

Dos Rios WRC Chlorine System Improvements

Ila Drzymala, P.E.

Project Engineer

Marisa Palmer, P.E.

Manager – Engineering

Janie M. Powell

Contract Administrator

Angelica Mata

Manager – Contract Administration

Marisol V. Robles

SMWVB Program Manager

Joe Daggs

SAWS Construction Inspections



Mandatory Pre-Bid Meeting

September 5, 2018

MAKING SAN ANTONIO
WATERFUL

A small icon of a glass filled with water, positioned to the right of the word 'WATERFUL'.

Oral Statements (Contracting)

Oral statements or discussion during the pre-bid meeting today will not be binding, nor will it change or affect the terms or conditions within the Plans and Specifications of this Projects. Changes, if any, will be addressed in writing only via an Addendum.

SMWVB Program Aspirational Goal

Industry	SMWVB Goal
Construction Services	20%

Accepted SMWVB Certification Agency

- Minority Business Enterprise (MBE) (Includes AABE; ABE; HABE and NABE)
- Small Business Enterprise (SBE)
- Woman-owned Business Enterprise (WBE)
- Veteran-owned Business Enterprise (Tracked)

Accepted SMWVB Certification Agency

- **South Central Texas Regional Certification Agency**
(Includes the Texas Historically Underutilized Business “HUB” Program)

Minimum Qualifications for SMWVB recognition:

- SBE-Certified (even MBEs and WBEs)
- **Local office or local equipment yard**

Post Award: Subcontractor Payment & Utilization Reporting (S.P.U.R.) System & Subcontractor Changes

<https://saws.smwbe.com>

San Antonio Water System

OUR MAIN SITE CONTACT SUPPORT

Subcontractor Payment & Utilization Reporting System

Log In

System Training
Learn how to fully utilize our system with a live trainer
Training

About the System
Learn more about this system and how it works today
Information for Vendors

Account Access
Lookup Vendor accounts or reset user passwords
Account Lookup
Forgot Password


The Subcontractor Payment & Utilization Reporting System is powered by B2Cimg Software © Copyright 2018.

Subcontractor Change Request

Any changes in subcontractors or suppliers requires prior approval from SAWS:

http://www.saws.org/business_center/contractsol/forms.cfm or

http://www.saws.org/business_center/contractsol/forms/SMWBChangeForm.pdf



Name of Contractor: _____
 Project Name & Number: _____

Submits the following approval request of the following addition(s) and/or deletion(s) on the Affirmed List of Subcontractors, as originally submitted as part of the BID/PROPOSAL/CONTRACT.

CHANGES

ADD	DELETE	NAME OF SUBCONTRACTOR	SBE, MBE, VBE, WBE	DESCRIPTION OF WORK TO BE PERFORMED	PERCENT & DOLLAR AMOUNT OF CONTRACT
<input type="checkbox"/>	<input type="checkbox"/>		▼		
<input type="checkbox"/>	<input type="checkbox"/>		▼		
<input type="checkbox"/>	<input type="checkbox"/>		▼		
<input type="checkbox"/>	<input type="checkbox"/>		▼		
<input type="checkbox"/>	<input type="checkbox"/>		▼		
<input type="checkbox"/>	<input type="checkbox"/>		▼		
<input type="checkbox"/>	<input type="checkbox"/>		▼		

JUSTIFICATION

AFFIRMATION

THE ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF, I FURTHER UNDERSTAND AND AGREE THAT THIS DOCUMENT SHALL BE ATTACHED THERETO AND BECOME A BINDING PART OF THE CONTRACT.

Name & Title of Authorized Requestor: _____ Date: _____
 Signature of Authorized Requestor: _____

SMWVB PROGRAM MANAGER: _____	DATE APPROVED: _____
CONTRACTING DIRECTOR: _____	DATE APPROVED: _____

Office Use Only: _____ S.F.U.R. System _____ CPMS _____ Project Hand File _____

Good Faith Effort Plan (GFEP) FAQs

- **Q: Is the 20% SMWVB goal mandatory?**

A: No, but we ask prime consultants to do their best with good faith outreach efforts. If the goal is not met, proof of outreach efforts is required with the submittal.

- **Q: What if I am having trouble finding SMWVB subconsultants?**

A: Please email the SMWVB Program Manager with the scopes of work you are seeking. You will receive lists of local SMWVB-certified firms to contact.

- **Q: What if my business is SMWVB-certified? Do I need to find SMWVB subs?**

A: If your firm is SMWVB-certified, you will most likely meet the goal. However, the GFEP is a required document, and a good faith outreach effort is still necessary.

- **Q: What if I have questions about the GFEP?**

A: Please contact the SMWVB Program Manager at 210-233-3420, or at Marisol.Robles@saws.org. GFEP questions can be asked at any time before the submittal is due.

Bid Overview

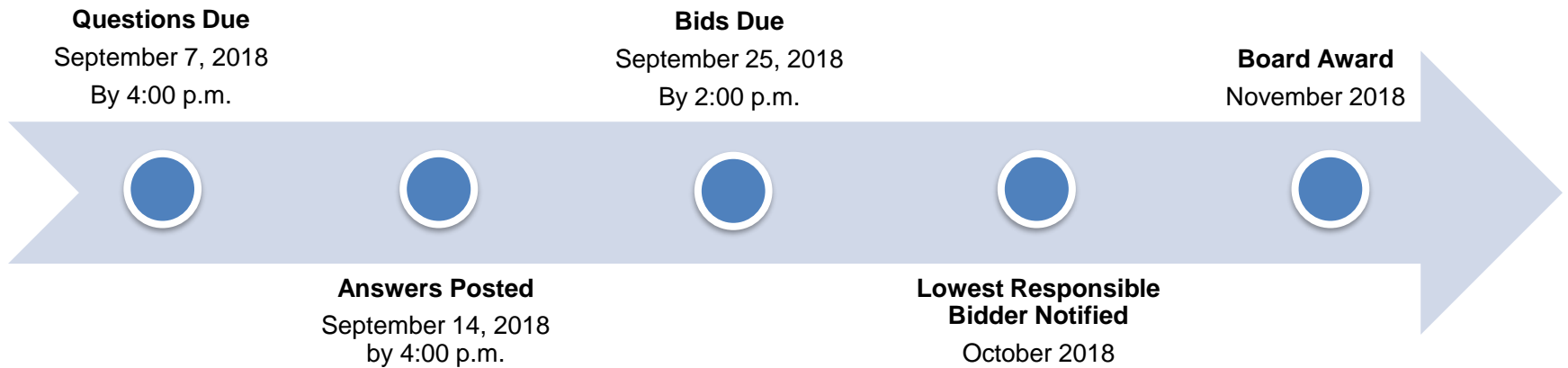
The construction of the Dos Rios WRC Chlorine System Improvements Project, SAWS Job No. 17-6508, which entails the removal and replacement of chlorine and sulfur dioxide systems and associated systems including electrical, instrumentation and controls and yard piping.

- **The construction estimate is \$6,605,000.00**
- **Completion is scheduled for 400 calendar days**

Mandatory Sign-In Sheet

- This is a mandatory pre-bid meeting and site visit. Only those firms that are represented here today by signing in on the sign-in sheet may submit as a prime contractor for this project.
- The sign-in sheet(s) will be posted to the website later today

IFB Schedule



Bid Packet Preparation

- Utilize the Bid Packet Checklist within the specifications
- Double check all mathematical calculations and verify all extensions of Total Bid Price and Total Item Price on the submitted Bid Proposal
- Addendums are now acknowledged on the Bid Proposals (no copies of the Addendum are necessary)
- SAWS is requesting that the Statement of Bidder's Experience be completed and included by all bidders
- References and contact information must be verified prior to submitting bid(s)

Contract Requirements

Prevailing Wage Rate and Labor Standards – Section 2.10 of the General Conditions

- Certified payroll to be submitted on weekly basis
- Wage decisions are included within the specifications
- Contractors to utilize LCP Tracker
- Site visits are random and unannounced
- Interviews will be Conducted and will be private & confidential
- Payroll records are subject to review
- All apprenticeship programs will need to be approved by Department of Labor prior to starting
- Interviews will be Conducted and will be private & confidential
- Contractors are responsible for sub-contractor payroll
- Late payrolls delay contractor payments from SAWWS

Contract Requirements

Insurance– Section 5.7 of the General Conditions

- Modified Installation Floater is required
- Compliant prior to executing the contract
- Selected contractor must be compliant with all other contracts in order for SAWS to award the contract
- Will ask for insurance prior to Board award to expedite execution of the contract
 - Any deficiencies must be corrected prior to Board award

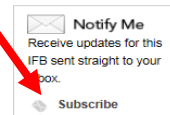
Supplemental & Special Conditions

- Bidder's Experience form
- Pre-Construction and Post-Construction Videos
 - Contractor responsible
- Liquidated Damages (\$925.00 per day)
- Review Special Conditions for unique Contractor responsibilities specific for this project (2 pages)

Additional Reminders

- Please register through SAWS Vendor Registration Program on the SAWS website at www.saws.org to ensure access to the latest information.
- To receive updates on specific projects, registered vendors must 'Subscribe' to the project by selecting the project, and clicking 'Subscribe' under the Notify Me box.

Sealed bids are requested by the San Antonio Water System (SAWS) for the supply of all labor, materials, equipment and



Contact Information

<u>Contact Name</u>	<u>Title</u>	<u>Telephone Number</u>	<u>Email address</u>
Janie Powell	Contract Administrator	210-233-2443	Janie.Powell@saws.org
Marisol Robles	SMWVB Program Manager	210-233-3420	Marisol.Robles@saws.org

Contractors should not contact the SAWS project engineer, the consultants for this project or any other SAWS staff except those stated above up until Board award.



Dos Rios WRC Chlorine System Improvements Project Pre-Bid Meeting

In association with:
GIC
Gupta & Associates



September 5, 2018

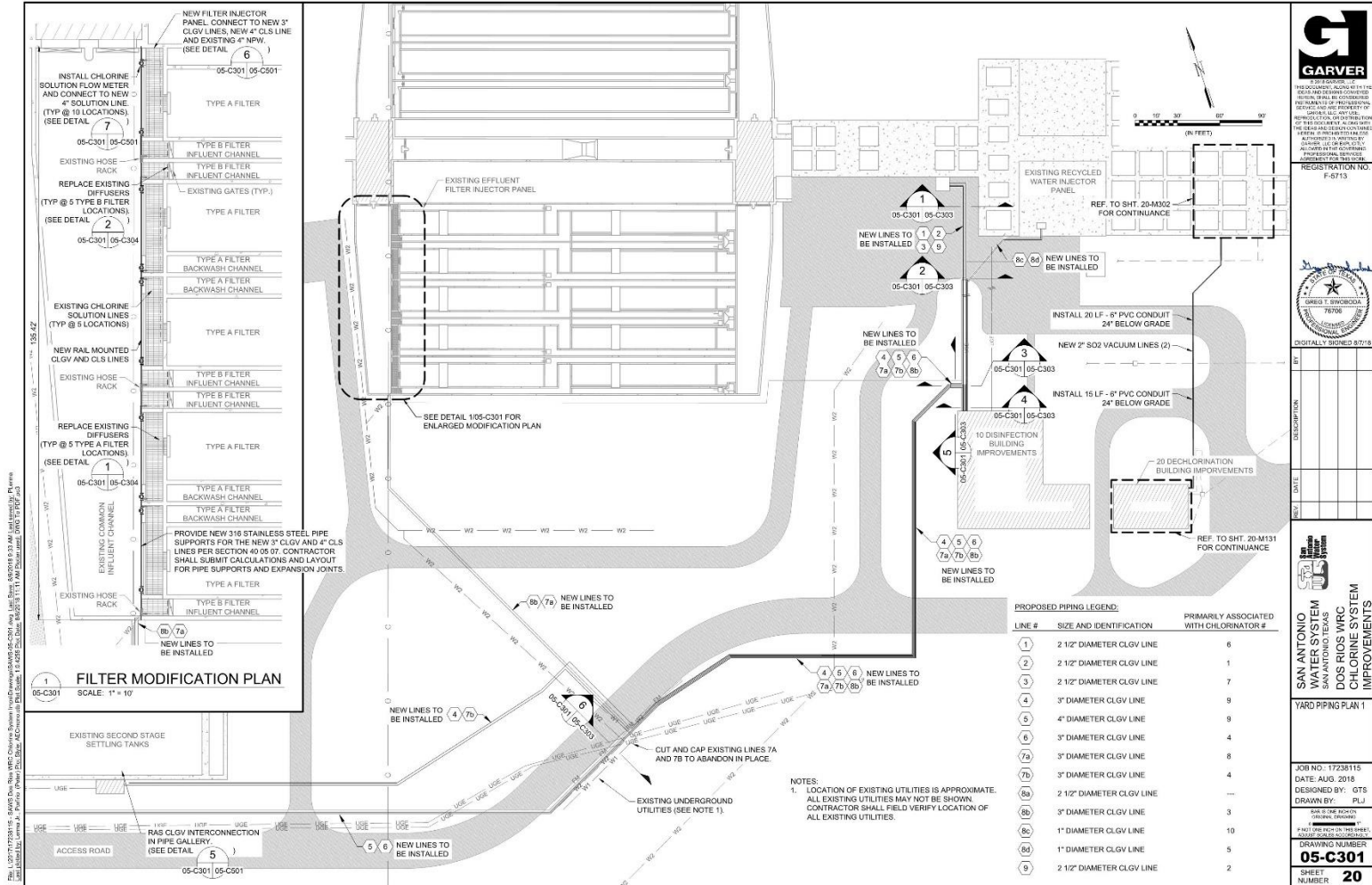
The Project Scope includes:

- Removal and replacement of chlorine equipment and piping
- Removal and replacement of sulfur dioxide equipment and piping
- Removal and replacement of roll-up doors in chlorine and sulfur dioxide storage areas
- Addition of unit heaters in the chlorine and sulfur dioxide storage areas
- Removal of chlorine and sulfur dioxide yard piping
- New chlorine and sulfur dioxide yard piping

The Project Scope includes (cont):

- Removal and replacement of chlorine injectors
- Removal and replacement of diffusers at filters
- Removal and replacement of sulfur dioxide injectors
- Removal and replacement of sulfur dioxide diffusers
- Removal and replacement of chlorine and sulfur dioxide gas alarm equipment
- Install new RIO-CL2 Enclosure
- Install new RIO-SO2 Enclosure
- Install new Controller 7/57 Extension Enclosure
- Emerson scope included in project

Yard Piping



REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
EXPIRES 09/01/2018
REGISTERED PROFESSIONAL SURVEYOR
STATE OF TEXAS
EXPIRES 09/01/2018
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF TEXAS
EXPIRES 09/01/2018
REGISTERED PROFESSIONAL CIVIL ENGINEER
STATE OF TEXAS
EXPIRES 09/01/2018

