CLARA VISTA
LIFT STATION & FORCE MAIN
ORGANIZED SEWAGE COLLECTION SYSTEM PLAN

PREPARED BY:
PAPE-DAWSON CONSULTING ENGINEERS, LLC.
TBPE FIRM REGISTRATION #470
10801 N MoPac Expy., Bldg. 3, Suite 200
AUSTIN, TEXAS 78759



September 2024

PAPE-DAWSON ENGINEERS

Transportation | Water Resources | Land Development | Surveying | Environmental

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September 2024

PAPE-DAWSON ENGINEERS

September 23, 2024

Mr. Robert Sadlier
Texas Commission on Environmental Quality (TCEQ)
Region 11
12100 Park 35 Circle, Building A
Austin, Texas 78753

Re: Clara Vista Lift Station & Force Main
Sewage Collection System Application

Dear Mr. Sadlier:

Please find attached one (1) electronic copy of the Clara Vista Lift Station & Force Main Sewage Collection System Application (SCS). This SCS Application has been prepared to be consistent with the regulations of the Texas Commission on Environmental Quality (30 TAC 213 & 217) and current policies for development over the Edwards Aquifer Recharge Zone.

This SCS Application applies to approximately 9,499 total linear feet of force main proposed as part of this project. Please review the plan information for the items it is intended to address. If acceptable, please provide written approval of the plan in order that construction may begin at the earliest opportunity.

Appropriate review fee ($4,749.50) and fee application are included. If you have any questions or require additional information, please do not hesitate to contact me at your earliest convenience.

Sincerely,
Pape-Dawson Consulting Engineers, LLC.

Aimee Chavez, P.E.
Associate Vice President



H:\PROJECTS\514\56\10\302 CONSTRUCTION DOCUMENTS\DOCUMENTS\REPORTS\SCS\SCS COVER LETTER.DOCX

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: Clara Vista Lift Station & Force Main						**2. Regulated Entity No.:** N/A			
3. Customer Name: Toll Southwest LLC.						**4. Customer No.:** CN605682475			
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	
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**		1.79 acres	
9. Application Fee:	$4,749.50		**10. Permanent BMP(s):**			N/A			
11. SCS (Linear Ft.):	9,499 LF		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Hays		**14. Watershed:**			Blanco 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.)	✓	___	___
Region (1 req.)	✓	___	___
County(ies)	✓	___	___
Groundwater Conservation District(s)	___Edwards Aquifer Authority ✓Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	___
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ✓Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jarrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	___	___	___	___
Region (1 req.)	___	___	___	___	___
County(ies)	___	___	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	___Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge ___New Braunfels ___Schertz	NA	___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. Aimee Chavez, P.E.
Print Name of Customer/Authorized Agent
Aimee Chavez 9/23/24 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

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: Aimee Chavez, P.E.

Date: September 23, 2024

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Clara Vista Lift Station & Force Main
2. County: Hays
3. Stream Basin: Blanco River
4. Groundwater Conservation District (If applicable): Barton Springs/Edwards Aquifer
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☒ Transition Zone

6. Plan Type:

   ☐ WPAP
   ☒ SCS
   ☐ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

   Contact Person: Mike Boswell
   Entity: Toll Southwest LLC.
   Mailing Address: 1320 Arrow Point Dr., Suite 401
   City, State: Cedar Park, Texas Zip: 78613
   Telephone: 817-329-7973 FAX: _____
   Email Address: mboswell@tollbrothers.com

8. Agent/Representative (If any):

   Contact Person: Aimee Chavez, P.E.
   Entity: Pape-Dawson Consulting Engineers, LLC.
   Mailing Address: 10801 N Mopac Expressway, Bldg. 3 Suite 200
   City, State: Austin, Texas Zip: 78759
   Telephone: 512-454-8711 FAX: _____
   Email Address: achavez@pape-dawson.com

9. Project Location:

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

    From TCEQ's Austin office, travel south on I-35 North approximately 26.8 miles and take Exit 215 towards Kyle Parkway in Kyle, Texas. Exit I-35 South and travel approximately 0.6 miles on the I-35 Frontage Rd before turning right onto Kohlers Crossing. Travel approximately 2.3 miles then turn left onto Jack C Hays Trail. Travel approximately 1.1 miles and then continue onto N Old Stagecoach Rd. Travel approximately 0.5 miles before turning right onto Six Creeks Blvd. The wastewater line is located 2.0 miles down Six Creeks Blvd., this line extends 0.22 miles south to the proposed lift station. The force main extends 1.78 miles northeast of the lift staion along an easement south of Cypress Road and connects to an existing wastewater line at the intersection of Cypress Road, W. Center Street, and Pump House Road.

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: _____

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: _____

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.

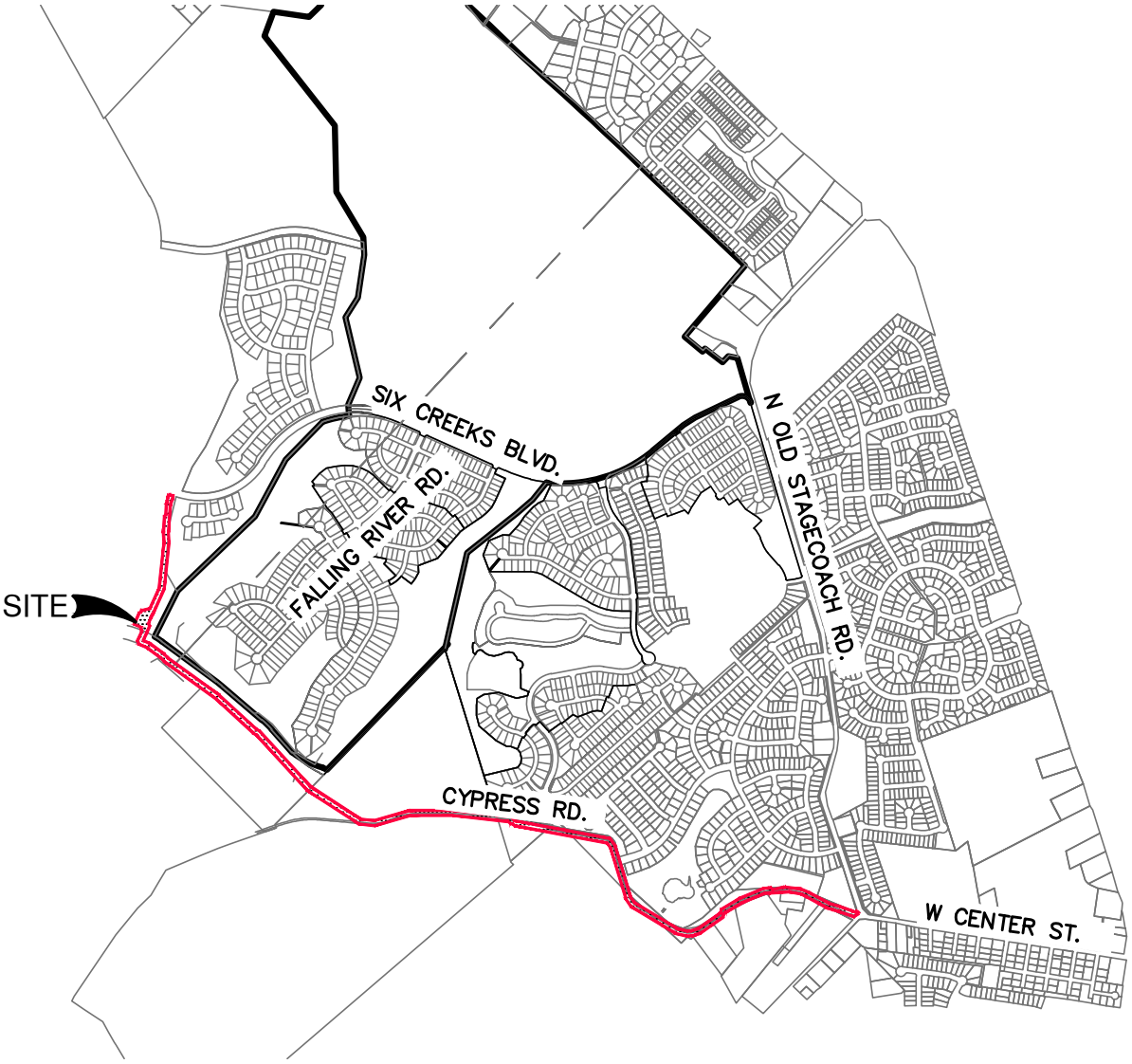
19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

☐ 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



SCALE: 1"= 2,000'

2,000' 0' 1,000' 2,000'

JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER
CHECKED AC DRAWN CK
SHEET 1 of 1

CLARA VISTA LIFT STATION & FORCE MAIN
KYLE, TEXAS
ATTACHMENT A - ROAD MAP

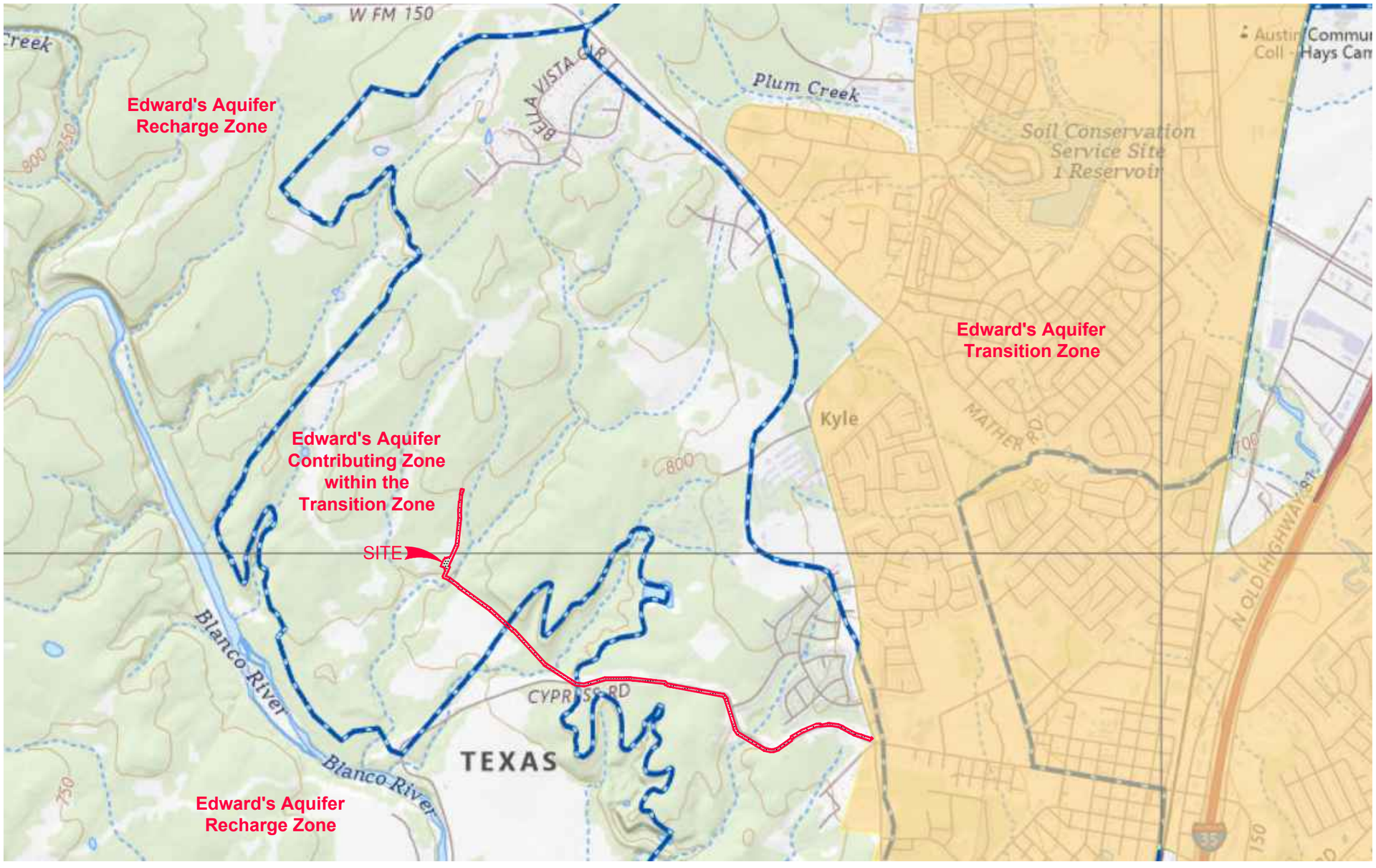
PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

Date: Aug 27, 2024, 2:13pm User ID: CKrause
File: H:\Projects\514\56\01\302 Construction Documents\Documents\Reports\SCS\1. General Information\CAD Exhibits\240826 Road Map.dwg

ATTACHMENT B

SCALE: 1"= 2,000'

2,000' 0' 1,000' 2,000'



PAPE-DAWSON ENGINEERS

AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

HAWKES LANDING NORTH PHASE 3

LEANDER, TEXAS

ATTACHMENT B - USGS QUAD MAP

JOB NO. 51167-03
DATE JUNE 2024
DESIGNER
CHECKED AC
DRAWN CK
SHEET 1 of 1

Date: Aug 27, 2024, 1:38pm User ID: CKrouse
File: H:\Projects\514\56\10\302 Construction Documents\Documents\Reports\SCS\1. General Information\CAD Exhibits\240826 USGS Quad Map.dwg

ATTACHMENT C

CLARA VISTA LIFT STATION & FORCE MAIN
Sewage Collection System Application

PROJECT DESCRIPTION

Clara Vista Lift Station & Force Main consists of 1,461 LF of wastewater main extension to a 1.79-acre lift station, and 9,499 LF of force main in Hays County, Texas. Approximately 1,710 LF of proposed force main are within the Edward's Aquifer Recharge Zone. The remaining 7,789 LF of force main, 1,461 LF of wastewater main extension, and the 1.79-acre lift station site are located over the Edwards Aquifer Contributing Zone within the Transition Zone. Please refer to the site plan and construction plans included with this application. A Water Pollution Abatement Plan (WPAP) application for this development has been submitted to the Texas Commission on Environmental Quality (TCEQ) with this report.

There is an existing road on the site at the proposed tie-in to the east. 6,171 LF of force main, a wastewater manhole, 210 LF of gravity sewer, and a gravity sewer tie-in are proposed within the ROW of the existing 'Cypress Road'. The lift station and remaining force main site are currently undeveloped. As shown in the geologic assessment provided, there are no naturally occurring sensitive features on-site. Please refer to the site geologic map provided with this geologic assessment for additional information.

Clara Vista Lift Station & Force Main SCS application proposes the construction of approximately 210 LF of 18-inch (18") gravity wastewater mains; 133 LF of 15-inch (15") gravity wastewater mains; 335 LF of 12-inch (12") gravity wastewater mains; 783 LF of 10-inch (10") gravity wastewater mains; 9,499 LF of 8-inch (8") force main; and one (1) lift station. The 18-inch (18") gravity sewer main is to be constructed of PS115, 115 psi pressure-rated PVC pipe. All other gravity sewer mains are to be constructed of SDR-26, 160 psi pressure-rated PVC pipe. The lift station is designed to provide wastewater capacity for approximately 251.50 acres of future off-site development at an ultimate build-out of 800 living unit equivalents (LUEs) as provided for in accordance with the City of Kyle's signed development agreement, dated April 29, 2022.

Regulated activities proposed include excavation, construction of gravity sewer mains, force main, manhole installation, backfill and compaction, and lift station construction. Approximately 14.30 acres may be disturbed.

Approximately 210,000 gallons per day (average flow) of domestic wastewater will flow through this SCS at ultimate build-out. Sewage flow will be disposed of by conveyance to the existing City of Kyle Wastewater Treatment Facility. Please refer to the site plan and construction plans included with this application.

GEOLOGIC ASSESSMENT

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.

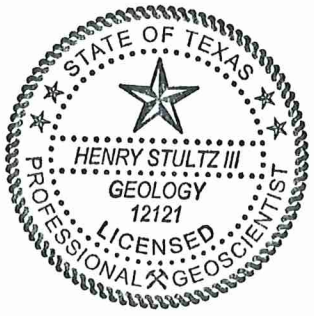
Print Name of Geologist: **Henry E. Stultz III, P.G.** Telephone: **210-375-9000**

Date: May 7, 2024 Fax: **210-375-9090**

Representing: **Pape-Dawson Engineers, Inc., TBPG registration number 50351**

Signature of Geologist:





Regulated Entity Name: **Clara Vista – Force Main**

Project Information

1. Date(s) Geologic Assessment was performed: **April 3, 2024**
2. Type of Project:
   - ☐ WPAP
   - ☒ SCS
   - ☐ AST
   - ☐ 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)
Austin-Castephen complex, 1 to 3 % slopes (AuB)	C	2-3
Lewisville silty clay, 1 to 3 % slopes (LeB)	C	3-6
Real gravelly loam, 1 to 8 % slopes (RaD)	D	1-3

** 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" = **200'**
   Site Geologic Map Scale: 1" = **200'**
   Site Soils Map Scale (if more than 1 soil type): 1" = **1500'**

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.

ATTACHMENT A
Geologic Assessment Table

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Clara Vista – Force Main																	
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-1	29.99103	-97.89238	MB	30	Kau								F,C	5	35	35		X		Hillside

** DATUM: NAD 83

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

STATE OF TEXAS
HENRY STULTZ III
GEOLOGY
12121
LICENSED
PROFESSIONAL GEOSCIENTIST

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists.
The information presented here complies with that document and is a true representation of the conditions observed in the field.
My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date May 7, 2024

TCEQ-0585-Table (Rev. 10-01-04)

ATTACHMENT A

ATTACHMENT B
Stratigraphic Column

Clara Vista – Force Main
Geologic Assessment (TCEQ-0585)

Attachment B – Stratigraphic Column

Period	Epoch	Group	Formation	Maximum Thickness	Lithology	Hydrologic Unit
Cretaceous	Gulfian	Austin	**Austin Chalk (Kau)**	325-420	**Austin Chalk**, chalk and marl; chalk mostly microgranular calcite with minor Foraminifera tests and Inoceramus prisms, average about 85 percent calcium carbonate, ledge forming grayish white to white; alternates with marl, bentonitic seams locally recessive, medium gray; pyrete nodules common, weather to limonite.	Confining
	Comanchean	Washita	**Eagle Ford Group and Buda Limestone (undivided) (Keb)**	25-65	**Eagle Ford Group**, shale and limestone. Upper part-shale, compact, silty, contains fossil fish teeth and bones, 10 feet or more thick; middle part-silty limestone grading to calcareous siltstone, flaggy, medium gray, weathers pale yellowish brown, 5 feet thrick. Lower part-shale, calcareous, dark gray, 7-50 feet thick.	Confining
				45	**Buda Limestone**, fine grained bioclastic, commonly glauconitic, pyritiferous, hard, massice, poorly bedded to nodular, thinner bedded and argillacrous near upper contact, light gray to pasle orange; weathers dark gray to brown; burrows filled with chalky marl, abundant pelecypods.	Confining
			Del Rio Clay and Georgetown Formation (undivided) (Kdg)	40–60	**Del Rio Clay**, mostly clay, calcareous and gypsiferous, becoming less calcareous and more gypsiferous upward, pyrity common, blocky, medium gray, weather light gray to yellowish gray; some thin lenticular beds of hightly calcareous siltstone; some thin limestone beds composed of pelecypods.	Confining
				10-45	**Georgetown Formation**, mostly limestone, fine grained, argillaceous, nodular, moderalty indurated, light gray; some limestone, hard brittle, thick bedded, white; some shale, calcareous, soft, light gray to yellowish gray.	Edwards Aquifer
		Fredricksburg	**Fredricksburg Group (undivided) (Kfr)**	60-350	**Edwards Limestone**, limestone, dolomite, and chert; limestone aphanitic to fine grained, massive to thin bedded, hard, brittle, in part rudistid biostromes, much miliolid biosparite; dolomite fine to very fine grained, porous, medium gray to grayish brown; chert, nodules and plates common, varies in amount from bed o bed, some intervals free of chert, mostly white to light gray; in zone of weathering considerably recrystallized, “honeycombed,” and cavernous forming an aquifer; forms flat areas and plateaus bordered by scarps; thickness 60-350 feet, thins northward.	
				80	**Comanche Peak Limestone**, fine to very fine grained, fairly hard, nodular, light gray, weathers white, extensively burrowed, burrow fillings slightly coarser and darker, typically outcrops in scarp face beneath Edwards Limestone; feathers out southward near Williamson-Travis County line.	
				50	**Keys Valley Marl**, soft, white; marine megafossils include Exogyra texana, Gryphaea mucronate, and other pelecypods, ammonites, gastropods, and echinoids; feathers out southward near Williamson-Travis County line.	Confining
				40	**Cedar Park Limestone**, Kcp, lithologically and faunally similar to Comanche Peak Limestone; south of Williamson-Travis County line upper part interfingers with Edwards Limestone and lower part is mapped with Bee Cave Marl.	Aquifer
				25-40	**Bee Cave Marl**, Kbc lithologically and faunally similar to Keys Valley Marl, except Exogyra texana are more abundant and ammonites are scarce.	Confining

ATTACHMENT C
Site Geology

Attachment C – Site Geology

SUMMARY

The Clara Vista – Force Main project site is primarily located along Cypress Road, west of Old Stagecoach Road in the City of Kyle, Hays County, Texas. The remaining portions of the project site are located south of the Clara Vista subdivision.

Based on the results of the field survey conducted in accordance with *Instructions for Geologists for Geologic Assessments in the Edwards Aquifer Recharge/Transition Zones (TCEQ-0585 Instructions),* no naturally occurring sensitive features were identified on site. No springs were identified on site. Three tributaries of the Lower Blanco River were identified on site. The overall potential for fluid migration to the Edwards Aquifer for the site is low.

SITE GEOLOGY

As observed through field evidence, the geologic formations which outcrop at the surface within the project limits are the Austin Chalk (Kau), the Eagle Ford Group and Buda Limestone (undivided) (Keb), and the Del Rio Clay and Georgetown Formation (undivided) (Kdg). These formations are described in further detail below.

- The Kau is comprised of limestone, argillaceous chalky limestone and calcareous shale, and is locally bentonitic. Karst development within the Kau is commonly related to geologic structure within the formation.

- The Keb is comprised of undivided units of the Eagle Ford Group and the Buda Limestone. Portions of the formation exhibiting geologic settings of the Eagle Ford Group are characterized by brown, flaggy shale and argillaceous limestone. Karst development in the Eagle Ford Group is uncommon and generally minor. Portions of the formation exhibiting geologic settings of the Buda Limestone are characterized by buff, light gray, dense mudstone. Karst development in the Buda Limestone is generally minor.

- The Kdg is comprised of undivided units of the Del Rio Clay and Georgetown Formations. Portions of the formation exhibiting geologic settings of the Del Rio Clay characterized by blue-green to yellow-brown waxy clay. Karst development within the Del Rio Clay does not occur. Portions of the formation exhibiting geologic settings of the Georgetown Formation are characterized by reddish-brown to light tan marly limestone. Karst development within the Georgetown Formation generally does not occur.

The predominant trend of faults in the vicinity of the site is approximately N40°E, based on faults identified during the previous mapping of the area.

FEATURE DESCRIPTIONS:

A description of the features observed onsite is provided below:

Feature S-1

Feature S-1 is an existing sewer line that is located beneath pavement. The probability of rapid infiltration is low.

REFERENCES

Barnes, V.E., Humble Oil and Refining Co., Shell Oil Co., Mobile Oil Co., Proctor, C.V., Brown, T.E., Waechter, N.B., Aronow, Saul, Tobin, Edward, Eargle, D.H., Baker, E.T., Peckham, R.C., Bluntzer, R.L., Hinds, G.W., LeBlanc, R.J., and Solliday, J., 1974, Geologic atlas of Texas, Seguin sheet, University of Texas at Austin, Bureau of Economic Geology, Geologic Atlas of Texas 30, 1:250,000.

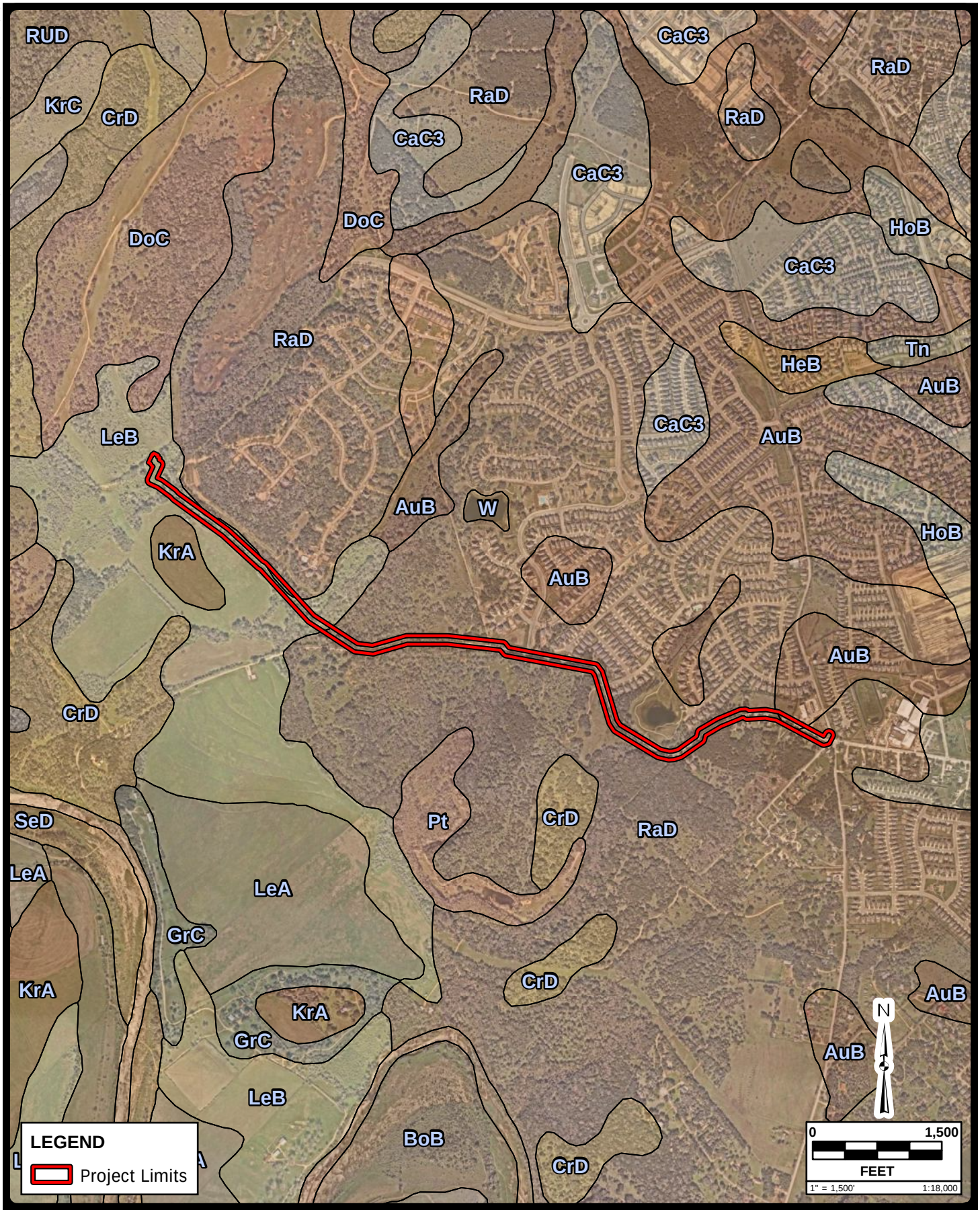
Nationwide Environmental Title Research, LLC. Historical Aerials, HistoricAerials.com. https://www.historicaerials.com/viewer, May 10, 2021.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. http://websoilsurvey.sc.egov.usda.gov/, May 10, 2021.

Texas Water Development Board, Wells in TWDB Groundwater Database Viewer, https://www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer, May 10, 2021.

U.S. Geological Survey, National Water Information System: Mapper, https://maps.waterdata.usgs.gov/mapper/index.html, May 10, 2021. May 7, 2024.

ATTACHMENT D
Site Geologic Map(s)



AERIAL IMAGERY PROVIDED BY GOOGLE © UNLESS OTHERWISE NOTED. Imagery ©2024, CAPCOG,Digital Globe,Texas Orthoimagery Program, USDA Farm Service Agency

Date: Apr 25, 2024 2:19 PM User: HSultz
File: H:\Projects\51432\01\Environmental\ENVGIA\GIS\Working aprx

JOB NO.	51432-01
DATE	Apr 2024
DESIGNER	HS
CHECKED	HDJ
SHEET	ATTACHMENT D

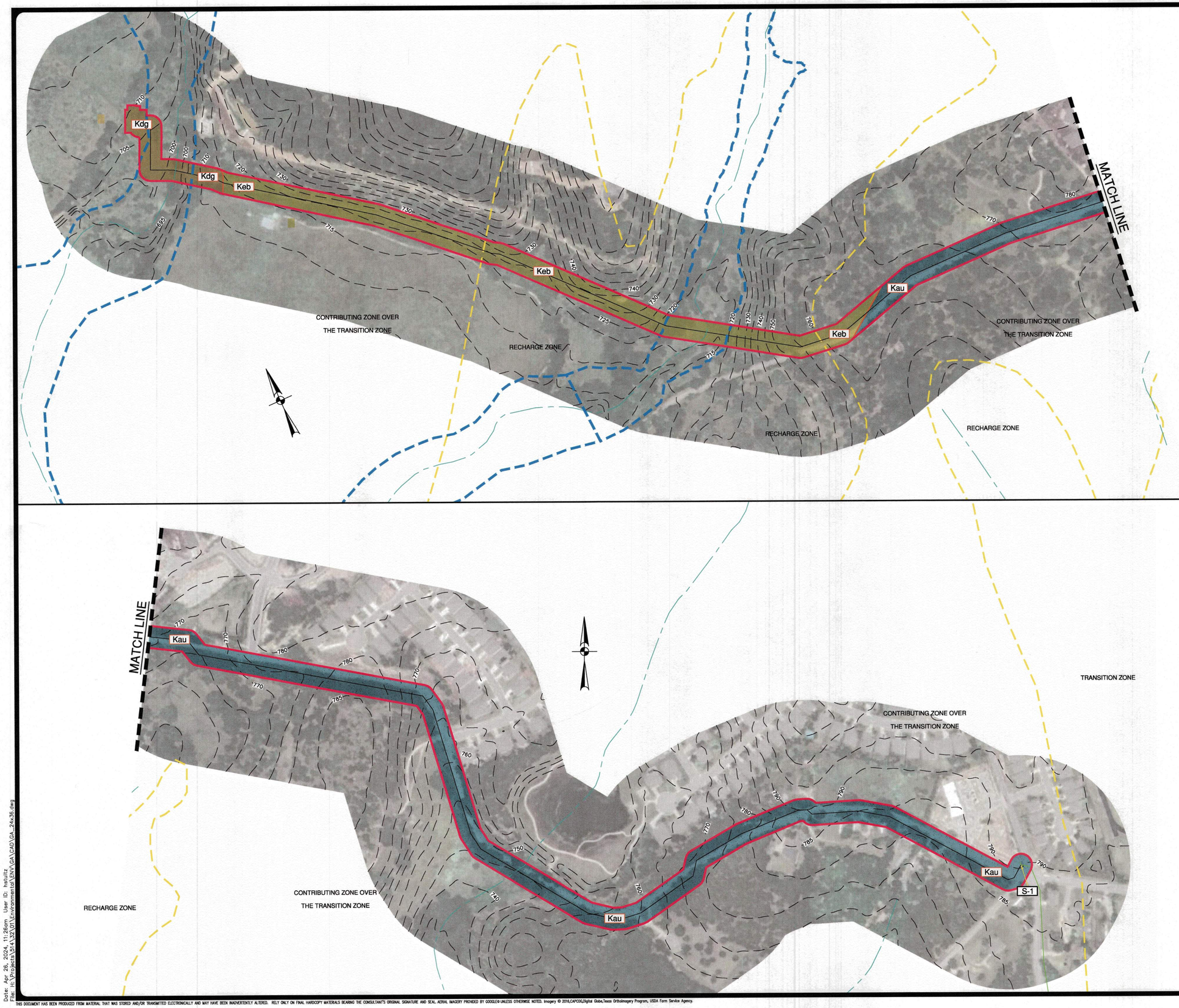
CLARA VISTA - FORCE MAIN

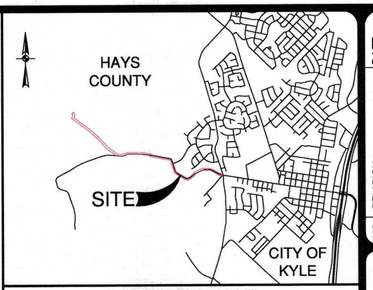
HAYS COUNTY, TEXAS

SITE SOILS MAP

PAPE-DAWSON ENGINEERS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 200'
0' 200' 400' 600'

LEGEND

- PROJECT LIMITS
- RECHARGE ZONE
- EXISTING CONTOUR LINE — 760
- 100 YEAR FLOODPLAIN
- STREAM

GEOLOGIC FORMATIONS

- Kdr — PECAN GAP
- Kau — AUSTIN CHALK
- Keb — EAGLE FORD BUDA (UNDIV.)
- Kdg — DEL RIO CLAY GEORGETOWN (UNDIV.)
- Ked — EDWARDS LS.
- Kfr — FREDRICKSBURG GROUP (UNDIV.)

SYMBOLS AND LINES

- S-1 — POTENTIAL RECHARGE FEATURE
- CONTACT, LOCATED APPROXIMATELY
- CONTACT, INFERRED
- FAULT, LOCATED APPROXIMATELY (D, DOWNTHROWN SIDE; U, UPTHROWN SIDE)
- FAULT, EXTRAPOLATED
- FAULT, INFERRED
- STRIKE AND DIP OF BEDDING
- STRIKE AND DIP OF JOINTS
- STRIKE OF VERTICAL JOINTS
- CAVE
- SOLUTION CAVITY
- SOLUTION ENLARGED FRACTURE
- SWALLOW HOLE
- SINKHOLE
- NON-KARST CLOSED DEPRESSION
- ZONE
- OTHER NATURAL BEDROCK FEATURES
- SPRING/SEEP
- MB — MAN-MADE FEATURE IN BEDROCK
- W — WATER WELL
- SANITARY SEWER LINE
- STORM DRAIN LINE

NOTE: THE GEOSCIENTIST SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR PURPOSES OF GEOLOGIC INFORMATION. ALL OTHER INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SIGNED AND SEALED CIVIL ENGINEERING DRAWINGS.

DATE

NO. REVISION

STATE OF TEXAS
HENRY STULTZ III
GEOLOGY
12121
LICENSED
PROFESSIONAL GEOSCIENTIST
May 7, 2024

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPG FIRM REGISTRATION #50351

CLARA VISTA - FORCE MAIN
HAYS COUNTY, TEXAS

SITE GEOLOGIC MAP
ORGANIZED SEWAGE COLLECTION SYSTEM

JOB NO. 51432-32
DATE APRIL 2024
DESIGNER HS
CHECKED HDJ DRAWN HS

ATTACHMENT D

Date: Apr 26, 2024, 11:26am User ID: hstultz
File: H:\Projects\514.32\01\Environmental\ENV\GA\CAD\GA_24x36.dwg

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ORGANIZED SEWAGE COLLECTION SYSTEM PLAN

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), 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.

Regulated Entity Name: Clara Vista Lift Station & Force Main

1. ☐ **Attachment A – SCS Engineering Design Report**. This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form. No portion of gravity sewer main is within the Edward's Aquifer Recharge Zone. Therefore, an SCS Engineering Report is not required.

Customer Information

2. The entity and contact person responsible for providing the required engineering certification of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

   Contact Person: Mike Boswell
   Entity: Toll Southwest LLC
   Mailing Address: 1320 Arrow Point Dr., Suite 401
   City, State: Cedar Park, Texas Zip: 78613
   Telephone: 817-329-7973 Fax: _____
   Email Address: mboswell@tollbrothers.com
   The appropriate regional office must be informed of any changes in this information within 30 days of the change.

3. The engineer responsible for the design of this sewage collection system is:

   Contact Person: Aimee Chavez, P.E.
   Texas Licensed Professional Engineer's Number: 123240
   Entity: Pape-Dawson Consulting Engineers, LLC.
   Mailing Address: 10801 N MoPac Expressway, Bldg. 3, Suite 200
   City, State:Austin, TX Zip: 78759
   Telephone:(512) 454-8711 Fax:_____
   Email Address:achavez@pape-dawson.com

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

   ☒ Residential: Number of single-family lots: 800
   ☐ Multi-family: Number of residential units: _____
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☐ Other: _____

5. The character and volume of wastewater is shown below:

100% Domestic	210,000 gallons/day
_____% Industrial	_____ gallons/day
_____% Commingled	_____ gallons/day

   Total gallons/day: 210,000

6. Existing and anticipated infiltration/inflow is 188,625 gallons/day. This will be addressed by: adequate sizing of sewer main.

7. 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 development was approved by letter dated _____. A copy of the approval letter is attached.
   ☒ The WPAP application for this development was submitted to the TCEQ on 9/26/2024, but has not been approved.
   ☐ A WPAP application is required for an associated project, but it has not been submitted.
   ☐ There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

Pipe Diameter(Inches)	*Linear Feet (1)*	*Pipe Material (2)*	*Specifications (3)*
See Table 1 attached.			

Total Linear Feet: 10,960

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.
(2) Pipe Material - If PVC, state SDR value.
(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

9. The sewage collection system will convey the wastewater to the Kyle Wastewater (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

10. All components of this sewage collection system will comply with:

   ☒ The City of Kyle standard specifications.
   ☐ Other. Specifications are attached.

11. ☐ No force main(s) and/or lift station(s) are associated with this sewage collection system.

   ☒ A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. ☒ There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.

13. ☒ There are no deviations from straight alignment in this sewage collection system without manholes.

   ☐ **Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes**. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

   ☐ For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. ☒ Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
See Table 2 attached.	Of		
	Of		
	Of		
	Of		
	Of		
	Of		
	Of		

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
	Of		
	Of		
	Of		

15. ☒ Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.

16. ☒ The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	Max. Manhole Spacing (feet)
6 - 15	500
16 - 30	800
36 - 48	1000
≥54	2000

☐ **Attachment C – Justification for Variance from Maximum Manhole Spacing**. The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.

17. ☐ All manholes will be monolithic, cast-in-place concrete.

☒ The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

Items 18 - 25 must be included on the Site Plan.

18. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 400'.

19. ☒ The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.

20. Lateral stub-outs:

☒ The location of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

☐ The entire water distribution system for this project is shown and labeled.
☐ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
☒ There will be no water lines associated with this project.

22. 100-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
☐ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

Line	*Sheet*	*Station*
FM-1A	17 of 48	1+50.63 to 4+97.55
FM-1A	20 of 48	28+04.64 to 29+32.44
	of	to
	of	to

23. 5-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
☐ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

24. ☒ Legal boundaries of the site are shown.

25. ☒ The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. ☒ All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.

☐ There will be no water line crossings.
☐ There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*
See Table 5 attached.				

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.
☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*

Line	*Manhole*	*Station*	*Sheet*

28. Drop manholes:

☒ There are no drop manholes associated with this project.
☐ Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*

29. Sewer line stub-outs (For proposed extensions):

☐ The placement and markings of all sewer line stub-outs are shown and labeled.
☒ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

☐ The placement and markings of all lateral stub-outs are shown and labeled.
☒ No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

☒ Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

☒ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
☐ **Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

Line	*Profile Sheet*	*Station to Station*	*FPS*	*% Slope*	*Erosion/Shock Protection*

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

☐ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☐ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☒ N/A

Administrative Information

34. ☒ The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

35. ☒ Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	30 of 48
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	30 of 48
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	30 of 48
Typical trench cross-sections **[Required]**	30 of 48
Bolted manholes **[Required]**	30 of 48
Sewer Service lateral standard details **[Required]**	30 of 48
Clean-out at end of line **[Required, if used]**	N/A of N/A
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	N/A of N/A
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	30 of 48
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	30 of 48

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	N/A of N/A

36. ☒ All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.

37. ☒ All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

    ☐ Survey staking was completed on this date: _____

38. ☒ 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.

39. ☒ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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 **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: Aimee Chavez, P.E.

Date: September 23, 2024

Place engineer's seal here:



Please see TCEQ-0624 for appropriate SCS Engineering Design Report

Signature of Licensed Professional Engineer:

Aimee Chavez

Appendix A-Flow Velocity Table

Flow Velocity (Flowing Full) All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when flowing full of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Table 10 - Slope Velocity

Pipe Diameter(Inches)	*% Slope required for minimum flow velocity of 2.0 fps*	*% Slope which produces flow velocity of 10.0 fps*
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

**For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.*

$$v = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient (0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)

Table 1 - Pipe Description

Pipe Diameter (Inches)	Linear Feet (1)	Pipe Material (2)	Specifications (3)
18" Gravity	210	PVC, PS115	ASTM F789
15" Gravity	133	PVC, SDR 26	ASTM D3034, ASTM D3212
12" Gravity	335	PVC, SDR 26	ASTM D3034, ASTM D3212
10" Gravity	783	PVC, SDR 26	ASTM D3034, ASTM D3212
8" Force Main	9,499	C900 DR - 18	ASTM F7477, ASTM F3139

Table 2 - Manholes and Cleanouts

LINE	SHOWN ON SHEET	STATION	MANHOLE OR CLEAN-OUT?
WW-1A	15 of 48	1+13.58	MANHOLE
WW-1A	15 of 48	1+42.90	MANHOLE
WW-1A	15 of 48	2+38.05	MANHOLE
WW-1A	15 of 48	2+66.97	MANHOLE
WW-1A	15 of 48	3+48.74	MANHOLE
WW-1A	15 of 48	5+73.50	MANHOLE
WW-1A	16 of 48	10+70.90	MANHOLE
WW-1A	16 of 48	11+92.77	MANHOLE
WW-1A	16 of 48	13+56.87	MANHOLE
WW-1B	27 of 48	3+10.02	MANHOLE
WW-1B	27 of 48	1+42.24	MANHOLE

Table 5 - Water Line Crossings

LINE	Station or Closest Point	Crossing or Parallel	Horizontal Separation Distance	Vertical Separation Distance
FM-1A	87+92.11	Crossing		2.0'
WW-1B	1+32.75	Crossing		6.69’

ATTACHMENT A

PAPE-DAWSON ENGINEERS

September 23, 2024

Texas Commission on Environmental Quality
Water Quality Division
12100 Park 35 Circle
Austin, TX 78753

RE: Clara Vista Lift Station & Force Main – Edwards Aquifer Applicability

Dear Staff:

The Clara Vista Lift Station & Force Main located two miles east of the intersection of South 6 Creeks Blvd. and Old Stagecoach Road in Kyle, Texas ETJ does not require a Sewage Collection System Engineering Design Report (TCEQ-0585) as there is no gravity sewer located in the Edwards Aquifer Recharge Zone.

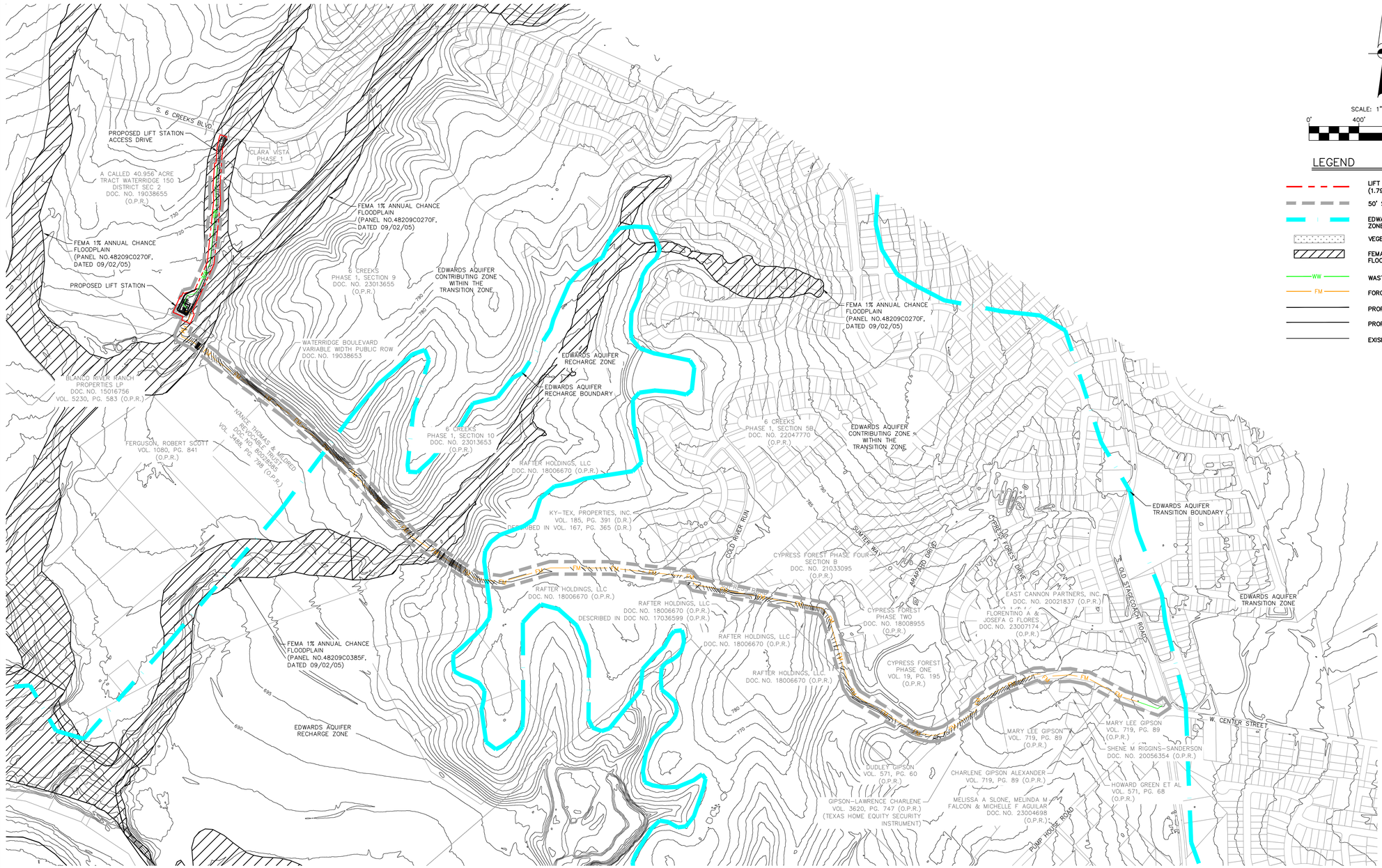
Please let me know if you have any additional questions or comments.

Sincerely,
Pape-Dawson Consulting Engineers, LLC.

Aimee Chavez, P.E.
Associate Vice President

H:\Projects\514\56\10\302 Construction Documents\Documents\Reports\SCS\3. SCS Application\2. SCS Edward's Aquifer Letter.docx

SITE PLAN



NO.	REVISION	DATE

STATE OF TEXAS
AIMEE CHAVEZ
123240
LICENSED
PROFESSIONAL ENGINEER

9/23/24

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA
LIFT STATION & FORCE MAIN
SCS SITE PLAN EXHIBIT

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 1 OF 1

Date: Sep 30, 2024, 3:54pm User ID: CKoziatek
File: H:\Projects\514\36\10\302 Construction Documents\Documents\Reports\SCS\1. General Information\CAD Exhibits\240920 Site Plan.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

LIFT STATION / FORCE MAIN SYSTEM APPLICATION

Lift Station/Force Main System Application

Texas Commission on Environmental Quality

for Regulated Activities On the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c)(3)(B)and(c), 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.

Regulated Entity Name: Clara Vista LIft Station & Force Main

Customer Information

(If different than customer information provided on core data form)

1. The person(s) responsible for providing the engineering certification to the TCEQ pursuant to 30 TAC §213.5(f)(2)(C) during construction and 30 TAC §213.5 (c)(3)(D) upon completion of construction is:

   Contact Person: Mike Boswell
   Entity: Toll Bros., Inc.
   Mailing Address: 1320 Arrow Point Dr. Suite 401
   City, State: Cedar Park, Texas Zip: 78613
   Telephone: 412-780-2312 Fax: _____
   Email Address: mboswell@tollbrothers.com

2. The engineer responsible for the design of this lift station and force main:

   Contact Person: Aimee Chavez, P.E.
   Entity: Pape-Dawson Consulting Engineers, LLC.
   Mailing Address: 10801 N MoPac Expressway, Bldg. 3, Suite 200
   City, State: Austin, Texas Zip: 78759
   Telephone: (512) 454-8711 Fax: _____
   Email Address: achavez@pape-dawson.com
   Texas Licensed Professional Engineer's Serial Number: 123240

Project Information

3. This project is for the construction or replacement of:

   ☐ Lift Station only.

☐ Lift Station and Force Main system.
☒ Lift Station, Force Main, and Gravity system.

4. The sewage collection system will convey the wastewater to the Kyle Wastewater (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

5. All components of this lift station/force main system will comply with:

   ☒ The City of Kyle / City of Austin standard specifications.
   ☐ Other. Specifications are attached.

Site Plan Requirements

Items 6-14 must be included on the Site Plan.

6. ☒ The Site Plan must have a minimum scale of 1" = 400'.

   Site Plan Scale: 1" = 400‘.

7. ☒ Lift station/force main system layout meets all requirements of 30 TAC Chapter 217.

8. Geologic or Manmade Features:

   ☒ No geologic or manmade features were identified in the Geologic Assessment.
   ☐ All geologic or manmade features identified in the Geologic Assessment (caves, solution openings, sinkholes, fractures, joints, porous zones, etc.) which exist at the site of the proposed lift station and along the path(s) or within **50 feet of each side** of a proposed force main line are shown on the Site Plan and are listed in the table below. Designs used to protect the integrity of the sewer line crossing each feature are described and labeled on the attached page. A detailed design drawing for each feature is shown on Plan Sheet _____ of _____.
   ☐ No Geologic Assessment is required for this project.

Table 1 - Geologic or Manmade Features

Line	*Station to Station*	*Type of Feature*
	to	
	to	
	to	
	to	
	to	
	to	
	to	
	to	

9. ☒ Existing topographic contours are shown and labeled. The contour interval is 5 feet. (Contour interval must not be greater than 5 feet).

10. ☒ Finished topographic contours are shown and labeled. The contour interval is 5 feet. (Contour interval must not be greater than 5 feet).

    ☐ Finished topographic contours will not differ from the existing topographic configuration and are not shown.

11. 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): Federal Emergency Management Administration Flood Hazard Boundary Map, Community Panel No. 48209C0385F & No.48209C0270F , effective date September 02, 2005.

12. 5-year floodplain:

    ☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above sewer lines.)

    ☐ After construction is complete, all sections of the force main located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 2 - 5-Year Floodplain

Line	*Sheet*	*Station to Station*
	of	to
	of	to
	of	to
	of	to

13. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

    If applicable, this must agree with Item No. 15 on the Geologic Assessment Form.

    ☐ There are 0 (#) 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 plugged.
    ☐ The wells are not in use and will be properly plugged.
    ☐ 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.

14. ☒ Legal boundaries of the site are shown.

Plan and Profile Sheets

*The construction drawings and technical specifications will not be considered for review unless they are the **final plans and technical specifications** which will be used by the contractor for bidding and construction.*

Items 15 – 18 must be included on the Plan and Profile sheets.

15. ☒ The equipment installation construction plans must have a minimum scale of 1" = 10'.

    Plan sheet scale: 1" = 40 '.

16. ☒ Locations, descriptions and elevations of all required equipment and piping for the lift station and force main are shown and labeled.

17. ☒ Air Release/Vacuum Valves will be provided at all peaks in elevation of the proposed force main. These locations are listed in the table below and labeled on the appropriate plan and profile sheets.

Table 3 - Air Release/Vacuum Valves

Line	*Station*	*Sheet*
FM-1A	24+09.48	19 of 48
FM-1A	47+83.55	22 of 48
FM-1A	59+88.21	23 of 48
FM-1A	70+53.42	24 of 48
FM-1A	87+41.62	26 of 48
		of

18. ☒ The **final plans and technical specifications** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

19. ☒ **Attachment A - Engineering Design Report**. An engineering design report with the following required items is attached:

    ☒ The report is dated, signed, and sealed by a Texas Licensed Professional Engineer.
    ☒ Calculations for sizing system.
    ☒ Pump head calculations, including, but not limited to, system head and pump capacity curves, head loss calculations, and minimum and maximum static head C values for normal and peak operational conditions.
    ☒ 100-year and 25-year flood considerations.
    ☒ Total lift station pumping capacity with the largest pump out of service.

☒ Type of pumps, including standby units.
☒ Type of pump controllers, including standby air supply for bubbler controllers, as applicable.
☒ Pump cycle time.
☒ Type of wet well ventilation; include number of air changes for mechanical ventilation.
☒ Minimum and maximum flow velocities for the force main.
☒ Lift station security.
☒ Lift station emergency provisions and reliability.

Administrative Information

20. ☒ Upon completion of the wet well excavation, a geologist must certify that the excavation was inspected for the presence of sensitive features and submit the signed, sealed, and dated certification to the appropriate regional office.

21. ☒ The TCEQ Lift Stations and Force Mains General Construction Notes (TCEQ-0591) are included on the General Notes Sheet of the Final Construction Plans for this lift station and/or force main system.

22. ☒ 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.

23. ☒ Any modification of this lift station/force main system application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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 **Lift Station/Force Main System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c)(3)(C) and 30 TAC Chapter 217, and prepared by:

Print Name of Licensed Professional Engineer: Aimee Chavez, P.E.

Place engineer's seal here:



Date: 9/23/24

Signature of Licensed Professional Engineer:

ATTACHMENT A

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SEWER SYSTEM INFORMATION

Introduction

The Clara Vista Lift Station and force main are designed to accept and convey sanitary sewer flows from the projected regional development in the surrounding area, see Appendix A. This Ultimate development area encompasses approximately 251.5 acres and 800 living unit equivalents (LUEs) of residential units.

The Clara Vista Lift Station site is located 2.0 miles west of the intersection of S. 6 Creeks Blvd. and North Stagecoach Road. Wastewater flows will gravity feed to the Lift Station which is designed with the capacity to accommodate a total of 918,720 gallons per day (GPD) of peak wet weather wastewater flow 9,499 LF at ultimate build out. The Lift Station will convey flows through a proposed 8-inch C900 DR-18 force main that discharges into a proposed 4-foot diameter manhole approximately 200 feet west of the intersection of Pump House Road and Cypress Road. Flows from this manhole will then gravity feed 210 LF via an 18-inch PVC PS115 wastewater line before a core connection into an existing manhole at the corner of W. Center Street and S. Old Stagecoach Road. No engineering report is needed for this section of gravity sewer because it is not within the Edwards Aquifer Recharge Zone.

Proposed Lift Station and Force Main Sewer System

The Clara Vista Lift Station will be designed for ultimate build out and to accommodate flows from 800 LUEs. The Lift Station accounts for the design flow of 918,720 gpd at ultimate build-out peak wet weather flow (PWWF).

Construction will include the Clara Vista Lift Station and a 8-inch C900 DR-18 force main. The proposed 8-inch force main will discharge to a proposed 4-foot diameter manhole, as previously mentioned. The lift station includes two pumps. The pumps will be equipped with variable frequency drives (VFD), used for adjusting flow to the actual demand when flows are lower than the design point. Electrical conduits, communications, and other electrical and instrumentation equipment will also be sized for ultimate build out. Upon completion of the Lift Station, the City of Kyle will take over operation and maintenance of the facility.

ULTIMATE BUILD OUT PUMP STATION AND FORCE MAIN DESIGN CALCULATIONS

The following calculations have been performed in accordance with the City of Austin Utility Criteria Manual and meet TCEQ minimum requirements. The service area is located within City of Kyle city limits. The following sections discuss the design parameters for Ultimate Build Out conditions.

Living Unit Equivalents

LUEs were calculated for all ultimate development areas to the north connecting to the gravity feed sewer main proposed with these plans. Internally, LUEs were counted on a house-by-house basis based on the lot takedown for the Clara Vista neighborhood and the remaing dictated by the development agreement with the City of Kyle for the lift station service area.

LUEs (Ultimate Developments) = 800 LUEs

Ultimate Build Out flows were calculated using the total 800 LUEs.

Ultimate Build Out Average Dry Weather Flow

The ADWF for the collection system was calculated from the City of Austin "Utilities Criteria Manual" 2.9.4(A).

ADWF = (Population of service area) x (70 gpcd)

Population of service area was calculated by multiplying the number of LUEs (800) by 3.75 persons/LUE as described in the lift station's development agreement. Using the equation above and a population of 3,000 equates to a ADWF of 210,000 gpd. Dividing by 1,440 minutes/day yields an ADWF of approximately **146 gpm.**

Ultimate Build Out Peak Dry Weather Flow

The PDWF is computed by using the formula from the City of Austin "Utilities Criteria Manual" 2.9.4(A)(4) is:

$$PDWF = ([18+ (0.0206 \times ADWF)^{0.5}]/[4 + (0.0206 \times ADWF)^{0.5}]) \times ADWF,$$

where:

PDWF = Peak Dry Weather Flow, gpm

ADWF = Average Dry Weather Flow, gpm

Using the above equation and an ADWF of 146 gpm for ultimate build out equates to a value of approximately **507 gpm for PDWF**. Multiplying by 1,440 minutes/day equates to a flow of approximately 730,080 gpd.

Ultimate Build Out Peak Wet Weather Flow

The PWWF was obtained by adding inflow and infiltration (I/I) to the PDWF per the City of Austin "Utilities Criteria Manual" 2.9.4(A)(3) . The I/I was calculated following the standards in the City of Austin "Utilities Criteria Manual" 2.9.4(A)(3):

$$I/I = 750 \text{ gallons per acre per day} \times \text{service acre},$$

Using the above equation and a service area of 251.5 acres, an I/I flow of 188,625 gpd was determined. Dividing by 1,440 minutes/day equates to an I/I flow of approximately 131 gpm. Using an I/I flow of 131 gpm and a PDWF flow of 507 gpm, the **PWWF flow equates to 638 gpm**. Multiplying by 1,440 minutes/day equates to a flow of approximately 918,720 GPD.

Ultimate Build Out Minimum Dry Weather Flow

The MDWF is used to determine the maximum detention time in the wet well. The formula for computing the MDWF from the City of Austin "Utilities Criteria Manual" 2.9.4(J)(1)(D) is:

$$MDWF = (ADWF) \times (\text{Minimum flow peaking factor})$$

where:

MDWF = Minimum Dry Weather Flow, gpm

ADWF = Average Dry Weather Flow, gpm

Using the above equation and an ADWF of 146 gpm and a minimum peaking factor of 0.205 for ultimate build out equates to a value of approximately 30 gpm for MDWF. Multiplying by 1,440 minutes/day equates to a flow of approximately 43,200 gpd. The results are summarized in Table 1 below.

Table 1. Ultimate Build Out Lift Station Flow Summary

Flow	Ultimate
	GPM
Average Daily Weather Flow	146
Peak Dry Weather Flow	507
Peak Wet Weather Flow	638
Minimum Dry Weather Flow	30

Ultimate Build Out Minimum Pump Requirements

A duplex system will be used with one pump operating as a standby pump. The operating pump must be capable of handling the PWWF at the system's total dynamic head (TDH).

The TDH can be described by the following equation:

$$TDH = H_s + L_f + L_M$$

where:

H_s = static head

L_f = loss due to friction in the force main pipe

L_M = minor loss in the force main pipe

The static head can be described by the following equation:

$$H_s = E_H - E_L$$

where:

E_H = maximum elevation of the proposed force main, feet

E_{L1} = low water elevation of the wet well, feet

The minor losses in the 8-inch force main piping system can be described by the following equation:

$$L_M = \frac{Kv^2}{2g}$$

where:

K = headloss coefficient for the minor losses

v = velocity in the force main $\left(\frac{Q}{\pi\left(D/2\right)^2} \right)$, feet per second

g = gravitational constant (32.2 ft^2/sec)

See Table 2 below for the K value calculations.

Table 2. Ultimate Build Out K Value Calculations

(Two Pumps in Service – 1 Duty 1 Standby)

Minor Loss Item	K-Value	Qty.	Total
Discharge Into Manhole	1	1	1.00
45º Bend	0.22	13	2.86
22.5° Bend	0.15	8	1.20
11.25° Bend	0.12	15	1.80
Tee, Branch Flow	0.84	5	4.20
Gate Vlave	0.11	4	0.44
Air Release Valve	0.7	5	3.50
		$K_{(total)}$	15.00

The frictional losses (L_f) in the force main pipe can be described by the following equation:

$$L_f = L \times \left(\frac{2.313 \times Q}{C \times D^{2.63}} \right)^{1.85}$$

where:

L	=	length of force main, feet
Q	=	flow, cubic feet per second
C	=	Hazen-Williams factor of the pipe
D	=	diameter of the force main, feet

The losses due to friction will be computed using a C value of 140, which accounts for usage in the force main. However, the system curves evaluated in Appendix D were also generated with a C value of 150.

Thus, the equation for determining TDH can be written as follows:

$$TDH = E_H - E_L + L \times \left(\frac{2.313 \times Q}{C \times D^{2.63}} \right)^{1.85} + \frac{K}{2g} \times \left(\frac{Q}{\pi \left(D/2 \right)^2} \right)^2$$

Using a C value of 140, the TDH value can be determined. Table 3 contains a summary of variables and the resulting TDH value. The pump selection is an iterative process where PWWF is the initial value used to make a preliminary pump selection, typically resulting a higher pumping capacity through pump selection refinement. **A Q value of 640 gpm (1.43 cubic feet per second) has been determined based on the intersection of the pump and system curve, provided in Appendix D**. In addition, frictional losses and minor losses in the proposed 8-inch force main at this flow were considered in system curve modeling. A profile of the force main alignment is also provided in Appendix D.

Table 3. TDH Equation Variables and Values – Ultimate Build Out

Variable	Value
E_h (ft) – Elevation Head	784.00
E_{L1} (ft) – All Pumps Off Elevation	695.00
L (ft) – Force Main Length	9,499
Q (cfs) – Flow	1.43
C	140
D (in) – Force Main Equivalent Inside Diameter[1]	7.961

K	15.00
TDH (ft)	158.72

1.-Assuming 8" C900 DR-18.

The proposed duty point for the Clara Vista Lift Station is 640 gallons/minute and a TDH of 158.72 feet with one pump running. This duty point achieves a flow of 1.43 cfs [640 gpm / (7.48 gallons/cubic foot x 60 seconds / minute)].

Appendix D contains a graph of the system curve and the proposed pump's curve. The system curve was generated using the TDH equation and flow ranging from 0 gpm to 1,200 gpm. The pump curve is based on the Flygt pump model N 3302 HT 3~ 456 with a 60 hp motor. The intersection of these curves indicates the operating point of the pumps: **640 gpm at 159 feet of TDH** and approximately 53% efficiency, with one pump operating. Under Peak Wet Weather Conditions the pump can operate at a maximum of **680 gpm at 160 feet** of TDH and approximately 42% efficiency.

Ultimate Build Out Ultimate Build Out Net Positive Suction Head

The NPSH is calculated using the following equation:

$$NPSH_A = P_B + H_S - P_V - H_{fs}$$

where:

P_B = barometric pressure, feet

P_v = vapor pressure of liquid, feet

H_s = minimum static suction head, feet

H_{fs} = friction loss of suction piping, feet

The City of Austin provides a value of 33.4 feet for P_B and 1.4 feet for P_v for this geographical area. The minimum static suction head (H_s) is the distance from the eye of the impeller to the All Pumps Off elevation. This distance is defined as 8.46 feet based on the Flygt pump information provided by the manufacturer. Because this is a submerged pump and there is no suction piping, suction losses are expected to be negligible. The resulting NPSH is 40.5 feet.

Ultimate Build Out Force Main Velocity

The force main system will consist of a 8-inch C900 (DR 18) force main. The velocity (v) in the force main can be described by the following equation:

$$v = \frac{Q}{A}$$

where:

Q = flow in the force main, cubic feet per second

A = area of the force main $[\pi(D/2)^2]$, square feet

For the proposed 8-inch C900 DR-18 force main, the inner diameter is 7.961 inches, and the cross-section area is 0.35 square feet. Converting the maximum design flow of 680 gpm to cubic feet per second equates to a flow of 1.43 cfs with two pumps running. This yields a velocity of 4.38 feet per second. The City of Austin requires a minimum velocity of 2.0 feet per second (fps) with a maximum velocity of 10 fps for lift stations. Therefore, the proposed velocities meet City of Austin's velocity requirements.

Ultimate Build Out Storage Requirements

The required wet well volume (volume between the "First Pump On" Elevation and the "All Pumps Off" Elevation) is governed by the City of Austin "Utility Criteria Manual" 2.9.4(J)(2) which states that submersible pump cycle time, based on peak flow, must equal or exceed 15 minutes for pumps with motors from 51 to 75 horsepower (hp). The pump selected is a N 3302 HT 3 ~ 456 with a motor hp of 60hp, therefore this rule can be estimated by the following equation:

$$V_r = (Q \times T)/4$$

Where V_r is the required volume in gallons, Q is the pump flow in gpm, and T is 15 minutes for submersible pumps with a motor of 60 hp.

Using the design pump flow of 680 gpm, the required volume in gallons for a 15-minute run for the Clara Vista Lift Station wet well is estimated as 2550 gallons. Assuming a required volume of 2550 gallons and a precast 10-foot diameter wet well equates to depth of approximately 4.34 feet between the "First Pump

On" and the "All Pumps Off" Elevations. The available active storage depth in the wet well is greater than the 15-minute required storage depth and the pump cycle times for the two pumps are shown in Figure 1. 2550 gallons of primary active volume of the wet well between “First Pump On” and “All Pumps Off” is calculated by gallons per foot of wet well times the depth between the “First Pump On” and “All Pumps Off” (4.35’). Refer to Appendix B for the lift station site plan and wet well section.

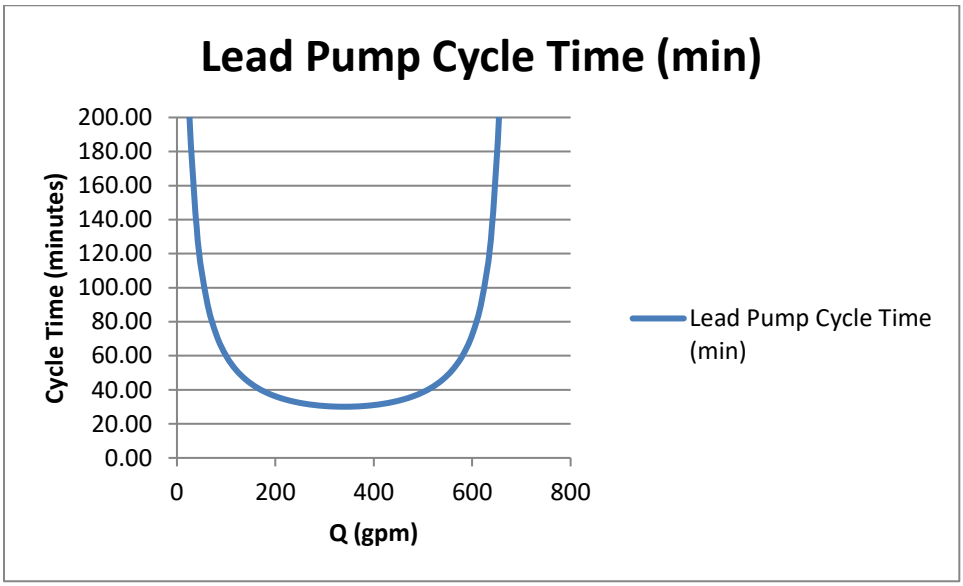


Figure 1. Ultimate Build Out Pump Cycle Times

Ultimate Build Out Emergency Storage Requirements

To meet the requirements of the TCEQ Chapter 217.63(i), the lift station includes a manhole for bypass pumping, a permanent electrical emergency generator, and an automatic transfer switch for the permanent emergency electrical generator. Since a permanent emergency generator is provided, the wet well is not required to provide at least 20 minutes of PWWF emergency storage volume per TCEQ requirements. The depth of the wet well is controlled by hydraulic conditions of the area being served.

Ultimate Build Out Detention Times and Cycle Times

The amount of time that sewage is detained in the wet well is important to determine if septic conditions will be prevalent in the wet well. To avoid septic conditions, the wastewater must be pumped within a reasonable amount of time, generally 180 minutes. According to the City of Austin "Utility Criteria Manual" 2.9.4(J)(3)(C) odor control shall be provided for the wet well, if the total detention time in the wet well and force main system exceeds 180 minutes.

Detention time is be computed for ADWF, PWWF and MDWF. T_d can be computed as follows:

$$\text{One Pump Operating Condition: } T_d = \frac{V_{a1}}{i} + \frac{V_{a1}}{(Q_1 - i)}$$

where:

i	=	inflow
Q_1	=	one pump operating flow
V_{a1}	=	primary active volume of the wet well between First Pump On and All Pumps Off (2,550 gallons)

The primary active volume (V_{a1}) of the wet well (between the "All Pumps Off" Elevation and the "First Pump On" Elevation) is 2,550 gallons as calculated in the Storage Requirements section of this report. The outflow (Q) from the wet well is 680 gpm.

Ultimate Build Out Average Dry Weather Flow

Using an *i* value of 146 gpm for the ADWF and the known parameters from the detention time equation shown above yields a T_d of 22.29 minutes.

Ultimate Build Out Peak Wet Weather Flow

Using an i value of 638 gpm for the PWWF and the known parameters from the detention time equation shown previously yields a T_d of approximately 64.86 minutes.

Ultimate Build Out Minimum Dry Weather Flow

Using an *i* value of 30 gpm for the MDWF and the known parameters from the detention time equation shown above yields a T_d of approximately 89.12 minutes. Since this does not exceed 180 minutes, odor control will not be required for Ultimate Build Out flow conditions.

Ultimate Build Out One Pump Operation Cycle Times

The two proposed pumps in the Clara Vista Lift Station will alternate starts to equalize the wear on the pumps. Therefore, under normal operation, the cycle time can be described as the time that a singular pump operates.

The cycle time can be determined by the following equation:

$$T_c = \frac{3V_s}{i} + \frac{3V_s}{Q - i}$$

where:

T_c = total cycle time, minutes

V_s = provided storage volume in the lift station (volume between the "All Pumps Off" Elevation and "Lead Pump On" Elevation), gallons

i = inflow into the lift station, gpm

Q = rate of outflow from the lift station, gpm.

Figure 1 shows a chart of the cycle time equations graphed for the anticipated flow range of the lift station. The minimum cycle time of 15 minutes occurs when I = 340 gpm. Table 4 summarizes the expected cycle times for the various flows and operating conditions.

Table 4. Ultimate Build Out Lift Station Cycle Times

Influent Flow	I (gpm)	Pump Operation	Q (gpm)	T_c (min)
Average Daily Flow	146	Single	680	45
Peak Dry Weather Flow	507	Single	680	40
Peak Wet Weather Flow	638	Single	680	130
Minimum Dry Weather	30	Single	680	178

Ultimate Build Out Force Main Flush Time

The flush time (FT) was calculated for the proposed lift station. In order to calculate FT, the wet well filling time (WWFT), pump run time (PRT), and wet well detention time (WWDT) were also calculated. The calculations are shown below.

The parameters for these equations are as follows:

D = wet well diameter, in feet

$\Delta h_{on\text{-}off}$ = elevation difference between lead pump on and all pumps off, in feet

Q_i = Average Daily Inflow, in gpm

Q_o = Pumped flow, in gpm

L = Force Main lengths, in feet

v = Force main velocity, in feet per second

Wet Well Filling Time:

$$WWFT = \frac{7.481 \prod D^2 (\Delta h_{on\text{-}off})}{4Qi}$$

Where D = 10’

$\Delta h_{on\text{-}off}$ = 4.35'

Qi = 146 gpm

WWFT = 17.51 minutes

Pump Run Time:

$$PRT = \frac{7.481 \pi D^2 (\Delta h_{on\text{-}off})}{4 (Qo - Qi)}$$

Where D = 10'

$\Delta h_{on\text{-}off}$ = 4.35'

Qi = 146 gpm

Qo = 680 gpm

PRT = 4.79 minutes

Wet Well Detention Time; where

WWDT = WWFT + PRT

WWDT = 22.29 minutes

Force Main Flushing Cycles; where

FC = L/60v(PRT)

L = 9,499 LF

V = 4.38 fps

FC = 7.55 cycles

Force Main Flushing Time; where

$FT = (FC_w)(WWDT) + (FC_D)(PRT)$

FT = 158.69 minutes

where

FC_w = the whole number part of the flushing cycles (FC) = 7.00

FC_D = the decimal number part of the flushing cycles (FC) = 0.55

The results are summarized in Table 5 below.

Table 5. Ultimate Build Out Average Flush Time Results

Wet Well Diameter, feet	10
$\Delta h_{on\text{-}off}$, feet	4.35
Average Daily Flow, gpm	146
Pumped Flow, gpm	680
Force Main Length, feet	9,499
Flow Velocity in FM, fps	4.38
Average WWFT, mins	17.51
Average PRT, mins	4.79
Average WWDT, mins	22.29
Average FC, cycles	7.55
Average FT, mins	158.69

Ultimate Build Out Wet Well Ventilation

The wet well will be vented using passive ventilation. TCEQ limits the maximum air velocity through the vent to 600 feet per minute (fpm) when venting at a rate equal to the lift station's maximum pumping rate. The proposed vent pipe is a 6-inch diameter ductile iron pipe with an interior diameter of 6.00-inches. The maximum pumping rate (Q) is 680 gpm. Therefore,

$$V = Q / A$$

where:

V = velocity of air through vent, fpm

Q = pumped flow, cfm

A = cross sectional area of the vent pipe, ft^2

$$\text{Q} = 680 \text{ gpm} \times \frac{1 ft^3}{7.48 gallons} = 90.91 \text{ cfm}$$

$$A = \pi \times 6.00 in^2/4 \times \frac{1 ft^2}{144 in^2} = 0.20 \text{ ft}^2$$

$$V = 90.91 \frac{cf}{min} \div 0.20 ft2 = 387 \text{ fpm}$$

A 6 -inch ductile iron pipe will provide a maximum venting velocity of 427 fpm which is below TCEQ's maximum allowable velocity of 600 fpm.

