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 <u>30 TAC 213</u>.

Administrative Review

1. <u>Edwards Aquifer applications</u> 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: <u>http://www.tceq.texas.gov/field/eapp</u>.

- 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: HUNTERS GLEN ADDITION | | | | 2. Regulated Entity No.: RN111479283 | | | | |
|--|-------------|----------------|--------|--------------------------------------|------------|--------|----------------------------|-------------------------------|
| 3. Customer Name: HARGROVE, CASEY | | | | 4. Customer No.: CN605437102 | | | | |
| 5. Project Type: (Please circle/check one) | New | Modific | eation | | Exter | nsion | 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-res | sident | tial | | 8. Sit | e (acres): | 41 |
| 9. Application Fee: | \$9,436 | 10. Pei | rman | ent F | BMP(s | s): | Wet Basin | |
| 11. SCS (Linear Ft.): | 5,872 | 12. AST/UST (N | | | o. Tanks): | | NA | |
| 13. County: | WILLIAMSON | 14. Wa | tersl | hed: | | | SALADO CREE | ΣK |

Application Distribution

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

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

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

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

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

TCEQ-20705 (Rev. 02-17-17)

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. Michael Westfall, PE

Print Name of Customer/Authorized Agent

6/10/24 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 Cust | comer Verification: | | | |
| Agent Authorization Complete/Notarized (Y/N): | | Fee | Payable to TCEQ (Y/N): | | | |
| Core Data Form Complete (Y/N): | | Check: | Signed (Y/N): | | | |
| Core Data Form Incomplete Nos.: | | | Less than 90 days old (Y/N): | | | |



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

| | 1000 | | iuuioii | | | | | | | | | | | |
|---|-------------------|----------------------------|--------------------|--------------------|--------------------------|--------------------|-----------------|---------------------------------------|-----------|-------------------|-----------------------|-----------------|-----------------------|------|
| 1. Reason fo | or Submis | sion (If other is c | hecked pleas | e descr | ribe in s | space | provide | əd.) | | | | | | |
| 🛛 New Per | rmit, Regis | stration or Authori | zation (Core | Data Fo | orm she | ould be | e subm | itted wi | th the p | rogram a | applicatio | n.) | | |
| 🗌 Renewa | l (Core Da | ta Form should b | e submitted v | vith the | renew | al form | ı) | | Other | | | | | |
| 2. Customer | Referenc | e Number <i>(if iss</i> | ued) | Follov | w this lir | nk to se | arch | 3. Reg | gulated | Entity F | Referenc | e Number (| if issued) | |
| CN 6054 | CN 605437102 | | | | <u>numbe</u> egistry* | <u>rs in</u> *_ | RN | 1114′ | 79283 | | | | | |
| SECTION | II: Cu | stomer Info | ormation | | | | | | | | | | | |
| 4. General Customer Information 5. Effective Date for Cus | | | for Cus | stome | r Infor | mation | Update | es (mm/o | dd/yyyy) | | | | | |
| New Cust | omer Legal Nar | me (Verifiable wit | h the Texas S | Update Secretar | e to Cus ry of St | stomer ate or | Inform Texas | nation Compt | roller of | C 🗌 C Public A | hange in (ccounts) | Regulated E | Entity Ownership | |
| The Custo | mer Nan | ne submitted | here may | be up | dated | l auto | matie | cally b | ased | on wha | at is cu | rrent and | active with the | Э |
| Texas Sec | retary o | f State (SOS) | or Texas C | Compt | troller | of Pl | ublic | Acco | unts (| CPA). | | | | |
| 6. Customer | Legal Na | me (If an individual | l, print last nam | ne first: e | eg: Doe, | , John) | | lf | new Cu | stomer, e | enter prev | ious Custom | er below: | |
| HARGRO | OVE, CA | ASEY | | | | | | | | | | | | |
| 7. TX SOS/C | PA Filing | Number | 8. TX State | Tax ID |) (11 digi | ts) | | 9. | Federa | I Tax ID | (9 digits) | 10. DUN | S Number (if applicat | ole) |
| 80271938 | 8 | | 3206372 | 6734 | | | | | | | | | | |
| 11. Type of C | Customer: | Corporati | ion | | | Individ | lual | | Par | tnership | : 🗌 Gene | ral 🛛 Limited | | |
| Government: | City 🗌 | County 🗌 Federal 🗌 | State 🗌 Othe | r | | Sole F | Proprie | torship | | Other: | | | | |
| 12. Number | of Employ | rees | | | | | - | 13. Independently Owned and Operated? | | | | | | |
| ⊠ 0-20 | 21-100 | 101-250 | 251-500 | | 501 ar | nd high | ner | | Yes | | No No | | | _ |
| 14. Custome | r Role (Pr | oposed or Actual) - | - as it relates to | the Reg | gulated | Entity I | isted or | n this for | m. Pleas | e check | one of the | following | | |
| ⊠Owner | | Operat | tor | | 0 | wner 8 | Oper | ator | | | | | | |
| | nal Licens | ee 🗌 Respo | onsible Party | | | oluntar | y Clea | nup Ap | plicant | | Other: | | | |
| l | 215 W | 2ND ST | | | | | | | | | | | | |
| 15. Mailing | | | | | | | | | | | | | | |
| City WAXAHACHIE State TX | | | | | | ZIP | 7516 | 55 | | ZIP + 4 | | | | |
| 16. Country | Mailing In | formation (if outsi | ide USA) | | | | 17. E | E-Mail A | Address | i f applic | able) | | | |
| , | | , | | | | | CP | HAR | GROV | /E@S | BCGL | OBAL.N | ЕТ | |
| 18. Telephon | e Numbe | r | | 19. E | xtensi | on or (| Code | | | 20. Fa | x Numbe | er (if applical | ble) | |
| () | - | | | | | | | | | (|) | - | | |
| | | | | | | | | | | | | | | - |

SECTION III: Regulated Entity Information

| 21. General Regulated Ent | ity Information (If 'New Regulated Entity | " is selected below this form should be accompanied by a permit application) |
|---------------------------|---|--|
| New Regulated Entity | Update to Regulated Entity Name | Update to Regulated Entity Information |

The Regulated Entity Name submitted may be updated in order to meet TCEQ 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.)

Hunters Glenn Addition

| 23. Street Address of the Regulated Entity: (<u>No PO Boxes)</u> | | | | | | | | |
|---|--------|---------|-------|----|-----|------|---------|--|
| | CR 307 | | | | | | | |
| | City | Jarrell | State | TX | ZIP | 7653 | ZIP + 4 | |
| 24. County | | | | | | | | |

| | E | nter Physical I | Location Description | on if no s | treet address is | provided. | | | |
|--|------------|-----------------|------------------------|--------------------------------|---|------------|------------|---------------------|--|
| 25. Description to Physical Location: | COUNT | COUNTY ROAD 307 | | | | | | | |
| 26. Nearest City | | | | | State | | | Nearest ZIP Code | |
| JARRELL | | | | | TZ | X | | 76537 | |
| 27. Latitude (N) In Decimal: 30.842276 | | | | 28. | Longitude (W) I | n Decimal: | -97.6 | 519641 | |
| Degrees | Minutes | | Seconds | Deg | rees | Minutes | | Seconds | |
| | | | | | | | | | |
| 29. Primary SIC Code (4 digits) 30. Secondary SIC Code (4 digits) 31. Pr | | | | 31. Prim (5 or 6 dig | Primary NAICS Code 32. Secondary NAICS Code (5 or 6 digits) | | | ry NAICS Code | |
| 6552 | | | | 237210 | | | | | |
| 33. What is the Primary | Business o | f this entity? | (Do not repeat the SIC | or NAICS de | escription.) | · | | | |
| Land develoment in | ncluding | the installati | ion of utitilies, | paving | , drainage, ar | ıd gradin | ng to supp | port single family. | |
| | | | | | | | | | |
| 34. Mailing | | | | | | | | | |
| Address: | City | | State | | ZIP | | ZIP | 9 + 4 | |
| 35. E-Mail Address | | | | | · · · | | | | |
| 36. Telepho | one Numbe | r | 37. Extensio | on or Cod | Code 38. Fax Number (<i>if applicable</i>) | | | | |
| () | - | | | | | (| () - | | |

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

| Dam Safety | Districts | Edwards Aquifer | Emissions Inventory Air | Industrial Hazardous Waste |
|-----------------------|-----------------------|------------------------|-------------------------|----------------------------|
| | | | | |
| Municipal Solid Waste | New Source Review Air | OSSF 0 | Petroleum Storage Tank | PWS |
| | | | | |
| Sludge | Storm Water | Title V Air | Tires | Used Oil |
| | | | | |
| Voluntary Cleanup | Waste Water | Wastewater Agriculture | U Water Rights | Other: |
| | | | | |

SECTION IV: Preparer Information

| 40. Name: | ne: Michael Westfall, PE | | | 41. Title: Project Engineer | | | |
|--------------------|--------------------------|---------------|----------------|---------------------------------|---------|--|--|
| 42. Tele Number | phone | 43. Ext./Code | 44. Fax Number | 45. E-Mail | Address | | |
| (214) | 846-9397 | | () - | michael@westfallengineering.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: | Westfall Engineering Job Title: Civil Eng | | | ineer | |
|------------------|---|--|--|--------|--------------------------|
| Name (In Print): | Michael Westfall | | | Phone: | (214) 846- 9397 |

| Signature: | Michael Westfall | Date: | 7/1/2024 |
|------------|------------------|-------|----------|
| | | | |

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

| | Print Name | |
|-----------------|------------------------------------|---|
| Owner | | |
| | Title - Owner/President/Other | |
| of COUNTRYVIEV | / OF RED OAK LLC | |
| | Corporation/Partnersnip/Entity Nam | e |
| have authorized | Michael Westfall, PE | |
| | Print Name of Agent/Engineer | |
| ofWestfall Eng | gineering, PLLC | |
| _ | Print Name of Firm | |

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

I also understand that:

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

SIGNATURE PAGE:

Applicant's Signatur

6-12-24 Date

THE STATE OF <u>TEXAS</u> §

County of <u>F//iS</u> §

BEFORE ME, the undersigned authority, on this day personally appeared <u>CASEX</u> <u>Havylock</u> 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 12 day of June, 2024

MANN S



Michael Eking Typed or Printed Name of Notary

MY COMMISSION EXPIRES: _11-22-2025

Application Fee Form

| Texas Commission on Environmental Quality | | | | | |
|--|---|-------------------------|------------------------|--|--|
| Name of Proposed Regulated Entity: HUNTERS GLEN ADDITION | | | | | |
| Regulated Entity Location: JARRELI | Regulated Entity Location: JARRELL, TX | | | | |
| Name of Customer: CASEY HARGR | <u>OVE</u> | | | | |
| Contact Person: MICHAEL WESTFA | <u>LL, PE</u> Phor | ne: <u>214-846-9397</u> | | | |
| Customer Reference Number (if iss | sued):CN <u>605437102</u> | | | | |
| Regulated Entity Reference Number | er (if issued):RN <u>11147</u> | <u>79283</u> | | | |
| Austin Regional Office (3373) | | | | | |
| Hays | Travis | ×Ν | illiamson | | |
| San Antonio Regional Office (3362 | 2) | | | | |
| Bexar | Medina | U\ | valde | | |
| Comal | Kinney | | | | |
| Application fees must be paid by c | heck, certified check, | or money order, payab | le to the Texas | | |
| Commission on Environmental Qu | ality. Your canceled o | check will serve as you | r receipt. This | | |
| form must be submitted with you | r fee payment . This p | ayment is being subm | itted to: | | |
| 🖂 Austin Regional Office | Austin Regional Office San Antonio Regional Office | | | | |
| Mailed to: TCEQ - Cashier | Mailed to: TCEQ - Cashier Overnight Delivery to: TCEQ - Cashier | | | | |
| Revenues Section | 12100 Park 35 Circle | | | | |
| Mail Code 214 | Building A, 3rd Floor | | | | |
| P.O. Box 13088 | Austin, TX 78753 | | | | |
| Austin, TX 78711-3088 | Austin, TX 78711-3088 (512)239-0357 | | | | |
| Site Location (Check All That Appl | y): | | | | |
| 🔀 Recharge Zone | Contributing Zone | Transi | tion Zone | | |
| Type of Plan | 1 | Size | Fee Due | | |
| Water Pollution Abatement Plan, C | Contributing Zone | | | | |
| Plan: One Single Family Residentia | l Dwelling | Acres | \$ | | |
| Water Pollution Abatement Plan, C | | | | | |
| Plan: Multiple Single Family Residential and Parks | | 41 Acres | \$ 6 <i>,</i> 500 | | |
| Water Pollution Abatement Plan, Contributing Zone | | | | | |
| Plan: Non-residential | | Acres | \$ | | |
| Sewage Collection System | | 5,872 L.F. | \$ 2,936 | | |
| Lift Stations without sewer lines | | Acres | \$ | | |
| Underground or Aboveground Storage Tank Facility | | Tanks | \$ | | |
| Piping System(s)(only) | | Each | \$ | | |
| Exception | Each | \$ | | | |
| Extension of Time | | Each | Ş | | |
| , | | | | | |

Signature: Michael Westfall

Date: <u>6/10/2</u>4

Application Fee Schedule

Texas Commission on Environmental Quality

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

| | Project Area in | |
|---|-----------------|----------|
| Project | Acres | Fee |
| 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, | < 1 | \$3,000 |
| multi-family residential, schools, and other sites | 1 < 5 | \$4,000 |
| where regulated activities will occur) | 5 < 10 | \$5,000 |
| | 10 < 40 | \$6,500 |
| | 40 < 100 | \$8,000 |
| | ≥ 100 | \$10,000 |

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

| Project | Fee |
|-------------------|-------|
| Exception Request | \$500 |

Extension of Time Requests

| Project | Fee |
|---------------------------|-------|
| Extension of Time Request | \$150 |

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), Effective June 1, 1999

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

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

Regulated Entity Name: HUNTERS GLEN

 Attachment A – SCS Engineering Design Report. This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

Customer Information

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

| Contact Person: <u>CASEY HARGROVE</u> | |
|---|--------------------------------------|
| Entity: <u>COUNTRYVIEW OF RED OAK LLC</u> | |
| Mailing Address: <u>215 W 2ND STREET</u> | |
| City, State: <u>WAXAHACHIE, TX</u> | Zip: <u>75165</u> |
| Telephone: | Fax: |
| Email Address: <u>CPHARGROVE@SBCGLOBAL.NET</u> | |
| The appropriate regional office must be informe | d of any changes in this information |
| within 30 days of the change. | |

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

Contact Person: <u>MICHAEL WESTFALL, PE</u> Texas Licensed Professional Engineer's Number: <u>124967</u> Entity: <u>WESTFALL ENGINEERING PLLC</u> Mailing Address: <u>1719 ANGEL PARKWAY SUITE 400-206</u> City, State:<u>ALLEN, TX</u> Zip: <u>75002</u> Telephone:<u>214-846-9397</u> Fax:_____ Email Address:<u>MICHAEL@WESTFALLENGINEERING.COM</u>

Project Information

- 4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):
 - Residential: Number of single-family lots: <u>433</u>
 Multi-family: Number of residential units: <u>250</u>
 Commercial
 Industrial
 Off-site system (not associated with any development)
 Other: <u>School</u>
- 5. The character and volume of wastewater is shown below:

| <u>100</u> % Domestic | <u>156,240</u> gallons/day |
|-----------------------------------|----------------------------|
| <u>0</u> % Industrial | gallons/day |
| <u>13</u> % Commingled | <u>22,464</u> gallons/day |
| Total gallons/day: <u>178,886</u> | |

- Existing and anticipated infiltration/inflow is <u>102,600</u> gallons/day. This will be addressed by: <u>LOW PRESSURE TESTING OF NEW LINES TO MINIMIZE POTENTIAL FOR I/I, NO PIPE</u> <u>DEFLECTIONS VERTICAL OR HORIZONTAL WITHOUT A MANHOLE, BOLTED AND GASKETED</u> <u>MANHOLE COVERS IN UNPAVED AREAS</u>.
- 7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.
 - The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
 - The WPAP application for this development was submitted to the TCEQ on _____, but has not been approved.
 - A WPAP application is required for an associated project, but it has not been submitted.
 - There is no associated project requiring a WPAP application.
- 8. Pipe description:

Table 1 - Pipe Description

| Pipe Diameter(Inches) | Linear Feet (1) | Pipe Material (2) | Specifications (3) |
|--------------------------|-----------------|-------------------|--------------------|
| 8 | 5,872 | PVC SDR 26 | ASTM D3034, SDR-26 |
| | | | |
| | | | |
| | | | |
| | | | |

Total Linear Feet: 5,872

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.

- (2) Pipe Material If PVC, state SDR value.
- (3) Specifications ASTM / ANSI / AWWA specification and class numbers should be included.
- 9. The sewage collection system will convey the wastewater to the <u>CITY OF JARRELL-</u> <u>DONAHOE CREEK WWTP</u> (name) Treatment Plant. The treatment facility is:



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

The City of <u>ROUND ROCK</u> standard specifications.

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

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

Alignment

- 12. There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.
- 13. There are no deviations from straight alignment in this sewage collection system without manholes.
 - Attachment B Justification and Calculations for Deviation in Straight Alignment without Manholes. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

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

Manholes and Cleanouts

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

| Line | Shown on Sheet | Station | Manhole or Clean- out? |
|------|----------------|---------|---------------------------|
| | | | |
| А | C8.00 Of | 0+00.00 | MH |
| А | C8.00 Of | 4+00.00 | MH |
| А | C8.00 Of | 7+87.40 | MH |
| А | C8.00 Of | 8+20.27 | MH |
| А | C8.00 Of | 9+58.02 | MH |
| А | C8.00 Of | 9+79.14 | MH |

Table 2 - Manholes and Cleanouts

| Line | Shown on Sheet | Station | Manhole or Clean- out? |
|----------------------|----------------|----------|---------------------------|
| А | C8.00 Of | 13+66.13 | MH |
| А | C8.00 Of | 17+05.50 | MH |
| | Of | | |
| See additional Sheet | Of | | |

- 15. Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.
- 16. The maximum spacing between manholes on this project for each pipe diameter is no greater than:

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

- Attachment C Justification for Variance from Maximum Manhole Spacing. The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.
- 17. All manholes will be monolithic, cast-in-place concrete.
 - The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

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

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

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Site Plan Scale: 1" = <u>60</u>'.
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- 19. The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.
- 20. Lateral stub-outs:
 - The location of all lateral stub-outs are shown and labeled.

No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

 \boxtimes The entire water distribution system for this project is shown and labeled.

If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.

There will be no water lines associated with this project.

22. 100-year floodplain:

After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)

After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

| Line | Sheet | Station |
|------|-------|---------|
| | of | to |

23. 5-year floodplain:

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

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

Table 4 - 5-Year Floodplain

| Line | Sheet | Station |
|------|-------|---------|
| | of | to |

24. \boxtimes Legal boundaries of the site are shown.

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

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

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

There will be no water line crossings.

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

| Table 5 | - Water | Line Cro | ssings |
|---------|---------|----------|--------|
| | | | |

| Line | Station or Closest Point | Crossing or Parallel | Horizontal Separation Distance | Vertical Separation Distance |
|------|-----------------------------|-------------------------|--------------------------------------|------------------------------------|
| А | 10+08.14 | CROSSING | 0 | 2.0' |
| А | 14+88.13 | CROSSING | 0 | 2.0' |
| А | 17+80.13 | CROSSING | 0 | 2.0' |
| D | 2+80.50 | CROSSING | 0 | 2.0' |
| E | 11+39.00 | CROSSING | 0 | 2.0' |
| | | | 0 | |
| | | | 0 | |

27. Vented Manholes:

No part of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.

A portion of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.

A portion of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.

A portion of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

| Line | Manhole | Station | Sheet |
|------|---------|---------|-------|
| | | | |
| | | | |
| | | | |

| Line | Manhole | Station | Sheet |
|------|---------|---------|-------|
| | | | |
| | | | |
| | | | |

28. Drop manholes:

There are no drop manholes associated with this project.

Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(I)(2)(H).

Table 7 - Drop Manholes

| Line | Manhole | Station | Sheet |
|------|---------|---------|-------|
| А | | 9+79.14 | C8.03 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

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

The placement and markings of all sewer line stub-outs are shown and labeled.

No sewer line stub-outs are to be installed during the construction of this sewage collection system.

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

The placement and markings of all lateral stub-outs are shown and labeled.

] No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

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

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

Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.

Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second. Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

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

Table 8 - Flows Greater Than 10 Feet per Second

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

Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.

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

Administrative Information

- 34. The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.
- 35. Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

| Standard Details | Shown on Sheet |
|---|----------------|
| Lateral stub-out marking [Required] | C12.06 of |
| Manhole, showing inverts comply with 30 TAC §217.55(I)(2) [Required] | C12.05 of |
| Alternate method of joining lateral to existing SCS line for potential future connections [Required] | C12.06 of |
| Typical trench cross-sections [Required] | C12.06 of |
| Bolted manholes [Required] | C12.05 of |
| Sewer Service lateral standard details [Required] | C12.06 of |
| Clean-out at end of line [Required, if used] | C12.06 of |
| Baffles or concrete encasement for shock/erosion protection [Required, if flow velocity of any section of pipe >10 fps] | NA of |
| Detail showing Wastewater Line/Water Line Crossing [Required, if crossings are proposed] | C12.07 of |
| Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) [Required, if Flexible Pipe is used] | NA of |

Table 9 - Standard Details

| Standard Details | Shown on Sheet |
|--|----------------|
| Drop manholes [Required, if a pipe entering a manhole is more than 24 inches above manhole invert] | C12.06 of |

- 36. All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.
- 37. All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.
 - Survey staking was completed on this date: _____
- 38. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
- 39. Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: MICHAEL WESTFALL, PE

Date: <u>06/12/2024</u>

Place engineer's seal here:



Signature of Licensed Professional Engineer:

Michael Westfall

TCEQ-0582 (Rev. 02-11-15)

Appendix A-Flow Velocity Table

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

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

Table 10 - Slope Velocity

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

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

Figure 1 - Manning's Formula

Where:

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

TABLE 2 – MANHOLES AND CLEANOUTS

| | | | Manhole or Clean- |
|------|----------------|----------|-------------------|
| Line | Shown on Sheet | Station | out? |
| В | C8.00 | 0+16.97 | MH |
| В | C8.00 | 1+54.71 | MH |
| В | C8.00 | 3+12.45 | MH |
| В | C8.00 | 6+10.22 | MH |
| В | C8.00 | 6+65.12 | MH |
| С | C8.00 | 7+71.40 | MH |
| С | C8.00 | 6+36.65 | MH |
| С | C8.00 | 8+46.11 | MH |
| D | C8.01 | 2+51.50 | MH |
| D | C8.00 | 6+24.56 | MH |
| D | C8.00 | 9+38.65 | MH |
| E | C8.01 | 0+00.00 | MH |
| E | C8.01 | 4+00.00 | MH |
| E | C8.01 | 7+81.00 | MH |
| E | C8.02 | 11+63.00 | MH |
| E | C8.02 | 14+68.00 | MH |
| E | C8.02 | 17+47.00 | MH |
| F | C8.02 | 0+43.50 | MH |
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Hunters Glen Addition– City of Jarrell Organized Sewage Collection System Engineering Report

Overview

Hunters Glen Addition is a single-family development located on CR 307 in Jarrell TX. Phase 1 of this project was completed in 2024 as part of SCS ID 11003244 and has 137 residential lots. Phases 2 and 3 are projected to add an additional 296 lots for a total of 433 lots. Directly to the south of the Hunters Glen Addition is a JISD Elementary school and a 10-acre site zoned for multifamily. Phase 1 on this project constructed a lift station to serve all phases of Hunters Glenn subdivision as well as the school and multifamily site.

Flow Calculations

The following flows were developed using the equations from Section 1.6.3.A from the City of Round Rock Utility Criteria Manual. The City of Jarrell refers to the City of Round Rock for all utility design criteria and construction specifications. Based on the Round Rock design criteria proposed Living Unit Equivalents (LUEs) of the ultimate service area were determined based on proposed developments and maximum density of current zoning. 1 LUE = Equivalent flow from 1 Single Family residence = 280 gallons per day. Peak dry weather flows were determined utilizing the equations from Round Rock Utility Criteria Manual Section 1.6.3.A and Peak Wet Weather Flows are calculated assuming 750 gallons of inflow and infiltration per acre of service area per day.

| Residential | | |
|----------------------------------|--------|-------|
| Single Family (Phase 1 Existing) | 137 | LUE |
| Single Family (Phase 2) | 148 | LUE |
| Single Family (Phase 3) | 148 | LUE |
| Multi Family (Existing) | 125 | LUE |
| | | |
| Institutional | | |
| Elementary School (Existing) | 79 | LUE |
| | | |
| TOTAL LUEs | 637 | |
| | | |
| Inflow and Infiltration I/I | 750 | gpd |
| | 136.8 | acres |
| | 102600 | gpd |

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| F (Average Dry Weather Flow) | 124 | gpm |
|------------------------------|-----|-----|
| Peak Dry Weather Flow (PDWF) | 439 | gpm |
| Peak Wet Weather Flow (PWWF) | 511 | gpm |
| Minimum Flow | 28 | gpm |

- o Number of LUEs for Single Family are based on a proposed 433 Single Family lots.
- Number of LUEs for Multi Family are based on a maximum of 25 units per acre allowed by the MF zoning, 0.5 LUEs per MF unit and the 10 acre size of the site.
- Number of LUEs for the School site is based on information received from the school stating a maximum student population of 1000 and a staff of 100 for a total population of 1,100 and a daily wastewater flow of 20 gallons per person based on TCEQ Rules 217.32(a)(3) Table B.1
- LUE = 280 gpd

Anticipated Phase 2 Flow

Phase 2 of Hunters Glen will include approximately 148 single family homes. Phase 3 of the single-family development are anticipated to be under development shortly after construction of phase 2 is complete. Phase 2 flows are shown below.

| Residential Single Family | 148 | LUE |
|--|--------------------|--------------------------|
| TOTAL LUEs | 148 | |
| Inflow and Infiltration I/I | 750 41 30750 | gpd/acre acres gpd |
| F (Average Dry Weather Flow) Peak Dry Weather Flow (PDWF) | 29 114 | gpm gpm |
| Peak Wet Weather Flow (PWWF) Minimum Flow | 135 5 | gpm gpm |



Gravity Sewer System Pipe Velocity Calculations

| / | | | | 1 | L L | , | | |
|-------|----------|----------|--------|-----------|---------|--------|--------|-----------|
| | | | | | | | | v |
| Sewer | Starting | Ending | Length | Pipe | Slope | Vmax | Vmin | full flow |
| Main | Station | Station | (ft) | Size (in) | (ft/ft) | (ft/s) | (ft/s) | (ft/s) |
| | 17+05.50 | 18+01.63 | 96.13 | 8 | 0.0040 | 2.09 | 1.86 | 2.18 |
| | 13+66.13 | 17+05.50 | 339.37 | 8 | 0.0040 | 2.11 | 1.89 | 2.18 |
| | 9+79.14 | 13+66.13 | 386.99 | 8 | 0.0040 | 2.19 | 2.00 | 2.18 |
| Δ | 9+58.02 | 9+79.14 | 21.12 | 8 | 0.0060 | 2.55 | 2.32 | 2.67 |
| | 8+20.27 | 9+58.02 | 137.75 | 8 | 0.0040 | 2.20 | 2.01 | 2.18 |
| | 7+87.40 | 8+20.27 | 32.87 | 8 | 0.0040 | 2.20 | 2.01 | 2.18 |
| | 4+00.00 | 7+87.40 | 387.40 | 8 | 0.0040 | 2.20 | 2.01 | 2.18 |
| | 0+0.00 | 4+00.00 | 400.00 | 8 | 0.0040 | 2.20 | 2.01 | 2.18 |
| | | <u>.</u> | | | | | | |
| | 6+10.22 | 6+65.12 | 54.90 | 8 | 0.0700 | 1.85 | 1.25 | 9.13 |
| | 3+12.45 | 6+10.22 | 297.77 | 8 | 0.0040 | 1.06 | 1.00 | 2.18 |
| В | 1+54.71 | 3+12.45 | 157.74 | 8 | 0.0040 | 1.13 | 1.08 | 2.18 |
| | 0+16.97 | 1+54.71 | 137.74 | 8 | 0.0040 | 1.16 | 1.11 | 2.18 |
| | 0+0.00 | 0+16.97 | 16.97 | 8 | 0.0040 | 1.16 | 1.11 | 2.18 |
| | | | | | | | | |
| | 6+36.65 | 8+46.11 | 209.46 | 8 | 0.0150 | 1.20 | 1.02 | 4.23 |
| C | 3+28.01 | 6+36.65 | 308.64 | 8 | 0.0040 | 1.00 | 0.95 | 2.18 |
| | 0+0.00 | 3+28.01 | 328.01 | 8 | 0.0040 | 1.12 | 1.08 | 2.18 |
| | 1 | | | 1 | r | 1 | 1 | 1 |
| | 9+38.65 | 10+32.53 | 93.88 | 8 | 0.0090 | 1.00 | 0.76 | 3.27 |
| D | 6+24.56 | 9+38.65 | 314.09 | 8 | 0.0090 | 1.51 | 1.43 | 3.27 |
| | 2+51.50 | 6+24.56 | 373.06 | 8 | 0.0090 | 1.71 | 1.66 | 3.27 |
| | 0+0.00 | 2+51.50 | 251.50 | 8 | 0.0080 | 2.40 | 2.38 | 3.09 |
| | 1 | 1 | | 1 | [| 1 | 1 | 1 |
| E | 17+47.00 | 18+02.87 | 55.87 | 8 | 0.0080 | 1.72 | 1.62 | 3.09 |
| | 14+68.00 | 17+47.00 | 279.00 | 8 | 0.0110 | 2.05 | 1.96 | 3.62 |
| | 11+63.00 | 14+68.00 | 305.00 | 8 | 0.0110 | 2.17 | 2.09 | 3.62 |
| | 7+81.00 | 11+63.00 | 382.00 | 8 | 0.0110 | 2.29 | 2.22 | 3.62 |
| | 4+00.00 | 7+81.00 | 381.00 | 8 | 0.0110 | 2.42 | 2.36 | 3.62 |
| | 0+0.00 | 4+00.00 | 400.00 | 8 | 0.0100 | 2.44 | 2.39 | 3.45 |
| | | | | | | | | |
| F | 0+0.00 | 0+43.50 | 43.50 | 8 | 0.0100 | 0.83 | 0.78 | 3.45 |

All gravity sewer pipe will be PVC SDR 26 per City of Round Rock Design Criteria.

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Existing Collection System Analysis

Flow from the Hunters Glen Addition sewage collection system will terminate into an existing SCS that was stubbed out with Phase 1 of this subdivision. The wastewater flows from the Phase 1 SCS to a lift station that was also installed with Phase 1 of this subdivision. The lift station design accounted for flows from Phases 2 and 3 of the Hunters Glen Addition.

Ability to Serve Additional Areas

The proposed Hunters Glen Addition sewage collection system proposes stub outs to both the north and south along CR 307. Additionally, several proposed manholes along the project frontage of CR 307 will allow for the potential for future developments to tie into this sewer collection system from across CR 307. These potential future flows are not included in the current system design, however, due to required minimum pipe size and slopes the proposed system does contain additional capacity for future connections as described below. Excess pipe capacity is calculated based on city of Round Rock design manual limiting peak dry weather flow to 65% pipe capacity and peak wet weather flow to 85% capacity, ultimate capacity was also considered and is shown in the table below.

| Sewer Main | Starting Station | Ending Station | Length (ft) | Pipe Size (in) | Excess Capacity (65%) | Excess Capacity (85%) | Excess Capacity (full flow) |
|---------------|---------------------|-------------------|----------------|-------------------|-----------------------------|-----------------------------|-----------------------------------|
| | 17+05.50 | 18+01.63 | 96.13 | 8 | 79 | 147 | 198 |
| | 13+66.13 | 17+05.50 | 339.37 | 8 | 74 | 143 | 194 |
| | 9+79.14 | 13+66.13 | 386.99 | 8 | 52 | 120 | 171 |
| ۸ | 9+58.02 | 9+79.14 | 21.12 | 8 | 100 | 184 | 247 |
| A | 8+20.27 | 9+58.02 | 137.75 | 8 | 49 | 117 | 168 |
| | 7+87.40 | 8+20.27 | 32.87 | 8 | 49 | 117 | 168 |
| | 4+00.00 | 7+87.40 | 387.40 | 8 | 49 | 117 | 168 |
| | 0+0.00 | 4+00.00 | 400.00 | 8 | 49 | 117 | 168 |
| | | | | | | | |
| | 6+10.22 | 6+65.12 | 54.90 | 8 | 927 | 1213 | 1427 |
| | 3+12.45 | 6+10.22 | 297.77 | 8 | 209 | 277 | 329 |
| В | 1+54.71 | 3+12.45 | 157.74 | 8 | 206 | 274 | 325 |
| | 0+16.97 | 1+54.71 | 137.74 | 8 | 204 | 273 | 324 |
| | 0+0.00 | 0+16.97 | 16.97 | 8 | 204 | 273 | 324 |
| | | | | | | | |
| | 6+36.65 | 8+46.11 | 209.46 | 8 | 426 | 558 | 658 |
| С | 3+28.01 | 6+36.65 | 308.64 | 8 | 211 | 280 | 331 |
| | 0+0.00 | 3+28.01 | 328.01 | 8 | 206 | 275 | 326 |



| 5 | 9+38.65 | 10+32.53 | 93.88 | 8 | 329 | 432 | 509 |
|-----|----------|----------|--------|---|-----|-----|-----|
| | 6+24.56 | 9+38.65 | 314.09 | 8 | 317 | 419 | 496 |
| U | 2+51.50 | 6+24.56 | 373.06 | 8 | 308 | 410 | 487 |
| | 0+0.00 | 2+51.50 | 251.50 | 8 | 220 | 317 | 390 |
| | | | | | | | |
| F | 17+47.00 | 18+02.87 | 55.87 | 8 | 284 | 381 | 453 |
| | 14+68.00 | 17+47.00 | 279.00 | 8 | 331 | 445 | 530 |
| | 11+63.00 | 14+68.00 | 305.00 | 8 | 323 | 437 | 522 |
| E . | 7+81.00 | 11+63.00 | 382.00 | 8 | 314 | 427 | 512 |
| | 4+00.00 | 7+81.00 | 381.00 | 8 | 303 | 417 | 502 |
| | 0+0.00 | 4+00.00 | 400.00 | 8 | 275 | 384 | 465 |
| | | | | | | | |
| F | 0+0.00 | 0+43.50 | 43.50 | 8 | 349 | 457 | 539 |

It should be noted that the furthest downstream point (Line A 0+00.00) will be the ultimate constraint in adding additional flow to the system regardless of entry point. At this point there is an excess capacity of 117 gpm peak wet weather flow and 168 gpm of ultimate pipe capacity available. Any additional flows in excess of the proposed design flows described in the first section of this report may require additional improvements or modifications to the proposed Hunters Glen Lift Station.

Construction Safety Considerations

As all the proposed work under this permit is new construction all site safety considerations will be limited to trench safety and typical construction site safety considerations. No, ventilation, explosion prevention or rerouting of existing collection system flows will be necessary for this project. The contractor will be responsible for maintaining a clean and safe working environment maintaining applicable OSHA safety procedures related to installation of sanitary sewer collection system piping.

Westfall Engineering, PLLC 1719 Angel Parkway Ste 400-206 Allen, TX 75002 214.846.9397

Attachment A

Service Area Map



CITY OF JARRELL, TEXAS DATE: JUNE 2024 Hunters Glen Addition Service Area Map Engineering Report - Attachment A



1719 ANGEL PARKWAY STE 400 - 206, ALLEN, TX 75002 PHONE NO. (214) 846-9397 TBPE FIRM REG. #19101

Attachment B

Utility Agreement

UTILITY AGREEMENT BETWEEN CITY OF JARRELL, TEXAS AND COUNTRYVIEW OF RED OAK, LLC

| THE STATE OF TEXAS | § |
|----------------------|--------|
| COUNTY OF WILLIAMSON | 9 § |

THIS UTILITY AGREEMENT (this "Agreement") is made and entered into effective as of the Effective Date (as defined below) by and between the CITY OF JARRELL, TEXAS, a general law city and municipal corporation (hereafter the "City"); COUNTRYVIEW OF RED OAK, LLC (hereafter the "Owner"), and CASEY HARGROVE (hereafter the "Authorized Agent") (the City, Authorized Agent, and Owner are hereafter sometimes referred to singularly as a "Party" or collectively as the "Parties"), which Parties hereby covenant and agree as follows:

RECITALS

WHEREAS, this Agreement describes the basic utility service agreement between the City and Owner. The City and Owner may choose to enter into a separate agreement related to regional facilities in the future.

