WATER POLLUTION ABATEMENT PLAN

DB WOOD ROAD
OAK RIDGE ROAD TO 820’ SOUTH OF WILLIAMS DRIVE
GEORGETOWN, WILLIAMSON COUNTY, TEXAS

Prepared For:

CITY OF GEORGETOWN
300-1 Industrial Ave
Georgetown, Texas 78626
(512) 930-7698

Prepared By:

KIMLEY-HORN AND ASSOCIATES, INC.
501 S Austin Avenue, Suite 1310
Georgetown, Texas 78626
(512) 418-4538

Firm No. 928
KHA Project No. 069226621

June 5, 2024

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SECTION 1:

EDWARDS AQUIFER APPLICATION COVER PAGE (TCEQ-20705)

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

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

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

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

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

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
6. If the geologic assessment was completed before October 1, 2004 and the site contains “possibly sensitive” features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

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

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

alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied the application fee will be forfeited.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: DB Wood –Oak Ridge Road to 820' South of Williams Drive						2. Regulated Entity No.:				
3. Customer Name: City of Georgetown						4. Customer No.: CN600412043				
5. Project Type: (Please circle/check one)	New X		Modification			Extension		Exception		
6. Plan Type: (Please circle/check one)	WPAP X	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures	
7. Land Use: (Please circle/check one)	Residential		Non-residential x			8. Site (acres):		30.90		
9. Application Fee:	$6,500		10. Permanent BMP(s):			Stormcepter				
11. SCS (Linear Ft.):	N/A		12. AST/UST (No. Tanks):			N/A				
13. County:	Williamson		14. Watershed:			North 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 X Georgetown __Jerrell __Leander __Liberty Hill __Pflugerville __Round Rock

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

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.	
Chris Pousson	
Print Name of Customer/Authorized Agent	April 15, 2024
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):	

SECTION 2:

EDWARDS AQUIFER PROTECTION PROGRAM ROADWAY APPLICATION (TCEQ-20872)

Edwards Aquifer Protection Program Roadway Application

Texas Commission on Environmental Quality

This application is intended only for projects which a major roadway is designed for construction, such as State highways, County roads, and City thoroughfares.

Designed for Regulated Activities on the Contributing Zone to the Edwards Aquifer in relation to 30 TAC §213.24, Regulated Activities on the Edwards Aquifer Recharge Zone, in relation to 30 TAC §213.5(b), Effective June 1, 1999.

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

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

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer.

The application was prepared by:

Print Name of Customer/Agent: Austin Helton, P.E.

Date: 5/16/2024

Signature of Customer/Agent:



Project Information

1. Regulated Entity (Project) Name: D B Wood Rd Improvements Phase 2 – Oak Ridge Road to 820' South of Williams Drive
2. County: Williamson
3. Stream Basin(s): North Fork San Gabriel
4. Groundwater Conservation District (if applicable): Edwards Aquifer Authority
5. Customer (Applicant):
   Contact Person: Chris Pousson
   Entity: City of Georgetown
   Mailing Address: 300-1 Industrial Ave.
   City, State: Georgetown, TX Zip: 78626
   Telephone: 512-930-8162
   Email Address: Chris.Pouson@georgetown.org

Edwards Aquifer Protection Program Roadway Application

Texas Commission on Environmental Quality

This application is intended only for projects which a major roadway is designed for construction, such as State highways, County roads, and City thoroughfares.

Designed for Regulated Activities on the Contributing Zone to the Edwards Aquifer in relation to 30 TAC §213.24, Regulated Activities on the Edwards Aquifer Recharge Zone, in relation to 30 TAC §213.5(b), Effective June 1, 1999.

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

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The application was prepared by:

Print Name of Customer/Agent: Austin Helton, P.E.

Date: 5/16/2024

Signature of Customer/Agent:

Project Information

1. Regulated Entity (Project) Name: D B Wood Road – Oak Ridge Road to 820' South of Williams Drive
2. County: Williamson
3. Stream Basin(s): North Fork San Gabriel
4. Groundwater Conservation District (if applicable): Edwards Aquifer Authority
5. Customer (Applicant):
   Contact Person: Chris Pousson
   Entity: City of Georgetown
   Mailing Address: 300-1 Industrial Ave.
   City, State: Georgetown, TX Zip: 78626
   Telephone: 512-930-8162
   Email Address: Chris.Pouson@georgetown.org

6. Agent (Representative):

Contact Person: Austin Helton
Entity: Kimley-Horn
Mailing Address: 501 S Austin Ave, Suite 1310
City, State: Georgetown, TX Zip: 78626
Telephone: 512-418-4538
Email Address: austin.helton@kimley-horn.com

7. Landowner of R.O.W. (Right of Way)
Person or entity responsible for maintenance of water quality Best Management Practices (BMPs), if not applicant.

Contact Person: Chris Pousson
Entity: City of Georgetown
Mailing Address: 300-1 Industrial Ave.
City, State: Georgetown, TX Zip: 78626
Telephone: 512-930-8162
Email Address: Chris.Pouson@georgetown.org

8. ☒ The TCEQ must be able to inspect the project site or the application will be returned. Sufficient survey marking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of any regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☒ Survey marking will be completed by this date: Geological features will be identified during the site assessment using GPS Coordinates.

9. ☒ 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.

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

☒ Project site boundaries
☒ USGS Quadrangle Name(s)
☒ All drainage paths from site to surface waters

11. ☒ This project extends into (Check all that apply):

☒ Recharge Zone (RZ)
☐ Contributing Zone (CZ)
☐ Transition Zone (TZ)
☐ Contributing Zone within Transition Zone (CZ/TZ)
☐ Zone not regulated by EAPP

12. ☒ Attachment C - Project Description. 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:

- ☒ Complete site area [Acres]
- ☐ Offsite upgradient stormwater areas to be captured
- ☒ Impervious area [Acres]
- ☒ Permanent BMP(s)
- ☒ Proposed site use
- ☒ Existing roadway (paved and/or unpaved)
- ☒ Structures to be demolished [Include demo phase]
- ☒ Major interim phases

13. Existing project site conditions are noted below:

- ☒ Existing paved and/or unpaved roads
- ☐ Undeveloped (Cleared)
- ☐ Undeveloped (Undisturbed/Not cleared)
- ☐ Existing commercial site
- ☐ Existing industrial site
- ☐ Existing residential site
- Other: _____
- ☐

14. ☒ Attachment D - Factors Affecting Surface Water Quality. A detailed description of all factors that could affect surface water quality is attached.

15. ☒ Only inert materials as defined by 30 TAC §330.3 will be used as fill material.

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

- ☐ Concrete
- ☒ Asphaltic concrete pavement
- ☐ Permeable Friction Course (PFC)
- ☐ Other: _____

17. Right of Way (R.O.W.) and Pavement Area:

R.O.W. for project: 30.90 (ac.)
Length: 11,283 ft.
Width: 120 ft.
Impervious cover (IC): 18.93 (ac.)
Total of Pavement area 18.93(ac.) ÷ R.O.W. area 30.90(ac.) x 100 = 61% IC.

☒ CAD program was used to determine areas.

☒ Number of travel lanes: proposed: 4 travel lanes and 1 left turn lane, existing: 2 travel lanes and 1 left turn lane

☒ Typical widths of lanes: 11 (ft.)

☒ Are intersections also being improved? (Y/N) Y

Site Plan Requirements

Items 18 - 28 must be included on the Site Plan.

18. ☒ The Site Plan must have a minimum scale of 1" =400'.
Site Plan Scale: 1" = 100 '

19. 100-year floodplain boundaries:

☒ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled. The 100-year floodplain boundaries are based on the following specific (including date of material) source(s):

Federal Emergency Management Agency Federal Insurance Rate Map #48491C0290E, dated September 26, 2008.

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

20. ☒ A layout of the development with existing and finished contours at appropriate, but not greater than ten-foot contour intervals is shown. Sensitive features, lots, wells, buildings, roads, culverts, etc. are shown on the site plan.

21. ☒ A figure (map) indicating all paths of drainage from the site to surface waters.

☒ Name all stream crossings: North Fork San Gabriel River
☒ Drainage patterns and approximate slopes.
☒ There will be no discharge to surface waters.

22. ☒ Distinguish between areas of soil disturbance and areas which will not be disturbed.

23. ☒ Show locations of major structural and nonstructural controls. These are the temporary and permanent best management practices. Include the following:

☒ Show design and location of any hazardous materials traps.
☒ Show design at outfalls of major control structures and conveyances.
☒ A description of the BMPs and measures that prevent pollutants from entering surface streams.

24. Show locations of staging areas or project specific locations (PSL). Are they:

☒ Onsite, within project R.O.W.
☐ Offsite.
☐ Not yet determined. (Requires future authorization)

25. ☒ Show locations where soil stabilization practices are expected to occur.

26. ☒ Show surface waters (including wetlands).

27. Temporary aboveground storage tank facilities:
- ☐ Temporary aboveground storage tank facilities will be located on this site. Show on site plan.
- ☒ Temporary aboveground storage tank facilities will not be located on this site.

28. ☐ Plan(s) also include:

- ☒ Sidewalks
- ☒ Related turn lanes
- ☐ Shared-use paths
- ☐ Off-site improvements and staging areas
- ☒ Demolition plans
- ☒ Utility relocations
- ☒ Other improved areas: culvert replacement, bridge widening

Permanent Best Management Practices (BMPs)

Description of practices and measures that will be used after construction is completed.

29. ☒ Permanent BMPs and measures have been designed, and will be constructed, operated, and maintained to ensure 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 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: _____

30. ☒ Attachment E - BMPs for Upgradient (Offsite) 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.

31. ☒ Attachment F - 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.

32. ☒ Attachment G - 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 all proposed structural plans and specifications, and appropriate details.

☒ Major bridge cross-sections, and roadway plan and profiles

☒ BMP plans and details
☒ Design calculations
☒ Erosion control
☒ TCEQ Construction Notes
☒ SW3P
☐ EPIC, as necessary

33. ☒ Attachment H - 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 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 recordkeeping procedures.

34. ☒ Attachment I - 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

35. ☒ Attachment J - 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 effects caused by the regulated activity which increase erosion or may result in water quality degradation.

☒ Include permanent spill measures used to contain hydrocarbons or hazardous substances by way of traps, or response contingencies.

36. 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.

If the applicant intends to transfer responsibility, check the box below.

☐ Yes

A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days.

Stormwater to be generated by the Proposed Project

Description of practices and measures that will be used during construction.

37. ☒ The site description, controls, maintenance, and inspection requirements for the Storm Water Pollution Prevention Plan (SWPPP or SW3P) developed under the Texas Pollutant Discharge Elimination System (TPDES) general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) & §213.5(b) of the technical report.

    ☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

    ☒ The SWPPP (SW3P) will serve as the Temporary Stormwater Section (TCEQ-0602).

38. ☒ Attachment K - Volume and Character of Stormwater. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff 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 pre-construction runoff coefficient.

    ☒ Include the post-construction runoff coefficient.

Administrative Information

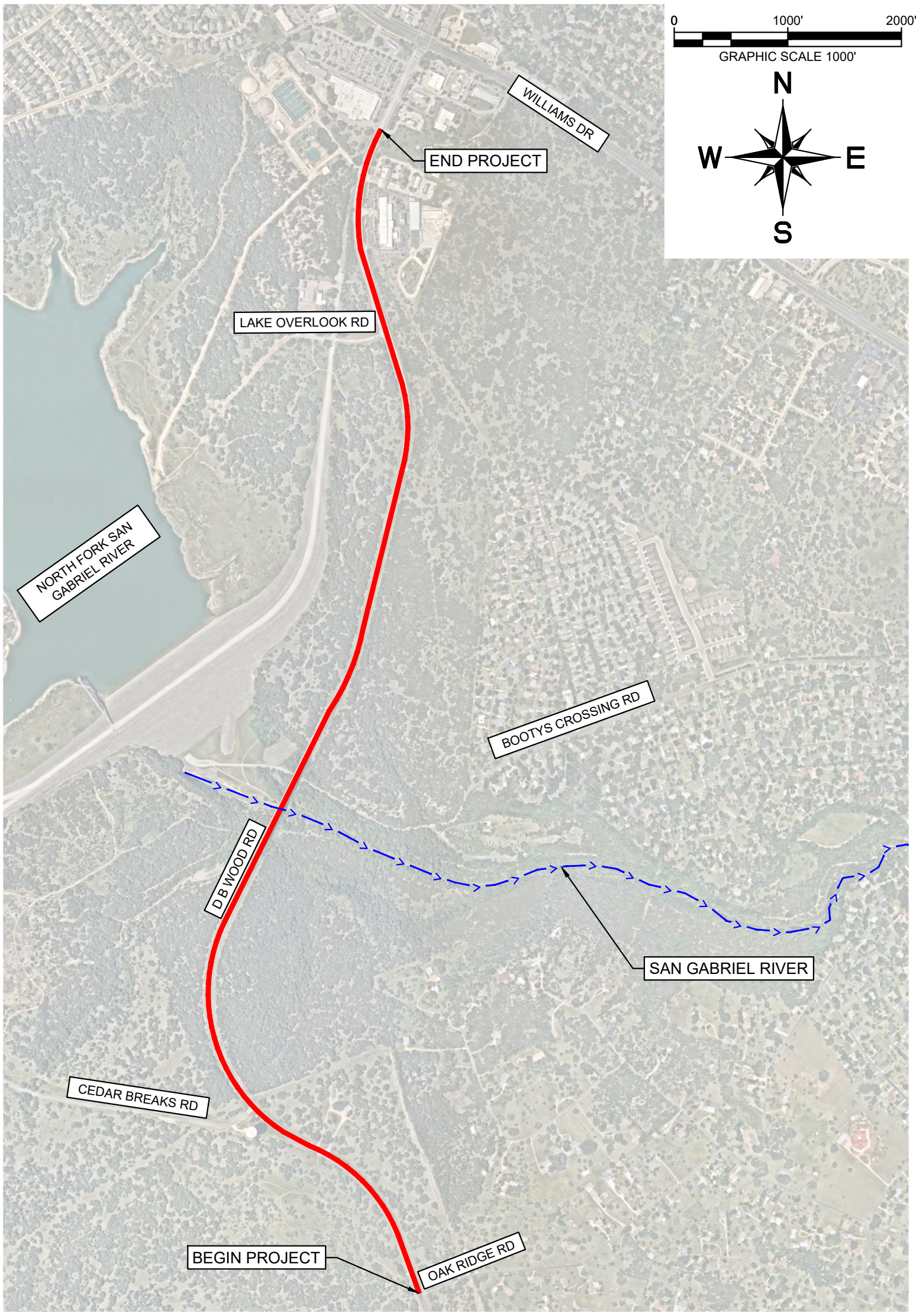
39. ☐ Submit one (1) original and one (1) copy of the application, plus one electronic copy as needed, for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ is required to distribute the additional copies to these jurisdictions.

