

HIGHWAY 195 BUSINESS PARK

Modification of a Previously Approved Water Pollution Abatement Plan

April 2025

Prepared For:

Highway 195 Business Park Owner, LP
1717 West 6th Street, Suite 400
Austin, Texas 78703

Prepared By:

2P Consultants, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664



4/7/2025

**Addison Skrla
Project Manager**



TBPE FIRM #F-19351



Modification of a Previously Approved Plan – Table of Contents

- I. Edwards Aquifer Application Cover Page (TCEQ-20705)
- II. General Information Form (TCEQ-0587)
 - Attachment 1A - Road Map
 - Attachment 1B - USGS Map
 - Attachment 1C - Project Description
- III. Geologic Assessment Form (TCEQ-0585)
 - Attachment A - Geologic Assessment Table (TCEQ-0585-Table)
 - Attachment B – Stratigraphic Column
 - Attachment C - Site Geology
 - Attachment D - Site Geologic Map(s)
- IV. Modification of a Previously Approved Plan Form (TCEQ-0590)
 - Attachment 2A - Original Approval Letter
 - Attachment 2B - Narrative of Proposed Modification
 - Attachment 2C - Current Site Plan of the Approved Project
- V. Water Pollution Abatement Plan Application (TCEQ-0584)
 - Attachment 3A - Factors Affecting Water Quality
 - Attachment 3B - Volume and Character of Stormwater
 - Attachment 3C - Suitability Letter from Authorized Agent
 - Attachment 3D - Exception to the Required Geologic Assessment
 - Attachment 3E - FIRM Panel 48491C0285F
 - Attachment 3F - TR-55 Tc calculations
 - Attachment 3G - Runoff CN Tables
 - Attachment 3H – Batch Detention BMP
- VI. Temporary Stormwater Section (TCEQ-0602)
 - Attachment 4A – Spill Response Actions
 - Attachment 4B – Potential Sources of Contamination
 - Attachment 4C – Sequence of Major Activities
 - Attachment 4D – Temporary Best Management Practices
 - Attachment 4E – Request to Temporary Seal a Feature
 - Attachment 4F – Structural Practices
 - Attachment 4G – Drainage Area Maps
 - Attachment 4H – Temporary Sediment Pond Plans and Calculations
 - Attachment 4I – Inspection and Maintenance for BMPs
 - Attachment 4J – Schedule of Interim and Permanent Soil Stabilization Practices

- VII. Permanent Stormwater Section (TCEQ-0600)
 - Attachment 5A – 20% or Less Impervious Cover Waiver
 - Attachment 5B – BMPs for Upgradient Stormwater
 - Attachment 5C – BMPs for On-Site Stormwater
 - Attachment 5D – BMPs for Surface Streams
 - Attachment 5E – Request to Seal Features
 - Attachment 5F – Construction Plans
 - Attachment 5G – Inspection, Maintenance, Repair, and Retrofit Plan
 - Attachment 5H – Pilot-Scale Field Testing Plan
 - Attachment 5I – Measures for Minimizing Surface Stream Contamination
 - Attachment 5J – TCEQ TSS Removal Calculations

- VIII. Agent Authorization Form (TCEQ-0599)

- IX. Application Fee Form (TCEQ-0574)

- X. Core Data Form (TCEQ-10400)

Edwards Aquifer Application Cover Page
(TCEQ-20705)

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: Highway 195 Business Park | | | | | 2. Regulated Entity No.: N/A | | | | |
| 3. Customer Name: Highway 195 Business Park Owner, LP | | | | | 4. Customer No.: N/A | | | | |
| 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): | | 24.427 | |
| 9. Application Fee: | \$6,500 | | 10. Permanent BMP(s): | | | Batch Detention & Bioretention Ponds | | | |
| 11. SCS (Linear Ft.): | N/A | | 12. AST/UST (No. Tanks): | | | N/A | | | |
| 13. County: | Williamson | | 14. Watershed: | | | Berry 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.) | — | — | <u>1</u> |
| Region (1 req.) | — | — | <u>1</u> |
| County(ies) | — | — | <u>1</u> |
| Groundwater Conservation District(s) | <input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek | <input type="checkbox"/> Barton Springs/ Edwards Aquifer | NA |
| City(ies) Jurisdiction | <input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek | <input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills | <input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input checked="" type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock |

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

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

Addison Skrla, PE

Print Name of Customer/Authorized Agent

Addison Skrla

04-01-2025

Signature of Customer/Authorized Agent

Date

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

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

General Information Form
(TCEQ-0587)

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: Addison Skrla, PE

Date: 04-02-2025

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Highway 195 Business Park
2. County: Williamson
3. Stream Basin: San Gabriel River
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: Michael Murphy
Entity: Highway 195 Business Park
Mailing Address: 1717 West 6th Street, Suite 400
City, State: Austin, TX Zip: 78703
Telephone: (512)684-3702 FAX: _____
Email Address: murphy@aquilacommercial.com

8. Agent/Representative (If any):

Contact Person: Addison Skrla
Entity: 2P Consultants, LLC.
Mailing Address: 203 E. Main St., Suite 204
City, State: Round Rock, TX Zip: 78664
Telephone: (512) 344-9664 FAX: _____
Email Address: askrla@2pconsultants.com

9. Project Location:

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

Located on State Highway 195, east of the intersection with County Road 147, south of Sun City Blvd, in Georgetown, Texas 78633

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: TBD

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

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

15. Existing project site conditions are noted below:

- Existing commercial site
- Existing industrial site
- Existing residential site
- Existing paved and/or unpaved roads
- Undeveloped (Cleared)
- Undeveloped (Undisturbed/Uncleared)
- Other: _____

Prohibited Activities

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

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

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

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

- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and
- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

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

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

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

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

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

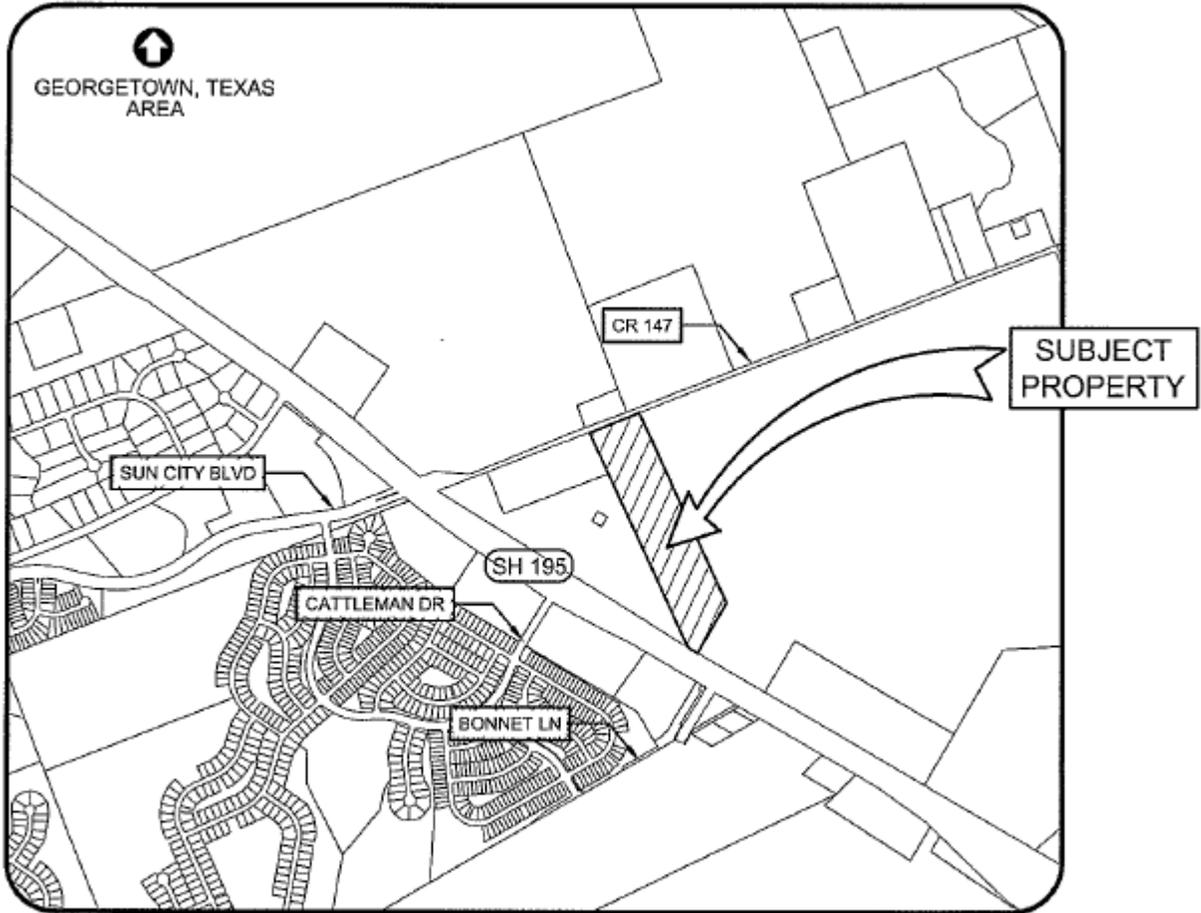
21. No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

Attachment 1A

Road Map



Attachment 1A – Road Map



LOCATION MAP

(SCALE: 1" = 1000')

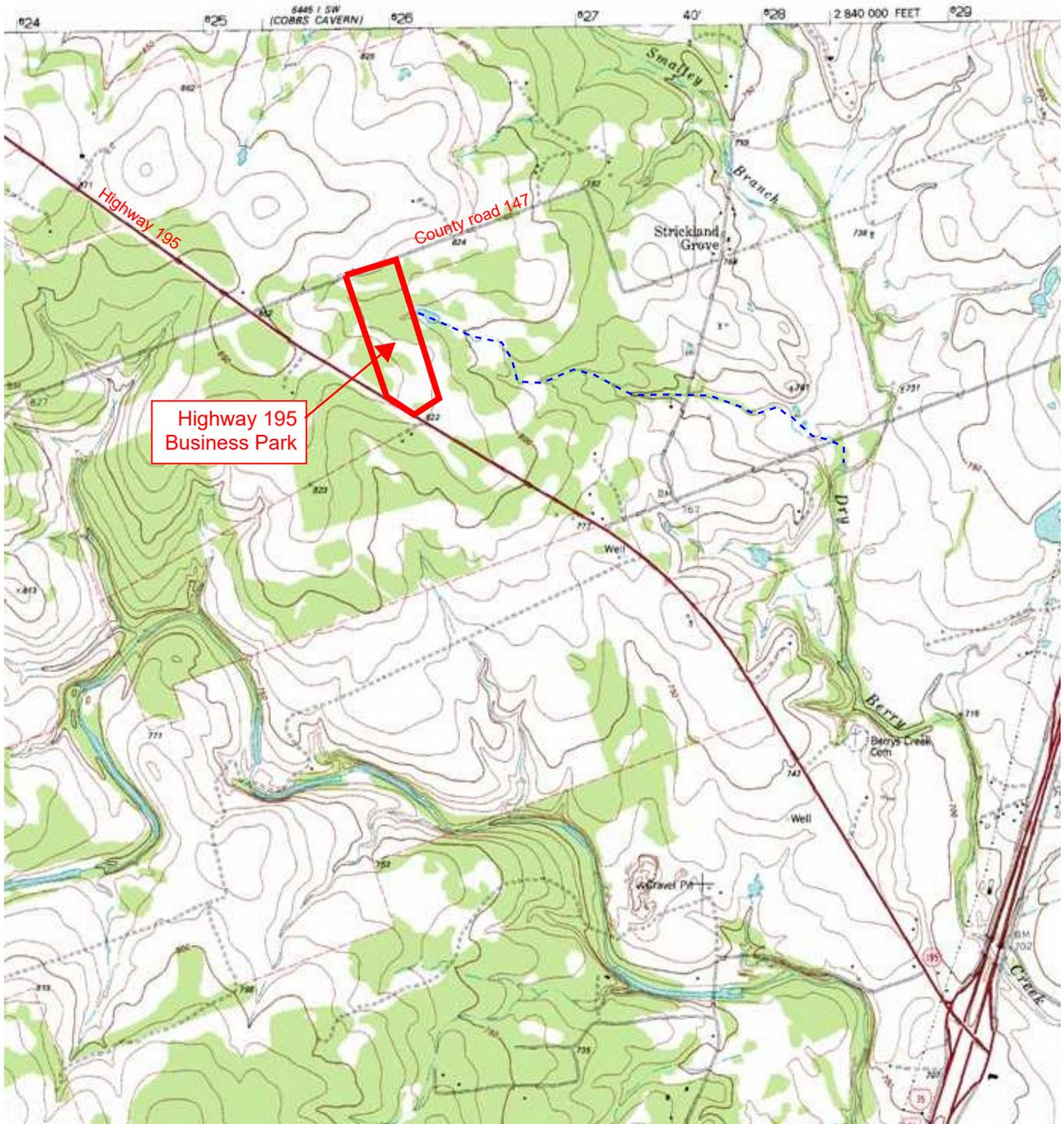
(CITY OF GEORGETOWN)

Attachment 1B

USGS Map



Attachment 1B – USGS Map



Site Address: 3000 SH 195, Georgetown, Texas 78633

USGS Quadrangle Name: Georgetown, Texas-Williamson County (No. 30097-F6)

Attachment 1C

Project Description



Attachment 1C – Project Description

The proposed Highway 195 Business Park is located at the newly established address of 3000 SH 195, which is approximately 1,600 feet east of the intersection of State Highway 195 and County Road 147 (Sun City Blvd), in Georgetown, Texas 78633. The site is comprised of a single lot of 24.43 acres in Williamson County, within the ETJ of Georgetown. Legal description for this property; 24.427 Acres situated in the Burrell Eaves Survey, Abstract No. 216.

The existing site is an undeveloped lot without established access from either SH 195 or CR 147. The properties generally to the north (across CR 147) consist of large farmed plots with individual homes; to the west, a large single-family home on a mostly undeveloped plot bordered by SH 195 along its west property line; to the east is the Martin Marietta – North Austin Quarry; to the south, SH 195 and an undeveloped plot. The site is lightly forested with ground surface consisting of brush, weed and grasses in good condition. No impervious cover exists within the proposed property boundary.

The NRCS Soils Map (2021) for the area shows Denton silty clay (DnB) generally corresponding to the northern $\frac{1}{4}$ of the property and the offsite area to the north, and Eckrant cobbly clay (EaD) for the southern $\frac{3}{4}$ of the property and the property to the west. Both silty and cobbly clay soils are defined as hydrologic soil group D.

The proposed improvements consist of constructing five - 40,500 square foot warehouse buildings and one - 20,800 square foot commercial building (totaling 223,600 sf building footprint) and the corresponding parking, drive aisles, utilities and stormwater facilities. Significant areas to the south and west of the subject property contribute stormwater runoff to and through the site to the neighboring property to the east. Drainage channels are proposed to collect and convey offsite runoff through the site.

The majority of the property drains toward an undefined channel in the northern $\frac{1}{4}$ portion of the property, outflowing to the neighboring quarry to the east. A smaller portion of the site drains across the east and south property lines, leaving less than an acre draining to the south along SH 195. Based on GIS topographic information, approximately 58 acres north of CR 147 flows to a shallow depression along the County road frontage and is conveyed to the subject property through 3 – 18" CMP culverts, outflowing at the NW corner of the property. The centerline of CR 147 is roughly 2 feet above the culverts' invert, creating a shallow closed depression on the neighboring property. Approximately 36 acres of the neighboring property to the west generally sheet flows across the common property line.

Surface discharge from the developed site mimics the pre-developed site with runoff flowing across the east and south property lines. Stormwater runoff treatment for the front of Buildings 1 - 4 is provided by Engineered Vegetated Filter Strips, designed in general accordance with Section 3.2.4 of the TCEQ Technical Guidance on BMP's. Essentially, less than 72 feet of gently sloped impervious area flows across 15 feet of gently sloped vegetated buffer strip before flowing offsite, with no encumbrances (e.g. curbs or graded channels) to concentrate or channelize the flows.

Proposed extended detention basins are located along the east and south property boundaries, for stormwater treatment and detention of the remaining site. Each pond will be modified with a Batch Detention System to provide 91% TSS removal, in general accordance with TCEQ Technical Guidance, Section 3.2.17. A

bioretention pond is positioned upstream of a detention pond to provide added stormwater storage and treatment for the upstream subbasin. This bioretention pond was designed in general accordance with TCEQ Section 3.4.8.

Based on the TCEQ calculations, with the City of Georgetown modification for an additional 5% TSS removal, the proposed Extended Drainage Basins and Bioretention Pond are sized for adequate stormwater treatment. Beyond the treatment capacity of the detention basins, stormwater will overflow the perimeter earthen berms to the adjacent properties.

A modification to the previously approved WPAP (EAPP ID No. 11003406) was withdrawn with 3 remaining unanswered review comments. The last review email and letter of response follow herein.

Geologic Assessment Form
(TCEQ-0585)



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

2 – Geologic Assessment Form

The completed Geologic Assessment Form (TCEQ-0585) can be found in the following Geologic Assessment.



GEOLOGIC ASSESSMENT FOR THE
INDUSTRIAL 195 TRACT, GEORGETOWN,
WILLIAMSON COUNTY, TEXAS

MARCH 2021

PREPARED FOR
HWY 195/247 LLC

PREPARED BY
SWCA Environmental Consultants
Texas Board of Professional Geoscientists, Firm Registration No. 50159

**GEOLOGIC ASSESSMENT FOR THE INDUSTRIAL 195
TRACT, CITY OF GEORGETOWN, WILLIAMSON COUNTY,
TEXAS**

Prepared for

HWY 195/247 LLC
3303 Windsor Road, Unit A
Austin, TX 78703

Prepared by

SWCA Environmental Consultants
Texas Board of Professional Geoscientists, Firm Registration No. 50159
4407 Monterey Oaks Boulevard
Austin, Texas 78749
(512) 476-0891
www.swca.com

SWCA Project No. 63269

March 2021



CONTENTS

| | | |
|----------|--------------------------------|----------|
| 1 | Introduction | 1 |
| 2 | Methodology | 1 |
| 3 | Results | 3 |
| 3.1 | Project Area Overview | 3 |
| 3.2 | Soils | 3 |
| 3.3 | Geology | 5 |
| 3.4 | Hydrogeologic Assessment | 5 |
| 3.5 | Feature Descriptions | 7 |
| 4 | Conclusion | 7 |
| 5 | Literature Cited | 8 |

Appendices

| | |
|------------|--|
| Appendix A | Texas Commission on Environmental Quality (TCEQ) Forms |
| | Attachment A – Geologic Assessment Table |
| | Attachment B – Stratigraphic Column |
| | Attachment C – Narrative Description of Site Geology |
| | Attachment D – Site Geologic Map |
| Appendix B | Photographic Log |

Figures

| | | |
|-----------|-------------------------|---|
| Figure 1. | Site location map | 2 |
| Figure 2. | Soils map. | 4 |
| Figure 3. | Regional trend map..... | 6 |

Tables

| | | |
|----------|--|---|
| Table 1. | Soil Units within the Project Area | 3 |
|----------|--|---|

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1 INTRODUCTION

This narrative Geologic Assessment accompanies Texas Commission on Environmental Quality (TCEQ) Geologic Assessment Form TCEQ-0585 completed for the Industrial 195 Tract (project). The project proposes approximately 25 acres between State Highway (SH)195 and Ronald Reagan Blvd. in the City of Georgetown extraterritorial jurisdiction (ETJ), Williamson County, Texas (Figure 1). The project area covers approximately 25 acres.

2 METHODOLOGY

SWCA Environmental Consultants (SWCA) scientists studied records pertaining to all reputed caves in the project area and gathered information related to documented caves in the project vicinity prior to conducting field work. Relevant information sources include:

- Internal SWCA data;
- Unpublished data related to SWCA et al. (2008);
- ESRI® ArcGIS® Online Basemap Map Services;
- U.S. Geological Survey (2018) 7.5-minute topographic digital raster graphics;
- Geologic maps (Barnes 1974; Collins 1997a, 1997b); and
- Mapped fault lines (Collins 1997a, 1997b).

An SWCA Texas Licensed Professional Geoscientist (PG), Luke Rome, conducted a pedestrian survey on September 15, 2020. The pedestrian survey was completed by walking parallel transects spaced approximately 30 to 50 feet apart, as directed by the TCEQ in the Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones (Rev. 10-01-04). Closer spacing was used where vegetation inhibited clear observation. SWCA scientists carefully examined all potential karst features, including depressions, holes, and animal burrows, for subsurface extent evidence. SWCA used several techniques for this effort, including probing with a digging implement to determine the thickness and consistency of fill material and feeling for air flow which may indicate the presence of a sub-surface void space. Other techniques included recording notable features and site characteristics, such as vegetation types or semi-circular burrow mounds produced by small mammal activity.



Figure 1. Site location map.

3 RESULTS

3.1 PROJECT AREA OVERVIEW

The project area occurs within the Edwards Aquifer Recharge Zone (EARZ), which is in the northern segment of the Edwards Aquifer (TCEQ 2021 (TCEQ 2021)). Topography within and surrounding the project area slopes from the south to the north. The elevation of the project area ranges from approximately 815 feet above mean sea level (amsl) at the northern side of project area to 835 feet amsl near the project area’s southern extent.

The project area consists of undeveloped rangeland. It appears that little vegetative manipulation has occurred in recent years. The majority of the project area is undisturbed. The project area is located adjacent to and west of an active limestone quarry, CC Aggregates LLC. Quarrying activities such as the excavation of large pits are adjacent to and not within the project area.

3.2 SOILS

The Natural Resources Conservation Service (2021) identified two soil units within the project area (Figure 3). Table 1 provides additional details for these soil units.

Table 1. Soil Units within the Project Area

| Soil Unit | Hydric | Hydrologic Soil Group* | Drainage Class | Frequency of Flooding/Ponding | Depth to Water Table (inches) |
|---|--------|------------------------|----------------|-------------------------------|-------------------------------|
| DnB: Denton silty clay, 1 to 3 percent slopes | No | D | Well Drained | None / None | 80+ inches |
| EaD: Eckrant cobbly clay, 1 to 8 percent slopes | | | | | |

Data Source: Natural Resources Conservation Service (2021).

*Group D – Soils had very slow infiltration rates when thoroughly wetted and exhibit the highest potential for runoff.

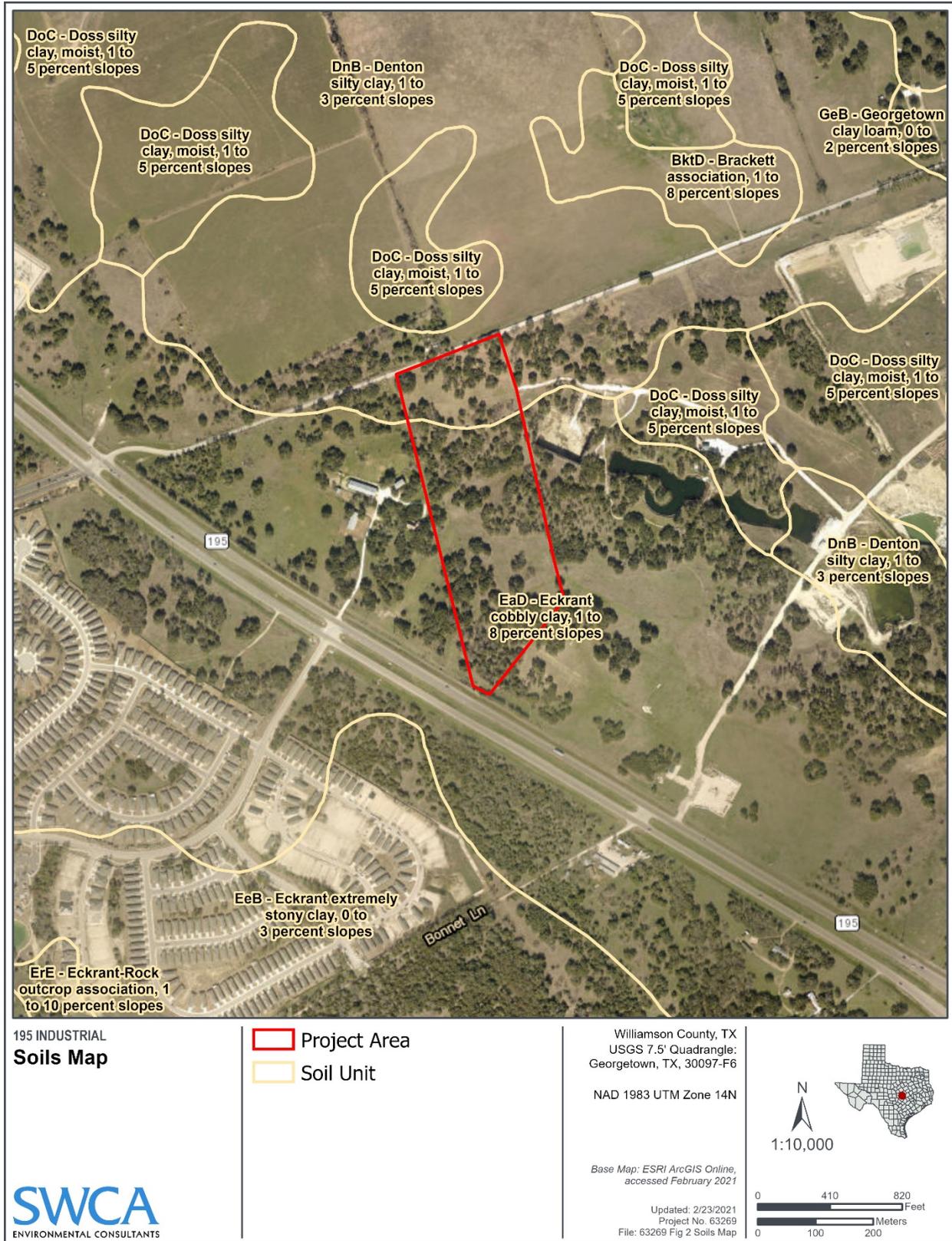


Figure 2. Soils map.

3.3 GEOLOGY

The Project Area occurs along the Balcones Fault Zone (BFZ) within the Edwards Aquifer Recharge Zones (TCEQ 2021). Structural down-warping occurred with the Gulf of Mexico's ancestral formation during the middle Tertiary. The earth's crust was stretched in response, and the BFZ formed along a zone of weakness, which currently marks the boundary between the Edwards Plateau and the Gulf Coastal Plain in central Texas. The BFZ is characterized by a series of northeast-trending, predominantly normal, nearly vertical, en echelon faults. No faults are mapped within the project area (Collins 1997).

As depicted on Figure 3, there are no mapped faults within the project area (Collins 1997, 2004). The regional trend of the mapped faults within the area is approximately 15 degrees; therefore, any features within 15 degrees (0 to 30 degrees) will be awarded an additional 10 points on the geologic assessment table presented in Appendix A, Attachment A.

Collins (1997, 2004) indicates the project area is underlain by Georgetown Formation (Kgt) (Appendix A, Attachment D). SWCA finds Collins (1997, 2004) interpretation of the geology to be generally accurate. The Stratigraphic Column is included in Appendix A, Attachment B.

Georgetown Formation is described by Collins (1997) as:

... Member A consists of 23 feet of thick-bedded nodular limestone; Member B consists of 25 feet of interbedded chalky, argillaceous limestone and light gray to buff shale; Member C is a 5-foot *Texigryphaea washitaensis* (Hill) agglomerate; Member D consists of 10 feet of interbedded, thin, chalky limestone and light gray marl; and Member E consists of 20 feet of light gray, hard, crystalline, thin-bedded limestone.

Recharge into the Edwards Aquifer primarily occurs in areas where the Edwards Group and Georgetown Formation are exposed at the surface. Most recharge is from direct infiltration via precipitation and streamflow loss. Recharge occurs predominantly along secondary porosity features such as faults, fractures, and karst features (caves, solution cavities, sinkholes, etc.). Karst features are commonly formed along joints, fractures, and within bedding plane surfaces in the Edwards Group and Georgetown Formation. Water that recharges the Edwards Aquifer in the vicinity of the project area commonly discharges near the contact between Edwards Limestone and underlying Comanche Peak Formation.

3.4 HYDROGEOLOGIC ASSESSMENT

The overall potential for fluid migration to the Edwards Aquifer within the project area appears relatively low compared to background infiltration rates due to the presence of no sensitive features. The depth to water in the vicinity of the project area has been measured between 70 and 96.5 feet below ground surface in nearby monitoring wells (State ID Nos. 168654 and 190308) (TWDB 2021).

The gentle contours shown on Appendix A, Attachment D suggest runoff from rainfall reaching the undisturbed portions of the project area will continue downslope in the form of sheet flow until collected in drainages outside the project area that eventually feed Berry Creek, approximately 1 mile southwest of the project area.

There were no springs or streams identified within project area. Due to the lack of streams and springs, this project area appears to comply with the City of Georgetown Water Quality Ordinance No. 2015.14

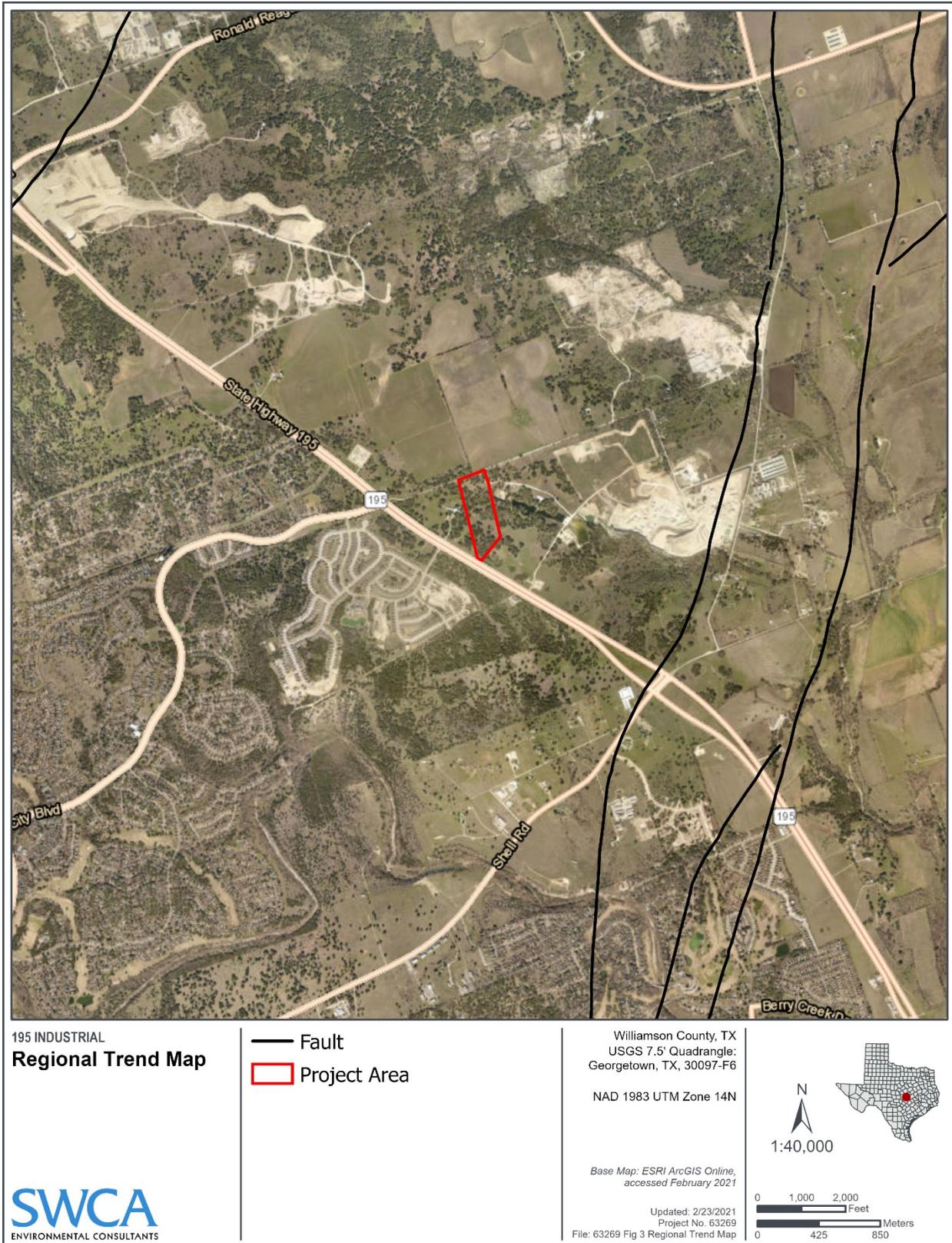


Figure 3. Regional trend map.

3.5 FEATURE DESCRIPTIONS

Two geologic features were identified within the project area.

H-01 Feature H-01 is a small non-karst closed depression influenced by the surrounding live oak roots. The closed depression had a length, width, and depth of 2.5 feet, 2 feet, and 0.5 feet. This feature was positioned along a gentle hillside with a catchment area of less than 1.6 acres. The infill material within the depression consisted of leaf litter (recently dropped from the canopy above) and moderately compacted clay rich soils. There was no indication of sediment transport or infiltration into the depression. Due to the lack of connection bedrock and the fine clay infilling, the probability of rapid infiltration is low. H-01 is not considered a sensitive recharge feature.

H-03 Feature H-03 is non-karst closed depression that is approximately 4 feet by 3 feet by 0.75 feet. The feature is located along a hillslope and has a catchment area of less than 1.6 acres. The feature consists of a small depression that contains rotten wood material therefore this feature is likely a result of tree rot. There was no indication of sediment transport or infiltration into the depression. Due to the lack of connection bedrock, the likely origin (tree rot), and the clay infilling, the probability of rapid infiltration is low. H-03 is not considered a sensitive recharge feature.

4 CONCLUSION

This Geologic Assessment identified two features within the project area, both features are considered to be non-sensitive therefore do not require protective buffering. Additionally, there were no springs or streams identified within the project area.

5 LITERATURE CITED

- Barnes, V.E. 1992. Geologic Atlas of Texas, Austin Sheet. University of Texas at Austin, Bureau of Economic Geology. Scale 1:250,000.
- Collins, E.W. 1997a. Geologic map of the Cobbs Cavern quadrangle, Texas: University of Texas at Austin, Bureau of Economic Geology, Open-File Map OFM0013D, scale 1:24,000.
- Collins, E.W. 1997b. Geologic map of the Georgetown quadrangle, Texas: University of Texas at Austin, Bureau of Economic Geology, Open-File Map, scale 1:24,000.
- Natural Resources Conservation Service (NRCS). 2021. United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database. Available at: <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed February 2021
- SWCA Environmental Consultants (SWCA), Smith, Robertson, Elliott, Glen, Klein, & Bell, LLP, Prime Strategies, Inc., Texas Perspectives, Inc. 2008. Williamson County Regional Habitat Conservation Plan. Prepared for Williamson County Conservation Foundation and The Honorable Lisa Birkman.
- Texas Commission on Environmental Quality (TCEQ). 2004. *Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones* (Rev. 10-01-04). Austin, Texas. 34 pp.
- . 2021. Edwards Aquifer Viewer v4.1. Available online at: <https://www.tceq.texas.gov/gis/edwards-viewer.html>. Accessed February 2021.
- Texas Water Development Board. 2021 Groundwater data viewer. Available online at: <https://www2.twdb.texas.gov/apps/WaterDataInteractive/GroundwaterDataViewer/?map=sdr> Accessed February 2021.
- U.S. Geological Survey (USGS). 2018. USGS 1:24000-scale Quadrangle for Georgetown, TX 2018: U.S. Geological Survey.

APPENDIX A

Texas Commission on Environmental Quality (TCEQ) Forms

ATTACHMENT A
Geologic Assessment Table

ATTACHMENT B
Stratigraphic Column

Stratigraphic Column

| | | |
|------------------|-----------------------|--|
| Upper Cretaceous | Upper Confining Units | Navarro and Taylor Groups, undivided; 600 feet thick |
| | | Austin Group; 325–420 feet thick |
| | | Eagle Ford Group; 25–65 feet thick |
| | | Buda Limestone; 40–50 feet thick |
| | | Del Rio Clay; 40–70 feet thick |
| Lower Cretaceous | Edwards Aquifer | Georgetown Formation; 30–80 feet thick |
| | | Edwards Limestone; Up to 200 feet thick |
| | | Comanche Peak Formation; 80 feet thick |
| | Lower Confining Units | Walnut Formation; Up to 120 feet thick |
| | | Upper member of Glen Rose Limestone; 500 feet thick |

Note: The shaded area represents the lithology that outcrops in the project area.



ATTACHMENT C
Narrative Description of Site Geology

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: Luke Rome, P.G.

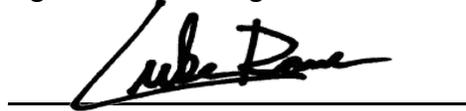
Telephone: 737.236.4480

Date: March 19, 2021

Fax: 512-476-0893

Representing: SWCA Environmental Consultants; TBPG Firm Registration No. 50159 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: Industrial 195 Tract

Project Information

1. Date(s) Geologic Assessment was performed: 9/15/20

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) |
|-----------|--------|-----------------|
| DnB | D | 6-7 |
| EaD | D | 6-7 |
| | | |
| | | |
| | | |

* 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" = 833'
 Site Geologic Map Scale: 1" = 833'
 Site Soils Map Scale (if more than 1 soil type): 1" = 833'
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.

REFER TO SECTION 3.3 OF THIS REPORT FOR GEOLOGIC NARRATIVE DESCRIPTION

Modification of a Previously Approved Plan Form (TCEQ-0590)

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), 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 request for a **Modification of a Previously Approved Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Addison Skrla, PE

Date: 4/3/2025

Signature of Customer/Agent:

 _____

Project Information

1. Current Regulated Entity Name: Highway 195 Business Park
Original Regulated Entity Name: Highway 195 Commercial
Regulated Entity Number(s) (RN): RN111300612
Edwards Aquifer Protection Program ID Number(s): 11002594
 The applicant has not changed and the Customer Number (CN) is: _____
 The applicant or Regulated Entity has changed. A new Core Data Form has been provided.
2. **Attachment A: Original Approval Letter and Approved Modification Letters.** A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
- 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;
 - 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;
 - Development of land previously identified as undeveloped in the original water pollution abatement plan;
 - Physical modification of the approved organized sewage collection system;
 - Physical modification of the approved underground storage tank system;
 - Physical modification of the approved aboveground storage tank system.
4. Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

| <i>WPAP Modification</i> | <i>Approved Project</i> | <i>Proposed Modification</i> |
|---------------------------------|--------------------------------|-------------------------------------|
| <i>Summary</i> | | |
| Acres | <u>24.428</u> | <u>24.428</u> |
| Type of Development | <u>Commercial</u> | <u>Commercial</u> |
| Number of Residential Lots | <u>N/A</u> | <u>N/A</u> |
| Impervious Cover (acres) | <u>14.26</u> | <u>13.24</u> |
| Impervious Cover (%) | <u>58.4</u> | <u>54.2</u> |
| Permanent BMPs | <u>Batch Detention Basin</u> | <u>Batch Detention Basins,</u> |
| Other | _____ | <u>Biofiltration pond and</u> |
| | | <u>Vegetative Filter Strips</u> |

| <i>SCS Modification</i> | <i>Approved Project</i> | <i>Proposed Modification</i> |
|--------------------------------|--------------------------------|-------------------------------------|
| <i>Summary</i> | | |
| Linear Feet | _____ | _____ |
| Pipe Diameter | _____ | _____ |
| Other | _____ | _____ |

| <i>AST Modification</i> | <i>Approved Project</i> | <i>Proposed Modification</i> |
|--------------------------------|--------------------------------|-------------------------------------|
| <i>Summary</i> | | |
| Number of ASTs | _____ | _____ |
| Volume of ASTs | _____ | _____ |
| Other | _____ | _____ |

| <i>UST Modification</i> | <i>Approved Project</i> | <i>Proposed Modification</i> |
|--------------------------------|--------------------------------|-------------------------------------|
| <i>Summary</i> | | |
| Number of USTs | _____ | _____ |
| Volume of USTs | _____ | _____ |
| Other | _____ | _____ |

5. **Attachment B: Narrative of Proposed Modification.** A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

6. **Attachment C: Current Site Plan of the Approved Project.** A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
 - The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
 - The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
 - The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
 - The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
 - The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
 - Acreage has not been added to or removed from the approved plan.

8. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional

copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

Attachment 2A
Original Approval Letter

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*



A handwritten signature in black ink, appearing to be "A".

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 3, 2021

Mr. Cosmo Palmieri
Hwy 195 247, LLC
6907 N Capital of Texas Hwy, Ste. 300
Austin, TX 78731

Re: Edwards Aquifer, Williamson County

NAME OF PROJECT: Highway 195 Commercial; Located 0.4 Mi. East of CR 147 and Hwy 195; Georgetown, Texas

TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program ID No. 11002594; Regulated Entity No. RN111300612

Dear Mr. Palmieri:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the above-referenced project submitted to the Austin Regional Office by CSF Civil Group, LLC on behalf of Highway 195 247, LLC on July 23, 2021. Final review of the WPAP was completed after additional material was received on August 30, 2021. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected, and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed, and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed commercial project will have an area of approximately 24.43 acres. It will include six commercial buildings, two storage buildings, associated parking, and utility improvements. The impervious cover will be 14.26 acres (58.4 percent). According to a letter dated, July 22, 2021, signed by Aaron Googins, with Williamson County, the site in the development is acceptable for the use of on-site sewage facilities.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, a batch detention basin, designed using the TCEQ technical guidance document, complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 12,412 pounds of TSS generated from the 14.26 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

GEOLOGY

According to the Geologic Assessment included with the application, the surficial unit on site is the Georgetown Formation (Kgt). The soils present on site are characterized by Denton silty clay and Eckrant cobbly clay. There were no sensitive features identified on site. The TCEQ site assessment conducted on August 10, 2021 determined the site to be generally as described.

SPECIAL CONDITIONS

- I. All permanent pollution abatement measures shall be operational prior to occupancy of the facility.
- II. All sediment and/or media removed from the water quality basin during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the Austin Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.
5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to

the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.

8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction, and maintained during construction. Temporary E&S controls may be removed when vegetation is established, and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.
12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
13. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director 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.

17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the Austin Regional Office within 30 days of site completion.
19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through Austin Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.
20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
21. An Edwards Aquifer protection plan approval or extension will expire, and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Savannah Finger of the Edwards Aquifer Protection Program of the Austin Regional Office at 512-339-2929.

Sincerely,



Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/sjf

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

Attachment 2B
Narrative of Proposed Modification



Attachment B – Narrative of Proposed Modification

The proposed Highway 195 Business Park is located at the newly established address of 3000 SH 195, which is approximately 1,600 feet east of the intersection of State Highway 195 and County Road 147 (Sun City Blvd), in Georgetown, Texas 78633. The site is comprised of a single lot of 24.43 acres in Williamson County, within the ETJ of Georgetown. Legal description for this property; 24.427 Acres situated in the Burrell Eaves Survey, Abstract No. 216.

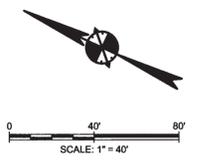
The previously approved Highway 195 Commercial project consisted of five 40,625 sf and one 22,500 sf commercial buildings and two separate storage buildings of 15,000 and 25,000 sf (totaling 265,625 sf of building footprint), with associated parking and utilities. Total impervious cover for the previously approved plan was 621,402 sf, or 58.4% of the 24.428-acre site. No other modifications have been proposed for this site since the original TCEQ Approval Letter, dated September 3, 2021.

The proposed improvements for the Highway 195 Business Park consist of constructing five 40,500 sf warehouse buildings and one 20,800 sf commercial building (totaling 223,600 sf of building footprint) and the corresponding parking, drive aisles, utilities and stormwater facilities. Total impervious cover for the proposed plan is 576,550 sf, or 54.2% of the 24.428-acre site.

The significant modifications to the site include repositioning of the commercial buildings on the site, removal of the two storage buildings, rerouting of the offsite stormwater bypass to along the south property boundary and through the site, adding vegetative filter strips and a biofiltration pond for treatment of a portion of the stormwater runoff, and using three Batch Detention Basins instead of a single basin. These proposed modifications will route the offsite runoff around and through the site instead of combining with onsite stormwater, will significantly reduce the length of storm pipe, will reduce impervious cover by more than an acre, will reduce excavation into the subsurface rock for the detention basin, and will eliminate the stormwater pump.

Minor modifications to the site include shifting of the entrances from Highway 195 and County Road 147 for better alignment with the proposed site, reducing the number of parking spaces by 5, and improving constructability.

Attachment 2C
Current Site Plan of the Approved Project



LEGEND

- PROPERTY BOUNDARY
- - - FIRE ACCESS
- ▣ CONCRETE DRIVE
- OHE — EXISTING OVERHEAD ELECTRIC
- PROPOSED CURB & GUTTER
- 12" WM — PROPOSED 12" WATER LINE
- 8" WM — PROPOSED 8" WATER LINE
- ⊕ PROPOSED FIRE HYDRANT
- SS — PROPOSED STORMSEWER LINE
- PROPOSED STORMSEWER INLET
- PROPOSED AREA INLET
- ▭ EXISTING PAVEMENT

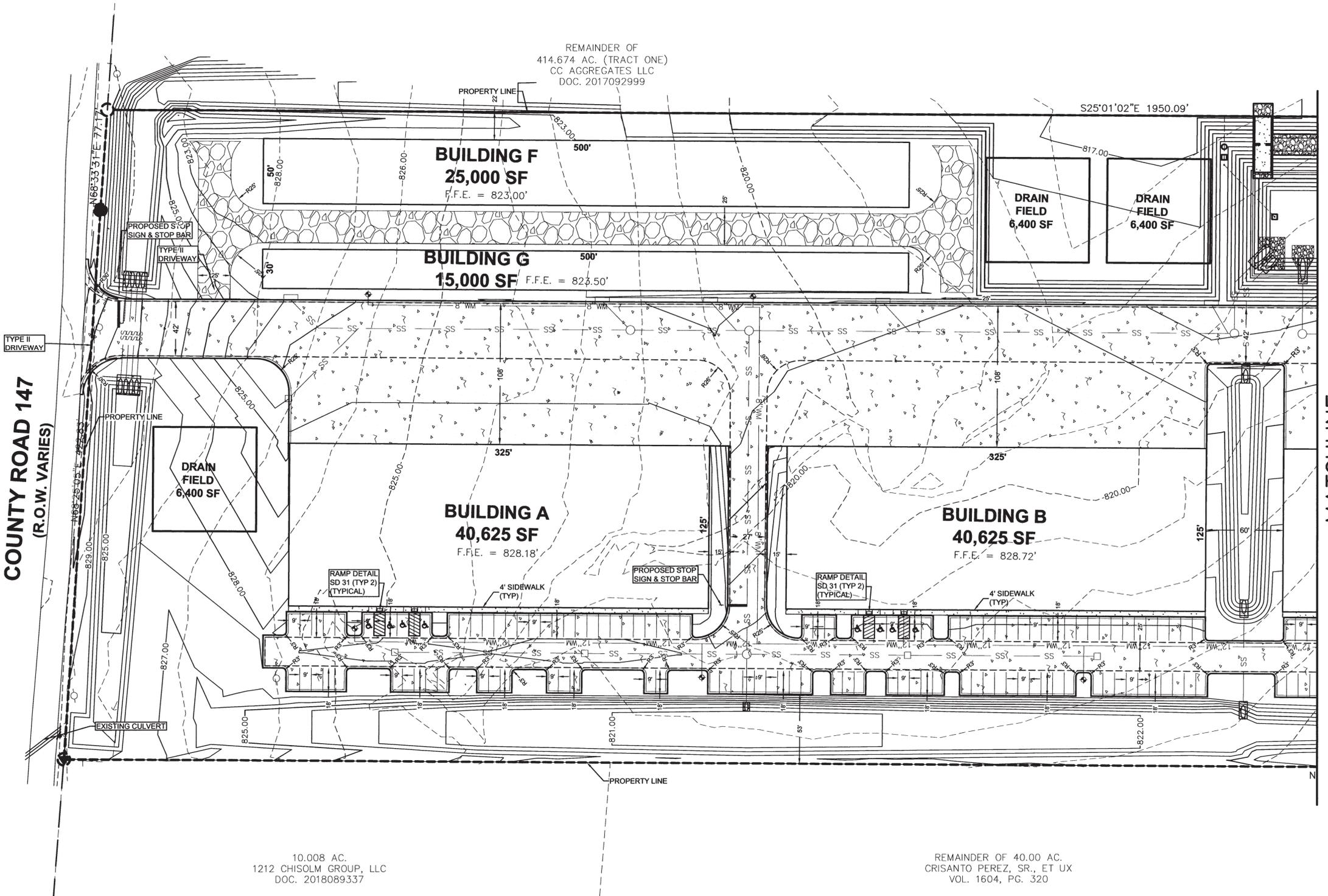
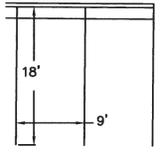
SITE DATA

Size: 24.428 AC
1,064,084 SF

| IMPERVIOUS COVER | |
|-------------------|---------------|
| Building A | 40,625 SF |
| Building B | 40,625 SF |
| Building C | 40,625 SF |
| Building D | 40,625 SF |
| Building E | 40,625 SF |
| Building F | 25,000 SF |
| Building G | 15,000 SF |
| Building H | 22,500 SF |
| Driveways/Parking | 355,777 |
| Total: | 58.40% |

| SITE PARKING | | |
|---------------|------------|----------|
| | Proposed | Required |
| Regular: | 315 | x |
| Handicap: | 20 | x |
| Total: | 335 | |

TYPICAL PARKING SPACE



REMAINDER OF
414.674 AC. (TRACT ONE)
CC AGGREGATES LLC
DOC. 2017092999

10.008 AC.
1212 CHISOLM GROUP, LLC
DOC. 2018089337

REMAINDER OF 40.00 AC.
CRISANTO PEREZ, SR., ET UX
VOL. 1604, PG. 320

COUNTY ROAD 147
(R.O.W. VARIES)

MATCHLINE

Austin, Texas
Tel: (512) 614-4466
www.steinemann-fleming.com
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PLANNING, ENGINEERING & CONSTRUCTION SERVICES



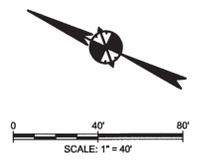
HWY 195 Commercial

WPAP SITEPLAN SHEET 1

HWY 195/247 LLC
COSMO Palmieri
6907 Capital of Texas Highway Suite 300
AUSTIN, TEXAS 78731

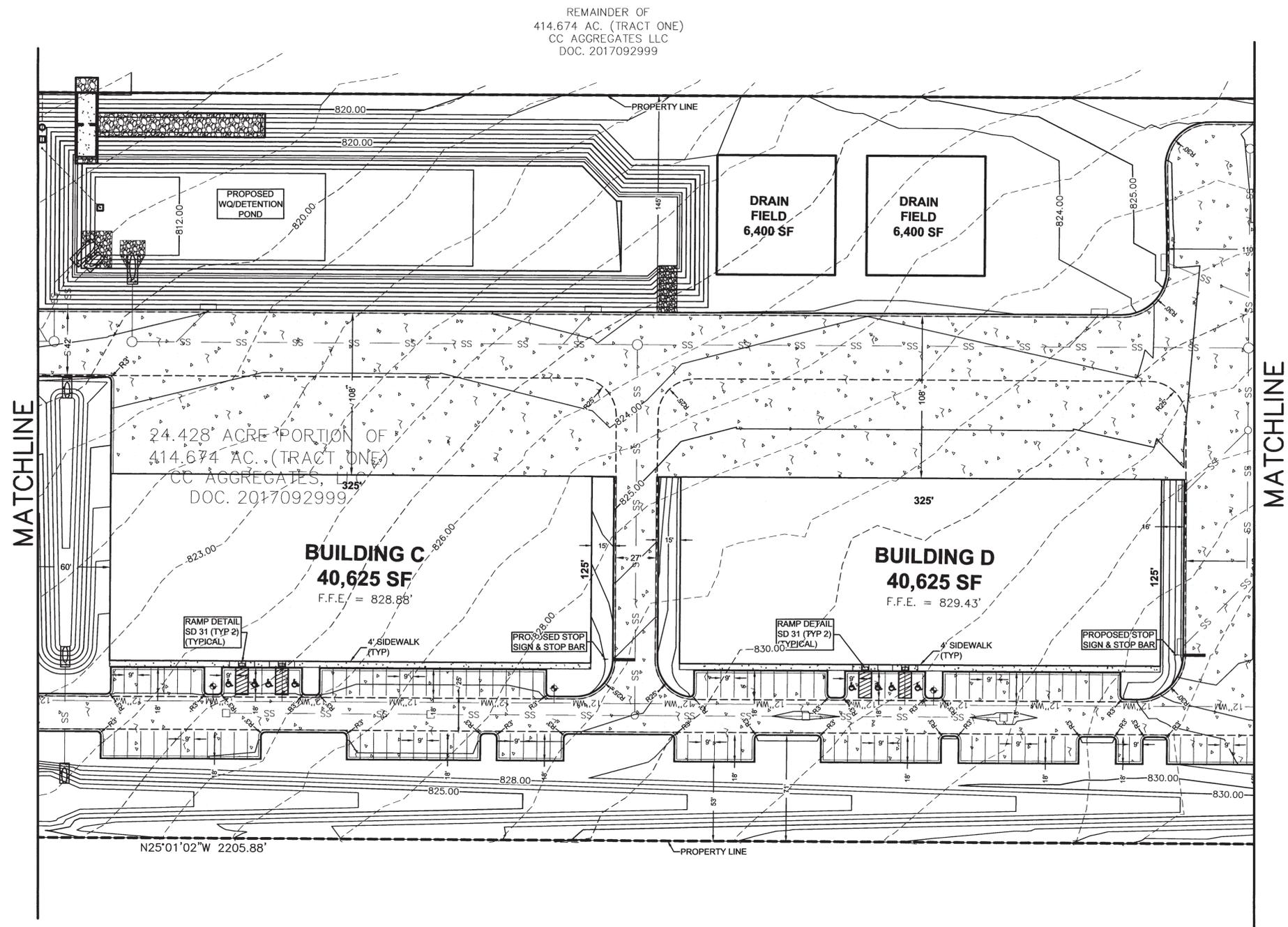
Project No.:
14201.01

SHEET
1



LEGEND

- PROPERTY BOUNDARY
- - - FIRE ACCESS
- CONCRETE DRIVE
- OHE — EXISTING OVERHEAD ELECTRIC
- PROPOSED CURB & GUTTER
- 12" WM — PROPOSED 12" WATER LINE
- 8" WM — PROPOSED 8" WATER LINE
- ⊕ PROPOSED FIRE HYDRANT
- SS — PROPOSED STORMSEWER LINE
- PROPOSED STORMSEWER INLET
- PROPOSED AREA INLET
- EXISTING PAVEMENT

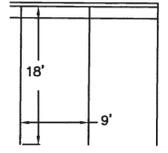


| SITE DATA | |
|-----------|----------------------------|
| Size: | 24.428 AC. 1,064,084 SF |

| IMPERVIOUS COVER | |
|-------------------|---------------|
| Building A | 40,625 SF |
| Building B | 40,625 SF |
| Building C | 40,625 SF |
| Building D | 40,625 SF |
| Building E | 40,625 SF |
| Building F | 25,000 SF |
| Building G | 15,000 SF |
| Building H | 22,500 SF |
| Driveways/Parking | 355,777 |
| Total: | 58.40% |

| SITE PARKING | | |
|---------------|------------|----------|
| Regular: | Proposed | Required |
| | 315 | x |
| Handicap: | 20 | x |
| Total: | 335 | |

TYPICAL PARKING SPACE



Austin, Texas
Tel: (512) 614-4466
www.civilgroup.com
Texas Registered Firm No. F-12377

Civil Group
Cook, Steinhilber, Fleming
PLANNING, ENGINEERING & CONSTRUCTION SERVICES



HWY 195 Commercial
WPAP SITEPLAN SHEET 2

HWY 195/247 LLC
COSMO Palmieri
Capital of Texas Highway Suite 300
AUSTIN, TEXAS 78731

Water Pollution Abatement Plan Application (TCEQ-0584)

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(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 **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: Addison Skrla, PE

Date: 04-02-2025

Signature of Customer/Agent:



Regulated Entity Name: Highway 195 Business Park

Regulated Entity Information

1. The type of project is:

- Residential: Number of Lots: _____
- Residential: Number of Living Unit Equivalents: _____
- Commercial
- Industrial
- Other: _____

2. Total site acreage (size of property): 24.43

3. Estimated projected population: 165

4. The amount and type of impervious cover expected after construction are shown below:

Table 1 - Impervious Cover Table

| Impervious Cover of Proposed Project | Sq. Ft. | Sq. Ft./Acre | Acres |
|--------------------------------------|---------|--------------|-------|
| Structures/Rooftops | 223,600 | ÷ 43,560 = | 5.13 |
| Parking | 352,944 | ÷ 43,560 = | 8.10 |
| Other paved surfaces | 0 | ÷ 43,560 = | 0 |
| Total Impervious Cover | 576,544 | ÷ 43,560 = | 13.24 |

Total Impervious Cover 13.24 ÷ Total Acreage 24.43 X 100 = 54.2% Impervious Cover

5. **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
6. Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7. Type of project:

- TXDOT road project.
- County road or roads built to county specifications.
- City thoroughfare or roads to be dedicated to a municipality.
- Street or road providing access to private driveways.