REGISTRATION NO.
F-6713



DIGITALLY SIGNED: 8/7/16

BY	DATE	DESCRIPTION



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

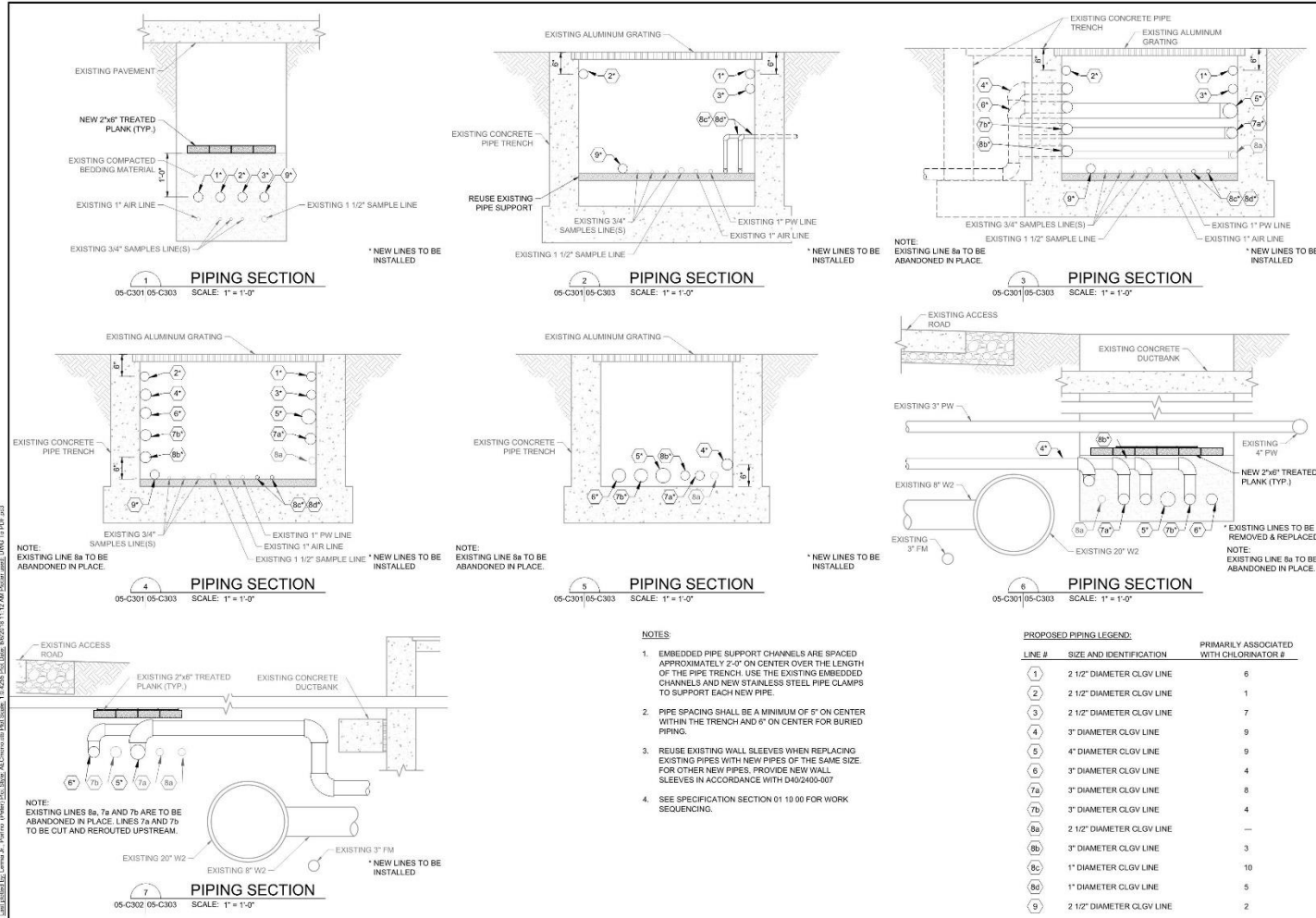
YARD PIPING PLAN 1

JOB NO.: 17238115
DATE: AUG 2016
DESIGNED BY: GTS
DRAWN BY: PLJ

SAN ANTONIO WATER SYSTEM
2100 WEST LOOP WEST, SUITE 100
SAN ANTONIO, TEXAS 78238
DRAWING NUMBER
05-C301
SHEET NUMBER **20**



Yard Piping



FILE: L:\2017\2016\15 - SANANTONIO WRC Chlorine System Improvements\DWG\05-C303.dwg, Job Name: 15-005 WRC Chlorine System Improvements, Project Name: 15-005 WRC Chlorine System Improvements, Drawing Title: 05-C303 Yard Piping, Scale: 1" = 1'-0", Date: 11/14/16, Drawn By: GTS, Checked By: PLJ, Appr'd By: GTS, Title Block: 15-005 WRC Chlorine System Improvements, DWG No: 05-C303, PLOT DATE: 11/14/16, PLOT BY: GTS



GARVER

REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
REGISTRATION NO. F-6713



Loretta S. Swoboda
76706

DIGITALLY SIGNED 3/8/2016

REV	DATE	DESCRIPTION



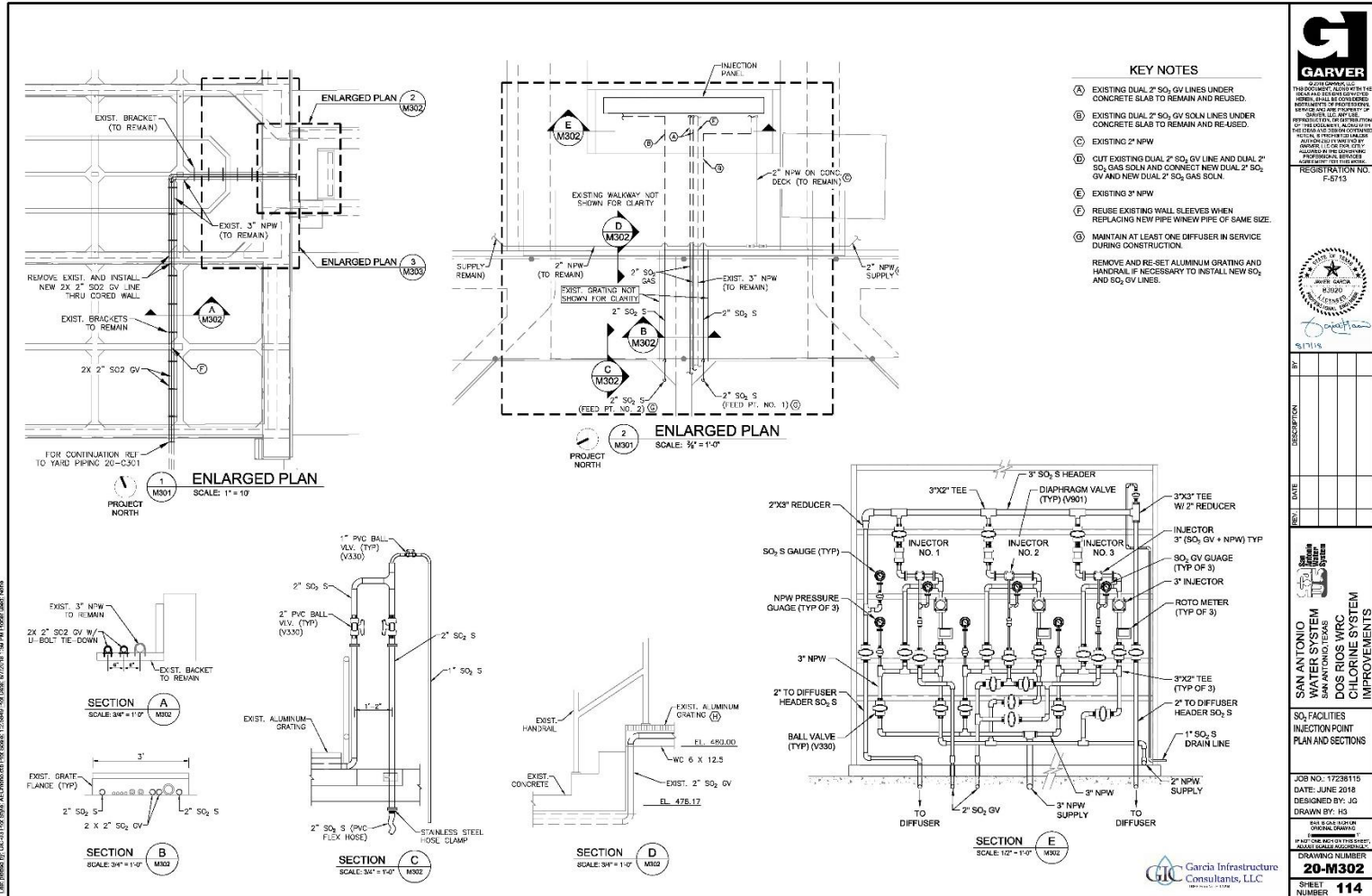
SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TEXAS
DOS RIOS WRC
CHLORINE SYSTEM IMPROVEMENTS

MODIFIED YARD PIPING SECTIONS 1

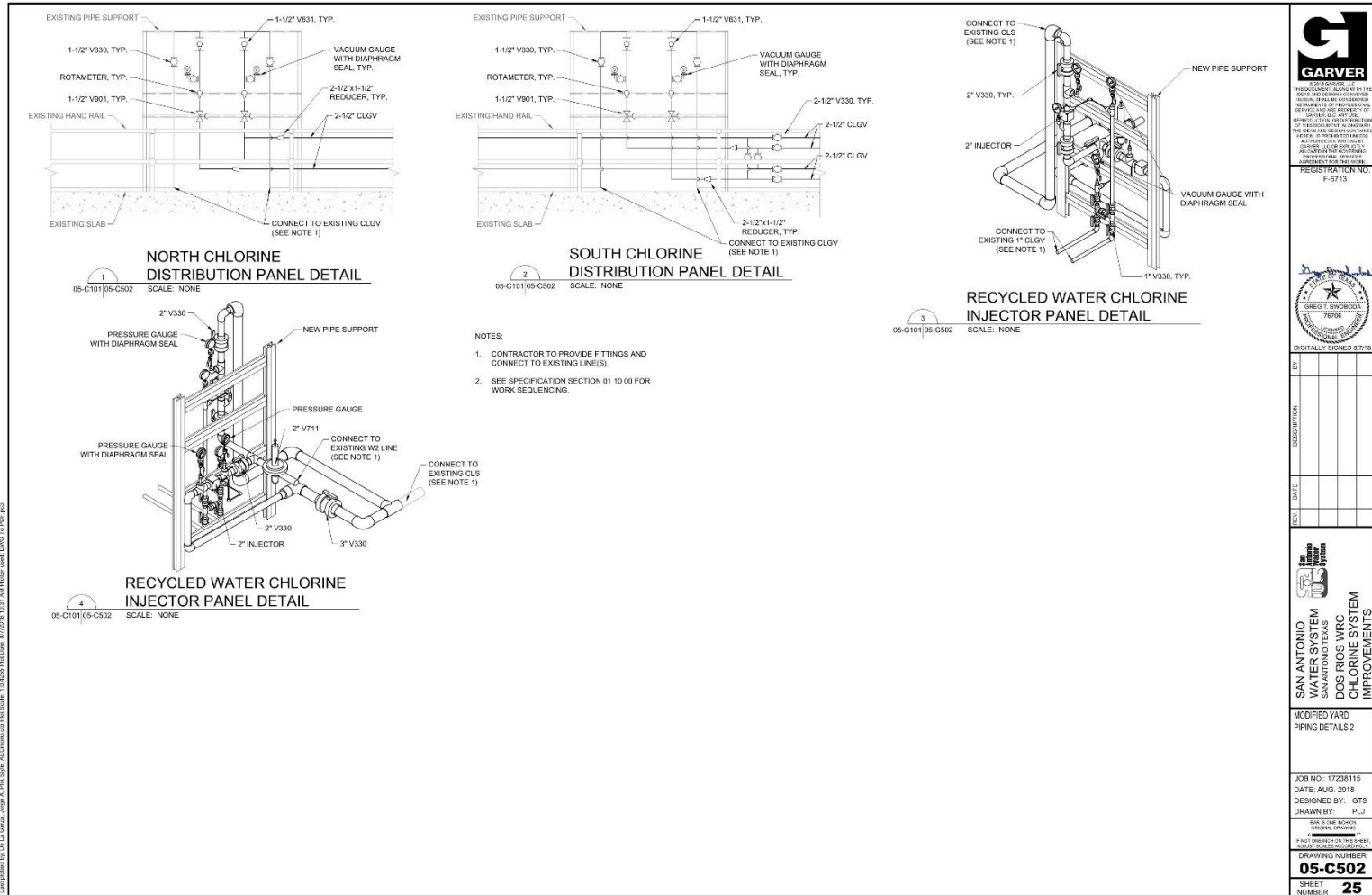
JOB NO: 17238115
DATE: AUG 2016
DESIGNED BY: GTS
DRAWN BY: PLJ

SHEET NUMBER **22**


Yard Piping SO2 System/Injector Panel



Chlorine Injectors and Piping




FILE: L:\2017\17238115 - SAN ANTONIO WRC Chlorine System Improvements\DWG\05-C502.dwg, Job Name: 17238115 SAN ANTONIO WRC Chlorine System Improvements, Date Plotted: 8/21/2016 10:45:00 AM, Plot Device: HP DesignJet 500, Plot Style: HP-DesignJet500.ctb, User: gts, Sheet: 25 of 25, Title: SAN ANTONIO WRC Chlorine System Improvements - Chlorine Injectors and Piping



GARVER


REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
EXPIRES 09/01/2018
REGISTRATION NO. F-6713



REGISTRATION NO. F-6713

DIGITALLY SIGNED 8/21/16

REV	DATE	DESCRIPTION



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

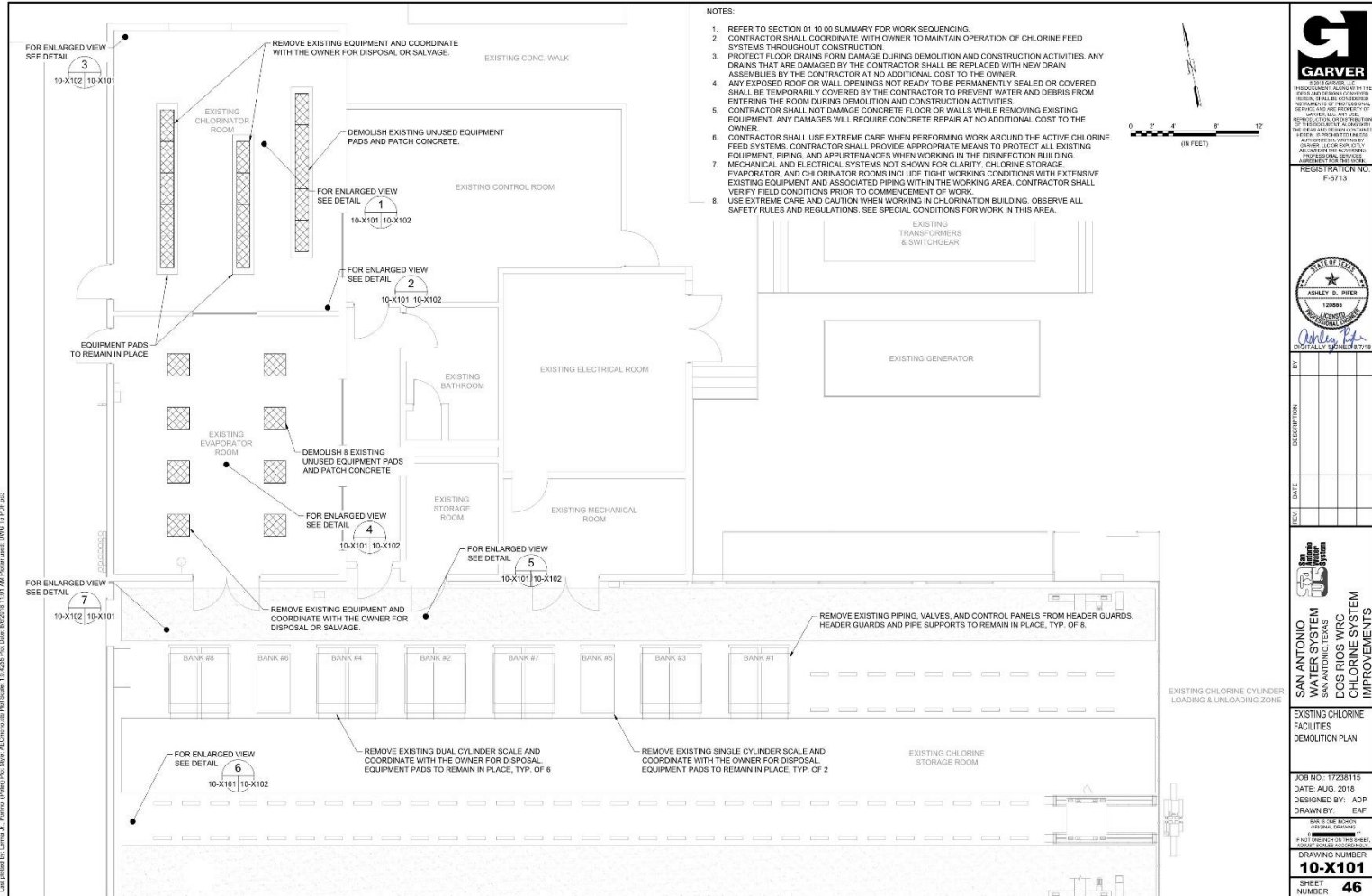
MODIFIED YARD PIPING DETAILS 2

JOB NO: 17238115
DATE: AUG 2016
DESIGNED BY: GTS
DRAWN BY: PLJ

SHEET NUMBER **25**



Chlorine System Demolition



NOTES:

