512.330.1270 main

WPM Proj No: C02-21002-00 Date: December 15, 2023

Underground Storage Tank Permit Application
for
Baylor Scott & White UST
300 University Boulevard
Round Rock, Texas

Submitted To

Texas Commission on Environmental Quality

1211 Park 35 Circle

Austin, TX 78753

Submitted By
David S. Lundberg, P.E.
Associate Engineer
Walter P. Moore and Associates, Inc.
(TBPE Firm Registration No. 1856)

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Edward's Aquifer Application Cover Page (TCEQ Form 20705) Tab 1

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: Baylor Scott & White UST						**2. Regulated Entity No.:** 104718556			
3. Customer Name: Scott & White Memorial Hospital						**4. Customer No.:** 600306450			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**			66.58
9. Application Fee:	$650		**10. Permanent BMP(s):**			N/A			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			1 Tank at 20,000 Gallons			
13. County:	Williamson		**14. Watershed:**			Brushy Creek			

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.

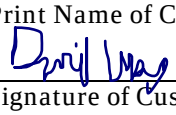
Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	__	__	X
Region (1 req.)	__	__	X
County(ies)	__	__	X
Groundwater Conservation District(s)	__Edwards Aquifer Authority __Barton Springs/ Edwards Aquifer __Hays Trinity __Plum Creek	__Barton Springs/ Edwards Aquifer	NA
City(ies) 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 __Jerrell __Leander __Liberty Hill __Pflugerville X 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.

David Lundberg

Print Name of Customer/Authorized Agent



12/1/23

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 (TCEQ Form 0587) Tab 2

Attachment A	Road Map
Attachment B	USGS/Edwards Recharge Zone Map
Attachment C	Project Description

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: David Lundberg - Agent

Date: 12/1/23

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Baylor Scott & White UST
2. County: Williamson
3. Stream Basin: Brushy Creek
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☐ WPAP
   ☐ SCS
   ☐ Modification
   ☐ AST

☒ UST ☐ Exception Request

7. Customer (Applicant):

Contact Person: Deborah Arizmendi-Kopeck
Entity: Baylor Scott & White Health
Mailing Address: 301 S 31st Street
City, State: Temple, Texas Zip: 76508
Telephone: 254-724-4842 FAX: _____
Email Address: Deborah.Arizmendi@bswhealth.org

8. Agent/Representative (If any):

Contact Person: David Lundberg - Agent
Entity: Walter P Moore & Associates, Inc. (TBPE Firm #1856)
Mailing Address: 401 South 1st Street, Ste. 600
City, State: Austin, Texas Zip: 78704
Telephone: 512-301-4323 FAX: _____
Email Address: DLundberg@walterpmoore.com

9. Project Location:

☒ The project site is located inside the city limits of Round Rock.
☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
☐ The project site is not located within any city's limits or ETJ.

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

300 University Blvd, Round Rock, Texas 78665

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: 12/7/23

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: Existing hospital and ongoing expansion with associated site improvements

Prohibited Activities

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

    (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);

    (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

    (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

    (4) The use of sewage holding tanks as parts of organized collection systems; and

    (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

    (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

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

    (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

(3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

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

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

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

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

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

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

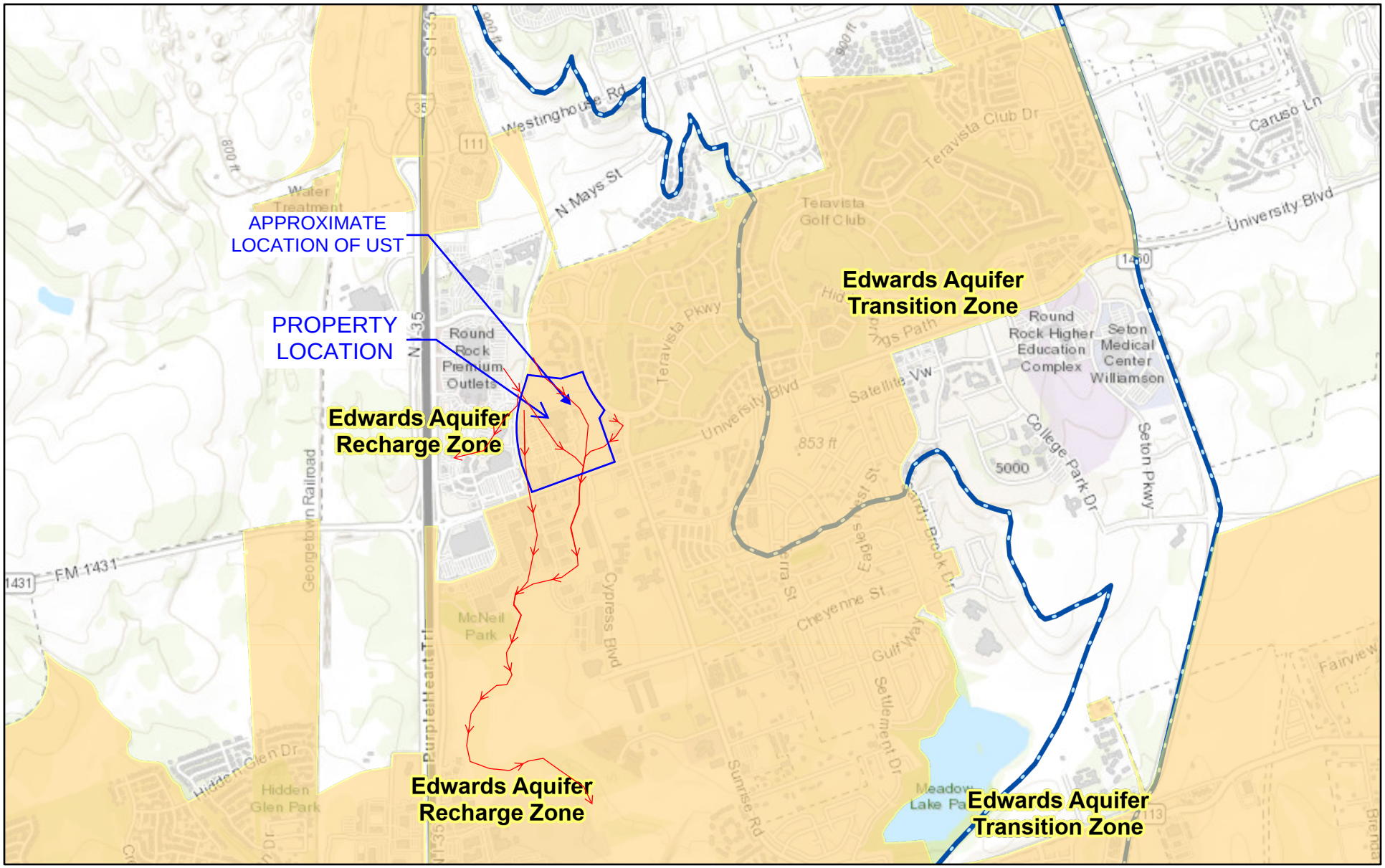
ATTACHMENT A Road Map

This site is located at 300 University Boulevard, Round Rock, Williamson County, Texas 78665. It is further located in the northwest corner of the intersection of University Boulevard and N. Mays St, which is approximately 0.38 miles east of the intersection of University Boulevard and Interstate 35.

ATTACHMENT B USGS/Edwards Recharge Zone Map

The site is outlined in red on the attached USGS map. The boundaries of the Recharge and Transition Zones are labeled along with the travel path downstream of the site.

Edwards Aquifer Viewer Custom Print



5/6/2022, 2:58:34 PM

1:36,112

0 1,250 2,500 5,000 ft

0 425 850 1,700 m

Edwards Aquifer Label

Edwards Aquifer Boundary

Edwards Aquifer Boundary central line

City/Place

TX Counties

7.5 Minute Quad Grid

TCEQ_EDWARDS_OFFICIAL_MAPS

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

Web AppBuilder for ArcGIS

Austin Community College, City of Austin, County of Williamson, Texas Parks & Wildlife, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, METI/NASA, EPA, USDA | TCEQ |

ATTACHMENT C Project Description

This site is located at 300 University Boulevard, Round Rock Texas 78665. This 66.58-acre site is described as Lot 1A, Block A and Lot 2A, Block A, Section One of the Scott and White Subdivision, recorded in Cabinet EE Slide 225 of the Williamson County Plat Records. The property is bounded by N. Mays Street Right-of-Way (ROW) to the west, University Boulevard ROW to the south, Terravista Parkway ROW and commercials businesses to the east and an apartment complex and undeveloped raw land to the north. The property is currently owned by Scott and White Hospital at University Medical Center as shown in assumed name document no. 2006088212 (non-profit corporation). The property is located in the city limits of the City of Round Rock and is zoned Public Facilities – High Intensity (PF-3). Zoning changes are not proposed with this application.

This site is located within the Brushy Creek Watershed and the Edwards Aquifer Recharge Zone as defined by TCEQ. This site is does contain a flood flood hazard area, as seen on FEMA FIRM Map(s) 48491C0485F & 48491C0491F, dated December 20, 2019. The proposed work will not encroach the existing fema floodplain. The soils found on and around the property are comprised of Denton Silty Clay (DnB), Doss Silty Clay (DoC), Fairlie Clay (FaB) and Houston Black Clay (HoB). All soils are classified as type “D” hydrologic soils and exhibit high shrink-swell potential. The soils within the property contain a slope range of 1% to 5%, the majority being less than a 6% slope and will be used for determining the NRCS Curve Number. Areas where slopes exceed 15% are limited to earthen embankments such as paved areas down to natural grade and pond embankments.

Baylor Scott and White proposes to install a new underground static hydrocarbon storage system that will consist of one (1) new 20,000-gallon double-wall fiberglass-reinforced plastic (FRP) tank to be used for the storage of fossil fuels (i.e. diesel). The UST will be used to provide fuel for equipment that serves the existing hospital and ongoing hospital expansion. The location of the proposed UST is located within a drainage area that currently has a permanent BMP (wet pond) that serves the existing and ongoing site improvements – RN:104718556 (ID:11-05072203). There will be no changes to the treated volume of storm water requirements since existing impervious cover will remain impervious. The other onsite BMP’s regulated under RN:104818556 (ID: 11-003112 & ID: 11003512) will not be modified and/or affected by the new UST.

The proposed UST will be located within the limits of the disturbed area permitted under ID:11-003112, which includes 5.22 acres (7.84%) of the 66.58-acre – included for reference. No additional disturbed areas are required for the proposed UST. It is important to note that the total site areas for the drainage calculations total an acreage greater than the acreage shown on the plat. This is because a left turn lane into the hospital was designed under CoRR Permit No. SDP-1510-0006. This offsite added impervious area was mitigated for in the existing water quality pond (ID:11-05072203) calculations of the referenced permit.

The proposed site improvements will not adversely impact the natural and traditional characteristics of the land and waterways within the Brushy Creek watershed. All disturbed areas will be re-vegetated by the owner to establish ground cover as part of the permanent erosion control measures.

Water & Wastewater services are provided by the City of Round Rock. Water, wastewater, irrigation and natural gas service extensions are not proposed with this UST permit. A Sewage Collection System (SCS) is not applicable to this development permit application. Electric is provided by Georgetown Utility Systems. Natural gas service is provided by Atmos Energy and is existing to the central cooling plant.

Geologic Assessment (TCEQ Form 0585) Tab 3

Attachment A	Geologic Assessment Table
Attachment B	Stratigraphic Colum
Attachment C	Site Geology
Attachment D	Site Geology Map(s)

GEOLOGIC ASSESSMENT

For

BAYLOR SCOTT & WHITE TRACT
300 UNIVERSITY BLVD.
ROUND ROCK, WILLIAMSON COUNTY, TEXAS

Prepared for
WALTER P. MOORE & ASSOCIATES
221 W. 6TH STREET, SUITE 800
AUSTIN, TEXAS 78701

Prepared by

Professional Service Industries, Inc.
3 Burwood Lane
San Antonio, Texas 78216
Telephone (210) 342-9377

PSI PROJECT NO.: 0435-5288

January 26, 2022

3 Burwood Lane
San Antonio, TX 78216
phone: (210) 342-9377

intertek.com/building
psiusa.com

January 26, 2022

Walter P Moore and Associates, Inc.
221 W. 6th Street, Suite 800
Austin, TX 78701

Attn: Mr. David Lundberg, P.E./Senior Engineer
Email: DLundberg@walterpmoore.com

RE: Geologic Assessment
Baylor Scott & White Expansion
300 University Boulevard
Round Rock, Williamson County, Texas
PSI Project No. 435-5288

Dear Mr. Lundberg:

Professional Service Industries, Inc. (PSI) has completed a geologic recharge assessment for the above referenced project in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located on the Edwards Aquifer Recharge Zone (EARZ). The purpose of this report is to describe surficial geologic units and identify the locations and extent of significant recharge features present in the development area.

AUTHORIZATION

Authorization to perform this assessment was given via an email authorization regarding PSI Proposal No. 362573 on January 10, 2022.

PROJECT DESCRIPTION

The property consists of an approximate 10.8-acre tract of undeveloped land located on the east side of N. Mays Street, on the north side of the Baylor Scott & White Medical Center, 300 University Boulevard in Round Rock, Texas. The tract is irregular in shape, with a slope to the south-southeast, towards an unnamed tributary to Chandler Branch Creek. The site vegetation consists of mowed/cleared land with a few trees and native grasses.

REGIONAL GEOLOGY

Physiography

Williamson County lies within two physiographic provinces, the Edwards Plateau, and the Blackland Prairie. Most of Williamson County lies within the Edwards Plateau, which is characterized by rugged and hilly terrain, with elevations in excess of 1,400' feet above sea level in the northwestern portion of the county. This area is underlain by beds of limestone that dip gently to the southeast. South of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends northeast-southwest across Williamson County and is composed of fault blocks of limestone, chalk, shale, and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 650 feet to 1100 feet above sea level. The regional dip of the lower Cretaceous rocks in Williamson County is 15 feet per mile towards the southeast. The faults are predominantly normal, down-to-the Gulf Coast, with near vertical throws. According to topographic maps, elevations at the subject site range from

approximately 796 feet above mean sea level in the western portion of the tract to approximately 775 feet above mean sea level along the southeastern portion of the site.

Stratigraphy and Structure

The site and surrounding properties were predominantly cultivated agricultural land until the mid-2000's when the south adjoining medical facility was developed. The site has thick soil and virtually no rock outcrops. According to the Austin Sheet of the Geologic Atlas of Texas, the underlying rocks of the site are mapped as Cretaceous Del Rio clay and Georgetown Formation, undivided (Kdg). The Del Rio Clay is calcareous and gypsiferous, with pyrite common, with a blocky structure that weathers to light gray or yellowish gray. The characteristic marine megafossil, *Ilmatogyra arietina* (formerly *exogyra arietina*) is widespread throughout the formation. The thickness ranges from 40-70 feet. The Georgetown Formation is composed of reddish-brown and gray to light tan, marly limestone with a biomicritic texture, commonly contains the brachiopod *Kingena wacoensis*. The Georgetown is considered an upper confining unit, for the underlying Edwards Aquifer with low porosity and permeability, with limited karst or cavern development.

SITE INVESTIGATION

The site investigation was performed by systematically traversing the subject tract, and mapping fractured or vuggy rock outcrops, closed depressions, sinkholes, caves, or indications of fault/fracture zones. The purpose of the site investigation was to delineate features with recharge potential that may warrant special protection or consideration. The results of the site investigation are included in the attached TCEQ report format.

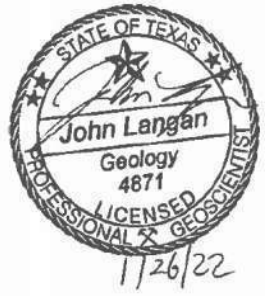
SUMMARY

No significant recharge features were noted on the subject site. A mapped fault (Feature S-1) traverses the site from northeast to southwest. This fault has a relatively small throw (vertical displacement), and no field indications of this fault were observed during the site reconnaissance, and it is not considered a sensitive feature. It is possible that clearing/construction activities will reveal the presence of features currently hidden by vegetation and/or soil cover. If caves, sinkholes, or solution cavities are encountered during future clearing/construction activities, please contact our office for additional assistance.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

David Hill, P.E., P.G
Environmental Services

John Langan, P.G.
Environmental Department Manager



WARRANTY

The field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a general geological recharge assessment of this site. PSI warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted geologic methods, only for the site described in this report. These methods have been developed to provide the client with information regarding apparent indications of existing or potential conditions relating to the subject site and are necessarily limited to the conditions observed at the time of the site visit and research. This report is also limited to the information available at the time it was prepared. In the event additional information is provided to PSI following the report, it will be forwarded to the client in the form received for evaluation by the client. There is a possibility that conditions may exist which could not be identified within the scope of the assessment, or which were not apparent during the site visit. PSI believes that the information obtained from others during the review of public information is reliable; however, PSI cannot warrant or guarantee that the information provided by others is complete or accurate.

This report has been prepared for the exclusive use of Walter P Moore and Associates, Inc. for the site discussed herein. Reproductions of this report cannot be made without the expressed approval of Walter P Moore and Associates, Inc. The general terms and conditions under which this assessment was prepared apply solely to Walter P Moore and Associates, Inc. No other warranties are implied or expressed.

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: John Langan Telephone: 210/342-9377

Date: 1/26/22 Fax: 210/342-9401

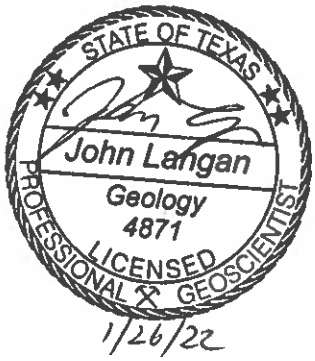
Representing: PSI TBPG No. 50128 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

Regulated Entity Name: Baylor Scott & White Expansion

Project Information

1. Date(s) Geologic Assessment was performed: 1/16/22
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)
Doss silty clay	B	2-3
Denton silty clay	B	2-3
Eckrant cobbly clay	B	2-3

** 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" = 100'
   Site Geologic Map Scale: 1" = 100'
   Site Soils Map Scale (if more than 1 soil type): 1" = 189'

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 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 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.

4. ☒ **Attachment A - Geologic Assessment Table**. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.

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   Site Geologic Map Scale: 1" = 100'
   Site Soils Map Scale (if more than 1 soil type): 1" = 189'

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11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

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    ☐ 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 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.

STRATIGRAPHIC COLUMN

Baylor Scott & White Expansion
300 University Boulevard
Round Rock, Texas

FORMATION	THICKNESS	LITHOLOGIC DESCRIPTION
Del Rio Clay	40-70	Calcareous and gypsiferous, with pyrite common, with a blocky structure that weathers to light gray or yellowish gray. The characteristic marine mega fossil, *Ilmatogyra arietina* (formerly *exogyra arietina*) is widespread throughout the formation.
Georgetown Formation	2-20'	Light tan limestone identified by proximity to Del Rio clay and diagnostic marker fossil: *waconella wacoensis* brachiopod; low porosity and permeability development.
Edwards Limestone	60-350'	Limestones and dolomites, extensive porosity development in "honeycomb sections, interbedded with massive, recrystallized limestones with more limited permeabilities

SOILS NARRATIVE

According to the Soil Survey of Williamson County, published by the United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Extension Service, issued in 1983, the soils beneath the subject property include Doss silty clay, 1-5% slopes (DoC), Eckrant cobbly clay 1-8% slopes (EaD), Denton silty clay 1-3% slopes, (DnB) and 3-5% slopes (DnC), and Fairlie clay 1-2% slopes (FaB).

Soil descriptions are provided on the following pages.

Williamson County, Texas

DnB—Denton silty clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2t26l
Elevation: 570 to 1,870 feet
Mean annual precipitation: 31 to 36 inches
Mean annual air temperature: 65 to 68 degrees F
Frost-free period: 220 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Denton and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Denton

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Silty and clayey slope alluvium over residuum weathered from limestone

Typical profile

A - 0 to 14 inches: silty clay
Bw - 14 to 25 inches: silty clay
Bk - 25 to 33 inches: silty clay
Ck - 33 to 36 inches: gravelly silty clay
R - 36 to 80 inches: bedrock

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 22 to 60 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 80 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: D
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Minor Components

Krum

Percent of map unit: 6 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Doss

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R081BY343TX - Shallow 23-31 PZ
Hydric soil rating: No

Anhalt

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY358TX - Deep Redland 29-35 PZ
Hydric soil rating: No

Data Source Information

Soil Survey Area: Williamson County, Texas
Survey Area Data: Version 22, Sep 10, 2021

Williamson County, Texas

FaB—Fairlie clay, 1 to 2 percent slopes

Map Unit Setting

National map unit symbol: djq1
Elevation: 550 to 850 feet
Mean annual precipitation: 30 to 42 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 230 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Fairlie and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fairlie

Setting

Landform: Ridges
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from austin chalk formation

Typical profile

H1 - 0 to 8 inches: clay
H2 - 8 to 46 inches: clay
H3 - 46 to 54 inches: bedrock

Properties and qualities

Slope: 1 to 2 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D

Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Data Source Information

Soil Survey Area: Williamson County, Texas
Survey Area Data: Version 22, Sep 10, 2021

SITE GEOLOGIC NARRATIVE

Physiography

Williamson County lies within two physiographic provinces, the Edwards Plateau, and the Blackland Prairie. Most of Williamson County lies within the Edwards Plateau, which is characterized by rugged and hilly terrain, with elevations in excess of 1,400' feet above sea level in the northwestern portion of the county. This area is underlain by beds of limestone that dip gently to the southeast. South of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends northeast-southwest across Williamson County and is composed of fault blocks of limestone, chalk, shale, and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 650 feet to 1100 feet above sea level. The regional dip of the lower Cretaceous rocks in Williamson County is 15 feet per mile towards the southeast. The faults are predominantly normal, down-to-the Gulf Coast, with near vertical throws. According to topographic maps, elevations at the subject site range from approximately 796 feet above mean sea level in the western portion of the tract to approximately 775 feet above mean sea level along the southeastern portion of the site.

Stratigraphy and Structure

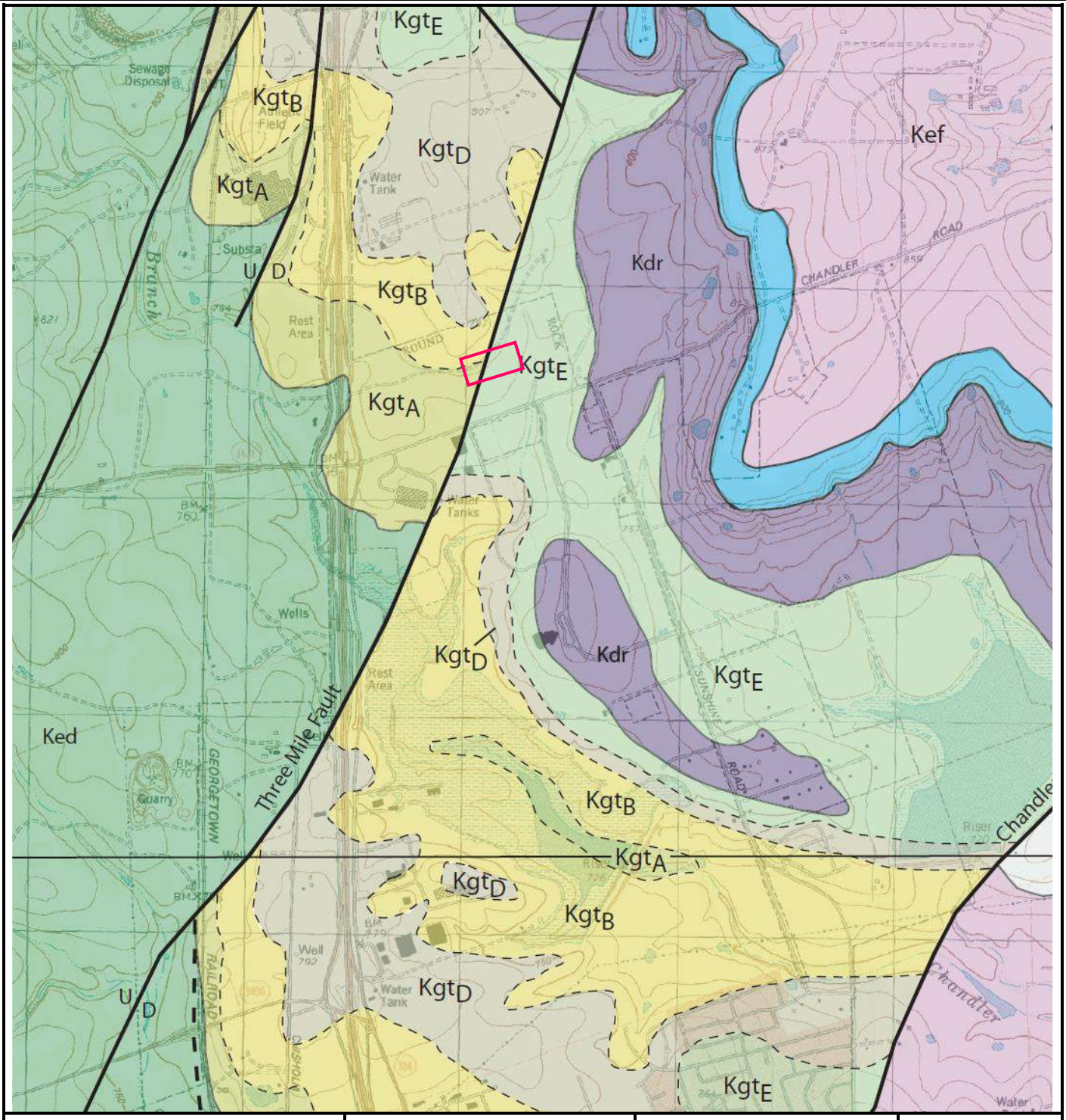
The site and surrounding properties were predominantly cultivated agricultural land until the mid-2000's when the south adjoining medical facility was developed. The site has thick soil and virtually no rock outcrops. According to the Austin Sheet of the Geologic Atlas of Texas, the underlying rocks of the site are mapped as Cretaceous Del Rio clay and Georgetown Formation, undivided (Kdg). The Del Rio Clay is calcareous and gypsiferous, with pyrite common, with a blocky structure that weathers to light gray or yellowish gray. The characteristic marine megafossil, *Ilmatogyra arietina* (formerly *exogyra arietina*) is widespread throughout the formation. The thickness ranges from 40-70 feet. The Georgetown Formation is composed of reddish-brown and gray to light tan, marly limestone with a biomicritic texture, commonly contains the brachiopod *Kingena wacoensis*. The Georgetown is considered an upper confining unit, for the underlying Edwards Aquifer with low porosity and permeability, with limited karst or cavern development.

SITE INVESTIGATION

The site investigation was performed by systematically traversing the subject tract, and mapping fractured or vuggy rock outcrops, closed depressions, sinkholes, caves, or indications of fault/fracture zones. The purpose of the site investigation was to delineate features with recharge potential that may warrant special protection or consideration. The results of the site investigation are included in the attached TCEQ report format.

SUMMARY

No significant recharge features were noted on the subject site. A mapped fault (Feature S-1) traverses the site from northeast to southwest. This fault has a relatively small throw (vertical displacement), and no field indications of this fault were observed during the site reconnaissance, and it is not considered a sensitive feature. It is possible that clearing/construction activities will reveal the presence of features currently hidden by vegetation and/or soil cover. If caves, sinkholes, or solution cavities are encountered during future clearing/construction activities, please contact our office for additional assistance.



intertek psi

PSI, Inc.
3 Burwood Lane
San Antonio, Texas 78216

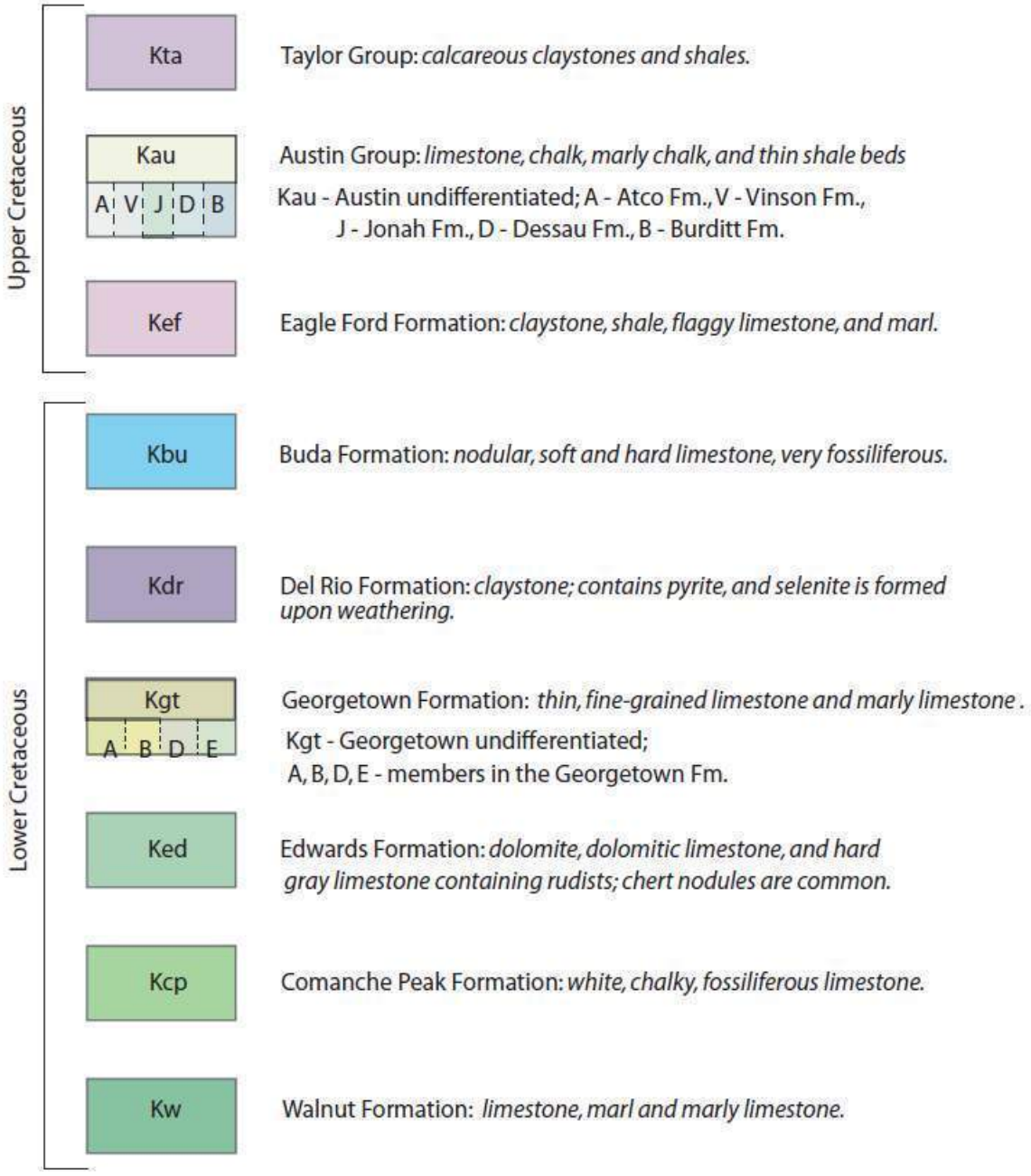
PROJECT NAME:
Baylor Scott & White Expansion
300 University Blvd.
Round Rock, Williamson County
Texas

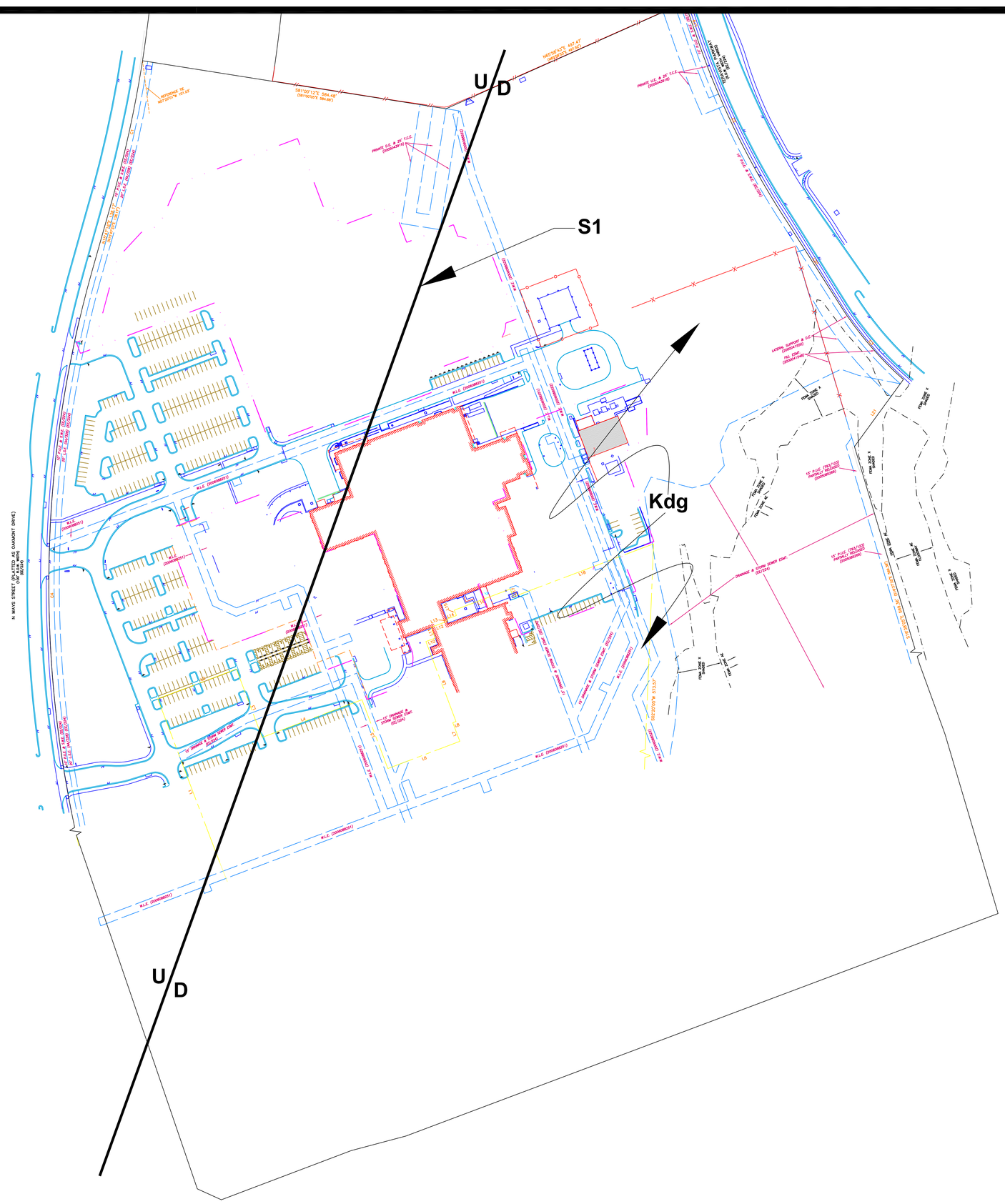
PROJECT NO.:435-5288

Bedrock Geology of Round Rock and Surrounding Areas, Williamson and Travis Counties, Texas

(Todd Housh, 2007)

STRATIGRAPHIC UNITS





Kdg - LOWER CRETACEOUS DEL RIO CLAY & GEORGETOWN FM, UNDIVIDED

S1 - FEATURE LOCATION

GEOLOGIC ASSESSMENT
for
BAYLOR SCOTT WHITE EXPASION
300 UNIVERSITY BLVD. ROUND ROCK, TX.

STATE OF TEXAS
John Langan
Geology
4971
LICENSED
PROFESSIONAL GEOSCIENTIST
7/26/22

intertek psi
Information To Build On
Engineering • Consulting • Testing
THREE BURWOOD LANE
SAN ANTONIO, TEXAS 78216

REVISIONS:

JOB NO. 04355288
FILE: 04355288.01
DATE: 01/27/2022
DESIGN: ~
DRAWN: J LEAL
CHECKED:
SHEET 1 1

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Baylor Scott & White Expansion																	
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)	MOD 10	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z								<40	≥40	<1.6	≥1.6	
S-1	29-42-24.7	98-9-54.5	F	20	Kdg	800	20	20					F	7	27	X			X	hillside

* DATUM:_____

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

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 1/26/22

Sheet 1 of 1

STATE OF TEXAS
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST
1/26/22

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

1. View north from the northwest portion of the Baylor Scott & White Expansion project, 300 University Boulevard, Round Rock, Texas.

2. View east along the north property line from near the northwest corner.

3. View south of the site interior from the north-central portion of the site, showing mowed/cleared land with gentle sloping topography and lack of rock outcrops.

4. View south along the east property line from near the northeast corner.

5. View west along the north property line from near the northeast corner.

6. View east of the southern portion of the site.

7. View west of the site interior, showing mowed/cleared land with lack of rock outcrops.

8. View east-northeast of the site interior from the west side of the tract. Trees/brush is located along a slight topographic drainage feature in the background.

9. View east of the site interior from the west side of the tract, showing mowed/cleared land with lack of rock outcrops.

10. View south along the west property line.

Map Scale: 1:2,270 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Williamson County, Texas
Survey Area Data: Version 22, Sep 10, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 17, 2020—Dec 3, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DnB	Denton silty clay, 1 to 3 percent slopes	5.8	49.8%
DoC	Doss silty clay, moist, 1 to 5 percent slopes	4.6	39.3%
FaB	Fairlie clay, 1 to 2 percent slopes	1.3	10.9%
Totals for Area of Interest		**11.7**	**100.0%**

Underground Storage Tank Facility Plan (TCEQ Form 0583) Tab 4

Attachment A	Detailed Narrative of UST Facility
Attachment B	Manufacturer Information for Tanks
Attachment C	Alternative Design and Protection Method for Tanks (If Proposed)
Attachment D	Manufacturer Information for Piping
Attachment E	Alternative Design and Protection Method for Piping (If Proposed)
Attachment F	Tertiary Containment Method
Attachment G	Exception of the Geologic Assessment (If Requested)
Attachment H	Profile Drawing(s)
Attachment I	Initial and Continuing Training
Attachment J	Release Detention Maintenance
Site Plan	

Underground Storage Tank Facility Plan Application

Texas Commission on Environmental Quality

for Storage on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.5(d), 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.

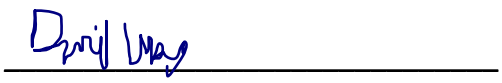
Signature

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. All components used for this facility are U.L. listed or certified by a 3rd party and are compatible and will function pursuant to 30 TAC §213.5(d) and 30 TAC Chapter 334 Subchapter C. This **Underground Storage Tank Facility Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: David Lundberg - Agent

Date: 12/1/23

Signature of Customer/Agent:



Regulated Entity Name: Baylor Scott & White UST

Underground Storage Tank (UST) System Information

1. ☒ **Attachment A – Detailed Narrative of UST Facility**. A detailed narrative description of the proposed UST Facility is attached. Note: Example descriptions are provided in the instructions (TCEQ-0583-Instructions)

2. Tanks and substance to be stored:

Table 1 - Tanks and Substances Stored

UST Number	*Size(Gallons)*	*Substance to be Stored*	*Double-wall Tank Material*
1	20,000	Diesel	FRP

UST Number	*Size(Gallons)*	*Substance to be Stored*	*Double-wall Tank Material*
2			
3			
4			
5			

3. Tanks:

☒ **Attachment B – Manufacturer Information for Tanks**. New or replacement systems for the underground storage of static hydrocarbons or hazardous substances must be double-walled or provide an equivalent method of protection approved by the executive director. Tanks must comply with technical standards as required by 30 TAC 334.45(b) relating to technical standards for new tanks. Manufacturer information is attached.

☐ **Attachment C – Alternative Design and Protection Method for Tanks**. Information required by 30 TAC 334.43, relating to variances and alternative procedures is attached.

4. Piping:

☒ **Attachment D – Manufacturer Information for Piping**. Piping must comply with technical standards as required by 30 TAC 334.45(c) relating to technical standards for new piping. Manufacturer information is attached.

☐ **Attachment E – Alternative Design and Protection Method for Piping**. Information required by 30 TAC 334.43, relating to variances and alternative procedures is attached.

5. ☒ Any new underground storage tank system that does not incorporate a method for tertiary containment shall be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature as required by 30 TAC §213.5(d)(1)(B).

☒ The UST system(s) will not be installed within 150 feet of a domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

☐ **Attachment F - Tertiary Containment Method**. The UST system(s) will be required to have tertiary containment provided. A description of the method proposed to provide tertiary containment is attached.

6. ☐ Corrosion protection equipment to be installed or type of non-corrodible materials:

Table 2 - Corrosion Protection

Equipment	*Corrosion Protection (Method)*
Tanks	FRP
Product Delivery Piping	FRP

Equipment	*Corrosion Protection (Method)*
Vapor Recovery Piping	FRP
Submersible Pumps	Liquid Tight Containment Sump
Flex Connector (dispenser end)	N/A
Flex Connector (pump end)	Liquid Tight Containment Sump
Riser	Dielectric Tape or Mastic Paste

7. ☒ Overfill protection equipment to be installed:

   ☒ Overfill prevention restrictor positioned at 90% capacity.
   ☐ Overfill prevention valve positioned at 95% capacity.
   ☒ Overfill audible and visual alarm positioned at 90% capacity.

8. ☒ Methods for detecting leaks in the inside wall of a double-walled system must be included in the facility's design and construction. The leak detection system must provide continuous monitoring of the system and must be capable of immediately alerting the system's owner of possible leakages. Release detection equipment to be installed: (Check all that apply)

   ☐ Central on-site monitor
   ☒ Interstitial tank probes
   ☒ Automatic tank gauge
   ☒ Pump/manway sump probes
   ☐ Observation well probes
   ☐ Mechanical line leak detectors (for pressurized lines only)
   ☐ Automatic (electronic) line leak detectors

Excavation and Backfill

9. ☒ The depth of the tank excavation will be sufficient to accommodate piping fall requirements, tank diameter, bedding, and a minimum cover of three (3) feet [30 TAC §334.46].

   The depth of the tank excavation will be 16 feet.

10. ☒ The minimum thickness of the tank bedding will conform to 30 TAC §334.46(a)(5)(C and D).

    The tank bedding thickness will be 12 inches.

11. ☒ The material to be used as backfill will conform to 30 TAC §334.46(a)(5)(A and B) and will consist of:

    ☐ Clean washed non-corrosive sand
    ☒ Pea gravel
    ☐ Crushed rock
    ☐ Other: _____

12. ☒ The slope of the product delivery line(s) will conform to 30 TAC §334.46(c)(2) and will be 1/8" (1/8" per foot minimum).

Site Plan Requirements

Items 13 - 24 must be included on the Site Plan.

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

    Site Plan Scale: 1" = 80'.

14. 100-year floodplain boundaries:

    ☒ The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): 48491C0491F & 48491C0485F, dated December 12, 2019.

    ☐ 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.

15. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Show lots, recreation centers, buildings, roads, etc.

    ☐ The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown.

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

    ☐ There are _____(#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

    ☐ The wells are not in use and have been properly abandoned.

    ☐ The wells are not in use and will be properly abandoned.

    ☐ The wells are in use and comply with 16 TAC §76.

    ☒ There are no wells or test holes of any kind known to exist on the project site.

17. Geologic or manmade features which are on the site:

    ☐ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.

    ☒ No sensitive geologic or manmade features were identified in the Geologic Assessment.

    ☐ **Attachment G - Exception to the Geologic Assessment**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

18. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

19. ☒ Areas of soil disturbance and areas which will not be disturbed.

20. ☒ Locations of major structural and nonstructural controls. These are the temporary best management practices.

21. ☒ Locations where soil stabilization practices are expected to occur.

22. ☐ Surface waters (including wetlands).

☒ N/A

23. ☐ Locations where stormwater discharges to surface water or sensitive features.

☒ There will be no discharges to surface water or sensitive features.

24. ☒ Legal boundaries of the site are shown.

UST System Profiles

25. ☒ **Attachment H - Profile Drawing(s)**. A profile drawing(s) of the proposed UST system with all components shown and labeled is attached.

Best Management Practices

26. ☒ **Attachment I - Initial and Continuing Training**. A description of the initial and continuing training of on-site personnel for operation of release detection equipment is attached. The description should include how personnel will respond to warning and alarm conditions of the leak detection monitoring system.

27. ☒ **Attachment J - Release Detection Maintenance**. A description of the program and schedule for maintaining release detection and cathodic protection equipment is attached. Any such equipment should be operated and maintained in accordance with the manufacturer's specifications and instructions.

Administrative Information

28. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

☒ The WPAP application for this project was approved by letter dated August 12, 2022. A copy of the approval letter is attached at the end of this application.

☐ The WPAP application for this project was submitted to the TCEQ on _____, but has not been approved.

☐ A WPAP application is required for an associated project, but it has not been submitted.

☐ There will be no building or structure associated with this project. In the event a building or structure is needed in the future, the required WPAP will be submitted to the TCEQ.

☐ The proposed UST is located on the **Transition Zone** and a WPAP is not required. Information requested in 30 TAC 213.5 subsection (b)(4)(B) and (C) and (5) is provided with this application. (Forms TCEQ-0600 Permanent Stormwater Section and TCEQ-0602 Temporary Stormwater Section or Stormwater Pollution Prevention Plan/SW3P).

29. ☒ UST systems must be installed by a person possessing a valid certificate of registration in accordance with the requirements of 30 TAC Chapter 334 Subchapter I.

30. ☒ This facility is subject to and must meet the requirements of 30 TAC Chapter 334, including but not limited to the 30 day construction notification and reporting and cleanup of surface spills and overfills.

31. ☒ Upon completion of the tankhold excavation, a geologist must certify that the excavation was inspected for the presence of sensitive features. The certification must be submitted to the appropriate regional office. If sensitive features are found, then excavation near the feature may not proceed until the methods to protect the Edwards Aquifer are reviewed and approved by the executive director.

32. ☒ 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.

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

ATTACHMENT A Detailed Narrative of UST Facility

Baylor Scott and White will improve the existing site by installing a proposed new underground static hydrocarbon storage system (UST) will consist of one (1ea) new 20,000-gallon double-wall fiberglass -reinforced plastic (FRP) Tank to be used for the storage of #2 diesel fuel. The UST will be used to replenish fuel to an existing above ground storage tank (AST). The UST will be equipped with a 3/4 horsepower, 4-inch diameter submersible pump, Veeder root Red Jacket model P75U1 RJ2. Overfill Prevention for the tank will be provided by an automatic shut off valve which will be installed in the tank below the fill tube and must be set to shut off flow into the tank when the volume of the liquid in the tank reaches no more than 95% of the tank capacity. Spill protection for the tank will be provided by a spill containment manhole which will be fitted on the fill tube of each tank.