8. Type of pavement or road surface to be used:

- Concrete
- Asphaltic concrete pavement
- Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.

Width of R.O.W.: _____ feet.

L x W = _____ Ft² ÷ 43,560 Ft²/Acre = _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

L x W = _____ Ft² ÷ 43,560 Ft²/Acre = _____ acres.

Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____ % impervious cover.

11. A rest stop will be included in this project.
- A rest stop will not be included in this project.

12. Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

13. **Attachment B - Volume and Character of Stormwater.** A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

Wastewater to be generated by the Proposed Project

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

| | |
|--------------------------------|---------------------------|
| <u>100%</u> Domestic | <u>3,300</u> Gallons/day |
| <u> </u> % Industrial | <u> </u> Gallons/day |
| <u> </u> % Commingled | <u> </u> Gallons/day |
| TOTAL gallons/day <u>3,300</u> | |

15. Wastewater will be disposed of by:

On-Site Sewage Facility (OSSF/Septic Tank):

Attachment C - Suitability Letter from Authorized Agent. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

Sewage Collection System (Sewer Lines):

Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

The SCS was previously submitted on _____.

The SCS was submitted with this application.

The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

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

- Existing.
 Proposed.

16. All private service laterals will be inspected as required in 30 TAC §213.5.

Site Plan Requirements

Items 17 – 28 must be included on the Site Plan.

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

Site Plan Scale: 1" = 100'.

18. 100-year floodplain boundaries:

Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.

No part of the project site is located within the 100-year floodplain.

The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA Firm Map #48491C0285F, dated December 20, 2019.

19. The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

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

There are 1 (#) 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.

21. 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 D - Exception to the Required Geologic Assessment. A request and justification for an exception to a portion of the Geologic Assessment is attached.

- 22. The drainage patterns and approximate slopes anticipated after major grading activities.
- 23. Areas of soil disturbance and areas which will not be disturbed.
- 24. Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
- 25. Locations where soil stabilization practices are expected to occur.
- 26. Surface waters (including wetlands).
 - N/A
- 27. Locations where stormwater discharges to surface water or sensitive features are to occur.
 - There will be no discharges to surface water or sensitive features.
- 28. Legal boundaries of the site are shown.

Administrative Information

- 29. 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.
- 30. Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Attachment 3A

Factors Affecting Water Quality



Attachment 3A – Factors Affecting Surface Water Quality

The factors affecting water quality as a result of proposed site improvements are as follows:

The proposed improvements consist of constructing five - 40,500 square foot warehouse buildings and one - 20,800 square foot commercial building (totaling 223,600 sf building footprint) and the corresponding parking, drive aisles, utilities and stormwater facilities. The proposed improvements will add approximately 576,550 square feet (13.24 acres) of impervious cover to the site, or 54.2% of the 24.43-acre site.

The proposed improvements will attract vehicular and truck traffic to the site and will cause an increase in Total Suspended Solids (TSS). The vehicular and truck traffic which will be visiting the site will naturally cause an increase in TSS due to unforeseen leaks in vehicles which can include, but are not limited to brake fluid, hydraulic fluid, antifreeze, oil, gasoline, and diesel fuel. The surface water quality will be affected negatively by this increase in TSS; however, this water quality will be restored to abide by TCEQ (80% TSS Removal) and City of Georgetown's (85% TSS Removal) requirements with the proposed Engineered Filter Strips, Bioretention Swale and Batch Detention Basins.

Surface discharge from the developed site mimics the pre-developed site with runoff flowing across the east and south property lines. Stormwater runoff treatment for the front of Buildings 1 - 4 is provided by Engineered Vegetated Filter Strips, designed in general accordance with Section 3.2.4 of the TCEQ Technical Guidance on BMP's. Essentially, less than 72 feet of gently sloped impervious area flows across 15 feet of gently sloped vegetated buffer strip before flowing offsite, with no encumbrances (e.g. curbs or graded channels) to concentrate or channelize the flows.

Proposed extended detention basins are located along the east and south property boundaries, for stormwater treatment and detention of the remaining site. Each pond will be modified with a Batch Detention System to provide 91% TSS removal, in general accordance with TCEQ Technical Guidance, Section 3.2.17. A bioretention pond is positioned upstream of a detention pond to provide added stormwater storage and treatment for the upstream subbasin. This bioretention pond was designed in general accordance with TCEQ Section 3.4.8.

Based on the TCEQ calculations, with the City of Georgetown modification for an additional 5% TSS removal, the proposed Extended Drainage Basins and Bioretention Pond are sized for adequate stormwater treatment. Beyond the treatment capacity of the detention basins, stormwater will overflow the perimeter earthen berms to the adjacent properties.

Attachment 3B

Volume and Character of Stormwater



Attachment 3B – Volume and Character of Stormwater

The volume and character of stormwater at the project site for both existing and post-development conditions are as follows:

Existing Hydrologic Condition Analysis:

The existing site is an undeveloped lot without established access from either SH 195 or CR 147. The properties generally to the north (across CR 147) consist of large farmed plots with individual homes; to the west, a large single-family home on a mostly undeveloped plot bordered by SH 195 along its west property line; to the east is the Martin Marietta – North Austin Quarry; to the south, SH 195 and an undeveloped plot. The site is lightly forested with ground surface consisting of brush, weed and grasses in good condition. The NRCS Soils Map (2021) for the area shows Denton silty clay (DnB) generally corresponding to the northern $\frac{1}{4}$ of the property and the offsite area to the north, and Eckrant cobbly clay (EaD) for the southern $\frac{3}{4}$ of the property and the property to the west. Both silty and cobbly clay soils are defined as hydrologic soil group D.

The majority of the property drains toward an undefined channel in the northern $\frac{1}{4}$ portion of the property, outflowing to the neighboring quarry to the east. A smaller portion of the site drains across the east and south property lines, leaving less than an acre draining to the south along SH 195. Based on GIS topographic information, approximately 58 acres north of CR 147 flows to a shallow depression along the County road frontage and is conveyed to the subject property through 3 – 18" CMP culverts, outflowing at the NW corner of the property. The centerline of CR 147 is roughly 2 feet above the culverts' invert, creating a shallow closed depression on the neighboring property. Approximately 36 acres of the neighboring property to the west generally sheet flows across the common property line.

Table 3-6 of the Georgetown Drainage Criteria Manual was used to determine the Base Runoff Curve Numbers (CN) for the drainage basin. The brush, weed and grass mixture (in good condition) and the defined hydrologic soil group assign a Base Curve Number of 73 for the subject property and the contributing property to the west. The contributing area to the north is better defined as Meadow – generally mowed for hay, warranting a Base Curve Number of 78. Refer to Attachment A for the SCS Base Runoff Curve Numbers table and Attachment B for the USDA NRCS Soils Map that shows the soils breakdown for the site and a description of each soil type.

Peak runoff rates for the Existing and Developed conditions were calculated using HEC-HMS 4.10. The National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 precipitation frequency estimates for the region were input into HEC-HMS for analysis of the required 24-hour SCS type III storm events: 2, 10, 25, and 100-year storm events.

| NOAA Atlas 14 Precipitation Data (in) | | | | |
|---------------------------------------|------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| 24-Hour | 3.93 | 6.28 | 8.00 | 11.20 |

Precipitation Data taken from NOAA Atlas 14 website

Address: 3000 SH 195, Georgetown, TX 78633

Four existing drainage basins were defined based on geographic features and the three areas of discharge across the subject property lines, assigned Points of Interest A - C. The entire drainage basin contributing to the three Points of Interest covers over 119 acres. Existing Basin 1 is comprised of the nearly 58 acres north of CR 147. Stormwater discharge from Existing Basin 1 to the subject property is limited by the three 18" CMP culverts, creating a small pond on that property during each of the design storm events. Based on GIS topographic information, a volume of approximately 41,000 cf is available prior to overflowing the County road centerline. Once flow from Existing Basin 1 enters the subject property, it flows to the existing channel and is conveyed to an existing point of discharge at the east property line, Point of Interest A (POI A).

Existing Basin 2 is comprised of most of the contributing offsite area to the west and the remaining portion of the subject property that drains to the existing channel, where it combines with Existing Basin 1 to outflow to POI A. Existing Basin 3 is comprised of a smaller portion of the offsite area to the west and the southern portion of the subject property that sheet flows across the east and south property lines (POI B). Existing Basin 4 is comprised of a small onsite area that drains south toward SH 195 right-of-way (POI C).

Existing impervious cover consists of the two homes and drives on the offsite contributing properties and the portion of CR 147 within the drainage basin area, totaling 88,540 sf (2.03 acres). No impervious cover exists within the proposed property boundary.

A summary of the existing drainage basin information can be seen in the table below with an Existing Conditions Basin Map included in Attachment H.

| EXISTING CONDITIONS DRAINAGE BASIN INFORMATION | | | | | | | | | | |
|--|-----------|--------|------------|------------------|------|------|--------------|-----------|-----------------------|-------|
| BASIN | AREA | | | IMPERVIOUS COVER | | | CURVE NUMBER | | TIME OF CONCENTRATION | LAG |
| | (SF) | (AC) | (Sq Mi) | (SF) | (AC) | (%) | Base Soil | Composite | (MIN) | (MIN) |
| 1 | 2,525,195 | 57.97 | 0.09057891 | 26,840 | 0.62 | 1.1% | 78 | 78.21 | 31.64 | 19.0 |
| 2 | 2,071,675 | 47.56 | 0.07431112 | 61,700 | 1.42 | 3.0% | 73 | 73.74 | 31.53 | 18.9 |
| 3 | 558,710 | 12.83 | 0.02004096 | 0 | 0.00 | 0.0% | 73 | 73.00 | 31.18 | 18.7 |
| 4 | 37,630 | 0.86 | 0.00134979 | 0 | 0.00 | 0.0% | 73 | 73.00 | 6.00 | 3.6 |
| Total | 5,193,210 | 119.22 | 0.18628078 | 88,540 | 2.03 | 1.7% | | | | |

The Time of Concentration (ToC) for each subbasin was determined using standard TR-55 procedures. Refer to Attachment D for spreadsheets of each ToC calculation.

The peak runoff rates calculated for the Existing Conditions can be found in the table below.

| EXISTING CONDITIONS DRAINAGE CALCULATIONS (cfs) | | | | |
|---|------|-------|-------|--------|
| Basin | 2-YR | 10-YR | 25-YR | 100-YR |
| 1 | 48.9 | 103.1 | 144.6 | 222.5 |
| 2 | 32.5 | 74.4 | 107.6 | 171.0 |
| 3 | 8.5 | 19.8 | 28.8 | 46.0 |
| 4 | 1.1 | 2.6 | 3.8 | 6.0 |
| POI A | 73.6 | 174.7 | 249.4 | 390.6 |
| POI B | 8.5 | 19.8 | 28.8 | 46.0 |
| POI C | 1.1 | 2.6 | 3.8 | 6.0 |

Proposed Hydrologic Condition Analysis:

Proposed grading and improvements divide the total drainage basin into 13 separate subbasins, with surface discharge from the site at the same three Points of Interest. The proposed improvements bring the total impervious cover of the overall basin to over 665,000 square feet (15.3 acres), or 12.8% of the entire 119-acre drainage basin. Allowable impervious cover is based on UDC 11.02.010.A.1.b, which states, "For subdivisions greater than five acres, the impervious cover maximum allowance changes with the total acreage of the subdivision. The impervious cover maximum is 70 percent (70%) of the first five acres and 55 percent (55%) of the remaining acreage." The site is 24.427 acres. Allowable Impervious Cover = $(5 \times 0.70 + (24.427 - 5) \times 0.55) = 14.18$ acres, or 58.1%. Proposed additional Impervious Cover is 13.24 acres, or 54.2%.

Developed Basin 1 consists of the same 58-acre area north of CR 147, with the same shallow depression and 3-18" culvert outflow. Developed Basins 2 and 3 consist of the offsite property to the west. Proposed drainage channels will convey offsite flows from Developed Basins 1 -3 through the site to the point of discharge to the quarry (POI A).

Runoff from Developed Basins 4 and 5 consist of the parking and sidewalk along Buildings 1 – 4. Stormwater runoff treatment is provided by Engineered Vegetated Filter Strips, designed in general accordance with Section 3.2.4 of the TCEQ Technical Guidance on BMP's. Essentially, less than 72 feet of gently sloped impervious area flows across 15 feet of gently sloped vegetated buffer strip before flowing offsite, with no encumbrances (e.g. curbs or graded channels) to concentrate or channelize the flows. After treatment, runoff is combined in the drainage channels to POI A.

Runoff from Developed Basins 7 and 8 is conveyed to a proposed Detention Ponds 1 and 2 with release to POI A. Developed Basin 9 flows to a Bioretention Pond for stormwater treatment with primary overflow to Detention Pond 2 and secondary overflow to POI B. In general, Developed Basins 1 – 10 contribute to POI A, Basins 11 and 12 contribute to POI B, and Basin 13 contributes to POI C.

A summary of the developed conditions drainage basin information can be seen in the table below with a Developed Conditions Basin Map included in Attachment H.

| DEVELOPED CONDITIONS DRAINAGE BASIN INFORMATION | | | | | | | | | | |
|---|-----------|--------|------------|------------------|-------|-------|--------------|-----------|--------------------------------|--------------|
| BASIN | AREA | | | IMPERVIOUS COVER | | | CURVE NUMBER | | TIME OF CONCENTRATION (MIN) | LAG (MIN) |
| | (SF) | (AC) | (Sq Mi) | (SF) | (AC) | (%) | Base Soil | Composite | | |
| 1 | 2,525,195 | 57.97 | 0.09057891 | 26,840 | 0.62 | 1.1% | 78 | 78.21 | 31.64 | 19.0 |
| 2 | 1,143,240 | 26.25 | 0.04100809 | 54,250 | 1.25 | 4.7% | 73 | 74.19 | 30.66 | 18.4 |
| 3 | 453,660 | 10.41 | 0.01627281 | 2,500 | 0.06 | 0.6% | 73 | 73.14 | 31.31 | 18.8 |
| 4 | 110,104 | 2.53 | 0.00394944 | 49,798 | 1.14 | 45.2% | 73 | 84.31 | 6 | 3.6 |
| 5 | 98,146 | 2.25 | 0.00352050 | 46,650 | 1.07 | 47.5% | 73 | 84.88 | 6 | 3.6 |
| 6 | 16,447 | 0.38 | 0.00058995 | 0 | 0.00 | 0.0% | 73 | 73.00 | 6 | 3.6 |
| 7 | 258,330 | 5.93 | 0.00926631 | 162,119 | 3.72 | 62.8% | 73 | 88.69 | 6 | 3.6 |
| 8 | 227,569 | 5.22 | 0.00816291 | 156,399 | 3.59 | 68.7% | 73 | 90.18 | 6 | 3.6 |
| 9 | 117,702 | 2.70 | 0.00422198 | 83,583 | 1.92 | 71.0% | 73 | 90.75 | 6 | 3.6 |
| 10 | 51,830 | 1.19 | 0.00185915 | 1,000 | 0.02 | 1.9% | 73 | 73.48 | 6 | 3.6 |
| 11 | 124,356 | 2.85 | 0.00446066 | 80,763 | 1.85 | 64.9% | 73 | 89.24 | 6 | 3.6 |
| 12 | 54,966 | 1.26 | 0.00197163 | 0 | 0.00 | 0.0% | 73 | 73.00 | 6 | 3.6 |
| 13 | 11,690 | 0.27 | 0.00041932 | 1,182 | 0.03 | 10.1% | 73 | 75.53 | 6 | 3.6 |
| Total | 5,193,235 | 119.22 | 0.18628167 | 665,084 | 15.27 | 12.8% | | | | |

Added Impervious Cover: 13.24 Ac.

The peak runoff rates calculated for the Developed Conditions can be found in the table below.

| DEVELOPED CONDITIONS DRAINAGE CALCULATIONS (cfs) | | | | |
|--|------|-------|-------|--------|
| Basin | 2-YR | 10-YR | 25-YR | 100-YR |
| 1 | 48.9 | 103.1 | 144.6 | 222.5 |
| 2 | 18.6 | 42.1 | 60.7 | 96.1 |
| 3 | 6.9 | 16.1 | 23.4 | 37.3 |
| 4 | 5.2 | 9.7 | 13.0 | 19.4 |
| 5 | 4.7 | 8.7 | 11.7 | 17.4 |
| 6 | 0.5 | 1.1 | 1.6 | 2.6 |
| 7 | 14.1 | 24.5 | 32.4 | 47.3 |
| 8 | 12.9 | 22.2 | 29.1 | 42.1 |
| 9 | 6.8 | 11.6 | 15.2 | 21.9 |
| 10 | 1.6 | 3.6 | 5.2 | 8.3 |
| 11 | 6.9 | 11.9 | 15.7 | 22.8 |
| 12 | 1.6 | 3.8 | 5.5 | 8.7 |
| 13 | 0.4 | 0.9 | 1.2 | 1.9 |
| POI A | 74.0 | 172.2 | 244.0 | 386.1 |
| POI B | 8.4 | 19.5 | 29.1 | 45.4 |
| POI C | 0.4 | 0.9 | 1.2 | 1.9 |

A comparison of the peak runoff rates calculated for the Developed Conditions vs. the Existing Conditions can be found in the table below. As presented, the developed peak runoff rates do not exceed 0.5 cfs of the existing conditions for the three Points of Interest analyzed.

| Developed vs. Existing Conditions Drainage Calculations (cfs) | | | | |
|---|------|-------|-------|--------|
| | 2-YR | 10-YR | 25-YR | 100-YR |
| POI A | 0.4 | -2.5 | -5.4 | -4.5 |
| POI B | -0.1 | -0.3 | 0.3 | -0.6 |
| POI C | -0.7 | -1.7 | -2.6 | -4.1 |

Detention Analysis and Design:

Proposed extended detention basins (Detention/WQ Ponds 1, 2 and 4) are located along the east and south property boundaries, comprised of earthen berms. Each pond will be modified with a Batch Detention System to provide 91% TSS removal, in general accordance with TCEQ Technical Guidance, Section 3.2.17. Beyond the treatment capacity of each detention basin, stormwater will generally flow toward the assigned point of discharge from the site.

A bioretention pond (WQ Pond 3) is positioned upstream of Detention Pond 2 to provide added stormwater storage and treatment for the upstream subbasin (Basin 9). WQ Pond 3 was designed in general accordance with TCEQ Section 3.4.8. Based on the TCEQ calculations, with the City of Georgetown modification for an additional 5% TSS removal, the proposed Extended Drainage Basins and Bioretention Pond are sized for adequate stormwater treatment. Beyond the treatment capacity of Pond 3, stormwater flows back into the drive aisle curb line and eventually into Pond 2. Basin 9 is considered "An offsite area drainage to BMP" Pond 2.

Refer to Attachment D for the TCEQ TSS Removal calculations and Attachment G for a schematic of the Batch Detention Valve.

Staged Pond Volume tables for each pond and peak elevations for each storm event can be found below.

| Existing Closed Depression - Stage Storage | | | |
|--|--------|-------------|-------------------|
| | Area | Step Volume | Cumulative Volume |
| Elevation | (SF) | (CF) | (CF) |
| 829.00 | 600 | - | 0 |
| 830.00 | 14,600 | 7,600 | 7,600 |
| 831.00 | 53,200 | 33,900 | 41,500 |
| 832.00 | 96,000 | 74,600 | 116,100 |

$$\text{Volume} = (A1 + A2)/2 * (E2 - E1)$$

| PEAK POND ELEVATION - Exist Closed Depression | | | | |
|---|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 43.6 | 101.1 | 142.7 | 220.5 |
| ELEV | 831.2 | 831.4 | 831.6 | 831.8 |

Outlet Assumptions:

| | | | |
|--------------|----------------------|-------------|--------|
| Outlet 1 - | 3 - 18" CMP Culverts | In Elev= | 829.0 |
| | | Slope= | 0.0125 |
| | | Ent. Coef.= | 0.7 |
| | | Exit Coef.= | 1.0 |
| | | Mannings N= | 0.024 |
| Spillway 1 - | Weir | Elev= | 831.0 |
| | | Length= | 90 |
| | | Coef.= | 3.0 |

| Detention/WQ Pond 1 - Stage Storage | | | |
|-------------------------------------|---------------|---------------|-------------------|
| | Area | Step Volume | Cumulative Volume |
| Elevation | (SF) | (CF) | (CF) |
| 817.00 | 100 | - | 0 |
| 818.00 | 6,163 | 3,132 | 3,132 |
| 819.00 | 13,714 | 9,939 | 13,070 |
| 819.50 | 18,073 | 7,947 | 21,017 |
| 820.00 | 22,822 | 10,224 | 31,241 |
| 821.00 | 33,480 | 28,151 | 59,392 |
| 822.00 | 36,655 | 35,068 | 94,459 |
| 822.80 | 39,091 | 30,298 | 124,757 |
| 823.00 | 44,705 | 8,380 | 133,137 |
| 823.50 | 58,458 | 25,791 | 158,928 |

$$\text{Volume} = (A1 + A2)/2 * (E2 - E1)$$

* Area values above 822.8 include ponding within the truck apron.

| PEAK POND ELEVATION - Detention/WQ Pond 1 | | | | |
|---|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 1.7 | 2.3 | 2.6 | 6.8 |
| ELEV | 820.9 | 821.7 | 822.3 | 823.0 |

Outlet Assumptions:

| | | | |
|--------------|------------------|-------------|--------|
| Outlet 1 - | 1 - 8" HDPE Pipe | In Elev= | 819.5 |
| | | Slope= | 0.0200 |
| | | Ent. Coef.= | 0.7 |
| | | Exit Coef.= | 1.0 |
| | | Mannings N= | 0.012 |
| Spillway 1 - | Weir | Elev= | 822.6 |
| | | Length= | 5 |
| | | Coef.= | 2.70 |

| Detention/WQ Pond 2 - Stage Storage | | | |
|-------------------------------------|---------------|---------------|-------------------|
| | Area | Step Volume | Cumulative Volume |
| Elevation | (SF) | (CF) | (CF) |
| 817.00 | 100 | - | 0 |
| 818.00 | 6,163 | 3,132 | 3,132 |
| 819.00 | 13,714 | 9,939 | 13,070 |
| 819.50 | 18,073 | 7,947 | 21,017 |
| 820.00 | 22,822 | 10,224 | 31,241 |
| 821.00 | 33,480 | 28,151 | 59,392 |
| 822.00 | 36,655 | 35,068 | 94,459 |
| 822.80 | 39,091 | 30,298 | 124,757 |
| 823.00 | 44,705 | 8,380 | 133,137 |
| 823.50 | 58,458 | 25,791 | 158,928 |

Volume = (A1 + A2)/2 * (E2 - E1)

* Area values above 822.8 include ponding within the truck apron.

| WQ Pond 3 - Stage Storage | | | |
|---------------------------|---------------|--------------|-------------------|
| | Area | Step Volume | Cumulative Volume |
| Elevation | (SF) | (CF) | (CF) |
| 827.00 | 13,118 | - | 0 |
| 827.50 | 14,074 | 6,798 | 6,798 |
| 828.00 | 15,060 | 7,284 | 14,082 |
| 828.60 | 15,914 | 9,292 | 23,374 |

Volume = (A1 + A2)/2 * (E2 - E1)

| Detention/WQ Pond 4 - Stage Storage | | | |
|-------------------------------------|---------------|--------------|-------------------|
| | Area | Step Volume | Cumulative Volume |
| Elevation | (SF) | (CF) | (CF) |
| 828.30 | 100 | - | 0 |
| 829.00 | 3,668 | 1,319 | 1,319 |
| 830.00 | 11,974 | 7,821 | 9,140 |
| 830.20 | 13,782 | 2,576 | 11,715 |
| 830.50 | 16,582 | 4,555 | 16,270 |
| 830.60 | 17,400 | 1,699 | 17,969 |
| 831.00 | 17,844 | 7,049 | 25,018 |
| 831.60 | 18,492 | 10,901 | 35,919 |

Volume = (A1 + A2)/2 * (E2 - E1)

| PEAK POND ELEVATION - Detention/WQ Pond 2 | | | | |
|---|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 4.7 | 6.4 | 7.2 | 13.3 |
| ELEV | 821.2 | 821.9 | 822.4 | 823.0 |

Outlet Assumptions:

| | | | |
|--------------|-------------------|-------------|--------|
| Outlet 1 - | 3 - 8" HDPE Pipes | In Elev= | 820.0 |
| | | Slope= | 0.0200 |
| | | Ent. Coef.= | 0.7 |
| | | Exit Coef.= | 1.0 |
| | | Mannings N= | 0.012 |
| Spillway 1 - | Weir | Elev= | 822.5 |
| | | Length= | 5 |
| | | Coef.= | 2.70 |

| PEAK POND ELEVATION - WQ Pond 3 | | | | |
|---------------------------------|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 4.3 | 6.2 | 6.7 | 7.4 |
| ELEV | 827.9 | 828.1 | 828.1 | 828.1 |

Outlet Assumptions:

| | | | |
|--------------|------|---------|-------|
| Spillway 1 - | Weir | Elev= | 827.5 |
| | | Length= | 5 |
| | | Coef.= | 3.00 |
| Spillway 2 - | Weir | Elev= | 828.0 |
| | | Length= | 110 |
| | | Coef.= | 3.00 |

| PEAK POND ELEVATION - Detention/WQ Pond 4 | | | | |
|---|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 6.8 | 11.8 | 15.6 | 22.6 |
| ELEV | 830.5 | 830.6 | 830.6 | 830.6 |

Outlet Assumptions:

| | | | |
|--------------|------------------|-------------|--------|
| Outlet 1 - | 1 - 8" HDPE Pipe | In Elev= | 830.2 |
| | | Slope= | 0.0100 |
| | | Ent. Coef.= | 0.7 |
| | | Exit Coef.= | 1.0 |
| | | Mannings N= | 0.012 |
| Spillway 1 - | Weir | Elev= | 830.5 |
| | | Length= | 230 |
| | | Coef.= | 3.00 |

The proposed vegetative filter strips provide 85% TSS removal, in general accordance with TCEQ Technical Guidance, Section 3.4.6. The upstream contributing areas are 72 feet deep or less with less than 4% cross-slope and the vegetative filter strips are 15 feet wide with 1 to 20% cross-slope, all within the written design criteria.

Conveyance Systems Analysis and Design:

An Open Channel Flow Calculator was used with 25-year flow rates to determine Channel Flow portions of Time of Concentrations for Existing Basin 2 (and Ex-1 Reach), and Developed Basins 2 and 3. The Calculator was also used with 100-year flow rates to support available freeboard at critical junctions of the proposed drainage channels (J1 – combination of Developed Basins 1 and 2, J3 – addition of Basin 3, and J5 – addition of Ponds 1 and 2). Refer to Attachment F for the Open Channel Flow calculations.

All flows are contained with the proposed conveyance system. Ponding of less than 6" is anticipated in the parking area during the 100-year storm event.

Attachment 3C
Suitability Letter from Authorized Agent

**Department of Infrastructure
County Engineer's Office**
3151 SE Inner Loop,
Georgetown, TX 78626
T: 512.943.3330
F: 512.943.3335



J. Terron Evertson, PE, DR, CFM

July 22, 2021

Aaron Googins
HWY 195/247 LLC
6907 Capital of Texas Highway, Suite 300
Austin, TX 78731

RE: 3000 SH 195, GEORGETOWN, TX 78633
Legal: WPAP letter for 3000 SH 195
Williamson County, Texas.

The above referenced property is located within the Edwards Recharge Zone.

Based on the surrounding subdivisions and the soil survey for Williamson County and planning material received, this office is able to determine that the soil and site conditions of this lot is suitable to allow the use of on-site sewage facilities (OSSF). It should be noted that this office has not actually studied the physical properties of this site. Site specific conditions such as OSSF setbacks, recharge features, drainage, soil conditions, etc ..., will need taken into account in planning any OSSF.

These OSSF's will have to be designed by a professional engineer or a registered sanitarian. An Edwards Aquifer protection plan shall be approved by the appropriate TCEQ regional office before an authorization to construct an OSSF may be issued. The owner will be required to inform each prospective buyer, lessee or renter of the following in writing:

- That an authorization to construct shall be required before an OSSF can be constructed in the subdivision;
- That a notice of approval shall be required for the operation of an OSSF;
- Whether an application for a water pollution abatement plan as defined in Chapter 213 has been made, whether it has been approved and if any restrictions or conditions have been placed on the approval.

If this office can be of further assistance, please do not hesitate to call.

Sincerely,



Paul T. Walter, OS 8032
Williamson County Engineer's Office

Attachment 3D
Exception to the Required Geologic Assessment



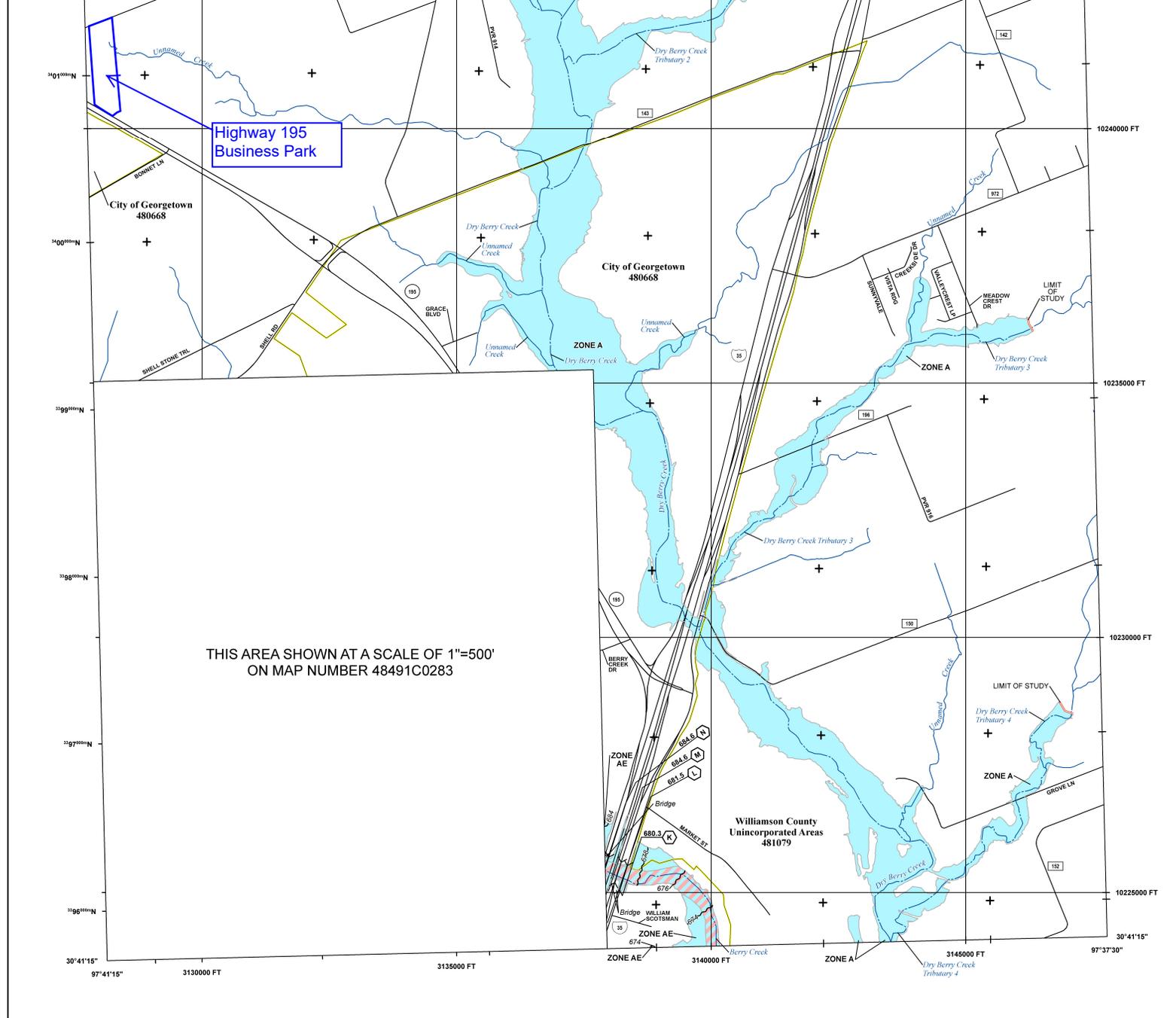
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 3D – Exception to the Required Geologic Assessment

An exception to the required Geologic Assessment is not being requested for this project.

This section is not applicable to this project.

Attachment 3E
FIRM Panel 48491C0285F



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)

| | |
|--|---|
| | Without Base Flood Elevation (BFE) Zone A, V, A99 |
| | With BFE or Depth Zone AE, AO, AH, VE, AR |
| | Regulatory Floodway |
| | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage |

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2672) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

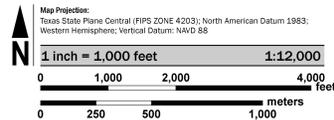
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was derived from digital data obtained from Texas Natural Resource Information System (TNRS), dated 2000; United States Census Bureau, dated 2015; United States Geological Survey, dated 2005; and the Williamson County Geographic Information Systems (GIS) Department, dated 2014 and 2017.

SCALE



PANEL LOCATOR



FEDERAL EMERGENCY MANAGEMENT AGENCY

Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

WILLIAMSON COUNTY, TEXAS
and Incorporated Areas

PANEL 285 OF 750

FEMA

Panel Contains:

| | | | |
|---------------------|--------|-------|--------|
| COMMUNITY | NUMBER | PANEL | SUFFIX |
| GEORGETOWN, CITY OF | 480668 | 0285 | F |
| WILLIAMSON COUNTY | 481079 | 0285 | F |

Attachment 3F
TR-55 Tc calculations

Worksheet 3: Time of Concentration (Tc) or Travel time (Tt)

| | | |
|--|---------------------------|--------------------------|
| Project HIGHWAY 195 INDUSTRIAL | By Nelson Ogren | Date 7/20/2022 |
| Location: Georgetown, Texas | Checked | Date |

Check One: Drainage Conditions Present Developed

Check One: Time Value Tc Tt through subarea

Drainage Area: **EX-1**

Notes Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

| | Segment ID | Sheet | |
|---|--|------------------------------|------------------------|
| 1 | Surface description (table 3-1) | Residue cover >20% | Bermudagrass |
| 2 | Manning's roughness coefficient, n (table 3-1) | 0.17 | 0.41 |
| 3 | Flow Length, L (L<300) ft | 200 | |
| 4 | Two-year 24-hour rainfall, P in | 3.93 | 3.94 |
| 5 | Land Slope, s ft/ft | 1.30% | |
| 6 | Tt hr | 0.337 | + 0.000 = 0.337 |

Shallow Concentrated Flow

| | Segment ID | Shallow | |
|----|--|----------------|------------------------|
| 7 | Surface description (paved or unpaved) | Unpaved | Unpaved |
| 8 | Flow Length, L ft | 1640 | |
| 9 | Watercourse Slope ft/ft | 2.20% | |
| 10 | Average velocity, V ft/s | 2.39 | 0.00 |
| 11 | Tt = L/3600V hr | 0.190 | + 0.000 = 0.190 |

Channel or Storm Drain Flow

| | Segment ID | Channel | Pipe |
|----|--|---------|--------------------|
| 12 | Cross Sectional Area, a sf | | 0.0 |
| 13 | Wetted perimeter, pw ft | | 0.0 |
| 14 | Hydraulic radius, r = a/pw Compute r ft | 0.00 | 0.00 |
| 15 | Channel slope, s ft/ft | | |
| 16 | Manning's roughness coefficient, n | | 0 |
| 17 | V = ft | 0 | 0 |
| 18 | Flow Length, L ft | | |
| 19 | Tt = L/3600V hr | 0 | + 0 = 0.000 |
| 20 | Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr | | 0.53 |

| | | |
|-----|-----|-------|
| Tc | hr | 0.53 |
| | min | 31.64 |
| Lag | hr | 0.32 |
| | min | 19.0 |

Worksheet 3: Time of Concentration (Tc) or Travel time (Tt)

| | | |
|--|---------------------------|--------------------------|
| Project HIGHWAY 195 INDUSTRIAL | By Nelson Ogren | Date 7/20/2022 |
| Location: Georgetown, Texas | Checked | Date |

Check One: Drainage Conditions Present Developed

Check One: Time Value Tc Tt through subarea

Drainage Area: **EX-1 Reach**

Notes Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

| | Segment ID | | |
|---|--|-----------------|----------------------|
| 1 | Surface description (table 3-1) | Smooth Surfaces | Bermudagrass |
| 2 | Manning's roughness coefficient, n (table 3-1) | 0.011 | 0.41 |
| 3 | Flow Length, L (L<300) ft | 0 | |
| 4 | Two-year 24-hour rainfall, P in | 3.93 | 3.94 |
| 5 | Land Slope, s ft/ft | 0.00% | |
| 6 | Tt hr | 0.000 | 0.000 = 0.000 |

Shallow Concentrated Flow

| | Segment ID | | |
|----|--|---------|----------------------|
| 7 | Surface description (paved or unpaved) | Unpaved | Paved |
| 8 | Flow Length, L ft | 330 | 0 |
| 9 | Watercourse Slope ft/ft | 1.80% | 0.00% |
| 10 | Average velocity, V ft/s | 2.16 | 0.00 |
| 11 | Tt = L/3600V hr | 0.042 | 0.000 = 0.042 |

Channel or Storm Drain Flow

| | Segment ID | Channel 1 | Channel 2 |
|----|--|-------------|------------------|
| 12 | Cross Sectional Area, a sf | 36.0 | 0.0 |
| 13 | Wetted perimeter, pw ft | 60.0 | 0.0 |
| 14 | Hydraulic radius, r = a/pw Compute r ft | 0.60 | 0.00 |
| 15 | Channel slope, s ft/ft | 0.0086 | |
| 16 | Manning's roughness coefficient, n | 0.03 | 0 |
| 17 | V = ft | 3.277652989 | 0 |
| 18 | Flow Length, L ft | 800 | |
| 19 | Tt = L/3600V hr | 0.067799191 | 0 = 0.068 |
| 20 | Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr | | 0.11 |

| | | |
|-----|-----|------|
| Tc | hr | 0.11 |
| | min | 6.61 |
| Lag | hr | 0.07 |
| | min | 4.0 |

Worksheet 3: Time of Concentration (Tc) or Travel time (Tt)

| | | |
|--|---------------------------|--------------------------|
| Project HIGHWAY 195 INDUSTRIAL | By Nelson Ogren | Date 7/20/2022 |
| Location: Georgetown, Texas | Checked | Date |

Check One: Drainage Conditions Present Developed

Check One: Time Value Tc Tt through subarea

Drainage Area: **EX-2**

Notes Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

| Segment ID | Sheet | |
|------------|--|------------------------------|
| 1 | Surface description (table 3-1) | Dense grasses Bermudagrass |
| 2 | Manning's roughness coefficient, n (table 3-1) | 0.24 0.41 |
| 3 | Flow Length, L (L<300) ft | 120 |
| 4 | Two-year 24-hour rainfall, P in | 3.93 3.94 |
| 5 | Land Slope, s ft/ft | 1.80% |
| 6 | Tt hr | 0.259 + 0.000 = 0.259 |

Shallow Concentrated Flow

| Segment ID | Shallow | |
|------------|--|------------------------------|
| 7 | Surface description (paved or unpaved) | Unpaved Unpaved |
| 8 | Flow Length, L ft | 1460 |
| 9 | Watercourse Slope ft/ft | 1.60% |
| 10 | Average velocity, V ft/s | 2.04 0.00 |
| 11 | Tt = L/3600V hr | 0.199 + 0.000 = 0.199 |

Channel or Storm Drain Flow

| Segment ID | Channel | Pipe |
|------------|--|--------------------------------|
| 12 | Cross Sectional Area, a sf | 36.0 0.0 |
| 13 | Wetted perimeter, pw ft | 60.0 0.0 |
| 14 | Hydraulic radius, r = a/pw Compute r ft | 0.60 0.00 |
| 15 | Channel slope, s ft/ft | 0.0086 |
| 16 | Manning's roughness coefficient, n | 0.03 0 |
| 17 | V = ft | 3.277652989 0 |
| 18 | Flow Length, L ft | 800 |
| 19 | Tt = L/3600V hr | 0.067799191 + 0 = 0.068 |
| 20 | Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr | 0.53 |

| | | |
|-----|-----|-------|
| Tc | hr | 0.53 |
| | min | 31.53 |
| Lag | hr | 0.32 |
| | min | 18.9 |

Worksheet 3: Time of Concentration (Tc) or Travel time (Tt)

| | | |
|--|---------------------------|--------------------------|
| Project HIGHWAY 195 INDUSTRIAL | By Nelson Ogren | Date 7/20/2022 |
| Location: Georgetown, Texas | Checked | Date |

Check One: Drainage Conditions Present Developed

Check One: Time Value Tc Tt through subarea

Drainage Area: **EX-3**

Notes Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

| Segment ID | Sheet | |
|--|------------------|--------------|
| 1 Surface description (table 3-1) | Dense grasses | Bermudagrass |
| 2 Manning's roughness coefficient, n (table 3-1) | 0.24 | 0.41 |
| 3 Flow Length, L (L<300) ft | 180 | |
| 4 Two-year 24-hour rainfall, P in | 3.93 | 3.94 |
| 5 Land Slope, s ft/ft | 1.30% | |
| 6 Tt hr | 0.408 | 0.000 |
| | + = 0.408 | |

Shallow Concentrated Flow

| Segment ID | Shallow | |
|--|------------------|---------|
| 7 Surface description (paved or unpaved) | Unpaved | Unpaved |
| 8 Flow Length, L ft | 870 | |
| 9 Watercourse Slope ft/ft | 1.80% | |
| 10 Average velocity, V ft/s | 2.16 | 0.00 |
| 11 Tt = L/3600V hr | 0.112 | 0.000 |
| | + = 0.112 | |

Channel or Storm Drain Flow

| Segment ID | Channel | Pipe |
|---|------------------|------|
| 12 Cross Sectional Area, a sf | | 0.0 |
| 13 Wetted perimeter, pw ft | | 0.0 |
| 14 Hydraulic radius, r = a/pw Compute r ft | 0.00 | 0.00 |
| 15 Channel slope, s ft/ft | | |
| 16 Manning's roughness coefficient, n | | 0 |
| 17 V = ft | 0 | 0 |
| 18 Flow Length, L ft | | |
| 19 Tt = L/3600V hr | 0 | 0 |
| 20 Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr | + = 0.000 | |
| | = 0.52 | |

| | | |
|-----|-----|-------|
| Tc | hr | 0.52 |
| | min | 31.18 |
| Lag | hr | 0.31 |
| | min | 18.7 |

Worksheet 3: Time of Concentration (Tc) or Travel time (Tt)

| | | |
|--|---------------------------|--------------------------|
| Project HIGHWAY 195 INDUSTRIAL | By Nelson Ogren | Date 7/20/2022 |
| Location: Georgetown, Texas | Checked | Date |

Check One: Drainage Conditions Present Developed

Check One: Time Value Tc Tt through subarea

Drainage Area
DA-2

Notes Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

| Segment ID | Sheet | |
|------------|--|------------------------------|
| 1 | Surface description (table 3-1) | Dense grasses Bermudagrass |
| 2 | Manning's roughness coefficient, n (table 3-1) | 0.24 0.41 |
| 3 | Flow Length, L (L<300) ft | 120 |
| 4 | Two-year 24-hour rainfall, P in | 3.93 3.94 |
| 5 | Land Slope, s ft/ft | 1.80% |
| 6 | Tt hr | 0.259 + 0.000 = 0.259 |

Shallow Concentrated Flow

| Segment ID | Shallow | |
|------------|--|------------------------------|
| 7 | Surface description (paved or unpaved) | Unpaved Unpaved |
| 8 | Flow Length, L ft | 1410 |
| 9 | Watercourse Slope ft/ft | 1.60% |
| 10 | Average velocity, V ft/s | 2.04 0.00 |
| 11 | Tt = L/3600V hr | 0.192 + 0.000 = 0.192 |

Channel or Storm Drain Flow

| Segment ID | Channel | Pipe |
|------------|--|-------------------------------|
| 12 | Cross Sectional Area, a sf | 26.7 0.0 |
| 13 | Wetted perimeter, pw ft | 27.2 0.0 |
| 14 | Hydraulic radius, r = a/pw Compute r ft | 0.98 0.00 |
| 15 | Channel slope, s ft/ft | 0.005 |
| 16 | Manning's roughness coefficient, n | 0.045 0 |
| 17 | V = ft | 2.313730453 0 |
| 18 | Flow Length, L ft | 500 |
| 19 | Tt = L/3600V hr | 0.06002812 + 0 = 0.060 |
| 20 | Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr | 0.51 |

| | | |
|-----|-----|-------|
| Tc | hr | 0.51 |
| | min | 30.66 |
| Lag | hr | 0.31 |
| | min | 18.4 |

Worksheet 3: Time of Concentration (Tc) or Travel time (Tt)

| | | |
|--|---------------------------|--------------------------|
| Project HIGHWAY 195 INDUSTRIAL | By Nelson Ogren | Date 7/20/2022 |
| Location: Georgetown, Texas | Checked | Date |

Check One: Drainage Conditions Present Developed

Check One: Time Value Tc Tt through subarea

Drainage Area: **DA-3**

Notes Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

| Segment ID | Sheet | |
|------------|--|------------------------------|
| 1 | Surface description (table 3-1) | Dense grasses Bermudagrass |
| 2 | Manning's roughness coefficient, n (table 3-1) | 0.24 0.41 |
| 3 | Flow Length, L (L<300) ft | 150 |
| 4 | Two-year 24-hour rainfall, P in | 3.93 3.94 |
| 5 | Land Slope, s ft/ft | 0.73% |
| 6 | Tt hr | 0.444 + 0.000 = 0.444 |

Shallow Concentrated Flow

| Segment ID | Shallow | |
|------------|--|------------------------------|
| 7 | Surface description (paved or unpaved) | Unpaved Unpaved |
| 8 | Flow Length, L ft | 320 |
| 9 | Watercourse Slope ft/ft | 1.40% |
| 10 | Average velocity, V ft/s | 1.91 0.00 |
| 11 | Tt = L/3600V hr | 0.047 + 0.000 = 0.047 |

Channel or Storm Drain Flow

| Segment ID | Channel | Pipe |
|------------|--|--------------------------------|
| 12 | Cross Sectional Area, a sf | 8.1 0.0 |
| 13 | Wetted perimeter, pw ft | 15.3 0.0 |
| 14 | Hydraulic radius, r = a/pw Compute r ft | 0.53 0.00 |
| 15 | Channel slope, s ft/ft | 0.018 |
| 16 | Manning's roughness coefficient, n | 0.045 0 |
| 17 | V = ft | 2.914169347 0 |
| 18 | Flow Length, L ft | 325 |
| 19 | Tt = L/3600V hr | 0.030978906 + 0 = 0.031 |
| 20 | Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr | 0.52 |

| | | |
|-----|-----|-------|
| Tc | hr | 0.52 |
| | min | 31.31 |
| Lag | hr | 0.31 |
| | min | 18.8 |

Attachment 3G

Runoff CN Tables

ABLE 3-4 RUNOFF CURVE NUMBERS FOR URBAN AREAS⁶

| Cover type and <u>hydrologic condition</u> | Average percent impervious area | A | B | C | D |
|---|---------------------------------|----|----|----|----|
| Fully developed urban areas (vegetation established) | | | | | |
| Open space (lawns, parks, golf courses, cemeteries, etc.): | | | | | |
| Poor condition (grass cover <50%) | | 68 | 79 | 86 | 89 |
| Fair condition (grass cover 50% to 75%) | | 49 | 69 | 79 | 84 |
| Good condition (grass cover > 75%) | | 39 | 61 | 74 | 80 |
| Impervious areas: | | | | | |
| Paved parking lots, roofs, driveways, etc. (excluding right-of-way) | | 98 | 98 | 98 | 98 |
| Streets and roads: | | | | | |
| Paved; curbs and storm drains (excluding right-of-way) | | 98 | 98 | 98 | 98 |
| Paved; open ditches (including right-of-way) | | 83 | 89 | 92 | 93 |
| Gravel (including right-of-way) | | 76 | 85 | 89 | 91 |
| Dirt (including right-of-way) | | 72 | 82 | 87 | 89 |
| Western desert urban areas: | | | | | |
| Natural desert landscaping (pervious areas only) | | 63 | 77 | 85 | 88 |
| Artificial desert landscaping (impervious weed barrier, desert shrub with 1 - to 2-inch sand or gravel mulch and basin borders) | | 96 | 96 | 96 | 96 |
| Urban districts: | | | | | |
| Commercial and business | 85 | 89 | 92 | 94 | 95 |
| Industrial | 72 | 81 | 88 | 91 | 93 |
| Residential districts by average lot size: | | | | | |
| 1/8 acre or less (town houses) | 65 | 77 | 85 | 90 | 92 |
| 1/4 acre | 38 | 61 | 75 | 83 | 87 |
| 1/3 acre | 30 | 57 | 72 | 81 | 86 |
| 1/2 acre | 25 | 54 | 70 | 80 | 85 |
| 1 acre | 20 | 51 | 68 | 79 | 84 |
| 2 acres | 12 | 46 | 65 | 77 | 82 |
| Developing urban areas | | | | | |
| Newly graded areas (pervious areas only, no vegetation) | | 77 | 86 | 91 | 94 |

- Values in table are for average runoff condition and $I_a = 0.2S$.
- The average percent impervious area shown was used to develop the composite RCN's. Other assumptions are: (1) impervious areas are directly connected to the drainage system, (2) impervious areas have a RCN of 98, and (3) pervious areas are considered equivalent to open space in good hydrologic condition.

