ELECTRONICALLY RECORDED 2022117399
Williamson County, Texas Total Pages: 6

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

Corrective Special Warranty Deed with Vendor's Lien

Date: July 20, 2022

Grantor: Larry Everett Foust and Maydale Foust

Grantor's Mailing Address:

Grantee: CHV Liberty Hill 29 Property Owner LLC, a Delaware limited liability company

Grantee's Mailing Address: 6601-E Hillcrest Avenue, Suite 212, Dallas, TX 75205

Consideration: Cash and a note of even date executed by Grantee and payable to the order of Simmons Bank, in the principal amount as set forth thereon. The note is secured by a first and superior vendor's lien and superior title retained in this deed and by a first-lien deed of trust of even date from Grantee to Amanda R. Grainger, trustee.

Property (including any improvements):

That certain approximately **42.682**-acre tract of land, as more particularly described in Exhibit "A" Legal Description, attached hereto and incorporated herein by this reference for all purposes.

Reservations from Conveyance: NONE.

Exceptions to Conveyance and Warranty: Liens described as part of the Consideration and any other liens described in this deed as being either assumed by Grantee or subject to which title is taken by Grantee; validly existing easements, rights-of-way, and prescriptive rights, appearing of record in the Official Public Records of Real Property of Williamson County, Texas, relative to the Property; all presently recorded and validly existing restrictions, reservations, covenants, conditions, oil and gas leases, mineral interests, and water interests outstanding in persons other than Grantor that affect the Property; validly existing rights of adjoining owners in any walls and fences situated on a common boundary; taxes for 2022, which Grantee assumes and agrees to pay on a prorated basis, and subsequent assessments for that and prior years due to change in land usage, ownership, or both, the payment of which Grantee assumes; and any validly existing titles or rights asserted by anyone, including but not limited to persons, the public, corporations, governments, or other entities, to (a) tidelands or lands comprising the shores or beds of navigable or perennial rivers and streams, lakes, bays, gulfs, or oceans, (b) lands beyond the line of the harbor

or bulkhead lines as established or changed by any government, (c) filled-in lands or artificial islands, (d) water rights, including riparian rights, or (e) the area extending from the line of mean low tide to the line of vegetation or the right of access to that area or easement along and across that area.

The Property conveyed shall include all right, title and interest, if any, of Grantor in and to, (1) any land lying in a street, road, tollway, accessway or easement (including any drainage or flood control easement) open or proposed, in front of, at the side of, adjoining, or within the Property, (2) the bed and banks of any bayou, stream, canal or ditch adjoining or adjacent to the Property, (3) all reversionary rights attributable to the Property, and (4) all rights of ingress and egress to the Property by way of open or dedicated roads and streets adjoining the Property.

Grantor, for the Consideration and subject to the Exceptions to Conveyance and Warranty, grants, sells, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, successors, and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the Exceptions to Conveyance and Warranty.

Simmons Bank, at Grantee's request, has paid in cash to Grantor that portion of the purchase price of the Property that is evidenced by the note. The first and superior vendor's lien against and superior title to the Property are retained for the benefit of Simmons Bank, and are transferred to Simmons Bank, without recourse against Grantor.

When the context requires, singular nouns and pronouns include the plural.

Larry Everett Foust and Maydale Foust

By: _____

By: _____

STATE OF TEXAS §
§
COUNTY OF WILLIAMSON §

This instrument was acknowledged before me on this the 27 day of September, 2022, by Larry Everett Forest.

[S E

MARCIA A. HALL
My Notary ID # 126830910
Expires March 9, 2025

Marcia A. Hall
Notary Public State of Texas

My Commission Expires:

3/9/2025

MARCIA A. HALL
Printed Name of Notary Public

STATE OF TEXAS §
§
COUNTY OF WILLIAMSON §

This instrument was acknowledged before me on this the 27 day of September, 2022, by Maycdale Forest.

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Notary Public State of Texas

My Commission Expires:

3/9/2025

MARCIA A. HALL
Printed Name of Notary Public

Exhibit A

BEING a tract situated in the N. Smithwick Survey, Abstract Number 590, City of Liberty Hill, Williamson County, Texas, being part of the tract described in the deed to Larry Everett Foust, recorded in Volume 764, Page 801, Deed Records, Williamson County, Texas (D.R.W.C.T.).

BEGINNING at a point for the northwest corner of said Foust tract and the herein described tract, from which a 4 inch wood post found bears NORTH 69 degrees WEST, a distance of 1.60 feet;

THENCE NORTH 68 degrees 48 minutes 24 seconds EAST, with the north line of said Foust tract, a distance of 216.00 feet to a 1/2 inch rebar found for a re-entrant corner of a tract of land described by deed to Clyde Krause as recorded under Volume 1729, Page 108, D.R.W.C.T.;

THENCE with the south line of said Krause tract, the following calls:

1. NORTH 68 degrees 45 minutes 38 seconds EAST, a distance of 457.41 feet to a 1/2 inch rebar found;

2. NORTH 69 degrees 48 minutes 23 seconds EAST, a distance of 1156.72 feet to a 1/2 inch rebar with pink plastic cap stamped "BARTON CHAPA" set (hereinafter "capped rebar set");

3. NORTH 70 degrees 04 minutes 28 seconds EAST, a distance of 282.13 feet to a 1/2 inch rebar found for the southeast corner of said Krause tract;

THENCE NORTH 66 degrees 30 minutes 08 seconds EAST, with the north line of said Foust tract, a distance of 30.08 feet to a Mag nail set within an asphalt road under apparent public use known as C.R. 260 (no right-of-way document found);

THENCE through the interior of said Foust tract, the following calls:

1. SOUTH 21 degrees 18 minutes 23 seconds EAST, a distance of 484.24 feet to a Mag nail set at the beginning of a tangent curve to the right, having a radius of 558.27 feet, a central angle of 16 degrees 02 minutes 44 seconds, and a chord bearing and distance of SOUTH 13 degrees 17 minutes 01 seconds EAST, 155.83 feet;

2. Along the arc of said curve, an arc distance of 156.34 feet to a Mag nail set;

3. SOUTH 06 degrees 50 minutes 29 seconds EAST, a distance of 265.76 feet to a Mag nail set in the south line of said Foust tract;

THENCE with the south line of said Foust tract, NORTH 69 degrees 09 minutes 25 seconds WEST, a distance of 22.42 feet to a 1/2 inch rebar found;

THENCE with the south line of said Foust tract, SOUTH 69 degrees 37 minutes 35 seconds WEST, a distance of 1827.32 feet to a 1/2 inch rebar found;

THENCE through the interior of said Foust tract, NORTH 70 degrees 14 minutes 35 seconds WEST, a distance of 281.55 feet to a 1/2 inch rebar with cap stamped, "BARTON CHAPA" set in the west line of said Foust tract;
THENCE with the west line of said Foust tract, NORTH 20 degrees 45 minutes 25 seconds WEST, a distance of 513.22 feet, to a point from which a 4 inch wood post bears SOUTH 63 degrees EAST, a distance of 0.69 feet;

THENCE NORTH 22 degrees 11 minutes 28 seconds WEST, with the west line of said Foust tract, a distance of 182.04 feet, returning to the POINT OF BEGINNING and enclosing 42.682 acres (1,859,225 square feet) of land, more or less.

NOTE: COMPANY DOES NOT REPRESENT THAT THE ABOVE ACREAGE AND/OR SQUARE FOOTAGE CALCULATIONS ARE CORRECT.

ELECTRONICALLY RECORDED
OFFICIAL PUBLIC RECORDS

2022117399

Pages: 6 Fee: $46.00
10/12/2022 11:45 AM
MBARRICK

Nancy E. Rister, County Clerk
Williamson County,Texas

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

I LANGFORD STUBER,
Print Name

OWNER,
Title - Owner/President/Other

of CHV LIBERTY HILL 29 PROPERTY OWNER LLC,
Corporation/Partnership/Entity Name

have authorized SANDY BRANTLEY
Print Name of Agent/Engineer

of KIRKMAN ENGINEERING
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:

Sandy Brumley
Applicant's Signature

11/1/2022
Date

THE STATE OF Texas §

County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Sandy Brumley 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 2nd day of November, 2022.

KARLY BAUGHN
My Notary ID # 129784241
Expires April 14, 2026

NOTARY PUBLIC

Karly A. Baughn
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 4/14/2026

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

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

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains “possibly sensitive” features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

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

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: Chalk Hill Ranch						**2. Regulated Entity No.:**			
3. Customer Name: CHV Liberty Hill 29 Property Owner LLC						**4. Customer No.:**			
5. Project Type: **(Please circle/check one)**	(New)		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	(CZP)	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		(Non-residential)			**8. Site (acres):**			42.68
9. Application Fee:	$ 8,000		**10. Permanent BMP(s):**			Jellyfish- Storm water treatment			
11. SCS (Linear Ft.):	0		**12. AST/UST (No. Tanks):**			0			
13. County:	Williamson		**14. Watershed:**			South Fork San Gabriel River			

Application Distribution

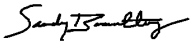
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which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

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

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

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	__	__	__
Region (1 req.)	__	__	__
County(ies)	__	__	__
Groundwater Conservation District(s)	__Edwards Aquifer Authority __Barton Springs/ Edwards Aquifer __Hays Trinity __Plum Creek	__Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	__Austin __Buda __Dripping Springs __Kyle __Mountain City __San Marcos __Wimberley __Woodcreek	__Austin __Bee Cave __Pflugerville __Rollingwood __Round Rock __Sunset Valley __West Lake Hills	__Austin __Cedar Park __Florence __Georgetown __Jerrell __Leander _X_Liberty Hill __Pflugerville __Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	__	__	__	__	__
Region (1 req.)	__	__	__	__	__
County(ies)	__	__	__	__	__
Groundwater Conservation District(s)	__ Edwards Aquifer Authority __Trinity-Glen Rose	__Edwards Aquifer Authority	__Kinney	__EAA __Medina	__EAA __Uvalde
City(ies) Jurisdiction	__Castle Hills __Fair Oaks Ranch __Helotes __Hill Country Village __Hollywood Park __San Antonio (SAWS) __Shavano Park	__Bulverde __Fair Oaks Ranch __Garden Ridge __New Braunfels __Schertz	NA	__San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Sandy Brantley
Print Name of Customer/Authorized Agent  5/25/2023
Signature of Customer/Authorized Agent Date

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

Contributing Zone Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Contributing Zone to the Edwards Aquifer and Relating to 30 TAC §213.24(1), 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 **Contributing Zone Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Langford Stuber

Date: 5/25/2023

Signature of Customer/Agent:

Langford Stuber

Regulated Entity Name: Chalk Hill Ranch

Project Information

1. County: Williamson
2. Stream Basin: Brazos River Basin
3. Groundwater Conservation District (if applicable): N/A
4. Customer (Applicant):

   Contact Person: Langford Stuber
   Entity: CHV Liberty Hill 29 Property Owner LLC
   Mailing Address: 6601 E Hillcrest Avenue, Ste 212
   City, State: Dallas,Texas Zip: 75205
   Telephone: 214-435-7510 Fax: _____
   Email Address: Langford@chalkhillventures.com

5. Agent/Representative (If any):

Contact Person: Sandy Brantley
Entity: Kirkman Engineering
Mailing Address: 1130 Cottonwood Creek Trail, Suit C3
City, State: Cedar Park, Texas Zip: 78613
Telephone: 512-428-8586 Fax: _____
Email Address: sandy.brantley@trustke.com

6. Project Location:

[X] The project site is located inside the city limits of Liberty Hill
[X] The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of Liberty Hill
[ ] The project site is not located within any city's limits or ETJ.

7. [X] The location of the project site is described below. Sufficient detail and clarity has been provided so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

2,000 ft NW from the corner of W state Highway 29 and County Road 260.

8. [X] **Attachment A - Road Map**. A road map showing directions to and the location of the project site is attached. The map clearly shows the boundary of the project site.

9. [X] **Attachment B - USGS Quadrangle Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') is attached. The map(s) clearly show:

[X] Project site boundaries.
[X] USGS Quadrangle Name(s).

10. [X] **Attachment C - Project Narrative**. A detailed narrative description of the proposed project is attached. The project description is consistent throughout the application and contains, at a minimum, the following details:

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

11. Existing project site conditions are noted below:

[ ] Existing commercial site
[ ] Existing industrial site
[X] Existing residential site

☐ Existing paved and/or unpaved roads
☐ Undeveloped (Cleared)
☒ Undeveloped (Undisturbed/Not cleared)
☐ Other: _____

12. The type of project is:

☐ Residential: # of Lots: _____
☒ Residential: # of Living Unit Equivalents: 231
☐ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 42.68 Acres

Total disturbed area: 41.07 Acres

14. Estimated projected population: 0

15. The amount and type of impervious cover expected after construction is complete is shown below:

Table 1 - Impervious Cover

Impervious Cover of Proposed Project	*Sq. Ft.*	*Sq. Ft./Acre*	*Acres*
Structures/Rooftops	139,392	÷ 43,560 =	3.20
Parking	339,332	÷ 43,560 =	7.77
Other paved surfaces		÷ 43,560 =	
Total Impervious Cover	478,724	÷ 43,560 =	10.99

Total Impervious Cover 10.99 **÷ Total Acreage** 42.68 **X 100 =** 25.75 **% Impervious Cover**

16. ☒ **Attachment D - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.

17. ☒ Only inert materials as defined by 30 TAC 330.2 will be used as fill material.

For Road Projects Only

Complete questions 18 - 23 if this application is exclusively for a road project.

☒ N/A

18. 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.

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

- ☐ Concrete
- ☐ Asphaltic concrete pavement
- ☐ Other: _____

20. Right of Way (R.O.W.):

Length of R.O.W.: _____ feet.
Width of R.O.W.: _____ feet.
L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

21. Pavement Area:

Length of pavement area: _____ feet.
Width of pavement area: _____ feet.
L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

22. ☐ A rest stop will be included in this project.

☐ A rest stop will not be included in this project.

23. ☐ 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

24. ☒ **Attachment E - 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 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

25. ☐ Wastewater is to be discharged in the contributing zone. Requirements under 30 TAC §213.6(c) relating to Wastewater Treatment and Disposal Systems have been satisfied.

☒ N/A

26. Wastewater will be disposed of by:

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

☐ **Attachment F - 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):
The sewage collection system will convey the wastewater to the Liberty Hill Waste Water (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

☐ N/A

Permanent Aboveground Storage Tanks(ASTs) ≥ 500 Gallons

Complete questions 27 - 33 if this project includes the installation of AST(s) with volume(s) greater than or equal to 500 gallons.

☒ N/A

27. Tanks and substance stored:

Table 2 - Tanks and Substance Storage

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
1			
2			
3			
4			
5			

Total x 1.5 = _____ Gallons

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

one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

☐ **Attachment G - Alternative Secondary Containment Methods**. Alternative methods for providing secondary containment are proposed. Specifications showing equivalent protection for the Edwards Aquifer are attached.

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

Table 3 - Secondary Containment

Length (L)(Ft.)	*Width(W)(Ft.)*	*Height (H)(Ft.)*	*L x W x H = (Ft3)*	*Gallons*

Total: _____ Gallons

30. Piping:

☐ All piping, hoses, and dispensers will be located inside the containment structure.
☐ Some of the piping to dispensers or equipment will extend outside the containment structure.
☐ The piping will be aboveground
☐ The piping will be underground

31. ☐ The containment area must be constructed of and in a material impervious to the substance(s) being stored. The proposed containment structure will be constructed of: _____.

32. ☐ **Attachment H - AST Containment Structure Drawings**. A scaled drawing of the containment structure is attached that shows the following:

☐ Interior dimensions (length, width, depth and wall and floor thickness).
☐ Internal drainage to a point convenient for the collection of any spillage.
☐ Tanks clearly labeled
☐ Piping clearly labeled
☐ Dispenser clearly labeled

33. ☐ Any spills must be directed to a point convenient for collection and recovery. Spills from storage tank facilities must be removed from the controlled drainage area for disposal within 24 hours of the spill.

☐ In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.

☐ In the event of a spill, any spillage will be drained from the containment structure through a drain and valve within 24 hours of the spill and disposed of properly. The drain and valve system are shown in detail on the scaled drawing.

Site Plan Requirements

Items 34 - 46 must be included on the Site Plan.

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

    Site Plan Scale: 1" = 20 '.

35. 100-year floodplain boundaries:

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

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

    The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): _____.

36. ☒ 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, etc. are shown on the site plan.

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

37. ☒ A drainage plan showing all paths of drainage from the site to surface streams.

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

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

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

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

42. ☐ Surface waters (including wetlands).

    ☒ N/A

43. ☒ Locations where stormwater discharges to surface water.

    ☐ There will be no discharges to surface water.

44. ☐ Temporary aboveground storage tank facilities.

    ☒ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.

☒ Permanent aboveground storage tank facilities will not be located on this site.

46. ☒ Legal boundaries of the site are shown.

Permanent Best Management Practices (BMPs)

Practices and measures that will be used during and after construction is completed.

47. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

☐ N/A

48. ☒ 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

49. ☒ 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

50. 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.

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

    ☐ **Attachment I - 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.

52. ☒ **Attachment J - BMPs for Upgradient Stormwater**.

    ☒ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
    ☒ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
    ☒ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

53. ☒ **Attachment K - BMPs for On-site Stormwater**.

    ☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.
    ☒ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

54. ☐ **Attachment L - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams is attached.

    ☒ N/A

55. ☒ **Attachment M - Construction Plans**. Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. Construction plans for the proposed permanent BMPs and measures are

attached and include: Design calculations, TCEQ Construction Notes, all proposed structural plans and specifications, and appropriate details.

☐ N/A

56. ☒ **Attachment N - Inspection, Maintenance, Repair and Retrofit Plan**. A site and BMP specific plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan fulfills all of the following:

☒ Prepared and certified by the engineer designing the permanent BMPs and measures
☒ Signed by the owner or responsible party
☒ Outlines specific procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofit.
☒ Contains a discussion of record keeping procedures

☐ N/A

57. ☐ **Attachment O - Pilot-Scale Field Testing Plan**. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

☒ N/A

58. ☐ **Attachment P - Measures for Minimizing Surface Stream Contamination**. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that result in water quality degradation.

☒ N/A

Responsibility for Maintenance of Permanent BMPs and Measures after Construction is Complete.

59. ☒ 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.

60. ☒ 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.

Administrative Information

61. [X] 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.

62. [X] Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.

63. [X] The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.

[X] The Temporary Stormwater Section (TCEQ-0602) is included with the application.

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal (*Core Data Form should be submitted with the renewal form*) ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN		RN

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name (*If an individual, print last name first: eg: Doe, John*) *If new Customer, enter previous Customer below:*

CHV Liberty Hill 29 Property Owner LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0804625853	32085229139		

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☒ Limited
Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address: 6601 E Hillcrest Avenue, Ste 212

City	State	ZIP	ZIP + 4
Dallas	TX	75205	

16. Country Mailing Information (*if outside USA*)

17. E-Mail Address (*if applicable*)
Langford@chalkhillventures.com

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(214) 435-7510		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (*If 'New Regulated Entity" is selected below this form should be accompanied by a permit application*)

☒ 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.*)

CHV Liberty Hill 29 Property Owner LLC

23. Street Address of the Regulated Entity: *(No PO Boxes)*							
	City		**State**		**ZIP**		**ZIP + 4**
24. County							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	2,000 ft NW from the corner of W state Highway 29 and County Road 260.

26. Nearest City	**State**	**Nearest ZIP Code**
Liberty Hill	TX	78642

27. Latitude (N) In Decimal:	30.5585692	**28. Longitude (W) In Decimal:**	97.7995886

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
6552		531110	

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

Multi - Family

34. Mailing Address:	**tbd**						
	City		**State**		**ZIP**		**ZIP + 4**

35. E-Mail Address:	**justin@chalkhillventures.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 761-5025		**( ) -**

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☒ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
	TXR150000			
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Sandy Brantley	**41. Title:**	Civil Engineer

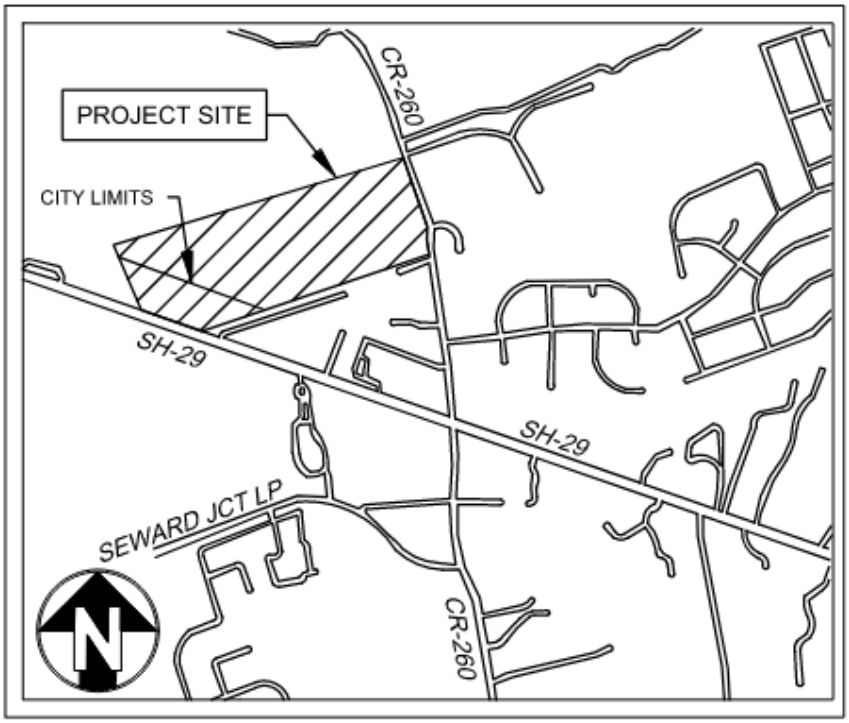
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 428-8586		( ) -	sandy.brantley@trustke.com

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:	CHV Liberty Hill 29 Property Owner LLC	**Job Title:**	
Name *(In Print):*	LANGFORD STUBER	**Phone:**	(214) 435- **7510**
Signature:	Langford Stuber	**Date:**	5/25/2023

ATTACHMENT A
ROAD MAP



SITE MAP

N.T.S.

ATTACHMENT B
USGS QUADRANGLE MAP

USGS science for a changing world

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

The National Map OnDemand Topo

7.5-MINUTE TOPO 1 QUADRANGLE
Custom Extent
7.5-MINUTE TOPO

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R
Data is provided by The National Map (TNM), is the best available at the time of map generation, and includes data content from supporting themes of Elevation, Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover, and Orthoimagery. Refer to associated Federal Geographic Data Committee (FGDC) Metadata for additional source data information.

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands. Temporal changes may have occurred since these data were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: https://nationalmap.gov

MN
GN
3°32´
63 MILS
0°35´
10 MILS
UTM GRID AND 2021 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
PU
Grid Zone Designation
14R

SCALE 1:24 000
KILOMETERS
METERS
MILES
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
CONTOUR SMOOTHNESS = Medium

TEXAS
QUADRANGLE LOCATION

Liberty Hill	Leander NE
Nameless	Leander

ADJOINING QUADRANGLES

ROAD CLASSIFICATION

Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route / State Route

7.5-MINUTE TOPO 1, TX
2022

ATTACHMENT C
PROJECT NARRATIVE

The property is 2000 ft from State highway 29 and County Road 260 intersection, The site's address is 350 County Road 260, Liberty Hill, Texas. Existing land use of the 42.68 acres site is agricultural and has one single family residential unit. The proposed land use for the site is for multifamily and commercial development. 6.84 acres for the site that is on the city limits will be future commercial.

Roadway and utility Infrastructure will be constructed with this phase to serve future and proposed developments. 16.371 acres will be used as multifamily commercial in Phase one. 18.934 ac north of multifamily commercial phase one will remain undeveloped. The existing site is predominantly grass. The existing impervious area includes a residential home and access driveways, of which 488 SF of access driveway will be demolished. The proposed impervious area is 10.99 acres.

There is no offsite area draining into this property. Of the 41.07 acres of disturbed land, 10.93 acres will ultimately be impervious surface.

The site will feature temporary BMPs during constructions which will include silt fence, a stabilized construction exists and inlet protection for new inlets before stabilization.

Jellyfish storm water treatment system from Contech will be used on site as a permanent BMP measure.

ATTACHMENT D
FACTORS AFFECTING SURFACE WATER QUALITY

The factors that could affect surface water quality are as follows:

1. Lack of natural infiltration
2. Pollutants from vehicles and surface

ATTACHMENT E
VOLUME AND CHARACTER OF STORMWATER

Preconstruction conditions of the site shows the land sheet flowing across the site and exiting at the southwest boundary of the property following the existing contour. Using the Modified Rational Method, 134.45 cfs drains to the site at the southwest towards State Highway 29 (SH 29) and 101.10 cfs drains to the southeast at one discharge point into the existing adjacent property in the 100-year storm event. Preconstruction runoff coefficient for the site is 0.42.

For the post construction condition of the site, the stormwater sheet flows to the underground storm system. The underground storm system outfalls at either of the two proposed detention pond on site. Approximately 18.97 acres of the site with a runoff coefficient of 0.6 flows off-site towards the SH29. Approximately 179.91 cfs enters the southeastern detention pond and discharges at 101.10 cfs at peak discharge of the ultimate 100-year flow, with 100-year runoff with coefficient of 0.63. Approximately 69.53 cfs enters the western detention pond and discharges at 101.10 cfs at peak discharge, with 100-year runoff coefficient of 0.72.

Reference Attachment M- Construction Plans for more detailed information.

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: Langford Stuber

Date: 5/25/2023

Signature of Customer/Agent

Langford Stuber

Regulated Entity Name: Chalk Hill Ranch

Permanent Best Management Practices (BMPs)

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

1. [X] Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

   [ ] N/A

2. [ ] These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

   [X] The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

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

☐ N/A

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

   ☐ N/A

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

   ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☑ The site will not be used for low density single-family residential development.

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

   ☐ **Attachment A - 20% or Less Impervious Cover Waiver**. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
   ☒ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
   ☐ The site will not be used for multi-family residential developments, schools, or small business sites.

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

[X] A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.

[X] No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

[X] Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

7. [X] **Attachment C - BMPs for On-site Stormwater**.

[X] A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.

[X] Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

8. [ ] **Attachment D - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

[X] N/A

9. [X] The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

[✓] The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

[ ] **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

10. [X] **Attachment F - Construction Plans**. All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

[X] Design calculations (TSS removal calculations)

[X] TCEQ construction notes

[X] All geologic features

[X] All proposed structural BMP(s) plans and specifications

[ ] N/A

11. [X] **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:

    [X] Prepared and certified by the engineer designing the permanent BMPs and measures
    [X] Signed by the owner or responsible party
    [X] Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
    [X] 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.

    [X] N/A

13. [ ] **Attachment I -Measures for Minimizing Surface Stream Contamination**. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.

    [X] N/A

Responsibility for Maintenance of Permanent BMP(s)

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

14. [X] 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. [X] A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

    [ ] N/A

ATTACHMENT J
BMPs FOR UPGRADIENT STORMWATER

The site does not feature upgradient stormwater. The offsite stormwater enters a bypass swale at the property line and flows southwest to State Highway 29.

Reference Attachment M- Construction Plans for more detailed information.

ATTACHMENT K
BMPs FOR ON-SITE STORMWATER

The following temporary and permanent BMPs have been identified on the Erosion Control Plan and the Water Quality Plan in Attachment M – Construction Plans.

1. Silt Fence
2. Inlet Protection
3. Stabilized Construction Exit
4. Concrete Washout Pit
5. Vegetation
6. Jellyfish – Stormwater treatment

Onsite stormwater that enters the site will flow into the designed stormwater system and be treated by the Jellyfish stormwater treatment system, which then enters the detention ponds. There are four Jellyfish units designed to treat on site stormwater. See below for removal efficiency for each BMP's.

BMP #1 has 86% removal efficiency.
BMP #2 has 86% removal efficiency.
BMP #3 has 84% removal efficiency.
BMP #4 has 86% removal efficiency.

Refer to the following attachments for the BMP calculations.

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: **Foust Tract - Chalk Hill Ventures**
Date Prepared: **1/24/2023**

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Williamson**	
Total project area included in plan * =	**26.18**	acres
Predevelopment impervious area within the limits of the plan * =	**0.09**	acres
Total post-development impervious area within the limits of the plan* =	**11.30**	acres
Total post-development impervious cover fraction * =	**0.43**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**9753**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**4**	

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

Drainage Basin/Outfall Area No. =	**BMP 1**	
Total drainage basin/outfall area =	**5.40**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**2.98**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.55**	
$L_{M\ THIS\ BASIN}$ =	**2593**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

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

A_C =	**5.40**	acres
A_I =	**2.98**	acres
A_P =	**2.42**	acres
L_R =	**2873**	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	**2593**	lbs.
F =	**0.90**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	**1.10**	inches per hour
Effective Area =	**2.75**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**3.05**	cubic feet per second

7. Jellyfish

Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JFPD0811-16-4**	
Jellyfish Treatment Flow Rate =	**3.21**	cfs

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: **Foust Tract - Chalk Hill Ventures**
Date Prepared: **1/24/2023**

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Williamson**	
Total project area included in plan * =	**26.18**	acres
Predevelopment impervious area within the limits of the plan * =	**0.09**	acres
Total post-development impervious area within the limits of the plan* =	**11.30**	acres
Total post-development impervious cover fraction * =	**0.43**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**9753**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**4**	

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

Drainage Basin/Outfall Area No. =	**BMP 2**	
Total drainage basin/outfall area =	**2.69**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.45**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.54**	
$L_{M\ THIS\ BASIN}$ =	**1262**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

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

A_C =	**2.69**	acres
A_I =	**1.45**	acres
A_P =	**1.24**	acres
L_R =	**1399**	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	**1262**	lbs.
F =	**0.90**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	**1.10**	inches per hour
Effective Area =	**1.34**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**1.49**	cubic feet per second

7. Jellyfish

Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JFPD0806-8-2**	
Jellyfish Treatment Flow Rate =	**1.60**	cfs

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: **Foust Tract - Chalk Hill Ventures**
Date Prepared: **1/24/2023**

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Williamson**	
Total project area included in plan * =	**26.18**	acres
Predevelopment impervious area within the limits of the plan * =	**0.09**	acres
Total post-development impervious area within the limits of the plan* =	**11.30**	acres
Total post-development impervious cover fraction * =	**0.43**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**9753**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**4**	

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

Drainage Basin/Outfall Area No. =	**BMP 3**	
Total drainage basin/outfall area =	**16.91**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.09**	acres
Post-development impervious area within drainage basin/outfall area =	**5.91**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.35**	
$L_{M\ THIS\ BASIN}$ =	**5065**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**84**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

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

A_C =	**16.91**	acres
A_I =	**5.91**	acres
A_P =	**11.00**	acres
L_R =	**5629**	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	**5065**	lbs.
F =	**0.90**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	**1.10**	inches per hour
Effective Area =	**5.65**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**6.26**	cubic feet per second

7. Jellyfish

Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JFPD0816-32-7**	
Jellyfish Treatment Flow Rate =	**6.33**	cfs

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: **Foust Tract - Chalk Hill Ventures**
Date Prepared: **1/24/2023**

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Williamson**	
Total project area included in plan * =	**26.18**	acres
Predevelopment impervious area within the limits of the plan * =	**0.09**	acres
Total post-development impervious area within the limits of the plan* =	**11.30**	acres
Total post-development impervious cover fraction * =	**0.43**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**9753**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**4**	

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

Drainage Basin/Outfall Area No. =	**BMP 4**	
Total drainage basin/outfall area =	**1.18**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**0.96**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.81**	
$L_{M\ THIS\ BASIN}$ =	**833**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

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

A_C =	**1.18**	acres
A_I =	**0.96**	acres
A_P =	**0.22**	acres
L_R =	**915**	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	**833**	lbs.
F =	**0.91**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

Calculations from RG-348
Pages Section 3.2.22

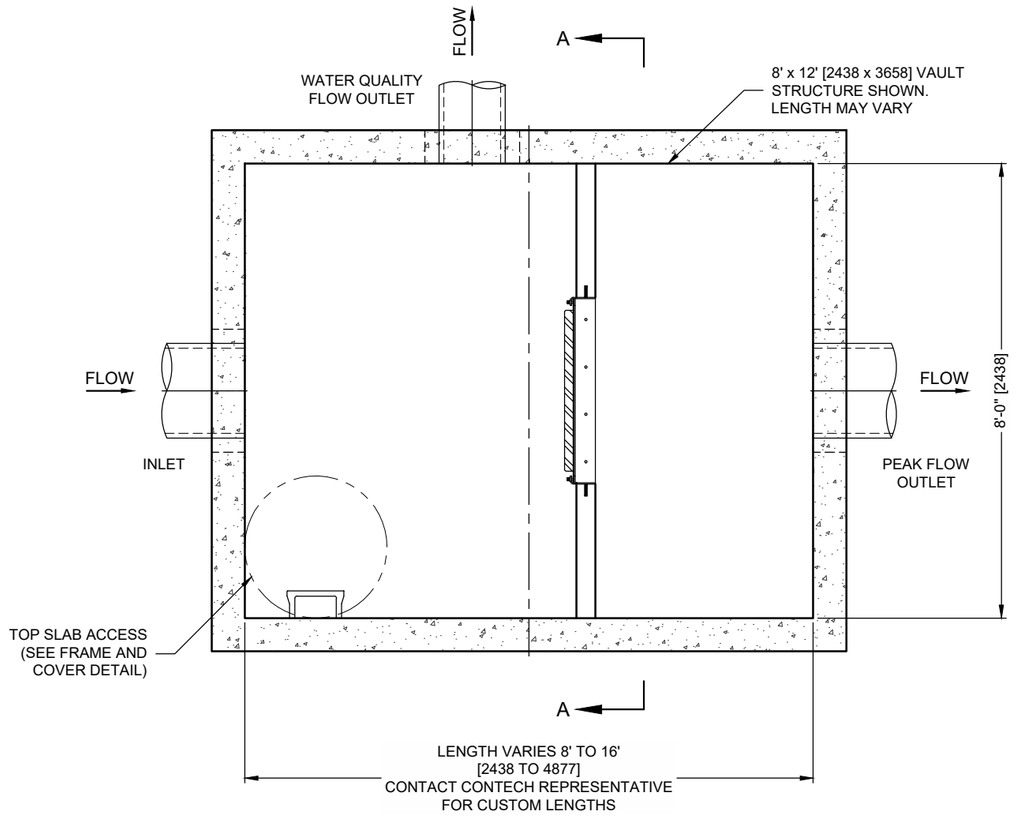
Rainfall Intensity =	**1.15**	inches per hour
Effective Area =	**0.87**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**1.01**	cubic feet per second

7. Jellyfish

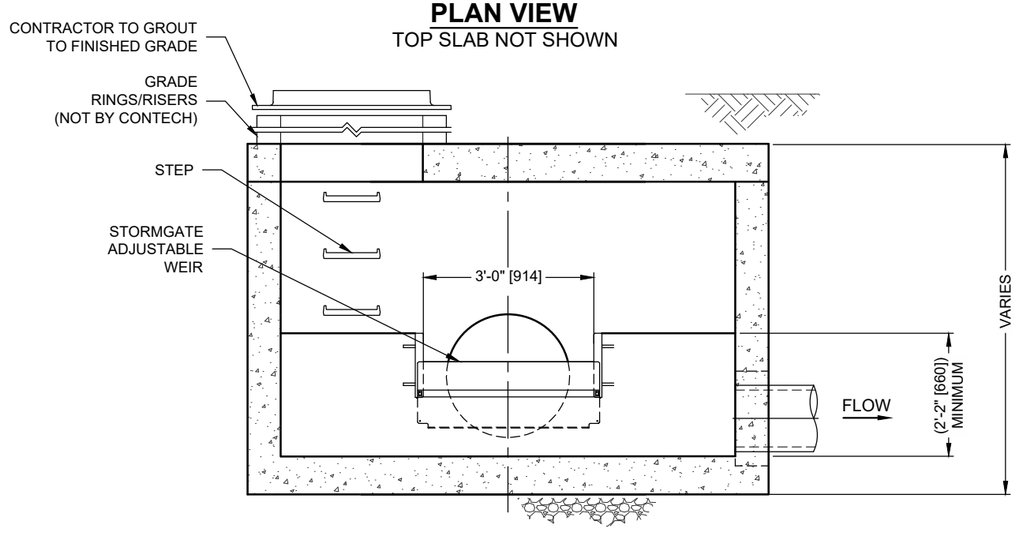
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JFPD0806-5-2**	
Jellyfish Treatment Flow Rate =	**1.07**	cfs



PLAN VIEW
TOP SLAB NOT SHOWN

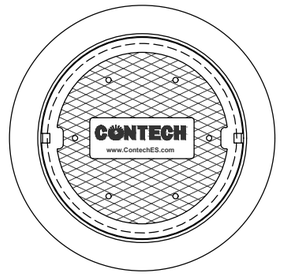


SECTION A-A

StormGate™

STORMGATE DESIGN NOTES

THE STORMGATE IS A WEIR STYLE DIVERSION STRUCTURE. A 8' [2438] WIDE VAULT CONFIGURATION IS SHOWN. THE UNIT IS DESIGNED SUCH THAT THE TREATMENT FLOW IS DIVERTED TO THE OFFLINE WATER QUALITY DEVICE. THE HIGH FLOWS ARE BYPASSED OVER THE WEIR DIRECTLY TO THE DOWNSTREAM CONVEYANCE. THE STORMGATE TYPICALLY HAS ONE INLET, A LOW FLOW OUTLET FOR TREATMENT FLOW, AND A HIGH FLOW BYPASS OUTLET. THE STORMGATE INCORPORATES A FIELD-ADJUSTABLE ALUMINUM WEIR PLATE WHICH ALLOWS FOR 6" [152] OF WEIR HEIGHT ADJUSTMENT AFTER INSTALLATION. THE CAPACITY OF THE STORMGATE IS A FUNCTION OF THE AVAILABLE HEIGHT ABOVE THE WEIR (HEAD) AND UNIT GEOMETRY. PLEASE CONTACT YOUR LOCAL CONTECH DESIGN ENGINEER FOR SIZING ASSISTANCE.



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID				ST-C BYPASS
WATER QUALITY (WQ) FLOW RATE (cfs [L/s])				6.32 cfs
PEAK FLOW RATE (cfs [L/s])				*
RIM ELEVATION				995.56
PIPE DATA:	INVERT	ORIENTATION	MATERIAL	DIAMETER
INLET PIPE	989.41	16' SIDE	RCB	(2) 5'x3'
WQ FLOW OUTLET PIPE	989.41	8' SIDE	RCP	18"
PEAK FLOW OUTLET PIPE	989.41	16' SIDE	RCB	(2) 5'x3'
ORIFICE TYPE (PIPE, PLATE)				
ORIFICE DIAMETER (in. [mm])				
WEIR CREST ELEVATION				990.51
WEIR WALL ELEVATION				991.01
HEAD OVER WEIR, H (ft. [mm])				
WSE AT PEAK FLOW RATE				
WEIR ORIENTATION				
FLOOR ELEVATION				

NOTES / SPECIAL REQUIREMENTS:

UNIT IS 8'x16'

SPECIAL STRUCTURAL DESIGN REQUIRED DUE TO (2) 5'x3' RCB

GENERAL NOTES

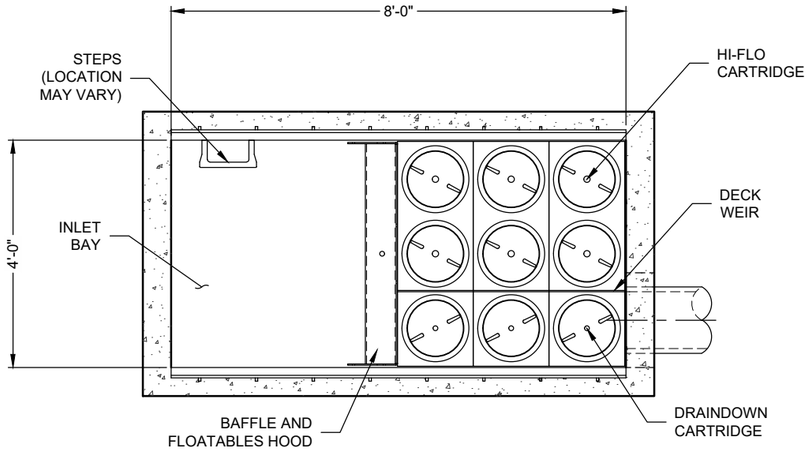
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. STORMGATE WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS THE REQUIREMENTS OF THE PROJECT.
4. STORMGATE STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' [1524] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. STORMGATE STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C857, ASTM C918 AND ACI-318 LOAD FACTOR DESIGN METHOD.
6. WEIR FRAME AND ADJUSTABLE WEIR PLATE SHALL BE FABRICATED OF ALUMINUM ALLOY ASTM B209, T-5052, T-6061, PROVIDED AND INSTALLED BY CONTECH.
7. ALTERNATE UNITS ARE SHOWN IN [mm].

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMGATE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN ON SITE SPECIFIC DRAWINGS. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO INSTALL GRADE RINGS/RISERS OR BLOCK REQUIRED BETWEEN THE TOP OF THE STRUCTURE AND THE BASE OF THE MANHOLE FRAMES.
F. CONTRACTOR TO ADJUST STORMGATE WEIR TO DESIGN ELEVATION SPECIFIED IN DRAWING. DO NOT EXCEED 5.0 FT-LBS TORQUE WHEN TIGHTENING SCREWS ON WEIR FRAME. SEAL WEIR TO FRAME WITH SIKAFLEX 1A SEALANT AFTER FINAL ADJUSTMENT.

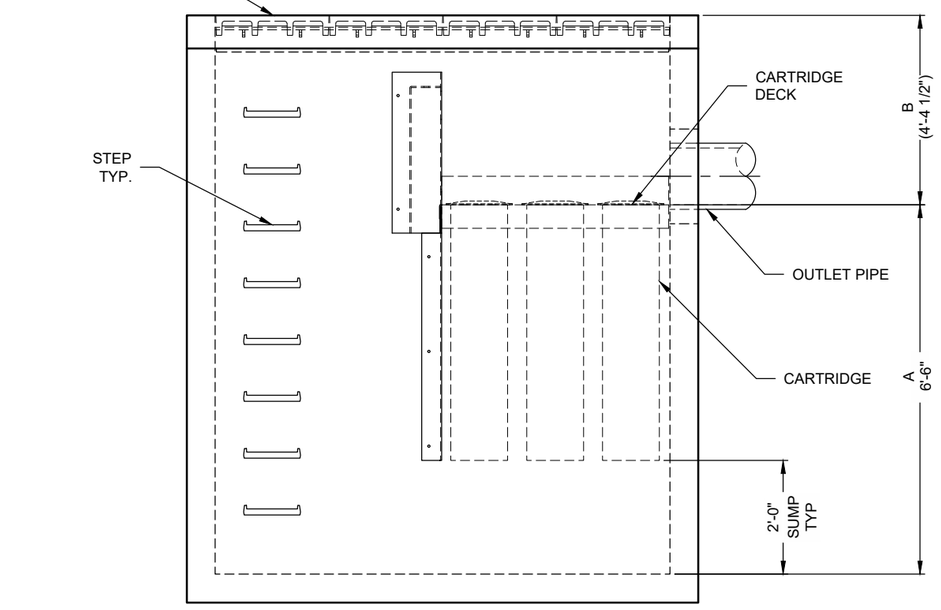
CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

8' WIDTH x VARYING LENGTH STORMGATE VAULT STANDARD DETAIL



PLAN VIEW

(TOP SLAB NOT SHOWN FOR CLARITY)



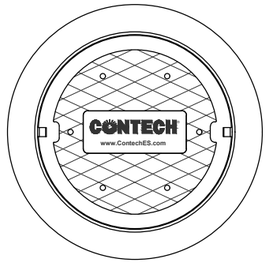
ELEVATION VIEW

JELLYFISH DESIGN NOTES

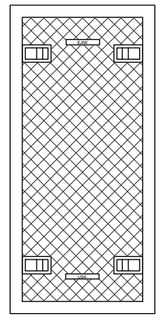
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET, PIPE INLET, OR SLAB TOP WITH EARTH COVER OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

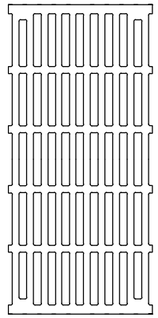
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.34	1.00	0.67	0.37
OUTLET INVERT TO RIM (MIN) (B)	3'-4"	3'-4"	3'-4"	3'-4"



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24"
TRENCH COVER
N.T.S.



24"
TRENCH GRATE
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	ST-G
WATER QUALITY FLOW RATE (cfs)	0.99
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	5/2
CARTRIDGE LENGTH	54

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	979.50	RCP	15"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	983.89

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

TOP OF BAFFLE WALL ELEV. = 981.83'

* PER ENGINEER OF RECORD

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' TO 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish Filter

CONTECH
ENGINEERED SOLUTIONS LLC
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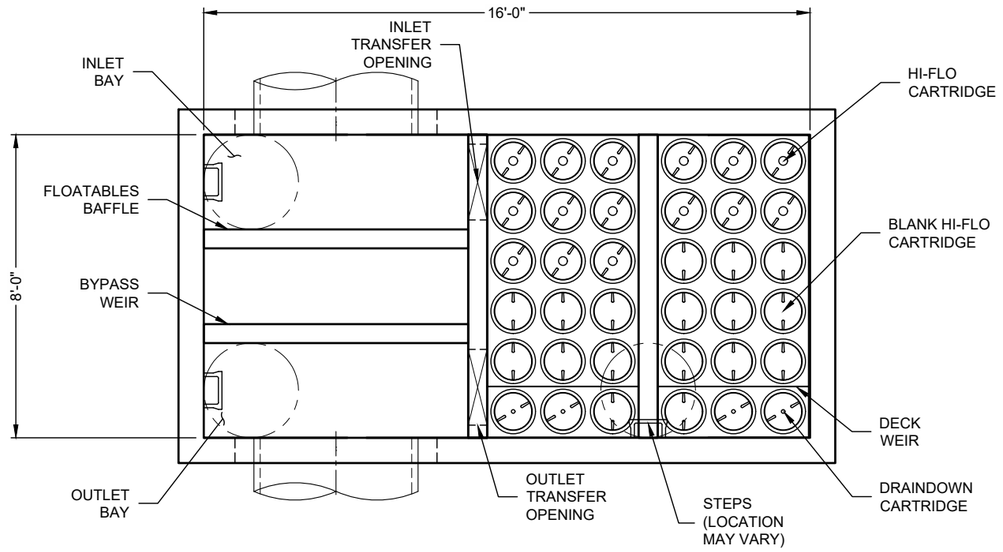
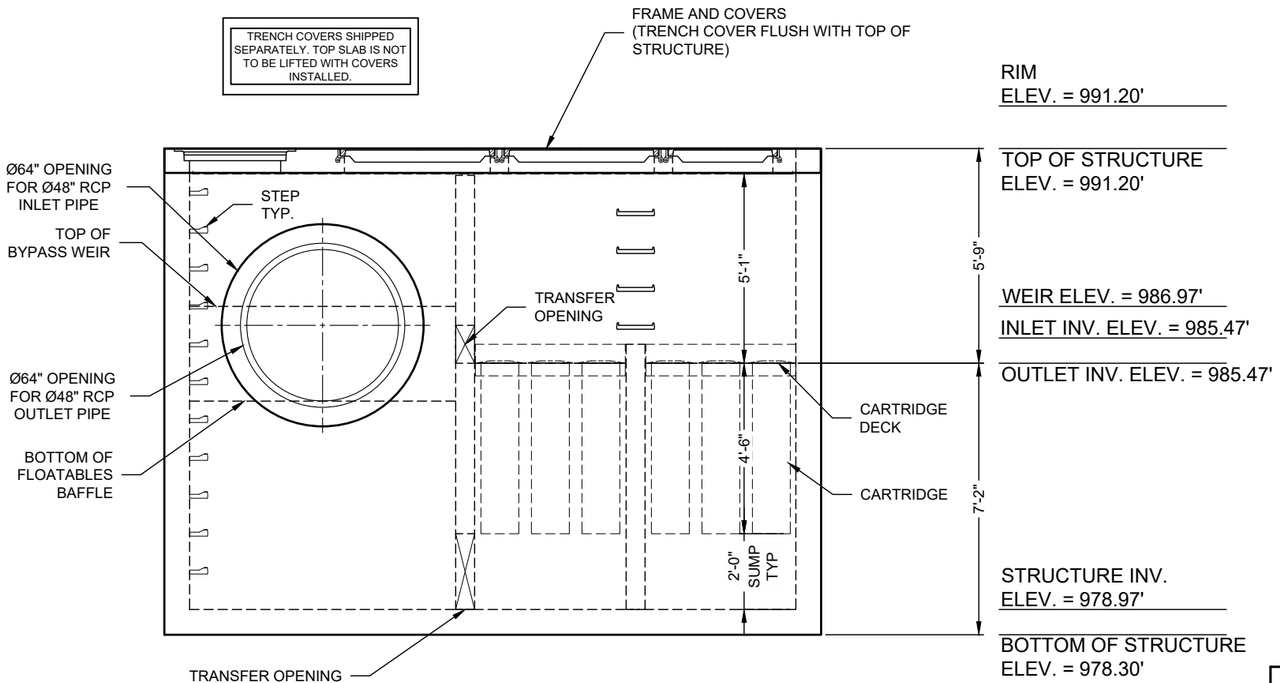
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFSI0408
STANDARD DETAIL
SURFACE INLET CONFIGURATION



PLAN VIEW

(TOP SLAB NOT SHOWN FOR CLARITY)



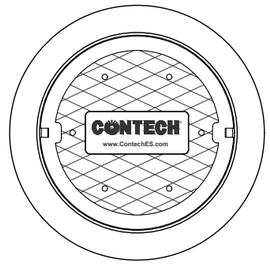
ELEVATION VIEW

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	7.84
DECK TO INSIDE TOP (MIN) (B)	5.00



FRAME AND COVER

(DIAMETER VARIES)

N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	ST-A
WATER QUALITY FLOW RATE (cfs)	2.94
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	15/4
CARTRIDGE LENGTH	54

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	985.47	RCP	48"	*	*
INLET #2	*	*	*	*	*
OUTLET	985.47	RCP	48"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	991.20

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:
UNIT IS SIZED AS JFPD0811-15-4. VAULT SIZE IS 8X16 TO ACCOMMODATE 48" RCP INLET/OUTLET.
* PER ENGINEER OF RECORD

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

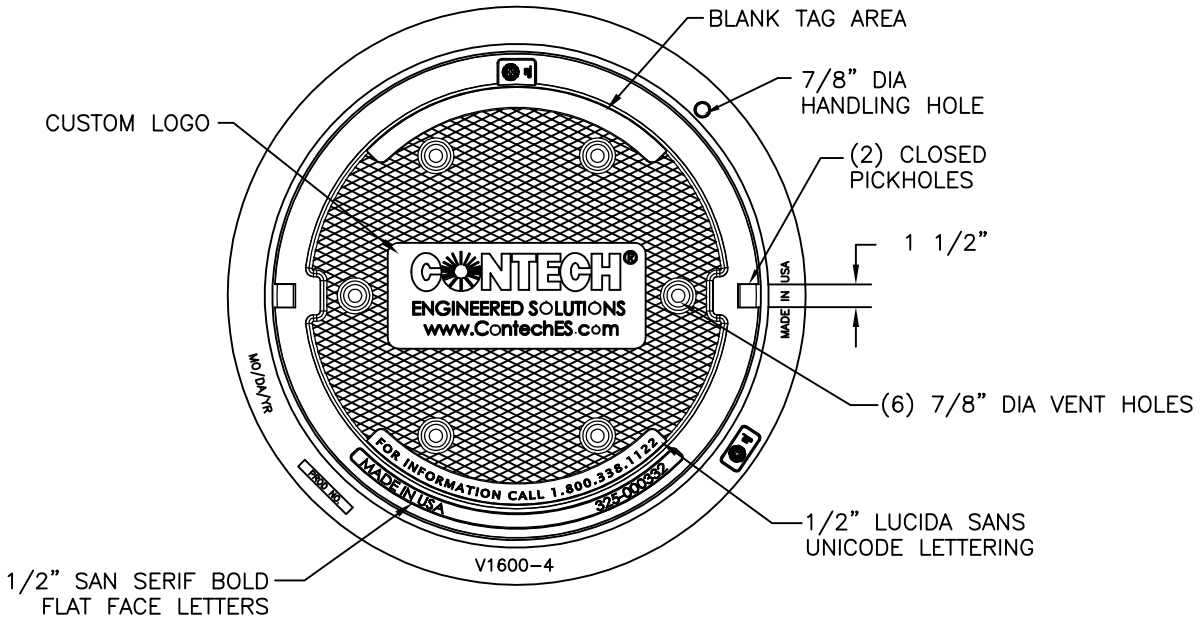
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

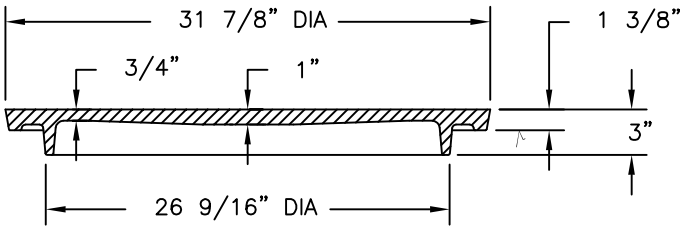
Jellyfish Filter

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

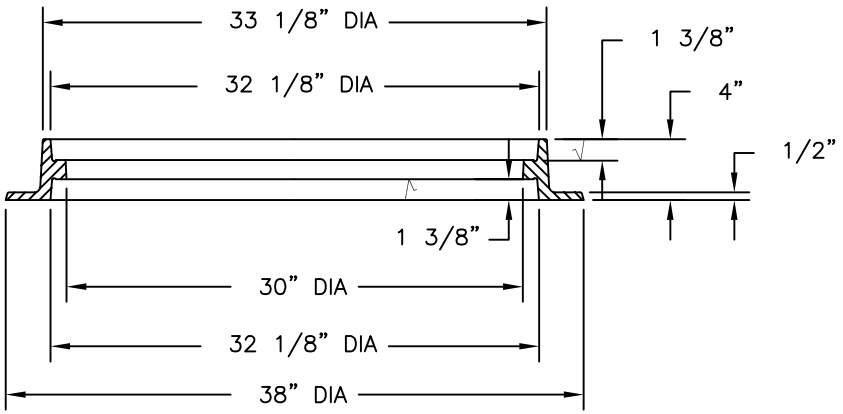
8' x 16' JELLYFISH - 715260 - 010
FOUST TRACK - CHALK HILL VENTURES
LIBERTY HILL, TX
SITE DESIGNATION: ST-A

1810B4 V1600-4 Assembly





COVER SECTION



FRAME SECTION

Product Number

41600483

Design Features

-Materials
  Cover
    Gray Iron (CL35B)
  Frame
    Gray Iron (CL35B)

-Design Load
  Heavy Duty
-Open Area
  n/a
-Coating
  Undipped
-√ Designates Machined Surface

Certification

-
- ASTM A48
-
-Country of Origin: USA

Major Components

00180783
41600410

Drawing Revision

05/09/2007 Designer: SMH
6/26/2017 Revised By: DAE

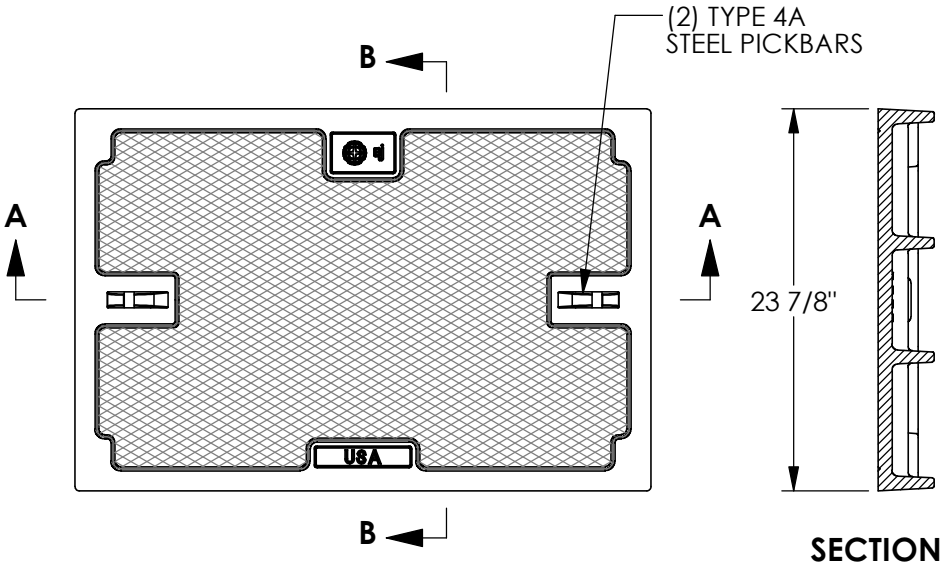
Disclaimer

Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

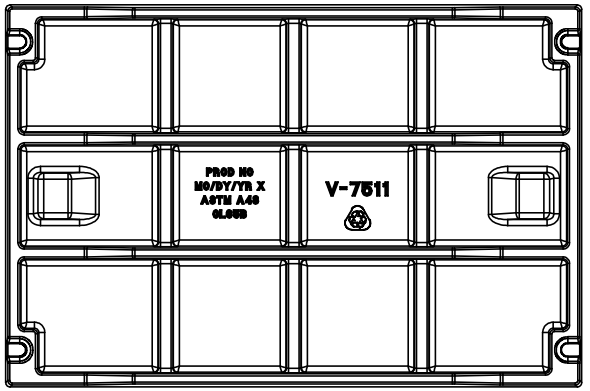
Contact

800 626 4653
ejco.com

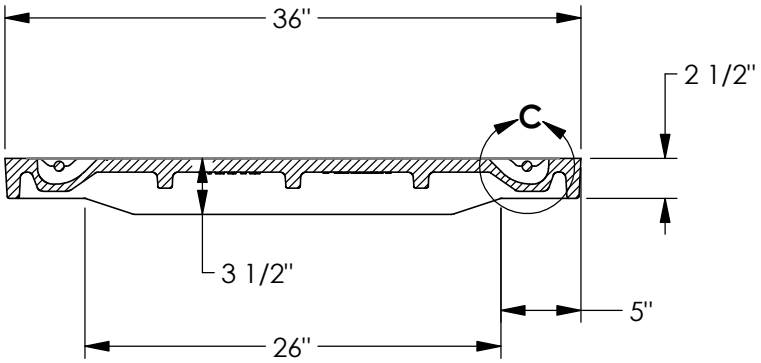
V7511 Trench Cover



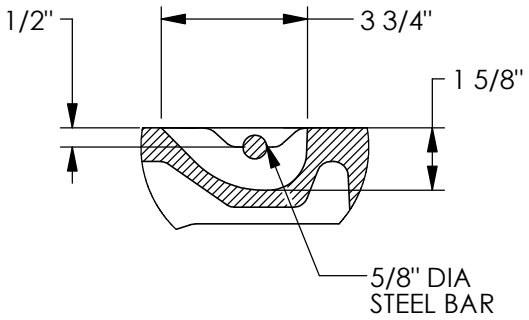
SECTION B-B



BOTTOM VIEW



SECTION A-A



DETAIL C
SCALE 1 : 5

Product Number

47511031

Design Features

-Materials
Gray Iron (CL35B)
-Design Load
Heavy Duty
-Open Area
n/a
-Coating
Undipped
-√ Designates Machined Surface

Certification

-ASTM A48
-
-
-Country of Origin: USA

Drawing Revision

10/05/2017 Designer: DJH
11/28/2017 Revised By: DJH

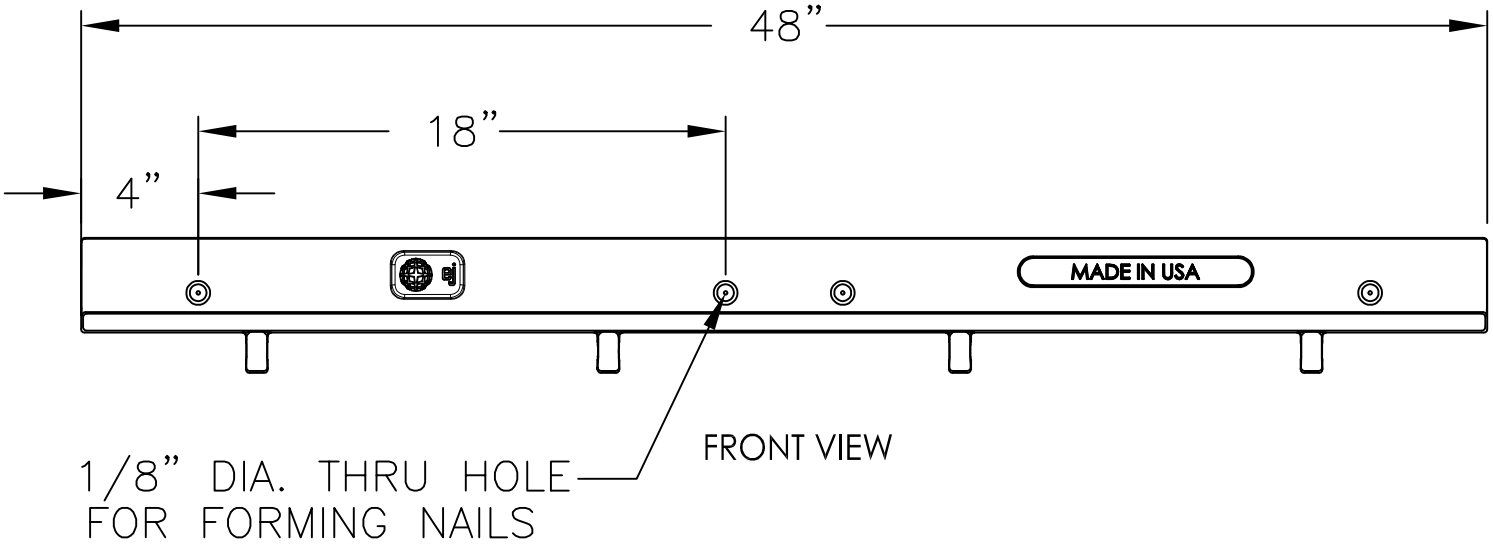
Disclaimer

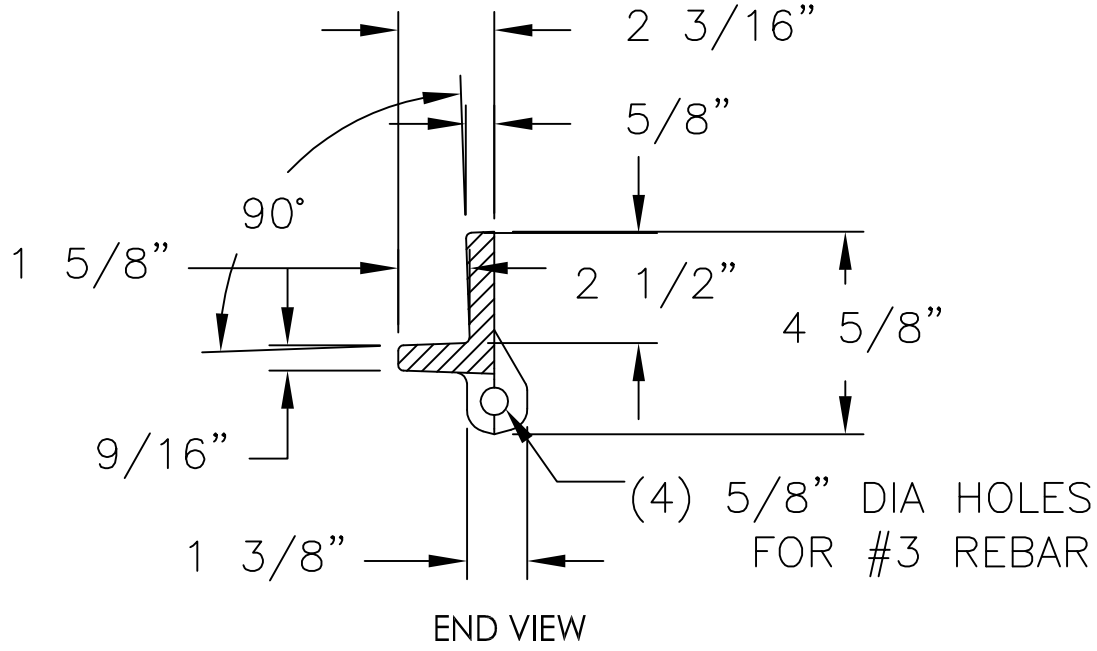
Weights (lbs/kg), dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

Contact

800 626 4653
ejco.com

V7300-3 Trench Rail





Product Number

47300311

Design Features

-Materials
Gray Iron (CL35B)
-Design Load
Heavy Duty
-Open Area
n/a
-Coating
Undipped
-√Designates Machined Surface

Certification

- ASTM A536
-
-
-Country of Origin:USA

Estlmated Welght:

- 38 lbs

Drawing Revision

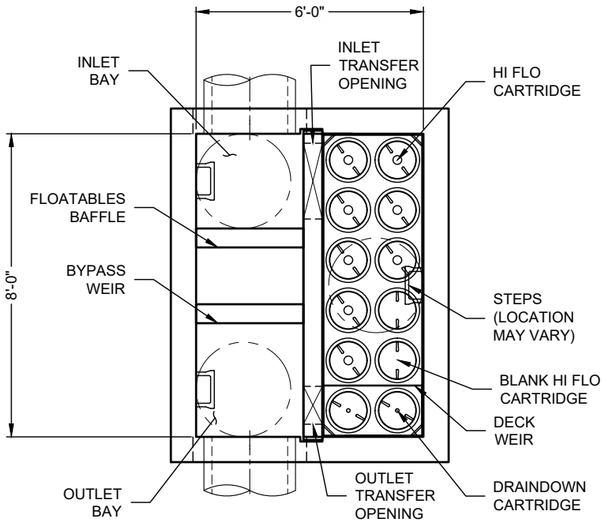
4/16/2005 Designer: SBB
4/18/2018 Revised By: DAE

Disclaimer

Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

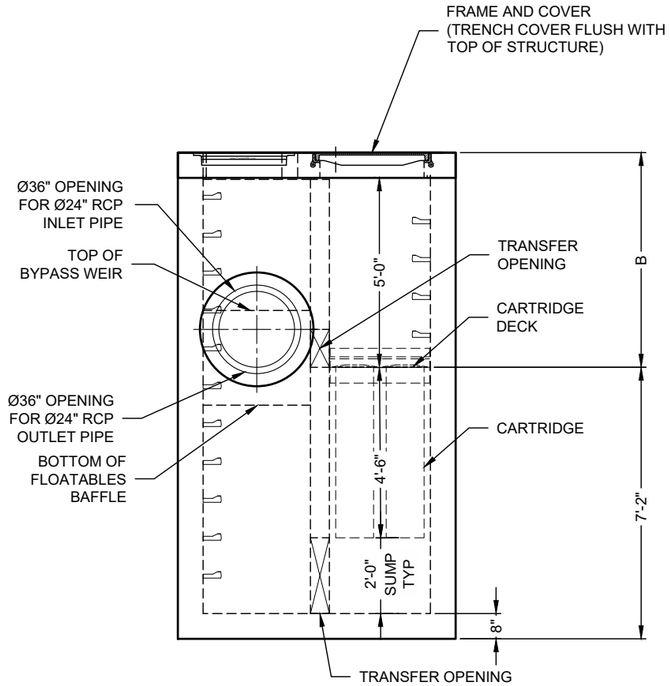
Contact

800 626 4653
ejco.com



PLAN VIEW

(TOP SLAB NOT SHOWN FOR CLARITY)



RIM
ELEV. = 994.90'

TOP OF STRUCTURE
ELEV. = 994.90'

WEIR ELEV. =991.16'

INLET INV. ELEV. = 989.66'

OUTLET INV. ELEV. = 989.66'

STRUCTURE INV.
ELEV. = 983.16'

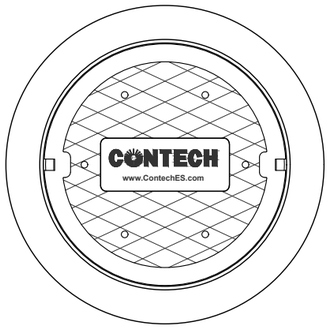
BOTTOM OF STRUCTURE
ELEV. = 982.49'

ELEVATION VIEW

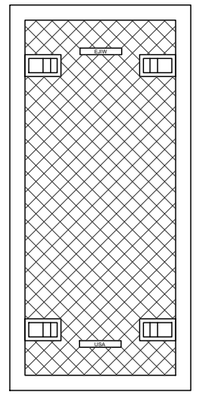
JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	1.96
DECK TO INSIDE TOP (MIN) (B)	5.00



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24"
TRENCH COVER
(LENGTH VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	ST-B
WATER QUALITY FLOW RATE (cfs)	1.50
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	8/2
CARTRIDGE LENGTH	54

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	989.66	RCP	24	*	*
INLET #2	*	*	*	*	*
OUTLET	989.66	RCP	24	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	994.90

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:
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2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
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8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
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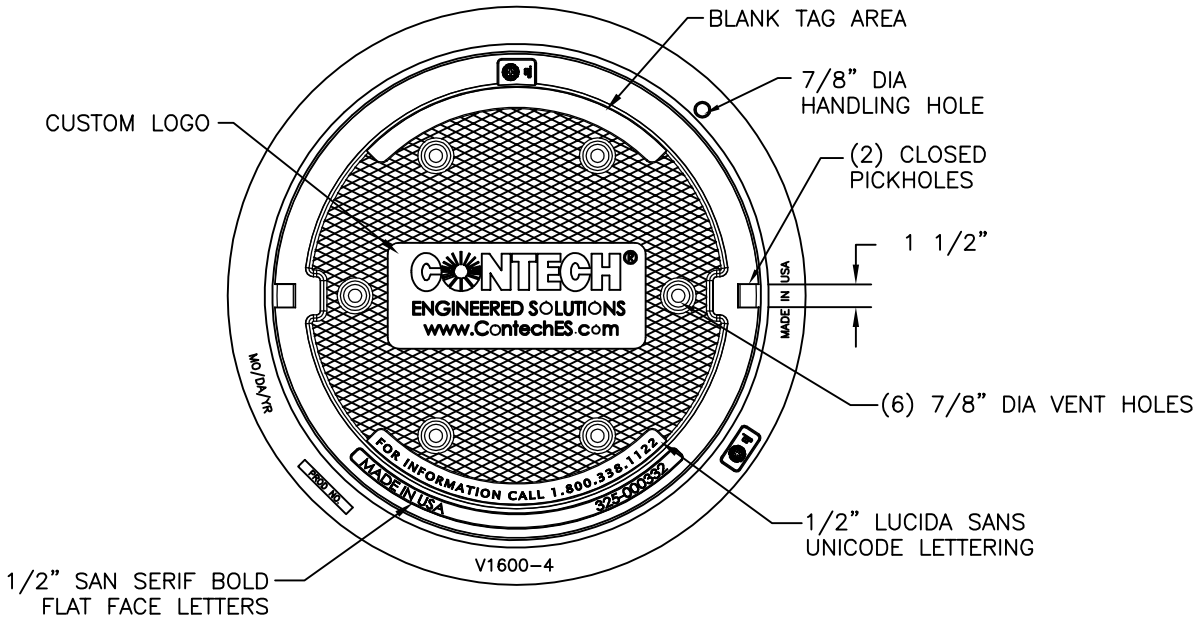
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

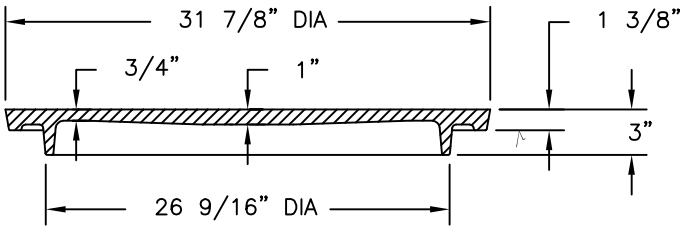
Jellyfish Filter

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

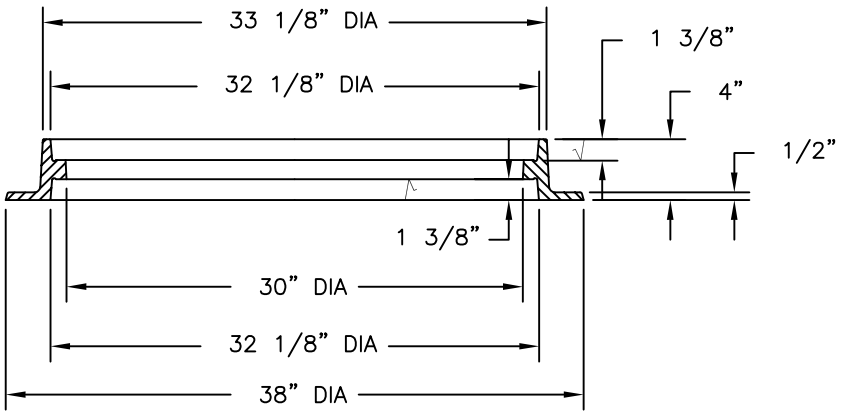
8' x 6' JELLYFISH - 715260- 020
PROJECT NAME: FOUST TRACT - CHALK HILL VENTURES
LOCATION: LIBERT HILL, TX
SITE DESIGNATION: ST-B

1810B4 V1600-4 Assembly





COVER SECTION



FRAME SECTION

Product Number

41600483

Design Features

-Materials
  Cover
    Gray Iron (CL35B)
  Frame
    Gray Iron (CL35B)

-Design Load
  Heavy Duty
-Open Area
  n/a
-Coating
  Undipped
-√ Designates Machined Surface

Certification

-
- ASTM A48
-
-Country of Origin: USA

Major Components

00180783
41600410

Drawing Revision

05/09/2007 Designer: SMH
6/26/2017 Revised By: DAE

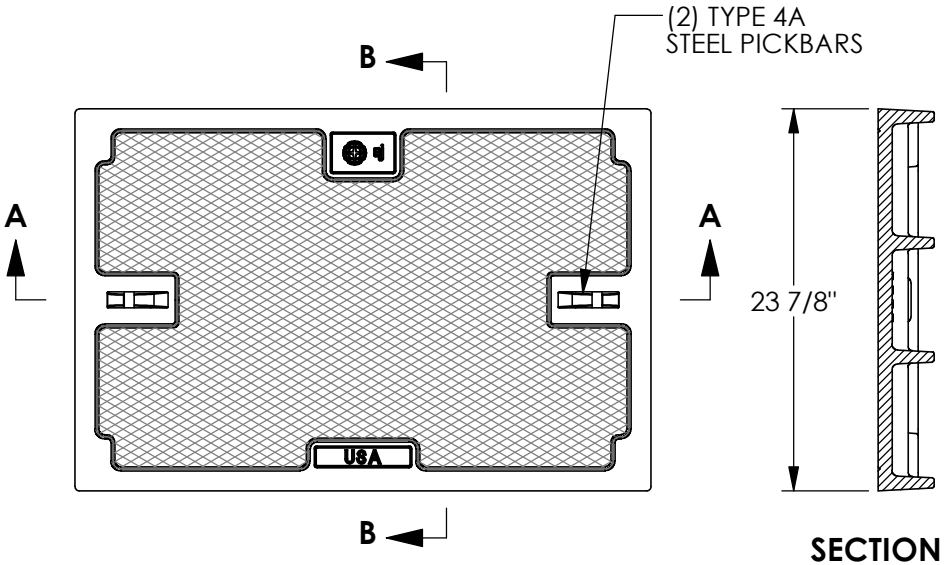
Disclaimer

Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

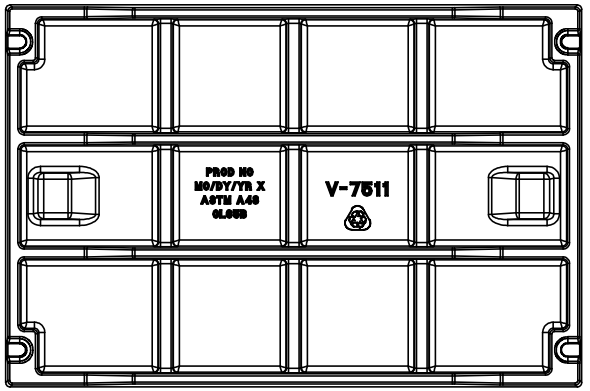
Contact

800 626 4653
ejco.com

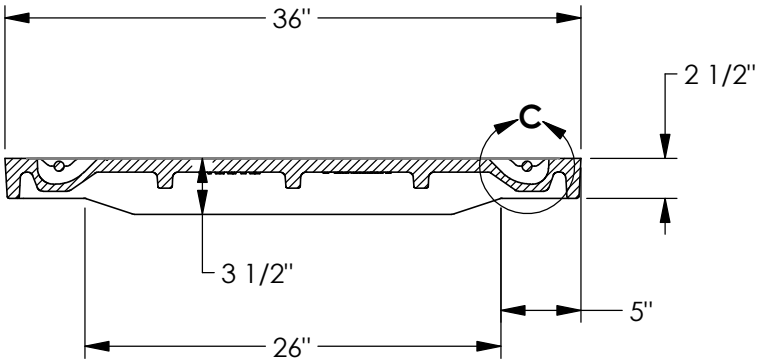
V7511 Trench Cover



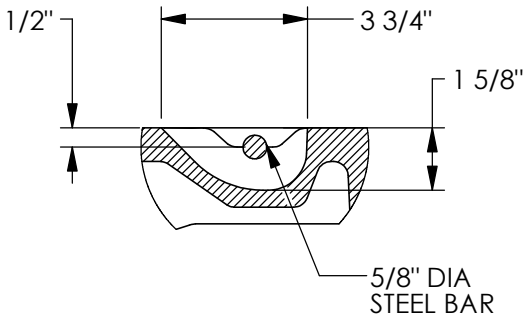
SECTION B-B



BOTTOM VIEW



SECTION A-A



DETAIL C
SCALE 1 : 5

Product Number

47511031

Design Features

-Materials
Gray Iron (CL35B)
-Design Load
Heavy Duty
-Open Area
n/a
-Coating
Undipped
-√ Designates Machined Surface

Certification

-ASTM A48
-
-
-Country of Origin: USA

Drawing Revision

10/05/2017 Designer: DJH
11/28/2017 Revised By: DJH

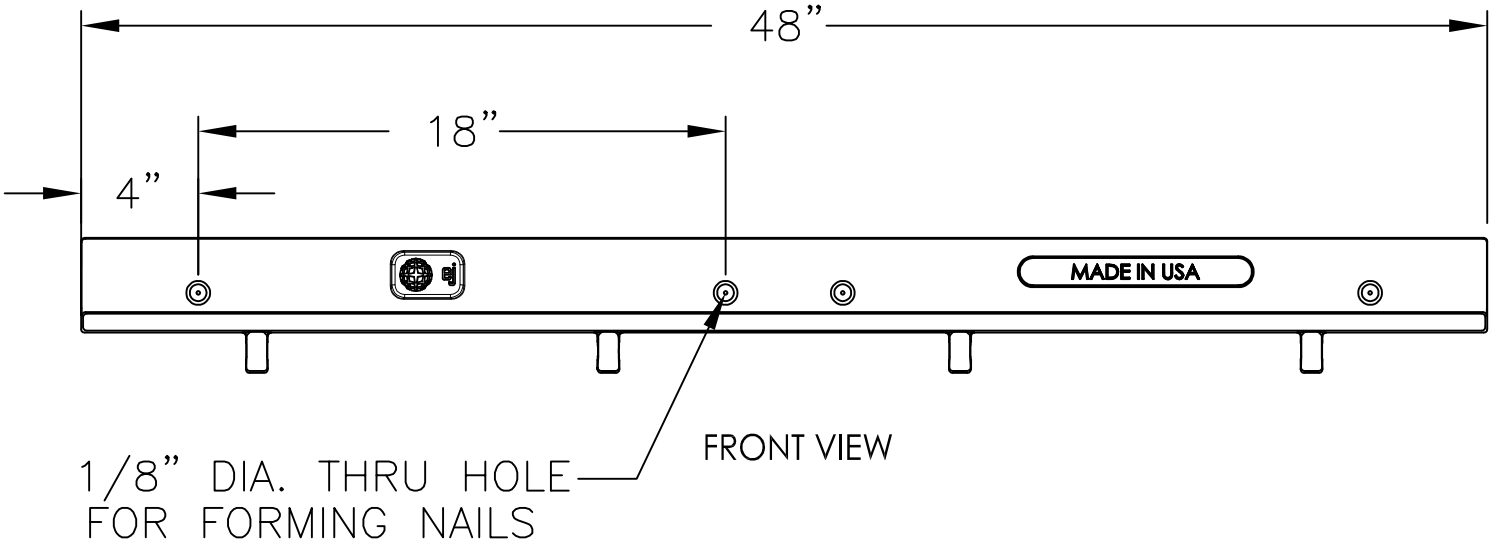
Disclaimer

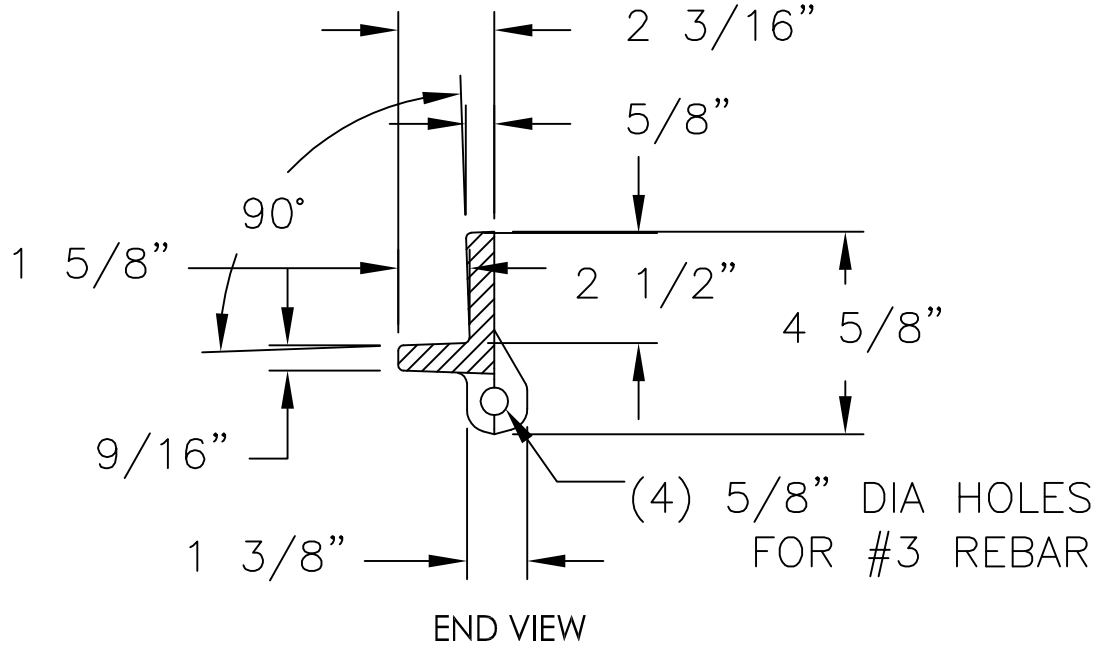
Weights (lbs/kg), dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

Contact

800 626 4653
ejco.com

V7300-3 Trench Rail





Product Number

47300311

Design Features

-Materials
Gray Iron (CL35B)
-Design Load
Heavy Duty
-Open Area
n/a
-Coating
Undipped
-√Designates Machined Surface

Certification

- ASTM A536
-
-
-Country of Origin:USA

Estlmated Welght:

- 38 lbs

Drawing Revision

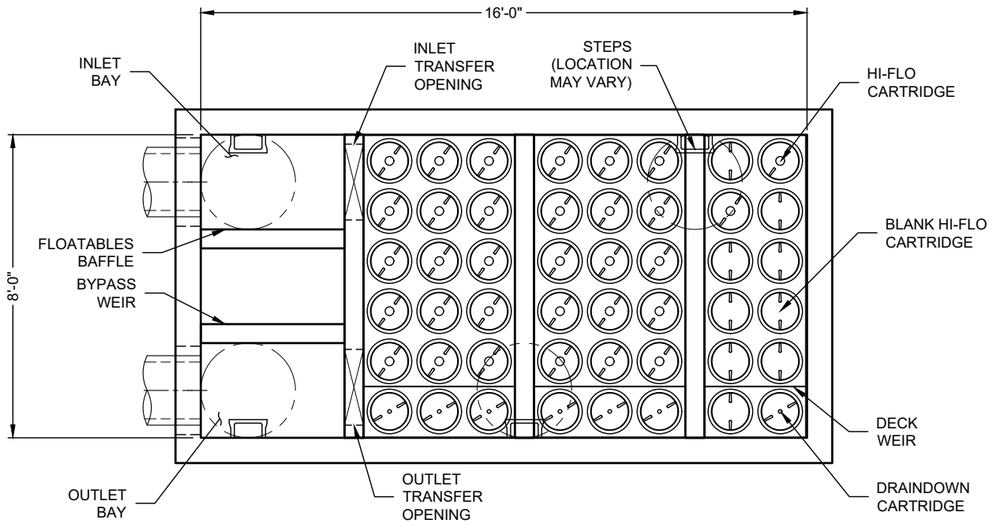
4/16/2005 Designer: SBB
4/18/2018 Revised By: DAE

Disclaimer

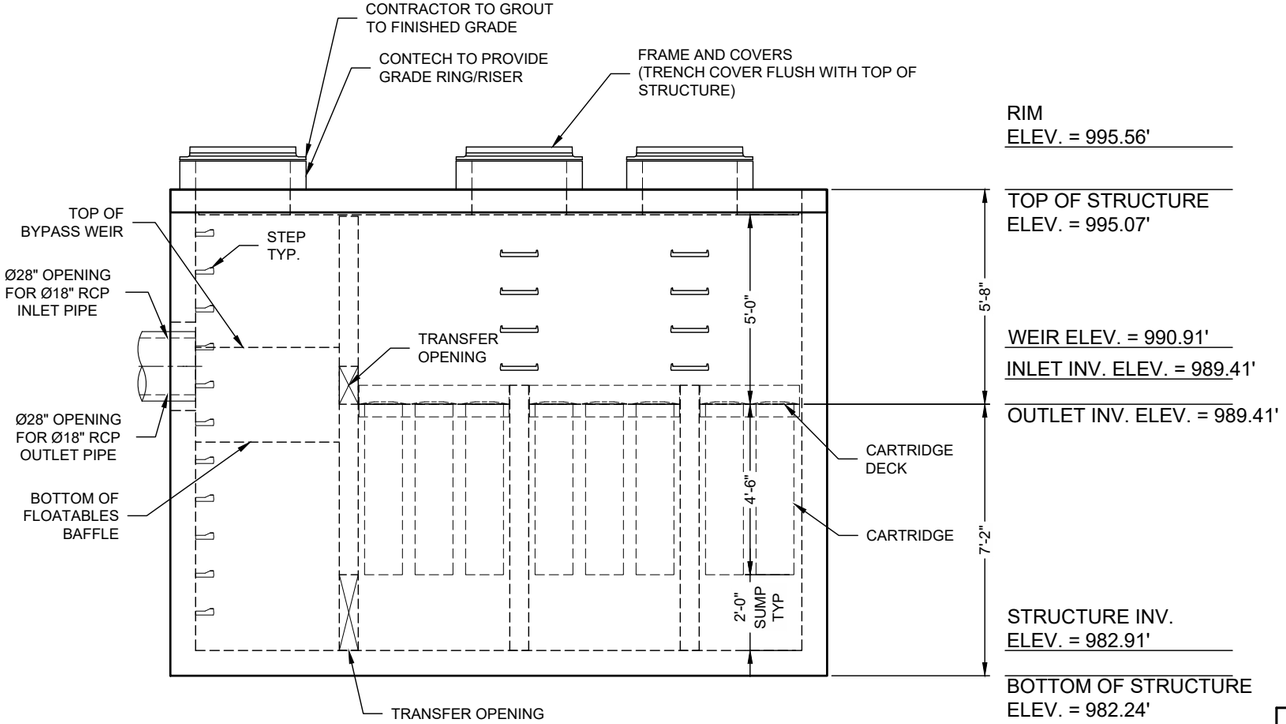
Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

Contact

800 626 4653
ejco.com



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



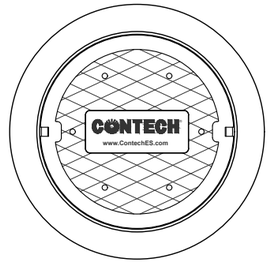
ELEVATION VIEW

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	7.84
DECK TO INSIDE TOP (MIN) (B)	5.00



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	ST-C
WATER QUALITY FLOW RATE (cfs)	6.32
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	32/7
CARTRIDGE LENGTH	54

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	989.41	RCP	18	*	*
INLET #2	*	*	*	*	*
OUTLET	989.41	RCP	18	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	995.56

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:
UNIT IS PLACED OFFLINE AND PAIRED WITH CONTECH STORMGATE DUE TO (2) 5'x3' RCB MAINLINE.
* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
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6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

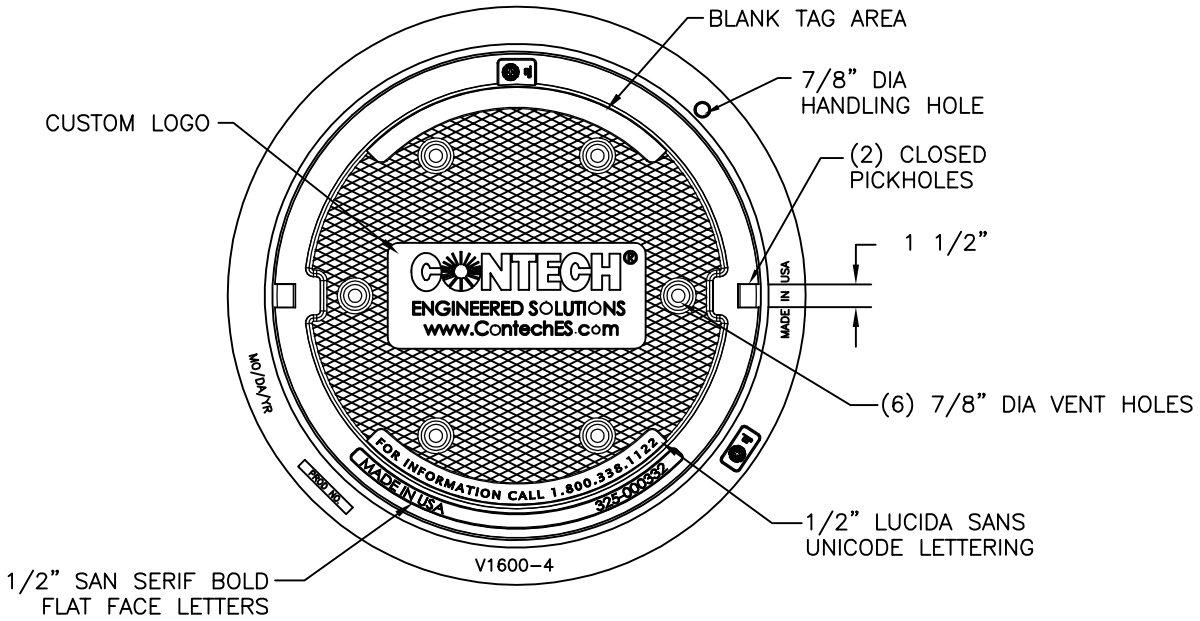
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

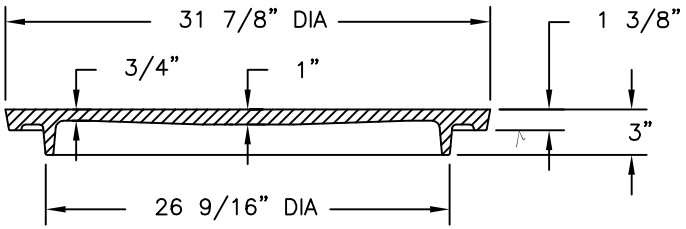
Jellyfish Filter

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

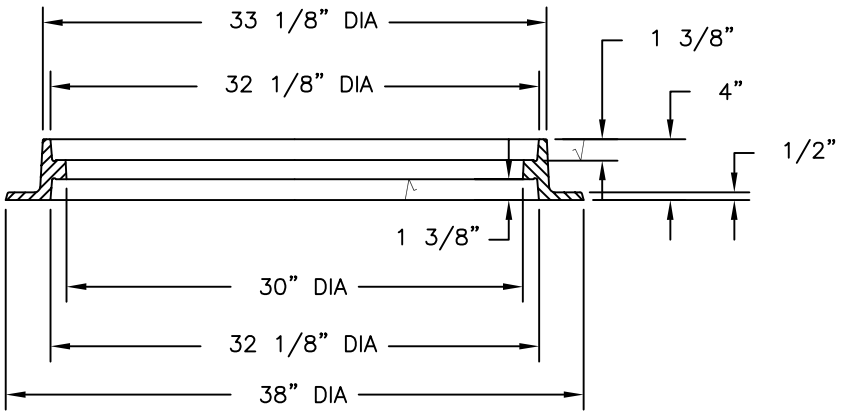
8' x 16' JELLYFISH - 715260 - 030
FOUST TRACT - CHALK HILL VENTURES
LIBERTY HILL, TX
SITE DESIGNATION: ST-C

1810B4 V1600-4 Assembly





COVER SECTION



FRAME SECTION

Product Number

41600483

Design Features

-Materials
  Cover
    Gray Iron (CL35B)
  Frame
    Gray Iron (CL35B)

-Design Load
  Heavy Duty
-Open Area
  n/a
-Coating
  Undipped
-√ Designates Machined Surface

Certification

-
- ASTM A48
-
-Country of Origin: USA

Major Components

00180783
41600410

Drawing Revision

05/09/2007 Designer: SMH
6/26/2017 Revised By: DAE

Disclaimer

Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

Contact

800 626 4653
ejco.com

ATTACHMENT M
CONSTRUCTION PLANS

OWNER/DEVELOPER:
CHV LIBERTY HILL 29 PROPERTY OWNER LLC
6601-E HILLCREST AVE, STE 212
DALLAS, TEXAS 75205
PHONE: (214) 435 - 7510
CONTACT: LANGFORD STUBER
langford@chalkhillventures.com

ENGINEER:
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL, SUITE C3
CEDAR PARK, TX 78613
PHONE: (512) 428-8586
CONTACT: SHEA KIRKMAN, P.E.
shea.kirkman@trustke.com

SURVEYOR:
BARTON CHAPA SURVEYING
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
PHONE: (817) 864-1957
CONTACT: JACK BARTON, RPLS
jack@bcsdfw.com

SITE DEVELOPMENT PLANS FOR THE CONSTRUCTION OF

WATER, WASTEWATER, PAVING, GRADING & DRAINAGE IMPROVEMENTS

TO SERVE

CHALK HILL RANCH

LOTS 1 & 2, BLOCK A
LOTS 1 & 2, BLOCK B

THE CITY OF LIBERTY HILL AND LIBERTY HILL ETJ, WILLIAMSON COUNTY, TEXAS

CURTIS STEGER, P.E., CITY ENGINEER: ________ DATE ________

BASED ON THE DESIGN ENGINEER'S CERTIFICATION OF COMPLIANCE WITH ALL APPLICABLE CITY, STATE AND FEDERAL REGULATIONS, THE PLANS AND SPECIFICATIONS CONTAINED HEREIN HAVE BEEN REVIEWED AND ARE FOUND TO BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE CITY OF LIBERTY HILL.

JERRY L.MILLARD, JR., DIRECTOR OF PLANNING ________ DATE ________

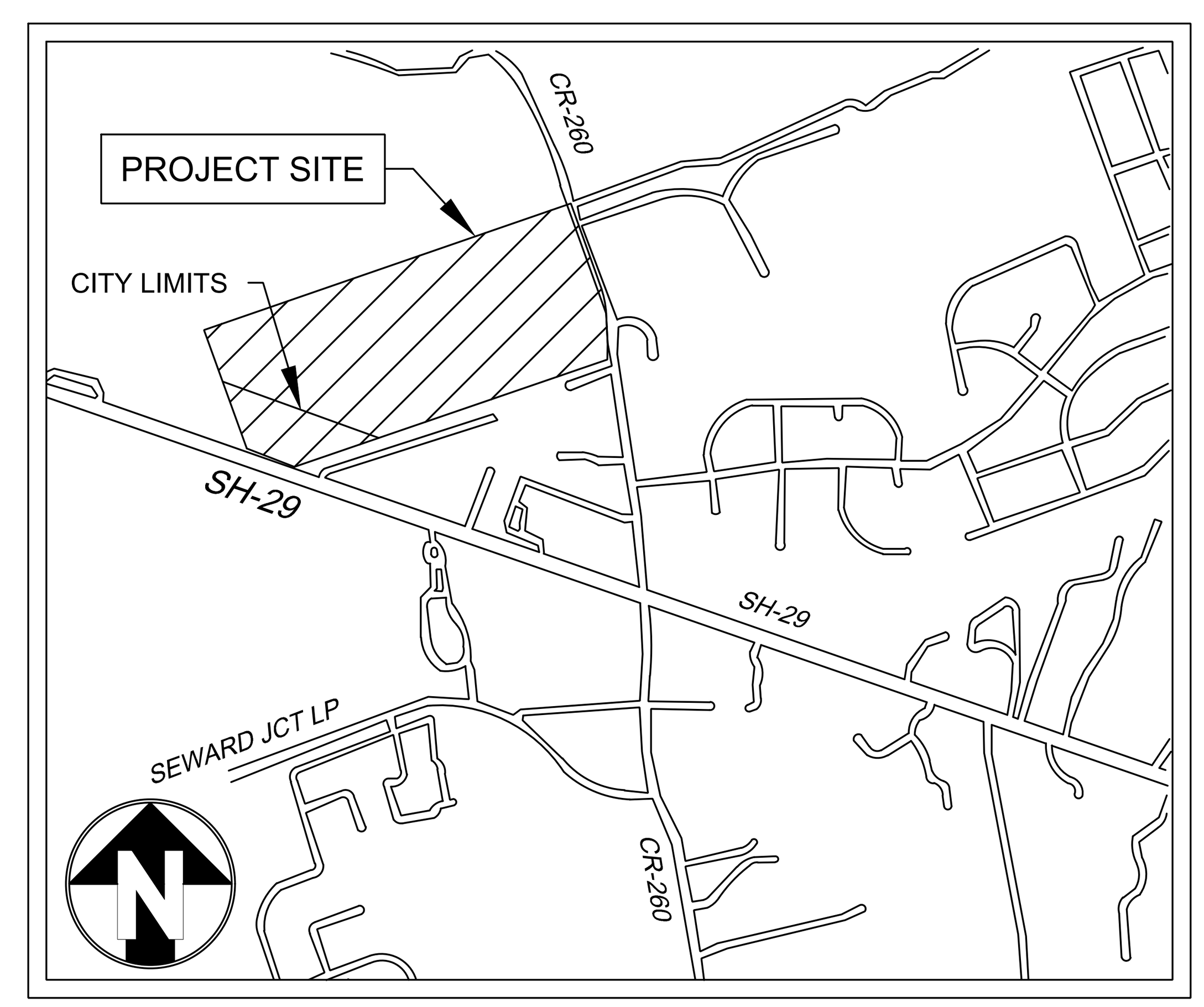
LIZ BRANIGAN, MAYOR ________ DATE ________

ELAINE SIMPSON, CITY SECRETARY ________ DATE ________

REVIEWED FOR COMPLIANCE WITH COUNTY REQUIREMENTS

WILLIAMSON COUNTY ________ DATE ________

NOTES:
1. CERTIFICATE OF COMPLIANCE NUMBER 2023-49-COC
2. TXDOT DRIVEWAY PERMIT NUMBER 21-42318
3. WILLIAMSON COUNTY DRIVEWAY PERMIT NUMBERS _______
4. THE CONTRACTOR SHALL OBTAIN A "NOTICE OF PROPOSED INSTALLATION OF UTILITY LINE" PERMIT FROM WILLIAMSON COUNTY FOR ANY WORK PERFORMED IN THE EXISTING COUNTY RIGHT-OF-WAY (DRIVEWAY APRON, WATER MAIN TIE-IN, ETC.) THIS PERMIT APPLICATION WILL REQUIRE A LIABILITY AGREEMENT, A CONSTRUCTION COST ESTIMATE FOR WORK WITHIN THE RIGHT-OF-WAY INCLUDING PAVEMENT REPAIR (IF NEEDED), A PERFORMANCE BOND, CONSTRUCTION PLANS AND, IF NECESSARY, A TRAFFIC CONTROL PLAN. AN INSPECTION FEE, AND A PRE-CONSTRUCTION MEETING MAY ALSO BE REQUIRED, DEPENDING ON THE SCOPE OF WORK. THE PERMIT WILL BE REVIEWED AND APPROVED BY THE COUNTY ENGINEER, AND MUST ALSO BE APPROVED BY THE WILLIAMSON COUNTY COMMISSIONERS COURT IF ANY ROAD CLOSURE IS INVOLVED."



VICINITY MAP
HORIZONTAL SCALE: 1" = 1000'

5/25/2023
SHEA O. KIRKMAN
91865

kirkman ENGINEERING
TEXAS FIRM NO. 15874

PROJECT NO. CHV21004

MAY 2023

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UTILITY PROVIDER INDEX

UTILITY	PROVIDER	CONTACT	PHONE NUMBER	EMAIL ADDRESS
ELECTRIC	PEDERNALES ELECTRIC COOPERATIVE, INC.	CARRIE GARRET	877-372-0391	carrie.garret@peci.com
TELEPHONE/FIBER	AT&T	GREGORY SIFUENTEZ	512-413-2122	gs7821@att.com
WATER	CITY OF GEORGETOWN	DAVID MUNK	512-930-3640	david.munk@georgetown.org
WASTEWATER	CITY OF LIBERTY HILL	CURTIS STEGER, PE	512-930-9412	curtis.steger@stegerbizzell.com

PLANS FOR THE CONSTRUCTION OF WATER, SANITARY SEWER, PAVING, GRADING & DRAINAGE IMPROVEMENTS TO SERVE: FOUST INFRASTRUCTURE

GENERAL NOTES

1. STANDARDS AND SPECIFICATIONS: ALL MATERIALS, CONSTRUCTION METHODS, WORKMANSHIP, EQUIPMENT, SERVICES AND TESTING FOR ALL PUBLIC IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE GOVERNING AUTHORITIES' ORDINANCES, REGULATIONS, REQUIREMENTS, STATUTES, SPECIFICATIONS AND DETAILS, LATEST PRINTING AND AMENDMENTS THERETO. THE GOVERNING AUTHORITIES' PUBLIC WORKS AND WATER DEPARTMENT REQUIREMENTS, PLUMBING CODES, AND FIRE DEPARTMENT REGULATIONS SHALL TAKE PRECEDENT FOR ALL PRIVATE IMPROVEMENTS WHERE APPLICABLE. ALL OTHER PRIVATE CONSTRUCTION, NOT REGULATED BY THE GOVERNING AUTHORITY, SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, LATEST PRINTING AND AMENDMENTS THERETO, EXCEPT AS MODIFIED BY THE PROJECT CONTRACT DOCUMENTS.
2. EXAMINATION OF PLANS: PRIOR TO COMMENCING ANY CONSTRUCTION, THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE CONTRACTOR DOCUMENTS, CONSTRUCTION DOCUMENTS, AND SPECIFICATIONS. FAILURE ON THE PART OF THE CONTRACTOR TO FAMILIARIZE THEIR SELF WITH ALL STANDARDS AND SPECIFICATIONS PERTAINING TO THE WORK SHALL IN NO WAY RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMING THE WORK IN ACCORDANCE WITH ALL SUCH APPLICABLE STANDARDS AND SPECIFICATIONS.
3. EXAMINATION OF SITE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR INVESTIGATING AND SATISFYING THEIR SELF AS TO THE CONDITIONS AFFECTING THE WORK, INCLUDING BUT NOT RESTRICTED TO THE BEARING UPON TRANSPORTATION, DISPOSAL, HANDLING AND STORAGE OF MATERIALS, AVAILABILITY OF LABOR, WATER, ELECTRIC POWER, ROADS AND UNCERTAINTIES OF WEATHER, OR SIMILAR PHYSICAL CONDITIONS AT THE SITE, CONDITIONS OF THE GROUND, THE CHARACTER OF EQUIPMENT AND FACILITIES NEEDED PRELIMINARY TO AND DURING THE PERFORMANCE OF THE WORK.
FAILURE BY THE CONTRACTOR TO ACQUAINT HIMSELF WITH THE AVAILABLE INFORMATION WILL NOT RELIEVE HIM FROM RESPONSIBILITY FOR ESTIMATING THE DIFFICULTY OR COST OF SUCCESSFULLY PERFORMING THE WORK.
4. ADEQUATE AREA TO PERFORM WORK: CONTRACTOR TO VERIFY ADEQUATE AREA EXISTS ON-SITE TO PERFORM THE WORK SHOWN IN THESE CONSTRUCTION DOCUMENTS. IF ADDITIONAL AREA IS REQUIRED TO PERFORM THE WORK, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION.
5. SUBSURFACE INVESTIGATION: SUBSURFACE EXPLORATION TO ASCERTAIN THE NATURE OF SOILS HAS BEEN PERFORMED BY THE GEOTECHNICAL ENGINEER OF RECORD ON THE PROJECT. THE SUBSURFACE INFORMATION WILL BE MADE AVAILABLE FOR THE CONTRACTOR'S USE. THE ENGINEER DISCLAIMS ANY RESPONSIBILITY FOR THE ACCURACY, TRUE LOCATION AND EXTENT OF THE SOILS INFORMATION PREPARED BY OTHERS.
6. TOPOGRAPHY SURVEY: TOPOGRAPHIC SURVEY INFORMATION SHOWN ON THE PLANS IS PROVIDED FOR INFORMATIONAL PURPOSES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE INFORMATION SHOWN IS CORRECT, AND SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY ERRORS, DISCREPANCIES OR OMISSIONS TO THE SURVEY INFORMATION PROVIDED.
7. COMPLIANCE WITH LAWS: THE CONTRACTOR SHALL FULLY COMPLY WITH ALL LOCAL, STATE AND FEDERAL LAWS, INCLUDING ALL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS CONTRACT AND THE WORK TO BE DONE THEREUNDER, WHICH EXIST OR MAY BE ENACTED LATER BY GOVERNMENTAL BODIES HAVING JURISDICTION OR AUTHORITY FOR SUCH ENACTMENT. ALL WORK REQUIRED UNDER THIS CONTRACT SHALL COMPLY WITH ALL REQUIREMENTS OF LAW, REGULATION, PERMIT OR LICENSE. IF THE CONTRACTOR FINDS THAT THERE IS A VARIANCE, HE SHALL IMMEDIATELY REPORT THIS TO THE OWNER FOR RESOLUTION.
8. PUBLIC CONVENIENCE AND SAFETY: IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONNEL AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. MATERIALS STORED ON THE WORK SITE SHALL BE PLACED, AND THE WORK SHALL AT ALL TIMES BE SO CONDUCTED, AS TO CAUSE NO GREATER OBSTRUCTION TO THE TRAVELING PUBLIC THAN IS CONSIDERED ACCEPTABLE BY THE GOVERNING AUTHORITIES AND THE DEVELOPER AND NOT TO PREVENT FREE UNINTERRUPTED ACCESS TO ALL FIRE HYDRANTS, WATER VALVES, GAS VALVES, MANHOLES AND FIRE ALARM OR POLICE CALL BOXES IN THE VICINITY.
9. STORM WATER POLLUTION PREVENTION PLAN (SWPPP): THE CONTRACTOR SHALL COMPLY WITH THE CONDITIONS OF THE SWPPP WHILE CONDUCTING THEIR ACTIVITIES ON THE PROJECT.
10. PERMITS AND LICENSES: THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND LICENSES NECESSARY FOR THE EXECUTION OF THE WORK AND SHALL FULLY COMPLY WITH ALL THEIR TERMS AND CONDITIONS. WHENEVER THE WORK UNDER THIS CONTRACT REQUIRES THE OBTAINING OF PERMITS FROM THE GOVERNING AUTHORITIES, THE CONTRACTOR SHALL FURNISH DUPLICATE COPIES OF SUCH PERMITS TO THE DEVELOPER BEFORE THE WORK COVERED THEREBY IS STARTED. NO WORK WILL BE ALLOWED TO PROCEED BEFORE SUCH PERMITS HAVE BEEN OBTAINED. COSTS ASSOCIATED WITH PERMITS SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
11. APPROVED PLANS: THE CONTRACTOR SHALL HAVE AT LEAST ONE SET OF APPROVED PLANS ON-SITE AT ALL TIMES. WORK PERFORMED WITHOUT THE USE OF APPROVED PLAN SETS IS NOT AUTHORIZED AND SHALL BE AT THE RISK OF THE CONTRACTOR.
12. BONDS: PERFORMANCE, PAYMENT AND MAINTENANCE BONDS MAY BE REQUIRED FROM THE CONTRACTOR FOR "PUBLIC" IMPROVEMENTS. IF REQUIRED, THE CONTRACTOR SHALL PROVIDE THE BONDS IN THE FORM AND IN THE AMOUNTS AS REQUIRED BY THE GOVERNING AUTHORITIES. COSTS ASSOCIATED WITH PROVIDING THE BONDS SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
13. TESTING: THE TESTING AND CONTROL OF ALL MATERIALS USED IN THE WORK SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY, EMPLOYED AND PAID DIRECTLY BY THE CONTRACTOR. IN THE EVENT THE RESULTS OF THE INITIAL TESTING DO NOT COMPLY WITH THE PLANS AND SPECIFICATIONS, SUBSEQUENT TESTS NECESSARY TO DETERMINE THE ACCEPTABILITY OF MATERIALS OR CONSTRUCTION SHALL BE AT THE CONTRACTOR'S EXPENSE.
14. INSPECTION: THE GOVERNING AUTHORITIES AND/OR THE DEVELOPER WILL PROVIDE INSPECTION OF THE PROPOSED CONSTRUCTION. THE OWNER WILL PAY THE COSTS FOR INSPECTION SERVICES. THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE WELL IN ADVANCE OF PENDING CONSTRUCTION ACTIVITIES TO THE GOVERNING AUTHORITIES AND/OR OWNER FOR SCHEDULING OF INSPECTION SERVICES.
15. SHOP DRAWINGS: THE CONTRACTOR SHALL PREPARE, REVIEW, AND SUBMIT ALL SHOP DRAWING, PRODUCT DATA AND SAMPLES REQUIRED BY THE GOVERNING AUTHORITIES AND THE PROJECT CONTRACT DOCUMENTS IN ACCORDANCE WITH ITEM 1.28 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, NORTH CENTRAL TEXAS - NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS.
16. SURVEYING: ALL SURVEYING REQUIRED FOR CONSTRUCTION STAKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE OWNER SHALL PROVIDE TWO BENCHMARKS FOR USE AS HORIZONTAL AND VERTICAL DATUM. THE CONTRACTOR SHALL EMPLOY A REGISTERED PROFESSIONAL LAND SURVEY TO PERFORM ALL ADDITIONAL SURVEY, LAYOUT AND MEASUREMENT WORK NECESSARY FOR THE COMPLETION OF THE PROJECT. THE COSTS ASSOCIATED WITH THE CONSTRUCTION STAKING SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
17. PROTECTION OF PROPERTY CORNERS AND BENCHMARKS: THE CONTRACTOR SHALL PROTECT ALL PROPERTY CORNER MARKERS AND BENCHMARKS. WHEN ANY SUCH MARKERS OR MONUMENTS ARE IN DANGER OF BEING DISTURBED, THEY SHALL BE PROPERLY REFERENCED AND IF DISTURBED SHALL BE RESET BY A REGISTERED PUBLIC SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
18. EXISTING STRUCTURES: THE PLANS SHOW THE LOCATION OF ALL KNOWN SURFACE AND SUB SURFACE STRUCTURES, HOWEVER, THE DEVELOPER AND ENGINEER ASSUME NO RESPONSIBILITY FOR THE FAILURE TO SHOW ANY OR ALL OF THESE STRUCTURES ON THE PLANS, OR TO SHOW THEM IN THEIR EXACT LOCATION. SUCH FAILURE SHALL NOT BE CONSIDERED SUFFICIENT BASIS FOR CLAIMS FOR ADDITIONAL COMPENSATION FOR EXTRA WORK OR FOR INCREASING THE PAY QUANTITIES IN ANY MANNER WHATSOEVER, UNLESS THE OBSTRUCTION ENCOUNTERED IN SUCH AS TO REQUIRE CHANGES IN THE LINES OR GRADES, OR REQUIRE THE CONSTRUCTION OF SPECIAL WORK, FOR WHICH PROVISIONS ARE NOT MADE IN THE PLANS.
19. PROTECTION OF EXISTING UTILITIES: AS REQUIRED BY "THE TEXAS UNDERGROUND FACILITY DAMAGE PREVENTION AND SAFETY ACT". TEXAS ONE CALL SYSTEM MUST BE CONTACTED (800-245-4545) AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION OPERATIONS BEING PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT TEXAS ONE CALL SYSTEM. THE LOCATION OF EXISTING UTILITIES SHOWN ON THE PLANS ARE BASED ON THE BEST RECORDS AND/OR FIELD INFORMATION AVAILABLE AND ARE NOT GUARANTEED BY THE DEVELOPER OR ENGINEER TO BE ACCURATE AS TO THE LOCATION AND DEPTH. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY LOCATIONS OF ADJACENT AND/OR CONFLICTING UTILITIES SUFFICIENTLY IN ADVANCE OF HIS ACTIVITIES IN ORDER THAT HE MAY NEGOTIATE SUCH LOCAL ADJUSTMENTS AS NECESSARY IN THE CONSTRUCTION PROCESS TO PROVIDE ADEQUATE CLEARANCES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL EXISTING UTILITIES, SERVICES, AND STRUCTURES ENCOUNTERED WHETHER OR NOT THEY ARE ON THE PLANS. ANY DAMAGE TO UTILITIES RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT HIS EXPENSE. TO AVOID UNNECESSARY INTERFERENCE'S OR DELAYS, THE CONTRACTOR SHALL COORDINATE ALL UTILITY REMOVALS, REPLACEMENTS AND CONSTRUCTION WITH THE APPROPRIATE GOVERNING AUTHORITIES. THE DEVELOPER WILL NOT BE LIABLE FOR DAMAGES DUE TO DELAY BECAUSE OF THE ABOVE.
20. DAMAGE TO EXISTING FACILITIES: ALL DAMAGE DURING CONSTRUCTION ACTIVITIES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE TO A CONDITION AS GOOD AS OR BETTER THAN THE CONDITIONS PRIOR TO STARTING THE WORK.
21. FIRE AND LIFE SAFETY SYSTEMS: THE CONTRACTOR SHALL NOT REMOVE, DISABLE OR DISRUPT EXISTING FIRE OR LIFE SAFETY SYSTEMS WITHOUT RECEIVING PRIOR WRITTEN PERMISSION FROM THE GOVERNING AUTHORITY.
22. TRENCH SAFETY: THE CONTRACTOR IS RESPONSIBLE FOR HAVING A TRENCH SAFETY PLAN PREPARED IN ACCORDANCE WITH OSHA REQUIREMENTS BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS FOR THE IMPLEMENTATION OF TRENCH SAFETY CONTROL MEASURES THAT WILL BE IN EFFECT DURING THE CONSTRUCTION OF THE PROJECT. THE COSTS FOR PREPARATION OF THE TRENCH SAFETY PLAN SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
23. TRAFFIC CONTROL: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMPLEMENT TRAFFIC CONTROL. THE COSTS ASSOCIATED WITH THE IMPLEMENTATION OF THE TRAFFIC CONTROL PLAN SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
24. ACCESS TO ADJACENT PROPERTIES: ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES UNLESS OTHERWISE DIRECTED BY THE GOVERNING AUTHORITIES AND/OR OWNER.
25. ACCESS ROUTES, STAGING AREAS AND STORAGE AREAS: ALL PRIVATE HAUL ROADS AND ACCESS ROUTES AND THE LOCATION OF ALL STAGING AREAS AND STORAGE AREAS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND REPAIRING ALL ROADS AND OTHER FACILITIES USED DURING CONSTRUCTION. UPON COMPLETION OF THE PROJECT, ALL HAUL ROADS, ACCESS ROADS, STAGING AREAS AND STORAGE AREAS SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THAT AT THE TIME THE CONTRACTOR COMMENCES WORK ON THE PROJECT.
26. PARKING OF CONSTRUCTION EQUIPMENT: AT NIGHT AND DURING ALL PERIODS OF TIME WHEN EQUIPMENT IS NOT BEING ACTIVELY USED FOR THE CONSTRUCTION WORK, THE CONTRACTOR SHALL PARK THE EQUIPMENT AT LOCATIONS WHICH ARE APPROVED BY THE OWNER. DURING THE CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL COMPLY WITH THE PRESENT ZONING REQUIREMENTS OF THE GOVERNING AUTHORITIES IN THE USE OF VACANT PROPERTY FOR STORAGE PURPOSES. THE CONTRACTOR SHALL ALSO PROVIDE ADEQUATE BARRICADES, MARKERS AND LIGHTS TO PROTECT THE OWNER, THE GOVERNING AUTHORITIES, THE PUBLIC AND THE OTHER WORK. ALL BARRICADES, LIGHTS, AND MARKERS MUST MEET THE REQUIREMENTS OF THE GOVERNING AUTHORITIES' REGULATIONS.
27. WATER FOR CONSTRUCTION: THE CONTRACTOR SHALL MAKE THE NECESSARY ARRANGEMENTS FOR PURCHASING WATER FROM THE GOVERNING AUTHORITY FOR HIS USE ON THE PROJECT SITE. COST ASSOCIATED WITH THIS SERVICE SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
28. TEMPORARY ELECTRIC AND COMMUNICATIONS FOR CONSTRUCTION: THE CONTRACTOR SHALL MAKE THE NECESSARY ARRANGEMENTS FOR THE INSTALLATION AND PURCHASING OF TEMPORARY ELECTRIC AND COMMUNICATIONS SERVICES FROM THE GOVERNING AUTHORITIES FOR HIS USE ON THE PROJECT SITE. COSTS ASSOCIATED WITH THIS SERVICE SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
29. FENCES: ALL FENCES ENCOUNTERED AND REMOVED DURING CONSTRUCTION, EXCEPT THOSE DESIGNATED TO BE REMOVED OR RELOCATED, SHALL BE RESTORED TO THE ORIGINAL OR BETTER THAN CONDITION UPON COMPLETION OF THE PROJECT.WHERE WIRE FENCING, EITHER WIRE MESH OR BARBED WIRE, IS NOT TO BE CROSSED, THE CONTRACTOR SHALL SET
CROSS-BRACED POSTS ON EITHER SIDE OF THE CROSSING. TEMPORARY FENCING SHALL BE ERECTED IN PLACE OF THE FENCING REMOVED WHENEVER THE WORK IS NOT IN PROGRESS AND WHEN THE SITE IS VACATED OVERNIGHT AND/OR AT ALL TIMES TO PREVENT PERSONS AND/OR LIVESTOCK FROM ENTERING THE CONSTRUCTION AREA. THE COST OF FENCE REMOVAL, TEMPORARY CLOSURES AND REPLACEMENT SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
30. COORDINATION WITH OTHERS: IN THE EVENT THAT OTHER CONTRACTORS ARE DOING WORK IN THE SAME AREA SIMULTANEOUSLY WITH THE PROJECT, THE CONTRACTOR SHALL COORDINATE HIS PROPOSED CONSTRUCTION WITH THAT OF THE OTHER CONTRACTORS.
31. CONDITION OF THE SITE DURING CONSTRUCTION: THE CONTRACTOR SHALL KEEP THE SITE OF THE WORK AND ADJACENT PREMISES AS FREE FROM MATERIAL, DEBRIS AND RUBBISH AS IS PRACTICABLE. THE CONTRACTOR SHALL REMOVE MATERIAL, DEBRIS AND RUBBISH FROM ANY PORTION OF THE SITE IF, IN THE OPINION OF THE DEVELOPER, SUCH MATERIAL, DEBRIS AND RUBBISH CONSTITUTES A NUISANCE OR IS OBJECTIONABLE.
32. EXISTING ROADWAYS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE CLEANLINESS OF EXISTING PAVED ROADS. COSTS ASSOCIATED WITH MAINTAINING THE CLEANLINESS OF EXISTING ROADS SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
33. SITE RECONNAISSANCE: THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO DETERMINE EXISTING CONDITIONS.
34. CONSULTANT COORDINATION: 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.
35. DUST CONTROL: THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO CONTROL DUST ON THE PROJECT SITE BY SPRINKLING OF WATER, OR ANY OTHER METHODS APPROVED BY THE GOVERNING AUTHORITIES. COSTS ASSOCIATED WITH DUST CONTROL SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
36. CLEAN UP FOR FINAL ACCEPTANCE: THE CONTRACTOR SHALL MAKE A FINAL CLEAN UP OF ALL PARTS OF THE WORK BEFORE ACCEPTANCE BY THE OWNER. THIS CLEAN UP SHALL INCLUDE REMOVAL OF ALL OBJECTIONABLE E MATERIALS AND, IN GENERAL, PREPARING THE SITE OF THE WORK IN AN ORDERLY MANNER OF APPEARANCE.
37. REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK: ALL WORK, WHICH HAS BEEN REJECTED OR CONDEMNED, SHALL BE REPAIRED, OR IF IT CANNOT BE REPAIRED SATISFACTORILY, IT SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. DEFECTIVE MATERIALS SHALL BE IMMEDIATELY REMOVED FROM THE WORK SITE. WORK DONE BEYOND THE LINE OR NOT IN THE CONFORMITY WITH THE GRADES SHOWN ON THE DRAWINGS OR AS WRITTEN AUTHORITY AND PRIOR AGREEMENT IN WRITING AS TO PRICES, SHALL BE AT THE CONTRACTOR'S RISK, AND WILL BE CONSIDERED UNAUTHORIZED, AND AT THE OPTION OF THE OWNER MAY NOT BE MEASURED AND PAID FOR AND MAY BE ORDERED REMOVED AT THE CONTRACTOR'S EXPENSE. UPON FAILURE OF THE CONTRACTOR TO REPAIR SATISFACTORY OR TO REMOVE AND REPLACE, IF SO DIRECTED, REJECTED, UNAUTHORIZED OR CONDEMNED WORK OR MATERIALS IMMEDIATELY AFTER RECEIVING NOTICE FROM THE OWNER, THE OWNER WILL, AFTER GIVING WRITTEN NOTICE TO THE CONTRACTOR, HAVE THE AUTHORITY TO CAUSE DEFECTIVE WORK TO BE REMEDIED OR REMOVED AND REPLACED, OR TO CAUSE UNAUTHORIZED WORK TO BE REMOVED AND TO DEDUCT THE COST THEREOF ANY MONIES DUE OR TO BECOME DUE THE CONTRACTOR.
38. DISPOSITION AND DISPOSAL OF EXCESS AND UNSUITABLE MATERIALS: ALL MATERIALS TO BE REMOVED FROM THE SITE INCLUDED BUT NOT LIMITED TO EXCESS MATERIAL AND UNSUITABLE MATERIALS SUCH AS CONCRETE, ASPHALT, LARGE ROCKS, REFUSE, AND OTHER DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OUTSIDE THE LIMITS OF THE PROJECT. CONTRACTOR SHALL ALSO COMPLY WITH ALL APPLICABLE LAWS GOVERNING SPILLAGE OF DEBRIS WHILE TRANSPORTING TO A DISPOSAL SITE. COSTS ASSOCIATED WITH THE DISPOSAL OF EXCESS AND UNSUITABLE MATERIALS SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
39. RECORD DRAWINGS: THE CONTRACT SHALL MAINTAIN AN ACCURATE RECORD OF THE INSTALLATION OF ALL MATERIALS AND SYSTEM COVERED BY THE PROJECT CONTRACT DOCUMENTS. THE COMPLETE SET OF "RECORD DRAWINGS" MUST BE DELIVERED TO THE OWNER AND/OR ENGINEER BEFORE REQUESTING FINAL PAYMENT.
40. FRANCHISE UTILITIES: THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE INSTALLATION OF FRANCHISE UTILITIES THAT ARE NECESSARY FOR ON-SITE AND OFF-SITE CONSTRUCTION, AND SERVICE TO THE PROPOSED DEVELOPMENT.
41. SCOPE OF WORK: 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.
42. SITE DRAINAGE: CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, MAINTAINING EXISTING DITCHES OR CULVERTS FREE OF OBSTRUCTIONS AT ALL TIMES.