Results From the Ultimate Build Out Design Calculations:

1. LUE Count: 800
2. Acreage: 251.5 acres
3. ADWF: 146 gpm
4. PDWF: 507 gpm
5. PWWF: 638 gpm
6. Pump Flow at PWWF: 680 gpm
7. Static Head: 84.65'
8. TDH: 158.72'
9. NPSH: 40.5'
10. Pump Selected: Flygt N 3302 HT 3 ~ 456 326 mm impeller, 60 Hp, 1,775 rpm
11. Total Cycle Times:

    MDWF Total Cycle Time = 178 minutes

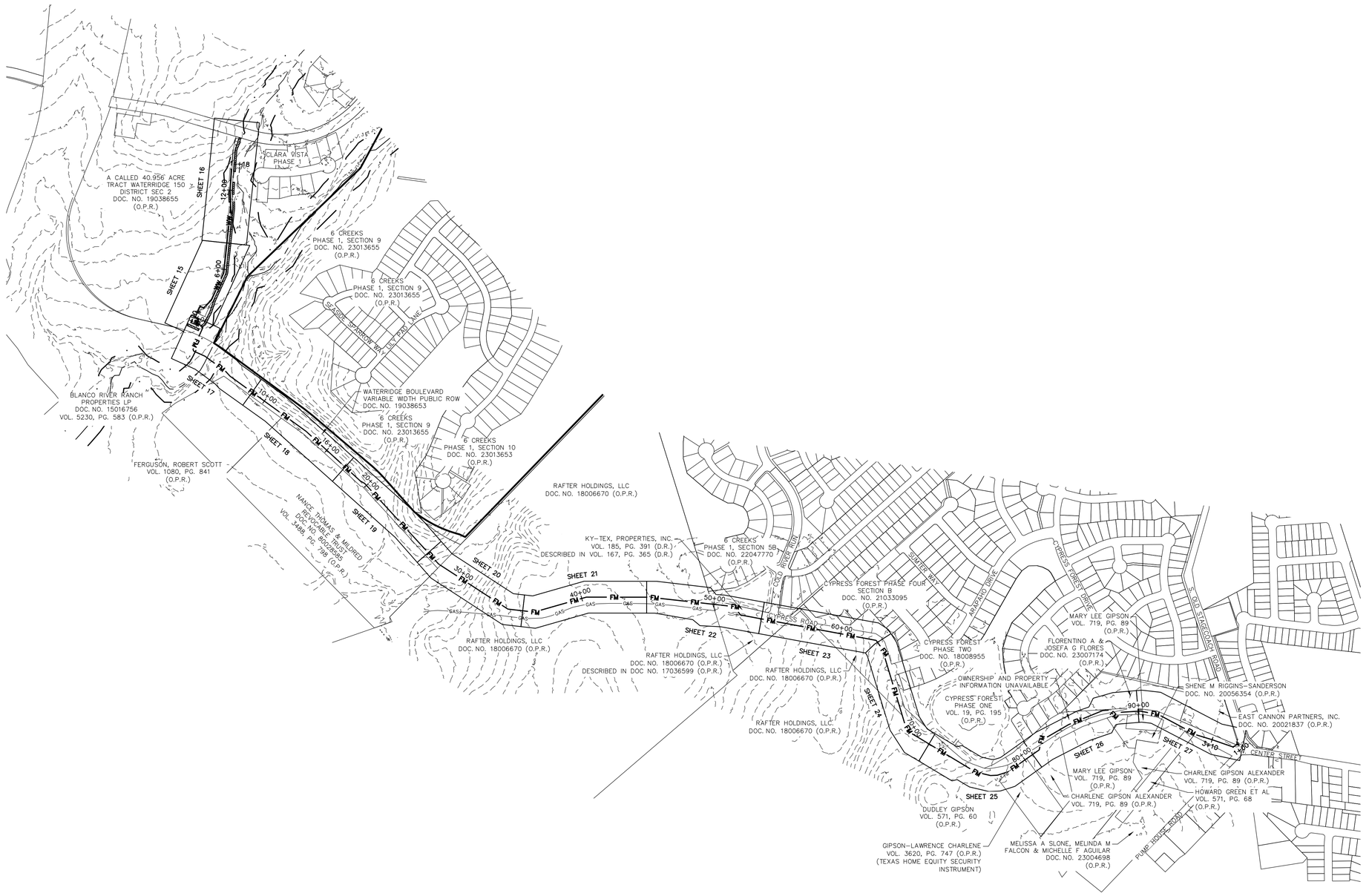
    ADWF Total Cycle Time = 45 minutes
12. Total Detention Times:

    MDWF = 89 minutes

    PWWF = 65 minutes

    ADWF = 22 minutes
13. Size and Length of Force Main: 8" PVC C900 DR-18 ± 9,499 feet in length
14. Velocity Maintained in Force Main: 4.38 fps

APPENDIX A
Project Area Map



SCALE: 1"= 400'

0' 400' 800' 1,200'

NOTES

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. CONTRACTOR SHALL COORDINATE TIE-INS WITH THE CITY OF KYLE PRIOR TO BEGINNING CONSTRUCTION OF THE PROPOSED LIFT STATION AND FORCEMAIN.
3. CONTRACTOR TO CONTACT EACH OFFSITE LANDOWNER BEFORE ENTERING PROPERTY TO COORDINATE ACCESS REQUIREMENTS, ACCESS LOCATION, TEMPORARY CONSTRUCTION STAGING AREA AND LIMITS, TREE REMOVAL NEEDS, AND SCHEDULE.
4. CONTRACTOR TO REPAIR ALL FENCES AND PAVEMENT DISTURBED DURING CONSTRUCTION TO EQUIVALENT OR BETTER STATE THAN THE EXISTING CONDITION.
5. CONTRACTOR TO OPEN CUT EXISTING GRAVEL DRIVEWAY, RECONSTRUCT TO EXISTING OR BETTER CONDITION, AND MAINTAIN OWNER ACCESSIBILITY INTO PROPERTY AT ALL TIMES. LOCATE AND PROTECT EXISTING WATER AND UNDERGROUND UTILITIES INTO THE HOMESITE.
6. ALL EXISTING SERVICE CONNECTIONS (WATER, SEWER, GAS, ETC.) NOT SHOWN FOR CLARITY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR LOCATING THEM.

NO.	REVISION	DATE

PAPE-DAWSON ENGINEERS
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10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA

LIFT STATION & FORCE MAIN

OVERALL LAYOUT

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 14 OF 48

Date: Sep 30, 2024, 10:58am User ID: CKrause
File: K:\Projects\514\56\101\302 Construction Documents\Civil\OF51456-10_FM.dwg
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CP-22-0144

APPENDIX B
Lift Station Construction Plans and System vs Pump Curve

Revision #	Description	Approval

REVIEWED BY:

Leon Barba, P.E., City Engineer — DATE
City of Kyle, Texas

Mike Murphy, Director of Water Utilities — DATE
City of Kyle, Texas

Will Atkinson, Planning Director — DATE
City of Kyle, Texas

Hays County Commisioners Court — DATE
Hays County, Texas

ENGINEER/SURVEYOR:

PAPE-DAWSON CONSULTING ENGINEERS, LLC.
10801 N MOPAC EXPY., BLDG. 3, SUITE 200
AUSTIN, TEXAS 78759
(512) 454-8711
FAX (512) 459-8867

OWNER/DEVELOPER:

TOLL BROTHERS
1320 ARROW POINT DR., SUITE 401
CEDAR PARK, TX 78613
(412) 780-2312

SUBMITTAL DATE: MARCH 7, 2023
PROJECT NO. CP-23-0150
ZONING: R-1-1 SINGLE FAMILY RESIDENTIAL

DEVELOPMENT AGREEMENT: BLANCO RIVER RANCH
(PHASE TWO RESIDENTIAL-SAVANNAH DISTRICT) DEVELOPMENT AGREEMENT
FILED: RECORED 4/19/2022

THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY, REGULATORY COMPLIANCE, AND ADEQUACY OF THESE PLANS AND/ OR SPECIFICATIONS WHETHER OR NOT THE PLANS AND/OR SPECIFICATIONS WERE REVIEWED BY THE CITY ENGINEER(S).

FLOODPLAIN:
THE TRACT SHOWN HEREON LIES WITHIN ZONE "AE" AND ZONE "A" AS IDENTIFIED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FEDERAL INSURANCE ADMINISTRATION, AS SHOWN ON MAP NO. 48209C0270F, DATED SEPTEMBER 02, 2005 FOR HAYS COUNTY, TEXAS AND INCORPORATED AREAS.

THIS FLOOD PLAIN NOTE DOES NOT IMPLY THAT THE PROPERTY AND/OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

WATERSHED:
THIS SUBDIVISION IS LOCATED WITHIN THE BLANCO RIVER WATERSHED.

ENVIRONMENTAL:
THIS SUBDIVISION PROJECT IS LOCATED IN THE EDWARDS AQUIFER CONTRIBUTING ZONE WITHIN THE TRANSITION ZONE.

SUBMITTED BY:

I, MICHAEL S. FISHER, P.E. # 87704, DO HEREBY CERTIFY THAT THE ENGINEERING WORK BEING SUBMITTED HEREIN COMPLIES WITH ALL THE PROVISION OF THE TEXAS ENGINEERING PRACTICE ACT, INCLUDING 131.152 (e). I HEREBY ACKNOWLEDGE THAT ANY MISREPRESENTATION REGARDING THIS CERTIFICATION CONSTITUTES A VIOLATION OF THE ACT, AND MAY RESULT IN CRIMINAL, CIVIL AND/OR ADMINISTRATIVE PENALTIES AGAINST ME, AS AUTHORIZED BY THE ACT.

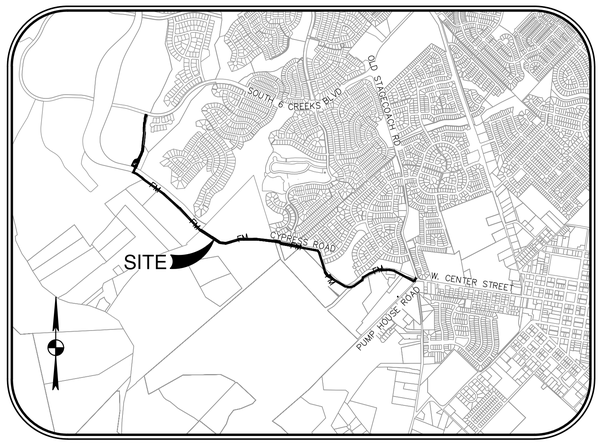
THIS DOCUMENT IS RELEASED FOR INTERIM REVIEW PURPOSES ONLY UNDER THE AUTHORITY OF MICHAEL S. FISHER, P.E. 87704
DATE: September 30, 2024
IT IS NOT TO BE USED FOR BIDDING, CONSTRUCTION OR PERMITTING PURPOSES, PER T.E.P.A. 137.33(e)

PAPE-DAWSON CONSULTING ENGINEERS, LLC — DATE
MICHAEL S. FISHER, P.E. #87704
SENIOR VICE PRESIDENT

CLARA VISTA
LIFT STATION & FORCE MAIN

PUBLIC IMPROVEMENTS CONSTRUCTION PLANS

PROJECT NO. CP-22-0144
CITY OF KYLE ETJ
HAYS COUNTY, TEXAS



LOCATION MAP
1: 2000

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PAPE-DAWSON ENGINEERS

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TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

PD JOB NO. 51456-10 CLARA VISTA LIFT STATION & FORCE MAIN

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CP-22-0144

CITY OF KYLE
GENERAL CONSTRUCTION NOTES
REVISED NOVEMBER 23, 2022

GENERAL CONSTRUCTION NOTES

1. ALL CONSTRUCTION IS TO BE IN ACCORDANCE WITH THE FOLLOWING REGULATIONS AND SPECIFICATIONS. THE FIRST LISTED WILL HAVE PRIORITY OVER THOSE LISTED BELOW:

   PERMITS ISSUED FOR PROJECT BY ANY REGULATORY AGENCIES.
   TEXAS COMMISSION ON ENVIRONMENTAL QUALITY REGULATIONS.
   CITY OF KYLE CONSTRUCTION STANDARDS.
   PLANS FOR THIS PROJECT.

2. PRIOR TO THE BEGINNING OF CONSTRUCTION, THE DEVELOPER SHALL ARRANGE A PRE-CONSTRUCTION CONFERENCE. PRE-CONSTURCTION SHALL BE SCHEDULED WITH THE PW OFFICE, 512-262-3024 AND HELD AT THE PW FACILITY LOCATED AT 520 E RR150, KYLE, TEXAS. EPRESENTATIVES FROM THE FOLLOWING ORGANIZATIONS SHALL BE INVITED:

   CITY OF KYLE STAFF INCLUDING THE DIRECTOR OF PUBLIC WORKS,
   CITY ENGINEER AND THE PUBLIC WORKS INSPECTOR.
   CONTRACTOR.
   DESIGN ENGINEER.
   ELECTRIC, GAS, PHONE AND CABLE UTILITY REPRESENTATIVES, IF APPROPRIATE.

3. PRIOR TO THE BEGINNING OF CONSTRUCTION, ALL PLAN REVIEW AND CONSTRUCTION INSPECTION FEES SHALL BE PAID TO THE CITY OF KYLE AND THE FOLLOWING PERMITS SHALL BE IN PLACE, IF NECESSARY:

   TEXAS DEPARTMENT OF TRANSPORTATION, ENTRY ONTO A HIGHWAY.
   CORPS OF ENGINEERS, SECTION 404, FOR CONSTRUCTION IN
   FLOOD PLAIN.
   COMPLIANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM (TPDES) CONSTRUCTION GENERAL PERMIT (TXR150000).
   TEXAS DEPARTMENT OF LICENSING AND REGULATION FOR ACCESSIBILITY.
   TCEQ FOR SIGNIFICANT WATER AND WASTEWATER FACILITIES, INCLUDING LIFT STATIONS.

4. BENCHMARKS FOR THIS PROJECT ARE DESCRIBED AS FOLLOWS:

5. ANY EXISTING PAVEMENT, CURBS, AND/OR SIDEWALKS DAMAGED OR REMOVED SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE BEFORE ACCEPTANCE OF THE SUBDIVISION.

6. THE CONTRACTOR SHALL GIVE THE CITY OF KYLE (PHONE NO. 512-262-3024), 48 HOURS NOTICE PRIOR TO CONNECTING TO ANY EXISTING CITY UTILITY LINE.

7. SIDEWALKS FRONTING PUBLIC RIGHT-OF-WAY LAND OR INCLUDING ALL SIDEWALK RAMPS REQUIRED BY CITY ORDINANCE SHOWN ON THESE PLANS SHALL BE CONSTRUCTED WITH THIS PROJECT.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WARNING AND SAFETY SIGNS, BARRICADES AND TRAFFIC CONTROL DURING CONSTRUCTION. ALL ROAD SIGNAGE SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

9. CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE CITY OF KYLE FOR THE USE OF ALL WATER FOR CONSTRUCTION.

10. ALL FILL OR CUT ON LOTS WHICH IS GREATER THAN TWELVE (12) INCHES SHALL BE SHOWN ON THE PLANS AND SHALL CONFORM TO THE FOLLOWING:

    FILL MATERIAL SHALL NOT CONTAIN ANY ROCKS HAVING A MAXIMUM DIMENSION GREATER THAN SIX (6) INCHES.

    FILL MATERIAL SHALL HAVE AT LEAST FIFTY PERCENT (50%) PASSING THE NO. 4 SIEVE.

    FILL MATERIAL SHALL BE REASONABLY FREE OF ROOTS, TRASH, CONCRETE RUBBLE AND OTHER ORGANIC MATERIAL.

    COMPACTION SHALL BE TO NINETY-FIVE PERCENT (95%) OF MAXIMUM LABORATORY DENSITY DETERMINED IN ACCORDANCE WITH THE ASTM D 698. THE MATERIAL SHALL BE WITHIN THREE (3) PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT DURING COMPACTION.

    PLACEMENT SHALL BE IN LIFTS NOT EXCEEDING EIGHT (8) INCHES AFTER COMPACTION. EACH COMPACTED LIFT SHOULD BE INSPECTED AND/OR TESTED FOR DENSITY COMPLIANCE BY A GEOTECHNICAL ENGINEER PRIOR TO PLACING THE NEXT LIFT. THE FILL AREA SHOULD EXTEND AT LEAST 24 INCHES (36 INCHES ON FILLS OVER SIX (6) FEET IN HEIGHT) BEYOND THE BACK OF CURB OR FOUNDATION LINE BEFORE SLOPING DOWNWARD ON NOT MORE THAN THREE (3) TO ONE (1) SLOPE TO NATURAL SOIL. BACKSLOPES SHALL BE WELL COMPACTED. MAXIMUM FILL HEIGHTS SHOULD NOT EXCEED TEN (10) FEET WITHOUT ENGINEERING CONSULTATION.

11. CONTRACTOR SHALL GIVE CITY INSPECTOR 36 HOURS NOTICE OF THE NEED FOR MATERIALS TESTING. ALL TESTING WILL BE ARRANGED AND PAID FOR BY THE CONTRACTOR. THE CITY SHALL RECEIVE A COPY OF TEST RESULTS.

12. CONTRACTOR OR THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND CUT SHEETS FOR PIPE LINES LAID ON GRADE AND ROAD CONSTRUCTION. CUT SHEETS SHALL BE DELIVERED TO THE CITY INSPECTOR 36 HOURS PRIOR TO CONSTRUCTION.

13. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND STABLE OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT SHALL BE PROVIDED BY THE CONTRACTOR.

15. NO TREES OVER 6 INCHES IN DIAMETER SHALL BE REMOVED UNLESS DESIGNATED TO BE REMOVED ON THE APPROVED PLANS. ALL TREE LIMBS REMOVED OR TRIMMED SHALL BE VERTICALLY CUT AND DRESSED.

16. ALL CONSTRUCTION ACTIVITIES SHALL BE CONFINED TO PROPERTY OWNED BY THE DEVELOPER OR PUBLIC RIGHT-OF-WAY AND EASEMENT UNLESS WRITTEN PERMISSION IS OBTAINED BY THE CONTRACTOR FROM THE PROPERTY OWNER AFFECTED.

17. THE CITY OF KYLE DOES NOT ALLOW ANY BLASTING WITHIN THE CITY LIMITS.

TYPICAL SEQUENCE OF CONSTRUCTION

1. HOLD PRE-CONSTRUCTION CONFERENCE.
2. NO CLEARING OR ROUGH GRADING MAY BE DONE UNTIL THE APPROVED EROSION AND SEDIMENTATION CONTROLS ARE IN PLACE.
3. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND STABILIZATION CONSTRUCTION ENTRANCE, IF REQUIRED, IN THE APPROVED PLANS.
4. ROUGH GRADE STREETS.
5. INSTALL ALL UTILITIES IN RIGHTS-OF-WAY.
6. RE-GRADE AND COMPACT SUBGRADE. MEET WITH CITY INSPECTOR AND/DESIGN ENGINEER TO DETERMINE AREAS OF DIFFERING STREET SECTION THICKNESS OR SUBGRADE PREPARATION IF CALLED FOR IN THE GEOTECHNICAL REPORT.
7. INSURE ALL UNDERGROUND UTILITY CROSSINGS ARE IN PLACE INCLUDING SLEEVES FOR DRY UTILITIES AND INSTALL FIRST COURSE OF BASE.
8. INSTALL CURBS, RIP-RAP AND MISCELLANEOUS CONCRETE.

TYPICAL SEQUENCE OF CONSTRUCTION CONTINUED

9. INSTALL SECOND COURSE OF BASE.
10. LAY ASPHALT.
11. FINAL GRADE ANY DITCHES AND PARKWAYS.
12. REVEGETATE ALL DISTURBED AREAS. DISPOSE OF SPOIL IN AN APPROVED MANNER.
13. SCHEDULE A FINAL INSPECTION WITH CITY.
14. AFTER ACCEPTANCE OF CONSTRUCTION, TEMPORARY EROSION CONTROLS MAY BE REMOVED.

MINIMUM CRITERIA FOR ACCEPTANCE

1. ALL CONSTRUCTION IS COMPLETE INCLUDING DRY UTILITIES AND RESTORATION TO THE CRITERIA.
2. ALL CITY OF KYLE FEES PAID AND MAINTENANCE BOND POSTED.
3. ALL RECORDS OF CONSTRUCTION TESTING AND RECORD DRAWINGS SHOWING ANY CHANGES DURING CONSTRUCTION PROVIDED TO THE CITY OF KYLE.
4. ALL STREET LIGHTING, SIGNS AND PAVEMENT MARKINGS SHALL BE IN PLACE.

WATER AND WASTEWATER NOTES

1. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C-900, DR-14) OR DUCTILE IRON (AWWA C-151, CLASS 350).
2. PIPE MATERIAL FOR GRAVITY SEWER SHALL BE SDR-26 PVC IF LOCATED GREATER THAN 9 FEET FROM A WATERLINE, OTHERWISE SHALL BE PRESSURE RATED PIPE.
3. BEDDING FOR FLEXIBLE GRAVITY PIPE (I.E. SDR-26 PVC) SHALL CONFORM TO ASTM 2321 CLASS 1 MATERIAL, I.E., 3/4" - 1" CLEAN ANGULAR CRUSHED ROCK.
4. CITY INSPECTOR SHALL OBSERVE ALL TAPS TO CITY UTILITY LINES AND PRIOR TO ANY UTILITY RELOCATION.
5. CONTRACTOR SHALL DISINFECT AND PRESSURE TEST ALL WATER LINES AND PERFORM LEAK AND DEFLECTION TESTS ON GRAVITY WASTEWATER LINES AT HIS EXPENSE.
6. THE CITY INSPECTOR SHALL BE NOTIFIED 36 HOURS PRIOR TO ALL UTILITY LINE TESTING. CONTRACTOR, WITH CITY STAFF PRESENT, IS RESPONSIBLE FOR SAMPLING. CITY STAFF WILL TRANSPORT BACTERIOLOGICAL TEST SAMPLES TO THE STATE DEPARTMENT OF HEALTH. ALL TEST RESULTS, WHETHER PASSING OR FAILING, SHALL BE PROVIDED TO THE CONTRACTOR. MANDREL DEFLECTION TESTING SHALL NOT BE CONDUCTED UNTIL THE PIPES HAVE BEEN BACKFILLED FOR 30 DAYS.
7. FIRE HYDRANTS SHALL BE MUELLER SUPER CENTURION OR APPROVED EQUAL.
8. THE CONTRACTOR SHALL SUBMIT TO THE DESIGN ENGINEER, DESCRIPTIVE INFORMATION FOR MATERIALS TO BE USED ON THE PROJECT FOR REVIEW. A COPY OF THE ACCEPTED MATERIAL SHALL ALSO BE PROVIDED TO THE CITY OF KYLE TEN DAYS PRIOR TO THE INSTALLATION OF UTILITIES.
9. PRESSURE TAPS SHALL BE IN ACCORDANCE WITH THE CITY OF KYLE. THE CONTRACTOR SHALL DO ALL EXCAVATION ETC., AND SHALL FURNISH, INSTALL AND AIR TEST THE SLEEVE AND VALVE. A CITY OF KYLE INSPECTOR MUST BE PRESENT WHEN TAP IS MADE. 7/32 SIZE ON SIZE 9/32 TAPS WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE DIRECTOR OF PUBLIC WORKS. CONCRETE BLOCKING SHALL BE PLACED BEHIND AND UNDER ALL TAP SLEEVES TWENTY-FOUR (24) HOURS PRIOR TO MAKING THE WET TAP.
10. ONE CALL NOTE - CONTRACTOR MUST CALL CITY OF KYLE (512-262-3024) FOR LOCATION OF CITY UTILITIES.
11. 200 PSI, BLACK, POLYETHYLENE TUBING SHALL BE USED ON WATER SERVICES.
12. ALL MANHOLES SHALL BE INTERNALLY COATED TO CITY OF AUSTIN SPECIFICATIONS, INCLUDING THE TIE-IN MANHOLE, UNLESS WAIVED BY THE DIRECTOR OF PUBLIC WORKS.
13. ALL PUBLIC MANHOLE COVERS WITHIN THE CITY LIMITS OF KYLE SHALL HAVE THE CITY OF KYLE LOGO.
14. ALL GATE VALVE OPERATING NUT OR VALVE EXTENTION NEEDS TO BE 24 9/32 TO FINAL GRADE.

FIRE PREVENTION NOTES

1. THE CONTRACTOR SHALL PROVIDE COMPACTED FLEXIBLE BASE PAVEMENT PRIOR TO CONSTRUCTION OF COMBUSTIBLE MATERIALS AS AN 7/32 ALL WEATHER DRIVING SURFACE. 9/32
2. HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE 4 59/64 INCH OPENING AT LEAST EIGHTEEN (18) INCHES ABOVE FINISHED GRADE. THE 4 59/64 INCH OPENING MUST FACE THE DRIVEWAY OR STREET WITH 3' - 6" SETBACK FROM CURBLINE(S). NO OBSERVATION IS ALLOWED WITHIN THREE (3) FEET OF ANY HYDRANT AND THE 4 69/64 INCH OPENING MUST BE TOTALLY UNOBSTRUCTED FROM THE STREET (USE NST THREADS).
3. DESIGNATE NO PARKING - FIRE LANE WITH CURB PAINTED RED AND WHITE STENCIL IN 7/32 FIRE ZONE / TOW AWAY ZONE 9/32 IN LETTERING 3 INCHES IN HEIGHT IN PROXIMITY TO COMMERCIAL, INDUSTRIAL AND PUBLIC STRUCTURES.

EROISON AND SEDIMENTATION CONTROL

1. AFTER THE PRECONSTRUCTION MEETING IS HELD, THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND FENCING FOR AREAS OUTSIDE OF THE CONSTRUCTION AREA PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
2. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS, AND AFTER SIGNIFICANT RAINFALL EVENTS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
3. PRIOR TO FINAL ACCEPTANCE BY THE CITY, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.
4. FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE CITY INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.
5. PERMANENT EROSION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW:

   A.A MINIMUM OF FOUR (4) INCHES OF TOPSOIL SHALL BE PLACED IN ALL DRAINAGE CHANNELS (EXCEPT ROCK), AND BETWEEN THE CURB AND RIGHT-OF-WAY.

   B. TRASH, WOOD, BRUSH, STUMPS, ROCKS OVER 1 59/64 INCHES IN SIZE AND OTHER OBJECTIONABLE MATERIAL ENCOUNTERED SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER OR INSPECTOR PRIOR TO BEGINNING OF WORK REQUIRED BY THIS ITEM. GRASS AND OTHER HERBACEOUS PLANT MATERIALS MAY REMAIN. LARGE CLUMPS SHALL BE BROKEN UP.

   C. THE SEEDING FOR PERMANENT EROSION CONTROL SHALL BE APPLIED OVER AREAS DISTURBED BY CONSTRUCTION AS FOLLOWS:

BROADCAST SEEDING

(I) FROM OCTOBER TO FEBRUARY, SEEDING SHALL BE WITH ONE (1) POUND PER 1,000 SQUARE FEET OF UNHULLED BERMUDA OR THREE (3) POUNDS PER 1,000 SQUARE FEET OF WINTER RYE.

(II) FROM MARCH TO SEPTEMBER, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF ONE (1) POUND PER 1,000 SQUARE FEET.

FERTILIZER, IF USED, SHALL BE SLOW RELEASE GRANULAR OR PALETTE TYPE, AND SHALL HAVE AN ANALYSIS OF 15-15-15, AND SHALL BE APPLIED AT THE RATE OF ONE (1) POUND PER 1,000 SQUARE FEET, ONCE AT THE TIME OF PLANTING, AND AGAIN ONCE DURING THE TIME OF ESTABLISHMENT.

MULCH TYPE USED SHALL BE STRAW OR HAY APPLIED AT A RATE OF 45 POUNDS PER 1,000 SQUARE FEET.

HYDRAULIC SEEDING

(I) FROM OCTOBER TO FEBRUARY, SEEDING SHALL BE WITH ONE (1) POUND PER 1,000 SQUARE FEET OF UNHULLED BERMUDA, OR THREE (3) POUNDS PER 1,000 SQUARE FEET OF WINTER RYE.

(II) FROM MARCH TO SEPTEMBER, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF ONE (1) POUND PER 1,000 SQUARE FEET.

FERTILIZER, IF USED, SHALL BE A WATER SOLUBLE FERTILIZER WITH AN ANALYSIS OF 15-15-15 AT A RATE OF 1.5 POUNDS PER 1,000 SQUARE FEET.

MULCH TYPE SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 45 POUNDS PER 1,000 SQUARE FEET, WITH A SOIL TACKIFIER AT A RATE OF 1.4 POUNDS PER 1,000 SQUARE FEET.

D. THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK TO A DEPTH OF SIX (6) INCHES. THE IRRIGATION SHALL OCCUR AT 10-DAY INTERVALS DURING THE FIRST TWO (2) MONTHS. RAINFALL OCCURRENCES OF 59/64 INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR TEN (10) DAYS.

E. RESTORATION SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1 INCH HIGH WITH 85% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 20 SQUARE FEET EXIST.

F. A SOIL RETENTION BLANKET SHALL BE PLACED ON ALL SLOPES EQUAL TO OR GREATER THAN 3:1. ALL SOIL RETENTION BLANKETS MUST BE LISTED ON THE TXDOT APPROVED PRODUCTS LIST OR APPROVED BY THE CITY.

DEVELOPER INFORMATION:

OWNER: TOLL BROTHERS

ADDRESS: 1320 ARROW POINT DRIVE, SUITE 401, CEDAR PARK, TX. 78613

PHONE: (412) 780-2312

REPRESENTATIVE: ADRIENNE DONATUCCI

DESIGN ENGINEER:REPRESENTATIVE RESPONSIBLE FOR PLAN CHANGES.

NAME: MICHAEL FISHER, P.E.

ADDRESS: 10801 N. MOPAC EXPY., BUILDING. 3, SUITE 200, AUSTIN, TX 78759

PHONE: (512) 454-8711

CITY OF KYLE:

DIRECTOR OF WATER UTILITIES: MIKE MURPHY (512) 262-3024

CITY ENGINEER: LEON BARBA, P.E. (512) 262-3958

NO.	REVISION	DATE

THIS DOCUMENT IS RELEASED FOR INTERIM REVIEW PURPOSES ONLY UNDER THE AUTHORITY OF MICHAEL S. FISHER, P.E. 87704 DATE: November 20, 2024 IT IS NOT TO BE USED FOR BIDDING, CONSTRUCTION OR PERMITTING PURPOSES, PER 1.E.P.A. 137.33(e)

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA
LIFT STATION & FORCE MAIN

GENERAL NOTES

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD

SHEET 2 OF 48

Date: Sep 30, 2024, 3:24pm User ID: cnfenwick
File: K:\Projects\514.56\101\302 Construction Documents\Civil\CN51456-10_FN.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

Texas Commission on Environmental Quality
Organized Sewage Collection System
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title 30 Texas Administrative Code, Chapters 213 and 217, or any other TCEQ applicable regulation.

1. This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications.

2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the SCS plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.

3. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

4. Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.

5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently stabilized.

6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the

executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.

8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.

9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

   The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet __ of __.

   It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.

10. Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).

11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer: _____.

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: _____.

    Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.

12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

    If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet __ of __. (For potential future laterals).

    The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet __ of __ and marked after backfilling as shown in the detail on Plan Sheet __ of __.

13. Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.

14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).

15. All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
    (a) For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:
        (1) *Low Pressure Air Test.*
            (A) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph.
            (B) For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
                (i) A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.
                (ii) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation:

Equation C.3 $$T = \frac{0.085 \times D \times K}{Q}$$

Where:

T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 X D X L, but not less than 1.0
D = average inside pipe diameter in inches

L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface

(C) Since a K value of less than 1.0 may not be used, the minimum testing time for each pipe diameter is shown in the following Table C.3:

Pipe Diameter *(inches)*	Minimum Time *(seconds)*	Maximum Length for Minimum Time *(feet)*	Time for Longer Length *(seconds/foot)*
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

(D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

(2) *Infiltration/Exfiltration Test.*
(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:
    (1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
        (A) *Mandrel Sizing.*
            (i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
            (ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
            (iii) All dimensions must meet the appropriate standard.
        (B) *Mandrel Design.*
            (i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
            (ii) A mandrel must have nine or more odd number of runners or legs.
            (iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.
            (iv) Each size mandrel must use a separate proving ring.
        (C) *Method Options.*
            (i) An adjustable or flexible mandrel is prohibited.
            (ii) A test may not use television inspection as a substitute for a deflection test.
            (iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
    (2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
    (3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
    (4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.
    (5) Gravity collection system pipe deflection must not exceed five percent (5%).
    (6) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
    (a) All manholes must pass a leakage test.
    (b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
        (1) Hydrostatic Testing.

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
(C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.

(2) Vacuum Testing.
(A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off.
(H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

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

Texas Commission on Environmental Quality
Contributing Zone Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director (ED), nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code (TAC), Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the ED, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, TAC, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the ED's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, TAC § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the ED to any part of Title 30 TAC, Chapters 213 and 217, or any other TCEQ applicable regulation

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any ground disturbance or construction activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

2. All contractors conducting regulated activities associated with this project should be provided with complete copies of the approved Contributing Zone Plan (CZP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractor(s) should keep copies of the approved plan and approval letter on-site.

3. No hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.

4. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.

5. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.

6. Sediment must be removed from the sediment traps or sedimentation basins when it occupies 50% of the basin's design capacity.

7. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.

8. All excavated material that will be stored on-site must have proper E&S controls.

9. If portions of the site will have a cease in construction activity lasting longer than 14 days, soil

stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.

10. The following records should 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.

11. The holder of any approved CZP 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 best management practices (BMPs) or structure(s), including but not limited to temporary or permanent ponds, dams, berms, silt fences, and diversionary structures;
    B. any change in the nature or character of the regulated activity from that which was originally approved;
    C. any change that would significantly impact the ability to prevent pollution of the Edwards Aquifer; or
    D. any development of land previously identified as undeveloped in the approved contributing zone plan.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

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

NO.	REVISION	DATE

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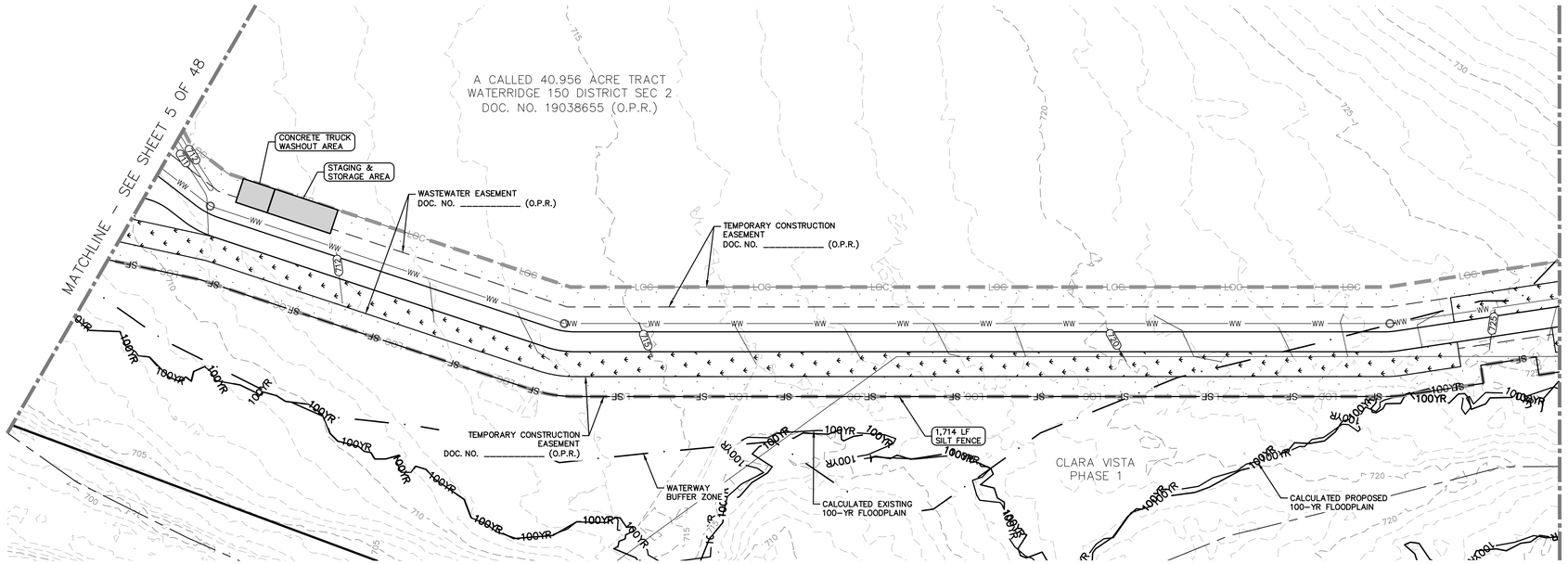
CLARA VISTA
LIFT STATION & FORCE MAIN

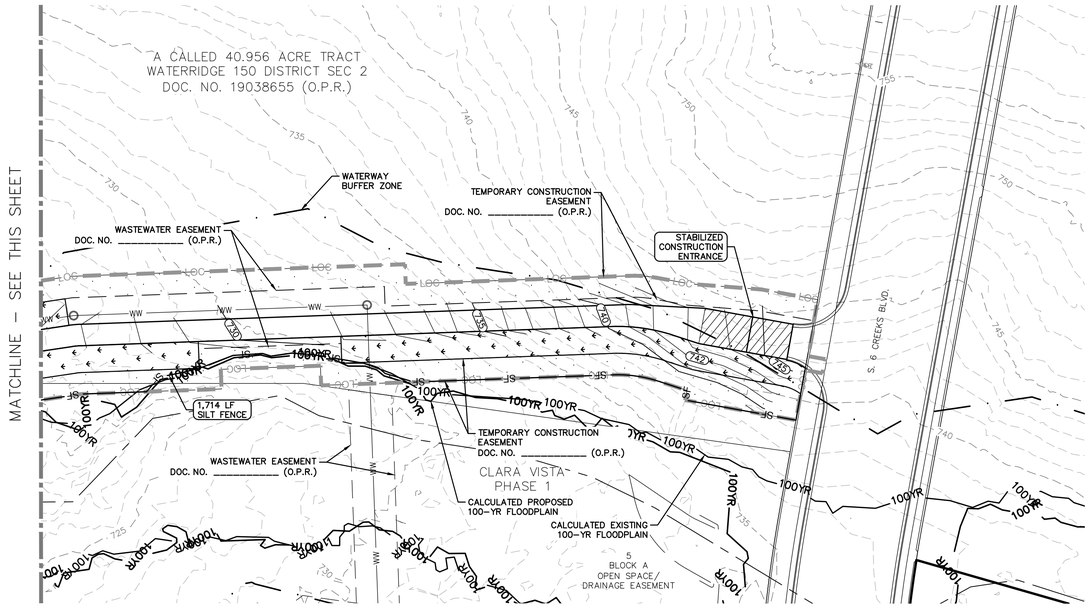
TCEQ NOTES

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 3 OF 48

Date: Sep 30, 2024, 3:25pm User ID: ondrewdok
File: H:\Projects\51456\01\302 Construction Documents\Civil\CN51456-10_PM.dwg
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CP-22-0144





SCALE: 1" = 40'

0' 40' 80' 120'

LEGEND

- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- TP TP TP — TREE PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- ROCK RIP-RAP
- ROCK BERM
- ENGINEERED VEGETATIVE FILTER STRIP
- IP — INLET PROTECTION
- 720 — PROPOSED CONTOUR LINE
- 725 — EXISTING CONTOUR LINE
- SPECIMEN TREES PRESERVED
- TREES PRESERVED
- TREES REMOVED

SCALE: 1" = 40'

0' 40' 80' 120'

NOTES

1. CONTRACTOR TO REPAIR ALL FENCES AND PAVEMENT DISTURBED DURING CONSTRUCTION TO EQUIVALENT OR BETTER STATE THAN THE EXISTING CONDITION. A 16' GATE SHALL BE INSTALLED AT EACH PROPERTY LINE WHERE FENCE REMOVAL IS REQUIRED FOR FORCE MAIN INSTALLATION.

NO.	REVISION	DATE

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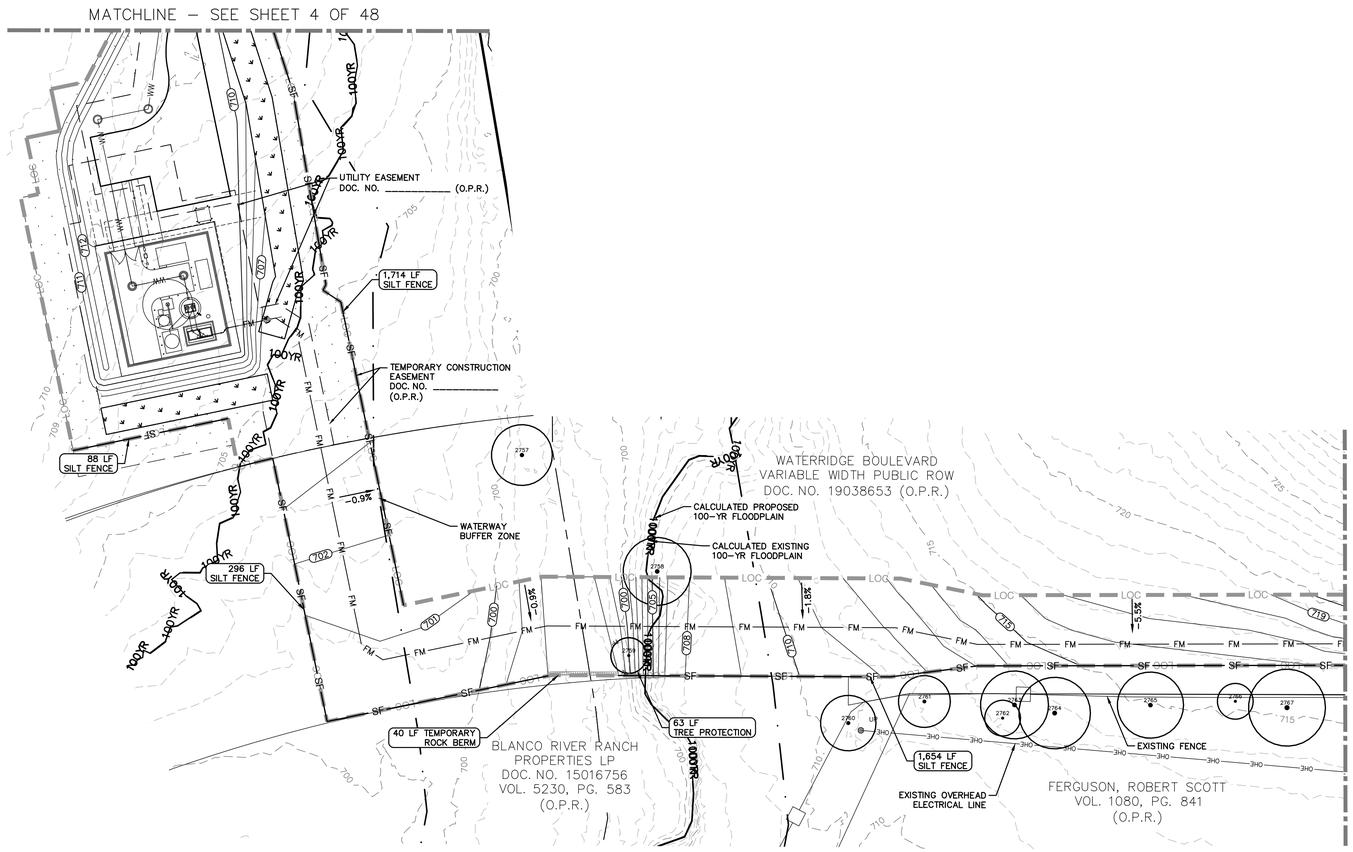
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CLARA VISTA

LIFT STATION & FORCE MAIN EROSION AND SEDIMENTATION CONTROL PLAN 1 OF 7

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 4 OF 48

Date: Sep 30, 2024, 3:26pm User ID: andrewdak
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SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- TP TP TP — TREE PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- ROCK RIP–RAP
- ROCK BERM
- ENGINEERED VEGETATIVE FILTER STRIP
- IP — INLET PROTECTION
- 720 — PROPOSED CONTOUR LINE
- 720 — EXISTING CONTOUR LINE
- SPECIMEN TREES PRESERVED
- TREES PRESERVED
- TREES REMOVED

SCALE: 1"= 40'

0' 40' 80' 120'

NOTES

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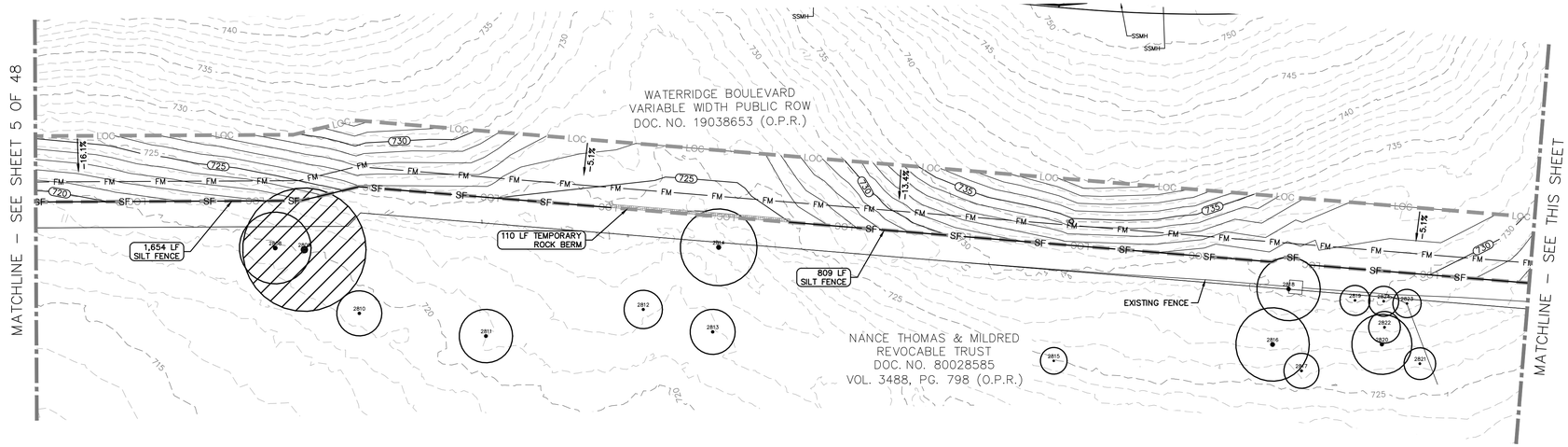
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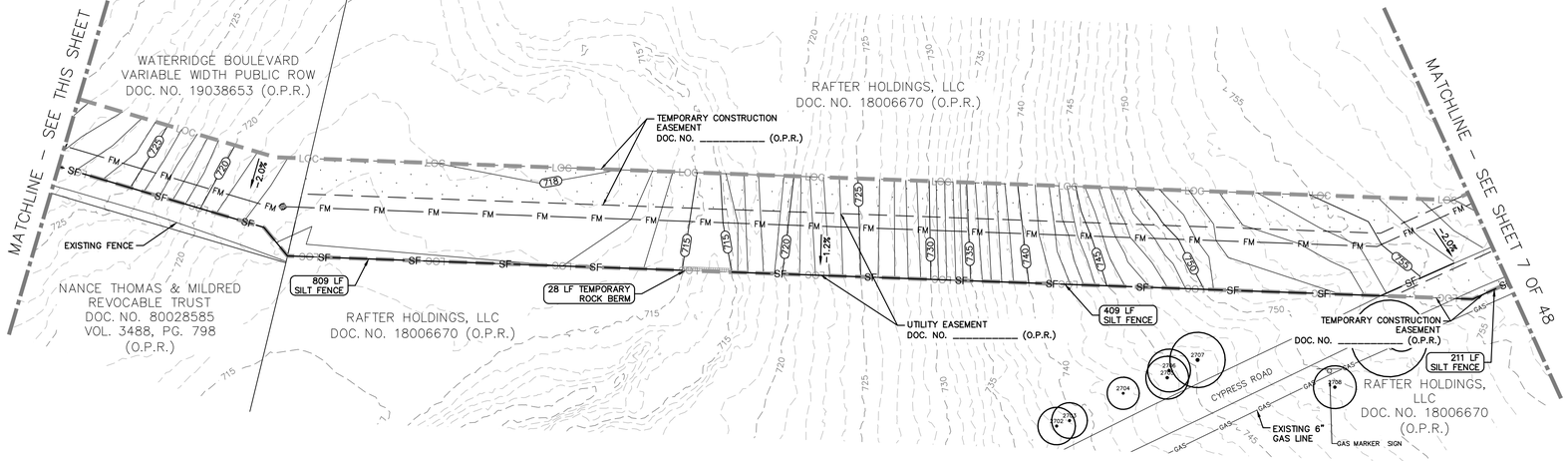
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LIFT STATION & FORCE MAIN
EROSION AND SEDIMENTATION
CONTROL PLAN 2 OF 7

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 5 OF 48

Date: Sep 30, 2024, 3:27pm User ID: andrewbook
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SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- TP — TP — TP — TREE PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- ROCK RIP–RAP
- ROCK BERM
- IP — INLET PROTECTION
- 730 — PROPOSED CONTOUR LINE
- 730 — EXISTING CONTOUR LINE
- SPECIMEN TREES PRESERVED
- TREES PRESERVED
- TREES REMOVED

SCALE: 1"= 40'

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NOTES

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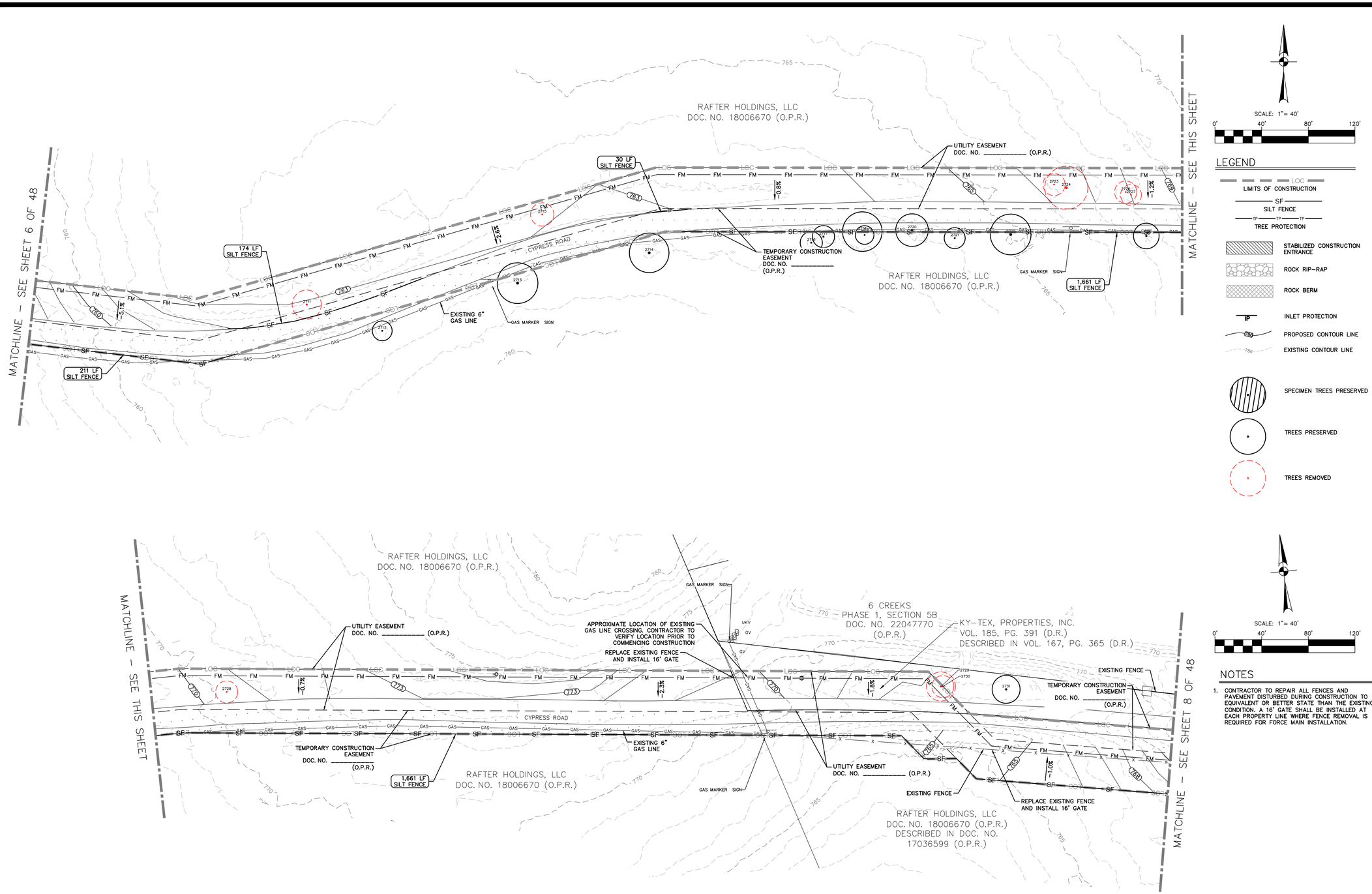
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LIFT STATION & FORCE MAIN
EROSION AND SEDIMENTATION CONTROL PLAN 3 OF 7

CITY JOB No. CP–22–0144
JOB NO. 51456–10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 6 OF 48

Date: Sep 30, 2024, 3:27pm User ID: andrewlook
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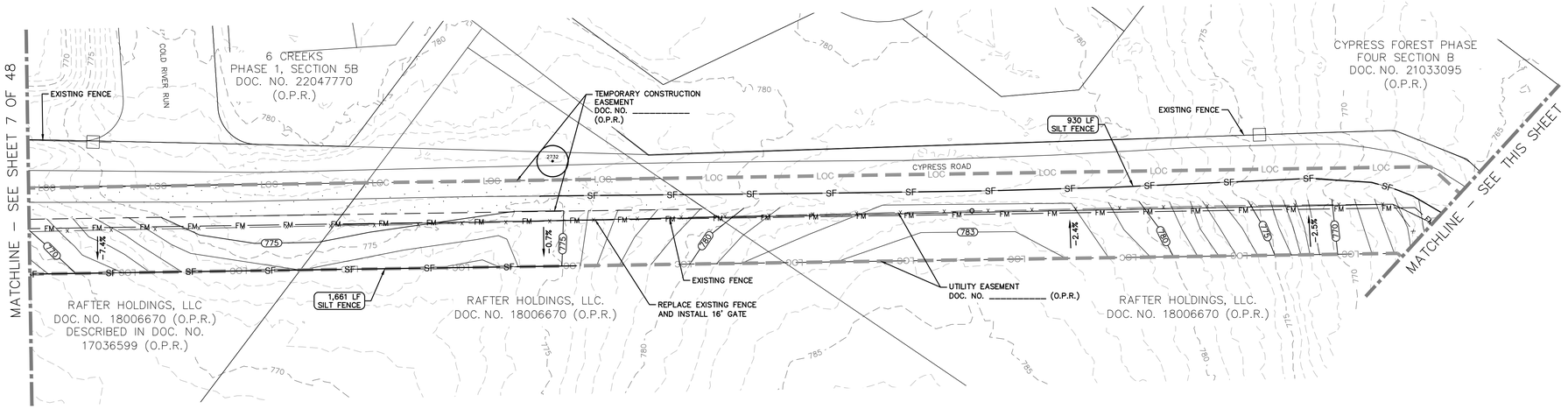
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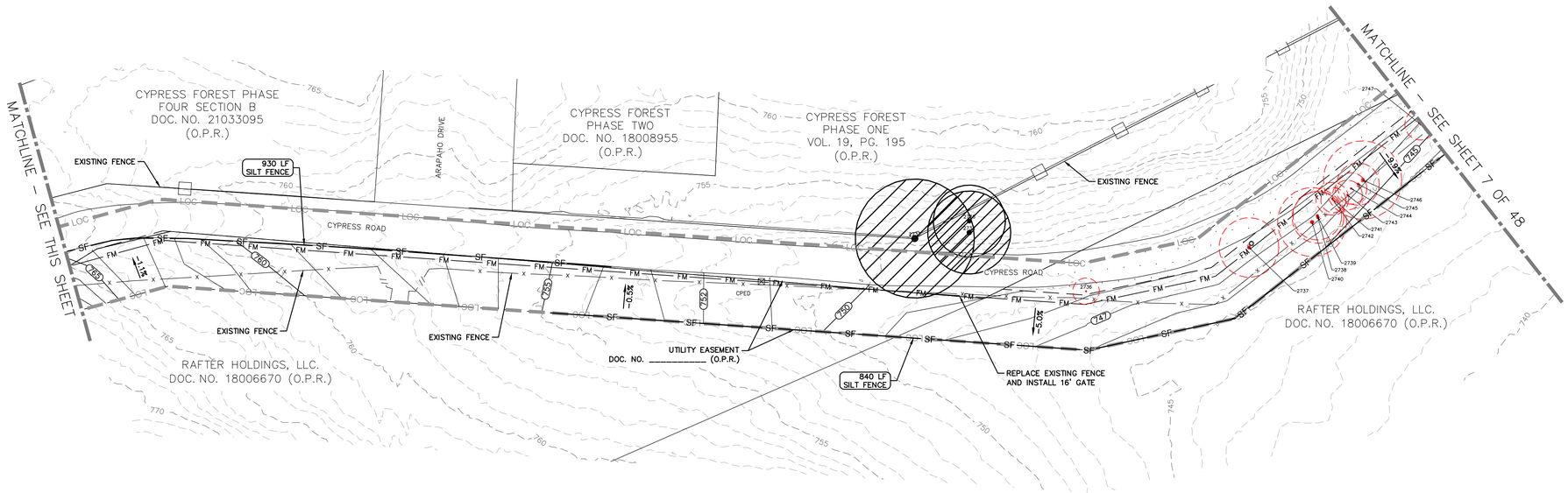
LIFT STATION & FORCE MAIN
EROSION AND SEDIMENTATION CONTROL PLAN 4 OF 7

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
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Date: Sep 30, 2024, 3:27pm User ID: ardrewdak
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SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- TP — TP — TP — TREE PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- ROCK RIP–RAP
- ROCK BERM
- IP — INLET PROTECTION
- PROPOSED CONTOUR LINE
- EXISTING CONTOUR LINE
- SPECIMEN TREES PRESERVED
- TREES PRESERVED
- TREES REMOVED

SCALE: 1"= 40'

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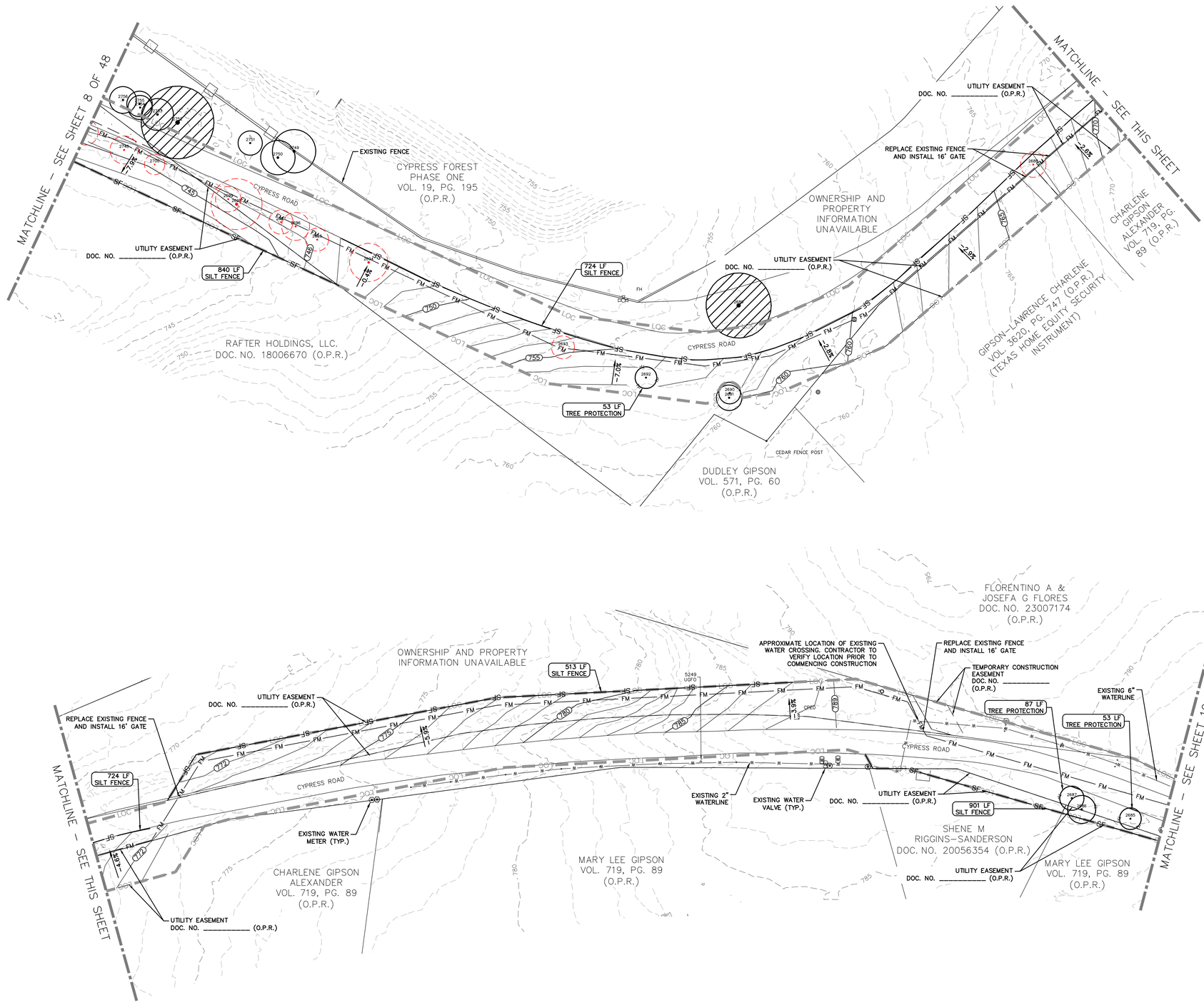
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LIFT STATION & FORCE MAIN
EROSION AND SEDIMENTATION CONTROL PLAN 5 OF 7

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 8 OF 48

Date: Sep 30, 2024, 3:28pm User ID: cnfrentodd
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CP-22-0144



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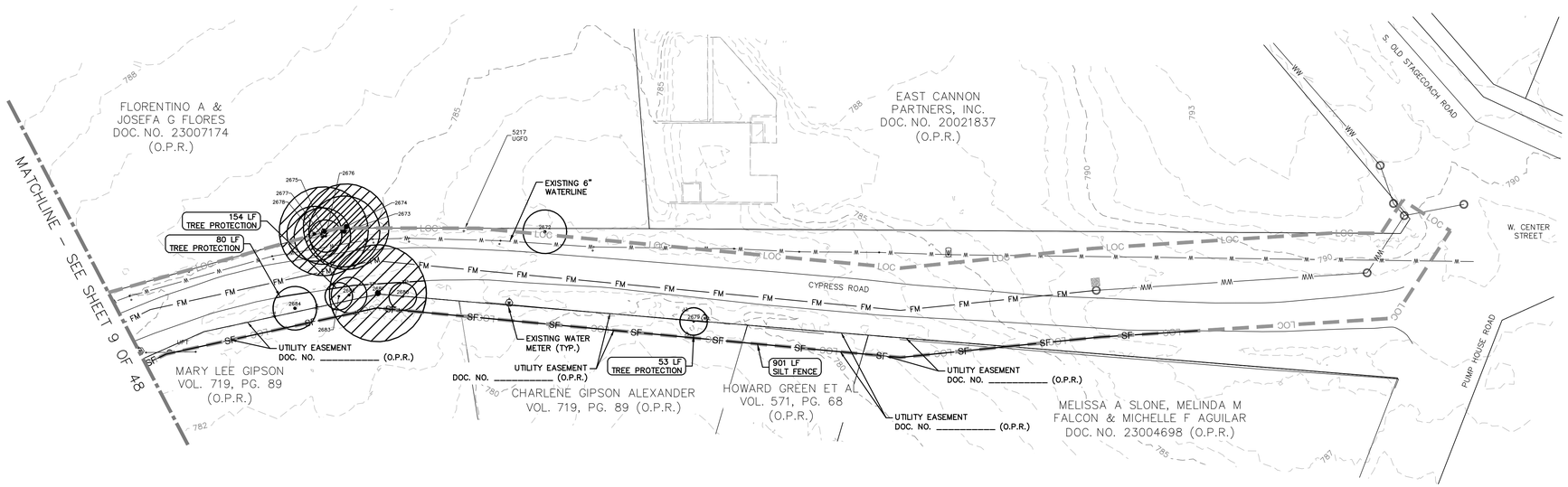
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LIFT STATION & FORCE MAIN EROSION AND SEDIMENTATION CONTROL PLAN 6 OF 7

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 9 OF 48

Date: Sep 30, 2024, 3:28pm User ID: cnfarkowtak
File: H:\Projects\514\56\01\302 Construction Documents\Civil\EC51456-10_FM.dwg
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CP-22-0144



SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- TP TP TP — TREE PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- ROCK RIP–RAP
- ROCK BERM
- IP — INLET PROTECTION
- 790 — PROPOSED CONTOUR LINE
- 786 — EXISTING CONTOUR LINE
- SPECIMEN TREES PRESERVED
- TREES PRESERVED
- TREES REMOVED

NOTES

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CLARA VISTA

LIFT STATION & FORCE MAIN EROSION AND SEDIMENTATION CONTROL PLAN 7 OF 7

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 10 OF 48

Date: Sep 30, 2024, 3:29pm User ID: andrewbak
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TREE NUMBER	TREE TYPE	CALIPER INCH	CIRCUMFERENCE INCH	EXEMPT	PROTECTED TREE	SPECIMEN TREE	REMOVED INCHES	PRESERVED INCHES	REASON FOR REMOVAL
2672	CHINABERRY	13.5	42.4	X				42.4	
2673	LIVE OAK	22	69.1		X			69.1	
2674	LIVE OAK	26.5	83.3			X		83.3	
2675	LIVE OAK	27.5	86.4			X		86.4	
2676	LIVE OAK	10	31.4		X			31.4	
2677	LIVE OAK	17.5	55.0		X			55.0	
2678	LIVE OAK	17	53.4		X			53.4	
2679	HACKBERRY	8.5	26.7	X				26.7	
2680	HACKBERRY	8.5	26.7	X				26.7	
2681	LIVE OAK	30	94.2			X		94.2	
2682	LIVE OAK	11	34.6		X			34.6	
2683	LIVE OAK	8.5	26.7					26.7	
2684	HACKBERRY	13.5	42.4	X				42.4	
2685	HACKBERRY	8.5	26.7	X				26.7	
2686	HACKBERRY	11	34.6	X				34.6	
2687	CHINABERRY	9.5	29.8	X				29.8	
2688	HACKBERRY	10	31.4	X			31.4		FM ALIGNMENT CONFLICT
2689	LIVE OAK	25.5	80.1			X		80.1	
2690	HACKBERRY	8.5	26.7	X				26.7	
2691	LIVE OAK	10	31.4		X			31.4	
2692	LIVE OAK	8.5	26.7					26.7	
2693	LIVE OAK	9	28.3		X		28.3		FM ALIGNMENT CONFLICT
2694	HACKBERRY	15	47.1	X			47.1		FM ALIGNMENT CONFLICT
2695	HACKBERRY	9	28.3	X			28.3		FM ALIGNMENT CONFLICT
2696	PECAN	11	34.6		X		34.6		FM ALIGNMENT CONFLICT
2697	HACKBERRY	9.5	29.8	X			29.8		FM ALIGNMENT CONFLICT
2698	HACKBERRY	20	62.8	X			62.8		FM ALIGNMENT CONFLICT
2699	HACKBERRY	10	31.4	X			31.4		FM ALIGNMENT CONFLICT
2700	CEDAR ELM	8	25.1				25.1		FM ALIGNMENT CONFLICT
2701	HACKBERRY	16	50.3	X				50.3	
2702	HACKBERRY	10.5	33.0	X				33.0	
2703	HACKBERRY	10	31.4	X				31.4	
2704	HACKBERRY	9	28.3	X				28.3	
2705	CEDAR ELM	12	37.7		X			37.7	
2706	CEDAR ELM	12	37.7		X			37.7	
2707	CEDAR ELM	15.5	48.7		X			48.7	
2708	LIVE OAK	12	37.7		X			37.7	
2709	CEDAR ELM	21.5	67.5		X			67.5	
2710	DEAD	9.5	29.8	X				29.8	
2711	HACKBERRY	12.5	39.3	X			39.3		FM ALIGNMENT CONFLICT
2712	LIVE OAK	8.5	26.7					26.7	
2713	LIVE OAK	17.5	55.0		X			55.0	
2714	CEDAR ELM	17	53.4		X			53.4	
2715	HACKBERRY	10	31.4	X			31.4		FM ALIGNMENT CONFLICT
2716	LIVE OAK	9.5	29.8		X			29.8	
2717	LIVE OAK	9.5	29.8		X			29.8	
2718	CEDAR ELM	17	53.4		X			53.4	
2719	LIVE OAK	8	25.1					25.1	
2720	LIVE OAK	14	44.0		X			44.0	
2721	LIVE OAK	9	28.3		X			28.3	
2722	HACKBERRY	17.5	55.0	X				55.0	
2723	HACKBERRY	9.5	29.8	X			29.8		FM ALIGNMENT CONFLICT
2724	HACKBERRY	18.5	58.1	X			58.1		FM ALIGNMENT CONFLICT
2725	DEAD	11	34.6	X				34.6	
2726	HACKBERRY	9.5	29.8	X			29.8		FM ALIGNMENT CONFLICT
2727	HACKBERRY	9	28.3	X			28.3		FM ALIGNMENT CONFLICT
2728	CEDAR ELM	9.5	29.8		X		29.8		FM ALIGNMENT CONFLICT
2729	HACKBERRY	12.5	39.3	X			39.3		FM ALIGNMENT CONFLICT
2730	HACKBERRY	9.5	29.8	X			29.8		FM ALIGNMENT CONFLICT
2731	HACKBERRY	12	37.7	X				37.7	
2732	CEDAR ELM	10	31.4		X			31.4	
2733	LIVE OAK	38	119.4			X		119.4	
2734	LIVE OAK	26.5	83.3			X		83.3	
2735	LIVE OAK	23	72.3		X			72.3	
2736	HACKBERRY	8.5	26.7	X			26.7		FM ALIGNMENT CONFLICT
2737	LIVE OAK	19	59.7		X		59.7		FM ALIGNMENT CONFLICT
2738	LIVE OAK	16.5	51.8		X		51.8		FM ALIGNMENT CONFLICT
2739	LIVE OAK	15.5	48.7		X		48.7		FM ALIGNMENT CONFLICT
2740	LIVE OAK	22	69.1		X		69.1		FM ALIGNMENT CONFLICT
2741	LIVE OAK	10.5	33.0		X		33.0		FM ALIGNMENT CONFLICT
2742	CEDAR ELM	8	25.1				25.1		FM ALIGNMENT CONFLICT
2743	LIVE OAK	9.5	29.8		X		29.8		FM ALIGNMENT CONFLICT
2744	LIVE OAK	10	31.4		X		31.4		FM ALIGNMENT CONFLICT
2745	LIVE OAK	13.5	42.4		X		42.4		FM ALIGNMENT CONFLICT
2746	LIVE OAK	25	78.5			X	78.5		FM ALIGNMENT CONFLICT
2747	CEDAR ELM	10	31.4		X		31.4		FM ALIGNMENT CONFLICT
2748	CEDAR ELM	11	34.6		X		34.6		FM ALIGNMENT CONFLICT
2749	CEDAR ELM	17	53.4		X			53.4	
2750	HACKBERRY	13.5	42.4	X				42.4	
2751	HACKBERRY	9.5	29.8	X				29.8	
2752	LIVE OAK	28.5	89.5			X		89.5	
2753	CEDAR ELM	12.5	39.3		X			39.3	
2754	CEDAR ELM	9.5	29.8		X			29.8	
2755	CEDAR ELM	10	31.4		X			31.4	
2756	CEDAR ELM	10.5	33.0		X			33.0	
2757	CEDAR	17	53.4	X				53.4	
2758	POST OAK	19	59.7		X			59.7	
2759	CEDAR	10	31.4	X				31.4	
2760	POST OAK	15.5	48.7		X			48.7	
2761	CEDAR	4.5	14.1	X				14.1	
2762	CEDAR	10	31.4	X				31.4	
2763	CEDAR	19	59.7	X				59.7	
2764	CEDAR	20	62.8	X				62.8	
2765	CEDAR	18.5	58.1	X				58.1	
2766	LIVE OAK	10	31.4		X			31.4	
2767	POST OAK	21.5	67.5		X			67.5	
2768	CEDAR	8	25.1	X				25.1	
2769	CEDAR	8.5	26.7	X				26.7	
2770	CEDAR	19.5	61.3	X				61.3	
2771	COTTONWOOD	16	50.3		X			50.3	
2772	COTTONWOOD	21	66.0		X			66.0	
2773	POST OAK	15	47.1		X			47.1	
2774	POST OAK	11	34.6		X			34.6	
2775	POST OAK	11	34.6		X			34.6	
2776	POST OAK	12.5	39.3		X			39.3	
2777	CEDAR	8.5	26.7	X				26.7	
2778	CEDAR	11	34.6	X				34.6	
2779	LIVE OAK	8	25.1					25.1	
2780	LIVE OAK	11.5	36.1		X			36.1	
2781	LIVE OAK	13	40.8		X			40.8	
2782	LIVE OAK	11.5	36.1		X			36.1	
2783	LIVE OAK	11	34.6		X			34.6	
2784	LIVE OAK	13	40.8		X			40.8	
2785	LIVE OAK	10.5	33.0		X			33.0	
2786	CEDAR	9	28.3	X				28.3	
2787	LIVE OAK	8.5	26.7					26.7	
2788	COTTONWOOD	8	25.1					25.1	
2789	CEDAR	8.5	26.7	X				26.7	
2790	CEDAR	10.5	33.0	X				33.0	
2791	POST OAK	9	28.3		X			28.3	
2792	CEDAR	21	66.0	X				66.0	
2793	POST OAK	21.5	67.5		X			67.5	
2794	CEDAR	12.5	39.3	X				39.3	
2795	CEDAR	21.5	67.5	X				67.5	
2796	POST OAK	12	37.7		X			37.7	
2797	COTTONWOOD	24	75.4			X		75.4	
2798	BLACKJACK	9	28.3		X			28.3	
2799	BLACKJACK	14.5	45.6		X			45.6	
2800	CEDAR	8	25.1	X				25.1	
2801	POST OAK	19	59.7		X			59.7	
2802	POST OAK	11.5	36.1		X			36.1	
2803	POST OAK	11	34.6		X			34.6	
2804	LIVE OAK	19	59.7		X			59.7	
2805	LIVE OAK	15.5	48.7		X			48.7	
2806	LIVE OAK	11	34.6		X			34.6	
2807	LIVE OAK	13.5	42.4		X			42.4	
2808	CEDAR	21.5	67.5	X				67.5	
2809	CEDAR	37	116.2	X		X		116.2	
2810	CEDAR	13.5	42.4	X				42.4	
2811	CEDAR	16	50.3	X				50.3	
2812	CEDAR	11.5	36.1	X				36.1	
2813	DEAD	13.5	42.4	X				42.4	
2814	CEDAR	23	72.3	X				72.3	
2815	MESQUITE	8	25.1	X				25.1	
2816	CEDAR	22	69.1	X				69.1	
2817	CEDAR	10.5	33.0	X				33.0	
2818	CEDAR	19	59.7	X				59.7	
2819	POST OAK	9	28.3		X			28.3	
2820	CEDAR	18	56.5	X				56.5	
2821	BLACKJACK	9.5	29.8		X			29.8	
2822	BLACKJACK	9.5	29.8		X			29.8	
2823	CEDAR	8.5	26.7	X				26.7	
2824	CEDAR	9	28.3	X				28.3	

Note: Protected Trees (Circumference greater than 28" but less than 75") located within areas designated for construction of public utilities do not require mitigation per City of Kyle Ordinance No. 725)

	PERCENTAGE OF TOTAL
TOTAL SPECIMEN TREE CIRCUMFERENCE INCHES REMOVED	9.94%
TOTAL SPECIMEN TREE CIRCUMFERENCE INCHES PRESERVED	90.06%
TOTAL SPECIMEN TREE CIRCUMFERENCE INCHES	100.00%
TOTAL NUMBER OF SPECIMEN TREES REMOVED	11.11%
TOTAL NUMBER OF SPECIMEN TREES PRESERVED	88.89%
TOTAL NUMBER OF SPECIMEN TREES	100.00%
TOTAL PROTECTED TREE CIRCUMFERENCE INCHES REMOVED	17.94%
TOTAL PROTECTED TREE CIRCUMFERENCE INCHES PRESERVED	82.06%
TOTAL PROTECTED TREE CIRCUMFERENCE INCHES	100.00%
TOTAL NUMBER OF PROTECTED TREES REMOVED	18.84%
TOTAL NUMBER OF PROTECTED TREES PRESERVED	81.16%
TOTAL NUMBER OF PROTECTED TREES	100.00%

	Surveyed		Removed		Mitigation			Credits				
	# of Trees	Total Inches	# of Trees	Total Inches	Percentage of Trees	Replacement Ratio	Required Replacement	Trees Preserved	Inches Preserved	Credit Ratio	Credit Inches	Credit 12" Trees
SPECIMEN TREES	9	790.1	1	78.5	11%	1":1"	78.5	8	711.6	1":1"	711.6	N/A
PROTECTED TREES	69	2,924.8	13	524.6	19%	2.5 Trees : 1 Tree*	0.0	56	2400.2	2 Trees : 1 Tree	N/A	84
<28" Trees	9	232.5	2	50.3	22%	None	0.0	7	182.2	1.5 Trees : 1 Tree	N/A	14

*Protected Trees (Circumference greater than 28" but less than 75") located within areas designated for construction of public utilities do not require mitigation per City of Kyle Ordinance No. 725)

Note: Table does not include trees exempt from mitigation requirements per City of Kyle Ordinance No. 725, including Hackberry, Cedar, Chinaberry and Mesquite.

