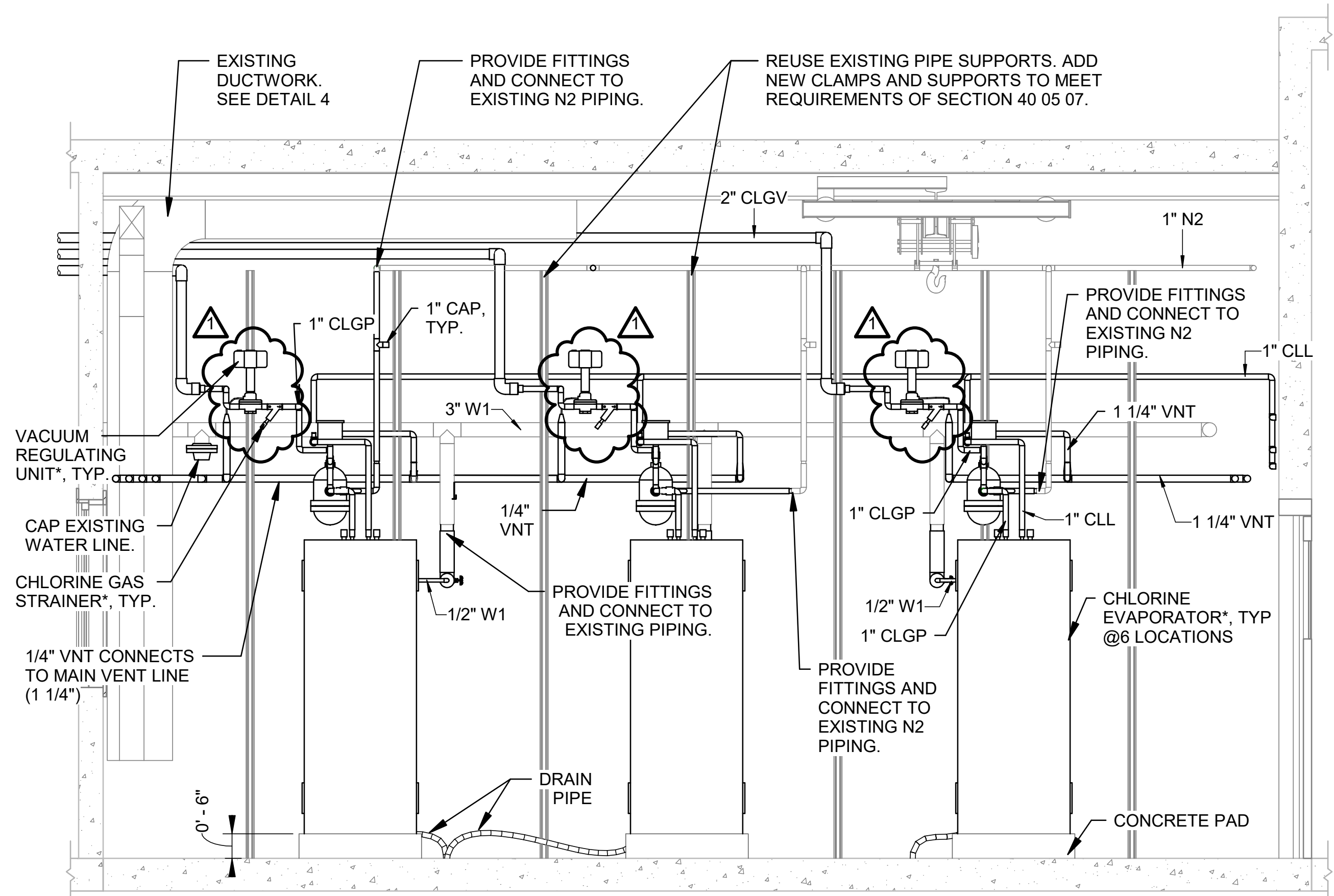
**CHLORINATOR ROOM MODIFIED SECTION**  
 4 | 10-M131 | 10-M301 SCALE: 1/2" = 1'-0"

**PROPOSED PIPING LEGEND:**

LINE NUMBER	SIZE AND IDENTIFICATION	PRIMARYLY ASSOCIATED WITH CHLORINATOR #
1	2 1/2"Ø CLGV LINE	6
2	2 1/2"Ø CLGV LINE	1
3	2 1/2"Ø CLGV LINE	7
4	3"Ø CLGV LINE	9
5	4"Ø CLGV LINE	9
6	3"Ø CLGV LINE	4
7a	3"Ø CLGV LINE	8
7b	3"Ø CLGV LINE	4
8a	2 1/2"Ø CLGV LINE	-
8b	3"Ø CLGV LINE	3
8c	1"Ø CLGV LINE	10
8d	1"Ø CLGV LINE	5
9	2 1/2"Ø CLGV LINE	2

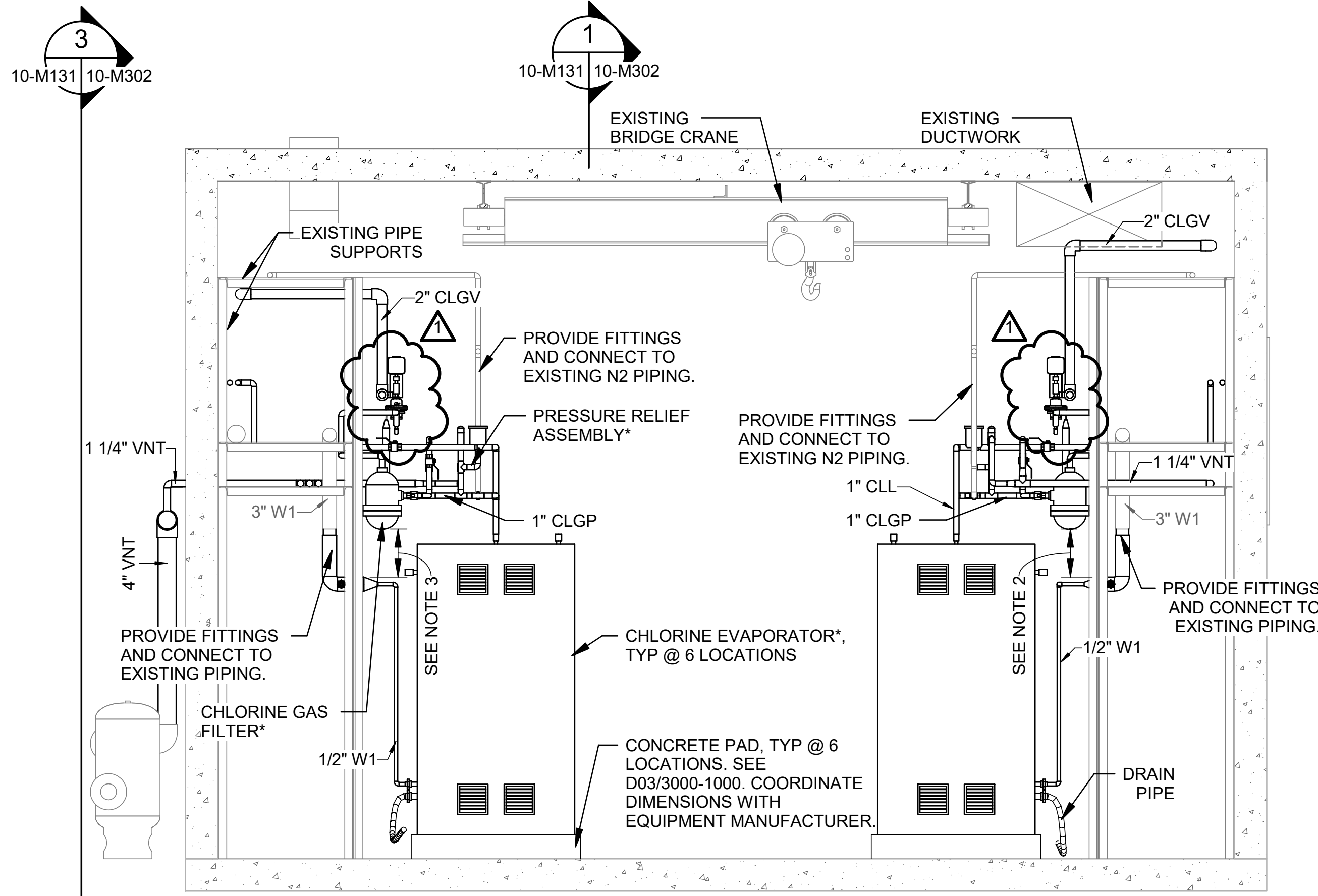
WALL PENETRATION, TYP. SEE DETAILS D40/2400-001, D40/2400-002

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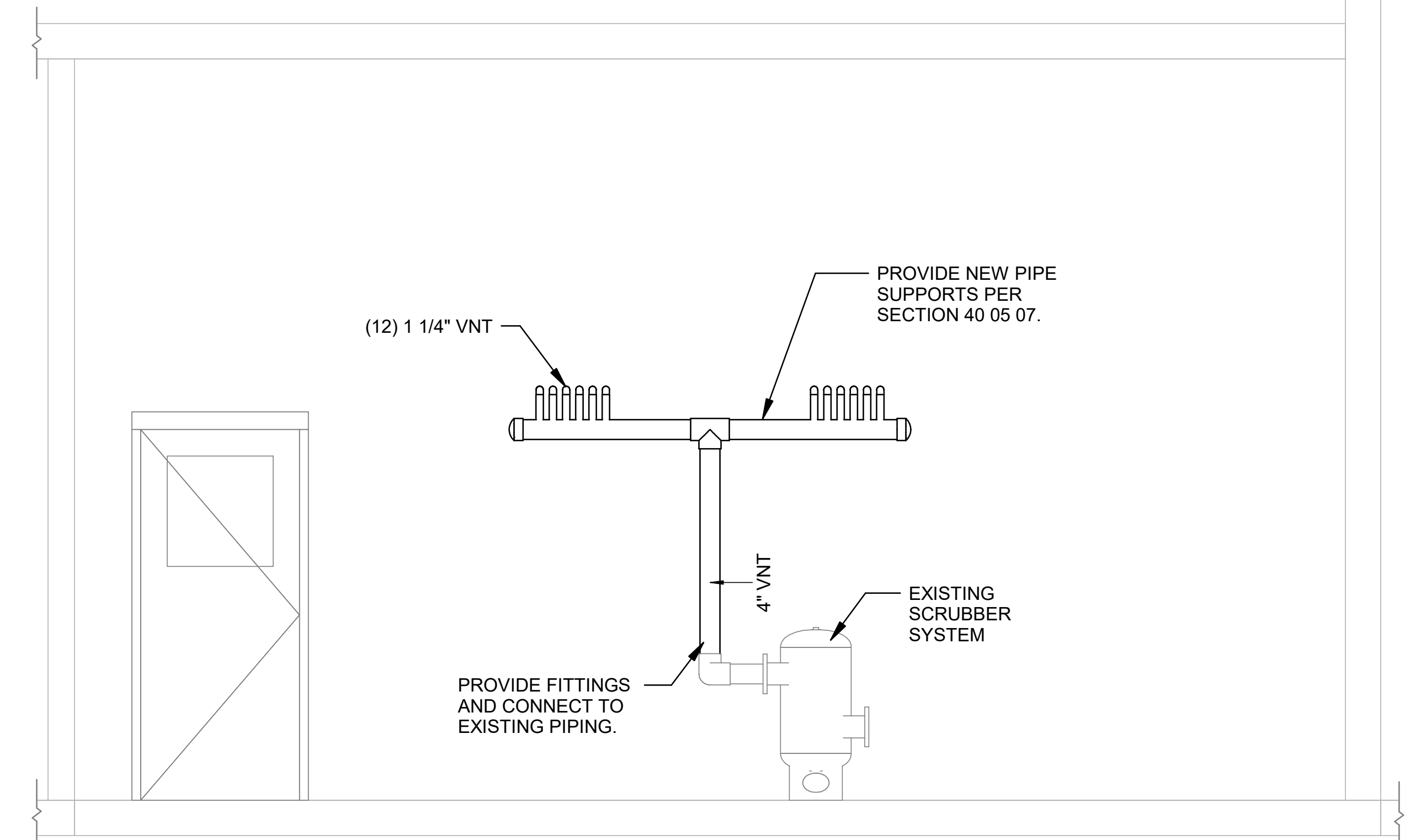
1  
10-M131 10-M302 SCALE: 1/2" = 1'-0"

**EVAPORATOR ROOM MODIFIED SECTION**



2  
10-M131 10-M302 SCALE: 1/2" = 1'-0"

**EVAPORATOR ROOM MODIFIED SECTION**



3  
10-M131 10-M302 SCALE: 1/2" = 1'-0"

**VENT PIPING MODIFIED SECTION**



4  
10-M302 SCALE: NONE

**EXISTING EVAPORATOR ROOM DUCTWORK DETAIL**

- NOTES
- \*SUPPLIED AS PART OF CHLORINE EQUIPMENT MANUFACTURER'S EQUIPMENT. DIMENSIONS OF EQUIPMENT AND LOCATIONS OF CONNECTIONS SHOWN ARE REPRESENTATIVE AND SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURER.
  - PROVIDE CLEARANCE IN ACCORDANCE WITH CHLORINE EQUIPMENT MANUFACTURER'S RECOMMENDATION.

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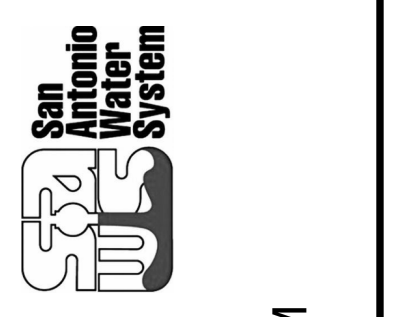
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REGISTRATION NO. F-5713