1. REFER TO SECTION 01 10 00 SUMMARY FOR WORK SEQUENCING.
2. CONTRACTOR SHALL COORDINATE WITH OWNER TO MAINTAIN OPERATION OF CHLORINE FEED SYSTEMS THROUGHOUT CONSTRUCTION.
3. PROTECT FLOOR DRAINS FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. ANY DRAINS THAT ARE DAMAGED BY THE CONTRACTOR SHALL BE REPLACED WITH NEW DRAIN ASSEMBLIES BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
4. ANY EXPOSED ROOF OR WALL OPENINGS NOT READY TO BE PERMANENTLY SEALED OR COVERED SHALL BE TEMPORARILY COVERED BY THE CONTRACTOR TO PREVENT WATER AND DEBRIS FROM ENTERING THE ROOM DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
5. CONTRACTOR SHALL NOT DAMAGE CONCRETE FLOOR OR WALLS WHILE REMOVING EXISTING EQUIPMENT. ANY DAMAGES WILL REQUIRE CONCRETE REPAIR AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR SHALL USE EXTREME CARE WHEN PERFORMING WORK AROUND THE ACTIVE CHLORINE FEED SYSTEMS. CONTRACTOR SHALL PROVIDE APPROPRIATE MEANS TO PROTECT ALL EXISTING EQUIPMENT, PIPING, AND APPURTENANCES WHEN WORKING IN THE DISINFECTANT BUILDING. MECHANICAL AND ELECTRICAL SYSTEMS NOT SHOWN FOR CLARITY. CHLORINE STORAGE EVAPORATOR, AND CHLORINATOR ROOMS INCLUDE TIGHT WORKING CONDITIONS WITH EXTENSIVE EXISTING EQUIPMENT AND ASSOCIATED PIPING WITHIN THE WORKING AREA. CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
7. MECHANICAL AND ELECTRICAL SYSTEMS NOT SHOWN FOR CLARITY. CHLORINE STORAGE EVAPORATOR, AND CHLORINATOR ROOMS INCLUDE TIGHT WORKING CONDITIONS WITH EXTENSIVE EXISTING EQUIPMENT AND ASSOCIATED PIPING WITHIN THE WORKING AREA. CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
8. USE EXTREME CARE AND CAUTION WHEN WORKING IN CHLORINATION BUILDING. OBSERVE ALL SAFETY RULES AND REGULATIONS. SEE SPECIAL CONDITIONS FOR WORK IN THIS AREA.

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REGISTERED PROFESSIONAL ENGINEER
 STATE OF TEXAS
 ASHLEY D. PETER
 LICENSE NO. 120886
 EXPIRES 08/31/2018

REGISTRATION NO.
 F-6713



REV	DATE	DESCRIPTION

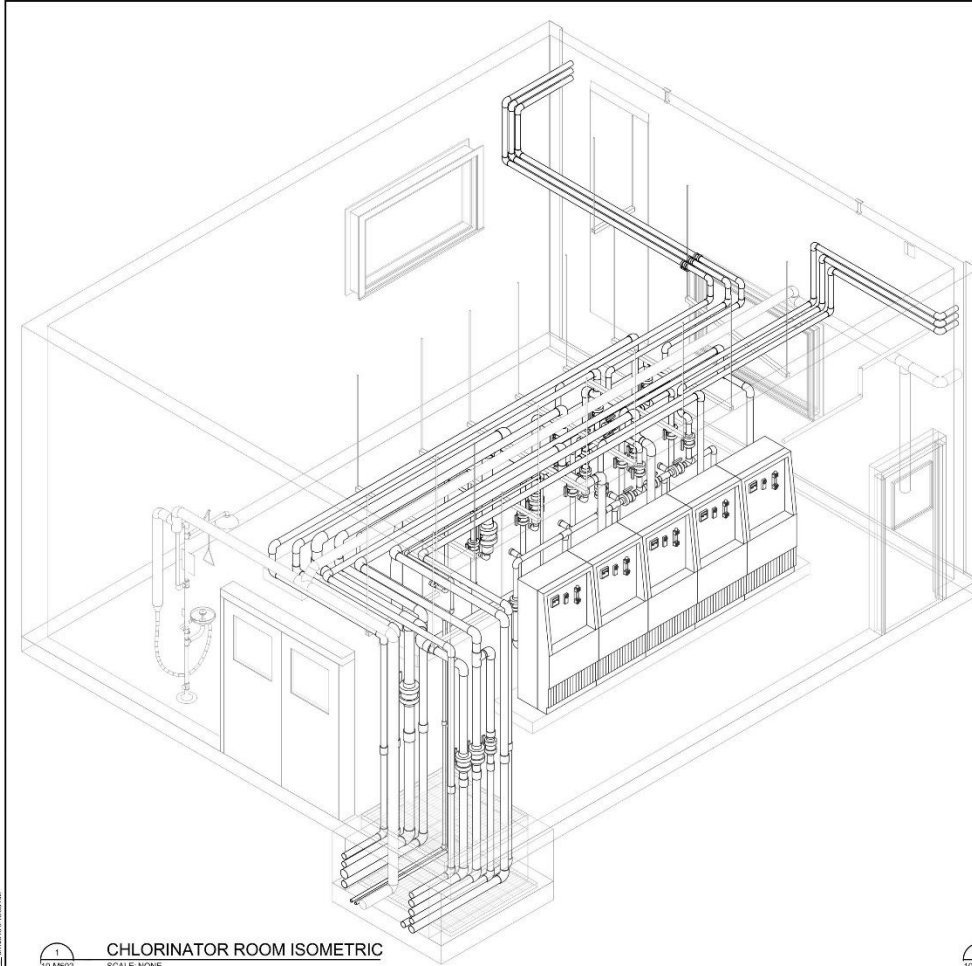
SAN ANTONIO WATER SYSTEM
 SAN ANTONIO TEXAS
 DOS RIOS WRC
 CHLORINE SYSTEM IMPROVEMENTS

EXISTING CHLORINE FACILITIES
 DEMOLITION PLAN

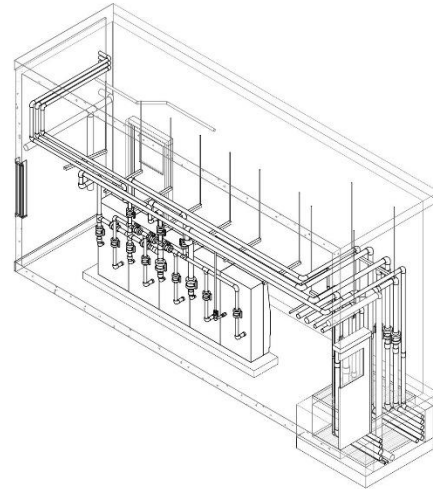
JOB NO.: 17238115
 DATE: AUG 2016
 DESIGNED BY: ADP
 DRAWN BY: EAF
 SHEET NUMBER: 46



Chlorine System Isometric



1 CHLORINATOR ROOM ISOMETRIC
SCALE: NONE



2 CHLORINATOR ROOM - WEST SIDE ISOMETRIC
SCALE: NONE

Date: 2/16/2017 10:54:15 AM
 Path: C:\Users\jag\Documents\10-M502 Chlorine System Improvements\10-M502 Chlorinator Room Improvements.dwg
 Plot: 10-M502 Chlorinator Room Improvements.dwg
 Plot Date: 2/16/2017 10:54:15 AM



THE REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT SHALL BE RESPONSIBLE FOR THE ACCURACY OF THIS DRAWING. NO LIABILITY SHALL BE ASSUMED BY GARVER FOR ANY DAMAGE, LOSS OR INJURY CAUSED BY THE USE OF THIS DRAWING. ANY REVISIONS TO THIS DRAWING SHALL BE MADE BY THE REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT.

REGISTRATION NO. F-5713



DIGITALLY SIGNED 8/7/2018

REV.	DATE	DESCRIPTION



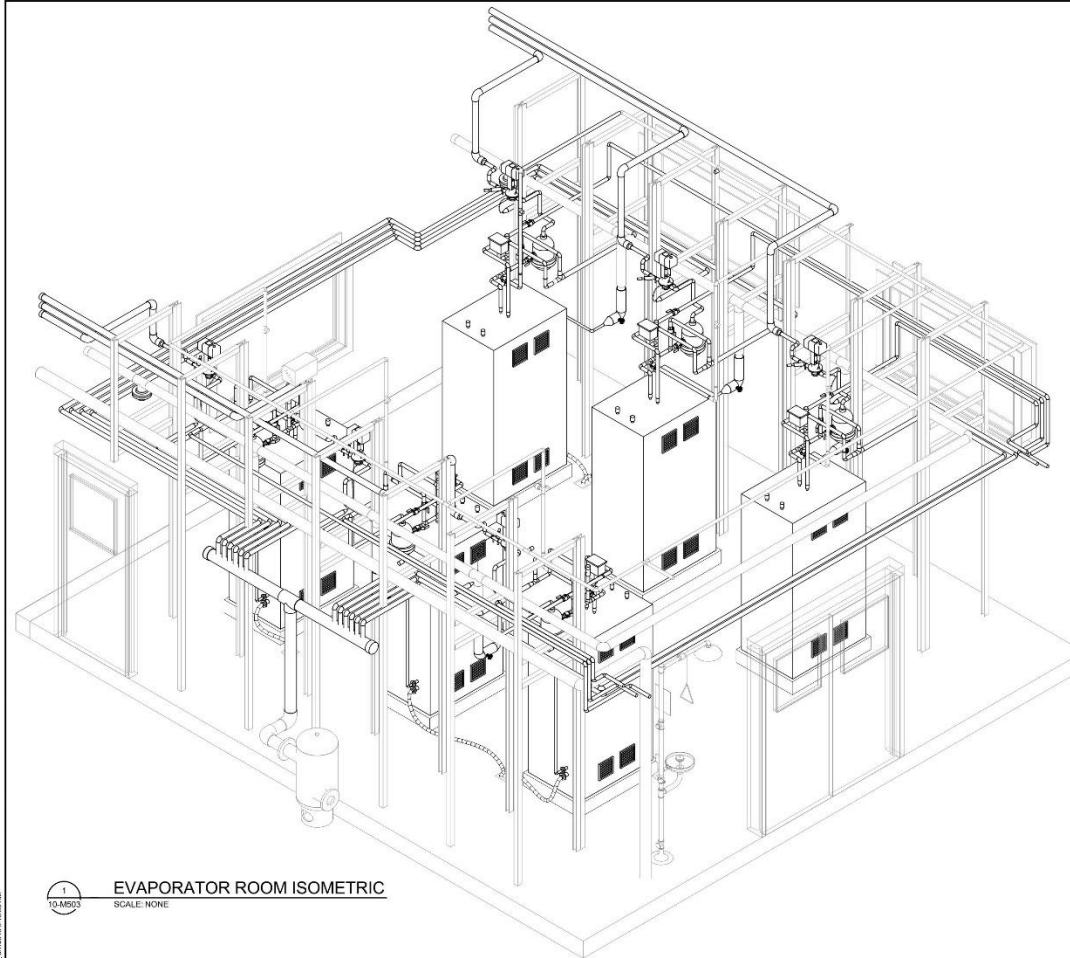
SAN ANTONIO WATER SYSTEM
 SAN ANTONIO, TEXAS
 DOS RIOS WRC
 CHLORINE SYSTEM IMPROVEMENTS

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

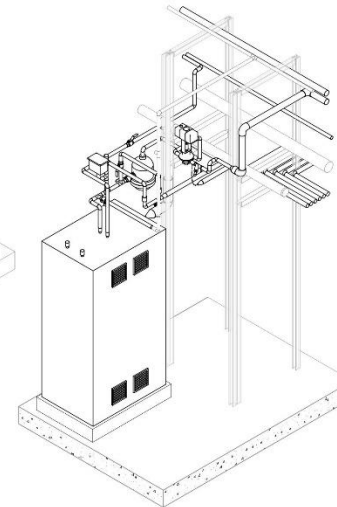
10-M502
 DRAWING NUMBER
 SHEET NUMBER 68



Chlorine System Isometric



1 EVAPORATOR ROOM ISOMETRIC
SCALE: NONE



2 EVAPORATOR ISOMETRIC
SCALE: NONE

Drawn By: JAG/2018/08/15/15:43:49
 Checked By: JAG/2018/08/15/15:43:49
 Title: 10-M503 Chlorine System Evaporator Room Isometric
 Project: 10-M503 Chlorine System Evaporator Room Isometric
 Release: 10-M503/08/15/15:43:49



THE GARVER GROUP
 ENGINEERS ARCHITECTS
 REGISTERED PROFESSIONAL ENGINEERS
 REGISTERED PROFESSIONAL ARCHITECTS
 REGISTERED PROFESSIONAL LANDSCAPE ARCHITECTS
 REGISTERED PROFESSIONAL SURVEYORS
 REGISTERED PROFESSIONAL PLANNERS
 REGISTERED PROFESSIONAL DESIGNERS
 REGISTERED PROFESSIONAL ENVIRONMENTAL ENGINEERS
 REGISTERED PROFESSIONAL ELECTRICAL ENGINEERS
 REGISTERED PROFESSIONAL MECHANICAL ENGINEERS
 REGISTERED PROFESSIONAL CHEMICAL ENGINEERS
 REGISTERED PROFESSIONAL CIVIL ENGINEERS
 REGISTERED PROFESSIONAL INDUSTRIAL ENGINEERS
 REGISTERED PROFESSIONAL METALLURGICAL ENGINEERS
 REGISTERED PROFESSIONAL NUCLEAR ENGINEERS
 REGISTERED PROFESSIONAL PETROLEUM ENGINEERS
 REGISTERED PROFESSIONAL SAFETY ENGINEERS
 REGISTERED PROFESSIONAL STRUCTURAL ENGINEERS
 REGISTERED PROFESSIONAL THERMAL ENGINEERS
 REGISTERED PROFESSIONAL TRANSPORTATION ENGINEERS
 REGISTERED PROFESSIONAL WATER RESOURCES ENGINEERS
 REGISTERED PROFESSIONAL WIND ENGINEERS
 REGISTERED PROFESSIONAL WOOD ENGINEERS
 REGISTERED PROFESSIONAL YACHT ENGINEERS

REGISTRATION NO. F-5713



DIGITALLY SIGNED 8/12/18

REV.	DATE	DESCRIPTION



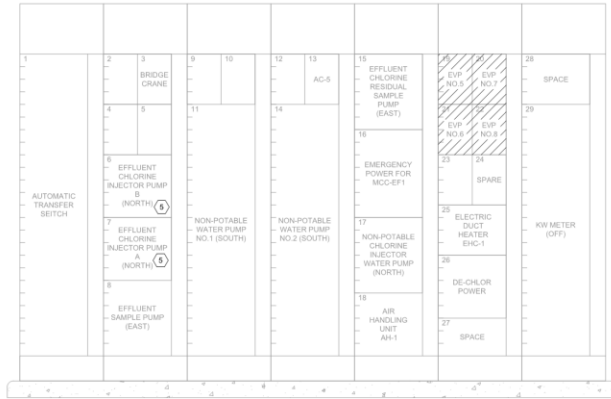
SAN ANTONIO WATER SYSTEM
 SAN ANTONIO, TEXAS
 DOS RIOS WRC
 CHLORINE SYSTEM IMPROVEMENTS