EROSION CONTROL NOTES:

1. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY THE GOVERNING AUTHORITIES, PERMITS ARE OBTAINED, AND ALL EROSION CONTROL MEASURES ARE IN PLACE.
2. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
3. THE GENERAL CONTRACTOR (AND ALL SUBCONTRACTORS INVOLVED WITH ANY CONSTRUCTION ACTIVITIES RELATED TO EARTHWORK, EROSION CONTROL, ETC. OR WHICH UTILIZE POSSIBLE POLLUTANTS AS DEFINED IN THE TPDES GENERAL PERMIT) SHALL REVIEW AND ADHERE TO THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE PROJECT, AS WELL AS ALL THE TCEQ REQUIREMENTS SET FORTH IN THE TPDES GENERAL PERMIT.
4. THIS EROSION CONTROL PLAN IS A SUPPLEMENT TO THE SWPPP PREPARED BY OTHERS. REFER TO THE SWPPP FOR ADDITIONAL REQUIREMENTS.
5. ALL WASH WATER SHALL BE DISPOSED OF IN A MANNER THAT PREVENTS CONTACT BETWEEN WASH WATER POLLUTANTS AND STORM RUNOFF DISCHARGED FROM THIS SITE.
6. OIL AND GREASE ABSORBING MATERIALS SHALL BE READILY AVAILABLE ON-SITE AND SHALL BE PROMPTLY USED TO CONTAIN AND/OR CLEAN UP ALL FUEL OR CHEMICAL SPILLS OR LEAKS.
7. DUST CONTROL SHALL BE ACCOMPLISHED BY WATERING DRY, EXPOSED AREAS ON A REGULAR BASIS. SPRAYING OF PETROLEUM BASED OR TOXIC LIQUIDS FOR THIS IS PROHIBITED.
8. DISTURBED AREAS ON THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED FOR AT LEAST 14 DAYS SHALL BE TEMPORARILY PLANTED AND/OR SEEDED AND WATERED.
9. DISTURBED AREAS ON THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED SHALL BE PERMANENTLY PLANTED AND/OR SEEDED WITHIN 14 DAYS.
10. PLANTING AND/OR SEEDING OF VEGETATED AREAS TO ACCOMPLISH STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE LANDSCAPING PLAN. AREAS BEYOND THE LIMITS OF THE LANDSCAPING PLAN (OR WHEN A LANDSCAPING PLAN DOES NOT EXIST) SHALL BE HYDROMULCHED WITH HIGHWAY MIX AND WATERED WITH TEMPORARY ABOVE GROUND IRRIGATION UNTIL THE VEGETATION IS ESTABLISHED.
11. ALL VEHICLES SHALL BE CLEANED AT THE CONSTRUCTION EXIT POINT(S) BEFORE LEAVING THE SITE.
12. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED ONTO ADJACENT ROADWAYS BY ANY VEHICLES EXITING THE SITE SHALL BE CLEANED OR REMOVED IMMEDIATELY.
13. THE CONTRACTOR SHALL REMOVE ALL ACCUMULATED SILT IN ANY STORM SEWER INLETS AND PIPES, AND ALONG SILT FENCES, WITHIN 48 HOURS AFTER INSPECTION OF DEVICES REVEALS THE PRESENCE OF EXCESS SILTATION.
14. SILT FENCES SHALL BE PLACED AROUND ANY STOCKPILES USED ON THE SITE. STONE OVERFLOW POINTS SHALL BE ADDED AT ALL LOW POINTS ALONG SILT FENCING.
15. ADDITIONAL EROSION CONTROL MEASURES MAY BE IMPLEMENTED BY THE CONTRACTOR AT HIS DISCRETION AT NO ADDITIONAL EXPENSE TO THE OWNER. THE ADDITION OR DELETION OF ANY EROSION CONTROL MEASURE MAY REQUIRE THAT THE SWPPP BE MODIFIED IN ACCORDANCE WITH THE TCEQ'S TPDES GENERAL PERMIT GUIDELINES.
16. ALL TEMPORARY EROSION CONTROL DEVICES (SILT FENCE, ETC.) SHALL BE REMOVED AND PROPERLY DISPOSED OF OFF SITE WITHIN THIRTY DAYS AFTER STABILIZATION OF ALL DISTURBED SURFACES IS COMPLETE.
17. THE CONTRACTOR SHALL ASSUME LIABILITY FOR DAMAGE TO ADJACENT PROPERTIES AND/OR PUBLIC RIGHT OF WAY RESULTING FROM FAILURE TO FULLY IMPLEMENT AND EXECUTE ALL EROSION CONTROL PROCEDURES SHOWN AND NOTED IN THESE PLANS AND IN THE SWPPP.
18. THE CONTRACTOR SHALL MODIFY THIS PLAN TO SHOW LOCATIONS OF TEMPORARY WASH DOWN AREA, PORTABLE TOILETS, EQUIPMENT MAINTENANCE/REPAIR AREAS, STOCKPILE AREAS, FUEL STORAGE AREAS, ETC. AND POLLUTANT CONTROLS FOR EACH.
19. THE GENERAL CONTRACTOR, AS THE TCEQ DEFINED "OPERATOR," SHALL PERFORM ALL REQUIRED INSPECTIONS OF STORM WATER CONTROLS AND PRACTICES AT FREQUENCIES OUTLINED IN THE TPDES GENERAL PERMIT, AND SHALL FILL OUT APPROPRIATE INSPECTION FORMS (AS PROVIDED IN THE SWPPP).
20. IF DIRT OR ROCK IS EXPORTED FROM THIS SITE, OR IF DIRT OR ROCK IS IMPORTED FROM AN OFF SITE BORROW LOCATION, THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR COMPLIANCE WITH ALL TCEQ STORM WATER REQUIREMENTS FOR THE REMOTE SITE. THE CONTRACTOR SHALL FURNISH THE OWNER WITH A COPY OF THE WRITTEN AGREEMENT WITH THE LANDOWNER OF THE REMOTE SITE INDICATING PERMITTING AND EROSION CONTROL MEASURES WILL BE IMPLEMENTED THEREON.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REESTABLISHING VEGETATION IN ALL DISTURBED AREAS WHETHER SHOWN IN THIS PLAN SET OR NOT. VEGETATION SHALL BE REESTABLISHED IN ACCORDANCE WITH THE STANDARDS OF THE GOVERNING MUNICIPALITY.
22. CONTRACTOR TO MAINTAIN EXISTING DRAINAGE PATTERNS DURING CONSTRUCTION UNTIL SUCH TIME THAT THE PROPOSED DRAINAGE INFRASTRUCTURE SHOWN IN THESE CONSTRUCTION PLANS IS INSTALLED AND OPERATIONAL.

PAVING NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF OF PASSING FIELD DENSITY TESTS ON THE STABILIZED SUBGRADE FOR SITE PAVING EQUAL TO THE RATIO OF 1 PER 5,000 SQUARE FEET OF PAVEMENT (AND ALL FAILING DENSITY TESTS AND REQUIRED MOISTURE DENSITY CURVES). ADDITIONAL FIELD DENSITY TESTS MAY BE REQUIRED FOR FOUNDATIONS. REFER TO STRUCTURAL PLANS AND SPECIFICATIONS FOR SUCH. IN ADDITION, THE CONTRACTOR SHALL PROVIDE THE OWNER TEN (10) PASSING SITE PAVEMENT CORES FOR THE OWNERS USE IN THE OWNER'S TESTING FOR THICKNESS AND COMPRESSIVE STRENGTH. CORE LOCATIONS SHALL BE DESIGNATED BY THE OWNER. CONTRACTOR SHALL PATCH CORE HOLES AND FINISH WITH LIKE AND MATCHING MATERIALS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL TESTING COSTS SHOULD THE ABOVE TESTS FAIL MINIMUM CRITERIA AS ESTABLISHED BY NCTCOG. ANY NON-CONFORMING PAVING SHALL BE REPLACED OR RESOLVED IN ACCORDANCE WITH NCTCOG SPECIFICATIONS AND THESE CONSTRUCTION PLANS.
2. ALL EARTHWORK AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION AND REPORT FOR THIS PROJECT AND THOSE RECOMMENDATIONS LISTED WITHIN THE REPORT. REFER TO THIS REPORT FOR ALL EARTHWORK AND RELATED ITEMS. REFER TO STRUCTURAL FOR BUILDING PREP. THE REPORT REFERENCES AGENCY/INDUSTRY STANDARDS. IN THE EVENT THAT THERE IS A QUESTION OR DISPUTE BETWEEN GOVERNING SPECIFICATIONS, THE MOST STRINGENT SHALL APPLY SUCH THAT THE OWNER RECEIVES THE MOST ADVANTAGEOUS FINISHED PRODUCT.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PERFORMING ALL CONSTRUCTION LAYOUTS FROM THE SITE LAYOUT CONTROL POINTS AND FROM THE DIMENSIONS SHOWN. THE CONTRACTOR MUST NOTIFY THE ENGINEER OF ANY DISCREPANCIES IN ADVANCE AND ALLOW FOR THE ENGINEER'S RESPONSE BEFORE PROCEEDING WITH THE WORK.
4. ALL PAVING DIMENSIONS ARE TO FACE OF CURB, AND EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY THE CITY AND THE ENGINEER WITH A CONCRETE MIX DESIGN AT THE PRE-CONSTRUCTION MEETING FOR REVIEW AND APPROVAL. THE COST OF THIS DESIGN SHALL BE INCLUDED IN THE UNIT PRICE OF PAVEMENT MATERIAL.
6. THE CONTRACTOR SHALL PROTECT ANY EXISTING AND/OR PROPOSED UTILITIES, WHICH ARE IN THE PROPOSED SUBGRADE DURING THE SUBGRADE STABILIZATION PROCESS.
7. CONTRACTOR SHALL ADJUST ALL UTILITIES (EXISTING AND PROPOSED) TO FINAL GRADE AT CONTRACTORS EXPENSE. ALL UTILITIES AND APPURTENANCES SHALL BE EXTENDED UP TO FINAL GRADE. UTILITY CLEAN-OUTS, VALVES, MANHOLES, ETC. LOCATED WITHIN PAVED AREAS SHALL BE PAVED PER DETAIL. IN NON-PAVED AREAS, SAID APPURTENANCES SHALL HAVE A 4" THICK CONCRETE PAD EXTENDING 12" BEYOND SAID APPURTENANCE (BLOCK OUT) POURED AT FINAL GRADE FOR PROTECTION AGAINST DAMAGE FROM MOWING AND MAINTENANCE EQUIPMENT.
8. CONTRACTOR SHALL PLACE IRRIGATION, UTILITY CONDUITS, AND OTHER SLEEVES AS NECESSARY FOR CONSTRUCTION PRIOR TO ANY PAVING CONSTRUCTION, PER THE IRRIGATION AND ARCHITECTURAL/MEP PLANS, OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE WITH THE CURBS SCORED TO IDENTIFY THE SLEEVE LOCATIONS.
9. UNLESS OTHERWISE NOTED, SUBGRADE SHALL BE STABILIZED TO 12" BEYOND THE BACK OF CURB OR EDGE OF PAVEMENT PER GEOTECH RECOMMENDATIONS UNLESS STATED OTHERWISE. ALL CONCRETE STRENGTH AND REINFORCING STEEL SHALL BE PER PROJECT GEOTECHNICAL RECOMMENDATIONS.
10. FIRE LANES, PARKING, AND ROADWAY STRIPING & MARKINGS SHALL CONFORM TO CITY STANDARDS.
11. SIDEWALKS WITHIN LANDSCAPE AREAS SHALL BE MINIMUM 4" THICK. LARGE EXPANSES OF CONCRETE FLATWORK (SUCH AS MAJOR PEDESTRIAN AREAS, PLAZA AREAS BETWEEN BUILDINGS OR OTHER STRUCTURES) SHALL BE TREATED LIKE VEHICULAR CONCRETE PAVEMENT AND RECEIVE SAME SUBGRADE STABILIZATION AS VEHICULAR PAVEMENT (6" DEEP MINIMUM AND IN ACCORDANCE WITH A LIME SERIES TEST) AND ALL JOINTS (CONTRACTION AND EXPANSION JOINTS) SHALL BE SEALED WITH SELF LEVELING POLYURETHANE SEALANT.
12. ALL PAVEMENT WITHIN 5' OF PROPOSED BUILDING(S) SHALL ADHERE TO THE STRUCTURAL RECOMMENDATIONS AND OR ARCHITECTURAL REQUIREMENTS. REFER TO STRUCTURAL AND ARCHITECTURAL PLANS AND RELATED TECHNICAL SPECIFICATIONS. CIVIL PAVEMENT LIMITS BEGIN 5' OUTSIDE THE BUILDING. IN THE EVENT OF OF A CONFLICT WITH THE STRUCTURAL AND OR ARCHITECTURAL WITHIN THIS AREA, THE STRUCTURAL/ ARCHITECT REQUIREMENTS SHALL GOVERN.
13. FOR "CURB INLETS" SUBTRACT 0.5' (6 INCHES) FOR STANDARD THROAT RECESS AT INLETS PER STANDARD DETAILS. SURROUNDING PAVEMENT AND GUTTER SHALL BE WARPED TO DRAIN FOR INLETS ON GRADE, FLUMES, AND SAG INLETS. INLETS ON GRADE SHALL BE SET IN PLACE TO MATCH THE CURB GRADE LINE.
14. ALL REINFORCING STEEL AND DOWEL BARS IN PAVEMENT SHALL BE SUPPORTED AND MAINTAINED AT THE CORRECT CLEARANCES BY THE USE OF BAR CHAIRS OR OTHER APPROVED SUPPORT.
15. CONNECTION OF THE PROPOSED SIDEWALK TO EXISTING PAVING, SIDEWALK, BUILDING, AND WHEELCHAIR RAMPS SHALL BE CONSIDERED SUBSIDIARY TO THE COST OF THE CONSTRUCTION OF THE SIDEWALK. ALL JOINTS (EXPANSION, ISOLATION, CONTRACTION, & CONSTRUCTION) FOR CONCRETE PAVING AND INCIDENTAL CRACKS SHALL BE SEALED AND INSTALLED IN ACCORDANCE WITH THE AMERICAN CONCRETE PAVEMENT ASSOCIATION (ACPA) RECOMMENDATIONS. CONTRACTOR SHALL OBSERVE THE ARCHITECTURAL AND STRUCTURAL JOINTING LAYOUTS. IN THE EVENT OF A DISCREPANCY OR CONFLICT FOR SITE PAVING, THE CONTRACTOR SHALL REFER TO ACPA PUBLICATION IS061.01P AND IS400.01P FOR THE JOINT SPECIFICATIONS AND THE LAYOUT OF PAVEMENT JOINTS (NON-PAY ITEM).
16. THE CONTRACTOR SHALL USE CARE DURING SOIL STABILIZATION AND COMPACTION ACTIVITIES SO AS NOT TO ADVERSELY AFFECT LANDSCAPE AREAS OR UTILITY LINES WITH SOIL STABILIZATION TREATMENTS. AFTER COMPACTION AND PRIOR TO PLACING GRASS, THE UPPER 8 INCHES (8") OF ALL LANDSCAPED AREAS SHALL BE AERATED, TILLED, OR OTHERWISE PROCESSED SO AS TO PROMOTE HEALTHY ROOT GROWTH FOR TURF AND OTHER VEGETATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY REPAIRS, UNDERCUTTING, REMOVAL, DISPOSAL, AND BACKFILLING OF THESE AREAS IF STABILIZATION IS DISCOVERED (NON-PAY ITEM).
17. THE CONTRACTOR SHALL SUBMIT A JOINT SPACING PLAN FOR ENGINEER APPROVAL PRIOR TO CONSTRUCTION.

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.
2. 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.

DEMOLITION NOTES

1. NO EARTH-DISTURBING ACTIVITIES SHALL COMMENCE UNTIL ALL PERMITS ARE OBTAINED AND PERIMETER EROSION CONTROL MEASURES ARE IN PLACE.
2. ALL DEMOLITION SHALL BE CLOSELY COORDINATED WITH THE OWNER'S REPRESENTATIVE REGARDING ITEMS TO BE SALVAGED, THOSE TO BE REMOVED, ETC. INCLUDING ANY AND ALL TREE PRESERVATION AND TRANSPLANTING ACTIVITIES, AS OUTLINED IN THE PRE-CONSTRUCTION MEETING. REMOVAL, RELOCATION AND/OR DISPOSAL OF ANY PRE-EXISTING ON-SITE TRASH, DEBRIS, OR STOCKPILES SHALL BE INCLUDED IN THE TOTAL COST OF DEMOLITION AND SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AT ALL TIMES.
3. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH ALL REGULATIONS GOVERNING AGENCIES REGARDING THE DEMOLITION, REMOVAL, TRANSPORTATION AND DISPOSAL OF ALL DEMOLITION DEBRIS.
4. INGRESS AND EGRESS POINTS, PROPOSED DISPOSAL SITES, AND HAUL ROUTES MUST BE APPROVED BY CITY OFFICIALS PRIOR TO REMOVAL OF DEMOLITION DEBRIS OFF-SITE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING DISCONNECTION OF ALL UTILITIES SERVING THE EXISTING SITE WITH THE APPROPRIATE UTILITY COMPANY, AND SHALL OBTAIN APPROVAL FROM SAME TO COMMENCE DEMOLITION ACTIVITIES.
6. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST OSHA STANDARDS FOR EXCAVATION AND TRENCHING PROCEDURES. CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, ETC. AS NECESSARY FOR THESE OPERATIONS, AND SHALL COMPLY WITH ALL OSHA PERFORMANCE CRITERIA.
7. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL PROPERTY CORNER MONUMENTS, BENCHMARKS, CONTROL POINTS, ETC, AND SHALL HAVE, AT HIS EXPENSE, ALL CORNER MONUMENTS REPLACED WHICH ARE DISTURBED BY CONSTRUCTION ACTIVITIES.
8. THE CONTRACTOR SHALL INCUR ALL COSTS FOR MAINTENANCE AND REPAIR OF THE EXISTING FENCES TO REMAIN, IRRIGATION SYSTEMS TO REMAIN, UTILITY LINES, ETC, AS OUTLINED IN THE SPECIFICATIONS.
9. THE CONTRACTOR SHALL LOCATE, REMOVE, RELOCATE, AND LOWER ALL UNDERGROUND UTILITY CABLES (ELECTRIC, TELEPHONE, ETC.) UP TO A DEPTH OF 24 INCHES BELOW GRADE AS PART OF THE BASE BID.
10. THE CONTRACTOR SHALL LOCATE AND REMOVE ALL UNDERGROUND UTILITY PIPING, CONDUIT, AND CABLES, REGARDLESS OF DEPTH, IN THE AREA OF THE PROPOSED BUILDING(S) FOUNDATIONS.
11. NOTES SHOWN HEREON REGARDING SPECIFIC ITEMS OF DEMOLITION ARE GENERAL IN NATURE, AND ARE NOT INTENDED TO BE WHOLLY INCLUSIVE. THE CONTRACTOR SHALL DEMOLISH AND REMOVE ALL EXISTING IMPROVEMENTS TO THE SATISFACTION OF THE OWNER, AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS, AND TO THE EXTENT AS NOTED IN THE SPECIFICATIONS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLUGGING, CAPPING, OR OTHERWISE TERMINATING UTILITY SERVICE LINES AT EXISTING METER LOCATIONS, CLEANOUTS, ETC. A MIN. DISTANCE OF 1 FOOT OUTSIDE THE LIMITS OF THE TRACT SHOWN.
13. THE CONTRACTOR SHALL CREATE AMPLE STAGING AND STOCKPILING AREAS FOR THE DELIVERIES OF CONSTRUCTION MATERIALS, CONCRETE DELIVERIES, TOPSOIL, ETC. IN ACCORDANCE WITH THE OWNER'S REPRESENTATIVE AND THE PROJECT SPECIFICATIONS.
14. IF ASBESTOS, LEAD-BASED ITEMS OR ANY OTHER HAZARDOUS MATERIALS ARE ENCOUNTERED THE CONTRACTOR IS REQUIRED TO FOLLOW ALL LOCAL, STATE, AND FEDERAL GUIDELINES FOR THE CONTAINMENT, REMOVAL, AND DISPOSAL PROCEDURES.
15. KE IS NOT RESPONSIBLE FOR THE MEANS AND METHODS EMPLOYED BY THE CONTRACTOR TO IMPLEMENT THIS DEMOLITION PLAN. THIS DEMOLITION PLAN SIMPLY INDICATES THE KNOWN OBJECTS ON THE SUBJECT TRACT THAT ARE TO BE DEMOLISHED AND REMOVED FROM THE SITE.
16. KE 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 ABILITY AND PROCESS FOR THE REMOVAL OR THEIR FACILITIES.
17. THIS DEMOLITION PLAN IS INTENDED TO GIVE GENERAL GUIDANCE 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.
18. CONTRACTOR IS STRONGLY CAUTIONED TO REVIEW THE FOLLOWING REPORTS DESCRIBING SITE CONDITIONS PRIOR TO BIDDING AND IMPLEMENTING THE DEMOLITION PLAN:
   - 18.1. ENVIRONMENTAL SITE ASSESSMENT PROVIDED BY THE OWNER,
   - 18.2. ASBESTOS BUILDING INSPECTION REPORT(S) PROVIDED BY THE OWNER,
   - 18.3. GEOTECHNICAL REPORT PROVIDED BY THE OWNER,
   - 18.4. OTHER REPORTS THAT ARE APPLICABLE AND AVAILABLE.
19. 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 STARTING ANY WORK ON THE SITE.
20. 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.
21. KE 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.
22. SURFACE PAVEMENT INDICATED MAY OVERLAY OTHER HIDDEN STRUCTURES, SUCH AS ADDITIONAL LAYERS OF PAVEMENT, FOUNDATIONS OR WALLS, THAT ARE ALSO TO BE REMOVED.

UTILITY NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES, WHETHER PRIVATE OR PUBLIC, PRIOR TO MOBILIZATION. CONTRACTOR SHALL VISIT THE SITE AND MAKE ALL NECESSARY OBSERVATIONS AND INSPECTIONS TO FAMILIARIZE THEMSELVES WITH THE SITE AND THE SITE FACILITIES. THE INFORMATION AND DATA SHOWN WITH RESPECT TO EXISTING UNDERGROUND FACILITIES AT OR CONTIGUOUS TO THE SITE IS APPROXIMATE AND BASED ON INFORMATION FURNISHED BY THE OWNERS OF SUCH UNDERGROUND FACILITIES OR ON PHYSICAL APPURTENANCES OBSERVED IN THE FIELD. THE OWNER AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY SUCH INFORMATION OR DATA; AND, THE CONTRACTOR, SHALL HAVE FULL RESPONSIBILITY FOR REVIEWING AND CHECKING ALL SUCH INFORMATION AND DATA, FOR LOCATING ALL UNDERGROUND FACILITIES, FOR COORDINATION OF THE WORK WITH THE OWNERS OF SUCH UNDERGROUND FACILITIES DURING CONSTRUCTION, FOR THE SAFETY AND PROTECTION THEREOF, AND REPAIRING ANY DAMAGE THERETO RESULTING FROM THE WORK. THE COST OF ALL WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE CONTRACT PRICE.
2. CONTRACTOR SHALL, IN BASE BID PROVIDE ALL NECESSARY FITTINGS AND APPURTENANCES REQUIRED TO COMPLETE ALL CONNECTIONS, RESOLVE UTILITY CONFLICTS AND OTHER INCIDENTAL UTILITY WORK SHOWN ON THE PLANS OR CONTAINED IN THE SPECIFICATIONS OR REQUIRED BY GOVERNING AGENCIES TO INCLUDE, BUT NOT LIMITED TO TEMPORARY SERVICES: VALVES, BOXES, METERS, BACKFLOW PREVENTORS, FIRE DEPARTMENT CONNECTIONS, ETC. INCLUDING THE REPAIR OR REPLACEMENT OF ANY EXISTING IRRIGATION SYSTEM. CONTRACTOR SHALL RAISE/LOWER OR ADJUST ALL EXISTING UTILITY MAINS IN CONFLICT WITH PROPOSED UTILITIES AS PART OF THE BASE BID FOR ALL KNOWN OR UNKNOWN LINES.
3. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITY COMPANIES OR AGENCIES IN WRITING AT LEAST 1 WEEK PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND MAKE ARRANGEMENTS FOR ANY AND ALL TEMPORARY UTILITIES, PERMITS, AND AGREEMENTS.
4. THE CONTRACTOR SHALL PROTECT ALL UTILITIES DURING THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL GIVE THE CITY, RESIDENTS AND BUSINESSES AFFECTED BY ANY ANTICIPATED WATER OR SEWER SERVICE DISRUPTIONS AT LEAST FORTY-EIGHT (48) HOURS PRIOR NOTICE.
5. CONTRACTOR SHALL EXERCISE CAUTION AND MAINTAIN ADEQUATE CLEAR ZONE BETWEEN THE CONTRACTOR'S EQUIPMENT AND ANY POWER LINES.
6. THE CONTRACTOR SHALL PROTECT ALL EXISTING POWER POLES, SIGNS, MANHOLES, TELEPHONES RISERS, WATER VALVES, UTILITIES, ETC. DURING ALL CONSTRUCTION PHASES. CONTRACTOR WILL BE RESPONSIBLE TO REPLACE ANY DAMAGED ITEMS AND RESTORE ANY SERVICES THAT HAVE BEEN DISTURBED. ALL MANHOLES, CLEAN-OUTS, WATER VALVES, FIRE HYDRANTS AND OTHER APPURTENANCES MUST BE ADJUSTED TO FINAL GRADE BEFORE THE OWNER WILL ACCEPT THE WORK.
7. THE CONTRACTOR SHALL SALVAGE ALL EXISTING CITY UTILITIES (INCLUDING SIGNS, VALVES, FIRE HYDRANTS, ETC.) IN ACCORDANCE WITH CITY REQUIREMENTS AND PROVIDE TO THE CITY.
8. ALL UTILITIES WITHIN 5' OF PROPOSED BUILDING(S) SHALL ADHERE TO THE MEP'S RECOMMENDATIONS AND OR REQUIREMENTS. CONTRACTOR SHALL PROVIDE STORM DRAIN CONNECTIONS FOR ALL ROOF DRAIN LINES. REFER TO MEP'S PLANS AND RELATED TECHNICAL SPECIFICATIONS. CIVIL UTILITIES (WATER, SANITARY SEWER & STORM SEWER) LIMITS BEGIN 5' OUTSIDE THE BUILDING. IN THE EVENT OF OF A CONFLICT WITH THE MEP'S WITHIN THIS AREA, THE MEP'S REQUIREMENTS SHALL GOVERN.
9. TESTING OF UTILITY TRENCH BACKFILL COMPACTION SHALL BE AT 75' INTERVALS AND EACH LIFT'S BACKFILL UNLESS OTHERWISE DEFINED IN THE GEOTECHNICAL REPORT FOR THIS PROJECT. BACKFILL SHALL BE PROCESSED SUCH THAT NO DIRT CLODS ARE IN EXCESS OF 4" DIAMETER. ALL SANITARY SEWER LINES AND STORM SEWER LINES SHALL BE TV TESTED AT THE COMPLETION OF THE PROJECT (IN ADDITION TO MINIMUM CODE OR OTHER REQUIREMENTS) TO CHECK FOR DAMAGE CAUSED BY OTHER TRADES, UTILITY CONFLICTS, TRENCH SETTLEMENT, ETC. THE COST OF SUCH SHALL BE INCLUDED IN THE CONTRACTORS BASE PRICE.

STANDARD ABBREVIATIONS:

		LP	LOW POINT
APPROX	APPROXIMATELY	LT	LEFT
ASPH	ASPHALT	MBC	MULTIPLE BOX CULVERT
BC	BACK OF CURB	ME	MATCH EXISTING
B-B	BACK TO BACK OF CURB	MH	MANHOLE
BFR	BARRIER FREE RAMPS	N/A	NOT APPLICABLE
BM	BENCHMARK	NG	NATURAL GROUND (EXISTING)
BW	BOTTOM OF WALL	PC	POINT OF CURVATURE
CATV	CABLE TV	PCC	POINT OF COMPOUND CURVATURE
CFS	CUBIC FEET PER SECOND	PI	POINT OF INTERSECTION
CI	CURB INLET	PIV	POST INDICATOR VALVE
CMP	CORRUGATED METAL PIPE	PL	PROPERTY LINE
CO	CLEANOUT	PP	POWER POLE
CONC	CONCRETE	PRC	POINT OF REVERSE CURVATURE
CONN	CONNECTION	PROP	PROPOSED
CONST	CONSTRUCT	PT	POINT OF TANGENCY
CL	CENTER LINE	PVC	POLYVINYL CHLORIDE PIPE
CRCP	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT	PVMT	PAVEMENT
DCO	DOUBLE CLEANOUT	OCEW	ON CENTER EACH WAY
DE	DRAINAGE EASEMENT	OHE	OVERHEAD ELECTRIC
DI	DROP INLET	R	RADIUS
DIA	DIAMETER	RCB	REINFORCED CONCRETE BOX
DIP	DUCTILE IRON PIPE	RCI	RECESSED CURB INLET
DW	DOMESTIC WATER	RCP	REINFORCED CONCRETE PIPE
EJ	EXPANSION JOINT	RCCP	REINFORCED CONCRETE CYLINDRICAL PIPE
ELEV	ELEVATION	REINF	REINFORCED
EMH	ELECTRIC MANHOLE	RL	RIDGE LINE
EP	EDGE OF PAVEMENT	ROW	RIGHT OF WAY
ESMT	EASEMENT	RT	RIGHT
EX	EXISTING	SF	SQUARE FEET
EW	END OF WALL	SD	STORM DRAIN
FC	FACE OF CURB	SQ	SQUARE
F-F	FACE TO FACE OF CURB	SS	SANITARY SEWER
FFE	FINISH FLOOR ELEVATION	SSE	SANITARY SEWER EASEMENT
FH	FIRE HYDRANT	STA	STATION
FM	FORCE MAIN	SY	SQUARE YARD
FO	FIBER OPTICS	T	TELEPHONE
FG	FINISHED GRADE	TC	TOP OF CURB
FP	FINISHED PAD	TG	TOP OF GROUND
FPS	FEET PER SECOND	TMH	TELEPHONE MANHOLE
FL	FLOW LINE	TP	TOP OF PAVEMENT
G	GUTTER	TPIPE	TOP OF PIPE
GI	GRATE INLET	TW	TOP OF WALL
GM	GAS METER	TYP	TYPICAL
HDPE	HIGH DENSITY POLYETHYLENE PIPE	UE	UTILITY EASEMENT
HDWL	HEADWALL	UGE	UNDERGROUND ELECTRIC
HMAC	HOT MIX ASPHALTIC CONCRETE	VCP	VITRIFIED CLAY PIPE
HORIZ	HORIZONTAL	WTR	WATER
HP	HIGH POINT	WE	WATER EASEMENT
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	WL	WATER LINE
IRR	IRRIGATION	WM	WATER METER
JB	JUNCTION BOX	WMH	WATER MANHOLE
JT	JOINT	WV	WATER VALVE
LF	LINEAR FEET	WW	WASTE WATER

5/25/2023

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

GENERAL CONSTRUCTION NOTES

SHEET:
C1.1

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK STANDARD SPECIFICATIONS MANUAL.
2. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., NOT PLANNED FOR DESTRUCTION OR REMOVAL THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER WHO SHALL BE RESPONSIBLE FOR REVISING THE PLANS AS APPROPRIATE.
4. MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL PAVING CONSTRUCTION.
5. THE CONTRACTOR SHALL GIVE THE CITY OF LIBERTY HILL 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. TELEPHONE 512-778-5449 (PLANNING & DEVELOPMENT DEPARTMENT).
6. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SODDING OR SEEDING, AT THE CONTRACTOR'S OPTION. HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION.
7. PRIOR TO ANY CONSTRUCTION, THE ENGINEER SHALL CONVENE A PRECONSTRUCTION CONFERENCE BETWEEN THE CITY OF LIBERTY HILL, HIMSELF, THE CONTRACTOR, OTHER UTILITY COMPANIES, ANY AFFECTED PARTIES AND ANY OTHER ENTITY THE CITY OR ENGINEER MAY REQUIRE.
8. THE CONTRACTOR AND THE ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF LIBERTY HILL ACCURATE "AS-BUILT" DRAWINGS FOLLOWING COMPLETION OF ALL CONSTRUCTION. THESE "AS-BUILT" DRAWINGS SHALL MEET WITH THE SATISFACTION OF THE PLANNING & DEVELOPMENT DEPARTMENT PRIOR TO FINAL ACCEPTANCE.
9. THE LIBERTY HILL CITY COUNCIL SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
10. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE CONTRACTOR'S WORK TO WITHIN THE PERMANENT AND ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEAN-UP SHALL BE TO THE SATISFACTION OF THE CITY ENGINEER AND/OR CITY INSPECTOR.
11. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
12. BENCHMARKS UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:

TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT (WILL BE PROVIDED BY THE CONTRACTOR; ARE ON SHEET _______, ETC.).
2. IN ACCORDANCE WITH THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
3. IF TRENCH SAFETY SYSTEM DETAILS WERE NOT PROVIDED IN THE PLANS BECAUSE TRENCHES WERE ANTICIPATED TO BE LESS THAN 5 FEET IN DEPTH AND DURING CONSTRUCTION IT IS FOUND THAT TRENCHES ARE IN FACT 5 FEET OR MORE IN DEPTH OR TRENCHES LESS THAN 5 FEET IN DEPTH ARE IN AN AREA WHERE HAZARDOUS GROUND MOVEMENT IS EXPECTED, ALL CONSTRUCTION SHALL CEASE, THE TRENCHED AREA SHALL BE BARRICADED AND THE ENGINEER NOTIFIED IMMEDIATELY. CONSTRUCTION SHALL NOT RESUME UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF LIBERTY HILL.

STREET AND DRAINAGE NOTES:

1. ALL TESTING SHALL BE DONE BY AN INDEPENDENT LABORATORY AT THE OWNER'S EXPENSE. ANY RETESTING SHALL BE PAID FOR BY THE CONTRACTOR. A CITY INSPECTOR SHALL BE PRESENT DURING ALL TESTS. TESTING SHALL BE COORDINATED WITH THE CITY INSPECTOR AND HE SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE PRIOR TO ANY TESTING. TELEPHONE 512-778-5449 (INSPECTIONS).
2. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 3" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 3" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE.
3. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT INCLUDING GAS, ELECTRIC, TELEPHONE, CABLE TV, WATER SERVICES, ETC., SHALL BE A MINIMUM OF 30" BELOW SUBGRADE.
4. STREET RIGHTS-OF-WAY SHALL BE GRADED AT A SLOPE OF 1/4" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY AT 1/4" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE CITY OF LIBERTY HILL PLANNING & DEVELOPMENT DEPARTMENT.
5. BARRICADES BUILT TO CITY OF LIBERTY HILL STANDARDS SHALL BE CONSTRUCTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.
6. ALL R.C.P. SHALL BE MINIMUM CLASS III.
7. THE SUBGRADE MATERIAL FOR THE STREETS SHOWN HEREIN WAS TESTED BY ___________________________________ AND THE PAVING SECTIONS DESIGNED IN ACCORDANCE WITH THE CURRENT CITY OF LIBERTY HILL DESIGN CRITERIA. THE PAVING SECTIONS ARE TO BE CONSTRUCTED AS FOLLOWS:

STREET	STATION	FLEX. BASE THICKNESS	HMAC THICKNESS	LIME STAB. THICKNESS

THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISION OF THE CONSTRUCTION PLANS.

8. WHERE PI'S ARE OVER 20, SUBGRADES MUST BE STABILIZED UTILIZING A METHOD ACCEPTABLE TO THE CITY ENGINEER. THE GEOTECHNICAL ENGINEER SHALL RECOMMEND AN APPROPRIATE SUBGRADE STABILIZATION IF SULFATES ARE DETERMINED TO BE PRESENT.

WATER AND WASTEWATER NOTES:

1. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C-900, DR-18), OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). WATER SERVICES (2" OR LESS) SHALL BE POLYETHYLENE TUBING (BLACK, 200 PSI, DR 9).
2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE GREEN PVC (AWWA C-900, DR-18), OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE GREEN PVC (ASTM D2241 OR D3034, MAX. DR-26), DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE FOR BOTH PRESSURE AND GRAVITY WASTEWATER MAINS SHALL BE GREEN IN COLOR. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE LINED WITH INDURON PROTECTO 401 (P401) OR APPROVED EQUAL.
3. UNLESS OTHERWISE ACCEPTED BY THE CITY ENGINEER, DEPTH OF COVER FOR ALL LINES OUT OF THE PAVEMENT SHALL BE 42" MIN., AND DEPTH OF COVER FOR ALL LINES UNDER PAVEMENT SHALL BE A MIN. OF 30" BELOW SUBGRADE.
4. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C-100, MIN. CLASS 200).
5. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR EQUAL ACCEPTED BY THE CITY ENGINEER.
6. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR AT 512-778-5449 TO COORDINATE UTILITY TIE-INS AND NOTIFY HIM AT LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING LINES.
7. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS AND GASKETED COVERS AND HAVE RIM ELEVATIONS 6" MIN. ABOVE FINISHED GRADE. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
8. ALL MANHOLES SHALL BE LINED WITH RAVEN LINING SYSTEMS RAVEN 405 OR APPROVED EQUAL.
9. THE CONTRACTOR MUST OBTAIN A BULK WATER PERMIT OR PURCHASE AND INSTALL A WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.
10. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE SCHEDULED WITH THE WATER & WASTEWATER SUPERINTENDENT, TELEPHONE 512-778-5449.
11. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM STERILIZATION OF ALL POTABLE WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THE STERILIZATION PROCEDURE. THE STERILIZATION PROCEDURE SHALL BE MONITORED BY CITY OF LIBERTY HILL PERSONNEL. WATER SAMPLES WILL BE COLLECTED BY THE CITY OF LIBERTY HILL TO VERIFY EACH TREATED LINE HAS ATTAINED AN INITIAL CHLORINE CONCENTRATION OF 50 PPM. WHERE MEANS OF FLUSHING IS NECESSARY, THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PROVIDE FLUSHING DEVICES AND REMOVE SAID DEVICES PRIOR TO FINAL ACCEPTANCE BY THE CITY OF LIBERTY HILL.
12. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTOR'S REQUEST, AND IN CONTRACTOR'S PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF LIBERTY HILL NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY. THE CONTRACTOR SHALL SUPPLY A CHECK OR MONEY ORDER, PAYABLE TO THE CITY OF LIBERTY HILL, TO COVER THE FEE CHARGED FOR TESTING EACH WATER SAMPLE. CITY OF LIBERTY HILL FEE AMOUNTS MAY BE OBTAINED BY CALLING THE PLANNING & DEVELOPMENT DEPARTMENT AT 512-778-5449 .
13. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY CITY OF LIBERTY HILL PERSONNEL.
14. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF INSPECTOR AND PROVIDE NO LESS THAN 24 HOURS NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING OR PRESSURE TESTING.
15. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF LIBERTY HILL.
16. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.
17. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:

WATER SERVICE	"W" ON TOP OF CURB
WASTEWATER SERVICE	"S" ON TOP OF CURB
VALVE	"V" ON FACE OF CURB.

TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LIBERTY HILL.

18. CONTACT THE CITY OF LIBERTY HILL WATER & WASTEWATER SUPERINTENDENT AT 512-778-5449 FOR ASSISTANCE IN OBTAINING EXISTING WATER AND WASTEWATER LOCATIONS.
19. THE CITY OF LIBERTY HILL FIRE DEPARTMENT SHALL BE NOTIFIED 48 HOURS PRIOR TO TESTING OF ANY BUILDING SPRINKLER PIPING IN ORDER THAT THE FIRE DEPARTMENT MAY MONITOR SUCH TESTING.
20. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

SIEVE SIZE BY WEIGHT	PERCENT RETAINED
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

21. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 A.M. AND 6 A.M.
22. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 317, AS APPLICABLE. WHENEVER TCEQ AND CITY OF LIBERTY HILL SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

TRAFFIC MARKING NOTES:

1. ANY METHODS, STREET MARKINGS AND SIGNAGE NECESSARY FOR WARNING MOTORISTS, WARNING PEDESTRIANS OR DIVERTING TRAFFIC DURING CONSTRUCTION SHALL CONFORM TO THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITION.
2. ALL PAVEMENT MARKINGS, MARKERS, PAINT, TRAFFIC BUTTONS, TRAFFIC CONTROLS AND SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES AND, THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITIONS.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF LIBERTY HILL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
2. ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURES OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED.
3. SILT FENCES, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. SUCH INSTALLATION SHALL BE REGULARLY INSPECTED BY THE CITY OF LIBERTY HILL FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE CITY ENGINEER, THEY ARE WARRANTED.
4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE ENGINEER.
5. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

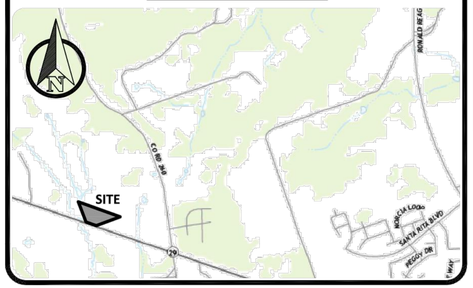
CITY OF LIBERTY HILL GENERAL CONSTRUCTION NOTES

SHEET:
C1.2

FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - ProductionK:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C1.1 GENERAL NOTES_CHV21004

FILENAME: C1.1 GENERAL NOTES_CHV21004.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 5/25/2023

VICINITY MAP - NOT TO SCALE



Line Data Table		
Line #	Distance	Bearing
L1	68.88'	N19°45'25"E
L1	42.99'	S70°14'35"E
L2	170.14'	N61°50'56"E
L3	103.97'	N18°37'04"E

Curve Data Table					
Curve #	Arc	Radius	Delta	Chord Bearing	Chord
C1	132.24'	180.00'	042°05'33"	N40°48'11"E	129.28'

GENERAL INFORMATION

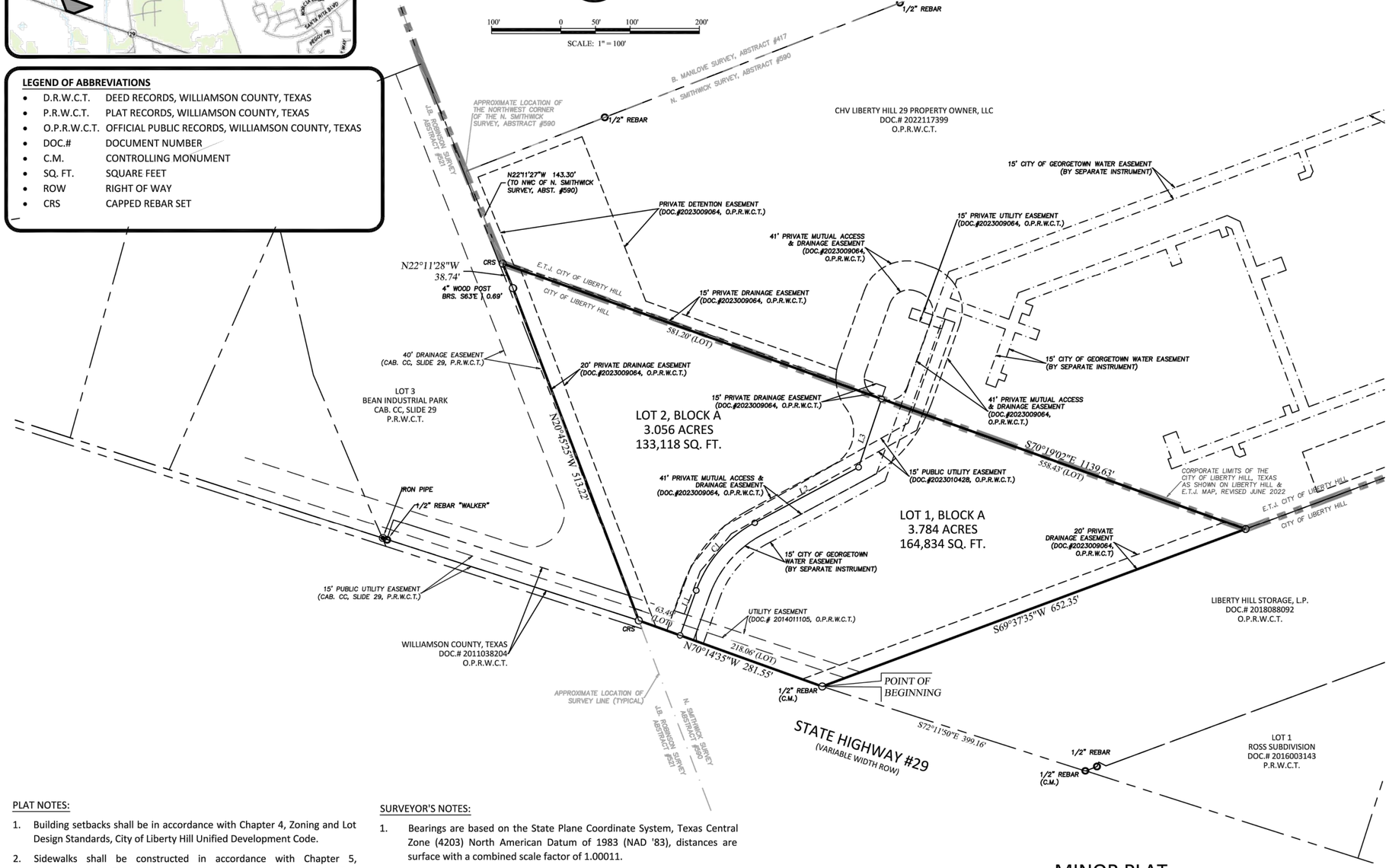
- Owner: CHV Liberty Hill 29 Property Owner LLC
- Engineer: Kirkman Engineering
- Surveyor: Barton Chapa Surveying
- Acreage: 6.840 acres
- Patent Survey: N. Smithwick Survey, Abstract Number 590
- Number of Blocks: 1
- Number of Lots: 2
- Submittal Date: March 2, 2023

LEGEND OF LINETYPES

- SUBJECT TRACT BOUNDARY
- ADJOINING TRACT BOUNDARY
- EXISTING EASEMENT
- PROPOSED EASEMENT
- SURVEY/ABSTRACT LINE
- CORPORATE CITY LIMIT LINE
- CENTER LINE

LEGEND OF ABBREVIATIONS

- D.R.W.C.T. DEED RECORDS, WILLIAMSON COUNTY, TEXAS
- P.R.W.C.T. PLAT RECORDS, WILLIAMSON COUNTY, TEXAS
- O.P.R.W.C.T. OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS
- DOC.# DOCUMENT NUMBER
- C.M. CONTROLLING MONUMENT
- SQ. FT. SQUARE FEET
- ROW RIGHT OF WAY
- CRS CAPPED REBAR SET



PLAT NOTES:

1. Building setbacks shall be in accordance with Chapter 4, Zoning and Lot Design Standards, City of Liberty Hill Unified Development Code.
2. Sidewalks shall be constructed in accordance with Chapter 5, Subdivisions & Public Improvements, City of Liberty Hill Unified Development Code.
3. No obstructions, including but not limited to fencing or storage, shall be permitted in any drainage easements shown hereon.
4. A ten foot (10') Public Utility Easement (PUE) abutting and along the street side property line is hereby dedicated for all street side property lots shown hereon.

SURVEYOR'S NOTES:

1. Bearings are based on the State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD '83), distances are surface with a combined scale factor of 1.00011.
2. This property lies within Zone "X" of the Flood Insurance Rate Map for Williamson County, Texas and Incorporated Areas, map no. 48491C0275E, with an effective date of September 26, 2008, via scaled map location and graphic plotting.
3. Monuments are found unless specifically designated as set.
4. a 1/2" x 18" rebar with pink cap stamped, "BARTON CHAPA" shall be set at all lot corners within the subject property upon recordation of this plat.

MINOR PLAT
CHV LIBERTY HILL 29 ADDITION
LOTS 1 AND 2, BLOCK A

6.840 ACRES SITUATED IN THE, N. SMITHWICK SURVEY, ABSTRACT #590
CITY OF LIBERTY HILL, WILLIAMSON COUNTY, TEXAS

SURVEY PREPARED BY: BARTON CHAPA SURVEYING, LLC. 5200 STATE HIGHWAY 121, COLLEYVILLE, TX. TBPLS FIRM# 10194474

Z:\Project Data\Survey\001 - Kirkman Engineering\2021\197 - Foust - Liberty Hill\Drawings

ENGINEER/PREPARER

kirkman ENGINEERING

5200 State Highway 121
Colleyville, TX 76034
Phone: 817-488-4960

LAND SURVEYOR

BARTON CHAPA SURVEYING
5200 State Highway 121
Colleyville, TX 76034
Phone: 817-864-1957
info@bcsdfw.com
TBPLS Firm #10194474

OWNER/DEVELOPER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC
6601-E Hillcrest Avenue
Ste. 212,
Dallas, TX 75205

JOB NO.	2021.001.197
DRAWN:	BCS
CHECKED:	JHB

TABLE OF REVISIONS

DATE	SUMMARY

SHEET:

MP1.0

THE STATE OF TEXAS

COUNTY OF WILLIAMSON

WHEREAS CHV LIBERTY HILL 29 PROPERTY OWNER LLC is the owner of a tract situated in the N. Smithwick Survey, Abstract Number 590, City of Liberty Hill, Williamson County, Texas, and being a portion of the tract of land described by deed to CHV LIBERTY HILL 29 Property Owner, LLC as recorded under Document Number 2022117399, Official Public Records, Williamson County, Texas, (O.P.R.W.C.T.), the subject tract being more particularly described by metes and bounds as follows (bearings are based on State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD 83)):

BEGINNING at a 1/2 inch rebar found for the southeast corner of said CHV Liberty Hill 29 tract and the herein described tract;

THENCE North 70 degrees 14 minutes 35 seconds West, with the south line of said CHV Liberty Hill 29 tract, a distance of 281.55 feet to a 1/2 inch rebar with pink cap stamped, "BARTON CHAPA" set (hereinafter called "capped rebar set") for the southwest corner thereof;

THENCE North 20 degrees 45 minutes 25 seconds West, with the west line of said CHV Liberty Hill 29 tract, a distance of 513.22 feet to a point for corner, from which a 4 inch wood post found bears South 63 degrees East, a distance of 0.69 feet;

THENCE North 22 degrees 11 minutes 28 seconds West, with the west line of said CHV Liberty Hill 29 tract, a distance of 38.74 feet to a capped rebar set;

THENCE South 70 degrees 19 minutes 02 seconds East, through the interior of said CHV Liberty Hill 29 tract, a distance of 1,139.63 feet to a capped rebar set in the southeast line of said CHV Liberty Hill 29 tract;

THENCE South 69 degrees 37 minutes 35 seconds West, with the southeast line of said CHV Liberty Hill 29 tract, a distance of 652.35 feet, returning to the **POINT OF BEGINNING** and enclosing 6.840 acres (297,951 square feet) of land, more or less.

THE STATE OF TEXAS

COUNTY OF DALLAS

That **CHV LIBERTY HILL 29 PROPERTY OWNER LLC**, a Delaware limited liability company, as the owner of that certain 42.682 acre tract of land recorded in Document Number 2022117399 of the Official Records of Williamson County, Texas do hereby dedicate to the public forever use of the streets, alleys, easements and all other lands intended for public dedication as shown hereon to be known as **LOTS 1 AND 2, BLOCK A, CHV LIBERTY HILL 29 ADDITION**.

_____

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

_____

JUSTIN WALKER, AUTHORIZED SIGNATORY

THE STATE OF TEXAS

COUNTY OF WILLIAMSON

This instrument was acknowledged before me on the_____day of_____, 20_____, by _____, as _____ of **CHV LIBERTY HILL 29 PROPERTY OWNER LLC**, a Delaware limited liability company, on behalf of said **CHV LIBERTY HILL 29 PROPERTY OWNER LLC**.

Notary Public State of Texas

_____

Printed Name: _____

My Commission Expires:

THE STATE OF TEXAS

COUNTY OF WILLIAMSON

That **SIMMONS BANK**, the Lien Holder of that certain 42.682 acre tract of land recorded in Document Number 2022117399 of the Official Records of Williamson County, Texas do hereby consent to the subdivision of that certain 42.682 acre tract of land situated in the City of Liberty Hill, Williamson County, Texas, and do further hereby join, approve, and consent to the dedication to the public forever use of the streets, alley, easements and all other lands intended for public dedication as shown hereon.

SIMMONS BANK

BY:_____, its Managing Director

Wes Hardin

UTILITY PROVIDERS
Water: City of Georgetown
Wastewater: City of Liberty Hill
Electric: Pedernales Electric Cooperative
Telecom: AT&T

THE STATE OF TEXAS

COUNTY OF WILLIAMSON

That I John H. Barton, III , do hereby certify that I prepared this plat from an actual and accurate on the ground survey of the land and that the corner monuments shown thereon were properly placed under my personal supervision, in accordance with Chapter 5, Subdivisions, Public Improvements, City of Liberty Hill Unified Development Code.

_____ _____

John H. Barton III, RPLS# 6737 Date

CERTIFICATE OF APPROVAL

I, Jerry Millard, Director of Planning, designee, of the City of Liberty Hill, Texas, under the authority granted me in Section 3.09.02 of the Unified Development Code, in accordance with the Texas Local Government Code, do hereby certify this plat as approved for filing of record with the County Clerk of Williamson County, Texas.

_____ _____

Jerry Millard, Director of Planning Date

THE STATE OF TEXAS

COUNTY OF WILLIAMSON

That I, _____, Clerk of the County Court of said County, do hereby certify that the foregoing instrument in writing, with its certification of authentication, was filed for record in my office on the_____ day of _____ A.D., 20_____, at _____ o'clock____M. and duly recorded on the_____ day of _____ A.D., 20_____, at _____ o'clock____M. in the Plat Records of said County, in Cabinet, Slide(s)_____.

WITNESS MY HAND AND SEAL of the County Court of said County, at office in Georgetown, Texas, the date last above written.

_____

Clerk

County Court Williamson County, Texas

BY:_____, Deputy

SURVEY PREPARED BY BARTON CHAPA SURVEYING, LLC
5200 STATE HIGHWAY 121, COLLEYVILLE, TX, TBPLS FIRM # 10194474

MINOR PLAT

CHV LIBERTY HILL 29 ADDITION
LOTS 1 AND 2, BLOCK A

6.840 ACRES SITUATED IN THE, N. SMITHWICK SURVEY, ABSTRACT #590
CITY OF LIBERTY HILL, WILLIAMSON COUNTY, TEXAS

ENGINEER/PREPARER

kirkman ENGINEERING

5200 State Highway 121
Colleyville, TX 76034
Phone: 817-488-4960

LAND SURVEYOR

BARTON CHAPA SURVEYING
5200 State Highway 121
Colleyville, TX 76034
Phone: 817-864-1957
info@bcsdfw.com
TBPLS Firm #10194474

OWNER/DEVELOPER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC
6601-E Hillcrest Avenue
Ste. 212,
Dallas, TX 75205

JOB NO.	2021.001.197
DRAWN:	BCS
CHECKED:	JHB

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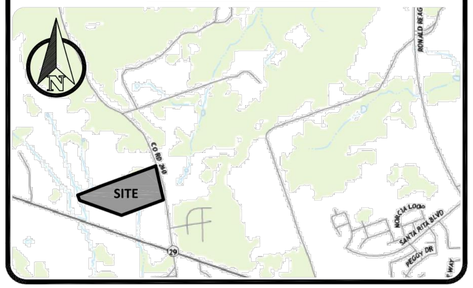
MP1.1

Z:\Project Data\Survey\001 - Kirkman Engineering\2021\197 - Foust - Liberty Hill\Drawings

VICINITY MAP - NOT TO SCALE



100' 0 50' 100' 200'

SCALE: 1" = 100'

GENERAL INFORMATION

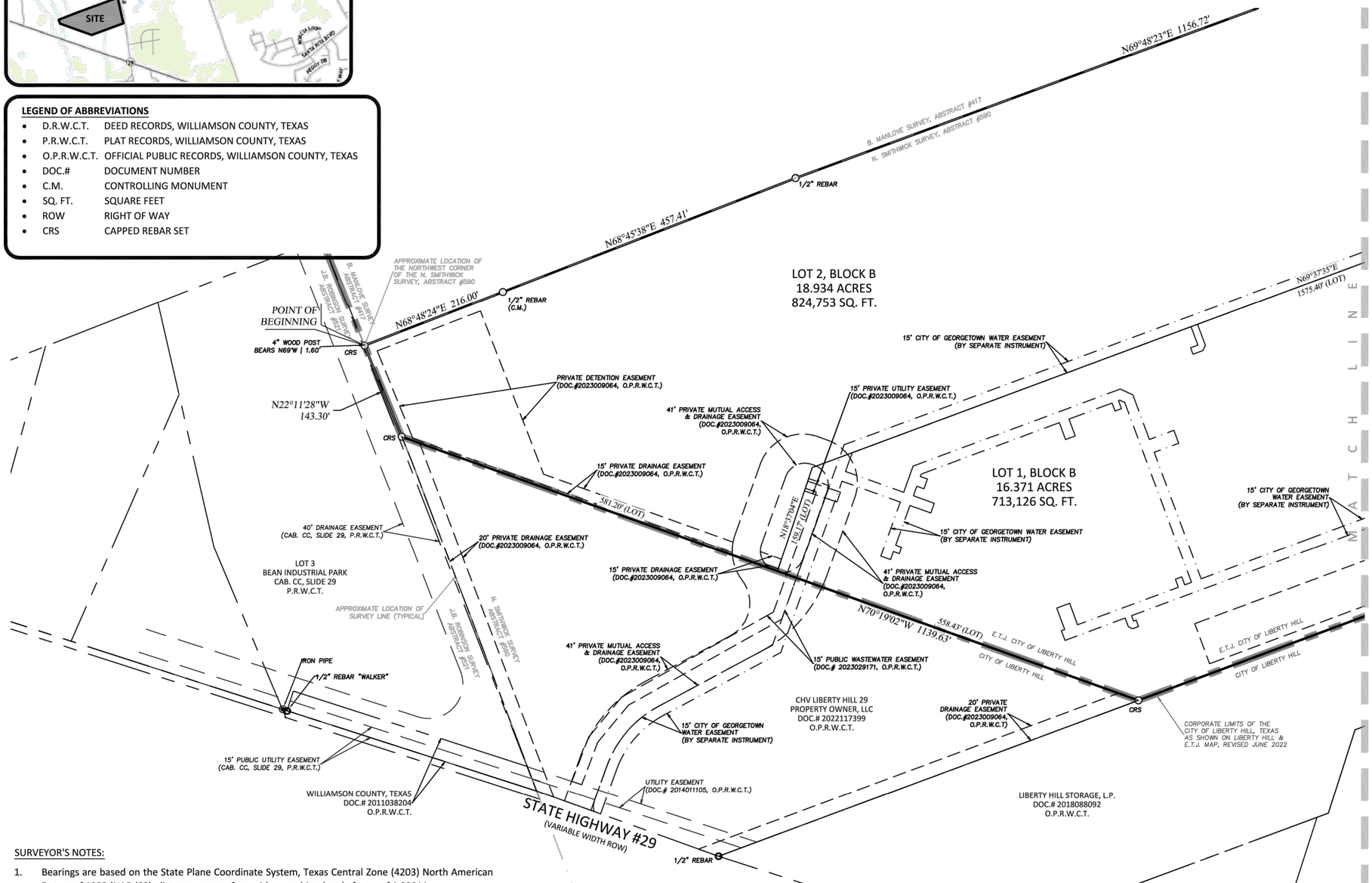
Owner:	CHV Liberty Hill 29 Property Owner LLC
Engineer:	Kirkman Engineering
Surveyor:	Barton Chapa Surveying
Acreage:	35.842 acres
Patent Survey:	N. Smithwick Survey, Abstract Number 590
Number of Blocks:	1
Number of Lots:	2
Submittal Date:	March 2, 2023

LEGEND OF LINETYPES

- SUBJECT TRACT BOUNDARY
- ADJOINING TRACT BOUNDARY
- EXISTING EASEMENT
- PROPOSED EASEMENT
- SURVEY/ABSTRACT LINE
- CORPORATE CITY LIMIT LINE
- CENTER LINE

LEGEND OF ABBREVIATIONS

D.R.W.C.T.	DEED RECORDS, WILLIAMSON COUNTY, TEXAS
P.R.W.C.T.	PLAT RECORDS, WILLIAMSON COUNTY, TEXAS
O.P.R.W.C.T.	OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS
DOC.#	DOCUMENT NUMBER
C.M.	CONTROLLING MONUMENT
SQ. FT.	SQUARE FEET
ROW	RIGHT OF WAY
CRS	CAPPED REBAR SET



SURVEYOR'S NOTES:

1. Bearings are based on the State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD '83), distances are surface with a combined scale factor of 1.00011.
2. This property lies within Zone "X" of the Flood Insurance Rate Map for Williamson County, Texas and Incorporated Areas, map no. 48491C0275E, with an effective date of September 26, 2008, via scaled map location and graphic plotting.
3. Monuments are found unless specifically designated as set.
4. a 1/2" x 18" rebar with pink cap stamped, "BARTON CHAPA" shall be set at all lot corners within the subject property upon recordation of this plat.

SURVEY PREPARED BY BARTON CHAPA SURVEYING, LLC: 5200 STATE HIGHWAY 121, COLLEYVILLE, TX, TBPLS FIRM# 10194474

MINOR PLAT
CHV LIBERTY HILL 29 ADDITION
LOTS 1, 2, AND LOT 3 RIGHT-OF-WAY RESERVE, BLOCK B
35.842 ACRES SITUATED IN THE, N. SMITHWICK SURVEY, ABSTRACT #590
E.T.J. OF THE CITY OF LIBERTY HILL, WILLIAMSON COUNTY, TEXAS

Z:\Project Data\Survey\001 - Kirkman Engineering\2021\197 - Foust - Liberty Hill\Drawings

ENGINEER/PREPARER

kirkman ENGINEERING

5200 State Highway 121
Colleyville, TX 76034
Phone: 817-488-4960

LAND SURVEYOR

BARTON CHAPA SURVEYING
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Colleyville, TX 76034
Phone: 817-864-1957
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OWNER/DEVELOPER

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PROPERTY OWNER LLC
6601-E Hillcrest Avenue
Ste. 212,
Dallas, TX 75205

JOB NO.	2021.001.197
DRAWN:	BCS
CHECKED:	JHB

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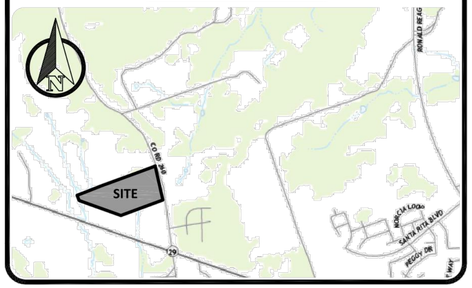
MP2.0

VICINITY MAP - NOT TO SCALE



LEGEND OF ABBREVIATIONS

D.R.W.C.T.	DEED RECORDS, WILLIAMSON COUNTY, TEXAS
P.R.W.C.T.	PLAT RECORDS, WILLIAMSON COUNTY, TEXAS
O.P.R.W.C.T.	OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS
DOC.#	DOCUMENT NUMBER
C.M.	CONTROLLING MONUMENT
SQ. FT.	SQUARE FEET
ROW	RIGHT OF WAY
CRS	CAPPED REBAR SET

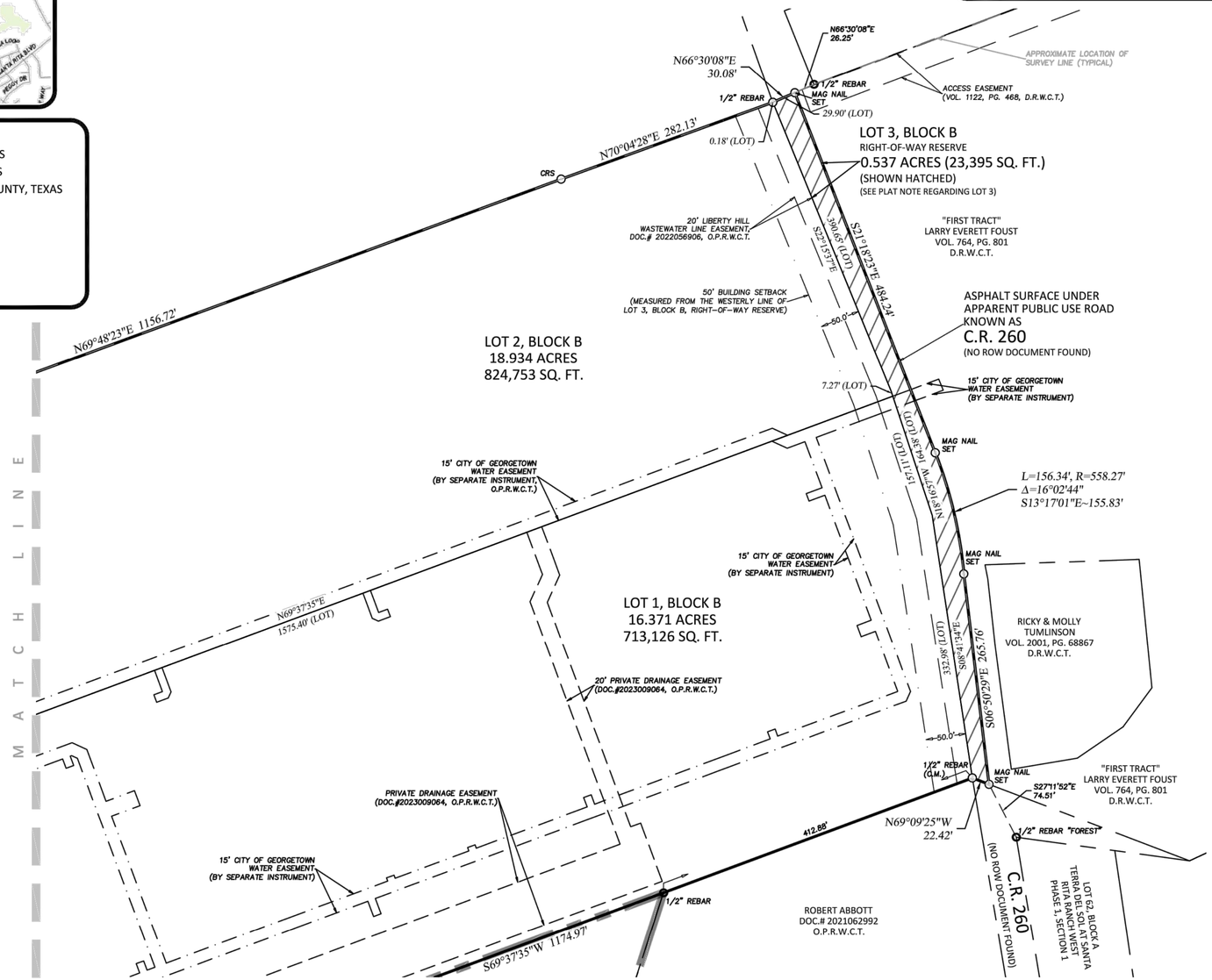
SCALE: 1" = 100'

GENERAL INFORMATION

Owner:	CHV Liberty Hill 29 Property Owner LLC
Engineer:	Kirkman Engineering
Surveyor:	Barton Chapa Surveying
Acreage:	35.842 acres
Patent Survey:	N. Smithwick Survey, Abstract Number 590
Number of Blocks:	1
Number of Lots:	2
Submittal Date:	April 12, 2023

LEGEND OF LINETYPES

- SUBJECT TRACT BOUNDARY
- ADJOINING TRACT BOUNDARY
- EXISTING EASEMENT
- PROPOSED EASEMENT
- SURVEY/ABSTRACT LINE
- CORPORATE CITY LIMIT LINE
- CENTER LINE



SURVEYOR'S NOTES:

1. Bearings are based on the State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD '83), distances are surface with a combined scale factor of 1.00011.
2. This property lies within Zone "X" of the Flood Insurance Rate Map for Williamson County, Texas and Incorporated Areas, map no. 48491C0275E, with an effective date of September 26, 2008, via scaled map location and graphic plotting.
3. Monuments are found unless specifically designated as set.
4. a 1/2" x 18" rebar with pink cap stamped, "BARTON CHAPA" shall be set at all lot corners within the subject property upon recordation of this plat.

SURVEY PREPARED BY: BARTON CHAPA SURVEYING, LLC. 5200 STATE HIGHWAY 121, COLLEYVILLE, TX. TBPLS FIRM # 10194474

MINOR PLAT
CHV LIBERTY HILL 29 ADDITION
LOTS 1, 2, AND LOT 3 RIGHT-OF-WAY RESERVE, BLOCK B
35.842 ACRES SITUATED IN THE, N. SMITHWICK SURVEY, ABSTRACT #590
E.T.J. OF THE CITY OF LIBERTY HILL, WILLIAMSON COUNTY, TEXAS

ENGINEER/PREPARER

kirkman ENGINEERING
5200 State Highway 121
Colleyville, TX 76034
Phone: 817-488-4960

LAND SURVEYOR

BARTON CHAPA SURVEYING
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OWNER/DEVELOPER

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6601-E Hillcrest Avenue
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JOB NO.	2021.001.197
DRAWN:	BCS
CHECKED:	JHB

TABLE OF REVISIONS

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Z:\Project Data\Survey\001 - Kirkman Engineering\2021\197 - Foust - Liberty Hill\Drawings

THE STATE OF TEXAS

COUNTY OF WILLIAMSON

WHEREAS CHV LIBERTY HILL 29 PROPERTY OWNER LLC is the owner of a tract situated in the N. Smithwick Survey, Abstract Number 590, City of Liberty Hill, Williamson County, Texas, and being a portion of the tract of land described by deed to CHV Liberty Hill 29 Property Owner LLC as recorded under Document Number 2022117399, Official Public Records, Williamson County, Texas, (O.P.R.W.C.T.), the subject tract being more particularly described by metes and bounds as follows (bearings are based on State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD 83)):

BEGINNING at a 1/2 inch rebar found with pink cap stamped, "BARTON CHAPA" set (hereinafter called "capped rebar set") for the northwest corner of said CHV Liberty Hill 29 Property Owner, LLC tract and the herein described tract, from which a 4 inch wood post found bears North 69 degrees West, a distance of 1.60 feet;

THENCE with the perimeter and to the corners of said CHV Liberty Hill 29, Property Owner, LLC tract, the following calls:

1. North 68 degrees 48 minutes 24 seconds East, a distance of 216.00 feet to a 1/2 inch rebar found;
2. North 68 degrees 45 minutes 38 seconds East, a distance of 457.41 feet to a 1/2 inch rebar found;
3. North 69 degrees 48 minutes 23 seconds East, a distance of 1,156.72 feet to a capped rebar set;
4. North 70 degrees 04 minutes 28 seconds East, a distance of 282.13 feet to a 1/2 inch rebar found;
5. North 66 degrees 30 minutes 08 seconds East, a distance of 30.08 feet to a MAG nail set;
6. South 21 degrees 18 minutes 23 seconds East, a distance of 484.24 feet to a MAG nail set at the beginning of a tangent curve to the right, having a radius of 558.27 feet, with a delta angle of 16 degrees 02 minutes 44 seconds, whose chord bears South 13 degrees 17 minutes 01 seconds East, a distance of 155.83 feet;
7. Along said tangent curve to the right, an arc length of 156.34 feet to a MAG nail set;
8. South 06 degrees 50 minutes 29 seconds East, a distance of 265.76 feet to a MAG nail set;
9. North 69 degrees 09 minutes 25 seconds West, a distance of 22.42 feet to a 1/2 inch rebar found;
10. South 69 degrees 37 minutes 35 seconds West, a distance of 1,174.97 feet to a capped rebar set;

THENCE North 70 degrees 19 minutes 02 seconds West, through the interior of said CHV Liberty Hill 29 Property Owner, LLC tract, a distance of 1,139.63 feet to a capped rebar set in the west line thereof;

THENCE North 22 degrees 11 minutes 28 seconds West, with the west line of said CHV Liberty Hill 29 Property Owner, LLC tract, a distance of 143.30 feet, returning to the **POINT OF BEGINNING** and enclosing 35.842 acres (1,561,273 square feet) of land, more or less.

THE STATE OF TEXAS

COUNTY OF WILLIAMSON

That **CHV LIBERTY HILL 29 PROPERTY OWNER LLC**, a Delaware limited liability company, as the owner of that certain 42.682 acre tract of land recorded in Document Number 2022117399 of the Official Records of Williamson County, Texas do hereby dedicate to the public forever use of the streets, alleys, easements and all other lands intended for public dedication as shown hereon to be known as **LOTS 1, 2, AND 3, BLOCK B, CHV LIBERTY HILL 29 ADDITION**.

_____

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

_____

JUSTIN WALKER, AUTHORIZED SIGNATORY

THE STATE OF TEXAS

COUNTY OF DALLAS

This instrument was acknowledged before me on the_____day of_____, 20_____, by _____, as _____ of **CHV LIBERTY HILL 29 PROPERTY OWNER LLC**, a Delaware limited liability company, on behalf of said **CHV LIBERTY HILL 29 PROPERTY OWNER LLC**.

Notary Public State of Texas

_____

Printed Name: _____

My Commission Expires:

THE STATE OF TEXAS

COUNTY OF DALLAS

That **SIMMONS BANK**, the Lien Holder of that certain 42.682 acre tract of land recorded in Document Number 2022117399 of the Official Records of Williamson County, Texas do hereby consent to the subdivision of that certain 42.682 acre tract of land situated in the City of Liberty Hill, Williamson County, Texas, and do further hereby join, approve, and consent to the dedication to the public forever use of the streets, alley, easements and all other lands intended for public dedication as shown hereon.

SIMMONS BANK

BY:_____, its Managing Director

Wes Hardin

THE STATE OF TEXAS

COUNTY OF WILLIAMSON

That I John H. Barton, III , do hereby certify that I prepared this plat from an actual and accurate on the ground survey of the land and that the corner monuments shown thereon were properly placed under my personal supervision, in accordance with Chapter 5, Subdivisions, Public Improvements, City of Liberty Hill Unified Development Code.

_____ _____

John H. Barton III, RPLS# 6737 Date

CERTIFICATE OF APPROVAL

I, Jerry Millard, Director of Planning, designee, of the City of Liberty Hill, Texas, under the authority granted me in Section 3.09.02 of the Unified Development Code, in accordance with the Texas Local Government Code, do hereby certify this plat as approved for filing of record with the County Clerk of Williamson County, Texas.

_____ _____

Jerry Millard, Director of Planning Date

FLOODPLAIN ADMINISTRATOR APPROVAL

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

_____ _____

J. Terron Evertson, PE, DR, CFM Date

Williamson County Engineer

Road Name and 911 Addressing Approval

Road name and address assignments verified this the_____ day of_____, 20_____, A.D.

_____ _____

Williamson County Addressing Coordinator Date

THE STATE OF TEXAS
COUNTY OF WILLIAMSON
That I, Nancy E. Rister, Clerk of the County Court, with and for the County and State aforesaid, do hereby certify that the foregoing instrument in writing, with its certification of authentication, was filed for record in my office on the_____ day of _____ A.D., 20_____, at _____ o'clock____M. and duly recorded on the_____ day of _____ A.D., 20_____, at _____ o'clock____M. in the Plat Records of said County, in Cabinet,_____ Slide(s)_____, WITNESS MY HAND AND SEAL of the County Court of said County, at office in Georgetown, Texas, the last date written above.

By:_____
Nancy E. Rister
Clerk, County Court
Williamson County, Texas

PLAT NOTES:

1. Sidewalks shall be constructed in accordance with Chapter 5, Subdivisions & Public Improvements, City of Liberty Hill Unified Development Code. All sidewalks shall be maintained by each of the adjacent property owners.
2. No obstructions, including but not limited to fencing or storage, shall be permitted in any drainage easements shown hereon.
3. A ten foot (10') Public Utility Easement (PUE) abutting and along the street side property line is hereby dedicated for all street side property lots shown hereon.
4. All public water and wastewater collection will be supplied by Georgetown Water and Liberty Hill Wastewater.
5. Improvements within the County Road (C.R. 260) Right-of-Way including, but not limited to, landscaping, irrigation lighting, custom signs, is prohibited without first obtaining an executed license agreement with Williamson County.
6. All public roadways and easements as shown on this plat are free of liens.
7. It is the responsibility of the Owner, not the County or the City of Liberty Hill, to assure compliance with the provisions of all applicable State, Federal, and Local laws and regulations relating the the platting and development of this property.
8. The County assumes no responsibility for the accuracy of representations by other parties in this plat. Floodplain data, in particular, will change over time and the current effective floodplain data takes precedence over floodplain data represented on this plat. It is further understood that the owners of the tract of land covered by this plat must install at their own expense all traffic control devices and signage that may be required before the streets in the subdivision have been accepted for maintenance by the County.
9. Maintenance and responsibility for drainage will not be accepted by the County other than that accepted in connection with drainage or protecting the road system. Maintenance responsibility for storm water management controls will remain with the owner.
10. THE MINIMUM FFE SHALL BE AT LEAST ONE FOOT ABOVE THE ADJACENT FINISHED GRADE AND BFE. EXCEPTIONS CAN BE MADE AT ENTRANCE AND EGRESS POINTS, WHERE NECESSARY, TO MEET THE AMERICANS WITH DISABILITIES ACT (ADA). RECREATIONAL VEHICHLE PARKING PADS MUST ALSO BE PLACED AT LEAST ONE FOOT ABOVE BFE.
11. DRIVEWAY MAINTENANCE WILL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. IF OBSTRUCTIONS OCCUR WITHIN THE DRIVEWAY CULVERT, THE COUNTY RESERVES THE RIGHT TO CLEAR OBSTRUCTIONS THAT ARE CAUSING ADVERSE IMPACTS TO THE ROADWAY.
12. NO STRUCTURE OR LAND IN THIS PLAT SHALL HEREAFTER BE LOCATED OR ALTERED WITHOUT FIRST OBTAINING A CERTIFICATE OF COMPLIANCE OR FLOODPLAIN DEVELOPMENT PERMIT FROM THE WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATOR.
13. THIS SUBDIVISION IS SUBJECT TO STORM-WATER MANAGEMENT CONTROLS AS REQUIRED BY WILLIAMSON COUNTY SUBDIVISION REGULATIONS SECTION B11.1 AND THE FLOOD DAMAGE PREVENTION ORDER, ON NEW DEVELOPMENT THAT WOULD EVOKE SUCH CONTROLS BEYOND EXISTING CONDITIONS.
14. THIS SUBDIVISION WAS EXEMPT FROM PROVIDING STORM-WATER MANAGEMENT CONTROLS (DETENTION) AT THE TIME OF FILING THIS PLAT BASED ON WILLIAMSON COUNTY SUBDIVISION REGULATION B11.1.4. PRIOR TO ANY DEVELOPMENT WITHIN THIS SUBDIVISION, STORM-WATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY THE OWNER IN ACCORDANCE WITH THE APPLICABLE REGULATIONS IN EFFECT AT THE TIME OF DEVELOPMENT. CONTACT THE WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATOR FOR REVIEW AND APPROVAL OF THE PROPOSED STORMWATER MANAGEMENT CONTROLS PRIOR TO ANY DEVELOPMENT WITHIN THIS SUBDIVISION.
15. UTILITY PROVIDERS
    Water: City of Georgetown
    Wastewater: City of Liberty Hill
    Electric: Pedernales Electric Cooperative
    Telecom: AT&T
16. Lot 3 Right-of-Way Reserve to be owned by property owner until such time that the reserve lot is acquired.

MINOR PLAT
CHV LIBERTY HILL 29 ADDITION
LOTS 1, 2, AND LOT 3 RIGHT-OF-WAY RESERVE, BLOCK B
35.842 ACRES SITUATED IN THE, N. SMITHWICK SURVEY, ABSTRACT #590
E.T.J. OF THE CITY OF LIBERTY HILL, WILLIAMSON COUNTY, TEXAS

ENGINEER/PREPARER

kirkman ENGINEERING

5200 State Highway 121
Colleyville, TX 76034
Phone: 817-488-4960

LAND SURVEYOR

BARTON CHAPA SURVEYING
5200 State Highway 121
Colleyville, TX 76034
Phone: 817-864-1957
info@bcsdfw.com
TBPLS Firm #10194474

OWNER/DEVELOPER

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PROPERTY OWNER LLC
6601-E Hillcrest Avenue
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Dallas, TX 75205

JOB NO.	2021.001.197
DRAWN:	BCS
CHECKED:	JHB

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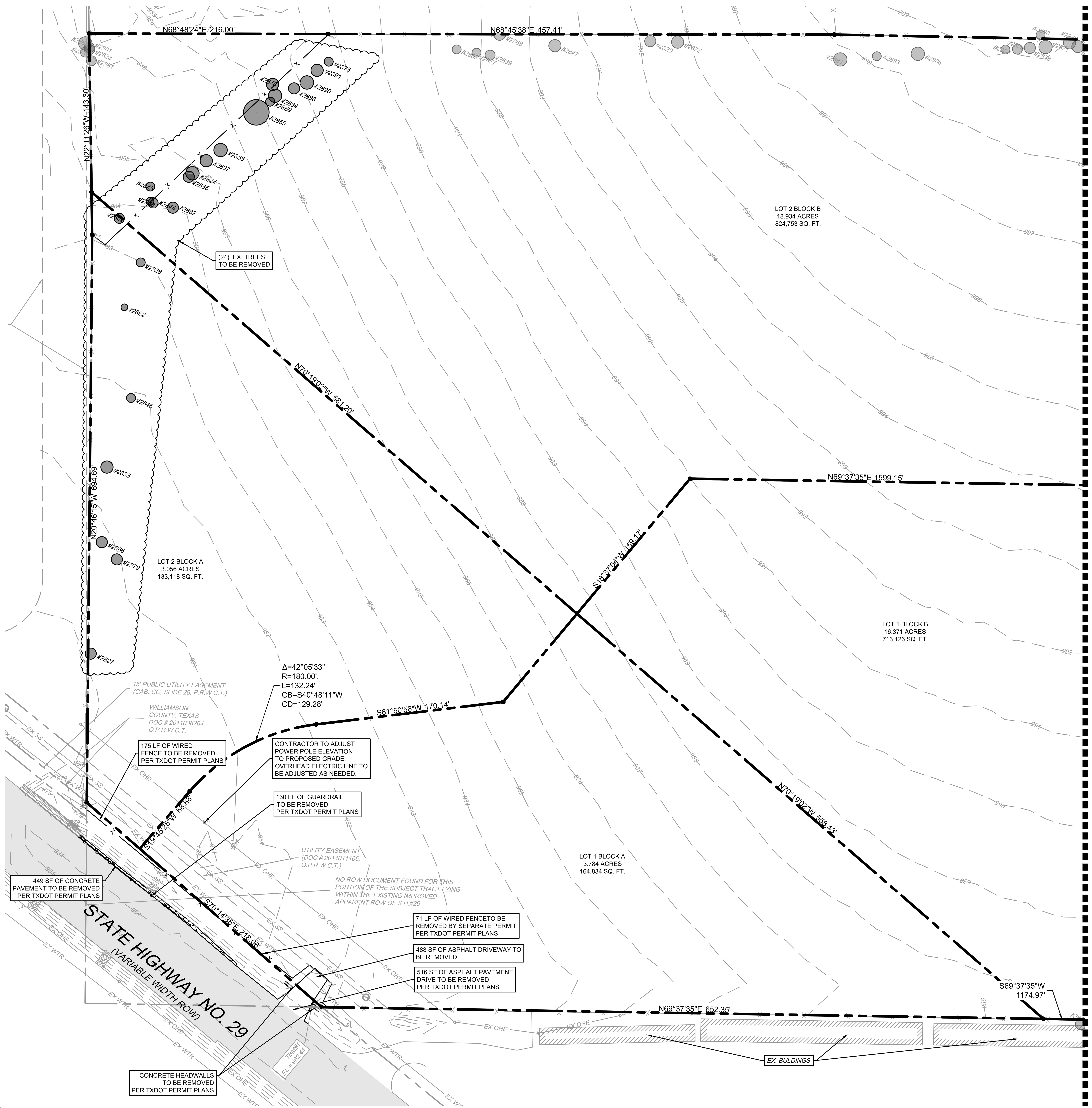
MP2.2

SURVEY PREPARED BY: BARTON CHAPA SURVEYING, LLC. 5200 STATE HIGHWAY 121, COLLEYVILLE, TX. TBPLS FIRM# 10194474

Z:\Project Data\Survey\001 - Kirkman Engineering\2021\197 - Foust - Liberty Hill\Drawings



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

LEGEND

REMOVE AND DISPOSE OF EXISTING CONCRETE	
PROPOSED FULL DEPTH SAWCUT (PROVIDE CLEAN CONSTRUCTION EDGE)	
EXISTING CONTOUR	500
PROPERTY BOUNDARY	
TREE REMOVAL	
TREES TO REMAIN	

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

811 Know what's below. Call before you dig.

GRAPHIC SCALE

0 50 100 FEET

SCALE: 1" = 50'

5/25/2023

SHEA O. KIRKMAN 91651

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

DEMOLITION PLAN I

SHEET: C2.0

FILENAME: C2.0 DEMOLITION_CHV21004.dwg
PLOTTED BY Alexandra Gadam
PLOTTED DATE: 5/25/2023

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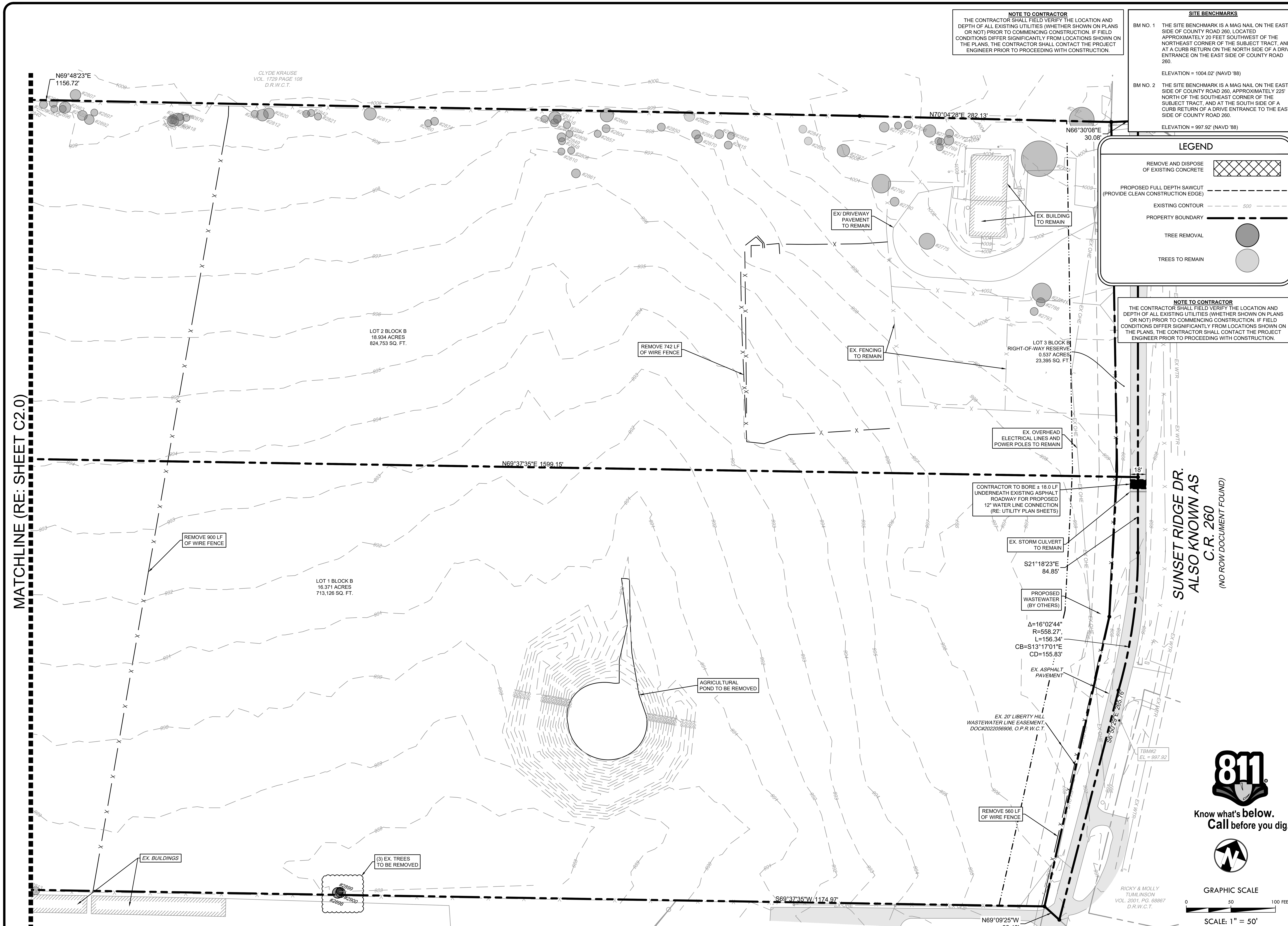
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SITE BENCHMARKS
BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.
ELEVATION = 1004.02' (NAVD '88)
BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.
ELEVATION = 997.92' (NAVD '88)
LEGEND
REMOVE AND DISPOSE OF EXISTING CONCRETE
PROPOSED FULL DEPTH SAWCUT (PROVIDE CLEAN CONSTRUCTION EDGE)
EXISTING CONTOUR
PROPERTY BOUNDARY
TREE REMOVAL
TREES TO REMAIN
NOTE TO CONTRACTOR
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N69°48'23"E 1156.72'
CLYDE KRAUSE VOL. 1729 PAGE 108 D.R.W.C.T.
N70°04'28"E 282.13'
N66°30'08"E 30.08'
MATCHLINE (RE: SHEET C2.0)
EX/ DRIVEWAY PAVEMENT TO REMAIN
EX. BUILDING TO REMAIN
LOT 2 BLOCK B 18.934 ACRES 824,753 SQ. FT.
REMOVE 742 LF OF WIRE FENCE
EX. FENCING TO REMAIN
LOT 3 BLOCK B RIGHT-OF-WAY RESERVE 0.537 ACRES 23,395 SQ. FT.
EX. OVERHEAD ELECTRICAL LINES AND POWER POLES TO REMAIN
N69°37'35"E 1599.15'
18'
CONTRACTOR TO BORE ± 18.0 LF UNDERNEATH EXISTING ASPHALT ROADWAY FOR PROPOSED 12" WATER LINE CONNECTION (RE: UTILITY PLAN SHEETS)
REMOVE 900 LF OF WIRE FENCE
EX. STORM CULVERT TO REMAIN
S21°18'23"E 84.85'
SUNSET RIDGE DR. ALSO KNOWN AS C.R. 260
(NO ROW DOCUMENT FOUND)
LOT 1 BLOCK B 16.371 ACRES 713,126 SQ. FT.
PROPOSED WASTEWATER (BY OTHERS)
Δ=16°02'44" R=558.27' L=156.34' CB=S13°17'01"E CD=155.83'
EX. ASPHALT PAVEMENT
AGRICULTURAL POND TO BE REMOVED
EX. 20' LIBERTY HILL WASTEWATER LINE EASEMENT, DOC#2022056906, O.P.R.W.C.T.
S6°50'29"E 265.76'
TBM#2 EL = 997.92
REMOVE 560 LF OF WIRE FENCE
EX. BUILDINGS
(3) EX. TREES TO BE REMOVED
S69°37'35"W 1174.97'
RICKY & MOLLY TUMLINSON VOL. 2001, PG. 68867 D.R.W.C.T.
N69°09'25"W 22.42'
811
Know what's below. Call before you dig.
GRAPHIC SCALE
0 50 100 FEET
SCALE: 1" = 50'

5/25/2023
SHEA O. KIRKMAN 91865

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

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JOB NUMBER: CHV21004
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DEMOLITION PLAN II

SHEET:
C2.1

PARKING DATA TABLE	
REQUIRED ADA PARKING	12 SPACES (2 VAN)
PROVIDED ADA PARKING	14 SPACES (11 VAN)
GARAGE PARKING SPACES	83 SPACES
ELECTRIC VEHICLE PARKING	4 SPACES
TOTAL PARKING STALLS	478 SPACES
TOTAL PARKING SPACES PROVIDED	561 SPACES

SITE PLAN DATA TABLE	
EXISTING ZONING LOT 1 BLOCK A	C-3
EXISTING ZONING LOT 2 BLOCK A	C-3
EXISTING ZONING LOT 1 BLOCK B	ETJ
EXISTING ZONING LOT 2 BLOCK B	ETJ
LOT 1, BLOCK A AREA (SQ. FT.) / (ACRES)	164,834 / 3.784
LOT 2, BLOCK A AREA (SQ. FT.) / (ACRES)	725,928 / 16.665
LOT 1, BLOCK B AREA (SQ. FT.) / (ACRES)	133,118 / 3.056
LOT 2, BLOCK B AREA (SQ. FT.) / (ACRES)	835,345 / 19.177
IMPERVIOUS COVER (ACRES / %)	10.99 / 25.75%

SITE PLAN DATA TABLE	
TOTAL GROSS AREA OF APARTMENT BUILDINGS (SQ. FT.)	TBD
TOTAL GROSS AREA OF GARAGES (SQ. FT.)	TBD
TOTAL GROSS AREA OF ALL BUILDINGS (SQ. FT.)	TBD
# OF FLOORS / STORIES	3
TOTAL UNITS PROVIDED	318
BUILDING HEIGHT	21'-6" (3 STORIES)
TOTAL SQUARE FOOTAGE OF BUILDING 1	71,433 SF
TOTAL SQUARE FOOTAGE OF BUILDING 2	51,196 SF
TOTAL SQUARE FOOTAGE OF BUILDING 3	53,538 SF
TOTAL SQUARE FOOTAGE OF BUILDING 4	88,833 SF
TOTAL SQUARE FOOTAGE OF BUILDING 5	89,175 SF
TOTAL SQUARE FOOTAGE OF BUILDING 6	89,135 SF

LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING (FIRELANE)
- PROPOSED FIRE HYDRANT (FH)
- PROPOSED SANITARY MANHOLE (WW)
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT (10)
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK
- EXISTING PAVEMENT

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SITE BENCHMARKS

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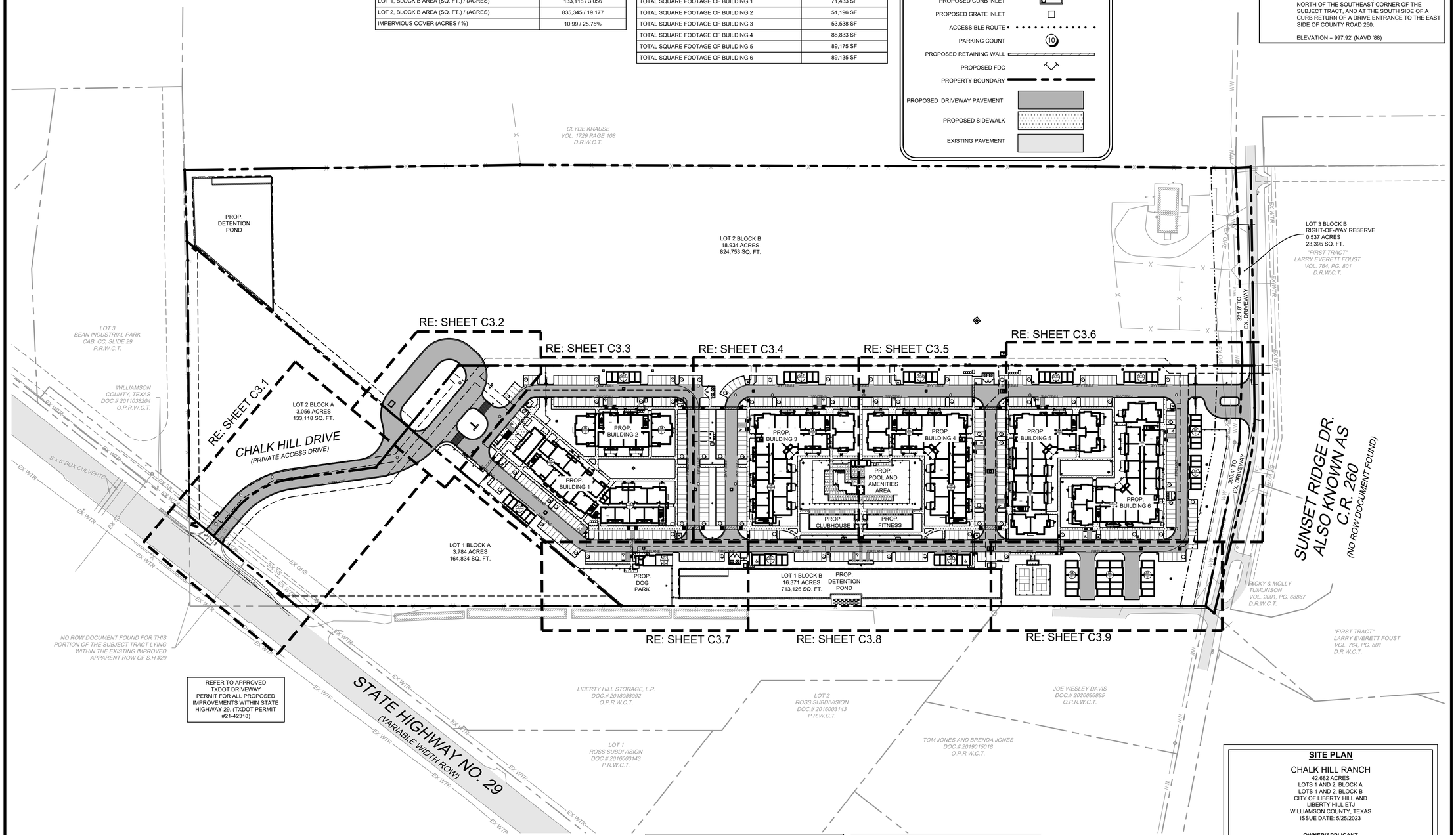

LAYOUT & DIMENSIONAL CONTROL NOTES:

1. BOUNDARY LINES AND EASEMENT: REFER TO THE FINAL PLAT TO VERIFY PROPERTY LINES AND EXISTING EASEMENT LOCATIONS.
2. DIMENSION CONTROL: UNLESS NOTED OTHERWISE, ALL PAVING DIMENSIONS SHOWN ARE TO FACE OF CURB.
3. CURB RADII: UNLESS NOTED OTHERWISE, ALL CURB RADII SHALL BE 3' AT FACE OF CURB.
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5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES PRIOR TO CONSTRUCTION.
6. ALL COORDINATES ARE U.S. SURVEY FEET, NAD '83 SURFACE.
7. REFER TO SHEET C10.0 FOR SITE DETAILS.

LANDSCAPING FENCE AND STAIRS NOTE

REFER TO LANDSCAPE AND ARCHITECTURAL PLAN FOR RETAINING WALL AND STAIR DESIGN. REFER TO THE LANDSCAPE DETAILS FOR FENCING DETAILS AND SPECIFICATIONS.

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GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

SITE PLAN

CHALK HILL RANCH
42.582 ACRES
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS
ISSUE DATE: 5/25/2023

OWNER/APPLICANT
CHV LIBERTY HILL 29 PROPERTY OWNER LLC
6601 E HILLCREST AVENUE, STE 212
DALLAS, TEXAS 75205
PH: 214-435-7510
CONTACT: LANGFORD STUBER

ENGINEER
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1130 COTTONWOOD CREEK TRAIL, SUITE C3
CEDAR PARK, TX 78613
PH: 512-428-8586
CONTACT: SHEA KIRKMAN, PE

SURVEYOR
BARTON CHAPA SURVEYING
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
PH: 817-864-1957
CONTACT: JACK BARTON, RPLS

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91863
REGISTERED
PROFESSIONAL ENGINEER

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JOB NUMBER: CHV21004

ISSUE DATE:

OVERALL SITE PLAN

SHEET:
C3.0

FULL PATH: K:\Jobs\CHV21004_Feat\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C3.0 SITE PLAN_CHV21004

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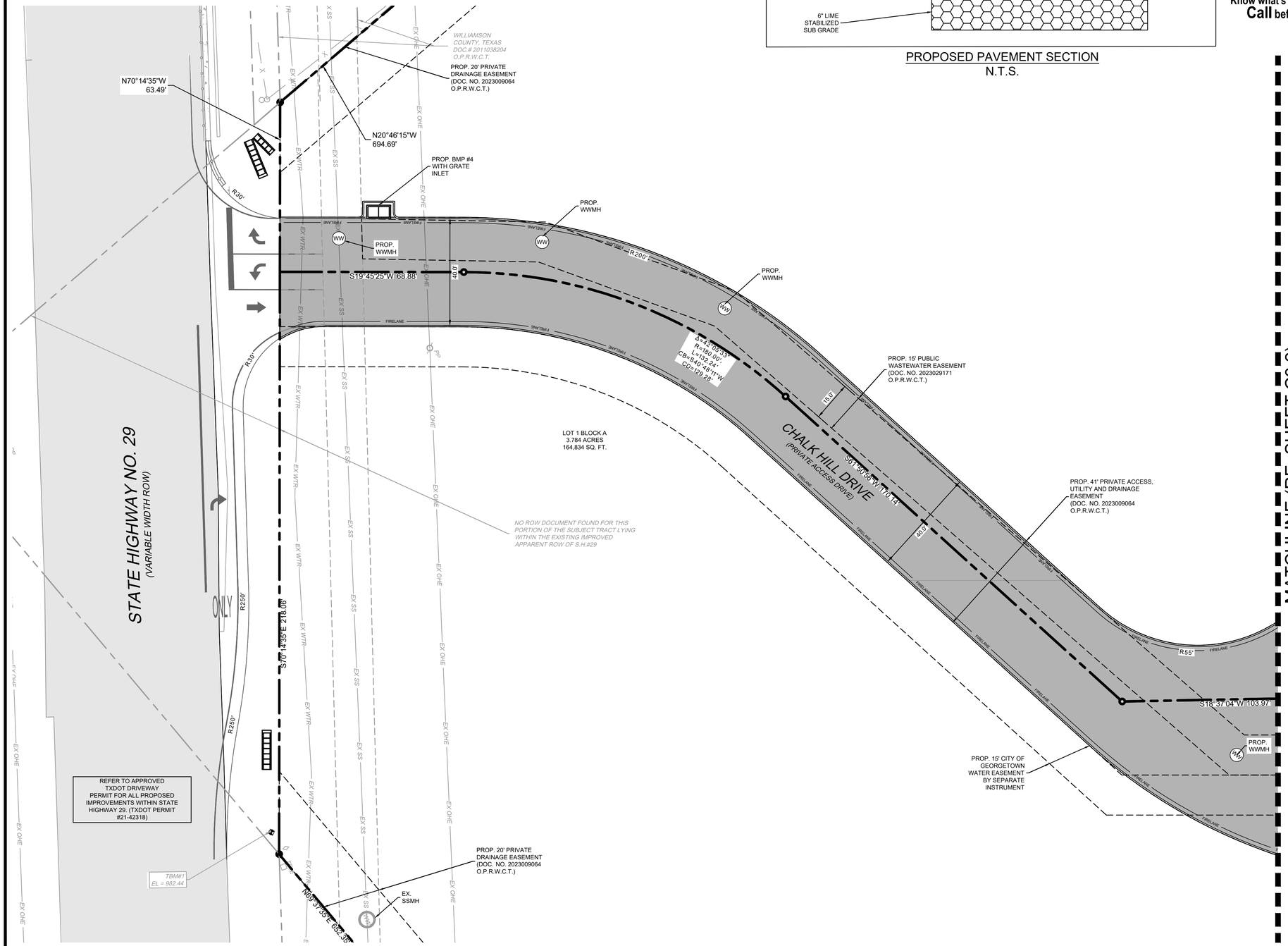
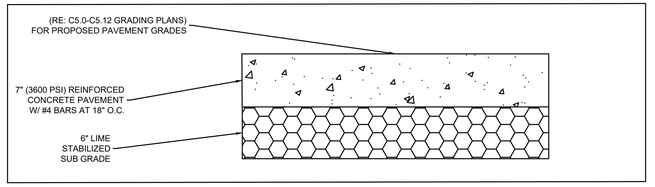
PLOTTED DATE: 5/25/2023





PROPOSED PAVEMENT SECTION
N.T.S.

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LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING — FIRELANE
- PROPOSED FIRE HYDRANT — FH
- PROPOSED SANITARY MANHOLE — WW
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT — 10
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK
- EXISTING PAVEMENT

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WCESD NO.4 FIRE DEPARTMENT NOTES:

1. REMOTE KNOX KEY SWITCH SHALL BE INSTALLED AT ALL AUTOMATIC GATES.
2. FIRE LANE SHALL BE CONSTRUCTED OF CONCRETE OR ASPHALT ONLY ABLE TO WITHSTAND AN IMPOSED LOAD OF 75,000 POUNDS.
3. THERE SHALL BE NO OVERHEAD OBSTRUCTIONS OVER THE FIRE LANE OF LESS THAN 13'6".
4. ANY BEND IN THE FIRE LINE SHALL BE SUPPORTED BY A THRUST BLOCK TO BE VERIFIED BY THE FIRE CODE OFFICIAL.
5. ALL FIRE LINES AND AUTOMATIC SPRINKLER LINES TO BE HYDROSTATIC TESTED AND VERIFIED BY THE FIRE CODE OFFICIAL.

GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

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SITE PLAN

CHALK HILL RANCH
42.682 ACRES
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS
ISSUE DATE: 5/25/2023

OWNER/APPLICANT
CHV LIBERTY HILL 29 PROPERTY OWNER LLC
6601 E HILLCREST AVENUE, STE 212
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CONTACT: LANGFORD STUBER

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SITE PLAN I

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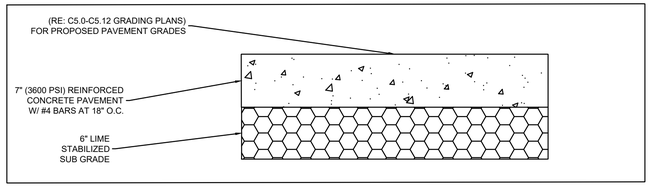

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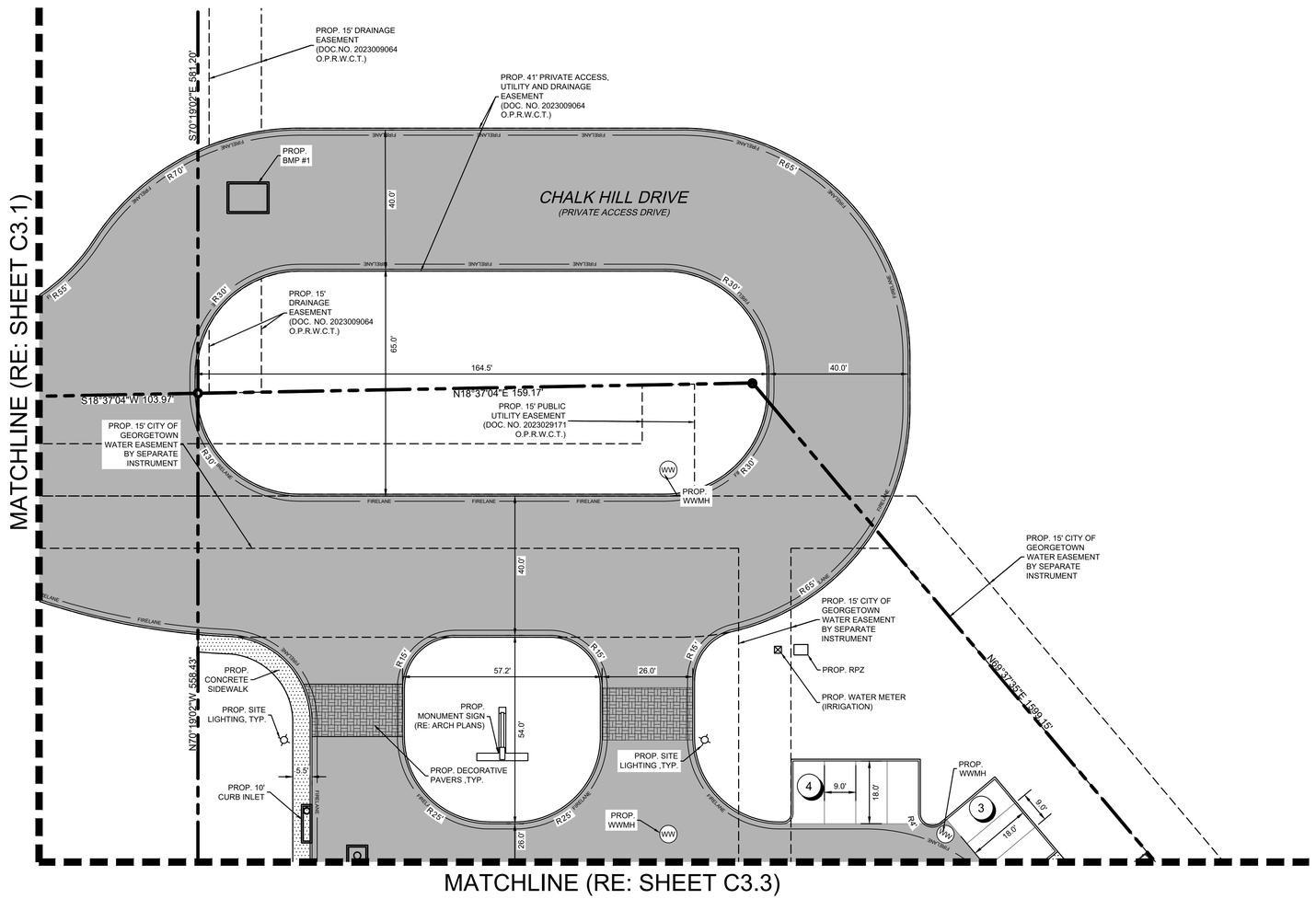

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SITE PLAN II

SHEET:
C3.2

FULL PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C3.0 SITE PLAN_CHV21004
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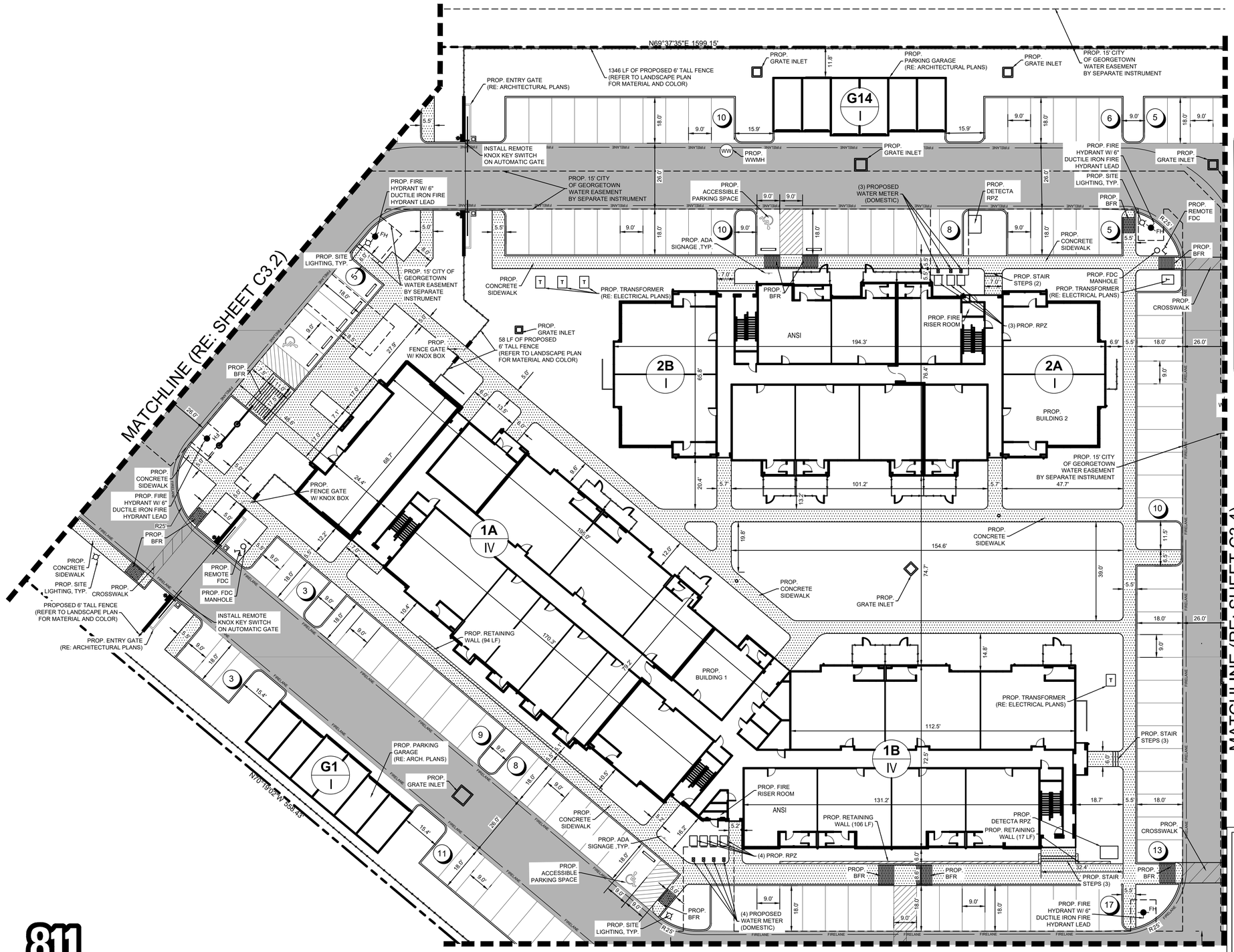

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- PROPOSED SIDEWALK
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LAYOUT & DIMENSIONAL CONTROL NOTES:

1. BOUNDARY LINES AND EASEMENT: REFER TO THE FINAL PLAT TO VERIFY PROPERTY LINES AND EXISTING EASEMENT LOCATIONS.
2. DIMENSION CONTROL: UNLESS NOTED OTHERWISE, ALL PAVING DIMENSIONS SHOWN ARE TO FACE OF CURB.
3. CURB RADII: UNLESS NOTED OTHERWISE, ALL CURB RADII SHALL BE 3' AT FACE OF CURB.
4. BUILDING DIMENSIONS: REFERENCE ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSIONS.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES PRIOR TO CONSTRUCTION.
6. ALL COORDINATES ARE U.S. SURVEY FEET, NAD '88 SURFACE.
7. REFER TO SHEET C11.0 FOR SITE DETAILS.

NOTE TO CONTRACTOR

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WCESD NO.4 FIRE DEPARTMENT NOTES:

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3. THERE SHALL BE NO OVERHEAD OBSTRUCTIONS OVER THE FIRE LANE OF LESS THAN 13'6".
4. ANY BEND IN THE FIRE LINE SHALL BE SUPPORTED BY A THRUST BLOCK TO BE VERIFIED BY THE FIRE CODE OFFICIAL.
5. ALL FIRE LINES AND AUTOMATIC SPRINKLER LINES TO BE HYDROSTATIC TESTED AND VERIFIED BY THE FIRE CODE OFFICIAL.

GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

LANDSCAPING FENCE AND STAIRS NOTE

REFER TO LANDSCAPE AND ARCHITECTURAL PLAN FOR RETAINING WALL AND STAIR DESIGN. REFER TO THE LANDSCAPE DETAILS FOR FENCING DETAILS AND SPECIFICATIONS.

SITE PLAN

CHALK HILL RANCH
42.682 ACRES
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS
ISSUE DATE: 5/25/2023

OWNER/APPLICANT
CHV LIBERTY HILL 29 PROPERTY OWNER LLC
6601 E HILLCREST AVENUE, STE 212
DALLAS, TEXAS 75205
PH: 214-435-7510
CONTACT: LANGFORD STUBER

ENGINEER
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL, SUITE C3
CEDAR PARK, TX 78613
PH: 512-428-8586
CONTACT: SHEA KIRKMAN, PE

SURVEYOR
BARTON CHAPA SURVEYING
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
PH: 817-864-1957
CONTACT: JACK BARTON, RPLS

Know what's below. Call before you dig.

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

SITE PLAN III

SHEET:
C3.3

FULL PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C3.3 SITE PLAN_CHV21004
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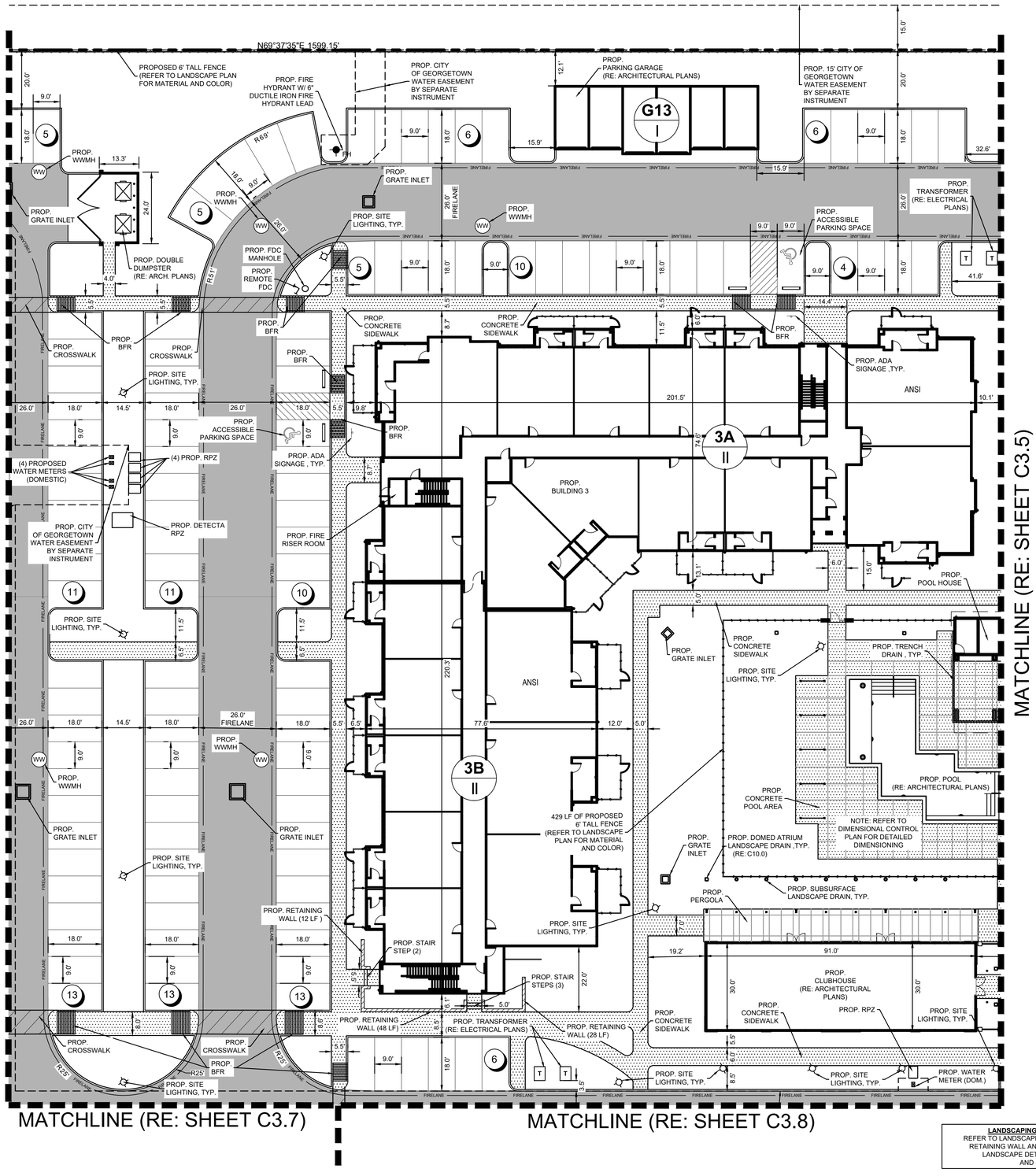
PLOTTED BY: Prashanta Gautam
PLOTTED DATE: 5/25/2023



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SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING — FIRELANE
- PROPOSED FIRE HYDRANT — FH
- PROPOSED SANITARY MANHOLE — WW
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT — 10
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK
- EXISTING PAVEMENT

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GRAPHIC SCALE

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LOTS 1 AND 2, BLOCK B
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5/25/2023
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91863
REGISTERED PROFESSIONAL ENGINEER

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214-435-7510

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REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

SITE PLAN IV

SHEET:
C3.4

FILE PATH: K:\Jobs\CHV21004_Final\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\Xrefs\CHV21004_Final\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\C3.0 SITE PLAN_CHV21004

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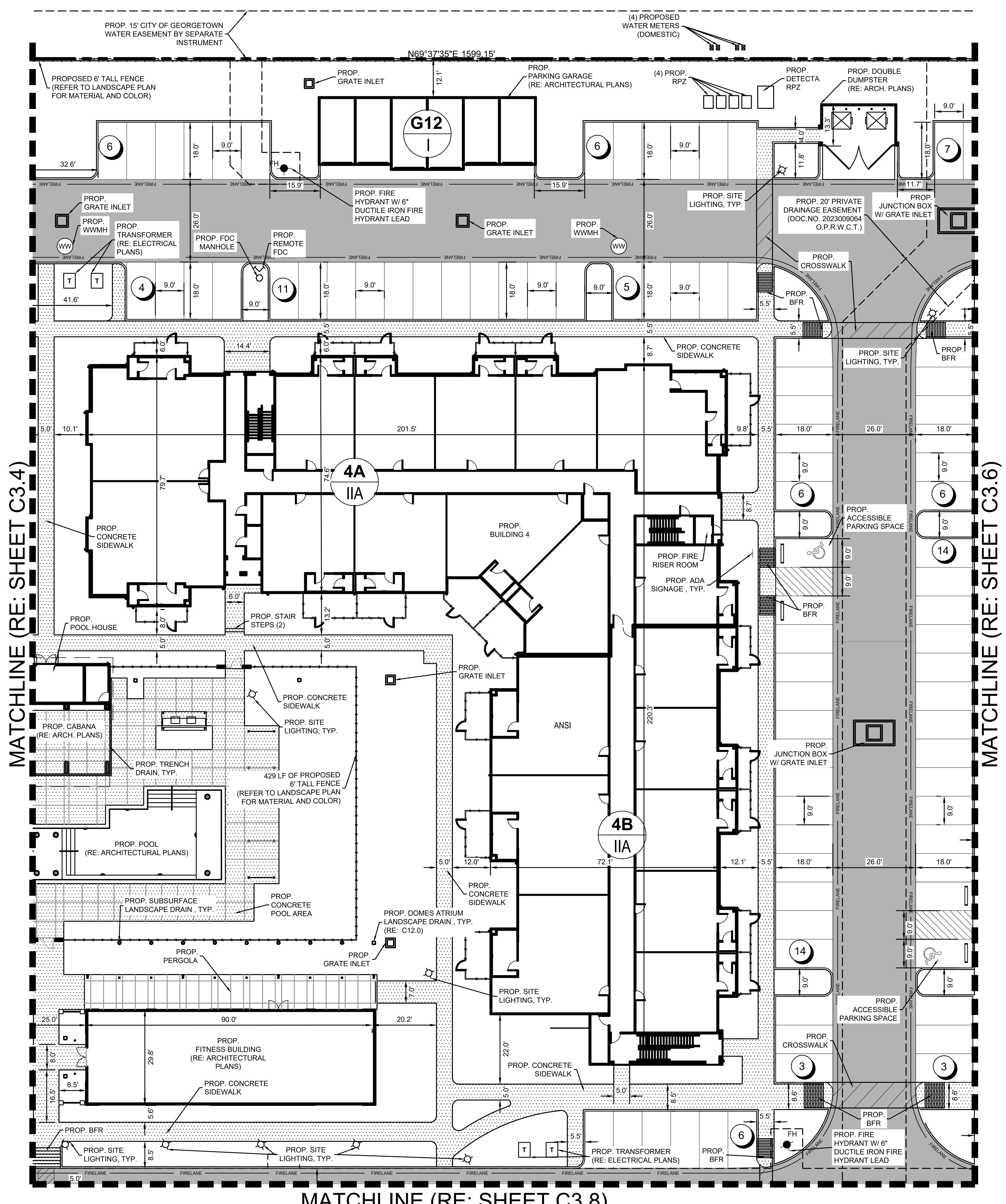
PLOTTED BY: Prashanna Gautam
PLOTTED DATE: 5/25/2023



811 Know what's below. Call before you dig.

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LEGEND

PROPOSED SIGN
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PROPOSED FIRE HYDRANT
PROPOSED SANITARY MANHOLE
PROPOSED CURB INLET
PROPOSED GRATE INLET
ACCESSIBLE ROUTE
PARKING COUNT
PROPOSED RETAINING WALL
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PROPOSED DRIVEWAY PAVEMENT
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LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
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WILLIAMSON COUNTY, TEXAS
ISSUE DATE: 5/25/2023

OWNER/APPLICANT
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SURVEYOR
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5/25/2023
SHEA O. KIRKMAN
91865

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DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
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LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

SITE PLAN V

SHEET:
C3.5

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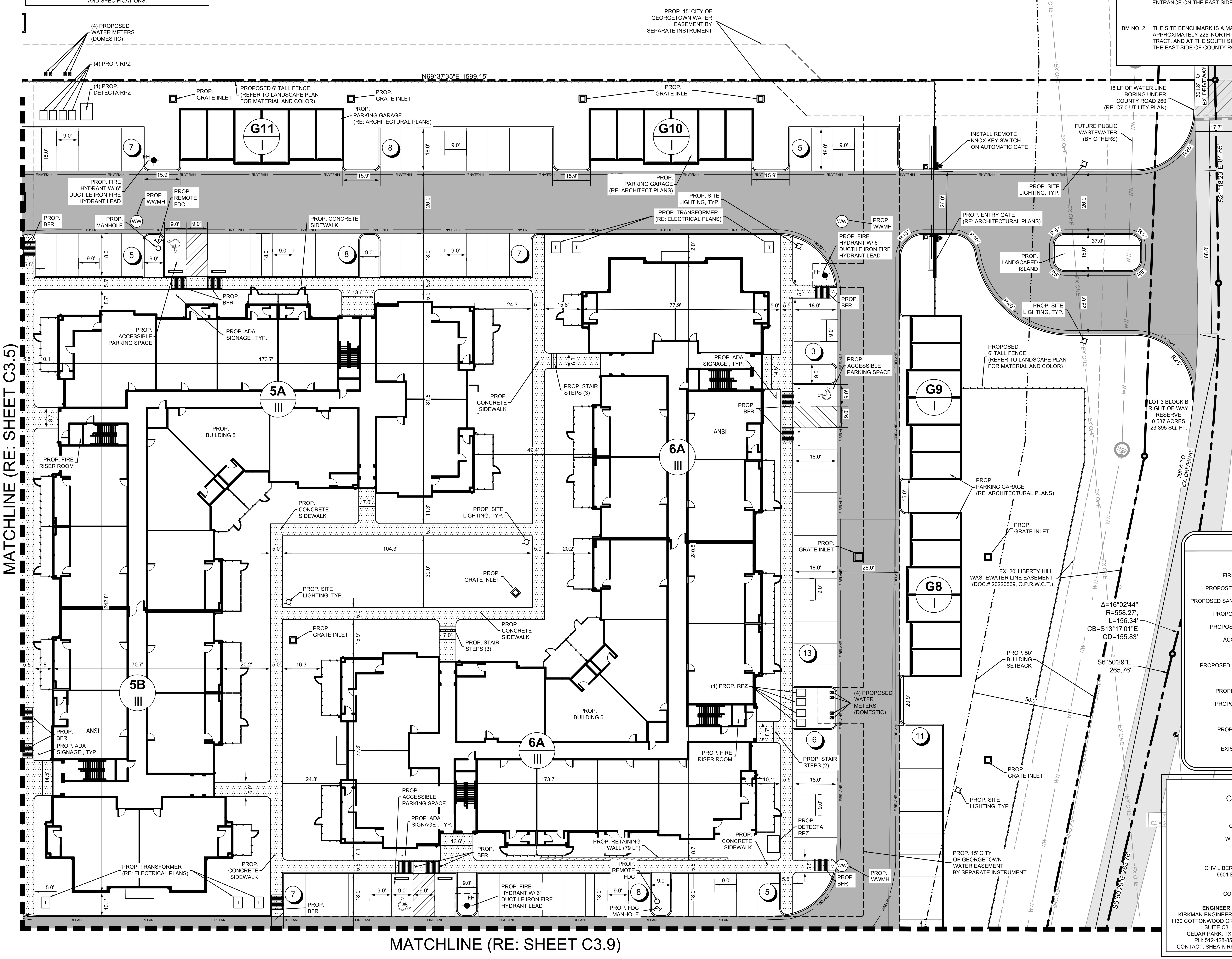

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LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY MANHOLE
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK
- EXISTING PAVEMENT

SITE PLAN

CHALK HILL RANCH
42.682 ACRES
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS
ISSUE DATE: 5/25/2023

OWNER/APPLICANT
CHV LIBERTY HILL 29 PROPERTY OWNER LLC
6601 E HILLCREST AVENUE, STE 212
DALLAS, TEXAS 75205
PH: 214-435-7510
CONTACT: LANGFORD STUBER

ENGINEER
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL, SUITE C3
CEDAR PARK, TX 78613
PH: 512-428-8586
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5/25/2023
SHEA O. KIRKMAN
91851

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214-435-7510

CHALK HILL RANCH

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REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
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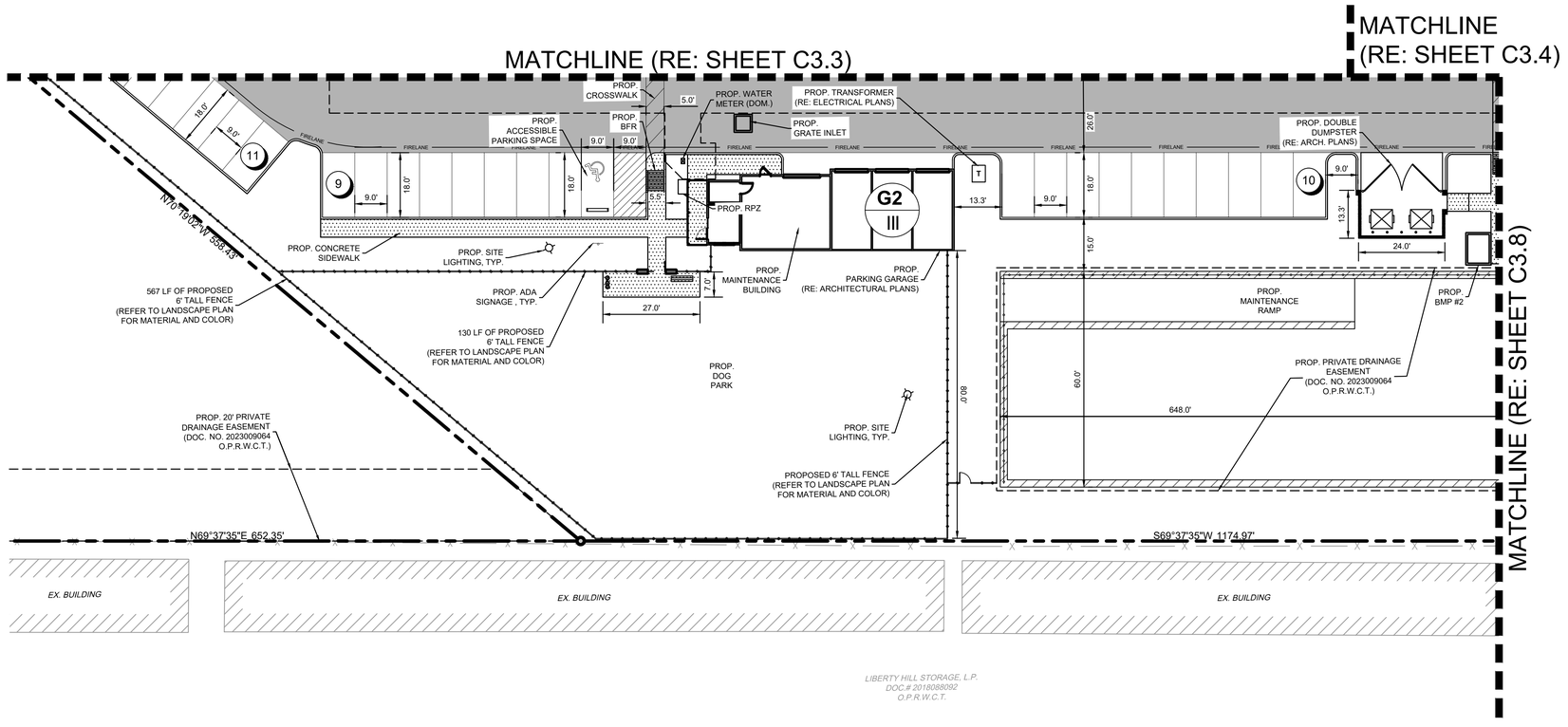
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

SITE PLAN VI

SHEET:
C3.6

FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C3.0 SITE PLAN_CHV21004
FILENAME: C3.0 SITE PLAN_CHV21004.dwg
PLOTTED BY: Harrison Kutsahm
PLOTTED DATE: 5/25/2023



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TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

SITE PLAN VII

SHEET:
C3.7

FULL PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\93 - Production\C3.0 SITE PLAN_CHV21004

FILENAME: C3.0 SITE PLAN_CHV21004.dwg
PLOTTED BY: Prashanta Gautam
PLOTTED DATE: 5/25/2023

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LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING — FIRELANE
- PROPOSED FIRE HYDRANT — FH
- PROPOSED SANITARY MANHOLE — WW
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT — 10
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK
- EXISTING PAVEMENT

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

LAYOUT & DIMENSIONAL CONTROL NOTES:

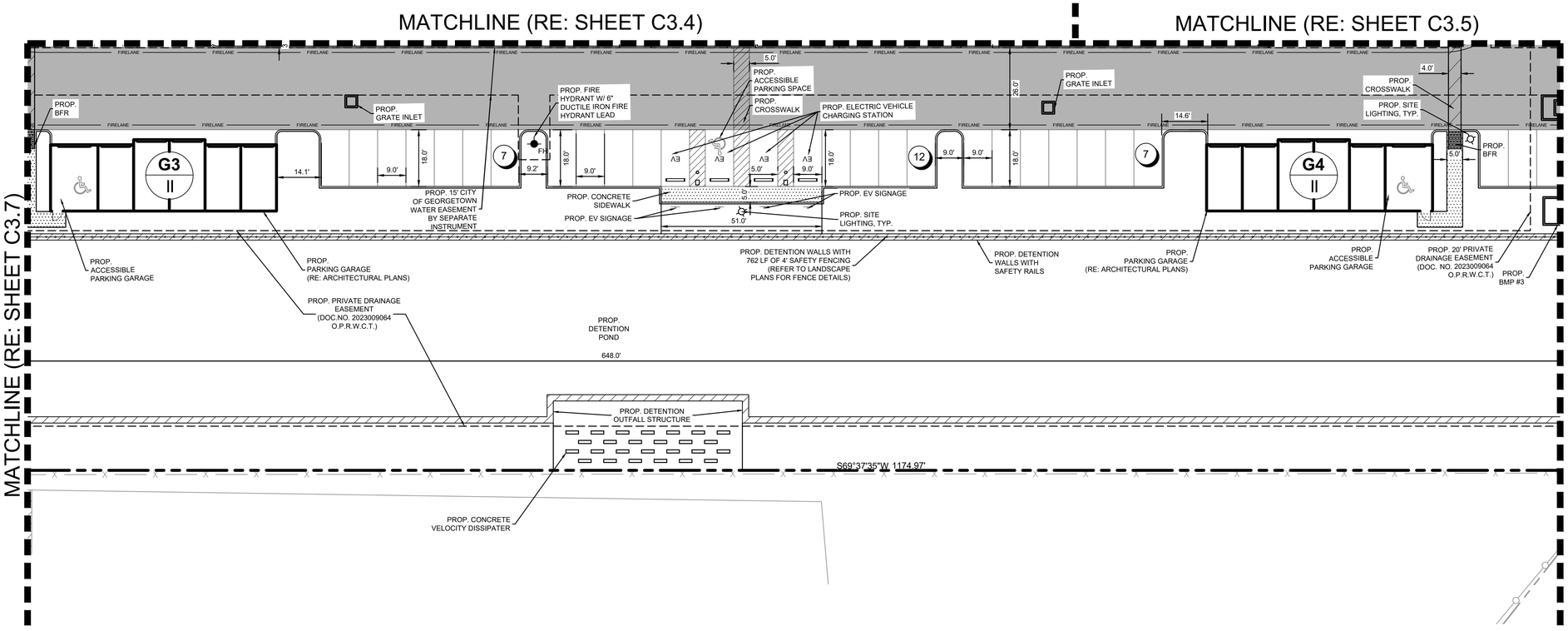
1. BOUNDARY LINES AND EASEMENT: REFER TO THE FINAL PLAT TO VERIFY PROPERTY LINES AND EXISTING EASEMENT LOCATIONS.
2. DIMENSION CONTROL: UNLESS NOTED OTHERWISE, ALL PAVING DIMENSIONS SHOWN ARE TO FACE OF CURB.
3. CURB RADII: UNLESS NOTED OTHERWISE, ALL CURB RADII SHALL BE 3' AT FACE OF CURB.
4. BUILDING DIMENSIONS: REFERENCE ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSIONS.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES PRIOR TO CONSTRUCTION.
6. ALL COORDINATES ARE U.S. SURVEY FEET, NAD '88 SURFACE.
7. REFER TO SHEET C11.0 FOR SITE DETAILS.

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

WCESD NO.4 FIRE DEPARTMENT NOTES:

1. REMOTE KNOX KEY SWITCH SHALL BE INSTALLED AT ALL AUTOMATIC GATES.
2. FIRE LANE SHALL BE CONSTRUCTED OF CONCRETE OR ASPHALT ONLY ABLE TO WITHSTAND AN IMPOSED LOAD OF 75,000 POUNDS.
3. THERE SHALL BE NO OVERHEAD OBSTRUCTIONS OVER THE FIRE LANE OF LESS THAN 13'6".
4. ANY BEND IN THE FIRE LINE SHALL BE SUPPORTED BY A THRUST BLOCK TO BE VERIFIED BY THE FIRE CODE OFFICIAL.
5. ALL FIRE LINES AND AUTOMATIC SPRINKLER LINES TO BE HYDROSTATIC TESTED AND VERIFIED BY THE FIRE CODE OFFICIAL.



GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

LANDSCAPING FENCE AND STAIRS NOTE

REFER TO LANDSCAPE AND ARCHITECTURAL PLAN FOR RETAINING WALL AND STAIR DESIGN. REFER TO THE LANDSCAPE DETAILS FOR FENCING DETAILS AND SPECIFICATIONS.

SITE PLAN

CHALK HILL RANCH
42.682 ACRES
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS
ISSUE DATE: 5/25/2023

OWNER/APPLICANT
CHV LIBERTY HILL 29 PROPERTY OWNER LLC
6601 E HILLCREST AVENUE, STE 212
DALLAS, TEXAS 75205
PH: 214-435-7510
CONTACT: LANGFORD STUBER

ENGINEER
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL, SUITE C3
CEDAR PARK, TX 78613
PH: 512-428-8586
CONTACT: SHEA KIRKMAN, PE

SURVEYOR
BARTON CHAPA SURVEYING
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
PH: 817-864-1957
CONTACT: JACK BARTON, RPLS

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91869
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

SITE PLAN VIII

SHEET:
C3.8

FILE PATH: K:\Work\CHV21004_Final\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1(03 - Production\C3.8 SITE PLAN_CHV21004

FILENAME: C1.0 SITE PLAN_CHV21004.dwg
PLOTTED BY: Prachanika Gadkari
PLOTTED DATE: 5/25/2023

Know what's below. Call before you dig.

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

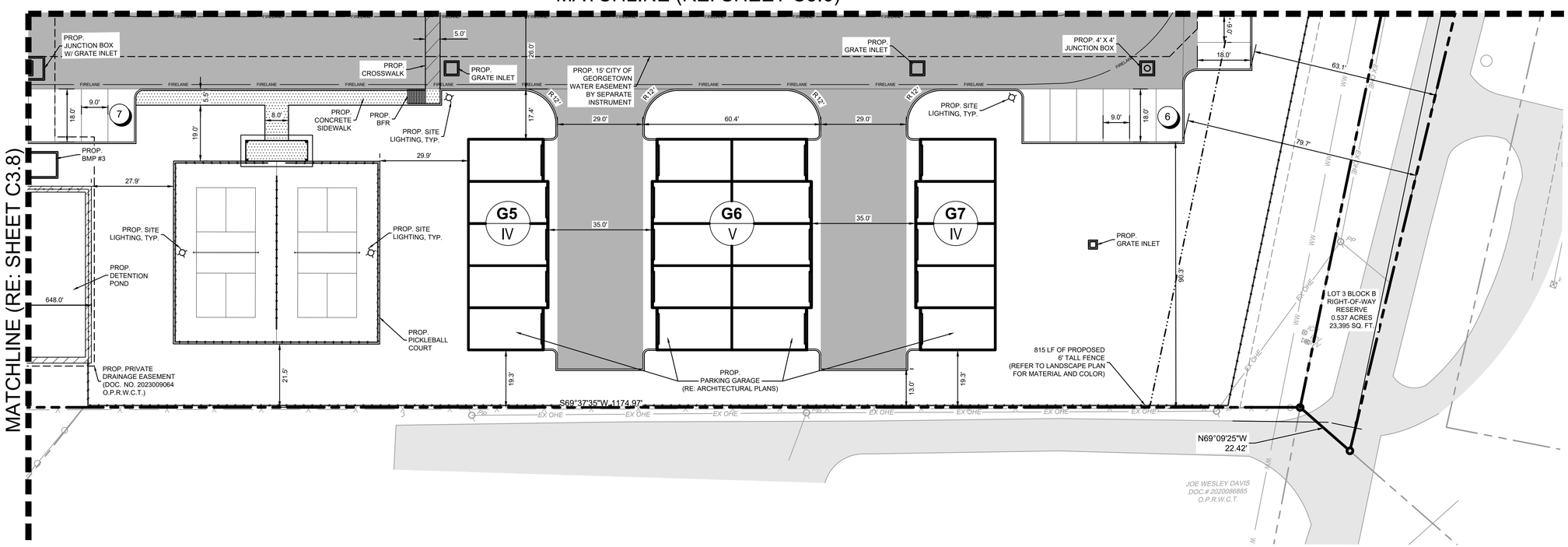
CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:



GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING (FIRELANE)
- PROPOSED FIRE HYDRANT (FH)
- PROPOSED SANITARY MANHOLE (WW)
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT (10)
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK
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LANDSCAPING FENCE AND STAIRS NOTE
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5. ALL FIRE LINES AND AUTOMATIC SPRINKLER LINES TO BE HYDROSTATIC TESTED AND VERIFIED BY THE FIRE CODE OFFICIAL.

LAYOUT & DIMENSIONAL CONTROL NOTES:

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5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES PRIOR TO CONSTRUCTION.
6. ALL COORDINATES ARE U.S. SURVEY FEET, NAD '88 SURFACE.
7. REFER TO SHEET C11.0 FOR SITE DETAILS.

SITE PLAN

CHALK HILL RANCH
42.682 ACRES
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS
ISSUE DATE: 5/25/2023

OWNER/APPLICANT
CHV LIBERTY HILL 29 PROPERTY OWNER LLC
6601 E HILLCREST AVENUE, STE 212
DALLAS, TEXAS 75205
PH: 214-435-7510
CONTACT: LANGFORD STUBER

ENGINEER
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL, SUITE C3
CEDAR PARK, TX 78613
PH: 512-428-8586
CONTACT: SHEA KIRKMAN, PE

SURVEYOR
BARTON CHAPA SURVEYING
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
PH: 817-864-1957
CONTACT: JACK BARTON, RPLS

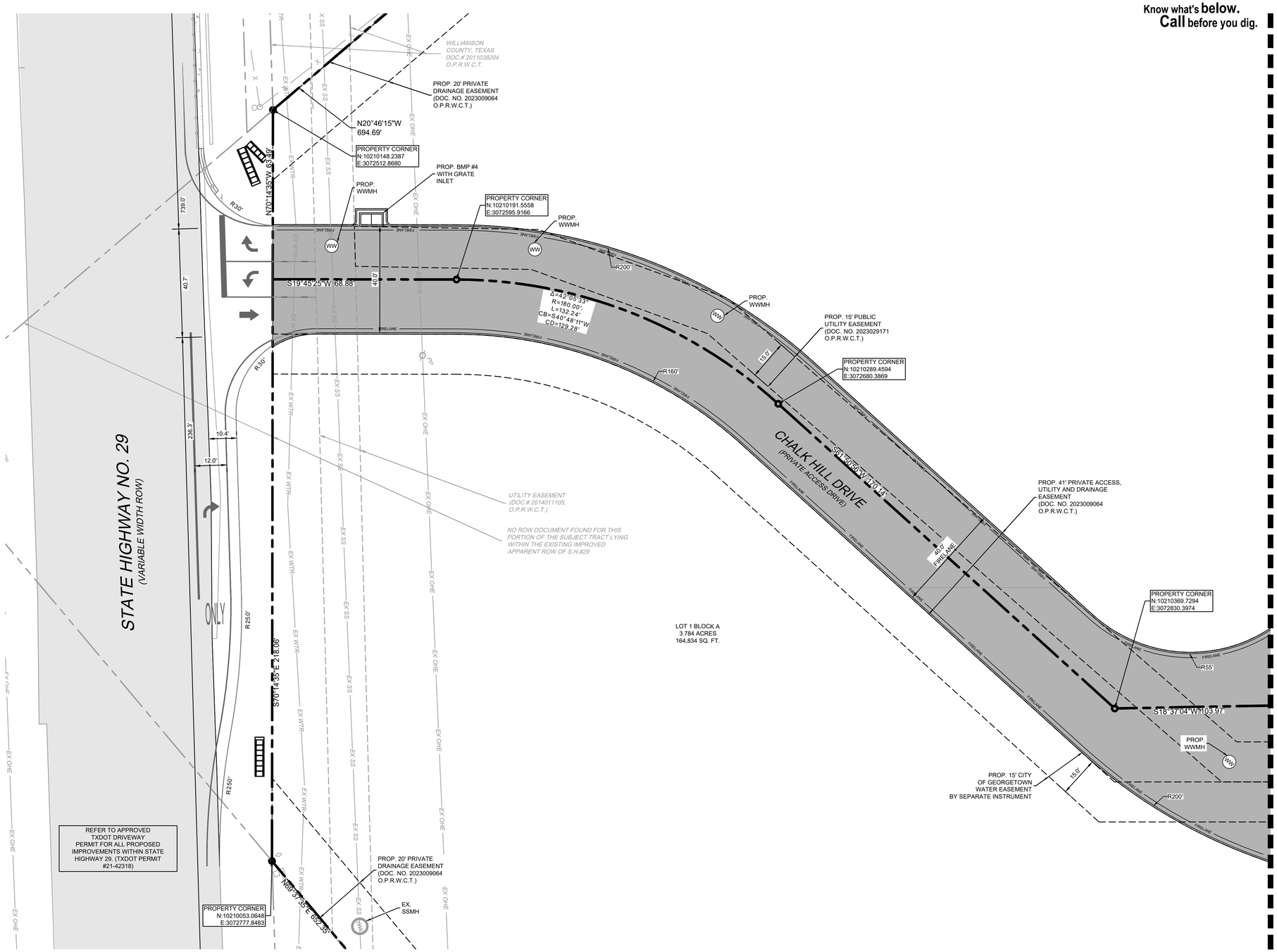
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

SITE PLAN IX

SHEET:
C3.9



Know what's **below.**
Call before you dig.

LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING — FIRELANE
- PROPOSED FIRE HYDRANT — FH
- PROPOSED SANITARY MANHOLE — WW
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT — 10
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK
- EXISTING PAVEMENT

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GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DESCRIPTION:	DATE:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

DIMENSIONAL CONTROL PLAN I

SHEET:
C4.0

FILENAME: C4.0 DIMENSIONAL CONTROL PLAN_CHV21004.dwg
PLOTTED BY: Prashanthi Gadam
PLOTTED DATE: 5/25/2023
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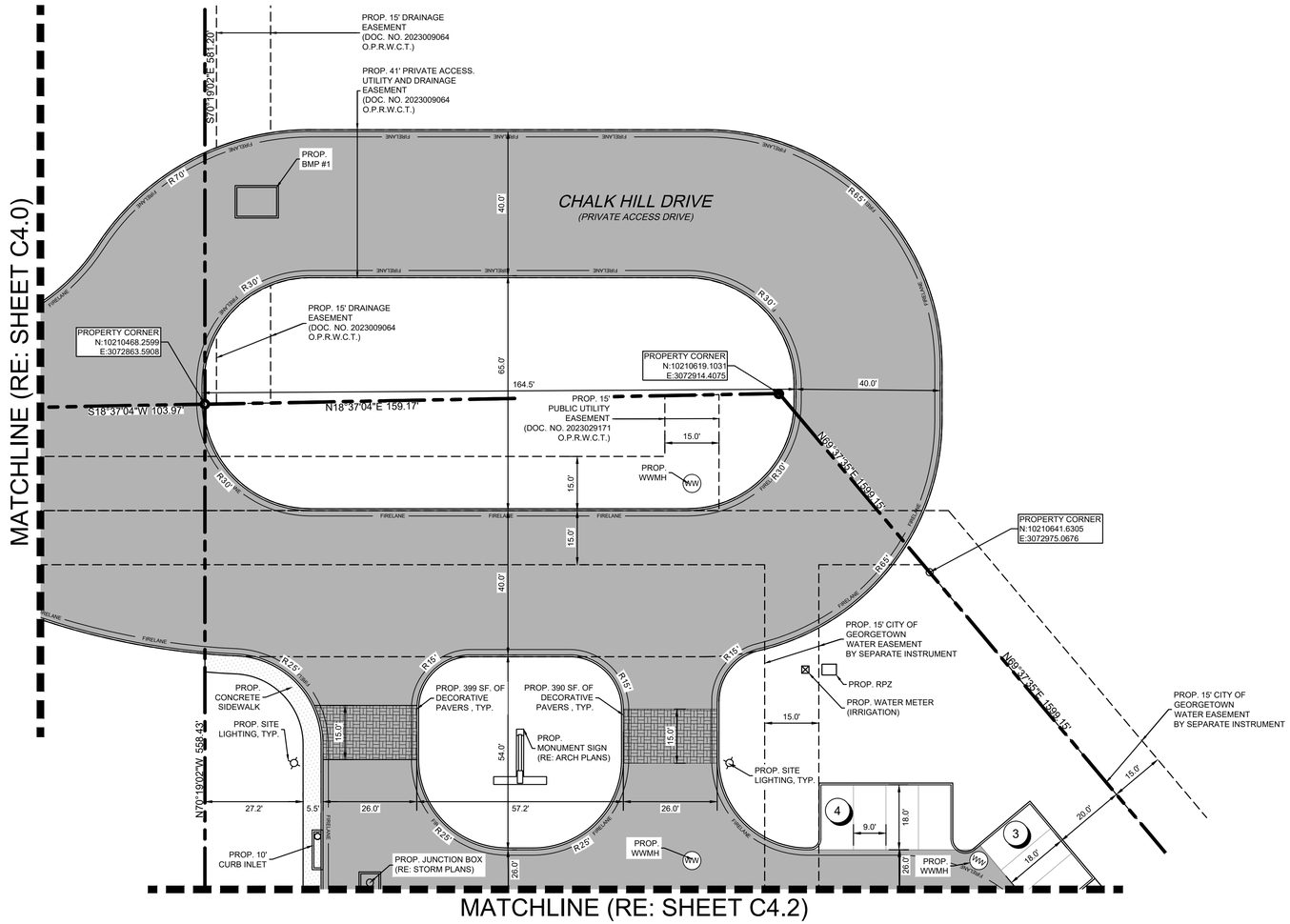

Know what's **below.**
Call before you dig.

LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING — FIRELANE
- PROPOSED FIRE HYDRANT — FH
- PROPOSED SANITARY MANHOLE — WW
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT — 10
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK

LAYOUT & DIMENSIONAL CONTROL NOTES:

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7. REFER TO SHEET C11.0 FOR SITE DETAILS.

NOTE TO CONTRACTOR
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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

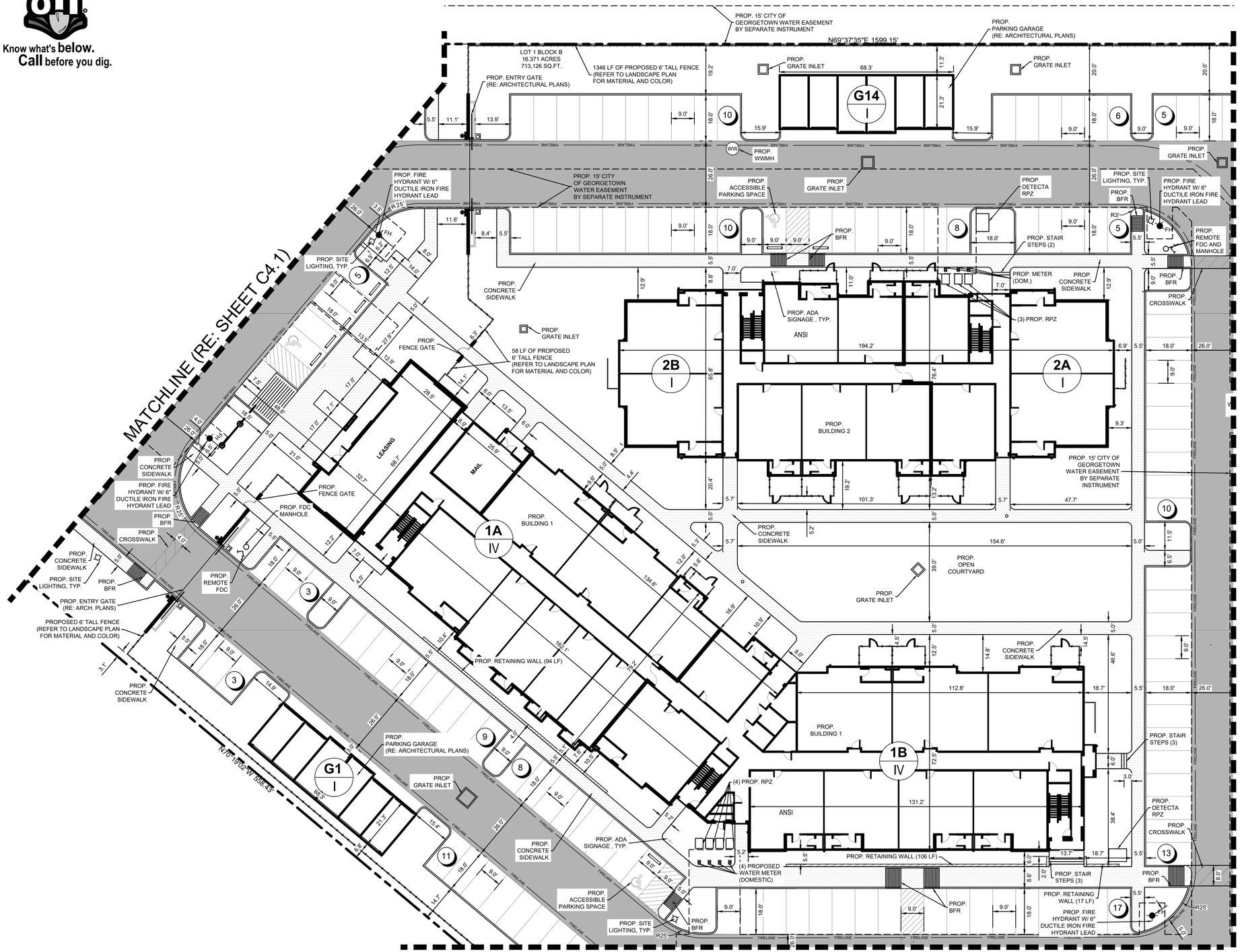
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

DIMENSIONAL CONTROL PLAN II

SHEET:
C4.1

811
Know what's **below.**
Call before you dig.



LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING (FIRELANE)
- PROPOSED FIRE HYDRANT (FH)
- PROPOSED SANITARY MANHOLE (WW)
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
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- PARKING COUNT (10)
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- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK

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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

DIMENSIONAL CONTROL PLAN III

SHEET:
C4.2

FILENAME: C4.0 DIMENSIONAL CONTROL PLAN_CHV21004.dwg
PLOTTED BY: Prechanda Daubon
PLOTTED DATE: 5/25/2023
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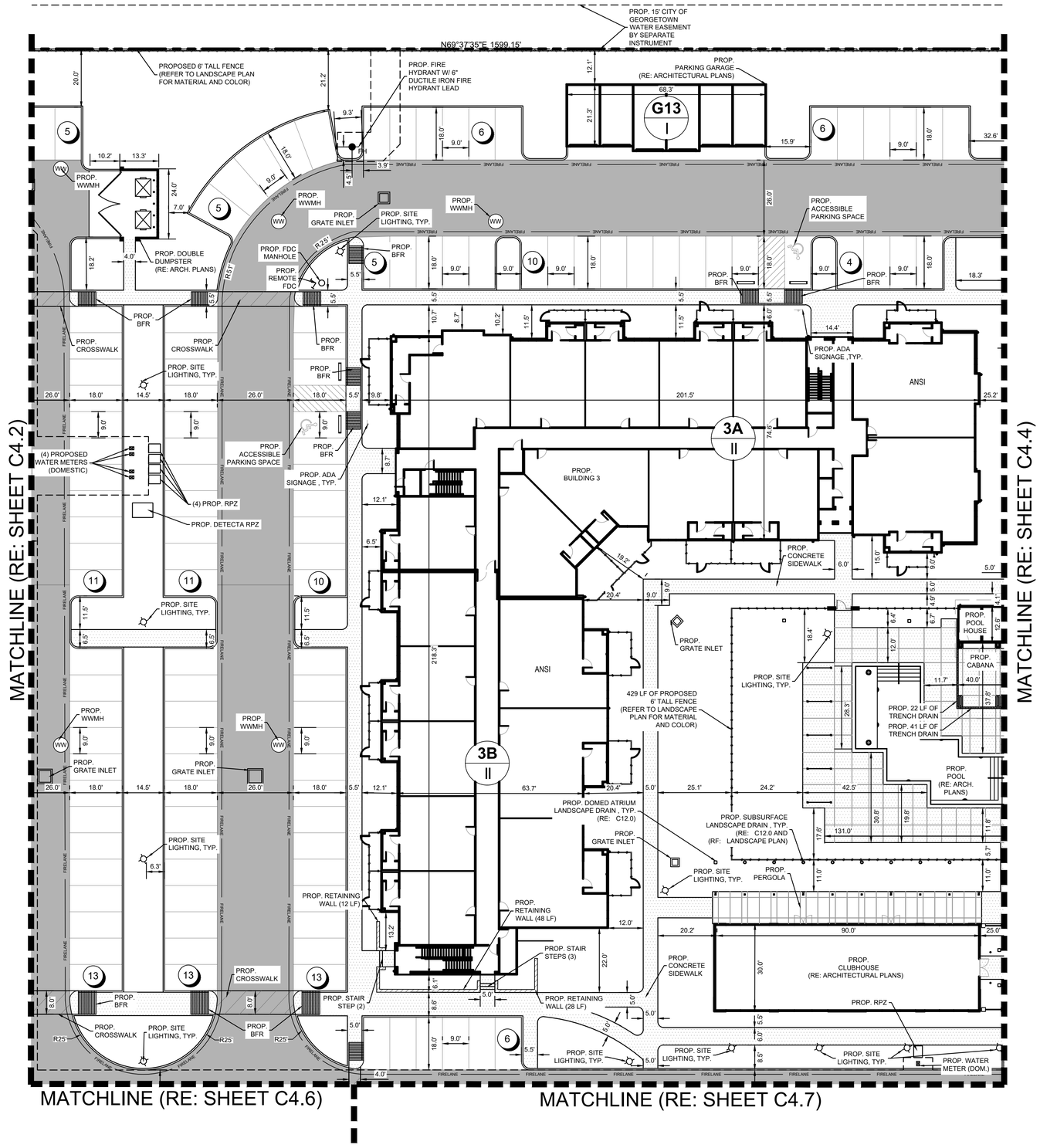

Know what's **below.**
Call before you dig.

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91869
REGISTERED
PROFESSIONAL ENGINEER

LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING (FIRELANE)
- PROPOSED FIRE HYDRANT (FH)
- PROPOSED SANITARY MANHOLE (WW)
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT (10)
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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

DIMENSIONAL CONTROL PLAN IV

SHEET:
C4.3

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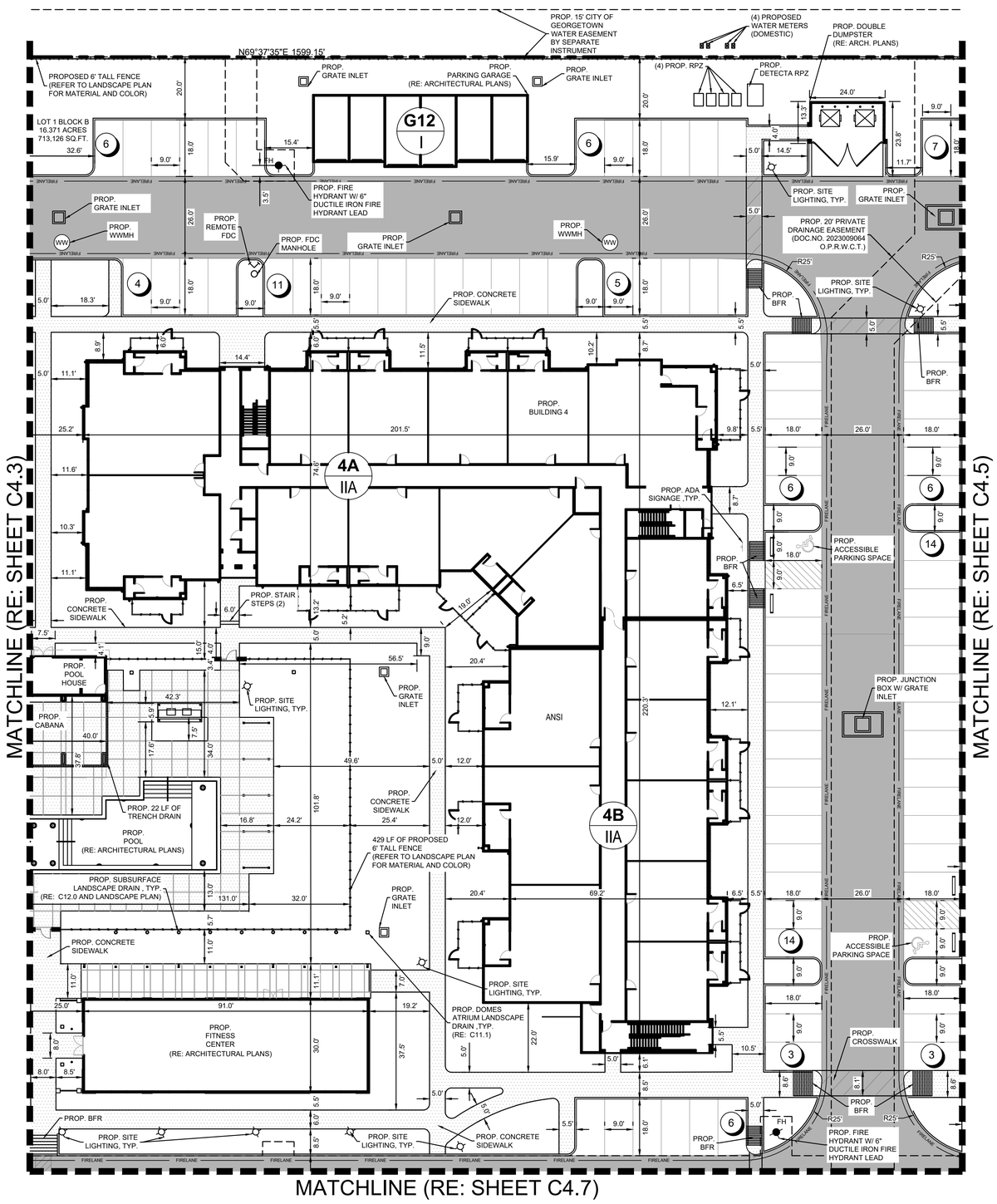

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Call before you dig.

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- PROPOSED SIGN
- FIRE LANE STRIPING (FIRELANE)
- PROPOSED FIRE HYDRANT (FH)
- PROPOSED SANITARY MANHOLE (WW)
- PROPOSED CURB INLET
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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91869
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

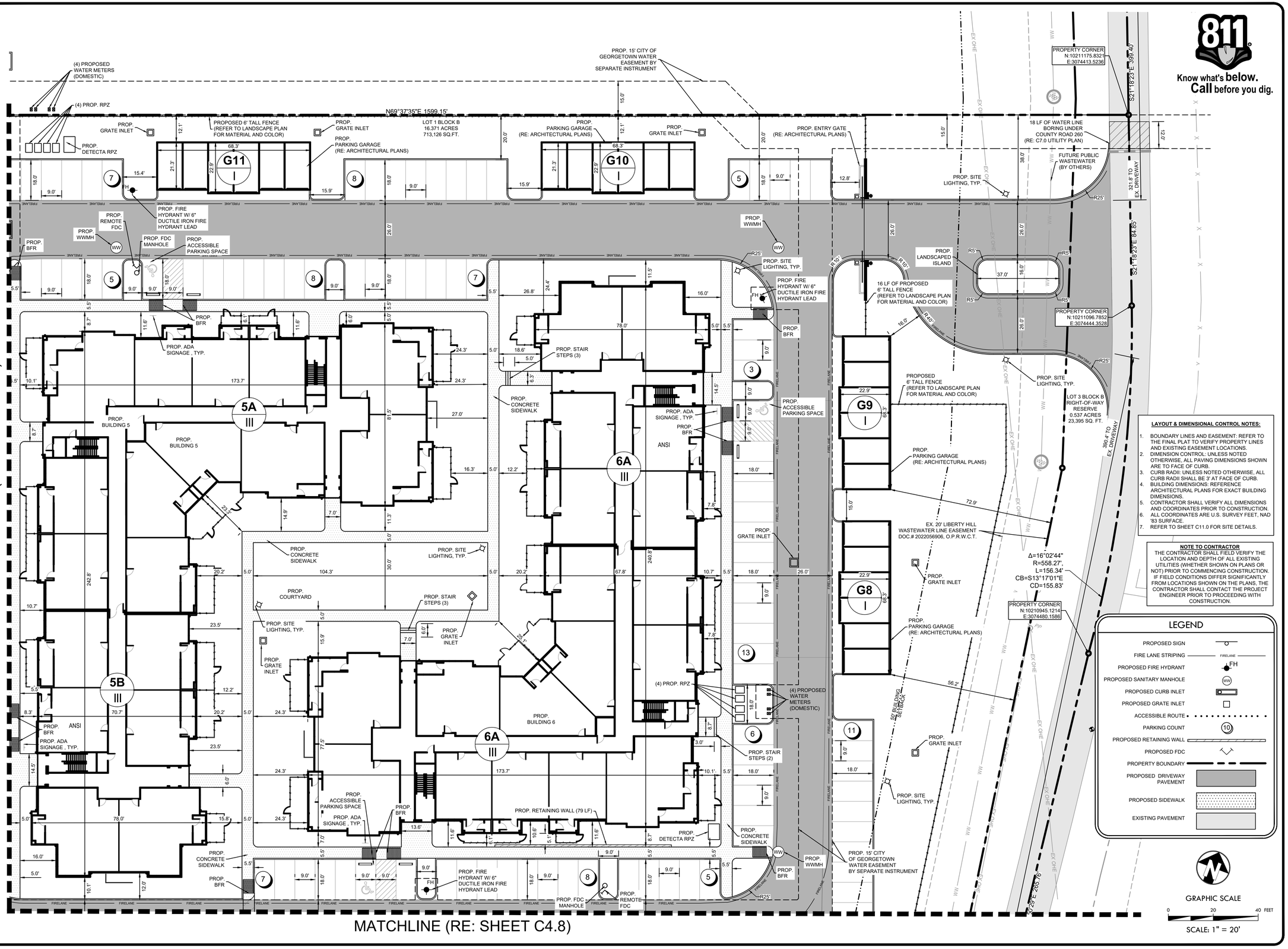
kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

DIMENSIONAL CONTROL PLAN V

SHEET:
C4.4

FILENAME: C4.0 DIMENSIONAL CONTROL PLAN_CHV21004.dwg
PLOTTED BY: Prashanthi Gadam
PLOTTED DATE: 5/25/23
FULL PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C4.0 DIMENSIONAL CONTROL PLAN_CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C4.0 DIMENSIONAL CONTROL PLAN_CHV21004.dwg



LAYOUT & DIMENSIONAL CONTROL NOTES:

1. BOUNDARY LINES AND EASEMENT: REFER TO THE FINAL PLAT TO VERIFY PROPERTY LINES AND EXISTING EASEMENT LOCATIONS.
2. DIMENSION CONTROL: UNLESS NOTED OTHERWISE, ALL PAVING DIMENSIONS SHOWN ARE TO FACE OF CURB.
3. CURB RADII: UNLESS NOTED OTHERWISE, ALL CURB RADII SHALL BE 3' AT FACE OF CURB.
4. BUILDING DIMENSIONS: REFERENCE ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSIONS.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES PRIOR TO CONSTRUCTION.
6. ALL COORDINATES ARE U.S. SURVEY FEET, NAD '83 SURFACE.
7. REFER TO SHEET C11.0 FOR SITE DETAILS.

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING (FIRELANE)
- PROPOSED FIRE HYDRANT (FH)
- PROPOSED SANITARY MANHOLE (WW)
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT (10)
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK
- EXISTING PAVEMENT

GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

811 Know what's below. Call before you dig.

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

DIMENSIONAL CONTROL PLAN VI

SHEET: C4.5

FILENAME: C4.0 DIMENSIONAL CONTROL PLAN_CHV21004.dwg
PLOTTED BY: Prashanta Gadam
PLOTTED DATE: 5/25/2023
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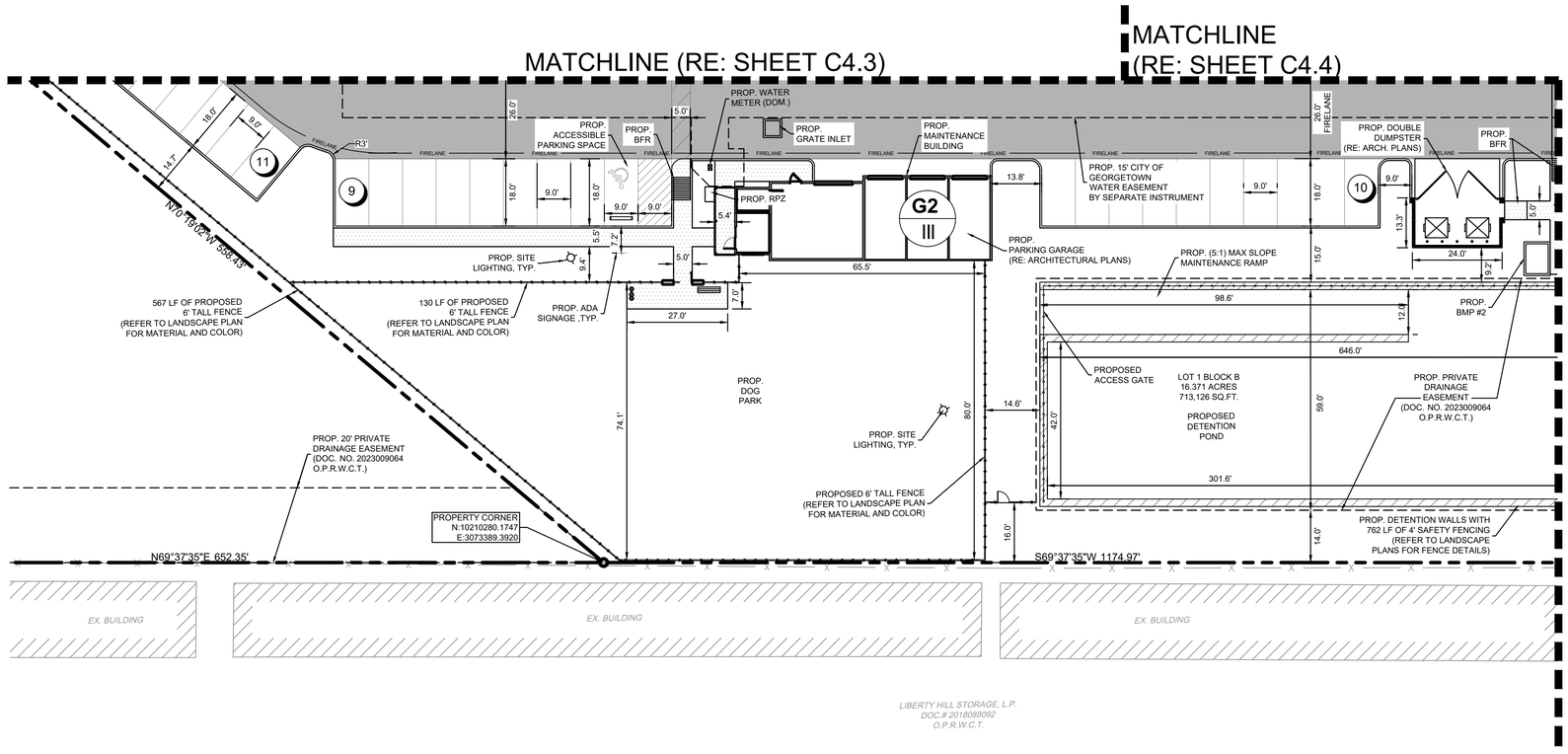

Know what's **below.**
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5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING (FIRELANE)
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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

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PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
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WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
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1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

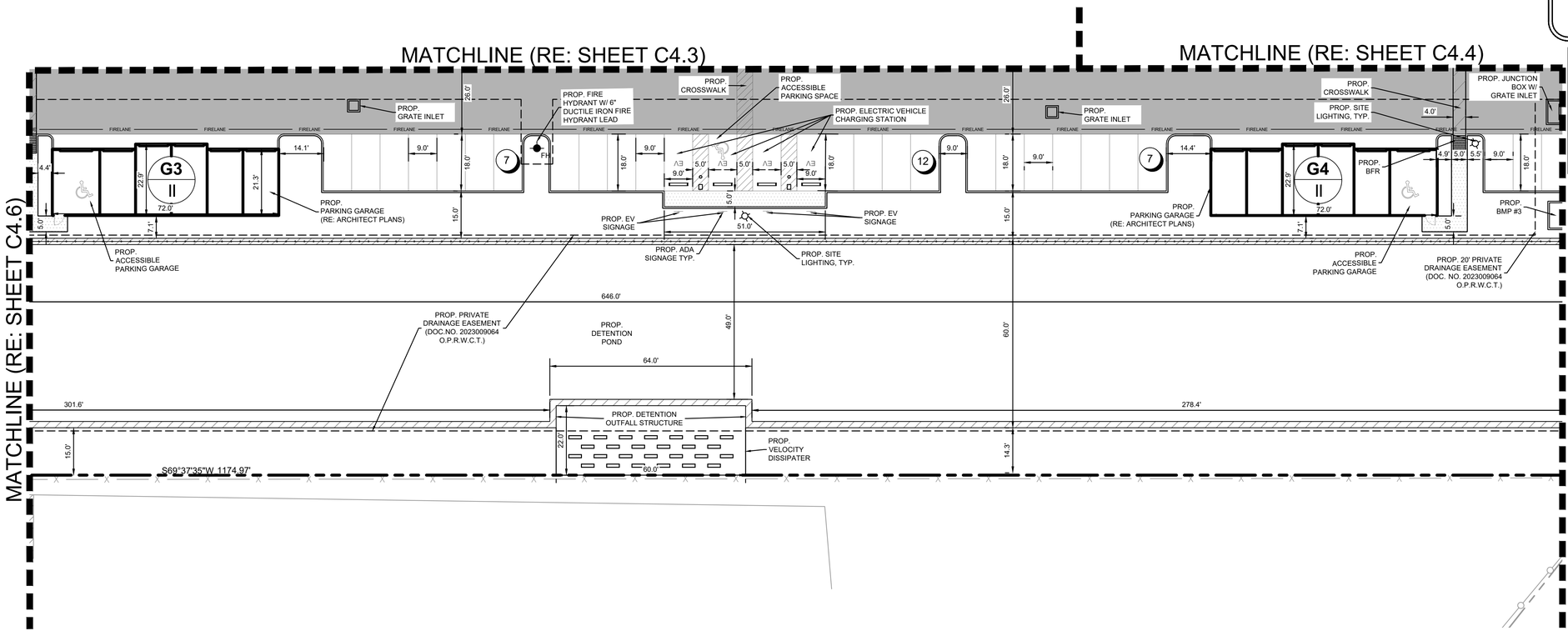
JOB NUMBER: CHV21004
ISSUE DATE:

DIMENSIONAL CONTROL PLAN VII

SHEET:
C4.6

FILE PATH: K:\Jobs\CHV21004 _Fnod\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\K:\Jobs\CHV21004_Fnod\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C4.6 DIMENSIONAL CONTROL PLAN_CHV21004
FILENAME: C4.6 DIMENSIONAL CONTROL PLAN_CHV21004.dwg
PLOTTED BY: Rashondra Gautam
PLOTTED DATE: 5/25/2023

Know what's **below.**
Call before you dig.



LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING — FIRELANE
- PROPOSED FIRE HYDRANT — FH
- PROPOSED SANITARY MANHOLE — WW
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
- ACCESSIBLE ROUTE
- PARKING COUNT — 10
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK

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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

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DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

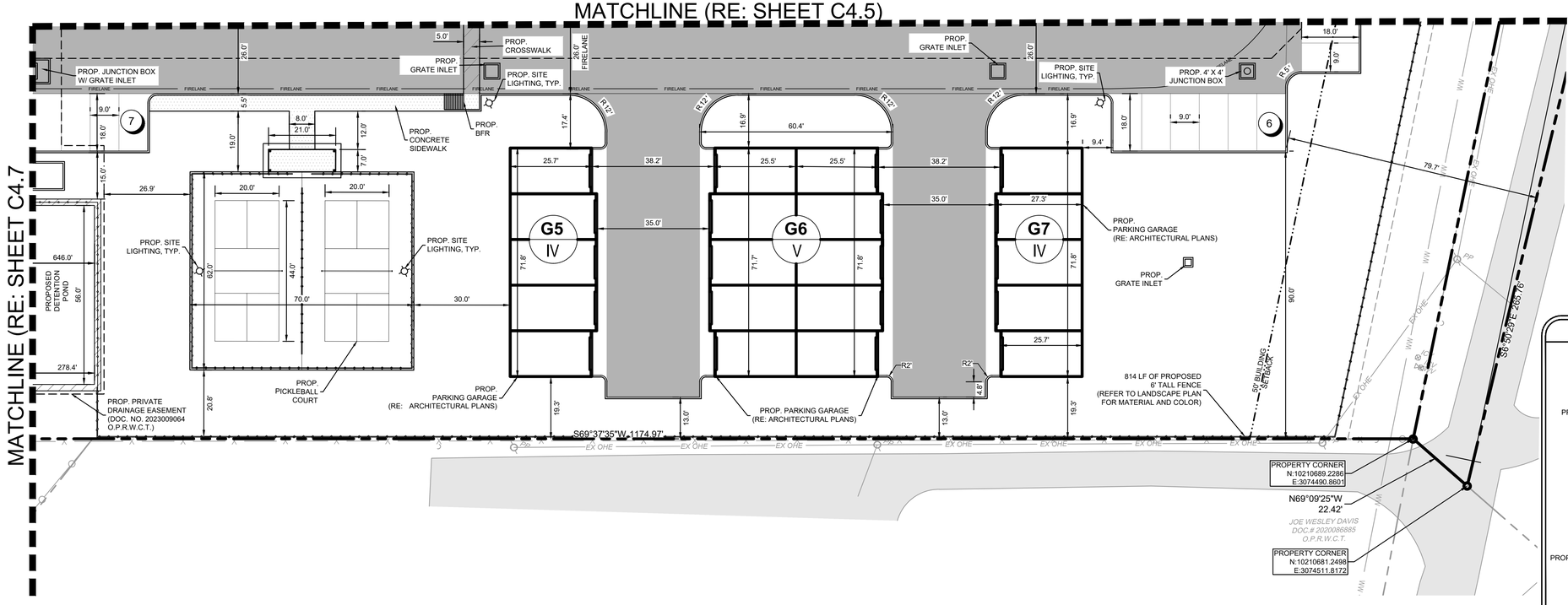
DIMENSIONAL CONTROL PLAN VIII

SHEET:
C4.7

811
Know what's **below.**
Call before you dig.

MATCHLINE (RE: SHEET C4.5)

MATCHLINE (RE: SHEET C4.7



LEGEND

- PROPOSED SIGN
- FIRE LANE STRIPING — FIRELANE
- PROPOSED FIRE HYDRANT — FH
- PROPOSED SANITARY MANHOLE — WW
- PROPOSED CURB INLET
- PROPOSED GRATE INLET
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- PARKING COUNT — 10
- PROPOSED RETAINING WALL
- PROPOSED FDC
- PROPERTY BOUNDARY
- PROPOSED DRIVEWAY PAVEMENT
- PROPOSED SIDEWALK
- EXISTING PAVEMENT

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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

DIMENSIONAL CONTROL PLAN IX

SHEET:
C4.8

FILE PATH: K:\Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C4.0 DIMENSIONAL CONTROL PLAN_CHV21004.dwg
FILENAME: C4.0 DIMENSIONAL CONTROL PLAN_CHV21004.dwg
PLOTTED BY: Prashanta Gautam
PLOTTED DATE: 5/25/2023

NOTE TO CONTRACTOR

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GRADING NOTES:

1. GEOTECHNICAL REPORT: SITE PREPARATION, GRADING, FILL COMPACTION, AND BUILDING PAD PREPARATION SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT BY ECS SOUTHWEST, LLP DATED 12/19/2022 IN THE EVENT OF A CONFLICT BETWEEN THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AND THE NOTES ON THE GRADING PLAN, THE GEOTECHNICAL REPORT SHALL GOVERN.
2. TOPOGRAPHIC SURVEY: TOPOGRAPHIC SURVEY INFORMATION IS BASED ON THE TOPOGRAPHIC SURVEY PREPARED BY BARTON CHAPA SURVEYING, LLC, DATED JULY 9, 2021 EXISTING CONDITIONS: PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTING CONDITIONS, INCLUDING GRADES AND DIMENSIONS. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER OF ANY DISCREPANCIES.
3. EROSION CONTROL: EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO COMMENCING CLEARING, STRIPPING AND GRADING OPERATIONS. REFER TO THE EROSION CONTROL PLAN FOR THE SEQUENCE OF EROSION CONTROL DEVICES TO BE INSTALLED.
4. PROPOSED GRADES: THE PROPOSED ELEVATIONS AND CONTOURS SHOWN ARE TO FINISHED GRADE. THE PROPOSED CONTOURS ARE APPROXIMATE. THE PROPOSED SPOT ELEVATIONS AND GRADIENTS ARE TO BE USED IN THE EVENT OF ANY DISCREPANCY WITH THE PROPOSED CONTOURS. MINOR ADJUSTMENT TO FINISH GRADE TO ACCOMPLISH SPOT DRAINAGE IS ACCEPTABLE.
5. ACCESSIBLE ROUTES/PARKING: SIDEWALKS AND CROSSWALKS ALONG ACCESSIBLE ROUTES SHALL BE IN ACCORDANCE WITH TAS AND ADA STANDARDS WITH A MAXIMUM RUNNING SLOPE OF 5% AND A MAXIMUM CROSS SLOPE OF 2%. ACCESSIBLE PARKING SPACES SHALL HAVE A MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS.
6. TESTING: TESTING SHALL BE PERFORMED BY A QUALIFIED TESTING LABORATORY, EMPLOYED AND PAID DIRECTLY BY THE OWNER. TESTING SHALL BE PERFORMED AT A MINIMUM, IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. IN THE EVENT THE RESULTS OF THE INITIAL TESTING DO NOT COMPLY WITH THE PLANS AND SPECIFICATIONS, SUBSEQUENT TESTS NECESSARY TO DETERMINE THE ACCEPTABILITY OF CONSTRUCTION SHALL BE AT THE CONTRACTOR'S EXPENSE.
7. MAXIMUM SITE SLOPES SHALL BE 4:1 UNLESS OTHERWISE NOTED.
8. CONTRACTOR TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS.

LEGEND

- PROPOSED CONTOUR — 500
- EXISTING CONTOUR — 500
- GRADE BREAK
- PROPOSED SWALE
- PROPOSED FINISHED GRADE — FG 700.00
- PROPOSED TOP OF CURB/GUTTER — TC 700.50 / G 700.00
- PROPOSED TOP OF WALL/ BOTTOM OF WAL — TW 700.00 / BW 699.00
- PROPOSED TOP OF INLET — TI 700.00
- EXISTING SPOT GRADE — EX. 700.5±
- EXISTING TOP OF CURB/GUTTER — TC 700.5± / G 700.0±
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING DRAINAGE FLOW ARROW
- PROPERTY BOUNDARY

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

811 Know what's **below.** **Call** before you dig.

RE: SHEET C5.10

CLYDE KRAUSE
VOL. 1729 PAGE 108
D.R.W.C.T.

PROPOSED DETENTION POND

CHALK HILL DRIVE
(PRIVATE ACCESS DRIVE)

RE: SHEET C5.2

LOT 2 BLOCK B
18.934 ACRES
824,753 SQ.FT.

LOT 3
BEAN INDUSTRIAL PARK
CAB. CC, SLIDE 29
P.R.W.C.T.

LOT 2 BLOCK A
3.056 ACRES
133,118 SQ.FT.

RE: SHEET C5.1

WILLIAMSON COUNTY, TEXAS
DOC.# 2011038204
O.P.R.W.C.T.

RE: SHEET C5.3 | RE: SHEET C5.4 | RE: SHEET C5.5 | RE: SHEET C5.6

RE: SHEET C5.11

"FIRST TRACT"
LARRY EVERETT FOUST
VOL. 764, PG. 801
D.R.W.C.T.

LOT 3 BLOCK B
RIGHT-OF-WAY RESERVE
0.537 ACRES
23,395 SQ. FT.

SUNSET RIDGE DR.
ALSO KNOWN AS
C.R. 260
(NO ROW DOCUMENT FOUND)

RE: SHEET C5.12

8' x 5' BOX CULVERTS

LOT 1 BLOCK A
3.784 ACRES
164,834 SQ.FT.

PROP DOG PARK

PROP DETENTION POND

LOT 1 BLOCK B
16.371 ACRES
713,126 SQ.FT.

RICKY & MOLLY TUMLINSON
VOL. 2001, PG. 68867
D.R.W.C.T.

"FIRST TRACT"
LARRY EVERETT FOUST
VOL. 764, PG. 801
D.R.W.C.T.

RE: SHEET C5.7 | RE: SHEET C5.8 | RE: SHEET C5.9

NO ROW DOCUMENT FOUND FOR THIS PORTION OF THE SUBJECT TRACT LYING WITHIN THE EXISTING IMPROVED APPARENT ROW OF S.H.#29

STATE HIGHWAY NO. 29
(VARIABLE WIDTH ROW)

LIBERTY HILL STORAGE, L.P.
DOC.# 2018088092
O.P.R.W.C.T.

LOT 2
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

LOT 1
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

TOM JONES AND BRENDA JONES
DOC.# 2019015018
O.P.R.W.C.T.

JOE WESLEY DAVIS
DOC.# 2020086885
O.P.R.W.C.T.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED
PROFESSIONAL
ENGINEER

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SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

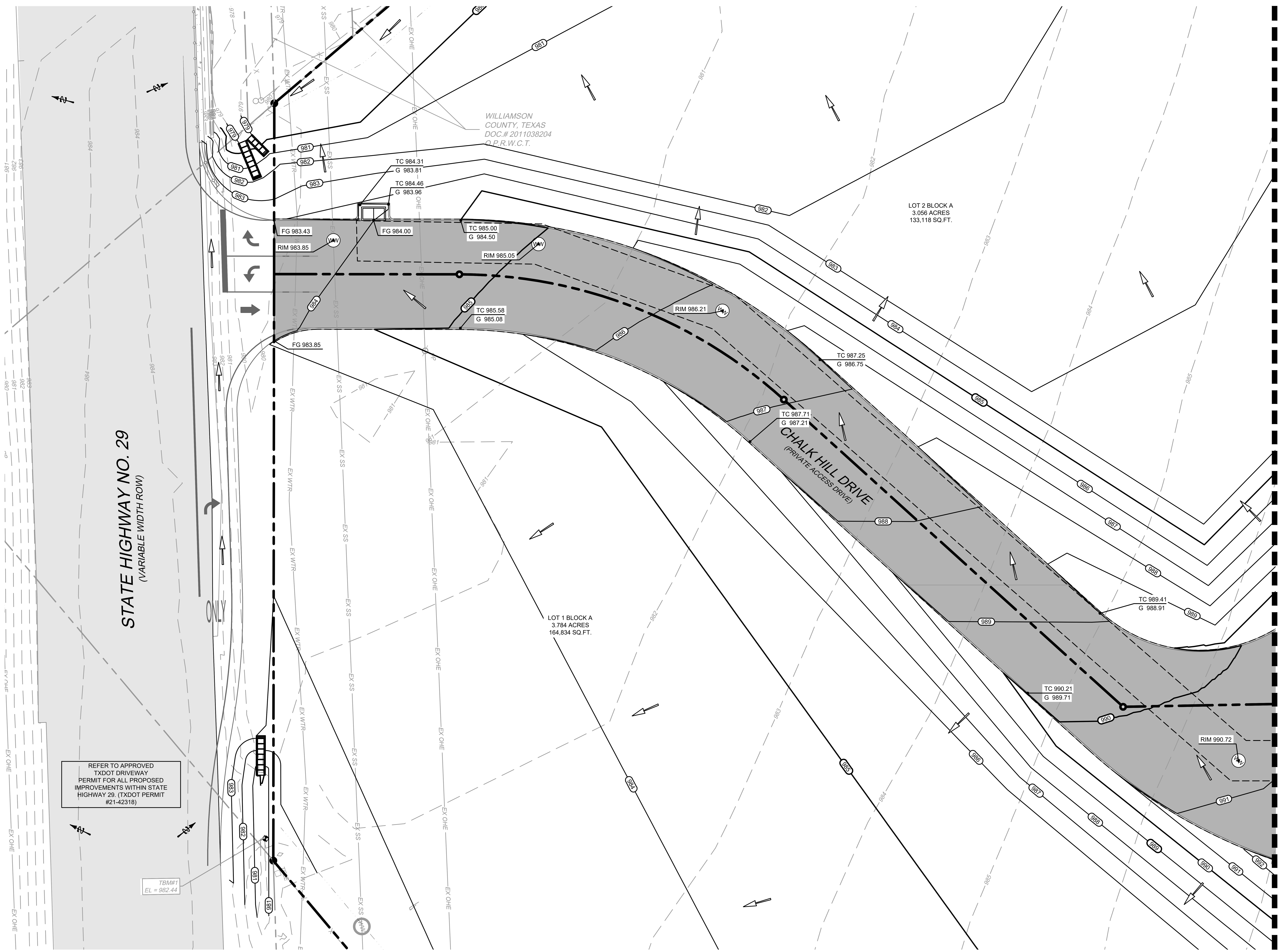
ISSUE DATE:

OVERALL GRADING PLAN

SHEET:
C5.0

FILE PATH: K:\chv\CHV21004_Post\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\Cad\CHV21004_PostDrawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\C5.0 GRADING PLAN_CHV21004

FILENAME: C5.0 GRADING PLAN_CHV21004.dwg
PLOTTED BY: Prachanika Gautam
PLOTTED DATE: 5/25/2023



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

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LEGEND

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EXISTING CONTOUR	500
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PROPOSED TOP OF CURB/GUTTER	TC 700.50 G 700.00
PROPOSED TOP OF WALL/ BOTTOM OF WAL	TW 700.00 BW 699.00
PROPOSED TOP OF INLET	TI 700.00
EXISTING SPOT GRADE	EX. 700.5±
EXISTING TOP OF CURB/GUTTER	TC 700.5± G 700.0±
PROPOSED DRAINAGE FLOW ARROW	
EXISTING DRAINAGE FLOW ARROW	
PROPERTY BOUNDARY	

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SCALE: 1" = 20'

5/25/2023
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SHEA O. KIRKMAN
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PROPERTY OWNER LLC

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CHALK HILL RANCH

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CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

GRADING PLAN I

SHEET:
C5.1

FULL PATH: K:\Jobs\CHV21004_Focal\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C5.0 GRADING PLAN_CHV21004
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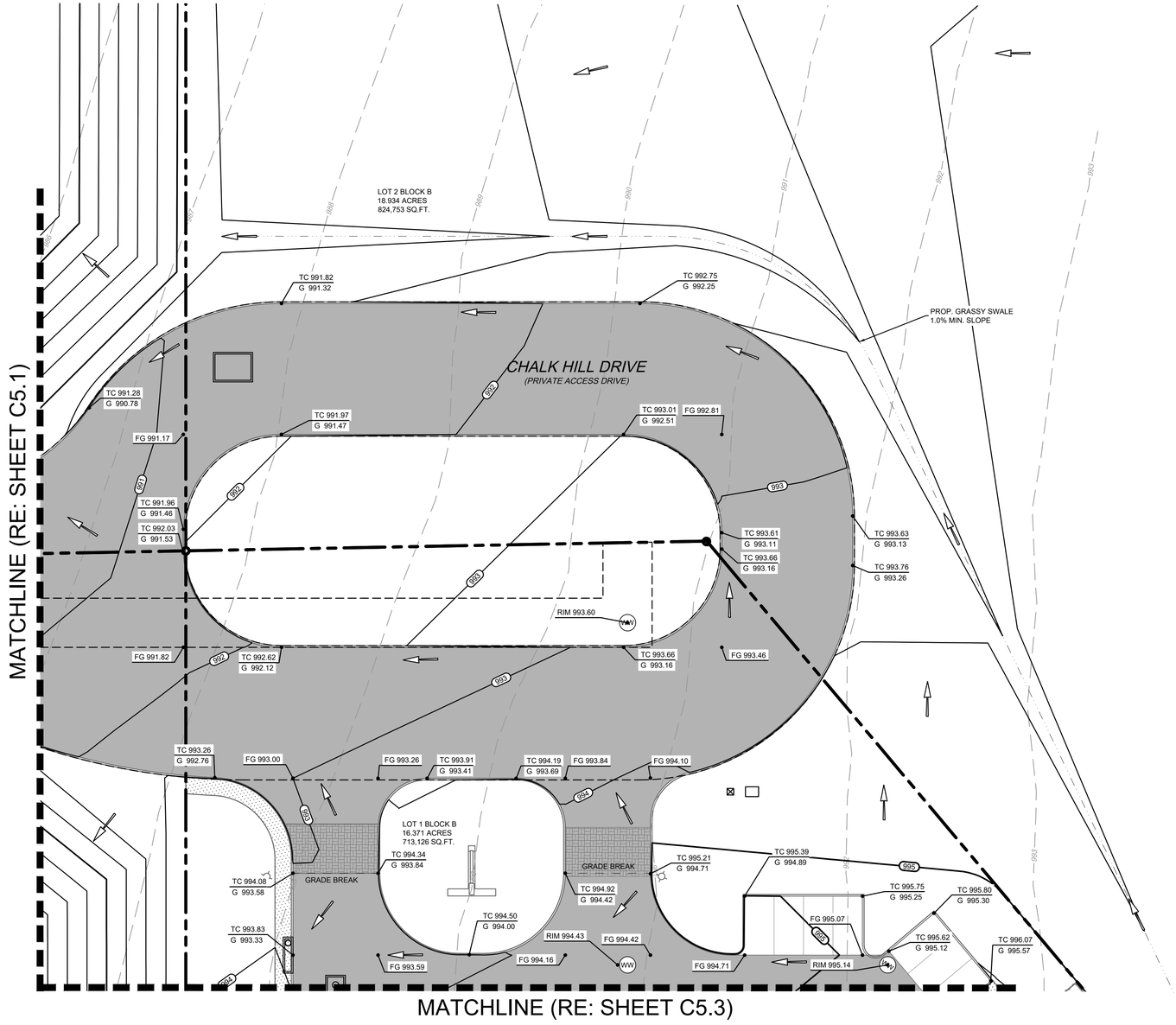
PLOTTED BY: Prashanthika Gautam
PLOTTED DATE: 5/25/2023



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ELEVATION = 997.92' (NAVD '88)

LEGEND

- PROPOSED CONTOUR — 500
- EXISTING CONTOUR — 500
- GRADE BREAK
- PROPOSED SWALE
- PROPOSED FINISHED GRADE — FG 700.00
- PROPOSED TOP OF CURB/GUTTER — TC 700.50 / G 700.00
- PROPOSED TOP OF WALL/ BOTTOM OF WAL — TW 700.00 / BW 699.00
- PROPOSED TOP OF INLET — TI 700.00
- EXISTING SPOT GRADE — EX. 700.5±
- EXISTING TOP OF CURB/GUTTER — TC 700.5± / G 700.0±
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING DRAINAGE FLOW ARROW
- PROPERTY BOUNDARY

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

Know what's **below.** **Call** before you dig.

GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91869
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

GRADING PLAN II

SHEET:

C5.2

FILE PATH: K:\Jobs\CHV21004_Fourth\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\CS.0 GRADING PLAN_CHV21004
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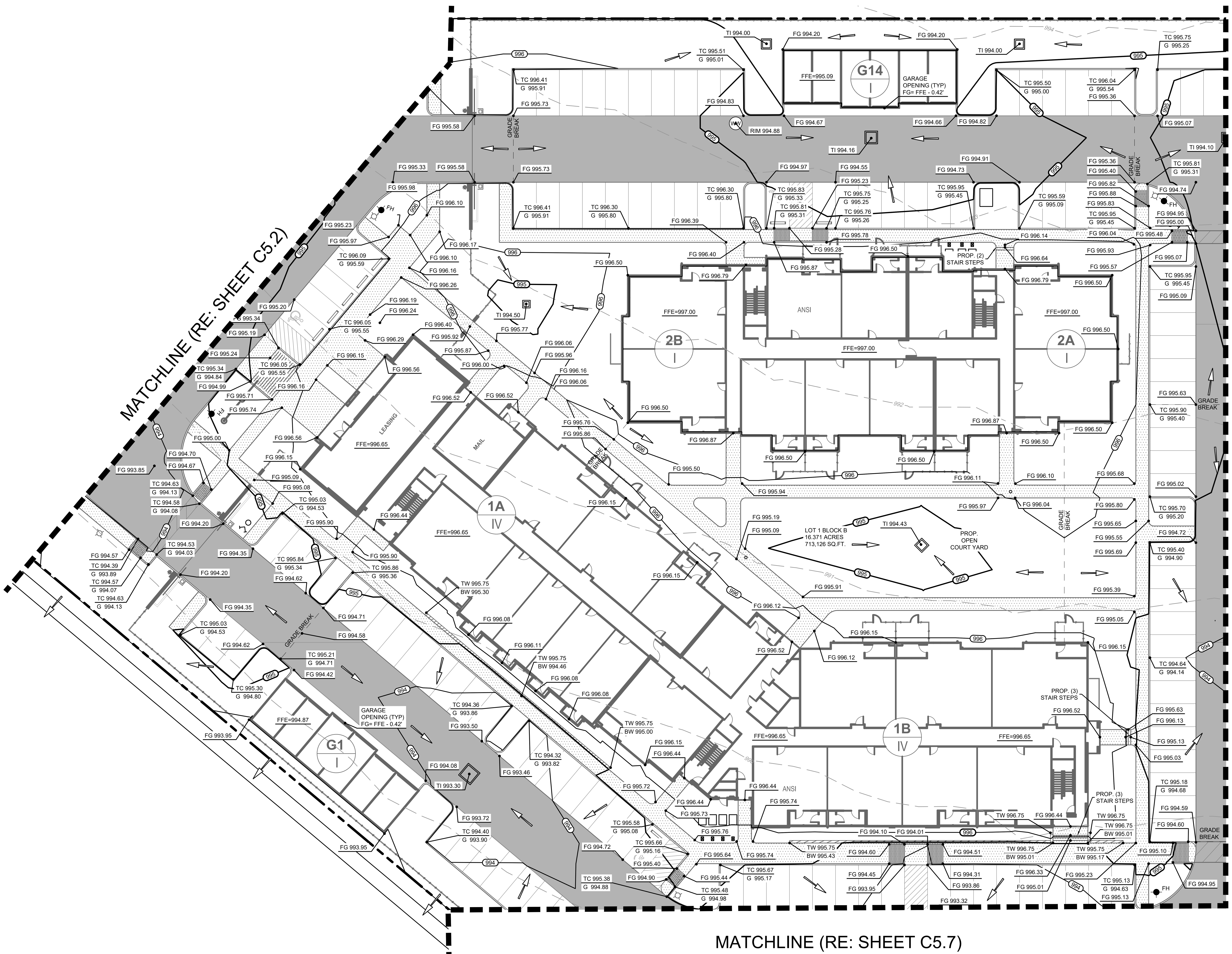
PLOTTED BY: Prashantha Gautam
PLOTTED DATE: 5/25/2023



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

LEGEND

PROPOSED CONTOUR	500
EXISTING CONTOUR	500
GRADE BREAK	
PROPOSED SWALE	
PROPOSED FINISHED GRADE	FG 700.00
PROPOSED TOP OF CURB/GUTTER	TC 700.50 G 700.00
PROPOSED TOP OF WALL/ BOTTOM OF WAL	TW 700.00 BW 699.00
PROPOSED TOP OF INLET	TI 700.00
EXISTING SPOT GRADE	EX 700.5±
EXISTING TOP OF CURB/GUTTER	TC 700.5± G 700.0±
PROPOSED DRAINAGE FLOW ARROW	
EXISTING DRAINAGE FLOW ARROW	
PROPERTY BOUNDARY	

NOTE TO CONTRACTOR

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811
Know what's below.
Call before you dig.

GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
SHEA O. KIRKMAN
91865

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

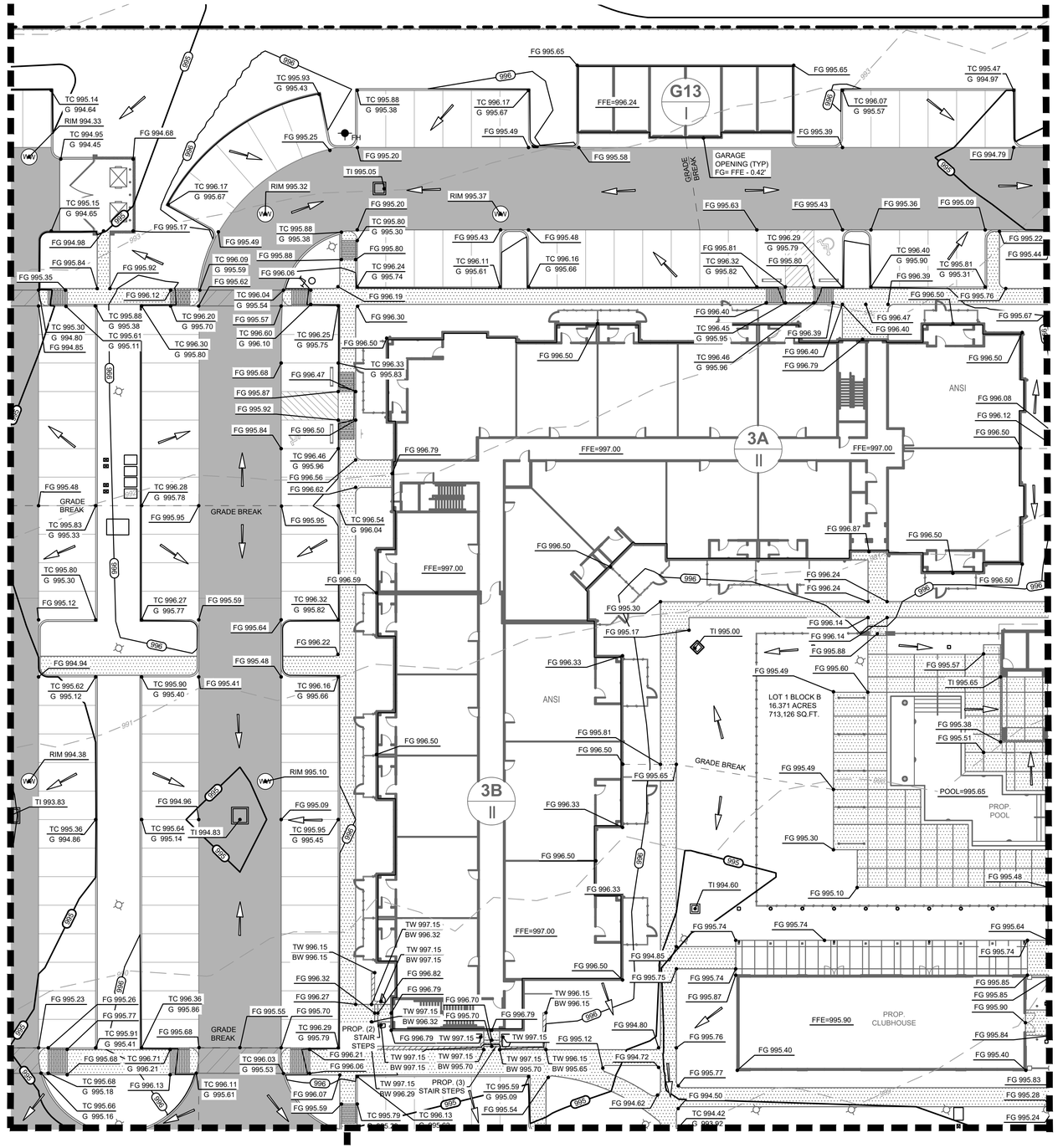
kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

GRADING PLAN III

SHEET:
C5.3



SITE BENCHMARKS

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ELEVATION = 1004.02' (NAVD '88)

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ELEVATION = 997.92' (NAVD '88)

LEGEND

- PROPOSED CONTOUR — 500
- EXISTING CONTOUR — 500
- GRADE BREAK
- PROPOSED SWALE
- PROPOSED FINISHED GRADE — FG 700.00
- PROPOSED TOP OF CURB/GUTTER — TC 700.50 / G 700.00
- PROPOSED TOP OF WALL/ BOTTOM OF WAL — TW 700.00 / BW 699.00
- PROPOSED TOP OF INLET — TI 700.00
- EXISTING SPOT GRADE — EX 700.5±
- EXISTING TOP OF CURB/GUTTER — TC 700.5± / G 700.0±
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING DRAINAGE FLOW ARROW — G3
- PROPERTY BOUNDARY

NOTE TO CONTRACTOR

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GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

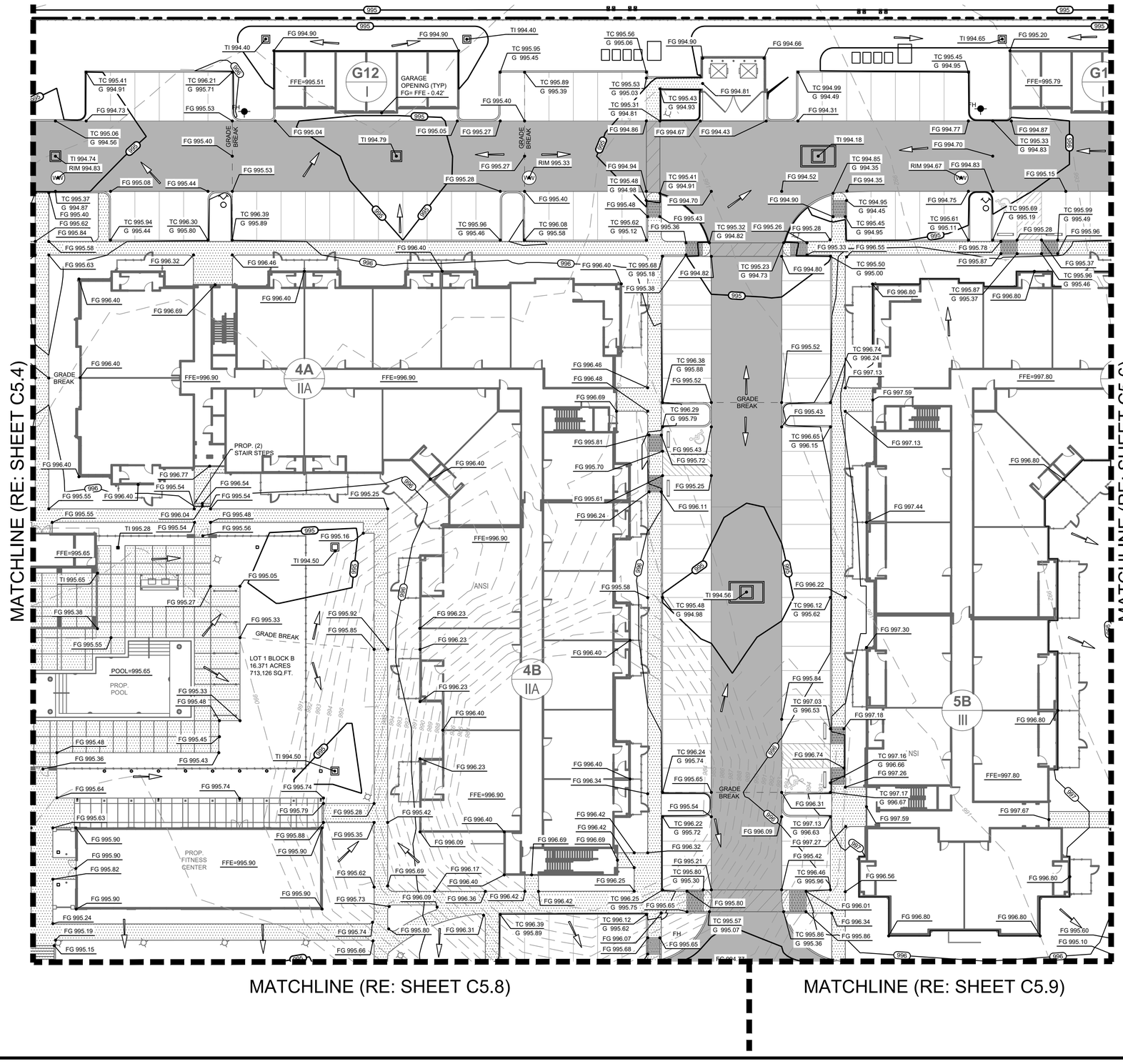
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

GRADING PLAN IV

SHEET: C5.4



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FILENAME: C5.0 GRADING PLAN_CHV21004.dwg
PLOTTED BY: Prechanika Claudam
PLOTTED DATE: 5/25/2023

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

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ELEVATION = 997.92' (NAVD '88)

LEGEND

- PROPOSED CONTOUR — 500
- EXISTING CONTOUR — 500
- GRADE BREAK
- PROPOSED SWALE
- PROPOSED FINISHED GRADE — FG 700.00
- PROPOSED TOP OF CURB/GUTTER — TC 700.50 / G 700.00
- PROPOSED TOP OF WALL/ BOTTOM OF WAL — TW 700.00 / BW 699.00
- PROPOSED TOP OF INLET — TI 700.00
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- EXISTING DRAINAGE FLOW ARROW
- PROPERTY BOUNDARY

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Know what's below. Call before you dig.

GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

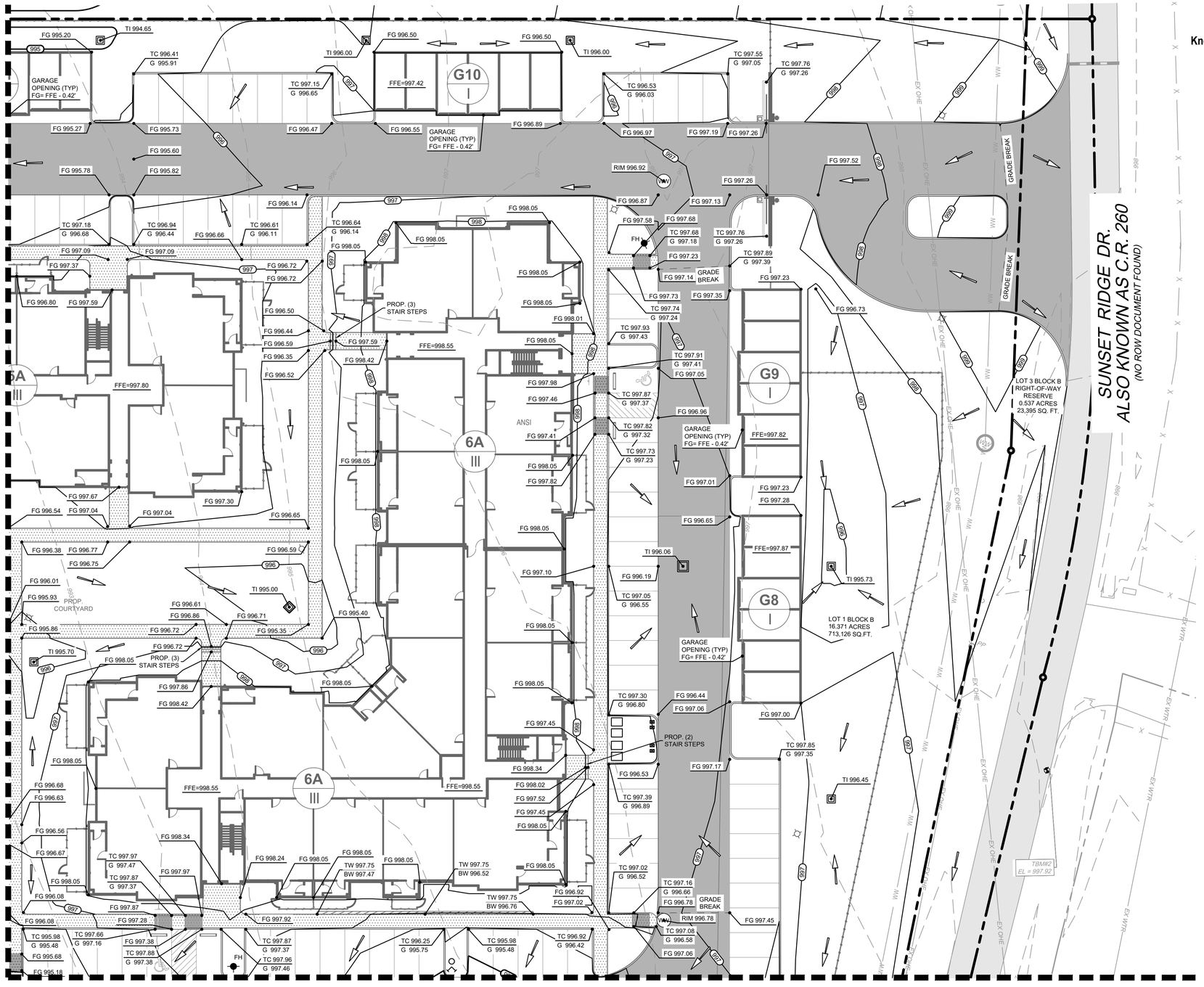
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

GRADING PLAN V

SHEET:
C5.5



811 Know what's below. Call before you dig.

SITE BENCHMARKS

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ELEVATION = 997.92' (NAVD '88)

LEGEND

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- EXISTING CONTOUR — 500
- GRADE BREAK
- PROPOSED SWALE
- PROPOSED FINISHED GRADE — FG 700.00
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- EXISTING DRAINAGE FLOW ARROW
- PROPERTY BOUNDARY

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GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

GRADING PLAN VI

SHEET:

C5.6

FILE PATH: K:\Jobs\CHV21004_Fourth\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\CHV21004_Fourth\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C5.6 GRADING PLAN_CHV21004

FILENAME: C5.0 GRADING PLAN_CHV21004.dwg
PLOTTED BY: Prashantha Gautam
PLOTTED DATE: 5/24/2023

Know what's **below.**
Call before you dig.

SITE BENCHMARKS

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ELEVATION = 1004.02' (NAVD '88)

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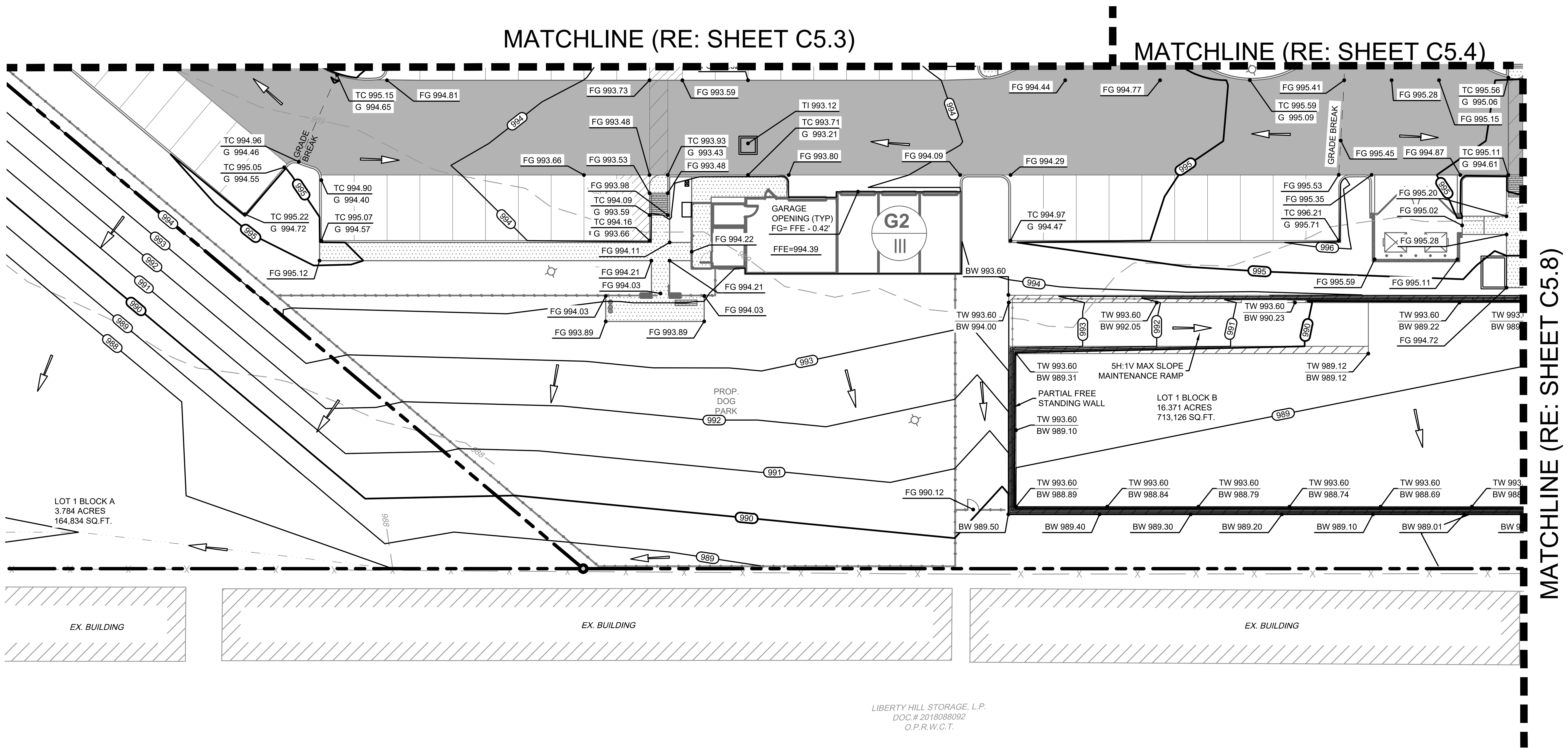
ELEVATION = 997.92' (NAVD '88)

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER



LEGEND

PROPOSED CONTOUR	500
EXISTING CONTOUR	500
GRADE BREAK	
PROPOSED SWALE	
PROPOSED FINISHED GRADE	FG 700.00
PROPOSED TOP OF CURB/GUTTER	TC 700.50 G 700.00
PROPOSED TOP OF WALL/ BOTTOM OF WAL	TW 700.00 BW 699.00
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EXISTING SPOT GRADE	EX 700.5±
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PROPOSED DRAINAGE FLOW ARROW	
EXISTING DRAINAGE FLOW ARROW	
PROPERTY BOUNDARY	

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CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

GRADING PLAN VII

SHEET:
C5.7

FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C5.0 GRADING PLAN_CHV21004

FILENAME: C5.0 GRADING PLAN_CHV21004.dwg
PLOTTED BY: Priyanshi Gautam
PLOTTED DATE: 5/25/2023

Know what's below. Call before you dig.