*Ashley Pifer*  
DIGITALLY SIGNED 9/19/18

REV	DATE	DESCRIPTION	BY
1	09/19/18	ADDENDUM NO. 3	ADP



SAN ANTONIO WATER SYSTEM  
SAN ANTONIO, TEXAS

DOS RIOS WRC  
CHLORINE SYSTEM IMPROVEMENTS

CHLORINE FACILITIES SECTIONS 2

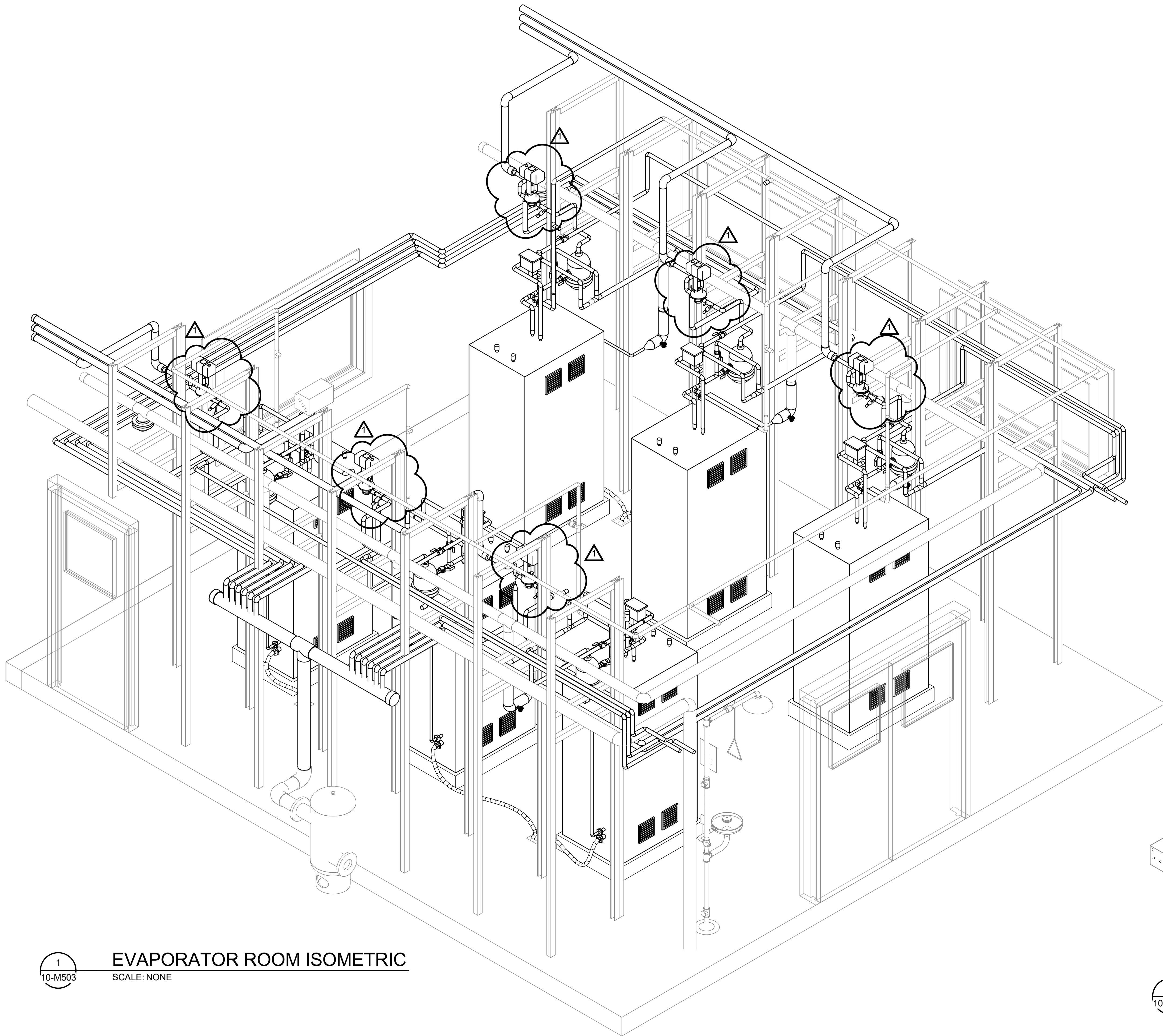
JOB NO.: 17238115  
DATE: AUG. 2018  
DESIGNED BY: ADP  
DRAWN BY: JAG

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DRAWING NUMBER  
**10-M302**

SHEET NUMBER  
**65**

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 Plot Date: 9/18/2018 4:54:45 PM



1  
10-M503

**EVAPORATOR ROOM ISOMETRIC**

SCALE: NONE

2  
10-M503

**EVAPORATOR ISOMETRIC**

SCALE: NONE



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*Ashley Pifer*

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REV	DATE	DESCRIPTION	BY
1	09/19/18	ADDENDUM NO. 3	ADP



**SAN ANTONIO  
 WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC  
 CHLORINE SYSTEM  
 IMPROVEMENTS**

**EVAPORATOR ROOM  
 ISOMETRIC**

JOB NO.: 17238115  
 DATE: AUG. 2018  
 DESIGNED BY: ADP  
 DRAWN BY: JAG

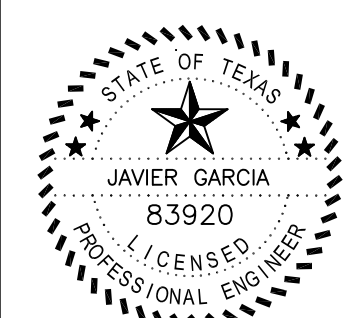
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DRAWING NUMBER  
**10-M503**  
 SHEET  
 NUMBER **69**



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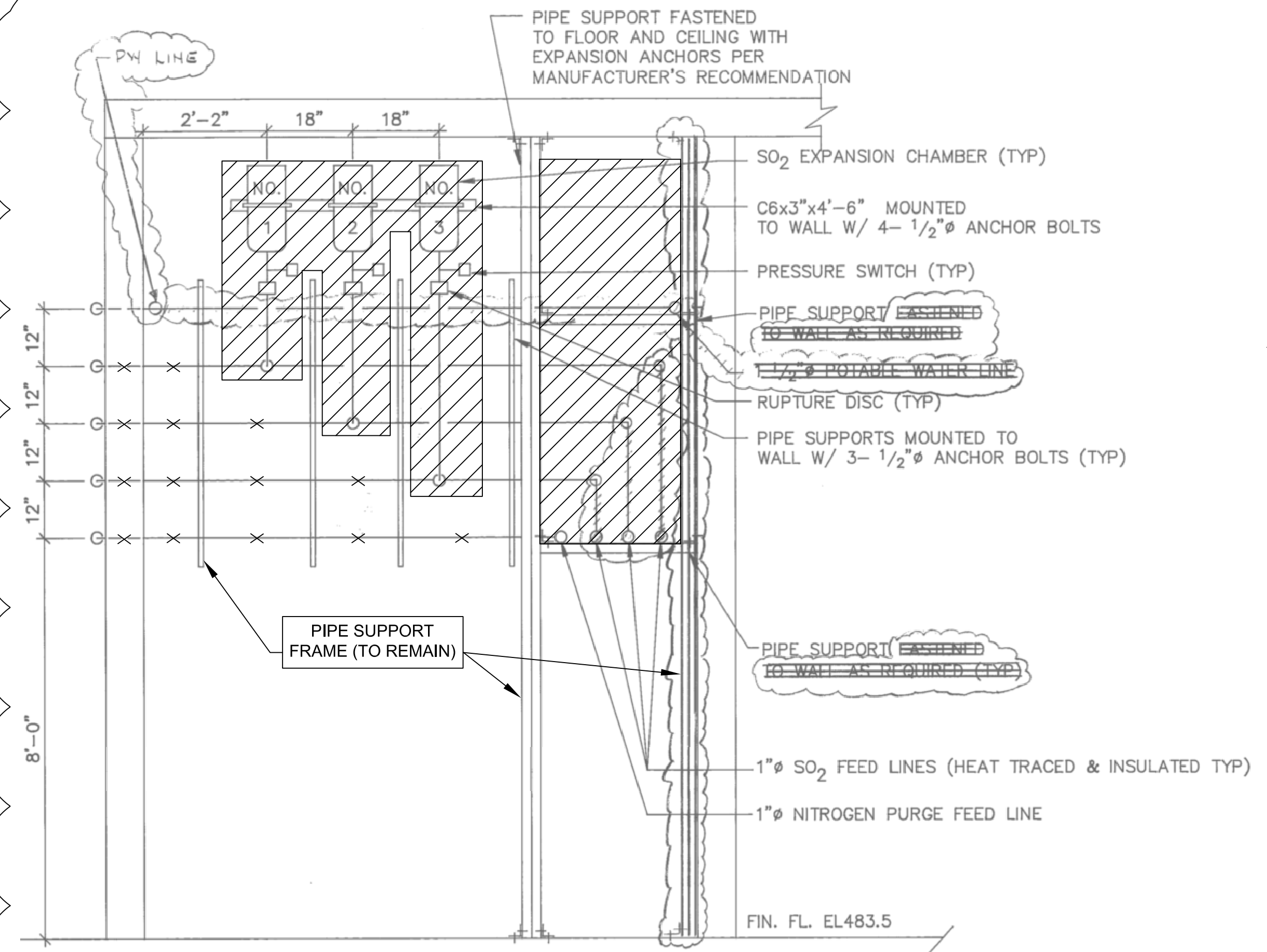
JAVIER GARCIA  
 LICENSED PROFESSIONAL ENGINEER  
 9/19/18

**SHEET NOTES:**

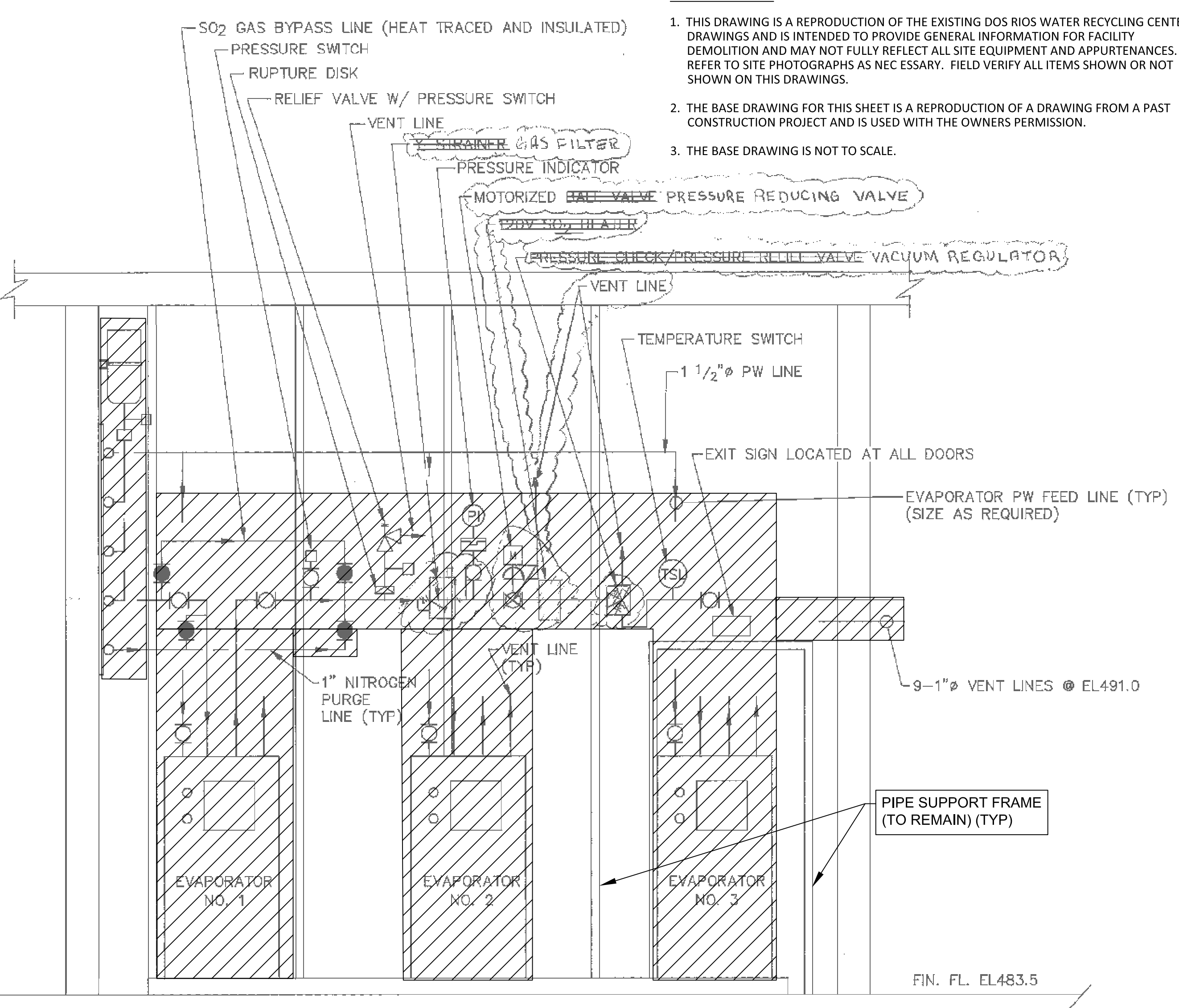
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**LEGEND**