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

    ☒ The total R.O.W. (as in Item 17).

    ☐ TxDOT roadway project.

ROAD MAP



DIRECTIONS FROM TCEQ HEADQUARTERS TO BEGIN PROJECT

1. START GOING EAST ON PARK THIRTY FIVE CIR TOWARD N INTERSTATE 35.
2. TURN RIGHT ONTO N INTERSTATE 35 FRONTAGE RD HEADING SOUTH.
3. TURN LEFT ONTO E BRAKER LN.
4. TURN LEFT ONTO N I-35 SERVICE RD.
5. KEEP LEFT ONTO N I-35.
6. TAKE EXIT 261 TOWARDS TX-29/BURNET.
7. TURN LEFT ONTO W UNIVERSITY AVE.
8. TURN RIGHT ONTO D B WOOD RD.
9. THE PROJECT BEGINS AT THE INTERSECTION OF D B WOOD RD AND OAK RIDGE RD.

DB WOOD IMPROVEMENTS PHASE 2

ROAD MAP

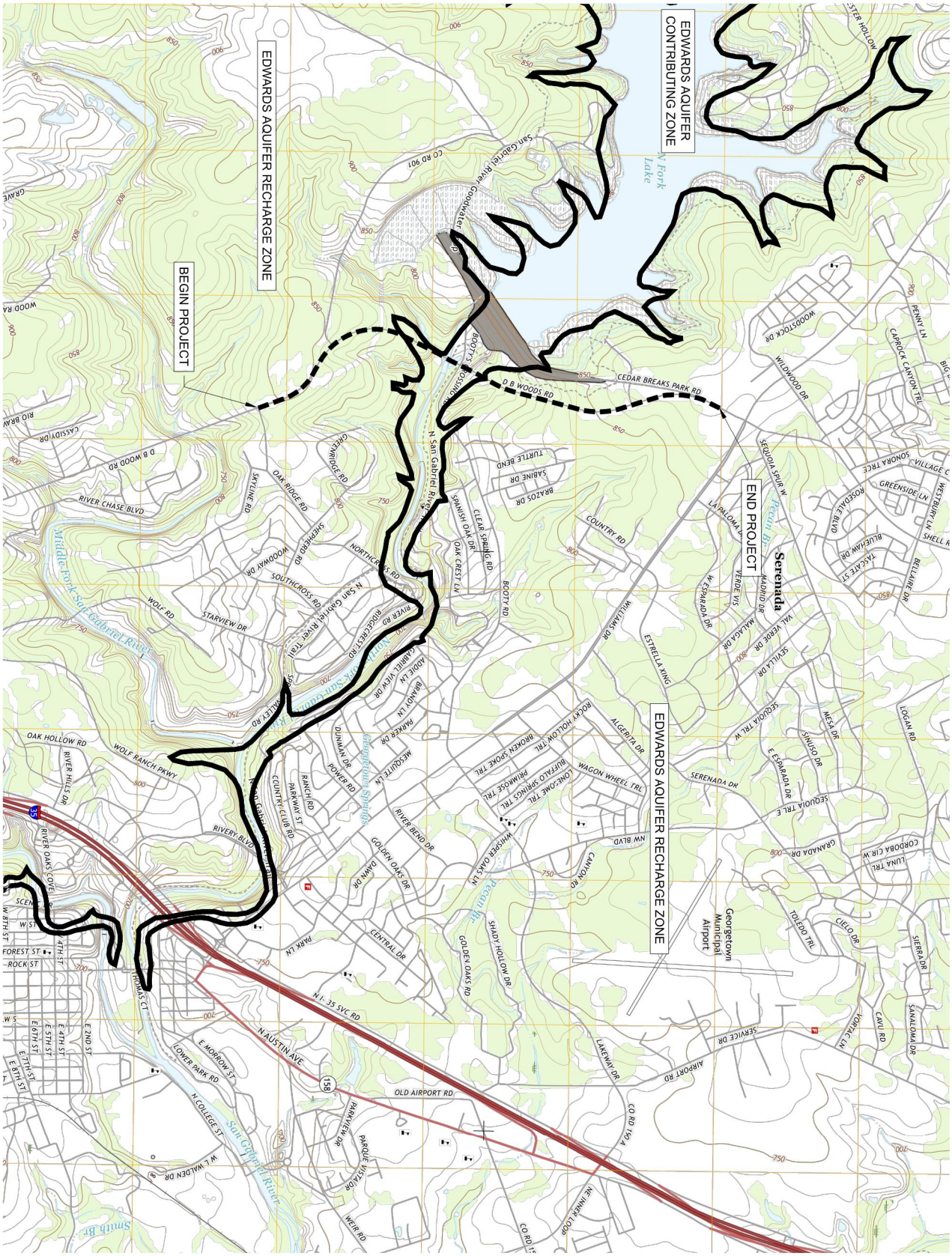
Georgetown, Texas
October 2023

DWG NAME C:\USERS\MICHAELANN.DURDEN\DESKTOP\SHIFT\AUS-ROADWAY\DBWOOD WPAP\TCEQ ROAD MAP.DWG
LAST SAVED 10/4/2023 2:52 PM

Kimley»Horn
501 Austin Avenue
Suite 1310
Georgetown, TX 78626
512-418-1771
State of Texas Registration No. F-928
NOTE: THIS PLAN IS CONCEPTUAL IN NATURE AND HAS BEEN PRODUCED WITHOUT THE BENEFIT OF A SURVEY, TOPOGRAPHY, UTILITIES, CONTACT WITH THE CITY, ETC.

USGS QUADRANGLE MAP

Plotted By:Durden, Michaelann Date:October 04, 2023 03:28:35pm File Path:C:\Users\Michaelann.Durden\Desktop\Shift\AUS-Roadway\DBWOOD_WPAP\TCEQ_USGS_Exhibit.dwg
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



	D B WOOD IMPROVEMENTS PHASE 2 GEORGETOWN, TEXAS	USGS GEORGETOWN QUADRANGLE/ EDWARDS RECHARGE ZONE MAP	KHA PROJECT 069226621 DATE OCTOBER 2023 SCALE: AS SHOWN DESIGNED BY: MTD DRAWN BY: MMC CHECKED BY: AH	Kimley»Horn 501 S AUSTIN AVENUE, SUITE 1310, GEORGETOWN, TEXAS 78626 PHONE: 512-418-1771 FAX: 512-418-1791 WWW.KIMLEY-HORN.COM © 2020 KIMLEY-HORN AND ASSOCIATES, INC. TBPE Firm No. 928	No.	REVISIONS	DATE	BY

PROJECT DESCRIPTION

The DB Wood Improvements extend from Oak Ridge Road to 820-feet south of Williams Dr and DB Wood Rd intersection that will encompass approximately 30.90 acres. All improvements are located within existing ROW. The area of soil disturbance for the DB Wood Improvements are 30.90 acres. The subject property is located north of SH 29, west of I 35, and southwest of Williams Dr in the City of Georgetown, Texas. The existing roadway consists of two 12' lanes with a 12' TWLTL, 4' shoulders, and open ditch sections. Existing structures include two crossing culverts and a bridge. The proposed improvements include converting the roadway to four 11' lanes with a 14' raised median and a sidewalk on the SB side of the roadway, converting the open ditch section to curb and gutter, adding storm sewer, replacing the existing two culverts, utility relocation,and widening the existing bridge. The site lies over the Edwards Aquifer Recharge Zone and does contain areas within the 100-year floodplain and a regulatory floodway as defined by Federal Emergency Management Agency Federal Insurance Rate Map #48491C0290E, dated September 26, 2008. The site has an overall onsite impervious cover of 18.93 acres and 0.89 acres of offsite impervious cover for a total of 19.81 acres or 50% as shown in the first table below. The permanent BMP's designed to handle the onsite impervious cover will be three (3) Stormceptors. The required TSS removal is 5219 lbs. We have provided 5359 lbs. of TSS removal.

All the proposed impervious cover is compliant with the limitations of the impervious allotted by the regulating entity (City of Georgetown). The proposed impervious cover and TSS removal are shown in Table 1: Water Quality Calculations.

Table 1: Overall Water Quality Drainage Basins

Overall Water Quality Drainage Basins							
Drainage Basin	Basin Area	Impervious Cover Area	% Impervious Cover	Pre-Dev. Impervious Cover Area	Net Increase Impervious Area	Required TSS Removal	Proposed TSS Removed
	(acre)	(acre)	(%)	(acre)	(acre)	(lbs)	(lbs)
UT-E0	1.45	1.36	93.7%	0.85	0.51	474.39	0
UT-E1	0.36	0.01	2.1%	0.01	0.00	-0.68	0
UT-E2	0.45	0.00	0.0%	0.00	0.00	0.00	0
UT-F0	1.44	1.34	93.0%	0.88	0.46	424.76	0
UT-F1	0.83	0.09	10.6%	0.03	0.06	53.07	0
UT-F2	0.45	0.03	6.8%	0.01	0.02	17.62	0
UT-G1	0.93	0.89	95.2%	0.56	0.33	300.94	0
WQ-H1	3.07	3.07	100.0%	2.16	0.91	842.99	2073
UT-H1	1.37	0.50	36.3%	0.16	0.34	315.77	0
UT-H2	1.70	0.01	0.6%	0.00	0.01	9.14	0
UT-BRG	3.80	1.88	49.5%	1.48	0.40	368.63	0
WQ-I1	0.36	0.36	100.0%	0.30	0.06	57.51	325
UT-I1	0.17	0.07	38.7%	0.05	0.02	14.90	0
UT-I2	0.28	0.00	0.8%	0.00	0.00	0.15	0
UT-J1	0.96	0.86	89.1%	0.50	0.35	325.58	0
UT-K0	2.74	2.57	93.9%	1.57	1.00	922.95	0
UT-K1	1.46	0.02	1.4%	0.01	0.01	10.21	0
UT-K2	0.50	0.00	0.0%	0.00	0.00	0.00	0
UT-K3	0.07	0.01	16.3%	0.00	0.01	10.37	0
WQ-L1	4.16	3.89	93.5%	2.91	0.98	906.15	2960
UT-L1	3.73	1.96	52.4%	1.78	0.18	166.20	0
UT-L2	0.21	0.00	0.0%	0.00	0.00	0.00	0
UT-L3	0.40	0.02	4.7%	0.02	0.00	-1.37	0
OS-G1	0.37	0.15	40.7%	0.15	0.00	0.00	0
OS-L1	0.26	0.09	33.1%	0.09	0.00	0.00	0
OS-L2	7.40	0.65	8.7%	0.65	0.00	0.00	0
OS-L3	0.85	0.00	0.0%	0.00	0.00	0.00	0
Site Total	***30.90***	***18.93***	***61%***	***13.28***	***5.64***	***5219***	***5359***
Offsite Total	***8.88***	***0.89***	***10%***	***0.89***	***0.00***	***0.00***	***0***
Total	***39.78***	***19.81***	***50%***	***14.17***	***5.64***	***5219***	***5359***

FACTORS AFFECTING SURFACE WATER QUALITY

Examples of items and activities to be expected with the proposed development include petroleum based fuels used in vehicles from vehicle parking, and grass and leaves from landscaping.

During construction, water quality could be affected by the runoff carrying sediments from the open construction area. Silt fence will be installed along the downstream portion of the property and inlet protections will be installed around all proposed inlet structures (once constructed).

After construction, all disturbed areas on the site will be re-vegetated and runoff from the proposed improvements will be captured by the proposed storm sewer system and into one of the proposed BMPs.

The following factors may affect water quality during both the construction and operation phases of the project.

1. The increase in impervious cover could result in an increase in runoff, potentially altering the quality and/or quantity of recharge to the aquifer.

2. Increased sediment loading in runoff due to erosion of sediment and pollutants from exposed soil due to site preparation activities such as grading, excavating, and clearing vegetation result in exposed soil. In addition to this disturbance of native soil, new soil will be brought onto the site for fill in the roadbed and other components of the project.

3. Runoff from construction product staging, storage, and waste.

4. Runoff from hazardous material spills. These may contain metals, nutrients, bacteria, herbicides, hydrocarbons, and other toxic constituents. Pesticides, de-icing salts, paint, and fertilizers introduce pollutants into the runoff. Standard vehicle use may also add pollutants through normal operations including braking and fuel combustion as well as through oil and fuel leaks. Runoff from automotive fluids, lubricants, and fuel leaks from standard vehicle use. Additionally, vehicles can transfer pollutants from source to source across the project site via vehicle tracking.