WHEREAS, Owner owns a total of approximately one hundred (100) acres of land located within the City Limits of the City, as more particularly described by metes and bounds on the attached <u>Exhibit "A"</u> (referred to herein as the "Property"); and

WHEREAS, by its signature below, Owner warrants and represents that there are no other owners of any portion of the Property (as hereafter defined) and, other than its lenders holding a lien up on and over security interest in the Property, no other third-parties holding an interest therein; and

WHEREAS, Owner intends to develop the Subdivision (as defined below) to be known as Hunter's Glen of approximately Four Hundred Thirteen (413) single-family residential lots (hereafter referred to generally as the "Lots"); and

WHEREAS, it is the intent of this Agreement to establish certain legally binding restrictions and commitments to be imposed upon the Property, and the City and the Owner are proceeding in reliance on the enforceability of this Agreement.

WHEREAS, this Agreement is authorized by and consistent with state law and the City's other ordinances, regulations and other requirements governing the provision of utility services to customers of the City.

NOW, THEREFORE, in consideration of the premises, the terms and provisions set forth herein, the mutual benefits to be gained from the performance thereof and other good and

UTILITY AGREEMENT - Page 1 of 15

valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby promise, covenant and agree as follows:

ARTICLE I.

NATURE OF AGREEMENT; DEFINITIONS

Section 1.01 <u>Nature of Agreement</u>. The Parties agree that this Agreement shall apply to the Property. The terms, provisions, and conditions of this Agreement shall be binding upon the Owner, and its successors and assigns who may develop or purchase the Property. It is understood by and between the Parties that this Agreement is applicable to the Property and to the improvements necessary to support the Property.

Section 1.02 <u>Terms Defined in this Agreement</u>. In this Agreement, each of the following terms shall have the meanings indicated:

(a) <u>"Authorized Agent</u>" means Casey Hargrove, or such other person who may be designated by Casey Hargrove in writing, unless otherwise designated herein.

(b) "<u>City Code</u>" means the City Code of Ordinances of Jarrell, Texas, in effect on the Effective Date hereof.

(c) "<u>City Council</u>" means the City Council of the City or any other successor governing body.

(d) "<u>Completion</u>" or "<u>Complete</u>" means or is deemed to have occurred on the date all of the following events have occurred:

- (i) construction of the improvement is substantially complete such that, as applicable, all pipes, lines, appurtenances, facilities, structures, and equipment are capable of being fully operational following acceptance of the improvement for use by Governmental Authority accepting same; and
- (ii) as to engineered improvements, the design engineer has certified in writing to the applicable Governmental Authority that the improvement is substantially complete; and
- (iii) all testing and inspections by the Governmental Authority accepting the applicable improvement have been successfully conducted, all final approvals required for use, operation and maintenance from such Governmental Authority have been obtained, and the Governmental Authority has accepted the improvement for use, operation and maintenance; and
- (iv) the improvement can be used for its intended purposes and only punch list items that do not adversely affect the capability of the improvement to operate and

UTILITY AGREEMENT - Page 2 of 15

function safely in the ordinary course of business remain to be completed, and those items are reasonably expected to be completed within the next 30 days or (for items such as revegetation) fiscal is posted with the applicable Governmental Authority for such remaining items.

(e) "<u>Effective Date</u>" and similar references means the date of the latest signature by authorized representatives of the parties.

(f) <u>"Force Main Line</u>" means the portion of the Lift Station Improvements consisting of a pressurized sanitary sewer line the conveys wastewater from the discharge side of the lift station pump to the discharge point

(g) "<u>Governing Regulations</u>" means all ordinances, codes, regulations, law, or other authorizations that exist on the date of this agreement or as hereafter adopted, amended, or approved by a Governmental Authority.

(h) "<u>Governmental Authorities</u>" or "<u>Governmental Authority</u>" means the City, Williamson County, Texas Commission on Environmental Quality, Texas Department of Transportation, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, or other agencies of the State of Texas or the United States of America, to the extent such entities have jurisdiction over the Subdivision or the applicable improvements.

(i) "<u>HOA</u>" means the homeowners or property owners association created pursuant to a Declaration of Covenants, Conditions, and Restrictions covering the Property.

(j) <u>"HOA Service Plan</u>" means the plan adopted by the governing body of the HOA for the care, upkeep, and maintenance of the Open Space Lots, common areas, and other amenities of the Subdivision.

(k) "Impact Fees" means the City's adopted Wastewater Impact Fee, in force and effect as of the time said fee is assessed.

(l) "<u>Lift Station</u>" shall mean the sewer lift station, the Force Main Line, and related machinery, equipment, distribution lines, and other improvements to be constructed to provide sanitary sewer services to the Property and the Subdivision, the specifications of which are set forth in <u>Exhibit</u> "___" attached hereto.

(m) "<u>Lift Station Improvements</u>" shall mean the design, construction and installation of (1) the Lift Station on the Owner Property and (2) the access road and gate providing access to the Lift Station, all as depicted and reflected on <u>Exhibit "D"</u> attached.

(n) "<u>LUE</u>" means a living unit equivalent and is a measure of the estimated average daily volume used by a single-family residence or its equivalent.

(o) "<u>Notice</u>" shall have the meaning set forth in Section 8.05.

UTILITY AGREEMENT - Page 3 of 15

(p) "Off-Site Facilities" means new or expanded wastewater transmission improvements, such as, wastewater collection lines, force mains, lift stations and manholes required for the City to provide retail sewer service to the Property in accordance with this Agreement.

(q) "<u>On-Site Facilities</u>" except as otherwise provided below, means all wastewater facilities and their associated appurtenances (including, without limitation, wastewater collection lines, force mains, lift stations and manholes located within the boundaries of the Property and necessary for the City to serve the Property, to the point of service entry on a Lot.

(r) "<u>Open Space Lot</u>" means the certain Open Space lots depicted on the Preliminary Subdivision Plan.

(s) "<u>Preliminary Subdivision Plan</u>" means the concept plan attached hereto as <u>Exhibit</u>

(t) "<u>Subdivision</u>" shall mean a master-planned subdivision that will include approximately 413 single family residential lots, and Open Space Lots. The Subdivision includes the construction of Off-Site Facilities and On-Site Facilities to be dedicated and conveyed to the City, and other infrastructure adequate for the development of the Subdivision consistent with this Agreement. The Subdivision may include multiple phases for platting and construction purposes.

"Property" means all land described in Exhibit "A".

(v) "Utility Easements" means easements on private property necessary for the location of On-site Facilities and Off-site Facilities.

Section 1.03 <u>Other Definitions</u>. All capitalized terms used but not defined in this Agreement shall have the meaning given to them in the City Code.

ARTICLE II.

ON-SITE WASTEWATER SERVICE

Section 2.01 <u>On-Site Facilities</u>. As of the Effective Date, the City has available capacity to provide wastewater service for the Property, pursuant to the reservations below:

- (a) Owner shall design and build all On-Site Facilities necessary to serve the Property within Utility Easements in accordance with applicable Governing Regulations.
- (b) The City may use the On-Site Facilities as a part of the City's overall wastewater systems, but the City agrees such service will not be provided in a manner that impairs the City's ability to serve the Property in conformance with the terms and

UTILITY AGREEMENT - Page 4 of 15

conditions of this Agreement.

- (c) Within 90 days of Completion of any On-Site Facilities on the Property, Owner will convey such On-Site Facilities and Utility Easements to the City for ownership, operation and maintenance.
- (d) The conveyances of the On-Site Facilities referenced in this Section 2.01 shall be subject to the reservation of a capacity interest in such On-Site Facilities for service to the Property in conformance with the terms of this Agreement.

ARTICLE III.

OFF-SITE WASTEWATER FACILITIES

Section 3.01 <u>Water</u>. Owner hereby agrees to takes steps and actions as are necessary to enter into an agreement with Jarrell-Schwertner Water Supply Corporation ("<u>ISW</u>") for the providing of water utility service to the Subdivision under such terms and conditions as are consistent with the terms of this Agreement. Owner shall make application for such water utility service no later than 30 days following the Effective Date of this Agreement. The Parties acknowledge and agree that the terms of this Agreement are contingent upon the Owner being able to enter into an agreement, mutually acceptable to the Owner and JSW, for the provision of water utility services to the Subdivision.

Section 3.02 <u>Lift Station Improvements; Owner Contribution</u>. The Parties have agreed that in consideration of the agreements and credits to be granted by the city as set forth below, Owner has agreed to construct the Lift Station Improvements to service the Subdivision. The City and Owner agree that the Lift Station Improvements shall be built in accordance with the following terms, requirements, and specifications:

- (a) <u>Design and Construction</u>. The City and owner will cooperate in the design of the Lift Station Improvement. Thereafter, Owner will bid, build, or cause the bidding, and construction of, the Lift Station Improvments in accordance with the City's design, Governing Regulations, and consistent with the terms and conditions of this Agreement. Subject to (i) Force Majeure Events and (ii) receipt of bids, the Owner will begin construction of the Lift Station Improvments by October 1, 2022 (the "Lift Station Commencement Date"). Subject to Force Majeure Events and the absence of change orders that require City Council approval, Owner will Complete the Lift Station Improvements within (18) months from the Lift Station Commencement Date.
- (b) <u>Plan Review</u>. The City agrees to provide copies of the plans and specifications for the design and construction of the Lift Station Improvments, and any submitted modifications to same, to the Owner and its engineering representative for review and comment; *provided, however*, that the City shall have the sole discretion as to final approval for such design and construction of the Lift Station Improvments.

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- (c) <u>Owner's Contribution</u>. The Parties agree that the Owner's construction and dedication of the Force Main Line as a part of the Lift Station Improvements shall constitute the contribution by the Owner (the "<u>Owner Contribution</u>") to the wastewater infrastructure in question. The Owner acknowledges that the City will use the Force Main Line as a part of the City's overall wastewater system, but the City agrees such service will not be provided in a manner that impairs the City's ability to serve the Property in conformance with the terms and conditions of this Agreement.
- (d) <u>Commitment of Wastewater Utility Capacity</u>. The City will allocate to Ownera capacity interest of at least 413 LUE's of capacity in the City's wastewater utility system for the provision of wastewater service to the Subdivision. The Parties acknowledge and understand that the capacity commitments made herein shall remain for no longer than seven (7) years after the Wastewater Transmission Line Completion Date.
- (e) <u>Dedication of Lift Station Improvments</u>. Upon completion of the Lift Station Improvements, owner here by agrees to execute and deliver to the city such documents and instruments as may reasonably be required by the City to transfer, convey, and dedicate such Lift Station Improvements, including the Force Main Line, to the City as public utility facilities.
- (f) <u>Retail Wastewater Services</u>. Retail wastewater service to the Subdivision shall be provided by the City on the same terms as the City's other retail wastewater customers located inside of the City limits. Subject to Subsection (f) below, retail customers within the Subdivision receiving retail wastewater services shall pay the applicable wastewater (sewer) rates for customers located inside of the City limits including Wastewater Impact Fees.
- (g) <u>Credit for Impact Fees</u>. In consideration for the Owner Contribution made by the Owner toward the construction and dedication of the Lift Station Improvements, pursuant to Section 9.05.056 of the City Code, Owner shall be entitled to Credit¹ for wastewater Impact Fees² of up to 50%, for the number of Lots equal to the Owner Contribution divided by the current amount of the Wastewater Impact Fee.
- (h) <u>Impact Fees</u>. Subject to the credits described in Subsection (g) above, Owner shall pay or cause to be paid all applicable Wastewater Impact Fees as adopted by the City.

Section 3.03 <u>Alternative Public Improvement Financing</u>. In an effort to assist the City and the Owner in the construction and financing of the public improvements contemplated by

UTILITY AGREEMENT - Page 6 of 15

¹ As described and defined in Section 9.05.004 of the City Code.

² As described and defined in Section 9.05.004 of the City Code.
this Agreement, the Parties hereby agree to cooperate in investigating and analyzing alternative public financing arrangements for the payment of the costs and expenses of (a) the design, construction and installation of public capital improvements and (b) the care, upkeep, and maintenance of public amenities, including those types of amenities and features as described herein, in and around the Subdivision, including the establishment of a public improvement district, tax increment reinvestment zone, or other public financing districts, methods, or programs. Nothing herein obligates the City into agreeing to such an alternative. The parties shall give preference, if public financing is agreed upon, to a public improvement district as described in Texas Local Government Code Chapter 372.

ARTICLE IV.

RIGHT OF WAY DEDICIATION

Section 4.01 <u>Roadway Right of Way</u>. The Parties acknowledge that future development of property adjacent to and surrounding the Property may require the construction and design of additional street and roadway improvements to County Road 307 ("<u>CR 307</u>"). In order to facilitate such future roadway improvements, the Owner hereby agrees to dedicate a portion of the property equal to Sixty (60) feet (the "<u>CR 307 ROW</u>") to the City in connection with the approval of the Final Plat for the Subdivision.

Section 4.02 <u>Impact Fees or Assessments</u>. In consideration for the convenience and dedication of the CR 307 ROW as provided for in this Agreement, the City agrees that the Owner shall not be assessed or obligated to pay any charges, assessments, or fees, including any impact fees, in connection with any capital improvements to CR 307.

ARTICLE V.

[RESERVED]

ARTICLE VI.

PUBLIC STREETS AND SUBDIVISION INFRASTRUCTURE; EXACTIONS AND WAIVER OF CLAIMS

Section 6.01 <u>Subdivision Infrastructure</u>; <u>Dedications.</u> All streets, roads, drainage, water, and wastewater lines and facilities and all other infrastructure within the Property, the On-Site Facilities provided for under the terms of this Agreement, will be constructed by Owner to meet the City's standards as of the effective date of this Agreement and will be dedicated and conveyed to the City at no cost to the City, provided the City may elect to oversize any water or wastewater lines. Off-Site Facilities shall be constructed by the City as described above.

Section 6.02 <u>No Taking</u>. Owner acknowledges and agrees that the dedications and fees set forth in this Agreement regarding the Owner Property, in whole or in part, do not constitute a taking under the Texas or United States Constitution; a violation of the TEXAS LOCAL

UTILITY AGREEMENT - Page 7 of 15

GOVERNMENT CODE, as it exists or may be amended.

Section 6.03 <u>Rough Proportionality - Financial Contribution</u>. Owner acknowledges and agrees that the amount of Owner's financial or infrastructure contribution as set forth in this Agreement and any contribution or payment by Owner hereunder is roughly proportional to the demand that Owner's development places on the City's infrastructure.

Section 6.04 Rough Proportionality - Property. Owner hereby agrees that any property which it conveys to City or acquires for City pursuant to this Agreement is roughly proportional to the benefit received by Owner for such land, and Owner hereby waives any claim therefor that it may have. Owner further acknowledges and agrees that all prerequisites to such a determination of rough proportionality have been met, and that any value received by City relative to said conveyance are related both in nature and extent to the impact of the development of Owner's Property on City's infrastructure. Owner and City further agree to waive and release all claims one may have against the other to date, including those related to any and all rough proportionality and individual determination requirements mandated by the United States Supreme Court in *Dolan v. City of Tigard*, 512 U.S. 374 (1994), and its progeny, as well as any other requirements of a nexus between development conditions and the projected impact of the public infrastructure. Owner hereby assigns all claims it has against the City, if any, to the City.

Section 6.05 Indemnification Regarding Dedications. Owner shall INDEMNIFY AND HOLD HARMLESS City from any claims and suits of third parties, including but not limited to Owner's respective partners, officers, directors, employees, representatives, agents, successors, assignees, vendors, grantees, and/or trustees, BROUGHT AS A RESULT OF THE DEDICATIONS, EXACTIONS, PERFORMANCE OBLIGATIONS AND FEES REQUIRED IN THIS AGREEMENT. Further, for itself and its successors and assigns, Owner RELEASES CITY FROM ANY AND ALL CLAIMS OR CAUSES OF ACTION BASED ON EXCESSIVE OR ILLEGAL EXACTIONS RELATING TO OWNER'S OBLIGATIONS CREATED IN THIS AGREEMENT. Owner acknowledges that an element of consideration for City to enter in to this Agreement is Owner's indemnification, release and assignment of claims contained herein.

Section 6.06 <u>No Encumbrances</u>. All property dedicated to the City under this Agreement, the Final Plat, or any easement documents shall be free and clear of any liens, restrictions or other encumbrances whatsoever, except for easements. All street dedication instruments, including dedication by plat, shall clearly state that the street dedication is made in fee simple.

Section 6.07 <u>Open Space/HOA Lots</u>. Owner agrees to develop the Open Space and provide maintenance of the amenities, stormwater management facilities, utility corridors, drainage facility and the Open Space Lots shall be through HOA assessments as managed by the HOA in accordance with the HOA Service Plan which shall be solely responsible for the maintenance of the Open Space Lots.

ARTICLE VII.

UTILITY AGREEMENT - Page 8 of 15

REPRESENTATIONS AND WARRANTIES

Section 7.01 <u>Representations and Warranties of Owner</u>. Owner hereby makes the following representations and warranties:

- (a) <u>Organization and Good Standing</u>. Owner has full power and authority to conduct business as it is now being conducted, to own or use the properties and assets that it purports to own or use, and to perform all its obligations under this Agreement for the entire Property.
- (b) <u>Authority: No Conflict</u>. This Agreement constitutes a legal, valid and binding obligation of Owner, enforceable against Owner in accordance with its terms. Owner has the absolute and unrestricted right, power, authority, and capacity to execute and deliver this Agreement and to perform its obligations under this Agreement for the entire Property.

Section 7.02 <u>Representations and Warranties of the City</u>. The City hereby makes the following representations and warranties:

- (a) <u>Organization and Good Standing</u>. The City is a duly organized and validly existing municipal corporation in good standing under the laws of the State of Texas, with full power and authority to conduct its business as it is now being conducted, to own or use the properties and assets that it purports to own or use, and to perform all its obligations under this Agreement.
- (b) <u>Authority: No Conflict</u>. This Agreement constitutes a legal, valid and binding obligation of the City, enforceable against the City in accordance with its terms. The City has the absolute and unrestricted right, power, authority, and capacity to execute and deliver this Agreement and to perform its obligations under this Agreement.
- (c) <u>Exempt Organization</u>. The City is an exempt organization under Section 151.309 of the Texas Tax Code, and that the improvements constructed under this Agreement will be dedicated to public use and accepted by the City upon acknowledgement by the City of completion.

ARTICLE VIII.

GENERAL PROVISIONS

Section 8.01 <u>Default And Remedies For Default</u>. The parties here by covenant and agree as follows:

(a) <u>Default</u>. It shall be a default under this Agreement by a party if such party shall fail to perform any of its obligations under this Agreement and such failure shall remain uncured following the expiration of thirty (30) business days after written

UTILITY AGREEMENT - Page 9 of 15

notice of such failure. However, in the event the default is of a nature that cannot be cured within such thirty (30) day period, the defaulting party shall have a longer period of time as may be reasonably necessary to cure the default in question, but in no event more than ninety (90) days.

(b) <u>Remedies between the City and Owner</u>. Should any default between Owner and the City remain uncured after written notice to the other Party, the non-defaulting party, whether Owner or City, may pursue any remedy that is available at law or in equity at the time of breach.

Section 8.02 <u>Survival</u>. The provisions contained in this Sections 6.05, 8.01, 8.02, 8.09, 8.21, and 8.24 shall survive the termination of this Agreement.

Section 8.03 <u>Amendment or Modification</u>. This Agreement, or any portion thereof, may be amended, modified or supplemented only by written agreement of the parties hereto.

Section 8.04 <u>Notices</u>. Any notices pursuant to this Agreement shall be deemed sufficient if sent to the other party at the addresses below:

| To the City: | City of Jarrell Attn: Larry Bush 161 Town Center Blvd Jarrell, TX 76537 |
|-----------------|--|
| With a copy to: | Art Rodriguez |
| | City Attorney |
| | Russell Rodriguez Hyde Bullock, LLP |
| | 1633 Williams Drive, Suite 200 |
| | Georgetown, Texas 78628 |
| To the Owner: | Countryview of Red Oak, LLC |
| | Attention: Casey Hargrove |
| | 101 Valley Ridge Drive |
| | Red Oak, Texas 75154 |
| | Email: <u>cphargrove@sbcglobal.net</u> |
| With a copy to: | James P. Moon, Esq. |
| | 101 Vintage Drive, Suite 100 |
| | Red Oak, Texas 75154 |
| | Email: <i>jpmpllc@gmail.com</i> |

UTILITY AGREEMENT - Page 10 of 15

Section 8.05 <u>Binding Effect</u>. This Agreement and all of the provisions hereof shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns. There shall be no assignment unless agreed to in writing by both parties, which assignment shall not be unreasonably withheld, conditioned or delayed. Each owner may assign its rights and obligations under this Agreement to any entity affiliated with the owner which acquires all or any part of the Property, but such assignment shall in no way relieve the assignor from the obligations of this Agreement incurred prior to the assignment except as provided below.

Section 8.06 <u>No Waiver</u>. The failure of either party to require performance of any provision hereof shall in no way affect the right at a later time to enforce same. No waiver of any condition or breach of any term herein shall be considered as a waiver of any other conditions or breach that may occur.

Section 8.07 <u>Assignment</u>. This Agreement or any part herein, or any interest herein, shall not be assigned by the Owner without the express written consent of the City. The City agree to act promptly and reasonably in regard to any such request for assignment. In addition, upon formation of the HOA, the Owner may assign to the HOA, without further consent of the City, obligations of the HOA as provided in this Agreement.

Section 8.08 <u>Copies of Final Plat</u>. Prior to final City Acceptance of the Owner Property, the Owner shall provide to the City four (4) copies of the Final Plat and Record Drawings of the Owner Property, showing the Public Improvements and other Development as actually constructed. Each of the drawings shall be provided in electronic format (pdf and AutoCAD). The Final Plat and Public Improvements shall be tied into the State Plane Coordinate System.

Section 8.09 <u>Section Headings</u>. The headings in this Agreement are inserted for convenience and identification only and are in no way intended to describe, interpret, define, or limit the scope, extent, or intent of this Agreement or any provision hereof.

Section 8.10 <u>Severability of Provisions</u>. Every provision of this Agreement is intended to be severable. If any term or provision hereof is illegal or invalid for any reason whatsoever, such illegality or invalidity will not affect the validity of the remainder of this Agreement and the illegal or invalid provision will be enforced to the maximum extent possible to still be legal and valid.

Section 8.11 <u>Governing Law; Venue</u>. This Agreement, and the application or interpretation thereof, will be governed exclusively by its terms and by the laws of the State of Texas. Except for those actions, proceedings, or claims which this Agreement provides will be settled by arbitration, any action, proceeding, or claim arising out of or relating to this Agreement commenced by any party in its individual capacity must be prosecuted in Williamson County, Texas. Each party waives any plea of privilege that might exist in the absence of such party's agreement to prosecute such claim in Williamson County, Texas, and each party irrevocably submits to the non-exclusive jurisdiction of the state and federal courts of the State of Texas and

UTILITY AGREEMENT - Page 11 of 15

consents to service of process upon such party in any legal proceeding arising out of or in connection with this Agreement.

Section 8.12 <u>Counterparts</u>. This Agreement may be executed in any number of counterparts with the same effect as if the parties had all signed the same document. All counterparts will be construed together and will constitute one instrument. In making proof of this Agreement, it will not be necessary to account for more than one counterpart executed by the party against whom enforcement is sought.

Section 8.13 <u>Successors and Assigns</u>. Each and every covenant, term, provision, and agreement herein contained will be binding upon each of the parties and their respective officers, managers, members, employees, elected officials, heirs, legal representatives, successors, and assigns and will inure to the benefit of each of the parties. The terms of this Agreement shall constitute covenants running with the land comprising the Property and shall be binding on all subsequent owners of the Property.

Section 8.14 <u>Construction; Sections; Exhibits, Etc.</u> Whenever the context requires, the gender of all words used in this Agreement includes the masculine, feminine, and neuter. Each reference to an "Exhibit" herein is, unless specifically indicated otherwise, a reference to an exhibit attached hereto, all of which are made a part hereof for all purposes, it being understood that if any Exhibit that is to be executed and delivered pursuant to the terms hereof contains blanks, it will be completed correctly and completely in accordance with the terms and provisions hereof and as contemplated herein prior to or at the time of its execution and delivery.

Section 8.15 <u>Further Assurances</u>. In connection with this Agreement and the transactions contemplated by it, each party will execute and deliver any additional documents and instruments and perform any additional acts that may be necessary or appropriate to effectuate and perform the provisions of this Agreement and those transactions.

Section 8.16 <u>Attorneys' Fees</u>. If the any party brings any legal action to enforce or interpret the provisions of this Agreement, the prevailing party will be entitled to reasonable attorneys' fees, costs, and expenses, in addition to any other relief to which such party may be entitled.

Section 8.17 <u>Entire Agreement</u>. This Agreement sets forth the entire agreement among the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, if any, related thereto.

Section 8.18 <u>Third Party Beneficiaries</u>. Except for the Indemnified Persons, there are no third party beneficiaries of this Agreement.

Section 8.19 <u>Reservation of Rights</u>. To the extent not inconsistent with this Agreement, each party reserves all rights, privileges, and immunities under applicable laws.

Section 8.20 <u>Authorized Agent</u>. Owner may designate a new Authorized Agent by

UTILITY AGREEMENT - Page 12 of 15

providing City with such designation in writing to the address provided in Section 7.04. Notice of such change of Authorized Agent shall not be effective until received by the City.

Section 8.21 <u>Districts</u>. Owner covenants and agrees not to file a petition or seek for the Property to be included in any type of district or political subdivision recognized by the State of Texas, including but not limited to a political subdivision created pursuant to Article III, Section 52 and/or Article XVI, Section 59 of the Texas Constitution, and not to acquiesce to the inclusion of the Property in any type of district or political subdivision recognized by the State of Texas, including but not limited to a political subdivision recognized by the State of Texas, including but not limited to a political subdivision recognized by the State of Texas, and/or Article XVI, Section 59 of the Texas Constitution.

Section 8.22 <u>Approval</u>. This Agreement is subject to the approval of the City Council or other applicable governing bodies of the City.

Section 8.23 <u>Conflicts Regarding Owner Obligations</u>. In the event of a conflict in interpretation of development obligations shown in the development plan exhibit and the written terms of this Agreement, the written terms of this Agreement shall control.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first set forth above.

[Signatures of the Parties follow on next pages]

UTILITY AGREEMENT - Page 13 of 15

SIGNATURE PAGE OF CITY

CITY OF ARRELL, TEXAS Date of execution: 10 By: Larry Bush, Mayor ATTEST: Dianne Peace, Municipal Clerk **APPROVED AS TO FORM:** Art Rodriguez, City Attorney THE STATE OF TEXAS § § COUNTY OF WILLIAMSON §

BEFORE ME, the undersigned authority, on this day personally appeared Larry Bush, Mayor of the City of Jarrell, Texas, a municipal corporation of Williamson County, Texas, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that the same was the act of the said City of Jarrell, for the purposes and consideration therein expressed and in the capacity therein stated.

October 2022.

Notary Public in and for the State of Texas

My Commission Expires: 615



DIANNE PEACE My Notary ID # 11646043 Expires June 15, 2023

UTILITY AGREEMENT - Page 14 of 15

SIGNATURE PAGE OF OWNER AND AUTHORIZED AGENT

COUNTRYVIEW OF RED OAK, LLC

Date of execution: 10|19|22

BY:

CASEY HARGROVE, Manager

THE STATE OF TEXAS
COUNTY OF WILLIAMSON §

BEFORE ME, the undersigned authority, on this day personally appeared **CASEY HARGROVE**, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he is the manager and duly authorized representative of COUNTRYVIEW OF RED OAK, LLC and this agreement was executed for the purposes and consideration therein expressed and in the capacity therein stated.

s S

GIVEN UNDER MY HAND AND SEAL OF OFFICE on this the 19 day of 060000, 2022.

Notary Public in and for the State of Texas My Commission Expires: 02/11/2025



UTILITY AGREEMENT - Page 15 of 15

WATER POLLUTION ABATEMENT PLAN FOR HUNTERS GLEN ADDITION

JARRELL, TX

PREPARED FOR: COUNTRYVIEW OF RED OAK, LLC

PREPARED BY: MICHAEL WESTFALL, PE





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: MICHAEL WESTFALL, PE

Date: 6/10/24

Signature of Customer/Agent:

" Westla

Project Information

- 1. Regulated Entity Name: HUNTERS GLEN ADDITION
- 2. County: WILLIAMSON
- 3. Stream Basin: BRAZOS RIVER(SALADO CREEK)
- 4. Groundwater Conservation District (If applicable): _____
- 5. Edwards Aquifer Zone:

| \times | Recharge Zone |
|----------|-----------------|
| | Transition Zone |

6. Plan Type:

| 🔀 WPAP | AST |
|-----------------|-------------------|
| \boxtimes scs | 🗌 UST |
| Modification | Exception Request |

7. Customer (Applicant):

Contact Person: <u>CASEY HARGROVE</u> Entity: <u>COUNTRYVIEW OF RED OAK LLC</u> Mailing Address: <u>215 W 2ND STREET</u> City, State: <u>WAXAHACHIE, TX</u> Zip: <u>75165</u> Telephone: _____ FAX: ____ Email Address: CPHARGROVE@SBCGLOBAL.NET

8. Agent/Representative (If any):

| Contact Person: <u>MICHAEL WESTFALL, PE</u> | |
|---|-------------------|
| Entity: <u>WESTFALL ENGINEERING PLLC</u> | |
| Mailing Address: <u>1719 ANGEL PKWY</u> | |
| City, State: <u>ALLEN, TX</u> | Zip: <u>75002</u> |
| Telephone: <u>(214) 846-9397</u> | FAX: |
| Email Address: MICHAEL@WESTFALLENGINEERIN | G.COM |

9. Project Location:

The project site is located inside the city limits of <u>CITY OF JARRELL</u>.

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

- The project site is not located within any city's limits or ETJ.
- 10. The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

Project is located on the west side of CR 307 approximately 0.8 miles north of the intersection of CR 307 and CR 305, in Jarrell, TX.

- 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. X 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: 7/14/24
- 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 |
| \boxtimes | Existing residential site |
| \boxtimes | Existing paved and/or unpaved roads |
| | Undeveloped (Cleared) |
| \boxtimes | Undeveloped (Undisturbed/Uncleared) |
| | Other: |
| | |

Prohibited Activities

- 16. I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:
 - (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
 - (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
 - (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
 - (4) The use of sewage holding tanks as parts of organized collection systems; and
 - (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
 - (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.
- 17. I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:
 - (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

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

Administrative Information

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

- For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.

For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.

A request for an exception to any substantive portion of the regulations related to the protection of water quality.

- A request for an extension to a previously approved plan.
- 19. Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

] TCEQ cashier

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

- 20. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
- 21. No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

Attachment A – Road Map





Attachment B – USGS/Edwards Recharge Zone Map





Attachment C – Project Description





Hunters Glen Addition– City of Jarrell Water Pollution Abatement Plan Project Description

The Hunters Glen Addition project is a single-family development located on the west side of CR 307 0.8 miles north of the intersection of CR 307 and CR 305 in Jarrell, TX. This development comprises approximately 41 acres of a total 100-acre property and proposes 148 single family homes as phase 2. Phase 1 is anticipated to complete construction in 2024. A future phase 3 is anticipated to add an additional 148 lots for a total of 433 single family homes but are not included in this permit application. The existing phase 2 site is undeveloped with no existing impervious cover. Phase 1 constructed a detention pond with permanent water quality BMPs to serve all phases of this residential development (EDAQ_11003243-WPAP). The proposed site improvements are detailed in construction drawings and include streets, storm drain, water and sewer infrastructure to support single family home construction. The site has been annexed into the corporate limits of the City of Jarrell.

Geologic Assessment Form TCEQ-0585



1719 ANGEL PARKWAY STE. 400-206 ALLEN, TX 75002



GEOLOGIC ASSESSMENT FOR HUNTERS GLEN ADDITION JARRELL, WILLIAMSON COUNTY, TEXAS



Overview of the Hunter's Glen Tract from the northeastern corner.

Prepared for Westfall Engineering 1719 Angel Parkway, Ste 400-206 Allen, TX 75002

25 April 2022

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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: <u>Aubri Jenson, P.G.</u>

Telephone: 512-291-4555

Fax: 866-908-9137

Date: 4/25/2022

Representing: Zara Environmental LLC/ TBPG No. 50365

Signature of Geologist:

ali Jeran

Regulated Entity Name: Hunters Glen Addition

Project Information

- 1. Date(s) Geologic Assessment was performed: 29 March 2022
- 2. Type of Project

| 🕅 ΨΡΑΡ | 🗆 AST |
|-----------------|-------|
| \boxtimes SCS | 🗆 UST |

- 3. Location of Project:
 - Recharge Zone
 - Transition Zone
 - Contributing Zone within the Transition Zone



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

Table 1 - Soil Units, InfiltrationCharacteristics and Thickness

| Soil Name | Group* | Thickness (feet) |
|---|--------|---------------------|
| DnA—Denton silty clay, 0 to 1 percent slopes | С | 6.66 |
| DnB—Denton silty clay, 1 to 3 percent slopes | D | 6.66 |
| DoC—Doss silty clay, moist, 1 to 5 percent slopes | D | 6.66 |

- * Soil Group Definitions (Abbreviated) A. Soils having a high infiltration rate when thoroughly wetted.
 - B. Soils having a moderate infiltration rate when thoroughly wetted.
 - C. Soils having a slow infiltration rate when thoroughly wetted.
 - D. Soils having a very slow infiltration rate when thoroughly wetted.
- 6. ⊠ Attachment B Stratigraphic Column. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
- 7. ⊠ Attachment C Site Geology. A narrative description of the site-specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. Attachment D – Site Geologic Map(s). The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

Applicant's Site Plan Scale: 1'' = 100'Site Geologic Map Scale: 1'' = 100'Site Soils Map Scale (if more than 1 soil type): 1'' = 500'

9. Method of collecting positional data:

Global Positioning System (GPS) technology.

☑ Other method(s). Please describe method of data collection: <u>Faults and Geology</u> <u>derived from the Geologic Atlas of Texas (GAT 2010) Geologic Map of the Cobbs Cavern</u> <u>Quadrangle, Texas (Collins 1997a) and the Geologic Map of the Jarrell Quadrangle,</u> <u>Texas (Collins 1997b); Well Data obtained from the Texas Water Development Board</u> <u>Data Viewer (TWDB 2022).</u>

- 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. A 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. It 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.
 - \boxtimes There are <u>0</u> (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
 - \Box The wells are not in use and have been properly abandoned.
 - \Box The wells are not in use and will be properly abandoned.
 - \Box The wells are in use and comply with 16 TAC Chapter 76.
 - \boxtimes 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.

| GEOLOGIC ASSESSMENT TABLE | | | | PROJECT NAME: Hunters Glen Addition | | | | | | | | | | | | | | | | |
|---------------------------|-----------|------------|-----------------|-------------------------------------|-----------|-------------------|-----|-------------------|---|-----|-------------------------|--------------------|--------|----------------------------------|-----------|-------|----------------|--------------|------------------|------------|
| | | | | FEATURE CHARACTERISTICS | | | | | | | EVALUATION PHYSICAL SET | | | | L SETTING | | | | | |
| 1A | 1B * | 1C* | 2A | 2B | 3 | | 4 | | 5 | 5A | 6 | 7 | 8A | 8B | 9 | 10 | | | 11 | 12 |
| FEATURE ID | LATITUDE | LONGITUDE | FEATURE TYPE | POINTS | FORMATION | DIMENSIONS (FEET) | | DIMENSIONS (FEET) | | DOM | DENSITY (NO/FT) | APERTURE (FEET) | INFILL | RELATIVE INFILTRATION RATE | TOTAL | SENSI | TIVITY | CATC AREA | HMENT (ACRES) | TOPOGRAPHY |
| | | | | | | Х | Y | Z | | 10 | | | | | | <40 | <u>></u> 40 | <1.6 | <u>></u> 1.6 | |
| HGMB-01 | 30.850034 | -97.623272 | MB | 30 | Kgt | 300 | 200 | 15 | - | - | - | - | F | 5 | 35 | Х | | | х | Drainage |
| | | | | | | | | | | | | | | | | | | | | |
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* DATUM: NAD 83

| 2A | TYPE | 2B POINTS | | 8A INFILLING | | | |
|----|-------------------------------------|-----------|--------|---|--|--|--|
| с | Cave | 30 | Ν | None, exposed bedrock | | | |
| SC | Solution cavity | 20 | С | Coarse - cobbles, breakdown, sand, gravel | | | |
| SF | Solution-enlarged fracture(s) | 20 | 0 | Loose or soft mud or soil, organics, leaves, sticks, dark colors | | | |
| F | Fault | 20 | F | Fines, compacted clay-rich sediment, soil profile, gray or red colors | | | |
| 0 | Other natural bedrock features | 5 | V | Vegetation. Give details in narrative description | | | |
| MB | Manmade feature in bedrock | 30 | FS | S Flowstone, cements, cave deposits | | | |
| SW | Swallow hole | 30 | Х | Other materials | | | |
| SH | Sinkhole | 20 | | | | | |
| CD | Non-karst closed depression | 5 | | 12 TOPOGRAPHY | | | |
| z | Zone, clustered or aligned features | 30 | Cliff, | Hilltop, Hillside, Drainage, Floodplain, Streambed | | | |

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

ali Jeran

Date 25 April 2022

Sheet 1 of 1

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



Stratigraphic column displaying the mapped geologic units in Williamson County region, modified from the Geologic Atlas of Texas (GAT 2010 and Collin 1997). Outcropping units are specified.