NO.	REVISION	DATE

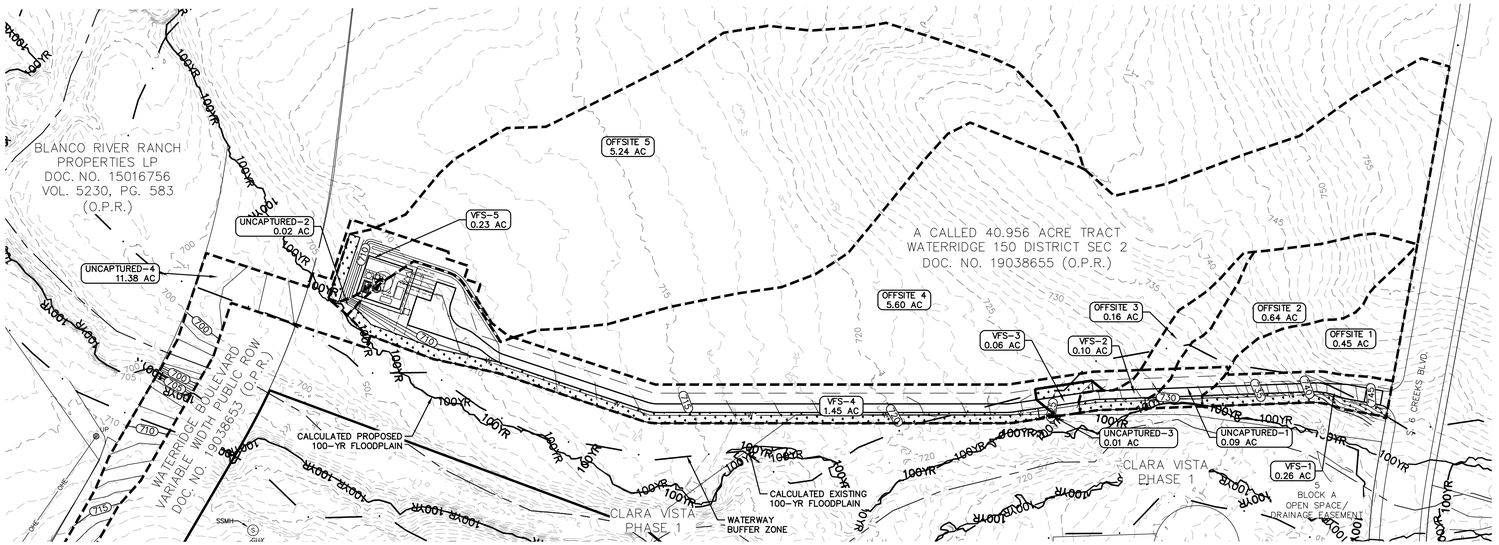
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TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA
LIFT STATION & FORCE MAIN
TREE PRESERVATION PLAN TREE LIST

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 11 OF 48

Date: Sep 30, 2024, 3:30pm User ID: andrewsak
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SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- PROPOSED WATERSHED
- OFFSITE 3A 3.92 AC — WATERSHED ACREAGE
- FLOW DIRECTION
- WATERWAY BUFFER ZONE
- 100YR — CALCULATED EXISTING 100-YR FLOODPLAIN
- 100YR — CALCULATED PROPOSED 100-YR FLOODPLAIN

NOTES

1. NO ADDITIONAL IMPERVIOUS COVER IS PROPOSED TO BE ADDED IN DRAINAGE AREA UNCAPTURED 4.

Treatment Summary Table
Current Application - Hawkes Landing North Phase 1

Watershed	Watershed Area (acres)	Total Existing Impervious Cover (acres)	Total Proposed Impervious Cover (acres)	Total Net Impervious Cover (acres)	BMP	Required TSS Removal (lbs./yr.)	Designed TSS Removal (lbs./yr.)
VFS 1	0.26	0.01	0.09	0.08	ENGINEERED VFS 1	69	69
VFS 2	0.10	0.00	0.03	0.03	ENGINEERED VFS 2	26	26
VFS 3	0.06	0.00	0.02	0.02	ENGINEERED VFS 3	13	13
VFS 4	1.45	0.00	0.39	0.39	ENGINEERED VFS 4	344	368
VFS 5	0.23	0.00	0.05	0.05	ENGINEERED VFS 5	42	42
UNCAPTURED 1	0.09	0.00	0.02	0.02	OVER TREATMENT BY ENGINEERED VFS 4	17	0
UNCAPTURED 2	0.02	0.00	0.01	0.01	OVER TREATMENT BY ENGINEERED VFS 4	7	0
UNCAPTURED 3	0.00	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
UNCAPTURED 4	11.38	2.50	2.50	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 1	0.45	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 2	0.64	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 3	0.16	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 4	5.60	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 5	5.24	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
Total	25.68	2.50	3.11	0.60		518	518

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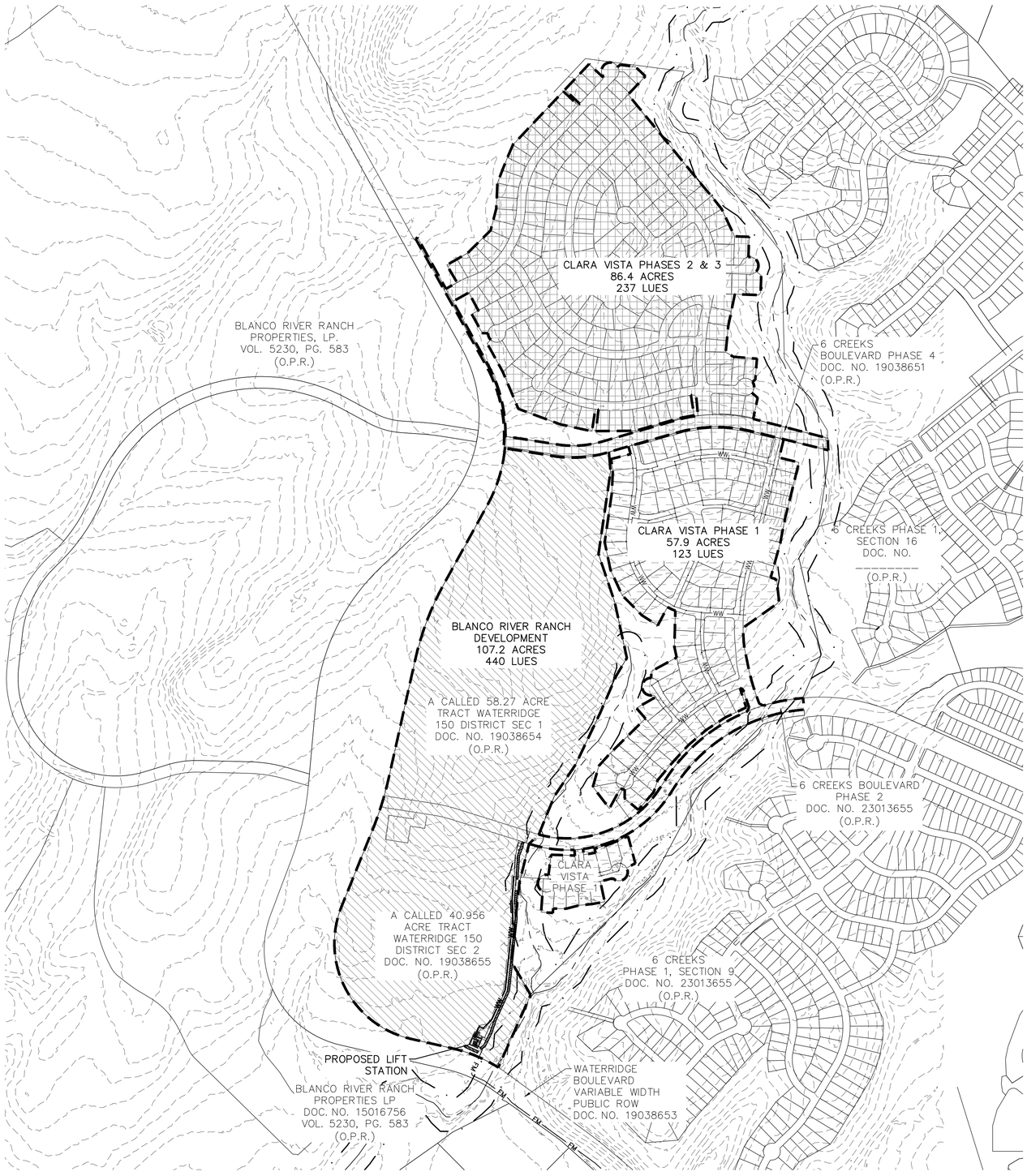
CLARA VISTA
LIFT STATION & FORCE MAIN
WATER QUALITY DRAINAGE MAP

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 12 OF 48

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CP-22-0144



SCALE: 1"= 400'

0' 400' 800' 1,200'

LEGEND

CLARA VISTA PHASE 1
SERVICE AREA: 57.9 AC
LUE COUNT: 123

CLARA VISTA PHASES 2 & 3
SERVICE AREA: 86.4 AC
LUE COUNT: 237

BLANCO RIVER RANCH DEVELOPMENT
SERVICE AREA: 107.2 AC
TOTAL LUE COUNT: 440

NOTES

OVERALL LIFT STATION SERVICE AREA
SERVICE AREA: 251.5 AC
TOTAL LUE COUNT: 800

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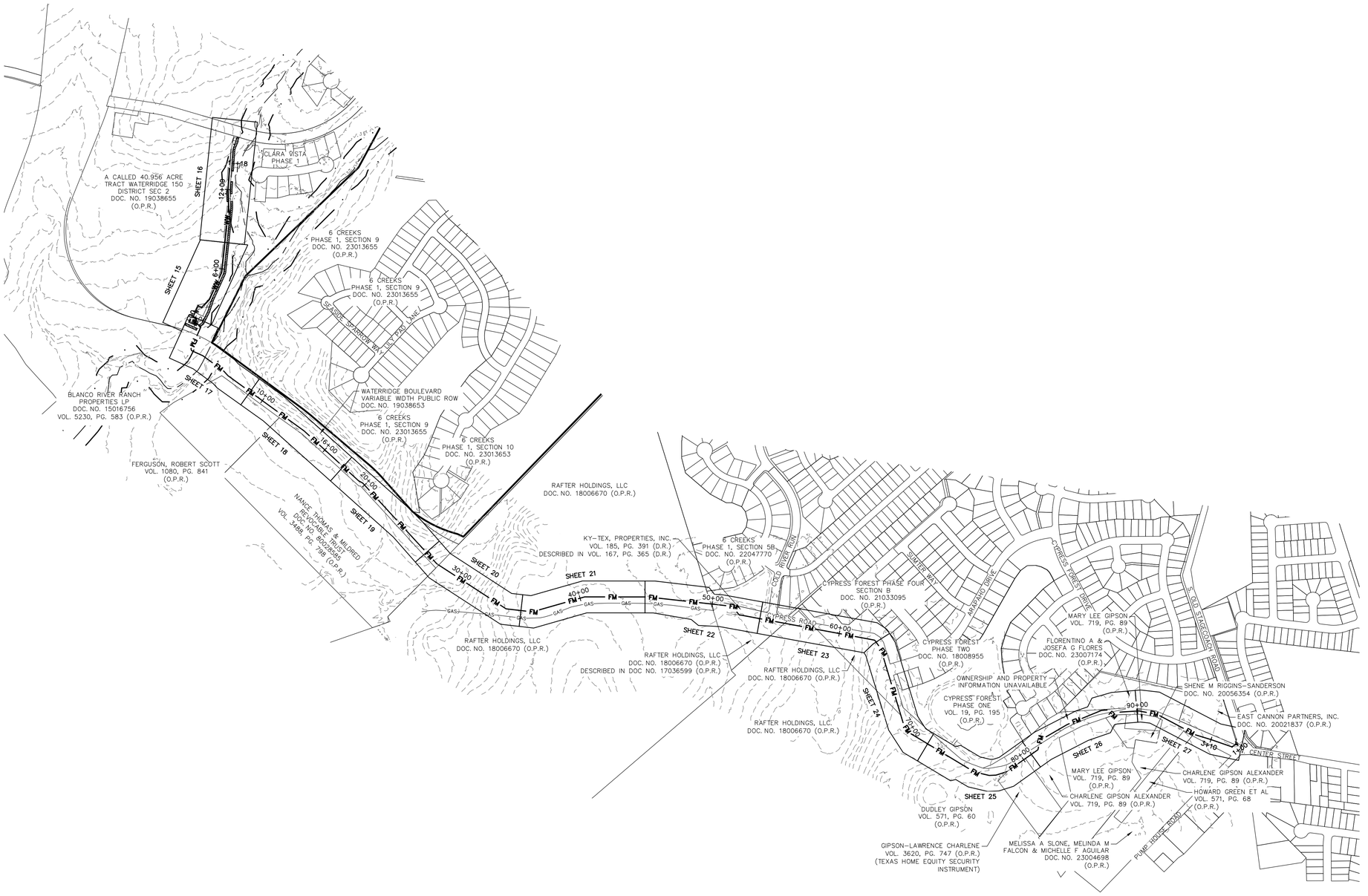
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CLARA VISTA
LIFT STATION & FORCE MAIN
SEWERSHED PLAN

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
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SHEET 13 OF 48

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SCALE: 1"= 400'

0' 400' 800' 1,200'

NOTES

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. CONTRACTOR SHALL COORDINATE TIE-INS WITH THE CITY OF KYLE PRIOR TO BEGINNING CONSTRUCTION OF THE PROPOSED LIFT STATION AND FORCEMAIN.
3. CONTRACTOR TO CONTACT EACH OFFSITE LANDOWNER BEFORE ENTERING PROPERTY TO COORDINATE ACCESS REQUIREMENTS, ACCESS LOCATION, TEMPORARY CONSTRUCTION STAGING AREA AND LIMITS, TREE REMOVAL NEEDS, AND SCHEDULE.
4. CONTRACTOR TO REPAIR ALL FENCES AND PAVEMENT DISTURBED DURING CONSTRUCTION TO EQUIVALENT OR BETTER STATE THAN THE EXISTING CONDITION.
5. CONTRACTOR TO OPEN CUT EXISTING GRAVEL DRIVEWAY, RECONSTRUCT TO EXISTING OR BETTER CONDITION, AND MAINTAIN OWNER ACCESSIBILITY INTO PROPERTY AT ALL TIMES. LOCATE AND PROTECT EXISTING WATER AND UNDERGROUND UTILITIES INTO THE HOMESITE.
6. ALL EXISTING SERVICE CONNECTIONS (WATER, SEWER, GAS, ETC.) NOT SHOWN FOR CLARITY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR LOCATING THEM.

NO.	REVISION	DATE

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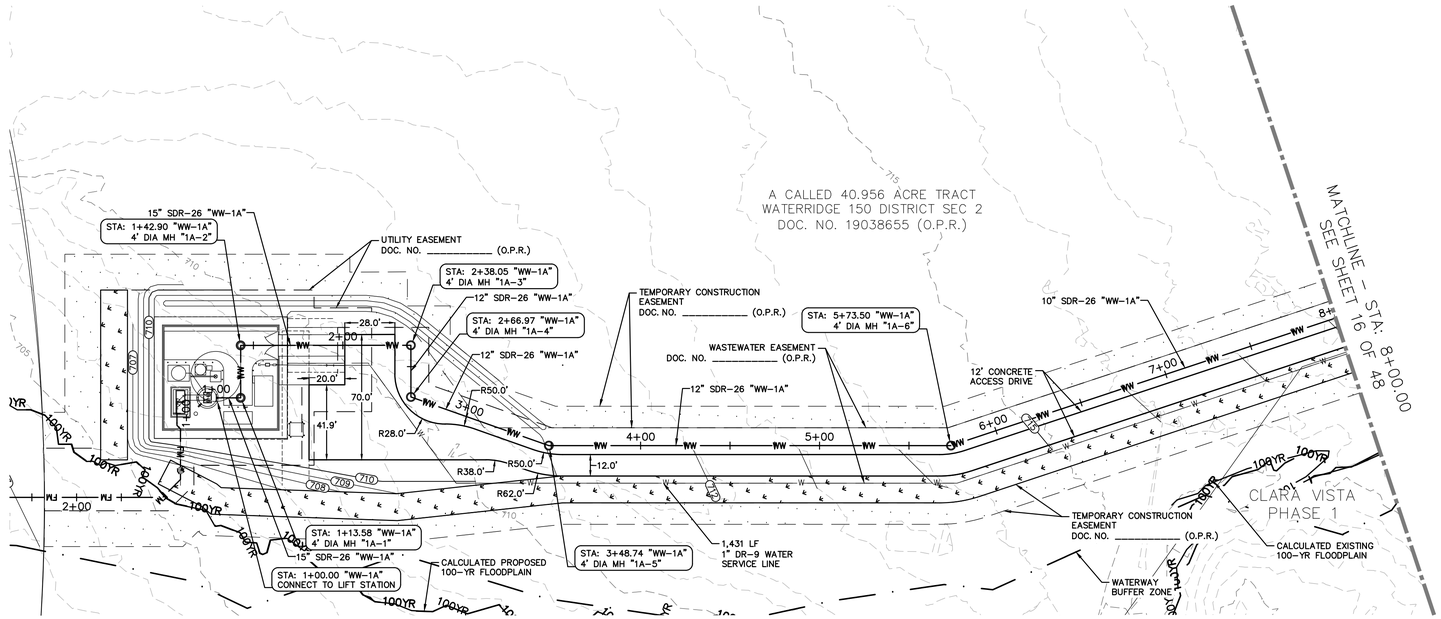
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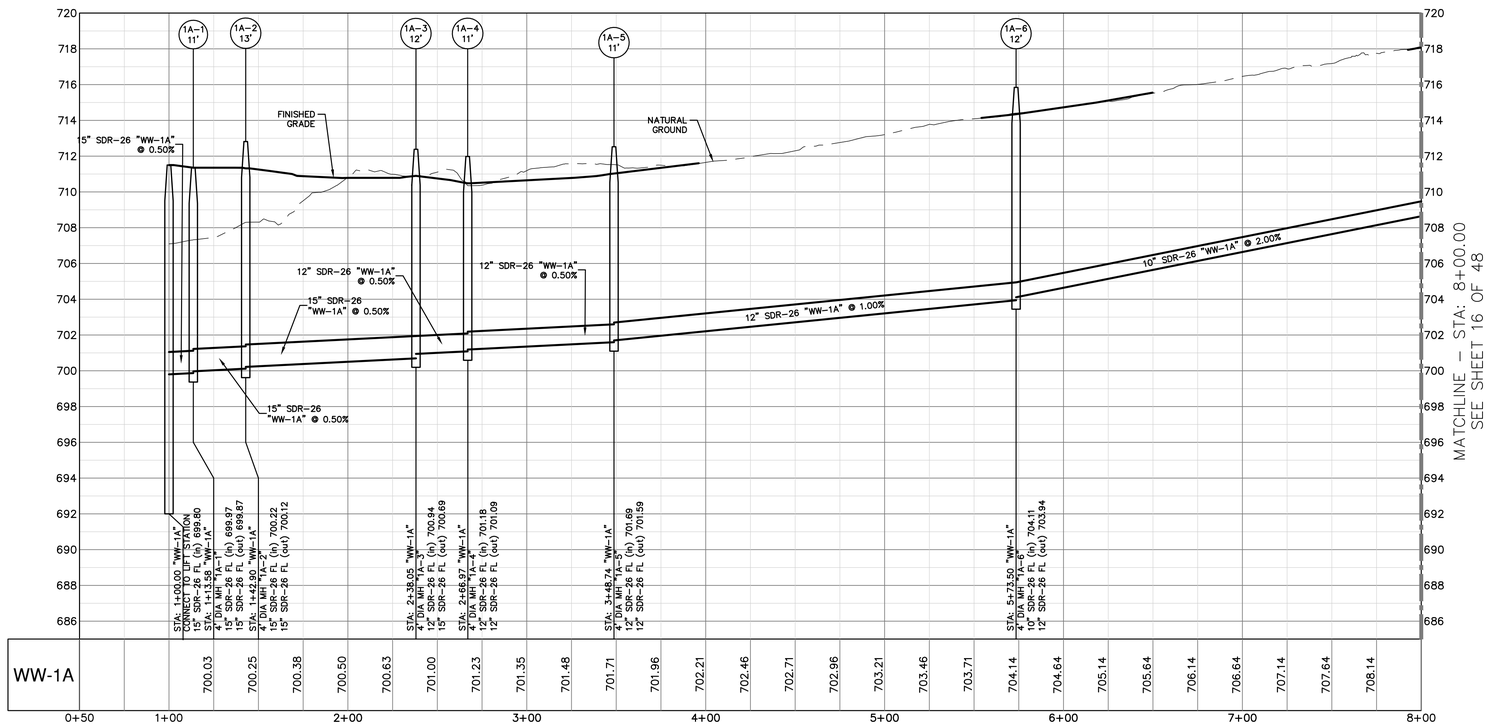
CLARA VISTA
LIFT STATION & FORCE MAIN
OVERALL LAYOUT

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
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SHEET 14 OF 48

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CP-22-0144





SCALE: 1" = 40'

0' 40' 80' 120'

LEGEND

- WATER LINE
- WASTEWATER LINE & MH
- WASTEWATER FORCE MAIN
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

- NATURAL GROUND
- SUBGRADE
- FINISHED GRADE
- PROPOSED WASTEWATER
- 1-JOINT OF PRESSURE PIPE
- STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NOTES

1. ALL MANHOLES LOCATED OUTSIDE OF PAVEMENT SHALL BE RAISED TO A RIM HEIGHT OF 18" ABOVE FINISHED GRADE.
2. 12' ACCESS DRIVE SHALL CONSIST OF 6" CONCRETE PAVEMENT (SEE DETAIL SHEET 33 OF 48).
3. PIPE MATERIAL FOR GRAVITY SEWER SHALL BE SDR-26 PVC IF LOCATED GREATER THAN 9 FEET FROM A WATERLINE, OTHERWISE SHALL BE PRESSURE RATED PIPE.
4. TRACER WIRE SHALL BE USED FOR ALL FORCE MAIN (SEE DETAIL SHEET 30 OF 48).
5. INDUCTIVE TRACER DETECTION TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF ALL NON-METALLIC PIPE A MINIMUM OF 12 INCHES BELOW SUBGRADE OR, IN AREAS OUTSIDE THE LIMITS OF PAVEMENT, A MINIMUM OF 18 INCHES BELOW FINISHED GRADE. THE TRACER TAPE SHALL BE ENCASED IN A PROTECTIVE, INERT, PLASTIC JACKET AND COLOR CODED ACCORDING TO AMERICAN PUBLIC WORKS ASSOCIATION UNIFORM COLOR CODE. EXCEPT FOR MINIMUM DEPTH OF COVER, THE TRACER TAPE SHALL BE PLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

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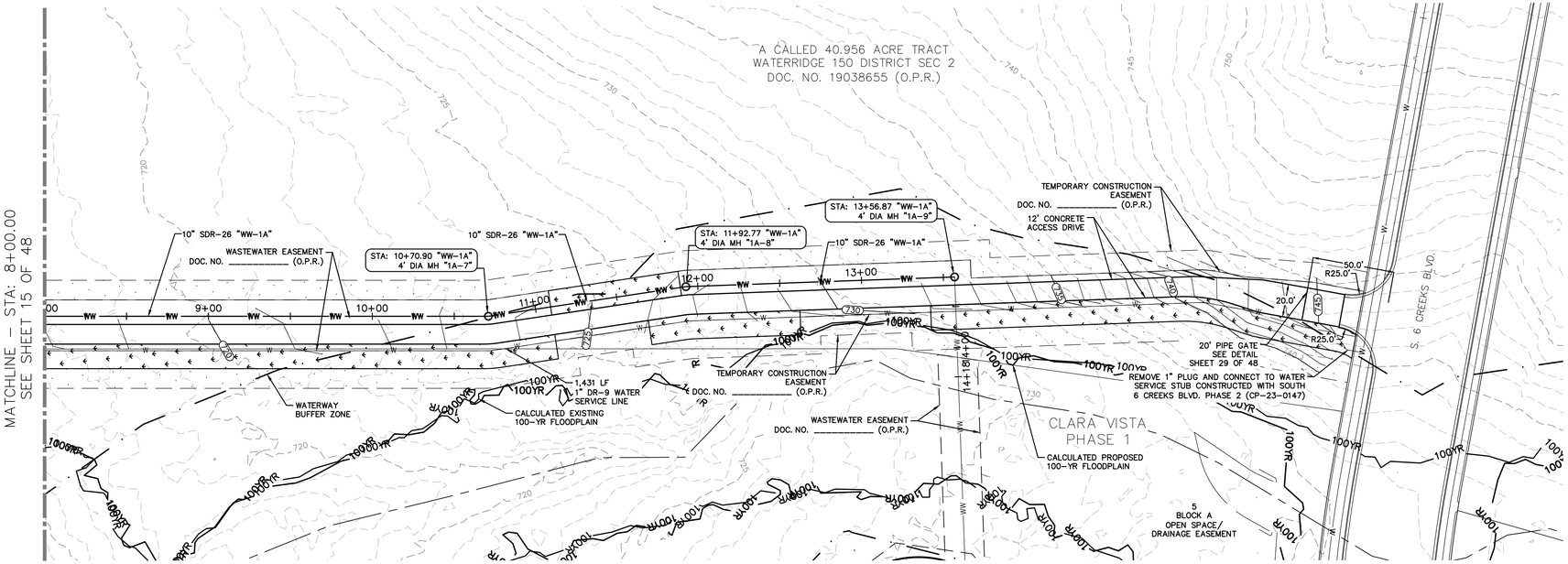
CLARA VISTA

LIFT STATION & FORCE MAIN

WASTEWATER PROFILES WW-1A 1 OF 2

CITY JOB No.	CP-22-0144
JOB NO.	51456-10
DATE	JULY 2024
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SHEET	15 OF 48

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SCALE: 1" = 40'

0' 40' 80' 120'

LEGEND

- WATER LINE
- WASTEWATER LINE & MH
- WASTEWATER FORCE MAIN
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

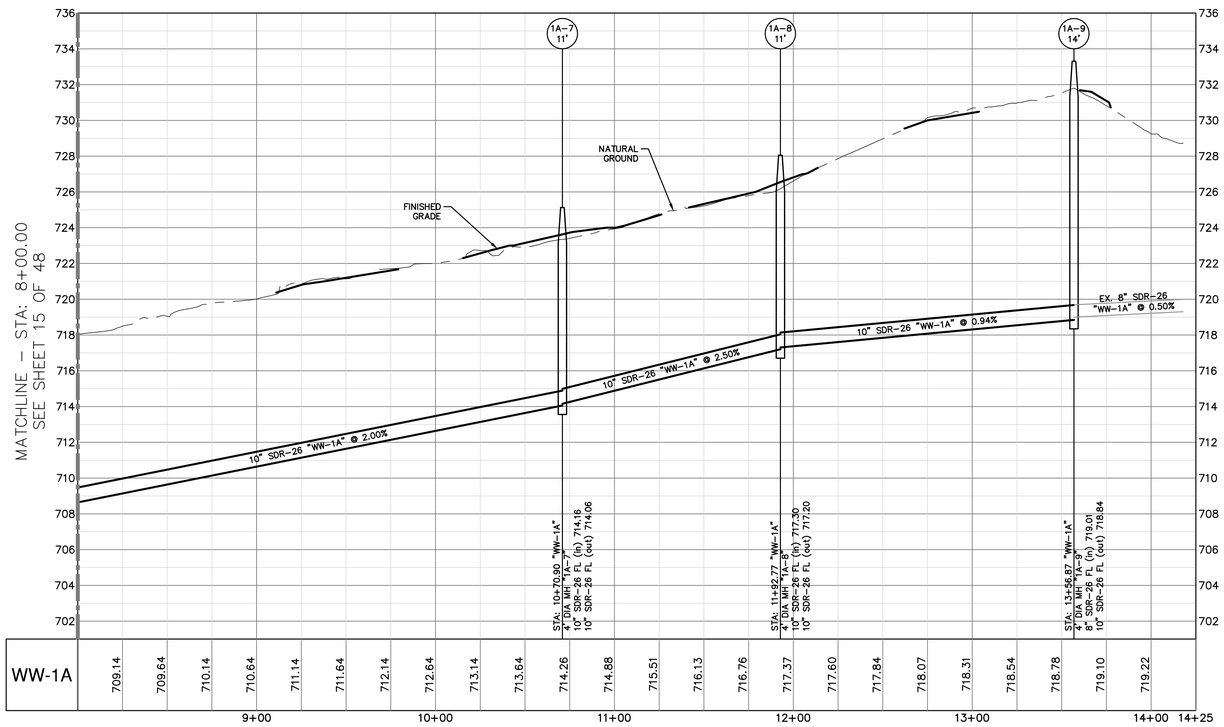
NATURAL GROUND

SUBGRADE

FINISHED GRADE

PROPOSED WASTEWATER

1-JOINT OF PRESSURE PIPE — STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS



NOTES

1. ALL MANHOLES LOCATED OUTSIDE OF PAVEMENT SHALL BE RAISED TO A RIM HEIGHT OF 18" ABOVE FINISHED GRADE.
2. 12' ACCESS DRIVE SHALL CONSIST OF 6" CONCRETE PAVEMENT (SEE DETAIL SHEET 33 OF 48).
3. PIPE MATERIAL FOR GRAVITY SEWER SHALL BE SDR-26 PVC IF LOCATED GREATER THAN 9 FEET FROM A WATERLINE, OTHERWISE SHALL BE PRESSURE RATED PIPE.
4. TRACER WIRE SHALL BE USED FOR ALL FORCE MAIN (SEE DETAIL SHEET 30 OF 48).
5. INDUCTIVE TRACER DETECTION TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF ALL NON-METALLIC PIPE A MINIMUM OF 12 INCHES BELOW SUBGRADE OR, IN AREAS OUTSIDE THE LIMITS OF PAVEMENT, A MINIMUM OF 18 INCHES BELOW FINISHED GRADE. THE TRACER TAPE SHALL BE ENCASED IN A PROTECTIVE, INERT, PLASTIC JACKET AND COLOR CODED ACCORDING TO AMERICAN PUBLIC WORKS ASSOCIATION UNIFORM COLOR CODE. EXCEPT FOR MINIMUM DEPTH OF COVER, THE TRACER TAPE SHALL BE PLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

NO.	REVISION	DATE

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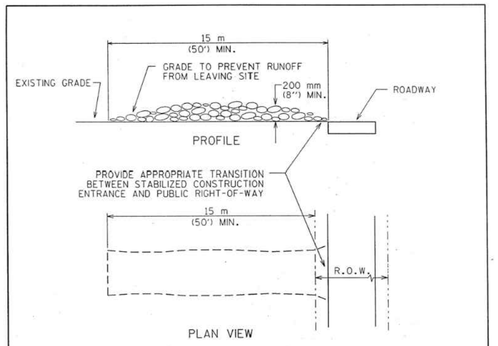
CLARA VISTA

LIFT STATION & FORCE MAIN

WASTEWATER PROFILES WW-1A 2 OF 2

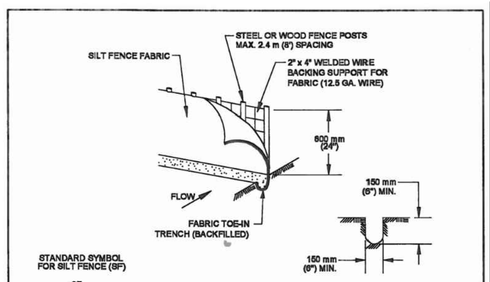
CITY JOB No.	CP-22-0144
JOB NO.	51456-10
DATE	JULY 2024
DESIGNER	AD/BA/JS
CHECKED	AC DRAWN AD
SHEET	16 OF 48

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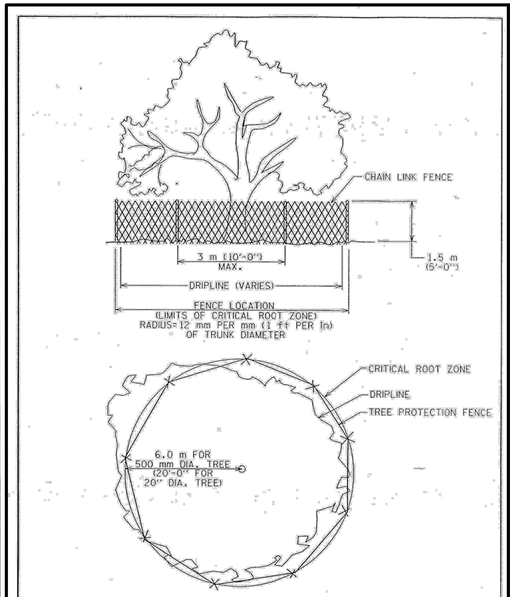
NOTES:
1. STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
5/23/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1

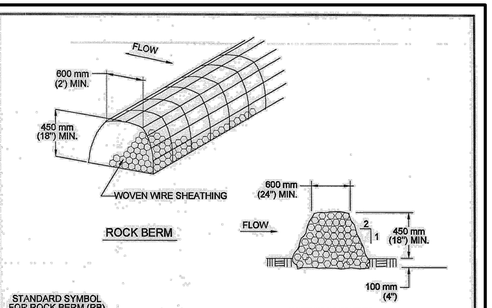


1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 Inches) DEPTH, USE STEEL POSTS.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 Inches) DEEP AND 150 mm (6 Inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE , WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 Inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
9/1/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1

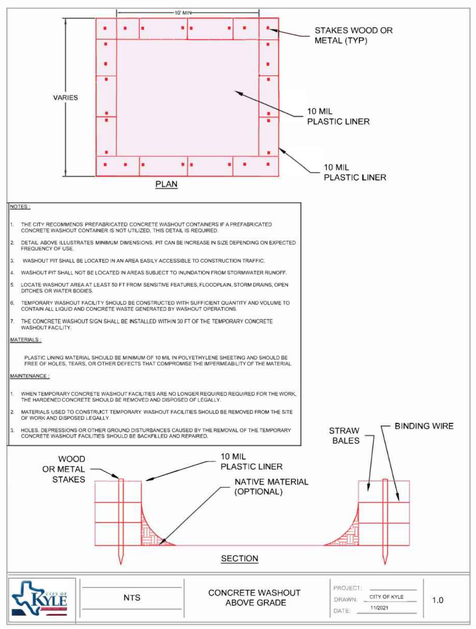


CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROPTECTION FENCE TYPE A - CHAIN LINK	
11/15/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-2



NOTES:
1. USE ONLY OPEN GRADED ROCK 75 to 125 mm (3 to 5") DIAMETER FOR ALL CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 mm (20 GAUGE).
3. THE ROCK BERM SHALL BE INSPECTED DAILY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SEDIMENT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. IF SEDIMENT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SEDIMENTION PROBLEM.
5. WHEN THE SITE IS COMPLETELY STABILIZED,THE BERM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	ROCK BERM	
8/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 639S-1



NOTES:
1. THE CITY RECOMMENDS PREFABRICATED CONCRETE WASHOUT CONTAINERS IF A PREFABRICATED CONCRETE WASHOUT CONTAINER IS NOT UTILIZED, THIS DETAIL IS REQUIRED.
2. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASE IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
3. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
4. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORMWATER RUNOFF.
5. LOCATE WASHOUT AREA AT LEAST 50 FT FROM SENSITIVE FEATURES, FLOODPLAIN, STORM DRAINS, OPEN DITCHES OR WATER BODIES.
6. TEMPORARY WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
7. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

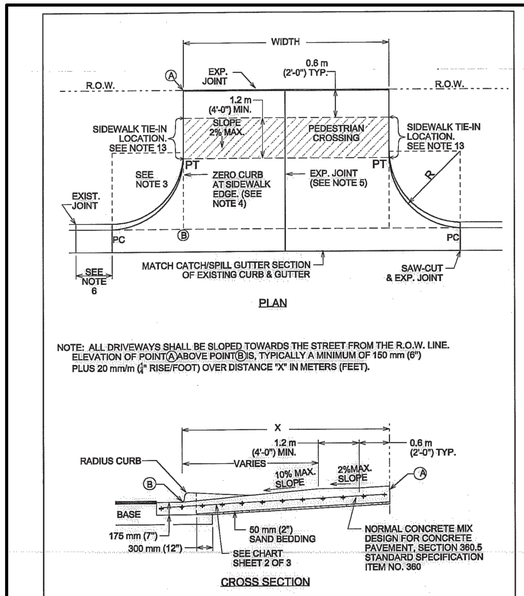
MATERIALS:

PLASTIC LINING MATERIAL SHOULD BE MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL

MAINTENANCE:

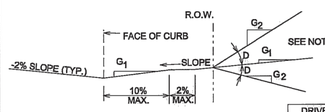
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF LEGALLY.
2. MATERIALS USED TO CONSTRUCT TEMPORARY WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF WORK AND DISPOSED LEGALLY.
3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

CITY OF KYLE	NTS	CONCRETE WASHOUT ABOVE GRADE	PROJECT: ____ DRAWN: CITY OF KYLE DATE: 11/2021	1.0



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPE II DRIVEWAY	
2/24/16 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 433S-2 1 OF 2

USE	THICKNESS	REINFORCEMENT
DRIVEWAYS FOR PASSENGER VEHICLE PARKING LOTS	150 mm (6") MIN.	125 mm (5") MIN. CONCRETE WITH ONE LAYER OF 13M (#4) BARS PLACED ON CHAIRS AT MIDDEPTH OF SLAB AT NO MORE THAN 450 mm (18") O.C. BOTH DIRECTIONS
ALL OTHERS	175 mm (7") MIN.	125 mm (5") MIN. CONCRETE WITH ONE LAYER OF 13M (#4) BARS PLACED ON CHAIRS AT MIDDEPTH OF SLAB AT NO MORE THAN 450 mm (18") O.C. BOTH DIRECTIONS

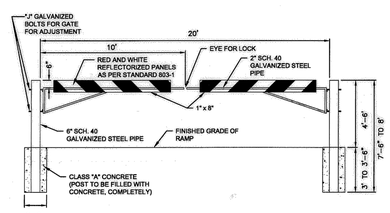


ALLOWABLE GRADES

DRIVEWAY VOLUME (ADT)	D=GRADE CHANGE STD.	MAX
>1500	0%	3%
500-1500	3%	6%
<500	6%	15%

NOTES:
1. ALL TYPE II DRIVEWAYS SHALL HAVE RADIUS ENDS.
2. DRIVEWAY WIDTHS AND RADII DIMENSIONS, ONE/TWO WAY TRAVEL REQUIREMENTS, AND GEOMETRIC LAY-OUT ARE HIGHLY VARIABLE, SUBJECT TO SITE SPECIFIC CONDITIONS AND REQUIREMENTS. SEE TRANSPORTATION CRITERIA MANUAL, SECTION 5 "DRIVEWAYS".
3. THE DRIVEWAY EDGE SHALL BE SMOOTHLY TRANSITITIONED INTO THE SIDEWALK TIE-IN LOCATION BEGINNING AT THE RADIUS PC LINE.
4. "ZERO" CURB AT PT OR SIDEWALK EDGE, WHICHEVER IS ENCOUNTERED FIRST.
5. PLACE AN EXPANSION JOINT DOWN THE CENTER OF DRIVEWAY ALL DRIVEWAYS.
6. IF DIMENSION IS LESS THAN 1.5 METERS (5 FEET), REMOVE CURB AND GUTTER TO EXISTING JOINT AND POUR MONOLITHICALLY WITH DRIVEWAY.
7. IF THE BASE IS OVER-EXCAVATED WHERE THE CURB AND GUTTER WERE REMOVED, BACKFILL WITH CONCRETE MONOLITHICALLY WITH THE DRIVEWAY.
8. TYPE II DRIVEWAYS ARE TO BE LOCATED NO CLOSER TO THE CORNER OF INTERSECTING RIGHT OF WAY THAN 50% OF PARCEL FRONTAGE AT 30 METERS (100 FEET); WHICHEVER IS LESS.
9. DRIVEWAY SHALL NOT BE CONSTRUCTED WITHIN THE CURB RETURN OF A STREET INTERSECTION.
10. WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, THE FIRE DEPARTMENT SHALL BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS AND "G2 IS GREATER THAN 15%.
11. USE 12 MM (1/2") ASPHALT BOARD OR OTHER APPROVED MATERIAL FOR CURB AND GUTTER EXPANSION JOINTS. SIDEWALK, AT THE R.O.W. LINE AND AT MIDWIDTH, SEE NOTE 5.
12. SEE TRANSPORTATION CRITERIA MANUAL, SECTION 5 FOR OTHER DRIVEWAY REQUIREMENTS.
13. THE SIDEWALK, REGARDLESS OF ITS LOCATION WITH RESPECT TO THE CURB OR PROPERTY LINE, SHALL BE CONNECTED TO THE DRIVEWAY AT THESE LOCATIONS.
14. WATER METER BOXES AND WASTEWATER CLEAN OUTS ARE PROHIBITED FROM BEING LOCATED IN DRIVEWAY AREAS.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPE II DRIVEWAY	
2/24/16 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 433S-2 2 OF 2



NOTE:
RAMP BARRICADE SUBSIDIARY
TO ITEM 403-G CONCRETE STRUCTURES

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	POND PIPE GATE AT RAMP DETAIL	
1/4/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 662S-1

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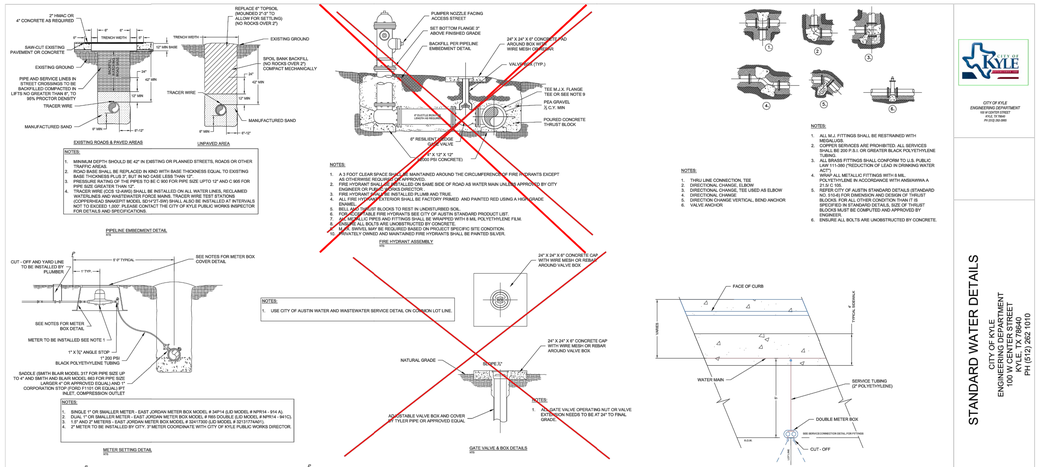
CLARA VISTA
LIFT STATION & FORCE MAIN
EROSION & SEDIMENTATION CONTROL DETAILS

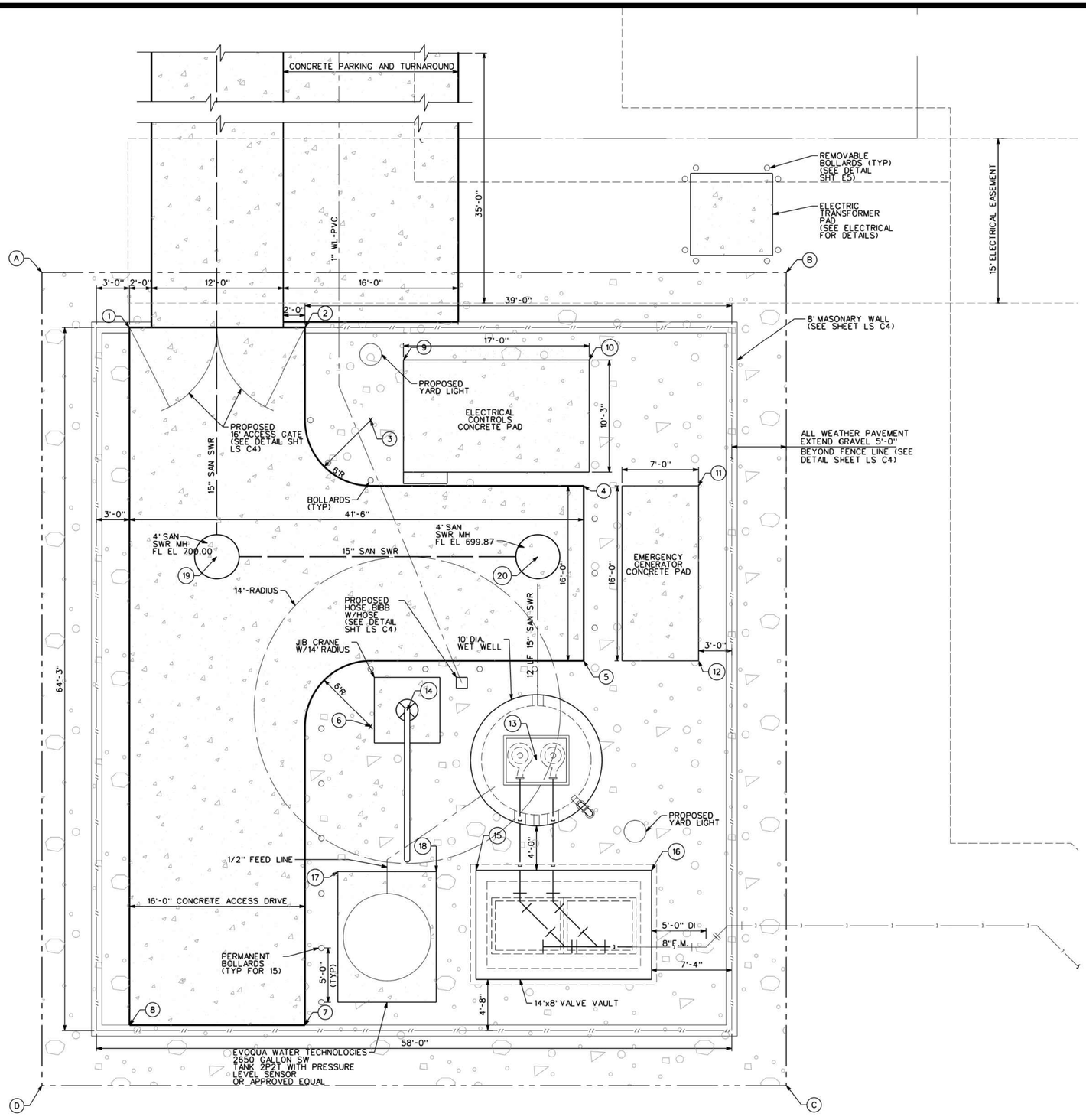
CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
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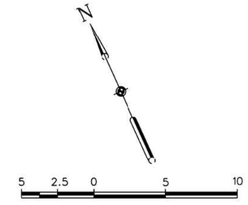
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CP-22-0144


2" HMAC OR 4" CONCRETE AS REQUIRED
SAW-CUT EXISTING PAVEMENT OR CONCRETE
EXISTING GROUND
PIPE AND SERVICE LINES IN STREET CROSSINGS TO BE BACKFILLED COMPACTED IN LIFTS NO GREATER THAN 8" TO 95% PROCTOR DENSITY
TRACER WIRE
MANUFACTURED SAND
TRENCH WIDTH
REPLACE 6" TOPSOIL (MOUNDED 2'-0" TO ALLOW FOR SETTLING) (NO ROCKS OVER 2")
EXISTING GROUND
SPOIL BANK BACKFILL (NO ROCKS OVER 6") COMPACT MECHANICALLY
TRACER WIRE
MANUFACTURED SAND
EXISTING ROADS & PAVED AREAS
UNPAVED AREA
NOTES:
1. MINIMUM DEPTH SHOULD BE 42" IN EXISTING OR PLANNED STREETS, ROADS OR OTHER TRAFFIC AREAS.
2. ROAD BASE SHALL BE REPLACED IN KIND WITH BASE THICKNESS EQUAL TO EXISTING BASE THICKNESS OR 8" WHICHEVER IS GREATER.
3. PRESSURE RATING OF THE PIPES TO BE C-900 FOR PIPE SIZE UPTO 12" AND C-905 FOR PIPE SIZE GREATER THAN 12".
4. TRACER WIRE (CCS 12 AWG) SHALL BE INSTALLED ON ALL WATER LINES, RECLAIMED WATERLINES AND WASTEWATER FORCE MAINS. TRACER WIRE TEST STATIONS (COPPERHEAD SNAKEPIT MODEL SO-PIT-SW) SHALL ALSO BE INSTALLED AT INTERVALS NOT TO EXCEED 1,000'. PLEASE CONTACT THE CITY OF KYLE PUBLIC WORKS INSPECTOR FOR DETAILS AND SPECIFICATIONS.
PIPELINE EMBEDMENT DETAIL
NTS
CUT - OFF AND YARD LINE TO BE INSTALLED BY PLUMBER
1" TYPICAL
SEE NOTES FOR METER BOX DETAIL
METER TO BE INSTALLED SEE NOTE 1
1" X 5/2" ANGLE STOP
BLACK POLYETHYLENE TUBING
SADDLE (SMITH BLAIR MODEL 317 FOR PIPE SIZE UP TO 4" AND SMITH AND BLAIR MODEL 400 FOR PIPE SIZE GREATER THAN 4") WITH 1" CORPORATION STOP (FORD F1101 OR EQUAL) PVT INLET, COMPRESSION OUTLET
SEE NOTES FOR METER BOX DETAIL
NOTES:
1. SINGLE 1" OR SMALLER METER - EAST JORDAN METER BOX MODEL # 3AP14 (LID MODEL # NP914 - 914 A).
2. DUAL 1" OR SMALLER METER - EAST JORDAN METER BOX MODEL # 7605 DOUBLE (LID MODEL # NP914 - 914 C).
3. 1.5" AND 2" METERS - EAST JORDAN METER BOX MODEL # 3DA1730 (LID MODEL # 3DT1317HDF).
4. 4" METER TO BE INSTALLED BY CITY. 3" METER COORDINATE WITH CITY OF KYLE PUBLIC WORKS DIRECTOR.
METER SETTING DETAIL
NTS
STREET RIGHT OF WAY
CUSTOMER CUT - OFF
SEE METER BOX DETAIL (SET IN SAND)
CUSTOMER CUT - OFF
1.5" X 1" X 1" LUMINAIN FOR DOUBLE SERVICE
MAIN LINE
4" SDR 26 IPS WHITE PVC CASING. EXTEND 1' BEYOND SIDEWALK
SHORT SIDE AND LONG SIDE SINGLE SERVICE:
1. 1" DOUBLE STRAP SERVICE SADDLE, SMITH BLAIR OR APPROVED EQUAL.
2. 1" CORPORATION STOP, MUELLER OR APPROVED EQUAL.
3. 1" X 5/2" ANGLE STOP VALVE (LOCKING WING TYPE)
4. 4" SDR 26 IPS WHITE PVC CASING (CASING SIZE SHOWN ON PLANS)
5. 1" X 5/8" X 5/8" CU - BRANCH (COMPRESSION FITTINGS)
6. 5/8" X 3/4" ANGLE STOP VALVE (LOCKING WING TYPE)
7. ALL BRASS FITTING
NOTES:
1. CASING MUST EXTEND AT LEAST 1' BEYOND SIDEWALK
2. PIPING MUST GO 2' BEFORE VERTICAL BEND.
SHORT SIDE AND LONG SIDE DOUBLE SERVICE:
1. 1-1/2" DOUBLE STRAP SERVICE SADDLE, SMITH BLAIR OR APPROVED EQUAL
2. 1-1/2" CORPORATION STOP, MUELLER OR APPROVED EQUAL
3. 1-1/2" (90 PSI POLYETHYLENE CASING (CTS-OD SIZE SERVICE ONLY)
4. 4" SDR 26 IPS WHITE PVC CASING (LONG SIDE SERVICE ONLY)
5. 1.5" X 1" X 1" U - BRANCH (COMPRESSION FITTINGS)
6. 1-1/2" ANGLE STOP VALVE (LOCKING WING TYPE)
7. ALL BRASS FITTING
METER SETTING DETAIL
NTS
FLAPPER NOZZLE FACING ACCESS STREET
SET BOTTOM FLANGE 3" ABOVE FINISHED GRADE
BACKFILL PER PIPELINE EMBEDMENT DETAIL
24" X 24" X 6" CONCRETE CAP AROUND BOX WITH REBAR RING MESH
VALVE BOX (TYP.)
TEE M.J.X. FLANGE TEE ON SIDE NOTE 3
PEA GRAVEL 3 C.Y. MIN
POURED CONCRETE THRUST BLOCK
6" RISER (INTEGRAL WITH VALVE)
24" X 24" X 6" CONCRETE PAD (TYP.)
NOTES:
1. A 3 FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS EXCEPT AS OTHERWISE REQUIRED OR APPROVED.
2. FIRE HYDRANT SHALL BE INSTALLED ON SAME SIDE OF ROAD AS WATER MAIN UNLESS APPROVED BY CITY FIRE MARSHAL AND PUBLIC WORKS.
3. FIRE HYDRANT LEADS TO BE INSTALLED PLUMB AND TRUE.
4. ALL FIRE HYDRANT EXTERIORS SHALL BE FACTORY PRIMED AND PAINTED RED USING A HIGH GRADE PAINT.
5. BOLT AND NUT ON BLOCKS TO REST IN UNDISTURBED SOIL.
6. FOR ACCEPTABLE FIRE HYDRANTS SEE CITY OF AUSTIN STANDARD PRODUCT LIST.
7. ALL PIPE AND FITTINGS SHALL BE COMPLETELY WRAPPED WITH 8 MIL POLYETHYLENE FILM.
8. ALL VALVES SHALL BE RESILIENT WEDGE GATE VALVES.
9. PLUG, SWIVEL MAY BE REQUIRED BASED ON PROJECT SPECIFIC SITE CONDITION.
10. PRIVATELY OWNED AND MAINTAINED FIRE HYDRANTS SHALL BE PAINTED SILVER.
FIRE HYDRANT ASSEMBLY
NTS
24" X 24" X 6" CONCRETE CAP WITH WIRE MESH OR REBAR AROUND VALVE BOX
NATURAL GRADE
SLOPE 3:1
ADJUSTABLE VALVE BOX AND COVER BY TYLER PIPE OR APPROVED EQUAL
NOTES:
1. ADJUSTABLE VALVE OPERATING NUT OR VALVE EXTENSION NEEDED TO BE AT 24" TO FINAL GRADE.
GATE VALVE & BOX DETAILS
NTS
A
B
C
D
NOTES:
1. ALL M.J. FITTINGS SHALL BE RESTRAINED WITH MEGALUGS.
2. WATER SERVICES ARE PROHIBITED. ALL SERVICES SHALL BE 2IN? P.S.I. OR GREATER BLACK POLYETHYLENE TUBING.
3. ALL TEES WASS FITTINGS SHALL CONFORM TO U.S. PUBLIC LAW 111-380 (TREDUCTION OF LEAD IN DRINKING WATER ACT).
4. ALL VALVES ALL METALLIC FITTINGS WITH 6 MIL POLYETHYLENE IN ACCORDANCE WITH ANSI/AWWA A 21.5/ C 105.
5. SEE DETAIL "C" OF AUSTIN STANDARD DETAILS (STANDARD NO. 510-02) FOR DIMENSION AND DESIGN OF THRUST BLOCKS. FOR ALL OTHER CONDITION THAT IS BEYOND IN STANDARD DETAILS, SIZE OF THRUST BLOCKS MUST BE CONSTRUCTED AND APPROVED BY ENGINEER.
6. ENSURE ALL BOLTS ARE UNOBSTRUCTED BY CONCRETE.
NOTES:
1. THRU LINE CONNECTION. TEE
2. DIRECTIONAL CHANGE. ELBOW
3. DIRECTIONAL CHANGE. TEE USED AS ELBOW
4. DIRECTIONAL CHANGE.
5. DIRECTION CHANGE VERTICAL. BEND ANCHOR.
6. VALVE ANCHOR
FACE OF CURB
TYPICAL BLANKOUT
WATER MAIN
SERVICE TUBING (2" POLYETHYLENE)
DOUBLE METER BOX
CUT - OFF
TYPICAL WATER SERVICE PLAN
NTS
NOTES:
1. GATE VALVE
2. DRY AND WET UTILITIES SHOULD NOT BE LOCATED AT SAME LOT LINE.
GATE VALVE
22.5° BEND
TEE
PIPE CROSSING
22.5° BEND
NOTES:
1. MJ - MECHANICAL JOINT.
2. FL - FLANGE.
CITY OF KYLE ENGINEERING DEPARTMENT 100 W CENTER STREET KYLE, TX 78640 PH (512) 262 1010
STANDARD WATER DETAILS
DATE | ISSUE/REVISION
04/15/2016 | 1ST ISSUE
FEB. 2018 | 2ND ISSUE
NOV. 2022 | 4TH ISSUE
MAY. 2024 | 5TH ISSUE
PROJECT NO. | XXXXX
DATE | NOV. 2020
DRAWN BY | KG
CHECKED BY | LB
SHEET DESCRIPTION
CITY OF KYLE STANDARD WATER DETAILS
SHEET NUMBER
DT - 1
COMPACTED BACKFILL IN BANKS
WASTEWATER LINE
CONCRETE ENCASEMENT DETAIL
N.T.S.
CAST IRON RING AND COVER BOLTED AND GASKETED AT ALL UNPAVED AREAS, SEE DETAILS THIS SHEET
NON-SHRINK GROUT
PRECAST REINFORCED CONCRETE MANHOLE SECTION, ASTM D478
CONE SECTION
VARIES
AS REQUIRED
PRECAST GRADE RINGS 30" I.D. MAXIMUM OF 4 ALLOWED
RUBBER GASKET COMPRESSION JOINTS, ASTM C443
EXTERIOR OF EACH JOINT SHALL BE WRAPPED WITH A 6" EXTRUDED BUTYL ADHESIVE TAPE
INSTALL LINER PER TYP. OF CITY OF AUSTIN STANDARD DETAILS FOR LINER MATERIAL (SEE NOTE 5)
GROUT INVERT @ 3:1 MIN TO SHAPE BOTTOM
NEOPRENE RUBBER BOOT SECURED W/ LOCKING STAINLESS STEEL BAND TO INTERIOR OF MANHOLE AND STAINLESS STEEL BAND TO OUTSIDE OF PIPE
TYPICAL MANHOLE
N.T.S.
MANHOLE PROJECTION (UNLESS NOTED OTHERWISE ON PLANS)
1. STREETS PLUSH
2. UNPAVED AREAS (NON - TRAFFIC) - 2" TYPICAL
3. 6" ABOVE FINISH GRADE
4. FLOOD PLAINS AND FLOOD PRONE AREAS - 18" OR AS DETERMINED BY INSPECTOR
IN ROCK: PLACE 12" TOP SOIL TO MATCH SURROUNDING AREA IN 2 LIFTS TO 95% DENSITY
IN ROADWAYS: 95 MIN COMPACTED BASE +2" TYPE D HMAC
REMOVE AND SALVAGE RING AND COVER
REMOVE AND SALVAGE RING AND COVER
FILL WITH FLOWABLE FILL OR SAND PLUS 6" OF 3000 PSI CONCRETE SLAB REINFORCED WITH #3@ 18" E/W OR 1 #4 WELDED WIRE MESH
PLUG ALL LINES INTO MANHOLE
PLUG LINES OUT OF MANHOLE
BREAK HOLES IN BOTTOM OF EXISTING MANHOLE TO ALLOW DRAINAGE
ABANDON MANHOLE
N.T.S.
NOTES:
1. CONCRETE BOTTOMS SHALL BE PRECAST WITH FLOWLINE AS SPECIFIED ON PLANS.
2. CAST-IN-PLACE BOTTOMS ARE ALLOWABLE WITH PIPES 18" DIAMETER AND LARGER.
3. 0" DIAMETER MANHOLES ARE REQUIRED FOR 18" OR LARGER DIAMETER PIPELINES.
4. PIPES ARE REQUIRED TO MAINTAIN MINIMUM SEPARATION OF 0" OR HALF THE DIAMETER OF LARGER DIAMETER PIPE, THE SEPARATION SHOULD BE MEASURED BETWEEN OUTSIDE WALL OF THE PIPE.
5. CITY ENGINEER MAY REQUIRE TO CHANGE THE SIZE OF THE MANHOLE DEPENDING ON FLOW PATHS, ANGLE BETWEEN PIPE ALIGNMENTS AND CONSIDERING SITE SPECIFIC CONDITIONS.
6. ALL MANHOLES IN EXISTING PAVING AT EXISTING CONNECTION MANHOLE.
7. ALL MANHOLES IN UNPAVED AREA SHOULD BE GASKETED AND BOLTED.
8. PIPELINE SETTLEMENT TEST: DURING THE INFILTRATION TEST OR AFTER THE EXFILTRATION TEST, THE PIPE WILL BE TV INSPECTED FOR POSSIBLE SETTLEMENT. ANY SETTLEMENT WHICH CAUSES PONDING OF WATER IN THE PIPE SHALL BE CAUSE FOR REJECTION. EXCESSIVE PONDING SHALL BE DEFINED AS A GOLF BALL (1.68" DIA.) SUBMERGED AT ANY POINT ALONG THE LINE.
9. THE CITY OF AUSTIN WATER UTILITY STANDARD DETAIL 506S-6, ADAPTED ON 08/31/2011 SHALL BE USED FOR EXTERNAL DROP MANHOLE.
NOTES:
1. USE CITY OF AUSTIN WATER AND WASTEWATER SERVICE DETAIL ON COMMON LOT LINE.
CONCRETE REPAIR
N.T.S.
EXIST CONCRETE
TRENCH WIDTH + 12"
MINIMUM 4" THICK 3000 PSI CONCRETE
4 DOWELS @ 18" O.C., DRILLED IN EXIST CONCRETE
2" SAND CUSHION
2" BARS @ 12" E.W.
2" LETTERING
4" CONCRETE AS REQUIRED
SAW-CUT EXISTING PAVEMENT OR CONCRETE
EXISTING GROUND
PIPE AND SERVICE LINES IN STREET CROSSINGS TO BE BACKFILLED COMPACTED IN LIFTS NO GREATER THAN 8" TO 95% PROCTOR DENSITY
TRACER WIRE SHALL BE SECURED TO THE TOP OF THE PIPE
TRACER WIRE
¾" - 1" CRUSHED LIMESTONE
TRENCH WIDTH
REPLACE 6" TOPSOIL (MOUNDED 2'-0" TO ALLOW FOR SETTLING) (NO ROCKS OVER 6")
EXISTING GROUND
SPOIL BANK BACKFILL (NO ROCKS OVER 6") COMPACT MECHANICALLY
TRACER WIRE SHALL BE SECURED TO THE TOP OF THE PIPE
¾" - 1" CRUSHED LIMESTONE
EXISTING ROADS & PAVED AREAS
UNPAVED AREA
NOTES:
1. MINIMUM DEPTH SHOULD BE 42" IN EXISTING OR PLANNED STREETS, ROADS OR OTHER TRAFFIC AREAS.
2. ROAD BASE SHALL BE REPLACED IN KIND WITH BASE THICKNESS EQUAL TO EXISTING BASE THICKNESS OR 8" WHICHEVER IS GREATER.
3. REPLACEMENT REINFORCED CONCRETE SHALL BE CLASS A AND SHALL MATCH EXISTING FINISH AND THICKNESS, BUT THE THICKNESS SHALL NOT BE LESS THAN 7".
4. TRACER WIRE (CCS 12 AWG) SHALL BE INSTALLED ON ALL WATER LINES, RECLAIMED WATERLINES AND WASTEWATER FORCE MAINS. TRACER WIRE TEST STATIONS (COPPERHEAD SNAKEPIT MODEL SO-PIT-SW) SHALL ALSO BE INSTALLED AT INTERVALS NOT TO EXCEED 1,000'. PLEASE CONTACT THE CITY OF KYLE PUBLIC WORKS INSPECTOR FOR DETAILS AND SPECIFICATIONS.
PIPELINE EMBEDMENT DETAIL
NTS
CAST IRON RING AND COVER BOLTED AND GASKETED WHERE CALLED FOR ON PLANS S.S. BOLTS)
NON-SHRINK GROUT
RUBBER GASKET COMPRESSION JOINTS, ASTM C443
GROUT INVERT @ 3:1 MIN TO SHAPE BOTTOM
PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, ASTM C 478
NEOPRENE RUBBER BOOT SECURED W/ LOCKING STAINLESS STEEL BAND TO INTERIOR OF MANHOLE AND STAINLESS STEEL BAND TO OUTSIDE OF PIPE
AS REQUIRED
NOTES:
1. CONCRETE BOTTOMS SHALL BE PRECAST WITH FLOWLINE AS SPECIFIED ON PLANS.
2. CAST-IN-PLACE BOTTOMS ARE ALLOWABLE WITH PIPES 18" DIAMETER AND LARGER.
3. 0" DIAMETER MANHOLES ARE REQUIRED FOR 18" OR LARGER DIAMETER PIPELINES.
4. PIPES ARE REQUIRED TO MAINTAIN MINIMUM SEPARATION OF 0" OR HALF THE DIAMETER OF LARGER DIAMETER PIPE, THE SEPARATION SHOULD BE MEASURED BETWEEN OUTSIDE WALL OF THE PIPE.
5. CITY ENGINEER MAY REQUIRE TO CHANGE THE SIZE OF THE MANHOLE DEPENDING ON FLOW PATHS, ANGLE BETWEEN PIPE ALIGNMENTS AND CONSIDERING SITE SPECIFIC CONDITIONS.
FLAT - TOP MANHOLE
N.T.S.
INSIDE FACE OF MANHOLE
FLEXIBLE SLEEVE (KOR-N-SEAL OR APPROVED EQUAL)
STAINLESS STEEL STRAP
NOTES:
1. CONNECTIONS MADE INTO EXISTING MANHOLES AND TO BE CORED AND NOT DRILLED/ CHISELED.
2. CONNECTION TO EXISTING MANHOLES SHALL BE INSPECTED BY CITY OF KYLE.
3. CONNECTION DETAILS FOR PIPE SIZE OTHER THAN SPECIFIED REQUIRED TO OBTAIN PRE APPROVAL FROM CITY ENGINEER.
SEWER MAIN CLEANOUT
N.T.S.
NEW GRAVITY LINE
TROUGH
2. CIRCUMFERENCE CUT OUT IN EXIST. WASTEWATER LINE
SEWER MAIN CLEANOUT
N.T.S.
GRAVITY MAIN
FLUSH
CURB
SIDEWALK
MAINLINE WYE @ GRAVITY MAIN
6" SDR - 26 PVC SERVICE LINE
4" CLEAN - OUT
PLAN
N.T.S.
2" LETTERING
CROSS SECTION
N.T.S.
PLAN
CONCRETE MANHOLE COLLAR
N.T.S.
#4 BAR
PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, ASTM C478
SHAPE INVERT AND CUT OUT TOP OF PIPE
CAST-IN-PLACE MANHOLE BOTTOM (ILLUSTRATIVE SECTION)
N.T.S.
#3 BARS @ 12" O.C.E.W.
CAST 3000 PSI CONCRETE
PLAN
N.T.S.
GRAVITY MAIN
MAINLINE WYE @ GRAVITY MAIN
REPLACE IRICOLLAR AND RECESSED SCREW PLUG AT GRID NO (CIVIL WORK SERVICES LINES ARE INSTALLED (TYP. SA BASE)
6" CAP FOR TESTING
6" SDR - 26 SERVICE LINE
6" SDR-26 SERVICE LINE
6" PLUG
6" TWO WAY CLEANOUT TEE
CROSS SECTION
N.T.S.
EAST JORDAN IRON WORKS PRODUCT NO. 4124SDO WITH RISER BOLT OR PRODUCT NO. 4243SWL BOLTED OR APPROVED EQUAL
PRIVATE MANHOLE COVER
N.T.S.
EAST JORDAN IRON WORKS PRODUCT NO. 4124SDO WITH RISER BOLT OR PRODUCT NO. 4243SWL BOLTED OR APPROVED EQUAL
PUBLIC MANHOLE COVER
N.T.S.
WASTEWATER SERVICE CONNECTION
N.T.S.
CITY OF KYLE ENGINEERING DEPARTMENT 100 W CENTER STREET KYLE, TX 78640 PH (512) 262 1010
STANDARD WASTEWATER DETAILS
DATE | ISSUE/REVISION
04/15/2016 | 1ST ISSUE
FEB 02016 | 2ND ISSUE
SEPT 02016 | 3RD ISSUE
MAY2024 | 5TH ISSUE
PROJECT NO. | XXXXX
DATE | AUGUST, 2020
DRAWN BY | KG
CHECKED BY | LB
SHEET DESCRIPTION
CITY OF KYLE STANDARD WASTEWATER DETAILS
SHEET NUMBER
DT - 2
NO. REVISION
DATE
PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801
CLARA VISTA
LIFT STATION & FORCE MAIN
WASTEWATER DETAILS
CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 30 OF 48
CP-22-0144
TYPICAL CITY OF AUSTIN MANHOLE RING AND 800 mm (32") COVER
SEE DETAILS ON SHEET 2 of 2, AS GRADE RINGS, FRAME AND COVER VARY
REUSE MANHOLE RING AND COVER FOR MINOR ADJUSTMENTS
A
BASE MATERIAL
PRECAST REINFORCED CONCRETE RINGS
NON-SHRINK GROUT (SEE SPEC. 506S.3)
MANHOLE RING
SUBGRADE
SEE STANDARD 1100S-1
A VERTICAL FACE = ALLOWABLE THROAT OR CHIMNEY HEIGHT
= NEW CONSTRUCTION = 525mm = (21") Max.
= EXISTING CONSTRUCTION = 675mm (27") Max.
NOTES:
1. NON-SHRINK GROUT SHALL NOT EXCEED 25 mm (1") IN ANY DIMENSION.
2. SUB-GRADE AND BASE MATERIALS SHALL BE COMPACTED ACCORDING TO ITEMS 201S AND 210S, RESPECTIVELY, OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
3. REFER TO STANDARD 1100S-1 FOR REPAIRS AROUND MANHOLES.
4. SEE STANDARD 506S-4A FOR HDPE RING INSTALLATION (FOR USE IN PAVED AREAS ONLY).
CITY OF AUSTIN AUSTIN WATER UTILITY
MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011 ADOPTED
THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.
STANDARD NO. 506S-4 1 OF 2
INSIDE PAVEMENT DETAIL
MANHOLE RING AND COVER, STD. DETAIL 503S-2W, 503S-3W OR 503S-4W, SPL WW-219 OR WW-218
SEE STD. DTL. 1100S-1 FOR PAVEMENT REPAIR (TYP.)
CONCRETE GRADE RINGS WITH NON-SHRINK GROUT IN BETWEEN RINGS FOR ADJUSTMENTS
NON-SHRINK GROUT PLACED IN THIS AREA (SEE SPEC. 506S.4)
MANHOLE CONE SECTION
OUTSIDE PAVEMENT DETAIL
MANHOLE SEAL, SPL WW-146A
MANHOLE RING AND COVER, STANDARD DETAIL 503S-6W AND SPL WW-219
1.02 m (40-3/4")
863 mm ± 13 mm (34-1/2" ± 1/2")
B
NOTES:
1. FOR USE IN UNPAVED AREAS ONLY.
2. WHEN USED WITHIN 100-YEAR FLOODPLAIN, SEE DTL. 506S-6 FOR ADDITIONAL M.H. REQUIREMENTS.
3. DIMENSION B=150-300 mm (6"-12") FOR M.H. LOCATED IN 100-YR FLOOD PLAIN; B=50-300 mm (2"-12") FOR M.H. OUTSIDE 100-YR FLOOD PLAN.
CITY OF AUSTIN AUSTIN WATER UTILITY
MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011 ADOPTED
THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.
STANDARD NO. 506S-4 2 OF 2
MISCELLANEOUS REPAIRS AROUND UTILITY CASTINGS (UCM SECTION 5.8.3)
PORTLAND CEMENT CONCRETE OPTION
HMAC OPTION
MINIMUM THICKNESS 9" (225 mm) PC CONCRETE (ITEM 403S, CLASS A)
HMAC PAVEMENT SURFACE (SEE NOTE 4)
#5 (15M) REINFORCING BAR IF PC CONCRETE IS USED,
6" (150 mm) MIN.
SAW CUT
SAW CUT
EXISTING SURFACE
EXISTING BASE MATERIAL
MINIMUM THICKNESS OF 8" (200 mm) HMAC (ITEM 340S,TYPE C) OR 7" (175 mm) PC CONCRETE (ITEM 403S, CLASS A)
MANHOLE, PULLBOX, OR OTHER SIMILAR STRUCTURE
SECTION A-A
A
LIMIT OF PAVEMENT REPAIR (SAW CUT) IF HMAC OPTION IS USED
#5 (15M) REINFORCING BAR IF PC CONCRETE OPTION IS USED.
STRUCTURE COVER
LIMIT OF CONCRETE AND PAVEMENT CUT IF PC CONCRETE OPTION IS USED
DIRECTION OF TRAFFIC
A
3" (75 mm)
6" (150 mm)
PLAN OF STRUCTURE IN ROADWAY
NOTES:
1. IF PC CONCRETE IS USED AROUND THE MANHOLE, THE CONCRETE SHALL BE REINFORCED WITH #5 (16M) BARS AS SHOWN. THE CONCRETE SHALL EXTEND TO EDGE OF SAW CUT PAVEMENT EDGE.
2. REQUIREMENTS FOR NEW MANHOLE CONSTRUCTION AND MINOR MANHOLE ADJUSTMENTS IN NEW, RECONSTRUCTION AND REPAVING PROJECTS ARE INCLUDED IN STANDARD NO. 506S-4 AND 506S-4A.
3. REQUIREMENTS FOR WATER VALVE ADJUSTMENTS ARE INCLUDED IN STANDARD DETAILS 511S-13A AND 511S-13B.
4. REPLACEMENT HMAC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION:
a) MIN 2" (50 mm) HMAC TYPE "D" FOR TRENCH REPAIR IN LOCAL/RESIDENTIAL STREETS.
b) MIN 2" (50 mm) HMAC TYPE "C" FOR TRENCH REPAIR IN COLLECTOR/ARTERIAL STREETS. SEE ITEM 340S, SECTION 340S.4.
5. REFER TO UCM SECTION 5.8.3 FOR ADDITIONAL BACKFILL REQUIREMENTS.
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS
CASTING ADJUSTMENT
ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 1100S-1
SPL No. WW-146F
SHEET 1 OF 1
CITY OF AUSTIN
STANDARD PRODUCTS LIST
POLYMER CONCRETE MANHOLE SECTIONS
USING DEPARTMENT: Austin Water
PREPARED BY: Robert Lamb, P.E.
ISSUED: 01/01/16
REVISED BY: Jeff A. Kyle, P.E.
REVISED: 04/01/19
DESCRIPTION: Pre-cast reinforced polymer concrete manhole sections consisting of risers, conical tops, flat slab tops, and base sections shall comply with the following:
1. Base riser sections must have approved pipe connectors.
2. Polymer concrete shall meet the requirements of ASTM D 6783 and manhole sections shall meet the requirements of ASTM C 478.
3. Large diameter pre-cast manholes shall not be used for junction boxes unless shown on the contract drawings.
4. Large diameter bottom riser sections used as junction boxes shall have connected pipe size limitations as follows: 60" ID riser section for pipe to 30" maximum, 72" ID riser section for pipe to 42" maximum.
5. Shop drawings shall be submitted to AW for pre-cast manholes larger than 48" diameter, junction boxes, and similar structures. The shop drawings shall include: Flowline elevations of all incoming and outgoing pipes; Elevation of transition from large diameter sections to 48" ID section; Top of manhole elevation with surrounding ground elevation; Special construction considerations that are specified in the contract drawings; Certification that manufacturer's Quality Control Plan (as accepted by AW during product approval) shall be followed during the manufacturing process.
6. The manufacturer's Quality Control Plan shall be submitted to AW at any time for review as requested.
LISTING DATE | MANUFACTURER | PRODUCT IDENTIFICATION/COMMENT | APPROVAL
01/01/16 | US COMPOSITE PIPE, INC. P.O. Box 1588 Alvarado, TX 76009 | 48" diameter – shop drawings not required; 60" diameter and larger – shop drawings required | R. Lamb
04/01/19 | RockHard SCP (P3 Polymers, LLC) 885 S. State Rd. 57 Washington, IN 47501 | 48" diameter – shop drawings not required; 60" diameter and larger – shop drawings required | J. Kyle
NOTES:
1. Sections must comply with requirements of description above and with approved details.
2. Flat slab tops shall only be used when specified in the contract drawings.
3. Minimum wall thickness for pre-cast sections is 3" for 48" diameter components.
4. Manhole inverts at pipe connections shall be made smooth after pipe insertion using polymer grout mix of Saureisen Sewergard Trowable No. 210 or Sikadur 42 Grout Pak or RockHard SCP Ultra-Light Weight Grout.
5. Lifting devices shall not penetrate thru the wall. Any lifting cable inserts shall be cut flush to the polymer concrete surface.
LATEST REVISIONS:
1. Revised DESCRIPTION.
2. Added manufacturer RockHard SCP (P3 Polymers).
FINISHED GROUND/PAVEMENT (TOP OF GRADE)
4.5' MIN.
PROPOSED WATER LINE
SEPARATION DISTANCE AND PROTECTION REQUIREMENTS TO COMPLY WITH 30 TAC 217.53(d) AND 290.44(e)
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' SEGMENT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10'
10'
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT-TO-SCALE
WIRE ROPE CLIP
TRACER WIRE
DUCT TAPE
EACH 10'
TRACER WIRE NOTE
TRACER WIRE SHALL BE UTILIZED FOR LOCATION PURPOSES. TRACER WIRE SHALL BE OF SOLID CORE (14 GAUGE INSULATED) AND SHALL BE TAPED TO THE MAIN A MINIMUM OF 10" INCREMENTS. WIRE SHALL ALSO COME UP TO THE TOP OF AIR RELEASE, VACUUM VALVES, TOP OF GROUND AT LIFT STATION, AND AT THE MAIN DISCHARGE POINT.
TRACER WIRE DETAIL
N.T.S.
Date: Sep 30, 2024, 11:05am User ID: CKrouse
File: H:\Projects\51456\100\30 Construction Documents\Civil\D751456-10_FM.dwg
THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.