Product and vent piping will be U.L. listed fiberglass-reinforced plastic piping. Product lines will be of double-wall construction and will consist of a 2-inch diameter primary pipe within a 3-inch diameter secondary containment pipe. Vent lines will be 2-inch diameter single-wall pipe. A safety shear valve will be installed on the product line at the AST to assure automatic shut-off of the product flow during emergencies. In addition, stainless steel braid flexible connectors will be installed at both ends of each product to connect to the AST and the submersible pump.

Corrosion Protection for the metallic components of the underground storage system will be provided by electrical isolation. The Submersible pump housing and pump-end flexible connectors will be installed within a liquid-tight fiberglass-reinforced plastic piping sump which will provide isolation from the corrosive elements of the backfill material while also providing secondary containment for any leaks from these components. The AST end flexible connector will be similarly isolated by enclosure within a flexible isolation sleeve. The vapor recovery riser, the fill tube riser, and the riser for the automatic tank gauging system will be thoroughly wrapped with a suitable dielectric material.

The proposed tank (UST) and piping will be monitored for leaks by means of inventory, leak detection and a line pressure monitor. The UST will be equipment with a liquid discrimination sensor which will be installed in the interstitial space between the walls of the double-wall tank. The product piping systems will be monitored by a liquid discrimination sensor which will be installed adjacent to the submersible pump in the piping sump. Four, 4” diameter slotted PVC observation wells will be installed in the corners of the tank pit excavation, of which two wells will be equipped with a vapor/conductivity (water) probe to provide a means of monitoring the backfilled tank pit area. The tank will be equipped with an automatic tank gauging probe which will automatically inventory the product volume in the tank. The product piping line will be equipped with an electronic positive flow shut off that is designed to stop product flow in the event a leak in the product line is detected. The probes and sensors from all tanks, piping and observation wells will be connected to a programmable control unit to be located at the central utility plant The central monitoring unit is designed to provide visual and audible alarms when hydrocarbon liquids, hydrocarbon vapors, or water is detected.

ATTACHMENT B Manufacturer Information for Tanks

The attached documentation after this page includes manufacturer specifications for the proposed 20,000-gallon tank.

XERXES®

FUEL AND DEF

UNDERGROUND FIBERGLASS TANKS


“As far as protecting my owners and their future, I'm looking at 30 to 40 years down the road. Fiberglass is the way to go. It allows us to go with the new biofuels and not worry.”
– LARGE U.S. FUEL MARKETER

THINK DECADES NOT YEARS

A fiberglass underground storage tank made of 100% premium resin is superior to a steel tank in many ways — starting with corrosion resistance and structural strength. That's why major fuel marketers, c-store chains and hypermarkets overwhelmingly choose fiberglass underground storage tanks today. And that's why customers continue to equate secure storage of fuel products with the Xerxes name.

External corrosion from surrounding soil began the trend of replacing rusting steel fuel tanks with corrosion-resistant fiberglass tanks decades ago.

When new biofuels and ultra-low sulfur diesel (ULSD) entered the market, a rise of internal corrosion in steel fuel tanks created a new problem. Water bottoms in steel tanks storing biofuels lead to aggressive microbial influenced corrosion (MIC). Untreated, the ultimate result can be tank failure. Once again, fiberglass' resistance to corrosion — inside and out — gives it a clear environmental advantage over steel.

#1 Corrosion is the #1 cause of tank failure

10-100x MIC can occur 10-100 times faster than chemical corrosion

---

Xerxes corrosion-resistant fiberglass tanks need no added coating or cathodic protection to make them corrosion-resistant with new biofuels and traditional fuels. Our 30-year limited warranty points to the strength of fiberglass' corrosion resistance.

- → No expensive maintenance required to remove water bottoms
- → No water-bottom warranty exclusion
- → Warranty transferable to new tank owner

Compatible with

E10, E15, E85, biodiesel, ultra-low sulfur diesel

30-year limited warranty

Compared to 10 years for many steel tanks

STRUCTURAL STRENGTH IS ABOUT MORE THAN WEIGHT

Engineers look at tank material and geometry when evaluating design options for an underground fuel tank. The strength of our tank comes from a combination of the material stiffness of fiberglass composite and the geometry of our integrally ribbed, cylindrical tank with dished or domed end caps.

Integrally Constructed Ribs

Functioning like I-beams, high-profile fiberglass ribs are fabricated directly into the tank cylinder. This process is superior to ribs created in a separate manufacturing step.

Glass-Fabric Bonding

Our proprietary Parabeam® consists of two layers of glass fabric woven together by vertical pillars. Infused with a thermoset resin, it produces a unique laminate that adds strength and creates a defined interstitial space.

"We are always looking for ways to improve our environmental performance. Installing fiberglass double-wall tanks not only helps us achieve this, it reduces our environmental risk."

– RETAIL FUEL MARKETER WHEN REPLACING STEEL TANKS WITH FIBERGLASS TANKS

DESIGNED FOR
H-25 / HS-25 AXLE LOADS

DESIGNED FOR
EASY SHIPPING AND
INSTALLATION

ANSI/CAN/UL/ULC
1316:2018 LISTED

OIL-WATER SEPARATORS
UL 2215-LISTED
CAN/ULC S656-LISTED

DEF TANKS
THIRD-PARTY
COMPATIBILITY TESTED

UNDERGROUND TANKS — DIAMETERS UP TO 12 FEET

FUEL STORAGE TANKS

Double-wall tanks are the industry standard in fuel storage. Triple-wall tanks provide enhanced containment when site conditions or regulations warrant that. Multicompartment tanks save space when storing more than one grade or type of fuel.

- Capacities up to 50,000 gallons or 155,000 liters
- Double-wall, triple-wall and multicompartment models
- Dry and hydrostatic monitoring options

DEF STORAGE TANKS

Diesel exhaust fluid (DEF) has specific storage requirements. Fiberglass underground DEF tanks need no added coatings or linings to maintain product integrity. Underground tanks can also store larger capacities than aboveground tanks.

- Capacities up to 50,000 gallons or 155,000 liters
- Single-wall and double-wall models
- Extensive third-party compatibility testing

OIL-WATER SEPARATORS

Our oil-water separators incorporate unique refinements inside our tank to remove free-floating oils and settleable sands from oil-water mixtures. A properly sized coalescer is designed to produce effluent quality to meet most water runoff regulations.

- Capacities up to 30,000 gallons or 113,000 liters
- Single-wall and double-wall models
- 4-10’ diameters

ACCESSORIES

Retail and commercial fueling facilities are sophisticated systems in highly regulated environments. A full range of easy-to-install accessories provide a total solution.

CONTAINMENT SUMPS 42" & 48” DIAMETERS

Single-wall and double-wall containment sumps are custom-matched to our factory-installed collars. Double-wall sumps are frequently chosen to meet changing regulations. A variety of models are available.

TRUCHEK® HYDROSTATIC MONITORING

Our patented Truchek system continuously monitors both walls of a double-wall tank for leaks in all installation conditions. It also provides options for easy and reliable tank-tightness testing.

ENGINEERED ANCHORING SYSTEM

An anchoring system can add extra security to a tank installation. Engineered and sized for specific tank sizes, our anchoring system includes prefabricated concrete deadmen, anchoring straps, galvanized jaw-to-jaw turnbuckles and adjustable anchor points.

TYPICAL ACCESSORIES

- Engineered anchoring systems
- Dry and hydrostatic monitoring options
- Manways, covers and extensions
- Containment collars, sumps and covers
- Standard and custom fittings and nozzles
- Fill tubes
- Ladders

UNPARALLELED MANUFACTURING CAPABILITY

ADDS VALUE TO YOUR PROJECT

No other tank manufacturer has the kind of manufacturing capability in North America that we have. No matter where our customers need fuel tanks, our facilities (that meet the new bi-national ANSI/CAN/UL/ULC 1316:2018 standard) are not far from your next installation.

Xerxes fuel tanks and accessories offer long-term security for all your underground fuel and DEF storage needs. Throughout North America, our expert engineering and sales teams are ready to design and deliver the tanks you need.

40+
Years of industry experience

200,000+
Tanks installed

6
Manufacturing facilities in North America

THE XERXES DIFFERENCE

We provide clients with the best technologies, products and services for their projects. Our goal is to exceed expectations with unparalleled expertise, delivery, performance and value. We do this every step of the way — from project planning through the life of each fuel project.

EXPERT ENGINEERING AND SALES CONSULTING → FUEL COMPATIBILITY VALIDATION → REGULATORY COMPLIANCE ASSISTANCE → APPLICATION DESIGN DRAWINGS → CONTRACTOR TRAINING

ATTACHMENT C Alternative Design and Protection Method for Tanks (If Proposed)

No alternative design and protection method for the new 20,000 gallon underground storage tank is proposed with this UST permit application.

ATTACHMENT D Manufacturer Information for Piping

The attached documentation after this page includes manufacturer specifications for the proposed 20,000-gallon tank.

WORKING FOR YOU

We are a global materials science company specializing in products, services and solutions for the water, energy, infrastructure and transportation markets. We continually pursue sustainable solutions that protect the environment, conserve resources and extend asset life.

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XERXES®

New Construction Fittings FF Series Flange x Flange

NEW CONSTRUCTION FITTINGS

Product Shown
F-30-F

SIZES

- 3/4" galvanized or PVC coated conduit
- 1" galvanized or PVC coated conduit
- 2",3",4" fiberglass pipe including LCX coaxial
- 6" fiberglass pipe

MATERIAL

- Tank-spec fiberglass

SPECIFICATIONS

- Bonded FRP entry fitting, for long service life
- Available for singlewall sumps
- Our most cost-effective bonded fitting
- 30-year corrosion warranty
- Easy installation
- Ideal for series piping applications
- Handles up to 5 degrees of angle
- UL2447 Listed

About the FF Series Fittings

The Bravo FF Series flange by flange entry fitting for singlewall sumps is our most cost effective bonded FRP entry fitting. The FF is a pass-through entry fitting which brings the secondary pipe into the interior of the containment sump. A separate test reducer is needed to terminate from primary to secondary pipe. Models available for both size-over-size, coaxial FRP and rigid conduit. Quality FRP construction and bonded installation provides an extremely long service life compared to flexible entry fittings.

Bravo Solution Center
Call or Text (323) 541-3851
orders@sbravo.com

UL LISTED UL 2447

Pass-Through Entry Fittings for Singlewall FRP Sumps Flat sump wall

Pipe type	Part #	Description
3/4" galvanized conduit	F-07-F	3/4" galvanized conduit, double-sided pass-through for flat walls, EPOXY REQ'D
3/4" PVC coated conduit	F-07R-F	3/4" PVC coated conduit, double-sided pass-through for flat walls, EPOXY REQ'D
1" galvanized conduit	F-10-F	1" galvanized conduit, double-sided pass-through for flat walls, EPOXY REQ'D
1" PVC coated conduit	F-10R-F	1" PVC coated conduit, double-sided pass-through for flat walls, EPOXY REQ'D
2" SW FRP	F-20-F	2" SW FRP pipe, double-sided pass-through for flat walls, EPOXY REQ'D
3" SW FRP	F-30-F	3" SW FRP pipe, double-sided pass-through for flat walls, EPOXY REQ'D
4" SW FRP	F-40-F	4" SW FRP pipe, double-sided pass-through for flat walls, EPOXY REQ'D
6" SW FRP	F-60-F	6" SW FRP pipe, double-sided pass-through for flat walls, EPOXY REQ'D
2" LCX FRP	F-20L-F	2" LCX pipe, double-sided pass-through for flat walls, EPOXY REQ'D
3" LCX FRP	F-30L-F	3" LCX pipe, double-sided pass-through for flat walls, EPOXY REQ'D
4" LCX FRP	F-40L-F	4" LCX pipe, double-sided pass-through for flat walls, EPOXY REQ'D

Pass-Through Entry Fittings for Singlewall FRP Sumps Round Sump Wall

Pipe type	Part #	Description
3/4" galvanized conduit	F-07-R	3/4" galvanized conduit, double-sided pass-through for round walls, EPOXY REQ'D
3/4" PVC coated conduit	F-07R-R	3/4" PVC coated conduit, double-sided pass-through for round walls, EPOXY REQ'D
1" galvanized conduit	F-10-R	1" galvanized conduit, double-sided pass-through for round walls, EPOXY REQ'D
1" PVC coated conduit	F-10R-R	1" PVC coated conduit, double-sided pass-through for round walls, EPOXY REQ'D
2" SW FRP	F-20-R	2" SW FRP pipe, double-sided pass-through for round walls, EPOXY REQ'D
3" SW FRP	F-30-R	3" SW FRP pipe, double-sided pass-through for round walls, EPOXY REQ'D
4" SW FRP	F-40-R	4" SW FRP pipe, double-sided pass-through for round walls, EPOXY REQ'D
6" SW FRP	F-60-R	6" SW FRP pipe, double-sided pass-through for round walls, EPOXY REQ'D
2" LCX FRP	F-20L-R	2" LCX pipe, double-sided pass-through for round walls, EPOXY REQ'D
3" LCX FRP	F-30L-R	3" LCX pipe, double-sided pass-through for round walls, EPOXY REQ'D
4" LCX FRP	F-40L-R	4" LCX pipe, double-sided pass-through for round walls, EPOXY REQ'D
	EP-100	Bravo 7 oz. standard epoxy kit; use with FRP, steel, PVC, and PVDF

B500 Series
Singlewall and Doublewall

TRANSITION SUMPS

Product Shown
B501-S

SIZES

- Small 25.5”
- Large 41.5”

UL LISTED
UL 2447

*See page 2 for dimension drawing and dimension chart

MATERIAL

- Fiberglass
- Epoxy coated galvannealed steel

About the B500 Series

Bravo’s B500 Series Singlewall and Doublewall transition sumps are compatible with all common motor fuels and can be ordered with standard AST fittings pre-installed. The fittings range from electrical offset (EO) to 3” compression pass-through AST fittings. This series comes standard with positive concrete anchoring and mounting points for optional rack system.

SPECIFICATIONS

- Quality FRP construction, no need for gelcoat for chemical resistance
- “Planter” style raised lid to keep surface water out
- Accommodates up to 5 factory installed AST fittings depending on model
- Factory mounting points make a rack system installation simple
- 30-year corrosion warranty
- UL2447 listed
- Doublewall construction can be monitored with vacuum or hydrostatically making it triennial testing exempt with continuous monitoring
- Ships under a continuous 20” Hg vacuum test

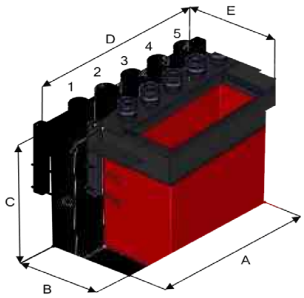
Bravo Solution Center

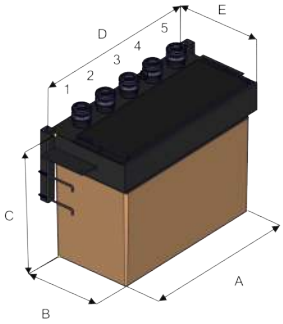
Call or Text (323) 541-3851

orders@sbravo.com

B500 Series Singlewall and Doublewall VPH Dimensions

TRANSITION SUMPS





~~Optional Rack Systems~~

Part #	Description
~~RS-501~~	~~Small rack for 1, 2 or 3 vents (includes hardware)~~
~~RS-502~~	~~Large rack for 4 or 5 vents (includes hardware)~~

B500 Series Planter-style Singlewall

Transition Sump Type	Part #	Description	Fitting size position 1	Fitting size position 2	Fitting size postion 3	Fitting size position 4	Fitting size position 5	A	B	C
~~B500 Planter-style lid~~	~~B501-S~~	~~Singlewall FRP vent / transition sump with-out AST fittings~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~25.5"~~	~~20"~~	~~32"~~
B500 Planter-style lid	B501-S-200	Singlewall FRP vent / transition sump with 1, 2" AST fitting	2"	NA	NA	NA	NA	25.5"	20"	32"
B500 Planter-style lid	B501-S-220	Singlewall FRP vent / transition sump with 2, 2" AST fittings	2"	2"	NA	NA	NA	25.5"	20"	32"
~~B500 Planter-style lid~~	~~B501-S-222~~	~~Singlewall FRP vent / transition sump with 3, 2" AST fittings~~	~~2"~~	~~2"~~	~~2"~~	~~NA~~	~~NA~~	~~25.5"~~	~~20"~~	~~32"~~
~~B500 Planter-style lid~~	~~B503-S-22220~~	~~Singlewall FRP vent / transition sump with 4, 2" AST fittings~~	~~2"~~	~~2"~~	~~2"~~	~~2"~~	~~NA~~	~~41.5"~~	~~20"~~	~~32"~~
~~B500 Planter-style lid~~	~~B503-S-22222~~	~~Singlewall FRP vent / transition sump with 5, 2" AST fittings~~	~~2"~~	~~2"~~	~~2"~~	~~2"~~	~~2"~~	~~41.5"~~	~~20"~~	~~32"~~

~~B500 Series Planter-style Doublewall~~

~~Transition Sump Type~~	~~Part #~~	~~Description~~	~~Fitting size position 1~~	~~Fitting size position 2~~	~~Fitting size postion 3~~	~~Fitting size position 4~~	~~Fitting size position 5~~	~~A~~	~~B~~	~~C~~
~~B500 Planter-style lid~~	~~B501-D~~	~~Doublewall FRP vent / transition sump without AST fittings~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~25.5"~~	~~20"~~	~~32"~~
~~B500 Planter-style lid~~	~~B501-D-200~~	~~Doublewall FRP vent / transition sump with 1, 2" AST fitting~~	~~2"~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~25.5"~~	~~20"~~	~~32"~~
~~B500 Planter-style lid~~	~~B501-D-220~~	~~Doublewall FRP vent / transition sump with 2, 2" AST fittings~~	~~2"~~	~~2"~~	~~NA~~	~~NA~~	~~NA~~	~~25.5"~~	~~20"~~	~~32"~~
~~B500 Planter-style lid~~	~~B501-D-222~~	~~Doublewall FRP vent / transition sump with 3, 2" AST fittings~~	~~2"~~	~~2"~~	~~2"~~	~~NA~~	~~NA~~	~~25.5"~~	~~20"~~	~~32"~~
~~B500 Planter-style lid~~	~~B503-D-22220~~	~~Doublewall FRP vent / transition sump with 4, 2" AST fittings~~	~~2"~~	~~2"~~	~~2"~~	~~2"~~	~~NA~~	~~41.5"~~	~~20"~~	~~32"~~
~~B500 Planter-style lid~~	~~B503-D-22222~~	~~Doublewall FRP vent / transition sump with 5, 2" AST fittings~~	~~2"~~	~~2"~~	~~2"~~	~~2"~~	~~2"~~	~~41.5"~~	~~20"~~	~~32"~~

Singlewall Collar-Mount Tank Sumps with Lids

TANK SUMPS

Product Shown
B421-60-S-01

SIZES

- 42” or 48” diameter
- 32” or 36” reducer

**See page 2 for dimension drawing and dimension chart*

MATERIAL

- Fiberglass

SPECIFICATIONS

- Quality FRP construction
- Two-piece configuration is height-adjustable
- Epoxy pour channel saves installation time
- 30-year corrosion warranty
- UL2447 listed

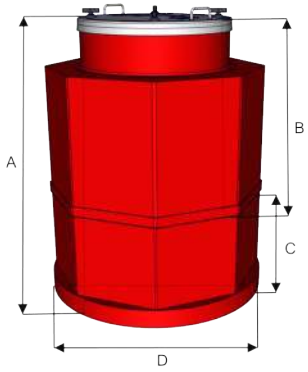
About the Singlewall Collar-Mount Tank Sumps

The octagon-shaped collar-mount singlewall tank sump is ideally configured for piping laid out in 45- and 90-degree angles. It is field height-adjustable and features an easy slurry pour channel to join the sump base and top hat. It comes standard with a snap-lock lid with vertical O-ring seal to make it watertight with available lid options. It can be attached to tank manufactures' collars using lamination or a combination of lamination and a slurry pour depending on the manufacturer. If using a Bravo collar with pour channel no field laminations are needed.

LISTED
UL 2447

Innovative Solutions for Secondary Containment
www.sbravo.com | 800.282.7286

Singlewall Collar-Mount Tank Sumps with Lids - Dimensions



42” Diameter 42” Collar-mounted Singlewall FRP Sump

Sump Type	Part # with 32" SL lid	Part # with 36" SL lid	Part # with 32" Twist-Lock lid	Min/Max	A	B	C	D
Singlewall collar-mount 42" tall	B421-42-S-01	B421-42-S-02	B421-42-S-50	24"/ 3'6"	42"	26"	16"	42"
Singlewall collar-mount 48" tall	B421-48-S-01	B421-48-S-02	B421-48-S-50	32"/ 4'	48"	26"	22"	42"
Singlewall collar-mount 60" tall	B421-60-S-01	B421-60-S-02	B421-60-S-50	36"/ 5'	60"	38"	22"	42"
Singlewall collar-mount 72" tall	B421-72-S-01	B421-72-S-02	B421-72-S-50	36"/ 6'	72"	50"	22"	42"
Singlewall collar-mount 84" tall	B421-84-S-01	B421-84-S-02	B421-84-S-50	36"/ 7'	84"	62"	22"	42"

48” Diameter 48” Collar-mounted Singlewall FRP Sump

Sump Type	Part # with 32" SL lid	Part # with 36" SL lid	Part # with 32" Twist-Lock lid	Min/Max	A	B	C	D
Singlewall collar-mount 42" tall	B481-42-S-01	B481-42-S-02	B481-42-S-50	24"/ 3'6"	42"	26"	16"	48"
Singlewall collar-mount 48" tall	B481-48-S-01	B481-48-S-02	B481-48-S-50	32"/ 4'	48"	26"	22"	48"
Singlewall collar-mount 60" tall	B481-60-S-01	B481-60-S-02	B481-60-S-50	36"/ 5'	60"	38"	22"	48"
Singlewall collar-mount 72" tall	B481-72-S-01	B481-72-S-02	B481-72-S-50	36"/ 6'	72"	50"	22"	48"
Singlewall collar-mount 84" tall	B481-84-S-01	B481-84-S-02	B481-84-S-50	36"/ 7'	84"	62"	22"	48"

48” Diameter 42” Collar-mounted Singlewall FRP Sump

Sump Type	Part # with 32" SL lid	Part # with 36" SL lid	Part # with 32" Twist-Lock lid	Min/Max	A	B	C	D
Singlewall collar-mount 42" tall	B487-42-S-01	B487-42-S-02	B487-42-S-50	24"/ 3'6"	42"	26"	16"	42"
Singlewall collar-mount 48" tall	B487-48-S-01	B487-48-S-02	B487-48-S-50	32"/ 4'	48"	26"	22"	42"
Singlewall collar-mount 60" tall	B487-60-S-01	B487-60-S-02	B487-60-S-50	36"/ 5'	60"	38"	22"	42"
Singlewall collar-mount 72" tall	B487-72-S-01	B487-72-S-02	B487-72-S-50	36"/ 6'	72"	50"	22"	42"
Singlewall collar-mount 84" tall	B487-84-S-01	B487-84-S-02	B487-84-S-50	36"/ 7'	84"	62"	22"	42"

Singlewall Collar-Mount Tank Sumps with Lids - Dimensions

42” Diameter 42” Collar-mounted Singlewall FRP Sump

B421-42-S-01	$1,923.15	B421-42-S-02	$2,097.44	B421-42-S-50	$2,166.44
B421-48-S-01	$2,052.36	B421-48-S-02	$2,226.66	B421-48-S-50	$2,295.35
B421-60-S-01	$2,313.79	B421-60-S-02	$2,488.09	B421-60-S-50	$2,556.78
B421-72-S-01	$2,572.22	B421-72-S-02	$2,746.49	B421-72-S-50	$2,815.21
B421-84-S-01	$3,022.95	B421-84-S-02	$3,197.23	B421-84-S-50	$3,265.93

48” Diameter 48” Collar-mounted Singlewall FRP Sump

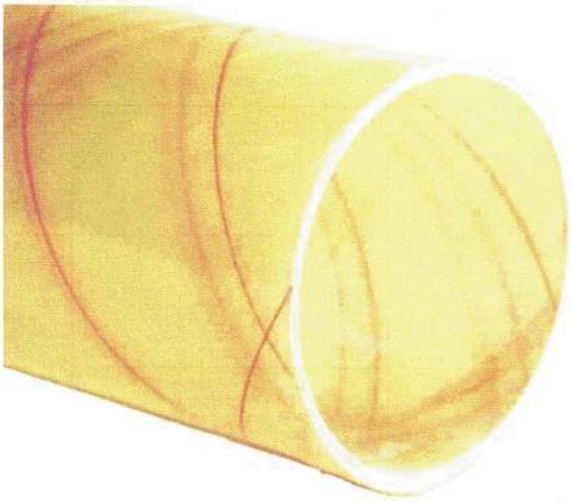
B481-42-S-01	$2,121.47	B481-42-S-02	$2,295.76	B481-42-S-50	$2,364.46
B481-48-S-01	$2,273.22	B481-48-S-02	$2,447.51	B481-48-S-50	$2,516.21
B481-60-S-01	$2,575.22	B481-60-02	$2,749.51	B481-60-S-50	$2,818.21
B481-72-S-01	$2,877.23	B481-72-S-02	$3,051.49	B481-72-S-50	$3,120.22
B481-84-S-01	$3,403.08	B481-84-S-02	$3,577.36	B481-84-S-50	$3,646.07

48” Diameter 42” Collar-mounted Singlewall FRP Sump

B487-42-S-01	$2,295.64	B487-42-S-02	$2,470.05	B487-42-S-50	$2,543.94
B487-48-S-01	$2,447.51	B487-48-S-02	$2,621.81	B487-48-S-50	$2,690.49
B487-60-S-01	$2,749.51	B487-60-S-02	$2,923.79	B487-60-S-50	$2,923.79
B487-72-S-01	$3,051.49	B487-72-S-01	$3,225.78	B487-72-S-50	$3,294.48
B487-84-S-01	$3,577.36	B487-84-S-02	$3,751.64	B487-84-S-50	$3,820.34

PETROLEUM MARKETING
Suggested Price Schedule

PIPING



RED THREAD® IIA Primary Piping - All pipe is supplied spigot x spigot ends in 15-ft., 22-25 ft. or 26-30 ft. random lengths. RED THREAD IIA primary pipe is UL/ULC Listed.

ALL PRICES - U.S. DOLLARS

Nominal PIPE SIZE	PART NUMBER	PIPE LENGTH	PRICE PER FOOT	WEIGHT	LENGTHS PER BUNDLE
2"	011020-069-1	15'	4.60	0.4	8
2"	011020-069-2	22-25'	4.60	0.4	8
2"	011020-069-3	26-30'	4.60	0.4	8
3"	011030-069-1	15'	7.00	0.8	6
3"	011030-069-2	22-25'	7.00	0.8	6
3"	011030-069-3	26-30'	7.00	0.8	6
4"	011040-071-1	15'	8.80	1.0	4
4"	011040-069-2	22-25'	8.80	1.0	4
4"	011040-071-3	26-30'	8.80	1.0	4

RED THREAD® IIA Secondary Containment Piping - All pipe is supplied plain end in 15-ft., 22-25 ft., or 26-30 ft. random lengths. Secondary Containment piping & fittings in 3"- 6" sizes are UL/ULC Listed.

NON PIPE SIZE	PART NUMBER	PIPE LENGTH	PRICE PER FOOT	WEIGHT	LENGTHS PER BUNDLE
3"	011030-069-4	15'	7.00	0.8	6
3"	011030-069-5	22-25'	7.00	0.8	6
3"	011030-069-6	26-30'	7.00	0.8	6
4"	011040-077-5	15'	8.80	1.0	4
4"	011040-069-5	22-25'	8.80	1.0	4
4"	011040-077-6	26-30'	8.80	1.0	4
6"	011060-120-5	15'	15.80	2.4	2
6"	011060-120-4	22-25'	15.80	2.4	2
6"	011060-120-6	26-30'	15.80	2.4	2

PRIMARY FITTINGS

90° PRIMARY ELBOW, belled ends

SIZE	PART NUMBER	PRICE	WEIGHT	PARTS PER BOX
2"	012020-360-4	42.20	1.2	20
3"	012030-360-4	57.40	2.3	12
4"	012040-360-4	80.70	3.3	6

FLANGE, belled end

SIZE	PART NUMBER	PRICE	WEIGHT	PARTS PER BOX
2"	012020-170-4	34.70	1.3	NA
3"	012030-170-4	40.90	2.6	NA
4"	012040-170-4	47.10	3.6	NA

45° PRIMARY ELBOW, belled ends

SIZE	PART NUMBER	PRICE	WEIGHT	PARTS PER BOX
2"	012020-310-4	42.20	0.9	20
3"	012030-310-4	57.40	1.6	15
4"	012040-310-4	79.00	2.4	6

SLEEVE COUPLING, belled ends

SIZE	PART NUMBER	PRICE	WEIGHT	PARTS PER BOX
2"	012020-101-8	12.50	1.2	25
3"	012030-101-8	18.80	2.3	12
4"	012040-101-4	26.10	3.3	5

TEE, belled ends

SIZE	PART NUMBER	PRICE	WEIGHT	PARTS PER BOX
2"	012020-410-4	61.10	1.9	12
3"	012030-410-4	67.20	3.6	6
4"	012040-410-4	88.10	4.9	4

END CAP

SIZE	PART NUMBER	PRICE	WEIGHT	PARTS PER BOX
2"	012020-180-4	51.50	1.4	NA
3"	012030-180-4	62.90	1.9	NA
4"	012040-180-4	130.50	3.0	NA

NIPPLE, tapered both ends			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
2" x 4"	012020-004-5	7.30	25
2" x 6"	012020-006-5	8.10	25
2" x 8"	012020-008-5	8.90	25
2" x 10"	012020-010-5	10.40	NA
2" x 12"	012020-012-5	11.60	NA
3" x 6"	012030-006-5	8.90	12
3" x 8"	012030-008-5	9.00	NA
3" x 10"	012030-010-5	11.60	NA
3" x 12"	012030-012-5	13.30	NA
4" x 6"	012040-006-4	11.40	NA
4" x 8"	012040-008-4	11.60	NA
4" x 10"	012040-010-4	13.20	NA
4" x 12"	012040-012-4	15.50	NA

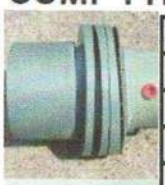
THREADED ADAPTER				
SIZE	PART NUMBER	PRICE	WEIGHT	PARTS PER BOX
Bell x Male				
2"	012020-191-4	18.50	0.3	25
3"	012030-191-4	34.70	0.6	12
4"	012040-191-4	39.10	1.0	8
Bell x Female				
2"	012020-194-4	18.50	0.3	25
3"	012030-194-4	34.70	0.5	12
4"	012040-194-4	39.10	0.5	8
Spigot x Male				
2"	012020-192-4	18.50	0.3	25
3"	012030-192-4	34.70	0.6	12
4"	012040-192-4	39.10	1.0	8
Spigot x Female				
2"	012020-195-4	18.50	0.3	25
3"	012030-195-4	34.70	0.5	12
4"	012040-195-4	39.10	0.6	8

* Reduced opening has female NPT threads.

REDUCER BUSHING				
SIZE	PART NUMBER	PRICE	WEIGHT	PARTS PER BOX
*2" x 1"	012020-233-4	27.60	0.4	20
*2" x 1¼"	012020-232-4	27.60	0.1	20
*2" x 1½"	012020-231-4	27.60	0.1	20
3" x 2"	012030-231-4	28.70	0.8	24
4" x 3"	012040-231-4	36.70	1.0	9

SADDLE, female NPT				
SIZE	PART NUMBER	PRICE	WEIGHT	PARTS PER BOX
2" x 1½"	012020-516-4	43.20	0.5	1

SUMP FITTINGS



DW SUMP ENTRY/TERMINATION FITTING			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
Bonded(1 Port, 3 Tapered Rings)			
3"	012030-626-0	193.50	1
4"	012040-626-0	238.00	1
Gasketed(1 Port)			
3"	012030-620-0	205.50	N/A
4"	012040-620-0	302.90	N/A

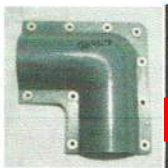
CONCENTRIC REDUCER			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
4" x 3"	012040-238-3	42.80	15
5" x 4"	012050-238-3	89.30	10
6" x 4"	012060-238-3	217.30	N/A

4" x 3" Concentric Reducer must be ordered when using 3" sump entry/termination fitting.

5" x 4" Concentric Reducer must be ordered when using 4" sump entry/termination fitting.

BONDED SUMP ENTRY FITTING			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
2"	012020-622-0	100.60	1
3"	012030-622-0	78.50	1
4"	012040-622-0	137.40	1
6"	012060-622-0	233.70	1

SECONDARY CONTAINMENT FITTINGS



90° ELBOW			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
3"	012030-360-3	60.40	10
4"	012040-360-3	116.80	5
6"	012060-360-9	354.70	N/A

45° ELBOW			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
3"	012030-310-3	60.40	10
4"	012040-310-3	116.80	5
6"	012060-310-9	343.30	N/A

TEE			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
3"	012030-410-3	88.70	10
4"	012040-410-3	145.70	5
6"	012060-410-9	407.30	N/A

SLEEVE COUPLING			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
3"	012030-101-3	51.70	10
4"	012040-101-3	112.80	5
6"	012060-101-9	309.00	N/A

SLEEVE COUPLING, one-piece, Scarfed O.D.			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
2"	012020-101-9	25.50	NA
3"	012030-101-9	28.00	NA
4"	012040-101-9	35.30	NA

THREADED ADAPTER, Bell x Male, Scarfed O.D.			
SIZE	PART NUMBER	PRICE	
2"	002020-191-7	22.10	NA
3"	002030-191-7	38.60	NA
4"	002040-191-7	44.70	NA

CROSSOVER 45° ELBOW			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
3"	012030-311-3	70.60	10
4"	012040-311-3	120.00	5

CROSSOVER TEE			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
3"	012030-411-3	91.20	10
4"	012040-411-3	147.60	5

CROSSOVER NIPPLE			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
3" x 6"	012030-006-7	9.90	12
4" x 6"	012040-006-7	11.50	9
6" x 8"	012060-008-7	17.50	N/A

TERMINATION FITTING			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
With 3/4" NPT Tap			
3" x 2"	012030-236-3	126.50	15
4" x 3"	012040-236-3	165.30	8
6" x 4"	012060-234-7	350.10	N/A
Without Tap			
3" x 2"	012030-235-3	68.30	15
4" x 3"	012040-235-3	126.50	10
6" x 4"	012060-235-7	309.00	N/A

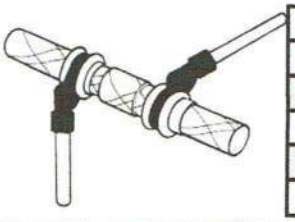
SADDLE			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
Belled Outlet			
3" x 2"	012030-521-4	57.80	1
4" x 2"	012040-521-4	65.30	1
4" x 3"	012040-531-4	78.50	1
Female NPT Outlet			
3" x 1"	012030-511-4	42.70	1
3" x 1 1/4"	012030-512-4	42.70	1
3" x 1 1/2"	012030-516-4	42.70	1
4" x 1"	012040-511-4	43.20	1
4" x 1 1/4"	012040-512-4	43.20	1
4" x 1 1/2"	012040-516-4	43.20	1

REDUCER BUSHING, Scarfed O.D.			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
3" x 2"	012030-231-7	23.00	24
4" x 3"	012040-231-7	32.30	9

CENTRALIZER			
SIZE	PART NUMBER	PRICE	PARTS PER BOX
2" x 3"	013020-650-3	15.10	N/A
3" x 4"	013030-651-4	16.50	N/A
4" x 6"	013040-650-6	18.20	N/A

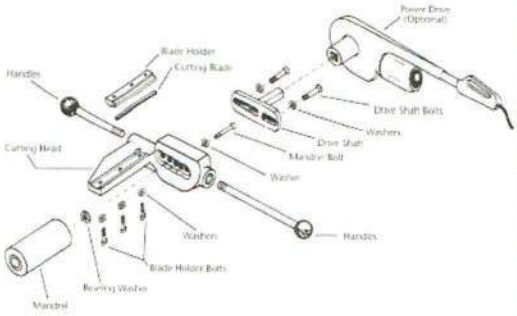
TOOLS & ACCESSORIES

POWER TOOLS			
DESCRIPTION	PART NUMBER	PRICE	SIZE
Model 2100 Taper/Scarf	005990-795-0	1,771.70	110V
Model 2100-I Taper/Scarf	005990-797-0	2,039.60	220/240V 50 cycle
Model 2102 Taper/Scarf	005990-790-0	2,063.90	110V
Model 2102-I Taper/Scarf	005990-780-0	2,160.90	220/240V 50 cycle



T.A.B JOINT WRENCH SETS			
SIZE	PART NUMBER	PRICE	PRICE (TWO WRENCH SET)
2"	005990-712-0	193.50	387.00
3"	005990-713-0	205.60	411.20
4"	005990-714-0	217.80	435.60
6"	005990-716-0	269.60	539.20

MANUAL TOOLS & ACCESSORIES



MANUAL TOOLS		
DESCRIPTION	PART NUMBER	PRICE
2" - 4" Manual Tapering Tool	005990-800-0	569.95
Cutting Head Kit	005990-810-0	336.00
Power Adapter for Cutting Head	005990-813-0	58.80
Adapter Block for 1" & 1 1/2"	005990-812-0	74.55
Adapter Kit for 1" & 1 1/2"	005990-811-0	211.05
Scarfing Adapter Kit for 3" & 4" Secondary Containment Pipe	005990-915-0	109.75
Scarfing Adapter Kit for 6" Secondary Containment Pipe	005990-922-1	148.60
1" Mandrel	005990-820-0	57.75
1 1/2" Mandrel	005990-821-0	70.90
2" Mandrel	005990-822-0	85.60
3" Mandrel	005990-823-0	122.35
4" Mandrel	005990-824-0	138.60
6" Mandrel	005990-825-0	212.65
Tapering Blade for 1" - 6" Tool	005990-814-0	38.35
Scarfing Blade for Secondary Containment	005990-916-0	71.40
Blade Holder for Secondary Containment Blade	005990-917-0	73.50

SECONDARY CONTAINMENT GAUGE NIPPLES		
SIZE	PART NUMBER	PRICE
3"	012030-050-0	7.30
4"	012040-050-0	8.80
6"	012060-120-0	22.40

SMITH HEAT PACK			
SIZE	PART NUMBER	PRICE	PACKAGING
2"	005990-400-1	6.40	20/case
3"	005990-401-1	8.70	18/case
4"	005990-402-1	11.00	16/case
6"	005990-403-1	14.60	10/case

ELECTRIC HEATING COLLARS			
SIZE	PART NUMBER	PRICE	SIZE
2"	005990-502-0	121.00	110V
3"	005990-503-0	128.40	110V
4"	005990-504-0	154.00	110V
6"	005990-505-0	185.00	110V
2"	005990-502-1	157.30	240V
3"	005990-503-1	193.30	240V
4"	005990-504-1	225.80	240V
6"	005990-505-1	278.10	240V

ADHESIVES				
DESCRIPTION	PART NUMBER	PRICE	SIZE	PACKAGING
7014	002990-000-0	20.20	5.4 oz.	10/Box
7024	002990-040-0	27.00	2.5 oz. Twin Pack	10/Box
7069	002990-030-0	27.00	9.95 oz.	10/Box
8014	022990-000-0	20.20	5.5 oz.	10/Box
8024	022990-050-0	27.00	2.7 oz. Twin Pack	10/Box
8069	022990-033-0	27.00	9.3 oz.	10/Box
FILLER				
7014-8014	002990-004-0	3.40	For Secondary Containment	50/Case
7069-8069	002990-033-0	3.40	For Secondary Containment	50/Case

UL TRAINING KIT	PART NUMBER	PRICE
4-Person Training Kit	012030-000-2	384.40

1 Each - 8024 Kit
2 Each - 2" 90° Elbows, 3" S.C. Couplings, 8014 Kit, 8014 Filler Kits
4 Each - 2" x 12" Plain End Pipe & 3" x 12" Plain End Pipe, B2160

MINIMUM ORDER - Total Quantity $250.00

NOTE: MINIMUM ORDER TO RECEIVE DISCOUNT IS $500.00

TERMS – F.O.B. Origin. A maximum of one pipe per bundle factory coupled lengths (joiners) may be shipped. All shipments will be to the nearest random length and billings will be made to the nearest foot shipped. Prices subject to change without notice. All sales subject to Fiber Glass Systems General Terms and Conditions of Sale.

FIBER GLASS SYSTEMS • A NATIONAL OILWELL VARCO COMPANY
2425 S.W. 36th St., San Antonio, TX • 210-434-5043 • Fax 201-434-7543
2700 W. 65th St., Little Rock, AR 72209 • 501-568-4010 • Fax 501-568-4465

ATTACHMENT E Alternative Design and Protection Method for Piping (If Proposed)

No alternative design and protection method for the new 20,000 gallon underground storage piping is proposed with this UST permit.

ATTACHMENT F Tertiary Containment Method

The new 20,000-gallon UST is not located within 150 ft, in any horizontal direction, of a domestic, industrial, irrigation, or water supply well, or other sensitive feature as confirmed in the Geologic Assessment for this site. Tertiary containment is not required for this UST permit.

ATTACHMENT G Exception of the Geologic Assessment (If Requested)

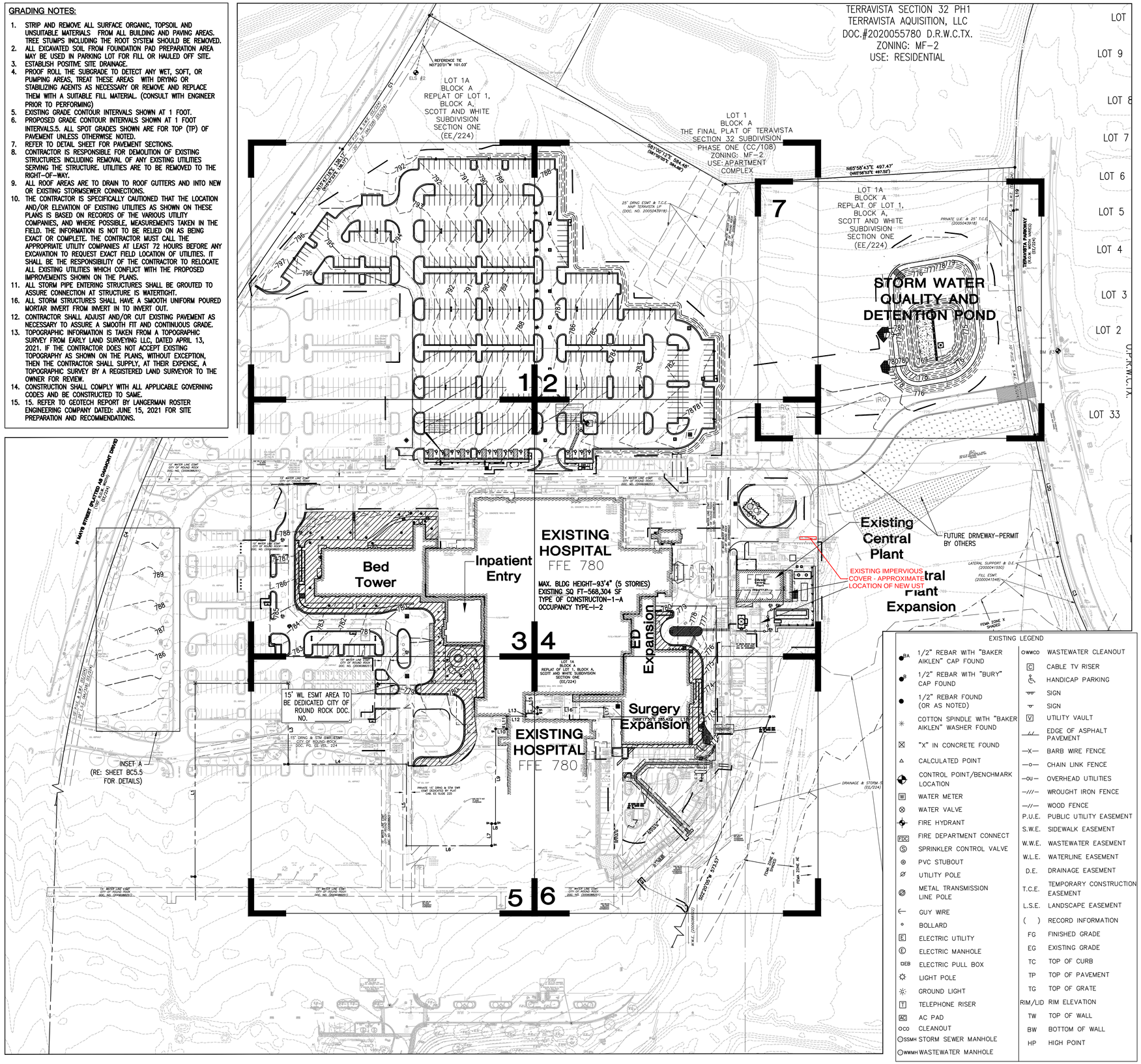
No exception of the geologic assessment requirement is requested for this UST Permit. A copy of the Geologic Assessment is included under Tab 3 of this report.

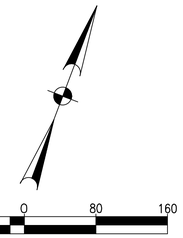
ATTACHMENT H Profile Drawing(s)

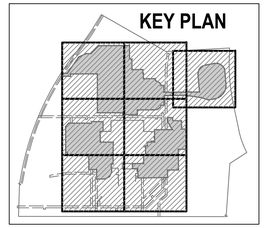
Plan and profile drawings of the proposed UST are included in this section – see succeeding pages.

