

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with [30 TAC 213](#).

Administrative Review

1. [Edwards Aquifer applications](#) must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: <http://www.tceq.texas.gov/field/eapp>.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.
3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.
4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
6. If the geologic assessment was completed before October 1, 2004 and the site contains “possibly sensitive” features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.
2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited.**
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a “Mid-Review Modification”. Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ’s Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ’s San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: South Lake Raw Water Facilities and Intake					2. Regulated Entity No.:				
3. Customer Name: City of Georgetown					4. Customer No.: 600412043				
5. Project Type: (Please circle/check one)	New		Modification			Extension		Exception	
6. Plan Type: (Please circle/check one)	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential		Non-residential			8. Site (acres):		3.594	
9. Application Fee:	\$1,950		10. Permanent BMP(s):						
11. SCS (Linear Ft.):			12. AST/UST (No. Tanks):			3			
13. County:	Williamson		14. Watershed:			San Gabriel River			

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the “Texas Groundwater Conservation Districts within the EAPP Boundaries” map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	Hays	Travis	Williamson
Original (1 req.)	—	—	_1_
Region (1 req.)	—	—	_1_
County(ies)	—	—	_1_
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input type="checkbox"/> _1_ Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Trinity-Glen Rose	<input type="checkbox"/> Edwards Aquifer Authority	<input type="checkbox"/> Kinney	<input type="checkbox"/> EAA <input type="checkbox"/> Medina	<input type="checkbox"/> EAA <input type="checkbox"/> Uvalde
City(ies) Jurisdiction	<input type="checkbox"/> Castle Hills <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Helotes <input type="checkbox"/> Hill Country Village <input type="checkbox"/> Hollywood Park <input type="checkbox"/> San Antonio (SAWS) <input type="checkbox"/> Shavano Park	<input type="checkbox"/> Bulverde <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Garden Ridge <input type="checkbox"/> New Braunfels <input type="checkbox"/> Schertz	NA	<input type="checkbox"/> San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.

Ellyn Weimer, PE

Print Name of Customer/Authorized Agent

Ellyn Weimer

11/15/2023

Signature of Customer/Authorized Agent

Date

****FOR TCEQ INTERNAL USE ONLY****

Date(s) Reviewed:		Date Administratively Complete:	
Received From:		Correct Number of Copies:	
Received By:		Distribution Date:	
EAPP File Number:		Complex:	
Admin. Review(s) (No.):		No. AR Rounds:	
Delinquent Fees (Y/N):		Review Time Spent:	
Lat./Long. Verified:		SOS Customer Verification:	
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):
Core Data Form Complete (Y/N):			Signed (Y/N):
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Ellyn Weimer, PE

Date: 11/15/2023

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: South Lake Raw Water Facilities and Intake

2. County: Williamson

3. Stream Basin: San Gabriel River

4. Groundwater Conservation District (If applicable): _____

5. Edwards Aquifer Zone:

Recharge Zone

Transition Zone

6. Plan Type:

WPAP

SCS

Modification

AST

UST

Exception Request

7. Customer (Applicant):

Contact Person: Chris Pousson

Entity: City of Georgetown

Mailing Address: 300-1 Industrial Ave.

City, State: Georgetown, Texas

Zip: 78626

Telephone: (512) 930-8162

FAX: (512) 930-3559

Email Address: chris.pousson@georgetown.org

8. Agent/Representative (If any):

Contact Person: Ellyn Weimer

Entity: CDM Smith, Inc.

Mailing Address: 8310-1 N Capital of Texas Hwy, Suite 250

City, State: Austin, TX

Zip: 78731

Telephone: (512) 652-5329

FAX: _____

Email Address: weimerej@cdmsmith.com

9. Project Location:

The project site is located inside the city limits of Georgetown, TX.

The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.

The project site is not located within any city's limits or ETJ.

10. The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

The South Lake Raw Water Electrical and Chemical Facilities is located at 2044 Cedar Breaks Road, Georgetown, Texas, 78628.

11. **Attachment A – Road Map.** A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. **Attachment B - USGS / Edwards Recharge Zone Map.** A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

Project site boundaries.

USGS Quadrangle Name(s).

Boundaries of the Recharge Zone (and Transition Zone, if applicable).

Drainage path from the project site to the boundary of the Recharge Zone.

13. **The TCEQ must be able to inspect the project site or the application will be returned.** Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

Survey staking will be completed by this date: April 9, 2018 (Please contact City of Georgetown for access to site before inspection)

14. **Attachment C – Project Description.** Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

- Area of the site
- Offsite areas
- Impervious cover
- Permanent BMP(s)
- Proposed site use
- Site history
- Previous development
- Area(s) to be demolished

15. Existing project site conditions are noted below:

- Existing commercial site
- Existing industrial site
- Existing residential site
- Existing paved and/or unpaved roads
- Undeveloped (Cleared)
- Undeveloped (Undisturbed/Uncleared)
- Other: Raw Water Electrical and Chemical Facilities

Prohibited Activities

16. I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
- (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
- (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
- (4) The use of sewage holding tanks as parts of organized collection systems; and
- (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
- (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and
- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

- For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
- A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- A request for an extension to a previously approved plan.

19. Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

- TCEQ cashier
- Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

21. No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.



**Attachment A: Road Map
South Lake Raw Water Facilities and Intake
Williamson County, Texas**



Attachment B: Edwards Aquifer Recharge Zone Map

South Lake Raw Water Facilities and Intake

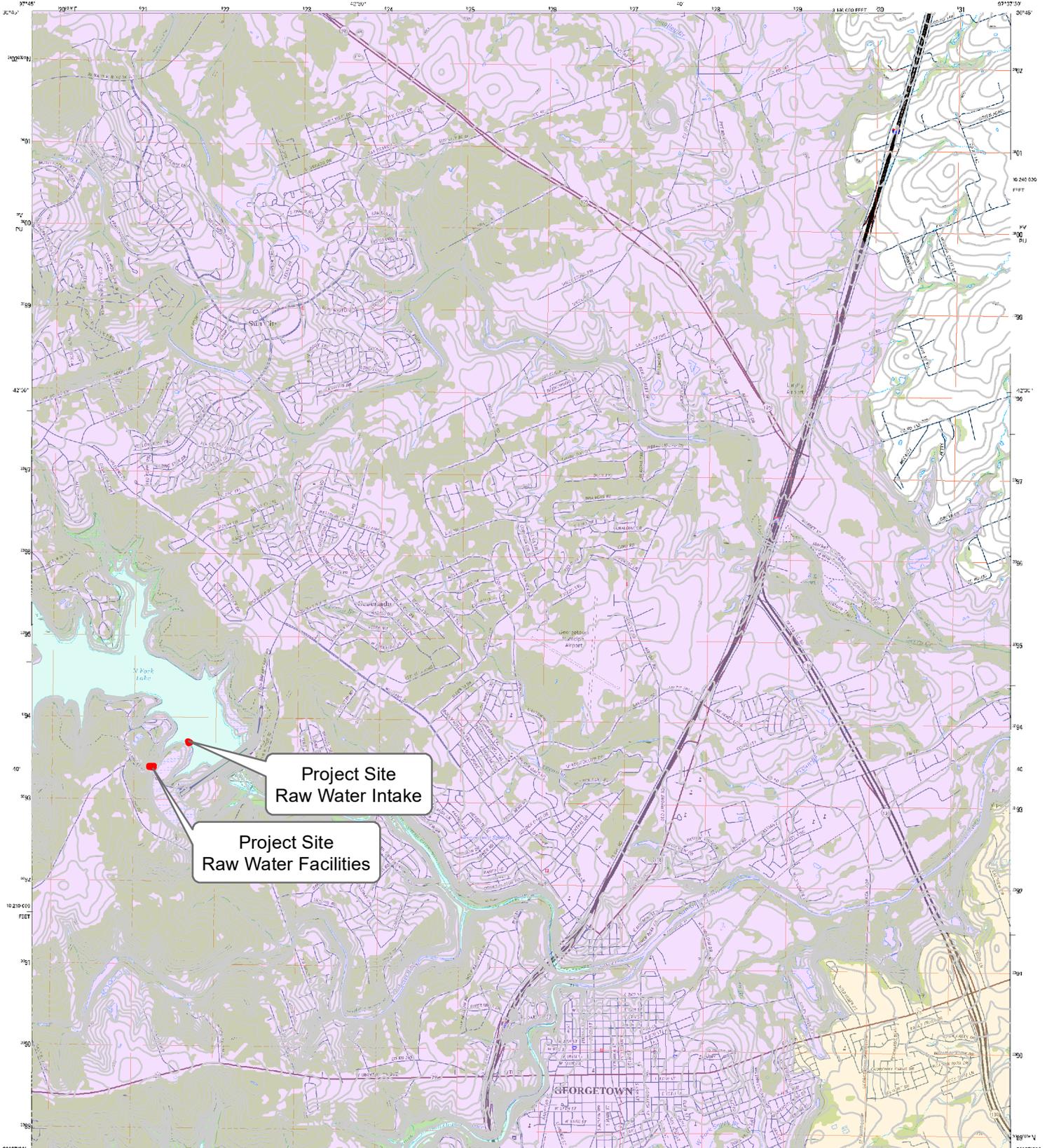
Williamson County, Texas



U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



GEORGETOWN QUADRANGLE
TEXAS-WILLIAMSON CO.
7.5-MINUTE SERIES



**Project Site
Raw Water Intake**

**Project Site
Raw Water Facilities**

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
North American Datum of 1983 (NAD83). Elevation and
contour data derived from a variety of sources, including
1:250,000-scale maps, Texas Coordinate System of 1983 (TCRS
83).



ROADS		RAILROADS	
Expressway	Local Collector	Interstate	Other
Secondary / Hwy	Local Road	US Route	State Route
Front	4WD		
Blue State Route			



City of Georgetown

South Lake Raw Water Facilities and Intake

Aboveground Storage Tank Facility Plan

The South Lake Raw Water Facilities and Intake project will provide chemical and electrical buildings and associated tanks that will aid the raw water intake and piping that runs from Lake Georgetown to the South Lake Water Treatment Plant. The Intake is located solely on the contributing zone and is less than 5 acres of soil disturbance and is exempt from permitting. The associated 42-inch raw water line and electrical conduit is also exempt over the recharge zone as it is not deemed a regulated activity. The South Lake Water Treatment Plant is already permitted and under construction (EAPP ID 11002763). The electrical and chemical facility is located at 2044 Cedar Breaks Road, adjacent to the existing Round Rock Lake Georgetown Pump Station. The site is 3.594 acres. The impervious cover of the proposed site is 0.23 acres (6%). Permanent best management practices (BMPs) for the site include revegetating and hydroseeding disturbed areas that will act as linear vegetation filter strips in the long term.

Three above ground storage tanks are proposed for the site. One is a double walled tank for sodium permanganate as well as two double walled subbase fuel tanks for the emergency generators located on site.

**GEOLOGIC ASSESSMENT
FOR THE APPROXIMATELY 0.09-ACRE
SOUTH LAKE RAW WATER FACILITIES AND INTAKE**

Williamson County, Texas

September 2023

Submitted to:

CDM Smith, Inc.
9430 Research Blvd., Suite 1-200
Austin, Texas 78759

Prepared by:

aci Group, LLC
1001 Mopac Circle
Austin, Texas 78746
TBPG Firm License No. 50260

aci project #: 05-20-006

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Mark T. Adams

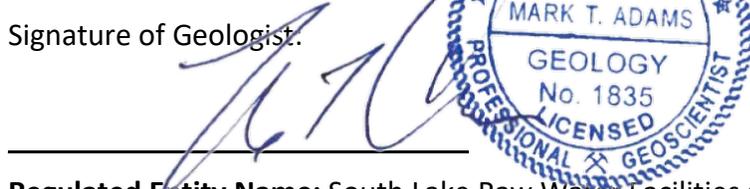
Telephone: (512) 347-9000

Date: 9/19/2023

Fax: (512) 306-0974

Representing: aci Group LLC TBPG License No. 50260 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: South Lake Raw Water Facilities and Intake

Project Information

1. Date(s) Geologic Assessment was performed: 08/10/2021

2. Type of Project:

WPAP

AST

SCS

UST

3. Location of Project:

Recharge Zone

Transition Zone

Contributing Zone within the Transition Zone

4. **Attachment A - Geologic Assessment Table.** Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
5. Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Eckrant-Rock outcrop association, 8 to 30 percent slopes (ErG)	D	0-1.6
Eckrant-Rock outcrop association, 1 to 10 percent slopes (ErE)	D	6.66

Soil Name	Group*	Thickness(feet)

* Soil Group Definitions (Abbreviated)

- A. Soils having a high infiltration rate when thoroughly wetted.
- B. Soils having a moderate infiltration rate when thoroughly wetted.
- C. Soils having a slow infiltration rate when thoroughly wetted.
- D. Soils having a very slow infiltration rate when thoroughly wetted.

6. **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
7. **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
8. **Attachment D – Site Geologic Map(s).** The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'
 Applicant's Site Plan Scale: 1" = 10'
 Site Geologic Map Scale: 1" = 10'
 Site Soils Map Scale (if more than 1 soil type): 1" = 500'
9. Method of collecting positional data:
 - Global Positioning System (GPS) technology.
 - Other method(s). Please describe method of data collection: _____

10. The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. Surface geologic units are shown and labeled on the Site Geologic Map.
12. Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
- Geologic or manmade features were not discovered on the project site during the field investigation.
13. The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.
- There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
- The wells are not in use and have been properly abandoned.
- The wells are not in use and will be properly abandoned.
- The wells are in use and comply with 16 TAC Chapter 76.
- There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

15. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

TABLE OF CONTENTS

1.0	INTRODUCTION	2
2.0	PROJECT INFORMATION.....	2
3.0	INVESTIGATION METHODS	3
4.0	SOILS AND GEOLOGY.....	3
5.0	SUMMARY OF FINDINGS	6
6.0	REFERENCES	7

LIST OF ATTACHMENTS

ATTACHMENT A		8
	Site Maps (Figures 1-4)	
ATTACHMENT B.....		13
	Geologic Table	
	Geologic and Manmade Feature Maps (Figures 5.1 & 5.2)	
	Feature Descriptions and Recommendations	
ATTACHMENT C		19
	Historic Aerial Photographs	

September 2023

Geologic Assessment for the South Lake Raw Water Facilities and Intake located in Williamson County, Texas

1.0 INTRODUCTION

The Texas Commission on the Environmental Quality (TCEQ) regulates activities that have the potential to pollute the Edwards Aquifer through the Edwards Aquifer Protection Program. Projects meeting a certain criterion over the Edwards Aquifer Recharge Zone must submit an Edwards Aquifer Protection Plan (EAPP).

The purpose of this report is to identify all potential pathways for contaminant movement to the Edwards Aquifer and provide sufficient geologic information so that the appropriate Best Management Practices (BMPs) can be proposed in the EAPP. This report complies with the requirements of Title 30, Texas Administrative Code (TAC) Chapter 213 relating to the protection of the Edwards Aquifer Recharge Zone. Per the Rules, the Geologic Assessment must be completed by a Geologist licensed according to the Texas Geoscience Practice Act.

2.0 PROJECT INFORMATION

The South Lake Raw Water Facilities and Intake project consists of the Raw Water Intake Pump Station (IPS) and Electrical and Chemical Substation (ECS). These buildings are located east of Cedar Breaks Road, along the proposed Raw Water Alignment, in the City of Georgetown Full Purpose jurisdiction, in Williamson County, Texas (**Attachment A, Figure 1**). Pedestrian investigations of the 0.06-acre ECS and 0.03-acre IPS areas were performed on August 10, 2021, by Marcos Cardenas, Sarah King, Andrew Marlow, and Erin Mathison, under the supervision of Mark Adams, P.G. with **aci consulting**.

This report is intended to satisfy the requirements for a Geologic Assessment, which shall be included as a component of a Water Pollution Abatement Plan (WPAP). The site is approximately 0.09 acres in total. The proposed site use is for the development of the South Lake Raw Water project. The scope of the report consists of a site reconnaissance, field survey, and review of existing data and reports. Features identified during the field

survey were ranked utilizing the TCEQ matrix for Edwards Aquifer Recharge Zone features. The ranking of the features will determine their viability as “sensitive” features.

3.0 INVESTIGATION METHODS

The following investigation methods and activities were used to develop this report:

- Review of existing files and literature to determine the regional geology and any known caves associated with the project area;
- Review of past geological field reports, cave studies, and correspondence regarding the existing geologic features on the project area, if available;
- Site reconnaissance by a registered professional geologist to identify and examine caves, recharge features, and other significant geological structures;
- Evaluation of collected field data and a ranking of features using the TCEQ Ranking Table 0585 for the Edwards Aquifer Recharge Zone; and
- Review of historic aerial photographs to determine if there are any structural features present, and to determine any past disturbances on the subject property.

4.0 SOILS AND GEOLOGY

The following includes a site-specific description of the soils, geologic stratigraphy, geologic structure, and karstic characteristics as they relate to the Edwards aquifer. Also included in this section is a review of historic aerials for presence of geologic changes or changes to manmade features in bedrock.

Soils

According to the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (2023), two soil units occur within the project alignment (**Attachment A, Figure 2**):

- ErG—Eckrant-Rock outcrop association, 8 to 30 percent slopes
The Eckrant component makes up 65 percent of the map unit. Slopes are 8 to 30 percent. This component is on ridges on dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 4 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted

depth) is very low. Shrink-swell potential is moderate. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 6 percent. This soil does not meet hydric criteria. Hydric Soil Group: D

Rock outcrop (27%), Brackett (4%), Kerrville (2%), Krum (1%), and Tarpley (1%) make up the remaining 35% of the soil map unit.

- ErE—Eckrant-Rock outcrop association, 1 to 10 percent slopes
The Eckrant component makes up 58 percent of the map unit. Slopes are 1 to 10 percent. This component is found on ridges of dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 4 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is moderate. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 6 percent. This soil does not meet hydric criteria. Hydrologic Soil Group: D.

Rock outcrop (16%), Tarpley (11%), Real (6%), Brackett (5%), and Pratley (4%) components make up the remaining 42% of the map unit.

Geologic Stratigraphy

According to the *Geologic Map of the Georgetown Quadrangle, Texas*, one geologic unit, Edwards Limestone (Ked) occurs within the project alignment (**Attachment A, Figure 3**). A description of the Edwards Limestone (Ked) unit by Collins (1997) is as follows:

- Edwards Limestone (Ked)
“Limestone, dolomitic limestone and marl. Massive to thin beds, chert, and fossiliferous; fossils include rudistids. Shallow subtidal to tidal-flat cycles. Honeycomb textures, voids in collapsed breccias, and cavern systems. Accounts for most of the Edwards aquifer strata. Thickness is between 100ft to 300ft; thins northward.”

Site-Specific Stratigraphic Column

Formation	Members	Thickness (Collins, 1997)
Edwards Limestone	Edwards Limestone	Approximately 80-130 feet (mapped from contours)

Geologic Structure

The geologic strata associated with the Edwards Aquifer include the Georgetown Limestone Formation of the Washita Group, the Edwards Limestone Group, which is interfingered with the Comanche Peak Formation, followed by the Walnut formation, and finally the Glen Rose Formation of the Trinity Group. These Groups dip gently to the southeast and are characterized by the Balcones Fault Escarpment, a zone of en echelon normal faults downthrown to the southeast. Locally, the dominant structural trend of faults within the area is 15°, as evidenced by the mapped fault patterns (**Attachment A, Figure 4**). Thus, all features that have a trend ranging from 0° to 30° are considered “on trend” and were awarded the additional 10 points in the Geologic Assessment Table.

The geology on the site and surrounding tracts up to the border of Lake Georgetown is all Edwards Limestone (Ked), however the Comanche Peak (Kc) is present along the border of Lake Georgetown, suggesting the site is within the lower section of the Edwards Limestone (Collins 1997).

Karstic Characteristics

In limestone landscapes, karst is expressed by erratically developed cavernous porosity from dissolution of bedrock as water combined with weak acids moves through the subsurface. Karst terrains are typical of the Edwards Limestone, occurring across a vast region of Central Texas, including the Balcones Fault Escarpment. The features produced by karst processes include, but are not limited to, sinkholes, solution cavities, solution enlarged fractures, and caves. These features can eventually provide conduits for fluid movement such as surface water runoff, as “point recharge” to the Edwards Aquifer. Faults and manmade features within bedrock can also provide conduits for point recharge in many cases.

According to Edwards aquifer zone map produced by the TCEQ (2005), the entire subject area is within the northern segment of the Edwards Aquifer Recharge Zone (**Attachment A, Figure 3**). Thus, all karst features identified as sensitive within the project limits have the potential to be point recharge features into the Edwards Aquifer.

Review of Historic Aerials

Aerial photographs from 1941, 1953, 1962, 1974, 1981, 1988, 1995, 2004, 2010, 2016, and 2020. The general area appeared to be undeveloped or used for agricultural purposes since before the first aerial image dated 1941 (**Attachment C**). Minor changes in vegetation occur on and surrounding the site between the 1941 and 1962 aerial images. In the 1962 aerial, an easement of some sort appears to the north of the site. Lake Georgetown and Cedar Breaks Park first appears to the north and east of the site in the 1981 aerial. Minor changes to the existing structures, roads, and Cedar Breaks Park are visible between the 1981 and 2020 aerials, including changes in the water level of Lake Georgetown.

5.0 SUMMARY OF FINDINGS

This report documents the findings of a geologic assessment conducted by **aci consulting** personnel on August 10, 2021. A total of two features were identified within the limits of the project. Both features identified are manmade features in bedrock. Comprehensive descriptions for each feature can be found in **Attachment B**. The manmade features in bedrock are associated with infrastructure for the existing water utilities and have been designated as sensitive to call the attention of the project engineers.

6.0 REFERENCES

Collins, E.W., 1997. *Geologic Map of the Georgetown Quadrangle, Texas*. Bureau of Economic Geology. Austin, Texas.

(SCS) Soil Conservation Survey. 1983. Soil Survey of Williamson County, Texas. United States Department of Agriculture. Texas Agriculture Experiment Station.

(TCEQ) Texas Commission on Environmental Quality. 2004. Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones. October 1, 2004. Austin, Texas.

(TCEQ) Texas Commission on Environmental Quality. 2005. "Edwards Aquifer Protection Program, Chapter 213 Rules - Recharge Zone, Transition Zone, Contributing Zone, and Contributing Zone within the Transition Zone." Map. Digital data. September 1, 2005. Austin, Texas.

(TWDB) Texas Water Development Board. 2023. Water Data Interactive Groundwater Data Viewer. Accessed on September 18, 2023. Available at:
<http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>

(USDA NRCS) U.S. Department of Agriculture Natural Resources Conservation Service. 2023. WebSoilSurvey.com. Soil Survey Area: Williamson County, Texas. Date accessed: September 18, 2023.

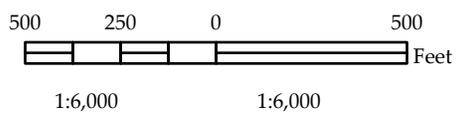
ATTACHMENT A

Site Maps

P:\Project Folders\05-20-006 South Lake Georgetown Water Project\GIS\maps\Task 4 - CA and Kost Survey\Raw Waterline Buildings - CA\Figure 1.mxd



This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



- RW Electrical and Chemical Plant
- RW Intake and Pump Station



South Lake Raw Water Facilities and Intake
Figure 1: Site Location Map

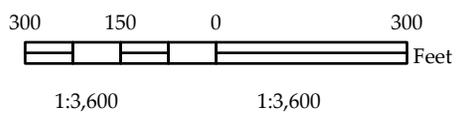
P:\Project Folders\05-20-006 South Lake Georgeham Water Project\GIS\maps\Task 4 - CA and Kost Survey\Raw Waterline\Raw Waterline Buildings - CA\Figure 2.aprx

Soils

- ErE - Eckrant-Rock outcrop association, 1 to 10 percent slopes
- ErG - Eckrant-Rock outcrop association, 8 to 30 percent slopes
- W - Water



This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



-  RW Electrical and Chemical Plant
-  RW Intake and Pump Station



South Lake Raw Water Facilities and Intake
Figure 1: Site Location Map

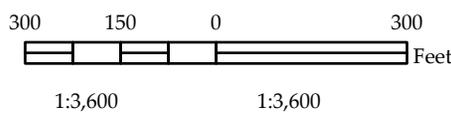
P:\Project Folders\05-20-006 South Lake Georgetown Water Project\GIS\maps\Task 4 - CA and Kinst Survey\Raw Waterline Buildings - CA\Figure 3.aprx

Geologic Units

- Ked - Edwards Limestone
- Wa - Water



This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



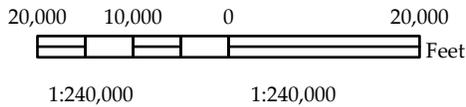
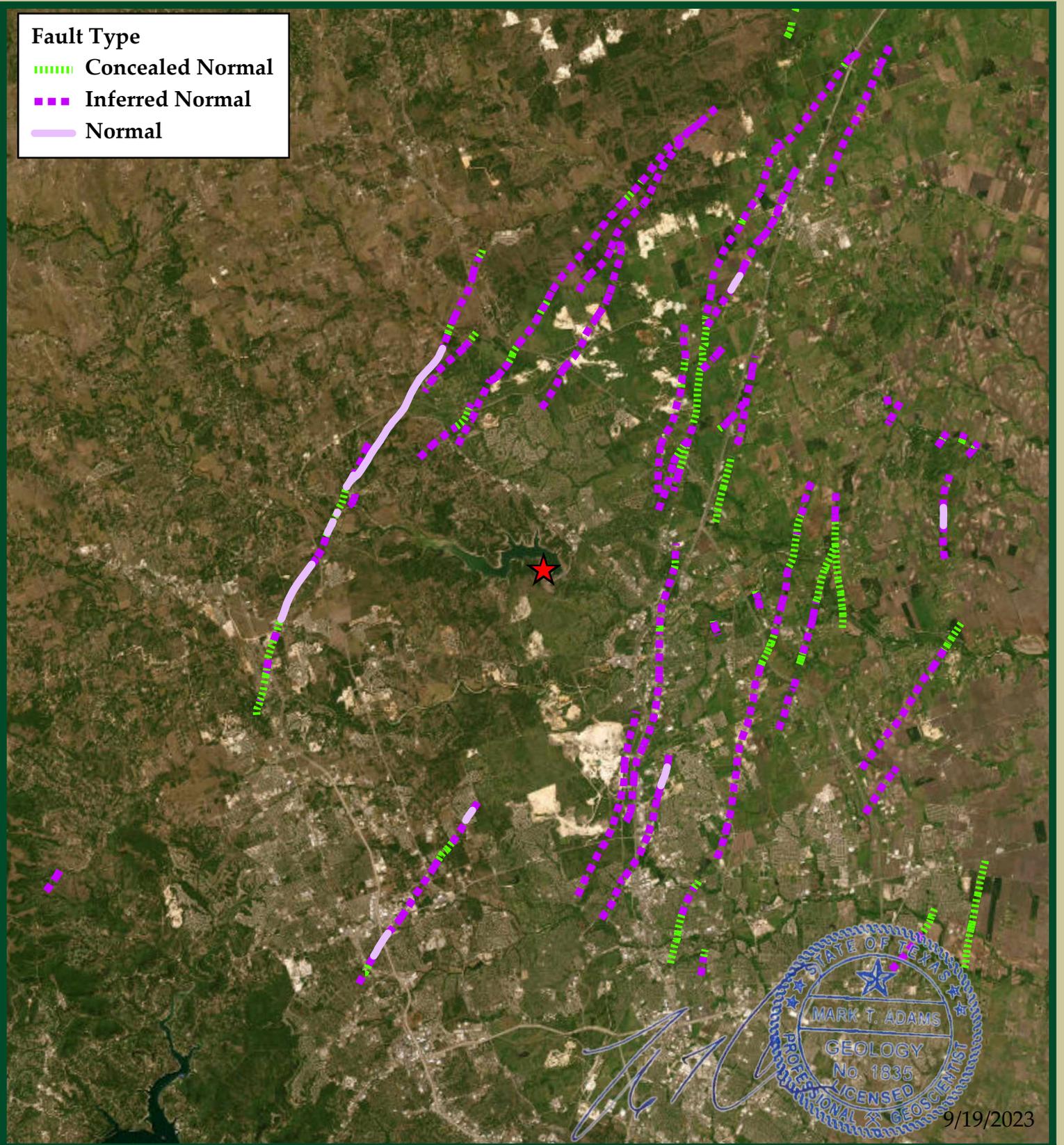
- RW Electrical and Chemical Plant
- RW Intake and Pump Station



South Lake Raw Water Facilities and Intake
 Figure 3: Site Geology Map

Fault Type

-  Concealed Normal
-  Inferred Normal
-  Normal



South Lake Raw Water Facilities & Intake
Regional Trend ~15°



STATE OF TEXAS
MARK T. ADAMS
GEOLOGY
No. 1835
PROFESSIONAL LICENSED
GEOLOGIST
9/19/2023

ATTACHMENT B

Geologic Table Geologic and Manmade Feature Maps (Figures 5.1 & 5.2) Feature Descriptions and Recommendations

P:\Project Folders\05-20-006_South_Lake_Geological_Water_Project\gsi\maps\Task 4 - CA and Karst Surveys\Raw Waterline Buildings - CA Figure 5.1.aprx



-  Ked - Edwards Limestone
-  Edwards Aquifer Recharge Zone

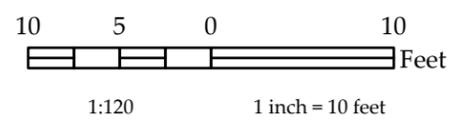
RWL-08

RWL-07

The entire subject area is within the FEMA Flood Hazard Zone A.
 There are no mapped flowlines (NHD), waterbodies (NHD), or wetlands (NWI) within the subject area.

This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.

Williamson County TX, Maxar, Microsoft



-  RW Electrical and Chemical Plant
-  Man-made Feature In Bedrock



South Lake Raw Water Facilities and Intake
 Figure 5.1 Geologic and Manmade Feature Map

9/19/2023

aci Project No.: 05-20-006
 September 2023

P:\Project Folders\05-20-006 South Lake Georgetown Water Project\gis\maps\Task 4 - CA and Karst Survey\Raw Waterline Buildings - CA Figure 5.2.aprx



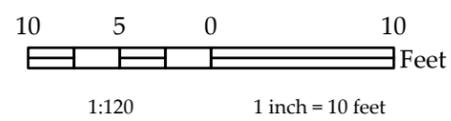
North Fork Lake

-  NHD Waterbodies
-  Ked - Edwards Limestone
-  Wa - Water
-  Edwards Aquifer Contributing Zone

The entire subject area is within the FEMA Flood Hazard Zone A.
 There are no mapped flowlines (NHD) or wetlands (NWI) within the subject area.

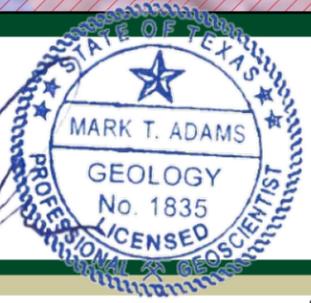
Williamson County TX, Maxar, Microsoft

This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



 RW Intake and Pump Station

No geologic or manmade features were encountered.



South Lake Raw Water Facilities and Intake
Figure 5.2 Geologic and Manmade Feature Map

9/19/2023

aci Project No.: 05-20-006
September 2023

RWL-07

GPS: 30.666931, -97.734528

This feature is a manmade feature in bedrock, a raw water pipeline within the proposed ECS boundary. A manhole and metal water valve cover were located within an approximately 8 ft diameter concrete pad. A water line tie in is located directly adjacent to the concrete structure. The feature is within the floodplain (FEMA Flood Hazard Zone A) in the Edwards Limestone Formation. The infill material beneath the feature was not determined during the inspection. The depth of the manhole and pipeline was not determined during inspection; however, this feature has been designated as sensitive in order to call the attention of the project engineers.

Recommendation: This feature does not require any protective setbacks but should be brought to the attention of the engineer.



View of RWL 07.

RWL-08

GPS: 30.666931, -97.734589

This feature is a manmade feature in bedrock, a pad mounted automatic gate motor and associated underground electrical wires within the proposed ECS boundary. This motor is located above a 2 ft by 2 ft concrete pad with underground electrical utilities adjacent to the pad. The feature is within the floodplain (FEMA Flood Hazard Zone A) in the Edwards Limestone Formation. The infill material beneath the feature was not determined during the inspection. The depth of the concrete pad or the electric utilities was not determined during the inspection; however, this feature has been designated as sensitive in order to call the attention of the project engineers.

Recommendation: This feature does not require any protective setbacks but should be brought to the attention of the engineer.



View of RWL-08.

ATTACHMENT C

Historic Aerial Photographs

Prepared for:

ACI CONSULTING
1001 Mopac Circle
Austin, TX 78746



Historical
Aerial
Photographs

South Lake Georgetown
Water Project
TX
Williamson County
PO #: 05-20-006
ES-139049
Wednesday, March 9, 2022

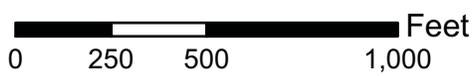


Date: 2020
Source: USDA





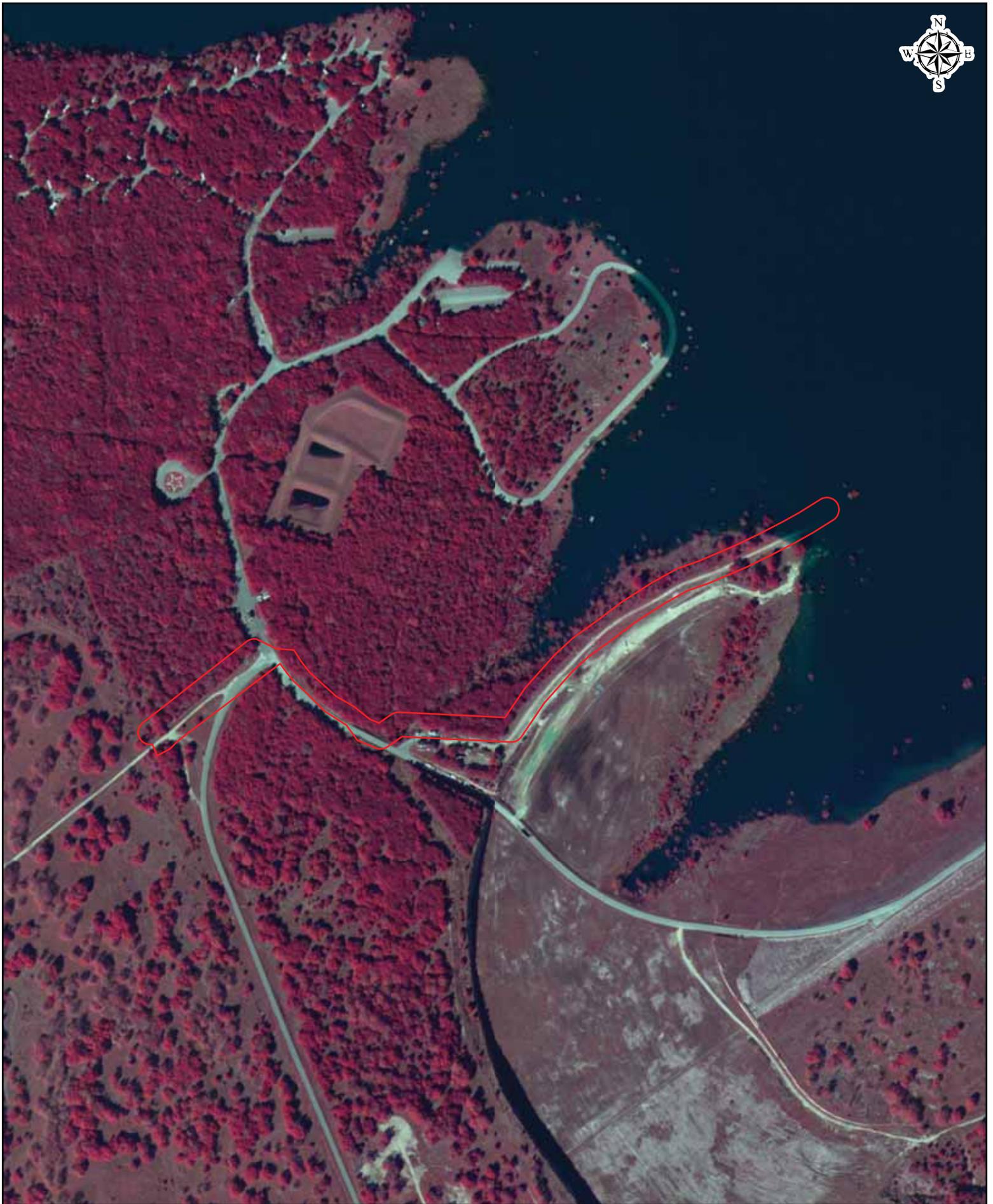
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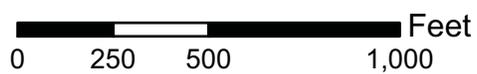


Date: 2010
Source: USDA





Date: 2004
Source: USDA





Date: 1995
Source: USGS





Date: 1988
Source: TXDOT





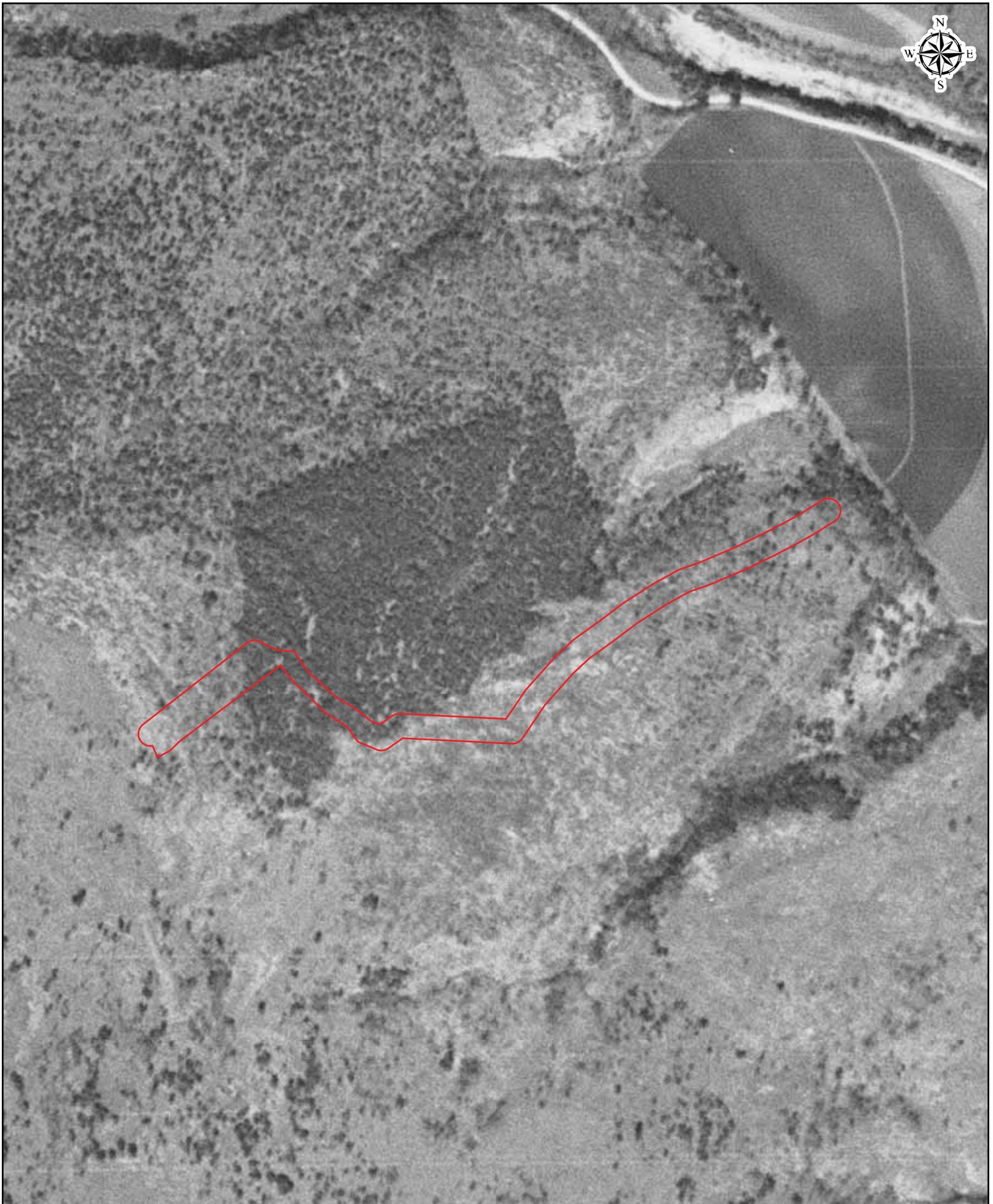
Date: 1981
Source: USGS





Date: 1962
Source: USGS





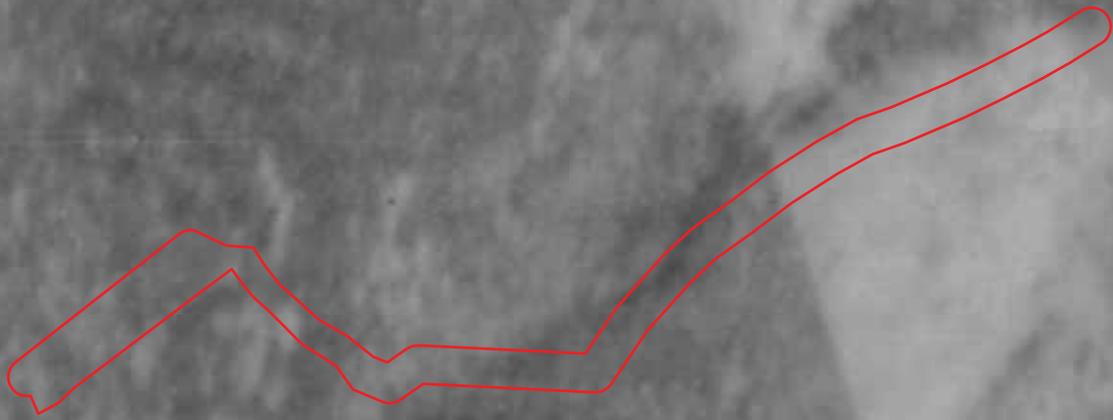
Date: 1953
Source: AMS





CXB -

8-7



Date: 1941
Source: ASCS



HISTORICAL AERIAL PHOTOGRAPHS	
ES- 139049	March 9, 2022



AERIAL SOURCE DEFINITIONS

Acronym	Agency
NASA	National Aeronautics & Space Administration
AMS	Army Mapping Service
ASCS	Agricultural Stabilization & Conservation Service
SCS	Soil Conservation Service
USBR	United States Bureau of Reclamation
Fairchild	Fairchild Aerial Surveys
TXDOT	Texas Department of Transportation
BLM	Bureau of Land Management
USAF	United States Air Force
USCOE	United States Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WALLACE	Wallace-Zingery Aerial Surveys
TNRIS	Texas Natural Resources Information System

HISTORICAL AERIAL PHOTOGRAPHS	
ES- 139049	March 9, 2022



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Aboveground Storage Tank Facility Plan Application

Texas Commission on Environmental Quality

For Permanent Storage on The Edwards Aquifer Recharge and Transition Zones And Relating to 30 TAC §213.5(e), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Aboveground Storage Tank Facility Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Ellyn Weimer, PE

Date: 11/15/2023

Signature of Customer/Agent:



Regulated Entity Name: South Lake Raw Water Facilities and Intake

Aboveground Storage Tank (AST) Facility Information

1. Tanks and substance stored:

Table 1 - Tank and Substance Storage

<i>AST Number</i>	<i>Size (Gallons)</i>	<i>Substance to be Stored</i>	<i>Tank Material</i>
1	See attachment A		
2			
3			
4			

<i>AST Number</i>	<i>Size (Gallons)</i>	<i>Substance to be Stored</i>	<i>Tank Material</i>
5			

Total x 1.5 = See Attachment A Gallons

2. The AST will be placed within a containment structure that is sized to capture one and one-half (1 1/2) times the storage capacity of the system. For facilities with more than one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

Attachment A - Alternative Methods of Secondary Containment. Alternative methods for providing secondary containment are proposed. Specifications that show equivalent protection for the Edwards Aquifer are attached.

3. Inside dimensions and capacity of containment structure(s):

Table 2 - Secondary Containment

<i>Length (L) (Ft.)</i>	<i>Width (W) (Ft.)</i>	<i>Height (H) (Ft.)</i>	<i>L x W x H = (Ft3)</i>	<i>Gallons</i>
19.7	16	2	574.56	4,298
30.4	10.8	1.75	572.56	4,282 (x2)

Total: 12,862 Gallons

4. All piping, hoses, and dispensers will be located inside the containment structure.
 Some of the piping to dispensers or equipment will extend outside the containment structure.
 The piping will be aboveground
 The piping will be underground
5. The containment area must be constructed of and in a material impervious to the substance(s) being stored. The proposed containment structure will be constructed of concrete.
6. **Attachment B - Scaled Drawing(s) of Containment Structure.** A scaled drawing of the containment structure that shows the following is attached:
 Interior dimensions (length, width, depth and wall and floor thickness).
 Internal drainage to a point convenient for the collection of any spillage.
 Tanks clearly labeled.
 Piping clearly labeled.
 Dispenser clearly labeled.

Site Plan Requirements

Items 7 - 18 must be included on the Site Plan.

7. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 10'.
8. 100-year floodplain boundaries:
- Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
 - No part of the project site is located within the 100-year floodplain.
 - The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA FIRM 48491C0290E Effective 9/26/2008.
9. The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Show lots, recreation centers, buildings, roads, etc.
- The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown.
10. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):
- There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply):
 - The wells are not in use and have been properly abandoned.
 - The wells are not in use and will be properly abandoned.
 - The wells are in use and comply with 16 TAC § 76.
 - There are no wells or test holes of any kind known to exist on the project site.
11. Geologic or manmade features which are on the site:
- All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
 - No sensitive geologic or manmade features were identified in the Geologic Assessment.
 - Attachment C - Exception to the Geologic Assessment.** A request and justification for an exception to a portion of the Geologic Assessment is attached.
12. The drainage patterns and approximate slopes anticipated after major grading activities.
13. Areas of soil disturbance and areas which will not be disturbed.
14. Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

15. Locations where soil stabilization practices are expected to occur.
16. Surface waters (including wetlands).
 N/A
17. Locations where stormwater discharges to surface water or sensitive features.
 There will be no discharges to surface water or sensitive features.
18. Legal boundaries of the site are shown.

Best Management Practices

19. Any spills must be directed to a point convenient for collection and recovery. Spills from storage tank facilities must be removed from the controlled drainage area for disposal within 24 hours of the spill.
- In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.
 - In the event of a spill, any spillage will be drained from the containment structure through a drain and valve within 24 hours of the spill and disposed of properly. The drain and valve system are shown in detail on the scaled drawing.
20. All stormwater accumulating inside the containment structure will be disposed of through an authorized waste disposal contractor.
- Containment area will be covered by a roof.
 - Containment area will not be covered by a roof.
 - A description of the alternate method of stormwater disposal is submitted for the executive director's review and approval and is attached.
21. **Attachment D - Spill and Overfill Control.** A site-specific description of the methods to be used at the facility for spill and overfill control is attached.
22. **Attachment E - Response Actions to Spills.** A site-specific description of the planned response actions to spills that will take place at the facility is attached.

Administrative Information

23. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.
- The WPAP application for this project was approved by letter dated _____. A copy of the approval letter is attached at the end of this application.
 - The WPAP application for this project was submitted to the TCEQ on November 9, 2023, but has not been approved.
 - A WPAP application is required for an associated project, but it has not been submitted.

- There will be no building or structure associated with this project. In the event a building or structure is needed in the future, the required WPAP will be submitted to the TCEQ.
 - The proposed AST is located on the Transition Zone and a WPAP is not required. Information requested in 30 TAC 213.5 subsection (b) (4)(B) and (C) and (5) is provided with this application. (Forms TCEQ-0600 Permanent Stormwater Section and TCEQ-0602 Temporary Stormwater Section or Stormwater Pollution Prevention Plan/SW3P).
24. This facility is subject to the requirements for the reporting and cleanup of surface spills and overfills pursuant to 30 TAC 334 Subchapter D relating to Release Reporting and Corrective Action.
25. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
26. Any modification of this AST Facility Plan application will require executive director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

City of Georgetown
South Lake Raw Water Facilities and Intake
Aboveground Storage Tanks Facility Plan

The South Lake Raw Water Facilities and Intake is located at 2044 Cedar Breaks Road, which lies approximately 610 feet south of the intersection of Cedar Breaks and Crockett Gardens Road. The project site is located on relatively flat land that slopes gently from the south to the north. The site's topography and site boundaries minimize the potential for off-site runoff to flow into and across the Raw Water Facilities site. Re-vegetation and hydroseeding disturbed areas will act as linear vegetation filter strips in the long run.

The items associated with this permit will include:

- Construction of 3 new aboveground storage tanks that will contain a variety of chemicals for the treatment of water at the South Lake Raw Water Facilities and Intake.

A summary of the 3 new tanks to be constructed on the site are as follows in **Table 1**.

Table 1. Aboveground Storage Tanks and Piping Systems

AST Number	Size (gallons)	Substance Stored	Tank Material
1	2,500	Sodium Permanganate	HDPE (Double-Wall)
2	2,800	No.2 Diesel	Welded Steel
3	2,800	No.2 Diesel	Welded Steel

The Sodium Permanganate Tank (dual contained) will be placed within concrete containment structure that is sized to capture 150% of the storage capacity of all the tanks located within the containment structure. The tank and secondary containment structure are shown on the construction plans attached with this submittal. The total storage is 3,900 gallons. **Table 2** below summarizes the location of the tank and the volume in the containment area. Each of the containment area will provide greater than 150% of the total tank volume stored in the associated containment area.

Alternative methods other than a containment structure sized to capture one and one-half times the storage capacity of the system for the two proposed fuel tanks are proposed. The two proposed generator fuel tanks are double-wall subbase design carbon steel construction tanks complying with UL-142 Standard. The inner tanks serve as the primary fuel storage container while the outer tank serves as secondary containment. The subbase tanks include a welded steel containment basin, sized at a minimum of 110 percent of the tank capacity to prevent the escape of fuel into the environment in the event of a tank rupture. The shop drawing and specification for the generator subbase is provided.

Attachment A
Summary of Tanks and Containment Methods

Table 2. Tank Locations and Total Containment in Each Area

AST Number	Chemical	Tank Size (gallons)	Total Tank Volume (gallons)	Containment Volume (gallons) ⁽¹⁾	Ratio Containment Volume to Total Tank Volume	References
Containment Area 3: Sodium Permanganate Storage Area						
1	Sodium Permanganate	2,500	2,560	3,914	1.57	MN-1, MN-3, SN-1, SN-2
Containment Area 4: Generator Pad						
2	Diesel No. 2	2,800	2,800	3,080	1.1	EM-1
3	Diesel No. 2	2,800	2,800	3,080	1.1	EM-1

Notes:

- (1) Containment volumes are based on total volume available. These volumes consider structural impediments such as tank pads and tank pad support piers.
- (2) Subbase tanks for diesel generators are UL-142 rated that are dual walled to contain up to 110% of the tank capacity

SECTION 263213.13 - DIESEL EMERGENCY ENGINE GENERATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes packaged diesel engine generators for emergency use with the following features:
 - 1. Diesel engine.
 - 2. Diesel fuel-oil system.
 - 3. Control and monitoring.
 - 4. Generator overcurrent and fault protection.
 - 5. Generator, exciter, and voltage regulator.
 - 6. Outdoor engine generator enclosure.
 - 7. Vibration isolation devices.
 - 8. Finishes.
 - 9. Generator Neutral Grounding equipment.
- B. Related Requirements:
 - 1. Section 261327 "Medium-Voltage Metal-Clad Paralleling Switchgear" for controls and paralleling equipment for large or multiple parallel engine generators.

1.3 DEFINITIONS

- A. EPS: Emergency power supply.
- B. EPSS: Emergency power supply system.
- C. Operational Bandwidth: The total variation, from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
 - 2. Include thermal damage curve for generator.

3. Include time-current characteristic curves for generator protective device.
4. Include fuel consumption in gallons per hour at 0.8 power factor at 0.5, 0.75, and 1.0 times generator capacity.
5. Include generator efficiency at 0.8 power factor at 0.5, 0.75, and 1.0 times generator capacity.
6. Include airflow requirements for cooling and combustion air in cubic feet per minute at 0.8 power factor, with air-supply temperature of 95, 80, 70, and 50 deg F. Provide Drawings indicating requirements and limitations for location of air intake and exhausts.
7. Include generator characteristics, including, but not limited to, kilowatt rating, efficiency, reactances, and short-circuit current capability.
8. Sound test data, based on a free field requirement.

B. Shop Drawings:

1. Include plans and elevations for engine generator and other components specified. Indicate access requirements affected by height of subbase fuel tank.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Identify fluid drain ports and clearance requirements for proper fluid drain.
4. Design calculations for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.
5. Vibration Isolation Base Details: Detail fabrication, including anchorages and attachments to structure and supported equipment. Include base weights.
6. Include diagrams for power, signal, and control wiring. Complete schematic, wiring, and interconnection diagrams showing terminal markings for EPS equipment and functional relationship between all electrical components.

- C. Submit a copy of this specification confirming compliance with each paragraph. For deviations, provide detailed commentary to explain the deviation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer and testing agency.

- B. Seismic Qualification Data: Certificates for engine generator, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: With engine and generator mounted on rails, identify center of gravity and total weight, including full fuel tank, supplied enclosure, subbase-mounted fuel tank, and each piece of equipment not integral to the engine generator, and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

- C. Source Quality-Control Reports: Including, but not limited to, the following:

1. Certified summary of prototype-unit test report.

2. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
 3. Certified Summary of Performance Tests: Certify compliance with specified requirement to meet performance criteria for sensitive loads.
 4. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
 5. Report of sound generation.
 6. Report of exhaust emissions showing compliance with applicable regulations.
 7. Certified Torsional Vibration Compatibility: Comply with NFPA 110.
- D. Field quality-control reports.
- E. Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For engine generators to include in emergency, operation, and maintenance manuals.
1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 - a. List of tools and replacement items recommended to be stored at Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.
 - b. Operating instructions laminated and mounted adjacent to generator location.
 - c. Training plan.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Fuses: One for every 10 of each type and rating, but no fewer than one of each.
 2. Indicator Lamps: Two for every six of each type used, but no fewer than two of each.
 3. Filters: One set each of lubricating oil, fuel, and combustion-air filters.
 4. Tools: Each tool listed by part number in operations and maintenance manual.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
- B. Testing Agency Qualifications: Accredited by NETA.
1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.9 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. Caterpillar Inc.
 2. Cummins Power Generation.
 3. Kohler Power Systems.
- B. Source Limitations: Obtain packaged engine generators and auxiliary components from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Engine generator housing, subbase fuel tank, engine generator, batteries, battery racks, silencers, sound attenuating equipment, accessories, and components shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
1. The term "withstand" means "the unit will remain in place without separation of any parts when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."
 2. Shake-table testing shall comply with ICC-ES AC156. Testing shall be performed with all fluids at worst-case normal levels. Water shall be substituted for diesel fuel in fuel tank during test.
 3. Component Importance Factor: 1.25.
- B. B11 Compliance: Comply with B11.19.
- C. NFPA Compliance:
1. Comply with NFPA 37.
 2. Comply with NFPA 70.
 3. Comply with NFPA 99.
 4. Comply with NFPA 110 requirements for Level 2 EPSS.
- D. UL Compliance: Comply with UL 2200.
- E. Engine Exhaust Emissions: Comply with EPA Tier 2 requirements and applicable state and local government requirements.

- F. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by engine generator, including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.
- G. Environmental Conditions: Engine generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
 - 1. Ambient Temperature: 5 to 122 deg F.
 - 2. Relative Humidity: Zero to 95 percent.
 - 3. Altitude: Sea level to 1000 feet.

2.3 ENGINE GENERATOR ASSEMBLY DESCRIPTION

- A. Factory-assembled and -tested, water-cooled engine, with brushless generator and accessories.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. EPSS Class: Engine generator shall be classified as a Class 24 according to NFPA 110.
- D. Power Output Ratings: Not less than as shown on the Drawings.
- E. Power Factor: 0.8, lagging.
- F. Frequency: 60 Hz
- G. Voltage: 4160 V ac.
- H. Phase: Three-phase, four-wire wye.
- I. Induction Method: Turbocharged.
- J. Governor: Adjustable isochronous, with speed sensing.
- K. Mounting Frame: Structural steel framework to maintain alignment of mounted components without depending on concrete foundation. Provide lifting attachments sized and spaced to prevent deflection of base during lifting and moving.
 - 1. Rigging Diagram: Inscribed on metal plate permanently attached to mounting frame to indicate location and lifting capacity of each lifting attachment and engine generator center of gravity.
- L. Capacities and Characteristics:
 - 1. Power Output Ratings: Electrical output power rating for Standby operation, nominal ratings as indicated at 0.8 power factor excluding power required for the continued and repeated operation of the unit and auxiliaries.
 - 2. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.

M. Engine Generator Performance for Sensitive Loads:

1. Oversizing generator compared with the rated power output of the engine is permissible to meet specified performance.
 - a. Nameplate Data for Oversized Generator: Show ratings required by the Contract Documents rather than ratings that would normally be applied to generator size installed.
2. Steady-State Voltage Operational Bandwidth: 1 percent of rated output voltage, from no load to full load.
3. Transient Voltage Performance: Not more than 10 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 0.5 second.
4. Steady-State Frequency Operational Bandwidth: Plus or minus 0.25 percent of rated frequency, from no load to full load.
5. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
6. Transient Frequency Performance: Less than 2-Hz variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within three seconds.
7. Output Waveform: At no load, harmonic content, measured line to neutral, shall not exceed 2 percent total with no slot ripple. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
8. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to winding insulation or other generator system components.
9. Excitation System: Performance shall be unaffected by voltage distortion caused by nonlinear load.
 - a. Provide permanent magnet excitation for power source to voltage regulator.
10. Start Time: Comply with NFPA 110, Type 60, system requirements.

N. Parallel Engine Generators:

1. Automatic reactive output power control and load sharing between engine generators operated in parallel.
2. Automatic regulation, automatic connection to a common bus, and automatic synchronization, with manual controls and instruments to monitor and control paralleling functions.
3. Protective relays required for equipment and personnel safety.
4. Paralleling suppressors to protect excitation systems.
5. Reverse power protection.
6. Loss of field protection.

2.4 DIESEL ENGINE

- A. Fuel: ASTM D 975 diesel fuel oil, Grade 2-D S15.
- B. Rated Engine Speed: 1800 rpm.
- C. Lubrication System: Engine or skid mounted.
 - 1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
 - 2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
 - 3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.
- D. Jacket Coolant Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity and with UL 499.
- E. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine generator mounting frame and integral engine-driven coolant pump.
 - 1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
 - 2. Size of Radiator: Adequate to contain expansion of total system coolant, from cold start to 110 percent load condition to an ambient temperature for 122 deg F ambient.
 - 3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant-system pressure for engine used. Equip with gage glass and petcock.
 - 4. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
 - 5. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, UV-, and abrasion-resistant fabric.
 - a. Rating: 50-psig maximum working pressure with coolant at 180 deg F, and noncollapsible under vacuum.
 - b. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.
- F. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.
 - 1. Minimum sound attenuation of 25 dB at 500 Hz.
 - 2. Sound level measured at a distance of 23 feet from exhaust discharge after installation is complete shall be 75 dBA or less.
- G. Air-Intake Filter: Heavy-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.

H. Starting System: 24 V electric, with negative ground.

1. Components: Sized so they are not damaged during a full engine-cranking cycle, with ambient temperature at maximum specified in "Performance Requirements" Article.
2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
3. Cranking Cycle: As required by NFPA 110 for system level specified.
4. Battery: Lead acid], with capacity within ambient temperature range specified in "Performance Requirements" Article to provide specified cranking cycle at least three times without recharging.
5. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
6. Battery Stand: Factory-fabricated, two-tier metal with acid-resistant finish designed to hold the quantity of battery cells required and to maintain the arrangement to minimize lengths of battery interconnections.
7. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.
8. Battery Charger: Current-limiting, automatic-equalizing, and float-charging type designed for lead-acid] batteries. Unit shall comply with UL 1236 and include the following features:
 - a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
 - b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 deg F to 140 deg F to prevent overcharging at high temperatures and undercharging at low temperatures.
 - c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
 - d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
 - e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
 - f. Enclosure and Mounting: NEMA 250, Type 1 wall-mounted cabinet.

2.5 DIESEL FUEL-OIL SYSTEM

- A. Comply with NFPA 30.
- B. Main Fuel Pump: Mounted on engine to provide primary fuel flow under starting and load conditions.
- C. Fuel Filtering: Remove water and contaminants larger than 1 micron.
- D. Relief-Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.

- E. Subbase-Mounted, Double-Wall, Fuel-Oil Tank: Factory installed and piped, complying with UL 142 fuel-oil tank. Features include the following:
1. Tank level indicator.
 2. Fuel-Tank Capacity: Fuel for 24 hour(s) continuous operation at 100 percent rated power output.
 3. Leak detection in interstitial space.
 4. Vandal-resistant, lockable fill cap.
 5. Tank rails and lifting yes shall be rated for the full dry weight of the tank, genset, and enclosure.
 6. Electrical stub up(s).
 7. Sub base tank shall include a welded steel containment basin, sized at a minimum of 110 percent of the tank capacity to prevent escape of fuel into the environment in the event of a tank rupture.
 8. Normal and emergency vents.
 9. Mechanical fuel level gauge.
 10. Fill port with overfill prevention valve (OFPV).
 11. High and low-level switches to indicate fuel level.
 12. Containment Provisions: Comply with requirements of authorities having jurisdiction.