SITE BENCHMARKS

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ELEVATION = 1004.02' (NAVD '88)

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ELEVATION = 997.92' (NAVD '88)

LEGEND

- PROPOSED CONTOUR — 500
- EXISTING CONTOUR — 500
- GRADE BREAK
- PROPOSED SWALE
- PROPOSED FINISHED GRADE — FG 700.00
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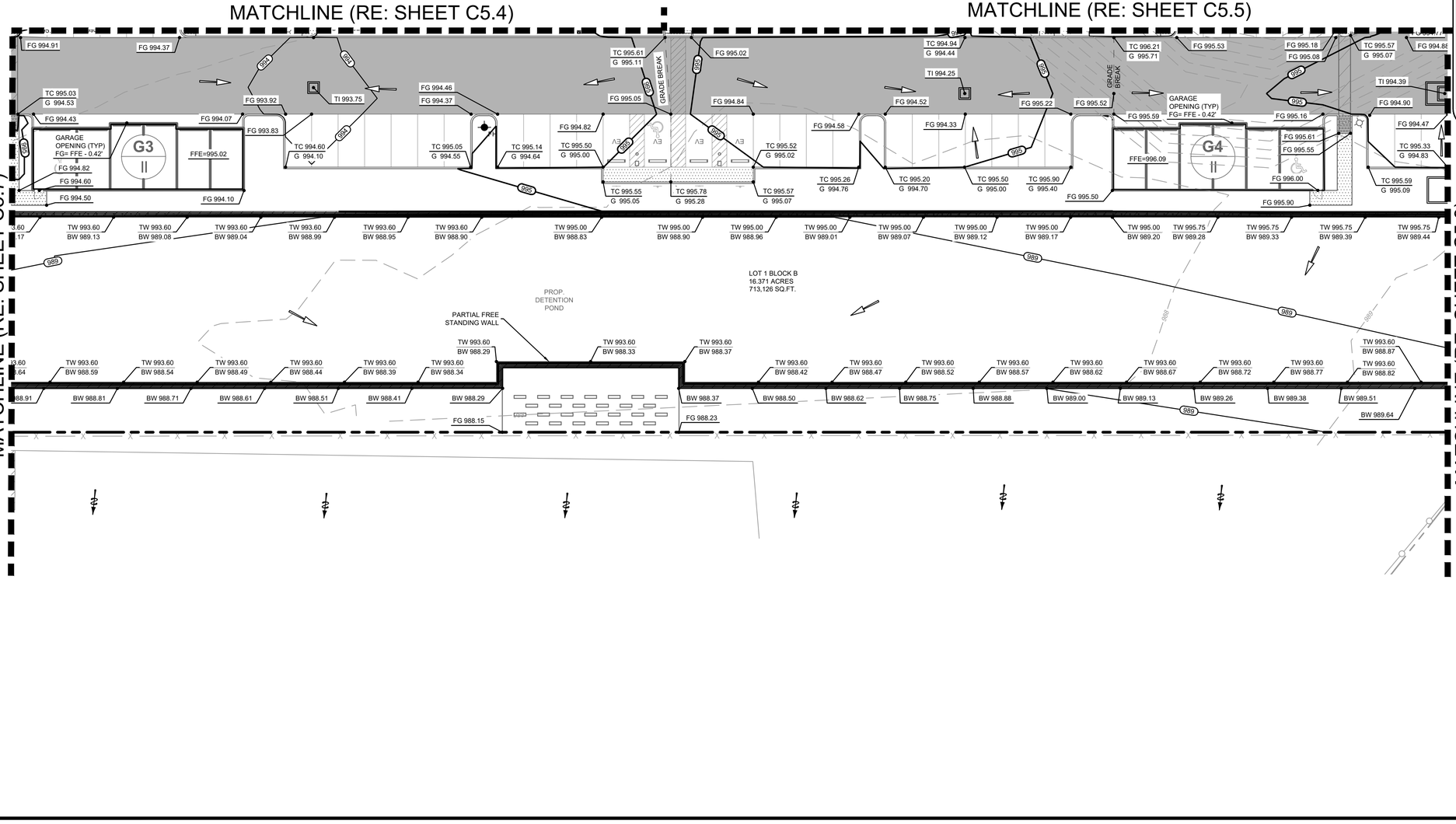

GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91869
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

GRADING PLAN VIII

SHEET:

C5.8

FILE PATH: K:\Jobs\CHV21004_FourthDrawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_FourthDrawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\C5.8 GRADING PLAN_CHV21004.dwg

FILENAME: C5.8 GRADING PLAN_CHV21004.dwg
PLOTTED BY: Prashanta Gautam
PLOTTED DATE: 5/24/2023

Know what's **below.**
Call before you dig.

SITE BENCHMARKS

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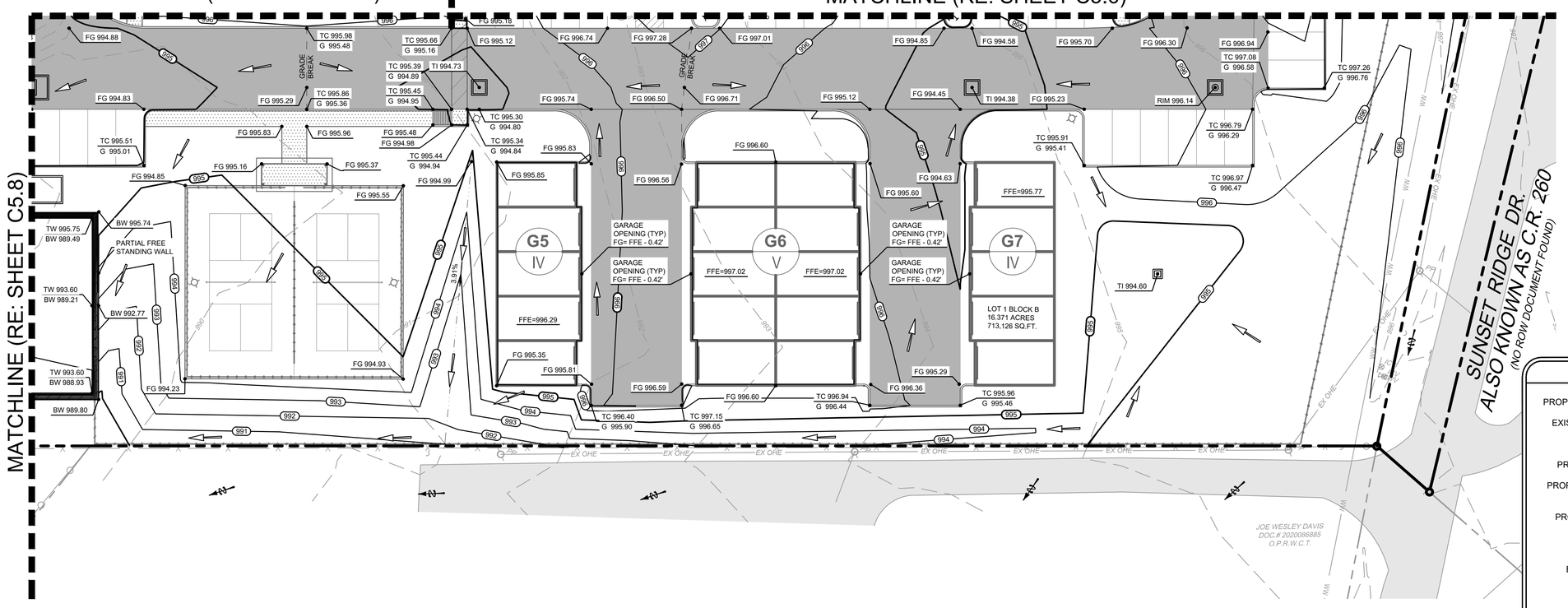

LEGEND

PROPOSED CONTOUR	500
EXISTING CONTOUR	500
GRADE BREAK	
PROPOSED SWALE	
PROPOSED FINISHED GRADE	FG 700.00
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PROPOSED DRAINAGE FLOW ARROW	
EXISTING DRAINAGE FLOW ARROW	
PROPERTY BOUNDARY	

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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

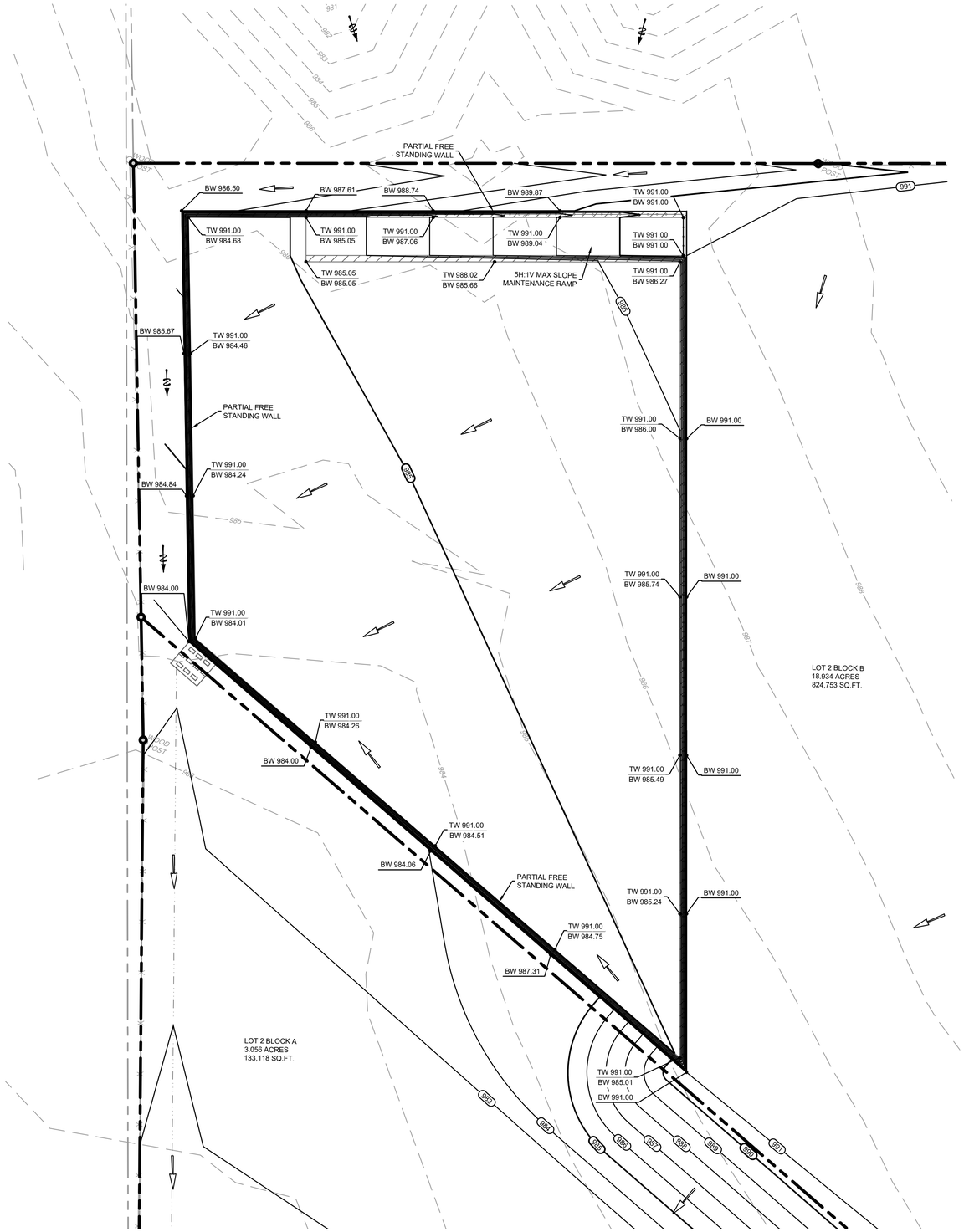
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

GRADING PLAN IX

SHEET:
C5.9

FILE PATH: K:\Jobs\CHV21004_Fourth\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\K:\Jobs\CHV21004_Fourth\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C5.9 GRADING PLAN_CHV21004
FILENAME: C5.9 GRADING PLAN_CHV21004.dwg
PLOTTED BY: Priyanshika Gautam
PLOTTED DATE: 5/25/2023



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

LEGEND

PROPOSED CONTOUR	500
EXISTING CONTOUR	500
GRADE BREAK	
PROPOSED SWALE	
PROPOSED FINISHED GRADE	FG 700.00
PROPOSED TOP OF CURB/GUTTER	TC 700.50 G 700.00
PROPOSED TOP OF WALL/ BOTTOM OF WAL	TW 700.00 BW 699.00
PROPOSED TOP OF INLET	TI 700.00
EXISTING SPOT GRADE	EX. 700.5±
EXISTING TOP OF CURB/GUTTER	TC 700.5± G 700.0±
PROPOSED DRAINAGE FLOW ARROW	
EXISTING DRAINAGE FLOW ARROW	
PROPERTY BOUNDARY	

NOTE TO CONTRACTOR

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GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91869
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

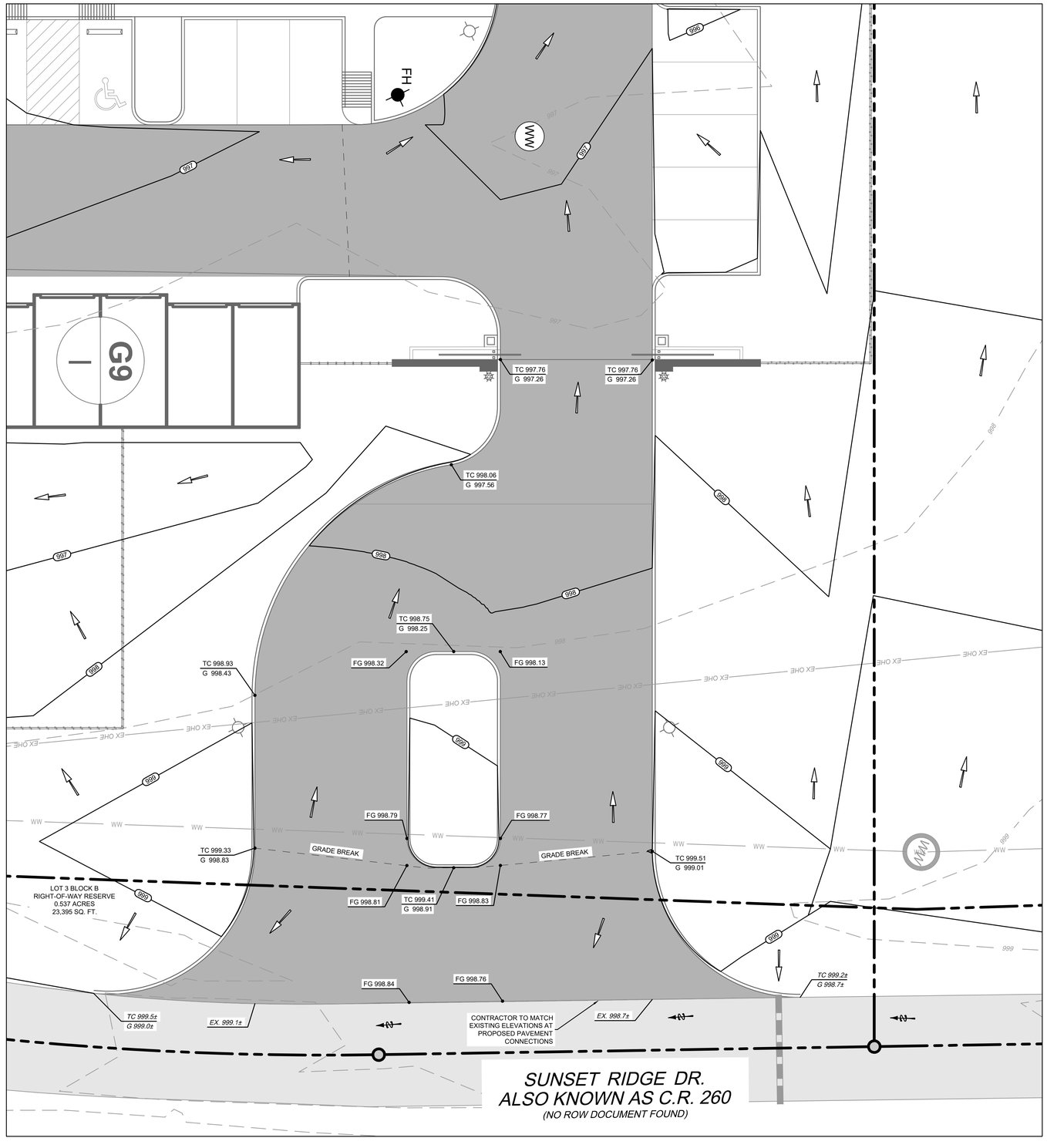
DETENTION POND GRADING PLAN

SHEET:

C5.10

FILENAME: C5.0 GRADING PLAN_CHV21004.dwg
PLOTTED BY: Prashanta Gadam
PLOTTED DATE: 5/24/2023

FULL PATH: K:\Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C5.0 GRADING PLAN_CHV21004.dwg



SITE BENCHMARKS

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ELEVATION = 997.92' (NAVD '88)

LEGEND

PROPOSED CONTOUR	500
EXISTING CONTOUR	500
GRADE BREAK	
PROPOSED SWALE	
PROPOSED FINISHED GRADE	FG 700.00
PROPOSED TOP OF CURB/GUTTER	TC 700.50 G 700.00
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PROPOSED TOP OF INLET	TI 700.00
EXISTING SPOT GRADE	EX. 700.5±
EXISTING TOP OF CURB/GUTTER	TC 700.5± G 700.0±
PROPOSED DRAINAGE FLOW ARROW	
EXISTING DRAINAGE FLOW ARROW	
PROPERTY BOUNDARY	

NOTE TO CONTRACTOR

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GRAPHIC SCALE

0 10 20 FEET

SCALE: 1" = 10'

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

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214-435-7510

CHALK HILL RANCH

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WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

DETAILED GRADING PLAN

SHEET:

C5.11

FILE PATH: K:\Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Sheets\CHV21004_FinalDrawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C5.0 GRADING PLAN_CHV21004

FILENAME: C5.0 GRADING PLAN_CHV21004.dwg
PLOTTED BY: Prashanthini Gautam
PLOTTED DATE: 5/25/2023

EXISTING DRAINAGE AREA CALCULATIONS

NOAA ATLAS 14 Rainfall Zone:					Williamson County - San Gabriel River																
Area No.	Acres	T_c (min.)	C_2	I_2 (in./hr.)	**Q_2 (c.f.s.)**	C_5	I_5 (in./hr.)	**Q_5 (c.f.s.)**	C_{10}	I_{10} (in./hr.)	**Q_{10} (c.f.s.)**	C_{25}	I_{25} (in./hr.)	**Q_{25} (c.f.s.)**	C_{50}	I_{50} (in./hr.)	**Q_{50} (c.f.s.)**	C_{100}	I_{100} (in./hr.)	**Q_{100} (c.f.s.)**	Comments
EX1	7.06	21.59	0.73	3.48	**17.92**	0.77	4.40	**23.93**	0.81	5.22	**29.83**	0.86	6.39	**38.78**	0.90	7.34	**46.63**	0.95	8.35	**56.00**	
EX2	12.69	14.14	0.73	4.27	**39.54**	0.77	5.38	**52.60**	0.81	6.34	**65.25**	0.86	7.72	**84.28**	0.90	8.82	**100.79**	0.95	9.97	**120.26**	
EX3	6.20	12.31	0.73	4.53	**20.60**	0.78	5.70	**27.42**	0.81	6.71	**33.88**	0.86	8.15	**43.66**	0.90	9.30	**52.11**	0.95	10.49	**62.02**	
EX4	22.53	22.02	0.73	3.44	**56.63**	0.77	4.36	**75.64**	0.81	5.16	**94.28**	0.86	6.33	**122.63**	0.90	7.27	**147.47**	0.95	8.27	**177.17**	
TOTAL	48.48			TOTAL	**134.68**		TOTAL	**179.60**		TOTAL	**223.23**		TOTAL	**289.36**		TOTAL	**347.00**		TOTAL	**415.46**	

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LEGEND

EXISTING DRAINAGE AREA LABEL — BASIN NAME: DA1; ACRES: 0.63 ac.; Q100 (cfs): 5.57

EXISTING DRAINAGE AREA DIVIDE

EXISTING DRAINAGE FLOW ARROW

EXISTING CONTOUR — 500

EXISTING STORM PIPE

PROPERTY BOUNDARY

SITE BENCHMARKS

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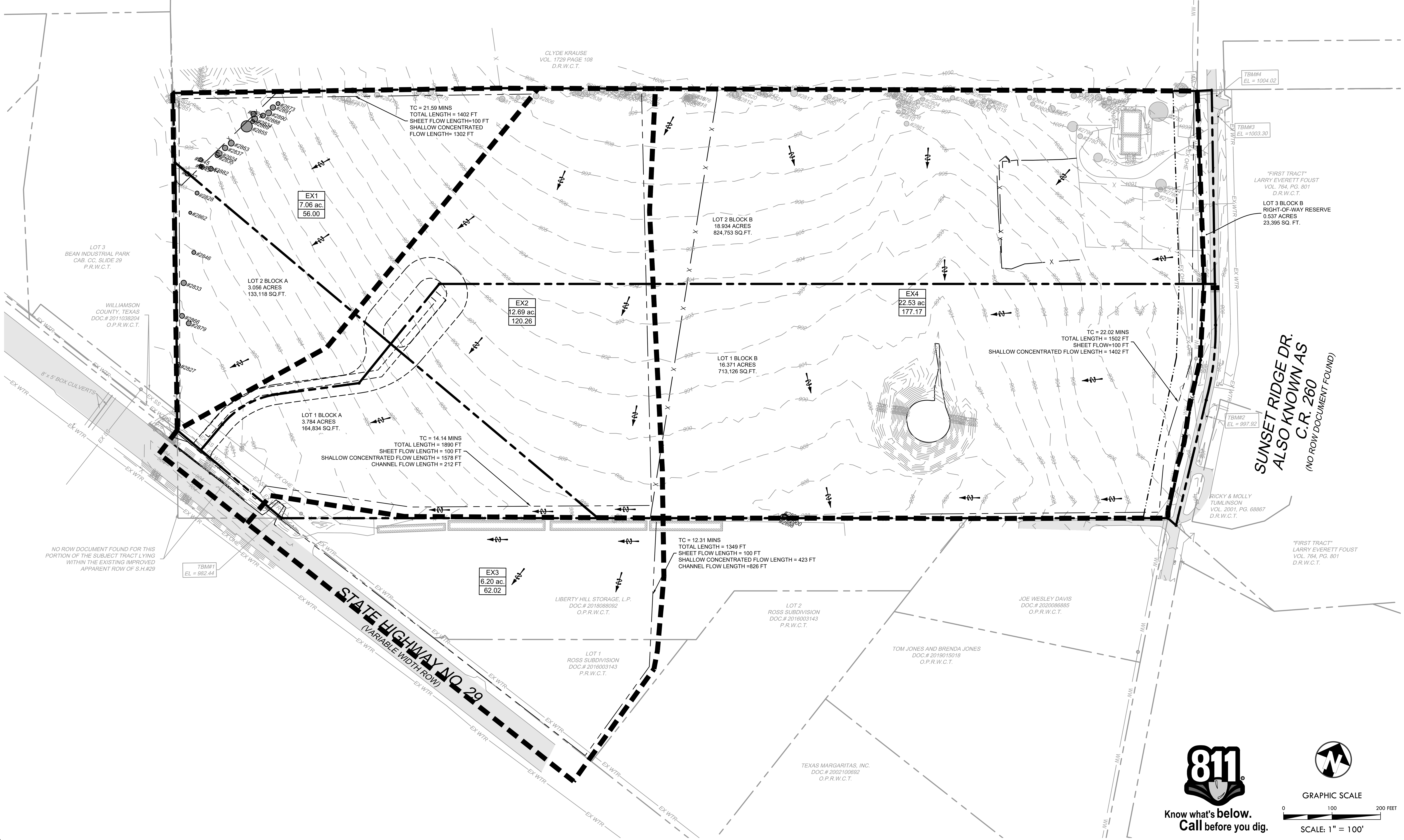
5/25/2023

STATE OF TEXAS — SHEA O. KIRKMAN — 91865 — LICENSED PROFESSIONAL ENGINEER



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GRAPHIC SCALE

0 100 200 FEET

SCALE: 1" = 100'

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

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LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

EXISTING DRAINAGE AREA MAP

SHEET:

C6.0

FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.0 EXISTING DRAINAGE AREA MAP_CHV21004

FILENAME: C6.0 EXISTING DRAINAGE AREA MAP_CHV21004.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 5/25/2023

DRAINAGE AND DETENTION NOTES:

REFER TO SHEET C6.18 FOR PROPOSED DRAINAGE AREA CALCULATIONS.

THERE SHALL BE NO INCREASE OF STORMWATER DISCHARGE ONTO TXDOT RIGHT OF WAY OR TXDOT INFRASTRUCTURE.

DETENTION SHALL BE PROVIDED TO REDUCE NET INCREASE OF STORMWATER DISCHARGE TO EXISTING CONDITIONS. REFER TO SHEETS (C6.22-C6.24) FOR PROPOSED DETENTION PONDS HEC-HMS MODEL AND EXISTING AND PROPOSED DISCHARGE CALCULATIONS.

NOTE TO CONTRACTOR

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LEGEND

PROPOSED DRAINAGE AREA LABEL	BASIN NAME / ACRES — DA1 7.532 ac.
PROPOSED DRAINAGE AREA DIVIDE	
EXISTING DRAINAGE FLOW ARROW	
PROPOSED DRAINAGE FLOW ARROW	
EXISTING CONTOUR	500
PROPOSED CONTOUR	500
EXISTING STORM PIPE	
PROPOSED STORM PIPE	
PROPERTY BOUNDARY	

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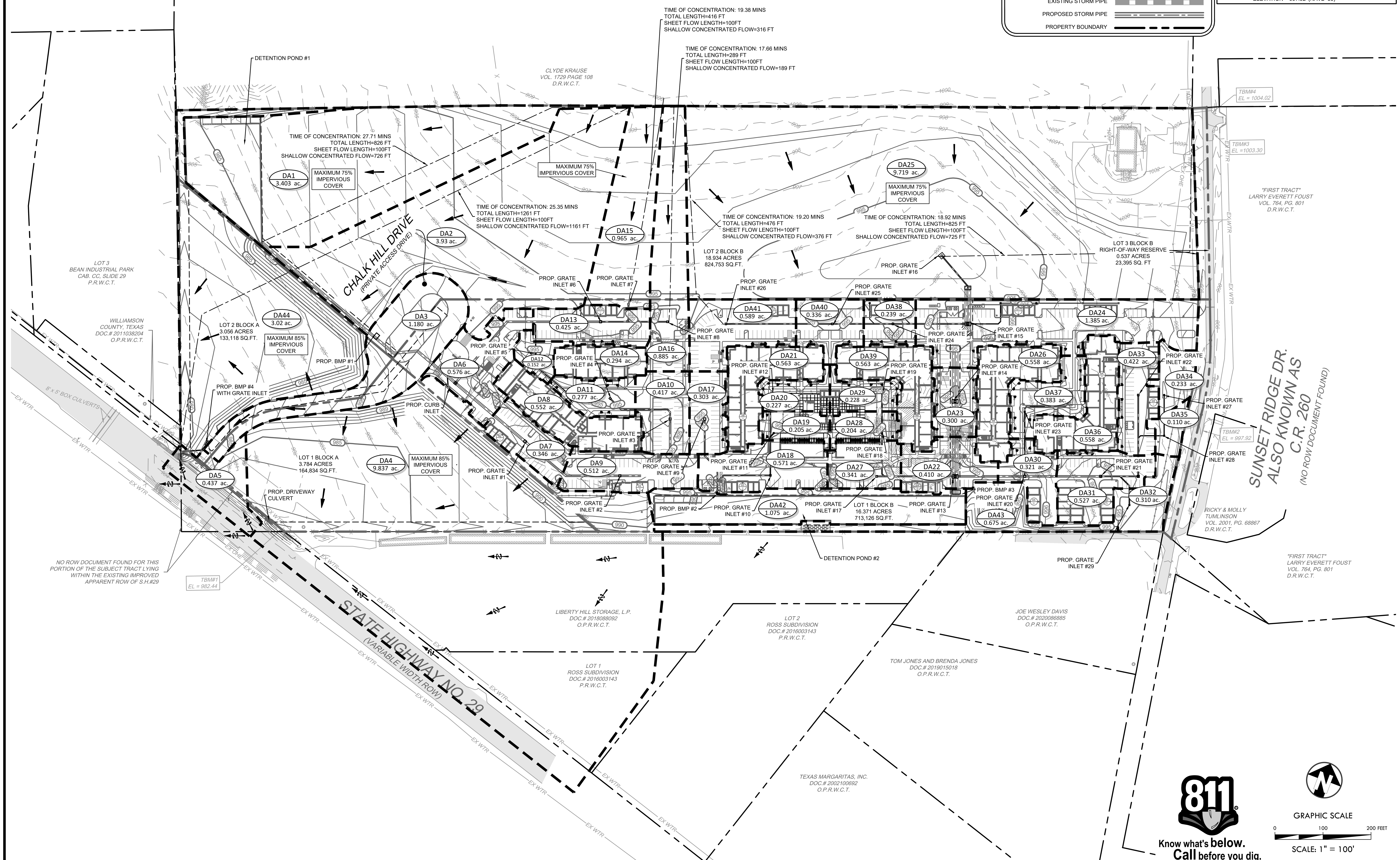

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GRAPHIC SCALE 0 100 200 FEET

SCALE: 1" = 100'

5/25/2023 SHEA O. KIRKMAN 91865 STATE OF TEXAS LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

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TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

INLET DRAINAGE AREA MAP

SHEET: C6.1

FILENAME: C6.1 PROPOSED DRAINAGE AREA MAP_CHV21004.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 5/25/2023
FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.1 PROPOSED DRAINAGE AREA MAP_CHV21004

LEGEND

- PROPOSED CURB INLET
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GRATE INLET
- PROPOSED STORM JUNCTION BOX
- PROPERTY BOUNDRAY

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STORM DRAIN NOTES:

1. REFER TO SHEET(S) C12.0 - C12.6 FOR STORM DRAIN DETAILS.

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ELEVATION = 997.92' (NAVD '88)

RE: SHEET C6.12

CLYDE KRAUSE
VOL. 1729 PAGE 108
D.R.W.C.T.

PROP. DETENTION POND

LOT 3
BEAN INDUSTRIAL PARK
CAB. CC, SLIDE 29
P.R.W.C.T.

CHALK HILL DRIVE
(PRIVATE ACCESS DRIVE)

RE: SHEET C6.4

RE: SHEET C6.5

RE: SHEET C6.6

RE: SHEET C6.7

RE: SHEET C6.8

RE: SHEET C6.3

LOT 2 BLOCK A
3.056 ACRES
133,118 SQ.FT.

LOT 2 BLOCK B
18.934 ACRES
824,753 SQ.FT.

"FIRST TRACT"
LARRY EVERETT FOUST
VOL. 764, PG. 801
D.R.W.C.T.

LOT 3 BLOCK B
RIGHT-OF-WAY RESERVE
0.537 ACRES
23,395 SQ. FT.

WILLIAMSON COUNTY, TEXAS
DOC.# 2011038204
O.P.R.W.C.T.

ST-A
ST-A.1
ST-A.2
ST-A.3
ST-A.4
ST-B
ST-B.1
ST-C
ST-D
ST-D.1
ST-E
ST-E.1
ST-E.2
ST-E.3
ST-F

FFE: 997.00
FFE: 996.65
FFE: 996.90
FFE: 997.80
FFE: 998.55
FFE: 995.90

LOT 1 BLOCK A
3.784 ACRES
164,834 SQ.FT.

LOT 1 BLOCK B
16.371 ACRES
713,126 SQ.FT.

PROP. DETENTION POND

RE: SHEET C6.9

RE: SHEET C6.10

RE: SHEET C6.11

8'x5' BOX CULVERTS

EX WTR

EX OHE

NO ROW DOCUMENT FOUND FOR THIS PORTION OF THE SUBJECT TRACT LYING WITHIN THE EXISTING IMPROVED APPARENT ROW OF S.H.#29

STATE HIGHWAY NO. 29
(VARIABLE WIDTH ROW)

SUNSET RIDGE DR.
ALSO KNOWN AS
C.R. 260
(NO ROW DOCUMENT FOUND)

RICKY & MOLLY TUMLINSON
VOL. 2001, PG. 68867
D.R.W.C.T.

"FIRST TRACT"
LARRY EVERETT FOUST
VOL. 764, PG. 801
D.R.W.C.T.

LIBERTY HILL STORAGE, L.P.
DOC.# 20180880920
O.P.R.W.C.T.

LOT 2
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

LOT 1
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

TOM JONES AND BRENDA JONES
DOC.# 20190015018
O.P.R.W.C.T.

JOE WESLEY DAVIS
DOC.# 20200866885
O.P.R.W.C.T.

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GRAPHIC SCALE
0 100 200 FEET
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5/25/2023
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REV.:	DATE:	DESCRIPTION:

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KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

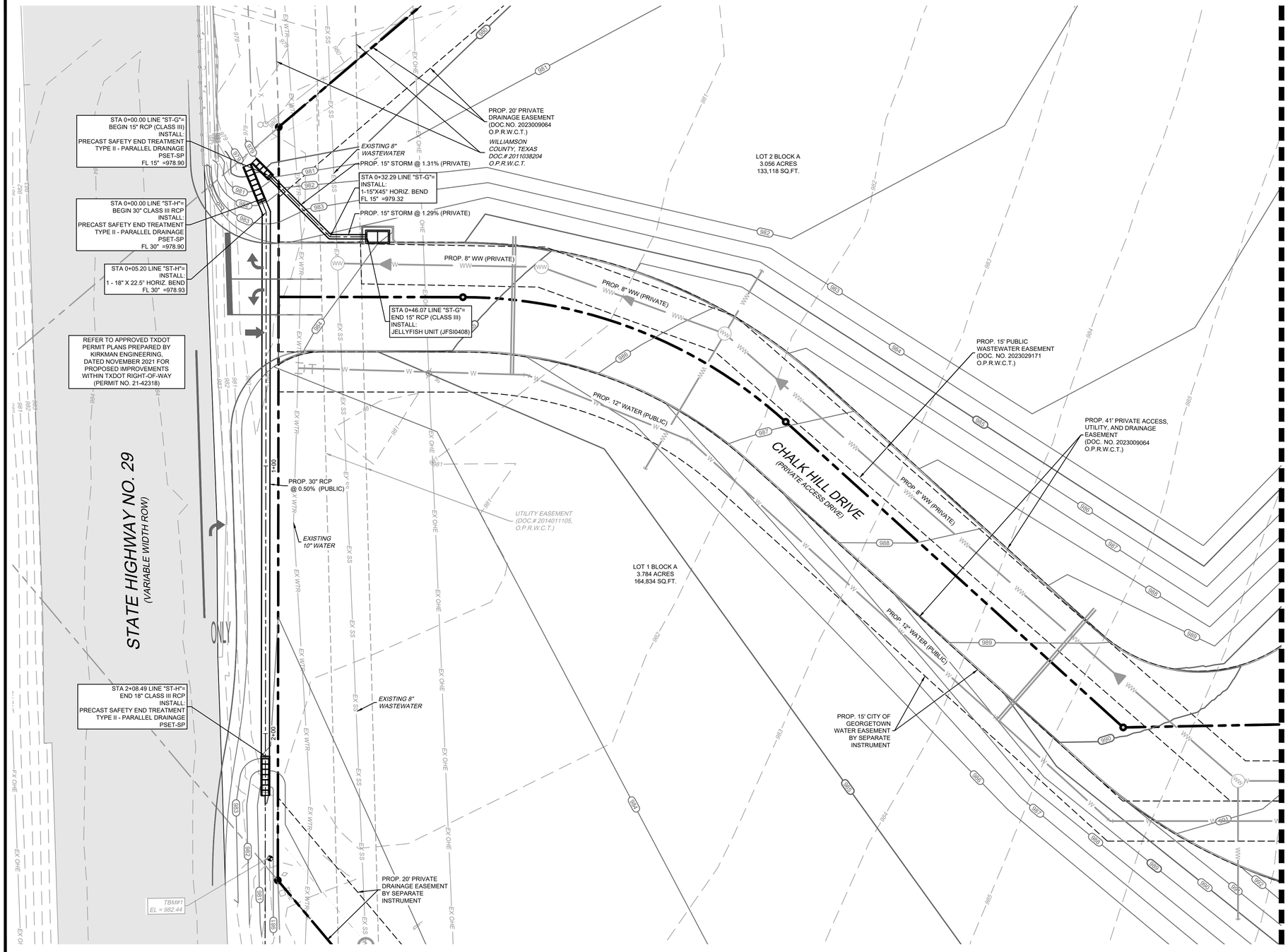
ISSUE DATE:

OVERALL STORM PLAN

SHEET:
C6.2

FULL PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004

FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Frantzeska Gaulen
PLOTTED DATE: 5/25/2023



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LEGEND

- PROPOSED CURB INLET
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GRATE INLET
- PROPOSED STORM JUNCTION BOX
- PROPERTY BOUNDRAY

STORM DRAIN NOTES:

1. REFER TO SHEET(S) C12.0 - C12.6 FOR STORM DRAIN DETAILS.

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WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

Know what's below.
Call before you dig.

GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

STORM PLAN I

SHEET:
C6.3

FULL PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004
FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Prathamsha Gautam
PLOTTED DATE: 5/25/2023

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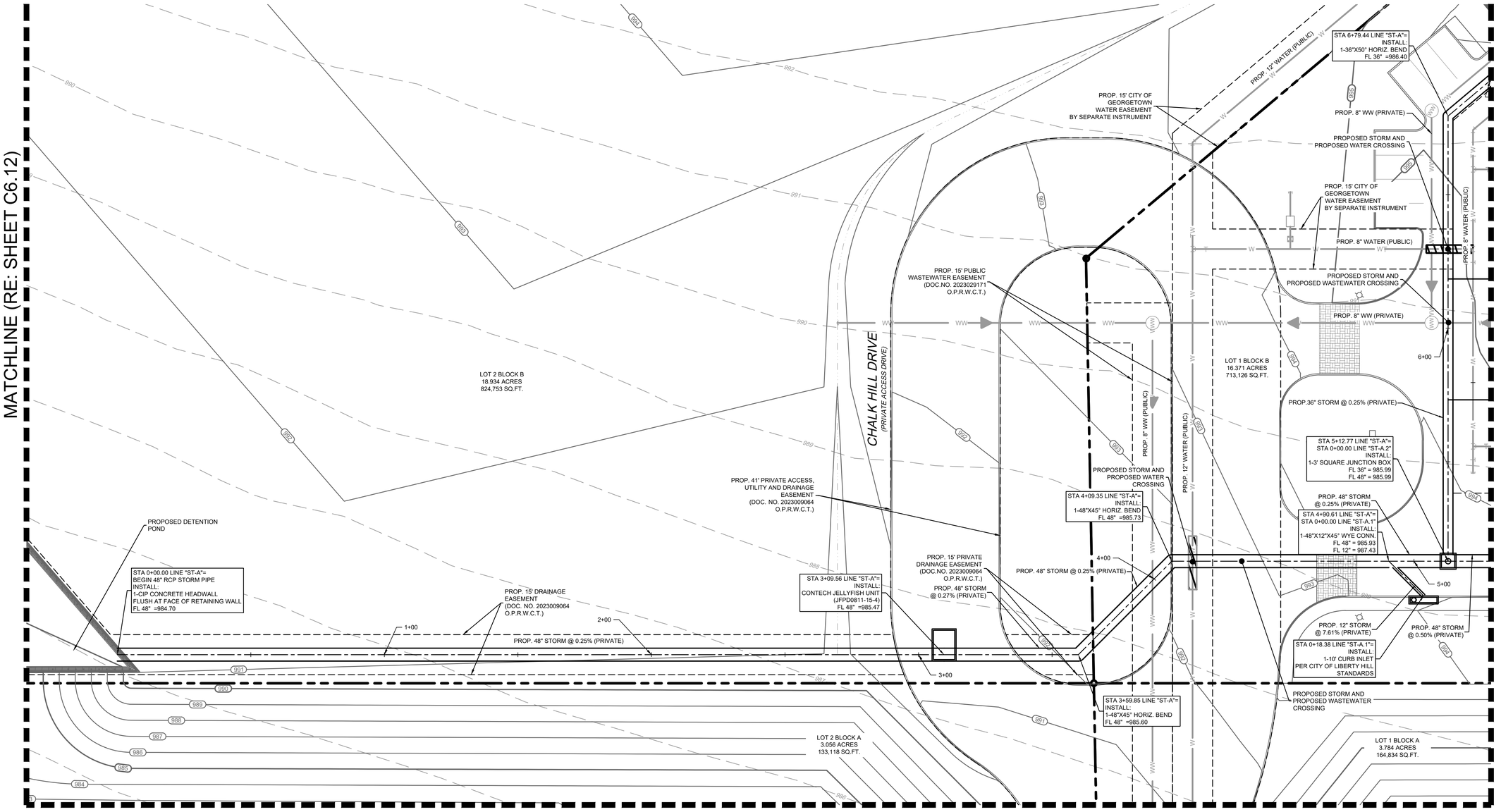
MATCHLINE (RE: SHEET C6.12)

MATCHLINE (RE: SHEET C6.5)



MATCHLINE (RE: SHEET C6.3)

GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DESCRIPTION:	DATE:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

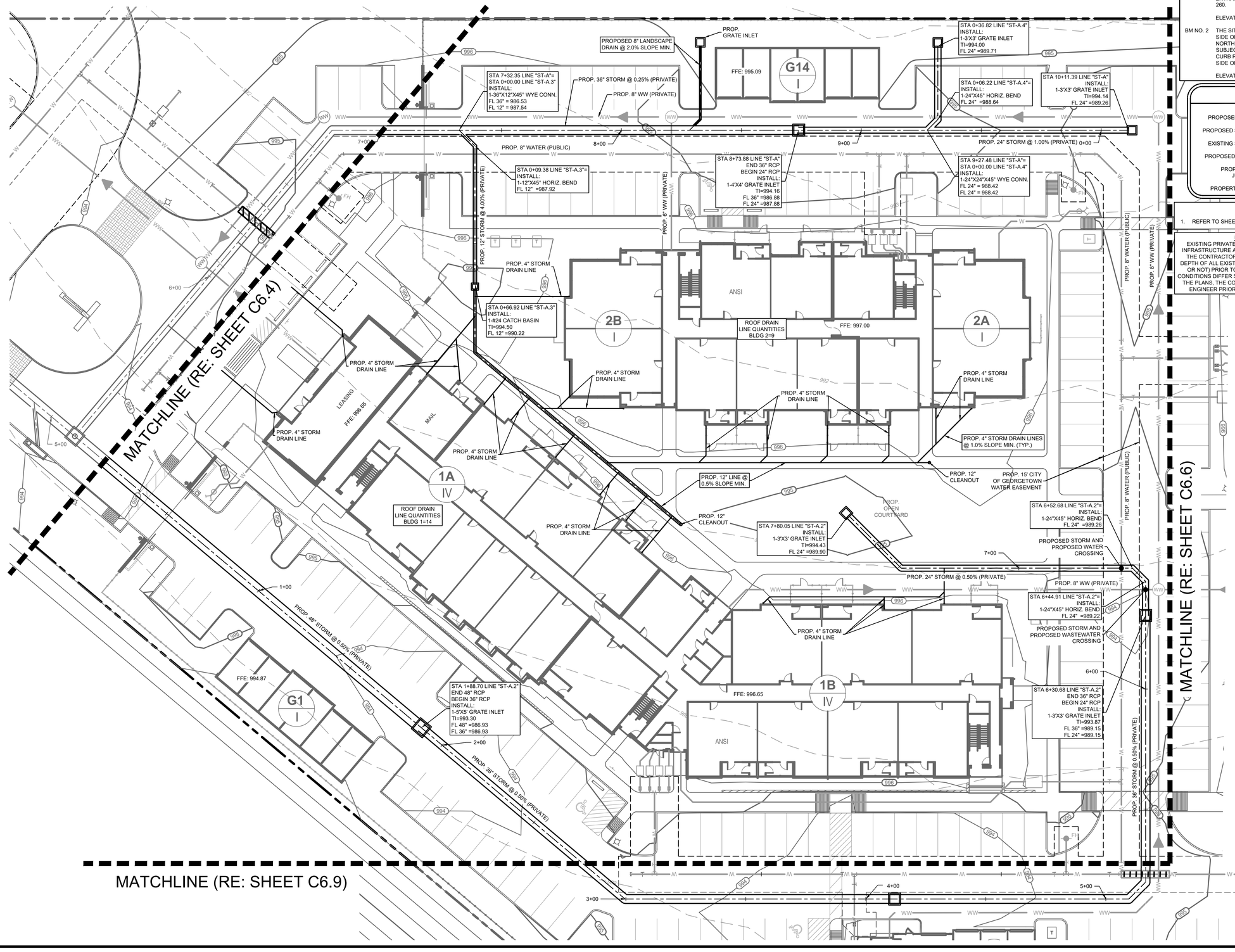
JOB NUMBER: CHV21004

ISSUE DATE:

STORM PLAN II

SHEET:

C6.4



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

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ELEVATION = 997.92' (NAVD '88)

LEGEND

- PROPOSED CURB INLET
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GRATE INLET
- PROPOSED STORM JUNCTION BOX
- PROPERTY BOUNDRY

STORM DRAIN NOTES:

1. REFER TO SHEET(S) C12.0 - C12.6 FOR STORM DRAIN DETAILS.

NOTE TO CONTRACTOR

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GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

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DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

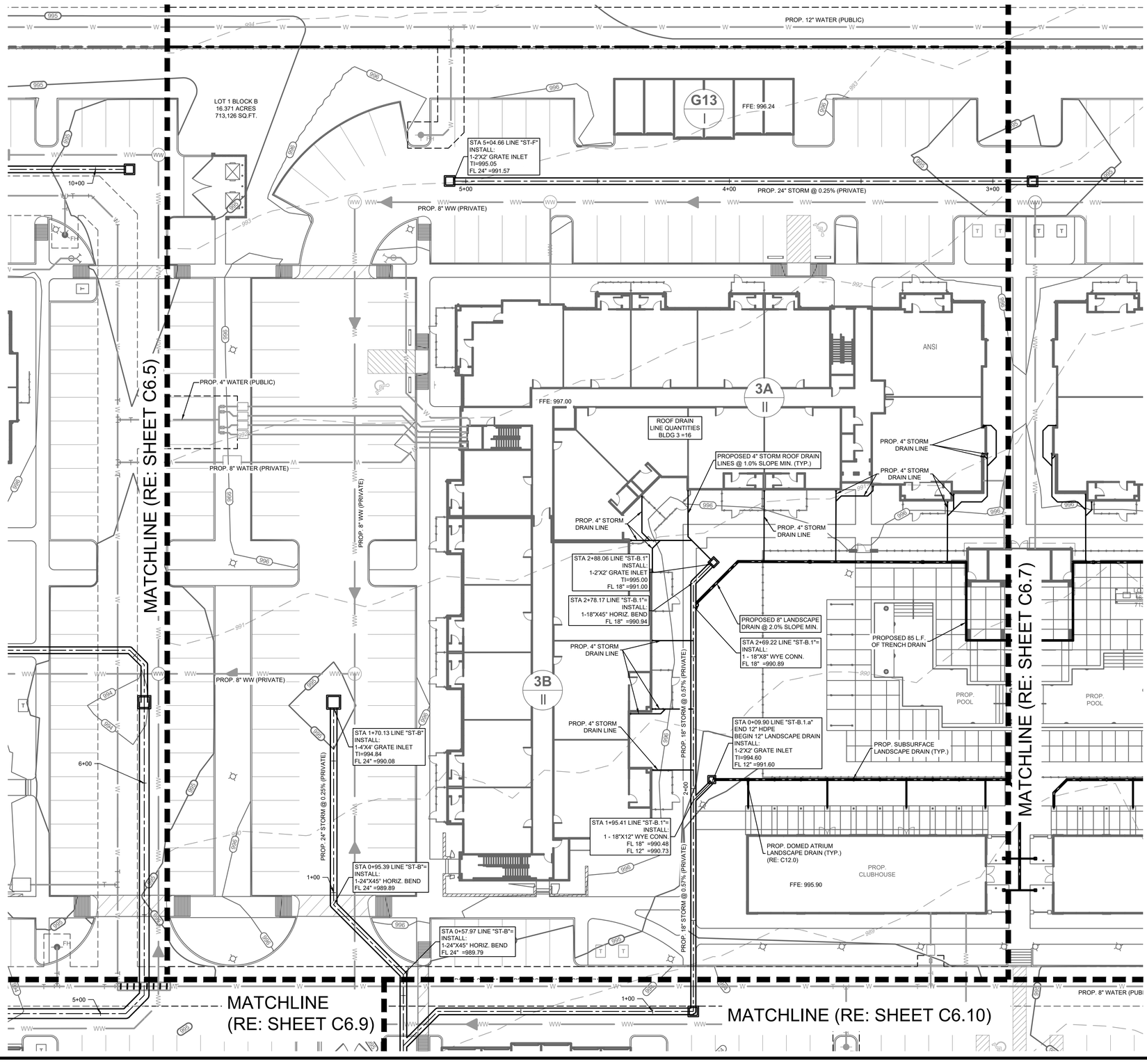
STORM PLAN III

SHEET:

C6.5

FULL PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004

FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Dhanendra Gautam
PLOTTED DATE: 5/25/2023



SITE BENCHMARKS

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ELEVATION = 997.92' (NAVD '88)

LEGEND

- PROPOSED CURB INLET
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GRATE INLET
- PROPOSED STORM JUNCTION BOX
- PROPERTY BOUNDRAY

STORM DRAIN NOTES:

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5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

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LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

Know what's **below.** **Call** before you dig.

GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

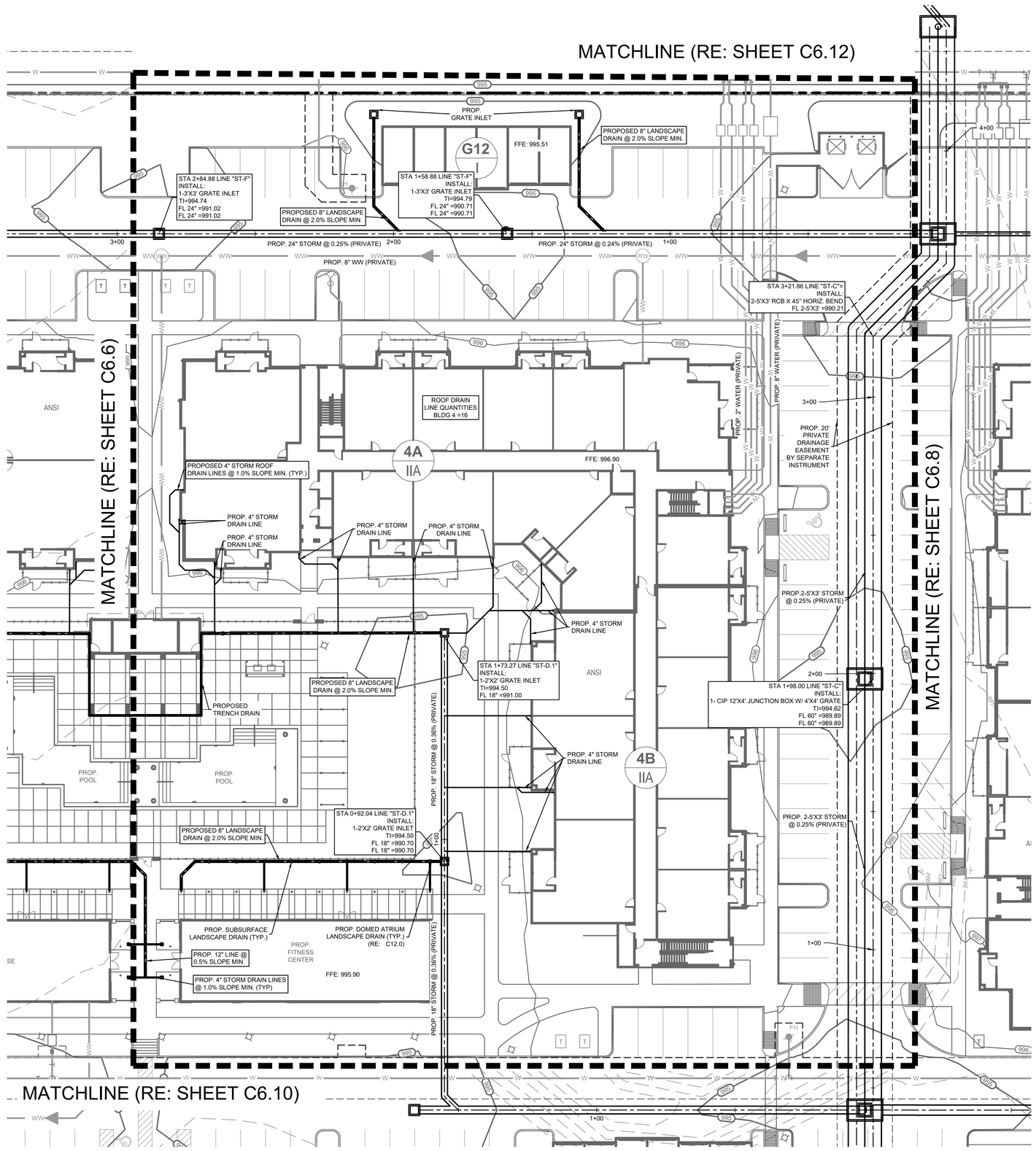
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

STORM PLAN IV

SHEET:
C6.6

FILE PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Cl2.2 STORM PLAN_CHV21004
FILENAME: Cl2.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 5/25/2023



SITE BENCHMARKS

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LEGEND

- PROPOSED CURB INLET
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GRATE INLET
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STORM DRAIN NOTES:

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5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91869
REGISTERED
PROFESSIONAL
ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

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DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

STORM PLAN V

SHEET:

C6.7

FILE PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Xrefs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004.dwg
FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Prashanktaa Gautam
PLOTTED DATE: 5/25/2023

MATCHLINE (RE: SHEET C6.12)

MATCHLINE (RE: SHEET C6.7)

MATCHLINE (RE: SHEET C6.11)

PROP.2-5'X3' STORM @ 0.25% (PRIVATE)

PROP. GRATE INLET

PROP. GRATE INLET

PROPOSED 8" LANDSCAPE DRAIN @ 2.0% SLOPE MIN.

PROP. GRATE INLET

PROP. GRATE INLET

PROP. 12" WATER (PUBLIC)

4+00

STA 3+70.06 LINE "ST-C"=
STA 0+00.00 LINE "ST-F"
INSTALL:
1-INSTALL:
1- CIP 12'X4' JUNCTION BOX W/ 4'X4' GRATE
TI=994.18
FL 2-5'X3' (IN)=990.32
FL 2-5'X3' (OUT)=990.32
FL 24" (OUT)=990.32
FL 12" (OUT)=990.32

G11

FFE: 995.79

G10

FFE: 997.42

PROPOSED 12" LANDSCAPE DRAIN @ 0.5% SLOPE MIN.

PROP. 8" WW (PRIVATE)

PROP. 15' CITY OF GEORGETOWN WATER EASEMENT BY SEPARATE INSTRUMENT

PROP. 5'X3' RCB @ 0.25% (PUBLIC)

PROP. 20' PRIVATE DRAINAGE EASEMENT BY SEPARATE INSTRUMENT

STA 3+59.34 LINE "ST-C"=
INSTALL:
2-5'X3' RCB X 45° HORIZ. BEND
FL 2-5'X3' =990.30

PROP. 4" STORM DRAIN LINE

PROP. 8" WATER (PUBLIC)

FFE: 997.82

G9

5A
III

FFE: 997.80

ROOF DRAIN LINE QUANTITIES
BLDG 5 =15

PROP. 4" STORM DRAIN LINE

PROP. 4" STORM DRAIN LINE

PROP. 15' CITY OF GEORGETOWN WATER EASEMENT BY SEPARATE INSTRUMENT

ANSI

6A
III

EX. 20' LIBERTY HILL WASTEWATER LINE EASEMENT, DOC#2022056906, O.P.R.W.C.T.

LOT 3 BLOCK B
RIGHT-OF-WAY RESERVE
0.537 ACRES
23,395 SQ. FT.

PROP. 4" STORM DRAIN LINES @ 1.0% SLOPE MIN. (TYP.)

PROP. 4" STORM DRAIN LINE

STA 5+46.74 LINE "ST-E"
INSTALL:
1-3'X3' GRATE INLET
TI=996.06
FL 24" =990.88

STA 1+40.59 LINE "ST-E.3"
INSTALL:
1-2'X2' GRATE INLET
TI=995.73
FL 12" =992.56

PROP. 4" STORM DRAIN LINE

STA 2+38.23 LINE "ST-E.1"
INSTALL:
#24 CATCH BASIN
TI=995.00
FL 18" =991.33

STA 2+26.82 LINE "ST-E.1"=
1-18"X45° HORIZ. BEND
FL 18" =991.30

STA 1+40.76 LINE "ST-E.1"=
1-18"X45° HORIZ. BEND
FL 18" =991.09

PROP. COURTYARD

PROP. 18" STORM @ 0.25% (PRIVATE)

2+00

PROP. 4" STORM DRAIN LINE

PROP. 4" STORM DRAIN LINE

PROP. 8" WW (PRIVATE)

G8

EX. 20' LIBERTY HILL WASTEWATER LINE EASEMENT, DOC.# 2022056906, O.P.R.W.C.T.

1+00

STA 1+47.27 LINE "ST-E.1"=
1-18"X45° HORIZ. BEND
FL 18" =991.10

STA 1+34.26 LINE "ST-E.1"
INSTALL:
#24 CATCH BASIN
TI=995.70
FL 18" =991.07

PROP. 4" STORM DRAIN LINE

PROPOSED STORM AND PROPOSED WATER CROSSING

5+00

FFE: 997.87

5B
III

ANSI

PROP. 4" STORM DRAIN LINE

ROOF DRAIN LINE QUANTITIES
BLDG 6 =16

STA 0+07.07 LINE "ST-E.3"=
INSTALL:
1-12" X 45° HORIZ. BEND
FL 12" =991.22

PROP. 12" STORM @ 1.00% (PRIVATE)

PROP. 12" STORM @ 1.00% (PRIVATE)

1+00

PROP. 4" STORM DRAIN LINE

6A
III

FFE: 998.55

STA 0+55.99 LINE "ST-E.3"
END 12" RCP
BEGIN 12" HDPE
INSTALL:
1-2'X2' GRATE INLET
TI=996.45
FL 12" =991.71
FL 12" =991.71

PROP. 18" STORM @ 0.25% (PRIVATE)

PROP. 4" STORM DRAIN LINE

STA 4+57.13 LINE "ST-E"=
STA 0+00.00 LINE "ST-E.3"
BEGIN 12" RCP
INSTALL:
1- 24" X12"X45° WYE CONN.
FL 24" = 990.65
FL 12" = 991.15

PROPOSED STORM AND PROPOSED WATER CROSSING

PROP. 4" STORM DRAIN LINE

PROP. 24" STORM @ 0.25% (PRIVATE)

PROP. 6" WW (PRIVATE)

4+00

1+00

2+00

3+00

SITE BENCHMARKS

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LEGEND

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- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GRATE INLET
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GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED
PROFESSIONAL
ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

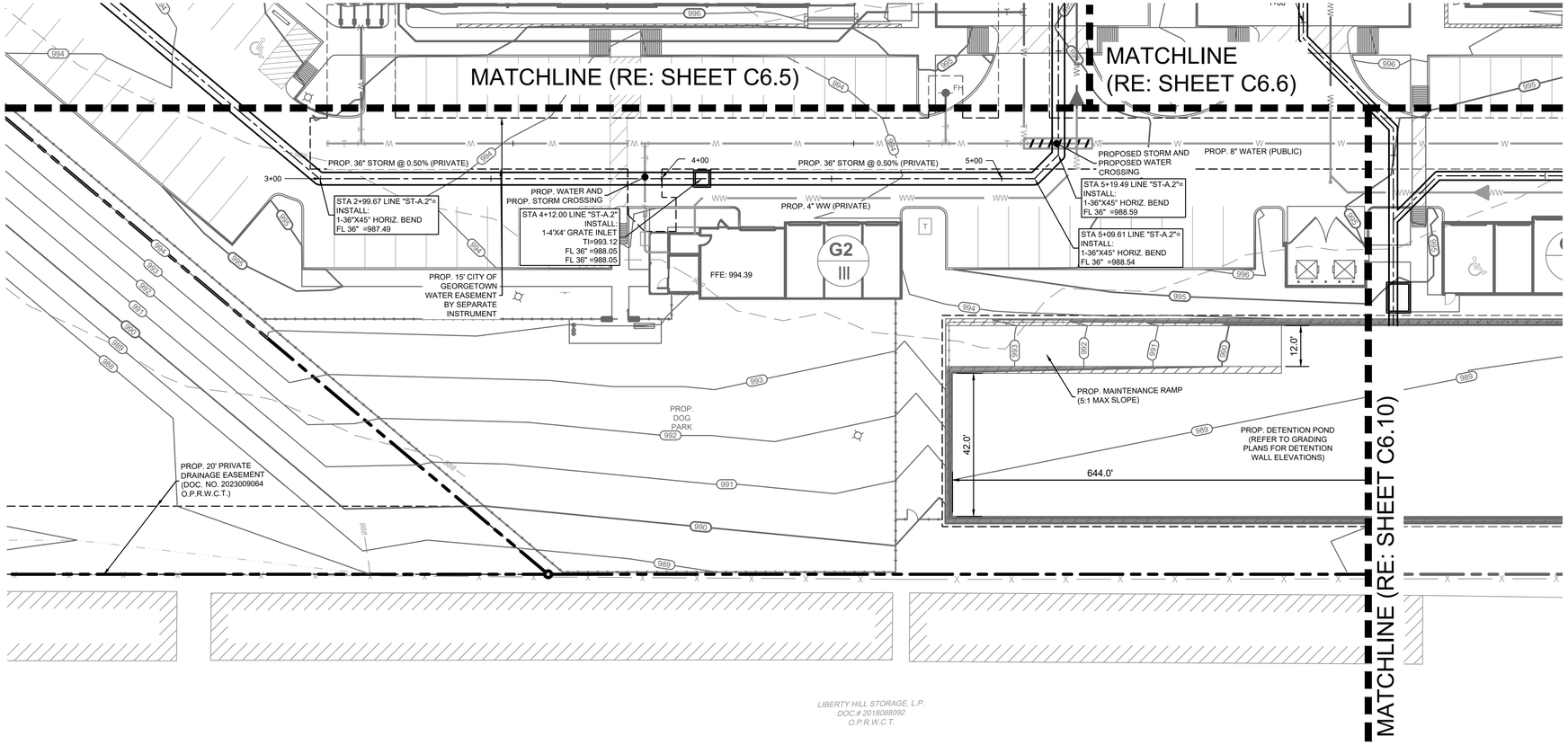
STORM PLAN VI

SHEET:

C6.8

FILE PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004.dwg

FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Prathamsha Gautam
PLOTTED DATE: 5/25/2023



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LEGEND

- PROPOSED CURB INLET
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GRATE INLET
- PROPOSED STORM JUNCTION BOX
- PROPERTY BOUNDRAY

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0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

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LICENSED PROFESSIONAL ENGINEER

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WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

STORM PLAN VII

SHEET:

C6.9

FULL PATH: K:\Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004

FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Prashantha Gautam
PLOTTED DATE: 5/25/2023

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LEGEND

- PROPOSED CURB INLET
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
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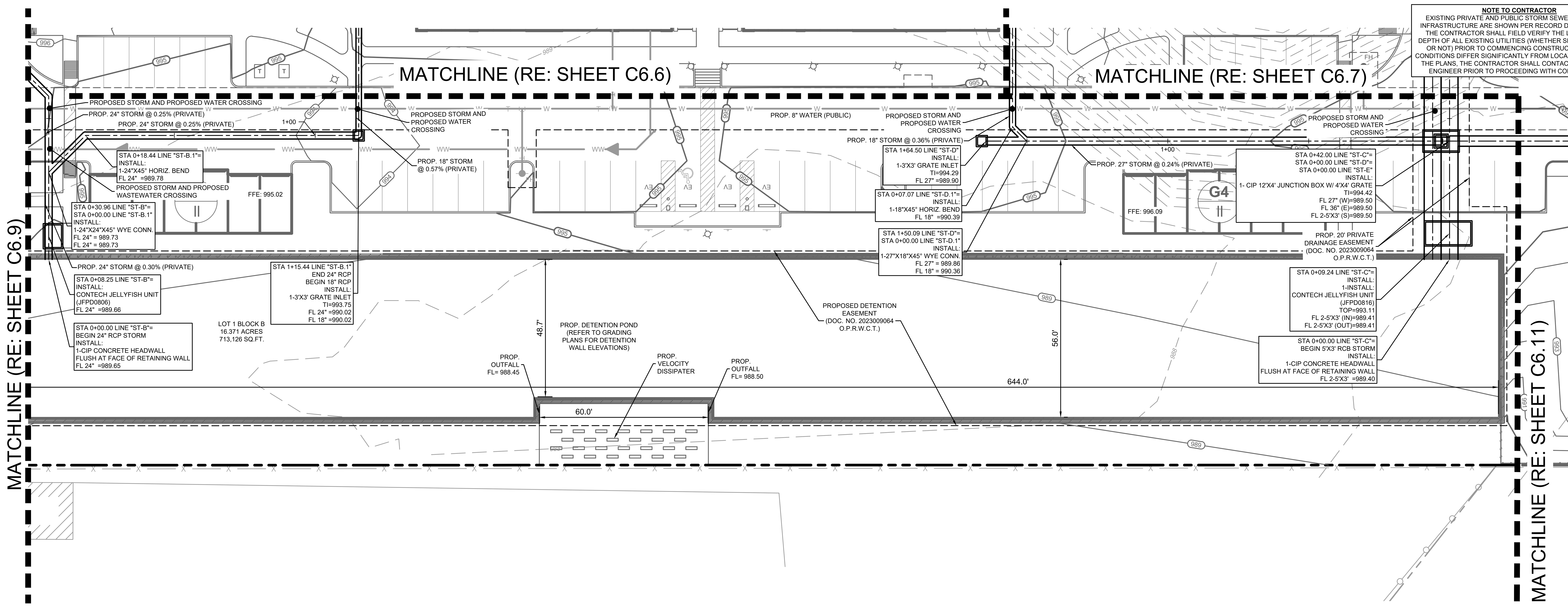

Know what's below. Call before you dig.

GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

SHEA O. KIRKMAN 91865

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
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CHALK HILL RANCH

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WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

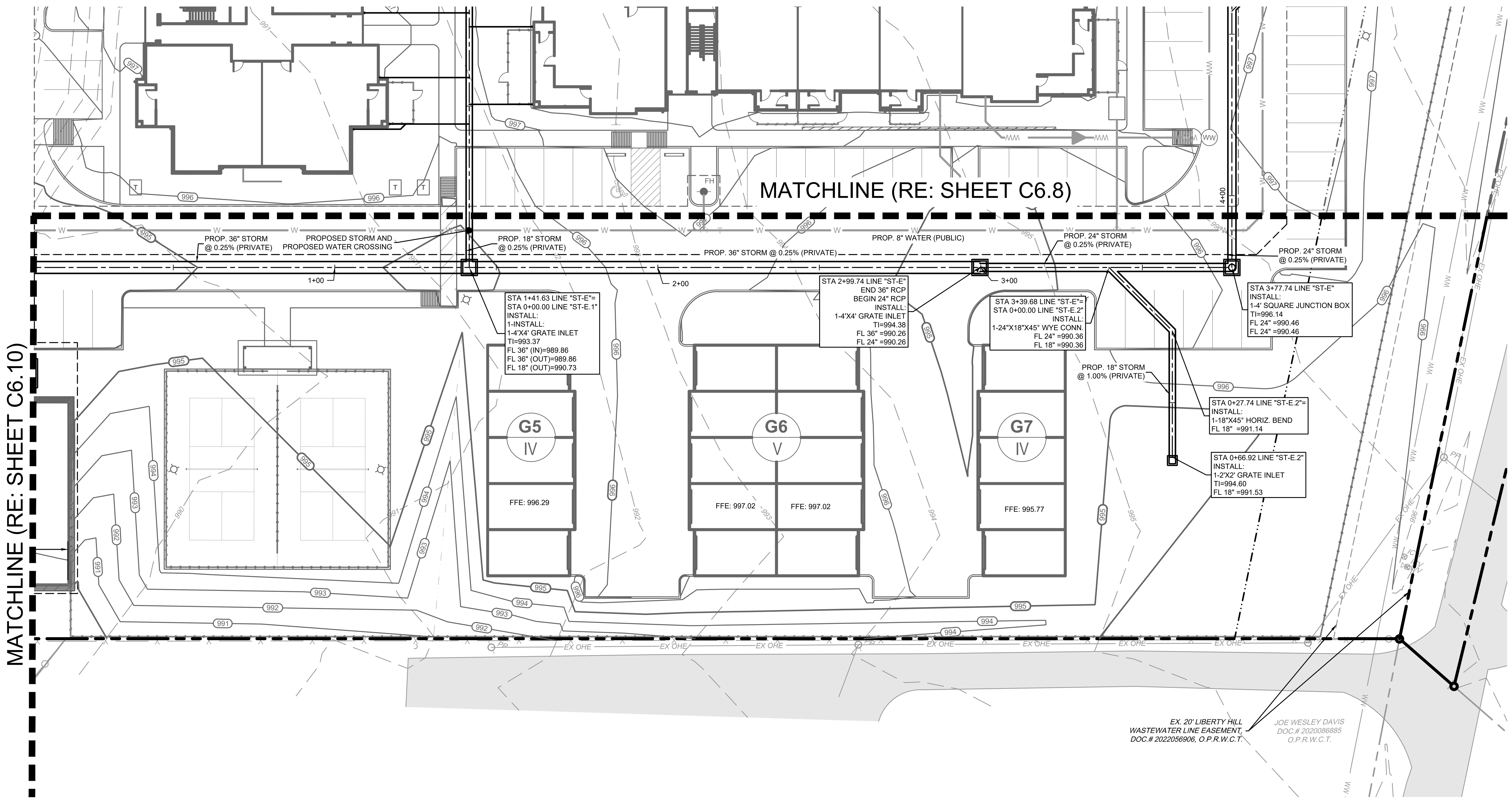
JOB NUMBER: CHV21004

ISSUE DATE:

STORM PLAN VIII

SHEET:

C6.10



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- PROPOSED STORM DRAIN
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- PROPERTY BOUNDRAY

STORM DRAIN NOTES:

1. REFER TO SHEET(S) C12.0 - C12.6 FOR STORM DRAIN DETAILS.

NOTE TO CONTRACTOR

EXISTING PRIVATE AND PUBLIC STORM SEWER AND UTILITY INFRASTRUCTURE ARE SHOWN PER RECORD DRAWING PLANS. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

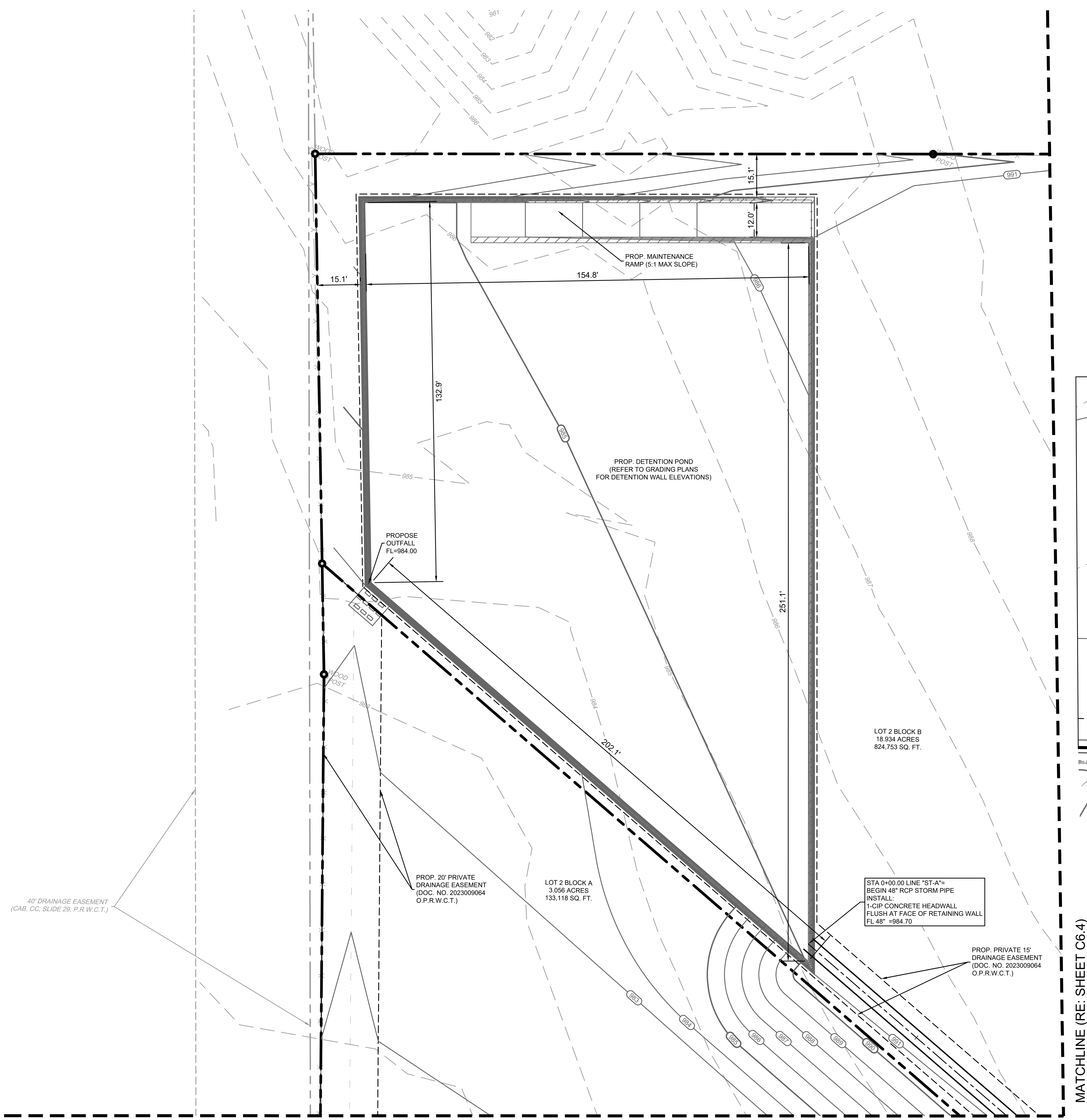
JOB NUMBER: CHV21004
ISSUE DATE:

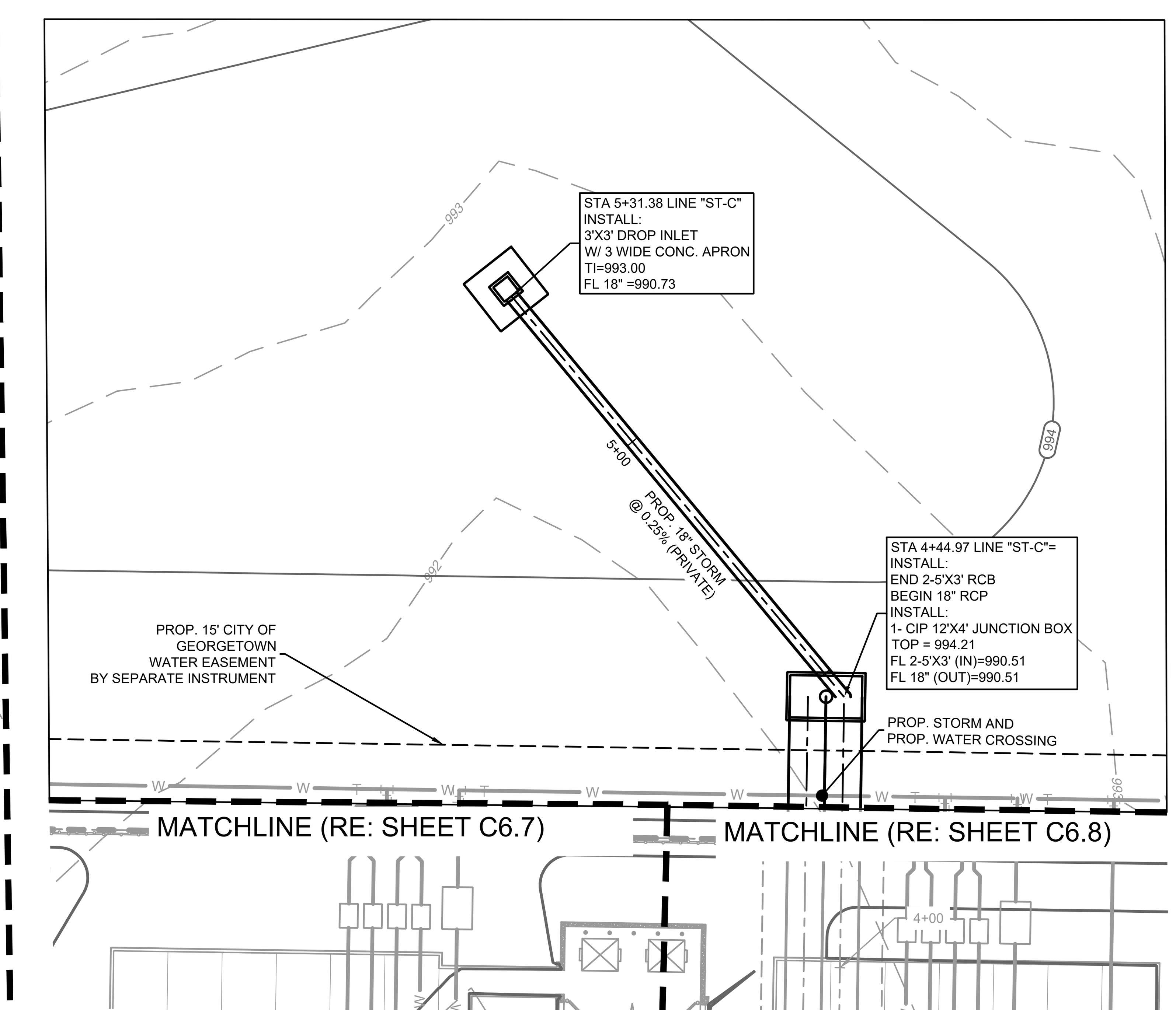
811 Know what's **below.** **Call** before you dig.

GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

STORM PLAN IX

SHEET:
C6.11





SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

LEGEND

PROPOSED CURB INLET
PROPOSED STORM DRAIN
EXISTING STORM DRAIN
PROPOSED GRATE INLET
PROPOSED STORM JUNCTION BOX
PROPERTY BOUNDRAY

STORM DRAIN NOTES:

1. REFER TO SHEET(S) C12.0 - C12.6 FOR STORM DRAIN DETAILS.

NOTE TO CONTRACTOR

EXISTING PRIVATE AND PUBLIC STORM SEWER AND UTILITY INFRASTRUCTURE ARE SHOWN PER RECORD DRAWING PLANS. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

Know what's **below.** **Call** before you dig.

GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

STORM PLAN DETENTION POND

SHEET:

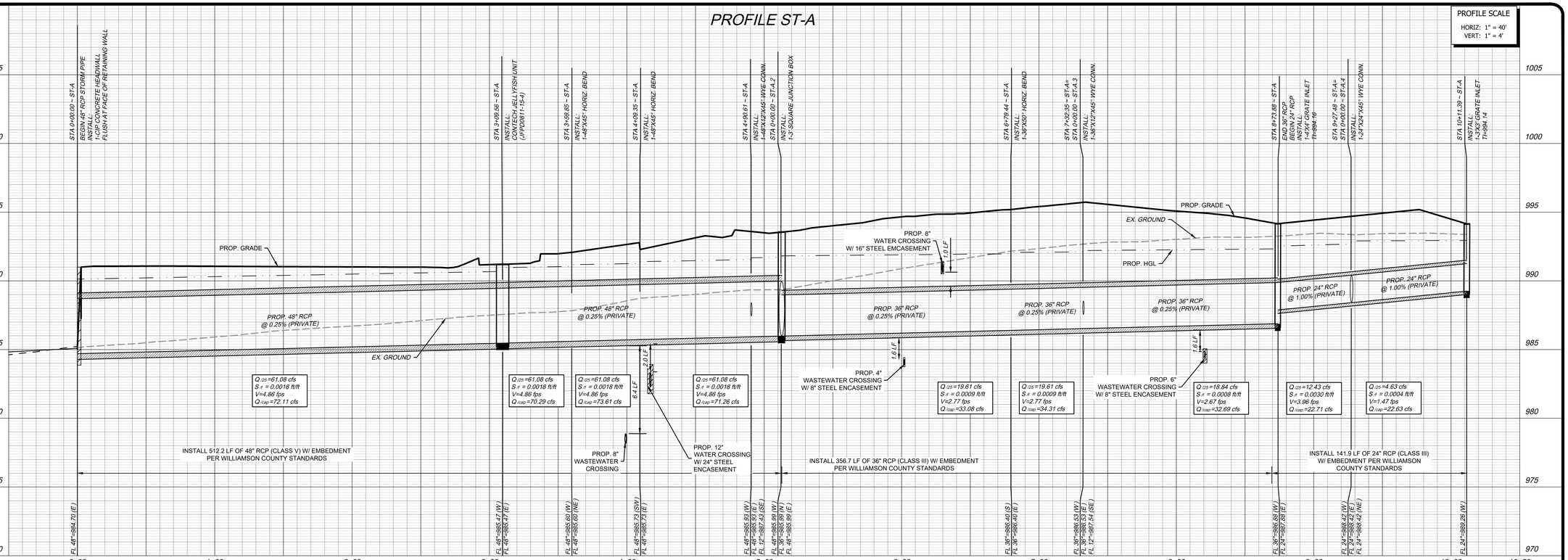
C6.12

FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1103 - ProductionK:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1103 - Production\C6.2 STORM PLAN_CHV21004

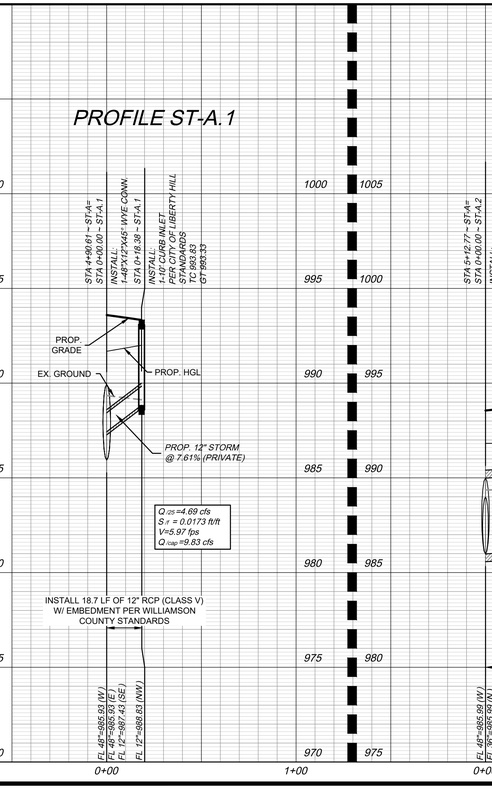
FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 5/25/2023

PROFILE ST-A

PROFILE SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'



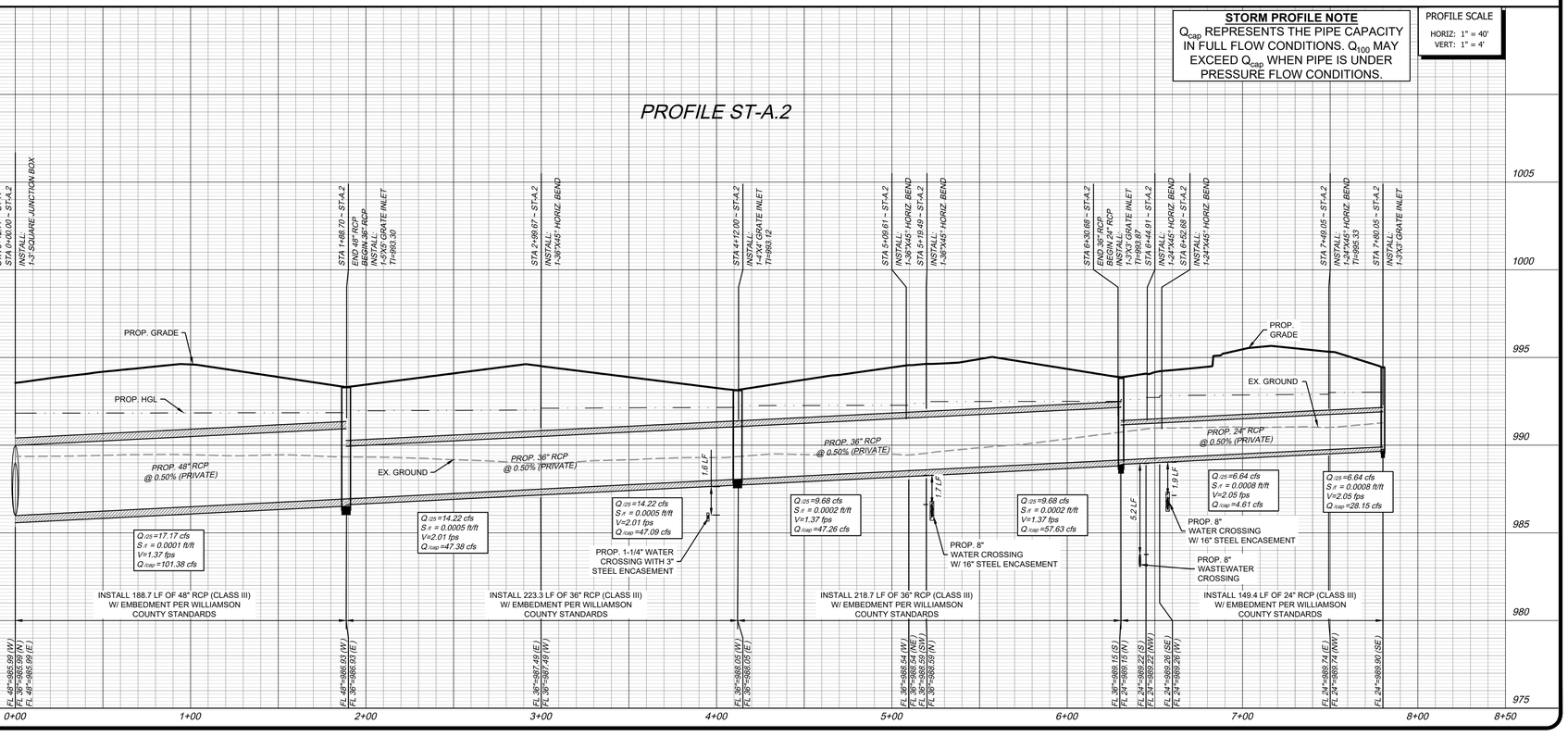
PROFILE ST-A.1



PROFILE ST-A.2

STORM PROFILE NOTE
Q_{cap} REPRESENTS THE PIPE CAPACITY IN FULL FLOW CONDITIONS. Q_{100} MAY EXCEED Q_{cap} WHEN PIPE IS UNDER PRESSURE FLOW CONDITIONS.

PROFILE SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'



5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

STORM PROFILE I

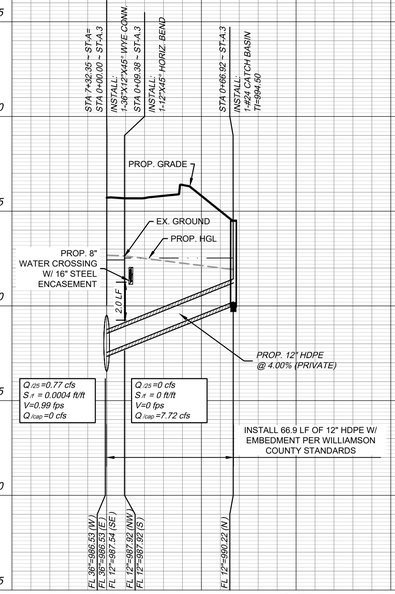
SHEET:
C6.13

FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED ON: Thursday, May 25, 2023
PLOTTED AT: 8:16:00 AM
FULL PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004.dwg

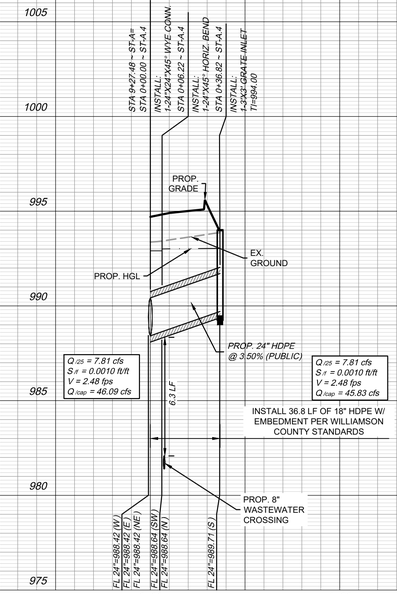
STORM PROFILE NOTE
Q_{cap} REPRESENTS THE PIPE CAPACITY IN FULL FLOW CONDITIONS. Q_{100} MAY EXCEED Q_{cap} WHEN PIPE IS UNDER PRESSURE FLOW CONDITIONS.

PROFILE SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'

PROFILE ST-A.3

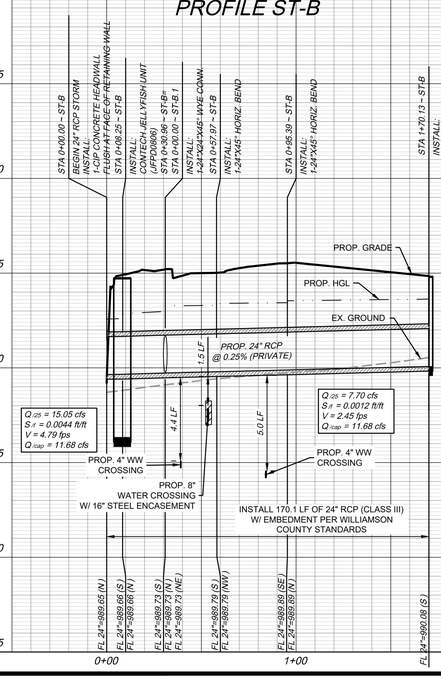


PROFILE ST-A.4

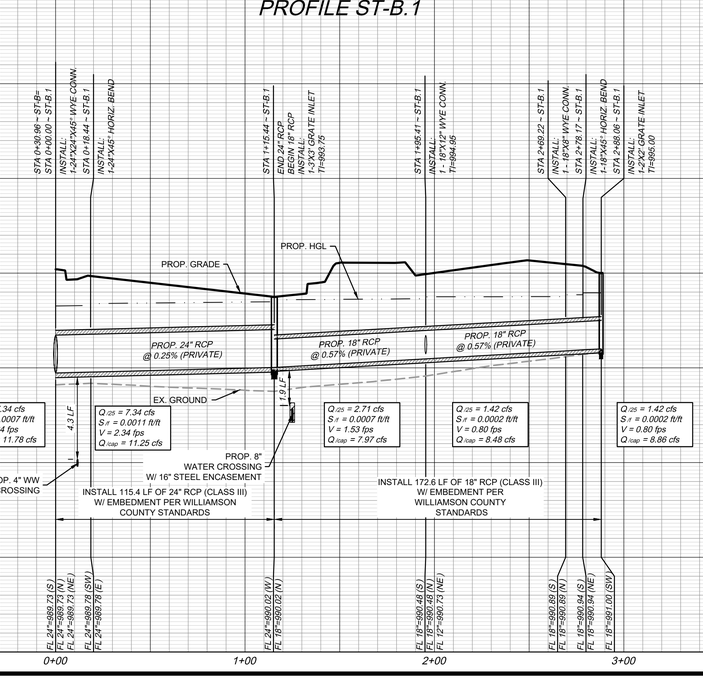


PROFILE SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'

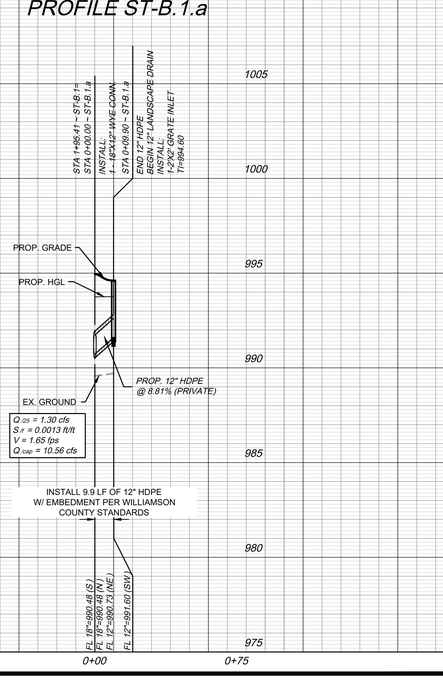
PROFILE ST-B



PROFILE ST-B.1



PROFILE ST-B.1.a



5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

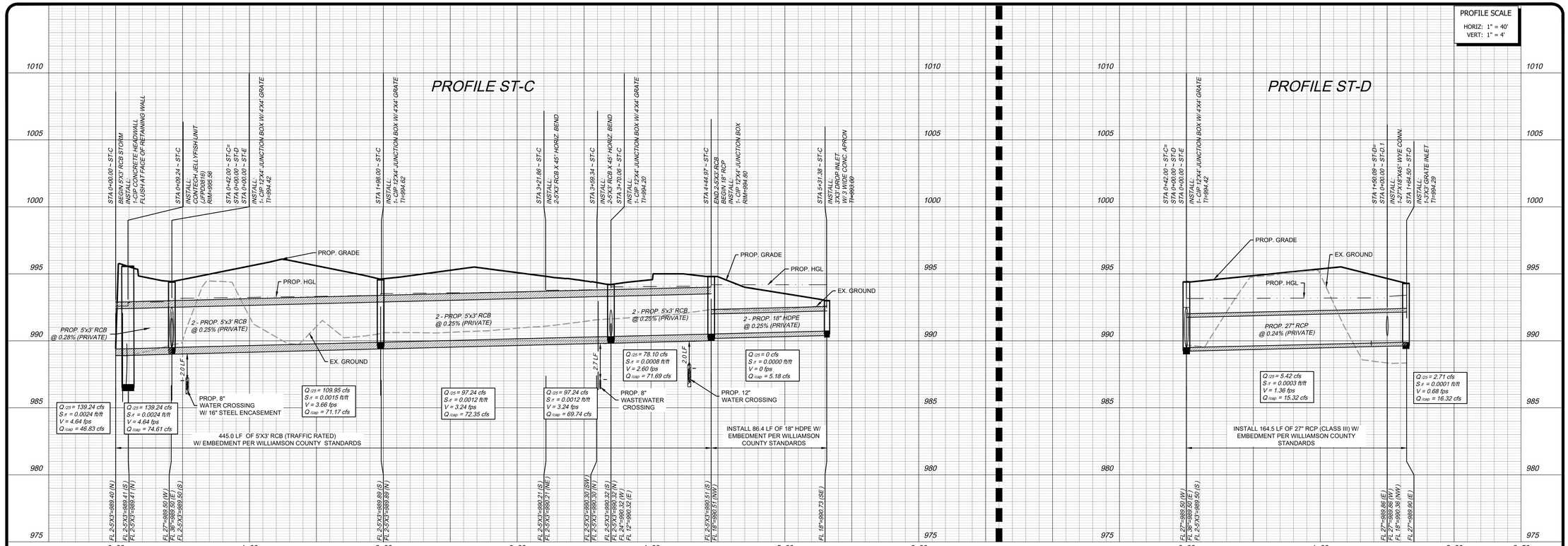
JOB NUMBER: CHV21004

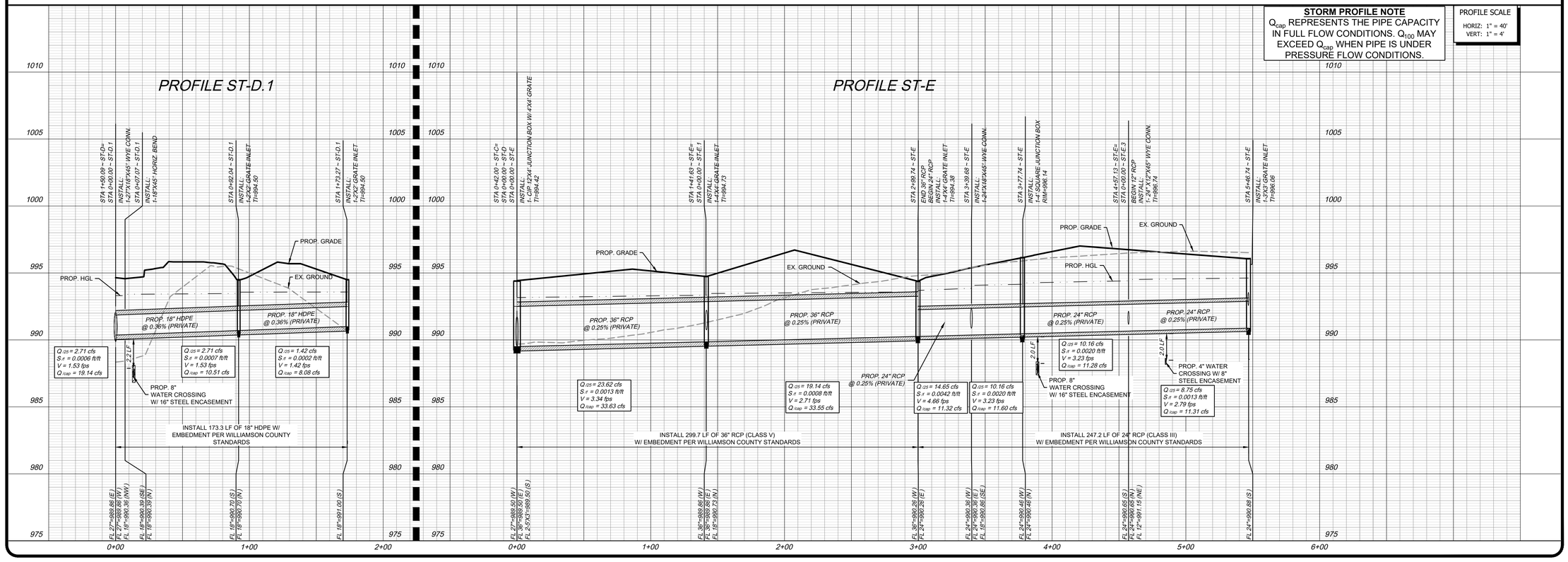
ISSUE DATE:

STORM PROFILE II

SHEET:
C6.14

FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED ON: Thursday, May 25, 2023
PLOTTED AT: 9:16:19 AM
FULL PATH: K:\Jobs\CHV21004_Front\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004.dwg





5/25/2023

SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

STORM PROFILE III

SHEET:

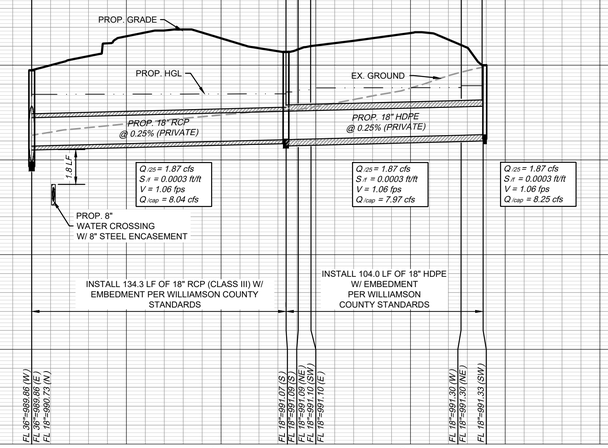
C6.15

FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED ON: Thursday, May 25, 2023
PLOTTED AT: 8:16:37 AM
FULL PATH: K:\Jobs\CHV21004_Fivet\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004.dwg

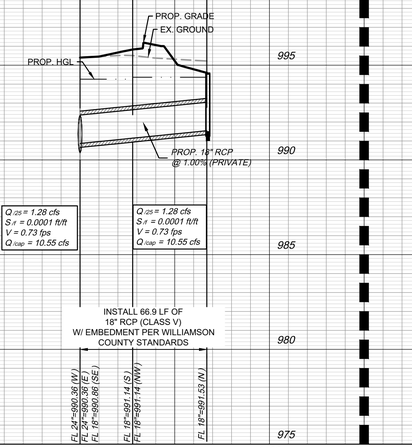
STORM PROFILE NOTE
Q_{cap} REPRESENTS THE PIPE CAPACITY IN FULL FLOW CONDITIONS. Q_{100} MAY EXCEED Q_{cap} WHEN PIPE IS UNDER PRESSURE FLOW CONDITIONS.