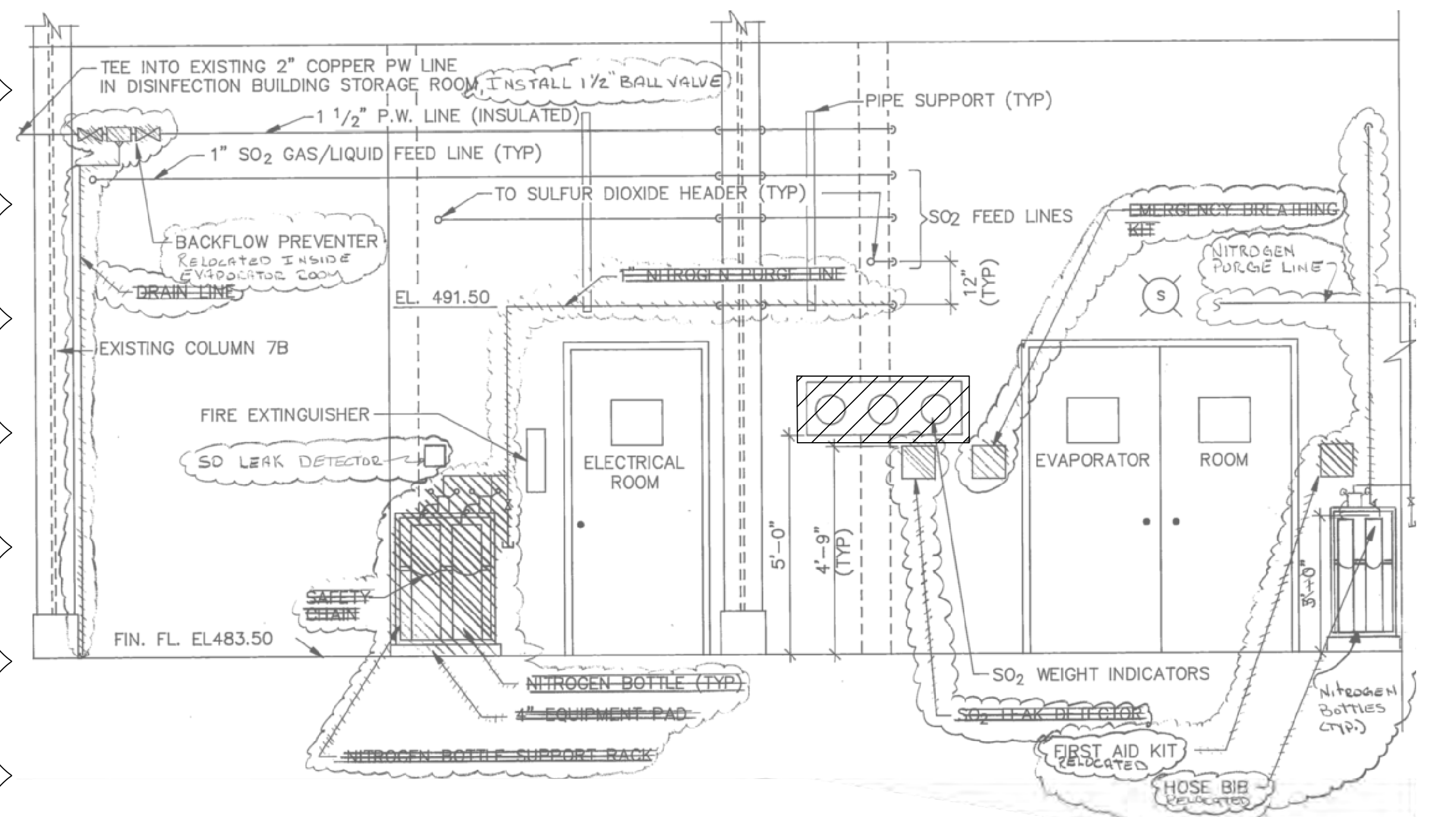
EQUIPMENT REMOVED/REPLACED



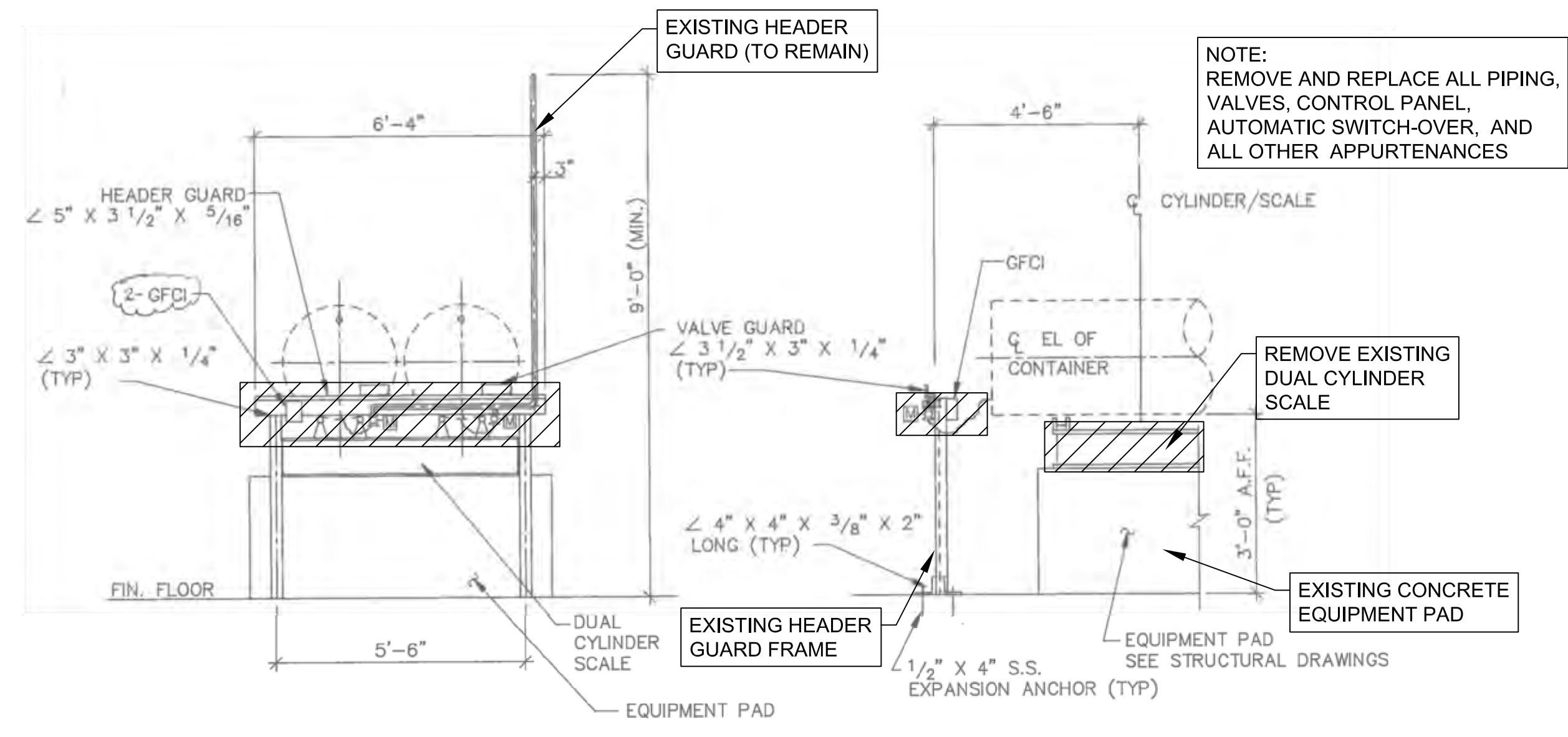
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 X101



**SECTION 2**  
 SCALE: NTS  
 X101



**SECTION 3**  
 SCALE: NTS  
 X101

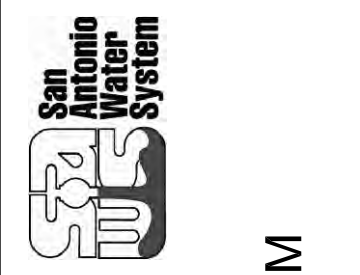


**SECTION 4**  
 SCALE: NTS  
 X101

**NOTE:**  
 REMOVE AND REPLACE ALL PIPING, VALVES, CONTROL PANEL, AUTOMATIC SWITCH-OVER, AND ALL OTHER APPURTENANCES

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REV.	DATE	DESCRIPTION	BY
1	9/19/18	ADDENDUM NO. 3	J.G.



**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

**SO2 FACILITIES DEMOLITION PLAN 2**

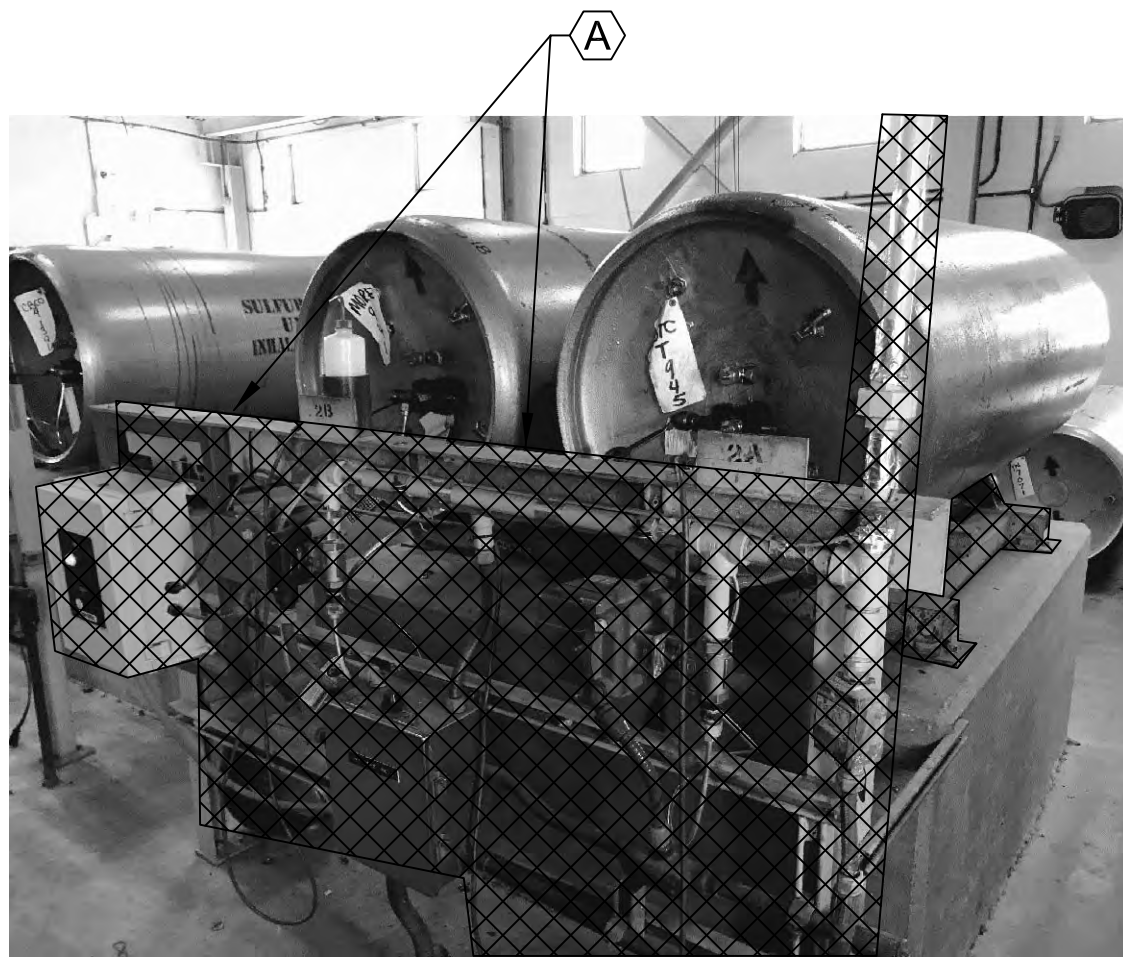
JOB NO.: 17238115  
 DATE: JUNE 2018  
 DESIGNED BY: JG  
 DRAWN BY: H3

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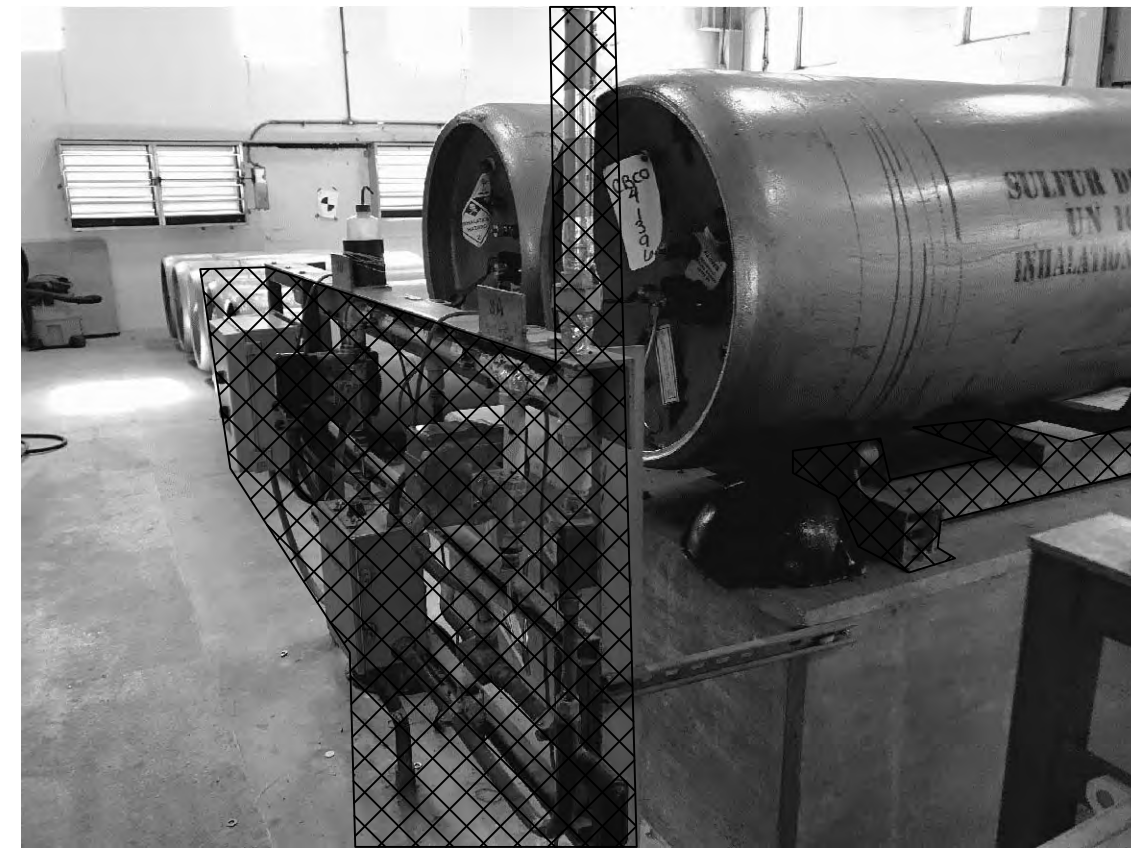
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**20-X102**  
 SHEET NUMBER  
**103**







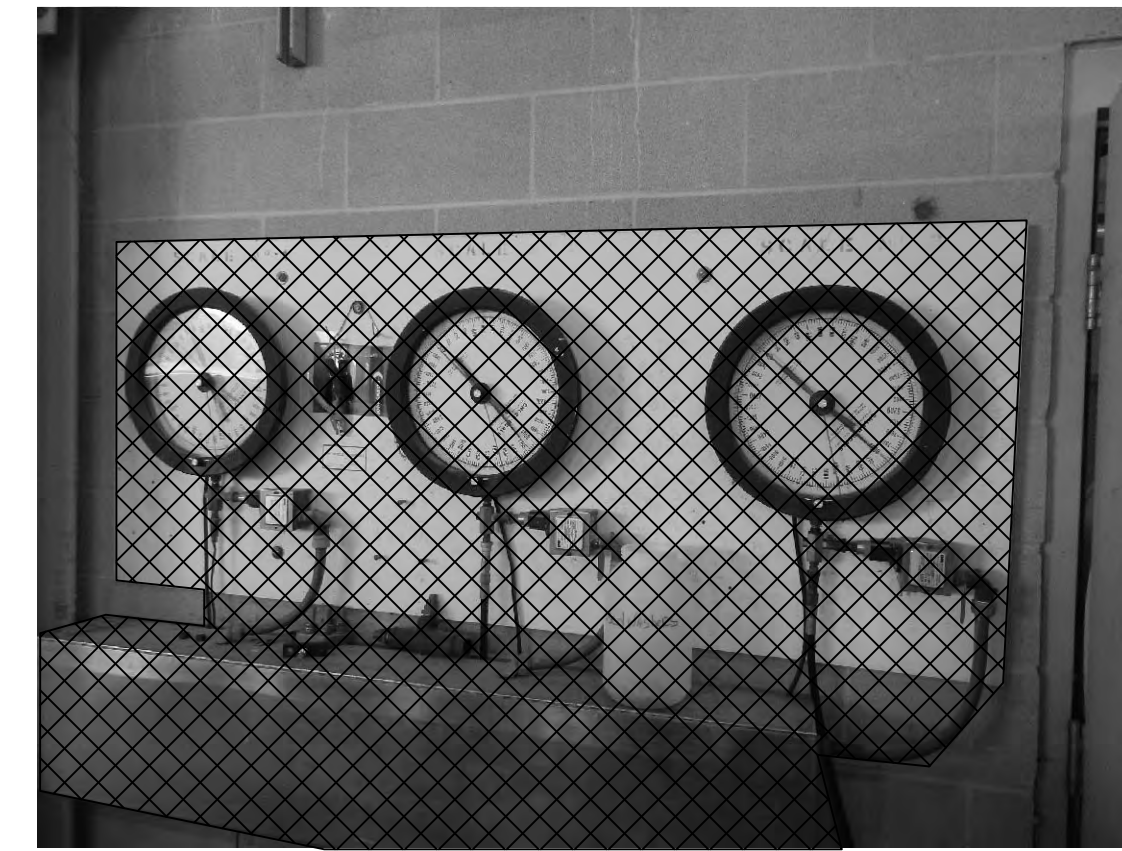
**1** TON CYLINDERS  
20-X104 SCALE: NONE



**2** TON CYLINDERS  
20-X104 SCALE: NONE



**3** TON CYLINDERS  
20-X104 SCALE: NONE



**4** TON CYLINDER SCALES  
20-X104 SCALE: NONE

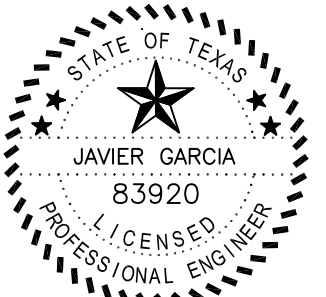
**LEGEND**  
 EQUIPMENT TO BE REMOVED, DEMOLISHED AND REPLACED

**KEY NOTES**  
 (A) EXISTING HEADER GUARD FRAME (TO REMAIN)  
 (B) REMOVE AND REPLACE ALL PIPING, VALVES, AND OTHER MISCELLANEOUS  
 (C) REUSE EXISTING PIPE SUPPORTS  
 (D) ELEVATED GRATE (TO REMAIN)  
 (E) REMOVE AND REPLACE EXISTING OVERHEAD DOOR