SITE COORDINATES			
POINT	NORTH	EAST	PROP. ELEV.
A	13912819.56	2311253.23	711.00
B	13912791.45	2311315.15	711.00
C	13912723.81	2311284.45	711.00
D	13912753.17	2311231.88	711.00

FACILITY COORDINATES			
POINT	NORTH	EAST	PROP. ELEV.
1	13912811.70	2311258.45	711.50
2	13912805.09	2311273.02	711.50
3	13912794.87	2311274.97	NA
4	13912781.34	2311290.24	711.50
5	13912766.77	2311283.63	711.50
6	13912769.37	2311263.39	NA
7	13912746.55	2311246.45	711.50
8	13912753.17	2311231.88	711.50
9	13912798.63	2311279.97	711.50
10	13912791.61	2311295.45	711.50
11	13912777.01	2311299.79	711.50
12	13912762.44	2311293.17	711.50
13	13912760.30	2311275.93	711.50
14	13912769.36	2311267.05	711.50
15	13912753.46	2311266.79	711.50
16	13912746.85	2311281.36	711.50
17	13912758.59	2311255.21	711.50
18	13912754.87	2311263.40	711.50
19	13912789.29	2311257.02	MATCH PAVEMENT
20	13912777.16	2311283.72	MATCH PAVEMENT

NO.	REVISION	DATE

09-23-2024

HARRY B. WALKER 82788 LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS

10350 RICHMOND AVE. STE 200 | HOUSTON, TX. 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

CLARA VISTA

LIFT STATION & FORCE MAIN
CIVIL
LIFT STATION PLAN
SITE PLAN

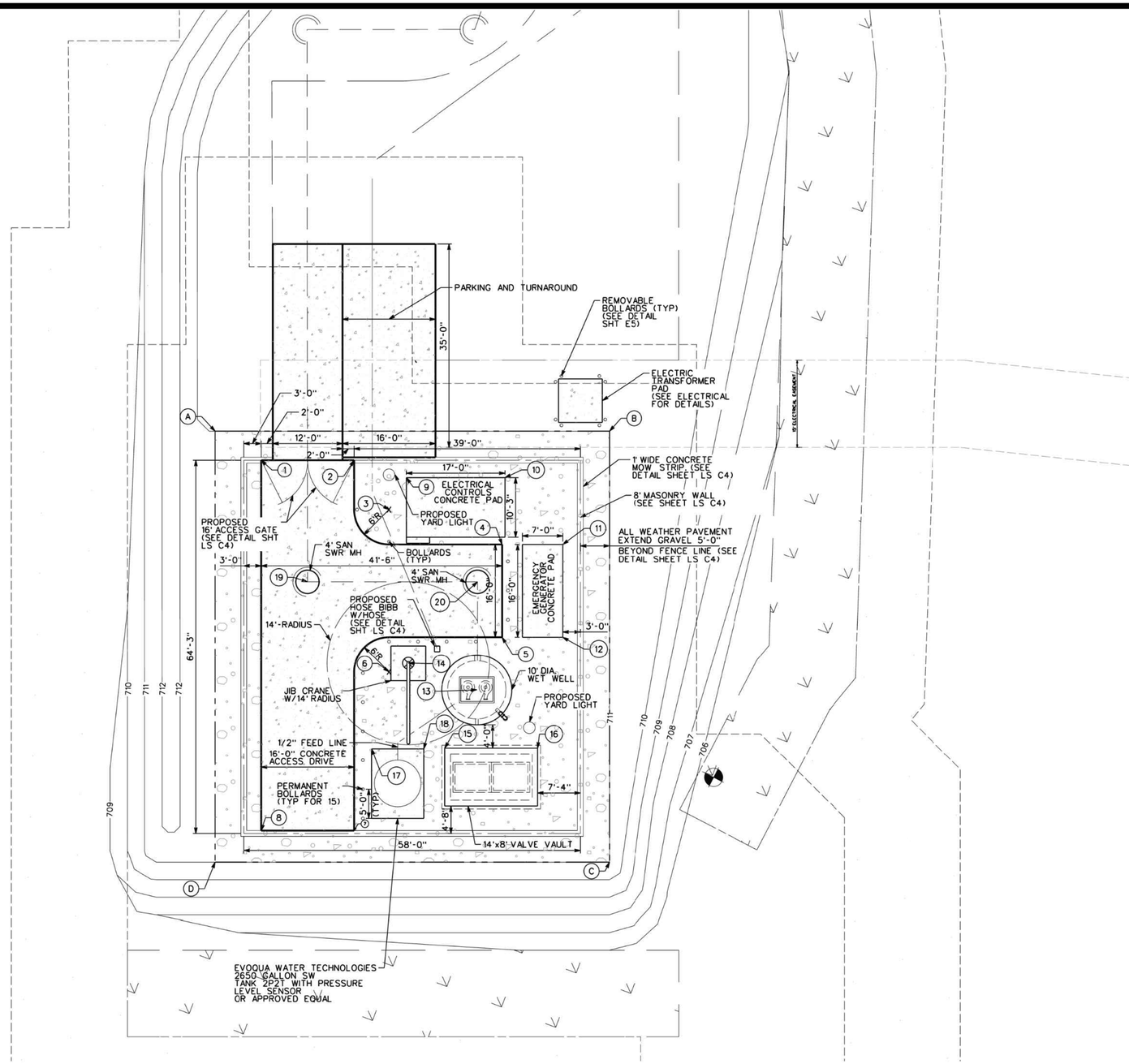
PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE MAY 2024
DESIGNER HBW
CHECKED HBW DRAWN LDH
SHEET 31 OF 48

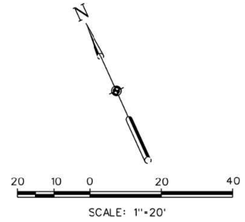
LS C1

CP-22-0144

9/23/2024 12:04:18 PM
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THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.





LEGEND

- PROPOSED STRUCTURE
- FUTURE PHASE
- X NG=142.3 — NATURAL GRADE
- x FG=146.0 — FINISHED GRADE
- x TP 214.5 — TOP PAVING ELEVATION
- PROP. SWALE
- FLOW DIRECTION
- 100 — EXIST. NATURAL GROUND CONTOUR
- PROP. CRUSHED GRAVEL PAVING
- ALL WEATHER PAVEMENT

SITE COORDINATES			
POINT	NORTH	EAST	PROP. ELEV.
A	13912819.56	2311253.23	711.00
B	13912791.45	2311315.15	711.00
C	13912723.81	2311284.45	711.00
D	13912753.17	2311231.88	711.00

FACILITY COORDINATES			
POINT	NORTH	EAST	PROP. ELEV.
1	13912811.70	2311258.45	711.50
2	13912805.09	2311273.02	711.50
3	13912794.87	2311274.97	NA
4	13912781.34	2311290.24	711.50
5	13912766.77	2311283.63	711.50
6	13912769.37	2311263.39	NA
7	13912746.55	2311246.45	711.50
8	13912753.17	2311231.88	711.50
9	13912798.63	2311279.97	711.50
10	13912791.61	2311295.45	711.50
11	13912777.01	2311299.79	711.50
12	13912762.44	2311293.17	711.50
13	13912760.30	2311275.93	711.50
14	13912769.36	2311267.05	711.50
15	13912753.46	2311266.79	711.50
16	13912746.85	2311281.36	711.50
17	13912758.59	2311255.21	711.50
18	13912754.87	2311263.40	711.50
19	13912789.29	2311257.02	MATCH PAVEMENT
20	13912777.16	2311283.72	MATCH PAVEMENT

NO.	REVISION	DATE

09-23-2024

STATE OF TEXAS
HARRY B. WALKER
82788
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
10350 RICHMOND AVE. STE 200 | HOUSTON, TX. 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

CLARA VISTA
LIFT STATION & FORCE MAIN
CIVIL
LIFT STATION PLAN
GRADING, PAVING & DRAINAGE

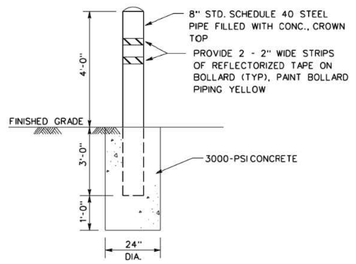
PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE MAY 2024
DESIGNER HBW
CHECKED HBW DRAWN LDH
SHEET 32 OF 48

LS C2

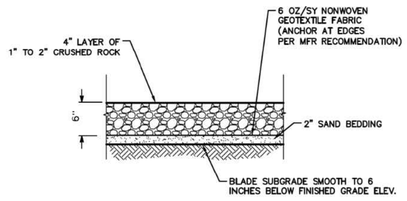
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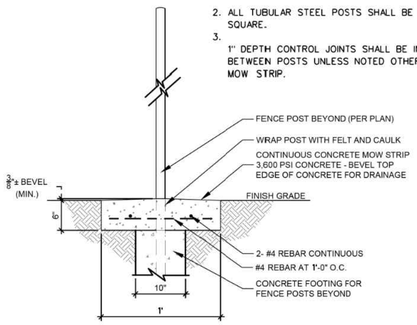
TYPICAL BOLLARD DETAIL
N.T.S.



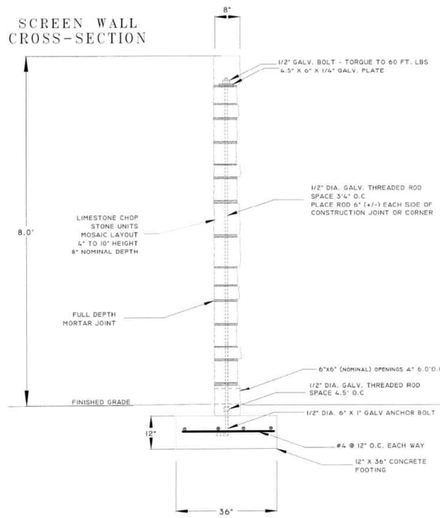
ALL WEATHER PAVEMENT
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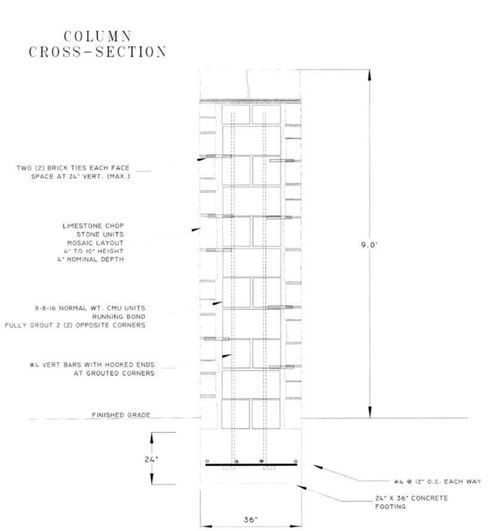
GENERAL NOTES:

1. ALL CONCRETE USED IN FOOTNG SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS.
2. ALL TUBULAR STEEL POSTS SHALL BE INSTALLED LEVEL, PLUMB, AND SQUARE.
3. 1" DEPTH CONTROL JOINTS SHALL BE INSTALLED PERPENDICULARLY AT BETWEEN POSTS UNLESS NOTED OTHERWISE ALONG ENTIRE LENGTH OF MOW STRIP.



CONCRETE MOW STRIP DETAIL
N.T.S.





MASONRY SCREEN WALL DETAILS
N.T.S.

NOTES:

0 MATERIAL

1.1 ALL REINFORCING BARS SHALL CONFORM TO ASTM A615; FY = 40 KSI

1.2 ALL CONCRETE SHALL BE 3000 PSI COMPRESSIVE STRENGTH AT 28 DAYS

1.3 SANDSTONE UNITS SHALL BE HARD, DURABLE STONE UNITS SUITABLE FOR STRUCTURAL APPLICATIONS.

1.4 ALL MASONRY MORTAR SHALL BE TYPE 'S'; 750 PSI AT 28 DAYS

1.5 THREADED RODS SHALL BE ½" DIA; FY = 36 KSI

1.6 ALL THREADED RODS SHALL BE TENSIONED TO 60 FT. LBS. OF TORQUE

0 DESIGN

2.1 VERTICAL CONSTRUCITON JOINTS SHALL BE SPACED AT 45' O.C. MIN.

2.2 DESIGN WIND LOADS INCLUDE 90 MPH, EXPOSURE C

2.3 FOUNDATION SOIL IS ASSUMED TO BE STIFF CLAY AS DESCRIBED IN THE PROJECT SOIL REPORT PREPARED BY INTEC AND DATED OCTOBER 2, 2013.

2.4 SCREEN WALL SHOWN IS NOT DESIGNED TO ACCOMMODATE RETAING OF SOIL ON EITHER SIDE. FINSHED GRADE SHALL BE THE SAME ON BOTH SIDES OF THE WALL.

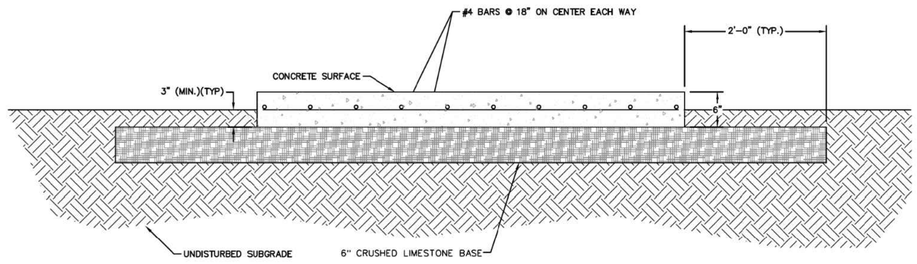
2.5 TESTING METHODS, FREQUENCY AND VERIFICATION OF MATERIAL SPECIFICATIONS SHALL BE THE RESPONSIBILITY OF THE OWNER OR OWNER'S REPRESENTATIVE.

2.6 WALL CAP UNITS SHALL BE PERMANENTLY SECURED TO THE WALL SECTION WITH FULL DEPTH MORTAR JOINTS

2.7 A COMPLETE SET OF CONSTRUCTION DRAWINGS, CONTRACT SPECIFICATIONS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE ONSITE AT ALL TIMES DURING THE CONSTRUCTION OF THE WALL.

2.8 THE ENGINEERING, DESIGN, ANALYSIS DETAILING, AND MITIGATION OF BOTH SURFACE DRAINAGE AND SEEPAGE OF GROUND WATER SHALL BE THE RESPONSIBILITY OF THE OWNER OR OWNER'S REPRESENTATIVE.

2.9 STRUCTURAL DESIGN HEREIN REPRESENTS A FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL INTERIM BRACING, SHORING, INTERIM DRAINAGE PROVISIONS AND EROSION PROTECTION REQUIRED UNTIL FINAL CAPPING, PAVING, CURBING AND COMPLETION OF FINAL STORM DRAIN SYSTEM IS COMPLETE.



CONCRETE SURFACE DETAIL
SCALE: N.T.S.

NOTES:

1. MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'-0".
2. ALL JOINTS TO BE SEALED TO BE THOROUGHLY CLEANED BY HYDROBLASTING AND/OR SAND BLASTING METHODS, THE JOINTS ARE TO BE FREE FROM ALL DUST COATINGS, ANY CONTAMINATES, AND FREE FROM ALL MOISTURE THAT MIGHT INTERFERE WITH THE PROPER AND SATISFACTORY BONDING OF THE JOINT SEALANT MATERIAL. THE JOINT WILL BE BLOWN OUT WITH DRY COMPRESSED AIR IMMEDIATELY PRIOR TO APPLYING SEALANT.
3. CONSTRUCTION EQUIPMENT AND OTHER VEHICLES AND PEDESTRIANS WHICH MAY CAUSE DAMAGE TO THE JOINTS SHALL NOT BE ALLOWED ON THE PAVEMENT & SIDEWALKS BEFORE THE JOINT SEALANT BECOMES TACK FREE.
4. USE 3/4" x 4" EXPANSION JOINT MATERIAL AROUND POLES OR OTHER OBSTRUCTIONS.
5. SAW CUT JOINTS WITHIN 24 HOURS.

NO.	REVISION	DATE

09-23-2024

STATE OF TEXAS
HARRY B. WALKER
82788
LICENSED
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

CLARA VISTA
LIFT STATION & FORCE MAIN
LIFT STATION CIVIL DETAILS

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE MAY 2024
DESIGNER HBW
CHECKED HBW DRAWN LDH

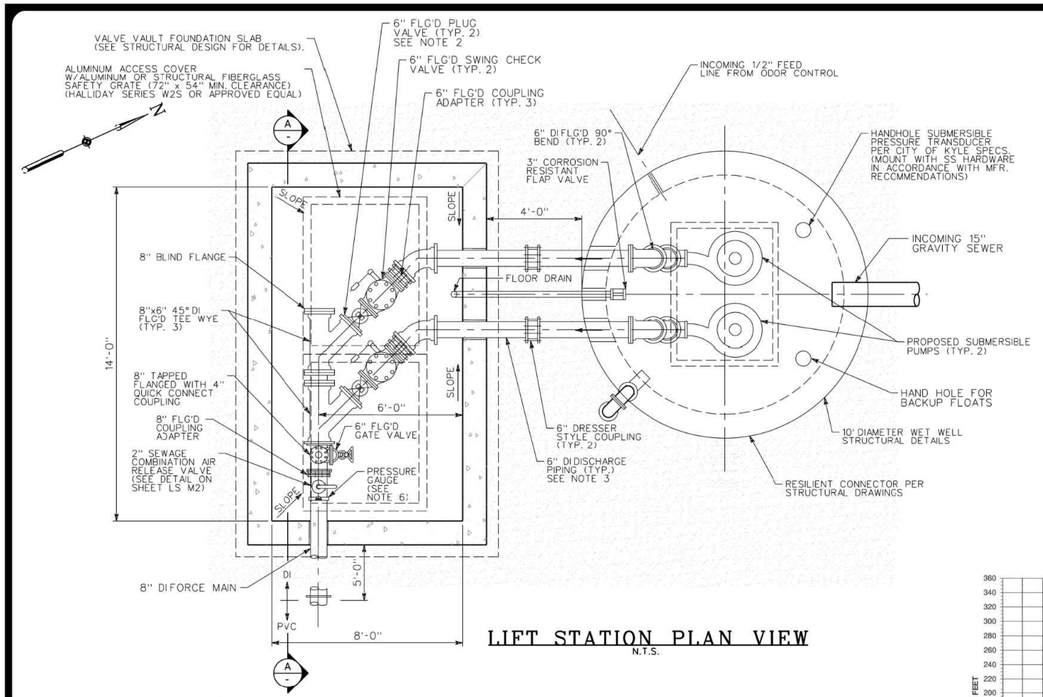
SHEET 33 OF 48

LS C4

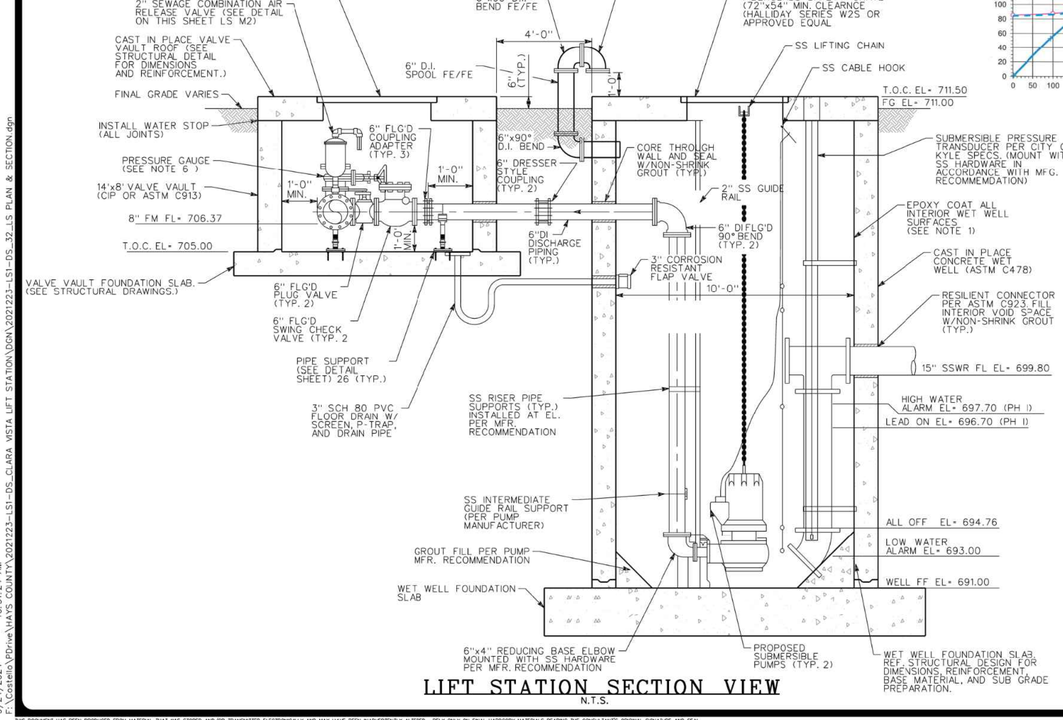
CP-22-0144

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LIFT STATION PLAN VIEW
N.T.S.



LIFT STATION SECTION VIEW
N.T.S.

STATION OPERATION TABLES - CONTROLS (PHASE 1)		
RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	**ACTION**	**PUMP(S) IN ACTION**
694.7	PUMPS OFF LEVEL - NO ACTION	ALL PUMPS ARE OFF
696.7	LEAD PUMP TURNS ON	LEAD PUMP ON
N/A	LAG PUMP TURNS ON	LEAD & LAG & STANDBY PUMPS ON
697.7	HIGH WATER ALARM TURNS ON	HIGH WATER ALARM ACTIVATED
FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	**ACTION**	**PUMP(S) IN ACTION**
697.2	HIGH WATER ALARM TURNS OFF	HIGH WATER ALARM DEACTIVATED
N/A	LAG PUMP TURNS OFF	LEAD PUMP IS ON
694.76	LEAD PUMP TURNS OFF	ALL PUMPS ARE OFF - STANDBY PUMP SWITCHES TO LEAD PUMP AND LEAD PUMP SWITCHES TO STANDBY PUMP

PERFORMANCE AND DESIGN REQUIREMENTS (PHASE 1)			
EACH PUMPING UNIT (P-1, P-2 & P-3) SHALL BE DESIGNED/PROVIDED TO MEET THE FOLLOWING OPERATING CONDITIONS/REQUIREMENTS, IN CONJUNCTION WITH THE GIVEN SYSTEM HEAD/CAPACITY CURVES FOR SIMPLEX PUMP OPERATION (P-1, P-2 OR P-3) AND DUPLEX PUMP OPERATION (P-1 & P-2, P-2 & P-3, OR P-1 & P-3).			
DESIGN PUMP MODEL	**FLYGT N3302 HT3 (456) SH3 276**		
CONDITIONS/REQUIREMENTS FOR EACH PUMPING UNIT			
CONDITION/REQUIREMENT		**P-1**	**P-2**
MIN PUMP EFFICIENCY AT DESIGN TDH		40%	40%
MAX PUMP OPERATING SPEED (RPM)		1775	1775
MOTOR HORSEPOWER		60	60
MOTOR VOLTAGE/HERTZ/PHASE		460/60/3	460/60/3
CONDITIONS/REQUIREMENTS FOR PUMP(S) IN OPERATION			
CONDITION/REQUIREMENT	**SIMPLEX PUMPING (326mm IMP)**	**DUPLEX PUMPING**	**TRIPLEX PUMPING**
CAPACITY AT DESIGN TDH (GPM)	303		
DESIGN TDH (FEET)	103.5		

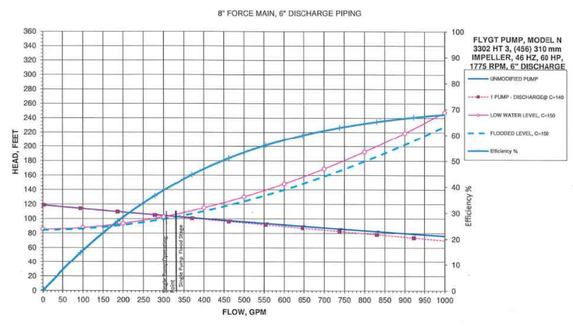
STATION OPERATION TABLES - CONTROLS (FINAL PHASE)		
RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	**ACTION**	**PUMP(S) IN ACTION**
695.00	PUMPS OFF LEVEL - NO ACTION	ALL PUMPS ARE OFF
699.35	LEAD PUMP TURNS ON	LEAD PUMP ON
N/A	LAG PUMP TURNS ON	LEAD & LAG & STANDBY PUMPS ON
700.35	HIGH WATER ALARM TURNS ON	HIGH WATER ALARM ACTIVATED
FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	**ACTION**	**PUMP(S) IN ACTION**
699.85	HIGH WATER ALARM TURNS OFF	HIGH WATER ALARM DEACTIVATED
N/A	LAG PUMP TURNS OFF	LEAD PUMP IS ON
695.00	LEAD PUMP TURNS OFF	ALL PUMPS ARE OFF - STANDBY PUMP SWITCHES TO LEAD PUMP AND LEAD PUMP SWITCHES TO STANDBY PUMP

PERFORMANCE AND DESIGN REQUIREMENTS (PHASE 2)			
EACH PUMPING UNIT (P-1, P-2 & P-3) SHALL BE DESIGNED/PROVIDED TO MEET THE FOLLOWING OPERATING CONDITIONS/REQUIREMENTS, IN CONJUNCTION WITH THE GIVEN SYSTEM HEAD/CAPACITY CURVES FOR SIMPLEX PUMP OPERATION (P-1, P-2 OR P-3) AND DUPLEX PUMP OPERATION (P-1 & P-2, P-2 & P-3, OR P-1 & P-3).			
DESIGN PUMP MODEL	**FLYGT N3302 HT3 (458)**		
CONDITIONS/REQUIREMENTS FOR EACH PUMPING UNIT			
CONDITION/REQUIREMENT		**P-1**	**P-2**
MIN PUMP EFFICIENCY AT DESIGN TDH		53%	53%
MAX PUMP OPERATING SPEED (RPM)		1775	1775
MOTOR HORSEPOWER		60	60
MOTOR VOLTAGE/HERTZ/PHASE		460/60/3	460/60/3
CONDITIONS/REQUIREMENTS FOR PUMP(S) IN OPERATION			
CONDITION/REQUIREMENT	**SIMPLEX PUMPING (326mm IMP)**	**DUPLEX PUMPING**	**TRIPLEX PUMPING**
CAPACITY AT DESIGN TDH (GPM)	640		
DESIGN TDH (FEET)	156.7		

NOTE:

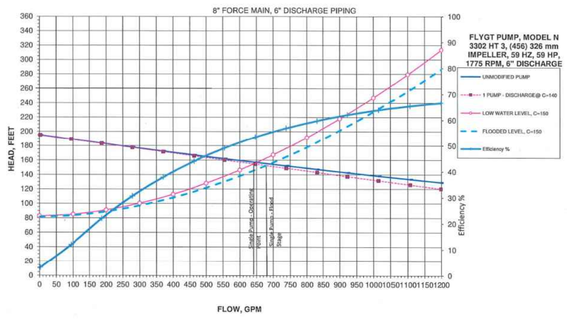
1. ALL PUMP DISCHARGE PIPING IN WET WELL, VALVE VAULT, AND UP TO PVC TRANSITION TO BE FLANGED (INSIDE WET WELL/VAULT) OR TR FLEX RESTRAINED MECHANICAL JOINT (WHEN BURIED DUCTILE IRON PIPING. ALL DUCTILE IRON PIPING SHALL BE EPOXY LINED WITH TNEMEC SERIES 431 PERMA-SHIELD PL CERAMIC EPOXY OR APPROVED EQUAL.
2. ALL EXPOSED DUCTILE IRON PIPING, FITTINGS, AND VALVE SHALL BE SANDBLASTED AND COATED WITH TWO (2) COATS OF TNEMEC SERIES 27WB TPOXY+ APPLIED AT 6.0 TO 8.0 DRY MILS AND TOPCOATED WITH TNEMEC SERIES 740 UVX APPLIED AT 3.0 TO 5.0 DRY MILS. FINAL COLOR TO BE APPROVED BY THE CITY. SHOP PRIMING WITH TNEMEC SERIES N140 IS ACCEPTABLE. BITUMASTIC COATING SHALL NOT BE APPLIED TO EXPOSED DIPPING.
3. ALL BURIED DUCTILE IRON PIPING, FITTINGS AN VALVES SHALL BE WRAPPED WITH A POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH THE LATEST REVISION OF AWWA C105.
4. ALL MECHANICAL JOINT FITTINGS TO BE RESTRAINED USING SERIES 1100 OR 2000PV MEGALUG JOINT RESTRAINTS.
5. PUMP SPACING DIMENSIONS SHOWN ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE DETERMINED BY SPECIFIC PUMP MANUFACTURER.
6. PRESSURE GAUGE SHALL BE 4" DUAL 5% ACCURACY LIQUID FILLED W/STANDARD 1/4" NPT MOIOUNTED ON BRASS ISOLATION BALL VALVE.

FIRST PHASE
TOLL BROTHERS
CLARA VISTA LIFT STATION
SYSTEM AND PUMP CURVES

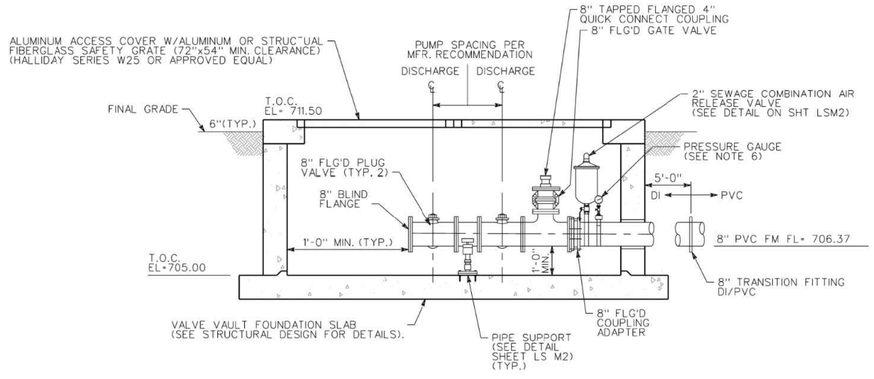


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FINAL PHASE
CLARA VISTA (WATER RIDGE) LIFT STATION
SYSTEM AND PUMP CURVES



9/17/2024 6:40 AM



SECTION "A"
N.T.S.

LS M1

09-23-2024

HARRY B. WALKER
82788
LICENSED PROFESSIONAL ENGINEER

NO.	REVISION	DATE

PAPE-DAWSON ENGINEERS
10350 RICHMOND AVE. STE 200 | HOUSTON, TX. 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

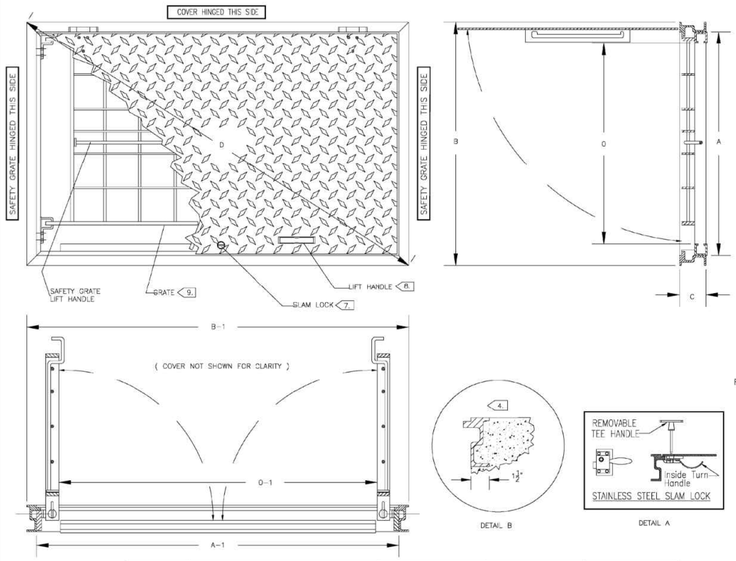
CLARA VISTA
LIFT STATION & FORCE MAIN
LIFT STATION MECHANICAL PLAN & SECTION

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE MAY 2024
DESIGNER HBW
CHECKED HBW DRAWN LDH
SHEET 34 OF 48

CP-22-0144

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PATTERN NO.	DIMENSIONS IN INCHES		UNOBSTRUCTED CLEAR OPENING	HEIGHT	DIAGONAL
ALUMINUM	A x A1	B x B1	O x O1	C	D
FLED-AOSH	PER MANUFACTURER	PER MANUFACTURER	MATCH EXISTING	PER MANUFACTURER	PER MANUFACTURER

1.) MATERIAL SHALL BE 6061-T6 ALUMINUM FOR BARS, ANGLES, AND EXTRUSIONS. 1/4" DIAMOND PLATE SHALL BE 5086 ALUMINUM. EXTERIOR OF FRAME WHICH COMES IN CONTACT WITH CONCRETE SHALL HAVE ONE COAT FOREST GREEN PAINT.

2.) UNIT DESIGNED PEDESTRIAN RATED FOR A MINIMUM LIVE LOAD OF 300 LBS./SQ.FT.

3.) DOOR SHALL BE EQUIPPED WITH A HOLD OPEN ARM. DOOR SHALL LOCK OPEN IN THE 90 DEGREE POSITION. HOLD OPEN ARM SHALL BE FASTENED TO THE FRAME WITH A 1/2" GRADE 316 STAINLESS STEEL BOLT.

4. ANGLE FRAME SHALL BE OF EXTRUDED ALUMINUM, WITH A CONTINUOUS 1-1/2" ANCHOR FLANGE.

5.) COVER HINGES SHALL BE OF HEAVY DUTY DESIGN. MATERIAL SHALL BE GRADE 316 STAINLESS STEEL. EACH HINGE SHALL HAVE A GRADE 316 STAINLESS STEEL, 3/8" DIAMETER HINGE PIN. HINGE SHALL BE FASTENED TO ANGLE AND DIAMOND PLATE WITH GRADE 316 STAINLESS STEEL BOLTS AND NY-LOCK NUTS.

6.) ALL HARDWARE SHALL BE STAINLESS STEEL.

7. EACH HATCH SHALL BE SUPPLIED WITH A GRADE 316 STAINLESS STEEL SLAM LOCK, WITH KEY WAY PROTECTED BY A THREADED PLUG. PLUG SHALL BE FLUSH WITH THE TOP OF THE 1/4" DIAMOND PLATE. SLAM LOCK SHALL BE FASTENED WITH FOUR GRADE 316 STAINLESS STEEL, BOLTS AND WASHERS.

8. EACH HATCH SHALL BE EQUIPPED WITH AN ALUMINUM LIFT HANDLE. THE LIFT HANDLE SHALL BE FLUSH WITH THE TOP OF THE 1/4" DIAMOND PLATE.

9. UNITS SHALL BE SUPPLIED WITH A HINGED SAFETY GRATES (SAFETY YELLOW) TO PROVIDE PROTECTION AGAINST FALL THROUGH AND TO CONTROL ACCESS TO THE CONFINED SPACE. (SEE SAFETY GRATE SPECIFICATIONS ON SEPARATE PAGE.)

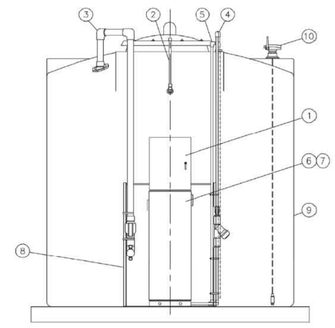
10.) HATCH COVERS SHALL BE PAINTED FOREST GREEN TO DEMARCATE AND PREVENT VANDALISM.

LIFT STATION WETWELL ACCESS HATCHES
N.T.S.

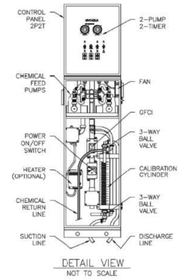
NOTES:
1. THIS IS A CONCEPTUAL GENERAL ARRANGEMENT DRAWING ONLY.
2. ACTUAL EQUIPMENT AND PIPING LOCATIONS MAY VARY. PAD SHOWN IS FOR REFERENCE PUPOSES ONLY.
3. CONTAINMENT CURBING IS NOT SHOWN OR INCLUDED.
4. STUB-UP FOR ELECTRICAL CONDUIT AND DISCHARGE PIPING TO BE DETERMINED PER SITE PLACEMENT.

NOMENCLATURE
1. SYSTEM CONTROL BOX ASSEMBLY, SEE DETAIL
2. ø1/2" OVERFILL SIGHT TUBE ASSEMBLY
3. ø2" FILL PIPING ASSEMBLY
4. ø1/2" SUCTION PIPING ASSEMBLY
5. CHEMICAL RETURN LINE
6. CHEMICAL FEED PUMPS
7. CALIBRATION STAND ASSEMBLY
8. SS PIPE SUPPORT / UTILITY STAND
9. TANK, 2,650 GAL
10. PRESSURE LEVEL INDICATOR ASSY

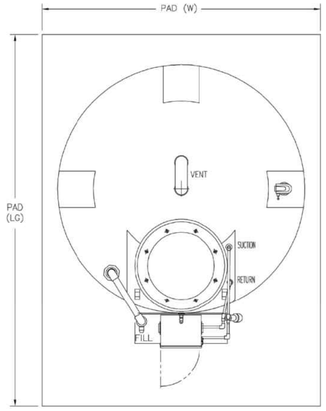
SINGLE WALL TANK OPTIONS			
NOMINAL CAPACITY	DIAMETER	HEIGHT	RECOMMENDED PAD SIZE
2,650 GALLONS	8'-0"	8'-9"	9'-0" W x 12'-0" LG



FRONT VIEW (ELEVATION)



DETAIL VIEW
NOT TO SCALE



PLAN VIEW

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN

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DESIGNER	DATE
REINBOLT	11/30/17
CHECKER	DATE
ENGINEER	DATE
MANAGER	DATE
FILE:	
SCALE: 24	

TITLE: SITE PLAN, 2650 SW TANK 2P2T WITH PRESSURE LEVEL SENSOR

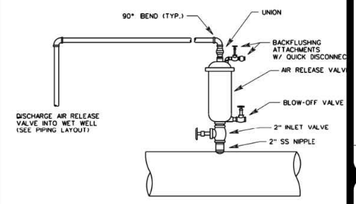
CLIENT

EVOQUA WATER TECHNOLOGIES
Pembroke, FL
1-941-355-2971

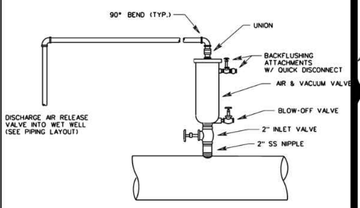
PROJECT: BX-2650N-SW-OX-S-BL-PW

DRAWING | SHEET 1 OF 1 | REV 000

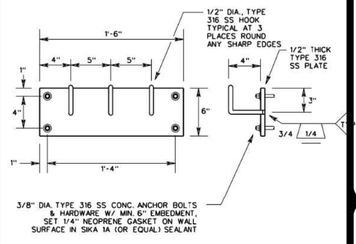
NOTES:
1. **ODOR CONTROL FOUNDATION AND REINFORCEMENT TO BE SIZED BY SPECIFIC ODOR CONTROL MANUFACTURER.**
2. **ODOR CONTROL TANK TO BE BLACK POLYETHYLENE. PAINT COLOR SHALL BE INTEGRATED INTO THE TANK.**
3. **ODOR CONTROL CHEMICAL TO BE BIOXIDE 71.**



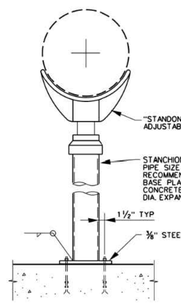
AIR RELEASE VALVE ASSEMBLY
N.T.S.



AIR & VACUUM VALVE ASSEMBLY
N.T.S.



CABLE HOLDER ASSEMBLY
N.T.S.

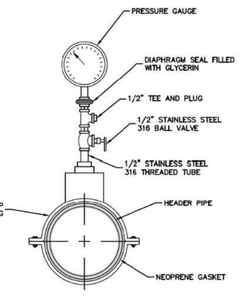


ADJUSTABLE PIPE SUPPORT
N.T.S.

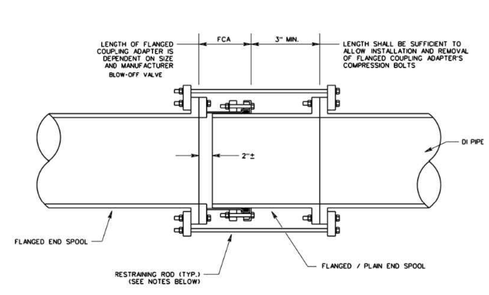
*MODEL S89 (FLANGE)
MODEL C92 (CLAMP)
MODEL S96 (FLANGE CRADLE)

ALL SHALL HAVE GALVANIZED FINISH

KEY NOTES:
- PRESSURE GAUGE SHALL BE RATED FOR CORROSIVE SERVICE
- 4" DIAL SIZE
- GRADE 1A
- LIQUID FILLED
- TYPE 316 STAINLESS STEEL BOURDON TUBE
- FULL BLOWOUT PROTECTION
- GLASS SAFETY LENS
- PRESSURE RATING: -30 inHG TO 100 PSI

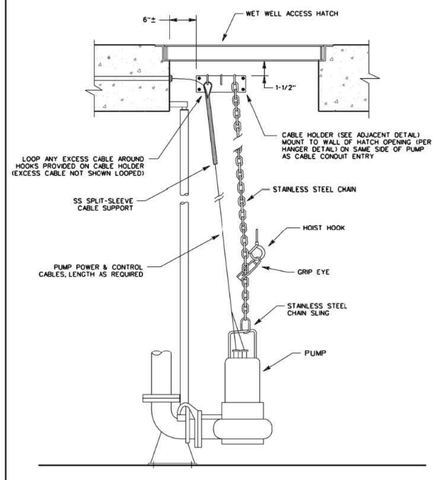


PRESSURE GAUGE INSTALLATION DETAIL
SCALE: NTS

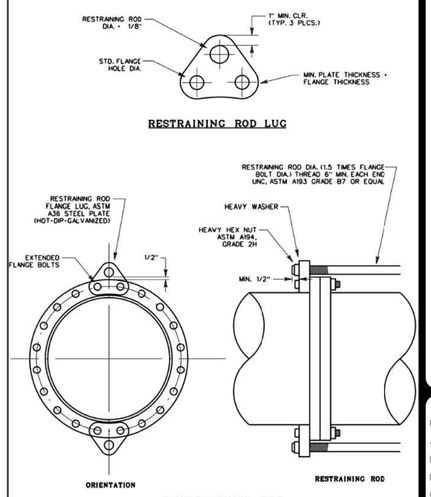


NOTES:
1. PROVIDE THRUST/RESTRAINING RODS IN ACCORDANCE WITH THE ADJACENT RESTRAINING ROD DETAIL. LENGTH OF RODS TO BE DETERMINED BY CONTRACTOR BASED ON SIZE/MANUFACTURE OF FLANGED COUPLING ADAPTOR AND FINAL LENGTH OF SPOOL PIECE.
2. THIS RESTRAINT DOES NOT REPLACE THRUST BLOCKS TO BE PROVIDED AT OTHER LOCATIONS.

FLANGED COUPLING ADAPTER RESTRAINT
N.T.S.



PUMP LIFTING & CABLING DETAIL
N.T.S.



RESTRAINING ROD LUG

RESTRAINING ROD
N.T.S.

DATE	NO.	REVISION

09-23-2024

HARRY B. WALKER 82788 LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
10050 RICHMOND AVE. STE 200 | HOUSTON, TX. 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

CLARA VISTA
LIFT STATION & FORCE MAIN
LIFT STATION MECHANICAL DETAILS

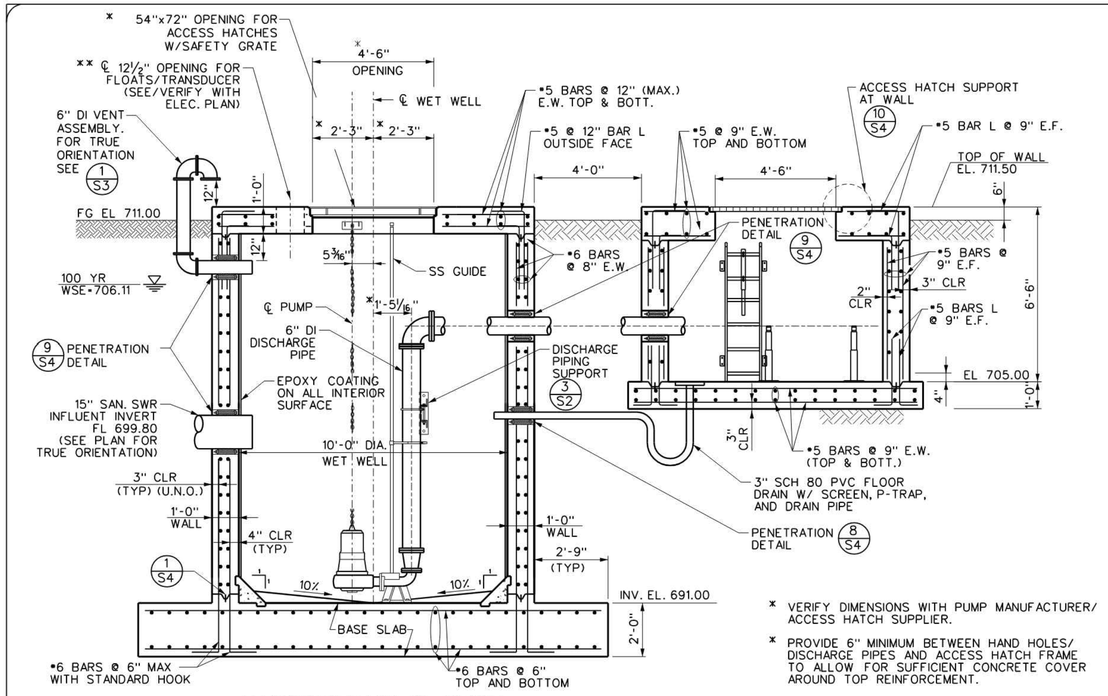
PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE MAY 2024
DESIGNER HBW
CHECKED HBW DRAWN LDH
SHEET 35 OF 48

LS M2

9/23/2024 12:21:02 PM
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CP-22-0144

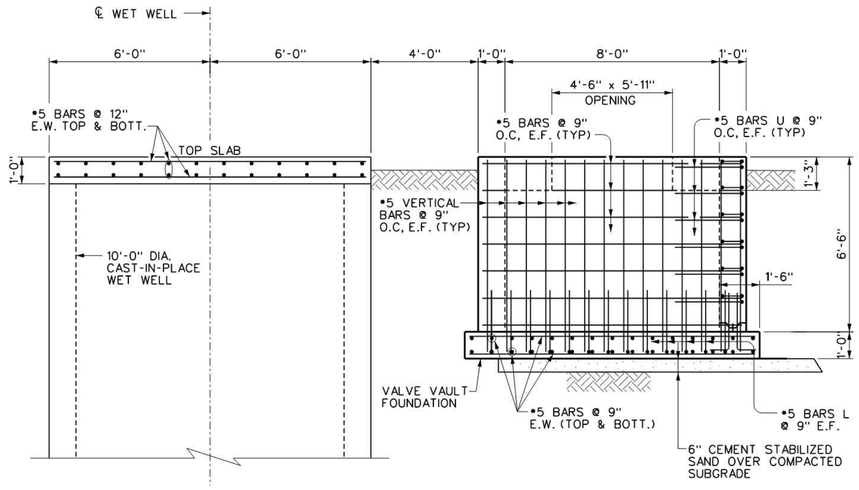


1. ELEVATION (CAST - IN - PLACE)

SCALE: 3/8" = 1'-0"

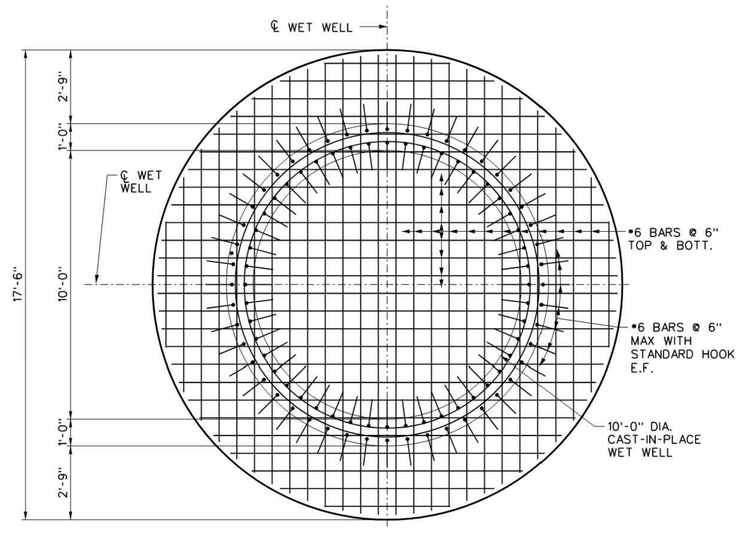
* VERIFY DIMENSIONS WITH PUMP MANUFACTURER/ ACCESS HATCH SUPPLIER.

* PROVIDE 6" MINIMUM BETWEEN HAND HOLES/ DISCHARGE PIPES AND ACCESS HATCH FRAME TO ALLOW FOR SUFFICIENT CONCRETE COVER AROUND TOP REINFORCEMENT.



2. VALVE VAULT WALL ELEVATION

SCALE: 3/8" = 1'-0"



3. FOUNDATION PLAN (CAST - IN - PLACE)

SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. SEE SHEET S2, S3, & S4 FOR ADDITIONAL STRUCTURAL DETAILS.
2. SEE SHEET S2 FOR ADDITIONAL STRUCTURAL NOTES.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE ACCESS HATCH OPENINGS PER SELECTED HATCH AND PUMP MANUFACTURERS' REQUIREMENTS.
4. DIMENSIONS NOTED ARE RELATIVE TO THE PUMP SIZE AND MANUFACTURER SELECTED. CONTRACTOR SHALL CONFIRM.
5. SEE ELECTRICAL DRAWINGS AND CIVIL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
6. THE INTERIOR WET WELL AND INTERIOR VALVE VAULT SHALL BE COATED WITH AN EPOXY AS SPECIFIED. PRIOR TO COATING, SURFACES SHALL BE FREE OF ALL LATENT MATTER, BURRS AND FINS. INSIDE CONCRETE SURFACE OF WET WELL SHALL BE WASHED WITH 10 PERCENT SOLUTION OF MURIATIC ACID, THEN RINSED CLEAN WITH FRESH WATER AND FINALLY, THOROUGHLY DRIED RESULTING IN A FINISHED SURFACE BEING FREE OF SCALE, DUST, OIL, GREASE, AND OTHER FOREIGN MATTER. IF THIS SURFACE COATING PREPARATION CONFLICTS WITH THE MANUFACTURER RECOMMENDATIONS, THEN THE MANUFACTURE RECOMMENDATIONS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO BEGINNING WORK.
7. IF CAISSON METHOD IS USED, DOWEL BARS WILL REQUIRE DOWEL SPLICERS OR AFTER CASTING, DRILL AND EPOXY WITH 12" MIN. EMBEDMENT (USE HILTI HIT-RE 500 V3). CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF TEXAS.
8. THESE PLANS ARE INTENDED TO DESCRIBE THE GENERAL REQUIREMENTS FOR THIS PROJECT. NOT ALL CONDITIONS ARE SPECIFICALLY DETAILED. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL ITEMS REQUIRED FOR A COMPLETE AND FINISHED PRODUCT.
9. THE NOTES CONTAINED HEREWITH CORRESPOND TO THE STRUCTURAL WORK CONTAINED IN THIS PROJECT. CONSTRUCTION NOTES PROVIDED IN OTHER SHEETS RELATE TO THE PORTION OF THE WORK ON THOSE SHEETS.
10. CONTRACTOR SHALL VERIFY EQUIPMENT AND MEMBER SIZES AND ACTUAL DIMENSIONS AND ACCOMMODATE THE CONSTRUCTION WORK TO ALLOW A PROPER FIT OF SAID COMPONENTS WITH THE PROPOSED STRUCTURES FOR WHICH SAID COMPONENTS WILL BE INSTALLED.
11. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES AND/OR POTENTIAL CONFLICTS WITH OTHER COMPONENTS OF THE CONSTRUCTION WORK, SUPPORTS, OR EQUIPMENT.
12. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAW CONCERNING EXCAVATION, TRENCHING AND SHORING.
13. ALL MATERIAL & EQUIPMENT SHALL BE APPROVED THROUGH THE SHOP DRAWING SUBMITTAL PROCESS.
14. CONTRACTOR SHALL LOCATE PIPE OPENINGS THROUGH STRUCTURE ACCOUNTING FOR PIPE SIZE, FLANGE, AND BENDS.

NO.	REVISION	DATE

STATE OF TEXAS
JOHN C. KIME, JR
93010
LICENSED PROFESSIONAL ENGINEER
SURVEYOR
John C. Kime
Digitally signed by John C. Kime
DN: cn=jkime@pape-dawson.com, o=Pape-Dawson Engineers, ou=John Charles Kime Jr
Date: 2024.09.27 15:22:59 -05'00'

PAPE-DAWSON ENGINEERS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM # 10193974

CLARA VISTA
LIFT STATION & FORCE MAIN

STRUCTURAL
ELEVATION AND DETAILS

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER JCK
CHECKED - DRAWN LNV

LS S1

SHEET 36 OF 48

CP-22-0144

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THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

STRUCTURAL NOTES FOR LIFT STATION

FOUNDATION NOTES:

1. ALL EXCAVATIONS SHALL BE CONDUCTED IN THE DRY, AND PROVISIONS MADE TO PREVENT THE BOTTOM OF ALL EXCAVATIONS FROM FREEZING OR FLOODING.
2. EXCAVATION MAY BE PERFORMED WITH CONVENTIONAL EXCAVATION EQUIPMENT, PREFERABLY WITH A SMOOTH-MOUTH BUCKET. IF TOOTHED BUCKET IS USED, EXCAVATION WITH THIS EQUIPMENT SHALL BE STOPPED 6" ABOVE THE FINAL GRADE AND EXCAVATION COMPLETED WITH SMOOTH-MOUTHED BUCKET OR SMOOTH LOADER. SOIL PREPARATION AT THE BOTTOM OF THE WET WELL SHALL BE AS FOLLOWS: (1) AFTER EXCAVATION, THE SUBGRADE SHALL BE COMPACTED TO PROVIDE A UNIFORMLY STABLE AND COMPACTED BOTTOM, AND (2) A MINIMUM OF 4-INCH LEAN CONCRETE MUD SLAB SHALL THEN BE PLACED IMMEDIATELY TO PREVENT THE DISTURBANCE OF THE SUPPORTING SOIL CAUSED BY CONSTRUCTION.
3. GROUNDWATER CONTROL MAY BE REQUIRED FOR INSTALLATION OF THE LIFT STATION. CONTRACTOR SHALL PROVIDE POSITIVE METHODS OF GROUNDWATER MANAGEMENT PRIOR TO STARTING EXCAVATION OPERATIONS. IF REQUIRED, GROUNDWATER SHALL BE LOWERED AT LEAST 3 FEET BELOW THE BOTTOM OF THE EXCAVATION TO PROVIDE A FIRM WORKING SURFACE. IF REQUIRED, DEWATERING SHALL CONTINUE UNTIL THE UTILITY INSTALLATION HAS BEEN COMPLETED AND THAT THE DEWATERING SYSTEM BE TURNED OFF IN STAGES TO ALLOW GROUNDWATER TO RECOVER TO ITS ORIGINAL LEVEL GRADUALLY, OVER A PERIOD OF ABOUT 3 TO 5 DAYS.
4. BENEATH THE VAULT FLOOR OR PIPE SLAB FOUNDATION, CEMENT STABILIZED SAND, HAVING A MINIMUM UNCONFINED COMPRESSIVE STRENGTH OF 100 PSI IN 48-HOURS, SHALL BE USED TO A MINIMUM DEPTH OF 6 INCHES. ALSO, USE CEMENT STABILIZED SAND BACKFILL BENEATH AND OUTSIDE THE INFLUENT LINES FROM LIMITS OF LIFT STATION EXCAVATION. ANY OVER EXCAVATION BEYOND THE 6-INCH DEPTH FOR FOUNDATION SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND.
5. IF OPEN CUT CONSTRUCTION IS USED, BACKFILL BEHIND WALLS SHALL CONSIST OF A SANDY CLAY SOIL WITH A PLASTICITY INDEX BETWEEN 7 AND 15, AND COMPACTED IN 8-INCH LIFTS TO 95% ASTM D698 WITHIN -2% TO +2% OF OPTIMUM MOISTURE. BACK FILL PLACED WITHIN 5 FEET OF THE WALLS SHALL BE HAND COMPACTED.
6. IF CAISSON CONSTRUCTION IS USED, THE AREA AROUND THE ENTIRE STRUCTURE SHALL BE WELL GRADED TO DRAIN AWAY FROM THE STRUCTURE WITHOUT DRAINING TO ADJACENT PROPERTIES.

CONCRETE NOTES:

1. ALL REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60. ARRANGEMENT AND DETAILS OF REINFORCING STEEL, INCLUDING BAR SUPPORTS AND SPACERS, SHALL BE IN ACCORDANCE WITH THE LATEST ACI DETAILING MANUAL, UNLESS OTHERWISE NOTED.
2. ALL SLAB AND BEAM REINFORCEMENT SHALL HAVE A MINIMUM EXTENSION INTO THE SUPPORT IN ACCORDANCE WITH THE LATEST ACI CODE. IF SUCH EXTENSION IS NOT POSSIBLE, BARS SHALL TERMINATE IN STANDARD HOOKS.
3. HORIZONTAL WALL REINFORCEMENT AND TEMPERATURE REINFORCEMENT SHALL LAP A MINIMUM OF 1.7Ld AT SPLICES. WALL DOWELS AND WALL BAR EXTENSIONS AND ALL STRESS SPLICES SHALL LAP A MINIMUM OF 1.7 Ld, UNLESS OTHERWISE NOTED.
4. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION PLANS, ALL CAST-IN-PLACE STRUCTURAL CONCRETE SHALL BE CLASS A CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI @ 28 DAYS.
5. UNLESS OTHERWISE SHOWN, CONCRETE COVER FOR REINFORCEMENT PER SPECIFICATIONS SECTION ENTITLED, "CONCRETE REINFORCEMENT".
6. HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS SHOWN OR NOTED ON THE PLANS ARE RECOMMENDED. ANY DEVIATION FROM THOSE SHOWN SHALL HAVE APPROVAL OF THE ENGINEER.
7. ANY STOP IN FRAMED CONCRETE WORK MUST BE MADE IN THE CENTER OF THE SPAN AND INCORPORATE AN APPROVED KEYWAY. REINFORCEMENT SHALL EXTEND THROUGH THESE JOINTS IF REQUIRED FOR CONTINUITY.
8. ALL EXPOSED EDGES OF BEAMS, COLUMNS, SLABS AND WALLS SHALL BE CHAMFERED ¾" UNLESS MASONRY OR OTHER MEMBERS ARE ERECTED FLUSH WITH THEM.
9. REFER TO PROCESS, MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL SLEEVES, PIPES, CONDUITS AND MISCELLANEOUS ANCHORING DEVICES TO BE INCORPORATED IN THE CONSTRUCTION.

MISCELLANEOUS NOTES:

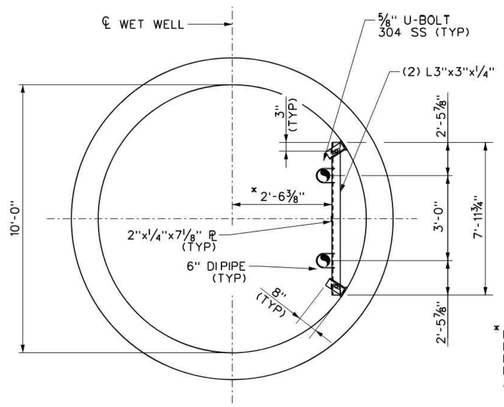
1. EPOXY GROUT SHALL BE POR-ROK EPOXY GROUT, OR APPROVED EQUAL.
2. PROVIDE CONTINUOUS WATER STOPS IN ALL CONSTRUCTION JOINTS. WATERSTOPS SHALL BE THERMOPLASTIC VULCANIZATE WATERSTOPS BY EARTH SHIELD OR APPROVED EQUAL.
3. CONTRACTOR SHALL LOCATE PIPE OPENINGS THROUGH STRUCTURE ACCOUNTING FOR PIPE SIZE, FLANGES AND BENDS.
4. ALL DIMENSIONS AND LOCATIONS SHALL BE VERIFIED FROM CERTIFIED VENDOR DRAWINGS, PRIOR TO CONSTRUCTION.
5. DOWEL BARS WILL REQUIRE DOWEL SPLICERS OR, AFTER CASTING, DRILL & EPOXY w/12" MIN. EMBEDMENT. (USE HILTI HIT-RE 500 V3).

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS". ALL STRUCTURAL STEEL SHALL BE ASTM A36, ALL STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED, UNLESS OTHERWISE NOTED.
2. ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4-INCH DIAMETER ASTM A-325 S.S. BOLTS EXCEPT AS OTHERWISE SHOWN OR NOTED.
3. FIELD CONNECTIONS SHALL BE BOLTED, EXCEPT AS OTHERWISE SHOWN OR NOTED.
4. ALL WELDING SHALL CONFORM TO THE LATEST SPECIFICATION OF THE AMERICAN WELDING SOCIETY. ALL WELDED CONNECTIONS SHALL BE MADE WITH AWS A5.1 OR A5.5 E70 18 ELECTRODE.
5. ALL ANCHOR BOLTS & MISC. EMBEDDED STEEL SHALL BE STAINLESS STEEL SS316.

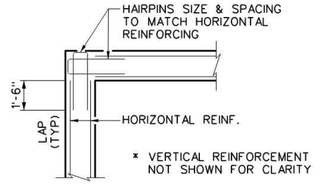
PIPE SUPPORT NOTES:

1. CONCRETE ANCHOR BOLTS SHALL HAVE 6" MINIMUM EMBEDMENT AND SHALL BE TYPE 316 STAINLESS STEEL, PER SPECIFICATIONS.
2. SEE SHEET S1 FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. SET ¼" NEOPRENE GASKET ON WALL SURFACE IN SIKA 1A (OR EQUAL) SEALANT.



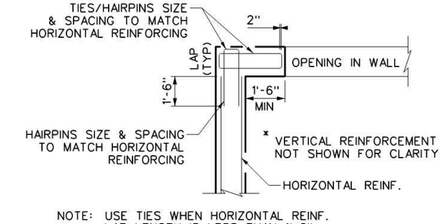
x DIMENSION TO BE VERIFIED WITH PUMP MANUFACTURER IF DIMENSION DIFFERS, ALL PIPE SUPPORT DIMENSIONS SHALL BE ADJUSTED ACCORDINGLY.

1. DISCHARGE PIPING SUPPORT PLAN
N.T.S.



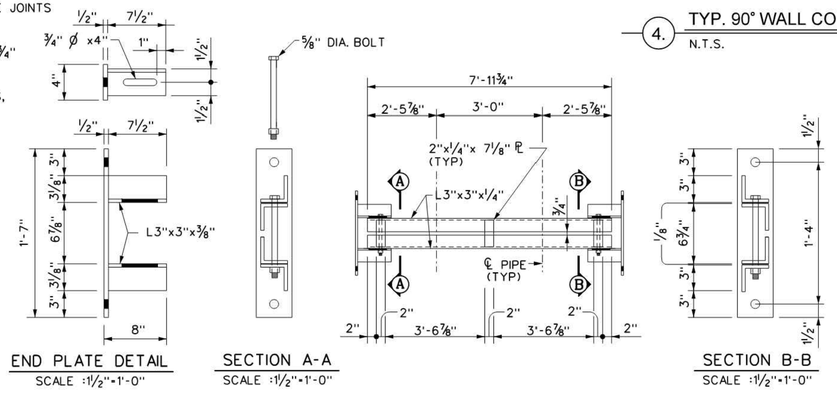
NOTE: USE TIES WHEN HORIZONTAL REINF. LAP LENGTH IS LESS THAN 1'-6".

4. TYP. 90° WALL CORNER DETAILS
N.T.S.



NOTE: USE TIES WHEN HORIZONTAL REINF. LAP LENGTH IS LESS THAN 1'-6".

5. TYP. 90° WALL CORNER DETAILS AT OPENING
N.T.S.

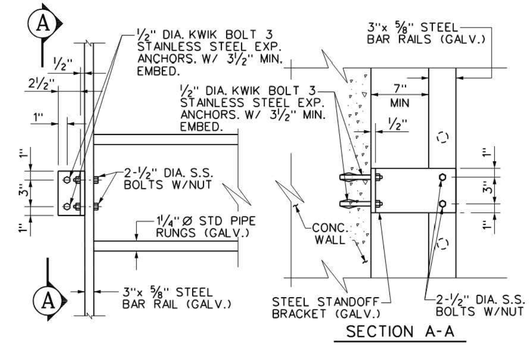


END PLATE DETAIL
SCALE :1½"=1'-0"

SECTION A-A
SCALE :1½"=1'-0"

SECTION B-B
SCALE :1½"=1'-0"

3. DISCHARGE PIPING SUPPORT ELEVATION
N.T.S.



SECTION A-A

6. ACCESS LADDER ATTACHMENT TO WALL
N.T.S.

PAPE-DAWSON ENGINEERS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

NO. REVISION | DATE

STATE OF TEXAS — JOHN C. KIME, JR — 93010 — LICENSED — PROFESSIONAL ENGINEER — 09/27/2024

CLARA VISTA
LIFT STATION & FORCE MAIN
STRUCTURAL NOTES AND DISCHARGE PIPING DETAILS

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER JCK
CHECKED - DRAWN LNV
SHEET 37 OF 48

LS S2

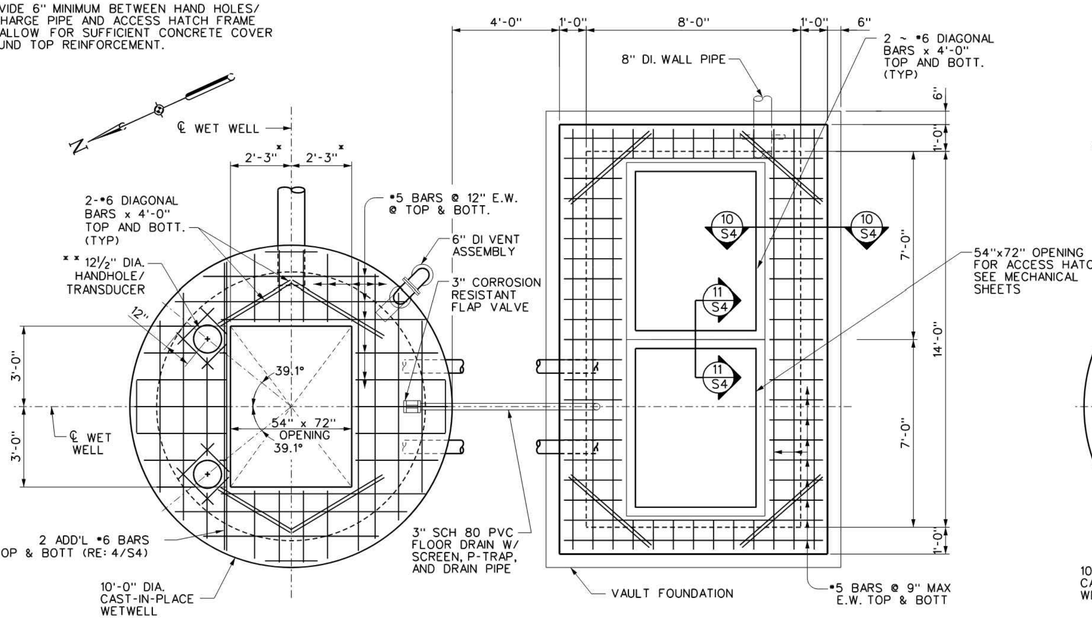
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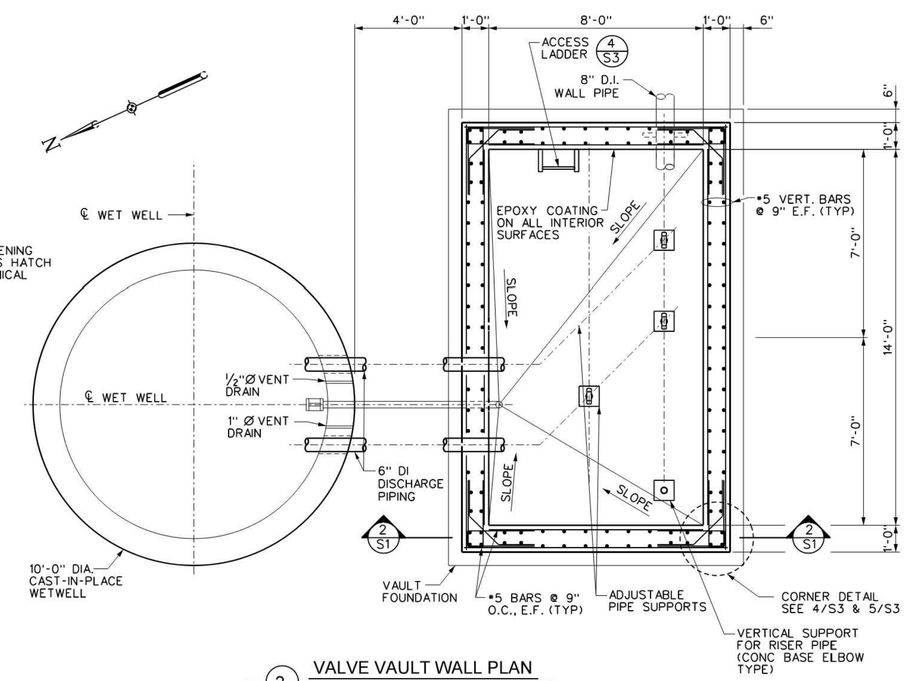
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x VERIFY DIMENSIONS WITH PUMP MANUFACTURER/ ACCESS HATCH SUPPLIER.

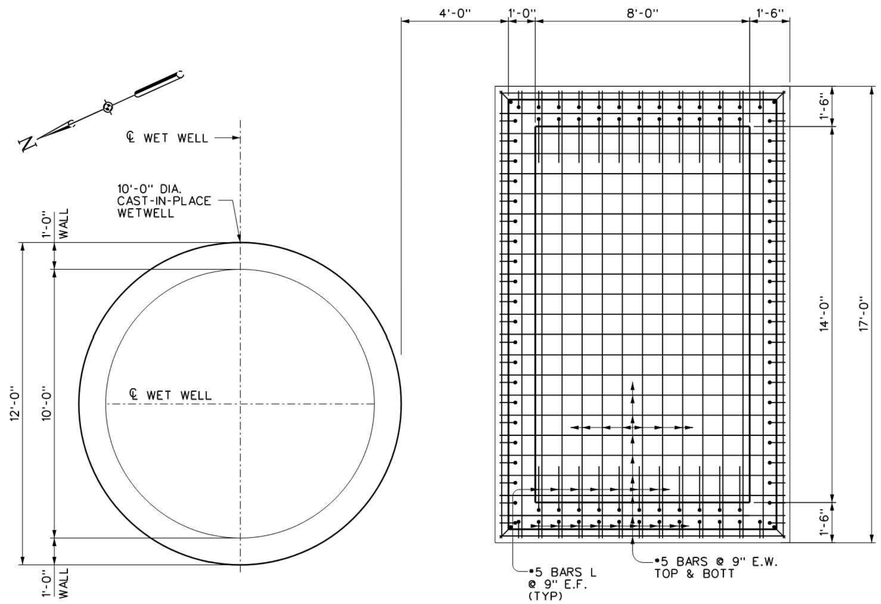
x PROVIDE 6" MINIMUM BETWEEN HAND HOLES/ DISCHARGE PIPE AND ACCESS HATCH FRAME TO ALLOW FOR SUFFICIENT CONCRETE COVER AROUND TOP REINFORCEMENT.



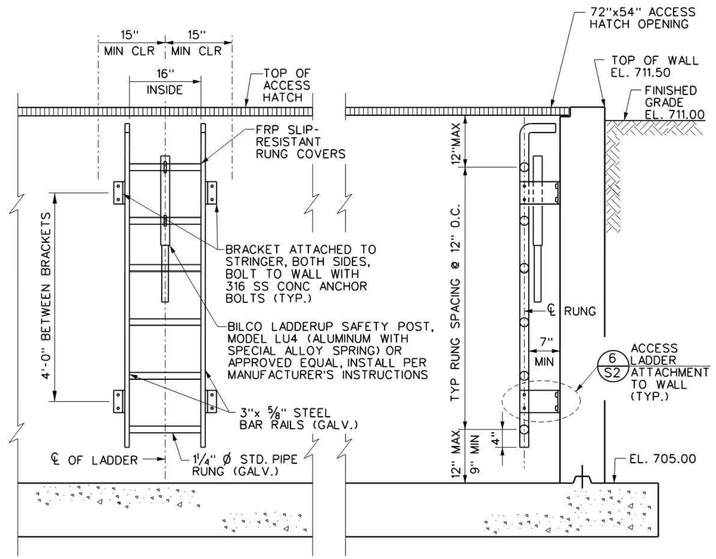
1. PLAN VIEW - TOP SLAB
SCALE: ⅜" = 1'-0"



2. VALVE VAULT WALL PLAN
SCALE: ⅜" = 1'-0"



3. PLAN VIEW - VAULT FLOOR
SCALE: ⅜" = 1'-0"



4. ENTRY ACCESS LADDER
N.T.S.

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NO.	REVISION	DATE

STATE OF TEXAS
JOHN C. KIME, JR
93010
LICENSED
PROFESSIONAL ENGINEER
Texas Registered Engineer
Pape-Dawson Engineers, Inc.
Date: 2024.09.27
16:57:11 -05'00'

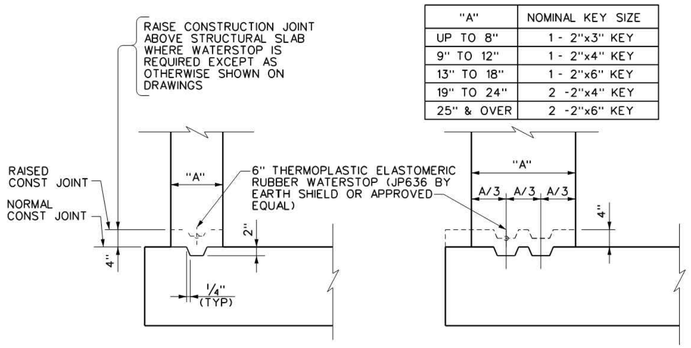
PAPE-DAWSON ENGINEERS
10350 RICHMOND AVE, STE 200 | HOUSTON, TX 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM # 10193974

CLARA VISTA
LIFT STATION & FORCE MAIN
STRUCTURAL VALVE VAULT PLAN AND DETAILS

PLAT NO.	CP-22-0144
JOB NO.	51456-10
DATE	SEPTEMBER 2024
DESIGNER	JCK
CHECKED	– DRAWN LNV
SHEET	38 OF 48

LS S3

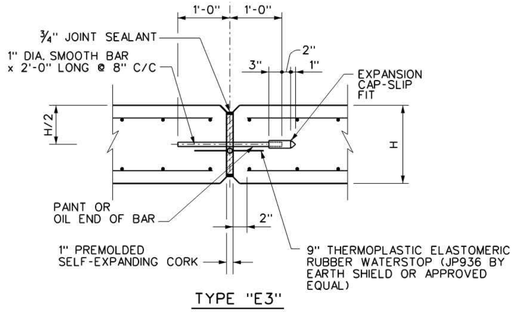
CP-22-0144



"A"	NOMINAL KEY SIZE
UP TO 8"	1 - 2"x3" KEY
9" TO 12"	1 - 2"x4" KEY
13" TO 18"	1 - 2"x6" KEY
19" TO 24"	2 -2"x4" KEY
25" & OVER	2 -2"x6" KEY

NUMBER AND SIZE OF KEYS SHOWN APPLY TO JOINTS IN SLABS AND TO BOTH VERTICAL AND HORIZONTAL JOINTS IN WALLS EXCEPT AS OTHERWISE NOTED ON DRAWINGS.

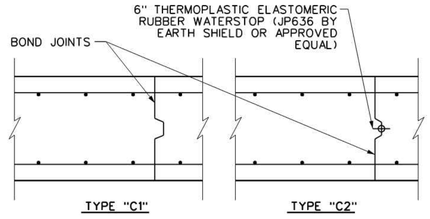
1. CONSTRUCTION JOINT KEY DETAILS
N.T.S.



TYPE "E3"

CHAMFER EXPANSION JOINTS IN WALLS AND CEILINGS FOR FLOOR JOINTS USE EDGER INSTEAD OF CHAMFERING

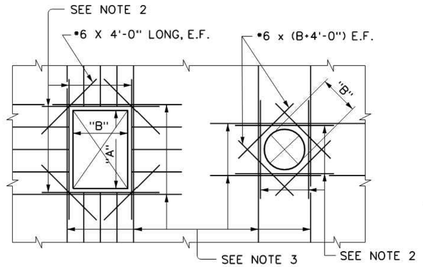
2. EXPANSION JOINT DETAILS
N.T.S.



IN JOINTS WITH MORE THAN ONE KEY, PLACE WATERSTOP IN KEY NEAREST TO SURFACE AGAINST EARTH OR WATER.

REINFORCING STEEL IS CONTINUOUS THROUGH CONSTRUCTION JOINT.

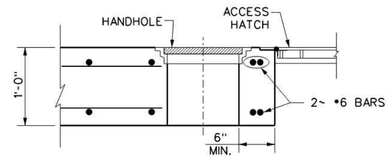
3. CONSTRUCTION JOINTS
N.T.S.