GRADING NOTES:

1. STRIP AND REMOVE ALL SURFACE ORGANIC, TOPSOIL AND UNSUITABLE MATERIALS FROM ALL BUILDING AND PAVING AREAS. TREE STUMPS INCLUDING THE ROOT SYSTEM SHOULD BE REMOVED.
2. ALL EXCAVATED SOIL FROM FOUNDATION PAD PREPARATION AREA MAY BE USED IN PARKING LOT FOR FILL OR HAULED OFF SITE.
3. ESTABLISH POSITIVE SITE DRAINAGE.
4. PROOF ROLL THE SUBGRADE TO DETECT ANY WET, SOFT, OR PUMPING AREAS, TREAT THESE AREAS WITH DRYING OR STABILIZING AGENTS AS NECESSARY OR REMOVE AND REPLACE THEM WITH A SUITABLE FILL MATERIAL. (CONSULT WITH ENGINEER PRIOR TO PERFORMING)
5. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
6. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.5. ALL SPOT GRADES SHOWN ARE FOR TOP (TP) OF PAVEMENT UNLESS OTHERWISE NOTED.
7. REFER TO DETAIL SHEET FOR PAVEMENT SECTIONS.
8. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
9. ALL ROOF AREAS ARE TO DRAIN TO ROOF GUTTERS AND INTO NEW OR EXISTING STORMSEWER CONNECTIONS.
10. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
11. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
16. ALL STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED MORTAR INVERT FROM INVERT IN TO INVERT OUT.
12. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
13. TOPOGRAPHIC INFORMATION IS TAKEN FROM A TOPOGRAPHIC SURVEY FROM EARLY LAND SURVEYING LLC, DATED APRIL 13, 2021. IF THE CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY, AT THEIR EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR TO THE OWNER FOR REVIEW.
14. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
15. 15. REFER TO GEOTECH REPORT BY LANGERMAN ROSTER ENGINEERING COMPANY DATED: JUNE 15, 2021 FOR SITE PREPARATION AND RECOMMENDATIONS.







LEGEND:

- LIMIT OF WORK PHASE 1
- LIMIT OF WORK PHASE 2
- CONTOUR — XXX —
- CURB AND GUTTER
- PROPERTY LINE — S81°00'12"E584.48'
- EASEMENT
- SANITARY SEWER — S —
- IRRIGATION — IRG —
- EXIST COMM LINE — C —
- EXIST UNDERGROUND ELECTRIC — UGE —
- EXIST GAS — G —
- STORM SEWER MORE THAN 24"
- STORM SEWER LESS THAN 24"
- STEEL ENCASEMENT — W —
- WATER LINE — W —
- SAW CUT LINE
- SWALE LINE
- MANHOLE
- CURB INLET
- TRENCH DRAIN
- GRATE INLET
- UTILITY POINT OF CONNECTION
- CLEANOUT
- LIGHTPOLE

ACCESSIBILITY NOTES:

1. APPROVAL OF THESE PLANS BY THE CITY OF ROUND ROCK INDICATES COMPLIANCE WITH APPLICABLE CITY REGULATIONS ONLY. COMPLIANCE WITH ACCESSIBILITY STANDARDS SUCH AS THE 2010 STANDARDS FOR ACCESSIBLE DESIGN OR THE 2012 TEXAS ACCESSIBILITY STANDARDS WAS NOT VERIFIED. THE APPLICANT IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE ACCESSIBILITY STANDARDS.
2. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50. [ANSI 403.3]
3. ACCESSIBLE PARKING SPACES MUST BE LOCATED ON A SURFACE WITH A SLOPE NOT EXCEEDING 1:50. [ANSI 502.5]
4. SLOPES ON ACCESSIBLE ROUTES MAY NOT EXCEED 1:20 UNLESS DESIGNED AS A RAMP. [ANSI 403.3]
5. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION IS 1:12. THE MAXIMUM RISE FOR ANY RAMP RUN IS 30 INCHES. THE MAXIMUM HORIZONTAL PROJECTION IS 30 FEET FOR A RAMP WITH A SLOPE BETWEEN 1:12 AND 1:15, AND 40 FEET FOR A RAMP WITH A SLOPE BETWEEN 1:16 AND 1:20. [ANSI405.2 – 405.6]
6. FIRE LANE SHALL NOT BE GREATER THAN 7% OR GRADE BREAKS > 3%
7. ALL WEATHER SURFACE ROADS OF CONCRETE OR ASPHALT ABLE TO SUPPORT 80,000 LBS AND SITE HYDRANTS MUST BE IN-SERVICE BEFORE ANY COMBUSTIBLE MATERIAL ON-SITE (2012 IFC D.102).

Philo Wilke Partnership
11275 S. Sam Houston Parkway W.
Suite 200 | Houston, Texas 77031
832.554.1130 | philowilke.com

Walter P. Moore and Associates, Inc.
TBPE Firm Registration No. 1856

STATE OF TEXAS
DAVID S. LUNDBERG
130058
LICENSED
PROFESSIONAL ENGINEER
2022/09/30

Consultants

Civil
Walter P Moore
TBPLS FIRM NO. 1856

Landscape
Asakura Robinson

Structural Engineer
Datum Engineers

MEP
O'Connell Roberston

Low Voltage
Telios

Revisions

No.	Date	Description
1.	06/29/2021	PER-PRE-SUBMITTAL MEETING
2.	11/30/2021	PER-PRELIMINARY SUBMITTAL RECEIVED
3.	05/05/2022	CITY INITIAL SUBMITTAL
4.	07/22/2022	CITY SECOND SUBMITTAL
5.	08/26/2022	CITY THIRD SUBMITTAL
6.	09/30/2022	CITY FOURTH SUBMITTAL

Project

BSW Round Rock Expansion

Baylor Scott & White
300 University Boulevard
Round Rock, Texas 78665

Package

b-Site #1

Drawing Name

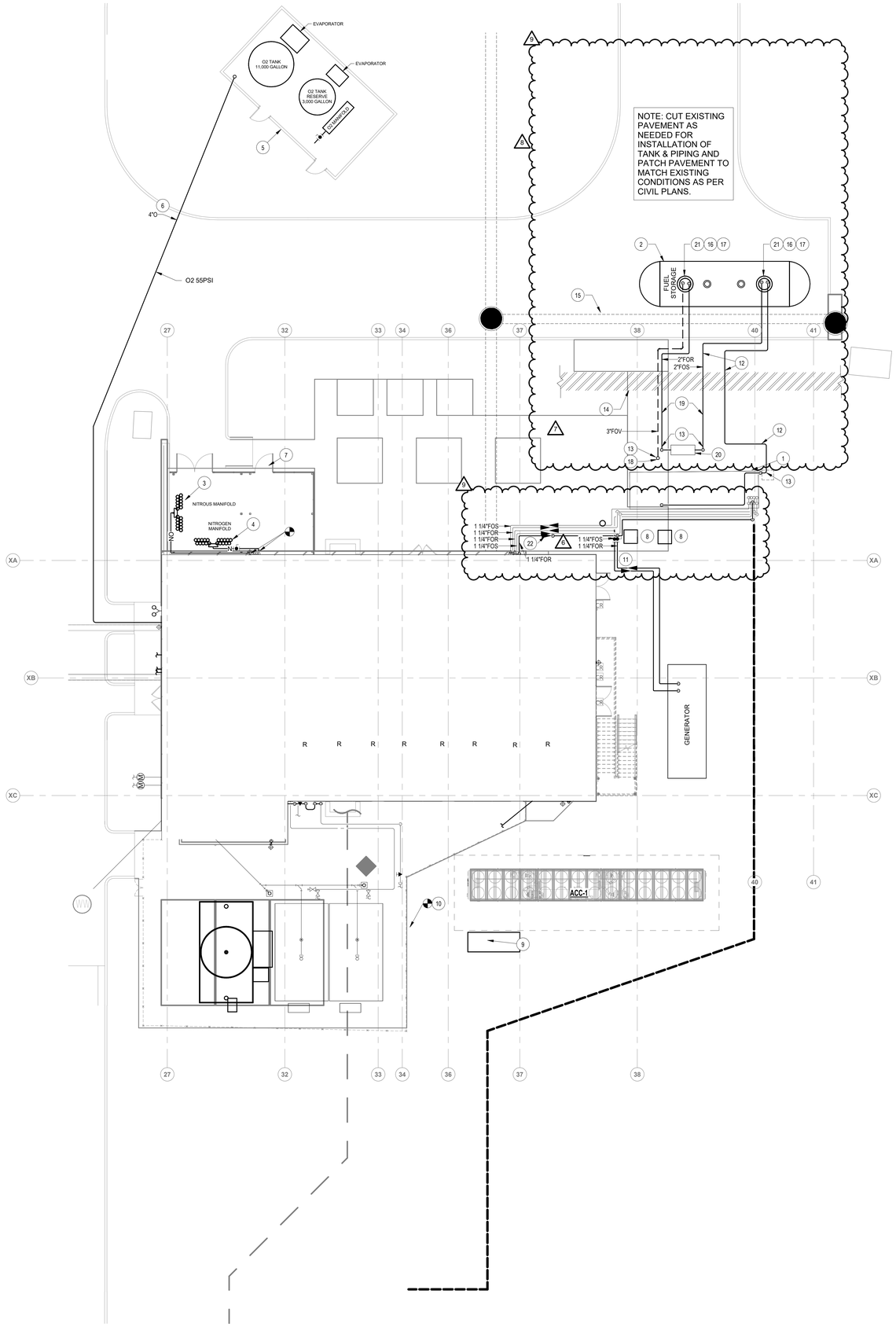
CIVIL SITE OVERALL GRADING PLAN

Print Date / Time: 5/3/2022 12:13:22 PM

P&W Commission Number: 220-009

Sheet Number: bC5.0

CORR PERMIT #SDP2111-0005



1 PLUMBING SITE PLAN - AREA G

SCALE: 3/32" = 1'-0"

GENERAL NOTES

1. REFER TO SHEET P-001 FOR GENERAL PLUMBING NOTES THAT SHALL APPLY TO ALL SHEETS IN THIS SET UNLESS NOTED OTHERWISE IN THE KEYED NOTES.
2. ALL EXISTING PIPING SIZES & LOCATIONS ARE TAKEN FROM BEST AVAILABLE RECORD DOCUMENTS & SITE OBSERVATIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

KEYNOTE LEGEND

1 EXISTING 10,000 GALLON ABOVE GROUND FUEL OIL TANK.

2 NEW BELOW GRADE 20,000 GALLON FUEL OIL TANK. PROVIDE NEW ALARM MONITORING SYSTEM, DOUBLE WALL TANK, DOUBLE WALL PIPE, ETC. TO PROVIDE A COMPLETE FUEL SYSTEM FULLY INTEGRATED WITH THE EXISTING SYSTEM. PROVIDE NEW 3" SUPPLY PIPING FROM TANK TO THE EXISTING SYSTEM.

3 PROVIDE NEW NITROUS OXIDE MANIFOLD WITH CHANGE OVER ALARM SWITCH/SENSOR. EXTEND 2" NITROUS OXIDE LINE FROM MANIFOLD TO CONNECTION OF THE EXISTING 1-1/4" LINE. PROVIDE REDUCER AND SOURCE VALVE. EXTEND NFPA 99 REQUIRED ALARMS TO MASTER ALARM PANELS.

4 PROVIDE NEW NITROGEN MANIFOLD WITH CHANGE OVER ALARM SWITCH/SENSOR. EXTEND 1-1/2" NITROGEN LINE FROM MANIFOLD TO CONNECTION OF THE EXISTING 1-1/4" LINE. PROVIDE REDUCER AND SOURCE VALVE. EXTEND NFPA 99 REQUIRED ALARMS TO MASTER ALARM PANELS.

5 PROVIDE NEW BULK OXYGEN YARD. COORDINATE LOCATION OF BULK OXYGEN TANK WITH HELICOPTER FLIGHT PATH. PROVIDE NEW BULK OXYGEN PAD, MAIN TANK AND RESERVE TANK, EVAPORATORS, HIGH PRESSURE MANIFOLD WITH CHANGE OVER SWITCH/SENSOR, SOURCE, PRESSURE SWITCHES, NEW BULK OXYGEN HOSE FILL CONNECTION. EXTEND NFPA 99 REQUIRED ALARM CONNECTIONS FROM BULK OXYGEN TO MASTER ALARM PANELS.

6 4" OXYGEN UNDERGROUND FROM BULK OXYGEN TO CUP. PROVIDE CONTINUOUS ENCLOSURE.

7 COORDIANTE WITH GENERAL CONTRACTOR TO PROVIDE STRUCTURAL COVER TO BE LOCATED OVER THE NEW LOCATION OF THE MEDICAL GAS MANIFOLDS.

8 REPLACE EXISTING FUEL OIL PUMPS.

9 MODIFY EXISTING GAS SERVICE AS NEED TO ACCOMMODATE NEW CHILLER /COOLER YARD LAYOUT. PROVIDE NEW 10' TALL SUPPORTS TO ELEVATE GAS PIPING ~10' HIGH TO ALLOW FOR WORK TRUCK AND CHILLER REPLACEMENT.

10 EXTEND AND CONNECT NEW 4" GAS LINE TO EXISTING GAS LINE IN THIS AREA. GAS LINE SHALL PROVIDE 48,000 CFH NATURAL GAS TO CUP. PROVIDE 10' PIPE SUPPORTS AS NECESSARY TO ACCOMMODATE WORK TRUCKS AND CHILLER REPLACEMENT.

1 11 NEW FUEL OIL SUPPLY AND RETURN LINES TO GENERATOR.

12 DOUBLE-WALL FUEL OIL PIPING BELOW GRADE. MAINTAIN MINIMUM 3 FEET OF COVER FOR PIPING UNDER ROADWAY AND MINIMUM OF 2 FEET OF SEPARATION FOR ELECTRICAL CONDUIT BANK. 6

13 PROVIDE WATER TIGHT FUEL PIPING AND TRANSITION SUMP.

14 APPROXIMATE LOCATION OF EXISTING ELECTRIC UTILITY CONDUIT BANK (~4' DEEP).

15 APPROXIMATE LOCATION OF EXISTING STORM WATER PIPE (~5' DEEP).

16 CONTAINMENT SUMP WITH WATERTIGHT COVER. PROVIDE 2" FOV PIPING TO POINT INDICATED ON PLANS. PROVIDE HEAVY TRAFFIC RATED MANHOLE FOR ACCESS. PROVIDE DISCRIMINATING PUMP SENSOR. IF FUEL IS DETECTED IN JUNCTION BOX, FUEL PUMPS AND TRENCH PUMP ARE TO BE DISABLED.

9 17 PROVIDE MONITORING SUMP WITH WATER TIGHT TRAFFIC RATED MANHOLE COVER AND RISER. PROVIDE SUMP HYDROSTATIC SENSOR.

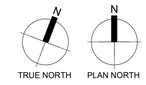
18 VENT PIPING TO EXTEND MINIMUM OF 12 FEET ABOVE FINISH GRADE. PROVIDE STAINLESS STEEL UNISTRUT SUPPORTS FOR ABOVE GROUND SUPPORT OF VERTICAL PIPE.

19 2" FUEL SUPPLY AND RETURN TO FUEL FILTRATION UNIT.

20 FUEL OIL FILTRATION UNIT, STS 602070 AUTOMATIC FUEL OIL FILTRATION SYSTEM. MOUNT NEAR AST. PROVIDE EQUIPMENT PAD AND SPILL CONTAINMENT PAD.

21 PROVIDE DISCRIMINATING SUMP SENSOR. IF FUEL IS DETECTED IN JUNCTION BOX, FUEL PUMPS AND TRENCH PUMP ARE TO BE DISABLED.

9 22 NEW 1-1/4" FUEL OIL RETURN LINE TO SERVE THE NEW GENERATOR ON THE SECOND FLOOR OF THE CUP AND ALSO THE EXTERIOR GENERATOR.



NORTH

Philo Wilke Partnership
11275 S. Sam Houston Parkway W.
Suite 200 | Houston, Texas 77031
832.554.1130 | philowilke.com

STATE OF TEXAS
Nicholas Matthew Patterson
91113
LICENSED PROFESSIONAL ENGINEER
06/23/2023

Engineering Firm:
O'CONNELL ROBERTSON
Firm Registration No. F-2708

Consultants

Structural Engineer
Datum Engineers
8140 N. Mopac Expressway, Bldg. 1 Suite 120, Austin, Tx. 78759

Low Voltage
Telios
101 Parkline Boulevard, #101, Sugar Land, Texas 77478

Structural Engineer
Datum Engineers
8140 N. Mopac Expressway, Bldg. 1 Suite 120, Austin, TX 78759

MEP
O'Connell Robertson
811 Barton Springs Rd., Suite 900, Austin, TX 78704

Low Voltage
Telios
101 Parklane Boulevard, #101
Sugar Land, Texas 77478

Issues / Revisions

No.	Date	Description
1	12/16/2021	50% Design Development
2	02/23/2022	Design Development
3	05/20/2022	Interim Review
4	06/02/2022	50% Construction Document
5	08/04/2022	Permit and Construction
6	08/15/2022	Addendum 02
7	02/15/2023	PR019
8	03/23/2023	PR 25
9	06/23/2023	PR 37

Project

BSW Round Rock Expansion

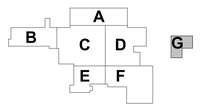
Baylor Scott & White
300 University Boulevard
Round Rock, Texas 78665

Package Name

g-Central Utility Plant

Drawing Name

PLUMBING SITE PLAN - AREA G



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PhiloWilke Commission Number: 220-009

Sheet Number: gPS-111G

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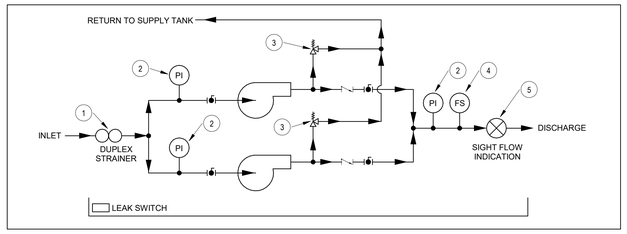


KEYNOTE LEGEND

1 DUPLEX STRAINER

2 PRESSURE INDICATOR.

3 PRESSURE RELIEF VALVE.

4 FLOW SENSOR.

5 SIGHT FLOW INDICATOR.

2 FUEL OIL PUMP SET SCHEMATIC

NOT TO SCALE

KEYNOTE LEGEND

1 PROVIDE 20,000 GALLON DOUBLE WALL FIBERGLASS UNDERGROUND STORAGE TANK WITH TWO (2EA) 39" DIA. MANWAY FOR TANK PUMPS, AND ADDITIONAL MANWAY FOR OBSERVATION WELLS, TANK LEVEL MONITORING (LEVEL, HYDROSTATIC) WITH SUPPORT BALLAST.

2 EXISTING 10,000 GALLON,. UL 2805, DOUBLE WALL STEEL ABOVE GROUND FUEL OIL STORAGE TANK; WITH 24" MANWAY; EXTERNAL LADDER; 3" OVERFILL VALVE AND DROP TUBE; 3" OPEN AIR TANK VENT AND ALL REQUIRED EMERGENCY VENTS.

3 PROVIDE UL142 REMOTE FILL STATION; PROVIDE CHECK VALVE; LOCKING BALL VALVE WITH DUCT CAP; LOCATE INSIDE REMOTE SPILL CONTAINER WITH 1" LOCKING BALL VALVE AND MANUAL HAND PUMP FOR SPILL REMOVAL. PROVIDE STANCHION FOR PAD MOUNTING ~ 36"ABOVE GRADE.

4 PROVIDE INLINE STRAINER.

5 PROVIDE OVERFILL PREVENTION VALVE ON DROP TUBE.

6 SOLENOID VALVE

7 PROVIDE FUEL POLISHING SYSTEM FOR AST; UL508A, 7GPM, 1/2HP. SIMPLEX – SFG-7CA OR EQUAL; PROVIDE 1" FUEL SUPPLY PIPE AND 1" FUEL RETURN PIPE.

8 PROVIDE DUPLEX FUEL TRANSFER PUMP WITH LOCAL PLC CONTROL PANEL; 29GPM EACH PUMP; 2HP; SIMPLEX OR EQUAL; PROVIDE WITH AUTOMATIC PUMP CONTROL, INTERFACES WITH VEEDER ROOT SYSTEM; MODBUS COMM PORT FOR BMS MONITORING; REFER TO DETAIL.

9 CONNECTION TO GENERATOR OR BOILER ; PROVIDE ISOLATION VALVE, CHECK VALVE AND UNION ON SUPPLY LINE; PROVIDE UNION, STRAINER AND ISOLATION VALVE ON RETURN LINE.

10 TRANSITION SUMP,OPW MODEL PSTF-5630 OR EQUAL, PROVIDE FRP DOUBLE ENTRY BOOT FITTING FOR ALL PENETRATIONS, TRANSITION FROM DOUBLE WALL, FRP, UNDERGROUND PIPING TO SCHEDULE 40 STEEL PIPE WITH MALLEABLE FITTINGS; PROVIDE LEAK SENSOR IN PIT.

11 3" FUEL OIL VENT. PROVIDE 2' SQ TUBE STEEL RISER SUPPORT. ~8' TALL. PROVIDE PRESSURE VACUUM VENT ON THE TERMINATION OF EACH VENT.

12 2HP SUBMERSIBLE PUMP, RED JACKET STP WITH CONTROLLER.

13 3" FOS, 3" FOR; FROM UST TO AST. PROVIDE TANK LEVEL CONTROLS FOR UST SUPPLY PUMP

14 TANK EMERGENCY VENT THROUGH ROOF.

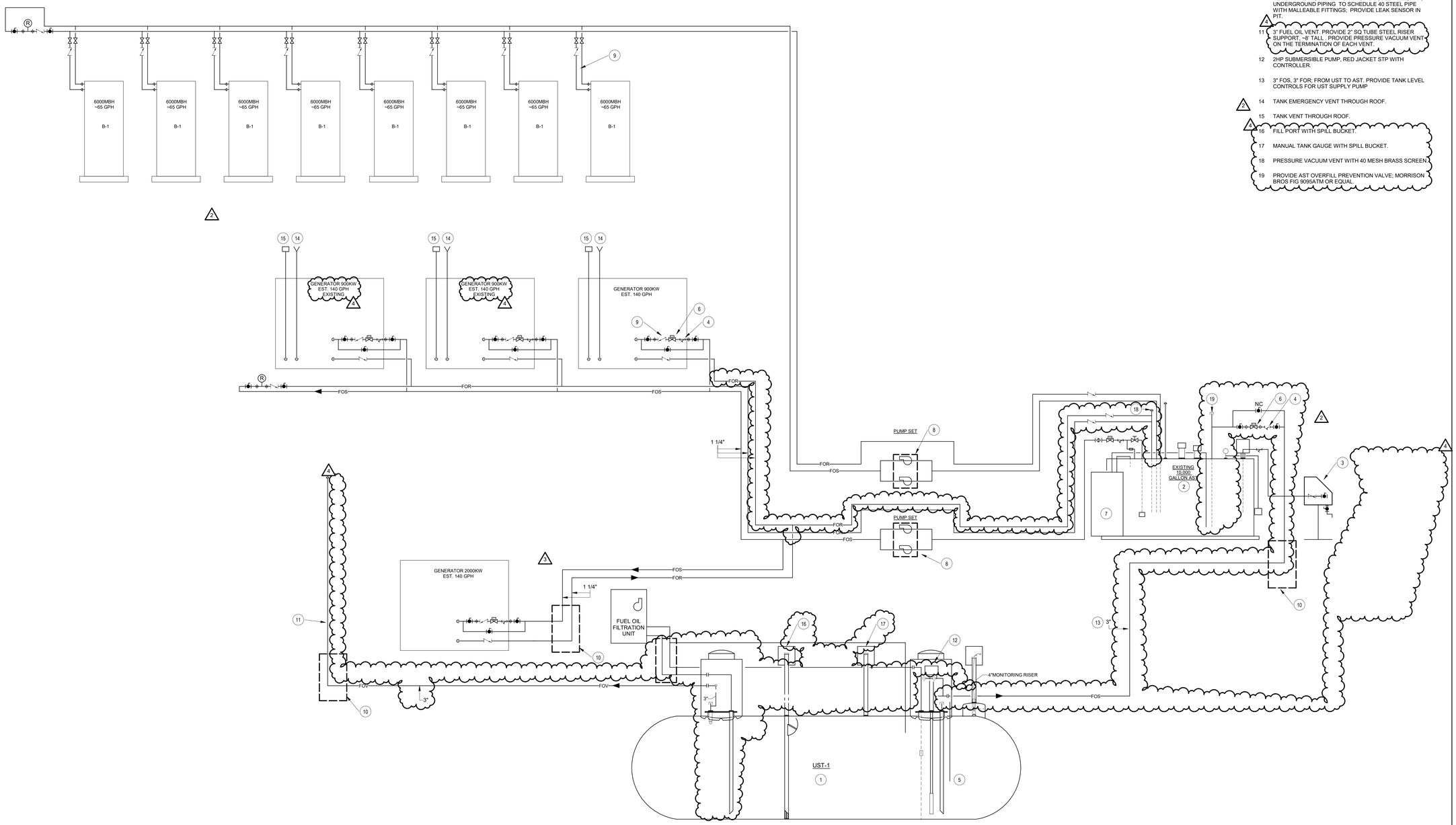
15 TANK VENT THROUGH ROOF.

16 FILL PORT WITH SPILL BUCKET.

17 MANUAL TANK GAUGE WITH SPILL BUCKET.

18 PRESSURE VACUUM VENT WITH 40 MESH BRASS SCREEN

19 PROVIDE AST OVERFILL PREVENTION VALVE; MORRISON BROS FIG 9095ATM OR EQUAL



1 FUEL OIL DISTRIBUTION SCHEMATIC

NOT TO SCALE

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Philo Wilke Partnership
11275 S. Sam Houston Parkway W.
Suite 200 | Houston, Texas 77031
832.554.1130 | philowilke.com

Nicholas Matthew Patterson
91113
LICENSED PROFESSIONAL ENGINEER
06/23/2023

Engineering Firm:
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Low Voltage
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101 Parkline Boulevard, #101, Sugar Land, Texas 77478

Structural Engineer
Datum Engineers
8140 N. Mopac Expressway, Bldg. 1 Suite 120, Austin, TX 78759

MEP
O'Connell Robertson
811 Barton Springs Rd., Suite 900, Austin, TX 78704

Low Voltage
Telios
101 Parklane Boulevard, #101
Sugar Land, Texas 77478

Issues / Revisions

No.	Date	Description
1	08/15/2022	Addendum 02
2	11/18/2022	PR 03
3	03/25/2023	PR 25
4	06/23/2023	PR 37

Project

BSW Round Rock Expansion

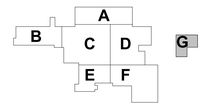
Baylor Scott & White
300 University Boulevard
Round Rock, Texas 78665

Package Name

g-Central Utility Plant

Drawing Name

PLUMBING DETAILS



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PhiloWilke Commission Number: 220-009

Sheet Number: gP-703G

ATTACHMENT I Initial and Continuing Training

Initial training for release detection must be completed following an approved course in accordance with TCEQ regulations. Below is a list of approved courses for initial and continuing training from the TCEQ website. Training certifications shall be renewed in accordance with state and federal regulations. Response to warnings and alarm conditions shall be documented on the appropriate forms and reported to qualified personnel responsible for maintaining records. Appropriate action shall be taken immediately should the storage tank require immediate maintenance by qualified technicians that are certified in repairing and maintaining storage tanks.

Approved TCEQ Courses

Course Name: Petro Classroom Class A and Class B UST Facility Operator Training Course
Course Sponsor: Asian American Trade Associations Council
Course Provider: Petro Classroom
Provider: (844) 303-6752
Website: **www.petroclassroom.com**
E-Mail: **pjv@petroclassroom.com**
Approval Date: September 14, 2018

Course Name: Texas Class A and Class B UST Facility Operator Training Course
Course Sponsor: Texas Food and Fuel Association
Course Provider: TAIT Environmental
Phone: (972) 755-1260
Website: **https://texas.ustcourse.com/store**
E-Mail: training@tait.com
Approval Date: September 14, 2018

Course Name: Antea Group Class A and Class B UST Faciltiy Operator Training Course
Course Sponsor: American Petroleum Institute
Course Provider: Antea Group
Phone: (314) 312-3734
Website: **https://ustoperator.anteagroup.com/**
E-Mail: Angela.Dunn@anteagroup.us
Approval Date: April 12, 2019

Course Name: PASS Training and Compliance
Course Sponsor: National Institute of Storage Tank Management
Course Provider: PASS Training and Compliance
Phone: (765) 281-5588
Website: **www.passtesting.com**
E-Mail: support@passtesting.com
Approval Date: April 24, 2019

Course Name: UST Training's Texas Class A/B UST Operator Training
Course Sponsor: Steel Tank Institute-Steel Plate Fabricators Association (STI/SPFA)
Course Provider: UST Training
Phone:(866) 301-8265
Website: **www.usttraining.com**
E-Mail: info@USTtraining.com
Approval Date: June 12, 2019

Course Name: Responsible Training Class A & B UST Facility Operator Training Course
Course Sponsor: Aloha Petroleum, Ltd.
Course Provider: Responsible Training
Phone:(512) 996-0909
Website: **https://www.responsibletraining.com/catalog?pagename=Under-Ground-Storage-Training**
E-Mail: info@safewayclasses.com
Approval Date: June 18, 2019

Course Name: Petroleum Storage Tank Training Professionals (PSTTP) UST A/B Operator Training Course
Course Sponsor: Texas Association of Storage Tank Professionals (TASTP)
Course Provider: PSTTP
Phone: (770) 235-9144
Website: **www.psttp.net**
E-mail: **billgreer@psttp.net**
Approval Date: November 16, 2020

Course Name: Cstores Training's Texas Class A/B UST Operator Training
Course Sponsor: South Texas Merchants Association
Course Provider: Cstores Training
Phone: 833-699-5800
Website: www.cstorestraining.com
E-Mail: cs.support@cstorestraining.com
Approval Date: July 1, 2021

ATTACHMENT J Release Detention Maintenance

The attached document from the vendor after this page includes operation and maintenance requirements for the proposed storage tank. Should the contractor recommend an alternative tank storage system, this section should be updated with TCEQ records for the state and the property owner. TCEQ's Compliance Notebook for Underground Storage Tanks (https://www.tceq.texas.gov/downloads/assistance/publications/rg-543.pdf - Rev. 4/22) may also be used should the vendor requirements not meet all state regulations. Maintenance records shall be kept on file in accordance with TCEQ regulations.

O'CONNELL ROBERTSON
Mission driven.

December 14, 2023

Name: Austin Reginal Office
Address: 12100 Park 35 Circle
City: Austin, TX 78753

RE: Baylor Scott & White Round Rock Hospital: Release Detection Requirements for New underground storage tank

Austin
811 Barton Springs Road
Suite 900
Austin, TX 78704
512.478.7286

San Antonio
4040 Broadway, Suite 300
San Antonio, TX 78209
210.224.6032

Houston
1301 Fannin, Suite 755
Houston, Texas 77002
713.487.1583

oconnellrobertson.com
Engineering Firm:
O'CONNELL ROBERTSON
Firm Registration No. F-2708

The proposed release detection maintenance for the new underground storage tank and piping will employee a secondary containment with the use of interstitial monitoring as the primary release detection method. The sensors will monitor the interstitial space between the walls of the system (tank and pipe). The sensor status will be monitored to allow documentation at least every 30days.

Sincerely,

David Meyer, P.E. #92665
Senior Associate.

12/14/23

MLN Company - Fuel Project

Baylor, Scott & White Hospital – 300 University Boulevard, Round Rock, TX 78665

Levels and Leak Detection - Submittal

DNB ENTERPRISES, INC. 20560 FM 1488, BLDG C, MAGNOLIA, TX 77355
OFFICE: 281-615-1999 *FAX: 281-783-2170*
WWW.DNBENT.COM

Modular, Multi-Tank Gauging System w/ EPA-Compliant In-Tank and Secondary Containment Leak Detection

Console

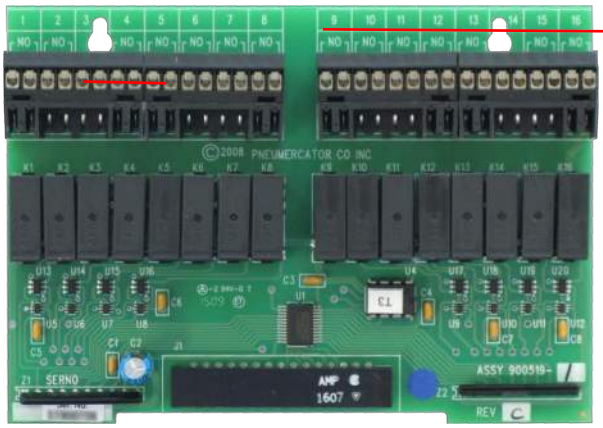
- Dimensions (W x H x D): 11.8" x 11.5" x 7.7" (300mm x 292mm x 178mm)
- Weight: 19 lb (8.6 kg) (4-Tank w/ Printer), 21.5 lb (9.8 kg) (12-Tank w/ Printer)
- Operating Temperature: -40 ºF to 160 ºF (-40 ºC to 70 ºC) w/o Printer
  -5 ºF to 140 ºF (-20 ºC to 60 ºC) w/ Printer
- Humidity: 95% Non-condensing
- Enclosure Rating: Locking NEMA 12 (IP52), NEMA 4 (IP56) or NEMA 4X (IP56) (304 SS)
- Power Requirements: 115/230 VAC ±15% (w/o Printer) Switchable, 50-60 Hz, 20 W Max.
  8-16 VDC or 16-60 VDC Optional
- Memory: Configuration/Setup Data – EEPROM, 50 year data retention, no batteries
  Log Reports and Real-Time Clock – Lithium Battery-Backed RAM, 5-10 year data retention
- Audible Alarm: 85 db
- Display: 9-Character, Super-Bright Sunlight-Readable LED Data Display, Readable from 25' (7.6 m)
  Ultra-High Intensity Alarm LEDS, Visible from 75' (22.9 m)
- Communications: RS-232 Included Standard, RJ-13 Jack
  (Additional RS-232 port accessible when configured without printer or modem)
  RS-485 Included Standard, RJ-13 Jack (For Pneumercator Peripherals)
  Internal, Secured Modem, Fax / Modem, Network Interface or ModBus Optional
- Probe / Sensor Capacities: 4/40, 8/32 or 12/24 (Probes/Sensors)
  All Sensor Inputs Supervised-Wiring-Ready
- I/O, Non-Haz.: Expansion Options (2 slots available):
  4 Relays, 1 Form C, Rated 10 A@120, 6 A@240 VAC, w/ 4 Opto-Isolated Inputs
  8 Relays, 1 Form A, Rated 5 A@120, 5 A@240 VAC, w/ 8 Opto-Isolated Inputs
  16 Relays, 1 Form A, Rated 5 A@120, 5 A@240 VAC
  6 or 12-Ch. Programmable Analog Outputs:
  0-1 mA, 0-20 mA, 0-24 mA, 4-20 mA, 0-5 VDC, 1-5 VDC

PNEUMERCATOR Liquid Level Control Systems

Pneumercator Company, Inc.
1785 Expressway Drive North
Hauppauge, New York 11788

Tel: 631-293-8450
Fax: 631-293-8533
http://www.pneumercator.com

16 Fully Programmable Relay Outputs



Product Description

The 16 Relay Output Card is a field upgradeable plug-in option for both the TMS Series Tank Management Systems and LC2000 Series Leak and Point Level Alarm Console that provides sixteen (16) 1 Form A relay contact outputs. All I/O channels are uncommitted and fully programmable via the console front panel* or any of the available communications interfaces. Each relay output is programmable to trigger on any combination of events, including in-tank leak**, theft*, product or water setpoints*, leak or point level sensor alarm, contact closure input or system error. Additionally, relays are individually programmable for failsafe mode; delayed shutoff mode and a latching mode for pump up/down functions. Typical relay applications include remote annunciation, pump and siphon break/flow control valve operation, and other user-defined switch closure inputs. These relays provide a simple and straightforward interface to most programmable logic controllers, building management systems, and similar input monitoring devices. All relay output connections are provided via plug-in terminal blocks for ease of wiring and board replacement.

Applications

- Remote Annunciators: Overfill, High, Low, Leak
- Pump Up/Down using latching relay mode
- Siphon Break/Flow Control Valves
- BMS/PLC Interface

Specifications

- Output Type: Relay, Dry Contact, Programmable, UL/CSA listed
- Relay Contacts: 1 Form A, Rated: 5 A @120 VAC; 5 A @240 VAC
- Maximum Wire Gauge: 18 AWG
- Output Triggers: Site-specific alarms: Theft*, System Errors, System Power Failure
  Tank Alarms: In-tank Leak**, Product and Water Setpoints*
  Leak/Point Level Sensor Alarms
  Contact Closure Inputs (From other relay I/O board)
  Note: Each trigger event can control up to three (3) separate relays
- Output Modes: Failsafe, Latching, Delayed Shutoff, Front Panel Acknowledge
- System Requirements One (1) Non-hazardous I/O Expansion Slot

Model Numbers

- 900519-1 for TMS3000, ~~TMS4000, TMS4000W~~
- ~~900520-1 for TMS2000, TMS2000W, TMS2000A1, TMS2000A2, LC2000, TX1064-1~~

* TMS Series Only
** TMS2000/3000 Only

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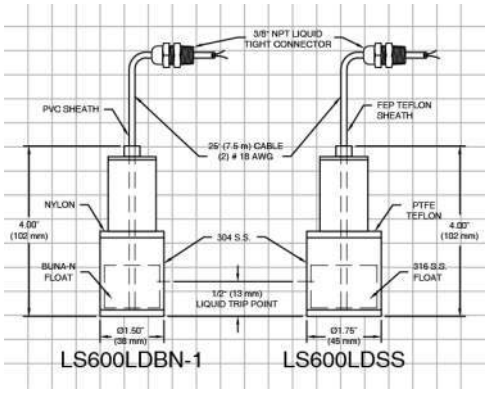
Secondary Containment Leak Sensor

This sensor is for the tank sumps and transition sump that monitors the dw fuel lines. Also is used to monitor the intersistitual of the aboveground fuel tank.



Product Description

The LS600LD float-actuated leak sensor provides secondary containment leak detection for above ground and underground storage tank applications. The sensor assembly may be suspended at the desired point of actuation via the sensor cable and compression fitting, or allowed to rest at the bottom of the containment area being monitored. The compact size and favorable displacement properties of the LS600LD make it ideal for monitoring shallow liquid levels. The LS600LD Leak Switch is available with a Buna-N or stainless steel float for monitoring in most petrochemical and chemical storage tank applications. The LS600LD optionally supports Pneumercator's FAULT-DETECT supervised wiring technology, which automatically detects field wiring faults when connected with a TMS series controller.

Applications

- Containment, Manway and Piping Sumps
- Dispenser Pan
- Turbine Enclosure
- Double-Wall Steel Tank

Specifications

- Technology: Magnetic Float, Hermetically Sealed Reed Switch
- Wetted Materials: Float: Buna-N (BN, SN), 316SS (SS)
  Housing: 304SS and Nylon, (304SS and PTFE Teflon for SS)
  Stem: Brass, (316SS for SN, SS)
- Cable: 22AWG, 2-Conductor, 25' (7.5 m) Length, PVC-jacketed, (FEP Teflon-jacketed for SS)
- Operating Temperature: -20 ºF to 175 ºF (-30 ºC to 80 ºC), -40 ºF to 220 ºF (-40 ºC to 100 ºC) for SS
- Pass-thru Opening Size: Minimum 1-1/2" NPT (43 mm), (2" NPT (55 mm) for SS)
- Location Approval*: UL Class I, Div 1, Groups C and D; cUL Class I, Zone 0, Group IIB

Installation

Sensor may be suspended by its cable or placed on the containment or sump floor.

Certifications/Approvals

- UL/cUL Approved*, File #E139464
- Third-Party EPA Listed*

Ordering

- LS600LDBN-1(-F,-FL) Buna-N Float, Brass Shaft, and PVC wiring
- ~~LS600LDSN-1(-F,-FL) Buna-N Float, 316 SS Shaft, and PVC wiring~~
- ~~LS600LDSS(-F,-FL) 316 SS Float, 316 SS Shaft, and Teflon wiring~~

(-F) denotes Fault-Detect Option for LC2000/TMS2000/3000
(-FL) denotes Fault Detect Option for TMS1000/TMS2000W/WiDAM

*When used in conjunction with the LC2000/TMS series controllers or TMS2000W series WiDAM Wireless Data Acquisition Module

Note: Specifications subject to change without notice. 04-01-2013

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1785 Expressway Drive North
Hauppauge, New York 11788

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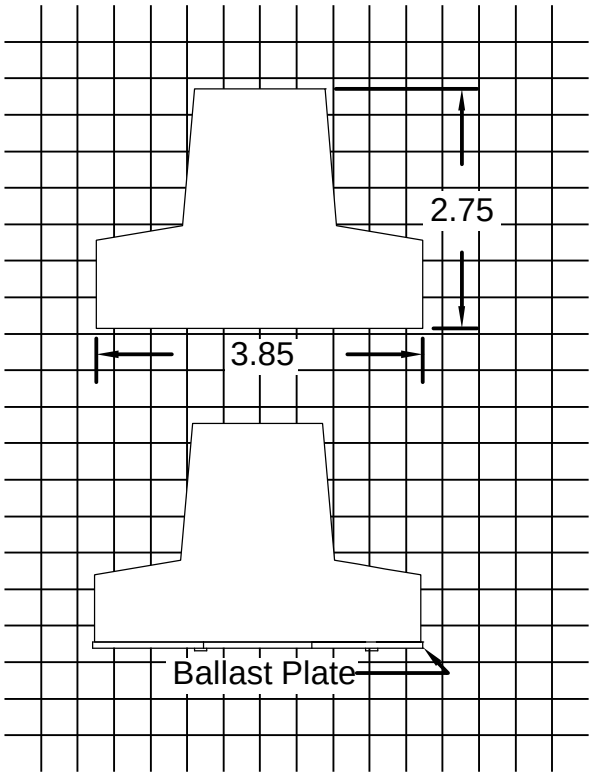
http://www.pneumercator.com

4” Buna Nitrile Product and Interface Floats for all MP-series Magnetostrictive Liquid Level Probes



Product Description

The B4-series 4” Buna Nitrile floats are designed for use with all Pneumercator MP-series magnetostrictive liquid level probes, and are specially formulated to provide the highest accuracy and repeatability critical for volumetric in-tank leak detection requirements. This series is offered as a dual-float kit for measuring both product and bottom water levels, but is also available for product-only applications. The closed-cell construction of the B4-series provides compatibility with all ethanol-blended gasolines, and the low specific gravity combined with a large float base provides enhanced early water detection compared with stainless steel floats.

Applications

- In-Tank Volumetric Leak Testing(Also requires riser-mounted, 5-temperature sensor mag probe)
- Enhanced bottom water detection
- High accuracy and repeatability

Specifications

- Materials of Construction: Product Float - Closed-Cell Buna Nitrile Foam
Interface Float - Closed-Cell Buna Nitrile Foam, Stainless Steel Ballast Plate
- Chemical Compatibility: Most automotive and aviation gasolines, including ethanol blends, most unheated kerosene-based fuels
- Minimum Tank Opening: 4” (102 mm) diameter
- Operating Temperature: -40 ºF to 140 ºF (-40 ºC to 60 ºC)
- Operating Pressure: Unpressurized tanks only.

Ordering Information

- ~~B4K1: Gasolines and Water Floats~~
- B4K2: Diesel, Kerosene, #2-#4 Heating Oil and Water Floats
- ~~B4X: Product Float only~~

Note: Specifications subject to change without notice. 06-26-2018

Pneumercator Company, Inc.
1785 Expressway Drive North
Hauppauge, New York 11788
Tel: 631-293-8450
Fax: 631-293-8533
http://www.pneumercator.com

MP450S Level Gauging Probe — Specifications

This probes monitors the fuel levels and performs the tank tightness test.

Rigid Magnetostrictive Probe, EPA Compliant*

Product Description

The MP450S Level Gauging Probe utilizes proven Magnetostrictive technology for accuracy and reliability. When used in conjunction with the TMS2000/3000, it provides the ability to perform EPA compliant in-tank leak tests in underground storage tanks. The probe is available in lengths up to eighteen feet.

Applications

- Above and Below Ground Storage Tanks
- Bulk Storage Tanks
- Generator Sub Base Tanks
- Oil / Water Separators (See MP452S Series spec)
- All Petroleum Products
- Most Chemical Solvents

Specifications

- Technology: Magnetostrictive, Dual Float, w/ reflection resolution doubling
- Accuracy (Minimum): Product Level: 0.0005" (0.013 mm)
  Water Level: 0.001" (0.025 mm)
  Temperature: 0.001 ºF (0.0006 ºC)
- Materials: Shaft: 316 SS
  Floats: Buna-N (Optional 316 SS or Urethane)
- Riser Mount: Minimum 2" (51 mm) dia. riser, 4" (102 mm) dia. riser required for in-tank leak
- Direct Mount: Minimum 2" (51 mm) opening with bushing or flange mount
- Probe Lengths: 1' – 18' (305 mm – 5486 mm)
- Temperature Sensing: 6 Thermistors; 5 in shaft, 1 in probe head
- Location Approval: UL Class I, Div 1, Groups C and D; cUL Class I, Zone 0, Group IIB
- Operating Temperature: -40 ºF to 175 ºF (-40 ºC to 80 ºC)
- Operating Pressure: 150 PSIG (1034 kPa)
- Field Wiring: 22AWG, 2-Conductor twisted pair w/ shield
  Belden 8441, 8761, Alpha 1736C or equiv., maximum length 3000' to 4600' (914 m to 1402 m)

Installation

Probes 15' (4.6 m) or less in length can be installed into a vertical riser pipe with the probe foot contacting the tank bottom, or direct-mounted at the tank top via a ¾" NPT compression fitting kit. Probes greater than 15' (4.6 m) must be direct-mounted.