GEOLOGIC ASSESSMENT FOR HUNTERS GLEN ADDITION JARRELL, WILLIAMSON COUNTY, TEXAS

Prepared for Westfall Engineering 1719 Angel Parkway, Ste 400-206 Allen, TX 75002

25 April 2022

In accordance with the Texas Board of Professional Geologists rules at 22 Texas Administrative Code, Part 39, Chapter 851, Subchapter C, §851.156, this report is signed and sealed on the title page to assure the user that the work has been performed by or directly supervised by the following professional geologist who takes full responsibility for this work.

The computer-generated seal appearing on this document was authorized by Aubri A. Jenson, PG # 11007, on 19 April 2022.



ahi Jers

Aubri A. Jenson, Texas Professional Geoscientist No. 11007 Zara Environmental LLC Geoscience Firm Registration No. 50365

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Introduction

The 100.86-acre Hunters Glen Project Area is proposed for a single-family residential subdivision in Jarrell, Williamson County, Texas (Figure 1). The Project is located within the Edwards Aquifer Recharge Zone, approximately two miles from the northeastern recharge zone boundary, and therefore meets the Texas Commission of Environmental Quality's (TCEQ) requirements for regulation under the Edwards Rules at Title 30 Texas Administrative Code (TAC) Chapter 213.5. A Geologic Assessment (GA) was conducted on the Project Area with the purpose of identifying, documenting, and evaluating the sensitivity of any geologic features present within the site boundaries, particularly karst features or manmade features in bedrock, which may act as point recharge features into the Edwards Aquifer. A detailed walking survey of the entire area was conducted on 29 March 2022, documenting one manmade feature.

Methods

Background Data Collection

Surface geologic maps from the Geologic Atlas of Texas (GAT) (2010) and U.S. Geological Survey (USGS) (2010) topographic maps were reviewed, as well as the Texas Bureau of Economic Geology Maps of the Cobbs Cavern and Jarrell Quadrangles, Texas (Collins 1997a and Collins 1997b, respectively). Soil descriptions were compiled from the Web Soil Survey of the U.S. Department of Agriculture (USDA) (2022). Available Texas Water Development Board (TWDB) and Texas Commission on Environmental Quality (TCEQ) water well information was also reviewed for the Project Area. Available floodplain maps from the Federal Emergency Management Agency (FEMA) were reviewed for flood potential during heavy runoff events. A data request was submitted to the Texas Speleological Society (TSS) for any documented caves or karst features within or near the Project.

Field Survey

Karst survey methods followed protocols outlined in TCEQ Instructions to Geologists for Geologic Assessments (TCEQ 2004). Walking ground surveys, as defined by Veni and Reddell (2002), TCEQ (2004), and Barrett (2005), were conducted throughout the Project Area and reconnaissance excavations were conducted at all potential karst features if encountered. Positions of all features were documented using Global Positioning System (GPS) technology and checked with field maps based on digital orthoimagery. All features identified were evaluated by a licensed Professional Geologist for potential impact to Edwards Aquifer recharge. This is completed by ranking the recharge sensitivity of each feature using the point scheme defined by TCEQ (2004). Fieldwork was conducted by two Zara Environmental LLC (Zara) geologists on 29 March 2022.





Figure 1. Location map displaying the Project Area in Jarrell, Williamson County, Texas, and Edwards Aquifer Zones (TCEQ 2005).



Results

Background Data

<u>Soils</u>

Three different soil types were identified in the Project Area by the USDA (2022) (Figure 2). A brief description of each soil type is below.

Denton silty clay, 0 to 1 percent slopes (DnA). This ridge forming soil on dissected plateaus is characterized as clayey slope alluvium over calcareous residuum weathered from limestone with depths between 0 and 80 inches (USDA 2022). The soil's capacity to transmit water is moderately low to moderately high (0.06 to 0.20 in/hr) through its most limiting layer, placing it in Hydrologic Soil Group C. This soil comprises 4.2% of the Project Area.

Denton silty clay, 1 to 3 percent slopes (DnB). This hillslope forming soil on dissected plateaus is characterized as silty and clayey slope alluvium over weathered limestone residuum with depths between 0 and 80 inches (USDA 2022). The soil's capacity to transmit water is moderately low to moderately high (0.06 to 0.20 in/hr) through its most limiting layer, placing it in Hydrologic Soil Group D. This soil comprises 16.0% of the Project Area.

Doss silty clay, 1 to 5 percent slopes (DoC). This hillslope forming soil on dissected plateaus is characterized as weathered limestone residuum with depths between 0 and 80 inches (USDA 2022). The soil's capacity to transmit water is moderately low to moderately high (0.06 to 0.57 in/hr) through its most limiting layer, placing it in Hydrologic Soil Group D. This soil comprises 79.8% of the Project Area.





Figure 2. Soil types occurring in the Project Area.



Site Geology

Mapped surface geology from the Geologic Atlas of Texas (GAT 2010) Geologic Map of the Cobbs Cavern Quadrangle, Texas (Collins 1997a) and Geologic Map of the Jarrell Quadrangle, Texas (Collins 1997b) are presented as Figure 3 and Attachment D. The Project Area is currently utilized as agricultural lands and is covered by gently terraced soils that obscure bedrock outcrops. The surface geology is mapped as the Georgetown Formation (Kgt), and while no rock outcrops were visible on the surface of the site, rock cobbles consistent with the Georgetown Formation were persistent throughout the Project Area. The Georgetown Formation (Kgt) is underlain by the Edwards Group, a cavernous unit that generally has high permeability. Given the thickness of soils and land modifications present on the Project Area, it is unlikely that water rapidly infiltrates into the subsurface reaching the Edwards Group; however, it should be noted that the Edwards Group is mapped just to the northeast of the site and that there is a large quarry across County Road 344 with exposed bedrock in the proximity. Overall, the probability for runoff to be transmitted into the subsurface on the site is relatively low as there were no karst features were identified within the Project Area and there were no mapped faults which may act as preferential flowpaths to the subsurface.

Regional Geology

The Project Area is located in the northern portion of the Edwards Plateau Physiographic Province of central Texas, along the Balcones Fault Zone (BFZ). The BFZ also forms the Balcones Escarpment, which is a highly eroded region bordering the Edwards Plateau on its southern and western boundaries. The region is typified by higher elevations to the north and west, generally sloping in a southeastern direction. Canyons and drainage basins were formed by surface flow of Salado Creek, including the unnamed tributaries of Bone Hollow Creek.

The geologic formations occurring within the region consist mostly of Cretaceous-age rocks. The soils that have formed on top of these limestones are a result of rocks eroded off the Balcones Escarpment and Edwards Plateau and re-deposited downstream. In general, soils in the area are relatively thin and offer minimal filtering capability. The limestone bedrock developed from the accumulation of thick sequences of marine sediments deposited in a lagoon environment on the San Marcos Platform protected by a barrier reef during the Cretaceous about 100 million years ago (Rose 1972). In central Texas, the Cretaceous strata slightly dip to the southeast at about 10 to 15 feet per mile toward the Gulf of Mexico.




Figure 3. Geology of Project Area including locations of all features discovered during pedestrian surveys.



Regional Stratigraphy

The regional stratigraphy in the Georgetown area can pertain to the Edwards Aquifer Recharge or Transition Zone. The Transition Zone generally consists of upper confining units and includes the Austin Group (commonly referred to as the Austin Chalk), Eagle Ford Shale Formation, Buda Limestone Formation, and Del Rio Clay Formation, stratigraphically. The geologic units pertaining to the Recharge Zone in this region consists of the Georgetown Formation and the Edwards Group (undivided), where the Person and Kainer Formation. The Georgetown Formation is mapped on-site. A stratigraphic column showing the regional geology is included as Attachment B.

Paraphrased from Collins (1997), the Austin Group (Kau) is described as chalk, marl, and limestone. Thin- to thick-bedded, bentonitic seams, pyrite or marcasite nodules are common and weather to limonite. Fossils include *inoceramus; inoceramus prisms conunon*. In the Austin-Georgetown region, the Austin Group includes six formations (oldest to youngest): the Atco, Vinson, Jonah, Dessau, Burditt, and Pflugerville Formations (Young, 1985). Only Atco through Dessau Formations occur north of Brushy Creek. The thickness is roughly 360 to 425 feet.

The Eagle Ford Shale Formation is described by Collins (1997) as shale and silty limestone to calcareous siltstone. The unit consists of three lithographic intervals: a lower calcareous shale, a middle flaggy, silty limestone to calcareous siltstone and an upper shale. Montmorillonitic clay is common. Thin (0.4 inches to 3 inches) bentonite beds may occur in the middle part of the unit (Garner and Young 1976). This unit is about 65 feet thick in Williamson County and about 23 feet thick to the south of Travis County.

The Buda Limestone Formation (Kbu) is described by Collins (1997) as limestone. The lower part is slightly glauconitic and fossiliferous; whereas, the upper part is hard, resistant, burrowed, fossiliferous, and contains shell fragments. The thickness is mostly between 3 feet and 30 feet; however, it may be absent at certain localities.

The Del Rio Clay Formation is described as clay (Collins 1997). It can be calcareous, fossiliferous, poorly indurated, plastic, and is dark gray to olive brown in color. It can contain *llymatogyra arietina* (formerly *Exogyra arietina*). The Del Rio Clay can be slope forming or underhanging where slumped below overlying Buda. It weathers light gray to yellowish gray and forms highly expansive soil. The thickness is mapped as approximately 65 feet.

The Georgetown Formation is described as limestone and marl, but mostly limestone, fine grained, argillaceous, nodular, moderately indurated, and light gray. Some zones are hard, brittle, thick bedded, white containing some shale, marly, soft, light gray to yellowish gray in color. Marine megafossils include *Kingena wacoensis* and *Gryphaea washitaensis*. The Georgetown Formation is 30 to 80 feet thick and thins southward. It is overlain by the Del Rio Clay and underlain by the Edwards Limestone, undivided. Although permeable, it is less permeable than



the underlaying Edwards Limestone and is often considered the upper confining unit of the Edwards Aquifer.

The Person and Kainer Formations comprise the Edwards Group (Rose 1972). The composition of the Person Formation ranges from crystalline limestone to grainstone to mudstone and is comprised of three informal hydrogeologic units: the Cyclic and Marine Member, the Leached and Collapsed Member, and the Regional Dense Member. The lithology of the Kainer Formation ranges from mudstone to miliolid grainstone to crystalline limestone and is subdivided into four informal members that include the Grainstone Member, the Kirschberg Evaporite Member, the Dolomitic Member, and the Basal Nodular Member (Rose 1972).

Regional Groundwater

The Edwards Aquifer is one of the most permeable and productive limestone aquifers in the United States. Karstified limestone aquifers are, by their nature, extremely vulnerable to contamination. Soils in karst areas tend to be thin and patchy. Thus, the filtration of diffuse recharge afforded by soils is at best low and is only decreased by human activity. Recharge in karst systems commonly occurs as point recharge into specific karst features, bypassing what little filtration a limited soil zone might afford. As the humid subtropical climate of this region can produce thermal convection thunderstorms, many of the rainfall events can produce excessive amounts of precipitation in short periods of time. Some of this water makes its way into the aquifers, usually through concentrated areas along creeks and rivers in outcrop areas of the recharge zone.

The Project Area overlaps with the Recharge Zone in the Northern Segment Edwards Aquifer, as delineated by the TCEQ Edwards Rules (30 TAC §213). The Northern Segment stretches from the Lower Colorado River in Austin along the BFZ into, through Williamson County, and into central Bell County, Texas.

The Recharge Zone of the Edwards Aquifer is defined as the land surface area where caves, sinkholes, faults, fractures, or other permeable features provide pathways for recharge of surface waters into the Edwards Aquifer. This zone is regulated due to the vulnerability of this karst aquifer to pollution. Recharge into the Edwards Aquifer occurs primarily in losing streams, where surface water from the contributing zone flows over faults, fractures, and karst features that have been solutionally enlarged in the Recharge Zone (Sharp and Banner 1997).

Water Wells

No water wells were observed on-site during field reconnaissance or were identified by the TWDB review (TWDB 2022). One well was located to the west of the Project Area on the adjacent property and appeared to be in use as an irrigation well. The Well Tracking ID # is 237890 and according to the records, the depth of the well is 160 feet where the upper 30 feet is listed as "overburden" material and the lower 130 feet is listed as "gray lime".



Floodplains

One stock pond was observed on-site that is bermed at the headwaters of an unnamed tributary of Bone Hollow Creek, which eventually drains to Salado Creek. Incising of the unnamed tributary was minimal and no portion of the Project Area was mapped within a flood zone (FEMA 2022).

Previously Identified Features

A search of previous work by Zara did not indicate any known karst features on adjacent properties. No previously completed Geologic Assessments on the site were identified in the TCEQ Central Registry search. Records were requested from the Texas Speleological Survey (TSS) for all known caves and karst features with one mile of the Project boundary. Three cave records were identified approximately 0.5-mile west of the Project. These pertain to Buzzard Roost Cave and Critchfield Bat Cave #1 and #2. These caves are limited in their size and depth, with the Critchfield Bat Caves being the most extensive at nearly 300 ft long and 21 ft in depth. As three these caves and their footprints are located greater than 150 ft from the Project Area and there are no obvious hydrological connections between the Project and the caves, the proposed project is not anticipated to have an effect on these karst resources.

Description of Features

Results of the pedestrian survey are presented in the TCEQ Geologic Assessment Table (Attachment A) and discussed below. One feature was identified within the Project Area, a stock pond, qualifying as a manmade feature in bedrock. This feature was ranked for recharge sensitivity according to TCEQ standards and did not qualify as sensitive. The location of the feature is displayed in Figure 3 and Attachment D.

Feature HGMB-01; Stock Pond

This stock pond was located towards the northeastern portion of the Project Area at the head of an unnamed tributary to Bone Hollow Creek. The pond was holding water and consisted of claylined bottom with a clay berm along the north, east, and south perimeter, keeping water from flowing into the unnamed tributary (Figure 4 - Figure 5). The length and width, including the berm, were approximately 300 feet by 200 feet, respectively. The total height was approximately 15 feet from the top of the berm to the estimated bottom of the pond, where the lower 5 feet may have been excavated from the natural ground surface during construction. While the catchment area of the pond is likely greater than 1.6 acres, the clay-lined bottom is designed to prevent rapid transition of runoff into the subsurface. This feature is not rated as sensitive according to the Edwards Aquifer Rules (30 TAC §213.5(b)(3)).





Figure 4. Overview of HGMB-01 stock pond berm.



Figure 5. The stock pond HGMB-01 has a clay-lined interior.



Discussion and Recommendations

This Geologic Assessment did not result in identification of any sensitivity karst features or other features which would meet the TCEQ criteria of features warranting protection. One manmade feature, a stock pond, was identified and documented; however, this feature does not rank as sensitive. The overall potential for rapid infiltration of runoff into the subsurface within the Project Area is low as the site consists of relatively flat, thicker clay-rich soils that have been tilled, terraced, and otherwise manipulated for agricultural purposes. There is a slight potential to encounter karst features with excavation of the underlying Georgetown Formation.

If any sensitive karst features are discovered during excavation or other construction activities, an appropriate buffer should be established, and best management practices (BMPs) implemented in accordance with TCEQ requirements under the Edwards Aquifer Protection Program. The TCEQ guidelines suggest a natural buffer around each sensitive feature extending 50 feet in all directions from the footprint of the feature. When the boundary of a drainage area is more than 50 feet from the feature, the buffer should extend to the boundary of the drainage area or 200 ft, whichever is less (Barrett 2005). Proper storm water BMPs should be implemented to prevent untreated urban runoff from entering the unnamed tributary of Bone Hollow Creek. All excavation that may penetrate the bedrock should be performed under the supervision of a qualified Professional Geoscientist.



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Attachment D. Site Geologic Map















Water Pollution Abatement Plan Application TCEQ Form 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: MICHAEL WESTFALL, PE

Date: 6/12/24

Signature of Customer/Agent:

Michael Westfall

Regulated Entity Name: HUNTERS GLEN ADDITION

Regulated Entity Information

- 1. The type of project is:
 - Residential: Number of Lots:<u>148</u>
 -] Residential: Number of Living Unit Equivalents:_____
 - Commercial
 - Industrial
 - Other:____
- 2. Total site acreage (size of property): 41
- 3. Estimated projected population: 518
- 4. The amount and type of impervious cover expected after construction are shown below:

| Impervious Cover of Proposed Project | Sq. Ft. | Sq. Ft./Acre | Acres |
|---|-----------|--------------|-------|
| Structures/Rooftops | 627,000 | ÷ 43,560 = | 14.39 |
| Parking | 65,836 | ÷ 43,560 = | 1.51 |
| Other paved surfaces | 194,892 | ÷ 43,560 = | 11.86 |
| Total Impervious Cover | 1,209,543 | ÷ 43,560 = | 27.77 |

Table 1 - Impervious Cover Table

Total Impervious Cover 27.77 ÷ Total Acreage 41 X 100 = 67.7% 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 \div 43,560 Ft²/Acre = _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area:feet.L x W = $Ft^2 \div 43,560 Ft^2/Acre =$ acres.Pavement areaacres ÷ R.O.W. areaacres 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>30,750</u> Gallons/day |
|---------------------------------|---------------------------|
| % Industrial | Gallons/day |
| % Commingled | Gallons/day |
| TOTAL gallons/day <u>30,750</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_____.

- \boxtimes 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 <u>CITY OF JARRELL</u>, <u>DONAHOE CREEK WWTP</u> (name) Treatment Plant. The treatment facility is:

| \times | Existing. | |
|----------|-----------|--|
| | Proposed | |

16. \square 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. \square The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = <u>100</u>'.

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. | |

 \boxtimes 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): |

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 $\underline{0}$ (#) 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 §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. Cocations 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 A – Factors Affecting Surface Water Quality



Factors Affecting Surface Water Quality

The subject property is currently used for agricultural purposes. The site has a mild slope with elevations that generally fall from west to east. There is an existing stock pond on the eastern side of the property. A swale collects a portion of the onsite drainage and discharges into the stock pond. The site has a limited number of trees which are generally located in the swale and around the stock pond. Upon completion of the project there will be roads, utilities and amenities that will support 137 single family homes.

Potential sources of contamination that could affect surface water quality include:

- Floatable debris and trash
- Raw Sewage
- Fuels and Lubricants
- Fertilizers
- Domestic animal waste
- Suspended sediment
- Oils runoff from roads and motor vehicles



Attachment B – Volume and Character of Stormwater



Volume and Character of Stormwater

The subject property for all 3 phases contains a total of 101 acres of which Phase 2 is 41 acres. The existing condition of the Phase 2 area is undeveloped and drainage is collected in a storm system constructed with Phase 1. Phase 1 development also constructed a detention pond and water quality forebays. Detention pond and forebays were sized for the ultimate build out for Phases 1-3 of the development. This was permitted with EDAQ 11003243.

In the post developed drainage condition the property will be divided into a number of small drainage areas that will generally contribute stormwater runoff to the proposed streets to be captured in the curb line and curb inlets and transported via storm drain system to existing storm drainage stubs and ultimately to the existing forebays and detention pond. Flows from the smaller drainage areas contributing flow to the storm drain system range from 17.1 cfs to 82.8 cfs for the 25-year event and are detailed in the drainage area tables in the construction plans. All flows from the developed portion of the subject property will be directed to the proposed detention pond where they will be stored before release at levels below the flows prior to the development of the property.

Temporary Stormwater Section Form TCEQ-0602



1719 ANGEL PARKWAY STE. 400-206 ALLEN, TX 75002

Temporary Stormwater Section Form 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: MICHAEL WESTFALL, PE

Date: <u>06/12/2024</u>

Signature of Customer/Agent:

what Westfall

Regulated Entity Name: HUNTERS GLEN ADDITION

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: <u>diesel</u>

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: <u>NA</u>

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

Attachment A – Spill Response Actions



Spill Response Actions

The General Contractor is responsible for ensuring that any hazardous or potentially hazardous material that is brought onto the construction site will be handled properly in order to reduce the potential for stormwater pollution. All materials used on this construction site will be properly stored, handled, dispensed and disposed of following all applicable label directions. Flammable and combustible liquids will be stored and handled according to 29 CFR 1926.152. Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids.

Material Safety Data Sheets (MSDS) information will be kept on site for any and all applicable materials.

In the event of an accidental spill, immediate action will be undertaken by the General Contractor to contain and remove the spilled material. All hazardous materials, including contaminated soil and liquid concrete waste, will be disposed of by the Contractor in the manner specified by federal, state and local regulations and by the manufacturer of such products. As soon as possible, the spill will be reported to the appropriate agencies. As required under the provisions of the Clean Water Act, any spill or discharge entering waters of the United States will be properly reported. The General Contractor will prepare a written record of any spill and associated clean-up activities of petroleum products or hazardous materials in excess of 1 gallon or reportable quantities, which ever is less. The General Contractor will provide notice to Owner, immediately upon identification of a reportable spill. A spill report form is provided in the following pages.

Any spills of petroleum products or hazardous materials in excess of Reportable Quantities as defined by EPA or the state or local agency regulations, shall be immediately reported to the EPA National Response Center (1-800-424-8802) and TCEQ (1-800-832-8224).

| Kind of spill | Where discharged | Reportable quantity |
|--|--|---|
| Hazardous substance | onto land | "Final RQ" in Table 302.4 in 40 CFR 302.4 |
| | into water | "Final RQ" or 100 lbs, whichever is less |
| Any oil | coastal waters | as required by the Texas General Land Office |
| Crude oil, oil that is | onto land | 210 gallons (five barrels) |
| neither a petroleum product nor used oil | directly into water | enough to create a sheen |
| Petroleum product, used oil | onto land, from an exempt PST facility | 210 gallons (five barrels) |
| | onto land, or onto land from a non-exempt PST facility | 25 gallons |



| Kind of spill | Where discharged | Reportable quantity |
|---|--|---|
| Associated with the exploration, development and production of oil, gas, or geothermal resources | under the jurisdiction of the Railroad Commission of Texas | as required by the Railroad Commission of Texas |
| Industrial solid waste or other substances | into water | 100 lbs |
| From petroleum storage tanks, underground or aboveground | into water | enough to create a sheen on water |
| From petroleum storage tanks, underground or aboveground | onto land | 25 gallons or equal to the RQ under 40 CFR 302 |
| Other substances that may be useful or valuable and are not ordinarily considered to be waste, but will cause pollution if discharged into water in the state | into water | 100 lbs |

The reportable quantity for hazardous materials can be found in 40 CFR 302 and https://www.govinfo.gov/content/pkg/CFR-2004-title40-vol26/pdf/CFR-2004-title40-vol26-sec302-4.pdf.

In order to minimize the potential for a spill of petroleum product or hazardous materials to come in contact with stormwater, the following steps will be implemented:

- All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, additives for soil stabilization, concrete, curing compounds and additives, etc.) will be stored in a secure location, under cover and in appropriate, tightly sealed containers when not in use. The storage location shall be located away from drainage ditches, swales, and catch basins.
- 2. The minimum practical quantity of all such materials will be kept on the job site and scheduled for delivery as close to time of use as practical.
- 3. The General Contractor shall ensure that a spill control and containment kit (containing for example, absorbent material such as kitty litter or sawdust, acid neutralizing agent, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) is provided on the construction site and the location(s) is reflected shown on the SWPPP plans on site.
- 4. All of the product in a container will be used before the container is disposed of. All such containers will be triple rinsed, with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.
- 5. All products will be stored in and used from the original container with the original product label.
- 6. All products will be used in strict compliance with instructions on the product label.
- 7. The disposal of excess or used products will be in strict compliance with instructions on the products label.
- 8. The General Contractor shall designate a foreman or supervisor to oversee hazardous materials handling procedures.



SPILL REPORT FORM

Steps to be taken by the General Contractor:

- A. The Contractor shall immediately treat the spill area with appropriate materials from the spill containment kit.
- B. Contact the appropriate regulatory agency if the spill exceeds the applicable reportable quantity.
- C. Complete this form in full for each spill that exceeds 1-gallon or exceeds the reportable quantity for the Governing Agency. The General Contractor shall take photos of the spill.
- D. Notify the owner of the spill *if the spill exceeds the applicable reportable quantity.*
- 1. Date and time of the spill/release:
- 2. The identity or chemical name of any material released or spilled, as well as whether the substance is extremely hazardous.
- 3. An estimate of the quantity of material released or spilled and the time or duration of the event.
- 4. The exact location of the spill, including the name of waters involved or threatened, and any other media affected by the release or spill.
- 5. The extent of actual and potential water pollution.
- 6. The source of the release or spill.
- 7. The name, address, and phone number of the party in charge of, or responsible for, the facility, vessel, or activity associated with the release or spill. If that party is not at the site, also have the name and phone number of the party at the site who is in charge of operations.
- 8. The steps being taken or proposed to contain and clean up the released or spilled material and any precautions taken to minimize impacts, including evacuation.
- 9. Any injuries:
- 10. Any known or anticipated health risks associated with the incident and, where appropriate, advice regarding medical attention necessary for persons exposed:
- 11. Possible hazards to the environment (air, soil, water, wildlife, etc.). This assessment may include references to accepted chemical databases, material safety data sheets, and health advisories. The TCEQ may request estimated or measured concentrations of the contaminant for the state's hazard assessment.



12. The identities of any government or private-sector representatives responding at the scene.

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

Contractor Superintendent:

Date:


Attachment B – Potential Sources of Contamination



Potential Sources of Contamination

- Suspended sediment
- Floatable debris and trash
- Raw sewage from improper collection and disposal of human waste
- Fuels and lubricants
- Concrete saw water
- Hydrated lime
- Waste concrete
- Concrete curing compound
- Paints and solvents
- Fertilizer
- Hypo-chlorinated water



Attachment C – Sequence of Major Activities



Sequence of Major Activities

<u>PHASE 1</u>

- 1. INSTALL THE SWPPP INFORMATION SIGN NEAR THE PLANNED CONSTRUCTION EXIT IN A LOCATION THAT IS EASILY ACCESSIBLE TO THE GENERAL PUBLIC WITHOUT ACCESSING THE SITE.
- 2. INSTALL THE CONSTRUCTION EXIT.
- 3. INSTALL SILT FENCE.
- 5. INSTALL INTERCEPTOR SWALE WITH ROCK CHECK DAMS AND DIVERSION DIKE TO DIVER UNDISTURBED AREA AROUND PLANNED SEDIMENT BASIN.
- 6. INSTALL SEDIMENT BASIN AND OUTFALL STRUCTURE.
- 7. INSTALL INTERCEPTOR SWALE WITH ROCK CHECK DAMS TO DIVERT ONSITE STORM WATER TO SEDIMENT BASIN.

PHASE 2

- 1. BEGIN CLEARING AND GRUBBING OF THE SITE.
- 2. BEGIN SITE GRADING.
- 3. INSTALL UTILITIES AND STORM SEWER.
- 4. INSTALL RIP RAP OUT STORM OUTFALLS AS SHOWN ON THE STORM PLAN.
- 5. INSTALL INLET PROTECTION AS EACH INLET IS INSTALLED.
- 6. PREPARE THE SITE FOR PAVING.
- 7. PAVE THE SITE.
- 8. COMPLETE GRADING AND INSTALLATION OF PERMANENT STABILIZATION OVER ALL DISTURBED AREAS.



Attachment D – Temporary Best Management Practices (TBMPs)



Temporary BMPs

Construction Exit

Use wherever traffic will be leaving a construction site and moving directly onto a public road or an off-site paved surface. Primary installations include exits from storage areas, staging areas, truck haul routes, and borrow/spoil areas. This BMP provides an area where vehicles can remove mud and sediment from their tires prior to driving on public streets. If used properly, it reduces the requirement to remove sediment from public streets, directs the majority of traffic to a single location, and provides protection for other BMPs on site through traffic control.

Diversion Berm or Diversion Swale

Use this BMP to protect disturbed ground areas from up-slope runoff and to divert sediment laden on-site runoff to installed BMPs for sediment removal.

Typical applications include:

- A. Installation above cut or fill slopes to intercept runoff before it flows down a steep slope.
- B. Installations to intercept runoff from undisturbed areas to divert the flow around the construction site.
- C. Across unprotected slopes, as a slope break, to reduce the slope length.
- D. Around the perimeter of the site to prevent sediment laden runoff from leaving the site and to direct the runoff to an appropriate BMP.
- E. Within the construction site to divert runoff to the appropriate BMP or to isolate an area from sedimentation damage.

Silt Fence

Use this BMP to slow the flow of sediment laden water from small, disturbed areas to allow sedimentation to occur and to filter out larger sediment particles as the water flows through the filter fabric. Silt fence is normally used as a perimeter control immediately downstream of small, disturbed areas.

Rip rap

Used to reduce the outlet flow velocity and dissipate the outlet flow energy to reduce the potential for downstream channel erosion.

Drop Inlet Protection

This BMP is used where storm drain drop inlets are to be used prior to final stabilization of the area draining to the structure. This method of inlet protection is effective for small drainage areas with flat slopes and sheet flow type runoff.

Curb Inlet Protection

This BMP is used where storm drain curb inlets are to be used prior to final stabilization of the area draining to the structure. This method is used where the inlet will collect relatively heavy flows and overflow capability is needed. This method is also to be used to protect existing curb inlets located in paved areas.



Pipe Inlet Protection

This BMP is used where existing or proposed storm drain pipes or culverts are to be used prior to final stabilization of the area draining to the pipe inlet. This method is used where the pipe inlet will collect relatively heavy storm water flows and overflow capability is needed.

Rock Check Dam

Rock check dams are used primarily in small to moderately sized open channels that have erosive velocities for design flow conditions. They are typically used in long linear roadway type projects or on short steep sections of drainage channel. These devises are a smaller version of stone outlet sediment traps which are used for larger drainage areas.

Sediment Basin

The device is one of the most effective BMPs available for sedimentation control, but due to the area required for storage and the cost of construction it is usually used on larger projects with drainage areas greater than 5 acres. This application works particularly well where larger disturbed areas naturally drain toward one outlet point.

Erosion Control Matting

Matting can be used on any construction-related disturbed land areas but are particularly effective for erosion control on short steep slopes and channel bottoms or sides. They are also well suited for sheet flow sedimentation control from small drainage areas on flat grades.



Attachment E - Request to Temporarily Seal a Features



Attachment F – Structural Practices



Structural Practices

Interceptor swale with rock check dams and diversion dike are proposed as shown on the Temporary Erosion Control Plan Sheets that will divert flows from undisturbed areas from both the development property and from offsite adjacent properties. These flows are to be diverted away from disturbed soils and away from the proposed sedimentation basin.

A sedimentation basin as shown on the erosion control sheets will be installed to settle out TSS from the onsite disturbed soils.

Interceptor swales with rock check dams will be installed within the area of disturbance to direct storm water within the limits of disturbance to the proposed sedimentation basin to be treated prior to discharge from the site. No storm runoff from disturbed areas is intended to leave the site without passing through the sedimentation basin.

Please see the erosion control plan, details and calculations for more information regarding the site erosion control structural practices.



Attachment G – Drainage Area Map See construction plans



Attachment H – Temporary Sediment Pond(s) Plans and Calculations



Hydrograph Report

Hydrology Studio v 3.0.0.32

Sediment Basin

06-13-2024

Hyd. No. 2

| Hydrograph Type | = Pond Route | Peak Flow | = 4.076 cfs | | | |
|-----------------------------|-----------------------------------|-------------------|----------------------------|--|--|--|
| Storm Frequency | = 2-yr | Time to Peak | = 15.70 hrs | | | |
| Time Interval | = 1 min | Hydrograph Volume | ume = 341,307 cuft | | | |
| Inflow Hydrograph | = 1 - Sediment Basin | Max. Elevation | = 791.43 ft | | | |
| Pond Name | = Sediment Basin | Max. Storage | = 273,703 cuft | | | |
| Pond Routing by Storage Inc | dication Method | Center of mass | detention time = 12.30 hrs | | | |
| | Qp = 4.08 cfs | | | | | |
| | | | | | | |
| 120- | | | | | | |
| - | | | | | | |
| 110- | | | | | | |
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| 70- | | | | | | |
| (cfs) | | | | | | |
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| 0 2 4 6 | 5 8 10 12 14 16 18 20 22 24 26 28 | 30 32 34 36 38 4 | 0 42 44 46 48 | | | |
| | Time (hrs) | | | | | |
| | Sediment Basin Sediment Ba | asin | | | | |
| | | | | | | |

Project Name:

Pond Report

Hydrology Studio v 3.0.0.32

Sediment Basin

06-13-2024

Stage-Storage

| User Defined Conto | ours | Stage / Storage Table | | | | | | |
|---|-------------------|-----------------------|-------------------|------------------------|-------------------------|--|--|--|
| Description | Description Input | | Elevation (ft) | Contour Area (sqft) | Incr. Storage (cuft) | Total Storage (cuft) | | |
| Bottom Elevation, ft | 799.28 | 0.00 | 799.28 | 1 | 0.000 | 0.000 | | |
| Voids (%) | 100.00 | 0.72 | 800.00 | 3,960 | 1,426 | 1,426 | | |
| Volume Calc | Ave End Area | 1.72 | 801.00 | 6,972 | 5,466 | 6,892 | | |
| | | 2.72 | 802.00 | 10,679 | 8,826 | 15,717 | | |
| | | 3.72 | 803.00 | 10,850 | 10,765 | 26,482 | | |
| | | 4.72 | 804.00 | 21,926 | 16,388 | 42,870 | | |
| | | 5.72 | 805.00 | 65,432 | 43,679 | 86,549 | | |
| | _ | 6.72 | 806.00 | 109,617 | 87,525 | 174,073 | | |
| | | 7.72 | 807.00 | 146,492 | 128,055 | 302,128 | | |
| | | 8.72 | 808.00 | 174,740 | 160,616 | 462,744 | | |
| | | 9.72 | 809.00 | 204,158 | 189,449 | 052,193 | | |
| | | _ | | | | | | |
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| 808- 806- 804- 802- € 800- 798- 798- 798- 796- 794- 794- 792- | | | | | | 8 6 4 2 5 tage 0 (ff) -2 -4 -4 -6 -8 | | |
| 0 100000 | 200000 | 300000 Total Sta | 400 | 000 500 | 000 600 | 000 | | |
| | | 10101 310 | rage (cuit) | | | | | |
| | | 2-yr - | - Contours | | | | | |

Pond Report

Hydrology Studio v 3.0.0.32

06-13-2024

Sediment Basin

Stage-Storage-Discharge Summary

| Stage | Elev. | Storage | Culvert | C | Drifices, cf | S | Riser | Riser (cfs) Weirs, cfs 2 | | Weirs, cfs | | | User | Total |
|-------|--------|---------|---------|---|--------------|---|-------|--------------------------|--|------------|-------|-------|-------|-------|
| (ft) | (ft) | (cuft) | (cfs) | 1 | 2 | 3 | (cfs) | | | 3 | (cfs) | (cfs) | (cfs) | (cfs) |
| 0.00 | 799.28 | 0.000 | | | | | | | | | 0.000 | | | 0.000 |
| 0.72 | 800.00 | 1,426 | | | | | | | | | 0.000 | | 3.600 | 3.600 |
| 1.72 | 801.00 | 6,892 | | | | | | | | | 0.000 | | 3.600 | 3.600 |
| 2.72 | 802.00 | 15,717 | | | | | | | | | 0.000 | | 3.600 | 3.600 |
| 3.72 | 803.00 | 26,482 | | | | | | | | | 0.000 | | 3.600 | 3.600 |
| 4.72 | 804.00 | 42,870 | | | | | | | | | 0.000 | | 3.600 | 3.600 |
| 5.72 | 805.00 | 86,549 | | | | | | | | | 0.000 | | 3.600 | 3.600 |
| 6.72 | 806.00 | 174,073 | | | | | | | | | 0.000 | | 3.600 | 3.600 |
| 7.72 | 807.00 | 302,128 | | | | | | | | | 0.000 | | 3.600 | 3.600 |
| 8.72 | 808.00 | 462,744 | | | | | | | | | 0.000 | | 3.600 | 3.600 |
| 9.72 | 809.00 | 652,193 | | | | | | | | | 0.000 | | 3.600 | 3.600 |

Attachment I – Inspection and Maintenance for BMPs



Inspection of Controls Worksheets/Report

Complete this worksheet every seven days; OR, every 14 days and within 24 hours of a 0.5 inch rainfall event, and retain in your SWP3.