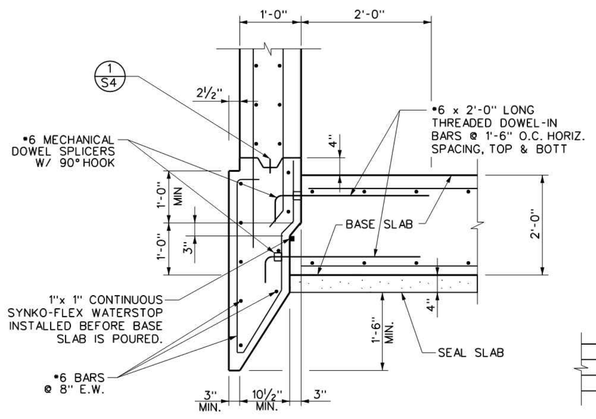
NOTES FOR DETAIL 7:

1. DETAILS SHOWN ON THIS DRAWING ARE TYPICAL DETAILS AND SHALL BE USED WHOLLY OR IN PART WHERE THEY APPLY EXCEPT WHERE MODIFIED BY DETAILED DRAWINGS & SPECIFICATIONS.
2. PROVIDE 2-#6 X (B+4'-0") ADDITIONAL REBARS @ TOP AND BOTTOM AND 2-#6 X (A+4'-0") ADDITIONAL REBARS AT EACH SIDE OF OPENING IN WALLS ONLY.
3. PROVIDE ADDL BARS EQUAL TO ONE-HALF OF BARS INTERRUPTED AT EACH SIDE OF OPENING AT 3" C/C. THESE BARS SHALL BE ORIGINAL SIZES AND LENGTHS AS THOSE OF THE INTERRUPTED BARS. (TYPICAL FOR OPENINGS IN SLABS AND PRESSURE WALLS.)

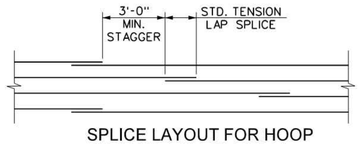
7. ADDITIONAL REINFORCING STEEL AT OPENINGS IN WALLS AND SLABS
N.T.S.



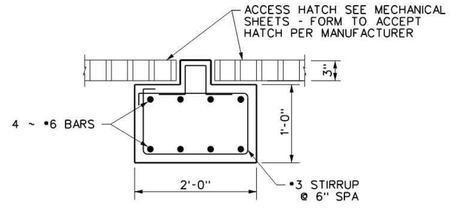
4. HANDHOLE/HATCH FRAME SECTION
N.T.S.



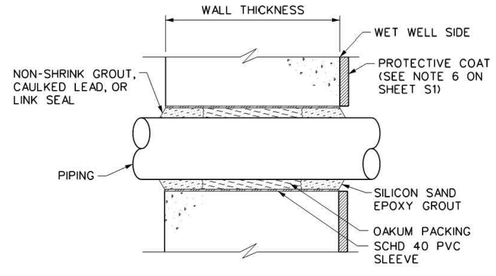
5. CAISSON METHOD TYP BASE DETAIL
N.T.S.



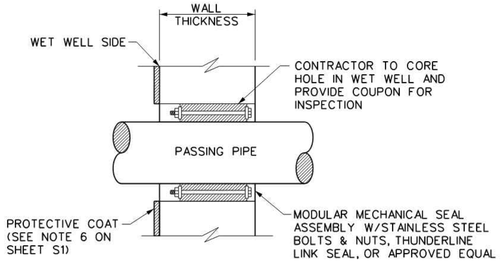
6. SPLICE LAYOUT FOR HOOP BARS (WET WELL WALL)
N.T.S.



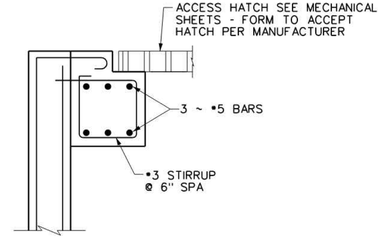
11. TYP. ACCESS HATCH SUPPORT AT CENTER OPENING
N.T.S.



8. SLEEVED WET WELL PENETRATION FOR PIPING 4" DIA. & SMALLER
N.T.S.



9. PENETRATION SEAL DETAIL FOR PIPING 6" DIA. & LARGER
N.T.S.



10. ACCESS HATCH SUPPORT FRAMING END CONNECTION DETAILS
N.T.S.

NO. REVISION | DATE

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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM # 10193974

CLARA VISTA
LIFT STATION & FORCE MAIN
MISCELLANEOUS
STRUCTURAL DETAILS

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER JCK
CHECKED - DRAWN LNV
SHEET 39 OF 48

LS S4

9/27/2024 11:33:58 AM
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THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

CP-22-0144

ELECTRICAL PLAN LEGEND

SYMBOL	DESCRIPTION
———	ABOVE GROUND CONDUIT
- - - - -	UNDERGROUND CONDUIT
—GND—	GROUND CONDUCTOR
	GROUND WELL
	FLOODLIGHT
$	20A, LIGHT SWITCH IN WEATHER–PROOF FS BOX
PE	PHOTO ELECTRIC SWITCH
PS	PRESSURE SWITCH
FIT	FLOW INDICATING TRANSMITTER
TIT	TEMPERATURE INDICATING TRANSMITTER
WP GFCI	20A, 125V, GFI RECEPTACLE IN METAL–CLAD WEATHER PROOF WHILE–IN–USE COVER
J	JUNCTION BOX
R	ALARM BEACON
	WEATHERHEAD

ONE–LINE DIAGRAM LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
100AF 2P 50AT	MOLDED CASE CIRCUIT BREAKER		OILER HEATER WITH THERMOSTAT
	STARTER (SIZE NOTED)	MTS	MOTOR WINDING THERMOSTAT
HP	THREE–PHASE MOTOR (HORSEPOWER NOTED)		POWER FACTOR CORRECTION CAPACITOR
	ELECTRICAL GROUND	M	POWER QUALITY MONITOR
PFR	PHASE FAILURE RELAY	N/G	NEUTRAL/GROUND BOND
PS	PRESSURE SWITCH	ETM	ELAPSED TIME METER
OS	OILER SOLENOID	G	INDICATING LIGHT (COLOR AS SHOWN: G=GREEN, R=RED, A=AMBER, B=BLUE, W=WHITE
TIT	TEMPERATURE INDICATING TRANSMITTER	H O A	HAND–OFF–AUTO SWITCH
LS	LOCAL LOCK STOP		
TS	TEMPERATURE SWITCH	O A	OFF–AUTO SWITCH
VS	VIBRATION SWITCH		
	FLOW METER	TD	TIME DELAY RELAY
SPD	SURGE PROTECTIVE DEVICE	▲	ITEM LOCATED ON CONTROL PANEL SWING–OUT PANEL
	MOTOR SPACE HEATER		
A	SPECIAL DEVICE (SEE SCHEDULE THIS SHEET)		
SSOL	SOLID STATE OVERLOAD		

CONTROL DIAGRAM LEGEND

SYMBOL	DESCRIPTION
100AF 2P 50AT	MOLDED CASE CIRCUIT BREAKER
	SELECTOR SWITCH
	PUSH BUTTON
CR/TD	CONTROL/ TIME–DELAY RELAY – PLUG IN
CR CR	RELAY CONTACT (NORMALLY OPEN – NORMALLY CLOSED)
TD	TIME–DELAY RELAY CONTACT
M	MOTOR STARTER COIL
OL	MOTOR OVERLOAD
ETM	ELAPSED TIME METER
G	INDICATING LIGHT – LED TYPE – PUSH–TO–TEST (COLOR AS SHOWN: G=GREEN, R=RED, A=AMBER, B=BLUE, W=WHITE
	MOTOR SPACE HEATER
TS	TEMPERATURE SWITCH
FS F	FLOAT SWITCH
A	SPECIAL DEVICE (SEE SCHEDULE THIS SHEET)
▲	ITEM LOCATED ON CONTROL PANEL SWING–OUT PANEL

ABBREVIATIONS

#PDT – # POLE, DOUBLE THROW; WHERE #
IS # OF POLES (S=SINGLE, D=DOUBLE)
A – AMPS OR AMPERES
ASP – AUTOSENSORY PANEL
BC – BARE COPPER
C – CONDUIT
CC – COPPER CLAD
CGB – CABLE GLAND BUSHING
CLR – CLEARANCE
CR – CONTROL RELAY
DTL – DETAIL
ETM – ELAPSED TIME METER
EW – EACH WAY
FG – FINISHED GRADE
FIN – FINISHED (AS IN FINISHED GRADE)
G; GND – GROUND
GSE – GROUNDING ELECTRODE SYSTEM
HDG – HOT DIPPED GALVANIZED
HTR – HEATER
M – MOTOR
MIN – MINIMUM
MLO – MAIN LUGS ONLY
MSH – MOTOR SPACE HEATER
NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N; NEU – NEUTRAL
NG – NEUTRAL/GROUND BOND
NTS – NOT TO SCALE
OC – OFF CENTER
OL – OVERLOAD
P – POLES
PFCC – POWER FACTOR CORRECTION CAPACITOR
PROP – PROPOSED
PVC – POLYVINYL CHLORIDE
RGS – RIGID GALVANIZED STEEL
SCH – SCHEDULE
SHT – SHEET
SPD – SURGE PROTECTIVE DEVICE
S.S.; STN STL – STAINLESS STEEL
TD – TIME DELAY RELAY
TYP – TYPICAL
V – VOLT/VOLTAGE
W/ – WITH
WIU – WHILE IN USE
WP – WEATHERPROOF OR WEATHER PROTECTED
GFCI – GROUND FAULT CIRCUIT INTERRUPTER

PROP PANEL LV

AMPS: 40A PRIMARY MCB/80A SECONDARY MCB
VOLTAGE: 240/120A
LOCATION: LIFT STATION
FED FROM: 15KVA XFMR
PHASE: 1
WIRE: 3
MOUNTING: SURFACE
MINIMUM AIC RATING: 10KAIC
BUSSING: COPPER
NEMA: 4XSS 316 STAINLESS STEEL

CKT	SERVICE DESCRIPTION	WIRE	BRKR	POLES	KVA	A	B	KVA	POLES	BRKR	WIRE	SERVICE DESCRIPTION	CKT
1	LIGHTS	12	20	1	0.5	0.7		0.2	1	20	12	POLE LIGHT	2
3	BLOCK HEATER	12	20	1	1.5		2.0	0.5	1	20	12	RTU	4
5	RECEPTACLE	12	20	1	0.5	1.0		0.5	1	20	12	AUTODIALER	6
7	BATTERY CHARGER	12	20	1	1.0		0.0	0.5	2	30	10	SPD	8
9	JIB CRANE	10	30	2	1.0	1.0		0.0				SPD	10
11	JIB CRANE				1.0		1.0	0.0	1	20	12	POWER QUALITY METER	12
13	TEMP PUMP	12	20	1	1.0	1.5		0.5	2	20	12	ODOR CONTROL	14
15	SPARE		20	1	0.0		2.0	0.5				ODOR CONTROL	16
17	SPARE		20	1	0.0	0.0		0.5	1	20		SPARE	18
19	SPARE		20	1	0.0		3.0	0.0	1	20		SPARE	20
21	SPARE		20	1	0.0	0.0		0.0	1	20		SPARE	22
23	SPARE		20	1	0.0		4.0	0.0	1	20		SPARE	24
					PHASE LOAD IN KVA:	4.2	12.0						
					PHASE LOAD IN AMPS:	35	100						

NOTE: SQUARE D MINI POWER-ZONE 15KVA/480V-120/240V

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL COMPLY WITH LOCAL AND NATIONAL CODES AND REQUIREMENTS.
2. CONDUITS SHALL NOT BE ROUTED ACROSS WALKWAYS, PATHS OF ACCESS, TRAVEL, OR EGRESS. ROUTE BENEATH GRATINGS, IN CONCRETE STRUCTURES, OR AROUND EQUIPMENT. DO NOT ROUTE IN CONFLICT WITH OTHER PIPING, CONDUITS, EQUIPMENT, OR STRUCTURES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS ASSOCIATED WITH THE WORK. THE COSTS OR THE PERMITS, IF ANY, SHALL BE BORNE BY THE CONTRACTOR.
4. ALL POWER AND INSTRUMENTATION CONDUCTORS SHALL BE INSTALLED IN SEPARATE CONDUITS.
5. ALL EXTERIOR ABOVE GRADE CONDUIT SHALL BE PVC–COATED RIGID GALVANIZED STEEL CONDUIT. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.

BAIRD GILROY & DIXON ELECTRICAL ENGINEERS
9711 S. Mason Rd.
Ste. 125 #326
Richmond, TX 77407
(281) 265-2095
www.bgdeng.com
TBPE No. F-16575
TBPLS No. 10194051

NO.	REVISION	DATE

STATE OF TEXAS
GREGORY S. BAIRD
100260
LICENSED PROFESSIONAL ENGINEER
9/30/24

PAPE-DAWSON ENGINEERS
10350 RICHMOND AVE., STE 200 | HOUSTON, TX 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

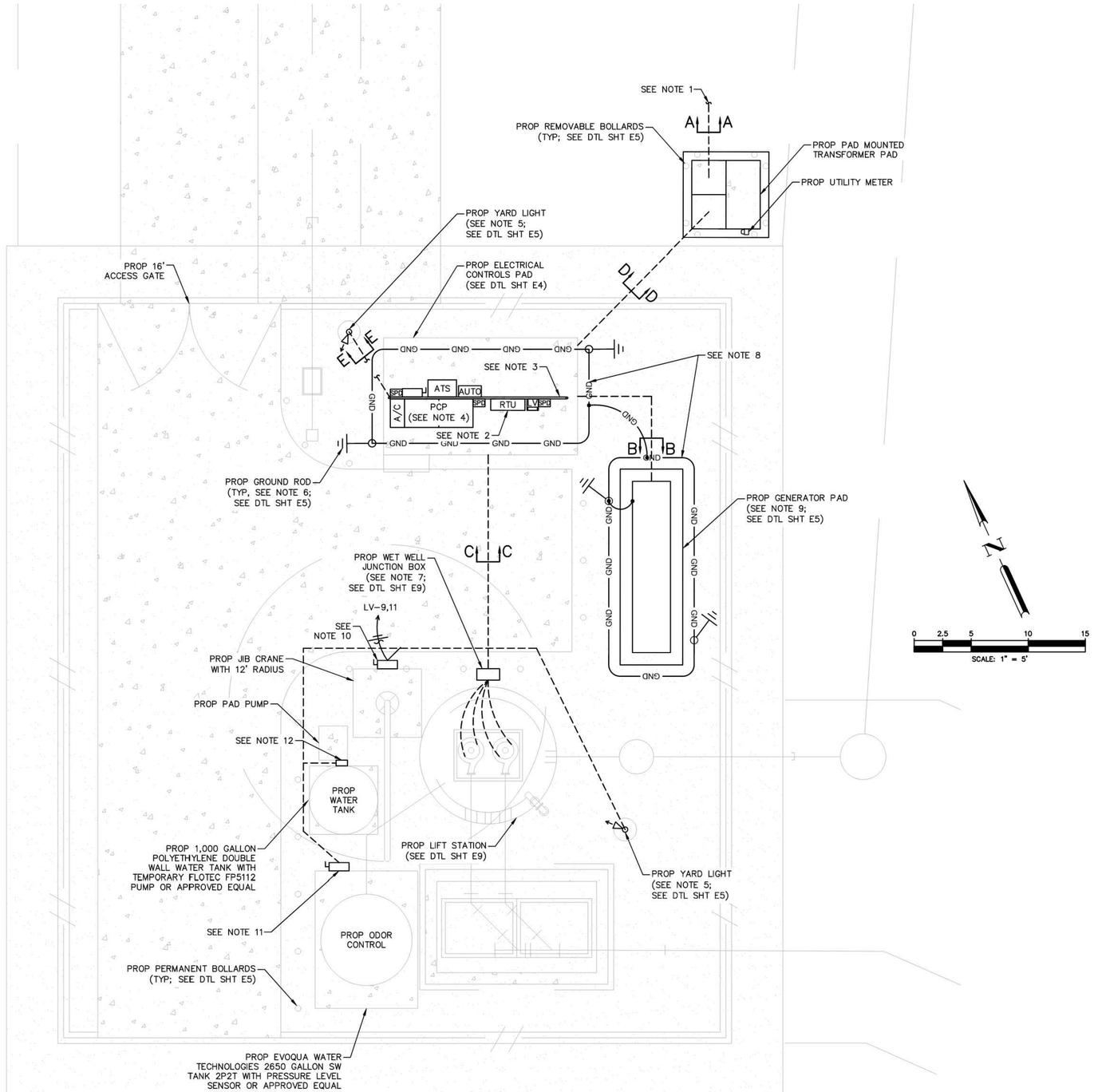
CLARA VISTA
LIFT STATION & FORCE MAIN
ELECTRICAL LEGENDS, SCHEDULES, AND NOTES

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER LAF
CHECKED GSB DRAWN LAF
SHEET 40 OF 48

LS E1

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CP-22-0144



NOTES:

1. INSTALL NEW 400A, 277/480V, 3 PHASE 4 WIRE ELECTRIC SERVICE. CONTRACTOR TO COORDINATE WITH PEC. ELECTRICAL CONTRACTOR SHALL STUBOUT PRIMARY CONDUITS 10' FROM TRANSFORMER PAD.
2. RTU CABINET TO BE PROVIDED BY PRIME CONTROLS [CHAD KUNKEL–(214–475–4029)] OR TMT SOLUTIONS [TERRANCE SULLIVAN–512–392–9211].
3. PROVIDE AND INSTALL EQUIPMENT RACK. REFER TO SHEET E4.
4. PROVIDE AND INSTALL PUMP CONTROL PANEL. REFER TO SHEET E6 AND E4.
5. PROVIDE AND INSTALL LIGHT POLE. LIGHT FIXTURE SHALL BE CONTROLLED BY PHOTOCELL WITH BYPASS LIGHT SWITCH LOCATED ON SHELTER.
6. PROVIDE AND INSTALL GROUND RODS. REFER TO SHEET E5.
7. PROVIDE AND INSTALL WET WELL JUNCTION BOX. REFER TO SHEET E9.
8. PROVIDE AND INSTALL #3/0 BARE COPPER GROUNDING RING. BOND, EQUIPMENT RACKS AND GENERATOR SKID TO GROUNDING ELECTRODE SYSTEM VIA EXOTHERMIC WELD.
9. CONCRETE PAD FOR GENERATOR. ACTUAL SIZE MAY VARY PENDING SELECTION OF MANUFACTURE. CONTRACTOR TO SIZE ACCORDINGLY. REFER TO CIVIL PLANS. VERIFY AND COORDINATE EXACT LOCATION WITH CIVIL ENGINEER PRIOR TO INSTALLATION. REFER TO SHEET E5.
10. PROVIDE AND INSTALL 30A/2P/NF/N4XSS/600V DISCONNECT SWITCH FOR JIB CRANE.
11. PROVIDE AND INSTALL 30A/2P/NF/N4XSS/600V DISCONNECT SWITCH FOR ODOR CONTROL, TYPE SQUARE D OR EQUAL.
12. PROVIDE AND INSTALL 30A/2P/20AF/SZ0/N4XSS/250V COMBINATION STARTER TYPE SQUARE D OR EQUAL FOR TEMPORARY PUMP.

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Job No. 128-0051

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STATE OF TEXAS
GREGORY S. BAIRD
100260
LICENSED
PROFESSIONAL ENGINEER
9/30/24

PAPE-DAWSON ENGINEERS
10350 RICHMOND AVE. STE 200 | HOUSTON, TX 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

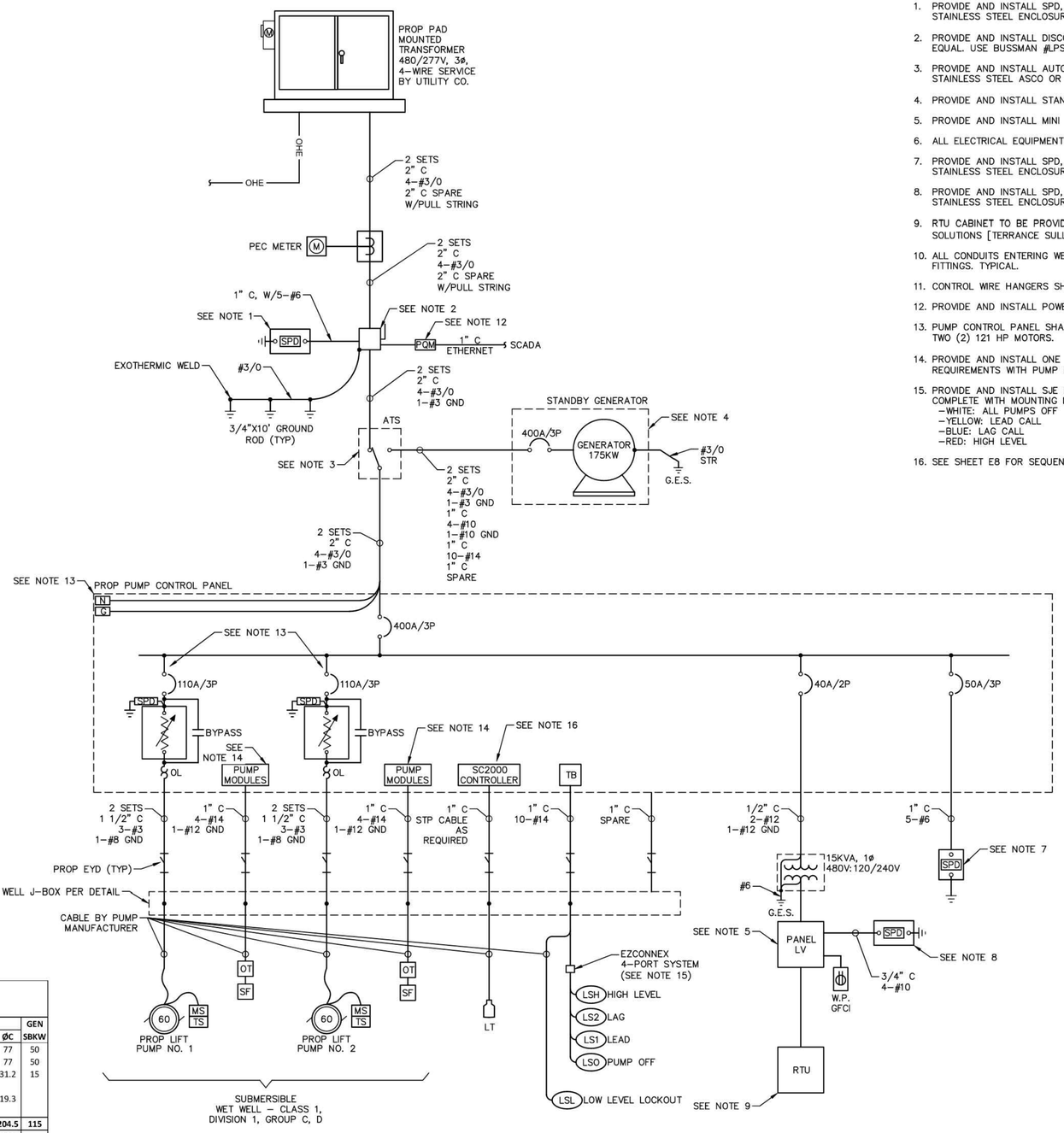
CLARA VISTA
LIFT STATION & FORCE MAIN
ELECTRICAL SITE LAYOUT

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER LAF
CHECKED GSB DRAWN LAF
SHEET 41 OF 48

LS E2

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CP-22-0144



NOTES:

1. PROVIDE AND INSTALL SPD, EATON SPD-200-480Y-3-P OR EQUAL IN NEMA 4XSS 316 STAINLESS STEEL ENCLOSURE. CONNECT TO LOAD SIDE.
2. PROVIDE AND INSTALL DISCONNECT SWITCH, 400A/3P/400AF/N4XSS/600V/SN/SE SQUARE D OR EQUAL. USE BUSSMAN #LPS-RK-400 OR EQUAL.
3. PROVIDE AND INSTALL AUTOMATIC TRANSFER SWITCH, 600 AMP, 4 POLE, NEMA 4XSS 316 STAINLESS STEEL ASCO OR EQUAL.
4. PROVIDE AND INSTALL STANDBY DIESEL GENERATOR 275 KW, 277/480V, 3 PHASE, 4 WIRE.
5. PROVIDE AND INSTALL MINI POWER ZONE, SQUARE D OR EQUAL.
6. ALL ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE NEMA 4XSS 316 STAINLESS STEEL.
7. PROVIDE AND INSTALL SPD, EATON SPD-100-480Y-3-P OR EQUAL IN NEMA 4XSS 316 STAINLESS STEEL ENCLOSURE. CONNECT TO LOAD SIDE.
8. PROVIDE AND INSTALL SPD, EATON SPD-050-240S-3-P OR EQUAL IN NEMA 4XSS 316 STAINLESS STEEL ENCLOSURE. CONNECT TO LOAD SIDE.
9. RTU CABINET TO BE PROVIDED BY PRIME CONTROLS [CHAD KUNKEL-(214-475-4029)] OR TMT SOLUTIONS [TERRANCE SULLIVAN-512-392-9211].
10. ALL CONDUITS ENTERING WET WELL JUNCTION BOX SHALL BE PROVIDED WITH SEAL-OFF FITTINGS. TYPICAL.
11. CONTROL WIRE HANGERS SHALL BE MOUNTED ON SIDE WALL, NOT NEXT TO PUMP RAILS.
12. PROVIDE AND INSTALL POWER QUALITY METER EATON 2280 OR EQUAL. REFER TO SHEET E4.
13. PUMP CONTROL PANEL SHALL BE SIZED LARGE ENOUGH FOR EXPANSION OF LIFT STATION TO TWO (2) 121 HP MOTORS.
14. PROVIDE AND INSTALL ONE (1) PUMP SAFE MODULE A AND D PER PUMP. COORDINATE EXACT REQUIREMENTS WITH PUMP MANUFACTURER AS REQUIRED. TYPICAL.
15. PROVIDE AND INSTALL SJE RHOMBUS EZCONNEX 4-PORT FLOAT QUICK CONNECT SYSTEM COMPLETE WITH MOUNTING BRACKET. COLOR CODE FLOATS AS FOLLOWS:
    - -WHITE: ALL PUMPS OFF
    - -YELLOW: LEAD CALL
    - -BLUE: LAG CALL
    - -RED: HIGH LEVEL
16. SEE SHEET E8 FOR SEQUENCE OF OPERATIONS.

ELECTRICAL LOAD ANALYSIS

LOAD NAME		AMPS ØA	AMPS ØB	AMPS ØC	GEN SBKW
LIFT PUMP NO. 1	60 HP	77	77	77	50
LIFT PUMP NO. 2	60 HP	77	77	77	50
LIGHTING & CONTROLS	15 KVA	31.2	-	31.2	15
25% LARGEST MOTOR		19.3	19.3	19.3	
TOTAL LOAD		**204.5**	**173.3**	**204.5**	**115**
RATED SERVICE AMPACITY @ 480 VOLT, 3Ø, 4-WIRE		**400**	**400**	**400**	
SPARE AMPACITY		**195.5**	**227**	**195.5**	
FAULT CURRENT				**< 42 K.A.I.C.**	

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9/30/24

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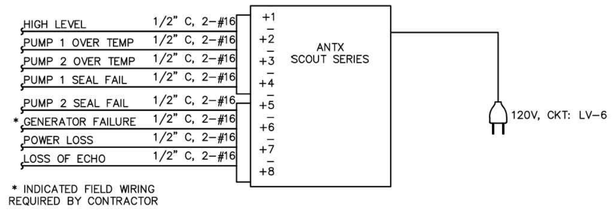
CLARA VISTA
LIFT STATION & FORCE MAIN
ELECTRICAL ONE-LINE DIAGRAM

PLAT NO. CP-22-0144
JOB NO. 51456-10
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DESIGNER LAF
CHECKED GSB DRAWN LAF
SHEET 42 OF 48

LS E3

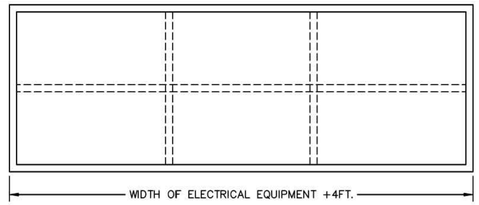
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CP-22-0144

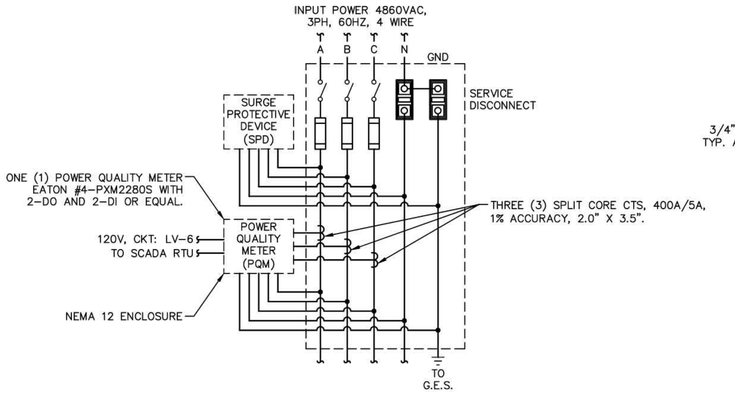


* INDICATED FIELD WIRING REQUIRED BY CONTRACTOR

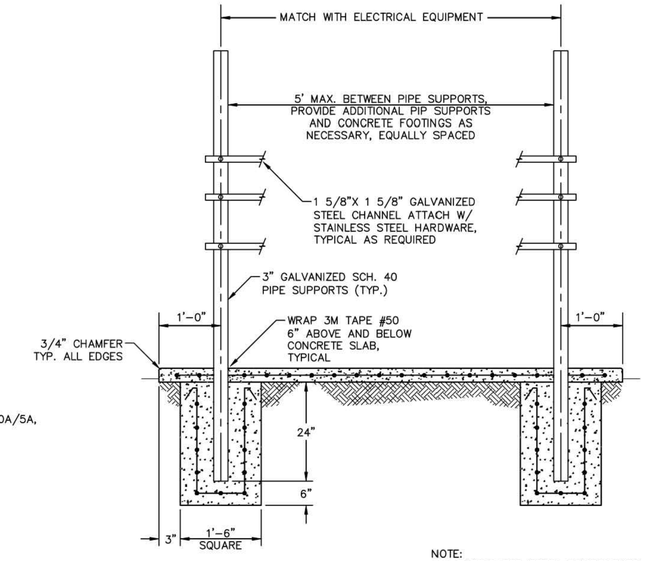
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NOT TO SCALE

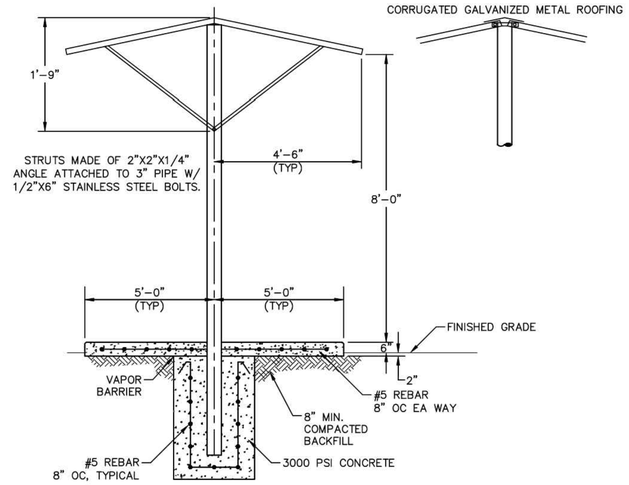


NOTE:
PROVIDE AND INSTALL WIRELESS CELLULAR AUTODIALER TYPE ANTX SCOUT SERIES COMPATIBLE WITH T-MOBILE WIRELESS NETWORK.



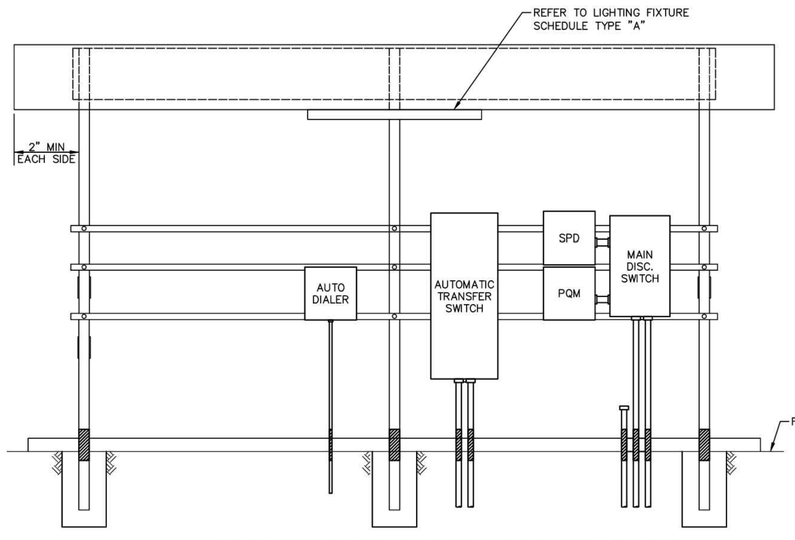
POWER QUALITY METER DETAIL
NOT TO SCALE



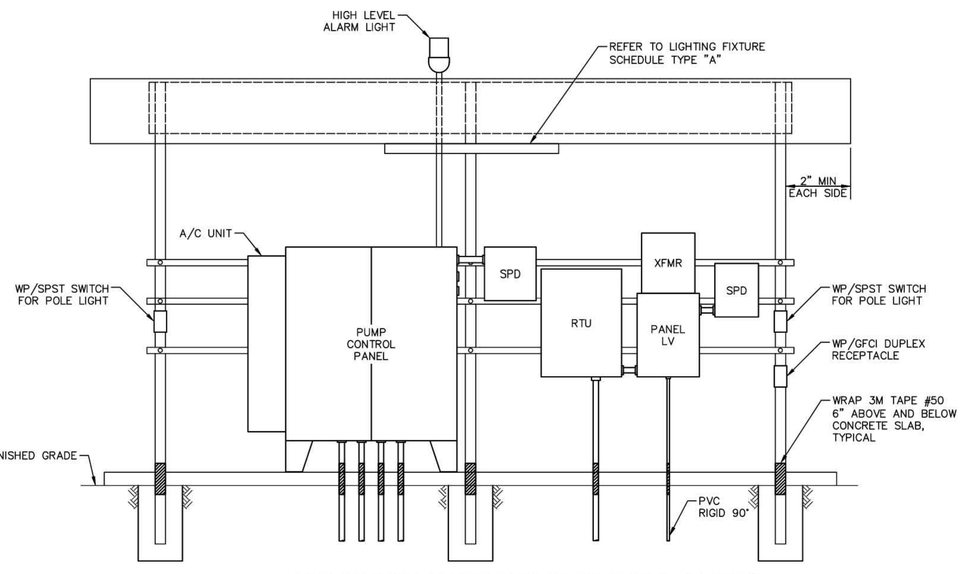


NOTE:
ALL FABRICATED STEEL COMPONENTS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION. ALL FASTENERS SHALL BE STAINLESS STEEL.

RACK SUPPORT AND ROOFING DETAIL
NOT TO SCALE



LIFT STATION EQUIPMENT RACK DETAIL (BACK)
NOT TO SCALE



LIFT STATION EQUIPMENT RACK DETAIL (FRONT)
NOT TO SCALE

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Job No. 128-0051

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100260
LICENSED PROFESSIONAL ENGINEER
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

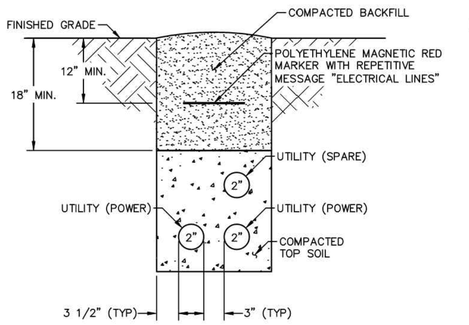
CLARA VISTA
LIFT STATION & FORCE MAIN
LIFT STATION ELECTRICAL
DETAILS 1 OF 6

PLAT NO.	CP-22-0144
JOB NO.	51456-10
DATE	SEPTEMBER 2024
DESIGNER	LAF
CHECKED	GSB
DRAWN	LAF
SHEET	43 OF 48

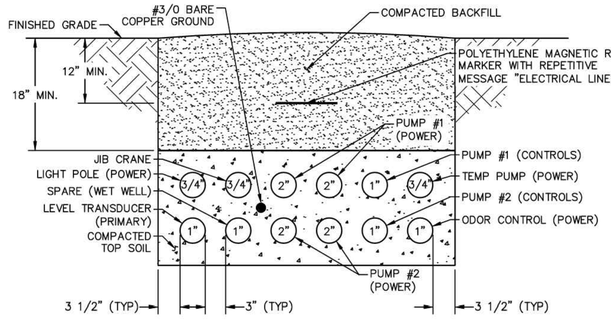
LS E4

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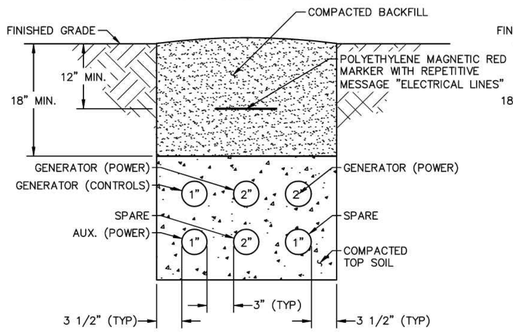
CP-22-0144



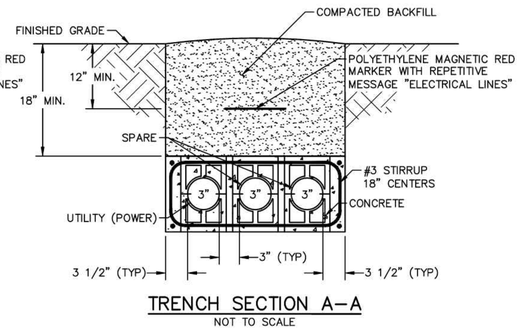
TRENCH SECTION D–D
NOT TO SCALE



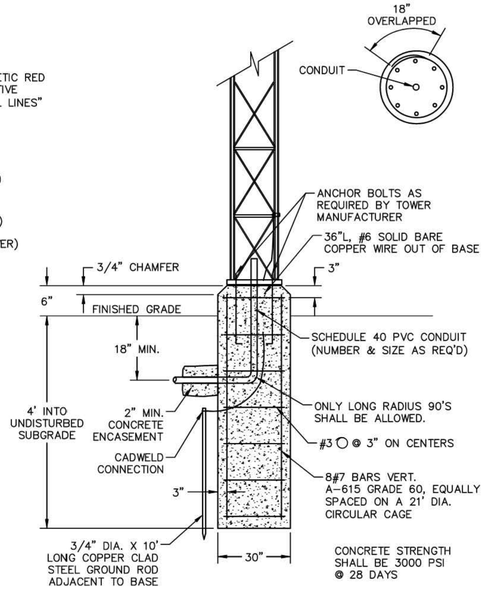
TRENCH SECTION C–C
NOT TO SCALE



TRENCH SECTION B–B
NOT TO SCALE



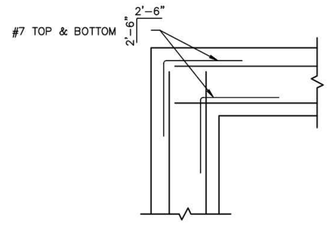
TRENCH SECTION A–A
NOT TO SCALE



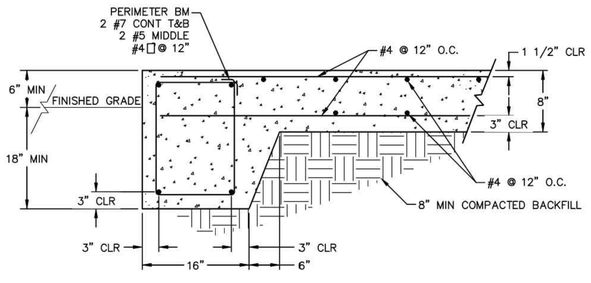
TOWER FOUNDATION DETAIL
NOT TO SCALE

CONCRETE CONSTRUCTION

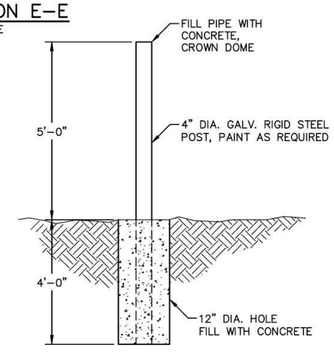
1. CONCRETE SHALL BE NORMAL WEIGHT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI. CONCRETE SHALL BE MIXED AND PLACED IN ACCORDANCE WITH ASTM C94 "STANDARD SPECIFICATION FOR READY MIXED CONCRETE" AND ACI 304 "GUIDE FOR MEASURING, MIXING AND PLACING CONCRETE."
2. REINFORCED STEEL SHALL CONFORM TO THE REQUIREMENTS OF ANSI/ASTM A615 WITH SUPPLEMENTAL REQUIREMENTS S1, GRADE 60.
3. DETAILING, FABRICATION AND INSTALLATION OF REBAR SHALL COMPLY WITH THE REQUIREMENTS OF AMERICAN CONCRETE INSTITUTE 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES."
4. PROVIDE SUPPORTS OR CHAIRS TO SUPPORT THE REBAR AT THE POSITIONS SHOWN. MAXIMUM SPACING OF SUPPORTS FOR SLAB REBAR SHALL BE 3'–0" ON CENTERS EACH WAY. MAXIMUM SPACING OF REBAR FOR EDGE BEAMS SHALL BE 6'–0" MAXIMUM ON CENTERS.



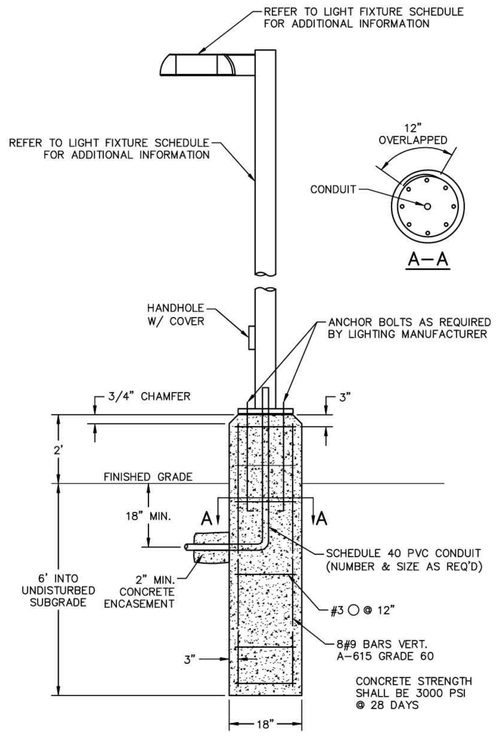
GENERATOR PAD GRADE BEAM CORNER BARS DETAIL
NOT TO SCALE



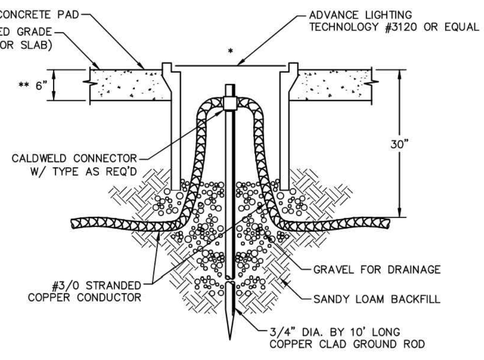
GENERATOR PAD DETAIL
NOT TO SCALE



BOLLARD DETAIL
NOT TO SCALE



POLE MOUNTED LIGHTING FIXTURE DETAIL
NOT TO SCALE



* INSTALL GROUND ROD AWAY FROM HEAVY TRAFFIC AREAS AND SIDEWALKS. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS.

** INSTALL 2'X2'X6" CONCRETE PAD

3/4" X 10' GROUND ROD DETAIL
NOT TO SCALE

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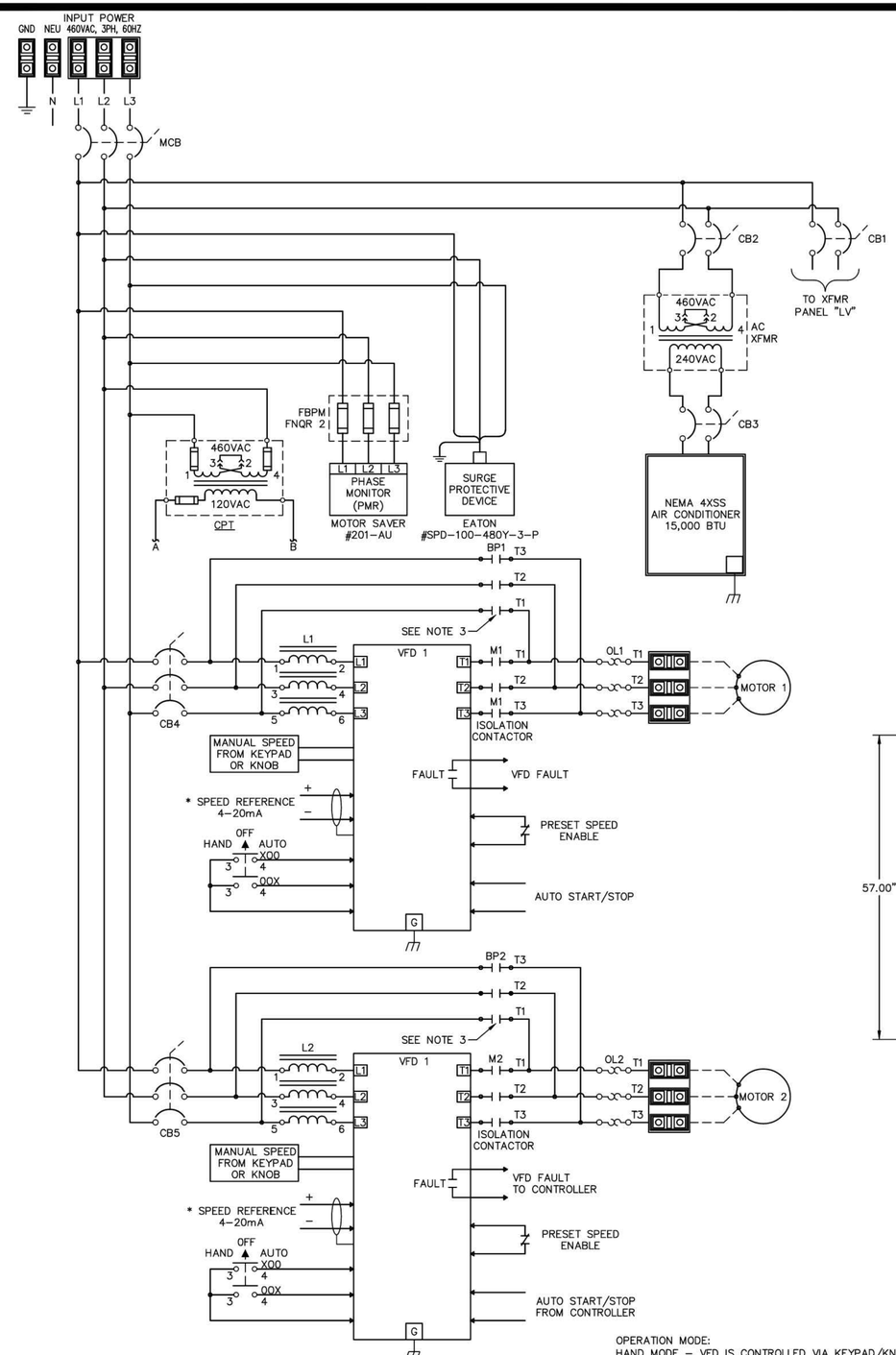
CLARA VISTA
LIFT STATION & FORCE MAIN
LIFT STATION ELECTRICAL
DETAILS 2 OF 6

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER LAF
CHECKED GSB DRAWN LAF
SHEET 44 OF 48

LS E5

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CP-22-0144

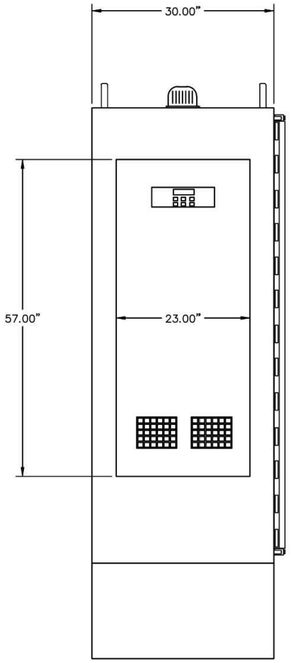


CONTROL PANEL WIRING DIAGRAM

SEE NOTE 1 & 2
NOT TO SCALE

OPERATION MODE:
HAND MODE – VFD IS CONTROLLED VIA KEYPAD/KNOB
AUTO MODE – VFD IF CONTROLLED REMOTELY

* INDICATED FIELD WIRING REQUIRED BY CONTRACTOR

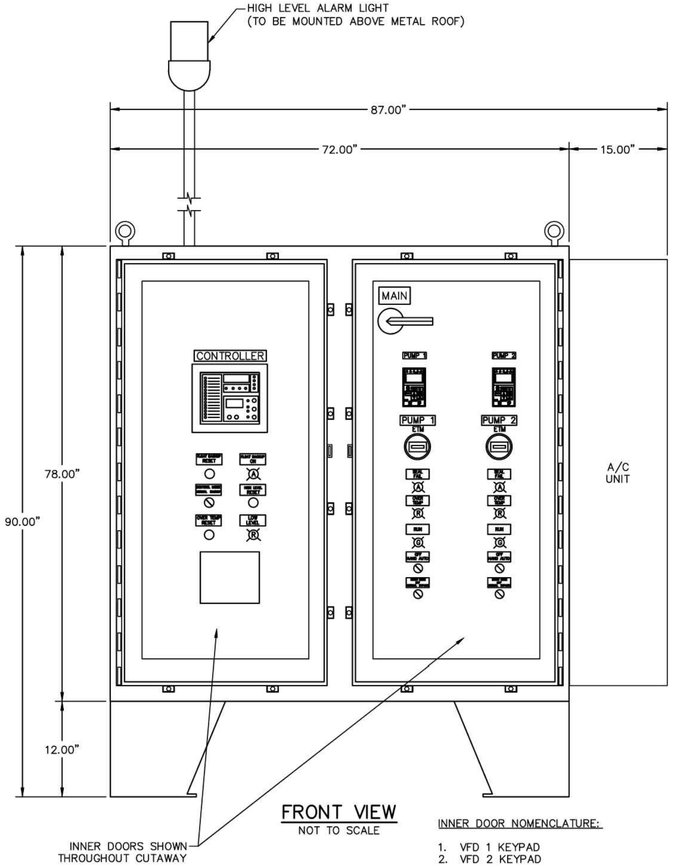


SIDE VIEW

NOT TO SCALE

NOTES:

1. ENCLOSURE SHALL BE NEMA TYPE 4X 316 STAINLESS STEEL DEAD FRONT WITH INNER DOORS AND AIR CONDITIONER



FRONT VIEW

NOT TO SCALE

INNER DOOR NOMENCLATURE:

1. VFD 1 KEYPAD
2. VFD 2 KEYPAD

PUMP CONTROL PANEL

SEE NOTE 4
NOT TO SCALE

NOTES:

1. PUMP CONTROL PANEL WIRING TYPICAL. FINAL HARDWARE CONFIGURATION WILL VARY ACCORDING TO PUMP CONTROL PANEL SPECIFICATIONS.
2. DUPLEX PUMP CONTROL PANEL, 480V, 3 PHASE, UL805A LABELED. VERIFY EXACT PUMP SIZES, CIRCUIT BREAKERS AND OVERLOADS ACCORDINGLY. THE PUMP CONTROL PANEL SHALL BE MANUFACTURED BY 5 STAR ELECTRIC, SAN ANTONIO, TEXAS 1(800) 299-8965 OR APPROVED EQUAL.
3. PROVIDE AND INSTALL NEMA RATED CLASS 8536 STARTERS.
4. PUMP CONTROL PANEL SHALL BE SIZED LARGE ENOUGH TO FACILITATE EXPANSION OF LIFT STATION TO TWO (2) 121 HP MOTORS.
5. SEE SHEET E8 FOR SEQUENCE OF OPERATIONS.

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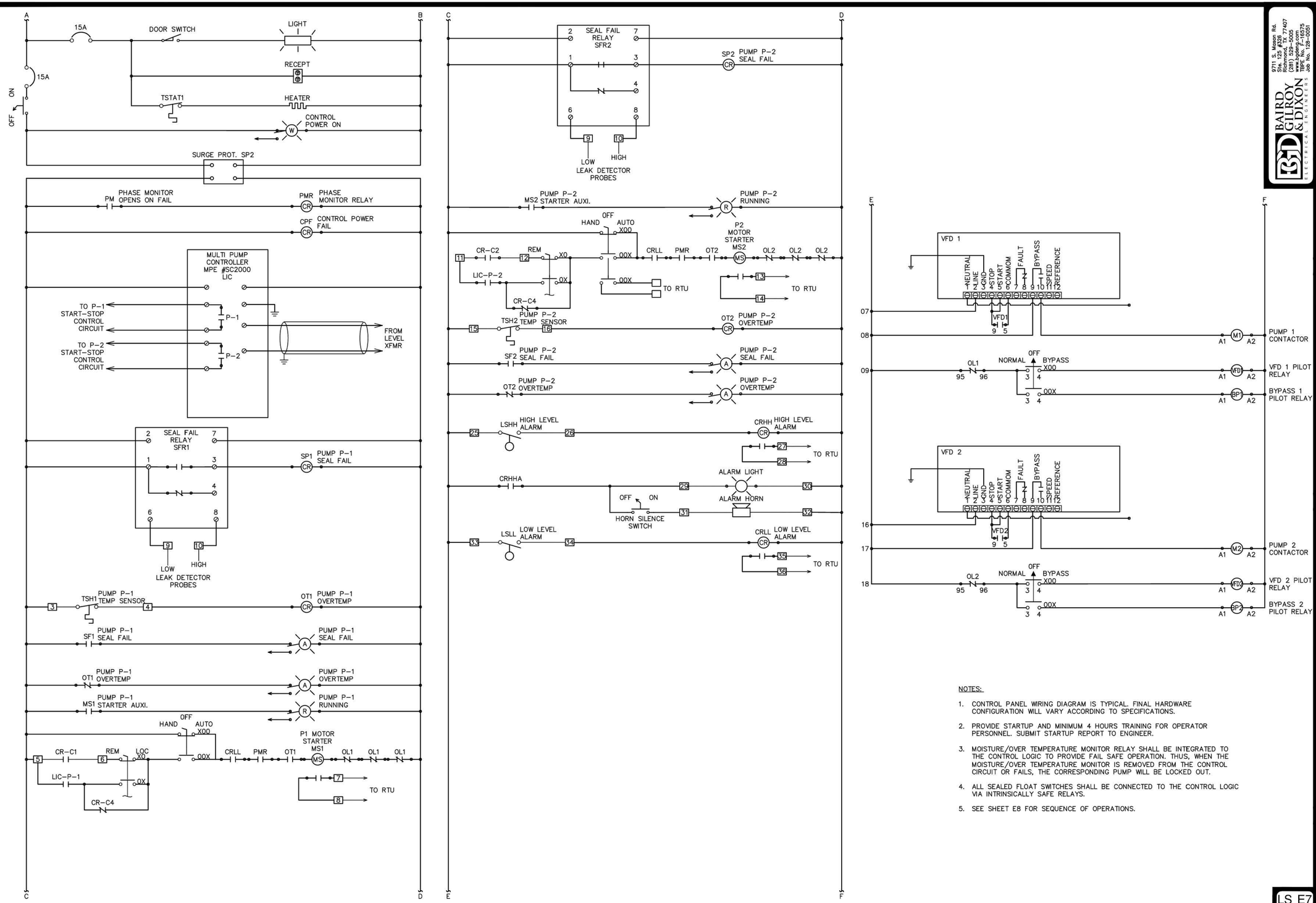
CLARA VISTA
LIFT STATION & FORCE MAIN
LIFT STATION ELECTRICAL
DETAILS 3 OF 6

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER LAF
CHECKED GSB DRAWN LAF
SHEET 45 OF 48

LS E6

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CP-22-0144



NOTES:

1. CONTROL PANEL WIRING DIAGRAM IS TYPICAL. FINAL HARDWARE CONFIGURATION WILL VARY ACCORDING TO SPECIFICATIONS.
2. PROVIDE STARTUP AND MINIMUM 4 HOURS TRAINING FOR OPERATOR PERSONNEL. SUBMIT STARTUP REPORT TO ENGINEER.
3. MOISTURE/OVER TEMPERATURE MONITOR RELAY SHALL BE INTEGRATED TO THE CONTROL LOGIC TO PROVIDE FAIL SAFE OPERATION. THUS, WHEN THE MOISTURE/OVER TEMPERATURE MONITOR IS REMOVED FROM THE CONTROL CIRCUIT OR FAILS, THE CORRESPONDING PUMP WILL BE LOCKED OUT.
4. ALL SEALED FLOAT SWITCHES SHALL BE CONNECTED TO THE CONTROL LOGIC VIA INTRINSICALLY SAFE RELAYS.
5. SEE SHEET E8 FOR SEQUENCE OF OPERATIONS.

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CLARA VISTA

LIFT STATION & FORCE MAIN

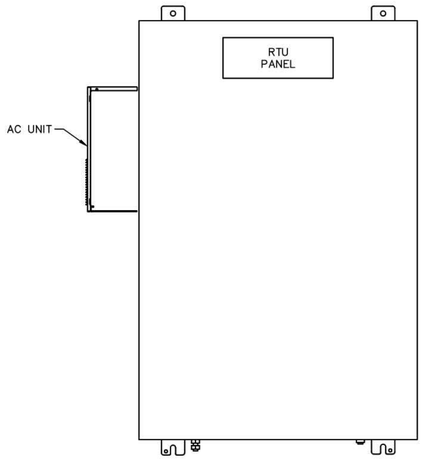
LIFT STATION ELECTRICAL DETAILS 4 OF 6

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER LAF
CHECKED GSB DRAWN LAF
SHEET 46 OF 48

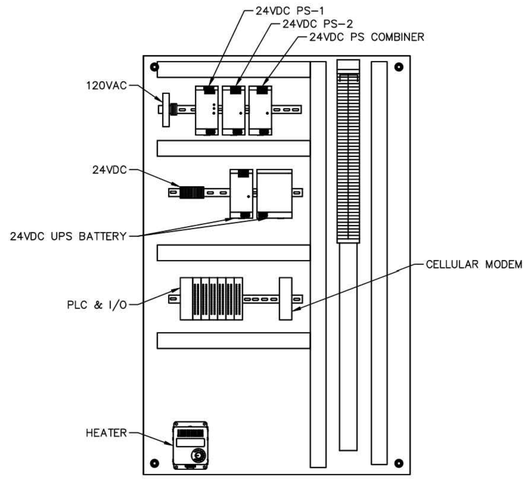
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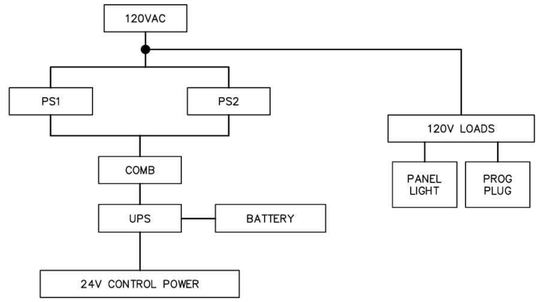


FRONT VIEW (EXTERIOR)
NOT TO SCALE

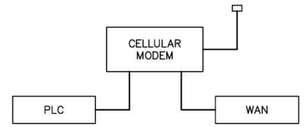


FRONT VIEW (DOOR REMOVED)
NOT TO SCALE

LIFT STATION SCADA RTU ENCLOSURE
NOT TO SCALE



CONTROL POWER
NOT TO SCALE



CELLULAR MODEM PART# TBD

MODEM SWITCHES BETWEEN CELL AND WAN.

NETWORK
NOT TO SCALE

LIFT STATION I/O LIST				
ITEM	DESCRIPTION	TYP.	CABLE/CONDUIT	REMARKS
1	P1 RUN STATUS	DI	1/2" C, W/2-#16	PHYSICAL I/O
2	P2 RUN STATUS	DI	1/2" C, W/2-#16	PHYSICAL I/O
3	P1 H-O-A STATUS	DI	1/2" C, W/2-#16	PHYSICAL I/O
4	P2 H-O-A STATUS	DI	1/2" C, W/2-#16	PHYSICAL I/O
5	HIGH WET WELL LEVEL	DI	1/2" C, W/2-#16	PHYSICAL I/O
6	LOW WET WELL LEVEL	DI	1/2" C, W/2-#16	PHYSICAL I/O
7	MAIN POWER FAULT	DI	1/2" C, W/2-#16	PHYSICAL I/O
8	CONTROL POWER FAULT	DI	1/2" C, W/2-#16	PHYSICAL I/O
9	GEN RUN	DI	1/2" C, W/2-#16	PHYSICAL I/O
10	GENERATOR FAULT	DI	1/2" C, W/2-#16	PHYSICAL I/O
11	PUMP ROTATION BINARY	DI	1/2" C, W/2-#16	PHYSICAL I/O
12	PUMP ROTATION BINARY	DI	1/2" C, W/2-#16	PHYSICAL I/O
13	AC POWER	DI	1/2" C, W/2-#16	RADIO I/O
14	PUMP 1 CALL	DO	1/2" C, W/2-#16	PHYSICAL I/O
15	PUMP 2 CALL	DO	1/2" C, W/2-#16	PHYSICAL I/O
16	PLC FAULT	DO	1/2" C, W/2-#16	PHYSICAL I/O
17	P1 STARTER FAULT	DO	1/2" C, W/2-#16	PHYSICAL I/O
18	P2 STARTER FAULT	DO	1/2" C, W/2-#16	PHYSICAL I/O
19	PUMP 1 OVERRIDE	DO	1/2" C, W/2-#16	PHYSICAL I/O
20	PUMP 2 OVERRIDE	DO	1/2" C, W/2-#16	PHYSICAL I/O
21	PUMP 1 OFF	DO	1/2" C, W/2-#16	PHYSICAL I/O
22	PUMP 2 OFF	DO	1/2" C, W/2-#16	PHYSICAL I/O
23	ANY PUMP OUT	DO	1/2" C, W/2-#16	PHYSICAL I/O
24	ANY ALARM	DO	1/2" C, W/2-#16	PHYSICAL I/O
25	BATTERY TEST	DO	1/2" C, W/2-#16	RADIO I/O
26	PUMP 1 VFD SPEED	AO	1/2" C, W/2-#18 STP	PHYSICAL I/O
27	PUMP 2 VFD SPEED	AO	1/2" C, W/2-#18 STP	PHYSICAL I/O
28	WET WELL LEVEL	AI	1/2" C, W/2-#18 STP	PHYSICAL I/O
29	P1 CURRENT	AI	1/2" C, W/2-#18 STP	PHYSICAL I/O
30	P1 CURRENT	AI	1/2" C, W/2-#18 STP	PHYSICAL I/O
31	FLOW METER STATUS	AI	1/2" C, W/2-#18 STP	PHYSICAL I/O
32	RADIO KEY CURRENT	AI	1/2" C, W/2-#18 STP	RADIO I/O
33	RADIO SIGNAL STRENGTH	AI	1/2" C, W/2-#18 STP	RADIO I/O

NOTES:

1. RTU PANEL SCHEMATIC AND WIRING DIAGRAM IS TYPICAL IN NATURE. FINAL HARDWARE CONFIGURATION MAY VARY.
2. PROVIDE FACTORY AUTHORIZED STARTUP AND MINIMUM 4 HOURS TRAINING FOR OPERATOR PERSONNEL.
3. THE LIFT STATION SCADA SYSTEM SHALL OPERATE PER THE SEQUENCE OF OPERATIONS.
4. ALL CONDUITS AND WIRING PROVIDED, INSTALLED BY THE ELECTRICAL CONTRACTOR AND TERMINATED BY THE SCADA CONTRACTOR.
5. ELECTRICAL CONTRACTOR MAY GROUP WIRES WITH SAME VOLTAGE FOR FIELD DEVICES IN CONDUIT AS HE DEEMS BEST APPROPRIATE.
6. ANALOG AND LOW VOLTAGE SIGNALS SHALL NOT BE RUN IN SAME CONDUIT AS 120VAC AND 480VAC CIRCUITS.
7. QUANTITY OF CONDUCTORS SHOWN ARE FOR REFERENCE ONLY. VERIFY EXACT WIRING REQUIREMENTS TO FIELD DEVICES ER INFORMATION PROVIDED BY THE EQUIPMENT VENDOR PRIOR TO INSTALLATION.
8. USE SHIELDED TWISTED PAIR (STP) CABLE BELDEN #5341FE OR EQUAL.
9. WET WELL LEVEL TRANSDUCER SCALING SHALL BE COORDINATED WITH CIVIL ENGINEER.

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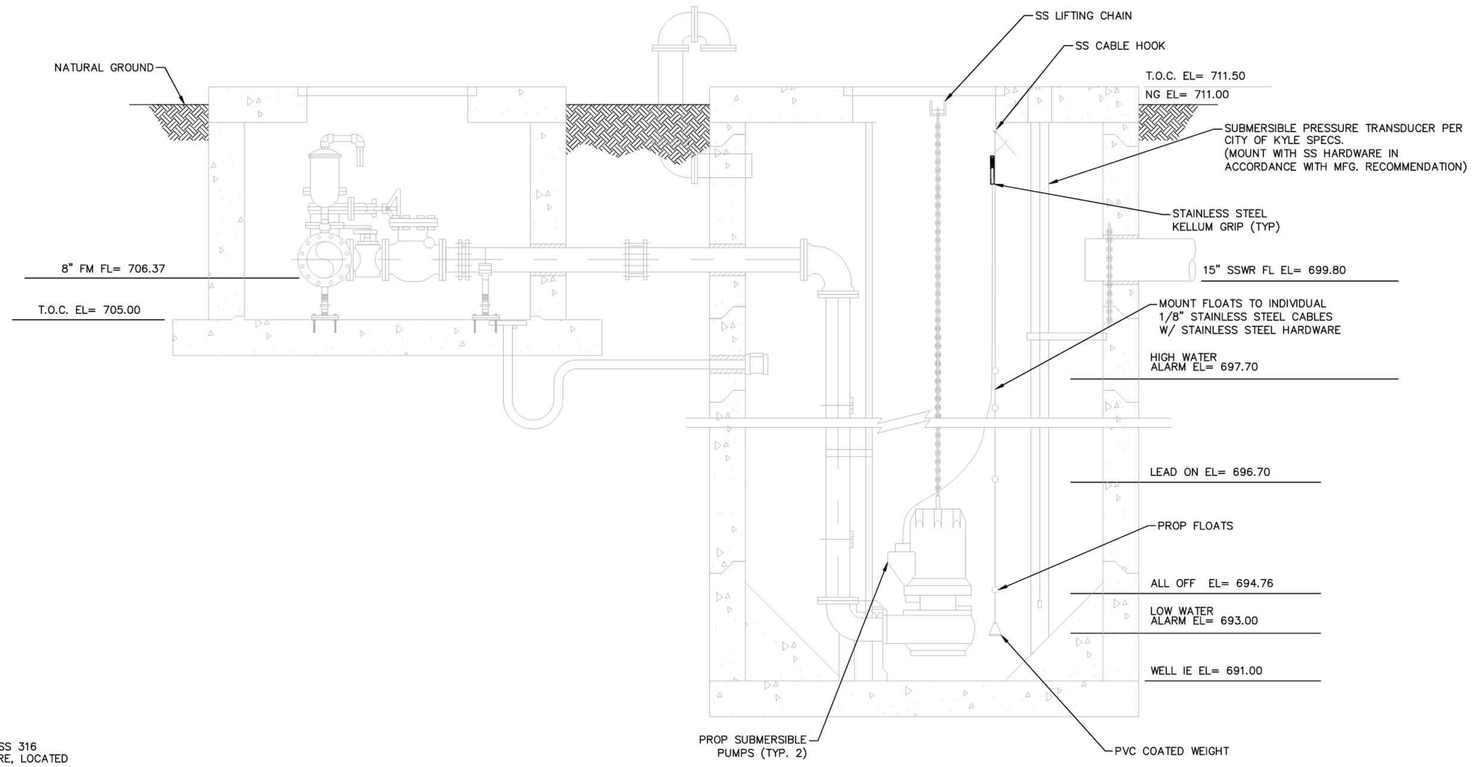
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CLARA VISTA
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DETAILS 5 OF 6

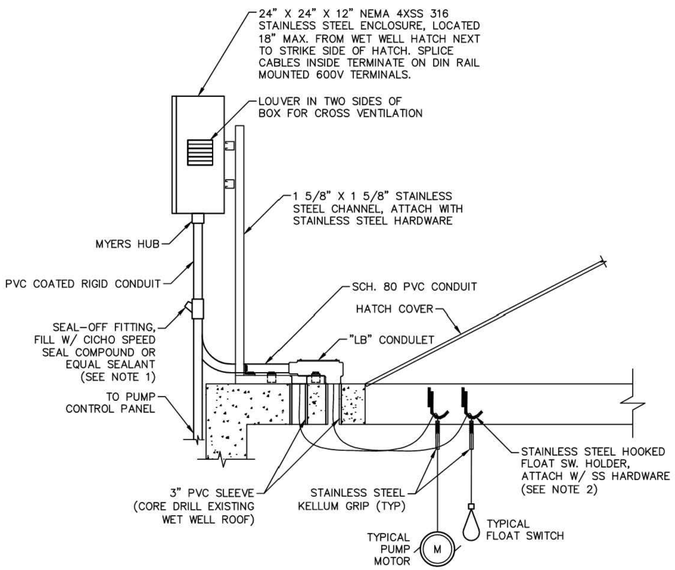
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SHEET 47 OF 48

LS E8

9/30/2024 8:28 AM
P:\PROJECTS\128-COSTELLO\0051-CITY OF KYLE CLARA VISTA LIFT STATION\03 CAD\128-0051 ELEC.DWG



LIFT STATION SECTION VIEW
NOT TO SCALE



WET WELL JUNCTION BOX DETAIL
NOT TO SCALE

NOTES:

1. ALL CONDUITS ENTERING WET WELL JUNCTION BOX SHALL BE PROVIDED WITH SEAL-OFF FITTINGS. TYPICAL.
2. CONTROL WIRE HANGERS SHALL BE MOUNTED ON SIDE WALL, NOT NEXT TO PUMP RAILS.

BAIRD GILROY & DIXON ELECTRICAL ENGINEERS
9711 S. Mason Rd.
Ste. 125 #326
Richmond, TX 77407
(281) 265-2695
www.bgdeng.com
TBPE No. F-16575
TBPLS No. 128-0051

NO.	REVISION	DATE

STATE OF TEXAS
GREGORY S. BAIRD
100260
LICENSED PROFESSIONAL ENGINEER
9/30/24

PAPE-DAWSON ENGINEERS
10350 RICHMOND AVE. STE 200 | HOUSTON, TX 77042 | 713.428.2400
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10193974

CLARA VISTA
LIFT STATION & FORCE MAIN
LIFT STATION ELECTRICAL
DETAILS 6 OF 6

PLAT NO. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER LAF
CHECKED GSB DRAWN LAF
SHEET 48 OF 48

LS E9

9/30/2024 9:34 AM
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CP-22-0144

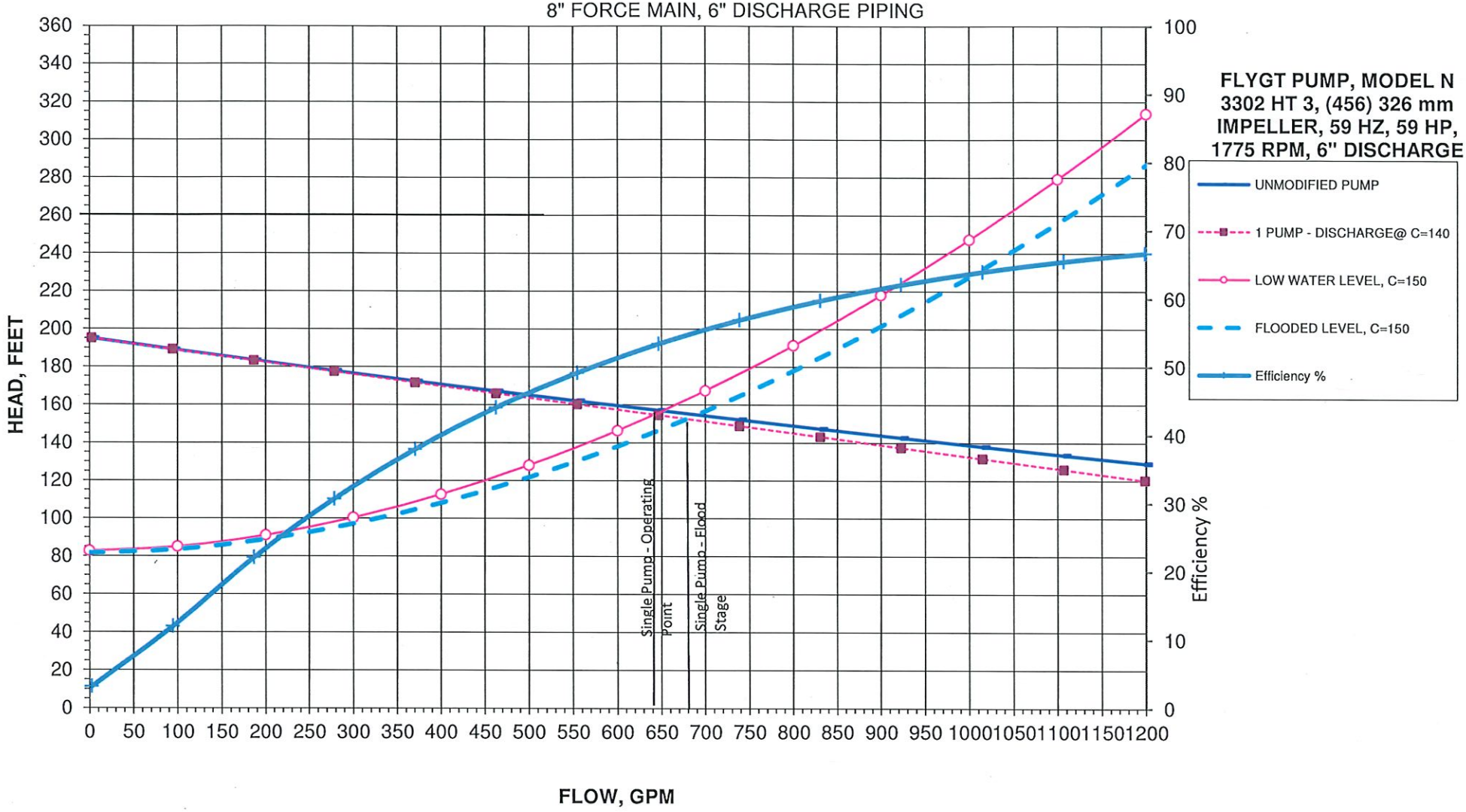
APPENDIX C
Ultimate Build Out Pump Curve and Supporting Information

Costello

CLARA VISTA (WATER RIDGE) LIFT STATION

SYSTEM AND PUMP CURVES

8" FORCE MAIN, 6" DISCHARGE PIPING



9/17/2024 6:40 AM

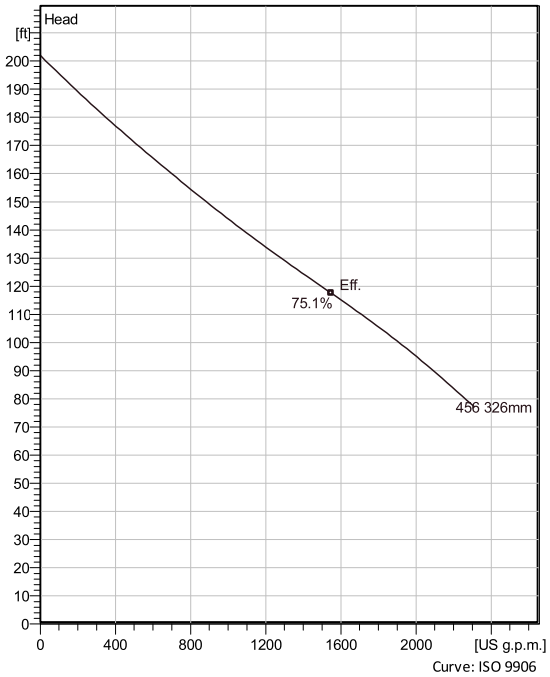
NP 3202 HT 3~ 456

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.