Certifications/Approvals

- UL/cUL Approved*, File #E139464
- Third-Party Approved, EPA-Compliant for In-Tank Leak Testing:*
  Up to 20,000 Gal. (75,708 Liter) tank capacity, minimum tank inventory for test 20%
  0.2 GPH (0.8 LPH) Leak Test: Pd = 99.9%, Pfa = 0.1%
  0.2 GPH (0.8 LPH) Quick Test: Pd = 95%, Pfa = 5%
  0.1 GPH (0.4 LPH) Precision Test: Pd = 95.3%, Pfa = 4.7%
  Up to 75,000 Gal. (283,906 Liter) tank capacity, minimum tank inventory for test 50%
  0.2 GPH (0.8 LPH) Leak Test: Pd = 97.3%, Pfa = 2.7%

* When used in conjunction with the TMS2000/3000 series controllers

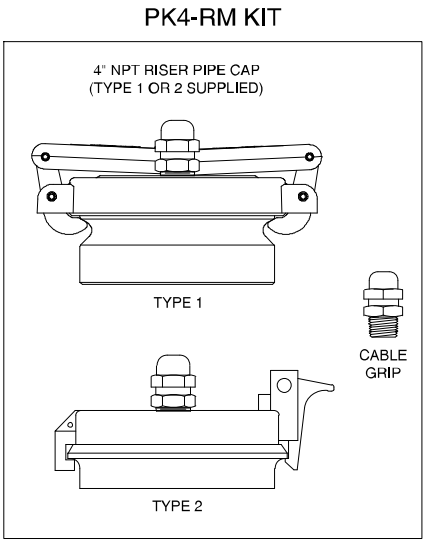
Note: Specifications subject to change without notice. 04-01-2013

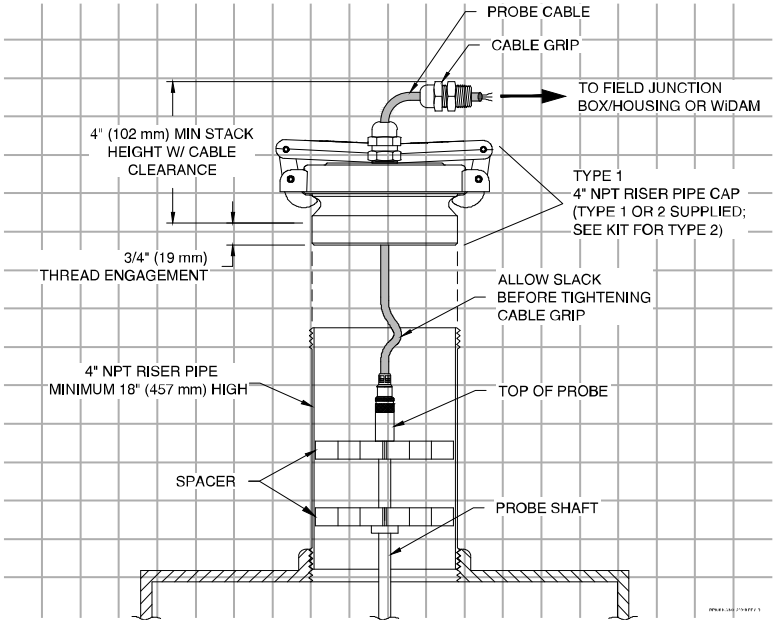
PNEUMERCATOR Liquid Level Control Systems

Pneumercator Company, Inc.
1785 Expressway Drive North
Hauppauge, New York 11788

Tel: 631-293-8450
Fax: 631-293-8533
http://www.pneumercator.com

4” (102 mm) Riser Mounting Kit with Quick-Release Cap for MP45xS/MP55xS Magnetostrictive Tank Gauging Probes





Product Description

The PK4-RM Riser Mount Probe Kit provides a “soft-mount” method of installation by allowing the probe to rest on the tank bottom and be stabilized within the tank riser without attachment. This method may be used for MP45xS/MP55xS series probe lengths up to 15 feet (4.6 m), providing easy installation and servicing by simply removing quick-release cap and lowering or raising probe by its cable. The cap accepts a padlock to prevent unauthorized access. The standard kit includes a 4” (102 mm) cap assembly with integral cable compression fitting, brass ferrule quick-release adapter, and cable compression fitting for field junction box.
IMPORTANT: Use PK2-DM Direct Mount Kit for probe lengths exceeding 15 feet (4.6 m). The riser mount should **not** be used in chemical or high heat applications without consulting factory.

Applications

- ~~Underground Storage Tanks~~
- Vertical Storage Tanks up to 15 Feet (4.6 m)

Specifications

- Materials: Cap: Aluminum
  Ferrule: Brass w/Buna-N gasket
  Cable Compression Fitting: Nylon Body w/TPE Compression Rings
- Mount: 4” NPT riser pipe, minimum 18” (457 mm) height.
- Operating Pressure: less than 1 PSIG (7 kPa)

Model Numbers

- PK4-RM — Aluminum Cap, Brass Ferrule Adapter, Nylon Cable Compression Fitting

Note: Specifications subject to change without notice. 01-12-2018

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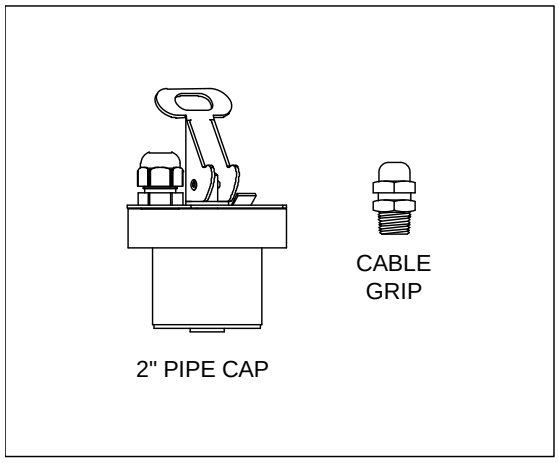
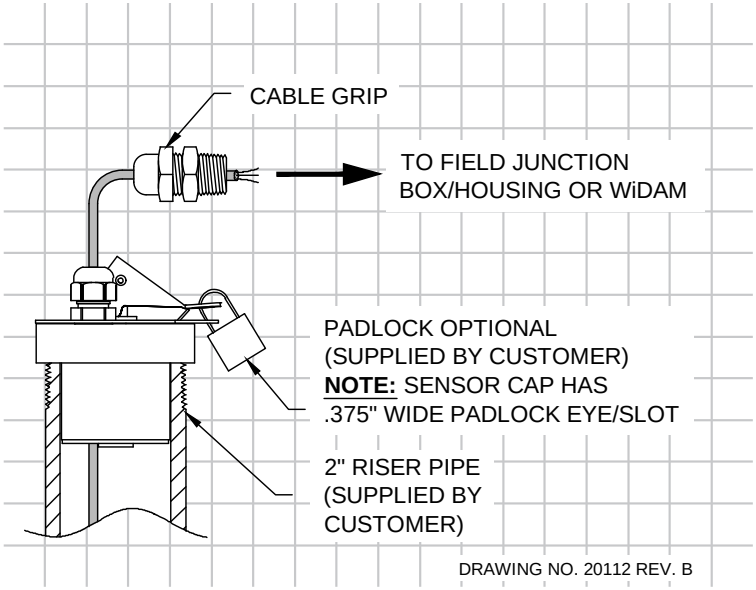
1785 Expressway Drive North
Hauppauge, New York 11788
Tel: 631-293-8450
Fax: 631-293-8533
http://www.pneumercator.com

2” (50 mm) Quick-Release Cap Kit for Double-Wall Leak Sensor Installations

SK2-RM1 KIT





Product Description

The SK2-RM1 Quick-Release Cap provides a water-tight seal where the leak sensor cable exits the tank annular space. This method provides easy installation and servicing by simply releasing and lifting the quick-release cap. The cap accepts a padlock to prevent unauthorized access. The kit includes a 2” (50 mm) quick-release cap with integral cable compression fitting, and an additional cable compression fitting for the field junction box. Refer to the SK2-DM Series for chemical or harsh environment applications.

Applications

- Aboveground Storage Tanks
- Piping Sumps

Specifications

- Materials: SS, Buna-N Rubber and Nylon
- Mount: 2” bung or riser mount.
- Operating Pressure: less than 1 PSIG (7 kPa)

Model Numbers

- SK2-RM1 SS/Buna-N Rubber Cap, Nylon Cable Compression Fitting

PNEUMERCATOR Liquid Level Control Systems

Pneumercator Company, Inc.
1785 Expressway Drive North
Hauppauge, New York 11788

Note: Specifications subject to change without notice. 09-11-2019

Tel: 631-293-8450
Fax: 631-293-8533
http://www.pneumercator.com

Probe

- Technology: Magnetostrictive, Dual Float, w/ reflection resolution doubling
- Accuracy (Minimum):

MP45xS:		MP46x:	
Product Level:	0.0005" (0.013 mm)	Product Level:	0.01" (0.25 mm)
Water Level:	0.001" (0.025 mm)	Water Level:	0.01" (0.25 mm)
Temperature:	0.001 ºF (0.0006 ºC)	Temperature:	0.001 ºF (0.0006 ºC)

- Materials: Shaft: 316 SS or PVDF
  Floats: 316 SS, Buna-N, Urethane, or PVDF
- Mounting: In-Tank Leak Testing: 4" (102mm) diameter riser
  Inventory Only: 2" (51 mm) minimum riser or direct bushing / flange mount
- Temperature Sensing: 5 Thermistors in shaft, 1 in probe head
- Location Approval: UL Class I, Div 1, Groups C and D; cUL Class I, Zone 0, Group IIB
- Operating Temperature: -40 ºF to 175 ºF (-40 ºC to 80 ºC)
- Operating Pressure: 150 PSIG (1034 kPa) 316 SS, 50 PSIG (345 kPa) PVDF
- Field Wiring: 22AWG, 2-Conductor twisted pair w/ shield
  Belden 8441, 8761, Alpha 1736C or equiv., max. length 3000' to 4600' (914 m to 1402 m)
- Models: MP45xS Series rigid SS max. length 24' (7.3 m)
  MP46xS Series flex. PVDF max. length 70' (21.3 m)

Sensors

- ~~ES825-200F~~ Electronic, Discriminating - Containment, Manway and Piping Sumps, Dispenser Pan, Dry Annular, Includes Fault Detection Feature as Standard
- ~~ES825-100F~~ Electronic, Non-Discriminating - Containment, Manway and Piping Sumps, Dispenser Pan, Dry Annular, Includes Fault Detection Feature as Standard
- LS600LD Float, Containment, Manway and Piping Sumps, Dispenser Pan
- ~~LS600xx~~ Multi-Float, High / Low Level and Pump Control
- ~~RSU800~~ Float, Wet Annular / Reservoir
- ~~LS610~~ Float, Dry Annular
- ~~HS100D~~ Polymer / Float – Wet Well, 10' to 25' (3 m to 7.6 m) depth
- ~~HS100ND~~ Polymer – Dry Containment, 1' to 45' (0.3 m to 13.7 m) length

Most sensors are available with Fault-Detect Supervised sensor and wiring option. Add "F" Suffix to Model Number

Remote Displays

- ETD1000 Addressable (up to 16), Multi-Drop, Remote Electronic Tank Display Panel
- ~~TD1000~~ ~~Tandem Remote Display~~

Certifications / Approvals

- UL/cUL Approved, File #E139464
- FCC Part 15B, Part 68
- Third-Party Approved, EPA-Compliant:
  Up to 20,000 Gal. (75,708 liter) tank capacity, minimum tank inventory for test 20%
  0.2 GPH (0.8 LPH) Leak Test: Pd = 99.9%, Pfa = 0.1%
  0.2 GPH (0.8 LPH) Quick Test: Pd = 95%, Pfa = 5%
  0.1 GPH (0.4 LPH) Precision Test: Pd = 95.3%, Pfa = 4.7%
  Up to 75,000 Gal. (283,906 liter) tank capacity, minimum tank inventory for test 50%
  0.2 GPH (0.8 LPH) Leak Test: Pd = 97.3%, Pfa = 2.7%
- NYC, City of LA and various other state and local agencies

Note: Specifications subject to change without notice. 04-01-2015

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Fax: 631-293-8533
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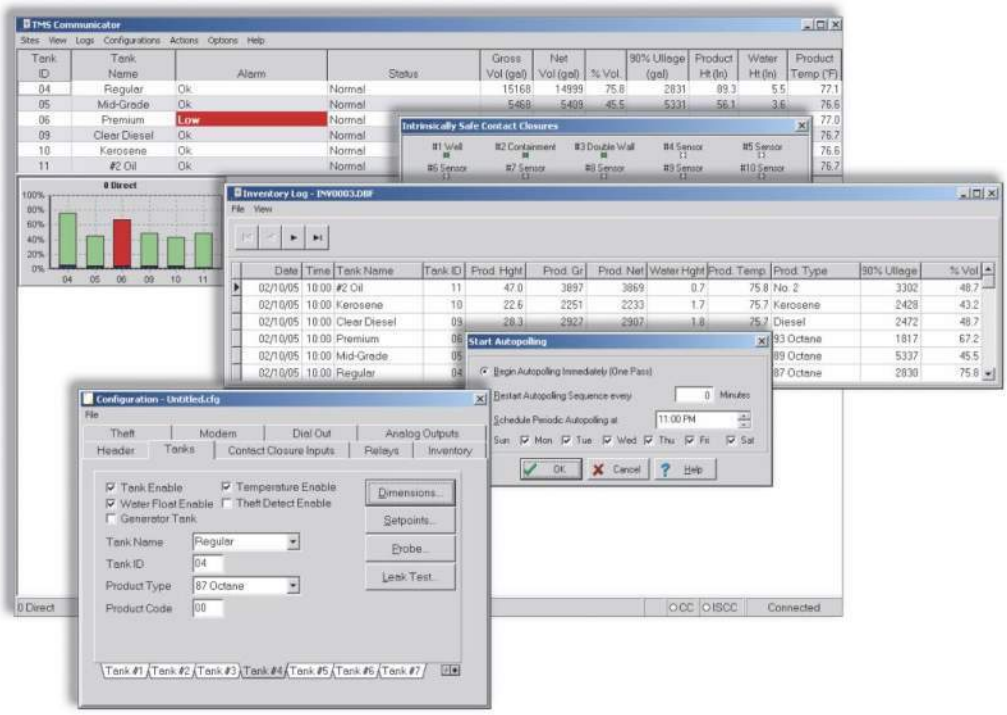
TMS Communicator Provides User-Friendly PC Connectivity for TMS Series Tank Management Systems and LC2000 Alarm Console



Product Description

TMSComm is a fully featured software program developed by Pneumercator to enhance the utility of TMS Series Tank Management Systems and LC2000 Alarm Console by providing remote access to all system features through a simple, user-friendly PC Windows® interface. This interface provides real-time tank gauging data and associated alarms, leak/point-level sensor statuses, historical log data, read/write system configuration data and firmware uploads, all in easy-to-read tabular, spreadsheet or bar graph formats. TMSComm can also be used off-line to create and save TMS/LC2000 configuration files for upload at a later time either remotely or by an on-site technician with a directly-connected laptop. Connectivity is supported via direct-connect serial, Ethernet TCP/IP LAN/WAN or modem communications, in any combination, to an unlimited number of sites. An additional feature of TMSComm is the included AUTOPOLL application that provides an automated polling and data collection process selectable by site and by task that includes e-mail alerts. Both TMSComm and AUTOPOLL can be run in the background, so a dedicated PC is not required.

Features

- View current tank inventory, alarms and statuses in easy-to-read tabular and/or bar graph formats. Real-time tank data includes Gross Volume, Net Volume (temperature-corrected volume), % Volume, Ullage, Product and Water Level, Volume-weighted Average Product Temperature. Alarms include Product and Water Setpoints, Leak/Point-Level Sensors, Contact Closure Input, Theft, In-Tank Leak and System Errors.
- View current status of leak/point-level sensors and contact closure inputs
- Retrieve TMS/LC2000 historical logs and generate hardcopy reports at the PC. Reports include Inventory, Delivery, Bulk Sales, Thefts, Product Ordering, Water Removal, Alarms, Events, In-Tank Leak Test Results and Leak Test History.
- Perform configuration and setup programming functions either on-line to the TMS/LC2000 or off-line to a file for later upload
- Remotely upload firmware updates to flash memory
- Supports direct-connect serial, Ethernet TCP/IP LAN/WAN or modem communications
- Autopolling capability with site-specific tasking functions permits automatic, unattended polling of hundreds of locations.
- E-mail alerts supported.
- TMSCOMM and AUTOPOLL can run in background so a dedicated computer is not required.
- Unlimited site setup capacity

PNEUMERCATOR
Liquid Level Control Systems

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1785 Expressway Drive North
Hauppauge, New York 11788

Tel: 631-293-8450
Fax: 631-293-8533
http://www.pneumercator.com

System Requirements

- OS: Windows 2000 SP4, XP SP3, Vista, Windows 7, Windows 8, Windows 8.1, Windows 10, 32 or 64-bit
- OS Prerequisites (Windows 2000 and XP): Installer 3.1, .NET Framework 2.0, MSXML
- RAM: 512MB Minimum
- CPU: Pentium III class or higher, 500 MHz Minimum

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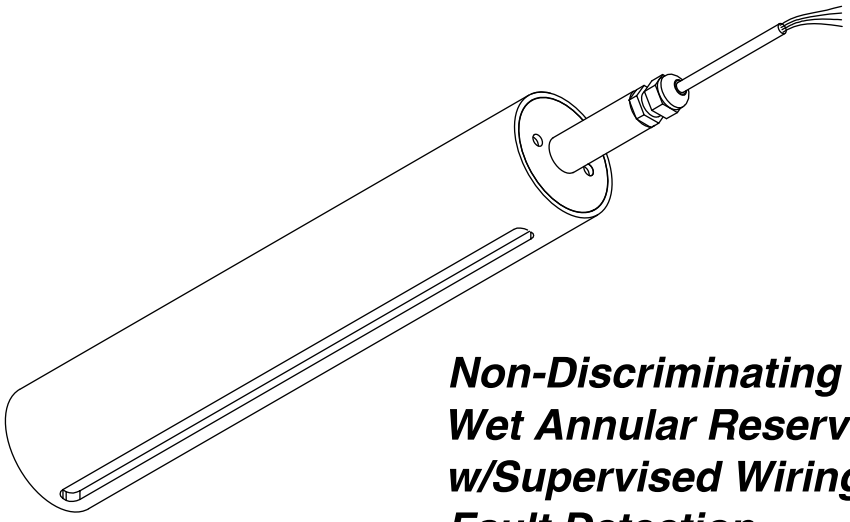
PNEUMERCATOR
Liquid Level Control Systems

RSU801F Reservoir Sensor Installation Instructions

This float sensor monitors the brine level in the reservoir for the interstitial monitor of the underground fuel tank.



Non-Discriminating Wet Annular Reservoir Sensor w/Supervised Wiring and Fault Detection

For use with the following consoles:

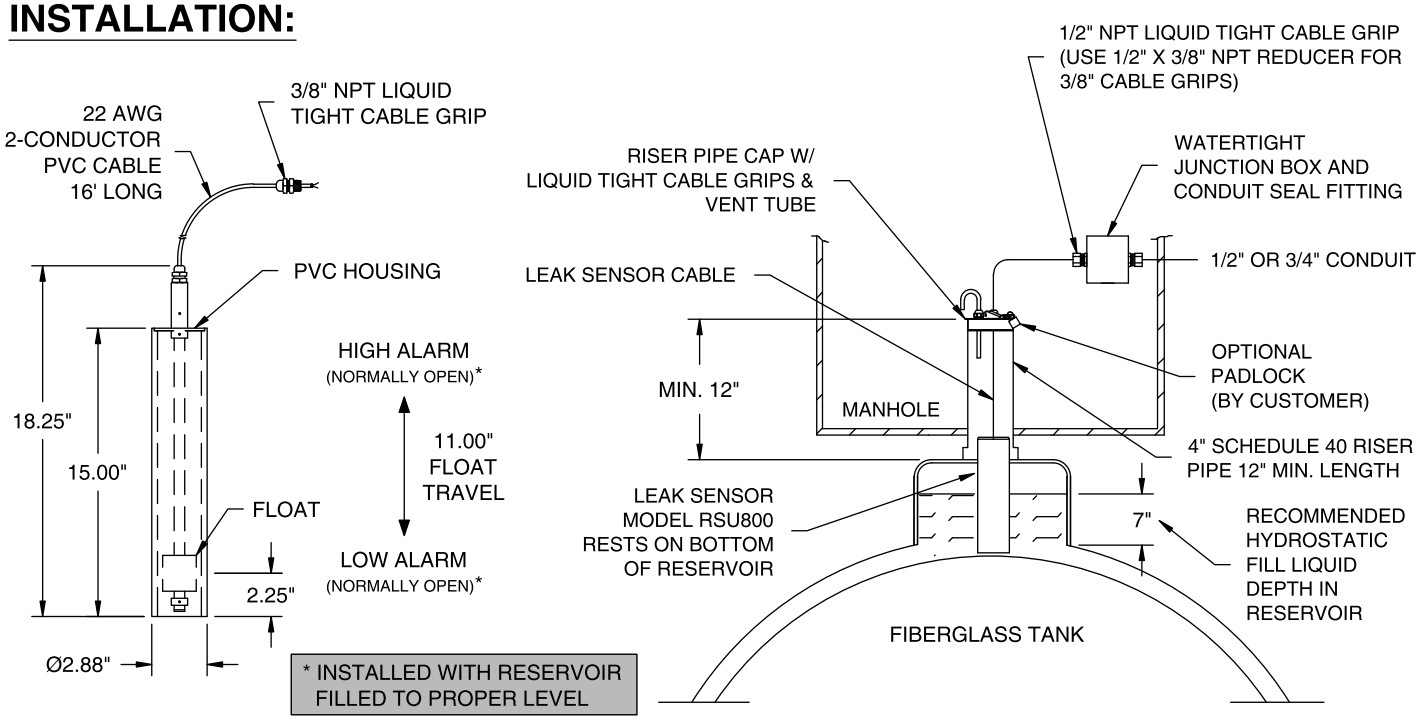
LC2000	**TMS2000**
TMS3000	

TEL: (631) 293-8450
FAX: (631) 293-8533
WEBSITE: www.pneumercator.com
PNEUMERCATOR TECHNICAL SUPPORT
1 (800) 209-7858

PRODUCT DESCRIPTION: Model RSU801F is a single float normally open sensor that detects level changes within the reservoir. A breach of the inner or outer tank wall will trigger an alarm, as the reservoir level changes. Fluctuations due to temperature and barometric pressure changes should not trigger an alarm. Sensor is non-discriminating (one alarm for high and low levels) requiring (1) N.O. input. When connected with a LC2000 or TMS series controller, they support Pneumercator's FAULT-DETECT supervised wiring technology, which automatically detects sensor or field wiring faults.

APPLICATIONS: This Secondary Containment Leak Sensor is designed to monitor brine or glycol fluid levels in fiberglass double wall tank reservoirs.

INSTALLATION:



***NOTE:** Before installation, mark the sensor at 7" from the bottom. The reservoir level must be maintained at or very near this level to avoid false alarms due to level fluctuations.*

1. All sensors must be tested before installation. Manually move the floats to set off the alarm from the high and low positions.

2. Fit the reservoir with a 4" RISER PIPE (12" min. length) and CAP, supplied by the installer. The riser cap should have a 3/8" NPT tapped hole to accept the cable grip connector supplied by PNEUMERCATOR. Use a riser pipe with a vent tube only if local installation codes require one.

3. Thread the supplied connector into the cap's tapped hole using sealing compound as required.

4. Slowly lower the sensor into the riser until it rests on the reservoir bottom. The top portion should extend into the riser pipe for support from tipping over. The liquid level in the reservoir should be at about 7 inches up the sensor's height for optimum performance.

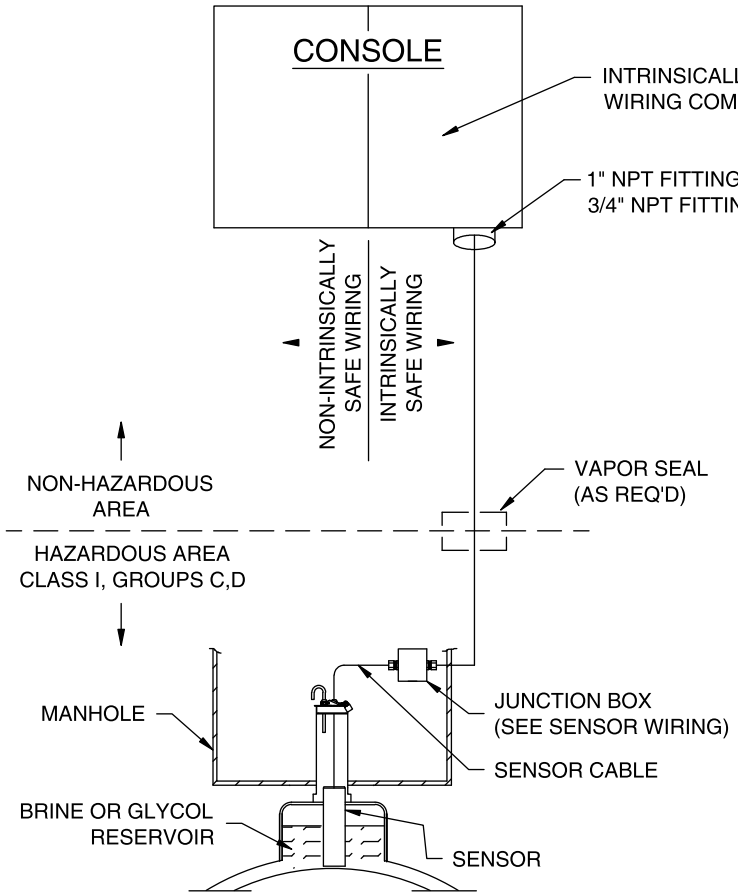
5. Feed the sensor cable through the bottom of the connector in the cap. Leave just enough slack inside the riser pipe so the sensor remains on the bottom, and will not tip over.

6. Mate the riser and cap; then tighten the connector over the cable to ensure a watertight seal.

WIRING:

⚠ WARNING

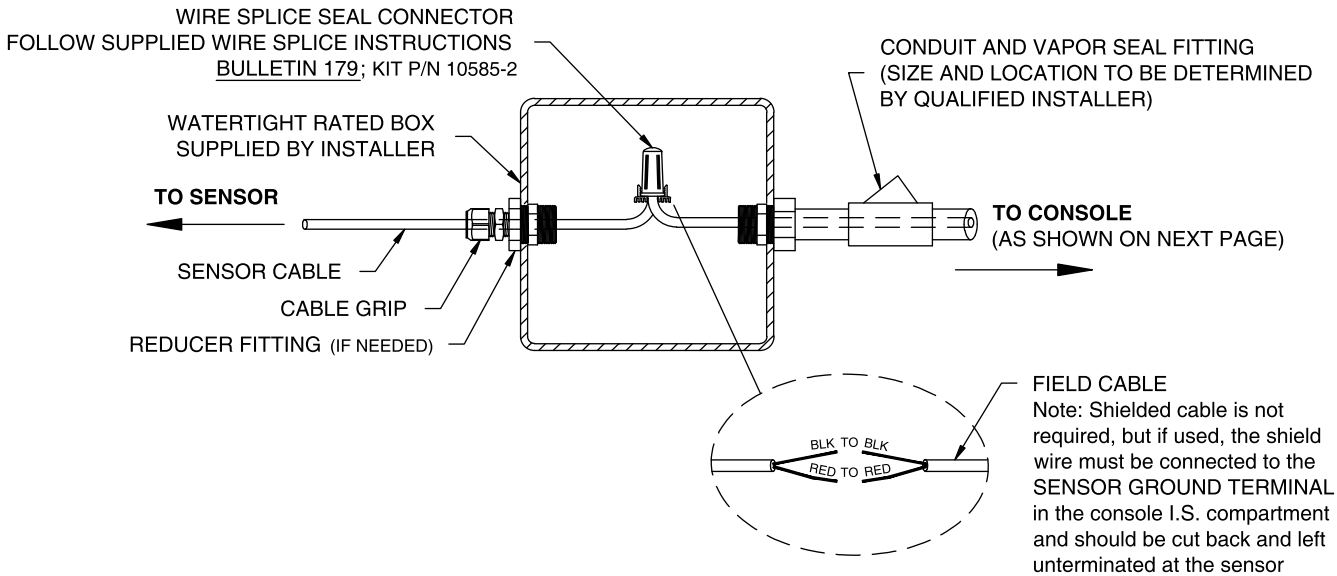
Refer to console installation manual for WARNINGS and CAUTIONS before proceeding. FAILURE TO COMPLY MAY RESULT IN PERSONAL INJURY, PROPERTY LOSS AND EQUIPMENT DAMAGE.



CABLE SELECTION:

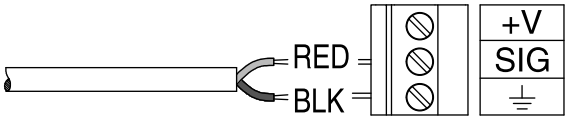
Use Belden 8442 or Alpha 1172C or any equivalent 2-conductor, 22 AWG cable, refer to console installation manual for more cable selection and limitation information. Shielded cable is not required, but if used, the shield wire must be connected to the SENSOR GROUND TERMINAL in the console I.S. compartment and should be cut back and left unterminated at the sensor junction box.

TYPICAL WIRING FOR SENSOR

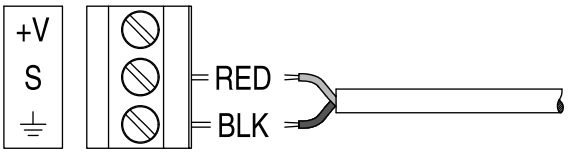


WIRING CONT'D:

LC2000 SENSOR INPUT WIRING



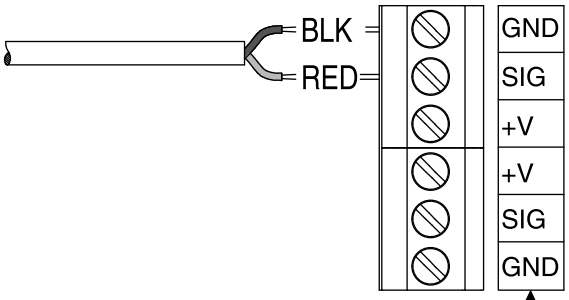
TMS2000 SENSOR INPUT WIRING



NOTE: "S" = SIGNAL AND IS CONSECUTIVELY NUMBERED "S1" THROUGH "S8" ON THE TMS2000 CIRCUIT BOARD

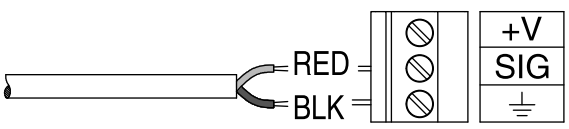
TMS3000 SENSOR INPUT WIRING

4-PROBE/8-SENSOR CARD WIRING



NOTE THE REVERSE ORDERING OF SENSOR INPUT NAMES

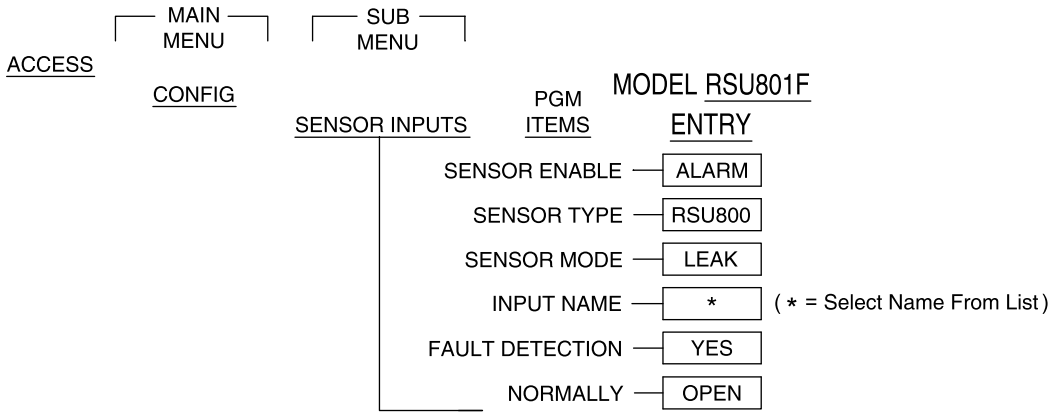
16-SENSOR CARD WIRING



LC2000 PROGRAMMING: Configure the LC2000 to activate the installed monitoring sensors. Programming can be accomplished from the LC2000 front panel. Refer to installation manual and/or label located inside the console behind the front door for additional programmng information.

PROGRAM Mode LED Indicators		MODEL RSU801F ENTRY
SENSOR	OFF = DISABLED, ON (2 Fast Blinks) = ALARM, ON (3 Slow Blinks) = RELAY	ALARM
NO/NC	OFF = NC, ON = NO	ON
FAULT DETECT	OFF = DISABLED, ON = ENABLED	ON

TMS PROGRAMMING: Configure the TMS to activate the installed monitoring sensors. Programming can be accomplished either from the TMS front panel or via TMSCOMM software. Programming is as follows for both Model TMS2000 and Model TMS3000.



PERIODIC TESTING: Test to ensure proper operation of sensor by performing the following steps:

1. Remove the sensor from the reservoir. This should activate the alarm from the low level position.
2. Move the float to the middle, no alarm condition. Reset any alarms on the control panel. The system should now be in normal condition.
3. Turn the sensor upside down to activate the high alarm. Reset the control panel.
4. Return the sensor to the reservoir.

PST Super Guide: A Comprehensive Guide to Compliance in Texas

A comprehensive guide to issues relating to PSTs, divided by subject into 15 modules.

State rules for petroleum storage tanks set technical standards that regulated PSTs must meet. (**30 TAC Chapter 334**)

- **RG-475a**: Buying or Selling a Property with Underground Storage Tanks
- **RG-475b**: Installing a New or Replacement Underground Storage Tank
- **RG-475c**: Licensed Underground Storage Tank Contractors
- **RG-475d**: Petroleum Storage Tank Registration and Self-Certification
- **RG-475e**: Preventing Petroleum Storage Tank Spills and Overfills
- **RG-475f**: Protecting Petroleum Storage Tanks Against Corrosion
- **RG-475g**: Petroleum Storage Tank Release Detection and Inventory Control
- **RG-475h**: Suspected Releases from Petroleum Storage Tanks
- **RG-475i**: Financial Assurance for Petroleum Storage Tanks
- **RG-475j**: Gasoline Stage I and II Vapor Recovery
- **RG-475k**: Who Regulates Petroleum Storage Tanks?
- **RG-475l**: Temporarily Removing Petroleum Storage Tanks from Service
- **RG-475m**: Permanently Removing Petroleum Storage Tanks from Service
- **RG-475n**: Aboveground Petroleum Storage Tanks
- **RG-475o**: Training for Underground Storage Tank Operators: A guide for owners and operators of USTs

Small Business and Local Government Assistance Home

Air Compliance Resources

Water Compliance Resources

Waste Compliance Resources

The Advocate: Email Updates

Compliance Assistance Videos

How are we doing? Take our customer satisfaction survey

Revised April 2022
RG-543

Compliance Notebook for Underground Storage Tanks

Program Support and Environmental Assistance Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

printed on
recycled paper

Underground Storage Tank Compliance Notebook

Facility Name _____

Address _____

PST ID Number _____

Contact Name _____

Contact Information _____

Prepared by
Program Support and Environmental Assistance Division

RG-543
Revised April 2022

Copies of this publication are available for public use through the Texas State Library, other state depository libraries, and the TCEQ Library, in compliance with state depository law. For more information on TCEQ publications visit our website at:

tceq.texas.gov/publications

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by the
Texas Commission on Environmental Quality
P.O. Box 13087
Austin TX 78711-3087

How is our customer service? tceq.texas.gov/customersurvey

Contents

How to Use This Notebook

This compliance notebook is for owners and operators of underground storage tanks (USTs) and UST systems.

Use this notebook as a template to organize your facility's records and show compliance with requirements. There are log sheets, links to applicable forms, references to regulations, record retention timeframes, and other technical guidance included in each section. The log sheets are suggested templates to help you collect required information. Some sample reports have multiple versions to show different reporting system formats.

Place records from your system in their appropriate section to keep them organized.

The information in this document may be subject to change with policy and rule changes.

Where to Find More Information

- Request records from TCEQ by contacting the **Central Records Section** at (512) 239-2900 or cfrreq@tceq.texas.gov.
- Search for TCEQ forms[1] using a keyword, form number, or subject.
- Review the *Petroleum Storage Tank (PST) Super Guide*[2] (TCEQ publication RG-475). A comprehensive guide to following PST regulations in Texas.

1. www.tceq.texas.gov/search_forms.html
2. www.tceq.texas.gov/assistance/industry/pst/rg-475

Find applicable rules in the following chapters of Title 30, Texas Administrative Code[3] (30 TAC):

- **Chapter 37:** Financial Assurance
- **Chapter 113:** Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants
- **Chapter 115:** Control of Air Pollution from Volatile Organic Compounds
- **Chapter 334:** Underground and Aboveground Storage Tanks

This document is a general guide to laws and regulations about USTs and an aid to minimize potential health risks. It does not replace those laws and regulations, which take priority over any information supplied here.

If your tank system is in Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, or Williamson County, you may have other requirements related to protecting the Edwards or Trinity aquifers. See 30 TAC Chapters 213 and 214 for more information.

Local governments and other state and federal agencies may have more rules and requirements. As the owner or operator of the UST, you must ensure compliance with all applicable laws and regulations.

If you sell motor fuels, register your facility with Texas Department Licensing and Registration (TDLR). Renew your registration each year and keep TDLR Consumer Information stickers on each side of your dispensers.

- Find more information on TDLR's Registration for Motor Fuel Metering Devices[4] webpage.

If you have questions or need more information about UST requirements, please refer to the Small Business and Local Government Assistance (SBLGA) webpage[5] or call the SBLGA Hotline at 800-447-2827 or email us at TexasEnviroHelp@tceq.texas.gov.

3. www.tceq.texas.gov/goto/view-30tac
4. www.tdlr.texas.gov/fmq/fmqforms.htm
5. www.texasenvirohelp.org

Rule Citations

The rules that apply to USTs are listed below. Rule citations are from 30 TAC Chapter 334 unless otherwise stated.

Definitions
- 334.2

Construction Notification
- 334.6

Registration and Self-Certification
- 334.7
- 334.8

Reporting and Recordkeeping
- 334.10

General Standards
- 334.42

Implementation Schedules
- 334.44

Technical Standards for New UST Systems
- 334.45

Technical Standards for Existing UST Systems
- 334.47

General Operating and Management Requirements
- 334.48

Corrosion Protection
- 334.49

Release Detection
- 334.50

Spill and Overfill Prevention and Control
- 334.51

Temporary Removal from Service
- 334.54

Permanent Removal from Service
- 334.55

Release Reporting and Corrective Action
- 334, Subchapter D

Operator Training
- 334, Subchapter N

Financial Assurance
- Chapter 37, Subchapter I

Stage I and Stage II Vapor Recovery
- Chapter 115, Subchapter C

Definitions

334.2(85) Petroleum storage tank (PST): Any one or combination of aboveground storage tanks, underground storage tanks, and all connecting underground pipes that contain petroleum products.

334.2(120) Underground storage tank (UST): A storage tank and any connecting underground pipes used to contain a regulated substance, when the volume of the tank and connecting underground pipes is 10% or more beneath the surface of the ground.

334.2(4) Aboveground storage tank (AST): A storage tank and any associated piping designed to contain petroleum products that is located above the surface of the ground or the floor of an underground structure (such as a basement or vault). They are non-vehicular and made of non-earthen materials.

334.2(84) Petroleum product: A petroleum substance obtained from distilling and processing crude oil that is liquid at standard conditions of temperature and pressure, and capable of being used as a fuel for the propulsion of a motor vehicle or aircraft. Petroleum products include, but are not limited to:

- Motor oil and aviation gasoline
- Gasohol and other alcohol blended fuels
- Kerosene
- Distillate fuel oil
- Number 1 and Number 2 diesel
- Biodiesel blended with Number 1 or Number 2 diesel

The definition does not include naphtha-type jet fuel, kerosene-type jet fuel, or a petroleum product for use in chemical manufacturing.

334.2(96) Regulated substance: An element, compound, mixture, solution, or substance that, when released into the environment, may present substantial danger to the public health, welfare, or the environment. For petroleum storage tanks, this includes any:

- Petroleum substance.
- Mixture of two or more hazardous substances or petroleum substances.
- Other substance designated by TCEQ to be regulated under 30 TAC 334.

For specific rule language on these and other definitions, please see 30 TAC 334.2.

Registration and Self-Certification Records

Applicable Regulations: 30 TAC 334.7, 30 TAC 334.8, and 30 TAC 334.10

Get Registration and Delivery Certificates

Unless it is exempt or excluded, register your underground storage tank (UST) and tell us about any changes within 30 days.

- See 30 TAC 334.3 for UST exemptions[6] and 30 TAC 334.4 for UST exclusions.[7]

To receive fuel deliveries, certify each year that your UST meets rule requirements.

- Renew your certification **at least 30 days before it expires**.
- Post a copy of your certificate at your facility so it is visible during fuel deliveries.

To register and self-certify, submit a PST registration and self-certification application online[8] through STEERs or complete a Registration and Self-Certification form[9] (TCEQ-00724) and either:

- Fax to: (512) 239-3398
- Mail to:

  Petroleum Storage Tank Registration Team (MC-138)
  Texas Commission on Environmental Quality
  P.O. Box 13087
  Austin, TX 78711-3087

Make sure the numbers you assign to tanks and compartments on your registration match the physical numbers at your facility.

Keep Records

Keep copies of:

- Completed Registration and Self-Certification forms or confirmation of STEERS submissions
- Temporary delivery authorizations (if you received one)

Keep all records for **at least 5 years**.

Attachments

1. *Figure 1. Delivery Certificate Example*

6. www.tceq.texas.gov/goto/ust-exemptions
7. www.tceq.texas.gov/goto/ust-exclusions
8. www.tceq.texas.gov/goto/steers
9. www.tceq.texas.gov/goto/00724

Notes

Figure 1. Fuel Delivery Certificate Example

Texas Commission on Environmental Quality
Petroleum Storage Tank Program

Delivery Certificate

(Non-Transferable)

Expires Last day of:
September 2021
TCEQ Form PST05 (5-10-11)
For The Commission

This hereby certifies that the underground storage tanks (USTs) at the facility identified herein have been self-certified as compliant with all technical and administrative standards for fuel delivery purposes. This certificate verifies self certification only, and does not certify that the listed USTs are in compliance with TCEQ's Technical and Administrative requirements. *Prior to retail sale of fuel to the public using measured dispensing devices, any meter must be registered with the Texas Department of Agriculture.*

Owner/Operator #: 000000

PETROLEUM STORAGE COMPANY, LLC

PO BOX 123

CITY, TX 12345-6789

Facility #: 0000000

CITY GAS STATION

1234 STATE HIGHWAY 63

CITY, TX 12345-6789

Self-Certified UST's: 1, 2A, 2B

For the specific time period and the Underground Storage Tanks (USTs) indicated, this certificate verifies self-certification by the tank owner or operator of compliance with TCEQ rule requirements listed at 30 TAC Sec. 334.8(c)(3)(D) [regarding tank registration, payment of registration fees, UST financial responsibility (e.g., insurance), and technical standards (release detection, spill/overfill prevention, corrosion protection & variances issued by the agency to any of these standards)]. The Texas Water Code Sec. 26.346 requires the tank owner or operator to accurately complete the parts of the registration and self-certification form pertaining to the self-certification of compliance with UST administrative requirements and technical standards.

- *After 12/22/98, the state's petroleum storage tank remediation (PSTR) fund is no longer an acceptable UST financial responsibility mechanism for corrective action. Owners or operators of regulated petroleum USTs must now maintain required coverage for BOTH corrective action AND third-party bodily injury/property damage by other allowable mechanisms (e.g., insurance).*
- *If a confirmed petroleum release from an eligible storage tank was first discovered and reported to the TCEQ after 12/22/98, none of the associated cleanup costs are eligible for reimbursement or payment from the state's PSTR fund. [Water Code 26.3512(b)(5)].*
- *Prior to retail sale of fuel to the public using measured dispensing devices, any meter must be registered with the Texas Department of Agriculture.*

TCEQ LPS Form PST05A (05-10-11) **http://www.tceq.texas.gov/permitting/registration/pst/pst_query.html**

Notes

Financial Assurance Records

Applicable Regulations: 30 TAC 37 Subchapter I and 30 TAC 334.10

Get Financial Assurance

You must have proof of financial assurance that includes corrective action and third-party liability.

- **Corrective action** covers the cost to cleanup accidental releases from USTs.
- **Third-party liability** compensates others for physical harm and property damage caused by such releases.

The amount of financial assurance you need varies between facilities.

Your options include:

- **Insurance or surety bond** through an insurance agent.
- **Financial test**, a self-insurance used by large companies.
- **Corporate guaranty**, a self-insurance by a parent company.
- **Trust or letter of credit** through a bank or credit union.
- **Local-government financial test**, a self-insurance for local governments.

Whichever you choose, it must meet the requirements in 30 TAC 37, Subchapter I[10] and use the **exact** wording of the rule samples found there.

- See our guide to *Financial Assurance for PSTs*[11] (RG-475i) for more information.

Keep Records

Keep a copy of your current Certificate of Insurance or other proof of financial assurance such as a letter of credit from a bank or account.

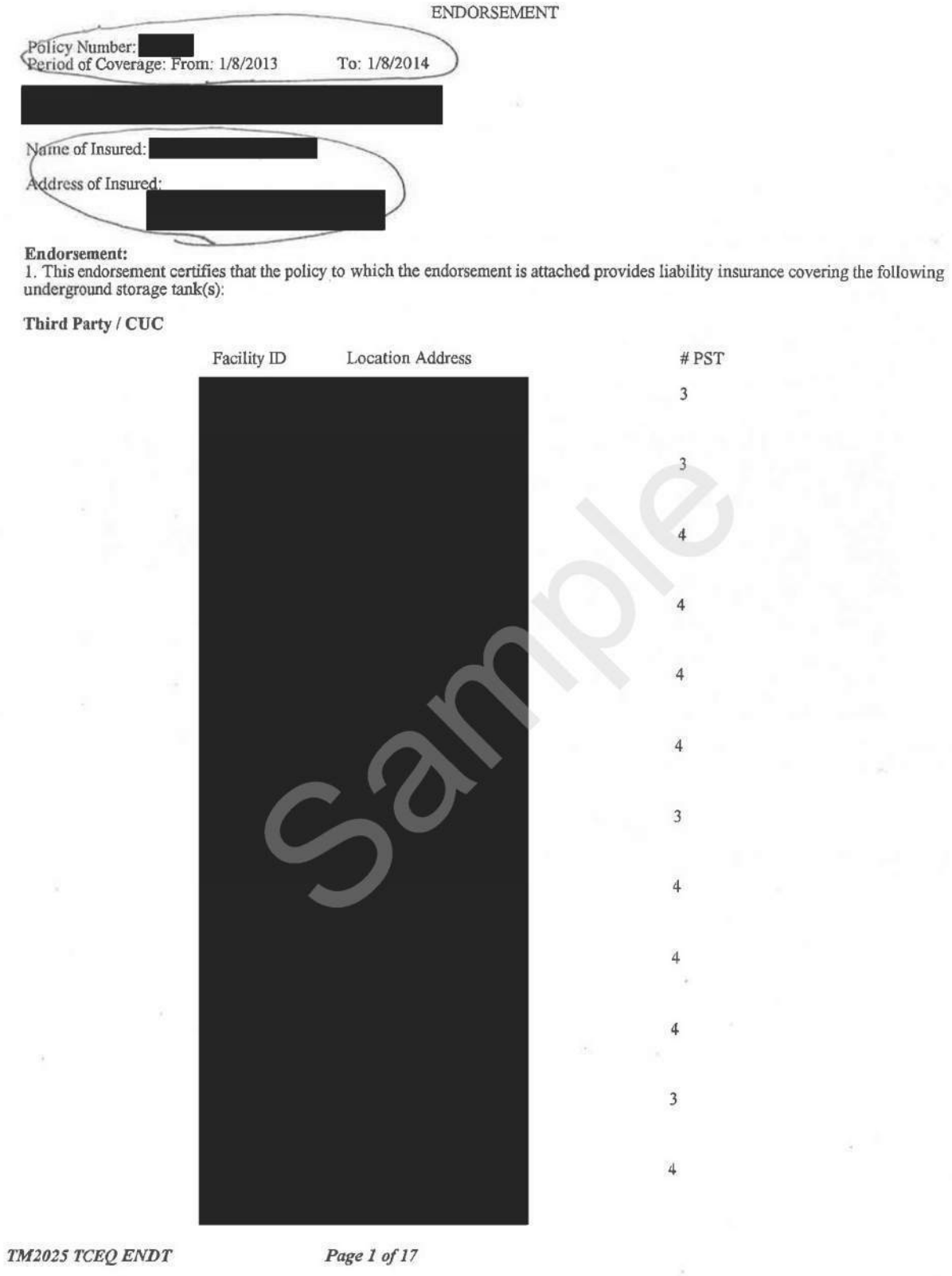
Attachments

1. *Figures 2 and 3. Certificate of Insurance Example (First and Last Page)*

10. www.tceq.texas.gov/goto/pst-financial-assurance
11. www.tceq.texas.gov/downloads/assistance/publications/rg-475i-financial-assurance-for-petroleum-storage-tanks

Notes

Figure 2. Financial Assurance for PSTs Example (First Page)



ENDORSEMENT

Policy Number: [redacted]
Period of Coverage: From: 1/8/2013 To: 1/8/2014

[redacted]

Name of Insured: [redacted]

Address of Insured: [redacted]

Endorsement:
1. This endorsement certifies that the policy to which the endorsement is attached provides liability insurance covering the following underground storage tank(s):

Third Party / CUC

Facility ID	Location Address	# PST
[redacted]	[redacted]	3
		3
		4
		4
		4
		4
		3
		4
		4
		4
		3
		4

TM2025 TCEQ ENDT *Page 1 of 17*

Figure 3. Financial Assurance for PSTs Example (Last Page)

[redacted] 3

3

for taking corrective action and/or compensating third parties for bodily injury and property damage caused by accidental releases; in accordance with and subject to the limits of liability, exclusions, conditions, and other terms of the policy; arising from operating the underground storage tank(s) identified above.