PROFILE SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'

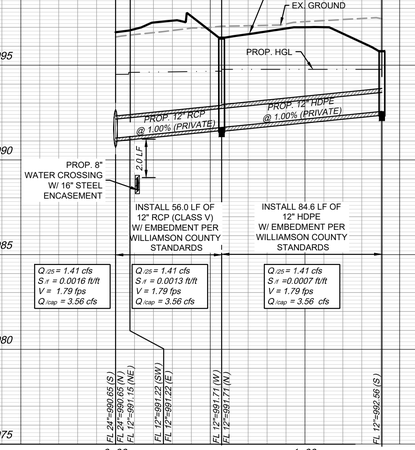
PROFILE ST-E.1



PROFILE ST-E.2

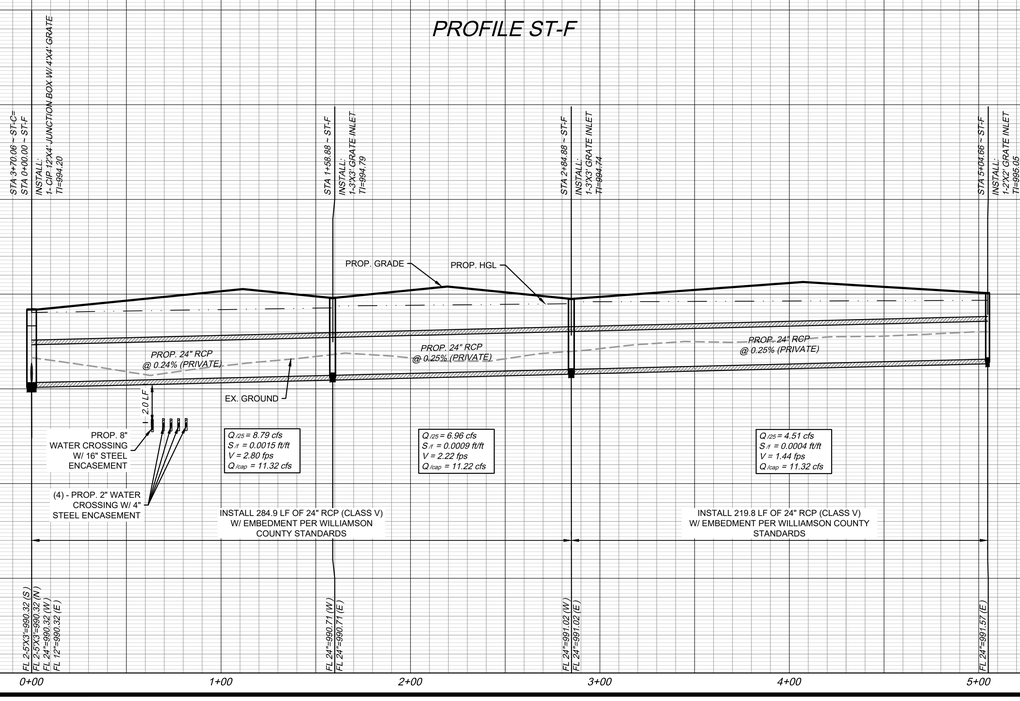


PROFILE ST-E.3

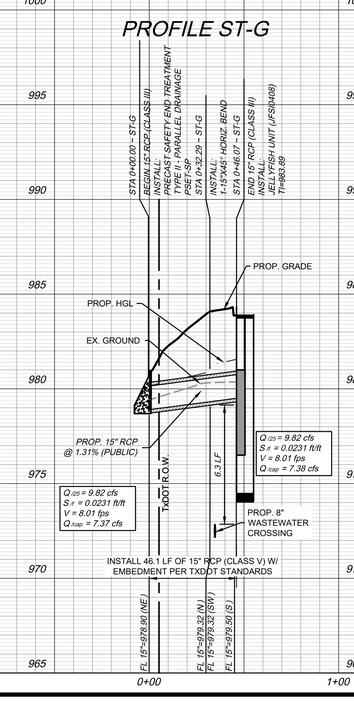


PROFILE SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'

PROFILE ST-F



PROFILE ST-G



5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

STORM PROFILE IV

SHEET:
C6.16

FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED ON: Thursday, May 25, 2023
PLOTTED AT: 9:16:34 AM
FULL PATH: K:\Jobs\CHV21004_Four\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004.dwg

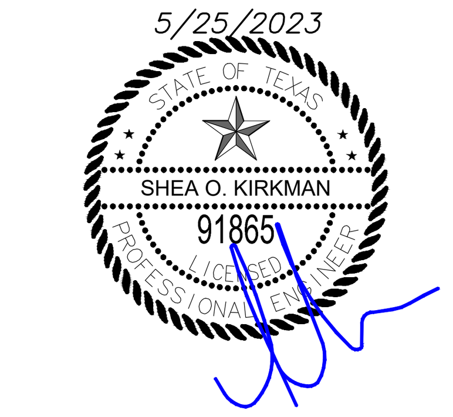
STARTING HGL NOTE:

1. STARTING HGL TAKEN FROM 100-YEAR WATER SURFACE ELEVATION FROM PROPOSED DETENTION PONDS.

HYDRAULIC CALCULATIONS (FUTURE / ULTIMATE)

Runoff Design Point Upstrm Station	Runoff Design Point Dwnstrm Station	Pipe Length Between Points	Drainage Area No.	Q 25-yr Runoff "Q" (c.f.s.)	Incremental Q "Q" (c.f.s.)	Uncaptured Bypass "Q" (c.f.s.)	Q25-yr in Pipe "Q" (c.f.s.)	Shape of Pipe	No. of Barrels	Pipe Diameter (in.)	Box Culvert Width (ft)	Box Culvert Heigth (ft)	Manning n Value	Hydr Grade "Sf" (ft./ft.)	Hydraulic Grade Line Elevation - 25-yr Upstrm	Hydraulic Grade Line Elevation - 25-yr Dwnstrm	Head Loss Calculations: V25-yr Flow (In) (f.p.s.)	V25-yr Flow (Out) (f.p.s.)	V1^2/2g (feet)	V2^2/2g (feet)	Loss Coeff (Kj)	KjV1^2/2g (feet)	Head Loss at Structure "Hk" (feet)	Design HGL Elevation (feet)	Invert Elevation Upstrm (feet)	Invert Elevation Dwnstrm (feet)	TC / FG Elev (feet)	Comments
1	2	3		4a	4b	4c	4d	5a	5b	5c	5d	5e	5f	6	7	8	9	10	11	12	13	14	15	16	17	18		
ST-A																												
1011.39	927.48	83.91	DA16	4.63	4.63	0.00	4.63	circular	1	24			0.013	0.0004	992.94	992.91		1.47		0.03	1.25		0.10	993.04	989.26	988.42	994.14	
927.48	873.88	53.60	DA15	7.81	12.43	0.00	12.43	circular	1	24			0.013	0.0030	992.69	992.53	1.47	3.96	0.03	0.24	0.75	0.03	0.22	992.91	988.42	987.88	994.75	
873.88	873.88	0.00		0.00	12.43	0.00	12.43	circular	1	24			0.013	0.0030	992.43	992.43	3.96	3.96	0.24	0.24	0.20	0.05	0.10	992.53	987.88	986.88	994.16	
873.88	732.35	141.53	DA13-14	6.40	18.84	0.00	18.84	circular	1	36			0.013	0.0008	992.33	992.21	3.96	2.67	0.24	0.11	0.50	0.12	0.10	992.43	986.88	986.54	994.16	
732.35	679.44	52.91	DA12	0.77	19.61	0.00	19.61	circular	1	36			0.013	0.0009	992.11	992.07	2.67	2.77	0.11	0.12	0.75	0.08	0.10	992.21	986.54	986.40	995.75	
679.44	512.77	166.67		0.00	19.61	0.00	19.61	circular	1	36			0.013	0.0009	991.97	991.82	2.77	2.77	0.12	0.12	0.35	0.04	0.10	992.07	986.40	985.99	995.10	
512.77	490.61	22.16	DA7-16	36.78	56.39	0.00	56.39	circular	1	48			0.013	0.0015	991.72	991.68	2.77	4.49	0.12	0.31	0.35	0.04	0.11	991.82	985.99	985.93	993.70	
490.61	409.35	81.26	DA6	4.69	61.08	0.00	61.08	circular	1	48			0.013	0.0018	991.55	991.40	4.49	4.86	0.31	0.37	0.75	0.23	0.13	991.68	985.93	985.73	993.60	
409.35	359.85	49.50		0.00	61.08	0.00	61.08	circular	1	48			0.013	0.0018	991.27	991.18	4.86	4.86	0.37	0.37	0.35	0.13	0.13	991.40	985.73	985.60	992.80	
359.85	309.56	50.29		0.00	61.08	0.00	61.08	circular	1	48			0.013	0.0018	991.06	990.96	4.86	4.86	0.37	0.37	0.35	0.13	0.13	991.18	985.60	985.47	992.00	
309.56	0.00	309.56		0.00	61.08	0.00	61.08	circular	1	48			0.013	0.0018	990.69	990.13	4.86	4.86	0.37	0.37	0.25	0.09	0.28	990.96	985.47	984.70	991.20	
ST-A.1																												
18.38	0.00	18.38	DA6	4.69	4.69	0.00	4.69	circular	1	12			0.013	0.0173	992.00	991.68	0.00	5.97	0.00	0.55	1.25	0.00	0.69	992.69	988.83	987.43	993.83	
ST-A.2																												
780.05	749.05	31.00	DA8+11	6.44	6.44	0.00	6.44	circular	1	24			0.013	0.0008	993.02	993.00		2.05		0.07	1.25		0.10	993.12	989.74	989.26	994.43	
749.05	652.68	96.37		0.00	6.44	0.00	6.44	circular	1	24			0.013	0.0008	992.90	992.82	2.05	2.05	0.07	0.07	0.35	0.02	0.10	993.00	989.26	989.22	995.30	
652.68	644.91	7.77		0.00	6.44	0.00	6.44	circular	1	24			0.013	0.0008	992.72	992.71	2.05	2.05	0.07	0.07	0.35	0.02	0.10	992.82	989.22	989.15	994.10	
644.91	630.68	14.23		0.00	6.44	0.00	6.44	circular	1	24			0.013	0.0008	992.61	992.60	2.05	2.05	0.07	0.07	0.35	0.02	0.10	992.71	989.15	989.42	994.00	
630.68	519.49	111.19	DA10	3.24	9.68	0.00	9.68	circular	1	36			0.013	0.0002	992.50	992.48	2.05	1.37	0.07	0.03	0.50	0.03	0.10	992.60	989.42	988.59	993.87	
519.49	509.61	9.88		0.00	9.68	0.00	9.68	circular	1	36			0.013	0.0002	992.38	992.37	1.37	1.37	0.03	0.03	0.35	0.01	0.10	992.48	988.59	988.54	994.70	
509.61	412.00	97.61		0.00	9.68	0.00	9.68	circular	1	36			0.013	0.0002	992.27	992.25	1.37	1.37	0.03	0.03	0.35	0.01	0.10	992.37	988.54	988.05	994.60	
412.00	299.67	112.33	DA9	4.54	14.22	0.00	14.22	circular	1	36			0.013	0.0005	992.15	992.10	1.37	2.01	0.03	0.06	0.50	0.01	0.10	992.25	988.05	987.49	993.12	
299.67	188.70	110.97		0.00	14.22	0.00	14.22	circular	1	36			0.013	0.0005	992.00	991.95	2.01	2.01	0.06	0.06	0.35	0.02	0.10	992.10	987.49	986.93	994.50	
188.70	0.00	188.70	DA7	2.95	17.17	0.00	17.17	circular	1	48			0.013	0.0001	991.85	991.82	2.01	1.37	0.06	0.03	0.50	0.03	0.10	991.95	986.93	985.99	993.30	
ST-A.3																												
66.92	9.38	57.54		0.00	0.00	0.00	0.00	circular	1	12			0.012	0.0000	992.53	992.53		0.00		0.00	1.25		0.10	992.63	990.22	987.92	994.50	
9.38	0.00	9.38	DA12	0.77	0.77	0.00	0.77	circular	1	12			0.012	0.0004	992.43	992.43	0.00	0.99	0.00	0.02	0.35	0.00	0.10	992.53	987.92	987.92	995.70	
ST-A.4																												
36.82	6.22	30.60	DA15	7.81	7.81	0.00	7.81	circular	1	24			0.012	0.0010	993.04	993.01		2.48		0.10	1.25		0.12	993.16	989.71	988.64	994.00	
6.22	0.00	6.22		0.00	7.81	0.00	7.81	circular	1	24			0.012	0.0010	992.91	992.91	2.48	2.48	0.10	0.10	0.35	0.03	0.10	993.01	988.64	988.42	994.80	
ST-B																												
170.13	95.39	74.74	DA17+21	7.70	7.70	0.00	7.70	circular	1	24			0.013	0.0012	993.63	993.54		2.45		0.09	1.25		0.12	993.75	990.08	989.89	994.84	
95.39	57.97	37.42		0.00	7.70	0.00	7.70	circular	1	24			0.013	0.0012	993.44	993.40	2.45	2.45	0.09	0.09	0.35	0.03	0.10	993.54	989.89	989.79	995.50	
57.97	30.98	26.99		0.00	7.70	0.00	7.70	circular	1	24			0.013	0.0012	993.30	993.27	2.45	2.45	0.09	0.09	0.35	0.03	0.10	993.40	989.79	989.73	995.00	
30.98	3.75	27.23	DA18-20	7.34	15.05	0.00	15.05	circular	1	24			0.013	0.0044	992.98	992.86	2.45	4.79	0.09	0.36	0.75	0.07	0.29	993.27	989.73	989.66	995.25	
3.75	0.00	3.75		0.00	15.05	0.00	15.05	circular	1	24			0.013	0.0044	992.60	992.58	4.79	4.79	0.36	0.36	0.25	0.09	0.27	992.86	989.66	989.65	994.33	
ST-B.1																												
288.06	278.17	9.89	DA20	1.42	1.42	0.00	1.42	circular	1	18			0.012	0.0002	993.96	993.96		0.80		0.01	1.25		0.10	994.06	991.00	990.94	995.00	
278.17	269.22	8.95		0.00	1.42	0.00	1.42	circular	1	18			0.012	0.0002	993.86	993.86	0.80	0.80	0.01	0.01	0.35	0.00	0.10	993.96	990.94	990.89	995.40	
269.22	195.41	73.81		0.00	1.42	0.00	1.42	circular	1	18			0.012	0.0002	993.76	993.75	0.80	0.80	0.01	0.01	0.35	0.00	0.10	993.86	990.89	990.48	995.50	
195.41	115.44	79.97	DA19	1.30	2.71	0.00	2.71	circular	1	18			0.013	0.0007	993.65	993.59	0.80	1.53	0.01	0.04	0.75	0.01	0.10	993.75	990.48	990.02	994.85	
115.44	18.44	97.00	DA18	4.63	7.34	0.00	7.34	circular	1	24			0.013	0.0011	993.49	993.39	1.53	2.34	0.04	0.08	0.50	0.02	0.10	993.59	990.02	989.78	993.75	
18.44	0.00	18.44		0.00	7.34	0.00	7.34	circular	1	24			0.013	0.0011	993.29	993.27	2.34	2.34	0.08	0.08	0.35	0.03	0.10	993.39	989.78	989.73	994.30	
ST-B.1.a																												
9.90	0.00	9.90	DA19	1.30	1.30	0.00	1.30	circular	1	12			0.013	0.0013	993.76	993.75	0.00	1.65	0.00	0.04	1.25	0.00	0.10	993.86	991.60	990.73	994.60	
				0.00																								
ST-C																												
531.38	444.97	86.41			0.00	0.00	0.00	circular	1	18			0.013	0.0000	994.19	994.19		0.00		0.00	1.25		0.10	994.29	990.72	990.51	993.00	
444.97	370.06	74.91	DA25	78.10	78.10	0.00	78.10	box	2		5	3	0.015	0.0008	994.09	994.03	0.00	2.60	0.00	0.11	0.25	0.00	0.11	994.19	990.51	990.32	994.80	Future Connection for Lot 2
370.06	359.34	10.72	DA24+38+40-41	19.14	97.24	0.00	97.24	box	2		5	3	0.015	0.0012	993.92	993.91	2.60	3.24	0.11	0.16	0.50	0.05	0.11	994.03	990.32	990.30	994.20	
359.34	321.85	37.49		0.00	97.24	0.00	97.24	box	2		5	3	0.015	0.0012	993.81	993.77	3.24	3.24	0.16	0.16	0.35	0.06	0.10	993.91	990.30	990.21	994.35	
321.85	198.00	123.85		0.00	97.24	0.00	97.24	box	2		5	3	0.015	0.0012	993.67	993.52	3.24	3.24	0.16	0.16	0.35	0.06	0.10	993.77	990.21	989.89	994.80	
198.00	42.00	156.00	DA23+26+39	12.71	109.95	0.00	109.95	box	2		5	3	0.015	0.0015	993.39	993.16	3.24	3.66	0.16	0.21	0.50	0.08	0.13	993.52	989.89	989.50	994.62	
42.00	9.24	32.76	DA22+27-37	29.29	139.24	0.00	139.24	box	2		5	3	0.015	0.0024	992.93	992.85	3.66	4.64	0.21	0.33	0.50	0.10	0.23	993.16	989.50	989.41	994.42	
9.24	0.00	9.24		0.00	139.24	0.00	139.24	box	2		5	3	0.015	0.0024	992.60	992.58	4.64	4.64	0.33	0.33	0.25	0.08	0.25	992.85	989.41	989.40	994.51	
ST-D																												
161.50	147.09	14.41	DA27	2.71	2.71	0.00	2.71	circular	1	27			0.013	0.0001	993.31	993.31		0.68		0.01	1.25		0.10	993.41	989.90	989.86	994.29	
147.09	0.00	147.09	DA28-29	2.71	5.42	0.00	5.42	circular	1	27			0.013	0.0003	993.21	993.16	0.68	1.36	0.01	0.03	0.75	0.01	0.10	993.31	989.86	989.50	994.70	
ST-D.1																												
173.27	92.04	81.23	DA29	1.42	1.42	0.00	1.42	circular	1	18			0.012	0.0002	993.58	993.57		0.80		0.01	1.25		0.10	993.68	991.32	990.91	994.50	
92.04	7.07	84.97	DA28	1.30	2.71	0.00	2.71	circular	1	18			0.013	0.0007	993.47	993.41	0.80	1.53	0.01	0.04	1.25	0.01	0.10	993.57	990.91	990.06	994.50	
7.07	0.00	7.07		0.00	2.71	0.00	2.71	circular	1	18			0.012	0.0006	993.31	993.31	1.53	1.53	0.04	0.04	0.35	0.01	0.10	993.41	990.06	989.86	993.70	
ST-E																												
546.74	457.13	89.61	DA33+36	8.75	8.75	0.00	8.75	circular	1	24			0.012	0.0013	994.62	994.51		2.79		0.12	1.25		0.15	994.77	993.82	990.46	996.45	
457.13	377.74	79.39	DA34+35	1.41	10.16	0.00	10.16	circular	1	24			0.013	0.0020	994.41	994.25	2.79	3.23	0.12	0.16	0.75	0.09	0.10	994.51	990.46	990.46	996.80	
377.74	339.68	38.06		0.00	10.16	0.00	10.16	circular	1	24			0.013	0.0020	994.15	994.07	3.23	3.23	0.16	0.16	0.50	0.08	0.10	994.25	990.46	990.36	996.14	
339.68	299.74	39.94	DA31	4.49	14.65	0.00	14.65	circular	1	24			0.013	0.0042	993.85	993.69	3.23	4.66	0.16	0.34	0.75	0.12	0.22	994.07	990.36	990.26	995.40	
299.74	141.63	158.11	DA31	4.49	19.14	0.00	19.14	circular	1	36			0.013	0.0008	993.59	993.46	4.66	2.71	0.34	0.11	0.50	0.17	0.10	993.69	990.26	989.86	994.38	
141.63	0.00	141.63	DA30+37	4.48	23.62	0.00	23.62	circular	1	36			0.013	0.0013	993.34	993.16	2.71	3.34	0.11	0.17	0.50	0.06	0.12	993.46	989.86	989.50	994.73	
ST-E.1																												
238.23	226.82	11.41	DA37	1.87	1.87	0.00	1.87	circular	1	18			0.012	0.0003	993.92	993.92		1.06		0.02	1.25		0.10	994.02	992.70	992.64	995.00	
226.82	147.27	79.55		0.00	1.87	0.00	1.87	circular	1	18			0.012	0.0003	993.82	993.80	1.06	1.06	0.02	0.02	0.35	0.01	0.10	993.92	992.64	992.25	996.30	
147.27	140.76	6.51		0.00	1.87	0.00	1.87	circular	1	18			0.012	0.0003	993.70	993.69	1.06	1.06	0.02	0.02	0.35	0.01	0.10	993.80	992.25	992.22	996.10	
140.76	134.26	6.50		0.00	1.87	0.00	1.87	circular	1	18			0.012	0.0003	993.59	993.59	1.06	1.06	0.02	0.02	0.35	0.01	0.10	993.69	992.22	992.18	995.90	
134.26	0.00	134.26		0.00	1.87	0.00	1.87	circular	1	18			0.012	0.0003	993.49	993.46	1.06	1.06	0.02	0.02	0.50	0.01	0.10	993.59	992.18	991.51	995.70	
ST-E.2																												
66.92	27.74		DA32	1.28	1.28	0.00	1.28	circular	1	18			0.013	0.0001	994.35	994.35		0.73		0.01	1.25		0.10	994.45	991.53	991.14	994.60	
27.74	0.00	27.74		0.00	1.28	0.00	1.28	circular	1	18			0.013	0.0001	994.25	994.25	0.73	0.73	0.01	0.01	0.35	0.00	0.10	994.35	991.14	990.86	995.80	
ST-E.3																												
140.59	55.99		DA34	0.95	0.95	0.00	0.95	circular	1	12			0.013	0.0007	994.78	994.78		1.21		0.02	1.25		0.10	994.88	991.53	992.25	995.73	
55.99	7.07	48.92	DA35	0.46	1.41	0.00	1.41	circular	1	12			0.012	0.0013	994.68	994.62	1.21	1.79	0.02	0.05	0.50	0.01	0.10	994.78	992.25	991.14	996.40	
7.07	0.00	7.07		0.00	1.41	0.00	1.41	circular	1	12			0.013	0.0016	994.52	994.51	1.79	1.79	0.05	0.05	0.35	0.02	0.10	994.62	991.14	990.86	997.00	
ST-F																												
501.66	281.88	219.78	DA41	4.51	4.51	0.00	4.51	circular	1	24			0.013	0.0004	994.67	994.59		1.44		0.03	1.25		0.10	994.77	991.57	991.02	995.05	
281.88	155.88	126.00	DA40	2.45	6.96	0.00	6.96	circular	1	24			0.013	0.0009	994.49	994.37	1.44	2.22	0.03	0.08	0.50	0.02	0.10	994.59	991.02	990.71	994.74	
155.88	0.00	155.88	DA38	1.83	8.79	0.00	8.79	circular	1	24			0.013	0.0015	994.27	994.03	2.22	2.80	0.08	0.12	0.50	0.04	0.10	994.37	990.71	990.32	994.79	
ST-G																												
46.07	32.29	13.78	DA3	9.82	9.82	0.00	9.82	circular	1	15			0.013	0.0231	981.56	981.25		8.01		1.00	1.25		1.24	982.81	979.50	979.32	983.91	
32.29	0.00	32.29		0.00	9.82	0.00	9.82	circular	1	15			0.013	0.0231	980.90	980.15	8.01	8.01	1.00	1.00	0.35	0.35	0.35	981.25	979.32	978.90	984.10	

5/25/2023



CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

HYDRAULIC CALCULATIONS

SHEET:

C6.17

ULTIMATE DRAINAGE AREA CALCULATIONS

NOAA ATLAS 14 Rainfall Zone: Williamson County - San Gabriel River

Area No.	Acres	T_c (min.)	C_2	I_2 (in./hr.)	Q_2 (c.f.s.)	C_5	I_5 (in./hr.)	Q_5 (c.f.s.)	C_{10}	I_{10} (in./hr.)	Q_{10} (c.f.s.)	C_{25}	I_{25} (in./hr.)	Q_{25} (c.f.s.)	C_{50}	I_{50} (in./hr.)	Q_{50} (c.f.s.)	C_{100}	I_{100} (in./hr.)	Q_{100} (c.f.s.)	Comments
DA1	3.40	5.00	0.63	6.06	**13.07**	0.68	7.58	**17.50**	0.71	8.85	**21.33**	0.76	10.61	**27.27**	0.79	11.97	**32.31**	0.84	13.34	**38.14**	ULTIMATE CONDITION: 75% IMPERVIOUS
DA2	3.93	5.00	0.64	6.06	**15.14**	0.68	7.58	**20.28**	0.71	8.85	**24.71**	0.76	10.61	**31.59**	0.80	11.97	**37.43**	0.84	13.34	**44.18**	ULTIMATE CONDITION: 75% IMPERVIOUS
DA3	1.18	5.00	0.66	6.06	**4.73**	0.71	7.58	**6.33**	0.74	8.85	**7.70**	0.79	10.61	**9.82**	0.83	11.97	**11.63**	0.87	13.34	**13.71**	
DA4	9.84	5.00	0.68	6.06	**40.63**	0.73	7.58	**54.31**	0.76	8.85	**66.00**	0.81	10.61	**84.16**	0.84	11.97	**99.54**	0.89	13.34	**117.24**	ULTIMATE CONDITION: 85% IMPERVIOUS
DA5	0.44	5.00	0.67	6.06	**1.78**	0.71	7.58	**2.37**	0.75	8.85	**2.90**	0.79	10.61	**3.71**	0.83	11.97	**4.38**	0.88	13.34	**5.17**	
DA6	0.58	5.00	0.64	6.06	**2.25**	0.68	7.58	**3.01**	0.71	8.85	**3.67**	0.76	10.61	**4.69**	0.80	11.97	**5.55**	0.85	13.34	**6.55**	
DA7	0.35	5.00	0.67	6.06	**1.42**	0.72	7.58	**1.90**	0.75	8.85	**2.31**	0.79	10.61	**2.95**	0.83	11.97	**3.49**	0.88	13.34	**4.11**	
DA8	0.55	5.00	0.73	6.06	**2.43**	0.77	7.58	**3.21**	0.81	8.85	**3.94**	0.86	10.61	**5.02**	0.90	11.97	**5.93**	0.95	13.34	**6.97**	
DA9	0.51	5.00	0.71	6.06	**2.20**	0.75	7.58	**2.93**	0.78	8.85	**3.56**	0.83	10.61	**4.54**	0.87	11.97	**5.36**	0.92	13.34	**6.31**	
DA10	0.42	5.00	0.61	6.06	**1.55**	0.65	7.58	**2.08**	0.68	8.85	**2.53**	0.73	10.61	**3.24**	0.77	11.97	**3.85**	0.81	13.34	**4.55**	
DA11	0.28	5.00	0.37	6.06	**0.63**	0.41	7.58	**0.86**	0.44	8.85	**1.08**	0.48	10.61	**1.42**	0.51	11.97	**1.71**	0.55	13.34	**2.06**	
DA12	0.15	5.00	0.38	6.06	**0.35**	0.41	7.58	**0.47**	0.44	8.85	**0.59**	0.49	10.61	**0.77**	0.52	11.97	**0.93**	0.56	13.34	**1.12**	
DA13	0.43	5.00	0.70	6.06	**1.82**	0.74	7.58	**2.43**	0.77	8.85	**2.95**	0.82	10.61	**3.76**	0.86	11.97	**4.44**	0.91	13.34	**5.23**	
DA14	0.29	5.00	0.73	6.06	**1.28**	0.77	7.58	**1.69**	0.81	8.85	**2.08**	0.86	10.61	**2.65**	0.90	11.97	**3.13**	0.95	13.34	**3.67**	
DA15	0.97	5.00	0.64	6.06	**3.74**	0.68	7.58	**5.01**	0.71	8.85	**6.11**	0.76	10.61	**7.81**	0.80	11.97	**9.25**	0.84	13.34	**10.92**	ULTIMATE CONDITION: 75% IMPERVIOUS
DA16	0.88	5.00	0.39	6.06	**2.08**	0.42	7.58	**2.83**	0.45	8.85	**3.53**	0.50	10.61	**4.63**	0.53	11.97	**5.56**	0.57	13.34	**6.69**	ULTIMATE CONDITION: 75% IMPERVIOUS
DA17	0.30	5.00	0.69	6.06	**1.25**	0.74	7.58	**1.67**	0.77	8.85	**2.03**	0.81	10.61	**2.59**	0.85	11.97	**3.07**	0.90	13.34	**3.61**	
DA18	0.57	5.00	0.64	6.06	**2.22**	0.69	7.58	**2.97**	0.72	8.85	**3.62**	0.77	10.61	**4.63**	0.80	11.97	**5.49**	0.85	13.34	**6.47**	
DA19	0.20	5.00	0.50	6.06	**0.60**	0.54	7.58	**0.81**	0.57	8.85	**1.00**	0.61	10.61	**1.30**	0.65	11.97	**1.54**	0.69	13.34	**1.84**	
DA20	0.23	5.00	0.47	6.06	**0.65**	0.51	7.58	**0.88**	0.54	8.85	**1.09**	0.58	10.61	**1.42**	0.61	11.97	**1.69**	0.66	13.34	**2.02**	
DA21	0.56	5.00	0.73	6.06	**2.48**	0.77	7.58	**3.27**	0.81	8.85	**4.01**	0.86	10.61	**5.11**	0.90	11.97	**6.03**	0.95	13.34	**7.10**	
DA22	0.41	5.00	0.67	6.06	**1.67**	0.72	7.58	**2.23**	0.75	8.85	**2.71**	0.79	10.61	**3.46**	0.83	11.97	**4.09**	0.88	13.34	**4.82**	
DA23	0.30	5.00	0.66	6.06	**1.20**	0.70	7.58	**1.60**	0.73	8.85	**1.95**	0.78	10.61	**2.49**	0.82	11.97	**2.95**	0.87	13.34	**3.47**	
DA24	1.39	5.00	0.59	6.06	**4.92**	0.63	7.58	**6.60**	0.66	8.85	**8.07**	0.70	10.61	**10.36**	0.74	11.97	**12.29**	0.79	13.34	**14.55**	
DA25	9.72	5.00	0.64	6.06	**37.43**	0.68	7.58	**50.13**	0.71	8.85	**61.08**	0.76	10.61	**78.10**	0.80	11.97	**92.53**	0.84	13.34	**109.23**	ULTIMATE CONDITION: 75% IMPERVIOUS
DA26	0.56	5.00	0.73	6.06	**2.48**	0.77	7.58	**3.27**	0.81	8.85	**4.01**	0.86	10.61	**5.11**	0.90	11.97	**6.03**	0.95	13.34	**7.10**	
DA27	0.34	5.00	0.63	6.06	**1.30**	0.67	7.58	**1.73**	0.70	8.85	**2.12**	0.75	10.61	**2.71**	0.79	11.97	**3.21**	0.83	13.34	**3.79**	
DA28	0.20	5.00	0.50	6.06	**0.60**	0.54	7.58	**0.81**	0.57	8.85	**1.00**	0.61	10.61	**1.30**	0.65	11.97	**1.54**	0.69	13.34	**1.84**	
DA29	0.23	5.00	0.47	6.06	**0.65**	0.51	7.58	**0.88**	0.54	8.85	**1.09**	0.58	10.61	**1.42**	0.61	11.97	**1.69**	0.66	13.34	**2.02**	
DA30	0.32	5.00	0.65	6.06	**1.26**	0.69	7.58	**1.68**	0.72	8.85	**2.05**	0.77	10.61	**2.61**	0.81	11.97	**3.10**	0.86	13.34	**3.65**	
DA31	0.53	5.00	0.68	6.06	**2.17**	0.72	7.58	**2.89**	0.76	8.85	**3.52**	0.81	10.61	**4.49**	0.84	11.97	**5.31**	0.89	13.34	**6.26**	
DA32	0.31	5.00	0.29	6.06	**0.55**	0.32	7.58	**0.75**	0.35	8.85	**0.96**	0.39	10.61	**1.28**	0.42	11.97	**1.56**	0.46	13.34	**1.90**	
DA33	0.42	5.00	0.69	6.06	**1.76**	0.74	7.58	**2.35**	0.77	8.85	**2.86**	0.82	10.61	**3.65**	0.86	11.97	**4.31**	0.91	13.34	**5.08**	
DA34	0.23	5.00	0.29	6.06	**0.40**	0.32	7.58	**0.56**	0.35	8.85	**0.71**	0.39	10.61	**0.95**	0.42	11.97	**1.16**	0.46	13.34	**1.41**	
DA35	0.11	5.00	0.29	6.06	**0.19**	0.32	7.58	**0.27**	0.35	8.85	**0.34**	0.39	10.61	**0.46**	0.42	11.97	**0.55**	0.46	13.34	**0.67**	
DA36	0.56	5.00	0.73	6.06	**2.48**	0.77	7.58	**3.27**	0.81	8.85	**4.01**	0.86	10.61	**5.11**	0.90	11.97	**6.03**	0.95	13.34	**7.10**	
DA37	0.38	5.00	0.36	6.06	**0.83**	0.39	7.58	**1.13**	0.42	8.85	**1.42**	0.46	10.61	**1.87**	0.49	11.97	**2.25**	0.53	13.34	**2.72**	
DA38	0.24	5.00	0.60	6.06	**0.87**	0.65	7.58	**1.17**	0.68	8.85	**1.43**	0.73	10.61	**1.83**	0.76	11.97	**2.17**	0.81	13.34	**2.56**	
DA39	0.56	5.00	0.73	6.06	**2.48**	0.77	7.58	**3.27**	0.81	8.85	**4.01**	0.86	10.61	**5.11**	0.90	11.97	**6.03**	0.95	13.34	**7.10**	
DA40	0.34	5.00	0.56	6.06	**1.16**	0.60	7.58	**1.55**	0.63	8.85	**1.90**	0.68	10.61	**2.45**	0.71	11.97	**2.91**	0.76	13.34	**3.45**	
DA41	0.59	5.00	0.60	6.06	**2.15**	0.64	7.58	**2.88**	0.67	8.85	**3.52**	0.72	10.61	**4.51**	0.76	11.97	**5.35**	0.80	13.34	**6.33**	
DA42	1.08	5.00	0.29	6.06	**1.90**	0.32	7.58	**2.62**	0.35	8.85	**3.35**	0.39	10.61	**4.47**	0.42	11.97	**5.43**	0.46	13.34	**6.63**	
DA43	0.60	5.00	0.38	6.06	**1.39**	0.42	7.58	**1.89**	0.45	8.85	**2.37**	0.49	10.61	**3.11**	0.52	11.97	**3.74**	0.56	13.34	**4.50**	
DA44	3.20	5.00	0.66	6.06	**12.80**	0.71	7.58	**17.12**	0.74	8.85	**20.83**	0.78	10.61	**26.60**	0.82	11.97	**31.48**	0.87	13.34	**37.12**	ULTIMATE CONDITION: 85% IMPERVIOUS

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

PROPOSED DRAINAGE AREA CALCULATIONS

SHEET:

C6.18

FILE PATH: K:\Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.2 STORM PLAN_CHV21004.dwg

FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Prashrestha Gautam
PLOTTED DATE: 5/25/2023

COMPOSITE C VALUE CALCULATION
EXISTING

DA	Surface Type	Area	C_2	C*A	C_5	C*A	C_{10}	C*A	C_{25}	C*A	C_{50}	C*A	C_{100}	C*A	C_{500}	C*A
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	7.06	0.73	5.15	0.77	5.44	0.81	5.72	0.86	6.07	0.90	6.35	0.95	6.71	1.00	7.06
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
EX1	Total / Composite	7.06	0.73	5.15	0.77	5.44	0.81	5.72	0.86	6.07	0.90	6.35	0.95	6.71	1.00	7.06
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.24	0.75	0.18	0.80	0.19	0.83	0.20	0.88	0.21	0.92	0.22	0.97	0.23	1.00	0.24
	Developed Asphalt	12.45	0.73	9.09	0.77	9.59	0.81	10.08	0.86	10.71	0.90	11.21	0.95	11.83	1.00	12.45
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
EX2	Total / Composite	12.69	0.73	9.27	0.77	9.78	0.81	10.28	0.86	10.92	0.90	11.43	0.95	12.06	1.00	12.69
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	1.22	0.75	0.92	0.80	0.98	0.83	1.01	0.88	1.07	0.92	1.12	0.97	1.18	1.00	1.22
	Developed Asphalt	4.98	0.73	3.64	0.77	3.83	0.81	4.03	0.86	4.28	0.90	4.48	0.95	4.73	1.00	4.98
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
EX3	Total / Composite	6.20	0.73	4.55	0.78	4.81	0.81	5.05	0.86	5.36	0.90	5.60	0.95	5.91	1.00	6.20
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.44	0.75	0.33	0.80	0.35	0.83	0.37	0.88	0.39	0.92	0.40	0.97	0.43	1.00	0.44
	Developed Asphalt	22.09	0.73	16.13	0.77	17.01	0.81	17.89	0.86	19.00	0.90	19.88	0.95	20.99	1.00	22.09
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
EX4	Total / Composite	22.53	0.73	16.46	0.77	17.36	0.81	18.26	0.86	19.38	0.90	20.29	0.95	21.41	1.00	22.53

COMPOSIT C VALUE CALCULATION
PROPOSED

Composite C Value Calculations

DA	Surface Type	Area	C_2	C*A	C_5	C*A	C_{10}	C*A	C_{25}	C*A	C_{50}	C*A	C_{100}	C*A	C_{500}	C*A
	Developed Concrete	2.55	0.75	1.91	0.80	2.04	0.83	2.11	0.88	2.24	0.92	2.34	0.97	2.47	1.00	2.55
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.85	0.29	0.25	0.32	0.27	0.35	0.30	0.39	0.33	0.42	0.36	0.46	0.39	0.56	0.48
DA1	Total / Composite	3.40	0.63	2.16	0.68	2.31	0.71	2.41	0.76	2.57	0.79	2.70	0.84	2.86	0.89	3.02
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	2.95	0.75	2.21	0.80	2.36	0.83	2.45	0.88	2.60	0.92	2.71	0.97	2.86	1.00	2.95
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.98	0.29	0.28	0.32	0.31	0.35	0.34	0.39	0.38	0.42	0.41	0.46	0.45	0.56	0.55
DA2	Total / Composite	3.93	0.64	2.50	0.68	2.67	0.71	2.79	0.76	2.98	0.80	3.13	0.84	3.31	0.89	3.50
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.96	0.75	0.72	0.80	0.76	0.83	0.79	0.88	0.84	0.92	0.88	0.97	0.93	1.00	0.96
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.22	0.29	0.06	0.32	0.07	0.35	0.08	0.39	0.09	0.42	0.09	0.46	0.10	0.56	0.12
DA3	Total / Composite	1.18	0.66	0.78	0.71	0.83	0.74	0.87	0.79	0.93	0.83	0.97	0.87	1.03	0.92	1.08
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	8.36	0.75	6.27	0.80	6.69	0.83	6.94	0.88	7.36	0.92	7.69	0.97	8.11	1.00	8.36
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	1.48	0.29	0.43	0.32	0.47	0.35	0.52	0.39	0.58	0.42	0.62	0.46	0.68	0.56	0.83
DA4	Total / Composite	9.84	0.68	6.70	0.73	7.16	0.76	7.46	0.81	7.93	0.84	8.31	0.89	8.79	0.93	9.19
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.19	0.75	0.14	0.80	0.15	0.83	0.16	0.88	0.17	0.92	0.17	0.97	0.18	1.00	0.19
	Developed Asphalt	0.18	0.73	0.13	0.77	0.14	0.81	0.15	0.86	0.15	0.90	0.16	0.95	0.17	1.00	0.18
	Developed Grass Good (>75% grass cover) 2-7%	0.07	0.29	0.02	0.32	0.02	0.35	0.02	0.39	0.03	0.42	0.03	0.46	0.03	0.56	0.04
DA5	Total / Composite	0.44	0.67	0.29	0.71	0.31	0.75	0.33	0.79	0.35	0.83	0.37	0.88	0.39	0.93	0.41
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.44	0.75	0.33	0.80	0.35	0.83	0.37	0.88	0.39	0.92	0.40	0.97	0.43	1.00	0.44
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.14	0.29	0.04	0.32	0.04	0.35	0.05	0.39	0.05	0.42	0.06	0.46	0.06	0.56	0.08
DA6	Total / Composite	0.58	0.64	0.37	0.68	0.40	0.71	0.41	0.76	0.44	0.80	0.46	0.85	0.49	0.89	0.52
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.26	0.75	0.20	0.80	0.21	0.83	0.22	0.88	0.23	0.92	0.24	0.97	0.25	1.00	0.26
	Developed Asphalt	0.03	0.73	0.02	0.77	0.02	0.81	0.02	0.86	0.03	0.90	0.03	0.95	0.03	1.00	0.03
	Developed Grass Good (>75% grass cover) 2-7%	0.06	0.29	0.02	0.32	0.02	0.35	0.02	0.39	0.02	0.42	0.03	0.46	0.03	0.56	0.03
DA7	Total / Composite	0.35	0.67	0.23	0.72	0.25	0.75	0.26	0.79	0.28	0.83	0.29	0.88	0.31	0.92	0.32
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.55	0.73	0.40	0.77	0.42	0.81	0.45	0.86	0.47	0.90	0.50	0.95	0.52	1.00	0.55
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
DA8	Total / Composite	0.55	0.73	0.40	0.77	0.42	0.81	0.45	0.86	0.47	0.90	0.50	0.95	0.52	1.00	0.55
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.43	0.75	0.32	0.80	0.34	0.83	0.36	0.88	0.38	0.92	0.40	0.97	0.42	1.00	0.43
	Developed Asphalt	0.04	0.73	0.03	0.77	0.03	0.81	0.03	0.86	0.03	0.90	0.03	0.95	0.03	1.00	0.04
	Developed Grass Good (>75% grass cover) 2-7%	0.05	0.29	0.01	0.32	0.02	0.35	0.02	0.39	0.02	0.42	0.02	0.46	0.02	0.56	0.03
DA9	Total / Composite	0.51	0.71	0.36	0.75	0.39	0.78	0.40	0.83	0.43	0.87	0.45	0.92	0.47	0.96	0.49
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.29	0.75	0.22	0.80	0.23	0.83	0.24	0.88	0.26	0.92	0.27	0.97	0.28	1.00	0.29
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.13	0.29	0.04	0.32	0.04	0.35	0.05	0.39	0.05	0.42	0.05	0.46	0.06	0.56	0.07
DA10	Total / Composite	0.42	0.61	0.26	0.65	0.27	0.68	0.29	0.73	0.31	0.77	0.32	0.81	0.34	0.86	0.36
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.05	0.75	0.04	0.80	0.04	0.83	0.04	0.88	0.04	0.92	0.05	0.97	0.05	1.00	0.05
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.23	0.29	0.07	0.32	0.07	0.35	0.08	0.39	0.09	0.42	0.10	0.46	0.11	0.56	0.13
DA11	Total / Composite	0.28	0.37	0.10	0.41	0.11	0.44	0.12	0.48	0.13	0.51	0.14	0.55	0.15	0.64	0.18
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.02	0.75	0.02	0.80	0.02	0.83	0.02	0.88	0.02	0.92	0.02	0.97	0.02	1.00	0.02
	Developed Asphalt	0.01	0.73	0.01	0.77	0.01	0.81	0.01	0.86	0.01	0.90	0.01	0.95	0.01	1.00	0.01
	Developed Grass Good (>75% grass cover) 2-7%	0.12	0.29	0.03	0.32	0.04	0.35	0.04	0.39	0.05	0.42	0.05	0.46	0.06	0.56	0.07
DA12	Total / Composite	0.15	0.38	0.06	0.41	0.06	0.44	0.07	0.49	0.07	0.52	0.08	0.56	0.08	0.65	0.10
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.34	0.75	0.26	0.80	0.27	0.83	0.28	0.88	0.30	0.92	0.31	0.97	0.33	1.00	0.34
	Developed Asphalt	0.04	0.73	0.03	0.77	0.03	0.81	0.03	0.86	0.03	0.90	0.04	0.95	0.04	1.00	0.04
	Developed Grass Good (>75% grass cover) 2-7%	0.05	0.29	0.01	0.32	0.02	0.35	0.02	0.39	0.02	0.42	0.02	0.46	0.02	0.56	0.03
DA13	Total / Composite	0.43	0.70	0.30	0.74	0.32	0.77	0.33	0.82	0.35	0.86	0.37	0.91	0.39	0.95	0.41
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.29	0.73	0.21	0.77	0.22	0.81	0.23	0.86	0.25	0.90	0.26	0.95	0.28	1.00	0.29
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
DA14	Total / Composite	0.29	0.73	0.21	0.77	0.22	0.81	0.23	0.86	0.25	0.90	0.26	0.95	0.28	1.00	0.29
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.73	0.75	0.55	0.80	0.58	0.83	0.61	0.88	0.64	0.92	0.67	0.97	0.71	1.00	0.73
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.24	0.29	0.07	0.32	0.08	0.35	0.08	0.39	0.09	0.42	0.10	0.46	0.11	0.56	0.13
DA15	Total / Composite	0.97	0.64	0.62	0.68	0.66	0.71	0.69	0.76	0.74	0.80	0.77	0.84	0.82	0.89	0.86
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.19	0.75	0.14	0.80	0.15	0.83	0.16	0.88	0.17	0.92	0.17	0.97	0.18	1.00	0.19
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.69	0.29	0.20	0.32	0.22	0.35	0.24	0.39	0.27	0.42	0.29	0.46	0.32	0.56	0.39
DA16	Total / Composite	0.88	0.39	0.34	0.42	0.37	0.45	0.40	0.50	0.44	0.53	0.46	0.57	0.50	0.66	0.58
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.26	0.75	0.20	0.80	0.21	0.83	0.22	0.88	0.23	0.92	0.24	0.97	0.25	1.00	0.26
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.04	0.29	0.01	0.32	0.01	0.35	0.01	0.39	0.02	0.42	0.02	0.46	0.02	0.56	0.02
DA17	Total / Composite	0.30	0.69	0.21	0.74	0.22	0.77	0.23	0.81	0.24	0.85	0.26	0.90	0.27	0.94	0.28
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.38	0.75	0.29	0.80	0.30	0.83	0.32	0.88	0.33	0.92	0.35	0.97	0.37	1.00	0.38
	Developed Asphalt	0.06	0.73	0.04	0.77	0.05	0.81	0.05	0.86	0.05	0.90	0.05	0.95	0.06	1.00	0.06
	Developed Grass Good (>75% grass cover) 2-7%	0.13	0.29	0.04	0.32	0.04	0.35	0.05	0.39	0.05	0.42	0.05	0.46	0.06	0.56	0.07
DA18	Total / Composite	0.57	0.64	0.37	0.69	0.39	0.72	0.41	0.77	0.44	0.80	0.46	0.85	0.49	0.90	0.51
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.09	0.75	0.07	0.80	0.07	0.83	0.07	0.88	0.08	0.92	0.08	0.97	0.09	1.00	0.09
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.11	0.29	0.03	0.32	0.04	0.35	0.04	0.39	0.04	0.42	0.05	0.46	0.05	0.56	0.06
DA19	Total / Composite	0.20	0.50	0.10	0.54	0.11	0.57	0.11	0.61	0.12	0.65	0.13	0.69	0.14	0.76	0.15
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.08	0.75	0.06	0.80	0.06	0.83	0.07	0.88	0.07	0.92	0.07	0.97	0.08	1.00	0.08
	Developed Asphalt	0.01	0.73	0.01	0.77	0.01	0.81	0.01	0.86	0.01	0.90	0.01	0.95	0.01	1.00	0.01
	Developed Grass Good (>75% grass cover) 2-7%	0.14	0.29	0.04	0.32	0.04	0.35	0.05	0.39	0.05	0.42	0.06	0.46	0.06	0.56	0.08
DA20	Total / Composite	0.23	0.47	0.11	0.51	0.12	0.54	0.12	0.58	0.13	0.61	0.14	0.66	0.15	0.73	0.17
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.56	0.73	0.41	0.77	0.43	0.81	0.45	0.86	0.48	0.90	0.50	0.95	0.53	1.00	0.56
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
DA21	Total / Composite	0.56	0.73	0.41	0.77	0.43	0.81	0.45	0.86	0.48	0.90	0.50	0.95	0.53	1.00	0.56
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.31	0.75	0.23	0.80	0.25	0.83	0.26	0.88	0.27	0.92	0.29	0.97	0.30	1.00	0.31
	Developed Asphalt	0.03	0.73	0.02	0.77	0.02	0.81	0.02	0.86	0.03	0.90	0.03	0.95	0.03	1.00	0.03
	Developed Grass Good (>75% grass cover) 2-7%	0.07	0.29	0.02	0.32	0.02	0.35	0.02	0.39	0.03	0.42	0.03	0.46	0.03	0.56	0.04
DA22	Total / Composite	0.41	0.67	0.27	0.72	0.29	0.75	0.31	0.79	0.33	0.83	0.34	0.88	0.36	0.92	0.38

COMPOSITE "C" VALUE CALCULATION
PROPOSED

Composite C Value Calculations

DA	Surface Type	Area	C_2	C*A	C_5	C*A	C_{10}	C*A	C_{25}	C*A	C_{50}	C*A	C_{100}	C*A	C_{500}	C*A
	Developed Concrete	0.24	0.75	0.18	0.80	0.19	0.83	0.20	0.88	0.21	0.92	0.22	0.97	0.23	1.00	0.24
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.06	0.29	0.02	0.32	0.02	0.35	0.02	0.39	0.02	0.42	0.03	0.46	0.03	0.56	0.03
DA23	Total / Composite	0.30	0.66	0.20	0.70	0.21	0.73	0.22	0.78	0.23	0.82	0.25	0.87	0.26	0.91	0.27
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.82	0.75	0.62	0.80	0.66	0.83	0.68	0.88	0.73	0.92	0.76	0.97	0.80	1.00	0.82
	Developed Asphalt	0.07	0.73	0.05	0.77	0.05	0.81	0.06	0.86	0.06	0.90	0.06	0.95	0.07	1.00	0.07
	Developed Grass Good (>75% grass cover) 2-7%	0.49	0.29	0.14	0.32	0.16	0.35	0.17	0.39	0.19	0.42	0.21	0.46	0.23	0.56	0.28
DA24	Total / Composite	1.39	0.59	0.81	0.63	0.87	0.66	0.91	0.70	0.98	0.74	1.03	0.79	1.09	0.84	1.17
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	7.29	0.75	5.47	0.80	5.83	0.83	6.05	0.88	6.42	0.92	6.71	0.97	7.07	1.00	7.29
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	2.43	0.29	0.70	0.32	0.78	0.35	0.85	0.39	0.95	0.42	1.02	0.46	1.12	0.56	1.36
DA25	Total / Composite	9.72	0.64	6.17	0.68	6.61	0.71	6.90	0.76	7.36	0.80	7.73	0.84	8.19	0.89	8.65
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.56	0.73	0.41	0.77	0.43	0.81	0.45	0.86	0.48	0.90	0.50	0.95	0.53	1.00	0.56
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
DA26	Total / Composite	0.56	0.73	0.41	0.77	0.43	0.81	0.45	0.86	0.48	0.90	0.50	0.95	0.53	1.00	0.56
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.19	0.75	0.14	0.80	0.15	0.83	0.16	0.88	0.17	0.92	0.17	0.97	0.18	1.00	0.19
	Developed Asphalt	0.06	0.73	0.05	0.77	0.05	0.81	0.05	0.86	0.05	0.90	0.06	0.95	0.06	1.00	0.06
	Developed Grass Good (>75% grass cover) 2-7%	0.09	0.29	0.03	0.32	0.03	0.35	0.03	0.39	0.03	0.42	0.04	0.46	0.04	0.56	0.05
DA27	Total / Composite	0.34	0.63	0.21	0.67	0.23	0.70	0.24	0.75	0.26	0.79	0.27	0.83	0.28	0.89	0.30
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.09	0.75	0.07	0.80	0.07	0.83	0.07	0.88	0.08	0.92	0.08	0.97	0.09	1.00	0.09
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.11	0.29	0.03	0.32	0.04	0.35	0.04	0.39	0.04	0.42	0.05	0.46	0.05	0.56	0.06
DA28	Total / Composite	0.20	0.50	0.10	0.54	0.11	0.57	0.11	0.61	0.12	0.65	0.13	0.69	0.14	0.76	0.15
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.08	0.75	0.06	0.80	0.06	0.83	0.07	0.88	0.07	0.92	0.07	0.97	0.08	1.00	0.08
	Developed Asphalt	0.01	0.73	0.01	0.77	0.01	0.81	0.01	0.86	0.01	0.90	0.01	0.95	0.01	1.00	0.01
	Developed Grass Good (>75% grass cover) 2-7%	0.14	0.29	0.04	0.32	0.04	0.35	0.05	0.39	0.05	0.42	0.06	0.46	0.06	0.56	0.08
DA29	Total / Composite	0.23	0.47	0.11	0.51	0.12	0.54	0.12	0.58	0.13	0.61	0.14	0.66	0.15	0.73	0.17
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.21	0.75	0.16	0.80	0.17	0.83	0.17	0.88	0.18	0.92	0.19	0.97	0.20	1.00	0.21
	Developed Asphalt	0.04	0.73	0.03	0.77	0.03	0.81	0.03	0.86	0.03	0.90	0.04	0.95	0.04	1.00	0.04
	Developed Grass Good (>75% grass cover) 2-7%	0.07	0.29	0.02	0.32	0.02	0.35	0.02	0.39	0.03	0.42	0.03	0.46	0.03	0.56	0.04
DA30	Total / Composite	0.32	0.65	0.21	0.69	0.22	0.72	0.23	0.77	0.25	0.81	0.26	0.86	0.27	0.90	0.29
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.32	0.75	0.24	0.80	0.26	0.83	0.27	0.88	0.28	0.92	0.30	0.97	0.31	1.00	0.32
	Developed Asphalt	0.13	0.73	0.09	0.77	0.10	0.81	0.11	0.86	0.11	0.90	0.12	0.95	0.12	1.00	0.13
	Developed Grass Good (>75% grass cover) 2-7%	0.07	0.29	0.02	0.32	0.02	0.35	0.03	0.39	0.03	0.42	0.03	0.46	0.03	0.56	0.04
DA31	Total / Composite	0.53	0.68	0.36	0.72	0.38	0.76	0.40	0.81	0.42	0.84	0.44	0.89	0.47	0.94	0.49
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.31	0.29	0.09	0.32	0.10	0.35	0.11	0.39	0.12	0.42	0.13	0.46	0.14	0.56	0.17
DA32	Total / Composite	0.31	0.29	0.09	0.32	0.10	0.35	0.11	0.39	0.12	0.42	0.13	0.46	0.14	0.56	0.17
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.30	0.75	0.23	0.80	0.24	0.83	0.25	0.88	0.26	0.92	0.28	0.97	0.29	1.00	0.30
	Developed Asphalt	0.07	0.73	0.05	0.77	0.05	0.81	0.06	0.86	0.06	0.90	0.06	0.95	0.07	1.00	0.07
	Developed Grass Good (>75% grass cover) 2-7%	0.05	0.29	0.01	0.32	0.02	0.35	0.02	0.39	0.02	0.42	0.02	0.46	0.02	0.56	0.03
DA33	Total / Composite	0.42	0.69	0.29	0.74	0.31	0.77	0.32	0.82	0.34	0.86	0.36	0.91	0.38	0.95	0.40
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.23	0.29	0.07	0.32	0.07	0.35	0.08	0.39	0.09	0.42	0.10	0.46	0.11	0.56	0.13
DA34	Total / Composite	0.23	0.29	0.07	0.32	0.07	0.35	0.08	0.39	0.09	0.42	0.10	0.46	0.11	0.56	0.13
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.11	0.29	0.03	0.32	0.04	0.35	0.04	0.39	0.04	0.42	0.05	0.46	0.05	0.56	0.06
DA35	Total / Composite	0.11	0.29	0.03	0.32	0.04	0.35	0.04	0.39	0.04	0.42	0.05	0.46	0.05	0.56	0.06
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.56	0.73	0.41	0.77	0.43	0.81	0.45	0.86	0.48	0.90	0.50	0.95	0.53	1.00	0.56
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
DA36	Total / Composite	0.56	0.73	0.41	0.77	0.43	0.81	0.45	0.86	0.48	0.90	0.50	0.95	0.53	1.00	0.56
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.06	0.75	0.04	0.80	0.04	0.83	0.05	0.88	0.05	0.92	0.05	0.97	0.05	1.00	0.06
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.33	0.29	0.09	0.32	0.10	0.35	0.11	0.39	0.13	0.42	0.14	0.46	0.15	0.56	0.18
DA37	Total / Composite	0.38	0.36	0.14	0.39	0.15	0.42	0.16	0.46	0.18	0.49	0.19	0.53	0.20	0.62	0.24
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.13	0.75	0.10	0.80	0.10	0.83	0.11	0.88	0.11	0.92	0.12	0.97	0.13	1.00	0.13
	Developed Asphalt	0.03	0.73	0.02	0.77	0.03	0.81	0.03	0.86	0.03	0.90	0.03	0.95	0.03	1.00	0.03
	Developed Grass Good (>75% grass cover) 2-7%	0.07	0.29	0.02	0.32	0.02	0.35	0.03	0.39	0.03	0.42	0.03	0.46	0.03	0.56	0.04
DA38	Total / Composite	0.24	0.60	0.14	0.65	0.15	0.68	0.16	0.73	0.17	0.76	0.18	0.81	0.19	0.86	0.21
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.56	0.73	0.41	0.77	0.43	0.81	0.45	0.86	0.48	0.90	0.50	0.95	0.53	1.00	0.56
	Developed Grass Good (>75% grass cover) 2-7%	0.00	0.29	0.00	0.32	0.00	0.35	0.00	0.39	0.00	0.42	0.00	0.46	0.00	0.56	0.00
DA39	Total / Composite	0.56	0.73	0.41	0.77	0.43	0.81	0.45	0.86	0.48	0.90	0.50	0.95	0.53	1.00	0.56
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.20	0.75	0.15	0.80	0.16	0.83	0.17	0.88	0.18	0.92	0.18	0.97	0.19	1.00	0.20
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.14	0.29	0.04	0.32	0.04	0.35	0.05	0.39	0.05	0.42	0.06	0.46	0.06	0.56	0.08
DA40	Total / Composite	0.34	0.56	0.19	0.60	0.20	0.63	0.22	0.68	0.23	0.71	0.24	0.76	0.26	0.82	0.28
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.37	0.75	0.28	0.80	0.30	0.83	0.31	0.88	0.33	0.92	0.34	0.97	0.36	1.00	0.37
	Developed Asphalt	0.03	0.73	0.02	0.77	0.02	0.81	0.02	0.86	0.03	0.90	0.03	0.95	0.03	1.00	0.03
	Developed Grass Good (>75% grass cover) 2-7%	0.19	0.29	0.06	0.32	0.06	0.35	0.07	0.39	0.07	0.42	0.08	0.46	0.09	0.56	0.11
DA41	Total / Composite	0.59	0.60	0.35	0.64	0.38	0.67	0.40	0.72	0.43	0.76	0.45	0.80	0.47	0.86	0.51
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.00	0.75	0.00	0.80	0.00	0.83	0.00	0.88	0.00	0.92	0.00	0.97	0.00	1.00	0.00
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	1.08	0.29	0.31	0.32	0.35	0.35	0.38	0.39	0.42	0.42	0.45	0.46	0.50	0.56	0.60
DA42	Total / Composite	1.08	0.29	0.31	0.32	0.35	0.35	0.38	0.39	0.42	0.42	0.45	0.46	0.50	0.56	0.60
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	0.12	0.75	0.09	0.80	0.10	0.83	0.10	0.88	0.11	0.92	0.11	0.97	0.12	1.00	0.12
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.48	0.29	0.14	0.32	0.15	0.35	0.17	0.39	0.19	0.42	0.20	0.46	0.22	0.56	0.27
DA43	Total / Composite	0.60	0.38	0.23	0.42	0.25	0.45	0.27	0.49	0.29	0.52	0.31	0.56	0.34	0.65	0.39
DA	**Surface Type**	**Area**	**C_2**	**C*A**	**C_5**	**C*A**	**C_{10}**	**C*A**	**C_{25}**	**C*A**	**C_{50}**	**C*A**	**C_{100}**	**C*A**	**C_{500}**	**C*A**
	Developed Concrete	2.57	0.75	1.93	0.80	2.06	0.83	2.13	0.88	2.26	0.92	2.36	0.97	2.49	1.00	2.57
	Developed Asphalt	0.00	0.73	0.00	0.77	0.00	0.81	0.00	0.86	0.00	0.90	0.00	0.95	0.00	1.00	0.00
	Developed Grass Good (>75% grass cover) 2-7%	0.63	0.29	0.18	0.32	0.20	0.35	0.22	0.39	0.25	0.42	0.26	0.46	0.29	0.56	0.35
DA44	Total / Composite	3.20	0.66	2.11	0.71	2.26	0.74	2.35	0.78	2.51	0.82	2.63	0.87	2.78	0.91	2.92

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

COMPOSITE C CALCULATIONS

SHEET:
C6.19

FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH103 - ProductionK:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH103 - Production\C6.2 STORM PLAN_CHV21004
FILENAME: C6.2 STORM PLAN_CHV21004.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 5/25/2023

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Foust Tract - Chalk Hill Ventures
Date Prepared: 1/24/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	26.18	acres
Predevelopment impervious area within the limits of the plan * =	0.09	acres
Total post-development impervious area within the limits of the plan* =	11.30	acres
Total post-development impervious cover fraction * =	0.43	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	9753	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	4	

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

Drainage Basin/Outfall Area No. =	**BMP 1**	
Total drainage basin/outfall area =	5.40	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	2.98	acres
Post-development impervious fraction within drainage basin/outfall area =	0.55	
$L_{M\ THIS\ BASIN}$ =	2593	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
$LR = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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

A_C =	5.40	acres
A_I =	2.98	acres
A_P =	2.42	acres
L_R =	2873	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	2593	lbs.
F =	0.90	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Calculations from RG-348
Pages Section 3.2.22

Offsite area draining to BMP =	0.00	acres
Offsite impervious cover draining to BMP =	0.00	acres
Rainfall Intensity =	1.10	inches per hour
Effective Area =	2.75	acres
Cartridge Length =	54	inches
Peak Treatment Flow Required =	3.05	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size Vault

Jellyfish Size for Flow-Based Configuration =	JFPD0811-16-4	
Jellyfish Treatment Flow Rate =	3.21	cfs

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Foust Tract - Chalk Hill Ventures
Date Prepared: 1/24/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	26.18	acres
Predevelopment impervious area within the limits of the plan * =	0.09	acres
Total post-development impervious area within the limits of the plan* =	11.30	acres
Total post-development impervious cover fraction * =	0.43	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	9753	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	4	

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

Drainage Basin/Outfall Area No. =	**BMP 2**	
Total drainage basin/outfall area =	2.69	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.45	acres
Post-development impervious fraction within drainage basin/outfall area =	0.54	
$L_{M\ THIS\ BASIN}$ =	1262	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
$LR = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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

A_C =	2.69	acres
A_I =	1.45	acres
A_P =	1.24	acres
L_R =	1399	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	1262	lbs.
F =	0.90	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Calculations from RG-348
Pages Section 3.2.22

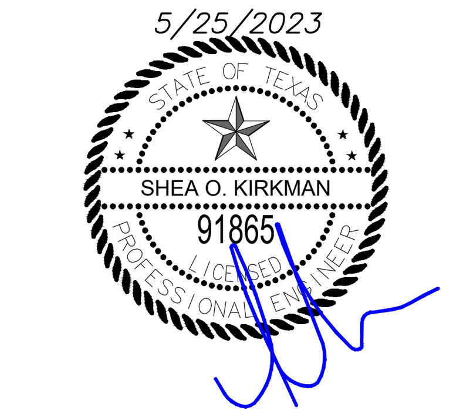
Offsite area draining to BMP =	0.00	acres
Offsite impervious cover draining to BMP =	0.00	acres
Rainfall Intensity =	1.10	inches per hour
Effective Area =	1.34	acres
Cartridge Length =	54	inches
Peak Treatment Flow Required =	1.49	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size Vault

Jellyfish Size for Flow-Based Configuration =	JFPD0806-8-2	
Jellyfish Treatment Flow Rate =	1.60	cfs

5/25/2023



CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman
ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

WATER QUALITY CALCULATIONS I

SHEET:
C6.20

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Foust Tract - Chalk Hill Ventures
Date Prepared: 1/24/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	26.18	acres
Predevelopment impervious area within the limits of the plan * =	0.09	acres
Total post-development impervious area within the limits of the plan* =	11.39	acres
Total post-development impervious cover fraction * =	0.43	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	9753	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	4	

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

Drainage Basin/Outfall Area No. =	BMP 3	
Total drainage basin/outfall area =	16.91	acres
Predevelopment impervious area within drainage basin/outfall area =	0.09	acres
Post-development impervious area within drainage basin/outfall area =	5.91	acres
Post-development impervious fraction within drainage basin/outfall area =	0.35	
$L_{M\ THIS\ BASIN}$ =	5065	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	84	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_C x 34.6 + A_P x 0.54)

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

A_C =	16.91	acres
A_I =	5.91	acres
A_P =	11.00	acres
L_R =	5629	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	5065	lbs.
F =	0.90	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	0.00	acres
Offsite impervious cover draining to BMP =	0.00	acres
Calculations from RG-348 / Pages Section 3.2.22 — Rainfall Intensity =	1.10	inches per hour
Effective Area =	5.65	acres
Cartridge Length =	24	inches
Peak Treatment Flow Required =	6.26	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	JFPD0816-32-7	
Jellyfish Treatment Flow Rate =	6.33	cfs

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Foust Tract - Chalk Hill Ventures
Date Prepared: 1/24/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	26.18	acres
Predevelopment impervious area within the limits of the plan * =	0.09	acres
Total post-development impervious area within the limits of the plan* =	11.39	acres
Total post-development impervious cover fraction * =	0.43	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	9753	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	4	

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

Drainage Basin/Outfall Area No. =	BMP 4	
Total drainage basin/outfall area =	1.18	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.96	acres
Post-development impervious fraction within drainage basin/outfall area =	0.81	
$L_{M\ THIS\ BASIN}$ =	833	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_C x 34.6 + A_P x 0.54)

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

A_C =	1.18	acres
A_I =	0.96	acres
A_P =	0.22	acres
L_R =	915	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	833	lbs.
F =	0.91	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	0.00	acres
Offsite impervious cover draining to BMP =	0.00	acres
Calculations from RG-348 / Pages Section 3.2.22 — Rainfall Intensity =	1.15	inches per hour
Effective Area =	0.87	acres
Cartridge Length =	24	inches
Peak Treatment Flow Required =	1.01	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	JFPD0806-5-2	
Jellyfish Treatment Flow Rate =	1.07	cfs

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER QUALITY CALCULATIONS II

SHEET:
C6.21

EXISTING DRAINAGE AREA CALCULATIONS									
Area No.	Acres	T_c (min.)	Lag (min.)	% Imp.	Q_2 (c.f.s.)	Q_{10} (c.f.s.)	Q_{25} (c.f.s.)	Q_{100} (c.f.s.)	Comments
West	19.95	21.59	12.96	2.00	38.63	72.85	96.38	134.45	
East	22.50	22.02	13.21	1.94	43.01	81.26	107.57	150.16	

NOTE TO CONTRACTOR
THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

LEGEND

- EXISTING DRAINAGE AREA LABEL — BASIN NAME: DA1; ACRES: 0.63 ac.; Q100 (cfs): 5.57
- EXISTING DRAINAGE AREA DIVIDE
- EXISTING DRAINAGE FLOW ARROW
- EXISTING CONTOUR (500)
- EXISTING STORM PIPE
- PROPERTY BOUNDARY

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.
ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.
ELEVATION = 997.92' (NAVD '88)

CLYDE KRAUSE
VOL. 1729 PAGE 108
D.R.W.C.T.

LOT 3
BEAN INDUSTRIAL PARK
CAB. CC, SLIDE 29
P.R.W.C.T.

WILLIAMSON
COUNTY, TEXAS
DOC.# 2011038204
O.P.R.W.C.T.

LOT 2 BLOCK A
3.056 ACRES
133,118 SQ.FT.

LOT 1 BLOCK A
3.784 ACRES
164,834 SQ.FT.

TC = 21.59MINS
TOTAL LENGTH = 1402FT
SHEET FLOW LENGTH = 100FT
SHALLOW CONCENTRATED FLOW LENGTH = 1302FT

WEST
19.95 ac.
134.45

LOT 2 BLOCK B
18.934 ACRES
824,753 SQ. FT.

LOT 1 BLOCK B
16.371 ACRES
713,126 SQ. FT.

EAST
22.50 ac.
150.16

TC = 22.02MINS
TOTAL LENGTH = 1502FT
SHEET FLOW LENGTH = 100FT
SHALLOW CONCENTRATED FLOW LENGTH = 1402FT

"FIRST TRACT"
LARRY EVERETT FOUST
VOL. 764, PG. 801
D.R.W.C.T.

LOT 3 BLOCK B
RIGHT-OF-WAY RESERVE
0.537 ACRES
23,395 SQ. FT.

TBM#4
EL = 1004.02

TBM#3
EL =1003.30

TBM#2
EL = 997.92

TBM#1
EL = 982.44

SUNSET RIDGE DR.
ALSO KNOWN AS
C.R. 260
(NO ROW DOCUMENT FOUND)

RICKY & MOLLY
TUMLINSON
VOL. 2001, PG. 68867
D.R.W.C.T.

NO ROW DOCUMENT FOUND FOR THIS PORTION OF THE SUBJECT TRACT LYING WITHIN THE EXISTING IMPROVED APPARENT ROW OF S.H.#29

STATE HIGHWAY NO. 29
(VARIABLE WIDTH ROW)

LIBERTY HILL STORAGE, L.P.
DOC.# 2018088092
O.P.R.W.C.T.

LOT 2
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

LOT 1
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

JOE WESLEY DAVIS
DOC.# 2020086885
O.P.R.W.C.T.

TOM JONES AND BRENDA JONES
DOC.# 2019015018
O.P.R.W.C.T.

TEXAS MARGARITAS, INC.
DOC.# 2002100692
O.P.R.W.C.T.

6' x 5' BOX CULVERTS

Know what's below. Call before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

HEC-HMS EX. DRAINAGE AREA MAP

SHEET:
C6.22

FILE PATH: K:\Jobs\CHV21004_Pouet\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Pouet\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\HMS DAM EX

FILENAME: HMS DAM EX.dwg
PLOTTED BY: Prechanika Chadam
PLOTTED DATE: 5/25/2023

ULTIMATE DRAINAGE AREA CALCULATIONS										
Area No.	Acres	T_c (min.)	CN	Lag (min.)	% Imp.	Q_2 (c.f.s.)	Q_{10} (c.f.s.)	Q_{25} (c.f.s.)	Q_{100} (c.f.s.)	Comments
West	12.68	9.58	0.80	5.75	77.59	7.77	24.01	39.38	67.04	post detention
W Bypass	14.11	8.66	0.80	5.20	84.67	33.14	50.35	61.92	80.62	
West Total	26.79					40.91	74.36	101.30	147.66	post detention
East	21.26	6.47	0.80	3.88	67.54	42.96	79.97	106.82	150.13	post detention

PRE & POST PROJECT FLOW COMPARISON					
DRAINAGE AREA	ACREAGE	Q2 (c.f.s.)	Q10 (c.f.s.)	Q25 (c.f.s.)	Q100 (c.f.s.)
EXISTING (WEST)	19.95	38.63	72.85	96.38	134.45
PROPOSED (WEST)	21.18	38.37	60.82	85.82	133.27
DELTA		-0.26	-12.03	-10.56	-1.18
EXISTING (EAST)	22.50	43.01	81.26	107.57	150.16
PROPOSED (EAST)	21.26	42.96	79.97	106.82	150.13
DELTA		-0.05	-1.29	-0.75	-0.03

NOTE TO CONTRACTOR

EXISTING PRIVATE AND PUBLIC STORM SEWER AND UTILITY INFRASTRUCTURE ARE SHOWN PER RECORD DRAWING PLANS. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

LEGEND

- PROPOSED DRAINAGE AREA LABEL — BASIN NAME DA1 / ACRES 7.532 ac.
- PROPOSED DRAINAGE AREA DIVIDE
- EXISTING DRAINAGE FLOW ARROW
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING CONTOUR — 500
- PROPOSED CONTOUR — 500
- EXISTING STORM PIPE
- PROPOSED STORM PIPE
- PROPERTY BOUNDARY

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

DETENTION POND #1

WEST
12.68 ac
67.04

TC = 8.66MINS
TOTAL LENGTH = 1080FT
SHEET FLOW LENGTH = 100FT
SHALLLOW CONCENTRATED FLOW LENGTH = 436FT
PIPE FLOW LENGTH = 544FT

TC = 9.58MINS
TOTAL LENGTH = 2142FT
SHEET FLOW LENGTH = 100FT
PIPE FLOW LENGTH = 2042FT

CHALK HILL DRIVE
(PRIVATE ACCESS DRIVE)

LOT 2 BLOCK B
18.934 ACRES
824,753 SQ. FT.

TC = 6.47MINS
TOTAL LENGTH = 1111FT
SHEET FLOW LENGTH = 100FT
PIPE FLOW LENGTH = 1011FT

EAST
22.50 ac
150.13

LOT 2 BLOCK A
3.056 ACRES
133,118 SQ.FT.

WEST BYPASS
8.50 ac.
80.62

LOT 1 BLOCK A
3.784 ACRES
164,834 SQ.FT.

LOT 1 BLOCK B
16.371 ACRES
713,126 SQ. FT.

DETENTION POND #2

LOT 3
BEAN INDUSTRIAL PARK
CAB. CC, SLIDE 29
P.R.W.C.T.

WILLIAMSON COUNTY, TEXAS
DOC.# 2011038204
O.P.R.W.C.T.

CLYDE KRAUSE
VOL. 1729 PAGE 108
D.R.W.C.T.

"FIRST TRACT"
LARRY EVERETT FOUST
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LOT 3 BLOCK B
RIGHT-OF-WAY RESERVE
0.537 ACRES
23,395 SQ. FT.

SUNSET RIDGE DR.
ALSO KNOWN AS
C.R. 260
(NO ROW DOCUMENT FOUND)

RICKY & MOLLY
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"FIRST TRACT"
LARRY EVERETT FOUST
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D.R.W.C.T.

8' x 5' BOX CULVERTS

NO ROW DOCUMENT FOUND FOR THIS PORTION OF THE SUBJECT TRACT LYING WITHIN THE EXISTING IMPROVED APPARENT ROW OF S.H.#29

STATE HIGHWAY NO. 29
(VARIABLE WIDTH ROW)

LIBERTY HILL STORAGE, L.P.
DOC.# 2018088092
O.P.R.W.C.T.

LOT 2
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

LOT 1
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

JOE WESLEY DAVIS
DOC.# 2020086885
O.P.R.W.C.T.

TOM JONES AND BRENDA JONES
DOC.# 2019015018
O.P.R.W.C.T.

TEXAS MARGARITAS, INC.
DOC.# 2002100892
O.P.R.W.C.T.

TBM#1
EL = 982.44

TBM#2
EL = 997.92

TBM#3
EL =1003.30

TBM#4
EL = 1004.02

Know what's below. Call before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

HEC-HMS PROP. DRAINAGE AREA MAP

SHEET:
C6.23

FULL PATH: K:\Kirk\CHV\21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\CHV21004_FoustDrawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\HMS DAM 1.kT

FILENAME: HMS DAM 1.kT.dwg
PLOTTED BY: Prashanska Gautam
PLOTTED DATE: 5/24/2023

EXISTING DRAINAGE AREA CALCULATIONS										
Area No.	Acres	T_c (min.)	CN	Lag (min.)	% Imp.	Q_2 (c.f.s.)	Q_{10} (c.f.s.)	Q_{25} (c.f.s.)	Q_{100} (c.f.s.)	Comments
West	25.95	21.59	0.80	12.96	5.64	51.52	95.90	126.39	175.72	
East	22.50	22.02	0.80	13.21	1.94	43.01	81.26	107.57	150.16	

ULTIMATE DRAINAGE AREA CALCULATIONS										
Area No.	Acres	T_c (min.)	CN	Lag (min.)	% Imp.	Q_2 (c.f.s.)	Q_{10} (c.f.s.)	Q_{25} (c.f.s.)	Q_{100} (c.f.s.)	Comments
West	12.68	9.58	0.80	5.75	77.59	7.77	24.01	39.38	67.04	post detention
W Bypass	14.11	8.66	0.80	5.20	84.67	33.14	50.35	61.92	80.62	
West Total	26.79					40.91	74.36	101.30	147.66	post detention
East	21.26	6.47	0.80	3.88	67.54	42.96	79.97	106.82	150.13	post detention

PRE & POST PROJECT FLOW COMPARISON					
DRAINAGE AREA	ACREAGE	Q2 (c.f.s.)	Q10 (c.f.s.)	Q25 (c.f.s.)	Q100 (c.f.s.)
EXISTING (WEST)	19.95	38.63	72.85	96.38	134.45
PROPOSED (WEST)	21.18	38.37	60.82	85.82	133.27
DELTA		-0.26	-12.03	-10.56	-1.18
EXISTING (EAST)	22.50	43.01	81.26	107.57	150.16
PROPOSED (EAST)	21.26	42.96	79.97	106.82	150.13
DELTA		-0.05	-1.29	-0.75	-0.03

WEST POND

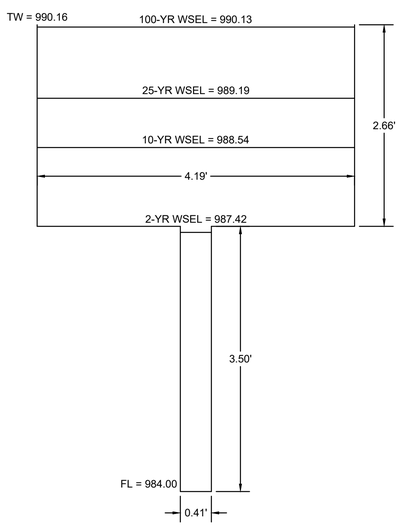
STAGE-STORAGE-DISCHARGE TABLE		
ELEVATION (FT)	STORAGE (AC-FT)	DISCHARGE (CFS)
984.00	0.000000	0.00
984.10	0.000081	0.04
984.20	0.000756	0.11
984.30	0.002696	0.20
984.40	0.006564	0.31
984.50	0.013017	0.43
984.60	0.022729	0.57
984.70	0.036353	0.72
984.80	0.054452	0.88
984.90	0.077355	1.05
985.00	0.105353	1.23
985.10	0.138756	1.42
985.20	0.177452	1.62
985.30	0.220996	1.82
985.40	0.268934	2.04
985.50	0.320820	2.26
985.60	0.376202	2.49
985.70	0.434640	2.73
985.80	0.495676	2.97
985.90	0.558874	3.22
986.00	0.623771	3.48
986.10	0.689926	3.74
986.20	0.756886	4.01
986.30	0.824219	4.29
986.40	0.891626	4.57
986.50	0.959107	4.86
986.60	1.026645	5.16
986.70	1.094250	5.46
986.80	1.161917	5.76
986.90	1.229647	6.07
987.00	1.297444	6.39
987.10	1.365298	6.71
987.20	1.433219	7.04
987.30	1.501202	7.37
987.40	1.569248	7.71
987.50	1.637349	8.05
987.60	1.705519	8.76
987.70	1.773750	9.77
987.80	1.842043	10.97
987.90	1.910393	12.34
988.00	1.978810	13.85
988.10	2.047283	15.48
988.20	2.115818	17.23
988.30	2.184415	19.08
988.40	2.253068	21.03
988.50	2.321789	23.08
988.60	2.390560	25.22
988.70	2.459399	27.44
988.80	2.528293	29.74
988.90	2.597250	32.13
989.00	2.666262	34.58
989.10	2.735337	37.12
989.20	2.804467	39.72
989.30	2.873659	42.39
989.40	2.942907	45.13
989.50	3.012217	47.94
989.60	3.081583	50.81
989.70	3.151004	53.74
989.80	3.220481	56.74
989.90	3.290021	59.79
990.00	3.359616	62.90
990.10	3.429267	66.07
990.20	3.498979	69.30
990.30	3.568742	72.58
990.40	3.638566	75.92
990.50	3.708446	79.31
990.60	3.778376	82.75
990.70	3.848368	86.25
990.80	3.918415	89.79
990.90	3.988519	93.39
991.00	4.058671	97.03
991.10	4.128791	100.73
991.20	4.198919	104.47
991.30	4.269048	108.26
991.40	4.339176	112.10
991.50	4.409304	115.98
991.60	4.479432	119.91
991.70	4.549560	123.89
991.80	4.619688	127.91
991.90	4.689816	131.97
992.00	4.759944	136.08

NOTE: Calculations extend above top of pond for modeling purposes

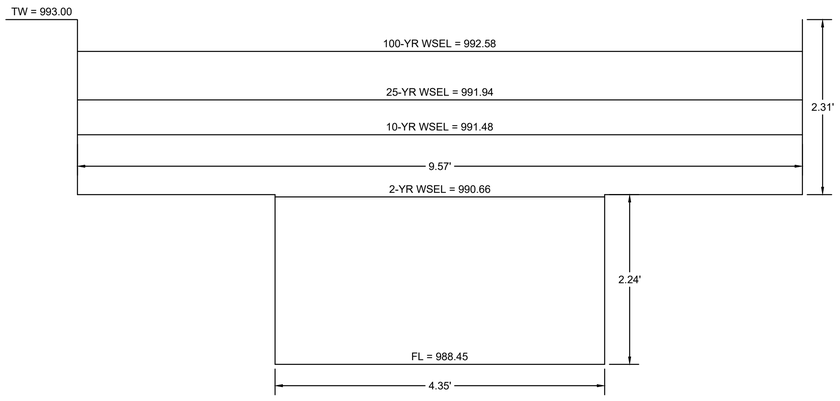
EAST POND

STAGE-STORAGE-DISCHARGE TABLE		
ELEVATION (FT)	STORAGE (AC-FT)	DISCHARGE (CFS)
988.45	0.000000	0.00
988.50	0.000019	0.15
988.60	0.001512	0.76
988.70	0.007903	1.63
988.80	0.024477	2.70
988.90	0.050188	3.94
989.00	0.083789	5.32
989.10	0.125318	6.84
989.20	0.174793	8.48
989.30	0.231793	10.23
989.40	0.294707	12.08
989.50	0.361729	14.04
989.60	0.431783	16.09
989.70	0.504248	18.24
989.80	0.578498	20.47
989.90	0.654291	22.79
990.00	0.731436	25.18
990.10	0.809709	27.66
990.20	0.888843	30.21
990.30	0.968585	32.84
990.40	1.048661	35.54
990.50	1.128855	38.30
990.60	1.209124	41.14
990.70	1.289473	44.06
990.80	1.369897	47.58
990.90	1.450395	51.55
991.00	1.530961	55.84
991.10	1.611607	60.41
991.20	1.692329	65.22
991.30	1.773124	70.25
991.40	1.853988	75.49
991.50	1.934932	80.93
991.60	2.015944	86.55
991.70	2.097025	92.36
991.80	2.178186	98.33
991.90	2.259409	104.47
992.00	2.340713	110.77
992.10	2.422079	117.22
992.20	2.503525	123.82
992.30	2.585033	130.57
992.40	2.666616	137.47
992.50	2.748267	144.50
992.60	2.829986	151.66
992.70	2.911773	158.96
992.80	2.993634	166.40
992.90	3.075558	173.95
993.00	3.157438	181.64

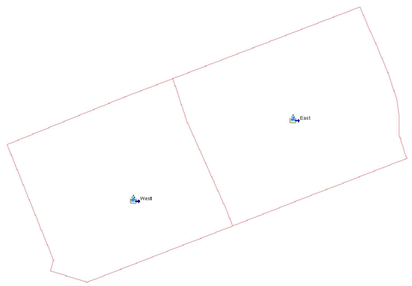
SUMMARY WSEL & STORAGE					
		2	10	25	100
WEST	WSEL	987.42	988.54	989.19	990.13
	STORAGE (ac-ft)	1.58	2.35	2.8	3.45
EAST	WSEL	990.66	991.48	991.94	992.58
	STORAGE (ac-ft)	1.26	1.92	2.29	2.81



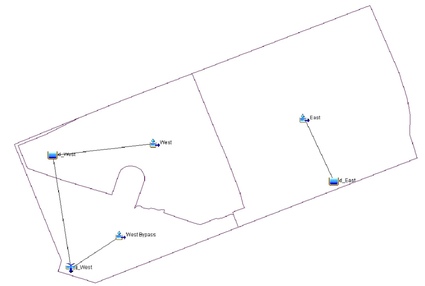
OUTLET STRUCTURE DETAIL
WEST POND



OUTLET STRUCTURE DETAIL
EAST POND



HEC-HMS 4.1 MODEL SCHEMATIC
EXISTING



HEC-HMS 4.1 MODEL SCHEMATIC
ULTIMATE

TIME OF CONCENTRATION CALCULATIONS (TR-55) - EXISTING				TIME OF CONCENTRATION CALCULATIONS (TR-55) - EXISTING			
WEST				EAST			
For Sheet Flow of less than 300 ft				For Sheet Flow of less than 300 ft			
$T_t = (0.007*(n*L)^{0.8} / P_2*0.5*S^{0.4})*60$				$T_t = (0.007*(n*L)^{0.8} / P_2*0.5*S^{0.4})*60$			
Travel Time	T_t	**9.97**	**min**	**Travel Time**	T_t	**7.46**	**min**
Manning's 'n'	n	0.130		Manning's 'n'	n	0.130	
Length	L	100	feet	Length	L	100	feet
2-year, 24-hour rainfall	P_2	3.94	inches	2-year, 24-hour rainfall	P_2	3.94	inches
Slope	S	0.0113	ft/ft	Slope	S	0.0233	ft/ft
Shallow Concentrated Flow				**Shallow Concentrated Flow**			
Unpaved	$V = 16.13*(S)^{0.5}$			Unpaved	$V = 16.13*(S)^{0.5}$		
Paved	$V = 20.33*(S)^{0.5}$			Paved	$V = 20.33*(S)^{0.5}$		
Paved? (Y/N)		**No**		**Paved? (Y/N)**		**No**	
Slope	S	0.0134	(ft/ft)	**Slope**	S	0.0099	(ft/ft)
Time	**t**	**11.62**	**min**	**Time**	**t**	**14.56**	**min**
Distance	d	1,302	feet	Distance	d	1,402	feet
Velocity	v	1.87	ft/s	Velocity	v	1.60	ft/s
Channel or Pipe Flow				**Channel or Pipe Flow**			
Time	**t**	**0.00**	**min**	**Time**	**t**	**0.00**	**min**
Distance	d	0	feet	Distance	d	0	feet
Velocity	v	1.00	ft/s	Velocity	v	1.00	ft/s
Total Time				**Total Time**			
Time	**TC**	**21.59**	**min**	**Time**	**TC**	**22.02**	**min**
Lag	**L**	**12.96**	**min**	**Lag**	**L**	**13.21**	**min**
NOTE: Minimum TC value is 5 minutes and minimum corresponding Lag time is 3 minutes.				NOTE: Minimum TC value is 5 minutes and minimum corresponding Lag time is 3 minutes.			

TIME OF CONCENTRATION CALCULATIONS (TR-55) - ULTIMATE				TIME OF CONCENTRATION CALCULATIONS (TR-55) - ULTIMATE				TIME OF CONCENTRATION CALCULATIONS (TR-55) - ULTIMATE			
WEST				WEST BYPASS				EAST			
For Sheet Flow of less than 150 ft				For Sheet Flow of less than 150 ft				For Sheet Flow of less than 150 ft			
$T_t = (0.007*(n*L)^{0.8} / P_2*0.5*S^{0.4})*60$				$T_t = (0.007*(n*L)^{0.8} / P_2*0.5*S^{0.4})*60$				$T_t = (0.007*(n*L)^{0.8} / P_2*0.5*S^{0.4})*60$			
Travel Time	T_t	**3.91**	**min**	**Travel Time**	T_t	**3.82**	**min**	**Travel Time**	T_t	**3.66**	**min**
Manning's 'n'	n	0.035		Manning's 'n'	n	0.035		Manning's 'n'	n	0.035	
Length	L	100	feet	Length	L	100	feet	Length	L	100	feet
2-year, 24-hour rainfall	P_2	3.94	inches	2-year, 24-hour rainfall	P_2	3.94	inches	2-year, 24-hour rainfall	P_2	3.94	inches
Slope	S	0.0085	ft/ft	Slope	S	0.0090	ft/ft	Slope	S	0.0100	ft/ft
Shallow Concentrated Flow				**Shallow Concentrated Flow**				**Shallow Concentrated Flow**			
Unpaved	$V = 16.13*(S)^{0.5}$			Unpaved	$V = 16.13*(S)^{0.5}$			Unpaved	$V = 16.13*(S)^{0.5}$		
Paved	$V = 20.33*(S)^{0.5}$			Paved	$V = 20.33*(S)^{0.5}$			Paved	$V = 20.33*(S)^{0.5}$		
Paved? (Y/N)		**No**		**Paved? (Y/N)**		**No**		**Paved? (Y/N)**		**No**	
Slope	S	0.0100	(ft/ft)	**Slope**	S	0.0183	(ft/ft)	**Slope**	S	0.0100	(ft/ft)
Time	**t**	**0.00**	**min**	**Time**	**t**	**3.33**	**min**	**Time**	**t**	**0.00**	**min**
Distance	d	0	feet	Distance	d	436	feet	Distance	d	0	feet
Velocity	v	1.61	ft/s	Velocity	v	2.18	ft/s	Velocity	v	1.61	ft/s
Channel or Pipe Flow				**Channel or Pipe Flow**				**Channel or Pipe Flow**			
Time	**t**	**5.67**	**min**	**Time**	**t**	**1.51**	**min**	**Time**	**t**	**2.81**	**min**
Distance	d	2,042	feet	Distance	d	544	feet	Distance	d	1,011	feet
Velocity	v	6.00	ft/s	Velocity	v	6.00	ft/s	Velocity	v	6.00	ft/s
Total Time				**Total Time**				**Total Time**			
Time	**TC**	**9.58**	**min**	**Time**	**TC**	**8.66**	**min**	**Time**	**TC**	**6.47**	**min**
Lag	**L**	**5.75**	**min**	**Lag**	**L**	**5.20**	**min**	**Lag**	**L**	**3.88**	**min**
NOTE: Minimum TC value is 5 minutes and minimum corresponding Lag time is 3 minutes.				NOTE: Minimum TC value is 5 minutes and minimum corresponding Lag time is 3 minutes.				NOTE: Minimum TC value is 5 minutes and minimum corresponding Lag time is 3 minutes.			

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

HEC-HMS CALCULATIONS

SHEET:
C6.24

WATER NOTE

PRESSURE AT THE HIGHEST FINISHED FLOOR
BUILDING TYPE I = 38 PSI
BUILDING TYPE II = 33 PSI
BUILDING TYPE III = 34 PSI
BUILDING TYPE IV = 33 PSI

PRESSURE AT THE LOWEST FINISHED FLOOR
FOR ALL BUILDING TYPE = 62.00 PSI

PRESSURES USING THE 1138 TO 1178 PRESSURE PLANE. REFER TO THE MEP PLANS FOR WATER DEMAND AND PRESSURE CALCULATIONS.

NOTE TO CONTRACTOR

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REFER TO THE PROFILE SHEETS (C7.10 - C7.12) FOR THE AIR RELEASE VALVE (ARV) LOCATIONS.

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3. CONTRACTOR TO VERIFY ALL EXISTING SEWER FLOW LINES BEFORE BEGINNING CONSTRUCTION.
4. ALL SANITARY SEWER LINES SHALL BE TESTED IN ACCORDANCE WITH THE STANDARD CITY SPECIFICATIONS.
5. THE UTILITY CONTRACTOR SHALL INSTALL THE WATER SERVICES TO A POINT AS SHOWN ON THE PLANS. THE METER BOX SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AFTER FINE GRADING HAS BEEN COMPLETED.
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12. REFER TO SHEET C14.0 FOR SEWER DETAILS.
13. REFER TO SHEET C13.6 FOR JOINT RESTRAINT DETAILS.

LEGEND

Item	Symbol
EXISTING SANITARY SEWER	EX SS
PROPOSED SANITARY SEWER	WW
EXISTING WATER	EX WTR
PROPOSED WATER	W
EXISTING SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER CLEANOUT	
EXISTING FIRE HYDRANT	
PROPOSED FIRE HYDRANT	FH
PROPOSED GAS	GAS
EXISTING GAS	EX GAS
PROPOSED UNDERGROUND ELECTRIC	UGE
EXISTING UNDERGROUND ELECTRIC	EX UGE
PROPOSED OVERHEAD ELECTRIC	OHE
EXISTING OVERHEAD ELECTRIC	EX OHE
PROPOSED TELEPHONE	TELE
EXISTING TELEPHONE	EX UGE
PROPERTY BOUNDARY	

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

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5/25/2023
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91865
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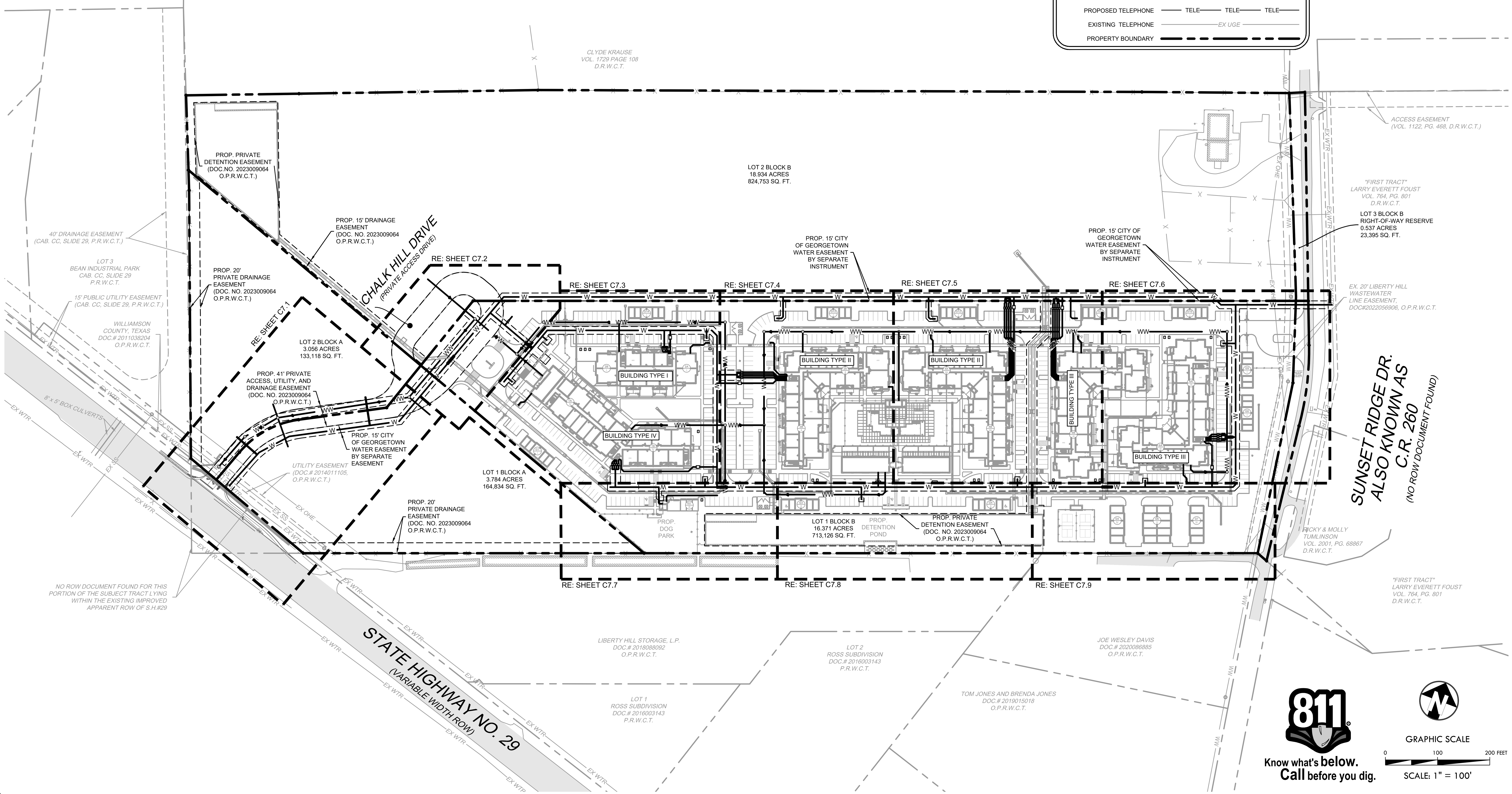
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:



811
Know what's **below.**
Call before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

kirkman ENGINEERING

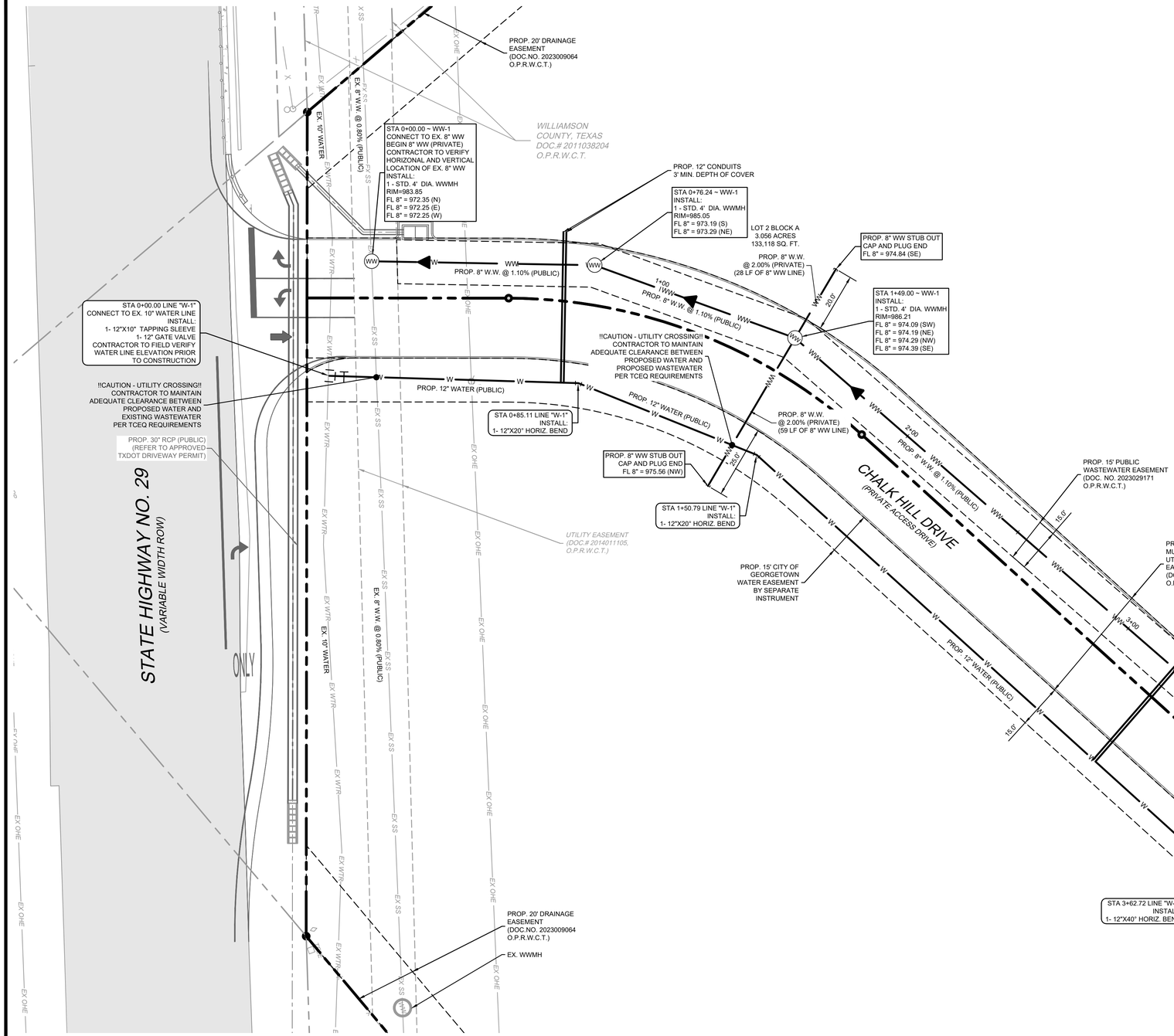
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

UTILITY PLAN OVERALL

SHEET:
C7.0



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LEGEND

EXISTING SANITARY SEWER	EX SS
PROPOSED SANITARY SEWER	WW
EXISTING WATER	EX WTR
PROPOSED WATER	W
EXISTING SANITARY SEWER MANHOLE	EXW
PROPOSED SANITARY SEWER MANHOLE	WW
PROPOSED SANITARY SEWER CLEANOUT	
EXISTING FIRE HYDRANT	
PROPOSED FIRE HYDRANT	FH
PROPOSED GAS	GAS
EXISTING GAS	EX GAS
PROPOSED UNDERGROUND ELECTRIC	UGE
EXISTING UNDERGROUND ELECTRIC	EX UGE
PROPOSED OVERHEAD ELECTRIC	OHE
EXISTING OVERHEAD ELECTRIC	EX OHE
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GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

UTILITY PLAN I

SHEET:
C7.1

FILE PATH: K:\Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C-Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C7.0 UTILITY PLAN_CHV21004

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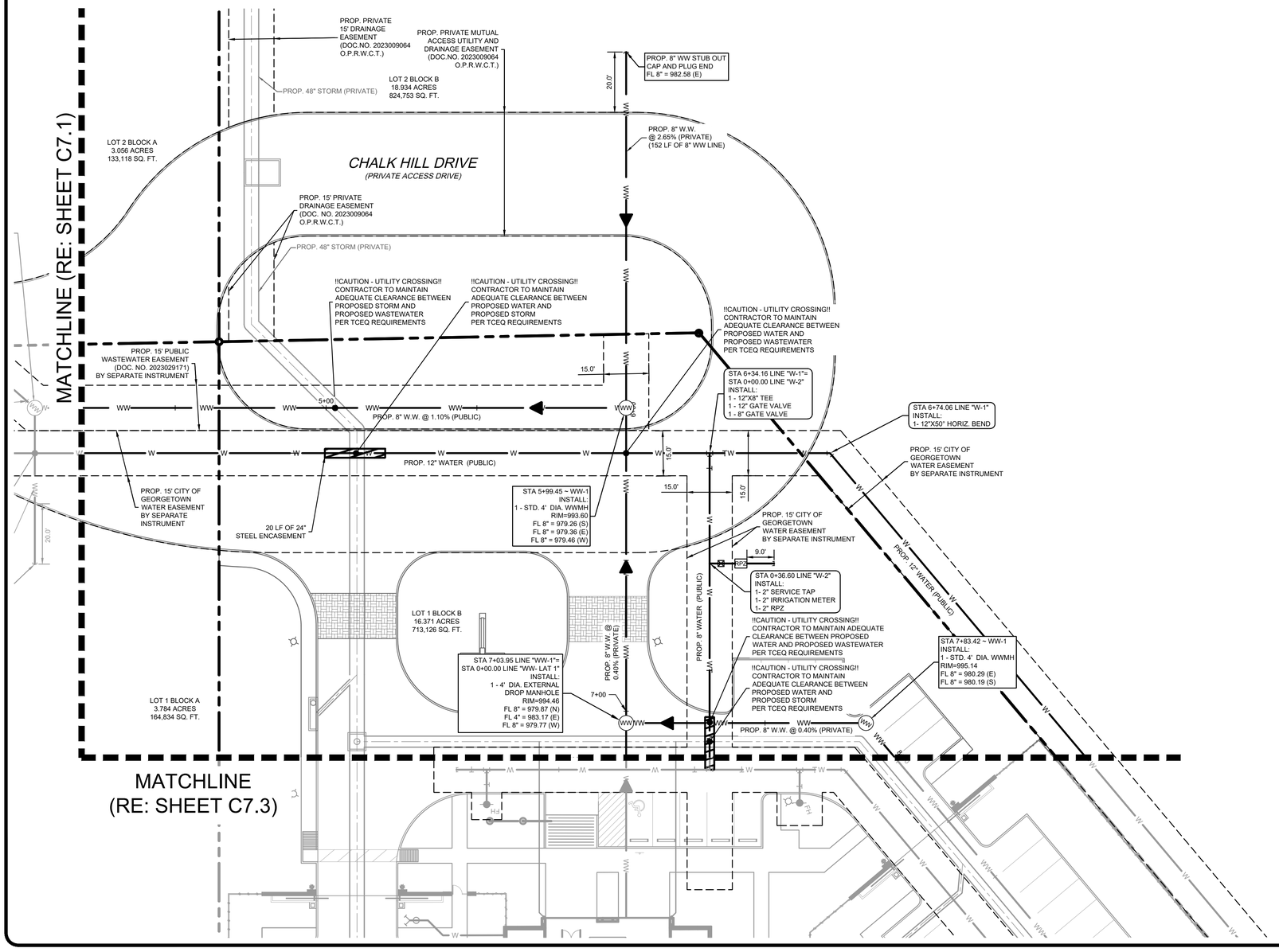
PLOTTED BY: Prashanta Gautam
PLOTTED DATE: 5/24/2023



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EXISTING WATER	EX WTR
PROPOSED WATER	W
EXISTING SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER MANHOLE	WW
PROPOSED SANITARY SEWER CLEANOUT	
EXISTING FIRE HYDRANT	
PROPOSED FIRE HYDRANT	FH
PROPOSED GAS	GAS
EXISTING GAS	EX GAS
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PROPERTY BOUNDARY	

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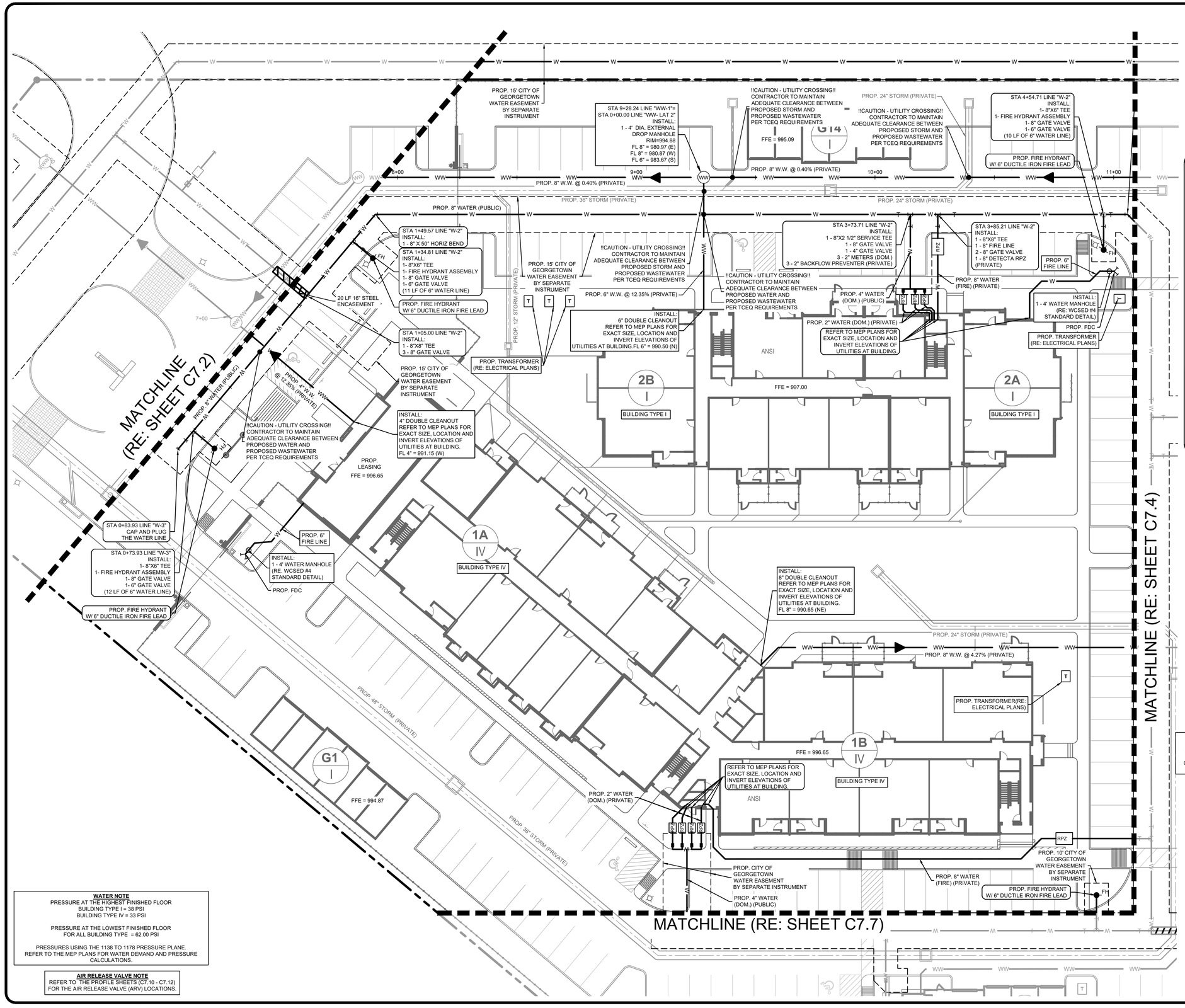
JOB NUMBER: CHV21004

ISSUE DATE:

UTILITY PLAN II

SHEET:
C7.2

FULL PATH: K:\Jobs\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Cad\CHV21004_Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C7.0 UTILITY PLAN_CHV21004
FILENAME: C7.0 UTILITY PLAN_CHV21004.dwg
PLOTTED BY: Prashanthini Gautam
PLOTTED DATE: 5/25/2023



WATER NOTE
PRESSURE AT THE HIGHEST FINISHED FLOOR
BUILDING TYPE I = 38 PSI
BUILDING TYPE IV = 33 PSI

PRESSURE AT THE LOWEST FINISHED FLOOR
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PRESSURES USING THE 1138 TO 1178 PRESSURE PLANE.
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SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

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ELEVATION = 997.92' (NAVD '88)

LEGEND

EXISTING SANITARY SEWER	EX SS
PROPOSED SANITARY SEWER	WW
EXISTING WATER	EX WTR
PROPOSED WATER	W
EXISTING SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER MANHOLE	WW
PROPOSED SANITARY SEWER CLEANOUT	
EXISTING FIRE HYDRANT	
PROPOSED FIRE HYDRANT	FH
PROPOSED GAS	GAS
EXISTING GAS	EX GAS
PROPOSED UNDERGROUND ELECTRIC	UGE UGE
EXISTING UNDERGROUND ELECTRIC	EX UGE
PROPOSED OVERHEAD ELECTRIC	OHE OHE
EXISTING OVERHEAD ELECTRIC	EX OHE
PROPOSED TELEPHONE	TELE TELE
EXISTING TELEPHONE	EX UGE
PROPERTY BOUNDARY	

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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

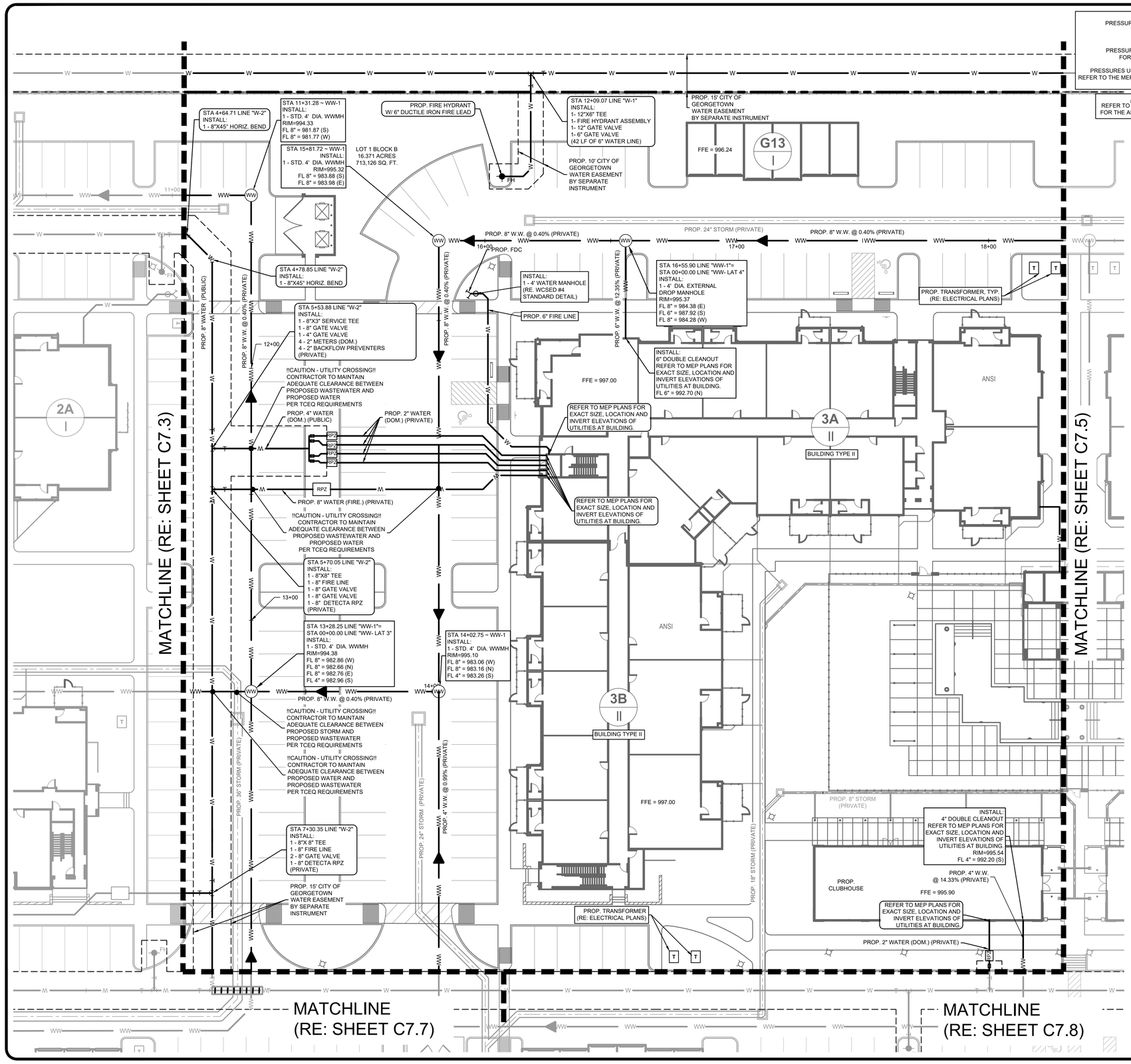
ISSUE DATE:

UTILITY PLAN III

SHEET:
C7.3

FILENAME: C7.0 UTILITY PLAN_CHV21004.dwg
PLOTTED BY: Prashanta Gautam
PLOTTED DATE: 5/25/2023

FULL PATH: K:\Jobs\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\93 - Production\Civil\CHV21004_Food\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\93 - Production\C7.0 UTILITY PLAN_CHV21004.dwg



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- PROPOSED WATER — W
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- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER CLEANOUT
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED GAS — GAS
- EXISTING GAS — EX GAS
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WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

UTILITY PLAN IV

SHEET:
C7.4

FILE PATH: K:\Jobs\CHV21004_Final\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\C7.0 UTILITY PLAN_CHV21004_Final\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\C7.0 UTILITY PLAN_CHV21004.dwg
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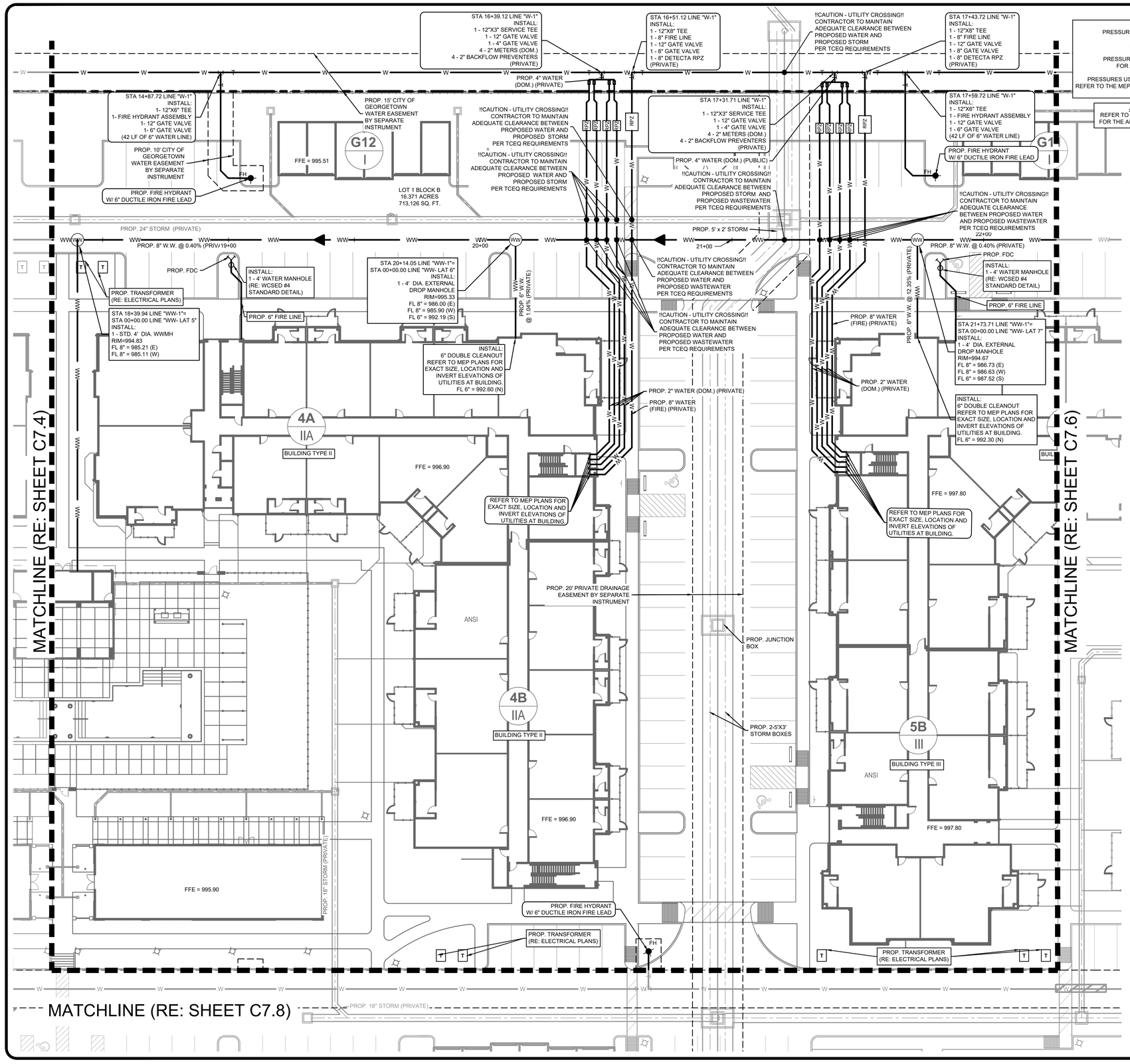
PLOTTED BY: Prashanthi Gautam
PLOTTED DATE: 5/25/2023



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PROPOSED WATER	W
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LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
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6601- E HILLCREST AVE, STE 212
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CHALK HILL RANCH

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REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

UTILITY PLAN V

SHEET: C7.5

FULL PATH: K:\Jobs\CHV21004 - Final\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C7.0 UTILITY PLAN_CHV21004
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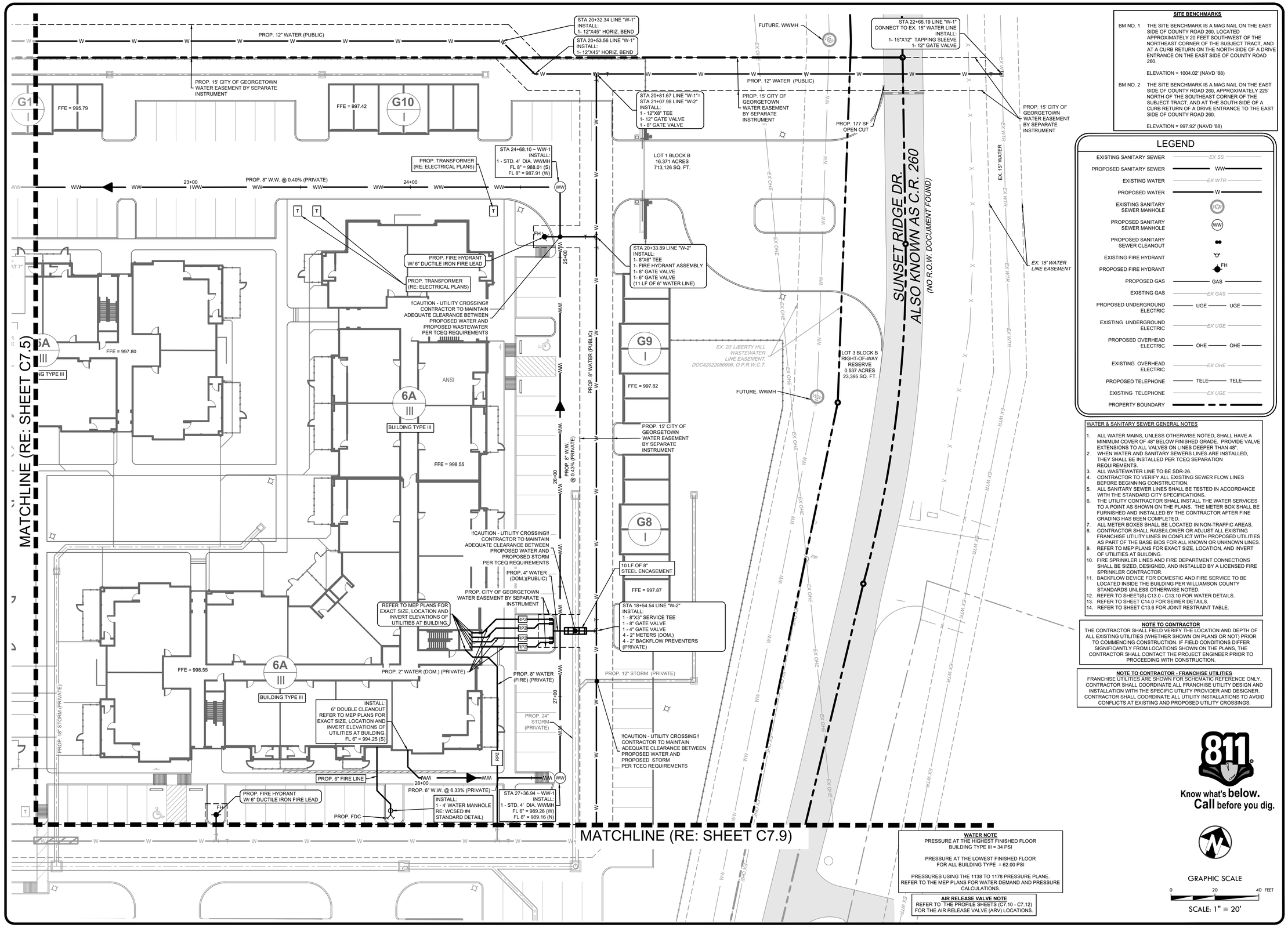
PLOTTED BY: Pratyushka Gautam
PLOTTED DATE: 5/25/2023



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5/25/2023

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REGISTERED
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TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

UTILITY PLAN VI

SHEET:

C7.6

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FILE PATH: K:\Work\CHV21004_Final\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1(S) - Production\C7.6 UTILITY PLAN_CHV21004

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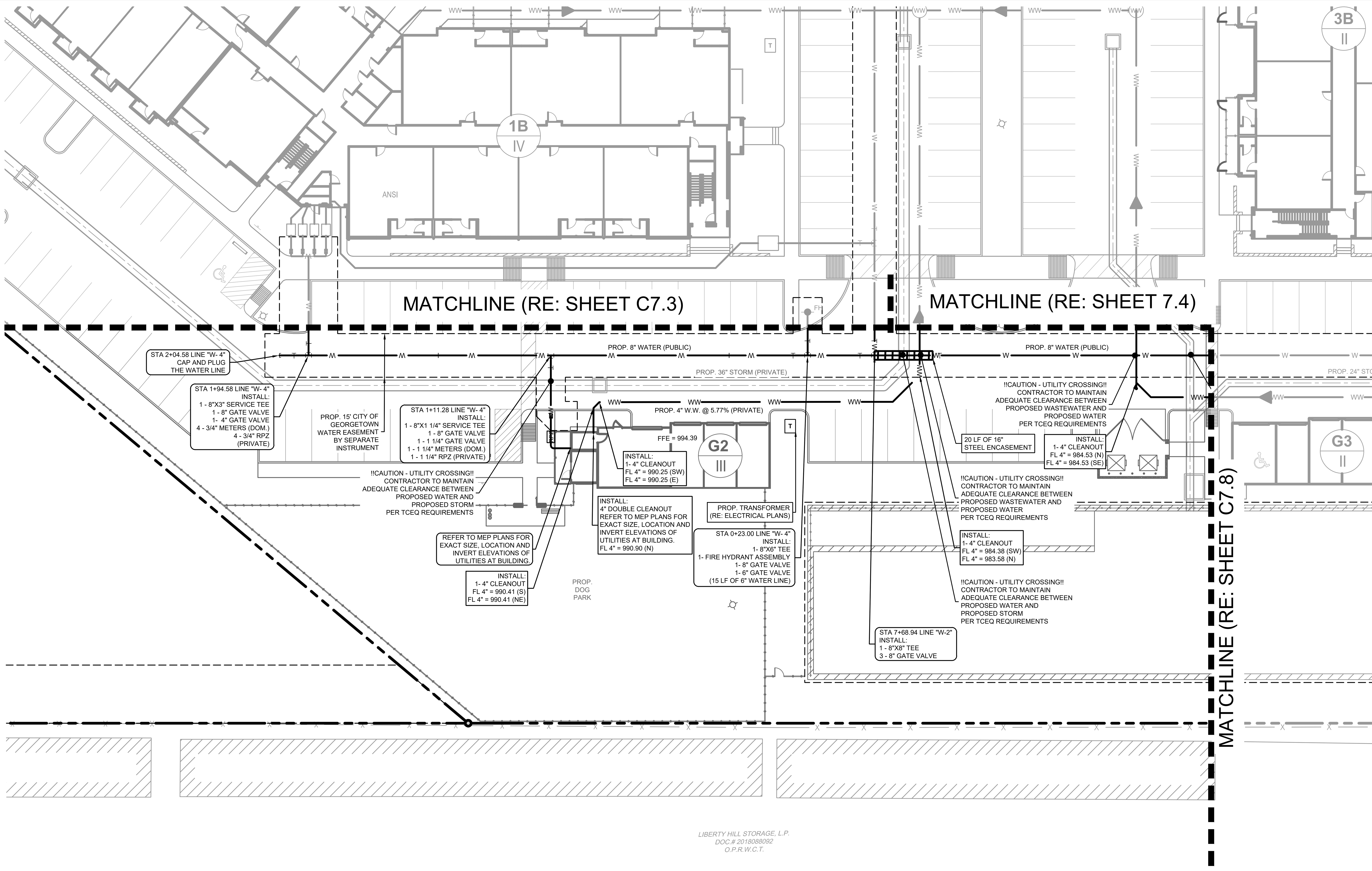
PLOTTED BY: Prachanika Gautam
PLOTTED DATE: 5/25/2023



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EXISTING TELEPHONE	EX UGE
PROPERTY BOUNDARY	

WATER & SANITARY SEWER GENERAL NOTES

1. ALL WATER MAINS, UNLESS OTHERWISE NOTED, SHALL HAVE A MINIMUM COVER OF 48" BELOW FINISHED GRADE. PROVIDE VALVE EXTENSIONS TO ALL VALVES ON LINES DEEPER THAN 48".
2. WHEN WATER AND SANITARY SEWERS LINES ARE INSTALLED, THEY SHALL BE INSTALLED PER TCEQ SEPARATION REQUIREMENTS.
3. ALL WASTEWATER LINE TO BE SDR-26.
4. CONTRACTOR TO VERIFY ALL EXISTING SEWER FLOW LINES BEFORE BEGINNING CONSTRUCTION.
5. ALL SANITARY SEWER LINES SHALL BE TESTED IN ACCORDANCE WITH THE STANDARD CITY SPECIFICATIONS.
6. THE UTILITY CONTRACTOR SHALL INSTALL THE WATER SERVICES TO A POINT AS SHOWN ON THE PLANS. THE METER BOX SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AFTER FINE GRADING HAS BEEN COMPLETED.
7. ALL METER BOXES SHALL BE LOCATED IN NON-TRAFFIC AREAS.
8. CONTRACTOR SHALL RAISE/LOWER OR ADJUST ALL EXISTING FRANCHISE UTILITY LINES IN CONFLICT WITH PROPOSED UTILITIES AS PART OF THE BASE BIDS FOR ALL KNOWN OR UNKNOWN LINES.
9. REFER TO MEP PLANS FOR EXACT SIZE, LOCATION, AND INVERT OF UTILITIES AT BUILDING.
10. FIRE SPRINKLER LINES AND FIRE DEPARTMENT CONNECTIONS SHALL BE SIZED, DESIGNED, AND INSTALLED BY A LICENSED FIRE SPRINKLER CONTRACTOR.
11. BACKFLOW DEVICE FOR DOMESTIC AND FIRE SERVICE TO BE LOCATED INSIDE THE BUILDING PER WILLIAMSON COUNTY STANDARDS UNLESS OTHERWISE NOTED.
12. REFER TO SHEET(S) C13.0 - C13.10 FOR WATER DETAILS.
13. REFER TO SHEET C14.0 FOR SEWER DETAILS.
14. REFER TO SHEET C13.6 FOR JOINT RESTRAINT TABLE.