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REGISTRATION NO. F-5713



Javier Garcia  
 9/19/18



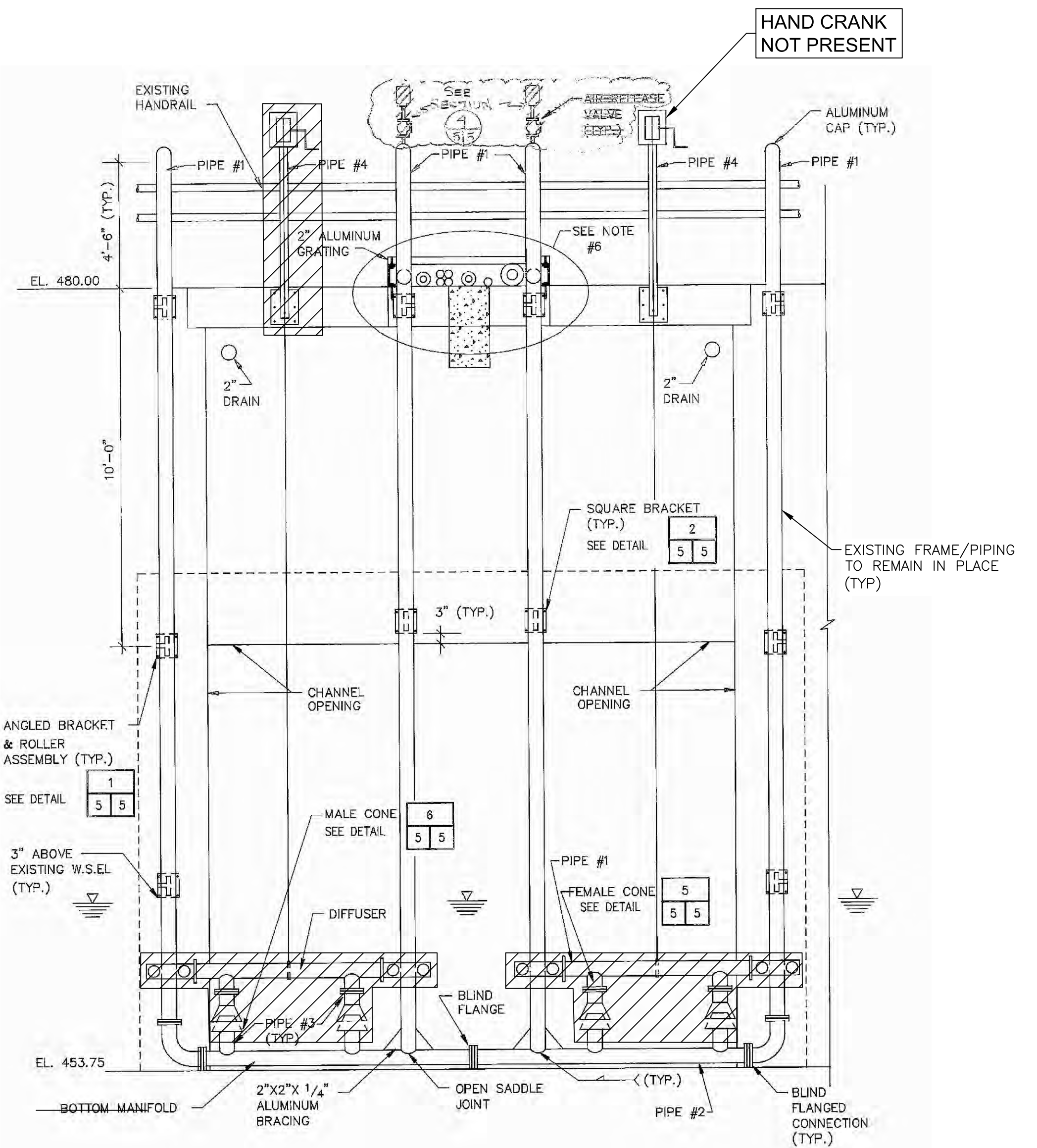
**5** SO<sub>2</sub> GV LINES  
20-X104 SCALE: NONE



**6** SO<sub>2</sub> GV LINES  
20-X104 SCALE: NONE



**9** SO<sub>2</sub> OVERHEAD DOOR  
20-X104 SCALE: NONE



**8** CHLORINE CONTACT BASIN SO<sub>2</sub> DIFFUSER SYSTEM  
20-X104 SCALE: NONE

**SHEET NOTES:**

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**7** SO<sub>2</sub> GV LINES  
20-X104 SCALE: NONE



**8** ELEVATED GRATE  
20-X104 SCALE: NONE

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REV.	DATE	DESCRIPTION	BY
1	9/19/18	ADDENDUM NO. 3	J.G.

**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

SO<sub>2</sub> FACILITIES DEMOLITION DETAILS 2

JOB NO.: 17238115  
 DATE: JUNE 2018  
 DESIGNED BY: JG  
 DRAWN BY: H3

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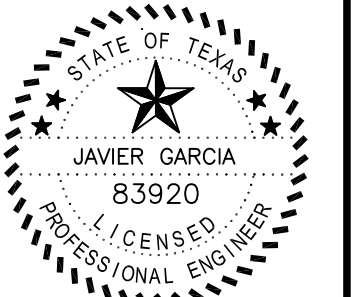
SHEET NUMBER  
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9/19/18

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SAN ANTONIO WATER SYSTEM  
 SAN ANTONIO, TEXAS  
 DOS RIOS WRC  
 CHLORINE SYSTEM IMPROVEMENTS

SO<sub>2</sub> FACILITIES OVERALL PLAN

JOB NO.: 17238115  
 DATE: JUNE 2018  
 DESIGNED BY: JG  
 DRAWN BY: H3

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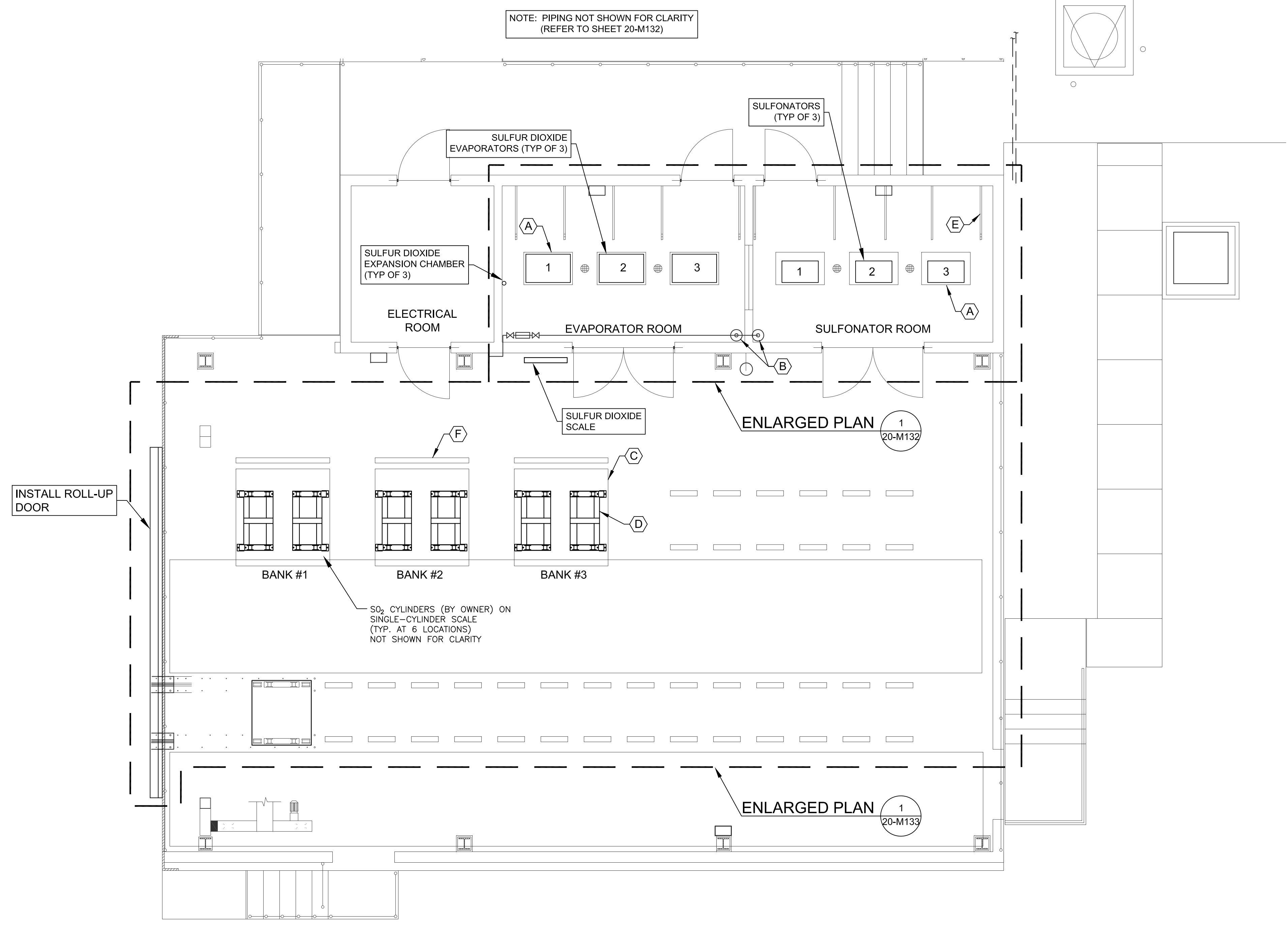
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 SHEET NUMBER  
**110**

**KEY NOTES**

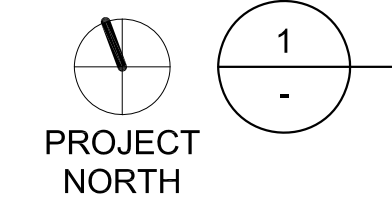
- (A) EXISTING CONCRETE EQUIPMENT PAD TYPICAL (TO REMAIN)
- (B) EXISTING EYE WASH STATION TYPICAL (TO REMAIN)
- (C) EXISTING TON CYLINDER CONCRETE PAD (TO REMAIN) (TYP AT 3 LOCATIONS)
- (D) EXISTING DUAL CYLINDER SCALE (REMOVE AND REPLACE WITH NEW SCALES)
- (E) EXISTING PIPE SUPPORT AND FRAME (TO REMAIN)
- (F) EXISTING SULFUR DIOXIDE HEADER GUARD (TYP OF 3 LOCATIONS) TON CYLINDER FRAME (TO REMAIN)

NOTES:

1. \* SUPPLIED AS PART OF CHLORINE EQUIPMENT MANUFACTURER'S EQUIPMENT PACKAGE.
2. PIPE SUPPORTS SHALL BE PROVIDED WITH SPACING PER SECTION 400507.
3. CONTRACTOR MAY REUSE EXISTING PIPE SUPPORTS WHERE PRACTICAL. DAMAGED OR CORRODED PIPE SUPPORTS SHALL BE REPLACED IN ACCORDANCE WITH SECTION 400507 AND DIV. 40 STANDARD DETAILS.
4. ALL PIPE SUPPORTS, FASTENERS, AND ANCILLARY ITEMS WITHIN CHEMICAL AREAS SHALL BE OF NON-METALLIC CONSTRUCTION.
5. REFER TO PROCESS FLOW DIAGRAM (PFD) FOR LOCATION OF VALVES, ETC.
6. REFER TO SECTION 01 10 00 FOR WORK SEQUENCING.
7. OBSERVE ALL SAFETY RULES AND REGULATIONS. REFER TO SPECIAL CONDITIONS FOR WORK IN THIS AREA.
8. IF DENORA/CAPITAL CONTROL EQUIPMENT IS PROVIDED, A SEPARATE VENT LINE WILL BE PROVIDED AS PART OF EACH VACUUM REGULATING UNIT. THE ADDITIONAL VENT LINE SHALL BE PROVIDED TO THE SCRUBBER HEADER.



**SULFUR DIOXIDE FACILITY MODIFIED PLAN**



File: L:\CADD\Garver\1009\Drawings\Sheets\20-M131.dwg Last Save: 9/19/2018 7:53 AM Last saved by: GIC-03  
 Last plotted by: GIC-03 Plot Style: AECmono.ctb Plot Scale: 1/4"=1'-0" Plot Date: 9/19/2018 7:54 AM Plotter used: None

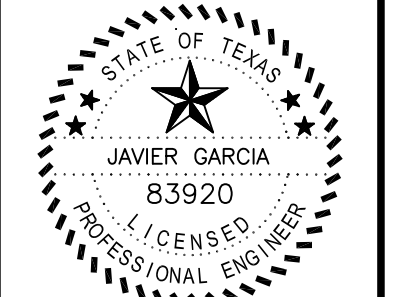


Garcia Infrastructure Consultants, LLC  
 TBPE Firm No. F-17784



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REGISTRATION NO. F-5713



9/19/18

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**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

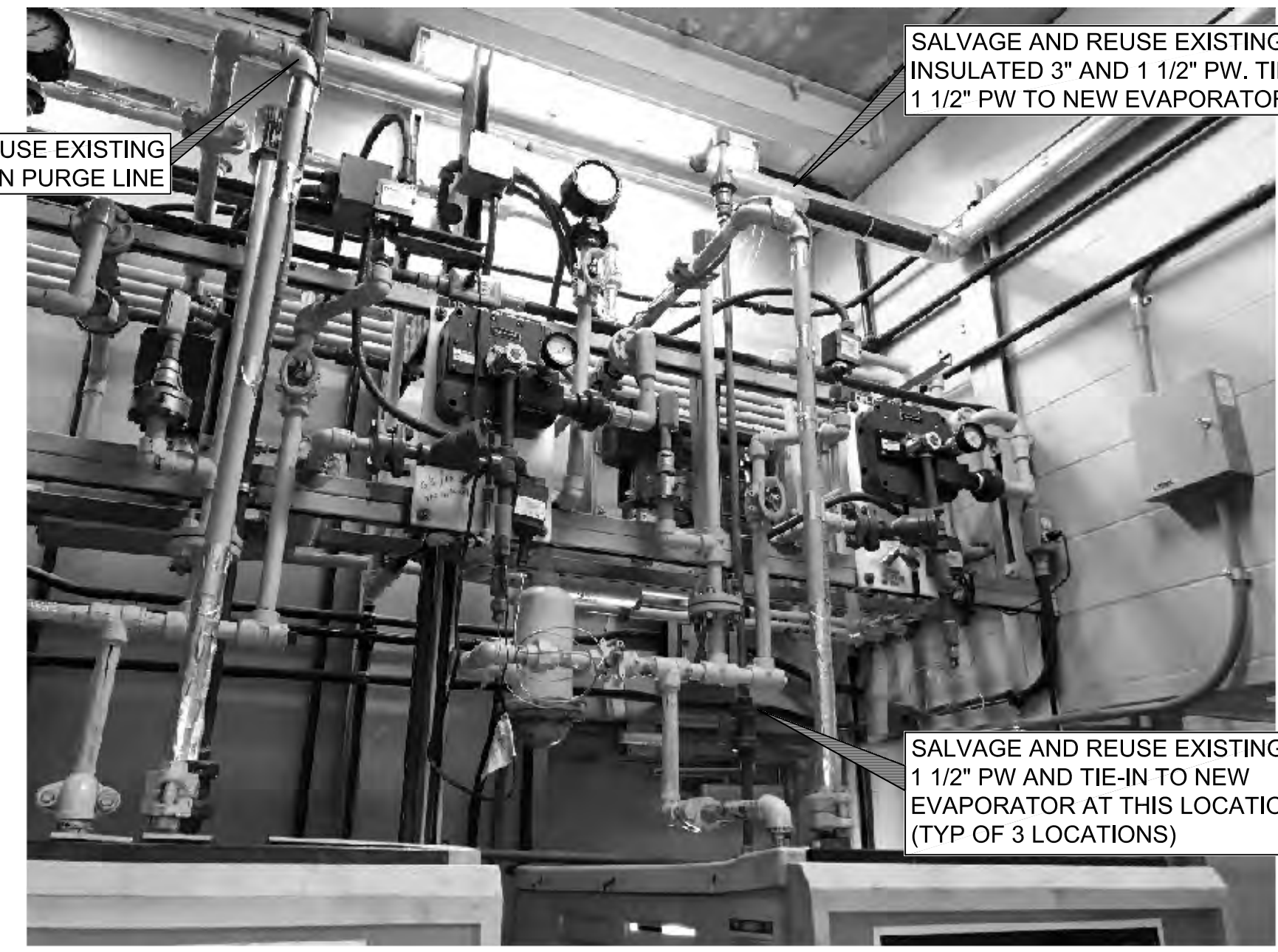
SO<sub>2</sub> FACILITIES PLAN 1

JOB NO.: 17238115  
 DATE: JUNE 2018  
 DESIGNED BY: JG  
 DRAWN BY: H3

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DRAWING NUMBER **20-M132**

SHEET NUMBER **111**



SALVAGE AND REUSE EXISTING INSULATED 3" AND 1 1/2" PW. TIE-IN 1 1/2" PW TO NEW EVAPORATOR.