Inspector (name/title): _____

Date and time:_____

14 Day Inspection \Box or Weekly Inspection \Box

Day of week normally conducted: _____ 0.5 inch Rainfall Event 🗆

| Inspection Type: | Inspected? | Areas of Concern (Describe in detail in the narrative section) |
|-----------------------------|------------|--|
| Disturbed Soil Areas | Yes 🗆 No 🗆 | |
| Material Storage Areas | Yes 🗆 No 🗆 | |
| Structural Controls | Yes 🗆 No 🗆 | |
| Sediment & Erosion Controls | Yes 🗆 No 🗆 | |
| Entrance(s) and Exit(s) | Yes 🗆 No 🗆 | |

Discharges:

| Nature of discharge (silt, gravel, sand, other pollutant) | Location on-site discharge |
|---|----------------------------|
| | |
| | |
| | |
| | |
| | |

Best Management Practices Inspected:

| BMP and Location | ОК | BMP failed (describe failure) | Required Maintenance (describe corrective actions needed) |
|------------------|----|----------------------------------|---|
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Additional BMPs Needed

| Location | BMP | Replacing Existing BMP? |
|----------|-----|-------------------------|
| | | |
| | | |
| | | |
| | | |

Inspection Narrative Description/Certification

Describe the inspector's qualifications to conduct the inspections:

Describe how your inspection was conducted

Describe all incidents of non-compliance (i.e. major discharges, BMP failures):

I certify that the facility or site is in compliance with the Stormwater Pollution Prevention Plan and the TPDES Construction General Permit. Inspectors must be authorized in writing by the operator to certify inspection reports. I further certify that I am authorized to sign this report under TCEQ rules at 30 TAC 305.128

| Name/Title: | Date: |
|-------------|-------|
| | |



BMP Maintenance

All protective measures identified in the SW3P must be maintained in effective operation condition. If through inspections the Operator responsible for implementation of the devices determines that the BMPs are not operating effectively or is directed by a representative of an authority having jurisdiction to perform maintenance, the maintenance must be performed prior to the next rain event if feasible or as needed to maintain the continued effectiveness of the stormwater controls. If maintenance prior to the next rain event is impractical, maintenance must be scheduled as accomplished as soon as practical. Erosion and sediment controls that have be intentionally disabled, run over, removed, or otherwise rendered ineffective must be replace or corrected immediately upon discovery.

Construction Exit Maintenance

Inspections should be made weekly and after rainfall events to ensure that the device is functioning properly. When sediment or mud has clogged the void spaces between the stones or mud is being tracked onto the public roadway the aggregate pad must be washed down or replaced. Runoff from the wash-down operation shall not be allowed to drain directly off site without first flowing through another BMP to control off-site sedimentation. Periodic re-grading or the addition of new stone may be required to maintain the efficiency of the installation.

Diversion Berm or Diversion Swale Maintenance

Inspect diversions weekly or immediately after rainfall events. Particular attention must be paid to areas where sediment builds up in the channel, areas where vehicles have crossed or caused damage, areas where the ridge begins to erode, and any areas where flow overtops the ridge. Sediment in the channel shall be promptly removed and damaged areas of the ridge shall be stabilized by appropriate methods. Methods of stabilization may include the following or any combination of the following: netting, mulching, temporary seeding, or the flattening of the side slopes. Diversions to be left in place for more than 30 days should be stabilized by establishing temporary ground cover.

Silt Fence Maintenance

Silt fence should be inspected weekly and after major rainfall events to ensure that the device is functioning properly. Remove sediment from behind fence when the depth of sediment has built up to maintenance the height of the fence above grade. Inspect the base of the fence to ensure that no gaps have developed and re-trench as necessary. Inspect fence posts to ensure that they are properly supporting the fence. Straighten, reset, and add posts if necessary. If filter fabric is ripped, damaged, or deteriorated, replace it in accordance with the original specifications and details.

Rip rap Maintenance

Inspect periodically and after major rainfall events to ensure that the facility is functioning properly. Repair dislodged or missing stone rip rap and repair any downstream erosion as soon as possible.



Drop Inlet Protection Maintenance

Filter fabric drop inlet protection should be inspected weekly and after major rainfall events to ensure that the device is functioning properly. Remove sediment from around filter fabric when the depth of sediment has built up to one-third the height of the fence above grade. Inspect the trenched in base of fence to ensure that no gaps have developed and re-trench as necessary. Inspect fence posts to ensure that they are properly supporting the filter fabric. Straighten and reset posts if necessary. If filter fabric is ripped, damaged, or deteriorated, replace it in accordance with the original specifications and details.

Curb Inlet Protection Maintenance

Curb inlet protection should be inspected weekly and after major rainfall events to ensure that the device is functioning properly. Remove sediment from the storage area when the depth of sediment has built up to one-half of the storage depth. If de-watering of the storage volume is not occurring, clean or replace the filter stone. Clean the filter stone surface the first few times by raking. Repeated sediment build-up will require filter stone replacement.

Pipe Inlet Protection Maintenance

Pipe inlet protection should be inspected weekly and after major rain events to ensure that the device is functioning properly. Remove sediment from the sediment storage area when the depth of sediment has built up to one-half of the design depth. If de-watering of the storage volume is not occurring, clean or replace the filter stone surrounding the pipe inlet. Clean the stone surface the first few times by raking. Repeated sediment build-up will require filter stone replacement.

Rock Check Dam Maintenance

Rock check dams should be inspected weekly and after all rain events to ensure that the device is functioning properly. Remove sediment from the storage area upstream of the dam when the depth of sediment has built up to one-half of the dam height. Repair damage to the channel in the vicinity of the check dams immediately to prevent additional damage. Replace missing or dislodged rock as needed to maintain the design height and cross section of the check dam.

Sediment Basin Maintenance

Periodically inspect sediment basin to ensure that facility is functioning properly. Clean out sediment and dispose of properly when the sediment storage volume is one-half full. Clean or replace filter stone when stone becomes clogged with sediment or facility will no longer drain properly. Check outlet of spillway barrel and downstream toe of dam to ensure that water is not flowing under the dam or along the outside edge of the spillway pipe. Check downstream channel and overflow channel for erosion and gullies and repair as needed.

Erosion Control Matting Maintenance

Inspect the erosion control matting installations after all rainfall events to ensure that the facilities are functioning properly and have not been displaced by runoff. Particular attention must be paid to the upstream ends of channel linings and slope protection, as well as the joints between adjacent mats. Repair any damaged areas promptly and replace any displaced matting. Additional staking may be required on steeper slopes and in channel bottoms.



Attachment J – Schedule of Interim and Permanent Soil Stabilization Practices



| | SCHEDULE OF SOIL STABILIZATION PRACTICES | | | | | | | | | | | | | | | | | |
|---------------------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | General Contractor to fill in table based on their specific project schedule. | | | | | | | | | | | | | | | | | |
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN |
| TEMP CONSTRUCTION EXIT | | | | | | | | | | | | | | | | | | |
| TEMPORARY CONTROL MEASURES | | | | | | | | | | | | | | | | | | |
| SEDIMENT CONTROL BASINS | | | | | | | | | | | | | | | | | | |
| STRIP & STOCKPILE | | | | | | | | | | | | | | | | | | |
| ROUGH GRADE | | | | | | | | | | | | | | | | | | |
| STORM FACILITIES | | | | | | | | | | | | | | | | | | |
| SITE CONSTRUCTION | | | | | | | | | | | | | | | | | | |
| PERMANENT CONTROL STRUCTURES | | | | | | | | | | | | | | | | | | |
| FINISH GRADING | | | | | | | | | | | | | | | | | | |
| FINAL STABILIZATION | | | | | | | | | | | | | | | | | | |
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Contractor to update table by dating applicable activities as project progresses.



Permanent Stormwater Section

Form 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)(Ii), (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: MICHAEL WESTFALL, PE

Date: 7/1/24

Signature of Customer/Agent

Regulated Entity Name: HUNTERS GLEN ADDITION

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.



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

| 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. |
| \boxtimes | 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 |

degradation. N/A

Responsibility for Maintenance of Permanent BMP(s)

by the regulated activity, which increase erosion that results in water quality

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. \square 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

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 2, 2022

Mr. Casey Hargrove Countryview of Red Oak, LLC 215 W. 2nd St. Waxahachie, Texas 75165

Re: Edwards Aquifer, Williamson County

NAME OF PROJECT: Hunters Glen Addition; Located on CR 307, 0.8 miles North of CR 307 and CR 305, Jarrell, Texas

TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP) and an Organized Sewage Collection System (SCS); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program ID Nos. 11003243 (WPAP) and 11003244 (SCS); Regulated Entity No. RN111479283

Dear Mr. Hargrove:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP and SCS applications for the above-referenced project submitted to the Austin Regional Office by Westfall Engineering on behalf of Countryview of Red Oak, LLC on September 9, 2022. Final review was completed after additional material was received on November 28, 2022. As presented to the TCEO, 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 and Chapter 217. 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

WPAP DESCRIPTON

The proposed single-family residential project will have an area of approximately 41.0 acres and will include the construction of 413 single-family residential lots, roads and drives, utilities, and associated appurtenances, and a water quality basin. The proposed impervious cover will be 17.21 acres (41.97 percent).

TCEQ Region 11 • P.O. Box 13087 • Austin, Texas 78711-3087 • 512-339-2929 • Fax 512-339-3795

Austin Headquarters: 512-239-1000 • tceq.texas.gov • How is our customer service? tceq.texas.gov/customersurvey printed on recycled paper

SCS DESCRIPTION

The 7,422 linear feet gravity SCS will consist of 6,819 feet of 8-inch, 541 feet of 10-inch, and 62 feet of 12-inch SDR 26 PVC ASTM D-3034 pipe with associated manholes.

The wastewater generated by this project will be conveyed to the existing City of Jarrell – Donahoe Creek Wastewater Treatment Plant for treatment and disposal. The project is located within the City of Jarrell and will conform to all applicable codes, ordinances, and requirements of the City of Jarrell.

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 wet basin designed using the TCEQ technical guidance document, <u>Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005)</u>, will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 14,980 pounds of TSS generated from the 17.21 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The proposed water quality basin is sized for future development. It will have a water quality volume of 328,316 cubic feet and is designed to treat stormwater runoff from 45.97 acres of impervious cover.

GEOLOGY

According to the Geologic Assessment (GA) included with the application, no sensitive geologic features were observed at the site. The surface geology of the area consists of Georgetown Formation (Kgt). The site is located entirely within Edwards Aquifer Recharge Zone. The TCEQ site assessment conducted on November 29, 2022 revealed the site to be generally as described by the GA.

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 basins during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.
- III. All wastewater conveyance and treatment infrastructure shall be operational prior to any occupancy of the facility and prior to any wastewater flow being introduced into the sewage collection system.

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, SCS 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 and/or SCS 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 and SCS, 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.
- 18. No part of the system shall be used as a holding tank for a pump-and-haul operation.

After Completion of Construction:

- 19. 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.
- 20. 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. Such 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.
- 21. 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.
- 22. Certification by a Texas Licensed Professional Engineer of the testing of sewage collection systems required by 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office within 30 days of test completion and prior to the new sewage collection system being put into service. The certification should include the project name as it appeared on the approved application, the program ID number, and two copies of a site plan sheet(s) indicating the wastewater lines and manholes that were tested and are being certified as complying with the appropriate regulations. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Should any test result fail to meet passing test criteria and then subsequently pass

testing, the result(s) and an explanation of what repair, adjustment, or other means were taken to facilitate a subsequent passing result shall be provided.

- 23. Every five years after the initial certification, the sewage collection system shall be retested. Any lines that fail the test must be repaired and retested. Certification that the system continues to meet the requirements of 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office. The certification should include the project name as it appeared on the approved application, the program ID number and two copies of a site plan sheet(s) indicating the wastewater lines and manholes that were tested and are being certified as complying with the appropriate regulations. Should any test result fail to meet passing test criteria, and then subsequently pass testing, the result(s) and an explanation of what repair, adjustment, or other means were taken to facilitate a subsequent passing result shall be provided.
- 24. If ownership of this organized sewage collection system is legally transferred (e.g., developer to city or Municipal Utility District), 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.
- 25. 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.
- 26. 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 Mihaela (Miki) Chilarescu, P.E. of the Edwards Aquifer Protection Program of the Austin Regional Office at (512) 339-2929.

Sincerely, Uian Butter

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

LIB/mec

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

Cc: Mr. Michael Westfall, P.E. - Westfall Engineering, Inc.

Attachment B – BMPs for Upgradient Stormwater

No BMPs are required for upgradient stormwater as the contributing drainage areas from offsite upgradient areas are minimal and these areas are currently undeveloped. Upon developing these properties additional BMPs would be required on these properties to treat any stormwater prior to discharge to this site. Additionally, considering the small flows expected from these potential offsite areas adequate excess capacity within the currently proposed onsite BMP (Wet Basin) would be available to treat the potential offsite flows.



Attachment C – BMPs for On-site Stormwater

The proposed BMP for onsite pollution prevention of surface water was constructed as part of Phase 1 and permitted through EDAQ 11003243.



Attachment G – Inspection, Maintenance, Repair and Retrofit Plan

BMP Maintenance

All protective measures identified in the below plan must be maintained in effective operation condition. If through inspections the Operator responsible for implementation of the devices determines that the BMPs are not operating effectively or is directed by a representative of an authority having jurisdiction to perform maintenance, the maintenance must be performed prior to the next rain event if feasible or as needed to maintain the continued effectiveness of the stormwater controls. If maintenance prior to the next rain event is impractical, maintenance must be scheduled as accomplished as soon as practical.

Wet Basin Routine Maintenance and Inspections

Mowing.

The side-slopes, embankment, and emergency spillway of the basin will be mowed a minimum of 2 times per year or as needed to prevent woody growth and to control weeds.

Inspections.

Wet basin will be inspected a minimum of twice a year to evaluate facility operation. When possible, inspections should be conducted during wet weather to determine if the basin is functioning properly. The following checklist of items will be inspected:

- Debris and Litter Removal. Particular attention should be paid to floatable debris around the riser, and the outlet should be checked for possible clogging.
- Embankment will be checked for subsidence, erosion, leakage, cracking, and tree growth.
- The condition of the emergency spillway will be checked.
- The inlet, barrel, and outlet will be inspected for clogging.
- The adequacy of upstream and downstream channel erosion protection measures will be checked.
- Stability of the side slopes will be checked.
- Modifications to the basin structure and contributing watershed will be evaluated.
- Replace any dead or displaced vegetation.
- Replanting of various species of wetland vegetation may be required at first, until a viable mix of species is established.
- Cracks, voids and undermining will be patched/filled to prevent additional structural damage.
- Trees and root systems will be removed to prevent growth in cracks and joints that can cause structural damage.
- The inspections will be carried out with as-built pond plans in hand.



Wet Basin Repair and Retrofit Plan

Erosion Control.

The basin side slopes, emergency spillway, and embankment all may periodically suffer from slumping and erosion. Corrective measures such as regrading and revegetation may be necessary. Similarly, the riprap protecting the channel near the outlet may need to be repaired or replaced. Upon discovery of erosion issues appropriate corrective measures will be taken as soon as practicable.

Nuisance Control.

Control of insects, weeds, odors, and algae may be needed. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.). If needed appropriate actions will be taken to mitigate nuisances. Biological control of algae and mosquitoes using fish such as fathead minnows is preferable to chemical applications.

Structural Repairs and Replacement.

Over time the structural elements of the wet basin will deteriorate and will require replacement. The structural elements of the wet basin include the inlet/outlet and riser works, emergency overflow spillway. These elements should be evaluated during the biannual inspections. If deterioration in the structural elements is suspected an evaluation by a licensed professional engineer should be done to determine the suitability of the current elements and a plan to repair or replace deficient elements. Failing structural elements shall be repaired or replaced as soon as practicable.

Sediment Removal.

Accumulation of sediment is expected in a wet basin and can over time significantly reduce the storage capacity of the permeant pool. Sediment accumulated in the sediment forebay area will be removed from the facility every two years to prevent accumulation in the permanent pool. Dredging of the permanent pool will occur every 20 years, or when accumulation of sediment impairs functioning of the outlet structure.

Records

Maintenance records and inspection reports shall be kept in a log in a known location.

Owner Date:



1719 ANGEL PARKWAY STE. 400-206 ALLEN, TX 75002 Hunters Glen Addition TBPE FIRM REG, #19101
SUBMITTAL LOG

DATE **APRIL 2024**

DESCRIPTION CITY REVIEW SUBMITTAL

OWNER / DEVELOPER

COUNTRY VIEW OF RED OAK, LLC 101 VALLEY RIDGE DR. RED OAK, TX 75154

SURVEYOR

360 SURVEYING 310 H.G. MOSLEY PKWY LONGVIEW TX, 75604 TBPLS 101194293

ENGINEER



1719 ANGEL PKWY, SUITE 400-206 ALLEN, TX 75002 TBPE FIRM REG. #19101 (214) 846-9397 CONTACT: MICHAEL WESTFALL, P.E.

CIVIL CONSTRUCTION PLANS FOR HUNTERS GLEN ADDITION PHASE 2 COUNTY ROAD 307 CITY OF JARRELL, WILLIAMSON COUNTY, TEXAS



APRIL 2024

SHEET INDEX

| SHEET NO. | SHEET TITLE |
|-----------------|--|
| C1.00 | COVER SHEET |
| C1.01 | GENERAL NOTES |
| C1.02 | TCEQ NOTES |
| C2.00 - C2.01 | LOTTING PLAN |
| C3.00 - C3.01 | DEMOLITION PLAN |
| C4.00 | DEERHURST DRIVE PLAN AND PROFILE |
| C4.01 | FOXTROT DRIVE PLAN AND PROFILE |
| C4.02 | GROUSE DRIVE PLAN AND PROFILE |
| C4.03 | RED WOLF DRIVE PLAN AND PROFILE |
| C4.04 - C4.06 | MOUNTAIN QUAIL DRIVE PLAN AND PROFILE |
| C4.07 | WILD GOOSE PLAN AND PROFILE |
| C4.08 | BEAVER CREEK DRIVE PLAN AND PROFILE |
| C4.09 | BOBCAT CREEK DRIVE PLAN AND PROFILE |
| C5.00 - C5.03 | GRADING PLAN |
| C6.00 - C6.01 | EXISTING DRAINAGE AREA MAP |
| C6.02 | EXISTING DRAINAGE AREA TABLES |
| C6.03 - C6.04 | DRAINAGE AREA MAP |
| C6.05 | DRAINAGE AREA TABLE |
| C7.00 - C7.01 | STORM DRAINAGE LINE A PLAN AND PROFILE |
| C7.02 - C7.03 | STORM DRAINAGE LINE A LATERAL PROFILES |
| C7.04 | STORM DRAINAGE LINE B PLAN AND PROFILE |
| C7.05 | STORM DRAINAGE LINE B LATERAL PROFILES |
| C7.06 - C7.08 | STORM DRAINAGE LINE C PLAN AND PROFILE |
| C7.09 - C7.11 | STORM DRAINAGE LINE C LATERAL PROFILES |
| C8.00 - C8.02 | SANITARY SEWER PLAN |
| C8.03 - C8.06 | SANITARY SEWER PROFILES |
| C8.07 | SANITARY SEWER CALCULATIONS |
| C8.08 - C8.10 | WATER PLAN |
| C8.11 - C8.14 | WATER PROFILES |
| C9.00 | SIDEWALK PLAN |
| C9.01 | SIDEWALK PLAN AND POINT TABLE |
| C10.00 - C10.01 | SIGNAGE AND LIGHTING PLAN |
| C11.00 - C11.01 | EROSION CONTROL PLAN PHASE 1 |
| C11.02 - C11.03 | EROSION CONTROL PLAN PHASE 2 |
| C11.04 | EROSION CONTROL DETAILS |
| C12.00 - C12.07 | CONSTRUCTION DETAILS |



GENERAL NOTES

- . ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THESE PLANS, CITY (OR TOWN) STANDARD DETAILS AND SPECIFICATIONS, THE FINAL GEOTECHNICAL REPORT AND ALL ISSUED ADDENDA, AND COMMONLY ACCEPTED CONSTRUCTION STANDARDS. THE CITY SPECIFICATIONS SHALL GOVERN WHERE OTHER SPECIFICATIONS DO NOT EXIST. IN CASE OF CONFLICTING
- SPECIFICATIONS OR DETAILS, THE MORE RESTRICTIVE SPECIFICATION AND DETAIL SHALL BE FOLLOWED 2. THE CONTRACTOR SHALL COMPLY WITH ANY APPLICABLE CITY (OR TOWN) "GENERAL NOTES" FOR CONSTRUCTION. FOR INSTANCES WHERE THEY CONFLICT WITH THESE WESTFALL ENGINEERING, PLLC GENERAL NOTES, THEN THE MORE RESTRICTIVE SHALL APPLY.
- 3. THE CONTRACTOR SHALL FURNISH ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE AUTHORITIES' SPECIFICATIONS AND REQUIREMENTS.
- 4. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO DETERMINE EXISTING CONDITIONS. 5. THE EXISTING CONDITIONS SHOWN ON THESE PLANS WERE PROVIDED BY THE TOPOGRAPHIC SURVEY PREPARED BY THE PROJECT
- SURVEYOR, AND ARE BASED ON THE BENCHMARKS SHOWN. THE CONTRACTOR SHALL REFERENCE THE SAME BENCHMARKS. 6. THE CONTRACTOR SHALL REVIEW AND VERIFY THE EXISTING TOPOGRAPHIC SURVEY SHOWN ON THE PLANS REPRESENTS EXISTING FIELD CONDITIONS PRIOR TO CONSTRUCTION, AND SHALL REPORT ANY DISCREPANCIES FOUND TO THE OWNER AND ENGINEER
- IMMEDIATELY 7. IF THE CONTRACTOR DOES NOT ACCEPT THE EXISTING TOPOGRAPHIC SURVEY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY AT THEIR OWN EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED PROFESSIONAL LAND SURVEYOR TO THE OWNER AND ENGINEER FOR REVIEW.
- 8. CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SURVEYING AND STAKING. 9. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL CONTROL, INCLUDING BENCHMARKS PRIOR TO COMMENCING
- CONSTRUCTION OR STAKING OF IMPROVEMENTS. PROPERTY LINES AND CORNERS SHALL BE HELD AS THE HORIZONTAL CONTROL. 10. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS, ELEVATIONS, AND FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE ARCHITECT, ENGINEER, AND IF APPLICABLE THE CITY AND OWNER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE CITY. ENGINEER. AND OWNER WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM.
- 11. CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, MEP, ARCHITECTURAL, AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER/ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION 12.IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL
- UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK TO HAVE THEM LOCATE THEIR EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION. 13. CONTRACTOR SHALL CALL TEXAS 811 AN ADEQUATE AMOUNT OF TIME PRIOR TO COMMENCING CONSTRUCTION OR ANY EXCAVATION.
- 14. CONTRACTOR SHALL USE EXTREME CAUTION AS THE SITE CONTAINS VARIOUS KNOWN AND UNKNOWN PUBLIC AND PRIVATE UTILITIES. 15. THE LOCATIONS, ELEVATIONS, DEPTH, AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE UTILITY COMPANY MAPS AND PLANS, AND ARE CONSIDERED APPROXIMATE AND INCOMPLETE. IT SHALL BE THE CONTRACTORS' RESPONSIBILITY TO VERIFY THE PRESENCE, LOCATION, ELEVATION, DEPTH, AND DIMENSION OF EXISTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION SO THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE
- ENGINEER SHALL BE NOTIFIED WHEN A PROPOSED IMPROVEMENT CONFLICTS WITH AN EXISTING UTILITY. 16. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ANY ADJUSTMENTS AND RELOCATIONS OF EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO, ADJUSTING EXISTING MANHOLES TO MATCH PROPOSED GRADE, RELOCATING EXISTING POLES AND GUY WIRES THAT ARE LOCATED IN PROPOSED DRIVEWAYS, ADJUSTING THE HORIZONTAL OR VERTICAL ALIGNMENT OF EXISTING UNDERGROUND UTILITIES TO ACCOMMODATE PROPOSED GRADE OR CROSSING WITH A PROPOSED UTILITY, AND ANY OTHERS THAT MAY BE ENCOUNTERED THAT ARE UNKNOWN AT THIS TIME AND NOT SHOWN ON THESE PLANS
- 17. CONTRACTOR SHALL ARRANGE FOR OR PROVIDE, AT ITS EXPENSE, ALL GAS, TELECOMMUNICATIONS, CABLE, OVERHEAD AND UNDERGROUND POWER LINE, AND UTILITY POLE ADJUSTMENTS NEEDED.
- 18. CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION OF FRANCHISE UTILITIES THAT ARE NECESSARY FOR ON-SITE AND OFF-SITE CONSTRUCTION, AND SERVICE TO THE PROPOSED DEVELOPMENT. 19. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL DAMAGES DUE TO THE CONTRACTORS' FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UTILITIES. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED BY THE CONTRACTOR AND THEIR
- PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK. 20.BRACING OF UTILITY POLES MAY BE REQUIRED BY THE UTILITY COMPANIES WHEN TRENCHING OR EXCAVATING IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR, WITH NO SEPARATE PAY ITEM FOR THIS WORK. THE COST IS INCIDENTAL TO THE PAY ITEM.
- 21.CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND POWER LINES. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, FEDERAL AND UTILITY OWNER REGULATIONS PERTAINING TO WORK SETBACKS FROM POWER LINES. 22. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL REQUIRED CONSTRUCTION PERMITS, APPROVALS, AND BONDS PRIOR TO CONSTRUCTION.
- 23. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES A COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS GEOTECHNICAL REPORT AND ADDENDA, PROJECT AND CITY SPECIFICATIONS, AND SPECIAL CONDITIONS, COPIES OF ANY REQUIRED CONSTRUCTION PERMITS, EROSION CONTROL PLANS, SWPPP AND INSPECTION REPORTS. 24.ALL SHOP DRAWINGS AND OTHER DOCUMENTS THAT REQUIRE ENGINEER REVIEW SHALL BE SUBMITTED BY THE CONTRACTOR
- SUFFICIENTLY IN ADVANCE OF CONSTRUCTION OF THAT ITEM, SO THAT NO LESS THAN 10 BUSINESS DAYS FOR REVIEW AND RESPONSE IS AVAILABLE. 25.ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, JURISDICTIONAL AGENCIES, AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO USE OF THE FACILITY AND THE FINAL CONNECTION OF SERVICES. 26.CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
- 27.CONTRACTOR'S BID PRICE SHALL INCLUDE ALL INSPECTION FEES. 28 ALL SYMBOLS SHOWN ON THESE PLANS (E.G. FIRE HYDRANT METERS, VALVES, INLETS, ETC....) ARE FOR PRESENTATION PURPOSES ONLY AND ARE NOT TO SCALE. CONTRACTOR SHALL COORDINATE FINAL SIZES AND LOCATIONS WITH APPROPRIATE CITY INSPECTOR 29. THE SCOPE OF WORK FOR THE CIVIL IMPROVEMENTS SHOWN ON THESE PLANS TERMINATES 5-FEET FROM THE BUILDING. REFERENCE THE BUILDING PLANS (E.G. ARCHITECTURAL, STRUCTURAL, MEP) FOR AREAS WITHIN 5-FEET OF THE BUILDING AND WITHIN THE BUILDING FOOTPRINT.
- 30.REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR ALL FINAL BUILDING DIMENSIONS 31. THE PROPOSED BUILDING FOOTPRINT(S) SHOWN IN THESE PLANS WAS PROVIDED TO WESTFALL ENGINEERING, PLLC BY THE PROJECT ARCHITECT AT THE TIME THESE PLANS WERE PREPARED. IT MAY NOT BE THE FINAL CORRECT VERSION BECAUSE THE BUILDING. DESIGN WAS ONGOING. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFIRMING THE FINAL CORRECT VERSION OF THE BUILDING FOOTPRINT WITH THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO LAYOUT. DIMENSIONS AND/OR COORDINATES SHOWN ON THESE PLANS WERE BASED ON THE ABOVE STATED ARCHITECTURAL FOOTPRINT, AND ARE THEREFORE A PRELIMINARY LOCATION OF THE BUILDING. THE CONTRACTOR IS SOLELY RESPONSIBLE TO VERIFY WHAT PART OF THE BUILDING THE ARCHITECT'S FOOTPRINT REPRESENTS (E.G. SLAB, OUTSIDE WALL, MASONRY LEDGE, ETC.....) AND TO CONFIRM ITS FINAL POSITION ON THE SITE BASED ON THE FINAL ARCHITECTURAL FOOTPRINT, CIVIL DIMENSION CONTROL PLAN, SURVEY BOUNDARY AND/OR PLAT. ANY DIFFERENCES FOUND
- SHALL BE REPORTED TO WESTFALL ENGINEERING, PLLC IMMEDIATELY. 32.ALL CONSTRUCTION SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION), INCLUDING SUBSEQUENT ADDENDA 33. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIALS TESTING AND CERTIFICATION, UNLESS SPECIFIED OTHERWISE BY OWNER. ALL MATERIALS TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR AND COMPLY WITH CITY STANDARD
- SPECIFICATIONS AND GEOTECHNICAL REPORT. TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING MATERIALS. OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR MATERIALS TESTING. 34.ALL COPIES OF MATERIALS TEST RESULTS SHALL BE SENT TO THE OWNER, ENGINEER AND ARCHITECT DIRECTLY FROM THE TESTING AGENCY 35.IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE MATERIALS, THAT THE
- WORK CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS 36.DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING. THE CONTRACTOR SHALL ADHERE TO GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO FLATWORK ADJACENT TO THE BUILDING, IF NONE IS CURRENTLY EXISTING.
- 37.ALL CONTRACTORS MUST CONFINE THEIR ACTIVITIES TO THE WORK AREA. NO ENCROACHMENTS OUTSIDE OF THE WORK AREA WILL BE ALLOWED. ANY DAMAGE RESULTING THEREFROM SHALL BE CONTRACTOR'S SOLE RESPONSIBILITY TO REPAIR. 38. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, UTILITIES, MANHOLES, POLES, GUY WIRES, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, COMMUNICATION BOXES/PEDESTALS, AND OTHER FACILITIES TO REMAIN AND SHALL REPAIR ANY DAMAGES AT NO COST TO THE OWNER
- 39. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PRIVATE PROPERTY OR PUBLIC IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO: FENCES, WALLS, SIGNS, PAVEMENT, CURBS, UTILITIES, SIDEWALKS, GRASS, TREES, LANDSCAPING, AND IRRIGATION SYSTEMS, ETC TO ORIGINAL CONDITION OR BETTER AT NO COST TO THE OWNER. 40.ALL AREAS IN EXISTING RIGHT-OF-WAY DISTURBED BY SITE CONSTRUCTION SHALL BE REPAIRED TO ORIGINAL CONDITION OR BETTER, INCLUDING AS NECESSARY GRADING, LANDSCAPING, CULVERTS, AND PAVEMENT. 41.THE CONTRACTOR SHALL SALVAGE ALL EXISTING POWER POLES, SIGNS, WATER VALVES, FIRE HYDRANTS, METERS, ETC... THAT ARE
- TO BE RELOCATED DURING CONSTRUCTION. 42.CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION, INCLUDING MAINTAINING EXISTING DITCHES OR CULVERTS FREE OF OBSTRUCTIONS AT ALL TIMES. 43. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL
- ENGINEER IN THE STATE OF TEXAS, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. TRENCH SAFETY SHALL COMPLY WITH ALL APPLICABLE SECTIONS OF OSHA INCLUDING BUT NOT LIMITED TO 29 CFR 1926.650, 29 CFR 1926.651 AND 29 CFR 1926.652. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY. 44. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER. 45.SITE SAFETY IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR
- 46. THESE PLANS DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE ENGINEER'S SEAL HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF ALL REQUIRED SAFETY PROCEDURES AND PROGRAMS. 47.SIGNS RELATED TO SITE OPERATION OR SAFETY ARE NOT INCLUDED IN THESE PLANS.
- 48.CONTRACTOR OFFICE AND STAGING AREA SHALL BE AGREED ON BY THE OWNER AND CONTRACTOR PRIOR TO BEGINNING OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITTING REQUIREMENTS FOR THE CONSTRUCTION OFFICE, TRAILER, STORAGE AND STAGING OPERATIONS AND LOCATIONS 49.LIGHT POLES, SIGNS, AND OTHER OBSTRUCTIONS SHALL NOT BE PLACED IN ACCESSIBLE ROUTES.
- 50.ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES' 51. TOP RIM ELEVATIONS OF ALL EXISTING AND PROPOSED MANHOLES SHALL BE COORDINATED WITH TOP OF PAVEMENT OR FINISHED GRADE AND SHALL BE ADJUSTED TO BE FLUSH WITH THE ACTUAL FINISHED GRADE AT THE TIME OF PAVING 52.CONTRACTOR SHALL ADJUST ALL EXISTING AND PROPOSED VALVES, FIRE HYDRANTS, AND OTHER UTILITY APPURTENANCES TO MATCH
- ACTUAL FINISHED GRADES AT THE TIME OF PAVING. 53. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION SEQUENCING AND PHASING, AND SHALL CONTACT THE APPROPRIATE CITY OFFICIALS, INCLUDING BUILDING OFFICIAL, ENGINEERING INSPECTOR, AND FIRE MARSHALL TO LEARN OF ANY REQUIREMENTS. 54. CONTRACTOR IS RESPONSIBLE FOR PREPARATION, SUBMITTAL, AND APPROVAL BY THE CITY OF A TRAFFIC CONTROL PLAN PRIOR TO THE START OF CONSTRUCTION, AND THEN THE IMPLEMENTATION OF THE PLAN. 55. CONTRACTOR SHALL KEEP A NEAT AND ACCURATE RECORD OF CONSTRUCTION, INCLUDING ANY DEVIATIONS OR VARIANCES FROM
- THE PLANS 56. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT PLANS TO THE ENGINEER AND CITY IDENTIFYING ALL DEVIATIONS AND VARIATIONS FROM THESE PLANS MADE DURING CONSTRUCTION. 57. LIABILITY CLAUSE: THE CITY OF JARRELL SHALL NOT BE HELD LIABLE FOR ANY DAMAGES OR COSTS INCURRED DUE TO THE
- CONTRACTOR'S FAILURE TO COMPLY WITH STATE AND FEDERAL REGULATIONS. THE CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ANY LEGAL OR REGULATORY INFRACTIONS 58.DOCUMENTATION AND COMPLIANCE: ALL CONTRACTOR ACTIVITIES MUST BE DOCUMENTED AND SUBMITTED TO THE CITY. DEMONSTRATING COMPLIANCE WITH ALL APPLICABLE TEXAS STATE LAWS, INCLUDING BUT NOT LIMITED TO, TEXAS
- ADMINISTRATIVE CODE TITLE 30, TEXAS WATER CODE, AND TEXAS HEALTH AND SAFETY CODE. 59.SPECIFIC STANDARDS AND REGULATIONS: CONTRACTORS MUST ADHERE TO ALL RELEVANT INDUSTRY STANDARDS AND BEST PRACTICES, INCLUDING THOSE SET FORTH BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND ANY OTHER APPLICABLE STATE OR FEDERAL BODIES.

- THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL EROSION CONTROL AND WATER QUALITY REQUIREMENTS, LAWS, AND ORDINANCES THAT APPLY TO THE CONSTRUCTION SITE LAND DISTURBANCE. 2. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE "TCEQ GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS
- POLLUTANT DISCHARGE ELIMINATION SYSTEM TXR 150000" 3. EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START
- OF LAND DISTURBANCE 4. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS FOR THE PROJECT.

- EMPLOYED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE. APPROVED DETAILS.
- 9. CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL DEVICES NEEDED DUE TO PROJECT PHASING.
- NOTIFY THE ENGINEER.
- ENCIRCLING THE AREA WITH AN APPROPRIATE BARRIER.
- ALL TIMES FOR ALL INGRESS/EGRESS. REMOVED IMMEDIATELY
- OFF-SITE ROADWAYS.

- MATERIAL, AND TRASH AS CONSTRUCTION PROGRESSES.
- PAVEMENT, OR A UNIFORM PERENNIAL VEGETATIVE COVER. ACCORDANCE WITH APPLICABLE REGULATIONS.

ORM WATER DISCHARGE AUTHORIZATION

- POLLUTANT DISCHARGE ELIMINATION SYSTEM TXR 150000.
- RECEIVING DISCHARGE FROM THE SITE. BY THE TCEQ AND EPA (E.G. NOI).
- THE OPERATOR OF ANY MS4 RECEIVING DISCHARGE FROM THE SITE.

- ARE TO BE DEMOLISHED AND REMOVED FROM THE SITE.
- ABILITY AND PROCESS FOR THE REMOVAL OF THEIR FACILITIES.
- IMPLEMENTING THE DEMOLITION PLAN A. ENVIRONMENTAL SITE ASSESSMENT PROVIDED BY THE OWNER, B. ASBESTOS BUILDING INSPECTION REPORT(S) PROVIDED BY THE OWNER, GEOTECHNICAL REPORT PROVIDED BY THE OWNER. D. OTHER REPORTS THAT ARE APPLICABLE AND AVAILABLE.
- STARTING ANY WORK ON THE SITE
- FOUNDATIONS OR WALLS, THAT ARE ALSO TO BE REMOVED.