BMPS FOR UPGRADIENT (OFFSITE) STORMWATER

Not applicable

BMPs FOR ON-SITE STORMWATER

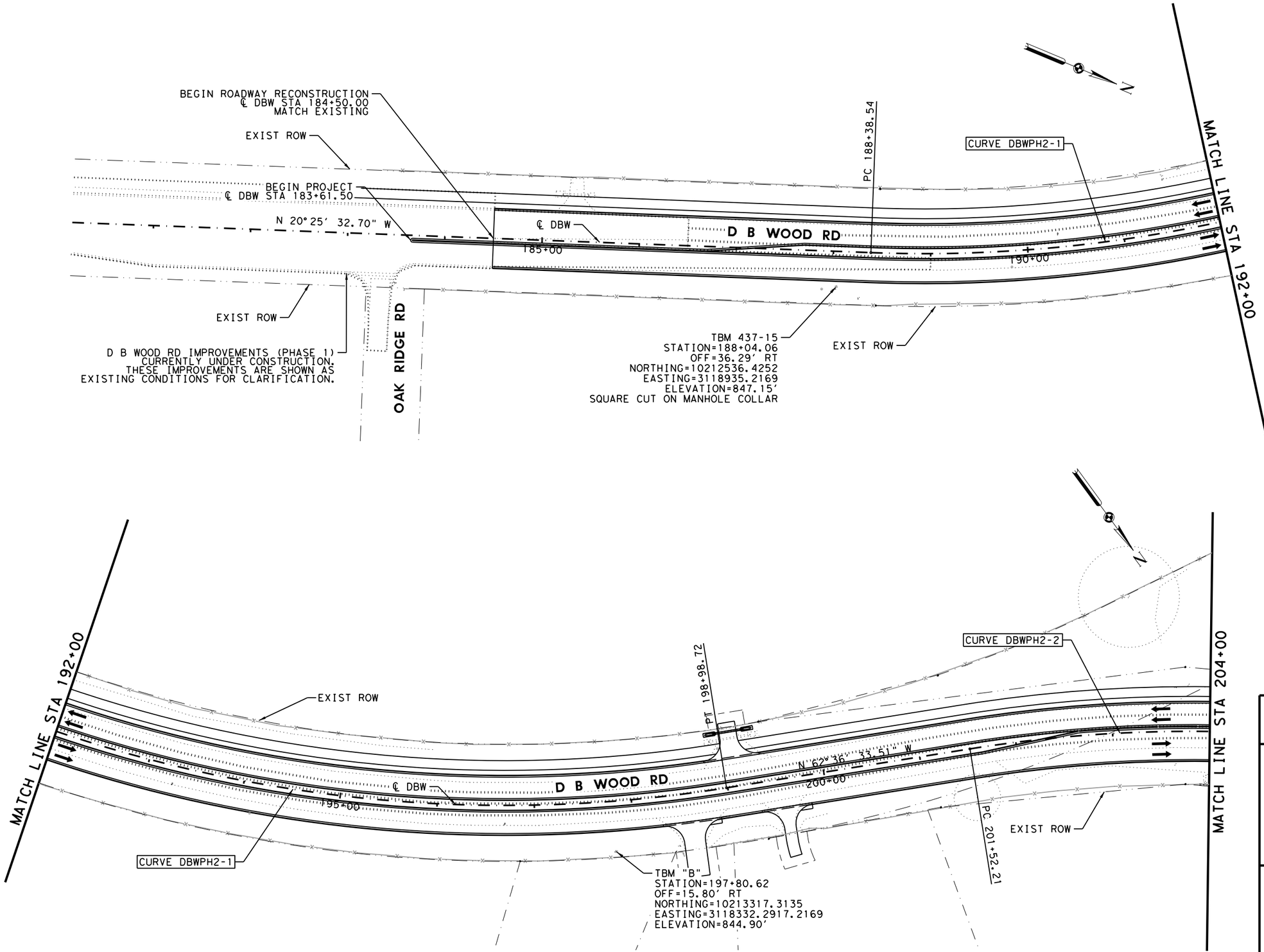
During construction, BMP's include erosion control logs and inlet protection to capture sediment from the construction area contained within the storm water runoff. Erosion control logs will be installed along the downstream portion of the property. Inlet protection will be installed on all storm sewer curb inlets existing and proposed (once constructed).

Current Plan Proposed Conditions:

The overall required removal for this in the current proposed phase of development is Lm = 5219 LBS. The proposed BMPs have been designed to provide 5359 LBS of TSS removal. The basins have been broken out and are shown on the construction drawings (D B Wood Road Water Quality Basin Map, Sheets 477 to 479). Water quality drainage area WQ-H1 will street flow to drainage inlets then pipe flow to a STC7200-H1 that will then discharge into San Gabriel River. WQ-H1 will provide a total of 2073 LBS of TSS removal. Water quality drainage area WQ-I1 will street flow to drainage inlets then pipe flow to a STC4800-I1 that will then discharge into San Gabriel River. WQ-I1 will provide a total of 325 LBS of TSS removal. Water quality drainage area WQ-L1 will street flow to drainage inlets then pipe flow to a STC2400-L1 that will then discharge an open ditch channel that runs parallel to D B Wood Road. WQ-L1 will provide a total of 2960 LBS of TSS removal. All TSS calculations are shown on the construction drawings sheets 480 & 482. The impervious breakdown is shown under the project narrative.

CONSTRUCTION PLANS

Please reference attached construction plans



LEGEND

- EXIST ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- FLOW ARROW

NOTES:

1. SEE HORIZONTAL ALIGNMENT DATA SHEET FOR CURVE INFORMATION.

CONTROL NOTE:

BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM SOUTH CENTRAL ZONE 4203. ALL DISTANCES SHOWN ARE SURFACE DISTANCES USING A COMBINED SCALE FACTOROF 1.00013. ELEVATIONS REPORTED ARE NAVD88 ORTHOMETRIC GPS HEIGHTS.

0' 50' 100'

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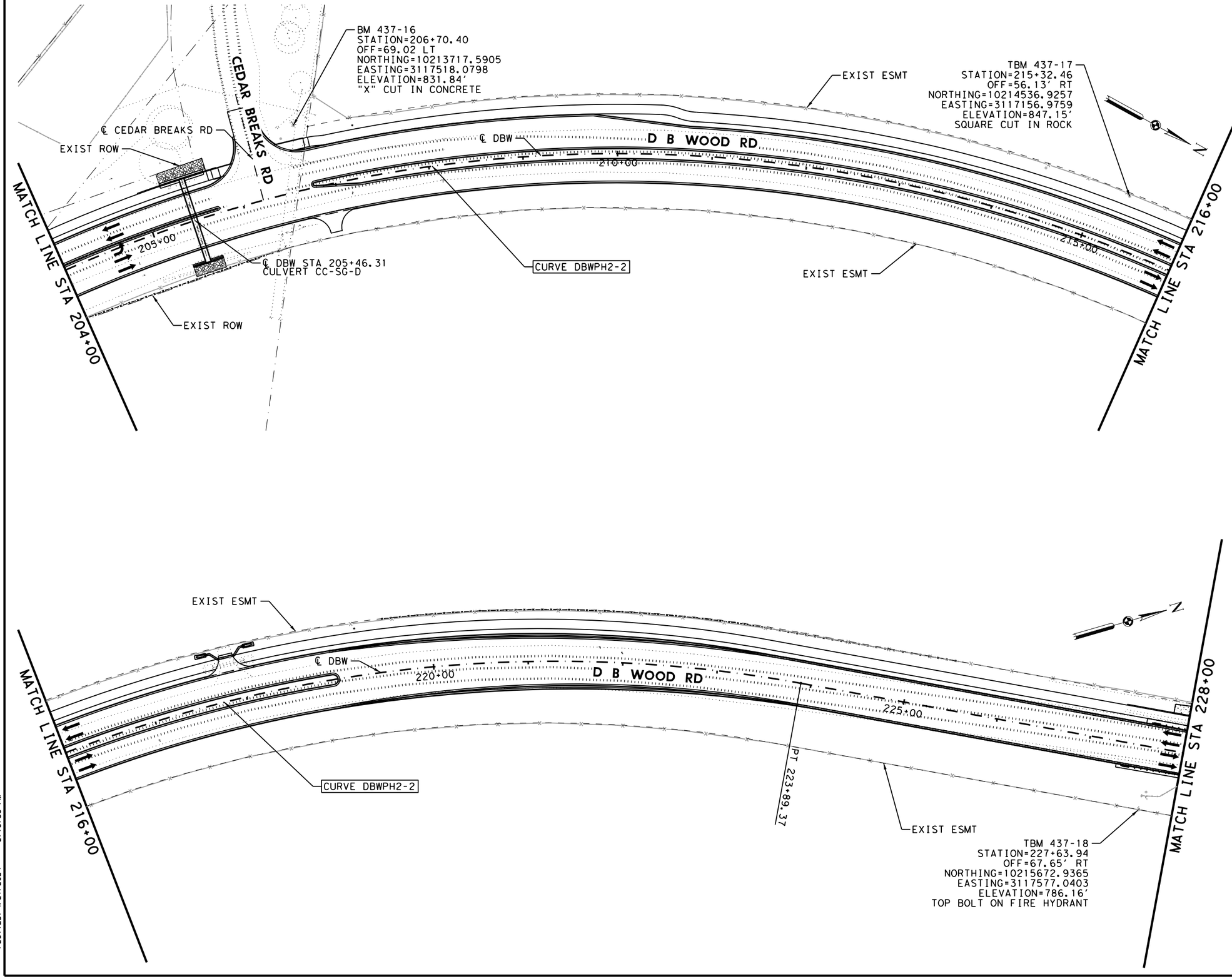
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PROJECT LAYOUT

BEGIN PROJECT TO STA 204+00

SHEET 1 OF 5 | 6

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LEGEND

- EXIST ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- FLOW ARROW

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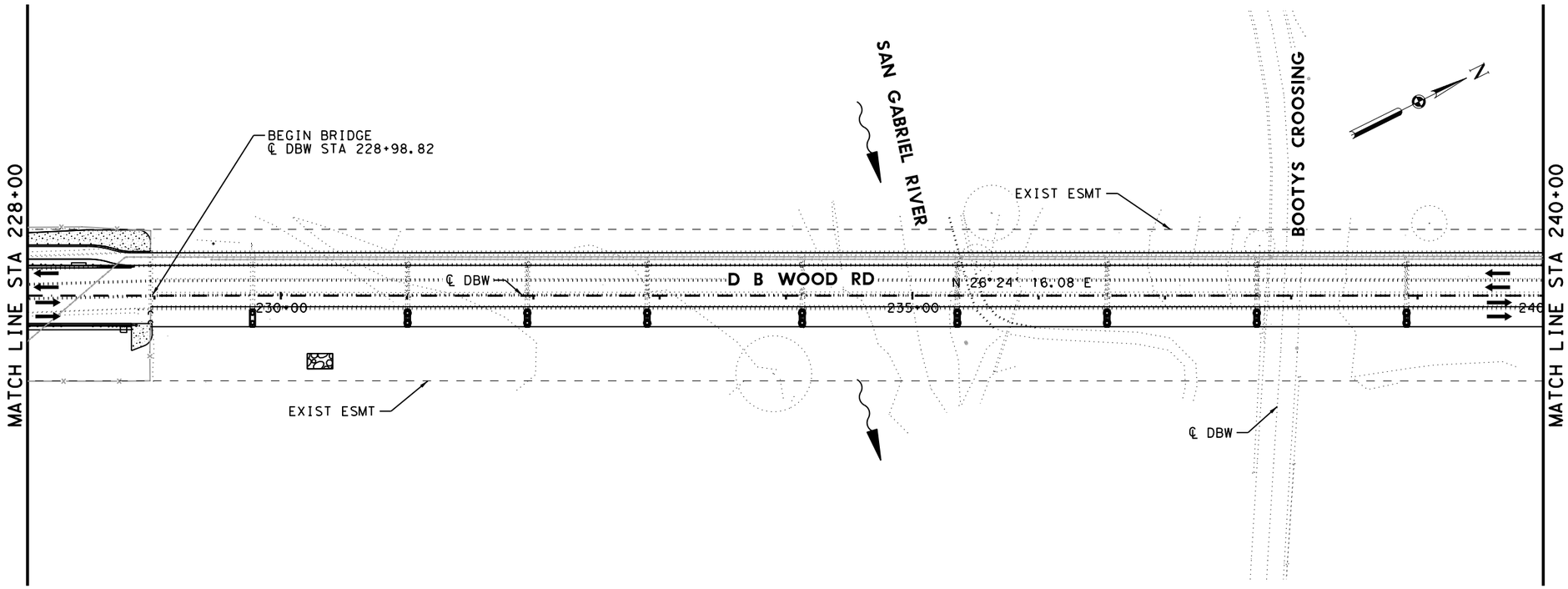
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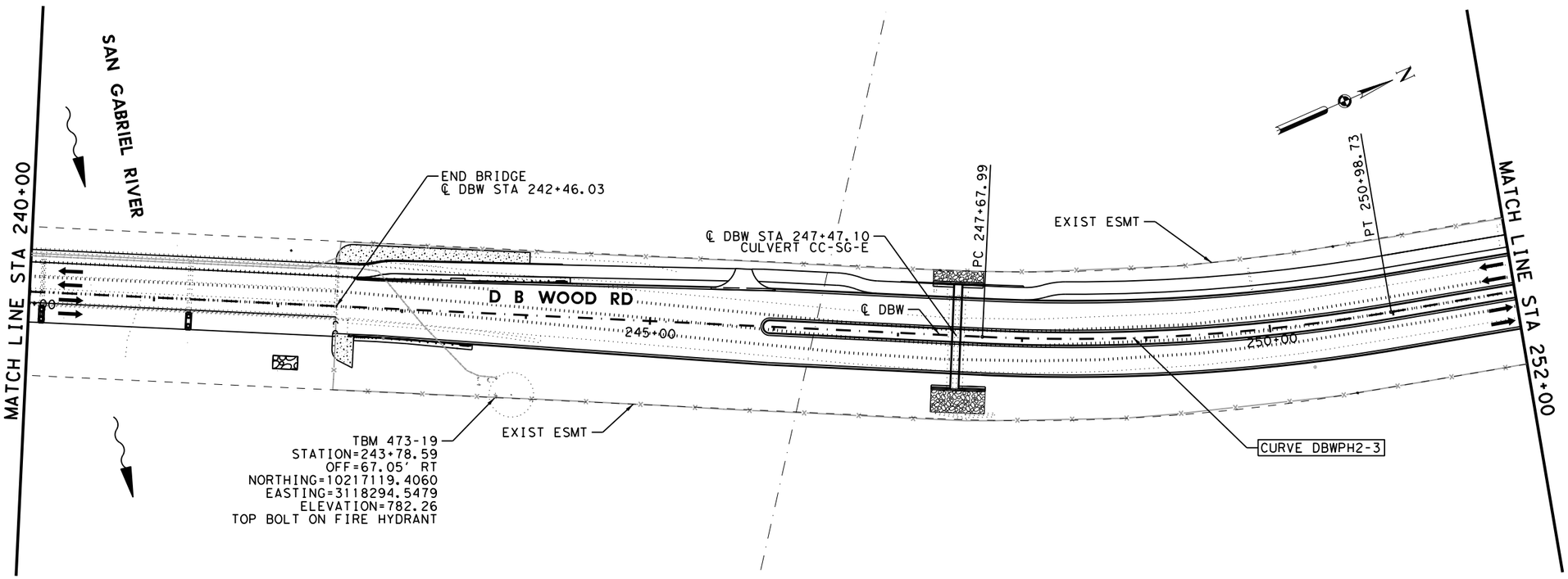
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PROJECT LAYOUT
STA 204+00 TO STA 228+00