2.6 CONTROL AND MONITORING

- A. Automatic-Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of engine generator. When mode-selector switch is switched to the on position, engine generator starts. The off position of same switch initiates engine generator shutdown. When engine generator is running, specified system or equipment failures or derangements automatically shut down engine generator and initiate alarms.
- B. Provide minimum run time control set for 30 minutes, with override only by operation of a remote emergency-stop switch.
- C. Comply with UL 508A.
- D. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common control and monitoring panel mounted on the engine generator. Mounting method shall isolate the control panel from engine generator vibration. Panel shall be powered from the engine generator battery.
- E. Control and Monitoring Panel:
1. Digital controller with integrated LCD display, controls, and microprocessor, capable of local and remote control, monitoring, and programming, with battery backup.
 2. Controller Face Ingress Protection: IP 65.
 3. Operating Temperature: Minus 40 to plus 70 deg F.
 4. Maximum Operating Humidity: 95 percent non-condensing.
 5. Corrosion Resistant: Tested in accordance with ASTM B117 (salt spray test).
 6. Controller Features:

- a. Mode Selector: Allowing selection of one of the following modes:
 - 1) Off/Reset: Prohibits the generator from starting and resets shutdowns. In this mode controller does not respond to remote start and stop commands.
 - 2) Manual: Allows user to locally start and stop to operate the generator. In this mode controller does not respond to remote start and stop commands.
 - 3) Auto: Allows generator to start and stop based on remote commands. In this mode generator does not respond to manual start and stop commands.
 - b. Emergency Stop Switch: Latch-type remote stop switch, red in color with mushroom-type head. Depressing stop button will immediately stop the generator set and lock out any automatic remote starting.
 - c. Audible Alarm: Horn sounds for specific warning and shutdown conditions.
 - d. Alarm Reset Switch: Dedicated control switch to reset/clear fault conditions.
 - e. Alarm Silence/Lamp Test Pushbutton: Silences audible alarm when depressed. All controller indicating lights are simultaneously illuminated while actuated.
 - f. Fault Light: LED indicating abnormal conditions:
 - 1) Yellow: Active warning condition or mode selector switch not in automatic.
 - 2) Red: Active shutdown condition.
 - g. Real-time clock and calendar for time stamping events.
 - h. Engine Control Features:
 - 1) Programmable engine start delay.
 - 2) Programmable engine cool-down delay.
 - 3) Programmable warm-up delay based on time or engine temperature.
 - 4) Programmable idle speed.
 - 5) Programmable cyclic cranking with adjustable on time, off time, and number of cycles.
 - i. Event Logging:
 - 1) Maintain record of a minimum of 1,000 events with date and time locally for warning and shutdown faults.
 - 2) Event log easily available for download onto USB storage device or PC.
 - 3) Event Snapshot: Capture 15 seconds of critical data around the time of a fault or warning. Data to be viewable on the controller and downloadable.
 - j. Data Logging: Capable of time-based recording of customized parameters.
 - 1) Parameters selectable from all monitored parameters.
 - 2) Sample period configurable from one second to one day.
 - 3) Collected data stored on USB storage device plugged into the control panel.
 - k. Password protection to prevent unauthorized modification to system parameters.
7. Instruments: Located on the control and monitoring panel and viewable during operation.
- a. Engine lubricating-oil pressure.
 - b. Engine lubricating-oil temperature.
 - c. Engine-coolant temperature.

- d. DC voltmeter (alternator battery charging).
 - e. Running-time meter.
 - f. Engine speed (RPM).
 - g. Fuel pressure.
 - h. Fuel temperature.
 - i. Fuel consumption rate.
 - j. Intake air temperature.
 - k. Exhaust temperature.
 - l. AC voltmeter, for each phase.
 - m. AC ammeter, for each phase.
 - n. AC frequency meter.
 - o. AC kW output, total and for each phase (indicate power flow direction).
 - p. AC kVA output, total and for each phase (indicate power flow direction).
 - q. AC kVAR output, total and for each phase.
 - r. AC power factor, total and for each phase (indicate leading or lagging condition).
 - s. Generator duty level (actual kW loading divided by kW nameplate).
 - t. Generator-voltage-adjusting rheostat.
8. Controls and Protective Devices: Controls, shutdown devices, and common visual alarm indication as required by NFPA 110 for Level 2 system, including the following:
- a. Cranking control equipment.
 - b. Run-Off-Auto switch.
 - c. Control switch not in automatic position alarm.
 - d. Overcrank alarm.
 - e. Overcrank shutdown device.
 - f. Low water temperature alarm.
 - g. High engine temperature pre-alarm.
 - h. High engine temperature.
 - i. High engine temperature shutdown device.
 - j. Overspeed alarm.
 - k. Overspeed shutdown device.
 - l. Low-fuel main tank.
 - 1) Low-fuel-level alarm shall be initiated when the level falls below that required for operation for the duration required for the indicated EPSS class.
 - m. Coolant low-level alarm.
 - n. Coolant low-level shutdown device.
 - o. Coolant high-temperature pre-alarm.
 - p. Coolant high-temperature alarm.
 - q. Coolant low-temperature alarm.
 - r. Coolant high-temperature shutdown device.
 - s. EPS load indicator.
 - t. Battery high-voltage alarm.
 - u. Low-cranking voltage alarm.
 - v. Battery-charger malfunction alarm.
 - w. Battery low-voltage alarm.
 - x. Lamp test.
 - y. Contacts for local and remote common alarm.
 - z. Generator overcurrent-protective-device not-closed alarm.

- F. Connection to Datalink:
 - 1. A separate terminal block, factory wired to Form C dry contacts, for each alarm and status indication.
 - 2. Provide connections for datalink transmission of indications to remote data terminals via Ethernet. Data system connections to terminals are covered in Section 260913 "Electrical Power Monitoring and Control."
- G. Common Remote Panel with Common Audible Alarm: Comply with NFPA 110 requirements for Level 2 systems. Include necessary contacts and terminals in control and monitoring panel. Remote panel shall be powered from the engine generator battery.
- H. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator unless otherwise indicated.

2.7 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Overcurrent protective devices for the entire EPSS shall be coordinated to optimize selective tripping when a short circuit occurs. Coordination of protective devices shall consider both utility and EPSS as the voltage source.
 - 1. Overcurrent protective devices for the EPSS shall be accessible only to authorized personnel.
- B. Generator Protector: Microprocessor-based unit shall continuously monitor current level in each phase of generator output, integrate generator heating effect over time, and predict when thermal damage of alternator will occur. When signaled by generator protector or other engine generator protective devices, a shunt-trip device in the generator disconnect switch shall open the switch to disconnect the generator from load circuits. Protector performs the following functions:
 - 1. Initiates a generator overload alarm when generator has operated at an overload equivalent to 110 percent of full-rated load for 60 seconds. Indication for this alarm is integrated with other engine generator malfunction alarms. Contacts shall be available for load shed functions.
 - 2. Under single- or three-phase fault conditions, regulates generator to 300 percent of rated full-load current for up to 10 seconds.
 - 3. As overcurrent heating effect on the generator approaches the thermal damage point of the unit, protector switches the excitation system off, opens the generator disconnect device, and shuts down the engine generator.
 - 4. Senses clearing of a fault by other overcurrent devices and controls recovery of rated voltage to avoid overshoot.
- C. Ground-Fault Indication: Comply with NFPA 70, "Emergency System" signals for ground fault.
 - 1. Trip generator protective device on ground fault.

2.8 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

- A. Comply with NEMA MG 1.
- B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.
- C. Electrical Insulation: Class H.
- D. Temperature Rise: 105/Class F environment.
- E. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required. Provide six-lead alternator.
- F. Range: Provide limited range of output voltage by adjusting the excitation level.
- G. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- H. Enclosure: Dripproof.
- I. Instrument Transformers: Mounted within generator enclosure.
- J. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified and as required by NFPA 110.
 - 1. Adjusting Rheostat on Control and Monitoring Panel: Provide plus or minus 5 percent adjustment of output-voltage operating band.
 - 2. Maintain voltage within 20 percent on one step, full load.
 - 3. Provide anti-hunt provision to stabilize voltage.
 - 4. Maintain frequency within 15 percent and stabilize at rated frequency within five seconds.
- K. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.
- L. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.
- M. Subtransient Reactance: 12 percent, maximum.
- N. Provide and monitor six (6) temperature sensors (RTD's), two (2) in each winding in the generator control panel specified herein. Provide monitors and relays.

2.9 OUTDOOR ENGINE GENERATOR ENCLOSURE

- A. Description: Vandal-resistant, sound-attenuating, weatherproof steel housing. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Access to controller in accordance with NFPA 70. Panels shall be removable by one person without tools. Instruments and control shall be mounted within enclosure.

- B. Sound Performance: Reduce the sound level of the engine generator while operating at full rated load to a maximum of 75 dBA measured at any location 23 ft from the engine generator in a free field environment.
- C. Structural Design and Anchorage: Comply with ASCE/SEI 7 for wind loads as follow:
 - 1. Wind Rating:
 - a. Ultimate Wind Speed, V_{ult} : 120 MPH
 - b. Nominal Wind Speed, V_{nom} : 93 MPH
- D. Seismic Design: Comply with seismic requirements in Section 260548.16 "Seismic Controls for Electrical Systems."
- E. Mounting Base: Suitable for mounting on sub-base fuel tank.
- F. Hinged Doors: With padlocking provisions. Restraint/Hold back hardware to keep door open at 180 degrees during maintenance. Rain lips over all doors.
- G. Space Heater: Thermostatically controlled and sized to prevent condensation.
- H. Load Center: 200 A, three-phase, 120/208 VAC, 12 space with main circuit breaker.
- I. Convenience Outlets: Two 20A, 125 VAC, GFCI-protected duplex receptacles.
- J. Lighting: Provide weather-resistant LED lighting with 30-fc average maintained with control switches at each access door.
- K. Thermal Insulation: Manufacturer's standard materials and thickness selected in coordination with space heater to maintain winter interior temperature within operating limits required by engine generator components.
- L. Insulation Flammability Classification: UL 94 HF1.
- M. Muffler Location: Within enclosure.
- N. Hardware: Stainless steel latches, hinges, and hardware.
- O. Engine-Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for two hours with ambient temperature at top of range specified in system service conditions.
 - 1. Automatic Dampers: At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating. Dampers shall be of a "fail open" design to allow airflow in the event of failure.
- P. Interior Lights with Switch: Factory-wired, vapor-proof luminaires within housing; arranged to illuminate controls and accessible interior.
- Q. Convenience Outlets: Factory-wired GFCI.

- R. Electrical Provisions:
 - 1. Compliance with NEC: Package shall comply with the requirements of the National Electrical Code for all wiring materials and component spacing.
 - 2. External Electrical Connections: All power and control interconnections shall be made within the perimeter of the enclosure.
- S. Catwalk: Full-length catwalk with stairs and railings for access to all doors along both sides level with the bottom of the enclosure is required for maintenance. Treads to be slip-resistant. Comply with 29 CFR 1910.23.
- T. C

2.10 VIBRATION ISOLATION DEVICES

- A. Vibration Isolation: Generators installed on grade shall be provided with elastomeric isolator pads integral to the generator, unless the engine manufacturer requires use of spring isolation.
- B. IBC Compliance: Isolators complying with IBC requirements shall be specified in the equipment documentation, as well as the installation requirements for the unit.
- C. Vibration isolation devices shall not be used to accommodate misalignments or to make bends.

2.11 FINISHES

- A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard finish over corrosion-resistant pretreatment and compatible primer.

2.12 NEUTRAL GROUNDING RESISTORS

- A. Furnish one neutral grounding resistor with each generator, to connect to the generator neutral to limit ground fault currents.
- B. Grounding resistors and enclosures shall be designed, manufactured and tested in conformance with IEEE 32 standards for neutral grounding devices and in accordance with the latest applicable sections of NEMA, ANSI and UL.
- C. The resistor elements shall consist of an edge wound helix strap wound around a ceramic core on a longitudinal steel bar. Support elements individually at each end by glazed ceramic insulators in such a manner that permits expansion and contraction. Join elements electrically by stainless steel connectors welded to stainless steel terminals. Resistors shall be rated 2400 Volts line-to-neutral (4160 Volt system), 200 Amperes, ten second rating without exceeding 760 degrees C temperature rise up through one minute duty in conformance with IEEE Standard 32.
- D. Provide each resistor with a current transformer mounted on the input end of the resistor to measure current flow through the resistor. The current transformer shall be protective relay class and the secondary shall be wired to a shorting type terminal block mounted in the junction box on the resistor support frame. Relaying to sense current flow and trip the appropriate circuit breaker will be furnished under Section . Resistors shall be rated based on 50 degrees C ambient.

- E. Porcelain base insulators shall be of pin and cap type construction for the applicable voltage, and conform to ANSI Standard C29.8.
- F. Provide a floor mounted, free standing hot-dip galvanized steel framed, screened enclosure, suitable for outdoor installation, complete with lifting lugs for the resistor. The screened enclosure shall completely enclose the resistors, bushing terminals, and current transformer. The screen material shall be hot-dip galvanized steel with openings no greater than 0.5-inch square. Screens shall be removable. Insulate the resistor from the frame with porcelain insulators and provide a ground pad on the frame. The resistor shall have a bushing connection at one end for the generator neutral and the ground connection at the other end separate from the frame ground.
- G. Grounding resistors shall be complete with mounting hardware and brackets for current transformers, stand-off insulators, entrance bushings and terminal lugs.
- H. Grounding resistors and enclosure shall be as manufactured by Post Glover Resistors, Inc. or equal.
- I. Each resistor shall be completely factory assembled, wired, tested, and shipped complete. Standard factory tests shall include over potential tests for the resistor element, ohmic value and circuit continuity.

2.13 SOURCE QUALITY CONTROL

- A. Prototype Testing: Factory test engine generator using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
 - 1. Tests: Comply with NFPA 110, Level 1 Energy Converters and with IEEE 115.
- B. Project-Specific Equipment Tests: Before shipment, factory test engine generator and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
 - 1. Test components and accessories furnished with installed unit that are not identical to those on tested prototype to demonstrate compatibility and reliability.
 - 2. Test generator, exciter, and voltage regulator as a unit.
 - 3. Full-load run.
 - 4. Maximum power.
 - 5. Voltage regulation.
 - 6. Transient and steady-state governing.
 - 7. Single-step load pickup.
 - 8. Safety shutdown.
 - 9. Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.
 - 10. Report factory test results within 10 days of completion of test.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine generator performance.
- B. Examine roughing-in for piping systems and electrical connections. Verify actual locations of connections before packaged engine generator installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 404.
- B. Comply with packaged engine generator manufacturers' written installation and alignment instructions and with NFPA 110.
- C. Equipment Mounting:
 - 1. Install packaged engine generators on cast-in-place concrete equipment bases. Comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."
 - 2. Coordinate size and location of concrete bases for packaged engine generators. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.
 - 3. Install packaged engine generator with elastomeric isolator pads or restrained spring isolators having a minimum deflection of 1 inch on 4-inch- high concrete base. Secure enclosure to anchor bolts installed in concrete bases. Concrete base construction is specified in Section 260548.16 "Seismic Controls for Electrical Systems."
- D. Install packaged engine generator to provide access, without removing connections or accessories, for periodic maintenance.
- E. Exhaust System: Install Schedule 40 black steel piping with welded joints and connect to engine muffler. Install thimble at wall. Piping shall be same diameter as muffler outlet.
 - 1. Piping materials and installation requirements are specified in Section 232113 "Hydronic Piping."
 - 2. Install flexible connectors and steel piping materials according to requirements in Section 232116 "Hydronic Piping Specialties."
 - 3. Insulate muffler/silencer and exhaust system components according to requirements in Section 230719 "HVAC Piping Insulation."
 - 4. Install isolating thimbles where exhaust piping penetrates combustible surfaces with a minimum of 9 inches of clearance from combustibles.

- F. Drain Piping: Install condensate drain piping to muffler drain outlet with a shutoff valve, stainless-steel flexible connector, and Schedule 40 black steel pipe with welded joints.
 - 1. Piping materials and installation requirements are specified in Section 232113 "Hydronic Piping."
 - 2. Drain piping valves, connectors, and installation requirements are specified in Section 232116 "Hydronic Piping Specialties."
- G. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.

3.3 CONNECTIONS

- A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping and specialties.
- B. Connect cooling-system water piping to engine generator with flexible connectors.
- C. Connect engine exhaust pipe to engine with flexible connector.
- D. Connect fuel piping to engines with a gate valve and union and flexible connector.
 - 1. Additional requirements for diesel storage tanks, tank accessories, piping, valves, and specialties for fuel systems are specified in Section 231113 "Facility Fuel-Oil Piping."
- E. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- F. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables." Provide a minimum of one 90-degree bend in flexible conduit routed to the engine generator from a stationary element.
- G. Balance single-phase loads to obtain a maximum of 10 percent unbalance between any two phases.

3.4 IDENTIFICATION

- A. Identify system components according to Section 230553 "Identification for HVAC Piping and Equipment" and Section 260553 "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor will engage a qualified testing agency to perform tests and inspections.
- B. Perform tests and inspections with the assistance of a factory-authorized service representative.
- C. Tests and Inspections:

1. Perform tests recommended by manufacturer and in "Visual and Mechanical Inspection" and "Electrical and Mechanical Tests" subparagraphs below, as specified in the NETA ATS. Certify compliance with test parameters.
 - a. Visual and Mechanical Inspection:
 - 1) Compare equipment nameplate data with Drawings and the Specifications.
 - 2) Inspect physical and mechanical condition.
 - 3) Inspect anchorage, alignment, and grounding.
 - 4) Verify that the unit is clean.
 - b. Electrical and Mechanical Tests:
 - 1) Perform insulation-resistance tests according to IEEE 43.
 - a) Machines Larger Than 200 hp: Test duration shall be 10 minutes. Calculate polarization index.
 - b) Machines 200 hp or Less: Test duration shall be one minute. Calculate the dielectric-absorption ratio.
 - 2) Test protective relay devices.
 - 3) Verify phase rotation, phasing, and synchronized operation as required by the application.
 - 4) Functionally test engine shutdown for low oil pressure, overtemperature, overspeed, and other protection features as applicable.
 - 5) Perform vibration test for each main bearing cap.
 - 6) Conduct performance test according to NFPA 110.
 - 7) Verify correct functioning of the governor and regulator.
2. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here, including, but not limited to, single-step full-load pickup test.
3. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.
 - a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
 - b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
 - c. Verify acceptance of charge for each element of the battery after discharge.
 - d. Verify that measurements are within manufacturer's specifications.
4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine generator system before and during system operation. Check for air, exhaust, and fluid leaks.
6. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch wg. Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
7. Exhaust Emissions Test: Comply with applicable government test criteria.

8. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
 9. Harmonic-Content Tests: Measure harmonic content of output voltage at 25 percent and 100 percent of rated linear load. Verify that harmonic content is within specified limits.
 10. Noise-Level Tests: Measure A-weighted level of noise emanating from engine generator installation, including engine exhaust and cooling-air intake and discharge, at four locations 25 feet from edge of the generator enclosure, and compare measured levels with required values.
- D. Coordinate tests with tests for transfer switches, and run them concurrently.
- E. Test instruments shall have been calibrated within the past 12 months, traceable to NIST Calibration Services, and adequate for making positive observation of test results. Make calibration records available for examination on request.
- F. Leak Test: After installation, charge exhaust, coolant, and fuel systems and test for leaks. Repair leaks and retest until no leaks exist.
- G. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation for generator and associated equipment.
- H. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- I. Remove and replace malfunctioning units and retest, reinspect as specified above.
- J. Retest: Correct deficiencies identified by tests and observations, and retest until specified requirements are met.
- K. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component, indicating satisfactory completion of tests.
- L. Infrared Scanning: After Substantial Completion, but not more than 60 days after final acceptance, perform an infrared scan of each power wiring termination and each bus connection while running with maximum load. Remove all access panels, so terminations and connections are accessible to portable scanner.
1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan 11 months after date of Substantial Completion.
 2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 3. Record of Infrared Scanning: Prepare a certified report that identifies terminations and connections checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.6 MAINTENANCE SERVICE

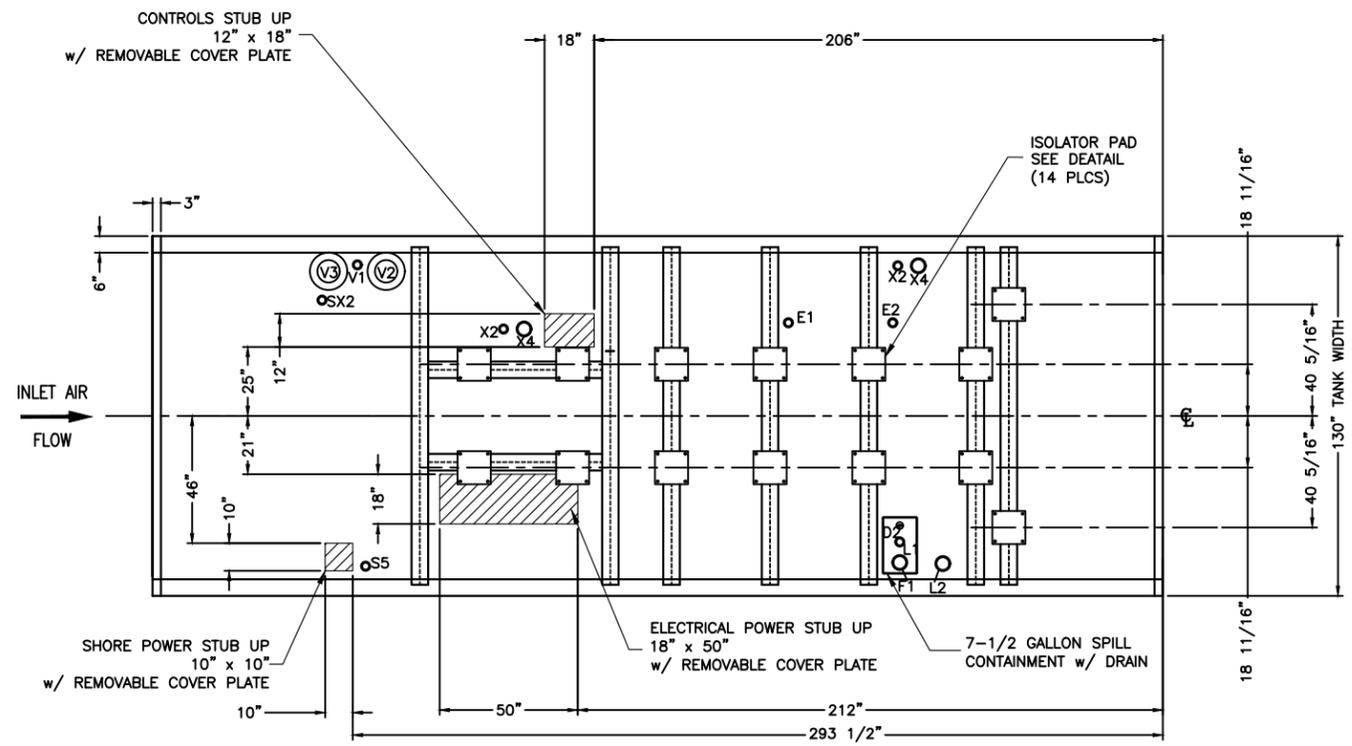
- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's authorized service representative. Include quarterly preventive maintenance and exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Parts shall be manufacturer's authorized replacement parts and supplies.

3.7 DEMONSTRATION

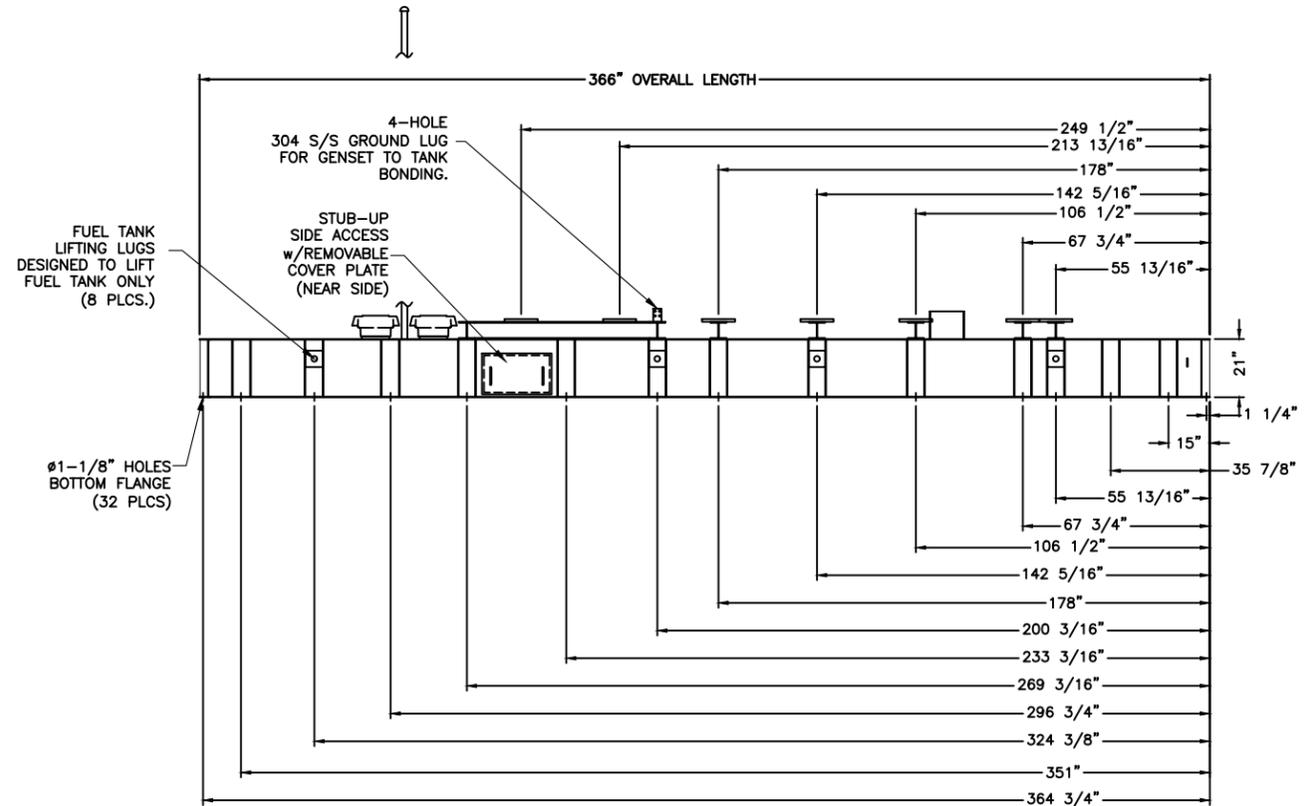
- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators.

END OF SECTION 263213.13

ATTACHMENT B: SCALED DRAWING OF CONTAINMENT AREA - GENERATORS



PLAN VIEW

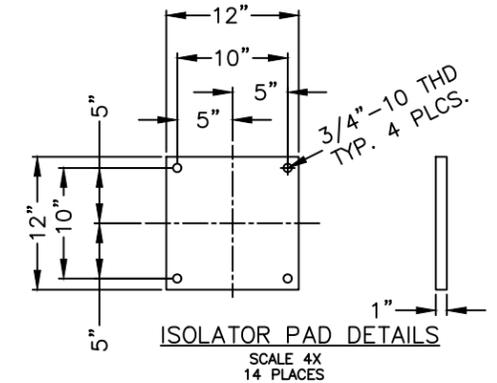


ELEVATION VIEW

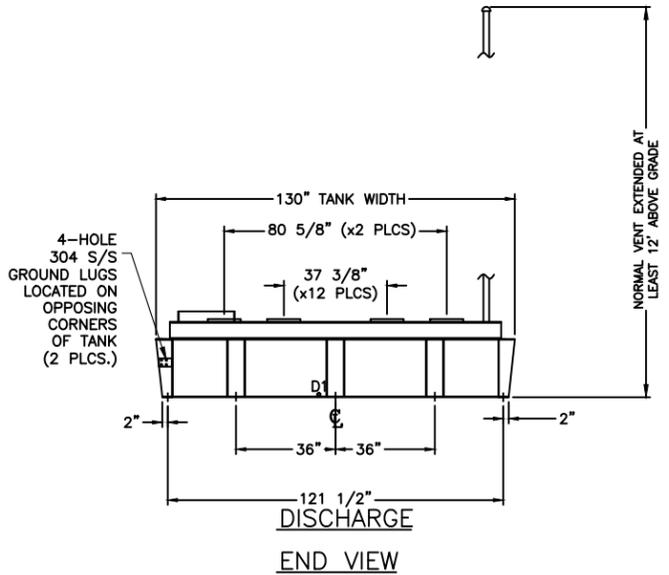
U.L. 142 SUB BASE FUEL TANK
2,800 GALLON CAPACITY, 2,520 GALLON USABLE

REF.	FITTING SIZE	DESCRIPTION
D1	1" NPT	TANK DRAIN - SECONDARY
D2	3/4" NPT	DRAIN - SPILL CONTAINMENT - w/ T HANDLE
E1	2" NPT	ENGINE FUEL SUPPLY - 1" NPT DIP TUBE
E2	2" NPT	ENGINE FUEL RETURN - 1" NPT DIP TUBE
F1	4" NPT	FUEL FILL, w/ OPV @ 95% & 2" CAMLOCK & DUSTCAP
L1	2" NPT	LEVEL GAUGE - DIRECT SITE
L2	4" NPT	ECHO POD LEVEL SENSOR 4-20mA OUTPUT * LOW LEVEL SET - 35% * HIGH LEVEL SET - 90% * CRITICAL HIGH LEVEL SET - 95%
S5	2" NPT	LEAK DETECTOR SWITCH - N.O. (WIRED TO FTA THEN TO GCP)
SX2	2" NPT	SPARE FITTING - SECONDARY - (1)
V1	2" NPT	NORMAL VENT - PRIMARY (EXTENDED OUTSIDE OF ENCLOSURE TO ROOF LINE (AT LEAST 12' ABOVE GRADE) SHIPPED LOOSE & INSTALLED BY OTHERS.
V2	8" NPT	EMERGENCY VENT - PRIMARY
V3	8" NPT	EMERGENCY VENT - SECONDARY
X2	2" NPT	SPARE FITTING - PRIMARY - (2) w/ CAP
X4	4" NPT	SPARE FITTING - PRIMARY - (2) w/ CAP

* EXTEND TANK ALARMS TO REACH GENSET CONTROL PANEL VIA FLEX CONDUIT
* ACS TO PROVIDE SIGNAGE/LABELING: "DIESEL FUEL, FLAMMABLE, NO SMOKING", NFPA LABEL, & TANK CAPACITY.



ISOLATOR PAD DETAILS
SCALE 4X
14 PLACES



DISCHARGE
END VIEW

APPROVED AS IS - Manufacturing may proceed.
 APPROVED WITH NOTED CHANGES - Resubmit drawing; manufacturing may proceed.
 NOT APPROVED - Correct drawing as noted and resubmit for approval before manufacturing begins.

BY: _____ DATE: _____

COMPANY: _____

RETURNED APPROVAL DRAWINGS WITH SIGNATURE REQUIRED BEFORE ACS WILL BEGIN MANUFACTURING PROCESS

QUOTE NO.: 202112039 REV. 1
PO NO.: T.B.D.
ACS MFG LOC.: T.B.D.
JOB NAME: GEORGETOWN SOUTHLAKE RW DQGAF

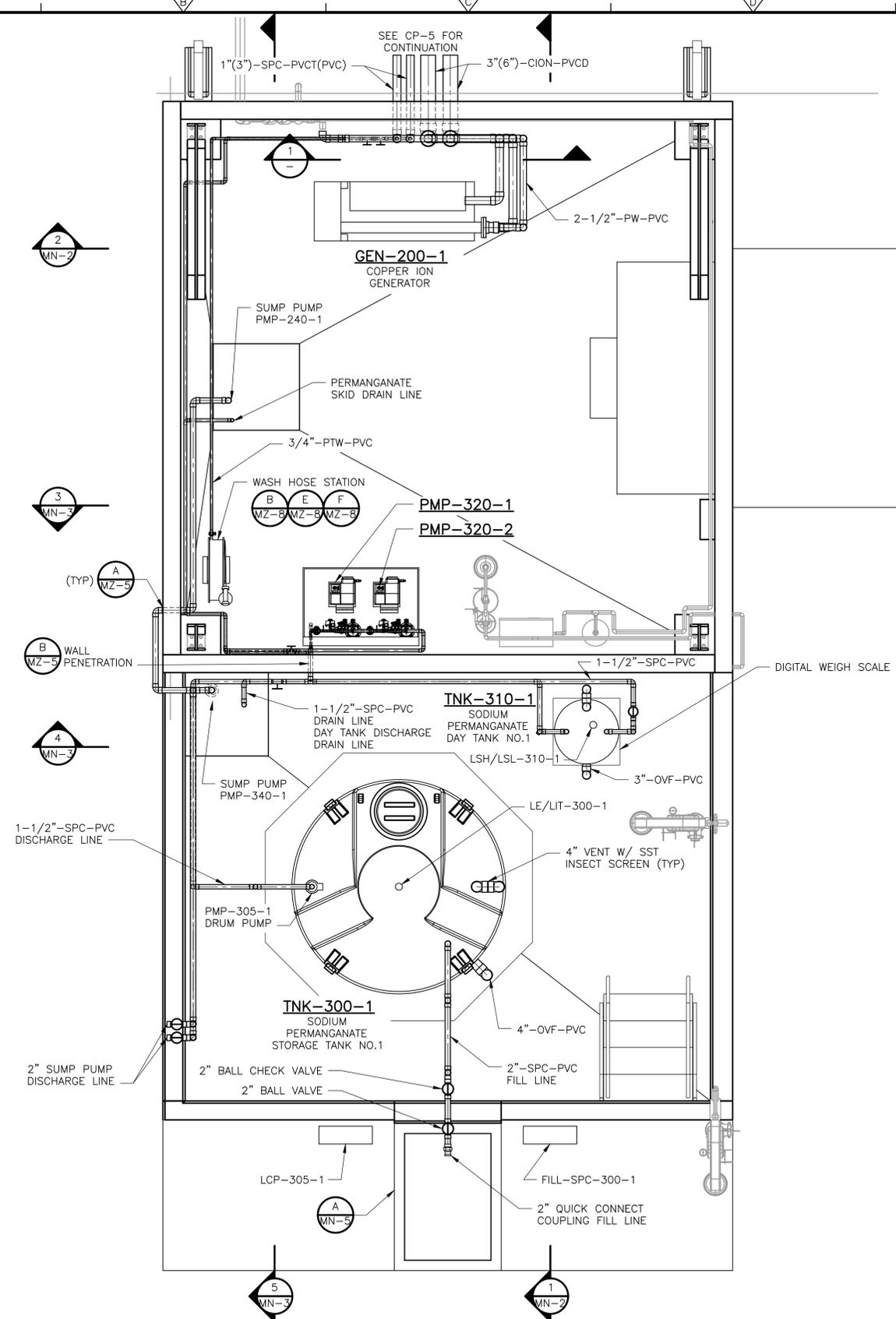


TOLERANCES (EXCEPT AS NOTED) DECIMAL ± .125" FRACTIONAL ± 1/8"	ANGULAR ± 3° SCALE N/A	DATE 04/20/22	TITLE ACOUSTICAL GEN-SET UL 142 SUB- BASE FUEL TANK	DRAWING NUMBER 13364-10	DRAWN BY: CE CHECKED BY: CHECKED BY: APPROVED BY: TK
CUMMINS SOUTHERN PLAINS				SHEET 3 OF 5	

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REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE

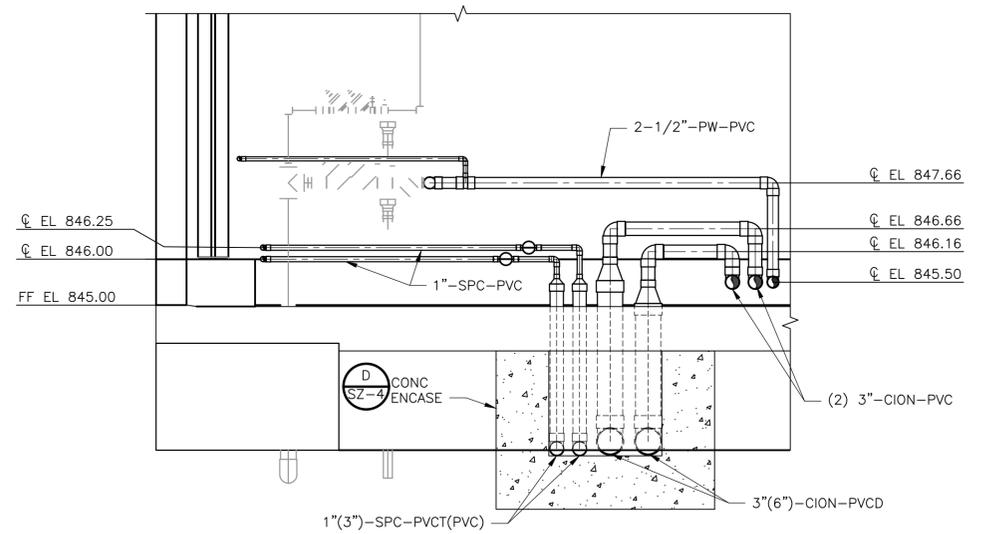
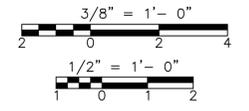
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PLAN
3/8" = 1'-0"

NOTES:

- METERING PUMP SKID SHALL BE DESIGNED AND CONSTRUCTED BY PUMP SUPPLIER. SEE SPECIFICATION 463333 FOR PUMP SKID REQUIREMENTS.
- ALL OUTDOOR, ABOVE GROUND CION AND PW LINES SHALL BE INSULATED, JACKETED, AND HEAT TRACED. SEE SPECIFICATIONS 404213 AND 404113 FOR INSULATION AND HEAT TRACE REQUIREMENTS.
- SUPPORTS SHALL BE PROVIDED FOR ALL PIPING, WHETHER DRAWN OR NOT AND SPACING SHALL BE IN ACCORDANCE WITH PIPE SUPPLIER RECOMMENDATIONS BUT SHALL BE NO GREATER THAN 5- FEET INSIDE CONTAINMENT UNLESS APPROVED BY ENGINEER. SEE SPECIFICATION 400507 FOR PIPE SUPPORT REQUIREMENTS.
- ALL WALL PENETRATIONS SHALL OCCUR AT HEIGHT NO HIGHER THAN THE CONTAINMENT CURB.
- ALL PIPES ARE TO BE INDEPENDENTLY SUPPORTED, UNLESS TANK MANUFACTURER INCLUDES PIPE SUPPORTS OF TANK WALL ATTACHMENT POINTS IN THE TANK DESIGN PER SPECIFICATION 434143.
- CONCRETE CONTAINMENT AREA SHALL BE COATED IN ACCORDANCE WITH SPECIFICATION 099673.33.
- PROVIDE PVC BALL CHECK VALVE SUITABLE FOR INTENDED CHEMICAL USE.



SECTION 1
1/2" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	KBR	SAS	CONFORMED DRAWING
7	1/14/22	KBR	SAS	REVISED FOR ADDENDUM NO.7
3	11/23/21	KBR	SAS	REVISED FOR ADDENDUM NO.3

DESIGNED BY: S. STEWART
 DRAWN BY: K. REESE
 SHEET CHK'D BY: R. BORTZFIELD
 CROSS CHK'D BY: M. WHITE
 APPROVED BY: S. STEWART
 DATE: OCTOBER 2021



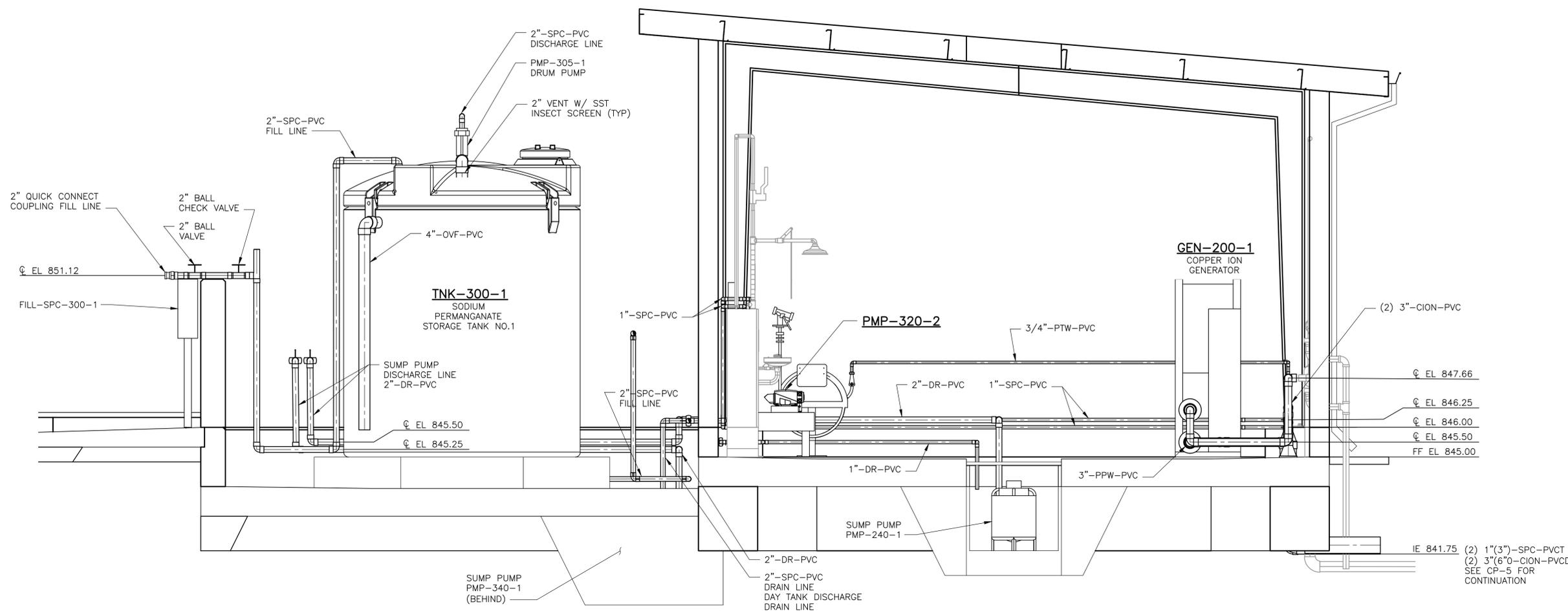
CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

RAW WATER CHEMICAL BUILDING PLAN

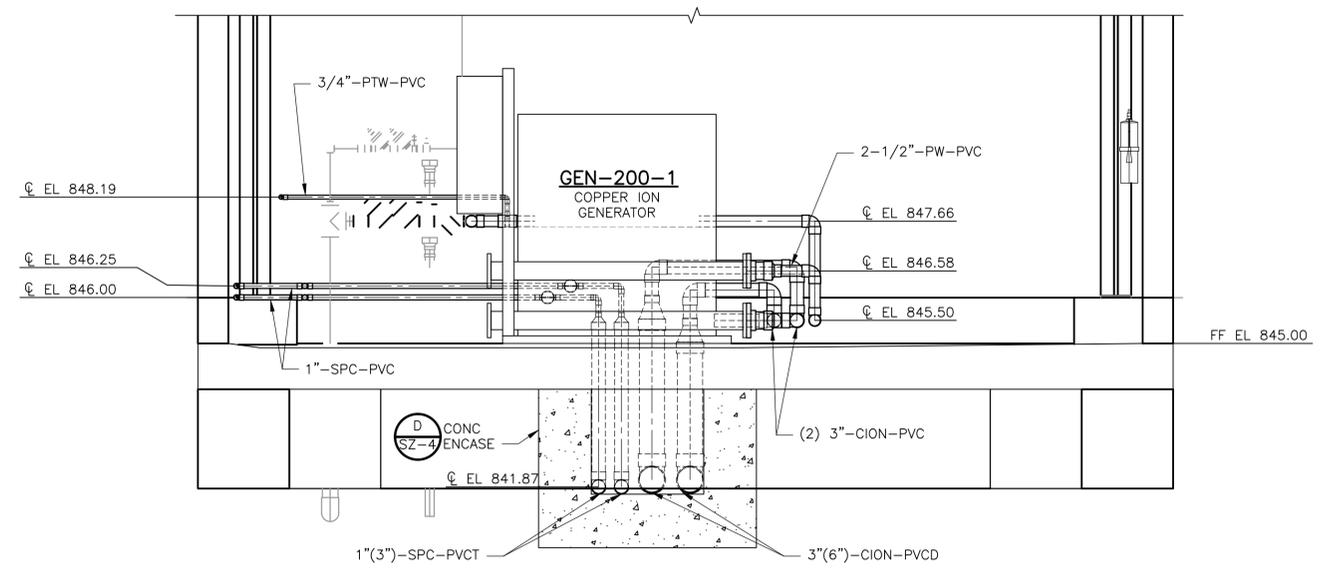
PROJECT NO. 2048-248929
 FILE NAME: MN001RWPCMP
 SHEET NO.
MN-1



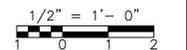
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SECTION 1
1/2" = 1'-0"
MN-1



SECTION 2
1/2" = 1'-0"
MN-1



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	KBR	SAS	CONFORMED DRAWING
7	1/14/22	KBR	SAS	REVISED FOR ADDENDUM NO.7

DESIGNED BY: S. STEWART
 DRAWN BY: K. REESE
 SHEET CHK'D BY: R. BORTZFIELD
 CROSS CHK'D BY: M. WHITE
 APPROVED BY: S. STEWART
 DATE: OCTOBER 2021

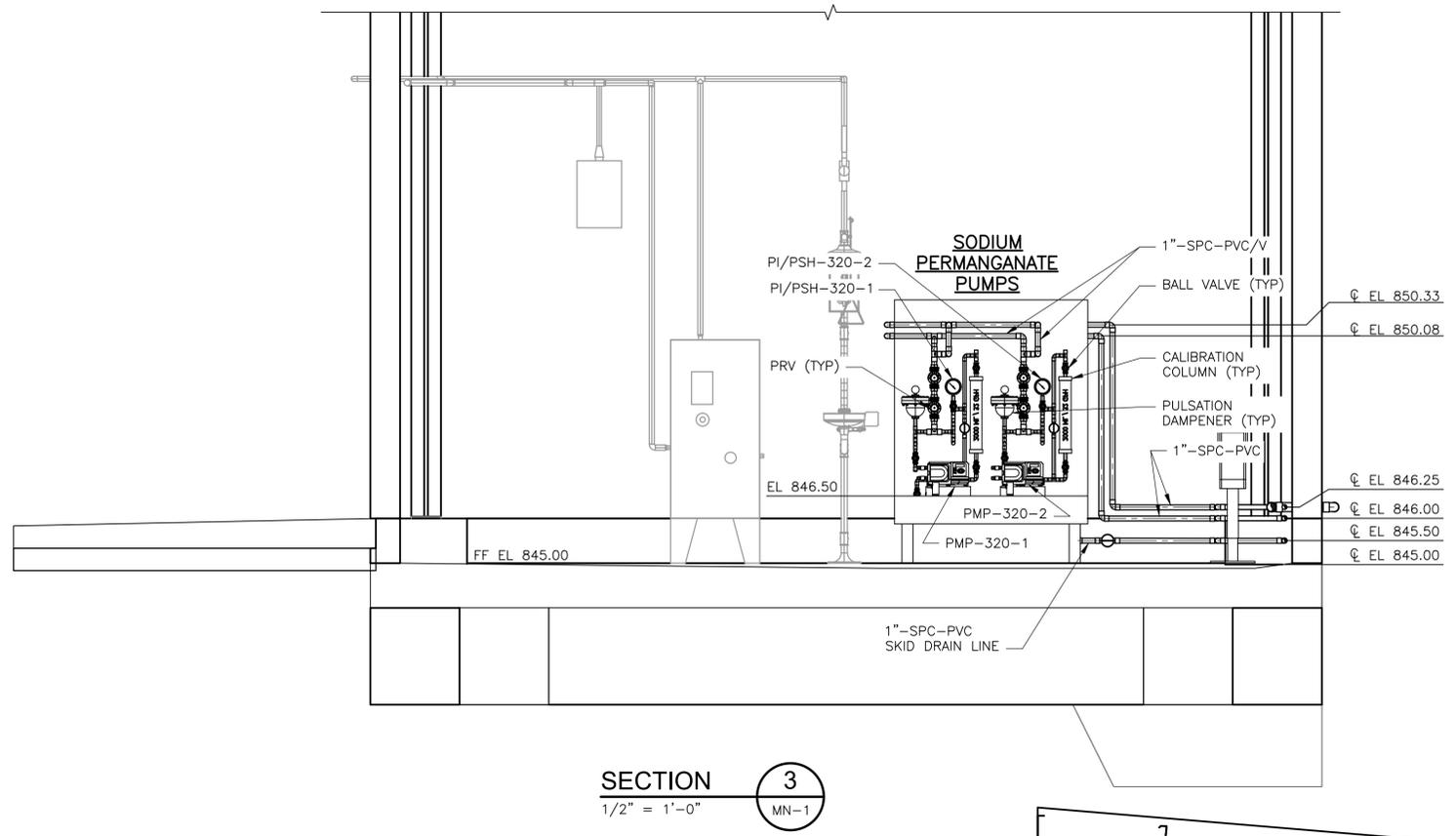


CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

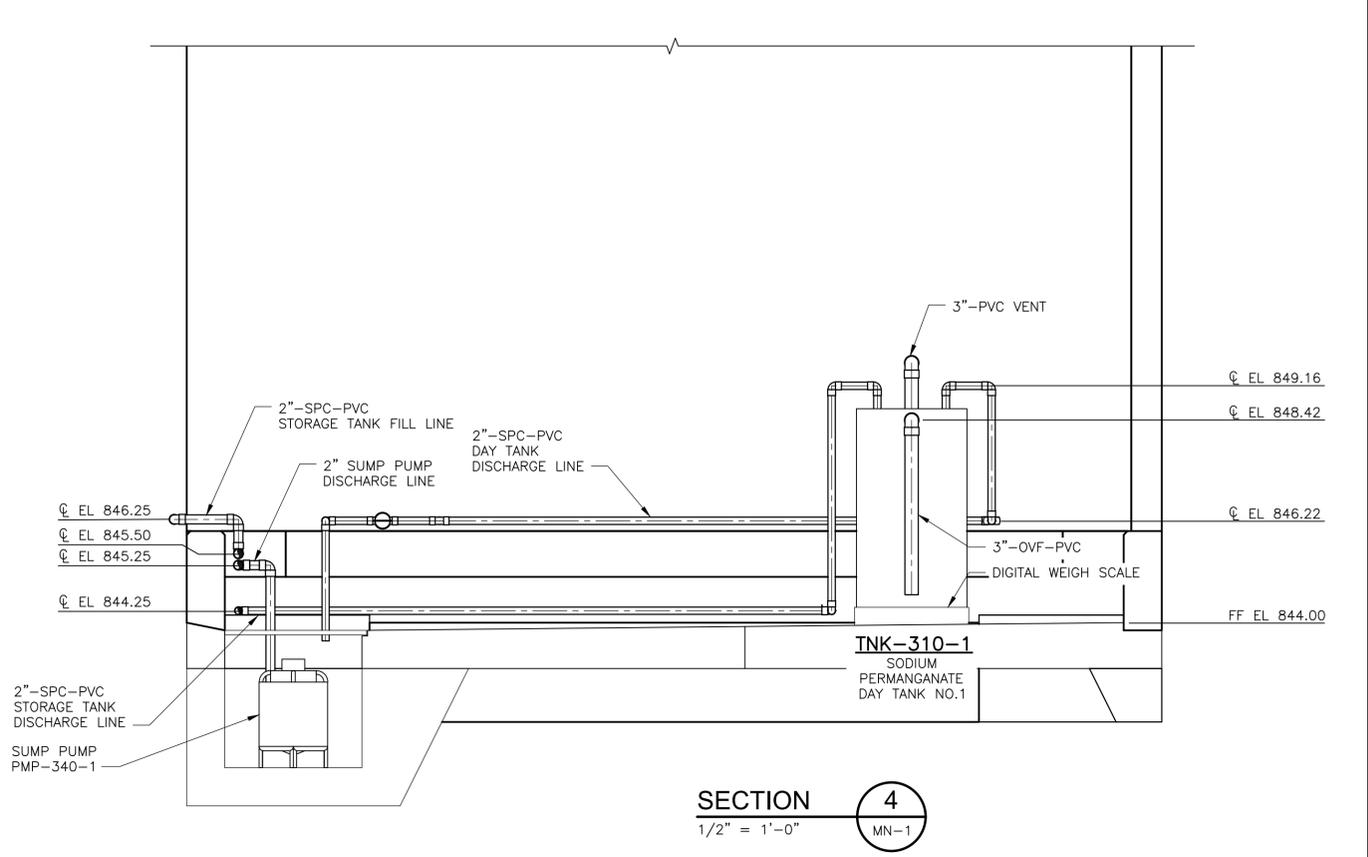
RAW WATER CHEMICAL BUILDING
 SECTIONS I
 SHEET NO.
MN-2

PROJECT NO. 2048-248929
 FILE NAME: MN002RWPSMPL
 SHEET NO.
MN-2

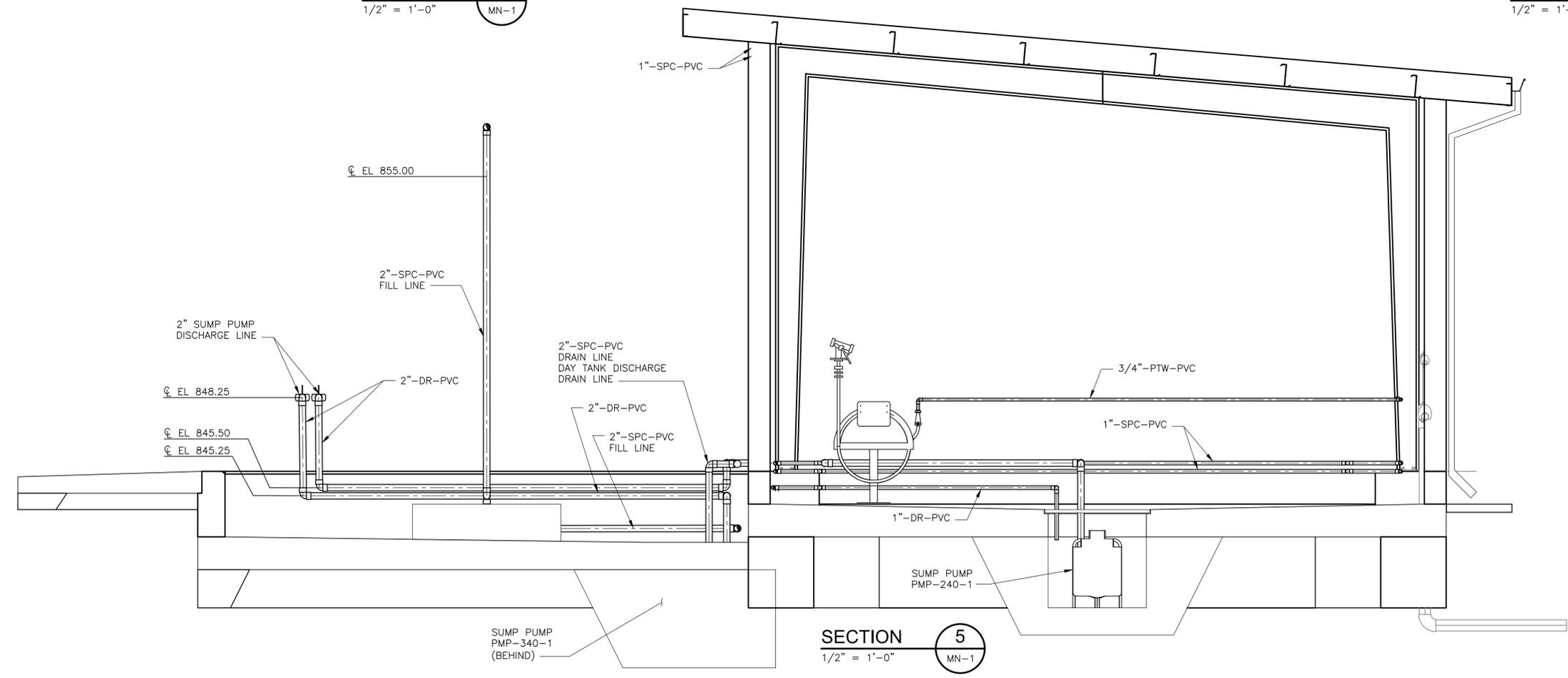
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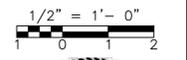
SECTION 3
1/2" = 1'-0"
MN-1



SECTION 4
1/2" = 1'-0"
MN-1



SECTION 5
1/2" = 1'-0"
MN-1



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	KBR	SAS	CONFORMED DRAWING

DESIGNED BY: S. STEWART
 DRAWN BY: K. REESE
 SHEET CHK'D BY: R. BORTZFIELD
 CROSS CHK'D BY: M. WHITE
 APPROVED BY: S. STEWART
 DATE: OCTOBER 2021

CDM Smith
 9430 RESEARCH BLVD., SUITE 1-200
 AUSTIN, TX 78759
 TEL: (512) 346-1100
 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

RAW WATER CHEMICAL BUILDING
 SECTIONS II
 SHEET NO.
MN-3

PROJECT NO. 2048-248929
 FILE NAME: MN003RWPCMPL
 SHEET NO.
MN-3

City of Georgetown
South Lake Raw Water Electrical and Chemical Facilities
Aboveground Storage Tanks Facility Plan

In order to prevent spill and overfill of hazardous substances the following spill and overfill control actions will be taken:

1. The use of secondary containment of chemical tanks will be provided to contain spills and overflows. The containment volume will be 1.5 times the combined volume of all the tanks within the containment area.
2. Each containment area will have a designated sump to which spills will drain. A quick disconnect located at the sump will allow for a pump to be manually turned on so the contained chemical can be delivered to a disposal truck. The chemical would then be hauled off-site for proper disposal.
3. In order to avoid overfills there will always be an attendant present during deliveries.
4. The deliveries of any stock will be held over the concrete containment structure.
5. Each tank is equipped with a quick connect system and instrumentation to monitor chemical level in order to ensure minimal risk of overfill.
6. Standard Operating Procedures (SOP) will be developed for filling the chemical storage tanks to minimize the risk of overfilling and spilling. The SOP will be shared with operators and chemical delivery personnel.
7. Operators will continue to be trained on the proper methods of filling tanks and monitoring the tank levels. Instrumentation and control training will be provided by the system supplier.

In order to prevent spill and overfill of hydrocarbon products the following spill and overfill control actions will be taken:

1. The use of UL-142 listed double-wall subbase design carbon steel construction tanks sized with a minimum of 110 percent of the tank capacity to prevent the escape of fuel into the environment in the event of a tank rupture will be provided to contain spills and overflows.
2. The generator fill ports will be equipped with an overfill prevention valve and tank level indicators, with high and low-level switched to indicate fuel level at all times in order to ensure minimal risk of overfill.
3. Each generator fuel tank will be equipped with a leak detection system for the interstitial space to alert for any potential leaks.
4. In order to avoid overfills there will always be an attendant present during deliveries.
5. Standard Operating Procedures (SOP) will be developed for filling the fuel storage tanks to minimize the risk of overfilling and spilling. The SOP will be shared with operators and delivery personnel.
6. Operators will continue to be trained on the proper methods of filling tanks and monitoring the tank levels. Instrumentation and control training will be provided by the system supplier.

City of Georgetown
South Lake Raw Water Facilities and Intake
Aboveground Storage Tanks Facility Plan

In the event of any spill of hydrocarbon products or hazardous substances the following spill response actions will be taken:

1. The nature and extent of the spill will be assessed, and measures will be taken to protect self and all personnel.
2. City of Georgetown Fire Department will be notified of the nature and extent of the spill via telephone (911 or 512-930-3600).
3. TCEQ Spill Reporting 24-hour Hotline will be notified of the nature and extent of the spill via telephone (800-832-8224).
4. The source of the spill will be stopped and confined before spill response cleanup activities take place.
5. Spills will be reported prior to any spill response activities.
6. Absorbent materials will be used to contain small scale spill incidents immediately.
7. Absorbent containment booms will be used to contain the discharge of larger scale spill incidents immediately.
8. Any spill response action will follow applicable OSHA health and safety regulations.
9. Any water materials generated by spill response actions will be properly stored and disposed in accordance with local, state, and federal regulations.
10. Onsite personnel will be trained to follow the spill response actions for the site.

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Ellyn Weimer, PE

Date: 11/15/2023

Signature of Customer/Agent:



Regulated Entity Name: South Lake Raw Water Facilities and Intake

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

The following fuels and/or hazardous substances will be stored on the site: _____

These fuels and/or hazardous substances will be stored in:

- Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

- Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
- Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
- Fuels and hazardous substances will not be stored on the site.
- 2. **Attachment A - Spill Response Actions.** A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.
- 3. Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
- 4. **Attachment B - Potential Sources of Contamination.** A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

- 5. **Attachment C - Sequence of Major Activities.** A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
 - For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
 - For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
- 6. Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: stormwater will flow from the project site to Lake Georgetown thence to the San Gabriel River.