TABLE 3-6 RUNOFF CURVE NUMBERS FOR OTHER AGRICULTURAL LANDS⁶

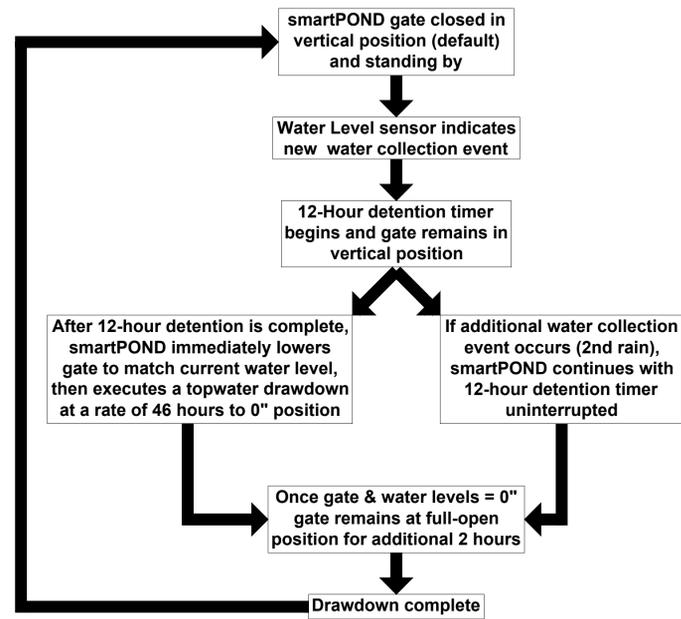
| Cover type | Hydrologic condition | A | B | C | D |
|--|----------------------|----|----|----|----|
| Pasture, grassland, or range-continuous forage for grazing | Poor | 68 | 79 | 86 | 89 |
| | Fair | 49 | 69 | 79 | 84 |
| | Good | 39 | 61 | 74 | 80 |
| Meadow- continuous grass, Protected from grazing and generally mowed for hay | -- | 30 | 58 | 71 | 78 |
| Brush--brush-weed-grass mixture, With brush the major element | Poor | 48 | 67 | 77 | 83 |
| | Fair | 35 | 56 | 70 | 77 |
| | Good | 30 | 48 | 65 | 73 |
| Woods--grass combination (orchard or tree farm) | Poor | 57 | 73 | 82 | 86 |
| | Fair | 43 | 65 | 76 | 82 |
| | Good | 32 | 58 | 72 | 79 |
| Woods | Poor | 45 | 66 | 77 | 83 |
| | Fair | 36 | 60 | 73 | 79 |
| | Good | 30 | 55 | 70 | 77 |
| Farmsteads--buildings, lanes, driveways, and surrounding lots | -- | 59 | 74 | 82 | 86 |

- Values in table are for average runoff condition and $I_a = 0.25$.
- Pasture: Poor: <50% ground cover or heavily grazed with no mulch
Fair: 50 to 75% ground cover and not heavily grazed Good: > 75% ground cover and lightly or only occasionally grazed
- Meadow: Poor: <50% ground cover
Fair: 50 to 75% ground cover
Good: > 75% ground cover
- Woods/grass: RCN's shown were computed for areas with 50% grass (pasture) cover. Other combinations of conditions may be computed from RCNtS for woods and pasture
- Woods: Poor: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning
Fair: Woods grazed but not burned, and some forest litter covers the soil
Good: Woods protected from grazing, litter and brush adequately cover soil

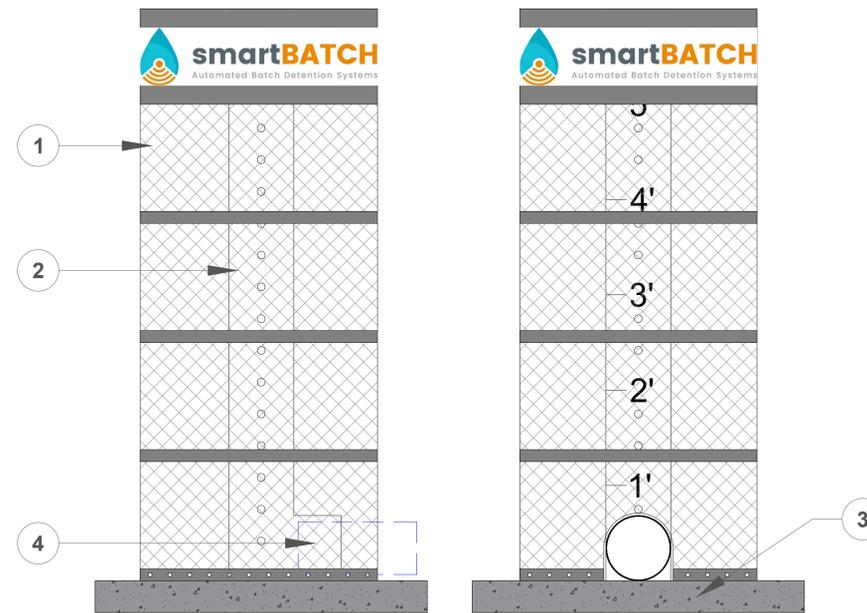
Attachment 3H

Batch Detention BMP

PROGRAMMABLE LOGIC FLOW CHART

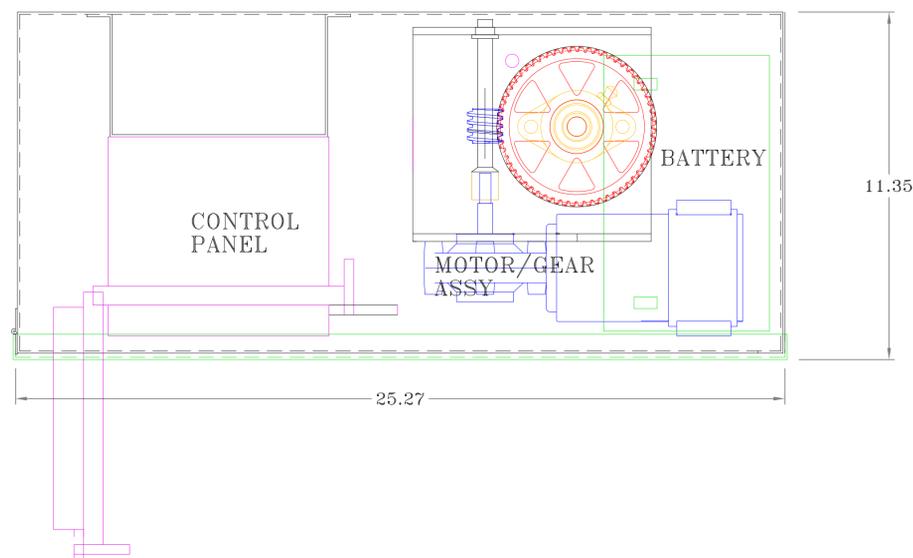


TRASH CAGE WITH PERFORATED RISER PIPE

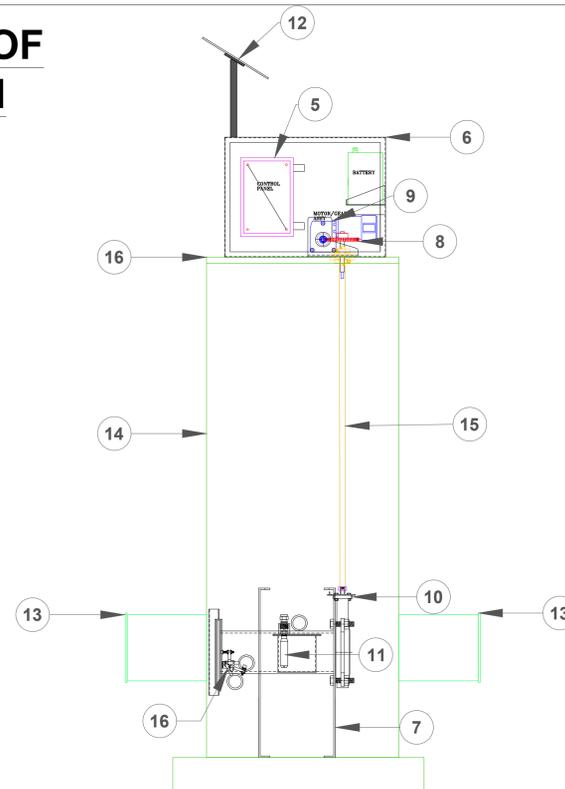


| Parts List | |
|------------|--|
| Item | smartPOND Valve Component |
| 1 | 30" DIAMETER CAGE WITH 1 1/2" GALVANIZED MESH SCREEN |
| 2 | 8" SQUARE PERFORATED TUBING WITH 1" PERFORATION, WITH 4" VERTICAL SPACING ON CENTERS WITH WATER DEPTH MARKER |
| 3 | 3 1/2" X 3 1/2" X 4" CONCRETE PAD (BY OTHERS) |
| 4 | 6" PVC OUTFALL PIPE (BY OTHERS) |
| 5 | WEATHERPROOF ELECTRONIC BOX |
| 6 | CONTROL BOX |
| 7 | PEDESTAL |
| 8 | ACTUATOR |
| 9 | MOTOR |
| 10 | 6" VALVE |
| 11 | LEVEL TRANSDUCER |
| 12 | SOLAR PANEL |
| 13 | OUTLET PIPE (BY OTHERS) |
| 14 | 30" DRAIN BASIN |
| 15 | VALVE STEM |
| 16 | QUICK DISCONNECT VALVE CONNECTION |

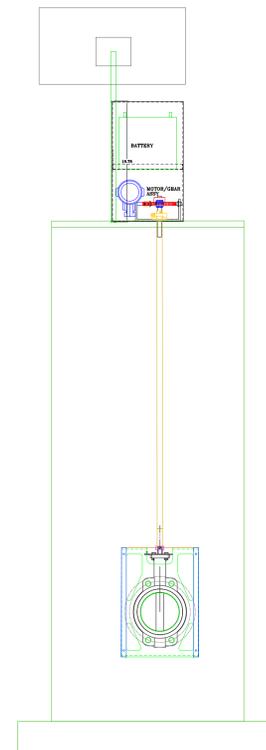
PLAN VIEW OF ENCLOSER



SECTION VIEW OF SMARTBATCH



FRONT VIEW OF SMARTBATCH



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Automated Batch Detention Systems

FOR ADDITIONAL INFORMATION PLEASE CONTACT: CONSTRUCTION ECO SERVICES, 832-456-1000, www.ecosvs.com

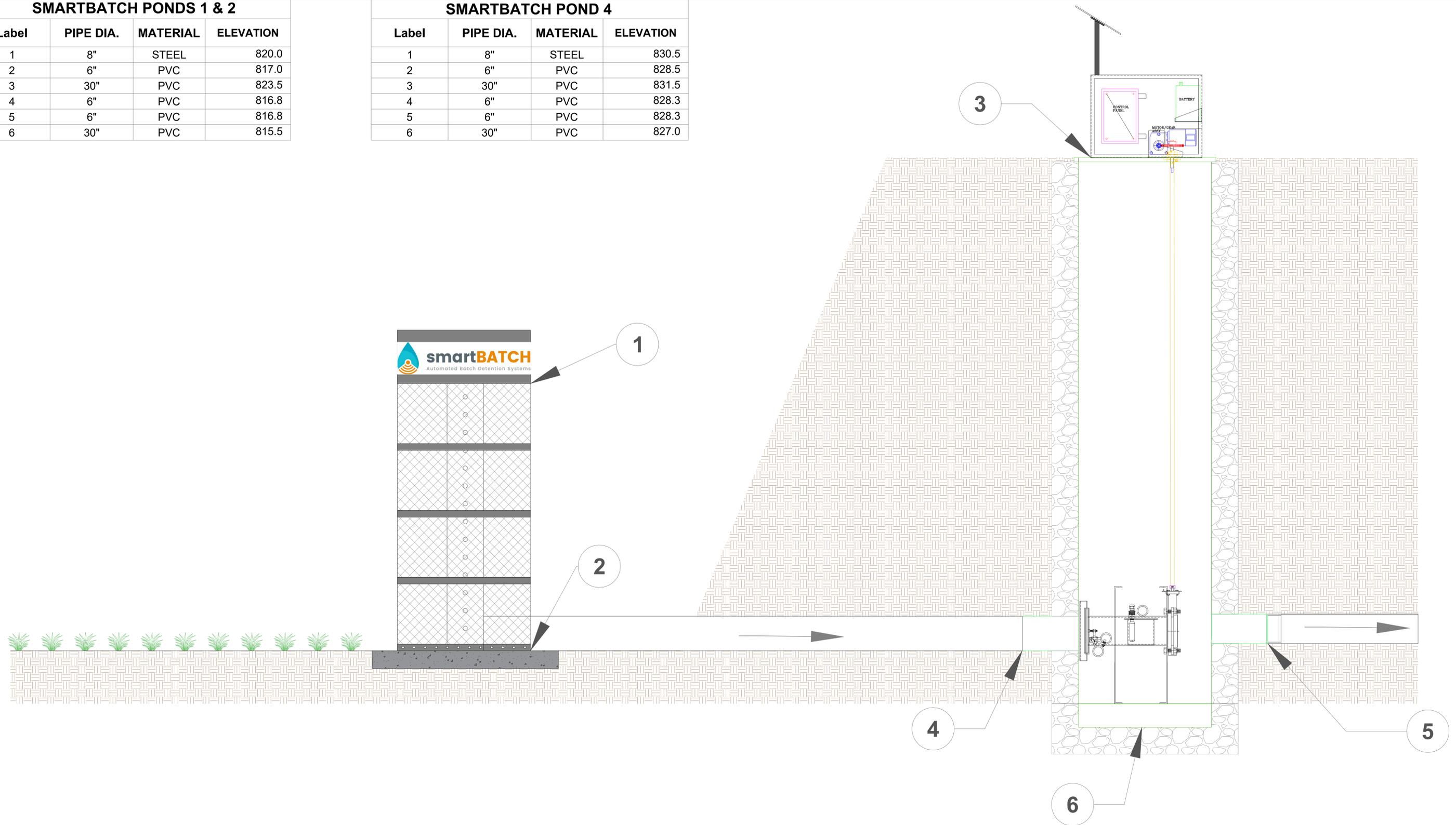
CONVERGENT
WATER TECHNOLOGIES

SMARTBATCH PONDS 1 & 2

| Label | PIPE DIA. | MATERIAL | ELEVATION |
|-------|-----------|----------|-----------|
| 1 | 8" | STEEL | 820.0 |
| 2 | 6" | PVC | 817.0 |
| 3 | 30" | PVC | 823.5 |
| 4 | 6" | PVC | 816.8 |
| 5 | 6" | PVC | 816.8 |
| 6 | 30" | PVC | 815.5 |

SMARTBATCH POND 4

| Label | PIPE DIA. | MATERIAL | ELEVATION |
|-------|-----------|----------|-----------|
| 1 | 8" | STEEL | 830.5 |
| 2 | 6" | PVC | 828.5 |
| 3 | 30" | PVC | 831.5 |
| 4 | 6" | PVC | 828.3 |
| 5 | 6" | PVC | 828.3 |
| 6 | 30" | PVC | 827.0 |



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smartBATCH Valve SPECIFICATION

Continuously Monitored Automated Batch Detention System with Valve

1. Introduction

The following specifications describe the components, general functions, and applications of a smartPOND Continuously Monitored Automated Batch Detention System (C-MABDS) with Valve. The system functions as an electronically controlled, solar powered stormwater management device, providing precision management capabilities and real-time data. Using sensors, solar power, an electronic actuator, and an internet-based control interface, the smartPOND valve connects to a specialized perforated riser inside the stormwater impoundment to meet batch detention standards as approved by local regulations.

2. smartPOND Valve Applications in Stormwater Management

The smartPOND valve is a device for active Stormwater management. As opposed to passive devices such as floating skimmers or stationary weirs, active water management dramatically increases the efficiency and effectiveness of a detention or retention pond. Where a passive stormwater detention system allows water to leave immediately upon collection, the smartPOND valve can detain newly caught Stormwater and allow it to settle for a programmed period before automatically dewatering the impoundment completely.

2.1 Pre-Programmed Control

Many functions can be pre-programmed without any human interactions, leaving the valve to automatically receive commands based on environmental conditions and respond as programmed.

2.1.1 Batch Detention Function for Stormwater Quality

The smartPOND valve meets TCEQ Batch Detention specifications for a 91% Total Suspended Solid removal rate. The function proceeds as follows. With the valve in the closed position and the impoundment dry, the system will stand by and wait for a water collection event. At the first sign of water collection, the unit will begin a 12-hour detention timer. At the end of the 12-hour detention period, the valve will open and release all of the water that has been collected. After the water level drops to 0", the valve will remain open for an additional 2 hours to facilitate final drainage, then return to the closed position to stand by for the next water collection event.

2.2 Real Time Monitoring

smartPOND comes standard with telemetry available on each unit and access to the user app available at no additional cost for 1 year. This option allows for real time monitoring of the unit and the data that comes along with it. From the real time monitoring app, a user can:

- See the water level
- See if trash or debris is surrounding the inlet
- Get maintenance alerts (Low Battery, Valve Failure, Etc.)

3. Components

The smartPOND valve may be implemented either above or below ground, and is comprised of the following components:

3.1 Hardware and Configuration

The standard smartPOND valve features a cast 6" valve. An extended spool and mounting flange on each side of the valve allows it to be attached to the outfall pipe in various configurations. The valve is actuated with an electric motor connected by an extendable drive shaft for underground applications.

For above ground applications, the entire system including all necessary components for operation assemble into one kit and are housed under a single lockable steel enclosure with the solar panel mounted on top. In this configuration, the unit can be installed on a stable, level pad and be bolted onto the back of the outfall pipe with six ¾" bolts and then switched to the "ON" position.

For underground applications, the valve is installed in a vault or concrete encasement as needed. An extended drive shaft connects between the underground valve and the rest of the components, including the motor and all electronics, which are housed in the lockable steel enclosure directly above ground.

3.2 Electronics and Software Specifications

- **Main board** - The main board of the smartPOND valve's electronics box serves as the main connection terminal for all sensors and additional control boards
- **Motor Controller Board** - The motor controller board of the smartPOND valve regulates the connection between the battery and the motor and receives inputs from the main board to control motor direction. It also powers the main board.
- **Motor** - The smartPOND valve's motor operates on 12-volts and has two wires connecting to the motor controller board. It is mounted on a bracket and connects to the directly to the valve with a driveshaft.
- **Battery** - The smartPOND valve is powered by a 12-volt, 30 amp/hour gel battery. Two terminals at the top connect the power wires to the motor controller board and the solar charge controller to the battery.
- **Solar Panel** - The solar panel of the smartPOND valve is 12-volts with 15 watt charging capability. It connects to a solar charge controller which regulates the voltage and current before connecting with two wires to the positive and negative battery terminals.
- **Sensors**
 - *Pressure Transducer* - The water level sensor is a pressure transducer sensor capable of staying submersed in water indefinitely. It mounts on the side of the smartPOND valve's center spool.
 - *Valve position sensor* - A proximity sensor senses the position of the valve's drive shaft in order to control and determine the position of the valve.
- **(Optional)**
 - *Cell data modem* - A cellular data modem will be required for real time control and alert options as well as predevelopment hydrograph functions.
 - *Hydrocarbon Sensor* - This optional sensor may be fitted to the smartPOND valve to perform specific functions based on the presence of hydrocarbon contamination.

4. Real Time Monitoring Interface (optional)

If the real time monitoring option is selected, the smartPOND valve may be monitored in real time through the Autoflow app. Live and historical data from each unit may be viewed in the app, as well as alerts (detailed in section 5).

4.1 Accessing unit data

To access live and historical data in the Autoflow app, select the unit of interest on the home page by clicking on the unit's name. From there, select the "Data" button, and the data page for that unit will be displayed.

5. Alerts

The smartPOND valve will indicate the following alerts by illuminating an exteriorly visible red LED light

- Low battery
- Loss of function
- Valve malfunction
- Hydrocarbon contamination (optional)

If the telemetry option is selected, the unit will upload the above alerts to the Autoflow app and notify the operator via text or email.

6. In Case of Failure

To bypass the smartPOND valve's normal automated functions and control the valve position in case of failure:

6.1 Removal of motor and manual direct control

In case of a total electronic or motor failure, the motor and motor bracket can be uninstalled together by removing the two bolts at the bottom of the motor bracket. With the motor and motor bracket removed, the output shaft on the butterfly valve can be manually controlled with a socket wrench, or any other tool that can grip the output shaft.

7. Additional Components List

7.1 Perforated Riser

The smartPOND valve system includes a stackable perforated steel riser which installs on the inlet side of the outfall pipe within the impoundment area. The perforated riser features an 8-inch steel perforated square tube within a 24" round steel mesh tube. At the bottom of the 8-inch square tube, there is a female threaded fitting for a six inch PVC outfall pipe to connect. The steel tube is perforated with 1-inch holes every 4" on center to the height of the impoundment.

7.2 Trash Cage

The trash cage attaches to the perforated riser with a coupling and calder pin. The trash cage will be comprised of steel banding and a 1.5" x 1.5" mesh to prevent floatable's and other contaminants from entering and clogging the perforated riser. The trash cage will sit 0.5" above the bottom of the impoundment to allow the last 0.5" out of the impoundment.

7.3 Valve Stem Extension

The drive shaft/valve stem of the smartPOND system may be extended to any length necessary for instances where the valve will be in an underground vault or manhole. The valve stem will connect the valve to the above ground controls.

8. Maintenance

8.1 Grease

The smartPOND valve includes a grease fitting on the valve itself which should be greased twice per year. It is also recommended that a thick, mildly heat-resistant grease be used to avoid grease melting out of the groove in warmer temperatures.

8.2 Flange Bolts

There are 6 bolts connecting the smartPOND valve's flange to the outfall pipe or fixture. During routine maintenance intervals, these bolts should be checked for tightness. All bolts should be tightened evenly.

8.3 Perforated Riser

Silt, sediment, and debris can build up around the perforated riser with time. An annual inspection of the unit is necessary to ensure that excess debris or sediment has not limited the drainage capacity of the perforated riser. To access the perforated riser for maintenance, lift the trash cage off of the riser, dig out any accumulated sediment, and clear all perforations.

8.4 Trash Cage

As a part of routine maintenance, it is advisable to remove trash and debris that has accumulated on the trash cage and properly dispose.

8.5 Solar Panel

On all inspection visits, it is necessary to confirm that the solar panel is facing south and is well secured. The solar panel is commonly utilized by birds and insects. It is important to keep the surface clean of bird litter, insect nests and debris in order to maintain optimal performance.

8.6 Battery

Over time, battery terminals may corrode. Check annually for corrosion and clean as needed. The battery should be replaced every 4 to 6 years.

8.7 Storage

The smartPOND valve is shipped in a near-fully assembled configuration and should be stored likewise. The systems are transported and stored on pallets and must remain secured via straps or steel bands to said pallet at all times. The solar panel is not installed at times of transport or storage and should not be installed until the unit is ready to begin operation. The battery may be stored inside the electronics box and if removed, should never be stored on a concrete surface.

9. Installation

The smartPOND valve can be installed in a near-completely assembled configuration. Only the solar panel should be removed during the installation process. There are several ways to install the smartPOND valve with the key being structured support.

9.1 Structural Support

If the smartPOND valve is mounted to a steel pipe in an above ground/fully assembled configuration, the weight of the unit may be supported by the steel pipe. For plastic or concrete pipes, it is recommended that the weight of the unit be supported by either a concrete pad or steel frame. For below ground installations, the upper unit (electronics and actuator) should be fastened to the surface of the concrete vault. For vault installations, see design details for standard vault design.

10. Important Safety Information and Warnings:

- Always keep hands clear of the valve and motor when unit is in operation.
- Turn the power switch off when doing any electrical work.
- Do not enter the water when the device is actively draining water
- Always use proper PPE and confined space protocol when servicing a valve beneath ground.

11. PRODUCTS

Manufacturer/Supplier/Reseller shall be an established stormwater company that has at least 5 installations of automated stormwater management devices that have been in use and functional for the past 3 or more years.

A. Acceptable smartPOND Valve

"smartBATCH" Automated Batch Detention System
"smartPOND" Automated Detention System

B. Acceptable System Supplier

Convergent Water Technologies, Inc.
(800)711-5428
www.convergentwater.com

C. Authorized Value Added Reseller

Construction EcoServices
(800)456-1000
www.ecosvs.com

12. Quality Assurance and Performance Specifications

The quality of all system components and all other appurtenances and their assembly process shall be subject to inspection upon delivery of the system to the work site. Installation is to be performed only by skilled work people with satisfactory record of performance on earthworks, pipe, welding, chamber, or pond/landfill construction projects of comparable size and quality.

smartBATCH
Automated Batch Detention Systems



FOR ADDITIONAL INFORMATION PLEASE CONTACT:

CONSTRUCTION ECO SERVICES

832-456-1000

www.ecosvs.com

CONSTRUCTION

ECO

SERVICES

smartBATCH Valve

Specifications

REVISION NO.

0

DATE

5/14/2019

SHEET NO.

NOTE: ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

Temporary Stormwater Section (TCEQ-0602)

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: Addison Skrla, PE

Date: 04-02-2025

Signature of Customer/Agent:



Regulated Entity Name: Highway 195 Business Park

Project Information

Potential Sources of Contamination

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

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

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

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

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

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

Sequence of Construction

- 5. **Attachment C - Sequence of Major Activities.** A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
 - For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
 - For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
- 6. Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Dry Berry 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 4A

Spill Response Actions



Attachment 4A – Spill Response Actions

No spills of hydrocarbons or hazardous substances are expected. However, in the event such an incidence does occur, the contractor should carefully follow the following TCEQ guidelines:

Cleanup:

1. Clean up leaks and spills immediately.
2. Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.
3. Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly.

Minor Spills:

1. Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
2. Use absorbent materials on small spills rather than hosing down or burying the spill.
3. Absorbent materials should be promptly removed and disposed of properly.
4. Follow the practice below for a minor spill:
 - a. Contain the spread of the spill.
 - b. Recover spilled materials.
 - c. Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills:

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities. Spills should be cleaned up immediately:

1. Contain spread of the spill.
2. Notify the project foreman immediately.
3. If the spill occurs on paved or impermeable surfaces, clean up using “dry” methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
4. If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
5. If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills:

From any event, the Reportable Quantity (RQ) = for high toxic materials the RQ>25 gallons. For petroleum/hydrocarbon liquids, spills the RQ>250 gallons (on land) or that which creates “a sheen” on water. Only certified Hazmat teams will be responsible for handling the material at the site.

For significant or hazardous spills that are in reportable quantities:

1. Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor’s responsibility to have all emergency phone numbers at the construction site. Additionally, in the event of a hazardous material spill, local Williamson county and/or city of Georgetown police, fire and potentially EMS should be contacted in order to initiate the hazardous material response team.
2. For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110, 119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
3. Notifications should first be made by telephone and followed up with a written report of which one copy is to be kept onsite in the report binder and one copy provided to the TCEQ.
4. The services of a spill contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
5. Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at:

<http://www.tceq.state.tx.us/response/spills.html>

Attachment 4B

Potential Sources of Contamination



Attachment 4B – Potential Sources of Contamination

No particular activity or process during construction is anticipated to present a significant risk of being a potential source of contamination. However, during regular construction operations, several common and minor risks of contamination are anticipated. Should the unforeseeable mishap occur during construction or regular operation of the facility, the contractor shall follow the guidelines set forth in “Attachment 4A – Spill Response Actions.”

Potential sources of sediment to stormwater runoff:

- Clearing and grubbing
- Grading and excavation
- Vehicle tracking
- Topsoil stripping and stockpiling
- Landscaping

Potential pollutants and sources, other than sediment, to stormwater runoff:

- Combined Staging Area – small fueling, minor equipment maintenance, sanitary facilities.
- Materials Storage Area – solvents, adhesives, paving materials, aggregates, trash, etc.
- Construction Activities – paving, concrete pouring
- Concrete Washout Area

Potential Onsite Pollutants:

- Fertilizer
- Concrete
- Glue, adhesives
- Gasoline, diesel fuel, hydraulic fluids, antifreeze
- Sanitary toilets

Attachment 4C

Sequence of Major Activities



Attachment 4C – Sequence of Major Activities

1. Temporary erosion and sedimentation controls are to be installed as indicated on the approved site plan and in accordance with the stormwater pollution prevention plan (SWPPP) that is required to be posted on the site. Install tree protection and initiate tree mitigation measures.
The environmental project manager, and/or site supervisor, and/or designated responsible party, and the general contractor will follow the storm water pollution prevention plan (SWPPP) posted on the site. Temporary erosion and sedimentation controls will be revised, if needed, to comply with city inspectors' directives, and revised construction schedule relative to the water quality plan requirements and the erosion and sedimentation control plan.
Temporary erosion and sedimentation controls will be inspected and maintained in accordance with the stormwater pollution plan (SWPPP) posted on the site.
2. Schedule an on-site pre-construction meeting with jurisdictional agencies, site engineer, contractor, and sub-contractors.
3. Clear, grade, sawcut existing lane, and install widened deceleration lane and site construction entrance.
 - a. Approximately 0.5 acres will be disturbed during this activity.
 - b. Install accompanying vegetated filter strip
4. Site clearing, grubbing and demolition activities.
 - a. Approximately 24.4 acres will be disturbed during this activity.
5. Rough grading of detention ponds.
 - a. Approximately 2.6 acres will be disturbed during this activity.
 - b. Install dewatering pipes and temporary detention pond skimmers.
6. Rough grading of offsite stormwater by-pass channel.
 - a. Approximately 2.2 acres will be disturbed during this activity.
 - b. Install rip-rap channel lining.
7. Rough grade building pads.
 - a. Approximately 6.0 acres will be disturbed during this activity.
8. Install underground wastewater, water, stormwater, and dry utilities.
9. Complete stormwater pond grading, install impermeable liners, install overflow structures, and vegetate.
10. Finish grade access aisles, parking, and truck docks.
11. Perform lime stabilization of subgrade, if necessary.
12. Place concrete paving section for access aisles, parking, and truck docks.
13. Install engineered filter strips.
14. Complete construction and begin re-vegetation of the site.
15. Upon completion of the site construction and re-vegetation of a project site, the design engineer shall submit an engineer's letter of concurrence to the City of Georgetown indicating that construction, including re-vegetation, is complete and in substantial conformity with the approved plans. After receiving this letter, a final inspection will be scheduled by the appropriate city inspector.
16. After construction is complete and all disturbed areas have been re-vegetated per plan to at least 90% established, remove the temporary erosion and sedimentation controls and complete any necessary final re-vegetation resulting from removal of the controls.
17. Conduct any maintenance and rehabilitation that is needed.

Attachment 4D

Temporary Best Management Practices



Attachment 4D – Temporary Best Management Practices and Measures

Prior to the commencement of any construction activity whatsoever, the contractor shall install the silt fencing per the Erosion and Sedimentation Control Plan. The silt fencing shall be installed per TCEQ and local requirements. The proposed temporary BMP are intended to control increased TSS from construction activities in the following manner:

- A.) The proposed development receives stormwater runoff from private properties to the north and west. The off-site stormwater runoff is addressed in the stormwater routing calculations and is by-passed through the site. The off-site stormwater runoff is not included in the calculations for water quality.
- B.) The temporary BMPs proposed during construction activities will prevent sediment-laden runoff from pollutant sources listed in 'Attachment 4B – Potential Sources of Contamination' from leaving the proposed site. The primary method of controlling sediment-laden stormwater runoff is through silt fencing. The silt fencing will be placed per plan along the downslope edges of the project area.
- C.) With the temporary silt fences in place, no stormwater runoff will enter any surface streams or sensitive features.
- D.) The proposed project seeks to honor the natural drainage patterns that currently exist in the proposed project area. There are no known sensitive geologic features on the site. After construction is completed, the site will maintain its current drainage patterns with the stormwater runoff draining to the south of the site.

Attachment 4E
Request to Temporary Seal a Feature



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 4E – Request to Temporarily Seal a Feature

No temporary sealing of naturally occurring sensitive features on the site are proposed.

This section is not applicable to this project.

Attachment 4F

Structural Practices



Attachment 4F – Structural Practices

The following temporary BMP structural practices will be employed on the site:

1. Silt Fence – used as barrier protection around the downslope perimeter of the project. The fence retains sediment primarily by retarding flow and promoting deposition on the uphill side of the slope. Runoff is filtered as it passes through the geotextile fabric.
2. Inlet Protection – used to prevent sediment from entering the storm drain system.
3. Rock Berm – used as barrier protection perpendicular to the frontage road drainage channel. The berm retains sediment primarily by retarding flow and promoting deposition on the uphill side of the slope. Runoff is filtered as it passes through the rock berm.
4. Concrete Washout Area – used to prevent or reduce the discharge of pollutants to stormwater from concrete waste. The concrete washout area is a designated area to wash out wastes into the temporary pit where the concrete can set, be broken up, and the disposed of properly.
5. Stabilized Construction Entrance – used to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. The stabilized construction entrance is a stabilized pad of crushed stone and should be located at any point traffic will be entering or leaving the construction site from a public right-of-way.
6. Contractor Staging Area – used as an area for the contractor to store and prepare equipment and materials before using them during the construction phase.

The placement of structural practices in the detention basin has been avoided.

Attachment 4G

Drainage Area Maps



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

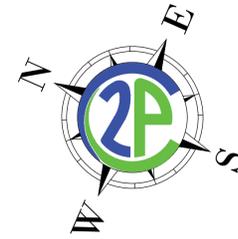
Attachment 4G – Drainage Area Maps

See attached for the Existing and Proposed Drainage Area Maps.

| NOAA Atlas 14 Precipitation Data (in) | | | | |
|---------------------------------------|------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| 24-Hour | 3.93 | 6.28 | 8.00 | 11.20 |

Precipitation Data taken from NOAA Atlas 14 website
Address: 3000 SH 195, Georgetown, TX 78633

| Developed vs. Existing Conditions Drainage Calculations (cfs) | | | | |
|---|------|-------|-------|--------|
| | 2-YR | 10-YR | 25-YR | 100-YR |
| POI A | 0.4 | -2.5 | -5.4 | -4.5 |
| POI B | -0.1 | -0.3 | 0.3 | -0.6 |
| POI C | -0.7 | -1.7 | -2.6 | -4.1 |



GENERAL LEGEND

SYMBOLS

- WATER METER
- WATER VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTER
- UTILITY POLE
- LIGHT POLE
- WASTEWATER MAN-HOLE
- CLEAN OUT
- KEYNOTES
- PARKING COUNTOUR
- WW SERVICE
- WATER SERVICE
- STORMSEWER MAN-HOLE
- SIGN
- CURB INLET
- GRATE INLET
- TABLE TOP AREA INLET
- TREE TO BE SAVED
- TREE TO BE REMOVED

LINETYPES

- PROPERTY BOUNDARY
- LIMITS OF CONSTRUCTION
- FENCES (CHAINLINK)
- (IRON)
- (WOOD)
- (BARB WIRE)
- DITCH (CREEK) LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CURB & GUTTER
- UNDERGROUND ELEC.
- OVERHEAD UTILITY
- UNDERGROUND TELE.
- UNDERGROUND GAS LINE
- WATER LINE
- WASTEWATER LINE
- ACCESSIBLE ROUTE

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
TBP# FIRM #F-19351

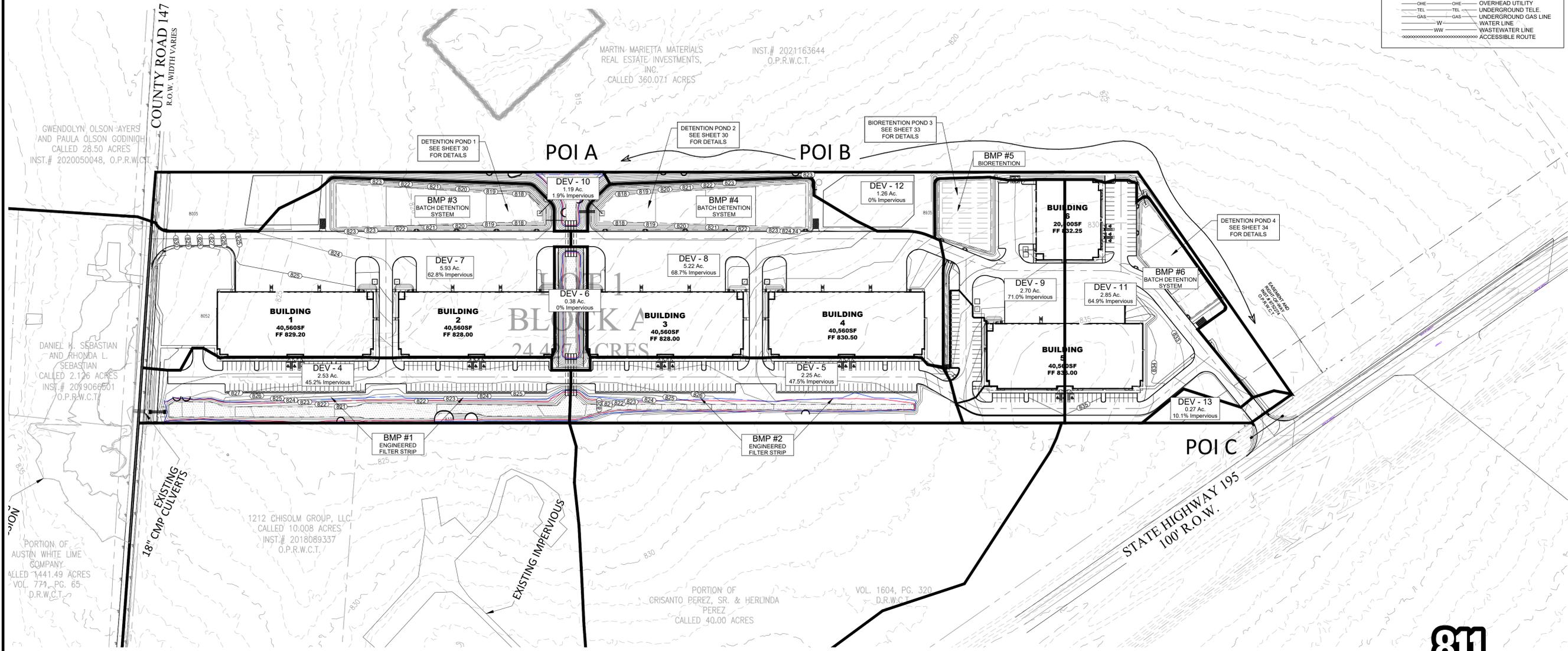


| NO. | DATE | REVISIONS | RECORD |
|-----|------|-----------|--------|
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| | | | |

AQUILA
EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633

PROPOSED CONDITIONS
DRAINAGE AREA MAP (2 OF 2)

PERMIT No. ---
SHEET No. 23 OF 56



| DEVELOPED CONDITIONS DRAINAGE BASIN INFORMATION | | | | | | | | | | |
|---|-----------|--------|------------|------------------|-------|-------|--------------|-----------|-----------------------------|------|
| BASIN | AREA | | | IMPERVIOUS COVER | | | CURVE NUMBER | | TIME OF CONCENTRATION (MIN) | LAG |
| | (SF) | (AC) | (Sq Mi) | (SF) | (AC) | (%) | Base Soil | Composite | | |
| 1 | 2,525,195 | 57.97 | 0.09057891 | 26,840 | 0.62 | 1.1% | 78 | 78.21 | 31.64 | 19.0 |
| 2 | 1,143,240 | 26.25 | 0.04100809 | 54,250 | 1.25 | 4.7% | 73 | 74.19 | 30.66 | 18.4 |
| 3 | 453,660 | 10.41 | 0.01627281 | 2,500 | 0.06 | 0.6% | 73 | 73.14 | 31.31 | 18.8 |
| 4 | 110,104 | 2.53 | 0.00394944 | 49,798 | 1.14 | 45.2% | 73 | 84.31 | 6 | 3.6 |
| 5 | 98,146 | 2.25 | 0.00352050 | 46,650 | 1.07 | 47.5% | 73 | 84.88 | 6 | 3.6 |
| 6 | 16,447 | 0.38 | 0.00058995 | 0 | 0.00 | 0.0% | 73 | 73.00 | 6 | 3.6 |
| 7 | 258,330 | 5.93 | 0.00926631 | 162,119 | 3.72 | 62.8% | 73 | 88.69 | 6 | 3.6 |
| 8 | 227,569 | 5.22 | 0.00816291 | 156,399 | 3.59 | 68.7% | 73 | 90.18 | 6 | 3.6 |
| 9 | 117,702 | 2.70 | 0.00422198 | 83,583 | 1.92 | 71.0% | 73 | 90.75 | 6 | 3.6 |
| 10 | 51,830 | 1.19 | 0.00185915 | 1,000 | 0.02 | 1.9% | 73 | 73.48 | 6 | 3.6 |
| 11 | 124,356 | 2.85 | 0.00446066 | 80,763 | 1.85 | 64.9% | 73 | 89.24 | 6 | 3.6 |
| 12 | 54,966 | 1.26 | 0.00197163 | 0 | 0.00 | 0.0% | 73 | 73.00 | 6 | 3.6 |
| 13 | 11,690 | 0.27 | 0.00041932 | 1,182 | 0.03 | 10.1% | 73 | 75.53 | 6 | 3.6 |
| Total | 5,193,235 | 119.22 | 0.18628167 | 665,084 | 15.27 | 12.8% | | | | |

| DEVELOPED CONDITIONS DRAINAGE CALCULATIONS (cfs) | | | | |
|--|------|-------|-------|--------|
| Basin | 2-YR | 10-YR | 25-YR | 100-YR |
| 1 | 48.9 | 103.1 | 144.6 | 222.5 |
| 2 | 18.6 | 42.1 | 60.7 | 96.1 |
| 3 | 6.9 | 16.1 | 23.4 | 37.3 |
| 4 | 5.2 | 9.7 | 13.0 | 19.4 |
| 5 | 4.7 | 8.7 | 11.7 | 17.4 |
| 6 | 0.5 | 1.1 | 1.6 | 2.6 |
| 7 | 14.1 | 24.5 | 32.4 | 47.3 |
| 8 | 12.9 | 22.2 | 29.1 | 42.1 |
| 9 | 6.8 | 11.6 | 15.2 | 21.9 |
| 10 | 1.6 | 3.6 | 5.2 | 8.3 |
| 11 | 6.9 | 11.9 | 15.7 | 22.8 |
| 12 | 1.6 | 3.8 | 5.5 | 8.7 |
| 13 | 0.4 | 0.9 | 1.2 | 1.9 |
| POI A | 74.0 | 172.2 | 244.0 | 386.1 |
| POI B | 8.4 | 19.5 | 29.1 | 45.4 |
| POI C | 0.4 | 0.9 | 1.2 | 1.9 |



Know what's below.
Call before you dig.

CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

NOTES: 1. All construction shall be in accordance with the approved plans and specifications. 2. All construction shall be in accordance with the approved plans and specifications. 3. All construction shall be in accordance with the approved plans and specifications. 4. All construction shall be in accordance with the approved plans and specifications. 5. All construction shall be in accordance with the approved plans and specifications. 6. All construction shall be in accordance with the approved plans and specifications. 7. All construction shall be in accordance with the approved plans and specifications. 8. All construction shall be in accordance with the approved plans and specifications. 9. All construction shall be in accordance with the approved plans and specifications. 10. All construction shall be in accordance with the approved plans and specifications. 11. All construction shall be in accordance with the approved plans and specifications. 12. 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Attachment 4H

Temporary Sediment Pond Plans and Calculations



Attachment 4H – Temporary Sediment Pond(s) Plan and Calculations

A pair of temporary sediment ponds are provided for two areas of the proposed development, each consisting of multiple drainage basins. Construction of the Temporary Sediment Ponds is anticipated prior to the excavation of the Offsite Stormwater By-Pass Channel. Therefore, runoff from DEV-4 combines with DEV-7 to contribute to Temporary Pond 1, and runoff from DEV-5 combines with DEV-8 and DEV-9 to contribute to Temporary Pond 2. The remaining portion of the site (DEV-11) is less than 3 acres.

The Temporary Sediment Ponds will be constructed in the designed locations of the permanent detention basins, only to the elevation needed for Water Quality Control. The tables below provide the calculations for the proposed temporary sediment ponds to be installed early in the site construction process.

CITY OF AUSTIN E.C.M. Temporary Sediment Pond

| | | |
|---|------------------------|----------------------|
| SEDIMENT POND NAME: | <i>Temp Pond 1</i> | |
| DEVELOPED BASINS: | <i>DEV-4 and DEV-7</i> | |
| DRAINAGE AREA DATA | | |
| Drainage Area to Control (DA) | <u>8.46 ac</u> | |
| WATER QUALITY CONTROL CALCULATIONS | | |
| | <u>Required</u> | <u>Provided</u> |
| Sedimentation Volume (WQV = DA*1800) | <u>15,228 cf.</u> | <u>31,697 cf.</u> |
| Sedimentation Elevation | <u>820.00 ft msl</u> | |
| Elevation of Splitter/Overflow Weir | <u>820.00 ft msl</u> | <u>820.00 ft msl</u> |

Sedimentation Basin Volume

| Stage (ft. msl) | Area (sf) | Height (ft) | Avg. End Area | Cumul. Vol. (cf) | Cumul. Vol. (ac-ft) |
|-----------------|-----------|-------------|---------------|------------------|---------------------|
| 817 | 100 | --- | 0 | 0 | --- |
| 818 | 6,163 | 1.00 | 3,490 | 3,490 | 0.0801 |
| 819 | 13,714 | 1.00 | 9,939 | 13,429 | 0.3083 |
| 820 | 22,822 | 1.00 | 18,268 | 31,697 | 0.7277 |

CITY OF AUSTIN E.C.M. Temporary Sediment Pond

| | | |
|---|-------------------------------|----------------------|
| SEDIMENT POND NAME: | <i>Temp Pond 2</i> | |
| DEVELOPED BASINS: | <i>DEV-5, DEV-8 and DEV-9</i> | |
| DRAINAGE AREA DATA | | |
| Drainage Area to Control (DA) | <u>10.17 ac</u> | |
| WATER QUALITY CONTROL CALCULATIONS | | |
| | <u>Required</u> | <u>Provided</u> |
| Sedimentation Volume (WQV = DA*1800) | <u>18,306 cf.</u> | <u>31,697 cf.</u> |
| Sedimentation Elevation | <u>820.00 ft msl</u> | |
| Elevation of Splitter/Overflow Weir | <u>820.00 ft msl</u> | <u>820.00 ft msl</u> |

Sedimentation Basin Volume

| Stage (ft. msl) | Area (sf) | Height (ft) | Avg. End Area | Cumul. Vol. (cf) | Cumul. Vol. (ac-ft) |
|-----------------|-----------|-------------|---------------|------------------|---------------------|
| 817 | 100 | --- | 0 | 0 | --- |
| 818 | 6,163 | 1.00 | 3,490 | 3,490 | 0.0801 |
| 819 | 13,714 | 1.00 | 9,939 | 13,429 | 0.3083 |
| 820 | 22,822 | 1.00 | 18,268 | 31,697 | 0.7277 |

Plans for the Temporary Sediment Ponds, including details and these calculations, have been included in the attached Stormwater Permit for Exchange 195.

Attachment 4I

Inspection and Maintenance for BMPs



Attachment 4I – Inspection and Maintenance for BMPs

The inspection and maintenance of temporary BMP's will be made according to TCEQ RG-348, Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices.

Inspection Personnel:

Inspections shall be conducted by qualified representatives of the contractor acting on behalf of the owner or a designated party if hired separately by the owner. Each operator must delegate authority to the specifically described position or person performing inspections, as provided by 30 TAC 305.128, as an authorized person for signing reports and performing certain activities requested by the director or required by the TPDES general permit. This delegation of authority must be provided to the director of TCEQ in writing and a copy shall be kept along with the signed effective copy of the SWP3.

Inspection Schedule and Procedures - Inspections must comply with the following:

- A.) An inspection shall occur weekly and after any rain event. This inspection should include an inspection of the temporary concrete washout area.
- B.) The authorized party shall inspect all disturbed areas of the site, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site.
- C.) Disturbed areas and areas used for storage of materials that are exposed to precipitation or within limits of the 1% annual chance (100 year) floodplain must be inspected for evidence of, or the potential for, pollutants entering the runoff from the site. Erosion and sediment control measures identified in the plan must be observed to ensure that they are operating correctly. Observations can be made during wet or dry weather conditions. Where discharge locations or points are accessible, they must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. This can be done by inspecting receiving waters to see whether any signs or erosion or sediment are associated with the discharge location. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.
- D.) Based on the results of the inspection, the site description and the pollution prevention measures identified in the plan must be revised as soon as possible after an inspection that reveals inadequacies. The inspection and plan review process must provide for timely implementation of any changes to the plan with 7 calendar days following the inspection.
- E.) An inspection report that summarizes the scope of the inspection, name(s) and qualifications of personnel conducting the inspection, the dates of the inspection, major observations relating to the implementation of the SWP3. Major observations shall include as a minimum location of discharges of sediment or other pollutants from the site, location of BMPs that need to be maintained, location of BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where BMPs are needed. Actions taken as a result of the inspections must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and the TPDES general permit. The report must be signed by the authorized representative delegated by the operators in accordance with TAC 305.128.

Maintenance and Corrective Actions - Maintenance of erosion control facilities shall consist of the minimum requirements as follows:

- A.) In ongoing construction areas inspect erosion control improvements to confirm facilities are in place and operable. Where facilities have been temporarily set aside or damaged due to construction activity, place facilities in service before leaving job site.
- B.) If weather forecast predicts possibility of rain, check entire facilities throughout site to assure facilities are in place and operable. If job site weather conditions indicate high probability of rain, make special inspection of erosion control facilities.
- C.) After rainfall events review erosion control facilities as soon as site is accessible. Clean rock berms, berm/swales and other structural facilities. Determine where additional facilities or alternative techniques are needed to control sediment leaving site.
- D.) After portions of site have been seeded, review these areas on regular basis in accordance with project specifications to assure proper watering until grass is established. Reseed areas where grass is not well established.
- E.) Spills are to be handled as specified by the manufacturer of the product in a timely safe manner by personnel. The site superintendent will be responsible for coordinating spill prevention and cleanup operations.
- F.) Concrete trucks will discharge extra concrete or wash out drum only at an approved location on site. Residual product shall be properly disposed of.
- G.) Inspect vehicle entrance and exits for evidence of off-site tracking and correct as needed.
- H.) If sediment escapes the site, the contractor where feasible and where access is available shall collect and remove sedimentation material by appropriate non-damaging methods. Additionally, the contractor shall correct the condition causing discharges.
- I.) If inspections or other information sources reveal a control has been used incorrectly, or that a control is performing inadequately, the contractor must replace, correct or modify the control as soon as practical after discovery of the deficiency.

Silt Fence – Inspection and maintenance guidelines for silt fences are as follows:

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

Inlet Protection – Inspection and maintenance guidelines for inlet protection are as follows:

- A.) Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
- B.) Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
- C.) Check placement of device to prevent gaps between device and curb.
- D.) Inspect filter fabric and patch or replace if torn or missing.
- E.) Structures should be removed, and the area stabilized only after the remaining drainage area has been properly stabilized.

Stabilized Construction Entrance – Inspection and maintenance guidelines for the stabilized construction entrance are as follows:

- A.) The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
- B.) All sediments spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
- C.) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public rights-of-way.
- D.) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
- E.) All sediment should be prevented from entering any storm drain, ditch, or water course by using approved methods.

Concrete Washout Area – Inspection and maintenance guidelines for the concrete washout area are as follows:

- A.) Concrete washout areas should be located at least 50 feet from sensitive features, storm drains, open ditches, or water bodies.
- B.) Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- C.) Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.
- D.) When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions, or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Attachment 4J
Schedule of Interim and
Permanent Soil Stabilization Practices



Attachment 4J – Schedule of Interim and Permanent Soil Stabilization Practices

Prior to Disturbance – Install all temporary erosion and sedimentation control features.

During Construction – Inspect and maintain all temporary erosion and sedimentation control structures per TCEQ regulations. Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.

All disturbed areas to be revegetated are required to place a minimum of six (6) inches of topsoil. Do not add topsoil within the critical root zone of existing trees. The topsoil shall be comprised of 4 parts of soil mixed with 1 part compost by volume. The compost shall meet the definition of “compost” as defined by TxDOT Specification Item 161.

The soil shall be locally available native soil that meets the following specification:

- Shall be free of trash, weeds, deleterious materials, rocks and debris,
- 100% shall pass through a 1.5 inch (38mm) screen,
- Shall be a loamy material meeting the following textural criteria:
 - Clay (5 – 50%)
 - Silt (10 – 50%)
 - Sand (15 – 67%)
- An owner/engineer may propose use of onsite salvaged topsoil which does not meet the soil texture criteria above by providing a soil analysis and a written statement from a qualified professional in soils, landscape architecture or agronomy indicating the onsite topsoil will provide an equivalent growth media and specifying what, if any, soil amendments are required.
- Soil amendments shall be worked into the existing onsite topsoil with a disc or tiller to create a well-blended material.