- ANY DISCREPANCIES. 2. CONTRACTOR SHALL OBTAIN ANY REQUIRED GRADING PERMITS FROM THE CITY. FI EVATION
- DISCREPANCY.
- CONTRIBUTE TO THE TOP OF FINISHED GRADE.
- SUBSEQUENT ADDENDA.
- CONTRACTOR AT NO ADDITIONAL EXPENSE. REQUIREMENTS
- GRADE CONTROL POINTS RELATED TO EARTHWORK
- THE RECEIVING LANDOWNER'S APPROVAL TO DO SO.
- DITCHES OR CULVERTS FREE OF OBSTRUCTIONS AT ALL TIMES.
- 17. TEMPORARY CULVERTS MAY BE REQUIRED IN SOME LOCATIONS TO CONVEY RUN-OFF. 18. REFER TO DIMENSION CONTROL PLAN, AND PLAT FOR HORIZONTAL DIMENSIONS.
- PLACEMENT
- AGENCY. CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS
- IN THE BUILDING PAD
- FLATWORK ADJACENT TO THE BUILDING, IF NONE IS CURRENTLY EXISTING.

5. CONTRACTOR IS SOLELY RESPONSIBLE FOR INSTALLATION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL EROSION CONTROL DEVICES, BEST MANAGEMENT PRACTICES (BMPS), AND FOR UPDATING THE EROSION CONTROL PLAN DURING CONSTRUCTION AS FIELD CONDITIONS CHANGE. ALL EROSION CONTROL MEASURES MUST COMPLY WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) GENERAL PERMIT AND ANY OTHER LOCAL REGULATIONS. THE CONTRACTOR SHALL DOCUMENT AND REPORT ALL INSTALLATIONS AND MODIFICATIONS TO THE CITY. 6. CONTRACTOR SHALL DOCUMENT THE DATES OF INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL FOR EACH BMP 7. AS STORM SEWER INLETS ARE INSTALLED ON-SITE, TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AT EACH INLET PER 8. THE EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL THE AREA IT PROTECTS HAS BEEN PERMANENTLY STABILIZED.

10. CONTRACTOR SHALL OBSERVE THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND MAKE FIELD ADJUSTMENTS AND MODIFICATIONS AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE. IF THE EROSION CONTROL DEVICES DO NOT EFFECTIVELY CONTROL EROSION AND PREVENT SEDIMENTATION FROM WASHING OFF THE SITE, THEN THE CONTRACTOR SHALL 11 OFF-SITE SOIL BORROW SPOIL AND STORAGE AREAS (IF APPLICABLE) ARE CONSIDERED AS PART OF THE PROJECT SITE AND MUST

ALSO COMPLY WITH THE EROSION CONTROL REQUIREMENTS FOR THIS PROJECT. THIS INCLUDES THE INSTALLATION OF BMP'S TO CONTROL FROSION AND SEDIMENTATION AND THE ESTABLISHMENT OF PERMANENT GROUND COVER ON DISTURBED AREAS PRIOR TO FINAL APPROVAL OF THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP AND EROSION CONTROL PLAN TO INCLUDE BMPS FOR ANY OFF-SITE THAT ARE NOT ANTICIPATED OR SHOWN ON THE EROSION CONTROL PLAN. 12. ALL STAGING, STOCKPILES, SPOIL, AND STORAGE SHALL BE LOCATED SUCH THAT THEY WILL NOT ADVERSELY AFFECT STORM WATER QUALITY. PROTECTIVE MEASURES SHALL BE PROVIDED IF NEEDED TO ACCOMPLISH THIS REQUIREMENT, SUCH AS COVERING OR

13. CONTRACTORS SHALL INSPECT ALL EROSION CONTROL DEVICES, BMPS, DISTURBED AREAS, AND VEHICLE ENTRY AND EXIT AREAS WEEKLY AND WITHIN 24 HOURS OF ALL RAINFALL EVENTS OF 0.5 INCHES OR GREATER, AND KEEP A RECORD OF THIS INSPECTION IN THE SWPPP BOOKLET IF APPLICABLE, TO VERIFY THAT THE DEVICES AND EROSION CONTROL PLAN ARE FUNCTIONING PROPERLY. 14. CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL PRIMARY POINTS OF ACCESS IN ACCORDANCE WITH CITY SPECIFICATIONS. CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION TRAFFIC USES THE STABILIZED ENTRANCE AT

15. SITE ENTRY AND EXITS SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING AND FLOWING OF SEDIMENT AND DIRT ONTO OFF-SITE ROADWAYS. ALL SEDIMENT AND DIRT FROM THE SITE THAT IS DEPOSITED ONTO AN OFF-SITE ROADWAY SHALL BE 16. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL SILT AND DEBRIS FROM THE AFFECTED OFF-SITE ROADWAYS THAT ARE A

RESULT OF THE CONSTRUCTION, AS REQUESTED BY OWNER AND CITY. AT A MINIMUM, THIS SHOULD OCCUR ONCE PER DAY FOR THE 17. WHEN WASHING OF VEHICLES IS REQUIRED TO REMOVE SEDIMENT PRIOR TO EXITING THE SITE, IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP BMP.

18 CONTRACTOR SHALL INSTALL A TEMPORARY SEDIMENT BASIN FOR ANY ON-SITE DRAINAGE AREAS THAT ARE GREATER THAN 10 ACRES, PER TCEQ AND CITY STANDARDS. IF NO ENGINEERING DESIGN HAS BEEN PROVIDED FOR A SEDIMENTATION BASIN ON THESE PLANS, THEN THE CONTRACTOR SHALL ARRANGE FOR AN APPROPRIATE DESIGN TO BE PROVIDED. 19. ALL FINES IMPOSED FOR SEDIMENT OR DIRT DISCHARGED FROM THE SITE SHALL BE PAID BY THE RESPONSIBLE CONTRACTOR

20. WHEN SEDIMENT OR DIRT HAS CLOGGED THE CONSTRUCTION ENTRANCE VOID SPACES BETWEEN STONES OR DIRT IS BEING TRACKED ONTO A ROADWAY, THE AGGREGATE PAD MUST BE WASHED DOWN OR REPLACED, RUNOFE FROM THE WASH-DOWN OPERATION SHALL NOT BE ALLOWED TO DRAIN DIRECTLY OFF SITE WITHOUT FIRST FLOWING THROUGH ANOTHER BMP TO CONTROL SEDIMENTATION PERIODIC RE-GRADING OR NEW STONE MAY BE REQUIRED TO MAINTAIN THE EFFECTIVENESS OF THE CONSTRUCTION ENTRANCE. 21. TEMPORARY SEEDING OR OTHER APPROVED STABILIZATION SHALL BE INITIATED WITHIN 14 DAYS OF THE LAST DISTURBANCE OF ANY AREA. UNLESS ADDITIONAL CONSTRUCTION IN THE AREA IS EXPECTED WITHIN 21 DAYS OF THE LAST DISTURBANCE. 22. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING CONSTRUCTION, ALWAYS CLEANING UP DIRT, LOOSE

23.UPON COMPLETION OF FINE GRADING, ALL SURFACES OF DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED. STABILIZATION IS ACHIEVED WHEN THE AREA IS EITHER COVERED BY PERMANENT IMPERVIOUS STRUCTURES, SUCH AS BUILDINGS, SIDEWALK, 24.AT THE CONCLUSION OF THE PROJECT, ALL INLETS, DRAIN PIPE, CHANNELS, DRAINAGEWAYS AND BORROW DITCHES AFFECTED BY THE CONSTRUCTION SHALL BE DREDGED, AND THE SEDIMENT GENERATED BY THE PROJECT SHALL BE REMOVED AND DISPOSED IN

1. CONTRACTOR SHALL COMPLY WITH ALL TCEQ AND EPA STORM WATER POLLUTION PREVENTION REQUIREMENTS. 2. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE TCEQ GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS

3. THE CONTRACTOR SHALL ENSURE THAT ALL PRIMARY OPERATORS SUBMIT A NOI TO TCEQ AT LEAST SEVEN DAYS PRIOR TO COMMENCING CONSTRUCTION (IF APPLICABLE), OR IF UTILIZING ELECTRONIC SUBMITTAL, PRIOR TO COMMENCING CONSTRUCTION. ALL PRIMARY OPERATORS SHALL PROVIDE A COPY OF THE SIGNED NOI TO THE OPERATOR OF ANY MS4 (TYPICALLY THE CITY)

. CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE, INCLUDING POSTING SITE NOTICE, INSPECTIONS, DOCUMENTATION, AND SUBMISSION OF ANY INFORMATION REQUIRED 5. ALL CONTRACTORS AND SUBCONTRACTORS PROVIDING SERVICES RELATED TO THE SWPPP SHALL SIGN THE REQUIRED CONTRACTOR CERTIFICATION STATEMENT ACKNOWLEDGING THEIR RESPONSIBILITIES AS SPECIFIED IN THE SWPPP. . A COPY OF THE SWPPP, INCLUDING NOI, SITE NOTICE, CONTRACTOR CERTIFICATIONS, AND ANY REVISIONS, SHALL BE SUBMITTED TO THE CITY BY THE CONTRACTOR AND SHALL BE RETAINED ON-SITE DURING CONSTRUCTION 7. A NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO TCEQ BY ANY PRIMARY OPERATOR WITHIN 30 DAYS AFTER ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND A UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED ON ALL

UNPAVED AREAS AND AREAS NOT COVERED BY STRUCTURES, A TRANSFER OF OPERATIONAL CONTROL HAS OCCURRED, OR THE OPERATOR HAS OBTAINED ALTERNATIVE AUTHORIZATION UNDER A DIFFERENT PERMIT. A COPY OF THE NOT SHALL BE PROVIDED TO

WESTFALL ENGINEERING, PLLC IS NOT RESPONSIBLE FOR THE MEANS AND METHODS EMPLOYED BY THE CONTRACTOR TO IMPLEMENT THIS DEMOLITION PLAN. THIS PRELIMINARY DEMOLITION PLAN SIMPLY INDICATES THE KNOWN OBJECTS ON THE SUBJECT TRACT THAT . WESTFALL ENGINEERING, PLLC DOES NOT WARRANT OR REPRESENT THAT THE PLAN, WHICH WAS PREPARED BASED ON SURVEY AND UTILITY INFORMATION PROVIDED BY OTHERS. SHOWS ALL IMPROVEMENTS AND UTILITIES. THAT THE IMPROVEMENTS AND UTILITIES ARE SHOWN ACCURATELY, OR THAT THE UTILITIES SHOWN CAN BE REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ITS OWN SITE RECONNAISSANCE TO SCOPE ITS WORK AND TO CONFIRM WITH THE OWNERS OF IMPROVEMENTS AND UTILITIES THE

3. THIS DEMO PLAN IS INTENDED TO GIVE A GENERAL GUIDE TO THE CONTRACTOR. NOTHING MORE. THE GOAL OF THE DEMOLITION IS TO LEAVE THE SITE IN A STATE SUITABLE FOR THE CONSTRUCTION OF THE PROPOSED DEVELOPMENT. REMOVAL OR PRESERVATION OF IMPROVEMENTS, UTILITIES, ETC. TO ACCOMPLISH THIS GOAL ARE THE RESPONSIBILITY OF THE CONTRACTOR 4. CONTRACTOR IS STRONGLY CAUTIONED TO REVIEW THE FOLLOWING REPORTS DESCRIBING SITE CONDITIONS PRIOR TO BIDDING AND

5. CONTRACTOR SHALL CONTACT THE OWNER TO VERIFY WHETHER ADDITIONAL REPORTS OR AMENDMENTS TO THE ABOVE CITED REPORTS HAVE BEEN PREPARED AND TO OBTAIN/REVIEW/AND COMPLY WITH THE RECOMMENDATION OF SUCH STUDIES PRIOR TO

. CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS REGARDING THE DEMOLITION OF OBJECTS ON THE SITE AND THE DISPOSAL OF THE DEMOLISHED MATERIALS OFF-SITE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVIEW THE SITE DETERMINE THE APPLICABLE REGULATIONS RECEIVE THE REQUIRED PERMITS AND AUTHORIZATIONS AND COMPLY . WESTFALL ENGINEERING, PLLC DOES NOT REPRESENT THAT THE REPORTS AND SURVEYS REFERENCED ABOVE ARE ACCURATE, COMPLETE. OR COMPREHENSIVE SHOWING ALL ITEMS THAT WILL NEED TO BE DEMOLISHED AND REMOVED. SURFACE PAVEMENT INDICATED MAY OVERLAY OTHER HIDDEN STRUCTURES, SUCH AS ADDITIONAL LAYERS OF PAVEMENT

1. THE CONTRACTOR AND GRADING SUBCONTRACTOR SHALL VERIFY THE SUITABILITY OF EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE START OF CONSTRUCTION. THE CIVIL ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF

3. UNLESS OTHERWISE NOTED, PROPOSED CONTOURS AND SPOT ELEVATIONS SHOWN IN PAVED AREA REFLECT TOP OF PAVEMENT . PROPOSED SPOT ELEVATIONS AND CONTOURS OUTSIDE THE PAVEMENT ARE TO TOP OF FINISHED GRADE. 5. PROPOSED CONTOURS ARE APPROXIMATE. PROPOSED SPOT ELEVATIONS AND DESIGNATED GRADIENT ARE TO BE USED IN CASE OF

6. ALL FINISHED GRADES SHALL TRANSITION UNIFORMLY BETWEEN THE FINISHED ELEVATIONS SHOWN 7. CONTOURS AND SPOT GRADES SHOWN ARE ELEVATIONS OF TOP OF THE FINISHED SURFACE. WHEN PERFORMING THE GRADING OPERATIONS, THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE ELEVATION HOLD-DOWN ALLOWANCE FOR THE THICKNESS OF PAVEMENT, SIDEWALK, TOPSOIL, MULCH, STONE, LANDSCAPING, RIP-RAP AND ALL OTHER SURFACE MATERIALS THAT WILL

8. NO REPRESENTATIONS OF EARTHWORK QUANTITIES OR SITE BALANCE ARE MADE BY THESE PLANS. THE CONTRACTOR SHALL PROVIDE THEIR OWN EARTHWORK CALCULATION TO DETERMINE THEIR CONTRACT QUANTITIES AND COST. ANY SIGNIFICANT VARIANCE FROM A BALANCED SITE SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CIVIL ENGINEER. 9. ALL GRADING AND EARTHWORK SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION), INCLUDING 18. ALL MANHOLE COVERS TO READ "JARRELL, TEXAS"

10. ALL EXCAVATION IS UNCLASSIFIED AND SHALL INCLUDE ALL MATERIALS ENCOUNTERED. UNUSABLE EXCAVATED MATERIAL AND ALL WASTE RESULTING FROM SITE CLEARING AND GRUBBING SHALL BE REMOVED FROM THE SITE AND APPROPRIATELY DISPOSED BY THE

11. EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START OF GRADING. REFERENCE EROSION CONTROL PLAN, DETAILS, GENERAL NOTES, AND SWPPP FOR ADDITIONAL INFORMATION AND 12.BEFORE ANY EARTHWORK IS PERFORMED, THE CONTRACTOR SHALL STAKE OUT AND MARK THE LIMITS OF THE PROJECT'S PROPERTY LINE AND SITE IMPROVEMENTS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY ENGINEERING AND SURVEYING FOR LINE AND 13. CONTRACTOR TO DISPOSE OF ALL EXCESS EXCAVATION MATERIALS IN A MANNER THAT ADHERES TO LOCAL, STATE AND FEDERAL

LAWS AND REGULATIONS. THE CONTRACTOR SHALL KEEP A RECORD OF WHERE EXCESS EXCAVATION WAS DISPOSED, ALONG WITH 14. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF TOPSOIL AT THE COMPLETION OF FINE GRADING. CONTRACTOR SHALL REFER TO LANDSCAPE ARCHITECTURE PLANS FOR SPECIFICATIONS AND REQUIREMENTS FOR TOPSOIL. 15. CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION, INCLUDING MAINTAINING EXISTING

16.NO EARTHWORK FILL SHALL BE PLACED IN ANY EXISTING DRAINAGE WAY, SWALE, CHANNEL, DITCH, CREEK, OR FLOODPLAIN FOR ANY REASON OR ANY LENGTH OF TIME, UNLESS THESE PLANS SPECIFICALLY INDICATE THIS IS REQUIRED.

19. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND CONDITION FILL PER THE PROJECT GEOTECHNICAL ENGINEER'S SPECIFICATIONS. THE FILL MATERIAL TO BE USED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO 20. CONTRACTOR IS RESPONSIBLE FOR ALL SOILS TESTING AND CERTIFICATION. UNLESS SPECIFIED OTHERWISE BY OWNER. ALL SOILS

TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR AND SHALL COMPLY WITH CITY STANDARD SPECIFICATIONS AND THE GEOTECHNICAL REPORT. SOILS TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING SOILS. THE OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR SOILS TESTING. 21.ALL COPIES OF SOILS TEST RESULTS SHALL BE SENT TO THE OWNER, ENGINEER AND ARCHITECT DIRECTLY FROM THE TESTING

22.IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE SOILS, THAT THE WORK 23. THE SCOPE OF WORK FOR CIVIL IMPROVEMENT SHOWN ON THESE PLANS TERMINATES 5-FEET FROM THE BUILDING. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT AND STRUCTURAL PLANS AND SPECIFICATIONS FILL, CONDITIONING, AND PREPARATION 24. DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING. THE CONTRACTOR SHALL ADHERE TO

GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO 25 CONTRACTOR SHALL ENSURE THAT SUFFICIENT POSITIVE SLOPE AWAY FROM THE BUILDING PAD IS ACHIEVED FOR ENTIRE PERIMETER

OF THE PROPOSED BUILDING(S) DURING GRADING OPERATIONS AND IN THE FINAL CONDITION. IF THE CONTRACTOR OBSERVES THAT THIS WILL NOT BE ACHIEVED, THE CONTRACTOR SHALL CONTACT THE ENGINEER TO REVIEW THE LOCATION.

- 26. THE CONTRACTOR SHALL TAKE ALL AVAILABLE PRECAUTIONS TO CONTROL DUST. CONTRACTOR SHALL CONTROL DUST BY SPRINKLING WATER. OR BY OTHER MEANS APPROVED BY THE CITY. AT NO ADDITIONAL COST TO THE OWNER. 27. CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES FOR ANY REQUIRED UTILITY ADJUSTMENTS AND/OR RELOCATIONS
- THESE PLANS. CONTRACTOR SHALL REFER TO THE GENERAL NOTES "OVERALL" SECTION THESE PLANS FOR ADDITIONAL INFORMATION 28.EXISTING TREE LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. CONTRACTOR SHALL REPORT ANY DISCREPANCIES FOUND IN THE FIELD THAT AFFECT THE GRADING PLAN TO THE CIVIL ENGINEER.
- 29.CONTRACTOR SHALL FIELD VERIFY ALL PROTECTED TREE LOCATIONS, INDIVIDUAL PROTECTED TREE CRITICAL ROOT ZONES, AND PROPOSED SITE GRADING, AND NOTIFY THE CIVIL ENGINEER AND LANDSCAPE ARCHITECT OF ANY CONFLICTS WITH THE TREE PRESERVATION PLAN BY THE LANDSCAPE ARCHITECT PRIOR TO COMMENCING THE WORK. 30. TREE PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY STANDARD TREE PROTECTION DETAILS AND THE
- APPROVED TREE PRESERVATION PLANS BY THE LANDSCAPE ARCHITECT. 31.CONTRACTOR SHALL REFER TO THE LANDSCAPING AND TREE PRESERVATIONS PLANS FOR ALL INFORMATION AND DETAILS REGARDING EXISTING TREES TO BE REMOVED AND PRESERVED.
- 32.NO TREE SHALL BE REMOVED UNLESS A TREE REMOVAL PERMIT HAS BEEN ISSUED BY THE CITY, OR CITY HAS OTHERWISE CONFIRMED IN WRITING THAT ONE IS NOT NEEDED FOR THE TREE(S). 33.NO TREE SHALL BE REMOVED OR DAMAGED WITHOUT PRIOR AUTHORIZATION OF THE OWNER OR OWNER'S REPRESENTATIVE.
- EXISTING TREES SHALL BE PRESERVED WHENEVER POSSIBLE AND GRADING IMPACT TO THEM HELD TO A MINIMUM 34.AFTER PLACEMENT OF SUBGRADE AND PRIOR TO PLACEMENT OF PAVEMENT, CONTRACTOR SHALL TEST AND OBSERVE PAVEMENT AREAS FOR EVIDENCE OF PONDING AND INADEQUATE SLOPE FOR DRAINAGE. ALL AREAS SHALL ADEQUATELY DRAIN TOWARDS THE
- INTENDED STRUCTURE TO CONVEY STORMWATER RUNOFF. CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER AND ENGINEER IF ANY AREAS OF POOR DRAINAGE ARE DISCOVERED 35.CONTRACTOR FIELD ADJUSTMENT OF PROPOSED SPOT GRADES IS ALLOWED, IF THE APPROVAL OF THE CIVIL ENGINEER IS OBTAINED.
- **RETAINING WALLS** 1. RETAINING WALLS SHOWN ARE FOR SITE GRADING PURPOSES ONLY, AND INCLUDE ONLY LOCATION AND SURFACE SPOT ELEVATIONS AT THE TOP AND BOTTOM OF THE WALL RETAINING WALL TYPE OR SYSTEM SHALL BE SELECTED BY THE OWNER
- 3. RETAINING WALL DESIGN SHALL BE PROVIDED BY OTHERS AND SHALL FIT IN THE WALL ZONE OR LOCATION SHOWN ON THESE PLANS. STRUCTURAL DESIGN AND PERMITTING OF RETAINING WALLS, RAILINGS, AND OTHER WALL SAFETY DEVICES SHALL BE PERFORMED BY A LICENSED ENGINEER AND ARE NOT PART OF THIS PLAN SET. 4. RETAINING WALL DESIGN SHALL MEET THE INTENT OF THE GRADING PLAN AND SHALL ACCOUNT FOR ANY INFLUENCE ON ADJACENT
- BUILDING FOUNDATIONS, UTILITIES, PROPERTY LINES AND OTHER CONSTRUCTABILITY NOTES. 5. RETAINING WALL ENGINEER SHALL CONSULT THESE PLANS AND THE GEOTECHNICAL REPORT FOR POTENTIAL CONFLICTS.
- 1. ALL PAVING MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS. THE CITY STANDARD DETAILS AND
- SPECIFICATIONS. THE FINAL GEOTECHNICAL REPORT AND ALL ISSUED ADDENDA, AND COMMONLY ACCEPTED CONSTRUCTION STANDARDS. THE CITY SPECIFICATIONS SHALL GOVERN WHERE OTHER SPECIFICATIONS DO NOT EXIST. IN CASE OF CONFLICTING SPECIFICATIONS OR DETAILS, THE MORE RESTRICTIVE SPECIFICATION/DETAIL SHALL BE FOLLOWED. 2. ALL PRIVATE ON-SITE PAVING AND PAVING SUBGRADE SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION) INCLUDING ALL ADDENDA
- 3. ALL FIRELANE PAVING AND PAVING SUBGRADE SHALL COMPLY WITH CITY STANDARDS AND DETAILS. IF THESE ARE DIFFERENT THAN THOSE IN THE GEOTECHNICAL REPORT, THEN THE MORE RESTRICTIVE SHALL BE FOLLOWED. 4. ALL PUBLIC PAVING AND PAVING SUBGRADE SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS
- 5. CONTRACTOR IS RESPONSIBLE FOR ALL PAVING AND PAVING SUBGRADE TESTING AND CERTIFICATION, UNLESS SPECIFIED OTHERWISE BY OWNER. ALL PAVING AND PAVING SUBGRADE TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR. TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING PAVING AND SUBGRADE. OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR PAVING AND PAVING SUBGRADE TESTING.
- 6. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE PAVING AND PAVING SUBGRADE. THAT THE WORK CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS. 7. DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING, THE CONTRACTOR SHALL ADHERE TO GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO
- FLATWORK ADJACENT TO THE BUILDING. IF NONE IS CURRENTLY EXISTING. 8. CURB RAMPS ALONG PUBLIC STREETS AND IN THE PUBLIC RIGHT-OF-WAY SHALL BE CONSTRUCTED BASED ON THE CITY STANDARD CONSTRUCTION DETAIL AND SPECIFICATIONS
- 9. PRIVATE CURB RAMPS ON THE SITE (I.E. OUTSIDE PUBLIC STREET RIGHT-OF-WAY) SHALL CONFORM TO ADA AND TAS STANDARDS AND SHALL HAVE A DETECTABLE WARNING SURFACE THAT IS FULL WIDTH AND FULL DEPTH OF THE CURB RAMP, NOT INCLUDING FLARES. 10. ALL ACCESSIBLE RAMPS, CURB RAMPS, STRIPING, AND PAVEMENT MARKINGS SHALL CONFORM TO ADA AND TAS STANDARDS, LATEST FDITION 11. ANY COMPONENTS OF THE PROJECT SUBJECT TO RESIDENTIAL USE SHALL ALSO CONFORM TO THE FAIR HOUSING ACT, AND COMPLY
- WITH THE FAIR HOUSING ACT DESIGN MANUAL BY THE US DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT. 12. CONTRACTOR SHALL CONSTRUCT PROPOSED PAVEMENT TO MATCH EXISTING PAVEMENT WITH A SMOOTH, FLUSH, CONNECTION. 13. CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKINGS FOR FIRE LANES, PARKING STALLS, HANDICAPPED PARKING SYMBOLS, AND MISCELLANEOUS STRIPING WITHIN PARKING LOT AND AROUND BUILDING AS SHOWN ON THE PLANS. ALL PAINT AND PAVEMENT MARKINGS SHALL ADHERE TO CITY AND OWNER STANDARDS.
- 14. REFER TO GEOTECHNICAL REPORT FOR PAVING JOINT LAYOUT PLAN REQUIREMENTS FOR PRIVATE PAVEMENT
- 15. REFER TO CITY STANDARD DETAILS AND SPECIFICATIONS FOR JOINT LAYOUT PLAN REQUIREMENTS FOR PUBLIC PAVEMENT. 16. ALL REINFORCING STEEL SHALL CONFORM TO THE GEOTECHNICAL REPORT, CITY STANDARDS, AND ASTM A-615, GRADE 60, AND SHALL BE SUPPORTED BY BAR CHAIRS. CONTRACTOR SHALL USE THE MORE STRINGENT OF THE CITY AND GEOTECHNICAL STANDARDS. 17 ALL JOINTS SHALL EXTEND THROUGH THE CURB 18. THE MINIMUM LENGTH OF OFFSET JOINTS AT RADIUS POINTS SHALL BE 2 FEET
- 19. CONTRACTOR SHALL SUBMIT A JOINTING PLAN TO THE ENGINEER AND OWNER PRIOR TO BEGINNING ANY OF THE PAVING WORK. 20.ALL SAWCUTS SHALL BE FULL DEPTH FOR PAVEMENT REMOVAL AND CONNECTION TO EXISTING PAVEMENT. 21.FIRE LANES SHALL BE MARKED AND LABELED AS A FIRELANE PER CITY STANDARDS. 22.UNLESS THE PLANS SPECIFICALLY DICTATE TO THE CONTRARY, ON-SITE AND OTHER DIRECTIONAL SIGNS SHALL BE ORIENTED SO THEY ARE READILY VISIBLE TO THE ONCOMING TRAFFIC FOR WHICH THEY ARE INTENDED.
- 23.CONTRACTOR IS RESPONSIBLE FOR INSTALLING NECESSARY CONDUIT FOR LIGHTING, IRRIGATION, ETC. PRIOR TO PLACEMENT OF PAVEMENT. ALL CONSTRUCTION DOCUMENTS (CIVIL, MEP, LANDSCAPE, IRRIGATION, AND ARCHITECT) SHALL BE CONSULTED. 24.BEFORE PLACING PAVEMENT, CONTRACTOR SHALL VERIFY THAT SUITABLE ACCESSIBLE PEDESTRIAN ROUTES (PER ADA, TAS, AND FHA) EXIST TO AND FROM EVERY DOOR AND ALONG SIDEWALKS, ACCESSIBLE PARKING SPACES, ACCESS AISLES, AND ACCESSIBLE ROUTES, IN NO CASE SHALL AN ACCESSIBLE RAMP SLOPE EXCEED 1 VERTICAL TO 12 HORIZONTAL, IN NO CASE SHALL SIDEWALK CROSS SLOPE EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPE EXCEED 5.0 PERCENT. ACCESSIBLE PARKING
- SPACES AND ACCESS AISLES SHALL NOT EXCEED 2.0 PERCENT SLOPE IN ANY DIRECTION 25.CONTRACTOR SHALL TAKE FIELD SLOPE MEASUREMENTS ON FINISHED SUBGRADE AND FORM BOARDS PRIOR TO PLACING PAVEMENT TO VERIFY THAT ADA/TAS SLOPE REQUIREMENTS ARE PROVIDED. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDERS WILL BE ACCEPTED FOR ADA AND TAS SLOPE COMPLIANCE ISSUES.

STORM DRAINAGI

- 1. ALL STORM SEWER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS 2. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF
- THE STORM SEWER 3. THE CONTRACTOR SHALL FIELD VERIFY THE SIZE, CONDITION, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING STORM
- SEWER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY STORM SEWER, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED. 4. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION
- OF CURB INLETS AND GRATE INLETS AND ALL UTILITIES CROSSING THE STORM SEWER. 5. FLOW LINE, TOP-OF-CURB, RIM, THROAT, AND GRATE ELEVATIONS OF PROPOSED INLETS SHALL BE VERIFIED WITH THE GRADING PLAN
- AND FIELD CONDITIONS PRIOR TO THEIR INSTALLATION. 6. ALL PUBLIC STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY PUBLIC WORKS STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
- 7. ALL PRIVATE STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE PLUMBING CODE CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
- 8. ALL PVC TO RCP CONNECTIONS AND ALL STORM PIPE CONNECTIONS ENTERING STRUCTURES OR OTHER STORM PIPES SHALL HAVE A CONCRETE COLLAR AND BE GROUTED TO ASSURE THE CONNECTION IS WATERTIGHT.
- 9. ALL PUBLIC STORM SEWER LINES SHALL BE MINIMUM CLASS III RCP. PRIVATE STORM SEWER LINES 18-INCHES AND GREATER SHALL BE CLASS III RCP OR OTHER APPROVED MATERIAI
- 10. WHERE COVER EXCEEDS 20-FEET OR IS LESS THAN 2-FEET, CLASS IV RCP SHALL BE USED. SURFACE. IN LOCATIONS ALONG A CURB LINE, ADD 6-INCHES (OR THE HEIGHT OF THE CURB) TO THE PAVING GRADE FOR TOP OF CURB 11. IF CONTRACTOR PROPOSES TO USE HDPE OR PVC IN LIEU OF RCP FOR PRIVATE STORM SEWER, CONTRACTOR SHALL SUBMIT TECHNICAL DATA TO THE OWNER, ENGINEER AND CITY ENGINEER/INSPECTOR FOR APPROVAL PRIOR TO ORDERING THE MATERIAL ANY PROPOSED HDPE AND PVC SHALL BE WATERTIGHT. 12. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION SURVEYING FOR ALL STORM SEWER LINES.
 - 13. EMBEDMENT FOR ALL STORM SEWER LINES, PUBLIC OR PRIVATE, SHALL BE PER CITY STANDARD DETAILS. 14. ALL WYE CONNECTIONS AND PIPE BENDS ARE TO BE PREFABRICATED AND INSTALLED PER MANUFACTURERS SPECIFICATIONS.
 - 15. USE 4 FOOT JOINTS WITH BEVELED ENDS IF RADIUS OF STORM SEWER IS LESS THAN 100 FEET. 16. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES.
 - TRENCH SAFETY SHALL COMPLY WITH ALL APPLICABLE SECTIONS OF OSHA INCLUDING BUT NOT LIMITED TO 29 CFR 1926.650, 29 CFR 1926.651 AND 29 CFR 1926.652. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY 17. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.

- ANY PONDS THAT ARE INTENDED TO HOLD WATER INDEFINITELY SHALL BE CONSTRUCTED WATERTIGHT. 2. FOR ANY PONDS INTENDED TO HOLD WATER INDEFINITELY: THE CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR
- POND LINER SPECIFICATIONS 3. A GEOTECHNICAL ENGINEER SHALL REVIEW AND APPROVE ALL POND LINER MATERIAL, PLACEMENT PROCEDURES, AND PROVIDE TESTING TO ENSURE THE POND LINER MATERIAL PLACED IS WATERTIGHT.
- 4. STORM SEWER PIPES AND HEADWALLS THAT CONNECT TO A POND INTENDED TO HOLD WATER INDEFINITELY SHALL BE INSTALLED WITH WATERTIGHT JOINTS TO AT LEAST 1-FOOT ABOVE THE NORMAL POOL WATER SURFACE ELEVATION.
- 5. ANY GRAVEL OR OTHER PERVIOUS EMBEDMENT AROUND PIPES OR OUTFALL STRUCTURES NEAR THE POND SHALL BE ELIMINATED FOR AT LEAST 20-FEET FROM THE POND SO NO ROUTE FOR WATER TO LEAK THROUGH THE EMBEDMENT MATERIAL IS PROVIDED. BACKFILL IN THESE AREAS SHALL BE OF IMPERVIOUS MATERIAL.
- 6. FOR ANY PONDS INTENDED TO HOLD WATER INDEFINITELY: THE WATER LEVEL FOLLOWING COMPLETION AND FILLING OF THE POND SHALL BE MONITORED BY THE CONTRACTOR FOR AT LEAST 60 DAYS TO OBSERVE WATER INFLOW, OUTFLOW, AND CALCULATE EVAPORATION TO VERIFY THAT THE POND IS WATERTIGHT. 7. FOR ANY PONDS INTENDED TO HOLD WATER INDEFINITELY: THE POND WATER LEVEL SHALL ALSO BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION SO THAT IT REMAINS FULL TO ITS DESIGN WATER LEVEL, AND IS NOT LOWERED,
- AS THIS MAY DRY-OUT THE POND LINER AND RISK ITS WATERTIGHT PROPERTIES.
- WATER AND WASTEWATER: 1. ALL WATER AND WASTEWATER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS 2. CONTRACTOR SHALL FIELD VERIFY THE SIZE, CONDITION, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING WATER AND
- WASTEWATER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY WATER OR WASTEWATER CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED.
- 3. CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITY SERVICES ENTERING THE BUILDING. 4. THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATION OF ALL UTILITY CROSSINGS PRIOR TO THE INSTALLATION OF ANY PIPE
- 5. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF
- THE WATER AND WASTEWATER IMPROVEMENTS. 6. ALL PUBLIC WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY PUBLIC WORKS STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS. 7. ALL PRIVATE WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE
- PLUMBING CODE. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS 8. FIRE SPRINKLER LINES SHALL BE DESIGNED AND INSTALLED BY A LICENSED FIRE SPRINKLER CONTRACTOR, AND COMPLY TO THE APPLICABLE CODES AND INSPECTIONS REQUIRED. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF THE FIRE SPRINKLER
- DESIGN. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES. 9. EMBEDMENT FOR ALL WATER AND WASTEWATER LINES, PUBLIC OR PRIVATE, SHALL BE PER CITY STANDARD DETAILS. 10. CONTRACTOR SHALL TAKE REQUIRED SANITARY PRECAUTIONS, FOLLOWING ANY CITY, TCEQ, AND AWWA STANDARDS, TO KEEP WATER PIPE AND FITTINGS CLEAN AND CAPPED AT TIMES WHEN INSTALLATION IS NOT IN PROGRESS. 11 CONTRACTOR SHALL PROVIDE CONSTRUCTION SURVEYING FOR ALL WATER AND WASTEWATER LINES



TCEQ ORGANIZED SEWAGE COLLECTION SYSTEM GENERAL CONSTRUCTION NOTES EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES – LEGAL DISCLAIMER

THE FOLLOWING/LISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR, NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TCEQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE, CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWING/LISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE EXECUTIVE DIRECTOR, THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT CORRECT OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLI UTION OF THE EDWARDS AQUIEER OR HYDROLOGICALLY CONNECTED SURFACE WATERS. THE HOLDER OF ANY EDWARDS AQUIFER PROTECTION PLAN CONTAINING "CONSTRUCTION NOTES" IS STILL RESPONSIBLE FOR COMPLIANCE WITH TITLE 30, TEXAS ADMINISTRATIVE CODE, CHAPTERS 213 OR ANY OTHER APPLICABLE TCEQ REGULATION, AS WELL AS ALL CONDITIONS OF AN EDWARDS AQUIFER PROTECTION PLAN THROUGH ALL PHASES OF PLAN IMPLEMENTATION. FAILURE TO COMPLY WITH ANY CONDITION OF THE EXECUTIVE DIRECTOR'S APPROVAL WHETHER OR NOT IN CONTRADICTION OF ANY

"CONSTRUCTION NOTES," IS A VIOLATION OF TCEQ REGULATIONS AND ANY VIOLATION IS SUBJECT TO ADMINISTRATIVE RULES, ORDERS, AND PENALTIES AS PROVIDED UNDER TITLE 30, TEXAS ADMINISTRATIVE CODE § 213.10 (RELATING TO ENFORCEMENT). SUCH VIOLATIONS MAY ALSO BE SUBJECT TO CIVIL PENALTIES AND INJUNCTION. THE FOLLOWING/LISTED "CONSTRUCTION NOTES" IN NO WAY REPRESENT AN APPROVED EXCEPTION BY THE EXECUTIVE DIRECTOR TO ANY PART OF TITLE 30 TEXAS ADMINISTRATIVE CODE, CHAPTERS 213 AND 217, OR ANY OTHER TCEQ APPLICABLE REGULATION.