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE TO CONTRACTOR - FRANCHISE UTILITIES

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AIR RELEASE VALVE NOTE

REFER TO THE PROFILE SHEETS (C7.10 - C7.12) FOR THE AIR RELEASE VALVE (ARV) LOCATIONS.

811 Know what's below. Call before you dig.

GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023

SHEA O. KIRKMAN 91865

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

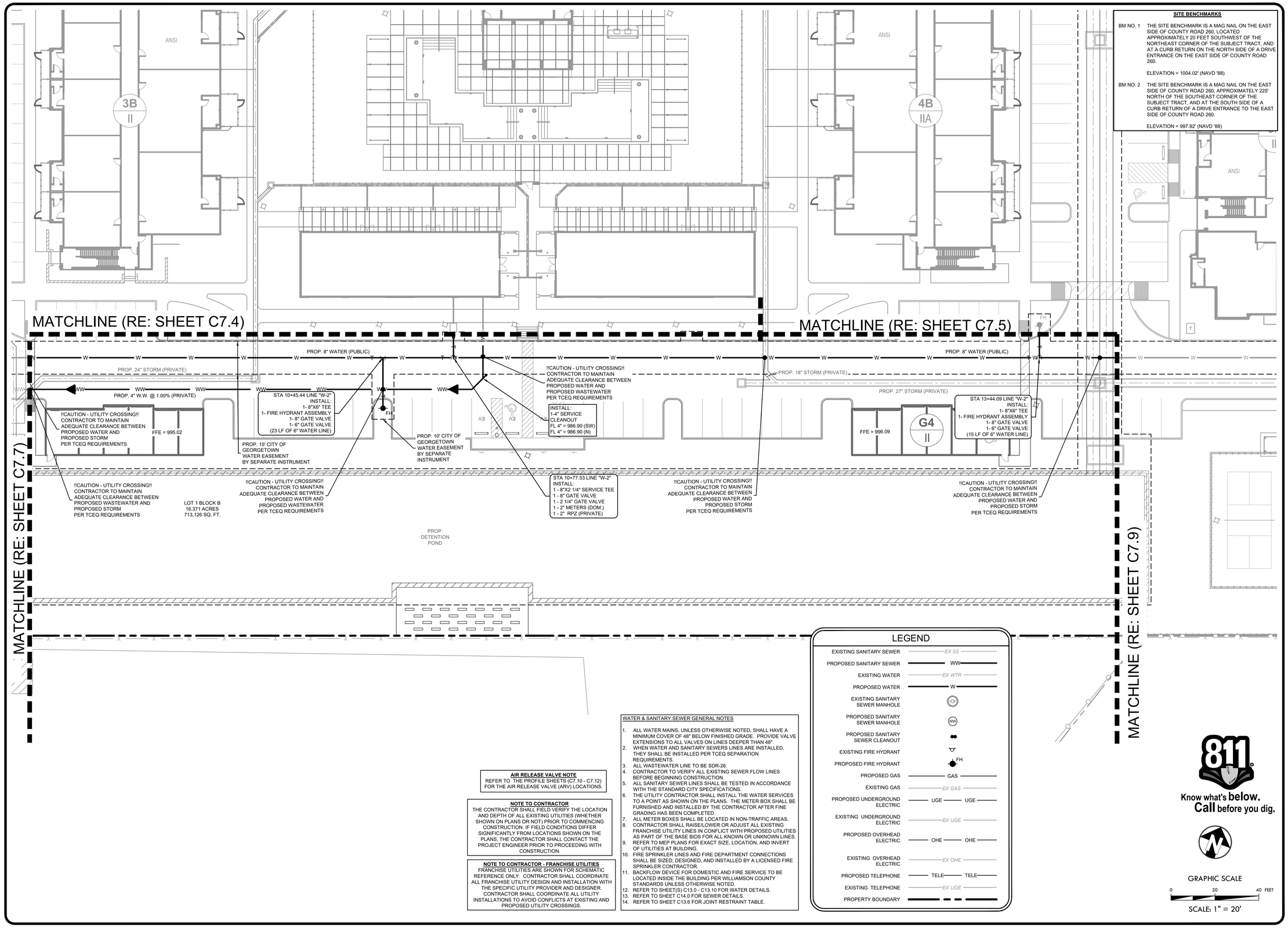
JOB NUMBER: CHV21004

ISSUE DATE:

UTILITY PLAN VII

SHEET:

C7.7



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)

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LEGEND

EXISTING SANITARY SEWER	EX SS
PROPOSED SANITARY SEWER	WW
EXISTING WATER	EX WTR
PROPOSED WATER	W
EXISTING SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER MANHOLE	WW
PROPOSED SANITARY SEWER CLEANOUT	
EXISTING FIRE HYDRANT	
PROPOSED FIRE HYDRANT	FH
PROPOSED GAS	GAS
EXISTING GAS	EX GAS
PROPOSED UNDERGROUND ELECTRIC	UGE UGE
EXISTING UNDERGROUND ELECTRIC	EX UGE
PROPOSED OVERHEAD ELECTRIC	OHE OHE
EXISTING OVERHEAD ELECTRIC	EX OHE
PROPOSED TELEPHONE	TELE TELE
EXISTING TELEPHONE	EX UGE
PROPERTY BOUNDARY	

Know what's **below.** **Call** before you dig.

GRAPHIC SCALE

0 20 40 FEET

SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

UTILITY PLAN VIII

SHEET:
C7.8

FILE PATH: K:\Jobs\CHV21004_Post\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Post\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\C7.0 UTILITY PLAN_CHV21004.dwg
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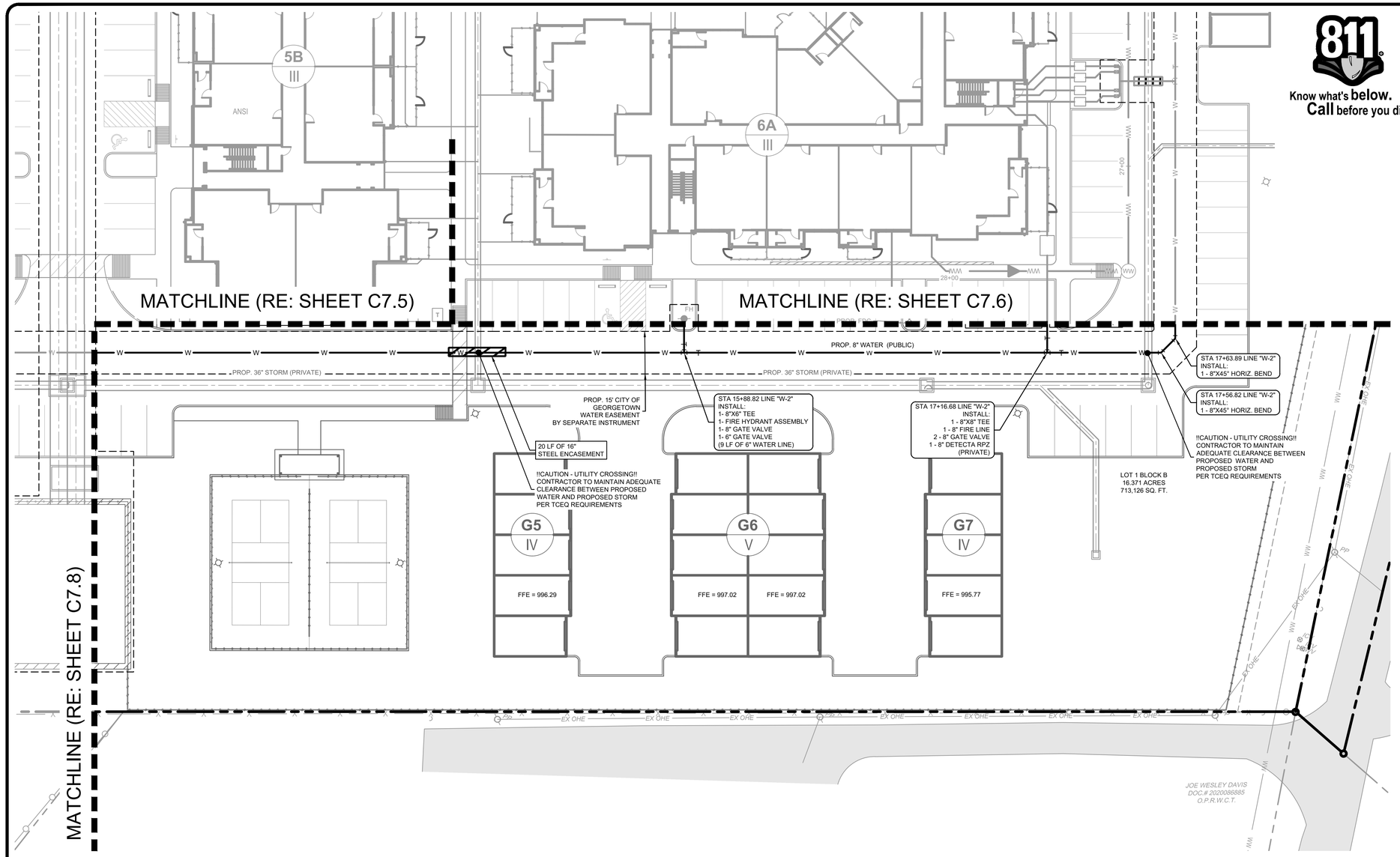
PLOTTED DATE: 5/25/2023



811
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ELEVATION = 997.92' (NAVD '88)

LEGEND

EXISTING SANITARY SEWER	EX SS
PROPOSED SANITARY SEWER	WW
EXISTING WATER	EX WTR
PROPOSED WATER	W
EXISTING SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER CLEANOUT	
EXISTING FIRE HYDRANT	
PROPOSED FIRE HYDRANT	FH
PROPOSED GAS	GAS
EXISTING GAS	EX GAS
PROPOSED UNDERGROUND ELECTRIC	UGE UGE
EXISTING UNDERGROUND ELECTRIC	EX UGE
PROPOSED OVERHEAD ELECTRIC	OHE OHE
EXISTING OVERHEAD ELECTRIC	EX OHE
PROPOSED TELEPHONE	TELE TELE
EXISTING TELEPHONE	EX UGE
PROPERTY BOUNDARY	

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GRAPHIC SCALE
0 20 40 FEET
SCALE: 1" = 20'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91863
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
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CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

UTILITY PLAN IX

SHEET:
C7.9

FULL PATH: K:\Jobs\CHV21004_Footh\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Cad\CHV21004_Footh\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C7.0 UTILITY PLAN_CHV21004

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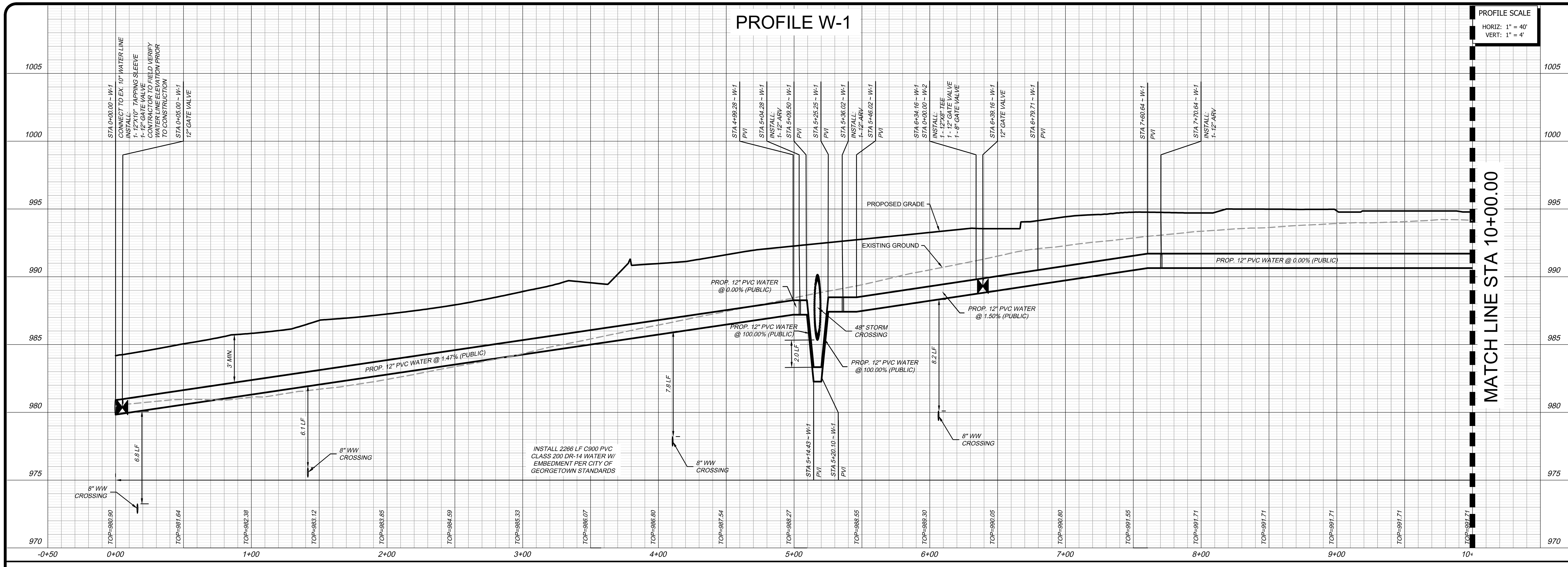
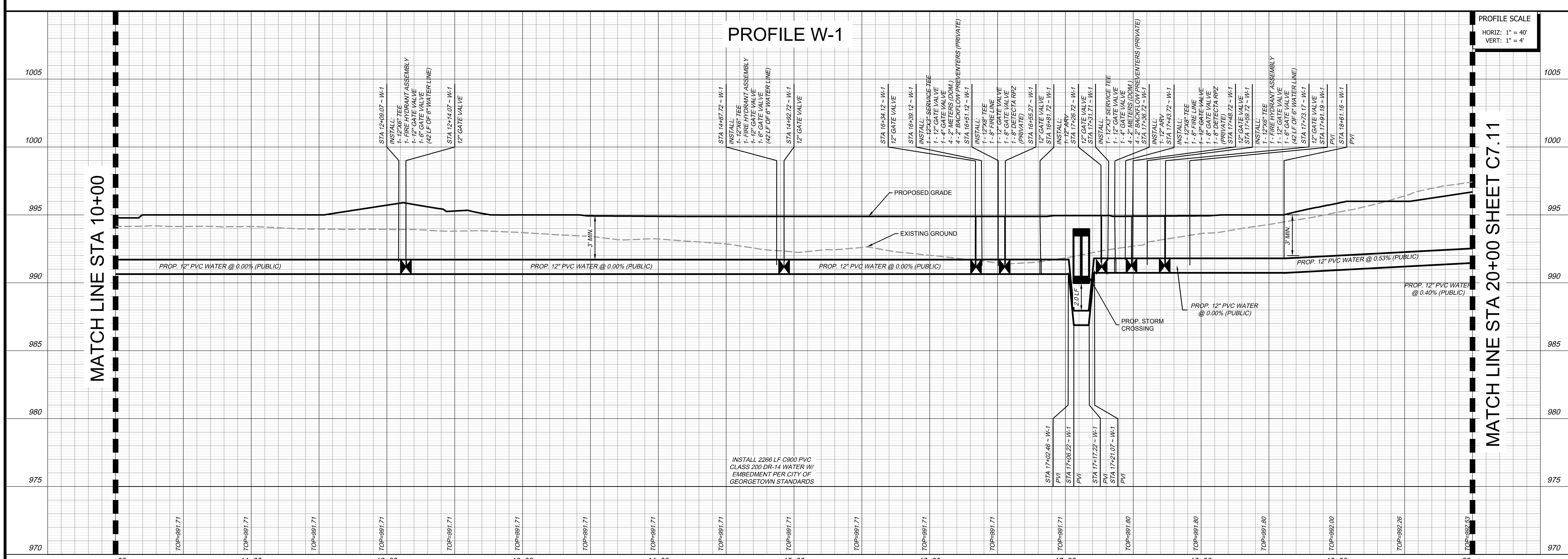
PLOTTED BY: Prashanta Gautam
PLOTTED DATE: 5/25/2023





5/25/2023
SHEA O. KIRKMAN
91865

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

kirkman ENGINEERING

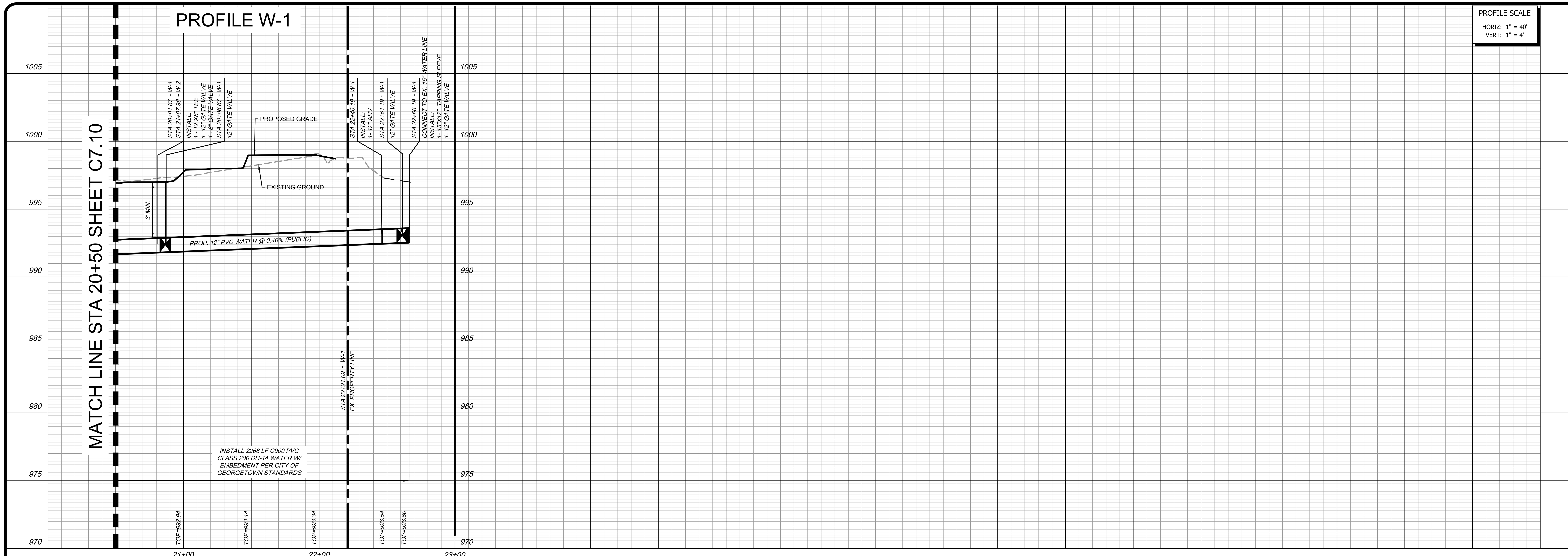
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

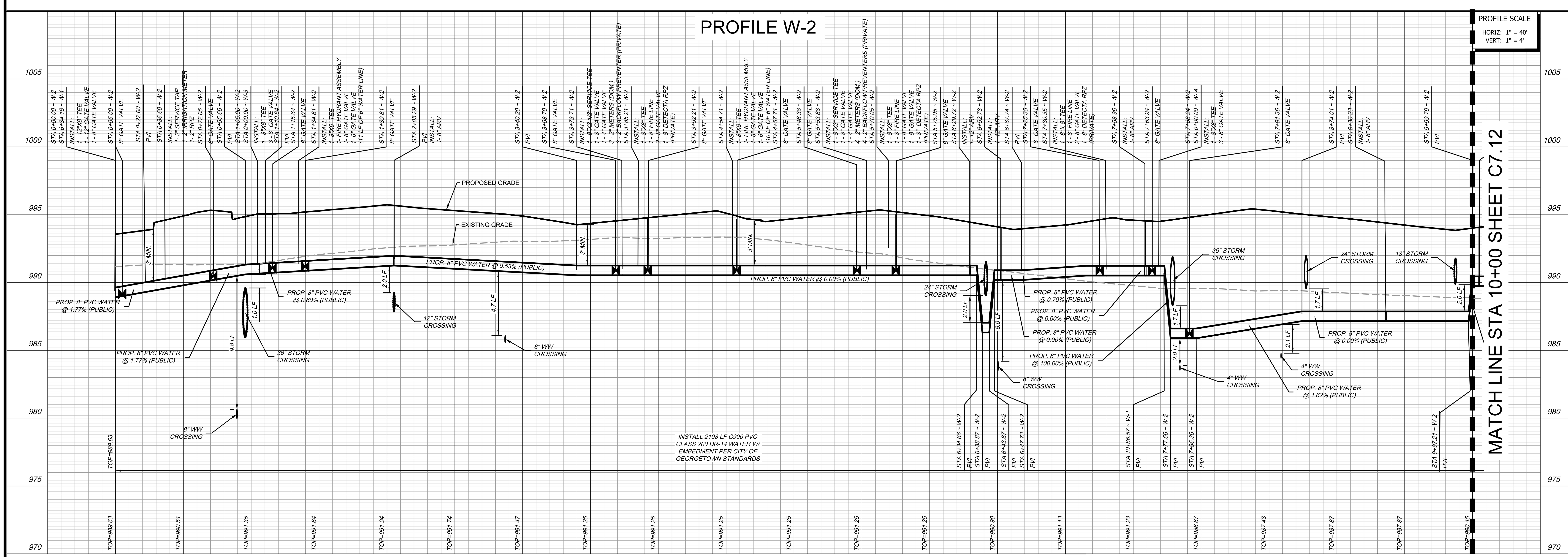
JOB NUMBER: CHV21004

ISSUE DATE:

UTILITY PROFILE I

SHEET:
C7.10





5/25/2023
SHEA O. KIRKMAN
91665

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PROPERTY OWNER LLC

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214-435-7510

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1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

UTILITY PROFILE II

SHEET:
C7.11

PROFILE W-2

PROFILE SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'

MATCH LINE STA 10+00 SHEET C7.11

MATCH LINE STA 20+00

STA 10+04.79 ~ W-2 — INSTALL: 1- 8" ARV
STA 10+69.79 ~ W-2 — PVI
STA 10+40.44 ~ W-2 — 8" GATE VALVE
STA 10+45.44 ~ W-2 — INSTALL: 1- 8"X6" TEE; 1- FIRE HYDRANT ASSEMBLY; 1- 8" GATE VALVE; 1- 6" GATE VALVE; (11' LF OF 6" WATER LINE)
STA 10+72.52 ~ W-2 — 8" GATE VALVE
STA 10+77.53 ~ W-2 — INSTALL: 1 - 8"X2 1/4" SERVICE TEE; 1 - 8" GATE VALVE; 1 - 4" GATE VALVE; 1 - 2" METERS (DOM.); 1 - 2" RPZ (PRIVATE)
STA 12+04.86 ~ W-2 — PVI
STA 12+09.86 ~ W-2 — INSTALL: 1- 8" ARV
STA 12+82.38 ~ W-2 — INSTALL: 1- 8" ARV
STA 13+39.09 ~ W-2 — 8" GATE VALVE
STA 13+44.09 ~ W-2 — INSTALL: 1- 8"X6" TEE; 1- FIRE HYDRANT ASSEMBLY; 1- 8" GATE VALVE; 1- 6" GATE VALVE; (15 LF OF 6" WATER LINE)
STA 14+56.42 ~ W-2 — INSTALL: 1- 8" ARV
STA 15+12.66 ~ W-2 — PVI
STA 15+21.50 ~ W-2 — PVI
STA 15+34.97 ~ W-2 — INSTALL: 1- 8" ARV
STA 15+68.82 ~ W-2 — INSTALL: 1- 8"X6" TEE; 1- FIRE HYDRANT ASSEMBLY; 1- 8" GATE VALVE; 1- 6" GATE VALVE; (9 LF OF 6" WATER LINE)
STA 15+93.82 ~ W-2 — 8" GATE VALVE
STA 17+16.88 ~ W-2 — INSTALL: 1- 8"X6" TEE; 1 - 8" FIRE LINE; 2 - 8" GATE VALVE; 1 - 8" DETECTA RPZ (PRIVATE)
STA 17+21.68 ~ W-2 — 8" GATE VALVE
STA 17+26.62 ~ W-2 — INSTALL: 1- 8" ARV
STA 17+68.22 ~ W-2 — PVI
STA 17+72.55 ~ W-2 — PVI
STA 17+89.34 ~ W-2 — INSTALL: 1- 8" ARV
STA 18+22.62 ~ W-2 — PVI
STA 18+45.95 ~ W-2 — INSTALL: 1- 8" ARV
STA 18+54.54 ~ W-2 — INSTALL: 1 - 8"X3" SERVICE TEE; 1 - 8" GATE VALVE; 1 - 4" GATE VALVE; 4 - 2" METERS (DOM.); 4 - 2" BACKFLOW PREVENTERS (PRIVATE)
STA 18+69.62 ~ W-2 — 8" GATE VALVE

STA 101+80.94 ~ W-2 — PVI — INSTALL: 1- 8" ARV
STA 12+14.86 ~ W-2 — PVI
STA 12+17.44 ~ W-2 — PVI
STA 12+21.09 ~ W-2 — PVI
STA 12+23.67 ~ W-2 — PVI
STA 161+77.30 ~ W-1 — PVI
STA 13+07.08 ~ W-2 — PVI
STA 13+76.73 ~ W-2 — PVI
STA 13+80.18 ~ W-2 — PVI
STA 15+14.59 ~ W-2 — PVI
STA 15+19.17 ~ W-2 — PVI
STA 17+41.04 ~ W-2 — PVI
STA 17+46.69 ~ W-2 — PVI
STA 18+28.72 ~ W-2 — PVI
STA 18+37.45 ~ W-2 — PVI
STA 18+40.85 ~ W-2 — PVI

TOP=990.45 | TOP=990.88 | TOP=991.25 | TOP=990.87 | TOP=990.49 | TOP=990.45 | TOP=990.45 | TOP=990.45 | TOP=990.48 | TOP=990.48 | TOP=990.48 | TOP=990.88 | TOP=990.88 | TOP=990.88 | TOP=988.24 | TOP=992.56 | TOP=992.56 | TOP=992.56 | TOP=992.56 | TOP=992.56

PROPOSED GRADE
EXISTING GRADE
18" STORM CROSSING
2-5'X3' STORM CROSSING
18" STORM CROSSING
24" STORM CROSSING
12" STORM CROSSING
4" WW CROSSING
2.0 LF
PROP. 8" PVC WATER @ 1.07% (PUBLIC)
PROP. 8" PVC WATER @ 100.00% (PUBLIC)
PROP. 8" PVC WATER @ 0.00% (PUBLIC)
PROP. 8" PVC WATER @ 0.76% (PUBLIC)
PROP. 8" PVC WATER @ 100.00% (PUBLIC)
PROP. 8" PVC WATER @ 100.00% (PUBLIC)
PROP. 8" PVC WATER @ 0.00% (PUBLIC)
PROP. 8" PVC WATER @ 100.00% (PUBLIC)
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PROP. 8" PVC WATER @ 100.00% (PUBLIC)
INSTALL: 1 - 8"X45° HORIZ. BEND
INSTALL: 1 - 8"X45° HORIZ. BEND
PROP. 8" PVC WATER @ 0.00% (PUBLIC)

INSTALL 2108 LF C900 PVC CLASS 200 DR-14 WATER W/ EMBEDMENT PER CITY OF GEORGETOWN STANDARDS

10+00 | 11+00 | 12+00 | 13+00 | 14+00 | 15+00 | 16+00 | 17+00 | 18+00 | 19+00 | 20+

PROFILE W-2

PROFILE SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'

MATCH LINE STA 20+00

STA 20+28.89 ~ W-2 — 8" GATE VALVE
STA 20+33.89 ~ W-2 — INSTALL: 1- 8"X6" TEE; 1- FIRE HYDRANT ASSEMBLY; 1- 8" GATE VALVE; 1- 6" GATE VALVE; (11' LF OF 6" WATER LINE)
STA 20+77.06 ~ W-2 — PVI
STA 20+89.98 ~ W-2 — INSTALL: 1- 8" ARV
STA 21+04.98 ~ W-2 — 8" GATE VALVE
STA 21+07.98 ~ W-2 — STA 20+81.67 ~ W-1 — INSTALL: 1 - 12"X8" TEE; 1- 12" GATE VALVE; 1- 8" GATE VALVE

PROPOSED GRADE
EXISTING GRADE
3' MIN.
PROP. 8" PVC WATER @ 0.05% (PUBLIC)

INSTALL 2108 LF C900 PVC CLASS 200 DR-14 WATER W/ EMBEDMENT PER CITY OF GEORGETOWN STANDARDS

TOP=992.55 | TOP=992.66 | TOP=992.70

+00 | 21+00 | 22+00 | 22+50

PROFILE W-3

STA 0+00.00 ~ W-3 — INSTALL: 1 - 8"X8" TEE; 3 - 8" GATE VALVE
STA 1+05.00 ~ W-2
STA 0+05.00 ~ W-3 — 8" GATE VALVE
STA 0+11.00 ~ W-3 — INSTALL: 1- 8" ARV
STA 0+68.93 ~ W-3 — PVI
STA 0+73.93 ~ W-3 — INSTALL: 1 - 8"X6" TEE; 1 - FIRE HYDRANT ASSEMBLY; 1 - 8" GATE VALVE; 1 - 6" GATE VALVE; (12' LF OF 6" WATER LINE)
STA 0+78.93 ~ W-3 — 8" GATE VALVE
STA 0+83.93 ~ W-3 — CAP AND PLUG THE WATER LINE

PROPOSED GRADE
EXISTING GROUND
5.0 LF
PROP. 8" PVC WATER @ 0.82% (PUBLIC)
4" PVC WW CROSSING

INSTALL 84 LF C900 PVC CLASS 200 DR-14 WATER W/ EMBEDMENT PER CITY OF GEORGETOWN STANDARDS

TOP=991.37 | TOP=990.96 | TOP=990.68

-0+50 | 0+00 | 1+00

PROFILE W-4

STA 0+00.00 ~ W-4 — 8" GATE VALVE
STA 1+68.94 ~ W-2
STA 0+14.00 ~ W-4 — INSTALL: 1 - 8"X8" TEE; 3 - 8" GATE VALVE
STA 0+23.00 ~ W-4 — INSTALL: 1- 8" ARV
STA 0+28.00 ~ W-4 — INSTALL: 1 - 8"X6" TEE; 1 - FIRE HYDRANT ASSEMBLY; 1 - 8" GATE VALVE; 1 - 6" GATE VALVE; (15' LF OF 6" WATER LINE)
STA 0+82.49 ~ W-4 — 8" GATE VALVE
STA 1+11.28 ~ W-4 — PVI
STA 1+16.29 ~ W-4 — INSTALL: 1 - 8"X4" SERVICE TEE; 1 - 8" GATE VALVE; 1 - 1 1/4" METERS (DOM.); 1 - 1 1/4" BACKFLOW (PRIVATE)
STA 1+84.58 ~ W-4 — 8" GATE VALVE
STA 1+94.58 ~ W-4 — INSTALL: 1 - 8"X3" SERVICE TEE; 1 - 8" GATE VALVE; 1 - 4" GATE VALVE; 4 - 3/4" METERS (DOM.); 4 - 1" BACKFLOW (PRIVATE)
STA 1+99.58 ~ W-4 — 8" GATE VALVE
STA 2+04.58 ~ W-4 — CAP AND PLUG THE WATER LINE

PROPOSED GRADE
EXISTING GROUND
PROP. 8" PVC WATER @ 1.28% (PUBLIC)
PROP. 8" PVC WATER @ 0.00% (PUBLIC)

INSTALL 205 LF C900 PVC CLASS 200 DR-14 WATER W/ EMBEDMENT PER CITY OF GEORGETOWN STANDARDS

TOP=991.23 | TOP=990.59 | TOP=992.07 | TOP=990.07 | TOP=990.07

-0+50 | 0+00 | 1+00 | 2+00

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

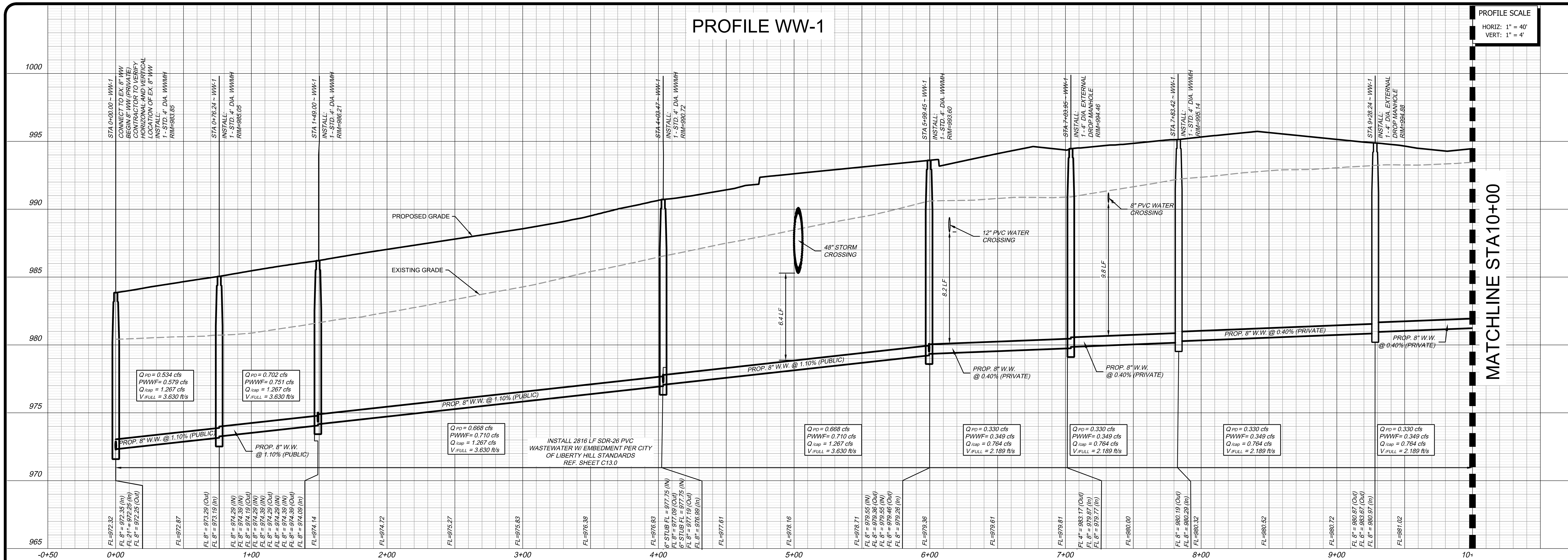
JOB NUMBER: CHV21004
ISSUE DATE:

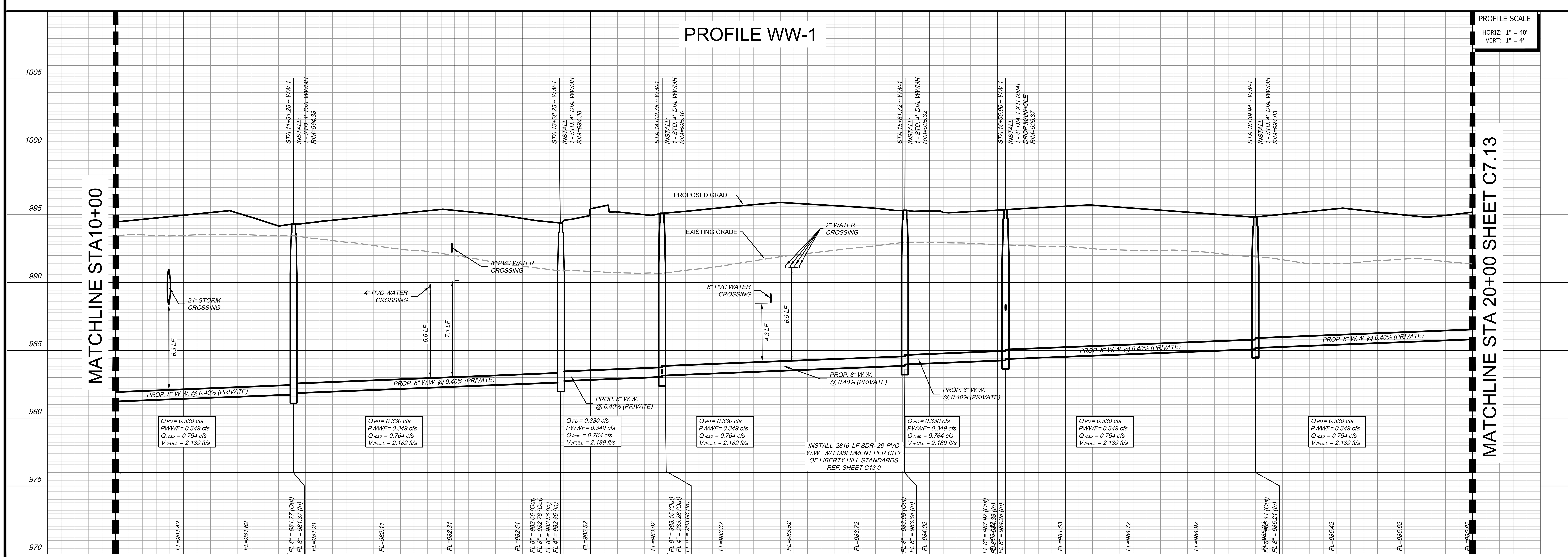
UTILITY PROFILE III

SHEET:
C7.12

FILENAME: C7.0 UTILITY PLAN_CHV21004.dwg
PLOTTED BY: Priyanvada Gautam
PLOTTED ON: 5/25/2023
PLOTTED AT: 9:22:18 AM

FULL PATH: K:\Jobs\CHV21004_Fnish\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\K:\Jobs\CHV21004_Fnish\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C7.0 UTILITY PLAN_CHV21004.dwg





5/25/2023
SHEA O. KIRKMAN
91865

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
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WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

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1130 COTTONWOOD CREEK TRAIL
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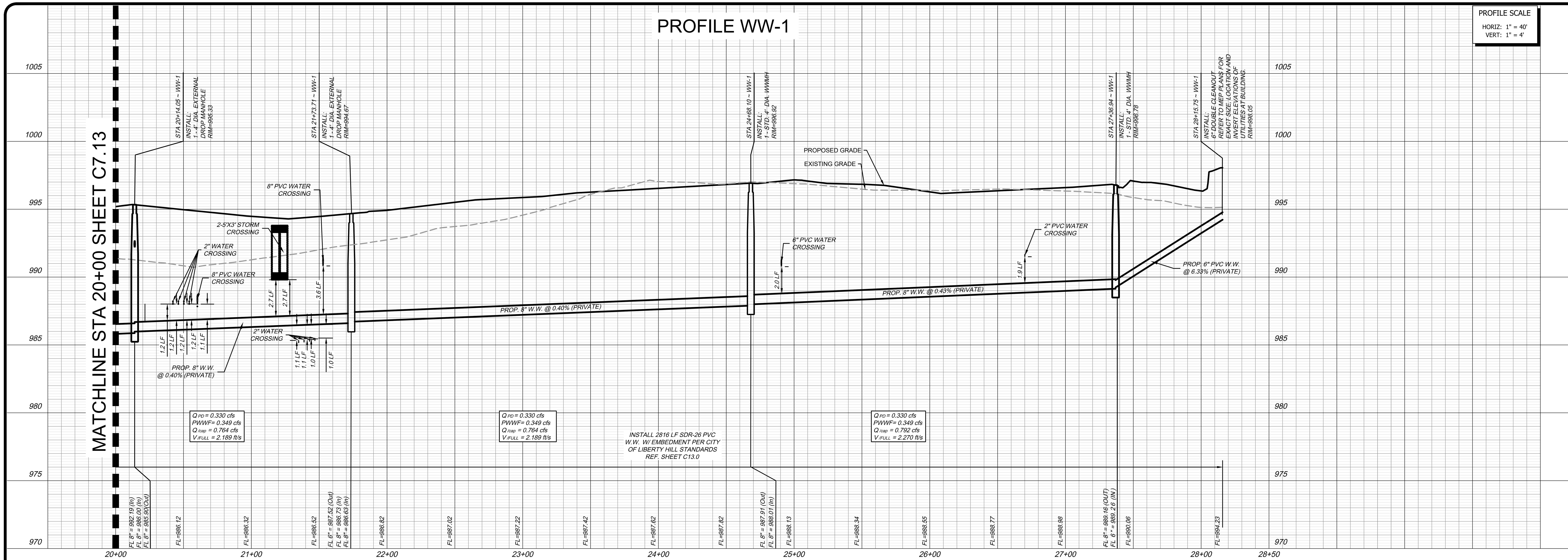
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

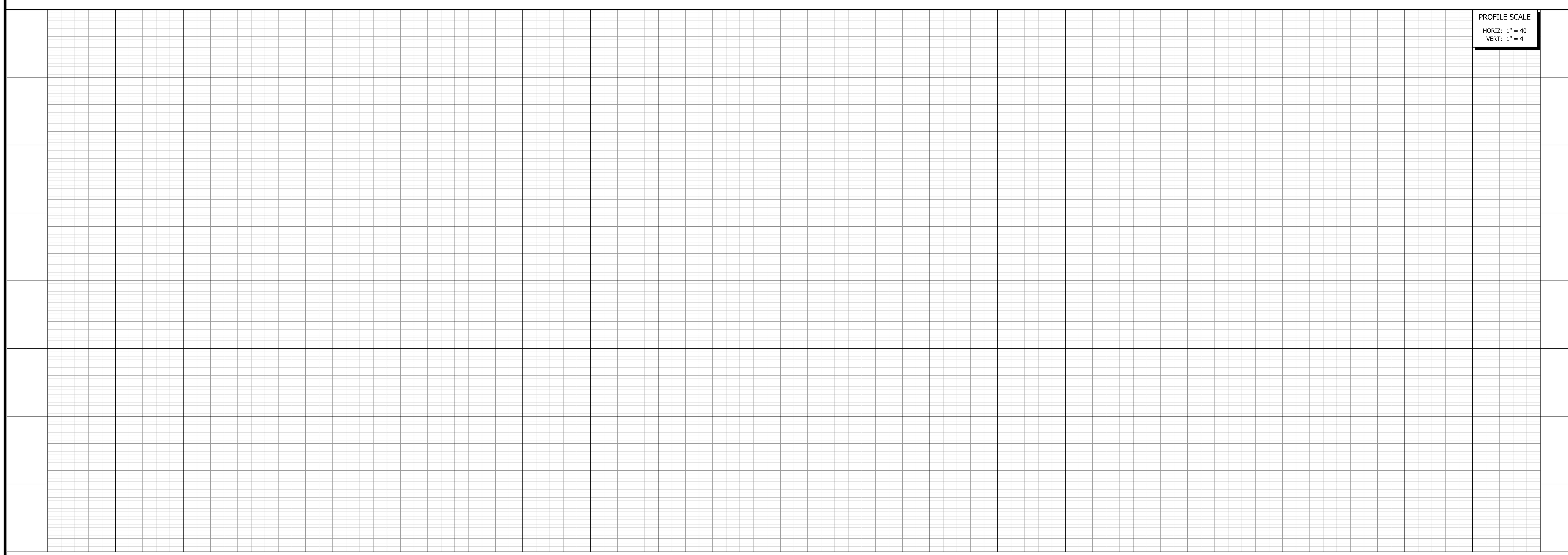
JOB NUMBER: CHV21004
ISSUE DATE:

UTILITY PROFILE IV

SHEET:
C7.13

PROFILE WW-1





5/25/2023
SHEA O. KIRKMAN
91865

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
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WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

UTILITY PROFILE V

SHEET:

C7.14

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

PAVING NOTES

1. REFER TO GEOTECH REPORT FOR PAVEMENT RECOMMENDATIONS.
2. CONTRACTOR SHALL OBTAIN A COPY OF SAID GEOTECHNICAL ENGINEERING REPORT AND FAMILIARIZE THEMSELVES PRIOR TO BIDDING AND CONSTRUCTING THE IMPROVEMENTS OF THE PROJECT.
3. ALL PROPOSED PUBLIC PAVEMENT TO BE PER THE WILLIAMSON COUNTY STANDARDS & SPECIFICATIONS.
4. PAINT PARKING STALL STRIPE 4" SOLID WHITE @ 9' O.C..
5. PAINT ACCESSIBLE PARKING LOGO SOLID WHITE.
6. PAINT ACCESSIBLE PEDESTRIAN CROSSWALK 6" SOLID WHITE REFLECTIVE @ 2' O.C. @ 45°.
7. PAINT FIRE LANE STRIPE IN ACCORDANCE WITH LOCAL AUTHORITIES' STANDARDS. STRIPE SHALL BE 6" "TRAFFIC RED" WITH 4" HIGH "TRAFFIC WHITE" LETTERS.
8. REFER TO SHEET(S) C15.0 - 15.1 FOR PAVING DETAILS.
9. REFER TO GEOTECH REPORT FOR DOWEL DESIGN INFORMATION (PG 14)

LEGEND

PARKING AREAS (LIGHT DUTY) 5" 3,500 PSI CLASS "C" (28 DAYS) REIN. CONC. PAVEMENT W/ No. 3 BARS @ 18" O.C.E.W. 6" COMPACTED SUBGRADE

FIRE LANE (HEAVY DUTY) 6.5" 3,500 PSI CLASS "C" (28 DAYS) REIN. CONC. PAVEMENT W/ No. 3 BARS @ 18" O.C.E.W. 6" COMPACTED SUBGRADE

DUMPSTER AREAS (HEAVY DUTY) 6.5" 3,500 PSI CLASS "C" (28 DAYS) REIN. CONC. PAVEMENT W/ No. 3 BARS @ 18" O.C.E.W. 6" COMPACTED SUBGRADE

PRIVATE SIDEWALK 4" 3,000 PSI CLASS "A" (28 DAYS) REIN. CONC. W/ No. 3 BARS @ 18" O.C.E.W.

PROPERTY BOUNDARY

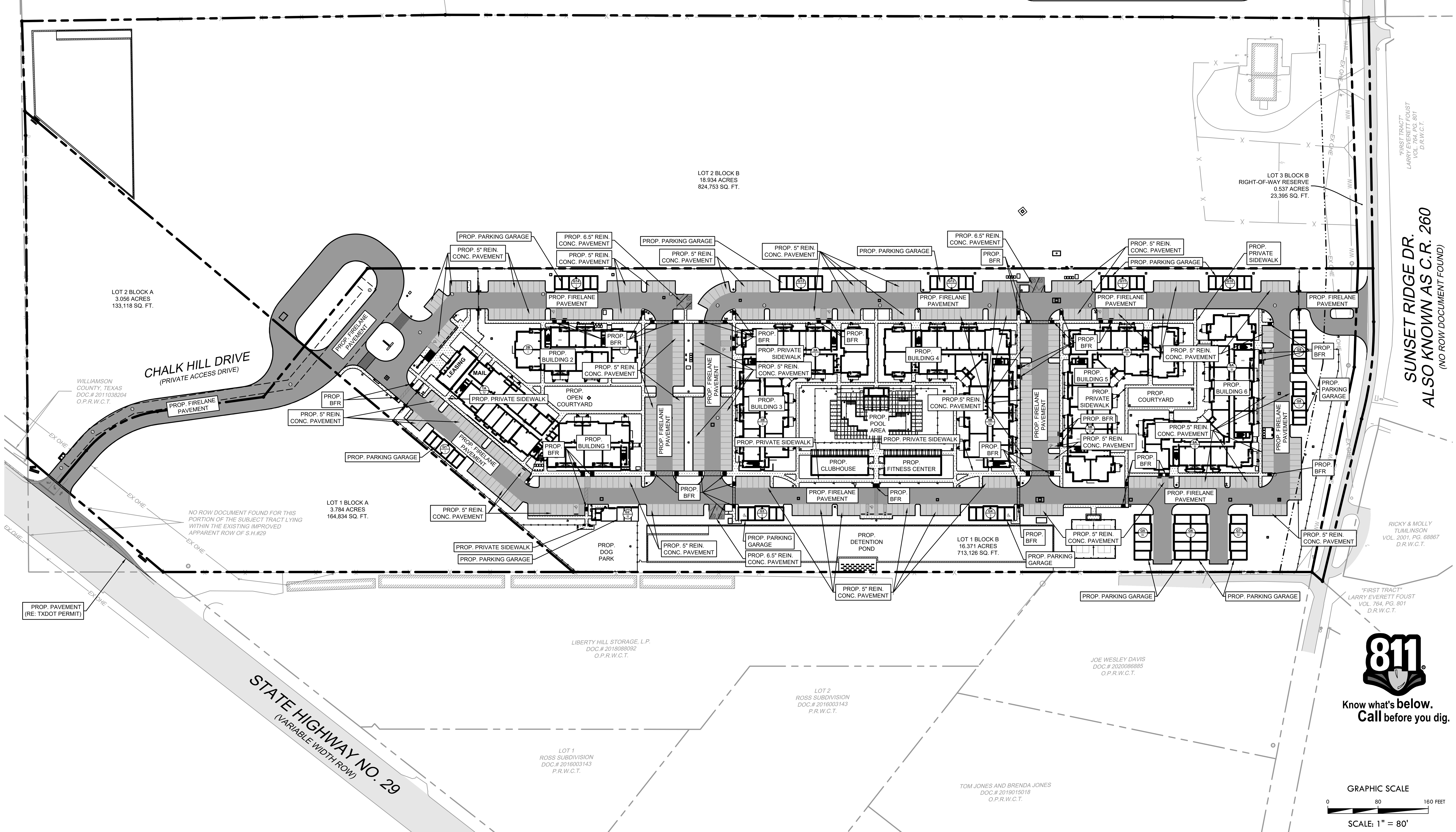
SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

BM NO. 2 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, APPROXIMATELY 225' NORTH OF THE SOUTHEAST CORNER OF THE SUBJECT TRACT, AND AT THE SOUTH SIDE OF A CURB RETURN OF A DRIVE ENTRANCE TO THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 997.92' (NAVD '88)



5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

PAVING PLAN

SHEET:
C8.0

NOTES FOR CHANGES TO SWPPP:

CONTRACTOR SHALL BE REQUIRED TO UPDATE THIS SWPPP WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, OR WHENEVER THE RESULT OF AN INSPECTION INDICATES THAT THIS SWPPP IS INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS IN STORMWATER DISCHARGES. HOWEVER, THE REGULATIONS OF THE TEXAS BOARD OF PROFESSIONAL ENGINEERS REQUIRE THAT CHANGES MADE BY THE CONTRACTOR DURING CONSTRUCTION MUST BE AUTHORIZED BY A LICENSED TEXAS ENGINEER. THESE CHANGES MAY BE AUTHORIZED BY THE ENGINEER OF RECORD THROUGH UPDATED DRAWINGS, WORK ORDER CHANGES, OR OTHER METHODS ACCEPTABLE TO THE ENGINEER; OR BY ANOTHER ENGINEER PROVIDED THAT THEY NOTIFY THE ENGINEER OF RECORD.

EROSION CONTROL SEQUENCE:

1. INSTALL SILT FENCES AROUND PERIMETER OF PROPERTY AND DISTURBED AREAS AS SHOWN.
2. INSTALL INLET PROTECTION FOR ALL EXISTING GRATE INLETS, CURB INLETS AND AT THE ENDS OF ALL EXPOSED STORM SEWER PIPES, IF PRESENT.
3. CONSTRUCT TEMPORARY CONSTRUCTION EXIT.
4. COMMENCE GRUBBING AND REMOVAL OF VEGETATION IN AREA TO RECEIVE CUT OR FILL.
5. COMMENCE GRADING OPERATION FOR BUILDING PAD PREPARATION.
6. INSTALL ALL UNDERGROUND UTILITIES.
7. FINALIZE PAVEMENT SUBGRADE PREPARATION.
8. INSTALL ALL PROPOSED STORM SEWER PIPES AND INSTALL INLET PROTECTION SILT FENCES AT ENDS OF EXPOSED PIPES.
9. CONSTRUCT ALL GRATE INLETS AND DRAINAGE STRUCTURES. INLET PROTECTION SILT FENCES MAY BE REMOVED TEMPORARILY FOR THIS CONSTRUCTION.
10. REMOVE SILT FENCES AROUND INLETS AND MANHOLES NO MORE THAN 48 HOURS PRIOR TO PLACING STABILIZED BASE COURSE.
11. INSTALL BASE MATERIAL AS REQUIRED FOR PAVEMENT, CURB & GUTTER.
12. INSTALL ALL PAVING, CURB & GUTTER.
14. COMPLETE PLANTING AND/OR SEEDING OF VEGETATED AREAS TO ACCOMPLISH STABILIZATION, IN ACCORDANCE WITH NCTCOG STANDARDS.
15. REMOVE TEMPORARY CONSTRUCTION EXIT & SILT FENCES.

EROSION CONTROL MAINTENANCE NOTES:

1. ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON ON A SCHEDULE WHICH COMPLIES WITH THE GENERAL PERMIT REQUIREMENTS AND CLEANED AND REPAIRED WITHIN 48 HOURS OF THE INSPECTION IN ACCORDANCE WITH THE FOLLOWING:

1.A. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
1.B. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED AND RESEEDED AS NEEDED.
1.C. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
1.D. THE TEMPORARY PARKING AND STORAGE AREA (IF PRESENT) SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
1.E. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS OR SEDIMENT TRAPS (IF PRESENT) SHALL BE MAINTAINED IN OPERATIONAL CONDITION AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
1.F. MAINTENANCE PROCEDURES FOR THE EROSION AND SEDIMENTATION CONTROL SYSTEMS SPECIFIED ARE GIVEN IN SECTION 5 OF THE STORM WATER POLLUTION PREVENTION PLAN.

LEGEND

- PROPOSED LIMITS OF DISTURBANCE — LD
- PROPOSED SILT FENCE — SF
- PROPOSED INLET PROTECTION
- PROPOSED CONSTRUCTION ENTRANCE
- PROPOSED ROCK CHECK FILTER DAM
- PROPOSED CONCRETE WASHOUT PIT
- EXISTING CONTOUR — 500
- PROPOSED CONTOUR — 500
- EXISTING DRAINAGE FLOW ARROW
- PROPOSED DRAINAGE FLOW ARROW
- PROPERTY BOUNDARY
- TREE PROTECTION

PROP. LIMITS OF DISTURBANCE (TYP.)
PROP. SILT FENCE 3280 LF (TYP.)
PROP. LIMITS OF DISTURBANCE (TYP.)
CLYDE KRAUSE VOL. 1729 PAGE 108 D.R.W.C.T.
LOT 3 BEAN INDUSTRIAL PARK CAB. CC, SLIDE 29 P.R.W.C.T.
WILLIAMSON COUNTY, TEXAS DOC.# 2011038204 O.P.R.W.C.T.
CHALK HILL DRIVE (PRIVATE ACCESS DRIVE)
LOT 2 BLOCK A 3.056 ACRES 133,118 SQ.FT.
LOT 2 BLOCK B 18.934 ACRES 824,753 SQ.FT.
LOT 1 BLOCK A 3.784 ACRES 164,834 SQ.FT.
LOT 1 BLOCK B 16.371 ACRES 713,126 SQ.FT.
PROP. INLET PROTECTION
PROP. ROCK CHECK DAM
EX OHE
8' x 5' BOX CULVERTS
NO ROW DOCUMENT FOUND FOR THIS PORTION OF THE SUBJECT TRACT LYING WITHIN THE EXISTING IMPROVED APPARENT ROW OF S.H.#29
STATE HIGHWAY NO. 29 (VARIABLE WIDTH ROW)
LOT 3 BLOCK B RIGHT-OF-WAY RESERVE 0.537 ACRES 23,395 SQ. FT.
"FIRST TRACT" LARRY EVERETT FOUST VOL. 764, PG. 801 D.R.W.C.T.
PROP.CONSTRUCTION ENTRANCE (RE: C15.0 FOR DETAIL)
PROP. CONCRETE WASHOUT PIT
50.0'
26.0'
SUNSET RIDGE DR. ALSO KNOWN AS C.R. 260 (NO ROW DOCUMENT FOUND)
RICKY & MOLLY TUMLINSON VOL. 2001, PG. 68867 D.R.W.C.T.
LIBERTY HILL STORAGE, L.P. DOC.# 2018088092 O.P.R.W.C.T.
LOT 2 ROSS SUBDIVISION DOC.# 2016003143 P.R.W.C.T.
LOT 1 ROSS SUBDIVISION DOC.# 2016003143 P.R.W.C.T.
JOE WESLEY DAVIS DOC.# 2020086885 O.P.R.W.C.T.
TOM JONES AND BRENDA JONES DOC.# 2019015018 O.P.R.W.C.T.

EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR PREPARING AND IMPLEMENTING A STORMWATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THE TPDES.
2. TOTAL DISTURBED AREA = 42.68 ACRES
3. REFER TO SHEET C16.0 FOR EROSION CONTROL DETAILS.

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

Know what's **below.** **Call** before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DESCRIPTION:	DATE:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

EROSION CONTROL PLAN

SHEET:
C9.0

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PLOTTED BY: Preshanka Gadam
PLOTTED DATE: 5/25/2023

LEGEND

PROPERTY BOUNDARY	
EXISTING PAVEMENT	
PROPOSED CONCRETE DRIVEWAY	

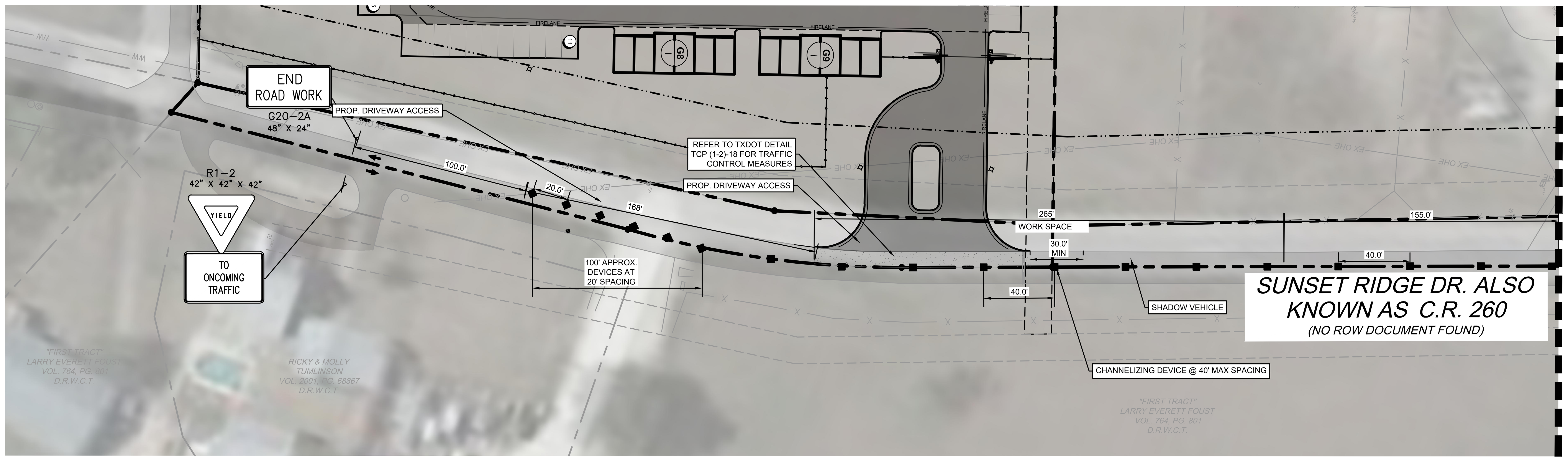
811 Know what's below. Call before you dig.

GRAPHIC SCALE

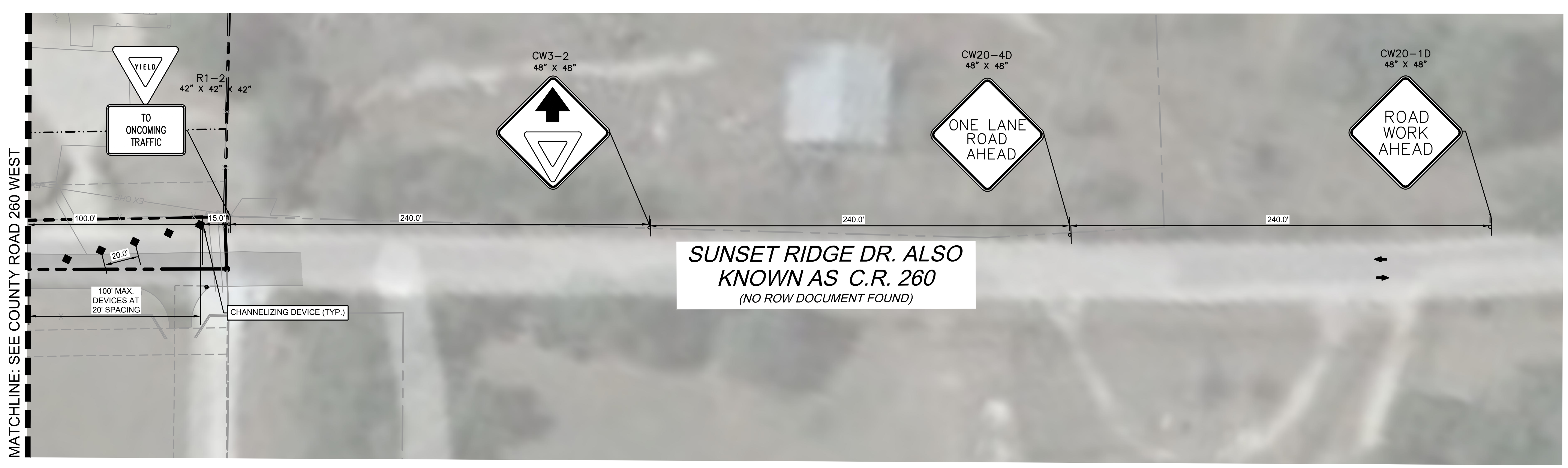
0 40 80 FEET

SCALE: 1" = 40'

COUNTY ROAD 260 WEST



COUNTY ROAD 260 EAST



5/25/2023

SHEA O. KIRKMAN 91865

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214-435-7510

CHALK HILL RANCH

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LOTS 1 AND 2, BLOCK B
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TEXAS FIRM NO. 15874

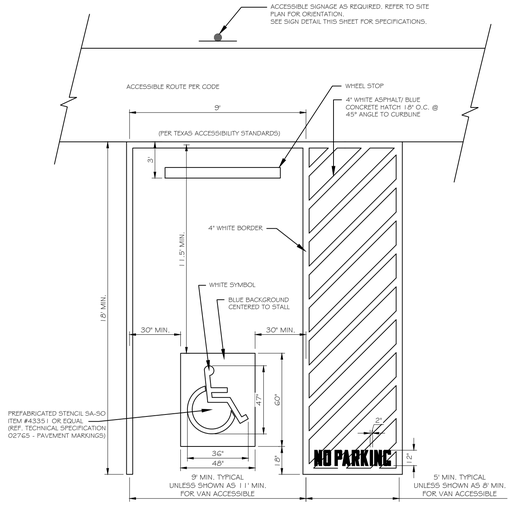
JOB NUMBER: CHV21004

ISSUE DATE:

LANE CLOSURE PLAN

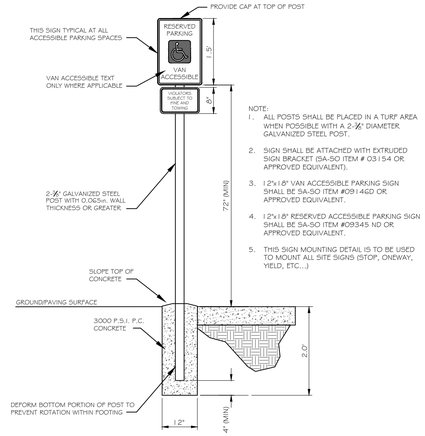
SHEET:

C10.0



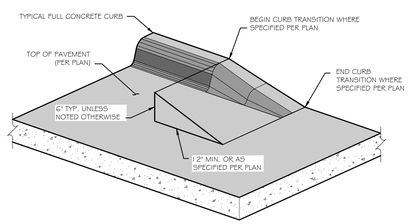
NOTES:
1. RE: SITE PLAN FOR LOCATION OF ADA PARKING SPACES AND ACCESS AISLE IN RELATIONSHIP TO THE DOOR LOCATION. (THIS DETAIL IS FOR STRIPING LAYOUT ONLY)
2. PARKING STRIPES AND THE ADA INTERNATIONAL HANDICAP SYMBOL ARE TO BE PAINTED PER THE MANUFACTURER'S RECOMMENDATIONS.
3. THE WORDS 'NO PARKING' SHALL BE PAINTED ON ANY ACCESS AISLE ADJACENT TO THE PARKING SPACE. THE WORDS MUST BE PAINTED IN ALL CAPITAL LETTERS, WITH A LETTER HEIGHT OF AT LEAST TWELVE INCHES, AND A STROKE WIDTH OF AT LEAST TWO INCHES.

ACCESSIBLE PARKING SPACE
N.T.S.



NOTE:
1. ALL POSTS SHALL BE PLACED IN A TURF AREA WHEN POSSIBLE WITH A 2-½" DIAMETER GALVANIZED STEEL POST.
2. SIGN SHALL BE ATTACHED WITH EXTRUDED SIGN BRACKET (SA-SO ITEM # 03154 OR APPROVED EQUIVALENT).
3. 12"x18" VAN ACCESSIBLE PARKING SIGN SHALL BE SA-SO ITEM #09146D OR APPROVED EQUIVALENT.
4. 12"x18" RESERVED ACCESSIBLE PARKING SIGN SHALL BE SA-SO ITEM #09345 ND OR APPROVED EQUIVALENT.
5. THIS SIGN MOUNTING DETAIL IS TO BE USED TO MOUNT ALL SITE SIGNS (STOP, ONEWAY, YIELD, ETC...)

SIGN MOUNTING DETAIL
N.T.S.



CURB TRANSITION/TERMINATION
N.T.S.

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
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LICENSED PROFESSIONAL ENGINEER

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CHALK HILL RANCH

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SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

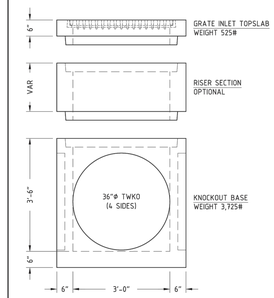
JOB NUMBER: CHV21004

ISSUE DATE:

SITE DETAILS

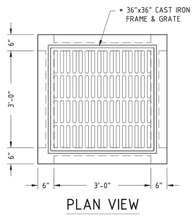
SHEET:
C11.0

FILE PATH: K:\Jobs\CHV21004_Fault\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\CHV21004_Fault1Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C11.0 SITE DETAILS_CHV21004.dwg
FILENAME: C11.0 SITE DETAILS_CHV21004.dwg
PLOTTED BY: Prashanta Gautam
PLOTTED DATE: 5/25/2023



SIDE VIEW

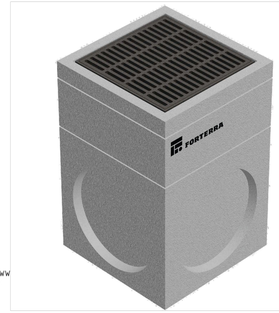
RISER	
A	WEIGHT
1'-0"	1,075#
1'-6"	1,600#
2'-0"	2,150#
3'-0"	3,225#



PLAN VIEW

NOTE:

-MAX. PIPE CONNECTION: 27"ø RCP AT 0° SKEW
-MADE IN ACCORDANCE WITH ASTM C913
-STEEL REINFORCEMENT: ASTM A615 GRADE 60 OR EQ. ASTM A1064 WW
-MAX BURIAL DEPTH 25'-0" FROM INSIDE FLOOR TO FINISHED GRADE
-PER TxDOT PRECAST BASE DETAIL TYPE "PB" JANUARY 2015
-STEPS NOT AVAILIABLE
-CAST IRON FRAME CAST INTO SLAB TOP
-SMALLER FRAME & GRATE OPTIONS ARE AVAILABLE
-ADA GRATE OPTION AVAILABLE.



FORTERRA

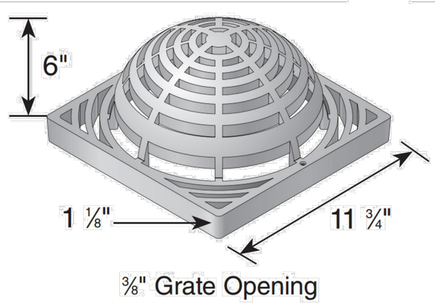
REGION, STATE	
NORTH TX	
DATE	SECT.PAGE
2018	1.4.1

GRATE INLET - CAST IRON
3'-0" x 3'-0"

NDS™ WE PUT WATER IN ITS PLACE

TECHNICAL SPECIFICATIONS

12" x 12" ATRIUM GRATE



3/8" Grate Opening

Material: UV Protected High Density Polyethylene (HDPE)
Weight: 1.74 lbs
Colors: Green (1280), Black (1290)
Fits: Use with 12" Catch basin series
Grate Openings: 50.60 in^2
Will accommodate 154.79 gallons per minute with 1/2" of head

851 N. Harvard Avenue
Lindsay, CA 93247
800-726-1994

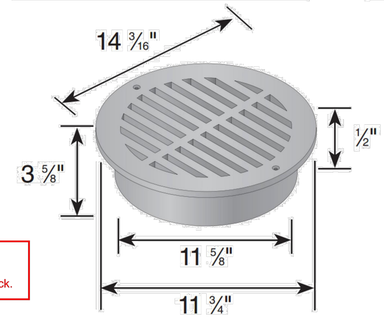
Visit ndspro.com for specs, detail drawings, and case studies

NDS™ WE PUT WATER IN ITS PLACE

NDS™ WE PUT WATER IN ITS PLACE

TECHNICAL SPECIFICATIONS

12" ROUND GRATE



NOTE:
This is located below the river rock.

9/16" Grate Opening

Material: UV Protected High Density Polyethylene (HDPE)
Colors: Black (1240), Green (1250), Gray (1260)
Weight: 2.66 lbs
Fits: 12" SDR-35, Corrugated, SCH-40, Class 125, & Double wall pipes
Grate Openings: 46.00 in^2 open space
Will accommodate 140.72 gallons per minute with 1/2" of head.

Load Recommendation Guide

Class B
- Loads of 61-175 psi.
- Recommended for medium-duty pneumatic tire traffic, autos and light trucks at speeds less than 20 m.p.h..

Note: Some installations may require a concrete collar to meet load rating. Loads are based on encasing product in concrete. Product must be installed using NDS instructions.

851 N. Harvard Avenue
Lindsay, CA 93247
800-726-1994

Visit ndspro.com for specs, detail drawings, and case studies

NDS™ WE PUT WATER IN ITS PLACE

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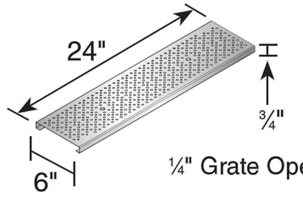
TECHNICAL SPECIFICATIONS

2 FT. METAL PERFORATED DURA SLOPE GRATE



1/4" Grate Opening

Material: Stainless Steel (DS-226), Galvanized Steel (DS-228)
Weight: DS-226—3.16 lbs each
DS-228—3.83 lbs each
Fits: Use with Dura Slope Channel Drains and Dura Slope Catch Basin (DS-340)
Grate Opening: 7.63 in^2 per foot
Will accommodate 23.34 gallons per minute per foot with 1/2" of head.

Load Recommendation Guide

Class A
- Loads of 1-60 psi.
- Recommended for pedestrians, bicycles and wheel chair traffic.

Note: Some installations may require a concrete collar to meet load rating. Loads are based on encasing product in concrete. Product must be installed using NDS instructions.

ADA Compliance

NDS provides a wide selection of grates that are compliant with the Americans with Disabilities Act. The ADA Accessibility Guidelines For Buildings and Facilites Section 4.5.4 specifies that ground and floor grates "shall have spaces no greater than 1/2 in (13 mm) wide in one direction."

We are pleased to provide grates that comply with these requirements, so that no individual need be limited from accessing the area safely and confidently.

To see if a grate is ADA compliant, please check the description of the product in our NDS Drainage Catalogs; products that meet these requirements are marked "ADA compliant."

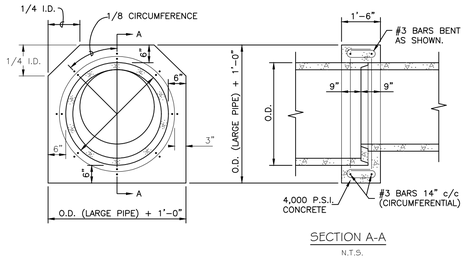
Like to find out more about ADA compliance and NDS? Send us your question and we'd be happy to help.

ADA Compliant/Heel-proof

851 N. Harvard Avenue
Lindsay, CA 93247
800-726-1994

Visit ndspro.com for specs, detail drawings, and case studies

NDS WE PUT WATER IN ITS PLACE



SECTION A-A
N.T.S.

CONCRETE COLLAR DETAIL (PIPE)
N.T.S.

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

DRAINAGE DETAILS I

SHEET:
C12.0

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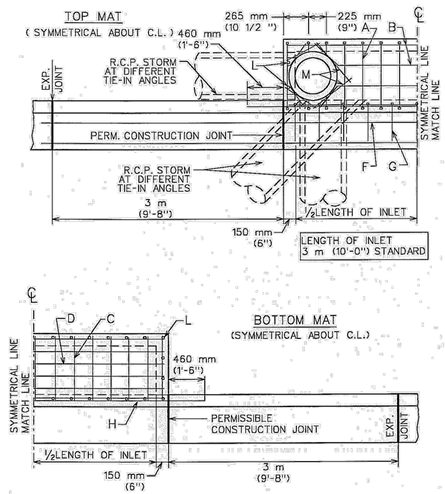
PLOTTED BY: Treyshonda Gadam
PLOTTED DATE: 5/25/2023



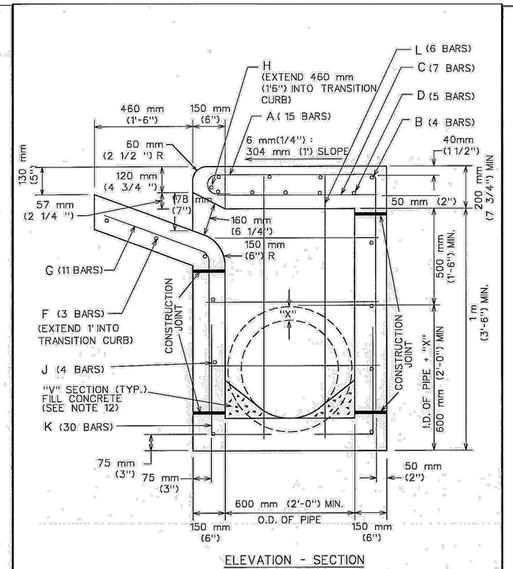
CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

TYPICAL DETAILS FOR CURB INLET

Bill Gardner 12/9/08
ADOPTED

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 508S-3
1 OF 4



ELEVATION - SECTION

CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

TYPICAL DETAILS FOR CURB INLET

Bill Gardner 12/9/08
ADOPTED

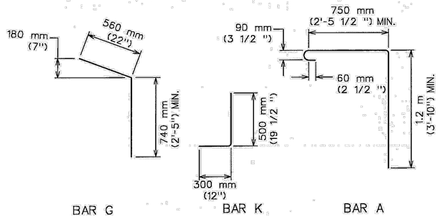
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 508S-3
2 OF 4

TABLE OF QUANTITIES
FOR 18" OUTLET PIPE
REINFORCING STEEL QUANTITIES

BARS	SIZE	SPACING	NUMBER	LENGTH	WEIGHT
A	4	230mm (9")×	15	2 m (7'-0")	73
B	4	250 mm (10")	4	3.25 m (10'-8")	29
C	4	460 mm (18")	7	760 mm (2'-6")	12
D	6	150 mm (6")	5	3.25 m (10'-8")	80
E	4	300 mm (12")	6	760 mm (2'-6")	10
F	4	250 mm (10")	3	4 m (13'-0")	35
G	4	300 mm (12")	11	1.25 m (4'-3")	31
H	6	-	1	4.25 m (14'-0")	20
J	4	300 mm (12")	7	3.25 m (10'-8")	50
K	4	230 mm (9")×	30	800 mm (2'-7 1/2")	52
L	4	300 mm (12")×	6	1.3 m (4'-4")	17
M	4		4	500 mm (1'-8") AVG	4
TOTAL STEEL, LB.					413
TOTAL CONCRETE, C.Y.					4.06

× EXCEPT AS SHOWN ON PLAN



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

TYPICAL DETAILS FOR CURB INLET

Bill Gardner 12/9/08
ADOPTED

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 508S-3
3 OF 4

NOTES:
1. ALL CONCRETE SHALL BE CLASS "A"
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. VERTICAL STEEL MAY BE SPLICED (380 mm or 15" MIN. LAP) IN THE LOWER ONE-HALF OF ALL INLET WALLS.5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
6. QUANTITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S INFORMATION ONLY. PAYMENT WILL BE MADE FOR EACH INLET OF THE TYPE SPECIFIED, COMPLETE IN PLACE INCLUDING MANHOLE FRAME AND OVER.
7. CHAMFER ALL EXPOSED EDGES 20 mm (3/4 ").
8. MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
9. THE CONTRACTOR MAY PROPOSE ALTERNATE PROCEDURES FOR THE CONSTRUCTION OF INLETS, INCLUDING PRECAST UNITS. PLANS FOR SUCH PROPOSED ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE CONSTRUCTION.
10. ALL INLET WALLS SHALL BE FORMED EXCEPT WHERE THE NATURE OF THE SURROUNDING MATERIAL IS SUCH THAT IT CAN BE TRIMMED TO A SMOOTH VERTICAL FACE. WHEN INLET WALLS ARE PLACED TO NEAT EXCAVATION LINES THE WALL THICKNESS SHALL NOT EXCEED 10 INCHES.
11. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB.
12. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE, SHAPED AS "V" SECTION
13. NO SPLICING OF REINFORCING STEEL SHALL BE PERMITTED UNLESS OTHERWISE NOTED ON THE PLANS OR PERMITTED IN WRITING BY THE ENGINEER.

REFERENCES:

FOR EXPANSION JOINT DOWEL AND DOWEL LOCATION DETAILS SEE STD. 430S-3, "CURB EXPANSION JOINT DOWEL DETAIL".

FOR 18" MANHOLE FRAME AND COVER DETAILS SEE STD. 503S-1, "18" COVER AND FRAME".

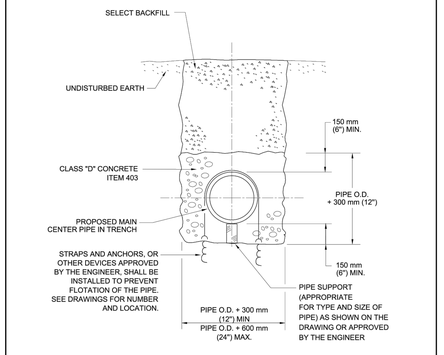
CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

TYPICAL DETAILS FOR CURB INLET

Bill Gardner 12/9/08
ADOPTED

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 508S-3
4 OF 4



CITY OF AUSTIN
WATER AND WASTEWATER UTILITY

CONCRETE ENCASEMENT

RECORD COPY SIGNED BY KATHI L FLOWERS 08/18/00
ADOPTED

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 505S-1
1 OF 1

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
REGISTERED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

DRAINAGE DETAILS II

SHEET:
C12.1

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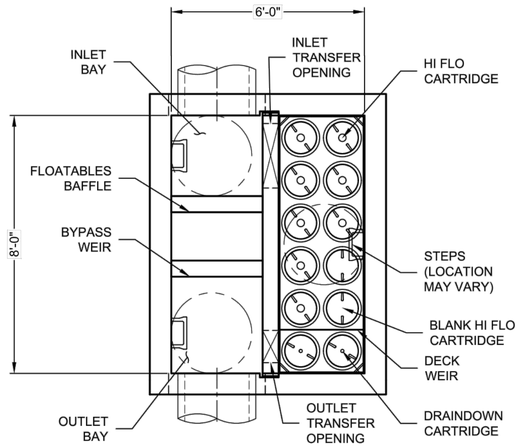
PLOTTED DATE: 5/25/2023

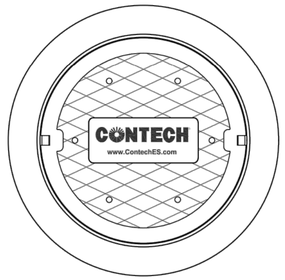


PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)

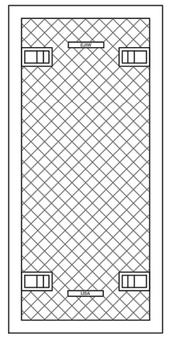
JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	1.96
DECK TO INSIDE TOP (MIN) (B)	5.00



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	ST-B
WATER QUALITY FLOW RATE (cfs)	1.50
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	8/2
CARTRIDGE LENGTH	54

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	989.66	RCP	24	*	*
INLET #2	*	*	*	*	*
OUTLET	989.66	RCP	24	*	*

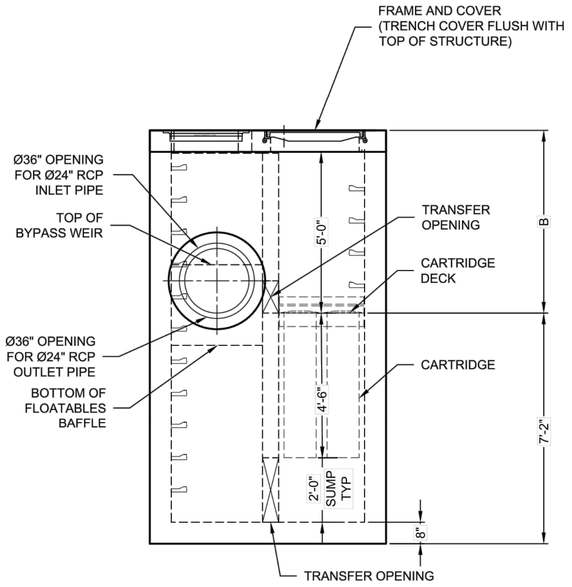
SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	994.90

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD



ELEVATION VIEW

RIM
ELEV. = 994.90'

TOP OF STRUCTURE
ELEV. = 994.90'

WEIR ELEV. =991.16'

INLET INV. ELEV. = 989.66'

OUTLET INV. ELEV. = 989.66'

STRUCTURE INV.
ELEV. = 983.16'

BOTTOM OF STRUCTURE
ELEV. = 982.49'

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish® Filter

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

8' x 6' JELLYFISH - 715260- 020
PROJECT NAME: FOUST TRACT - CHALK HILL VENTURES
LOCATION: LIBERT HILL, TX
SITE DESIGNATION: ST-B

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

WATER QUALITY DETAILS I

SHEET:
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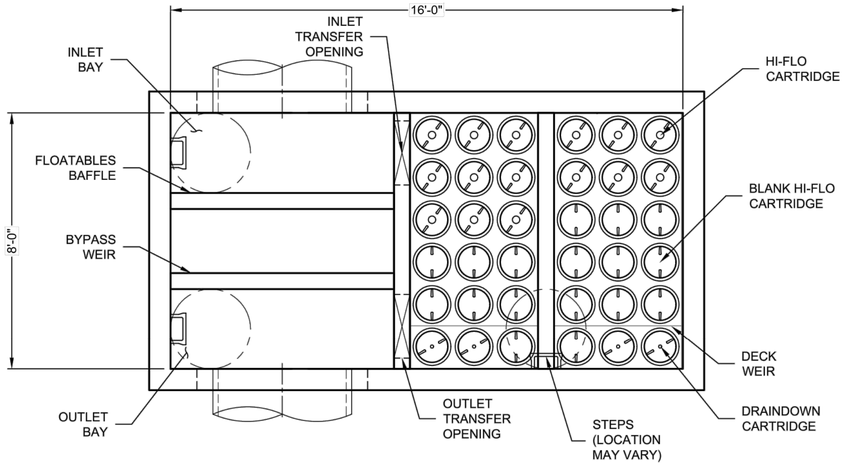
PLOTTED DATE: 5/25/2023



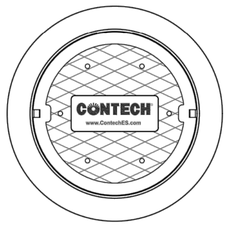
PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	7.84
DECK TO INSIDE TOP (MIN) (B)	5.00



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	ST-A
WATER QUALITY FLOW RATE (cfs)	2.94
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	15/4
CARTRIDGE LENGTH	54

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	985.47	RCP	48"	*	*
INLET #2	*	*	*	*	*
OUTLET	985.47	RCP	48"	*	*

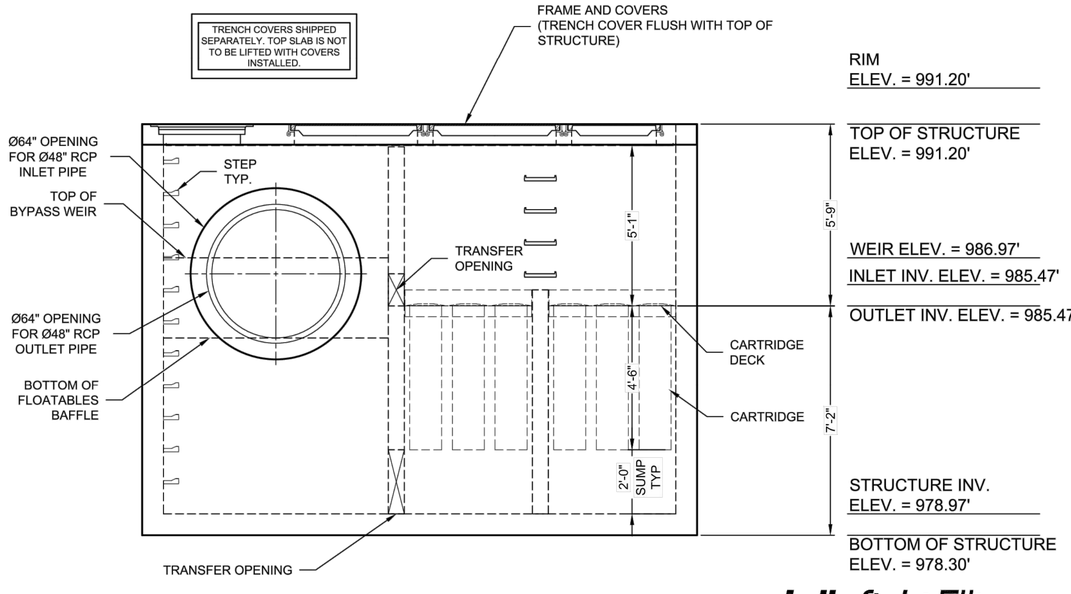
SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	991.20

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:
UNIT IS SIZED AS JFPD0811-15-4. VAULT SIZE IS 8X16 TO ACCOMMODATE 48" RCP INLET/OUTLET.
* PER ENGINEER OF RECORD

TRENCH COVERS SHIPPED SEPARATELY. TOP SLAB IS NOT TO BE LIFTED WITH COVERS INSTALLED.



ELEVATION VIEW

GENERAL NOTES:
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2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
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INSTALLATION NOTES
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Jellyfish® Filter

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

8' x 16' JELLYFISH - 715260 - 010
FOUST TRACK - CHALK HILL VENTURES
LIBERTY HILL, TX
SITE DESIGNATION: ST-A

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

WATER QUALITY DETAILS II

SHEET:
C12.3

I:\MERLIN\PROJECT\ACTIVE\715200\715260\715260-10-JELLYFISH\DRAWINGS\PROPOSAL\JFPD0816-PRO.DWG 3/21/2023 12:34 PM
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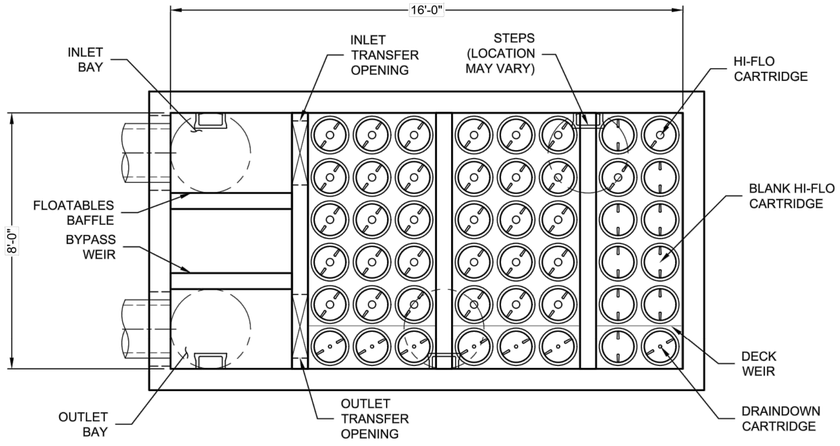
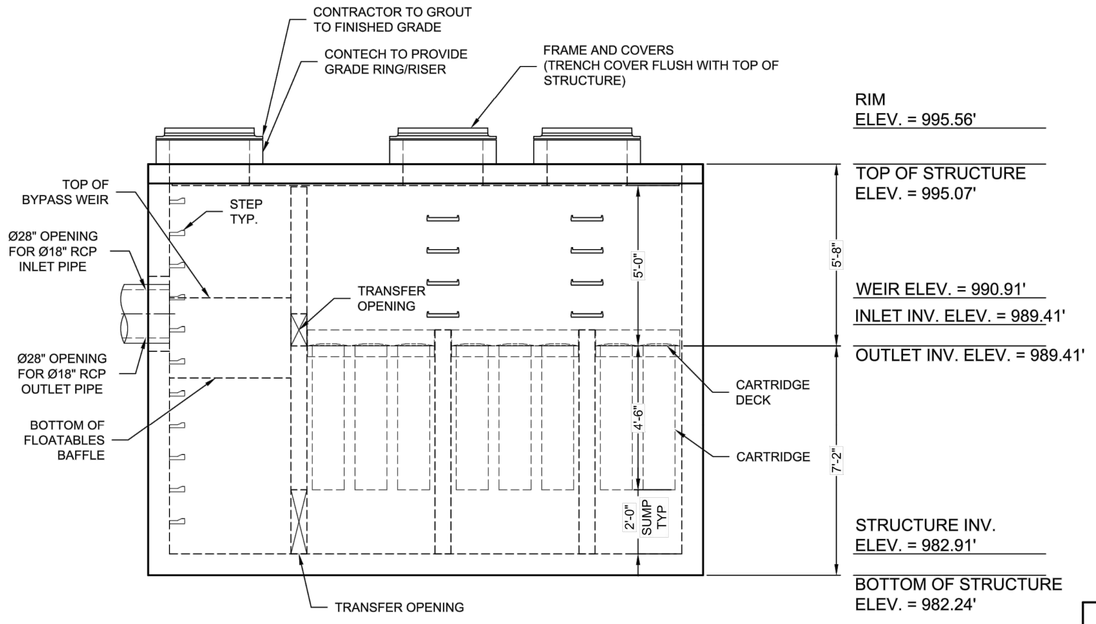
PLOTTED BY: Prashantha Gudum
PLOTTED DATE: 5/25/2023



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



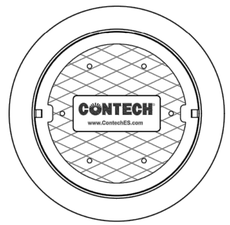
ELEVATION VIEW

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	7.84
DECK TO INSIDE TOP (MIN) (B)	5.00



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	ST-C
WATER QUALITY FLOW RATE (cfs)	6.32
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	32/7
CARTRIDGE LENGTH	54

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	989.41	RCP	18	*	*
INLET #2	*	*	*	*	*
OUTLET	989.41	RCP	18	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	995.56

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:
UNIT IS PLACED OFFLINE AND PAIRED WITH CONTECH STORMGATE DUE TO (2) 5'x3' RCB MAINLINE.
* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish® Filter

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

8' x 16' JELLYFISH - 715260 - 030
FOUST TRACT - CHALK HILL VENTURES
LIBERTY HILL, TX
SITE DESIGNATION: ST-C

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

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CHALK HILL RANCH
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

WATER QUALITY DETAILS III

SHEET:
C12.4

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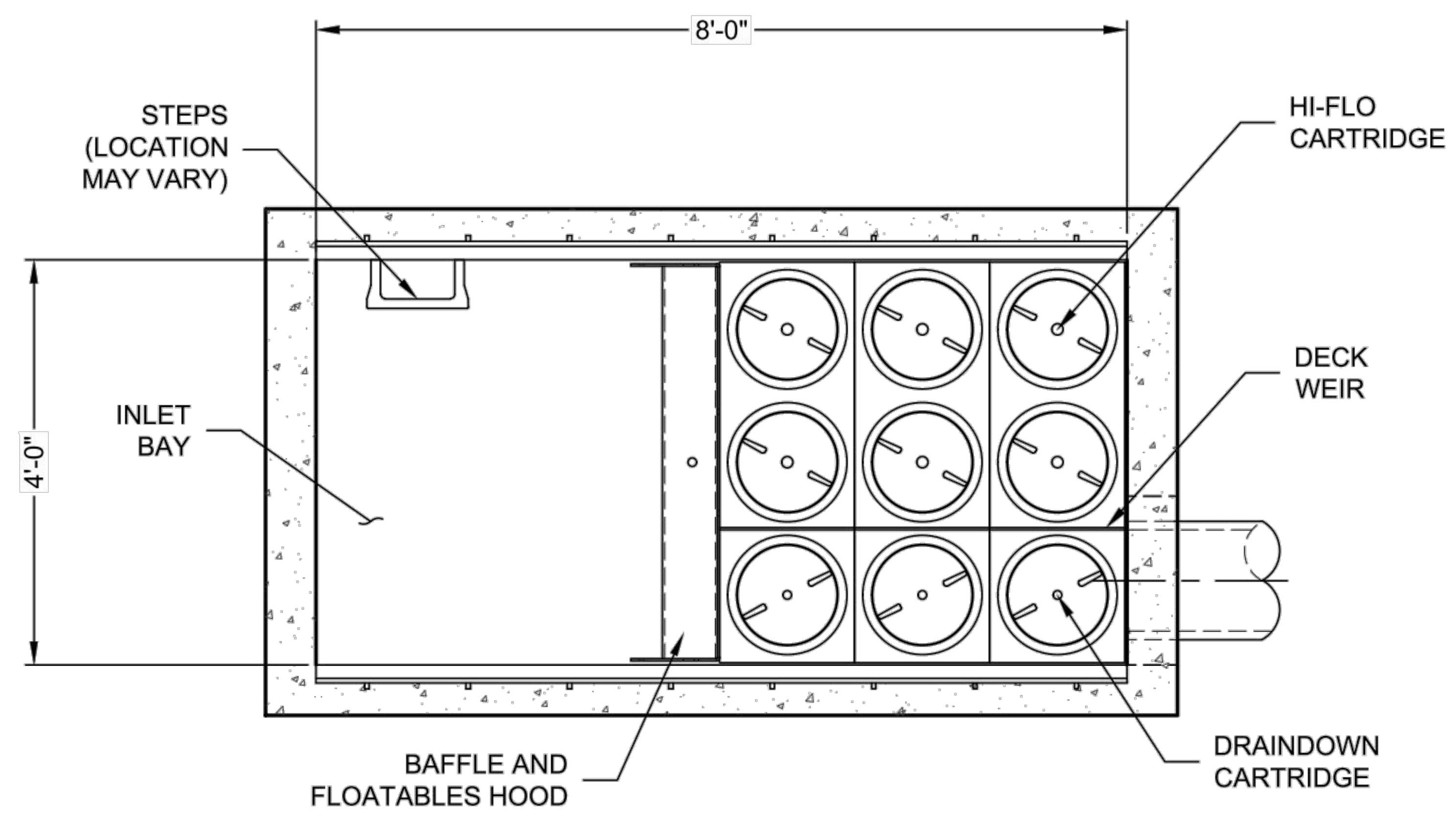
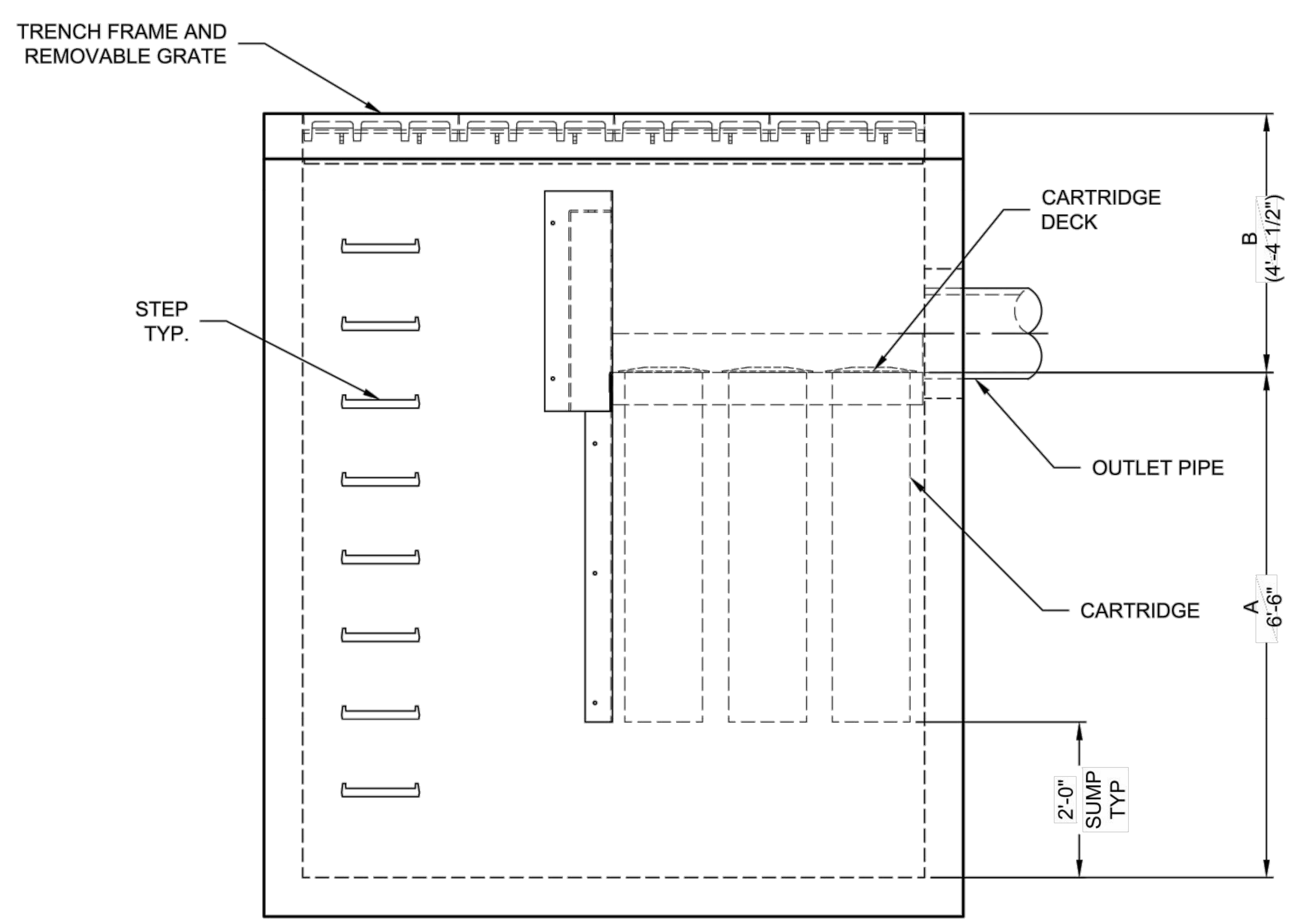
PLOTTED BY: Priyanka Gadam
PLOTTED DATE: 5/25/2023



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW

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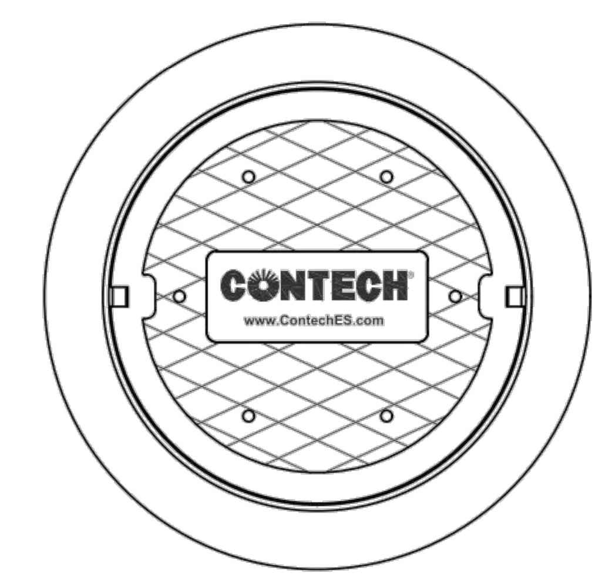
JELLYFISH DESIGN NOTES

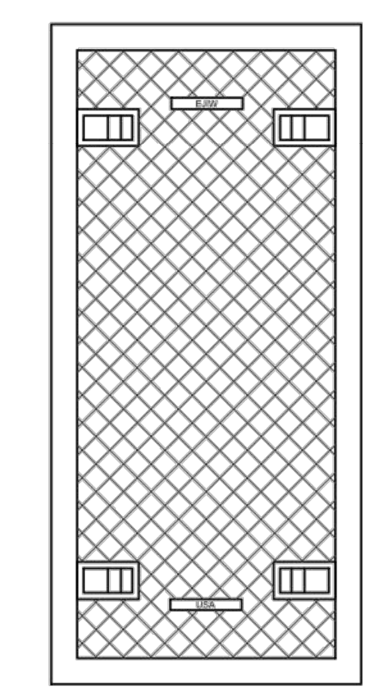
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET, PIPE INLET, OR SLAB TOP WITH EARTH COVER OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

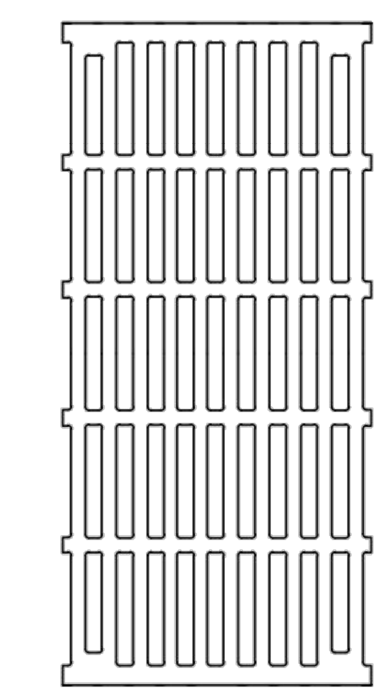
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.34	1.00	0.67	0.37
OUTLET INVERT TO RIM (MIN) (B)	3'-4"	3'-4"	3'-4"	3'-4"



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24"
TRENCH COVER
N.T.S.



24"
TRENCH GRATE
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	ST-G
WATER QUALITY FLOW RATE (cfs)	0.99
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	5/2
CARTRIDGE LENGTH	54

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	979.50	RCP	15"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	983.89

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:
TOP OF BAFFLE WALL ELEV. = 981.83'

* PER ENGINEER OF RECORD

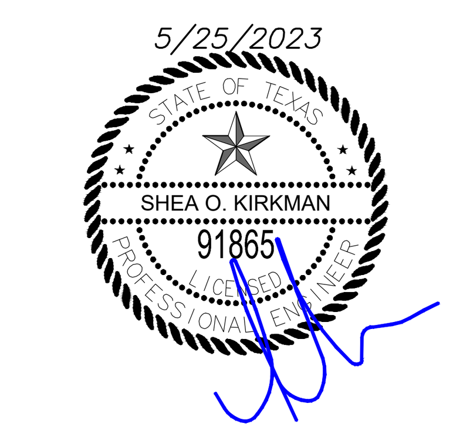
GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' TO 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish® Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH®
ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFSI0408
STANDARD DETAIL
SURFACE INLET CONFIGURATION



CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
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CHALK HILL RANCH
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman
ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
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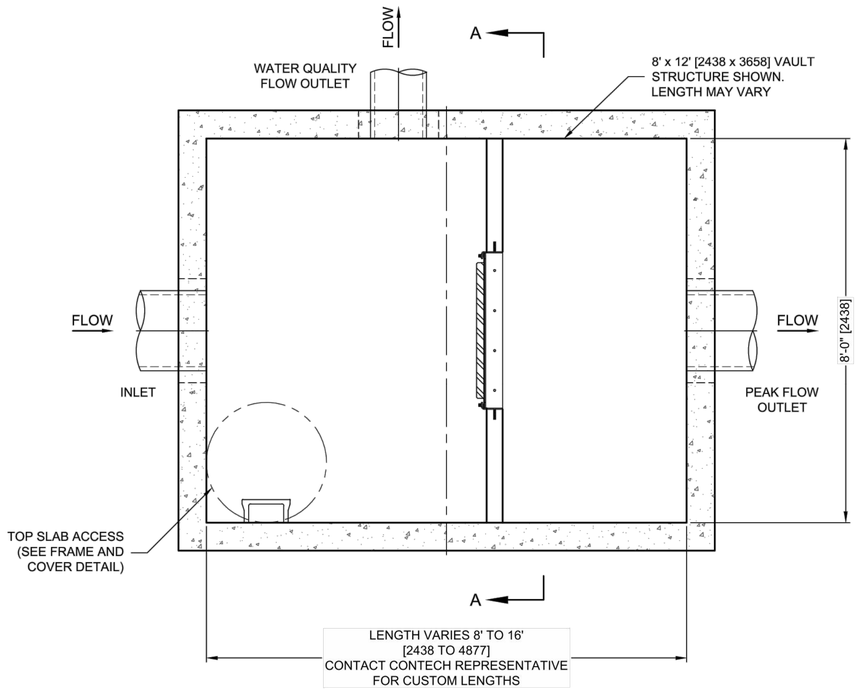
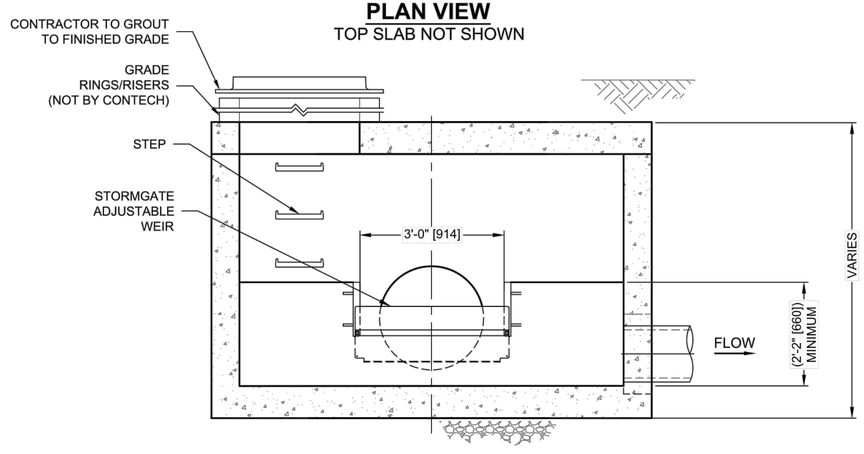
WATER QUALITY DETAILS IV

SHEET:
C12.5



PLAN VIEW
TOP SLAB NOT SHOWN

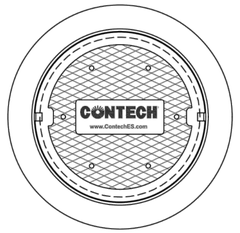


SECTION A-A

StormGate™

STORMGATE DESIGN NOTES

THE STORMGATE IS A WEIR STYLE DIVERSION STRUCTURE. A 8' [2438] WIDE VAULT CONFIGURATION IS SHOWN. THE UNIT IS DESIGNED SUCH THAT THE TREATMENT FLOW IS DIVERTED TO THE OFFLINE WATER QUALITY DEVICE. THE HIGH FLOWS ARE BYPASSED OVER THE WEIR DIRECTLY TO THE DOWNSTREAM CONVEYANCE. THE STORMGATE TYPICALLY HAS ONE INLET, A LOW FLOW OUTLET FOR TREATMENT FLOW, AND A HIGH FLOW BYPASS OUTLET. THE STORMGATE INCORPORATES A FIELD-ADJUSTABLE ALUMINUM WEIR PLATE WHICH ALLOWS FOR 6" [152] OF WEIR HEIGHT ADJUSTMENT AFTER INSTALLATION. THE CAPACITY OF THE STORMGATE IS A FUNCTION OF THE AVAILABLE HEIGHT ABOVE THE WEIR (HEAD) AND UNIT GEOMETRY. PLEASE CONTACT YOUR LOCAL CONTECH DESIGN ENGINEER FOR SIZING ASSISTANCE.



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID				ST-C BYPASS
WATER QUALITY (WQ) FLOW RATE (cfs [L/s])				6.32 cfs
PEAK FLOW RATE (cfs [L/s])				*
RIM ELEVATION				995.56
PIPE DATA:	INVERT	ORIENTATION	MATERIAL	DIAMETER
INLET PIPE	989.41	16' SIDE	RCB	(2) 5'x3'
WQ FLOW OUTLET PIPE	989.41	8' SIDE	RCP	18"
PEAK FLOW OUTLET PIPE	989.41	16' SIDE	RCB	(2) 5'x3'
ORIFICE TYPE (PIPE, PLATE)				
ORIFICE DIAMETER (in. [mm])				
WEIR CREST ELEVATION				990.51
WEIR WALL ELEVATION				991.01
HEAD OVER WEIR, H (ft. [mm])				
WSE AT PEAK FLOW RATE				
WEIR ORIENTATION				
FLOOR ELEVATION				

NOTES / SPECIAL REQUIREMENTS:
UNIT IS 8'x16'
SPECIAL STRUCTURAL DESIGN REQUIRED DUE TO (2) 5'x3' RCB

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. STORMGATE WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS THE REQUIREMENTS OF THE PROJECT.
4. STORMGATE STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' [1524] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. STORMGATE STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C857, ASTM C918 AND ACI-318 LOAD FACTOR DESIGN METHOD.
6. WEIR FRAME AND ADJUSTABLE WEIR PLATE SHALL BE FABRICATED OF ALUMINUM ALLOY ASTM B209, T-5052, T-6061, PROVIDED AND INSTALLED BY CONTECH.
7. ALTERNATE UNITS ARE SHOWN IN [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMGATE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN ON SITE SPECIFIC DRAWINGS. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO INSTALL GRADE RINGS/RISERS OR BLOCK REQUIRED BETWEEN THE TOP OF THE STRUCTURE AND THE BASE OF THE MANHOLE FRAMES.
F. CONTRACTOR TO ADJUST STORMGATE WEIR TO DESIGN ELEVATION SPECIFIED IN DRAWING. DO NOT EXCEED 5.0 FT-LBS TORQUE WHEN TIGHTENING SCREWS ON WEIR FRAME. SEAL WEIR TO FRAME WITH SIKAFLEX 1A SEALANT AFTER FINAL ADJUSTMENT.

CONTECH® ENGINEERED SOLUTIONS LLC
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9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

8' WIDTH x VARYING LENGTH
STORMGATE VAULT
STANDARD DETAIL

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

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PROPERTY OWNER LLC

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CHALK HILL RANCH
LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

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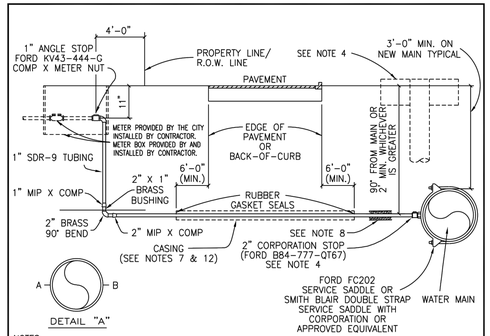
JOB NUMBER: CHV21004
ISSUE DATE:

WATER QUALITY DETAILS V

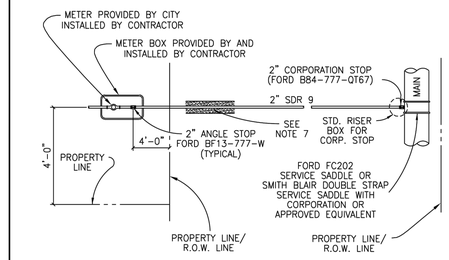
SHEET:
C12.6



NOTES:
1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED A MINIMUM OF 18" OFFSET AND AT THE CENTERLINE AS SHOWN ON DETAIL "A".
2. WHERE NO SIDEWALK EXISTS, METER BOXES SHALL BE SET TO CONFORM TO FINISHED GRADE.
3. AUTHORIZED SERVICE LINE MATERIAL:
   POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
4. ROTATE THE CORPORATION STOP SO THAT THE OPERATING NUT IS ACTUATED FROM THE VERTICAL POSITION RATHER THAN THE HORIZONTAL. SEE STD. RISER FOR CORP. STOP DETAIL, (DWG # W08).
5. SERVICE LINES SHALL BE CONTINUOUS FROM CORPORATION STOP TO CORPORATION STOP WITH NO FITTINGS IN BETWEEN.
6. SERVICE CASING SHALL NOT BE INSTALLED BY WATER JETTING UNDER ROADWAY.
7. CASING REQUIRED FOR ALL PAVEMENT CROSSINGS. 4" SDR-26 REQUIRED FOR OPEN-CUT. STEEL CASING PIPE REQUIRED FOR JACK AND BORE. LIMITS OF CASING SHOULD EXTEND SIX FEET BEYOND THE EDGE OF PAVEMENT OR BACK-OF-CURB.
8. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. METER BOX TO BE CAPABLE OF HOUSING ITRON AUTOMATIC METER READING DEVICE. USE DFW-PLASTICS, INC. PART NO. 1200.SBAMR OR APPROVED EQUAL.
11. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY. SEE DETAIL W23.
12. CASING SHALL EXTEND OUT TO WITHIN 4' INSIDE OF THE R.O.W. LINE, ON BOTH SIDES.