SHEET 2 OF 5 | 7

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LEGEND

- EXIST ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- FLOW ARROW

NOTES:

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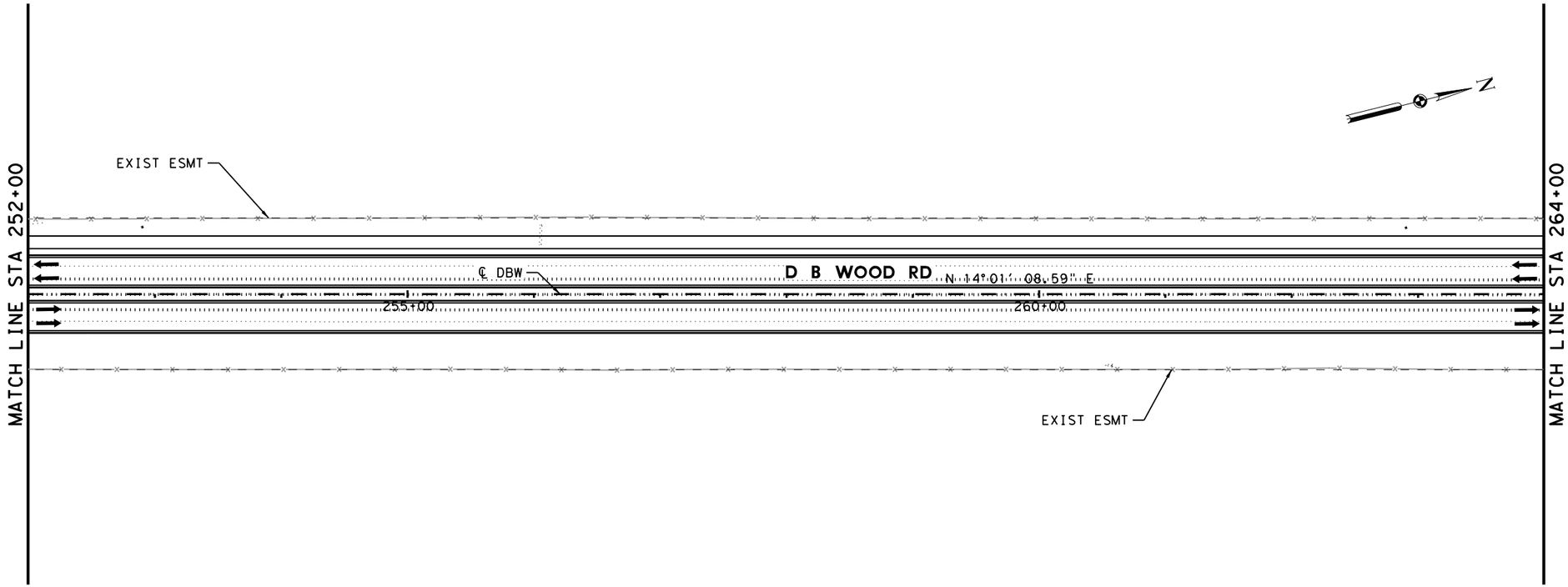
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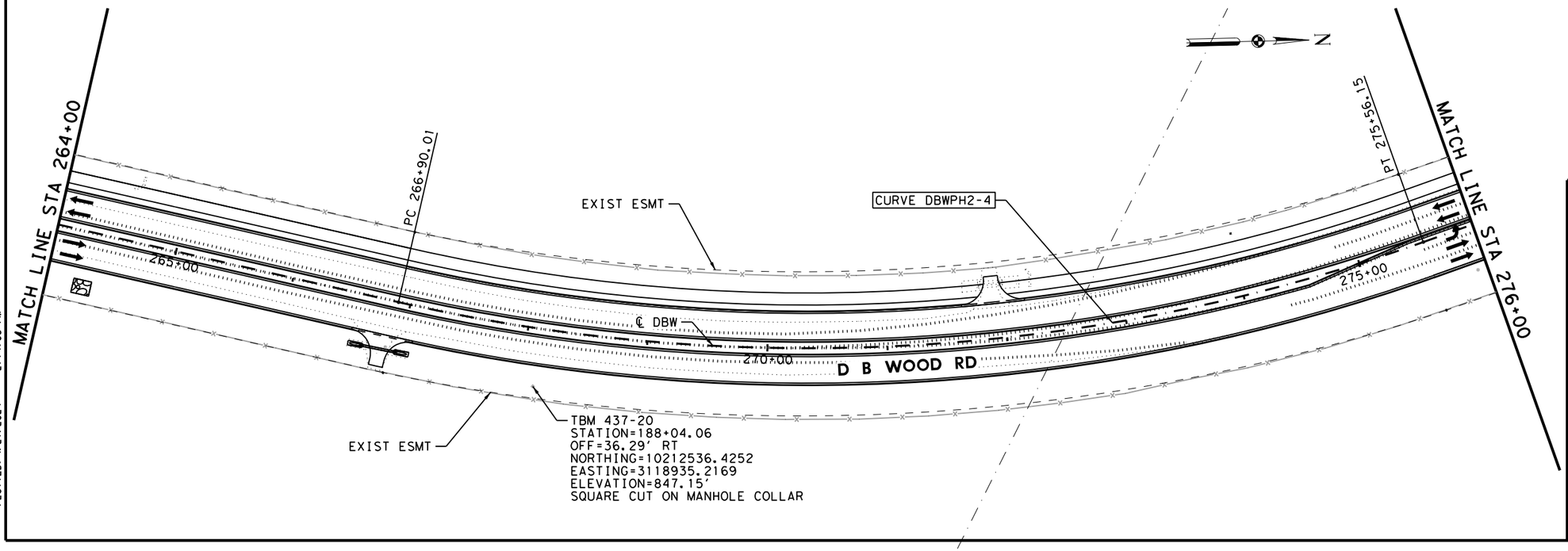
PROJECT LAYOUT

STA 228+00 TO STA 252+00

SHEET 3 OF 5 | 8

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LEGEND

- EXIST ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- FLOW ARROW

NOTES:

1. SEE HORIZONTAL ALIGNMENT DATA SHEET FOR CURVE INFORMATION.

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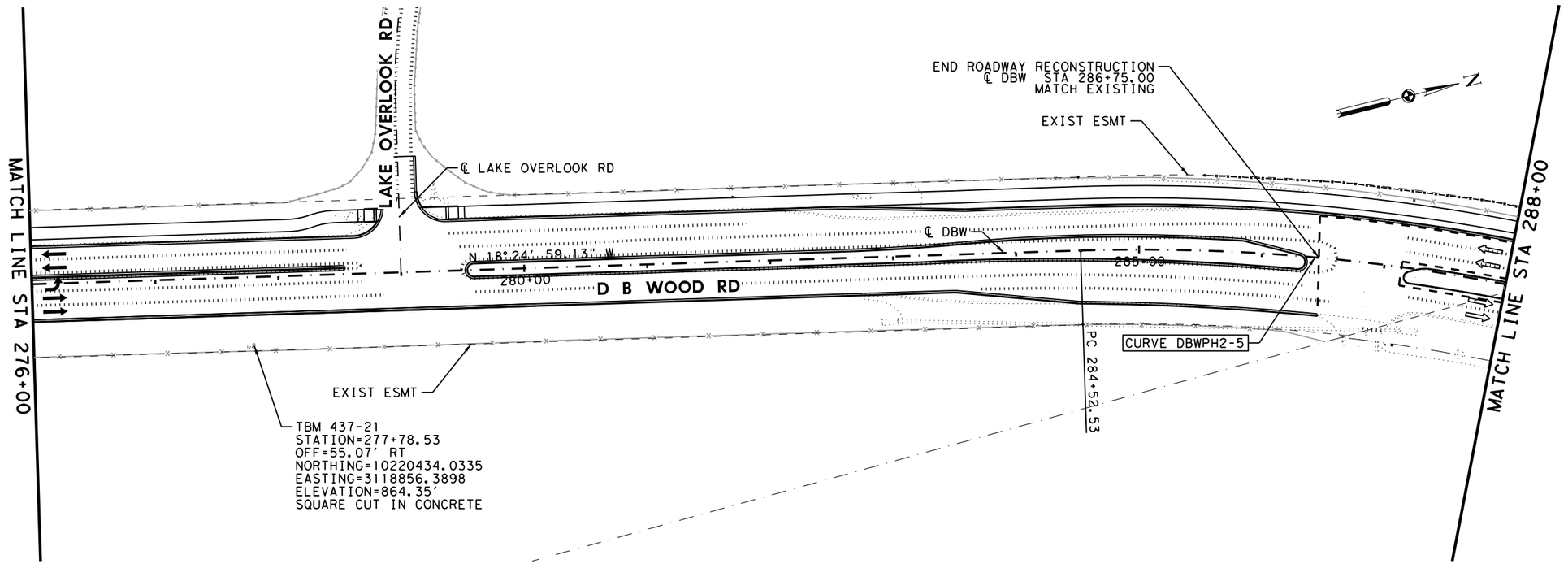
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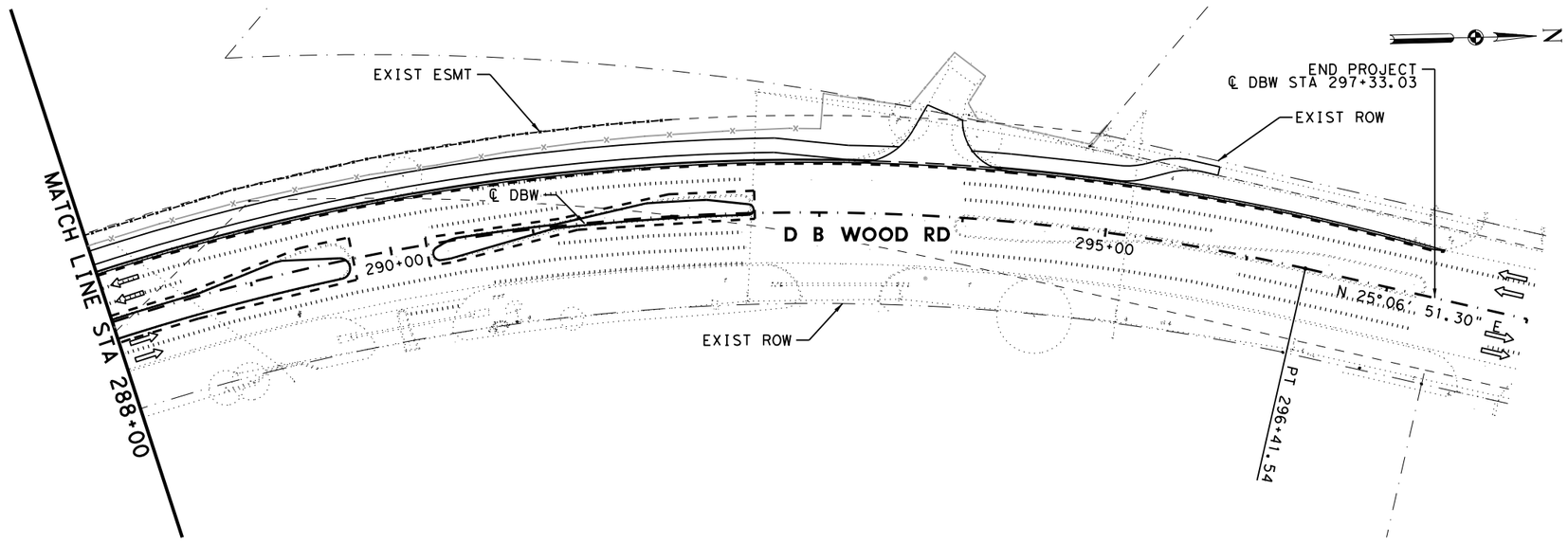
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PROJECT LAYOUT