1. THIS ORGANIZED SEWAGE COLLECTION SYSTEM (SCS) MUST BE CONSTRUCTED IN ACCORDANCE WITH 30 TEXAS ADMINISTRATIVE CODE (TAC) §213.5(C). THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S (TCEQ) EDWARDS AQUIFER RULES AND ANY LOCAL GOVERNMENT STANDARD SPECIFICATIONS.

2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROPOSED REGULATED PROJECT MUST BE PROVIDED WITH COPIES OF THE SCS PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS MUST BE REQUIRED TO KEEP ON-SITE COPIES OF THE PLAN AND THE APPROVAL LETTER.

3. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE PRESIDING TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE: -THE NAME OF THE APPROVED PROJECT: -THE ACTIVITY START DATE: AND

-THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.

4. ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED SCS APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF AN SCS APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.

5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

6. IF ANY SENSITIVE FEATURES ARE DISCOVERED DURING THE WASTEWATER LINE TRENCHING ACTIVITIES, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPLICANT MUST IMMEDIATELY NOTIFY THE APPROPRIATE REGIONAL OFFICE OF THE TCEQ OF THE FEATURE DISCOVERED. A GEOLOGIST'S ASSESSMENT OF THE LOCATION AND EXTENT OF THE FEATURE DISCOVERED MUST BE REPORTED TO THAT REGIONAL OFFICE IN WRITING AND THE APPLICANT MUST SUBMIT A PLAN FOR ENSURING THE STRUCTURAL INTEGRITY OF THE SEWER LINE OR FOR MODIFYING THE PROPOSED COLLECTION SYSTEM ALIGNMENT AROUND THE FEATURE. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY WHILE MAINTAINING THE STRUCTURAL INTEGRITY OF THE LINE.

7. SEWER LINES LOCATED WITHIN OR CROSSING THE 5-YEAR FLOODPLAIN OF A DRAINAGE WAY WILL BE PROTECTED FROM INUNDATION AND STREAM VELOCITIES WHICH COULD CAUSE EROSION AND SCOURING OF BACKFILL. THE TRENCH MUST BE CAPPED WITH CONCRETE TO PREVENT SCOURING OF BACKFILL, OR THE SEWER LINES MUST BE ENCASED IN CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES.

8. BLASTING PROCEDURES FOR PROTECTION OF EXISTING SEWER LINES AND OTHER UTILITIES WILL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION CRITERIA. SAND IS NOT ALLOWED AS BEDDING OR BACKFILL IN TRENCHES THAT HAVE BEEN BLASTED. IF ANY EXISTING SEWER LINES ARE DAMAGED, THE LINES MUST BE REPAIRED AND RETESTED

9. ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT MUST HAVE WATERTIGHT SIZE ON SIZE RESILIENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN. THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. WHERE GASKETED MANHOLE COVERS ARE REQUIRED FOR MORE THAN THREE MANHOLES IN SEQUENCE OR FOR MORE THAN 1500 FEET, ALTERNATE MEANS OF VENTING WILL BE PROVIDED. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE MANHOLE. THE DIAMETER OF THE MANHOLES MUST BE A MINIMUM OF FOUR FEET AND THE MANHOLE FOR ENTRY MUST HAVE A MINIMUM CLEAR OPENING DIAMETER OF 30 INCHES. THESE DIMENSIONS AND OTHER DETAILS SHOWING COMPLIANCE WITH THE COMMISSION'S RULES CONCERNING MANHOLES AND SEWER LINE/MANHOLE INVERTS DESCRIBED IN 30 TAC §217.55 ARE INCLUDED ON PLAN SHEET C12.05. IT IS SUGGESTED THAT ENTRANCE INTO MANHOLES IN EXCESS OF FOUR FEET DEEP BE ACCOMPLISHED BY MEANS OF A PORTABLE LADDER. THE INCLUSION OF STEPS IN A MANHOLE IS PROHIBITED.

10. WHERE WATER LINES AND NEW SEWER LINE ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).

11. WHERE SEWERS LINES DEVIATE FROM STRAIGHT ALIGNMENT AND UNIFORM GRADE ALL CURVATURE OF SEWER PIPE MUST BE ACHIEVED BY THE FOLLOWING PROCEDURE WHICH IS RECOMMENDED BY THE PIPE MANUFACTURER NONE

IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED:

SPECIFIC CARE MUST BE TAKEN TO ENSURE THAT THE JOINT IS PLACED IN THE CENTER OF THE TRENCH AND PROPERLY BEDDED IN ACCORDANCE WITH 30 TAC §217.54.

12. NEW SEWAGE COLLECTION SYSTEM LINES MUST BE CONSTRUCTED WITH STUB OUTS FOR THE CONNECTION OF ANTICIPATED EXTENSIONS. THE LOCATION OF SUCH STUB OUTS MUST BE MARKED ON THE GROUND SUCH THAT THEIR LOCATION CAN BE EASILY DETERMINED AT THE TIME OF CONNECTION OF THE EXTENSIONS. SUCH STUB OUTS MUST BE MANUFACTURED WYES OR TEES THAT ARE COMPATIBLE IN SIZE AND MATERIAL WITH BOTH THE SEWER LINE AND THE EXTENSION, AT THE TIME OF ORIGINAL CONSTRUCTION, NEW STUB-OUTS MUST BE CONSTRUCTED SUFFICIENTLY TO EXTEND BEYOND THE END OF THE STREET PAVEMENT, ALL STUB-OUTS MUST BE SEALED WITH A MANUFACTURED CAP TO PREVENT LEAKAGE. EXTENSIONS THAT WERE NOT ANTICIPATED AT THE TIME OF ORIGINAL CONSTRUCTION OR THAT ARE TO BE CONNECTED TO AN EXISTING SEWER LINE NOT FURNISHED WITH STUB OUTS MUST BE CONNECTED USING A MANUFACTURED SADDLE AND IN ACCORDANCE WITH ACCEPTED PLUMBING TECHNIQUES.

IF NO STUB-OUT IS PRESENT AN ALTERNATE METHOD OF JOINING LATERALS IS SHOWN IN THE DETAIL ON PLAN SHEET 14 OF 16. (FOR POTENTIAL FUTURE LATERALS). THE PRIVATE SERVICE LATERAL STUB-OUTS MUST BE INSTALLED AS SHOWN ON THE PLAN AND PROFILE SHEETS ON PLAN SHEET C12.05 AND MARKED AFTER BACKFILLING AS SHOWN IN THE DETAIL ON PLAN SHEET C12.05.

13. TRENCHING, BEDDING AND BACKFILL MUST CONFORM WITH 30 TAC §217.54. THE BEDDING AND BACKFILL FOR FLEXIBLE PIPE MUST COMPLY WITH THE STANDARDS OF ASTM D-2321, CLASSES IA, IB, II OR III. RIGID PIPE BEDDING MUST COMPLY WITH THE REQUIREMENTS OF ASTM C 12 (ANSI A 106.2) CLASSES A, B OR C.

14. SEWER LINES MUST BE TESTED FROM MANHOLE TO MANHOLE. WHEN A NEW SEWER LINE IS CONNECTED TO AN EXISTING STUB OR CLEAN-OUT, IT MUST BE TESTED FROM EXISTING MANHOLE TO NEW MANHOLE. IF A STUB OR CLEAN-OUT IS USED AT THE END OF THE PROPOSED SEWER LINE, NO PRIVATE SERVICE ATTACHMENTS MAY BE CONNECTED BETWEEN THE LAST MANHOLE AND THE CLEANOUT UNLESS IT CAN BE CERTIFIED AS CONFORMING WITH THE PROVISIONS OF 30 TAC §213.5(C)(3)(E).

15. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.57. THE ENGINEER MUST RETAIN COPIES OF ALL TEST RESULTS WHICH MUST BE MADE AVAILABLE TO THE EXECUTIVE DIRECTOR UPON REQUEST. THE ENGINEER MUST CERTIFY IN WRITING THAT ALL WASTEWATER LINES HAVE PASSED ALL REQUIRED TESTING TO THE APPROPRIATE REGIONAL OFFICE WITHIN 30 DAYS OF TEST COMPLETION AND PRIOR TO USE OF THE NEW COLLECTION SYSTEM, TESTING METHOD WILL BE: (A) FOR A COLLECTION SYSTEM PIPE THAT WILL TRANSPORT WASTEWATER BY GRAVITY FLOW. THE DESIGN

MUST SPECIFY AN INFILTRATION AND EXFILTRATION TEST OR A LOW-PRESSURE AIR TEST. A TEST MUST CONFORM TO THE FOLLOWING REQUIREMENTS: (1) LOW PRESSURE AIR TEST. (A) A LOW PRESSURE AIR TEST MUST FOLLOW THE PROCEDURES DESCRIBED IN AMERICAN SOCIETY

FOR TESTING AND MATERIALS (ASTM) C-828, ASTM C-924, OR ASTM F-1417 OR OTHER PROCEDURE APPROVED BY THE EXECUTIVE DIRECTOR, EXCEPT AS TO TESTING TIMES AS REQUIRED IN TABLE C.3 IN SUBPARAGRAPH (C) OF THIS PARAGRAPH OR EQUATION C.3 IN SUBPARAGRAPH (B)(II) OF THIS PARAGRAPH (B) FOR SECTIONS OF COLLECTION SYSTEM PIPE LESS THAN 36 INCH AVERAGE INSIDE DIAMETER,

THE FOLLOWING PROCEDURE MUST APPLY, UNLESS A PIPE IS TO BE TESTED AS REQUIRED BY PARAGRAPH (2) OF THIS SUBSECTION. (I) A PIPE MUST BE PRESSURIZED TO 3.5 POUNDS PER SQUARE INCH (PSI) GREATER THAN THE

PRESSURE EXERTED BY GROUNDWATER ABOVE THE PIPE. (II) ONCE THE PRESSURE IS STABILIZED. THE MINIMUM TIME ALLOWABLE FOR THE PRESSURE TO DROP FROM 3.5 PSI GAUGE TO 2.5 PSI GAUGE IS COMPUTED FROM THE FOLLOWING EQUATION:

$$T = \frac{0.085 \times D \times K}{Q}$$

WHERE: T = TIME FOR PRESSURE TO DROP 1.0 POUND PER SQUARE INCH GAUGE IN SECONDS

K = 0.000419 * D * L, BUT NOT LESS THAN 1.0

EQUATION C.3

- D = AVERAGE INSIDE PIPE DIAMETER IN INCHES
- L = LENGTH OF LINE OF SAME SIZE BEING TESTED, IN FEET

Q = RATE OF LOSS, 0.0015 CUBIC FEET PER MINUTE PER SQUARE FOOT INTERNAL SURFACE (C) SINCE A K VALUE OF LESS THAN 1.0 MAY NOT BE USED, THE MINIMUM TESTING TIME FOR EACH PIPE DIAMETER IS SHOWN IN THE FOLLOWING TABLE C.3:

| Pipe Diameter (inches) | Minimum Time (seconds) | Maximum Length for Minimum Time (feet) | Time for Longer Length (seconds/foot) |
|------------------------|----------------------------------|--|--|
| 6 | 340 | 398 | 0.855 |
| 8 | 454 | 298 | 1.52 |
| 10 | 567 | 239 | 2.374 |
| 12 680 | | 199 | 3.419 |
| 15 | 850 | 159 | 5.342 |
| 18 | 1020 | 133 | 7.693 |
| 21 | 1190 | 114 | 10.471 |
| 24 | 1360 | 100 | 13.676 |
| 27 | 1530 | 88 | 17.309 |
| 30 | 1700 | 80 | 21.369 |
| 33 | 1870 | 72 | 25.856 |

(D) AN OWNER MAY STOP A TEST IF NO PRESSURE LOSS HAS OCCURRED DURING THE FIRST 25% OF THE CALCULATED TESTING TIME (E) IF ANY PRESSURE LOSS OR LEAKAGE HAS OCCURRED DURING THE FIRST 25% OF A TESTING PERIOD,

THEN THE TEST MUST CONTINUE FOR THE ENTIRE TEST DURATION AS OUTLINED ABOVE OR UNTIL FAILURE.

(F) WASTEWATER COLLECTION SYSTEM PIPES WITH A 27 INCH OR LARGER AVERAGE INSIDE DIAMETER MAY BE AIR TESTED AT EACH JOINT INSTEAD OF FOLLOWING THE PROCEDURE OUTLINED IN THIS SECTION

(G) A TESTING PROCEDURE FOR PIPE WITH AN INSIDE DIAMETER GREATER THAN 33 INCHES MUST BE APPROVED BY THE EXECUTIVE DIRECTOR. (2) INFILTRATION/EXFILTRATION TEST.

(A) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF 2.0 FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE. (B) AN OWNER SHALL USE AN INFILTRATION TEST IN LIEU OF AN EXFILTRATION TEST WHEN PIPES ARE INSTALLED BELOW THE GROUNDWATER LEVEL

(C) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE, OR AT LEAST TWO FEET ABOVE EXISTING GROUNDWATER LEVEL, WHICHEVER IS GREATER.

(D) FOR CONSTRUCTION WITHIN A 25-YEAR FLOOD PLAIN, THE INFILTRATION OR EXFILTRATION MUST NOT EXCEED 10 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT THE SAME MINIMUM TEST HEAD AS IN SUBPARAGRAPH (C) OF THIS PARAGRAPH. (E) IF THE QUANTITY OF INFILTRATION OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY SPECIFIED. AN

OWNER SHALL UNDERTAKE REMEDIAL ACTION IN ORDER TO REDUCE THE INFILTRATION OR EXFILTRATION TO AN AMOUNT WITHIN THE LIMITS SPECIFIED. AN OWNER SHALL RETEST A PIPE FOLLOWING A REMEDIATION ACTION.

(B) IF A GRAVITY COLLECTION PIPE IS COMPOSED OF FLEXIBLE PIPE, DEFLECTION TESTING IS ALSO REQUIRED. THE FOLLOWING PROCEDURES MUST BE FOLLOWED: (1) FOR A COLLECTION PIPE WITH INSIDE DIAMETER LESS THAN 27 INCHES, DEFLECTION MEASUREMENT REQUIRES A RIGID MANDREL.

(A) MANDREL SIZING.

(I) A RIGID MANDREL MUST HAVE AN OUTSIDE DIAMETER (OD) NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER (ID) OR AVERAGE ID OF A PIPE, AS SPECIFIED IN THE APPROPRIATE STANDARD BY THE ASTMS, AMERICAN WATER WORKS ASSOCIATION, UNI-BELL, OR AMERICAN NATIONAL STANDARDS INSTITUTE, OR ANY RELATED APPENDIX

(II) IF A MANDREL SIZING DIAMETER IS NOT SPECIFIED IN THE APPROPRIATE STANDARD, THE MANDREL MUST HAVE AN OD EQUAL TO 95% OF THE ID OF A PIPE. IN THIS CASE, THE ID OF THE PIPE, FOR THE PURPOSE OF DETERMINING THE OD OF THE MANDREL, MUST EQUAL BE THE AVERAGE OUTSIDE DIAMETER MINUS TWO MINIMUM WALL THICKNESSES FOR OD CONTROLLED PIPE AND THE AVERAGE INSIDE DIAMETER FOR ID CONTROLLED PIPE.

(III) ALL DIMENSIONS MUST MEET THE APPROPRIATE STANDARD. (B) MANDREL DESIGN.

(I) A RIGID MANDREL MUST BE CONSTRUCTED OF A METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED. (II) A MANDREL MUST HAVE NINE OR MORE ODD NUMBER OF RUNNERS OR LEGS.

(III) A BARREL SECTION LENGTH MUST EQUAL AT LEAST 75% OF THE INSIDE DIAMETER OF A PIPE. (IV) EACH SIZE MANDREL MUST USE A SEPARATE PROVING RING.

(C) METHOD OPTIONS. (I) AN ADJUSTABLE OR FLEXIBLE MANDREL IS PROHIBITED.

(II) A TEST MAY NOT USE TELEVISION INSPECTION AS A SUBSTITUTE FOR A DEFLECTION TEST. (III) IF REQUESTED, THE EXECUTIVE DIRECTOR MAY APPROVE THE USE OF A

DEFLECTOMETER OR A MANDREL WITH REMOVABLE LEGS OR RUNNERS ON A CASE-BY-CASE BASIS.

(2) FOR A GRAVITY COLLECTION SYSTEM PIPE WITH AN INSIDE DIAMETER 27 INCHES AND GREATER, OTHER TEST METHODS MAY BE USED TO DETERMINE VERTICAL DEFLECTION.

(3) A DEFLECTION TEST METHOD MUST BE ACCURATE TO WITHIN PLUS OR MINUS 0.2% DEFLECTION.

(4) AN OWNER SHALL NOT CONDUCT A DEFLECTION TEST UNTIL AT LEAST 30 DAYS AFTER THE FINAL BACKFILL.

(5) GRAVITY COLLECTION SYSTEM PIPE DEFLECTION MUST NOT EXCEED FIVE PERCENT (5%). (6) IF A PIPE SECTION FAILS A DEFLECTION TEST, AN OWNER SHALL CORRECT THE PROBLEM

AND CONDUCT A SECOND TEST AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS 16. ALL MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.

(A) ALL MANHOLES MUST PASS A LEAKAGE TEST. (B) AN OWNER SHALL TEST EACH MANHOLE (AFTER ASSEMBLY AND BACKFILLING) FOR LEAKAGE. SEPARATE

AND INDEPENDENT OF THE COLLECTION SYSTEM PIPES, BY HYDROSTATIC EXFILTRATION TESTING, VACUUM TESTING. OR OTHER METHOD APPROVED BY THE EXECUTIVE DIRECTOR. (1) HYDROSTATIC TESTING

> (A) THE MAXIMUM LEAKAGE FOR HYDROSTATIC TESTING OR ANY ALTERNATIVE TEST METHODS IS 0.025 GALLONS PER FOOT DIAMETER PER FOOT OF MANHOLE DEPTH PER HOUR. (B) TO PERFORM A HYDROSTATIC EXFILTRATION TEST, AN OWNER SHALL SEAL ALL WASTEWATER PIPES COMING INTO A MANHOLE WITH AN INTERNAL PIPE PLUG, FILL THE MANHOLE WITH WATER, AND MAINTAIN THE TEST FOR AT LEAST ONE HOUR. (C) A TEST FOR CONCRETE MANHOLES MAY USE A 24-HOUR WETTING PERIOD BEFORE TESTING TO ALLOW SATURATION OF THE CONCRETE.

(2) VACUUM TESTING.

(A) TO PERFORM A VACUUM TEST, AN OWNER SHALL PLUG ALL LIFT HOLES AND EXTERIOR JOINTS WITH A NON-SHRINK GROUT AND PLUG ALL PIPES ENTERING A MANHOLE. (B) NO GROUT MUST BE PLACED IN HORIZONTAL JOINTS BEFORE TESTING.

(C) STUB-OUTS, MANHOLE BOOTS, AND PIPE PLUGS MUST BE SECURED TO PREVENT MOVEMENT WHILE A VACUUM IS DRAWN. (D) AN OWNER SHALL USE A MINIMUM 60 INCH/LB TORQUE WRENCH TO TIGHTEN THE EXTERNAL

CLAMPS THAT SECURE A TEST COVER TO THE TOP OF A MANHOLE. (E) A TEST HEAD MUST BE PLACED AT THE INSIDE OF THE TOP OF A CONE SECTION, AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. (F) THERE MUST BE A VACUUM OF 10 INCHES OF MERCURY INSIDE A MANHOLE TO PERFORM A VALID

TEST. (G) A TEST DOES NOT BEGIN UNTIL AFTER THE VACUUM PUMP IS OFF.

(H) A MANHOLE PASSES THE TEST IF AFTER 2.0 MINUTES AND WITH ALL VALVES CLOSED, THE VACUUM IS AT LEAST 9.0 INCHES OF MERCURY.

17. ALL PRIVATE SERVICE LATERALS MUST BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC §213.5(C)(3)(I). AFTER INSTALLATION OF AND, PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL AND THE CONNECTION TO THE SEWAGE COLLECTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY WITH THE APPLICABLE PROVISIONS OF THIS SECTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH CERTIFICATIONS FOR FIVE YEARS AND FORWARD COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.

| AUSTIN REGIONAL OFFICE | SAN ANTONIO REGIONAL OFFICE |
|----------------------------------|-------------------------------|
| 12100 PARK 35 CIRCLE, BUILDING A | 14250 JUDSON ROAD |
| AUSTIN, TEXAS 78753-1808 | SAN ANTONIO, TEXAS 78233-4480 |
| PHONE (512) 339-2929 | PHONE (210) 490-3096 |
| FAX (512) 339-3795 | FAX (210) 545-4329 |
| | |

| | ALLEN CALLEN, TX 75002 PHONE NO. (214) 846-9397 TBPE FIRM REG. #19101 |
|--|--|
| | MICHAEL WESTFALL 107094 SSIONAL ENGINE Michael Westfall 1//2024 |
| | HUNTERS GLEN ADDITION PHASE 2 COUNTY ROAD 307 CITY OF JARRELL WILLIAMSO COUNTY, TEXAS |
| | TCEQ NOTES |
| K | REVISIONS |
| Know what's below. Call before you dig. | Here Here |



| | | | | 6 | BLC HUNTE ADDITIC | DCK G RS GLEN IN PHASE 1 | 7 | CROW VALLEY | DRIVE | 6 | BLOC HUNTER ADDITION | CK F S GLEN PHASE 1 | 7 |
|------|-----------|-------|----------------------|--------------------|-----------------------------|--------------------------------|--------------------------|-------------------------|--|---|----------------------------|---|---|
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|)' | VE SEE | .2.00 | 50.00' | 50.00' | 50.00' | 50.00' | 50.00' | 50.00' | ⁶ HUNTi ADDITic 202 0.P. 50.00' | ERS GLEN ON PHASE 1 C.F. NO. 3068731 R.W.C.T. 50.00' | 50.00' | 50.00' | 50.0 |
|) SF | MATCH LIN | | 35 6000.00 SF | 8 34 6000.00 SF | ³³ 6000.00 SF | 8 32 6000.00 SF | 8 31 8 6000.00 SF | 8 30 66000.00 SF | 29 6000.00 SF ℃BLOCK K | 28 6000.00 SF | 27 60000.00 SF | 8 26 6 6000.00 SF 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | 8 25 6 6000.00 7 7 50.0 |
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| · | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | | 50.00 | 50.0 |
|------------|-----------------------|--------------------|------------------------------|-----------------------------|------------------|----------------------|-------------------------------|---------------------------------|-----------------------------|------------------------|--------------------------|--------------|
|) SF 00.00 | 4 000 6000.00 SF 0 | 5 6000.00 SF 00 | 6 -00 6000.00 SF -00 7 | 7 -00 6000.00 SF 07 7 | 8 -000.00 SF 000 | 9 6000.00 SF 7 | 10 - 80 6000.00 SF 80 7 | 11 8 6000.00 SF 6 BLOCK L | 12 00 6000.00 SF 00 7 | 13 00 6000.00 SF 07 | 14 - 80 6000.00 SF 87 | 15 6000.0 |
| <u>)'</u> | 50.00' | 50.00' | 50.00' | 50.00' | 50.00' | 50.00' | 50.00' | 50.00' | 50.00' | 50.00' | 50.00' | 50.0 |





















| 475 ——— | PROPOSED CONTOUR |
|------------|-----------------------------------|
| 475 | EXISTING CONTOUR |
| < < | PROPOSED VALLEY |
| | PROPOSED RIDGE |
| 500.0 ● | PROPOSED SPOT ELEVATION |
| TW | PROPOSED TOP OF WALL ELEVATION |
| BW | PROPOSED BOTTOM OF WALL ELEVATION |
| EX | EXISTING ELEVATION |
| | PROPOSED STORM DRAINAGE LINE |
| V | PROPOSED RETAINING WALL |

- GRADING PURPOSES ONLY. CONTRACTOR TO PROVIDE COMPLETE DESIGN FOR RETAINING WALLS. DESIGN SHALL BE SUBMITTED TO ENGINEER AND
- RECOMMENDATION. REFER TO PAVING SECTION DETAILS FOR SUBGRADE PREPARATION REQUIREMENTS UNDER ALL PAVED AREAS. (REFER TO
- LONGITUDINAL SLOPE OF 5% AND A MAXIMUM CROSS SLOPE OF 2%. IF THE CONTRACTOR IDENTIFIES SLOPES GREATER, CONTRACTOR SHALL NOTIFY
- VERIFIED. CONTRACTOR SHALL NOTIFY CIVIL ENGINEERING CONSULTANT (CEC) OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH GRADING

 \swarrow The contractor shall field verify the horizontal and vertical \checkmark LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION AND SHALL NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER OF ANY CONFLICTS DISCOVERED. CONTRACTOR IS RESPONSIBLE FOR PROTECTING

LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION IN VICINITY. ALL

| | | | | 1719 ANGEL PARKWAY | STE 400-206, ALLEN, TX 75002 | PHONE NO. (214) 846-9397 | TBPE FIRM REG. #19101 |
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| | | | | COUNTY ROAD 307 | CITY OF JARREI I | | WILLIAMOU CUUNTY, IEXAS |
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| REVISIONS | | | | | | | |
| No. DATE | | |)AT | Ē | | | |

PROJECT NO. 2201001

SHEET NO.

C5.01







| | PROPERTY LINE |
|-------------------|-----------------------------|
| 475 | PROPOSED CONTOUR |
| - — — 475 — — — — | EXISTING CONTOUR |
| < < | PROPOSED VALLEY |
| | PROPOSED RIDGE |
| 500.0 ● | PROPOSED SPOT ELEVATION |
| TW | PROPOSED TOP OF WALL ELEVAT |
| BW | PROPOSED BOTTOM OF WALL EL |
| EX | EXISTING ELEVATION |
| | PROPOSED STORM DRAINAGE LIN |
| V | PROPOSED RETAINING WALL |







LEGEND

| | PROPERTY LINE |
|-------------------|--------------------------------|
| 475 | PROPOSED CONTOUR |
| — — — 475 — — — — | EXISTING CONTOUR |
| << | PROPOSED VALLEY |
| | PROPOSED RIDGE |
| 500.0 ● | PROPOSED SPOT ELEVATION |
| TW | PROPOSED TOP OF WALL ELEVATION |
| BW | PROPOSED BOTTOM OF WALL ELEVA |
| EX | EXISTING ELEVATION |
| | PROPOSED STORM DRAINAGE LINE |
| ♥ | PROPOSED RETAINING WALL |

GRADING NOTES

- 1. TOP OF WALL AND BOTTOM OF WALL GRADE SPOT SHOTS ARE FOR GRADING PURPOSES ONLY. CONTRACTOR TO PROVIDE COMPLETE DESIGN FOR RETAINING WALLS. DESIGN SHALL BE SUBMITTED TO ENGINEER AND OWNER FOR REVIEW.
- 2. ALL FILL MATERIAL SHALL BE COMPACTED PER GEOTECH RECOMMENDATION. REFER TO PAVING SECTION DETAILS FOR SUBGRADE PREPARATION REQUIREMENTS UNDER ALL PAVED AREAS. (REFER TO GEOTECH REPORT)
- CONTRACTOR SHALL VERIFY ALL SIDEWALKS HAVE A MAXIMUM LONGITUDINAL SLOPE OF 5% AND A MAXIMUM CROSS SLOPE OF 2%. IF THE CONTRACTOR IDENTIFIES SLOPES GREATER, CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO CONSTRUCTION.
- 4. SPOT ELEVATIONS IDENTIFIED AS "MATCH EXISTING" SHALL BE FIELD VERIFIED. CONTRACTOR SHALL NOTIFY CIVIL ENGINEERING CONSULTANT (CEC) OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH GRADING ACTIVITIES.



LOT GRADING TYPE A ALL DRAINAGE TO STREET

LOT GRADING CHART LOTS 20 - 23, BLOCK K, LOTS 17 - 20, BLOCK L, LOTS 9 - 17, BLOCK I, LOTS 1 - 11, BLOCK J, TYPE A LOTS 20 AND 21, BLOCK B,

BENCHMARK



AND SHALL NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER OF ANY

CONFLICTS DISCOVERED. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN) WITHIN SCOPE OF CONSTRUCTION . IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT HIS OWN EXPENSE. CALL 811 AT

LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION IN VICINITY. ALL FIELD VERIFICATIONS SHALL BE CONDUCTED IN COMPLIANCE WITH TEXAS ADMINISTRATIVE CODE TITLE 30, CHAPTER 217. THE CONTRACTOR MUST





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GRADING

DATE 04/29/2024 PROJECT NO. 2201001 SHEET NO.

C5.03







EXISTING OFFSITE COMPOSITE C CALCULATIONS

| | Area | Impervious | Pervious | 0 | 0 | 0 | 0 | 0 | <u> </u> |
|-------|---------|------------|----------|--------------------------|----------------------------|----------------------|---------------------------|-----------------|-----------|
| | (sf) | (sf) | (sf) | C ₂₅ Pervious | C ₂₅ Impervious | C ₂₅ Comp | C ₁₀₀ Pervious | C100 Impervious | C100 Comp |
| OS-1 | 170755 | | 170755.2 | 0.4 | 0.88 | 0.40 | 0.47 | 0.97 | 0.47 |
| OS-2 | 187744 | | 187743.6 | 0.4 | 0.88 | 0.40 | 0.47 | 0.97 | 0.47 |
| ROW-1 | 79714.8 | 15455 | 64259.8 | 0.4 | 0.88 | 0.49 | 0.47 | 0.97 | 0.57 |
| ROW-2 | 106722 | 21246 | 85476 | 0.4 | 0.88 | 0.50 | 0.47 | 0.97 | 0.57 |
| ROW-3 | 146797 | 24656 | 122141.2 | 0.4 | 0.88 | 0.48 | 0.47 | 0.97 | 0.55 |

| | А | TC | C ₂₅ | i ₂₅ | Q ₂₅ | C ₁₀₀ | i ₁₀₀ | Q ₁₀₀ | | | | |
|-------|------|-------|-----------------|-----------------|-----------------|------------------|------------------|------------------|--|--|--|--|
| | (Ac) | | | (iph) | (cfs) | | (iph) | (cfs) | | | | |
| OS-1 | 3.92 | 17.54 | 0.40 | 6.75 | 10.58 | 0.47 | 8.52 | 15.70 | | | | |
| OS-2 | 4.31 | 12.93 | 0.40 | 7.78 | 13.41 | 0.47 | 9.84 | 19.93 | | | | |
| ROW-1 | 1.83 | 10.00 | 0.49 | 8.67 | 7.78 | 0.57 | 11.00 | 11.48 | | | | |
| ROW-2 | 2.45 | 10.00 | 0.50 | 8.67 | 10.62 | 0.57 | 11.00 | 15.36 | | | | |
| ROW-3 | 3.37 | 16.09 | 0.48 | 7.03 | 11.38 | 0.55 | 8.89 | 16.47 | | | | |

EXISTING OFFSITE DRAINAGE AREA TABLE

EXISTING ONSITE COMPOSITE C CALCULATIONS

| | Area | Impervious | Pervious | 0 | 0 | 0 | | 0 | |
|-------|---------|------------|--------------------|------------------------|----------------|----------------------|---------------------------|-----------------|-----------|
| | (sf) | (sf) | (sf) | C25 Pervious | ℃25 Impervious | C ₂₅ Comp | C100 Pervious | C100 Impervious | C100 Comp |
| A0 | 25264.8 | 13805 | 11459.8 | 0.4 | 0.88 | 0.66 | 0.47 | 0.97 | 0.74 |
| A1 | 48351.6 | 28614.63 | 19736.97 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.77 |
| A2 | 80150.4 | 40571 | 39579.4 | 0.4 | 0.88 | 0.64 | 0.47 | 0.97 | 0.72 |
| A3 | 37461.6 | 22338 | 15123.6 | 0.4 | 0.88 | 0.69 | 0.47 | 0.97 | 0.77 |
| A4 | 48351.6 | 28390 | 19961.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| A5 | 21344.4 | 11111 | 10233.4 | 0.4 | 0.88 | 0.65 | 0.47 | 0.97 | 0.73 |
| A6 | 11761.2 | 6435 | 5326.2 | 0.4 | 0.88 | 0.66 | 0.47 | 0.97 | 0.74 |
| A7 | 8276.4 | 3614 | 4662.4 | 0.4 | 0.88 | 0.61 | 0.47 | 0.97 | 0.69 |
| A8 | 18730.8 | 9651 | 9079.8 | 0.4 | 0.88 | 0.65 | 0.47 | 0.97 | 0.73 |
| A9 | 51836.4 | 29119 | 22717.4 | 0.4 | 0.88 | 0.67 | 0.47 | 0.97 | 0.75 |
| A10 | 37461.6 | 19616 | 17845.6 | 0.4 | 0.88 | 0.65 | 0.47 | 0.97 | 0.73 |
| A11 | 82764 | 47583.6 | 35180.4 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| A12 | 35283.6 | 20541 | 14742.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| A13 | 18730.8 | 9808 | 8922.8 | 0.4 | 0.88 | 0.65 | 0.47 | 0.97 | 0.73 |
| B0 | 16988.4 | 10055 | 6933.4 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.77 |
| B1 | 30927.6 | 18078 | 12849.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| B2 | 22215.6 | 13043 | 9172.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| B3 | 22215.6 | 13043 | 9172.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| CO | 13503.6 | 7821 | 5682.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| C1 | 64904.4 | 35952 | 28952.4 | 0.4 | 0.88 | 0.67 | 0.47 | 0.97 | 0.75 |
| C2 | 20473.2 | 12071 | 8402.2 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| C3 | 20908.8 | 12459 | 8449.8 | 0.4 | 0.88 | 0.69 | 0.47 | 0.97 | 0.77 |
| C4 | 22215.6 | 13063 | 9152.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| C5 | 22215.6 | 13063 | 9152.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| | 16988.4 | 10048 | 6940 4 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.77 |
| D1 | 30927.6 | 18070 | 12857.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| D2 | 22215.6 | 13043 | 9172.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| D3 | 22215.6 | 13043 | 9172.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| F0 | 73616.4 | 43122 | 30494 4 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| F1 | 13503.6 | 7827 | 5676.6 | 0.1 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| F2 | 16988.4 | 10048 | 6940.4 | 0.1 | 0.88 | 0.68 | 0.47 | 0.07 | 0.77 |
| F3 | 18730.8 | 11267 | 7463.8 | 0.4 | 0.88 | 0.00 | 0.47 | 0.07 | 0.77 |
| | 22215.6 | 13043 | 9172.6 | 0.1 | 0.88 | 0.68 | 0.17 | 0.07 | 0.76 |
| | 22210.0 | 13043 | 9172.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.07 | 0.76 |
| | 16988 4 | 9973 | 7015 4 | 0. 4 0.4 | 0.00 | 0.00 | 0. - 7 | 0.07 N 07 | 0.76 |
| | 32234 4 | 17666 | 14568 / | 0. 4 | 0.00 0.88 | 0.00 | 0.47 | 0.07 0.07 | 0.70 |
| | 22215 6 | 12112 | 9007 A | 0. 4 ∩⊿ | 0.00 | 0.00 | 0. - 7 Λ 47 | 0.07 0.07 | 0.74 |
| F3 | 22215.6 | 13118 | 9097.0 | 0. 4 | 0.00 | 0.68 | Λ <i>Δ</i> 7 | n a7 | 0.77 |
| | 15681 6 | 14020 | 1652.6 | 0. 4 0.4 | 0.00 | 0.00 | 0. 7 7 | 0.07 | 0.77 |
| G1 | 54450 | 31610 | 22831 | 0.4 | 0.88 | 0.05 | 0.47 | 0.97 | 0.32 |
| | 12502 6 | 7807 7 | 5675 0 | 0.4 | 0.00 | 0.00 | 0.47 | 0.97 | 0.70 |
| | 75250 0 | 1021.1 | 21/17 7 | 0.4 | 0.00 | 0.00 | 0.47 | 0.97 | 0.70 |
| | 207060 | 40841.1 | 206062.2 | 0.4 | 0.00 | 0.00 | 0.47 | 0.97 | 0.70 |
| | 61410 6 | 26220 65 | 250002.2 | 0.4 | 0.00 | 0.42 | 0.47 | 0.97 | 0.49 |
| | 1674000 | 20220.00 | 752040 | 0.4 | 0.00 | 0.00 | 0.47 | 0.97 | 0.00 |
| | 10/4002 | 921034 | 100040 75650.40 | 0.4 | 0.00 | 00.0 | 0.47 | 0.97 | 0.74 |
| | 070400 | 1020/1.64 | 10003.10 | 0.4 | 0.00 | 0.00 | 0.47 | 0.97 | |
| | 0/3438 | 304098.4 | 318/39.2 | 0.4 | 0.00 | 0.05 | 0.47 | 0.97 | 0.73 |
| | 4190036 | 2158822.7 | 2031213.7 | | | 0.65 | | | 0.73 |
| ιοται | 96.19 | 52% | neveloped | | | | | | |