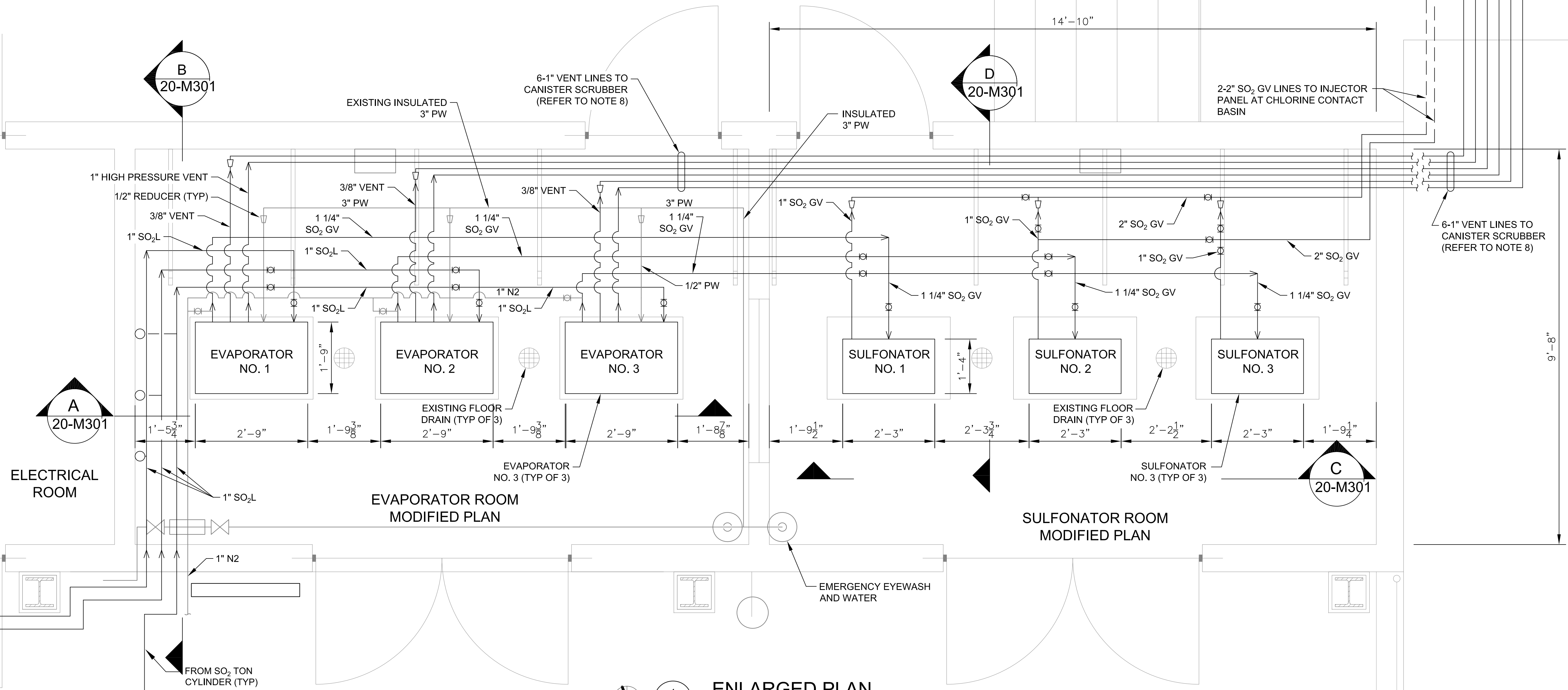
SALVAGE AND REUSE EXISTING 1" NITROGEN PURGE LINE

SALVAGE AND REUSE EXISTING 1 1/2" PW AND TIE-IN TO NEW EVAPORATOR AT THIS LOCATION (TYP OF 3 LOCATIONS)

- NOTES:
- \* SUPPLIED AS PART OF CHLORINE EQUIPMENT MANUFACTURER'S EQUIPMENT PACKAGE.
  - PIPE SUPPORTS SHALL BE PROVIDED WITH SPACING PER SECTION 400507.
  - CONTRACTOR MAY REUSE EXISTING PIPE SUPPORTS WHERE PRACTICAL. DAMAGED OR CORRODED PIPE SUPPORTS SHALL BE REPLACED IN ACCORDANCE WITH SECTION 400507 AND DIV. 40 STANDARD DETAILS.
  - ALL PIPE SUPPORTS, FASTENERS, AND ANCILLARY ITEMS WITHIN CHEMICAL AREAS SHALL BE OF NON-METALLIC CONSTRUCTION.
  - REFER TO PROCESS FLOW DIAGRAM (PFD) FOR LOCATION OF VALVES, ETC.
  - REFER TO SECTION 01 10 00 FOR WORK SEQUENCING.
  - OBSERVE ALL SAFETY RULES AND REGULATIONS. REFER TO SPECIAL CONDITIONS FOR WORK IN THIS AREA.
  - IF DENORA/CAPITAL CONTROL EQUIPMENT IS PROVIDED, A SEPARATE VENT LINE WILL BE PROVIDED AS PART OF EACH VACUUM REGULATING UNIT. THE ADDITIONAL VENT LINE SHALL BE PROVIDED TO THE SCRUBBER HEADER.

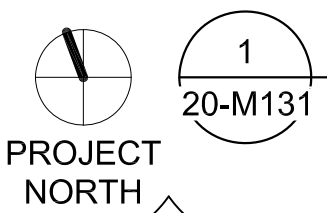
REFER TO YARD PIPING FOR CONTINUATION

SCRUBBER CANISTER (REFER TO 20-M301)



**ENLARGED PLAN**

SCALE: 3/4" = 1'-0"



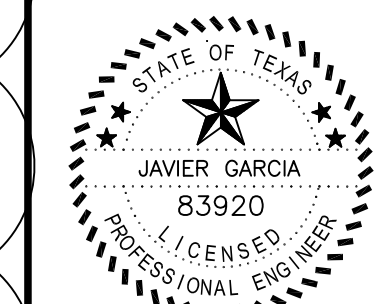
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REGISTRATION NO.  
F-5713



JAVIER GARCIA  
83920  
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY
1	9/19/18	ADDENDUM NO. 3	J.G.



SAN ANTONIO WATER SYSTEM  
SAN ANTONIO, TEXAS  
DOS RIOS WRC  
CHLORINE SYSTEM IMPROVEMENTS

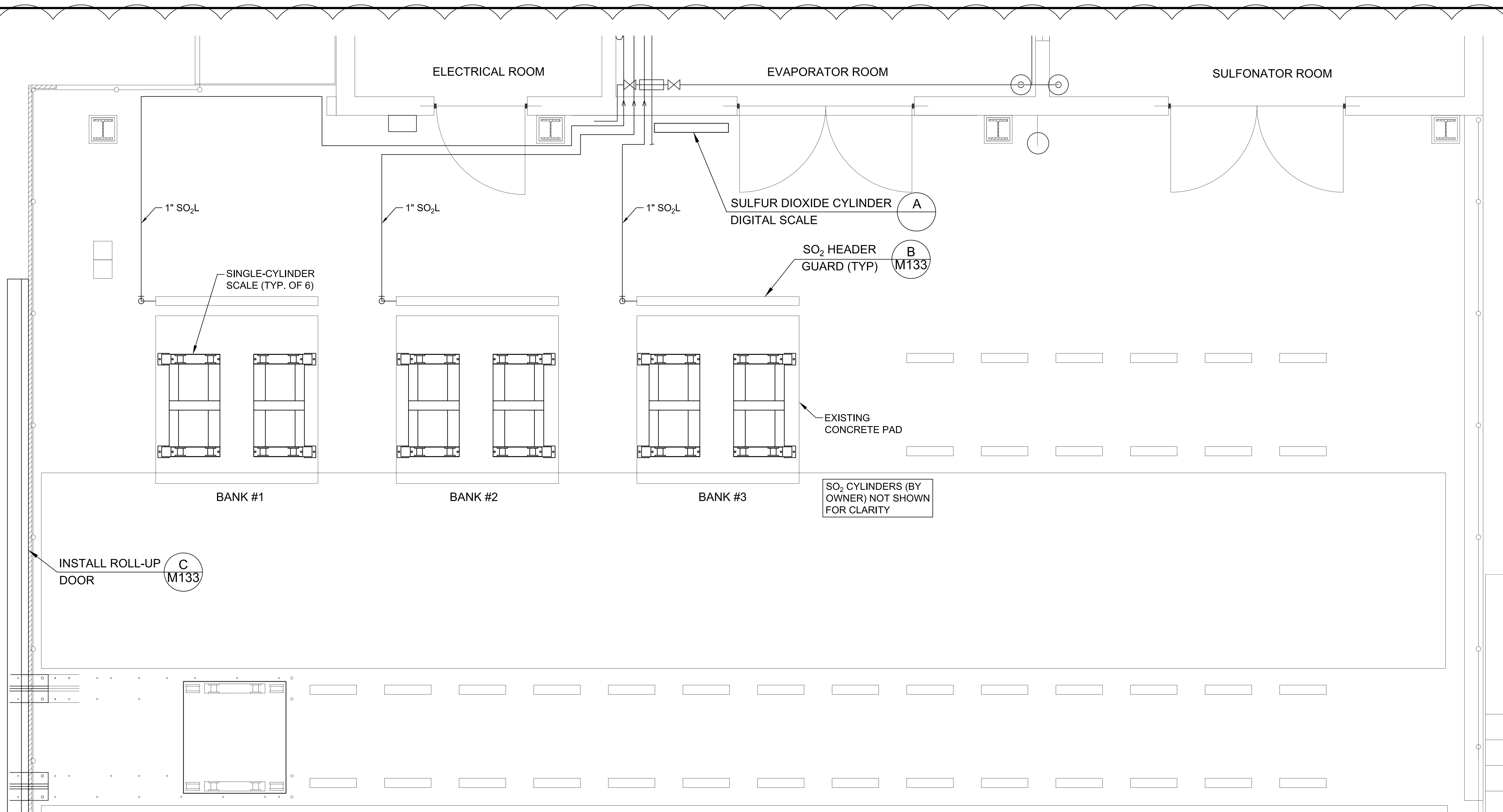
SO<sub>2</sub> FACILITIES  
PLAN 2

JOB NO.: 17238115  
DATE: JUNE 2018  
DESIGNED BY: JG  
DRAWN BY: H3

BAR IS ONE INCH ON ORIGINAL DRAWING  
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DRAWING NUMBER  
**20-M133**

SHEET NUMBER  
**112**



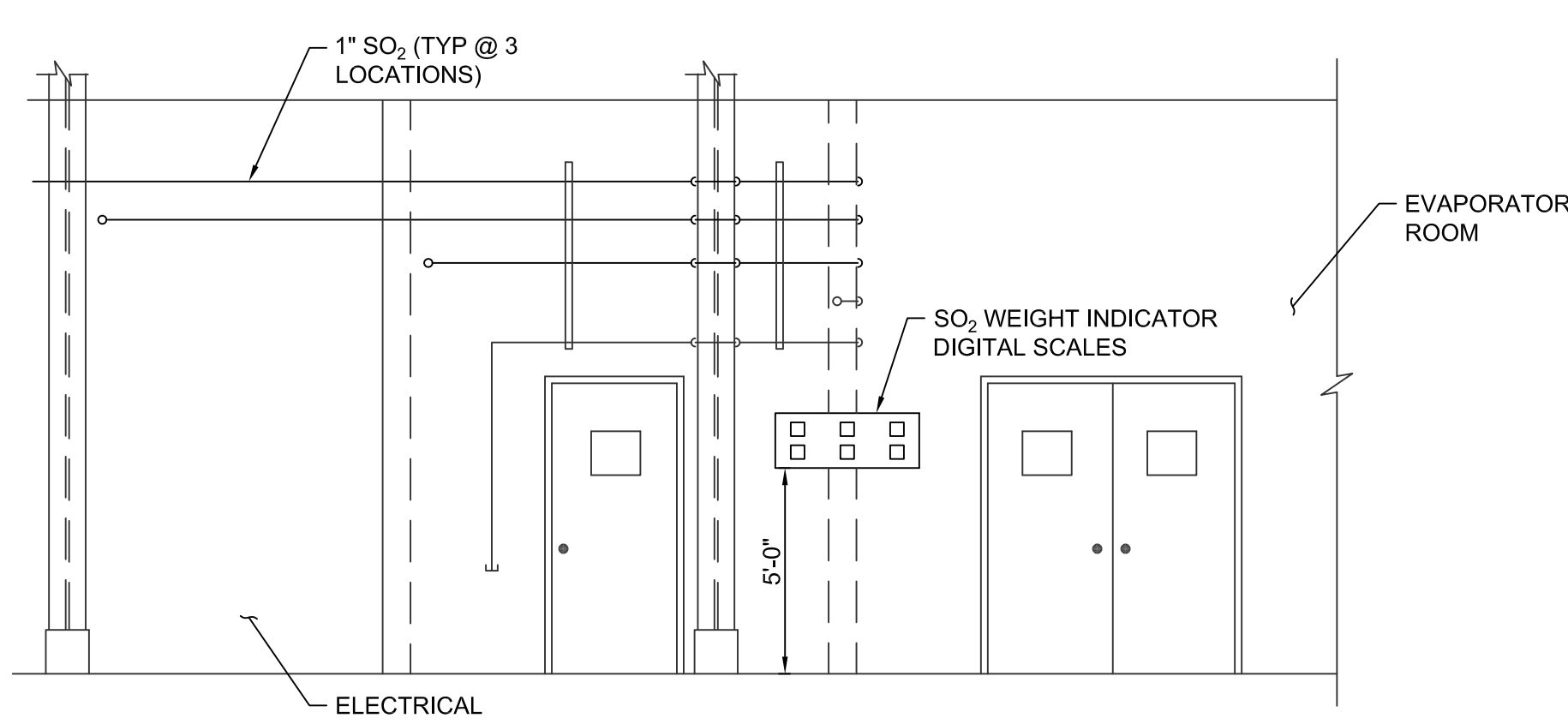
**ENLARGED PLAN**

1  
20-M131

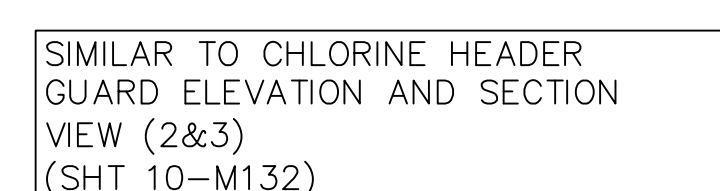
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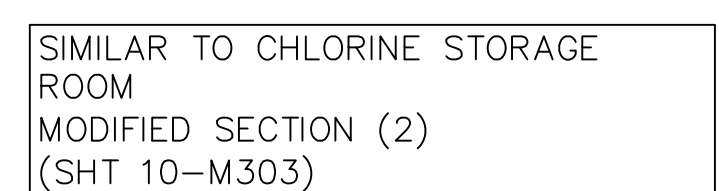
- NOTES:
- \* SUPPLIED AS PART OF CHLORINE EQUIPMENT MANUFACTURER'S EQUIPMENT PACKAGE.
  - PIPE SUPPORTS SHALL BE PROVIDED WITH SPACING PER SECTION 400507.
  - CONTRACTOR MAY REUSE EXISTING PIPE SUPPORTS WHERE PRACTICAL. DAMAGED OR CORRODED PIPE SUPPORTS SHALL BE REPLACED IN ACCORDANCE WITH SECTION 400507 AND DIV. 40 STANDARD DETAILS.
  - ALL PIPE SUPPORTS, FASTENERS, AND ANCILLARY ITEMS WITHIN CHEMICAL AREAS SHALL BE OF NON-METALLIC CONSTRUCTION.