Temporary Vegetation Stabilization

- From September 15 to March 1, seeding shall be with cool season cover crops (wheat at 0.5 lbs/1,000sf, oats at 0.5 lbs/1,000sf, cereal rye grain at 0.5 lbs/1,000sf). Cool season cover crops are not permanent erosion control.
- From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 1.0 lbs/1,000sf.
 - Fertilizer shall be applied only if warranted by a soil test. Fertilization should not occur when rainfall is expected or during slow plant growth or dormancy.
 - Temporary erosion control shall be acceptable when the grass has grown at least 1½ inches high with a minimum of 95% total coverage so that all areas of a site that rely on vegetation for temporary stabilization are uniformly vegetated and provided there are no bare spots larger than 10 square feet.
 - Hydromulch shall comply with the table below:

| Material | Description | Longevity | Typical Application | Application Rate |
|--|---|--------------|-----------------------------------|-----------------------------|
| 100% or any blend of wood, cellulose, straw, and/or cotton plant material (except no mulch shall exceed 30% paper) | 70% or greater Wood/Straw 30% or less Paper or Natural Fibers | 0 – 3 months | Moderate slopes; from flat to 3:1 | 1,500 to 2,000 lbs per acre |

Permanent Vegetation Stabilization

- From September 15 to March 1, seeding is considered to be temporary stabilization only. If cool season cover crops exist where permanent vegetative stabilization is desired, the grasses shall be mowed to a height of less than one-half (½) inch and the area shall be re-seeded. Alternatively, the cool season cover crop can be mixed with Bermudagrass or native seed and installed together, understanding that germination of warm season seed typically requires soil temperatures of 60 to 70 degrees.
- From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 45 pounds per acre with a purity of 95% and a minimum pure live seed (PLS) of 0.83. Bermuda grass is a warm season grass and is considered permanent erosion control.
 - Fertilizer shall be applied only if warranted by a soil test. Fertilization should not occur when rainfall is expected or during slow plant growth or dormancy.
 - Water the seeded areas immediately after installation to achieve germination and a healthy stand of plants that can ultimately survive without supplemental water. Apply the water uniformly to the planted areas without causing displacement or erosion of the materials or soil. Maintain the seedbed in a moist condition favorable for plant growth.
 - Permanent erosion control shall be acceptable when the grass has grown at least 1½ inches high with a minimum of 95 percent for the non-native mix, and 95 percent coverage for the native mix so that all areas of a site that rely on vegetation for stability must be uniformly vegetated and provided there are no bare spots larger than 10 square feet.
 - Hydromulch shall comply with the table below:

| Material | Description | Longevity | Typical Application | Application Rate |
|-------------------------------|--|-----------------|---|---|
| Bonded Fiber Matrix (BFM) | 80% Organic defibrated fibers, 10% Tackifier | 6 months | On slopes up to 2:1 and erosive soil conditions | 2,500 to 4,000 lbs per acre (see manufacturers recommendations) |
| Fiber Reinforced Matrix (FRM) | 65% Organic defibrated fibers 25% Reinforcing Fibers or less 10% Tackifier | Up to 12 months | On slopes up to 1:1 and erosive soil conditions | 3,000 to 4,500 lbs per acre (see manufacturers recommendations) |

After Completion of Permanent Erosion and Sediment Controls – Stabilize and restore all areas disturbed during construction. Permanent seeding will be applied immediately after the final design grades are achieved on portions of the site but no later than 14 days after construction activities have permanently ceased. After the entire site is stabilized, any sediment that has accumulated will be removed and hauled off-site for disposal. Construction debris, trash and temporary BMPs including silt fences, material storage areas, sanitary toilets, etc.) will also be removed and any areas disturbed during removal will be seeded immediately.

Permanent Stormwater Section
(TCEQ-0600)

Permanent 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)(C), (D)(li), (E), and (5), 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 **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Addison Skrla, PE

Date: 04/02/2025

Signature of Customer/Agent



Regulated Entity Name: Highway 195 Business Park

Permanent Best Management Practices (BMPs)

Permanent best management practices and measures that will be used during and after construction is completed.

- 1. Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
 N/A
- 2. These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.
 The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____

N/A

3. Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

The site will be used for low density single-family residential development and has 20% or less impervious cover.

The site will be used for low density single-family residential development but has more than 20% impervious cover.

The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

Attachment A - 20% or Less Impervious Cover Waiver. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.

The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.

The site will not be used for multi-family residential developments, schools, or small business sites.

6. **Attachment B - BMPs for Upgradient Stormwater.**

- A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
 - No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
 - Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.
7. **Attachment C - BMPs for On-site Stormwater.**
- A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.
 - Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.
8. **Attachment D - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.
- N/A
9. The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.
- The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.
 - Attachment E - Request to Seal Features.** A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.
10. **Attachment F - Construction Plans.** All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:
- Design calculations (TSS removal calculations)
 - TCEQ construction notes
 - All geologic features
 - All proposed structural BMP(s) plans and specifications
- N/A

11. **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:
- Prepared and certified by the engineer designing the permanent BMPs and measures
 - Signed by the owner or responsible party
 - Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
 - A discussion of record keeping procedures
- N/A
12. **Attachment H - Pilot-Scale Field Testing Plan.** Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.
- N/A
13. **Attachment I -Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.
- N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

14. The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.
- N/A
15. A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.
- N/A

Attachment 5A
20% or Less Impervious Cover Waiver



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 5A – 20% or Less Impervious Cover Waiver

The site does not have less than 20% impervious cover.

This section is not applicable to this project.

Attachment 5B

BMPs for Upgradient Stormwater



2P CONSULTANTS, LLC
203 E. Main Street, Suite 204
Round Rock, Texas 78664
512-344-9664
TBPE FIRM #F-19351

Attachment 5B – BMPs for Upgradient Stormwater

Based on GIS topographic information, approximately 58 acres north of CR 147 flows to a shallow depression along the County Road frontage and is conveyed to the subject property through 3 – 18” CMP culverts, outflowing at the NW corner of the property. The centerline of CR 147 is roughly 2 feet above the culverts’ invert, creating a shallow closed depression on the neighboring property.

Approximately 36 acres of the neighboring property to the west generally sheet flows across the common property line.

Proposed drainage channels will convey offsite flows from the upgradient basins through the site to the point of discharge to the quarry (Point of Interest A - POI A as defined in the attached Developed Conditions Drainage Area Map). See attached Stormwater Permit plans for drainage channel designs and details.

Attachment 5C

BMPs for On-Site Stormwater



Attachment 5C – BMPs for On-Site Stormwater

Developed conditions basin analysis is provided in Attachment 3B – Volume and Character of Stormwater. The stormwater BMPs designed for this development to prevent pollution of surface water and groundwater are as follows:

Proposed grading and improvements divide the total drainage basin into 13 separate subbasins, with surface discharge from the site at the same three Points of Interest. The proposed improvements bring the total impervious cover of the overall basin to over 665,000 square feet (15.3 acres), or 12.8% of the entire 119-acre drainage basin. Allowable impervious cover is based on UDC 11.02.010.A.1.b, which states, “For subdivisions greater than five acres, the impervious cover maximum allowance changes with the total acreage of the subdivision. The impervious cover maximum is 70 percent (70%) of the first five acres and 55 percent (55%) of the remaining acreage.” The site is 24.427 acres. Allowable Impervious Cover = $(5 \times 0.70 + (24.427 - 5) \times 0.55) = 14.18$ acres, or 58.1%. Proposed additional Impervious Cover is 13.24 acres, or 54.2%.

Developed Basin 1 consists of the same 58-acre area north of CR 147, with the same shallow depression and 3 culvert outflow. Developed Basins 2 and 3 consist of the offsite property to the west. Proposed drainage channels will convey offsite flows from Developed Basins 1-3 through the site to the point of discharge to the quarry (POI A).

Runoff from Developed Basins 4 and 5 consist of the parking and sidewalk along Buildings 1 – 4. Stormwater runoff treatment is provided by Engineered Vegetated Filter Strips, designed in general accordance with Section 3.2.4 of the TCEQ Technical Guidance on BMP’s. As designed, the proposed vegetative filter strips provide 85% TSS removal. The upstream contributing areas are 72 feet deep or less with less than 4% cross-slope and the vegetative filter strips are 15 feet with 1 to 10% cross-slope, all within the written design criteria. After treatment, runoff is combined in the drainage channels to POI A.

Runoff from Developed Basins 7 and 8 is conveyed to a proposed Detention Ponds 1 and 2 with release to POI A.

Developed Basin 9 flows to a Bioretention Pond for stormwater treatment with primary overflow to Detention Pond 2 and secondary overflow to POI B. The stormwater volume for Pond 3 is based on the water quality volume and additional sediment storage required for Developed Basin 9. As calculated in the TSS Removal Calculations for Basin 9, Total Capture Volume required is 6,567 cubic feet and provided in Pond 3 below the Water Quality Elevation is 6,798 cubic feet. As designed with HEC-HMS software, the primary downstream element from Pond 3 is Pond 2. The lower curb drop inlet, located in the northwest corner of Pond 3, is designed as a 5’-wide broad-crested spillway (Spillway 1) at a flowline elevation of 827.50, the water quality elevation of Pond 3. Beyond the treatment capacity of Pond 3, any excess stormwater runoff will flow through or bypass this lower curb drop inlet and eventually into Pond 2. An auxiliary spillway (Spillway 2), located along the east boundary of Pond 3, is set at an elevation of 828.00. Spillway 2 contributes to POI B.

Runoff from Developed Basin 11 is conveyed to a proposed Detention Pond 4 with release to POI B. In general, Developed Basins 1 – 10 contribute to POI A, Basins 11 and 12 contribute to POI B, and Basin 13 contributes to POI C.

In general accordance with the TCEQ Technical Guidance Manual, onsite stormwater BMP’s must be designed to remove at least 80% of the increased total suspended solids (TSS) from the proposed project. The City of Georgetown requires an additional 5%, for a minimum requirement of 85% TSS removal. A Batch Detention Basin is proposed for

this WPAP. As described in the Addendum Sheet of “Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices” (TCEQ Approval of Innovative Technology, Section 3.2.17),

“Batch Detention Basins capture and temporarily detain the water quality volume from a storm event using an automated controller and valve. They are intended to serve primarily as settling basins for the solids fraction, and as a means of limiting downstream erosion by controlling peak flow rates during erosive events... Batch detention basins are designed to prevent clogging of the outflow structure and resuspension of captured sediment during a discharge. They also provide enhanced dissolved pollutant removal performance. The batch detention design typically incorporates a non-clogging outflow structure, such as an orifice protected by a trash rack, or a perforated riser pipe protected by riprap.”

The proposed extended detention basins (Detention/WQ Ponds 1, 2 and 4) are located along the east and south property boundaries, comprised of earthen berms. Each pond will be modified with a Batch Detention System to provide 91% TSS removal, in general accordance with TCEQ Technical Guidance, Section 3.2.17. The bioretention pond (WQ Pond 3) is positioned upstream of Detention Pond 2 to provide added stormwater storage and treatment for the upstream subbasin. WQ Pond 3 was designed in general accordance with TCEQ Section 3.4.8.

Staged Pond Volume tables for each pond and peak elevations for each storm event can be found below.

| Existing Closed Depression - Stage Storage | | | |
|--|--------|-------------|-------------------|
| | Area | Step Volume | Cumulative Volume |
| Elevation | (SF) | (CF) | (CF) |
| 829.00 | 600 | - | 0 |
| 830.00 | 14,600 | 7,600 | 7,600 |
| 831.00 | 53,200 | 33,900 | 41,500 |
| 832.00 | 96,000 | 74,600 | 116,100 |

$$\text{Volume} = (A1 + A2)/2 * (E2 - E1)$$

| PEAK POND ELEVATION - Exist Closed Depression | | | | |
|---|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 43.6 | 101.1 | 142.7 | 220.5 |
| ELEV | 831.2 | 831.4 | 831.6 | 831.8 |

Outlet Assumptions:

| | | | |
|--------------|----------------------|-------------|--------|
| Outlet 1 - | 3 - 18" CMP Culverts | In Elev= | 829.0 |
| | | Slope= | 0.0125 |
| | | Ent. Coef.= | 0.7 |
| | | Exit Coef.= | 1.0 |
| | | Mannings N= | 0.024 |
| Spillway 1 - | Weir | Elev= | 831.0 |
| | | Length= | 90 |
| | | Coef.= | 3.0 |

| Detention/WQ Pond 1 - Stage Storage | | | |
|-------------------------------------|---------------|---------------|-------------------|
| | Area | Step Volume | Cumulative Volume |
| Elevation | (SF) | (CF) | (CF) |
| 817.00 | 100 | - | 0 |
| 818.00 | 6,163 | 3,132 | 3,132 |
| 819.00 | 13,714 | 9,939 | 13,070 |
| 819.50 | 18,073 | 7,947 | 21,017 |
| 820.00 | 22,822 | 10,224 | 31,241 |
| 821.00 | 33,480 | 28,151 | 59,392 |
| 822.00 | 36,655 | 35,068 | 94,459 |
| 822.80 | 39,091 | 30,298 | 124,757 |
| 823.00 | 44,705 | 8,380 | 133,137 |
| 823.50 | 58,458 | 25,791 | 158,928 |

$$\text{Volume} = (A1 + A2)/2 * (E2 - E1)$$

* Area values above 822.8 include ponding within the truck apron.

| PEAK POND ELEVATION - Detention/WQ Pond 1 | | | | |
|---|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 1.7 | 2.3 | 2.6 | 6.8 |
| ELEV | 820.9 | 821.7 | 822.3 | 823.0 |

Outlet Assumptions:

| | | | |
|--------------|------------------|-------------|--------|
| Outlet 1 - | 1 - 8" HDPE Pipe | In Elev= | 819.5 |
| | | Slope= | 0.0200 |
| | | Ent. Coef.= | 0.7 |
| | | Exit Coef.= | 1.0 |
| | | Mannings N= | 0.012 |
| Spillway 1 - | Weir | Elev= | 822.6 |
| | | Length= | 5 |
| | | Coef.= | 2.70 |

| Detention/WQ Pond 2 - Stage Storage | | | |
|-------------------------------------|---------------|------------------|------------------------|
| Elevation | Area (SF) | Step Volume (CF) | Cumulative Volume (CF) |
| 817.00 | 100 | - | 0 |
| 818.00 | 6,163 | 3,132 | 3,132 |
| 819.00 | 13,714 | 9,939 | 13,070 |
| 819.50 | 18,073 | 7,947 | 21,017 |
| 820.00 | 22,822 | 10,224 | 31,241 |
| 821.00 | 33,480 | 28,151 | 59,392 |
| 822.00 | 36,655 | 35,068 | 94,459 |
| 822.80 | 39,091 | 30,298 | 124,757 |
| 823.00 | 44,705 | 8,380 | 133,137 |
| 823.50 | 58,458 | 25,791 | 158,928 |

$$\text{Volume} = (A1 + A2)/2 * (E2 - E1)$$

* Area values above 822.8 include ponding within the truck apron.

| PEAK POND ELEVATION - Detention/WQ Pond 2 | | | | |
|---|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 4.7 | 6.4 | 7.2 | 13.3 |
| ELEV | 821.2 | 821.9 | 822.4 | 823.0 |

Outlet Assumptions:

| | | | |
|--------------|-------------------|-------------|--------|
| Outlet 1 - | 3 - 8" HDPE Pipes | In Elev= | 820.0 |
| | | Slope= | 0.0200 |
| | | Ent. Coef.= | 0.7 |
| | | Exit Coef.= | 1.0 |
| | | Mannings N= | 0.012 |
| Spillway 1 - | Weir | Elev= | 822.5 |
| | | Length= | 5 |
| | | Coef.= | 2.70 |

| WQ Pond 3 - Stage Storage | | | |
|---------------------------|---------------|------------------|------------------------|
| Elevation | Area (SF) | Step Volume (CF) | Cumulative Volume (CF) |
| 827.00 | 13,118 | - | 0 |
| 827.50 | 14,074 | 6,798 | 6,798 |
| 828.00 | 15,060 | 7,284 | 14,082 |
| 828.60 | 15,914 | 9,292 | 23,374 |

$$\text{Volume} = (A1 + A2)/2 * (E2 - E1)$$

| PEAK POND ELEVATION - WQ Pond 3 | | | | |
|---------------------------------|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 4.3 | 6.2 | 6.7 | 7.4 |
| ELEV | 827.9 | 828.1 | 828.1 | 828.1 |

Outlet Assumptions:

| | | | |
|--------------|------|---------|-------|
| Spillway 1 - | Weir | Elev= | 827.5 |
| | | Length= | 5 |
| | | Coef.= | 3.00 |
| Spillway 2 - | Weir | Elev= | 828.0 |
| | | Length= | 110 |
| | | Coef.= | 3.00 |

| Detention/WQ Pond 4 - Stage Storage | | | |
|-------------------------------------|---------------|------------------|------------------------|
| Elevation | Area (SF) | Step Volume (CF) | Cumulative Volume (CF) |
| 828.30 | 100 | - | 0 |
| 829.00 | 3,668 | 1,319 | 1,319 |
| 830.00 | 11,974 | 7,821 | 9,140 |
| 830.20 | 13,782 | 2,576 | 11,715 |
| 830.50 | 16,582 | 4,555 | 16,270 |
| 830.60 | 17,400 | 1,699 | 17,969 |
| 831.00 | 17,844 | 7,049 | 25,018 |
| 831.60 | 18,492 | 10,901 | 35,919 |

$$\text{Volume} = (A1 + A2)/2 * (E2 - E1)$$

| PEAK POND ELEVATION - Detention/WQ Pond 4 | | | | |
|---|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 6.8 | 11.8 | 15.6 | 22.6 |
| ELEV | 830.5 | 830.6 | 830.6 | 830.6 |

Outlet Assumptions:

| | | | |
|--------------|------------------|-------------|--------|
| Outlet 1 - | 1 - 8" HDPE Pipe | In Elev= | 830.2 |
| | | Slope= | 0.0100 |
| | | Ent. Coef.= | 0.7 |
| | | Exit Coef.= | 1.0 |
| | | Mannings N= | 0.012 |
| Spillway 1 - | Weir | Elev= | 830.5 |
| | | Length= | 230 |
| | | Coef.= | 3.00 |

Based on the attached TCEQ calculations, with the City of Georgetown modification for an additional 5% TSS removal, the proposed Extended Drainage Basins and Bioretention Pond are sized for adequate stormwater treatment. Beyond the treatment capacity of the detention basins, stormwater will overflow the perimeter earthen berm.

Attachment 5D

BMPs for Surface Streams



Attachment 5D – BMPs for Surface Streams

No BMPs are proposed to specifically affect surface streams.

The function of the proposed onsite temporary (used during construction) and permanent BMPs is to remove TSS from stormwater runoff while retaining natural flow patterns downstream of the site. Therefore, the BMPs proposed for reducing pollutant loads in surface stream are the onsite BMPs, and are described in the previous section: “Attachment 5C – BMPs for On-site Stormwater”.

Attachment 5E

Request to Seal Features



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Attachment 5E – Request to Seal Features

The permanent sealing of or diversion of flow from a naturally occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed for any features on this site.

This section is not applicable to this project.

Attachment 5F Construction Plans



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Attachment 5F – Construction Plans

See attached Stormwater Permit plan set.

Attachment 5G

Inspection, Maintenance, Repair, and Retrofit Plan



Attachment 5G – Inspection, Maintenance, Repair, and Retrofit Plan

The following are recommended maintenance procedures as outlined in TCEQ's [Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices](#).

Batch Detention Basins:

Batch detention basins may have somewhat higher maintenance requirements than an extended detention basin since they are active stormwater controls. The maintenance activities are identical to those of extended detention basins with the addition of maintenance and inspections of the automatic controller and the valve at the outlet.

Inspections: Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.

Mowing: The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

Litter and Debris Removal: Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.

Erosion Control: The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.

Nuisance Control. Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

Structural Repairs and Replacement. With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

Sediment Removal. A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

Logic Controller. The Logic Controller should be inspected as part of the twice-yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

Engineered Vegetated Filter Strips:

Successful performance of Engineered Vegetated Filter Strips relies heavily on maintaining shallow unconcentrated flow. To avoid flow channelization and maintain performance, a filter strip should:

- Contain dense vegetation with a mix of erosion resistant, soil binding species,
- Extend along the entire length of the contributing area,
- Be graded to a uniform, even and a slope of less than 20%,
- Be no less than 15 feet in width,
- Be free of gullies or rills that can concentrate overland flow,
- Have a minimum vegetated cover of no less than 80%.

Inspections: The primary inspection involves maintaining the top edge of the filter strip along the pavement to avoid the situation where runoff would travel along the top of the filter strip, rather than through it. Inspections should take place a minimum of twice a year. One inspection should take place during wet weather.

Bioretention:

The primary maintenance requirement for bioretention areas is that of inspection and repair or replacement of the treatment area's components. Generally, this involves nothing more than the routine periodic maintenance that is required of any landscaped area. Plants that are appropriate for the site, climatic, and watering conditions should be selected for use in the bioretention cell. Appropriately selected plants will aid in reducing fertilizer, pesticide, water, and overall maintenance requirements. Bioretention system components should blend over time through plant and root growth, organic decomposition, and the development of a natural soil horizon. These biologic and physical processes over time will lengthen the facility's life span and reduce the need for extensive maintenance.

Routine maintenance should include a semi-annual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation. Diseased vegetation should be treated as needed using preventative and low-toxic measures to the extent possible. BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water. Routine inspections for areas of standing water within the BMP and corrective measures to restore proper infiltration rates are necessary to prevent creating mosquito and other vector habitat. In addition, bioretention BMPs are susceptible to invasion by aggressive plant species such as cattails, which increase the chances of standing water and subsequent vector production if not routinely maintained.

To maintain the treatment area's appearance, it may be necessary to prune and weed. Furthermore, mulch replacement is suggested when erosion is evident or when the site begins to look unattractive. Specifically, the entire area may require mulch replacement every two to three years, although spot mulching may be sufficient when there are random void areas.

Other potential tasks include replacement of dead vegetation, soil pH regulation, erosion repair at inflow points, mulch replenishment, unclogging the underdrain, and repairing overflow structures.

Other recommended maintenance guidelines include:

Inspections. BMP facilities should be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation. During each inspection, erosion areas inside and downstream of the BMP must be identified and repaired or revegetated immediately.

Sediment Removal. Remove sediment from the facility when sediment depth reaches 3 inches or when the sediment interferes with the health of vegetation or ability of the facility to meet required drawdown times. Sediment removal should be performed at least every 2 years.

Drain Time. When the drain time exceeds 72 hours as observed in the observation well, the filter media should be removed and replaced with more permeable material.

Vegetation. All dead and diseased vegetation considered beyond treatment shall be removed and replaced during semi-annual inspections. Diseased trees and shrubs should be treated during inspections. Re-mulch any bare areas by hand whenever needed. Replace mulch annually in the spring, or more frequently if needed, in landscaped areas of the basin where grass or groundcover is not planted. Grass areas in and around bioretention facilities must be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

Debris and Litter Removal. Debris and litter will accumulate in the facility and should be removed during regular mowing operations and inspections.

Filter Underdrain. Clean underdrain piping network to remove any sediment buildup every 5 years, or as needed to maintain design drawdown time.

Record Keeping:

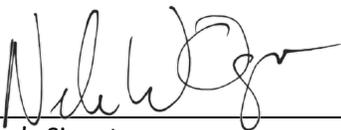
Records of all inspections and maintenance for the facility shall be recorded and maintained for the water quality facility beginning at startup of the facility. Record keeping shall be detailed to provide type of maintenance or repair made, date of the service, and detail of the extent of the maintenance or repair. The owner or responsible party of the facility is responsible for maintaining the facility as outlined in this plan until such time as another entity assumes responsibility in writing or ownership of the property is transferred. A copy of the transfer of ownership or responsibility must be filed with the Executive Director of TCEQ within 30-days of the transfer.



23Mar23

Owner's Signature

Date



March 23, 2023

Engineer's Signature

Date

Attachment 5H

Pilot-Scale Field Testing Plan



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Attachment 5H – Pilot-Scale Field Testing Plan

TCEQ's Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices was used to design permanent BMPs and measures for this site.

This section is not applicable to this project.

Attachment 5I

Measures for Minimizing Surface Stream Contamination



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Attachment 5I – Measures for Minimizing Surface Stream Contamination

The BMPs proposed to reduce pollutants in surface streams are presented with detailed explanations in Attachment 3B: “Volume and Character of Stormwater” and Attachment 5C: “BMPs for Onsite Stormwater.”

Attachment 5J

TCEQ TSS Removal Calculations



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Attachment 5J – TCEQ TSS Removal Calculations

See attached TCEQ TSS Removal Calculations.

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:

$L_{M \text{ TOTAL PROJECT}}$ = 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 * = **24.43** acres

Predevelopment impervious area within the limits of the plan * = **0.00** acres

Total post-development impervious area within the limits of the plan* = **13.32** acres

Total post-development impervious cover fraction * = **0.55**

P = **32** inches

$L_{M \text{ TOTAL PROJECT}}$ = **11594** lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = **6**

| BASIN | BMP | TSS REMOVAL | |
|------------------------------------|-------------------------|---------------|-------------|
| 4 | Engineered Filter Strip | 1,093 | lbs. |
| 5 | Engineered Filter Strip | 1,024 | |
| 7 | Batch Detention System | 3,460 | |
| 8 | Batch Detention System | 3,330 | |
| 9 | Bioretention System | 1,530 | |
| 12 | Batch Detention System | 1,730 | |
| TOTAL L_M REMOVAL | | 12,167 | lbs. |
| | | 573 | |



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:

$L_{M \text{ TOTAL PROJECT}}$ = 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 * = **24.43** acres

Predevelopment impervious area within the limits of the plan * = **0.00** acres

Total post-development impervious area within the limits of the plan * = **13.32** acres

Total post-development impervious cover fraction * = **0.55**

P = **32** inches

$L_{M \text{ TOTAL PROJECT}}$ = **11594** lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = **6**

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = **1** Basin 4

Total drainage basin/outfall area = **2.53** acres

Predevelopment impervious area within drainage basin/outfall area = **0.00** acres

Post-development impervious area within drainage basin/outfall area = **1.14** acres

Post-development impervious fraction within drainage basin/outfall area = **0.45**

$L_{M \text{ THIS BASIN}}$ = **992** lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Vegetated Filter Strips**
Removal efficiency = **85** percent

ENGINEERED FILTER STRIP

- Aqualogic Cartridge Filter
- Bioretention
- Contech StormFilter
- Constructed Wetland
- Extended Detention
- Grassy Swale
- Retention / Irrigation
- Sand Filter
- Stormceptor
- Vegetated Filter Strips
- Vortechs
- Wet Basin
- Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area

A_i = Impervious area proposed in the BMP catchment area

A_p = Pervious area remaining in the BMP catchment area

L_R = TSS Load removed from this catchment area by the proposed BMP

$A_C = 2.53$ acres
 $A_I = 1.14$ acres
 $A_P = 1.39$ acres
 $L_R = 1093$ lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M \text{ THIS BASIN}} = 1093$ lbs.

$F = 1.00$

16. Vegetated Filter Strips

Designed as Required in RG-348

Pages 3-55 to 3-57

There are no calculations required for determining the load or size of vegetative filter strips.

The 80% removal is provided when the contributing drainage area does not exceed 72 feet (direction of flow) and the sheet flow leaving the impervious cover is directed across 15 feet of engineered filter strips with maximum slope of 20% or across 50 feet of natural vegetation with a maximum slope of 10%. There can be a break in grade as long as no slope exceeds 20%.

If vegetative filter strips are proposed for an interim permanent BMP, they may be sized as described on Page 3-56 of RG-348.

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:

$L_{M \text{ TOTAL PROJECT}}$ = 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 * = **24.43** acres
 Predevelopment impervious area within the limits of the plan * = **0.00** acres
 Total post-development impervious area within the limits of the plan * = **13.32** acres
 Total post-development impervious cover fraction * = **0.55**
 P = **32** inches

$L_{M \text{ TOTAL PROJECT}}$ = **11594** lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = **6**

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = **2** Basin 5
 Total drainage basin/outfall area = **2.25** acres
 Predevelopment impervious area within drainage basin/outfall area = **0.00** acres
 Post-development impervious area within drainage basin/outfall area = **1.07** acres
 Post-development impervious fraction within drainage basin/outfall area = **0.48**
 $L_{M \text{ THIS BASIN}}$ = **931** lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Vegetated Filter Strips**
 Removal efficiency = **85** percent

ENGINEERED FILTER STRIP

- Aqualogic Cartridge Filter
- Bioretention
- Contech StormFilter
- Constructed Wetland
- Extended Detention
- Grassy Swale
- Retention / Irrigation
- Sand Filter
- Stormceptor
- Vegetated Filter Strips
- Vortechs
- Wet Basin
- Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area
 A_i = Impervious area proposed in the BMP catchment area
 A_p = Pervious area remaining in the BMP catchment area
 L_R = TSS Load removed from this catchment area by the proposed BMP

$A_C = 2.25$ acres
 $A_I = 1.07$ acres
 $A_P = 1.18$ acres
 $L_R = 1024$ lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M \text{ THIS BASIN}} = 1024$ lbs.

$F = 1.00$

16. Vegetated Filter Strips

Designed as Required in RG-348

Pages 3-55 to 3-57

There are no calculations required for determining the load or size of vegetative filter strips.

The 80% removal is provided when the contributing drainage area does not exceed 72 feet (direction of flow) and the sheet flow leaving the impervious cover is directed across 15 feet of engineered filter strips with maximum slope of 20% or across 50 feet of natural vegetation with a maximum slope of 10%. There can be a break in grade as long as no slope exceeds 20%.

If vegetative filter strips are proposed for an interim permanent BMP, they may be sized as described on Page 3-56 of RG-348.

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:

$L_{M \text{ TOTAL PROJECT}}$ = 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 * = **24.43** acres

Predevelopment impervious area within the limits of the plan * = **0.00** acres

Total post-development impervious area within the limits of the plan* = **13.32** acres

Total post-development impervious cover fraction * = **0.55**

P = **32** inches

$L_{M \text{ TOTAL PROJECT}}$ = **11594** lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = **6**

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = **3** Basin 7

Total drainage basin/outfall area = **5.93** acres

Predevelopment impervious area within drainage basin/outfall area = **0.00** acres

Post-development impervious area within drainage basin/outfall area = **3.72** acres

Post-development impervious fraction within drainage basin/outfall area = **0.63**

$L_{M \text{ THIS BASIN}}$ = **3238** lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Extended Detention**
Removal efficiency = **91** percent

BATCH DETENTION SYSTEM

- Aqualogic Cartridge Filter
- Bioretention
- Contech StormFilter
- Constructed Wetland
- Extended Detention
- Grassy Swale
- Retention / Irrigation
- Sand Filter
- Stormceptor
- Vegetated Filter Strips
- Vortechs
- Wet Basin
- Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area

A_I = Impervious area proposed in the BMP catchment area

A_P = Pervious area remaining in the BMP catchment area

L_R = TSS Load removed from this catchment area by the proposed BMP

A_C = **5.93** acres

A_I = **3.72** acres

A_P = **2.21** acres

$L_R = 3783$ lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M \text{ THIS BASIN}} = 3460$ lbs.

$F = 0.91$

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 = 1.80 inches
Post Development Runoff Coefficient = 0.44
On-site Water Quality Volume = 17086 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

L_M REMOVAL WITH THE BMP

3,460 lbs

Storage for Sediment = 3417

VOLUME PROVIDED

Total Capture Volume (required water quality volume(s) x 1.20) = 20503 cubic feet

21,017 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.

8. Extended Detention Basin System

Designed as Required in RG-348

Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 20503 cubic feet

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:

$L_{M \text{ TOTAL PROJECT}}$ = 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 * = **24.43** acres

Predevelopment impervious area within the limits of the plan * = **0.00** acres

Total post-development impervious area within the limits of the plan* = **13.32** acres

Total post-development impervious cover fraction * = **0.55**

P = **32** inches

$L_{M \text{ TOTAL PROJECT}}$ = **11594** lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = **6**

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = **4** Basin 8

Total drainage basin/outfall area = **5.22** acres

Predevelopment impervious area within drainage basin/outfall area = **0.00** acres

Post-development impervious area within drainage basin/outfall area = **3.59** acres

Post-development impervious fraction within drainage basin/outfall area = **0.69**

$L_{M \text{ THIS BASIN}}$ = **3125** lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Extended Detention**
Removal efficiency = **91** percent

BATCH DETENTION SYSTEM

- Aqualogic Cartridge Filter
- Bioretention
- Contech StormFilter
- Constructed Wetland
- Extended Detention
- Grassy Swale
- Retention / Irrigation
- Sand Filter
- Stormceptor
- Vegetated Filter Strips
- Vortechs
- Wet Basin
- Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area

A_I = Impervious area proposed in the BMP catchment area

A_P = Pervious area remaining in the BMP catchment area

L_R = TSS Load removed from this catchment area by the proposed BMP

A_C = **5.22** acres

A_I = **3.59** acres

A_P = **1.63** acres

$L_R = 3643$ lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M \text{ THIS BASIN}} = 3330$ lbs.

$F = 0.91$

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 = 1.80 inches
Post Development Runoff Coefficient = 0.49
On-site Water Quality Volume = 16837 cubic feet

Calculations from RG-348

Pages 3-36 to 3-37

Off-site area draining to BMP = 2.70 acres
Off-site Impervious cover draining to BMP = 1.92 acres
Impervious fraction of off-site area = 0.71
Off-site Runoff Coefficient = 0.52
Off-site Water Quality Volume = 9120 cubic feet

L_M REMOVAL WITH THE BMP
3,330 lbs

Storage for Sediment = 5191

VOLUME PROVIDED

Total Capture Volume (required water quality volume(s) x 1.20) = 31149 cubic feet

31,241 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.

8. Extended Detention Basin System

Designed as Required in RG-348

Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 31149 cubic feet

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:

$L_{M \text{ TOTAL PROJECT}}$ = 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 * = **24.43** acres

Predevelopment impervious area within the limits of the plan * = **0.00** acres

Total post-development impervious area within the limits of the plan* = **13.32** acres

Total post-development impervious cover fraction * = **0.55**

P = **32** inches

$L_{M \text{ TOTAL PROJECT}}$ = **11594** lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = **6**

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = **5** Basin 9

Total drainage basin/outfall area = **2.70** acres

Predevelopment impervious area within drainage basin/outfall area = **0.00** acres

Post-development impervious area within drainage basin/outfall area = **1.92** acres

Post-development impervious fraction within drainage basin/outfall area = **0.71**

$L_{M \text{ THIS BASIN}}$ = **1671** lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Bioretention**

Removal efficiency = **89** percent

BIORETENTION

- Aqualogic Cartridge Filter
- Bioretention
- Contech StormFilter
- Constructed Wetland
- Extended Detention
- Grassy Swale
- Retention / Irrigation
- Sand Filter
- Stormceptor
- Vegetated Filter Strips
- Vortechs
- Wet Basin
- Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area

A_I = Impervious area proposed in the BMP catchment area

A_P = Pervious area remaining in the BMP catchment area

L_R = TSS Load removed from this catchment area by the proposed BMP

A_C = **2.70** acres

A_I = **1.92** acres

A_P = **0.78** acres

$L_R = 1904$ lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M \text{ THIS BASIN}} = 1530$ lbs.

$F = 0.80$

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 = 1.08 inches
Post Development Runoff Coefficient = 0.52
On-site Water Quality Volume = 5472 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

L_M REMOVAL WITH THE BMP

1,530 lbs

Storage for Sediment = 1094

VOLUME PROVIDED

Total Capture Volume (required water quality volume(s) x 1.20) = 6567 cubic feet

6,798 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.

10. Bioretention System

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = 6567 cubic feet

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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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:

$L_{M \text{ TOTAL PROJECT}}$ = 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 * = **24.43** acres
 Predevelopment impervious area within the limits of the plan * = **0.00** acres
 Total post-development impervious area within the limits of the plan* = **13.32** acres
 Total post-development impervious cover fraction * = **0.55**
 P = **32** inches

$L_{M \text{ TOTAL PROJECT}}$ = **11594** lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = **6**

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = **6** Basin 11
 Total drainage basin/outfall area = **2.85** acres
 Predevelopment impervious area within drainage basin/outfall area = **0.00** acres
 Post-development impervious area within drainage basin/outfall area = **1.85** acres
 Post-development impervious fraction within drainage basin/outfall area = **0.65**
 $L_{M \text{ THIS BASIN}}$ = **1610** lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Extended Detention**
 Removal efficiency = **91** percent

BATCH DETENTION SYSTEM

- Aqualogic Cartridge Filter
- Bioretention
- Contech StormFilter
- Constructed Wetland
- Extended Detention
- Grassy Swale
- Retention / Irrigation
- Sand Filter
- Stormceptor
- Vegetated Filter Strips
- Vortechs
- Wet Basin
- Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area
 A_I = Impervious area proposed in the BMP catchment area
 A_P = Pervious area remaining in the BMP catchment area
 L_R = TSS Load removed from this catchment area by the proposed BMP

A_C = **2.85** acres
 A_I = **1.85** acres
 A_P = **1.00** acres

$L_R = 1880$ lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M \text{ THIS BASIN}} = 1730$ lbs.

$F = 0.92$

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 = 2.00 inches
Post Development Runoff Coefficient = 0.46
On-site Water Quality Volume = 9493 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

L_M REMOVAL WITH THE BMP

1,730 lbs

Storage for Sediment = 1899

VOLUME PROVIDED

Total Capture Volume (required water quality volume(s) x 1.20) = 11391 cubic feet

11,715 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.

8. Extended Detention Basin System

Designed as Required in RG-348

Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 11391 cubic feet

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:

$L_{M \text{ TOTAL PROJECT}}$ = 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 * = **1.08** acres
 Predevelopment impervious area within the limits of the plan * = **0.73** acres
 Total post-development impervious area within the limits of the plan * = **0.82** acres
 Total post-development impervious cover fraction * = **0.76**
 P = **32** inches

$L_{M \text{ TOTAL PROJECT}}$ = **78** 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** Offsite Widening
 Total drainage basin/outfall area = **1.08** acres
 Predevelopment impervious area within drainage basin/outfall area = **0.73** acres
 Post-development impervious area within drainage basin/outfall area = **0.82** acres
 Post-development impervious fraction within drainage basin/outfall area = **0.76**
 $L_{M \text{ THIS BASIN}}$ = **78** lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Vegetated Filter Strips**
 Removal efficiency = **85** percent

VEGETATED FILTER STRIP

- Aqualogic Cartridge Filter
- Bioretention
- Contech StormFilter
- Constructed Wetland
- Extended Detention
- Grassy Swale
- Retention / Irrigation
- Sand Filter
- Stormceptor
- Vegetated Filter Strips
- Vortechs
- Wet Basin
- Wet Vault

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: $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area
 A_i = Impervious area proposed in the BMP catchment area
 A_p = Pervious area remaining in the BMP catchment area
 L_R = TSS Load removed from this catchment area by the proposed BMP

$A_C = 1.08$ acres
 $A_I = 0.82$ acres
 $A_P = 0.26$ acres
 $L_R = 776$ lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN} = 776$ lbs.

$F = 1.00$

16. Vegetated Filter Strips

Designed as Required in RG-348

Pages 3-55 to 3-57

There are no calculations required for determining the load or size of vegetative filter strips.

The 80% removal is provided when the contributing drainage area does not exceed 72 feet (direction of flow) and the sheet flow leaving the impervious cover is directed across 15 feet of engineered filter strips with maximum slope of 20% or across 50 feet of natural vegetation with a maximum slope of 10%. There can be a break in grade as long as no slope exceeds 20%.

If vegetative filter strips are proposed for an interim permanent BMP, they may be sized as described on Page 3-56 of RG-348.

Agent Authorization Form
(TCEQ-0599)

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

I Michael Murphy
Print Name

Owner
Title - Owner/President/Other

of Hwy 195 Business Park Owner, LP
Corporation/Partnership/Entity Name

have authorized Addison Skrla, P.E.
Print Name of Agent/Engineer

of 2P Consultants, LLC
Print Name of Firm

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

I also understand that:

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

SIGNATURE PAGE:

[Signature]
Applicant's Signature

4/3/25
Date

THE STATE OF Texas §

County of Tarrant §

BEFORE ME, the undersigned authority, on this day personally appeared Michael Murphy 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 3 day of April, 2025



[Signature]
NOTARY PUBLIC

Graham Moore
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: April 24, 2028

Application Fee Form
(TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Highway 195 Business Park

Regulated Entity Location: 3000 SH 195, Georgetown, TX 78633

Name of Customer: Highway 195 Business Park Owner, LP

Contact Person: Michael Murphy

Phone: (512)684-3702

Customer Reference Number (if issued):CN _____

Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

Hays

Travis

Williamson

San Antonio Regional Office (3362)

Bexar

Medina

Uvalde

Comal

Kinney

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

Austin Regional Office

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

Site Location (Check All That Apply):

Recharge Zone

Contributing Zone

Transition Zone

| <i>Type of Plan</i> | <i>Size</i> | <i>Fee Due</i> |
|---|-------------|----------------|
| Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling | Acres | \$ |
| Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks | Acres | \$ |
| Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential | 24.43 Acres | \$ 6,500 |
| Sewage Collection System | L.F. | \$ |
| Lift Stations without sewer lines | Acres | \$ |
| Underground or Aboveground Storage Tank Facility | Tanks | \$ |
| Piping System(s)(only) | Each | \$ |
| Exception | Each | \$ |
| Extension of Time | Each | \$ |

Signature: Adriana Skelton

Date: 4/10/2025

Application Fee Schedule

Texas Commission on Environmental Quality

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

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

Extension of Time Requests

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

Core Data Form
(TCEQ-10400)



TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

| | | |
|--|---|---|
| 1. Reason for Submission (If other is checked please describe in space provided.) | | |
| <input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.) | | |
| <input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form) | <input type="checkbox"/> Other | |
| 2. Customer Reference Number (if issued) | Follow this link to search for CN or RN numbers in Central Registry** | 3. Regulated Entity Reference Number (if issued) |
| CN | | RN 111300612 |

SECTION II: Customer Information

| | | | |
|---|--|--|---|
| 4. General Customer Information | | 5. Effective Date for Customer Information Updates (mm/dd/yyyy) | |
| <input checked="" type="checkbox"/> New Customer | | <input type="checkbox"/> Update to Customer Information | |
| <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts) | | <input type="checkbox"/> Change in Regulated Entity Ownership | |
| 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: | |
| Highway 195 Business Park Owner, LP | | | |
| 7. TX SOS/CPA Filing Number | 8. TX State Tax ID (11 digits) | 9. Federal Tax ID (9 digits) | 10. DUNS Number (if applicable) |
| | 32086012468 | | |
| 11. Type of Customer: | <input type="checkbox"/> Corporation | <input type="checkbox"/> Individual | Partnership: <input type="checkbox"/> General <input checked="" type="checkbox"/> Limited |
| Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other | <input type="checkbox"/> Sole Proprietorship | | <input type="checkbox"/> Other: |
| 12. Number of Employees | | 13. Independently Owned and Operated? | |
| <input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following | | | |
| <input type="checkbox"/> Owner | | <input type="checkbox"/> Operator | |
| <input type="checkbox"/> Occupational Licensee | | <input checked="" type="checkbox"/> Owner & Operator | |
| <input type="checkbox"/> Responsible Party | | <input type="checkbox"/> Voluntary Cleanup Applicant | |
| <input type="checkbox"/> Other: | | | |
| 15. Mailing Address: | 1717 West 6 th Street | | |
| | Suite 400 | | |
| | City | Austin | State TX ZIP 78703 ZIP + 4 |
| 16. Country Mailing Information (if outside USA) | | 17. E-Mail Address (if applicable) | |
| | | murphy@aquilacommercial.com | |
| 18. Telephone Number | 19. Extension or Code | 20. Fax Number (if applicable) | |
| (512) 684-3702 | | () - | |

SECTION III: Regulated Entity Information

| | |
|---|--|
| 21. General Regulated Entity Information (If 'New Regulated Entity' is selected below this form should be accompanied by a permit application) | |
| <input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information | |
| The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency 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.) | |
| Highway 195 Business Park | |

| | | | | | | | | |
|---|-------------|------------|-------|----|-----|-------|---------|--|
| 23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i> | 3000 SH 195 | | | | | | | |
| | City | Georgetown | State | TX | ZIP | 78633 | ZIP + 4 | |
| 24. County | | | | | | | | |

Enter Physical Location Description if no street address is provided.

| | | | | | | | | | |
|---|--|---------|--|---------------------------------------|--|-------|------------------|--|-------|
| 25. Description to Physical Location: | Located on Highway 195 at the intersection of County Road 147, south of Sun City Blvd. | | | | | | | | |
| 26. Nearest City | Georgetown | | | | State | TX | Nearest ZIP Code | | 78633 |
| 27. Latitude (N) In Decimal: | 30.735202 | | | 28. Longitude (W) In Decimal: | -97.685085 | | | | |
| Degrees | Minutes | Seconds | Degrees | Minutes | Seconds | | | | |
| 30 | 44 | 6.73 | -97 | 41 | 6.31 | | | | |
| 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) | | | | |
| | | | 339999 | | | | | | |
| 33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i> | | | | | | | | | |
| | | | | | | | | | |
| 34. Mailing Address: | 1717 West 6 th Street | | | | | | | | |
| | Suite 400 | | | | | | | | |
| | City | Austin | State | TX | ZIP | 78703 | ZIP + 4 | | |
| 35. E-Mail Address: | murphy@aquilacommercial.com | | | | | | | | |
| 36. Telephone Number | 37. Extension or Code | | | 38. Fax Number <i>(if applicable)</i> | | | | | |
| (512) 684-3702 | | | | () - | | | | | |

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

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

SECTION IV: Preparer Information

| | | | |
|----------------------|---------------|----------------|--------------------------|
| 40. Name: | Addison Skrla | 41. Title: | Project Manager |
| 42. Telephone Number | 43. Ext./Code | 44. Fax Number | 45. E-Mail Address |
| (512) 344-9664 | | () - | askrla@2pconsultants.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: | 2P Consultants, LLC | Job Title: | Project Manager |
| Name <i>(In Print)</i> : | Addison Skrla | Phone: | (512) 344- 9664 |
| Signature: |  | Date: | 04-02-2025 |

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER

POLLUTION ABATEMENT PLAN

GENERAL CONSTRUCTION NOTES

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES - LEGAL DISCLAIMER

THE FOLLOWING LISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR (ED), NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION.

FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TECQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE (TAC), CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWING LISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE ED, THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT, CORRECT, OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLLUTION OF THE EDWARDS AQUIFER OR HYDROLOGICALLY CONNECTED SURFACE WATERS.

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TECQ 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 TECQ 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 IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TECQ 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 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 TECQ 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 EDWARDS 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.

Table with 2 columns: AUSTIN REGIONAL OFFICE and SAN ANTONIO REGIONAL OFFICE. Includes addresses, phone numbers, and fax numbers for both offices.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

WATER DISTRIBUTION SYSTEM

GENERAL CONSTRUCTION NOTES

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TECQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 299 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS, AT A MINIMUM, MEET TECQ'S RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS.

2. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61-G AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI, AS REQUIRED BY 30 TAC §290.44(A)(1).

3. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL (NSF PW-G) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS, AS REQUIRED BY 30 TAC §290.44(A)(2).

4. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY, AS REQUIRED BY 30 TAC §290.44(A)(3).

5. ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR, AS REQUIRED BY 30 TAC §290.44(E)(4)(B).

6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE, AS REQUIRED BY 30 TAC §290.44(A)(4).

7. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT, AS REQUIRED BY 30 TAC §290.44(B).

8. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL, OR AN ACCEPTABLE EQUIVALENT, AS REQUIRED BY 30 TAC §290.44(D)(1).

9. THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION, AS REQUIRED BY 30 TAC §290.44(F)(1).

10. WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATERLINE SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED, AS REQUIRED BY 30 TAC §290.44(F)(1).

11. PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.

• THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

Q = LD * sqrt(P / 148,000)

WHERE:

Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR, L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET, D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

• THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

L = SD * sqrt(P / 148,000)

WHERE:

L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR, S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET, D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

12. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIAL UTILIZED MUST MEET 30 TAC §290.44(E)(1)-(4).

13. THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT, AS REQUIRED BY 30 TAC §290.44(E)(5).

14. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION, AS REQUIRED BY 30 TAC §290.44(E)(6).

15. SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE, AS REQUIRED BY 30 TAC §290.44(E)(7).

16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS, AS REQUIRED BY 30 TAC §290.44(E)(8).

17. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C-651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK FOR EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER, AS REQUIRED BY 30 TAC §290.44(F)(3).

18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

TPDES / SWPPP

A STORMWATER POLLUTION PREVENTION PLAN, AS REQUIRED BY THE STATE OF TEXAS UNDER THE TPDES STATUTES, IS REQUIRED FOR THIS PROJECT. THE SWPPP MUST BE FILED AND AVAILABLE FOR INSPECTION ON-SITE. PROJECT INFO & CONTACT NAME SHALL BE POSTED IN A PUBLIC PLACE AT THE MAIN GATE / CONSTRUCTION ENTRANCE. THE NOTICE OF INTENT (NOI) SHALL BE FILED WITH T.C.E.Q. AND A COPY GIVEN TO THE CITY OF GEORGETOWN. NO WORK SHALL BE STARTED BEFORE ALL ASPECTS OF THE SWPPP ARE IN PLACE. ALL REGULATIONS ON THE SWPPP SHALL BE STRICTLY FOLLOWED OR THE CONTRACTOR WILL BE SUBJECT TO SERIOUS FINES. CONTRACTOR INFORMATION:

CONTRACTOR: CONTRACTOR PHONE NUMBER:

GENERAL NOTES: (CITY)

- 1. THESE CONSTRUCTION PLANS WERE PREPARED, SEALED, SIGNED AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE, BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE CONSTRUCTION PLANS FOR CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL REQUIREMENTS AND CODES.
2. THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT TO THE CITY.
3. THIS SITE CONSTRUCTION PLANS SHALL MEET ALL REQUIREMENTS OF THE APPROVED SITE PLAN.
4. WASTEWATER MAINS AND SERVICE LINES SHALL BE SDR 26 PVC.
5. WASTEWATER MAINS SHALL BE INSTALLED WITHOUT HORIZONTAL OR VERTICAL BENDS.
6. MAXIMUM DISTANCE BETWEEN MANHOLES IS 500 FEET.
7. WASTEWATER MAINS SHALL BE LOW PRESSURE AIR TEST AND MANDREL TESTED BY THE CONTRACTOR ACCORDING TO CITY OF GEORGETOWN AND TECQ REQUIREMENTS.
8. WASTEWATER MANHOLES SHALL BE VACUUM TESTED AND COATED BY CONTRACTOR ACCORDING TO THE CITY OF GEORGETOWN AND TECQ REQUIREMENTS.
9. WASTEWATER MAINS SHALL BE CAMERA TESTED BY THE CONTRACTOR AND SUBMITTED TO THE CITY OF GEORGETOWN DVD FORMAT PRIOR TO PAVING THE STREETS.
10. PRIVATE WATER SYSTEM FIRE LINES SHALL BE TESTED BY CONTRACTOR TO 200 PSI FOR 2 HOURS.
11. PRIVATE WATER SYSTEM FIRE LINES SHALL BE DUCTILE IRON PIPING FROM THE WATER MAIN TO THE BUILDING SPRINKLER SYSTEM, AND 200 PSI C900 PVC FOR ALL OTHERS.
12. PUBLIC WATER SYSTEM MAINS SHALL BE 150 PSI C900 PVC AND TESTED BY THE CONTRACTOR AT 150 PSI FOR 4 HOURS.
13. ALL BENDS AND CHANGES IN DIRECTION ON WATER MAINS SHALL BE RESTRAINED AND THRUST BLOCKED.
14. LONG FIRE HYDRANT LEAD SHALL BE RESTRAINED.
15. ALL WATER LINES ARE TO BE BACTERIA TESTED BY THE CONTRACTOR ACCORDING TO THE CITY STANDARDS AND SPECIFICATIONS.
16. WATER AND SEWER MAIN CROSSINGS SHALL MEET ALL REQUIREMENTS OF TECQ AND THE CITY.
17. FLEXIBLE BASE MATERIAL FOR PUBLIC STREETS SHALL BE TxDOT TYPE A GRADE 1.
18. HOT MIX ASPHALT CONCRETE PAVEMENT SHALL BE TYPE D UNLESS OTHERWISE SPECIFIED AND SHALL BE A MINIMUM OF 2 INCHES THICK ON PUBLIC STREETS AND ROADS.
19. ALL SIDEWALK RAMPS ARE TO BE INSTALLED WITH THE PUBLIC INFRASTRUCTURE.
20. A MAINTENANCE BOND IS REQUIRED TO BE SUBMITTED TO THE CITY PRIOR TO ACCEPTANCE OF THE PUBLIC IMPROVEMENT. THIS BOND SHALL BE ESTABLISHED FOR 2 YEARS IN THE AMOUNT OF 10% OF THE COST OF THE PUBLIC IMPROVEMENTS AND SHALL FOLLOW THE CITY FORMAT.
21. RECORD DRAWINGS OF THE PUBLIC IMPROVEMENTS SHALL BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER PRIOR TO ACCEPTANCE OF THE PROJECT. THESE DRAWINGS SHALL BE ON TIF OR PDF (300dpi).