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

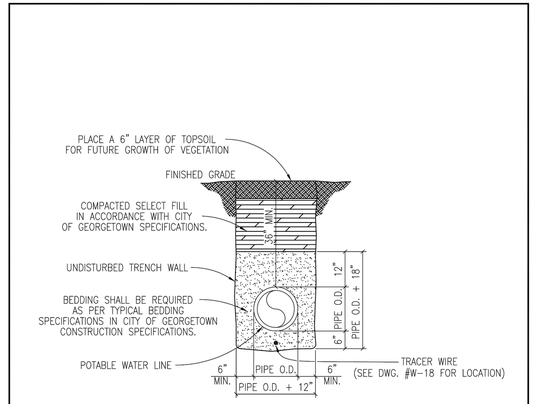
	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TYPICAL WATER SERVICE-ELEVATION	REVISION NOTE: ADOPTED 01/23/2013 DRAWING NAME: W03 SCALE: NTS · DATE: 1/2013 DRAWN BY: – · APPROVED BY: MH



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

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

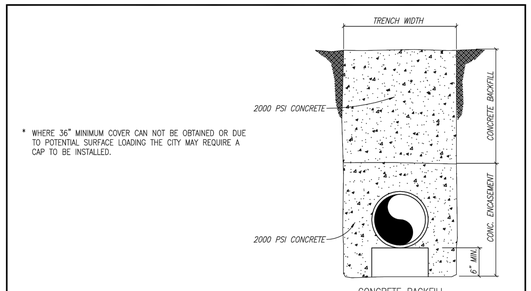
	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS SINGLE WATER SERVICE PLAN	REVISION NOTE: ADOPTED 01/23/2013 DRAWING NAME: W04 SCALE: NTS · DATE: 1/2013 DRAWN BY: – · APPROVED BY: MH

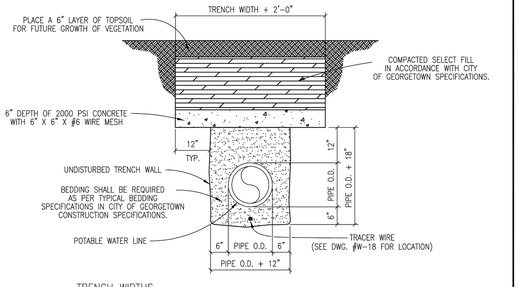


TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: W02 SCALE: NTS · DATE: 1/2003 DRAWN BY: MRS · APPROVED BY: TRB

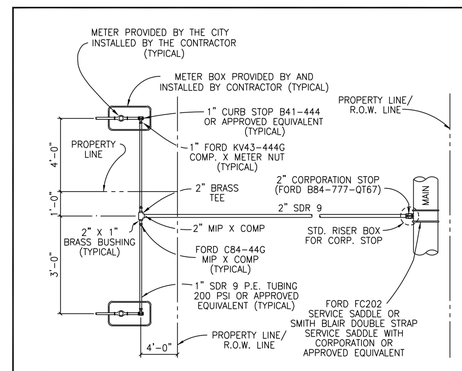




TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

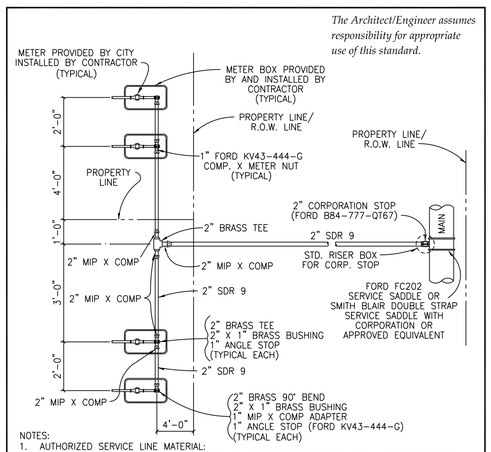
	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS CONCRETE TRENCH CAP DETAIL	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: W02A SCALE: NTS · DATE: 1/2003 DRAWN BY: MRS · APPROVED BY: TRB



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

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

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS DOUBLE WATER SERVICE PLAN	REVISION NOTE: ADOPTED 01/23/2013 DRAWING NAME: W05 SCALE: NTS · DATE: 1/2013 DRAWN BY: – · APPROVED BY: MH



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

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS QUADRUPLE WATER SERVICE PLAN	REVISION NOTE: ADOPTED 01/23/2013 DRAWING NAME: W06 SCALE: NTS · DATE: 1/2013 DRAWN BY: – · APPROVED BY: MH

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

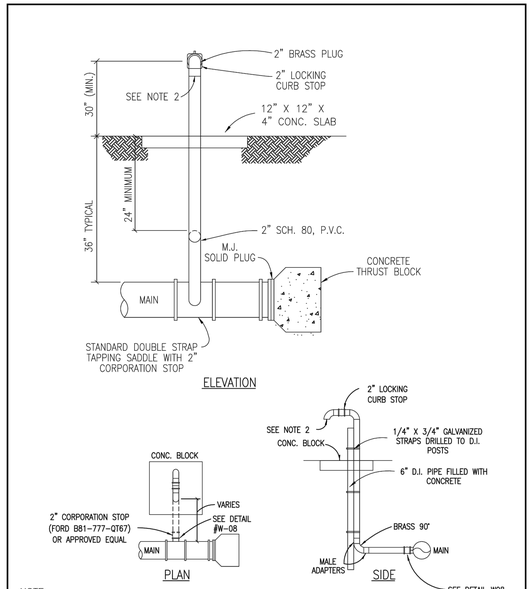
kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER DETAILS I

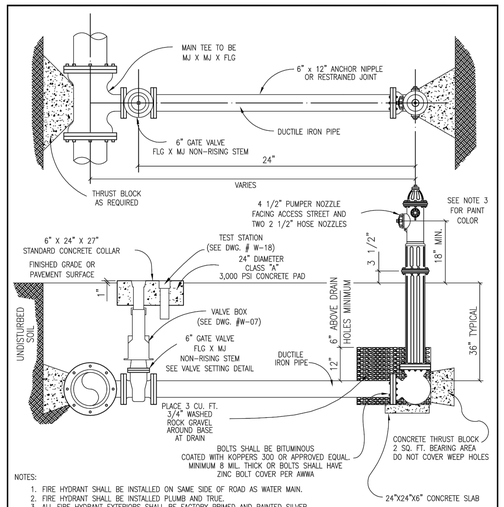
SHEET:
C13.0



NOTE:
1. ATTACH FIRE HYDRANT CONNECTION AT THE END OF THE BLOW OFF VALVE.

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

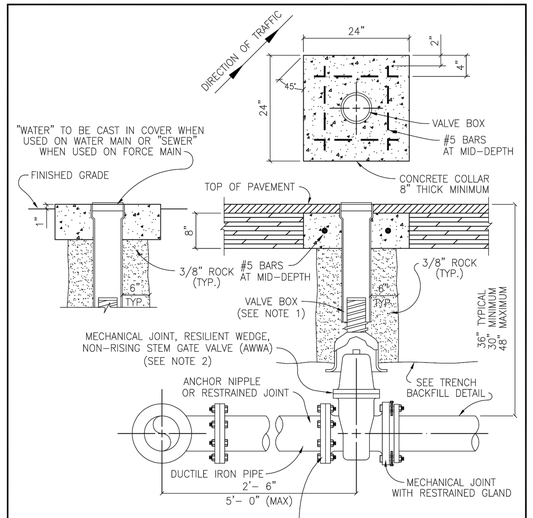
	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
EST 1848 GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility	STANDARD BLOW-OFF	DRAWING NAME: W09
	SCALE: NTS DATE: 1/2003	DRAWN BY: MRS APPROVED BY: TRB



NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED ON SAME SIDE OF ROAD AS WATER MAIN.
2. FIRE HYDRANT SHALL BE INSTALLED PLUMB AND TRUE.
3. ALL FIRE HYDRANT EXTERIORS SHALL BE FACTORY PRIMED AND PAINTED SILVER USING A HIGH GRADE ENAMEL.
4. HEEL AND THRUST BLOCKS TO REST IN UNDISTURBED SOIL.
5. THE ONLY FIRE HYDRANTS ACCEPTABLE ARE:
   A. KENNEDY – K81
   B. AMERICAN DARLING – B84B
   C. CLOW MEDALLION
6. DOUBLE BLUE REFLECTOR "HYE-LITES" BRAND, MANUFACTURED BY PAVEMENT MARKERS INC. TO BE INSTALLED AT CENTERLINE OF STREET PERPENDICULAR TO HYDRANT.
7. ALL METALLIC PIPES AND FITTINGS SHALL BE WRAPPED WITH 8 MIL. POLYETHELENE FILM.

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

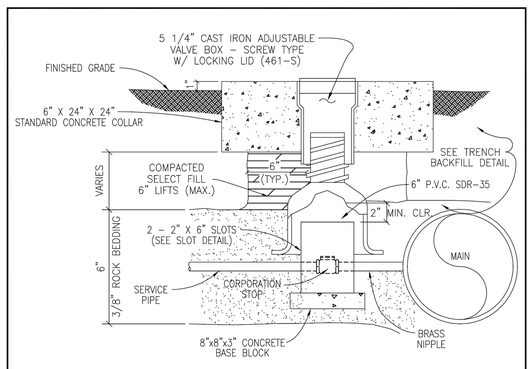
	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
EST 1848 GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility	TYPICAL FIRE HYDRANT INSTALLATION	DRAWING NAME: W10
	SCALE: NTS DATE: 1/2003	DRAWN BY: MRS APPROVED BY: TRB



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

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

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
EST 1848 GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility	TYPICAL VALVE SETTING	DRAWING NAME: W07
	SCALE: NTS DATE: 1/2003	DRAWN BY: MRS APPROVED BY: TRB



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

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
EST 1848 GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility	STANDARD RISER BOX FOR CORPORATION STOP	DRAWING NAME: W08
	SCALE: NTS DATE: 1/2003	DRAWN BY: MRS APPROVED BY: TRB

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
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CHV LIBERTY HILL 29 PROPERTY OWNER LLC

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DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

kirkman ENGINEERING

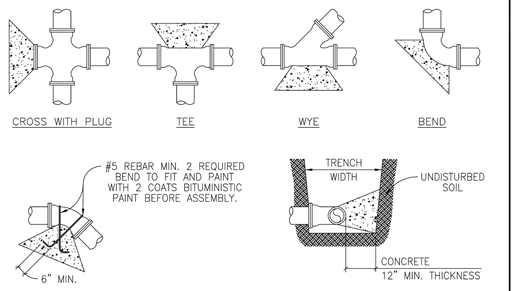
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER DETAILS II

SHEET:
C13.1



*DEADMAN

TYPICAL SECTION

ALL THRUST BLOCKS SHALL BE FORMED. LAID FORMS SHALL BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO THE POURING OF CONCRETE AND SHALL ALSO BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO COVERING. TYPICAL LOCATIONS WHICH REQUIRE CONCRETE REACTION (THRUST) BLOCKS, FOR PRESSURE MAINS FOUR INCHES (4") AND GREATER. CONCRETE SHALL HAVE 2,500 P.S.I. MINIMUM STRENGTH AT TWENTY EIGHT (28) DAYS AND BEAR AGAINST UNDISTURBED STABLE SOILS, AREA OF CONTACT SHALL BE GOVERNED BY PIPE SIZE, MAXIMUM PRESSURE IN PIPE, AND BEARING CAPACITY OF SOIL. PROTECT FITTINGS, BOLTS, ETC. BY COVERING WITH VISQUEEN OR OTHER ACCEPTABLE MATERIAL. CONCRETE SHALL BE A MINIMUM OF TWELVE INCHES (12") THICK.

PIPE SIZE	THRUST BLOCK AREA REQUIRED	PIPE SIZE	THRUST BLOCK AREA REQUIRED	REMARKS
4"	2.0 SQ. FT.	18"	30.0 SQ. FT.	VALUES ARE FOR 90° BENDS, BASED ON 2000 P.S.F. SAFE BEARING LOAD AND PIPE PRESSURE OF 150 P.S.I. PLUS 33% SAFETY FACTOR FOR OTHER SOILS AND PRESSURES, THE AREA REQUIRED IS IN DIRECT PROPORTION.
6"	4.0 SQ. FT.	20"	37.0 SQ. FT.	
8"	6.6 SQ. FT.	24"	53.0 SQ. FT.	
10"	10.0 SQ. FT.	27"	80.0 SQ. FT.	
12"	14.0 SQ. FT.	30"	98.0 SQ. FT.	
14"	18.0 SQ. FT.	36"	127.0 SQ. FT.	
16"	24.0 SQ. FT.			

* THE ENGINEER OF RECORD SHALL CALCULATE THE SIZE OF THE DEADMAN REQUIRED AS WELL AS ANY INSTALLATION WHICH IS NOT COVERED BY THE ABOVE.

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

REVISION NOTE: ADOPTED 6/21/2006

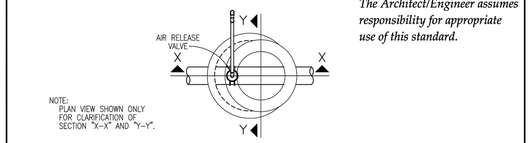
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

TYPICAL THRUST BLOCKS FOR WATER AND FORCE MAIN

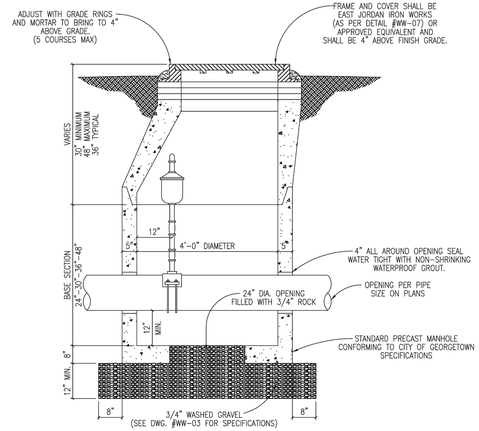
DRAWING NAME: W11

SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

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



PLAN



SECTION "X-X"

REVISION NOTE: ADOPTED 6/21/2006

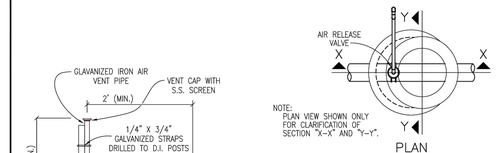
CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

STANDARD AIR RELEASE VALVE FOR WATER MAIN

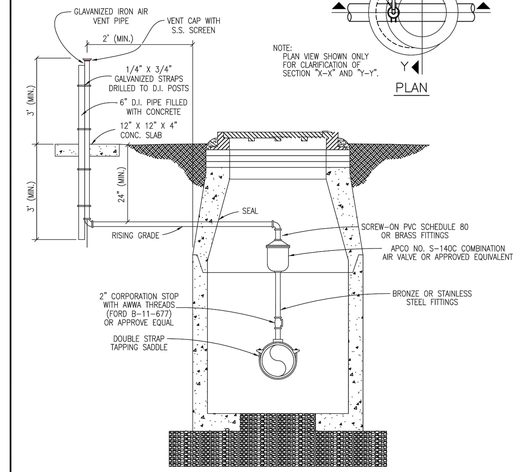
DRAWING NAME: W12

SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

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



PLAN



SECTION "Y-Y"

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

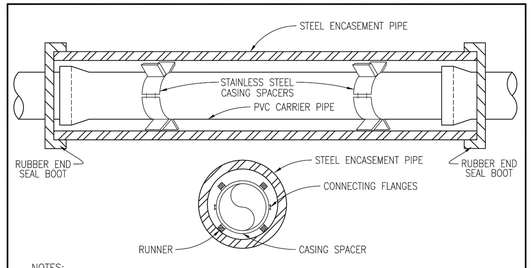
REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

STANDARD AIR RELEASE VALVE FOR WATER MAIN

DRAWING NAME: W13

SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



NOTES:

1. CASING SPACERS SHALL BE BOLT ON STYLE WITH A SHELL MADE IN TWO SECTIONS OF HEAVY T-304 STAINLESS STEEL. CONNECTING FLANGES SHALL BE RIBBED FOR EXTRA STRENGTH. CASING SPACERS SHALL BE MADE BY CASCADE WATERWORKS MFG. CO. OR APPROVED EQUAL.
2. CASING SPACERS SHALL HAVE RUNNERS MADE OF ULTRA HIGH MOLECULAR WEIGHT POLYMER, WITH A MINIMUM HEIGHT OF 2 INCHES.
3. DO NOT USE WEDGES BETWEEN TOP OF PVC CARRIER PIPE AND INSIDE OF CASING TO KEEP PVC FROM MOVING.
4. PRIOR TO INSERTING PVC CARRIER PIPE, ANY WATER SHOULD BE PUMPED OUT OF THE CASING PIPE SO THAT NO MORE THAN A FEW INCHES OF WATER REMAINS.
5. SPACERS WILL BE REQUIRED WITHIN AT LEAST 3 FEET FROM BOTH OPENINGS OF THE ENCASE-MENT PIPE AND SPACED NO GREATER THAN 6 FEET THROUGHOUT THE ENCASEMENT PIPE.
6. ENCASEMENT PIPE SHALL BE SMOOTH STEEL 35,000 PSI YIELD STRENGTH WITH THICKNESS ACCORDING TO THE FOLLOWING TABLE:
7. WHEN CASING IS REQUIRED UNDER PAVEMENT WITHIN THE R.O.W., THE CASING SHALL EXTEND OUT TO WITHIN 4' INSIDE OF THE R.O.W. LINE, ON BOTH SIDES.
8. ALL JOINTS SHALL BE RESTRAINED ON PVC CARRIER PIPE.

PIPE SIZE-CARRIER (DIAMETER)	PIPE SIZE-CASING (DIAMETER)(MIN.)	MINIMUM PIPE THICKNESS (INCHES)	
6"	16"		
8"	18"	1/4	0.2500
10"	20"	5/16	0.3125
12" – 14"	24"	3/8	0.3750
16" – 18"	30"	7/16	0.4375
20"	36"	1/2	0.5000
24"	42"	1/2	0.5000
30"	48"	1/2	0.5000

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

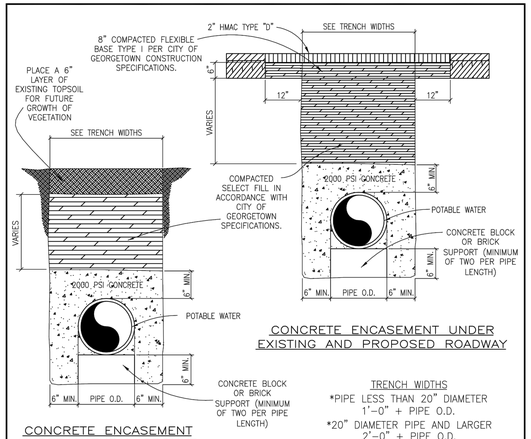
REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

INSTALLATION OF P.V.C. PIPE THROUGH CASING

DRAWING NAME: W14

SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



CONCRETE ENCASEMENT UNDER EXISTING AND PROPOSED ROADWAY

CONCRETE ENCASEMENT UNDER NATURAL GROUND

TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

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

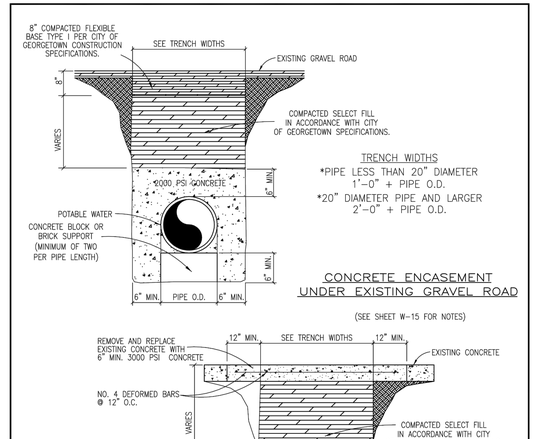
REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

CONCRETE ENCASEMENT DETAIL

DRAWING NAME: W15

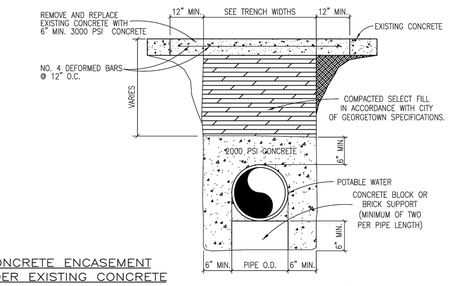
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

CONCRETE ENCASEMENT UNDER EXISTING GRAVEL ROAD

(SEE SHEET W-15 FOR NOTES)



CONCRETE ENCASEMENT UNDER EXISTING CONCRETE

(SEE SHEET W-15 FOR NOTES)

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

CONCRETE ENCASEMENT DETAIL

DRAWING NAME: W16

SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER DETAILS III

SHEET:
C13.2

FULL PATH: K:\Jobs\CHV21004_Fault\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C13.0 WATER DETAILS_CHV21004.dwg
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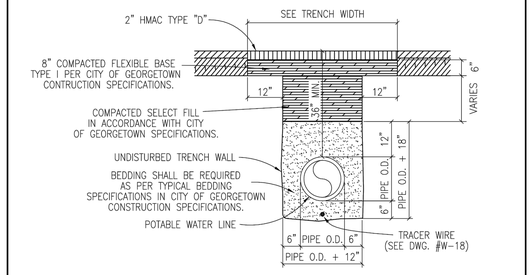
PLOTTED BY: Prashanta Gadam
PLOTTED DATE: 5/25/2023



TRENCH WIDTHS

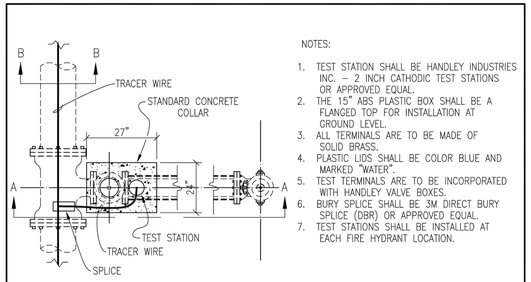
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:

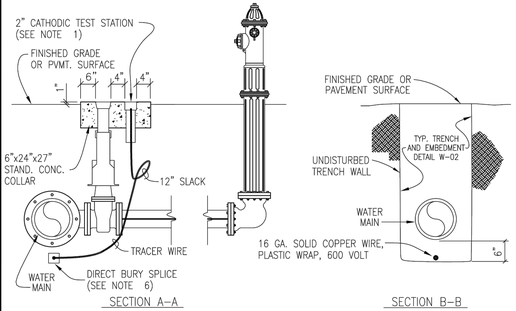
1. REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE.
2. BASE MATERIAL SHALL BE IN LIFTS NOT TO EXCEED 6" AND EACH LIFT THOROUGHLY ROLLED OR TAMPED TO SPECIFIED MAXIMUM DENSITY.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
4. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.
5. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
6. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

GEORGETOWN TEXAS Georgetown Utility Systems "Our Community Owned Utility"	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TRENCH AND EMBEDMENT AND PAVEMENT REPLACEMENT DETAIL UNDER EXISTING ROADWAY	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: W17 SCALE: NTS · DATE: 1/2003 DRAWN BY: MRS · APPROVED BY: TRB	



PLAN



SECTION A-A

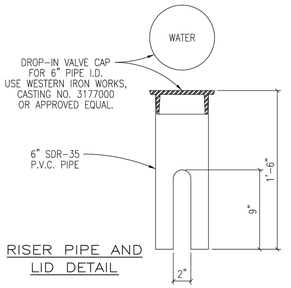
SECTION B-B

NOTES:

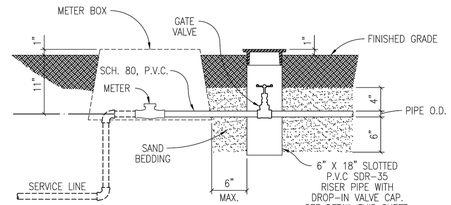
1. TEST STATION SHALL BE HANDLEY INDUSTRIES INC. – 2 INCH CATHODIC TEST STATIONS OR APPROVED EQUAL.
2. THE 15" ABS PLASTIC BOX SHALL BE A FLANGED TOP FOR INSTALLATION AT GROUND LEVEL.
3. ALL TERMINALS ARE TO BE MADE OF SOLID BRASS.
4. PLASTIC LIDS SHALL BE COLOR BLUE AND MARKED "WATER".
5. TEST TERMINALS ARE TO BE INCORPORATED WITH HANDLEY VALVE BOXES.
6. BURY SPLICE SHALL BE 3M DIRECT BURY SPLICE (DBR) OR APPROVED EQUAL.
7. TEST STATIONS SHALL BE INSTALLED AT EACH FIRE HYDRANT LOCATION.

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

GEORGETOWN TEXAS Georgetown Utility Systems "Our Community Owned Utility"	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TRACER WIRE INSTALLATION AND TEST STATION LOCATION	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: W18 SCALE: NTS · DATE: 1/2003 DRAWN BY: MRS · APPROVED BY: TRB	



RISER PIPE AND LID DETAIL

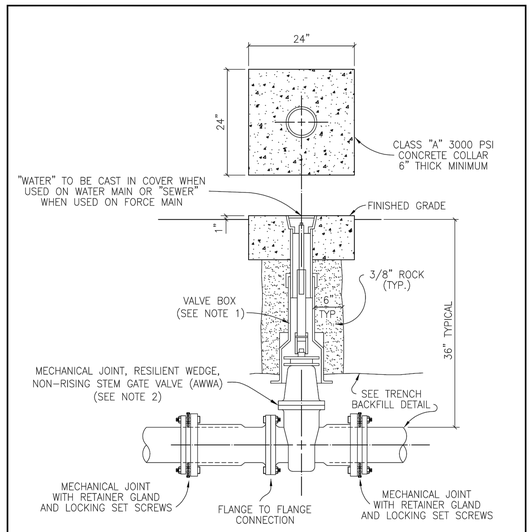


NOTES:

1. GATE VALVE SHALL BE A HAMMOND IB645, CLASS 125, BRONZE GATE, SCREWED BONNET, NON-RISING STEM, SOLID WEDGE DISC WITH THREADED ENDS OR APPROVED EQUAL.
2. DROP-IN VALVE CAP SHALL BE CAST WITH THE WORD "WATER" ON TOP.
3. USE SCHEDULE 80, M.I.P. ADAPTER AS REQUIRED.

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

GEORGETOWN TEXAS Georgetown Utility Systems "Our Community Owned Utility"	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS CUSTOMER'S CUT-OFF	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: W20 SCALE: NTS · DATE: 1/2003 DRAWN BY: MRS · APPROVED BY: TRB	

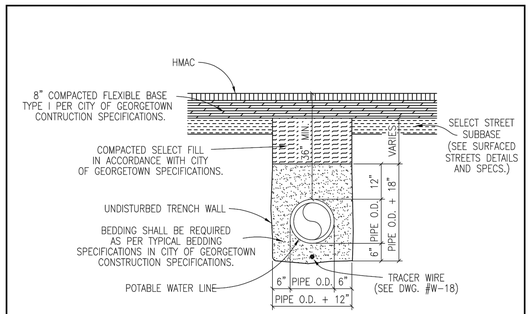


NOTES:

1. SEE VALVE SETTING DETAIL, DWG. #W-07.
2. ACCEPTABLE GATE VALVES ARE:
   A. MUELLER – 2360 SERIES
   B. CLOW

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

GEORGETOWN TEXAS Georgetown Utility Systems "Our Community Owned Utility"	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS INLINE VALVE INSTALLATION	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: W21 SCALE: NTS · DATE: 1/2003 DRAWN BY: MRS · APPROVED BY: TRB	



TRENCH WIDTHS

*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:

1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

GEORGETOWN TEXAS Georgetown Utility Systems "Our Community Owned Utility"	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: W22 SCALE: NTS · DATE: 1/2003 DRAWN BY: MRS · APPROVED BY: TRB	

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER DETAILS IV

SHEET:
C13.3

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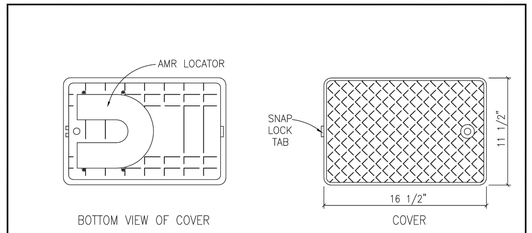
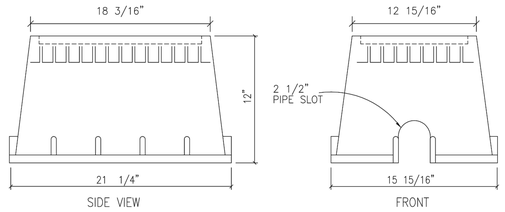
PLOTTED DATE: 5/25/2023



DFW PLASTINCS, INC. PART NO. 1200.SBAMR, BLACK BOX, BLACK COVER AND 2 1/2" PIPE SLOT OR APPROVED EQUAL.



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

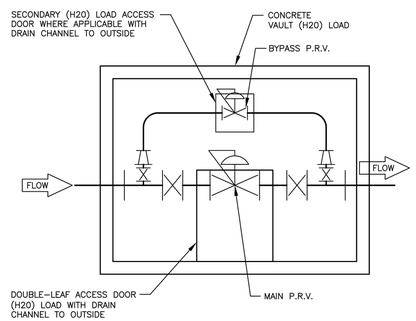
GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS METER BOX (NON-TRAFFIC AREAS)	REVISION NOTE: ADOPTED 6/21/2006 DRAWING NAME: W23 SCALE: NTS; DATE: 1/2003 DRAWN BY: MRS; APPROVED BY: TRB

DWG NO.	TITLE/DESCRIPTION
WT–17 (1 of 9)	– INDEX AND GENERAL NOTES
WT–17 (2 of 9)	– VAULT ARRANGEMENT SCHEMATICS
WT–17 (3 of 9)	– VAULT SECTIONAL PLAN VIEW
WT–17 (4 of 9)	– COVER SLAB PLAN VIEW
WT–17 (5 of 9)	– VAULT SECTION "A"
WT–17 (6 of 9)	– VAULT SECTIONS "B" AND "C"
WT–17 (7 of 9)	– PIPING AND EQUIPMENT SCHEDULE
WT–17 (8 of 9)	– SPECIFIC EQUIPMENT NOTES
WT–17 (9 of 9)	– VAULT DIMENSIONS SCHEDULE

ALL NINE (9) PRV DRAWINGS SHALL BE INCLUDED ON THE CONSTRUCTION PLANS.

A. THE VALVE SIZE AND LAYOUT SCHEME SHALL BE DETERMINED BY THE OWNER; APPROVAL WILL BE BY THE UTILITIES DEPARTMENT. PLANS MUST BE PREPARED, SEALED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS.
B. THE VAULT PIPING LAYOUT SHALL BE SHOWN IN DETAIL WT–17 (2 OF 9).
C. THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR APPROVAL BY THE OWNER FOR ALL VAULT, PIPING, EQUIPMENT AND MATERIALS PRIOR TO ANY CONSTRUCTION.
D. FIELD VERIFY THE DEPTH OF THE ADJACENT PIPING TO BE CONNECTED TO AND ADJUST THE VERTICAL DIMENSIONS OF THE VAULT AS REQUIRED.
E. FIELD VERIFY THE MATERIAL AND PRESSURE CLASS OF THE ADJACENT PIPING TO BE CONNECTED TO AND PROVIDE APPROPRIATE PIPE CONNECTION FITTINGS AS REQUIRED.
F. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ANY EXISTING UTILITIES, STRUCTURES AND EQUIPMENT WHICH PERTAIN TO AND/OR AFFECT THE CONSTRUCTION OF THE VAULT.
G. ANY EXISTING UTILITIES, PAVEMENT, FENCING, CURBS, SIDEWALKS, STRUCTURES, ETC., THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR.
H. THE LOCATION AND ORIENTATION OF THE VAULT SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
I. DIMENSIONS AND ELEVATIONS SHOWN WITH AN ASTERISK (*) SHALL BE DETERMINED AND/OR VERIFIED AFTER FINAL EQUIPMENT SELECTION AND LOCATION HAVE BEEN MADE.
J. VERIFY ALL PIPING DIMENSIONS AND ELEVATIONS FOR EQUIPMENT AND PIPING MATERIALS ACTUALLY FURNISHED FOR THIS PROJECT.
K. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE REVEGETATED TO A MINIMUM OF PRE–CONSTRUCTION CONDITIONS.
L. ALL SITE AND VAULT PIPING SHALL BE DUCTILE IRON PIPE (D.I.P.) WITH BITUMINOUS COATING AND CEMENT LINING.
M. ALL BURIED PIPING SHALL BE POLYWRAPPED, AND SHALL ALSO HAVE RESTRAINED JOINTS INSTALLED TO A MINIMUM DISTANCE OUTSIDE OF THE VAULT WALL AS SHOWN FOR NOTE NO. "29" ON DETAIL WT–17 (7 of 9).
N. ALL BURIED PIPING SHALL BE INSTALLED WITH 4–FEET MINIMUM COVER.
O. THE CONTRACTOR SHALL PROVIDE COUPLINGS, EXPANSION JOINTS AND THRUST RESTRAINTS AS REQUIRED FOR ALL PIPING.
P. ALL VALVES, FITTINGS AND PIPE NOT DESIGNATED OTHERWISE SHALL BE EPOXY LINED AND SHALL BE NATIONAL SANITATION FOUNDATION (NSF) STANDARD 61 CERTIFIED.
Q. CONFINED SPACE ENTRY PLAQUE REQUIRED ON OUTSIDE OF ACCESS HATCH.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT–17 (1 of 9)
APPROVED 03–01–18 DATE	PRESSURE REDUCING VALVE VAULT LAYOUT INDEX AND GENERAL NOTES	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



SCHEMATIC LAYOUT

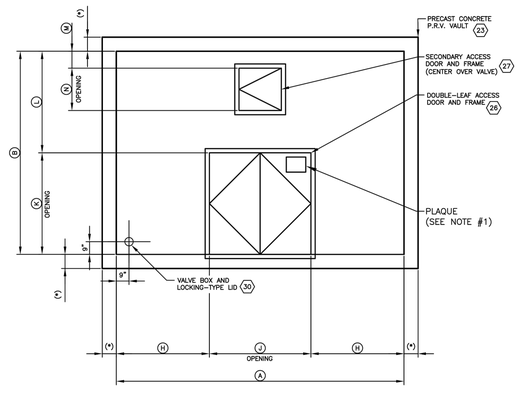
RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT–17 (2 of 9)
APPROVED 03–01–18 DATE	PRESSURE REDUCING VALVE VAULT LAYOUT VAULT ARRANGEMENT SCHEMATIC	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

DWG NO.	TITLE/DESCRIPTION
WT–17 (1 of 9)	– INDEX AND GENERAL NOTES
WT–17 (2 of 9)	– VAULT ARRANGEMENT SCHEMATICS
WT–17 (3 of 9)	– VAULT SECTIONAL PLAN VIEW
WT–17 (4 of 9)	– COVER SLAB PLAN VIEW
WT–17 (5 of 9)	– VAULT SECTION "A"
WT–17 (6 of 9)	– VAULT SECTIONS "B" AND "C"
WT–17 (7 of 9)	– PIPING AND EQUIPMENT SCHEDULE
WT–17 (8 of 9)	– SPECIFIC EQUIPMENT NOTES
WT–17 (9 of 9)	– VAULT DIMENSIONS SCHEDULE

ALL NINE (9) PRV DRAWINGS SHALL BE INCLUDED ON THE CONSTRUCTION PLANS.

A. THE VALVE SIZE AND LAYOUT SCHEME SHALL BE DETERMINED BY THE OWNER; APPROVAL WILL BE BY THE UTILITIES DEPARTMENT. PLANS MUST BE PREPARED, SEALED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS.
B. THE VAULT PIPING LAYOUT SHALL BE SHOWN IN DETAIL WT–17 (2 OF 9).
C. THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR APPROVAL BY THE OWNER FOR ALL VAULT, PIPING, EQUIPMENT AND MATERIALS PRIOR TO ANY CONSTRUCTION.
D. FIELD VERIFY THE DEPTH OF THE ADJACENT PIPING TO BE CONNECTED TO AND ADJUST THE VERTICAL DIMENSIONS OF THE VAULT AS REQUIRED.
E. FIELD VERIFY THE MATERIAL AND PRESSURE CLASS OF THE ADJACENT PIPING TO BE CONNECTED TO AND PROVIDE APPROPRIATE PIPE CONNECTION FITTINGS AS REQUIRED.
F. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ANY EXISTING UTILITIES, STRUCTURES AND EQUIPMENT WHICH PERTAIN TO AND/OR AFFECT THE CONSTRUCTION OF THE VAULT.
G. ANY EXISTING UTILITIES, PAVEMENT, FENCING, CURBS, SIDEWALKS, STRUCTURES, ETC., THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR.
H. THE LOCATION AND ORIENTATION OF THE VAULT SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
I. DIMENSIONS AND ELEVATIONS SHOWN WITH AN ASTERISK (*) SHALL BE DETERMINED AND/OR VERIFIED AFTER FINAL EQUIPMENT SELECTION AND LOCATION HAVE BEEN MADE.
J. VERIFY ALL PIPING DIMENSIONS AND ELEVATIONS FOR EQUIPMENT AND PIPING MATERIALS ACTUALLY FURNISHED FOR THIS PROJECT.
K. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE REVEGETATED TO A MINIMUM OF PRE–CONSTRUCTION CONDITIONS.
L. ALL SITE AND VAULT PIPING SHALL BE DUCTILE IRON PIPE (D.I.P.) WITH BITUMINOUS COATING AND CEMENT LINING.
M. ALL BURIED PIPING SHALL BE POLYWRAPPED, AND SHALL ALSO HAVE RESTRAINED JOINTS INSTALLED TO A MINIMUM DISTANCE OUTSIDE OF THE VAULT WALL AS SHOWN FOR NOTE NO. "29" ON DETAIL WT–17 (7 of 9).
N. ALL BURIED PIPING SHALL BE INSTALLED WITH 4–FEET MINIMUM COVER.
O. THE CONTRACTOR SHALL PROVIDE COUPLINGS, EXPANSION JOINTS AND THRUST RESTRAINTS AS REQUIRED FOR ALL PIPING.
P. ALL VALVES, FITTINGS AND PIPE NOT DESIGNATED OTHERWISE SHALL BE EPOXY LINED AND SHALL BE NATIONAL SANITATION FOUNDATION (NSF) STANDARD 61 CERTIFIED.
Q. CONFINED SPACE ENTRY PLAQUE REQUIRED ON OUTSIDE OF ACCESS HATCH.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT–17 (1 of 9)
APPROVED 03–01–18 DATE	PRESSURE REDUCING VALVE VAULT LAYOUT INDEX AND GENERAL NOTES	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



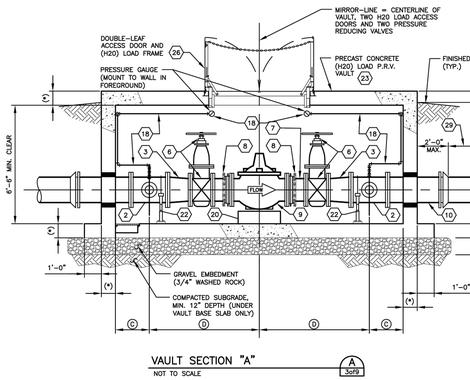
COVER SLAB PLAN VIEW
NOT TO SCALE
2/WT–17

NOTE:

1. ATTACH CONFINED SPACE ENTRY PLAQUE TO OUTSIDE OF THE ACCESS HATCH. (SEE NOTE Q ON DETAIL WT–17 (1 of 9)).

(*) SEE NOTE "I" ON DETAIL WT–17 (1 of 9).

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT–17 (4 of 9)
APPROVED 03–01–18 DATE	PRESSURE REDUCING VALVE VAULT LAYOUT COVER SLAB PLAN VIEW	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



VAULT SECTION "A"
NOT TO SCALE
A/WT–17

NOTE:

(*) SEE NOTE "I" ON DETAIL WT–17 (1 of 9).

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT–17 (5 of 9)
APPROVED 03–01–18 DATE	PRESSURE REDUCING VALVE VAULT LAYOUT VAULT SECTION "A"	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER DETAILS V

SHEET:
C13.4

FILENAME: C12.0 WATER DETAILS_CHV21004.dwg
PLOTTED BY: Prashanta Gadam
PLOTTED DATE: 5/25/2023

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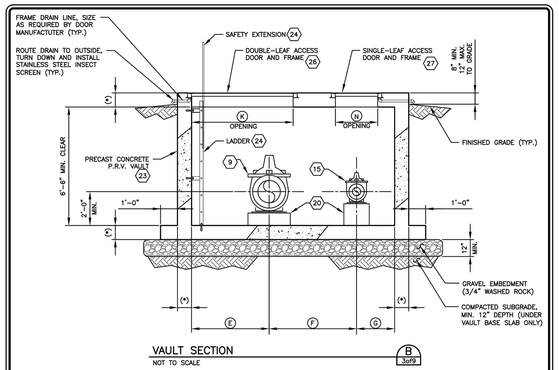


NOTE:

(*) SEE NOTE "I" ON DETAIL WT-17 (1 of 9).

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT-17 (6 of 9)
APPROVED 03-01-18 DATE	PRESSURE REDUCING VALVE VAULT LAYOUT VAULT SECTIONS "B" AND "C"	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)		

TAG NO.	DESCRIPTION	NOMINAL SIZE VAULT NO. 1	VAULT NO. 2	VAULT NO. 3	VAULT NO. 4	VAULT NO. 5	FITTING TYPE	SPECIFIC NOTES (SEE DRAWING DWG. WT-24)
1.	SPOOL PIPE	8"	10"	12"	16"	24"	M.J. x FL.	1, 2, 3
2.	TEE W/1-1/2" THREADED TESTING PORT	8" x 4"	10" x 4"	12" x 4"	16" x 6"	24" x 12"	FL. x FL.	2, 3
3.	CONCENTRIC REDUCER	N.A.	N.A.	N.A.	N.A.	24" x 16"	FL. x FL.	2, 3
4.	SPOOL PIPE	8"	10"	12"	16"	16"	FL. x FL.	2, 3
5.	90° ELBOW	8"	10"	12"	16"	16"	FL. x FL.	2, 3
6.	RESILIENT WEDGE GATE VALVE	8"	10"	12"	16"	16"	FL. x FL.	3, 4
7.	SPOOL PIPE	8"	10"	12"	16"	16"	FL. x P.E.	2, 3
8.	DRESSER DISMANTLING JOINT	8"	10"	12"	16"	16"	------	5, 6
9.	PRESSURE REDUCING VALVE	8"	10"	12"	16"	16"	FL. x FL.	3, 7
10.	SPOOL PIPE	8"	10"	12"	16"	24"	FL. x P.E.	2, 3
11.	RESILIENT WEDGE GATE VALVE	4"	4"	4"	6"	12"	FL. x FL.	3, 4
12.	CONCENTRIC REDUCER	4" x 3"	4" x 3"	N.A.	N.A.	N.A.	FL. x FL.	2, 3
13.	SPOOL PIPE	3"	3"	4"	6"	12"	FL. x P.E.	2, 3
14.	DRESSER DISMANTLING JOINT	3"	3"	4"	6"	12"	------	5, 6
15.	PRESSURE REDUCING VALVE	3"	3"	4"	6"	12"	FL. x FL.	3, 7
16.	90° ELBOW	3"	3"	4"	6"	12"	FL. x FL.	2, 3
17.	SPOOL PIPE	3"	3"	4"	6"	12"	FL. x FL.	2, 3
18.	PRESSURE GAUGE ASSEMBLY							8, 9
19.	CONCRETE PEDESTAL PIPE SUPPORT							10
20.	CONCRETE PEDESTAL VALVE SUPPORT							11
21.	PIPE STANCHION SADDLE SUPPORT							12
22.	PIPE STANCHION SADDLE SUPPORT WITH YOKE							13
23.	PRE-CAST CONCRETE VALVE VAULT							14
24.	ALUMINUM LADDER W/SAFETY EXTENSION							15
25.	GRATING AND FRAME							16
26.	DOUBLE-LEAF ACCESS DOOR (H20)	60" x 60"	60" x 60"	60" x 60"	60" x 60"	60" x 60"	------	17
27.	SECONDARY ACCESS DOOR (H20)	N.A.	N.A.	N.A.	36" x 36"	42" x 42"	------	18
28.	WALL PENETRATION SEAL	8"	10"	12"	16"	24"	------	19
29.	BURIED PIPING WITH RESTRAINED JOINT FITTINGS	8" DIA. x 114 L.F., MIN.	10" DIA. x 141 L.F., MIN.	12" DIA. x 167 L.F., MIN.	16" DIA. x 220 L.F., MIN.	24" DIA. x 318 L.F., MIN.	------	---
30.	VALVE BOX AND LOCKING LID	5 1/4" DIA.	5 1/4" DIA.	5 1/4" DIA.	5 1/4" DIA.	5 1/4" DIA.	------	20

VAULT DESCRIPTION NOTE:

THE DESCRIPTION FOR THE PRESSURE REDUCING VALVE (P.R.V.) VAULTS IS AS FOLLOWS:
VAULT NO. 1 = VAULT WITH 8" P.R.V. AND 3" P.R.V. BYPASS
VAULT NO. 2 = VAULT WITH 10" P.R.V. AND 3" P.R.V. BYPASS
VAULT NO. 3 = VAULT WITH 12" P.R.V. AND 4" P.R.V. BYPASS
VAULT NO. 4 = VAULT WITH 16" P.R.V. AND 6" P.R.V. BYPASS
VAULT NO. 5 = VAULT WITH 16" P.R.V. AND 12" P.R.V. BYPASS

ALL VAULTS AND ACCESS DOORS SHALL BE DESIGNED TO WITHSTAND (H20) LOADING.
CITY OF ROUND ROCK DETAIL NO. WT-17 (8 OF 9) MUST BE INCLUDED WITH P.R.V. AND VAULT DETAILS.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT-17 (7 of 9)
APPROVED 03-01-18 DATE	PRESSURE REDUCING VALVE VAULT LAYOUT PIPING AND EQUIPMENT SCHEDULE	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)		

NOTES:

1. FULLY RESTRAINED JOINT FITTING.
2. DUCTILE IRON PIPE.
3. 200 P.S.I. WORKING PRESSURE MINIMUM.
4. NON-RISING STEM WITH HANDWHEEL OPERATOR, A.W.W.A. C509 (CLOW, MUELLER, OR APPROVED EQUAL).
5. 200 P.S.I. WORKING PRESSURE MINIMUM.
6. FULLY RESTRAINED (EBAA IRON SALES INC. SERIES 2100 MEGAFLANGE, OR APPROVED EQUAL).
7. GLOBE-STYLE, FULL-PORT WITH STEM INDICATOR AND 4 1/2", OIL FILLED, GUAGES ON THE INLET AND OUTLET PORTS. (WATTS ACV 115, CLA-VAL, OR APPROVED EQUAL). SEE NOTE 21 FOR REQUIRED LAYING LENGTHS.
8. PRESSURE GAUGE ASSEMBLY TO INCLUDE 1" DIAMETER THREADED TAP; 1/2" X 1" BUSHING; 1/2" QUARTER-TURN BALL VALVE; AND STAINLESS STEEL 316 GAUGE WITH 4 1/2" DIAL, OIL FILLED, 0-160 P.S.I. RANGE, AND 1/2" GAUGE CONNECTION; INSTALLED WITH 1/2" COPPER PIPING ROUTED ALONG WALL TO WITHIN 6" OF TOP OF VAULT, WITH GAUGE MOUNTED IN A LOCATION THAT IS READABLE BY OPENING THE ACCESS DOOR. COORDINATE INSTALLATION WITH THE OWNER'S REPRESENTATIVE.
9. SUPPORT COPPER TUBING WITH PIPE STRAP AND 3/8" EXPANSION ANCHORS, INSTALLED AT MAXIMUM 3-FEET O.C. EQUAL SPACING (ANVIL INTERNATIONAL INCORPORATED FIG. 262, OR APPROVED EQUAL).
10. CONCRETE PEDESTAL PIPE SUPPORT WITH STEEL STRAP; MINIMUM 10" THICK CONCRETE PEDESTAL (WIDTH TO BE PIPE O.D. PLUS 10" EACH SIDE), WITH 3/4" THICK X 6" WIDE STAINLESS STEEL STRAP AND TWO 1 1/4" DIAMETER ANCHOR BOLTS. CONCRETE REINFORCING SHALL BE NO. 5 VERTICAL REBARS AND NO. 4 HORIZONTAL HOOPS PLACED AT 8" ON-CENTERS (ALL VERTICAL BARS TO BE EMBEDDED INTO SLAB TO A DEPTH RECOMMENDED BY EPOXY SYSTEM MANUFACTURER).
11. CONCRETE PEDESTAL VALVE SUPPORT; HORIZONTAL CONCRETE DIMENSIONS AND ANCHOR BOLT SIZE, LENGTH AND LOCATIONS TO BE DETERMINED BY THE VALVE MANUFACTURER TO FIT THE VALVE MOUNTING BASE SUPPLIED WITH THE VALVE. VERIFY ALL DIMENSIONS WITH THE VALVE MANUFACTURER. CONCRETE REINFORCING SHALL BE NO. 5 VERTICAL REBARS AND NO. 4 HORIZONTAL HOOPS PLACED AT 8" ON-CENTERS (ALL VERTICAL BARS TO BE EMBEDDED INTO SLAB TO A DEPTH AS RECOMMENDED BY EPOXY SYSTEM MANUFACTURER).
12. PIPE STANCHION SADDLE SUPPORT (ANVIL INTERNATIONAL, INC., FIG. 258 AND FIG. 62, OR APPROVED EQUAL) WITH EXPANSION ANCHORS AS RECOMMENDED BY SUPPORT MANUFACTURER.
13. PIPE STANCHION SADDLE SUPPORT WITH YOKE (ANVIL INTERNATIONAL, INC., FIG. 259 AND FIG. 62, OR APPROVED EQUAL) WITH EXPANSION ANCHORS AS RECOMMENDED BY SUPPORT MANUFACTURER.
14. PRECAST CONCRETE VAULT INSTALLED ON TOP OF CRUSHED ROCK BED. DUE TO THE CONSTRAINTS OF THE CONSTRUCTION, THE CONTRACTOR MAY ELECT TO PROVIDE A CAST-IN-PLACE CONCRETE VAULT. IN EITHER CASE, SEALED AND SIGNED DRAWINGS BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS MUST BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION. THE VAULT SHALL BE MINIMUM 4000 P.S.I. 28-DAY COMPRESSION STRENGTH CONCRETE WITH GRADE 60 REINFORCING STEEL DESIGNED FOR AASHTO H-20 WHEEL LOAD AND GROUNDWATER AT 0-FEET BELOW FINISHED GRADE. (CONCRETE PRODUCTS INCORPORATED, OR APPROVED EQUAL).
15. LADDER PER DETAIL WT-18, ALL ALUMINUM CONSTRUCTION, WITH 7" STAND-OFF (FOR FLAT WALL) AND FLOOR MOUNTING BRACKETS AND SAFETY EXTENSION (HALLIDAY PRODUCTS SERIES L1D LADDER AND SERIES L1E EXTENSION). LADDER TO EXTEND TO VAULT FLOOR.
16. REMOVABLE FRP GRATING WITH FRP FRAME AND STAINLESS STEEL ANCHORS.
17. ALUMINUM DOUBLE-LEAF ACCESS DOOR, RATED FOR AASHTO H-20 WHEEL LOAD (HALLIDAY PRODUCTS SERIES H2W ACCESS DOOR, OR APPROVED EQUAL).
18. ALUMINUM ACCESS DOOR, RATED FOR AASHTO H-20 WHEEL LOAD (HALLIDAY PRODUCTS SERIES H1W ACCESS DOOR, OR APPROVED EQUAL).
19. WALL PENETRATION SHALL BE INSTALLED WITH MECHANICAL COMPRESSION-TYPE ANNULAR SEAL (THUNDERLINE-LINK-SEAL, BY PIPELINE SEAL AND INSULATOR INCORPORATED, OR APPROVED EQUAL).
20. VALVE BOX AND LOCKING LID, 5 1/4" DIAMETER CAST IRON RISER SECTION OF VALVE BOX, LENGTH AS REQUIRED FOR COVER SLAB THICKNESS AND LOCKING LID WITH "PLAIN" MARKING (TYLER/UNION MODEL 148241 AND MODEL 145462, OR APPROVED EQUAL).
21. GLOBE VALVE SHALL HAVE THE FOLLOWING LAY LENGTHS: 2"-9.38", 3"-12.00", 4"-15.00", 6"-20.00", 8"-25.38", 10"-29.75", 12"-34.00", 14"-39.00", 16"-41.38", 18"-48.00", 20"-48.00" AND 24"-48.00".

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT-17 (8 of 9)
APPROVED 03-01-18 DATE	PRESSURE REDUCING VALVE VAULT LAYOUT SPECIFIC EQUIPMENT NOTES	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)		

TAG	NOMINAL SIZE VAULT NO. 1	VAULT NO. 2	VAULT NO. 3	VAULT NO. 4	VAULT NO. 5
A	12'-0"	14'-0"	14'-6"	16'-0"	20'-0"
B	10'-0"	10'-0"	10'-0"	12'-0"	13'-6"
C	1'-6"	2'-0"	2'-0"	2'-0"	2'-0"
D	4'-6"	5'-0"	5'-3"	6'-0"	8'-0"
E	4'-6"	4'-6"	4'-6"	4'-9"	4'-9"
F	3'-6"	3'-6"	3'-6"	5'-0"	6'-3"
G	2'-0"	2'-0"	2'-0"	2'-3"	2'-6"
H	3'-0"	4'-0"	4'-3"	5'-0"	7'-0"
I	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"
J	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"
K	6'-0"	6'-0"	6'-0"	6'-0"	7'-6"
L	N.A.	N.A.	N.A.	1'-0"	9"
M	N.A.	N.A.	N.A.	2'-6"	3'-6"
N	N.A.	N.A	N.A	2'-6"	3'-6"
O	N.A.	N.A.	N.A.	6'-9"	8'-3"

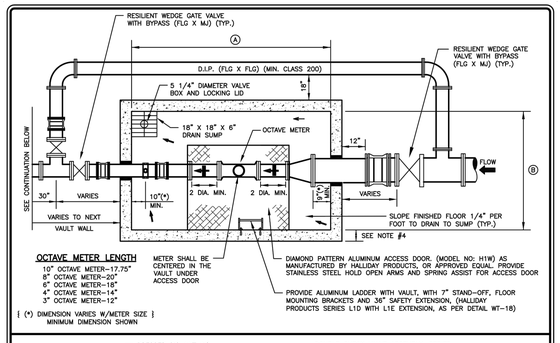
VAULT DIMENSIONS NOTE:

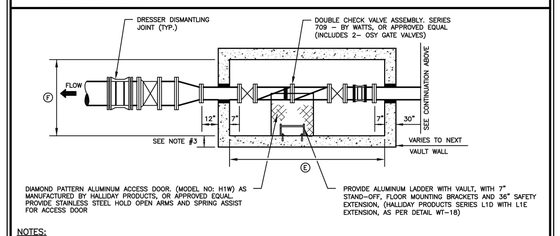
VAULT DIMENSIONS SHOWN ARE MINIMUM AND MUST BE VERIFIED FOR EQUIPMENT AND PIPING MATERIALS ACTUALLY FURNISHED FOR THE PRESSURE REDUCING VALVE VAULT TO BE CONSTRUCTED.

VAULT DESCRIPTION NOTE:

THE DESCRIPTION FOR THE PRESSURE REDUCING VALVE (P.R.V.) VAULTS IS AS FOLLOWS:
VAULT NO. 1 = VAULT WITH 8" P.R.V. AND 3" P.R.V. BYPASS
VAULT NO. 2 = VAULT WITH 10" P.R.V. AND 3" P.R.V. BYPASS
VAULT NO. 3 = VAULT WITH 12" P.R.V. AND 4" P.R.V. BYPASS
VAULT NO. 4 = VAULT WITH 16" P.R.V. AND 6" P.R.V. BYPASS
VAULT NO. 5 = VAULT WITH 16" P.R.V. AND 12" P.R.V. BYPASS

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT-17 (9 of 9)
APPROVED 03-01-18 DATE	PRESSURE REDUCING VALVE VAULT LAYOUT VAULT DIMENSIONS SCHEDULE	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)		

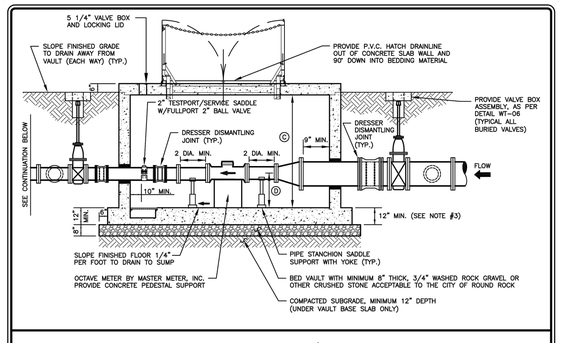


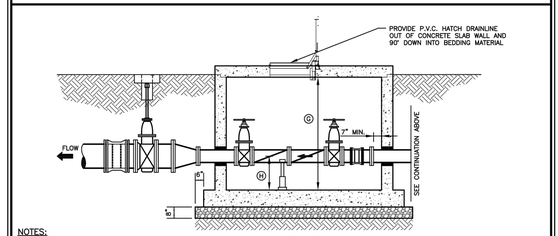


NOTES:

1. VAULTS AND ACCESS HATCHES TO BE H20 LOADED.
2. IF CONTRACTOR ELECTS TO PROVIDE CAST-IN-PLACE CONCRETE VAULT, ALL COLD JOINTS SHALL HAVE A 6" VERTICAL WATER STOP EMBEDDED 6" INTO THE PREVIOUS POUR.
3. ALL INTERIOR IRON, DUCTILE IRON OR STEEL SHALL BE PROVIDED WITH THE MANUFACTURER'S SPECIFIED COATING AND APPLY COATING TO PREVENT CORROSION.
4. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF VAULT, INCLUDING REINFORCEMENT. THE SHOP DRAWINGS ARE TO BE SEALED AND SIGNED BY A REGISTERED ENGINEER.
5. ATTACH CONFINED SPACE ENTRY PLAQUE TO OUTSIDE OF ACCESS HATCH ON METER VAULT.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT-20 (1 of 3)
APPROVED 03-01-18 DATE	3" TO 10" WATER METER ASSEMBLY DETAIL PLAN VIEW	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)		





NOTES:

1. VAULTS AND ACCESS HATCHES TO BE H20 LOADED.
2. IF CONTRACTOR ELECTS TO PROVIDE CAST-IN-PLACE CONCRETE VAULT, ALL COLD JOINTS SHALL HAVE A 6" VERTICAL WATER STOP EMBEDDED 6" INTO THE PREVIOUS POUR.
3. ALL INTERIOR IRON, DUCTILE IRON OR STEEL SHALL BE PROVIDED WITH THE MANUFACTURER'S SPECIFIED COATING AND APPLY COATING TO PREVENT CORROSION.
4. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF VAULT, INCLUDING REINFORCEMENT. THE SHOP DRAWINGS ARE TO BE SEALED AND SIGNED BY A REGISTERED ENGINEER.
5. ATTACH CONFINED SPACE ENTRY PLAQUE TO OUTSIDE OF ACCESS HATCH ON METER VAULT.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WT-20 (2 of 3)
APPROVED 03-01-18 DATE	3" TO 10" WATER METER ASSEMBLY DETAIL ELEVATION VIEW	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)		

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER DETAILS VI

SHEET:
C13.5

FULL PATH: K:\Jobs\CHV21004_Fault\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Productionk:\Jobs\CHV21004_Fault\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Productionk:\Jobs\CHV21004_Fault\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C12.0 WATER DETAILS_CHV21004.dwg

FILENAME: C12.0 WATER DETAILS_CHV21004.dwg
PLOTTED BY: Prashanta Gadam
PLOTTED DATE: 5/25/2023

WATER METER VAULT SCHEDULE

TAG NO.	DESCRIPTION	VAULT NO. 1 (3" METER)	VAULT NO. 2 (4" METER)	VAULT NO. 3 (6" METER)	VAULT NO. 4 (8" METER)	VAULT NO. 5 (10" METER)
A	MINIMUM VAULT LENGTH	6'-0"	6'-0"	8'-0"	9'-0"	12'-0"
B	MINIMUM VAULT WIDTH	4'-0"	4'-0"	6'-0"	6'-0"	6'-0"
C	MINIMUM VAULT HEIGHT	4'-0"	4'-0"	6'-6"	6'-6"	6'-6"
D	MINIMUM PIPE HEIGHT	18"	18"	24"	24"	24"
–	OCTAVE METER SIZE	3"	4"	6"	8"	10"
–	METER LAY LENGTH	12"	14"	18"	20"	17.75"
–	DOUBLE-LEAF ACCESS DOOR	42" x 42"	42" x 42"	42" x 42"	60" x 60"	60" x 60"

BACKFLOW PREVENTOR VAULT SCHEDULE

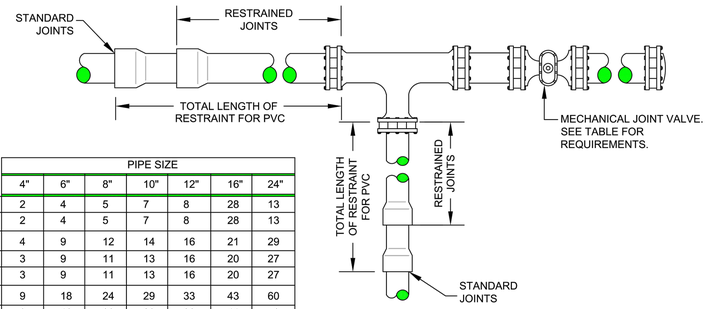
TAG NO.	DESCRIPTION	VAULT NO. 1 (3" BACKFLOW)	VAULT NO. 2 (4" BACKFLOW)	VAULT NO. 3 (6" BACKFLOW)	VAULT NO. 4 (8" BACKFLOW)	VAULT NO. 5 (10" BACKFLOW)
E	MINIMUM VAULT LENGTH	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"
F	MINIMUM VAULT WIDTH	4'-0"	5'-0"	5'-0"	5'-0"	5'-0"
G	MINIMUM VAULT HEIGHT	4'-0"	4'-0"	6'-6"	6'-6"	6'-6"
H	MINIMUM PIPE HEIGHT	18"	18"	24"	24"	24"
–	BACKFLOW PREVENTOR SIZE	3"	4"	6"	8"	10"
–	DOUBLE-LEAF ACCESS DOOR	42" x 42"	42" x 42"	42" x 42"	42" x 42"	42" x 42"

VAULT DIMENSIONS NOTE:

VAULT DIMENSIONS SHOWN ARE MINIMUM AND MUST BE VERIFIED FOR EQUIPMENT AND PIPING MATERIALS ACTUALLY FURNISHED FOR THE WATER METER AND BACKFLOW VAULT TO BE CONSTRUCTED.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT APPROVED 03-01-18 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)	CITY OF ROUND ROCK 3" TO 10" WATER METER ASSEMBLY DETAIL VAULT SCHEDULE	DRAWING NO: WT-20 (3 of 3) ROUND ROCK TEXAS UTILITIES AND ENVIRONMENTAL SERVICES

PUBLIC WORKS & UTILITIES ENGINEERING & DESIGN STANDARDS



		PIPE SIZE						
		4"	6"	8"	10"	12"	16"	24"
11.25°	H-B	2	4	5	7	8	28	13
	VU-B	2	4	5	7	8	28	13
	VD-B	4	9	12	14	16	21	29
22.5°	H-B	3	9	11	13	16	20	27
	VU-B	3	9	11	13	16	20	27
	VD-B	9	18	24	29	33	43	60
45°	H-B	6	18	23	28	32	41	56
	VU-B	6	18	23	28	32	41	56
	VD-B	19	38	49	59	69	89	124
90°	H-B	14	43	56	67	78	99	136
	VU-B	14	43	56	67	78	99	136
	VD-B	46	92	119	143	168	214	299
DEAD END PLUG AND VALVE		46	92	119	143	168	214	299
TEE		17	81	119	143	168	214	299

MINIMUM DESIGN CRITERIA

BEDDING TYPE: 2
DESIGN PRESSURE: 150 PSI
SAFETY FACTOR: 1.5
DEPTH OF COVER: 3.0 FT

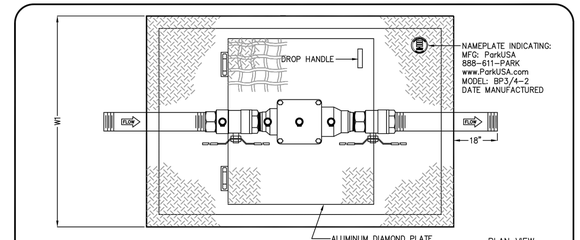
MINIMUM FOOTAGE OF PIPE RESTRAINT

H-B: HORIZONTAL BEND
VU-B: VERTICAL-UP BEND
VD-B: VERTICAL DOWN BEND

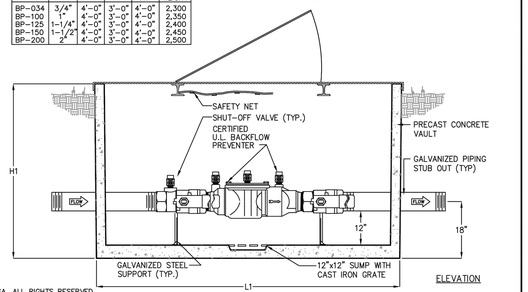
NOTES:

1. FOR LENGTHS OF PIPE AND NUMBER OF JOINTS TO BE RESTRAINED, SEE TABLE.
2. ONLY DUCTILE IRON PIPE FITTINGS SHALL BE USED AT JOINTS TO BE RESTRAINED UNLESS OTHERWISE SPECIFIED BY THE CITY ENGINEER.

RESTRAINED JOINT DETAIL



MODEL	SIZE	L1	W1	H1	WEIGHT
BP-034	3/4"	4'-0"	3'-0"	4'-0"	2,300
BP-100	1"	4'-0"	3'-0"	4'-0"	2,350
BP-125	1-1/4"	4'-0"	3'-0"	4'-0"	2,400
BP-150	1-1/2"	4'-0"	3'-0"	4'-0"	2,450
BP-200	2"	4'-0"	3'-0"	4'-0"	2,500



Specifications

CONCRETE: Class I/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth.

REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

ACCESS COVER: 1/4" skid-resistant aluminum floor plate welded to 3" angle frame with (2) 3"x2-3/8" I-beam supports. Hatch to be furnished with 316 stainless steel bolts and hinges

Engineering Data

The backflow assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:

AWWA UL NSF FM

BP3/4-2

PROJECT:
CUSTOMER:
ENGINEER:
ORDER #:
PROJ #:
DATE:

888.611.PARK
www.parkusa.com
PARK USA
DESIGN FOR WATER

DOUBLE CHECK BACKFLOW PREVENTER ASSEMBLY MODEL BP - 3/4" THRU 2"

PM	DRN	CHK	DWG. NO.	REV.
-	-	-	BP3/4-2	B
DATE	2018			

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER DETAILS VII

SHEET:
C13.6

FULL PATH: K:\Jobs\CHV21004_Fault\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\Cad\CHV21004_Fault(Drawing\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C13.0 WATER DETAILS_CHV21004.dwg
FILENAME: C13.0 WATER DETAILS_CHV21004.dwg
PLOTTED BY: Prashanta Gadam
PLOTTED DATE: 5/25/2023

TECHNICAL SPECIFICATIONS

SECTION W1 – DUCTILE IRON PIPE AND FITTINGS

W1.01 SCOPE OF WORK

A. This specification covers the requirements to furnish and install ductile iron pipe and ductile iron pipe fittings including bracing, pipe laying, jointing, testing, blocking, and any other work that is required or necessary to complete the installation as shown on the Plans and as specified herein.

W1.02 SUBMITTALS

A. Within 30 days of the Notice to Proceed, the Contractor shall submit to the Engineer for approval, technical product literature including the name of the pipe and fitting suppliers and a list of materials to be furnished, completely detailed working drawings and schedules of all ductile-iron pipe and fittings required, prior to each shipment of pipe, submit certified test reports that the pipe for this Contract was manufactured and tested in accordance with the ASTM and ANSI/AWWA Standards specified herein.

W1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)

1. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs 60,000 PSI Tensile Strength.

B. American Water Works Association (AWWA)

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pressure Pipe and Fittings.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Piping for Water and Other Liquids.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3-inch Through 48-in for Water and Other Liquids.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C115 - Standard for Flanged Ductile-Iron Pipe with Threaded Flanges.
6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds for Water or Other Liquids.
7. AWWA C153 - Ductile-Iron Compact Fittings, 3-inch Through 16-inch for Water and Other Liquids.
8. AWWA C600 - Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.
9. AWWA C651 - Disinfection Water Mains

C. American National Standards Institute (ANSI)

1. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

W1.04 QUALITY ASSURANCE

A. All ductile-iron pipe and fittings shall be from a single Manufacturer. All ductile-iron pipe to be installed under this Contract may be inspected at the foundry for compliance with these Specifications by an independent testing laboratory provided by the City. The Contractor shall require the Manufacturer's cooperation in these inspections. The cost of foundry inspection of all pipe approved for this Contract, plus the cost of inspection of disapproved pipe will be borne by the Contractor.

B. Inspection of the pipe will be made by the Engineer or other representatives of the City after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements, even though pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall immediately be removed from the job.

W1.05 MATERIALS

A. Ductile iron pipe shall conform to AWWA C151, be manufactured from metal having a minimum tensile strength of 60,000 psi, a minimum yield strength of 42,000 psi, and a minimum elongation of 10 percent (60–42–10), and be provided in the following minimum pressure classes:

1. 12-inch and smaller, Class 350.
2. 14-inch through 20-inch, Class 250.
3. 24-inch, Class 200.
4. 30-inch and larger, Class 150.

B. Ductile iron fittings shall conform to AWWA C110 or C153.

C. All pipe and fittings shall have a bituminous outside coating in accordance with AWWA C151 and C110, respectively. All pipe and fittings shall be cement-mortar lined and seal coated in accordance with AWWA C104. Cement mortar lining shall be double thickness.

D. Ductile iron pipe with push-on or mechanical joints shall be centrifugally cast pipe in accordance with AWWA C150 and C151.

E. Restrained joints shall be restrained push-on joints, TR Flex by U.S. Pipe and Foundry; Lok-Fast by American Cast Iron Pipe Company, or equal. Joints shall be suitable for 250 psi working pressure and be fabricated of heavy section ductile iron casting. Bolts and nuts shall be low carbon steel conforming to ASTM A307, Grade B.

F. Sleeve type couplings shall be of steel and shall be Style 38 by Dresser Manufacturing Division, Smith-Blair or equal. Couplings shall be furnished with black steel bolts and nuts and with pipe stop removed. Gaskets shall be of a material suitable for exposure to liquid within the pipe.

W1.06 POLYETHYLENE ENCASEMENT

A. All buried ductile iron pipe and metallic fittings shall be encased with 8 mil, Type I, Grade E-1, polyethylene film conforming to AWWA C105. Class usage shall be:

1. Class A - Natural Color where exposure to weather (including sunlight) is less than 48 hours total before burial.
2. Class C - Black where exposure to weather (including sunlight) may be more than 48 hours.

B. Exposure to weather shall be kept to a minimum, and in no case shall it exceed 10 days. The Class of polyethylene used shall be approved by the Engineer.

C. Polyethylene encasement shall not be paid for separately, but the cost there of shall be included in he appropriate item of the Proposal and Bid Schedule.

W1.07 LAYING DUCTILE IRON PIPE AND FITTINGS

A. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe, lining or coatings. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before laying and no piece shall be installed which is found to be defective. Any damage to the pipe linings or coatings shall be repaired as directed by the Engineer. Handling and laying of pipe and fittings shall be in accordance with the Manufacturer's instruction and as specified herein.

B. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work, and when laid, shall conform to the lines and grades required. Pipe shall not be laid unless the subgrade is free of water and in a satisfactory condition. Ductile iron pipe and fittings shall be installed in accordance with the requirements of AWWA C600 except as otherwise provided herein. All pipingon this project regardless of size or class shall be placed in the embedment as shown on the detail sheets in the Plans. If any defective pipe is discovered after it has been laid, it shall be removed and replaced with a sound pipe in a satisfactory manner by the Contractor, at his own expense.

C. All pipe shall be sound and clean before laying. When laying is not in progress, including lunchtime, the open ends of the pipe shall be closed by watertight plugs or other approved means. Good alignment shall be preserved in laying. The deflection at joints shall not exceed that recommended by the Manufacturer. Fittings, in addition to those shown on the Plans, shall be provided, if required, for crossing utilities which may be encountered upon opening the trench. Solid sleeves shall be used only where approved by the Engineer and the City.

D. When cutting pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be joined with a bell shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged.

E. Joints shall be protected by eight (8) mil. Polyethylene film prior to placing concrete. Concrete shall be placed against undisturbed material, and shall not cover joints, bolts or nuts, or interfere with the removal of any joint.

W1.08 PUSH-ON JOINTS

A. Push-on joints shall be made in accordance with AWWA C111 and the Manufacturer's instructions. Pipe shall be laid with bell ends in the direction of trenching. A rubber gasket shall be inserted in the groove of the bell end of the pipe, and the joint surfaces cleaned and lubricated. The plain end of the pipe to be laid shall then be aligned and inserted in the bell of the pipe to which it is to be joined and pushed home with a jack or by other means. After joining the pipe, a metal feeler shall be used to make certain that the rubber gasket is correctly located.

W1.09 MECHANICAL JOINTS

A. Mechanical joints shall be made in accordance with Appendix "A" of AWWA C111 and the Manufacturer's instructions. Thoroughly clean and lubricate the joint surfaces and rubber gasket with soapy water before assembly. Bolts shall be tightened to the specified torque. Under no conditions shall extension wrenches or pipe over the handle of ordinary ratchet wrench be used to secure greater leverage.

W1.10 RESTRAINED JOINTS

A. Restrained joints shall be installed where shown on the Plans. The joint assemblies shall be made in accordance with the Manufacturer's recommendations.

W1.11 SLEEVE TYPE COUPLINGS

A. Couplings shall be installed where shown on the Plans. Couplings shall not be assembled until adjoining push-on joints have been assembled. After installation, apply a heavy bituminastic coating to bolts and nuts.

W1.12 POLYETHYLENE ENCASEMENT

A. The polyethylene encasement shall be installed in accordance with either method specified in AWWA C105.

W1.13 CONCRETE AND BLOCKING

A. 2,500 psi concrete shall be placed for blocking at each change in direction in the pipeline, in such manner as will substantially brace the pipe against undisturbed trench walls. Concrete blocking, made from Type I cement, shall have been in place four (4) days prior to testing the pipeline as hereinafter specified. Test may be made in two (2) days after completion of blocking if Type III cement is used.

B. At all points where wet connections are made to existing lines, the existing lines shall be adequately blocked and the tapping connection fittings shall be supported by blocking up to the spring line with 2,500 psi concrete.

C. Concrete blocking will not be measured or paid for as a separate item but the cost thereof shall be included in the proper items listed in the Proposal and Bid Schedule.

W1.14 CLEANING

A. At the conclusion of the work thoroughly clean all of the new pipelines by flushing with water or other means to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period. If obstructions remain after this cleaning, the obstructions shall be removed.

W1.15 CONNECTIONS AND APPURTENANCES

A. The Contractor shall make the alterations and the necessary connections to existing water mains as shown on the Plans. Such connection shall be made at such time and in a manner approved by the City; in each case, when the work is started, it shall be prosecuted expeditiously and continuously until completed.

B. Fittings, bends, plugs and valves and shall be of standard manufacture and mechanical joint type to fit AWWA pipe specifications in Classes A, B, C and D, unless otherwise shown on the Plans.

C. Payment for fittings and gate valves shall be restrained and shall be made separately under the appropriate bid items listed in the Proposal and Bid Schedule.

W1.16 LEAKAGE TESTING AND STERILIZATION

A. All Ductile Iron Pipe shall be leak tested and sterilized according to Section CIP12 – TESTING OF PIPELINES.

W1.17 PAYMENT

A. The pipeline, complete in place, including cleanup, will be measured for payment in linear feet along the centerline of the pipe actually installed. Measurement shall be through all fittings, specials, valves, etc., and no deduction in length shall be made for such appurtenances. Installation of the pipeline will be paid for at the unit contract price per linear foot as provided in the Proposal and Bid Schedule.

B. Payment of the unit contract price for the items of work performed shall be the total compensation for furnishing all labor, materials, tools, equipment and incidentals and performing all work that is necessary for the installation, testing, and sterilization of the pipe, fittings, connections, blocking, embedment or placing in encasement pipe and all other appurtenances in accordance with the Plans and the provisions of the Specifications.

END OF SECTION

TECHNICAL SPECIFICATIONS

SECTION W2 – POLYVINYL CHLORIDE (PVC) PIPE-WATER

W2.01 SCOPE OF WORK

A. This specification covers the requirements to install polyvinyl chloride (PVC) water pipe and ductile iron fittings for the water line, including excavation, sheeting, shoring, dewatering, pipe laying, jointing, testing, backfilling and any other work that is required or necessary to complete the installation as shown on the Plans and as specified herein.

W2.02 SUBMITTALS

A. Within 30 days of the Notice to Proceed, the Contractor shall submit to the Engineer or the City for approval, technical product literature including the name of the pipe and fittings suppliers, a list of materials to be furnished, shop drawings and schedules of all PVC pipe and fittings required, prior to each shipment of pipe, submit certified test reports that the pipe for this Contract was Manufactured and tested in accordance with the ASTM Standards specified herein.

W2.03 QUALITY ASSURANCE

A. All PVC pipe and fittings shall be from a single Manufacturer. The supplier shall be responsible for the provisions of all test requirements specified in ASTM D3034 or ASTM F789 and/or ASTM F758 as applicable. In addition, all PVC pipe to be installed under this Contract may be inspected at the plant for compliance with these specifications by an independent testing laboratory provided by the City. The Contractor shall require the Manufacturer's cooperation in these inspections. The cost of plant inspection of all pipe approved for this Contract, plus the cost of inspection of disapproved pipe, will be borne by the Contractor.

B. Inspections of the pipe may also be made by the Engineer or other representatives of the City after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements, even though sample pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall be removed from the job at once.

W2.04 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

A. Polyvinyl chloride pipe for water lines, unless otherwise specifically shown on the Plans, or approved in writing, shall be AWWA C900, C905, or C909 Class 150 psi with a dimension ratio of 18 (DR-18), for water lines and shall be extruded, be of rubber gasket type, and be furnished in 20-foot nominal laying lengths. All such pipe shall bear a mark denoting approval by the Underwriters' Laboratories of Chicago, Illinois, so that it will be acceptable to the Texas State Fire Insurance Commission for use in fire protection lines without penalty. All joints shall be of the type which provides a recession in the bell for the employment of a single rubber gasket to be placed before the insertion of the succeeding spigot. Each size of polyvinyl chloride pipe shall have the same outside diameter as the corresponding size of cast iron pipe.

B. Fittings shall be ductile iron, mechanical joint or flanged type and shall be Class 250 in accordance with AWWA Specifications C110-77, C-111-80, and C115-75. Flanges shall be faced and drilled in accordance with ASA Standard B16.1, Class 125 unless otherwise shown on the Plans or in the Special Conditions. All fittings shall be tar coated on the outside surface and shall have an interior cement lining with seal coat per AWWA Specifications C104-80 unless otherwise shown or specified.

C. The Contractor shall obtain installation instructions, including support spacing and solvent welding, from the supplying Manufacturer, shall comply with the instructions, and shall meet the requirements of ASTM D-2855, Standard Recommended Practice for making Solvent Cemented Joints with PVC Pipe and Fittings. The PVC solvent cement shall comply with ASTM D-2564 and shall be furnished by the pipe and fitting Manufacturer for the class and type of pipe supplied to the project.

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER NOTES I

SHEET:
C13.7

W2.05 HANDLING AND CUTTING PIPE

A. Pipe and fittings are slightly brittle. Care shall be taken in shipping, handling and laying to avoid damaging the pipe and fittings. Extra care will be necessary during cold weather construction.

B. Any pipe or fitting showing a crack or which has received a blow that may have caused an incipient fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work.

C. All pipe ends shall be square after cutting.

D. While stored, pipe shall be adequately supported from below at not more than three (3) foot intervals to prevent deformation. Pipe shall not be stacked higher than six (6) feet. Pipe and fittings shall be stored in a manner which will keep them at ambient outdoor temperatures and out of direct sunlight. Temporary shading as required to meet this requirement shall be provided. Simple covering of the pipe and fittings which allows temperature buildup when exposed to direct sunlight will not be permitted.

W2.06 JOINTING POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

A. PVC pipe and fittings shall be jointed in accordance with the recommendations of the latest ASTM Standards and detailed instructions of the Manufacturer.

W2.07 INSTALLING POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

A. Unless otherwise specified on the Plans, polyvinyl chloride pipe shall be installed to clear all utility lines and shall have three (3) feet minimum cover. For water lines to be constructed under a future roadway, the cover may be increased to allow for future paving grades. The depth of cover, where shown on the Plans, is that distance from the top of the pipe to the approximate proposed grade line.

B. No single piece of pipe shall be laid unless it is generally straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than $^{1}/_{8}$-inch per foot of length. If a piece of pipe fails to meet this requirement check for straightness, it shall be rejected and removed from the site. Laying instructions of the Manufacturer shall be explicitly followed.

C. Any pipe or fittings discovered to be defective after laying shall be removed and replaced with a sound piece.

D. The Engineer or the City may examine each bell and spigot end to determine whether any preformed joint has been damaged prior to installation. Any pipe having defective joint surfaces shall be rejected, marked as such, and immediately removed from the job site.

E. All pipe shall be sound and clean before laying. When laying is not in progress, including lunch time, the open ends of the pipe shall be closed by watertight plugs or other approved means. Good alignment shall be preserved in laying.

F. Pipe and fittings shall be installed in accordance with the instructions of the Manufacturer, ASTM D2321 and as specified herein. As soon as the excavation is complete to normal grade of the bottom of the trench, embedment material shall be placed, compacted and graded to provide firm, uniform and continuous support for the pipe. Bell holes shall be excavated so that only the barrel of the pipe bears upon the bedding. The pipe shall be laid accurately to the lines and grades indicated on the Plans. The specified embedment shall be accurately shaped and trimmed to receive the pipe barrel and each pipe section, when in place, shall have a uniform bearing on the subgrade for the full length of the pipe barrel. Pipe shall not be laid unless the subgrade is free of water and in a satisfactory condition. Embedment material shall be placed evenly on each side of the pipe to mid-diameter and hand tools shall be used to force the embedment material under the haunches of the pipe and into the bell holes to give firm continuous support for the pipe. Embedment material shall then be placed to 12-inches above the top of the pipe. Next, the varying depths of select material backfill above the embedment material backfill shall be placed according to the Plan Details and carefully compacted. Generally, the compaction shall be done evenly on each side of the pipe and compaction equipment shall not be operated directly over the

pipe until sufficient select material backfill has been placed to ensure that such compaction equipment will not have a damaging effect on the pipe. Equipment used in compacting the varying depths of select material backfill shall be approved by the pipe Manufacturer's representative prior to use. Adjustments of the pipe to line and grade shall be made by scraping away or filling in with granular material, and not by wedging or blocking up the bell.

G. Perforated PVC Pipe and fittings shall be installed in accordance with the instructions of the Manufacturer, ASTM F758 and as specified herein. As soon as the excavation for the trench is complete to normal grade of the bottom of the trench, geotextile fabric shall be laid and then the pea gravel bedding shall be carefully placed (so not to damage the geotextile fabric) and graded to provide uniform and continuous support for the pipe. Bell holes shall be excavated so that only the barrel of the pipe bears upon the bedding. Before the perforated pipe is laid on the trench, the perforated pipe shall be wrapped around and closed according to the Manufacturer's closure recommendations with the geotextile fabric. The pipe shall be laid accurately to the lines and grades indicated on the Plans. Blocking under the perforated PVC pipe will not be permitted. Pea gravel shall be placed evenly on each side of the pipe to mid-diameter and hand tools shall be used to gently place the pea gravel under the haunches of the pipe and into the bell holes to give firm continuous support for the pipe. Making sure not to damage the geotextile fabric, pea gravel shall then be carefully placed above the top of the perforated pipe varying from two to three (2-3) feet depending on the Plans. Once the remaining pea gravel has been placed, overlap or close the geotextile fabric according to the Manufacturer's recommendations or six (6) inches minimum overlap. Then one (1) foot of topsoil shall be placed over the pea gravel to the ground level with proper grass sodding on top.

H. Joints shall not be "pulled" or "cramped". Each joint of pipe shall be completed in compliance with Manufacturer's recommendations.

I. Before any joint is made, the pipe shall be checked to assure that a close joint with the next adjoiningpipe has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to grade by striking it.

J. Precautions shall be taken to prevent flotation of the pipe in the trench.

K. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be taken in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and backfill or embedment material. Trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below mid-diameter of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, embedment material shall be placed to fill any voids created and the embedment material and backfill shall be recompacted to provide uniform side support for the pipe.

W2.08 CONCRETE AND BLOCKING

A. 2,500 psi concrete shall be placed for blocking at each change in direction in the pipeline, as shown in the Standard Details and in such manner as will substantially brace the pipe against undisturbed trench walls. In no event shall this quantity of concrete blocking be less than those shown in the Plans. Concrete blocking, made from Type I cement, shall have been in place four (4) days prior to testing the pipeline as hereinafter specified. Tests may be made in two (2) days after completion of blocking if Type III cement is used.

B. At all points where wet connections are made to existing lines, the existing lines shall be adequately blocked and the tapping connection fittings shall be supported by blocking up to the spring line with 2,500 psi concrete.

C. Concrete blocking will not be measured or paid for as a separate item but the cost thereof shall be included in the various items listed in the Proposal and Bid Schedule.

W2.09 TESTING AND ALLOWABLE LEAKAGE

A. All PVC pipe and fittings shall be leak tested and sterilized according to Section CIP12.05- TEST PROCEDURES FOR PRESSURE PIPELINES.

W2.10 PAYMENT

A. The pipeline, complete in place, including cleanup, will be measured for payment in linear feet along the centerline of the pipe actually installed. Measurement shall be through all fittings, specials, valves, etc., and no deduction in length shall be made for such appurtenances. Installation of the pipeline will be paid for at the unit contract price per linear foot as provided in the Proposal and Bid Schedule.

B. Payment of the unit contract price for the items of work performed shall be the total compensation for furnishing all labor, materials, tools, equipment and incidentals and performing all work that is necessary for the installation, testing, and sterilization of the pipe, fittings, connections, blocking, embedment or placing in encasement pipe and all other appurtenances in accordance with the Plans and the provisions of the Specifications.

END OF SECTION

F. Where reference is made to one (1) of the above standards, the revision in effect at the time of bid opening shall apply.

W3.04 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site to ensure uninterrupted progress of the work.

B. Protect threads and seats from corrosion and damage. Rising stems and exposed stem valves shall be coated with a protective oil film which shall be maintained until time of use.

C. Provide covers for all openings.

1. All valves three (3) inches and larger shall be shipped and stored on site until time of use with wood or plywood covers on each valve end.

2. All valves smaller than three (3) inches shall be shipped and stored as above except that heavy card board covers may be furnished instead of wood.

D. Store equipment to permit easy access for inspection and identification. Any corrosion in evidence at the time of City acceptance shall be removed, or the valve shall be removed from the job.

E. Store all equipment in covered storage off the ground.

W3.05 COORDINATION

A. Review installation procedures under other Sections and coordinate with the work which is related to this Section including buried piping installation and site utilities.

B. Contractor shall coordinate the location and placement of concrete thrust blocks when required.

W3.06 GENERAL

A. All valves shall open counter-clockwise.

B. The use of a Manufacturer's name and/or model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.

C. Valves shall be of the size shown on the Plans or as noted, and as far as possible equipment of the same type shall be identical and from one Manufacturer.

D. Valves shall have the name of the maker, nominal size, flow directional arrows, working pressure for which they are designed and standard to which they are manufactured cast in raised letters on some appropriate part of the body.

E. Unless otherwise noted, valves shall have a minimum working pressure of 200 psi or be of the same working pressure as the pipe they connect to, whichever is higher, and suitable for the pressures noted where they are installed.

F. Valves shall be of the same nominal diameter as the pipe or fittings they are connected to. Except as otherwise noted, joints shall be mechanical joints, with joint restraint where the adjacent piping is required to be restrained.

G. Valves shall be constructed for buried service.

W3.07 VALVE BOXES

A. All gate valves shall be provided with extension shafts (where the operating nut is greater than five (5) feet below grade), operating nuts and valve boxes as follows:

1. Extension shafts shall be steel and the operating nut shall be two (2) inches square. Shafts shall be designed to provide a factor of safety of not less than four (4). Operating nuts shall be pinned to the shafts.

2. Valve boxes shall be a heavy-pattern cast iron, three (3) piece, telescoping type box with dome base suitable for installation on the buried valves. Inside diameter shall be at least 5¼-inches. Barrel length shall be adapted to the depth of cover, with a lap of at least six (6) inches when in the most extended position. Covers shall be cast iron with integrally-cast direction-to-open arrow and "WATER" shall be cast in the cover when used on a water line or "SEWER" when used on a wastewater force main. Aluminum or plastic are not acceptable. A means of lateral support for the valve extension shafts shall be provided in the top portion of the valve box. The valve box lid shall be furnished with a pentagon-head bolt for locking.

3. The upper section of each box shall have a bottom flange of sufficient bearing area to prevent settling. The bottom of the lower section shall enclose the stuffing box and operating nut of the valve and shall be oval.

4. An approved operating key or wrench shall be provided.

5. All fasteners shall be Type 304 stainless steel.

W3.08 RESILIENT SEATED GATE VALVES

A. Valves shall be manufactured in accordance with AWWA C509.

Acceptable Gate Valves are:

1. American Flow Control – Series 2500
2. Mueller – 2360 Series
3. Clow

B. Valves shall be provided with a minimum of two (2) O-ring stem seals.

C. Bonnet and gland bolts and nuts shall be either fabricated from a low alloy-steel for corrosion resistance or electroplated with zinc or cadmium. The hot-dip process in accordance with ASTM A153 is not acceptable.

D. Wedges shall be totally encapsulated with rubber.

E. Units shall be, in addition, UL and FM approved.

F. Resilient wedge gate valves shall be furnished and installed in sizes and shall be manufactured in accordance with the latest AWWA C-509 and cast iron shall conform to the latest ASTM A-126 standards. Gate valves furnished under these specifications shall be of the solid wedge, resilient seat type with cast iron/ductile iron body and bronze stem designed for 250 pounds per square inch working pressure. All gate valves shall be tested hydrostatically to 400 pounds per square inch. Gate valves shall meet the latest AWWA standard specifications (C-509).

G. The seat shall be made of Styrene Butadiene rubber and provide a positive water tight seal. The seat shall be permanently bonded or mechanically attached to the wedge with stainless steel screws. If bonded, ASTM P-429 requirements shall be followed. Non-rising stem gate valves shall be equipped with "O" ring type packing gland consisting of at least two (2) "O" rings. The thrust collar shall work in an "O" ring seal lubricant reservoir or against bearings or washers, above and below constructed of Delrin or approved equal material. Gate valve stems, shall be fabricated from solid bronze rod having a tensile strength of not less than 60,000 pounds per square inch, and a minimum yield strength of 30,000 pounds per square inch.

TECHNICAL SPECIFICATIONS

SECTION W3 – VALVES, HYDRANTS AND APPURTENANCES

W3.01 SCOPE OF WORK

A. This specification covers the requirements to provide all buried valves, valves in manholes and underground vaults, hydrants and appurtenances complete with actuators and all accessories as shown on the Plans and as specified herein.

W3.02 SUBMITTALS

A. Within 30 days of the Notice to Proceed, the Contractor shall submit to the Engineer or the City for approval, technical product literature including Manufacturer's literature, illustrations, specifications and engineering data which includes dimensions, size, materials of construction, weight, protection coating, and all other pertinent data to illustrate conformance to the specification found within. The Contractor shall also submit four (4) copies of all certified shop test results specified herein, complete operation and maintenance manuals including all copies of all approved shop drawings, and certificates of compliance where required by referenced standards: For each valve specified to be manufactured and/or installed in accordance with AWWA and other standards, submit an affidavit of compliance with the appropriate standards, including certified results of required tests, and certification of proper installation.

W3.03 REFERENCE STANDARDS

A. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.

B. American Water Works Association (AWWA)

1. AWWA C515 - Gate Valves, three (3)-inch through 48-inch NPS, for Water and Sewage Systems.

2. AWWA C502 - Dry-Barrel Fire Hydrants.

3. AWWA C509 - Resilient-Seated Gate Valves, three (3) inch through 12-inch NPS, for Water and Sewage Systems.

C. American National Standards Institute (ANSI)

1. ANSI B16.1 - Cast-Iron Pipe Flanges and Flanged Fittings.

2. ANSI C111 - Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings.

D. American Society for Testing and Materials (ASTM)

1. ASTM A48 - Gray Iron Castings.

2. ASTM A126 - Gray Iron Castings for Valves, Flanges and Pipe Fittings

3. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware

4. ASTM A276 - Standard Specification for Stainless and Heat Resisting Steel Bars and Shapes.

5. ASTM A536 - Ductile Iron Castings.

E. Steel Structures Painting Council (SSPC)

1. SSPC SP-6 - Commercial Blast Cleaning

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
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CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER NOTES II

SHEET:

C13.8

H. Cast iron body shall be of iron with an even grain and shall possess a tensile strength of not less than 32,000 pounds per square inch. All bronze castings, except the stem, shall have a tensile strength of not less than 30,000 pounds per square inch. The entire internal valve body surfaces shall be coated with a factory applied two (2) component epoxy system or approved equal. The seating surface shall be machined or otherwise constructed to provide a smooth, even surface for the resilient seat. All valves shall open left (counter clockwise) and have a two (2) inch square wrench nut unless specified otherwise.

W3.09 TAPPING SLEEVES AND TAPPING VALVES

A. Tapping sleeves shall be of cast iron epoxy coated, designated for working pressure not less than 200 psi. Armored end gaskets shall be provided for the full area of the sleeve flanges. Sleeves shall be as manufactured by A.P. Smith Division of U.S. Pipe, Mueller, Clow, or equal. Nuts and bolts shall be Type 304 stainless steel.

B. Size-on-Size tapping sleeve shall be ductile iron or cast iron.

C. Tapping valves shall conform to the requirements specified above for gate valves except that one (1) end shall be flanged and one (1) mechanical. Tapping valves shall be provided with an oversized opening to permit the use of full size cutters. Tapping valves shall be Ford B81-777 or equal.

W3.10 CHECK VALVES

A. Controlled Closing Swing Check Valves (lever & weight)

1. Check valves shall be of the controlled closing swing type. The controlled closing swing check valves shall be guaranteed to operate under severe conditions as check valves. The valve shall be designed to open smoothly, provide full pipe line flow, permit minimum head loss and close at a controlled rate of speed for the final predetermined portion of its stroke. All bolts and nuts used in the assembly shall be steel, commercial.

2. The valve body shall be Cast Iron ASTM A126-B/ductile iron ASTM A536. The disc arm and chamber level shall be of heavy steel construction and keyed to the hinge shaft. The hinge shaft shall be of 18-8 stainless steel and of adequate diameter to withstand a complete hydraulic unbalance pressure of 125 psi on the valve disc. A single cushioning device mounted on the external side of the valve shall control the valve closure by way of the interchange of oil to and from an oil reservoir. The use of air or gas pressurized oil reservoir shall not be permitted. The oil plunger assembly shall be rigidly attached to the valve body by shoulder bolts or dowel pins to prevent fretting.

3. The Manufacturer, if required by the Engineer or the City, shall submit design calculations of principle component stresses to substantiate the integrity of the valve for the working pressure involved.

4. The valve when closed shall be tight seating by way of a resilient replaceable seat against a bronze seat ring in the body.

5. Valves shall be as manufactured by GA Industries or Series 6000 as manufactured by APCO. The City reserves the right to inspect all valves before shipment is made. Any failure of valves to operate satisfactorily during the first year of installation due to faulty workmanship or defective material shall be replaced and made good by the Manufacturer. Under these specifications, any valve stuffing box that leaks for any reason or because of excessive wear or deterioration of packing, shall be reason for classification as defective material.

B. Slanted / Tilted Check Valves

1. Slanted or tilted check valves shall be furnished and installed where shown on the Plans.

2. The body of the valve shall be ductile iron or cast iron with access ports to the disc. The disc shall be cast iron. The seat and disc rings shall be bronze. Pivot pins and bushings shall be bronze or stainless steel. The valve shall include a localized indicator of the position of the valve.

3. The valves shall include a top mounted oil dash pot to prevent slamming of the disc. The dash pot shall control the last 10% of closure of the disc. The speed of closure within this 10% shall be adjustable.

4. Valves shall be APCO Slanting Disc, Valmatic or Golden Anderson Tilted Disc or approved equal.

W3.11 FLANGES

A. Flanges shall be cast solid and faced accurately at right angles to the axis of the casting. Dimensions and drilling of flanges shall be in accordance with the American Standard Association for a working pressure of 125 pounds per square inch. Special drilling shall be provided where necessary.

W3.12 FIRE HYDRANTS

A. Fire hydrants shall be dry-barrel type conforming to the requirements of the latest revision of AWWA C502. Hydrants shall be designed such that the hydrant valve closes with line pressure preventing loss of water and consequent flooding in the event of traffic damage.

B. Hydrants shall have six (6)-inch mechanical joint inlet connections, two 2½-inch hose connections and one $4^{1}/_{2}$-inch pumper connection. Threads for the hose and pumper connections shall be in accordance with National Standard Thread. Hydrants shall be according to Manufacturer's standard pattern. Hydrants shall be equipped with "O" ring packing. Each nozzle cap shall be provided with a Buna-N rubber washer.

C. Hydrants shall be so arranged that the direction of outlets may be turned 90 degrees without interference with the drip mechanism or obstructing the discharge from any outlet. The body of the hydrant shall be equipped with a breakable flange, or breakable cast iron flange bolts, just above the grade line.

D. A bronze or rustproof steel nut and check nut shall be provided to hold the main hydrant valve on its stem.

E. Hydrant valve opening shall have an area at least equal to that area of a $4^{1}/_{2}$-inch minimum diameter circle and be unobstructed only by the valve rod. Each hydrant shall be able to deliver 500 gallons minimum through its two 2½-inch hose nozzles when opened together with a loss of not more than two (2) psi in the hydrant.

F. Hydrants shall be designed for installation in a trench that will provide minimum cover as noted on Plans and for the flange to be $3^{1}/_{2}$-inches above ground surface. Hydrant extensions shall be as manufactured by the company furnishing the hydrants and of a style appropriate for the hydrants as furnished.

G. Hydrants shall be provided with an automatic and positively operating, non-corrodible drain or drip valve so as to drain the hydrant completely when the main valve is shut. A drain valve operating by

springs or gravity is not acceptable.

H. Operating stems whose threads are located in the barrel or waterway shall be of manganese bronze, everdur, or other high-quality non-corrodible metal, and all working parts in the waterway shall be bronze to bronze.

I. Hydrants shall open by turning operating nut to left (counter-clockwise) and shall be marked with a raised arrow and the word "open" to indicate the direction to turn stem to open hydrant.

J. Hydrants shall be furnished with caps, double galvanized steel hose cap chain, galvanized steel pumper hose cap chain, a galvanized steel chain holder and any other hooks and/or appurtenances required for proper use.

K. Hydrant operating nut shall be AWWA Standard pentagonal type measuring 1½-inch point to flat.

L. Hydrants shall be hydrostatically tested as specified in AWWA C502.

M. Hydrants shall be of the following:

1. Kennedy – K81

3. American Darling – B84B

2. Clow Medallion

N. All iron work to be set below ground, after being thoroughly cleaned, shall be painted with two (2) coats of asphalt varnish specified in AWWA C502. Iron work to be left above ground shall be factory primed and painted silver using a high grade enamel paint of quality and color to correspond to the present standard of the City.

O. Fire hydrants shall be installed on the same side of the street or roadway as the water main and shall be installed plumb and true.

P. Heel and thrust blocks shall be placed in undisturbed soil as shown in the details of the Plans.

Q. Double blue reflector "HYE – LITES" brand as manufactured by pavement markers ink shall be installed at the centerline of the street or roadway perpendicular to the hydrant.

W3.13 CORPORATION STOPS

A. Corporation stops shall be brass, not less than 1-inch in diameter and shall be installed where shown, specified or required.

B. Provide corporation stops as manufactured by the following:

1. Ford Company

W3.14 COMBINATION AIR-VACUUM RELIEF VALVES

A. The air-vacuum release valves shall be installed as shown on the Plans. The valve body shall be of cast iron ASTM A126-B; the floats, float guide, and stem shall be of Type 316 stainless steel. The resilient seat shall be of Buna N. The valve shall be suitable for 150 psig working pressure. Valve shall have standard NPT inlets and outlet ports with diameters as indicated on the Plans. Valve shall be Model 200A Series by APCO Valve and Primer Corporation, Schaumburg, IL, or approved equal.

W3.15 SURFACE PREPARATION AND SHOP COATINGS

A. The interior ferrous metal surfaces, except finished or bearing surfaces, shall be blast cleaned in accordance with SSPC SP-6 and painted with two (2) coats of an approved two (2) component coal tar

epoxy coating specifically formulated for potable water use. The coating used must appear on the current edition of the United States Environmental Protection Agency's list entitled "Accepted Categories and Subcategories of Coatings, Liners and Paints for Potable Water Usage."

B. Exterior ferrous metal surfaces of all buried valves and hydrants shall be blast cleaned in accordance with SSPC SP-6 and given two (2) shop coats of a heavy coat tar enamel or an approved two (2) component coat tar epoxy paint.

W3.16 INSPECTION AND PREPARATION

A. During installation of all valves and appurtenances, the Contractor shall verify that all items are clean, free of defects in material and workmanship and function properly.

B. All valves shall be closed and kept closed until otherwise directed by the Engineer or the City.

W3.17 INSTALLATION OF BURIED VALVES AND VALVE BOXES

A. Buried valves shall be cleaned and manually operated before installation. Buried valves and valve boxes shall be set with the stem vertically aligned in the center of the valve box. Valves shall be set on a firm foundation and supported by tamping pipe bedding material under the sides of the valve. The valve box shall be supported during backfilling and maintained in vertical alignment with the top flush with finish grade. The valve box shall be set so as not to transmit traffic loads to the valve.

B. Before backfilling, all exposed portions of any bolts shall be coated with two (2) coats of bituminous paint.

W3.18 INSTALLATION OF TAPPING SLEEVES AND VALVES

A. The City of Georgetown shall be contacted and their permission granted prior to tapping a line. The required procedures and time table shall be followed exactly.

B. Installation shall be made under pressure and flow shall be maintained. The diameters of the tap shall be a minimum of $^{1}/_{2}$-inch less than the inside diameter of the branch line.

C. The entire operation shall be conducted by workers experienced in the installation of tapping sleeves and valves. The tapping machine shall be furnished by the Contractor.

D. Determine the location of the line to be tapped to confirm that the proposed location will be satisfactory and that no interference will be encountered such as joints or fittings. No tap or sleeve will be made closer than three (3) feet from a pipe joint.

E. A tapping sleeve and valve with boxes shall be set squarely centered on the line to be tapped. Adequate support shall be provided under the sleeve and valve during the tapping operation. Thrust blocks or other permanent restraint acceptable to the Engineer and the City shall be provided behind all tapping sleeves. Proper tamping of supporting pipe bedding material around and under the valve and sleeve is mandatory for buried installations.

F. After completing the tap, the valve shall be flushed to ensure that the valve seat is clean. All proper regulatory procedures (including disinfection) shall be followed exactly.

W3.19 INSTALLATION OF FIRE HYDRANTS

A. Fire hydrants shall be set at the locations as shown on the Plans and bedded on a firm foundation. Hydrants and connecting pipe shall have at least the same depth of cover as the distributing pipe. A drainage pit as detailed on the Plans shall be filled with ¾-inch washed rock gravel and compacted. The hydrants shall be set upon a slab of concrete not less than four (4)-inches thick and 15-inches square. During backfilling, additional screened gravel shall be brought up around and six (6) inches over the drain port. Each hydrant shall be set in true vertical alignment and properly braced.

B. 2,500 psi concrete thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Minimum bearing area shall be as shown on the Plans. Eight (8) mil. Poyethlene film shall be placed around the hydrant elbow before placing concrete. CARE SHALL BE TAKEN TO ENSURE THAT CONCRETE DOES NOT PLUG THE DRAIN PORTS.

C. All connections from the main to the fire hydrants shall be anchoring mechanical joints designed to prevent movement due to thrust or pressure.

D. The hydrant shall be tied to the pipe with suitable rods or clamps, and shall be coated with Koppers 300 or approved equal at a minimum of 8 mil. thick. Bolts shall have a zinc bolt cover per AWWA. Hydrant paint shall be touched up as required after installation.

E. Fire hydrants shall be factory primed and painted silver using a high grade enamel.

F. Fire sprinkler lines shall be protected by a reduced pressure zone (RPZ). All fire lines shall be ductile iron pipe. All private fire lines shall be separated by double detecta check.

W3.20 FIELD TESTS AND ADJUSTMENTS

A. Conduct a functional field test of each valve, including actuators and valve control equipment, in presence of Engineer or the Representative of the City to demonstrate that each part and all components together function correctly. All testing equipment required shall be provided by the Contractor at his/her sole expense.

W3.21 PAYMENT

A. Gate valves, tapping sleeves and tapping valves, fire hydrants, and air and vacuum relief valves complete in place as shown on the Plans and as specified, will be paid for at the unit contract price per each as provided in the Proposal and Bid Schedule.

B. The unit price per each installation shall be the total compensation for furnishing all labor, materials, tools, equipment and incidentals necessary to complete the work including excavation, base blocking, disposal of surplus materials and backfill in conformance with the Plans and these specifications. The six (6) inch connection pipe, six (6) inch gate valve, test station, concrete collar, thrust block, drain pit, concrete pad, rods, bolts, paint, protective coatings, and fittings for fire hydrants shall not be paid for separately.

C. Fire hydrants shall be furnished with the proper length of barrel to comply with these specifications. Barrel extensions will not be measured and paid for separately.

D. No separate payment shall be made for work performed in accordance with this specification, other than that listed in Parts A-C of this subsection, and the cost thereof shall be included in the proper items of the Proposal and Bid Schedule.

END OF SECTION

TECHNICAL SPECIFICATIONS

SECTION W4 – ENCASEMENT PIPE

W4.01 SCOPE OF WORK

A. This specification covers the requirements for furnishing and installing encasement pipe complete in place including any required spacers and end plugs as shown on the plans and specified herein.

W4.02 SUBMITTALS

A. Within 30 days after the Notice to Proceed, the Contractor shall submit to the Engineer for approval, technical product literature including type and Manufacturer of pipe, spacers, and end plugs, and all other pertinent data to illustrate conformance to the specification found within.

W4.03 GENERAL

A. Where pipe is required to be installed under highways, streets, or other facilities, construction shall be made in such a manner that will not interfere with the operation of the street, highway, or other facility, and shall not weaken or damage any embankment or structure.

B. All carrier pipe shall be laid to the required line and grade within the specified limits through the encasement pipe. Carrier pipe shall be handled and placed in the encasement pipe by use of proper skids, wedges, guide fails or other approved means. Care shall be taken that once the pipe is in place to line and grade, it shall not be disturbed or become displaced. All carrier pipe shall have restrained joints.

W4.04 MATERIALS

A. Encasement pipe shall be smooth steel 35,000 psi yield strength with thickness according to the following table:

Carrier Size (Inner Diameter)	Minimum Encasement Steel Casing Size (Inner Diameter)	Minimum Casing Thickness (Inches)
4"	14"	0.2500
6"	16"	0.2500
8"	18"	0.2500
10"	20"	0.3125
12"	24"	0.3175
14"	24"	0.375
16"	30"	0.4375
18"	30"	0.4375
20"	36"	0.500
24"	42"	0.500
27"	42"	0.500
30"	48"	0.500
33"	48"	0.500
36"	54"	0.500
39"	60"	0.500
42"	60"	0.500

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED
PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WATER NOTES III

SHEET:
C13.9

B. Casing spacers shall be bolt-on style with a shell made in two (2) sections of Heavy T-304 stainless steel. Connecting flanges shall be ribbed for extra strength Casing spacers shall have runners made of ultra high molecular weight polymer, with a minimum height of two (2) inches. Wedges shall not be used between the top of the carrier pipe and the inside of the easement pipe. Casings spacers shall have a minimum of one (1) inch clear distance between the runners on top of the casing spacers and the inside of the encasement pipe. Prior to inserting the carrier pipe, all water shall be pumped out of the encasement pipe to at least a point where no more than two (2) inches of water remains. Spacers shall be required within at least three (3) feet from both openings of the encasement pipe and spaced no greater than six (6) feet through out the encasement pipe. Casing spacers will not be paid for directly but shall be considered subsidiary to the bid item of encasement pipe. . Casing spacers shall be made by Cascade Waterworks MFG Company or approve equal.

C. End Plugs shall be provided as required and as specified by the pipe manufacturer.

W4.05 PAYMENT

A. Separate payment will be made for Steel Encasement Pipe per linear foot as called for on the Plans and set forth in the Proposal and Bid Schedule.

B. All costs incurred for furnishing and installing encasement pipe shall include all labor, materials, tools, equipment and incidentals necessary to perform all work or whatever nature required to complete the specific operation.

END OF SECTION

Construction General Notes

1. These construction plans were prepared, sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the construction plans for construction of the proposed project are hereby approved subject to the standard Construction Specifications and Details Manual and all other applicable City, State and Federal Requirements and Codes.
2. This project is subject to all City Standard Specifications and Details in effect at the time of submittal of the project to the City.
3. The site construction plans shall meet all requirements of the approved site plan.
4. Wastewater mains and service lines shall be SDR 26 PVC.
5. Wastewater mains shall be installed without horizontal or vertical bends.
6. Maximum distance between wastewater manholes is 500 feet.
7. Wastewater mains shall be low pressure air tested and mandrel tested by the contractor according to City of Georgetown and TCEQ requirements.
8. Wastewater manholes shall be vacuum tested and coated by the contractor according to City of Georgetown and TCEQ requirements.
9. Wastewater mains shall be camera tested by the contractor and submitted to the City on DVD format prior to paving the streets.
10. Private water system fire lines shall be tested by the contractor to 200 psi for 2 hours.
11. Private water system fire lines shall be ductile iron piping from the water main to the building sprinkler system, and 200 psi C900 PVC for all others.
12. Public water system mains shall be 150 psi C900 PVC and tested by the contractor at 200 psi for 15 minutes and 150 psi for 2 hours.
13. All bends and changes in direction on water mains shall be restrained and thrust blocked.
14. Long fire hydrant leads shall be restrained.
15. All water lines are to be bacteria tested by the contractor according to the City standards and specifications.

300-1 Industrial Ave. | P. O. Box 409 | Georgetown, Texas 78627-0409 |
(512) 930-3558 | (512) 930-3559 (fax) http://www.georgetown.org | gus@georgetown.org

16. Water and Sewer main crossings shall meet all requirements of the TCEQ and the City.
17. Flexible base material for public streets shall be TXDOT Type A Grade 1.
18. Hot mix asphaltic concrete pavement shall be Type D unless otherwise specified and shall be a minimum of 2 inches thick on public streets and roadways.
19. All sidewalk ramps are to be installed with the public infrastructure.
20. A maintenance bond is required to be submitted to the City prior to acceptable of the public improvements. This bond shall be established for 2 years in the amount of 10% of the cost of the public improvements and shall follow the City format.
21. Record drawings of public improvements shall be submitted to the City by the design engineer prior to acceptance of the project. These drawings shall be a pdf emailed to the City Development engineer.

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5/25/2023

STATE OF TEXAS
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CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
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CITY OF LIBERTY HILL AND
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WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

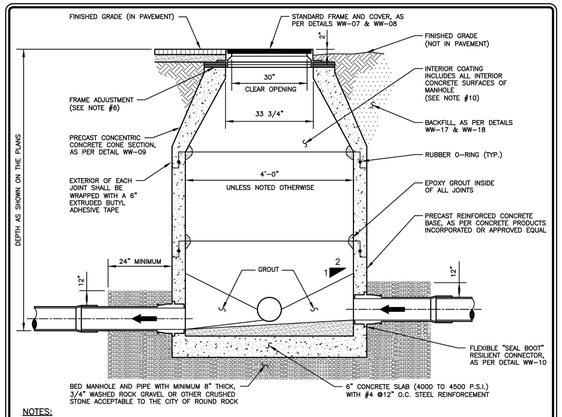
JOB NUMBER: CHV21004
ISSUE DATE:

WATER NOTES IV

SHEET:
C13.10

FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - ProductionK:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C12.0 WATER DETAILS_CHV21004

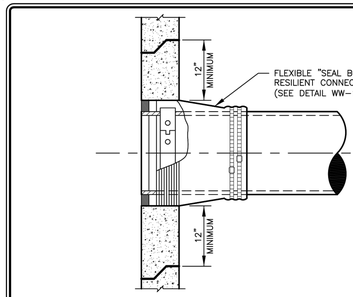
FILENAME: C12.0 WATER DETAILS_CHV21004.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 5/25/2023



NOTES:

1. IF DROP IS SIX INCHES (6") TO TWO FEET (2'-0"), CONSTRUCTION OF DROP SHALL PROVIDE AN OVERSIZED INVERT TO EXTEND UNDER THE DROP CONNECTION.
2. SEE CONSTRUCTION PLANS FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZES AND TYPES.
3. MANHOLES SHALL BE PRECAST A.S.T.M. C478 BELL AND SPIGOT WITH "O" RING JOINTS.
4. MANHOLES TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR H20 TRAFFIC LOADING.
5. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETED, WHEN MANHOLES ARE LOCATED OUTSIDE OF PAVEMENT.
6. FRAME ADJUSTMENT HEIGHT SHALL CONSIST OF FIVE INCHES (5") MINIMUM TO EIGHTEEN INCHES (18") MAXIMUM. GRADE RINGS SHALL BE GROUTED WITH A NON-SHRINK GROUT INSIDE AND OUTSIDE. HDPE GRADE RINGS, MAY NOT BE USED.
7. FOR MANHOLES TO BE VENTED, SEE DETAILS WW-05 AND WW-06.
8. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO THE FLOW STREAM. ALL P.V.C. PIPE SHALL BE REMOVED FROM INVERT.
9. BASE SECTION SHALL BE DESIGNED FOR H20 LOADING, PLUS EARTH LOAD AT 130 PCF.
10. ENTIRE INTERIOR CONCRETE SURFACES OF WASTEWATER MANHOLES TO BE COATED WITH RAVEN 405, SPRAYWALL, OR APPROVED EQUAL, (WITH A UNIFORM THICKNESS OF 124 MILS AND A MINIMUM THICKNESS OF 100 MILS, APPLIED AFTER MANHOLE HAS PASSED THE VACUUM TEST). FOR REHABILITATING MANHOLES 1/2" MINIMUM THICKNESS CALCIUM ALUMINATE CEMENTITIOUS COATING AND OTHER INTERIOR SURFACES MAY BE COATED IF RECOMMENDED BY COATING MANUFACTURER. (IN LIEU OF INTERIOR COATINGS NEW PRECAST MANHOLES CONTAINING CONSHIELD WILL BE ACCEPTED PROVIDING THE MANUFACTURER STENCILS "CONSHIELD" ON THE INSIDE AND OUTSIDE OF ALL MANHOLE SECTIONS.)