SO<sub>2</sub> CYLINDER DIGITAL SCALES  
SCALE: NTS

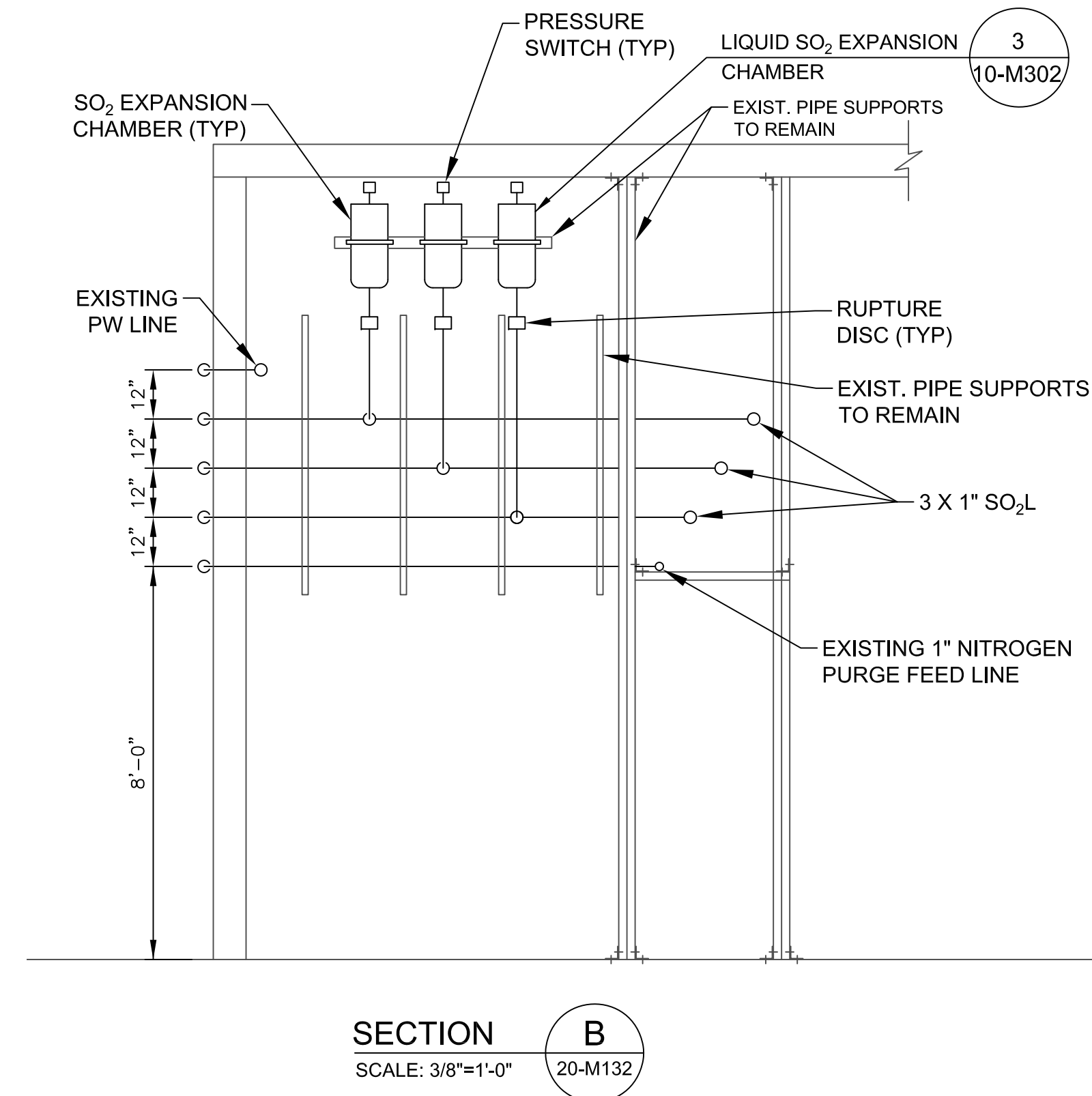
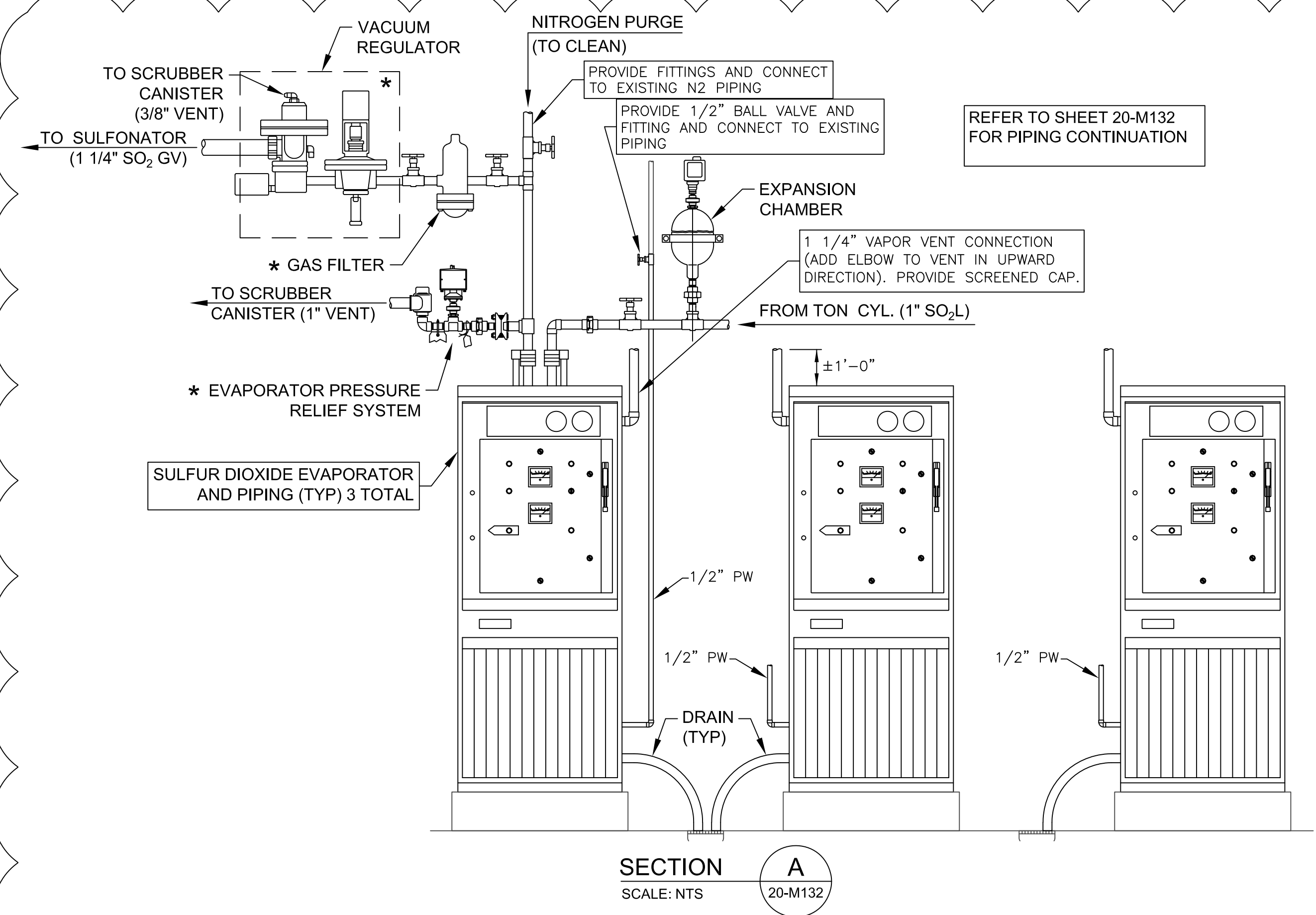


SO<sub>2</sub> HEADER GUARD  
SCALE: NTS



SO<sub>2</sub> ROLL-UP DOOR  
SCALE: NTS

File: L:\CADD\Garver\1009\Drawings\Sheets\20-M133.dwg Last Save: 9/19/2018 7:48 AM Last saved by: GIC-03  
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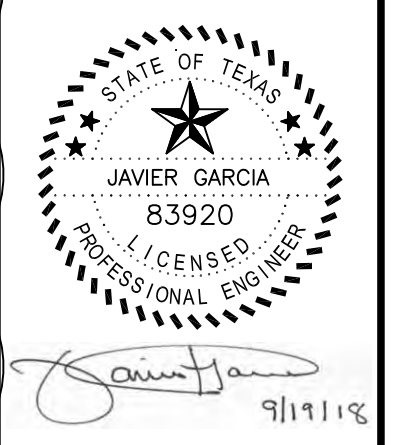


- NOTES:
- \* SUPPLIED AS PART OF CHLORINE EQUIPMENT MANUFACTURER'S EQUIPMENT PACKAGE.
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  - REFER TO SECTION 01 10 00 FOR WORK SEQUENCING.
  - OBSERVE ALL SAFETY RULES AND REGULATIONS. REFER TO SPECIAL CONDITIONS FOR WORK IN THIS AREA.
  - IF DENORA/CAPITAL CONTROL EQUIPMENT IS PROVIDED, A SEPARATE VENT LINE WILL BE PROVIDED AS PART OF EACH VACUUM REGULATING UNIT. THE ADDITIONAL VENT LINE SHALL BE PROVIDED TO THE SCRUBBER HEADER.



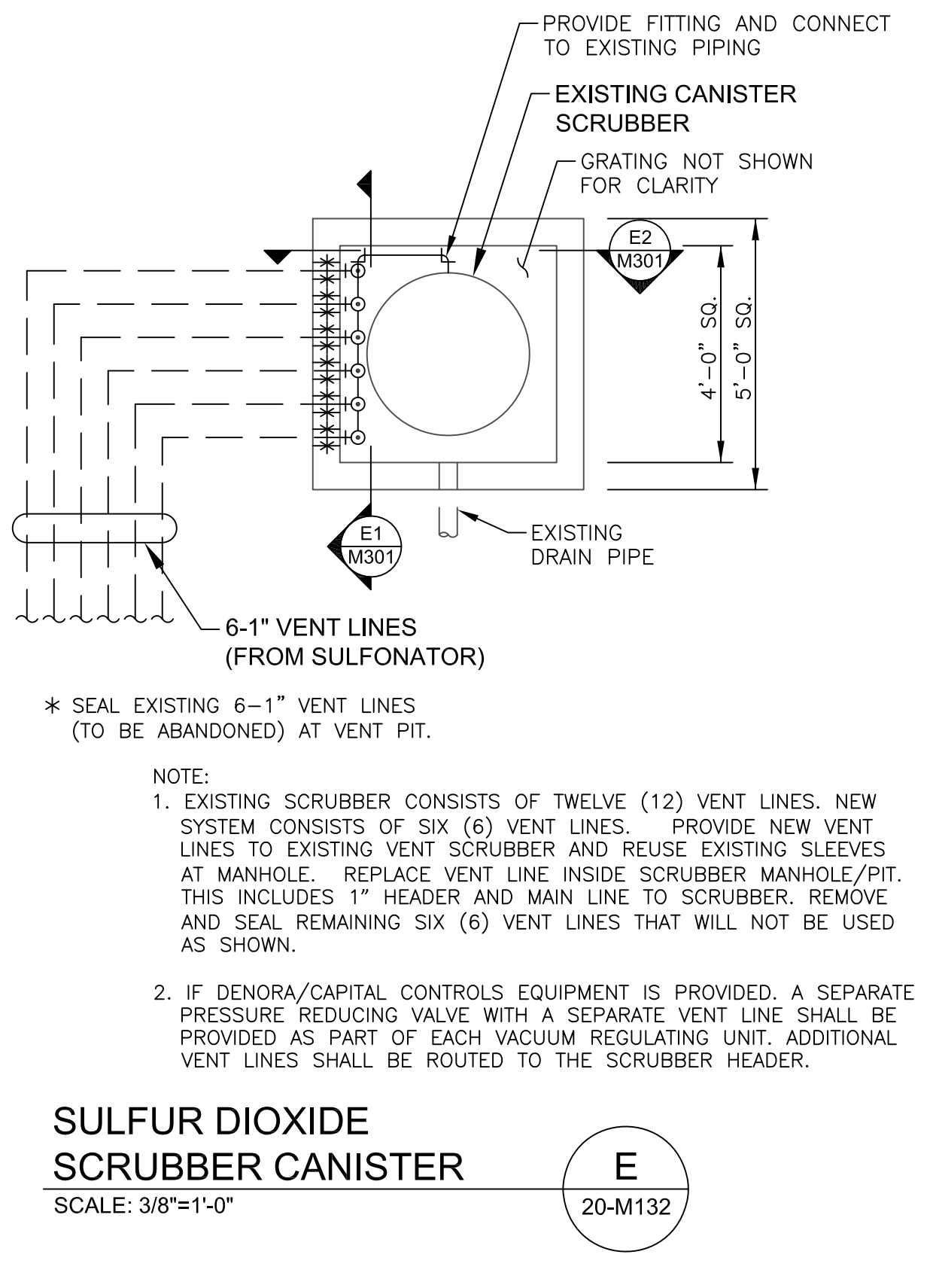
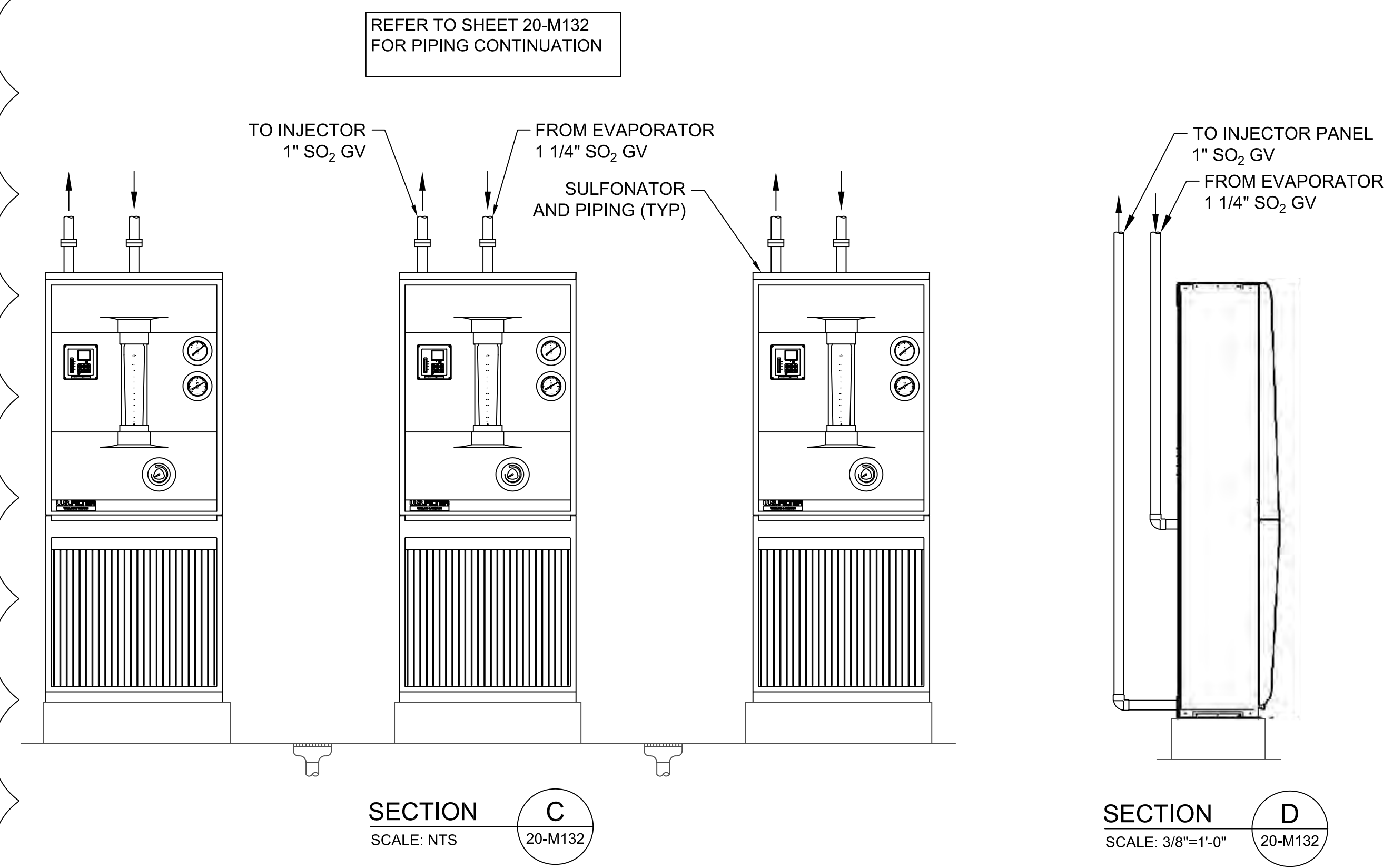
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REGISTRATION NO. F-5713