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LEGEND

- EXIST ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- FLOW ARROW

NOTES:

1. SEE HORIZONTAL ALIGNMENT DATA SHEET FOR CURVE INFORMATION.

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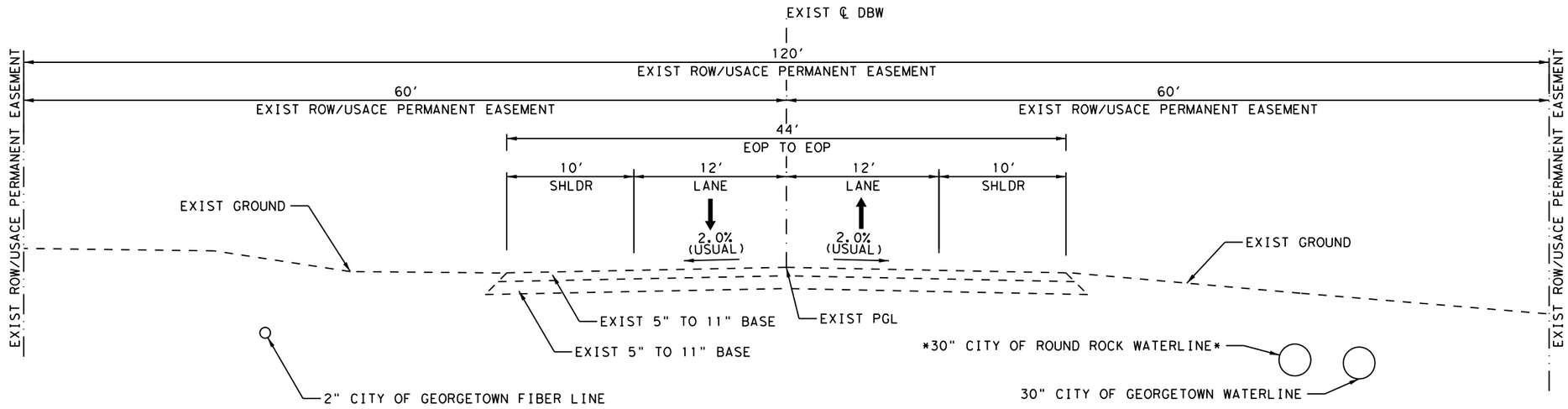
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PROJECT LAYOUT

STA 252+00 TO END PROJECT

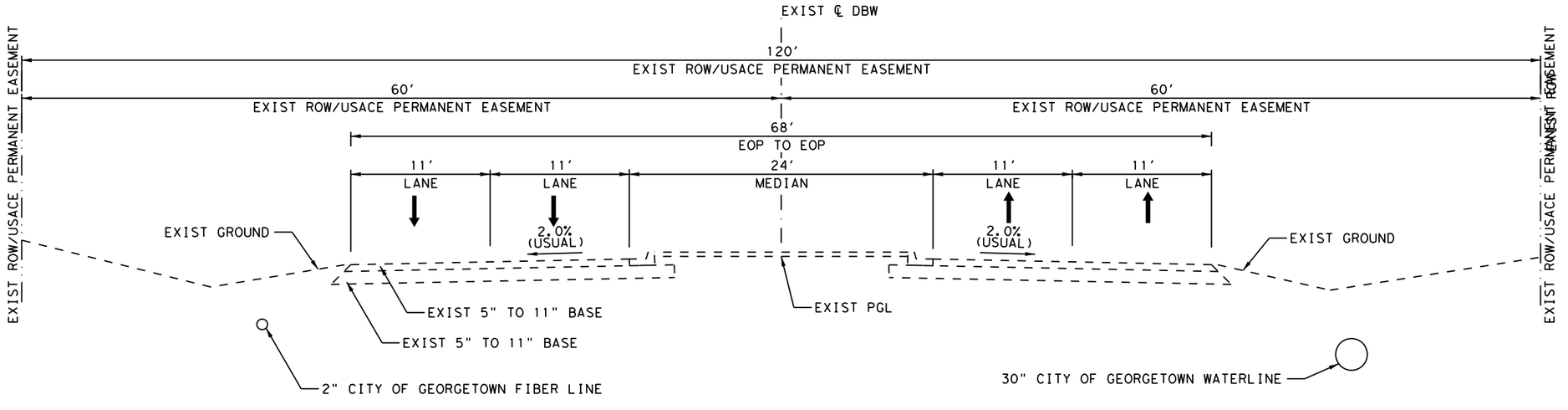
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EXISTING TYPICAL SECTION 1

BEGIN PROJECT TO STA 287+16.75
BEGIN PROJECT TO STA 203+63.84



EXISTING TYPICAL SECTION 2

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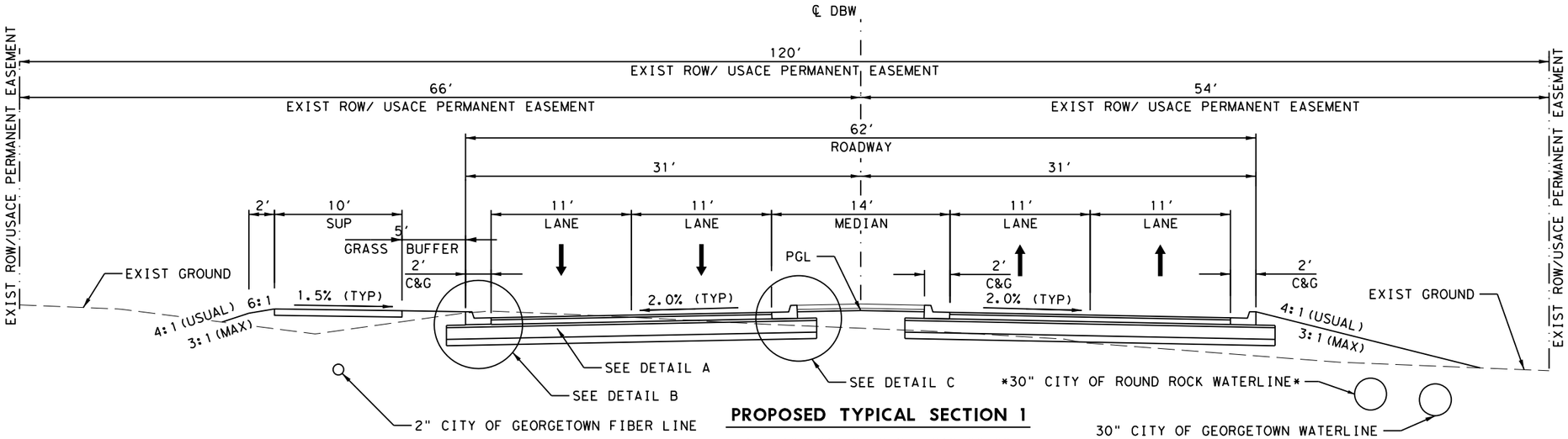
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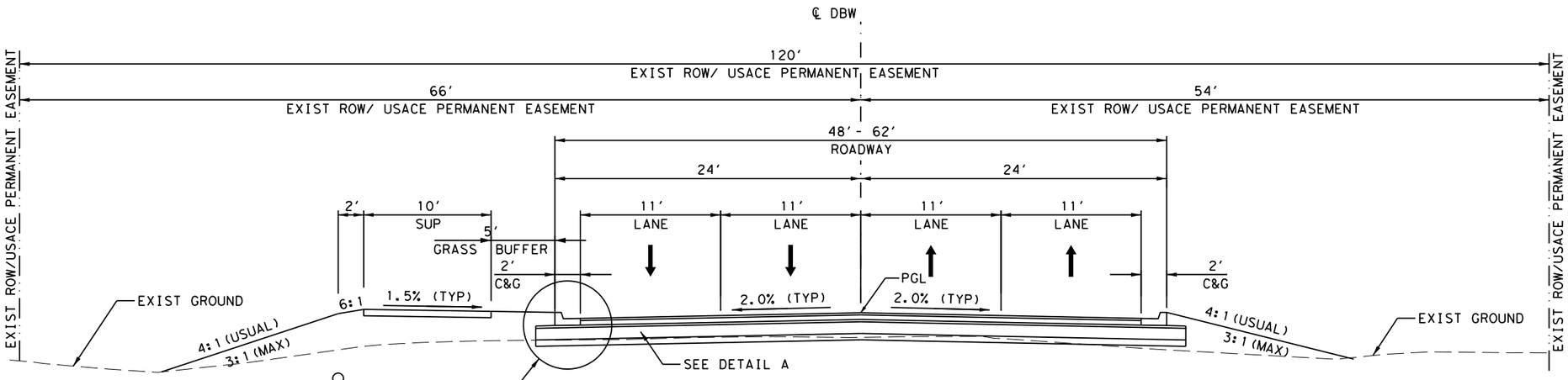
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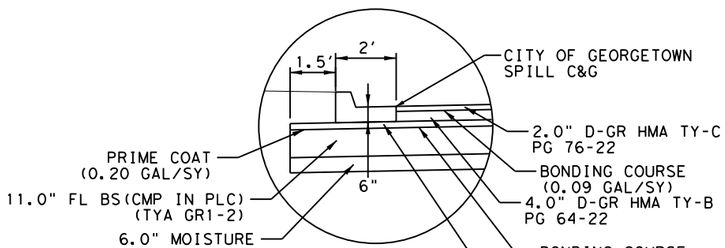
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STA 245+89.50 TO STA 286+75.00
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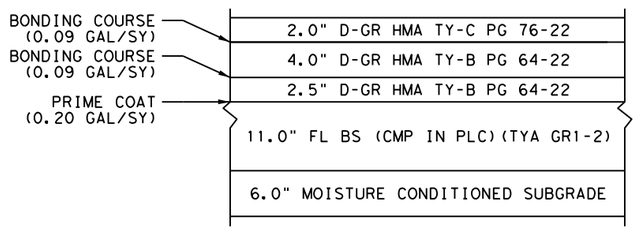


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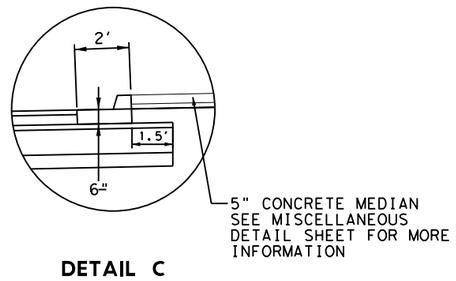
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STA 242+45.54 TO STA 245+89.50



DETAIL B



DETAIL A



DETAIL C

NOTES:

1. REFER TO ROADWAY PLAN & PROFILE SHEETS FOR MORE INFORMATION.
2. REFER TO ROADWAY PLAN & PROFILE, FOR TURN LANE LIMITS AND SUPERELEVATION TRANSITIONS
3. REFER TO SUE PLAN SHEETS FOR MORE INFORMATION
4. REFER TO BRIDGE TYPICAL SECTION SHEETS FOR MORE INFORMATION

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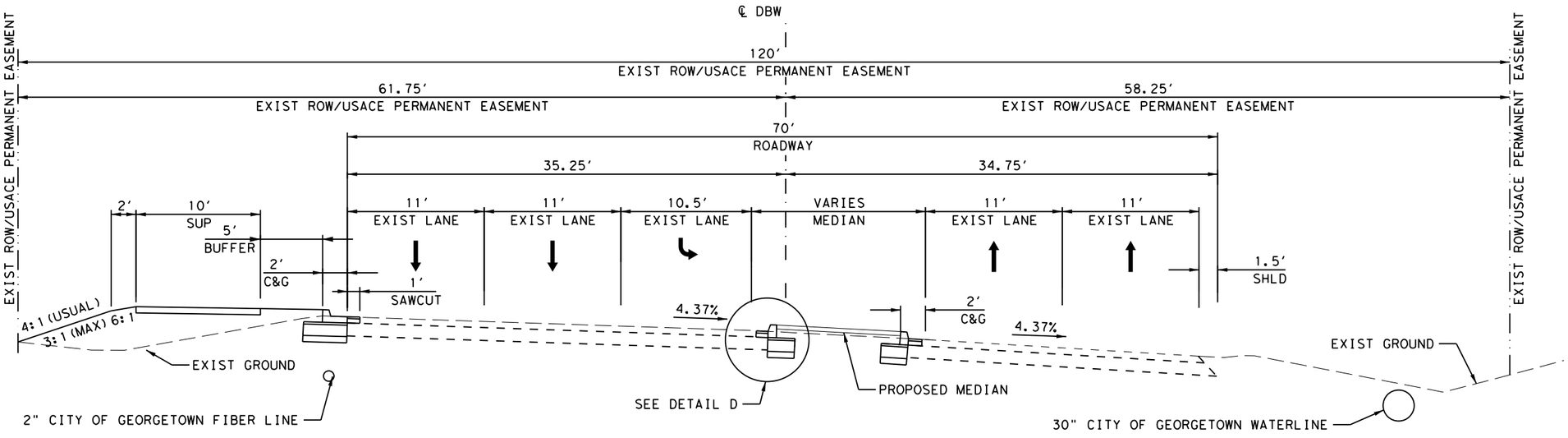
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PROPOSED TYPICAL SECTIONS