| E | XISTI | NG ON | ISITE I | DRAII | NAGE | AREA | | BLE |
|-----------------|-------|-------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| | A | TC | C ₂₅ | i ₂₅ | Q ₂₅ | C ₁₀₀ | i ₁₀₀ | Q ₁₀₀ |
| | (Ac) | | | (iph) | (cfs) | | (iph) | (cfs) |
| A0 | 0.58 | 15 | 0.66 | 7.27 | 2.78 | 0.74 | 9.19 | 3.94 |
| A1 | 1.11 | 15 | 0.68 | 7.27 | 5.49 | 0.77 | 9.19 | 7.85 |
| A2 | 1.84 | 15 | 0.64 | 7.27 | 8.56 | 0.72 | 9.19 | 12.17 |
| A3 | 0.86 | 15 | 0.69 | 7.27 | 4.31 | 0.77 | 9.19 | 6.09 |
| A4 | 1.11 | 15 | 0.68 | 7.27 | 5.49 | 0.76 | 9.19 | 7.75 |
| A5 | 0.49 | 15 | 0.65 | 7.27 | 2.32 | 0.73 | 9.19 | 3.29 |
| A6 | 0.27 | 15 | 0.66 | 7.27 | 1.30 | 0.74 | 9.19 | 1.84 |
| A7 | 0.19 | 15 | 0.61 | 7.27 | 0.84 | 0.69 | 9.19 | 1.20 |
| A8 | 0.43 | 15 | 0.65 | 7.27 | 2.03 | 0.73 | 9.19 | 2.88 |
| A9 | 1.19 | 15 | 0.67 | 7.27 | 5.80 | 0.75 | 9.19 | 8.20 |
| A10 | 0.86 | 15 | 0.65 | 7.27 | 4.06 | 0.73 | 9.19 | 5.77 |
| A11 | 1.90 | 15 | 0.68 | 7.27 | 9.39 | 0.76 | 9.19 | 13.27 |
| A12 | 0.81 | 15 | 0.68 | 7.27 | 4.00 | 0.76 | 9.19 | 5.66 |
| A13 | 0.43 | 15 | 0.65 | 7.27 | 2.03 | 0.73 | 9.19 | 2.88 |
| B0 | 0.39 | 15 | 0.68 | 7.27 | 1.93 | 0.77 | 9.19 | 2.76 |
| B1 | 0.71 | 15 | 0.68 | 7.27 | 3.51 | 0.76 | 9.19 | 4.96 |
| B2 | 0.51 | 15 | 0.68 | 7.27 | 2.52 | 0.76 | 9.19 | 3.56 |
| B3 | 0.51 | 15 | 0.68 | 7.27 | 2.52 | 0.76 | 9.19 | 3.56 |
| CO | 0.31 | 15 | 0.68 | 7.27 | 1.53 | 0.76 | 9.19 | 2.17 |
| C1 | 1.49 | 15 | 0.67 | 7.27 | 7.26 | 0.75 | 9.19 | 10.27 |
| <u>C2</u> | 0.47 | 15 | 0.68 | 7.27 | 2.32 | 0.76 | 9.19 | 3.28 |
| <u>C3</u> | 0.48 | 15 | 0.69 | 7 27 | 2 41 | 0.77 | 9 19 | 3 40 |
| <u>C4</u> | 0.51 | 15 | 0.68 | 7.27 | 2.52 | 0.76 | 9.19 | 3.56 |
| <u> </u> | 0.51 | 15 | 0.68 | 7 27 | 2 52 | 0.76 | 9 19 | 3 56 |
| D0 | 0.39 | 15 | 0.68 | 7 27 | 1 93 | 0.77 | 9 19 | 2 76 |
| D0 D1 | 0.00 | 15 | 0.00 | 7.27 | 3 51 | 0.77 | 9.19 | 4.96 |
| D1 D2 | 0.51 | 15 | 0.00 | 7.27 | 2 52 | 0.76 | 9.19 | 3 56 |
| <u>20</u> רח | 0.51 | 15 | 0.00 | 7.27 | 2.52 | 0.76 | 9.19 | 3.56 |
| E0 | 1 69 | 15 | 0.00 | 7.27 | 2.52 8.35 | 0.76 | 9.19 | 11.80 |
| E0 E1 | 0.31 | 15 | 0.00 | 7.27 | 1 52 | 0.76 | 0.10 | 2 17 |
| E2 | 0.01 | 15 | 0.00 | 7.27 | 1.03 | 0.70 | 0.10 | 2.17 |
| E2 | 0.00 | 15 | 0.00 | 7.27 | 2.55 | 0.77 | 9.19 | 2.70 |
| E3 E4 | 0.43 | 15 | 0.09 | 7.27 | 2.10 | 0.77 | 9.19 | 3.04 |
| | 0.51 | 15 | 0.08 | 7.27 | 2.52 | 0.76 | 9.19 | 3.30 |
| ED | 0.31 | 15 | 0.00 | 7.27 | 2.52 | 0.76 | 9.19 | 3.30 |
| | 0.39 | 15 | 0.08 | 7.27 | 1.95 | 0.76 | 9.19 | Z.7Z |
| F1 F2 | 0.74 | 15 | 0.66 | 7.27 | 3.55 | 0.74 | 9.19 | 5.03 |
| F2 | 0.51 | 15 | 0.68 | 7.27 | 2.52 | 0.77 | 9.19 | 3.61 |
| F3 | 0.01 | 15 | 0.68 | 7.27 | 2.52 | 0.77 | 9.19 | 3.61 |
| GU | 0.30 | 15 | 0.83 | 7.27 | 2.17 | 0.92 | 9.19 | 3.04 |
| GI | 1.25 | 15 | 0.68 | 7.27 | 6.18 | 0.76 | 9.19 | 8.73 |
| HU | 0.31 | 15 | 0.68 | 7.27 | 1.53 | 0.76 | 9.19 | 2.17 |
| H1 | 1./3 | 15 | 0.68 | 7.27 | 8.55 | 0.76 | 9.19 | 12.08 |
| POND | 1.07 | 15 | 0.42 | 7.27 | 21.59 | 0.49 | 9.19 | 31.84 |
| EX-1 | 1.41 | 15 | 0.60 | 7.27 | 6.15 | 0.68 | 9.19 | 8.81 |
| EX-2 | 38.45 | 15 | 0.66 | 7.27 | 184.49 | 0.74 | 9.19 | 261.48 |
| EX-3 | 4.08 | 15 | 0.68 | 7.27 | 20.17 | 0.76 | 9.19 | 28.50 |
| EX-4 | 15.46 | 15 | 0.65 | 7.27 | 73.06 | 0.73 | 9.19 | 103.72 |

| | • • • • • • • • • • • • • • • • • • • |
|---|---|
| | MICHAEL WESTFALL NOTO94 MICHAEL WESTFALL 107094 C/CENSE S/ONAL ENG Michael Westfall 7/1/2024 |
| | HUNTERS GLEN ADDITION PHASE 2 COUNTY ROAD 307 CITY OF JARRELL WILLIAMSO COUNTY, TEXAS |
| BENCHMARK Dod Nail Set, elevation: 799.40, n: 10282968.12, E: 3146984.70 | EXISTING DRAINAGE AREA TABLES |
| E | REVISIONS |
| Know what's below. Call before you dig. Ministrative constructions of all existing utilities prior to start of construction ho shall notify the construction Manager and engineer of any construction. If any existing utilities genown own of showny within scope of construction. If any existing utilities are bamaged, the constructions shall replace them at his own expense. Call 811 at least 72 Hours prior to commencing construction in vicinity. All field verifications shall be conducted in compliance with texas administrative code title 30, chapter 21. The construction must obtain any necessary permits for such activities. | Н Н Н Н 1 1 1 1 1 |



| | | | | | | | | | | | | | | | | IN | | 'LCU | LATION | NS | | | | | | | | | | | | | | | |
|--------------------------------------|----------|----------------|------------|-------------|-------------------------|---|------------------------------|------------------------|-------------------------------------|---|--------------|-------------------------------|------------------------|---------------------------|--------------------------------|---|---------------------------------|-------------|---|--|--|---|------------|----------------------|---------------------------------------|-----------------------|------------------------|-----------------------------|--|---|--|--|--|-------------------------------------|-----------------------|
| INLET TYPE | IN | ILET LOCATION | DRAI | INAGE ARE/ | A INFORM | MATION | | Storm | Instream | Crown Tota | | MP INLET | SUMP IN | ILET FLOW | | | | F | ROADWAY | INFORMATION | | | | Gutter | Ponding | | Width of | | E | Equiv- | | | | | |
| Inlet On- No. Grade or Sump | Station | Street | Area ID | Area "A" | Runoff Coeff. "C" | Time of Storm Concen- Frequ- tration ency "Tc" | Rainfall Intensity "I" | Water Runoff "Q" | Bypass Flow "Q _B " | Over- Gutte flow Flow "Q _C " "Q _T " | Pr OF FL | OW FROM: Higher Station | FF Lower Station | IOM: Higher Station | Roadway Classifi- cation | Paver Mann- Crov ing's Inve "n" Heig | nent /n/ Ci ∍rt He ght | urb ight | [•] avement – Width F-F "W" | Con Grade/ Sump Lower Station "SL" | udinal Slope ump Higher Station "S∟" | Roadway Cross Slope "S _X " | Conveyance | Flow Depth "y" | depth in Sump "y _p " | Flow Spread "T" | Depres- sion "W" | Depth of Depre- ssion | Flow Ratio ("E _o " S | alent Re Cross I Slope "S _e " | equired ∟ength "L _t " | Actual Inlet Length Effici- "L" ency | Intercepted Flow "Q _i " | Bypass Flow "Q _b " | Bypass Destination |
| | (FT) | | | (AC) | | (MIN) (YRS) | (IN/HR) | (CFS) | (CFS) | (CFS) (CFS | 5) % | % | (CFS) | (CFS) | | (F1 | .") (F | ·T) | (FT) | (FT/FT) | (FT/FT) | (FT/FT) | | (FT) | (FT) | (FT) | (FT) | (FT) | (F | (FT/FT) | (FT) | (FT) | (CFS) | (CFS) | |
| CI-B1 ONGC DEPC | 23+26.54 | MOUNTAIN QUAIL | LDRIVE B1 | 1.10 | 0.70 | 15 25 | 7.27 | 5.60 | 0.00 | 0.00 5.60 |) N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | ,0 0, | 50 | 30.00 | 0.013 | N/A | 0.02000 | 49.10 | 0.41 | N/A | 8.81 | 2.50 | 0.33 | 0.29 | 0.05 | 23.45 | 10 0.63 | 3.54 | 2.06 | CI-B3 |
| CI-B2 ONGC DEPC | 23+26.54 | MOUNTAIN QUAIL | L DRIVE B2 | 1.11 | 0.71 | 15 25 | 7.27 | 5.73 | 0.00 | 0.00 5.73 | B N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | 0 0 | 50 | 30.00 | 0.013 | N/A | 0.02000 | 50.25 | 0.42 | N/A | 8.92 | 2.50 | 0.33 | 0.29 | 0.05 | 23.73 | 10 0.63 | 3.59 | 2.14 | CI-B4 |
| CI-B3 ONGC DEPC | 20+85.54 | MOUNTAIN QUAIL | L DRIVE B3 | 0.76 | 0.72 | 15 25 | 7.27 | 3.98 | 2.06 | 0.00 6.04 | N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | 0 0 | 50 | 30.00 | 0.010 | N/A | 0.02000 | 60.36 | 0.44 | N/A | 9.83 | 2.50 | 0.33 | 0.27 | 0.05 | 22.82 | 10 0.65 | 3.90 | 2.14 | CI-B5 |
| CI-B4 ONGC DEPC | 20+85.54 | MOUNTAIN QUAIL | LDRIVE B4 | 0.76 | 0.72 | 15 25 | 7.27 | 3.98 | 2.14 | 0.00 6.12 | 2 N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u> </u> | 50 | 30.00 | 0.010 | N/A | 0.02000 | 61.19 | 0.44 | N/A | 9.90 | 2.50 | 0.33 | 0.27 | 0.05 | 22.98 | 10 0.64 | 3.93 | 2.19 | CI-B6 |
| CI-B5 ONGC DEPC | 16+11.04 | MOUNTAIN QUAIL | L DRIVE B5 | 1.12 | 0.63 | 15 25 | 7.27 | 5.13 | 2.14 | 0.00 7.27 | ' N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.010 | N/A | 0.02000 | 72.68 | 0.46 | N/A | 10.92 | 2.50 | 0.33 | 0.26 | 0.05 | 25.08 | 10 0.60 | 4.36 | 2.91 | CI-B7 |
| CI-B6 ONGC DEPC | 16+11.04 | MOUNTAIN QUAIL | DRIVE B6 | 1.13 | 0.76 | 15 25 | 7.27 | 6.24 | 2.19 | 0.00 8.43 | B N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.010 | N/A | 0.02000 | 84.32 | 0.48 | N/A | 11.99 | 2.50 | 0.33 | 0.25 | 0.05 | 27.00 | 10 0.57 | 4.76 | 3.67 | CI-B8 |
| CI-B7 ONGC DEPC | 12+63.54 | MOUNTAIN QUAIL | DRIVE B7 | 1.17 | 0.71 | 15 25 | 7.27 | 6.04 | 2.91 | 0.00 8.95 | 5 N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.010 | N/A | 0.02000 | 89.48 | 0.49 | N/A | 12.48 | 2.50 | 0.33 | 0.25 | 0.05 | 27.80 | 15 0.75 | 6.73 | 2.21 | CI-B9 |
| CI-B8 ONGC DEPC | 12+63.54 | MOUNTAIN QUAIL | L DRIVE B8 | 1.17 | 0.71 | 15 25 | 7.27 | 6.04 | 3.67 | 0.00 9.71 | N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.010 | N/A | 0.02000 | 97.06 | 0.49 | N/A | 13.23 | 2.50 | 0.33 | 0.25 | 0.05 | 28.90 | 15 0.73 | 7.11 | 2.60 | CI-B10 |
| CI-B9 ONGC DEPC | 9+20.04 | MOUNTAIN QUAIL | L DRIVE B9 | 1.08 | 0.71 | 15 25 | 7.27 | 5.57 | 2.21 | 0.00 7.79 |) N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.010 | N/A | 0.02000 | 77.89 | 0.47 | N/A | 11.39 | 2.50 | 0.33 | 0.26 | 0.05 | 25.96 | 15 0.79 | 6.14 | 1.65 | CI-B15 |
| CI-B10 ONGC DEPC | 9+20.04 | MOUNTAIN QUAIL | LDRIVE B10 | 1.08 | 0.71 | 15 25 | 7.27 | 5.57 | 2.60 | 0.00 8.17 | <u>′</u> N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | 0 0. | 50 | 30.00 | 0.010 | N/A | 0.02000 | 81.74 | 0.48 | N/A | 11.75 | 2.50 | 0.33 | 0.26 | 0.05 | 26.59 | 15 0.78 | 6.34 | 1.83 | CI-B15 |
| CI-B11 ONGC DEPC | 6+35.53 | MOUNTAIN QUAIL | LDRIVE B11 | 1.05 | 0.71 | 15 25 | 7.27 | 5.42 | 0.00 | 0.00 5.42 | 2 N/A | N/A | N/A | <u>N/A</u> | | 0.016 0.5 | 0 0. | 50 | 30.00 | 0.007 | N/A | 0.02000 | 64.32 | 0.45 | N/A | 10.18 | 2.50 | 0.33 | 0.27 | 0.05 | 19.80 | 10 0.72 | 3.89 | 1.53 | CI-B13 |
| CI-B12 ONGC DEPC | 6+44.40 | MOUNTAIN QUAIL | LDRIVE B12 | 2 1.09 | 0.70 | 15 25 | 7.27 | 5.55 | 0.00 | 0.00 5.55 | 5 N/A | N/A | N/A | N/A | | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.007 | N/A | 0.02000 | 65.83 | 0.45 | N/A | 10.31 | 2.50 | 0.33 | 0.27 | 0.05 | 20.03 | 10 0.71 | 3.95 | 1.60 | CI-B14 |
| CI-B13 ONGC DEPC | 8+16.54 | MOUNTAIN QUAIL | LDRIVE B13 | 0.56 | 0.69 | 15 25 | 7.27 | 2.81 | 1.53 | 0.00 4.34 | N/A | N/A | N/A | N/A | | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.007 | N/A | 0.02000 | 51.84 | 0.42 | N/A | 9.06 | 2.50 | 0.33 | 0.29 | 0.05 | 17.59 | 10 0.78 | 3.38 | 0.96 | CI-B16 |
| CI-B14 ONGC DEPC | 8+16.54 | MOUNTAIN QUAIL | LDRIVE B14 | 0.53 | 0.71 | 15 25 | 7.27 | 2.74 | 1.60 | 0.00 4.33 | 8 N/A | N/A | N/A | N/A | | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.007 | N/A | 0.02000 | 51.79 | 0.42 | N/A | 9.06 | 2.50 | 0.33 | 0.29 | 0.05 | 17.58 | 10 0.78 | 3.38 | 0.95 | CI-B16 |
| CI-B15 ONGC DEPC | 6+74.21 | WILD GOOSE D | DRIVE B15 | 0.52 | 0.61 | 15 25 | 7.27 | 2.31 | 3.48 | 0.00 5.79 |) N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.005 | N/A | 0.02000 | 81.88 | 0.48 | N/A | 11.76 | 2.50 | 0.33 | 0.26 | 0.05 | 18.69 | 10 0.75 | 4.33 | 1.46 | N/A |
| CI-B16 ONGC DEPC | 6+74.21 | WILD GOOSE D | DRIVE B16 | 6 0.49 | 0.63 | 15 25 | 7.27 | 2.24 | 1.91 | 0.00 4.15 | 5 N/A | N/A | N/A | N/A | | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.005 | N/A | 0.02000 | 58.73 | 0.44 | N/A | 9.68 | 2.50 | 0.33 | 0.28 | 0.05 | 15.80 | 10 0.84 | 3.47 | 0.68 | N/A |
| CI-D ONGC DEPC | 5+13.41 | RED WOLF DF | RIVE D | 0.89 | 0.65 | 15 25 | 7.27 | 4.21 | 0.00 | 0.00 4.21 | N/A | N/A | N/A | N/A | | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.008 | N/A | 0.02000 | 46.73 | 0.41 | N/A | 8.59 | 2.50 | 0.33 | 0.29 | 0.05 | 17.95 | 10 0.77 | 3.23 | 0.97 | CI-D2 |
| CI-D1 SMPC DEPC | 7+25.00 | RED WOLF DF | RIVE D1 | 0.33 | 0.75 | 15 25 | 7.27 | 1.80 | 0.00 | 0.00 1.80 | 83% | 17% | 1.49 | 0.31 | LOCAL | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.008 | 0.006 | 0.02000 | 16.70 | 0.29 | 0.14 | 5.33 | 2.50 | 0.33 | 0.39 | 0.06 | 0.88 | 10 1.00 | 1.80 | 0.00 | N/A |
| CI-D2 SMPC DEPC | 7+25.00 | RED WOLF DF | RIVE D2 | 1.13 | 0.71 | 15 25 | 7.27 | 5.83 | 0.97 | 0.00 6.80 | 83% | 17% | 5.65 | 1.16 | LOCAL | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.008 | 0.006 | 0.02000 | 63.14 | 0.45 | 0.35 | 10.08 | 2.50 | 0.33 | 0.27 | 0.05 | 3.31 | 10 1.00 | 6.80 | 0.00 | N/A |
| CI-D3 SMPC DEPC | 9+65.00 | RED WOLF DF | RIVE D3 | 0.18 | 0.88 | 15 25 | 7.27 | 1.15 | 0.00 | 0.00 1.15 | 6 46% | 54% | 0.53 | 0.62 | LOCAL | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.007 | 0.010 | 0.02000 | 6.33 | 0.21 | 0.11 | 3.54 | 2.50 | 0.33 | 0.52 | 0.08 | 0.56 | 10 1.00 | 1.15 | 0.00 | N/A |
| CI-D4 SMPC DEPC | 9+65.00 | RED WOLF DF | RIVE D4 | 0.77 | 0.71 | 15 25 | 7.27 | 3.97 | 0.00 | 0.00 3.97 | <u> </u> | 54% | 1.83 | 2.15 | LOCAL | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.007 | 0.010 | 0.02000 | 21.85 | 0.32 | 0.24 | 6.00 | 2.50 | 0.33 | 0.36 | 0.06 | 1.94 | 10 1.00 | 3.97 | 0.00 | N/A |
| CI-E1 ONGC DEPC | 0+50.55 | MOUNTAIN QUAIL | LDRIVE E1 | 0.71 | 0.68 | 15 25 | 7.27 | 3.51 | 0.00 | 0.00 3.51 | N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0</u> , | 50 | 30.00 | 0.005 | N/A | 0.02000 | 49.64 | 0.42 | N/A | 8.86 | 2.50 | 0.33 | 0.29 | 0.05 | 14.49 | 10 0.88 | 3.08 | 0.43 | CI-E3 |
| CI-E2 ONGC DEPC | 0+50.55 | MOUNTAIN QUAIL | DRIVE E2 | 0.94 | 0.68 | 15 25 | 7.27 | 4.65 | 0.00 | 0.00 4.65 | 5 N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.005 | N/A | 0.02000 | 65.72 | 0.45 | N/A | 10.30 | 2.50 | 0.33 | 0.27 | 0.05 | 16.74 | 10 0.81 | 3.74 | 0.90 | CI-E3 |
| CI-E3 ONGC DEPC | 7+98.41 | DEERHURST D | RIVE E3 | 0.42 | 0.65 | 15 25 | 7.27 | 1.98 | 1.33 | 0.00 3.31 | N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.007 | N/A | 0.02000 | 39.60 | 0.39 | N/A | 7.91 | 2.50 | 0.33 | 0.31 | 0.05 | 15.28 | 10 0.85 | 2.82 | 0.49 | CI-E7 |
| CI-E4 ONGC DEPC | 7+98.41 | DEERHURST D | RIVE E4 | 1.30 | 0.59 | 15 25 | 7.27 | 5.58 | 0.00 | 0.00 5.58 | B N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0</u> 0, | 50 | 30.00 | 0.007 | N/A | 0.02000 | 66.65 | 0.45 | N/A | 10.39 | 2.50 | 0.33 | 0.27 | 0.05 | 20.01 | 10 0.71 | 3.97 | 1.60 | CI-E6 |
| CI-E6 ONGC DEPC | 4+11.91 | DEERHURST D | RIVE E6 | 1.73 | 0.55 | 15 25 | 7.27 | 6.92 | 1.60 | 0.00 8.52 | 2 N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.007 | N/A | 0.02000 | 101.84 | 0.50 | N/A | 13.74 | 2.50 | 0.33 | 0.25 | 0.05 | 24.64 | 15 0.82 | 6.95 | 1.57 | CI-E9 |
| CI-E7 ONGC DEPC | 4+11.91 | DEERHURST D | RIVE E7 | 0.97 | 0.71 | 15 25 | 7.27 | 5.01 | 0.49 | 0.00 5.50 |) N/A | N/A | N/A | N/A | LOCAL | 0.016 0.5 | <u>0</u> | 50 | 30.00 | 0.007 | N/A | 0.02000 | 65.70 | 0.45 | N/A | 10.30 | 2.50 | 0.33 | 0.27 | 0.05 | 19.87 | 10 0.72 | 3.94 | 1.56 | CI-E8 |
| CI-E8 SMPC DEPC | 1+85.00 | DEERHURST D | RIVE E8 | 0.56 | 0.65 | 15 25 | 7.27 | 2.65 | 1.56 | 0.00 4.21 | 6% | 94% | 0.25 | 3.95 | LOCAL | 0.016 0.5 | <u>0 0</u> | 50 | 30.00 | 0.005 | 0.010 | 0.02000 | 39.53 | 0.39 | 0.25 | 7.91 | 2.50 | 0.33 | 0.31 | 0.05 | 2.05 | 10 1.00 | 4.21 | 0.00 | N/A |
| CI-E9 SMPC DEPC | 1+85.00 | DEERHURST D | RIVE E9 | 2.21 | 0.54 | 15 25 | 7.27 | 8.68 | 1.57 | 0.00 10.2 | 5 6% | 94% | 0.61 | 9.63 | LOCAL | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.005 | 0.010 | 0.02000 | 96.34 | 0.49 | 0.46 | 13.16 | 2.50 | 0.33 | 0.25 | 0.05 | 4.99 | 10 1.00 | 10.25 | 0.00 | N/A |
| CI-E10 SMPC DEPC | 0+90.00 | GROUSE DRI | IVE E10 | 1.78 | 0.60 | 15 25 | 7.27 | 7.76 | 0.00 | 0.00 7.76 | 50% | 50% | 3.88 | 3.88 | | 0.016 0.5 | <u>0 0</u> , | 50 | 30.00 | 0.005 | 0.023 | 0.02000 | 54.90 | 0.43 | 0.38 | 9.34 | 2.50 | 0.33 | 0.28 | 0.05 | 3.78 | 10 1.00 | 7.76 | 0.00 | N/A |
| CI-E11 SMPC DEPC | 0+90.00 | GROUSE DRI | IVE E11 | 2.22 | 0.68 | 15 25 | 7.27 | 10.97 | 0.00 | 0.00 10.9 | 7 50% | 50% | 5.49 | 5.49 | LOCAL | 0.016 0.5 | <u>0 0</u> . | 50 | 30.00 | 0.005 | 0.023 | 0.02000 | 77.60 | 0.47 | 0.48 | 11.37 | 2.50 | 0.33 | 0.26 | 0.05 | 5.35 | 10 1.00 | 10.97 | 0.00 | N/A |

PROPOSED OFFSITE COMPOSITE C CALCULATIONS

| | Area | Impervious | Pervious | 6 | 0 | <u> </u> | 6 | C | <u>_</u> |
|------|---------|------------|----------|--------------------------|----------------|----------------------|---------------|-----------------|-----------|
| | (sf) | (sf) | (sf) | C ₂₅ Pervious | ℃25 Impervious | C ₂₅ Comp | └100 Pervious | C100 Impervious | C100 Comp |
| OS-1 | 15246 | 0 | 15246 | 0.4 | 0.88 | 0.40 | 0.47 | 0.97 | 0.47 |
| OS-2 | 19166.4 | 0 | 19166.4 | 0.4 | 0.88 | 0.40 | 0.47 | 0.97 | 0.47 |
| OS-3 | 20473.2 | 0 | 20473.2 | 0.4 | 0.88 | 0.40 | 0.47 | 0.97 | 0.47 |
| OS-4 | 28749.6 | 0 | 28749.6 | 0.4 | 0.88 | 0.40 | 0.47 | 0.97 | 0.47 |
| OS-5 | 46609.2 | 0 | 46609.2 | 0.4 | 0.88 | 0.40 | 0.47 | 0.97 | 0.47 |
| OS-6 | 64904.4 | 0 | 64904.4 | 0.4 | 0.88 | 0.40 | 0.47 | 0.97 | 0.47 |
| ROW | 6969.6 | 3152 | 3817.6 | 0.4 | 0.88 | 0.62 | 0.47 | 0.97 | 0.70 |

PROPOSED OFFSITE DRAINAGE AREA TABLE

| | А | TC | C ₂₅ | i ₂₅ | Q ₂₅ | C ₁₀₀ | i ₁₀₀ | Q ₁₀₀ |
|------|------|-------|-----------------|-----------------|-----------------|------------------|------------------|-------------------------|
| | (Ac) | | | (iph) | (cfs) | | (iph) | (cfs) |
| OS-1 | 0.35 | 11.00 | 0.40 | 8.34 | 1.17 | 0.47 | 10.57 | 1.74 |
| OS-2 | 0.44 | 11.00 | 0.40 | 8.34 | 1.47 | 0.47 | 10.57 | 2.19 |
| OS-3 | 0.47 | 11.00 | 0.40 | 8.34 | 1.57 | 0.47 | 10.57 | 2.33 |
| OS-4 | 0.66 | 11.00 | 0.40 | 8.34 | 2.20 | 0.47 | 10.57 | 3.28 |
| OS-5 | 1.07 | 11.00 | 0.40 | 8.34 | 3.57 | 0.47 | 10.57 | 5.32 |
| OS-6 | 1.49 | 11.00 | 0.40 | 8.34 | 4.97 | 0.47 | 10.57 | 7.40 |
| ROW | 0.16 | 5.00 | 0.62 | 10.98 | 1.09 | 0.70 | 14.09 | 1.58 |

| WYE INLET CAPACITY | | | | | | | | | |
|-------------------------------|------------|--|--|--|--|--|--|--|--|
| Wve Inlet No. | DI-B | | | | | | | | |
| Designed Head/Depth (ft) | 2.70 | | | | | | | | |
| Wye Inlet Size (3',4',5',etc) | 4.00 | | | | | | | | |
| Formula: $Q/P = 3.1y^{(3/2)}$ | | | | | | | | | |
| Maximum Inlet Capacity | 220.05 cfs | | | | | | | | |
| | | | | | | | | | |
| Wye Inlet No. | DI-E | | | | | | | | |
| Designed Head/Depth (ft) | 4.50 | | | | | | | | |
| Wye Inlet Size (3',4',5',etc) | 4.00 | | | | | | | | |
| Formula: Q/P = 3.1y^(3/2) | | | | | | | | | |
| Maximum Inlet Capacity | 473.48 cfs | | | | | | | | |
| | | | | | | | | | |
| Wye Inlet No. | DI-E5 | | | | | | | | |
| Designed Head/Depth (ft) | 2.40 | | | | | | | | |
| Wye Inlet Size (3',4',5',etc) | 3.00 | | | | | | | | |
| Formula: Q/P = 3.1y^(3/2) | | | | | | | | | |
| Maximum Inlet Capacity | 138.31 cfs | | | | | | | | |

PROPOSED ONSITE COMPOSITE C CALCULATIONS

PROPOSED ONSITE DRAINAGE AREA TABLE

| r | - | | | | | | | 1 | 1 |
|-------|--------------|--------------------|------------------|--------------------------|----------------------------|----------------------|---------------------------|-----------------------------|----------------------|
| | Area (sf) | Impervious (sf) | Pervious (sf) | C _{25 Pervious} | C _{25 Impervious} | C _{25 Comp} | C _{100 Pervious} | C ₁₀₀ Impervious | C _{100 Com} |
| Α | 21344.4 | 16693.0 | 4651.4 | 0.4 | 0.88 | 0.78 | 0.47 | 0.97 | 0.86 |
| A1 | 40946.4 | 20960.0 | 19986.4 | 0.4 | 0.88 | 0.65 | 0.47 | 0.97 | 0.73 |
| В | 199505 | 118396.0 | 81108.8 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.77 |
| B1 | 42253.2 | 26232.0 | 16021.2 | 0.4 | 0.88 | 0.70 | 0.47 | 0.97 | 0.78 |
| B2 | 48351.6 | 31305.0 | 17046.6 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| B3 | 33105.6 | 21735.0 | 11370.6 | 0.4 | 0.88 | 0.72 | 0.47 | 0.97 | 0.80 |
| B4 | 33105.6 | 21735.0 | 11370.6 | 0.4 | 0.88 | 0.72 | 0.47 | 0.97 | 0.80 |
| B5 | 72309.6 | 33948.0 | 38361.6 | 0.4 | 0.88 | 0.63 | 0.47 | 0.97 | 0.70 |
| B6 | 53578.8 | 40541.0 | 13037.8 | 0.4 | 0.88 | 0.76 | 0.47 | 0.97 | 0.85 |
| B7 | 50965.2 | 32801.0 | 18164.2 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| B8 | 50965.2 | 32801.0 | 18164.2 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| B9 | 47044.8 | 30082.0 | 16962.8 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| B10 | 47044.8 | 30082.0 | 16962.8 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| B11 | 45738 | 29335.0 | 16403 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| B12 | 47480.4 | 29335.0 | 18145.4 | 0.4 | 0.88 | 0.70 | 0.47 | 0.97 | 0.78 |
| B13 | 24393.6 | 14897.0 | 9496.6 | 0.4 | 0.88 | 0.69 | 0.47 | 0.97 | 0.78 |
| B14 | 23086.8 | 14897.0 | 8189.8 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| B15 | 22651.2 | 10023.0 | 12628.2 | 0.4 | 0.88 | 0.61 | 0.47 | 0.97 | 0.69 |
| B16 | 21344.4 | 10304.0 | 11040.4 | 0.4 | 0.88 | 0.63 | 0.47 | 0.97 | 0.71 |
| B17 | 862488 | 470311.0 | 392177 | 0.4 | 0.88 | 0.66 | 0.47 | 0.97 | 0.74 |
| C2 | 28314 | 16917.0 | 11397 | 0.4 | 0.88 | 0.69 | 0.47 | 0.97 | 0.77 |
| C3 | 30056.4 | 16853.0 | 13203.4 | 0.4 | 0.88 | 0.67 | 0.47 | 0.97 | 0.75 |
| D | 38768.4 | 20931.0 | 17837.4 | 0.4 | 0.88 | 0.66 | 0.47 | 0.97 | 0.74 |
| D1 | 14374.8 | 10530.0 | 3844.8 | 0.4 | 0.88 | 0.75 | 0.47 | 0.97 | 0.84 |
| D2 | 49222.8 | 31479.0 | 17743.8 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| D3 | 7840.8 | 7803.0 | 37.8 | 0.4 | 0.88 | 0.88 | 0.47 | 0.97 | 0.97 |
| D4 | 33541.2 | 21439.0 | 12102.2 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| E | 190357 | 103321.0 | 87036.2 | 0.4 | 0.88 | 0.66 | 0.47 | 0.97 | 0.74 |
| E1 | 30927.6 | 18204.0 | 12723.6 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| E2 | 40946.4 | 23825.0 | 17121.4 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| E3 | 18295.2 | 9450.0 | 8845.2 | 0.4 | 0.88 | 0.65 | 0.47 | 0.97 | 0.73 |
| E4 | 37461.6 | 22255.0 | 15206.6 | 0.4 | 0.88 | 0.69 | 0.47 | 0.97 | 0.77 |
| E5 | 10454.4 | 4306.0 | 6148.4 | 0.4 | 0.88 | 0.60 | 0.47 | 0.97 | 0.68 |
| E6 | 46609.2 | 28921.0 | 17688.2 | 0.4 | 0.88 | 0.70 | 0.47 | 0.97 | 0.78 |
| E7 | 42253.2 | 27421.0 | 14832.2 | 0.4 | 0.88 | 0.71 | 0.47 | 0.97 | 0.79 |
| E8 | 24393.6 | 12934.0 | 11459.6 | 0.4 | 0.88 | 0.65 | 0.47 | 0.97 | 0.74 |
| E9 | 49658.4 | 28230.0 | 21428.4 | 0.4 | 0.88 | 0.67 | 0.47 | 0.97 | 0.75 |
| E10 | 77536.8 | 31687.0 | 45849.8 | 0.4 | 0.88 | 0.60 | 0.47 | 0.97 | 0.67 |
| E11 | 96703.2 | 56678.0 | 40025.2 | 0.4 | 0.88 | 0.68 | 0.47 | 0.97 | 0.76 |
| F | 23086.8 | 4269.0 | 18817.8 | 0.4 | 0.88 | 0.49 | 0.47 | 0.97 | 0.56 |
| Total | 2655418 | 1529597 | 1125820.6 | | | 0.68 | | | 0.76 |
| Total | 60.96 | 58% | Developed | | • | | u | • | |