Technical specification



Curves according to: Water, pure Water, pure [100%],39.2 °F,62.42 lb/ft³,1.6891E-5 ft²/s



Curve: ISO 9906

Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Configuration

Motor number
N3202.660 30-24-4AA-W 60hp

Installation type
P - Semi permanent, Wet

Impeller diameter
326 mm

Discharge diameter
6 inch

Pump information

Impeller diameter
326 mm

Discharge diameter
6 inch

Inlet diameter
200 mm

Maximum operating speed
1775 rpm

Number of blades
2

Max. fluid temperature
40 °C

Material

Impeller
Stainless steel

Project	Xylect-20561312	**Created by**	Harry Walker		
Block		**Created on**	9/4/2024	**Last update**	9/4/2024

NP 3202 HT 3~ 456

Technical specification

Motor - General

Motor number N3202.660 30-24-4AA-W 60hp	**Phases** 3~	**Rated speed** 1775 rpm	**Rated power** 60 hp
ATEX approved No	**Number of poles** 4	**Rated current** 69 A	**Stator variant** 4
Frequency 60 Hz	**Rated voltage** 460 V	**Insulation class** H	**Type of Duty** S1
Version code 660			

Motor - Technical

Power factor - 1/1 Load 0.89	**Motor efficiency - 1/1 Load** 91.9 %	**Total moment of inertia** 9.31 lb ft²	**Starts per hour max.** 30
Power factor - 3/4 Load 0.86	**Motor efficiency - 3/4 Load** 92.6 %	**Starting current, direct starting** 470 A	
Power factor - 1/2 Load 0.78	**Motor efficiency - 1/2 Load** 92.3 %	**Starting current, star-delta** 157 A	

Project	Xylect-20561312	**Created by**	Harry Walker		
Block		**Created on**	9/4/2024	**Last update**	9/4/2024

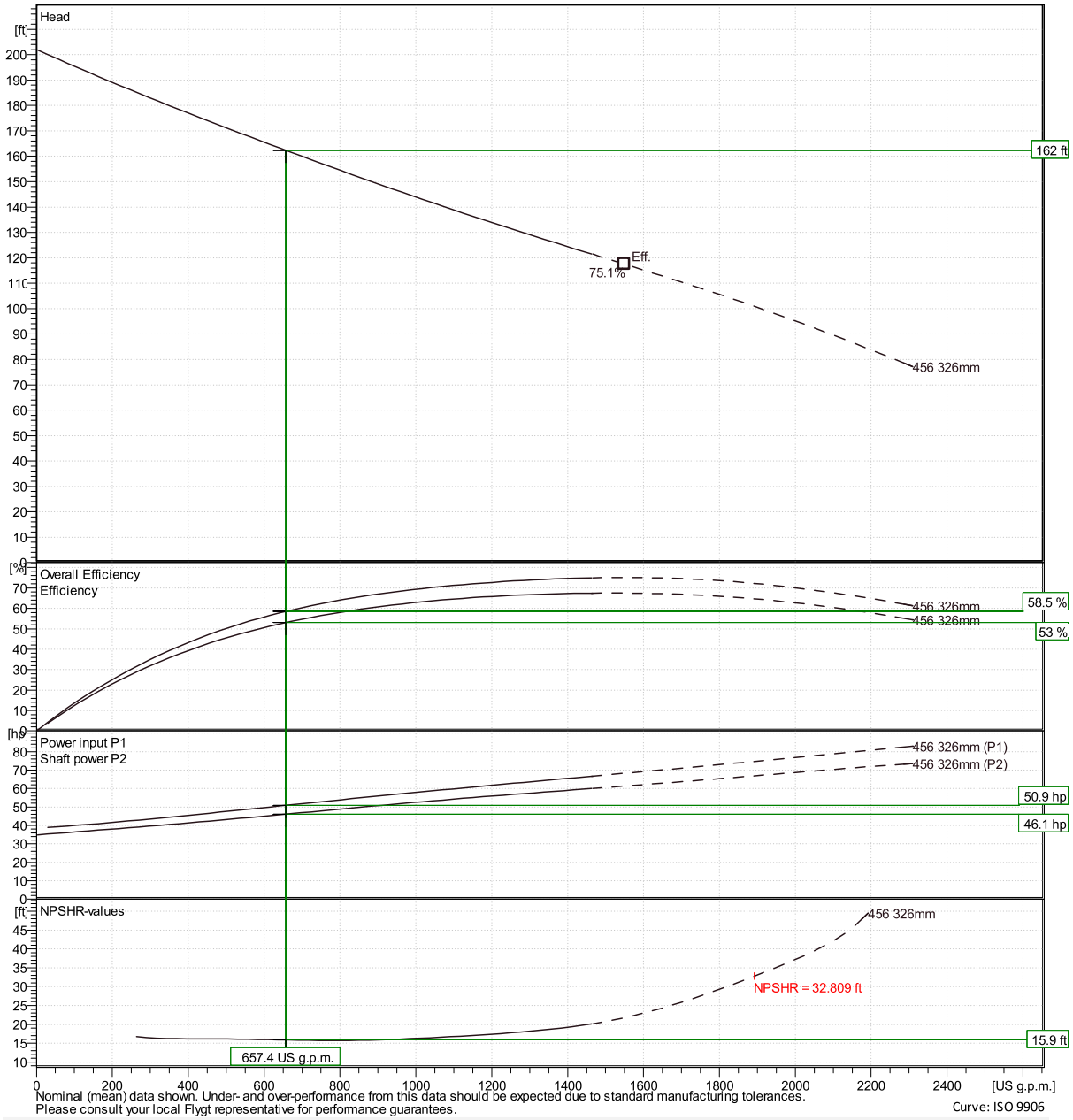
NP 3202 HT 3~ 456

Performance curve

Duty point

Flow	Head
657 US g.p.m.	162 ft

Curves according to: Water, pure Water, pure [100%],39.2 °F,62.42 lb/ft³,1.6891E-5 ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Curve: ISO 9906

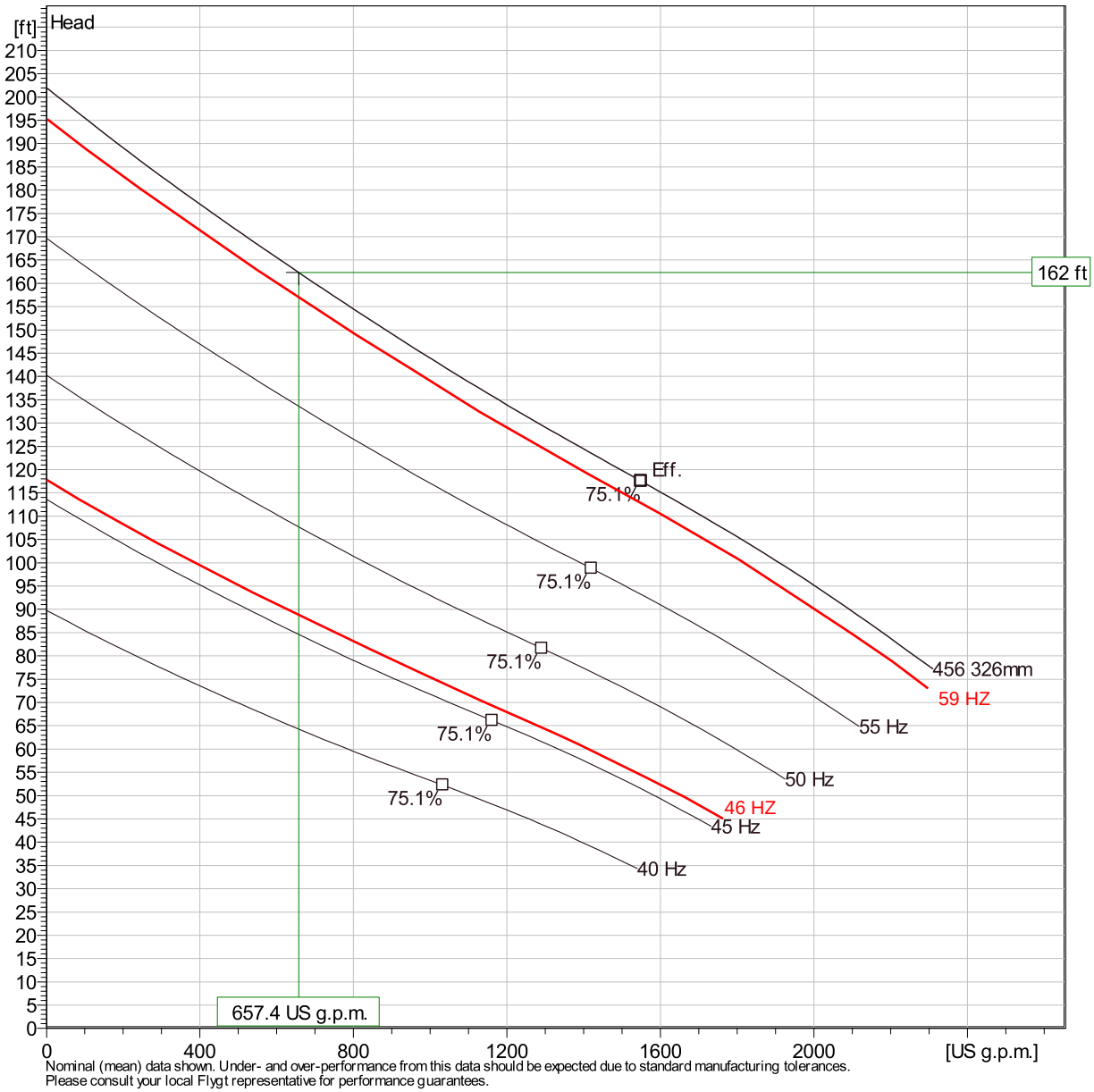
Xylect-20561312 Harry Walker

Created on 9/4/2024 **Last update** 9/4/2024

NP 3202 HT 3~ 456

Duty Analysis

Curves according to: Water, pure [100%] ; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Operating characteristics

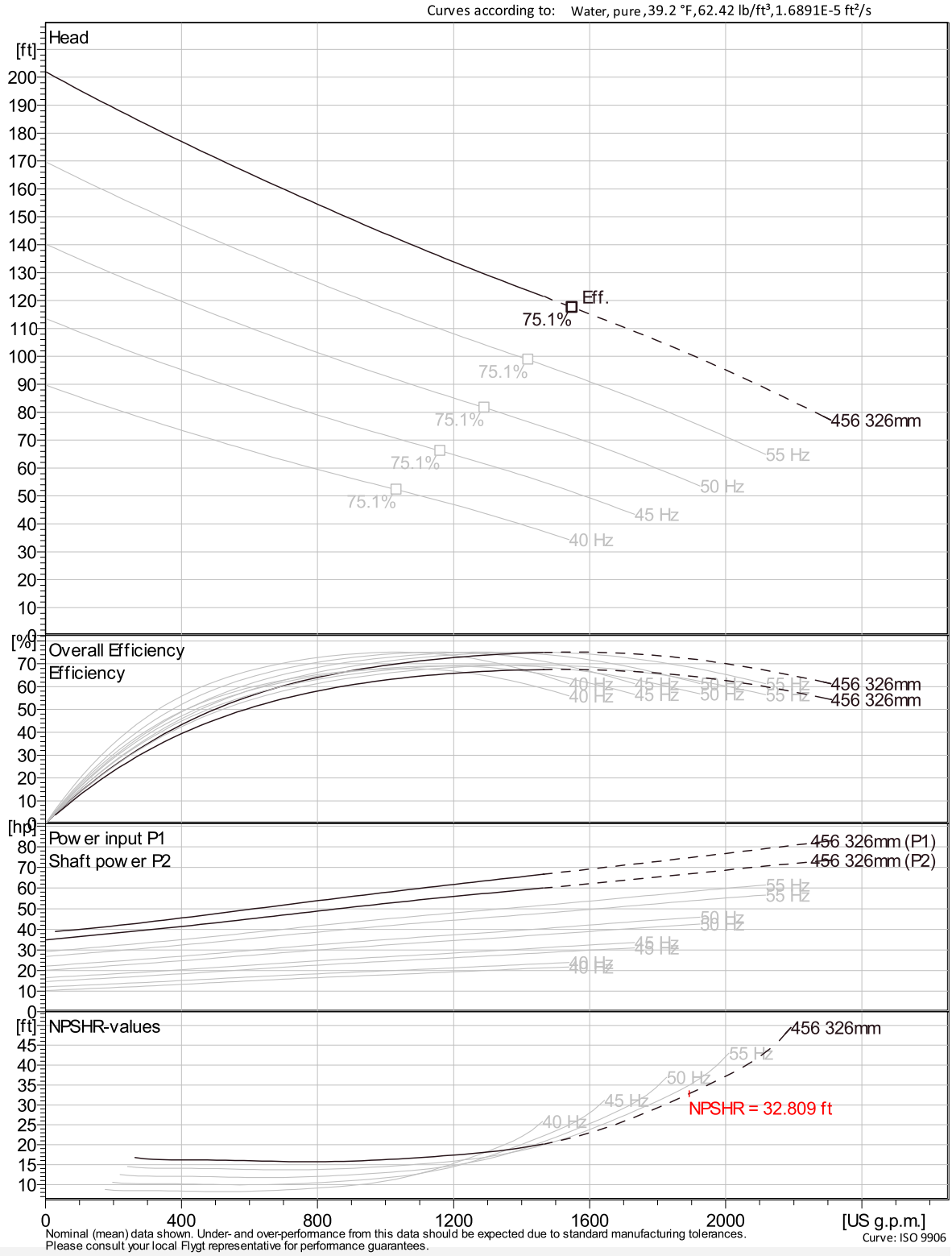
Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Spec. Energy	NPSHre
	US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	657	162	46.1	657	162	46.1	58.5 %	962	15.9

Project		**Created by**	Harry Walker		
Block	Xylect-20561312	**Created on**	9/4/2024	**Last update**	9/4/2024

NP 3202 HT 3~ 456

VFD Curve

Curves according to: Water, pure ,39.2 °F,62.42 lb/ft³,1.6891E-5 ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

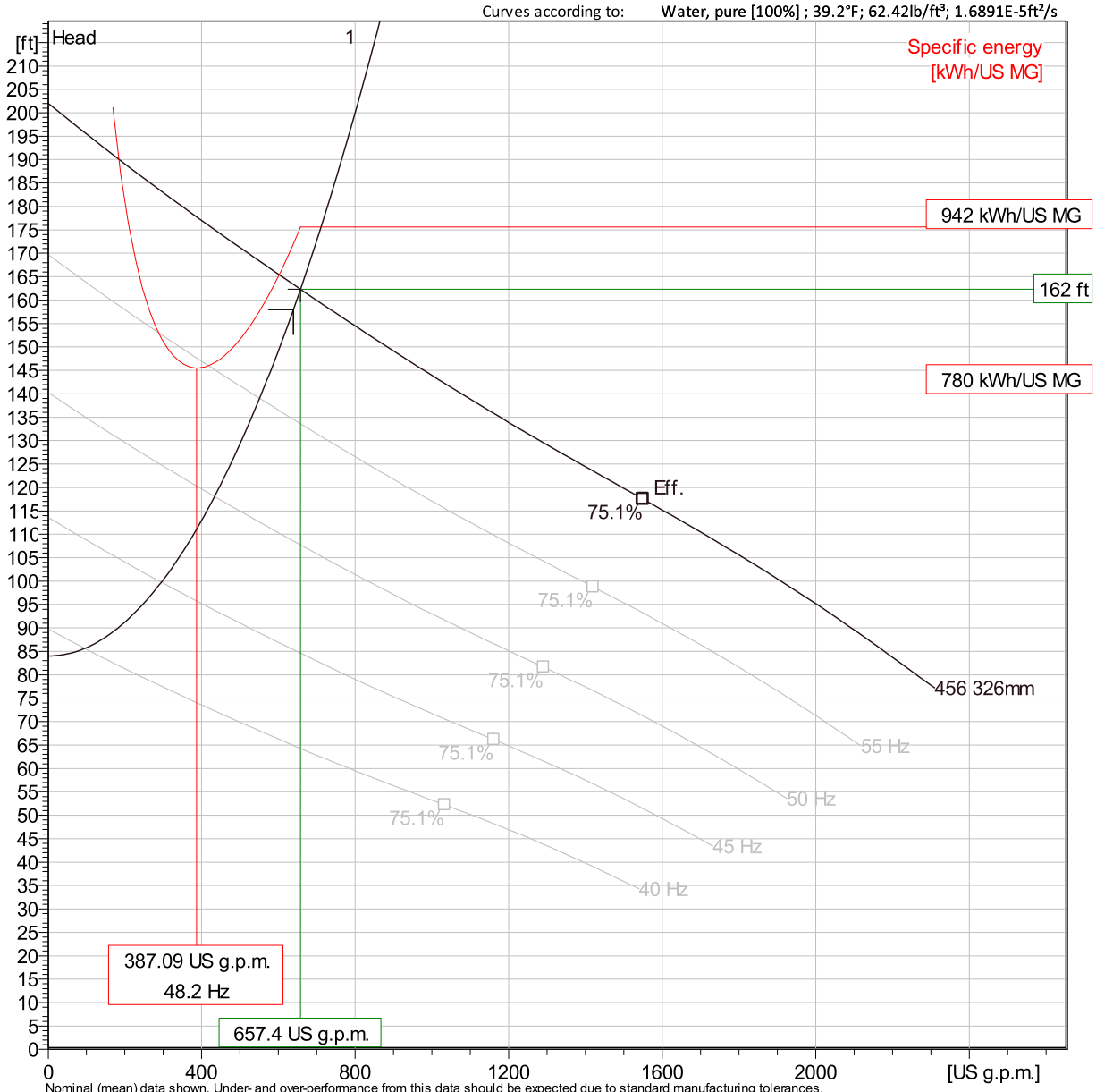
Curve: ISO 9906

Project	Xylect-20561312	**Created by**	Harry Walker		
Block		**Created on**	9/4/2024	**Last update**	9/4/2024

NP 3202 HT 3~ 456

VFD Analysis

Curves according to: Water, pure [100%] ; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Operating Characteristics

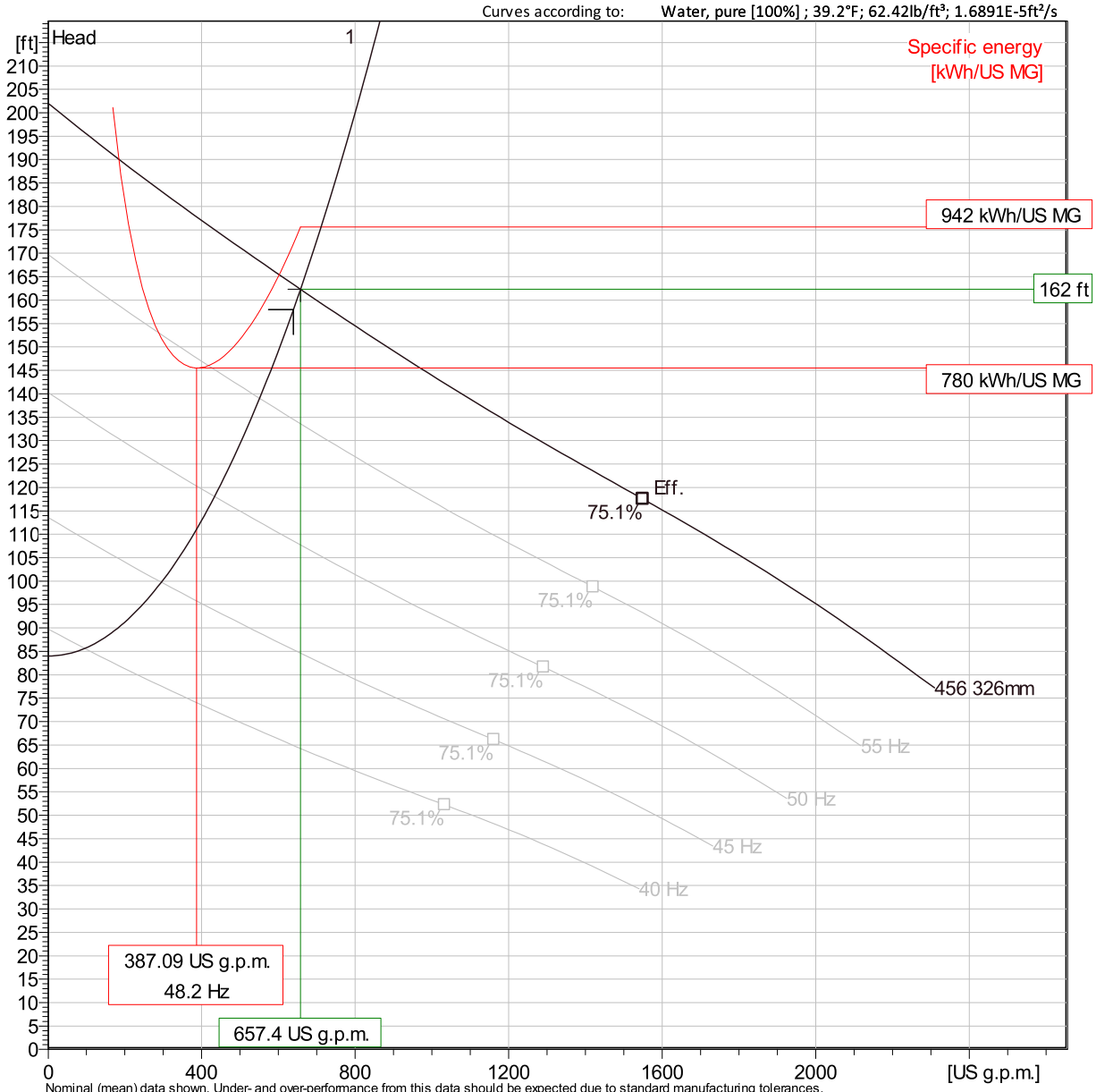
Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHre
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	60 Hz	657	162	46.1	657	162	46.1	58.5 %	962	15.9
1	55 Hz	551	139	34.7	551	139	34.7	55.9 %	846	13.9
1	50 Hz	434	118	25.2	434	118	25.2	51.4 %	786	12
1	45 Hz	295	99.8	17.4	295	99.8	17.4	42.8 %	814	10.2

Project	Xylect-20561312	**Created by**	Harry Walker		
Block		**Created on**	9/4/2024	**Last update**	9/4/2024

NP 3202 HT 3~ 456

VFD Analysis

Curves according to: Water, pure [100%] ; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

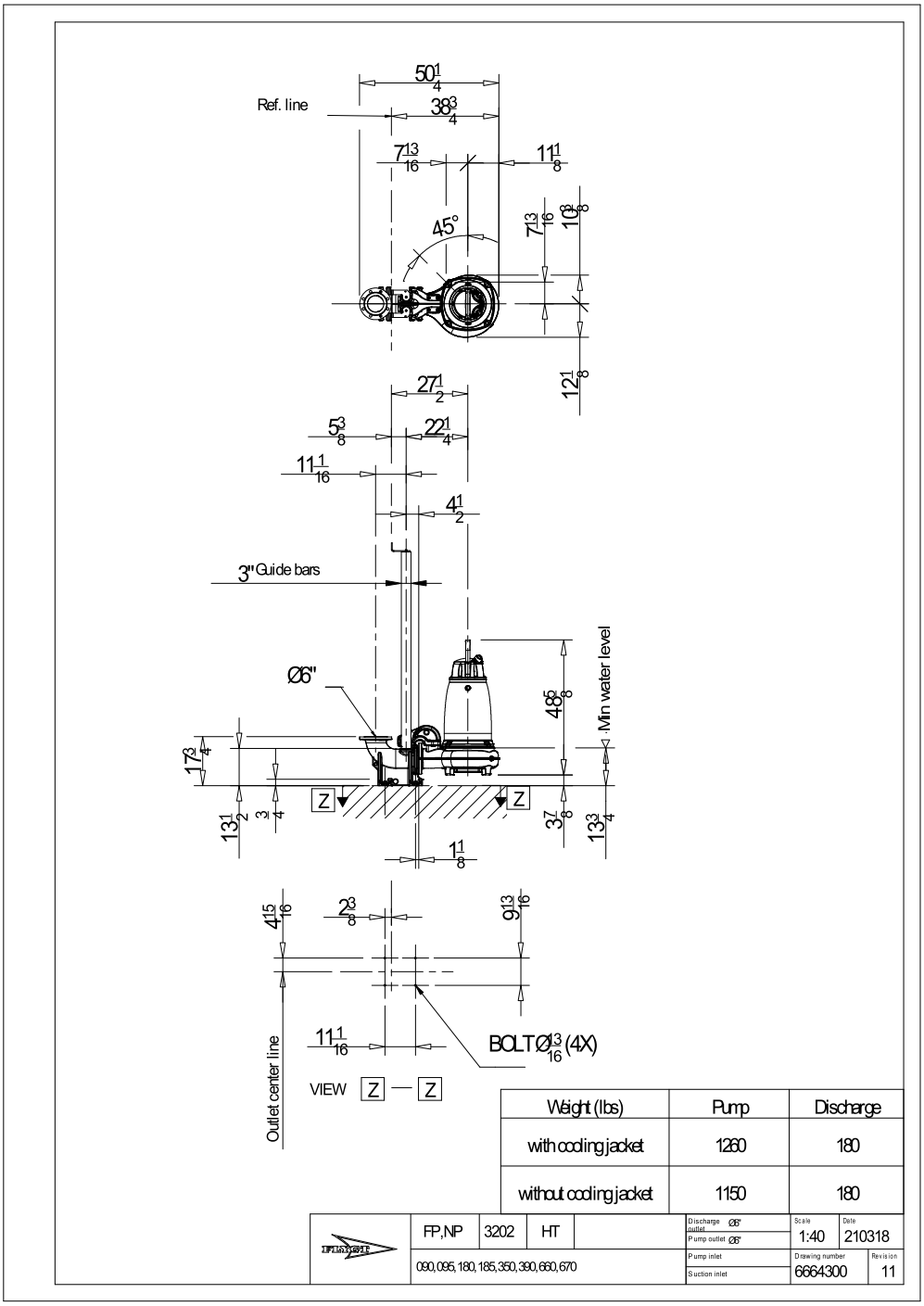
Operating Characteristics

Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHre
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	40 Hz	95.3	85.6	11	95.3	85.6	11	18.8 %	1670	

Project	Xylect-20561312	**Created by**	Harry Walker		
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NP 3202 HT 3~ 456

Dimensional drawing

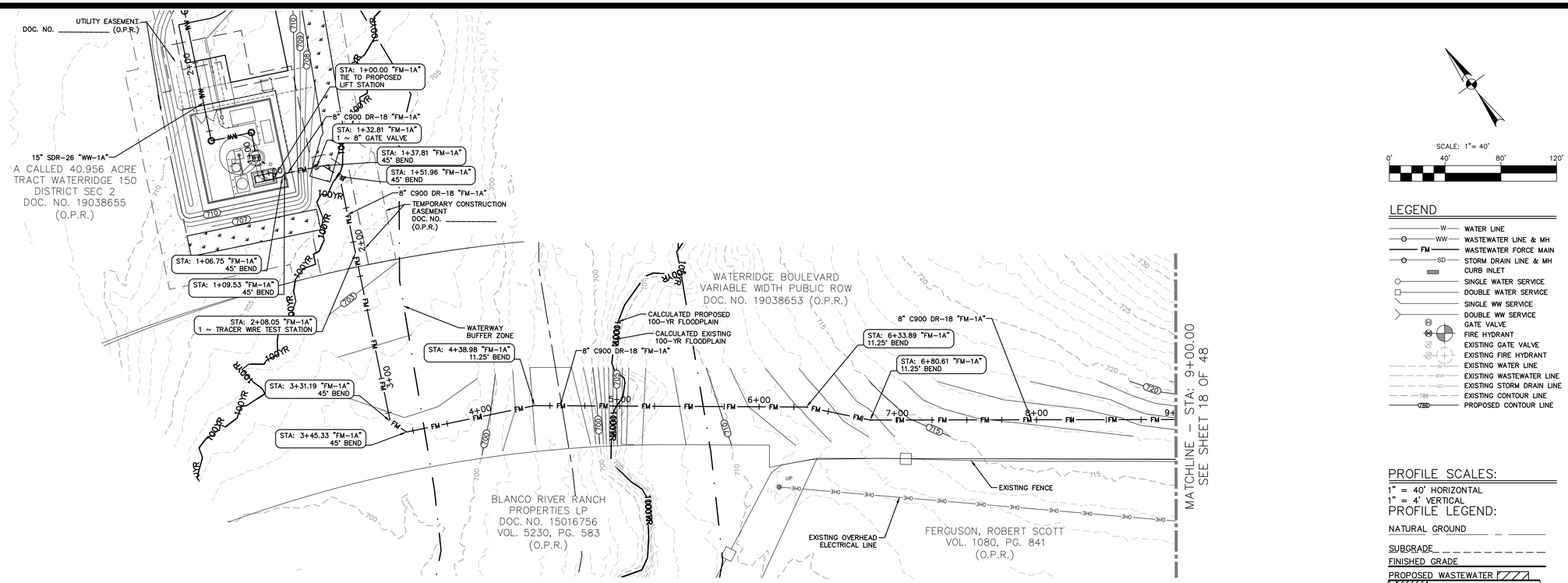


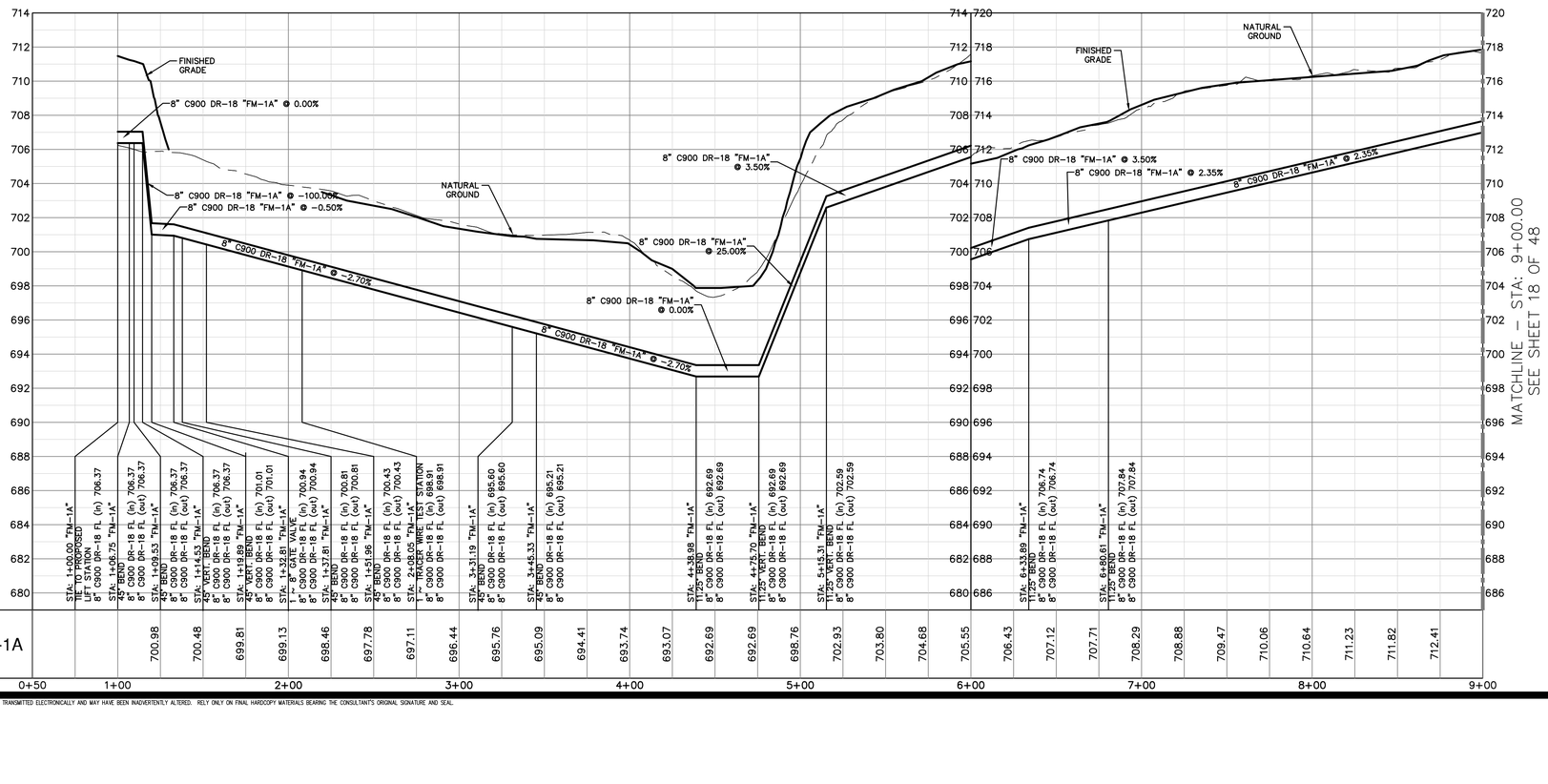
Weight (lbs)	Pump	Discharge
with cooling jacket	1260	180
without cooling jacket	1150	180

FP,NP	3202	HT	Discharge outlet Ø6"	Scale 1:40	Date 210318
090,095,180,185,350,390,660,670			Pump outlet Ø6"		
			Pump inlet	Drawing number 6664300	Revision 11
			Suction inlet		

Project	Xylect-20561312	**Created by**	Harry Walker
Block		**Created on**	9/4/2024 **Last update** 9/4/2024

APPENDIX D
Force Main Construction Plans





SCALE: 1" = 40'

0' 40' 80' 120'

LEGEND

- W — WATER LINE
- WW — WASTEWATER LINE & MH
- FM — WASTEWATER FORCE MAIN
- SD — STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND

SUBGRADE

FINISHED GRADE

PROPOSED WASTEWATER

1 – JOINT OF PRESSURE PIPE

STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NOTES

1. PIPE MATERIAL FOR FORCE MAIN SHALL BE GREEN C900 DR-18 (MIN. 235 PSI PRESSURE RATING).
2. TRACER WIRE SHALL BE USED FOR ALL FORCE MAIN (SEE DETAIL SHEET 30 OF 48).
3. INDUCTIVE TRACER DETECTION TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF ALL NON-METALLIC PIPE A MINIMUM OF 12 INCHES BELOW SUBGRADE OR, IN AREAS OUTSIDE THE LIMITS OF PAVEMENT, A MINIMUM OF 18 INCHES BELOW FINISHED GRADE. THE TRACER TAPE SHALL BE ENCASED IN A PROTECTIVE, INERT, PLASTIC JACKET AND COLOR CODED ACCORDING TO AMERICAN PUBLIC WORKS ASSOCIATION UNIFORM COLOR CODE, EXCEPT FOR MINIMUM DEPTH OF COVER, THE TRACER TAPE SHALL BE PLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

NO.	REVISION	DATE

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PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA

LIFT STATION & FORCE MAIN

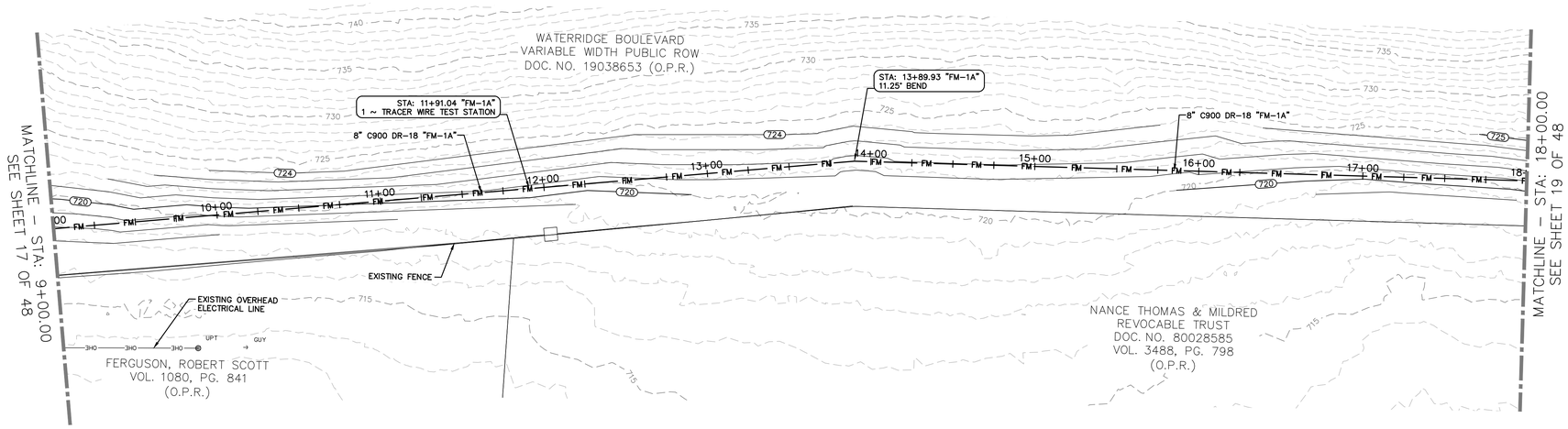
FORCE MAIN PROFILES FM-1A 1 OF 11

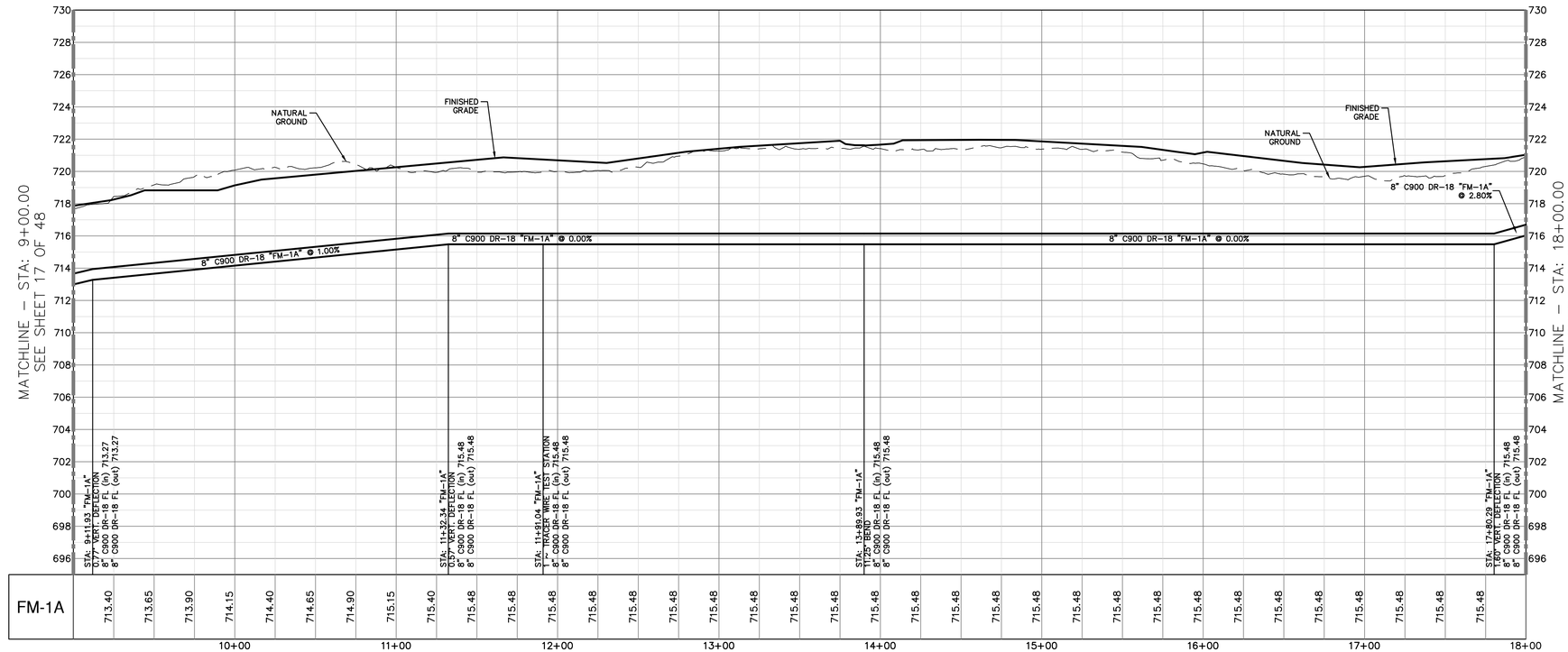
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JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 17 OF 48

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CP-22-0144





SCALE: 1" = 40'

0' 40' 80' 120'

LEGEND

- WATER LINE
- WASTEWATER LINE & MH
- WASTEWATER FORCE MAIN
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND

SUBGRADE

FINISHED GRADE

PROPOSED WASTEWATER

1~JOINT OF PRESSURE PIPE — STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NOTES

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10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

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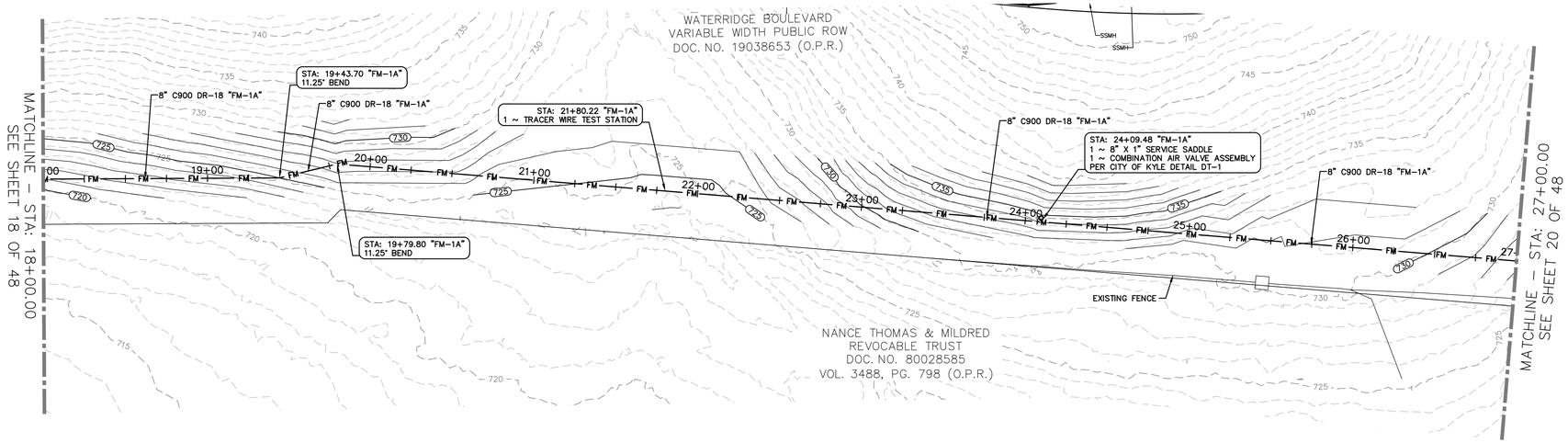
LIFT STATION & FORCE MAIN

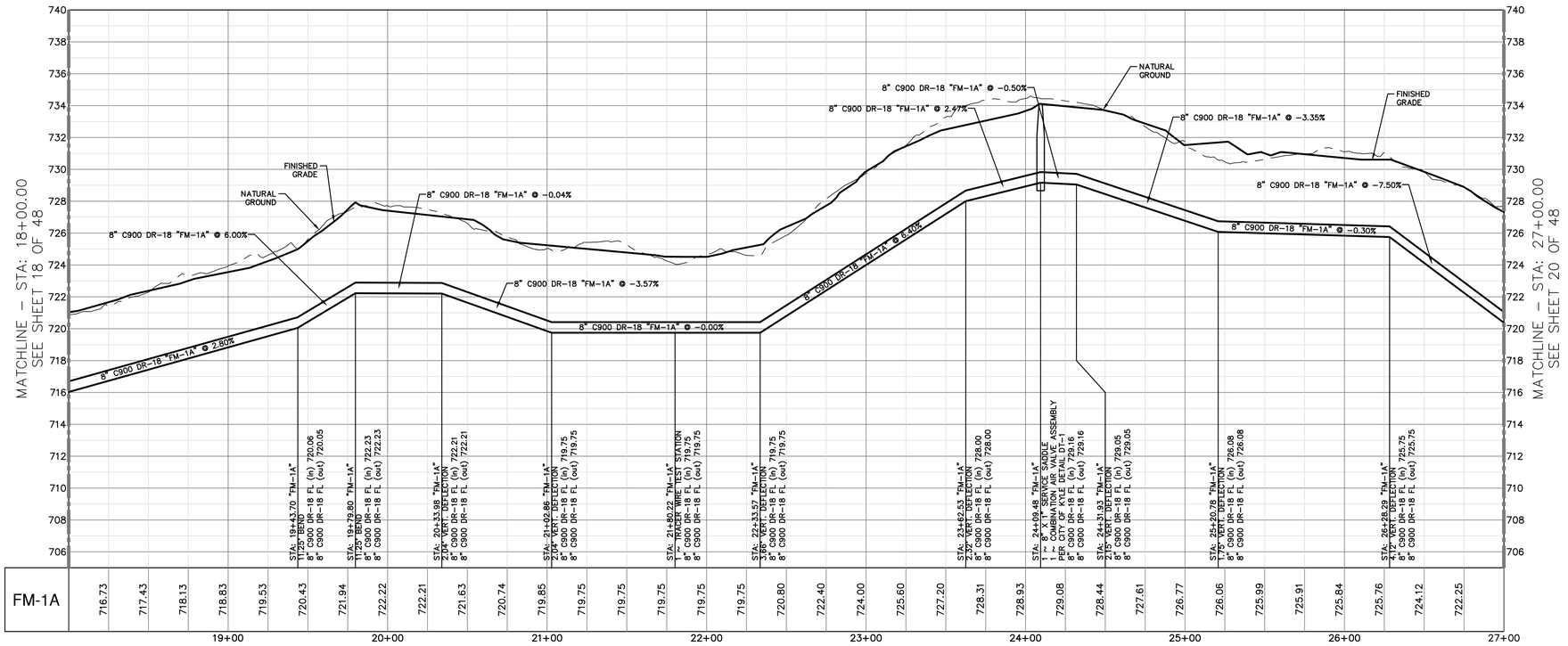
FORCE MAIN PROFILES FM-1A 2 OF 11

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JOB NO. 51456-10
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SCALE: 1" = 40'

0' 40' 80' 120'

LEGEND

- W — WATER LINE
- WW — WASTEWATER LINE & MH
- FM — WASTEWATER FORCE MAIN
- SD — STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- 786 — EXISTING CONTOUR LINE
- 750 — PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND

SUBGRADE

FINISHED GRADE

PROPOSED WASTEWATER

1–JOINT OF PRESSURE PIPE — STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NOTES

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CLARA VISTA

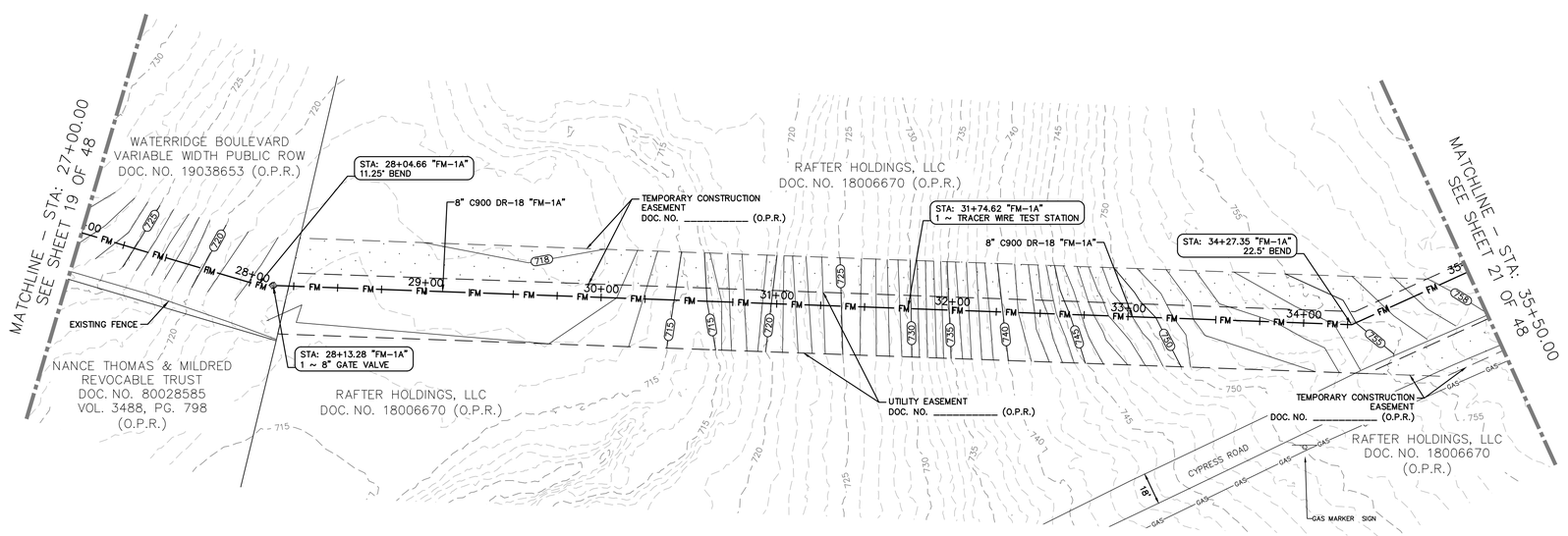
LIFT STATION & FORCE MAIN

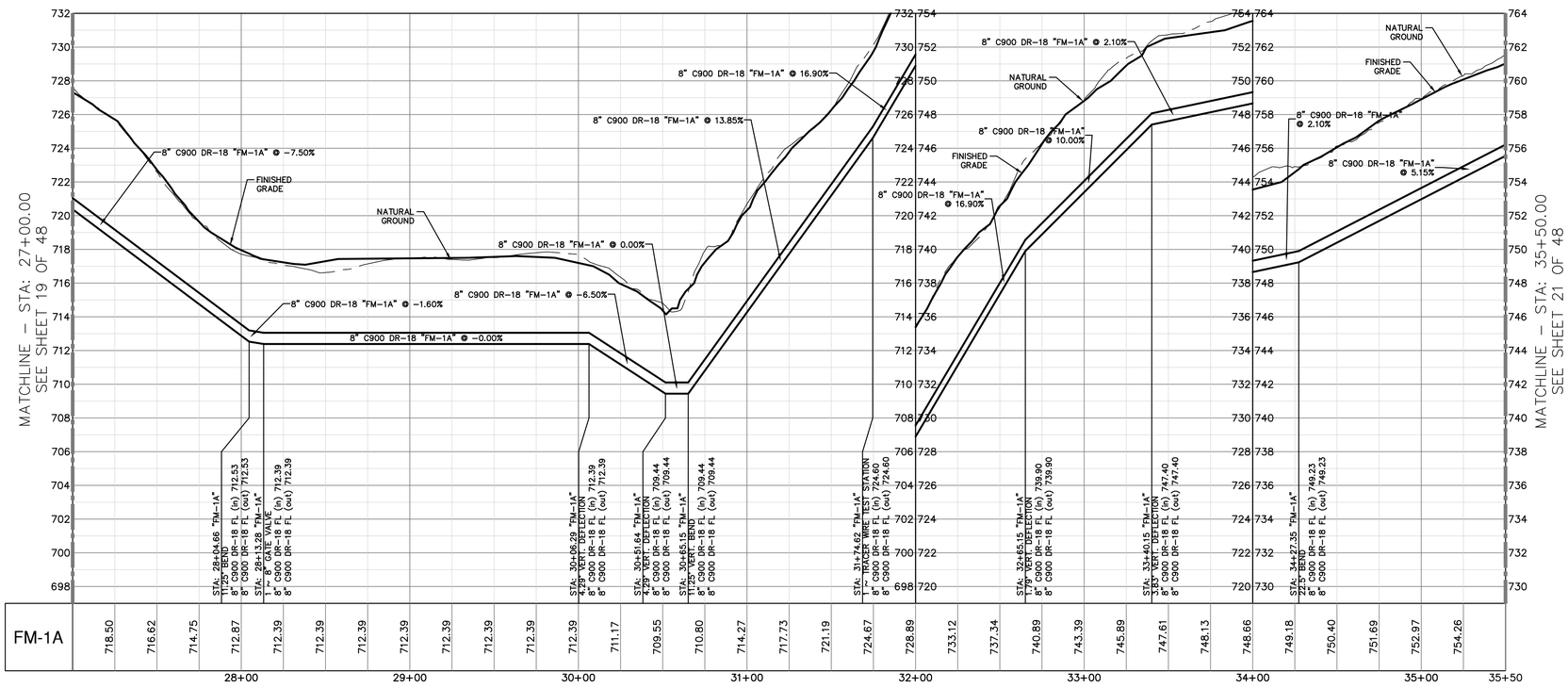
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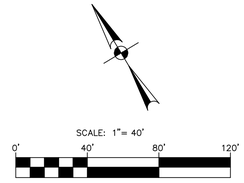
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CP-22-0144







LEGEND

- WATER LINE
- WASTEWATER LINE & MH
- WASTEWATER FORCE MAIN
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
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- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND

SUBGRADE

FINISHED GRADE

PROPOSED WASTEWATER

1~JOINT OF PRESSURE PIPE STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NOTES

1. PIPE MATERIAL FOR FORCE MAIN SHALL BE GREEN C900 DR-18 (MIN. 235 PSI PRESSURE RATING).
2. TRACER WIRE SHALL BE USED FOR ALL FORCE MAIN (SEE DETAIL SHEET 30 OF 48).
3. INDUCTIVE TRACER DETECTION TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF ALL NON-METALLIC PIPE A MINIMUM OF 12 INCHES BELOW SUBGRADE OR, IN AREAS OUTSIDE THE LIMITS OF PAVEMENT, A MINIMUM OF 18 INCHES BELOW FINISHED GRADE. THE TRACER TAPE SHALL BE ENCASED IN A PROTECTIVE, INERT, PLASTIC JACKET AND COLOR CODED ACCORDING TO AMERICAN PUBLIC WORKS ASSOCIATION UNIFORM COLOR CODE. EXCEPT FOR MINIMUM DEPTH OF COVER, THE TRACER TAPE SHALL BE PLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

NO.	REVISION	DATE

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PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA

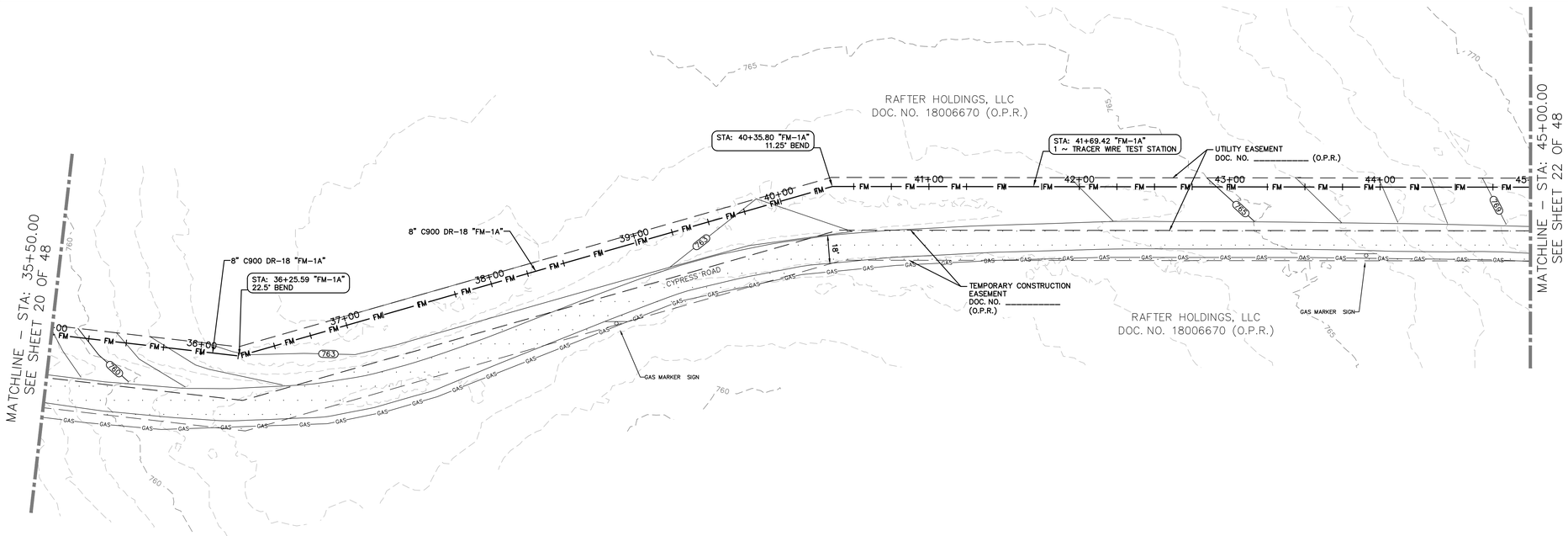
LIFT STATION & FORCE MAIN

FORCE MAIN PROFILES FM-1A 4 OF 11

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 20 OF 48

CP-22-0144

Date: Sep 30, 2024, 3:40pm User ID: andrewbook
File: H:\Projects\51456.10\302 Construction Documents\Civil\WW51456-10_FM.dwg
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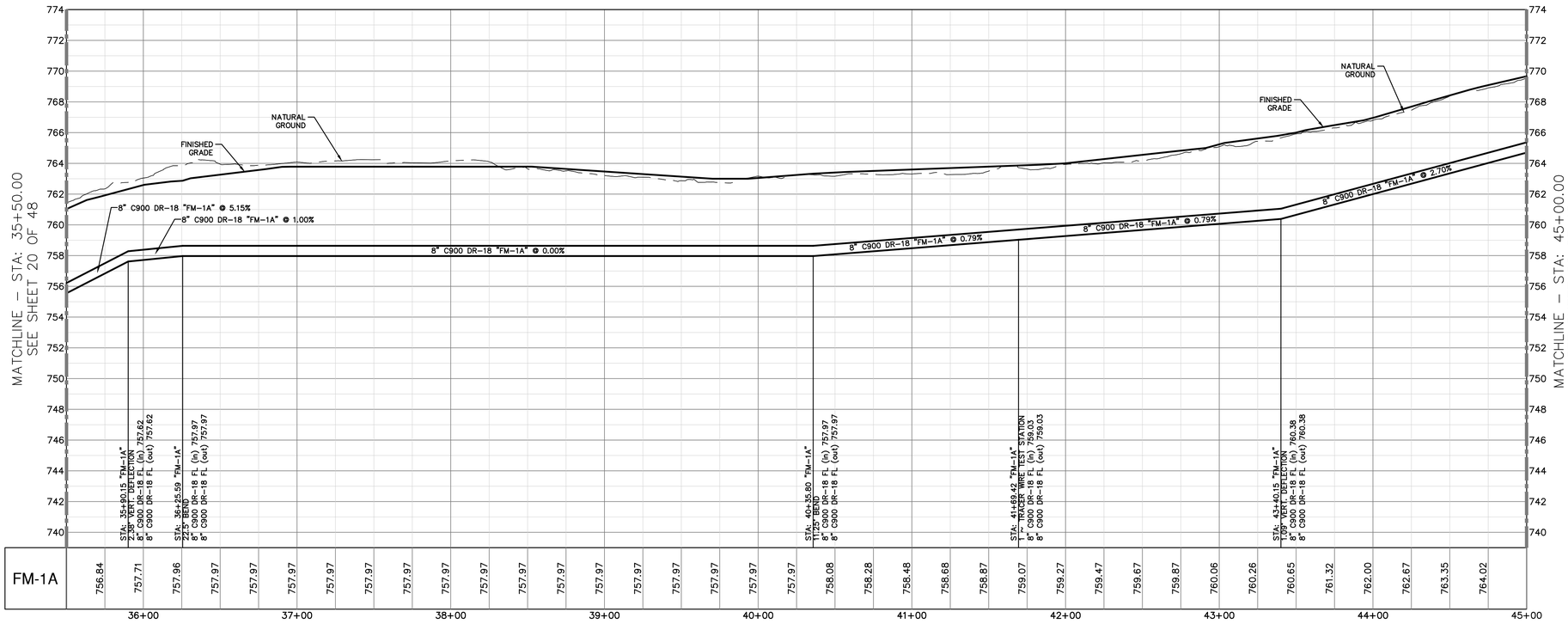


SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- WATER LINE
- WASTEWATER LINE & MH
- WASTEWATER FORCE MAIN
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE



PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND
SUBGRADE
FINISHED GRADE
PROPOSED WASTEWATER
1-JOINT OF PRESSURE PIPE
STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NOTES

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TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA

LIFT STATION & FORCE MAIN

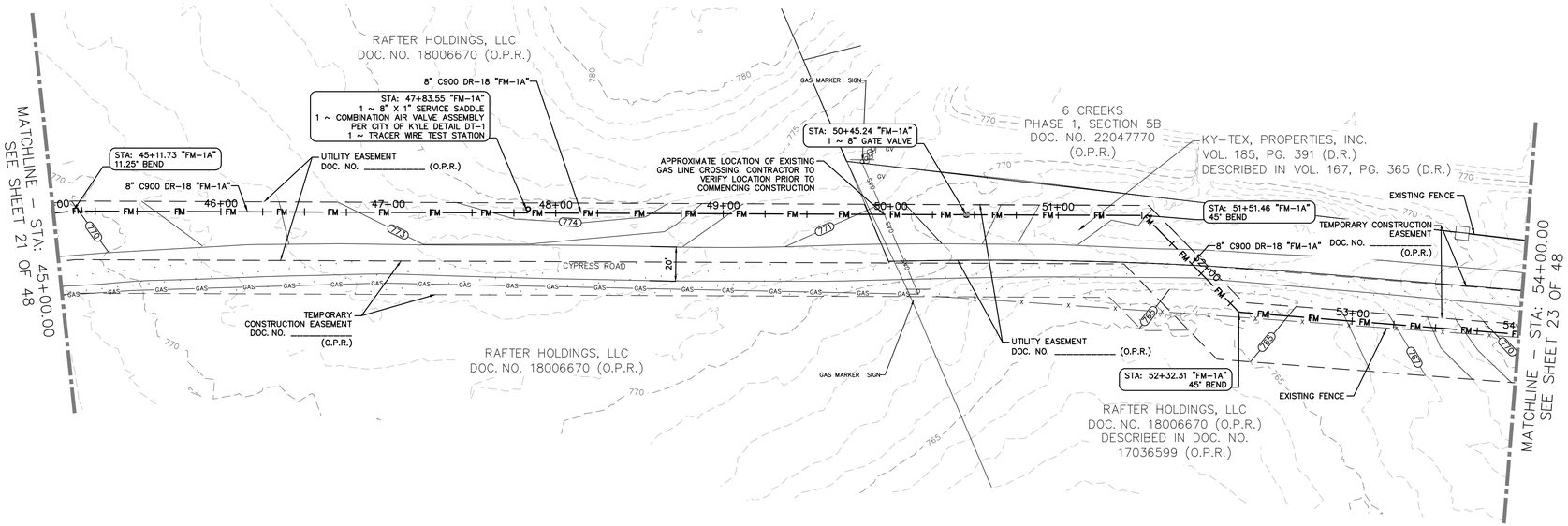
FORCE MAIN PROFILES FM-1A 5 OF 11

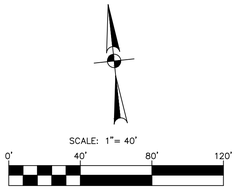
CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 21 OF 48

Date: Sep 30, 2024, 3:40pm User ID: andrewdoyle
File: H:\Projects\51456\10\302 Construction Documents\Civil\WW51456-10_FM.dwg

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CP-22-0144





LEGEND

- WATER LINE
- WASTEWATER LINE & MH
- WASTEWATER FORCE MAIN
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

PROFILE SCALES:

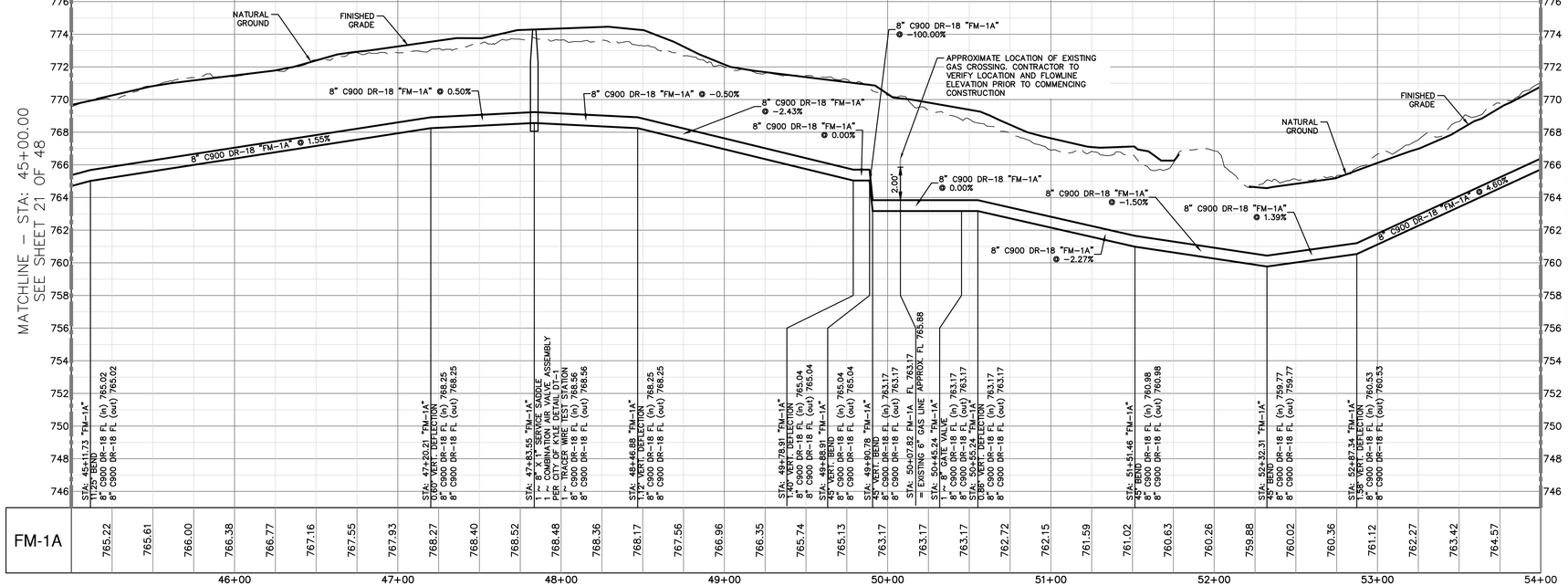
1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND
SUBGRADE
FINISHED GRADE
PROPOSED WASTEWATER
1–JOINT OF PRESSURE PIPE
STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NOTES

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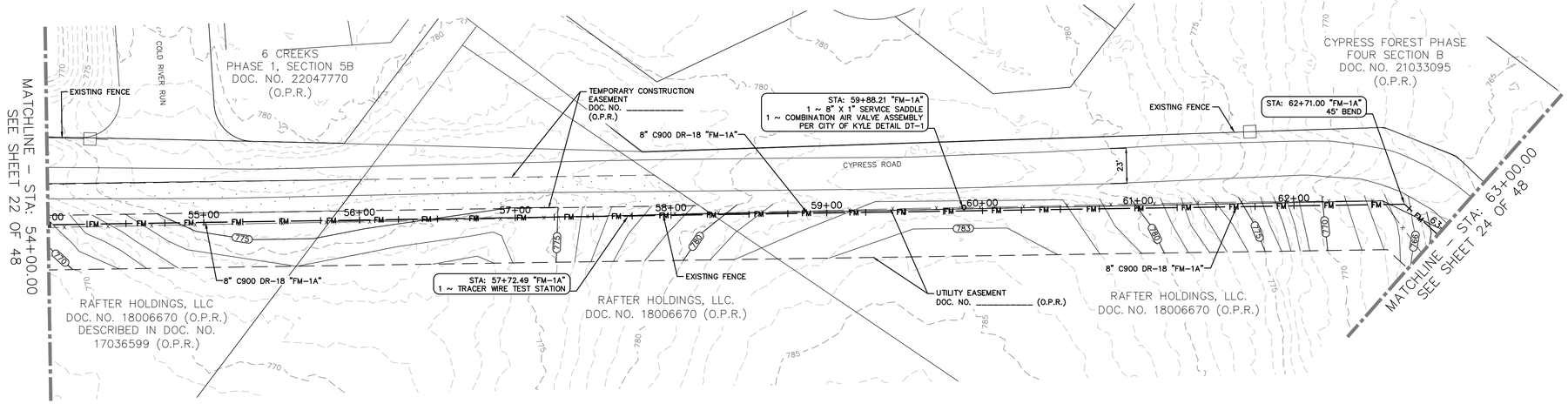
CLARA VISTA

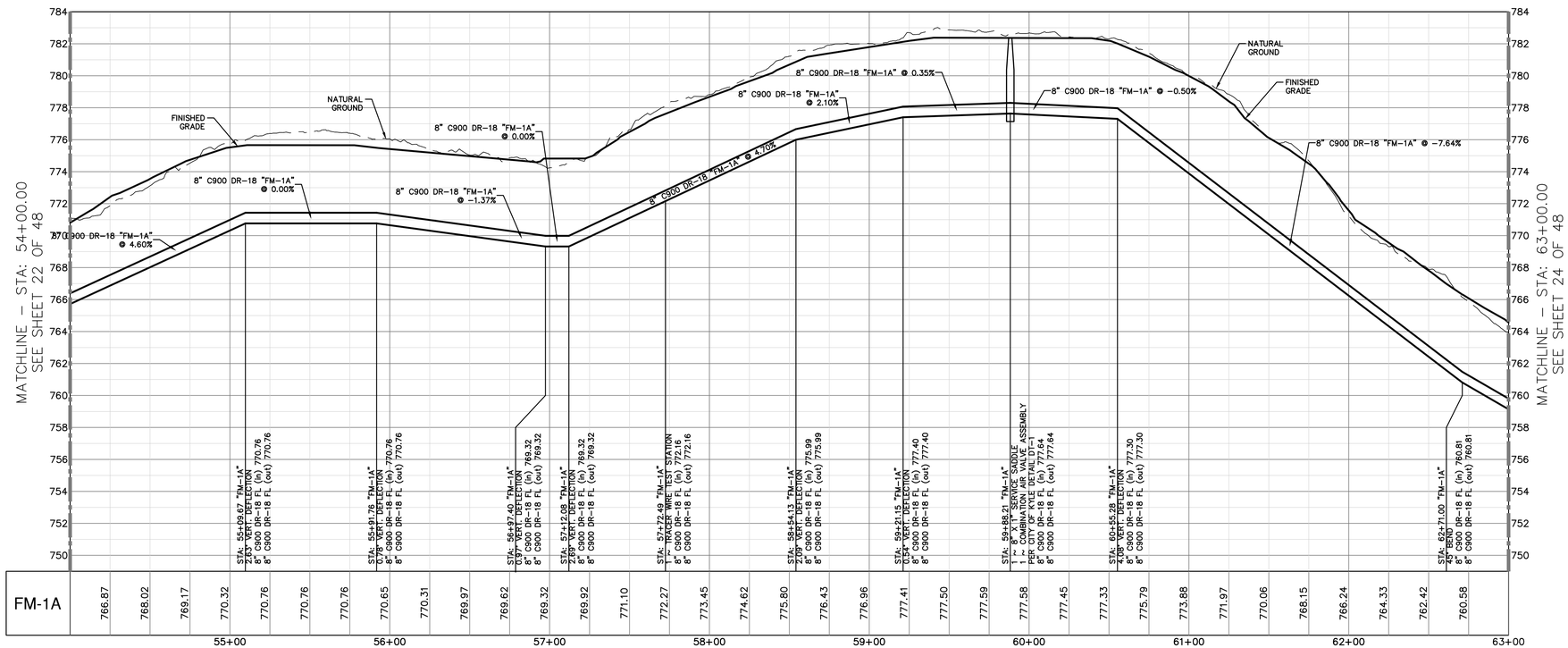
LIFT STATION & FORCE MAIN

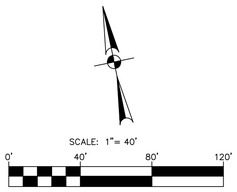
FORCE MAIN PROFILES FM-1A 6 OF 11

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 22 OF 48

Date: Sep 30, 2024, 3:41pm User ID: andredoki
File: H:\Projects\51514.56\10\302 Construction Documents\Civil\WW51456-10_FM.dwg
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LEGEND

- W — WATER LINE
- WW — WASTEWATER LINE & MH
- FM — WASTEWATER FORCE MAIN
- SD — STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND

SUBGRADE

FINISHED GRADE

PROPOSED WASTEWATER

1–JOINT OF PRESSURE PIPE — STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NOTES

1. PIPE MATERIAL FOR FORCE MAIN SHALL BE GREEN C900 DR-18 (MIN. 235 PSI PRESSURE RATING).
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PAPE-DAWSON ENGINEERS

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10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA

LIFT STATION & FORCE MAIN

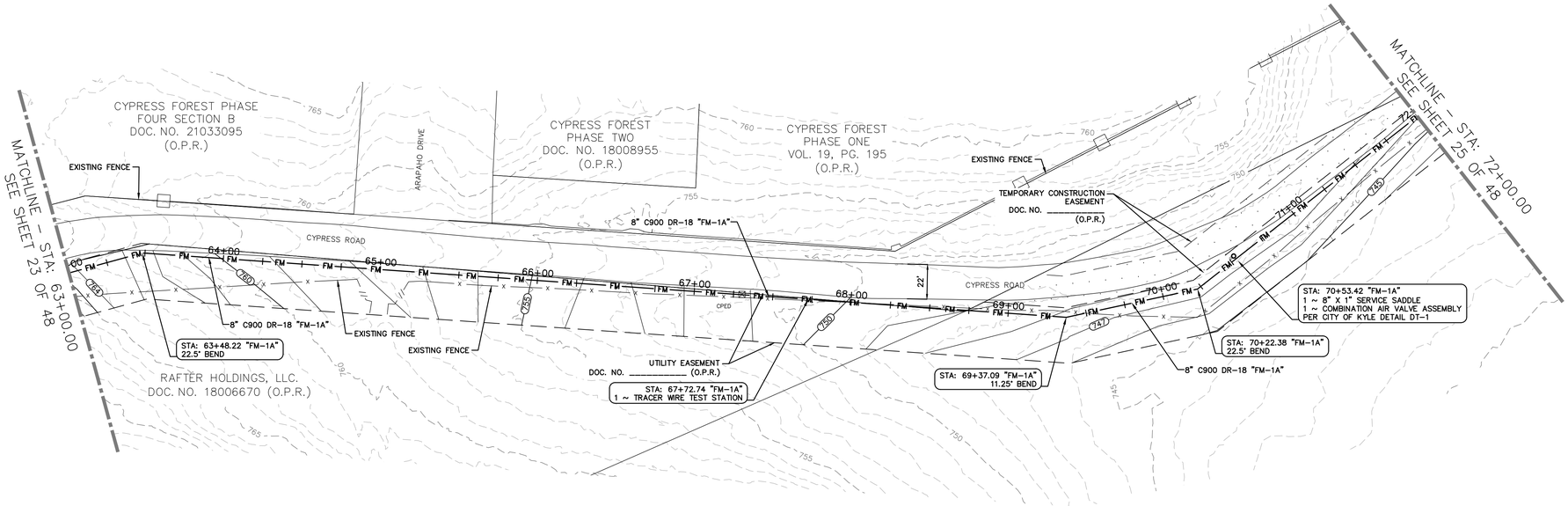
FORCE MAIN PROFILES FM-1A 7 OF 11

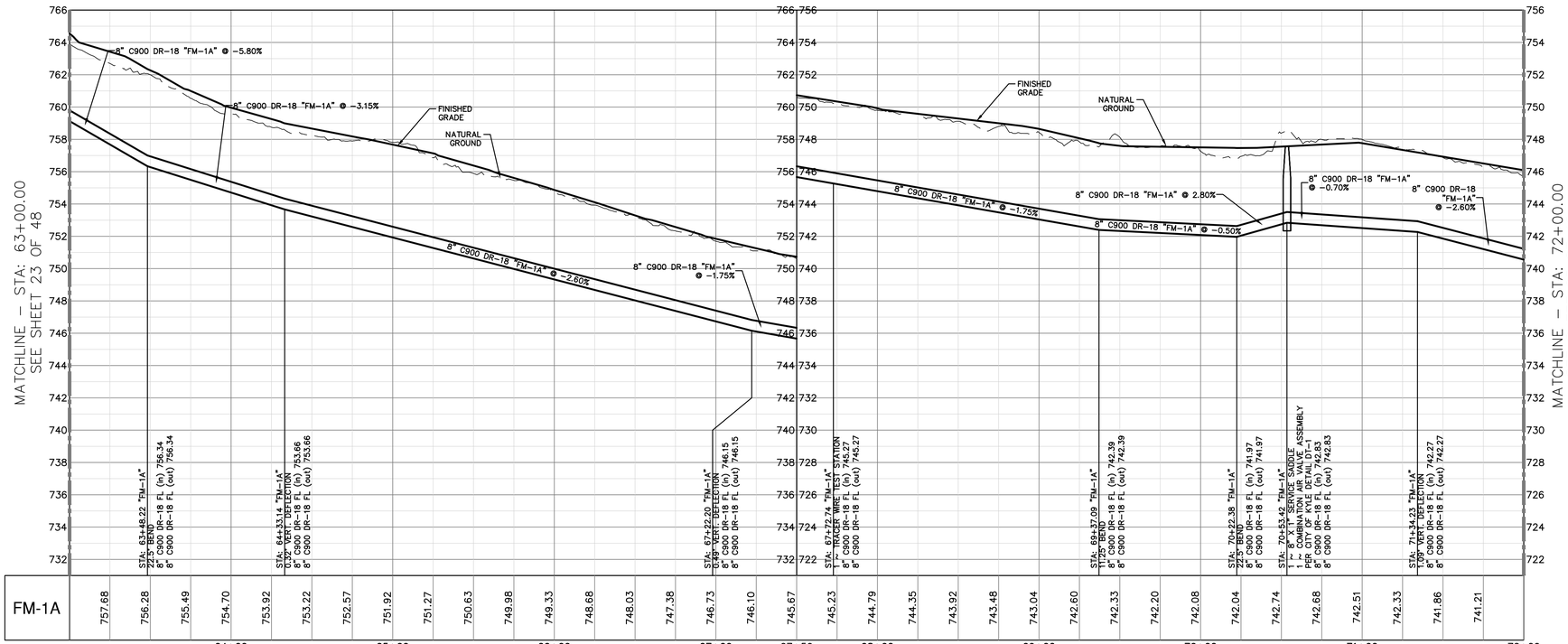
CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 23 OF 48