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

- 7. **Attachment D – Temporary Best Management Practices and Measures.** TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

- A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
 - A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
 - A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
 - A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.
8. The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.
- Attachment E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
 - There will be no temporary sealing of naturally-occurring sensitive features on the site.
9. **Attachment F - Structural Practices.** A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.
10. **Attachment G - Drainage Area Map.** A drainage area map supporting the following requirements is attached:
- For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
 - For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
 - For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
 - There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

- There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.
11. **Attachment H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.
- N/A
12. **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.
13. All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
14. If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
15. Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.
16. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices.** A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
19. Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
21. If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.
22. Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

City of Georgetown
South Lake Raw Water Facilities and Intake
Aboveground Storage Tanks Facility Plan

No hazardous substances or hydrocarbons will be stored or used in excess on the construction site. Reportable contaminant quantities will be determined and based on 30 TAC §327. In the event of any spill of hydrocarbon products or hazardous substances of reportable quantities the following spill response actions will be taken:

1. The nature and extent of the spill will be assessed, and measures will be taken to protect self and all personnel.
2. City of Georgetown Fire Department will be notified of the nature and extent of the spill via telephone (911 or 512-930-3600).
3. TCEQ Spill Reporting 24-hour Hotline will be notified of the nature and extent of the spill via telephone (800-832-8224).
4. The source of the spill will be stopped and confined before spill response cleanup activities take place.
5. Spills will be reported prior to any spill response activities.
6. Absorbent materials will be used to contain small scale spill incidents immediately.
7. Absorbent containment booms will be used to contain the discharge of larger scale spill incidents immediately.
8. Any spill response action will follow applicable OSHA health and safety regulations.
9. Any water materials generated by spill response actions will be properly stored and disposed in accordance with local, state, and federal regulations.

City of Georgetown
South Lake Raw Water Facilities and Intake
Aboveground Storage Tanks Facility Plan

Potential sources of contamination related to this project include:

- Sediment from spoil piles transported during stormwater events
- Accidental leakage of fuels from vehicles or equipment during construction activities

All necessary actions to minimize impacts of contamination will be taken before, during, and after the proposed project and in coordination with Attachment A, Spill Response Actions. Other than a potential incidental leak from construction vehicles or equipment, all additional runoff will be from natural sources.

City of Georgetown
South Lake Raw Water Facilities and Intake
Aboveground Storage Tanks Facility Plan

The sequence for the construction of the proposed South Lake Raw Water Facilities and Intake site is planned as follows:

- Following issuance of notice-to-proceed, Contractor installs silt fencing, tree protection, and stabilized construction entrance.
- Contractor clears site areas and prepares site for construction. (3.594 acres)
- Contractor constructs temporary construction access roads.
- Contractor performs excavation for buildings and concrete pads
- Contractor constructs the buildings, concrete slabs and pads.
- Contractor installs yard piping.
- Contractor installs all the process mechanical equipment, piping and electrical improvements in the buildings and structures.
- Contractor installs concrete pavement.
- Contractor completes site construction and initiates site clean-up. (3.594 acres)
- Contractor inspects and maintains temporary erosion and sedimentation controls throughout the term of the project.
- Contractor restores disturbed soil areas with loaming and hydro-seeding

City of Georgetown
South Lake Raw Water Facilities and Intake
Aboveground Storage Tanks Facility Plan

Temporary erosion and sedimentation control measures will include:

- Silt fencing;
- Rock berms;
- Concrete wash down area;
- Tree protection;
- Stabilized Construction Entrance (SCE);

Silt fencing shall be placed downgradient from the proposed site areas to control and filter any stormwater that may be generated from the proposed project site. Silt fencing shall also be placed around the perimeter of any storm drain inlets located on or downgradient of the proposed project area when installed. No significant runoff from upgradient stormwater flows are anticipated due to the silt fencing. The silt fencing will further serve to control any stormwater generated by the proposed project site before it is allowed to discharge as stormwater-sediment flow from the site.

Rock berms shall be placed downgradient of proposed site areas to control and filter any concentrated stormwater that may be generated from the proposed project site.

A concrete wash out area will be placed on site in order to wash out trucks onto a designated area and not into storm drains or streams. It will also prevent excess concrete to be dumped onsite.

Tree protection will be placed around the critical root zone (CRZ) of protected trees on the proposed project site. This control measure will prevent erosion near the roots and protect the roots from being damaged by construction activities.

A stabilized construction entrance will be installed at the entrance of the construction area to minimize the tracking of sediments from the project site. All access to the construction site will use this SCE.

The area will remain vegetated where possible.

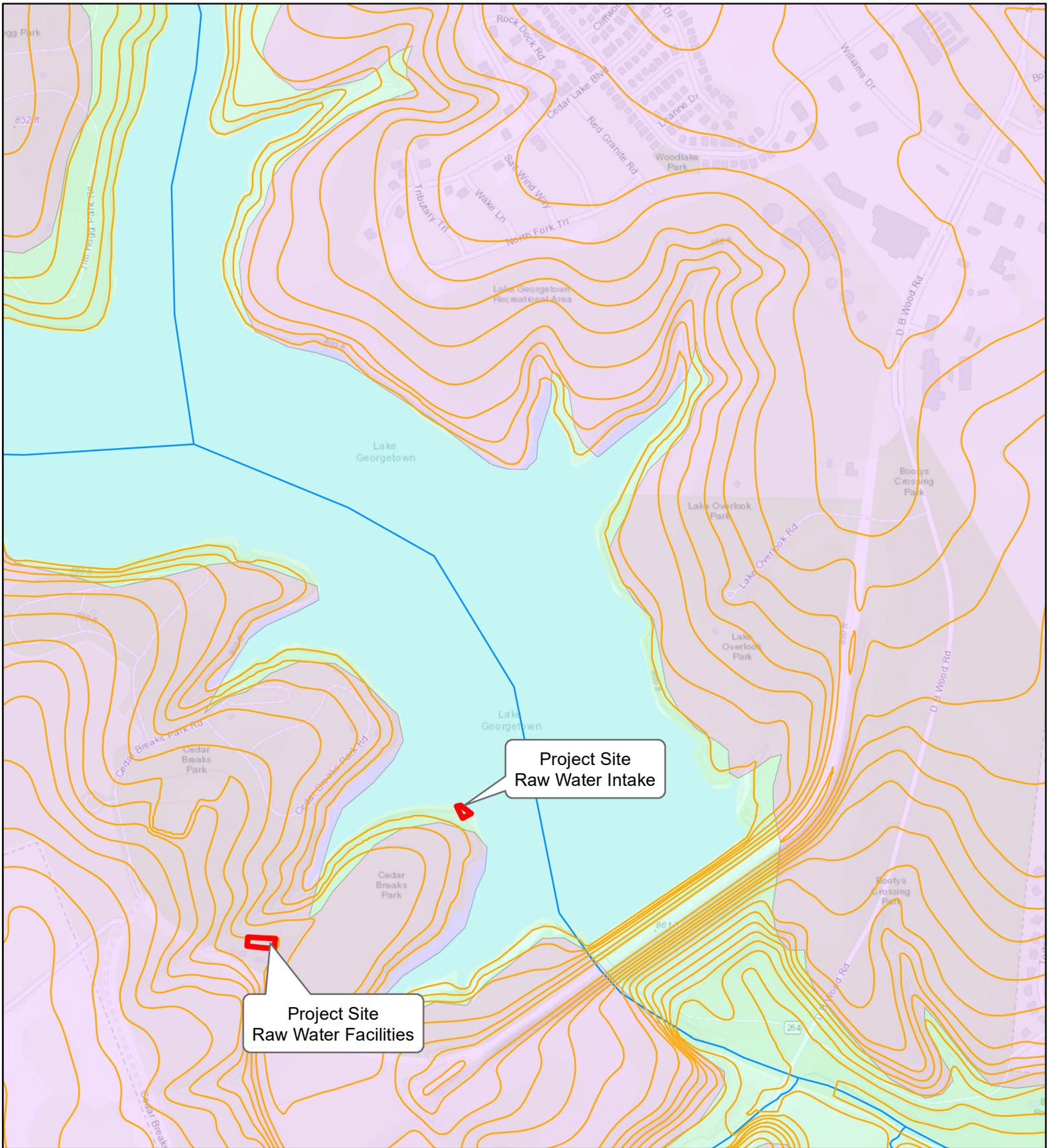
These temporary erosion and sedimentation control measures are indicated on the site drawings and will be put in place before the start of construction and shall remain in place for the duration of site construction activities.

City of Georgetown
South Lake Raw Water Facilities and Intake
Aboveground Storage Tanks Facility Plan

Structural Practices that will be used to limit the runoff discharge of sediments and pollutants from exposed areas of the proposed project include the following practices:

- Silt fencing;
- Rock berms;
- Concrete wash down area;
- Stabilized Construction Entrance (SCE);

These practices are described in Attachment D, Temporary BMPs and Measures. No temporary structural facilities, such as sedimentation ponds, will be constructed or used during construction activities.



- Legend**
- Contours
 - Rivers/Streams
- Edwards Aquifer Zones**
- TYPE**
- Edwards Aquifer Contributing Zone
 - Edwards Aquifer Recharge Zone
 - Edwards Aquifer Transition Zone

**Attachment G: Drainage Area Map
South Lake Raw Water Facilities and Intake
Williamson County, Texas**



City of Georgetown
South Lake Raw Water Facilities and Intake
Aboveground Storage Tanks Facility Plan

Silt fencing, rock berms, and the stabilized construction entrance shall be inspected once per week and following every significant rainfall event (of at least 0.1 inch or greater). If such inspections reveal that additional measurements are needed to prevent movement of sedimentation to offsite areas, the Contractor shall promptly install additional erosion control devices as may be required.

Silt fences shall be maintained and repaired as follows:

- Remove accumulated sediment once build up reaches 6 inches
- Replace torn or damaged filter fabric
- Make any other repairs or adjustments, as needed, to ensure the silt fencing is functioning properly

Rock berms shall be maintained and repaired as follows:

- Remove accumulated sediment once build up reaches 6 inches
- Repair any loose wire sheathing or reshape as needed
- Make any other repairs or adjustments, as needed, to ensure the rock berm is functioning properly

The stabilized construction entrance will also be inspected following precipitation events and stone will be replaced if silt accumulation is found to hinder the role of this BMP to minimize the off-site tracking of sediment.

Concrete washout areas shall be inspected daily and after every significant rainfall event (of at least 0.1 inch or greater) to check for leaks, identify any plastic linings and sidewalls have been damaged by construction activities or if they are over 75% capacity. When the washout area is over 75% capacity the wash water shall be removed or allowed to evaporate to avoid overflows. The hardened cement solids shall be removed and recycled.

City of Georgetown
South Lake Raw Water Facilities and Intake
Aboveground Storage Tanks Facility Plan

Temporary soil stabilization practices will include minimizing soil disturbance during construction and hydroseeding of temporary vegetation in disturbed areas. These temporary soil stabilization practices will be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. These interim measures will be inspected, maintained, and will remain in place for the duration of the construction phase of the project. These control measures will be planned and implemented in accordance with the Edwards Aquifer Technical Guidance Manual.

Permanent soil stabilization and site restoration will occur prior to project completion. Permanent soil stabilization measures will include the loaming, hydroseeding, and re-vegetation of the disturbed areas using a native grass mix that is properly monitored and managed, eventually resembling linear vegetation filter strips in the long term.

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Chris Pousson,
Print Name

CIP Manager,
Title - Owner/President/Other

of City of Georgetown,
Corporation/Partnership/Entity Name

have authorized Ellyn Weimer, PE
Print Name of Agent/Engineer

of CDM Smith
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

[Signature]
Applicant's Signature

9-23-22
Date

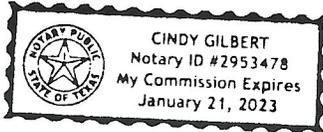
THE STATE OF Texas §
County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Chris Pousson known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 23 day of Sept., 2022

Cindy Gilbert
NOTARY PUBLIC

Cindy Gilbert
Typed or Printed Name of Notary



MY COMMISSION EXPIRES: 1/21/2023

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: South Lake Raw Water Facilities and Intake

Regulated Entity Location: 2044 Cedar Breaks Road, Georgetown, Texas 78628

Name of Customer: City of Georgetown

Contact Person: Chris Pousson

Phone: (512) 930-8162

Customer Reference Number (if issued): CN 600412043

Regulated Entity Reference Number (if issued): RN _____

Austin Regional Office (3373)

Hays

Travis

Williamson

San Antonio Regional Office (3362)

Bexar

Medina

Uvalde

Comal

Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment.** This payment is being submitted to:

Austin Regional Office

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

Site Location (Check All That Apply):

Recharge Zone

Contributing Zone

Transition Zone

<i>Type of Plan</i>	<i>Size</i>	<i>Fee Due</i>
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	\$
Sewage Collection System	L.F.	\$
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	3 Tanks	\$ 1,950
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$

Signature: _____



Date: 11/15/2023

Application Fee Schedule

Texas Commission on Environmental Quality

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

<i>Project</i>	<i>Project Area in Acres</i>	<i>Fee</i>
One Single Family Residential Dwelling	< 5	\$650
Multiple Single Family Residential and Parks	< 5	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$3,000
	1 < 5	\$4,000
	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

Organized Sewage Collection Systems and Modifications

<i>Project</i>	<i>Cost per Linear Foot</i>	<i>Minimum Fee- Maximum Fee</i>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

<i>Project</i>	<i>Cost per Tank or Piping System</i>	<i>Minimum Fee- Maximum Fee</i>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

Exception Requests

<i>Project</i>	<i>Fee</i>
Exception Request	\$500

Extension of Time Requests

<i>Project</i>	<i>Fee</i>
Extension of Time Request	\$150



TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 600412043		RN

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		
<input type="checkbox"/> New Customer <input type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)				
<i>The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).</i>				
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)			<i>If new Customer, enter previous Customer below:</i>	
City of Georgetown				
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits) 74-6000974	10. DUNS Number (if applicable) 89592372
11. Type of Customer:	<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input checked="" type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:
12. Number of Employees			13. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input checked="" type="checkbox"/> 501 and higher			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following				
<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator <input type="checkbox"/> Other: <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant				
15. Mailing Address:	300-1 Industrial Ave			
	City	Georgetown	State	TX
	ZIP	78626	ZIP + 4	8445
16. Country Mailing Information (if outside USA)			17. E-Mail Address (if applicable)	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)

SECTION III: Regulated Entity Information**21. General Regulated Entity Information** *(If 'New Regulated Entity' is selected, a new permit application is also required.)*
 New Regulated Entity
 Update to Regulated Entity Name
 Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

South Lake Raw Water Facilities and Intake

23. Street Address of the Regulated Entity:

2044 Cedar Breaks Road

(No PO Boxes)

City	Georgetown	State	TX	ZIP	78628	ZIP + 4	
-------------	------------	--------------	----	------------	-------	----------------	--

24. County

Williamson

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:

The South Lake Raw Water Electrical and Chemical Facility is located along Cedar Breaks Road approximately 610 feet south of the intersection of Cedar Breaks and Crockett Gardens Road.

26. Nearest City**State****Nearest ZIP Code**

Georgetown

TX

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:

30.6671

28. Longitude (W) In Decimal:

-97.7347

Degrees

Minutes

Seconds

Degrees

Minutes

Seconds

29. Primary SIC Code**30. Secondary SIC Code****31. Primary NAICS Code****32. Secondary NAICS Code**

(4 digits)

(4 digits)

(5 or 6 digits)

(5 or 6 digits)

4941

211310

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Raw Water Facility

34. Mailing Address:**City****State****ZIP****ZIP + 4****35. E-Mail Address:****36. Telephone Number****37. Extension or Code****38. Fax Number** *(if applicable)*

() -

() -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

SECTION IV: Preparer Information

40. Name:	Samantha Agniel		41. Title:	Environmental Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(713) 423-7340		() -	agnielsj@cdmsmith.com	

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	CDM Smith, Inc.	Job Title:	Water Resources Engineer
Name (In Print):	Ellyn Weimer, PE	Phone:	(512) 652- 5329
Signature:		Date:	11/15/2023



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

October 19, 2023

Real Estate Division

SUBJECT: Lake Georgetown, Texas; Right-of-Entry No. DACW63-9-24-0513

Mr. Chris Pousson
CIP Manager
City of Georgetown
300-1 Industrial Avenue
Georgetown, Texas 78626

Dear Mr. Pousson:

I am writing in response to your request for an immediate Right-of-Entry to begin construction/placement of structures in support of City of Georgetown's new South Lake Water Treatment Plant near Lake Georgetown, Texas. The proposed area is approximately 5.56 acres located on Tracts 104 and 105-1.

Under the authority granted to the Department of the Army, I do hereby grant the City of Georgetown, hereinafter referred to as the Grantee, an immediate Right-of-Entry upon the proposed areas shown on **EXHIBITS A – MAP, B – SURVEY, and C – LEGAL DESCRIPTION**, attached hereto, to begin construction/placement of a 42-inch raw water pipeline, raw water intake structure/pump station, a raw water chemical feed building, electrical building, and an underground electrical power line at Lake Georgetown, Texas subject to the following conditions:

a. This Right-of-Entry is granted contingent upon the final consummation of a formal easement between the Department of the Army and the Grantee. Due to the urgency to proceed with the construction, the Grantee agrees to execute, accept and be bound by an easement to be issued by the Department of the Army including such terms and conditions which the Government may deem to be reasonable and proper to protect its interests. Said Right-of-Entry shall terminate and all interest conveyed herein shall cease upon the execution of an easement between the Department of the Army and Grantee. This Right-of-Entry is revocable at will by the Department of the Army and shall terminate on **October 18, 2024**.

b. It is understood that this Right-of-Entry is effective only insofar as the rights of the United States in the property involved are concerned; and that the Grantee shall obtain such other permission as necessary; and that the Grantee shall comply with any and all existing rights, laws, ordinances, rules and regulation as may be applicable to the proposed testing activities.

c. If historical or cultural resources are discovered during construction, the Grantee must stop work immediately and notify the District Archeologist at 817-886-1573.

d. The Grantee must agree to pay all U.S. Army Corps of Engineers (USACE) real estate administrative fees and appraised values associated with the easement.

e. The Grantee must allow unrestricted use of the surface area for ingress and egress for any other future easements granted. This is provided that said surface use will not, in the opinion of the Real Estate Contracting Officer, interfere with the use of the Premises by the Grantee.

f. That the United States shall not be responsible for damages to property or injuries to persons which may arise from or be incidental to the exercise of the privileges herein granted and the Grantee shall hold the United States harmless from any and all such claims.

g. All electrical installations shall be performed and maintained in accordance with the requirements of the National Electric Safety Code and the National Electric Code.

h. Buoy and sign plans shall be submitted to Georgetown Lake Office for review and approval prior to placement of buoys and signs.

i. The Grantee shall mitigate any damage to USACE property as outlined in **EXHIBIT D – MITIGATION PLAN**.

j. This project will result in no net loss of flood storage capacity, as seen on **EXHIBIT E – CUT AND FILL CALCULATIONS**.

k. The Grantee shall comply with all conditions and stipulations contained within **EXHIBIT F – WILLIAMSON COUNTY REGIONAL HABITAT CONSERVATION PLAN PARTICIPATION AGREEMENT**, including dates of breeding seasons for noted species.

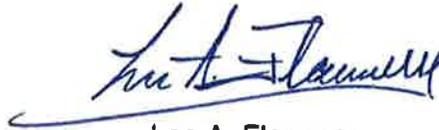
l. The Grantee shall coordinate all vehicular access, environmental protection conditions, and mitigation through the Lake Georgetown Office, 512-819-9046.

m. The Grantee shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) and file a Notice of Intent (NOI) with the Environmental Protection Agency.

n. The Grantee shall be in full compliance with all applicable Federal, State, and local laws and regulations.

If this Right-of-Entry is acceptable under these conditions, your acceptance shall be shown by execution of both originals of this agreement. Please return one fully executed agreement with the Certificate of Authority to the above address, ATTN: CESWF-RE-M. If you have any questions, please contact Mrs. Tracee Johnston, 817-886-1236 or Tracee.L.Johnston@usace.army.mil.

Sincerely,



Lee A. Flannery
Deputy Chief, Real Estate Division
Real Estate Contracting Officer

Enclosures

The foregoing right of entry for construction is hereby accepted subject to the above conditions this 14th day of November 2023.

City of Georgetown

Signature: _____

Name: Josh Schroeder

Title: Mayor

cc:
CESWF-OPN (w/o encl)
CESWF-OPC (w/o encl)
CESWF-OPC-G (w/encl)

CERTIFICATE OF AUTHORITY

I, Karen Frost (Name), certify that I am the Deputy City Secretary (Title) of **City of Georgetown**, named as the Grantee herein; and that Josh Schroeder (signator of outgrant), who signed the foregoing instrument on behalf of the Grantee, was then Mayor (title of signator of outgrant) of **City of Georgetown**. I further certify that the said officer was acting within the scope of powers delegated to this governing body of the Grantee in executing said instrument.

City of Georgetown

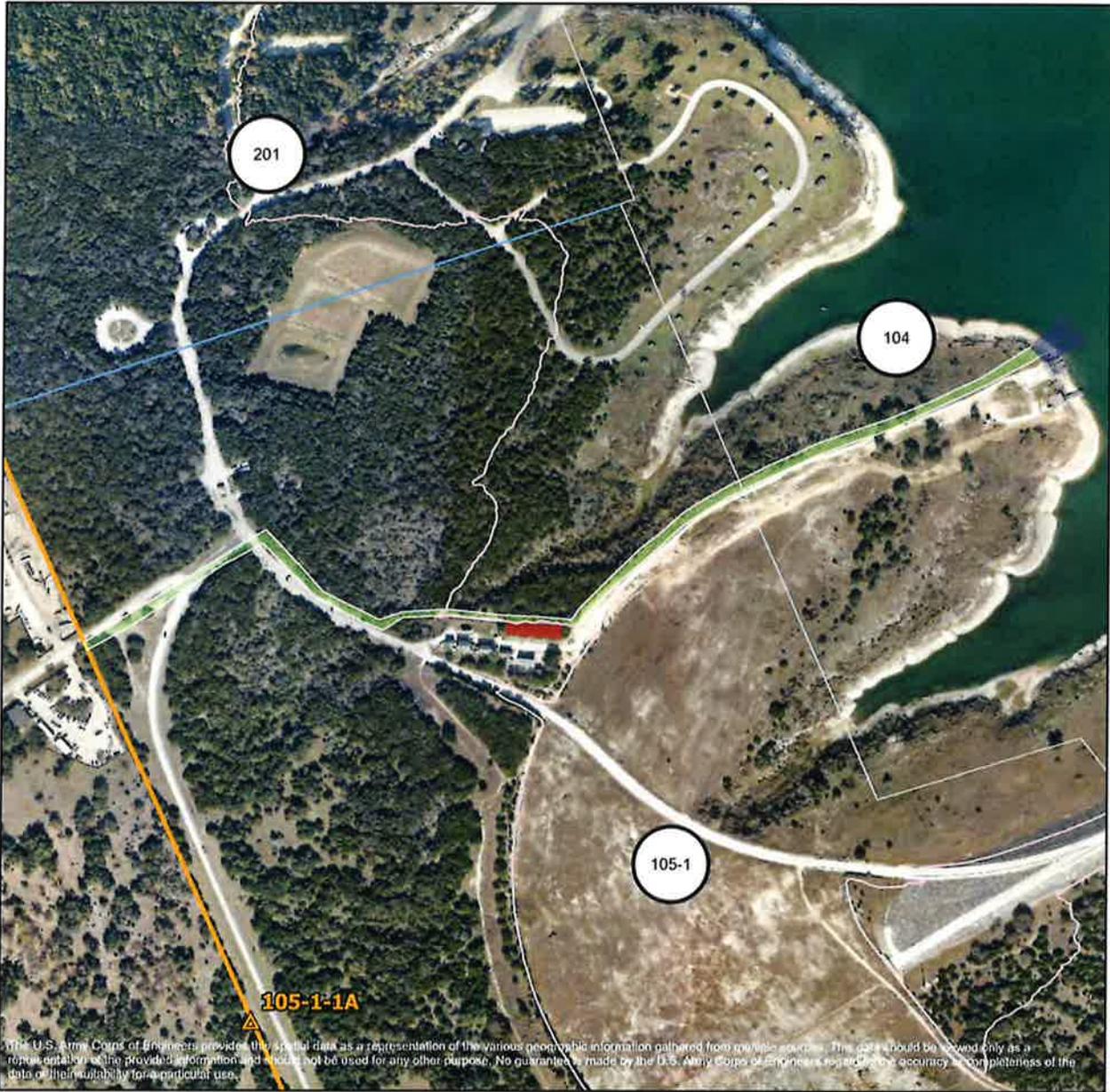
11/14/2023
Date

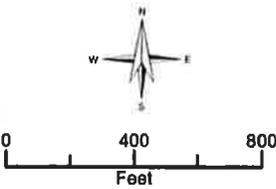
Karen Frost
Authorized Representative
Deputy City Secretary
Title

AFFIX COMPANY SEAL

NOTE: This form certifies that the person signing the attached instrument has the authority to do so. The signature of the Secretary/Attesting Officer and the individual signing the attached instrument cannot be the same person.

Easement
2100 Cedar Breaks Road, Georgetown, TX 78633
Water Intake and Treatment Building
Georgetown Lake



 <p>US Army Corps of Engineers</p> <p>Tract(s): NF-104, and NF-105-1</p>	<ul style="list-style-type: none"> EASEMENT Water Intake Structure Treatment Building FEE BOUNDARY FLOWAGE EASEMENT TRACT BOUNDARY PROPERTY MONUMENTS 	 <p style="text-align: center;">0 400 800 Feet</p> <p style="text-align: center;">1 inch = 519 feet</p>	
--	--	--	---

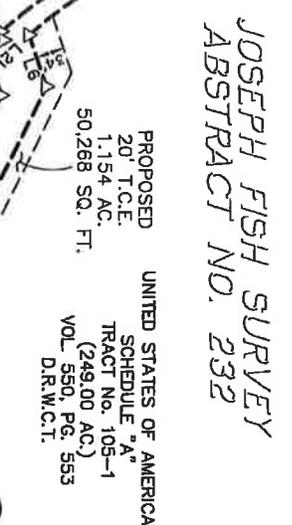
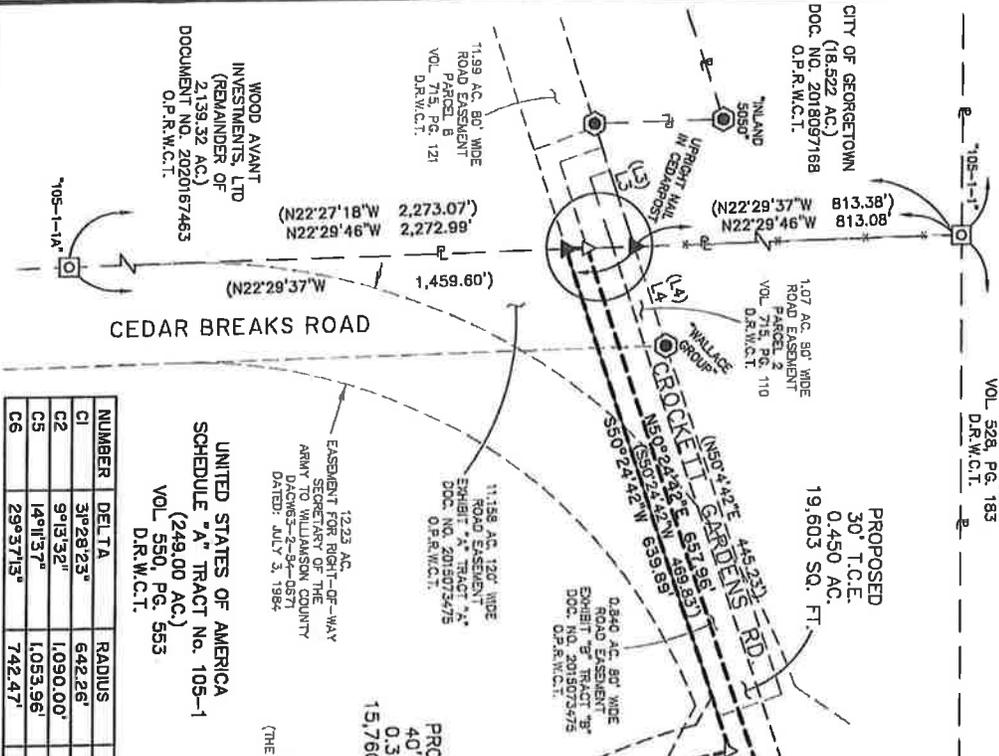
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UNITED STATES OF AMERICA
ARMY CORPS OF ENGINEERS
419.64 AC.
TRACT No. 201
VOL. 528, PG. 183
D.R.W.C.T.

EXHIBIT
PLAT TO ACCOMPANY DESCRIPTION

NO.	DIRECTION	DISTANCE
L1	(N22°29'W)	(63.70')
L2	N22°29'46"W	57.94'
L3	N50°22'34"E	156.96'
L4	(S50°22'34"W)	(156.96')
L5	N50°33'09"E	125.50'
L6	(N50°24'42"E)	(125.55')
L7	S39°14'20"E	25.00'
L8	N49°59'56"E	66.19'
L9	N46°03'03"E	39.88'
L10	N43°47'31"W	246.66'
L11	S43°47'31"W	246.66'

NO.	DIRECTION	DISTANCE
L14	S29°36'40"W	25.98'
L15	N65°00'04"W	214.70'
L16	N04°59'57"E	38.00'
L17	N85°00'04"W	167.57'
L18	N04°59'56"E	10.00'
L19	N85°00'04"W	209.42'
L20	S49°59'56"W	82.04'
L21	N63°24'51"W	26.11'
L22	S49°59'56"W	10.89'
L23	N22°29'46"W	26.12'



NUMBER	DELTA	RADIUS	LENGTH	CHORD	CHORD BEARING
C1	31°28'23"	642.26'	352.80'	348.38'	S46°10'31"E
C2	9°13'32"	1,090.00'	175.51'	N39°10'45"E	
C5	149°11'37"	1,053.96'	260.43'	S36°42'08"W	
C6	29°37'13"	742.47'	383.84'	N47°13'01"W	

INLAND GEODETTICS
PROFESSIONAL LAND SURVEYORS
1504 CHISHOLM TRAIL RD. STE. 103
ROUND ROCK, TX, 78681
PH. (512) 238-1200, FAX (512) 238-1251
FIRM REGISTRATION NO. 100591-00

UNITED STATES OF AMERICA
SCHEDULE "A" TRACT No. 105-1
VOL. 550, PG. 553
D.R.W.C.T.

PARCEL PLAT SHOWING PROPERTY OF
UNITED STATES OF AMERICA

SCALE 1"=200'

PROJECT CITY OF GEORGETOWN WATER TREATMENT PLANT

COUNTY WILLIAMSON

REV: 04-05-2022

EASEMENT
3,594 ACRES
156,563 SQ. FT.

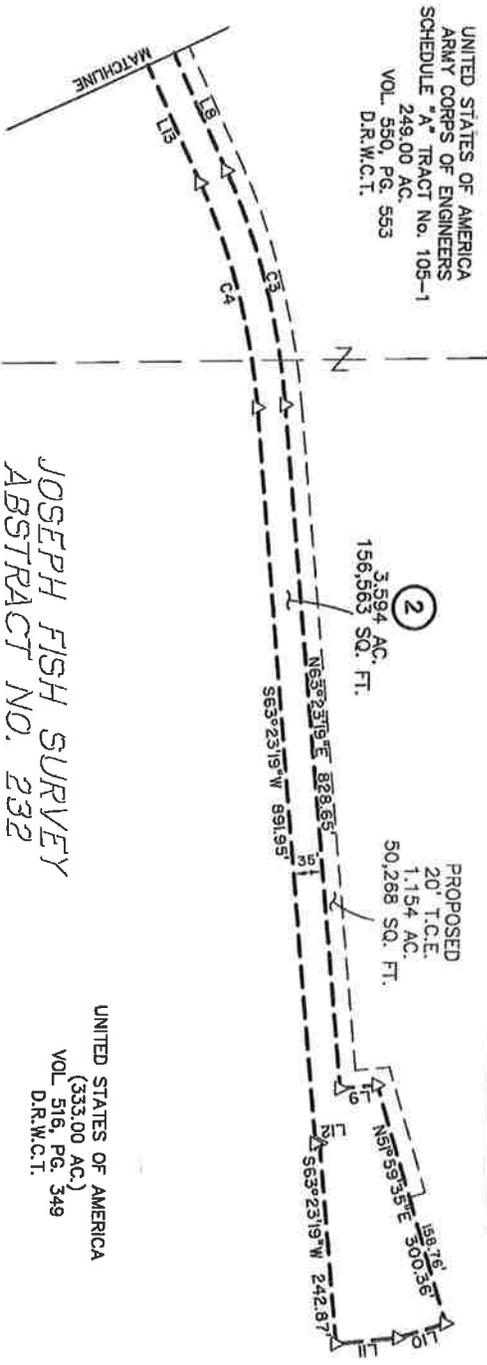
PAGE 4 OF 5

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**EXHIBIT
PLAT TO ACCOMPANY DESCRIPTION**

NUMBER	DELTA	RADIUS	LENGTH	CHORD	CHORD BEARING
C3	19°35'48"	860.00'	294.14'	292.71'	N63°35'25"E
C4	19°35'48"	825.00'	282.17'	280.80'	S53°35'25"W

UNITED STATES OF AMERICA
ARMY CORPS OF ENGINEERS
SCHEDULE "A" TRACT No. 105-1
249.00 AC.
VOL. 550, PG. 553
D.R.W.C.T.



**JOSEPH FISH SURVEY
ABSTRACT NO. 232**

UNITED STATES OF AMERICA
(333.00 AC.)
VOL. 516, PG. 349
D.R.W.C.T.

- 1) ALL BEARINGS SHOWN HEREON ARE BASED ON GRID BEARING. ALL DISTANCES ARE SURFACE DISTANCES. COORDINATES ARE SURFACE VALUES BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, NAD 83, CENTRAL ZONE.
- 2) THIS SURVEY WAS PERFORMED WITHOUT BENEFIT OF A TITLE ABSTRACT. THERE MAY BE OTHER INSTRUMENTS OF RECORD THAT AFFECT THIS TRACT. NOT DEPICTED HEREON.

I HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECT AND THAT THE PROPERTY SHOWN HEREON WAS DETERMINED BY A SURVEY MADE ON THE GROUND UNDER MY DIRECT SUPERVISION.

M. Stephen Truesdale
M. STEPHEN TRUESDALE DATE **7 APR 2022**
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 49333
INLAND GEODETICS, LLC
FIRM REGISTRATION NO. 100591-00
1504 CHISHOLM TRAIL ROAD, SUITE 103
ROUND ROCK, TEXAS 78681



NO.	DIRECTION	DISTANCE
L8	N43°47'31"E	246.66'
L9	N26°36'05"W	44.62'
L10	S37°51'41"E	60.14'
L11	S26°35'59"E	74.39'
L12	S26°36'41"E	5.00'
L13	S43°47'31"W	246.66'

LEGEND	
△	CALCULATED POINT
●	1/2" IRON ROD W/ PLASTIC CAP FOUND (AS NOTED)
▲	804 NAIL FOUND
⊠	CORPS OF ENGINEERS MONUMENT
—	PROPERTY LINE
()	RECORD INFORMATION
D.R.W.C.T.	DEED RECORDS OF WILLIAMSON COUNTY, TEXAS
O.P.R.W.C.T.	OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS
⚡	DISTANCE BREAK



INLAND U
GEODETICS
PROFESSIONAL LAND SURVEYORS
1504 CHISHOLM TRAIL RD, STE. 103
ROUND ROCK, TX, 78681
PH. (512) 228-1200; FAX (512) 228-1231
FIRM REGISTRATION NO. 100591-00

PARCEL PLAT SHOWING PROPERTY OF
UNITED STATES OF AMERICA

SCALE 1"=200'	CITY OF GEORGETOWN WATER TREATMENT PLANT	COUNTY WILLIAMSON
------------------	--	----------------------

EASEMENT
3,594 ACRES
156,563 SQ. FT.

PAGE 5 OF 5

REV: 04-05-2022

County: Williamson
Parcel : Parcel 2 Easement
Project: United States of America (South Lake)

EXHIBIT _____
PROPERTY DESCRIPTION

DESCRIPTION OF A 3.594 ACRE (156,563 SQUARE FOOT) PARCEL OF LAND SITUATED IN THE JOSEPH FISH SURVEY, ABSTRACT NO. 232 IN WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF THAT CALLED 249.00 ACRE TRACT OF LAND (SCHEDULE "A" TRACT NO. 105-1) DESCRIBED IN A DECLARATION OF TAKING TO UNITED STATES OF AMERICA RECORDED IN VOLUME 550, PAGE 553 OF THE DEED RECORDS OF WILLIAMSON COUNTY, TEXAS, AND ALSO BEING A PORTION OF THAT CALLED 333.00 ACRE TRACT OF LAND DESCRIBED IN A GENERAL WARRANTY DEED TO UNITED STATES OF AMERICA RECORDED IN VOLUME 516, PAGE 349 OF THE DEED RECORDS OF WILLIAMSON COUNTY, TEXAS, SAID 3.594 ACRE (156,563 SQUARE FOOT) PARCEL OF LAND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a calculated point, (Grid Coordinates determined as N=10,215,791.75 E=3,112,127.26), being in the westerly boundary line of said 249.00 acre tract and the westerly line of a 1.07 acre 80 foot wide road easement recorded in Volume 715, Page 110 of the Deed Records of Williamson County, Texas, same being the easterly boundary line of the remainder of that called 2,139.32 acre tract of land described in a Special Warranty Deed to Wood Avant Investments, LTD recorded in Document No. 2020167463 of the Official Public Records of Williamson County, Texas, and from which a nail in cedar post found, being the common corner of that called 18.522 acre tract described in a Special Warranty Deed to City of Georgetown recorded in Document No. 2018097168 of the Official Public Records of Williamson County, Texas, and said remainder of the 2,139.32 acre tract, same being in the westerly boundary line of said 249.00 acre tract bears N 22°29'46" W at a distance of 57.94 feet;

THENCE, departing the easterly boundary line of said remainder of the 2,139.32 acre tract, being said westerly line of the 80 foot wide road easement, through the interior of said 249.00 acre tract, and said 333.00 acre tract, the following thirty one (31) courses:

- 1) **N 50°24'42" E** for a distance of **657.96** feet to a calculated angle point;
- 2) **S 39°14'20" E** for a distance of **25.00** feet to a calculated point of curvature to the left;
- 3) along said curve to the left, having a delta angle of **31°28'23"**, a radius of **642.26** feet, an arc length of **352.80** feet and a chord which bears **S 46°10'31" E**, for a distance of **348.38** feet a calculated point of non tangency;
- 4) **N 49°59'56" E** for a distance of **66.19** feet to a calculated angle point;
- 5) **S 85°00'04" E** for a distance of **619.81** feet to a calculated angle point;
- 6) **N 46°03'03" E** for a distance of **39.88** feet to a calculated point of curvature to the right;
- 7) along said curve to the right, having a delta angle of **09°13'32"**, a radius of **1,090.00** feet, an arc length of **175.51** feet and a chord which bears **N 39°10'45" E**, for a distance of **175.32** feet a calculated point of non tangency;
- 8) **N 43°47'31" E** for a distance of **246.66** feet to a calculated point of curvature to the right;
- 9) along said curve to the right, having a delta angle of **19°35'48"**, a radius of **860.00** feet, an arc length of **294.14** feet and a chord which bears **N 53°35'25" E**, for a distance of **292.71** feet a calculated point of non tangency;
- 10) **N 63°23'19" E** for a distance of **828.65** feet to a calculated ell corner;

County: Williamson
Parcel : Parcel 2 Easement
Project: United States of America (South Lake)

- 11) **N 26°36'05" W** for a distance of **44.62** feet to a calculated angle point;
- 12) **N 51°59'35" E** for a distance of **300.36** feet to the calculated northeasterly corner of the herein described parcel (currently inundated);
- 13) **S 37°51'41" E** for a distance of **60.14** feet to the calculated angle point (currently inundated);
- 14) **S 26°35'59" E** for a distance of **74.99** feet to the calculated southeasterly corner of the herein described parcel (currently inundated);
- 15) **S 63°23'19" W** for a distance of **242.87** feet to a calculated angle point;
- 16) **S 26°36'41" E** for a distance of **5.00** feet to a calculated angle point;
- 17) **S 63°23'19" W** for a distance of **891.95** feet to a calculated point of curvature to the left;
- 18) along said curve to the left, having a delta angle of **19°35'48"**, a radius of **825.00** feet, an arc length of **282.17** feet and a chord which bears **S 53°35'25" W**, for a distance of **280.80** feet a calculated point of non tangency;
- 19) **S 43°47'31" W** for a distance of **246.66** feet to a calculated point of curvature to the left;
- 20) along said curve to the left, having a delta angle of **14°11'37"**, a radius of **1,053.96** feet, an arc length of **261.09** feet and a chord which bears **S 36°42'08" W**, for a distance of **260.43** feet a calculated point of non tangency;
- 21) **S 29°36'40" W** for a distance of **25.98** feet to a calculated angle point,
- 22) **N 85°00'04" W** for a distance of **214.70** feet to a calculated angle point;
- 23) **N 04°59'57" E** for a distance of **38.00** feet to a calculated angle point;
- 24) **N 85°00'04" W** for a distance of **167.67** feet to a calculated angle point;
- 25) **N 04°59'56" E** for a distance of **10.00** feet to a calculated angle point;
- 26) **N 85°00'04" W** for a distance of **209.42** feet to a calculated angle point;
- 27) **S 49°59'56" W** for a distance of **52.04** feet to a calculated angle point;
- 28) **N 63°24'51" W** for a distance of **26.11** feet to a calculated angle point;
- 29) **S 49°59'56" W** for a distance of **10.89** feet to a calculated point of curvature to the right;
- 30) along said curve to the right, having a delta angle of **29°37'13"**, a radius of **742.47** feet, an arc length of **383.84** feet and a chord which bears **N 47°13'01" W**, for a distance of **379.58** feet a calculated point of non tangency;
- 31) **S 50°24'42 W**, in part with the southerly line of said 1.07 acre roadway easement, for a distance of **639.89** feet to a 60d nail found, being in the common boundary line of said remainder of the 2,139.32 acre tract and said 249.00 acre tract, for the southwesterly corner of said 80 foot wide road easement and of the herein described parcel;

City of Georgetown
South Lake Water Raw Water Line
USACE Property Mitigation Plan

Background

The City of Georgetown's new South Lake Water Treatment Plant (WTP) which is located along Crockett Gardens Road in Georgetown, Texas is a 44 million gallon per day (MGD) treatment plant to meet potable water demands for the City of Georgetown. The project will consist of the following facilities on USACE Lake Georgetown property: a slanted inclined intake with pump cans and a valve vault; a raw water pipeline; a chemical feed building; an electrical building; an underground electrical power line to power the intake station and chemical feed building; and a potable water line to the chemical feed building.

The City of Georgetown is requesting an easement on USACE property in order to accommodate the facilities itemized above and shown on the construction plans. The easement is intended to be perpetual and will operate all year round for the process of pumping raw water to the South Lake WTP to meet potable water demand for the City of Georgetown. This work will result in the clearing of approximately 252,300 square feet (SF) of the raw water line easement. Work in this area will require the removal of 653 trees, most of which are Ashe Juniper (510) and Live Oak (80). As mitigation for the removal of the trees, the City has agreed to the mitigation as described below.

The value of the trees removed is \$339,711.04 as calculated using the iTree software developed by Council of Tree and Landscape Appraisers. The mitigation provided by the City must be equal to this value.

Mitigation

Potential Mitigation measures were discussed with the local USACE officials. Two mitigation measures will be completed as described below:

- 1) Perform all work, at no charge to USACE, necessary to construct a 4" force main, 4" clean-out, manhole, 8" gravity line, clean-out and associated appurtenances up to a tie-in connection point from the city's sanitary collection system. Work shall include required studies, investigations, evaluations, design, construction, installation and inspections to allow USACE to connect their wastewater force main from Cedar Breaks Park at the location depicted on attached Map 1. Capacity will be guaranteed for 30 years.
- 2) Perform clearing of dead standing Juniper Ashe trees found within designated 24 acres, as depicted on attached Map 2, to accelerated woody vegetation succession to improve habitat to support endangered Golden-cheeked Warbler (GCWA) and other wildlife. Dead standing Juniper Ashe will be grinded to ground level and wood chips will be spread and smoothed evenly in the surrounding area, with wood chips not to exceed 1 inch in depth. Injury to existing live trees will be avoided as much as possible; however, removal of some live Juniper Ashe trees may be necessary for the machinery to access stands of dead trees. All clearing work will take place outside of the GCWA nesting season from 1 March through 31 July to prevent disturbance of nesting birds.

Mitigation Costs

The following mitigation costs are realized.

Wastewater Tie-In Connection	
Item	Cost
WW Connection Fee	\$ 600.00
WW Impact Fees	\$ 171,612.00
Engineering and Inspection Fee	\$ 16,000.00
Engineer Design Fee	\$ 14,040.00
Pipeline Construction	\$ 60,813.91
TOTAL	\$ 263,065.91

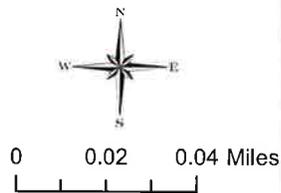
Juniper Ashe Clearing		
Acres	Cost/Acres	Total Cost
24	\$ 3,300.00	\$ 79,200.00

Total mitigation cost is \$342,265.91 and these mitigation measures will meet the USACE mitigation requirements for value loss of \$339,711.04.

CITY OF GEORGETOWN
CEDAR BREAKS PARK WASTEWATER CONNECTION
LAKE GEORGETOWN, TX
MAP 1



Legend
Property Line





CITY OF GEORGETOWN, TEXAS

PACKAGE 1: SOUTH LAKE WATER TREATMENT PLANT

PROJECT No PRJ000101

BID NO. 202203 CONTRACT ID NO. 22-0018-CIP

OCTOBER 2021

CITY COUNCIL

MAYOR

JOSH SCHROEDER

CITY COUNCIL MEMBERS

- AMANDA PARR DISTRICT 1
- SHAWN HOOD DISTRICT 2
- MIKE TRIGGS DISTRICT 3
- STEVE FOUGHT DISTRICT 4
- KEVIN PITTS MAYOR PRO TEM / DISTRICT 5
- VACANT DISTRICT 6
- TOMMY GONZALEZ DISTRICT 7

CITY MANAGER

DAVID MORGAN

ASSISTANT CITY MANAGERS

LAURIE BREWER
WAYNE NERO

WATER SERVICES UTILITY DIRECTOR

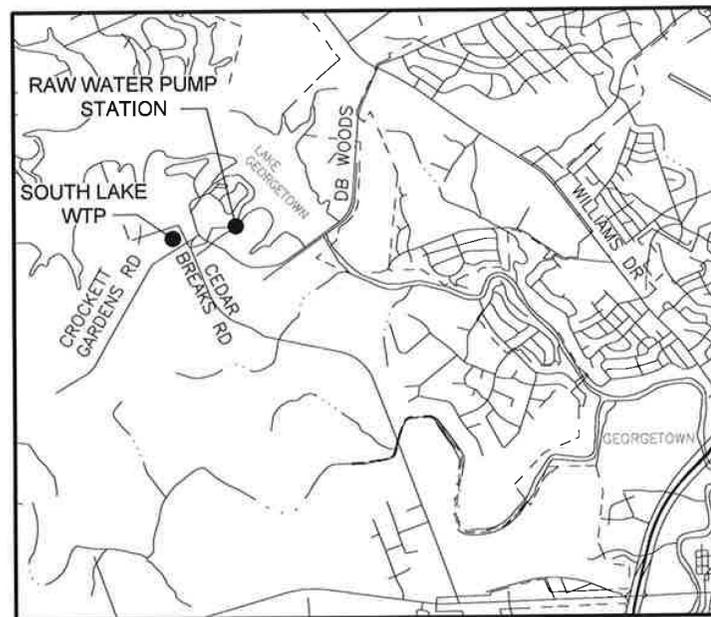
CHELSEA SOLOMON, P.E.

SYSTEMS ENGINEERING DIRECTOR

WESLEY WRIGHT, P.E.

UTILITY ENGINEER

DAVID MUNK, P.E.



LOCATION PLAN

CONFORMED DRAWINGS

VOLUME I OF III

Chen Parr 10-26-21
CITY OF GEORGETOWN, CIP MANAGER DATE

[Signature] 10/26/21
CITY OF GEORGETOWN, SYSTEM ENGINEERING DIRECTOR DATE

PREPARED BY:
Sarah Albers Stewart 10-26-2021
DATE
CDM Smith TEXAS REGISTRATION NUMBER F-3043



AUSTIN, TEXAS
Transportation

Water

Environment

Energy

Facilities

VOLUME I of III

GENERAL

G-0	COVER SHEET
G-1	SHEET INDEX I
G-2	SHEET INDEX II
G-3	SHEET INDEX III
G-4	OVERALL CONTRACT DELINEATION
G-5	OVERALL PACKAGE 1 PLAN
G-6	GENERAL LEGEND AND NOTES I
G-7	GENERAL LEGEND AND NOTES II
G-8	STANDARD ABBREVIATIONS
G-9	PROCESS FLOW DIAGRAM LIQUIDS
G-10	PROCESS FLOW DIAGRAM SOLIDS
G-11	WATER / MASS BALANCE
G-12A	HYDRAULIC PROFILE - RAW WATER PUMP STATION
G-12B	HYDRAULIC PROFILE - TREATMENT
G-13	HYDRAULIC PROFILE - RESIDUALS
G-14	DESIGN CRITERIA TABLES I
G-15	DESIGN CRITERIA TABLES II
G-16	AREA CLASSIFICATION AND MATERIALS SCHEDULE
G-17	PIPE SCHEDULE
G-18	CONSTRUCTION SEQUENCING PLAN
G-19	WATER TREATMENT PLANT SITE PROFILE

CIVIL

C-1	GENERAL CIVIL NOTES
C-2	OVERALL PROJECT CIVIL PLAN
C-3	WATER TREATMENT PLANT OVERALL SITE PLAN
C-4	WATER TREATMENT PLANT EXISTING SITE PLAN AND CONTROL PLAN
C-5	WATER TREATMENT PLANT TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN
C-6	WATER TREATMENT PLANT SITE CLEARING AND TREE PROTECTION PLAN
C-7	WATER TREATMENT PLANT SITE STAKING AND FENCING PLAN AND BORING PLAN
C-8	RAW WATER OVERALL SITE LAYOUT, CONTROL AND BORING PLAN
C-9	RAW WATER PUMP STATION PROPOSED SITE PLAN
C-10	RAW WATER PUMP STATION SITE CLEARING AND TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN
C-11	RAW WATER PUMP STATION SITE STAKING AND FENCING PLAN
C-12	RAW WATER ELECTRICAL AND CHEMICAL BUILDINGS PROPOSED SITE PLAN
C-13	RAW WATER ELECTRICAL AND CHEMICAL BUILDINGS SITE CLEARING, DEMOLITION AND TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN
C-14	RAW WATER ELECTRICAL AND CHEMICAL BUILDINGS SITE STAKING AND FENCING PLAN
CR-1	WATER TREATMENT PLANT OVERALL PAVING, PERMANENT EROSION/SEDIMENTATION CONTROL AND GRADING KEY PLAN
CR-2	WATER TREATMENT PLANT PAVING AND GRADING DETAILS I
CR-3	WATER TREATMENT PLANT PAVING AND GRADING DETAILS II
CR-4	WATER TREATMENT PLANT PAVING AND GRADING DETAILS III
CR-5	WATER TREATMENT PLANT PAVING AND GRADING DETAILS IV
CR-6	WATER TREATMENT PLANT PAVING AND GRADING DETAILS V
CR-7	WATER TREATMENT PLANT PLANT ROAD PROFILE I
CR-8	WATER TREATMENT PLANT PLANT ROAD PROFILE II
CR-9	RAW WATER PUMP STATION PAVING AND GRADING PLAN
CR-10	RAW WATER ELECTRICAL AND CHEMICAL BUILDINGS PAVING AND GRADING PLAN
CR-11	TYPICAL ROAD SECTIONS AND PAVING DETAILS
CR-12	DRAINAGE AREA MAP
CR-13	DRAINAGE CALCULATIONS
CR-14	WATER QUALITY POND STORM SEWER PROFILES
CR-15	WATER QUALITY POND PLAN AND DETAILS
CR-16	WATER QUALITY POND CROSS SECTIONS I
CR-17	WATER QUALITY POND CROSS SECTIONS II
CR-18	WATER TREATMENT PLANT ROAD DRAINAGE DETAIL
CY-1	WATER TREATMENT PLANT YARD PIPING KEY PLAN
CY-2	WATER TREATMENT PLANT YARD PIPING PLAN DETAILS I
CY-3	WATER TREATMENT PLANT YARD PIPING PLAN DETAILS II
CY-4	WATER TREATMENT PLANT YARD PIPING PARTIAL PLAN DETAILS III
CY-5	WATER TREATMENT PLANT 8" FILTRATE WATER / 12" SANITARY SEWER PROFILE 1
CY-6	WATER TREATMENT PLANT 48" FILTERED WATER PROFILE 2
CY-7	WATER TREATMENT PLANT 42" FINISHED WATER PROFILE 3 AND 48" FINISHED WATER PROFILE 4
CY-8	WATER TREATMENT PLANT 30" BACKWASH WATER PROFILE 6
CY-9	WATER TREATMENT PLANT 36" RECYCLE WATER PROFILE 7, 30" WASTE BACKWASH WATER PROFILE 8, AND 16" RCW PROFILE 9
CY-10	WATER TREATMENT PLANT 12" RECYCLE WATER PROFILE 10
CY-11	WATER TREATMENT PLANT 12" SLUDGE PROFILE 12 AND 18" DRAIN PROFILE 13
CY-12	WATER TREATMENT PLANT 12" POTABLE WATER LINE PROFILE 14 STATION -60+00 TO STA 10+00
CY-13	WATER TREATMENT PLANT 12" POTABLE WATER LINE PROFILE 14 STATION 10+00 TO STA 20+00
CY-14	WATER TREATMENT PLANT 12" SUPERNATANT PROFILE 15 AND 8" SL PROFILE 16
CY-15	WATER TREATMENT PLANT 42" / 30" PLANT RAW WATER LINE PROFILE 17 AND 30" RAW WATER LINE PROFILE 17A
CY-16	WATER TREATMENT PLANT 36" RCW PROFILE 18 AND 12" SLUDGE PROFILE 19
CY-17	WATER TREATMENT PLANT 12" DRAIN LINE TO FILTRATE PUMP STATION PROFILE 20
CY-18	WATER TREATMENT PLANT 60" FINISHED WATER PROFILE 21
CY-19	CHEMICAL INJECTION VAULT DETAIL AND SECTION
CP-1	RAW WATERLINE KEY PLAN
CP-2	PLAN AND PROFILE STA 0+00 TO STA 5+00 RAW WATER LINE
CP-3	PLAN AND PROFILE STA 5+00 TO STA 10+00 RAW WATER LINE
CP-4	PLAN AND PROFILE STA 10+00 TO STA 15+00 RAW WATER LINE
CP-5	PLAN AND PROFILE STA 15+00 TO STA 20+00 RAW WATER LINE

CP-6	PLAN AND PROFILE STA 20+00 TO STA 25+00 RAW WATER LINE
CP-7	PLAN AND PROFILE STA 25+00 TO STA 30+00 RAW WATER LINE
CP-8	PLAN AND PROFILE STA 30+00 TO STA 34+79.21 RAW WATER LINE
CZ-1	STANDARD CIVIL DETAILS I
CZ-2	STANDARD CIVIL DETAILS II
CZ-3	STANDARD CIVIL DETAILS III
CZ-4	STANDARD CIVIL DETAILS IV
CZ-5	STANDARD CIVIL DETAILS V
CZ-6	STANDARD CIVIL DETAILS VI
CZ-7	STANDARD CIVIL DETAILS VII
CZ-8	STANDARD CIVIL DETAILS VIII
CZ-9	STANDARD CIVIL DETAILS IX
CZ-10	STANDARD CIVIL DETAILS X
CZ-11	STANDARD CIVIL DETAILS XI
CZ-12	STANDARD CIVIL DETAILS XIII
CZ-13	STANDARD CIVIL DETAILS XIII
CZ-14	STANDARD CIVIL DETAILS XIV
CZ-15	STANDARD CIVIL DETAILS XV
CZ-16	STANDARD CIVIL DETAILS XVI
CZ-17	STANDARD CIVIL DETAILS XVII
CZ-18	STANDARD CIVIL DETAILS XVIII

ARCHITECTURAL

A-1	ABBREVIATIONS, SYMBOLS, LEGENDS AND NOTES
A-2	ACCESSIBILITY STANDARDS I
A-3	ACCESSIBILITY STANDARDS II
A-4	DOOR SCHEDULE
A-5	WINDOW SCHEDULE
A-6	FINISH SCHEDULE
AA-1	TREATMENT STRUCTURE LIFE SAFETY PLAN AND CODE KEY DETERMINATIONS
AA-2	TREATMENT STRUCTURE PARTIAL FLOOR AND ROOF PLANS I
AA-3	TREATMENT STRUCTURE PARTIAL FLOOR AND ROOF PLANS II
AA-4	TREATMENT STRUCTURE ELEVATIONS
AA-5	TREATMENT STRUCTURE ELECTRICAL AND BLOWER BUILDING SECTIONS AND WALL SECTIONS
AA-6	TREATMENT STRUCTURE CONTROL BOOTH
AF-1	CHEMICAL FACILITY LIFE SAFETY PLAN AND CODE KEY DETERMINATIONS
AF-2	CHEMICAL FACILITY FLOOR PLAN
AF-3	CHEMICAL FACILITY ROOF PLAN
AF-4	CHEMICAL FACILITY ELEVATIONS I
AF-5	CHEMICAL FACILITY ELEVATIONS II
AF-6	CHEMICAL FACILITY BUILDING SECTIONS
AH-1	DEWATERING BUILDING LIFE SAFETY PLAN AND CODE KEY DETERMINATIONS
AH-2	DEWATERING BUILDING FLOOR PLAN
AH-3	DEWATERING BUILDING ROOF PLAN
AH-4	DEWATERING BUILDING ELEVATIONS I
AH-5	DEWATERING BUILDING ELEVATIONS II
AH-6	DEWATERING BUILDING SECTIONS
AH-7	DEWATERING BUILDING WALL SECTIONS I
AH-8	DEWATERING BUILDING WALL SECTIONS II
AI-1	ADMINISTRATION BUILDING LIFE SAFETY PLAN AND CODE KEY DETERMINATIONS
AI-2	ADMINISTRATION BUILDING FLOOR PLAN
AI-3	ADMINISTRATION BUILDING ROOF PLAN
AI-4	ADMINISTRATION BUILDING REFLECTED CEILING PLAN
AI-5	ADMINISTRATION BUILDING ELEVATIONS
AI-6	ADMINISTRATION BUILDING BUILDING SECTIONS
AI-7	ADMINISTRATION BUILDING WALL SECTIONS I
AI-8	ADMINISTRATION BUILDING WALL SECTIONS II
AI-9	ADMINISTRATION BUILDING WALL SECTIONS III
AI-10	ADMINISTRATION BUILDING CONTROL ROOM ENLARGED PLAN AND INTERIOR ELEVATIONS
AI-11	ADMINISTRATION BUILDING CONFERENCE ROOM ENLARGED PLAN AND INTERIOR ELEVATIONS
AI-12	ADMINISTRATION BUILDING LABORATORY ENLARGED PLAN AND INTERIOR ELEVATIONS
AI-13	ADMINISTRATION BUILDING LABORATORY INTERIOR ELEVATIONS
AI-14	ADMINISTRATION BUILDING BREAK ROOM ENLARGED PLAN AND INTERIOR ELEVATIONS
AI-15	ADMINISTRATION BUILDING RESTROOM ENLARGED PLAN, ELEVATION AND TOILET ACCESSORIES LEGEND
AI-16	ADMINISTRATION BUILDING RESTROOM INTERIOR ELEVATIONS
AI-17	ADMINISTRATION BUILDING INTERIOR ELEVATIONS
AI-18	ADMINISTRATION BUILDING MILLWORKS SECTIONS AND DETAILS
AI-19	ADMINISTRATION BUILDING PARTITION TYPES AND PLAN DETAILS
AI-20	ADMINISTRATION BUILDING FINISH FLOOR PLAN
AJ-1	STORAGE BUILDING LIFE SAFETY PLAN AND CODE KEY DETERMINATIONS
AJ-2	STORAGE BUILDING FLOOR PLAN & ROOF PLAN
AJ-3	STORAGE BUILDING ELEVATIONS
AJ-4	STORAGE BUILDING BUILDING SECTIONS
AJ-5	STORAGE BUILDING WALL SECTIONS I
AJ-6	STORAGE BUILDING WALL SECTIONS II
AK-1	ELECTRICAL BUILDING LIFE SAFETY PLAN AND CODE KEY DETERMINATIONS
AK-2	ELECTRICAL BUILDING FLOOR PLAN AND ROOF PLAN
AK-3	ELECTRICAL BUILDING ELEVATIONS
AK-4	ELECTRICAL BUILDING BUILDING SECTIONS
AK-5	ELECTRICAL BUILDING WALL SECTIONS
AM-1	RAW WATER ELECTRICAL BUILDING LIFE SAFETY PLAN AND CODE KEY DETERMINATIONS
AM-2	RAW WATER ELECTRICAL BUILDING FLOOR PLAN AND ROOF PLAN

AM-3	RAW WATER ELECTRICAL BUILDING ELEVATIONS
AM-4	RAW WATER ELECTRICAL BUILDING BUILDING SECTIONS
AM-5	RAW WATER ELECTRICAL BUILDING WALL SECTIONS
AN-1	RAW WATER CHEMICAL BUILDING LIFE SAFETY PLAN AND CODE KEY DETERMINATIONS
AN-2	RAW WATER CHEMICAL BUILDING FLOOR PLAN AND ROOF PLAN
AN-3	RAW WATER CHEMICAL BUILDING ELEVATIONS
AN-4	RAW WATER CHEMICAL BUILDING BUILDING SECTIONS
AN-5	RAW WATER CHEMICAL BUILDING WALL SECTIONS
AZ-1	ARCHITECTURAL DOOR DETAILS I
AZ-2	ARCHITECTURAL DOOR, WINDOW, AND LOUVER DETAILS
AZ-3	ARCHITECTURAL WALL DETAILS
AZ-4	ARCHITECTURAL ROOF DETAILS - I
AZ-5	ARCHITECTURAL ROOF DETAILS - II
AZ-6	ARCHITECTURAL MISCELLANEOUS AND ROOF DETAILS - III
AZ-7	ARCHITECTURAL DUMPSTER ENCLOSURE AND ROADSIDE SIGNAGE