EVAPORATOR ROOM ISOMETRIC

JOB NO.: 17238115
 DATE: AUG. 2018
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10-M503
 SHEET NUMBER
69

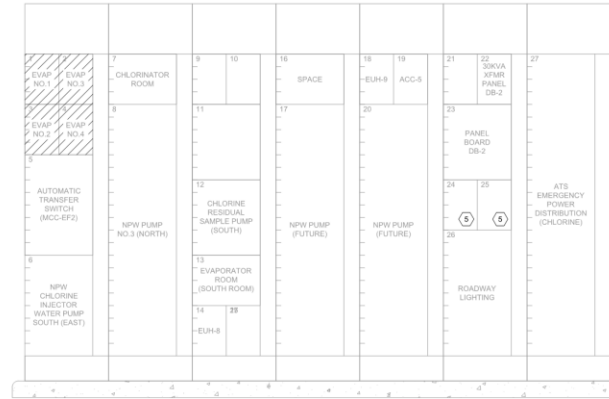


Chlorine System Electrical System Demolition



MCC-DB1 DEMOLITION ELEVATION

10-X503 SCALE: 1" = 1'-0"



MCC-DB2 DEMOLITION ELEVATION

10-X503 SCALE: 1" = 1'-0"

PANELBOARD: DB-2 (2)		BUS TYPE: COPPER		MAINS: 100A		SPD: NONE		
SERVICE: 208Y/120V, 3PH, 4W		BUS RATING: 255A		LOCATION: CL2 FACILITIES				
MOUNTING: SURFACE		FEED: TOP						
CKT NO.	BRKR NO.	WIRE SIZE	LOAD DESCRIPTION	φ	LOAD DESCRIPTION	WIRE SIZE	BRKR NO.	CKT NO.
1	2011	3#12	CHLORINE LEAK DETECTOR RELAY PANELS	A	UPS SYSTEM	3#12	2011	2
3	2011	3#12	EVAP ROOM LOUVER MOTORS	B	120 CHLORINE PANEL CONTROL RM	3#12	2011	4
5	2011	3#12	FIT. GA. GB. CL. CT. 120 METER	C	DRIP LEG HEATERS EVAPS #7	3#12	2011	6
7	2011	3#12	DRIP LEG HEATERS EVAPS #2	A	DRIP LEG HEATERS EVAPS #5	3#12	2011	8
9	2011	3#12	DRIP LEG HEATERS EVAPS #4	B	DRO-CL-EP-08	3#12	2011	10
11	2011	3#12	DRIP LEG HEATERS EVAPS #9	C	DRIP LEG HEATERS EVAPS #1	3#12	2011	12
13	2011	3#12	DRIP LEG HEATERS EVAPS #6	A	CHLORINE CONT. SUPPLY PANEL 1, 3 & 5	3#12	2011	14
15	2011	3#12	CHLORINE SCALE 2, 3, 3 AND 1	B	CHLORINE CONT. SUPPLY PANEL 7 & 8	3#12	2011	16
17	2011	3#12	CHLORINE CONT. SUPPLY PANEL 9 & 10	C	CLSI0-3 & CLSI0-4 ANALS	3#12	15/1	18
19	2011	3#12	CHLORINE CONT. SUPPLY PANEL 2, 4 & 9	A	CLSI0-3 & CLSI0-2 ANALS	3#12	15/1	20
21	15/1	3#12	CCLC 1, 3, 5, 7, 9 & 11 ANALS	B	CLSI0-1 ANALYZER AND COMPOSITE SAMPLER	3#12	2011	22
23	15/1	3#12	CCLC 2, 4, 6, 8, 10 & 12 ANALS	C	HEATERS FOR GENERATOR 3	3#12	2011	24
25	2011	3#12	RECEIPT MECHANICAL ROOM	A	HEATERS FOR GENERATOR 4	3#12	2011	26
27	2011	3#12	HEATERS FOR GENERATOR 5	B	DRO-CL-EP-08	3#12	15/1	28
29	2011	3#12	INTERCOM POWER CIRCUIT	C	DRIP LEG HEATERS EVAPS #3	3#12	15/1	30
31	15/1	3#12	BATT CHARGER GENERATOR 3	A	PHOTO CELL FOR OUTSIDE LIGHTS	3#12	15/1	32
33	2011	3#12	DAY TANK GENERATOR 3	B	DAY TANK GENERATOR 4	3#12	2011	34
35	2011	3#12	LIFE EMERGENCY CONTROLS	C	GENERATOR CONTROL PANEL	3#12	2011	36
37	2011	3#12	BATT CHARGER GENERATOR 4	A		3#12	2011	38
39	2011	3#12	SUB STATION 7 & 8 HTRS	B	BATTERY CHARGER 4	3#12	15/1	40
41	2011	3#12	HEATERS FOR GENERATOR 6	C	CHLORINE SCALERS 9, 9, 9, 2	3#12	2011	42

PANEL BOARD DB-2 SCHEDULE

10-X503 SCALE: NONE

- NOTES:**
- DEMOLISH EXISTING WIRE ASSOCIATED WITH THE EQUIPMENT. REUSE EXISTING CONDUIT.
 - PANEL IS EXISTING. VERIFY THE VALIDITY OF THIS CIRCUITS BEFORE DISCONNECTIONS.
 - REFER TO ONE-LINE DIAGRAM ON 10-X502.
 - REFER TO ONE-LINE DIAGRAM ON 10-X502.
 - POWER TO BE RECONNECTED.



GAI
Crueta & Associates, Inc. 11717 Neer Road
San Antonio, Texas 78249
Tel: 214-446-7441
Fax: 214-446-7121
www.gai.com/consulting



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REGISTRATION NO. F-0713



REV.	DATE	DESCRIPTION

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

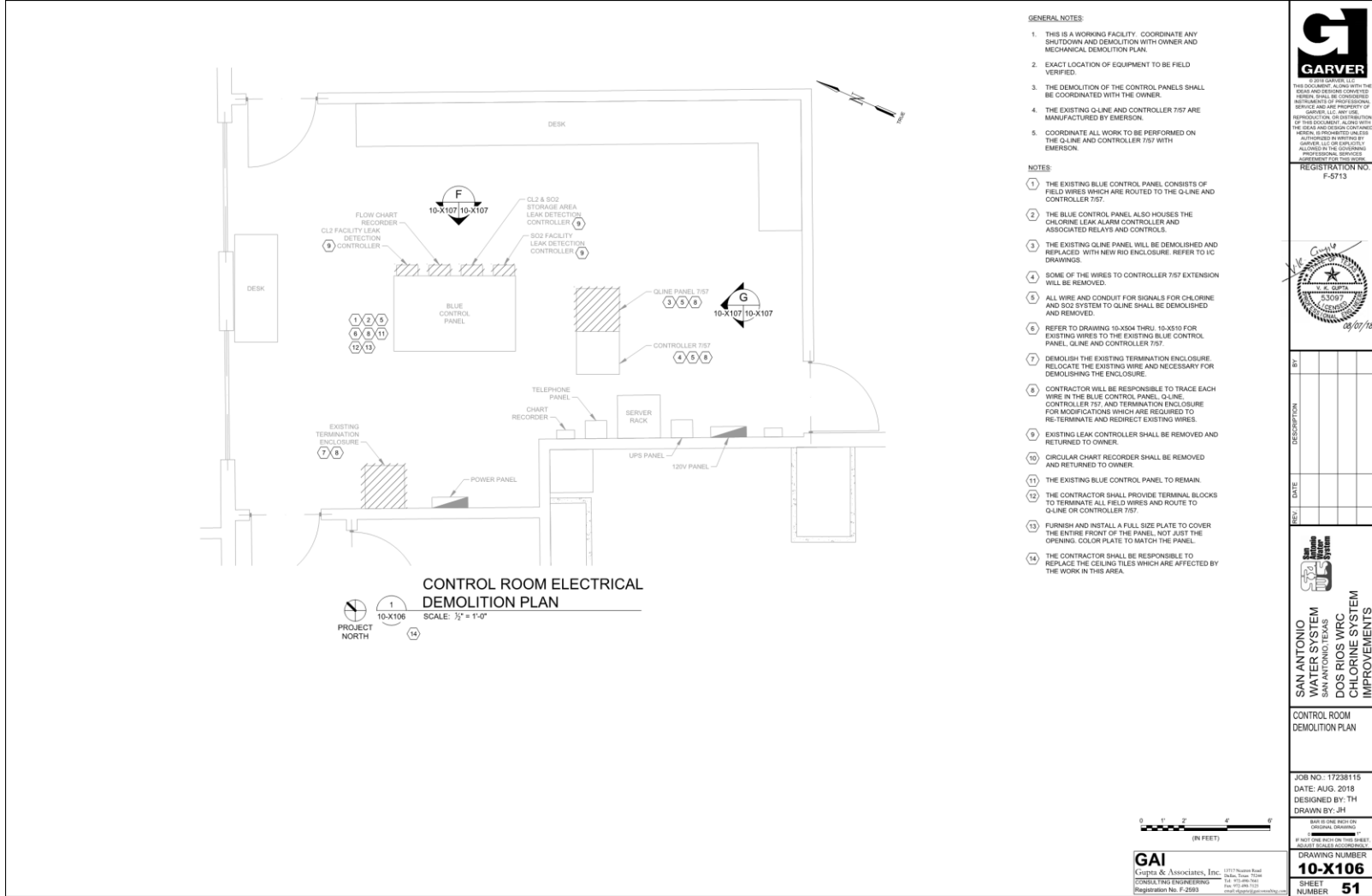
MCC DB1 and DB2
MCC ELEVATION
DEMOLITION

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

DRAWING NUMBER
10-X503
SHEET NUMBER
55



Chlorine System Instrumentation Demolition



- GENERAL NOTES:**
- THIS IS A WORKING FACILITY. COORDINATE ANY SHUTDOWN AND DEMOLITION WITH OWNER AND MECHANICAL DEMOLITION PLAN.
 - EXACT LOCATION OF EQUIPMENT TO BE FIELD VERIFIED.
 - THE DEMOLITION OF THE CONTROL PANELS SHALL BE COORDINATED WITH THE OWNER.
 - THE EXISTING Q-LINE AND CONTROLLER 757 ARE MANUFACTURED BY EMERSON.
 - COORDINATE ALL WORK TO BE PERFORMED ON THE Q-LINE AND CONTROLLER 757 WITH EMERSON.
- NOTES:**
- THE EXISTING BLUE CONTROL PANEL CONSISTS OF FIELD WIRES WHICH ARE ROUTED TO THE Q-LINE AND CONTROLLER 757.
 - THE BLUE CONTROL PANEL ALSO HOUSES THE CHLORINE LEAK ALARM CONTROLLER AND ASSOCIATED RELAYS AND CONTROLS.
 - THE EXISTING QLINE PANEL WILL BE DEMOLISHED AND REPLACED WITH NEW RIO ENCLOSURE. REFER TO I/C DRAWINGS.
 - SOME OF THE WIRES TO CONTROLLER 757 EXTENSION WILL BE REMOVED.
 - ALL WIRE AND CONDUIT FOR SIGNALS FOR CHLORINE AND SO2 SYSTEM TO QLINE SHALL BE DEMOLISHED AND REMOVED.
 - REFER TO DRAWING 10-X504 THRU 10-X510 FOR EXISTING WIRES TO THE EXISTING BLUE CONTROL PANEL, QLINE AND CONTROLLER 757.
 - DEMOLISH THE EXISTING TERMINATION ENCLOSURE. RELOCATE THE EXISTING WIRE AND NECESSARY FOR DEMOLISHING THE ENCLOSURE.
 - CONTRACTOR WILL BE RESPONSIBLE TO TRACE EACH WIRE IN THE BLUE CONTROL PANEL, QLINE, CONTROLLER 757, AND TERMINATION ENCLOSURE FOR MODIFICATIONS WHICH ARE REQUIRED TO RE-TERMINATE AND REDIRECT EXISTING WIRES.
 - EXISTING LEAK CONTROLLER SHALL BE REMOVED AND RETURNED TO OWNER.
 - CIRCULAR CHART RECORDER SHALL BE REMOVED AND RETURNED TO OWNER.
 - THE EXISTING BLUE CONTROL PANEL TO REMAIN.
 - THE CONTRACTOR SHALL PROVIDE TERMINAL BLOCKS TO TERMINATE ALL FIELD WIRES AND ROUTE TO Q-LINE OR CONTROLLER 757.
 - FURNISH AND INSTALL A FULL SIZE PLATE TO COVER THE ENTIRE FRONT OF THE PANEL, NOT JUST THE OPENING. COLOR PLATE TO MATCH THE PANEL.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE THE CEILING TILES WHICH ARE AFFECTED BY THE WORK IN THIS AREA.



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REGISTRATION NO. F-0713



REV	DATE	DESCRIPTION



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

CONTROL ROOM DEMOLITION PLAN

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

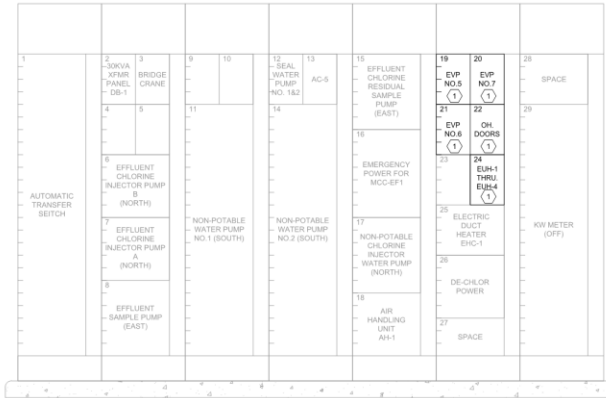


GAI
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Dallas, Texas 75244
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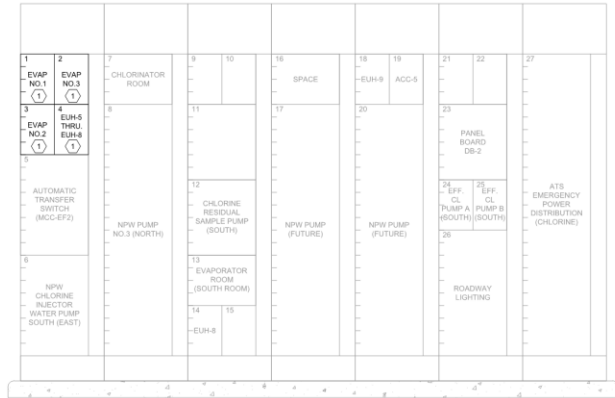
DRAWING NUMBER
10-X106
SHEET NUMBER
51



Chlorine System Electrical System Modification



MCC-DB1 MODIFICATION ELEVATION
 1
 10-E503 SCALE: 1" = 1'-0"



MCC-DB2 MODIFICATION ELEVATION
 2
 10-E503 SCALE: 1" = 1'-0"