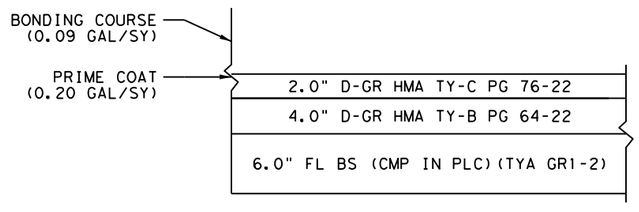
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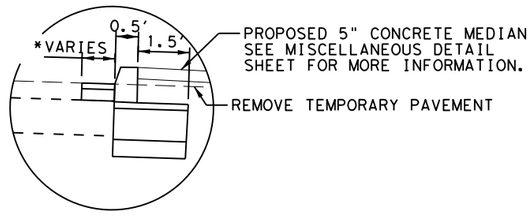


PROPOSED TYPICAL SECTION 3

STA 286+75.00 TO STA 297+33.03
STA 287+16.51 TO STA 289+69.53
STA 290+28.57 TO STA 292+51.08



SIDE STREET PAVEMENT SECTION



DETAIL D

SEE NOTE 1

NOTES:

1. REFER TO ROADWAY PLAN & PROFILE SHEETS FOR MORE INFORMATION
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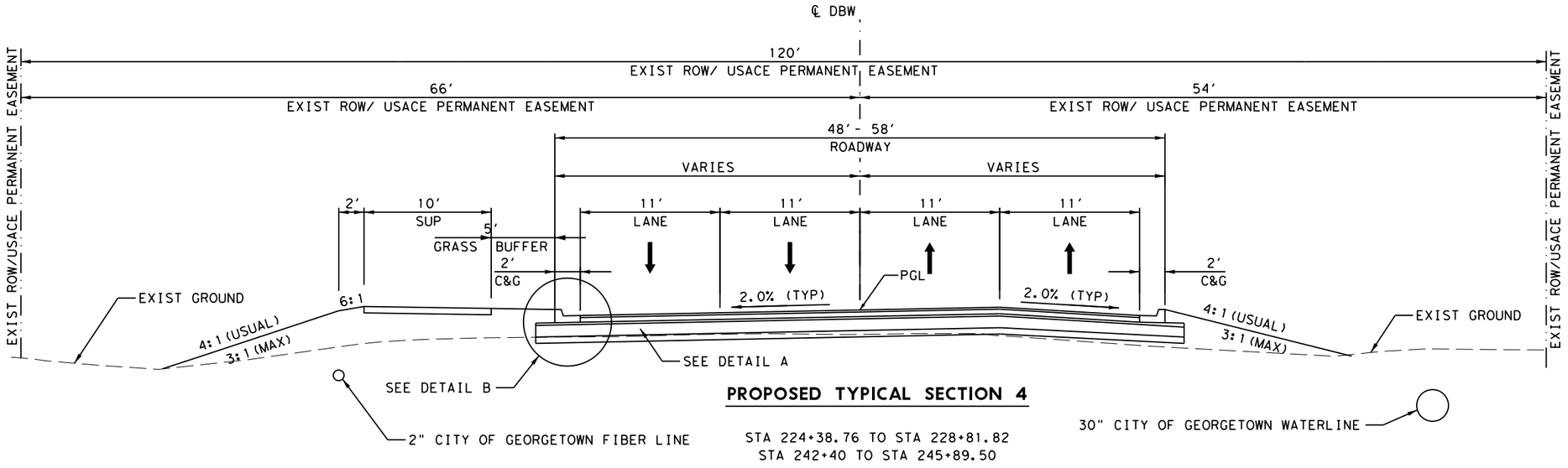
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PROPOSED TYPICAL SECTIONS

SHEET 2 OF 3 | 13

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PROPOSED TYPICAL SECTION 4

STA 224+38.76 TO STA 228+81.82
STA 242+40 TO STA 245+89.50

NOTES:

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4. REFER TO BRIDGE TYPICAL SECTION SHEETS FOR MORE INFORMATION

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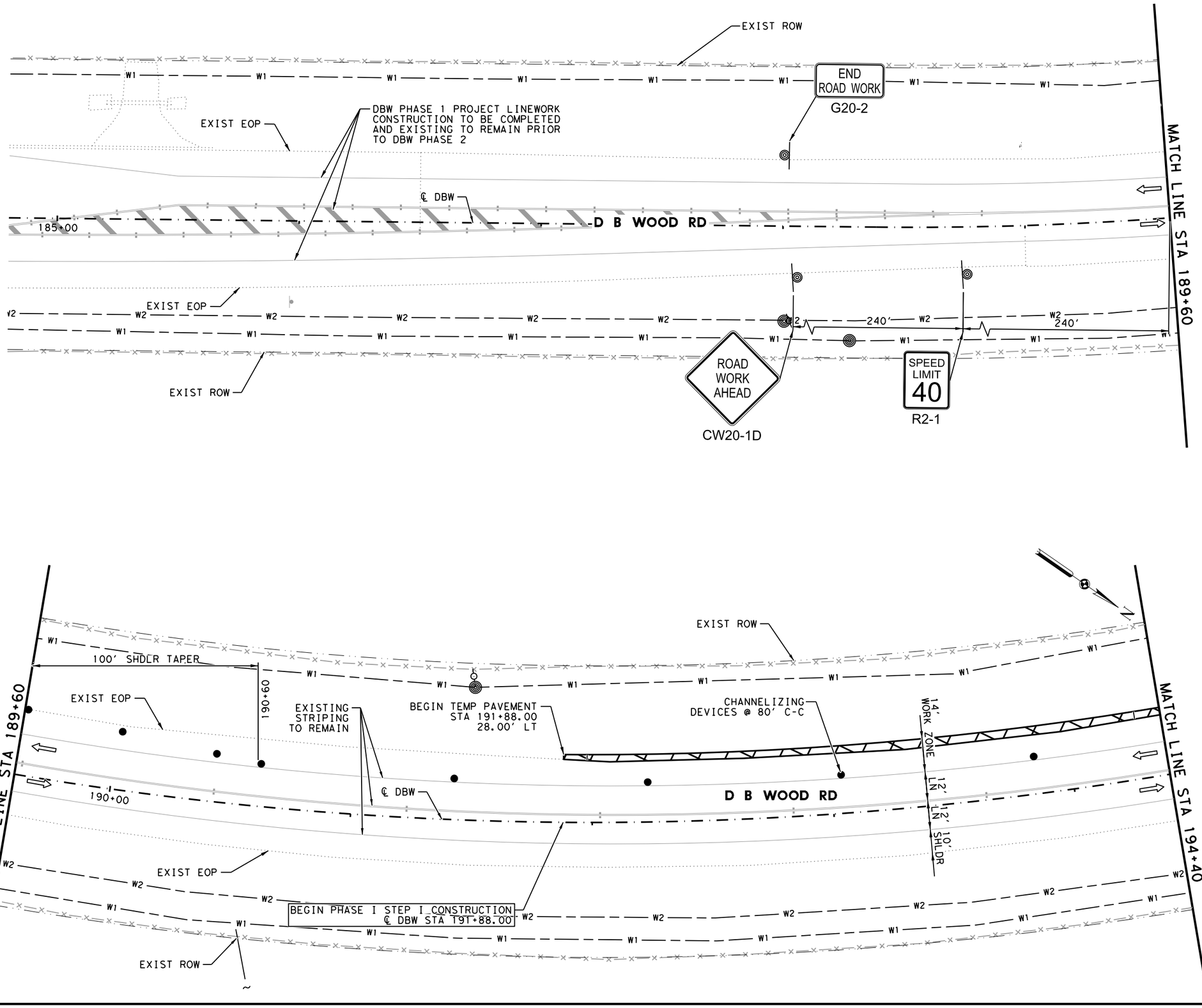
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PROPOSED TYPICAL SECTIONS

SHEET 3 OF 3 | 14

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

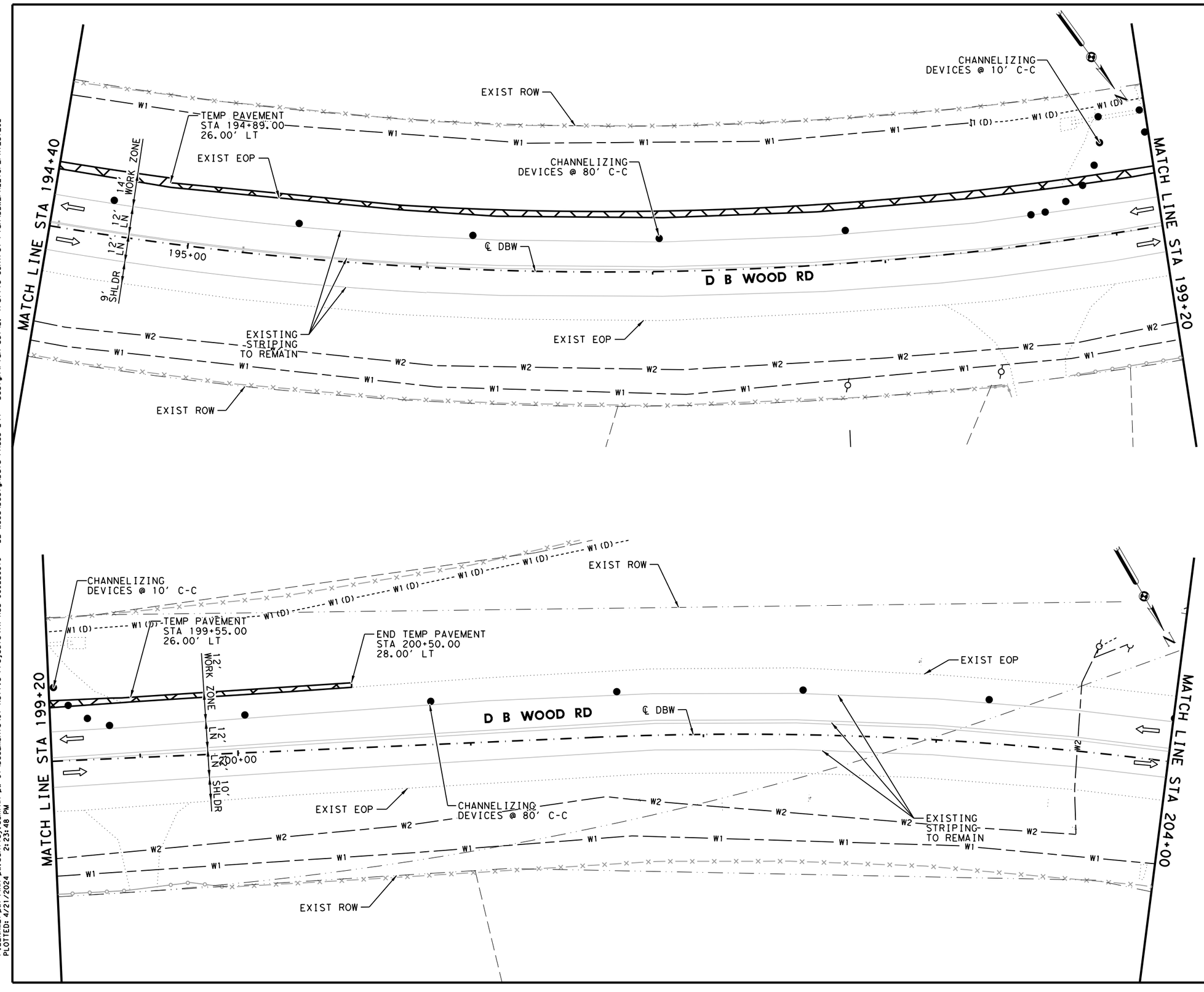
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE I STEP 1
STA 184+80 TO 194+40

SHEET 1 OF 12 | 23

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
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PROFESSIONAL ENGINEER

4/21/2024

Kimley»Horn F-928

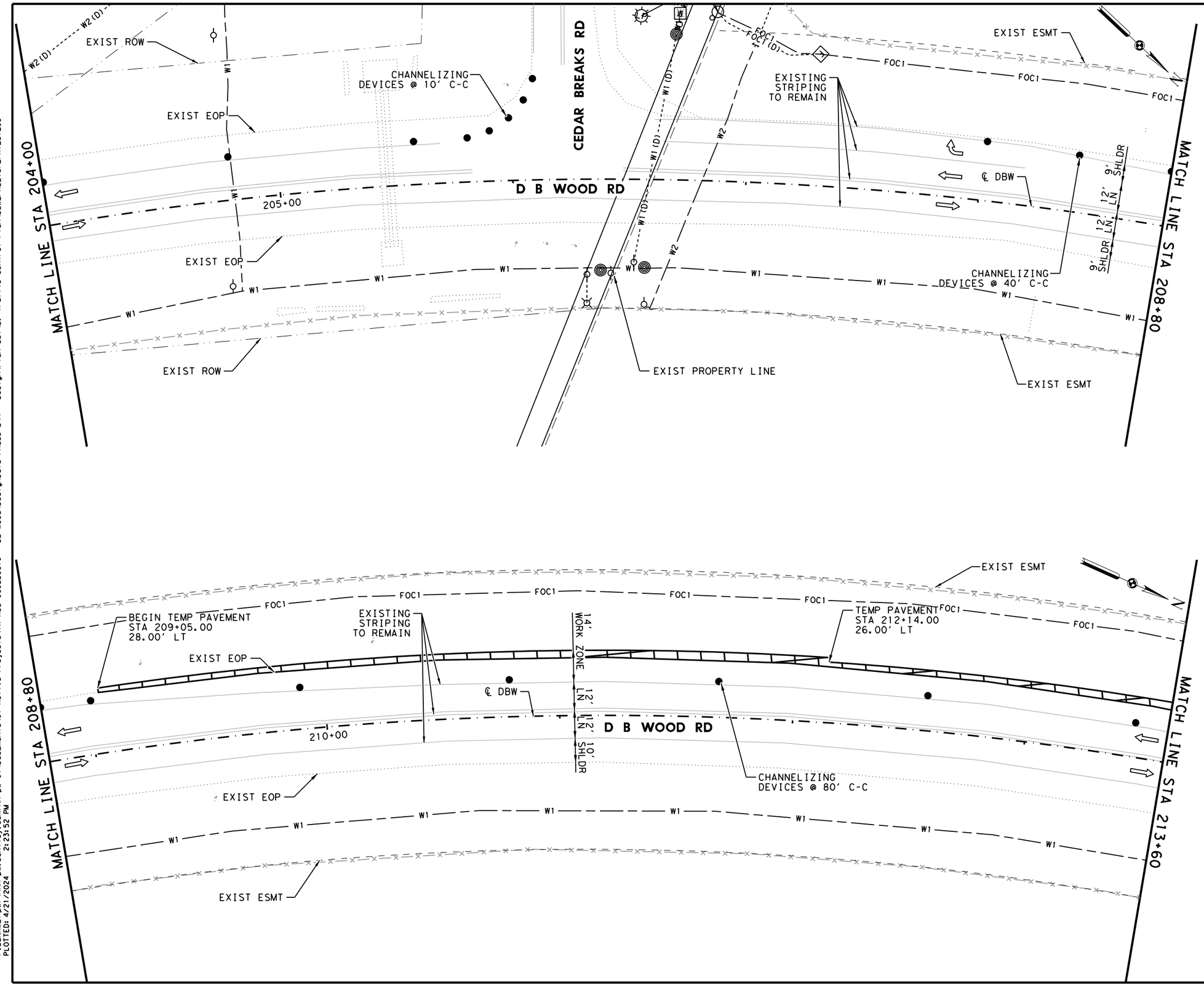
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 194+40 TO 204+00