VOLUME II of III

STRUCTURAL

S-1	STRUCTURAL DESIGN CRITERIA AND GENERAL NOTES
S-2	STRUCTURAL GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS
S-3	STRUCTURAL SPECIAL INSPECTIONS I
S-4	STRUCTURAL SPECIAL INSPECTIONS II
SA-1	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 OVERALL PLAN
SA-2	TREATMENT STRUCTURE TRAINS 1 AND 2 FOUNDATION PLAN
SA-3	TREATMENT STRUCTURE TRAINS 1 AND 2 TOP PLAN
SA-4	TREATMENT STRUCTURE TRAINS 3 AND 4 FOUNDATION PLAN
SA-5	TREATMENT STRUCTURE TRAINS 3 AND 4 TOP PLAN
SA-6	TREATMENT STRUCTURE TRAINS 1 AND 2 ENLARGED FOUNDATION PLAN I
SA-7	TREATMENT STRUCTURE TRAINS 1 AND 2 ENLARGED FOUNDATION PLAN II
SA-8	TREATMENT STRUCTURE TRAINS 1 AND 2 ENLARGED TOP PLAN I
SA-9	TREATMENT STRUCTURE TRAINS 1 AND 2 ENLARGED TOP PLAN II
SA-10	TREATMENT STRUCTURE TRAINS 3 AND 4 ENLARGED FOUNDATION PLAN I
SA-11	TREATMENT STRUCTURE TRAINS 3 AND 4 ENLARGED FOUNDATION PLAN II
SA-12	TREATMENT STRUCTURE TRAINS 3 AND 4 ENLARGED TOP PLAN I
SA-13	TREATMENT STRUCTURE TRAINS 3 AND 4 ENLARGED TOP PLAN II
SA-14	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 DETAILS I
SA-15	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 DETAILS II
SA-16	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 DETAILS III
SA-17	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 SECTIONS I
SA-18	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 SECTIONS II
SA-19	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 SECTIONS III
SA-20	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 SECTION IV
SA-21	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 SECTIONS V
SA-22	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 SECTION VI
SA-23	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 SECTIONS VII
SA-24	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 SECTION VIII
SA-25	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 STAIR PLAN DETAILS AND SECTIONS
SA-26	TREATMENT STRUCTURE TRAINS 1,2,3 AND 4 SLUDGE VAULT PLANS AND SECTION
SB-1	TRANSFER PUMP STATIONS 1 & 2 AND DISINFECTION BASINS 1 & 2 OVERALL PLAN
SB-2	TRANSFER PUMP STATION 1 AND DISINFECTION BASIN 1 FOUNDATION PLAN
SB-3	TRANSFER PUMP STATION 1 AND DISINFECTION BASIN 1 TOP PLAN
SB-4	TRANSFER PUMP STATION 2 AND DISINFECTION BASIN 2 FOUNDATION PLAN
SB-5	TRANSFER PUMP STATION 2 AND DISINFECTION BASIN 2 TOP PLAN
SB-6	DISINFECTION BASINS 1 & 2 PIPE SUPPORT SLAB PLAN
SB-7	TRANSFER PUMP STATIONS 1 & 2 AND DISINFECTION BASINS 1 & 2 SECTIONS I
SB-8	TRANSFER PUMP STATIONS 1 & 2 AND DISINFECTION BASINS 1 & 2 SECTIONS II
SB-9	TRANSFER PUMP STATIONS 1 & 2 AND DISINFECTION BASINS 1 & 2 SECTIONS III
SB-10	TRANSFER PUMP STATIONS 1 & 2 AND DISINFECTION BASINS 1 & 2 DETAILS I
SB-11	TRANSFER PUMP STATIONS 1 & 2 AND DISINFECTION BASINS 1 & 2 STAIR DETAILS AND SECTIONS
SD-1	HIGH SERVICE PUMP STATION STRUCTURAL PLANS
SD-2	FILTER BACKWASH PUMP STATION STRUCTURAL PLANS AND SECTIONS
SD-3	HIGH SERVICE PUMP STATION STRUCTURAL SECTIONS
SE-1	FILTRATE LIFT STATION STRUCTURAL PLANS
SE-2	FILTRATE LIFT STATION STRUCTURAL SECTION
SF-1	CHEMICAL FACILITY STRUCTURAL FOUNDATION PLAN
SF-2	CHEMICAL FACILITY STRUCTURAL SECTIONS
SF-3	CHEMICAL FACILITY STRUCTURAL SECTIONS
SG-1	GRAVITY THICKENER STRUCTURAL FOUNDATION PLAN
SG-2	GRAVITY THICKENER STRUCTURAL TOP PLAN
SG-3	GRAVITY THICKENER STRUCTURAL SECTIONS
SG-4	GRAVITY THICKENER & WASHWATER RECOVERY BASIN STRUCTURAL STAIR PLANS & SECTIONS
SG-5	WASHWATER RECOVERY BASIN STRUCTURAL FOUNDATION PLAN
SG-6	WASHWATER RECOVERY BASIN STRUCTURAL TOP PLAN
SG-7	WASHWATER RECOVERY BASIN STRUCTURAL SECTIONS
SG-8	DECANT BASIN STRUCTURAL FOUNDATION PLAN
SG-9	DECANT BASIN STRUCTURAL TOP PLAN
SG-10	DECANT BASIN STRUCTURAL SECTIONS AND DETAILS
SG-11	WASHWATER COLLECTION BOX STRUCTURAL PLANS AND SECTION
SG-12	SLUDGE PUMP STATION STRUCTURAL PLANS
SG-13	SLUDGE PUMP STATION STRUCTURAL SECTION
SG-14	WASHWATER RECYCLE PUMP STATION STRUCTURAL PLANS

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 SOUTH LAKE
 WATER TREATMENT PLANT

SHEET INDEX I

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SG-15	WASHWATER RECYCLE PUMP STATION STRUCTURAL SECTIONS AND DETAILS
SH-1	DEWATERING BUILDING STRUCTURAL FOUNDATION PLAN
SH-2	DEWATERING BUILDING STRUCTURAL DETAIL PLANS
SH-3	DEWATERING BUILDING STRUCTURAL ROOF PLANS
SH-4	DEWATERING BUILDING STRUCTURAL SECTIONS AND DETAILS I
SH-5	DEWATERING BUILDING STRUCTURAL SECTIONS AND DETAILS II
SI-1	ADMINISTRATION BUILDING STRUCTURAL FOUNDATION AND FLOOR PLAN
SI-2	ADMINISTRATION BUILDING STRUCTURAL FOUNDATION SECTIONS AND DETAILS
SJ-1	STORAGE BUILDING STRUCTURAL FOUNDATION PLAN
SJ-2	STORAGE BUILDING STRUCTURAL FOUNDATION SECTIONS AND DETAILS
SK-1	ELECTRICAL BUILDING STRUCTURAL FOUNDATION PLAN
SK-2	ELECTRICAL BUILDING STRUCTURAL FOUNDATION SECTIONS AND DETAILS
SK-3	DIESEL ENGINE-DRIVEN GENERATOR G-1 FOUNDATION PLAN AND SECTION
SK-4	DIESEL ENGINE-DRIVEN GENERATOR G-2 FOUNDATION PLAN AND SECTION
SK-5	DIESEL ENGINE-DRIVEN GENERATOR G-3 FOUNDATION PLAN AND SECTION
SK-6	TRANSFORMER FOUNDATION PLAN, SECTION, AND DETAILS
SL-1	RAW WATER PUMP STATION STRUCTURAL PLAN
SL-2	RAW WATER PUMP STATION TOP DECK STRUCTURAL PLAN
SL-3	RAW WATER PUMP STATION SECTIONS
SM-1	RAW WATER ELECTRICAL BUILDING STRUCTURAL FOUNDATION PLAN
SM-2	RAW WATER ELECTRICAL BUILDING STRUCTURAL FOUNDATION SECTIONS AND DETAILS
SM-3	DIESEL ENGINE-DRIVEN GENERATOR FOUNDATION PLAN AND SECTION
SM-4	TRANSFORMER FOUNDATION PLAN, SECTION, AND DETAILS
SN-1	STRUCTURAL RAW WATER CHEMICAL BUILDING FOUNDATION PLANS
SN-2	STRUCTURAL RAW WATER CHEMICAL BUILDING SECTIONS AND DETAILS
SR-1	WATER QUALITY POND RETAINING WALL STRUCTURAL PLAN
SR-2	WATER QUALITY POND RETAINING WALL STRUCTURAL SECTIONS AND DETAILS
SY-1	RAW WATER FLOW METER VAULT STRUCTURAL PLAN AND SECTION
SY-2	WASH WATER RECYCLE FLOW METER VAULT STRUCTURAL PLAN AND SECTION
SY-3	FINISHED WATER FLOW METER VAULT STRUCTURAL PLANS
SY-4	FINISHED WATER FLOW METER VAULT STRUCTURAL SECTION
SZ-1	STRUCTURAL STANDARD DETAILS I
SZ-2	STRUCTURAL STANDARD DETAILS II
SZ-3	STRUCTURAL STANDARD DETAILS III
SZ-4	STRUCTURAL STANDARD DETAILS IV
SZ-5	STRUCTURAL STANDARD DETAILS V
SZ-6	STRUCTURAL STANDARD DETAILS VI
SZ-7	STRUCTURAL STANDARD DETAILS VII
SZ-8	STRUCTURAL STANDARD DETAILS VIII
SZ-9	STRUCTURAL STANDARD DETAILS IX
SZ-10	STRUCTURAL STANDARD DETAILS X

PROCESS MECHANICAL	
M-1	MECHANICAL LEGEND
MA-1	OVERALL TREATMENT STRUCTURE PLAN
MA-2	TREATMENT STRUCTURE UPPER PLAN TRAINS 1 AND 2, FILTERS 1 THROUGH 7
MA-3	TREATMENT STRUCTURE LOWER PLAN TRAINS 1 AND 2, FILTERS 1 THROUGH 7
MA-4	TREATMENT STRUCTURE UPPER PLAN TRAINS 3 AND 4, FILTERS 8 THROUGH 13
MA-5	TREATMENT STRUCTURE LOWER PLAN TRAINS 3 AND 4, FILTERS 8 THROUGH 13
MA-6	OVERALL TREATMENT STRUCTURE SECTIONS
MA-7	INFLUENT BOX - FLOCCULATORS, TRAINS 1 AND 2, PLAN SECTION AND DETAILS
MA-8	INFLUENT BOX - FLOCCULATORS, TRAINS 3 AND 4, PLAN SECTION AND DETAILS
MA-9	INFLUENT BOX AND SEDIMENTATION BASIN TRAINS 1 AND 2 SECTIONS
MA-10	INFLUENT BOX AND SEDIMENTATION BASIN TRAINS 3 AND 4 SECTIONS
MA-11	SEDIMENTATION BASIN AND FILTER INFLUENT CHANNEL TRAINS 1 AND 2 SECTIONS
MA-12	SEDIMENTATION BASIN AND FILTER INFLUENT CHANNEL TRAINS 3 AND 4 SECTIONS
MA-13	FILTERS 1 THROUGH 7 UPPER PLAN AND DETAILS
MA-14	FILTERS 1 THROUGH 7 LOWER PLAN
MA-15	FILTERS 8 THROUGH 13 UPPER PLAN
MA-16	FILTERS 8 THROUGH 13 LOWER PLAN
MA-17	FILTER SECTIONS
MA-18	FILTERS 1 THROUGH 7, SECTIONS AND DETAILS
MA-19	FILTERS 1 THROUGH 7, SECTIONS AND DETAILS II
MA-20	FILTERS 8 THROUGH 13, SECTIONS AND DETAIL
MB-1	DISINFECTION BASIN NO. 1 AND 2, TRANSFER PUMP STATION OVERALL PLAN
MB-2	DISINFECTION BASIN NO. 1 AND TRANSFER PUMP STATION UPPER PLAN
MB-3	DISINFECTION BASIN NO. 1 AND TRANSFER PUMP STATION LOWER PLAN
MB-4	DISINFECTION BASIN NO. 2 AND TRANSFER PUMP STATION UPPER PLAN
MB-5	DISINFECTION BASIN NO. 2 AND TRANSFER PUMP STATION LOWER PLAN
MB-6	DISINFECTION BASIN AND TRANSFER PUMP STATION SECTIONS I
MB-7	DISINFECTION BASIN AND TRANSFER PUMP STATION SECTIONS II
MB-8	DISINFECTION BASIN AND TRANSFER PUMP STATION DETAILS I
MB-9	DISINFECTION BASIN AND TRANSFER PUMP STATION DETAILS II
MC-1	CLEARWELLS LOCATION PLAN
MC-2	CLEARWELL NO.1 FOUNDATION PLAN
MC-3	CLEARWELL NO.1 TOP PLAN AND DETAILS
MC-4	CLEARWELL NO.2 FOUNDATION PLAN
MC-5	CLEARWELL NO.2 TOP PLAN
MC-6	CLEARWELL MECHANICAL SECTIONS
MC-7	CLEARWELL MECHANICAL SECTIONS AND DETAILS
MC-8	CLEARWELL MECHANICAL MISCELLANEOUS DETAILS
MD-1	BACKWASH PUMP STATION PLAN
MD-2	HIGH SERVICE PUMP STATION PLAN

MD-3	BACKWASH PUMP STATION SECTIONS
MD-4	HIGH SERVICE PUMP STATION SECTIONS
ME-1	FILTRATE LIFT STATION UPPER AND LOWER MECHANICAL PLANS
ME-2	FILTRATE LIFT STATION MECHANICAL SECTION
MF-1	CHEMICAL FACILITY OVERALL PLAN
MF-2	CHEMICAL FACILITY ENLARGED PLAN I
MF-3A	CHEMICAL FACILITY SECTIONS I
MF-3B	CHEMICAL FACILITY SECTIONS II
MF-4	CHEMICAL FACILITY SECTIONS III
MF-5A	CHEMICAL FACILITY ENLARGED PLAN II
MF-5B	CHEMICAL FACILITY MISCELLANEOUS SECTIONS
MF-6	CHEMICAL FACILITY SECTIONS III
MF-7	CHEMICAL FACILITY SECTIONS IV
MF-8	CHEMICAL FACILITY BASE AREA TANK NOZZLE SCHEDULES
MF-9	CHEMICAL FACILITY ACID AREA TANK NOZZLE SCHEDULES I
MF-10	CHEMICAL FACILITY ACID AREA TANK NOZZLE SCHEDULES II
MF-11	CHEMICAL FACILITY SODIUM HYPOCHLORITE FILL STATION DETAILS
MF-12	CHEMICAL FACILITY POLYMER AND LAS FILL STATION DETAILS
MF-13	CHEMICAL FACILITY ALUM FILL STATION DETAILS
MG-1	GRAVITY THICKENER MECHANICAL PLAN
MG-2	GRAVITY THICKENER MECHANICAL SECTION
MG-3	WASHWATER RECOVERY BASIN MECHANICAL PLAN
MG-4	WASHWATER RECOVERY BASIN MECHANICAL SECTION
MG-5	WASHWATER COLLECTION BOX UPPER AND LOWER MECHANICAL PLANS AND SECTIONS
MG-6	DECANT BASIN MECHANICAL PLAN
MG-7	DECANT BASIN MECHANICAL SECTION
MG-8	SLUDGE PUMP STATION UPPER AND LOWER MECHANICAL PLANS
MG-9	SLUDGE PUMP STATION MECHANICAL SECTION
MG-10	WASHWATER RECYCLE PUMP STATION UPPER AND LOWER MECHANICAL PLANS
MG-11	WASHWATER RECYCLE PUMP STATION MECHANICAL SECTION
MH-1	BFP FEED PUMP STATION MECHANICAL PLAN
MH-2	BFP FEED PUMP STATION MECHANICAL SECTION
MH-3	DEWATERING BUILDING MECHANICAL PLAN
MH-4	DEWATERING BUILDING ENLARGED BFP AREA MECHANICAL PLAN AND SECTIONS
MH-5	DEWATERING BUILDING ENLARGED POLYMER AREA MECHANICAL PLAN AND SECTIONS
MH-6	DEWATERING BUILDING MECHANICAL SECTIONS AND DETAILS
ML-1	RAW WATER PUMP STATION INTAKE PLAN AND PROFILE
ML-2	RAW WATER PUMP STATION INTAKE MECHANICAL PLAN
ML-3	RAW WATER PUMP STATION INTAKE MECHANICAL SECTIONS I
ML-4	RAW WATER PUMP STATION INTAKE MECHANICAL SECTIONS II
ML-5	RAW WATER PUMP STATION INTAKE MECHANICAL DETAILS
MN-1	RAW WATER CHEMICAL BUILDING PLAN
MN-2	RAW WATER CHEMICAL BUILDING SECTIONS I
MN-3	RAW WATER CHEMICAL BUILDING SECTIONS II
MN-4	RAW WATER CHEMICAL BUILDING PERMANGANATE AREA TANK NOZZLE SCHEDULE
MN-5	RAW WATER CHEMICAL BUILDING FILL STATION DETAILS
MY-1	RAW WATER FLOW METER VAULT MECHANICAL PLAN AND SECTION
MY-2	WASHWATER RECYCLE FLOW METER VAULT MECHANICAL PLAN AND SECTION
MY-3	FINISHED WATER FLOW METER VAULT MECHANICAL PLAN
MY-4	FINISHED WATER FLOW METER VAULT MECHANICAL SECTION
MY-5	POTABLE WATER FLOW METER AND PRESSURE REDUCING VALVES MECHANICAL PLAN AND SECTION
MZ-1	STANDARD MECHANICAL DETAILS I
MZ-2	STANDARD MECHANICAL DETAILS II
MZ-3	STANDARD MECHANICAL DETAILS III
MZ-4	STANDARD MECHANICAL DETAILS IV
MZ-5	STANDARD MECHANICAL DETAILS V
MZ-6	STANDARD MECHANICAL DETAILS VI
MZ-7	STANDARD MECHANICAL DETAILS VII
MZ-8	STANDARD MECHANICAL DETAILS VIII
MZ-9	STANDARD MECHANICAL DETAILS IX
MZ-10	STANDARD MECHANICAL DETAILS X
MZ-11	STANDARD MECHANICAL DETAILS XI

HVAC	
H-1	HVAC LEGENDS, ABBREVIATIONS, SYMBOLS AND NOTES
H-2	HVAC SCHEDULES I
H-3	HVAC SCHEDULES II
H-4	HVAC SCHEDULES III
H-5	HVAC CONTROL DIAGRAMS I
H-6	HVAC CONTROL DIAGRAMS II
HA-1	TREATMENT STRUCTURE HVAC FLOOR AND ROOF PLANS
HA-2	TREATMENT STRUCTURE PHASE II HVAC FLOOR AND ROOF PLANS
HA-3	TREATMENT STRUCTURE HVAC ENLARGED PLANS I
HA-4	TREATMENT STRUCTURE PHASE II HVAC ENLARGED PLANS II
HH-1	DEWATERING BUILDING HVAC PLAN
HI-1	ADMINISTRATION BUILDING HVAC FLOOR PLAN
HI-2	ADMINISTRATION BUILDING HVAC ROOF PLAN
HI-3	ADMINISTRATION BUILDING HVAC SECTIONS
HI-4	ADMINISTRATION BUILDING HVAC CONTROL DIAGRAMS
HJ-1	STORAGE BUILDING HVAC PLAN
HK-1	ELECTRICAL BUILDING HVAC PLAN
HM-1	RAW WATER ELECTRICAL BUILDING HVAC PLAN
HN-1	RAW WATER CHEMICAL BUILDING HVAC PLAN

HZ-1	HVAC DETAILS I
HZ-2	HVAC DETAILS II
HZ-3	HVAC DETAILS III
PLUMBING	
PL-1	PLUMBING LEGENDS, ABBREVIATIONS, SYMBOLS AND NOTES
PL-2	PLUMBING SCHEDULES
PLF-1	CHEMICAL FACILITY PLUMBING PLAN
PLF-2	CHEMICAL FACILITY PLUMBING ISOMETRIC
PLH-1	DEWATERING BUILDING PLUMBING PLAN AND ISOMETRIC
PLI-1	ADMINISTRATION BUILDING PLUMBING BELOW SLAB FLOOR PLAN
PLI-2	ADMINISTRATION BUILDING PLUMBING FLOOR PLAN
PLI-3	ADMINISTRATION BUILDING PLUMBING ENLARGED PLAN
PLI-4	ADMINISTRATION BUILDING PLUMBING ISOMETRICS
PLN-1	RAW WATER CHEMICAL BUILDING PLUMBING PLAN AND ISOMETRIC
PLZ-1	PLUMBING DETAILS I
PLZ-2	PLUMBING DETAILS II

FIRE PROTECTION	
F-1	FIRE PROTECTION LEGEND AND DETAILS
FF-1	CHEMICAL FACILITY FIRE PROTECTION ZONE DIAGRAM
FI-1	ADMINISTRATION BUILDING FIRE PROTECTION ZONE DIAGRAM

VOLUME III of III	
ELECTRICAL	
E-1	ELECTRICAL LEGEND I
E-2	ELECTRICAL LEGEND II
E-3	ELECTRICAL GENERAL NOTES
E-4	SOUTH LAKE WATER TREATMENT PLANT ELECTRICAL SITE PLAN
E-5	SOUTH LAKE WATER TREATMENT PLANT ELECTRICAL LIGHTING SITE PLAN
E-6	OVERALL PROJECT ELECTRICAL SITE PLAN
E-7	OVERALL SOUTH LAKE RWPS ELECTRICAL DISTRIBUTION ONE-LINE DIAGRAM
E-8	OVERALL SOUTH LAKE WTP ELECTRICAL DISTRIBUTION ONE-LINE DIAGRAM
E-9	LIGHTING FIXTURE SCHEDULE
E-10	MEDIUM VOLTAGE ELECTRICAL DUCTBANK SCHEDULE I
E-11	MEDIUM VOLTAGE ELECTRICAL DUCTBANK SCHEDULE II
E-12	MEDIUM VOLTAGE ELECTRICAL DUCTBANK SCHEDULE III
E-13	LOW VOLTAGE ELECTRICAL DUCTBANK SCHEDULE I
E-14	LOW VOLTAGE ELECTRICAL DUCTBANK SCHEDULE II
E-15	LOW VOLTAGE ELECTRICAL DUCTBANK SCHEDULE III
E-16	LOW VOLTAGE ELECTRICAL DUCTBANK SCHEDULE IV
E-17	LOW VOLTAGE ELECTRICAL DUCTBANK SCHEDULE V
E-18	LOW VOLTAGE ELECTRICAL DUCTBANK SCHEDULE VI
E-19	LOW VOLTAGE ELECTRICAL DUCTBANK SCHEDULE VII
E-20	LOW VOLTAGE ELECTRICAL DUCTBANK SCHEDULE VIII
E-21	LOW VOLTAGE ELECTRICAL DUCTBANK SCHEDULE IX
EA-1	SWITCHGEAR SWGR-A-1 ONE-LINE DIAGRAM
EA-2	MOTOR CONTROL CENTER MCC-A1 ONE-LINE DIAGRAM
EA-3	MOTOR CONTROL CENTER MCC-A2 ONE-LINE DIAGRAM
EA-4	MOTOR CONTROL CENTER MCC-A3 ONE-LINE DIAGRAM
EA-5	TREATMENT STRUCTURE TRAIN 1 AND 2 ELECTRICAL BLOWER ROOM POWER AND CONTROL PLAN
EA-6	TREATMENT STRUCTURE TRAIN 1 AND 2 ELECTRICAL ROOM GROUNDING AND CONTROL PLAN
EA-7	TREATMENT STRUCTURE TRAIN 1 AND 2 FLOCCULATION AND SEDIMENTATION POWER PLAN
EA-8	TREATMENT STRUCTURE TRAIN 3 AND 4 FLOCCULATION AND SEDIMENTATION POWER PLAN
EA-9	TREATMENT STRUCTURE TRAIN 1 AND 2 LOWER FILTER AREA POWER PLAN
EA-10	TREATMENT STRUCTURE TRAIN 3 AND 4 LOWER FILTER AREA POWER PLAN
EA-11	TREATMENT STRUCTURE TRAIN 1 AND 2 UPPER FILTER AREA POWER PLAN
EA-12	TREATMENT STRUCTURE TRAIN 3 AND 4 UPPER FILTER AREA POWER PLAN
EA-13	TREATMENT STRUCTURE TRAIN 1 AND 2 OVERALL LIGHTING AND RECEPTACLE PLAN
EA-14	TREATMENT STRUCTURE TRAIN 3 AND 4 OVERALL LIGHTING AND RECEPTACLE PLAN
EA-15	TREATMENT STRUCTURE TRAIN 1 AND 2 ELECTRICAL AND BLOWER ROOM LIGHTING, HVAC AND RECEPTACLE PLAN
EA-16	TREATMENT STRUCTURE TRAIN 1 AND 2 FLOCCULATION AND SEDIMENTATION CONTROL PLAN
EA-17	TREATMENT STRUCTURE TRAIN 3 AND 4 FLOCCULATION AND SEDIMENTATION CONTROL PLAN
EA-18	TREATMENT STRUCTURE TRAIN 1 AND 2 LOWER FILTER AREA AND BLOWER ROOM CONTROL PLAN
EA-19	TREATMENT STRUCTURE TRAIN 3 AND 4 LOWER FILTER AREA CONTROL PLAN
EA-20	TREATMENT STRUCTURE TRAIN 1 AND 2 UPPER FILTER AREA CONTROL PLAN
EA-21	TREATMENT STRUCTURE TRAIN 3 AND 4 UPPER FILTER AREA CONTROL PLAN
EA-22	TREATMENT STRUCTURE TRAIN 1 AND 2 CABLE TRAY PLAN
EA-23	TREATMENT STRUCTURE TRAIN 3 AND 4 CABLE TRAY PLAN
EA-24	TREATMENT STRUCTURE TRAIN 1 AND 2 CABLE TRAY ISOMETRIC VIEW
EA-25	TREATMENT STRUCTURE TRAIN 3 AND 4 CABLE TRAY ISOMETRIC VIEW
EA-26	TREATMENT STRUCTURE PANELBOARD SCHEDULES I
EA-27	TREATMENT STRUCTURE PANELBOARD SCHEDULES II
EA-28	TREATMENT STRUCTURE PANELBOARD SCHEDULES III
EB-1	DISINFECTION BASIN 1 POWER AND CONTROL PLAN
EB-2	DISINFECTION BASIN 2 POWER AND CONTROL PLAN
EB-3	DISINFECTION BASIN 1 LIGHTING AND RECEPTACLE PLAN
EB-4	DISINFECTION BASIN 2 LIGHTING AND RECEPTACLE PLAN
EB-5	DISINFECTION BASIN 1 AND 2 GROUNDING PLAN
EC-1	CLEARWELLS NO.1 AND NO.2 POWER AND CONTROL ELECTRICAL PLAN
ED-1	HIGH SERVICE PUMP STATION ELECTRICAL PLAN
ED-2	BACKWASH PUMP STATION ELECTRICAL PLAN

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CITY OF GEORGETOWN, TEXAS
**SOUTH LAKE
 WATER TREATMENT PLANT**

SHEET INDEX II

PROJECT NO.	2048-248929
FILE NAME:	GOO1NFIN.DWG
SHEET NO.	G-2



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EE-1	FILTRATE LIFT STATION UPPER AND LOWER ELECTRICAL PLANS
EF-1	CHEMICAL FACILITY POWER PLAN I
EF-2	CHEMICAL FACILITY POWER PLAN II
EF-3	CHEMICAL FACILITY LIGHTING AND RECEPTACLE PLAN
EF-4	CHEMICAL FACILITY CONTROL PLAN I
EF-5	CHEMICAL FACILITY CONTROL PLAN II
EF-6	CHEMICAL FACILITY PANELBOARD SCHEDULE
EG-1	GRAVITY THICKENER ELECTRICAL PLAN
EG-2	WASHWATER RECOVERY BASIN AND COLLECTION BOX ELECTRICAL PLAN
EG-3	SLUDGE PUMP STATION POWER AND CONTROL PLAN
EG-4	WASHWATER RECYCLE PUMP STATION POWER AND CONTROL PLANS
EG-5	DECANT BASIN ELECTRICAL PLAN
EH-1	MOTOR CONTROL CENTER 'MCC-H-1' ONE-LINE DIAGRAM
EH-2	MOTOR CONTROL CENTER 'MCC-H-2' ONE-LINE DIAGRAM
EH-3	BFP FEED PUMP STATION POWER AND CONTROL ELECTRICAL PLAN
EH-4	DEWATERING BUILDING ELECTRICAL ROOM PLAN
EH-5	DEWATERING BUILDING ELECTRICAL POWER PLAN
EH-6	DEWATERING BUILDING ELECTRICAL LIGHTING AND RECEPTACLE PLAN
EH-7	DEWATERING BUILDING ELECTRICAL CONTROL PLAN
EH-8	DEWATERING BUILDING ELECTRICAL GROUNDING PLAN
EH-9	DEWATERING BUILDING ELECTRICAL SECURITY PLAN
EH-10	DEWATERING BUILDING PANELBOARD SCHEDULE
EI-1	ADMINISTRATION BUILDING ELECTRICAL ROOM PLAN
EI-2	ADMINISTRATION BUILDING ELECTRICAL POWER AND RECEPTACLE PLAN
EI-3	ADMINISTRATION BUILDING ELECTRICAL LIGHTING PLAN
EI-4	ADMINISTRATION BUILDING HVAC AND PLUMBING PLAN
EI-5	ADMINISTRATION BUILDING ELECTRICAL GROUNDING PLAN
EI-6	ADMINISTRATION BUILDING ELECTRICAL SECURITY AND COMMUNICATION PLAN
EI-7	ADMINISTRATION BUILDING ROOF ELECTRICAL POWER PLAN
EI-8	ADMINISTRATION BUILDING PANELBOARD SCHEDULES I
EI-9	ADMINISTRATION BUILDING PANELBOARD SCHEDULES II
EJ-1	STORAGE BUILDING ELECTRICAL PLANS
EJ-2	STORAGE BUILDING PANELBOARD SCHEDULES
EK-1	PAD-MOUNTED SWITCHGEAR SWGR-1 ONE-LINE DIAGRAM
EK-2	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-K1 ONE-LINE DIAGRAM
EK-2.1	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-K1 ANSI FUNCTION DIAGRAM
EK-2.2	FEEDER CIRCUIT BREAKER 521-1 CONTROL SCHEMATIC
EK-2.3	FEEDER CIRCUIT BREAKER 521-2 CONTROL SCHEMATIC
EK-2.4	FEEDER CIRCUIT BREAKER 521-3 CONTROL SCHEMATIC
EK-2.5	TIE CIRCUIT BREAKER 521-4 CONTROL SCHEMATIC
EK-2.6	MAIN CIRCUIT BREAKER 52-M1 CONTROL SCHEMATIC
EK-2.7	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-K1 DIFFERENTIAL CONTROL SCHEMATIC
EK-3	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-K2 ONE-LINE DIAGRAM
EK-3.1	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-K2 ANSI FUNCTION DIAGRAM
EK-3.2	FEEDER CIRCUIT BREAKER 522-1 CONTROL SCHEMATIC
EK-3.3	FEEDER CIRCUIT BREAKER 522-2 CONTROL SCHEMATIC
EK-3.4	TIE CIRCUIT BREAKER 522-3 CONTROL SCHEMATIC
EK-3.5	MAIN CIRCUIT BREAKER 52-M2 CONTROL SCHEMATIC
EK-3.6	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-K2 DIFFERENTIAL CONTROL SCHEMATIC
EK-4	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-K3 ONE-LINE DIAGRAM
EK-4.1	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-K3 ANSI FUNCTION DIAGRAM
EK-4.2	FEEDER CIRCUIT BREAKER 523-1 CONTROL SCHEMATIC
EK-4.3	FEEDER CIRCUIT BREAKER 523-2 CONTRAL SCHEMATIC
EK-4.4	TIE CIRCUIT BREAKER 523-3 CONTRAL SCHEMATIC
EK-4.5	MAIN CIRCUIT BREAKER 52-M3 CONTRAL SCHEMATIC
EK-4.6	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-K3 DIFFERENTIAL CONTROL SCHEMATIC
EK-5	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-GEN ONE-LINE DIAGRAM
EK-5.1	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-GEN ANSI FUNCTION DIAGRAM
EK-5.2	GENERATOR CIRCUIT BREAKER 52-G1 CONTROL SCHEMATIC
EK-5.3	GENERATOR CIRCUIT BREAKER 52-G2 CONTROL SCHEMATIC
EK-5.4	GENERATOR CIRCUIT BREAKER 52-G3 CONTROL SCHEMATIC
EK-5.5	TIE CIRCUIT BREAKER 52-G4 CONTROL SCHEMATIC
EK-5.6	TIE CIRCUIT BREAKER 52-G5 CONTROL SCHEMATIC
EK-5.7	TIE CIRCUIT BREAKER 52-G6 CONTROL SCHEMATIC
EK-5.8	FEEDER CIRCUIT BREAKER 52-G7 CONTROL SCHEMATIC
EK-5.9	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-GEN DIFFERENTIAL CONTROL SCHEMATIC
EK-5.10	PARALLELING SWITCHGEAR MVSWGR-GEN CONTROL RISER DIAGRAM
EK-5.11	GENERATOR CONTROL PANEL MCP-1 DETAILS
EK-5.12	GENERATOR CONTROL CONDUIT SCHEDULE
EK-6	MV MOTOR CONTROL CENTER MVMCC-1 ONE-LINE DIAGRAM
EK-7	MV MOTOR CONTROL CENTER MVMCC-2 ONE-LINE DIAGRAM
EK-8	MV MOTOR CONTROL CENTER MVMCC-3 ONE-LINE DIAGRAM
EK-9	SWITCHGEAR SWGR-K1 ONE-LINE DIAGRAM
EK-10	MOTOR CONTROL CENTER MCC-K1 ONE-LINE DIAGRAM
EK-11	MOTOR CONTROL CENTER MCC-K2 ONE-LINE DIAGRAM
EK-12	MOTOR CONTROL CENTER MCC-K3 ONE-LINE DIAGRAM
EK-13	ELECTRICAL BUILDING POWER AND CONTROL PLAN
EK-14	ELECTRICAL BUILDING LIGHTING AND RECEPTACLE PLAN
EK-15	ELECTRICAL BUILDING TRANSFORMER BELOW GRADE CONDUIT AND GROUNDING PLAN
EK-16	ELECTRICAL BUILDING BELOW GRADE ROUTING PLAN
EK-17	ELECTRICAL BUILDING GROUNDING PLAN
EK-18	ELECTRICAL BUILDING GENERATOR BELOW GRADE CONDUIT PLAN
EK-19	ELECTRICAL BUILDING GENERATOR GROUNDING PLAN

EK-20	ELECTRICAL BUILDING PANELBOARD SCHEDULE I
EK-21	ELECTRICAL BUILDING PANELBOARD SCHEDULE II
EL-1	RAW WATER PUMP STATION POWER AND CONTROL PLAN
EL-2	RAW WATER PUMP STATION POWER AND CONTROL PLAN
EL-3	RAW WATER PUMP STATION CABLE TRAY SCHEDULE
EM-1	INTAKE ELECTRICAL BUILDING AND CHEMICAL FEED BUILDING SITE PLAN
EM-1.1	RAW WATER LINE
EM-1.2	RAW WATER LINE
EM-2	PAD-MOUNTED SWITCHGEAR SWGR-RW-1 ONE-LINE DIAGRAM
EM-3	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-RW-1 ONE-LINE DIAGRAM
EM-3.1	METAL-CLAD PARALLELING SWITCHGEAR MVSWGR-RW-1 ANSI FUNCTION DIAGRAM
EM-3.2	FEEDER CIRCUIT BREAKER 52-1 CONTROL SCHEMATIC
EM-3.3	FEEDER CIRCUIT BREAKER 52-2 CONTROL SCHEMATIC
EM-3.4	FEEDER CIRCUIT BREAKER 52-3 CONTROL SCHEMATIC
EM-3.5	GENERATOR G-1 BREAKER 52-4 CONTROL SCHEMATIC
EM-3.6	GENERATOR G-2 BREAKER 52-5 CONTROL SCHEMATIC
EM-3.7	FEEDER CIRCUIT BREAKER 52-6 CONTROL SCHEMATIC
EM-3.8	FEEDER CIRCUIT BREAKER 52-7 CONTROL SCHEMATIC
EM-3.9	FEEDER CIRCUIT BREAKER 52-8 CONTROL SCHEMATIC
EM-3.10	FEEDER CIRCUIT BREAKER 52-9 CONTROL SCHEMATIC
EM-3.11	MAIN CIRCUIT BREAKER 52-M1 CONTROL SCHEMATIC
EM-3.12	MAIN CIRCUIT BREAKER 52-M2 CONTROL SCHEMATIC
EM-3.13	TIE CIRCUIT BREAKER 52-T1 CONTROL SCHEMATIC
EM-3.14	TIE CIRCUIT BREAKER 52-T2 CONTROL SCHEMATIC
EM-3.15	SWITCHGEAR MVSWGR-RW-1 BUS-A AND BUS-B DIFFERENTIAL CONTROL SCHEMATIC
EM-3.16	SWITCHGEAR MVSWGR-RW-1 BUS-C DIFFERENTIAL CONTROL SCHEMATIC
EM-3.17	PARALLELING SWITCHGEAR MVSWGR-RW-1 CONTROL RISER DIAGRAM
EM-3.18	GENERATOR CONTROL PANEL MCP-2 DETAILS
EM-3.19	GENERATOR CONTROL CONDUIT SCHEDULE
EM-4	RAW WATER BUILDING VARIABLE FREQUENCY DRIVES ONE-LINE DIAGRAM
EM-5	MOTOR CONTROL CENTER MCC-RW-1 ONE-LINE DIAGRAM
EM-6	RAW WATER ELECTRICAL BUILDING POWER PLAN
EM-7	RAW WATER ELECTRICAL BUILDING LIGHTING AND RECEPTACLE PLAN
EM-8	RAW WATER ELECTRICAL BUILDING UNDERGROUND AND GROUNDING PLAN
EM-9	RAW WATER ELECTRICAL BUILDING BELOW GRADE LARGE CONDUIT ROUTING PLAN
EM-10	RAW WATER ELECTRICAL BUILDING GROUNDING PLAN
EM-11	RAW WATER ELECTRICAL BUILDING GENERATORS BELOW GRADE CONDUIT ROUTING AND GROUNDING PLAN
EM-12	RAW WATER ELECTRICAL BUILDING PANELBOARD SCHEDULE I
EM-13	RAW WATER ELECTRICAL BUILDING PANELBOARD SCHEDULE II
EM-14	GENERAL ELECTRICAL DUCTBANK SCHEDULE I
EM-15	GENERAL ELECTRICAL DUCTBANK SCHEDULE II
EM-16	GENERAL ELECTRICAL DUCTBANK SCHEDULE III
EM-17	GENERAL ELECTRICAL DUCTBANK SCHEDULE IV
EN-1	RAW WATER CHEMICAL BUILDING POWER AND CONTROL PLAN
EN-2	RAW WATER CHEMICAL BUILDING LIGHTING AND RECEPTACLES PLAN
EX-1	FLOCCULATOR CONTROL SCHEMATICS I
EX-2	FLOCCULATOR CONTROL SCHEMATICS II
EX-3	FLOCCULATOR CONTROL SCHEMATICS III
EX-4	FLOCCULATOR CONTROL SCHEMATICS IV
EX-5	FLOCCULATOR CONTROL SCHEMATICS V
EX-6	FLOCCULATOR CONTROL SCHEMATICS VI
EX-7	SLUDGE COLLECTION DRIVE CONTROL SCHEMATICS I
EX-8	SLUDGE COLLECTION DRIVE CONTROL SCHEMATICS II
EX-9	SLUDGE COLLECTION DRIVE CONTROL SCHEMATICS III
EX-10	SLUDGE COLLECTION DRIVE CONTROL SCHEMATICS IV
EX-11	SLUDGE COLLECTION DRIVE CONTROL SCHEMATICS V
EX-12	SLUDGE COLLECTION DRIVE CONTROL SCHEMATICS VI
EX-13	BACKWASH AIR BLOWER CONTROL SCHEMATICS I
EX-14	BACKWASH AIR BLOWER CONTROL SCHEMATICS II
EX-15	THICKENED SLUDGE PUMP CONTROL SCHEMATICS I
EX-16	THICKENED SLUDGE PUMP CONTROL SCHEMATICS II
EX-17	WASHWATER RECYCLE PUMP CONTROL SCHEMATICS I
EX-18	WASHWATER RECYCLE PUMP CONTROL SCHEMATICS II
EX-19	WASHWATER RECYCLE PUMP CONTROL SCHEMATICS III
EX-20	WASHWATER RECYCLE PUMP CONTROL SCHEMATICS IV
EX-21	GRAVITY THICKENER CONTROL SCHEMATICS
EX-22	FILTRATE PUMP CONTROL SCHEMATICS
EX-23	SLUDGE PUMP CONTROL SCHEMATICS
EX-24	WASHWATER SETTLING BASIN DRIVE CONTROL SCHEMATICS
EX-25	TRANSFER PUMP CONTROL SCHEMATICS I
EX-26	TRANSFER PUMP CONTROL SCHEMATICS II
EX-27	TRANSFER PUMP CONTROL SCHEMATICS III
EX-28	TRANSFER PUMP CONTROL SCHEMATICS IV
EX-29	BACKWASH PUMP CONTROL SCHEMATICS I
EX-30	BACKWASH PUMP CONTROL SCHEMATICS II
EX-31	SITE LIGHTING CONTRACTOR CONTROL SCHEMATICS
EX-32	EXHAUST FAN CONTROL SCHEMATICS I
EX-33	EXHAUST FAN CONTROL SCHEMATICS II
EX-34	EXHAUST FAN CONTROL SCHEMATICS III
EY-1	RECYCLE WATER AND RAW WATER FLOW METER VAULT LIGHTING, RECEPTACLE, POWER AND CONTROL ELECTRICAL PLANS
EY-2	FINISHED WATER FLOW METER VAULT LIGHTING, RECEPTACLE, POWER AND CONTROL ELECTRICAL PLAN
EY-3	POTABLE WATER FLOW METER AND PRESSURE REDUCING VALVES ELECTRICAL PLAN
EZ-1	ELECTRICAL STANDARD DETAILS I

EZ-2	ELECTRICAL STANDARD DETAILS II
EZ-3	ELECTRICAL STANDARD DETAILS III
EZ-4	ELECTRICAL STANDARD DETAILS IV
EZ-5	ELECTRICAL STANDARD DETAILS V
EZ-6	ELECTRICAL STANDARD DETAILS VI
EZ-7	ELECTRICAL STANDARD DETAILS VII
EZ-8	ELECTRICAL STANDARD DETAILS VIII
INSTRUMENTATION	
I-1	INSTRUMENTATION LEGEND I
I-2	INSTRUMENTATION LEGEND II
I-3	SYSTEM ARCHITECTURE OVERVIEW
I-4	ADMINISTRATION BUILDING ELECTRICAL ROOM AND CHEMICAL FACILITY NETWORK ARCHITECTURE
I-5	ELECTRICAL BUILDING NETWORK ARCHITECTURE
I-6	TREATMENT STRUCTURE NETWORK ARCHITECTURE
I-7	DEWATERING BUILDING NETWORK ARCHITECTURE
I-8	STORAGE BUILDING NETWORK ARCHITECTURE
I-9	RAW WATER ELECTRICAL BUILDING AND PUMP STATION NETWORK ARCHITECTURE
I-10	SECURITY SYSTEM SITE PLAN
I-11	RAW WATER BUILDING SECURITY SYSTEM SITE PLAN
I-12	RAW WATER PUMP STATION SECURITY SYSTEM SITE PLAN
IA-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM RAPID MIXING AND FLOCCULATION BASINS 1 & 2
IA-2	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM RAPID MIXING AND FLOCCULATION BASINS 3 & 4
IA-3	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM SEDIMENTATION BASINS 1 & 2 AND SLUDGE VAULT
IA-4	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM SEDIMENTATION BASINS 3 & 4 AND SLUDGE VAULT
IA-5	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM FILTERS 1 THROUGH 3
IA-6	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM FILTERS 4 AND 5
IA-7	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM FILTERS 6 AND 7
IA-8	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM FILTERS 8 AND 9
IA-9	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM FILTERS 10 AND 11
IA-10	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM FILTERS 12 AND 13
IA-11	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM BACKWASH AIR BLOWERS
IB-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM DISINFECTION BASIN 1
IB-2	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM DISINFECTION BASIN 2
IB-3	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM TRANSFER PUMP STATION NO. 1
IB-4	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM TRANSFER PUMP STATION NO. 2
IC-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM CLEARWELLS
ID-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM BACKWASH PUMP STATION
ID-2	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM HIGH SERVICE PUMP STATION PUMPS 1 THROUGH 5
ID-3	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM HIGH SERVICE PUMP STATION PUMPS 6 THROUGH 9
ID-4	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM HIGH SERVICE PUMP STATION METER VAULT
IE-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM FILTRATE LIFT STATION
IF-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM SODIUM HYPOCHLORITE FEED SYSTEM 1
IF-2	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM SODIUM HYPOCHLORITE FEED SYSTEM 2
IF-3	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM LAS FEED SYSTEM
IF-4	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM ALUM FEED SYSTEM 1
IF-5	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM ALUM FEED SYSTEM 2
IF-6	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM POLYMER FEED SYSTEM 1
IF-7	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM POLYMER FEED SYSTEM 2
IG-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM SLUDGE PUMP STATION
IG-2	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM GRAVITY THICKENER
IG-3	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM WASHWATER RECOVERY BASIN
IG-4	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM WASHWATER RECYCLE PUMP STATION
IH-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM BELT FILTER PRESS FEED PUMPS
IH-2	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM SLUDGE THICKENING POLYMER SYSTEM
IH-3	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM BELT FILTER PRESS
IL-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM RAW WATER PUMP STATION
IL-2	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM RAW WATER CHEMICAL INJECTION
IN-1	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM COPPER ION GENERATION SYSTEM
IN-2	PROCESS MECHANICAL AND INSTRUMENTATION DIAGRAM SODIUM PERMANGANATE FEED SYSTEM
IZ-1	INSTALLATION DETAIL 1
IZ-2	INSTALLATION DETAIL 2
IZ-3	INSTALLATION DETAIL 3
IZ-4	INSTALLATION DETAIL 4
IZ-5	INSTALLATION DETAIL 5
IZ-6	INSTALLATION DETAIL 6
IZ-7	INSTALLATION DETAIL 7
IZ-8	INSTALLATION DETAIL 8
IZ-9	INSTALLATION DETAIL 9
IZ-10	INSTALLATION DETAIL 10
IZ-11	INSTALLATION DETAIL 11
IZ-12	INSTALLATION DETAIL 12
IZ-13	INSTALLATION DETAIL 13
IZ-14	INSTALLATION DETAIL 14
IZ-15	INSTALLATION DETAIL 15
IZ-16	INSTALLATION DETAIL 16
IZ-17	INSTALLATION DETAIL 17
IZ-18	INSTALLATION DETAIL 18
IZ-19	INSTALLATION DETAIL 19
IZ-20	INSTALLATION DETAIL 20

REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	FBF	AKM	CONFORMED DRAWINGS

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 DRAWN BY: K. REESE
 SHEET CHK'D BY: S. STEWART
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CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

SHEET INDEX III

PROJECT NO.	2048-248929
FILE NAME:	GOO1NFIN.DWG
SHEET NO.	G-3



LANDSCAPE & DRAINAGE SYMBOLS

SYMBOL	FEATURE
	BUILDING OR STRUCTURE FOOTPRINT
	TREE, SIZE & TYPE
	TREE PROTECTION
	TREE TO BE REMOVED
	EDGE OF WOODS OR BRUSH
	DIRECTION OF FLOW FOR STORMWATER
	SILT FENCE
	ROCK BERM
	EROSION CONTROL BLANKET
	STABILIZED CONSTRUCTION ENTRANCE

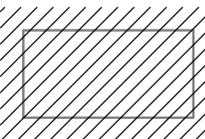
SURFACE ELEVATION SYMBOLS

SYMBOL	FEATURE
	DEPRESSION CONTOUR
	EXISTING INTERMEDIATE CONTOUR LINE & ELEVATION DESIGNATION
	EXISTING INDEX CONTOUR LINE & ELEVATION DESIGNATION
	PROPOSED INTERMEDIATE CONTOUR LINE & ELEVATION DESIGNATION
	PROPOSED INDEX CONTOUR LINE & ELEVATION DESIGNATION
	SPOT ELEVATION
	EXISTING EMBANKMENT (REVERSE SYMBOLS FOR CHANNEL)
	PROPOSED EMBANKMENT (REVERSE SYMBOLS FOR CHANNEL)

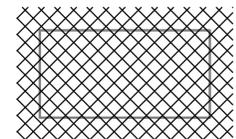
UNDERGROUND/OVERHEAD UTILITY SYMBOLS

SYMBOL	FEATURE
	WASTEWATER & MANHOLE
	STORM DRAIN & MANHOLE
	WATER LINE W/FIRE HYDRANT ASSEMBLY (INCLUDES VALVE)
	ELECTRICAL CABLE/DUCT
	OVERHEAD ELECTRIC
	TELEPHONE
	OVERHEAD TELEPHONE
	GAS LINE
	LIGHT POLE
	POWER POLE W/GUY WIRE

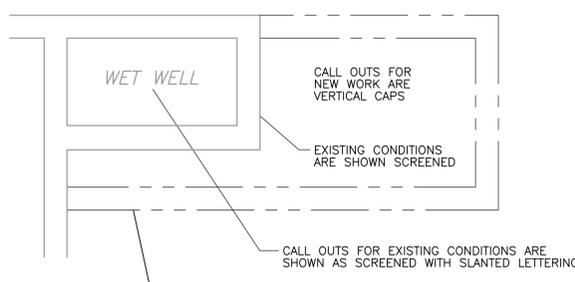
ITEMS TO BE REMOVED



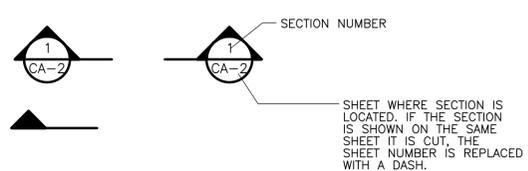
ITEMS TO BE DEMOLISHED



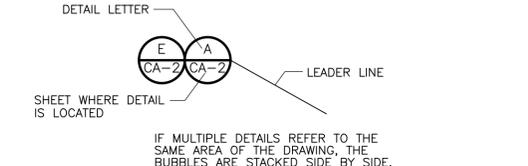
EXISTING OR FUTURE CONDITION DESIGNATION



SECTION CUT SYMBOLS



DETAIL CALL OUT SYMBOLS



DRAWING, SECTION & DETAIL TITLES

SUBTITLE OR DESCRIPTION (AS REQ'D)

PLAN

1/4" = 1'-0"

SUBTITLE OR DESCRIPTION (AS REQ'D)

ELEVATION

1/4" = 1'-0"

SECTION

3/4" = 1'-0"

DETAIL

3/4" = 1'-0"

* IF SECTION, DETAIL, SCHEMATIC OR DIAGRAM IS DRAWN ON THE SAME SHEET THAT IT IS TAKEN FROM, THE SHEET NUMBER IS REPLACED WITH A HYPHEN. IF THE SECTION IS REFERENCED ON MULTIPLE SHEETS, THE SHEET NUMBER SHOWN INDICATES THE FIRST SHEET THE SECTION IS TAKEN FROM.

MB-2

DISCIPLINE	AREA CODE
G	GENERAL
C	CIVIL
A	ARCHITECTURAL
S	STRUCTURAL
M	PROCESS MECHANICAL
H	HVAC
PL	PLUMBING
PL	PLUMBING
F	FIRE PROTECTION
I	INSTRUMENTATION
A	TREATMENT STRUCTURE
B	DISINFECTION BASIN AND TRANSFER PUMP STATION
C	CLEARWELLS
D	HIGH SERVICE AND BACKWASH WATER PUMP STATIONS
E	FILTRATE LIFT STATION
F	CHEMICAL FACILITY
G	RESIDUALS
H	DEWATERING
I	ADMINISTRATION BUILDING
J	STORAGE BUILDING
K	ELECTRICAL BUILDING
L	RAW WATER PUMP STATION
M	RAW WATER ELECTRICAL BUILDING
N	RAW WATER CHEMICAL FEED
P	RAW WATER PIPELINE
R	GRADING
X	ELECTRICAL SCHEMATICS
Y	YARD PIPING
Z	STANDARD DETAILS

FIRE PROTECTION NOTES

- APPROVAL OF THIS SITE PLAN DOES NOT IMPLY APPROVAL TO INSTALL UNDERGROUND FIRE LINES. PRIOR TO INSTALLATION OF UNDERGROUND FIRE LINES, A SEPARATE PERMIT SHALL BE SUBMITTED, UNDER GROUND FIRE LINE SUPPLY.
- BACKFLOW PROTECTION WILL BE PROVIDED IN ACCORDANCE WITH THE CITY OF GEORGETOWN REQUIREMENTS WHEN REQUIRED. BACKFLOW PROTECTION WILL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED IN THE UTILITY DRAWINGS.
- ALL PRIVATE FIRE LINES AND WHAT THEY PROVIDE SERVICE TO WILL BE INSTALLED IN ACCORDANCE WITH NFPA 24 INSTALLATION OF PRIVATE SERVICE MAINS AND THEIR APPURTANCES.
- ALL TEES, PLUGS, CAPS, BENDS, REDUCERS, VALVES SHALL BE RESTRAINED AGAINST MOVEMENT. THRUST BLOCKING AND JOINT RESTRAINT WILL BE INSTALLED IN ACCORDANCE WITH NFPA 24.
- ALL UNDERGROUND SHALL REMAIN UNCOVERED UNTIL A VISUAL INSPECTION IS CONDUCTED BY THE CITY OF GEORGETOWN FIRE MARSHAL'S OFFICE (FMO). ALL JOINT RESTRAINTS AND THRUST BLOCKING SHALL BE UNCOVERED FOR VISUAL INSPECTION.
- ALL UNDERGROUND SHALL BE FLUSHED PER THE REQUIREMENTS OF NFPA STANDARD 24 AND WITNESSED BY GEORGETOWN FMO.
- ALL UNDERGROUND SHALL PASS A HYDROSTATIC TEST WITNESSED BY GEORGETOWN FMO. ALL JOINTS SHALL BE UNCOVERED FOR HYDROSTATIC TESTING. ALL PIPING AND ATTACHMENTS SUBJECTED TO SYSTEM WORKING PRESSURE SHALL BE TESTED AT 200 PSI, OR 50 PSI MORE THAN THE SYSTEM WORKING PRESSURE, WHICHEVER IS GREATER, AND SHALL MAINTAIN THE PRESSURE + OR - FOR 2 HOURS.
- FENCES, LANDSCAPING AND OTHER ITEMS WILL NOT BE INSTALLED WITHIN 3- FEET, AND WHERE THEY OBSTRUCT VISIBILITY OR ACCESS TO HYDRANTS, OR REMOVE FDOS.
- LICENSE REQUIREMENTS OF EITHER RME-U OR G. WHEN CONNECTING BY UNDERGROUND TO THE WATER PURVEYOR'S MAIN FROM THE POINT OF CONNECTION OR VALVE WHERE THE PRIMARY PURPOSE OF WATER IS FOR FIRE PROTECTION SPRINKLER SYSTEM.
- LA-507.5.7 CITY OF GEORGETOWN FIRE HYDRANT COLOR CODE SYSTEM. PRIVATE FIRE HYDRANT MAINTENANCE SHALL BE IN ACCORDANCE WITH NFPA 291.
 - ALL PRIVATE HYDRANT BARRELS WILL BE PAINTED RED WITH THE BONNET PAINTED USING THE HYDRANT FLOW STANDARD IN PARAGRAPH C OF THIS SECTION TO INDICATE FLOW. IT WILL BE THE CUSTOMER'S RESPONSIBILITY TO TEST AND MAINTAIN THEIR PRIVATE HYDRANTS(S).
 - ALL PRIVATE FIRE HYDRANTS SHOULD BE INSPECTED, MAINTAINED, AND FLOW TESTED ANNUALLY, AND COLOR CODED TO INDICATE EXPECTED FLOW FROM THE HYDRANT DURING NORMAL OPERATION. SUCH COLOR APPLIED TO THE FIRE HYDRANT BY PAINTING THE BONNET THE APPROPRIATE COLOR FOR THE EXPECTED FLOW CONDITION.
 - HYDRANT FLOW CODING STANDARDS. PUBLIC HYDRANT BARRELS WILL BE PAINTED SILVER, THE HYDRANTS WILL BE FLOW TESTED, AND THE BONNET PAINTED USING THE HYDRANT FLOW STANDARD IN AS FOLLOWS AT 20 PSI RESIDUAL FLOW COLOR:

GREATER THAN 1500 GPM	BLUE
1000 - 1500 GPM	GREEN
500 - 999 GPM	RED
LESS THAN 500 GPM	ORANGE
NOT WORKING	BLACK OR BAGGED
 - AT THE CONCLUSION OF CONSTRUCTION, FIRE HYDRANTS SHALL BE FLOW TESTED AND COLOR CODED IN ACCORDANCE WITH THE CITY'S STANDARDS, AND RESULTS SHALL BE EMAILED TO THE FIRE DEPARTMENT. IFC-LA-507.5.7 FIRE HYDRANT SYSTEMS.

GENERAL NOTES

- CONTRACTOR SHALL PROVIDE "AS BUILT" DRAWINGS TO THE ENGINEER SO THAT THE REPRODUCIBLE OF THE ENGINEERING DRAWINGS MAY BE CORRECTED TO REFLECT "RECORD DRAWING" CONDITIONS.
- THE CONTRACTOR WILL BE REQUIRED TO PROVIDE AND MAINTAIN ALL NECESSARY WARNING AND SAFETY DEVICES TO PROTECT WORKMEN AND THE PUBLIC SAFETY AND HEALTH UNTIL THE WORK HAS BEEN COMPLETED AND ACCEPTED BY THE CITY.
- THE LOCATIONS OF EXISTING UTILITIES & STRUCTURES SHOWN ON THESE DRAWINGS ARE APPROXIMATE & ALL MAY NOT BE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND VERIFY IN THE FIELD THE LOCATION OF ALL EXISTING UTILITIES & STRUCTURES PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION. AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION IN THE VICINITY OF UTILITIES, NOTIFY THE FOLLOWING AS APPLICABLE.