The limits of liability are **$1000000** for each occurrence and **$3000000** for the annual aggregate, exclusive of legal defense costs. This coverage is provided under Policy Number [redacted] The effective date of said policy is: **1/8/2013**

2. The Insurance afforded with respect to these occurrences is subject to all the terms and conditions of the policy; provided, however, that any provisions inconsistent with subparagraphs (a)-(e) of this paragraph are to be amended to confirm with these subparagraph:
   a. Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy to which this endorsement is attached.
   b. The Insurer is liable for the payment of amounts within any deductible applicable to the policy, to the provider of corrective action or a damaged third party, with a right of reimbursement by the insured for any payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated under another mechanism or combination of mechanisms as specified in Title 30, TAC, §37.825 of this title, §37.830 of this title, §37.835 of this title, §37.840 of this title, §37.845 of this title and §37.850 of this title.
   c. Whenever requested by the Executive Director of the Texas Commission on Environmental Quality (TCEQ), the Insurer agrees to furnish to the Executive Director a signed duplicate original of the policy and all endorsements.
   d. Cancellation or any other termination of the insurance by the Insurer, except for non-payment of premium or misrepresentation by the insured, will be effective only upon written notice and only after the expiration of 60 days after a copy of this written notice is received by the insured. Cancellation for non-payment of premium or misrepresentation by the insured will be effective only upon written notice and only after expiration of a minimum of ten days after a copy of such written notice is received by the insured.
   e. The insurance covers claims otherwise by the policy that are reported to the Insurer within six months of the effective date of cancellation or non-renewal of the policy except where the new or renewed policy has the same retroactive date or a retroactive date earlier than that of the prior policy, and which arise out of any covered occurrence that commenced after the policy retroactive date, if applicable, and prior to such policy renewal or termination date. Claims reported during such extended reporting period are subject to the terms, conditions, limits including limits of liability, and exclusions of the policy.

I hereby certify that the wording of this instrument is identical to the wording in Title 30, Texas Administrative Code, §37.835 (b) (1) and that the Insurer is licensed to transact the business of insurance in Texas.

[redacted]

Authorized Representative of [redacted]

TM2025 TCEQ ENDT *Page 17 of 17*

Corrosion Protection Records

Applicable Regulations: 30 TAC 334.10 and 30 TAC 334.49

Protect Underground Components from Corrosion

Protect all underground metal components of a UST system that hold or convey regulated substances from corrosion. Some of these components include tanks, piping, valves, fittings, flexible connectors, swing joints, and shear valves.

Potential corrosion protection methods include components that are:

- Made from noncorrodible material
- Kept electrically isolated from surrounding soil, backfill, or water
- Coated with dielectric material and equipped with factory- or field-installed cathodic protection systems

Use tanks that are factory-constructed as:

- A composite of steel and fiberglass-reinforced plastic (FRP)
- Steel bonded with an external FRP cladding, laminate, or coating
- Steel bonded with an external polyurethan coating
- Steel completely contained within a nonmetallic tank jacket

For more information, see our guide to *Protecting PSTs Against Corrosion*[12] (RG-475f).

Keep Records

Table 1 on page 17 shows your record-keeping options depending on the type of equipment and protection you use. Choose **at least one** option for each piece of equipment at your facility that requires corrosion protection.

Keep copies of all records for **at least 5 years**.

Attachments

1. *Table 1. Record Options for Corrosion Protection*
2. *60-Day Rectifier Inspection Instructions and Log Sheet*
3. *Figure 4. FRP Tank "Ribs" Seen Through Sump Opening*
4. *Figure 5. FRP Tank "Ribs" Seen Through Internal Camera Survey*
5. *Figure 6. Remote Structure-to-Soil Test Results and Summary Example*
6. *Figures 7, 8, and 9. Comprehensive UST System Survey Example (Pages 1 through 3)*

12. www.tceq.texas.gov/downloads/assistance/publications/rg-475f-protecting-underground-storage-tanks-against-corrosion

Notes

Table 1. Record Options for Corrosion Protection

Equipment	Type of Protection	Record Options
Tanks or piping	FRP	Installation records such as an original invoice or a delivery manifest for a tank; **or** A written statement from a licensed professional[a] saying the equipment is FRP or does not need cathodic protection and either: • Photographs of the tank or piping that clearly show FRP construction. • Magnet test results summarizing that the tank is FRP.
Tanks only	Composite, clad, or jacketed steel	Installation records such as an original invoice or a delivery manifest for the tank; **or** A written statement from a licensed professional saying the tank is protected from corrosion and either: • Photographs showing a permanent, factory-applied tag or label clearly displaying tank brand and model or a specification from an acceptable industry code or practice. • Remote structure-to-soil or local tank-to-soil test results with a summary showing the tank is protected from corrosion.
Any metal components[b]	Cathodic system	A 60-day rectifier inspection log for impressed current systems, initial cathodic protection system testing at installation and 3 to 6 months later, **and** 3-year test results.

a. Licensed professionals include UST contractors, on-site supervisors, corrosion technicians, or corrosion specialists.
b. Such as tanks, piping, or equipment in sumps and manways.

Notes

60-Day Rectifier Inspection: Instructions

Check Your Rectifier Status

If you have a cathodic protection system for any metal equipment, check your rectifier's status **at least once every 60 days**.

Document Rectifier Data and Operational Checks

If using our rectifier inspection log sheet, include information about your impressed current system rectifier in the rectifier data table. Use a different sheet for each rectifier if you have more than one.

In the status log table, record the dates you check the system's status. If your rectifier has a meter, also record:

- Output voltage and current
- Number of hours listed

Note any significant difference on the log sheet and report it to your corrosion professional so you can make any necessary repairs or adjustments.

If using your own record-keeping method, document the same information described in our log.

Update Every 60 Days and Keep with Records

Update your log sheets after each status check and keep them in your records for **at least five years** for TCEQ inspections.

Notes

60-Day Rectifier Inspection: Log Sheet

Rectifier Data

Manufacturer and Model		**Serial Number**	
Rated DC Output (Volts)		**Rated DC Output (Amps)**	
Rectifier Output* (Volts)		**Rectifier Output* (Amps)**	

**Record the "as designed" or most recently recommended rectifier output.*

Status Log

Date	Rectifier Turned	Tap Setting (Coarse)	Tap Setting (Fine)	DC Output (Volts)	DC Output (Amps)	Hour Meter	Inspector Initials	Comments

Notes

Figure 4. FRP Tank "Ribs" Seen Through Sump Opening

Figure 5. FRP Tank "Ribs" Seen Through Internal Camera Survey

Notes

Figure 6. Remote Structure-to-Soil Test Results and Summary Example

SECTION 2 FIELD INSPECTION RESULTS

Mr. [redacted] (NACE Cert. # [redacted]) was on site on [redacted] to inspect and test the corrosion system.

A structure to soil test was performed with a M.C. Miller copper-copper sulfate reference cell and a Fluke 87 V multi-meter on each tank with the following results.

Tank ID	Product	Fill Top	Fill Bottom	Dispenser	Vent
Tank 1A	Unleaded	-.246	-.504	-.883	-.607
Tank 1B	Diesel	-.733	-.501	-.861	-.606

Tank and Line Type:

The State database indicates the tanks are **FRP**.
The State database indicates the product lines are **FRP**. This is a **Suction** piping system.

FIELD NOTES: All parts of the underground storage tanks are electrically isolated from each other.
The TCEQ Database indicates the tanks are FRP. The field technician protocol is to determine what type tank is being tested. The protocol consists of the following minimum steps for this facility:

1. Determine if the fill risers, sub-pumps or any other risers are electrically continuous or isolated from the tank structure. This can determine if the tank is FRP (isolated), Composite like the STI-P3 or ACT-100 style (isolated with a dielectric bushing) or Steel (continuous).
2. Determine the material substance of tank construction using a powerful Neodymium Magnet. Although FRP tanks may have a metallic striker plate, the magnetic force is significantly less for a FRP tank. The magnet readily identifies and distinguishes between Steel or Composite tanks and FRP tanks.
3. Survey Readings: The electrical millivolt readings are collected from several parts of the UST system with a moving reference cell. Each tank type has a unique set of readings that are consistent with the particular tank (FRP, Steel, Composite ACT-100 style and Composite STI-P3 style).

Although the tanks are listed as FRP, the protocol indicates the tanks are probably Composite. A record search of the tank installation should be conducted to determine this conclusively.
Soil conditions were extremely dry.

SECTION 3 OBSERVATIONS AND RECOMMENDATIONS

The results of the test indicate that the Underground Storage Tank system meets or exceeds the USEPA and TCEQ standard for corrosion protection at the time of the test.

SECTION 4 ADDITIONAL DOCUMENTS AND SITE PHOTOGRAPHS

Notes

Figure 7. Comprehensive UST System Survey Example (Page 1)

Work Order: [redacted]

[redacted]

I. SCOPE:

A UST system survey was conducted on [redacted] for [redacted] at [redacted] The purpose of this survey was to determine if the UST system meets corrosion protection requirements. Structure-to-soil potential measurements, tank diameter measurements, current requirement testing and tank magnet testing were included in the survey and the results are included herein. The results of the survey indicate the UST facility consists of one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall tanks. The piping consists of double wall non-metallic flexible.

II. RESULTS & ANALYSIS:

The structure-to-soil potential measurements are tabulated on the attached survey data sheets. The remote potential measurements for the one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall tanks risers ranged from -303 millivolts to -659 millivolts. The remote structure-to-soil potential measurements indicated the one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall tanks are electrically isolated from their associated risers. The local tank-to-soil potentials on the one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall tanks ranged from -568 millivolts to -713 millivolts indicating the tanks do not have cathodic protection.

Tank internal diameter measurements were also obtained. The tank diameter measurements for the one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall tanks were 120" for the 15,000-gallon and 10-00-gallon tanks. The diameter for the 6,000-gallon tank was 84". The results of the diameter measurements are not conclusive in determining the 15,000-gallon and 10-00-gallon tanks are steel. The diameter measurement for the 6,000-gallon tank indicates it is steel. Tank magnet testing was performed and a pull indicated all tanks are steel.

Current requirement testing was performed on the tanks by applying current with a 12 DC battery and temporary anode in order to confirm tank electrical isolation/continuity and estimate tank coating type. The current requirement testing was also tabulated on the attached survey data sheets. The potential shifts between current on and current off for the tanks indicate the tanks have a quality coating indicative of the composite tank type.

Figure 8. Comprehensive UST System Survey Example (Page 2)

Work Order: [redacted]

Finally, the external tank coating measurements were recorded. The tank external coating thickness was measured utilizing a Postector 6000 coating thickness gauge. The external coating thickness measurements for the one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall tanks were 209, 184, 176 and 208 mils. The tank external coating thickness readings indicate the one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall tanks exceed the thickness requirement for composite steel tank type. The tanks were also visually inspected and were determined to have blue pigment which is indicative of a composite steel tank type.

III. CONCLUSIONS:

The results of the remote structure-to-soil potential measurements indicate the one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall tanks are steel. The results of the tank diameters were inconclusive in determining the tanks are steel. The coating thickness measurements obtained indicate the one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall tanks are a composite steel tank type. The product piping was also found to be double wall non-metallic flexible.

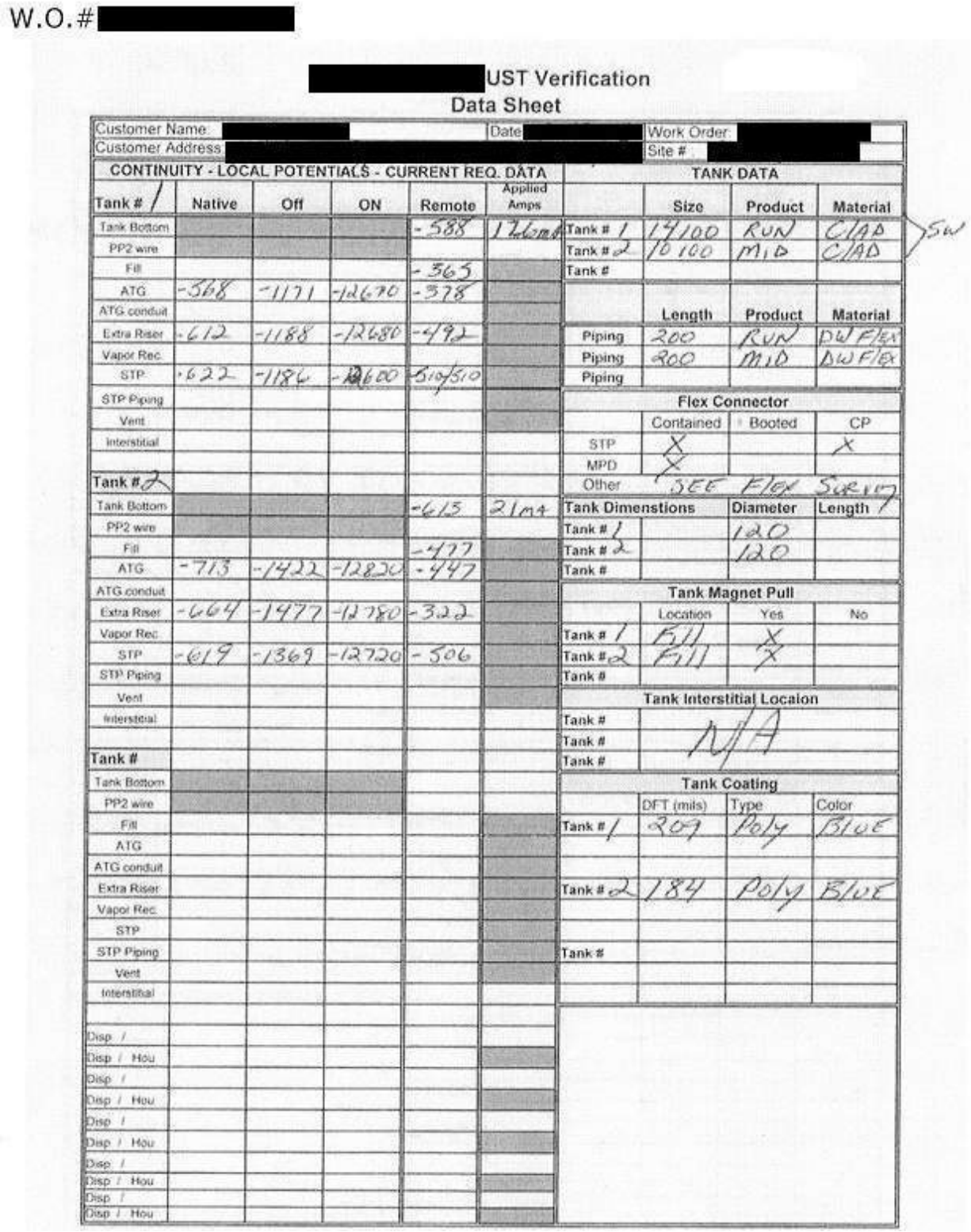
Based on the results of the survey, the UST system meets the technical and corrosion protection requirements under TAC Title 30, Chapter 334, Subchapter C, Rule 334.45 and Rule 334.49 (b) and the UST system does not require cathodic protection. TCEQ registration data base [redacted] has the facility correctly registered as one 15,000-gallon, two 10,000-gallon and one 6,000-gallon single wall composite tanks with double wall non-metallic flexible.

APPENDIX: TEST PROCEDURES

Remote (fixed) structure-to-soil potentials are obtained on all tank/s, associated risers, and piping to a CSE that remains in a fixed location in the electrolyte while obtaining all potentials. The measurements are recorded on the cathodic protection survey data sheets. For example a reading recorded on the ATG row under remote potential is a fixed cell potential from the ATG riser with the CSE located in a remote (fixed) location. Structures of less than 3.0 millivolts (mV) difference are considered electrically continuous with each other. Structures with a difference between 3.0 mV to 10.0 mV indicate an inconclusive electrical continuity test. Structures with a difference of greater than 10.0 mV are considered electrically discontinuous. Additionally in order to confirm the tank material type, the tank diameter was measured at each fill riser.

Local structure-to-soil potentials are obtained over the tanks and/or steel lines to a copper-copper sulfate reference electrode (CSE). The CSE is placed over the steel tank/s and/or steel line/s in the electrolyte to measure cathodic protection levels. The structure-to-soil potential measurements are obtained by making electrical contact to steel structures and CSE placed in various locations in the electrolyte through a Fluke or Beckman digital voltmeter. The digital voltmeter utilized has a minimum of 10 Meg Ohms impedance. The local structure-to-soil potentials are obtained with the magnesium anodes connected. The potentials obtained are evaluated to determine cathodic protection levels. Please see the criterion for cathodic protection. The measurements are recorded on the cathodic protection survey data sheets. Local "on" potentials are recorded on the location where the reference cell was placed. For example, a local "on" potential recorded on the ATG row for tank is the local structure-to-soil potential on that tank with the CSE placed in the electrolyte at the ATG man way.

Figure 9. Comprehensive UST System Survey Example (Page 3)



W.O.# [redacted]

[redacted] UST Verification
Data Sheet

Customer Name: [redacted] Date: [redacted] Work Order: [redacted]
Customer Address: [redacted] Site #: [redacted]

CONTINUITY - LOCAL POTENTIALS - CURRENT REQ. DATA

Tank # /	Native	Off	ON	Remote	Applied Amps
Tank Bottom				-588	12.6mA
PP2 wire					
Fill				-363	
ATG	-368	-1171	-12670	-378	
ATG conduit					
Extra Riser	-612	-1188	-12680	-492	
Vapor Rec					
STP	-622	-1186	-12600	510/510	
STP Piping					
Vent					
Interstitial					
Tank #2					
Tank Bottom				-613	21mA
PP2 wire					
Fill				-477	
ATG	-713	-1422	-12820	-447	
ATG conduit					
Extra Riser	-664	-1477	-12780	-322	
Vapor Rec					
STP	-619	-1369	-12720	-506	
STP Piping					
Vent					
Interstitial					
Tank #					
Tank Bottom					
PP2 wire					
Fill					
ATG					
ATG conduit					
Extra Riser					
Vapor Rec					
STP					
STP Piping					
Vent					
Interstitial					
Disp /					
Disp / Hou					
Disp /					
Disp / Hou					
Disp /					
Disp / Hou					
Disp /					
Disp / Hou					
Disp /					
Disp / Hou					

TANK DATA

	Size	Product	Material
Tank # 1	14100	RUN	C/AD
Tank # 2	10100	MID	C/AD
Tank #			

SW

	Length	Product	Material
Piping	200	RUN	DW FLEX
Piping	200	MID	DW FLEX
Piping			

Flex Connector

	Contained	Booted	CP
STP	X		X
MPD	X		
Other	SEE FLEX SURVEY		

Tank Dimenstions	Diameter	Length
Tank # 1	120	
Tank # 2	120	
Tank #		

Tank Magnet Pull

	Location	Yes	No
Tank # 1	Fill	X	
Tank # 2	Fill	X	
Tank #			

Tank Interstitial Locaion

Tank #	N/A
Tank #	
Tank #	

Tank Coating

	DFT (mils)	Type	Color
Tank # 1	209	Poly	BLUE
Tank # 2	184	Poly	BLUE
Tank #			

Notes

Release Detection Records

Applicable Regulations: 30 TAC 334.10, 30 TAC 334.48, and 30 TAC 334.50

Include

- Release detection records for tanks (see page 33)
- Release detection records for piping (see page 71)

Instructions

Update records in this section as described for your types of equipment. Find more information about each record on the pages listed above.

- For more information on release detection requirements, see our guide to *PST Release Detection and Inventory Control*[13] (RG-475g).
- If inventory control is part of your release detection methods, see EPA's *Doing Inventory Control Right*[14] guide and our easy-to-use Excel worksheets:
  - Blended Fuel Inventory Control Worksheet[15]
  - Non-Blended Fuel Inventory Control Worksheet[16]

Notes

Tanks and piping installed on or after January 1, 2009, must have secondary containment. Containment sumps (including dispenser sumps) and manways used for interstitial monitoring of piping must be:

- Liquid tight.
- Inspected every year.
- Tested for tightness every 3 years **or** double walled and inspected every 30 days.

After September 1, 2018, these facilities must use interstitial monitoring as their primary release detection method.

13. www.tceq.texas.gov/downloads/assistance/publications/rg-475g-release-detection-and-inventory-control-for-underground-storage-tanks
14. www.epa.gov/ust/doing-inventory-control-right-underground-storage-tanks
15. www.tceq.texas.gov/downloads/assistance/industry/pst/blended-30-day.xlsx
16. www.tceq.texas.gov/downloads/assistance/industry/pst/non-blended-30-day.xlsx

Notes

Release Detection Records for Tanks

Applicable Regulations: 30 TAC 334.10, 30 TAC 334.48(e), 30 TAC 334.48(h),30 TAC 334.50(a)-(b)(1), and 30 TAC 334.50(d)-(e)

Conduct Release Detection Tests

You must conduct and pass a tank release detection test at least once every 30 days using an acceptable method (see Table 2 on page 35). Inspect your release detection equipment every 30 days and annually and test it each year to make sure it works correctly.

Keep Records

Table 2 describes records you must keep for each method of release detection. Keep records on your chosen method as well as walkthrough inspections and testing for **at least 5 years**.

For **walkthrough inspections and equipment testing**, keep:

- Logs of 30-day and yearly inspections and testing
- Results from yearly testing

Attachments

1. *Table 2. Release Detection Methods for Tanks*
2. *30-Day Release Detection Walkthrough Inspection Instructions and Log Sheet*
3. *Figure 10. Example of ATG Test Results*
4. *Figure 11. Example of an SIR Report*
5. *Interstitial Sensor Monitoring Instructions and Log Sheet*
6. *Groundwater or Vapor Well Inspection Instructions and Log Sheets*
7. *Secondary Containment Monitoring Instructions and Log Sheet*
8. *Figure 12. Example of an Interstitial Monitoring Sensor Report*
9. *Manual Tank Gauging Instructions and Log Sheet*
10. *30-Day Tank Gauging Instructions and Log Sheet*
11. *Annual Release Detection Testing and Inspection Instructions and Log Sheet*

Notes

Table 2. Release Detection Methods for Tanks

Release Detection Method	Required Records	Frequency
Automatic Tank Gauging (ATG)	Copies of passing ATG tests[c] Copies of 30-day inventory control records	Within 30 days of last passing test
Statistical Inventory with Reconciliation (SIR)[d]	Results from an SIR vendor stating "Pass," "Fail," or "Inconclusive" Copies of 30-day inventory control records	You must receive results within 15 days following the 30-day period
Interstitial Monitoring[e]	30-day log sheet showing the status of the sensor[f] Records showing interstitial monitoring is your primary method of 30-day release detection (if applicable)	30 days
Groundwater or Vapor Monitoring[g]	Results of the monitoring well Written statement from the well installer that a release from any part of the system will be detected in at least 30 days	Within 30 days of the last reading
30-Day Tank Gauging or Secondary Containment Barriers	Periodic monitoring results	Every 30 days
Manual Tank Gauging	Monitoring results with weekly and 30-day deviations	Every week
30-Day Electronic Leak Monitoring	Test results (receipt from the electronic monitoring equipment)	Every 30 days

c. Tanks must have enough product to conduct a valid test.
d. SIR vendors must use a third-party certified method.
e. Tanks installed or replace on or after January 1, 2009 must use interstitial monitoring as the primary release detection method.
f. Also required for any tank or piping with secondary containment, regardless of release detection method.
g. Monitoring and observation wells must be secured to prevent unauthorized substances from entering them.

Notes

30-Day Release Detection Walkthrough Inspection: Instructions

Inspect Your Equipment and Records

At least once every 30 days make sure your records are complete and up to date, and that your release detection equipment is working normally.

Document Your 30-Day Inspections

If using our release detection walkthrough inspection log sheet, write "yes" or "no" in the first two columns if you inspected those items during the walkthrough. Include the name of the person who performed the inspection and the date.

In the table, note any alarms or unusual operating conditions and any actions you take to correct these issues. Unusual operating conditions may include:

- Dispensing equipment behaving erratically
- Sudden loss of product from the system
- Unexplained water in the tank

If using your own record-keeping method, document the same information described in our log.

Update Every 30 Days and Keep with Records

Update your log sheets after each inspection. Keep them in your records for TCEQ inspections for **at least five years after the last inspection date on the log**.

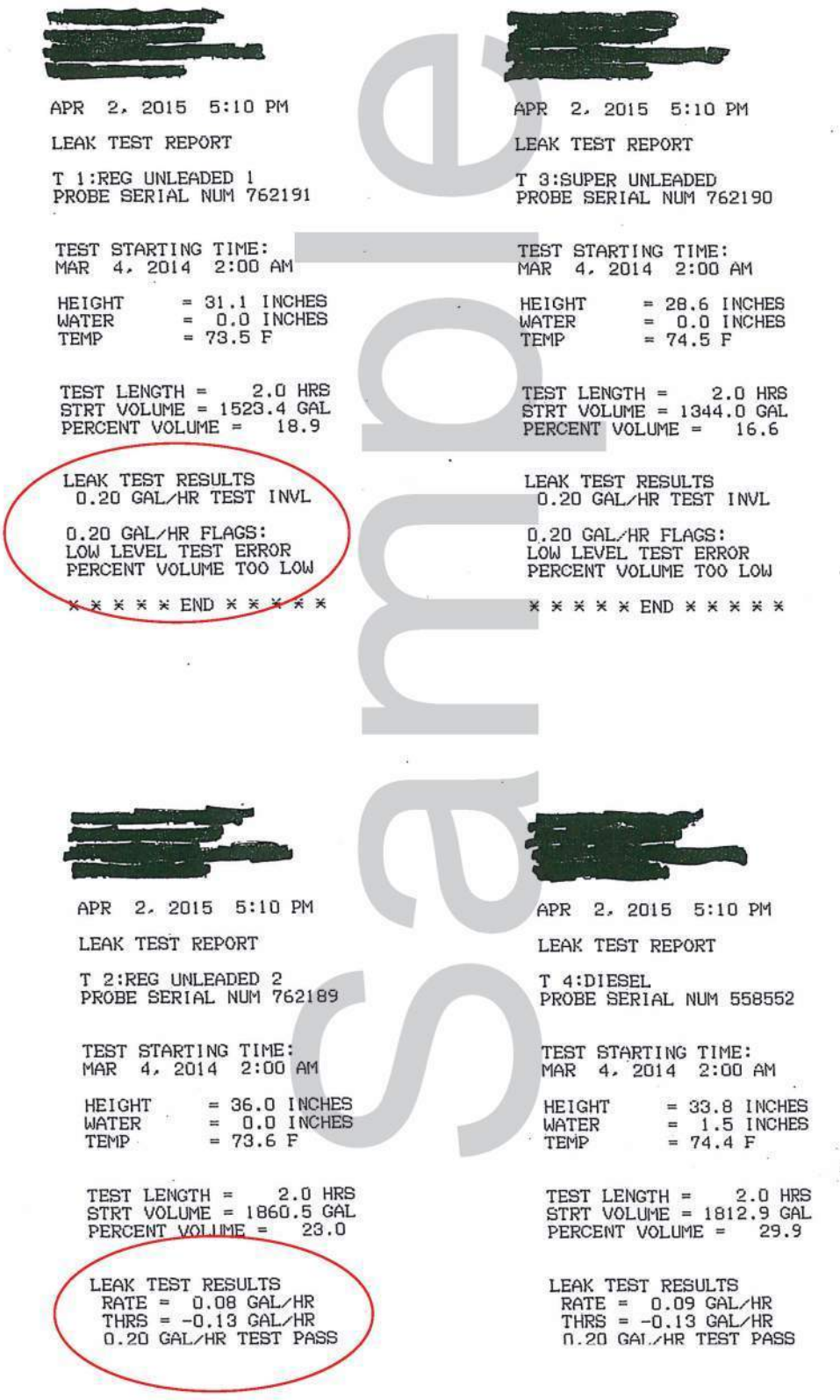
Notes

30-Day Release Detection Walkthrough Inspection: Log Sheet

Records Current?	Equipment Operational?	Name of Inspector	Description of Issues and Corrective Actions Taken (if any)	Date

Notes

Figure 10. Example of ATG Test Results



[redacted]

APR 2, 2015 5:10 PM

LEAK TEST REPORT

T 1:REG UNLEADED 1
PROBE SERIAL NUM 762191

TEST STARTING TIME:
MAR 4, 2014 2:00 AM

HEIGHT = 31.1 INCHES
WATER = 0.0 INCHES
TEMP = 73.5 F

TEST LENGTH = 2.0 HRS
STRT VOLUME = 1523.4 GAL
PERCENT VOLUME = 18.9

LEAK TEST RESULTS
0.20 GAL/HR TEST INVL

0.20 GAL/HR FLAGS:
LOW LEVEL TEST ERROR
PERCENT VOLUME TOO LOW

* * * * * END * * * * *

[redacted]

APR 2, 2015 5:10 PM

LEAK TEST REPORT

T 3:SUPER UNLEADED
PROBE SERIAL NUM 762190

TEST STARTING TIME:
MAR 4, 2014 2:00 AM

HEIGHT = 28.6 INCHES
WATER = 0.0 INCHES
TEMP = 74.5 F

TEST LENGTH = 2.0 HRS
STRT VOLUME = 1344.0 GAL
PERCENT VOLUME = 16.6

LEAK TEST RESULTS
0.20 GAL/HR TEST INVL

0.20 GAL/HR FLAGS:
LOW LEVEL TEST ERROR
PERCENT VOLUME TOO LOW

* * * * * END * * * * *

[redacted]

APR 2, 2015 5:10 PM

LEAK TEST REPORT

T 2:REG UNLEADED 2
PROBE SERIAL NUM 762189

TEST STARTING TIME:
MAR 4, 2014 2:00 AM

HEIGHT = 36.0 INCHES
WATER = 0.0 INCHES
TEMP = 73.6 F

TEST LENGTH = 2.0 HRS
STRT VOLUME = 1860.5 GAL
PERCENT VOLUME = 23.0

LEAK TEST RESULTS
RATE = 0.08 GAL/HR
THRS = -0.13 GAL/HR
0.20 GAL/HR TEST PASS

[redacted]

APR 2, 2015 5:10 PM

LEAK TEST REPORT

T 4:DIESEL
PROBE SERIAL NUM 558552

TEST STARTING TIME:
MAR 4, 2014 2:00 AM

HEIGHT = 33.8 INCHES
WATER = 1.5 INCHES
TEMP = 74.4 F

TEST LENGTH = 2.0 HRS
STRT VOLUME = 1812.9 GAL
PERCENT VOLUME = 29.9

LEAK TEST RESULTS
RATE = 0.09 GAL/HR
THRS = -0.13 GAL/HR
0.20 GAL/HR TEST PASS

Notes

Figure 11. Example of a Statistical Inventory Reconciliation (SIR) Report

Monthly SIR Report - [redacted] Page 1 of 1

[redacted]

MONTHLY STATISTICAL INVENTORY RECONCILIATION (SIR) REPORT
FACILITY NAME: [redacted] FACILITY ID#: [redacted]
TANK LOCATION: [redacted]
Houston, TX 77032
( ) OWNER/ [redacted] PHONE: [redacted]
( ) OPERATOR: [redacted]
Houston, TX 77032

SIR PROVIDER: [redacted] Phone: 1-(772)-[redacted]
SIR VERSION: [redacted] DATE OF SIR REPORT: 09/18/2013 TIME 13:30:40
PERIOD COVERED: 08/13 Data points to calculate leak rate: 20 or more

TANK NUMBER	TANK CONTENTS	TANK CAPACITY	LEAK THRESHOLD	MIN. DET. LEAK RATE	CALCULATED LEAK RATE	CRRNT P	CRRNT F	CRRNT I	PREV. P	PREV. F	PREV. I	2 MO. P	2 MO. F	2 MO. I
1100	Regular	15000	0.005	0.010	0.002		X			X			X	
1300	Premium	6000	0.052	0.104	-0.008			X		X			X	

Fail/inconclusive for one month - must fail out suspected release for + research portion

NOTE: ( ) OWNER/( ) OPERATOR -> Be sure to check the appropriate status.
CRRNT = Current Month, PREV = Previous Month, 2 MO. = 2 months prior
P|F|I = Pass, Fail and Inconclusive

1. A copy of this SIR report form shall be maintained on-site for review for each month that SIR is used for release detection.
2. [redacted]
3. Results of each monthly analysis must include the calculated results from the data set for leak threshold, the minimum detectable leak rate, the calculated leak rate, and a determination of whether the result of the test was 'Pass', 'Fail', or 'Inconclusive'.
4. 'Pass' means the calculated leak rate for the data set is less than the leak threshold and the minimum detectable leak rate is less than or equal to the certified performance standard (0.2gph).
5. 'Fail' means the calculated leak rate for the data set is equal to or greater than the leak threshold.
6. 'Inconclusive' means the minimum detectable leak rate exceeds the certified performance standard (0.2gph) and the calculated leak rate is less than the leak threshold. If for any other reason the test result is not a 'Pass' or 'Fail', the result is 'Inconclusive'.
7. An Incident Notification Form shall be submitted to the regulators when a monthly SIR report of 'Fail' is received, or after the receipt of one monthly SIR report of 'Inconclusive'.
8. S.I.R monitors the complete UST system, from UST fuel tube to dispenser, including the piping. In certain states passing S.I.R. test can be substituted for annual line test. The UST owner/operator is responsible for obtaining the applicable states regulations concerning S.I.R. and required line test.

Person conducting evaluation: [redacted] Date: 09/18/2013
Signature:
Tank Owner/Operator: Date: __/__/__
Signature:

Notes

Interstitial Sensor Monitoring: Instructions

Monitor Your Interstitial Sensors

If using interstitial monitoring for release detection, check interstitial sensors **at least once every 30 days** for potential product releases.

Document Sensor Inspections

If using our sensor monitoring log sheet, write “tank”, “dispenser” or “sump” for each sensor’s location.

In the sensor status log, write the date you checked your sensors, the status of each one, and any comments. Sign your initials in the completed row to certify you monitored on that date.

If using your own record-keeping method, document the same information described in our log.

Update Every 30 Days and Keep with Records

Update your log sheets after each inspection and keep them in your records for **at least five years** for TCEQ inspections.

Notes

Interstitial Sensor Monitoring: Log Sheet

Sensor Location

Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7	Sensor 8

Sensor Status Log

Date	S1	S2	S3	S4	S5	S6	S7	S8	Inspector Initials	Comments

Notes

Groundwater or Vapor Well Inspection: Instructions

Inspect Monitoring Wells

If using groundwater or vapor monitoring wells for release detection, inspect them **at least once every 30 days** for potential releases. For *groundwater* monitoring devices:

- **Automatic devices** must be able to detect at least one-eighth of an inch of free product on top of the groundwater.
- **Manual methods** must be able to detect a visible sheen or other buildup of regulated substances.

Record Well Data

If using our well inspection log sheet, follow the directions below for your type of well. If using your own record-keeping method, document the same information.

If monitoring with groundwater wells, record the depth (in feet) of the groundwater from the ground's surface and to the bottom of the tank.

If monitoring with vapor wells, record the depth (in feet) from the ground's surface to the bottom of the tank. Include the name and type of vapor monitoring instrument and the date it was last calibrated.

For each inspection:

- Record the date and the depth from the top of the well to the top of the groundwater **or** the vapor reading in parts per million (PPM).
- Check "yes" if there was free product in any of your wells (and write which well(s) in the comments), or "no" if there was none. Include any other related comments.
- Sign your initials to certify you completed the inspection.

Report Any Suspected Releases

If monitoring shows a suspected release, notify TCEQ **within 24 hours**.

- See Suspected Releases from PSTs[17] (RG-475h) for more information.

Update Every 30 Days and Keep with Records

Update your log sheets after each inspection and keep them in your records for **at least five years** for TCEQ inspections.

17. www.tceq.texas.gov/downloads/assistance/publications/rg-475h-suspected-and-confirmed-releases-from-psts

Notes

Groundwater or Vapor Well Inspection: Log Sheet

Groundwater Depth

From Ground Surface:	
To Tank Bottom:	

All depths measured in feet.

Vapor Reading Instrument and Depth Information

Depth from Ground Surface to Tank Bottom:	
Instrument Name and Type:	
Date of Last Instrument Calibration:	

Groundwater or Vapor Monitoring Well Inspections

Date	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Free Product in Well?	Comments	Inspector Initials
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		
							☐ Yes ☐ No		

Notes

Secondary Containment Monitoring: Instructions

Inspect Secondary Containment Barriers

If using secondary containment for release detection, inspect them **at least once every 30 days** for potential product releases.

- Properly secure observation wells to prevent unauthorized substances from entering them.

Record the Following Information

If using our secondary containment log sheet, select the monitoring method you use for secondary containment barriers.

For each inspection:

- Record the date.
- Write "yes" in the appropriate column if you or the sensors detected any free product, or "no" if there was none. Include any related comments.
- Sign your initials to certify you completed the inspection.

If using your own record-keeping method, document the same information described in our log.

Report Any Suspected Releases

If monitoring shows a suspected release, notify TCEQ **within 24 hours**.

- See Suspected Releases from PSTs[18] (RG-475h) for more information.

Update Every 30 Days and Keep with Records

Update your log sheets after each inspection and keep them in your records for **at least five years** for TCEQ inspections.

18. www.tceq.texas.gov/downloads/assistance/publications/rg-475h-suspected-and-confirmed-releases-from-psts

Notes

Secondary Containment Monitoring: Log Sheet

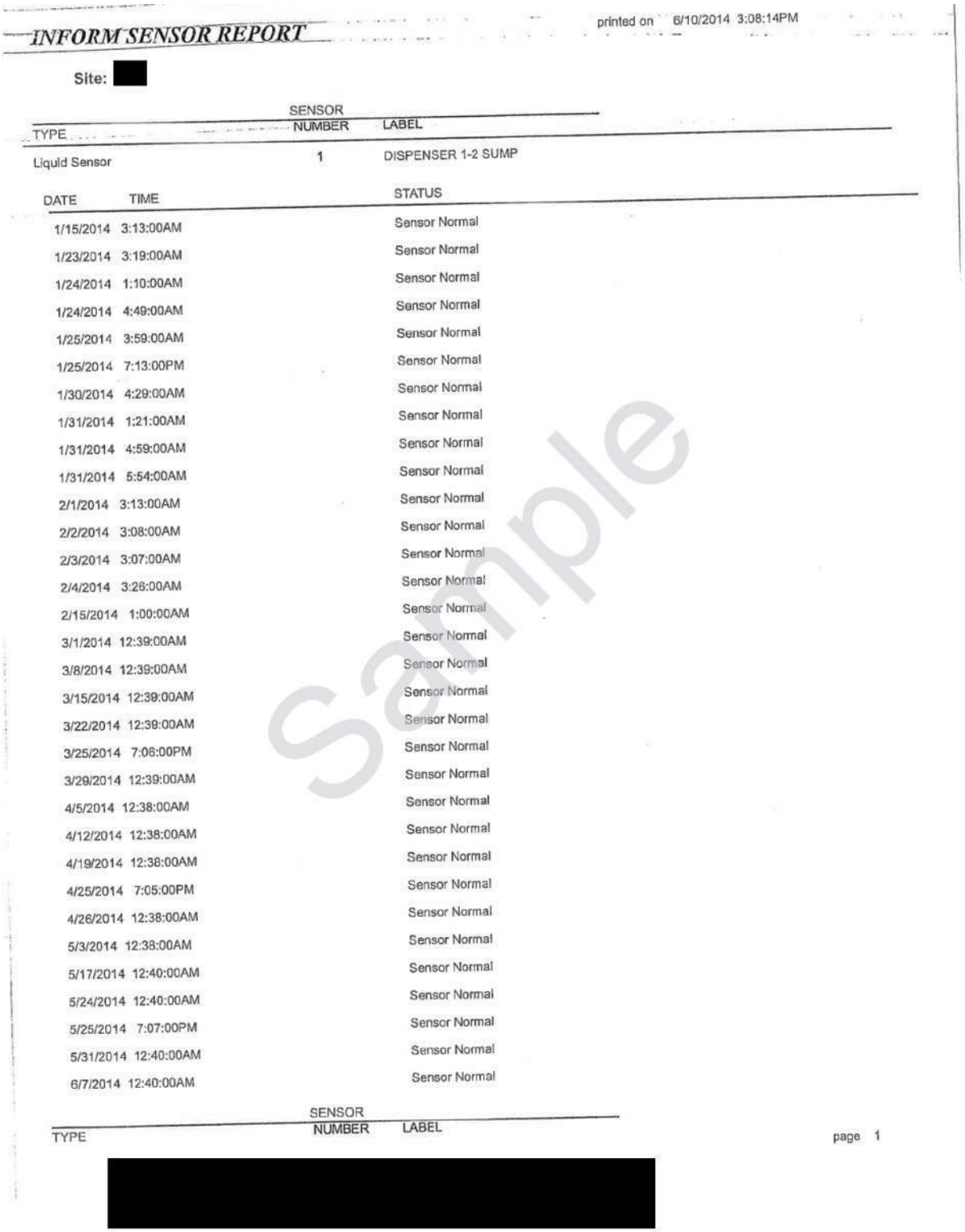
Monitoring Method

Select Your Monitoring Method:	☐ Electronic Sensors ☐ Observation Wells

Vapor Monitoring Well Inspections

Date	**Sensor/ Well 1**	**Sensor/ Well 2**	**Sensor/ Well 3**	**Sensor/ Well 4**	**Sensor/ Well 5**	**Sensor/ Well 6**	**Comments**	**Inspector Initials**

Figure 12. Example of an Interstitial Monitoring Sensor Report



INFORM SENSOR REPORT

printed on 6/10/2014 3:08:14PM

Site: [redacted]

TYPE	SENSOR NUMBER	LABEL
Liquid Sensor	1	DISPENSER 1-2 SUMP

DATE	TIME	STATUS
1/15/2014	3:13:00AM	Sensor Normal
1/23/2014	3:19:00AM	Sensor Normal
1/24/2014	1:10:00AM	Sensor Normal
1/24/2014	4:49:00AM	Sensor Normal
1/25/2014	3:59:00AM	Sensor Normal
1/25/2014	7:13:00PM	Sensor Normal
1/30/2014	4:29:00AM	Sensor Normal
1/31/2014	1:21:00AM	Sensor Normal
1/31/2014	4:59:00AM	Sensor Normal
1/31/2014	5:54:00AM	Sensor Normal
2/1/2014	3:13:00AM	Sensor Normal
2/2/2014	3:08:00AM	Sensor Normal
2/3/2014	3:07:00AM	Sensor Normal
2/4/2014	3:28:00AM	Sensor Normal
2/15/2014	1:00:00AM	Sensor Normal
3/1/2014	12:39:00AM	Sensor Normal
3/8/2014	12:39:00AM	Sensor Normal
3/15/2014	12:39:00AM	Sensor Normal
3/22/2014	12:39:00AM	Sensor Normal
3/25/2014	7:06:00PM	Sensor Normal
3/29/2014	12:39:00AM	Sensor Normal
4/5/2014	12:38:00AM	Sensor Normal
4/12/2014	12:38:00AM	Sensor Normal
4/19/2014	12:38:00AM	Sensor Normal
4/25/2014	7:05:00PM	Sensor Normal
4/26/2014	12:38:00AM	Sensor Normal
5/3/2014	12:38:00AM	Sensor Normal
5/17/2014	12:40:00AM	Sensor Normal
5/24/2014	12:40:00AM	Sensor Normal
5/25/2014	7:07:00PM	Sensor Normal
5/31/2014	12:40:00AM	Sensor Normal
6/7/2014	12:40:00AM	Sensor Normal

TYPE	SENSOR NUMBER	LABEL

page 1

[redacted]

Sample

Manual Tank Gauging: Instructions

Test Your Tank Weekly

If you use manual tank gauging as part of your release detection method, test the tank **every week**. You must have enough "quiet time"[19] to use this method.

Know Your Standards

In the table below, mark or highlight your tank's size and the applicable test duration and standards.

Table 3. Manual Tank Gauging Standards

Tank Size (in gallons)	Minimum Test Duration	Weekly Standard (1 test)	Monthly Standard (4-test average)
Up to 550	36 hours	10 gallons	5 gallons
551 to 1000 (64-inch tank diameter)	44 hours	9 gallons	4 gallons
551 to 1000 (48-inch tank diameter)	58 hours	12 gallons	6 gallons

Record Your Data

If using our manual tank gauging log sheet, follow the instructions below. If using your own record-keeping method, document the same information.

In the weekly log sheet:

1. For each tank, write its ID number in one of the column headings.
2. Record the date, time, and stick readings for the start and end of each test in the weekly log sheet.
3. Add the 2 initial stick readings together, then divide the total by 2 to get the average.
4. Convert the average to gallons using your tank manufacturer's chart.
5. Repeat steps 1 through 3 for the end-of-test readings.
6. Subtract the final gallons from the initial gallons and record the total under test results. Note whether it is a product excess (+) or loss (-).