PANELBOARD DB-2		BUS TYPE COPPER		MAINS 100A		SPD NONE		
SERVICE 200Y/120V 3PH, 4W		BUS RATING 250A		LOCATION: CL2 FACILITIES		①		
MOUNTING SURFACE		FEED: TOP						
CKT NO.	BRKR SIZE	WIRE SIZE	LOAD DESCRIPTION	φ	LOAD DESCRIPTION	WIRE SIZE	BRKR SIZE	CKT NO.
1	2011	-	CHLORINE LEAK DETECT RELAY PANELS	A	UPS SYSTEM	-	2011	2
3	2011	-	EVAP ROOM LOUVER MOTORS	B	120 CHLORINE PANEL CONTROL RM	-	2011	4
5	2011	-	FIT. GA. GB. CL. CT 100 METER	C	NEW I/O CL2	3#12	2011	6
7	2011	3#12	DRIP LEG HEATERS EVAPS #2	A	DRIP LEG HEATERS EVAPS #5	3#12	2011	8
9	2011	3#12	DRIP LEG HEATERS EVAPS #4	B	DRD-CL-EF-08	-	2011	10
11	2011	3#12	DRIP LEG HEATERS EVAPS #6	C	DRIP LEG HEATERS EVAPS #1	3#12	2011	12
13	2011	3#12	CL2/S02 LEAK ALARM PANEL	A	CHLORINE CONT. SUPPLY PANEL BANK 1 & 2	3#12	2011	14
15	2011	3#12	CHLORINE SCALE 1, 2, 3	B	CHLORINE CONT. SUPPLY PANEL BANK 3	3#12	2011	16
17	2011	3#12	CHLORINE CONT. SUPPLY PANEL 4, 5	C	CLSIO-5 & CLSIO-4 ANALS	-	1511	18
19	2011	3#12	CHLORINE CONT. SUPPLY PANEL 6	A	CLSIO-3 & CLSIO-2 ANALS	-	1511	20
21	1511	3#12	CHLORINATORS 1, 2, 3, 4, 5	B	CLSIO-1 ANALYZER AND COMPOSITE SAMPLER	-	2011	22
23	1511	3#12	CHLORINATORS 6, 7, 8, 9, 10	C	HEATERS FOR GENERATOR 3	-	2011	24
25	2011	3#12	RECEPT MECHANICAL ROOM	A	HEATERS FOR GENERATOR 4	-	2011	26
27	2011	-	HEATERS FOR GENERATOR 5	B	DRD-CL-EF-06	-	1511	28
29	2011	-	INTERCOM POWER CIRCUIT	C	DRIP LEG HEATERS EVAPS #3	3#12	1511	30
31	1511	-	BATT CHARGER GENERATOR 3	A	PHOTO CELL FOR OUTSIDE LIGHTS	-	1511	32
33	2011	-	DAY TANK GENERATOR 3	B	DAY TANK GENERATOR 4	-	2011	34
35	202	-	LIFE EMERGENCY CONTROLS	C	GENERATOR CONTROL PANEL	-	2011	36
37	2011	-	SUB STATION 7 & 8 HTRS	A	BATTERY CHARGER 4	-	2011	38
39	2011	-	SUB STATION 7 & 8 HTRS	B	BATTERY CHARGER 4	-	1511	40
41	2011	-	HEATERS FOR GENERATOR 6	C	CHLORINE SCALES 4, 5, 6	3#12	2011	42

PANEL BOARD DB-2 SCHEDULE
 A
 10-E503 SCALE: NONE

- NOTES:**
- RELABEL MCC COMPARTMENTS.
 - REUSE BREAKER TO CONNECT NEW LEAK DETECTION CONTROL PANELS.
 - UPDATE PANEL DIRECTORY.



GAI
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REGISTRATION NO. F-0713



REV	DATE	DESCRIPTION

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

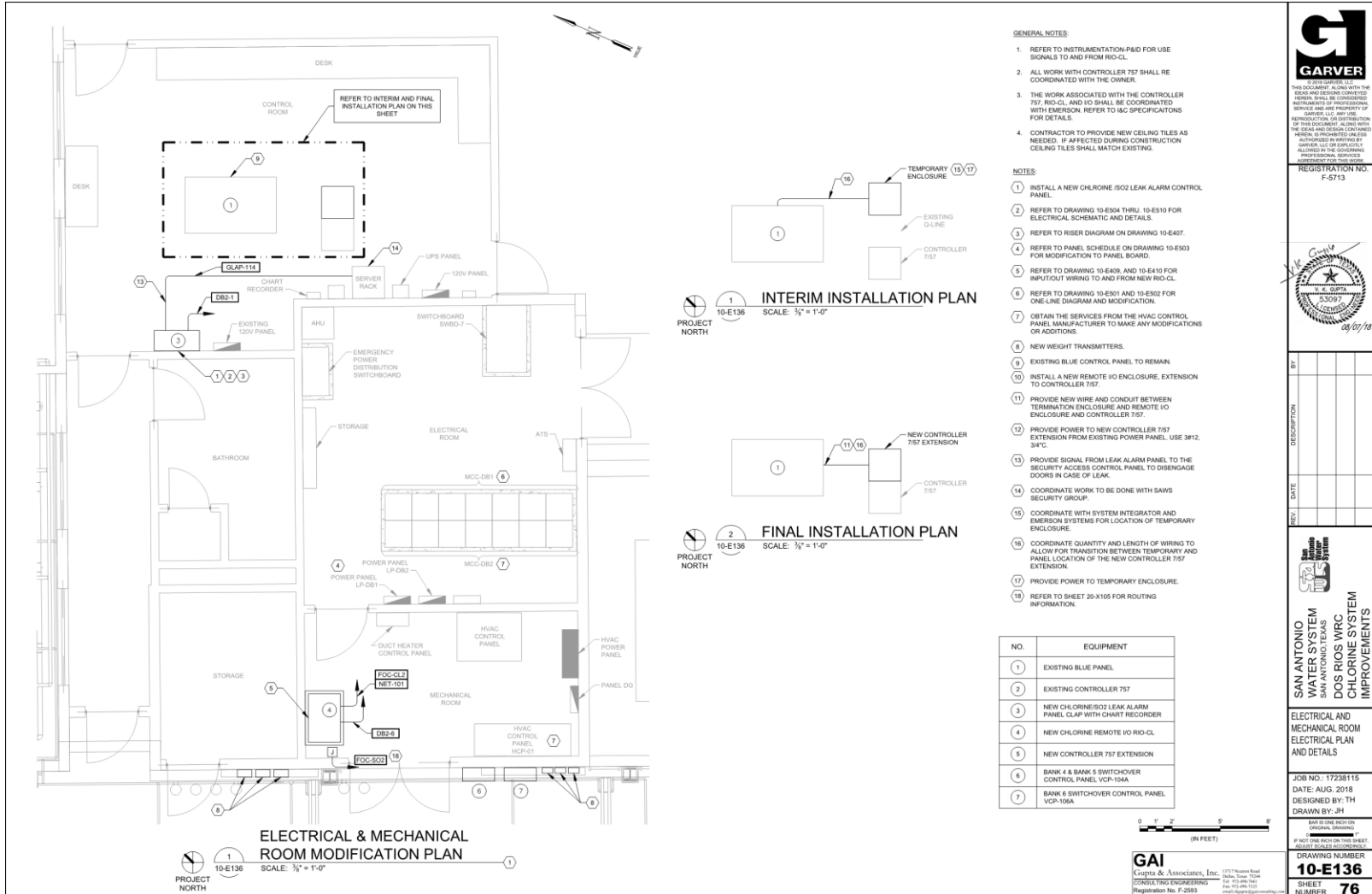
MCC DB1 & MCC DB2 MCC ELEVATION MODIFICATION

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

DRAWING NUMBER 10-E503
SHEET NUMBER 94



Chlorine System New 7/57 Extension Enclosure and Gas Alarm Panel



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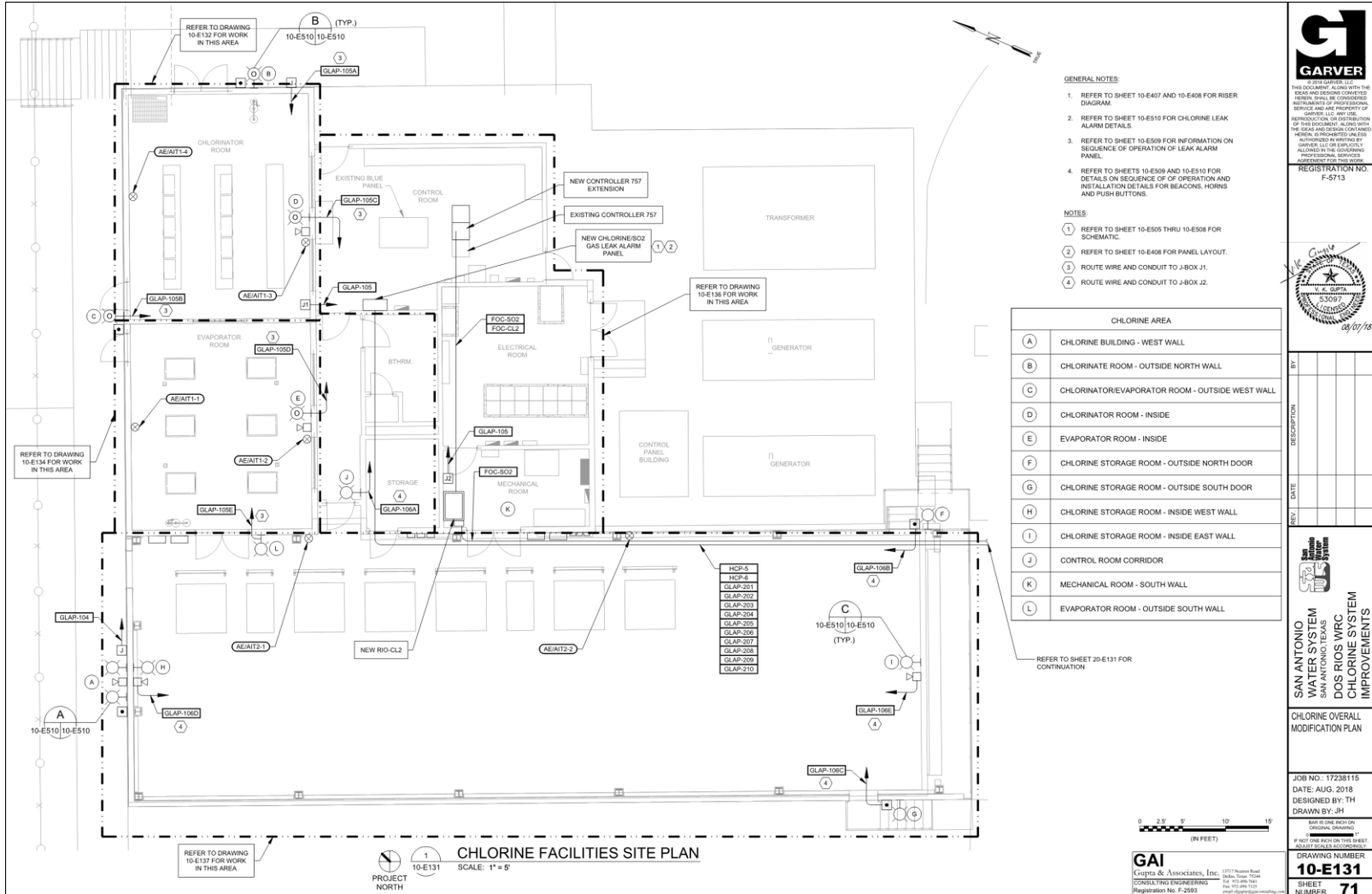
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REV.	DATE	DESCRIPTION



Chlorine System Gas Leak Detection System



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REGISTRATION NO. F-5713



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


CHLORINE OVERALL MODIFICATION PLAN

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


DRAWING NUMBER
10-E131
 SHEET NUMBER
71




Sulfur Dioxide Demolition




1 PIPING (WEST)
20-X103 SCALE: NONE




2 PIPING (EAST)
20-X103 SCALE: NONE




3 OVERHEAD VENT PIPING (WEST)
20-X103 SCALE: NONE




4 OVERHEAD VENT PIPING (EAST)
20-X103 SCALE: NONE



4 EXTERIOR VENT PIPING
20-X103 SCALE: NONE




GARVER
CORPORATION
3025 S. GARDNER AVENUE
DALLAS, TEXAS 75246
REGISTRATION NO. F-5743




J. GARCIA
REGISTERED PROFESSIONAL ENGINEER
NO. 12238115
EXPIRES 12/31/2018

SULFONATOR ROOM


NO.	DATE	DESCRIPTION
BY:		



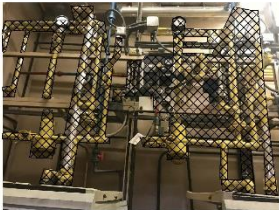
6 SULFONATORS
20-X103 SCALE: NONE




7 EVAPORATORS
20-X103 SCALE: NONE



8 EXPANSION CHAMBERS
20-X103 SCALE: NONE




9 PIPING (WEST)
20-X103 SCALE: NONE




10 PIPING (EAST)
20-X103 SCALE: NONE


EVAPORATOR ROOM



11 INJECTOR STORAGE SHED
20-X103 SCALE: NONE



12 INJECTOR PANEL WALL PIPING
20-X103 SCALE: NONE



13 SO₂ DIFFUSER PIPING
20-X103 SCALE: NONE

INJECTOR FACILITY

LEGEND

□ EQUIPMENT TO BE REMOVED
 ⊗ EQUIPMENT TO BE DEMOLISHED AND REPLACED

KEY NOTES

- ① REMOVE AND REPLACE ALL EXISTING SO₂ PIPING.
- ② REMOVE AND REPLACE ALL EXISTING SO₂ VENT PIPING.
- ③ PROTECT AND REUSE ALL PIPE SUPPORT FRAMING SYSTEMS (UNLESS NOTED).
- ④ BRIDGE CRANE TO REMAIN.
- ⑤ EXISTING CANOPY AND FRAME WILL REMAIN AND BE REUSED.
- ⑥ REMOVE AND REPLACE ENTIRE INJECTOR PIPING, VALVES, AND APPURTENANCES (REFER TO PHASING PLANS).

SAN ANTONIO WRM SAN ANTONIO WRC DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS

JOB NO.: 12238115
 DATE: JUNE 2018
 DESIGNED BY: JG
 DRAWN BY: HG

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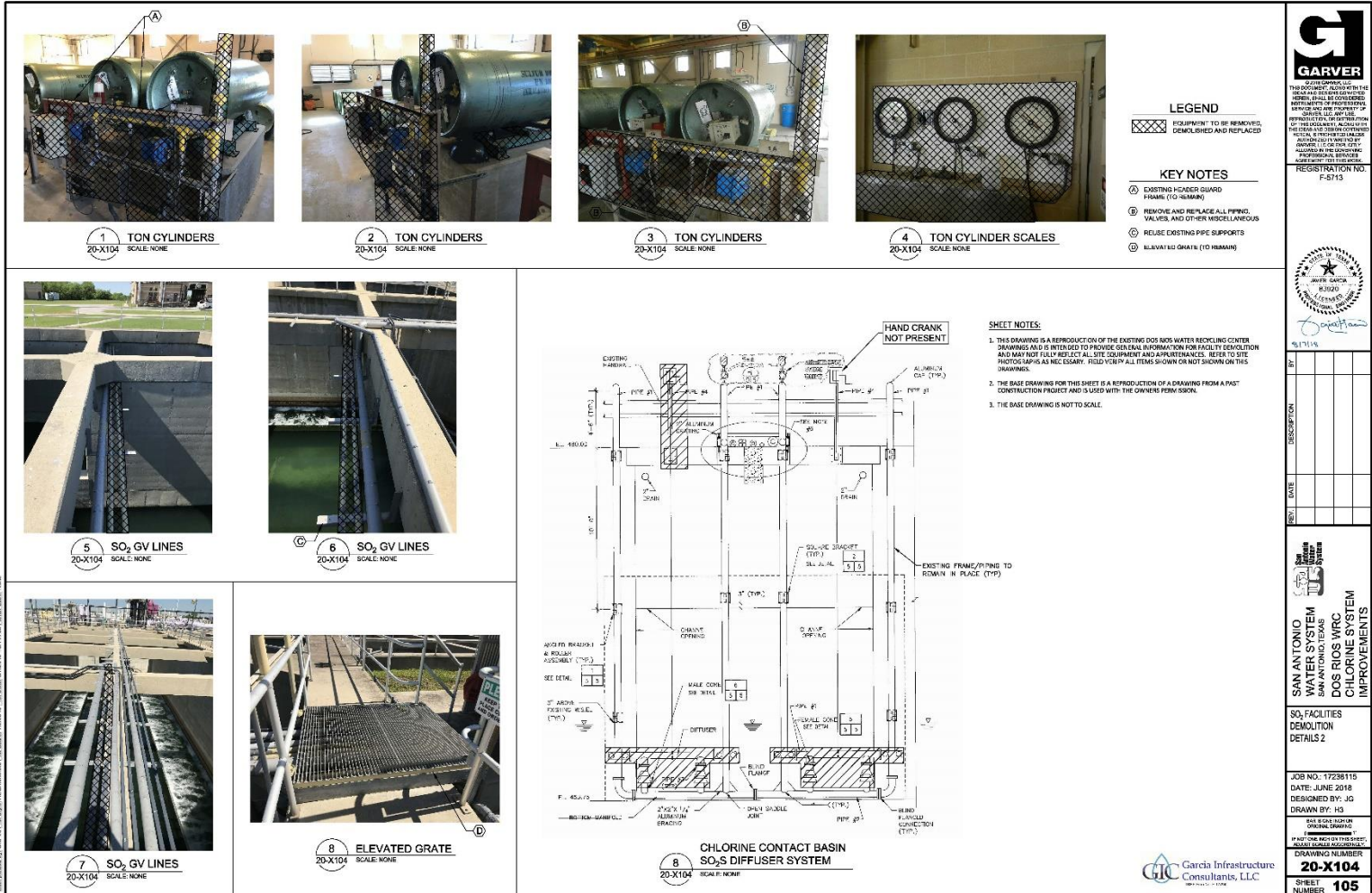
Garcia Infrastructure Consultants, LLC
 CONSULTANTS, LLC
 10000 W. LAKELAND BLVD., SUITE 1000
 DALLAS, TEXAS 75243