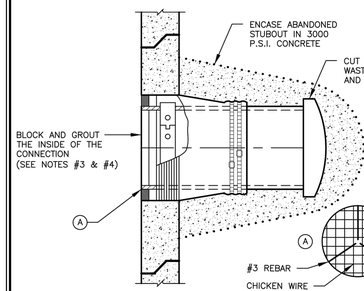
RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-01
APPROVED 03-01-18 DATE	PRECAST CONCRETE WASTEWATER MANHOLE DETAIL	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



NEW CONNECTIONS TO EXISTING WASTEWATER MANHOLES

NOTES:

1. EXISTING MANHOLES TO BE VACUUM TESTED PRIOR TO ANY CONNECTIONS.
2. NEW CONNECTIONS TO HAVE MINIMUM VERTICAL AND HORIZONTAL SEPARATION OF 12" ON THE OUTSIDE FACE OF THE MANHOLE FROM ANY EXISTING PENETRATIONS AND/OR MANHOLE JOINTS.
3. CONNECTIONS MADE INTO EXISTING MANHOLES ARE TO BE CORED AND NOT DRILLED/CHISELED.
4. CUT, SHAPE AND SLOPE NEW INVERT CHANNEL IN THE EXISTING CONCRETE BENCH FOR SMOOTH FLOW FROM THE NEW WASTEWATER CONNECTION.
5. EXISTING MANHOLES TO BE RECOATED AFTER ANY NEW WASTEWATER CONNECTION IS ADDED.

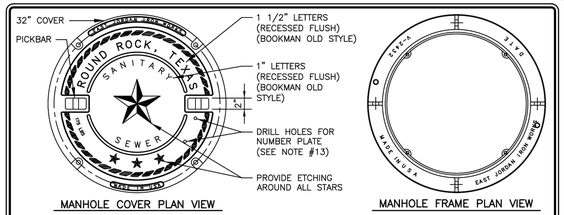


ABANDONMENT OF CONNECTIONS TO EXISTING WASTEWATER MANHOLES

NOTES:

1. THIS DETAIL IS INTENDED FOR WASTEWATER MANHOLES THAT WILL REMAIN IN SERVICE. FOR WASTEWATER MANHOLES THAT ARE TO BE ABANDONED, REFERENCE DETAIL WW-15.
2. WASTEWATER MANHOLE TO BE RECOATED AFTER GROUT IS INSTALLED.
3. BLOCK THE INLET OF THE MANHOLE WITH CHICKEN WIRE AND 3-#3 REBAR. GROUT THE INSIDE OF THE MANHOLE FLUSH WITH THE MANHOLE WALL.
4. CONNECTIONS 24" AND LARGER REQUIRE BRICK BLOCKING TO BE INSTALLED PRIOR TO GROUTING.

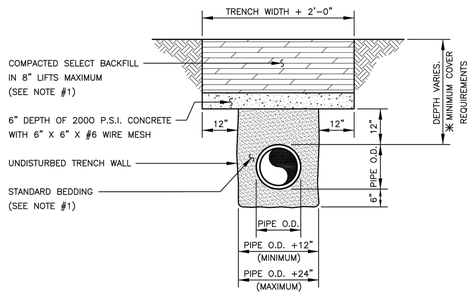
RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-21
APPROVED 03-01-18 DATE	EXISTING WASTEWATER MANHOLE CONNECTION DETAIL	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: AASHTO DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: V-2432-3 (PRODUCT NUMBER: 42432033), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432073), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS HS-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. BOLTS SHALL BE 5/8"-11NC X 2" LONG HEX STAINLESS STEEL WITH WASHER.
13. MANUFACTURER SHALL DRILL 2-3/16" X 1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

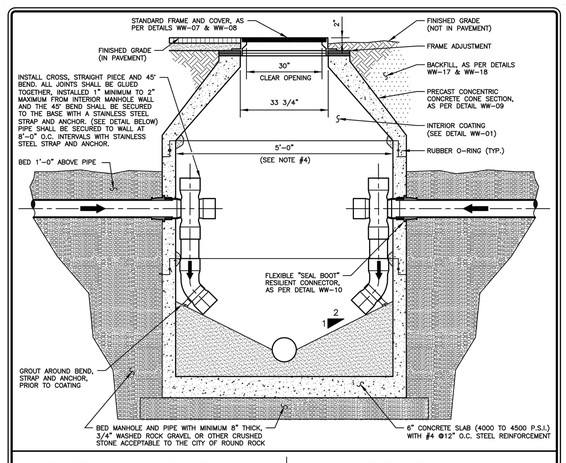
RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-07
APPROVED 03-01-18 DATE	BOLTED WASTEWATER MANHOLE COVER AND FRAME DETAIL	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

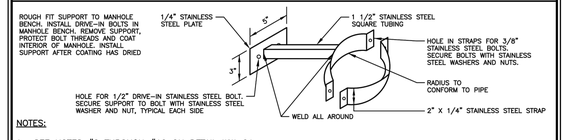


NOTE:

1. REFERENCE WATERLINE BEDDING AND SURFACE REPAIR DETAIL WT-08 & WASTEWATER LINE AND SURFACE REPAIR DETAIL WW-18 FOR PIPE BEDDING/BACKFILL REQUIREMENTS AND MINIMUM COVER REQUIREMENTS.
2. REQUIREMENTS FOR CONCRETE TRENCH CAPS IN WATERWAYS AND DRAINAGE AREAS NEED TO BE REVIEWED ON A CASE BY CASE BASIS AND APPROVED BY THE CITY ENGINEER AND INSPECTOR.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-20
APPROVED 03-01-18 DATE	CONCRETE TRENCH CAP DETAIL	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

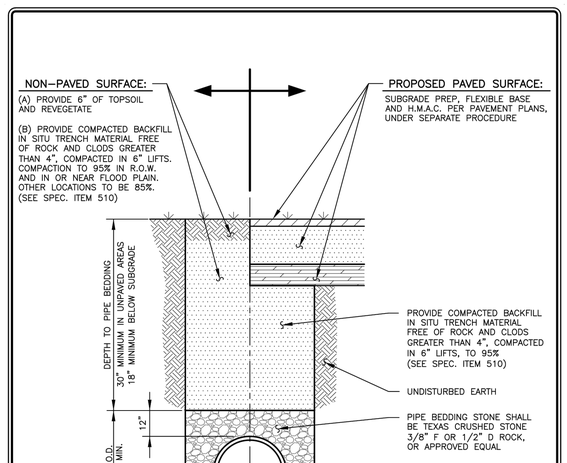




NOTES:

1. SEE NOTES #2 THROUGH #10 ON DETAIL WW-01.
2. DROP SERVICES SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER SERVICE IS LOCATED MORE THAN TWO FEET (2'-0") ABOVE THE MAIN INVERT CHANNEL.
3. WHEN P.V.C. PIPE IS USED IN SANITARY SEWER LINES, SOLVENT TYPE JOINT P.V.C. FITTINGS TO BE UTILIZED IN THE DROP ASSEMBLY ONLY. FITTINGS TO BE PVC SDR-35 WITH A TWO PART WATER RESISTANT GLUE AT ALL JOINTS.
4. A 5'-0" MANHOLE IS REQUIRED FOR 1 OR 2 DROP SERVICES. IF THERE ARE MORE THAN 2 DROP SERVICES, A 6'-0" DIAMETER MANHOLE IS REQUIRED.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-03
APPROVED 03-01-18 DATE	PRECAST CONCRETE WASTEWATER MANHOLE WITH DROP SERVICE DETAIL	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



NOTE:

ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-18
APPROVED 03-01-18 DATE	WASTEWATER LINE BEDDING AND SURFACE REPAIR DETAIL (NON-PAVED & PROPOSED PAVED SURFACE)	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WASTE WATER DETAILS

SHEET:
C14.0

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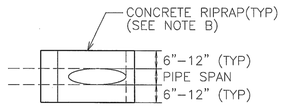
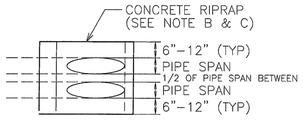
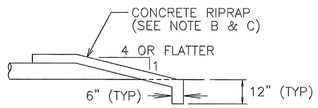
PLOTTED BY: Prashanta Gadam
PLOTTED DATE: 5/25/2023



PLAN VIEW – SINGLE PIPE
N.T.S.



PLAN VIEW – MULTIPLE PIPES
N.T.S.



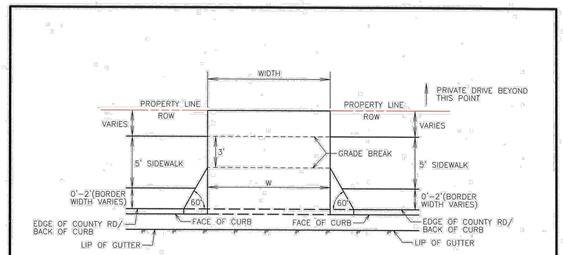
ELEVATION VIEW
N.T.S.

NOTES:
A) PIPE SIZE TO BE DETERMINED OR AS APPROVED BY WILLIAMSON COUNTY.
B) CONCRETE RIPRAP SHALL BE NORMAL 4" THICK REINFORCED WITH MIN. 6x6x1.5x1.5 WELDED WIRE MESH IN ACCORDANCE WITH CURRENT TxDOT SAFETY END TREATMENT STANDARDS.
C) SPECIAL CONDITIONS MAY APPLY TO ARCH PIPES LARGER THAN DES 4 OR ROUND PIPES LARGER THAN 30" IN DIAMETER IN ACCORDANCE WITH CURRENT TxDOT SAFETYEND TREATMENT STANDARDS.
D) ENGINEERED DRAWINGS MUST BE SUBMITTED FOR MULTIFAMILY OR COMMERCIAL/INDUSTRIAL DRIVEWAYS.

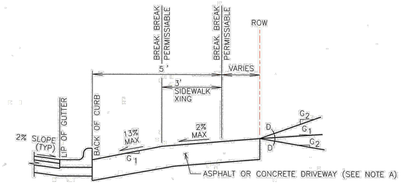
WILLIAMSON COUNTY DEPT. OF INFRASTRUCTURE

EXHIBIT
SAFETY END TREATMENT
FOR
DRIVEWAY CULVERT

Revised: 11/22/21



PLAN VIEW
N.T.S.



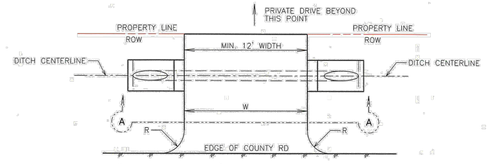
ALLOWABLE GRADES
N.T.S.

NOTES:
A) MIN. 1.5" TxDOT HMAC AND 6" ROAD BASE OR MIN. 5" REINFORCED CONCRETE AND 2" SAND.
B) ENGINEERED DRAWINGS MUST BE SUBMITTED FOR MULTIFAMILY OR COMMERCIAL/INDUSTRIAL DRIVEWAYS.
D) WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, THE FIRE DEPARTMENT SHOULD BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS. "D" IS THE ALGEBRAIC DIFFERENCE OF "G2" AND "G1" AND SHOULD NOT EXCEED THE MAXIMUM PERCENT STATED IN THE TABLES FOR DRIVEWAY CRITERIA.

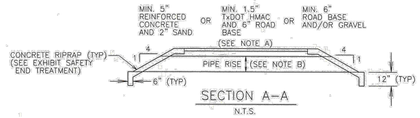
WILLIAMSON COUNTY DEPT. OF INFRASTRUCTURE

EXHIBIT
CURB & GUTTER
DRIVEWAY

Revised: 11/22/21



PLAN VIEW
N.T.S.



SECTION A–A
N.T.S.

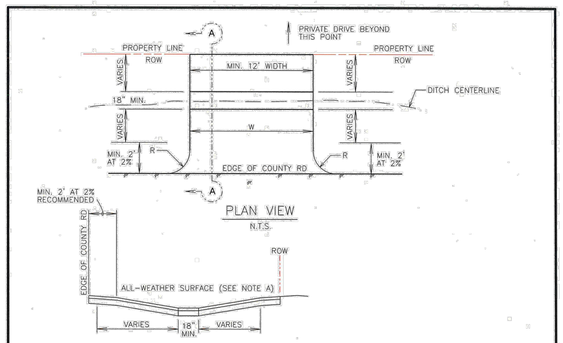
ALLOWABLE GRADES
N.T.S.

NOTES:
A) MATERIAL DEPTHS SHOWN ABOVE ARE RECOMMENDED.
B) INSTALL CULVERT PIPE TO MATCH DITCH CENTERLINE AND FLOWLINE.
C) ENGINEERED DRAWINGS MUST BE SUBMITTED FOR MULTIFAMILY OR COMMERCIAL/INDUSTRIAL DRIVEWAYS.
D) WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, THE FIRE DEPARTMENT SHOULD BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS. "D" IS THE ALGEBRAIC DIFFERENCE OF "G2" AND "G1" AND SHOULD NOT EXCEED THE MAXIMUM PERCENT STATED IN THE TABLES FOR DRIVEWAY CRITERIA.

WILLIAMSON COUNTY DEPT. OF INFRASTRUCTURE

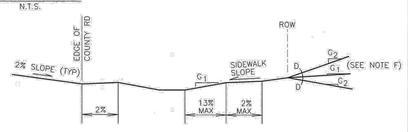
EXHIBIT
DRIVEWAY WITH
CULVERT PIPE

Revised: 11/22/21



PLAN VIEW
N.T.S.

SECTION A–A
N.T.S.



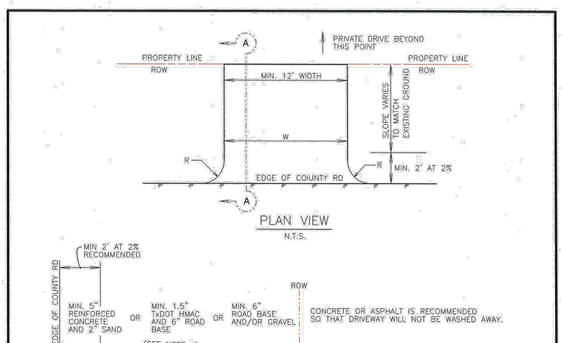
ALLOWABLE GRADES
N.T.S.

NOTES:
A) PACKED GRAVEL, SEAL-COATED ASPHALT, TxDOT HMAC, CONCRETE OR SIMILAR MATERIAL ARE RECOMMENDED TO PREVENT WASHING AWAY.
B) DIP CENTERLINE TO BE ALINGED WITH DITCH CENTERLINE.
C) TOP OF DIP SECTION TO MATCH DITCH FLOWLINE ELEVATION.
D) CONSTRUCT DRIVEWAY AT NATURAL GRADE AS TO NOT OBSTRUCT NATURAL DRAINAGE FLOW.
E) ENGINEERED DRAWINGS MUST BE SUBMITTED FOR MULTIFAMILY OR COMMERCIAL/INDUSTRIAL DRIVEWAYS.
F) WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, IF "G2" IS GREATER THAN 15%, THE FIRE DEPARTMENT SHOULD BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS. "D" IS THE ALGEBRAIC DIFFERENCE OF "G2" AND "G1" AND SHOULD NOT EXCEED THE MAXIMUM PERCENT STATED IN THE TABLES FOR DRIVEWAY CRITERIA.

WILLIAMSON COUNTY DEPT. OF INFRASTRUCTURE

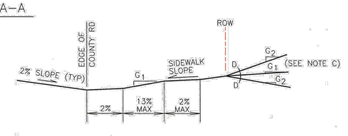
EXHIBIT
DRIVEWAY
DIP-STYLE

Revised: 11/22/21



PLAN VIEW
N.T.S.

SECTION A–A
N.T.S.



ALLOWABLE GRADES
N.T.S.

NOTES:
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WILLIAMSON COUNTY DEPT. OF INFRASTRUCTURE

EXHIBIT
DRIVEWAY
STRAIGHT TIE-IN

Revised: 11/22/21

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91863
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

PAVING DETAILS I

SHEET:
C15.0

FULL PATH: K:\Jobs\CHV21004_Fout\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\K:\Jobs\CHV21004_Fout\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C14.0 PAVING DETAILS_CHV21004.dwg
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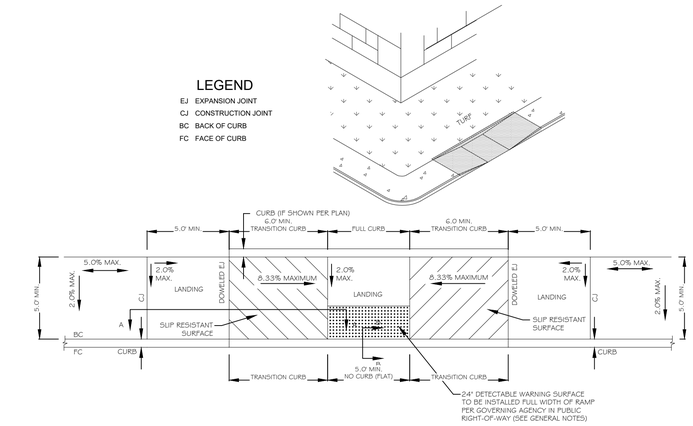
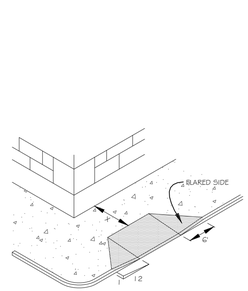
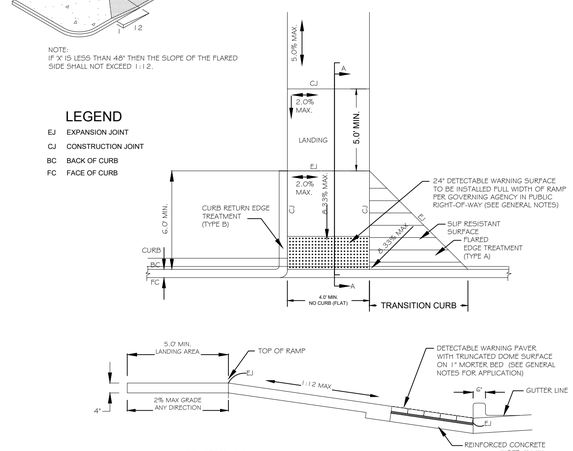
PLOTTED DATE: 5/25/2023



PARALLEL CURB RAMP DETAIL

N.T.S. -SIDEWALK PARELEL TO CURB





CURB RAMP DETAIL

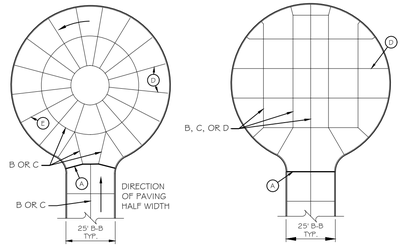
N.T.S. - FLARED OR RETURN CURB

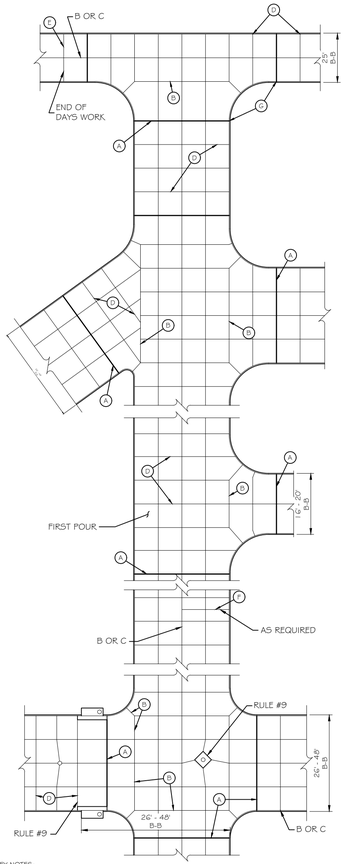
GENERAL NOTES

NOTES:
1. CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP OR TRANSITION SURFACE.
2. RAMPS SHALL BE CONSTRUCTED PER ADA & APPLICABLE STATE ACCESSIBILITY STANDARDS..
3. CURB RAMPS SHALL BE MONOLITHIC POUR & SEPARATED FROM SITE PAVING WITH A DOWELED EXPANSION JOINT.

DETECTABLE WARNING SURFACE (PUBLIC RIGHT-OF-WAY):
1. TRUNCATED DOMES SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
2. TRUNCATED DOMES TO RUN PARALLEL TO PEDESTRIAN TRAVEL.
3. DETECTABLE WARNING PAVERS, OR PLATES MEETING ADA & STATE REQUIREMENTS ARE ACCEPTABLE.

GROOVED SURFACE (RAMP FLARE):
1. FLARED CURB RAMP SURFACES SHALL BE TEXTURED WITH GROOVES 1/4" DEEP, 3/4" WIDE, 2" APART AND ARRANGED SO THAT WATER WILL NOT ACCUMULATE IN THE GROOVES.
2. FLARED CURB RAMP SURFACE SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF THE ADJOINING PEDESTRIAN ROUTE WHEN SPECIFIED.



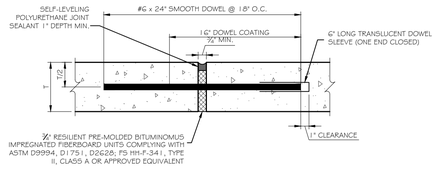


KEY NOTES:
A. EXPANSION JOINT (ISOLATION)
B. LONGITUDINAL CONSTRUCTION JOINT
C. LONGITUDINAL CONTROL JOINT (CONTRACTION)
D. TRANSVERSE CONTROL JOINT (CONTRACTION)
E. PLANNED TRANSVERSE CONSTRUCTION JOINT
F. EMERGENCY TRANSVERSE CONSTRUCTION JOINT
G. PLACE ½" EXPANSION JOINT FILLER IN TOP OF CURB ONLY AT ALL RADIUS POINTS

RULES:
1. AVOID ODD-SHAPED SLABS.
2. MAXIMUM TRANSVERSE JOINT SPACING FOR PAVEMENT SHOULD EITHER BE 24 TO 30 TIMES THE SLAB THICKNESS OR 15ft.
3. LONGITUDINAL JOINT SPACING SHOULD NOT EXCEED 12.5ft.
4. KEEP SLABS AS SQUARE AS POSSIBLE. LONG NARROW SLABS TEND TO CRACK MORE THAN SQUARE ONES.
5. ALL TRANSVERSE CONTRACTION JOINTS MUST BE CONTINUOUS THROUGH THE CURB AND HAVE A DEPTH EQUAL TO ¼ THE PAVEMENT THICKNESS.
6. IN ISOLATION JOINTS, THE FILLER MUST BE FULL DEPTH AND EXTEND THROUGH THE CURB
7. IF THERE IS NO CURB, LONGITUDINAL JOINTS SHOULD BE TIED WITH DEFORMED BARS.
8. OFFSETS AT RADIUS POINTS SHOULD BE AT LEAST 1.5ft WIDE. JOINT INTERSECTION ANGLES LESS THAN 60° SHOULD BE AVOIDED.
9. MINOR ADJUSTMENTS IN JOINT LOCATION MADE BY SHIFTING OR SKEWING TO MEET INLETS AND MANHOLES WILL IMPROVE PAVEMENT PERFORMANCE.
10. WHEN THE PAVEMENT AREA HAS DRAINAGE STRUCTURES, PLACE JOINTS TO MEET THE STRUCTURES IF POSSIBLE.

TYPICAL JOINT LAYOUT

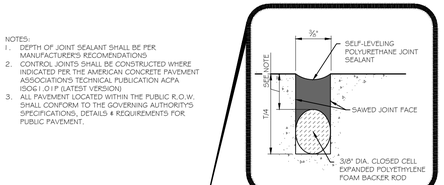
N.T.S.



NOTES:
1. SLEEVES FOR DOWELS SHALL HAVE AN INSIDE DIAMETER OF ¼" GREATER THAN THE DIAMETER OF THE DOWELS AND SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO USE.
2. EXPANSION JOINTS SHALL BE CONSTRUCTED A MAXIMUM OF 500' APART ON STRAIGHT PAVING, AND WHERE INDICATED PER THE AMERICAN CONCRETE PAVEMENT ASSOCIATIONS TECHNICAL PUBLICATION ACPA ISO61.01P (LATEST VERSION)
3. DOWEL COATING SHALL BE ASPHALTIC COATING.
4. DOWELS SHALL NOT BE TIED TO OTHER REINFORCEMENT.
5. REFER TO SIDEWALK DETAILS THIS SHEET FOR EXPANSION JOINTS IN SIDEWALK AREAS.
6. ALL PAVEMENT LOCATED WITHIN THE PUBLIC R.O.W. SHALL CONFORM TO THE GOVERNING AUTHORITYS SPECIFICATIONS, DETAILS & REQUIREMENTS FOR PUBLIC PAVEMENT.
7. FINISHED SURFACES SHALL BE INSTALLED FLUSH WITH A DIFFERENTIAL ELEVATION NOT TO EXCEED ½".

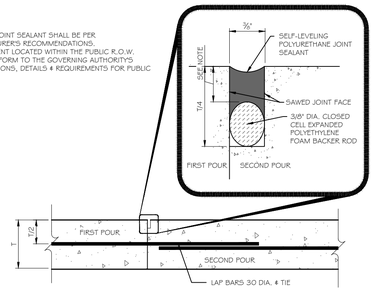
EXPANSION JOINT (ISOLATION)

N.T.S.



CONTROL JOINT (CONTRACTION)

N.T.S.



CONSTRUCTION BUTT JOINT

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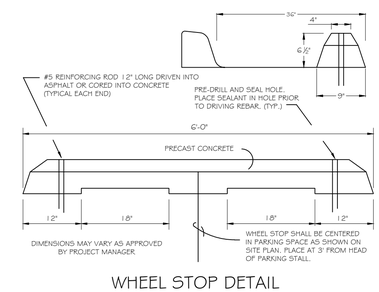

WHEEL STOP DETAIL

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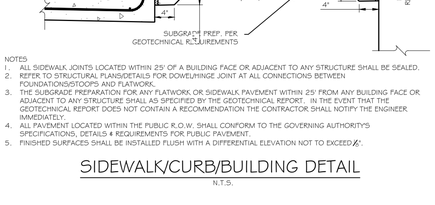
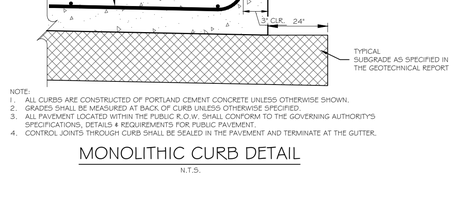


NOTES
1. ALL SIDEWALK JOINTS LOCATED WITHIN 25' OF A BUILDING FACE OR ADJACENT TO ANY STRUCTURE SHALL BE SEALED.
2. REFER TO STRUCTURAL PLANS/DETAILS FOR DOWELING/NOSE JOINT AT ALL CONNECTIONS BETWEEN FOUNDATIONS/STOOPS AND FLATWORK.
3. THE SUBGRADE PREPARATION FOR ANY FLATWORK OR SIDEWALK PAVEMENT WITHIN 25' FROM ANY BUILDING FACE OR ADJACENT TO ANY STRUCTURE SHALL AS SPECIFIED BY THE GEOTECHNICAL REPORT. IN THE EVENT THAT THE GEOTECHNICAL REPORT DOES NOT CONTAIN A RECOMMENDATION THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
4. ALL PAVEMENT LOCATED WITHIN THE PUBLIC R.O.W. SHALL CONFORM TO THE GOVERNING AUTHORITYS SPECIFICATIONS, DETAILS & REQUIREMENTS FOR PUBLIC PAVEMENT.
5. FINISHED SURFACES SHALL BE INSTALLED FLUSH WITH A DIFFERENTIAL ELEVATION NOT TO EXCEED ½".

SIDEWALK/CURB/BUILDING DETAIL

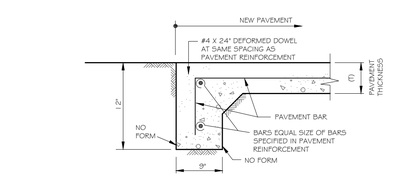
N.T.S.



NOTE:
1. ALL CURBS ARE CONSTRUCTED OF PORTLAND CEMENT CONCRETE UNLESS OTHERWISE SHOWN.
2. GRADES SHALL BE MEASURED AT BACK OF CURB UNLESS OTHERWISE SPECIFIED.
3. ALL PAVEMENT LOCATED WITHIN THE PUBLIC R.O.W. SHALL CONFORM TO THE GOVERNING AUTHORITYS SPECIFICATIONS, DETAILS & REQUIREMENTS FOR PUBLIC PAVEMENT.
4. CONTROL JOINTS THROUGH CURB SHALL BE SEALED IN THE PAVEMENT AND TERMINATE AT THE GUTTER.

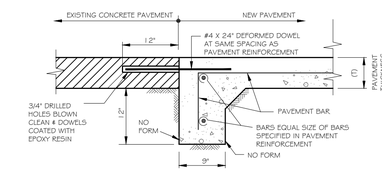
MONOLITHIC CURB DETAIL

N.T.S.



THICKENED PAVEMENT EDGE

N.T.S.



STREET HEADER AT EXISTING PAVEMENT

N.T.S.

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

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PROPERTY OWNER LLC

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CHALK HILL RANCH

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SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

PAVING DETAILS II

SHEET:
C15.1

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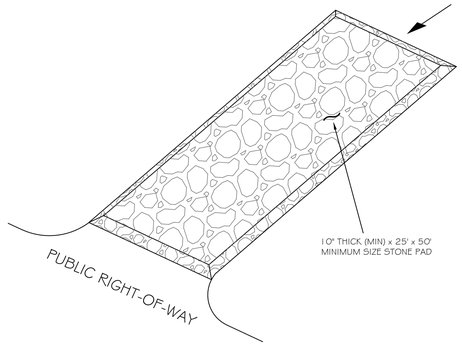
PLOTTED BY: Preciannka Gadam
PLOTTED DATE: 5/24/2023



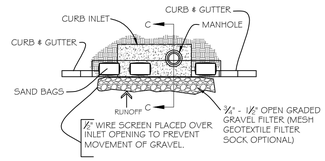
SIZE OF ROCK. LBS.	% SMALLER BY WEIGHT
200	100
50	35-65
3	0

NOTES:

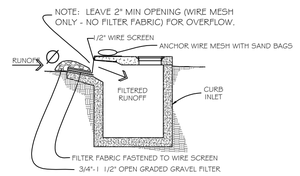
1. THE ENTRANCE SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE DRESSING WITH ADDITIONAL STONE AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE INTO PUBLIC RIGHT-OF-WAY. WASHING SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT CONTROLLING STRUCTURE. USE SAND BAGS, GRAVEL, BOARDS OR OTHER APPROVED METHODS TO PREVENT SEDIMENT FROM ENTERING ANY STORM DRAIN, DITCH, OR WATER COURSE.
3. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

TEMPORARY CONSTRUCTION EXIT POINT

N.T.S.



PLAN VIEW



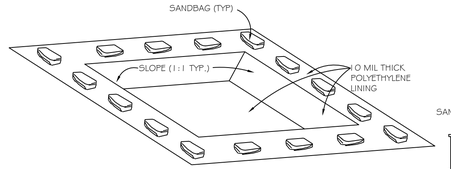
CROSS SECTION C-C

∅ SEDIMENT REMOVAL SHALL BE PERFORMED CONTINUOUSLY FOR PROPER FUNCTION.

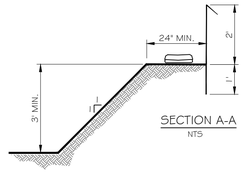
(HIGHER VOLUME TRAFFIC AREAS)

INLET PROTECTION

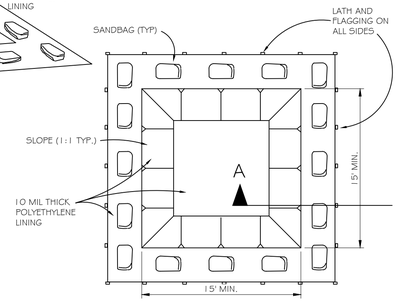
N.T.S.



ISOMETRIC VIEW
NTS



SECTION A-A
NTS

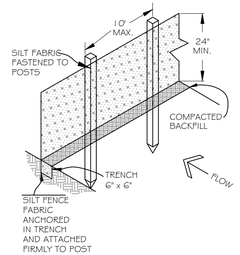


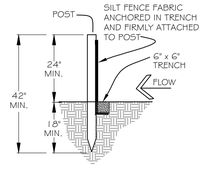
PLAN VIEW
NTS

NOTES
1. Actual layout, size and location to be determined by Contractor.
2. The concrete washout sign shall be installed within 30 ft. of the temporary concrete washout facility.
3. Once concrete wastes are allowed to harden, the concrete should be broken up, removed and disposed of properly. dispose of hardened concrete on a regular basis.

TEMPORARY CONCRETE WASHOUT AREA

N.T.S.



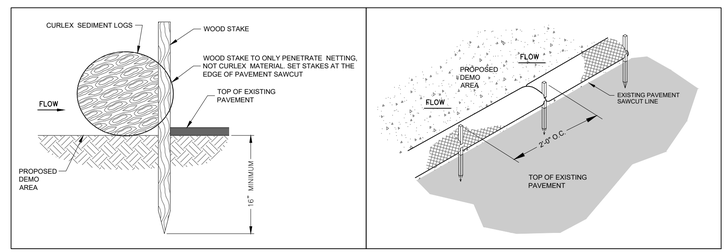


SILT FENCE GENERAL NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE MADE IN ACCORDANCE WITH PERMIT REQUIREMENTS. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM WATER FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

SILT FENCE

N.T.S.



STRAW WATTLE

N.T.S.

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

EROSION CONTROL DETAILS

SHEET:

C16.0

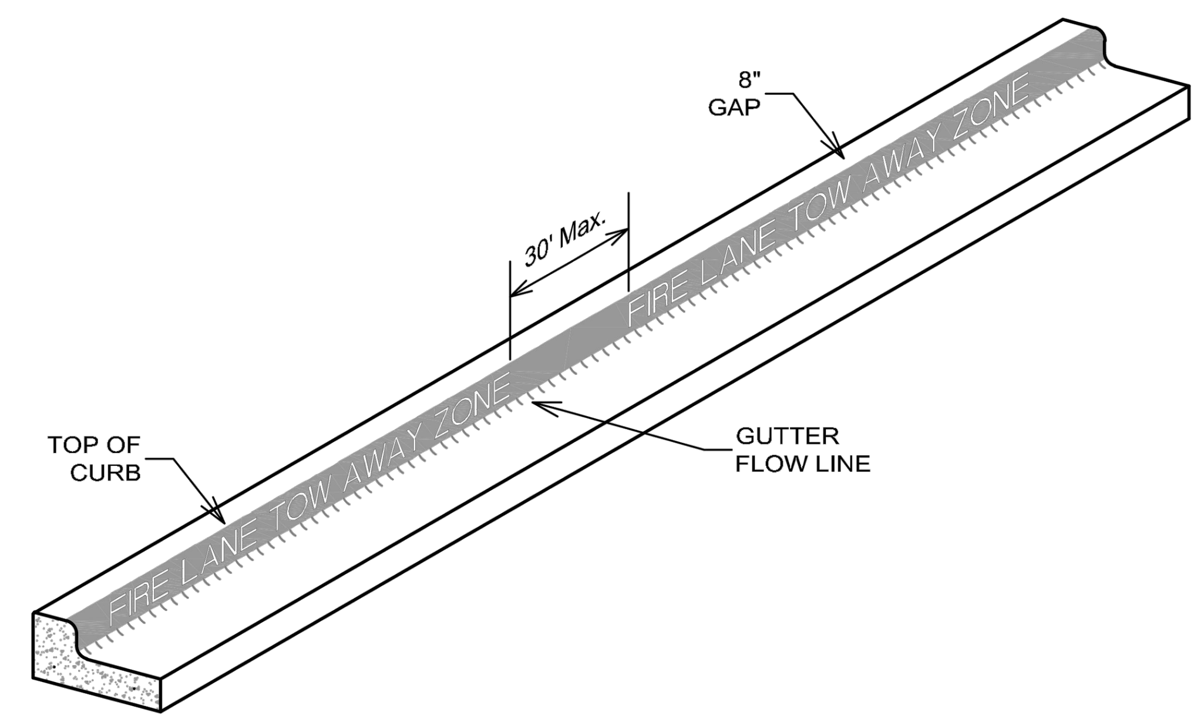
FILENAME: C15.6 EROSION CONTROL DETAILS_CHV21004.dwg
PLOTTED BY: Prabodha Gautam
PLOTTED DATE: 5/25/2023

FULL PATH: K:\Jobs\CHV21004 Fourth\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\K:\Jobs\CHV21004_Fourth\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C15.6 EROSION CONTROL DETAILS_CHV21004.dwg

Williamson County Emergency Services District No. 4

Fire Lane Detail

NOTES:
FIRE LANE STRIPING TO BE 6" WIDE RED PAINT WITH "FIRE LANE TOW AWAY ZONE" IN 4" TALL WHITE LETTERS. WORDING MAY NOT BE SPACED GREATER THAN 30' APART. STRIPING TO BE PAINTED ON THE FACE OF CURB WHEN PRESENT AND PAINTED FLAT ON THE PARKING SURFACE WHEN IT IS NOT.



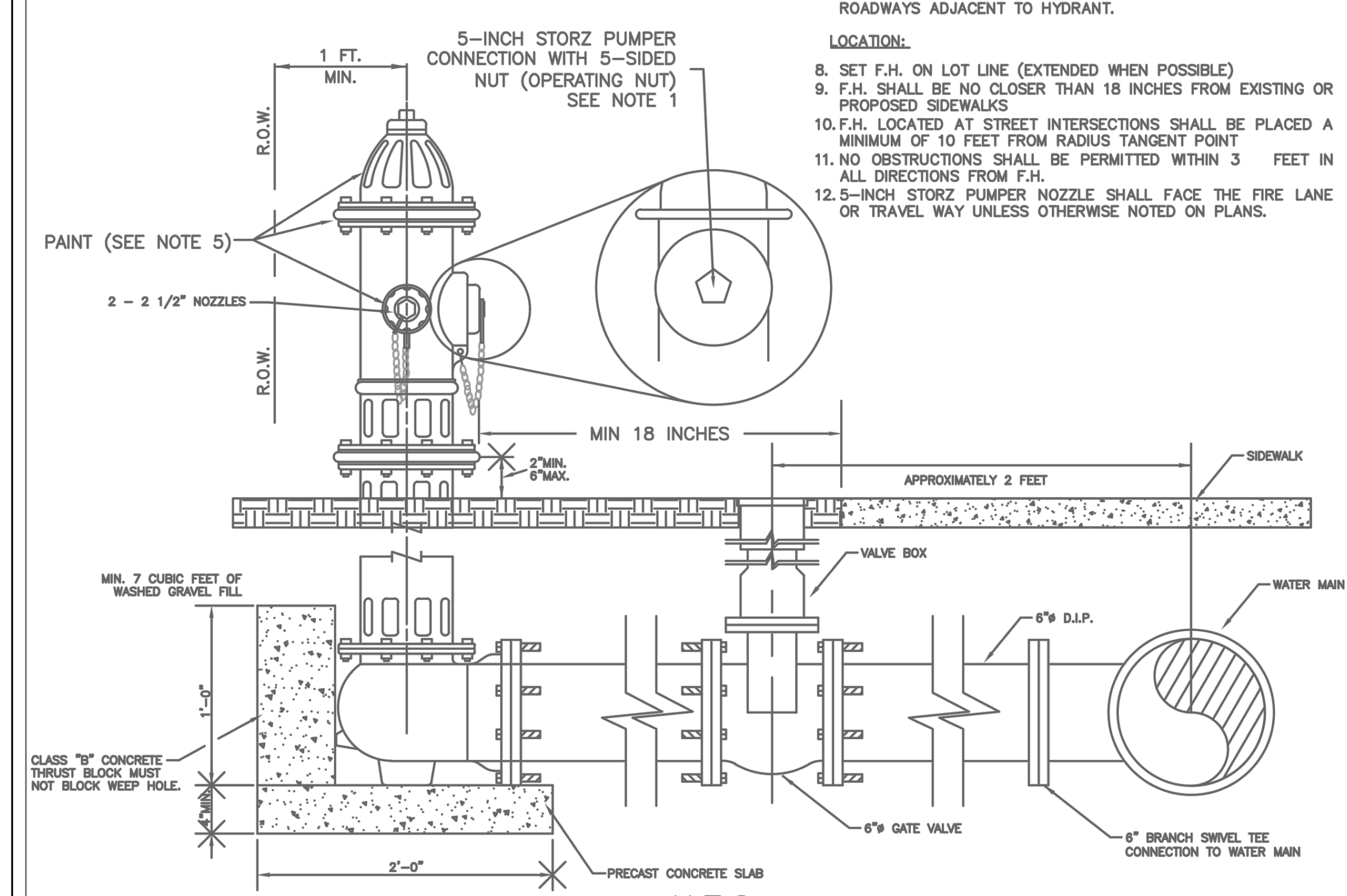
FIRE LANE STRIPING DETAIL

not to scale

FIRE LANE STRIPING DETAIL				
ENGINEER	DATE	DRAWN BY	PROJECT NO.	DRAWING NO.
FRANK T. PHELAN, P.E.	04 - 25 - 19	JJD	01	1 OF 1

FIRE HYDRANTS LACKING INTEGRAL STORZ CONNECTOR SHALL BE REJECTED (NO STORZ ADAPTERS ALLOWED)

RATED FLOW	FIRE HYDRANT BONNET COLOR
1,500 G.P.M. +	LIGHT BLUE
1000 – 1499 G.P.M.	GREEN
500 – 999 G.P.M.	ORANGE
BELOW 500 G.P.M.	RED



N.T.S.

NOTES:

1. FIRE HYDRANT BRAND AND MODEL SHALL BE APPROVED BY THE LOCAL WATER AUTHORITY DISTRICT. THE PRIMARY FEATURES REQUIRED INCLUDE: FACTORY INSTALLED INTEGRAL 5–INCH STORZ PUMPER NOZZLE; 1.5–INCH PENT OPERATING NUT ON NOZZLE CAP; OPEN LEFT; FACTORY PAINTED.
2. HYDRANTS SHALL BE ORDERED SILVER IN COLOR. HYDRANTS WILL NOT BE ACCEPTED IF PAINTED AFTER DELIVERY.
3. ALL DUCTILE OR CAST IRON FITTINGS AND/OR PIPE SHALL BE POLYWRAPPED.
4. ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE. ALL FITTINGS SHALL BE EQUIPPED WITH JOINT RESTRAINT "MEGALUG" OR APPROVED EQUAL. ALL ANCHOR FITTING TO BE CONCRETE THRUST BLOCKED.
5. AFTER COMPLETION OF FIRE HYDRANT INSTALLATION, A FIRE FLOW TEST SHALL BE CONDUCTED BY A THIRD PARTY COMPANY. BASED ON FIRE FLOW TEST, THE FIRE HYDRANT BONNET SHALL BE PAINTED ACCORDING TO THE CHART ON THIS SHEET. THE HYDRANT BONNET TO FLANGE AND NOZZLE CAPS SHALL BE PAINTED THE APPROVED COLOR CORRESPONDING WITH THE APPROPRIATE FLOW RATE AS NOTED ON THE TABLE ON THIS SHEET.
6. BLUE, BI–DIRECTIONAL REFLECTIVE PAVEMENT MARKER, ULTIMATE WET NIGHT VISIBILITY SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATION AT THE CORRESPONDING ROADWAY STATION OFFSET 6 INCHES FROM CENTER OF STREET TO THE SIDE HYDRANT IS LOCATED. AT
7. INTERSECTIONS, MARKERS SHOULD BE PLACED ON BOTH ROADWAYS ADJACENT TO HYDRANT.

LOCATION:

8. SET F.H. ON LOT LINE (EXTENDED WHEN POSSIBLE)
9. F.H. SHALL BE NO CLOSER THAN 18 INCHES FROM EXISTING OR PROPOSED SIDEWALKS
10. F.H. LOCATED AT STREET INTERSECTIONS SHALL BE PLACED A MINIMUM OF 10 FEET FROM RADIUS TANGENT POINT
11. NO OBSTRUCTIONS SHALL BE PERMITTED WITHIN 3 FEET IN ALL DIRECTIONS FROM F.H.
12. 5–INCH STORZ PUMPER NOZZLE SHALL FACE THE FIRE LANE OR TRAVEL WAY UNLESS OTHERWISE NOTED ON PLANS.

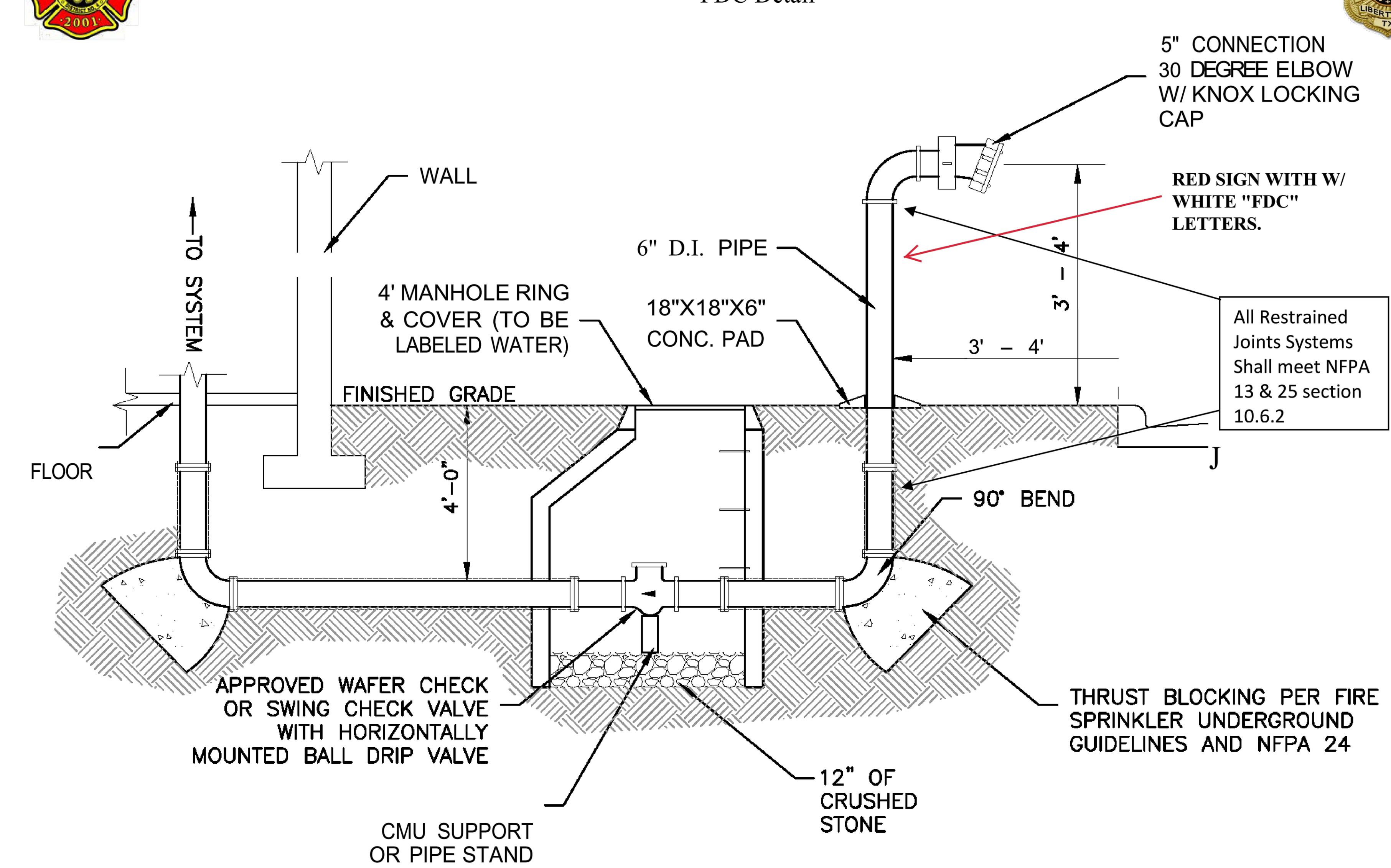
PER ORDER NO. 2007–01
(2) SECTION C105.2 INSTALLATION.
FIRE HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE FIVE (5) INCH STEAMER OPENING AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE FIVE (5) INCH OPENING MUST FACE THE DRIVEWAY OR STREET AND MUST BE TOTALLY UNOBSTRUCTED TO THE STREET. FIRE HYDRANT DESIGN SHALL BE 2– 2.5" NST OUTLETS, 1 – 5.0" STORZ CONNECTION WITH A CAP TO INCLUDE A HEX NUT TO FIT A HYDRANT WRENCH ALONG WITH A REFLECTIVE BAND. THE FIRE HYDRANT SHALL BE PAINTED SILVER IN COLOR AND DESIGNATED BY A BLUE REFLECTOR IN THE CENTER OF THE STREET.

NOTE: STANDARD FIRE HYDRANT ASSEMBLY INCLUDES ALL COMPONENTS SHOWN HEREIN, EXCEPT WATER MAIN, INSTALLED COMPLETE AND IN–PLACE.

WILLIAMSON COUNTY EMERGENCY SERVICE DISTRICT NO. 4	STANDARD FIRE HYDRANT ASSEMBLY

Williamson County Emergency Services District No. 4

FDC Detail



FIRE DEPARTMENT CONNECTION

NOT TO SCALE

5/25/2023

SHEA O. KIRKMAN
91865

CHV LIBERTY HILL 29 PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

WCESD NO.4 DETAILS

SHEET:

C 17.0

ATTACHMENT N
INSPECTION, MAINTENANCE, REPAIR AND RETROFIT FOR PERMANENT BMPs

The following details the owner's maintenance manual and worksheets for inspection and maintenance of the permanent BMPs proposed onsite.

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter
Owner's Manual

Jellyfish® Filter

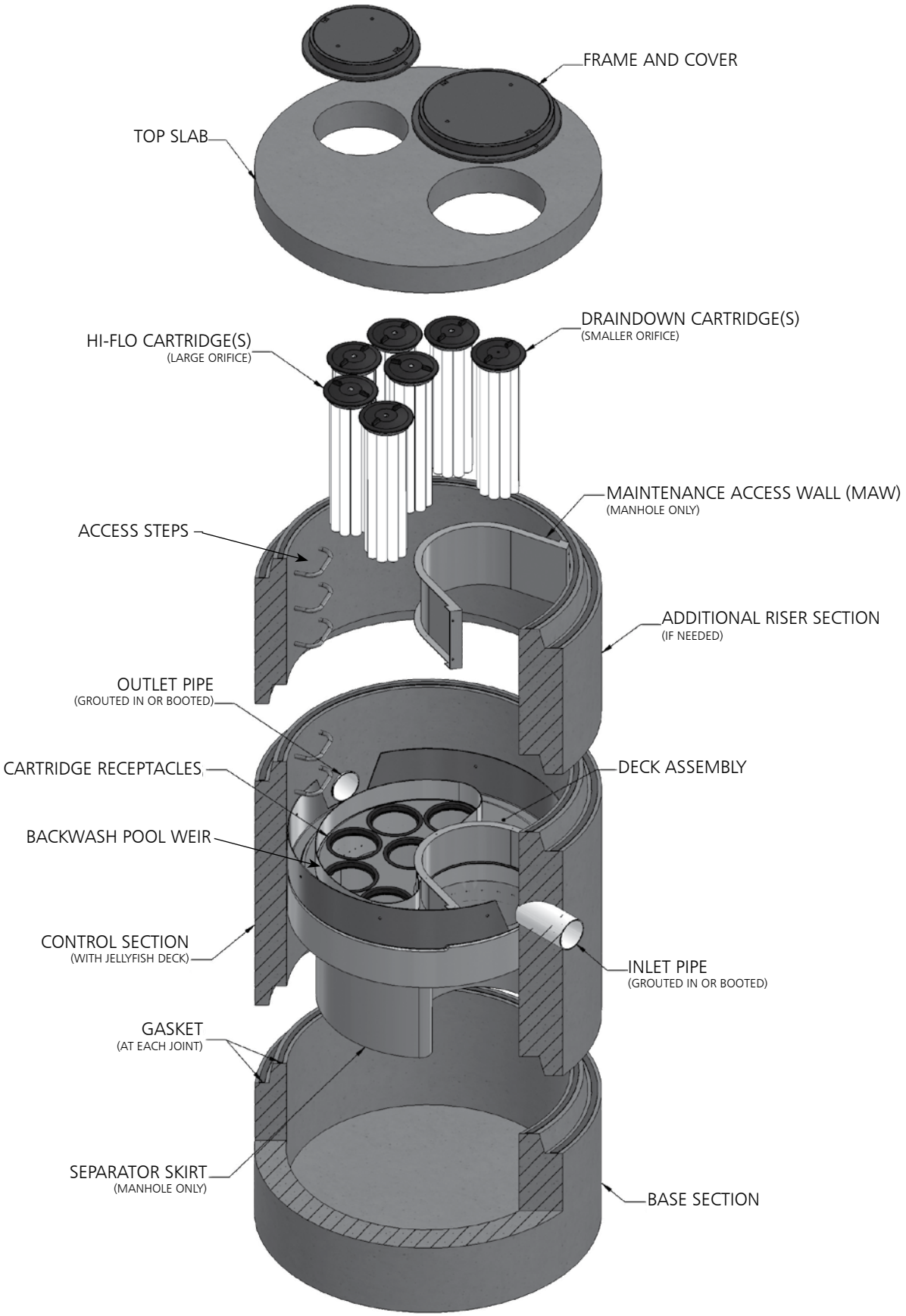
Table of Contents

THANK YOU FOR PURCHASING THE JELLYFISH® FILTER!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

If you have any questions, please feel free to call us or e-mail us:

Contech Engineered Solutions
9025 Centre Pointe Drive, Suite 400 | West Chester, OH 45069
513-645-7000 | 800-338-1122
www.ContechES.com
info@conteches.com


FRAME AND COVER
TOP SLAB
DRAINDOWN CARTRIDGE(S)
(SMALLER ORIFICE)
HI-FLO CARTRIDGE(S)
(LARGE ORIFICE)
MAINTENANCE ACCESS WALL (MAW)
(MANHOLE ONLY)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
BACKWASH POOL WEIR
CONTROL SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
GASKET
(AT EACH JOINT)
SEPARATOR SKIRT
(MANHOLE ONLY)
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads. This type of activity voids all warranties. All damaged items to be replaced at owner's expense.
5. Maximum deck load 2 persons, total weight 450 lbs.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is staffed with trained and/or certified personnel, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Chapter 1

1.0 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Contech Project & Sequence Number	
No. of Hi-Flo Cartridges	
No. of Cartridges:	
Length of Draindown Cartridges:	
No. of Blank Cartridge Lids:	
Bypass Configuration (Online/Offline):	

Notes:

_____

_____

_____

_____

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of eleven membrane - encased filter elements ("filtration tentacles") attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

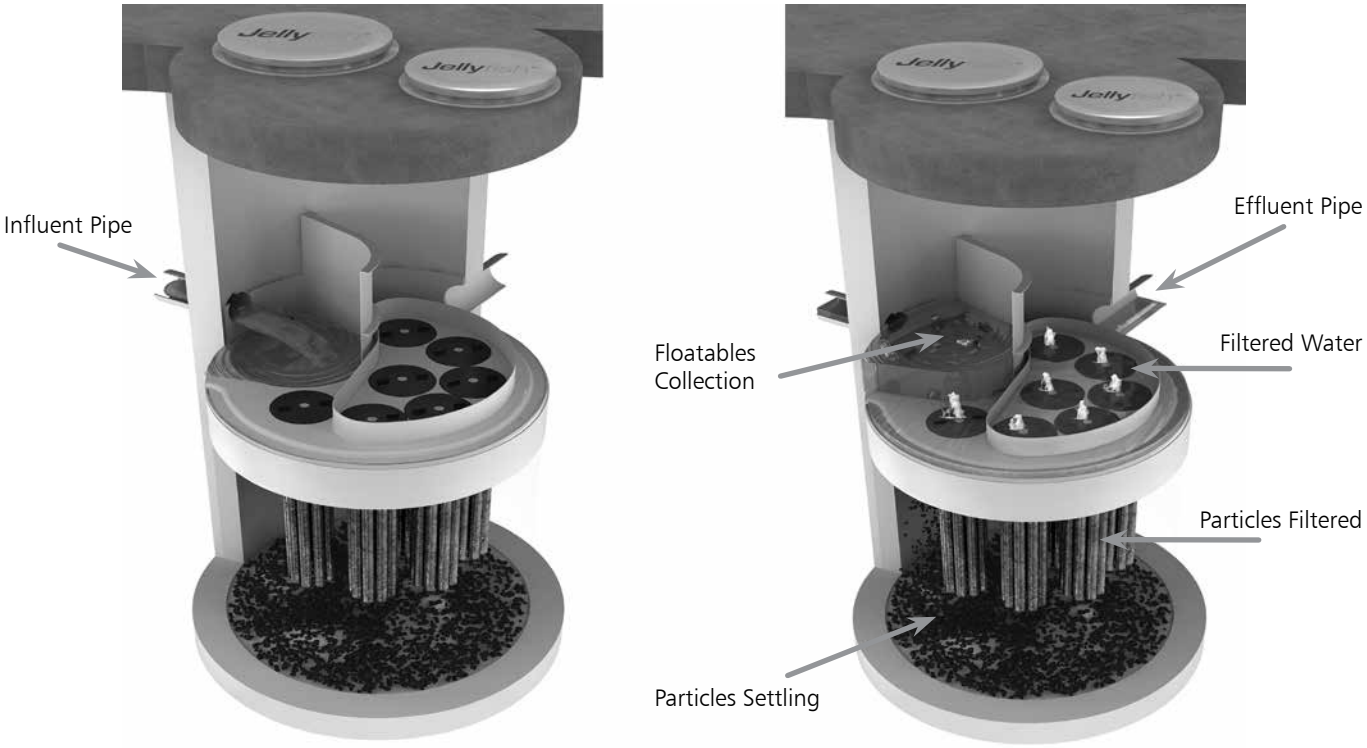
The Jellyfish Filter functions are depicted in Figure 1 below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



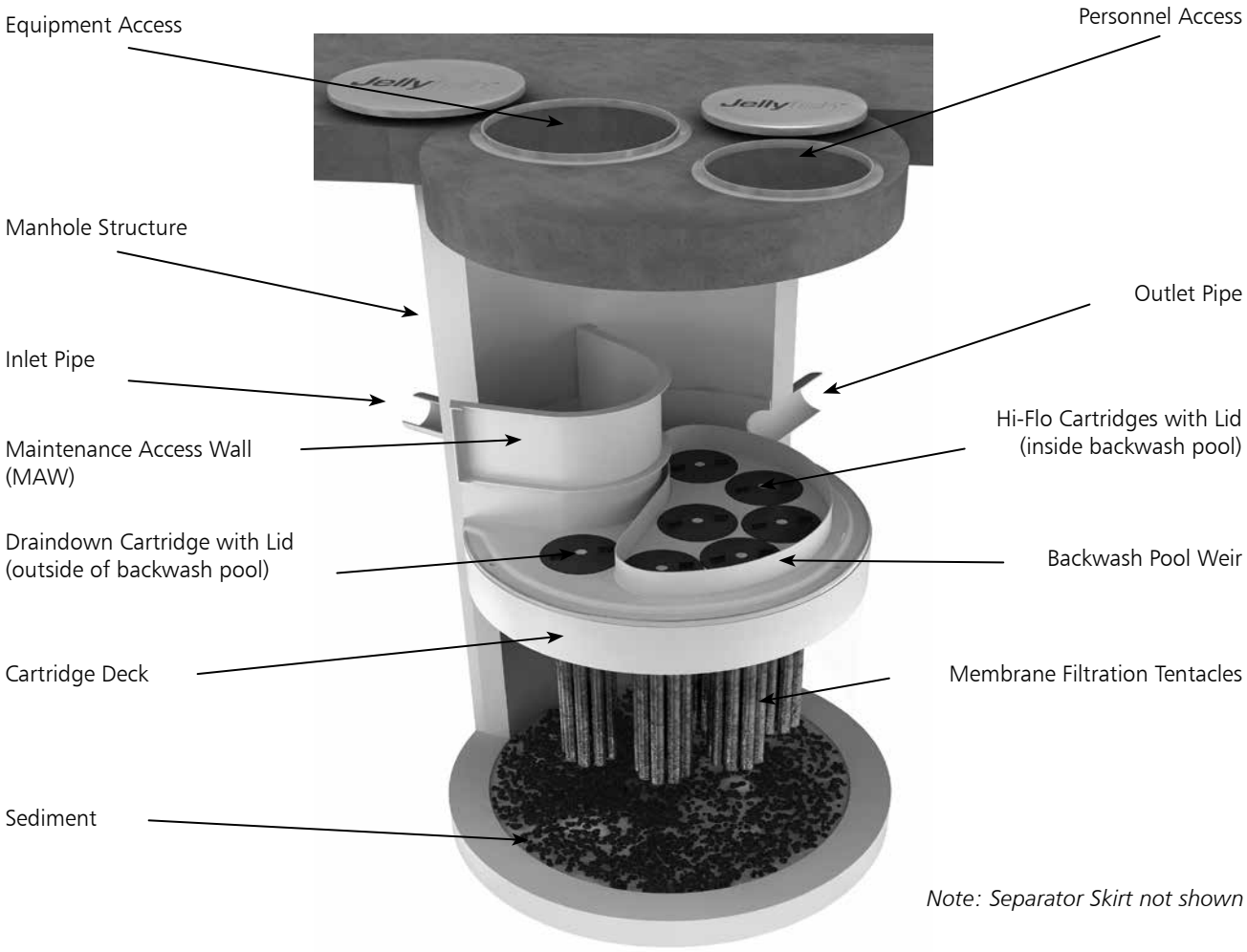
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration "tentacles" attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Hex nuts to be hand tightened and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- Cartridge installation will be performed by trained individuals and coordinated with the installing site Contractor. Flow diversion devices are required to be in place until the site is stabilized (final paving and landscaping in place). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Refer to Contech's submittal drawings to determine proper quantity and placement of Hi-Flo, Draindown and Blank cartridges with appropriate lids. Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. It is possible that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (no orifice) would be installed.

Cartridge Assembly

Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the lubricated rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle. (See Figure 3 for details on approved lubricants for use with rim gasket.)

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a small orifice are to be inserted into the Draindown cartridge receptacles, outside of the backwash pool weir.
  - Lids with a large orifice are to be inserted into the Hi-Flo cartridge receptacles within the backwash pool weir.
  - Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge receptacles.
- To install a cartridge lid, align both cartridge lid male threads with the cartridge receptacle female threads before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation.

3.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.
Inspection activities are typically conducted from surface observations and include:

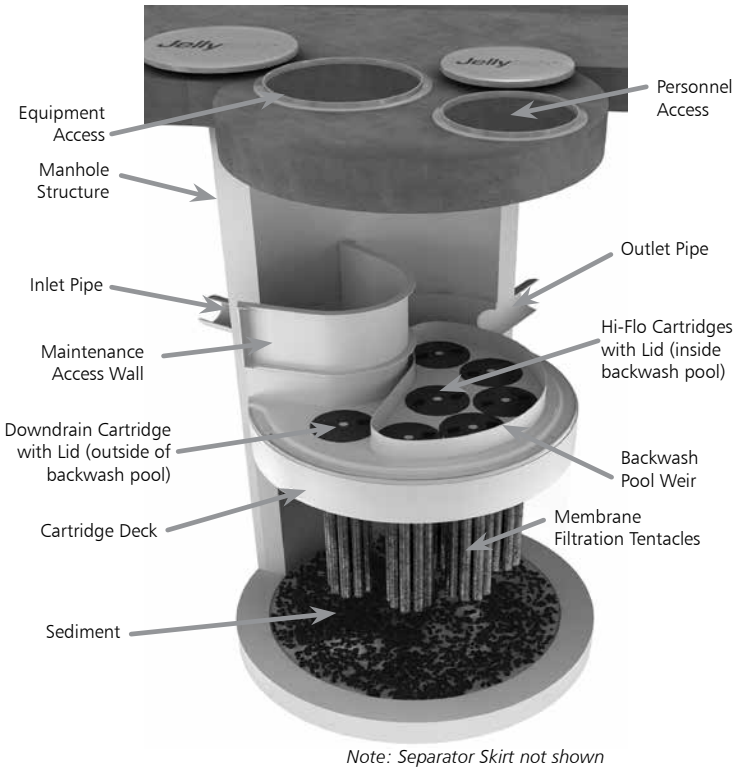
- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed

4.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.



Note: Separator Skirt not shown

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

5.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

5.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.

Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

5.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

6.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

7.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

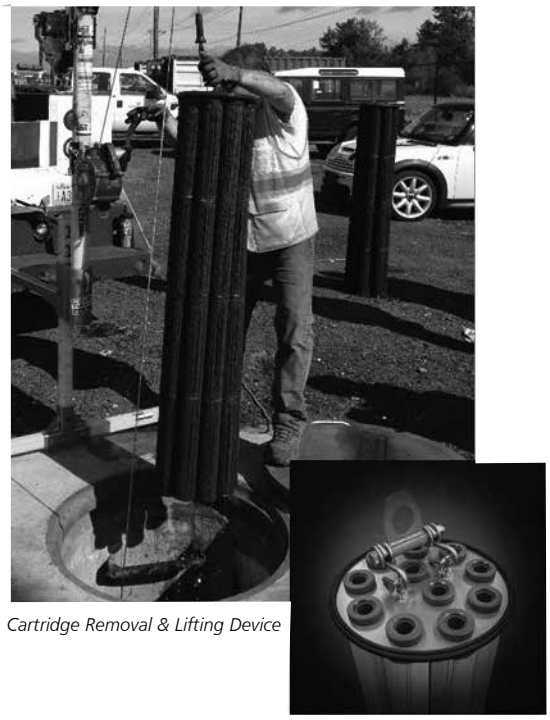
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

7.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

7.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.
2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.



Cartridge Removal & Lifting Device

3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.
4. Collected rinse water is typically removed by vacuum hose.

5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

7.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.
3. Pressure wash cartridge deck and receptacles to remove all

Rinsing Cartridge with Contech Rinse Tool

sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.

4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.
6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some

Vacuuming Sump Through MAW

vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

7.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. *Caution: Do not force the cartridge downward; damage may occur.*
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

7.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

7.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

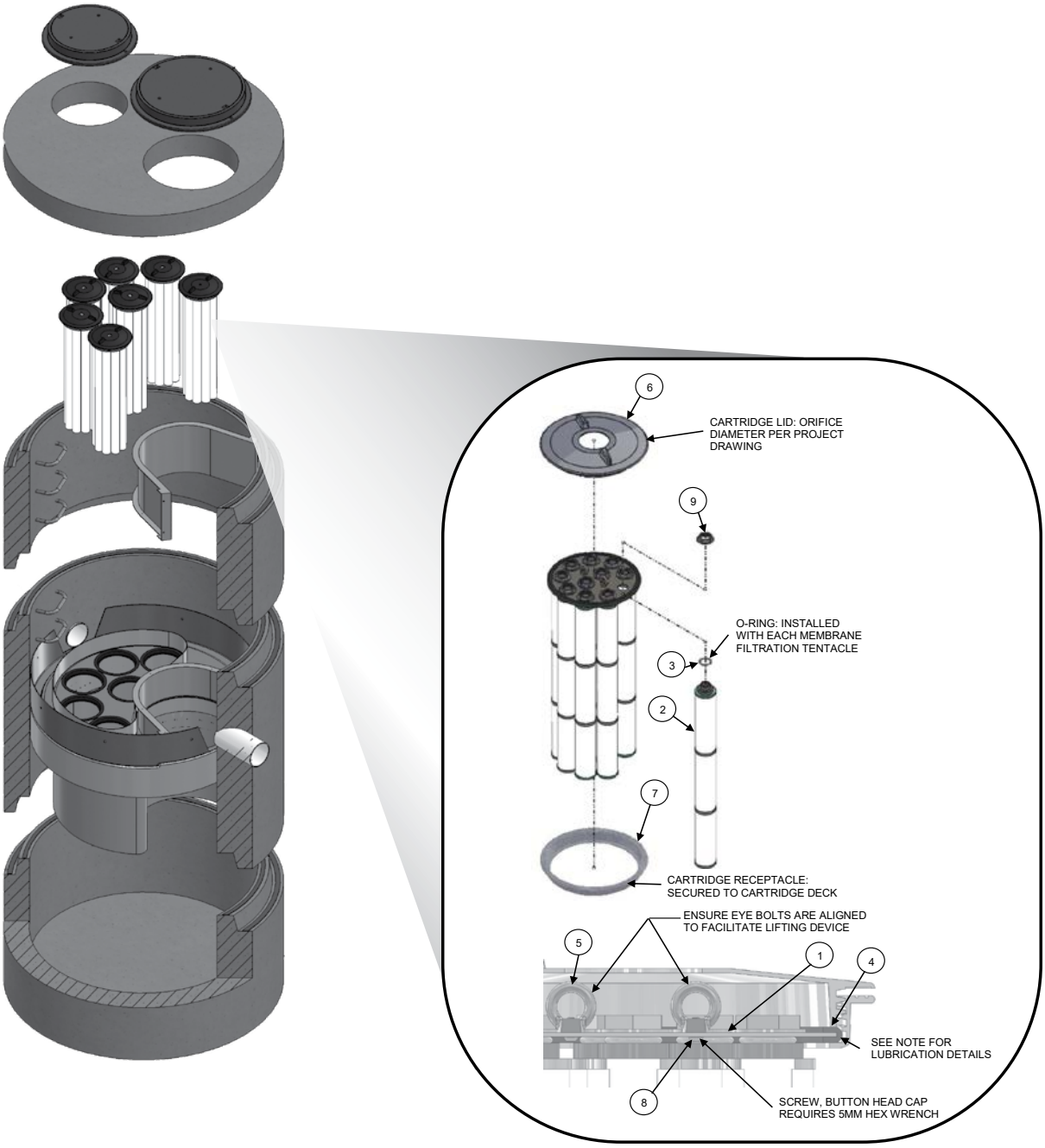


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lid (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner: _____ Jellyfish Model No.:_____

Location: _____ GPS Coordinates: _____

Land Use: Commercial:_____ Industrial: _____ Service Station:_____

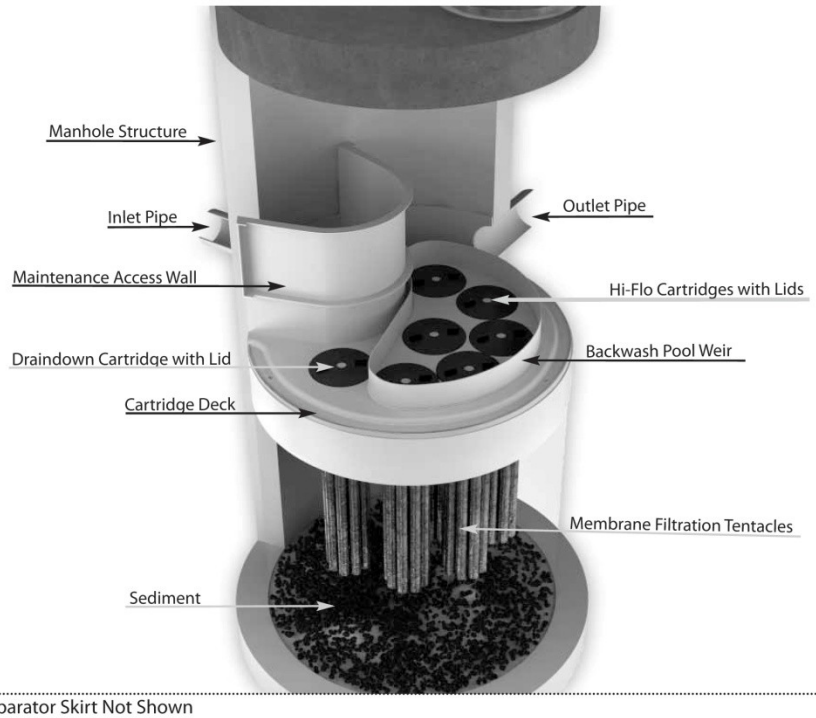
Road/Highway:____ Airport: _____ Residential: _____ Parking Lot:_____

Date/Time:					
Inspector:					
Maintenance Contractor:					
Visible Oil Present: (Y/N)					
Oil Quantity Removed					
Floatable Debris Present: (Y/N)					
Floatable Debris removed: (Y/N)					
Water Depth in Backwash Pool					
Cartridges externally rinsed/re-commissioned: (Y/N)					
New tentacles put on Cartridges: (Y/N)					
Sediment Depth Measured: (Y/N)					
Sediment Depth (inches or mm):					
Sediment Removed: (Y/N)					
Cartridge Lids intact: (Y/N)					
Observed Damage:					
Comments:					

	Maintenance Levels **Model Number** / **Oil Depth** / **Sediment Depth** SWAQ-05 / 12” / 12” SWAQ-10 / 12” / 12” SWAQ-20 / 12” / 12” SWAQ-25 / 12” / 12” SWAQ-40 / 12” / 12” SWAQ-70 / 12” / 12” SWAQ-110 / 12” / 12” It is very useful to keep a record of each inspection. <u>Inspection Procedures</u> 1. Easiest observation and maintenance is best accomplished during non-flow (dry weather) conditions 3-4 days after the most recent rain. 2. Remove interceptor covers or open hatchway to observe conditions. Remove hatchway safety net (“EnterNet”). Observe for trash and debris and remove if necessary. This is the most important maintenance requirement. If absorbent pillows are utilized, observe their condition. Uniform browning or gray color of the pillow means they should be replaced. Observe baffle debris screen and clean if necessary. 3. Coalescing plates are self-cleaning and seldom require maintenance unless damaged. Do not walk on or stand on plate packs. Call ParkUSA (888-611-PARK) for replacement parts. 4. Check of the depth (level) of oil and sediment with a tank sampler device designed for this purpose.	
3.2.22	Jellyfish® Filter The Jellyfish® Filter is an engineered stormwater quality treatment technology featuring unique membrane filtration in a compact stand-alone treatment system that removes a wide variety of stormwater pollutants. The Jellyfish® Filter integrates pre-treatment and filtration with passive self-cleaning mechanisms. The system utilizes membrane filtration cartridges with very high filtration surface area and flow capacity, which provide the advantages of high sediment capacity and low filtration flux rate (flow per unit surface area) at relatively low driving head compared to conventional filter systems. Each lightweight Jellyfish® Filter cartridge consists of multiple detachable membrane-encased filter elements (“filtration tentacles”) attached to a cartridge head plate. The Jellyfish® Filter and components are depicted in Figure 1 (6-ft diameter system shown).	New Innovative Technology

FIGURE 1

Jellyfish Filter and Components



Note: Separator Skirt Not Shown

The Jellyfish® Filter can be used as a stand-alone device to treat stormwater or in a treatment train with other BMPs. Field testing of the Jellyfish® Filter has demonstrated capture of high levels of stormwater pollutants, including:

- 86% of the total suspended solids (TSS) load, including particles less than 5 microns;
- Some Phosphorus Nitrogen; and
- Metals, and additional particulate-bound pollutants such as hydrocarbons, and bacteria, free oil and floatable trash and debris.

Selection Criteria

- Use when space constraints make installation of a surface treatment system infeasible
- Appropriate for space-limited areas
- Appropriate for various size drainage basins
- Requires a minimal amount of land since underground
- Appropriate for retrofits and new development
- Appropriate to combine with low impact development (LID) applications and Green Infrastructure

Limitations

- Typically requires 18 inches of drop across the system (can be as low as 9 inches)
- Requires regular (minimum annually) inspection and/or maintenance

	Cost Considerations Cost of the Jellyfish® Filter is generally equal to or less than that of a sand filter and other granular media-filled cartridge systems, particularly when installation and maintenance costs are included. **Performance Claim** "The Jellyfish® Filter with standard membrane filtration cartridges designed for a maximum treatment flow rate consistent with a filtration flux rate (flow per unit surface area) of 0.21 gpm/ft2 (0.14 Lps/m2) for the hi-flo cartridge and 0.11 gpm/ft2 (0.07 Lps/m2) for the draindown cartridge, demonstrated removal of 86% of TSS, 99% of SSC, 59% of Total Phosphorus, 51% of Total Nitrogen, and greater than 50% of Total Copper and Total Zinc from urban rainfall-runoff, based on median pollutant removal efficiencies developed from the TARP and VTAP field monitoring study with a duration from 28 May 2010 through 27 June 2011."	
3.4.20	**Design Criteria** Design Rainfall Depth – The design rainfall depth is dependent on the characteristics of the contributing drainage area. The method for calculation of the fraction of annual rainfall to be treated and the design rainfall depth is specified in Section 3.3 of this manual. Standard length (54 inches) Jellyfish membrane filtration cartridges have a design treatment flow rate of 80 gpm for the hi-flo cartridge and 40 gpm for the draindown cartridge. A high-flow bypass located upstream of the Jellyfish® Filter is recommended to divert flows in excess of the design storm around the filtration system. A weir 18 inches higher than the outlet pipe invert or deck elevation of the Jellyfish is typically installed in the diversion structure to provide 18 inches of driving head to the treatment unit. In-line systems are also available. Table 1 shows standard manhole configurations and flow rates. Rectangular catch basin models with top inlet or curb inlets are available for small drainage areas as well as large rectangular vaults for drainage areas that exceed the capacity of largest standard manhole model listed. Standard cartridges lengths are 54 inches, 40 inches, 27 inches and 15 inches. **Table 1 Design Flow Capacities of the Jellyfish Filter**	

Table 1
Design Flow Capacities
Standard Jellyfish Filter Manhole Configurations

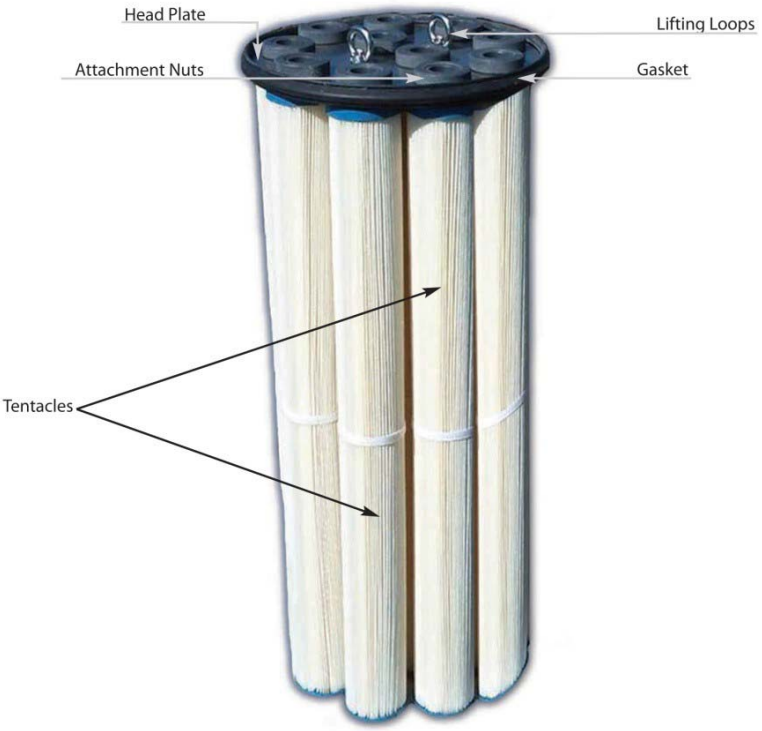
Manhole Diameter (ft / m)[1]	Model No.	Hi-Flo Cartridges[2] 54 in / 1372 mm	Draindown Cartridges[2] 54 in / 1372 mm	Treatment Flow Rate (gpm / cfs)	Treatment Flow Rate (L/S)
4 / 1.2	**JF4-2-1**	**2**	**1**	**200 / 0.45**	**12.6**
6 / 1.8	**JF6-3-1**	**3**	**1**	**280 / 0.62**	**17.7**
	JF6-4-1	4	1	360 / 0.80	22.7
	JF6-5-1	5	1	440 / 0.98	27.8
	JF6-6-1	6	1	520 / 1.16	32.8
8 / 2.4	**JF8-6-2**	**6**	**2**	**560 / 1.25**	**35.3**
	JF8-7-2	7	2	640 / 1.43	40.4
	JF8-8-2	8	2	720 / 1.60	45.
	JF8-9-2	9	2	800 / 1.78	50.5
	JF8-10-2	10	2	880 / 1.96	55.5
10 / 3.0	**JF10-11-3**	**11**	**3**	**1000 / 2.23**	**63.1**
	JF10-12-3	12	3	1080 / 2.41	68.1
	JF10-12-4	12	4	1120 / 2.50	70.7
	JF10-13-4	13	4	1200 / 2.67	75.7
	JF10-14-4	14	4	1280 / 2.85	80.8
	JF10-15-4	15	4	1360 / 3.03	85.8
	JF10-16-4	16	4	1440 / 3.21	90.8
	JF10-17-4	17	4	1520 / 3.39	95.9
	JF10-18-4	18	4	1600 / 3.56	100.9
	JF10-19-4	19	4	1680 / 3.74	106
12 / 3.6	**JF12-20-5**	**20**	**5**	**1800 / 4.01**	**113.6**
	JF12-21-5	21	5	1880 / 4.19	118.6
	JF12-22-5	22	5	1960 / 4.37	123.7
	JF12-23-5	23	5	2040 / 4.54	128.7
	JF12-24-5	24	5	2120 / 4.72	133.8
	JF12-25-5	25	5	2200 / 4.90	138.8
	JF12-26-5	26	5	2280 / 5.08	143.8
	JF12-27-5	27	5	2360 / 5.26	148.9

[1] Smaller and larger systems may be custom designed
[2] Shorter length cartridge configurations are available

Jellyfish Cartridges and Membrane Properties

The filtration tentacle membranes provide a large amount of surface area, resulting in superior flow capacity and suspended sediment removal capacity. A typical Jellyfish cartridge with eleven 54-inch (1372 mm) long filtration tentacles has 381 ft2 (35.4 m2) of membrane surface area. Hydraulic testing on a clean 54-inch (1372 mm) filter cartridge has demonstrated a flow rate of 180 gpm (11.3 L/s) at 18 inches (457 mm) of driving head. In addition, the filtration tentacle membrane has anti-microbial characteristics that inhibit the growth of bio-film that might otherwise prematurely occlude the pores of the membrane and restrict hydraulic conductivity.

The cylindrical membrane filtration tentacle has a threaded pipe nipple at the top and is

	sealed at the bottom with an end cap. A cluster of tentacles is attached to a head plate by inserting the top pipe nipples through the head plate holes and securing with removable nuts. A removable oil-resistant polymeric rim gasket is attached to the head plate to impart a watertight seal when the cartridge is secured into the cartridge receptacle with the cartridge lid. A Jellyfish membrane filtration cartridge is depicted in Figure 2. The dry weight of a new cartridge is less than 20 pounds (9 kg), and the wet weight of a used cartridge is less than 50 pounds (23 kg), making a cartridge easy to install and remove by hand. No heavy lifting equipment is required. **FIGURE 2** **Jellyfish Membrane Filtration Cartridge**  	
3.5.25	**<u>Jellyfish® Filter Inspection and Maintenance</u>** Jellyfish cartridges are passively backwashed automatically after each storm event, which removes accumulated sediment from the membranes and significantly extends the service life of the cartridges and the maintenance interval. If required, the cartridges can be easily manually backwashed without removing the cartridges. Additionally, the lightweight cartridges can be removed by hand and externally rinsed, and rinsed cartridges then re-installed. These simple maintenance options allow for cartridge regeneration, thereby minimizing cartridge replacement costs and life-cycle treatment costs while ensuring long-term treatment performance. Regular inspection and maintenance are proven, cost-effective ways to maximize water resource protection for all stormwater pollution control practices, and are required to insure proper functioning of the Jellyfish® Filter. Inspection of the Jellyfish® Filter is performed from the surface, while proper maintenance requires a combination of	

procedures conducted from the surface and with worker entry into the structure.

Please refer to the following information and guidelines before conducting inspection and maintenance activities:

- **When is inspection needed?**

Post-construction inspection is required prior to putting the Jellyfish Filter into service.

Routine inspections are recommended quarterly during the first year of operation to accurately assess the sediment and floatable pollutant accumulation, and to ensure that the automatic backwash feature is functioning properly.

Inspection frequency in subsequent years is based on the maintenance plan developed in the first year, but must occur annually at a minimum.

Inspections should also be performed immediately after oil, fuel or other chemical spill.

- **When is maintenance service needed?**

The unit must be cleaned annually. This cleaning includes removal and appropriate disposal of all water, sediment, oil and grease, and debris that has accumulated within the unit. The Jellyfish Filter is inspected and maintained by professional vacuum cleaning service providers with experience in the maintenance of underground tanks, sewers and catch basins. Since some of the maintenance procedures require manned entry into the Jellyfish structure, only professional maintenance service providers trained in confined space entry procedures should enter the vessel. Service provider companies typically have personnel who are trained and certified in confined space entry procedures according to local, state, and federal standards.

Filter cartridges should be tested for adequate flow rate, every 12 months and cleaned and re-commissioned, or replaced if necessary. A manual backflush must be performed on a single draindown cartridge using a Jellyfish Cartridge Backflush Pipe (described in the Jellyfish® Filter Owner's Manual). If the time required to drain 14 gallons of backflush water from the Backflush Pipe (from top of pipe to the top of the open flapper valve) exceeds 15 seconds, it is recommended to perform a manual backflush on each of the cartridges. After the manual backflush, the draindown test should be repeated on a single cartridge to determine if the cartridge can drain 14 gallons of water in 15 seconds. If the cartridge still does not achieve the design flow rate, it must be replaced.

The unit should be cleaned out immediately after an oil, fuel or chemical spill.

- **External Rinsing**

This cartridge cleaning procedure is performed by removing the cartridge from the cartridge deck and externally rinsing the filtration tentacles using a low-pressure water sprayer, as described in the Jellyfish® Filter Owner's Manual. If this procedure is performed within the structure, the cartridge or individual filtration tentacles should be rinsed while safely suspended over the maintenance access wall opening in the cartridge deck, such that rinsate flows into the lower chamber of the Jellyfish® Filter. If the rinsing procedure is performed outside the structure, the cartridge or individual filtration tentacles should be rinsed in a suitable basin such as a plastic barrel or tub, and rinsate subsequently poured into the maintenance access wall opening in the cartridge deck. Sediment is subsequently removed from the lower chamber by standard vacuum service.

Inspection / Maintenance Completion - Summary

Company Name:_____

Company Address:_____

City/State/Zip:_____

Phone:_____

Engineer:_____

Engineers Address:_____

City/State/Zip:_____

Phone:_____

Property Owner:_____

*Jellyfish Model

Monitoring / Maintenance Table

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Oil Depth (inches)												
Sediment Depth (inches)												
Completed By												
Date												
Floatables (optional)												

I hereby certify that the monitoring and maintenance of the Jellyfish Filter unit was completed in accordance with the directions of the Jellyfish inspection and maintenance plan.

_____

(Signed by property owner or designee)

Langford Stuber

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: LANGFORD STUBER

Date: 5/25/2023

Signature of Customer/Agent:

Langford Stuber

Regulated Entity Name: Chalk Hill Ranch

Project Information

Potential Sources of Contamination

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

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

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

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

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

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☒ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: South Fork San Gabriel River

Temporary Best Management Practices (TBMPs)

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

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

- [X] 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.
- [X] 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.
- [X] A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
- [X] 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.
   - [X] There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. [X] **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. [X] **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.
    - [X] For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
    - [ ] There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

    ☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

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

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

18. [X] 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. [X] Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. [X] All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. [X] 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. [X] 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

General

- An effective spill and leak response depends on proper recognition and response practices by construction workers and supervisors. Key elements are education and training.
- Records of releases that exceed the Reportable Quantity (RQ) for oil and hazardous substances should be maintained in accordance with the Federal and State regulations.
- Emergency contact information and spill response procedures shall be posted in a readily available area for access by all employees and subcontractors.
- Spill containment kits should be maintained for petroleum products and other chemicals that are regularly onsite. Materials in kits should be based on containment guidelines in the Material Safety and Data Sheets (MSDSs) for the substance most frequently onsite.
- Spill kits are intended for response to small spills, typically less than 5 gallons, of substances that are not extremely hazardous.
- Significant spills or other releases warrant immediate response by trained professionals.
- Suspected job-site contamination should be immediately reported to regulatory authorities and protective actions taken.

Coordinator

- The contractor should be required to designate a site superintendent, foreman, safety officer, or other senior person who is onsite daily to be the Spill and Leak Response Coordinator.
- The coordinator must have knowledge of and be trained in correct spill and leak response procedures.
- The coordinator shall be responsible for implementing the spill and leak procedures and training all employees and sub-contractors on the site-specific spill and leak procedures. The training should include their responsibility to immediately notify the coordinator if a spill or leak occurs.

Spill Response

- Upon discovery of a spill, employees and subcontractors shall implement the following procedures:
    - Immediately stop work and clear the area by moving upwind of the spill.
    - Remove all ignition sources.
    - Notify the Spill and Leak Response Coordinator.
    - If there is an immediate danger to health or life, contact 911.

- The Spill and Leak Response Coordinator shall perform the following when the spill is not immediately dangerous to health and safety:
    - Consult the MSDS for safety and response procedures.
    - If it can be done safely, use onsite spill kits and soil to contain the spill.
    - Notify a hazardous response company to remove and properly dispose of the spilled material and the contaminated containment materials.

Spill Reporting

- The Spill and Leak Response Coordinator is responsible for notifying authorities of spills and leaks. Notification requirements are based on Reportable Quantities as established by the type or material, quantity and location (onto land or into water in the state) of the release. https://www.tceq.texas.gov/response/spills/spill_rq.html
- Reportable Quantities (RQ) in the State of Texas are established by the TCEQ in Texas Administrative Code Title 30, Chapter 327 (30 TAC 327) Spill Prevention and Control.
- The Texas RQ for petroleum products and used oil is 25 gallons released onto land or any amount that causes sheen on water.
- Reportable Quantities for all other substances are listed in 30 TAC 327.4, which references the EPA List of Lists (EPA 550-B-01-003) available at: http://www.epa.gov/ceppo/pubs/title3.pdf
- The Spill and Leak Response Coordinator shall notify the following:
    - The municipality that operates the local Municipal Separate Storm Sewer System (MS4) if a spill or leak enters public rights-of-way or any type of drainage way or drainage infrastructure within the jurisdiction of the municipality.
    - State of Texas Spill Report Hotline at 1-800-832-8224 if the spill or leak exceeds the RQ.
    - National Spill Response Center at 1-800-424-8802 if the spill or leak exceeds the RQ.

ATTACHMENT B
POTENTIAL SOURCES OF CONTAMINATION

Pollutant	Activity	Response
Fuels, grease, and oils	Trucks, generators, machinery used during construction activity	Secondary containment will be established around all above-ground storage tanks. Any emergency maintenance will utilize drip pans, and no scheduled maintenance will occur onsite.
Sediment	General construction activity	Sediment and erosion control measures will be established and operating prior to any soil disturbance
Sanitary/septic systems	General construction activity	Portable toilets will be located in designated sites within the construction site. Licensed sanitary sewer services will ensure facilities are in working order at all times.

ATTACHMENT C
SEQUENCE OF CONSTRUCTION

1. Install Construction Entrance/Exit per Erosion Control Plans in the Construction Drawings.
2. Install tree protection (as needed).
3. Begin silt fence installation.
4. Strip topsoil and organic materials and store onsite in stockpiles for later use. All stockpiles shall be temporarily seeded and mulched to prevent loss due to erosion and encircled with a silt fence or filter tube. (41 acres)
5. Begin site grading.
6. Install utilities and underground stormwater system.
7. As an area reaches final grade, install permanent stabilization as soon as possible but in no case longer than 14 days from reaching final grade.
8. Any area that will remain undisturbed for 14 days or more shall be temporarily stabilized.
9. Construct buildings.
10. Finish grading of all areas.
11. Complete permanent stabilization of all disturbed areas. Once a minimum of 70 percent of the vegetated areas have been stabilized, remove the erosion control BMPs.

ATTACHMENT D
TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

The following temporary BMPs have been identified on the Erosion Control Plan and the Water Quality Plan in Attachment M – Construction Plans.

1. Silt Fence – Protects downstream property from sediment due to storm events.
2. Stabilized Construction Exit – Minimizes sediment and aggregate from exiting the project site from equipment trucks and construction vehicles.
3. Concrete Washout Pit – To capture the concrete and debris from concrete vehicles and equipment.
4. Inlet Protection – To capture sedimentation and debris from entering the underground storm system.

ATTACHMENT F
STRUCTURAL PRACTICES

Underground storm system has been in place to catch the water from site through inlets, which then will be directed to the outfall locations at the detention ponds.

BMP's will collect sedimentation and debris prior to discharge.

ATTACHMENT G
DRAINAGE AREA MAP

EXISTING DRAINAGE AREA CALCULATIONS																							
NOAA ATLAS 14 Rainfall Zone:					Williamson County - San Gabriel River																		
Area No.	Acres	T_c (min.)	C_2	I_2 (in./hr.)	**Q_2 (c.f.s.)**	C_5	I_5 (in./hr.)	**Q_5 (c.f.s.)**	C_{10}	I_{10} (in./hr.)	**Q_{10} (c.f.s.)**	C_{25}	I_{25} (in./hr.)	**Q_{25} (c.f.s.)**	C_{50}	I_{50} (in./hr.)	**Q_{50} (c.f.s.)**	C_{100}	I_{100} (in./hr.)	**Q_{100} (c.f.s.)**	Comments		
EX1	7.06	21.59	0.73	3.48	**17.92**	0.77	4.40	**23.93**	0.81	5.22	**29.83**	0.86	6.39	**38.78**	0.90	7.34	**46.63**	0.95	8.35	**56.00**			
EX2	12.69	14.14	0.73	4.27	**39.54**	0.77	5.38	**52.60**	0.81	6.34	**65.25**	0.86	7.72	**84.28**	0.90	8.82	**100.79**	0.95	9.97	**120.26**			
EX3	6.20	12.31	0.73	4.53	**20.60**	0.78	5.70	**27.42**	0.81	6.71	**33.88**	0.86	8.15	**43.66**	0.90	9.30	**52.11**	0.95	10.49	**62.02**			
EX4	22.53	22.02	0.73	3.44	**56.63**	0.77	4.36	**75.64**	0.81	5.16	**94.28**	0.86	6.33	**122.63**	0.90	7.27	**147.47**	0.95	8.27	**177.17**			
TOTAL	48.48			TOTAL	**134.68**		TOTAL	**179.60**		TOTAL	**223.23**		TOTAL	**289.36**		TOTAL	**347.00**		TOTAL	**415.46**			

NOTE TO CONTRACTOR

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LEGEND

EXISTING DRAINAGE AREA LABEL — BASIN NAME: DA1; ACRES: 0.63 ac.; Q100 (cfs): 5.57

EXISTING DRAINAGE AREA DIVIDE

EXISTING DRAINAGE FLOW ARROW

EXISTING CONTOUR (500)

EXISTING STORM PIPE

PROPERTY BOUNDARY

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS A MAG NAIL ON THE EAST SIDE OF COUNTY ROAD 260, LOCATED APPROXIMATELY 20 FEET SOUTHWEST OF THE NORTHEAST CORNER OF THE SUBJECT TRACT, AND AT A CURB RETURN ON THE NORTH SIDE OF A DRIVE ENTRANCE ON THE EAST SIDE OF COUNTY ROAD 260.

ELEVATION = 1004.02' (NAVD '88)

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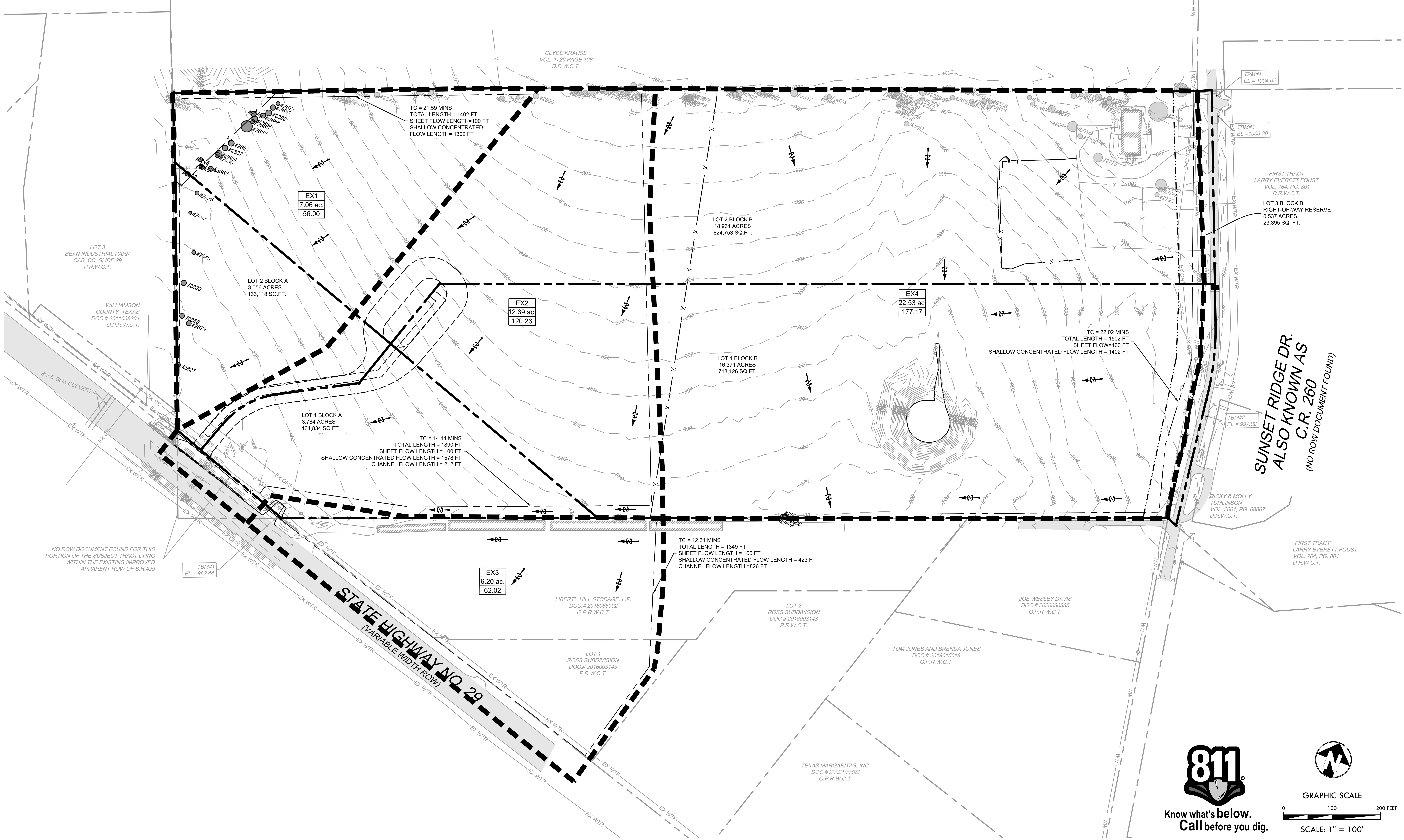

Know what's **below.** **Call** before you dig.

GRAPHIC SCALE

0 100 200 FEET

SCALE: 1" = 100'

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

EXISTING DRAINAGE AREA MAP

SHEET:
C6.0

FILENAME: C6.0 EXISTING DRAINAGE AREA MAP_CHV21004.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 5/25/2023

FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.0 EXISTING DRAINAGE AREA MAP_CHV21004

DRAINAGE AND DETENTION NOTES:

REFER TO SHEET C6.18 FOR PROPOSED DRAINAGE AREA CALCULATIONS.

THERE SHALL BE NO INCREASE OF STORMWATER DISCHARGE ONTO TXDOT RIGHT OF WAY OR TXDOT INFRASTRUCTURE.

DETENTION SHALL BE PROVIDED TO REDUCE NET INCREASE OF STORMWATER DISCHARGE TO EXISTING CONDITIONS. REFER TO SHEETS (C6.22-C6.24) FOR PROPOSED DETENTION PONDS HEC-HMS MODEL AND EXISTING AND PROPOSED DISCHARGE CALCULATIONS.

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LEGEND

PROPOSED DRAINAGE AREA LABEL	BASIN NAME DA1 / ACRES 7.532 ac.
PROPOSED DRAINAGE AREA DIVIDE	
EXISTING DRAINAGE FLOW ARROW	
PROPOSED DRAINAGE FLOW ARROW	
EXISTING CONTOUR	500
PROPOSED CONTOUR	500
EXISTING STORM PIPE	
PROPOSED STORM PIPE	
PROPERTY BOUNDARY	

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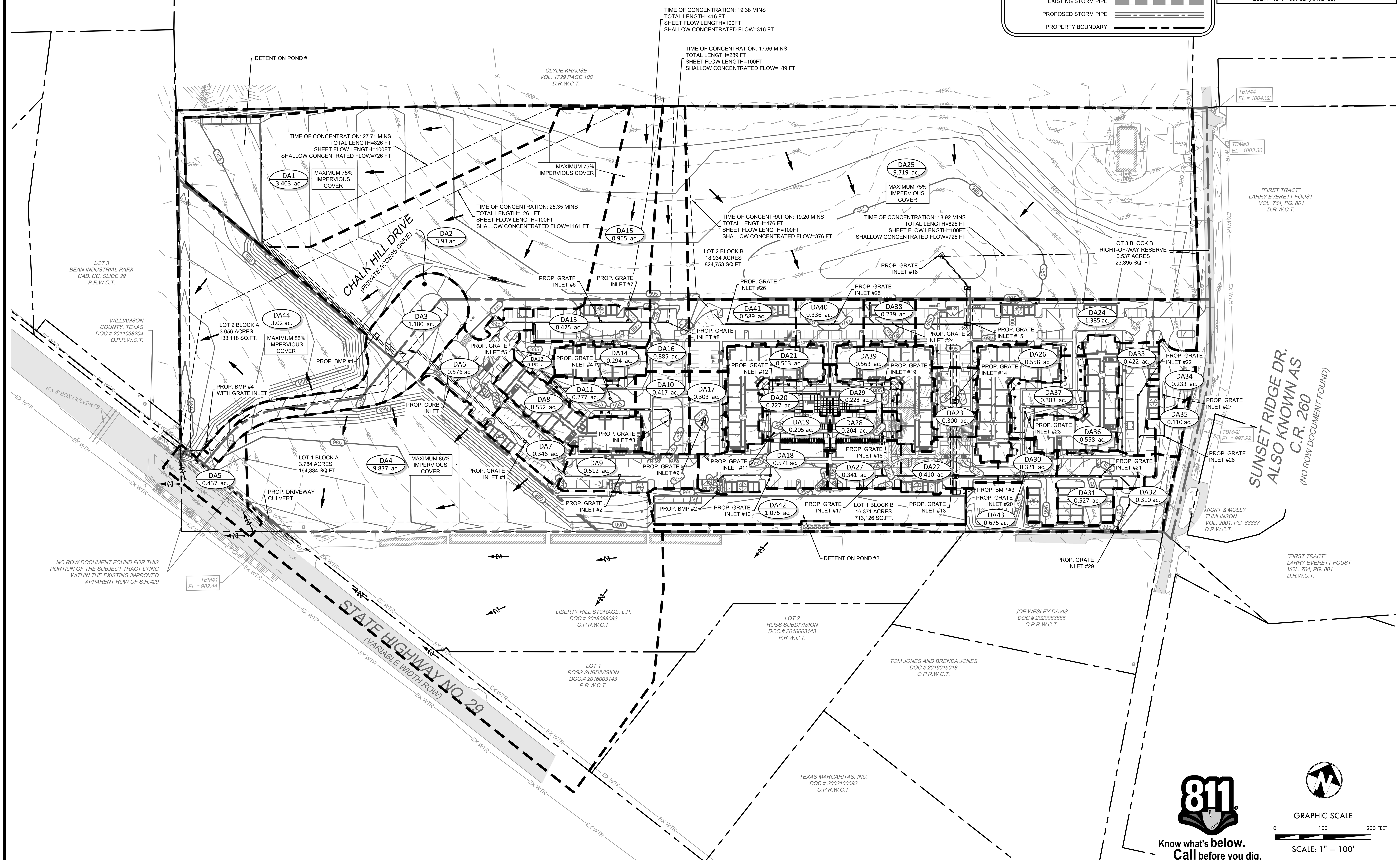

5/25/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

INLET DRAINAGE AREA MAP

SHEET:
C6.1

FILENAME: C6.1 PROPOSED DRAINAGE AREA MAP_CHV21004.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 5/25/2023

FULL PATH: K:\Jobs\CHV21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\C6.1 PROPOSED DRAINAGE AREA MAP_CHV21004

EXISTING DRAINAGE AREA CALCULATIONS									
Area No.	Acres	T_c (min.)	Lag (min.)	% Imp.	Q_2 (c.f.s.)	Q_{10} (c.f.s.)	Q_{25} (c.f.s.)	Q_{100} (c.f.s.)	Comments
West	19.95	21.59	12.96	2.00	38.63	72.85	96.38	134.45	
East	22.50	22.02	13.21	1.94	43.01	81.26	107.57	150.16	

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CLYDE KRAUSE
VOL. 1729 PAGE 108
D.R.W.C.T.

LOT 3
BEAN INDUSTRIAL PARK
CAB. CC, SLIDE 29
P.R.W.C.T.

WILLIAMSON
COUNTY, TEXAS
DOC.# 2011038204
O.P.R.W.C.T.

LOT 2 BLOCK A
3.056 ACRES
133,118 SQ.FT.

LOT 1 BLOCK A
3.784 ACRES
164,834 SQ.FT.

TC = 21.59MINS
TOTAL LENGTH = 1402FT
SHEET FLOW LENGTH = 100FT
SHALLOW CONCENTRATED FLOW LENGTH = 1302FT

WEST
19.95 ac.
134.45

LOT 2 BLOCK B
18.934 ACRES
824,753 SQ. FT.

LOT 1 BLOCK B
16.371 ACRES
713,126 SQ. FT.

EAST
22.50 ac.
150.16

TC = 22.02MINS
TOTAL LENGTH = 1502FT
SHEET FLOW LENGTH = 100FT
SHALLOW CONCENTRATED FLOW LENGTH = 1402FT

"FIRST TRACT"
LARRY EVERETT FOUST
VOL. 764, PG. 801
D.R.W.C.T.

LOT 3 BLOCK B
RIGHT-OF-WAY RESERVE
0.537 ACRES
23,395 SQ. FT.

TBM#4
EL = 1004.02

TBM#3
EL =1003.30

TBM#2
EL = 997.92

TBM#1
EL = 982.44

SUNSET RIDGE DR.
ALSO KNOWN AS
C.R. 260
(NO ROW DOCUMENT FOUND)

RICKY & MOLLY
TUMLINSON
VOL. 2001, PG. 68867
D.R.W.C.T.

NO ROW DOCUMENT FOUND FOR THIS PORTION OF THE SUBJECT TRACT LYING WITHIN THE EXISTING IMPROVED APPARENT ROW OF S.H.#29

STATE HIGHWAY NO. 29
(VARIABLE WIDTH ROW)

LIBERTY HILL STORAGE, L.P.
DOC.# 2018088092
O.P.R.W.C.T.

LOT 2
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

LOT 1
ROSS SUBDIVISION
DOC.# 2016003143
P.R.W.C.T.

JOE WESLEY DAVIS
DOC.# 2020086885
O.P.R.W.C.T.

TOM JONES AND BRENDA JONES
DOC.# 2019015018
O.P.R.W.C.T.

TEXAS MARGARITAS, INC.
DOC.# 2002100692
O.P.R.W.C.T.

6' x 5' BOX CULVERTS

Know what's below. Call before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

5/25/2023
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REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004
ISSUE DATE:

HEC-HMS EX. DRAINAGE AREA MAP

SHEET:
C6.22

FILE PATH: K:\Jobs\CHV21004_Pouet\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\Jobs\CHV21004_Pouet\Drawings\03 - ENGR. - INFRASTRUCTURE & PH1\03 - Production\HMS DAM EX

FILENAME: HMS DAM EX.dwg
PLOTTED BY: Prechanika Chadam
PLOTTED DATE: 5/25/2023

ULTIMATE DRAINAGE AREA CALCULATIONS										
Area No.	Acres	T_c (min.)	CN	Lag (min.)	% Imp.	Q_2 (c.f.s.)	Q_{10} (c.f.s.)	Q_{25} (c.f.s.)	Q_{100} (c.f.s.)	Comments
West	12.68	9.58	0.80	5.75	77.59	7.77	24.01	39.38	67.04	post detention
W Bypass	14.11	8.66	0.80	5.20	84.67	33.14	50.35	61.92	80.62	
West Total	26.79					40.91	74.36	101.30	147.66	post detention
East	21.26	6.47	0.80	3.88	67.54	42.96	79.97	106.82	150.13	post detention

PRE & POST PROJECT FLOW COMPARISON					
DRAINAGE AREA	ACREAGE	Q2 (c.f.s.)	Q10 (c.f.s.)	Q25 (c.f.s.)	Q100 (c.f.s.)
EXISTING (WEST)	19.95	38.63	72.85	96.38	134.45
PROPOSED (WEST)	21.18	38.37	60.82	85.82	133.27
DELTA		-0.26	-12.03	-10.56	-1.18
EXISTING (EAST)	22.50	43.01	81.26	107.57	150.16
PROPOSED (EAST)	21.26	42.96	79.97	106.82	150.13
DELTA		-0.05	-1.29	-0.75	-0.03

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LEGEND

- PROPOSED DRAINAGE AREA LABEL — BASIN NAME DA1 / ACRES 7.532 ac.
- PROPOSED DRAINAGE AREA DIVIDE
- EXISTING DRAINAGE FLOW ARROW
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING CONTOUR — 500
- PROPOSED CONTOUR — 500
- EXISTING STORM PIPE
- PROPOSED STORM PIPE
- PROPERTY BOUNDARY

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DETENTION POND #1

WEST
12.68 ac
67.04

TC = 8.66MINS
TOTAL LENGTH = 1080FT
SHEET FLOW LENGTH = 100FT
SHALLLOW CONCENTRATED FLOW LENGTH = 436FT
PIPE FLOW LENGTH = 544FT

TC = 9.58MINS
TOTAL LENGTH = 2142FT
SHEET FLOW LENGTH = 100FT
PIPE FLOW LENGTH = 2042FT

CHALK HILL DRIVE
(PRIVATE ACCESS DRIVE)

LOT 2 BLOCK B
18.934 ACRES
824,753 SQ. FT.

TC = 6.47MINS
TOTAL LENGTH = 1111FT
SHEET FLOW LENGTH = 100FT
PIPE FLOW LENGTH = 1011FT

EAST
22.50 ac
150.13

LOT 2 BLOCK A
3.056 ACRES
133,118 SQ.FT.

WEST BYPASS
8.50 ac.
80.62

LOT 1 BLOCK A
3.784 ACRES
164,834 SQ.FT.

LOT 1 BLOCK B
16.371 ACRES
713,126 SQ. FT.

DETENTION POND #2

LOT 3
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CAB. CC, SLIDE 29
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WILLIAMSON COUNTY, TEXAS
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CLYDE KRAUSE
VOL. 1729 PAGE 108
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LARRY EVERETT FOUST
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8' x 5' BOX CULVERTS

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P.R.W.C.T.

LOT 1
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DOC.# 2019015018
O.P.R.W.C.T.

TEXAS MARGARITAS, INC.
DOC.# 2002100892
O.P.R.W.C.T.

TBM#1
EL = 982.44

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EL = 997.92

TBM#3
EL =1003.30

TBM#4
EL = 1004.02

Know what's below. Call before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

5/25/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

CHV LIBERTY HILL 29
PROPERTY OWNER LLC

6601- E HILLCREST AVE, STE 212
DALLAS, TX 75205
214-435-7510

CHALK HILL RANCH

LOTS 1 AND 2, BLOCK A
LOTS 1 AND 2, BLOCK B
CITY OF LIBERTY HILL AND
LIBERTY HILL ETJ
WILLIAMSON COUNTY, TEXAS

REV.:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL
SUITE C3
CEDAR PARK, TX 78613
TEXAS FIRM NO. 15874

JOB NUMBER: CHV21004

ISSUE DATE:

HEC-HMS PROP. DRAINAGE AREA MAP

SHEET:
C6.23

FULL PATH: K:\Kirk\CHV\21004_Foust\Drawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\CHV21004_FoustDrawings\03 - ENGR - INFRASTRUCTURE & PH1\03 - Production\HMS DAM 1.kT

FILENAME: HMS DAM 1.kT.dwg
PLOTTED BY: Prashanska Gautam
PLOTTED DATE: 5/24/2023

ATTACHMENT I
INSPECTION AND MAINTENANCE FOR BMPS

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): Inspection Date: Day: Time: am/pm
Scope of inspection (circle one): 14 Day Inspection or Weekly Inspection
Day of week normally conducted: 0.5 inch Rainfall Event: yes / no

Type	Inspected? (Y/N)	Areas of Concern
Disturbed Soil Areas		
Sediment & Erosion Controls		
Entrance(s) and Exit(s)		

BMP & Location	OK? (Y/N)	BMP Failure? (describe)	BMP Failure? (describe)

"I certify that the facility or site is in compliance with the stormwater pollution prevention plan and this permit."

I further certify that I am authorized to sign this report under TCEQ rules at 30 TAC 305.128 (relating to Signatories to Reports)

Name/Title: Date:

ATTACHMENT J
SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

The following soil stabilization practices shall be used:

1. All stockpiles shall be temporarily seeded and mulched to prevent loss due to erosion and encircled with a silt fence or filter tube.
2. As an area reaches final grade, install permanent stabilization as soon as possible but in no case longer than 14 days from reaching final grade.
3. Any area that will remain undisturbed for 14 days or more shall be temporarily stabilized.
4. Complete permanent stabilization of all disturbed areas. Once a minimum of 70 percent of the vegetated areas have been stabilized, remove the erosion control BMPs.