Date: Sep 30, 2024, 3:44pm User ID: andrewdusk
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CP-22-0144





SCALE: 1" = 40'

0' 40' 80' 120'

LEGEND

- WATER LINE
- WASTEWATER LINE & MH
- WASTEWATER FORCE MAIN
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND

SUBGRADE

FINISHED GRADE

PROPOSED WASTEWATER

1–JOINT OF PRESSURE PIPE — STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

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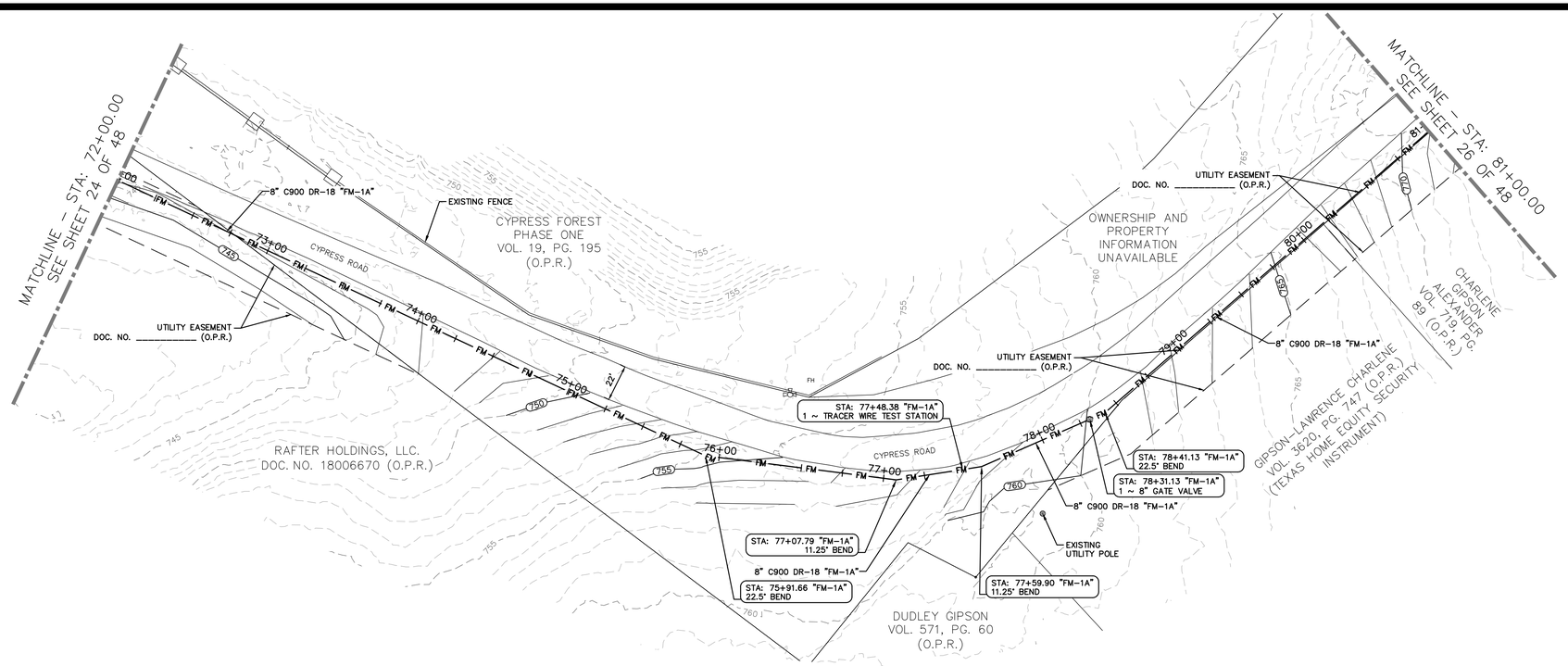
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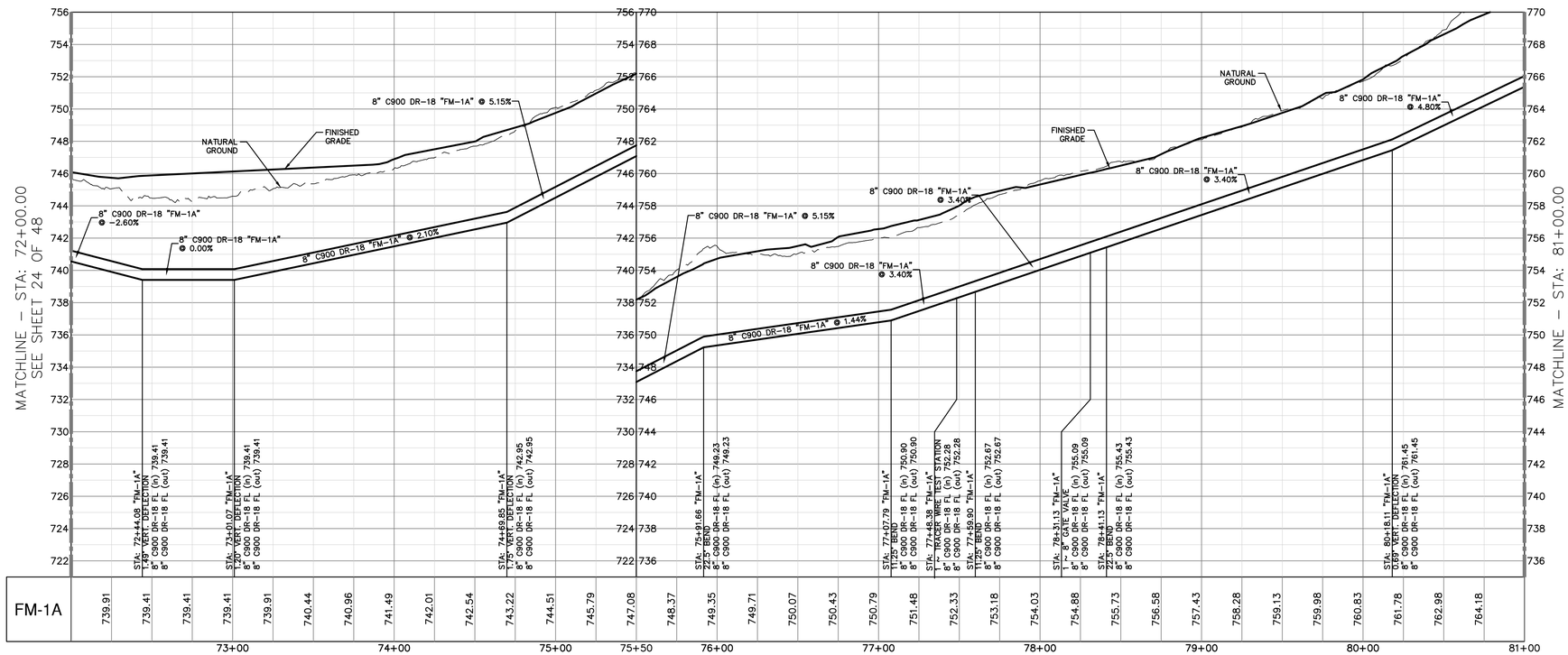
FORCE MAIN PROFILES FM-1A 8 OF 11

CITY JOB No. CP–22–0144
JOB NO. 51456–10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 24 OF 48

Date: Sep 30, 2024, 3:47pm User ID: andrewbok
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CP-22-0144





SCALE: 1" = 40'

0' 40' 80' 120'

LEGEND

- WATER LINE
- WASTEWATER LINE & MH
- WASTEWATER FORCE MAIN
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
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PROFILE LEGEND:

NATURAL GROUND

SUBGRADE

FINISHED GRADE

PROPOSED WASTEWATER

1-JOINT OF PRESSURE PIPE — STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

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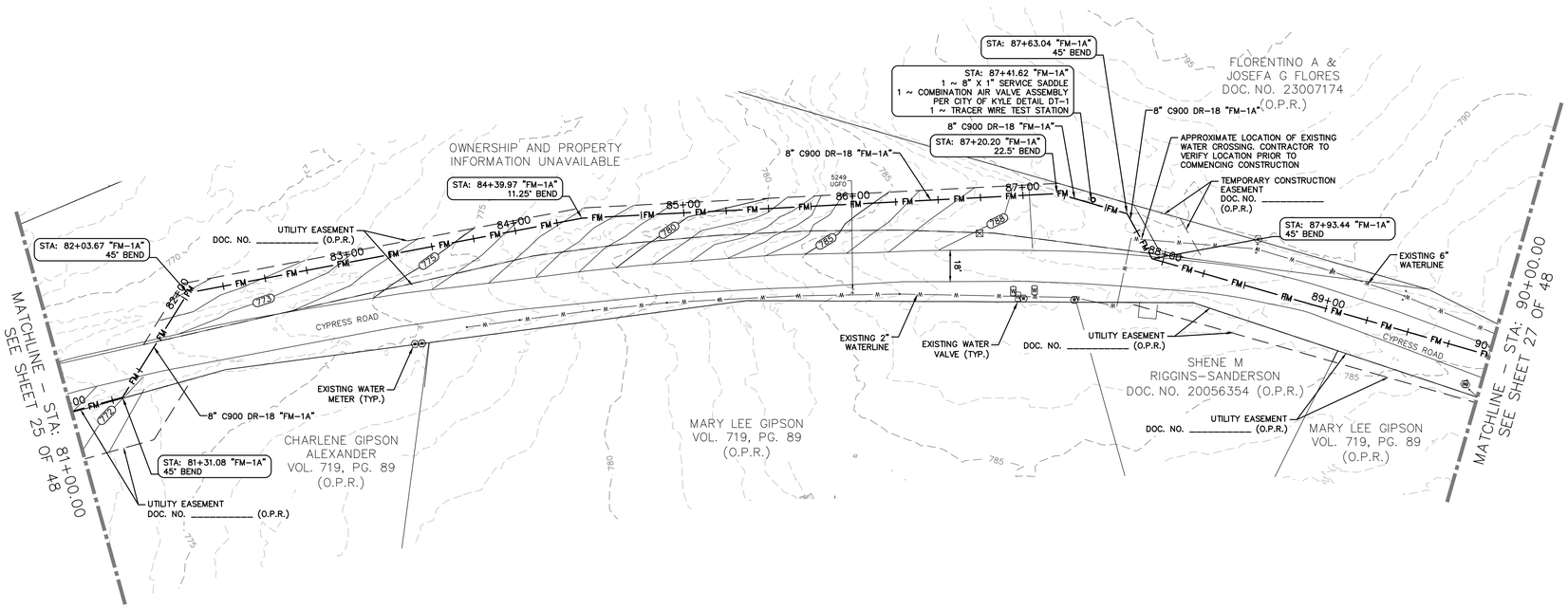
LIFT STATION & FORCE MAIN

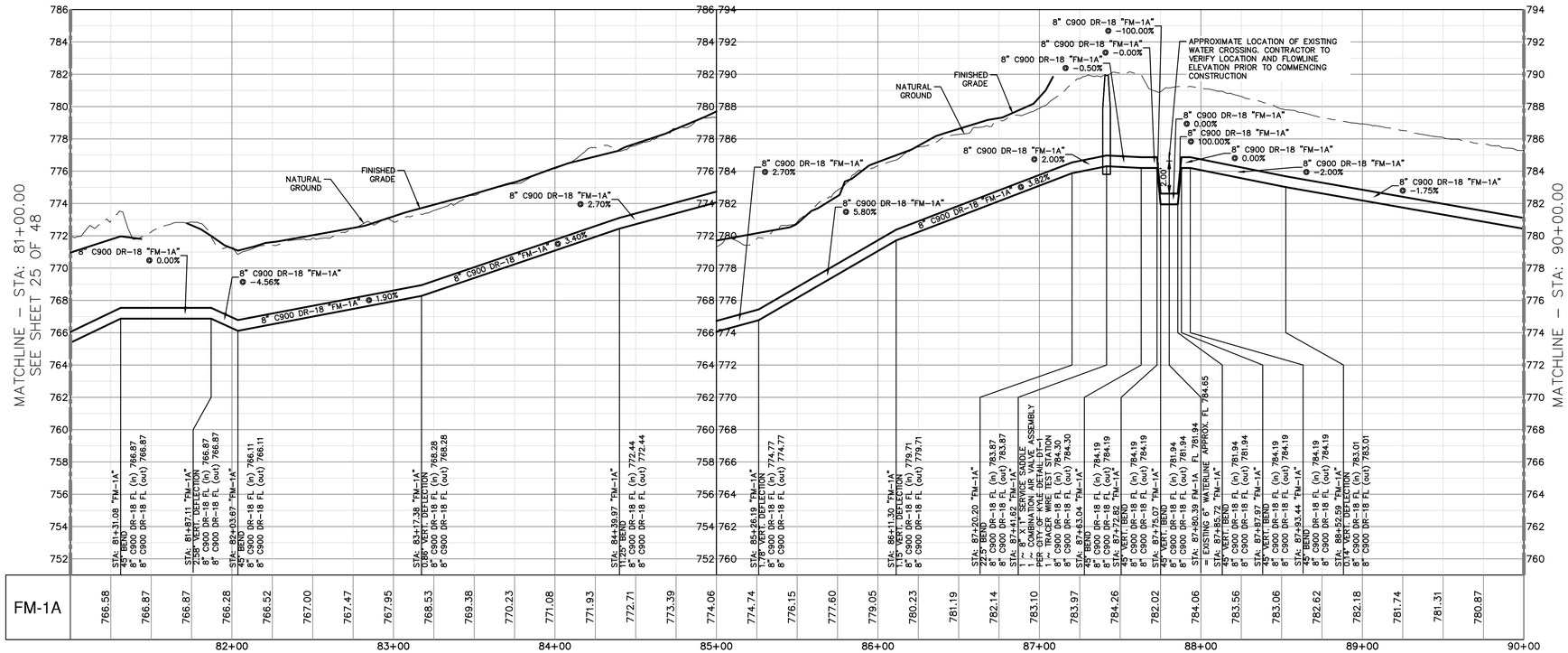
FORCE MAIN PROFILES FM-1A 9 OF 11

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 25 OF 48

Date: Sep. 30, 2024, 3:43pm User ID: andrewtook
File: I:\Projects\514\56\10\302 Construction Documents\Civil\WW51456-10_FM.dwg
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CP-22-0144





SCALE: 1" = 40'

0' 40' 80' 120'

LEGEND

- W — WATER LINE
- WW — WASTEWATER LINE & MH
- FM — WASTEWATER FORCE MAIN
- SD — STORM DRAIN LINE & MH
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- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- 786 — EXISTING CONTOUR LINE
- 786 — PROPOSED CONTOUR LINE

PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND
SUBGRADE
FINISHED GRADE
PROPOSED WASTEWATER
1-JOINT OF PRESSURE PIPE
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TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA

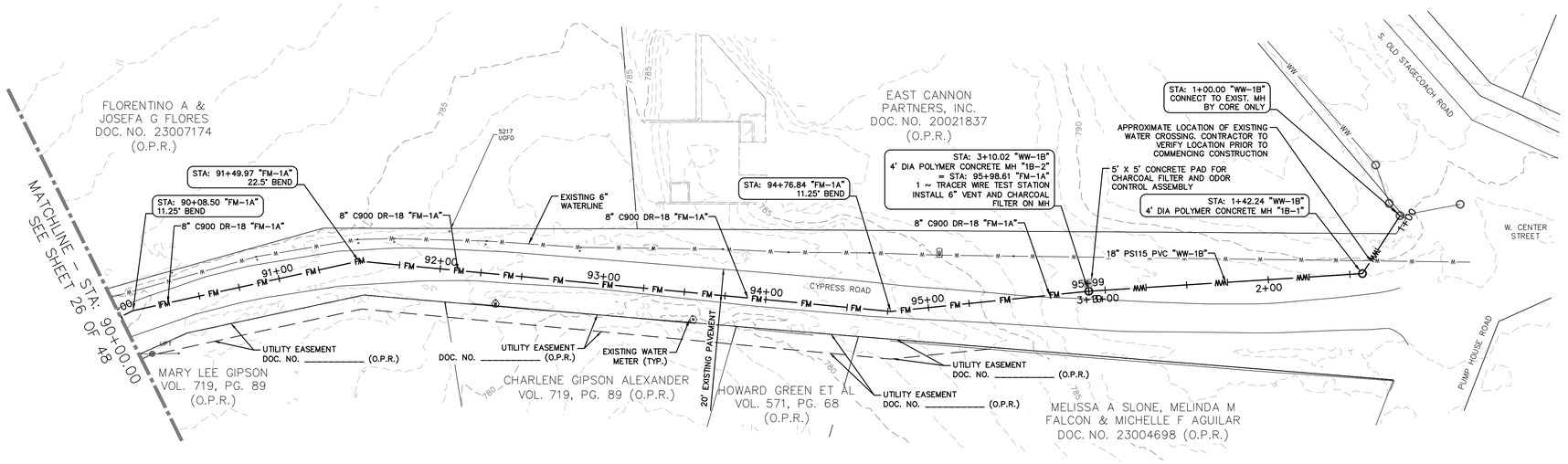
LIFT STATION & FORCE MAIN

FORCE MAIN PROFILES FM-1A 10 OF 11

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 26 OF 48

Date: Sep. 30, 2024, 3:43pm User ID: andrewtook
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CP-22-0144



SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

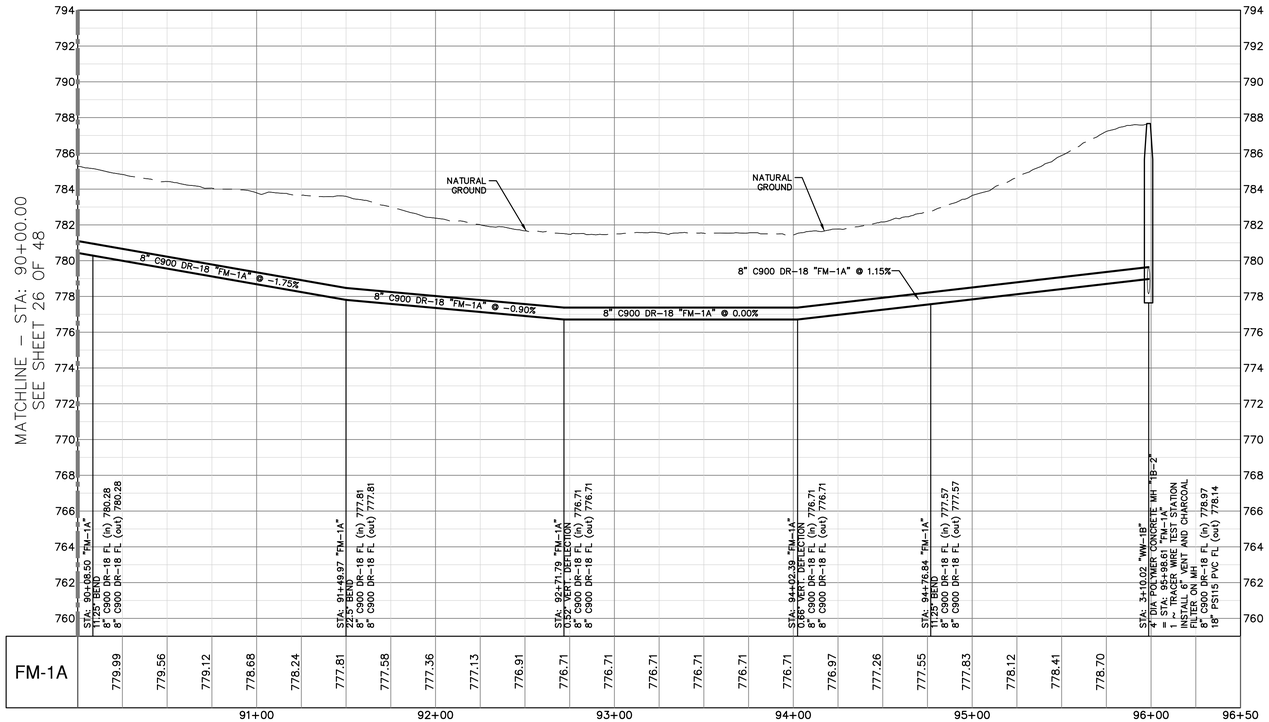
- WATER LINE
- WASTEWATER LINE & MH
- WASTEWATER FORCE MAIN
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- DOUBLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE

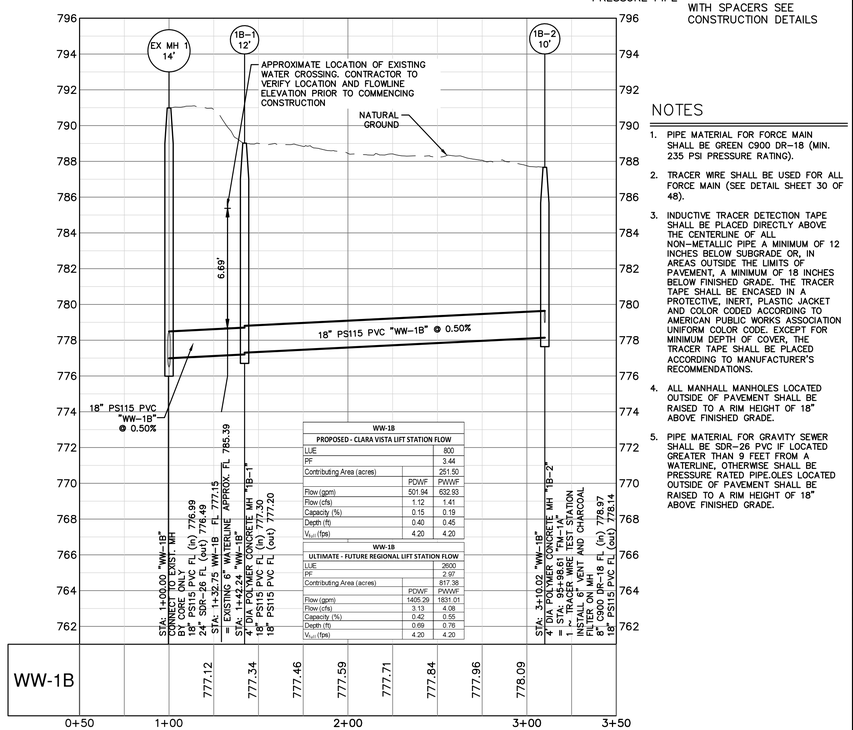
PROFILE SCALES:

1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:

NATURAL GROUND
SUBGRADE
FINISHED GRADE
PROPOSED WASTEWATER
1–JOINT OF PRESSURE PIPE
STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS





WW-1B
PROPOSED - CLARA VISTA LIFT STATION FLOW

LUE		800
PF		3.44
Contributing Area (acres)		251.50
	PDWF	PWWF
Flow (gpm)	501.94	632.93
Flow (cfs)	1.12	1.41
Capacity (%)	0.15	0.19
Depth (ft)	0.40	0.45
V_{full} (fps)	4.20	4.20

WW-1B
ULTIMATE - FUTURE REGIONAL LIFT STATION FLOW

LUE		2600
PF		2.97
Contributing Area (acres)		817.38
	PDWF	PWWF
Flow (gpm)	1405.29	1831.01
Flow (cfs)	3.13	4.08
Capacity (%)	0.42	0.55
Depth (ft)	0.69	0.76
V_{full} (fps)	4.20	4.20

NOTES

1. PIPE MATERIAL FOR FORCE MAIN SHALL BE GREEN C900 DR–18 (MIN. 235 PSI PRESSURE RATING).
2. TRACER WIRE SHALL BE USED FOR ALL FORCE MAIN (SEE DETAIL SHEET 30 OF 48).
3. INDUCTIVE TRACER DETECTION TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF ALL NON–METALLIC PIPE. A MINIMUM OF 12 INCHES BELOW SUBGRADE OR, IN AREAS OUTSIDE THE LIMITS OF PAVEMENT, A MINIMUM OF 18 INCHES BELOW FINISHED GRADE. THE TRACER TAPE SHALL BE ENCASED IN A PROTECTIVE, INERT, PLASTIC JACKET AND COLOR CODED ACCORDING TO AMERICAN PUBLIC WORKS ASSOCIATION UNIFORM COLOR CODE. EXCEPT FOR MINIMUM DEPTH OF COVER, THE TRACER TAPE SHALL BE PLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
4. ALL MANHALL MANHOLES LOCATED OUTSIDE OF PAVEMENT SHALL BE RAISED TO A RIM HEIGHT OF 18" ABOVE FINISHED GRADE.
5. PIPE MATERIAL FOR GRAVITY SEWER SHALL BE SDR–26 PVC IF LOCATED GREATER THAN 9 FEET FROM A WATERLINE, OTHERWISE SHALL BE PRESSURE RATED PIPE.OLES LOCATED OUTSIDE OF PAVEMENT SHALL BE RAISED TO A RIM HEIGHT OF 18" ABOVE FINISHED GRADE.

NO.	REVISION	DATE

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PAPE-DAWSON ENGINEERS
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TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA

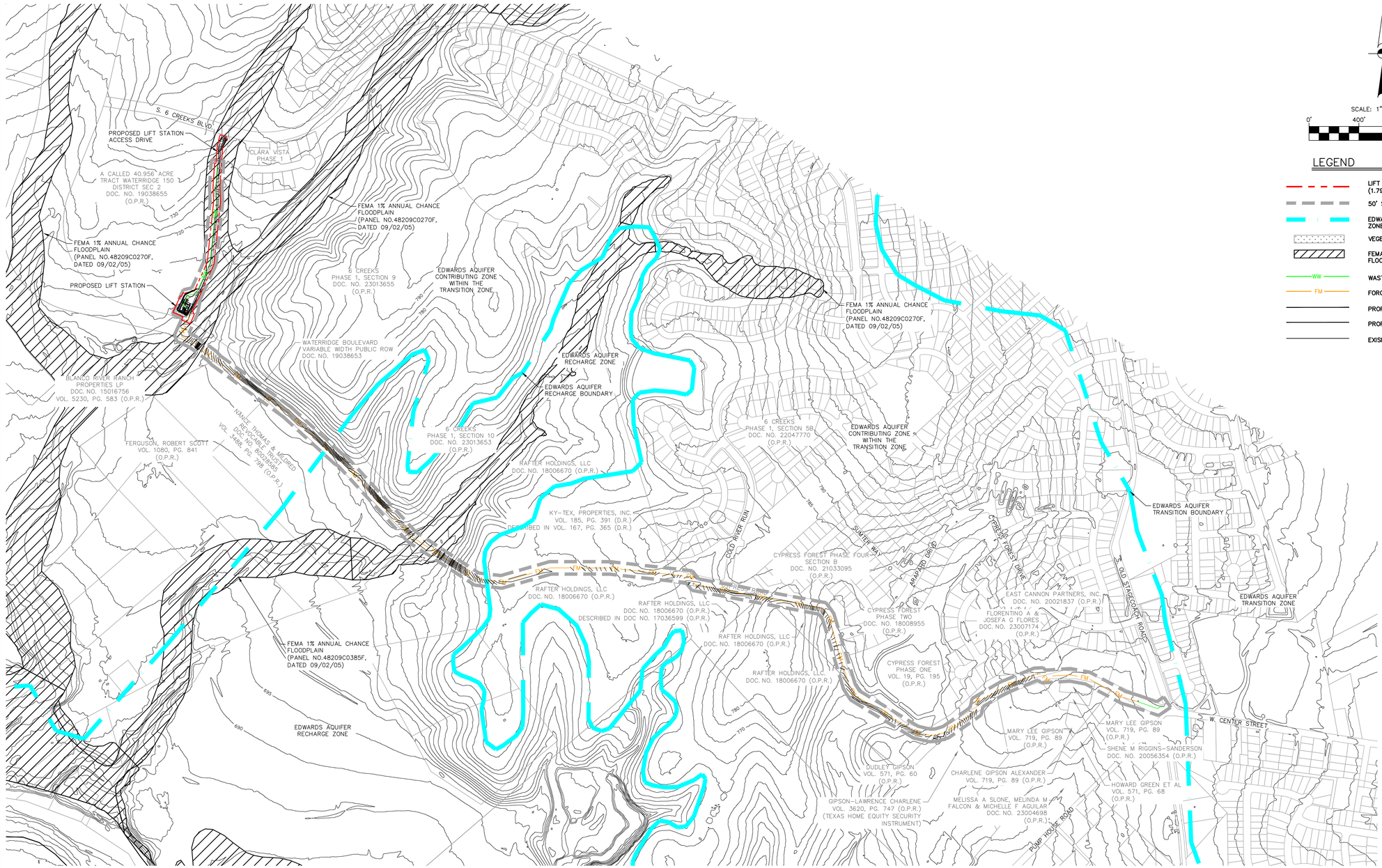
LIFT STATION & FORCE MAIN

FORCE MAIN PROFILES FM-1A 11 OF 11 & WW-1B

CITY JOB No. CP–22–0144
JOB NO. 51456–10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 27 OF 48

Date: Sep 30, 2024, 3:44am User ID: ordnevdok
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SITE PLAN



NO.	REVISION	DATE

STATE OF TEXAS
AIMEE CHAVEZ
123240
LICENSED
PROFESSIONAL ENGINEER

9/23/24

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA
LIFT STATION & FORCE MAIN
SCS SITE PLAN EXHIBIT

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE SEPTEMBER 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 1 OF 1

Date: Sep 30, 2024, 3:54pm User ID: CKoziatek
File: H:\Projects\514\36\10\302 Construction Documents\Documents\Reports\SCS\1. General Information\CAD Exhibits\240920 Site Plan.dwg

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FINAL PLAN AND PROFILE SHEETS

TEMPORARY STORMWATER

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: Aimee Chavez, P.E.

Date: September 23, 2024

Signature of Customer/Agent:



Regulated Entity Name: Clara Vista Lift Station & Force Main

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: Diesel Fuel, Gasoline, etc.

   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: Blanco 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.

ATTACHMENT A

Spill Response Actions

In the event of an accidental leak or spill:

- Spill must be contained and cleaned up immediately.
- Spills will not be merely buried or washed with water.
- Contractor shall take action to contain spill. Contractor may use sand or other absorbent material stockpiled on site to absorb spill. Absorbent material should be spread over the spill area to absorb the spilled product.
- In the event of an uncontained discharge the contractor shall utilize onsite equipment to construct berms downgradient of the spill with sand or other absorbent material to contain and absorb the spilled product.
- Spill containment/absorbent materials along with impacted media must be collected and stored in such a way so as not to continue to affect additional media (soil/water). Once the spill has been contained, collected material should be placed on poly or plastic sheeting until removed from the site. The impacted media and cleanup materials should be covered with plastic sheeting and the edges weighed down with paving bricks or other similarly dense objects as the material is being accumulated. This will prevent the impacted media and cleanup materials from becoming airborne in windy conditions or impacting runoff during a rain event. The stockpiled materials should not be located within an area of concentrated runoff such as along a curb line or within a swale.
- Contaminated soils and cleanup materials will be sampled for waste characterization. When the analysis results are known the contaminated soils and cleanup materials will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.
- The contractor will be required to notify the owner, who will in turn contact TCEQ to notify them in the event of a significant hazardous/reportable quantity spill. Additional notifications as required by the type and amount of spill will be conducted by owner or owner's representative.

In the event of an accidental significant or hazardous spill:

- Visit TCEQ's Reportable Quantities site: https://www.tceq.texas.gov/response/spills/spill_rq.html
- The contractor will be required to report significant or hazardous spills in reportable quantities as soon as possible and within 24 hours to:
  - the National Response Center at (800) 424-8802
  - the TCEQ Regional Office (512) 339-2929 (if during business hours: 8 AM to 5 PM) or
  - the State Emergency Response Center (800) 832-8224 (if after hours)

- Contaminated soils will be sampled for waste characterization. When the analysis results are known the contaminated soils will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.

Additional guidance can be obtained from TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) Section 1.4.16. Contractor shall review this section.

ATTACHMENT B

POTENTIAL SOURCES OF CONTAMINATION

Potential Source
- Asphalt products used on this project.

Preventative Measure
- After placement of asphalt, emulsion or coatings, the contractor will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt product curing time, the contractor will maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur. The contractor will be instructed not to place asphalt products on the ground within 48 hours of a forecasted rain.

Potential Source
- Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle dripping.

Preventative Measure
- Vehicle maintenance when possible will be performed within the construction staging area.
- Construction vehicles and equipment shall be checked regularly for leaks and repaired immediately.

Potential Source
- Accidental leaks or spills of oil, petroleum products and substances listed under 40 CFR parts 110, 117, and 302 used or stored temporarily on site.

Preventative Measure
- Contractor to incorporate into regular safety meetings, a discussion of spill prevention and appropriate disposal procedures.

- Contractor's superintendent or representative overseer shall enforce proper spill prevention and control measures.
- Hazardous materials and wastes shall be stored in covered containers and protected from vandalism.
- A stockpile of spill cleanup materials shall be stored on site where it will be readily accessible.

Potential Source
- Miscellaneous trash and litter from construction workers and material wrappings.

Preventive Measure
- Trash containers will be placed throughout the site to encourage proper trash disposal.

Potential Source
- Construction debris.

Preventive Measure
- Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case by case basis.

Potential Source
- Spills/Overflow of waste from portable toilets

Preventative Measure
- Portable toilets will be placed away from high traffic vehicular areas and storm drain inlets.
- Portable toilets will be placed on a level ground surface.
- Portable toilets will be inspected regularly for leaks and will be serviced and sanitized at time intervals that will maintain sanitary conditions.

ATTACHMENT C

SEQUENCE OF MAJOR ACTIVITIES

The sequence of major activities which disturb soil during construction on this site are listed below.

1) Set erosion controls – approximately 11,154 LF of silt fence, 543 LF of tree protection, and 178 LF of rock berm
2) Clear and grub – approximately 14.30 acres
3) Rough grade roadway – approximately 0.82 acres
4) Rough grade lift station – approximately 0.23 acres
5) Trench utilities – approximately 10,960 LF
6) Install water, wastewater, and storm – approximately 10,960 LF
7) Install sub base/base for road/parking areas – approximately 0.59 acres
8) Pave roadway/parking areas – approximately 0.46 acres
9) Site cleanup – approximately 14.30 acres
10) Remove erosion controls – approximately 11,154 LF of silt fence, 543 LF of tree protection, and 178 LF of rock berm

ATTACHMENT D

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

Please see the Erosion Control sheets included in the Construction Plans Section for TBMP layout and the responses below for more details.

Due to existing topography, upgradient stormwater from adjacent property north of the site enters the property and flows from north to south through the lift station project limits. As this upgradient area is currently undeveloped and undisturbed, sedimentation from off-site areas is not anticipated. All TBMPs utilized are adequate for the drainage areas served.

Site preparation, which is the initiation of all activity on the project, will disturb the largest amount of soil. Therefore, before any of this work can begin, the clearing and grading contractor will be responsible for the installation of all on-site control measures. The methodology for pollution prevention of on-site stormwater will include: (1) erection of silt fences along the downgradient boundary of construction activities for temporary erosion and sedimentation controls, (2) installation of rock berms downgradient from areas of concentrated stormwater flow for temporary erosion control, (3) installation of stabilized construction entrance/exit(s) to reduce the dispersion of sediment from the site, and (4) installation of construction staging area(s).

Prior to the initiation of construction, all previously installed control measures will be repaired or reestablished for their designed or intended purpose. This work, which is the remainder of all activities on the project, may also disturb additional soil. The construction contractor will be responsible for the installation of all remaining on-site control measures that includes installation of the concrete truck washout pit(s), as construction phasing warrants.

Temporary measures are intended to provide a method of slowing the flow of runoff from the construction site in order to allow sediment and suspended solids to settle out of the runoff. By containing the sediment and solids within the site, they will not enter the aquifer, surface streams and/or sensitive features that may exist downstream of the site.

Temporary measures are intended to provide a method of slowing the flow of runoff from the construction site in order to allow sediment and suspended solids to settle out of the runoff. By containing the sediment and solids within the site, they will not enter the aquifer, surface streams and/or sensitive features that may exist downstream of the site.

BMP measures utilized in this plan are intended to allow stormwater to continue downstream after passing through the BMPs. This will allow stormwater runoff to continue downgradient to streams or features that may exist downstream of the site. Features discovered during construction will be reported and assessed in accordance with applicable regulations.

ATTACHMENT F

STRUCTURAL PRACTICES

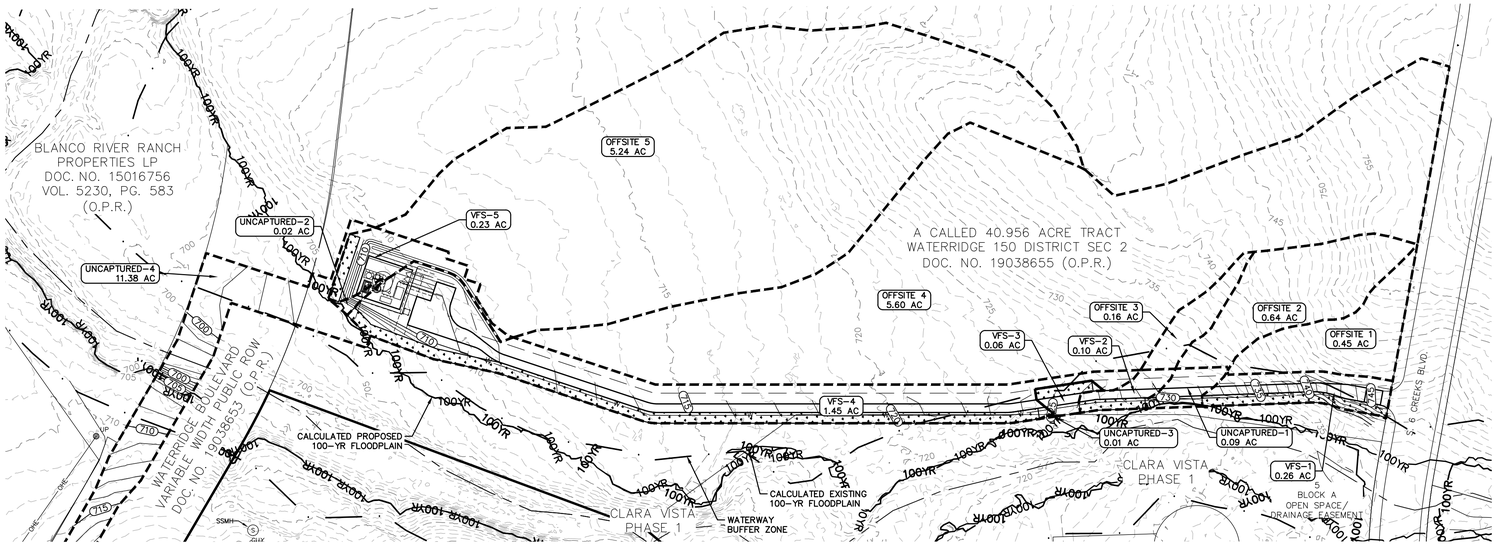
The following structural measures will be installed prior to the initiation of site preparation activities:

- Erection of silt fences along the downgradient boundary of construction activities and rock berms for secondary protection, as located on the Erosion Control sheets and illustrated on the Construction Details - Erosion Controls sheet.
- Installation of stabilized construction entrance/exit(s) and construction staging area(s), as located on the Erosion Control sheets and illustrated on the Construction Details - Erosion Controls sheet.

The following structural measures will be installed at the initiation of construction activities or as appropriate based on the construction sequencing:

- Installation of concrete truck washout pit(s), as required and located on the Erosion Control sheets and illustrated on the Construction Details - Erosion Controls sheet.
- Installation of rock berm, as required and located on the Erosion Control sheets and illustrated on the Construction Details – Erosion Controls sheet.

ATTACHMENT G



SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- PROPOSED WATERSHED
- OFFSITE 3A 3.92 AC — WATERSHED ACREAGE
- FLOW DIRECTION
- WATERWAY BUFFER ZONE
- 100YR — CALCULATED EXISTING 100-YR FLOODPLAIN
- 100YR — CALCULATED PROPOSED 100-YR FLOODPLAIN

NOTES

1. NO ADDITIONAL IMPERVIOUS COVER IS PROPOSED TO BE ADDED IN DRAINAGE AREA UNCAPTURED 4.

Treatment Summary Table
Current Application - Hawkes Landing North Phase 1

Watershed	Watershed Area (acres)	Total Existing Impervious Cover (acres)	Total Proposed Impervious Cover (acres)	Total Net Impervious Cover (acres)	BMP	Required TSS Removal (lbs./yr.)	Designed TSS Removal (lbs./yr.)
VFS 1	0.26	0.01	0.09	0.08	ENGINEERED VFS 1	69	69
VFS 2	0.10	0.00	0.03	0.03	ENGINEERED VFS 2	26	26
VFS 3	0.06	0.00	0.02	0.02	ENGINEERED VFS 3	13	13
VFS 4	1.45	0.00	0.39	0.39	ENGINEERED VFS 4	344	368
VFS 5	0.23	0.00	0.05	0.05	ENGINEERED VFS 5	42	42
UNCAPTURED 1	0.09	0.00	0.02	0.02	OVER TREATMENT BY ENGINEERED VFS 4	17	0
UNCAPTURED 2	0.02	0.00	0.01	0.01	OVER TREATMENT BY ENGINEERED VFS 4	7	0
UNCAPTURED 3	0.00	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
UNCAPTURED 4	11.38	2.50	2.50	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 1	0.45	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 2	0.64	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 3	0.16	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 4	5.60	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
OFFSITE 5	5.24	0.00	0.00	0.00	NO BMP REQUIRED (NO ADDITIONAL IMPERVIOUS COVER PROPOSED)	0	0
Total	25.68	2.50	3.11	0.60		518	518

NO.	REVISION	DATE

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AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

CLARA VISTA
LIFT STATION & FORCE MAIN
WATER QUALITY DRAINAGE MAP

CITY JOB No. CP-22-0144
JOB NO. 51456-10
DATE JULY 2024
DESIGNER AD/BA/JS
CHECKED AC DRAWN AD
SHEET 12 OF 48

Date: Sep 30, 2024, 3:31pm User ID: andrewdoak
File: N:\Projects\51456\10\302 Construction Documents\Civil\W051456-10_FM.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

CP-22-0144

ATTACHMENT I

INSPECTIONS & MAINTENANCE

Designated and qualified person(s) shall inspect Pollution Control Measures weekly and within 24 hours after a storm event. An inspection report that summarizes the scope of the inspection, names and qualifications of personnel conducting the inspection, date of the inspection, major observations, and actions taken as a result of the inspection will be recorded and maintained as part of Storm Water TPDES data for a period of three years after the Notice of Termination (NOT) has been filed. A copy of the Inspection Report Form is provided in this Storm Water Pollution Prevention Plan.

As a minimum, the inspector shall observe: (1) significant disturbed areas for evidence of erosion, (2) storage areas for evidence of leakage from the exposed stored materials, (3) structural controls (rock berm outlets, silt fences, drainage swales, etc.) for evidence of failure or excess siltation (over 6 inches deep), (4) vehicle exit point for evidence of off-site sediment tracking, (5) vehicle storage areas for signs of leaking equipment or spills, (6) concrete truck rinse-out pit for signs of potential failure, (7) embankment, spillways, and outlet of sediment basin (where applicable) for erosion damage, and (8) sediment basins (where applicable) for evidence that basin has accumulated 50% of its volume in silt. Deficiencies noted during the inspection will be corrected and documented within seven calendar days following the inspection or before the next anticipated storm event if practicable. Temporary sediment basins and permanent basins will be inspected until final stabilization of 70% within the basin watershed is achieved.

BMP inspection and maintenance requirements from sections 1.3 and 1.4 of TCEQ's Technical Guidance Manual are detailed below.

Temporary Construction Entrance/Exit

- 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 onto public rights-of-way should be removed immediately by contractor.
- When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-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.

Silt Fence

- Inspect all fencing weekly, and after any rainfall.
- Remove sediment when buildup reaches 6 inches.
- Replace any torn fabric or install a second line of fencing parallel to the torn section.
- Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
- When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

Rock Berms

- Inspection should be made weekly and after each rainfall 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 that will not cause any additional siltation.
- 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 rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

Pollution Prevention Measure	**Inspected in Compliance**	**Corrective Action Required**	
		Description **(use additional sheet if necessary)**	**Date Completed**
Best Management Practices			
Natural vegetation buffer strips			
Temporary vegetation			
Permanent vegetation			
Sediment control basin			
Silt fences			
Rock berms			
Gravel filter bags			
Drain inlet protection			
Other structural controls			
Vehicle exits (off-site tracking)			
Material storage areas (leakage)			
Equipment areas (leaks, spills)			
Concrete washout pit (leaks, failure)			
General site cleanliness			
Trash receptacles			
Evidence of Erosion			
Site preparation			
Roadway or parking lot construction			
Utility construction			
Drainage construction			
Building construction			
Major Observations			
Sediment discharges from site			
BMPs requiring maintenance			
BMPs requiring modification			
Additional BMPs required			

_____ A brief statement describing the qualifications of the inspector is included in this SWP3.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I further certify I am an authorized signatory in accordance with the provisions of 30 TAC §305.128."

Inspector's Name _____ Inspector's Signature _____ Date _____

PROJECT MILESTONE DATES

Date when major site grading activities begin:

Construction Activity	*Date*
Installation of BMPs	

Dates when construction activities temporarily or permanently cease on all or a portion of the project:

Construction Activity	Date

Dates when stabilization measures are initiated:

Stabilization Activity	Date
Removal of BMPs	

ATTACHMENT J

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

Interim on-site stabilization measures, which are continuous, will include minimizing soil disturbances by exposing the smallest practical area of land required for the shortest period of time and maximizing use of natural vegetation. As soon as practical, all disturbed soil will be stabilized via permanent revegetation. Details, such as installation, irrigation, and maintenance are provided below.

Installation:

- Final grading must be completed prior to seeding, minimizing all steep slopes. In addition, all necessary erosion structures such as dikes, swales, diversions, should also be installed.
- Seedbed should be well pulverized, loose, and uniform.
- Fertilizer should be applied at the rate of 40 pounds of nitrogen and 40 pounds of phosphorus per acre, which is equivalent to about 1.0 pounds of nitrogen and phosphorus per 1000 square feet. Compost can be used instead of fertilizer and applied at the same time as the seed.

Irrigation:

- Temporary irrigation should be provided according to the schedule described below, or to replace moisture loss to evapotranspiration (ET), whichever is greater. Significant rainfall (on-site rainfall of ½" or greater) may allow watering to be postponed until the next scheduled irrigation.

Time Period	Irrigation Amount and Frequency
Within 2 hours of installation	Irrigate entire root depth, or to germinate seed
During the next 10 business days	Irrigate entire root depth every Monday, Wednesday, and Friday
During the next 30 business days or until Substantial Completion	Irrigate entire root depth a minimum of once per week, or as necessary to ensure vigorous growth
During the next 4 months or until Final Acceptance of the Project	Irrigate entire root depth once every two weeks, or as necessary to ensure vigorous growth

Inspection and Maintenance Guidelines:

- Permanent vegetation should be inspected weekly and after each rain event to locate and

repair any erosion.

- Erosion from storms or other damage should be repaired as soon as practical by regrading the area and applying new seed.
- If the vegetated cover is less than 80%, the area should be reseeded.

Stabilization measures will be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and except as provided below, will be initiated no more than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within twenty-one (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 seasonably arid conditions, stabilization measures must be initiated as soon as practicable.

RECORDED EASEMENTS

HAYS COUNTY CAD
PROPERTY ID #169048

NOTICE OF CONFIDENTIALITY RIGHTS: If you are a natural person, you may remove or strike any or all of the following information from any instrument that transfers an interest in real property before it is filed for record in the public records: your Social Security number or your driver's license number.

WASTEWATER & ACCESS EASEMENT

Date:	February 5, 2025
Grantor:	Toll Southwest LLC A Delaware limited liability company
Grantor's Address:	1140 Virginia Drive Ft. Washington, PA 19034
Grantee:	City of Kyle Hays County, Texas
Grantor's Address:	100 West Center Street Kyle, TX 78640
Easement Tract:	A 0.094-acre or 4,014 square foot tract of land, situated in the Caleb W. Baker Survey, Section No. 15 Abstract No. 31, Hays County, Texas, being out of a called 107.906 acre tract, conveyed to Toll Southwest, LLC, recorded in Document No. 22021196 of the Official Public records of Hays County, Texas, more particularly described by metes and bounds in **EXHIBIT A** and as shown in **EXHIBIT B** attached hereto.
Easement Duration:	Perpetual or until the Facilities are abandoned.
Easement Purpose:	To install, construct, operate, use, maintain, repair, modify, upgrade, monitor, inspect, replace, make connections with, remove, and decommission the Facilities.
Facilities:	**An access drive, 10" wastewater line,** and associated appurtenances.
Permitted Encumbrances:	Any easements, liens, encumbrances, and other matters that are valid, existing, and affect the Easement Tract as of the Date set forth herein and of record in the Real Property Records of Hays County, Texas in which the Easement Tract is located.
Non-Permitted Activity:	Installation, construction, operation, use, maintenance, repair, modification, upgrade, and replacement of any structure, building, retaining wall, detention or water quality controls, rainwater harvesting system or trees, either above or below the surface of the Easement Tract.

Eligible Improvements: Irrigation systems that are installed perpendicular to the Facilities, walkways made of concrete, asphalt, granite or any other similar materials, driveways, access roads and parking areas at grade level, barbed-wire, chain-link, and wooden fences, landscaping items such as plants, flowers, shrubs, bushes, hardscapes, rocks, pathways, and movable structure such as benches, and other similar items.

Grantor, for **TEN AND NO/100 DOLLARS ($10.00)** and other good and valuable consideration paid to Grantor, the receipt and sufficiency of which is acknowledged by Grantor, **GRANTS, SELLS, AND CONVEYS** to the City an exclusive easement in, over, under, on, and across the Easement Tract for the Easement Purpose as may be necessary or desirable subject to the Permitted Encumbrances, together with (i) the right of ingress and egress at all times over, on, and across the Easement Tract for use of the Easement Tract for the Easement Purpose, (ii) the right to eliminate any encroachments in the Easement Tract that are not otherwise permitted hereunder, and (iii) any and all rights and appurtenances pertaining to use of the Easement Tract (collectively, the "**Easement**").

TO HAVE AND TO HOLD the Easement to the City and City's successors and assigns for the Easement Duration and Easement Purpose; provided, however, Grantor reserves the right to enter upon and use any portion of the Easement Tract and to install, construct, operate, use, maintain, repair, modify, upgrade, and replace within the Easement Tract the improvements allowed under the City Permit and the Eligible Improvements, but in no event shall Grantor, except with respect to the improvements allowed under the City Permit and the Eligible Improvements, enter upon or use any portion of the Easement Tract for any Non-Permitted Activity or in any other manner that interferes in any material way or is inconsistent with the rights granted the City under this Easement for the Easement Purpose as determined by City in its reasonable discretion.

City, at its sole cost and expense, shall be obligated to restore the surface of the soil of the Easement Tract that has been removed, relocated, altered as a result of City's use of the Easement Tract, in each case to substantially and a reasonably practicable to the same condition as existed immediately prior to Grantee's exercise of its rights and/or obligations hereunder. City will not be obligated to restore or relocate any other improvements, including Eligible Improvements and Third Party Facilities, located in, upon, under or across the Easement Tract.

Grantor reserves its interest in all oil, gas, and other minerals in and under and that may be produced from the Easement Tract.

Grantor binds Grantor and Grantor's heirs, successors, and assigns to **WARRANT AND FOREVER DEFEND** the title to the Easement, subject to the Permitted Encumbrances, to the City against every person whomsoever lawfully claiming or to claim the Easement Tract or any part of the Easement Tract when the claim is by, through, or under Grantor, but not otherwise.

Except where the context otherwise requires, Grantor includes Grantor's heirs, successors, and assigns and City includes City's employees, agents, consultants, contractors, successors, and assigns; and where the context requires, singular nouns and pronouns include the plural.

Executed effective the Date first above stated.

Grantor: Kyle Ninness

By:

By: _____

STATE OF TEXAS
COUNTY OF Williamson

This instrument was acknowledged before me on the 5th day of Feb 2025 by Kyle Ninness, Dir Land Development, on behalf of said entity for the purposes set forth herein.

[NOTARY SEAL]
DENA K ST GERMAINE
Notary ID #128686215
My Commission Expires
November 12, 2028

Dena St. Germaine
Notary Public in and for the State of Texas

STATE OF TEXAS
COUNTY OF _____

This instrument was acknowledged before me on the____day of _____ 20__, by _____, _____, on behalf of said entity for the purposes set forth herein

[NOTARY SEAL]

_____
Notary Public in and for the State of Texas

FIELD NOTES
FOR

A 0.094 ACRE OR 4,074 SQUARE FOOT TRACT OF LAND, SITUATED IN THE CALEB W. BAKER SURVEY, SECTION NO. 15, ABSTRACT NO. 31, BEING OUT OF A CALLED 18.856 ACRE TRACT, CONVEYED TO TOLL SOUTHWEST, LLC, RECORDED IN DOCUMENT NO. 22021196 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS. SAID 0.094 ACRE TRACT BEING MORE FULLY DESCRIBED AS FOLLOWS, WITH BEARINGS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NA 2011) EPOCH 2010.00, FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH-CENTRAL ZONE:

BEGINNING at an iron rod with cap marked "Atwell" found on an interior corner of a called 40.956 acer tract, conveyed to Waterridge 150 District, Section 2, a subdivision according to the plat recorded in Document No. 1938655 of the Plat Records of Hays County, Texas, same being a southwest corner of said 18.856 acre tract for the **POINT OF BEGINNING** hereof;

THENCE N 06°02'50" E, with the east boundary line of said 40.956 acre tract, same being the west boundary line of said 18.856 acre tract, a distance of **339.05 feet** to a calculated point for the northwest corner hereof, from which an iron rod with an illegible cap found on an interior corner of said 40.956 acre tract, same being a northwest corner of said 18.856 acre tract, bears N 06°02'50" E, a distance of 161.21 feet,

THENCE, departing the east boundary line of said 40.956 acre tract, through the interior of said 18.856 acre tract, the following four (4) courses and distances:

1. **N 87°31'37" E,** a distance of **6.12 feet** to a calculated point for the northeast corner hereof,

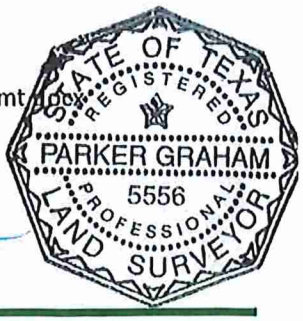
2. **S 02°28'23" E,** a distance of **35.47 feet** to a calculated point of tangent curvature hereof,

3. along a curve to the right, having a **radius** of **71.00 feet,** a central angle of **08°32'06",** a **chord bearing** and **distance** of **S 01°47'40" W, 10.57 feet,** an **arc length** of **10.58 feet** to a calculated point of tangency hereof, and

4. **S 06°03'43" W,** a distance of **310.80 feet** to a calculated point on a north boundary line of said 40.956 acre tract, same being a south boundary line of said 18.856 acre tract for the southeast corner hereof,

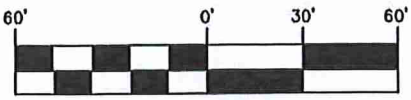
THENCE N 30°05'20" W, with the north boundary line of said 40.956 acre tract, same being a south boundary line of said 18.856 acre tract, a distance of **20.37 feet** to the **POINT OF BEGINNING** and containing 0.094 acres in Hays County, Texas. Said tract being described in accordance with an exhibit prepared by Pape-Dawson Consulting Engineers, LLC. under Job No. 51456-10.

PREPARED BY: Pape-Dawson Consulting Engineers, LLC.
REVISED: October 31, 2024
JOB No.: 51262-00
DOC.ID.: H:\Survey\CIVIL\51456-10\Easements\Word\FN51456-10_0.094Ac_WTR_ACCESS_Esmt.docx
TBPE Firm Registration #470
TBPLS Firm Registration #100288-01



A 0.094 ACRE OR 4,074 SQUARE FOOT TRACT OF LAND, SITUATED IN THE CALEB W. BAKER SURVEY, SECTION NO. 15, ABSTRACT NO. 31, BEING OUT OF A CALLED 18.856 ACRE TRACT, CONVEYED TO TOLL SOUTHWEST, LLC, RECORDED IN DOCUMENT NO. 22021196 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS.





SCALE: 1"= 60'

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT

NOTES:

1. THE PROFESSIONAL SERVICES PROVIDED HEREWITH INCLUDE THE PREPARATION OF A METES AND BOUNDS DESCRIPTION.
2. THE BEARINGS ARE BASED ON THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE CENTRAL ZONE FROM THE NORTH AMERICAN DATUM OF 1983 NAD 83 (NA2011) EPOCH 2010.00.
3. ADJOINERS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

LINE TABLE		
LINE	BEARING	LENGTH
L1	N87°31'37"E	6.12'
L2	S02°28'23"E	35.47'
L3	N30°05'20"W	20.37'
L4	S86°00'30"E	3.11'
L5	S02°28'23"E	34.26'
L6	S87°31'37"W	11.00'
L7	S02°28'23"E	33.79'
L8	N87°31'37"E	11.00'
L9	S02°28'23"E	47.47'
L10	N30°05'20"W	20.34'

CURVE TABLE					
CURVE	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C1	71.00'	8°32'06"	S01°47'40"W	10.57'	10.58'
C2	17.00'	6°27'53"	S00°45'33"W	1.92'	1.92'
C3	83.00'	8°32'06"	S01°47'40"W	12.35'	12.36'

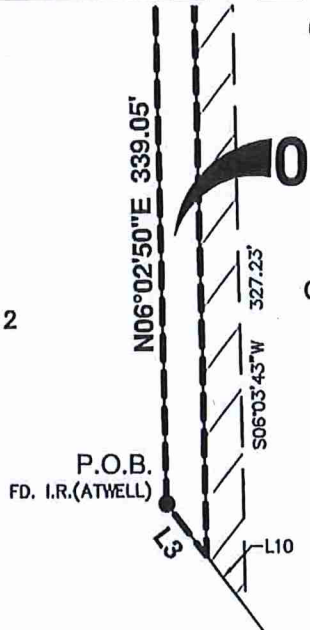
MATCHLINE - SEE SHEET 2 OF 2

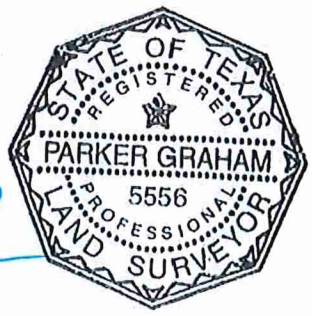
CALEB W. BAKER SURVEY
SECTION NO. 15
ABSTRACT NO. 31

0.094 ACRES
(4,074 SQUARE FEET)

18.856 ACRE TRACT
OWNER: TOLL SOUTHWEST, LLC
DOC. NO. 22021196 (O.P.R.)

A CALLED 40.956 ACRE TRACT
WATERRIDGE 150 DISTRICT SECTION 2
DOC. NO. 1938655 (P.R.)





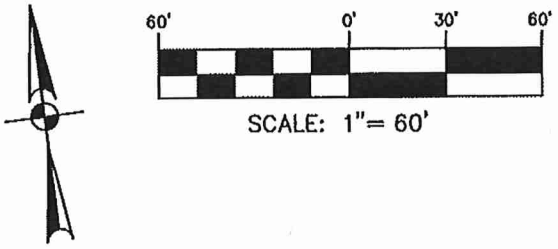
PAPE-DAWSON ENGINEERS

AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

OCTOBER 31, 2024

Date: Oct 31, 2024, 3:16pm User ID: DRodriguez
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A 0.094 ACRE OR 4,074 SQUARE FOOT TRACT OF LAND, SITUATED IN THE CALEB W. BAKER SURVEY, SECTION NO. 15, ABSTRACT NO. 31, BEING OUT OF A CALLED 18.856 ACRE TRACT, CONVEYED TO TOLL SOUTHWEST, LLC, RECORDED IN DOCUMENT NO. 22021196 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS.

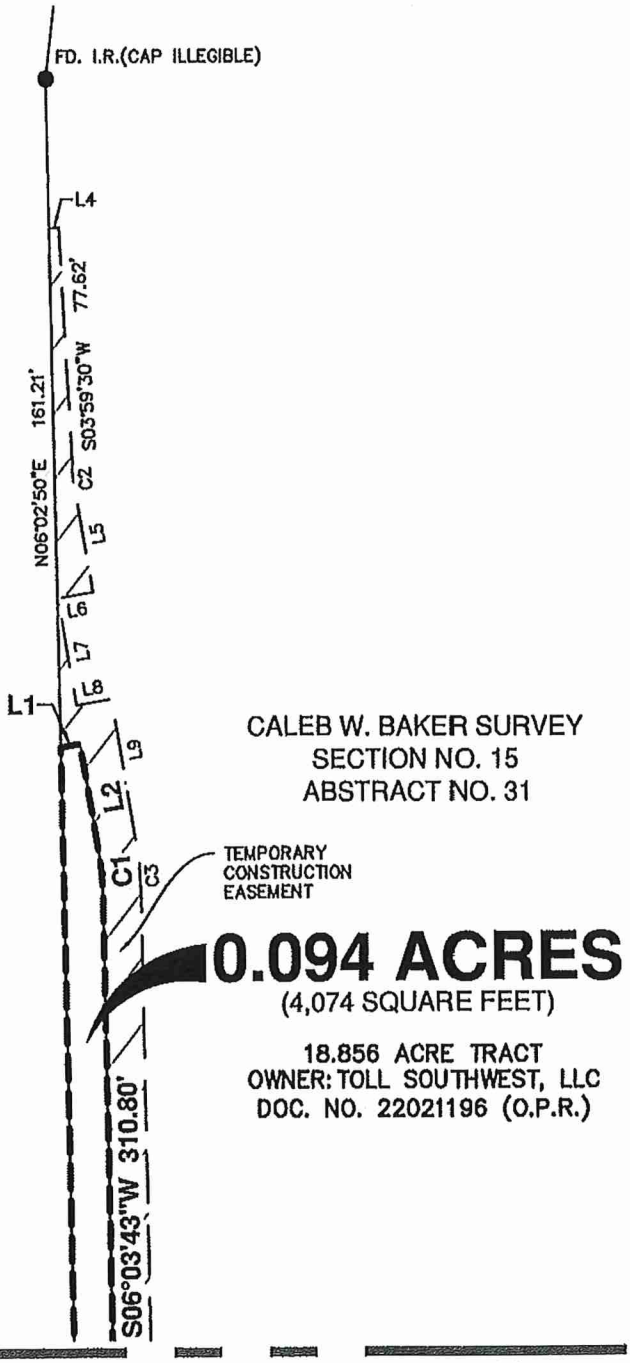


LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT

NOTES:

1. THE PROFESSIONAL SERVICES PROVIDED HEREWITH INCLUDE THE PREPARATION OF A METES AND BOUNDS DESCRIPTION.
2. THE BEARINGS ARE BASED ON THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE CENTRAL ZONE FROM THE NORTH AMERICAN DATUM OF 1983 NAD 83 (NA2011) EPOCH 2010.00.
3. ADJOINERS SHOWN FOR INFORMATIONAL PURPOSES ONLY.



CALEB W. BAKER SURVEY
SECTION NO. 15
ABSTRACT NO. 31

TEMPORARY CONSTRUCTION EASEMENT

0.094 ACRES
(4,074 SQUARE FEET)

18.856 ACRE TRACT
OWNER: TOLL SOUTHWEST, LLC
DOC. NO. 22021196 (O.P.R.)

A CALLED 40.956 ACRE TRACT
WATERRIDGE 150 DISTRICT SECTION 2
DOC. NO. 1938655 (P.R.)

MATCHLINE - SEE SHEET 1 OF 2

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

OCTOBER 31, 2024

SHEET 2 OF 2
JOB No.:51456-10

Date: Oct 31, 2024, 3:19pm User ID: DRodriguez
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HAYS COUNTY CAD
PROPERTY ID #169037

NOTICE OF CONFIDENTIALITY RIGHTS: If you are a natural person, you may remove or strike any or all of the following information from any instrument that transfers an interest in real property before it is filed for record in the public records: your Social Security number or your driver's license number.

WASTEWATER & ACCESS EASEMENT

Date:	March 6, 2025
Grantor:	Blanco River Ranch Properties, LP, a Texas limited partnership
Grantor's Address:	1901 Hollister Houston, TX 77080
Grantee:	Toll Southwest LLC, a Delaware limited liability company
Grantee's Address:	1140 Virginia Drive Ft. Washington, PA 19034
Easement Tract:	1.344 acres of real property located in Hays County, Texas, as more particularly described by metes and bounds on **EXHIBIT "A"** attached hereto.
Easement Duration:	Perpetual or until the Facilities are abandoned.
Easement Purpose:	To install, construct, operate, use, maintain, repair, modify, upgrade, monitor, inspect, replace, make connections with, remove, and decommission the Facilities.
Facilities:	An access drive, sanitary sewer and associated appurtenances.
Permitted Encumbrances:	Any easements, liens, encumbrances, and other matters that are valid, existing, and affect the Easement Tract as of the Date set forth herein and of record in the Real Property Records of Hays County, Texas.
Non-Permitted Activity:	Installation, construction, operation, use, maintenance, repair, modification, upgrade, and replacement of any structure, building, retaining wall, detention or water quality controls, rainwater harvesting system or trees, either above or below the surface of the Easement Tract.
Eligible Improvements:	Irrigation systems that are installed perpendicular to the Facilities, walkways made of concrete, asphalt, granite or any other similar materials, driveways, access roads and parking areas at grade level, barbed-wire, chain-link, and wooden

fences, landscaping items such as plants, flowers, shrubs, bushes, hardscapes, rocks, pathways, and movable structure such as benches, gazebos and other similar items.

Grantor, for **TEN AND NO/100 DOLLARS ($10.00)** and other good and valuable consideration paid to Grantor, the receipt and sufficiency of which is acknowledged by Grantor, **GRANTS, SELLS, AND CONVEYS** to Grantee an exclusive easement in, over, under, on, and across the Easement Tract for the Easement Purpose as may be necessary or desirable subject to the Permitted Encumbrances, together with (i) the right of ingress and egress at all times over, on, and across the Easement Tract for use of the Easement Tract for the Easement Purpose, (ii) the right to eliminate any encroachments in the Easement Tract that are not otherwise permitted hereunder, and (iii) any and all rights and appurtenances pertaining to use of the Easement Tract (collectively, the "**Easement**").

TO HAVE AND TO HOLD the Easement to Grantee and its successors and assigns for the Easement Duration and Easement Purpose; provided, however, Grantor reserves the right to enter upon and use any portion of the Easement Tract and to install, construct, operate, use, maintain, repair, modify, upgrade, and replace within the Easement Tract the improvements allowed by Grantee and the Eligible Improvements, but in no event shall Grantor, except with respect to the improvements allowed by Grantee and the Eligible Improvements, enter upon or use any portion of the Easement Tract for any Non-Permitted Activity or in any other manner that interferes in any material way or is inconsistent with the rights granted Grantee under this Easement for the Easement Purpose as determined by Grantee in its reasonable discretion.

Grantee, at its sole cost and expense, shall be obligated to restore the surface of the soil of the Easement Tract that has been removed, relocated, altered as a result of Grantee's use of the Easement Tract, in each case to substantially and a reasonably practicable to the same condition as existed immediately prior to Grantee's exercise of its rights and/or obligations hereunder. Grantee will not be obligated to restore or relocate any other improvements, including Eligible Improvements and third-party facilities, located in, upon, under or across the Easement Tract.

Grantor reserves its interest in all oil, gas, and other minerals in and under and that may be produced from the Easement Tract.

Grantor binds Grantor and Grantor's heirs, successors, and assigns to **WARRANT AND FOREVER DEFEND** the title to the Easement, subject to the Permitted Encumbrances, to Grantee against every person whomsoever lawfully claiming or to claim the Easement Tract or any part of the Easement Tract when the claim is by, through, or under Grantor, but not otherwise.

Except where the context otherwise requires, Grantor includes Grantor's heirs, successors, and assigns and Grantee includes Grantee's employees, agents, consultants, contractors, successors, and assigns; and where the context requires, singular nouns and pronouns include the plural.

Executed effective the Date first above stated.

Grantor: **BLANCO RIVER RANCH PROPERTIES, LP,**
A Texas limited partnership

By: Blanco River Ranch Properties GP, LLC,
a Texas limited liability company,
its general partner

By: _____
Gregg T. Reyes, Manager

STATE OF TEXAS
COUNTY OF Harris

This instrument was acknowledged before me on the 6 day of March 2025, by Gregg T. Reyes, Manager of Blanco River Ranch Properties GP, LLC, a Texas limited liability company, the general partner of Blanco River Ranch Properties, LP, a Texas limited partnership, on behalf of said entity for the purposes set forth herein.

[NOTARY SEAL]



_____
Notary Public in and for the State of Texas

EXHIBIT "A"

Easement Tract

A 1.344 ACRE OR 58,560 SQUARE FOOT TRACT OF LAND, SITUATED IN THE CALEB W. BAKER SURVEY, SECTION NO. 15, ABSTRACT NO. 31, BEING OUT OF A CALLED 40.956 ACRE TRACT, WATERRIDGE 150 DISTRICT, SECTION 2, A SUBDIVISION ACCORDING TO THE PLAT RECORDED IN DOCUMENT NO. 1938655 OF THE PLAT RECORDS OF HAYS COUNTY, TEXAS. SAID 1.344 ACRE TRACT BEING MORE FULLY DESCRIBED AS FOLLOWS, WITH BEARINGS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NA 2011) EPOCH 2010.00, FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH-CENTRAL ZONE:

COMMENCING at an iron rod with cap marked "AST" found for a point of curvature on the north right-of-way line of Waterridge Boulevard, a variable width right-of-way, dedicated by plat in Document No. 19038653 of the Plat Records of Hays County, Texas, said point being the southwest corner of 6 Creeks Phase 1, Section 9, a subdivision according to the plat recorded in Document No. 23013655 of said Plat Records, same being the southeast corner of said 40.956 acre tract;

THENCE, departing the southwest corner of said 6 Creeks Phase 1, Section 9, with the north right-of-way line of said Waterridge Boulevard, same being the south boundary line of said 40.956 acre tract, along the arc of a curve to the left having a **radius of 1025.00 feet, a central angle of 07°24'49", a chord bearing and distance of N 62°32'23" W, 132.54 feet,** an **arc length** of **132.63 feet** to a calculated point;

THENCE N 23°45'12" E, departing the north right-of-way line of said Waterridge Boulevard, through the interior of said 40.956 acre tract, a distance of **63.58 feet** to a calculated point for the southeast corner and **POINT OF BEGINNING** hereof;

THENCE, continuing though the interior of said 40.956 acre tract, the following twenty (20) courses and distances:

1. **N 38°13'44" W,** a distance of **15.00 feet** to a calculated angle point hereof,
2. **N 51°46'16" E,** a distance of **14.67 feet** to a calculated angle point hereof,
3. **N 65°35'00" W,** a distance of **3.83 feet** to a calculated angle point hereof,
4. **N 24°25'00" E,** a distance of **60.38 feet** to a calculated angle point hereof,
5. **N 65°35'00" W,** a distance of **49.00 feet** to a calculated angle point hereof,
6. **N 24°25'00" E,** a distance of **20.00 feet** to a calculated angle point hereof,
7. **N 65°35'00" W,** a distance of **28.06 feet** to a calculated point on the westernmost southwest corner hereof,
8. **N 24°21'39" E,** a distance of **50.92 feet** to a calculated angle point hereof,
9. **S 65°37'36" E,** a distance of **31.84 feet** to a calculated angle point hereof,

10. **N 43°50'15" E**, a distance of **72.99 feet** to a calculated angle point hereof,

11. **N 24°25'00" E**, a distance of **221.43 feet** to a calculated angle point hereof,

12. **N 06°03'43" E**, a distance of **495.04 feet** to a calculated angle point hereof,

13. **N 02°28'23" W**, a distance of **121.69 feet** to a calculated angle point hereof,

14. **N 03°59'30" E**, a distance of **174.67 feet** to a calculated angle point hereof,

15. **S 86°00'30" E**, a distance of **11.00 feet** to a calculated angle point hereof,

16. **N 03°59'30" E**, a distance of **137.06 feet** to a calculated point of tangent curvature hereof,

17. along a curve to the right, having a **radius of 60.00 feet**, a central angle of **12°20'19"**, a **chord bearing** and **distance of N 10°09'40" E, 12.90 feet**, an **arc length** of **12.92 feet** to a calculated point of tangency hereof,

18. **N 16°19'49" E**, a distance of **19.80 feet** to a calculated angle point hereof,

19. **N 10°32'38" E**, a distance of **39.67 feet** to a calculated angle point hereof, and

20. **N 16°19'49" E**, a distance of **31.36 feet** to a calculated point on the south right-of-way line of 6 Creeks Boulevard, Phase 2, an 80 foot right-of-way, dedicated by plat recorded in Document No. 19038648 of said Plat Records, same being the north boundary line of said 40.956 acre tract for the northwest corner hereof,

THENCE S 73°40'58" E, with the south right-of-way line of said 6 Creeks Boulevard, same being the north boundary line of said 40.956 acre tract, a distance of **41.58 feet** to a calculated point of non-tangent curvature for the northeast corner hereof, from which a ½" iron rod found on the northwest corner of a called 18.856 acre tract, conveyed to Toll Southwest, LLC, recorded in Document No. 22021196 of the Official Public Records of Hays County, Texas, same being the northeast corner of said 40.956 acre tract, bears S 73°41'04" E, a distance of 17.93 feet,

THENCE, departing the south right-of-way line of said 6 Creeks Boulevard, through the interior of said 40.956 acre tract, the following six (6) courses and distances:

1. along the arc of a curve to the left having a **radius of 25.00 feet, a central angle of 26°14'27", a chord bearing** and **distance of S 29°26'55" W, 11.35 feet**, an **arc length** of **11.45 feet** to a calculated point of non-tangency hereof,

2. **S 16°19'49" W**, a distance of **51.01 feet** to a calculated angle point hereof,

3. **S 24°01'49" W**, a distance of **16.16 feet** to a calculated point of tangent curvature hereof,

4. along a curve to the left, having a **radius of 85.00 feet**, a central angle of **20°02'19"**, a **chord bearing** and **distance** of **S 14°00'40" W, 29.58 feet**, an **arc length** of **29.73 feet** to a calculated point of tangency hereof,

5. **S 03°59'30" W**, a distance of **124.00 feet** to a calculated angle point hereof, and

6. **S 86°00'30" E**, a distance of **19.24 feet** to a calculated angle point on the west boundary line of said 18.856 acre tract, same being the east boundary line of said 40.956 acre tract hereof,

THENCE S 14°03'15" W, with the west boundary line of said 18.856 acre tract, same being the east boundary line of said 40.956 acre tract, a distance of **24.37 feet** to a calculated angle point hereof;

THENCE, departing the west boundary line of said 18.856 acre tract, through the interior of said 40.956 acre tract, the following elven (11) courses and distances:

1. **N 86°00'30" W**, a distance of **14.98 feet** to a calculated angle point hereof,

2. **S 03°59'30" W**, a distance of **3.30 feet** to a calculated angle point hereof,

3. **N 86°00'30" W**, a distance of **11.00 feet** to a calculated angle point hereof,

4. **S 03°59'30" W**, a distance of **79.74 feet** to a calculated angle point hereof,

5. **S 86°00'30" E**, a distance of **11.00 feet** to a calculated angle point hereof,

6. **S 03°59'30" W**, a distance of **65.62 feet** to a calculated point of tangent curvature hereof,

7. along a curve to the left, having a **radius of 29.00 feet**, a central angle of **06°27'53"**, a **chord bearing** and **distance** of **S 00°45'33" W, 3.27 feet**, an **arc length** of **3.27 feet** to a calculated point of tangency hereof,

8. **S 02°28'23" E**, a distance of **22.26 feet** to a calculated angle point hereof,

9. **S 87°31'37" W**, a distance of **11.00 feet** to a calculated angle point hereof,

10. **S 02°28'23" E**, a distance of **57.79 feet** to a calculated angle point hereof, and

11. **N 87°31'37" E**, a distance of **4.88 feet** to a calculated angle point on the west boundary line of said 18.856 acre tract, same being the east boundary line of said 40.956 acre tract hereof,

THENCE, with the west boundary line of said 18.856 acre tract, same being the east boundary line of said 40.956 acre tract, the following two (2) courses and distances:

1. **S 06°02'50" W**, a distance of **339.05 feet** to a calculated angle point hereof, and

2. **S 30°05'20" E**, a distance of **20.37 feet** to a calculated angle point hereof,

THENCE, departing the west boundary line of said 18.856 acre tract, through the interior of said 40.956 acre tract, the following seven (7) courses and distances:

1. **S 06°03'43" W**, a distance of **177.39 feet** to a calculated point of tangent curvature hereof,

2. along a curve to the right, having a **radius** of **71.00 feet**, a central angle of **18°21'17"**, a **chord bearing** and **distance** of **S 15°14'21" W, 22.65 feet**, an **arc length** of **22.74 feet** to a calculated point of tangency hereof,

3. **S 24°25'00" W**, a distance of **210.76 feet** to a calculated angle point hereof,

4. **S 18°17'09" W**, a distance of **92.96 feet** to a calculated angle point hereof,

5. **S 26°24'16" W**, a distance of **104.17 feet** to a calculated angle point hereof,

6. **S 64°04'35" W**, a distance of **6.77 feet** to a calculated angle point hereof, and

7. **S 51°46'16" W**, a distance of **27.39 feet** to the **POINT OF BEGINNING** and containing 1.344 acres in Hays County, Texas. Said tract being described in accordance with an exhibit prepared by Pape-Dawson Consulting Engineers, LLC. under Job No. 51456-10.