DRAWING NUMBER
20-X103

SHEET NUMBER
104

DATE: 06/20/2018 10:00 AM
 PROJECT: SAN ANTONIO WRM SAN ANTONIO WRC DOS RIOS WRC CHLORINE SYSTEM IMPROVEMENTS
 DRAWING: 20-X103
 SHEET: 104

Sulfur Dioxide Demolition

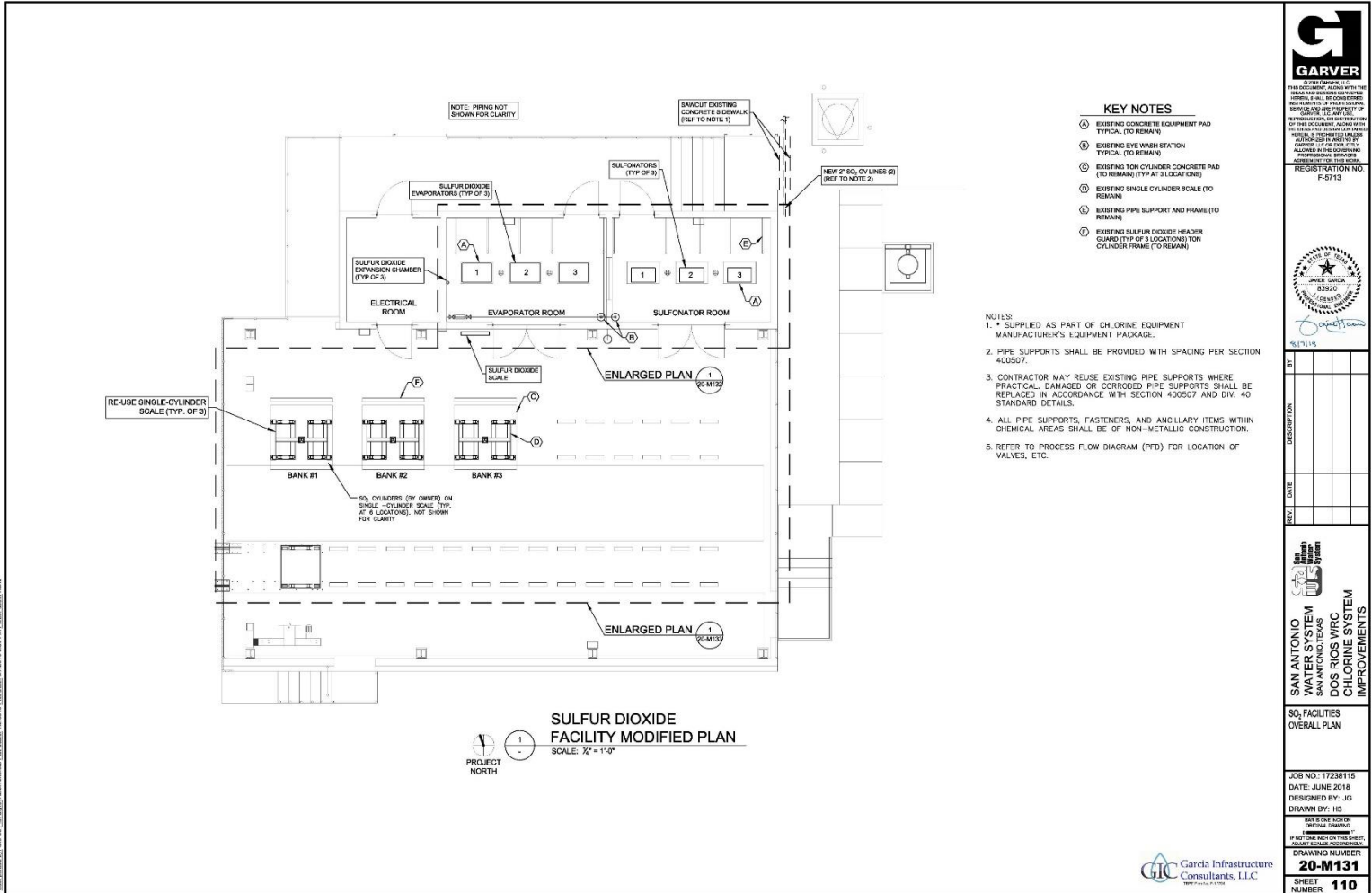


DATE: 06/20/2018 10:00 AM
 DRAWN BY: JG
 CHECKED BY: HS
 PROJECT: SAN ANTONIO DOS RIOS WRC
 DRAWING NUMBER: 20-X104
 SHEET NUMBER: 105

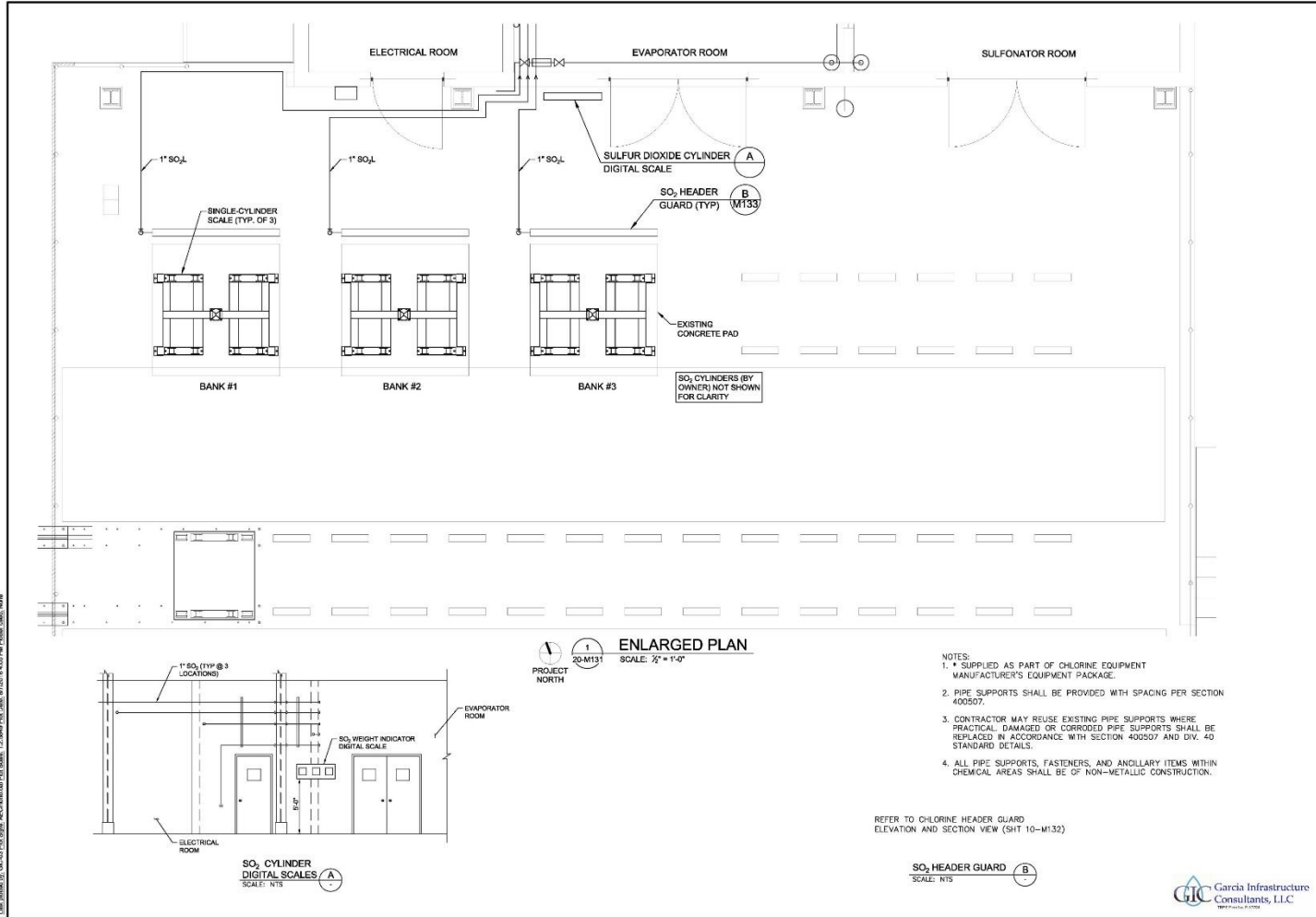
Garcia Infrastructure
 Consultants, LLC
 20-X104
 SHEET NUMBER: 105




Sulfur Dioxide Plan



Sulfur Dioxide Plan




DATE: 12/10/2016 10:00 AM
 USER: JG
 PROJECT: 20-M131
 SHEET: 112
 DRAWING NUMBER: 20-M133



GARVER

REGISTERED PROFESSIONAL ENGINEER
 STATE OF TEXAS
 REGISTRATION NO. F-5713



JAVIER GARCIA
 83920
 CIVIL ENGINEER
 STATE OF TEXAS

REV.	DATE	DESCRIPTION

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


SO₂ FACILITIES PLAN 2

JOB NO.: 1238116
 DATE: JUNE 2016
 DESIGNED BY: JG
 DRAWN BY: H3

SCALE: AS SHOWN
 ORIGINAL DRAWING

20-M133
 DRAWING NUMBER

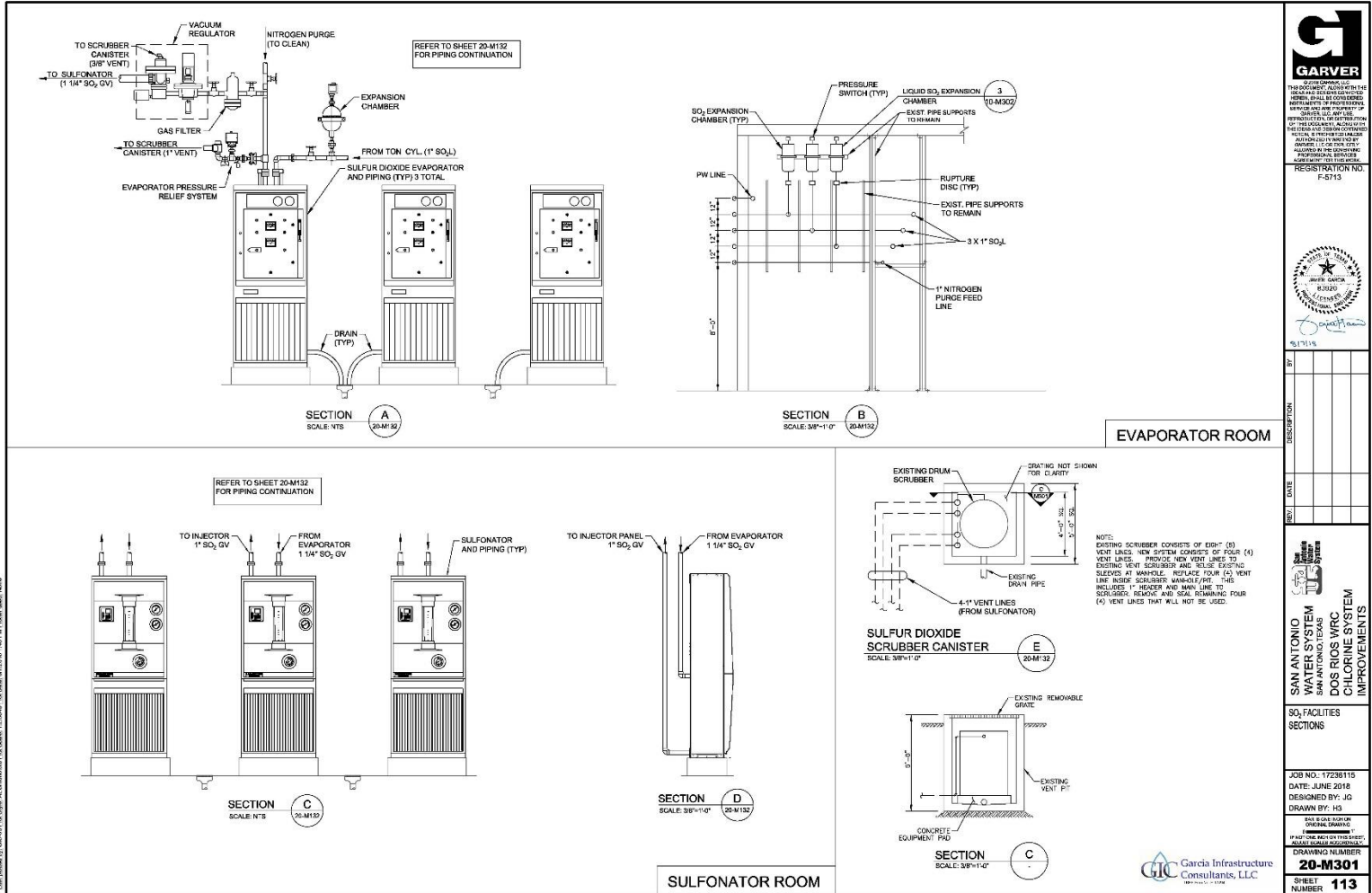
112
 SHEET NUMBER



Garcia Infrastructure
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1997 P.C. 1177



Sulfur Dioxide Section Plan



2025 LICENSE NO. 11410
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REPRESENTATION ON BEHALF OF THE
STATE OF TEXAS
SINCE 1988
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ELECTRICAL AND POWER SYSTEMS
REPRESENTATION ON BEHALF OF THE
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ON BEHALF OF THE STATE OF TEXAS
SINCE 1988