GENERAL NOTES: (CITY)

PRIOR TO CONSTRUCTION ABOVE THE SLAB, PROVIDE AN ALL-WEATHER DRIVE SURFACE OF ASPHALT OR CONCRETE OR CHIP SEAL PLACED ONTO BASE MATERIAL ENGINEERED TO WITHSTAND 75,000 LBS. AN ACCEPTANCE INSPECTION BY FIRE INSPECTIONS IS REQUIRED. 2012 IFC 503 AND D102.1

FIRE PROTECTION NOTES

- 1. APPROVAL OF THIS SITE PLAN DOES NOT IMPLY APPROVAL TO INSTALL UNDERGROUND FIRE LINES. PRIOR TO INSTALLATION OF UNDERGROUND FIRE LINES, A SEPARATE PERMIT SHALL BE SUBMITTED, UNDER GROUND FIRE LINE SUPPLY.
2. BACKFLOW PROTECTION WILL BE PROVIDED IN ACCORDANCE WITH THE CITY OF GEORGETOWN REQUIREMENTS WHEN REQUIRED. BACKFLOW PROTECTION WILL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED IN THE UTILITY DRAWINGS.
3. ALL PRIVATE FIRE LINES AND WHAT THEY PROVIDE SERVICE TO WILL BE INSTALLED IN ACCORDANCE WITH NFPA 24 INSTALLATION OF PRIVATE SERVICE MAINS AND THEIR APPURTENANCES.
4. ALL TEES, PLUGS, CAPS, BENDS, REDUCERS, VALVES SHALL BE RESTRAINED AGAINST MOVEMENT. THRUST BLOCKING AND JOINT RESTRAINED WILL BE INSTALLED IN ACCORDANCE WITH NFPA 24.
5. ALL UNDERGROUND SHALL REMAIN UNCOVERED UNTIL A VISUAL INSPECTION IS CONDUCTED BY THE GEORGETOWN FIRE MARSHAL'S OFFICE (FMO). ALL JOINT RESTRAINTS AND THRUST BLOCKING SHALL BE UNCOVERED FOR VISUAL INSPECTION.
6. ALL UNDERGROUND SHALL BE FLUSHED PER THE REQUIREMENTS OF NFPA STANDARD 24 AND WITNESSED BY GEORGETOWN FMO.
7. ALL UNDERGROUND SHALL PASS A HYDROSTATIC TEST WITNESSED BY GEORGETOWN FMO. ALL JOINTS SHALL BE UNCOVERED FOR HYDROSTATIC TESTING. ALL PIPING AND ATTACHMENTS SUBJECTED TO SYSTEM WORKING PRESSURE SHALL BE TESTED AT 200 PSI, OR 50 PSI MORE THAN THE SYSTEM WORKING PRESSURE, WHICHEVER IS GREATER, AND SHALL MAINTAIN THAT PRESSURE + OR - 5 PSI FOR 2 HOURS.
8. FENCES, LANDSCAPING, AND OTHER ITEMS WILL NOT BE INSTALLED WITHIN 3 FT. AND WHERE THEY WILL OBSTRUCT THE VISIBILITY OR ACCESS TO HYDRANTS, OR REMOTE FDs.
9. LICENSE REQUIREMENTS OF EITHER RME-U OR G. WHEN CONNECTING BY UNDERGROUND TO THE WATER PURVEYOR'S MAIN FROM THE POINT OF CONNECTION OR VALVE WHERE THE PRIMARY PURPOSE OF WATER IS FOR FIRE PROTECTION SPRINKLER SYSTEM.
10. THE FIRE CODE, SECTION LA- 507.5.7 CITY OF GEORGETOWN FIRE HYDRANT COLOR CODE SYSTEM, IS HEREBY ADDED TO READ AS FOLLOWS:
• LA-507.5.7 CITY OF GEORGETOWN FIRE HYDRANT COLOR CODE SYSTEM. PRIVATE FIRE HYDRANT MAINTENANCE SHALL BE IN ACCORDANCE WITH NFPA 291.
a. ALL PRIVATE HYDRANT BARRELS WILL BE PAINTED RED WITH THE BONNET PAINTED USING THE HYDRANT FLOW STANDARD IN PARAGRAPH C OF THIS SECTION TO INDICATE FLOW. IT WILL BE THE CUSTOMER'S RESPONSIBILITY TO TEST AND MAINTAIN THEIR PRIVATE FIRE HYDRANT(S).
b. ALL PRIVATE FIRE HYDRANTS SHOULD BE INSPECTED, MAINTAINED, AND FLOW TESTED ANNUALLY, AND COLOR CODED TO INDICATE THE EXPECTED FIRE FLOW FROM THE HYDRANT DURING NORMAL OPERATION. SUCH COLOR APPLIED TO THE FIRE HYDRANT BY PAINTING THE BONNET THE APPROPRIATE COLOR FOR THE EXPECTED FLOW CONDITION.
c. HYDRANT FLOW CODING STANDARDS. PUBLIC HYDRANTS BARRELS WILL BE PAINTED SILVER, THE HYDRANTS WILL BE FLOW TESTED, AND THE BONNET PAINTED USING THE HYDRANT FLOW STANDARD IN AS FOLLOWS: AT 20 PSI RESIDUAL.
FLOW COLOR
GREATER THAN 1500 GPM BLUE
1000- 1500 GPM GREEN
500-999 GPM ORANGE
LESS THAN 500 GPM RED
d. AT THE CONCLUSION OF CONSTRUCTION FIRE HYDRANTS SHALL BE FLOW TESTED AND COLOR CODED IN ACCORDANCE WITH CITY'S STANDARDS, AND RESULTS SHALL BE EMAILED TO THE FIRE DEPARTMENT. IFC- LA-507.5.7 FIRE HYDRANT SYSTEMS.

CONSTRUCTION SEQUENCING

- 1. SCHEDULE A PRE-CONSTRUCTION MEETING WITH CITY ENGINEERING DEPARTMENT PRIOR TO ANY SITE CONSTRUCTION. TWO DAY (48 HR) NOTICE IS REQUIRED.
2. CALL FOR UTILITY LOCATES (811).
3. REVIEW TEMPORARY EROSION AND SEDIMENT CONTROL NOTES.
4. INSTALL TESC MEASURES AND MAINTAIN DUST CONTROL WHILE PREVENTING DISTURBANCE OF ANY AREAS OF VEGETATION OUTSIDE THE CONSTRUCTION ZONE (ALL TEMPORARY SEDIMENTATION AND EROSION CONTROL MEASURES MUST BE IN PLACE AND INSPECTED PRIOR TO ANY CONSTRUCTION OR SITE CLEARING. EROSION AND SEDIMENTATION CONTROL PRACTICES AND/OR DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED).
a. TEMPORARY EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSTALLED AS INDICATED ON THE APPROVED SITE PLAN, SUBDIVISION CONSTRUCTION PLAN OR STORMWATER PLAN AND IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
b. THE SWPPP IS REQUIRED TO BE POSTED ON THE SITE.
c. INSTALL TREE PROTECTION AND INITIATE TREE MITIGATION MEASURES.
d. HAVE THE EROSION CONTROL MEASURES AND TREE PROTECTION INSPECTED BY CITY INSPECTOR.
5. BEGIN DEMOLITION, CLEARING AND/OR SITE CONSTRUCTION ACTIVITIES.
6. ROUGH GRADE SITE AS REQUIRED TO INSTALL STORMWATER DETENTION FACILITIES.
a. COMPLETE GRADING OF STORMWATER PONDS.
b. STABILIZATION AND VEGETATION OF POND BOTTOM, SIDESLOPES AND OUTLETS TO BE COMPLETED WITHIN 7 DAYS OF POND GRADING.
c. DETENTION FACILITIES SHALL BE MAINTAINED, INCLUDING REMOVAL OF ANY EXCESS SILT, THROUGHOUT SITE CONSTRUCTION PROCESS.
7. CLEAR, GRUB & ROUGH GRADE REMAINING SITE. STABILIZE AND REVEGETATE DISTURBED AREAS NOT SUBJECT TO ADDITIONAL SURFACE DISTURBANCE IMMEDIATELY AFTER ROUGH GRADING.
8. INSTALL SUBSURFACE UTILITIES.
9. COMPLETE SITE CONSTRUCTION AND START REVEGETATION.
a. UPON COMPLETION OF THE SITE CONSTRUCTION AND REVEGETATION, THE DESIGN ENGINEER SHALL SUBMIT AN ENGINEER'S LETTER OF CONCURRENCE TO THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT INDICATING THAT CONSTRUCTION, INCLUDING REVEGETATION, IS COMPLETE AND IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED PLANS.
b. AFTER RECEIVING THIS LETTER, A FINAL INSPECTION WILL BE SCHEDULED BY THE CITY INSPECTOR.
10. AFTER CONSTRUCTION IS COMPLETE AND ALL DISTURBED AREAS HAVE BEEN REVEGETATED PER PLAN TO AT LEAST 90 PERCENT ESTABLISHED, REMOVE THE TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND COMPLETE ANY NECESSARY FINAL REVEGETATION RESULTING FROM REMOVAL OF THE CONTROLS. CONDUCT ANY MAINTENANCE AND REHABILITATION OF THE STORMWATER PONDS OR CONTROLS.

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512.344.9664
TBPE FIRM #F-19351
DRAWN: DO
DESIGNED: NMO
REVIEWED: VALUE



9/12/2023

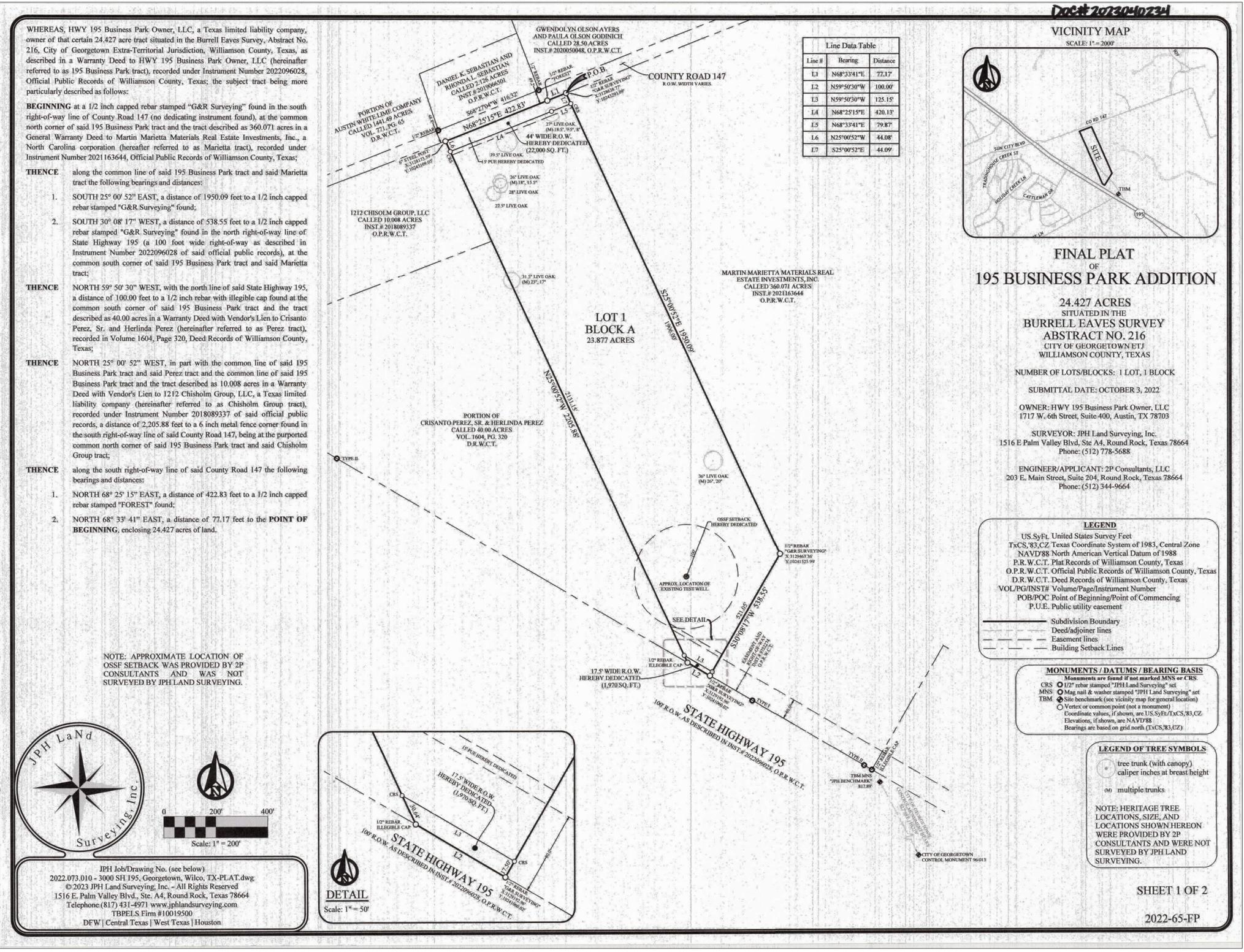
Table with 3 columns: NO., DATE, REVISIONS.

AQUILA
EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

GENERAL NOTES

PERMIT No. ---
SHEET No. 2 OF 56

DATE: 2022-07-10
 DRAWN BY: JPH
 CHECKED BY: JPH
 PLOTTED BY: JPH



WHEREAS, HWY 195 Business Park Owner, LLC, a Texas limited liability company, owner of that certain 24.427 acre tract situated in the Burrell Eaves Survey, Abstract No. 216, City of Georgetown Extra-Territorial Jurisdiction, Williamson County, Texas, as described in a Warranty Deed to HWY 195 Business Park Owner, LLC (hereinafter referred to as 195 Business Park tract), recorded under Instrument Number 2022096028, Official Public Records of Williamson County, Texas; the subject tract being more particularly described as follows:

BEGINNING at a 1/2 inch capped rebar stamped "G&R Surveying" found in the south right-of-way line of County Road 147 (no dedicating instrument found), at the common north corner of said 195 Business Park tract and the tract described as 360.071 acres in a General Warranty Deed to Martin Marietta Materials Real Estate Investments, Inc., a North Carolina corporation (hereafter referred to as Marietta tract), recorded under Instrument Number 2021163644, Official Public Records of Williamson County, Texas;

THENCE along the common line of said 195 Business Park tract and said Marietta tract the following bearings and distances:

- SOUTH 25° 00' 52" EAST, a distance of 1950.09 feet to a 1/2 inch capped rebar stamped "G&R Surveying" found;
- SOUTH 30° 08' 17" WEST, a distance of 538.55 feet to a 1/2 inch capped rebar stamped "G&R Surveying" found in the north right-of-way line of State Highway 195 (a 100 foot wide right-of-way as described in Instrument Number 2022096028 of said official public records), at the common south corner of said 195 Business Park tract and said Marietta tract;

THENCE NORTH 59° 50' 30" WEST, with the north line of said State Highway 195, a distance of 100.00 feet to a 1/2 inch rebar with illegible cap found at the common south corner of said 195 Business Park tract and the tract described as 40.00 acres in a Warranty Deed with Vendor's Lien to Crisanto Perez, Sr. and Herlinda Perez (hereafter referred to as Perez tract), recorded in Volume 1604, Page 320, Deed Records of Williamson County, Texas;

THENCE NORTH 25° 00' 52" WEST, in part with the common line of said 195 Business Park tract and said Perez tract and the common line of said 195 Business Park tract and the tract described as 10.008 acres in a Warranty Deed with Vendor's Lien to 1212 Chisholm Group, LLC, a Texas limited liability company (hereinafter referred to as Chisholm Group tract), recorded under Instrument Number 2018089337 of said official public records, a distance of 2,205.88 feet to a 6 inch metal fence corner found in the south right-of-way line of said County Road 147, being at the purported common north corner of said 195 Business Park tract and said Chisholm Group tract;

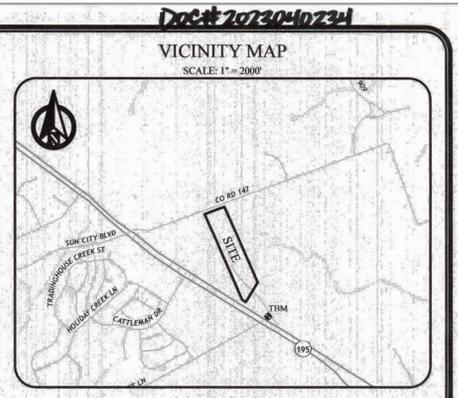
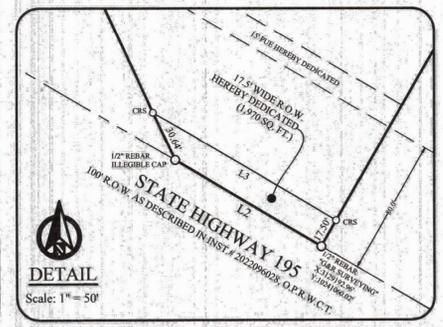
THENCE along the south right-of-way line of said County Road 147 the following bearings and distances:

- NORTH 68° 25' 15" EAST, a distance of 422.83 feet to a 1/2 inch capped rebar stamped "FOREST" found;
- NORTH 68° 33' 41" EAST, a distance of 77.17 feet to the **POINT OF BEGINNING**, enclosing 24.427 acres of land.

NOTE: APPROXIMATE LOCATION OF OSSF SETBACK WAS PROVIDED BY 2P CONSULTANTS AND WAS NOT SURVEYED BY JPH LAND SURVEYING.

Scale: 1" = 200'

JPH Land Surveying, Inc.
 2022.073.010 - 3000 SH 195, Georgetown, Wilco, TX-PLAT.dwg
 © 2023 JPH Land Surveying, Inc. - All Rights Reserved
 1516 E. Palm Valley Blvd., Ste. A4, Round Rock, Texas 78664
 Telephone (817) 431-4971 www.jphlandsurveying.com
 TBRELS, Firm #10019500
 DFW | Central Texas | West Texas | Houston



FINAL PLAT
OF
195 BUSINESS PARK ADDITION

24.427 ACRES
SITUATED IN THE
BURRELL EAVES SURVEY
ABSTRACT NO. 216
CITY OF GEORGETOWN ETJ
WILLIAMSON COUNTY, TEXAS

NUMBER OF LOTS/BLOCKS: 1 LOT, 1 BLOCK
SUBMITTAL DATE: OCTOBER 3, 2022

OWNER: HWY 195 Business Park Owner, LLC
1717 W. 6th Street, Suite 400, Austin, TX 78703

SURVEYOR: JPH Land Surveying, Inc.
1516 E Palm Valley Blvd, Ste A4, Round Rock, Texas 78664
Phone: (512) 778-5688

ENGINEER/APPLICANT: 2P Consultants, LLC
203 E. Main Street, Suite 204, Round Rock, Texas 78664
Phone: (512) 344-9664

LEGEND

US.Sy.Ft. United States Survey Feet
 TxCS, 83.CZ Texas Coordinate System of 1983, Central Zone
 NAVD88 North American Vertical Datum of 1988
 P.R.W.C.T. Plat Records of Williamson County, Texas
 O.P.R.W.C.T. Official Public Records of Williamson County, Texas
 D.R.W.C.T. Deed Records of Williamson County, Texas
 VOL/P/PG/INST# Volume/Page/Instrument Number
 POB/POC Point of Beginning/Point of Commencing
 P.U.E. Public utility easement

Subdivision Boundary
 Deed/adjointer lines
 Easement lines
 Building Setback Lines

MONUMENTS / DATUMS / BEARING BASIS

Monuments are found if not marked MNS or CRS
 CRS 1/2" rebar stamped "JPH Land Surveying" set
 MNS Mag nail & washer stamped "JPH Land Surveying" set
 TBM Site benchmark (see vicinity map for general location)
 V Vertex or common point (not a monument)
 Coordinate values, if shown, are U.S.Sy.Ft./TxCS, 83.CZ
 Elevations, if shown, are NAVD88
 Bearings are based on grid north (TxCS, 83.CZ)

LEGEND OF TREE SYMBOLS

tree trunk (with canopy)
 caliper inches at breast height
 multiple trunks

NOTE: HERITAGE TREE LOCATIONS, SIZE, AND LOCATIONS SHOWN HEREON WERE PROVIDED BY 2P CONSULTANTS AND WERE NOT SURVEYED BY JPH LAND SURVEYING.

SHEET 1 OF 2
2022-65-FP

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512-344-9664
TBPE FIRM #F-19351

DESIGNED BY: JPH
DRAWN BY: JPH
REVIEWED BY: JPH
REVIEWED VALUE: JPH

FOR INFORMATIONAL PURPOSES ONLY

RECORD NO. DATE REVISIONS

AQUILA

EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

FINAL PLAT (1 OF 2)

PERMIT No. ---
SHEET No. 3 OF 56

2022-26-SWP

Doc # 2023040234

- PLAT NOTES:**
- Utility providers for this development are Water: City of Georgetown, Wastewater/septic: On-site sewage facility, and Electric: Oncor Electric Delivery Company.
 - There are no areas within the boundaries of this subdivision in the 100-year floodplain as defined by FIRM Number 48491C0285F, effective date of December 20, 2019.
 - In order to promote drainage away from a structure, the slab elevation should be built at least one-foot above the surrounding ground, and the ground should be graded away from the structure at a slope of 1/2" per foot for a distance of at least 10 feet.
 - All sedimentation, filtration, detention, and/or retention basins and related appurtenances shown shall be situated within a drainage easement or drainage lot. The owners, HOA, or assignees of the tracts upon which are located such easements, appurtenances, and detention facilities shall maintain same and be responsible for their maintenance, routine inspection, and upkeep.
 - A 15-foot Public Utility Easement is required along major arterials and a 10-foot Public Utility Easement is required along local streets.
 - The monuments of this plat have been rotated to Texas Coordinate System of 1983, Central Zone and NAVD88. Distances and coordinates shown are scaled 1.0001075500 about 0.0.
 - The maximum impervious coverage per non-residential lot shall be pursuant to the UDC at the time of the Site Plan application based on the zoning designation of the property.
 - The landowner assumes all risks associated with improvements located in the right-of-way, or road widening easements. By placing anything in the right-of-way or road widening easements, the landowner indemnifies and holds the City of Georgetown, Williamson County, their officers, agents and employees harmless from any liability owing to property defects or negligence not attributable to them and acknowledges that the improvements may be removed by the City and/or County and that the owner of the improvements will be responsible for the relocation and/or replacement of the improvements.
 - The building of all streets, roads, and other public thoroughfares and any bridges or culverts necessary to be constructed or placed is the responsibility of the owners of the tract of land covered by this plat in accordance with the plans and specifications prescribed by the City of Georgetown and/or Williamson County, Texas. Neither the City of Georgetown nor Williamson County assumes any obligation to build any of the streets, roads, or other public thoroughfares shown on this plat or of constructing any of the bridges or drainage improvements in connection therewith. Neither the City of Georgetown nor Williamson County assumes any responsibility for drainage ways or easements in the subdivision, other than those draining or protecting the road system and streets in their respective jurisdictions.
 - Neither the City of Georgetown nor Williamson County assumes any responsibility for the accuracy of representations by other parties in this plat. Floodplain data, in particular, may change depending on subsequent development. It is further understood that the owners of the tract of land covered by this plat must install at their own expense all traffic control devices and signage that may be required before the streets in the subdivision have finally been accepted for maintenance by the City and/or County.
 - Right-of-way easements for widening roadways or improving drainage shall be maintained by the landowner until road or drainage improvements are actually constructed on the property. The City and/or County have the right at any time to take possession of any road widening easement for construction, improvement, or maintenance of the adjacent road.
 - Unless otherwise noted herein, all easements dedicated to the City of Georgetown by this plat shall be EXCLUSIVE to the City of Georgetown, and Grantor covenants that Grantor and Grantor's heirs, successors, and assigns shall not convey any other easement, license, or conflicting right to use in any manner, the area (or any portion thereof) covered by this grant.
 - All easements dedicated to the City of Georgetown by this plat additionally include the following rights: (1) the right of the City to change the size of any facilities installed, maintained, or operated within the easement area; (2) the right of the City to relocate any facilities within the easement area; and (3) the right of the City to remove from the easement area all trees and parts thereof, or other obstructions, which endanger or may interfere with the efficiency and maintenance of any facilities within the easement area.
 - This plat is subject to the provisions of the City of Georgetown Water Conservation Ordinance.
 - The subdivision subject to this application is subject to the Water Quality Regulations of the City of Georgetown.
 - A geologic assessment, in accordance with the City of Georgetown Water Quality Regulations, was completed on March 2021. No springs or streams were identified in the Geologic Assessment.
 - This subdivision may be subject to those easements described under Instrument Numbers 2019020592, 2019020599, 2019020604 & 2019082828, O.P.R.W.C.T.
 - It is the responsibility of the owner, not the county or the city of Georgetown, to assure compliance with the provisions of all applicable state, federal and local laws and regulations relating to the platting and development of this property.
 - All sidewalks shall be maintained by each of the adjacent property owners.
 - Maintenance responsibility for drainage will not be accepted by the county other than that accepted in connection with draining or protecting the road system; maintenance responsibility for storm water management controls will remain with the owner.
 - Any Heritage Tree as noted on this plat is subject, in perpetuity, to the maintenance, care, pruning and removal requirements of the City of Georgetown. Approved removal does not require modification of the plat.
 - Owner certifies that public roadways and easements to be dedicated, as shown on this plat, are free of liens.
 - No construction in the subdivision may begin until the Texas Commission on Environmental Quality (TCEQ) has approved the Water Pollution Abatement Plan (WPAP) in writing.
 - On-Site Sewage Facilities must be designed by a Registered Professional Engineer or Registered Sanitarian.

STATE OF TEXAS §
 COUNTY OF WILLIAMSON §
KNOW ALL MEN BY THESE PRESENTS

HWY 195 Business Park Owner, LLC, a Texas limited liability company acting by and through Michael Murphy, Manager, sole owner of the certain 24.427 acre tract of land shown hereon and described in a deed recorded in Document No. 2022096028 of the Official Public Records of Williamson County, Texas, do hereby certify that there are no easement holders except as shown hereon, do hereby subdivide said tract as shown hereon, and do hereby covenant to all restrictions listed herein, which shall run with the land; and do hereby dedicate to the County of Williamson the streets, alleys, rights-of-way, easements and public places shown hereon for such public purposes as the City of Georgetown may deem appropriate. I hereby bind my heirs, successors, and assigns to warrant and forever defend such dedications, all and singular, to the City of Georgetown against every person whomsoever claiming or to claim the same or any part thereof. This subdivision is to be known as 195 BUSINESS PARK ADDITION.

TO CERTIFY WHICH, WITNESS by my hand this 27th day of April, 2023.

By: HWY 195 Business Park Owner, LLC

Michael Murphy, Manager
 1717 W. 6th Street, Suite 400
 Austin, TX 78703

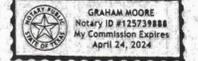
STATE OF TEXAS §
 COUNTY OF WILLIAMSON §
KNOW ALL MEN BY THESE PRESENTS

Before me, the undersigned, a notary public in and for said county and state, on this day personally appeared Michael Murphy, known to me to be the person whose name is subscribed to the foregoing instrument.

GIVEN UNDER MY HAND AND SEAL of office this 27th day of April, 2023.

Graham Moore
 (Notary Public's signature) Print Name
 Notary Public in and for the State of Texas

My Commission expires on: April 24, 2024



PLANNING DIRECTOR APPROVAL:
 I, Sofia Nelson, Planning Director of the City of Georgetown, Texas, do hereby certify this plat is approved for filing of record with the County Clerk of Williamson County, Texas.

Sofia Nelson, Planning Director
 City of Georgetown
 Date: 5/17/23

ENGINEER'S CERTIFICATION:
 I, Nelson Ogren, Licensed Professional Engineer in the State of Texas, do hereby certify that this subdivision is in the Edwards Aquifer Recharge Zone and is not encroached by a Zone A flood area, as denoted herein, and as defined by Federal Emergency Management Administration Flood Hazard Boundary Map, Community Panel Number 48491C0285F, effective date December 20, 2019, and that each lot conforms to the City of Georgetown regulations.

The fully developed, concentrated stormwater runoff resulting from the one hundred (100) year frequency storm is contained within the drainage easements shown and/or public rights-of-way dedicated by this plat.

TO CERTIFY WHICH, WITNESS by my hand and seal at the City of Georgetown, Williamson County, Texas, this 27th day of April, 2023.

Nelson W. Ogren
 Nelson W. Ogren
 Licensed Professional Engineer
 No. 136895 State of Texas

STATE OF TEXAS §
 COUNTY OF WILLIAMSON §
KNOW ALL MEN BY THESE PRESENTS

I, Chris Henderson, Registered Professional Land Surveyor in the State of Texas, do hereby certify that this plat is true and correctly made from an actual survey made on the ground of the property legally described hereon, and that the corner monuments shown thereon were properly placed under my supervision in accordance with the subdivision regulations of the City of Georgetown, Texas.

TO CERTIFY WHICH, WITNESS by my hand and seal at the City of Round Rock, Williamson County, Texas, this 27th day of April, 2023.

Chris Henderson
 Chris Henderson
 Registered Professional Surveyor
 No. 6831 State of Texas

PLANNING AND ZONING COMMISSION APPROVAL:
 This subdivision to be known as 195 BUSINESS PARK ADDITION has been accepted and approved for filing of record with the County Clerk of Williamson County, Texas, according to the minutes of the meeting of the Georgetown Planning and Zoning Commission on the 11th day of MAY, 2023, A.D.

Travis Perthuis, Chairman
 Date: 5/16/2023
Stephen Dickey, Secretary
 Date: 5/16/2023

ON-SITE SEWAGE FACILITY APPROVAL

Based upon the above representations of the engineer or surveyor whose seal is affixed hereto, and after a review of the survey as represented by the said engineer or surveyor, I find that this plat complies with the requirements of Edwards Aquifer Regulations for Williamson County and Williamson County On-Site Sewage Facility Regulations. This certification is made solely upon such representations and should not be relied upon for verifications of the facts alleged. The Williamson County Engineer's office and Williamson County disclaims any responsibility to any member of the public for independent verification of the representations, factual or otherwise, contained in this plat and the documents associated with it.

Roger Hillman, PE
 J. Teron Everson, PE, DR, CFM
 County Engineer
 Date: 4/24/2023

FLOODPLAIN ADMINISTRATOR APPROVAL

Based upon the representations of the Engineer or Surveyor whose seal is affixed hereto, and after review of the plat as represented by the said Engineer or Surveyor, I find that this plat complies with the Williamson County Floodplain Regulations. This certification is made solely upon such representations and should not be relied upon for verifications of the facts alleged. Williamson County disclaims any responsibility to any member of the public for independent verification of the representations, factual or otherwise, contained in this plat and the documents associated within it.

Solomon P. Boatright
 J. Teron Everson, PE, DR, CFM
 Williamson County Floodplain Administrator
 Date: 05/03/2023

STATE OF TEXAS §
 COUNTY OF WILLIAMSON §
KNOW ALL MEN BY THESE PRESENTS

I, Nancy E. Rister, Clerk of the County Court of said County, do hereby certify that the foregoing instrument in writing, with its certificate of authentication was filed for record in my office on the 16th day of MAY, 2023, A.D., at 1:00 o'clock A.M., and duly recorded this the 16th day of MAY, 2023, A.D., at 1:00 o'clock A.M., in the Official Public Records of said County in Document No. 2023040234.

TO CERTIFY WHICH, WITNESS my hand and seal at the County Court of said County, at my office in Georgetown, Texas, the date last shown above written.

Nancy Rister, Clerk County Court of Williamson County, Texas
 By: Diane Lam, Deputy

JPH Job/Drawing No. (see below)
 2022.073.010 - 3000 SH 195, Georgetown, Wilco, TX-PLAT.dwg
 © 2023 JPH Land Surveying, Inc. - All Rights Reserved
 1516 E. Palm Valley Blvd., Ste. A4, Round Rock, Texas 78664
 Telephone (817) 431-4971 www.jphlandsurveying.com
 TBPES Firm #10019500
 DFW | Central Texas | West Texas | Houston

FINAL PLAT
 OF
 195 BUSINESS PARK ADDITION

SHEET 2 OF 2
 2022-65-FP

MAKE SURE TO CHECK THE DATE OF THE PERMIT AND THE DATE OF THE PLAT. THE DATE OF THE PERMIT AND THE DATE OF THE PLAT MUST BE THE SAME. THE DATE OF THE PERMIT AND THE DATE OF THE PLAT MUST BE THE SAME. THE DATE OF THE PERMIT AND THE DATE OF THE PLAT MUST BE THE SAME.

2P CONSULTANTS, LLC
 203 E. MAIN STREET, SUITE 204
 ROUND ROCK, TEXAS 78664
 512.344.9664
 TBPES FIRM #19351

DRAWN DO
 DESIGNED NVO
 REVIEWED VALUE

FOR INFORMATIONAL PURPOSES ONLY

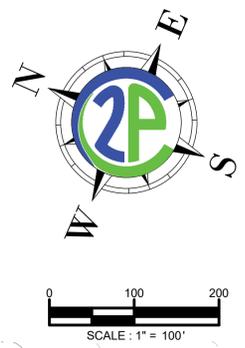
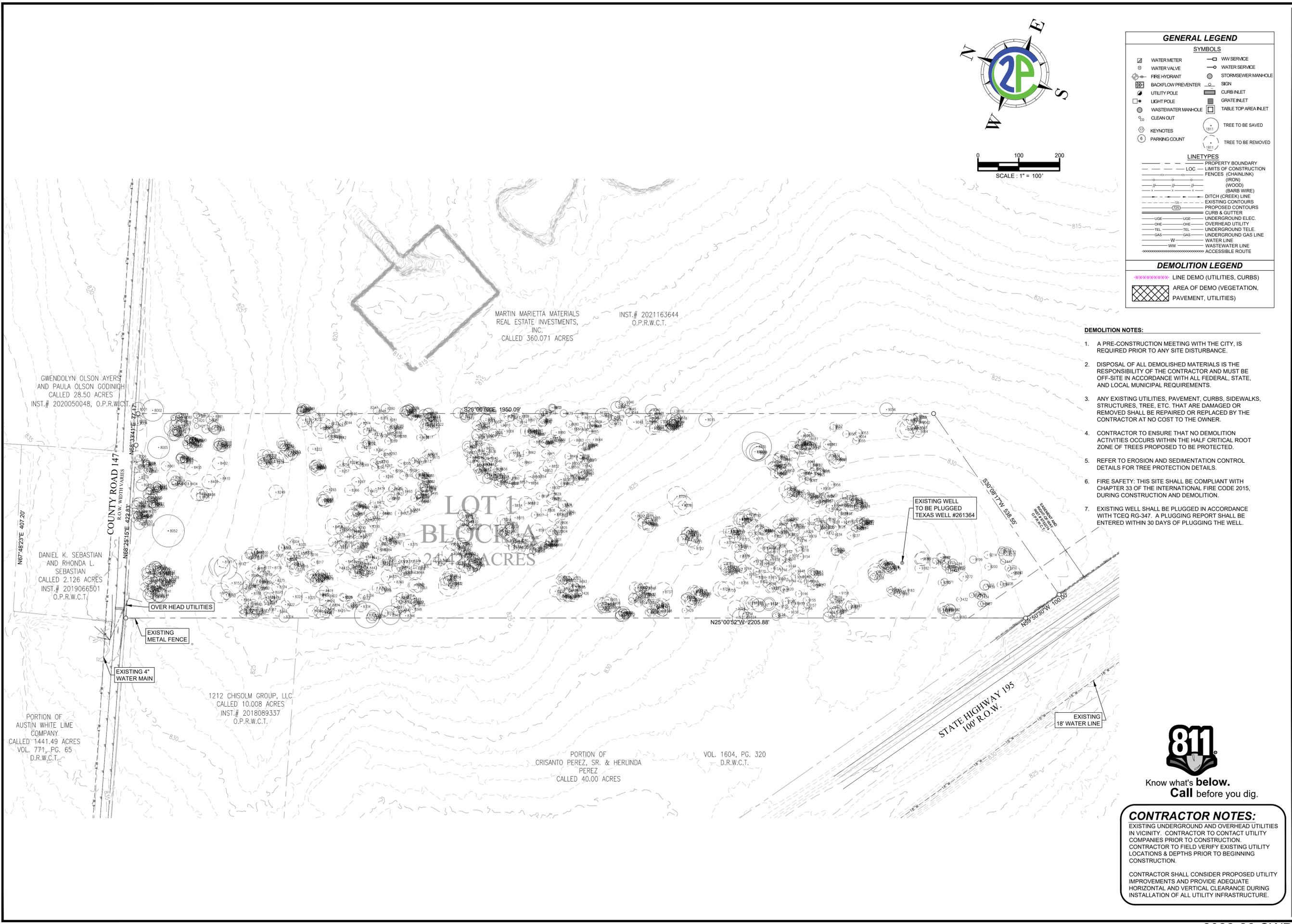
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AQUILA
 EXCHANGE 195
 STORMWATER PERMIT
 WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON
 COUNTY, TEXAS 78633

FINAL PLAT (2 OF 2)

PERMIT No. ---
 SHEET No. **4** OF 56

MADE BY: MWD, SPT, PIPING
 DATE: 11/15/2022
 PLOTTED BY: DEBRA ORTIZ



| GENERAL LEGEND | |
|-------------------|--|
| SYMBOLS | |
| | WATER METER |
| | WATER VALVE |
| | FIRE HYDRANT |
| | BACKFLOW PREVENTER |
| | UTILITY POLE |
| | LIGHT POLE |
| | CLEAN OUT |
| | KEYNOTES |
| | PARKING COUNT |
| | WW SERVICE |
| | WATER SERVICE |
| | STORM SEWER MAN-HOLE |
| | SIGN |
| | CURB INLET |
| | GRATE INLET |
| | TABLE TOP AREA INLET |
| | TREE TO BE SAVED |
| | TREE TO BE REMOVED |
| LINETYPES | |
| | PROPERTY BOUNDARY |
| | LIMITS OF CONSTRUCTION |
| | FENCES (CHAINLINK) |
| | (IRON) |
| | (WOOD) |
| | (BARB WIRE) |
| | DITCH (CREEK) LINE |
| | EXISTING CONTOURS |
| | PROPOSED CONTOURS |
| | CURB & GUTTER |
| | UNDERGROUND ELEC. |
| | OVERHEAD UTILITY |
| | UNDERGROUND TELE. |
| | UNDERGROUND GAS LINE |
| | WATER LINE |
| | WASTEWATER LINE |
| | ACCESSIBLE ROUTE |
| DEMOLITION LEGEND | |
| | LINE DEMO (UTILITIES, CURBS) |
| | AREA OF DEMO (VEGETATION, PAVEMENT, UTILITIES) |

DEMOLITION NOTES:

1. A PRE-CONSTRUCTION MEETING WITH THE CITY, IS REQUIRED PRIOR TO ANY SITE DISTURBANCE.
2. DISPOSAL OF ALL DEMOLISHED MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS.
3. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREE, ETC. THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
4. CONTRACTOR TO ENSURE THAT NO DEMOLITION ACTIVITIES OCCURS WITHIN THE HALF CRITICAL ROOT ZONE OF TREES PROPOSED TO BE PROTECTED.
5. REFER TO EROSION AND SEDIMENTATION CONTROL DETAILS FOR TREE PROTECTION DETAILS.
6. FIRE SAFETY: THIS SITE SHALL BE COMPLIANT WITH CHAPTER 33 OF THE INTERNATIONAL FIRE CODE 2015, DURING CONSTRUCTION AND DEMOLITION.
7. EXISTING WELL SHALL BE PLUGGED IN ACCORDANCE WITH TCEQ RG-347. A PLUGGING REPORT SHALL BE ENTERED WITHIN 30 DAYS OF PLUGGING THE WELL.

2P CONSULTANTS, LLC
 203 E. MAIN STREET, SUITE 204
 ROUND ROCK, TEXAS 78664
 512.344.9664
 TBPE FIRM #F-19351

DESIGNED: NWO
 DRAWN: DO
 REVIEWED: VALUE

NELSON W. OGREN
 136895
 LICENSED PROFESSIONAL ENGINEER

9/12/2023

| NO. | DATE | REVISIONS | RECORD |
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AQUILA
 EXCHANGE 195
 STORMWATER PERMIT
 WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

EXISTING CONDITIONS AND
 DEMOLITION PLAN

| | |
|------------|---------|
| PERMIT No. | --- |
| SHEET No. | 5 OF 56 |

Know what's below.
 Call before you dig.

CONTRACTOR NOTES:

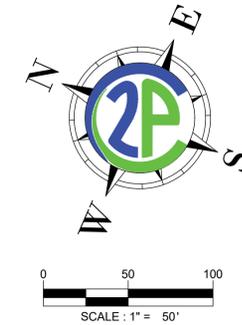
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.

CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

CITY OF AUSTIN E.C.M.
Temporary Sediment Pond

SEDIMENT POND NAME: **Temp Pond 1**
 DEVELOPED BASINS: **DEV-4 and DEV-7**
 DRAINAGE AREA DATA
 Drainage Area to Control (DA) **8.46 ac**
 WATER QUALITY CONTROL CALCULATIONS
 Sedimentation Volume
 Required **15,228 cf.** Provided **31,697 cf.**
 (WQV = DA*1800)
 Sedimentation Elevation **820.00 ft msl**
 Elevation of Splitter/Overflow Weir **820.00 ft msl**

| Stage (ft. msl) | Area (sf) | Height (ft) | Avg. End Area | Cumul. Vol. (cf) | Cumul. Vol. (ac-ft) |
|-----------------|-----------|-------------|---------------|------------------|---------------------|
| 817 | 100 | — | 0 | 0 | — |
| 818 | 6,163 | 1.00 | 3,450 | 3,450 | 0.0801 |
| 819 | 13,714 | 1.00 | 9,939 | 13,429 | 0.3083 |
| 820 | 22,822 | 1.00 | 18,268 | 31,697 | 0.7277 |



GENERAL LEGEND

SYMBOLS

- WATER METER
- WATER VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTER
- UTILITY POLE
- LIGHT POLE
- CLEAN OUT
- KEYNOTES
- PARKING COUNT
- WW SERVICE
- WATER SERVICE
- STORMSEWER MAN-HOLE
- SIGN
- CURB INLET
- GRATE INLET
- TABLE TOP AREA INLET
- TREE TO BE SAVED
- TREE TO BE REMOVED

LINE TYPES

- PROPERTY BOUNDARY
- LIMITS OF CONSTRUCTION
- FENCES (CHAINLINK)
- (IRON)
- (WOOD)
- (BARB WIRE)
- DITCH (CREEK) LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CURB & GUTTER
- UNDERGROUND ELEC.
- OVERHEAD UTILITY
- UNDERGROUND TELE.
- UNDERGROUND TELE.
- UNDERGROUND GAS LINE
- WATER LINE
- WASTEWATER LINE
- ACCESSIBLE ROUTE

EROSION & SEDIMENT CONTROL, TREE PROTECTION LEGEND

- LIMITS OF CONSTRUCTION
- TREE PROTECTION
- FENCING
- ROCK BERM
- SILT FENCE
- ORANGE MESH SAFETY FENCE
- INLET PROTECTION
- LOW POINT
- HIGH POINT
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY SPOILS SITE
- CONSTRUCTION STAGING AREA
- EROSION CONTROL BLANKET
- REVEGETATION AREA

NOTES:

- CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER CITY CODE, OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
- SILT FENCE TYPE AND INSTALLATION SHALL COMPLY WITH DETAIL.
- ALL DISTURBED AREAS SHALL BE REVEGETATED WITH NATIVE GRASSES (REFER TO NOTE SHEET FOR SPECS). ALL DISTURBED AREAS WITH SLOPES 5:1 OR STEEPER, WHICH ARE NOT ARMORED OTHERWISE, SHALL HAVE A SOIL RETENTION BLANKET (EXCELSIOR II OR APPROVED EQUAL) INSTALLED TO ASSIST WITH REVEGETATION.

DETAIL NUMBER # **DETAIL NAME** #

SHEET NUMBER # **WHERE DETAIL IS LOCATED** # **DETAIL REFERENCE CALLOUT** #

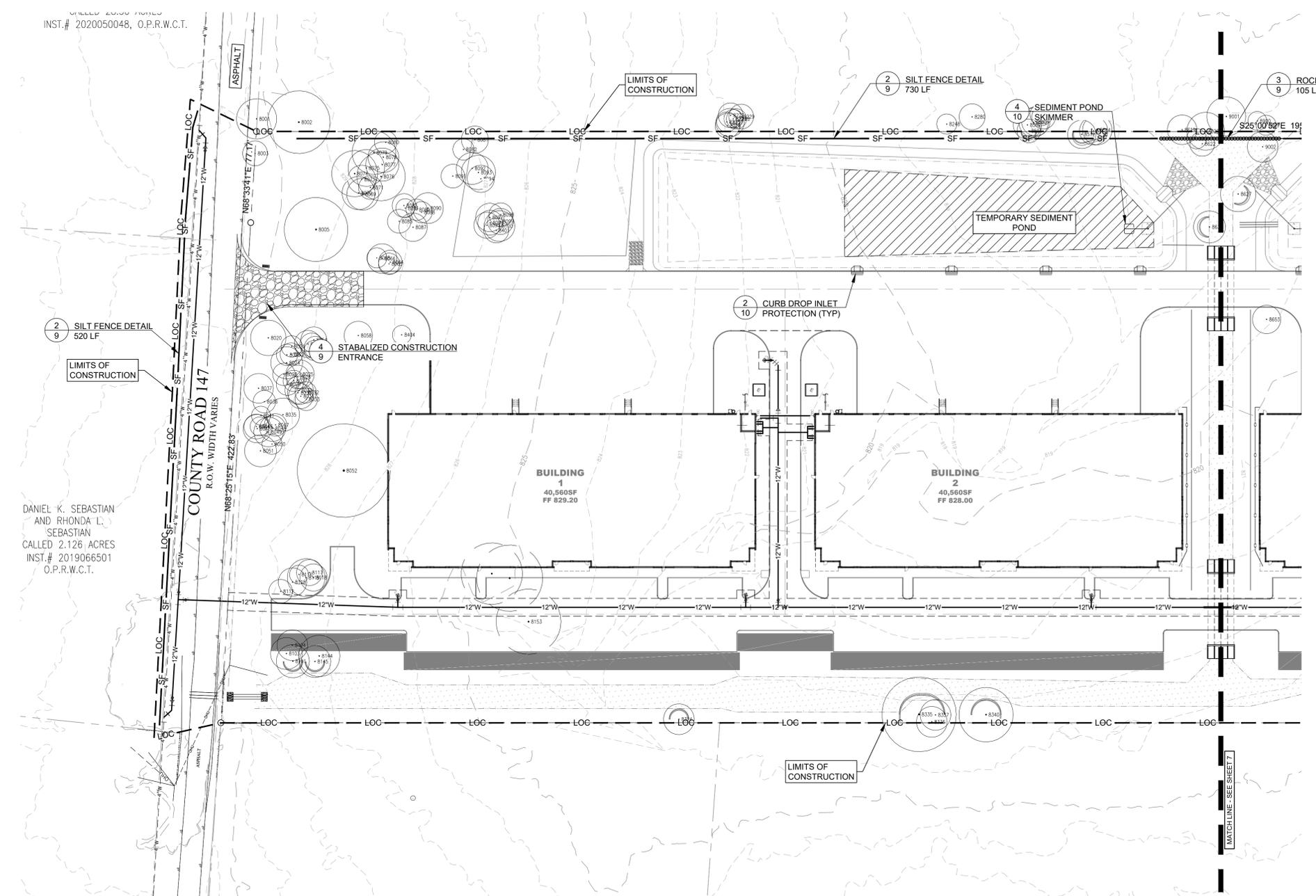
LIMITS OF CONSTRUCTION = 26.0 AC.

- EROSION AND SEDIMENTATION CONTROL NOTES:**
- EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK EROSION AND SEDIMENTATION CONTROL ORDINANCE.
 - ALL SLOPES SHALL BE SODDED OR SEEDDED WITH APPROVED GRASS, GRASS MIXTURES OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED.
 - SILT FENCES, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. SUCH INSTALLATION SHALL BE REGULARLY INSPECTED BY THE CITY OF ROUND ROCK FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE CITY ENGINEER, THEY ARE WARRANTED.
 - ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE ENGINEER.
 - ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.
 - TEMPORARY SEDIMENT PONDS TO BE GRADED TO DETENTION POND FINISHED GRADE. FOR CONSTRUCTION OF FINAL DETENTION PONDS, REMOVE ANY ACCUMULATED SEDIMENT AND OVEREXCAVATE FOR LINER, PER POND SECTION DETAIL.



Know what's below.
Call before you dig.

CONTRACTOR NOTES:
 EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION.
 CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
 CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.



DANIEL K. SEBASTIAN AND RHONDA L. SEBASTIAN CALLED 2.126 ACRES INST.# 2019066501 O.P.R.W.C.T.

MADE BY: NVO SITE PLANNING
 DRAWN BY: NVO SITE PLANNING
 DATE: 11/15/22
 PLOTTED BY: DEBRA ORTIZ

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512-344-9664
TBPE FIRM #F-19351

DESIGNED BY: NVO
DRAWN BY: DO
REVIEWED BY: VALUE

STATE OF TEXAS
Nelson W. Ogren
136895
Professional Engineer
9/12/2023

| NO. | DATE | REVISIONS |
|-----|------|-----------|
| | | |

AQUILA
EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

EROSION AND SEDIMENTATION CONTROL PLAN (1 OF 3)

PERMIT No. ---
SHEET No. **6** OF 56

CITY OF AUSTIN E.C.M.
Temporary Sediment Pond

SEDIMENT POND NAME: *Temp Pond 2*

DEVELOPED BASINS: *DEV-5, DEV-8 and DEV-9*

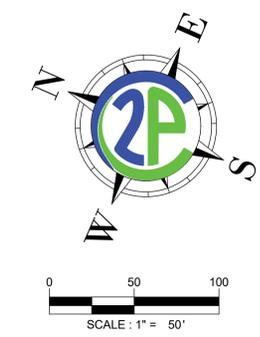
DRAINAGE AREA DATA
Drainage Area to Control (DA) **10.17 ac**

WATER QUALITY CONTROL CALCULATIONS

| | Required | Provided |
|--------------------------------------|---------------|---------------|
| Sedimentation Volume (WQV = DA*1800) | 18,306 cf | 31,697 cf |
| Sedimentation Elevation | 820.00 ft msl | |
| Elevation of Splitter/Overflow Weir | 820.00 ft msl | 820.00 ft msl |

Sedimentation Basin Volume

| Stage (ft. msl) | Area (sf) | Height (ft) | Avg. End Area | Cumul. Vol. (cf) | Cumul. Vol. (ac-ft) |
|-----------------|-----------|-------------|---------------|------------------|---------------------|
| 817 | 100 | 0 | 0 | 0 | 0.0801 |
| 818 | 6,163 | 1.00 | 3,490 | 3,490 | 0.3083 |
| 819 | 13,714 | 1.00 | 9,939 | 13,429 | 0.3083 |
| 820 | 22,822 | 1.00 | 18,268 | 31,697 | 0.7277 |



GENERAL LEGEND

SYMBOLS

- WATER METER
- WATER VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTER
- UTILITY POLE
- LIGHT POLE
- CLEAN OUT
- KEYNOTES
- PARKING COUNTOUR
- PROPERTY BOUNDARY
- LIMITS OF CONSTRUCTION
- FENCES (CHAINLINK)
- (IRON)
- (WOOD)
- (BARB WIRE)
- DITCH (CREEK) LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CURB & GUTTER
- UNDERGROUND ELEC.
- OVERHEAD UTILITY
- UNDERGROUND TELE.
- UNDERGROUND GAS LINE
- WATER LINE
- WASTEWATER LINE
- ACCESSIBLE ROUTE
- WWSERVICE
- WATER SERVICE
- STORMSEWER MANHOLE
- SIGN
- CURB INLET
- GRATE INLET
- TABLE TOP AREA INLET
- TREE TO BE SAVED
- TREE TO BE REMOVED

LINE TYPES

- PROPERTY BOUNDARY
- LIMITS OF CONSTRUCTION
- FENCES (CHAINLINK)
- (IRON)
- (WOOD)
- (BARB WIRE)
- DITCH (CREEK) LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CURB & GUTTER
- UNDERGROUND ELEC.
- OVERHEAD UTILITY
- UNDERGROUND TELE.
- UNDERGROUND GAS LINE
- WATER LINE
- WASTEWATER LINE
- ACCESSIBLE ROUTE

EROSION & SEDIMENT CONTROL, TREE PROTECTION LEGEND

- LIMITS OF CONSTRUCTION
- TREE PROTECTION
- FENCING
- ROCK BERM
- SILT FENCE
- ORANGE MESH SAFETY FENCE
- INLET PROTECTION
- LOW POINT
- HIGH POINT
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY SPOILS SITE
- CONSTRUCTION STAGING AREA
- EROSION CONTROL BLANKET
- REVEGETATION AREA

NOTES:

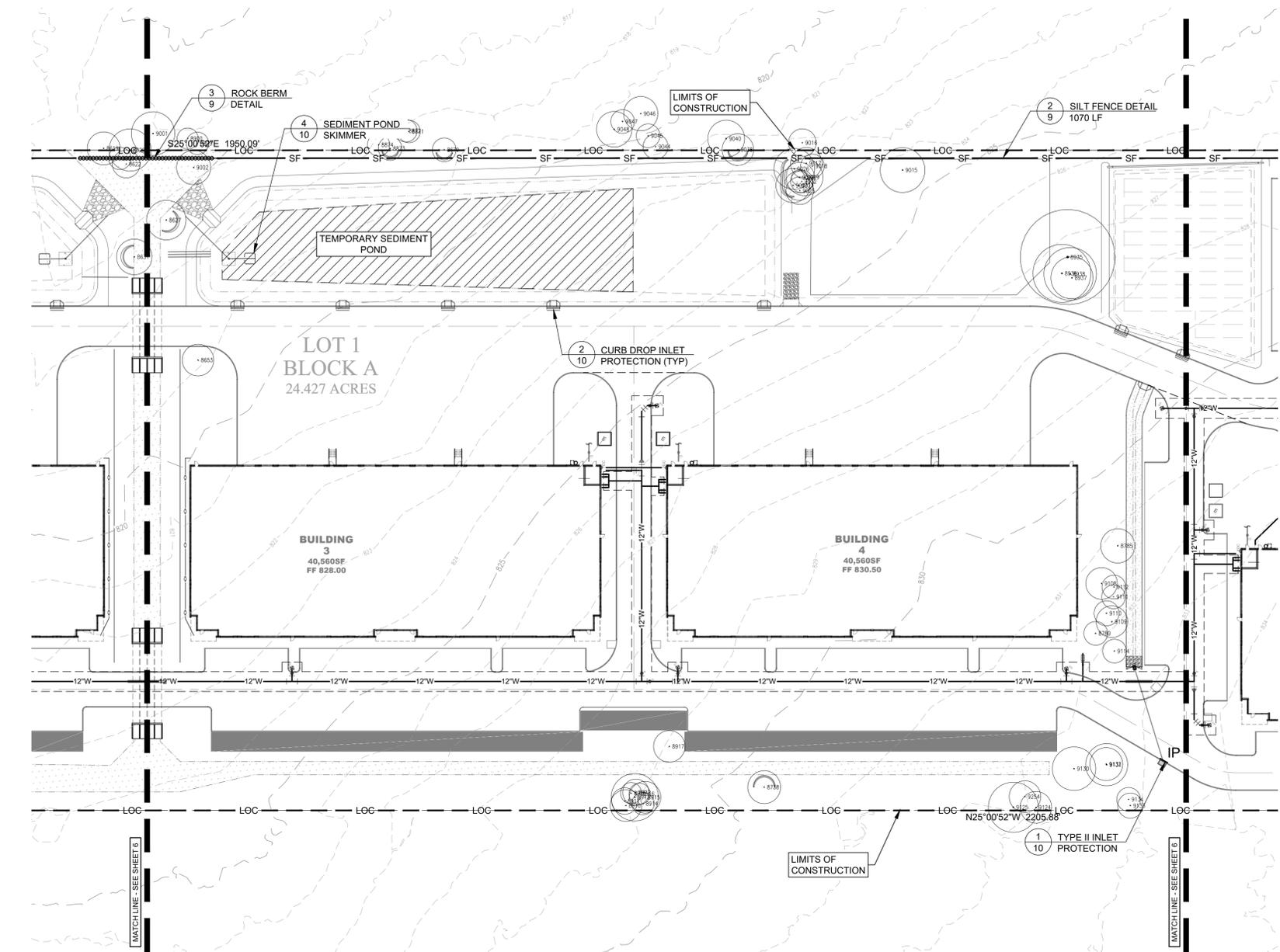
- CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHINGS PER CITY CODE, OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
- SILT FENCE TYPE AND INSTALLATION SHALL COMPLY WITH DETAIL.
- ALL DISTURBED AREAS SHALL BE REVEGETATED WITH NATIVE GRASSES (REFER TO NOTE SHEET FOR SPECS). ALL DISTURBED AREAS WITH SLOPES 5:1 OR STEEPER, WHICH ARE NOT ARMORED OTHERWISE, SHALL HAVE A SOIL RETENTION BLANKET (EXCELSIOR II OR APPROVED EQUAL) INSTALLED TO ASSIST WITH REVEGETATION.