If the number is greater than the weekly standard, the tank may have a suspected release and does not pass. Write the initials of the tester and check the applicable response to the "tank passes test?" question.

19. Any time fuel is neither deposited into nor removed from the tank.

In the monthly average log sheet:

1. Write the month and year above a blank table.
2. Write each week's calculated average, in gallons, for each tank.
3. At the end of the month, add the 4 readings together and divide by 4 to get the average. Note whether it is a product excess or loss.

If the number is greater than the monthly standard, the tank may have a suspected release. Write the initials of the tester and check the applicable response to the "tank passes test?" question.

Report Any Suspected Releases

If monitoring shows a suspected release, notify TCEQ **within 24 hours**.

- See Suspected Releases from PSTs[20] (RG-475h) for more information.

Update Every 30 Days and Keep with Records

Update your log sheets after each inspection and keep them in your records for **at least five years** for TCEQ inspections.

20. www.tceq.texas.gov/downloads/assistance/publications/rg-475h-suspected-and-confirmed-releases-from-psts

Manual Tank Gauging: Weekly Log Sheet

Start of Test Record

Data to Record	Tank ID:	Tank ID:	Tank ID:	Tank ID:
Test Start (Date and Time)				
First Stick Reading (inches)				
Second Stick Reading (inches)				
Average of Initial Readings (inches)				
Initial Gallons (Convert from inches)				

End of Test Record (tank IDs continue from above)

Data to Record				
Test End (Date and Time)				
First Stick Reading (inches)				
Second Stick Reading (inches)				
Average of Final Readings (inches)				
Final Gallons (Convert from inches)				

Test Results (tank IDs continue from above)

Data to Record				
Change in Tank Volume (gallons + or -)				
Tester Initials				
Tank Passes Test?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

Notes

Manual Tank Gauging: Monthly Average Log Sheet

Month and Year:

Data to Record	Tank ID:	Tank ID:	Tank ID:	Tank ID:
Week 1 Volume Change				
Week 2 Volume Change				
Week 3 Volume Change				
Week 4 Volume Change				
Monthly Average (+ or -)				
Tank Passes Test?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

Month and Year:

Data to Record	Tank ID:	Tank ID:	Tank ID:	Tank ID:
Week 1 Volume Change				
Week 2 Volume Change				
Week 3 Volume Change				
Week 4 Volume Change				
Monthly Average (+ or -)				
Tank Passes Test?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

Month and Year:

Data to Record	Tank ID:	Tank ID:	Tank ID:	Tank ID:
Week 1 Volume Change				
Week 2 Volume Change				
Week 3 Volume Change				
Week 4 Volume Change				
Monthly Average (+ or -)				
Tank Passes Test?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

Notes

30-Day Tank Gauging: Instructions

Test Your Tank Every 30 Days

If you use tank gauging as your release detection method for your **emergency generator tank,**[21] test it **every 30 days**. You must have enough "quiet time"[22] to use this method.

Know Your Standards

In the table below, mark or highlight your tank's size and the applicable test duration and standards.

Table 4. 30-Day Tank Gauging Standards

Tank Size (in gallons)	Minimum Test Duration	Monthly Standard (4-test average)
Up to 550	36 hours	5 gallons
551 to 1000	36 hours	7 gallons
1001 to 2000	36 hours	13 gallons
Over 2000	36 hours	1.0% of the total tank capacity in gallons

Record Your Data

If using our 30-day tank gauging log sheet, use the instructions below. If using your own record-keeping method, document the same information described in our log.

For each test:

1. Record the date, time, and stick readings for the start and end of each test in the weekly log sheet.
2. Add the 2 initial stick readings together, then divide the total by 2 to get the average.
3. Convert the average to gallons using your tank manufacturer's chart.
4. Repeat steps 1 through 3 for the end-of-test readings.
5. Subtract the final gallons from the initial gallons and record the total under test results. Note whether it is a product excess (+) or loss (-).

If the number is greater than the standard, the tank may have a suspected release and does not pass. Write the initials of the tester and check the applicable response to the "tank passes test?" question.

21. You may only use this release detection method for emergency generator tanks.
22. Any time fuel is neither deposited into nor removed from the tank.

Report Any Suspected Releases

If monitoring shows a suspected release, notify TCEQ **within 24 hours**.

- See Suspected Releases from PSTs[23] (RG-475h) for more information.

Update Every 30 Days and Keep with Records

Update your log sheets after each inspection and keep them in your records for **at least five years** for TCEQ inspections.

23. www.tceq.texas.gov/downloads/assistance/publications/rg-475h-suspected-and-confirmed-releases-from-psts

30-Day Tank Gauging: Log Sheet

Start of Test Record

Data to Record	Tank ID:	Tank ID:	Tank ID:	Tank ID:
Test Start (Date and Time)				
First Stick Reading (inches)				
Second Stick Reading (inches)				
Average of Initial Readings (inches)				
Initial Gallons (Convert from inches)				

End of Test Record (tank IDs continue from above)

Data to Record				
Test End (Date and Time)				
First Stick Reading (inches)				
Second Stick Reading (inches)				
Average of Final Readings (inches)				
Final Gallons (Convert from inches)				

Test Results (tank IDs continue from above)

Data to Record				
Change in Tank Volume (gallons + or -)				
Tester Initials				
Tank Passes Test?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

Notes

Annual Release Detection Testing and Inspection: Instructions

Inspect and Test Release Detection Equipment

Regardless of your chosen method, inspect and test your release detection equipment **at least once every year**. We have summarized the requirements for each piece of equipment in our annual testing and inspection log sheet on page 69.

Document Your Results

If using our log sheet, write the test date and tester's name in the first table and follow the instructions below. If using your own record-keeping method, document the same information described in our log.

In the equipment inspection summary table, print "N/A" or "not applicable" for items that do not apply to your system. For each test or inspection:

- Write "yes" under "Tested and Inspected" if it operates correctly and meets the other conditions described, or "no" if it does not.
- Write "yes" under "Needs Action?" if the equipment needs any corrective actions, including cleaning, or "no" if it does not.
- Describe any corrective actions taken, if needed.

Update Every Year and Keep with Records

Update your log sheets after each inspection and keep them in your records for **at least five years** for TCEQ inspections.

Notes

Annual Release Detection Testing and Inspection: Log Sheet

Test Date:		Tester Name:		Tester Signature:	

Equipment Test and Inspection Summary

Equipment[h]	Tested and Inspected?	Needs Action?	Corrective Actions Taken (if any are needed)
Automatic tank gauge and other controllers: test the alarm and battery backup and verify the system configuration.			
Probes and sensors: test alarm operability and communication with controller, check for residual buildup, and confirm floats move freely, shaft is not damaged, and cables are free of kinks and breaks.			
Automatic line leak detector: confirm it can detect piping system releases[i] by simulating a leak.			
Vacuum pumps and pressure gauges: confirm they communicate with the sensors and controller.			
Hand-held electronic release detection equipment: confirm it operates properly.			
Groundwater and vapor monitoring equipment: make sure it operates properly.			
Handheld release detection equipment: (e.g., groundwater bailers) make sure it is operable and serviceable.			

h. Include any other release detection equipment in the blank rows of this table.
i. It must be able to detect releases of 3 gallons per hour at 10 pounds per square inch within 1 hour.

Notes

Release Detection Records for Piping

Applicable Regulations: 30 TAC 334.10, 30 TAC 334.50(a), 30 TAC 334.50(b)(2), and 30 TAC 334.50(d)-(e)

Conduct Release Detection Tests

Regularly conduct and pass piping release detection tests using an acceptable method (see Table 5 on page 73). Your record-keeping requirements depend on whether you have a **pressurized** or **suction** piping system.

Install Shear Valves for Pressurized Piping Systems

If you have a pressurized piping system, you must install shear valves. An investigator will visually verify they are installed and **properly anchored**.

Keep Records

If you have a pressurized piping system, **test your automatic line leak detector (LLD) function every year** *and* use at least one of the piping release detection methods in Table 5.

If you have a suction piping system without a high-mounted check valve, use at least one of the methods in Table 5. If your system has a high-mounted check valve, you only need to keep as-built drawings or written documentation from a registered UST contractor to verify.

Keep all records for **at least 5 years**.

Attachments[24]

1. *Table 5. Release Detection Methods for Piping*
2. *Figures 13 and 14. Examples of Automatic Line Leak Detector Test Results*
3. *Figure 15. Example of Piping Tightness Test Results*
4. *Figure 16. Photo of a Properly Anchored Shear Valve*

24. Find more examples and applicable log sheets in the Release Detection Records for Tanks section.

Notes

Table 5. Release Detection Methods for Piping

Release Detection Method	Required Records	Frequency
Piping tightness test	Test results	Pressurized systems: every year Suction systems: every 3 years
Groundwater or vapor monitoring	Logs of dates monitored and any results	Every 30 days
Interstitial monitoring (secondary containment)	Logs of dates monitored and any results	Every 30 days for monitoring logs.
Statistical Inventory with Reconciliation (SIR)[j]	Results from an SIR vendor stating "Pass," "Fail," or "Inconclusive" and inventory control records	Every 30 days
Electronic leak monitoring	Logs of dates monitored and any results	Every 30 days

j. SIR vendors must use a method certified by a third party.

Notes

Figure 13. First Example of a Line Leak Detector Test Report

RJ - LEAK DETECTOR TEST REPORT

Completion of this report is required for all mechanical leak detector testing

Testing Company

Store # [redacted]	[redacted]	Date: 6/3/13
Address: [redacted]	[redacted]	Tech Name: [redacted]
City / State: HOUSTON TX.	[redacted] Tx. 77383-0340	Tech Cert # [redacted]

Test Equipment Used

Make/Model LS-2003

Test Method Used

☐ AVO (RJ21) ☒ FTA (RJ20) ☐ FXT (RJ 061-272-1)

Type of Leak Detectors tested

☐ LDC ☐ XLP ☐ BFLD ☐ DLD ☐ PLD ☐ BFLD ☐ FX1
☐ FX1D ☐ FX2 ☐ FX2D ☐ FX1BFLD ☐ FX2BFLD ☒ FX1DV ☐ FX2DV
☒ FXIV ☐ FX2V ☐ OTHER _____

TEST INFORMATION

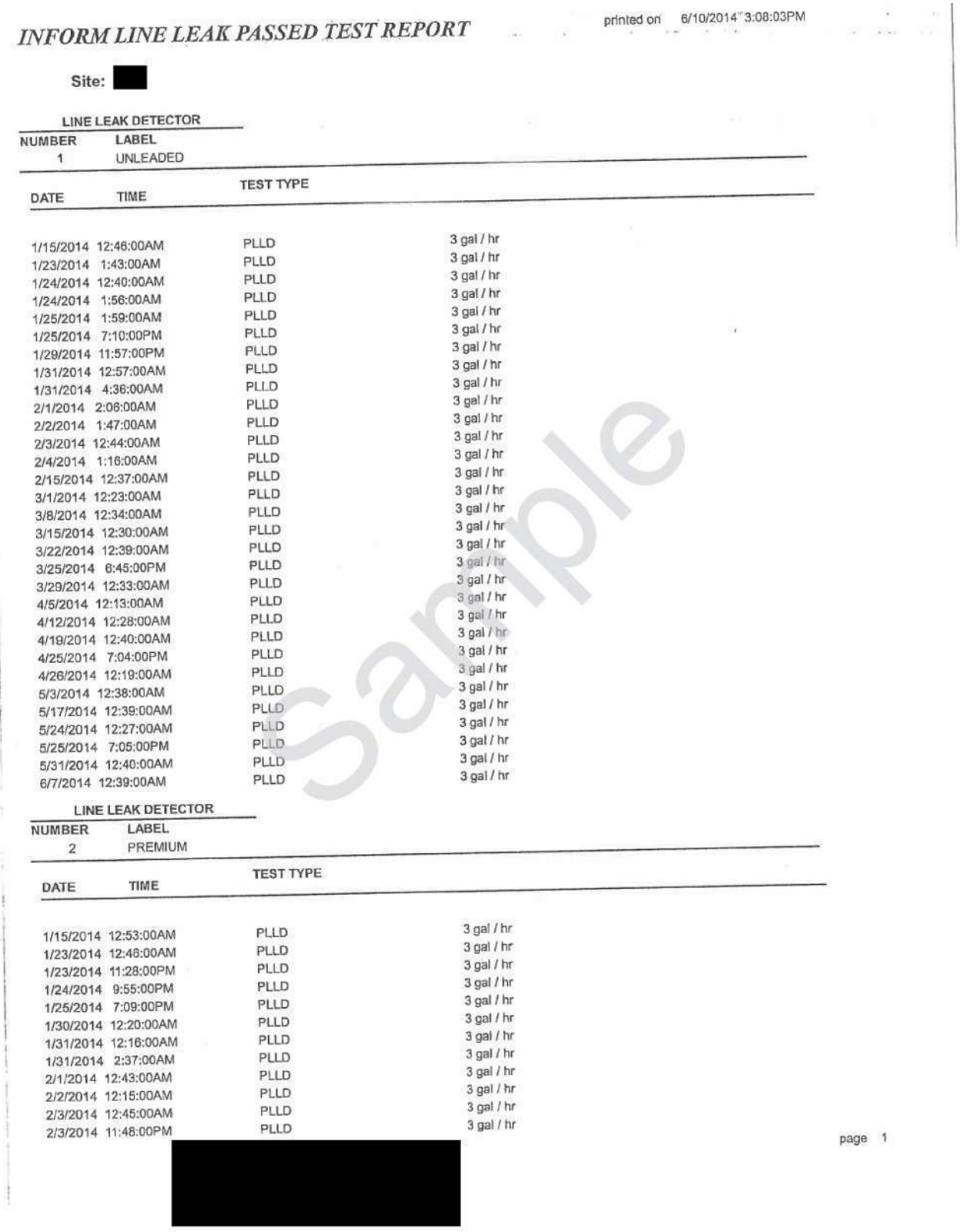
	UL UL+ SU DIE	Leak Detector Type (see above)	Serial Number	Resiliency (ml)	Func. Element (check valve) Holding PSI	Opening Time (sec)	Test Leak Rate ml/min or gal/hr	Metering PSI	Pass or Fail
1	UL	FX1V	8949	116 ML	16	2 SEC	196 ML	10	PASS
2	SU	FX1V	8765	112 ML	18	2 SEC	196 ML	10	PASS
3	D	FX1DV	7766	110 ML	20	2 SEC	196 ML	10	PASS
4									
5									
6									
7									
8									

Technician Signature [redacted] Date: 6/3/13

[redacted]

Notes

Figure 14. Second Example of a Line Leak Detector Test Report



INFORM LINE LEAK PASSED TEST REPORT

printed on 6/10/2014 3:08:03PM

Site: [redacted]

LINE LEAK DETECTOR

NUMBER	LABEL
1	UNLEADED

DATE	TIME	TEST TYPE	
1/15/2014	12:46:00AM	PLLD	3 gal / hr
1/23/2014	1:43:00AM	PLLD	3 gal / hr
1/24/2014	12:40:00AM	PLLD	3 gal / hr
1/24/2014	1:56:00AM	PLLD	3 gal / hr
1/25/2014	1:59:00AM	PLLD	3 gal / hr
1/25/2014	7:10:00PM	PLLD	3 gal / hr
1/29/2014	11:57:00PM	PLLD	3 gal / hr
1/31/2014	12:57:00AM	PLLD	3 gal / hr
1/31/2014	4:36:00AM	PLLD	3 gal / hr
2/1/2014	2:06:00AM	PLLD	3 gal / hr
2/2/2014	1:47:00AM	PLLD	3 gal / hr
2/3/2014	12:44:00AM	PLLD	3 gal / hr
2/4/2014	1:16:00AM	PLLD	3 gal / hr
2/15/2014	12:37:00AM	PLLD	3 gal / hr
3/1/2014	12:23:00AM	PLLD	3 gal / hr
3/8/2014	12:34:00AM	PLLD	3 gal / hr
3/15/2014	12:30:00AM	PLLD	3 gal / hr
3/22/2014	12:39:00AM	PLLD	3 gal / hr
3/25/2014	6:45:00PM	PLLD	3 gal / hr
3/29/2014	12:33:00AM	PLLD	3 gal / hr
4/5/2014	12:13:00AM	PLLD	3 gal / hr
4/12/2014	12:28:00AM	PLLD	3 gal / hr
4/19/2014	12:40:00AM	PLLD	3 gal / hr
4/25/2014	7:04:00PM	PLLD	3 gal / hr
4/26/2014	12:19:00AM	PLLD	3 gal / hr
5/3/2014	12:38:00AM	PLLD	3 gal / hr
5/17/2014	12:39:00AM	PLLD	3 gal / hr
5/24/2014	12:27:00AM	PLLD	3 gal / hr
5/25/2014	7:05:00PM	PLLD	3 gal / hr
5/31/2014	12:40:00AM	PLLD	3 gal / hr
6/7/2014	12:39:00AM	PLLD	3 gal / hr

LINE LEAK DETECTOR

NUMBER	LABEL
2	PREMIUM

DATE	TIME	TEST TYPE	
1/15/2014	12:53:00AM	PLLD	3 gal / hr
1/23/2014	12:46:00AM	PLLD	3 gal / hr
1/23/2014	11:28:00PM	PLLD	3 gal / hr
1/24/2014	9:55:00PM	PLLD	3 gal / hr
1/25/2014	7:09:00PM	PLLD	3 gal / hr
1/30/2014	12:20:00AM	PLLD	3 gal / hr
1/31/2014	12:16:00AM	PLLD	3 gal / hr
1/31/2014	2:37:00AM	PLLD	3 gal / hr
2/1/2014	12:43:00AM	PLLD	3 gal / hr
2/2/2014	12:15:00AM	PLLD	3 gal / hr
2/3/2014	12:45:00AM	PLLD	3 gal / hr
2/3/2014	11:48:00PM	PLLD	3 gal / hr

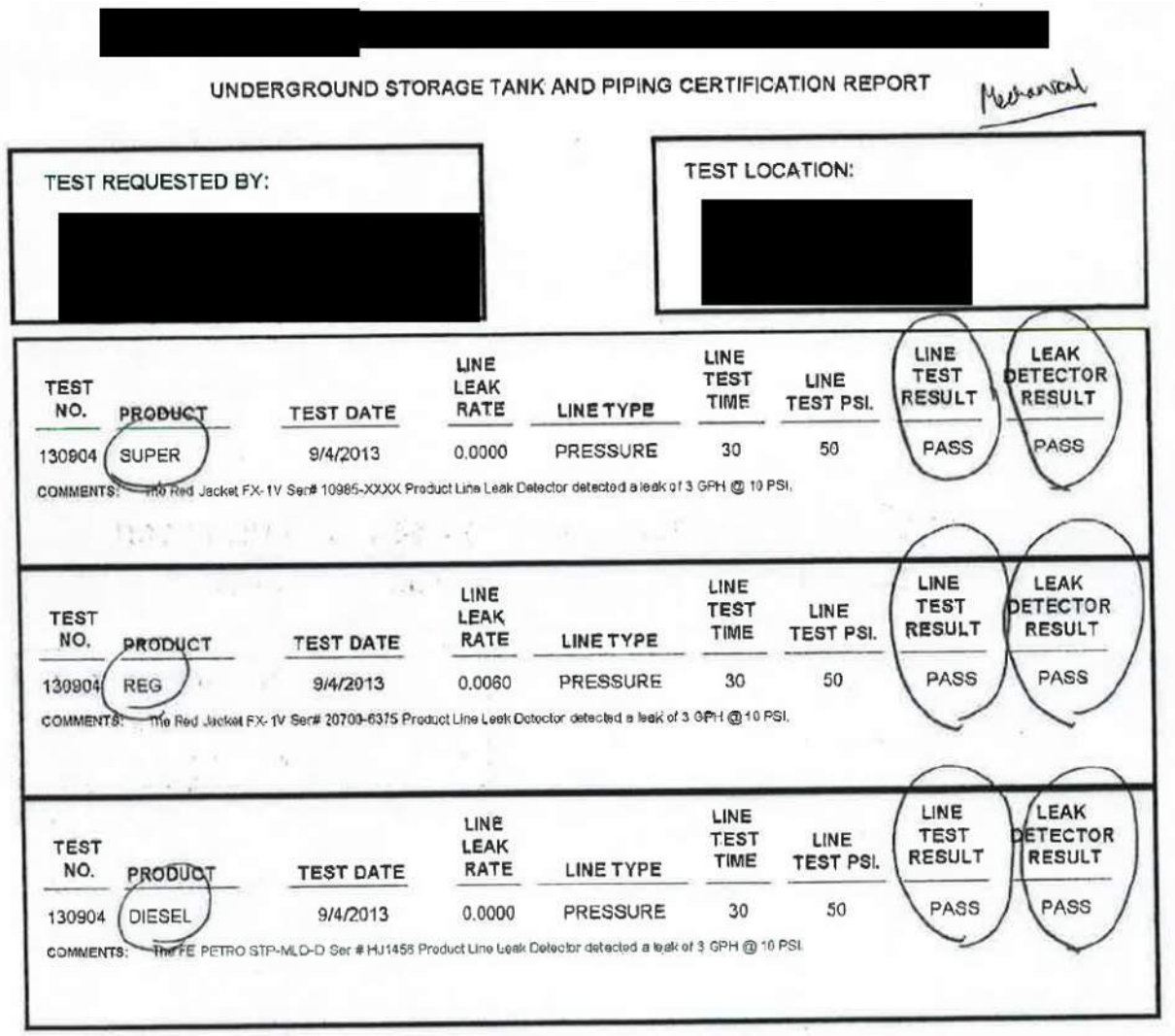
[redacted]

page 1

Sample

Notes

Figure 15. First Example of a Piping Tightness Test Report



[redacted]

UNDERGROUND STORAGE TANK AND PIPING CERTIFICATION REPORT

Mechanical

TEST REQUESTED BY:

[redacted]

TEST LOCATION:

[redacted]

TEST NO.	PRODUCT	TEST DATE	LINE LEAK RATE	LINE TYPE	LINE TEST TIME	LINE TEST PSI.	LINE TEST RESULT	LEAK DETECTOR RESULT
130904	SUPER	9/4/2013	0.0000	PRESSURE	30	50	PASS	PASS

COMMENTS: The Red Jacket FX-1V Ser# 10985-XXXX Product Line Leak Detector detected a leak of 3 GPH @ 10 PSI.

TEST NO.	PRODUCT	TEST DATE	LINE LEAK RATE	LINE TYPE	LINE TEST TIME	LINE TEST PSI.	LINE TEST RESULT	LEAK DETECTOR RESULT
130904	REG	9/4/2013	0.0060	PRESSURE	30	50	PASS	PASS

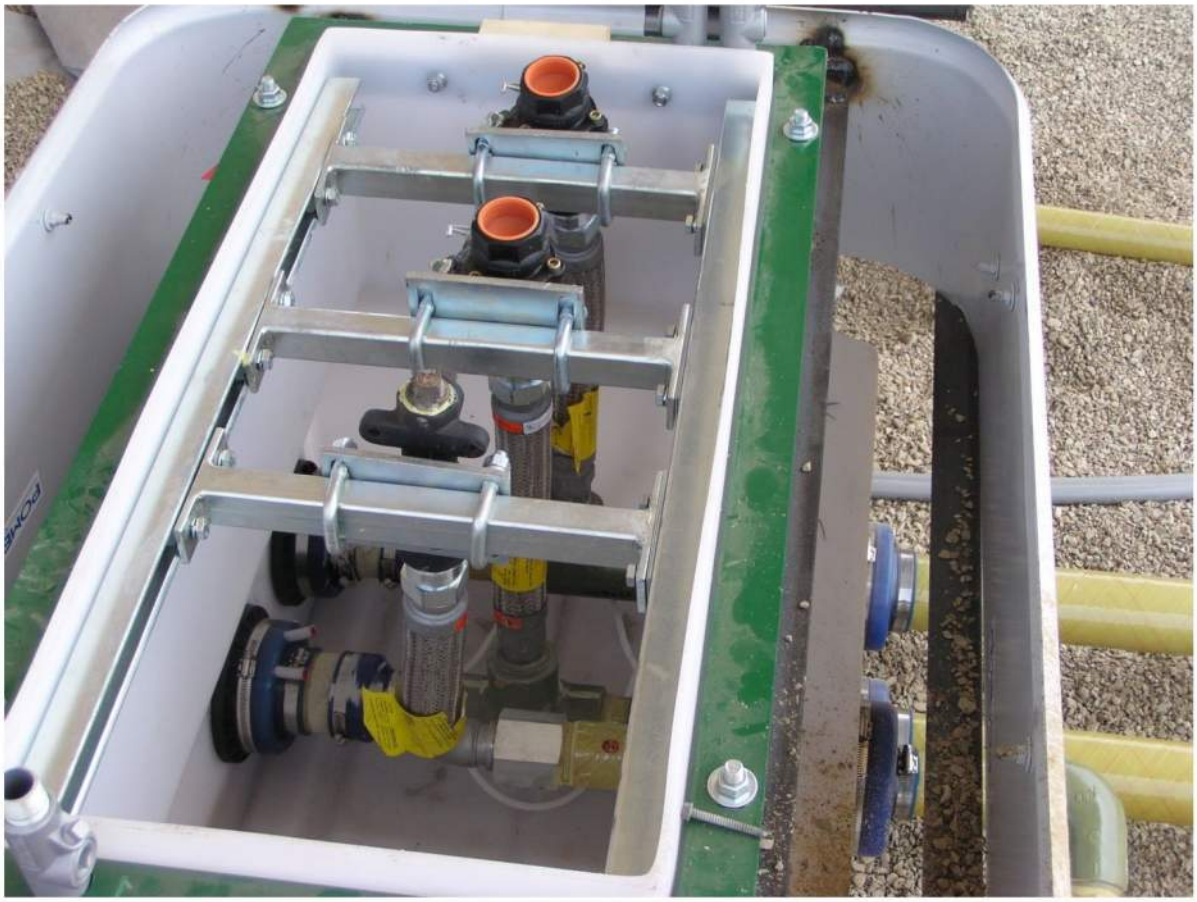
COMMENTS: The Red Jacket FX-1V Ser# 20709-6375 Product Line Leak Detector detected a leak of 3 GPH @ 10 PSI.

TEST NO.	PRODUCT	TEST DATE	LINE LEAK RATE	LINE TYPE	LINE TEST TIME	LINE TEST PSI.	LINE TEST RESULT	LEAK DETECTOR RESULT
130904	DIESEL	9/4/2013	0.0000	PRESSURE	30	50	PASS	PASS

COMMENTS: The FE PETRO STP-MLD-D Ser # HJ1456 Product Line Leak Detector detected a leak of 3 GPH @ 10 PSI.

Notes

Figure 16. Photo of a Properly Anchored Shear Valve



Notes

Spill and Overfill Prevention Records

Applicable Regulations: 30 TAC 334.10, 30 TAC 334.48, and 30 TAC 334.51

Install and Maintain Spill and Overfill Prevention Equipment

To prevent regulated substances releasing to the environment from spills or overfills, install and maintain the following equipment:

- Tight fill fittings to make sure transfers into tanks are liquid tight.
- Liquid-tight spill containment devices around fill tubes.
- Automatic shut-off or flow restriction equipment[25] in case of overfills.

For more information, see our guide to *Preventing PST Spills and Overfills*[26] (RG-475e).

Keep Records

Keep records verifying the type of spill and overfill prevention equipment installed at your facility and any maintenance done. Maintenance includes regular inspections and testing, cleaning, and repairs. See Table 6 on page 85 for more details.

Keep all records for **at least 5 years**.

Attachments

1. *Table 6. Spill and Overfill Prevention Equipment Record Requirements*
2. *30-Day Spill Prevention Inspection Log Sheet and Instructions*
3. *Annual Walkthrough Log Sheet for Containment Sumps and Instructions*
4. *Figure 17. Waste Manifest for Spill Bucket Waste Disposal*

25. Ball float devices cannot be installed or repaired after September 1, 2018.
26. www.tceq.texas.gov/downloads/assistance/publications/rg-475e-petroleum-storage-tank-spill-and-overfill-prevention-and-control

Notes

Table 6. Spill and Overfill Equipment Record Requirements

Type of Equipment	Required Records	Frequency
Spill bucket	Inspection logs and either proof of double-walled construction or tightness test results.	Every 30 days for inspections. Every 3 years for tightness testing.
Containment sumps and manways used for secondary containment	Inspection logs and proof of double-walled construction or tightness test results.	Every 30 days for inspections. Every 3 years for tightness testing.
All containment sumps	Walkthrough inspection logs.	Every year
All spill prevention equipment	Repair records and their test results. Records showing you removed any debris, contaminated water, and fuel within 96 hours of discovery and showing its proper disposal.	Within 30 days of repairs. As needed for cleaning and disposal.
Automatic shutoff device[k]	Installation records, repair records and their test results, and test results showing the device is set to activate at the appropriate level.	Within 30 days of repairs. Every 3 years for activation tests.
Flow restrictor[l]	Test results showing the device is set to activate at the appropriate level and records showing change in service from flow restrictor to automatic shutoff device[m] if replaced.	Every 3 years for activation tests.

k. Find automatic shutoff devices in the fill port.
l. Find flow restrictors in the vent line.
m. Flow restrictors cannot be used if you install or replace overfill equipment on or after September 1, 2018.

Notes

30-Day Spill Prevention Equipment Inspection: Instructions

Inspect Spill Prevention Equipment Every 30 Days

Inspect your spill prevention equipment for liquids, debris, cracks, holes, and fill pipe obstructions **at least once every 30 days**. Make sure the fill cap is secured tightly and to remove any liquid or debris found in the equipment within 96 hours.

- If your UST system only receives fuel deliveries more than 30 days apart, you may check spill prevention equipment before each delivery instead.

Document Your Inspections

If using our spill prevention equipment log sheet, write the inspection date and inspector's name in the first table and follow the instructions below. If using your own record-keeping method, document the same information.

For each spill bucket, write the bucket number above the table then answer the questions in the "Conditions to Check" column. Include the date any repairs or other corrective actions are completed and describe the corrective actions at the bottom of the page.

Update Every Year and Keep with Records

Update your log sheets at least once every 30 days and keep them in your records for **at least five years** for TCEQ inspections.

Notes

30-Day Spill Prevention Equipment Inspection: Log Sheet

Inspection Date:		**Inspector Name:**	

Bucket Number:

Conditions to Check	Response	Date Fixed (if needed)
Is the spill bucket free of any liquid or debris?	☐ Yes ☐ No	
Is the spill bucket free of cracks or holes?	☐ Yes ☐ No	
Is the fill cap secured tightly on the fill pipe?	☐ Yes ☐ No	
If present, was any liquid or debris removed within 96 hours?	☐ Yes ☐ No	
Is the fill pipe free from obstructions?	☐ Yes ☐ No	
Double-walled equipment with interstitial monitoring: is the interstitial area free of leaks?	☐ Yes ☐ No	

Bucket Number:

Conditions to Check	Response	Date Fixed (if needed)
Is the spill bucket free of any liquid or debris?	☐ Yes ☐ No	
Is the spill bucket free of cracks or holes?	☐ Yes ☐ No	
Is the fill cap secured tightly on the fill pipe?	☐ Yes ☐ No	
If present, was any liquid or debris removed within 96 hours?	☐ Yes ☐ No	
Is the fill pipe free from obstructions?	☐ Yes ☐ No	
Double-walled equipment with interstitial monitoring: is the interstitial area free of leaks?	☐ Yes ☐ No	

Comments (e.g. repairs made, corrective actions taken, etc.)

Notes

Annual Sump Inspection: Instructions

Inspect Sumps Every Year

Inspect your sumps for regulated substances, damage, leaks, and releases to the environment **at least once every year**. Make sure cathodic protection is working properly and to remove any liquid or debris found in the equipment within 96 hours.

Document Your Inspections

If using our annual sump inspection log sheet, write the inspection date and inspector's name in the first table and follow the instructions below. If using your own record-keeping method, document the same information described in our log.

For each sump, write the sump number above the table then answer the questions in the "Conditions to Check" column. Include the date any repairs or other corrective actions are completed and describe the corrective actions at the bottom of the page.

Update Every Year and Keep with Records

Update your log sheets at least once every year and keep them in your records for **at least five years** for TCEQ inspections.

Notes

Annual Sump Inspection: Log Sheet

Inspection Date:		**Inspector Name:**	

Sump Number:

Conditions to Check	**Response**	**Date Fixed (if needed)**
Any damage to the sump or equipment?	☐ Yes ☐ No	
Any leaks in the containment area?	☐ Yes ☐ No	
Any releases to the environment?	☐ Yes ☐ No	
Any regulated substances in the sump?	☐ Yes ☐ No	
If present, was any liquid or debris removed within 96 hours?	☐ Yes ☐ No	
Cathodic protection present and working??	☐ Yes ☐ No	

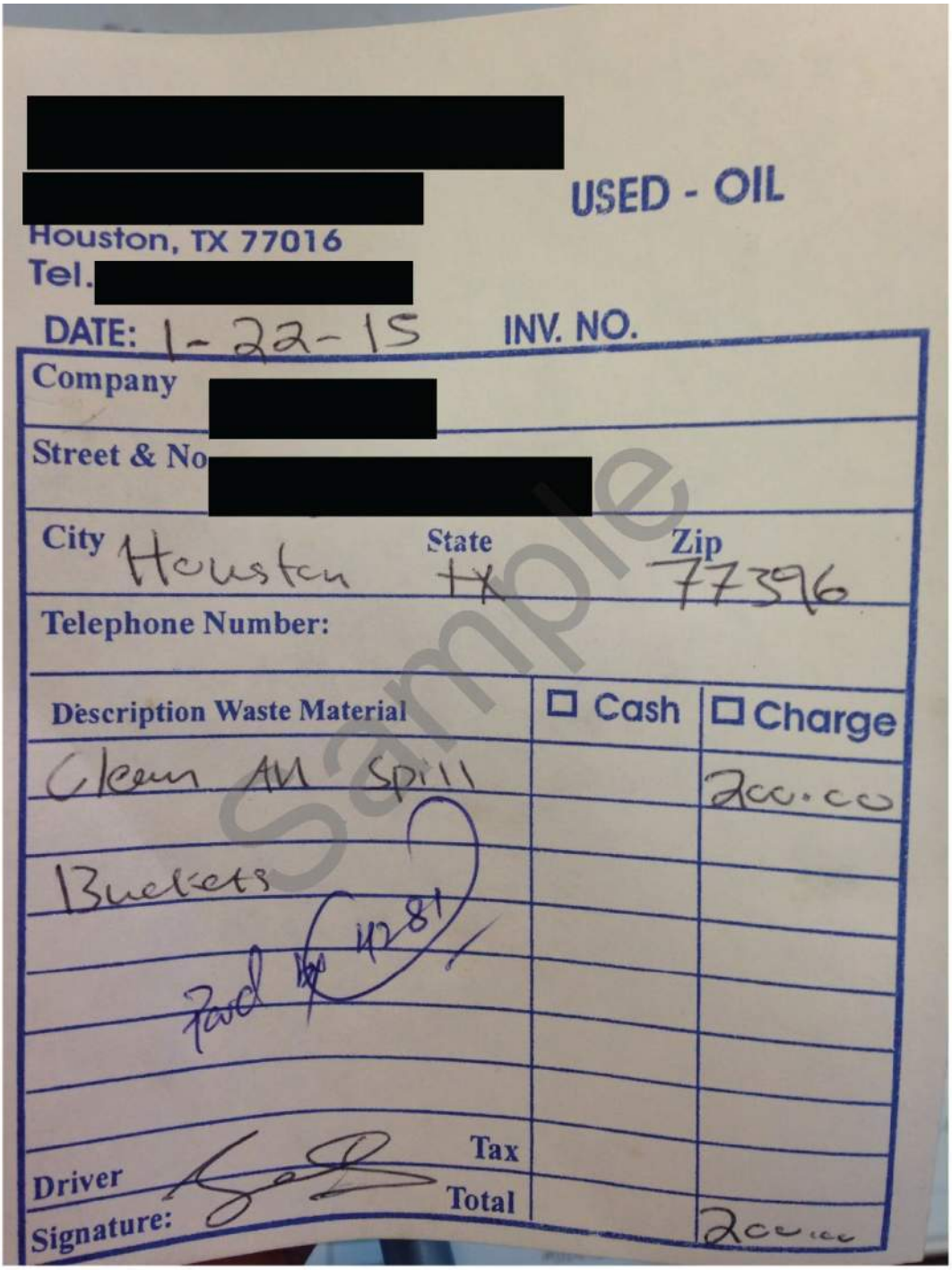
Sump Number:

Conditions to Check	**Response**	**Date Fixed (if needed)**
Any damage to the sump or equipment?	☐ Yes ☐ No	
Any leaks in the containment area?	☐ Yes ☐ No	
Any releases to the environment?	☐ Yes ☐ No	
Any regulated substances in the sump?	☐ Yes ☐ No	
If present, was any liquid or debris removed within 96 hours?	☐ Yes ☐ No	
Cathodic protection present and working?	☐ Yes ☐ No	

Comments (e.g., repairs made, corrective actions taken, etc.)

Notes

Figure 17. Example of a Waste Manifest for Spill Bucket Waste Removal



Notes

Release Reporting Records

Applicable Regulations: 30 TAC 334.10 and 30 TAC 334 Subchapter D

Report Suspected and Confirmed Releases

Report all suspected releases to TCEQ's Remediation Division within 24 hours of discovery. When a release detection method or other information indicates a leak or release may have occurred, report to us by either:

- Sending a completed Incident Report Form[27] (TCEQ-20097) by:
  - Email to pstrpr@tceq.texas.gov
  - Fax to (512) 239-2216
- Calling (512) 239-2200

Include the following information in your initial report:

- Date the suspected release occurred
- Date you became aware of it
- Date you reported it to us
- Results of your investigation
- Date and results of a system tightness test or site check sampling

If you discover contamination, you must take corrective actions. Find more information in our guide to *Suspected Releases from PSTs*[28] (RG-475h).

Keep Records

Your records should show that you:

- Reported suspected releases within 24 hours of discovery.
- Conducted system tightness tests or site checks within 30 days of discovery.
- Submitted Release Determination Reports[29] (TCEQ-00621) to TCEQ's Remediation Division within 45 days of discovery.

Keep records for at **least 5 years**.

27. www.tceq.texas.gov/goto/20097
28. www.tceq.texas.gov/downloads/assistance/publications/rg-475h-suspected-and-confirmed-releases-from-psts
29. www.tceq.texas.gov/goto/00621

Notes

Construction and Maintenance Records

Applicable Regulations: 30 TAC 334.6 and 30 TAC 334.10

Notify TCEQ of Certain Construction Activities

Send completed construction notification forms[30] (TCEQ-00495) to TCEQ when conducting any of the following construction or maintenance activities at your facility:

- Installing tanks or piping
- Removing underground tanks or permanently abandoning them in place
- Returning USTs to service
- Repairing, upgrading, or improving UST systems
- Performing an integrity assessment
- Any activity that requires a person to enter a UST

For more information, see the following modules of our PST Super Guide:

- *Installing a New or Replacement Underground Storage Tank*[31] (RG-475b)
- *Permanently Removing Petroleum Storage Tanks from Service*[32] (RG-475m)

Keep Records

Keep copies of:

- Construction notification forms sent to TCEQ.
- Receipts and invoices for repairs and maintenance, such as securing shear valves.
- Installation records for equipment (such as secondary containment for new components)

If you replaced any part of an existing line with single-walled piping, keep records showing that you replaced no more than 35% of the total original length of that line.

Keep copies of all records for at least **5 years**.

Attachment

1. *Figure 18. Example of a Construction Notification Form Acknowledgment Letter*

30. www.tceq.texas.gov/goto/00495
31. www.tceq.texas.gov/downloads/assistance/publications/rg-475b-installing-a-new-or-replacement-underground-storage-tank
32. www.tceq.texas.gov/downloads/assistance/publications/rg-475m-permanently-removing-petroleum-storage-tanks-from-service

Notes

Figure 18. Example of a Construction Notification Form Acknowledgment Letter

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Zak Covar, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

Texas Commission on Environmental Quality
Protecting Texas by Reducing and Preventing Pollution

January 21, 2015

[redacted]

Re: UST INSTALLATION at [redacted] Activity scheduled on 02/15/2015; TCEQ PST Facility No [redacted] Notification Received by TCEQ on 01/20/2015.

Dear Sir:

This letter acknowledges receipt by the Texas Commission on Environmental Quality (TCEQ) of notification for the referenced underground storage tank (UST) construction activity, as required by 30 TAC '334.6.

This letter does not constitute an official approval, permit or endorsement for the referenced activity or for any associated construction methods or equipment. A copy of your notification has been sent to the TCEQ regional office indicated below. The time and scope of this activity must be confirmed with the regional UST personnel 24 to 72 hours before the activity in order to arrange an inspection. Any rescheduling of the proposed construction must be coordinated and/or approved by authorized regional personnel.

Technical requirements which apply to various UST construction activities are included in 30 TAC '334, Subchapter C. **Also, all UST installations, repairs, and removals must be conducted by a registered UST contractor who has a licensed installer or on-site supervisor at the site during all critical junctures, as required by 30 TAC Chapter 334, Subchapter I.**

This letter also serves as a temporary delivery certificate to allow initial deliveries into any ***new or replacement UST system, or the initial delivery into an UST system temporarily out-of-service under '334.54 for the purpose of returning to service.*** *This* ***temporary*** *delivery certificate is valid for no more than 90 days after the first delivery of regulated substances into the new or replacement UST system, after which a permanent TCEQ-issued delivery certificate must be posted or available at the UST facility.*

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality.

Upon completion of construction, the attached UST Registration form and Self-Certification form must be completed and returned to the referenced address on the form. For further assistance, please contact the PST Registration & Self-Certification Team, at (512)239-2160, or the TCEQ regional UST personnel indicated below.

Sincerely,

Martha C. Glasgow

Martha Glasgow
Team Leader, PST Registration Team
Permitting & Registration Support Division

Enclosures: TCEQ UST Registration & Self-Certification Form
Regional Representative: Region 13, PST Team, (210)490-3096

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • tceq.texas.gov
TCEQ LPS Form LHD01 (07-29-04) How is our customer service? tceq.texas.gov/goto/customersurvey
printed on recycled paper

Notes

Operator Training Records

Applicable Regulations: 30 TAC 334.10 and 30 TAC 334 Subchapter N

Train Your Operators

You must have at least one trained A, B, and C operator for each UST facility, and one certified operator must be present during hours of operation.

Unmanned UST systems, such as card access fueling stations or emergency generators, must keep weather-resistant signs visible from any dispenser that includes:

- Procedures for addressing a surface spill
- Location of an emergency shutoff button
- A 24-hour contact phone number for the A/B operator
- When to call "911"

Find information in our guide to training for UST operators[33] (RG-475o) and approved UST training courses[34] on our website.

Keep Records

Include copies of:

- Current A/B operator certificate issued by a TCEQ-approved training provider.
- Current list of C operators trained for your facility and the date of their latest training.
- If your facility was determined to be in significant noncompliance, keep documentation of re-training.
- If applicable, documentation that a third-party designated class B operator holds a current A or A/B license and is employed by a registered UST contractor.
    - Include a signed agreement between the A/B operator and facility owner or operator.

Keep all records for **at least 5 years**.

Attachments

1. *Figure 19. Example of Current A/B Operator Training Certificate*
2. *"C" Operator Training Log Sheet*

33. www.tceq.texas.gov/downloads/assistance/publications/rg-475o-training-for-underground-storage-tank-operators
34. www.tceq.texas.gov/goto/ust-training

Notes

Figure 19. Example of Current A/B Operator Training Certificate

Notes

Class C Operator Training Log Instructions

Train On-Site Staff

On-site staff that will regularly interact with the USTs must be trained as Class C UST operators must be trained by a licensed A/B operator.

- Class C operator training only applies to the specific facility it was provided for.

Document Staff Training

Since Class C operators are trained on-site by licensed A/B operators, you must document when each staff member received the training. If using our operator training log sheet, follow the instructions below. If using your own record-keeping method, document the same information described in our log.

Print the name of the trainee, the date they were trained, and the name of the trainer in the log sheet. Have both the trainee and trainer sign next to their names to certify the training is completed.

Update Regularly and Keep with Records

Update your log sheets when new staff are trained and keep them in your records for **at least five years** for TCEQ inspections.

Notes

Class C Operator Training Log Sheet

By signing this document, I acknowledge that I received Class C Operator training by a qualified Class A/B Operator[35] and understand my function as a Class C Operator.[36] I also understand that Class C Operators must be retrained within 3 years of the training date below[37] and this training only applies to the specific facility the training was provided for.

Date	Trainee Name	Trainee Signature	Trainer Name	Trainer Signature

35. As required by 30 TAC 334.
36. As defined in 30 TAC 334.602.
37. See 30 TAC 334.602, 334.603, 334.605.

Notes

Temporarily Out-of-Service UST Records

Applicable Regulations: 30 TAC 334.10 and 30 TAC 334.54

Update the Tank's Registration Status

To update your tank's registration status, submit a PST registration and self-certification application online[38] through STEERs or complete a Registration and Self-Certification form[39] (TCEQ-00724) and send it one of the following ways:

- Fax to: (512) 239-3398
- Mail to:
  Petroleum Storage Tank Registration Team (MC-138)
  Texas Commission on Environmental Quality
  P.O. Box 13087
  Austin, TX 78711-3087

Maintain Your System

For **all** temporarily out-of-service (TOOS) tanks, keep vent lines open and all access points locked and secure, and maintain:

- Corrosion protection (see page 15)
- Operator training (see page 103)
- Financial assurance[40] (see page 11) unless your tank is empty, **and** you conducted a site check.

If your TOOS tanks are **not empty**, you must also maintain:

- Release detection for both the tank and piping (see page 31)

If your TOOS tanks are **empty**[41], keep verification that the tank is empty such as a manifest or invoice.

- See our guide to *Temporarily Removing PSTs from Service*[42] (RG-475l)

Keep Records

Keep all records for **at least 5 years**.

38. www.tceq.texas.gov/goto/steers
39. www.tceq.texas.gov/goto/00724
40. If your tanks are empty and you have completed a site check and performed any necessary corrective actions according to 30 TAC 334.74.
41. Empty means you removed all liquid and no more than 2.5 centimeters of sludge remains.
42. www.tceq.texas.gov/downloads/assistance/publications/rg-475l-temporarily-removing-petroleum-storage-tanks-from-service

Notes

Stage I and Stage II Vapor Recovery Records

Applicable Regulations: 30 TAC 115, Subchapter C and 30 TAC 334.10

Know Your Requirements

You may be required to maintain stage I vapor recovery if your facility dispenses gasoline in certain counties. Stage II vapor recovery is no longer required, and its equipment should already be decommissioned.