CITY OF GEORGETOWN	512-930-3555
FRONTIER	512-869-2231
PEDERNALES ELECTRIC CO-OP	877-372-0391
CITY OF GEORGETOWN ELECTRIC ENGINEERING	512-930-3651
TEXAS ONE CALL	811 OR 800-344-8377
- TREES NOT SHOWN TO BE REMOVED SHALL NOT BE REMOVED WITHOUT ENGINEER'S APPROVAL. TREES APPROVED BY THE ENGINEER TO BE TRIMMED, SHALL BE CUT USING PROPER TOOLS AND THE TREE CUT SHALL BE PROPERLY SEALED.
- NO WORK SHALL BE PERFORMED ON SATURDAYS, SUNDAYS, OR CITY HOLIDAYS WITHOUT WRITTEN PERMISSION BY OWNER. THE SPECIFIED CONTRACT TIMES WERE ESTABLISHED ASSUMING NO WEEKEND OR HOLIDAY WORK. SATURDAYS, SUNDAYS, AND HOLIDAYS WILL BE COUNTED IN DETERMINING THE NUMBER OF CONSECUTIVE CALENDAR DAYS USED TO COMPLETE THE PROJECT. WORKING HOURS ARE LIMITED TO 7:00 AM TO 6:00 PM, MONDAY THROUGH FRIDAY.
- ELECTRICAL LINES ARE LOCATED CLOSE TO THE PROJECT. THE ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE STATE LAW (VERNON'S ANNOTATED TEXAS STATUTES, ARTICLE 1436(C)) CONCERNING OPERATIONS IN THE VICINITY OF ELECTRICAL LINES AND THE NEED FOR EFFECTIVE PRECAUTIONARY MEASURES.
- CONTRACTOR SHALL PARTICIPATE IN A PRE-CONSTRUCTION MEETING WITH THE OWNER, ENGINEER, AND OTHER AFFECTED PARTIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
- NO BURNING OF TREES, BRUSH, RUBBISH, VEGETATION, OR OTHER OBJECTIONABLE MATTER WILL BE ALLOWED ON THE PROJECT SITE. ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF IN A MANNER ACCEPTABLE TO THE CITY OF GEORGETOWN. ALL EXCESS EXCAVATED MATERIALS SHALL BE HAULED OFF-SITE.
- NO BLASTING WILL BE ALLOWED.
- ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF EACH SEDIMENTATION/EROSION CONTROL MEASURE ON THIS PROJECT.
- UNSUITABLE MATERIAL, STUMPS, OR EXCESS EXCAVATED MATERIALS SHALL BE KNOWN AS "WASTE" AND SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND IT SHALL BECOME HIS SOLE RESPONSIBILITY TO DISPOSE OF THIS MATERIAL OFF THE LIMITS OF THE PROJECT IN AN ENVIRONMENTALLY SOUND & LEGALLY APPROVED MANNER. THE CONTRACTOR SHALL NOTIFY THE CITY OF GEORGETOWN PRIOR TO OFFSITE DISPOSAL. THIS NOTIFICATION SHALL INCLUDE THE DISPOSAL LOCATION AND COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.
- THE CONTRACTOR SHALL GIVE THE OWNER A MINIMUM OF 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. THE PHASES OF CONSTRUCTION ARE AS FOLLOWS:
 - INSTALL EROSION AND SEDIMENTATION CONTROL.
 - INSTALL TREE PROTECTION.
 - SITE VISIT BY OWNER'S INSPECTOR.
 - AFTER INSPECTOR APPROVAL, BEGIN CONSTRUCTION.
 - UPON CONSTRUCTION COMPLETION, RESTORE ALL DISTURBED AREAS.
 - ARRANGE FOR FINAL INSPECTION.
 - REMOVE TEMPORARY EROSION CONTROL MEASURES.
- ALL EXISTING UTILITIES, STRUCTURES, AND PIPES SHALL BE PROTECTED BY CONTRACTOR.
- CARE SHALL BE TAKEN TO PROTECT EXISTING FACILITIES.
- FINISHED GRADES SHALL SLOPE UNIFORMLY.
- TRACK EQUIPMENT WILL NOT BE ALLOWED ON PAVED ROADWAYS WITHOUT APPROPRIATE PROTECTION FOR THE PAVEMENT AS APPROVED BY THE ENGINEER.
- NOT USED.
- SURVEY CONTROL POINTS ARE SHOWN ON CIVIL SHEETS. THIS INFORMATION SERVES AS ONE-TIME BENCHMARK INFORMATION. CONTRACTOR TO PROVIDE ADDITIONAL LINES AND GRADES AS REQUIRED.
- ALL POTABLE WATER PIPING SHALL BE RESTRAINED PER AWWA GUIDELINES WITH A MINIMUM FACTOR OF SAFETY OF TWO. PROCESS PIPING RESTRAINED JOINTS SHALL BE PROVIDED AT ALL FITTINGS, AS DESCRIBED BELOW, UP TO THE FIRST JOINT OF PIPE WITHOUT A FITTING, AND SHALL BE DESIGNED PER AWWA GUIDELINES WITH A MINIMUM FACTOR OF SAFETY OF TWO. FITTINGS INCLUDE ALL VERTICAL AND HORIZONTAL CHANGES IN PIPE DIAMETER (REDUCERS), OR DIRECTION (E.G. TEES, BENDS, ELBOWS, AND CROSSES), PLUGS, VALVES, OTHER LOCATIONS SHOWN ON THE DRAWINGS, AND ON ALL BURIED PIPING HAVING FLEXIBLE JOINTS. JOINTS SHOULD BE DESIGNED TO PREVENT THE PIPE FROM MOVING WHEN SUBJECTED TO OPERATING AND TEST PRESSURES. RESTRAINED JOINTS SHALL HAVE CADMIUM PLATED OR OTHER APPROVED CORROSION RESISTANT BOLTS, NUTS, ETC. RESTRAINED JOINTS SHALL BE "FLEX-RING" OR "LOK-RING" BY AMERICAN CAST IRON PIPE COMPANY, TR FLEX BY U.S. PIPE COMPANY, OR AN APPROVED EQUAL.
- ALL CONSTRUCTION MATERIAL/DEBRIS SHALL BE PLACED IN AN ON-SITE CONTAINER AND DISPOSED OF PROPERLY AT AN AUTHORIZED LANDFILL.
- AT THE COMPLETION OF WORK AND IMMEDIATELY PRIOR TO FINAL INSPECTION, CLEANING OF THE ENTIRE PROJECT SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTIONS CIP14, CIP17, G8, AND O1710.
- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING FACILITIES (SIGNS, UTILITIES, POLES, STRUCTURES, ETC). NOT ALL FACILITIES, ETC. ARE SHOWN.
- ANY EXISTING PAVEMENT, CURBS, AND/OR SIDEWALKS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED AT THE CONTRACTOR'S EXPENSE.
- ANY EXISTING FENCES, WALLS, AND FACILITIES DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED AT THE CONTRACTOR'S EXPENSE.
- ALL DISTURBED AREAS SHALL BE GRADED, HYDROMULCHED OR SODDED, AS INDICATED ON THE DRAWINGS AND RESTORED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL FOLLOW SEQUENCE OF CONSTRUCTION SPECIFIED IN SECTION CIP3 AND SHALL NOT DEVIATE WITHOUT WRITTEN AUTHORIZATION FROM ENGINEER.
- UNLESS OTHERWISE NOTED, ALL FLEXIBLE COUPLINGS, FLANGE COUPLING ADAPTERS, ETC, SHALL BE RESTRAINED PER SPECIFICATIONS & DETAILS.
- WHEN MAKING CONNECTIONS TO NEW OR EXISTING PIPING, CONTRACTOR SHALL PROVIDE ALL FITTINGS, ADAPTERS, CONNECTING PIECES, SLEEVES, FLEXIBLE COUPLINGS, ETC REQUIRED TO MAKE THE CONNECTIONS IN A MANNER SATISFACTORY TO THE ENGINEER REGARDLESS OF WHETHER OR NOT THESE COMPONENTS ARE SHOWN ON THE DRAWINGS.
- WHEN CONNECTING TO EXISTING MANHOLES, FIELD VERIFY EXISTING INVERT ELEVATIONS AND MODIFY PROPOSED INVERT ELEVATIONS TO ACHIEVE CONTINUOUS DOWNWARD SLOPE.
- ALL CONNECTIONS BETWEEN NEW AND/OR EXISTING PIPING, VALVES, FITTINGS, ETC, WHERE DISSIMILAR METALS WILL BE IN CONTACT SHALL BE PROTECTED BY INSULATING SYSTEMS AS APPROVED BY THE ENGINEER.
- ALL CAPS/PLUGS NOT SHOWN ON YARD PIPING PLAN SHEETS. CONTRACTOR IS RESPONSIBLE FOR ALL CAPS/PLUGS. ALL EXPOSED ENDS OF PIPES TO BE ABANDONED IN PLACE SHALL BE CAPPED/PLUGGED WITH CONCRETE OR MECHANICAL CAPS/PLUGS. RESTRAINED MECHANICAL CAPS OR PLUGS ARE REQUIRED FOR PIPES THAT WILL REMAIN IN SERVICE OR FOR FUTURE STUBOUTS.
- PIPE ALIGNMENT BENDS OF LESS THAN MANUFACTURER'S PUBLISHED ACCEPTABLE DEFLECTION MAY BE MADE BY DEFLECTING THE JOINTS PER ENGINEER'S APPROVAL. BENDS OF MORE THAN MANUFACTURER'S PUBLISHED ACCEPTABLE DEFLECTION SHALL BE MADE WITH MANUFACTURER'S STANDARD FITTINGS PER ENGINEER'S APPROVAL.
- PIPE SUPPORTS ARE SHOWN FOR VISUALIZATION PURPOSES. FINAL TYPES, COUNTS, SIZING, ETC. ARE A DELEGATED DESIGN DELIVERABLE. SEE SPECIFICATION SECTION 400507, HANGERS AND SUPPORTS FOR PROCESS PIPING.
- ALL PIPING UNDER STRUCTURES SHALL BE CONCRETE ENCASED, UNLESS SPECIFICALLY NOTED OTHERWISE.
- CLEARING IS NOT ALLOWED BETWEEN MARCH 1ST AND SEPTEMBER 1ST.



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REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	JBF	AKM	CONFORMED DRAWINGS
2	11/16/21	JBF	AKM	REVISED PER ADDENDUM NO. 2
5	12/17/21	JBF	AKM	REVISED PER ADDENDUM NO. 5
7	1/14/22	JBF	AMK	REVISED FOR ADDENDUM NO. 7

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CROSS CHK'D BY:	A. KARAMALEGOS
APPROVED BY:	S. STEWART
DATE:	DECEMBER 2021

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 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
SOUTH LAKE
WATER TREATMENT PLANT

PROJECT NO.	2048-248929
FILE NAME:	G006NFGN.DWG
SHEET NO.	G-6

ABBREVIATIONS

#	NUMBER	CGFB	CEMENTITIOUS GLASS FIBER BOARD	E	EMERGENCY WATER	GP	GLASS PIPE	MAS	MASONRY	PL	PROPERTY LINE	SCB	SCREENING CONVEYOR BELT	U	HEAT TRANSFER COEFFICIENT
&	AND	CGV	CHLORINE GAS (VACUUM)	EAT	ENTERING AIR TEMPERATURE	GPD	GALLONS PER DAY	MATL	MATERIAL	PLC	PROGRAMMABLE LOGIC CONTROLLER	SCJ	SLAB CONTROL JOINT	UC	UNDERCUT
<	ANGLE	CH	CONCRETE HARDENER	EB	EXPANSION BOLT	GPM	GALLONS PER MINUTE	MAU	MAKE UP AIR UNIT	PLK	PLANK	SCL	SCRUBBING LIQUID	UD	UNDERDRAIN
⊙	AT	CHAM	CHAMFER	EC	EMPTY CONDUIT	GR	GRADE	MAX	MAXIMUM	PLP	POLYPHOSPHATE	SCR	SCREENING DEVICE	UGND	UNDERGROUND
2S1W	TWO SPEED, ONE WINDING	CHAN	CHANNEL	ECC	ELECTRIC CONDUIT	GRAV	GRAVITY	MB	MACHINE BOLTS	PLS	PLASTIC LINED STEEL	SGRN	SCRUBBING LIQUID	UGND	UNDERGROUND TELEPHONE CABLE
2S2W	TWO SPEED, TWO WINDING	CHKD	CHECKED	ED-F	EQUIPMENT DRAIN (FLUSH TYPE)	GRG	GRIT REMOVAL CHAMBER	MBS	THOUSAND BTU PER HOUR	PLT	PLANT	SCV	SILENT CHECK VALVE	UH	UNIT HEATER
2S2W	TWO SPEED, TWO WINDING	CHL	CHLORINATOR	ED-O	EQUIPMENT DRAIN (EXTENDED TYPE-OPEEN)	GRP	GRIT REMOVAL PUMPS	MBH	MANUAL BAR SCREEN	PLW	PLANT WATER	SD	STORM DRAIN	UL	UNDERWRITERS LABORATORY
A	AMP (COMPRESSED)	CHR	CHLOROPRENE RUBBER (NEOPRENE)	ED-S	EQUIPMENT DRAIN (EXTENDED TYPE-SEALED)	GRS	GRATING	MC	STEEL MISCELLANEOUS CHANNEL	PLYWD	PLYWOOD	SD	SUPPLY DIFFUSER	UN	UNION
A, AMP	AMPERE	CI	CAST IRON	EDH	ELECTRIC DUCT HEATER	GRTG	GROUT	MCC	MOTOR CONTROL CENTER	PM	PRESSED METAL	SE	SECONDARY	UNO	UNLESS NOTED OTHERWISE
A/C	AIR CONDITIONING	CIGL	CAST IRON PIPE GLASS LINED	EF	EFFLUENT	GSK	GASKET	MCJ	MASONRY CONTROL JOINT	PNL	PANEL	SEC	SECONDARY	UP/C	UNPLASTICISED POLYVINYL CHLORIDE
AA	AERATION AIR	CIP	CAST IN PLACE	EFF	EFFLUENT	OSK	ORISKANY	ME	METHANOL	POJ	PUSH ON JOINT	SEC-1	SECTION	UR	URNAL
AB	ANCHOR BOLT	CIR	CIRCLER	EFM	EMERGENCY GENERATION SYSTEM	GV	GATE VALVE	MEAS	MEASURE	POLY	POLYETHYLENE	SEC-2	SECTION		
ABA	AEROBIC BASIN AERATOR	CIRC	CIRCUMFERENTIAL	EG	EXHAUST GRILLE	GYP	GYPSPUM	MECH	MECHANICAL	POLY	POLYPROPYLENE	SEC-3	SECTION		
ABC	ASBESTOS CEMENT	CIS	CAST IRON SOIL PIPE	EG	EXHAUST GRILLE	HAS	HEADED ANCHOR STUD	MEMB	MEMBRANE	POM	POLYOXYMETHYLENE	SEC-4	SECTION		
ABDN	ABANDON	CLC	CELLULOSE CEMENT	EG	EQUIPMENT GROUNDING CONDUCTOR	HG	HEATING COIL	MEMB	MEMBRANE	POT	POINT OF TANGENCY	SEC-5	SECTION		
ABS	ACRYLONITILE-BUTADIENE-STYRENE	CJ	CONSTRUCTION JOINT	EGO	ELEVATED GEAR OPERATOR	HMC	HIGH MOUNT	MFG	MANUFACTURED	POH	POTASSIUM HYDROXIDE	SEC-6	SECTION		
ABV	ABOVE	EL	ELEVATION	EGP	EQUIPMENT GROUNDING CONDUCTOR	MD	MILLION GALLONS PER DAY	MFG	MANUFACTURING	POTP	POTASSIUM PERMANGANATE	SEC-7	SECTION	V	VOLTS
ACCU	AIR CONDITIONING CONDENSING UNIT	ELEC	ELECTRIC (AL)	EL	ELEVATION	MH	MANHOLE	MFG	MANUFACTURING	PP	POWER POLE	SEC-8	SECTION	VA-H	VALVE AIR
ACCV	AIR CUSHION CHECK VALVE	CL2	CHLORINE SYSTEM	ELEV	ELEVATOR	MHS	HEAVY DUTY	MFR	MILLIGRAMS PER LITER	PPB	PARTS PER BILLION	SEC-9	SECTION	VA-M	VALVE MOTOR VALVE OPERATOR
ACMU	ACOUSTICAL MASONRY UNIT	CLCQ	CELLULOSE CEMENT	EMERG	EMERGENCY	MND	MILLION DOLLARS PER DAY	MFG	MANUFACTURING	PPM	PARTS PER MILLION	SEC-10	SECTION	VA-P	VALVE PNEUMATIC VALVE OPERATOR
ACP	ASBESTOS CEMENT UNIT	CL2L	CHLORINE (LIQUID)	EMG	EMERGENCY GENERATOR	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-11	SECTION	VA-S	VALVE SOLENOID VALVE OPERATOR
ACT	ACOUSTICAL TILE	CL2S	CHLORINE SOLUTION	ENGR	ENGINEER	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-12	SECTION	VAC	VALVE VACUUM VALVE OPERATOR
ACU	AIR CONDITIONING UNIT	CL2V	CHLORINE VENT	ENR	ENTERING, ENTRANCE	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-13	SECTION	VAR	VALVE VARIOUS/VARIABLE
AD	ACCESS DOOR	CLF	CURRENT LIMITING FUSE	EOP	EDGE OF PAVEMENT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-14	SECTION	VAV	VALVE VARIABLE AIR VOLUME
ADJL	ADJUSTABLE	CLG	CELLULOSE CEMENT	EP	EQUIPMENT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-15	SECTION	VBC	VALVE VOLUME BOX
ADH	ADHESIVE	CLJ	CONTROL JOINT	EP	EQUIPMENT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-16	SECTION	VB	VALVE VAPOR BARRIER
ADJ	ADJUSTABLE, ADJUST	CLKG	CAULKING	EPDM	ETHYLENE PROPYLENE RUBBER	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-17	SECTION	VBR	VALVE VACUUM BREAKER
ADPT	ADAPTER	CLR	CLEAR	EQ	EQUAL (LY)	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-18	SECTION	VC	VALVE VICTUALIC COUPLING (SHOULDERED ENDS)
AFD	ADJUSTABLE FREQUENCY DRIVE	CLW	CLARIFIED WATER (CLARIFIER EFFLUENT)	EQPT	EQUIPMENT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-19	SECTION	VC	VALVE VITRIFIED CLAY
AFF	ABOVE FINISHED FLOOR	CM	CORRUGATED METAL	EQV	EQUIVALENT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-20	SECTION	VCP	VALVE VITRIFIED CLAY PIPE
AFG	ABOVE FINISHED GRADE	CMON	CONCRETE MONUMENT	EQV	EQUIVALENT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-21	SECTION	VCT	VALVE VOLUME COMPOSITION TILE
AGG	AGGREGATE	CMP	CORRUGATED METAL PIPE	ES	EACH SIDE	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-22	SECTION	VDM	VALVE DRY MIX CONCRETE
AHP	AIR HORSEPOWER	CMU	CONCRETE MASONRY UNITS	ESMT	EASEMENT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-23	SECTION	VDR	VALVE VACUUM BREAKER
AHU	AIR HANDLING UNIT	CND	CONDENSATE RETURN	ESP	ELECTRIC SUPPLY	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-24	SECTION	VDR	VALVE VACUUM BREAKER
AI	AIR INPUT, AIR INSTRUMENT	CNS	CONDENSATE SUPPLY	ETC	ETCETERA	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-25	SECTION	VDR	VALVE VACUUM BREAKER
AL	ALUMINUM	CO	CLEAN OUT	ETC	ETCETERA	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-26	SECTION	VDR	VALVE VACUUM BREAKER
AL VT	ALUM VENT	COL	COLUMN	EUA	ELECTRIC UNIT HEATER	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-27	SECTION	VDR	VALVE VACUUM BREAKER
ALS	ALUM SOLUTION	COMB	COMBINATION	EV	EVAPORATOR VENT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-28	SECTION	VDR	VALVE VACUUM BREAKER
ALSS	ALUM SYSTEM	CON	CONCRETE	EVA	ELECTRIC GEAR ACTUATOR	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-29	SECTION	VDR	VALVE VACUUM BREAKER
ALT	ALTERNATE (ING)	COMP	COMPRESSION	EVAP	EVAPORATOR (ION)	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-30	SECTION	VDR	VALVE VACUUM BREAKER
ALT	ALTERNATE (ING)	COMP	COMPRESSION	EW	ELECTRIC WATER COOLER	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-31	SECTION	VDR	VALVE VACUUM BREAKER
ALU	ALUMINUM SULFATE	COMP JT	COMPRESSION JOINT	EXA	EXHAUST AIR	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-32	SECTION	VDR	VALVE VACUUM BREAKER
ALUM	ALUM (CHEMICAL)	CONC	CONCRETE	EXA	EXHAUST AIR	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-33	SECTION	VDR	VALVE VACUUM BREAKER
AMG	AMMONIA GAS	COND	CONDUCTIVITY	EXA	EXHAUST AIR	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-34	SECTION	VDR	VALVE VACUUM BREAKER
AMN	AMMONIA LIQUID	CONN	CONNECTION	EXH	EXHAUST	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-35	SECTION	VDR	VALVE VACUUM BREAKER
AMU	AMMONIUM	CONST	CONSTRUCTION	EXH	EXHAUST	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-36	SECTION	VDR	VALVE VACUUM BREAKER
AND	ANDZIDE	CONT	CONTINUOUS	EXP	EXPANDED	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-37	SECTION	VDR	VALVE VACUUM BREAKER
AO	ANALOG OUTPUT	COR	CORNER(S)	EXP	EXPANDED	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-38	SECTION	VDR	VALVE VACUUM BREAKER
AP	ACCESS PANEL	CORR	CORRUGATED	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-39	SECTION	VDR	VALVE VACUUM BREAKER
APPROX	APPROXIMATE (LY)	CORR	CORRUGATED	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-40	SECTION	VDR	VALVE VACUUM BREAKER
AR	ARCHITECT (URAL) (URE)	CPLG	CONCRETE PRESSURE PIPE	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-41	SECTION	VDR	VALVE VACUUM BREAKER
ARCH	ARCHITECT (URAL) (URE)	CPT	CONTROL POWER TRANSFORMER	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-42	SECTION	VDR	VALVE VACUUM BREAKER
ARND	AROUND	CPVC	CHLORINATED POLYVINYLCHLORIDE PIPE	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-43	SECTION	VDR	VALVE VACUUM BREAKER
ARV	AIR RELEASE VALVE	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-44	SECTION	VDR	VALVE VACUUM BREAKER
AS	ACTIVATED SLUDGE, AIR SUPPLY	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-45	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-46	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-47	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-48	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-49	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-50	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-51	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-52	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-53	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-54	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-55	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-56	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-57	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-58	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-59	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-60	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-61	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-62	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-63	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-64	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-65	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-66	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-67	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-68	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-69	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT	EXPANDED JOINT	MND	MILLION DOLLARS PER DAY	MND	MANUFACTURED	PPM	PARTS PER MILLION	SEC-70	SECTION	VDR	VALVE VACUUM BREAKER
ASPH	ASPHALT	CR	CONCRETE RESIDUAL	EXP JT											

PIPE SCHEDULE

SERVICE ABBREVIATION	DESCRIPTION	PIPE MATERIAL	SPEC REFERENCE	ALTERNATE ALLOWED PIPE MATERIAL	ALTERNATE MATERIAL SPEC REFERENCE	OPERATING PRESSURE (PSIG)	TEST PRESSURE (PSIG)	MIN/MAX TEMPERATURE (F)	NOTES
BURIED (DIVISION 33, C- AND M-SHEETS)									
RW	TRANSMISSION AND VAULTS	DUCTILE IRON	W1	NONE	N/A	75	112.5	50/77	
FLW	BENEATH FILTER GALLERY	DUCTILE IRON	W1	CARBON STEEL	330524.23	10	15	50/77	
FLW	TO DISINFECTION BASIN AND VAULTS	DUCTILE IRON	W1	NONE		10	15	50/77	
FINW	TRANSMISSION	DUCTILE IRON	W1	NONE		210	315	50/77	
FINW	HSPS PUMP STATION HEADER AND VAULTS	DUCTILE IRON	W1	NONE		210	315	50/77	
FINW	TPS DISCHARGE TO CLEARWELL	DUCTILE IRON	W1	NONE		20	30	50/77	
FINW	CLEARWELL TO HSPS	DUCTILE IRON	W1	NONE		20	30	50/77	
BWW	PUMP STATION TO FILTER GALLERY	DUCTILE IRON	W1	NONE		20	30	50/77	
BWW	PUMP STATION HEADER	DUCTILE IRON	W1	NONE		20	30	50/77	
WBW	FROM BACKWASH GULLET TO WASHWATER COLLECTION BOX	DUCTILE IRON	W1	NONE		10	15	50/77	
RCW	FROM WASHWATER COLLECTION BOX	DUCTILE IRON	W1	NONE		20	30	50/77	
RCW	PUMPED FROM RECYCLE PS	DUCTILE IRON	W1	PVC AWWA C900	W2	30	45	50/77	
DR	BENEATH STRUCTURES	DUCTILE IRON	W1	NONE		10	15	50/77	
DR	PROCESS, >14"	DUCTILE IRON	W1	PVC AWWA C900	W2	10	15	50/77	
DR	PROCESS, 4-12"	DUCTILE IRON	W1	PVC AWWA C900	W2	10	15	50/77	
DR	<4"	PVC SCH 80	400531	NONE		10	15	50/77	
DR	FOUNDATION DRAINS	PVC AWWA C900	W2	NONE		10	15	50/77	
SL	FROM SED BASINS TO SLUDGE BOXES	DUCTILE IRON	W1	NONE		20	30	50/77	
SL	12" FROM SLUDGE BOXES TO SLUDGE PS	DUCTILE IRON	W1	PVC AWWA C900	W2	20	30	50/77	
SL	PUMPED FROM SLUDGE PS TO GT	DUCTILE IRON	W1	NONE		20	30	50/77	
TSL		DUCTILE IRON	W1	NONE		40	60	50/77	
SUPN		DUCTILE IRON	W1	NONE		10	15	50/77	
PPW	4-12"	DUCTILE IRON	W1	PVC AWWA C900	W2	70	105	50/77	
PPW	<4"	HDPE	330533.23	NONE		70	105	50/77	
PW	4-12"	DUCTILE IRON	W1	PVC AWWA C900	W2	70	105	50/77	
PW	<4"	HDPE	330533.23	NONE		70	105	50/77	
SHC		DUAL CONTAINED	400531	NONE		30	45	50/77	SEE NOTE 4
LAS		DUAL CONTAINED	400531	NONE		30	45	50/77	SEE NOTE 4
ALC		DUAL CONTAINED	400531	NONE		60	90	50/77	SEE NOTE 4
POLD		DUAL CONTAINED	400531	NONE		60	90	50/77	SEE NOTE 4
SPC		DUAL CONTAINED	400531	NONE		110	165	50/77	SEE NOTE 4
CION		DOUBLE CONTAINED	400531	NONE		70	105	50/77	SEE NOTE 4
SAN		PVC AWWA C900	W2	PVC ASTM D3034 SDR 26	WW2	10	15	50/77	
FLT	PUMPED FROM FILTRATE LS TO SANITARY	DUCTILE IRON	W1	PVC AWWA C900	W2	20	30	50/77	
SPL		PVC SCH 80	400531	NONE		*	*	50/77	SEE NOTE 8
ABOVE - GRADE (DIVISION 40, C- AND M-SHEETS)									
RW	PUMP HEADER IN VAULT	DUCTILE IRON	400519	NONE		75	112.5	50/77	
RW	UPSTREAM OF INFLUENT BOX	DUCTILE IRON	400519	NONE		100	150	50/77	
FLW	FILTER GALLERY	DUCTILE IRON	400519	CARBON STEEL	400524	10	15	50/77	
FINW	HSPS PUMP STATION HEADER	DUCTILE IRON	400519	NONE		210	315	50/77	
FINW	TPS PUMP STATION HEADER	DUCTILE IRON	400519	NONE		20	30	50/77	
BWW	PUMP STATION HEADER	DUCTILE IRON	400519	NONE		20	30	50/77	
BWW	FILTER GALLERY	DUCTILE IRON	400519	CARBON STEEL	400524	20	30	50/77	
WBW	FILTER GALLERY	DUCTILE IRON	400519	CARBON STEEL	400524	10	15	50/77	
RCW	PUMP STATION HEADER	DUCTILE IRON	400519	NONE		30	45	50/77	
DR	PROCESS, 4-12"	DUCTILE IRON	400519	NONE		10	15	50/77	
DR	<4"	GALVANIZED STEEL	400524	PVC SCH 80	400531	10	15	50/77	SEE NOTE 2
SL		DUCTILE IRON	400519	NONE		20	30	50/77	
SUPN		DUCTILE IRON	400519	NONE		10	15	50/77	
PPW	4-12"	DUCTILE IRON	400519	NONE		70	105	50/77	
PPW	<4"	GALVANIZED STEEL	400524	PVC SCH 80	400531	70	105	50/77	SEE NOTE 2
PW	4-12"	DUCTILE IRON	400519	NONE		70	105	50/77	
PW	<4"	GALVANIZED STEEL	400524	PVC SCH 80	400531	70	105	50/77	SEE NOTE 2
SHC		PVC SCH 80	400531	DUAL CONTAINED	400531	30	45	50/77	SEE NOTES 4 AND 5
LAS		PVC SCH 80	400531	DUAL CONTAINED	400531	30	45	50/77	SEE NOTES 4 AND 5
ALC		PVC SCH 80	400531	DUAL CONTAINED	400531	60	90	50/77	SEE NOTES 4 AND 5
POLD		PVC SCH 80	400531	DUAL CONTAINED	400531	60	90	50/77	SEE NOTES 4 AND 5
POLC		PVC SCH 80	400531	DUAL CONTAINED	400531	60	90	50/77	SEE NOTES 4 AND 5
SPC		PVC SCH 80	400531	DUAL CONTAINED	400531	110	165	50/77	SEE NOTES 4 AND 5
CION		PVC SCH 80	400531	NONE		70	105	50/77	SEE NOTES 4 AND 5
LPA		SST	400523	NONE		10	15	50/250	SEE NOTE 12
FLT	PUMP STATION HEADER	DUCTILE IRON	400519	NONE		20	30	50/77	
SPL		GALVANIZED STEEL	400524	PVC SCH 80, SEE NOTE 2	400531	*	*	50/77	SEE NOTES 2 AND 8

- NOTES:**
- SEE DIVISION 09 FOR PIPE PAINTING AND COATING REQUIREMENTS.
 - SEE CITY OF GEORGETOWN STANDARD SPECIFICATION CIP 12 FOR PIPE TESTING REQUIREMENTS.
 - PROVIDE AN INSULATED FLANGE DIELECTRIC ISOLATION KIT AND TRANSITION COUPLING AT EVERY LOCATION WHERE THERE ARE DISSIMILAR METALS DUE TO CONSTRUCTION MATERIAL CHANGE.
 - DUAL CONTAINED PVC REFERS TO SCHEDULE 80 PVC CONTAINMENT PIPE WITH PVC TUBING CARRIER. CHEMICAL PIPING SHALL BE DUAL CONTAINED WHERE INSTALLED IN ANY OF THE FOLLOWING LOCATIONS:
 - BURIED.
 - ABOVE GRADE OUTSIDE OF CONTAINMENT AREA.
 - ABOVE 7-FT FROM FINISHED FLOOR IN CONTAINMENT AREA (EXCEPT FOR CHEMICAL FILL PIPE).
 - CHEMICAL PIPING DOES NOT REQUIRE DUAL CONTAINMENT IF INSTALLED IN CONTAINMENT AREA BELOW 7-FT FROM FINISHED FLOOR, AND ON CHEMICAL FILL LINES.
 - REFER TO PLUMBING DRAWINGS AND SPECIFICATIONS FOR PLUMBING PIPING REQUIREMENTS.
 - SEE SECTION 400507 REGARDING PIPE STRESS ANALYSIS AND DELEGATED DESIGN OF PIPE SUPPORT SYSTEMS.
 - WHERE A SAMPLE LINE IS CONNECTED TO ANOTHER PROCESS LINE, OPERATING AND TEST PRESSURE TO MATCH THE CONNECTED PROCESS LINE FROM WHICH THE SAMPLE IS TAKEN.
 - SEE PIPE SPECIFICATIONS FOR LINING REQUIREMENTS.
 - INSULATION AND HEAT TRACE REQUIREMENTS PER DRAWINGS AND SPECIFICATIONS.
 - MAXIMUM FLOW VELOCITY IN LPA PIPING IS 4000 FEET PER MINUTE.
 - PROVIDE JOINT TYPES AND FITTING TYPES AS INDICATED BELOW UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR SPECIFICATIONS. PROVIDE FLANGED CONNECTIONS WHERE CONNECTING TO FLANGED VALVES OR EQUIPMENT.
 - BELOW GRADE PIPING: AS INDICATED ON DRAWINGS AND SPECIFICATIONS.
 - ABOVE GROUND DUCTILE IRON PIPE: PROVIDE FLANGED FITTINGS AND JOINTS.
 - ABOVE GROUND STAINLESS STEEL PIPE: SEE SECTION 400523.00.
 - ABOVE GROUND CARBON STEEL PIPE 2-INCHES OR LESS: THREADED JOINTS AND FITTINGS.
 - ABOVE GROUND CARBON STEEL PIPE GREATER THAN 2-INCHES PROVIDE: FLANGED FITTINGS. WELDED MAINFOLD PIPING IS ACCEPTABLE.
 - ABOVE GROUND GALVANIZED STEEL PIPE: THREADED FITTINGS AND JOINTS.
 - ABOVE GROUND PVC PIPE: BELL END PIPE, SOLVENT WELDED.
 - DOUBLE CONTAINMENT PIPING REFERS TO PREMANUFACTURED DOUBLE WALLED PIPING. CONTAINED PIPING SHALL BE INSTALLED WHERE THE CION PIPING IS
 - BURIED
 - ABOVE GRADE OUTSIDE OF CONTAINMENT AREA
 - IN VAULTS DESIGNED TO DRAIN RAINWATER

14. PIPE SHALL BE PAINTED IN ACCORDANCE WITH TCEQ 290.42".

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REV. NO.	DATE	DRWN	CHKD	REMARKS
B	NTP	JBF	AMK	FIELD ORDER NO. 1
A	1/19/22	JBF	AMK	CONFORMED DRAWINGS
2	11/16/21	JBF	AKM	REVISED PER ADDENDUM NO. 2
5	12/17/21	JBF	AKM	REVISED PER ADDENDUM NO. 5
6	1/06/22	JBF	AKM	REVISED PER ADDENDUM NO. 6

DESIGNED BY: A. BROWER
 DRAWN BY: S. RAJI
 SHEET CHK'D BY: A. KUMARI
 CROSS CHK'D BY: S. STEWART
 APPROVED BY: A. BROWER
 DATE: DECEMBER 2021

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CITY OF GEORGETOWN, TEXAS

**SOUTH LAKE
 WATER TREATMENT PLANT**

PIPE SCHEDULE

PROJECT NO. 2048-248929
 FILE NAME: G017NFPS.DWG
 SHEET NO.
G-17



GENERAL NOTES FOR YARD PIPING:

- FIELD VERIFY LOCATION, DEPTH, JOINT LOCATIONS AND TYPE, PIPE MATERIAL AND SIZE OF ALL KNOWN PIPES TO BE CONNECTED TO, CROSSED, ETC., PRIOR TO ORDERING MATERIAL OR DOING ANY NEW PIPE WORK.
- PIPELINE MATERIAL SHALL BE IN ACCORDANCE WITH PIPE SCHEDULE ON SHEET G-17.
- ALL YARD PIPING SYSTEMS (EXCEPT GRAVITY DRAINS) SHALL BE RESTRAINED UNLESS OTHERWISE NOTED.
- PIPING THRUST RESTRAINT SHALL BE ACCOMPLISHED USING RESTRAINED JOINTS, RESTRAINED FITTINGS AND VALVES. RESTRAINED DUCTILE IRON PIPE SHALL MEET THE REQUIREMENTS OF SPECIFICATION W1, PARAGRAPH W1.05.E, UNLESS NOTED OTHERWISE. MEGA-LUG SERIES 1100 RESTRAINED JOINTS, OR ENGINEER APPROVED EQUAL, MAY BE USED AT ALL FITTINGS, VALVES, HYDRANTS, AND OTHER APPURTENANCES.
- CONCRETE THRUST BLOCKS MAY BE USED FOR SPECIAL CONDITIONS WHEN APPROVED OR DIRECTED BY THE ENGINEER. REFER TO DETAILS AND NOTES SHOWN ON SHEET C2-11.
- CONTRACTOR SHALL DESIGN, FURNISH, INSTALL, AND MAINTAIN EXCAVATION SAFETY SYSTEMS AS SPECIFIED IN SECTION CIP11.
- ALL BURIED FITTINGS (VALVES, BENDS, TEES, HYDRANTS, ETC.) SHALL HAVE FACTORY RESTRAINTS, MECHANICAL JOINT OR RESTRAINED PUSH-ON CONNECTIONS.
- ALL PIPELINE STATIONING IS FOR THE PIPELINE ITSELF.
- MINIMUM DISTANCE FROM CENTERLINE OF TAP TO NEAREST JOINT SHALL BE PER PIPE MANUFACTURER'S RECOMMENDATIONS. ADJUST TAP LOCATION AS NECESSARY TO COMPLY. PROVIDE ALL FITTINGS, ETC., TO ADJUST NEW PIPE ALIGNMENT.
- CONTRACTOR SHALL REFER TO E/I DRAWINGS TO COORDINATE ELECTRICAL/INSTRUMENTATION CONDUITS AND DUCTS WITH YARD PIPING. CONTRACTOR SHALL ALSO COORDINATE CHEMICAL PIPING BANKS WITH E/I DUCT BANKS AND YARD PIPING.
- SOIL BORING LOCATIONS ARE SHOWN ON SHEET C-7. THE BORING LOGS ARE INCLUDED IN SPECIFICATION SECTION CIP4 FOR THE CONTRACTOR'S USE. GEOTECHNICAL REPORTS ARE AVAILABLE UPON REQUEST FROM THE OWNER AND THE ENGINEER FOR THE CONTRACTOR'S USE.
- UTILITIES AND PIPES TO BE DISTURBED BY NEW WORK SHALL BE PROTECTED.
- CONTRACTOR SHALL REPAIR ALL PAVEMENT DAMAGED DURING CONSTRUCTION. DAMAGED PAVEMENT SHALL BE SAW CUT AND PATCHED IN A RECTANGULAR SHAPE PERPENDICULAR TO CURBS AND STRUCTURES TO MATCH EXISTING CONDITIONS WHICH EXISTED PRIOR TO CONSTRUCTION. SEE DETAILS ON C2 SHEETS. CURBS AND GUTTERS, ETC., THAT ARE DAMAGED OR NEED TO BE REMOVED AS PART OF TRENCH EXCAVATION SHALL BE SAW CUT AND REPLACED PER CIVIL DETAILS. IF SAW CUT LINE FALLS WITHIN 2 FEET OF CURB OR STRUCTURE, REMOVE AND REPLACE PAVEMENT TO CURB OR STRUCTURE.
- CONTRACTOR SHALL REPAIR FENCING DAMAGED DURING CONSTRUCTION. DAMAGED FENCING SHALL RE REPAIRED TO MATCH EXISTING CONDITIONS PRIOR TO CONSTRUCTION. ANY REMOVED FENCING SHALL BE DISPOSED OF AS WASTE.
- FINISHED GRADES SHALL SLOPE UNIFORMLY, LEAVING NO LOW AREAS TO POND WATER.
- THE REQUIREMENT OF THE OWNER/ENGINEER IS TO HAVE PIPELINES INSTALLED TO THE DEPTHS SHOWN ON THE DRAWINGS. THE FLOWLINE ELEVATIONS AND THE PIPELINE PROFILES SHOWN ON THE DRAWINGS ARE SHOWN TO EMPHASIZE THAT NO DIPS, SACS, HUMPS, OR OTHER IRREGULARITIES IN VERTICAL ALIGNMENT ARE ACCEPTABLE. THE PROFILES SHOWN ARE THE INTENDED PROFILES CONSIDERING TOPOGRAPHY, EXISTING KNOWN UTILITIES, AND OTHER KNOWN CONDITIONS. VARIANCES FROM PROFILES MAY BE NECESSARY IF OTHER UTILITIES OR OBSTRUCTIONS ARE ENCOUNTERED DURING WORK. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL KNOWN EXISTING UTILITIES PRIOR TO ORDERING MATERIALS AND INSTALLING THE PIPELINE SO THAT CONFLICTS CAN BE AVOIDED AND ACCEPTABLE PROFILES CAN BE ESTABLISHED PRIOR TO INSTALLATION OF THE PIPELINE. IF, FOR ANY REASON, THE PROFILE ELEVATIONS SHOWN OR THE NATURAL GROUND ELEVATIONS AT THE PIPE CENTERLINE WOULD RESULT IN LESS COVER THAN IS SHOWN, THE OWNER/ENGINEER RESERVES THE RIGHT TO MAKE REASONABLE ADJUSTMENTS IN THE PIPE PROFILES TO PROVIDE AN ACCEPTABLE COVER. NO PRICE ADJUSTMENTS WILL BE MADE FOR THESE SITUATIONS.
- UNLESS OTHERWISE NOTED, ALL FLEXIBLE COUPLINGS, FLANGE COUPLING ADAPTERS, ETC., SHALL HAVE HARNESS PER DETAILS ON MZ-7 AND AWWA M11.
- IN SITUATIONS WHERE THE PLANS INDICATE POSSIBLE SPACE CONFLICTS BETWEEN NEW BURIED PIPING AND EXISTING UTILITY PIPING, ELECTRICAL CONDUITS, ETC., INCLUDING LOCATIONS WHERE THE EXISTING PIPING WILL BE WITHIN THE LIMITS OF TRENCHING FOR THE NEW PIPE, THE CONTRACTOR SHALL DO THE FOLLOWING:
 - FIELD LOCATE EXISTING PIPING AND DETERMINE THE ACTUAL EXTENT AND NATURE OF CONFLICT, IF ANY
 - IF CONTRACTOR CAN "WORK AROUND" THE EXISTING PIPING, IN THE ENGINEER'S OPINION, THE EXISTING PIPING SHALL BE SUPPORTED AND PROTECTED AND KEPT IN SERVICE AS SPECIFIED ELSEWHERE
 - IF THERE IS AN UNWORKABLE CONFLICT, IN THE ENGINEER'S OPINION, THE CONTRACTOR SHALL PROPOSE A SOLUTION ACCEPTABLE TO THE ENGINEER AND ADJUST OR REROUTE THE NEW OR EXISTING PIPE AS NECESSARY TO ELIMINATE THE CONFLICT
 - THIS WORK WILL BE CONSIDERED TO BE PART OF THE BASIC CONTRACT WORK AND NO ADDITIONAL PAYMENT WILL BE MADE FOR ADJUSTMENTS/REROUTES FOR EXISTING PIPING SHOWN ON THE PLANS.
 - IN SITUATIONS SIMILAR TO THE ABOVE, BUT WHERE THE DRAWINGS DO NOT INDICATE A CONFLICT, SUCH AS IN THE CASE OF AN EXISTING LINE NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL FOLLOW THE SAME PROCEDURE AS ABOVE. UNDER THIS SITUATION, PAYMENT WILL BE MADE TO THE CONTRACTOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- ALL PROPOSED AND EXISTING PIPING CROSSINGS MAY NOT BE SHOWN ON PROFILE SHEETS. REFER TO PLAN SHEETS FOR LOCATIONS OF ALL PIPING CROSSINGS.
- REFER TO VALVE SCHEDULE IN SECTION 400551 FOR VALVE OPERATOR REQUIREMENTS (MANUAL VERSUS MOTORIZED, ETC)
- AT LOCATIONS WHERE A BUTTERFLY VALVE IS SHOWN TO BE INSTALLED NEXT TO A TEE, CROSS, ETC., THE BVF SHALL BE INSTALLED FAR ENOUGH AWAY FROM THE FITTING OR PLUG THAT THE BVF DISC DOES NOT EXTEND TO WITHIN 12 INCHES OF THE FITTING'S MAIN FLOWSTREAM OR WITHIN 12 INCHES OF THE PLUG WHEN THE BVF IS IN THE FULL-OPEN POSITION. CONTRACTOR SHALL FURNISH AND INSTALL SPOOL PIECES AS NECESSARY TO PROPERLY LOCATE THE BVF AWAY FROM THE FITTING OR PLUG AS SPECIFIED HEREIN.
- YARD PIPING PROFILES ARE SET BY FLOWLINE (INVERT) ELEVATIONS. PROCESS MECHANICAL PIPING PROFILES/ELEVATIONS ARE GENERALLY SET BY PIPE CENTERLINE ELEVATIONS. WHERE YARD PIPING AND PROCESS MECHANICAL PIPING CONNECT, THE CONTRACTOR SHALL COORDINATE THE INTERFACE CONNECTION PROCESS SO THAT THERE WILL BE NO MISCONNECTS REQUIRING ADDITIONAL FITTINGS, ETC.
- ALL YARD PIPELINES WITH LESS THAN 3 FEET OF COVER AND ALL CHEMICAL LINES IN THE YARD SHALL BE CONCRETE ENCASED BELOW THE ROAD PAVEMENT IN ACCORDANCE WITH DETAILS B AND C ON SHEET C2-2 AND SIMILAR TO DETAIL A ON SHEET EZ-1, AS APPLICABLE.
- CONTRACTOR SHALL INSTALL TRACER WIRE AND ASSOCIATED TEST STATIONS FOR ALL YARD PIPELINES, INCLUDING THE RAW WATER LINE FROM THE LAKE TO THE WATER TREATMENT PLANT, IN ACCORDANCE WITH THE CITY STANDARD DESIGN DETAILS.
- PERFORM GEOPHYSICAL INVESTIGATION ACCORDING TO SECTION 31 20 00 - EARTHWORK PRIOR TO BACKFILLING ANY FOUNDATION EXCAVATION.
- FOR RAW WATER, ALL COMBINATION AIR VALVES SHALL BE SLOW-CLOSING, NON-SLAM TYPE (CAV2).

**Construction General Permit
TPDES General Permit TXR150000**

The SWP3 must include, at a minimum, the information described in this section.
 1. A site or project description, which includes the following information:
 (a) a description of the nature of the construction activity;
 (b) a list of potential pollutants and their sources;
 (c) a description of the intended schedule or sequence of activities that will disturb soils for major portions of the site;
 (d) the total number of acres of the entire property and the total number of acres where construction activities will occur, including off-site material storage areas, overburden and stockpiles of dirt, and borrow areas that are authorized under the permittee's NOI;
 (e) data describing the soil or the quality of any discharge from the site;
 (f) a map showing the general location of the site (e.g. a portion of a city or county map);
 (g) a detailed site map (or maps) indicating the following:
 (i) drainage patterns and approximate slopes anticipated after major grading activities;
 (ii) areas where soil disturbance will occur;
 (iii) locations of all major structural controls either planned or in place;
 (iv) locations where temporary or permanent stabilization practices are expected to be used;
 (v) locations of construction support activities, including off-site activities, that are authorized under the permittee's NOI, including material, waste, borrow, fill, or equipment storage areas;
 (vi) surface waters (including wetlands) either at, adjacent, or in close proximity to the site;
 (vii) locations where storm water discharges from the site directly to a surface water body or a municipal separate storm sewer system; and
 (viii) vehicle wash areas.
 Where the amount of information required to be included on the map would result in a single map being difficult to read and interpret, the operator shall develop a series of maps that collectively include the required information.
 (h) the location and description of support activities authorized under the permittee's NOI, including concrete plants, concrete pumps, and other activities providing support to the construction site that is authorized under this general permit;
 (i) the name of receiving waters at or near the site that may be disturbed or that may receive discharges from disturbed areas of the project;
 (j) a copy of this TPDES general permit, and
 (k) the notice of intent (NOI) and acknowledgement certificate for primary operators of large construction sites, and the site notice for small construction sites and for secondary operators of large construction sites.

2. A description of the best management practices (BMPs) that will be used to minimize pollution in runoff.
 The description must identify the general timing or sequence for implementation. At a minimum, the description must include the following components:
 (a) General Requirements
 (i) Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall.
 (ii) Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications.
 (iii) Controls must be developed to minimize the offsite transport of litter, construction debris, and construction materials.
 (b) Erosion Control and Stabilization Practices
 The SWP3 must include a description of temporary and permanent erosion control and stabilization practices for the site, including a schedule of when the practices will be implemented. Site plans should ensure that existing vegetation is preserved where it is possible.
 (i) Erosion control and stabilization practices may include but are not limited to: establishment of temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, slope texturing, temporary velocity dissipation devices, flow diversion mechanisms, and other similar measures.
 (ii) The following records must be maintained and either attached to or referenced in the SWP3, and made readily available upon request to the parties listed in Part III.D.1 of this general permit:
 (A) the dates when major grading activities occur;
 (B) the dates when construction activities temporarily or permanently cease on a portion of the site; and
 (C) the dates when stabilization measures are initiated.
 (iii) Erosion control and stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily ceased. Stabilization measures that provide a protective cover must be initiated as soon as practicable in portions of the site where construction activities have permanently ceased. Except as provided in (A) through (D) below, these measures must be initiated no more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

**Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes**

- Written construction notification must be given to the appropriate TCEQ regional office no later than 48 hours prior to commencement of the regulated activity. Information must include the date on which the regulated activity will commence, the name of the approved plan for the regulated activity, and the name of the prime contractor and the name and telephone number of the contact person.
- All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.
- If any sensitive feature is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. The regulated activities near the sensitive feature may not proceed until the TCEQ has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality.
- No temporary aboveground hydrocarbon and hazardous substance storage tank system is installed within 150 feet of a domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
- Prior to commencement of construction, all temporary erosion and sedimentation (E&S) control measures must be properly selected, installed, and maintained in accordance with the manufacturers specifications and good engineering practices. Controls specified in the temporary storm water section of the approved Edwards Aquifer Protection Plan are required during construction. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. The controls must remain in place until disturbed areas are revegetated and the areas have become permanently stabilized.
- If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
- Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake must be provided that can indicate when the sediment occupies 50% of the basin volume.
- Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).
- All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.
- Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Where the initiation of stabilization measures by the 14th day after construction activity temporary or permanently cease is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.
- The following records shall be maintained and made available to the TCEQ upon request: the dates when major grading activities occur; the dates when construction activities temporarily or permanently cease on a portion of the site; and the dates when stabilization measures are initiated.
- The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
 - A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
 - B. any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
 - C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

Austin Regional Office
 12100 Park 35 Circle
 Austin, Texas 78753
 Phone (512) 239-6731
 Fax (512) 239-4390

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

THRUST RESTRAINT NOTES:

- THE DISTANCES SHOWN ABOVE INDICATE THE MINIMUM REQUIRED RESTRAINED LENGTHS FOR THE FINISHED INSTALLATION. ADDITIONAL RESTRAINTS ARE REQUIRED IF TEMPORARY PLUGS OR OTHER FITTINGS ARE USED FOR PIPELINE TESTING. NO SEPARATE PAY.
- SEGMENTS OF PIPE IN VAULTS OR IN CASING PIPE DO NOT COUNT TOWARD THE REQUIRED RESTRAINED LENGTH.
- ALL FITTINGS, VALVES, HYDRANTS, AND OTHER APPURTENANCES SHALL BE RESTRAINED.
- THE END OF THE LINE SHALL BE RESTRAINED A MINIMUM DISTANCE EQUAL TO A DEAD END.
- VALVE LOCATIONS SHALL BE RESTRAINED IN BOTH DIRECTIONS A MINIMUM DISTANCE EQUAL TO A DEAD END.
- THE PRIMARY LENGTHS SHOWN ABOVE ARE BASED ON POLYETHYLENE ENCASED DUCTILE IRON PIPE WITH FOUR FEET OF COVER AND A FACTOR OF SAFETY OF 2.0 AT A PRESSURE OF 150 PSI.
- FOR ANY GIVEN PIPE MATERIAL, THE CONTRACTOR MAY PROPOSE ALTERNATE RESTRAINED LENGTHS FOR THE ENGINEER'S CONSIDERATION BY FILING A WRITTEN REQUEST PREPARED BY THE PIPE MANUFACTURER AND SUPPORTED BY DETAILED CALCULATIONS PREPARED AND SEALED BY A LICENSED ENGINEER. ALL SUCH CALCULATIONS SHALL BE BASED ON THE APPLICABLE TEST PRESSURE AND A FACTOR OF SAFETY OF 2.0.

RESTRAINED JOINT SCHEDULE	
BEND ANGLE OR FITTING DESCRIPTION	MINIMUM RESTRAINT LENGTH (FT) @ 4.0 FT BURIAL DEPTH FOR DI
	150 PSI TEST PRESSURE
11.25° - 42° HORIZONTAL BEND	10
22.50° - 42° HORIZONTAL BEND	21
45.00° - 42° HORIZONTAL BEND	42
90.00° - 42° HORIZONTAL BEND	102
	UPWARD DOWNWARD
11.25° - 42° VERTICAL BEND	10 45
22.50° - 42° VERTICAL BEND	21 91
42° TEE	20
DEAD END OR VALVE, 42°	456

RAW WATER RESTRAINED PIPE SECTIONS	
STARTING STATION	ENDING STATION
0+00.00	0+86.57
7+56.57	7+96.57
9+45.06	9+85.06
11+05.06	11+45.06
16+14.36	17+30.45
20+34.36	20+74.36
22+40.52	24+42.74
25+42.74	25+82.74
26+84.92	28+73.99
34+23.00	WTP

DESIGNED BY: A. KARAMEGOS
 DRAWN BY: D. SANDEFUR
 SHEET CHK'D BY: A. BROWER
 CROSS CHK'D BY: A. RHAMES
 APPROVED BY: A. KARAMEGOS
 DATE: DECEMBER 2021



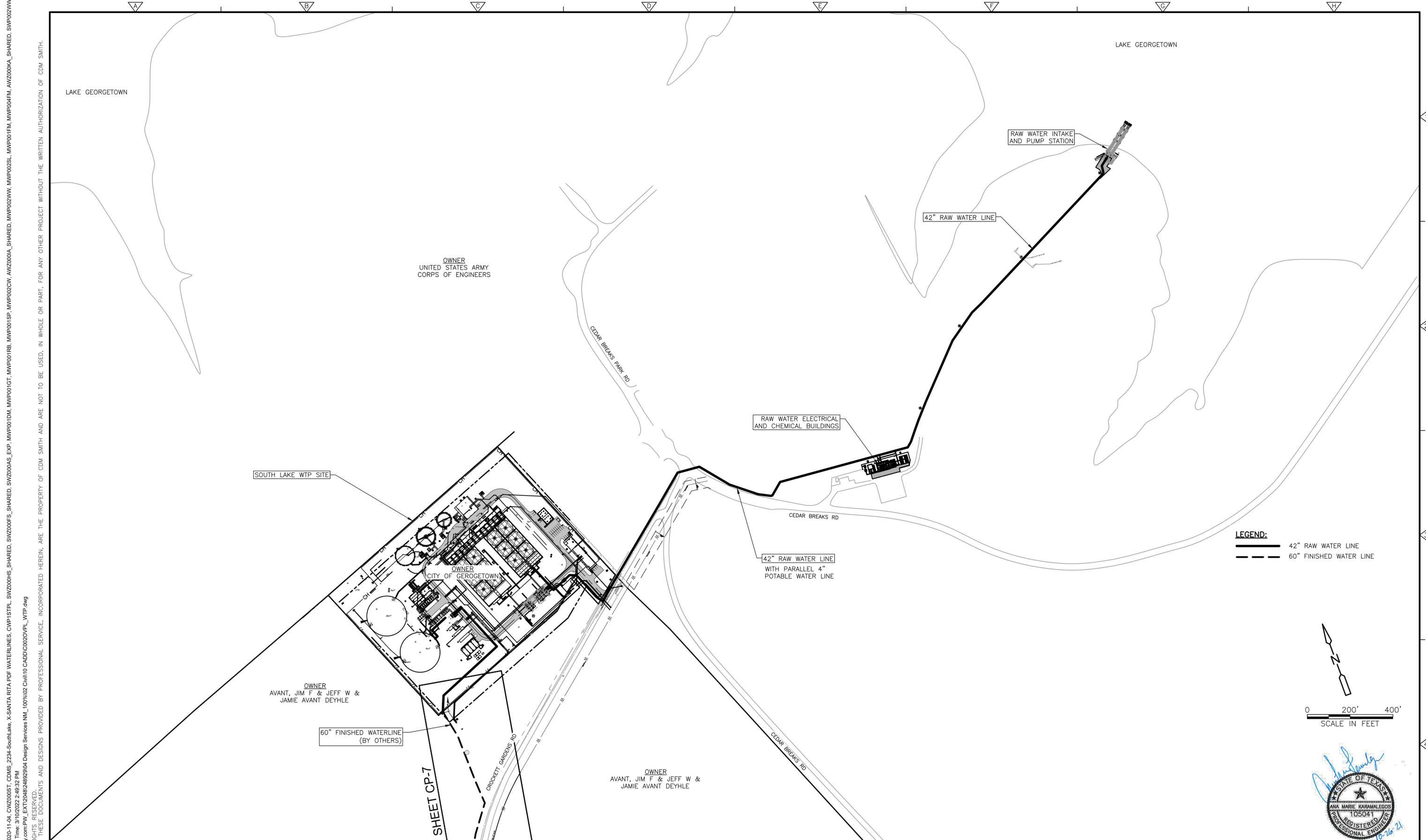
CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

GENERAL CIVIL NOTES

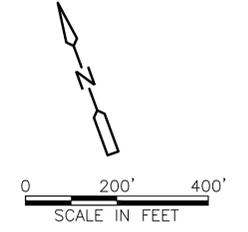
PROJECT NO. 2048-248929
 FILE NAME: C001YPNT
 SHEET NO.

C-1





LEGEND:
 ——— 42" RAW WATER LINE
 - - - 60" FINISHED WATER LINE



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REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	RSM	AMK	CONFORMED DRAWING

DESIGNED BY: A. KARAMEGOS
 DRAWN BY: D. SANDEFUR
 SHEET CHK'D BY: A. RHAMES
 CROSS CHK'D BY: A. BROWER
 APPROVED BY: A. KARAMEGOS
 DATE: DECEMBER 2021



CITY OF GEORGETOWN, TEXAS
SOUTH LAKE WATER TREATMENT PLANT

OVERALL PROJECT CIVIL PLAN

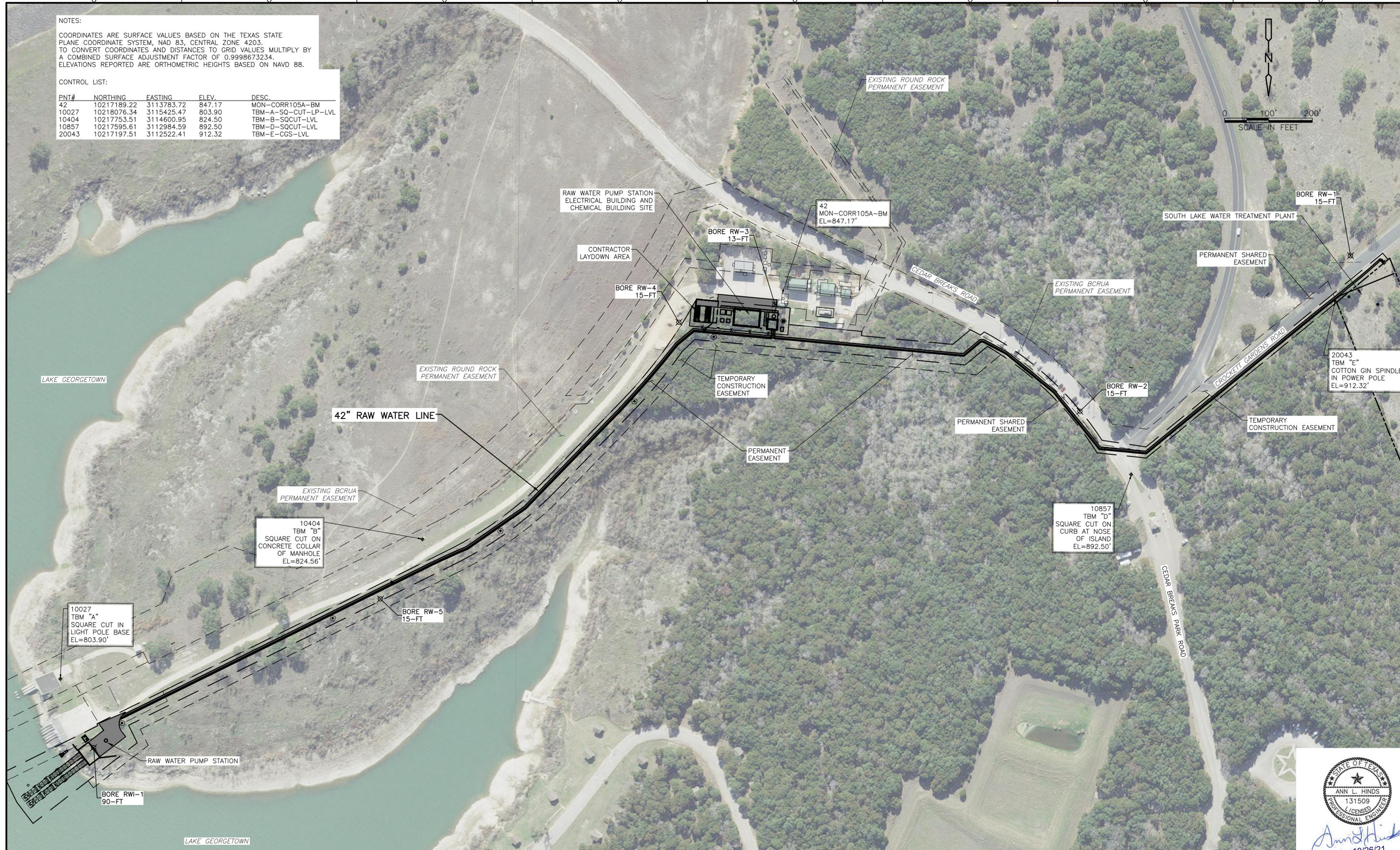
PROJECT NO. 2048-248929
 FILE NAME: C0020VPL_WTP
 SHEET NO. **C-2**

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NOTES:
 COORDINATES ARE SURFACE VALUES BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, NAD 83, CENTRAL ZONE 4203. TO CONVERT COORDINATES AND DISTANCES TO GRID VALUES MULTIPLY BY A COMBINED SURFACE ADJUSTMENT FACTOR OF 0.9998673234. ELEVATIONS REPORTED ARE ORTHOMETRIC HEIGHTS BASED ON NAVD 88.