DETAIL NUMBER SHEET NUMBER WHERE DETAIL IS LOCATED

DETAIL NAME

DETAIL REFERENCE CALLOUT

LIMITS OF CONSTRUCTION = 26.0 AC.



- EROSION AND SEDIMENTATION CONTROL NOTES:**
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CONTRACTOR NOTES:

EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.

CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

MODEL: N:\Projects\2022\2022-26-SWP\2022-26-SWP.dwg
 DATE: 11/15/2022
 PLOTTED BY: DORIS ORTIZ

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512-344-9664
TBP# FIRM #F-19351

DESIGNED: NVO
DRAWN: DO
REVIEWED: VALUE

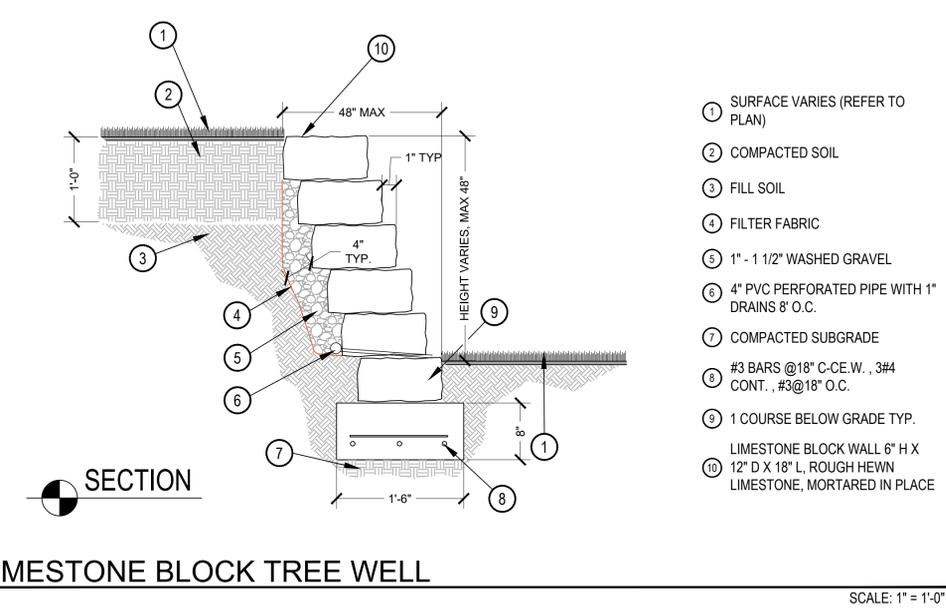
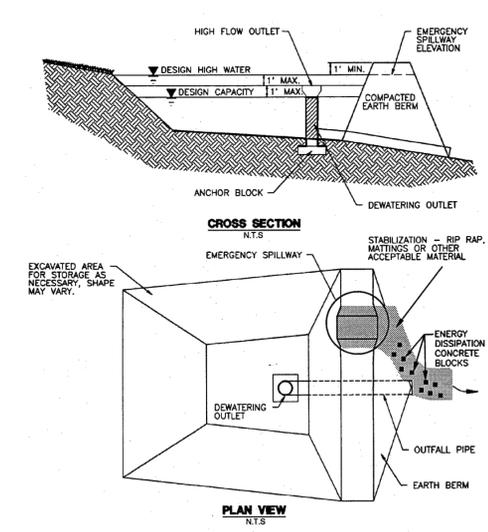
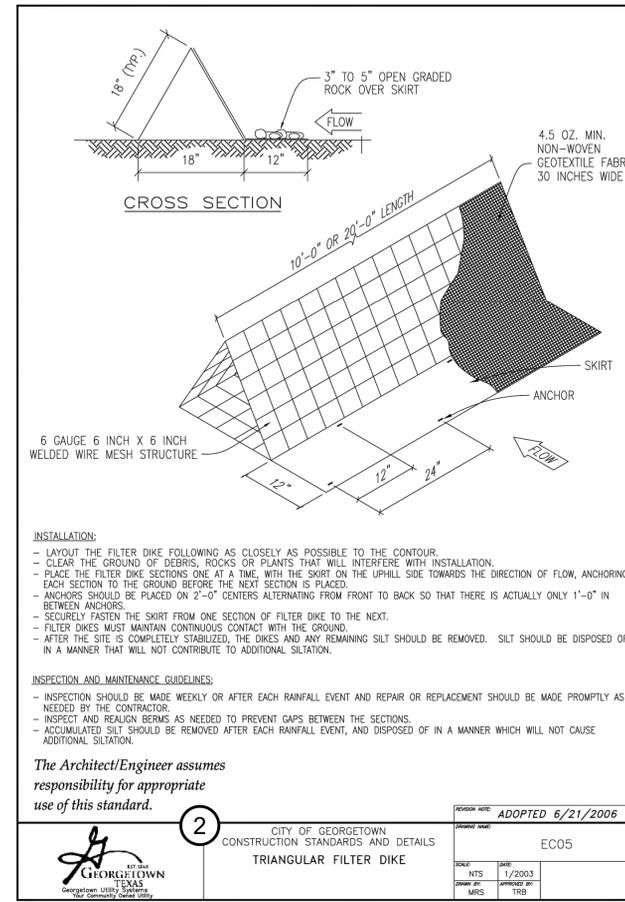
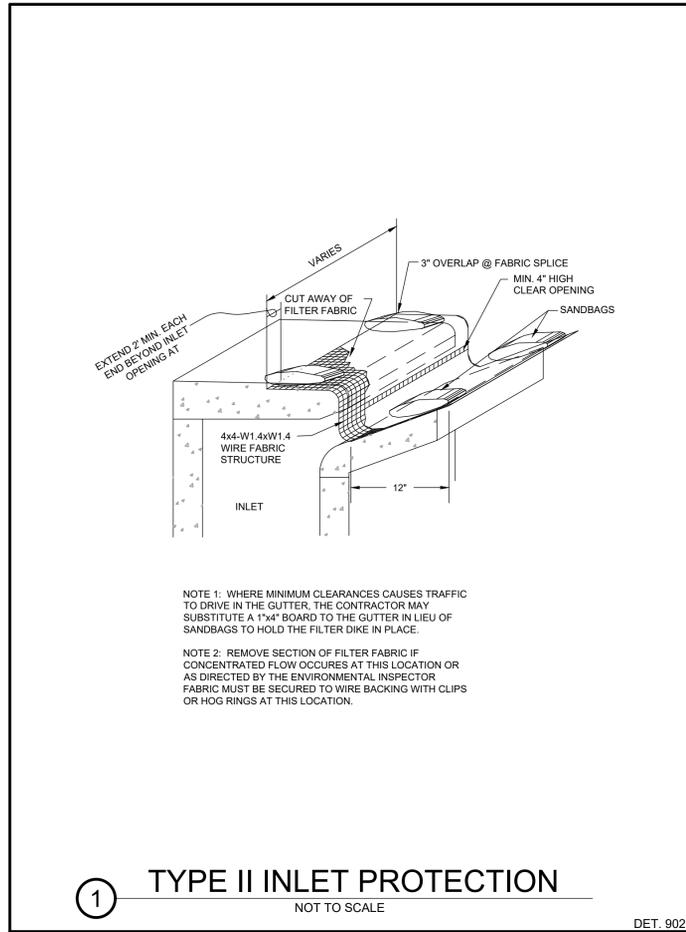
STATE OF TEXAS
Nelson W. Ogren
Professional Engineer
136895
9/12/2023

| NO. | DATE | REVISIONS |
|-----|------|-----------|
| | | |

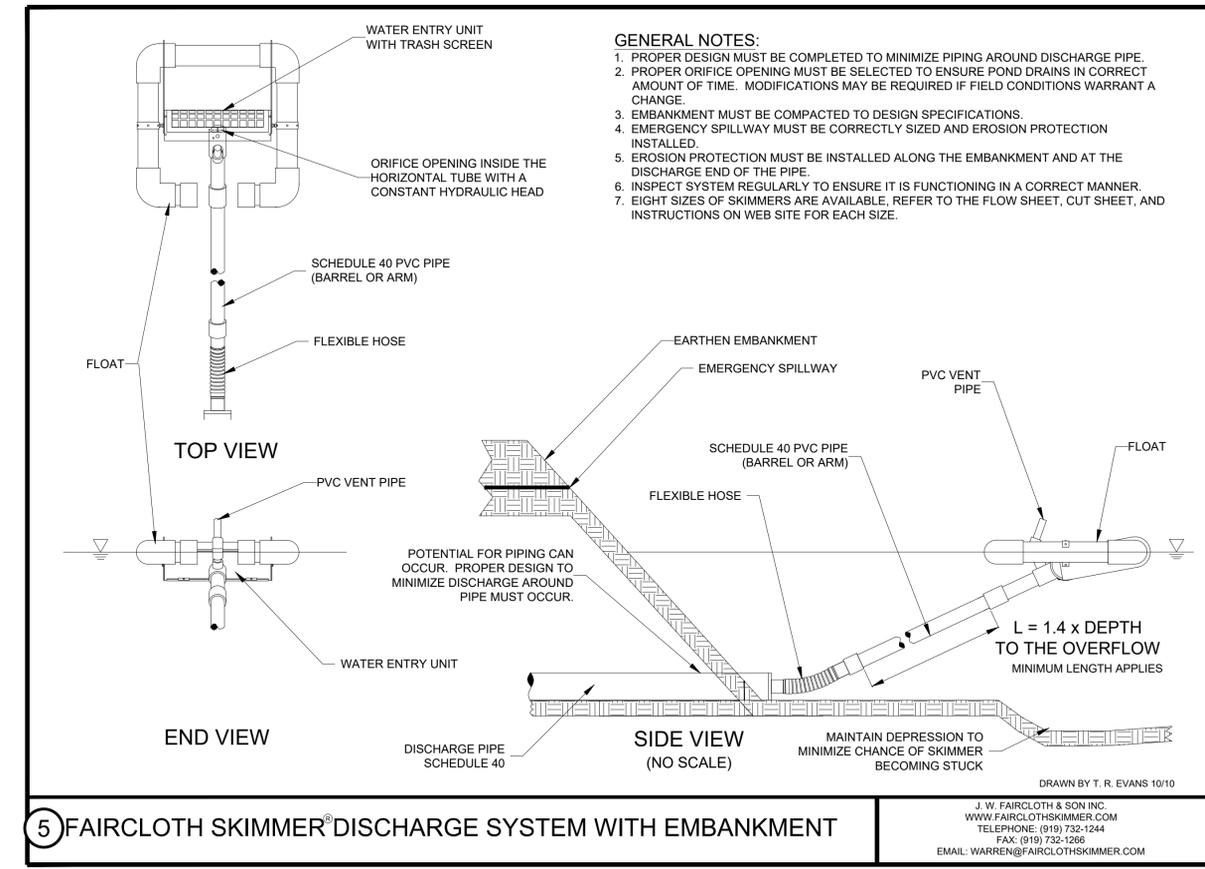
AQUILA
EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

EROSION AND SEDIMENTATION CONTROL PLAN (2 OF 3)

PERMIT No. ---
SHEET No. 7 OF 56



- 1 SURFACE VARIES (REFER TO PLAN)
- 2 COMPACTED SOIL
- 3 FILL SOIL
- 4 FILTER FABRIC
- 5 1" - 1 1/2" WASHED GRAVEL
- 6 4" PVC PERFORATED PIPE WITH 1" DRAINS 8' O.C.
- 7 COMPACTED SUBGRADE
- 8 #3 BARS @18" C-CE.W., #34 CONT., #3@18" O.C.
- 9 1 COURSE BELOW GRADE TYP.
- 10 LIMESTONE BLOCK WALL 6" H X 12" D X 18" L, ROUGH HEWN LIMESTONE, MORTARED IN PLACE



- GENERAL NOTES:**
1. PROPER DESIGN MUST BE COMPLETED TO MINIMIZE PIPING AROUND DISCHARGE PIPE.
 2. PROPER ORIFICE OPENING MUST BE SELECTED TO ENSURE POND DRAINS IN CORRECT AMOUNT OF TIME. MODIFICATIONS MAY BE REQUIRED IF FIELD CONDITIONS WARRANT A CHANGE.
 3. EMBANKMENT MUST BE COMPACTED TO DESIGN SPECIFICATIONS.
 4. EMERGENCY SPILLWAY MUST BE CORRECTLY SIZED AND EROSION PROTECTION INSTALLED.
 5. EROSION PROTECTION MUST BE INSTALLED ALONG THE EMBANKMENT AND AT THE DISCHARGE END OF THE PIPE.
 6. INSPECT SYSTEM REGULARLY TO ENSURE IT IS FUNCTIONING IN A CORRECT MANNER.
 7. EIGHT SIZES OF SKIMMERS ARE AVAILABLE. REFER TO THE FLOW SHEET, CUT SHEET, AND INSTRUCTIONS ON WEB SITE FOR EACH SIZE.

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512-344-9664
TBPE FIRM #F-19351

DESIGNED/NVO DRAWN/DO REVIEWED/VALUE

9/12/2023

RECORD

NO. DATE REVISIONS

AQUILA

EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

EROSION CONTROL
DETAILS (2 OF 2)

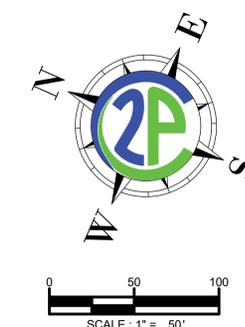
PERMIT No. ---
SHEET No. 10 OF 56

MADE: JWS Design Printing Company
 DATE: 10/10/2023
 PLOTTED BY: DETHMONTZ

| PROPOSED SITE DATA TABLE | | | | | | | | | | |
|--------------------------------------|-----|-----------------------------------|--------------------------|-------------------|----------------------|---------------------|------------|------------|----------|------------|
| TOTAL SITE AREA | | 1,064,084 SF / 24.43 AC | | | | | | | | |
| ZONING AND PROPOSED USE | | Georgetown ETJ - Light Industrial | | | | | | PARKING | | |
| BUILDING | TAG | GROSS FLOOR AREA (SF) | FINISHED FLOOR ELEVATION | NUMBER OF STORIES | BUILDING HEIGHT (FT) | PROPOSED FOUNDATION | Standard | Accessible | Van | Total |
| General Warehousing and Distribution | 1 | 40,560 | 829.20 | 1 | 30 | Slab-On-Grade | 57 | 2 | 1 | 60 |
| General Warehousing and Distribution | 2 | 40,560 | 828.00 | 1 | 30 | Slab-On-Grade | 57 | 2 | 1 | 60 |
| General Warehousing and Distribution | 3 | 40,560 | 828.00 | 1 | 30 | Slab-On-Grade | 57 | 2 | 1 | 60 |
| General Warehousing and Distribution | 4 | 40,560 | 830.50 | 1 | 30 | Slab-On-Grade | 57 | 2 | 1 | 60 |
| General Warehousing and Distribution | 5 | 40,560 | 836.00 | 1 | 30 | Slab-On-Grade | 57 | 2 | 1 | 60 |
| General Warehousing and Distribution | 6 | 20,800 | 832.25 | 1 | 30 | Slab-On-Grade | 27 | 2 | 1 | 30 |
| TOTAL GROSS FLOOR AREA: | | 223,600 | | | | Total | 312 | 12 | 6 | 330 |
| FLOOR-TO-AREA RATIO (FAR): | | 0.21 | | | | | | | | |
| IMPERVIOUS COVER | | | | | | | | | | |
| EXISTING | | 0 SF / 0 AC / 0% | | | | | | | | |
| PROPOSED | | 576,544 SF / 13.2 AC / 54.2% | | | | | | | | |
| MAXIMUM (5ac @ 70% + Remain @ 55%) | | 617,900 SF / 14.2 AC / 58.1% | | | | | | | | |
| BUILDING COVERAGE | | 223,600 SF / 5.1 AC / 21.0% | | | | | | | | |

| ITE TRIP GENERATION (9TH EDITION) | | | | | | | | | | | |
|-----------------------------------|------------------|-----------------------|-----------------------|---------|---------|---------------------------------------|--------|---------|-------|--------|---------|
| WAREHOUSING (150) | | Total Floor Area (sf) | Total Generated Trips | | | Total Distribution of Generated Trips | | | | | |
| CR 147 | Buildings #1 - 2 | 81,120 | Daily | AM Hour | PM Hour | AM In | AM Out | Pass-By | PM In | PM Out | Pass-By |
| SH 195 | Buildings #3 - 6 | 142,480 | 507 | 43 | 46 | 34 | 9 | 0 | 11 | 34 | 0 |

MARTIN MARIETTA MATERIALS
REAL ESTATE INVESTMENTS,
INC.
CALLED 360.071 ACRES
INST.# 2021163644
O.P.R.W.C.T.



GENERAL LEGEND

SYMBOLS

- Water Meter
- Water Valve
- Fire Hydrant
- Backflow Preventer
- Utility Pole
- Light Pole
- Wastewater Man-Hole
- Clean Out
- Keynotes
- Parking Count
- WW Service
- Water Service
- Storm Sewer Man-Hole
- Sign
- Curb Inlet
- Grate Inlet
- Table Top Area Inlet
- Tree to be Saved
- Tree to be Removed

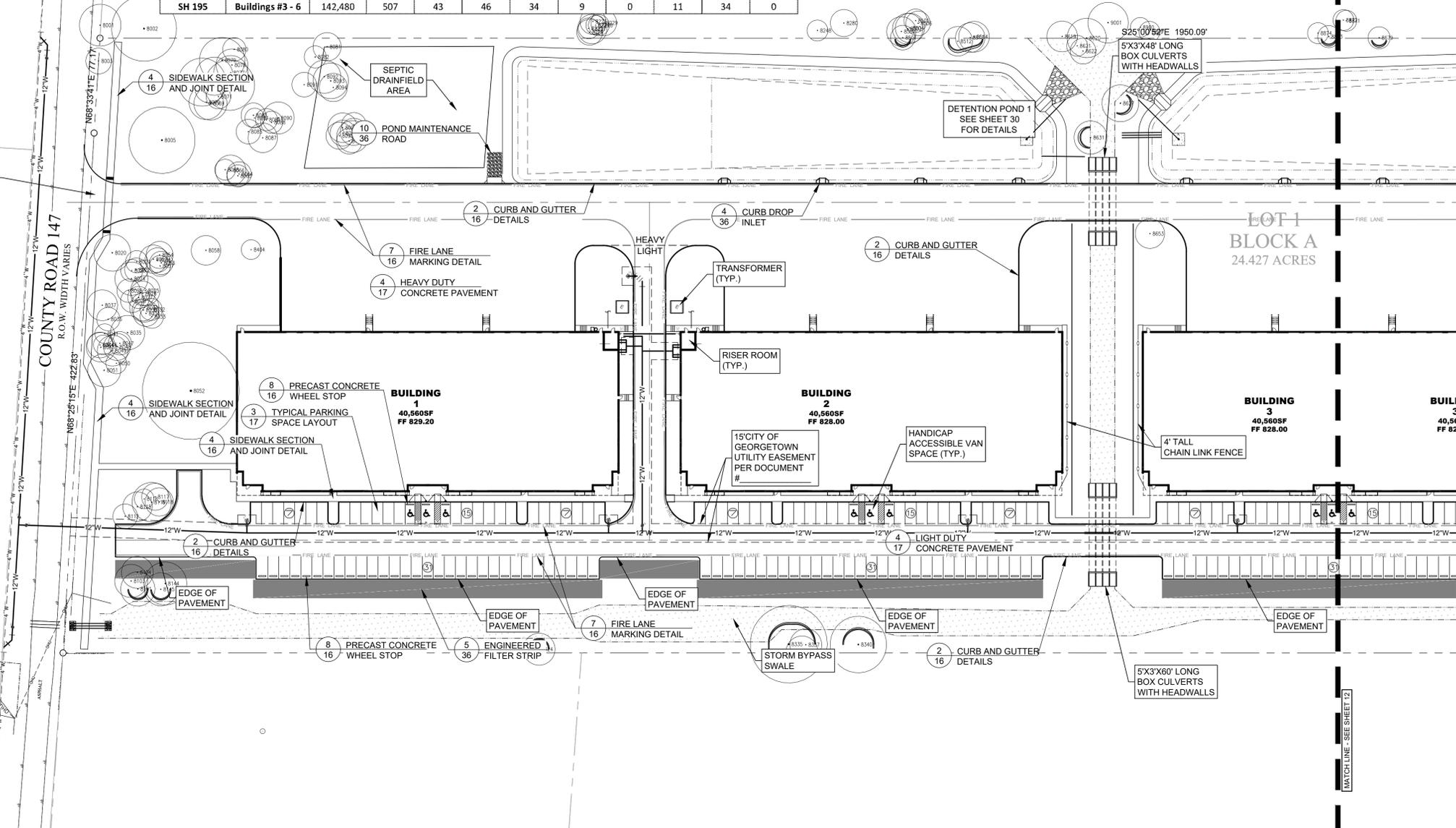
LINE TYPES

- Property Boundary
- Limits of Construction
- Fences (Chainlink)
- (Iron)
- (Wood)
- (Barb Wire)
- Ditch (Creek) Line
- Existing Contours
- Proposed Contours
- Curb & Gutter
- Underground Elec.
- Overhead Utility
- Underground Tele.
- Underground Gas Line
- Water Line
- Wastewater Line
- Accessible Route

DETAIL NUMBER # **DETAIL NAME**

SHEET NUMBER # **WHERE DETAIL IS LOCATED** **DETAIL REFERENCE CALLOUT**

- SITE PLAN NOTES:**
- DIMENSIONS ARE SHOWN ON THE DIMENSIONAL CONTROL PLAN. FOR PRECISE DIMENSIONS AND LOCATION OF SITE IMPROVEMENTS, ELECTRONIC FILES OF THE SITE LAYOUT WILL BE MADE AVAILABLE TO THE CONTRACTOR AND HIS SURVEYOR UPON REQUEST. FOR BUILDING DIMENSIONS, CONTRACTOR SHALL USE ARCHITECTURAL AND STRUCTURAL PLANS.
 - EXISTING UTILITIES ARE SHOWN PER RECORD DRAWINGS.
 - SLOPES ON ACCESSIBLE ROUTES MAY NOT EXCEED 1:20 UNLESS DESIGNED AS A RAMP. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION IS 1:12. THE MAXIMUM RISE FOR ANY RAMP RUN IS 30 INCHES. REFER TO GRADING SHEET(S).
 - FACILITIES, BUILDINGS OR PORTIONS OF BUILDINGS HEREAFTER CONSTRUCTED SHALL BE ACCESSIBLE TO FIRE DEPARTMENT APPARATUS BY WAY OF AN APPROVED FIRE APPARATUS ACCESS ROAD WITH AN ASPHALT, CONCRETE OR OTHER APPROVED DRIVING SURFACE CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS (34 050 KG). THE APPROVED FIRE APPARATUS ACCESS ROAD MUST BE IN PLACE BEFORE COMBUSTIBLES ARE BROUGHT ON SITE.



GWENDOLYN OLSON AYERS
AND PAULA OLSON CODINICH
CALLED 28.50 ACRES
INST.# 2020050048, O.P.R.W.C.T.

STRAIGHT TIE-IN DRIVEWAY
28'-WIDE, CONCRETE,
PROPOSED MAX GRADE: 4.3%
PER SECTION 3.2 OF THE
WILLIAMSON COUNTY
DRIVEWAY POLICY

DANIEL K. SEBASTIAN
AND RHONDA L.
SEBASTIAN
CALLED 2.126 ACRES
INST.# 2019066501
O.P.R.W.C.T.

PORTION OF
AUSTIN WHITE LIME
COMPANY
CALLED 1441.49 ACRES
VOL. 771, PG. 65
D.R.W.C.T.

1212 CHISOLM GROUP, LLC
CALLED 10.008 ACRES
INST.# 2018089337
O.P.R.W.C.T.

PORTION OF
CRISANTO PEREZ, SR. & HERLINDA
PEREZ
CALLED 40.00 ACRES
VOL. 1604, PG. 320
D.R.W.C.T.



Know what's below.
Call before you dig.

CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES
IN VICINITY. CONTRACTOR TO CONTACT UTILITY
COMPANIES PRIOR TO CONSTRUCTION.
CONTRACTOR TO FIELD VERIFY EXISTING UTILITY
LOCATIONS & DEPTHS PRIOR TO BEGINNING
CONSTRUCTION.
CONTRACTOR SHALL CONSIDER PROPOSED UTILITY
IMPROVEMENTS AND PROVIDE ADEQUATE
HORIZONTAL AND VERTICAL CLEARANCE DURING
INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512.344.9664
TBPE FIRM #F-19351

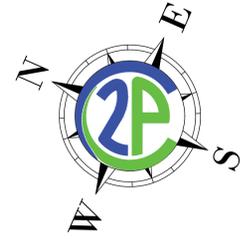


| NO. | DATE | REVISIONS | RECORD |
|-----|------|-----------|--------|
| | | | |

AQUILA
EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON
COUNTY, TEXAS 78633

SITE PLAN (1 OF 2)

PERMIT No. ---
SHEET No. 11 OF 56



SCALE: 1" = 50'

MARTIN MARIETTA MATERIALS
REAL ESTATE INVESTMENTS,
INC.
CALLED 360.071 ACRES
INST.# 2021163644
O.P.R.W.C.T.

GWENDOLYN OLSON AYERS
AND PAULA OLSON GODINICH
CALLED 28.50 ACRES
INST.# 2020050048, O.P.R.W.C.T.

STRAIGHT TIE-IN DRIVEWAY
28'-WIDE, CONCRETE,
PROPOSED MAX GRADE: 4.3%
PER SECTION 3.2 OF THE
WILLIAMSON COUNTY
DRIVEWAY POLICY

DANIEL K. SEBASTIAN
AND RHONDA L.
SEBASTIAN
CALLED 2.126 ACRES
INST.# 2019066501
O.P.R.W.C.T.

PORTION OF
AUSTIN WHITE LIME
COMPANY
CALLED 1441.49 ACRES
VOL. 771, PG. 65
D.R.W.C.T.

1212 CHISOLM GROUP, LLC
CALLED 10.008 ACRES
INST.# 2018089337
O.P.R.W.C.T.

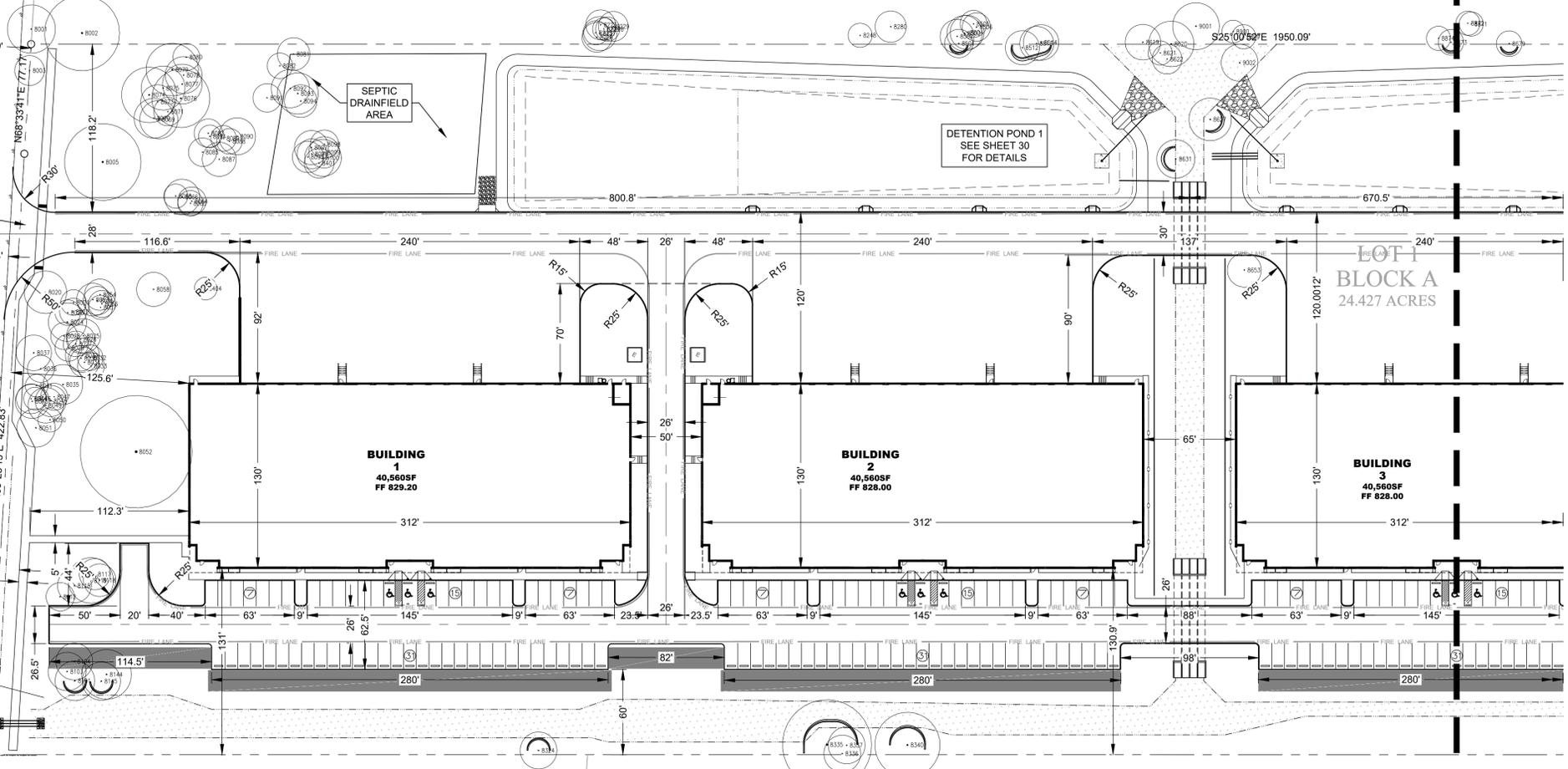
PORTION OF
CRISANTO PEREZ, SR. & HERLINDA
PEREZ
CALLED 40.00 ACRES
VOL. 1604, PG. 320
D.R.W.C.T.

| GENERAL LEGEND | |
|----------------|------------------------|
| SYMBOLS | |
| | WATER METER |
| | WATER VALVE |
| | FIRE HYDRANT |
| | BACKFLOW PREVENTER |
| | UTILITY POLE |
| | LIGHT POLE |
| | CLEAN OUT |
| | KEYNOTES |
| | PARKING COUNT |
| | WW SERVICE |
| | WATER SEWER MANHOLE |
| | SIGN |
| | CURB INLET |
| | GRATE INLET |
| | TABLE TOP AREA INLET |
| | TREE TO BE SAVED |
| | TREE TO BE REMOVED |
| LINETYPES | |
| | PROPERTY BOUNDARY |
| | LIMITS OF CONSTRUCTION |
| | FENCES (CHAINLINK) |
| | (IRON) |
| | (WOOD) |
| | (BARB WIRE) |
| | DITCH (CREEK) LINE |
| | EXISTING CONTOURS |
| | PROPOSED CONTOURS |
| | CURB & GUTTER |
| | UNDERGROUND ELEC. |
| | OVERHEAD UTILITY |
| | UNDERGROUND TELE. |
| | UNDERGROUND GAS LINE |
| | WATER LINE |
| | WASTEWATER LINE |
| | ACCESSIBLE ROUTE |

DIMENSIONAL CONTROL PLAN NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES INCLUDING EXISTING IRRIGATION ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. ALL DIMENSIONS SHOWN ARE TO FACE OF CURB, UNLESS OTHERWISE NOTED.
3. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL PROPERTY CORNERS.
4. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF SLOPED PAVING, EXIT PORCHES, RAMPS, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS, EXACT BUILDING UTILITY ENTRY LOCATIONS, DOWNSPOUT LOCATIONS AND TOTAL NUMBER OF DOWNSPOUTS REQUIRED.
5. ALL CURB RADII ARE 3' UNLESS OTHERWISE NOTED.
6. CONTRACTOR SHALL COORDINATE WITH APPROPRIATE UTILITY COMPANIES PRIOR TO CONSTRUCTION, ADJUSTMENT, OR RELOCATION OF EXISTING UTILITIES.

COUNTY ROAD 147
R.O.W. WIDTH VARIES



2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512-344-9664
TBPE FIRM #F-19351



| NO. | DATE | REVISIONS | RECORD |
|-----|------|-----------|--------|
| | | | |
| | | | |
| | | | |

AQUILA
EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON
COUNTY, TEXAS 78633

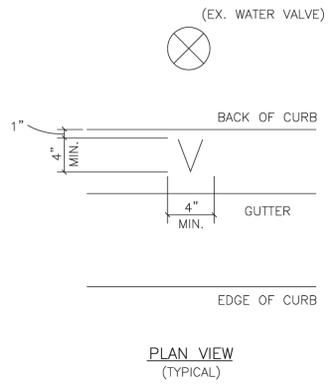
DIMENSION PLAN (1 OF 2)

PERMIT No. ---
SHEET No. 14 OF 56



Know what's below.
Call before you dig.

CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.



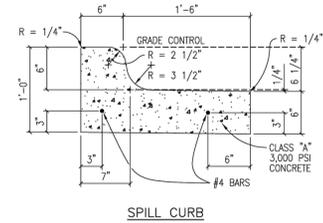
- NOTES:**
- ALL WATER SERVICE, WASTE WATER SERVICE AND VALVE LOCATIONS SHALL BE APPROXIMATELY MARKED AS FOLLOWS:

| | | |
|---------------------|-----|-------------|
| WATER SERVICE | "W" | TOP OF CURB |
| WASTE WATER SERVICE | "S" | TOP OF CURB |
| VALVE | "V" | TOP OF CURB |
 - LETTERS SHALL HAVE A 1/2" MAX. WIDTH.

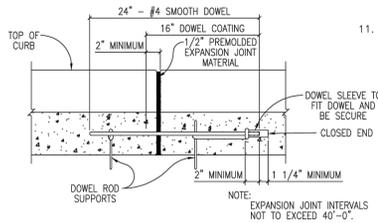
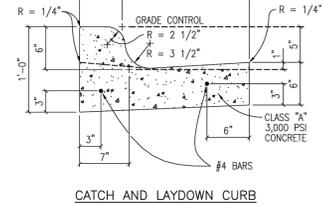
The Architect/Engineer assumes responsibility for appropriate use of this standard.



CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
CURB STAMP DETAIL
SD05



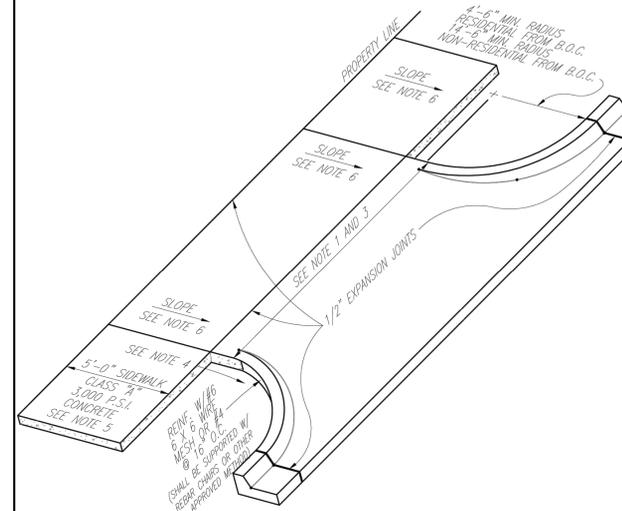
- NOTES:**
- ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309, AND D1752. BROOM FINISH EXPOSED SURFACE.
 - CONTRACTION JOINT SPACING 10' MAX.
 - EXPANSION JOINTS AS PER STD. ASTM D-1752.
 - 1/2" EXPANSION JOINT MATERIAL SHALL BE PROVIDED WHERE CURB IS ADJACENT TO SIDEWALK OR RIP-RAP.
 - TRANSITIONS BETWEEN CURBS OR DIFFERING CROSS SECTIONS SHALL OCCUR OVER A 20 FOOT LENGTH AS APPROVED BY THE ENGINEER OR THE CITY OF GEORGETOWN.
 - ALL CONCRETE SHALL BE CLASS A, 3000 PSI.
 - ALL SURFACES THAT ARE CHIPPED OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED.
 - THE FOLLOWING SCHEME OF REINFORCEMENT SHALL BE REQUIRED. THE MANNER OF PLACEMENT AND LOCATION SHALL BE TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF GEORGETOWN.
 - ALL CURB AND CURB AND GUTTER (REINFORCED) SHALL HAVE TWO #4 LONGITUDINAL REINFORCING BARS.
 - REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 15 INCH.
 - REINFORCING BARS SHALL BE SUPPORTED WITH REBAR CHAIRS OR OTHER APPROVED METHODS.
 - REBAR SUPPORTS ARE NOT REQUIRED ON MACHINE PLACED CURB PROVIDED THAT REBAR IS PROPERLY GUIDED INTO THE CURB SECTION.



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



CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
CURB AND GUTTER DETAILS
SD06

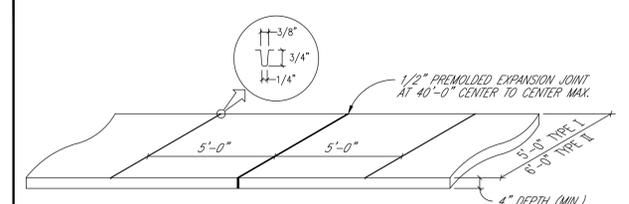


- NOTES:**
- MAXIMUM WIDTH OF APPROACH SHALL BE 24'-0" FOR RESIDENTIAL, 30'-0" FOR NON-RESIDENTIAL UNDIVIDED AND 45'-0" FOR NON-RESIDENTIAL DIVIDED.
 - DRIVEWAY PERMITS SHALL BE ACQUIRED FROM CITY INSPECTION OFFICE.
 - MINIMUM WIDTH OF APPROACH SHALL BE 10'-0" FOR RESIDENTIAL AND 15'-0" FOR NON-RESIDENTIAL.
 - LINEAR "RADIUS" AT CORNERS, PERMITTED FOR "SINGLE FAMILY" OR "TWO FAMILY" RESIDENTIAL DRIVEWAY APPROACH.
 - SIDEWALK LOCATION SHALL BE APPROVED BY CITY ENGINEER PRIOR TO FINAL DESIGN.
 - SLOPE 1/8" PER FOOT USUAL, SHALL NOT EXCEED 2.0%.
 - DRIVEWAY APPROACH THICKNESS SHALL BE A MIN. OF 6".

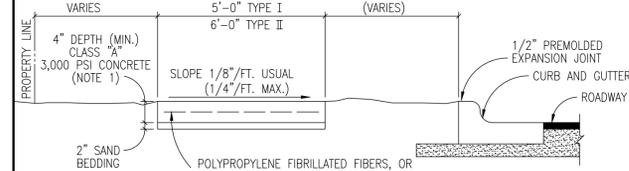
The Architect/Engineer assumes responsibility for appropriate use of this standard.



CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
CONCRETE DRIVEWAY APPROACH
TYPICAL
SD15



- TYPE I - AS REQUIRED FOR SINGLE FAMILY, DUPLEXES AND TOWNHOUSES, TRIPLEXES AND QUADRAPLEXES.
 TYPE II - AS REQUIRED FOR MULTI-FAMILY, OTHER NON-RESIDENTIAL USES AND PARKING LOTS/STRUCTURES.
 ALL THOROUGHFARES (COLLECTOR AND ABOVE) REQUIRE TYPE II.

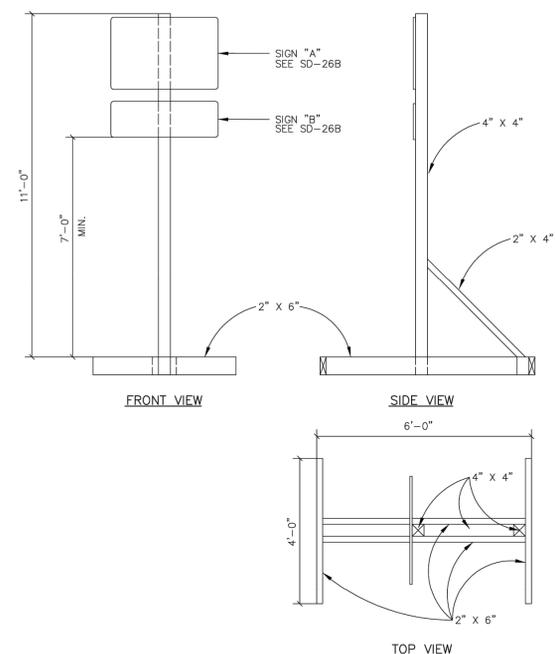


- NOTES:**
- STANDARD LOCATION OF SIDEWALK SHALL BE IN CONFORMANCE WITH THE UDC.
 - SIDEWALK SHALL CONFORM TO CURRENT TDLR/TAS STANDARDS.
 - ALL SIDEWALKS SHALL BE SUBMITTED AND APPROVED BY THE REGISTERED ACCESSIBILITY SPECIALIST (RAS) AND ENGINEER OF RECORD.
 - ANY VARIANCE IN TEXTURE, GRADE OR ALIGNMENT SHALL BE APPROVED BY THE REGISTERED ACCESSIBILITY SPECIALIST (RAS) AND BY THE CITY ENGINEER.
 - SLIP DOWEL SHALL BE INSTALLED AT EVERY LONGITUDINAL EXPANSION JOINT (UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER DURING ENGINEERING PLAN REVIEW PRIOR TO FINAL DESIGN).

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



CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
SIDEWALK SECTION AND JOINT DETAIL
SD14

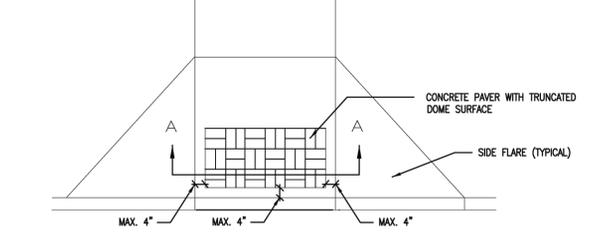


- NOTES:**
- ALL MATERIALS SHALL BE FURNISHED BY THE CONTRACTOR WITH THE EXCEPTION OF THE CITY OF GEORGETOWN G.U.S. LOGO WHICH WILL BE FURNISHED BY THE CITY.
 - ALL SIGNS TO BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).

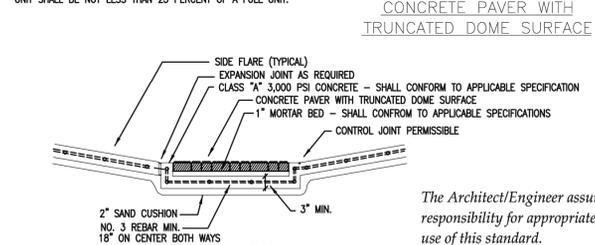
The Architect/Engineer assumes responsibility for appropriate use of this standard.



CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
PROJECT SIGN TYPE II
SD26



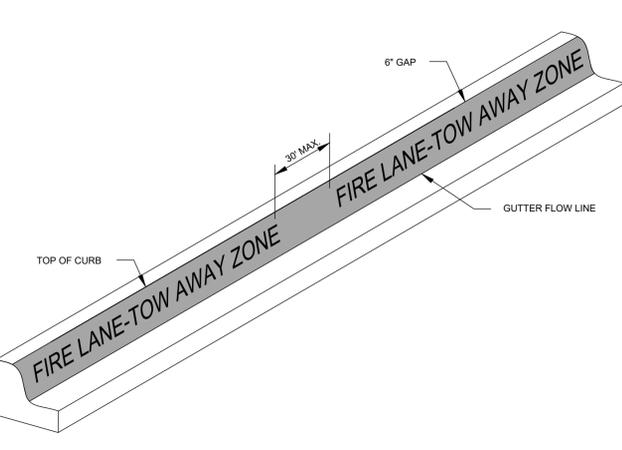
- GENERAL NOTES:**
- CONCRETE PAVER UNITS SHALL MEET ALL REQUIREMENTS OF ASTM C-336, C-33, AND SHALL BE LAID IN A TWO BY TWO BRICK BASKET WEAVE PATTERN, UNLESS SHOWN OTHERWISE IN PLANS.
 - CONCRETE PAVER UNIT SHALL HAVE A TRUNCATED DOME TOP SURFACE FOR DETECTABLE WARNING TO PEDESTRIANS.
 - CONCRETE PAVER UNIT COLOR FOR THE RAMP SHALL BE A CONTRASTING COLOR TO THE ADJACENT SURFACES. THE COLOR OF THE CONCRETE PAVER UNITS SHALL BE SHOWN ELSEWHERE IN THE PLANS. (ADJACENT SURFACES INCLUDE SIDE FLARES).
 - CONCRETE PAVER UNITS SHALL BE SAW CUT ONLY AND ANY CUT UNIT SHALL BE NOT LESS THAN 25 PERCENT OF A FULL UNIT.



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

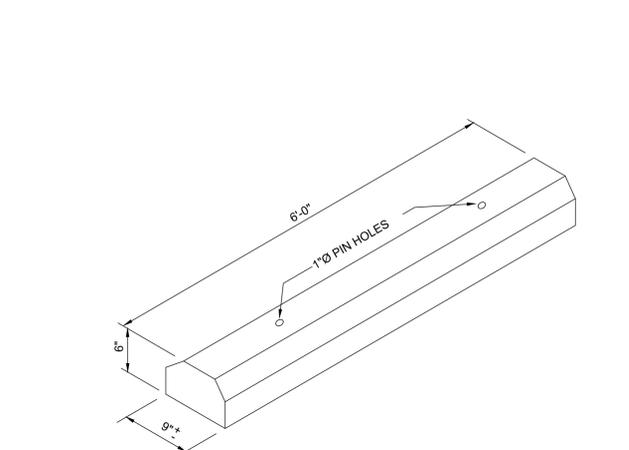


CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
CURB RAMP TEXTURES TYPE A
SD37



- NOTES:**
- FIRE LANE STRIPING TO BE 6" WIDE RED PAINT WITH "FIRE LANE TOW AWAY ZONE" IN 4" TALL WHITE LETTERS. WORDING MAY NOT BE SPACED GREATER THAN 30' APART. STRIPING TO BE PAINTED ON THE FACE OF CURB WHEN PRESENT AND PAINTED FLAT ON THE PARKING SURFACE WHEN IT IS NOT.

FIRE LANE MARKING DETAIL
NOT TO SCALE



- NOTES:**
- FURNISH TWO (2) 3/4" Ø IRON PINS PER WHEEL STOP, 3'-0" LONG
 - MINIMUM REINFORCEMENT TO BE 2 EA. LONGITUDINAL #3 BARS.