| | А | TC | C ₂₅ | i ₂₅ | Q ₂₅ | C ₁₀₀ | i ₁₀₀ | Q ₁₀₀ |
|-----|-------|----|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| | (Ac) | | | (iph) | (cfs) | | (iph) | (cfs) |
| А | 0.49 | 15 | 0.78 | 7.27 | 2.78 | 0.86 | 9.19 | 3.87 |
| A1 | 0.94 | 15 | 0.65 | 7.27 | 4.44 | 0.73 | 9.19 | 6.31 |
| В | 4.58 | 15 | 0.68 | 7.27 | 22.64 | 0.77 | 9.19 | 32.41 |
| B1 | 0.97 | 15 | 0.70 | 7.27 | 4.94 | 0.78 | 9.19 | 6.95 |
| B2 | 1.11 | 15 | 0.71 | 7.27 | 5.73 | 0.79 | 9.19 | 8.06 |
| B3 | 0.76 | 15 | 0.72 | 7.27 | 3.98 | 0.80 | 9.19 | 5.59 |
| B4 | 0.76 | 15 | 0.72 | 7.27 | 3.98 | 0.80 | 9.19 | 5.59 |
| B5 | 1.66 | 15 | 0.63 | 7.27 | 7.60 | 0.70 | 9.19 | 10.68 |
| B6 | 1.23 | 15 | 0.76 | 7.27 | 6.80 | 0.85 | 9.19 | 9.61 |
| B7 | 1.17 | 15 | 0.71 | 7.27 | 6.04 | 0.79 | 9.19 | 8.49 |
| B8 | 1.17 | 15 | 0.71 | 7.27 | 6.04 | 0.79 | 9.19 | 8.49 |
| B9 | 1.08 | 15 | 0.71 | 7.27 | 5.57 | 0.79 | 9.19 | 7.84 |
| B10 | 1.08 | 15 | 0.71 | 7.27 | 5.57 | 0.79 | 9.19 | 7.84 |
| B11 | 1.05 | 15 | 0.71 | 7.27 | 5.42 | 0.79 | 9.19 | 7.62 |
| B12 | 1.09 | 15 | 0.70 | 7.27 | 5.55 | 0.78 | 9.19 | 7.81 |
| B13 | 0.56 | 15 | 0.69 | 7.27 | 2.81 | 0.78 | 9.19 | 4.01 |
| B14 | 0.53 | 15 | 0.71 | 7.27 | 2.74 | 0.79 | 9.19 | 3.85 |
| B15 | 0.52 | 15 | 0.61 | 7.27 | 2.31 | 0.69 | 9.19 | 3.30 |
| B16 | 0.49 | 15 | 0.63 | 7.27 | 2.24 | 0.71 | 9.19 | 3.20 |
| B17 | 19.80 | 15 | 0.66 | 7.27 | 95.00 | 0.74 | 9.19 | 134.65 |
| C2 | 0.65 | 15 | 0.69 | 7.27 | 3.26 | 0.77 | 9.19 | 4.60 |
| C3 | 0.69 | 15 | 0.67 | 7.27 | 3.36 | 0.75 | 9.19 | 4.76 |
| D | 0.89 | 15 | 0.66 | 7.27 | 4.27 | 0.74 | 9.19 | 6.05 |
| D1 | 0.33 | 15 | 0.75 | 7.27 | 1.80 | 0.84 | 9.19 | 2.55 |
| D2 | 1.13 | 15 | 0.71 | 7.27 | 5.83 | 0.79 | 9.19 | 8.20 |
| D3 | 0.18 | 15 | 0.88 | 7.27 | 1.15 | 0.97 | 9.19 | 1.60 |
| D4 | 0.77 | 15 | 0.71 | 7.27 | 3.97 | 0.79 | 9.19 | 5.59 |
| E | 4.37 | 15 | 0.66 | 7.27 | 20.97 | 0.74 | 9.19 | 29.72 |
| E1 | 0.71 | 15 | 0.68 | 7.27 | 3.51 | 0.76 | 9.19 | 4.96 |
| E2 | 0.94 | 15 | 0.68 | 7.27 | 4.65 | 0.76 | 9.19 | 6.57 |
| E3 | 0.42 | 15 | 0.65 | 7.27 | 1.98 | 0.73 | 9.19 | 2.82 |
| E4 | 0.86 | 15 | 0.69 | 7.27 | 4.31 | 0.77 | 9.19 | 6.09 |
| E5 | 0.24 | 15 | 0.60 | 7.27 | 1.05 | 0.68 | 9.19 | 1.50 |
| E6 | 1.07 | 15 | 0.70 | 7.27 | 5.45 | 0.78 | 9.19 | 7.67 |
| E7 | 0.97 | 15 | 0.71 | 7.27 | 5.01 | 0.79 | 10.19 | 7.81 |
| E8 | 0.56 | 15 | 0.65 | 7.27 | 2.65 | 0.74 | 11.19 | 4.64 |
| E9 | 1.14 | 15 | 0.67 | 7.27 | 5.55 | 0.75 | 12.19 | 10.42 |
| E10 | 1.78 | 15 | 0.60 | 7.27 | 7.76 | 0.67 | 13.19 | 15.73 |
| E11 | 2.22 | 15 | 0.68 | 7.27 | 10.97 | 0.76 | 14.19 | 23.94 |
| F | 0.53 | 15 | 0.49 | 7.27 | 1.89 | 0.56 | 14.19 | 4.21 |

| BENCHMARK | | DRAINAGE AREA TABLE | |
|--|-----------|---------------------|---|
| Know what's below | REVISIONS | | |
| Call before you dig. | . DATE | | |
| CAUTION!! THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL | No | | _ |
| AND SHALL NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER OF ANY CONFLICTS DISCOVERED. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN) WITHIN SCOPE OF | | 04/29/2024 | _ |
| CONSTRUCTION . IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT HIS OWN EXPENSE. CALL 811 AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION IN VICINITY. ALL | | 2201001 | |
| FIELD VERIFICATIONS SHALL BE CONDUCTED IN COMPLIANCE WITH TEXAS ADMINISTRATIVE CODE TITLE 30, CHAPTER 217. THE CONTRACTOR MUST OBTAIN ANY NECESSARY PERMITS FOR SUCH ACTIVITIES. | | | |
| | | 6.05 | |

| LAT A9 | LAT A10 |
|---|--|
| 815 815 810 810 | 810 810 810 805 805 805 805 805 805 805 805 805 80 |
| EXISTING GRADE AT CENTER LINE OF PIPE PROPOSED GRADE AT CENTER LINE OF PIPE 18" RCP @ 0.83% 800 | 800 PROPOSED GRADE AT CENTER LINE OF PIPE 800 18" RCP @ 0.50% Existing GRADE AT CENTER LINE OF PIPE 800 |
| 18" RCP 25 YR HGL PARTIAL FLOW 25 YR HGL Q25 = 9.2 cfs 0 Q25 = 9.57 cfs 0 Dp = 0.42 ft 0 (n) = 0.013 0 | $\begin{array}{c c} 793 \\ \hline 793 \\ \hline 790 \\ \hline \\ \hline \\ 790 \\ \hline \\ \hline \\ \\ \hline \\ \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ $ |
| 8" SEWER CROSSING STA: 0+14.93 FL: 791.92 790 STA: 0+14.93 FL: 791.92 790 1 1 1 1 1 790 1 1 1 1 1 1 790 790 785 785 785 785 785 785 | 785 00 = 0.30 ft (n) = 0.013 785 785 780 00 = 0.013 00 = 0.013 785 780 00 = 0.013 00 = 0.013 785 780 00 = 0.013 00 = 0.013 785 780 00 = 0.013 00 = 0.013 00 = 0.013 780 00 = 0.013 00 = 0.013 00 = 0.013 780 00 = 0.013 00 = 0.013 00 = 0.013 780 00 = 0.013 00 = 0.013 00 = 0.013 780 00 = 0.013 00 = 0.013 00 = 0.013 780 00 = 0.013 00 = 0.013 00 = 0.013 |
| 1/83 1/84 1/85 1/85 1/85 1/85 1/85 1/85 1/85 1/85 1/85 1/85 1/85 1/85 1/85 1/85 | 700 700 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 |

| | ALLEN STRALL E NG IN E R I NG 1719 ANGEL PARKWAY STE 400-206, ALLEN, TX 75002 PHONE NO. (214) 846-9397 TBPE FIRM REG. #19101 |
|--|---|
| | MICHAEL WESTFALL MICHAEL WESTFALL 107094 C/CENSE S/ONAL ENGINE Miduel Westfall 7//2024 |
| | HUNTERS GLEN ADDITION PHASE 2 COUNTY ROAD 307 CITY OF JARRELL WILLIAMSO COUNTY, TEXAS |
| | STORM DRAINAGE LINE A LATERAL PROFILES |
| K | REVISIONS |
| Know what's below. Call before you dig. | ЭНКО ОД ОД ОД ОД ОД |

| | | | LAT B3 | | | | LAT |
|---|-----|-----|---|--|-----|-----|---|
| 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 | 815 | 815 | 22 LINE B = | 85 LAT B3 85 LAT | 815 | 815 | 22 TINE B = |
| 10: CUXB 10: CUXB 10: CUXB | 810 | 810 | STA: 1+22 STA: 1+22 STA: 0+00 INSTALL: 24" X 18" 4 | STA: 0+14. INSTALL: 18" 45° BE STA: 0+22 STA: 0+22 CONSTRU 10' CURB I TC: 805.01 | 810 | 810 | STA; 1+12. |
| | 805 | 805 | PROPOSED GRADE AT CENTER LINE OF PIPE | | 805 | 805 | PROPOSED GRADE AT CENTER LINE OF PIPE |
| | 800 | 800 | EXISTING GRADE AT // CENTER LINE OF PIPE // 18" RCP @ 8.39% | | 800 | 800 | 18" RCP @ 7.03% |
| 25 YR HGL 8" SEWER CROSSING STA: 0+14.14 FL: 798.20 | 795 | 795 | | 25 YR HGL | 795 | 795 | EXISTING GRADE AT CENTER LINE OF PIPE 8" SEWER CROSSING |
| | 790 | 790 | $\frac{18"RCP}{PARTIAL FLOW}$ $Q_{25} = 1.2 cfs$ $Q_{cap} = 30.43 cfs$ $Vp = 8.36 fps$ $Dp = 0.20 ft$ $(n) = 0.013$ | $ \begin{array}{c} $ | 790 | 790 | FL: 797.14 |
| | 785 | 785 | | | 785 | 785 | |
| | 780 | 780 | L 24" RCP OUT: 798.34 L 24" RCP IN: 798.34 L 18" RCP IN: 798.34 L 18" RCP IN: 798.59 | IL 18" RCP IN: 799.84 | 780 | 780 | L 24" RCP QUT: 798.2; |
| | 100 | | 0+00 | | 100 | /00 | 0+ |

| CUNCTION BOX RIM: 809.22 STA: 3+32.50 LINE C = STA: 3+32.50 LINE C = STA: 3+42.50 LINE C = 48" X 18" 45° WYE STA: 0+00.00 LAT C9 INSTALL: 48" X 18" 45° WYE | | | STA: 6+76.00 LINE C = STA: 0+00.00 LAT C8 INSTALL: INSTALL: STA: 6+86.00 LINE C = STA: 6+86.00 LINE C = STA: 6+91.00 LINE C STA: 6+91.00 LINE C PIPE SIZE CHANGE | |
|---|---|--|--|-------|
| HGL: 808.12 HGL: 808.12 HGL: 808.34 HGL: 808.34 HGL: 808.15 | EXISTING GRADE AT CENTER LINE OF PIPE | OPOSED GRADE AT | PAI 80,000 000 000 000 000 000 000 | |
| | 48" RCP @ 1.00% | | | 8" PV |
| | $\frac{48'' RCP}{Q_{25} = 67.8 CFS}$ $Q_{CAP} = 143.75 CFS$ $V_{25} = 5.40 FPS$ | $ \begin{array}{c} $ | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | $H_{V} = 0.45 FT$ $Sf = 0.002 FT/FT$ $(n) = 0.013$ | Sf = 0.00 (n) | 2 FT/FT Sf = 0.002 FT/FT = 0.013 (n) = 0.013 | |
| FL 48" RCP OUT: 801.65 FL 48" RCP IN: 801.65 FL 48" RCP IN: 802.90 FL 48" RCP IN: 802.90 FL 48" RCP IN: 803.75 FL 48" RCP IN: 803.00 | | | FL 48" RCP OUT: 805.0 FL 48" RCP IN: 805.09 FL 48" RCP IN: 805.09 FL 48" RCP IN: 805.44 FL 48" RCP IN: 805.44 FL 48" RCP IN: 805.14 FL 42" RCP IN: 805.74 | |
| 4+00 | 5+00 | 6+00 | 7+00 | 8+0 |

| | | ÉNGINE ERING | 1719 ANGEL PARKWAY STE 400-206, ALLEN, TX 75002 PHONE NO. (214) 846-9397 TBPE FIRM REG. #19101 |
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| | | MICHAEL B. CICE Michael Michael Michael Michael Michael | WESTFALL 094 NSE OF HE ENGINE |
| | | HUNTERS GLEN ADDITION PHASE 2 | COUNTY ROAD 307 CITY OF JARRELL WILLIAMSO COUNTY, TEXAS |
| 820 | | RM DRAINAGE LINE C | ATERAL PROFILES |
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| 800 | | REV | |
| 795 | Know what's below. Call before you dig. <u>CAUTION!!</u> THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL | No. DATE | |
| 785 | LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION AND SHALL NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER OF ANY CONFLICTS DISCOVERED. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN) WITHIN SCOPE OF CONSTRUCTION. IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT HIS OWN EXPENSE. CALL 811 AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION IN VICINITY. ALL FIELD VERIFICATIONS SHALL BE CONDUCTED IN COMPLIANCE WITH TEXAS ADMINISTRATIVE CODE TITLE 30, CHAPTER 217. THE CONTRACTOR MUST OBTAIN ANY NECESSARY PERMITS FOR SUCH ACTIVITIES. | DA 04/29/ PROJEC 2201 SHEET C7. | 1E 2024 CT NO. 001 T NO. 10 |

| | A CONTRACT A CONTRACTACT A CONTRACT A CONTRACT A CONTRACT A CONTRACT A CONTRACT A CONTRACT A CO |
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| | MICHAEL WESTFALL 107094 C/CENSE SS/ONAL ENG Miduel Westfall 7/1/2024 |
| | HUNTERS GLEN ADDITION PHASE 2 COUNTY ROAD 307 CITY OF JARRELL WILLIAMSO COUNTY, TEXAS |
| | STORM DRAINAGE LINE C LATERAL PROFILES |
| Know what's below. | |
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GRAPHIC SCALE 1" = 60'

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| FM | EXISTING FORCE MAIN |
| W | PROPOSED WATER LINE |
| | PROPOSED STORM SEWER LINE |
| W | EXISTING WATER LINE |
| S | PROPOSED SANITARY SEWER MANHOLE (SS MH) |
| • | PROPOSED CLEAN-OUT |
| \Leftrightarrow | PROPOSED FIRE HYDRANT (FH) |
| $\neg $ | PROPOSED WATER VALVE |
| F | PROPOSED TEE |
| $\checkmark \neg$ | PROPOSED BEND |
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UTILITY NOTES

U.E.

- 1. WATER AND SANITARY SEWER SEPARATION (VERTICAL AND HORIZONTAL) SHALL BE MAINTAINED IN ACCORDANCE WITH TCEQ REQUIREMENTS.
- 2. ADJUST SERVICES DUE TO CONFLICTS (I.E. MANHOLES, INLETS, TRENCH, CONFLICTS OR NON-STANDARD PLACEMENT) = \bigstar
- 3. SANITARY SEWER MANHOLES, EMBEDMENT, SEWER SERVICES, AND CLEANOUTS SHALL BE INSTALLED PER CITY OF ROUNDROCK STANDARD DETAILS.
- 4. 3M LOCATOR DISK SHALL BE PLACED AT ALL BENDS WHERE A VLAVE IS NOT INSTALLED.
- 5. WATER SYSTEM IS DESIGNED IN ACCORDANCE WITH TCEQ CHAPTER 290 STANDARDS.
- 6. CONTRACTOR SHALL POUR THRUST BLOCKING AT ALL HORIZONTAL AND VERTICAL BENDS, TEES, AND RESTRAINED PLUGS PER CITY OF ROUND ROCK STANDARD DETAIL WT-25.

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| I I | $ \begin{array}{c} 0 & 20' & 40' & 80' \\ \hline & & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$ | MESTFALL MESTFALL ENGINERING 1719 ANGEL PARKWAY STE 400-206, ALLEN, TX 75002 PHONE NO. (214) 846-9397 TBPE FIRM REG. #19101 |
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| 795 | | 107094 ¹ SSIONAL ENG Michael Weatfor 1/1/2024 |
| 790 | | LEN ASE 2 ⁸⁰⁷ LL TEXAS |
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| 810 | BENCHMARK 60d NAIL SET, ELEVATION: 799.40, N: 10282968.12, E: 3146984.70 | SAL |
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| 800 | | RE |
| 795 | Know what's below. Call before you dig. | o. DATE |
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| 785 | OBTAIN ANY NECESSARY PERMITS FOR SUCH ACTIVITIES. | C8.04 |

| | SEWER | R LINE E | · · · · · · · · · · · · · · · · · · · | · · · · · · · · · · · · · · · · · · · | | | |
|---|---|---|--|---|---|---|-----|
| Image: 10 million | EXISTING GRADE AT CENTERLINE OF PIPE | STA: 14+68.00 SEWER LINE E CONSTRUCT: 4 DIA MH | RIM: 822.87 | | 1 1 1 1 | STA: 18+02/87 SEWER LINE E CONSTRUCT: T - 8" CLEANOUT 1 - 8" CLEANOUT 1 - 8" PLUG FOR FUTURE CONNECTION RIM: 818.80 | 830 |
| WMMLEL SP NDP STORM PPOD 00 0000 PPOD 00 0000 Storm | | | | PARALLEL 30" RCP STORM | | | 820 |
| E.g. 10% B. 10 B. 10 B. 10 B. 10 Descent PLOW MM: 25 gam VELOCITY MAX: 17 2500 Descent PLOW MM: 25 gam VELOCITY MAX: 17 250 B. 10 U.E. 49 | PARALLEL 30" RCP STORM | ORM CROSSING / 8 STA: 14+44.50 / 8 FL: 817.99 | | 8" PVC @ 1.10% | io. N - | | 815 |
| UE-49 UE-39 UE-30 UE-30 <th< td=""><td>VC @ 1.10%</td><td></td><td></td><td>8" WATER CR STA: -</td><td>205SING 17+23.00 L: 814.58</td><td>LUE: 30 DESIGN FLOW MIN.: 25 gpm DESIGN FLOW MAX.: 30 gpm VELOCITY MIN.: 1.62 ft/s VELOCITY MAX.: 1.72 ft/s</td><td>810</td></th<> | VC @ 1.10% | | | 8" WATER CR STA: - | 205SING 17+23.00 L: 814.58 | LUE: 30 DESIGN FLOW MIN.: 25 gpm DESIGN FLOW MAX.: 30 gpm VELOCITY MIN.: 1.62 ft/s VELOCITY MAX.: 1.72 ft/s | 810 |
| 903 LF 8" PVC SDR-26 ASTM D3034 EMBEDMENT PER CITY OF ROUND ROCK STANDARD DETAIL WW-18 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | LUE: 49 DESIGN FLOW MIN.: 40 gpm DESIGN FLOW MAX.: 45 gpm VELOCITY MIN.: 2.09 ft/s VELOCITY MAX.: 2.17 ft/s | | | LUE: 39 DESIGN FLOW MIN.: 32 gpm DESIGN FLOW MAX.: 37 gpm VELOCITY MIN.: 1.96 ft/s VELOCITY MAX.: 2.05 ft/s | | | 805 |
| Image: Second | 903 LF 8" PVC SDR-26 ASTM D3034 EMBEDMENT PER CITY OF ROUND ROCK STANDARD DETAIL WW-18 | | | | | | 800 |
| 14+00 15+00 16+00 17+00 18+00 | EFL 8": 5 | FL 8" : 813.61 FL 8" : 814.16 FL 8" : 814.16 FL 8" OUT: 814.36 FL 8" IN: 814.46 | FL 8" : 814.81 FL 8" : 814.81 FL 8" : 815.36 | FL 8": 815.91 FL 8": 816.46 | FL 8" : 817.01 FL 8" : 817.01 FL 8" OUT: 817.63 FL 8" IN: 817.63 | LT 8 000 | 795 |
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| | | | | | | | | | | Average Dry | Peak Dry | Peak Wet | | | V |
|-------|----------|----------|--------|-----------|---------|------------|----------------|----------------|-----|--------------|--------------|--------------|--------|--------|-----------|
| Sewer | Starting | Ending | Length | Pipe Size | Slope | | | | | Weather Flow | Weather Flow | Weather Flow | Vmax | Vmin | full flow |
| Main | Station | Station | (ft) | (in) | (ft/ft) | Qcap (gpm) | 85% Qcap (gpm) | 65% Qcap (gpm) | LUE | (gpm) | (gpm) | (gpm) | (ft/s) | (ft/s) | (ft/s) |
| | 17+05.50 | 18+01.63 | 96.13 | 8 | 0.0040 | 342 | 291 | 222 | 12 | 0 23 | 94 | 144 | 2.09 | 1.86 | 2.18 |
| | 13+66.13 | 17+05.50 | 339.37 | 8 | 0.0040 | 342 | 291 | 222 | 12 | 6 25 | 98 | 148 | 2.11 | 1.89 | 2.18 |
| | 9+79.14 | 13+66.13 | 386.99 | 8 | 0.0040 | 342 | 291 | 222 | 15 | 7 31 | . 121 | 171 | 2.19 | 2.00 | 2.18 |
| Δ | 9+58.02 | 9+79.14 | 21.12 | 8 | 0.0060 | 419 | 356 | 272 | 15 | 9 31 | . 122 | 172 | 2.55 | 2.32 | 2.67 |
| | 8+20.27 | 9+58.02 | 137.75 | 8 | 0.0040 | 342 | 291 | 222 | 16 | 1 31 | . 124 | 173 | 2.20 | 2.01 | 2.18 |
| | 7+87.40 | 8+20.27 | 32.87 | 8 | 0.0040 | 342 | 291 | 222 | 16 | 1 31 | . 124 | 173 | 2.20 | 2.01 | 2.18 |
| | 4+00.00 | 7+87.40 | 387.40 | 8 | 0.0040 | 342 | 291 | 222 | 16 | 1 31 | . 124 | 173 | 2.20 | 2.01 | 2.18 |
| | 0+0.00 | 4+00.00 | 400.00 | 8 | 0.0040 | 342 | 291 | 222 | 16 | 1 31 | . 124 | 173 | 2.20 | 2.01 | 2.18 |
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| | 6+10.22 | 6+65.12 | 54.90 | 8 | 0.0700 | 1430 | 1216 | 930 | | 1 (| 1 | 3 | 1.85 | 1.25 | 9.13 |
| | 3+12.45 | 6+10.22 | 297.77 | 8 | 0.0040 | 342 | 291 | 222 | 1 | 3 3 | 11 | 13 | 1.06 | 1.00 | 2.18 |
| В | 1+54.71 | 3+12.45 | 157.74 | 8 | 0.0040 | 342 | 291 | 222 | 1 | 7 3 | 14 | 17 | 1.13 | 1.08 | 2.18 |
| | 0+16.97 | 1+54.71 | 137.74 | 8 | 0.0040 | 342 | 291 | 222 | 1 | 9 4 | 16 | 18 | 1.16 | 1.11 | 2.18 |
| | 0+0.00 | 0+16.97 | 16.97 | 8 | 0.0040 | 342 | 291 | 222 | 1 | 9 4 | 16 | 18 | 1.16 | 1.11 | 2.18 |
| | | | | | | | | | | | | | | | |
| | 6+36.65 | 8+46.11 | 209.46 | 8 | 0.0150 | 662 | 563 | 430 | | 3 | . 3 | 4 | 1.20 | 1.02 | 4.23 |
| С | 3+28.01 | 6+36.65 | 308.64 | 8 | 0.0040 | 342 | 291 | 222 | 1 | 1 2 | 9 | 11 | 1.00 | 0.95 | 2.18 |
| | 0+0.00 | 3+28.01 | 328.01 | 8 | 0.0040 | 342 | 291 | 222 | 1 | 7 3 | 14 | 16 | 1.12 | 1.08 | 2.18 |
| | | | | | | | | | | | | | | | |
| | 9+38.65 | 10+32.53 | 93.88 | 8 | 0.0090 | 513 | 436 | 333 | | 2 (| 2 | 4 | 1.00 | 0.76 | 3.27 |
| D | 6+24.56 | 9+38.65 | 314.09 | 8 | 0.0090 | 513 | 436 | 333 | 1 | 7 3 | 14 | 17 | 1.51 | 1.43 | 3.27 |
| _ | 2+51.50 | 6+24.56 | 373.06 | 8 | 0.0090 | 513 | 436 | 333 | 2 | 8 5 | 23 | 26 | 1.71 | 1.66 | 3.27 |
| | 0+0.00 | 2+51.50 | 251.50 | 8 | 0.0080 | 484 | 411 | 314 | 11 | 7 23 | 91 | 94 | 2.40 | 2.38 | 3.09 |
| | | | | | | | | | | | | | | | |
| | 17+47.00 | 18+02.87 | 55.87 | 8 | 0.0080 | 484 | 411 | 314 | 3 | 0 6 | 5 25 | 30 | 1.72 | 1.62 | 3.09 |
| | 14+68.00 | 17+47.00 | 279.00 | 8 | 0.0110 | 567 | 482 | 369 | 3 | 9 8 | 32 | 37 | 2.05 | 1.96 | 3.62 |
| E | 11+63.00 | 14+68.00 | 305.00 | 8 | 0.0110 | 567 | 482 | 369 | 4 | 9 10 | 40 | 45 | 2.17 | 2.09 | 3.62 |
| | 7+81.00 | 11+63.00 | 382.00 | 8 | 0.0110 | 567 | 482 | 369 | 6 | 1 12 | 49 | 55 | 2.29 | 2.22 | 3.62 |
| | 4+00.00 | 7+81.00 | 381.00 | 8 | 0.0110 | 567 | 482 | 369 | 7. | 5 15 | 60 | 65 | 2.42 | 2.36 | 3.62 |
| | 0+0.00 | 4+00.00 | 400.00 | 8 | 0.0100 | 541 | 460 | 351 | 8 | 9 17 | 70 | 76 | 2.44 | 2.39 | 3.45 |
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| F | 0+0.00 | 0+43.50 | 43.50 | 8 | 0.0100 | 541 | 460 | 351 | | 2 (|) 2 | 2 | 0.83 | 0.78 | 3.45 |

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| | MICHAEL WESTFALL NICHAEL WESTFALL 107094 V/CENSE SS/ONAL ENG Michael Westfall 7/1/2024 |
| | HUNTERS GLEN ADDITION PHASE 2 COUNTY ROAD 307 CITY OF JARRELL WILLIAMSO COUNTY, TEXAS |
| | SANITARY SEWER CALCULATIONS |
| K | REVISIONS |
| Know what's below. Call before you dig. | H I |



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| S | PROPOSED SANITARY SEWER MANHOLE (SS MH) |
| • | PROPOSED CLEAN-OUT |
| ф | PROPOSED FIRE HYDRANT (FH) |
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KEY NOTES













TYPICAL UTILITY LOCATION



SEWER SERVICE LAYOUT N.T.S.

| Image: constraint of the second se | | | | STE 400-206, ALLEN, TX 75002 PHONE NO. (214) 846-9397 TBPE FIRM REG. #19101 |
|---|--------------------|---|---|---|
| FM EXISTING FORCE MAIN w PROPOSED WATER LINE PROPOSED STORM SEWER LINE W EXISTING WATER LINE S PROPOSED SANITARY SEWER MANHOLE (SS MH) PROPOSED CLEAN-OUT PROPOSED FIRE HYDRANT (FH) PROPOSED WATER VALVE F PROPOSED TEE | Market Market | STATE MICHAEL 10 XSSION | OF TE WESTI 7094 ENSE AL EN Deutfo | 45 FALL |
| ✓ PROPOSED BEND ▲ REDUCER U.E. UTILITY EASEMENT UTILITY NOTES 1. WATER AND SANITARY SEWER SEPARATION (VERTICAL AND HORIZONTAL) SHALL BE MAINTAINED IN ACCORDANCE WITH TCEQ REQUIREMENTS. 2. ADJUST SERVICES DUE TO CONFLICTS (I.E. MANHOLES, INLETS, TRENCH, CONFLICTS OR NON-STANDARD PLACEMENT) = ★ 3. SANITARY SEWER MANHOLES, EMBEDMENT, SEWER SERVICES, AND CLEANOUTS SHALL BE INSTALLED PER CITY OF ROUNDROCK STANDARD DETAILS. 4. 3M LOCATOR DISK SHALL BE PLACED AT ALL BENDS WHERE A VLAVE IS NOT INSTALLED. | | | COUNTY ROAD 307 | CITY OF JARRELL WILLIAMSO COUNTY, TEXAS |
| WATER SYSTEM IS DESIGNED IN ACCORDANCE WITH TEED CHAPTER 290 STANDARDS. CONTRACTOR SHALL POUR THRUST BLOCKING AT ALL HORIZONTAL AND VERTICAL BENDS, TEES, AND RESTRAINED PLUGS PER CITY OF ROUND ROCK STANDARD DETAIL WT-25. WATER PIPE CROSSES BELOW SEWER PIPE: INSTALL: MINIMUM 18 LF OF SDR-26 ENCASEMENT PER CONSTRUCTION DETAILS. CASING PIPE SHALL BE CENTERED ON THE WATER CROSSING, BE SEALED AT BOTH ENDS WITH CEMENT GROUT OR MANUFACTURED SEAL, BE AT LEAST TWO NOMINAL PIPE SIZES LARGER THAN THE WATER PIPE AND SUPPORTED BY SPACERS BETWEEN THE COLLECTION SYSTEM PIPE AND THE ENCASING PIPE AT A MAXIMUM OF FIVE-FOOT INTERVALS. INSTALL 4* PVC SLEEVE FOR IRRIGATION, PVC SLEEVE TO BE INSTALLED 2.0 FEET BELOW BOTTOM OF PROPOSED PAVEMENT, TURN EACH END OF SLEEVE UP 2.0 FEET ABOVE PROPOSED GRADE. | - | | | |
| OUD INAIL SET, ELEVATION: 799.40, N: 10282968.12, E: 3146984.70 | No. DATE REVISIONS | | | |
| LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION AND SHALL NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER OF ANY CONFLICTS DISCOVERED. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN) WITHIN SCOPE OF CONSTRUCTION. IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT HIS OWN EXPENSE. CALL 811 AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION IN VICINITY. ALL FIELD VERIFICATIONS SHALL BE CONDUCTED IN COMPLIANCE WITH TEXAS ADMINISTRATIVE CODE TITLE 30, CHAPTER 217. THE CONTRACTOR MUST OBTAIN ANY NECESSARY PERMITS FOR SUCH ACTIVITIES. | > | DA 04/29 PROJE 220 SHEE C8 | ATE 9/2024 ECT No 1001 ET NO | o. 9 |



| Image: Constrained of the second of the s | | | 1719 ANGEL PARKWAY STE 400-206. ALLEN. TX 75002 | PHONE NO. (214) 846-9397 TBPE FIRM REG. #19101 |
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| FM EXISTING FORCE MAIN w PROPOSED WATER LINE PROPOSED STORM SEWER LINE W EXISTING WATER LINE S PROPOSED SANITARY SEWER MANHOLE (SS MH) PROPOSED CLEAN-OUT PROPOSED FIRE HYDRANT (FH) PROPOSED WATER VALVE F PROPOSED TEE | Mint Mint | ICHAEL 107 SSIONAT | WESTFA 094 NSE ENG Leayfall | LL 1/1/2024 |
| ✓ PROPOSED BEND ▲ REDUCER U.E. UTILITY EASEMENT UTILITY NOTES 1. WATER AND SANITARY SEWER SEPARATION (VERTICAL AND HORIZONTAL) SHALL BE MAINTAINED IN ACCORDANCE WITH TOEO BEOLUBEMENTS | S GI FN | PHASE 2 | KOAD 307 | JUNTY, TEXAS |
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| WATER DETAIL WT-25. MATER PIPE CROSSES BELOW SEWER PIPE! INSTALL: MINIMUM 18 LF OF SDR-26 ENCASEMENT PER CONSTRUCTION DETAILS. CASING PIPE SHALL BE CENTERED ON THE WATER CROSSING BE SALED AT BOTH ENDS WITH CEMENT GROUT OR MANUFACTURED STATLES. TWO NOMINAL PIPE SIZES LARGER THAN THE WATER PIPE AND THE ENCASING PIPE AT A MAXIMUM OF FIVE-FOOT INTERVALS. INSTALL 4" PVC SLEEVE FOR IRRIGATION, PVC SLEEVE TO BE INSTALLED 2.0 FEET BELOW BOTTOM OF PROPOSED PAVEMENT, TURN CACH END OF SLEEVE UP 2.0 FEET ABOVE PROPOSED GRADE. BENCHMARK | | | | |
| K | REVISIONS | | | |
| Know what's below. Call before you dig. Cautions the contractor shall field verify the horizontal and vertical cocations of all existing utilities prior to start of construction and shall notify the construction manager and engineer of any conflicts discovered. contractor is responsible for protecting existing utilities (shown or not shown) within scope of construction. If any existing utilities are damaged, the | No. DATE | DA ⁻ 04/29/ PROJEC | FE 2024 CT NO. | |
| CONTRACTOR SHALL REPLACE THEM AT HIS OWN EXPENSE. CALL 811 AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION IN VICINITY. ALL FIELD VERIFICATIONS SHALL BE CONDUCTED IN COMPLIANCE WITH TEXAS ADMINISTRATIVE CODE TITLE 30, CHAPTER 217. THE CONTRACTOR MUST OBTAIN ANY NECESSARY PERMITS FOR SUCH ACTIVITIES. | | 2201 SHEET C8. | 001 NO. 10 | |





| | | WL-3 | | | |
|-----------------|---|---|---|---|--|
| | | STA: 5+17.56 WL-3 STA: 5+17.56 WL-3 INSTALL: 1 - 12" X 6" TEE 1 - 6" GATE VALVE 1 - FIRE HYDRANT ASSEMBLY 1 - FIRE HYDRANT ASSEMBLY | STA: 6+12.56 WL-3 INSTALL: PI PI | | STA: 8+50.00 WL-3 STA: 8+50.00 WL-3 |
| DE AT F PIPE | PROPOSED GRADE GI AT CENTERLINE OF PI | RADE | | Image: selection of the | Image: state |
| | 12" PVC @ -0.35% | | | 12" PVC @ 0.0 | |
| EMB | 986 LF 12" PVC C900 DR-18 EDMENT PER CITY OF ROU | ND ROCK | | | |
| | STANDARD DETAIL WT-0 STANDARD DETAIL WT-0 ET 8:: 801752 HT 8:: | FL 8" : 801.07 FL 12": 801.01 FL 12": 801.01 FL 8" : 800.89 FL 8" : 800.89 | PFL 8": 800.67 FL 72": 800.67 FL 72": 800.67 FL 8": 800.67 | 2+00 | FL 8": 800.67 FL 8": 800.67 FL 8": 800.67 FL 8": 800.67 FL 12": 800.67 FL 12": 800.67 |
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| | WL-4 | | | | | | | |
|--------------------------------------|---|---------------------------|---------------|---------------|-----------------|---------------|--|--|
| | STA: 4+66.86 WL-4 INSTALL: 1 - 8" X 6" TEE 1 - 6" GATE VALVE | 1 - FIRE HYDRANT ASSEMBLY | | | | | STA: 8+41.06 WL-4 | 1 - 8" X 6" TEE 1 - 6" GATE VALVE 1 - 6" GATE VALVE STA: 8+56.20 WL-4 INSTALL: 1 - 8" X 8" CROSS 4 - 8" GATE VALVES STA: 8+58.76 WL-4 INSTALL: 1 - 8" X 8" CROSS 4 - 8" GATE VALVES STA: 8+58.76 WL-4 INSTALL: 1 - 8" X 8 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - |
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| ED GRADE GRADE ERLINE OF PIPE | | | | | | | | |
| GRADE AT NE OF PIPE | | | | | | | | |
| @ -0.65% | | | | | 8" PVC @ -0.89% | | | |
| | | | | | | | | 8" PVC @ -100.00% |
| LF D0 DR-18 ROCK STANDARD DET, | AIL WT-08 | | | | | | | |
| FL 8".: 807.58 | FL 8": 807.26 FL 8": 807.15 FL 8": 807.15 | FL 8" : 806.85 | FL 8": 806.41 | FL 8": 805.97 | FL 8": 805.52 | FL 8": 805.08 | FL 8": 804.64 FL 8": 803.63 FL 8": 803.83 FL 8": 803.83 | FL 8" : 804.20 FL 8" : 804.20 FL 8" : 803.70 FL 8" : 803.70 FL 8" : 803.70 FL 8" : 803.67 FL 8" : 803.67 |





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CONDITION 1 NEW WATER LINE OVER NEW NON-PRESSURE RATED SEWER LINE 2' TO 9' VERTICAL SEPARATION

WHERE A NEW POTABLE WATERLINE CROSSES A NEW, NON-PRESSURE-RATED WASTEWATER MAIN OR LATERAL AND THE STANDARD PIPE SEGMENT LENGTH OF THE WASTEWATER MAIN OR LATERAL IS AT LEAST 18 FEET, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST TWO FEET ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. THE WASTEWATER PIPE SHALL HAVE A MINIMUM PIPE STIFFNESS OF 115 PSI AT 5.0% DEFLECTION. THE WASTEWATER MAIN OR LATERAL SHALL BE EMBEDDED IN CEMENT STABILIZED SAND (SEE BELOW) FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS 12 INCHES BEYOND THE JOINT ON EACH END PER TECQ RULES CHAPTER 290.



MANHOLE OR CLEANOUT CLEARANCE

WATERLINE AND WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SEPARATION. 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 PER TECQ RULES CHAPTER 290.



CONDITION 7 NEW WATER LINE OVER EXISTING PRESSURE RATED SEWER LINE

WHERE A NEW POTABLE WATERLINE CROSSES AN EXISTING, PRESSURE RATED WASTEWATER MAIN OR LATERAL, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. IF THE EXISTING WASTEWATER MAIN OR LATERAL SHOWS SIGNS OF LEAKING, IT SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE RATED PIPE PER TECQ RULES CHAPTER 290.



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