CONTROL LIST:

PNT#	NORTHING	EASTING	ELEV.	DESC.
42	10217189.22	3113783.72	847.17	MON-CORR105A-BM
10027	10218076.34	3115425.47	803.90	TBM-A-SQ-CUT-LP-LVL
10404	10217753.51	3114600.95	824.50	TBM-B-SQCUT-LVL
10857	10217595.61	3112984.59	892.50	TBM-D-SQCUT-LVL
20043	10217197.51	3112522.41	912.32	TBM-E-CGS-LVL



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REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	RSM	AMK	CONFORMED DRAWING

DESIGNED BY: A. HINDS
 DRAWN BY: D. SANDEFUR
 SHEET CHK'D BY: A. KARAMALEGOS
 CROSS CHK'D BY: A. WOEKLE
 APPROVED BY: A. HINDS
 DATE: OCTOBER 2021

CDM Smith
 9430 RESEARCH BLVD., SUITE 1-200
 Austin, TX 78759
 Tel: (512) 346-1100
 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

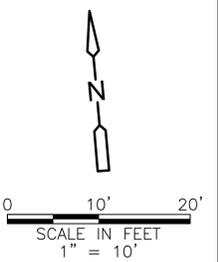
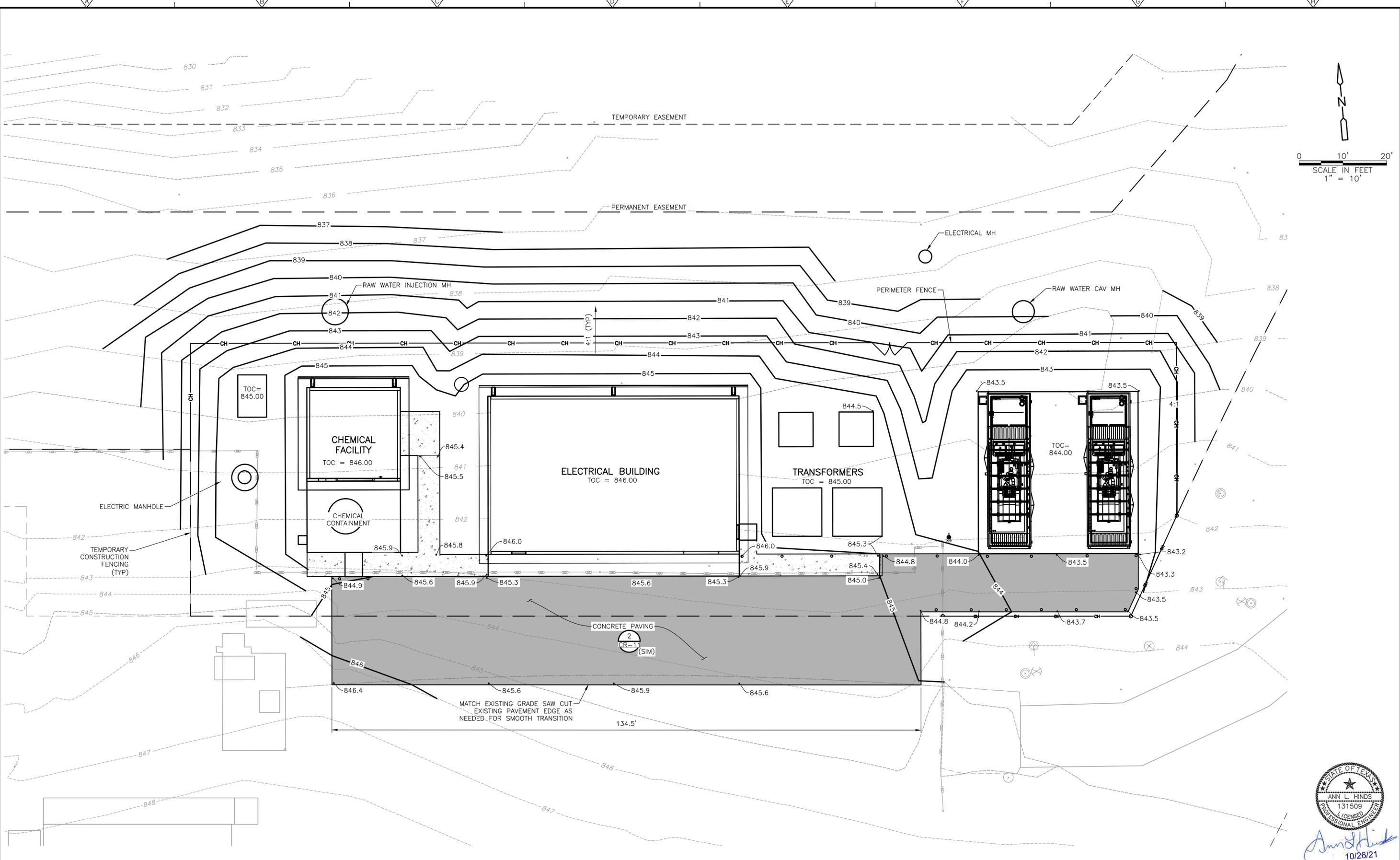
RAW WATER
 OVERALL SITE LAYOUT,
 CONTROL AND BORING PLAN

PROJECT NO. 2048-248929
 FILE NAME: CO08RWPL
 SHEET NO. C-8

STATE OF TEXAS
 ANN L. HINDS
 131509
 LICENSED PROFESSIONAL ENGINEER
Ann L. Hinds
 10/26/21

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REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	RSM	AMK	CONFORMED DRAWING

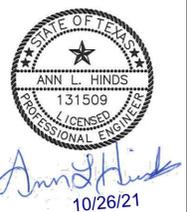
DESIGNED BY: A. HINDS
 DRAWN BY: D. SANDEFUR
 SHEET CHK'D BY: A. RHAMES
 CROSS CHK'D BY: A. WOEKLE
 APPROVED BY: S. HINDS
 DATE: OCTOBER 2021

CDM Smith
 9430 RESEARCH BLVD., SUITE 1-200
 Austin, TX 78759
 Tel: (512) 346-1100
 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

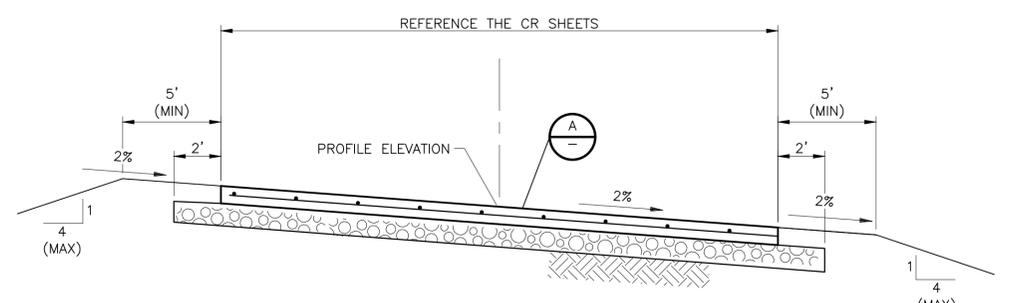
RAW WATER ELECTRICAL
 AND CHEMICAL BUILDINGS
 PAVING AND GRADING PLAN

PROJECT NO. 2048-248929
 FILE NAME:
 SHEET NO.
CR-10

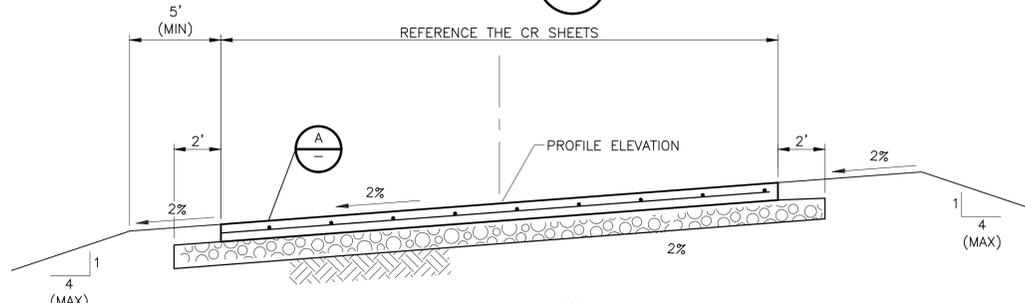


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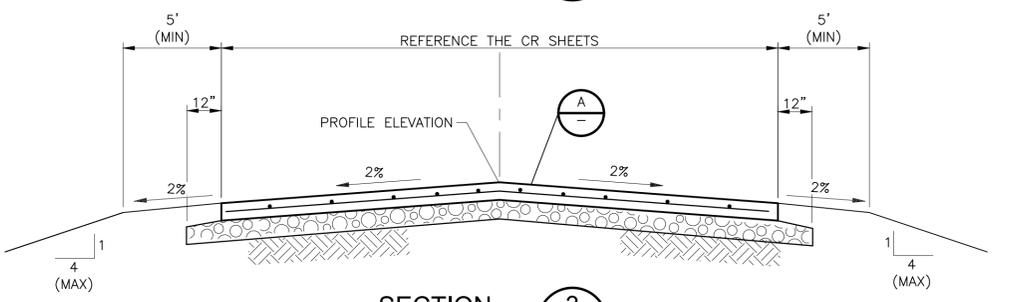
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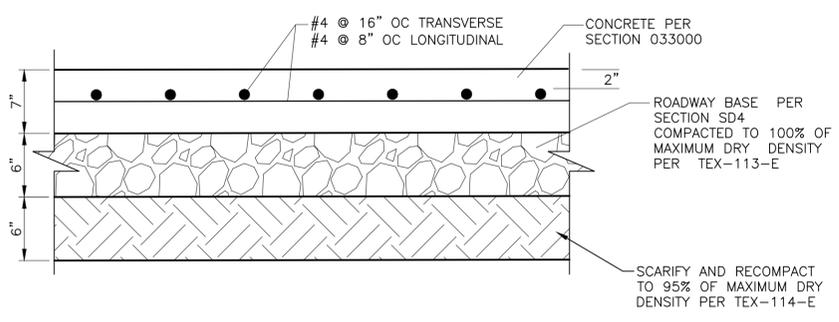
SECTION 1
NTS



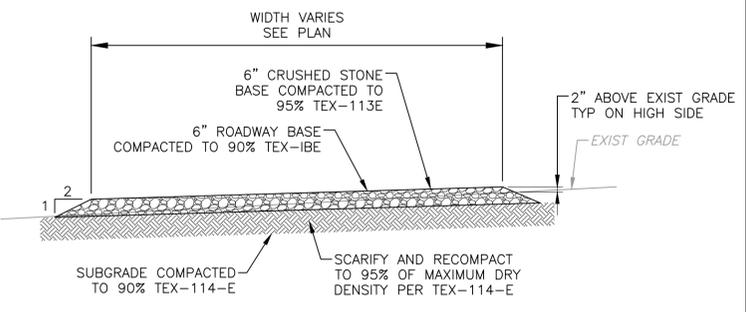
SECTION 2
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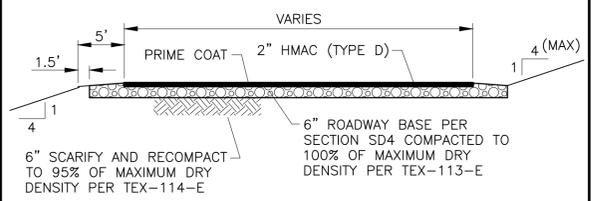
SECTION 3
NTS



TYPICAL CONCRETE PAVING SECTION
DETAIL A
NTS

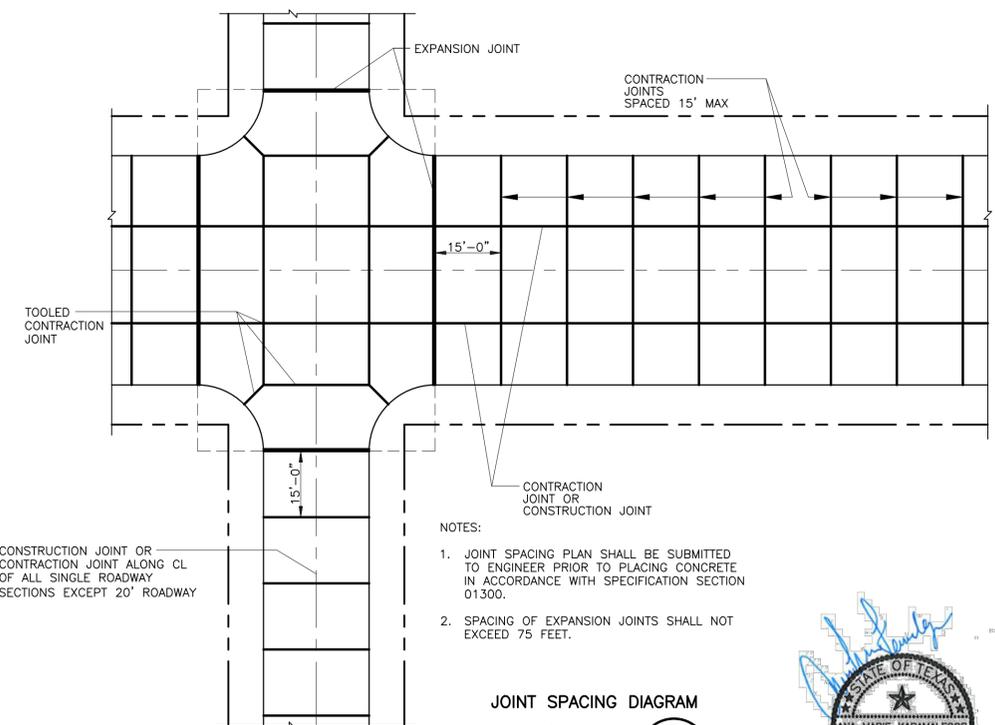


GRAVEL ACCESS ROAD
DETAIL B
NTS



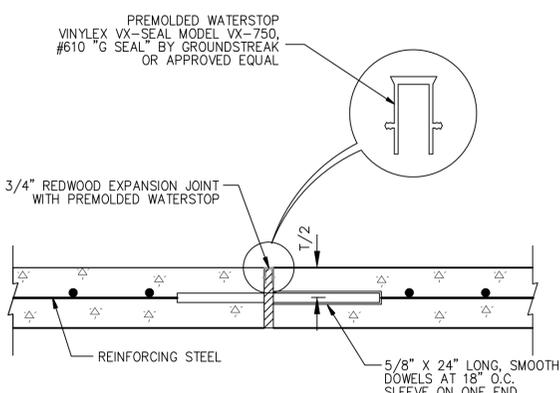
NOTE:
1. ASPHALT ROAD SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTIONS SD1 HOT MIX ASPHALTIC CONCRETE PAVEMENT AND SD4 FLEXIBLE BASE.

ASPHALT ROAD
DETAIL E
NTS

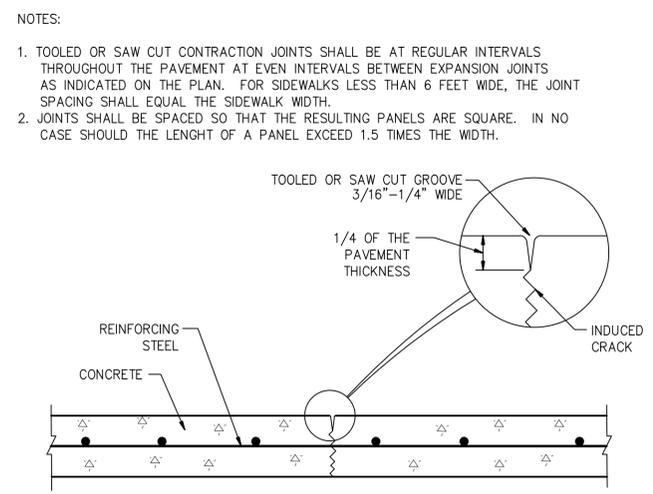


NOTES:
1. JOINT SPACING PLAN SHALL BE SUBMITTED TO ENGINEER PRIOR TO PLACING CONCRETE IN ACCORDANCE WITH SPECIFICATION SECTION 01300.
2. SPACING OF EXPANSION JOINTS SHALL NOT EXCEED 75 FEET.

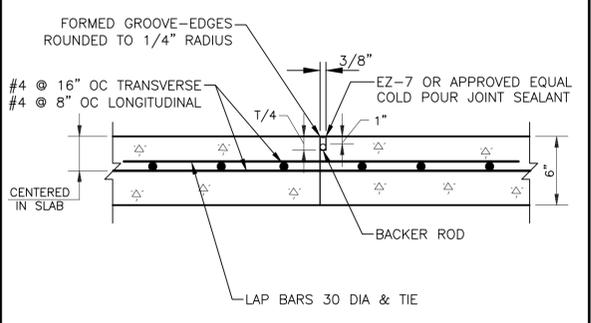
JOINT SPACING DIAGRAM
DETAIL G
NTS



EXPANSION JOINT
DETAIL C
NTS



CONTRACTION JOINT
DETAIL D
NTS



CONSTRUCTION JOINT
DETAIL F
NTS

NOTES:
1. TOOLED OR SAW CUT CONTRACTION JOINTS SHALL BE AT REGULAR INTERVALS THROUGHOUT THE PAVEMENT AT EVEN INTERVALS BETWEEN EXPANSION JOINTS AS INDICATED ON THE PLAN. FOR SIDEWALKS LESS THAN 6 FEET WIDE, THE JOINT SPACING SHALL EQUAL THE SIDEWALK WIDTH.
2. JOINTS SHALL BE SPACED SO THAT THE RESULTING PANELS ARE SQUARE. IN NO CASE SHOULD THE LENGTH OF A PANEL EXCEED 1.5 TIMES THE WIDTH.

REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	RSM	AMK	CONFORMED DRAWING

DESIGNED BY: A. KARAMALEGOS
DRAWN BY: D. SANDEFUR
SHEET CHK'D BY: A. RHAMES
CROSS CHK'D BY: A. BROWER
APPROVED BY: A. KARAMALEGOS
DATE: OCTOBER 2021

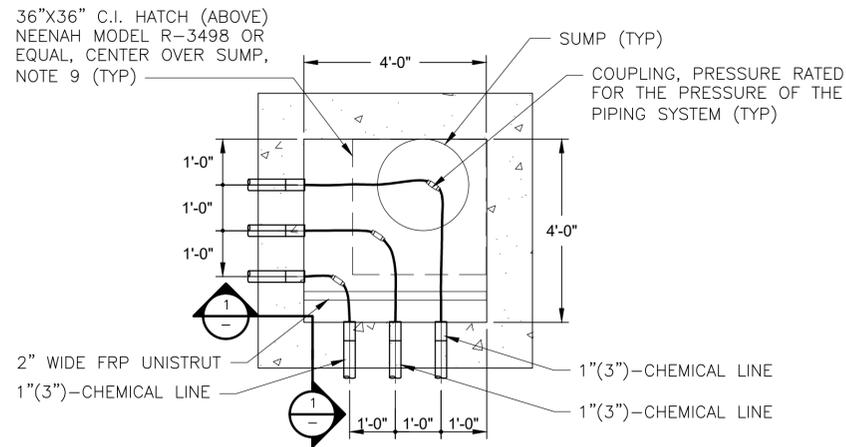


CITY OF GEORGETOWN, TEXAS
SOUTH LAKE
WATER TREATMENT PLANT

TYPICAL ROAD SECTIONS AND PAVING DETAILS

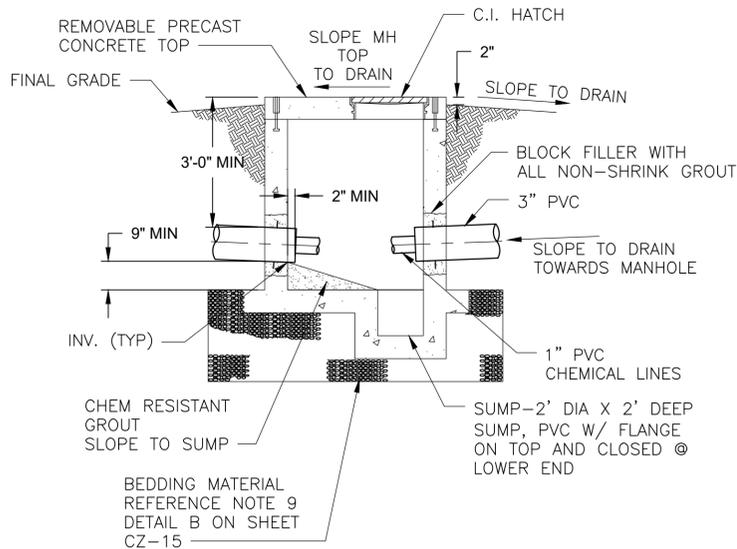
PROJECT NO. 2048-248929
FILE NAME: CR11SCDT
SHEET NO. CR-11

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CHEMICAL PIPE VAULT NO. 4
 (SIMILAR TO CHEMICAL PIPE VAULT NOS. 1 - 3)

DETAIL **A**
 1/2" = 1'-0" **CY-3**



SECTION **1**
 NTS

CHEMICAL PIPE VAULTS (CH) GENERAL NOTES:

1. THE YARD PIPING CHEMICAL SYSTEMS DRAWINGS (SHEET CY-1 AND CY-3) SHOW THE LOCATION OF THE CH VAULTS AS WELL AS THE SIZE AND ROUTING OF THE CHEMICAL FEED LINES. REFER TO SHEET CY-3 AND TO THE CY PROFILE SHEETS FOR THE ELEVATION OF THE CHEMICAL LINES.
2. THE CHEMICAL CONTAINMENT LINES SHALL BE CONTINUOUS BETWEEN VAULTS AND STRUCTURES IN ACCORDANCE WITH THE ELEVATIONS SHOWN ON THE YARD PIPING DRAWINGS. WHERE LOCAL INTERFERENCES OCCUR, THE CHEM PIPES CAN BE ADJUSTED TO MISS THE INTERFERENCE PROVIDED THAT CHEM PIPES REMAIN SELF-DRAINING BETWEEN VAULTS AND STRUCTURES.
3. SHALL HAVE A SHUTOFF VALVE AT EACH LOCATION WHERE EACH CHEM PIPE ENTERS AND EXITS THE VAULTS. VALVES SHALL BE BALL VALVES. EXCEPT FOR VALVES ON THE SODIUM HYPOCHLORITE PIPES. THE SODIUM HYPOCHLORITE PIPES SHALL HAVE DIAPHRAGM VALVES.
4. PROVIDE CAST IRON, FLUSH, HEAVY DUTY, SPRING-ASSISTED-TO-HOLD-OPEN, H-29 RATED HATCHES, W/ GASKETS AND T-HANDLE OPENER. PROVIDE 2" CLOSE CELL FORM INSIDE MH COVER.
5. FOR PRECAST VAULTS:
 PROVIDE JOINTS AS NECESSARY FOR FABRICATION AND INSTALLATION. INSTALL NON-SHRINK GROUT OR RAM-NEK COMPOUND OR EQUAL TO MAKE ALL JOINTS WATER TIGHT.
 PROVIDE REMOVABLE H-20 RATED CONCRETE OVER. PROVIDE GALV STL LIFTING EYES AT CORNER BALANCE POINTS FOR SLAB REMOVAL.
 INSTALL CHEMICAL STORAGE COATING ON THE INTERIOR WALLS AND FLOOR IN ACCORDANCE WITH SPECIFICATION SECTION 099673.33. THE COATING PRODUCT SHALL BE BASED CHEMICAL ASSOCIATED WITH THE SPECIFIC MANHOLE.



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	RSM	AMK	CONFORMED DRAWING

DESIGNED BY: A. KARAMEGOS
 DRAWN BY: D. SANDEFUR
 SHEET CHK'D BY: A. RHAMES
 CROSS CHK'D BY: A. BROWER
 APPROVED BY: A. KARAMEGOS
 DATE: DECEMBER 2021

CDM Smith
 9430 RESEARCH BLVD., SUITE 1-200
 Austin, TX 78759
 Tel: (512) 346-1100
 TBPE Firm Registration No. F-3043

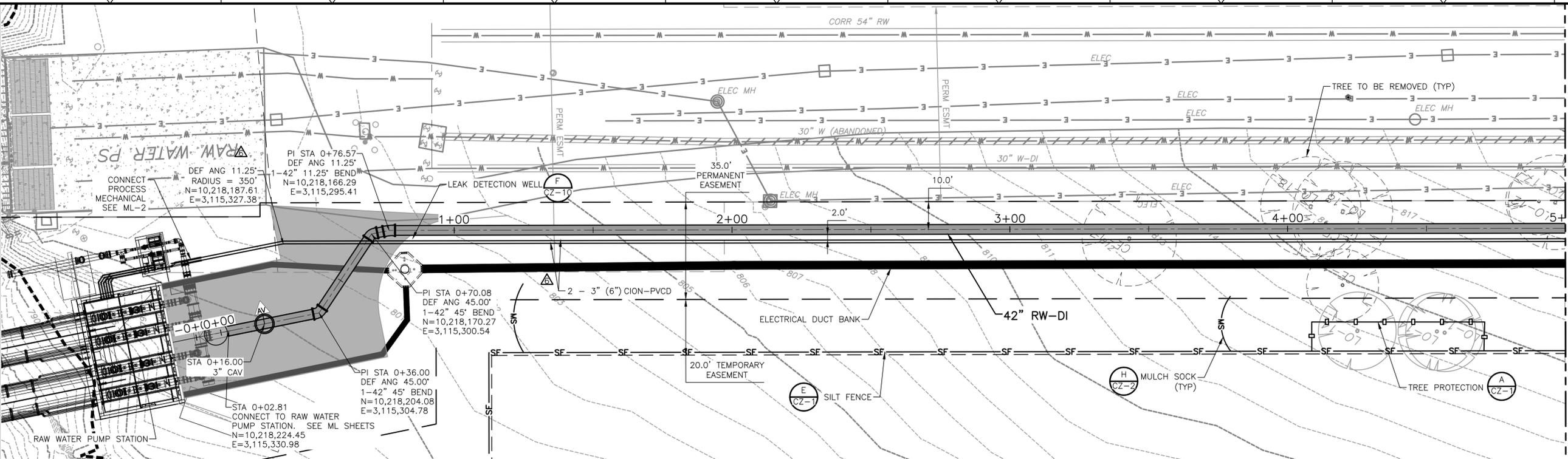
CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

CHEMICAL INJECTION VAULT
 DETAIL AND SECTION

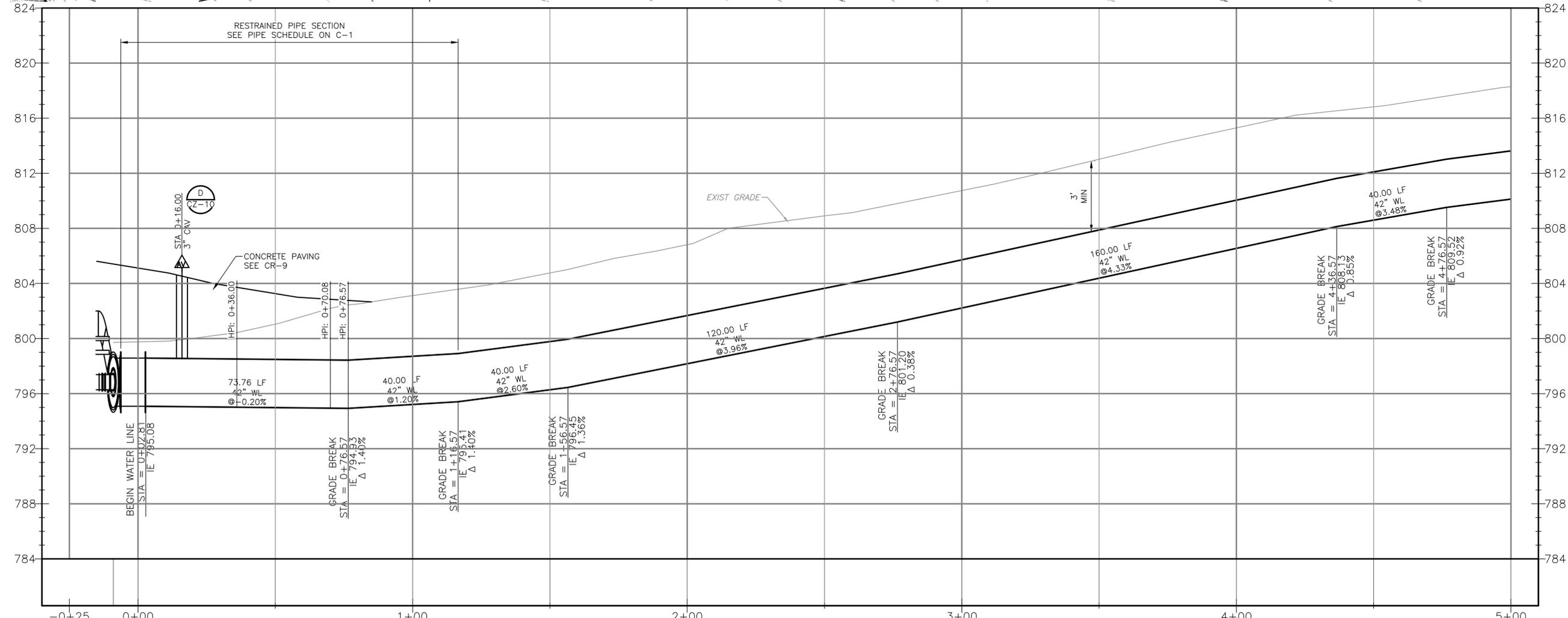
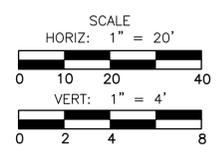
PROJECT NO. 2048-248929
 FILE NAME: CY19YPT
 SHEET NO. **CY-19**

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NOTE:
1. LEAK DETECTION WELLS SHALL BE INSTALLED AT ALL LOCAL LOW POINTS ALONG THE 3"(6") CION LINE. THIS INCLUDES ANY SAGS LOCATED IN THE LINE DUE TO FIELD ADJUSTMENTS.



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	DWS	ALH	CONFORMED DRAWINGS
6	1/6/22	DWS	ALH	ADDENDUM No 6

DESIGNED BY: A. HINDS
DRAWN BY: D. SANDEFUR
SHEET CHK'D BY: K. HAMAD
CROSS CHK'D BY: A. WOEKLE
APPROVED BY: A. HINDS
DATE: DECEMBER 2021

CDM Smith
9430 RESEARCH BLVD., SUITE 1-200
Austin, TX 78759
Tel: (512) 346-1100
TBPE Firm Registration No. F-3043

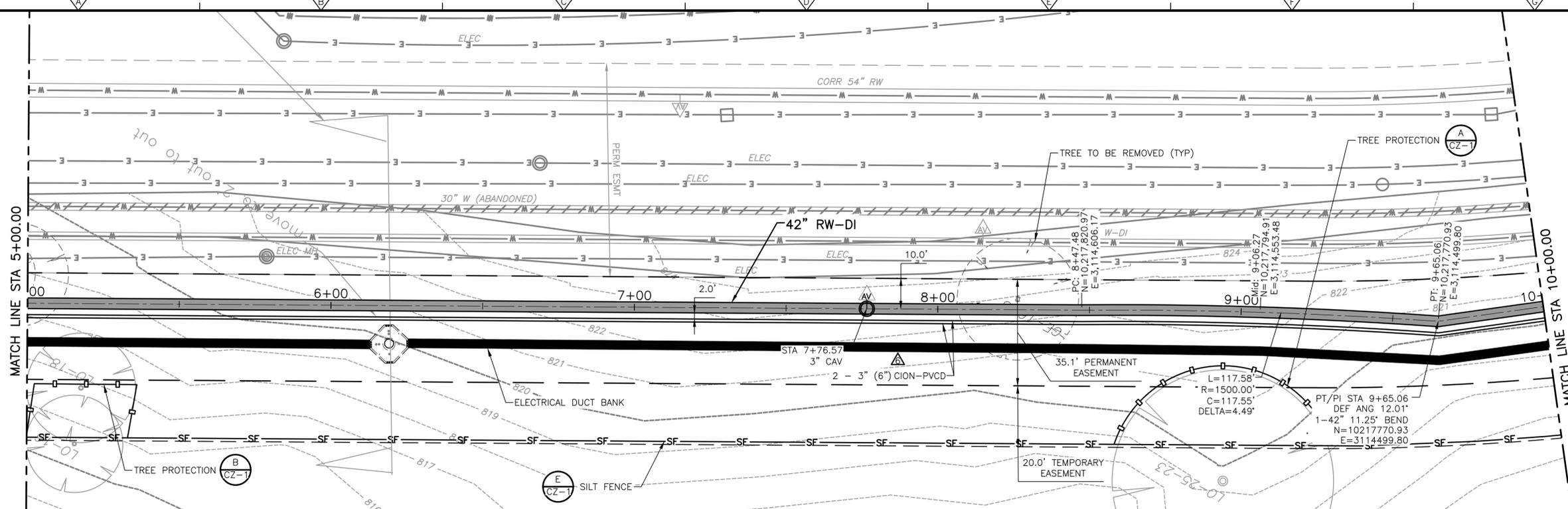
CITY OF GEORGETOWN, TEXAS
SOUTH LAKE
WATER TREATMENT PLANT

PLAN AND PROFILE
STA 0+00 TO STA 5+00
RAW WATER LINE

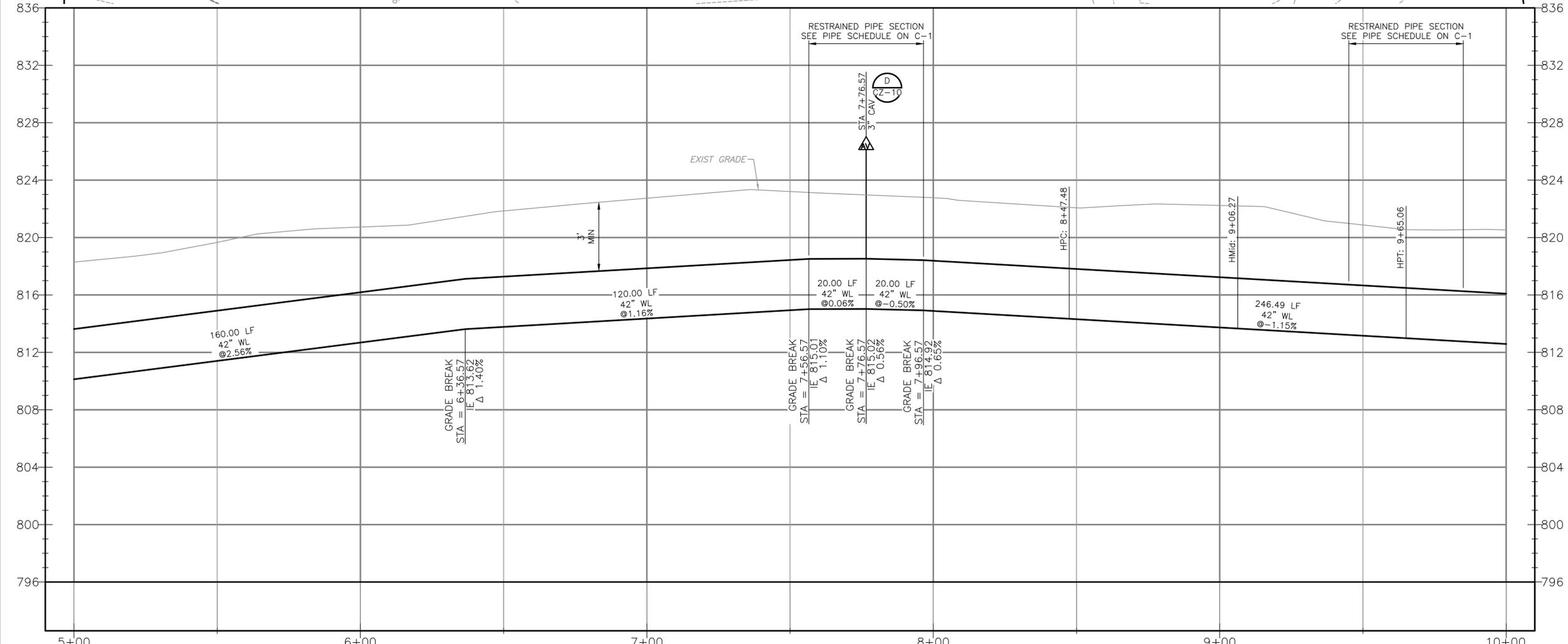
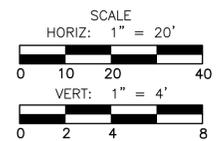
PROJECT NO. 2048-248929
FILE NAME: CP01RWP
SHEET NO.
CP-2

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NOTE:
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REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	DWS	ALH	CONFORMED DRAWINGS
6	1/6/22	DWS	ALH	ADDENDUM No 6

DESIGNED BY: A. HINDS
 DRAWN BY: D. SANDEFUR
 SHEET CHK'D BY: K. HAMAD
 CROSS CHK'D BY: A. WOEKLE
 APPROVED BY: A. HINDS
 DATE: DECEMBER 2021

CDM Smith
 9430 RESEARCH BLVD., SUITE 1-200
 Austin, TX 78759
 Tel: (512) 346-1100
 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

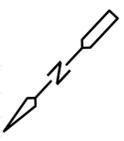
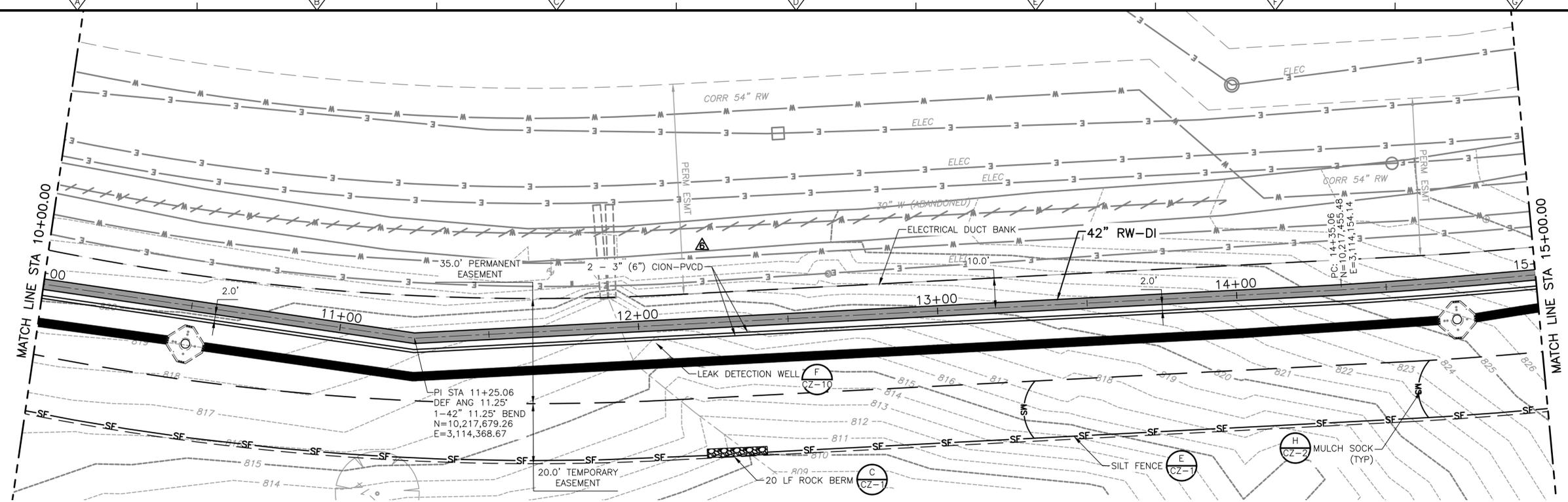
PLAN AND PROFILE
 STA 5+00 TO STA 10+00
 RAW WATER LINE

PROJECT NO. 2048-248929
 FILE NAME: CP01RWP
 SHEET NO. CP-3

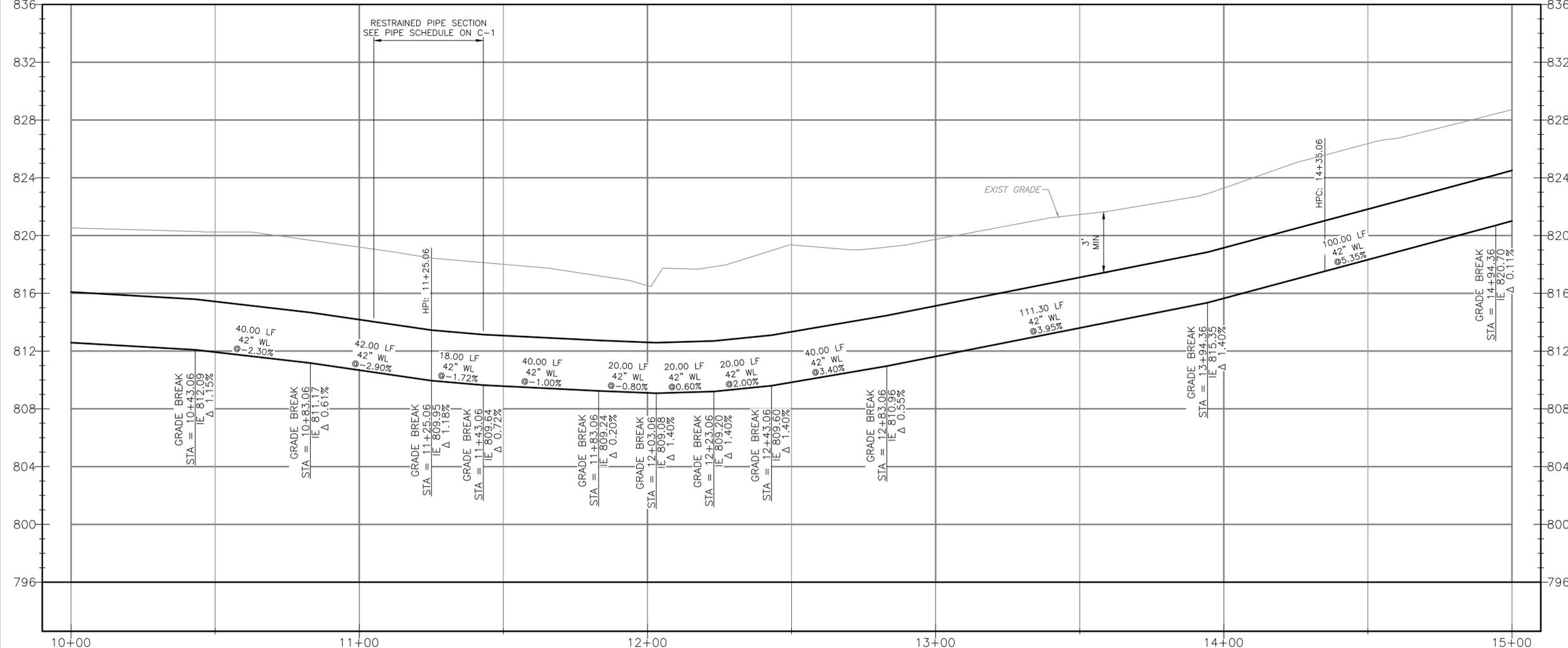
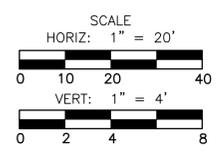


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NOTE:
 1. LEAK DETECTION WELLS SHALL BE INSTALLED AT ALL LOCAL LOW POINTS ALONG THE 3"(6") CION LINE. THIS INCLUDES ANY SAGS LOCATED IN THE LINE DUE TO FIELD ADJUSTMENTS.



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	DWS	ALH	CONFORMED DRAWINGS
6	1/6/22	DWS	ALH	ADDENDUM No 6

DESIGNED BY: A. HINDS
 DRAWN BY: D. SANDEFUR
 SHEET CHK'D BY: K. HAMAD
 CROSS CHK'D BY: A. WOEKLE
 APPROVED BY: A. HINDS
 DATE: DECEMBER 2021

CDM Smith
 9430 RESEARCH BLVD., SUITE 1-200
 AUSTIN, TX 78759
 TEL: (512) 346-1100
 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

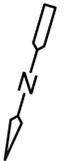
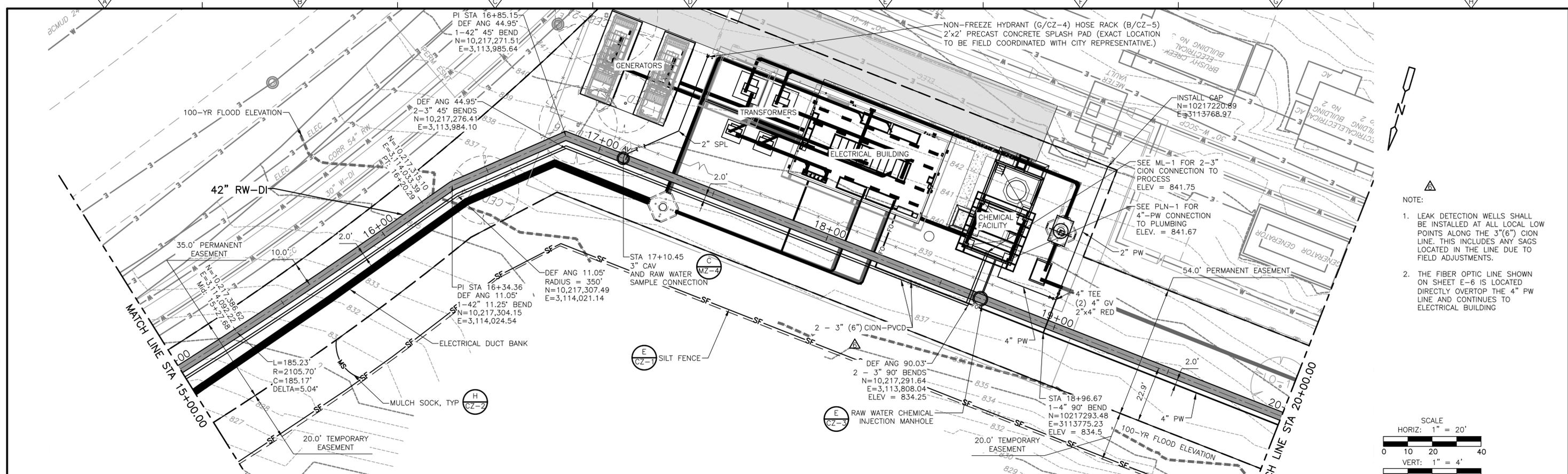
PLAN AND PROFILE
 STA 10+00 TO STA 15+00
 RAW WATER LINE

PROJECT NO. 2048-248929
 FILE NAME: CP01RWP
 SHEET NO.
CP-4

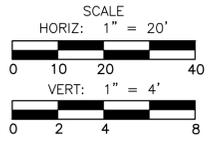


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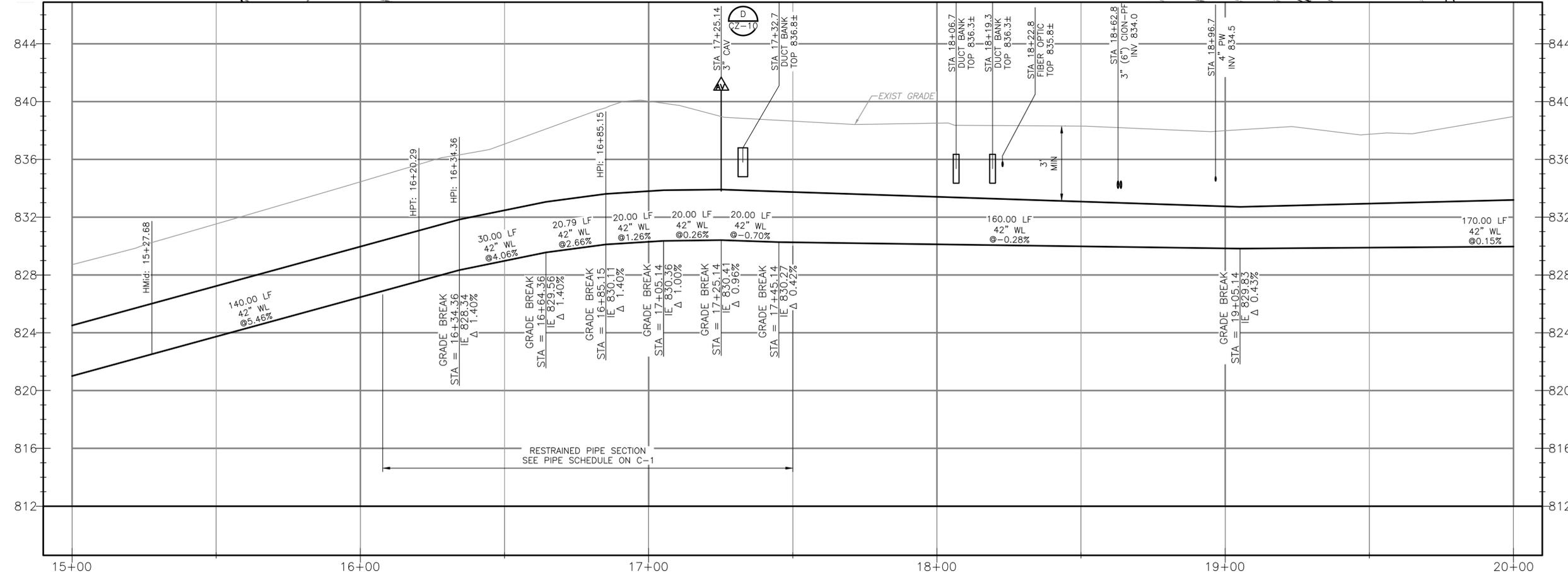
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- NOTE:
- LEAK DETECTION WELLS SHALL BE INSTALLED AT ALL LOCAL LOW POINTS ALONG THE 3"(6") CION LINE. THIS INCLUDES ANY SAGS LOCATED IN THE LINE DUE TO FIELD ADJUSTMENTS.
 - THE FIBER OPTIC LINE SHOWN ON SHEET E-6 IS LOCATED DIRECTLY OVERTOP THE 4" PW LINE AND CONTINUES TO ELECTRICAL BUILDING



REPLACE SHEET IN ITS ENTIRETY.



REV. NO.	DATE	DRWN	CHKD	REMARKS
B	0/14/22	DWS	ALH	CPR-10
A	1/19/22	DWS	ALH	CONFORMED DRAWINGS
6	1/6/22	DWS	ALH	ADDENDUM No 6

DESIGNED BY: A. HINDS
 DRAWN BY: D. SANDEFUR
 SHEET CHK'D BY: K. HAMAD
 CROSS CHK'D BY: A. WOEKLE
 APPROVED BY: A. HINDS
 DATE: OCTOBER 2022

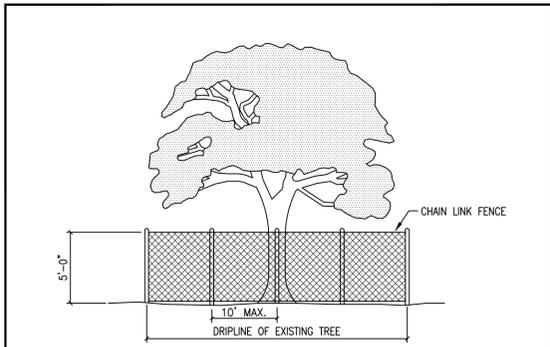
CDM Smith
 9430 RESEARCH BLVD., SUITE 1-200
 AUSTIN, TX 78758
 TEL: (512) 346-1100
 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
SOUTH LAKE WATER TREATMENT PLANT

PLAN AND PROFILE
 STA 15+00 TO 20+00
 RAW WATER LINE

PROJECT NO. 2048-248929
 FILE NAME: CPO1RWPP
 SHEET NO. CP-5

ANN L. HINDS
 131509
 LICENSED PROFESSIONAL ENGINEER
 10/14/22

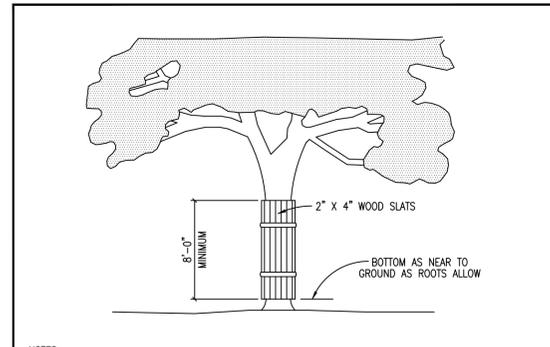


- NOTES:
- TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING).
 - FENCES SHALL COMPLETELY SURROUND THE TREE, OR CLUSTERS OF TREES; WILL BE LOCATED AT THE OUTERMOST LIMIT OF THE TREE BRANCHES (DRIPLINE), AND WILL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
 - SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MATERIALS.
 - ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN SIX INCHES (6") CUT OR FILL, OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY.
 - WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT.
 - OTHER ACTIVITIES DETRIMENTAL TO TREES, SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING AND FIRE.
 - EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:
 - WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
 - WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN SIX FEET (6'-0") TO BUILDING.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
TREE PROTECTION - CHAIN LINK FENCE		EC09
NTS	1/2003	MRS TRB

DETAIL A
NTS

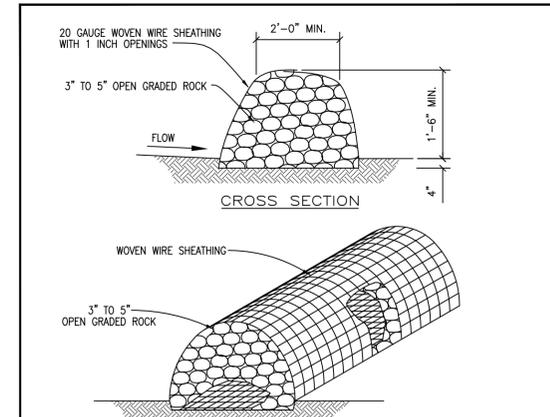


- NOTES:
- WHERE ANY EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN FOUR FEET (4'-0") TO A TREE TRUNK; PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF EIGHT FEET (8'-0"), OR TO THE LIMITS OF LOWER BRANCHING IN ADDITION TO THE REDUCED FENCING PROVIDED.
 - ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO (2) DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE, AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
 - PRIOR EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINE, MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT, TO MINIMIZE DAMAGE TO REMAINING ROOTS.
 - TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES SHOULD BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. TREE CROWNS SHOULD BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
 - ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
 - NO LANDSCAPE TOPSOIL DRESSING GREATER THAN FOUR INCHES (4") SHALL BE PERMITTED WITHIN THE DRIPLINE OF A TREE. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
 - PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
TREE PROTECTION - WOOD SLATS		EC10
NTS	1/2003	MRS TRB

DETAIL B
NTS

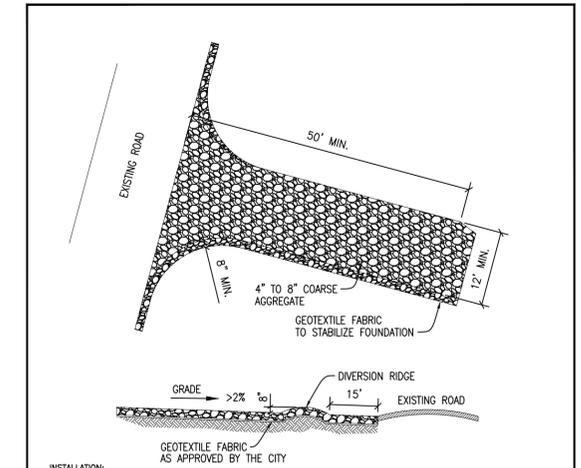


- INSTALLATION:
- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
 - CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
 - PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCLOSE THE FINISHED SIZE OF THE BERM.
 - PLACE THE ROCK ALONG THE CENTER OF THE WIRE TO THE DESIGNATED HEIGHT.
 - WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS ITS SHAPE.
 - SECURE WITH THE WIRE.
 - THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROX. 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.
 - THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.
- INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.
 - REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
 - REPAIR ANY LOOSE WIRE SHEATHING.
 - THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
 - THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
ROCK BERM DETAIL		EC03
NTS	1/2003	MRS TRB

DETAIL C
NTS

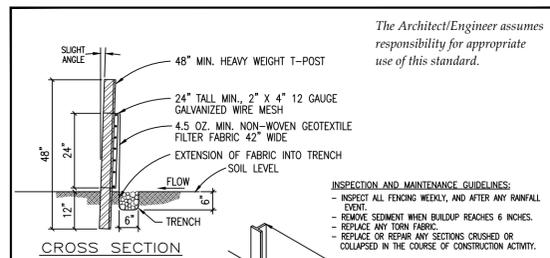


- INSTALLATION:
- CLEAR THE AREA OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
 - GRADE THE AREA FOR THE ENTRANCE TO FLOW BACK ON TO THE CONSTRUCTION SITE. RUNOFF FROM THE STABILIZED CONSTRUCTION SITE.
 - PLACE GEOTEXTILE FABRIC AS APPROVED BY THE CITY.
 - PLACE ROCK AS APPROVED BY THE CITY.
- INSPECTIONS AND MAINTENANCE GUIDELINES:
- THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
 - ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
 - WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY.
 - WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
 - ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
STABILIZED CONSTRUCTION ENTRANCE		EC06
NTS	1/2003	MRS TRB

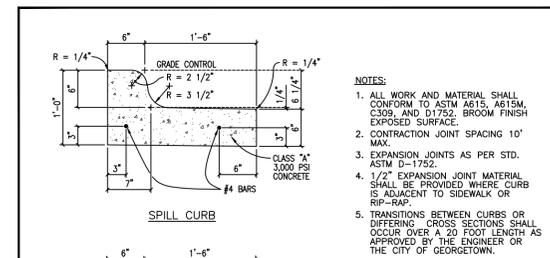
DETAIL D
NTS



- INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL EVENT.
 - REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
 - REPLACE ANY TORN FABRIC.
 - REPLACE OR REPAIR ANY SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY.
- INSTALLATION:
- LAYOUT THE SILT FENCE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
 - CLEAR THE GROUND OF DEBRIS, ROCKS, PLANTS (INCLUDING GRASSES TALLER THAN 2") TO PROVIDE A SMOOTH FLOW APPROACH SURFACE. EXCAVATE 6" DEEP X 6" WIDE TRENCH ON UPSTREAM SIDE OF FACE PER PLANS.
 - DRIVE THE HEAVY DUTY T-POST AT LEAST 12 INCHES INTO THE GROUND AND AT A SLIGHT ANGLE TOWARDS THE FLOW.
 - ATTACH THE 2" X 4" 12 GAUGE WELDED WIRE MESH TO THE T-POST WITH 1 1/2 GAUGE GALVANIZED T-POST CLIPS. THE TOP OF THE WIRE TO BE 24" ABOVE GROUND LEVEL. THE WELDED WIRE MESH TO BE OVERLAPPED 4" AND TIED AT LEAST 6 TIMES WITH HOG RINGS.
 - THE SILT FENCE TO BE INSTALLED WITH A SHORT A MINIMUM OF 6" WIDE PLACED ON THE UPWIND SIDE OF THE FENCE INSIDE EXCAVATED TRENCH. THE FABRIC TO OVERLAP THE TOP OF THE WIRE BY 1".
 - ANCHOR THE SILT FENCE BY BACKFILLING WITH EXCAVATED DIRT AND ROCKS (NOT LARGER THAN 2").
 - GEOTEXTILE SPLICES SHOULD BE A MINIMUM OF 18" WIDE ATTACHED IN AT LEAST 6 PLACES. SPLICES IN CONCENTRATED FLOW AREAS WILL NOT BE ACCEPTED.
 - SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
SILT FENCE DETAIL		EC02
NTS	1/2003	MRS TRB

DETAIL E
NTS

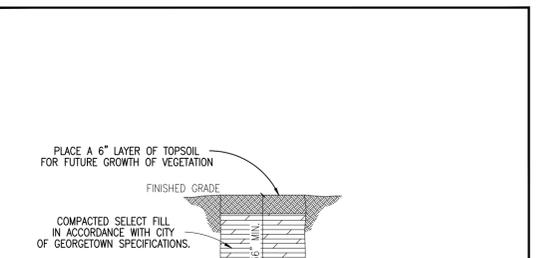


- NOTES:
- ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, ASTM C309, AND D1752. BROOM FINISH EXPOSED SURFACE.
 - CONCRETE JOINT SPACING 10' MAX.
 - EXPANSION JOINTS AS PER STD. ASTM D-1752.
 - 1/2" EXPANSION JOINT MATERIAL SHALL BE PROVIDED WHERE CURB IS ADJACENT TO SIDEWALK OR RIP-RAP.
 - TRANSITIONS BETWEEN CURBS OR DIFFERING CROSS SECTIONS SHALL OCCUR OVER A 20 FOOT LENGTH AS APPROVED BY THE ENGINEER OR THE CITY OF GEORGETOWN.
 - ALL CONCRETE SHALL BE CLASS A, 3000 PSI.
 - ALL SURFACES THAT ARE CHIPPED OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED.
 - THE FOLLOWING SCHEME OF REINFORCEMENT SHALL BE REQUIRED. THE MANNER OF PLACEMENT AND LOCATION SHALL BE TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF GEORGETOWN.
 - ALL CURB AND CURB AND GUTTER (REINFORCED) SHALL HAVE TWO #4 LONGITUDINAL REINFORCING BARS.
 - REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 15 INCH.
 - REINFORCING BARS SHALL BE SUPPORTED WITH REBAR CHAIRS OR OTHER APPROVED METHODS.
 - REBAR SUPPORTS ARE NOT REQUIRED ON MACHINE PLACED CURB PROVIDED THAT REBAR IS PROPERLY GUIDED INTO THE CURB SECTION.
 - REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 15 INCH.
 - REINFORCING BARS SHALL BE SUPPORTED WITH REBAR CHAIRS OR OTHER APPROVED METHODS.
 - REBAR SUPPORTS ARE NOT REQUIRED ON MACHINE PLACED CURB PROVIDED THAT REBAR IS PROPERLY GUIDED INTO THE CURB SECTION.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
CURB AND GUTTER DETAILS		SD06
NTS	1/2003	MRS TRB

DETAIL F
NTS

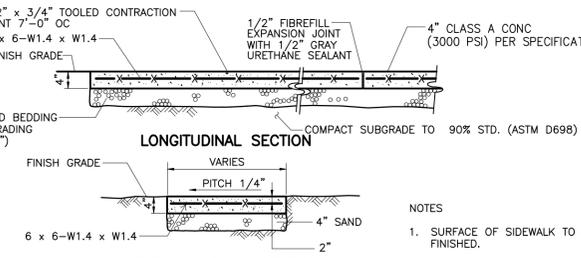


- PLACE A 6" LAYER OF TOPSOIL FOR FUTURE GROWTH OF VEGETATION.
- FINISHED GRADE
- COMPACTED SELECT FILL IN ACCORDANCE WITH CITY OF GEORGETOWN SPECIFICATIONS.
- UNDISTURBED TRENCH WALL
- BEDDING SHALL BE REQUIRED AS PER TYPICAL BEDDING SPECIFICATIONS IN CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
- POTABLE WATER LINE
- PIPE O.D. + 12" MIN.
- PIPE O.D. + 12" MIN.
- TRACER WIRE #18 FOR LOCATION
- TRENCH WIDTHS
- *PIPE LESS THAN 20" DIAMETER 1'-0" + PIPE O.D.
 - *20" DIAMETER PIPE AND LARGER 2'-0" + PIPE O.D.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
TRENCH AND EMBEDMENT UNDER NON-PAVED AREAS		WO2
NTS	1/2003	MRS TRB