PREPARED BY: Pape-Dawson Consulting Engineers, LLC.
REVISED: October 31, 2024
JOB No.: 51262-00
DOC.ID.: H:\Survey\CIVIL\51456-10\Easements\Word\FN51456-10_1.344Ac_WTR_ACCESS_Esmt.docx
TBPE Firm Registration #470
TBPLS Firm Registration #100288-01



A 1.344 ACRE OR 58,560 SQUARE FOOT TRACT OF LAND, SITUATED IN THE CALEB W. BAKER SURVEY, SECTION NO. 15, ABSTRACT NO. 31, BEING OUT OF A CALLED 40.956 ACRE TRACT, WATERRIDGE 150 DISTRICT, SECTION 2, A SUBDIVISION ACCORDING TO THE PLAT RECORDED IN DOCUMENT NO. 1938655 OF THE PLAT RECORDS OF HAYS COUNTY, TEXAS.

60' 0' 30' 60'

SCALE: 1"= 60'

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT

MATCHLINE - SEE SHEET 2 OF 6

STATE OF TEXAS
REGISTERED
PARKER GRAHAM
5556
PROFESSIONAL
LAND SURVEYOR

CALEB W. BAKER SURVEY
SECTION NO. 15
ABSTRACT NO. 31

1.344 ACRES
(58,560 SQUARE FEET)

A CALLED 40.956 ACRE TRACT
WATERRIDGE 150 DISTRICT SECTION 2
DOC. NO. 1938655 (P.R.)

TEMPORARY CONSTRUCTION EASEMENT

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L36 L37 L38 L39 L40 L41 L42 L43 L44 L58 L59 L60

19.00'

S18°17'09"W 93.17'

S26°24'16"W 109.12'

15.24'

N23°45'12"E 63.58'

P.O.B.

R=1,025.00'
Delta=7°24'49"
CB=N62°32'23"W
CD=132.54'
L=132.63'

WATERRIDGE BOULEVARD
(VARIABLE WIDTH R.O.W.)
DOC NO. 19038653 (P.R.)

6 CREEKS-PHASE 1, SECTION 9
DOC. NO. 23013655 (P.R.)

P.O.C.
FD. I.R.(AST)

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10026501

OCTOBER 31, 2024

JOB No.:51456-10

A 1.344 ACRE OR 58,560 SQUARE FOOT TRACT OF LAND, SITUATED IN THE CALEB W. BAKER SURVEY, SECTION NO. 15, ABSTRACT NO. 31, BEING OUT OF A CALLED 40.956 ACRE TRACT, WATERRIDGE 150 DISTRICT, SECTION 2, A SUBDIVISION ACCORDING TO THE PLAT RECORDED IN DOCUMENT NO. 1938655 OF THE PLAT RECORDS OF HAYS COUNTY, TEXAS.

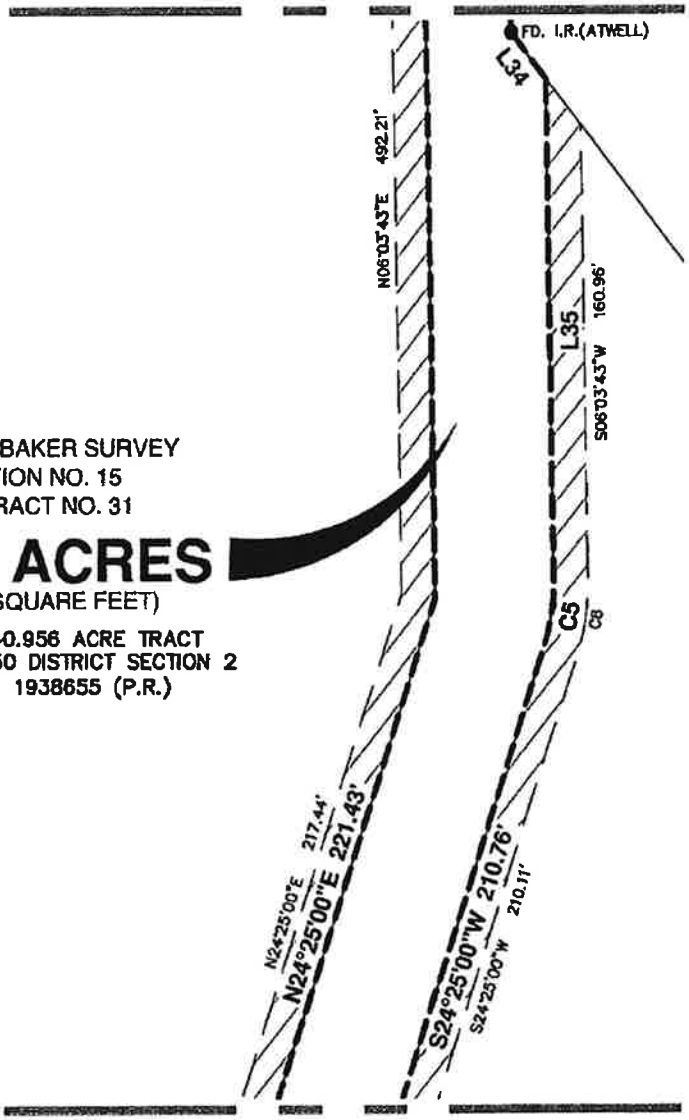
60' 0' 30' 60'

SCALE: 1" = 60'

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT

MATCHLINE - SEE SHEET 3 OF 6



CALEB W. BAKER SURVEY
SECTION NO. 15
ABSTRACT NO. 31

1.344 ACRES
(58,560 SQUARE FEET)

A CALLED 40.956 ACRE TRACT
WATERRIDGE 150 DISTRICT SECTION 2
DOC. NO. 1938655 (P.R.)

MATCHLINE - SEE SHEET 1 OF 6

PAPE-DAWSON ENGINEERS

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10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

OCTOBER 31, 2024

A 1.344 ACRE OR 58,560 SQUARE FOOT TRACT OF LAND, SITUATED IN THE CALEB W. BAKER SURVEY, SECTION NO. 15, ABSTRACT NO. 31, BEING OUT OF A CALLED 40.956 ACRE TRACT, WATERRIDGE 150 DISTRICT, SECTION 2, A SUBDIVISION ACCORDING TO THE PLAT RECORDED IN DOCUMENT NO. 1938655 OF THE PLAT RECORDS OF HAYS COUNTY, TEXAS.

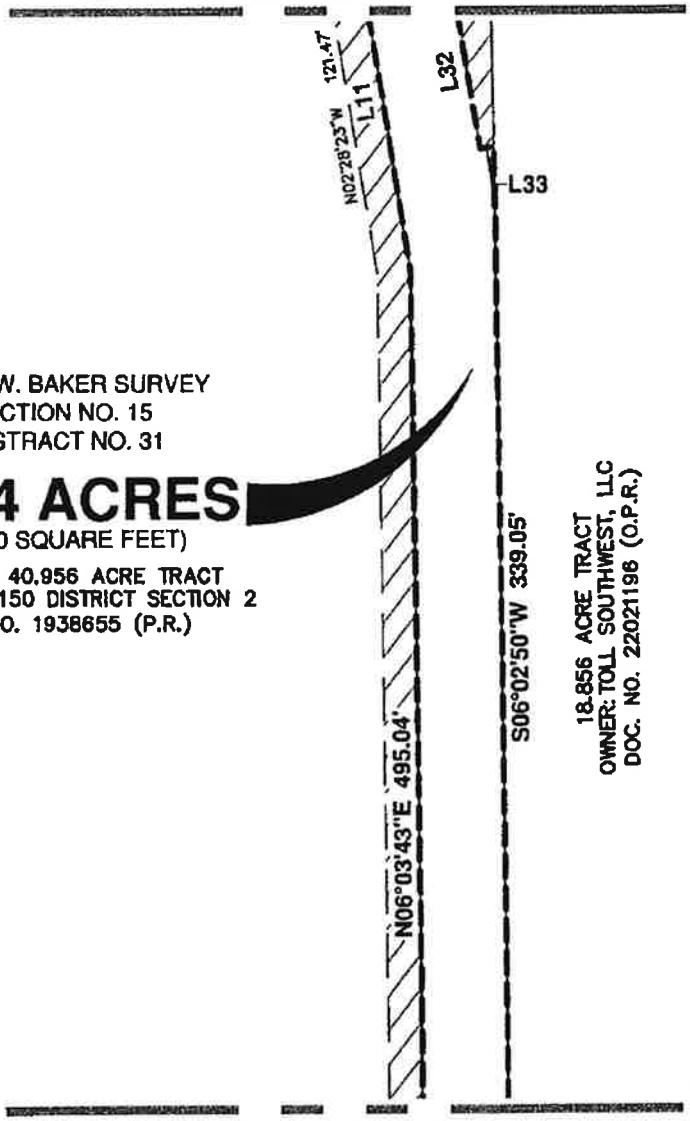
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SCALE: 1"= 60'

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT

MATCHLINE - SEE SHEET 4 OF 6



MATCHLINE - SEE SHEET 2 OF 6

PAPE-DAWSON ENGINEERS

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TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

OCTOBER 31, 2024

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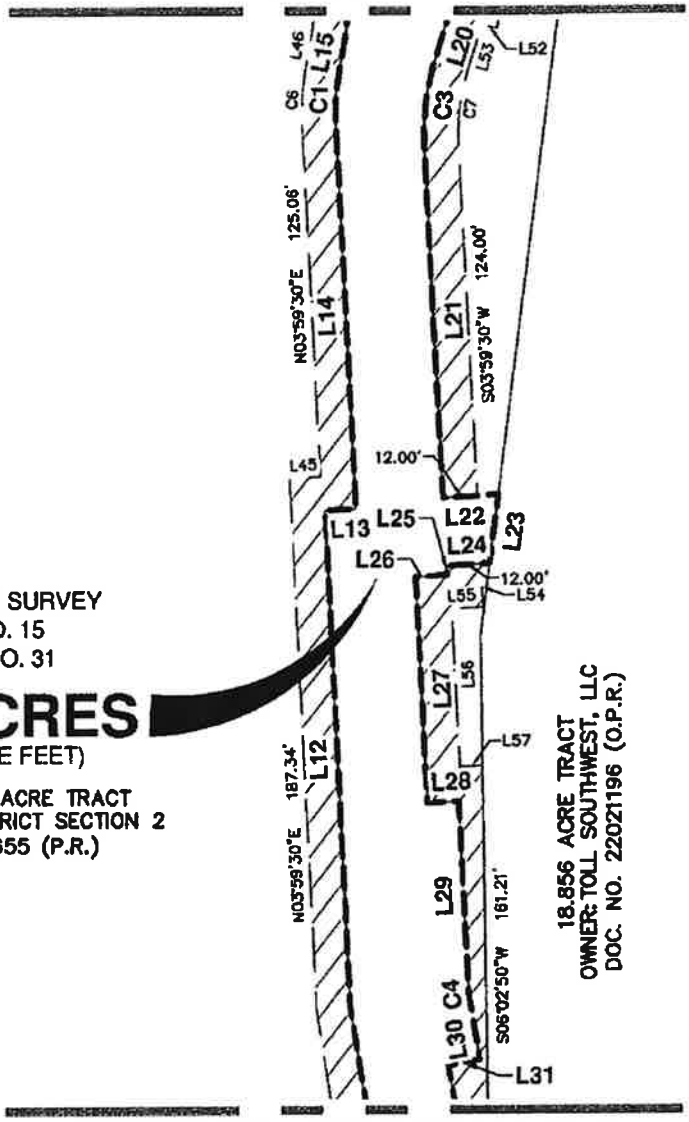
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SCALE: 1"= 60'

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT

MATCHLINE - SEE SHEET 5 OF 6



CALEB W. BAKER SURVEY
SECTION NO. 15
ABSTRACT NO. 31

1.344 ACRES
(58,560 SQUARE FEET)

A CALLED 40.956 ACRE TRACT
WATERRIDGE 150 DISTRICT SECTION 2
DOC. NO. 1938655 (P.R.)

MATCHLINE - SEE SHEET 3 OF 6

PAPE-DAWSON ENGINEERS

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OCTOBER 31, 2024

A 1.344 ACRE OR 58,560 SQUARE FOOT TRACT OF LAND, SITUATED IN THE CALEB W. BAKER SURVEY, SECTION NO. 15, ABSTRACT NO. 31, BEING OUT OF A CALLED 40.956 ACRE TRACT, WATERRIDGE 150 DISTRICT, SECTION 2, A SUBDIVISION ACCORDING TO THE PLAT RECORDED IN DOCUMENT NO. 1938655 OF THE PLAT RECORDS OF HAYS COUNTY, TEXAS.

60' 0' 30' 60'

SCALE: 1"= 60'

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT

CURVE TABLE					
CURVE	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C1	60.00'	12°20'19"	N10°09'40"E	12.90'	12.92'
C2	25.00'	26°14'27"	S29°26'55"W	11.35'	11.45'
C3	85.00'	20°02'19"	S14°00'40"W	29.58'	29.73'
C4	29.00'	6°27'53"	S00°45'33"W	3.27'	3.27'
C5	71.00'	18°21'17"	S15°14'21"W	22.65'	22.74'
C6	72.00'	12°20'19"	N10°09'40"E	15.48'	15.51'
C7	73.00'	20°02'19"	S14°00'40"W	25.40'	25.53'
C8	83.00'	18°21'17"	S15°14'21"W	26.48'	26.59'

6 CREEKS BOULEVARD
PHASE 2
(80 R.O.W.)
DOC NO. 19038648 (P.R.)

S73°41'04"E
17.93'

L49 L18 L50 FD. ½" I.R.

L48 L17 C2

L47 L16 L19 L51

CALEB W. BAKER SURVEY
SECTION NO. 15
ABSTRACT NO. 31

1.344 ACRES
(58,560 SQUARE FEET)
A CALLED 40.956 ACRE TRACT
WATERRIDGE 150 DISTRICT SECTION 2
DOC. NO. 1938655 (P.R.)

MATCHLINE - SEE SHEET 4 OF 6

PAPE-DAWSON ENGINEERS
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LINE TABLE		
LINE	BEARING	LENGTH
L1	N38°13'44"W	15.00'
L2	N51°46'16"E	14.67'
L3	N65°35'00"W	3.83'
L4	N24°25'00"E	60.38'
L5	N65°35'00"W	49.00'
L6	N24°25'00"E	20.00'
L7	N65°35'00"W	28.06'
L8	N24°21'39"E	50.92'
L9	S65°37'36"E	31.84'
L10	N43°50'15"E	72.99'
L11	N02°28'23"W	121.69'
L12	N03°59'30"E	174.67'
L13	S86°00'30"E	11.00'
L14	N03°59'30"E	137.06'
L15	N16°19'49"E	19.80'
L16	N10°32'38"E	39.67'
L17	N16°19'49"E	31.36'
L18	S73°40'58"E	41.58'
L19	S16°19'49"W	51.01'
L20	S24°01'49"W	16.16'

LINE TABLE		
LINE	BEARING	LENGTH
L21	S03°59'30"W	124.00'
L22	S86°00'30"E	19.24'
L23	S14°03'15"W	24.37'
L24	N86°00'30"W	14.98'
L25	S03°59'30"W	3.30'
L26	N86°00'30"W	11.00'
L27	S03°59'30"W	79.74'
L28	S86°00'30"E	11.00'
L29	S03°59'30"W	65.62'
L30	S02°28'23"E	22.26'
L31	S87°31'37"W	11.00'
L32	S02°28'23"E	57.79'
L33	N87°31'37"E	4.88'
L34	S30°05'20"E	20.37'
L35	S08°03'43"W	177.39'
L36	S18°17'09"W	92.96'
L37	S26°24'16"W	104.17'
L38	S64°04'35"W	6.77'
L39	S51°46'16"W	27.39'
L40	N65°35'00"W	12.00'

LINE TABLE		
LINE	BEARING	LENGTH
L41	N24°22'24"E	43.91'
L42	S65°37'36"E	19.50'
L43	N63°35'34"E	34.86'
L44	N43°50'15"E	27.98'
L45	S86°00'30"E	11.00'
L46	N16°35'03"E	18.39'
L47	N10°32'38"E	40.48'
L48	N16°19'49"E	31.97'
L49	S73°40'11"E	12.00'
L50	S73°40'11"E	14.89'
L51	S16°19'49"W	62.86'
L52	N73°40'11"W	5.48'
L53	S24°01'49"W	16.97'
L54	S03°59'30"W	15.30'
L55	N86°00'30"W	11.00'
L56	S03°59'30"W	55.74'
L57	S86°00'30"E	7.89'
L58	S64°04'35"W	9.57'
L59	S51°46'16"W	14.68'
L60	N20°35'00"W	12.59'

NOTES:

1. THE PROFESSIONAL SERVICES PROVIDED HEREWITH INCLUDE THE PREPARATION OF A METES AND BOUNDS DESCRIPTION.
2. THE BEARINGS ARE BASED ON THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE CENTRAL ZONE FROM THE NORTH AMERICAN DATUM OF 1983 NAD 83 (NA2011) EPOCH 2010.00.
3. ADJOINERS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

PAPE-DAWSON ENGINEERS

AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION 4470 | TBPLS FIRM REGISTRATION #10028801

HAYS COUNTY CAD
PROPERTY ID #18210, 18137, 18138, 13729

25014109 EASEMENT Total Pages: 20
Filed and Recorded: 04/23/2025 02:02:02 PM

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

PERMANENT UTILITY EASEMENT AGREEMENT

THE STATE OF TEXAS §
§
COUNTY OF HAYS §

Independence Title/GF# 2323606 -BUD/MLF

This Permanent Utility Easement Agreement (this "**Agreement**") is by and among **Bee Spring, Ltd.,** a Texas limited partnership; **Rafter Holdings, LLC,** a Texas limited liability company; **and GSP Conservation Investors, L.L.C.,** a Texas limited liability company (collectively, the **"Grantor")** and **City of Kyle, Texas,** a Texas home-rule municipality situated in Hays County, Texas **("Grantee").** Grantor and Grantee are collectively referred to herein as the "**Parties.**"

RECITALS

A. The three parties comprising the Grantor are cotenants that own a tract of land being approximately 232.39 acres of land being the remainder of the 260.12 acre tract of land conveyed to R. G. Nance by W. S. Nance and designated as "Tract No. Two" in the Deed dated June 14, 1946 and recorded in Volume 135, Page 77 Hays County Deed Records less the two tracts of land being approximately 13.87 acres and 13.86 acres as described in said 1946 deed ("**Grantor's Property**").

B. From time to time livestock graze on a portion of Grantor's Property;

C. Grantee desires to acquire a permanent utility easement to construct one or more utility lines on a portion of Grantor's Property, as described below; and

D. Grantor has agreed to grant Grantee the Permanent Easement subject to the terms of this Agreement.

NOW THEREFORE, for and in consideration of the above stated recitals and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged and confessed by the Parties, the Parties agree as follows:

1. **Grant of Permanent Easement**. Grantor, for $10.00 and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, does hereby GRANT, SELL AND CONVEY unto Grantee, subject to the terms hereof, a permanent easement (the "**Permanent Easement**") upon and across all or any portion of a 3.393 acre tract of land, more or less, being more particularly described by metes and bounds in the attached **Exhibit A,** hereby incorporated by reference and made a part hereof for all purposes. Said 3.393 acre parcel being referred to hereafter as the "**Permanent Easement Property.**"

Each grantor does hereby covenant and agree to WARRANT AND FOREVER DEFEND title to its respective undivided interest in the Permanent Easement herein granted unto Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, by, through or under the same grantor, but not otherwise, subject to the matters set forth herein. The granting of the Permanent Easement is on an "AS IS, WHERE IS" basis with no warranties of any kind except as expressly set forth in this instrument with respect to the special warranty of title. Grantee, its successors and assigns accept and assume all risks associated with the use of the Permanent Easement, including injury to person or property. Except where the context otherwise requires, Grantor includes Grantor's successors, and assigns and Grantee includes Grantee's employees, agents, consultants, contractors, successors, and assigns.

Notwithstanding anything herein to the contrary, including the special warranty of title herein, Grantor makes no representation or warranty of title with respect to such portions of the Permanent Easement located within or that overlap the existing Cypress Road.

2. **Purposes of Permanent Easement**. The construction, reconstruction, operation, maintenance, repair, upgrade, replacement, and/or removal of wastewater lines, force mains, water pipelines, facilities relating to the water lines and sewer lines, connections therewith, and all necessary appurtenances thereto including without limitation valves, manholes, and vents (collectively, the **"Projects"**). The right to use the Permanent Easement Property shall belong to the Grantee and its agents, employees, designees, contractors, guests, invitees, successors and assigns, and all those acting by or on behalf of the City for the purposes stated in this Paragraph 2.

3. **Permitted Encumbrances.**

The Permanent Utility Easement herein granted is subject to the following permitted encumbrances:

a. Any easements, liens, encumbrances, and other matters of record in the Official Public Records of Hays County, Texas that are valid, existing, and affect the Permanent Easement Property as of the Effective Date (defined below) of this

Agreement.

b. All improvements located on Grantor's Property as of the Effective Date of this Agreement.

4. **Access To Permanent Easement.** Subject to the terms of this Agreement, Grantee shall have the right to unimpaired ingress and egress, entry and access in, to, through, on, over, under, and across the Permanent Easement Property, provided such access is for the purposes set forth in paragraph 2. Grantee shall promptly repair any damage to any of Grantor's existing roads or surface caused by Grantee so as to maintain the roads or surface in as good as or better condition as existed prior to use by Grantee.

5. **Construction Activities Within the Permanent Easement.**

a. Grantee's contractors constructing a Project shall strictly comply with the terms, conditions, and requirements of the construction plans (and any future revisions thereto) approved by the City of Kyle, including, permanent stabilization of disturbed soil, restoration of fencing and gates, temporary and permanent erosion and sedimentation controls and tree protection details (collectively, the "**Construction Details**"). The Construction Details applicable to the Permanent Easement Property are incorporated herein and made a part of this Agreement for all purposes. All activities within the Permanent Easement Property shall be in accordance with all applicable federal, state and local laws and regulations.

b. At least twenty-one days prior to the installation of temporary erosion and sedimentation controls, Grantee or its designee shall cause the delivery to Grantor of a complete copy of the construction plans approved by the City of Kyle and all other permits and documents approving the construction of a Project within the Permanent Easement Property.

c. Prior to undertaking construction activities within the Permanent Easement, Grantee shall cause each of its contractors to obtain and maintain commercial general liability insurance, including broad form property damage liability coverage, with minimum limits of $1,000,000.00 for each occurrence and $2,000,000 general aggregate and at least a $5,000,000 umbrella liability policy providing excess coverage for the commercial general liability insurance policy. Prior to entry onto the Permanent Easement Property, Grantee's contractor's must provide Grantor certificates of insurance evidencing the required liability coverages described in the preceding sentence. The policies of insurance shall contain an endorsement naming each Grantor as an additional insured under the terms of the policies. Grantee agrees to provide for the security and safety

of the worksite.

d. Grantee shall have the right to remove, cut, use, repair, and replace any gates or fences that cross the Permanent Easement Property. Grantee's field superintendent or representative in charge shall notify Grantor prior to cutting any fence. When workers are not present, all segments of fencing cut by Grantee must have a temporary fence or gate installed in all fence gaps.

e. This paragraph 6.e applies to the Permanent Easement Property from Station 53+44 to Station 65+00 on the construction sheets provided to Grantor ("**Fence Priority Area**"). Should the construction sheets change with revision, this section shall continue to apply to the area described in the preceding sentence. Prior to cutting a fence within the Fence Priority Area, Grantee shall brace the existing fence to be cut adequately on both sides of the proposed cut by suitable H-braces, using materials of the same or similar quality and likeness as the fence being cut, with at least four inches (4") in diameter on both sides of the opening and shall be secured by using H-braces of at least four feet (4') in length and a "Deadman" and concrete bases of at least three feet (3') below ground surface. Before the fence wire is cut, it is to be attached to the posts in a manner that there will be no slackening of or damage to the wire. Each such wire gap is to be reinforced so as to be strong enough to prevent livestock from passing through same. As a condition of the City of Kyle's acceptance of a Project for ownership, operation, and maintenance, each wire gap must be removed and replaced with: (i) fencing of the same or better grade and condition as existed before Grantee cut and gapped same; or (ii) a permanent gate, which gate shall be constructed out of similar or better grade materials than the gates removed by Grantee. In the event Grantee does not repair and/or restore the fences or gates, Grantee shall, in addition to the consideration paid for this Agreement, pay Grantor for any damage caused by Grantee to the gates and fences on Grantor's Property. Each entry and exit gate shall be securely closed and locked, except when Grantee or its authorized personnel are actually passing through same, and Grantor and Grantee shall each be entitled to maintain their own lock in any such gate, such that Grantor and Grantee shall each have the right of free passage through any such gates.

f. All trees and brush removed during construction and other debris generated during construction shall be removed from Grantor's Property and taken to a permitted solid waste facility or licensed recycling center. The method of

disposal shall be selected by Grantee. If Grantee cuts or removes mesquite, sage brush, cats claw, or other invasive vegetation, Grantee shall spray the base with a commercial chemical sufficient to prevent re-sprouting. Grantee agrees to use such chemical as recommended by Natural Resources Conservation Service's field office in San Marcos, Texas.

g. Grantee shall not use, or permit any of its contractors or agents to use, any of the Permanent Easement Property or any of Grantor's surrounding property for the generating, transporting, treating, storage, manufacture, emission of, or disposal of any hazardous materials, as defined by applicable law ("**Hazardous Materials**"), in exercising any of its rights hereunder, and if same does occur, Grantee shall promptly, at Grantee's sole cost and expense, remove such Hazardous Materials from the Permanent Easement Property or such surrounding property.

h. Grantee shall have the right to utilize any and all materials excavated from the Permanent Easement during the Project for uses incident to the Project; provided, however, Grantee may not remove topsoil from Grantor's Property without Grantor's prior written permission beyond what is shown in the construction plans approved by the City of Kyle.

i. Grantee's construction and operation of all Projects shall be in accordance with all applicable local, state, and federal rules, regulations, ordinances and statutes.

6. **Restoration of Permanent Easement**. Grantee shall restore the Permanent Easement Property and any improvements thereon, including irrigation lines, walls, driveways, detention ponds, and water quality ponds, and the surface to substantially the same condition and functionality as existed prior to Grantee's work within the Permanent Easement Property, in accordance with the Construction Details and terms of this Agreement. Grantee agrees that as a condition of the City of Kyle's acceptance of the Force Main for ownership, operation, and maintenance, Grantee shall require the removal and disposal of all debris, trash, and litter resulting from construction and shall restore the surface of the Permanent Easement as nearly as reasonably possible in Grantee's reasonable determination to the same condition in which the Permanent Easement Property was found immediately before construction began; however, Grantee shall not be obligated to replace vegetation other than groundcover. Grantee shall not be obligated to replace trees.

7. **Reservation of Rights.**

a. Grantor reserves the right, at any time and from time to time, to exclude and restrain any unauthorized person from entering or using Grantor's Property.

Grantor reserves all rights not expressly granted to Grantee in this Agreement, including all rights, privileges and appurtenances on, in or appertaining to Grantor's Property.

b. Grantor shall retain all the oil, gas, and minerals in, on and under the Permanent Easement Property.

c. Grantor may use the Permanent Easement Property for any and all purposes not inconsistent with the purposes set forth in this Agreement. Specifically, Grantor retains the right to place, construct, operate, repair, replace and maintain roadways, driveways, landscaping, fencing, parking, and signage on, in, under, over and across the Permanent Easement Property, so long as such use does not unreasonably interfere with or prevent Grantee's use of the Permanent Easement Property for the purposes set forth herein. Grantor may not, however, use the Permanent Easement Property for construction of buildings or other permanent improvements other than those uses specifically identified herein. Grantor may not use any part of the Permanent Easement Property if such use may damage, destroy, injure, and/or interfere with Grantee's use of the Permanent Easement Property for the purposes set forth in this Agreement.

8. **Indemnity and Release**. Grantee, to the extent allowed by law, hereby binds itself, its successors, assigns and any private contractors constructing any improvements on the Permanent Easement Property, to be responsible for any and all damages, costs, claims, and demands of any kind or character asserted against, or suffered by, Grantor and/or any of Grantor's partners, employees, agents, successors and assigns to the extent such damages, costs, claims, and demands arise out of or result from any of the following, whether or not any negligence by Grantor is alleged in connection therewith: (1) the acts and/or omissions of Grantee, its agents and contractors, in connection with (a) the construction of the Projects or the use of the Permanent Easement Property, or (b) the exercise of any right or privilege hereunder, or (2) any condition created, maintained or suffered to exist in, on, or about the Permanent Easement Property to the extent same is due to the acts or omissions of Grantee, its agents or contractors, or (3) any breach hereof. To the extent allowed by law, Grantee will indemnify, hold harmless and defend Grantor from and against any and all claims, causes of action, losses, damages, costs and expenses of any kind, including reasonable attorney's fees, arising from or out of the use of the Permanent Easement and/or the Permanent Easement Property, except to the extent caused by Grantor's gross negligence or intentional misconduct. GRANTEE HEREBY RELEASES AND COVENANTS NOT TO SUE GRANTOR WITH RESPECT TO USE (OR CLAIMS

ARISING OUT OF USE) OF THE PERMANENT EASEMENT OR THE PROJECTS BY PERSONS OR PARTIES OTHER THAN GRANTEE, EVEN IF GRANTOR'S NEGLIGENCE IS ALLEGED AS A PRODUCING CAUSE.

9. **Binding Effect**. This Agreement will run with the land within the Permanent Easement Property and will bind and inure to the benefit of the Parties hereto, and their respective successors and assigns.

10. **Applicable Law**. This Agreement shall be interpreted in accordance with the laws of the state of Texas and all applicable federal laws (without regard to any conflicts-of-law rule or principle that would require the application of same to the laws of another jurisdiction).

11. **Modification**. Except as expressly provided in this Agreement, no modifications, waiver, amendment, discharge, or change of this Agreement shall be valid unless the same is in writing, signed by each Party, and recorded in the Official Public Records of Hays County, Texas. Except as expressly provided in this Agreement, any change, modification, amendment or rescission which is made without the written consent of the Parties shall be null and void *ab initio* and of no effect.

12. **Entire Agreement**. This Agreement contains the entire agreement and supersedes any and all prior oral understandings and/or agreements, if any, concerning the subject of this Agreement. Where the context requires, singular nouns and pronouns include the plural.

13. **Effective Date**. This Agreement shall be effective upon the last date indicated below (the "**Effective Date**").

[Signature Pages Follow]

GRANTOR:

Bee Spring, Ltd., a Texas limited partnership

By: Bee Spring Management, LLC,
a Texas limited liability company,
its General Partner

By: _____
Fletcher Derek Southard,
Manager

ACKNOWLEDGEMENT

STATE OF TEXAS §
§
COUNTY OF HAYS §

BEFORE ME, the undersigned authority, on this day personally appeared Fletcher Derek Southard, Manager of **Bee Spring Management, LLC, a Texas limited liability company,** in its capacity as General Partner of **Bee Spring, Ltd.,** on behalf of said company and said limited partnership.

GIVEN UNDER MY HAND AND SEAL OF OFFICE on
April 18 2025.

_____
Notary Public in and for the State of Texas

STACEY COLEMAN
Notary Public, State of Texas
Comm. Expires 07-30-2027
Notary ID 11691261

GRANTOR:

Bee Spring, Ltd., a Texas limited partnership

By: Bee Spring Management, LLC,
a Texas limited liability company,
its General Partner

By: _____
Gregory Michael Southard,
Manager

ACKNOWLEDGEMENT

STATE OF TEXAS §
§
COUNTY OF HAYS §

BEFORE ME, the undersigned authority, on this day personally appeared Gregory Michael Southard, Manager of **Bee Spring Management, LLC, a Texas limited liability company,** in its capacity as General Partner of **Bee Spring, Ltd.,** on behalf of said company and said limited partnership.

GIVEN UNDER MY HAND AND SEAL OF OFFICE on
April 18 2025.

_____
Notary Public in and for the State of Texas

STACEY COLEMAN
Notary Public, State of Texas
Comm. Expires 07-30-2027
Notary ID 11691261

Rafter Holdings, LLC,
a Texas limited liability company

By: Joel Bradshaw
Joel Bradshaw, Manager

Date: 04/18/2025

ACKNOWLEDGEMENT

STATE OF TEXAS §
§
COUNTY OF Dallas §

BEFORE ME, the undersigned authority, on this day personally appeared Joel Bradshaw, the Manager of **Rafter Holdings, LLC**, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and consideration therein expressed and with full authority to bind and act on behalf of **Rafter Holdings, LLC**.

GIVEN UNDER MY HAND AND SEAL OF OFFICE on
April 18th 2025.

Notary Public in and for the State of Texas

Jerry Dulfey
ID NUMBER
132849453
COMMISSION EXPIRES
January 5, 2029

Electronically signed and notarized online using the Proof platform.

GSP Conservation Investors, L.L.C.,
a Texas limited liability company

By: _____
Scott Way, Manager

Date: April 18, 2025

ACKNOWLEDGEMENT

STATE OF TEXAS §
§
COUNTY OF Hays §

BEFORE ME, the undersigned authority, on this day personally appeared Scott Way, the Manager of **GSP Conservation Investors, L.L.C.**, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and consideration therein expressed and with full authority to bind and act on behalf of **GSP Conservation Investors, L.L.C.**

GIVEN UNDER MY HAND AND SEAL OF OFFICE on April 18 2025.

_____
Notary Public in and for the State of Texas

STACEY COLEMAN
Notary Public, State of Texas
Comm. Expires 07-30-2027
Notary ID 11691261

Exhibit "A"

PAPE-DAWSON ENGINEERS

FIELD NOTES
FOR

A 3.393 ACRE OR 147,802 SQUARE FOOT TRACT OF LAND, SITUATED IN THE SAMUEL PHARASS SURVEY, SECTION NO. 14, ABSTRACT NO. 360, AND THE PHARASS SURVEY, SECTION NO. 13, ABSTRACT 361, BEING OUT OF A CALLED 232.39 ACRE TRACT (TRACT 4), A CALLED 3.023 ACRE TRACT (TRACT 7), AND A CALLED 30 ACRE TRACT (TRACT 6) CONVEYED TO RAFTER HOLDINGS, LLC, RECORDED IN DOCUMENT NO. 18006670 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS. SAID 3.393 ACRE TRACT BEING MORE FULLY DESCRIBED AS FOLLOWS, WITH BEARINGS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NA 2011) EPOCH 2010.00, FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH-CENTRAL ZONE:

COMMENCING at an iron rod with cap marked "KENT" found on the northeast corner of a called 26.706 acre tract, conveyed to Nance Thomas & Mildred Revocable Trust, Recorded in Document No. 80028585 of the Official Public Records of Hays County, Texas, said point being the southeast terminus of Waterridge Boulevard, a variable width right-of-way, a subdivision according to the plat recorded in Document No. 19038653 of the Plat Records of Hays County, Texas, same being on the west boundary line of said 232.39 acre tract;

THENCE N 43°59'45" E, with the east terminus line of said Waterridge Boulevard, same being the west boundary line of said 232.39 acre tract, a distance of **3.93 feet** to a calculated point for the southwest corner and **POINT OF BEGINNING** hereof;

THENCE N 43°59'45" E, continuing with the east terminus line of said Waterridge Boulevard, same being the west boundary line of said 232.39 acre tract a distance of **35.65 feet** to a calculated point for the northwest corner hereof,

THENCE, departing the east terminus line of said Waterridge Boulevard, through the interior of said 232.39 acre tract, the following five (5) courses and distances:

1. **S 56°56'27" E**, a distance of **605.25 feet** to a calculated angle point hereof,
2. **S 83°26'27" E**, a distance of **192.27 feet** to a calculated angle point hereof,
3. **N 74°03'33" E**, a distance of **409.86 feet** to a calculated angle point hereof,
4. **S 89°56'27" E**, a distance of **477.10 feet** to a calculated angle point hereof, and
5. **S 83°40'17" E**, a distance of **472.93 feet** to a calculated point on the west right-of-way line of the Remnant Portion of a called 251 acre tract, conveyed to K-TEX, recorded in Volume 167, Page 365, and described in Volume 167, Page 365, both of the Deed Records of Hays County Texas, same being the east boundary line of said 232.39 acre tract for an angle point hereof,

THENCE S 16°46'50" E, with the west right-of-way line of the Remnant Portion of said Cypress Road, same being the east boundary line of said 232.39 acre tract, a distance of **36.97 feet** to a R80D nail found on the northwest corner of said 3.023 acre tract, same being the southwest corner of the Remnant Portion of said 251 acre tract for an angle point hereof,

THENCE, departing the east boundary line of said 232.39 acre tract, with the south boundary lien of the Remnant Portion of said 251 acre tract, with the north boundary line of said 3.023 acre tract, the following two (2) courses and distances:

1. **S 84°51'06" E,** a distance of **23.86 feet** to a R80D nail found for a point of tangent curvature hereof, and

2. along a curve to the right, having a **radius** of **2327.23 feet,** a central angle of **04°06'34",** a **chord bearing** and **distance** of **S 82°47'49" E, 166.88 feet,** an **arc length** of **166.92 feet** to a calculated point of tangency hereof,

THENCE, departing the south boundary line of the Remnant Portion of said 251 acre tract, through the interior of said 3.023 acre tract and said 30 acre tract, the following two (2) courses and distances:

1. **S 38°18'12" E,** a distance of **30.44 feet** to a calculated angle point hereof, and

2. **S 79°22'44" E,** a distance of **583.58 feet** to a calculated point on the west right-of-way line of Cypress Road, a variable width right-of-way, same being the east boundary line of said 30 acre tract for an angle point hereof,

TEHNCE S 44°22'04" E, with the west right-of-way line of said Cypress Road, same being the east boundary line of said 30 acre tract, a distance of **9.45 feet** to a calculated point on a southwest terminus of said Cypress Road, same being on the northwest corner of said 2.99 acre tract for an angle point hereof,

THENCE, departing the east boundary line of said 30 acre tract, with the south and west right-of-way line of said Cypress Road, same being the north and east boundary line of said 2.99 acre tract, the following four (4) courses and distances:

1. **S 79°37'16" E,** a distance of **430.99 feet** to a calculated angle point hereof, from which a ½" iron rod found on the southwest boundary line of Cypress Forest Phase Four, Section B, a subdivision according to the plat recorded in Document No. 21033095 of said Plat Records, same being the northeast right-of-way line of said Cypress Road, bears N 70°16'14" E, a distance of 55.43 feet,

2. **S 52°43'16" E,** a distance of **48.60 feet** to a calculated angle point hereof,

3. **S 34°03'16" E,** a distance of **48.40 feet** to a calculated angle point hereof, and

4. **S 16°01'02" E**, a distance of **520.49 feet** to a calculated point on the northeast boundary line of said 30 acre tract, same being on the southeast corner of said 2.99 acre tract for an angle point hereof, from which a Mag nail found on a southwest corner of Cypress Forest Phase Two, a subdivision according to the plat recorded in Document No. 18008955 of the said Plat Records, same being on the northeast right-of-way line of said Cypress Road, bears N 19°54'48" E, a distance of 58.66 feet,

THENCE S 46°58'58" E, departing the southeast corner of said 2.99 acre tract, with the west right-of-way line of said Cypress Road, same being the northeast boundary line of said 30 acre tract, a distance of **13.28 feet** to a calculated angle point hereof;

THENCE, departing the west right-of-way line of said Cypress Road, through the interior of said 30 acre tract, the following three (3) courses and distances:

1. **S 16°45'12" E**, a distance of **52.08 feet** to a calculated angle point hereof,

2. **S 32°53'04" E**, a distance of **83.05 feet** to a calculated angle point hereof, and

3. **S 58°51'47" E**, a distance of **225.63 feet** to a calculated point on the northeast boundary line of said 30 acre tract, same being the west right-of-way line of said Cypress Road for the southernmost northeast corner hereof,

THENCE S 46°58'58" E, with the west right-of-way line of said Cypress Road, same being the northeast boundary line of said 30 acre tract, a distance of **170.01 feet** to a calculated point of the southernmost southeast corner hereof;

THENCE, departing the west right-of-way line of said Cypress Road, through the interior of said 30 acre tract, said 2.99 acre tract, said 3.023 acre tract, and said 232.39 acre tract, the following eleven courses and distances:

1. **N 58°51'47" W**, a distance of **400.07 feet** to a calculated angle point hereof,

2. **N 32°53'04" W**, a distance of **96.09 feet** to a calculated angle point hereof,

3. **N 16°45'12" W**, a distance of **588.06 feet** to a calculated angle point hereof,

4. **N 36°01'38" W**, a distance of **60.76 feet** to a calculated angle point hereof,

5. **N 79°22'44" W**, a distance of **1038.03 feet** to a calculated angle point hereof,

6. **N 38°18'12" W**, a distance of **79.59 feet** to a calculated angle point hereof,

7. **N 83°40'17" W**, a distance of **626.02 feet** to a calculated angle point hereof,

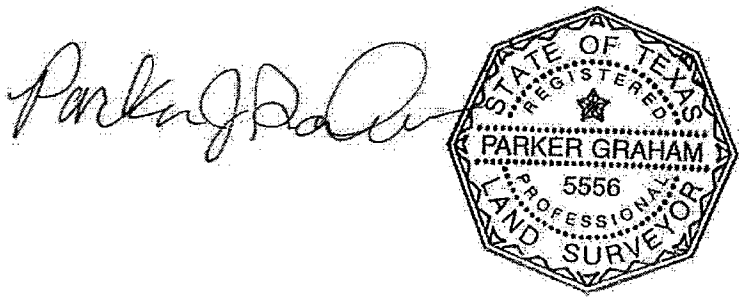
8. **N 89°56'27" W**, a distance of **470.27 feet** to a calculated angle point hereof,

9. **S 74°03'33" W,** a distance of **411.90 feet** to a calculated angle point hereof,

10. **N 83°26'27" W,** a distance of **207.48 feet** to a calculated angle point hereof, and

11. **N 56°56'27" W,** a distance of **620.26 feet** to the **POINT OF BEGINNING** and containing 3.393 acres in Hays County, Texas. Said tract being described in accordance with an exhibit prepared by Pape-Dawson Engineers, Inc. under Job No. 51432-01.

PREPARED BY: Pape-Dawson Engineers, Inc.
REVISED: February 16, 2024
JOB No.: 51432-01
DOC.ID.: H:\Survey\CIVIL\51432-01\Easements\Word\FN51432-01_3.393Ac_FM_Esmt.docx
TBPE Firm Registration #470
TBPLS Firm Registration #100288-01



A 3.393 ACRE OR 147,802 SQUARE FOOT TRACT OF LAND, SITUATED IN THE SAMUEL PHARASS SURVEY, SECTION NO. 14, ABSTRACT NO. 360, AND THE PHARASS SURVEY, SECTION NO. 13, ABSTRACT 361, BEING OUT OF A CALLED 232.39 ACRE TRACT (TRACT 4), A CALLED 3.023 ACRE TRACT (TRACT 7), AND A CALLED 30 ACRE TRACT (TRACT 6) CONVEYED TO RAFTER HOLDINGS, LLC, RECORDED IN DOCUMENT NO. 18006670 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS.

NOTES:

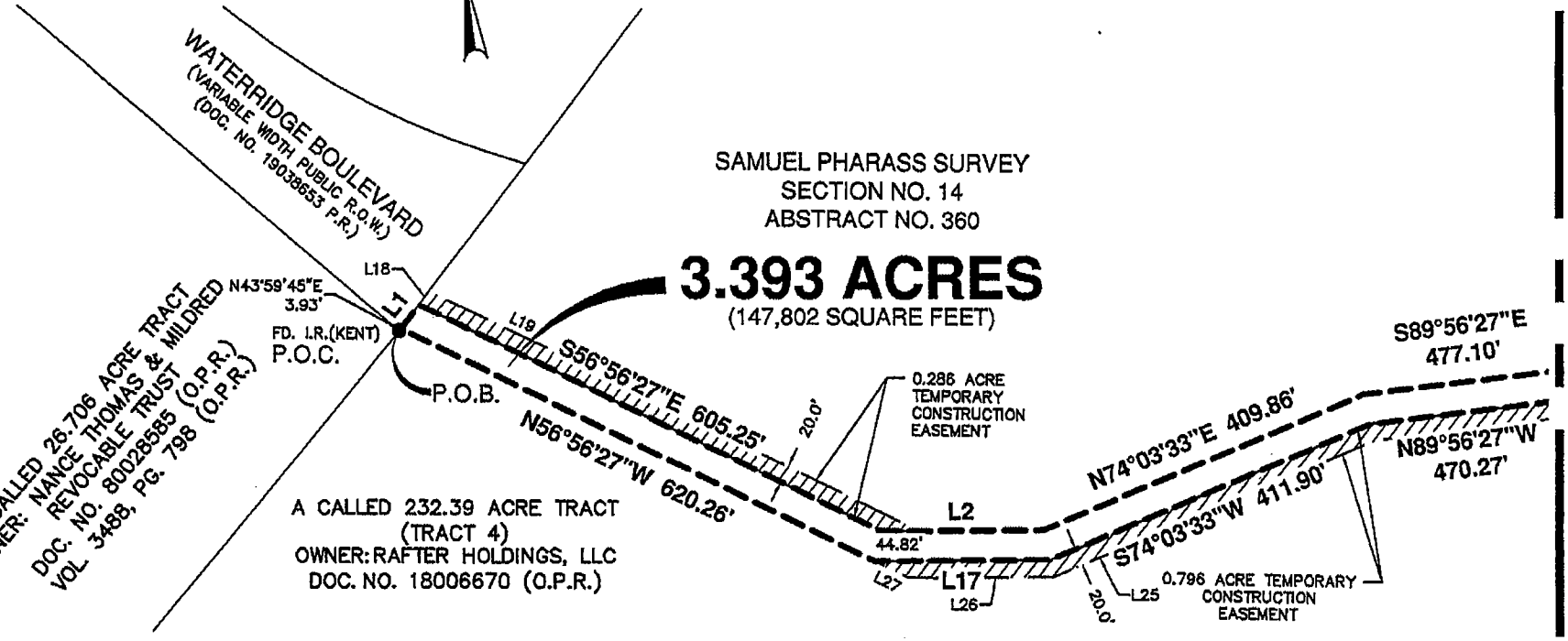
1. THE PROFESSIONAL SERVICES PROVIDED HEREWITH INCLUDE THE PREPARATION OF A METES AND BOUNDS DESCRIPTION.
2. THE BEARINGS ARE BASED ON THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE CENTRAL ZONE FROM THE NORTH AMERICAN DATUM OF 1983 NAD 83 (NA2011) EPOCH 2010.00.
3. ADJOINERS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.R.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT

200' 0' 100' 200'

SCALE: 1"= 200'



MATCHLINE - SEE SHEET 2 OF 4

PAPE-DAWSON ENGINEERS

AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

JUNE 12, 2024

Date: Jun 12, 2024, 8:50am User ID: pgraham
File: C:\Users\LOCAL_~1\Temp\AcPublish_103204\ES51432-01-3.393AC_FN_ESMT.dwg

A 3.393 ACRE OR 147,802 SQUARE FOOT TRACT OF LAND, SITUATED IN THE SAMUEL PHARASS SURVEY, SECTION NO. 14, ABSTRACT NO. 360, AND THE PHARASS SURVEY, SECTION NO. 13, ABSTRACT 361, BEING OUT OF A CALLED 232.39 ACRE TRACT (TRACT 4), A CALLED 3.023 ACRE TRACT (TRACT 7), AND A CALLED 30 ACRE TRACT (TRACT 6) CONVEYED TO RAFTER HOLDINGS, LLC, RECORDED IN DOCUMENT NO. 18006670 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS.

NOTES:

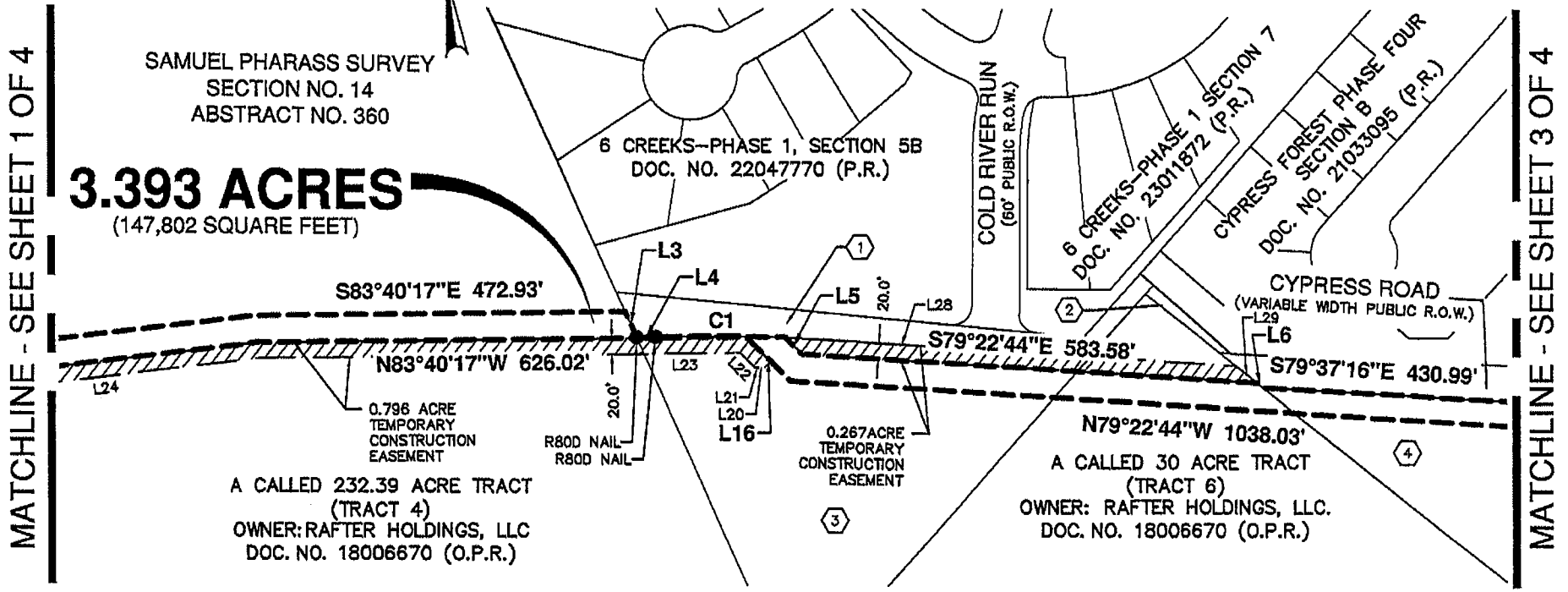
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2. THE BEARINGS ARE BASED ON THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE CENTRAL ZONE FROM THE NORTH AMERICAN DATUM OF 1983 NAD 83 (NA2011) EPOCH 2010.00.
3. ADJOINERS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.R.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT

200' 0' 100' 200'

SCALE: 1"= 200'



LISTED TRACTS

(#) SEE SHEET 4 OF 4

PAPE-DAWSON ENGINEERS

AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

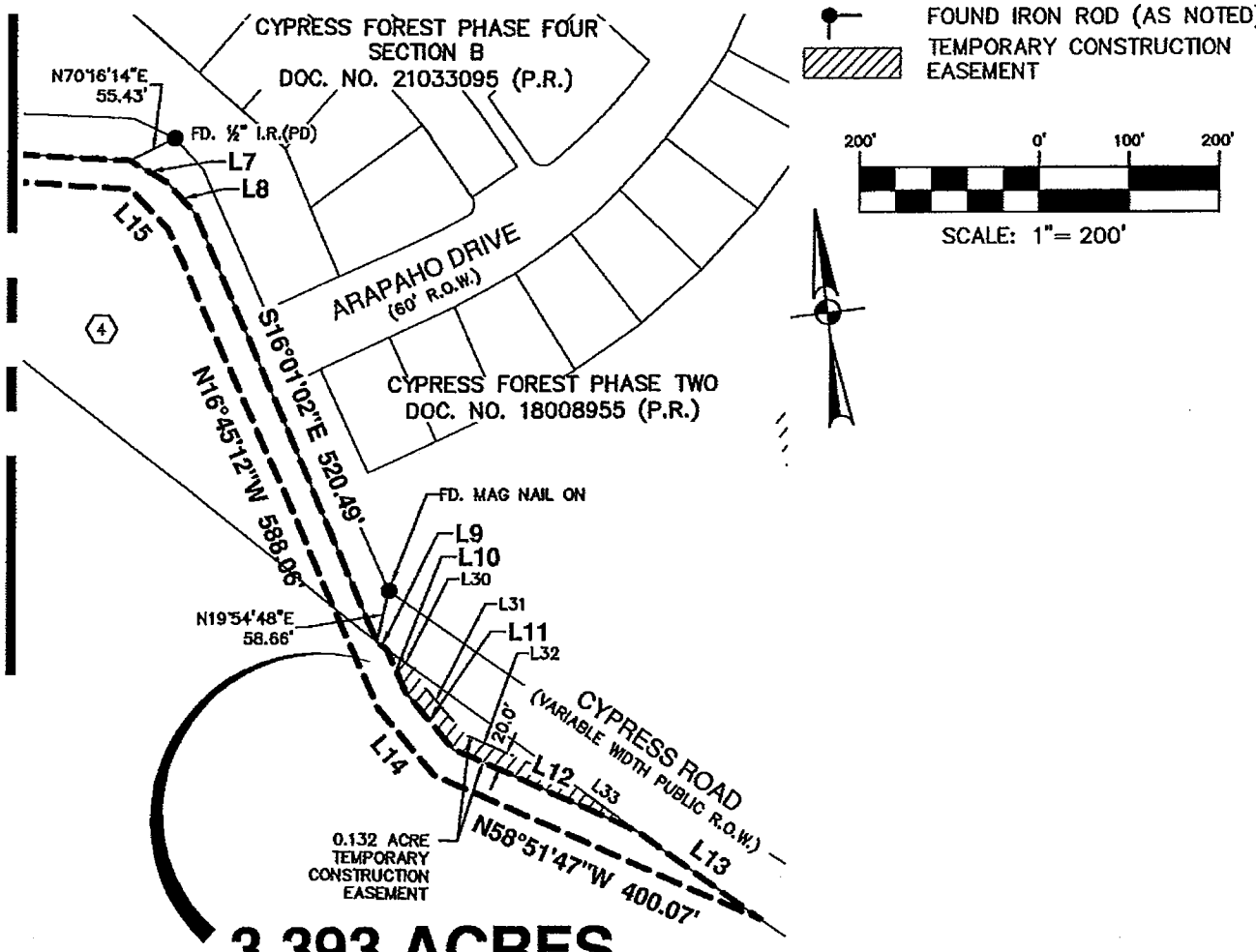
JUNE 12, 2024

Date: Jun 12, 2024, 8:50am User ID: pgraham
File: C:\Users\LOCAL_~1\Temp\AcPublish_103204\ES51432-01-3.393AC_FM_ESMT.dwg

A 3.393 ACRE OR 147,802 SQUARE FOOT TRACT OF LAND, SITUATED IN THE SAMUEL PHARASS SURVEY, SECTION NO. 14, ABSTRACT NO. 360, AND THE PHARASS SURVEY, SECTION NO. 13, ABSTRACT 361, BEING OUT OF A CALLED 232.39 ACRE TRACT (TRACT 4), A CALLED 3.023 ACRE TRACT (TRACT 7), AND A CALLED 30 ACRE TRACT (TRACT 6) CONVEYED TO RAFTER HOLDINGS, LLC, RECORDED IN DOCUMENT NO. 18006670 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS.

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.R.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER
	FOUND IRON ROD (AS NOTED)
	TEMPORARY CONSTRUCTION EASEMENT



3.393 ACRES

(147,802 SQUARE FEET)

A CALLED 30 ACRE TRACT
(TRACT 6)
OWNER: RAFTER HOLDINGS, LLC.
DOC. NO. 18006670 (O.P.R.)

SAMUEL PHARASS SURVEY
SECTION NO. 13
ABSTRACT NO. 361

NOTES:

1. THE PROFESSIONAL SERVICES PROVIDED HEREWITH INCLUDE THE PREPARATION OF A METES AND BOUNDS DESCRIPTION.
2. THE BEARINGS ARE BASED ON THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE CENTRAL ZONE FROM THE NORTH AMERICAN DATUM OF 1983 NAD 83 (NA2011) EPOCH 2010.00.
3. ADJOINERS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

JUNE 12, 2024

Date: Jun 12, 2024, 8:50am User Id: pgrahom
File: C:\Users\LOCAL_~1\Temp\AcPublish_10320A\DS51432-01-3.393AC_PM_ESMT.dwg

A 3.393 ACRE OR 147,802 SQUARE FOOT TRACT OF LAND, SITUATED IN THE SAMUEL PHARASS SURVEY, SECTION NO. 14, ABSTRACT NO. 360, AND THE PHARASS SURVEY, SECTION NO. 13, ABSTRACT 361, BEING OUT OF A CALLED 232.39 ACRE TRACT (TRACT 4), A CALLED 3.023 ACRE TRACT (TRACT 7), AND A CALLED 30 ACRE TRACT (TRACT 6) CONVEYED TO RAFTER HOLDINGS, LLC, RECORDED IN DOCUMENT NO. 18006670 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS.

LEGEND:

P.R.	PLAT RECORDS OF HAYS COUNTY, TEXAS
D.R.	DEED RECORDS OF HAYS COUNTY, TEXAS
O.P.R.	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
P.O.B.	POINT OF BEGINNING
P.O.R.	POINT OF COMMENCEMENT
FD.	FOUND
I.R.	IRON ROD
DOC. NO.	DOCUMENT NUMBER

LISTED TRACTS

1. REMNANT PORTION OF A CALLED 251 ACRE TRACT
   OWNER: KY-TEX, PROPERTIES, INC.
   VOL. 185, PG. 365 (D.R.)
   DESCRIBED IN VOL. 167, PG. 365 (D.R.)

2. REMNANT PORTION OF A CALLED 206 ½ ACRE TRACT LAST DEED CONVEYED TO FRANKLIN JORDAN, ET UX
   VOL. 254, PG. 848 (D.R.)

3. 3.023 ACRE TRACT (TRACT 7)
   OWNER: RAFTER HOLDINGS, LLC
   DOC. NO. 18006670 (O.P.R.)
   DESCRIBED IN DOC NO. 17036599 (O.P.R.)

4. 2.99 ACRE TRACT (TRACT 2)
   OWNER: RAFTER HOLDINGS, LLC
   DOC. NO. 18006670 (O.P.R.)

LINE TABLE		
LINE	BEARING	LENGTH
L1	N43°59'45"E	35.65'
L2	S83°26'27"E	192.27'
L3	S16°46'50"E	36.97'
L4	S84°51'06"E	23.86'
L5	S38°18'12"E	30.44'
L6	S44°22'04"E	9.45'
L7	S52°43'16"E	48.60'
L8	S34°03'16"E	48.40'
L9	S46°58'58"E	13.28'
L10	S16°45'12"E	52.08'
L11	S32°53'04"E	83.05'
L12	S58°51'47"E	225.63'
L13	S46°58'58"E	170.01'
L14	N32°53'04"W	96.09'
L15	N36°01'38"W	60.76'
L16	N38°18'12"W	79.59'
L17	N83°26'27"W	207.48'
L18	N43°59'45"E	20.37'
L19	S56°56'27"E	641.50'
L20	N84°51'06"W	23.86'

LINE TABLE		
LINE	BEARING	LENGTH
L21	N79°21'15"W	4.21'
L22	N38°18'12"W	27.39'
L23	N83°40'17"W	616.56'
L24	N89°56'27"W	466.36'
L25	S74°03'33"W	413.07'
L26	N83°26'27"W	171.34'
L27	N56°56'27"W	44.82'
L28	N79°22'44"W	577.98'
L29	N44°22'04"W	34.86'
L30	N46°58'58"W	39.72'
L31	N32°53'04"W	75.60'
L32	N58°51'47"W	125.94'
L33	N46°58'58"W	97.15'

NOTES:

1. THE PROFESSIONAL SERVICES PROVIDED HEREWITH INCLUDE THE PREPARATION OF A METES AND BOUNDS DESCRIPTION.
2. THE BEARINGS ARE BASED ON THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE CENTRAL ZONE FROM THE NORTH AMERICAN DATUM OF 1983 NAD 83 (NA2011) EPOCH 2010.00.
3. ADJOINERS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

STATE OF TEXAS
REGISTERED
PARKER GRAHAM
5556
PROFESSIONAL
LAND SURVEYOR

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

JUNE 12, 2024

Date: Jun 12, 2024, 8:50am User ID: pgraham
File: C:\Users\LOCAL_~1\Temp\VicPublish_1032\51432-01-3.393AC_PU_ESMT.dwg

THE STATE OF TEXAS
COUNTY OF HAYS

I hereby certify that this instrument was FILED on the date and the time stamped hereon by me and was duly RECORDED in the Records of Hays County, Texas.

25014109 EASEMENT
04/23/2025 02:02:02 PM Total Fees: $98.25

Elaine H. Cárdenas, MBA, PhD,County Clerk
Hays County, Texas

Elaine H Cárdenas



24040819 EASEMENT Total Pages: 4
Filed and Recorded: 10/23/2024 07:51:10 AM

PERMANENT UTILITY EASEMENT

THE STATE OF TEXAS §
§
COUNTY OF HAYS §

That, **Ky-Tex Properties, LLC, formerly known as Ky-Tex Properties, L.P., as successor by Conversion of Ky-Tex Properties, Inc., a Texas Corporation** ("**Grantor**"), whether one or more, for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration, to **Grantor** in hand paid by **City of Kyle, Texas**, a Texas home-rule municipality situated in Hays County, Texas ("**Grantee**"), the receipt and sufficiency of which is hereby acknowledged and confessed, and for which no lien or encumbrance, expressed or implied, is retained, has this day GRANTED, SOLD, and CONVEYED and by these presents does GRANT, SELL, and CONVEY unto **Grantee**, a permanent easement for purposes of construction, reconstruction, operation, maintenance, repair, upgrade, replacement, and/or removal of wastewater lines, force mains, water pipelines, facilities, connections therewith, and all necessary appurtenances thereto including without limitation valves, manholes, and vents (the "**Project**"), upon and across all or any portion of the following described property:

> A tract of land consisting of 6,048 square feet, more or less, being more particularly described by metes and bounds in the attached Exhibit "A," hereby incorporated by reference and made a part hereof for all purposes, with said 6,048 square foot parcel being referred to hereafter as the **Permanent Easement**.

The right to use the **Permanent Easement** shall belong to the **Grantee** and its agents, employees, designees, contractors, guests, invitees, successors and assigns, and all those acting by or on behalf of it for the purposes of installation, construction, operation, maintenance, monitoring, replacement, upgrading, repairing, or removing in whole or in part, wastewater pipelines, force mains, water pipelines, and appurtenances thereto.

Grantee shall have the right to unimpaired ingress and egress, entry and access in, to, through, on, over, under, and across the **Permanent Easement**. **Grantee** shall promptly repair any damage to any of **Grantor's** existing roads or surface caused by **Grantee** so as to maintain the roads or surface in as good as or better condition as existed prior to use by **Grantee**.

Grantor may use the **Permanent Easement** for any and all purposes not inconsistent with the purposes set forth in this Agreement. Specifically, **Grantor** retains the right to place, construct, operate, repair, replace and maintain roadways, driveways, landscaping, fencing, parking, and signage on, in, under, over and across the **Permanent Easement**, so long as such use does not unreasonably interfere with or prevent **Grantee's** use of the **Permanent Easement**. **Grantor** may not, however, use the **Permanent Easement** for construction of buildings or other permanent improvements other than those uses specifically identified herein. **Grantor** may not use any part of the Easement if such use may damage, destroy,

injure, and/or interfere with **Grantee's** use of the Easement for the purposes for which the Easement is being sought by **Grantee**.

Grantor shall retain all the oil, gas, and other minerals in, on and under the **Permanent Easement.**

Grantee shall have the right to remove any fence which now crosses or may cross the Easement during initial construction of the **Project**. **Grantee** shall replace all such fencing or gates with gates or fencing of the same or better quality, type, and dimension as existed prior to **Grantee's** work.

Grantee agrees that upon completion of construction of the project, **Grantee** shall remove and dispose of all debris, trash, and litter resulting from construction and shall restore the surface of the **Permanent Easement** as nearly as reasonably possible in **Grantee's** sole determination to the same condition in which the easement was found immediately before construction began; however, **Grantee** shall not be obligated to replace vegetation other than groundcover. **Grantee** shall not be obligated to replace trees.

This Agreement shall be interpreted in accordance with the laws of the state of Texas and all applicable federal laws (without regard to any conflicts-of-law rule or principle that would require the application of same to the laws of another jurisdiction).

This Agreement contains the entire agreement and supersedes any and all prior oral understandings and/or agreements, if any, concerning the subject of the Agreement.

TO HAVE AND TO HOLD the above-described easement, together with all and singular the rights and appurtenances thereto in anywise belonging unto **Grantee**, and **Grantee**'s heirs, executors, administrators, successors and assigns forever; and **Grantor** does hereby bind **Grantor**, their heirs, executors, administrators, successors and assigns to WARRANT AND FOREVER DEFEND all and singular the easement unto **Grantee** and **Grantee**'s heirs, executors, administrators, successors and assigns against every person whomsoever lawfully claiming or to claim the same, or any part thereof, together with the privilege at any and all times to enter said premises, or any part thereof, for the purpose of constructing, operating, maintaining, replacing, upgrading and repairing said public wastewater lines, force mains, and water utility lines, and for making connections therewith.

GRANTOR:

By: Kathryn Elaine Kinsala 10/22/24

Kathryn Kinsala,
President of Ky-Tex Properties, LLC.

Date

******* NOTARY ACKNOWLEDGEMENTS *******

The foregoing instrument was executed before me by Kathryn Kinsala, President of Ky-Tex Properties, LLC., on this the 22 day of October, 2024.

Notary Public, State of Texas

NOTARY PUBLIC STATE OF TEXAS
MARCHELLE FARRELL
My Notary ID # 129792615
Expires April 22, 2026

THE STATE OF TEXAS
COUNTY OF HAYS

I hereby certify that this instrument was FILED on the date and the time stamped hereon by me and was duly RECORDED in the Records of Hays County, Texas.

24040819 EASEMENT
10/23/2024 07:51:10 AM Total Fees: $33.00

Elaine H. Cárdenas, MBA, PhD,County Clerk
Hays County, Texas

Elaine H Cárdenas

24044498 AFFIDAVIT Total Pages: 5
Filed and Recorded: 11/18/2024 08:56:26 AM

Correction Affidavit as to Permanent Utility Easement

Date: 11/14/24

Description of Original Instrument ("Original Instrument"): Permanent Utility Easement dated October 22, 2024, from Ky-Tex Properties, LLC, formerly known as Ky-Tex Properties, L.P., as successor by Conversion of Ky-Tex Properties, Inc., a Texas Corporation to City of Kyle, Texas, recorded as County Clerk's Document No. 24040819, Official Public Records of Hays County, Texas.

Affiant: MARCHELLE FARRELL

Affiant on oath swears that the following statements are true and correct and are within the personal knowledge of Affiant:

1. My full legal name is MARCHELLE FARRELL, and I am over the age of eighteen (18) years and qualified to make this Affidavit.

2. I am employed as an Escrow Officer of Independence Title. I closed the transaction relating to the Original Instrument under our Guaranty File No. 2416906-BUD and have personal knowledge of the facts relevant to the correction of the Original Instrument.

3. I am making this Affidavit as a correction instrument pursuant to Section 5.028 of the Texas Property Code, with regard to the following clerical error in the Original Instrument:

Exhibit "A" prepared in connection with the preparation of the Original Instrument was inadvertently omitted from the Original Instrument.

4. The Original Instrument should correctly read as follows with respect to the clerical error described above, this being a non-material change to the Original Instrument:

Property description in the Original Instrument shall be as set forth in Exhibit "A", attached hereto and incorporated hereby for all purposes.

5. I have given notice of this correction of the Original Instrument by sending a copy of this Correction Affidavit by first class mail to each party to the Original Instrument in accordance with Section 5.028 (d)(2), Texas Property Code as evidenced by copies of transmittals attached hereto.

Further Affiant sayeth not.

MARCHELLE FARRELL

SUBSCRIBED AND SWORN TO before me on 11/14/24 by MARCHELLE FARRELL.

Stacey Coleman
Notary Public, State of Texas

STACEY COLEMAN
Notary Public, State of Texas
Comm. Expires 07-30-2027
Notary ID 11691261

STATE OF TEXAS §
COUNTY OF Hays §

This instrument was acknowledged before me on the 14 day of November, 2024, by MARCHELLE FARRELL.

Stacey Coleman
NOTARY PUBLIC, State of Texas

STACEY COLEMAN
Notary Public, State of Texas
Comm. Expires 07-30-2027
Notary ID 11691261

PAPE-DAWSON ENGINEERS

Exhibit "A"

FIELD NOTES
FOR

A 0.139 ACRE OR 6,048 SQUARE FOOT TRACT OF LAND, SITUATED IN THE SAMUEL PHARASS SURVEY, SECTION NO. 14, ABSTRACT NO. 360, BEING OUT OF THE REMNANT PORTION OF A CALLED 251 ACRE TRACT, CONVEYED TO KY-TEX PROPERTIES, INC., RECORDED IN VOLUME 185, PAGE 365, DESCRIBED IN VOLUME 167, PAGE 365, BOTH OF THE DEED RECORDS OF HAYS COUNTY, TEXAS. SAID 0.139 ACRE TRACT BEING MORE FULLY DESCRIBED AS FOLLOWS, WITH BEARINGS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NA 2011) EPOCH 2010.00, FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH-CENTRAL ZONE:

BEGINNING at an R80D nail found on the east boundary line of a called 232.39 acre tract, conveyed to Rafter Holdings, Llc., recorded in Document No. 18006670 of the Official Public Records of Hays County, Texas, said point being the northwest corner of a called 3.023 acre tract, conveyed to Rafter Holdings, Llc., recorded in Document No. 18006670 of said Official Public records, same being the southwest corner of the Remnant Portion of said 251 acre tract for the **POINT OF BEGINNING** and the southwest corner hereof;

THENCE N 16°46'50" W, departing the north boundary line of said 3.023 acre tract, with the east boundary line of said 232.39 acre tract, same being the west boundary line of the Remnant Portion of said 251 acre tract, a distance of **36.97 feet** to a calculated point for the northwest corner hereof;

THENCE, departing the east boundary line of said 232.39 acre tract, through the interior of the Remnant Portion of said 251 acre tract, the following two (2) courses and distances:

1. **S 83°40'17" E,** a distance of **169.63 feet** to a calculated point for the northeast corner hereof, and

2. **S 38°18'12" E,** a distance of **50.67 feet** to a calculated point of non-tangent curvature on the north boundary line of said 3.023 acre tract, same being the south boundary line of the Remnant Portion of said 251 acre tract for the southeast corner hereof;

THENCE, with the north boundary line of said 3.023 acre tract, same being the south boundary line of the Remnant Portion of said 251 acre tract, the following two courses and distances:

1. along the arc of a curve to the left having a **radius of 2327.23 feet, a central angle of 04°06'34", a chord bearing and distance of N 82°47'49" W, 166.88 feet, an arc length of 166.92 feet** to a calculated point of non-tangency hereof, and

2. **N 84°51'06" W,** a distance of **23.86 feet** to to the **POINT OF BEGINNING** and containing 0.139 acres in Hays County, Texas. Said tract being described in accordance with an exhibit prepared by Pape-Dawson Engineers, Inc. under Job No. 51432-01.

PREPARED BY: Pape-Dawson Engineers, Inc.
REVISED: February 16, 2024
JOB No.: 51432-01
DOC.ID.: H:\Survey\CIVIL\51432-01\Easements\Word\FN51432-01_0.139Ac_FM_Esmt.doc
TBPE Firm Registration #470
TBPLS Firm Registration #100288-01

STATE OF TEXAS
REGISTERED
PARKER GRAHAM
5556
PROFESSIONAL
LAND SURVEYOR

Locally Grown • Texas Strong
Independence Title
IndependenceTitle.com

5900 Shepherd Mountain Cove, Bldg 2, Ste. 200
Austin, TX 78730

November 15, 2024

City of Kyle
100 W. Center Street
Kyle, TX 78640

Re: GF #2416906-BUD

Enclosed please find a copy of the statutory Correction Affidavit that will be filed of record to add Exhibit A as set out in the Easement as to the above-referenced file. This letter is given pursuant to statutory notice requirements only; you are not obligated to take any action regarding the Affidavit.

Thank you,

Annelise C. Holbrook
Compliance Support/Corrections Specialist

cc: Ky-Tex Properties

Return to: Independence Title
5900 Shepherd Mountain Cove, Bldg 2, Suite 200
Austin, TX 78730

THE STATE OF TEXAS
COUNTY OF HAYS

I hereby certify that this instrument was FILED on the date and the time stamped hereon by me and was duly RECORDED in the Records of Hays County, Texas.

24044498 AFFIDAVIT
11/18/2024 08:56:26 AM Total Fees: $37.00

Elaine H. Cárdenas, MBA, PhD,County Clerk
Hays County, Texas

Elaine H Cárdenas



AGENT AUTHORIZATION

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

I David M. "Mike" Boswell,
Print Name

Vice President, Land Development,
Title - Owner/President/Other

of Toll Southwest LLC,
Corporation/Partnership/Entity Name

have authorized Aimee Chavez, P.E.
Print Name of Agent/Engineer

of Pape-Dawson Consulting Engineers, LLC.
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:

Applicant's Signature

9/9/2024
Date

THE STATE OF TEXAS §

County of TARRANT §

BEFORE ME, the undersigned authority, on this day personally appeared Mike Boswell 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 9th day of September.

LAVONDA HIGH
Notary Public, State of Texas
Comm. Expires 12-28-2024
Notary ID 12924615-4

NOTARY PUBLIC

LaVonda High
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 12/28/2024

APPLICATION FEE FORM

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Clara Vista Lift Staion & Force Main

Regulated Entity Location: Approximately 0.7 miles southweest of the intersection of Six Creeks Blvd. and Falling River Rd.

Name of Customer: Toll Southwest LLC.

Contact Person: Mike Boswell Phone: 817-329-7973

Customer Reference Number (if issued):CN 605682475

Regulated Entity Reference Number (if issued):RN N/A

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

☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office

☐ Overnight Delivery to: TCEQ - Cashier
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

Type of Plan	***Size***	***Fee Due***
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	9,499 L.F.	$ 4,749.50
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: Aimei Cy Date: 9/23/24

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

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

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	***Fee***
Extension of Time Request	$150

CORE DATA FORM

TCEQ Use Only

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.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ 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 605682475		**RN**

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* — *If new Customer, enter previous Customer below:*

Toll Southwest LLC.

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0801775669	32050842304	472582910	

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?
☐ **Yes** ☒ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:

1320 Arrow Point Dr., Suite 401

City	Cedar Park	**State**	TX	**ZIP**	78613	**ZIP + 4**	

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)*

(412) 780-2312		( ) -

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.)*

Clara Vista Lift Station & Force Main

23. Street Address of the Regulated Entity: ***(No PO Boxes)***							
	City		**State**		**ZIP**		**ZIP + 4**
24. County	Hays						

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

25. Description to Physical Location:	Approximately 0.7 miles southweest of the intersection of Six Creeks Blvd. and Falling River Rd.				
26. Nearest City			**State**	**Nearest ZIP Code**	
Kyle			TX	78640	

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:	29.999333		**28. Longitude (W) In Decimal:**	-97.916983	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	59	57.6	97	55	1.1

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4952		237110	

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

Lift station

34. Mailing Address:	**1320 Arrow Point Dr., Suite 401**						
	City	**Cedar Park**	**State**	**TX**	**ZIP**	**78613**	**ZIP + 4**
35. E-Mail Address:							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(412) 780-2312		( ) -

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.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Carson Krause, E.I.T.	41. Title:	Engineer in Training I

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 454-8711		( ) -	ckrause@pape-dawson.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:	Pape-Dawson Consulting Engineers, LLC.	Job Title:	Associate Vice President
Name *(In Print)*:	Aimee Chavez, P.E.	Phone:	(512) 454- 8711
Signature:	Aimee Chavez	Date:	9/23/24