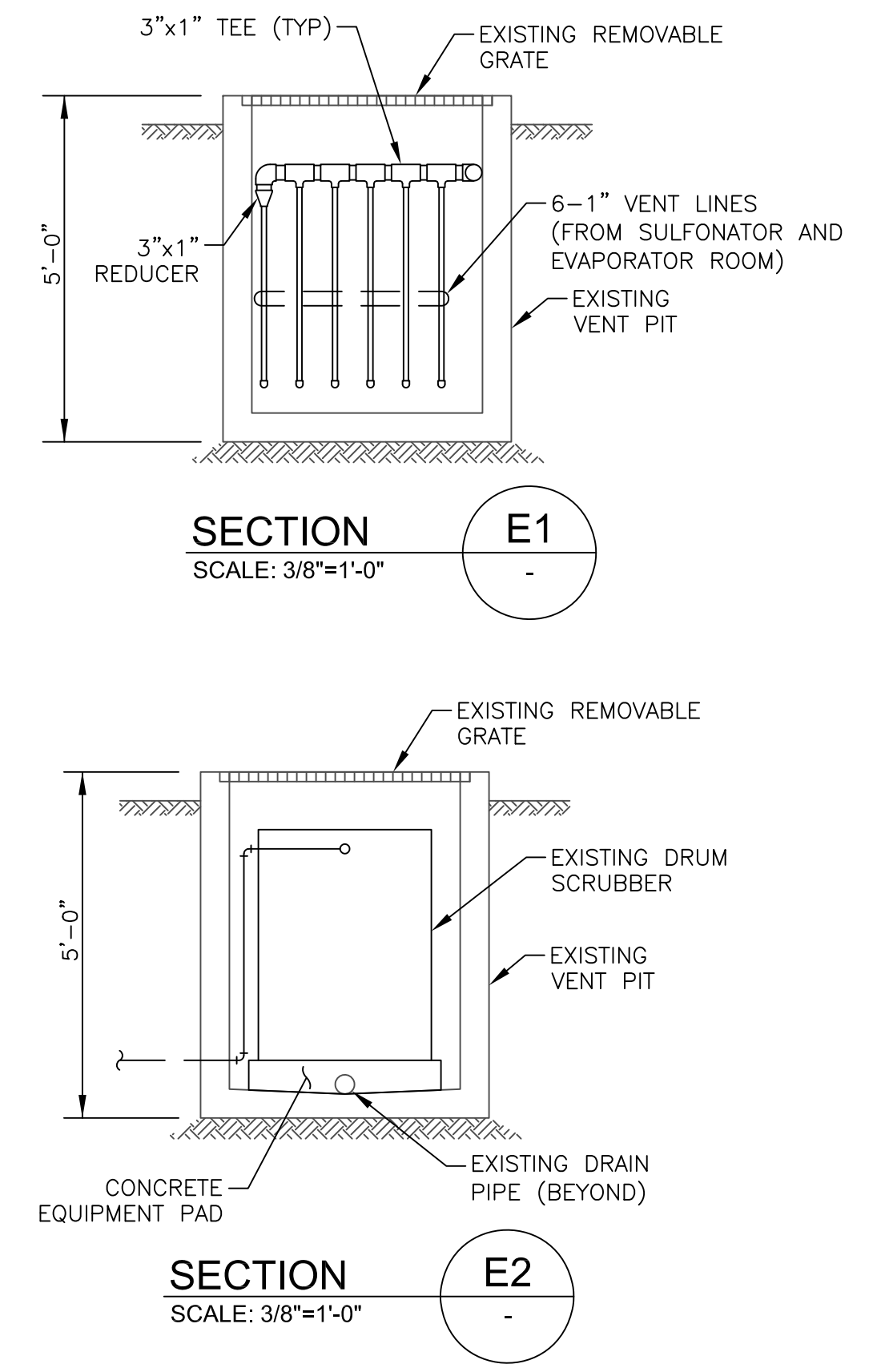


**EVAPORATOR ROOM**

REV.	DATE	DESCRIPTION
1	9/19/18	ADDENDUM NO. 3



- \* SEAL EXISTING 6-1" VENT LINES (TO BE ABANDONED) AT VENT PIT.
- NOTE:
- EXISTING SCRUBBER CONSISTS OF TWELVE (12) VENT LINES. NEW SYSTEM CONSISTS OF SIX (6) VENT LINES. PROVIDE NEW VENT LINES TO EXISTING VENT SCRUBBER AND REUSE EXISTING SLEEVES AT MANHOLE. REPLACE VENT LINE INSIDE SCRUBBER MANHOLE/PIT. THIS INCLUDES 1" HEADER AND MAIN LINE TO SCRUBBER. REMOVE AND SEAL REMAINING SIX (6) VENT LINES THAT WILL NOT BE USED AS SHOWN.
  - IF DENORA/CAPITAL CONTROLS EQUIPMENT IS PROVIDED, A SEPARATE PRESSURE REDUCING VALVE WITH A SEPARATE VENT LINE SHALL BE PROVIDED AS PART OF EACH VACUUM REGULATING UNIT. ADDITIONAL VENT LINES SHALL BE ROUTED TO THE SCRUBBER HEADER.



**SULFONATOR ROOM**



**SAN ANTONIO WATER SYSTEM**  
SAN ANTONIO, TEXAS  
**DOS RIOS WRC**  
**CHLORINE SYSTEM IMPROVEMENTS**

**SO2 FACILITIES SECTIONS**

JOB NO.: 17238115  
DATE: JUNE 2018  
DESIGNED BY: JG  
DRAWN BY: H3

BAR IS ONE INCH ON ORIGINAL DRAWING  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER  
**20-M301**  
SHEET NUMBER  
**113**