DETAIL G
NTS



- NOTES
- SURFACE OF SIDEWALK TO BE BROOM FINISHED.
 - FINISH SURFACE SHALL BE SLOPED FOR POSITIVE DRAINAGE.
 - EXPANSION JOINTS SHALL NOT EXCEED 30' OC & BE PLACED AT ALL BUILDING ABUTMENTS.
 - SIDEWALKS SHALL HAVE A WIDTH OF 4'-0" UNLESS SHOWN OTHERWISE.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
SIDEWALK		WO2
NTS	1/2003	MRS TRB

DETAIL H
NTS



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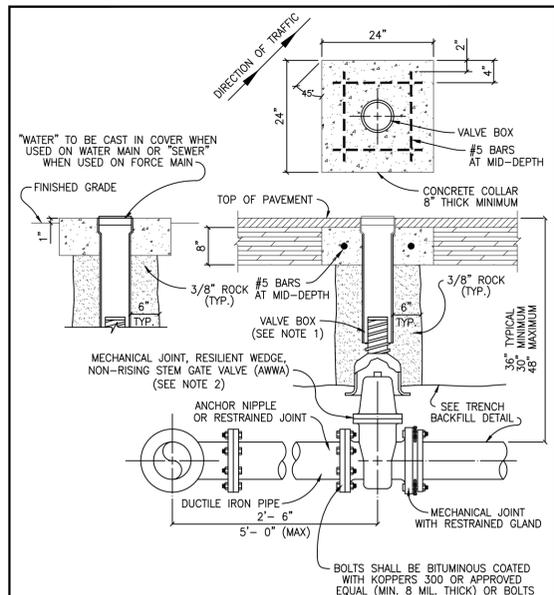
DESIGNED BY:	A. KARAMELEGOS
DRAWN BY:	D. SANDEFUR
SHEET CHK'D BY:	A. RHAMES
CROSS CHK'D BY:	A. BROWER
APPROVED BY:	A. KARAMELEGOS
DATE:	DECEMBER 2021

REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	RSM	AMK	CONFORMED DRAWING

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 TBP Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
SOUTH LAKE
WATER TREATMENT PLANT

PROJECT NO. 2048-248929
 FILE NAME: CZ-1
 SHEET NO. CZ-1

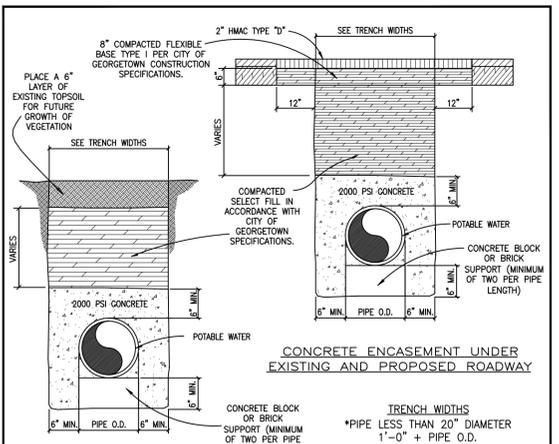


NOTES:
 1. VALVE BOX SHALL BE 5 1/4" CAST IRON ADJUSTABLE HAVING AN ADJUSTABLE RANGE OF + OR - 6 INCHES FROM INSTALLED FINISH GRADE.
 2. ACCEPTABLE GATE VALVES ARE:
 A. AMERICAN FLOW CONTROL - SERIES 2500
 B. MUELLER - 2360 SERIES
 C. CLOW

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006
 W07
 CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
 TYPICAL VALVE SETTING

DETAIL A
 NTS

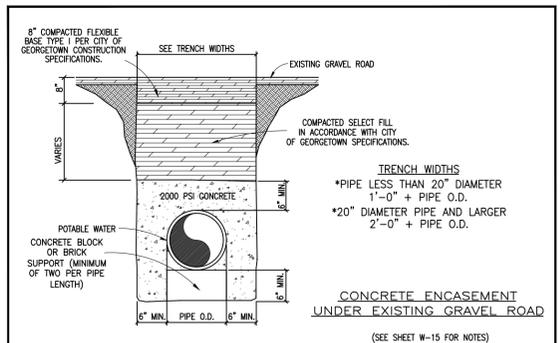


NOTES:
 1. ENCASEMENT TO BE CONSTRUCTED WHERE SEWER LINES PASS OVER OR UNDER A WATER MAIN WITH LESS THAN TWELVE INCHES (12") CLEAR DISTANCE.
 2. AT CROSSINGS, ENCASEMENT SHALL EXTEND TEN FEET (10'-0") ON EITHER SIDE OF CROSSING.
 3. BEGINNING AND ENDING OF ENCASEMENTS SHALL NOT BE MORE THAN SIX INCHES (6") FROM A PIPE JOINT.
 4. WHERE WATER AND SEWER LINES PARALLEL WITH LESS THAN TEN FEET (10'-0") HORIZONTAL CLEAR DISTANCE, NO ENCASEMENT IS REQUIRED IF BOTH LINES ARE 150 PSI PRESSURE PIPE.
 5. RAW WATER MAINS SHALL BE 150 PSI PRESSURE RATED WHEN PARALLELING POTABLE WATER MAINS WITH LESS THAN NINE FEET (9'-0") HORIZONTAL CLEARANCE.
 6. WHERE MINIMUM COVER, THIRTY SIX INCHES (36") IS NOT AVAILABLE, ENCASEMENT WILL BE REQUIRED.
 7. ALL CONCRETE ENCASEMENTS MUST BE FORMED AND INSPECTED BY THE CITY OF GEORGETOWN INSPECTOR PRIOR TO PLACING CONCRETE AND BACKFILLING.
 8. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006
 W15
 CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
 CONCRETE ENCASEMENT DETAIL

DETAIL B
 NTS

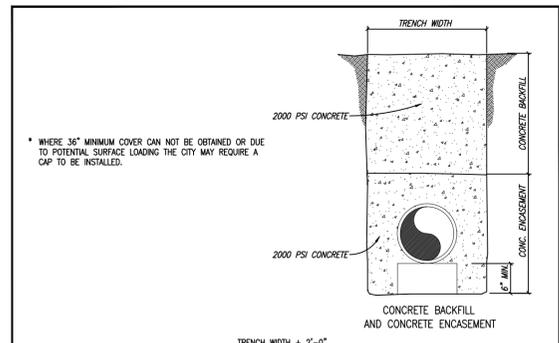


NOTES:
 1. ENCASEMENT TO BE CONSTRUCTED WHERE SEWER LINES PASS OVER OR UNDER A WATER MAIN WITH LESS THAN TWELVE INCHES (12") CLEAR DISTANCE.
 2. AT CROSSINGS, ENCASEMENT SHALL EXTEND TEN FEET (10'-0") ON EITHER SIDE OF CROSSING.
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 8. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006
 W16
 CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
 CONCRETE ENCASEMENT DETAIL

DETAIL C
 NTS

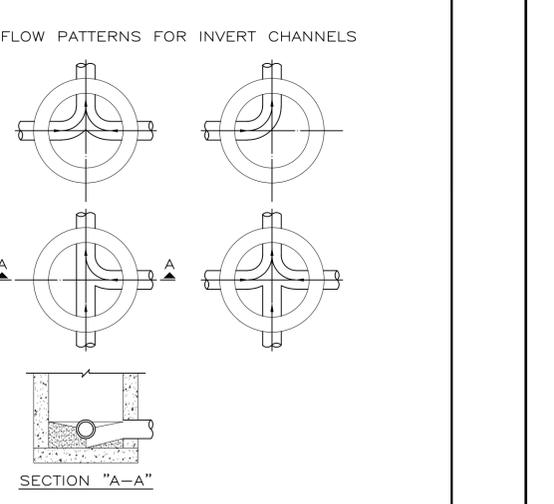


NOTES:
 * WHERE 36" MINIMUM COVER CAN NOT BE OBTAINED OR DUE TO POTENTIAL SURFACE LOADING THE CITY MAY REQUIRE A CAP TO BE INSTALLED.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006
 W02A
 CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
 CONCRETE TRENCH CAP DETAIL

DETAIL D
 NTS

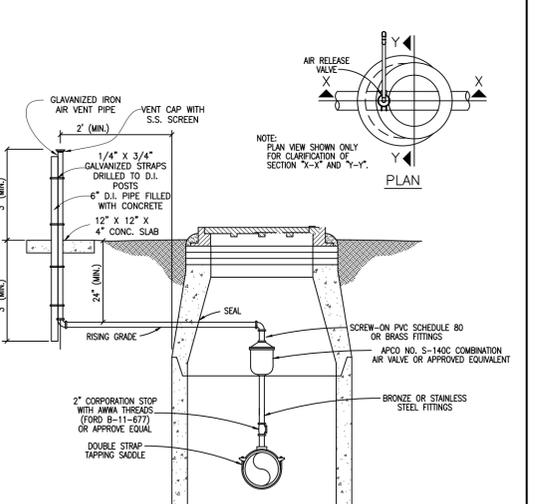


NOTES:
 1. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
 2. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOW.
 3. CHANNELS FOR FUTURE CONSTRUCTIONS (STUBS) SHALL BE CONSTRUCTED, FILLED WITH SAND, AND COVERED WITH 1" OF MORTAR.
 4. SLOPE MANHOLE ITSELF WITH A 1:2 SLOPE FROM MANHOLE WALL TO CHANNEL.
 5. INVERT SHALL BE A MINIMUM OF 1/2 THE DIAMETER OF THE LARGEST PIPE OR 4" DEEP.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006
 W06
 CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
 FLOW PATTERNS FOR INVERT CHANNELS

DETAIL E
 NTS

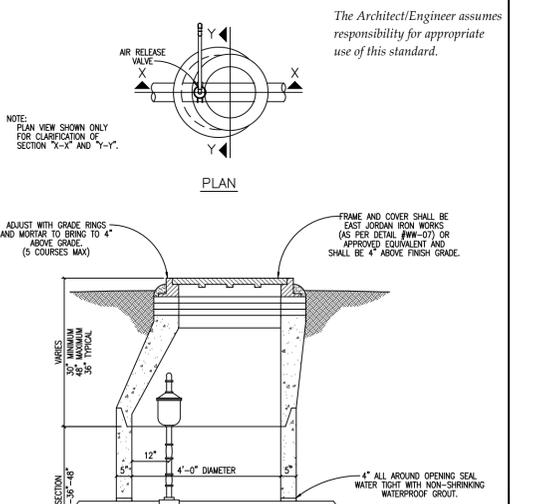


NOTES:
 1. FOR LINES LESS THAN 24".
 2. REFER TO CITY DETAIL W003 FOR MANHOLE INSTALLATION REQUIREMENTS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006
 W13
 CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
 STANDARD AIR RELEASE VALVE FOR WATER MAIN

DETAIL F
 NTS

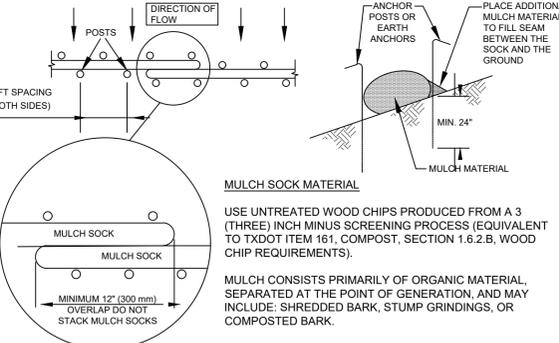


NOTES:
 1. FOR LINES LESS THAN 24".
 2. REFER TO CITY DETAIL W003 FOR MANHOLE INSTALLATION REQUIREMENTS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006
 W12
 CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
 STANDARD AIR RELEASE VALVE FOR WATER MAIN

DETAIL G
 NTS



NOTES:
 1. STEEL OR WOOD POSTS WHICH SUPPORT THE MULCH SOCK SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 600mm (24 inches). IF WOOD POSTS CANNOT ACHIEVE 600mm (24 inches) DEPTH, USE STEEL POSTS. EARTH ANCHORS ARE ALSO ACCEPTABLE.
 2. THE TOE OF THE MULCH SOCK SHALL BE PLACED SO THAT THE MULCH SOCK IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. IN ORDER TO PREVENT WATER FROM FLOWING BETWEEN THE JOINTS OF ADJACENT ENDS OF MULCH SOCKS, LAP THE ENDS OF ADJACENT MULCH SOCKS A MINIMUM OF 300mm (12 inches).
 3. MULCH MATERIAL MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH; IT IS NOT ACCEPTABLE FOR THE MULCH MATERIAL TO CONTAIN GROUND CONSTRUCTION DEBRIS, BIOSOLIDS, OR MANURE.
 4. SOCK MATERIAL WILL BE 100% BIODEGRADABLE, PHOTODEGRADABLE, OR RECYCLABLE SUCH AS BURLAP, TWINE, UV PHOTODEGRADABLE PLASTIC, POLYESTER, OR ANY OTHER ACCEPTABLE MATERIAL.
 5. MULCH SOCKS SHOULD BE USED AT THE BASE OF SLOPES NO STEEPER THAN 2:1.
 6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.
 7. THE CROSS SECTIONAL AREA OF THE MULCH SOCK SHALL EQUAL OR EXCEED THE CROSS SECTIONAL AREA OF AN 18-INCH DIAMETER CIRCLE.

USE UNTREATED WOOD CHIPS PRODUCED FROM A 3 (THREE) INCH MINUS SCREENING PROCESS (EQUIVALENT TO ITEM 161, COMPOST, SECTION 1.6.2.B, WOOD CHIP REQUIREMENTS).
 MULCH CONSISTS PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, OR COMPOSTED BARK.
 VISIBLE PORTIONS OF SILT, CLAYS, OR FINE SANDS ARE NOT ACCEPTABLE IN THE MULCH.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

ADOPTED 6/21/2006
 W12
 CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
 STANDARD AIR RELEASE VALVE FOR WATER MAIN

DETAIL H
 NTS



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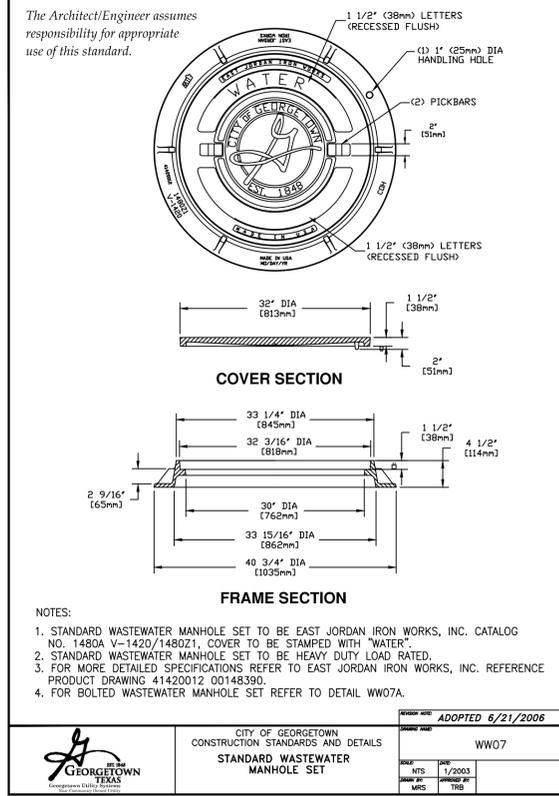
DESIGNED BY:	A. KARAMALEGOS
DRAWN BY:	D. SANDEFUR
SHEET CHK'D BY:	A. RHAMES
CROSS CHK'D BY:	A. BROWER
APPROVED BY:	A. KARAMALEGOS
DATE:	DECEMBER 2021

CITY OF GEORGETOWN, TEXAS
SOUTH LAKE
 WATER TREATMENT PLANT

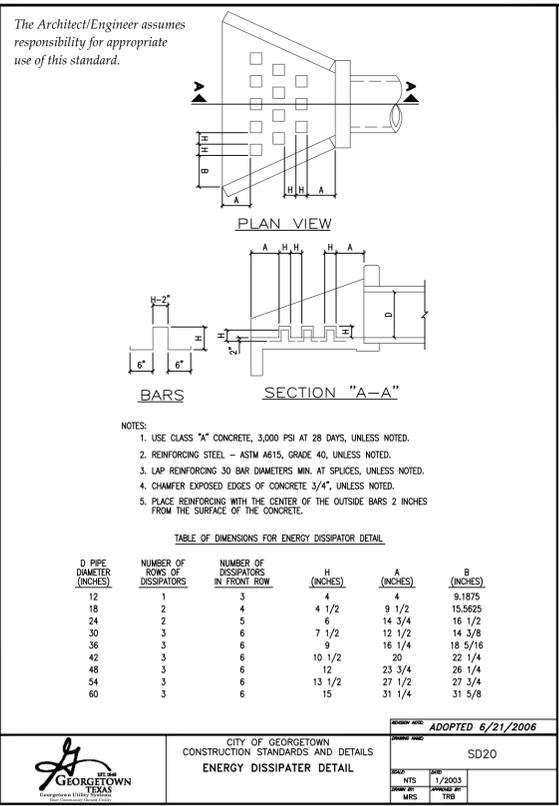
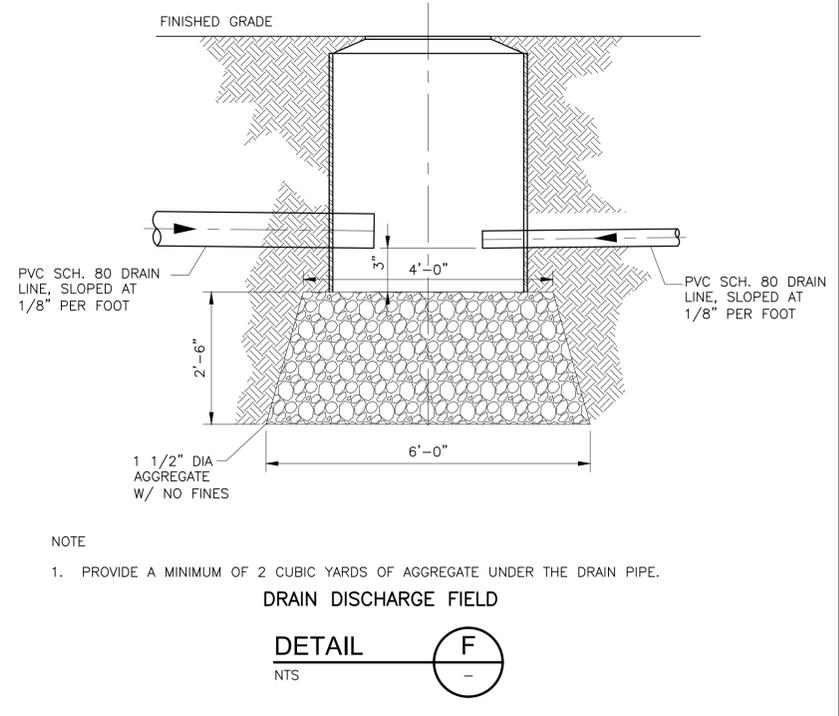
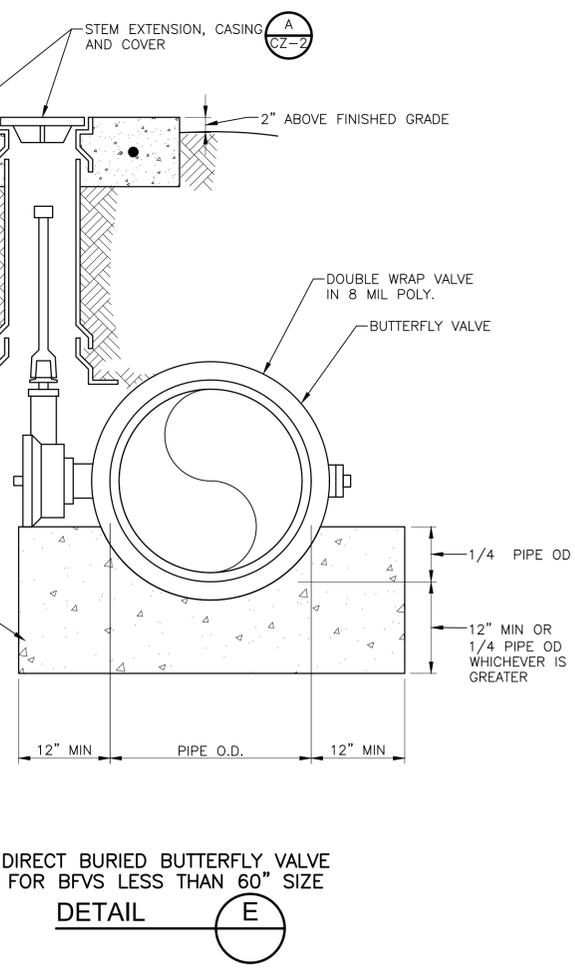
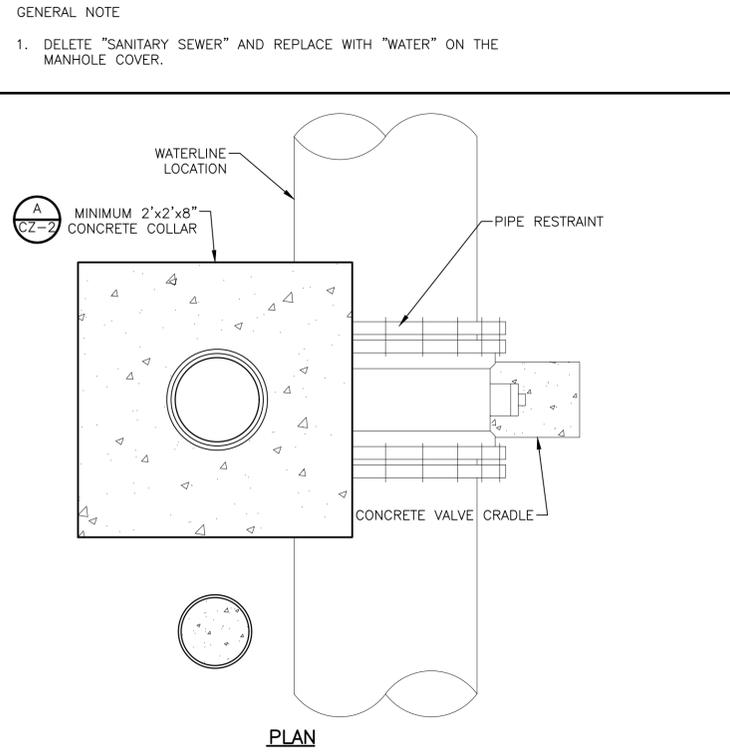
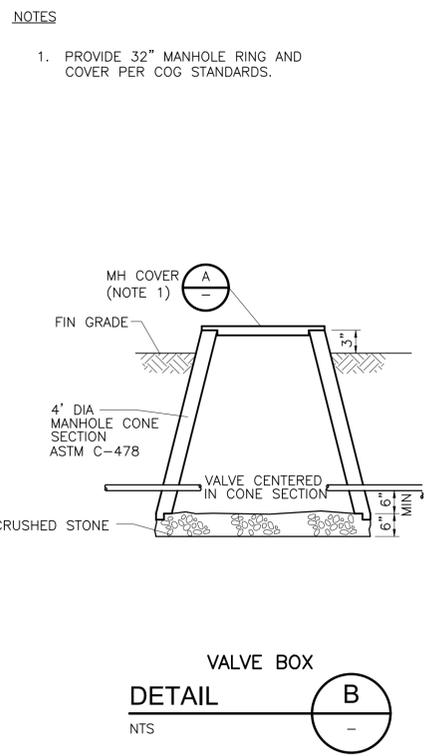
CITY OF GEORGETOWN, TEXAS
STANDARD CIVIL DETAILS II

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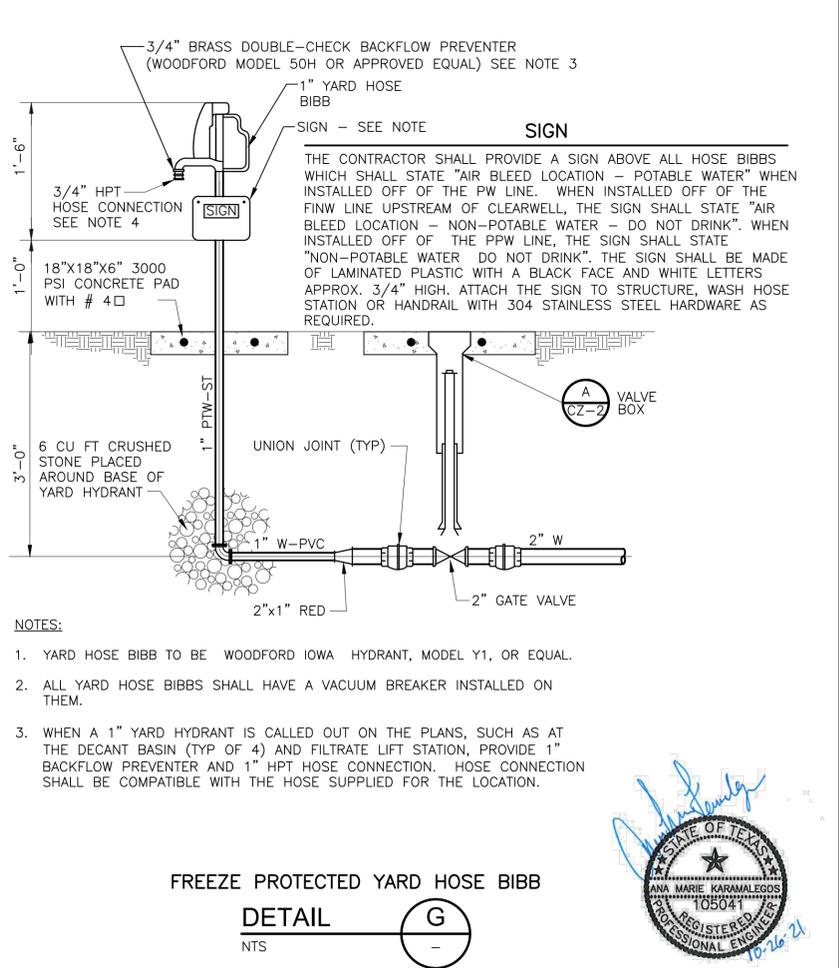
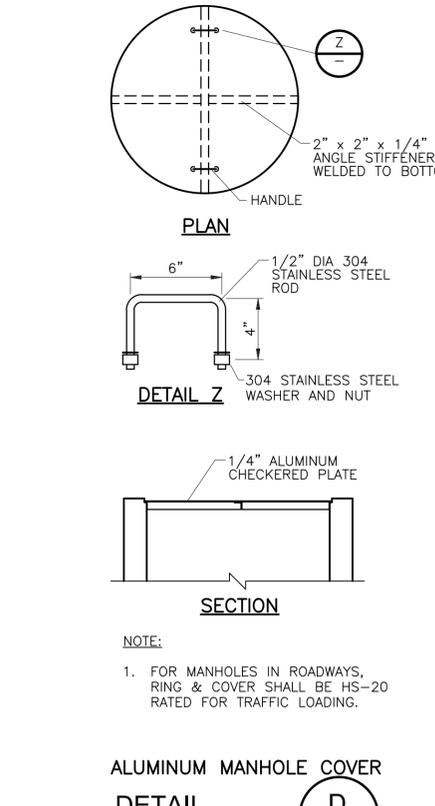
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DETAIL A
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DETAIL C
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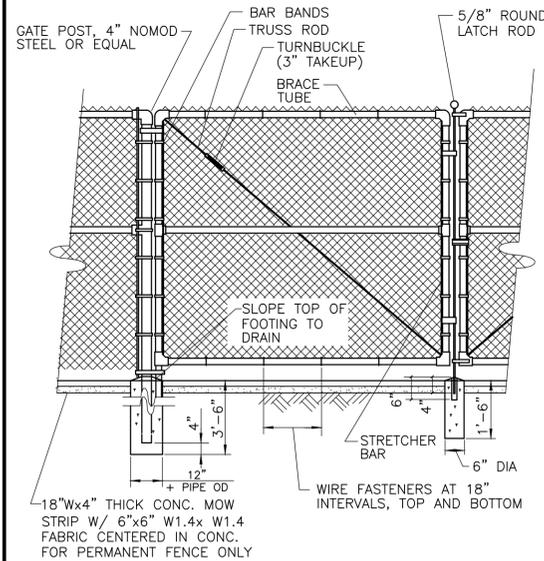
DESIGNED BY: A. KARAMALEGOS
 DRAWN BY: D. SANDEFUR
 SHEET CHK'D BY: A. RHAMES
 CROSS CHK'D BY: A. BROWER
 APPROVED BY: A. KARAMALEGOS
 DATE: DECEMBER 2021

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 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

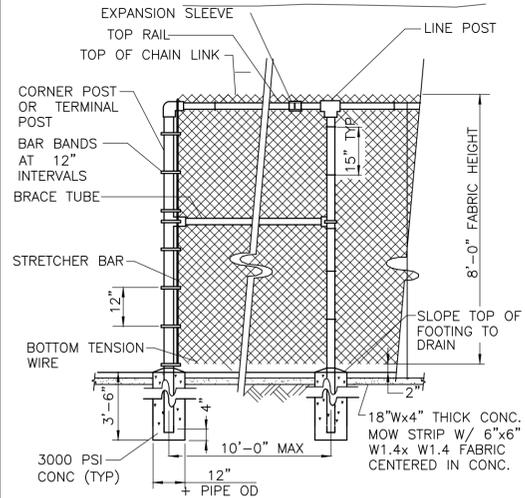
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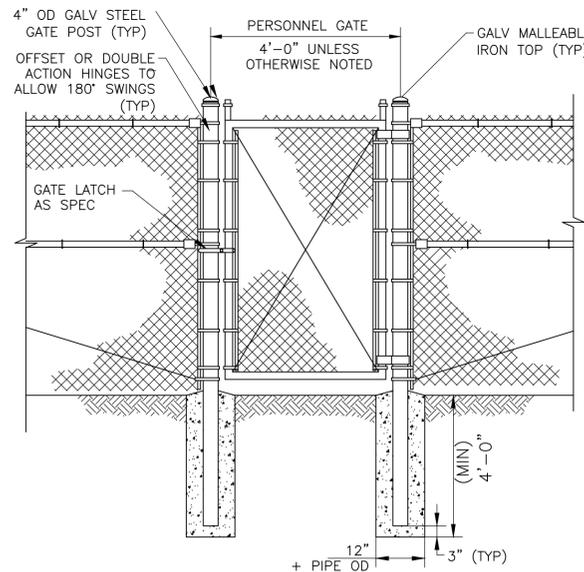
CHAIN LINK FENCE-DOUBLE GATE

DETAIL A
NTS



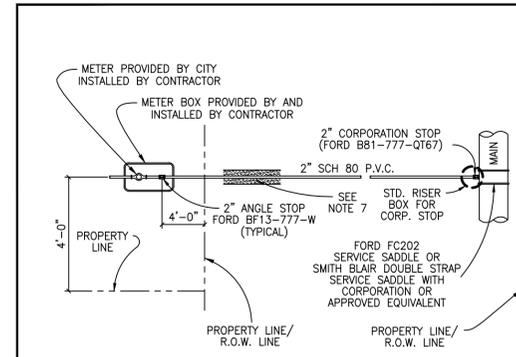
CHAIN LINK FENCE

DETAIL B
NTS



PERSONNEL GATE

DETAIL C
NTS

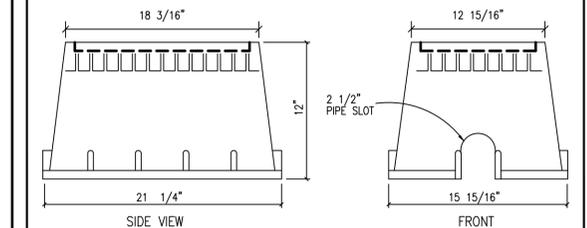
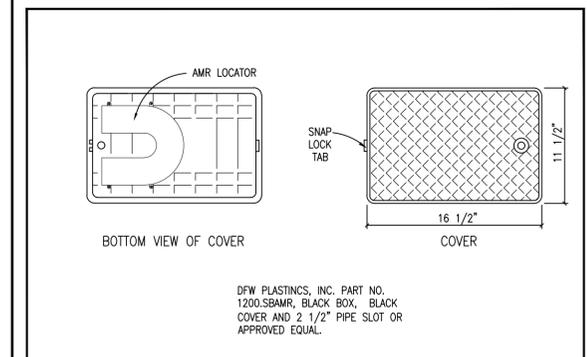


- NOTES:
- AUTHORIZED SERVICE LINE MATERIAL:
 - A. POLYETHYLENE TUBING SDR 9 (MAX. DIA. 1") CLASS 200
 - B. SCHEDULE 80, P.V.C. (DIA. LARGER THAN 1") CLASS 200
 - ANGLE STOP SHALL BE 1" MINIMUM.
 - 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
 - MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
 - ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
 - ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
 - BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
 - CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
 - ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
 - ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS SINGLE WATER SERVICE PLAN	ADOPTED 6/21/2006 W04
		1/2003 1/1988

DETAIL D
NTS



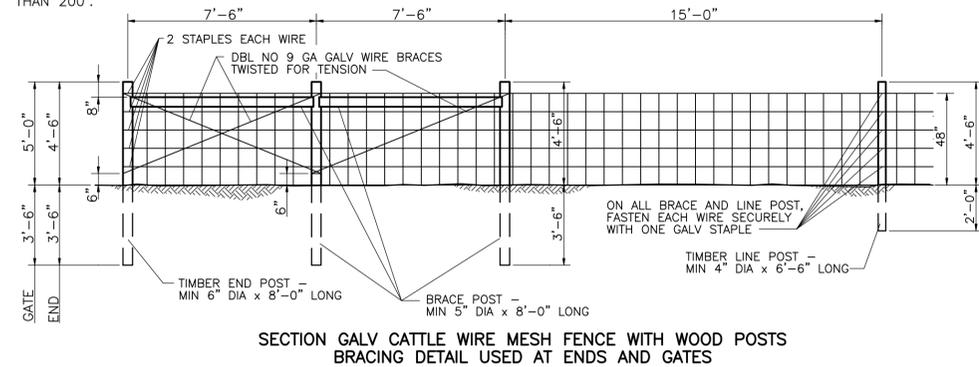
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	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS METER BOX (NON-TRAFFIC AREAS)	ADOPTED 6/21/2006 W23
		1/2003 1/1988

DETAIL E
NTS

- FENCE NOTES:
- THE COLUMN HEIGHT SHALL BE A MINIMUM OF 8'-0" TO A MAXIMUM OF 10'-0" - WITH 8'-0" ABOVE GRADE.
 - ALL CONCRETE SHALL BE 3000 PSI.
 - ALL REINFORCEMENT SHALL BE ASTM 615 GRADE 60. SPECIAL REINFORCEMENT IS AVAILABLE UPON SPECIAL ORDER.
 - FOOTING - 2 FEET DEEP FOOTING STANDARD PER COLUMN. DEPTH AND DIAMETER CAN VARY PER LOCAL SOIL CONDITIONS.
 - TEXTURE: ALL EXPOSED SIDES HAVE ROCK-LIKE TEXTURE.
 - GATES: SHALL HAVE ADDITIONAL STEEL SUPPORTS ADJACENT TO CONCRETE COLUMNS.
 - ALL STEEL REINFORCEMENT IS PREWELDED WITH STEEL SPACERS SO AS TO ALLOW FOR MAXIMUM CONCRETE COVERAGE.
 - A SPECIAL SILICONE SEALANT IS USED TO LOCK THE CAPRAIL AND POST CAPS IN PLACE. THIS SEALANT REQUIRES SPECIAL TOOLS FOR REMOVAL.
 - PROVIDE OPENINGS FOR DRAINAGE AS DIRECTED BY THE ENGINEER.
 - OWNER SHALL SELECT COLOR.
 - PROVIDE A SIGN ON THE FENCING ON EACH GATE STATING:
 - * OWNER
 - * LOCATION NAME
 - * EMERGENCY PHONE NUMBERS
 - * NO TRESPASSING INFORMATION
 - VERIFY FENCE COMPLIES WITH CITY STANDARDS AND PREFERENCES

ADD'L BRACE POST AND TIE WILL NOT BE REQUIRED WHEN DISTANCE TO NEXT BRACED POST IS LESS THAN 200'.

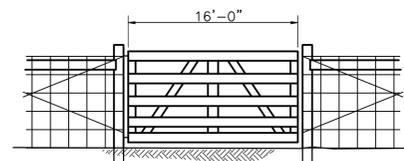


SECTION GALV CATTLE WIRE MESH FENCE WITH WOOD POSTS BRACING DETAIL USED AT ENDS AND GATES

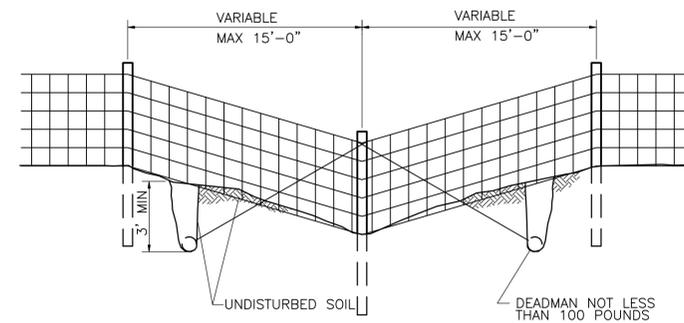
- NOTES
- IF ROCK IS ENCOUNTERED AT A DEPTH OF 1'-6" OR MORE BELOW THE GROUND SURFACE, THE HOLE SHALL BE DRILLED THE REQUIRED DEPTH. IF ROCK IS ENCOUNTERED AT A DEPTH LESS THAN 1'-6" BELOW THE GROUND SURFACE, THE HOLES SHALL BE DRILLED A MINIMUM OF 2'-0" INTO THE ROCK OR THE REQUIRED DEPTH WHICHEVER IS THE LESSER DEPTH.
 - SQUARE POSTS MAY BE USED IN LIEU OF ROUND POSTS PROVIDED MINIMUM EQUIVALENT SIZE REQUIREMENTS AS TABULATED HEREON ARE MET.
 - ALL POSTS SHALL BE WOLMANIZED.
 - CATTLE WIRE MESH FENCE SHALL BE 48" GALVANIZED WIRE MESH WITH 9" VERTICAL MESH SPACING. TOP & BOTTOM WIRE SHALL BE 9 GAGE. FILLER WIRE SHALL BE 11 GAGE. VERTICAL STAYS SHALL BE 9 GAGE.
 - TWO STRANDS OF BARB WIRE TO BE ADDED ON TOP OF THE WIRE MESH FENCE, AND ONE STRAND OF BARB WIRE TO BE ADDED ON THE BOTTOM OF THE WIRE MESH FENCE.

TYPICAL CATTLE WIRE MESH FENCE

DETAIL F
NTS

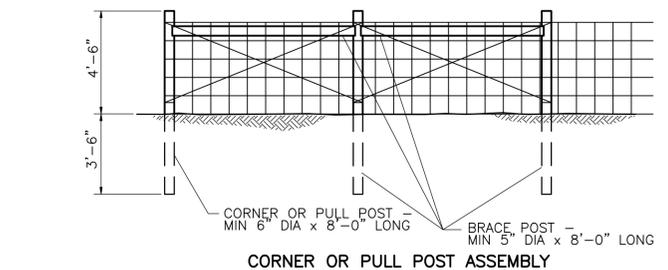


TYPE 1 GATE



FENCE SAG

- NOTES
- METAL GATE SHALL CONSIST OF 5 PANELS NOT LESS THAN 4'-4" HIGH AND SHALL BE GALVANIZED METAL AND OF GOOD QUALITY. GATE AND HARDWARE SHALL MEET THE APPROVAL OF THE ENGINEER.
 - PULL POST ASSEMBLY SHALL BE INSTALLED ON BOTH SIDES OF GATE.



CORNER OR PULL POST ASSEMBLY

INSTALLATION OF HINGES OF TYPE 1 GATE



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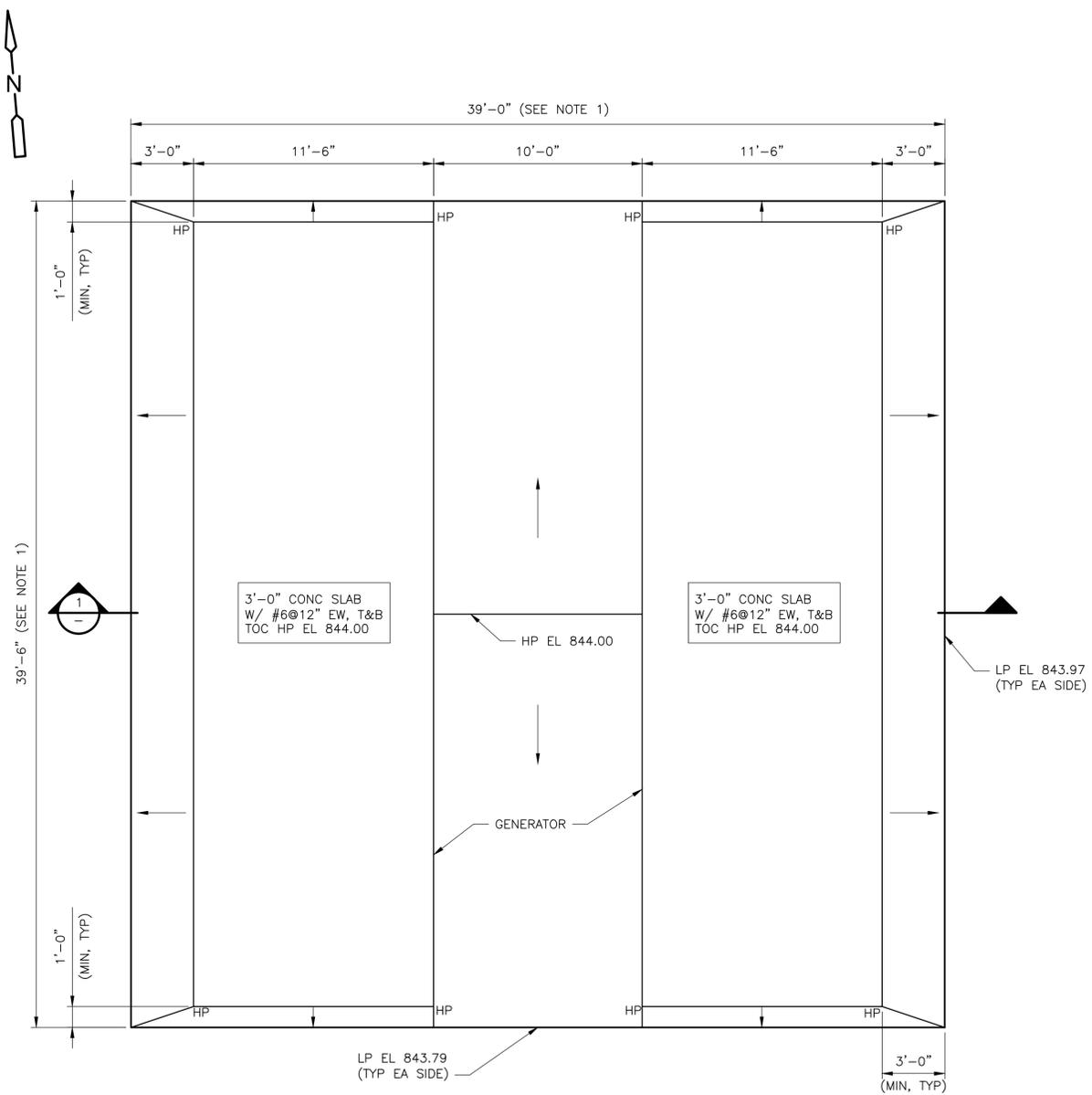
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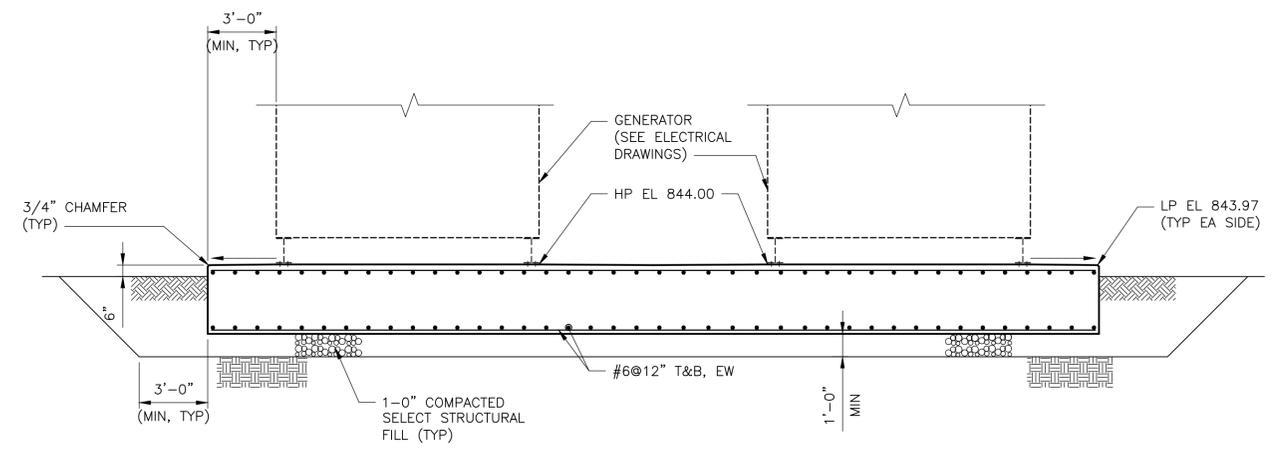
CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

PROJECT NO.	2048-248929
FILE NAME:	CZ-9
SHEET NO.	CZ-9

XREFS: [CDMS 2204-SouthLake_MITSCHKE-H_TX-REV_SVP00SM_SWS00SM] Images: []
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**GENERATOR FOUNDATION
 PLAN**
 1/4" = 1'-0"



SECTION 1
 1/4" = 1'-0"

- NOTE:
- SEE ELECTRICAL DRAWING FOR GENERATOR INFORMATION AND LOCATION. CONTRACTOR SHALL CONFIRM DIMENSIONS WITH GENERATOR VENDOR AND ADJUST GENERATOR PAD SIZE AS REQUIRED TO PROVIDE A MINIMUM OF 3'-0" CLEAR ON EACH SIDE OF THE GENERATOR.
 - SLAB THICKNESS SHALL BE 3'-0" MINIMUM AT LP EL.



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	2/22	BK	MKT	COMFORMED DRAWING

DESIGNED BY: H. MITSCHKE
 DRAWN BY: K. RAJENDRAN
 SHEET CHK'D BY: E. GOPINATH
 CROSS CHK'D BY: H. MITSCHKE
 APPROVED BY: H. MITSCHKE
 DATE: DECEMBER 2021



9430 RESEARCH BLVD., SUITE 1-200
 AUSTIN, TX 78759
 TEL: (512) 346-1100
 TBPE Firm Registration No. F-3043

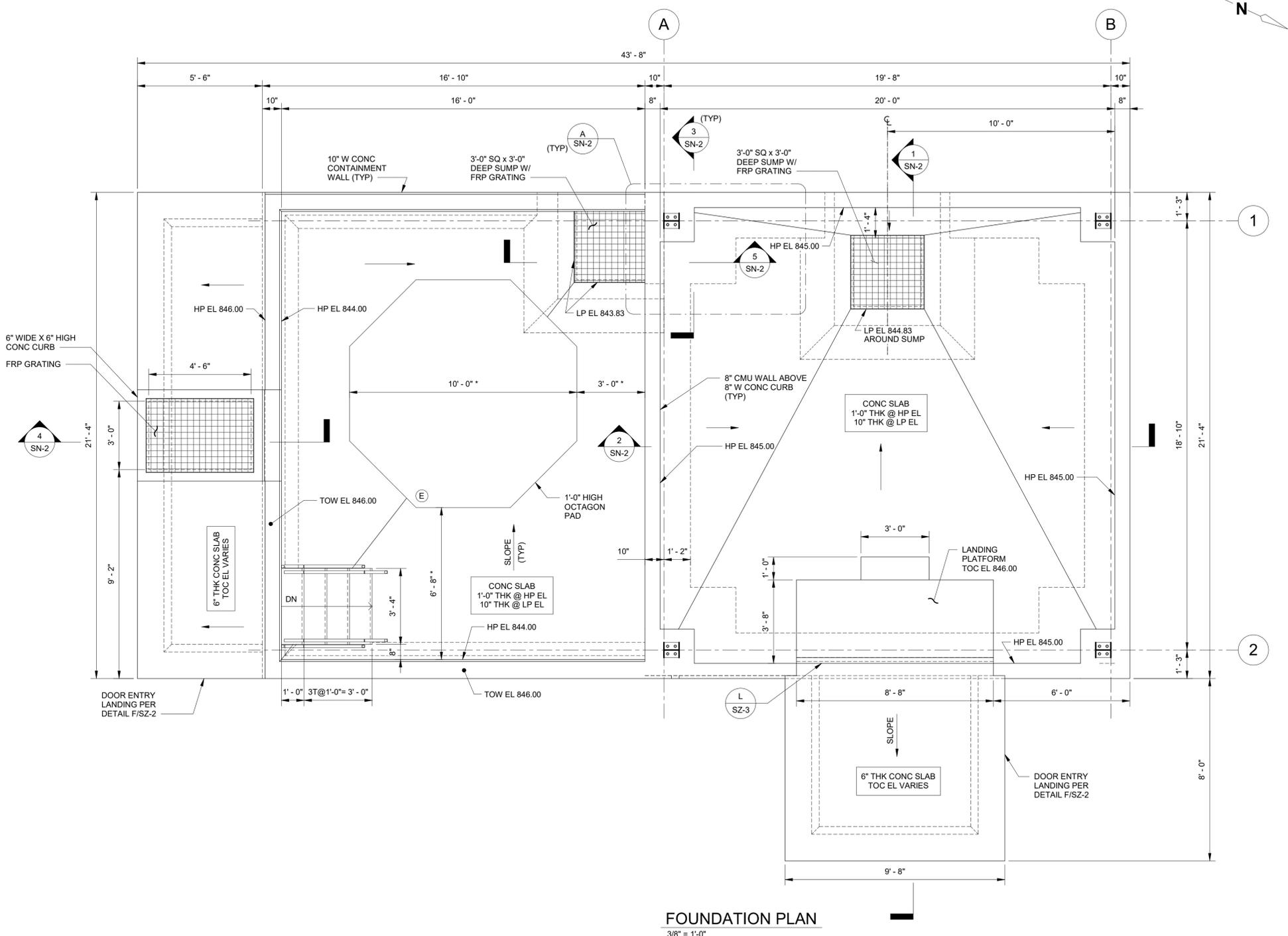
CITY OF GEORGETOWN, TEXAS
**SOUTH LAKE
 WATER TREATMENT PLANT**

**DIESEL ENGINE-DRIVEN
 GENERATOR FOUNDATION PLAN AND SECTION**

PROJECT NO.	2048-248929
FILE NAME:	S020SMPL.DWG
SHEET NO.	SM-3

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- NOTES:**
- REFER TO PRE-ENGINEERED METAL BUILDING NOTES ON SHEET S-2 AND SPECIFICATIONS 13125 FOR PRE-ENGINEERED METAL BUILDING DESIGN FABRICATION AND CONSTRUCTION.
 - REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING LAYOUT.
 - REFER TO CIVIL SHEETS FOR FOUNDATION LOCATION, SIDEWALK, ETC.
 - REFER TO PROCESS/MECHANICAL FOR HVAC EQUIPMENT REQUIREMENTS.
 - REFER TO ELECTRICAL SHEETS FOR CONDUIT PENETRATIONS AND ANY HOUSE KEEPING PAD.
 - REFER TO FOUNDATION NOTES ON SHEET SZ-4 FOR EXCAVATION, SUBGRADE PREPARATION AND SELECT FILL REQUIREMENTS.
 - * INDICATES DIMENSIONS AND INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH THE EQUIPMENT MANUFACTURER BEFORE FABRICATION OR CONSTRUCTION.



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

Harvey E. Mitschke
 HARVEY EUGENE MITSCHKE
 37145
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF TEXAS
 01-19-22

REV. NO.	DATE	DRWN	CHKD	REMARKS
A	2/22	BK	EGN	CONFORMED DRAWING
6	1/6/22	BK	EGN	REVISED FOR ADDENDUM NO. 6

DESIGNED BY: H. MITSCHKE
 DRAWN BY: N. KRISHNAMOORTHY
 SHEET CHKD BY: E. GOPINATH
 CROSS CHKD BY: H. MITSCHKE
 APPROVED BY: H. MITSCHKE
 DATE: OCTOBER 2021

CDM Smith
 9430 RESEARCH BLVD., SUITE 1-200
 AUSTIN, TX 78759
 TEL: (512) 346-1100
 TBPE Firm Registration No. F-3043

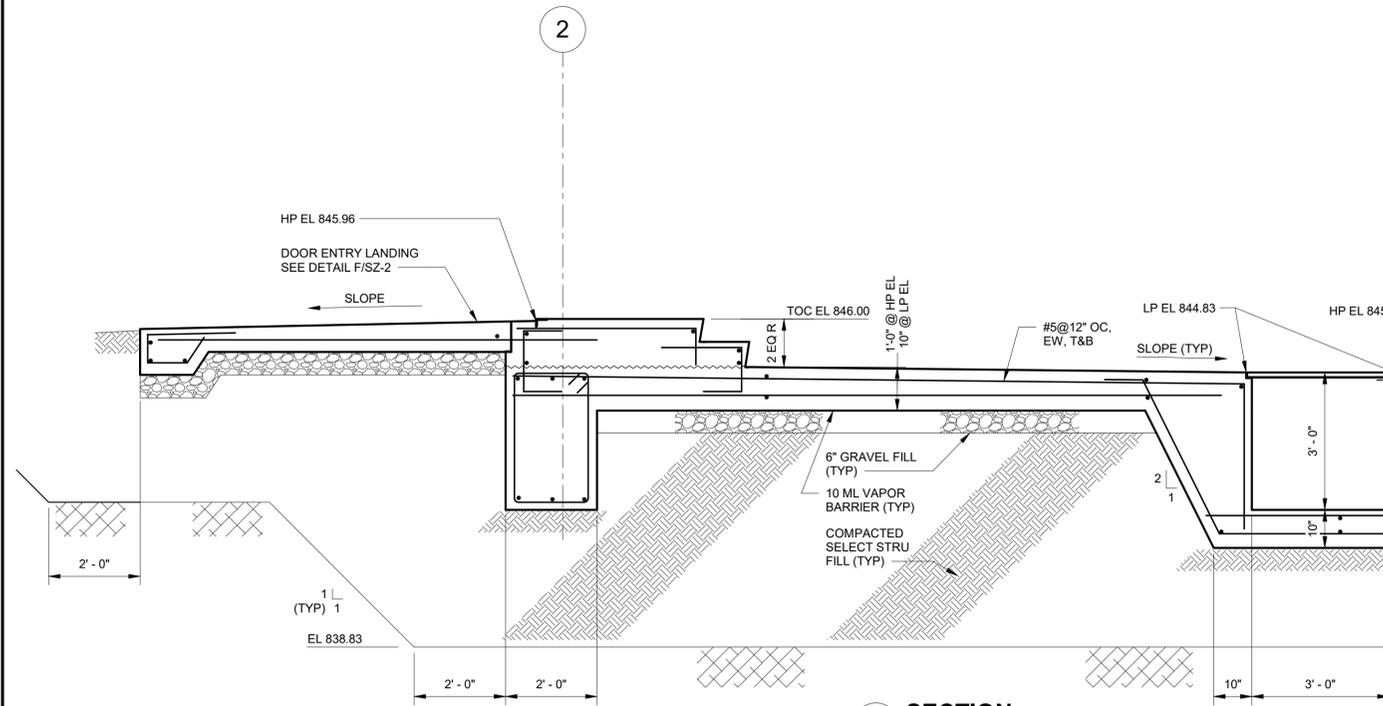
CITY OF GEORGETOWN, TEXAS
**SOUTH LAKE
 WATER TREATMENT PLANT**

**STRUCTURAL
 RAW WATER CHEMICAL BUILDING
 FOUNDATION PLAN**

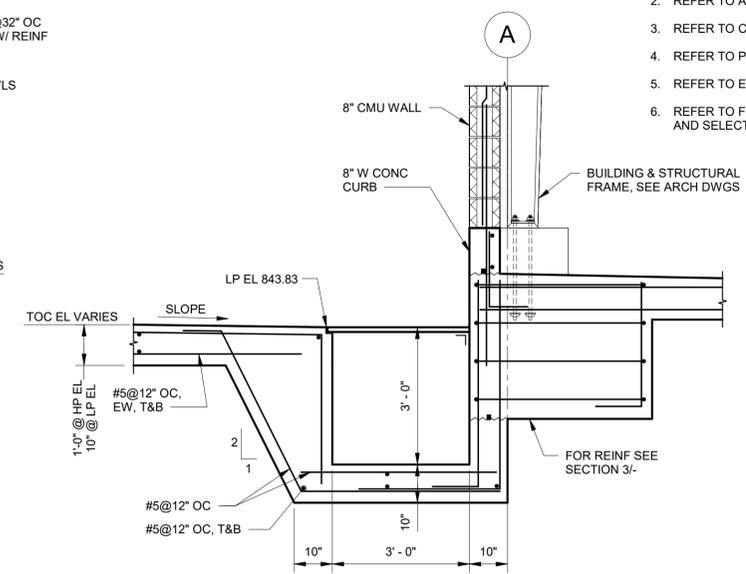
PROJECT NO.	2048-248929
FILE NAME:	SWZ000NS.rvt
SHEET NO.	SN-1

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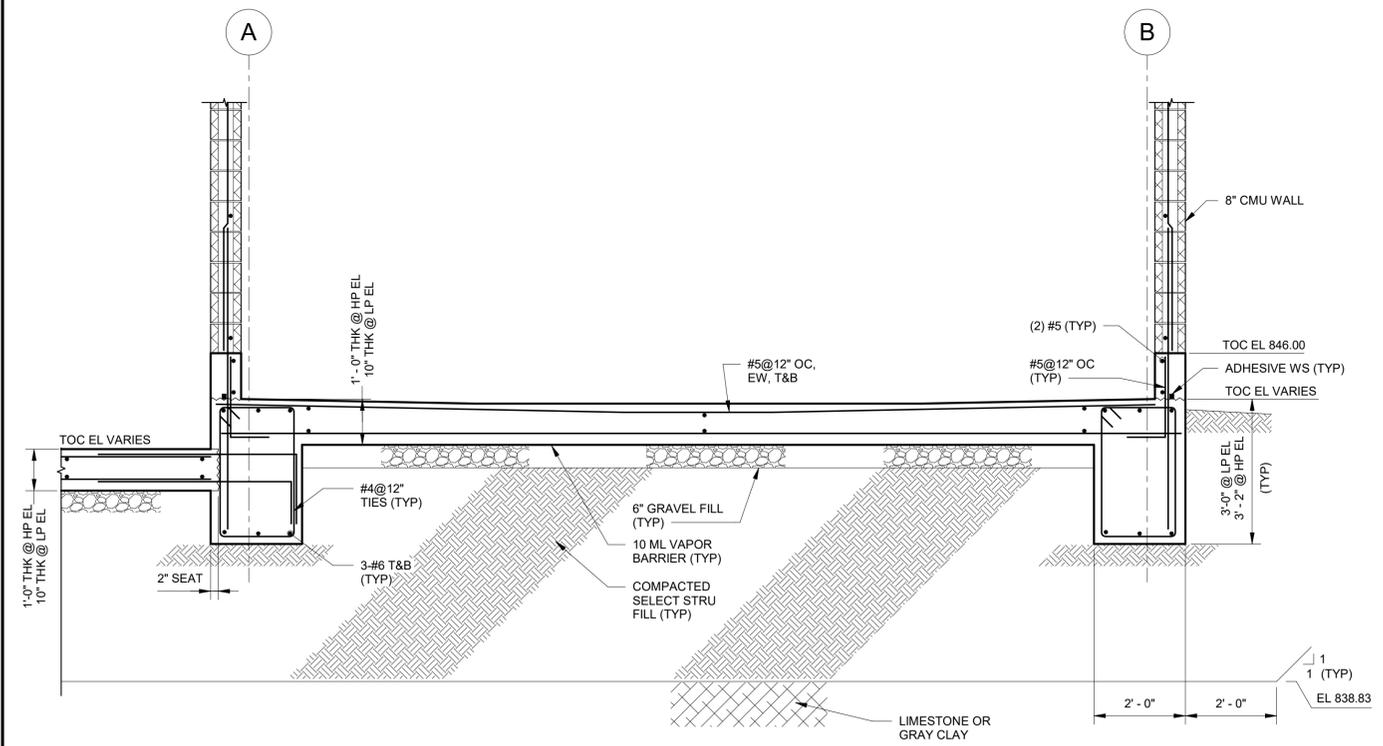
- NOTES:**
- REFER TO PRE-ENGINEERED METAL BUILDING NOTES ON SHEET S-2 AND SPECIFICATIONS 13125 FOR PRE-ENGINEERED METAL BUILDING DESIGN FABRICATION AND CONSTRUCTION.
 - REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING LAYOUT.
 - REFER TO CIVIL SHEETS FOR FOUNDATION LOCATION, SIDEWALK, ETC.
 - REFER TO PROCESS/MECHANICAL FOR HVAC EQUIPMENT REQUIREMENTS.
 - REFER TO ELECTRICAL SHEETS FOR CONDUIT PENETRATIONS AND ANY HOUSE KEEPING PAD.
 - REFER TO FOUNDATION NOTES ON SHEET SZ-4 FOR EXCAVATION, SUBGRADE PREPARATION AND SELECT FILL REQUIREMENTS.