PRECAST CONCRETE WHEEL STOP
NOT TO SCALE

MAKE: *WWS SIGN TYPE II CONSTRUCTION STANDARDS AND DETAILS REVISED AUG 2022
 DWG: *N:\Programs\AutoCAD\2022\Projects\2022\2022-26-SWP\2022-26-SWP.dwg
 DATE: 1/2023
 PLOTTED BY: DETING DUTZ

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512.344.9664
TBPE FIRM #F-19351

DESIGNED BY: DRAWN BY: REVIEWED BY: VALUE

9/12/2023

RECORD

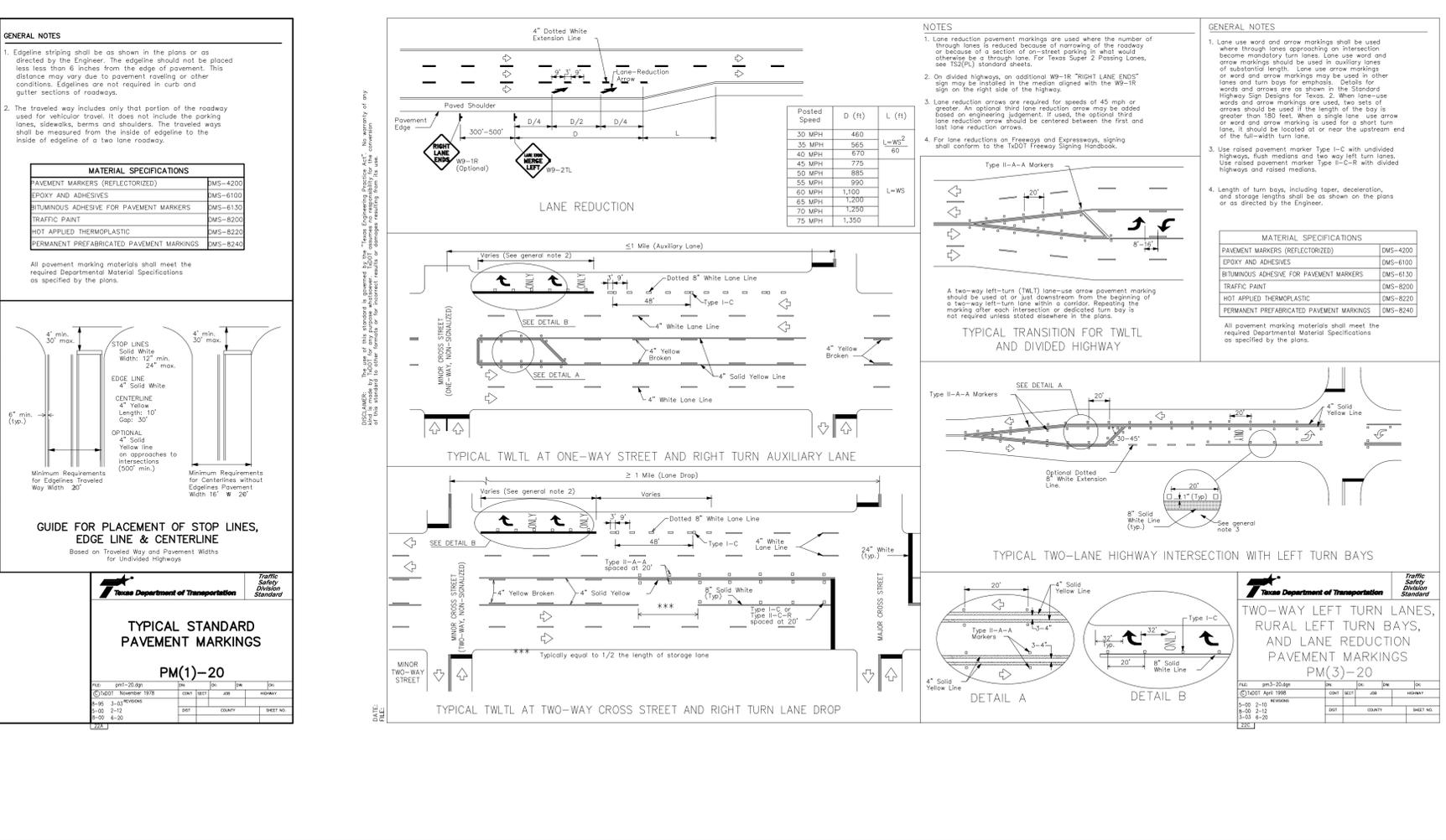
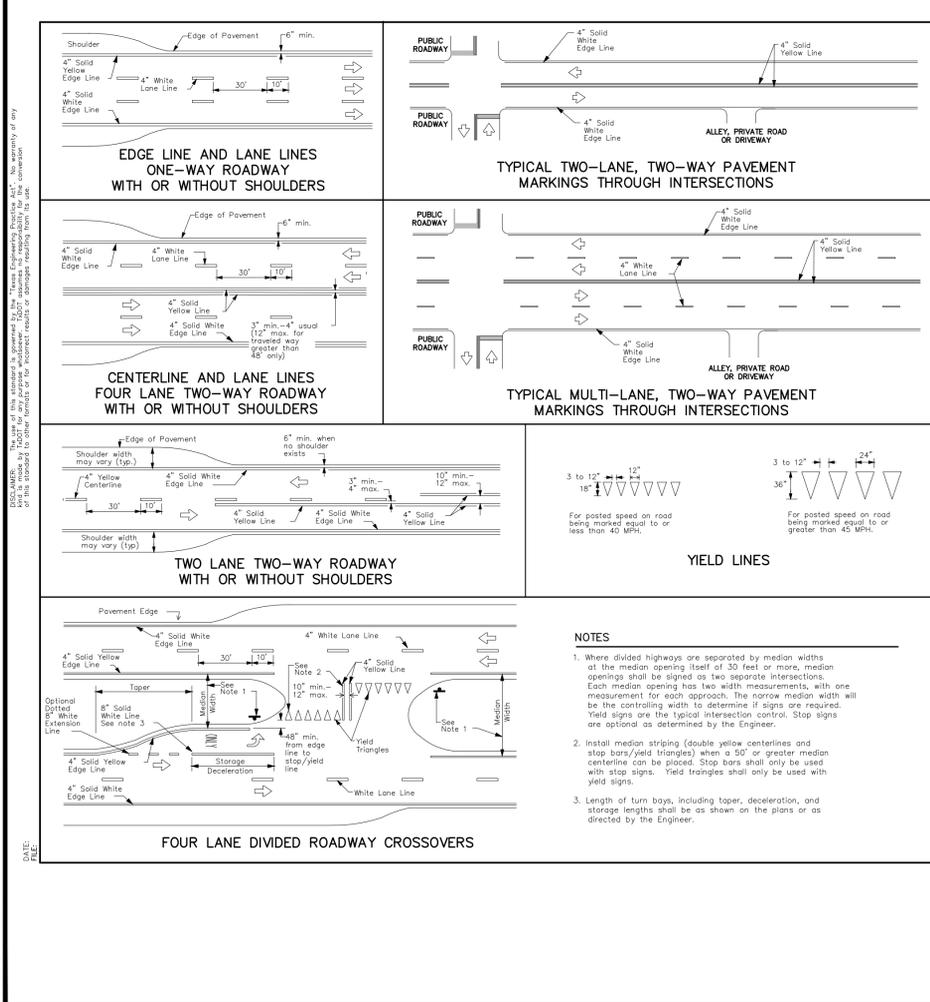
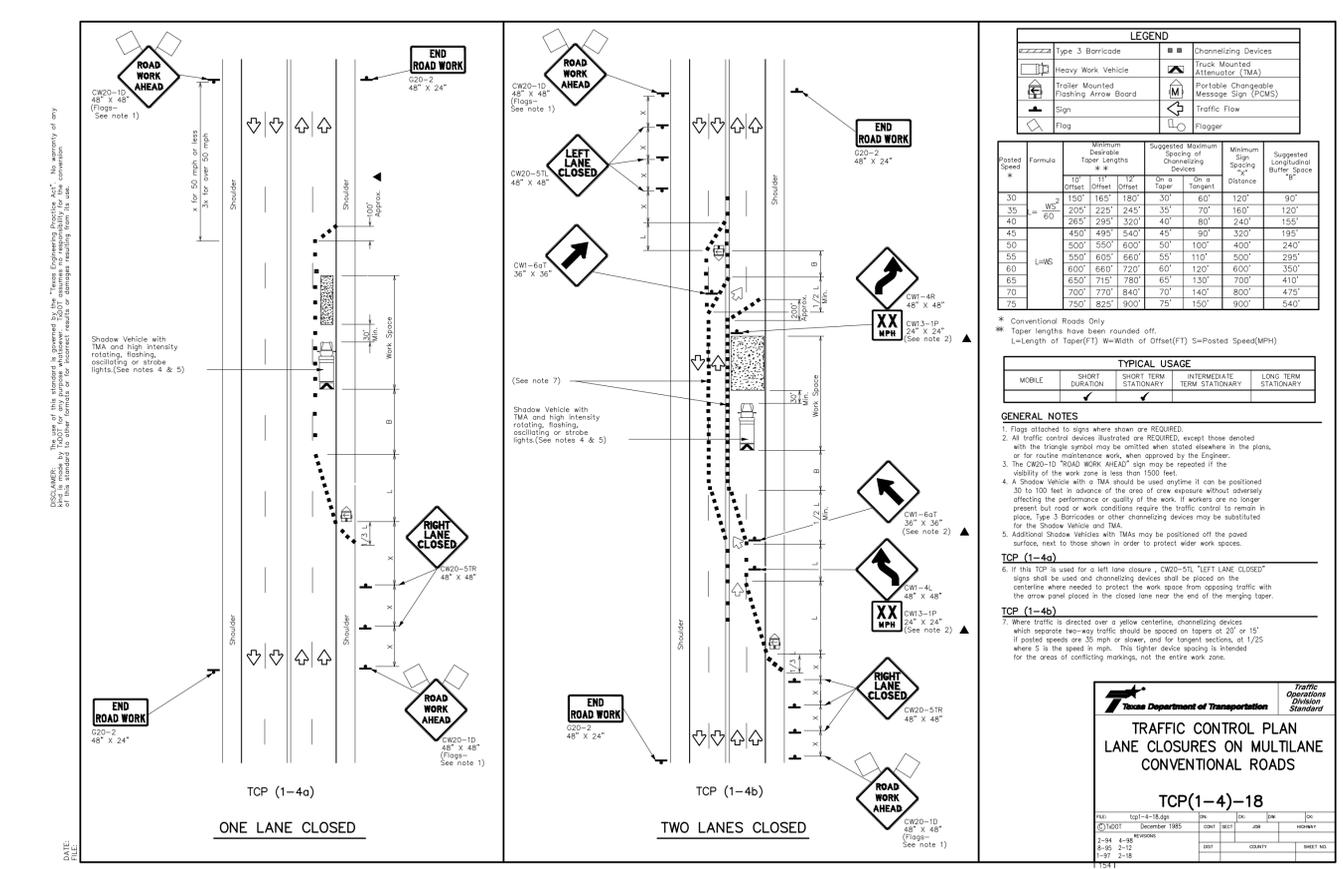
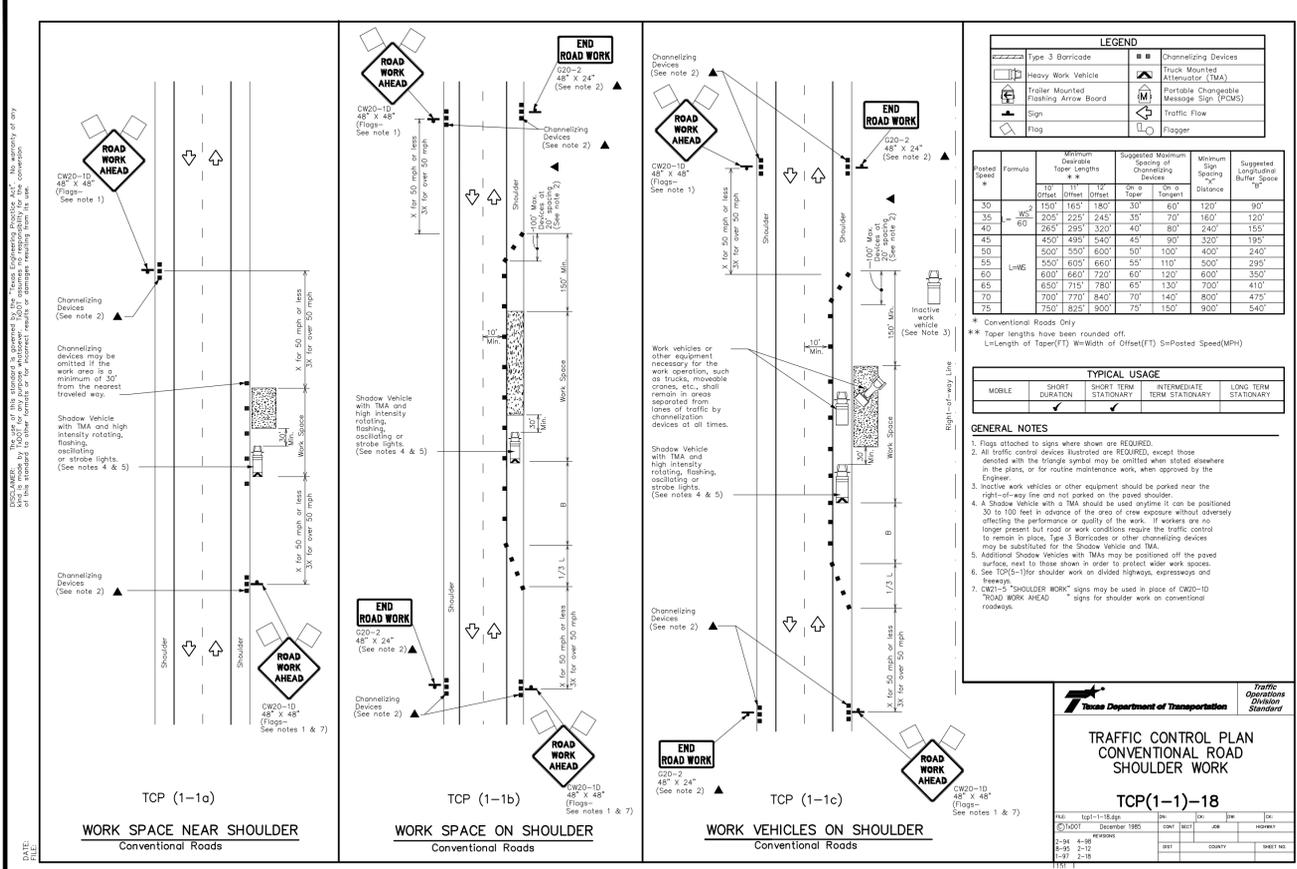
NO. DATE REVISIONS

AQUILA

EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

SITE DETAILS (1 OF 3)

PERMIT No. ---
SHEET No. 16 OF 56



2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512.344.9664
TBPE FIRM #F-19351

DESIGNED BY: [Signature]
DRAWN BY: [Signature]
REVIEWED BY: [Signature]

9/12/2023

RECORD

REVISIONS

NO. DATE

AQUILA

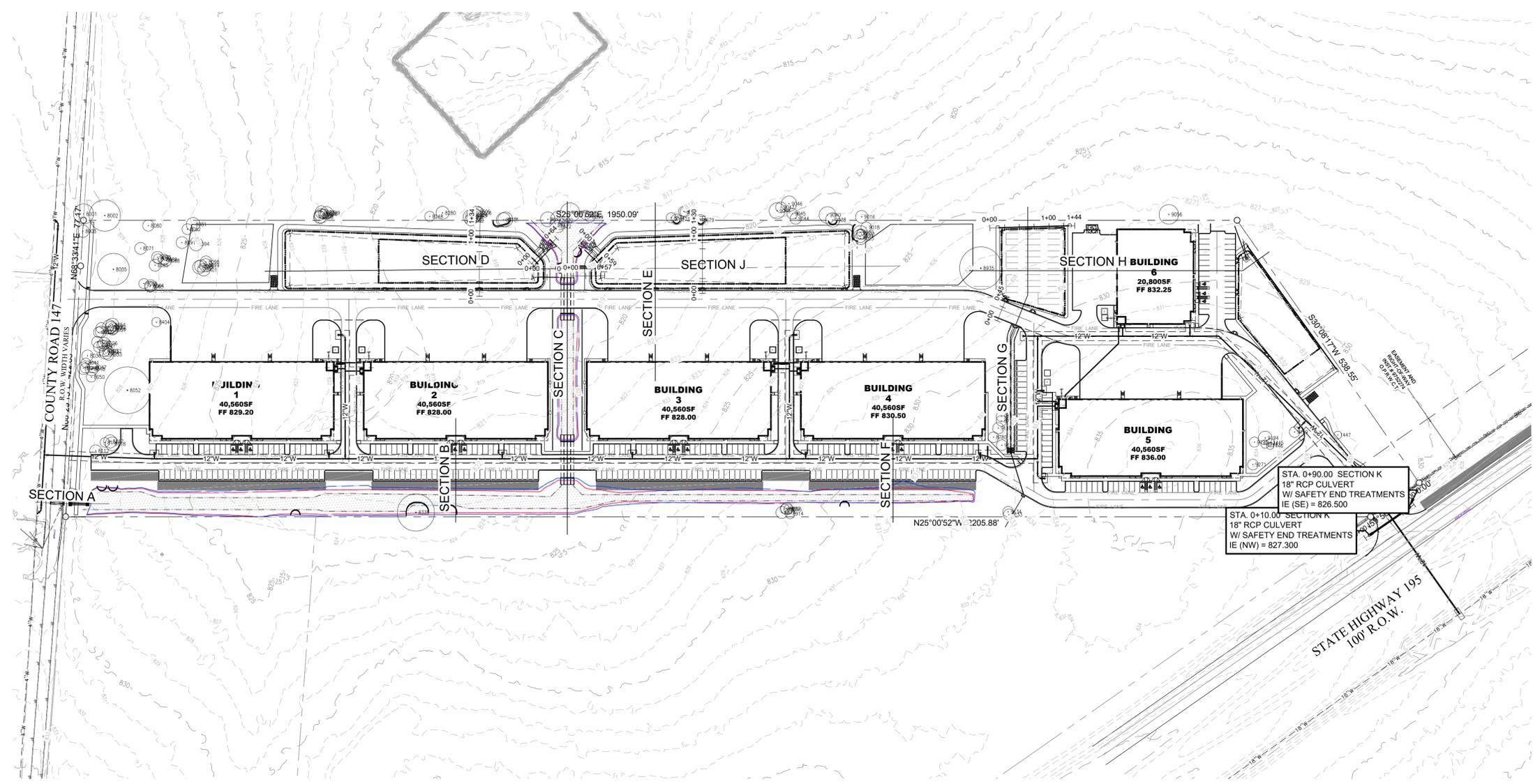
EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633

SITE DETAILS (3 OF 3)

PERMIT No. ---
SHEET No. 18 OF 56

2022-26-SWP

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 DATE: 09/12/2023
 PLOTTED BY: DETHMANN



GENERAL LEGEND

SYMBOLS

| | | | |
|--|--------------------|--|----------------------|
| | WATER METER | | WW SERVICE |
| | WATER VALVE | | WATER SERVICE |
| | FIRE HYDRANT | | STORM SEWER MANHOLE |
| | BACKFLOW PREVENTER | | SIGN |
| | UTILITY POLE | | CURBINLET |
| | LIGHT POLE | | GRATE INLET |
| | CLEAN OUT | | TABLE TOP AREA INLET |
| | KEYNOTES | | TREE TO BE SAVED |
| | PARKING COUNT | | TREE TO BE REMOVED |

LINETYPES

| | |
|--|------------------------|
| | PROPERTY BOUNDARY |
| | LIMITS OF CONSTRUCTION |
| | FENCES (CHAINLINK) |
| | FENCES (IRON) |
| | FENCES (WOOD) |
| | FENCES (BARB WIRE) |
| | DITCH (CREEK) LINE |
| | EXISTING CONTOURS |
| | PROPOSED CONTOURS |
| | CURB & GUTTER |
| | UNDERGROUND ELEC. |
| | OVERHEAD UTILITY |
| | UNDERGROUND TELE. |
| | UNDERGROUND GAS LINE |
| | WATER LINE |
| | WASTEWATER LINE |
| | ACCESSIBLE ROUTE |

NOTE:
 ALL ONSITE DRAINAGE FACILITIES AND
 STORMWATER PONDS SHALL BE PRIVATELY
 OWNED AND MAINTAINED.

2P CONSULTANTS, LLC
 203 E. MAIN STREET, SUITE 204
 ROUND ROCK, TEXAS 78664
 512-344-9664
 TBPE FIRM #F-19351

STATE OF TEXAS
 NIELSON W. OGDEN
 136895
 LICENSED PROFESSIONAL ENGINEER

9/12/2023

| NO. | DATE | REVISIONS | RECORD |
|-----|------|-----------|--------|
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AQUILA
 EXCHANGE 195
 STORMWATER PERMIT
 WILLIAMSON COUNTY, TEXAS 78633
 WILLIAMSON COUNTY, TEXAS 78633

STORM OVERALL PLAN

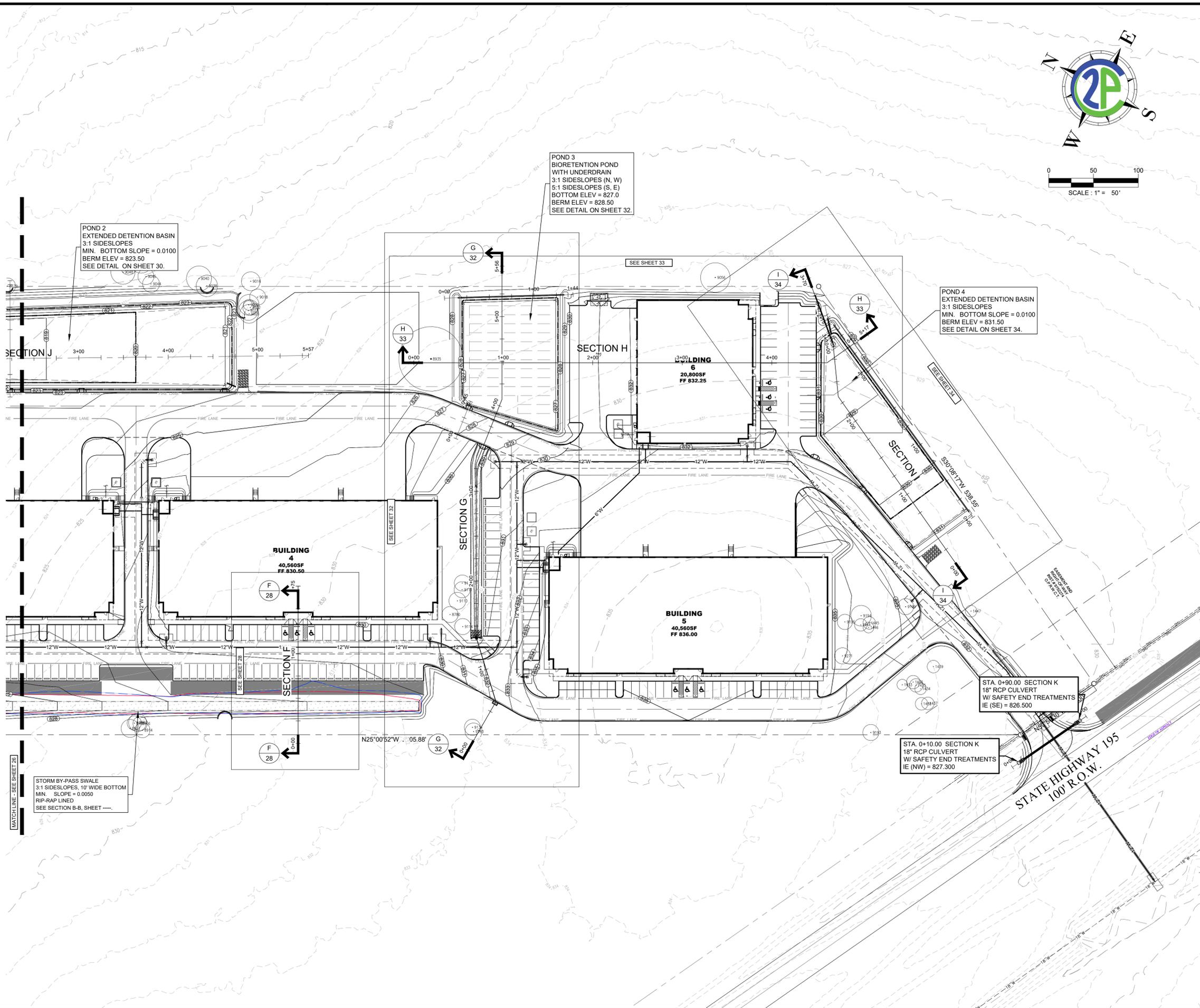
PERMIT No. ---
 SHEET No. 25 OF 56



Know what's below.
 Call before you dig.

CONTRACTOR NOTES:
 EXISTING UNDERGROUND AND OVERHEAD UTILITIES
 IN VICINITY. CONTRACTOR TO CONTACT UTILITY
 COMPANIES PRIOR TO CONSTRUCTION.
 CONTRACTOR TO FIELD VERIFY EXISTING UTILITY
 LOCATIONS & DEPTHS PRIOR TO BEGINNING
 CONSTRUCTION.
 CONTRACTOR SHALL CONSIDER PROPOSED UTILITY
 IMPROVEMENTS AND PROVIDE ADEQUATE
 HORIZONTAL AND VERTICAL CLEARANCE DURING
 INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

MWD: N:\Projects\2022\2022-26-SWP\2022-26-SWP.dwg
 DATE: 09/12/2023
 PLOTTED BY: D:\Users\jgortz



POND 2
 EXTENDED DETENTION BASIN
 3:1 SIDESLOPES
 MIN. BOTTOM SLOPE = 0.0100
 BERM ELEV = 823.50
 SEE DETAIL ON SHEET 30.

POND 3
 BIORETENTION POND WITH UNDERDRAIN
 3:1 SIDESLOPES (N, W)
 5:1 SIDESLOPES (S, E)
 BOTTOM ELEV = 827.0
 BERM ELEV = 828.50
 SEE DETAIL ON SHEET 32.

POND 4
 EXTENDED DETENTION BASIN
 3:1 SIDESLOPES
 MIN. BOTTOM SLOPE = 0.0100
 BERM ELEV = 831.50
 SEE DETAIL ON SHEET 34.

BUILDING 4
 40,560SF
 FF 830.50

BUILDING 5
 40,560SF
 FF 836.00

BUILDING 6
 20,800SF
 FF 832.25

STORM BY-PASS SWALE
 3:1 SIDESLOPES, 10' WIDE BOTTOM
 MIN. SLOPE = 0.0050
 RIP-RAP LINED
 SEE SECTION B-B, SHEET ---.

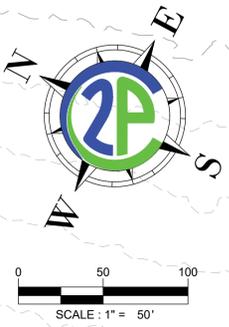
STA. 0+10.00 SECTION K
 18" RCP CULVERT
 W/ SAFETY END TREATMENTS
 IE (NW) = 827.300

STA. 0+90.00 SECTION K
 18" RCP CULVERT
 W/ SAFETY END TREATMENTS
 IE (SE) = 826.500

| GENERAL LEGEND | |
|----------------|----------------------|
| SYMBOLS | |
| | WATER METER |
| | WATER VALVE |
| | FIRE HYDRANT |
| | BACKFLOW PREVENTER |
| | UTILITY POLE |
| | LIGHT POLE |
| | CLEAN OUT |
| | KEYNOTES |
| | PARKING COUNT |
| | WW SERVICE |
| | WATER SERVICE |
| | STORM SEWER MAN-HOLE |
| | SIGN |
| | CURBINLET |
| | GRATE INLET |
| | TABLE TOP AREA INLET |
| | TREE TO BE SAVED |
| | TREE TO BE REMOVED |

| LINETYPES | |
|-----------|------------------------|
| | PROPERTY BOUNDARY |
| | LIMITS OF CONSTRUCTION |
| | FENCES (CHAINLINK) |
| | (IRON) |
| | (WOOD) |
| | (BARB WIRE) |
| | DITCH (CREEK) LINE |
| | EXISTING CONTOURS |
| | PROPOSED CONTOURS |
| | CURB & GUTTER |
| | UNDERGROUND ELEC. |
| | OVERHEAD UTILITY |
| | UNDERGROUND TELE. |
| | UNDERGROUND GAS LINE |
| | WATER LINE |
| | WASTEWATER LINE |
| | ACCESSIBLE ROUTE |

NOTE:
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 STORMWATER PONDS SHALL BE PRIVATELY
 OWNED AND MAINTAINED.



2P CONSULTANTS, LLC
 203 E. MAIN STREET, SUITE 204
 ROUND ROCK, TEXAS 78664
 512-344-9664
 TBPE FIRM #F-19351

DESIGNED: NWO
 DRAWN: DO
 REVIEWED: VALUE

9/12/2023

| NO. | DATE | REVISIONS | RECORD |
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AQUILA
 EXCHANGE 195
 STORMWATER PERMIT
 WILLIAMSON COUNTY, TEXAS 78633
 WILLIAMSON COUNTY, TEXAS 78633

STORM PLAN (2 OF 2)
 PERMIT No. ---
 SHEET No. 27 OF 56



Know what's below.
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CONTRACTOR NOTES:
 EXISTING UNDERGROUND AND OVERHEAD UTILITIES
 IN VICINITY. CONTRACTOR TO CONTACT UTILITY
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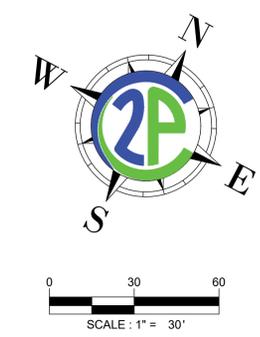
9/12/2023

| NO. | DATE | REVISIONS | RECORD |
|-----|------|-----------|--------|
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AQUILA
 EXCHANGE 195
 STORMWATER PERMIT
 WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

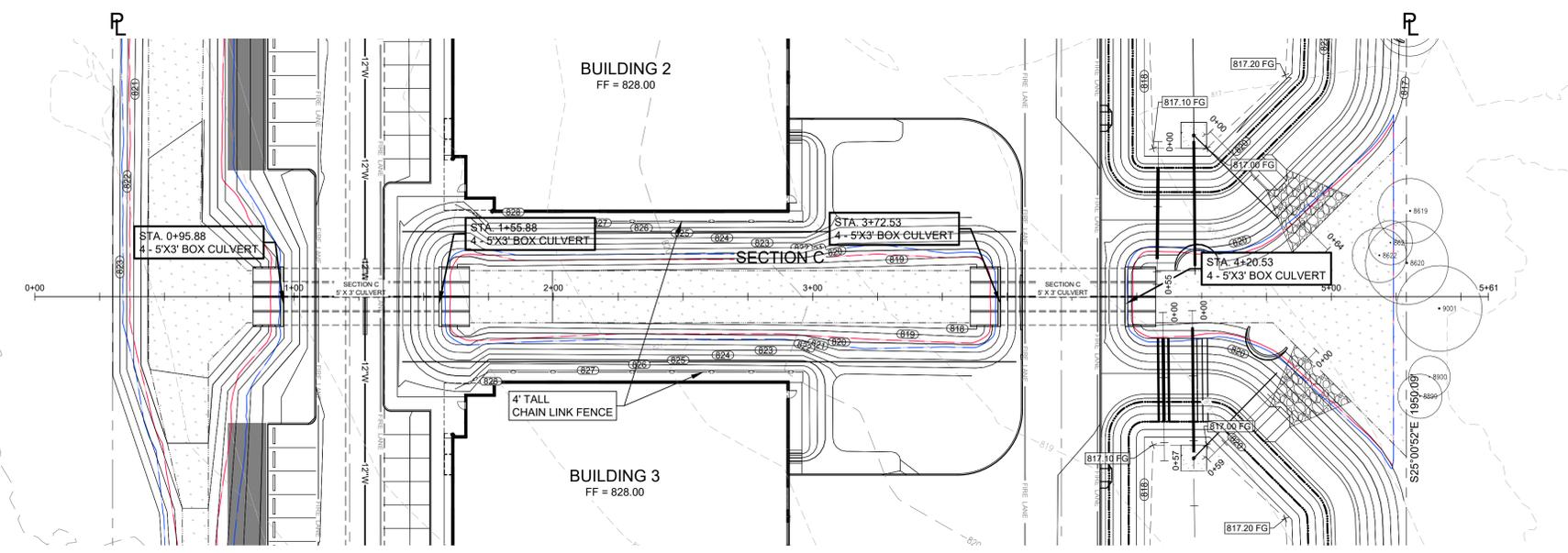
STORM SECTION C

PERMIT No. ---
 SHEET No. 29 OF 56

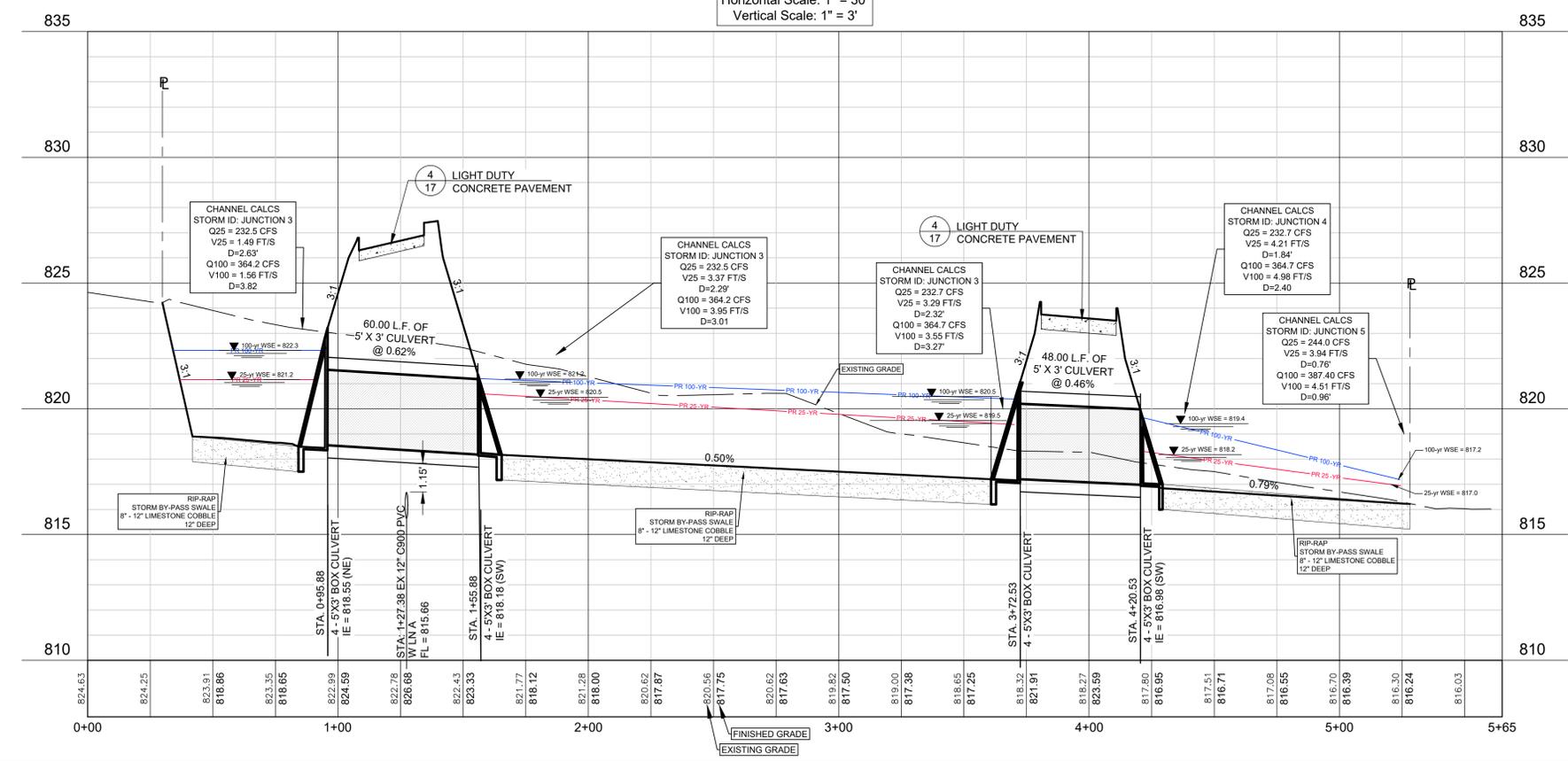


| GENERAL LEGEND | |
|----------------|------------------------|
| SYMBOLS | |
| | WATER METER |
| | WATER VALVE |
| | FIRE HYDRANT |
| | BACKFLOW PREVENTER |
| | UTILITY POLE |
| | LIGHT POLE |
| | CLEAN OUT |
| | KEYNOTES |
| | PARKING COUNT |
| | WW SERVICE |
| | WATER SERVICE |
| | STORM SEWER MANHOLE |
| | SIGN |
| | CURBINLET |
| | GRATE INLET |
| | TABLE TOP AREA INLET |
| | TREE TO BE SAVED |
| | TREE TO BE REMOVED |
| LINETYPES | |
| | PROPERTY BOUNDARY |
| | LIMITS OF CONSTRUCTION |
| | FENCES (CHAINLINK) |
| | (WOOD) |
| | (BARB WIRE) |
| | DITCH (CREEK) LINE |
| | EXISTING CONTOURS |
| | PROPOSED CONTOURS |
| | CURB & GUTTER |
| | UNDERGROUND ELEC. |
| | OVERHEAD UTILITY |
| | UNDERGROUND TELE. |
| | UNDERGROUND GAS LINE |
| | WATER LINE |
| | WASTEWATER LINE |
| | ACCESSIBLE ROUTE |

NOTE:
 ALL ONSITE DRAINAGE FACILITIES AND STORMWATER PONDS SHALL BE PRIVATELY OWNED AND MAINTAINED.



SECTION C
 Horizontal Scale: 1" = 30'
 Vertical Scale: 1" = 3'



Know what's below.
 Call before you dig.

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 CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

MODEL: N:\2022\26-SWP\2022-26-SWP.dwg
 DATE: 9/12/2023
 PLOTTED BY: DORIS

| POND 3 OVERFLOW - Spillway 2 (POI B) | | | | |
|--------------------------------------|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| Q - Weir Flow Rate (cfs) | 0.0 | 4.5 | 8.1 | 14.2 |
| H - Head above weir (ft) | 0.000 | 0.057 | 0.084 | 0.123 |
| V - Flow Velocity (ft/s) | 0.000 | 0.717 | 0.872 | 1.051 |

| PEAK POND ELEVATION - WQ Pond 3 | | | | |
|---------------------------------|-------|-------|-------|--------|
| Event | 2-YR | 10-YR | 25-YR | 100-YR |
| DISCHARGE | 4.3 | 6.2 | 6.7 | 7.4 |
| ELEV | 827.9 | 828.1 | 828.1 | 828.1 |

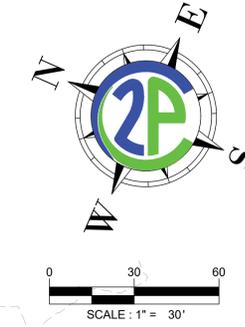
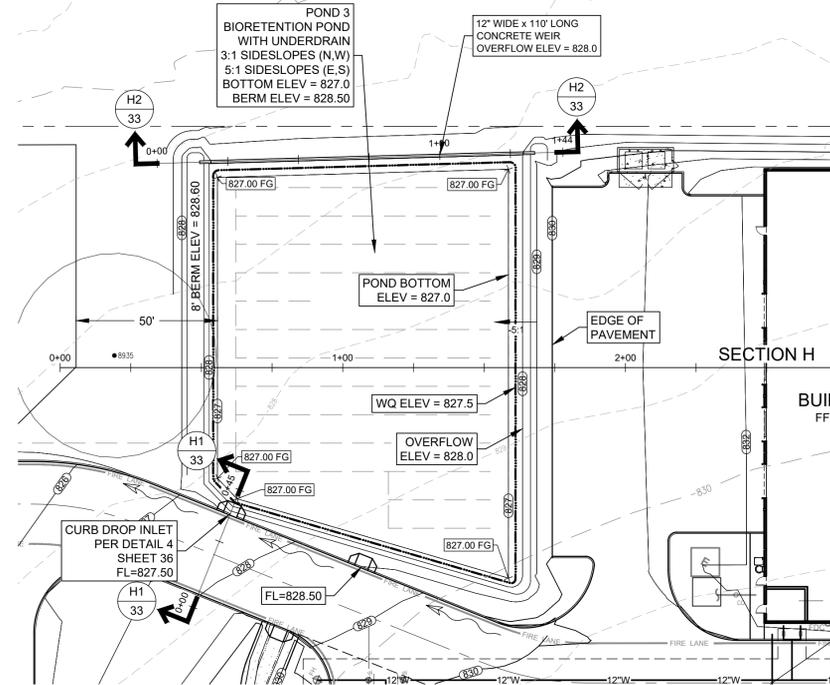
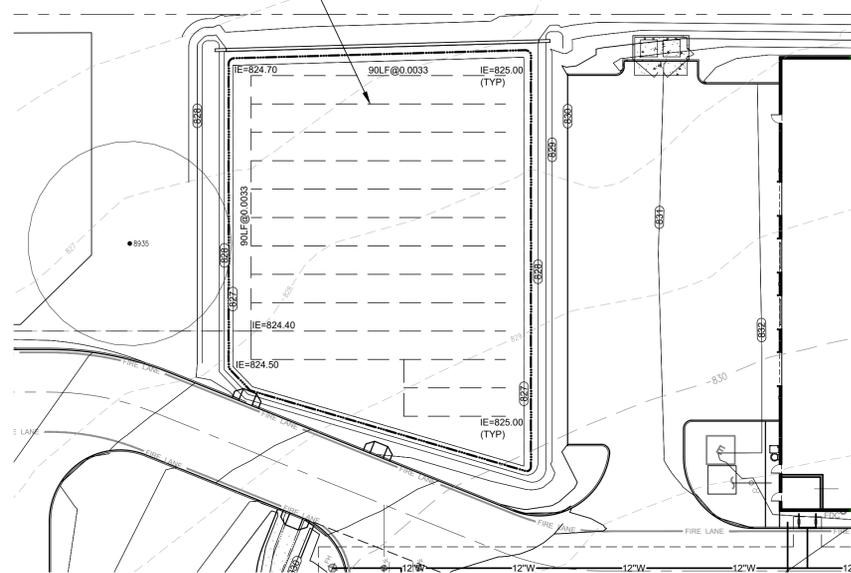
| WQ Pond 3 - Stage Storage | | | |
|---------------------------|-----------|------------------|------------------------|
| Elevation | Area (SF) | Step Volume (CF) | Cumulative Volume (CF) |
| 827.00 | 12,912 | - | 0 |
| 827.50 | 13,860 | 6,693 | 6,693 |
| 828.00 | 14,839 | 7,175 | 13,868 |
| 828.60 | 15,682 | 9,156 | 23,024 |

Volume = (A1 + A2)/2 * (E2 - E1)

Outlet Assumptions:
 Spillway 2 - Weir
 Elev = 828.0
 L - Length = 110
 C_w - Coef. = 3.00

Outlet Assumptions:
 Spillway 1 - Weir
 Elev = 827.5
 Length = 5
 Coef. = 3.00
 Spillway 2 - Weir
 Elev = 828.0
 Length = 110
 Coef. = 3.00

6" HDPE SUBDRAIN
 SPACED 10' O.C.
 SEE DETAIL SHEET 36
 OUTLET TO POND 2



GENERAL LEGEND

SYMBOLS

- WATER METER
- WATER VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTER
- UTILITY POLE
- LIGHT POLE
- WASTEWATER MAN-HOLE
- CLEAN OUT
- KEYNOTES
- PARKING COUNT
- WW SERVICE
- WATER SERVICE
- STORMSEWER MAN-HOLE
- SIGN
- CURB INLET
- GRATE INLET
- TABLE TOP AREA INLET
- TREE TO BE SAVED
- TREE TO BE REMOVED

LINETYPES

- PROPERTY BOUNDARY
- LOC - LIMITS OF CONSTRUCTION
- FENCES (CHAINLINK)
- (IRON)
- (WOOD)
- (BARB WIRE)
- DITCH (CREEK) LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CURB & GUTTER
- UNDERGROUND ELEC.
- OVERHEAD UTILITY
- UNDERGROUND TELE.
- UNDERGROUND GAS LINE
- WATER LINE
- WASTEWATER LINE
- ACCESSIBLE ROUTE

NOTE:
 ALL ONSITE DRAINAGE FACILITIES AND
 STORMWATER PONDS SHALL BE PRIVATELY
 OWNED AND MAINTAINED.

2P CONSULTANTS, LLC
 203 E. MAIN STREET, SUITE 204
 ROUND ROCK, TEXAS 78664
 512-344-9664
 TBPE FIRM #F-19351

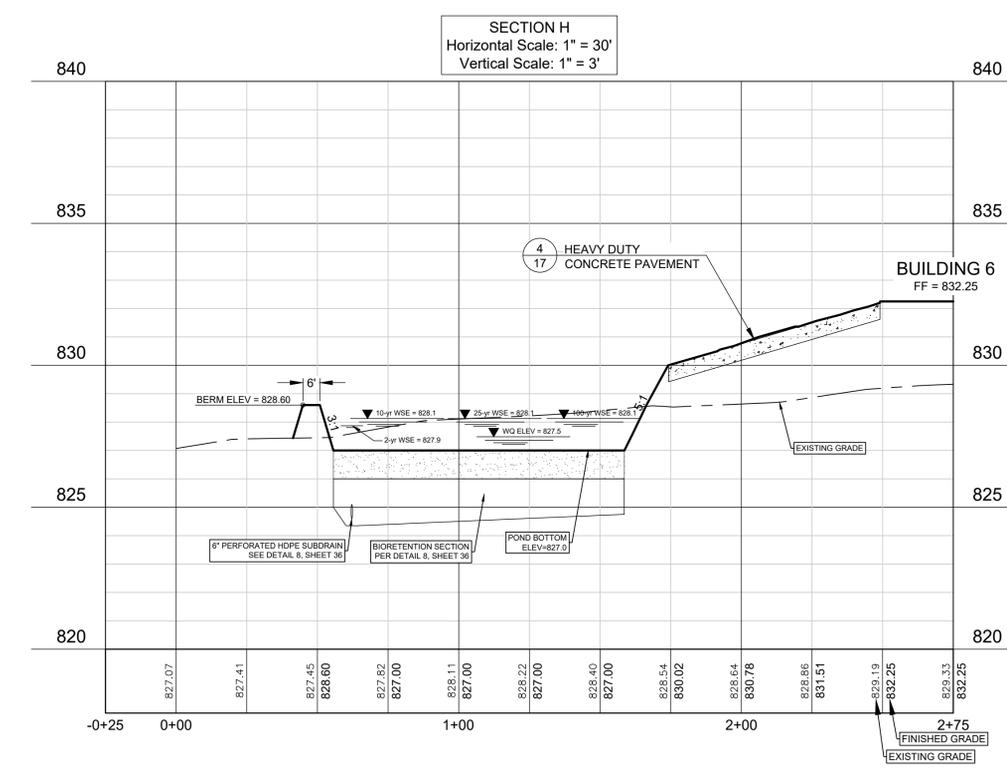
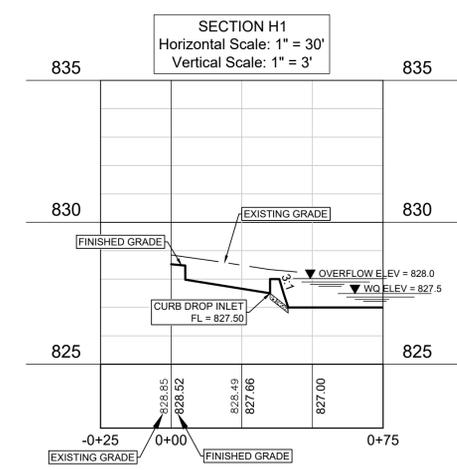
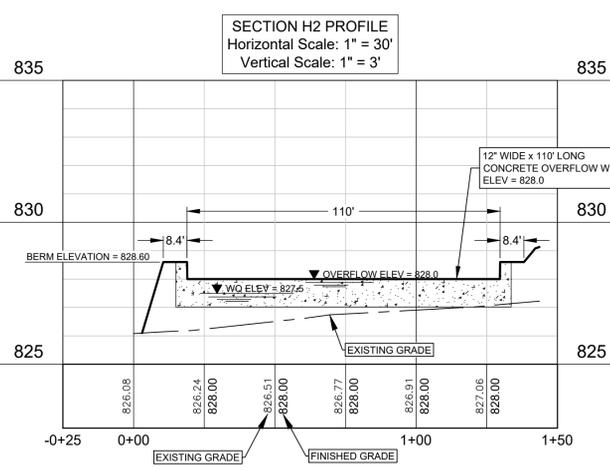
STATE OF TEXAS
 NIELSON W. O'GREN
 136895
 LICENSED PROFESSIONAL ENGINEER

| NO. | DATE | REVISIONS | RECORD |
|-----|------|-----------|--------|
| | | | |
| | | | |
| | | | |

AQUILA
 EXCHANGE 195
 STORMWATER PERMIT
 WILLIAMSON COUNTY, TEXAS 78633

STORM SECTION H

PERMIT No. ---
 SHEET No. 33 OF 56



Know what's below.
 Call before you dig.

CONTRACTOR NOTES:
 EXISTING UNDERGROUND AND OVERHEAD UTILITIES
 IN VICINITY. CONTRACTOR TO CONTACT UTILITY
 COMPANIES PRIOR TO CONSTRUCTION.
 CONTRACTOR TO FIELD VERIFY EXISTING UTILITY
 LOCATIONS & DEPTHS PRIOR TO BEGINNING
 CONSTRUCTION.
 CONTRACTOR SHALL CONSIDER PROPOSED UTILITY
 IMPROVEMENTS AND PROVIDE ADEQUATE
 HORIZONTAL AND VERTICAL CLEARANCE DURING
 INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

MODEL: NWD_SPT_TPRP
 DATE: 11/15/2022
 PLOTTED BY: DEBRA ORTIZ

CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS

| Nominal Culvert I.D. | Pipe Culvert Spacing | Pipe Runner Length | | | | | | | | | | | |
|----------------------|----------------------|--------------------|----------|----------|----------|----------------|----------|----------|----------|----------------|----------|----------|----------|
| | | 3:1 Side Slope | | | | 4:1 Side Slope | | | | 6:1 Side Slope | | | |
| | | 0° Skew | 15° Skew | 30° Skew | 45° Skew | 0° Skew | 15° Skew | 30° Skew | 45° Skew | 0° Skew | 15° Skew | 30° Skew | 45° Skew |
| 24" | 1'-0" | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 27" | 1'-0" | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 30" | 1'-0" | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 33" | 1'-0" | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 36" | 1'-0" | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 42" | 1'-0" | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 48" | 1'-0" | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 54" | 1'-0" | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 60" | 1'-0" | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| TYPICAL PIPE CULVERT MITERS | | | | | CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED | | | STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS | | | |
|-----------------------------|-----|--------|--------|--------|--|---------------------|------------------------|---|--------|--------|----------|
| Side Slope | 0° | 15° | 30° | 45° | Nominal Culvert I.D. | Single Pipe Culvert | Multiple Pipe Culverts | 2" STD | 2.375" | 2.067" | N/A |
| 3:1 | 3.1 | 3.1061 | 3.4641 | 4.2431 | 12" thru 21" | Skews thru 45° | Skews thru 45° | 3" STD | 3.500" | 3.068" | 10' - 0" |
| 4:1 | 4.1 | 4.1411 | 4.6191 | 5.6571 | 24" | Skews thru 30° | Skews thru 30° | 4" STD | 4.500" | 4.026" | 19' - 8" |
| 6:1 | 6.1 | 6.2121 | 6.9281 | 8.4851 | 30" | Skews thru 15° | Skews thru 15° | 6" STD | 5.500" | 5.047" | 34' - 2" |

| ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) | | | | | | | | | | | | |
|---|----------------|----------|----------|----------|----------------|----------|----------|----------|----------------|----------|----------|----------|
| Nominal Culvert I.D. | 3:1 Side Slope | | | | 4:1 Side Slope | | | | 6:1 Side Slope | | | |
| | 0° Skew | 15° Skew | 30° Skew | 45° Skew | 0° Skew | 15° Skew | 30° Skew | 45° Skew | 0° Skew | 15° Skew | 30° Skew | 45° Skew |
| 12" | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.7 | 0.7 | 0.7 | 0.8 |
| 15" | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 |
| 18" | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 | 0.9 |
| 21" | 0.5 | 0.5 | 0.5 | 0.5 | 0.7 | 0.7 | 0.7 | 0.7 | 0.9 | 0.9 | 0.9 | 1.0 |
| 24" | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 1.0 | 1.0 | 1.1 | 1.3 |
| 27" | 0.7 | 0.7 | 0.8 | 0.9 | 0.8 | 0.9 | 0.9 | 1.1 | 1.1 | 1.1 | 1.2 | 1.4 |
| 30" | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 1.0 | 1.2 | 1.2 | 1.2 | 1.3 | 1.6 |
| 33" | 0.8 | 0.8 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.3 | 1.3 | 1.4 | 1.5 | 1.7 |
| 36" | 0.9 | 0.9 | 0.9 | 1.1 | 1.1 | 1.1 | 1.2 | 1.4 | 1.4 | 1.4 | 1.5 | 1.8 |
| 42" | 1.0 | 1.0 | 1.1 | 1.3 | 1.2 | 1.3 | 1.3 | 1.6 | 1.6 | 1.7 | 1.8 | 2.1 |
| 48" | 1.1 | 1.1 | 1.2 | N/A | 1.4 | 1.4 | 1.5 | N/A | 1.9 | 1.9 | 2.1 | N/A |
| 54" | 1.3 | 1.3 | N/A | N/A | 1.6 | 1.6 | 1.8 | N/A | 2.1 | 2.1 | N/A | N/A |
| 60" | 1.4 | N/A | N/A | N/A | 1.7 | N/A | N/A | N/A | 2.3 | N/A | N/A | N/A |

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts entered as shown in this detail. Alternate styles of riprap may require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete (RC) culvert. Details of corrugated metal pipe (CMP) culvert are similar. Pipe runners not shown for clarity.)

ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

GENERAL NOTES:

- Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe slab out and bottom anchor pipe of the same size as the pipe runner as shown in the Standard Pipe Sizes and Max Pipe Runner Lengths table.
- This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:
 - For 60" culvert pipes, the skew must not exceed 15°.
 - For 54" culvert pipes, the skew must not exceed 30°.
 - For 48" culvert pipes, the skew must not exceed 45°.
 - For all culvert pipe sizes 42" and less, the skew must not exceed 45°.
- If the above conditions cannot be met, the designer should consider using a safety and treatment with flared wings. For further information, refer to the TxDOT Highway Design Manual.
- Miter - slope of mitered end of pipe culvert.
- Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".
- Quantities shown are for one and one of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

CROSS PIPE AND CONNECTIONS DETAILS

SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

PLAN OF SKEWED INSTALLATION

PIPE RUNNER DETAILS

BOTTOM ANCHOR PIPE DETAILS

BOTTOM ANCHOR TOEWALL DETAILS

SHOWING CROSS PIPE AND ANCHOR TOEWALL

SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SECTION A-A

GENERAL NOTES:

- Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".
- Recommended values of slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.
- Note that actual slope of pipe runner may vary slightly from slope of riprap and trimmed culvert pipe edge.
- Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the boxed connection to allow clear access.
- After installation, inspect the 1/2" hole to ensure that the top of the pipe runner with the bottom anchor pipe is adequate.
- At fabricator's option, a heat bend to a smooth 90° radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide pipe runners, cross pipes, and anchor pipes conforming to the requirements of ASTM A311 (Type E or G), or ASTM A500 Gr. B, or API 5L X70.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication.

Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Pipe runners are designed for a traveling load of 1,800 pounds at yield as recommended by Research Report 288-1, "Safety Treatment of Roadside Cross-Drainage Structures", March 1981. Safety end treatments (SET) shown herein are intended for use in those installations where out-of-control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.