REGISTRATION NO. F-5713



5/17/18

NO.	DATE	DESCRIPTION



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

SO₂ FACILITIES SECTIONS

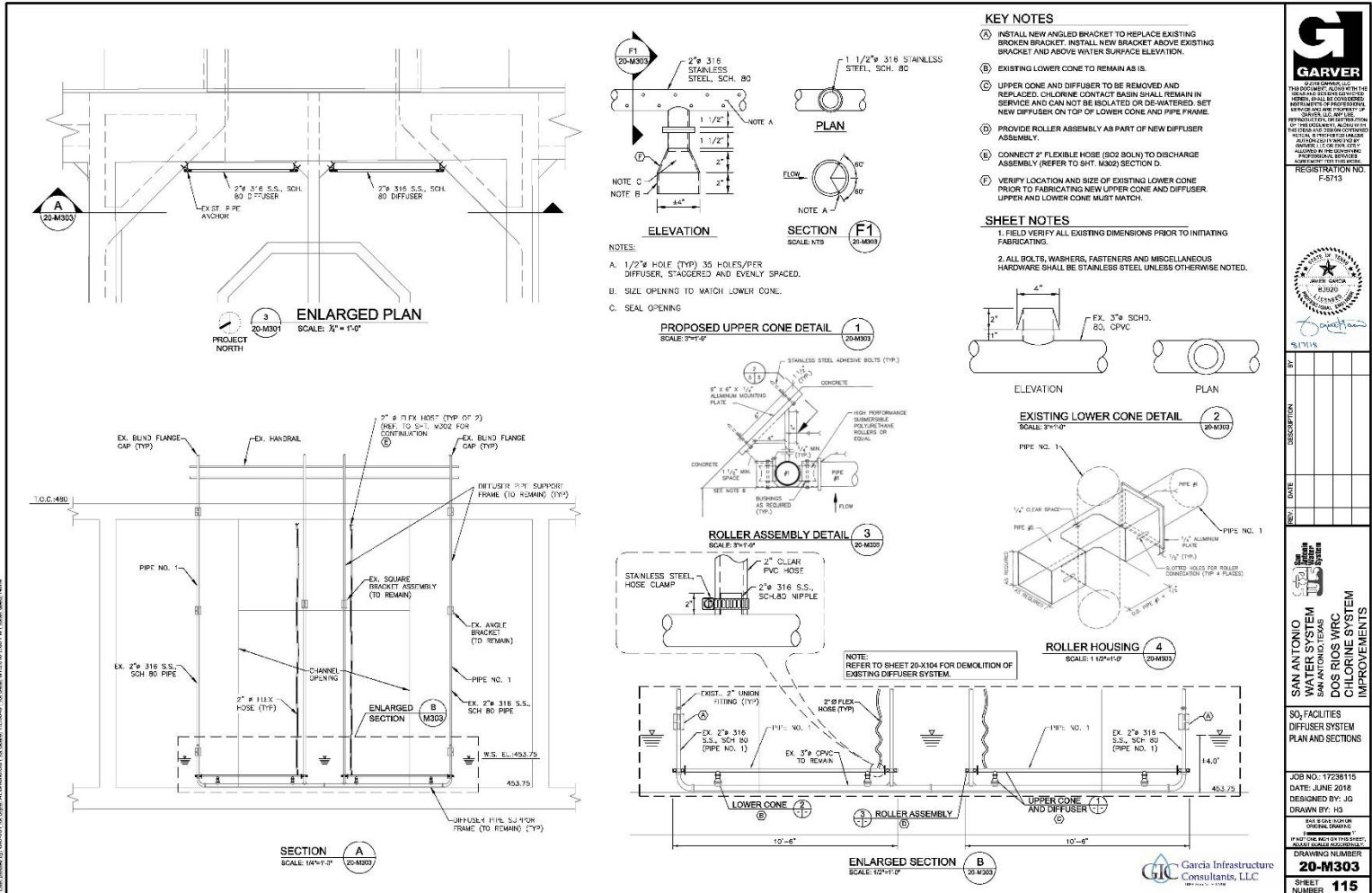
JOB NO. 17228115
DATE: JUNE 2018
DESIGNED BY: JG
DRAWN BY: HS

SCALE: AS SHOWN
UNLESS OTHERWISE SPECIFIED

DRAWING NUMBER
20-M301
SHEET NUMBER
113



Sulfur Dioxide Diffuser Plan & Section



- KEY NOTES**
- (A) INSTALL NEW ANGLED BRACKET TO REPLACE EXISTING BROKEN BRACKET. INSTALL NEW BRACKET ABOVE EXISTING BRACKET AND ABOVE WATER SURFACE ELEVATION.
 - (B) EXISTING LOWER CONE TO REMAIN AS IS.
 - (C) UPPER CONE AND DIFFUSER TO BE REMOVED AND REPLACED. CHLORINE CONTACT BASIN SHALL REMAIN IN SERVICE AND CAN NOT BE ISOLATED OR DE-WATERED. SET NEW DIFFUSER ON TOP OF LOWER CONE AND PIPE FRAME.
 - (D) PROVIDE ROLLER ASSEMBLY AS PART OF NEW DIFFUSER ASSEMBLY.
 - (E) CONNECT 2" FLEXIBLE HOSE (802 BOLT) TO DISCHARGE ASSEMBLY (REFER TO SHT. M302) SECTION D.
 - (F) VERIFY LOCATION AND SIZE OF EXISTING LOWER CONE PRIOR TO FABRICATING NEW UPPER CONE AND DIFFUSER. UPPER AND LOWER CONE MUST MATCH.

- SHEET NOTES**
1. FIELD VERIFY ALL EXISTING DIMENSIONS PRIOR TO INITIATING FABRICATING.
 2. ALL BOLTS, WASHERS, FASTENERS AND MISCELLANEOUS HARDWARE SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.

GARVER

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STATE OF CALIFORNIA
NO. 45120
EXPIRES 12/31/2024

REGISTERATION NO. F-5713

BY	DATE	DESCRIPTION

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

SQ FACILITIES
DIFFUSER SYSTEM
PLAN AND SECTIONS

JOB NO. 1728815
DATE: JUNE 2018
DESIGNED BY: JG
DRAWN BY: HG

45120 (06/2018)
ORIGINAL DRAWING
P-102 (06/2018) THIS SHEET, ADDED DIMENSIONS

DRAWING NUMBER
20-M303

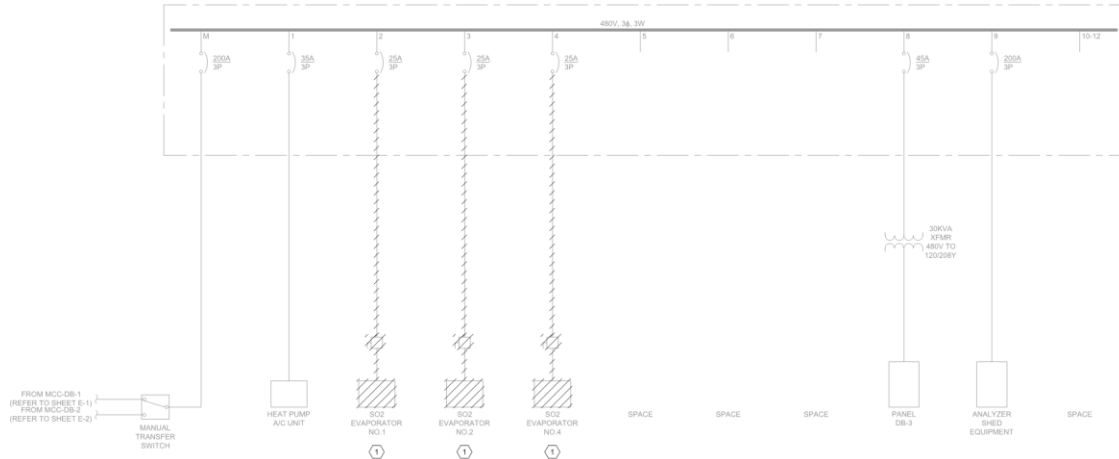
SHEET NUMBER
115

Garcia Infrastructure Consultants, LLC

File: L:\A\2018\20-M303\20-M303-PLAN-SECTION.dwg, User: JG, Date: 6/27/18, 1:03 PM, Job: 1728815, GC: GIC
 PLOT: 20-M303-PLAN-SECTION.dwg, Plot Date: 6/27/18, 1:03 PM, Plotter: HP DesignJet T1100, Plot Size: 11x17, Plot Style: 20-M303.ctb, Plot Color: 20-M303.ctb, Plot Scale: 1.0000, Plot Orientation: Landscape



Sulfur Dioxide System Electrical System Demolition



- NOTES:
- DEMOLISH ALL WIRE ASSOCIATED WITH THE EVAPORATORS. REUSE EXISTING CONDUITS.
 - THE PANELS ARE EXISTING. VERIFY THE VALIDITY OF THE CIRCUIT BEFORE DISCONNECTING.

PANEL DF DEMOLITION ONE-LINE DIAGRAM
 20-X501 SCALE: NONE

②

PANELBOARD DB-3		BUS TYPE: COPPER		BUS RATING: 100A		
SERVICE: 208Y/120V, 3Ø 4W		MAIN BUS TYPE: CB		LOCATION: SO2 FACILITIES		
MOUNTING SURFACE		RATING: 100A				
CKT NO.	BRKR SIZE	WIRE SIZE	LOAD	WIRE SIZE	BRKR SIZE	CKT NO.
1	2011	#12	OUTSIDE WALL LIGHTS	A	#12	2011
3	2011	#12	OUTSIDE WALL LIGHTS	B	#12	2011
5	2011	#12	EXIT LIGHTS	C	#12	2011
7	2011	#12	SIDP PALS/SCALE ALAR.	A	#12	2011
9	2011	#12	EXH. FAN EF-1 1/10 HP	B	#12	2011
11	2011	#12	EXH. FAN EF-2 1/10 HP	C	#12	2011
13	2011	#12	ELECT. ROOM RECPT.	A	#12	2011
15	2011	#12	EVAP. ROOM RECPT.	B	#8	2011
17	2011	#12	SULF. ROOM RECPT.	C	#8	2011
19	2011	#12	SULF-1-S-3 CONT. POWER	A		2011
21	2011	#8	DRIP LEG HEATERS	B		2011
23	2011	#8	SPSCR-1 CONTROL POWER	C		2011

PANEL BOARD DB-3 SCHEDULE
 20-X501 SCALE: NONE



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REV.	DATE	DESCRIPTION

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

PANEL DF ONE LINE DIAGRAM DEMOLITION

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

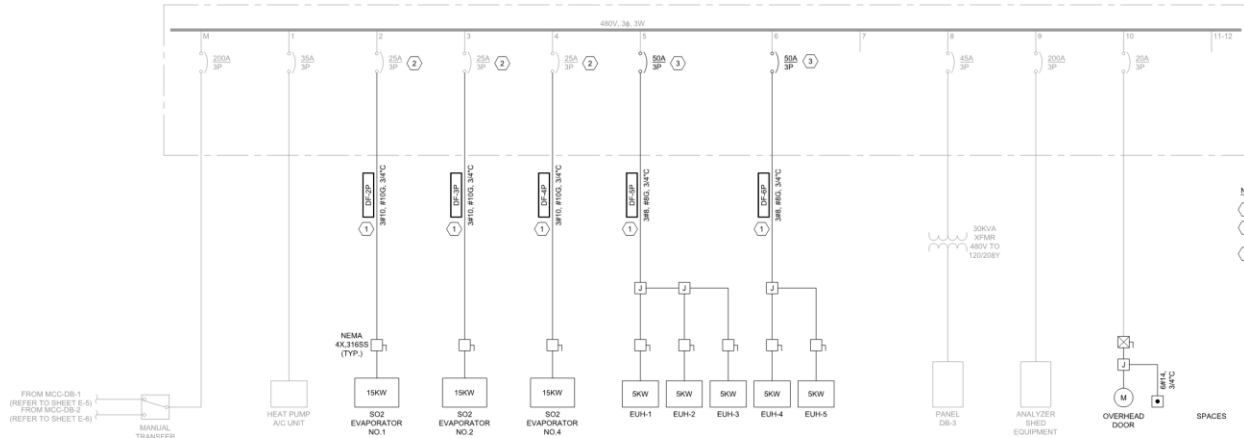
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DRAWING NUMBER
 20-X501
SHEET NUMBER
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 Gupta & Associates, Inc. 1717 Twicken Road
 Dallas, Texas 75244
 CONSULTING ENGINEERING Tel: 972.486.7441 Fax: 972.486.7322
 Registration No. P-2095 www.gaiinc.com/gaiconsulting



Sulfur Dioxide System Electrical System Modification



- NOTES
- 1 INSTALL NEW WIRE AND CONDUIT.
 - 2 REUSE EXISTING CIRCUIT BREAKERS TO POWER EQUIPMENT.
 - 3 INSTALL NEW BREAKER IN EXISTING COMPARTMENT.

PANEL DF MODIFICATION ONE-LINE DIAGRAM
 1
 20-E501 SCALE: NONE

PANELBOARD: DB-3		BUS TYPE: TIN PLATED COPPER		BUS RATING: 100A			
SERVICE: 208Y/120V, 3Ø, 4W		MANS. TYPE: CB		LOCATION: SO2 FACILITIES			
MOUNTING SURFACE		RATING: 100A					
CKT NO.	BRKR SIZE	WIRE SIZE	LOAD	#	WIRE SIZE	BRKR SIZE	CKT NO.
1	201		OUTSIDE WALL LIGHTS	A			201
3	201		OUTSIDE WALL LIGHTS	B			201
5	201		EXIT LIGHTS	C			201
7	201	#12	STORAGE TANK SCALE AIT-1.2.3	A			201
9	201		EXH. FAN EF-1 1/10 HP	B			201
11	201		EXH. FAN EF-2 1/10 HP	C		#12	201
13	201		ELECT. ROOM RECPT.	A			201
15	201		EVAP. ROOM RECPT.	B		#12	201
17	201		SULF. ROOM RECPT.	C		#12	201
19	201	#12	SULF. 1-2-3 CONT POWER	A			201
21	201	#12	DRIP LEG HEATERS	B			201
23	201	#12	SOSCP-1 CONTROL PWR.	C			201

PANEL BOARD DB-3 SCHEDULE
 A
 20-E501 SCALE: NONE



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BY: [Signature]
 DATE: 08/07/18

REV.	DATE	DESCRIPTION

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

PANEL DF ONE LINE DIAGRAM MODIFICATION

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

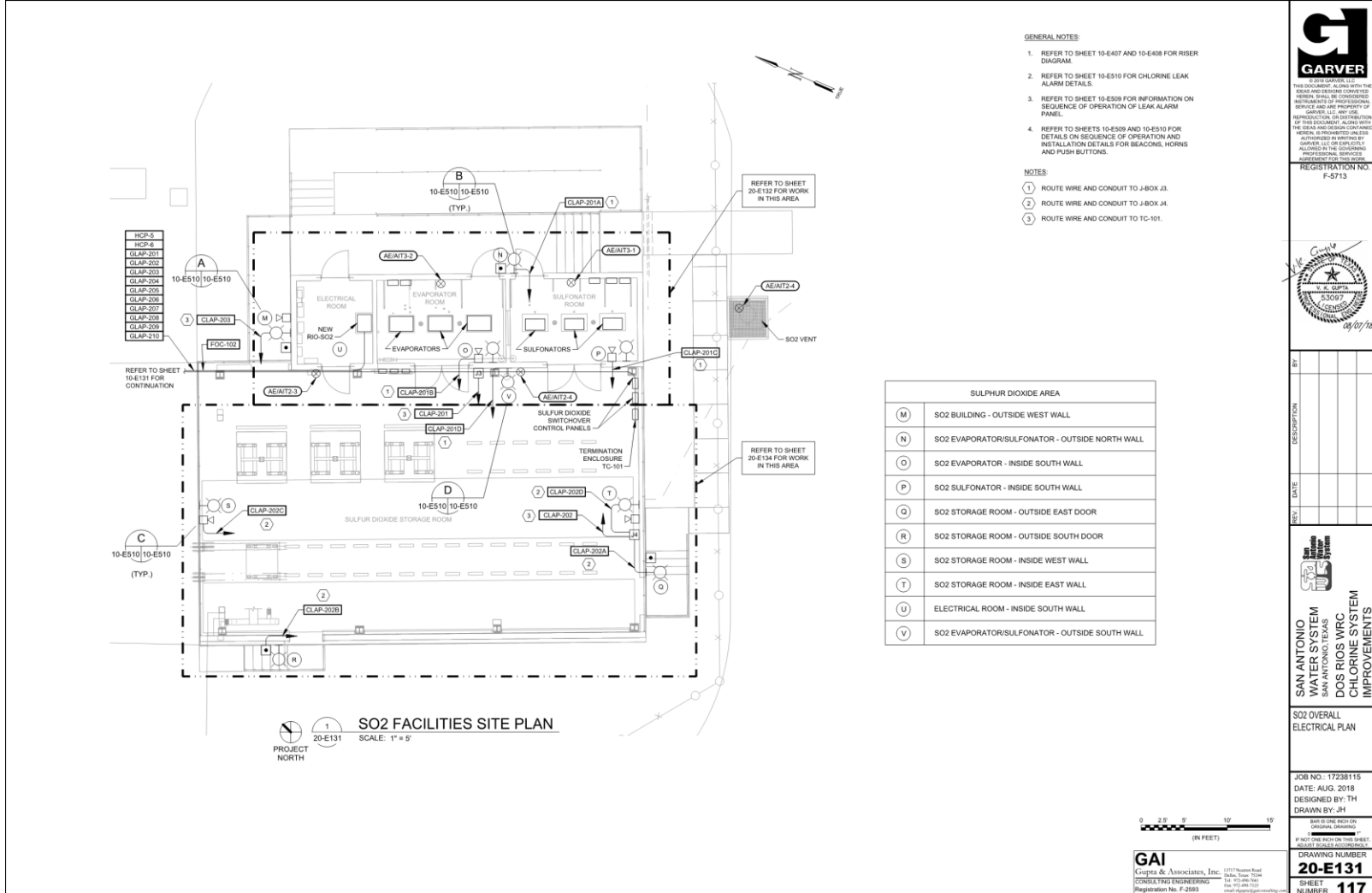
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DRAWING NUMBER
20-E501
 SHEET NUMBER
126