SHEET 2 OF 12 | 24

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH1_S1_02
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

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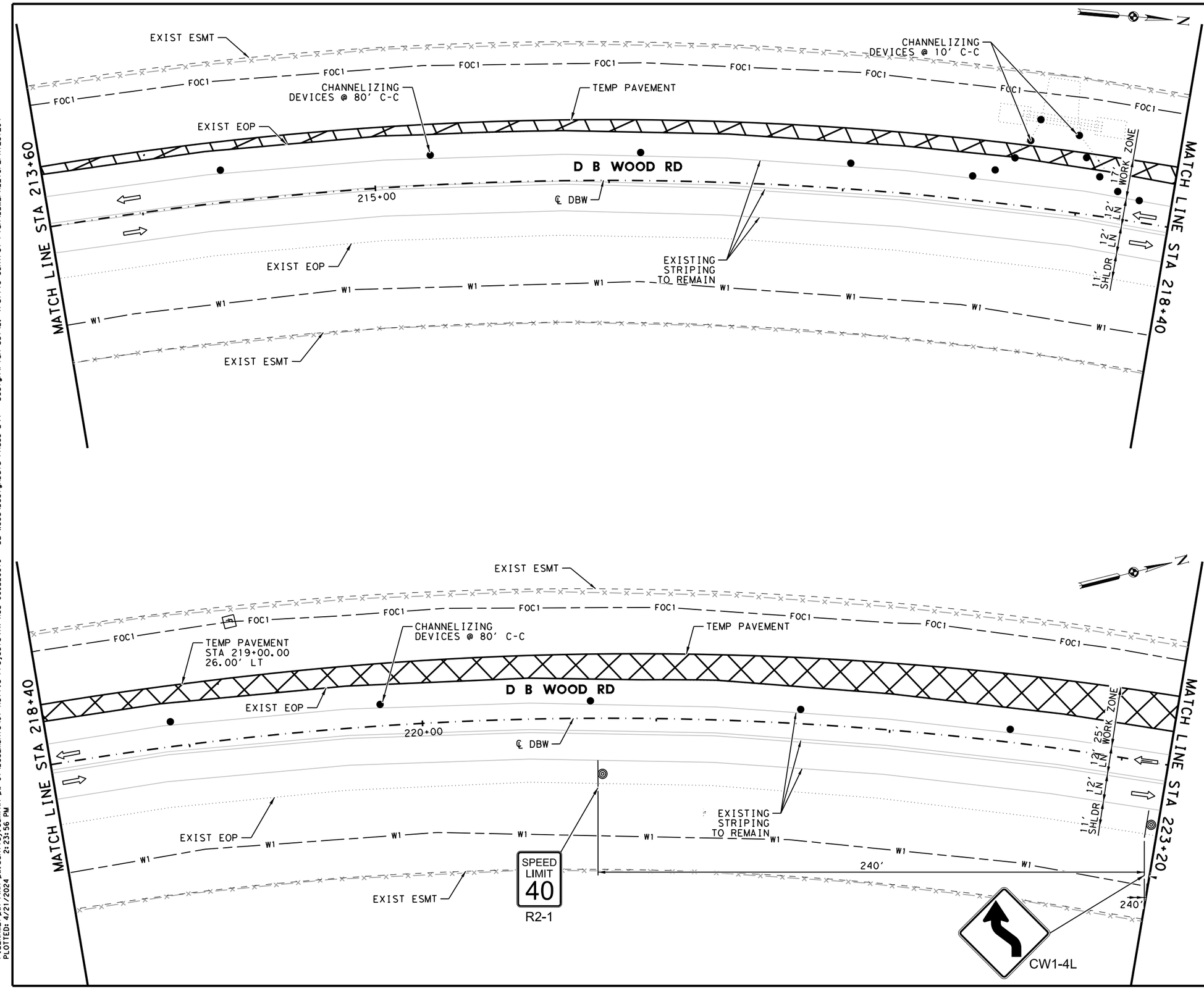
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 204+00 TO 213+60

SHEET 3 OF 12 | 25

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH1_S1_03
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

4/21/2024

STATE OF TEXAS
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124922
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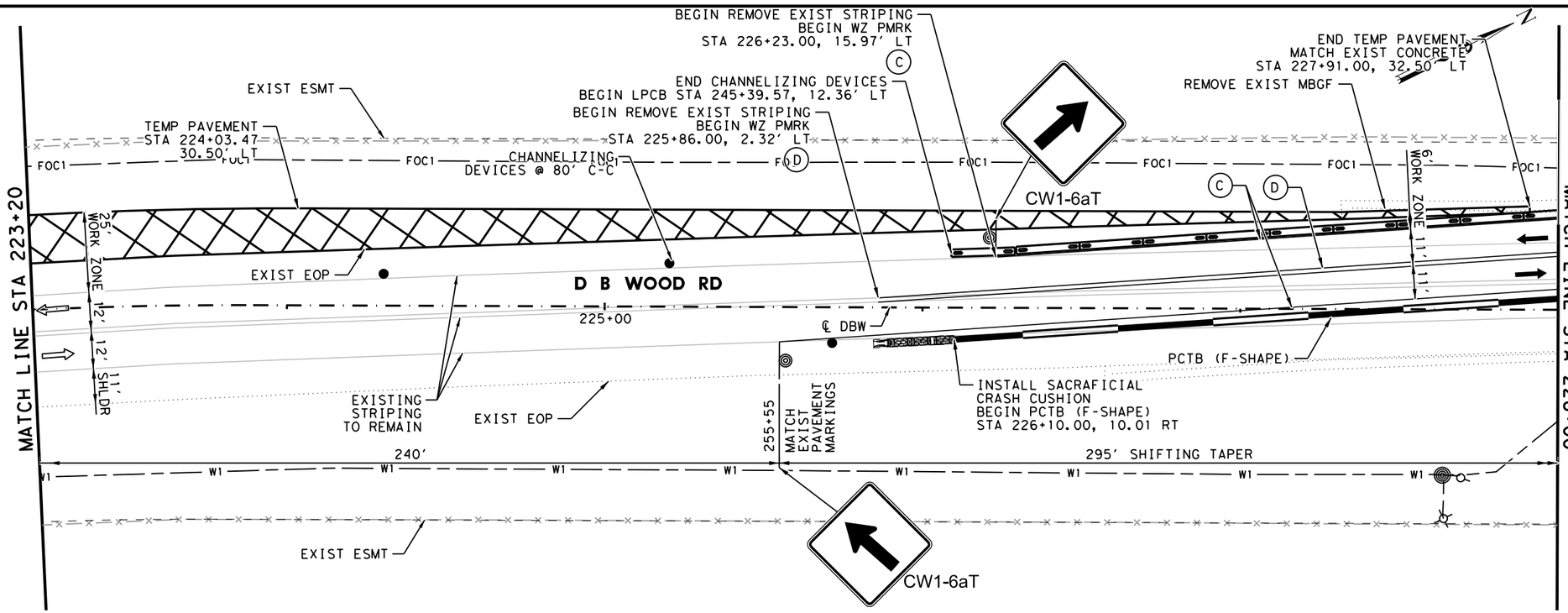
GEORGETOWN TEXAS
more than welcome

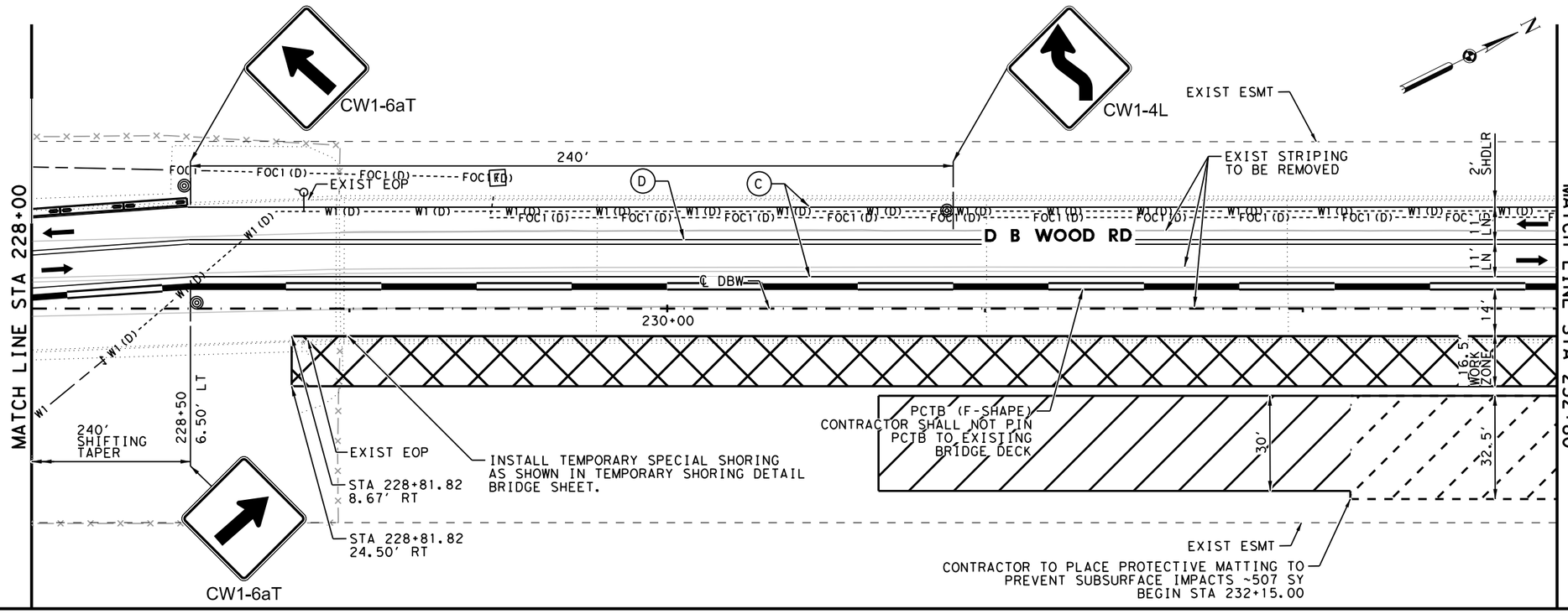
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 213+60 TO 223+20

SHEET 4 OF 12 | 26

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH1_S1_04
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/22/2024