- Find more information on stage 1 requirements[43] on our website or review our guide to *Gasoline Stage I and II Vapor Recovery*[44] (RG-475j).
- Find a Stage I Applicability Map[45] on our website.
- Find vapor recovery forms and guidance[46] on our website.

Keep Records

Keep copies of:

- 40 CFR 63 Subpart 6C Initial Notification Reports
  - Find a 6C Initial Notification Report Example[47] on our website.
- 40 CFR 63 Subpart 6C Notifications of Compliance Status
- Verification of monthly gasoline throughput (inventory control records)
  - Submerged fill tube documentation
  - Annual testing records (if applicable)
- Stage II decommissioning notification, test results, and report (if applicable)

Keep all records for **at least 5 years**.

43. www.tceq.texas.gov/assistance/industry/pst/stage-i-vapor-recovery
44. www.tceq.texas.gov/downloads/assistance/publications/rg-475j-gasoline-stage-i-and-ii-vapor-recovery
45. www.tceq.texas.gov/assets/public/implementation/air/vr/TexasStageIProgramMap.pdf
46. www.tceq.texas.gov/airquality/mobilesource/vapor_recovery.html#testing1
47. www.tceq.texas.gov/downloads/assistance/air/neshap/6c-initial-notification-form.docx

Notes

Miscellaneous Facility Records

Applicable Regulations: 30 TAC 334.10

Include Records Not Found Elsewhere

Include important records that do not fit elsewhere in the notebook here, such as:

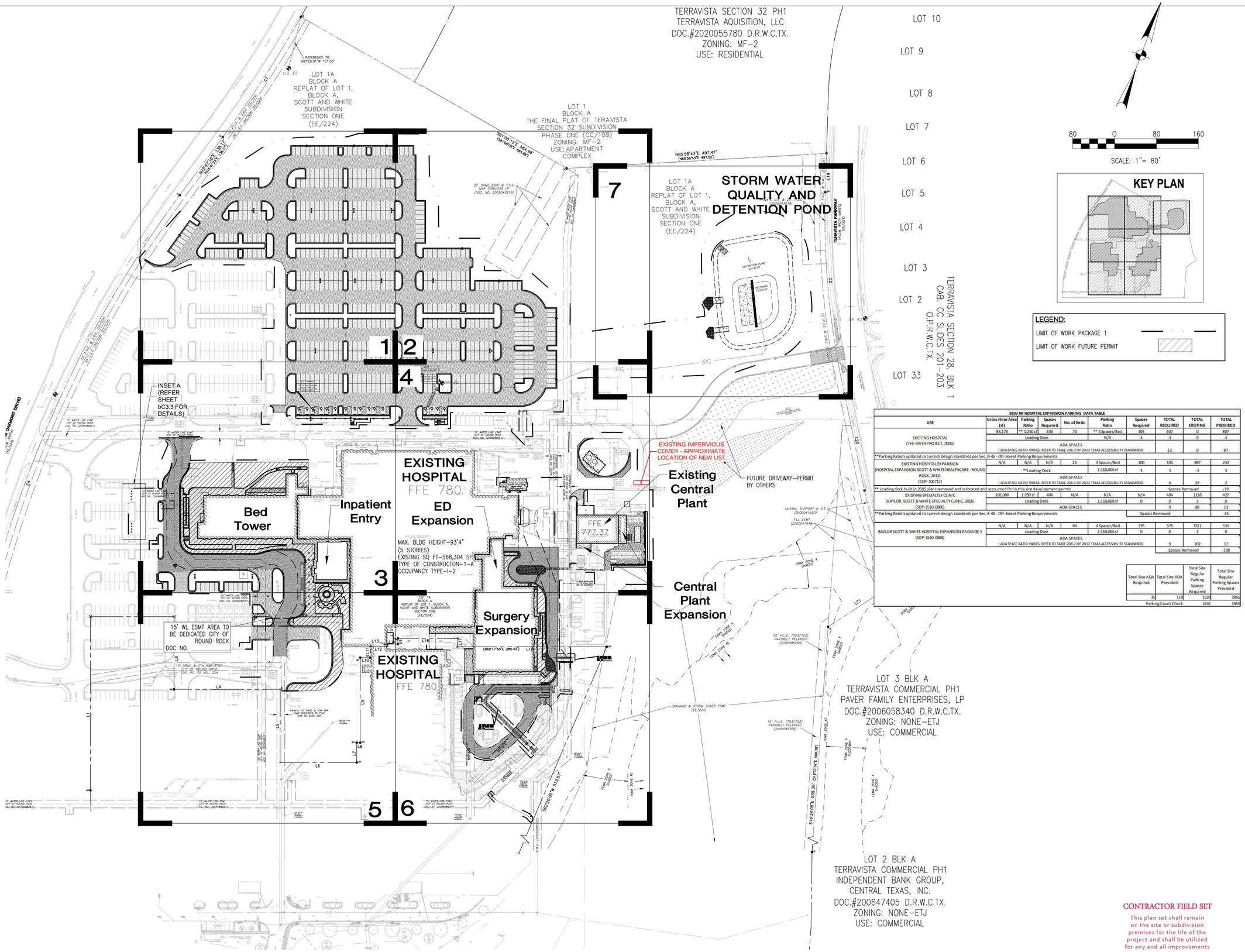
- Inventory control records (if you do not use it as part of your release detection method).

Keep Records

Keep copies of all records for at least **5 years**.

Notes

Site Plan



BSW RR HOSPITAL EXPANSION PARKING DATA TABLE									
USE	Gross Floor Area (sf)	Parking Ratio	Spaces Required	No. of Beds	Parking Ratio	Spaces Required	TOTAL REQUIRED	TOTAL EXISTING	TOTAL PROVIDED
EXISTING HOSPITAL (THE RIVER PROJECT, 2005)	83,173	** 1:250 sf	333	76	** 4 Spaces/Bed	304	637	0	807
	Loading Dock				N/A	3	3	0	3
	ADA SPACES (ADA SPACE RATIO VARIES. REFER TO TABLE 208.2 OF 2012 TEXAS ACCESSIBILITY STANDARDS)						13	0	87
**Parking Ratio's updated to current design standards per Sec. 8-46 - Off-Street Parking Requirements									
EXISTING HOSPITAL EXPANSION (HOSPITAL EXPANSION SCOTT & WHITE HEALTHCARE - ROUND ROCK, 2012) (SDP-1007?2)	N/A	N/A	N/A	25	4 Spaces/Bed	100	100	897	243
	**Loading Dock				1:150,000 sf	3	3	-3	3
	ADA SPACES (ADA SPACE RATIO VARIES. REFER TO TABLE 208.2 OF 2012 TEXAS ACCESSIBILITY STANDARDS)						4	87	2
** Loading dock built in 2005 plans removed and relocated and accounted for in this site development permit							Spaces Removed		-19
EXISTING SPECIALTY CLINIC (BAYLOR, SCOTT & WHITE SPECIALTY CLINIC, 2016) (SDP-1510-0006)	101,000	1:250 sf	404	N/A	N/A	N/A	404	1126	427
	Loading Dock				1:150,000 sf	0	0	3	0
	ADA SPACES						9	89	13
**Parking Ratio's updated to current design standards per Sec. 8-46 - Off-Street Parking Requirements							Spaces Removed		-45
BAYLOR SCOTT & WHITE HOSPITAL EXPANSION PACKAGE 1 (SDP-1510-0006)	N/A	N/A	N/A	94	4 Spaces/Bed	376	376	1521	535
	Loading Dock				1:150,000 sf	0	0	3	0
	ADA SPACES (ADA SPACE RATIO VARIES. REFER TO TABLE 208.2 OF 2012 TEXAS ACCESSIBILITY STANDARDS)						9	102	17
							Spaces Removed		-108

Total Site ADA Required	Total Site ADA Provided	Total Site Regular Parking Spaces Required	Total Site Regular Parking Spaces Provided
35	119	1520	1846
Parking Count Check		1554	1965

80 0 80 160

SCALE: 1"= 80'

KEY PLAN

LEGEND:

LIMIT OF WORK PACKAGE 1

LIMIT OF WORK FUTURE PERMIT

CONTRACTOR FIELD SET

This plan set shall remain on the site or subdivision premises for the life of the project and shall be utilized for any and all improvements contained herein.

Philo Wilke Partnership
11275 S. Sam Houston Parkway W.
Suite 200 | Houston, Texas 77031
832.554.1130 | philowilke.com

Walter P. Moore and Associates, Inc.
TBPE Firm Registration No. 1856

STATE OF TEXAS
DAVID S. LUNDBERG
130058
LICENSED
PROFESSIONAL ENGINEER
2022/09/30

Consultants

Civil
Walter P Moore
TBPLS FIRM NO. 1856

Landscape
Asakura Robinson

Structural Engineer
Datum Engineers

MEP
O'Connell Roberston

Low Voltage
Telios

No.	Date	Description
1.	06/29/2021	PER-PRE-SUBMITTAL MEETING
2.	11/30/2021	PER-PRELIMINARY SUBMITTAL RECEIVED
3.	05/05/2022	CITY INITIAL SUBMITTAL
4.	07/22/2022	CITY SECOND SUBMITTAL
5.	08/26/2022	CITY THIRD SUBMITTAL
6.	09/30/2022	CITY FOURTH SUBMITTAL

Project

BSW Round Rock Expansion

Baylor Scott & White
300 University Boulevard
Round Rock, Texas 78665

Package

b-Site #1

Drawing Name

CIVIL SITE OVERALL LAYOUT PLAN

Print Date / Time: 5/3/2022 12:13:22 PM

P&W Commission Number: 220-009

Sheet Number: bC3.0

CORR PERMIT #SDP2111-0005

Oct 13, 2022 - 9:26pm X:\CO\22\02\21\02-00 bsw round rock expansion project\3-production\03-sheets\Site\C02-21002-00-LA-OV.dwg

Temporary Storm Water Section (TCEQ Form 0602) Tab 5

Attachment A	Spill Response Actions
Attachment B	Potential Sources of Contamination
Attachment C	Sequence of Major Activities
Attachment D	Temporary Best Management Practices and Measures
Attachment E	Request to Temporarily Seal a Feature, if requested
Attachment F	Structural Practices
Attachment G	Drainage Area Map
Attachment H	Temporary Sediment Pond(s) Plans and Calculations
Attachment I	Inspection and Maintenance for BMPs
Attachment J	Schedule of Interim and Permanent Soil Stabilization Practices

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.

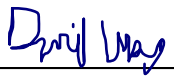
Signature

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: David Lundberg - Agent

Date: 12/1/23

Signature of Customer/Agent:



Regulated Entity Name: Baylor Scott & White UST

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: Fossil-fuels, Petroleum based lubricants.

   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: Brushy Creek

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

The most likely instances of a spill of hydrocarbons or hazardous substances are:

Refueling construction equipment (i.e. diesel, gasoline).
Performing operator-level maintenance, including adding petroleum, oils, or lubricants to equipment.
Unscheduled or emergency repairs, such as hydraulic fluid leaks.

Every effort will be taken to be cautious and prevent spills. In the event of a fuel or hazardous substance spill as defined by 30 TAC 327 (https://texreg.sos.state.tx.us/public/readtac%24ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=327&rl=5, TAC Ch. 327, 1996 and amendments).

Steps on who to notify, how to clean and when to report can be found on the Texas Environmental Quality's (TCEQ) website under:

https://www.tceq.texas.gov/response/spills

During business hours report spills to the TCEQ's Austin Regional Office at **(512) 339-2929**.

After business hours report spills to the Environmental Response Hotline at **1-800-832-8224**, or to the TCEQ Spill Reporting Hotline at **(512) 463-7727**, which is also answered 24 hours a day.

The contractor is required to clean up the spill and notify TCEQ as required including a **30-day follow-up**.

Additional information can be found on the TCEQ website (www.tceq.texas.gov). Helpful guidelines and pages are included in this section.

For small spills that do not require reporting to state (TCEQ or Texas General Land Office) or federal (Environmental Protection Agency) entities:
Notify the responsible person or response personnel hired by the responsible person at the site of the discharge or spill;
Initiate efforts to stop the discharge or spill;
Minimize the impact to the public health and the environment;
Neutralize the effects of the incident;
Properly remove the discharged or spilled substances; and
Dispose managing the waste(s) in accordance with local and state regulations at designated waste collection facilities;
Document spill volume, location, remediation efforts and disposal method(s) with the project city inspector;
Provide required documentation to city officials upon request.

Attachment B Potential Sources of Contamination

Potential sources of contamination can be found on the site in the form of fossil fuels for construction vehicles and equipment, dispenser systems for fuels/lubricants as well as asphalt/concrete pavement for the completion of the parking and drive aisles. Disrupted sediment is also a potential source of contamination downstream of the site. The owner/contractor will take full responsibility for the immediate clean-up of any asphalt, emulsion, coatings, concrete and/or any damage to the silt fence surrounding the property. In case a spill or break occurs during installation of concrete, or any asphalt pavement, stand-by personnel and equipment will be readily available during the pouring and/or curing time.

Attachment C Sequence of Major Activities

The sequence of work should be as follows:

1. Coordinate all start-up work with owner (**0.16 Ac.**).

2. Maintain temporary erosion and sedimentation controls. Silt and sediment shall be removed after any significant rainfall or when the depth of silt/sediment is 1'-0" at any rock berm or silt fence.

3. Contact the Engineer to arrange a pre-construction meeting at least two days in advance of starting construction at 512-501-4323.

4. Begin site clearing within limits of work (**0.03–Ac**.).

5. Maintain conveyance of stormwater runoff to the existing water quality pond, which is to be used as a temporary BMP during construction.

6. Existing paved areas shall be stripped of all existing concrete and utilities as shown on the demolition sheet.

   (Note that site stripping could frequently loosen limestone rocks and boulders, which should be excavated and removed from the construction area.)

7. Install utility improvements (**0.03–Ac.**).
   Note: Contractor to coordinate with Georgetown Utility Systems (GUS) for final electric utility assignment location.

8. Install all pavement, above ground structures, water quality and detention pond improvements. (**0.03–Ac.**).

9. Maintain a clean work area. Upon completion of work, clean up the disturbed area (**0.16–Ac.**).

10. Finalize all site improvements within limits of work (**0.03–Ac.**).

11. Final cleaning of erosion and sedimentation controls.

12. Receive the approval for completion of site work from Engineer and City Inspector.

13. Dispose of all construction debris and trash. Hydro-mulch any disturbed areas following site cleanup. Complete permanent erosion control and site restoration.

14. Project Engineer shall schedule final inspection of site with owner and submit completion letter to the TCEQ. Remove any temporary erosion/sedimentation controls and tree protection. Restore any areas disturbed during removal of erosion/sedimentation controls.

Attachment D Temporary Best Management Practices and Measures

1. The contractor shall install and/or maintain Erosion and Sedimentation controls and tree/natural area protective fencing prior to any site preparation work.

2. Temporary Erosion and Sedimentation controls utilized for this WPAP permit application include (but are not limited to): silt fence, rock berms, tree protection, mulch sock, inlet protection, construction entrance and triangular filter dike(s).

3. Other types of erosion control such as a dewatering skimmer, pipe outfall protection and/or riprap may also be required to be used upon the request of the site inspector and/or TCEQ.

4. The placement of erosion/sedimentation controls shall be in accordance with the approved Erosion and Sedimentation Control Plan.

5. The placement of tree/natural area protective fencing shall be in accordance with the approved Erosion and Sedimentation Control Plan.

6. A pre-construction conference shall be held on-site with the contractor, design Engineer and any other governing Agency or Inspectors after installation of erosion/sedimentation controls and tree/natural area protection measures and prior to beginning any site preparation work. The contractor shall notify the Engineer, at least two days (48 hrs) prior to the meeting date.

7. Any major variation in materials or locations of controls or fences from those shown on the approved plans will require a revision and must be approved by the reviewing Engineer as appropriate. Major revisions must be approved by TCEQ. Minor changes to be made as field revisions to the Erosion and Sedimentation Control Plan may be required by the Engineer during the course of construction to correct control inadequacies.

8. 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 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 inches.

9. Prior to the final acceptance by the Engineer, 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 re-vegetated. All land clearing debris shall be disposed of in approved spoil disposal sites.

10. All work must stop if a void in the rock substrate is discovered which is: one square foot in total area; blows air from within the substrate and/or consistently receives water during any rain event. At this time, it is the responsibility of the On-Site Superintendent to immediately contact the Engineer for further investigation.

11. Permanent Erosion Control: All disturbed areas shall be restored as noted below.

a. A minimum of four inches of topsoil shall be placed in all drainage channels (except rock) and between the curb and right-of-way line.

12. All trees and natural areas shown on plan to be preserved shall be protected during construction with temporary fencing.

13. Protective fences shall be installed prior to the start of any site preparation work (clearing, grubbing or grading), and shall be maintained throughout all phases of the construction project.

14. Protective fences shall be erected according to the Details and Standards shown in the plans.

15. Erosion and sedimentation control barriers shall be installed or maintained in a manner, which does not result in soil build-up within tree drip lines.

16. Protective fences shall surround the trees or group of trees, and will be located at the outermost limit of branches (drip line), or, for natural areas, protective fences shall follow the Limit of Construction line, in order to prevent the following:
    a. Soil compaction in the root zone area resulting from vehicular traffic or storage of equipment or materials;
    b. Root zone disturbances due to grade changes (greater than 6 inches cut or fill), or trenching not reviewed and authorized by the City Arborist;
    c. Wounds to exposed roots, trunk or limbs by mechanical equipment;
    d. Other activities detrimental to trees such as chemical storage, cement truck cleaning, and fires.

17. Exceptions to installing fences at tree drip lines may be permitted in the following cases:
    a. Where there is to be an approved grade change, impermeable paving surface, tree well, or other such site development, erect the fence approximately 2 to 4 feet behind the area disturbed;
    b. Where permeable paving is to be installed within a tree's drip line, erect the fence at the outer limits of the permeable paving area (prior to site grading so that this area is graded separately prior to paving installation to minimize root damage);
    c. Where trees are close to proposed buildings, erect the fence to allow 6 to 10 feet of work space between the fence and the building;
    d. Where there are severe space constraints due to tract size, or other special requirements, contact an Arborist to discuss alternatives.

18. Where any of the above exceptions result in a fence being closer than 4 feet to a tree trunk, protect the trunk with strapped-on planking to a height of 8 feet (or to the limits of lower branching) in addition to the reduced fencing provided.

19. Trees approved for removal shall be removed in a manner, which does not impact trees to be preserved.

20. Any roots exposed by construction activity shall be pruned flush with the soil. Backfill root areas with good quality topsoil as soon as possible. If exposed root areas are not backfilled within 2 days, cover them with organic material in a manner, which reduces soil temperature and minimizes water loss due to evaporation.

21. Any trenching required for the installation of landscape irrigation shall be placed, as far from existing tree trunks as possible.

22. No landscape topsoil dressing greater than 4 inches shall be permitted within the drip line of trees. No soil is permitted on the root flare of any tree.

23. Pruning to provide clearance for structures, vehicular traffic and equipment shall take place before damage occurs (ripping of branches, etc.).

24. All finished pruning shall be done according to recognized, approved standards of the industry.

25. Deviation from the above notes may be considered rule violations if there is substantial no-compliance or if a tree sustains damage as a result.

Attachment E Request to Temporarily Seal a Feature, if requested

NO FEATURES are within the project limits. NO TEMPORARY SEAL request is made.

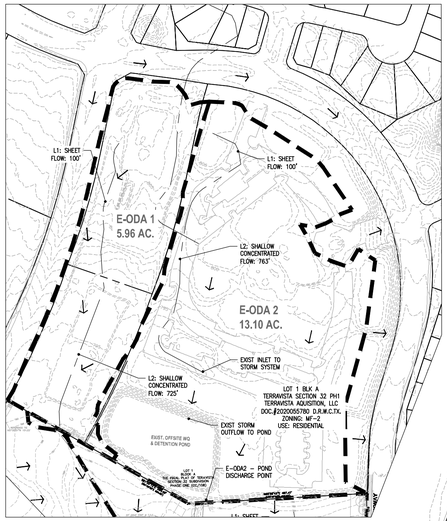
Attachment F Structural Practices

During construction of the site improvements, storm water runoff upstream of the localized improvements will be diverted around the limit of work via triangular filter dikes within drainage basin P-DA1 and will be captured downstream by the existing water quality BMP (wet pond) and detention pond. Once erosion controls have been installed and the pre-construction meeting has occurred, the first movement of earth will consist of breaking existing concrete for the storage tank. Existing impervious areas around the limit of work will flow to the existing water quality pond. During construction, stormwater runoff will be redirected around the excavated area and pass through temporary inlet protection before entering the storm sewer network and ultimately making its way to the existing water quality BMP. Should a storm event occur during construction stormwater runoff will be captured by the existing water quality BMP. Sediment will be removed through settlement with the wet pond as well as temporary erosion control measures such as silt fence and rock berms.

The design of the existing water quality BMP(s) and detention pond(s) can be found in the construction plan set included in this submittal for reference.

Attachment G Drainage Area Map

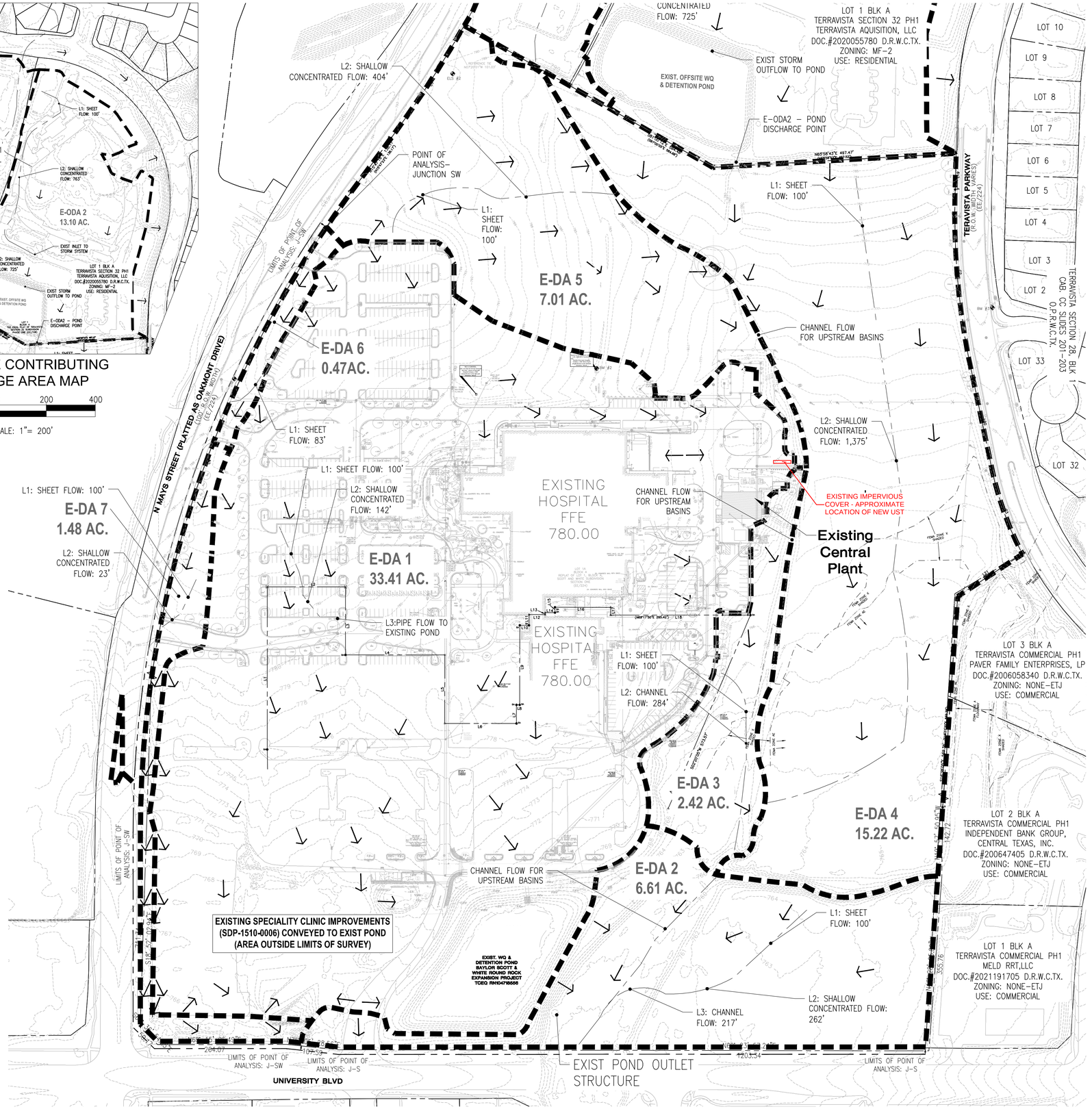
Drainage Area Maps for existing and developed conditions are included in the approved plan set as sheets bC9.0 and bC9.1. Calculations associated with the existing BMP's is located on sheets bC9.4 and bC9.5.



OFFSITE CONTRIBUTING DRAINAGE AREA MAP

200 0 200 400

SCALE: 1"= 200'



100 0 100 200

SCALE: 1"= 100'

EXISTING LEGEND

EXISTING CONTOUR	725
PROPERTY LINE	
FLOW DIRECTION	
PATH OF TIME OF CONCENTRATION	
DRAINAGE AREA BOUNDARY	
DRAINAGE AREA	E-DAn ACRES
LIMIT OF POINT OF ANALYSIS	

Sheet Notes:

1. UPSTREAM OFFSITE DRAINAGE BASINS THAT PASS THROUGH THE PROPERTY ARE ASSUMED TO BE FULLY DEVELOPED AND UNDETAINED FOR EXISTING AND DEVELOPED CONDITIONS.
2. THE EXISTING WATER QUALITY AND DETENTION POND DESIGNED FOR BASIN E-DA1/P-DA1 WAS APPROVED UNDER AS-BUILTS 'SCOTT & WHITE RIVER PROJECT' (2005).
3. THE PROPOSED MODIFICATIONS TO DRAINAGE BASIN E-DA1/P-DA1 WILL NOT NEGATIVELY IMPACT THE ORIGINAL DESIGN. THIS BASIN IS ASSUMED BE BE FULLY DEVELOPED AND UNDETAINED AND IS ANALYZED UTILIZING ATLAS-14 RAINFALL DATA.
4. CALCULATIONS ASSOCIATED WITH THE EXISTING WATER QUALITY POND APPROVED UNDER TCEQ PERMIT #RN104718556 CAN BE FOUND ON SHEETS C9.2-C9.5.
5. THE NEW WATER QUALITY AND DETENTION POND FOLLOWS CURRENT CITY OF ROUND ROCK ADOPTED REGULATIONS DATED 8/6/2020, WHICH UTILIZES ATLAS-14 RAINFALL DATA.
6. THE PROPOSED SITE IMPROVEMENTS DO NOT ADVERSELY IMPACT THE NATURAL STREAMS OR THE CHARACTERISTICS OF LAND AND WATERWAYS OF THE BRUSHY CREEK WATERSHED.
7. THE IMPERVIOUS COVER WITHIN THE DRAINAGE AREA WITHIN N. MAYS ROW IS THE TURNING LANE, AND IS ACCOUNTED FOR AS EXISTING IMPERVIOUS COVER, AS RECOGNIZED IN AS-BUILT PLANS BAYLOR SCOTT & WHITE SPECIALTY CLINIC (SDP-1510-0006).

CONTRACTOR FIELD SET

This plan set shall remain on the site or subdivision premises for the life of the project and shall be utilized for any and all improvements contained herein.

Philo Wilke Partnership
11275 S. Sam Houston Parkway W.
Suite 200 | Houston, Texas 77031
832.554.1130 | philowilke.com

Walter P. Moore and Associates, Inc.
TBPE Firm Registration No. 1856

STATE OF TEXAS
DAVID S. LUNDBERG
130058
LICENSED
PROFESSIONAL ENGINEER
2022/09/30

Consultants
Civil
Walter P Moore
TBPLS FIRM NO. 1856

Landscape
Asakura Robinson

Structural Engineer
Datum Engineers

MEP
O'Connell Roberston

Low Voltage
Telios

Revisions

No.	Date	Description
1.	06/29/2021	PER-PRE-SUBMITTAL MEETING
2.	11/30/2021	PER-PRELIMINARY SUBMITTAL RECEIVED
3.	05/05/2022	CITY INITIAL SUBMITTAL
4.	07/22/2022	CITY SECOND SUBMITTAL
5.	08/26/2022	CITY THIRD SUBMITTAL
6.	09/30/2022	CITY FOURTH SUBMITTAL

Project

BSW Round Rock Expansion

Baylor Scott & White
300 University Boulevard
Round Rock, Texas 78665

Package

b-Site #1

Drawing Name

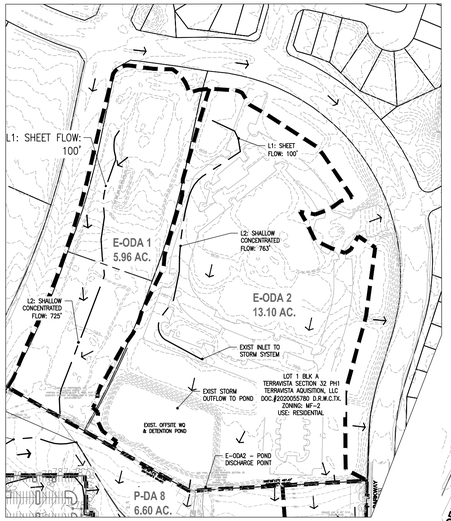
EXISTING DRAINAGE AREA MAP

Print Date / Time: 5/3/2022 12:13:22 PM

P&W Commission Number: 220-009

Sheet Number: bC9.0

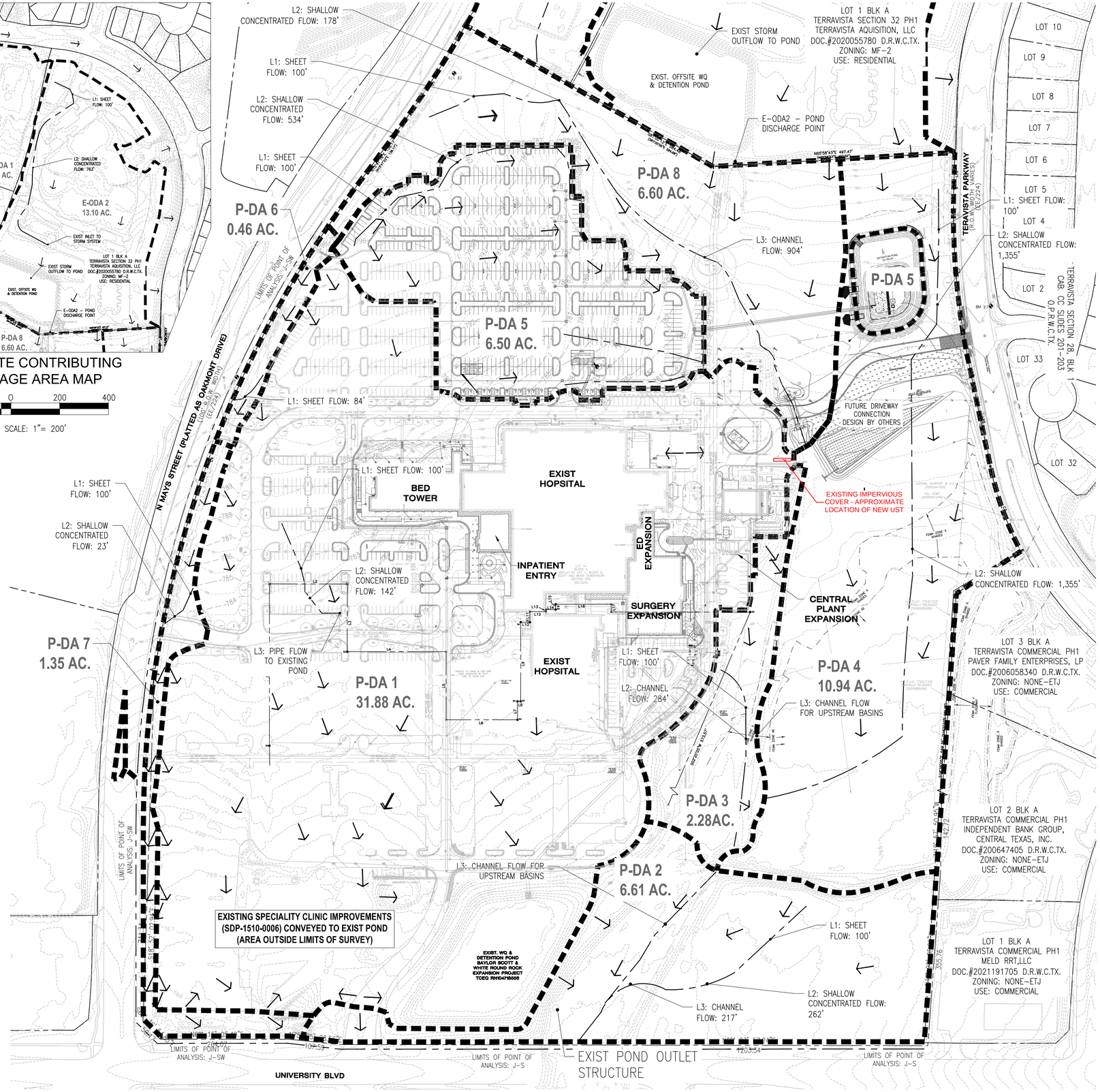
CORR PERMIT #SDP2111-0005



OFFSITE CONTRIBUTING DRAINAGE AREA MAP

200 0 200 400

SCALE: 1"= 200'



100 0 100 200

SCALE: 1"= 100'

EXISTING LEGEND

EXISTING CONTOUR	725
PROPERTY LINE	
FLOW DIRECTION	
PATH OF TIME OF CONCENTRATION	
DRAINAGE AREA BOUNDARY	
DRAINAGE AREA	E-DA# / ACRES
LIMIT OF POINT OF ANALYSIS	

Sheet Notes:

1. UPSTREAM OFFSITE DRAINAGE BASINS THAT PASS THROUGH THE PROPERTY ARE ASSUMED TO BE FULLY DEVELOPED AND UNDETAINED FOR EXISTING AND DEVELOPED CONDITIONS.
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7. THE IMPERVIOUS COVER WITHIN THE DRAINAGE AREA WITHIN N. MAYS ROW IS THE TURNING LANE, AND IS ACCOUNTED FOR AS EXISTING IMPERVIOUS COVER, AS RECOGNIZED IN AS-BUILT PLANS BAYLOR SCOTT & WHITE SPECIALTY CLINIC (SDP-1510-0006).

CONTRACTOR FIELD SET

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STATE OF TEXAS
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Project

BSW Round Rock Expansion

Baylor Scott & White
300 University Boulevard
Round Rock, Texas 78665

Package

b-Site #1

Drawing Name

DEVELOPED DRAINAGE AREA MAP

Print Date / Time: 5/3/2022 12:13:22 PM

P&W Commission Number: 220-009

Sheet Number: bC9.1

CORR PERMIT #SDP2111-0005

Oct 12, 2022 - 5:28pm \\walterpmoore.com\files\projects\C02\202112\002-060 bsw round rock expansion project\3-production\03-sheets\Site\C02-21002-00-DA-OV.dwg

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Scott and White Hospital - Existing Pond
Date Prepared: 7/9/2010

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson		
Total project area included in plan =	66.58	acres	
Predevelopment impervious area within the limits of the plan =	8.58	acres	
Total post-development impervious area within the limits of the plan =	23.15	acres	
Total post-development impervious cover fraction =	0.35		
P =	32	inches	
$L_{M\ TOTAL\ PROJECT}$ =	20150	lbs.	

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	33.07	acres
Predevelopment impervious area within drainage basin/outfall area =	8.58	acres
Post-development impervious area within drainage basin/outfall area =	23.15	acres
Post-development impervious fraction within drainage basin/outfall area =	0.70	
$L_{M\ THIS\ BASIN}$ =	20150	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Wet Basin
Removal efficiency = 93 percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_1 x 34.6 + A_2 x 0.54)

where:
A_1 = Total On-Site drainage area in the BMP catchment area
A_1 = Impervious area proposed in the BMP catchment area
A_2 = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_1 =	33.07	acres
A_1 =	23.15	acres
A_2 =	9.92	acres
L_R =	23997	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 20275 lbs.

F = 0.84

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.26	inches
Post Development Runoff Coefficient =	0.51	
On-site Water Quality Volume =	76488	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	15298	
Total Capture Volume (required water quality volume(s) x 1.20) =	91786	cubic feet

11. Wet Basins Designed as Required in RG-348 Pages 3-66 to 3-71

Required capacity of Permanent Pool =	91786	cubic feet
Required capacity at WQV Elevation =	180275	cubic feet

Permanent Pool Capacity is 1.20 times the WQV
Total Capacity should be the Permanent Pool Capacity plus a second WQV.

THE ABOVE CALCULATIONS ARE FOR THE AVAILABLE WATER QUALITY VOLUME AS DESIGNED FOR THE EXISTING WATER QUALITY POND PER CORR AS-BUILTS "SCOTT & WHITE RIVER PROJECT" (2005).

TCEQ RN104718556

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: BSW Round Rock Hospital Expansion - E-DA-1
Date Prepared: 4/28/2022

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson		
Total project area included in plan =	66.62	acres	
Predevelopment impervious area within the limits of the plan =	8.89	acres	
Total post-development impervious area within the limits of the plan =	27.45	acres	
Total post-development impervious cover fraction =	0.41		
P =	32	inches	
$L_{M\ TOTAL\ PROJECT}$ =	23892	lbs.	

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 2

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	33.41	acres
Predevelopment impervious area within drainage basin/outfall area =	8.89	acres
Post-development impervious area within drainage basin/outfall area =	23.15	acres
Post-development impervious fraction within drainage basin/outfall area =	0.69	
$L_{M\ THIS\ BASIN}$ =	20158	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Wet Basin
Removal efficiency = 93 percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_1 x 34.6 + A_2 x 0.54)

where:
A_1 = Total On-Site drainage area in the BMP catchment area
A_1 = Impervious area proposed in the BMP catchment area
A_2 = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_1 =	33.41	acres
A_1 =	23.15	acres
A_2 =	10.25	acres
L_R =	24012	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 20158 lbs.

F = 0.84

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.26	inches
Post Development Runoff Coefficient =	0.50	
On-site Water Quality Volume =	76243	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	15249	
Total Capture Volume (required water quality volume(s) x 1.20) =	91492	cubic feet

11. Wet Basins Designed as Required in RG-348 Pages 3-66 to 3-71

Required capacity of Permanent Pool =	91492	cubic feet
Required capacity at WQV Elevation =	157735	cubic feet

Permanent Pool Capacity is 1.20 times the WQV
Total Capacity should be the Permanent Pool Capacity plus a second WQV.

THE ABOVE CALCULATIONS ARE FOR THE AVAILABLE WATER QUALITY VOLUME AS PER AS-BUILT CONDITIONS OF THE EXISTING WATER QUALITY POND PER CORR AS-BUILTS "SCOTT & WHITE RIVER PROJECT" (2005). THIS DRAINAGE AREA IS REPRESENTED AS BASIN E-DA-1 WITHIN THE OVERAL DRAINAGE AREA PLAN.

TCEQ RN104718556

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: BSW Round Rock Hospital Expansion - P-DA-1
Date Prepared: 4/28/2022

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson		
Total project area included in plan =	66.62	acres	
Predevelopment impervious area within the limits of the plan =	8.89	acres	
Total post-development impervious area within the limits of the plan =	27.45	acres	
Total post-development impervious cover fraction =	0.41		
P =	32	inches	
$L_{M\ TOTAL\ PROJECT}$ =	23892	lbs.	

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 2

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	31.88	acres
Predevelopment impervious area within drainage basin/outfall area =	8.89	acres
Post-development impervious area within drainage basin/outfall area =	22.23	acres
Post-development impervious fraction within drainage basin/outfall area =	0.70	
$L_{M\ THIS\ BASIN}$ =	19340	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Wet Basin
Removal efficiency = 93 percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_1 x 34.6 + A_2 x 0.54)

where:
A_1 = Total On-Site drainage area in the BMP catchment area
A_1 = Impervious area proposed in the BMP catchment area
A_2 = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_1 =	31.88	acres
A_1 =	22.23	acres
A_2 =	9.65	acres
L_R =	23945	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 19340 lbs.

F = 0.84

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.26	inches
Post Development Runoff Coefficient =	0.50	
On-site Water Quality Volume =	73340	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	14668	
Total Capture Volume (required water quality volume(s) x 1.20) =	88008	cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.
The values for BMP Types not selected in cell C45 will show NA.

11. Wet Basins Designed as Required in RG-348 Pages 3-66 to 3-71

Required capacity of Permanent Pool =	88008	cubic feet
Required capacity at WQV Elevation =	161348	cubic feet

Permanent Pool Capacity is 1.20 times the WQV
Total Capacity should be the Permanent Pool Capacity plus a second WQV.

THE ABOVE CALCULATIONS ARE FOR THE MODIFIED CONTRIBUTING BASIN TO THE EXISTING PERMANENT BMP (E-DA1). PORTIONS OF EXISTING CONTRIBUTING AREAS ARE BEING REDIRECTED TO THE PROPOSED PERMANENT BMP.

THIS MODIFICATION TO THE EXISTING BMP DRAINAGE BASIN RESULTS IN AN AVAILABLE WQV OF 7,377 CF WITHIN THE EXISTING POND.
(168,725 CF - 161,348 CF = 7,377 CF

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: BSW Round Rock Hospital Expansion - P-DA-5
Date Prepared: 4/28/2022

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson		
Total project area included in plan =	66.62	acres	
Predevelopment impervious area within the limits of the plan =	8.58	acres	
Total post-development impervious area within the limits of the plan =	27.45	acres	
Total post-development impervious cover fraction =	0.41		
P =	32	inches	
$L_{M\ TOTAL\ PROJECT}$ =	23892	lbs.	

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 2

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 2

Total drainage basin/outfall area =	6.56	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	5.22	acres
Post-development impervious fraction within drainage basin/outfall area =	0.80	
$L_{M\ THIS\ BASIN}$ =	4563	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Wet Basin
Removal efficiency = 93 percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_1 x 34.6 + A_2 x 0.54)

where:
A_1 = Total On-Site drainage area in the BMP catchment area
A_1 = Impervious area proposed in the BMP catchment area
A_2 = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_1 =	6.56	acres
A_1 =	5.22	acres
A_2 =	1.28	acres
L_R =	5396	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 4563 lbs.

F = 0.84

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.26	inches
Post Development Runoff Coefficient =	0.53	
On-site Water Quality Volume =	15673	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	3135	
Total Capture Volume (required water quality volume(s) x 1.20) =	22400	cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.
The values for BMP Types not selected in cell C45 will show NA.

11. Wet Basins Designed as Required in RG-348 Pages 3-66 to 3-71

Required capacity of Permanent Pool =	22400	cubic feet
Required capacity at WQV Elevation =	41802	cubic feet

Permanent Pool Capacity is 1.20 times the WQV
Total Capacity should be the Permanent Pool Capacity plus a second WQV.

THIS SPREADSHEET IS FOR THE DESIGN OF THE NEW WATER QUALITY POND ASSOCIATED WITH THIS SITE DEVELOPMENT PERMIT.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE 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.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
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 APPROVED PLANS AND 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.
6. 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.
7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT 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.
11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
   - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
   - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
   - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
   A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

GABION WALL NOTES

594.1
DESCRIPTION
THIS ITEM SHALL CONSIST OF THE EXCAVATION, FURNISHING AND PLACING OF FILTER FABRIC, GABIONS OR WIRE CONTAINERS OF THE TYPE INDICATED TO THE LINES AND GRADES SPECIFIED AND PLACING STONES IN THE WIRE CONTAINERS.

594S MATERIALS
(1) STONE
STONE FILL MATERIAL SHALL CONSIST OF HARD, DURABLE, CLEAN STONE OF THE SIZE INDICATED. 5 TO 8 INCHES IN SIZE OR AS APPROVED BY THE ENGINEER AND RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE IN ALL RESPECTS FOR THE PURPOSE INTENDED.
(2) WIRE CONTAINERS
GABIONS SHALL BE TWISTED WOVEN MESH OR WELDED MESH. WIRE SHALL BE 12 GAUGE. GABIONS SHALL BE CONSTRUCTED ACCORDING TO COA SPECIFICATIONS 594S. WIRE MESH SHALL CONSIST OF PLASTIC COATED (PVC) GALVANIZED WIRE 0.120 INCH IN DIAMETER MINIMUM AND SHALL EQUAL OR EXCEED FEDERAL SPECIFICATION QQ-W-461g. CLASS 3 UNLESS OTHERWISE INDICATED. OPENINGS OF THE MESH SHALL NOT EXCEED APPROXIMATELY 4 INCHES IN THE LONGEST DIMENSION. THE WIRE MESH IS TO BE FABRICATED IN SUCH A MANNER AS TO BE NONRAVELING. TIE AND CONNECTING WIRE SHALL BE OF THE SAME TYPE AND SIZE AS THE BASKETS AND SHALL BE SUPPLIED IN SUFFICIENT QUANTITY FOR SECURELY FASTENING ALL EDGES OF THE GABION AND DIAPHRAGMS.
(3) FILTER FABRIC (IN EMBEDMENT)
FILTER FABRIC SHALL BE NONBIODEGRADABLE, ULTRAVIOLET STABILIZED, INERT TO MOST SOIL CHEMICALS, UNAFFECTED BY MOISTURE, WHICH ALLOWS WATER TO PASS THROUGH WHILE RETAINING SOIL PARTICLES AND SHALL CONFORM TO ITEM NO. 620, "FILTER FABRIC".
(4) REINFORCEMENT
DOWELS SHALL BE #5 BARS AND CONFORM TO ITEM NO. 406, "REINFORCING STEEL".

IMPERMEABLE CLAY LINER SPECIFICATIONS
(MINIMUM, TCEQ RG-348, SECTION 3.4.2)

Table 3-6 Clay Liner Specifications (COA, 2004)

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	1×10^{-6}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

CONTRACTOR FIELD SET

This plan set shall remain on the site or subdivision premises for the life of the project and shall be utilized for any and all improvements contained herein.

POND NOTES

1. ALL PONDS WALLS AND OUTLET STRUCTURES ARE TO BE DESIGNED BY STRUCTURAL ENGINEER.
2. DIMENSIONS SHOWN ARE MEASURED FROM FACE OF WALL AND AT POND BOTTOM.
3. POND WALLS ARE TO BE WATERTIGHT.
4. POND WALLS MUST COMPLY WITH TCEQ RULES FOR WATER QUALITY FEATURES OVER THE EDWARD'S AQUIFER (RG-348).
5. ALL POND BOTTOM, SIDE SLOPES AND EARTHEN EMBANKMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH CITY OF ROUND ROCK STANDARD SPECIFICATIONS.
6. REFER TO LANDSCAPING PLAN FOR PLANTING SCHEDULE.