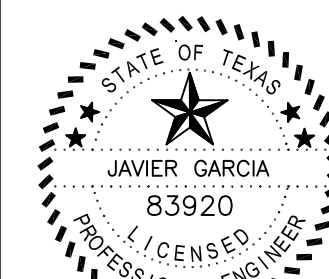


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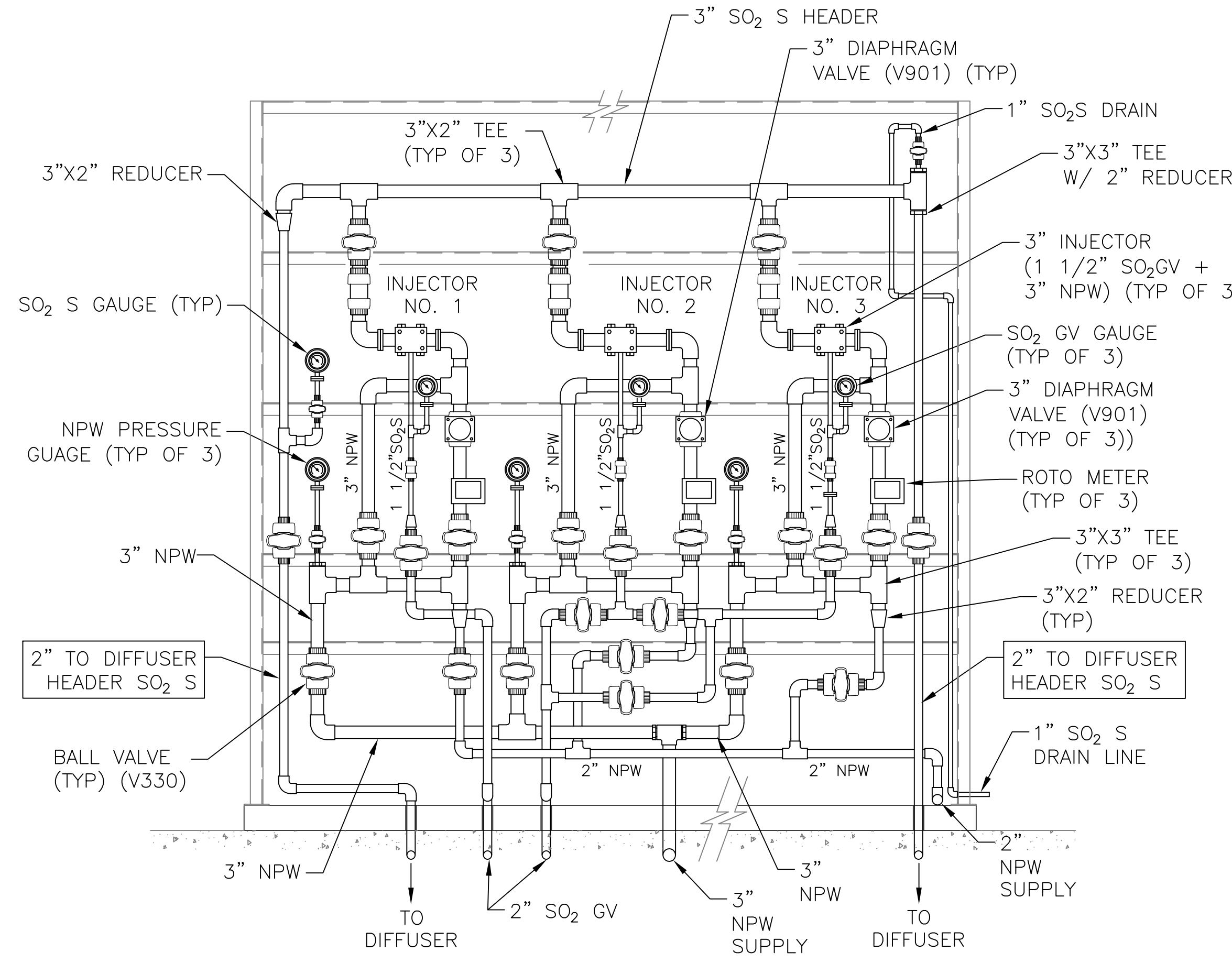
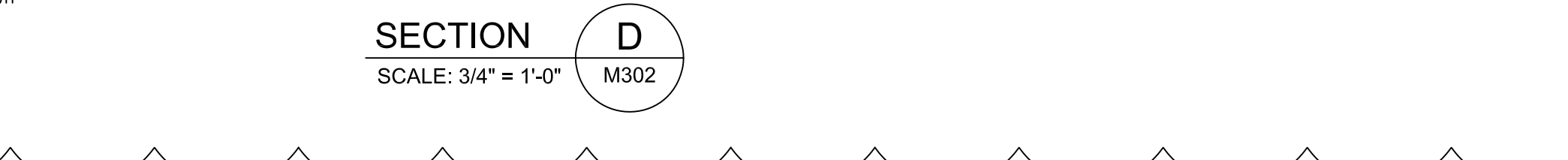
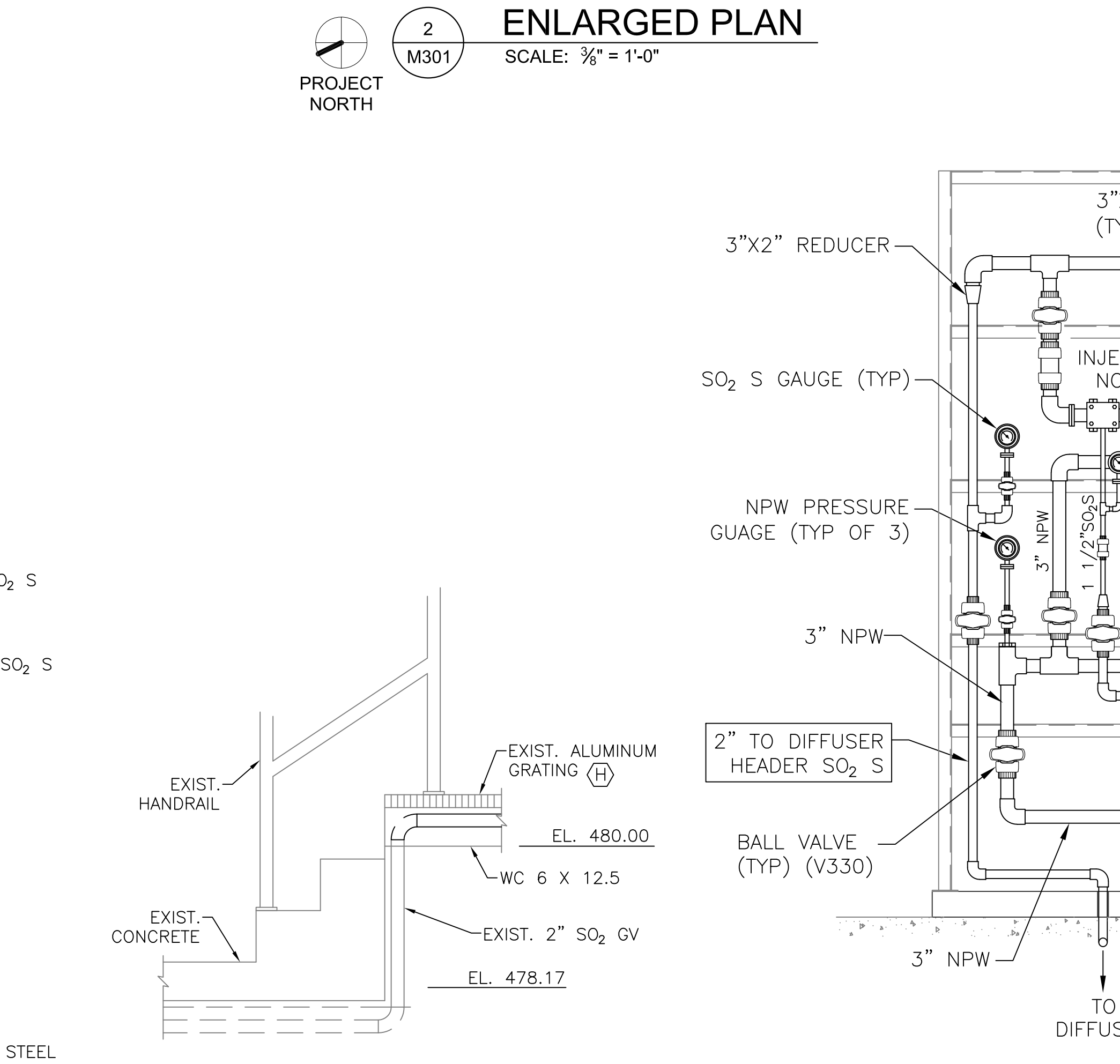
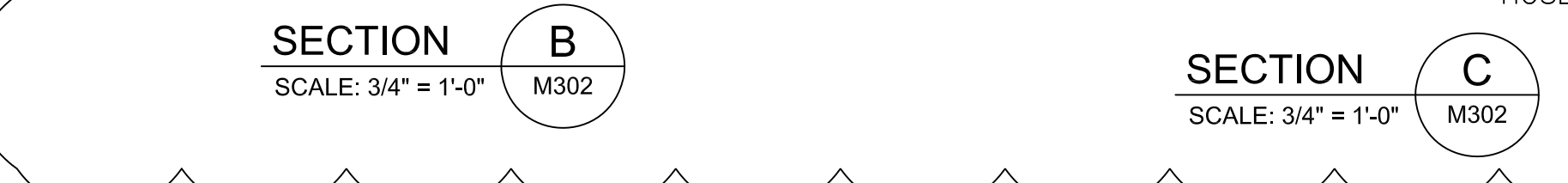
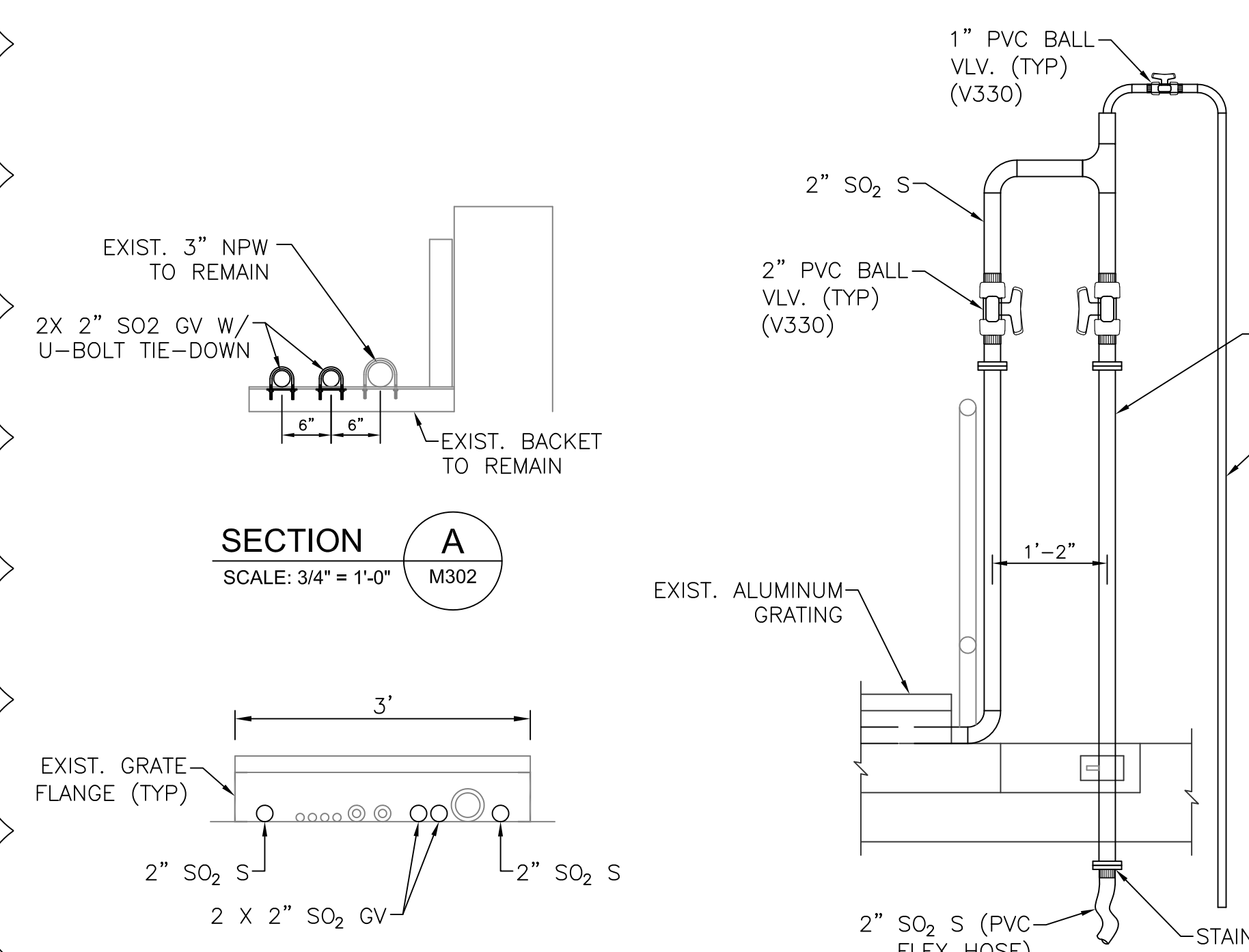
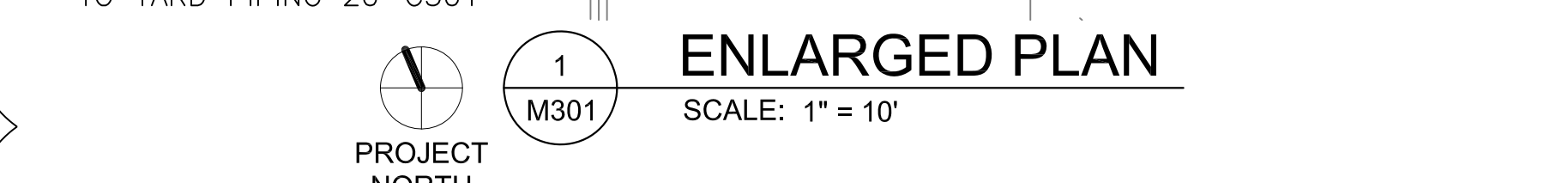
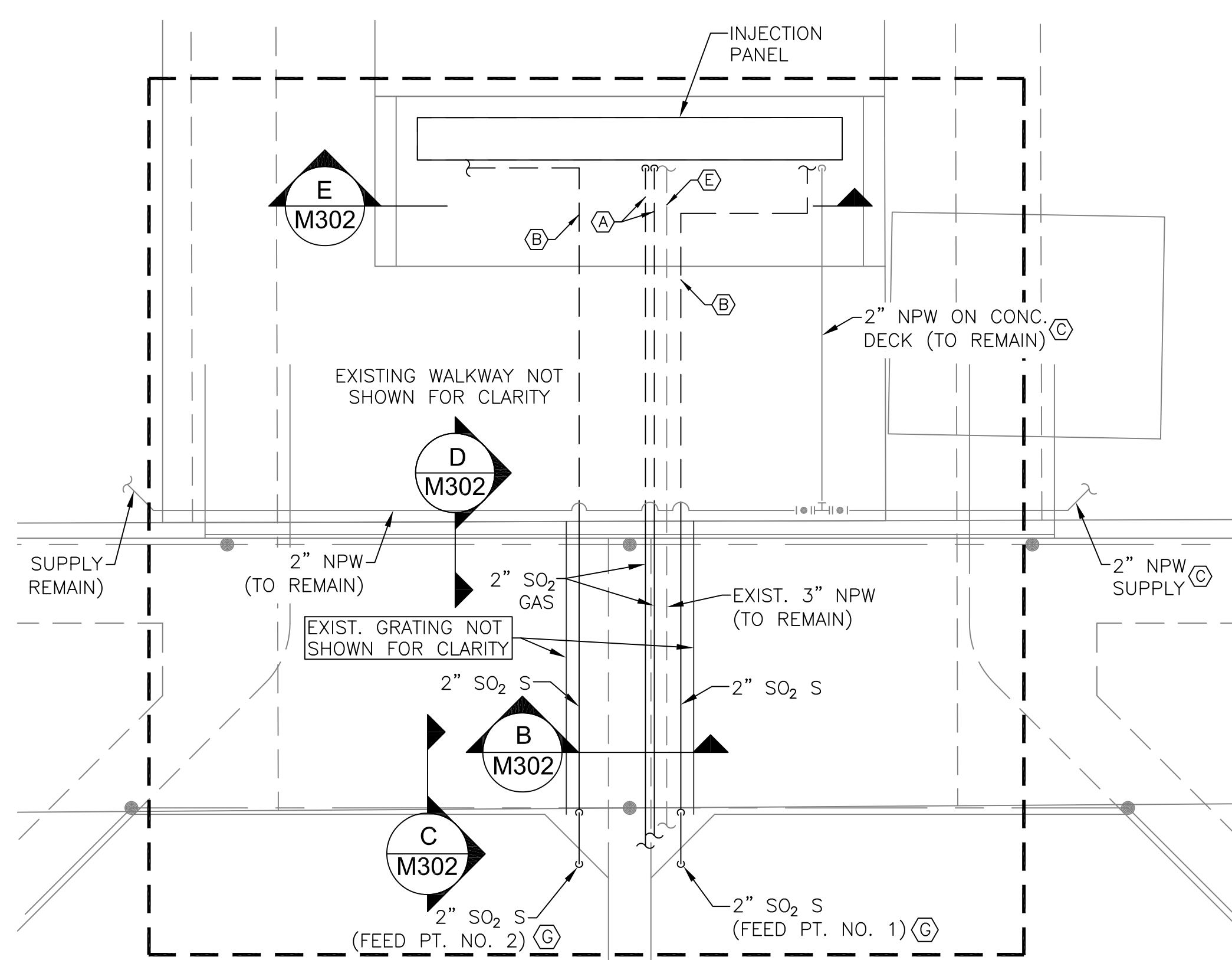
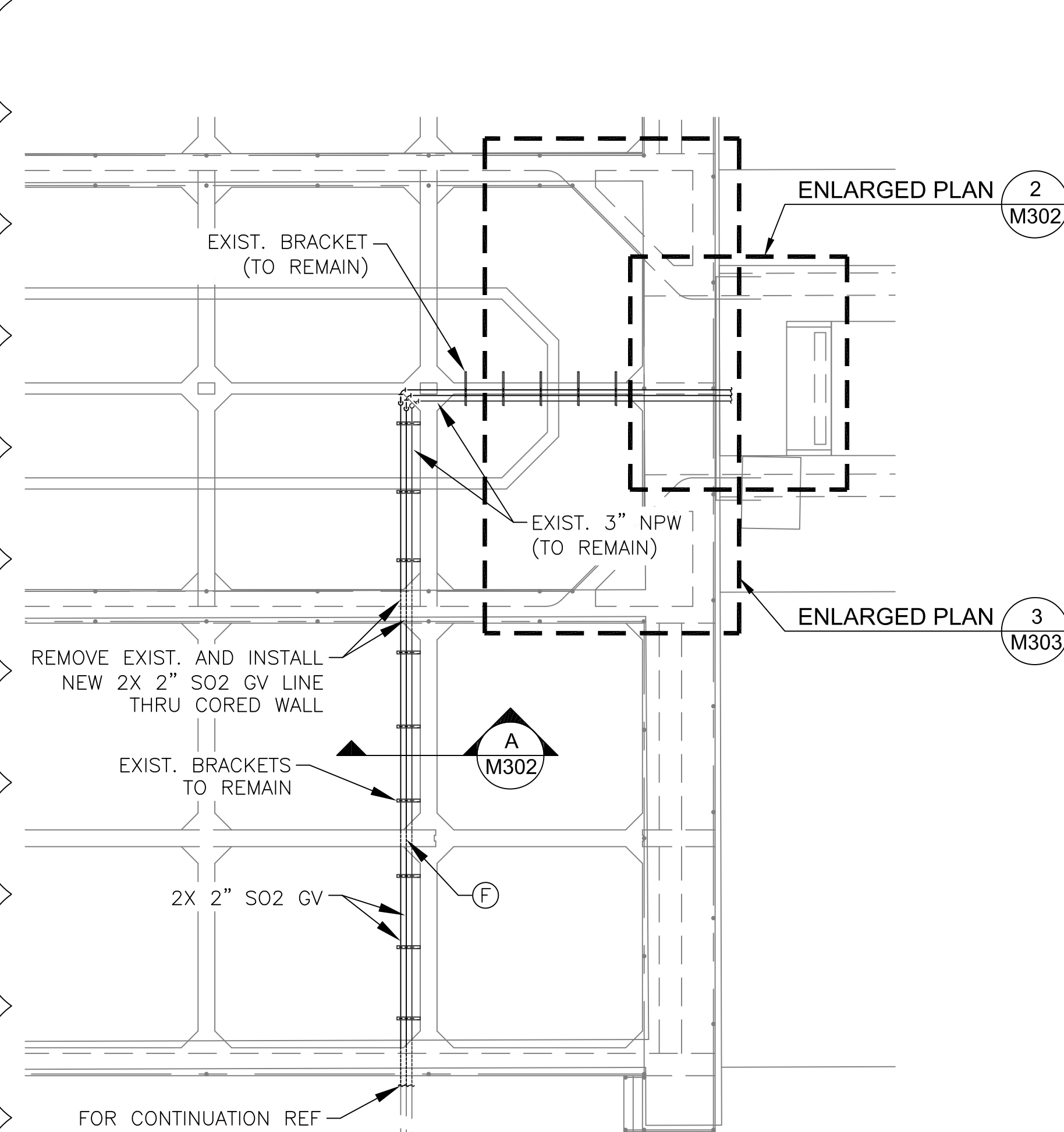
REGISTRATION NO. F-5713



9/19/18

**KEY NOTES**

- (A) EXISTING DUAL 2" SO<sub>2</sub> GV LINES UNDER CONCRETE SLAB TO REMAIN AND REUSED.
  - (B) EXISTING DUAL 2" SO<sub>2</sub> GV SOLN LINES UNDER CONCRETE SLAB TO REMAIN AND RE-USED.
  - (C) EXISTING 2" NPW
  - (D) CUT EXISTING DUAL 2" SO<sub>2</sub> GV LINE AND DUAL 2" SO<sub>2</sub> GAS SOLN AND CONNECT NEW DUAL 2" SO<sub>2</sub> GV AND NEW DUAL 2" SO<sub>2</sub> GAS SOLN.
  - (E) EXISTING 3" NPW
  - (F) REUSE EXISTING WALL SLEEVES WHEN REPLACING NEW PIPE W/NEW PIPE OF SAME SIZE.
  - (G) MAINTAIN AT LEAST ONE DIFFUSER IN SERVICE DURING CONSTRUCTION.
- REMOVE AND RE-SET ALUMINUM GRATING AND HANDRAIL IF NECESSARY TO INSTALL NEW SO<sub>2</sub> AND SO<sub>2</sub> GV LINES.



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REV.	DATE	DESCRIPTION	BY
1	9/19/18	ADDENDUM NO. 3	J.C.

**SAN ANTONIO WATER SYSTEM**  
 SAN ANTONIO, TEXAS  
**DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS**

**SO<sub>2</sub> FACILITIES INJECTION POINT PLAN AND SECTIONS**

JOB NO.: 17238115  
 DATE: JUNE 2018  
 DESIGNED BY: JG  
 DRAWN BY: H3

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 DRAWING NUMBER **20-M302**  
 SHEET NUMBER **114**