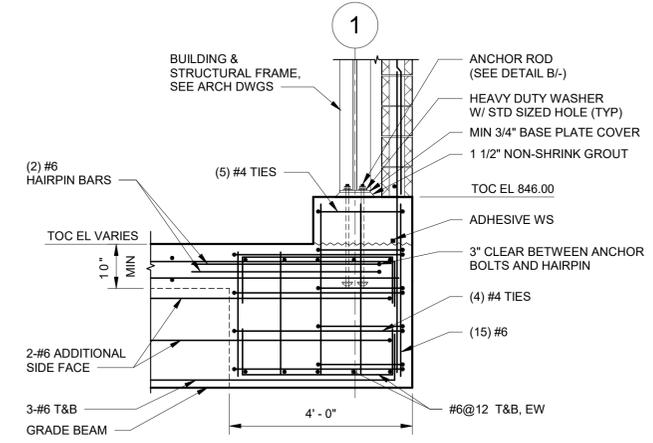
1 SECTION
SN-1 1/2" = 1'-0"



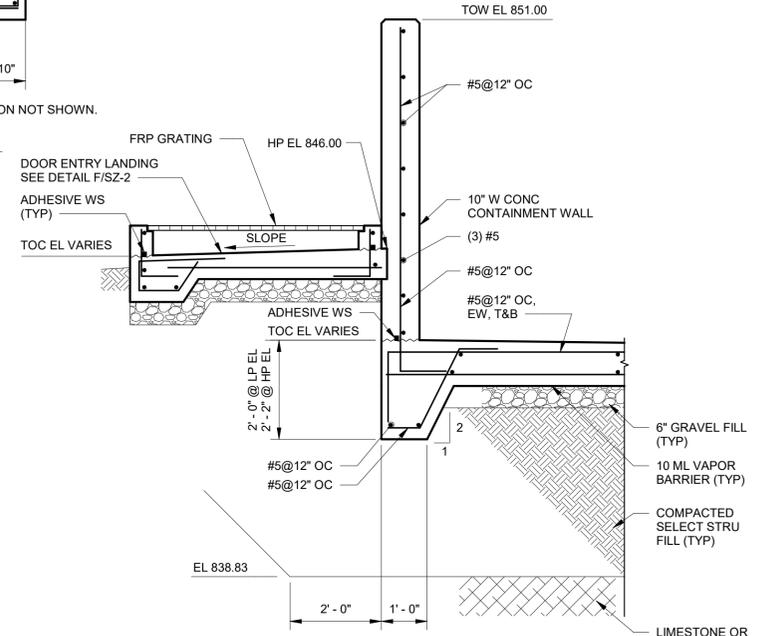
5 SECTION
SN-1 1/2" = 1'-0"



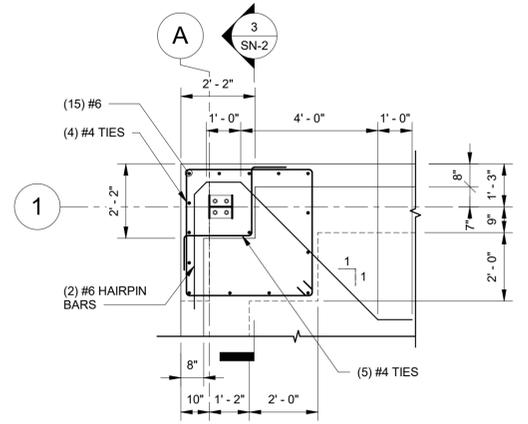
2 SECTION
SN-1 1/2" = 1'-0"



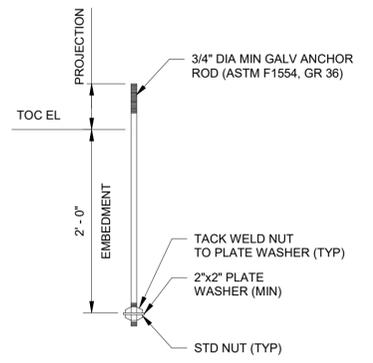
3 SECTION
SN-1 1/2" = 1'-0"



4 SECTION
SN-1 1/2" = 1'-0"



A DETAIL
SN-1 3/8" = 1'-0"



- NOTES:**
- DO NOT WELD NUT TO ANCHOR ROD.
 - MINIMUM PLATE WASHER THICKNESS EQUALS ONE HALF BOLT DIAMETER.
 - PROVIDE STEEL TEMPLATE AS REQUIRED.

TYPICAL ANCHOR BOLT DETAIL

B DETAIL
1" = 1'-0"

DESIGNED BY:	H. MITSCHKE
DRAWN BY:	N. KRISHNAMOORTHY
SHEET CHKD BY:	F. GOPINATH
CROSS CHKD BY:	H. MITSCHKE
APPROVED BY:	H. MITSCHKE
DATE:	OCTOBER 2021

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9430 RESEARCH BLVD., SUITE 1-200
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Tel: (512) 346-1100
TBPE Firm Registration No. F-3043

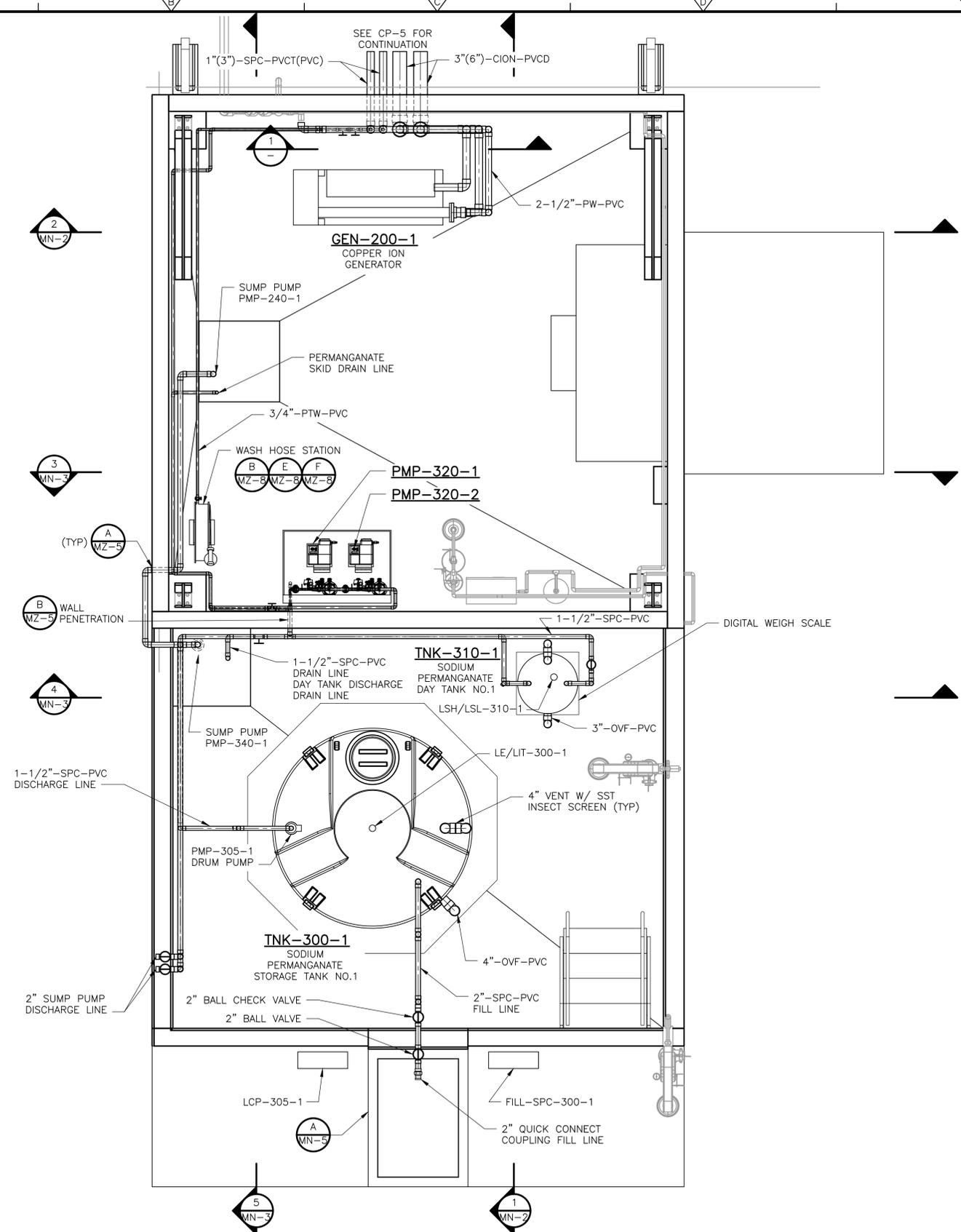
CITY OF GEORGETOWN, TEXAS
SOUTH LAKE WATER TREATMENT PLANT

STRUCTURAL RAW WATER CHEMICAL BUILDING SECTIONS AND DETAILS

PROJECT NO.	2048-248929
FILE NAME:	SW2000NS.rvt
SHEET NO.	SN-2



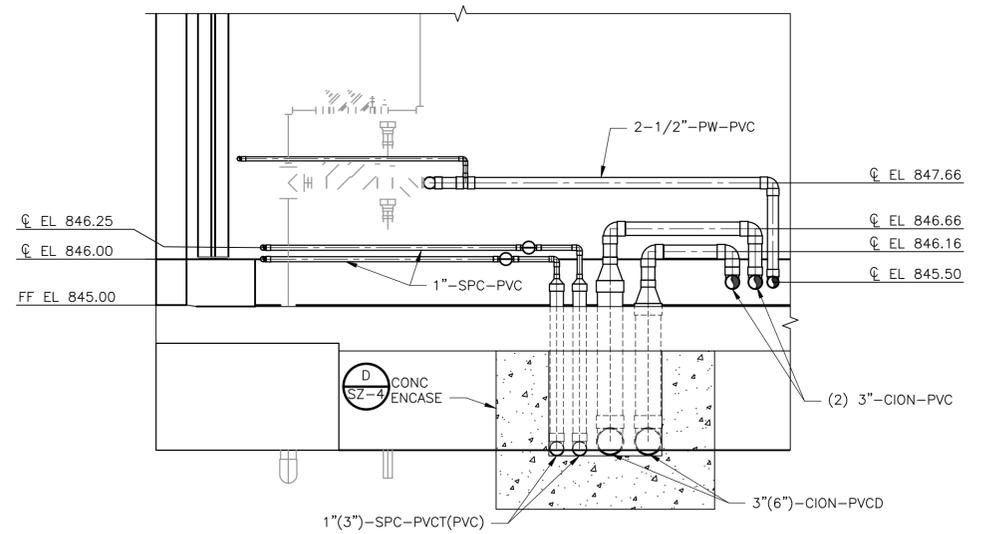
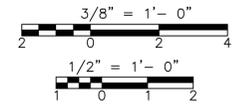
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PLAN
3/8" = 1'-0"

NOTES:

1. METERING PUMP SKID SHALL BE DESIGNED AND CONSTRUCTED BY PUMP SUPPLIER. SEE SPECIFICATION 463333 FOR PUMP SKID REQUIREMENTS.
2. ALL OUTDOOR, ABOVE GROUND CION AND PW LINES SHALL BE INSULATED, JACKETED, AND HEAT TRACED. SEE SPECIFICATIONS 404213 AND 404113 FOR INSULATION AND HEAT TRACE REQUIREMENTS.
3. SUPPORTS SHALL BE PROVIDED FOR ALL PIPING, WHETHER DRAWN OR NOT AND SPACING SHALL BE IN ACCORDANCE WITH PIPE SUPPLIER RECOMMENDATIONS BUT SHALL BE NO GREATER THAN 5- FEET INSIDE CONTAINMENT UNLESS APPROVED BY ENGINEER. SEE SPECIFICATION 400507 FOR PIPE SUPPORT REQUIREMENTS.
4. ALL WALL PENETRATIONS SHALL OCCUR AT HEIGHT NO HIGHER THAN THE CONTAINMENT CURB.
5. ALL PIPES ARE TO BE INDEPENDENTLY SUPPORTED, UNLESS TANK MANUFACTURER INCLUDES PIPE SUPPORTS OF TANK WALL ATTACHMENT POINTS IN THE TANK DESIGN PER SPECIFICATION 434143.
6. CONCRETE CONTAINMENT AREA SHALL BE COATED IN ACCORDANCE WITH SPECIFICATION 099673.33.
7. PROVIDE PVC BALL CHECK VALVE SUITABLE FOR INTENDED CHEMICAL USE.



SECTION 1
1/2" = 1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	KBR	SAS	CONFORMED DRAWING
7	1/14/22	KBR	SAS	REVISED FOR ADDENDUM NO.7
3	11/23/21	KBR	SAS	REVISED FOR ADDENDUM NO.3

DESIGNED BY: S. STEWART
 DRAWN BY: K. REESE
 SHEET CHK'D BY: R. BORTZFIELD
 CROSS CHK'D BY: M. WHITE
 APPROVED BY: S. STEWART
 DATE: OCTOBER 2021

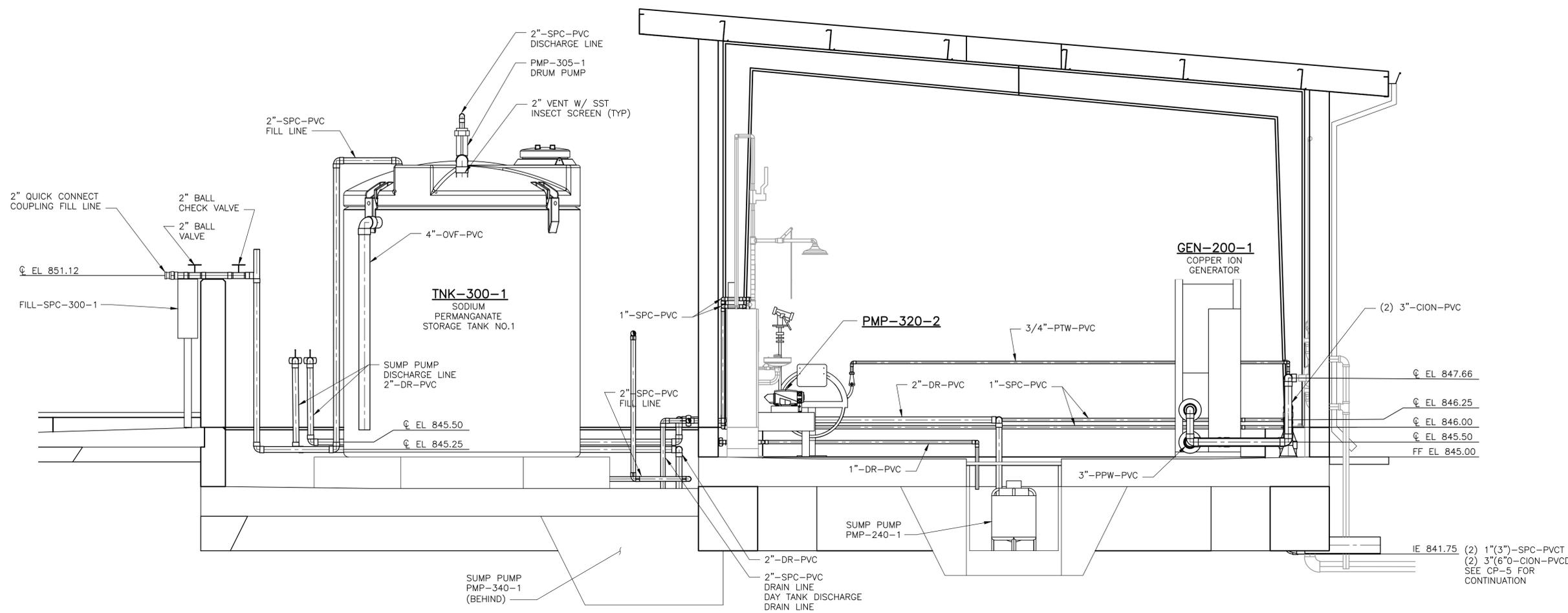
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 Austin, TX 78759
 Tel: (512) 346-1100
 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

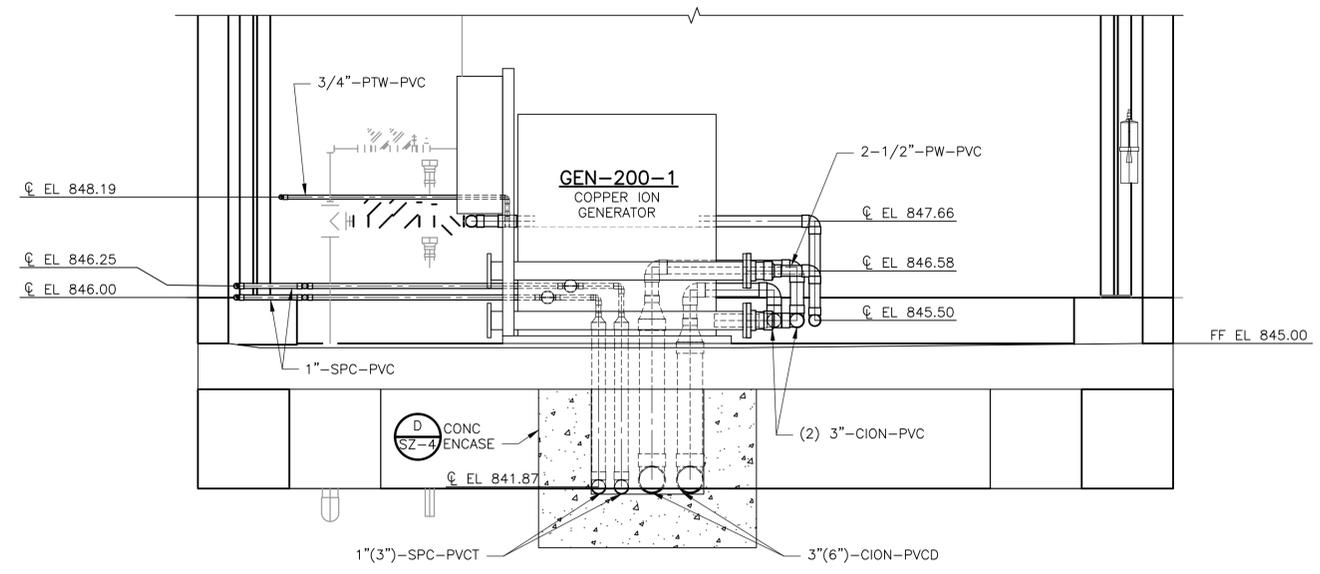
RAW WATER CHEMICAL BUILDING PLAN

PROJECT NO. 2048-248929
 FILE NAME: MN001RWPCMPL
 SHEET NO.
MN-1

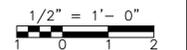
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SECTION 1
1/2" = 1'-0"
MN-1



SECTION 2
1/2" = 1'-0"
MN-1



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	KBR	SAS	CONFORMED DRAWING
7	1/14/22	KBR	SAS	REVISED FOR ADDENDUM NO.7

DESIGNED BY: S. STEWART
 DRAWN BY: K. REESE
 SHEET CHK'D BY: R. BORTZFIELD
 CROSS CHK'D BY: M. WHITE
 APPROVED BY: S. STEWART
 DATE: OCTOBER 2021

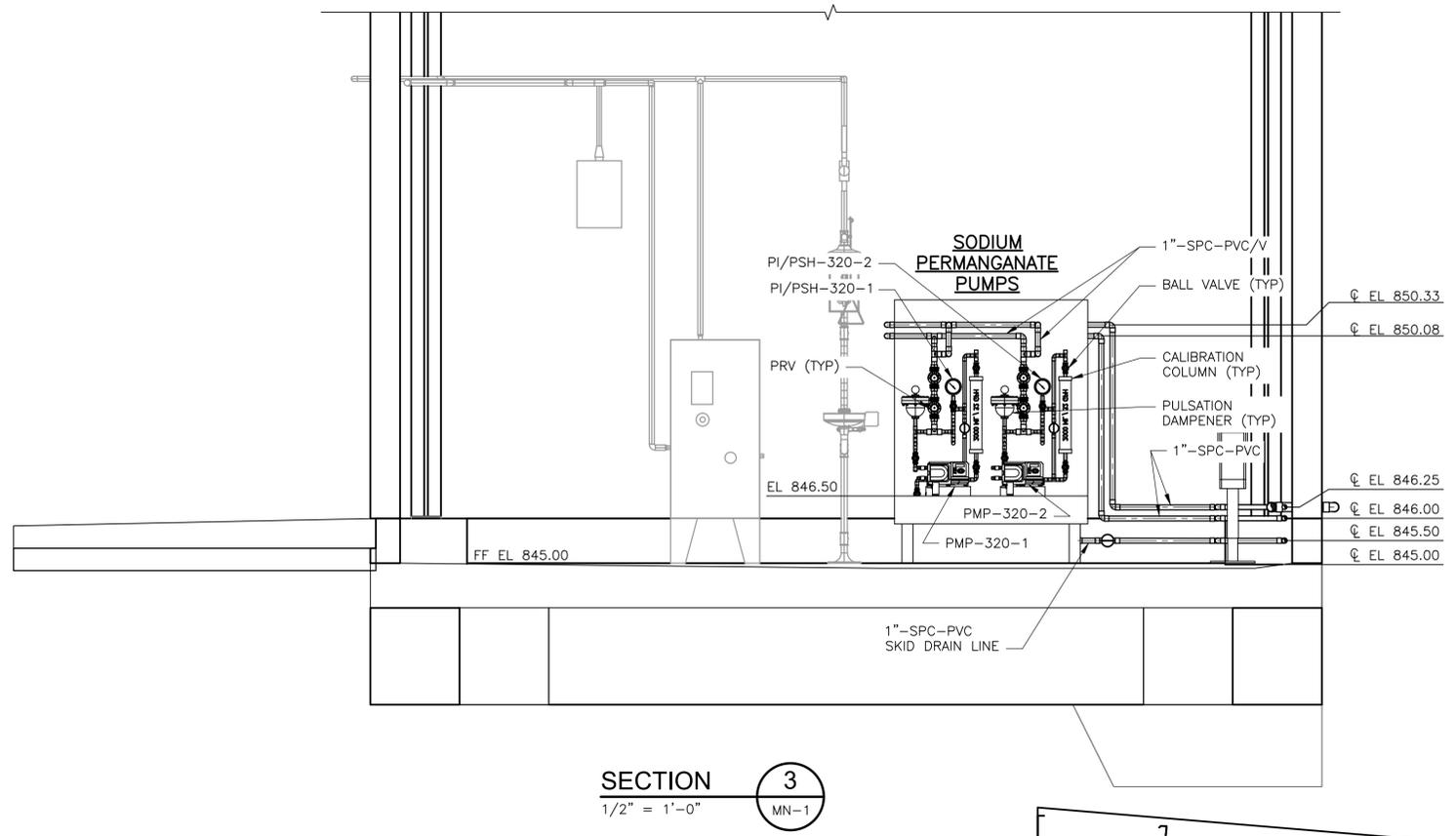


CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

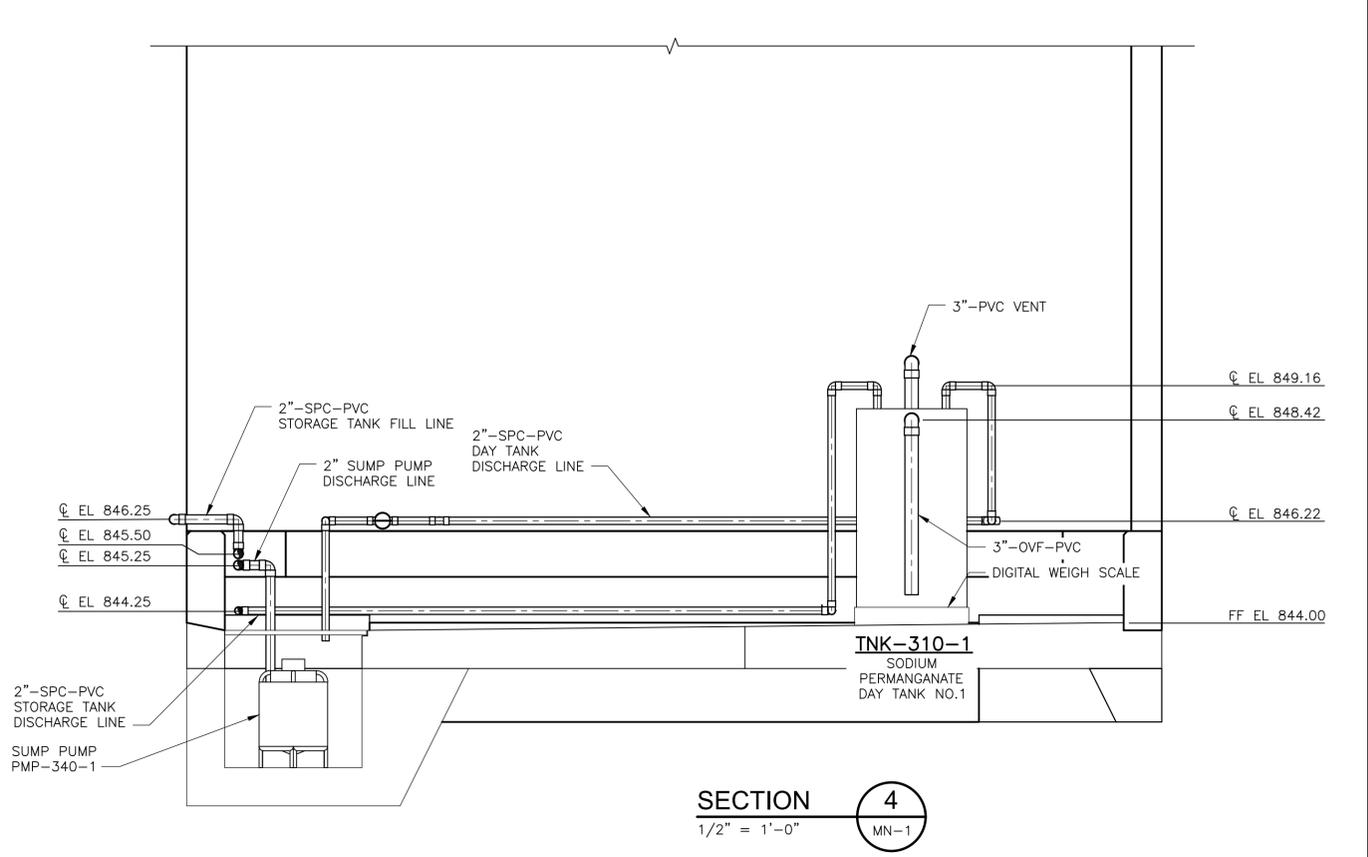
RAW WATER CHEMICAL BUILDING
 SECTIONS I

PROJECT NO. 2048-248929
 FILE NAME: MN002RWPSMPL
 SHEET NO.
MN-2

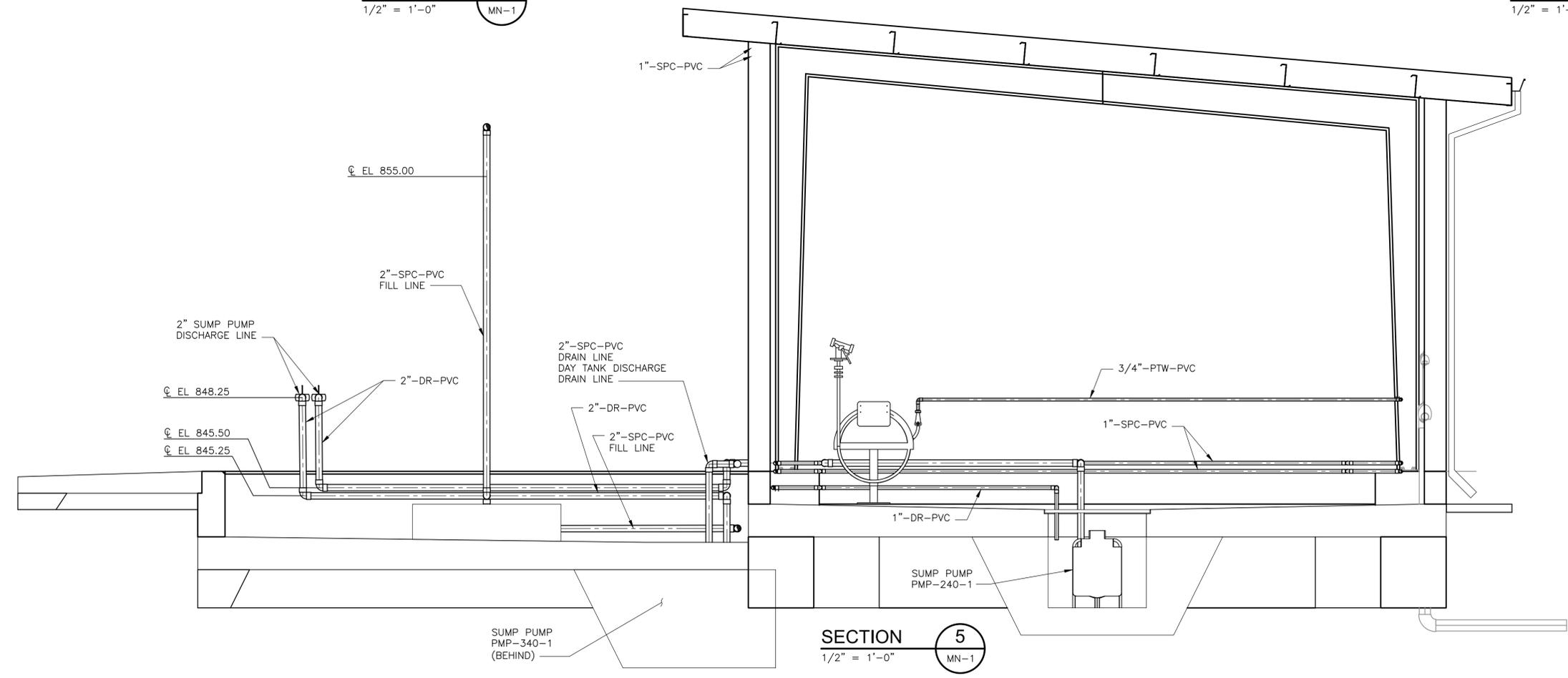
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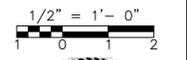
SECTION 3
1/2" = 1'-0"
MN-1



SECTION 4
1/2" = 1'-0"
MN-1



SECTION 5
1/2" = 1'-0"
MN-1



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	KBR	SAS	CONFORMED DRAWING

DESIGNED BY: S. STEWART
 DRAWN BY: K. REESE
 SHEET CHK'D BY: R. BORTZFIELD
 CROSS CHK'D BY: M. WHITE
 APPROVED BY: S. STEWART
 DATE: OCTOBER 2021

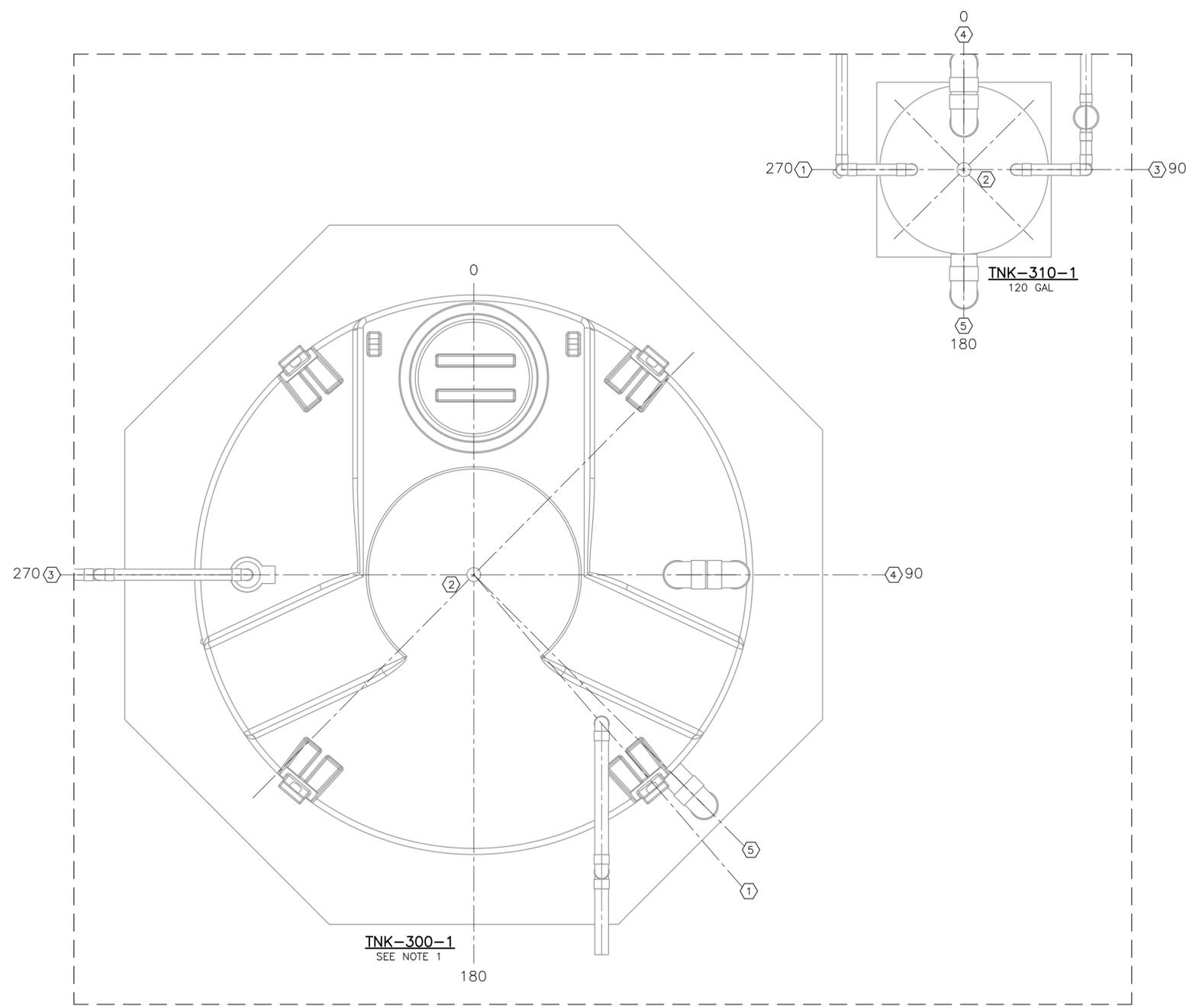
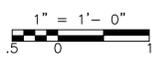
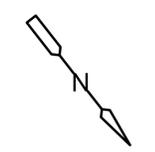
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 9430 RESEARCH BLVD., SUITE 1-200
 AUSTIN, TX 78759
 TEL: (512) 346-1100
 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

RAW WATER CHEMICAL BUILDING
 SECTIONS II
 SHEET NO.
MN-3

PROJECT NO. 2048-248929
 FILE NAME: MN003RWPCMPL
 SHEET NO.
MN-3

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NOTES:

- SODIUM PERMANGANATE TANK SIZE TO BE DETERMINED AT BIDDING. SEE SPECIFICATION 434143 FOR TANK DIMENSION LIMITS.
- CONTRACTOR TO SUBMIT FINAL SODIUM PERMANGANATE TANK PIPING PLAN TO OWNER/ENGINEER FOR APPROVAL BASED ON FINAL TANK SELECTION.

TNK-310-1				
NUMBER	SERVICE	SIZE	DEGREE	ELEVATION
1	FILL	1-1/2"	270	DOMES
2	LEVEL ELEMENT	1-1/2"	0	DOMES
3	IMFO	1-1/2"	90	DOMES
4	VENT	3"	0	DOMES
5	OVERFLOW	3"	180	TOP SIDEWALL

TNK-300-1				
NUMBER	SERVICE	SIZE	DEGREE	ELEVATION
1	FILL	2"	139	DOMES
2	LEVEL ELEMENT	2"	0	DOMES
3	IMFO	1-1/2"	270	DOMES
4	VENT	4"	90	DOMES
5	OVERFLOW	4"	135	TOP SIDEWALL

PLAN
1" = 1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	KBR	SAS	CONFORMED DRAWING

DESIGNED BY: S. STEWART
 DRAWN BY: K. REESE
 SHEET CHK'D BY: R. BORTZFIELD
 CROSS CHK'D BY: M. WHITE
 APPROVED BY: S. STEWART
 DATE: OCTOBER 2021

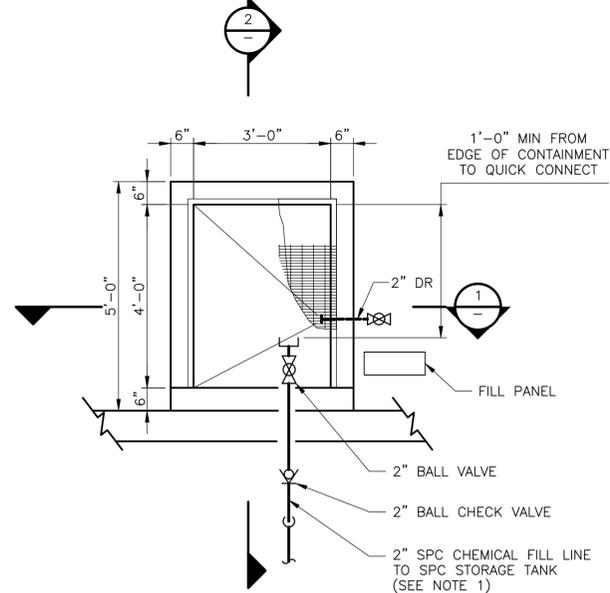


CITY OF GEORGETOWN, TEXAS
SOUTH LAKE WATER TREATMENT PLANT

**RAW WATER CHEMICAL BUILDING
 PERMANGANATE AREA
 TANK NOZZLE SCHEDULE**

PROJECT NO. 2048-248929
 FILE NAME: MN004RWPSTK
 SHEET NO. **MN-4**

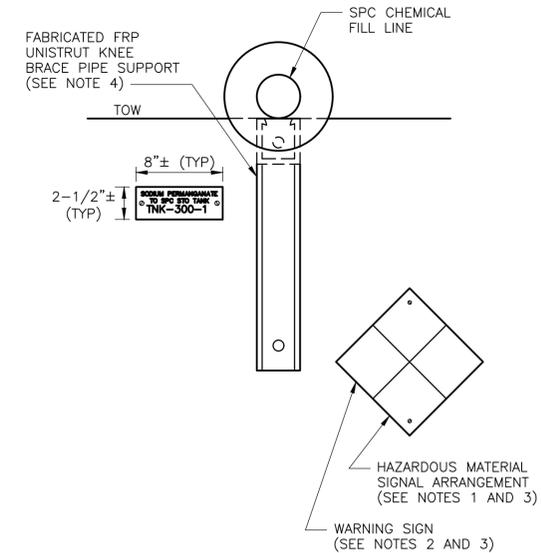
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NOTES:

1. SPACE FILL PIPES 18" APART.
2. ALL 4000 PSI CONCRETE PER SPECIFICATION 033000.
3. ROUGHEN THE CONCRETE JOINT SURFACE TO 1/4" AMPLITUDE, CLEAN, & APPLY BONDING AGENT.
4. PROVIDE TYPE 316 SST MALE ADAPTER QUICK CONNECT COUPLINGS WITH FEMALE COUPLER DUST CAP AND 18" TYPE 316 SST SECURITY CHAIN.
5. GRATING SHALL BE FRP PER SPECIFICATION 067413.

DETAIL A
NTS

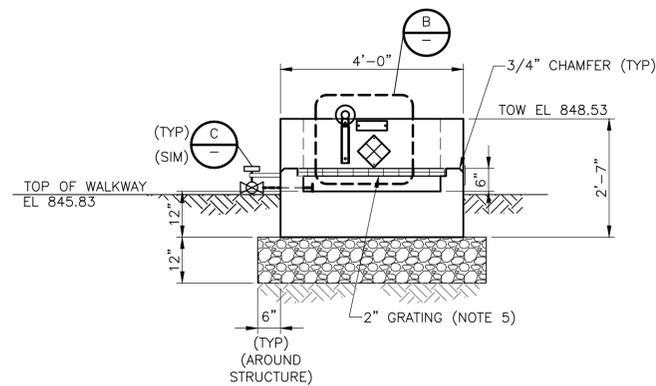


NOTES:

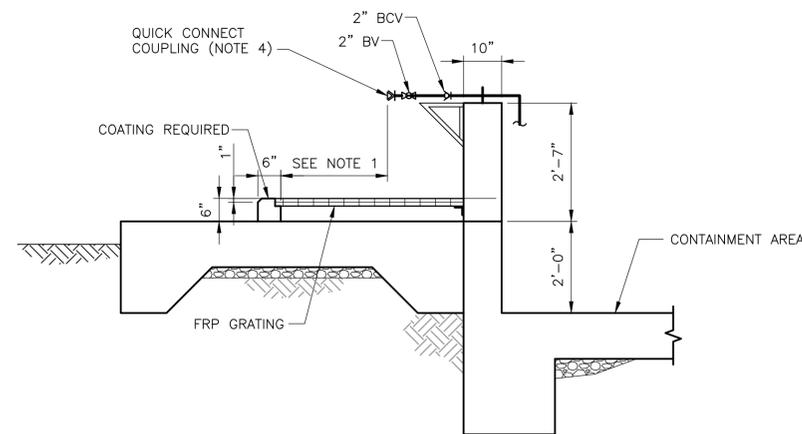
1. PROVIDE 6" x 6" RIGID PLASTIC HAZARDOUS MATERIAL SIGNAL ARRANGEMENT AT FILL STATION AS MFD BY EMED Co, INC, BUFFALO, NY, MODEL FH21-6FL-CW, OR EQUAL. CONTRACTOR SHALL CONFIRM THE NUMERICAL GRADINGS FOR EACH CHEMICAL'S SIGNAL ARRANGEMENT.
2. PROVIDE WARNING SIGN AND FILL STATION TAG(S) AS SHOWN BENEATH SIGNAL ARRANGEMENT AT FILL STATION. WARNING SIGN AND FILL STATION TAG(S) SHALL BE CONSTRUCTED OF BLACK AND WHITE LAMINATED, PHENOLIC MATERIAL HAVING ENGRAVED LETTERS APPROXIMATELY 3/8" HIGH, EXTENDING THROUGH THE BLACK FACE INTO WHITE LAYER. CHEMICAL NAME AND BULK STORAGE TANK TAG No WILL VARY FOR EACH FILL STATION TAG.
3. SIGNAL ARRANGEMENT, WARNING SIGN, AND FILL STATION TAG(S) SHALL BE LOCATED ABOVE THE CHEMICAL FILL LINE(S) IN THE GENERAL ARRANGEMENT SHOWN HEREIN AND PLAINLY VISIBLE TO ANYONE FACING FILL STATION.
4. PROVIDE UNISTRUT F-1100 SERIES, OR EQUAL, PIPE CLAMPS WITH CHEMICAL RESISTANT PIPE SHIELDS AND SST HARDWARE. ALL JOINTS OF FABRICATED KNEE BRACE PIPE SUPPORT SHALL HAVE TYPE 316 SST HARDWARE.
5. TAG SHALL STATE "SODIUM PERMANGANATE TO SPC STO TANK TNK-300-1".

FILL STATION TAGS, SIGNAL ARRANGEMENT, AND WARNING SIGN

DETAIL B
NTS



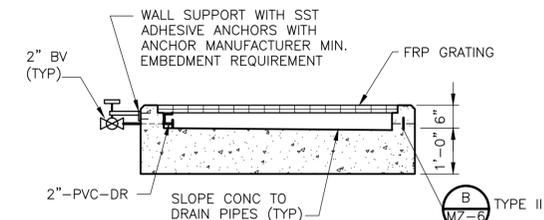
SECTION 1
NTS



NOTES:

1. MINIMUM DISTANCE FROM CURB INNER WALL TO QUICK CONNECT SHALL BE 1-FOOT.

SECTION 2
NTS



NOTE:

1. OUTLET BALL VALVE SHALL BE LOCATED AT THE INVERT OF THE SPILL CONTAINMENT TRENCH.

SPILL CONTAINMENT TRENCH OUTLET VALVE

DETAIL C
NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	KBR	SAS	CONFORMED DRAWING

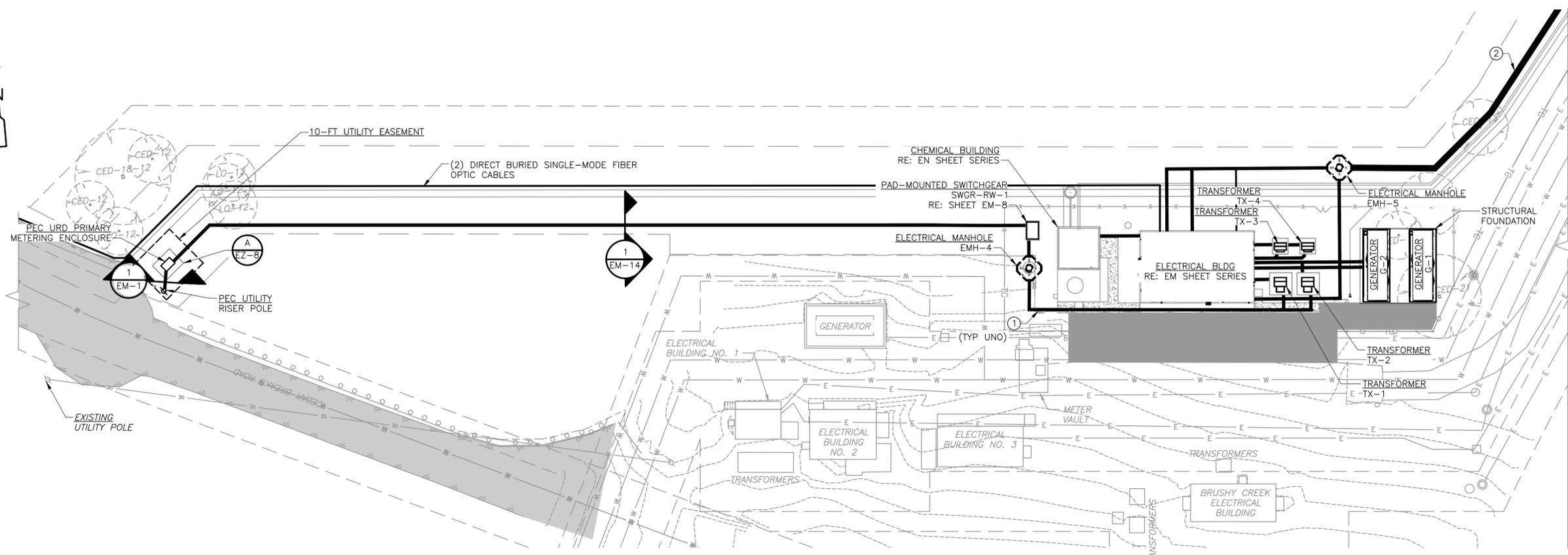
DESIGNED BY: S. STEWART	<p>9430 RESEARCH BLVD., SUITE 1-200 Austin, TX 78759 Tel: (512) 346-1100 TBPE Firm Registration No. F-3043</p>
DRAWN BY: K. REESE	
SHEET CHK'D BY: R. BORTZFIELD	
CROSS CHK'D BY: M. WHITE	
APPROVED BY: S. STEWART	
DATE: OCTOBER 2021	

CITY OF GEORGETOWN, TEXAS
SOUTH LAKE
WATER TREATMENT PLANT

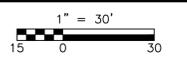
RAW WATER CHEMICAL BUILDING
FILL STATION DETAILS

PROJECT NO. 2048-248929
FILE NAME: MN005CFDT
SHEET NO. MN-5

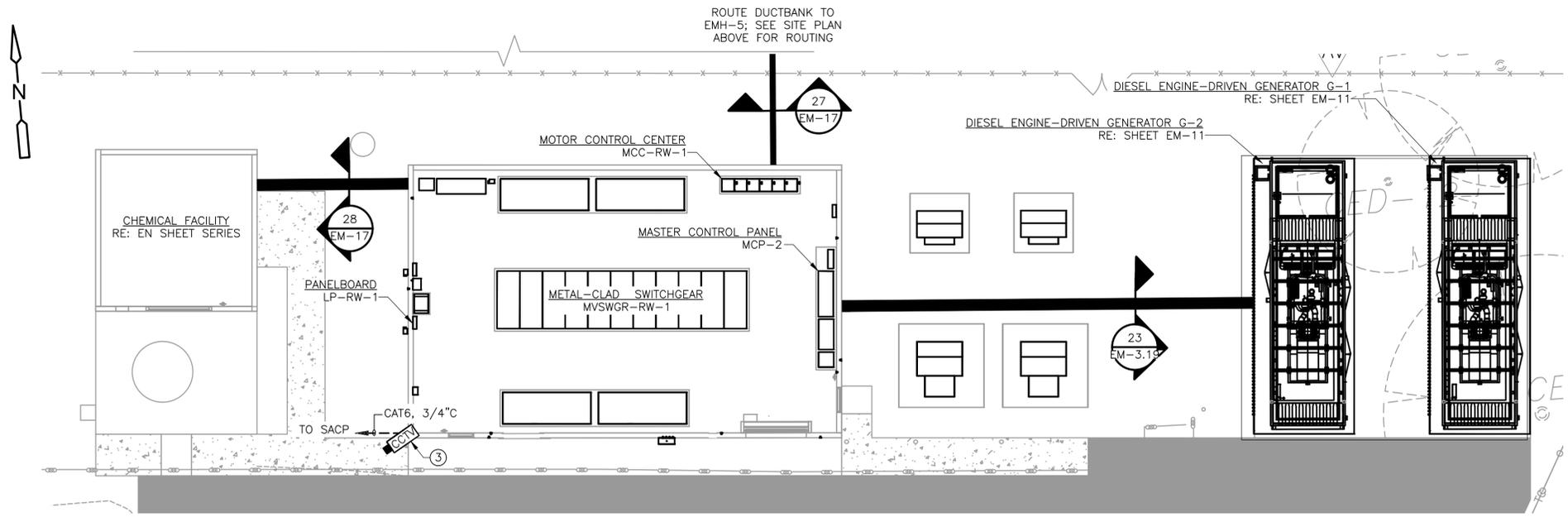
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INTAKE ELECTRICAL BUILDING AND CHEMICAL FEED BUILDING SITE PLAN



- GENERAL ELECTRICAL NOTES:**
- FIELD VERIFY LOCATIONS OF EXISTING UTILITIES. COORDINATE ROUTING OF PROPOSED DUCTBANKS WITH EXISTING DUCTBANKS, EXISTING PROCESS PIPING, AND NEW PROCESS PIPING. REFER TO CIVIL AND MECHANICAL SHEETS FOR PROCESS PIPING NEAR PROPOSED DUCTBANKS.
 - REFERENCE IZ SHEET SERIES FOR TYPICAL SECURITY INSTALLATION DETAILS.
 - INSTALL DUCTBANK IN REINFORCED CONCRETE WHERE LOCATED UNDERNEATH ROAD PER DETAIL A ON SHEET EZ-1 EXTEND REINFORCED ENCASEMENT 5-FT BEYOND ROAD.
- KEY NOTES:**
- REFERENCE SHEET EM-8, EM-9, AND EM-11 FOR ADDITIONAL INFORMATION ON THE DUCTBANK SHOWN.
 - REFERENCE SHEET EM-1.1 AND EM-1.2 FOR ADDITIONAL INFORMATION ON THE DUCTBANK SHOWN.
 - PROVIDE BY DIVISION 28. COORDINATE EXACT EQUIPMENT LOCATIONS.



INTAKE ELECTRICAL BUILDING AND CHEMICAL FEED BUILDING LOW VOLTAGE DUCTBANK ENLARGED SITE PLAN

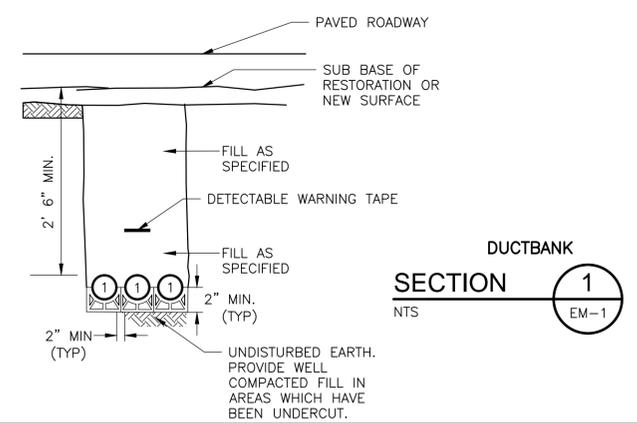
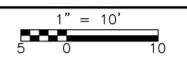


TABLE FOR SECTION 1

CONDUIT NO.	CONDUIT TAG/ SIZE	DESCRIPTION
1	PRIMARY 3" C W/PULLSTRING	FROM PEC RISER POLE TO PEC URD PRIMARY METERING CABINET

PEC UTILITY DUCTBANK SCHEDULE NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	NRM	JCS	CONFORMED DRAWING
1	11/12/21	NRM	JCS	REVISED PER ADDENDUM NO. 2

DESIGNED BY: J. SAENZ
 DRAWN BY: N. MONTGOMERY
 SHEET CHK'D BY: M. HANDLEY
 CROSS CHK'D BY: I. PJETROVIC
 APPROVED BY: J. SAENZ
 DATE: DECEMBER 2021

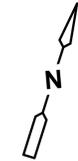
CDM Smith
 9430 RESEARCH BLVD., SUITE 1-200
 Austin, TX 78759
 Tel: (512) 346-1100
 TBPE Firm Registration No. F-3043

CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

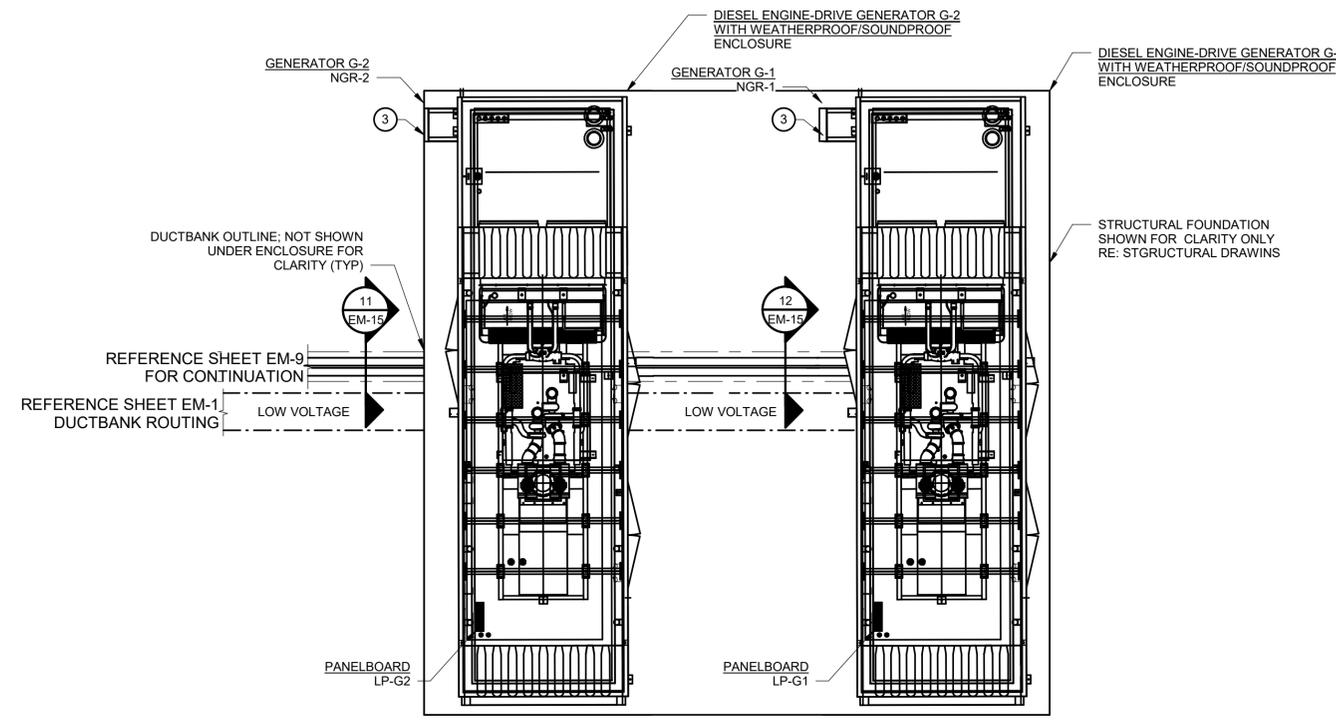
INTAKE ELECTRICAL BUILDING AND
 CHEMICAL FEED BUILDING
 SITE PLAN

PROJECT NO. 2048-248929
 FILE NAME: EM01RWST.dwg
 SHEET NO. EM-1

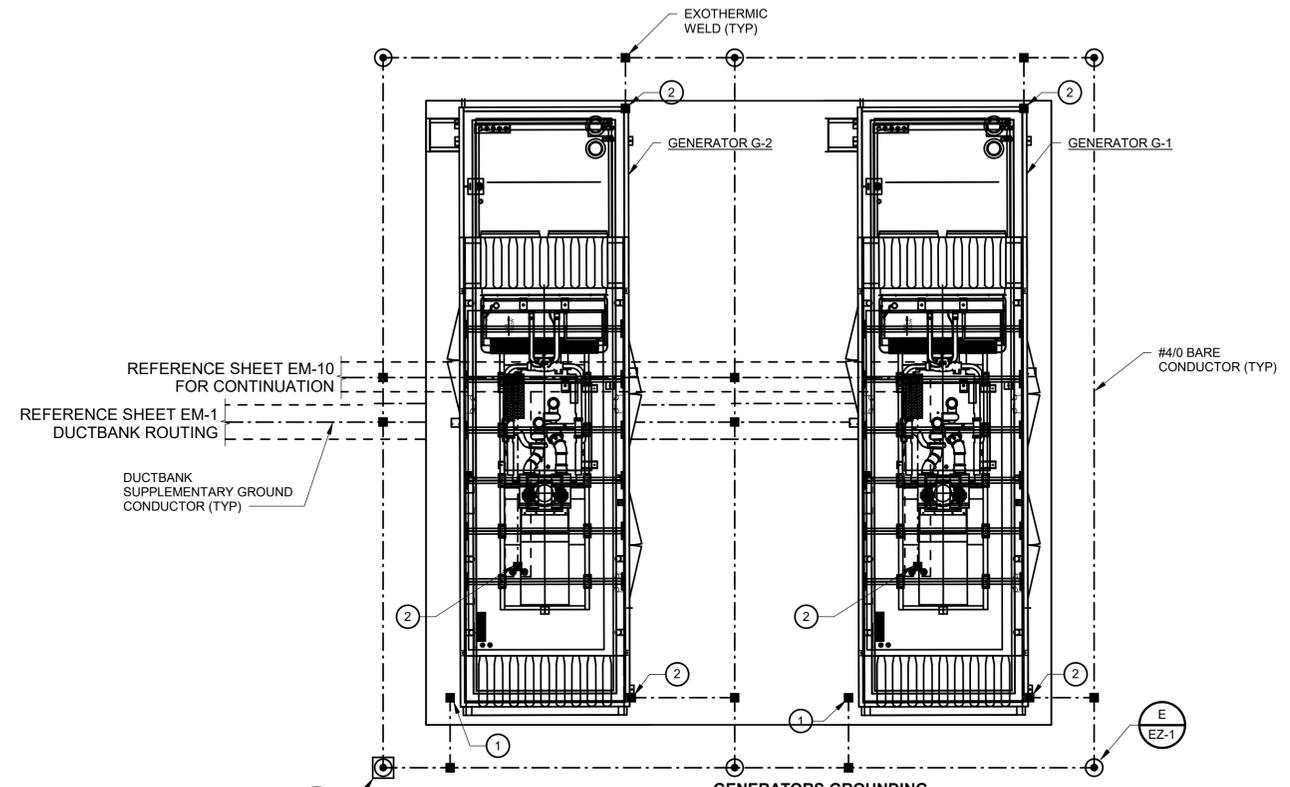
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- GENERAL ELECTRICAL NOTES:**
1. LOCATION OF GROUNDING LOOP SHALL BE AT A MINIMUM FROM ANY FOUNDATION WALLS AND COLUMNS. GROUNDING LOOP SHALL BE BURIED 30" BELOW GRADE LEVEL.
 2. FIELD VERIFY LOCATIONS OF EXISTING UTILITIES. COORDINATE ROUTING OF PROPOSED DUCTBANKS WITH EXISTING DUCTBANKS, EXISTING PROCESS PIPING, AND NEW PROCESS PIPING. REFER TO CIVIL AND MECHANICAL SHEETS FOR PROCESS PIPING NEAR PROPOSED DUCTBANKS.
- KEY NOTES:**
- 1 BOND #4/0 BARE COPPER TO STRUCTURAL STEEL.
 - 2 BOND #4/0 BARE COPPER TO GENERATOR ENCLOSURE WITH MECHANICAL LUG.
 - 3 LOCATE NGR SYSTEM ON STRUCTURAL FOUNDATION TO BEST SUIT FIELD CONDITIONS. PROVIDE EQUIPMENT PAD FOR NGR ENCLOSURE TO ELEVATE CABINET ABOVE STRUCTURAL FOUNDATION. ANCHOR EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS.



GENERATORS BELOW GRADE CONDUIT ROUTING PLAN
 0 2' 4' 6' 10'
 SCALE: 3/16" = 1'-0"



GENERATORS GROUNDING PLAN
 0 2' 4' 6' 10'
 SCALE: 3/16" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
A	1/19/22	NRM	JCS	CONFORMED DRAWING
1	1/12/21	NRM	JCS	REVISED PER ADDENDUM NO. 2

DESIGNED BY: S. KAMAL
 DRAWN BY: S. KAMAL
 SHEET CHK'D BY: M. HANDLEY
 CROSS CHK'D BY: I. PJETROVIC
 APPROVED BY: J. SAENZ
 DATE: OCTOBER 2021

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CITY OF GEORGETOWN, TEXAS
 SOUTH LAKE
 WATER TREATMENT PLANT

RAW WATER ELECTRICAL BUILDING
 GENERATORS BELOW GRADE CONDUIT ROUTING
 AND GROUNDING PLAN

PROJECT NO. 2048-248929
 FILE NAME:
 SHEET NO. EM-11