WET POND NOTES

1. INSTALL AN 18" THICK COMPACTED CLAY LINER ON THE FLOOR AND SIDE SLOPES INCLUDING BENEATH ALL CONCRETE, GABIONS & PIPING UP TO AN ELEVATION OF 776' MSL.
2. INSTALL 2" SCH 40 PVC FROM NEW IRRIGATION METER TO FLOAT VALVE ASSEMBLY.
3. FLOAT VALVE ASSEMBLY SHALL BE A 2" BRASS CONTROL VALVE WITH STEM FLOAT INSTALLED WITHIN THE MANHOLE TO MAINTAIN PERMANENT POOL WATER SURFACE ELEVATION AT 772.50.
4. BRASS CONTROL VALVE SHALL BE WATTS OR APPROVED EQUIVALENT.
5. INSTALL FLOAT VALVE ASSEMBLY PIPING WITH CITY APPROVED BACKFLOW PREVENTER OR AIR GAP AS SHOWN IN THE DRAWINGS, IF AIR GAP SHOWN IS APPROVED. SECURE PIPING WITH GALVANIZED C-CLIPS AT 1' CENTERS TO WALL OF MANHOLE. PROTECT VALVE ASSEMBLY WITH GALVANIZED METAL BAFFLE PLATE SECURED TO WALL OF MANHOLE WITH GALVANIZED FITTINGS.
6. ALL PIPES ENTERING AND EXITING THE POND MUST HAVE MORTARED RIP-RAP INSTALLED PER DETAIL 508S-17.
7. 4" PVC OUTLET PIPE WITHIN 8'X8' BOX IS SIZED TO PROVIDE A 24-HR DRAWDOWN TIME.
8. AERATION FILTRATION SYSTEM MUST BE DESIGNED TO AERATE A MINIMUM VOLUME OF 30,500 CF (228,112 US GALLONS).
9. PROVIDE DEGRADABLE EROSION CONTROL MAT ON SLOPES.

DETENTION POND MAINTENANCE

1. DETENTION POND SHALL BE MOWED BEFORE GRASS HEIGHT EXCEEDS 18".
2. OUTLET STRUCTURE SHALL BE INSPECTED FOR DEBRIS AFTER EVERY RAINFALL EXCEEDING 2" IN A 24-HOUR PERIOD.
3. ANY DEBRIS OR SEDIMENT BLOCKING THE OUTLET SHALL BE REMOVED.
4. WATER QUALITY AND DETENTION CONTROLS REQUIRED FOR COMMERCIAL DEVELOPMENT SHALL BE MAINTAINED BY THE PROPERTY OWNER.

FOREBAY & MAIN POOL BASIN MAINTENANCE

1. SILT AND SEDIMENT SHOULD BE REMOVED WHEN THE ACCUMULATION EXCEEDS A DEPTH OF SIX (6) INCHES IN FOREBAY WITHOUT SEDIMENT TRAPS. IN BASINS WITH SEDIMENT TRAPS, REMOVAL OF SILT SHALL OCCUR WHEN THE ACCUMULATION EXCEEDS FOUR (4) INCHES IN THE BASINS, AND THE SEDIMENT TRAPS SHALL BE CLEANED WHEN FULL.
2. ACCUMULATED PAPER, TRASH AND DEBRIS SHOULD BE REMOVED EVERY SIX (6) MONTHS OR AS NECESSARY.
3. VEGETATION WITHIN THE BASIN SHOULD NOT BE ALLOWED TO EXCEED EIGHTEEN (18) INCHES IN HEIGHT AT ANY TIME, EXCEPT FOR THOSE PROVIDED IN THE DESIGN.
4. THE BASIN SHOULD BE INSPECTED ANNUALLY AND REPAIRS SHOULD BE MADE IN NECESSARY.
5. CORRECTIVE MAINTENANCE IS REQUIRED ANY TIME A SEDIMENTATION BASIN DOES NOT DRAIN THE EQUIVALENT OF THE WATER QUALITY VOLUME WITHIN SECITY (60) HOURS (I.E. NO STANDING WATER IS ALLOWED).
6. A SUMP PUMP MUST BE USED TO REMOVE STORM WATER FROM THE PERMANENT POOL VOLUME TO PERFORM POND MAINTENANCE. THIS PROCEDURE IS DESCRIBED IN THE INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN OD THE WPAP REPORT ASSOCIATED WITH THIS DEVELOPMENT. A COPY OF THIS REPORT CAN BE PROVIDED UPON REQUEST.

Philo Wilke Partnership
11275 S. Sam Houston Parkway W.
Suite 200 | Houston, Texas 77031
832.554.1130 | philowilke.com

Walter P. Moore and Associates, Inc.
TBPE Firm Registration No. 1856

STATE OF TEXAS
DAVID S. LUNDBERG
130058
LICENSED
PROFESSIONAL ENGINEER
2022/09/30

Consultants
Civil
Walter P Moore
TBPLS FIRM NO. 1856

Landscape
Asakura Robinson

Structural Engineer
Datum Engineers

MEP
O'Connell Roberston

Low Voltage
Telios

No.	Date	Description
1.	06/29/2021	PER-PRE-SUBMITTAL MEETING
2.	11/30/2021	PER-PRELIMINARY SUBMITTAL RECEIVED
3.	05/05/2022	CITY INITIAL SUBMITTAL
4.	07/22/2022	CITY SECOND SUBMITTAL
5.	08/26/2022	CITY THIRD SUBMITTAL
6.	09/30/2022	CITY FOURTH SUBMITTAL

Project
BSW Round Rock Expansion

Baylor Scott & White
300 University Boulevard
Round Rock, Texas 78665

Package
b-Site #1

Drawing Name
WET POND NOTES & CALCULATIONS (1)

Print Date / Time: 5/3/2022 12:13:22 PM

P&W Commission Number: 220-009
Sheet Number: bC9.4

CORR PERMIT #SDP2111-0005

WET POND CALCULATIONS
Per TCEQ RG-348 Spreadsheet
FOR SITE DEVELOPMENT PERMIT

DRAINAGE AREA DATA:

Drainage Area to Control (DA)	6.5	ac
Drainage Area Impervious Cover	80.31%	%
Over Recharge Zone (Yes or No)	YES	
Linear Type (Clay or Geomembrane)	Clay	Liner
Depth of Clay Liner (12 In. Minimum)	18	Inches

WATER QUALITY CONTROL CALCULATIONS:	**Required**		**Provided**	
The Water Quality control is to be **WET POND**				
Permanent Pool Volume (PPV=TCEQ RG-348)	22408	CF	25240	CF
Permanent Pool Area (PPA)			8190	SF
Permanent Pool Elevation (PPE)			772.50	ft msl
Forebay Volume (15 to 25% of PPV)	3786	CF	4256	CF
Elevation of Forebay Separation Wall (PPE - 2.0ft)	770.50	Ft. MSL	770.50	Ft. MSL
Main Pool Volume			5564	CF
Pond Water Quality Volume (RG-348)	41082	CF	48612	CF

BIOLOGICAL ELEMENTS CALCULATIONS:			
Area of Vegetative Bench (minimum 5% of PPA)	410	SF	410 SF
Wetland Planting Quantity (PPA*0.03)	246	Plants	246 Plants
Gambusia Affinis (200 * (PPA / 43560))	38	Individual	38 Individual

Forebay Chamber

Elevation (FT)	Surface Area (SF)	Surface Area (Acre)	Incremental Volume (CF)	Cumulative Volume (CF)
768.5	0	0.000	0	0
769	2167	0.050	542	542
770	2576	0.059	2372	2913
770.5	2795	0.064	1343	4256

Main Pool Chamber

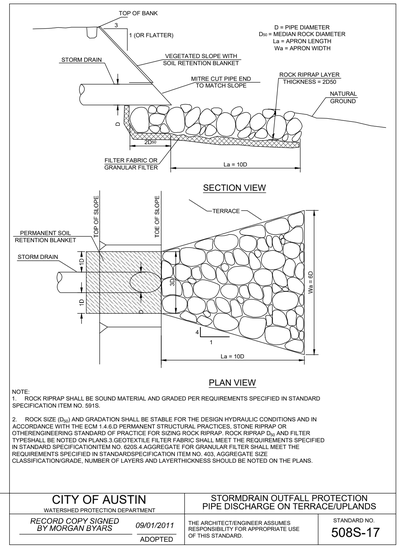
Elevation (FT)	Surface Area (SF)	Surface Area (Acre)	Incremental Volume (CF)	Cumulative Volume (CF)
768.5	2375	0.055	0	0
769	2572	0.059	1237	1237
770	2987	0.069	2780	4016
770.5	3205	0.074	1548	5564

Water Quality Pond Volume Storage Elevation Table

	Elevation (FT)	Surface Area (SF)	Surface Area (Acre)	Incremental Volume (CF)	Cumulative Volume (CF)
	768.5	4578	0.105	0	0
	769	4,739	0.109	2329	2329
	770	5,563	0.128	5151	7480
	771	6,726	0.154	6145	13625
	772	7,688	0.176	7207	20832
PPV -->	772.5	8,190	0.188	3970	24801
	773	8,706	0.200	4224	29025
	774	9,779	0.224	9243	38268
TWQV -->	775	10,910	0.250	10345	48612

Pipe Outflow Sized For Drawdown Time of WQ Volume

Outlet Elevation	Water Surface Elevation	Head	Pond Volume (CF)	Drawdown Time (Hrs)	Flowrate Q (cfs)	Pipe Sizing Calculation (C=0.6, A=area(sf), g=32.2ft/s2) A=Q/(C(2gH)1/2)	Req'd Pipe Dia (in)	Pipe Size to be Used (Inch)
768.5	775.00	6.25	25,240	24.00	0.292	0.0243	**2.1**	**4**



NOTE:
1. ROCK RIPRAP SHALL BE SOUND MATERIAL AND GRADED PER REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 5918.

2. ROCK SIZE (D_{50}) AND GRADATION SHALL BE STABLE FOR THE DESIGN HYDRAULIC CONDITIONS AND IN ACCORDANCE WITH THE ECM 1.4.6.D PERMANENT STRUCTURAL PRACTICES, STONE RIPRAP OR OTHERENGINEERING STANDARD OF PRACTICE FOR SIZING ROCK RIPRAP. ROCK RIPRAP D_{50} AND FILTER TYPESHALL BE NOTED ON PLANS.3.GEOTEXTILE FILTER FABRIC SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATIONITEM NO. 6205.4.AGGREGATE FOR GRANULAR FILTER SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARDSPECIFICATION ITEM NO. 403, AGGREGATE SIZE CLASSIFICATION/GRADE, NUMBER OF LAYERS AND LAYERTHICKNESS SHOULD BE NOTED ON THE PLANS.

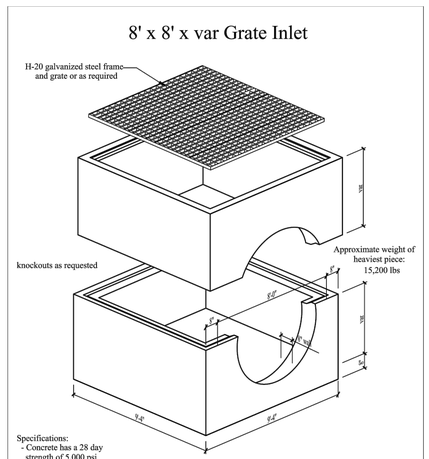
1 — CITY OF AUSTIN, WATERSHED PROTECTION DEPARTMENT

STORMDRAIN OUTFALL PROTECTION
PIPE DISCHARGE ON TERRACE/UPLANDS

RECORD COPY SIGNED BY MORGAN BYARS — 09/01/2011 — ADOPTED

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 508S-17



Specifications:
- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 grade 60
- Load design is H-20

Notes:
- Consult manufacturer before handling

2 — Capital Precast — CAPITAL PRECAST, INC. — 6005 SOUTH OLD BASTROP HWY, SAN MARCOS, TEXAS 78666, PH. (830) 606-6200

FOR: 8' x 8' x var Grate Inlet
JOB:
DRAWN: RW | DATE: 7/22/2016 | Rev. No. | SHEET: 1 of 1
FILE: catalog/grate inlets/8x8GI

Existing Conditions

Drainage Basin	Basin (Acres)	Basin SF	Impervious (SF)	Impervious (%)	Pervious (SF)	Pervious (%)	CN: Open Space (Fair grass cover 50% to 75%)	CN: Concrete	Weighted CN
E-ODA1	5.96	259,653	181,757	70.00%	77,896	30.00%	84	98	93.8
E-ODA2	13.10	570,425	-	0.00%	570,425	100.00%	84	98	84.0
E-DA1	33.41	1,455,126	1,008,797	69.33%	446,329	30.67%	84	98	93.7
E-DA2	6.61	287,755	-	0.00%	287,755	100.00%	84	98	84.0
E-DA3	2.42	105,401	-	0.00%	105,401	100.00%	84	98	84.0
E-DA4	15.22	663,053	-	0.00%	663,053	100.00%	84	98	84.0
E-DA5	7.01	305,416	-	0.00%	305,416	100.00%	84	98	84.0
E-DA6	0.47	20,668	1,322	6.40%	19,346	93.60%	84	98	84.9
E-DA7	1.48	64,512	3,691	5.72%	60,821	94.28%	84	98	84.8

Note: Offsite drainage basin CN is assumed to be in the ultimate fully-developed undetained conditions and is based on the maximum allowed IC by zoning. Fair grass cover (50%-75%) and/or concrete are used in determining a weighted CN. Soils Asb, DnB, DoC, EaD, FaB and HoB are found on and around the site and are classified as Hydrologic Group Type "D" soils.

Developed Conditions

Drainage Basin	Basin (Acres)	Basin SF	Impervious (SF)	Impervious (%)	Pervious (SF)	Pervious (%)	CN: Open Space (Fair grass cover 50% to 75%)	CN: Concrete	Weighted CN
E-ODA1	5.96	259,653	181,757	70.00%	77,896	30.00%	84	98	93.8
E-ODA2	13.10	570,425	399,298	70.00%	171,128	30.00%	84	98	93.8
P-DA1	31.88	1,388,569	969,201	69.80%	419,368	30.20%	84	98	93.8
P-DA2	6.61	287,756		0.00%	287,756	100.00%	84	98	84.0
P-DA3	2.28	99,479	-	0.00%	99,479	100.00%	84	98	84.0
P-DA4	10.94	476,404	-	0.00%	476,404	100.00%	84	98	84.0
P-DA5	6.50	283,306	227,557	80.32%	55,749	19.68%	84	98	95.2
P-DA6	0.46	20,164	1,322	6.56%	18,842	93.44%	84	98	84.9
P-DA7	1.35	58,645	3,691	6.29%	54,954	93.71%	84	98	84.9
P-DA8	6.60	287,608	-	0.00%	287,608	100.00%	84	98	84.0

Note: Offsite drainage basin CN is assumed to be in the ultimate fully-developed undetained conditions and is based on the maximum allowed IC by zoning. Fair grass cover (50%-75%) and/or concrete are used in determining a weighted CN. Soils Asb, DnB, DoC, EaD, FaB and HoB are found on and around the site and are classified as Hydrologic Group Type "D" soils.

SCS Hydrograph Methodology - Existing Drainage Area Calculations Summary Table

Drainage Area	Area (acres)	Tc (Min.)	TLag (Min.)	CN	Q (cfs) 2-yr	10-yr	25-yr	50-yr	100-yr
E-ODA1	5.96	6.10	3.7	93.8	30.5	46.4	56.8	65.1	73.5
E-ODA2	13.10	6.40	3.8	93.8	66.7	101.6	124.2	142.5	160.8
E-DA1	33.41	5.00	3.0	93.7	178.2	271.6	332.2	381.1	430.1
E-DA2	6.61	18.20	10.9	84.0	17.6	30.7	39.3	46.2	53.2
E-DA3	2.42	10.70	6.4	84.0	8.0	13.9	17.7	20.8	24.0
E-DA4	15.22	22.60	13.6	84.0	36.4	63.8	81.7	96.1	110.9
E-DA5	7.01	11.20	6.7	84.0	22.7	39.6	50.6	59.5	68.5
Junction - S	Downstream Junction of ODA1 through E-DA5				313.3	493.7	611.0	705.6	801.6
E-DA6	0.47	7.50	4.5	84.9	1.8	3.1	3.9	4.5	5.2
E-DA7	1.48	12.60	7.6	84.8	4.7	8.1	10.3	12.1	13.9
Junction - SW	Downstream Junction of DA6 & DA7				6.3	10.8	13.7	16.1	18.5

SCS Hydrograph Methodology - Developed Drainage Area Calculations Summary Table

Drainage Area	Area (acres)	Tc (Min.)	TLag (Min.)	CN	Q (cfs) 2-yr	10-yr	25-yr	50-yr	100-yr
P-ODA1	5.96	6.10	3.7	93.8	30.5	46.4	56.8	65.1	73.5
P-ODA2	13.10	6.40	3.8	93.8	66.7	101.6	124.2	142.5	160.8
P-DA1	31.88	5.00	3.0	93.8	170.3	259.4	317.2	363.8	410.6
P-DA2	6.61	18.20	10.9	84.0	17.6	30.7	39.3	46.2	53.2
P-DA3	2.28	10.70	6.4	84.0	7.5	13.1	16.7	19.6	22.6
P-DA4	10.94	23.00	13.8	84.0	26.0	45.5	58.3	68.6	79.2
P-DA5	6.50	5.20	3.1	95.2	35.4	53.2	64.8	74.1	83.5
D1	Detention Pond (D1) for Basin P-DA5				17.8	33.9	42.8	50.0	57.1
P-DA8	6.60	14.80	8.9	84.0	19.1	33.4	42.7	50.3	57.9
Junction - S	Downstream Junction of ODA1 through P-DA4, D1 & DA8				307.5	492.1	609.4	704.1	800.3
P-DA6	0.46	7.60	4.6	84.9	1.7	3.0	3.8	4.4	5.1
P-DA7	1.35	12.60	7.6	84.9	4.3	7.4	9.4	11.0	12.7
Junction - SW	Downstream Junction of DA6 & DA7				5.8	10.0	12.8	15.0	17.2

Existing Conditions

Drainage Area	Sheet Flow: L (ft)	Manning's n-Value	S (ft/ft)	P2 (In./Hr.)	Tc Sheet (min.) $0.42(nL)^{0.8}/P_2^{0.5}xS^{0.4}$	Shallow Concentrated Flow: Paved or Unpaved	S (ft/ft)	L (ft)	Tc Shallow (min.) Paved - $L/[60*20.3282*s^{0.5}]$ Unpaved - $L/[60*16.1345*s0.5)$	CHANNEL FLOW VELOCITY - $(1.49/n)xRh^{2/3}xS^{1/2}$: Manning's n-Value	Area sf	P_w ft	$R_h^{2/3}$ ft	Slope ft/ft	$S^{1/2}$	$V_{CHANNEL}$ ft/s	L (ft)	Tt3 (Min) L/(V*60)	Tc Total (Min.)	TLag Tc*0.6 (Min.)	Tc Reach to Point of Analysis (Min.)
E-ODA1/P-ODA1	100	0.015	0.021	3.97	1.4	Paved	0.025	725	4.8	-	-	-	-	-	-	-		-	6.1	3.7	4.7
E-ODA2/P-ODA2	100	0.015	0.020	3.97	1.4	Paved	0.016	763	5.0	-	-	-	-	-	-	-		-	6.4	3.8	3.9
E-DA1/P-DA1	100	0.015	0.020	3.97	1.4	Paved	0.017	142	0.9	-	-	-	-	-	-	-		-	5.0	3.0	0.3
E-DA2	100	0.20	0.01	3.97	14.6	Unpaved	0.01	262	2.9	0.050	470.0	160.5	2.05	0.008	0.09	5.46	217	0.66	18.2	10.9	-
E-DA3	100	0.20	0.04	3.97	8.4					0.050	34.5	79.5	0.57	0.014	0.12	2.03	284	2.33	10.7	6.4	1.2
E-DA4	100	0.20	0.033	3.97	9.1	Unpaved	0.011	1375	13.5	-	-	-	-	-	-	-		-	22.6	13.6	1.5
E-DA5	100	0.20	0.037	3.97	8.7	Unpaved	0.029	404	2.5	-	-	-	-	-	-	-		-	11.2	6.7	6.3
E-DA6	83	0.20	0.04	3.97	7.5	-	-	-	-	-	-	-	-	-	-	-		-	7.5	4.5	-
E-DA7	100	0.20	0.015	3.97	12.4	Paved	0.022	23	0.1	-	-	-	-	-	-	-	-	-	12.6	7.5	-

Basins with a Tc < 5.0 minutes is calculated with a minimum Tc of 5 Min. per CoRR DCM. Offsite drainage basins are calculated as fully developed and undetained.

Developed Conditions

Drainage Area	Sheet Flow: L (ft)	Manning's n-Value	S (ft/ft)	P2 (In./Hr.)	Tc Sheet (min.) $0.42(nL)^{0.8}/P_2^{0.5}xS^{0.4}$	Shallow Concentrated Flow: Paved or Unpaved	S (ft/ft)	L (ft)	Tc Shallow (min.) Paved - $L/[60*20.3282*s^{0.5}]$ Unpaved - $L/[60*16.1345*s0.5)$	CHANNEL FLOW VELOCITY - $(1.49/n)xRh^{2/3}xS^{1/2}$: Manning's n-Value	Area sf	P_w ft	$R_h^{2/3}$ ft	Slope ft/ft	$S^{1/2}$	$V_{CHANNEL}$ ft/s	L (ft)	Tt3 (Min) L/(V*60)	Tc Total (Min.)	TLag Tc*0.6 (Min.)	Tc Reach to Point of Analysis (Min.)
E-ODA1/P-ODA1	100	0.015	0.021	3.97	1.4	Paved	0.025	725	4.8	-	-	-	-	-	-	-		-	6.1	3.7	4.7
E-ODA2/P-ODA2	100	0.015	0.020	3.97	1.4	Paved	0.016	763	5.0	-	-	-	-	-	-	-		-	6.4	3.8	3.9
E-DA1/P-DA1	100	0.015	0.020	3.97	1.4	Paved	0.017	142	0.9	-	-	-	-	-	-	-		-	5.0	3.0	0.3
P-DA2	100	0.20	0.01	3.97	14.6	Unpaved	0.01	262	2.9	0.050	470.0	160.5	2.05	0.008	0.09	5.46	217	0.66	18.2	10.9	
P-DA3	100	0.20	0.04	3.97	8.4					0.050	34.5	79.5	0.57	0.014	0.12	2.03	284	2.33	10.7	6.4	1.2
P-DA4	100	0.20	0.025	3.97	10.13	Unpaved	0.012	1355	12.9	-	-	-	-	-	-	-	-	-	23.0	13.8	1.5
P-DA5	100	0.015	0.013	3.97	1.68	Paved	0.016	534	3.5	-	-	-	-	-	-	-	-	-	5.2	3.1	4.9
P-DA6	84	0.20	0.04	3.97	7.60					-	-	-	-	-	-	-	-	-	7.6	4.6	
P-DA7	100	0.20	0.015	3.97	12.42	Unpaved	0.022	23	0.2	-	-	-	-	-	-	-	-	-	12.6	7.6	
P-DA8	100	0.20	0.023	3.97	10.56	Unpaved	0.022	178	1.2	0.030	23.5	32.8	0.80	0.016	0.13	5.0	904	3.01	14.8	8.9	3.2

Basins with a Tc < 5.0 minutes is calculated with a minimum Tc of 5 Min. per CoRR DCM. Offsite drainage basins are calculated as fully developed and undetained.

BSW RR Hospital Expansion - Storm Data Summary Table

Storm Event	Pre-Developed Flow Junction J-S & J-SW (cfs)	Post-Developed Flow W/out Pond Junction J-S & J-SW (cfs)	Post-Developed Flow W/ Pond Junction J-S & J-SW (cfs)	Controlled Flow Released After Pond - D1 (cfs)	Pond Stage Storage Elevation (M.S.L.)	Pond Storage Volume (cf)
2-yr	318.9	338.7	313.1	17.8	777.2	32,315
10-yr	503.5	530.1	501.7	33.9	777.6	40,584
25-Year	623.5	654.5	621.7	42.8	777.8	44,718
50-Year	720.3	754.8	718.6	50.0	778.0	48,851
100-Year	818.5	856.6	817	57.1	778.1	51,086

BSW RR Hospital Expansion - New Detention Pond Storage Volume Table

Design storm	Elevation (FT)	Surface Area (SF)	Surface Area (Acre)	Incremental Volume (CF)	Cumulative Volume (CF)
	775	0	0.000	0	0
	776	18,257	0.419	9129	9129
	777	19,847	0.456	19052	28181
2-yr -->	777.2	20,172	0.463	4134	32315
10-yr -->	777.6	20,834	0.478	12402	40584
25-yr -->	777.8	21,171	0.486	16536	44718
50-yr -->	778	21,494	0.493	20671	48851
100-yr -->	778.1	21,664	0.497	2235	51086
	779	23,198	0.533	22346	71197

BSW RR Hospital Expansion - Stage Storage Discharge Table

Design storm	Elevation (FT)	Opening 1 (C=0.6, A=0.196 sf, g=32.2ft/s²) 6" PVC Pipe at 775.00: A (sf)	H (ft)	Q = CA(2gH)^1/2	Weir 1 (C=3.0, L=9.0') 9.0' weir at 776.50: L (ft)	H (ft)	Q = C*L*H^3/2	Total Flow (cfs)
	775	0.196	0.00	0.0	9.0	0.00	0.0	0.0
	776	0.196	0.75	0.8	9.0	0.00	0.0	0.8
	777	0.196	1.75	1.3	9.0	0.50	9.5	10.8
2-yr -->	777.2	0.196	1.95	1.3	9.0	0.70	15.8	17.1
10-yr -->	777.6	0.196	2.35	1.4	9.0	1.10	31.1	32.6
25-yr -->	777.8	0.196	2.55	1.5	9.0	1.30	40.0	41.5
50-yr -->	778	0.196	2.75	1.6	9.0	1.50	49.6	51.2
100-yr -->	778.1	0.196	2.85	1.6	9.0	1.60	54.6	56.2
	779	0.196	3.75	1.8	9.0	2.50	106.7	108.6

Emergency Spillway Calculation

Q=C(L)(H)^*3/2)

Q_{100} (From HEC-HMS - P-DA5 - cfs)	=	83.5
Emergency Spillway Elevation - MSL (Ft.)	=	778.10
Top of Berm - MSL (Ft.)	=	780.00
Freeboard Provided - MSL (Ft.)	=	1.90
C (Coefficient)	=	3
H (Height - Ft.)	=	1.9
H^(3/2)	=	2.62
L (Weir Length - Ft.)	=	10.67
Q Allowed (cfs)	=	83.8
$Q_{Allowed} > Q_{100}$?		TRUE

Rip Rap Sizing for Outlet Structure Calculation

V - Water Velocity (ft/s)	Flow Height (ft)	La - Apron Length Required (ft) = 0.5*V*L	La - Apron Length Provided (ft)	Class I - D50 nom. 6 In. aggregate	Rip Rap Depth = 1.5*Rip-Rap Stone Size (ft)
3.97	1.6	3.2	15	6	0.75

Ref: HLWO TCM 3.2.5

Rip Rap Sizing for Emergency Spillway Calculation

V - Water Velocity (ft/s)	Flow Height (ft)	La - Apron Length Required (ft) = 0.5*V*L	La - Apron Length Provided (ft)	Class I - D50 nom. 6 In. aggregate	Rip Rap Depth = 1.5*Rip-Rap Stone Size (ft)
4.12	1.9	3.9	20	6	0.75

Ref: HLWO TCM 3.2.5

CONTRACTOR FIELD SET

This plan set shall remain on the site or subdivision premises for the life of the project and shall be utilized for any and all improvements contained herein.

Print Date / Time: 5/3/2022 12:13:22 PM

P&W Commission Number: 220-009

Sheet Number: bC9.5

Philo Wilke Partnership
11275 S. Sam Houston Parkway W.
Suite 200 | Houston, Texas 77031
832.554.1130 | philowilke.com

Walter P. Moore and Associates, Inc.
TBPE Firm Registration No. 1856

STATE OF TEXAS — DAVID S. LUNDBERG — 130058 — LICENSED PROFESSIONAL ENGINEER
2022/09/30

Consultants
Civil: Walter P Moore, TBPLS FIRM NO. 1856
Landscape: Asakura Robinson
Structural Engineer: Datum Engineers
MEP: O'Connell Roberston
Low Voltage: Telios

No.	Date	Description
1.	06/29/2021	PER-PRE-SUBMITTAL MEETING
2.	11/30/2021	PER-PRELIMINARY SUBMITTAL RECEIVED
3.	05/05/2022	CITY INITIAL SUBMITTAL
4.	07/22/2022	CITY SECOND SUBMITTAL
5.	08/26/2022	CITY THIRD SUBMITTAL
6.	09/30/2022	CITY FOURTH SUBMITTAL

Project: BSW Round Rock Expansion

Baylor Scott & White
300 University Boulevard
Round Rock, Texas 78665

Package: b-Site #1

Drawing Name: WET POND NOTES & CALCULATIONS (2)

CORR PERMIT #SDP2111-0005

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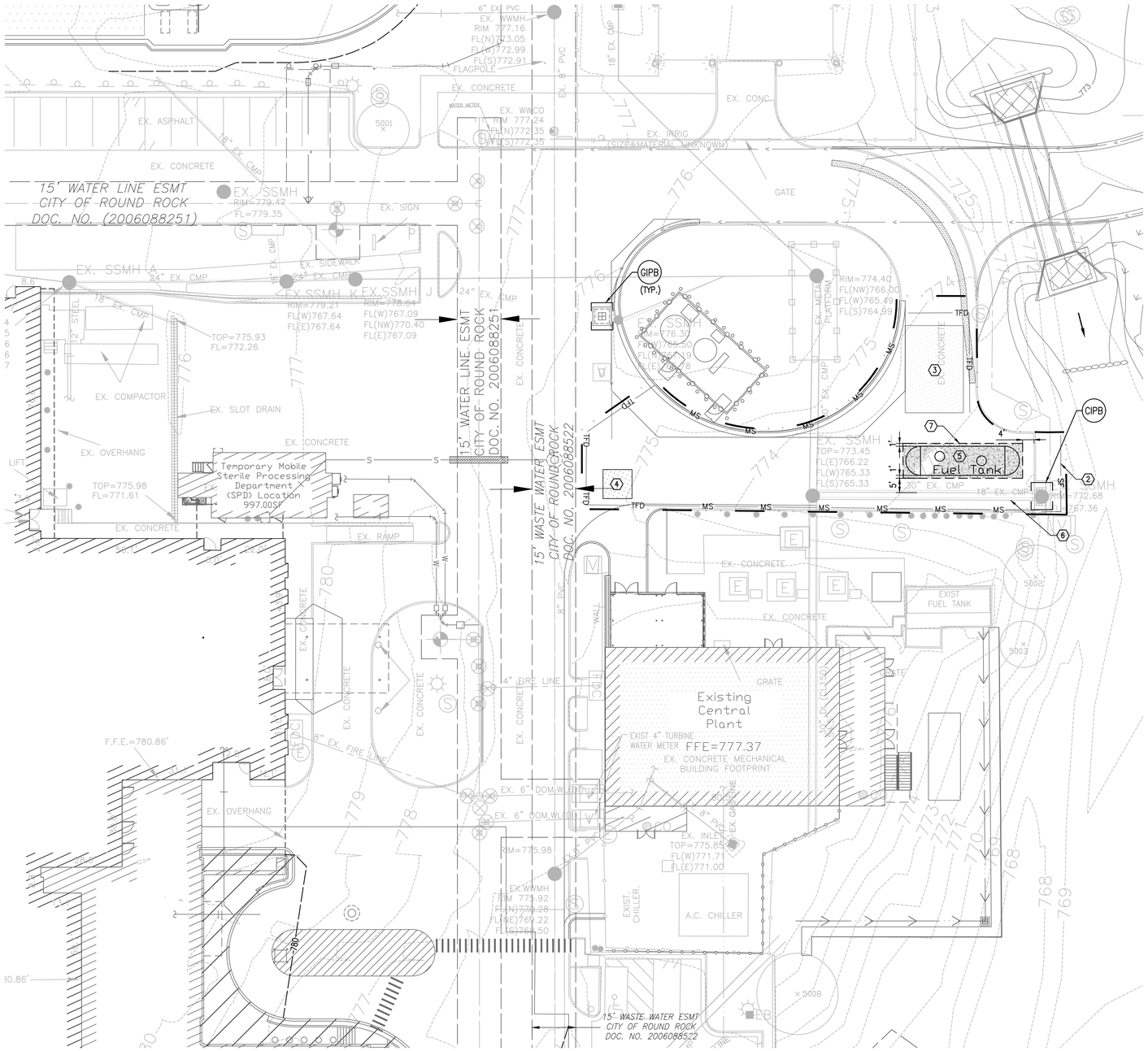
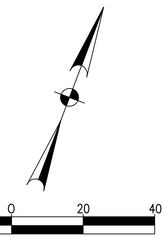
Attachment H Temporary Sediment Pond(s) Plans and Calculations

The location of the proposed UST is located within a drainage area that currently has a permanent BMP (wet pond) that serves the existing and ongoing site improvements – RN:104718556 (ID:11-05072203). There will be no changes to the treated volume of storm water requirements since existing impervious cover will remain impervious. The other onsite BMP's regulated under RN:104818556 (ID: 11-003112 & ID: 11003512) will not be modified and/or affected by the new storage tank. A detailed erosion control plan for this limited area of work is included with this UST permit.

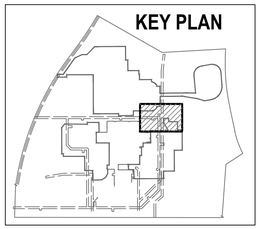
A combination of triangular filter dikes, inlet protection and mulch sock will serve as temporary sediment controls. No additional runoff will be stored on-site that is already being captured by the existing water quality BMP as it does in existing conditions. No temporary sediment ponds are required for the proposed underground storage tank.





SCALE: 1"= 20'

KEY PLAN



NOTES:

1. ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION CONTROLS ON SITE TO KEEP PROJECT IN COMPLIANCE WITH THE CITY OF ROUND ROCK RULES AND REGULATIONS.
2. CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5 (Q), OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
3. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY.
4. REFER TO DETAILS FOR EROSION CONTROL MEASURE DETAILS.
5. UPON INSTALLATION OF DRAINAGE STRUCTURES, INLET PROTECTION MUST BE INSTALLED.
6. SEE GENERAL NOTES SHEET FOR STANDARD TREE PROTECTION NOTES.
7. THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY.
8. IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH TARP OR REVEGETATION MATTING. ECM 1.4.5 (N).
9. SILT FENCE TYPE AND INSTALLATION SHALL COMPLY WITH ECM1.4.5 (G).
10. ADEQUATE BARRIERS BETWEEN ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, SUCH AS A 6" CONCRETE CURB ARE REQUIRED. IF A STANDARD 6" CURB AND GUTTER ARE NOT PROVIDED FOE ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, COMPLY WITH ECM, SECTION 2.4.7, "PROTECTION OF LANDSCAPE AREAS."
11. SPECIAL CONSTRUCTION TECHINIQUES (ECM 3.5.4.(D)) PRIOR TO EXCAVATION WITHIN TREE DRIPLINES OR THE REMOVAL OF TREES ADJACENT TO OTHER TREES THAT ARE TO MAINTAIN, MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT TO MINIMIZE ROOT DAMAGE.
12. IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DURING CONSTRUCTION WITH FENCING AND WHERE HEAVY VEHICULAR TRAFFIC IS ANTICIPATED, COVER THOSE AREAS WITH A MINIMUM OF 12 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. IN AREAS WITH HIGH SOIL PLASTICITY GEOTEXTILE FABRIC, PER STANDARD SPECIFICATION 620S, SHOULD BE PLACED UNDER THE MULCH TO PREVENT EXCESSIVE MIXING OF THE SOIL AND MULCH. ADDITIONALLY, MATERIAL SUCH AS PLYWOOD AND METAL SHEETS, COULD BE REQUIRED BY THE CITY ARBORIST TO MINIMIZE ROOT IMPACTS FROM HEAVY EQUIPMENT. ONCE THE PROJECT IS COMPLETED, ALL MATERIALS SHOULD BE REMOVED, AND THE MULCH SHOULD BE REDUCED TO A DEPTH OF 3 INCHES.
13. PERFORM ALL GRADING WITHIN CRITICAL ROOT ZONE AREAS BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE.
14. WATER ALL TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
15. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.
16. NO CONSTRUCTION ACTIVITIES OR GRADING ARE PERMITTED WITHIN TREE PROTECTION FENCE.
17. SILT FENCE MUST NOT CROSS TREE PROTECTION FENCE, SILT FENCE MUST GO AROUND TREE PROTECTION FENCE.
18. IF TREE PROTECTION FENCING CANNOT BE MAINTAINED AROUND THE FULL CRZ, PLACE THE FENCING AT THE 1/2 CRZ AND ADD 8" OF HARDWOOD MULCH FROM THE 1/2 CRZ TO THE FULL CRZ.
19. ONLY RUBBER TIRED EQUIPMENT IS ALLOWED WITHIN THE CWQZ AND FLOODPLAIN. NO TRACK EQUIPMENT IS ALLOWED.
20. ALL EQUIPMENT AND SPOILS ARE TO BE REMOVED FROM THE CREEK, THE CWQZ, AND 100 YEAR FLOODPLAIN NIGHTLY.
21. THIS AREA REQUIRES NATIVE GRASSLAND SEEDING AND PLANTING PER CITY OF ROUND ROCK STANDARD SPECIFICATIONS, INCLUDING TOPSOIL AND SEED BED PREPARATION, TEMPORARY IRRIGATION, AND WEED MAINTENANCE.
22. THERE ARE NO AREAS THAT EXCEED A FINAL GRADE OF 2:1. ALL SLOPES IN THIS DEVELOPMENT ARE 3:1 OR GREATER WHERE RETAINING WALLS ARE NOT PRESENT.

LEGEND:

LIMIT OF WORK PACKAGE 1	
STAGING & SPOILS AREA	
STABILIZED CONSTRUCTION ENTRANCE	
CONCRETE WASHOUT AREA	
GRATE INLET PROTECTION BARRIER	GIPB
CURB INLET PROTECTION BARRIER	CIPB
SILT FENCE	SF
TRIANGULAR SEDIMENT FILTER DIKE	TFD
MULCH SOCK	MS
FULL-DEPTH SAWCUT	

Key Notes:

1. TRIANGULAR FILTER DIKE – SEE DETAIL bC8.4.2–1
2. SILT FENCE – bC8.4.2–2
3. STAGING & SPOILS AREA
4. CONCRETE WASHOUT – SEE DETAIL bC8.4.2–4
5. ASPHALT PAVEMENT WITH 3" TYPE C SURFACE COURSE & 6" CLB+6" LSS BASE COURSE. (FOR FIRE LANE)
6. PROTECT IN PLACE EXISTING UTILITY
7. REPLACE ASPHALT SECTION TO NEAREST EXPANSION JOINT

Sheet Notes:

1. ALL AFFECTED INLETS SHALL BE PROTECTED BEFORE CONSTRUCTION ACTIVITIES BEGIN.
2. SEDIMENT AND EROSION CONTROLS INCLUDING NON-STORM WATER DISCHARGES SHALL BE AS PER THE SPECIFICATIONS.
3. INSTALL J-HOOKS ALONG SILT FENCE EVERY 100'LF

Philo Wilke Partnership
11275 S. Sam Houston Parkway W.
Suite 200 | Houston, Texas 77031
832.554.1130 | philowilke.com

Walter P. Moore and Associates, Inc.
TBPE Firm Registration No. 1856

STATE OF TEXAS
DAVID S. LUNDBERG
130058
LICENSED PROFESSIONAL ENGINEER
12/4/2023

Consultants

Civil
Walter P Moore
TBPLS FIRM NO. 1856

Landscape
Asakura Robinson

Structural Engineer
Datum Engineers

MEP
O'Connell Roberston

Low Voltage
Telios

No.	Date	Description

Project

BAYLOR SCOTT & WHITE UST

Baylor Scott & White
300 University Boulevard
Round Rock, Texas 78665

Package

b-Site #1

Drawing Name

CIVIL OVERALL SITE AND EROSION CONTROL PLAN

Print Date / Time: 12/4/2023 10:16:14 PM

P&W Commission Number	Sheet Number
220-009	bC8.4.1

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Attachment I Inspection and Maintenance for BMPs

Inspections

Each contractor will designate a qualified person (or persons) to perform the following inspections:

1. Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for pollutants entering the drainage system.
2. Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.
3. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
4. Location where vehicles enter or exit the site will be inspected for evidence of off-site sediment tracking.
5. Permanent seeding and planting will be inspected for bare spots, washouts and unhealthy growth.

The inspection shall be conducted by the responsible person at least once week and after any rainfall.

The information required within an inspection and maintenance report is as follows.

1. Summary of the scope of the inspection.
2. Name(s) and qualifications of personnel making the inspection.
3. The dates of the inspections.
4. Major observations relating to the implementation of the storm-water pollution prevention plan.
5. Changes required correcting damages or deficiencies in the control measures.

In addition to the required routine inspections, the following record of information will also be maintained:

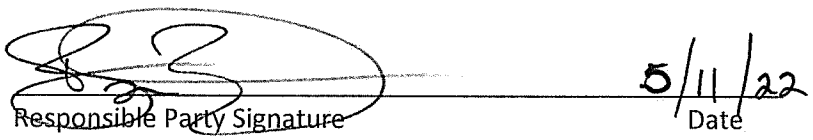
1. The dates when major grading activities occur.
2. The dates when construction activities temporarily or permanently cease on a portion of the site.
3. The dates when stabilization measures are initiated.

Inspection and maintenance reports as well as all records required by this storm-water pollution prevention plan shall become part of the stormwater pollution plan.

Maintenance

Based on the results of the inspection, any changes required to correct damages or deficiencies in the control measures shall be made within seven (7) calendar days after the inspection. If existing stabilization/erosion controls need modification or additional stabilization/erosion controls are necessary, implementation shall be achieved prior to the next anticipated storm event. If, however, the execution of this requirement becomes impractical, then the implementation will occur as soon as possible, with the incident duly noted with an explanation of the impracticality, in the inspection report.

Sediment accumulation at each control will be removed and properly disposed when the depth of accumulation equals or exceeds six (6) inches. If sediment accumulation is found to be contaminated, its disposal shall be off-site in a manner which conforms to the appropriate applicable regulations.



Responsible Party Signature

5/11/22
Date

Bryce Burkett
Responsible Party Name

Attachment J Schedule of Interim and Permanent Soil Stabilization Practices

The purpose of soil stabilization is to prevent soil from leaving the site. The soil in the portion of the site that is to be left in the natural condition will be stabilized by native vegetation. The soil in the developed portion of the project will be stabilized by grass, pavement, or buildings.

Interim soil stabilization practices consist of temporary seeding. Within 14 days after the construction activity ceases on any particular area, all disturbed ground where there will not be construction for longer than 21 days must be seeded with fast-germinating temporary seed and protected with mulch.

Permanent soil stabilization practices for pervious areas of the site consist of permanent seeding. All areas at final grade must be seeded within 14 days after completion of the major construction activity. Except for small level spots, seeded areas should be protected with mulch. Final site stabilization is achieved when grass cover provides permanent stabilization for at least 70 percent of the disturbed soil surface, exclusive of areas that have been paved.

Agent Authorization (TCEQ Form 0599) Tab 6

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

I Bryce Burkett,
Print Name

Director of Project Management, Real Estate Services,
Title - Owner/President/Other

of Scott & White Memorial Hospital,
Corporation/Partnership/Entity Name

have authorized David S. Lundberg
Print Name of Agent/Engineer

of Walter P Moore & Associates, Inc.
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.

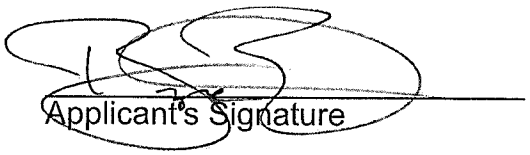
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

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

5/11/22
Date

THE STATE OF TEXAS §

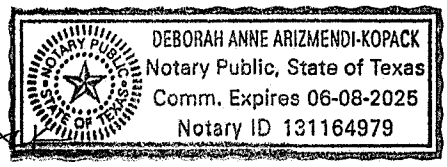
County of BELL §

BEFORE ME, the undersigned authority, on this day personally appeared BRICE BURKETT 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 11TH day of MAY, 2022.

NOTARY PUBLIC

DEBORAH ARIZMENDI-KOPACK
Typed or Printed Name of Notary



MY COMMISSION EXPIRES: 6/08/2025

Application Fee Form (TCEQ Form 0574) Tab 7

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Baylor Scott & White UST
Regulated Entity Location: 300 University Blvd., Round Rock, Texas 78665
Name of Customer: Scott & White Memorial Hospital
Contact Person: Deborah Arizmendi-Kopack Phone: 713-884-7411
Customer Reference Number (if issued):CN 600306450
Regulated Entity Reference Number (if issued):RN 104718556

Austin Regional Office (3373)

☐ Hays ☒ Williamson
☐ Travis

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

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

☐ Austin Regional Office

☐ San Antonio Regional Office

☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☒ 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	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	1 Tanks	$ 650

Type of Plan	*Size*	*Fee Due*
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____ Date: 12/1/23

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*

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 (TCEQ Form 10400) Tab 8

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 600306450		**RN 104718556**

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:*

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*

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:							
	City		**State**		**ZIP**		**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)*

( ) -		( ) -

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.)*

Baylor Scott & White UST

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	300 University Boulevard							
	City	Round Rock	**State**	TX	**ZIP**	78665	**ZIP + 4**	1032
24. County	Williamson							

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

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**

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:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	33	44	-97	41	4

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)
8062		622110	

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

Public Facility - Hospital

34. Mailing Address:	**2401 S. 31st Street**							
	City	**Temple**	**State**	**TX**	**ZIP**	**76508**	**ZIP + 4**	
35. E-Mail Address:								

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
( ) -		( ) -

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

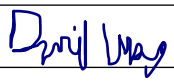
☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water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

SECTION IV: Preparer Information

40. Name:	David S. Lundberg	**41. Title:**	Project Engineer
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512 **)** 501-4323		**( ) -**	DLundberg@walterpmoore.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:	Walter P Moore	**Job Title:**	Project Engineer
Name *(In Print):*	David Lundberg	**Phone:**	**(** 512 **)** 501- **4323**
Signature:		**Date:**	12/2/23