Pipe runners are designed for a traveling load of 1,800 pounds at yield as recommended by Research Report 288-1, "Safety Treatment of Roadside Cross-Drainage Structures", March 1981.

The quantities for pipe runners, reinforcing steel, and concrete resulting from the formulas given herein are for Contractor's information only.

See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.

Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the safety end treatments.

Clear dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

TYPICAL WINGWALL ELEVATION

ISOMETRIC VIEW OF TYPICAL INSTALLATION

SECTION A-A

PLAN VIEWS OF CORNER DETAILS

TABLE OF REINFORCING BAR SIZES AND SPACING

| Bar | Size | Spacing |
|-----|------|---------|
| A | #4 | 12" Max |
| B | #4 | 12" Max |
| C | #4 | 12" Max |
| D | #4 | 12" Max |
| E | #4 | 12" Max |
| F | #4 | 12" Max |
| G | #4 | 12" Max |
| H | #4 | 12" Max |
| I | #4 | 12" Max |
| J | #4 | 12" Max |
| K | #4 | 12" Max |
| L | #4 | 12" Max |
| M | #4 | 12" Max |
| N | #4 | 12" Max |
| O | #4 | 12" Max |
| P | #4 | 12" Max |
| Q | #4 | 12" Max |
| R | #4 | 12" Max |

WING DIMENSION CALCULATIONS:

$$Hw = H + T + C - 0.250$$

$$Lw = (Hw - 0.333) (SL)$$

For cast-in-place culverts:
 $Ab = (N)(2) + (H + T) - 1(0.500)$
 $Ab = (0.5)(Hw + C) + (H + T) - 1(0.500)$

Total Wingwall Area (Sq Ft) = $(Lw)(Ab)$
 $(0.5)(Hw + C)(Lw)(N) - 1$

Total Concrete Volume (CY) = $(Wingwall Area)(0.583) + (Lw)(Ab)(0.583) + (Hw)(1)(1)(1) - 0.583(3) + (27)$

PIPE RUNNER DIMENSION CALCULATIONS:

Pipe Runner Length = $(Hw)(N) - 1(0.917)$
 $(Hw)(N) - 1(0.917)$

Total Reinforcing (Lb) = $(1.55)(Lw)(Ab) + (4.43)(Ab) + (K)(N)(Hw)(N) - 1$

See applicable box culvert standard for H, T, C, and U values.

C = Height of curb above top of top slab (feet)
 H = Height of wingwall (feet)
 K = Constant value for use in formulas
 N = Number of pipe runners
 SL = Side slope ratio (horizontal : 1 vertical)
 T = Top slab thickness (feet)
 U = Underpass width (feet)

GENERAL NOTES:

- Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.
- For vehicle safety, reduce curb height, if necessary, to provide a minimum 3" projection. No changes will be made in quantities and no additional compensation will be allowed for this work.
- For culverts with C = 0", the precast culvert reinforcing may extend 1" of minimum into wingwall. Wingwall Bars D and E may be omitted. Otherwise, refer to the Wingwall Connection detail on the Box Culvert Precast Miscellaneous Details (BCPMD) standard sheet.

CROSS PIPE INSTALLATION DETAILS

BOTTOM ANCHOR PIPE DETAILS

BOTTOM ANCHOR TOEWALL DETAILS

CROSS PIPE SLEEVE PIPE DETAILS

SIDE ELEVATION

SECTION A-A

GENERAL NOTES:

- Cross pipe is the same size as the pipe runner. Cross pipe slab out to the same size as the anchor pipe.
- Note that actual slope of safety pipe runner may vary slightly from side slope.
- Take care to ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the boxed connection to allow clear access.
- After installation, inspect the 1/2" hole to ensure that the top of the safety pipe runner with the bottom anchor pipe is adequate.
- At fabricator's option, a heat bend to a smooth 90° radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MAXIMUM PIPE RUNNER LENGTHS AND REQUIRED PIPE RUNNER AND ANCHOR PIPE SIZES

| Maximum Pipe Runner Length | Required Pipe Runner Size | | Required Anchor Pipe Size | |
|----------------------------|---------------------------|-----------|---------------------------|-----------|
| | Pipe Size | Pipe I.D. | Pipe Size | Pipe I.D. |
| 10' - 0" | 3" STD | 3.500" | 2" STD | 2.375" |
| 19' - 8" | 4" STD | 4.500" | 4.026" | 3.500" |
| 34' - 2" | 6" STD | 5.500" | 5.047" | 4.500" |

MADE IN THE U.S.A. FROM RECYCLED PAPER. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED. DATE: 02/20/2023. PLOTTED BY: DTP/ML/STP

2P CONSULTANTS, LLC
 203 E. MAIN STREET, SUITE 204
 ROUND ROCK, TEXAS 78664
 512.344.9664
 TBPE FIRM #F-19351

DESIGNED/NVO
 DRAWN/DO
 REVIEWED/VALUE

9/12/2023

RECORD

REVISIONS

NO.

DATE

PERMIT No.

REVIEWED/VALUE

SHEET No.

37 OF 56

2022-26-SWP

| CONSTRUCTION DETAILS: | NO. | SHEET | STD. DRAWING |
|--|-----|-------|--------------|
| TRENCH AND EMBEDMENT | 1 | 45 | W02 |
| DOUBLE WATER SERVICE PLAN | 2 | 45 | W05 |
| QUADRUPLE WATER SERVICE PLAN | 3 | 45 | W06 |
| TYPICAL VALVE SETTING | 4 | 45 | W07 |
| TYPICAL FIRE HYDRANT | 5 | 45 | W10 |
| TYPICAL THRUST BLOCKS | 6 | 45 | W11 |
| INSTALLATION OF PVC PIPE THROUGH CASTING | 7 | 45 | W14 |
| TRENCH AND EMBEDMENT | 8 | 45 | W22 |
| TYPICAL WATER SERVICE | 1 | 46 | W03 |
| SINGLE WATER SERVICE | 2 | 46 | W04 |
| METER BOX | 3 | 46 | W23 |
| REDUCER PRESSURE BACKFLOW | 4 | 46 | W46 |

| PRESSURE PLANE 975 - 1015 | | | | | |
|---------------------------|--------|-----------|-------|---------|-------|
| Building | FF | Minimum | | Maximum | |
| | | Elevation | Delta | Delta | PSI |
| 1 | 829.20 | 145.80 | 63.13 | 185.80 | 80.45 |
| 2 | 828.00 | 147.00 | 63.65 | 187.00 | 80.97 |
| 3 | 828.00 | 147.00 | 63.65 | 187.00 | 80.97 |
| 4 | 830.50 | 144.50 | 62.57 | 184.50 | 79.89 |
| 5 | 836.00 | 139.00 | 60.19 | 179.00 | 77.51 |
| 6 | 832.25 | 142.75 | 61.81 | 182.75 | 79.13 |



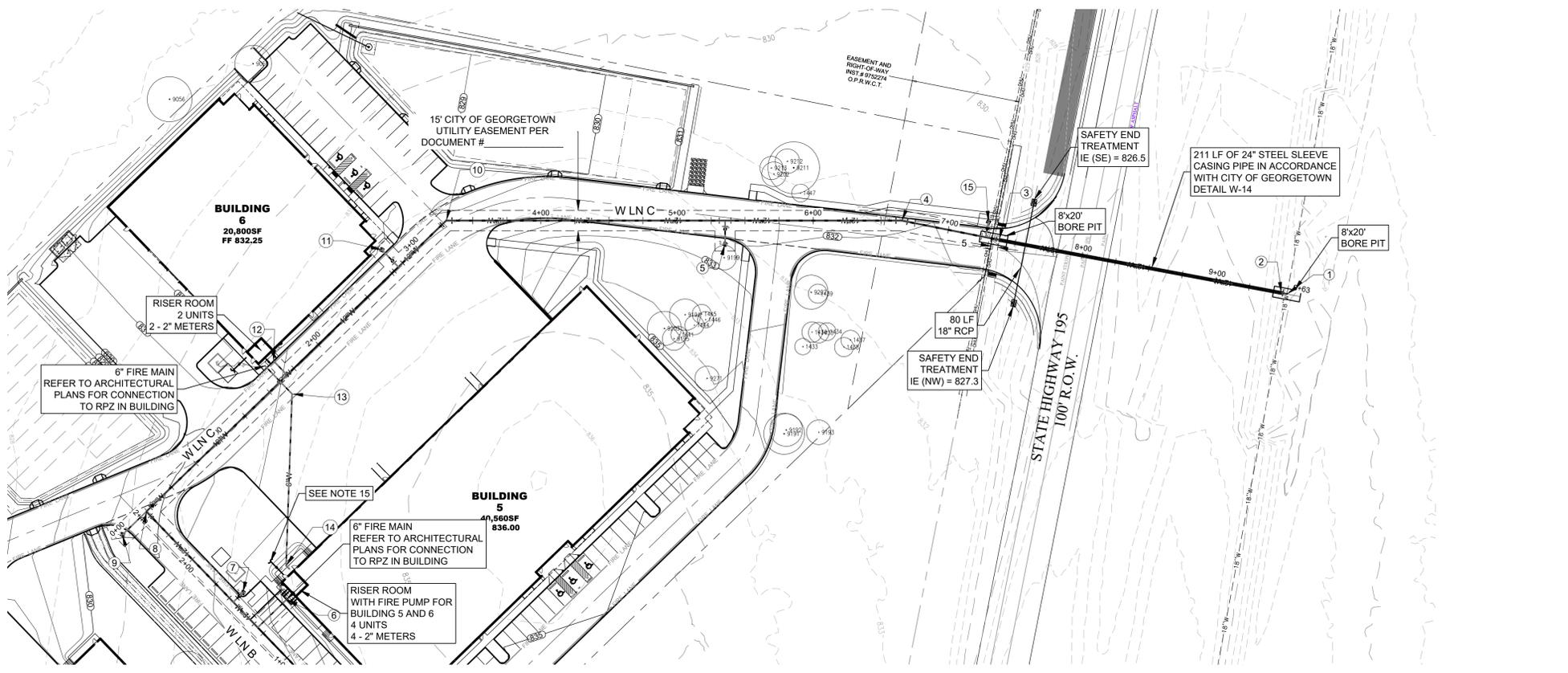
| GENERAL LEGEND | |
|----------------|----------------------|
| SYMBOLS | |
| | WATER METER |
| | WATER VALVE |
| | FIRE HYDRANT |
| | BACKFLOW PREVENTER |
| | UTILITY POLE |
| | LIGHT POLE |
| | CLEAN OUT |
| | KEYNOTES |
| | PARKING COUNT |
| | WW SERVICE |
| | WATER SERVICE |
| | STORM SEWER MAN-HOLE |
| | SIGN |
| | CURB INLET |
| | GRATE INLET |
| | TABLE TOP AREA INLET |
| | TREE TO BE SAVED |
| | TREE TO BE REMOVED |

| LINETYPES | |
|-----------|------------------------|
| | PROPERTY BOUNDARY |
| | LIMITS OF CONSTRUCTION |
| | FENCES (CHAINLINK) |
| | FENCES (WOOD) |
| | FENCES (BARB WIRE) |
| | DITCH (CREEK) LINE |
| | EXISTING CONTOURS |
| | PROPOSED CONTOURS |
| | CURB & GUTTER |
| | UNDERGROUND ELEC. |
| | OVERHEAD UTILITY |
| | UNDERGROUND TELE. |
| | UNDERGROUND GAS LINE |
| | WATER LINE |
| | WASTEWATER LINE |
| | ACCESSIBLE ROUTE |

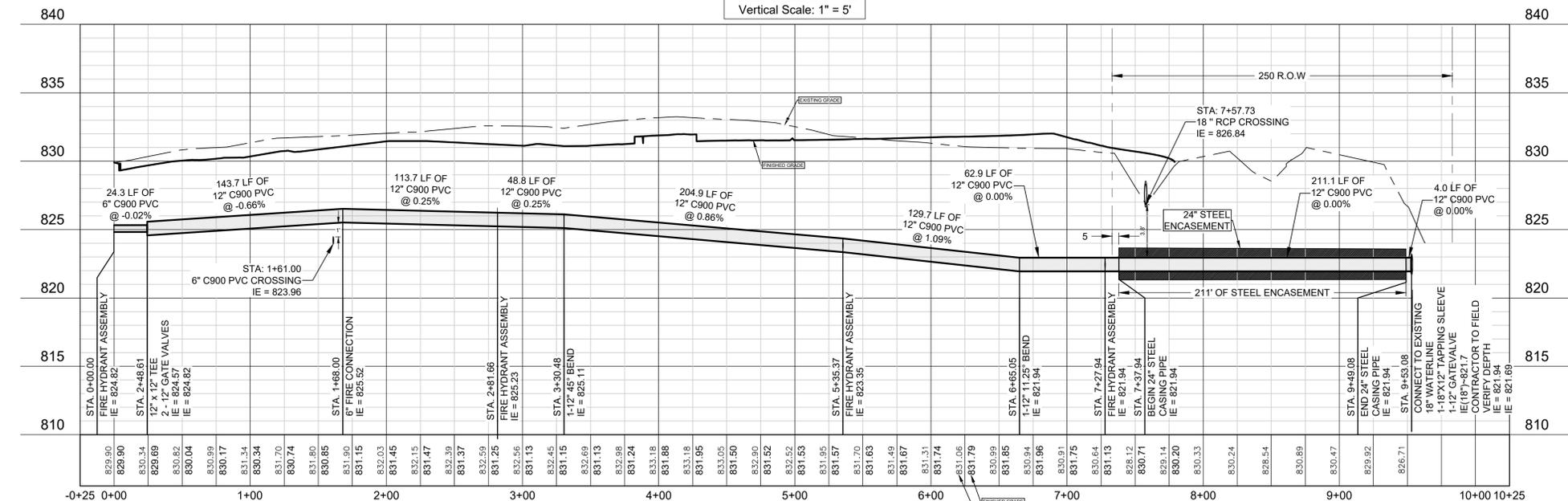
WATER CONSTRUCTION KEY NOTES

- STA. 9+53.08 W LN C CONNECT TO EXISTING 18" WATERLINE 1-18"X12" TAPPING SLEEVE 1-12" GATE VALVE IE (18" NW) = 821.7
CONTRACTOR TO FIELD VERIFY DEPTH
IE (12" NE) = 821.94
IE (18" NW) = 821.69
IE (18" SE) = 821.69
- STA. 9+49.08 W LN C END 24" STEEL CASING PIPE
IE (12" SW) = 821.94
- STA. 7+37.94 W LN C BEGIN 24" STEEL CASING PIPE
IE (12" NE) = 821.94
- STA. 6+65.05 W LN C 1-12" 11.25' BEND
IE (12" N) = 821.94
- STA. 5+35.37 W LN C 17.3' RT FIRE HYDRANT ASSEMBLY
IE (6" E) = 823.60
- STA. 2+48.61 W LN B 12" X 12" TEE
2- 12" GATE VALVES
IE (12" SW) = 824.57
IE (6" NW) = 824.82
IE (12" SE) = 824.57
- STA. 0+00.00 W LN C FIRE HYDRANT ASSEMBLY
IE (6" SE) = 824.82
- STA. 3+30.48 W LN C 1-12" 45' BEND
IE (12" NW) = 825.11
- STA. 2+81.66 W LN C 17.5' LT FIRE HYDRANT ASSEMBLY
IE (6" SW) = 825.48
- STA. 1+68.00 W LN C 14.1' LT DOUBLE WATER SERVICE
IE (2" SW) = 825.77
- STA. 1+61.00 W LN C 12.5' RT 1-6" 45' BEND
IE (6" NE) = 823.96
- STA. 0+70.69 W LN C 99.7' RT 1-6" 45' BEND
IE (6" E) = 831.04
- STA. 7+28.01 W LN C 11.5' LT FIRE HYDRANT ASSEMBLY
IE (6" NW) = 822.19

- NOTES:**
- WATER SERVICE TO BE PROVIDED BY THE CITY OF GEORGETOWN.
 - CONTRACTOR TO COORDINATE WITH M.E.P. PLANS FOR ALL UTILITY STUB OUTS.
 - CONTRACTOR TO ENSURE FIRE HYDRANTS, METERS OR VALVES ARE NOT PLACED WITHIN SIDEWALKS.
 - UNLESS OTHERWISE NOTED, ALL WATER LINES 4"-12" IN DIAMETER SHALL BE C900 PVC PIPE. WATER LINES LESS THAN 4" IN DIAMETER SHALL BE SDR-9 POLYETHYLENE TUBING.
 - THE CONTRACTOR IS TO CONTACT THE CITY OF GEORGETOWN PRIOR TO INSTALLATION OF THE METER AND FOR THE METER SPECS.
 - ALL WASTEWATER LINES ARE TO BE CONSTRUCTED OF SDR 26 (160 PSI PRESSURE RATING).
 - CONTRACTOR TO COORDINATE AND INSTALL NECESSARY IRRIGATION, ELECTRICAL AND TELECOMMUNICATION SLEEVES PRIOR TO PLACEMENT OF PAVEMENT.
 - ALL BENDS, TEES, REDUCERS AND GATE VALVES SHALL BE RESTRAINED PER CITY OF GEORGETOWN STANDARDS.
 - MINIMUM CLEARANCE BETWEEN WATER AND SANITARY SEWER LINES SHALL COMPLY WITH TCEQ REQUIREMENTS.
 - REFER TO SITE PLAN FOR UTILITY EASEMENT(S) LOCATION(S).
 - CONTRACTOR SHALL COORDINATE LIGHT POLE LOCATIONS AND SLEEVING FOR ELECTRICAL SERVICE WITH M.E.P.
 - CONTRACTOR SHALL COORDINATE LOCATIONS, SIZE AND TYPE OF LIGHTING WITH M.E.P. AND BUILDING PLANS.
 - CONTRACTOR SHALL ADJUST ALL VISIBLE UTILITY FEATURES TO FINISHED GRADE AS NEEDED AT NO ADDITIONAL COST TO OWNER.
 - ALL NON-CITY INFRASTRUCTURE INCLUDING GAS, ELECTRIC, CABLE AND TELECOMMUNICATION SHALL TRAVERSE UNDERNEATH CITY INFRASTRUCTURE. THIS INCLUDES, BUT IS NOT LIMITED TO WATER LINES, WASTEWATER AND STORM SEWER, WITH A MINIMUM OUTSIDE-TO-OUTSIDE CLEARANCE OF 18".
 - REFER TO THE ONSITE WASTEWATER FACILITY DESIGN FOR WASTEWATER PIPES AND FIXTURES, AND ARCHITECTURAL PLANS FOR WASTEWATER STUB SIZE AND DEPTH.
 - CONTRACTOR TO NOTIFY DESIGN ENGINEER ASAP IF EXISTING 18" WATER MAIN IS FOUND TO BE LOWER THAN NOTED AS-BUILT DEPTH.



W LN C PROFILE
Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 5'



| RESTRAINED JOINT TABLE - W LN C | | | | |
|---------------------------------|----------|------|-------------|-----------------|
| Pipe | Material | Size | Fitting | Station |
| C900 | C900 | 12" | 45° Bend | 3+24.48 3+36.48 |
| C900 | C900 | 12" | PVC CARRIER | 7+37.0 9+50.0 |



CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

MDT: WWS, SPT, TYPING, PLOT, PARSE, EASE, MVO, BLDG, N:\Programs\AutoCAD\2015\Projects\2022-26-SWP\WWS\WWS.dwg
 DATE: 09/12/2023
 PLOTTED BY: DTF/MDZ

2P CONSULTANTS, LLC
 203 E. MAIN STREET, SUITE 204
 ROUND ROCK, TEXAS 78664
 512-344-9664
 TBPE FIRM #F-19351

DESIGNED/NVO
 DRAWN/DO
 REVIEWED/VALUE

9/12/2023

AQUILA

EXCHANGE 195
 STORMWATER PERMIT
 WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

REVISIONS
 NO. DATE

WATER LINE C PLAN AND PROFILE

PERMIT No. ---
 SHEET No. 42 OF 56

WATER CONSTRUCTION KEY NOTES

③ STA. 4+81.29 W LN A 10.5' LT FIRE HYDRANT ASSEMBLY IE (6" SW) = 822.03

④ STA. 5+08.79 W LN A 12"x12" TEE 2 - 12" GATE VALVES IE (12" NW) = 821.72 IE (12" NE) = 821.72 IE (12" SE) = 821.72

⑦ STA. 1+47.66 W LN D 25.0' RT QUADRUPLE WATER SERVICE IE (2" NW) = 820.46

⑧ STA. 1+51.66 W LN D 13.0' LT QUADRUPLE WATER SERVICE IE (2" SE) = 820.41

⑨ STA. 1+67.11 W LN D 0.0' 6" x 12" REDUCER IE (12" SW) = 819.72 IE (6" NE) = 819.97

⑩ STA. 2+17.51 W LN D 2 - 45° ELBOWS TO FIRE HYDRANT ASSEMBLY IE (6" SE) = 819.41

CONSTRUCTION DETAILS:

| | | | |
|--|-------|----------|------------------|
| TRENCH AND EMBEDMENT | NO. 1 | SHEET 45 | STD. DRAWING W02 |
| DOUBLE WATER SERVICE PLAN | 2 | 45 | W05 |
| QUADRUPLE WATER SERVICE PLAN | 3 | 45 | W06 |
| TYPICAL VALVE SETTING | 4 | 45 | W07 |
| TYPICAL FIRE HYDRANT | 5 | 45 | W10 |
| TYPICAL THRUST BLOCKS | 6 | 45 | W11 |
| INSTALLATION OF PVC PIPE THROUGH CASTING | 7 | 45 | W14 |
| TRENCH AND EMBEDMENT | 8 | 45 | W22 |
| TYPICAL WATER SERVICE | 1 | 46 | W03 |
| SINGLE WATER SERVICE | 2 | 46 | W04 |
| METER BOX | 3 | 46 | W23 |
| REDUCER PRESSURE BACKFLOW | 4 | 46 | W46 |

PRESSURE PLANE 975 - 1015

| Building | FF Elevation | Minimum | | Maximum | |
|----------|--------------|---------|-------|---------|-------|
| | | Delta | PSI | Delta | PSI |
| 1 | 829.20 | 145.80 | 63.13 | 185.80 | 80.45 |
| 2 | 828.00 | 147.00 | 63.65 | 187.00 | 80.97 |
| 3 | 828.00 | 147.00 | 63.65 | 187.00 | 80.97 |
| 4 | 830.50 | 144.50 | 62.57 | 184.50 | 79.89 |
| 5 | 836.00 | 139.00 | 60.19 | 179.00 | 77.51 |
| 6 | 832.25 | 142.75 | 61.81 | 182.75 | 79.13 |

WATER CONSTRUCTION KEY NOTES

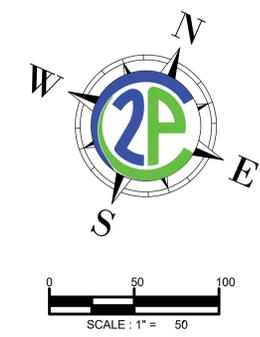
① STA. 12+59.79 W LN A 12"x12" TEE 2 - 12" GATE VALVES IE (12" NW) = 821.62 IE (12" NE) = 821.62 IE (12" SE) = 821.62

⑩ STA. 1+51.66 W LN E 13.0' RT QUADRUPLE WATER SERVICE IE (2" SE) = 821.03

⑪ STA. 1+47.66 W LN E 13.0' RT QUADRUPLE WATER SERVICE IE (2" NW) = 821.06

⑫ STA. 12+59.79 W LN A 167.1' LT 6" x 12" REDUCER IE (12" SW) = 820.47 IE (6" NE) = 820.71

⑬ STA. 2+17.51 W LN E 2 - 45° ELBOWS TO FIRE HYDRANT ASSEMBLY IE (6" NW) = 820.28



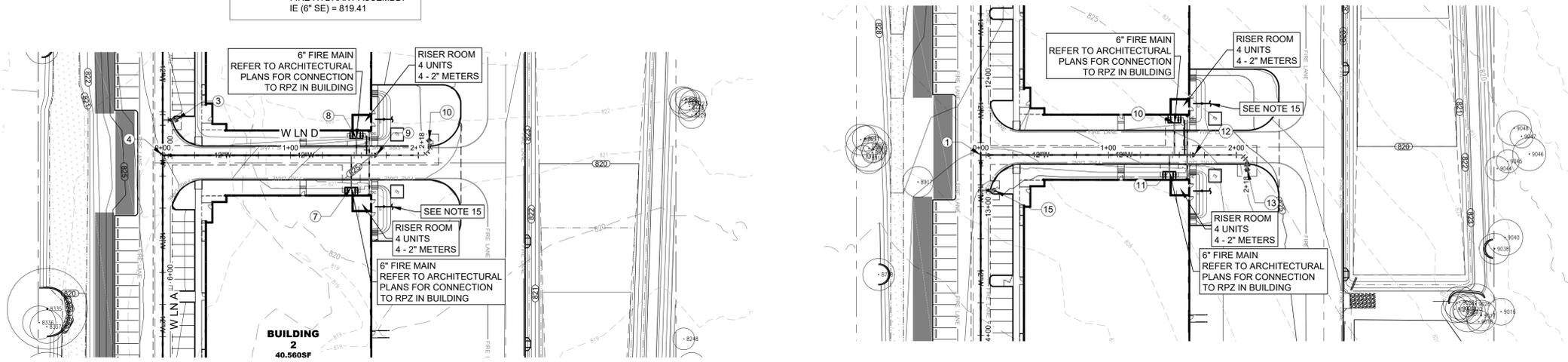
GENERAL LEGEND

SYMBOLS

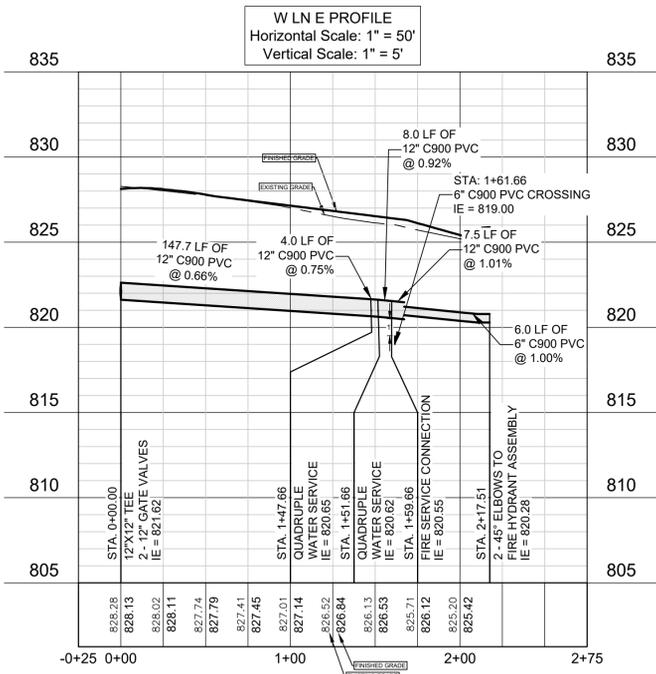
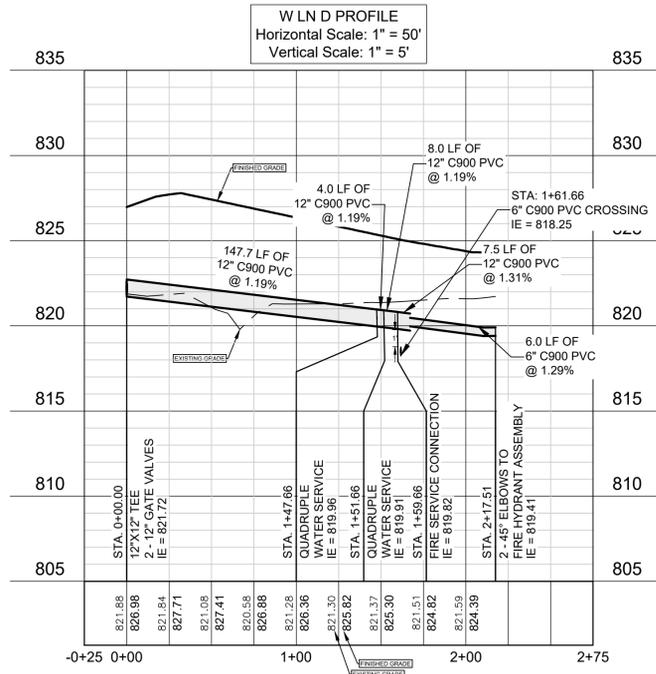
- Water Meter
- Fire Hydrant
- Backflow Preventer
- Utility Pole
- Light Pole
- Wastewater Man-Hole
- Clean Out
- Keynotes
- Parking Count
- WW Service
- Water Service
- Storm Sewer Man-Hole
- Sign
- Curbinlet
- Grate Inlet
- Table Top Area Inlet
- Tree to be Saved
- Tree to be Removed

LINE TYPES

- Property Boundary
- Limits of Construction
- Fences (Chainlink)
- (Iron)
- (Wood)
- (Barb Wire)
- Ditch (Creek) Line
- Existing Contours
- Proposed Contours
- Curb & Gutter
- Underground Elec.
- Overhead Utility
- Underground Tele.
- Underground Gas Line
- Water Line
- Wastewater Line
- Accessible Route



- NOTES:**
- WATER SERVICE TO BE PROVIDED BY THE CITY OF GEORGETOWN.
 - CONTRACTOR TO COORDINATE WITH M.E.P. PLANS FOR ALL UTILITY STUB OUTS.
 - CONTRACTOR TO ENSURE FIRE HYDRANTS, METERS OR VALVES ARE NOT PLACES WITHIN SIDEWALKS.
 - UNLESS OTHERWISE NOTED, ALL WATER LINES 4"-12" IN DIAMETER SHALL BE C900 PVC PIPE. WATER LINES LESS THAN 4" IN DIAMETER SHALL BE SDR-9 POLYETHYLENE TUBING.
 - THE CONTRACTOR IS TO CONTACT THE CITY OF GEORGETOWN PRIOR TO INSTALLATION OF THE METER AND FOR THE METER SPECS.
 - ALL WASTEWATER LINES ARE TO BE CONSTRUCTED OF SDR 26 (160 PSI PRESSURE RATING).
 - CONTRACTOR TO COORDINATE AND INSTALL NECESSARY IRRIGATION, ELECTRICAL AND TELECOMMUNICATION SLEEVES PRIOR TO PLACEMENT OF PAVEMENT.
 - ALL BENDS, TEES, REDUCERS AND GATE VALVES SHALL BE RESTRAINED PER CITY OF GEORGETOWN STANDARDS.
 - MINIMUM CLEARANCE BETWEEN WATER AND SANITARY SEWER LINES SHALL COMPLY WITH TCEQ REQUIREMENTS.
 - REFER TO SITE PLAN FOR UTILITY EASEMENT(S) LOCATION(S).
 - CONTRACTOR SHALL COORDINATE LIGHT POLE LOCATIONS AND SLEEVING FOR ELECTRICAL SERVICE WITH M.E.P.
 - CONTRACTOR SHALL COORDINATE LOCATIONS, SIZE AND TYPE OF LIGHTING WITH M.E.P. AND BUILDING PLANS.
 - CONTRACTOR SHALL ADJUST ALL VISIBLE UTILITY FEATURES TO FINISHED GRADE AS NEEDED AT NO ADDITIONAL COST TO OWNER.
 - ALL NON-CITY INFRASTRUCTURE INCLUDING GAS, ELECTRIC, CABLE AND TELECOMMUNICATION SHALL TRAVERSE UNDERNEATH CITY INFRASTRUCTURE. THIS INCLUDES, BUT IS NOT LIMITED TO WATER LINES, WASTEWATER AND STORM SEWER, WITH A MINIMUM OUTSIDE-TO-OUTSIDE CLEARANCE OF 18"
 - REFER TO THE ONSITE WASTEWATER FACILITY DESIGN FOR WASTEWATER PIPES AND FIXTURES, AND THE ARCHITECTURAL PLANS FOR WASTEWATER STUB SIZE AND DEPTH



Know what's below.
Call before you dig.

CONTRACTOR NOTES:

EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.

CONTRACTOR SHALL CONSIDER PROPOSED UTILITY IMPROVEMENTS AND PROVIDE ADEQUATE HORIZONTAL AND VERTICAL CLEARANCE DURING INSTALLATION OF ALL UTILITY INFRASTRUCTURE.

MODEL: N:\02_Site Plans\02_Plan\02_Plan\02_Plan\02_Plan.dwg
 DATE: 11/15/2022
 PLOTTED BY: D:\02_Site Plans\02_Plan\02_Plan\02_Plan.dwg

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512.344.9664
TBPE FIRM #F-19351

DESIGNED: NVO DRAWN: DO REVIEWED: VALUE

9/12/2023

RECORD

NO. DATE REVISIONS

AQUILA

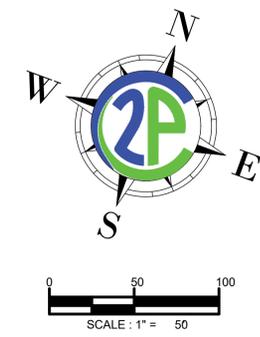
EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

WATER LINE D AND E PLAN AND PROFILE

PERMIT No. ---
SHEET No. 43 OF 56

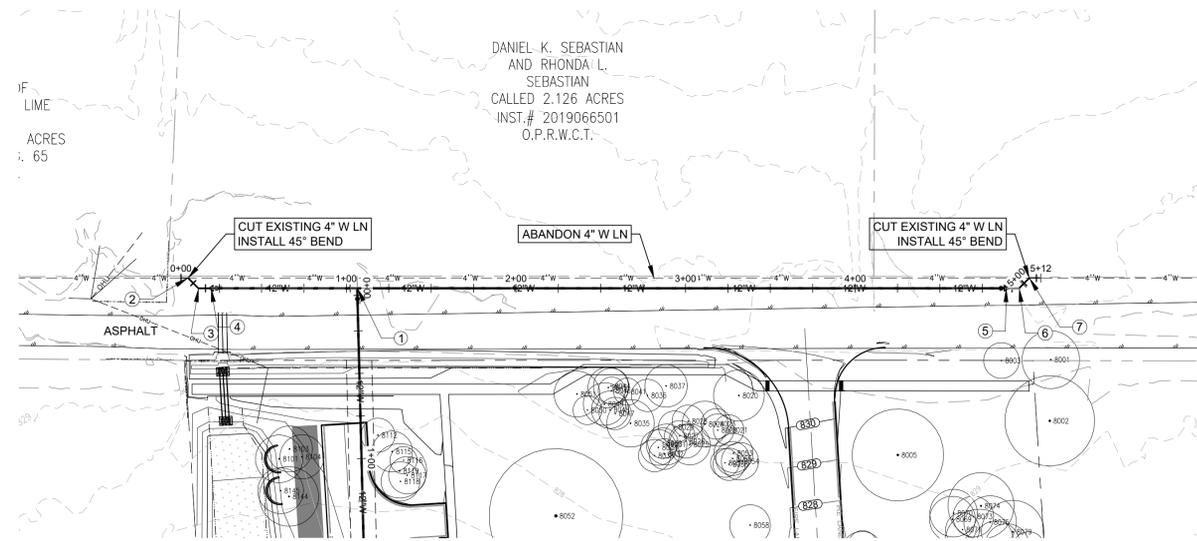
| CONSTRUCTION DETAILS: | NO. | SHEET | STD. DRAWING |
|--|-----|-------|--------------|
| TRENCH AND EMBEDMENT | 1 | 45 | W02 |
| DOUBLE WATER SERVICE PLAN | 2 | 45 | W05 |
| QUADRUPLE WATER SERVICE PLAN | 3 | 45 | W06 |
| TYPICAL VALVE SETTING | 4 | 45 | W07 |
| TYPICAL FIRE HYDRANT | 5 | 45 | W10 |
| TYPICAL THRUST BLOCKS | 6 | 45 | W11 |
| INSTALLATION OF PVC PIPE THROUGH CASTING | 7 | 45 | W14 |
| TRENCH AND EMBEDMENT | 8 | 45 | W22 |
| TYPICAL WATER SERVICE | 1 | 46 | W03 |
| SINGLE WATER SERVICE | 2 | 46 | W04 |
| METER BOX | 3 | 46 | W23 |
| REDUCER PRESSURE BACKFLOW | 4 | 46 | W46 |

| Building | PRESSURE PLANE 975 - 1015 | | | | |
|----------|---------------------------|--------|-------|--------|-------|
| | Elevation | Delta | PSI | Delta | PSI |
| 1 | 829.20 | 145.80 | 63.13 | 185.80 | 80.45 |
| 2 | 828.00 | 147.00 | 63.65 | 187.00 | 80.97 |
| 3 | 828.00 | 147.00 | 63.65 | 187.00 | 80.97 |
| 4 | 830.50 | 144.50 | 62.57 | 184.50 | 79.89 |
| 5 | 836.00 | 139.00 | 60.19 | 179.00 | 77.51 |
| 6 | 832.25 | 142.75 | 61.81 | 182.75 | 79.13 |

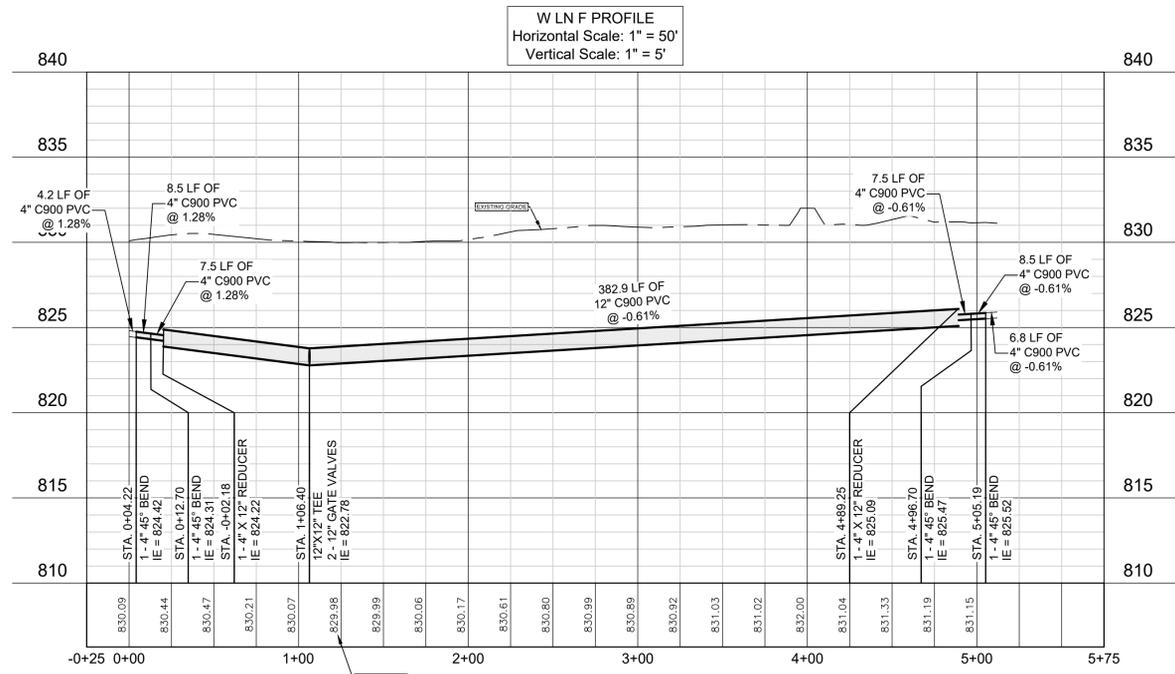


| GENERAL LEGEND | |
|----------------|----------------------|
| SYMBOLS | |
| | WATER METER |
| | WATER VALVE |
| | FIRE HYDRANT |
| | BACKFLOW PREVENTER |
| | UTILITY POLE |
| | LIGHT POLE |
| | CLEAN OUT |
| | KEYNOTES |
| | PARKING COUNT |
| | WW SERVICE |
| | WATER SERVICE |
| | STORMSEWER MAN-HOLE |
| | SIGN |
| | CURBINLET |
| | GRATE INLET |
| | TABLE TOP AREA INLET |
| | TREE TO BE SAVED |
| | TREE TO BE REMOVED |

| WATER CONSTRUCTION KEY NOTES | |
|------------------------------|--|
| ① | STA 1+06.40, W LN F = STA 1+00.00, W LN A 12"X12" TEE 2 - 12" GATE VALVES IE (12" W) = 822.78 IE (12" E) = 822.78 IE (12" SE) = 822.78 |
| ② | STA. 0+04.22 W LN F 1 - 4" 45° BEND IE (4" W) = 824.42 IE (4" SE) = 824.42 |
| ③ | STA. 0+12.70 W LN F 1 - 4" 45° BEND IE (4" NW) = 824.31 IE (4" E) = 824.31 |
| ④ | STA. -0+02.18 W LN A 86.2' RT 1 - 4" X 12" REDUCER IE (4" W) = 824.22 IE (12" E) = 823.88 |
| ⑤ | STA. 4+89.25 W LN F 1 - 4" X 12" REDUCER IE (12" W) = 825.09 IE (4" E) = 825.43 |
| ⑥ | STA. 4+96.70 W LN F 1 - 4" 45° BEND IE (4" W) = 825.47 IE (4" NE) = 825.47 |
| ⑦ | STA. 5+05.19 W LN F 1 - 4" 45° BEND IE (4" SW) = 825.52 IE (4" E) = 825.52 |



- NOTES:**
- WATER SERVICE TO BE PROVIDED BY THE CITY OF GEORGETOWN.
 - CONTRACTOR TO COORDINATE WITH M.E.P. PLANS FOR ALL UTILITY STUB OUTS.
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 - THE CONTRACTOR IS TO CONTACT THE CITY OF GEORGETOWN PRIOR TO INSTALLATION OF THE METER AND FOR THE METER SPECS.
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 - CONTRACTOR SHALL COORDINATE LIGHT POLE LOCATIONS AND SLEEVING FOR ELECTRICAL SERVICE WITH M.E.P.
 - CONTRACTOR SHALL COORDINATE LOCATIONS, SIZE AND TYPE OF LIGHTING WITH M.E.P. AND BUILDING PLANS.
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| RESTRAINED JOINT TABLE - W LN F | | | | |
|---------------------------------|------|----------|---------|---------|
| Pipe | | Fitting | Station | |
| Material | Size | | Start | End |
| C900 | 12" | 45° Bend | 0+12.70 | 0+18.70 |
| C900 | 12" | 45° Bend | 4+90.70 | 4+96.70 |



Know what's below.
Call before you dig.

CONTRACTOR NOTES:
EXISTING UNDERGROUND AND OVERHEAD UTILITIES IN VICINITY. CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS & DEPTHS PRIOR TO BEGINNING CONSTRUCTION.
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MGR: NWO, SPT, TRP, G
 N: P, R, S, A, M, W, V, Y, Z
 D: W, O, L, T, E, S, I, N, G
 PLOTTED BY: D. F. ORTIZ

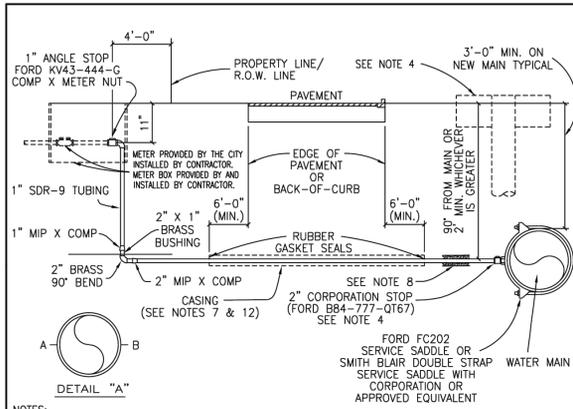
2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512.344.9664
TBPE FIRM #F-19351



| NO. | DATE | REVISIONS | RECORD |
|-----|------|-----------|--------|
| | | | |
| | | | |
| | | | |

AQUILA
EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON COUNTY, TEXAS 78633

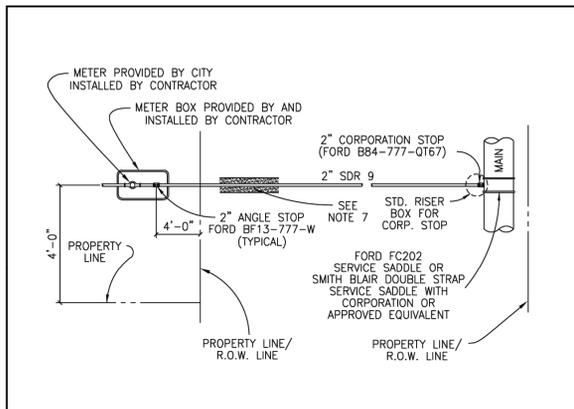
WATER LINE F PLAN AND PROFILE
PERMIT No. ---
SHEET No. 44 OF 56



- NOTES:
- SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED A MINIMUM OF 18" OFFSET AND AT THE CENTERLINE AS SHOWN ON DETAIL "A".
 - WHERE NO SIDEWALK EXISTS, METER BOXES SHALL BE SET TO CONFORM TO FINISHED GRADE.
 - AUTHORIZED SERVICE LINE MATERIAL:
POLYETHYLENE TUBING SHALL BE SDR-9, CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
 - ROTATE THE CORPORATION STOP SO THAT THE OPERATING NUT IS ACTUATED FROM THE VERTICAL POSITION RATHER THAN THE HORIZONTAL. SEE STD. RISER FOR CORP. STOP DETAIL, (DWG # W08).
 - SERVICE LINES SHALL BE CONTINUOUS FROM CORPORATION STOP TO CORPORATION STOP WITH NO FITTINGS IN BETWEEN.
 - SERVICE CASING SHALL NOT BE INSTALLED BY WATER JETTING UNDER ROADWAY.
 - CASING REQUIRED FOR ALL PAVEMENT CROSSINGS. 4" SDR-26 REQUIRED FOR OPEN-CUT. STEEL CASING PIPE REQUIRED FOR JACK AND BORE. LIMITS OF CASING SHOULD EXTEND SIX FEET BEYOND THE EDGE OF PAVEMENT OR BACK-OF-CURB.
 - BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
 - ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
 - METER BOX TO BE CAPABLE OF HOUSING ITRON AUTOMATIC METER READING DEVICE. USE DFW-PLASTICS, INC. PART NO. 1200.SBAMR OR APPROVED EQUAL.
 - ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY. SEE DETAIL W23.
 - CASING SHALL EXTEND OUT TO WITHIN 4' INSIDE OF THE R.O.W. LINE, ON BOTH SIDES.

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

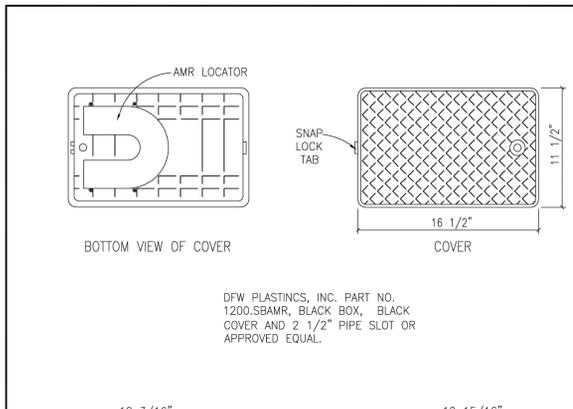
| | | | |
|---------------------------|----------|--|--------------------|
| | 1 | CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS | ADOPTED 01/23/2013 |
| | | TYPICAL WATER SERVICE-ELEVATION | W03 |
| | 2 | CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS | ADOPTED 01/23/2013 |
| SINGLE WATER SERVICE PLAN | | W04 | |



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

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

| | | | |
|--|----------|--|-------------------|
| | 3 | CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS | ADOPTED 6/21/2006 |
| | | METER BOX (NON-TRAFFIC AREAS) | W23 |



- NOTES:
- AUTHORIZED SERVICE LINE MATERIAL:
POLYETHYLENE TUBING SHALL BE SDR-9, CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
 - ANGLE STOP SHALL BE 1" MINIMUM.
 - 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
 - MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
 - ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
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 - ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
 - ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

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

| | | | |
|--|----------|--|-------------------|
| | 3 | CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS | ADOPTED 6/21/2006 |
| | | METER BOX (NON-TRAFFIC AREAS) | W23 |

EXTERIOR FIBERGLASS SKIN

INTERNAL INSULATION
1.5" W WALLS 3" @ TOP

| MODEL | SIZE | BACKFLOW DIMENSIONS | | | | | ENCLOSURE DIMENSIONS | | | PAD DIMENSIONS | |
|---------|------|---------------------|--------|--------|--------|-----|----------------------|-----|-----|----------------|-----|
| | | A | B | C | D | E | EL | EW | EH | PL | PW |
| RPE-075 | 8" | 12 3/4" | 7 3/4" | 4 3/4" | 3 3/4" | 28" | 27" | 13" | 35" | 42" | 28" |
| RPE-100 | 10" | 15 3/4" | 7 3/4" | 4 3/4" | 3 3/4" | 28" | 27" | 13" | 35" | 42" | 28" |
| RPE-125 | 12" | 18 3/4" | 7 3/4" | 4 3/4" | 3 3/4" | 28" | 27" | 13" | 35" | 42" | 28" |
| RPE-150 | 14" | 21 3/4" | 7 3/4" | 4 3/4" | 3 3/4" | 28" | 27" | 13" | 35" | 42" | 28" |
| RPE-200 | 20" | 27 3/4" | 7 3/4" | 4 3/4" | 3 3/4" | 28" | 27" | 13" | 35" | 42" | 28" |

SECURE TO CONCRETE
BASE w/ 3/8" GALV
STEEL ANCHOR BOLTS

PRECAST CONCRETE
BASE

PRECISE DIMENSIONS AND TOLERANCES
ADD AN "S" SUFFIX FOR STRAINER OPTION
ADD AN "H" SUFFIX FOR HEATER OPTION

MOUNTING DETAIL

PRECISE CONCRETE
PAD w/ LIFTING EYES

ELECTRIC HEATER
(OPTIONAL)

OPTIONAL: PRE-ENGINEERED
ALUMINUM ENCLOSURE
MFG: ParkUSA
WWW.PARKUSA.COM
888-611-PARK
MODEL: RPE-1

REDUCED PRESSURE
BACKFLOW PREVENTER

BALL VALVE
(TYP-2)

DRAIN (TYP-2)

EW PW

TOP VIEW

HINGED ACCESS LID
w/ HASP & STAPLE

GALV STEEL SUPPORTS
BOLTED TO PAD
(TYP-2)

120V
RECEPTACLE
(BY OTHERS)

PRECISE CONCRETE
SLAB w/ LIFTING EYES

RE: MTG DETAIL

FRONT VIEW

PIPING & FITTINGS
BY OTHERS (TYP)

Specifications

CONCRETE: Class I/II concrete with design strength of 4500 PSI at 28 days.

REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

Typical Applications

RP devices are used to protect against high hazard (toxic) fluids in water services to industrial plants, hospital facilities, morgues, mortuaries, and chemical plants. They are also used in irrigation systems, boiler feed, water lines and other installations requiring maximum protection.

Engineering Data

The backflow assembly shall be factory assembled on pad & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:

FM AWWA UL LPCA IPCA

PROJECT:

CUSTOMER:

ENGINEER:

ORDER #:

PROJ #:

DATE:

888.611.PARK
www.parkusa.com

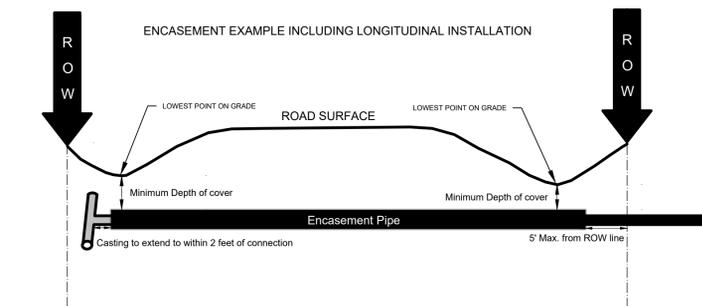
PARK
DESIGN FOR WATER

REDUCED PRESSURE BACKFLOW
PREVENTER w/ INSULATED ENCLOSURE
MODEL RPE - 3/4" THRU 2"

4

| | | | | |
|------|------|-----|----------|------|
| PM | DRN | ENG | DWG. NO. | REV. |
| DATE | 2018 | | RPE-1 | A |

Figure: 43 TAC §21.40 (a) (1)



NOTE: THIS IS A PRELIMINARY DRAWING. IT IS NOT TO BE USED FOR CONSTRUCTION. ANY CHANGES TO THIS DRAWING SHALL BE MADE BY THE DESIGNER. THE USER ASSUMES ALL LIABILITY FOR THE USE OF THIS DRAWING.

2P CONSULTANTS, LLC
203 E. MAIN STREET, SUITE 204
ROUND ROCK, TEXAS 78664
512.344.9664
TBP# FIRM #F-19351

DESIGNED BY: DRAWN BY: REVIEWED BY: VALUE

9/12/2023

RECORD

NO. DATE REVISIONS

AQUILA

EXCHANGE 195
STORMWATER PERMIT
WILLIAMSON COUNTY, TEXAS 78633 WILLIAMSON
COUNTY, TEXAS 78633

WATER DETAILS (2 OF 2)

PERMIT No. ---

SHEET No. 46 OF 56

2022-26-SWP