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Sulfur Dioxide System Gas Leak Detection System



Project Special Conditions

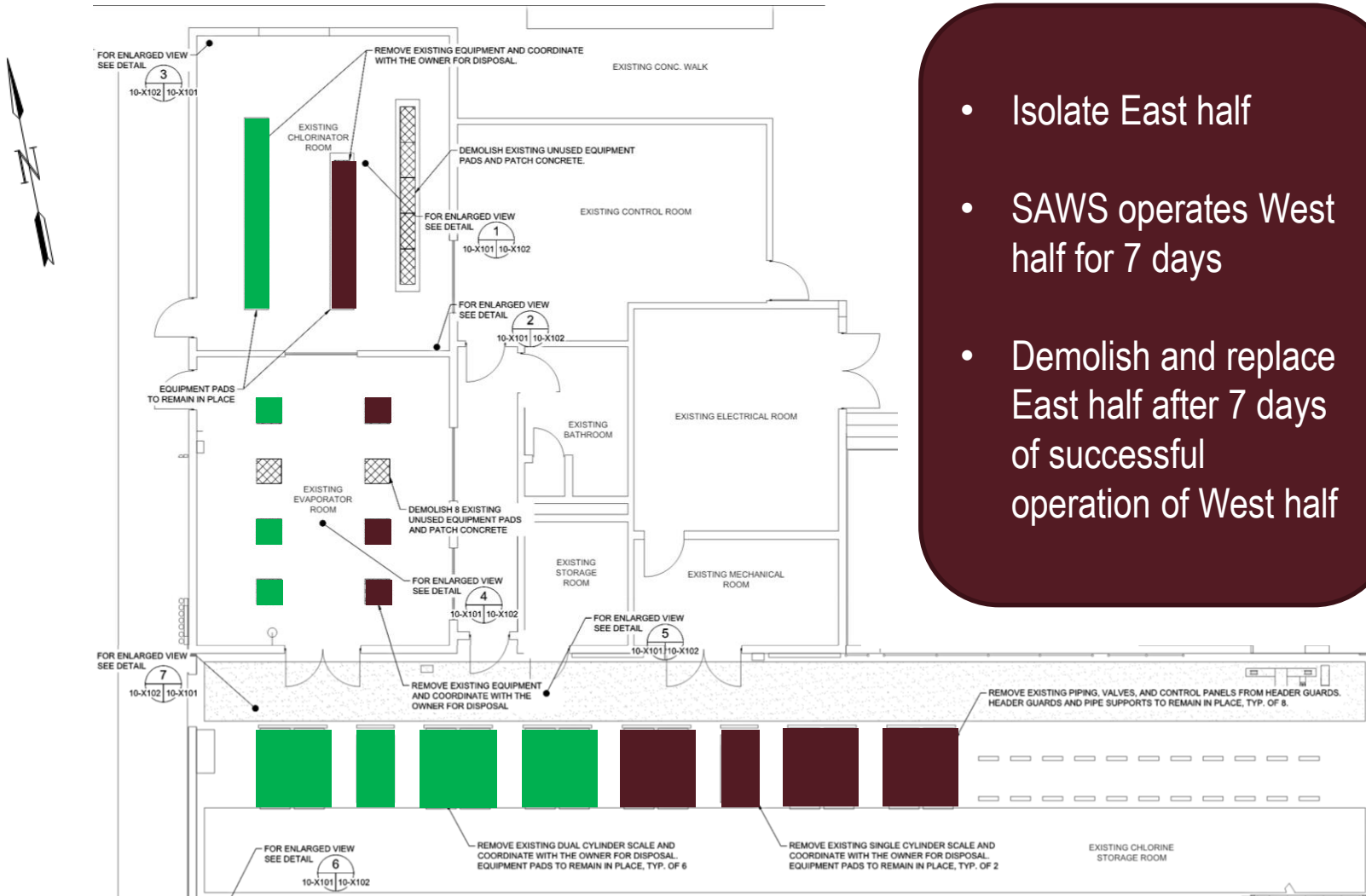
- Working in Chlorine and Sulfur Dioxide areas which are highly hazardous
- During chemical deliveries, chemical changes and maintenance, contractor shall be outside of the Exclusion Zone; Map included in contract documents
- RAS Pump Station Tunnels shall be treated as a confined space

Section 01 10 00 – Summary

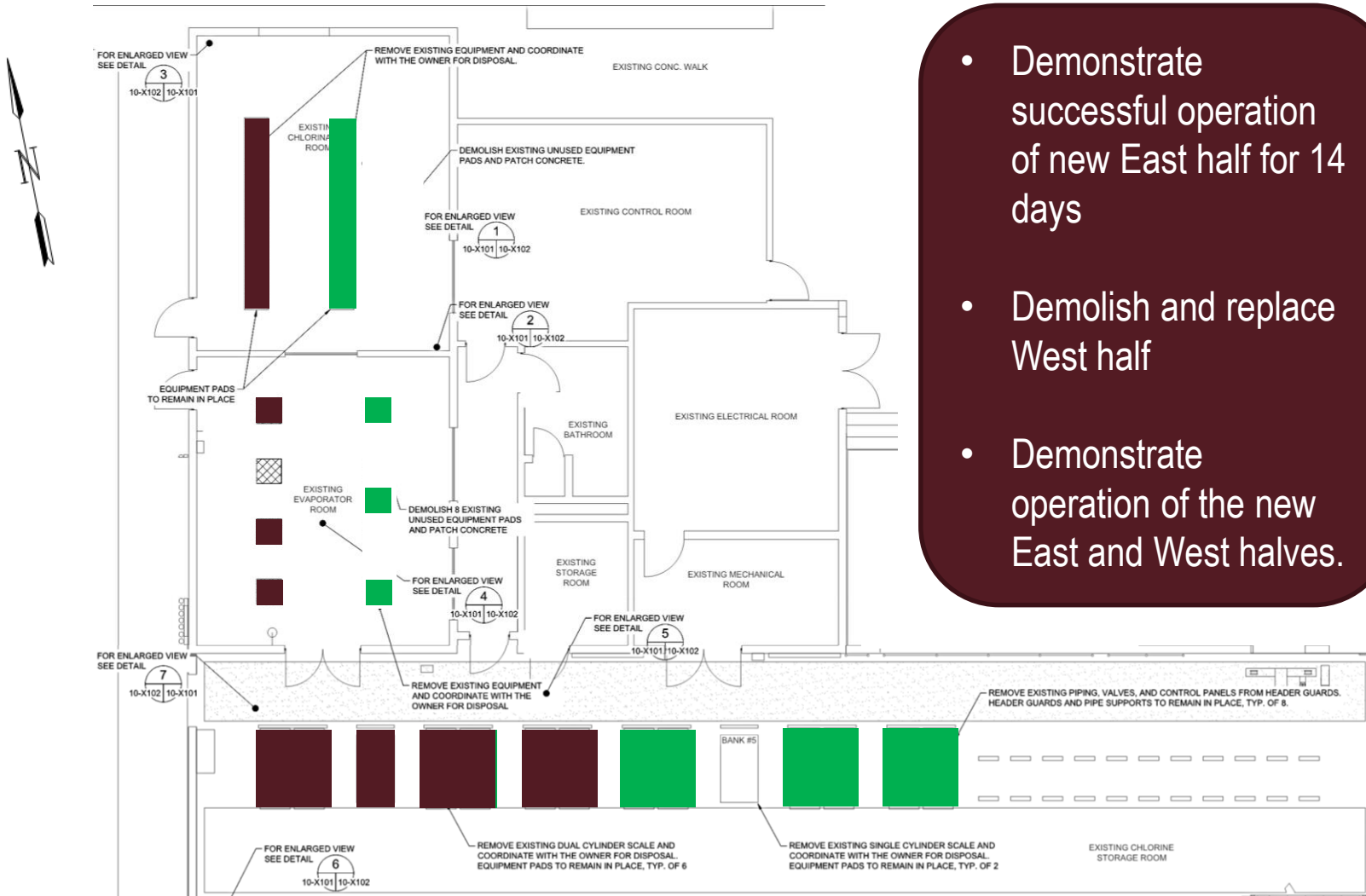
Construction Sequence

- Chlorine and Sulfur Dioxide Gas Alarm System
- RIO-CL2 and RIO-SO2 Installation & Communication
- Maintain use of existing chlorine system
 - Replace portion of system
- Maintain use of existing sulfur dioxide system
 - Replace portion of system
- 7/57 Extension Enclosure Installation

Sequencing for chlorine system modifications



Sequencing for chlorine system modifications



- Demonstrate successful operation of new East half for 14 days
- Demolish and replace West half
- Demonstrate operation of the new East and West halves.

Sequencing Items (Cont)

- Removal and replacement of roll-up door within 4 calendar days
- 1st Stage RAS Injectors
 - Isolate 1 injector station at a time for replacement
 - Maintain 1 injector station in service
 - Complete removal and replacement of each station within 5 calendar days
- 2nd Stage RAS Injectors
 - Complete removal and replacement of station within 5 calendar days

Sequencing Items (Cont)

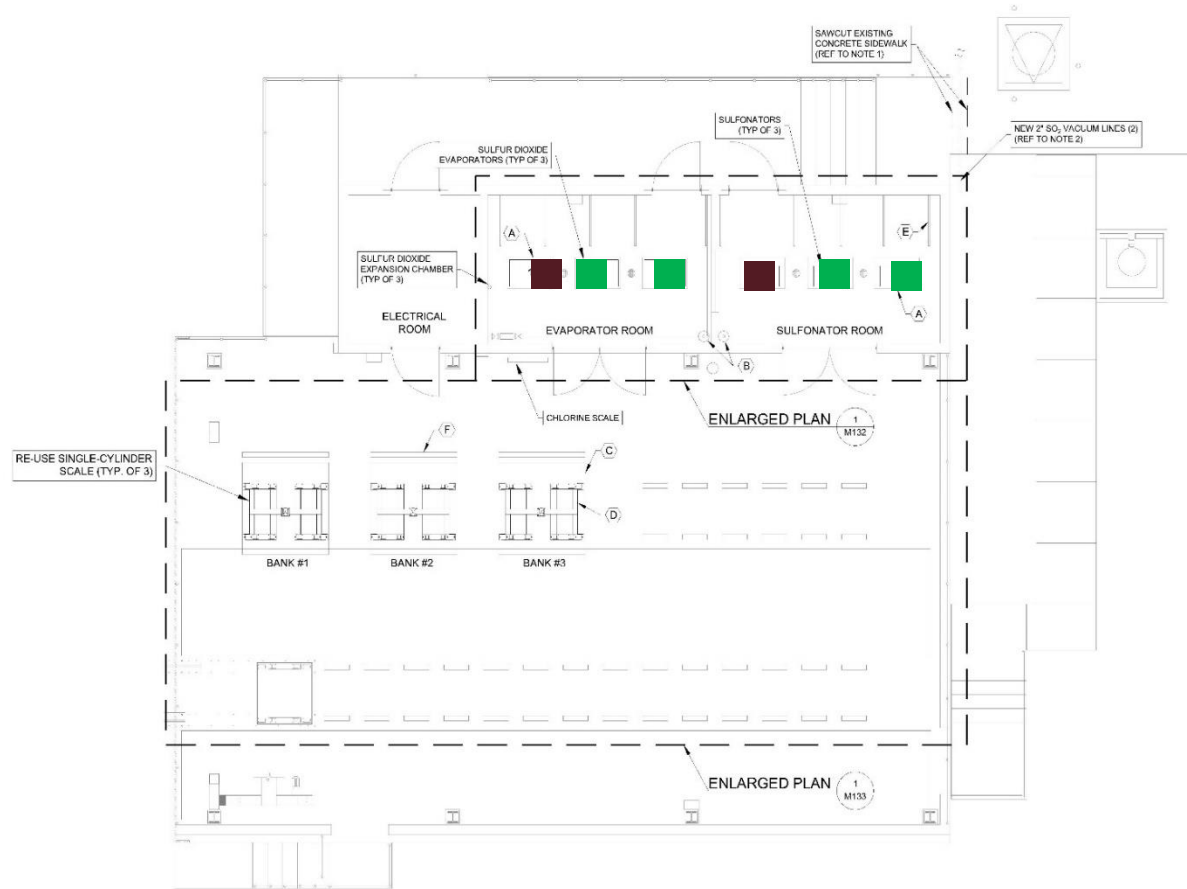
- Filter Injection Station
 - Remove and replace within 3 days
- Filter Diffusers
 - Take 1 pair of A and B filters out of service at a time for diffuser removal and replacement
 - Remove and replace within 5 days
- Recycled Water Injector
 - Remove and replace within 3 days

Sequencing Items (Cont)

- Chlorine Contact Basin Piping Modifications
 - Install 2 new buried pipes
 - Use temporary piping to maintain chlorine feed while replacing existing piping and connecting to new piping
 - Complete in 3 calendar days
- Yard Piping Modifications
 - 1st Stage RAS
 - 2nd Stage RAS
 - Filters
 - Recycle Water
 - SO₂ Piping

Sequencing for sulfur dioxide modification

- Isolate Evaporator and Sulfonator No. 1.
- SAWS operates Evaporator and Sulfonator Nos. 2 and 3.
- Demolish and replace Evaporator and Sulfonator No. 1.
- Demonstrate successful operation of Evaporator and Sulfonator No. 1 for 7 days.
- Isolate Evaporator and Sulfonator No. 2. Follow same Process to replace Evaporator and Sulfonator Nos. 2 and 3..



A temporary SO₂ GV line is required in Sulfonator Room. All three (3) lines from S1, S2, and S3 are manifolded into a single header.

Sequence for sulfur dioxide injectors and diffusers at CCBs

- Injectors-Chlorine Contact Basins
 - Isolate 1 injector segment at a time for replacement (Injector No. 1)
 - Maintain 2 injector station in service (Injector No. 2 and 3)
 - Isolate Injector No. 2 and Operate new Injector Nos. 1 and 3.
 - Isolate Injector No. 3 and operate new Injectors Nos. 1 and 2.
- Diffusers -Chlorine Contact Basins
 - CCBs must remain in service
 - Diffusers replaced one at a time.

Questions