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STATE OF TEXAS

Kimley»Horn F-928

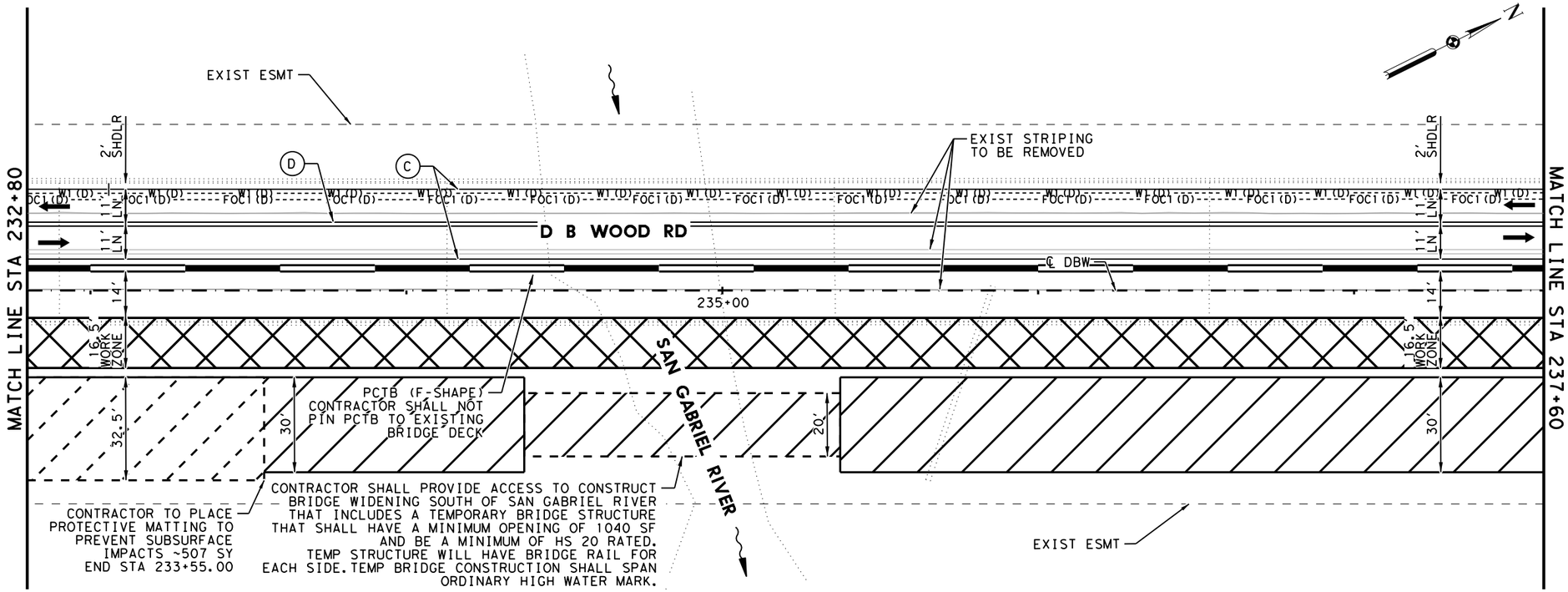
GEORGETOWN
TEXAS
more than welcome

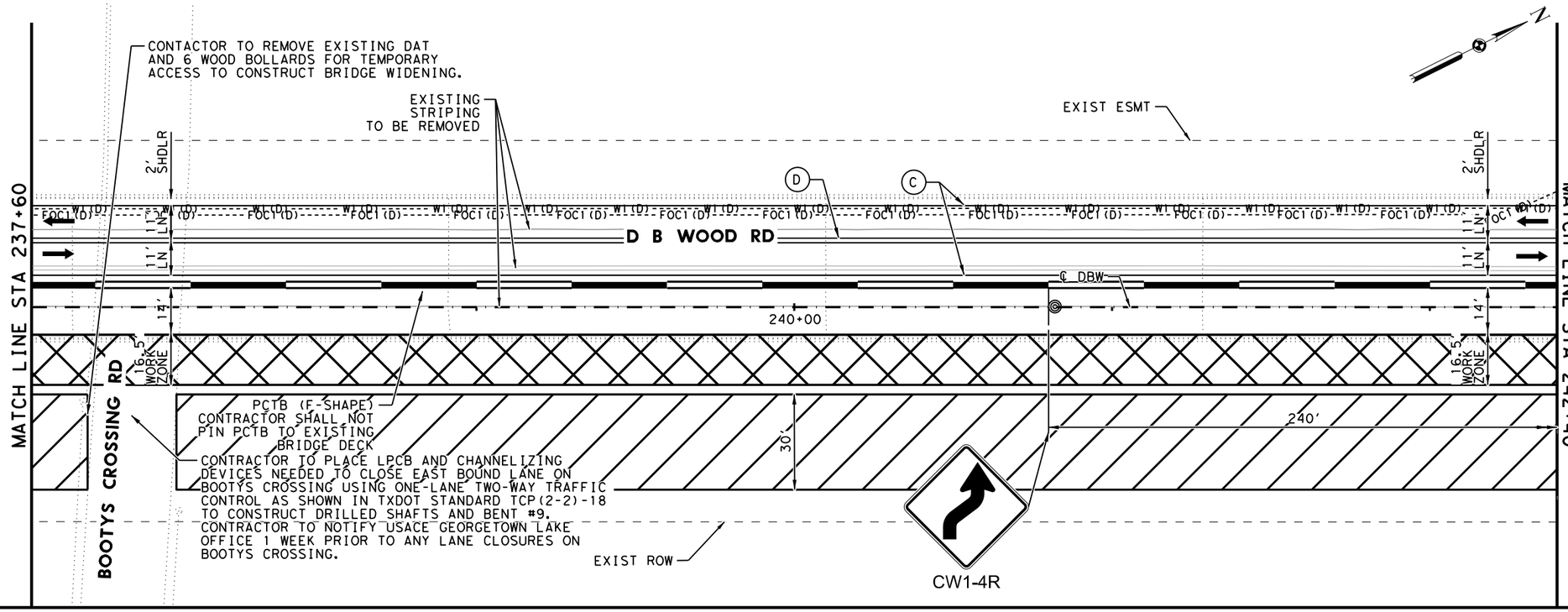
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 223+20 TO 232+80

SHEET 5 OF 12 | 27

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
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4/22/2024

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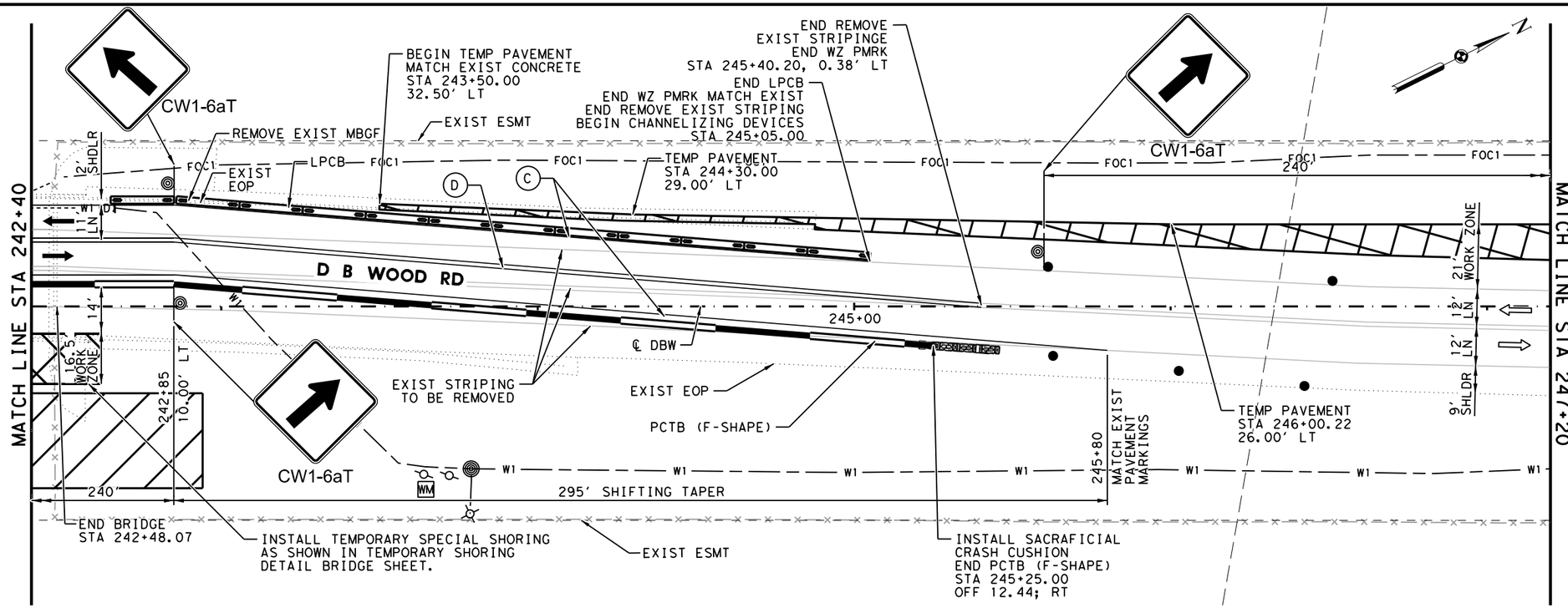
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 232+80 TO 242+40

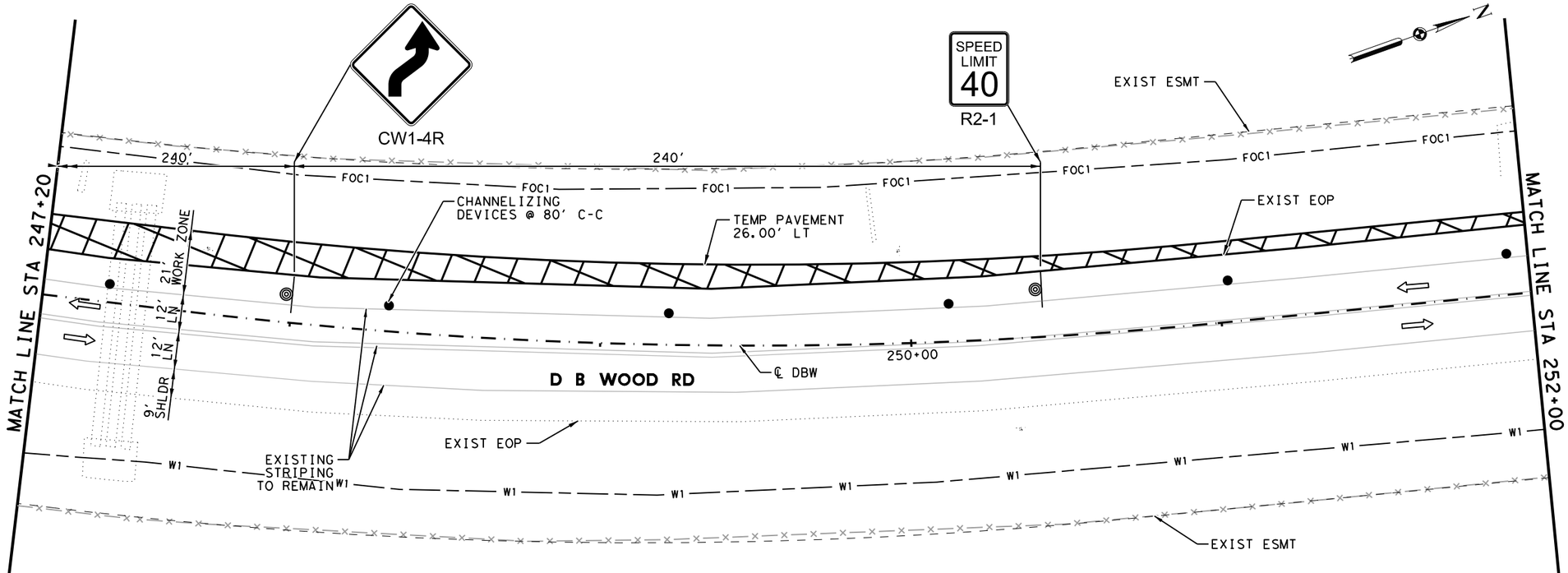
SHEET 6 OF 12 | 28

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)



0' 20' 40'

STATE OF TEXAS
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124922
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4/21/2024

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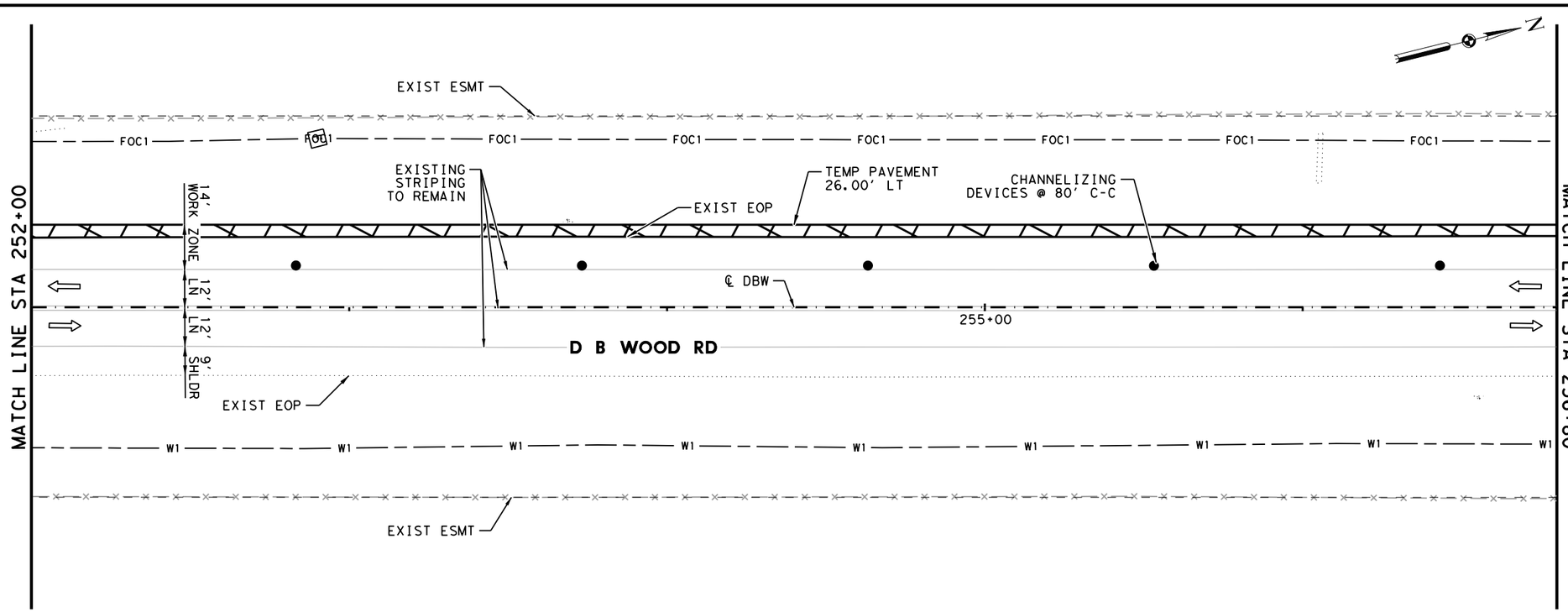
GEORGETOWN
TEXAS
more than welcome

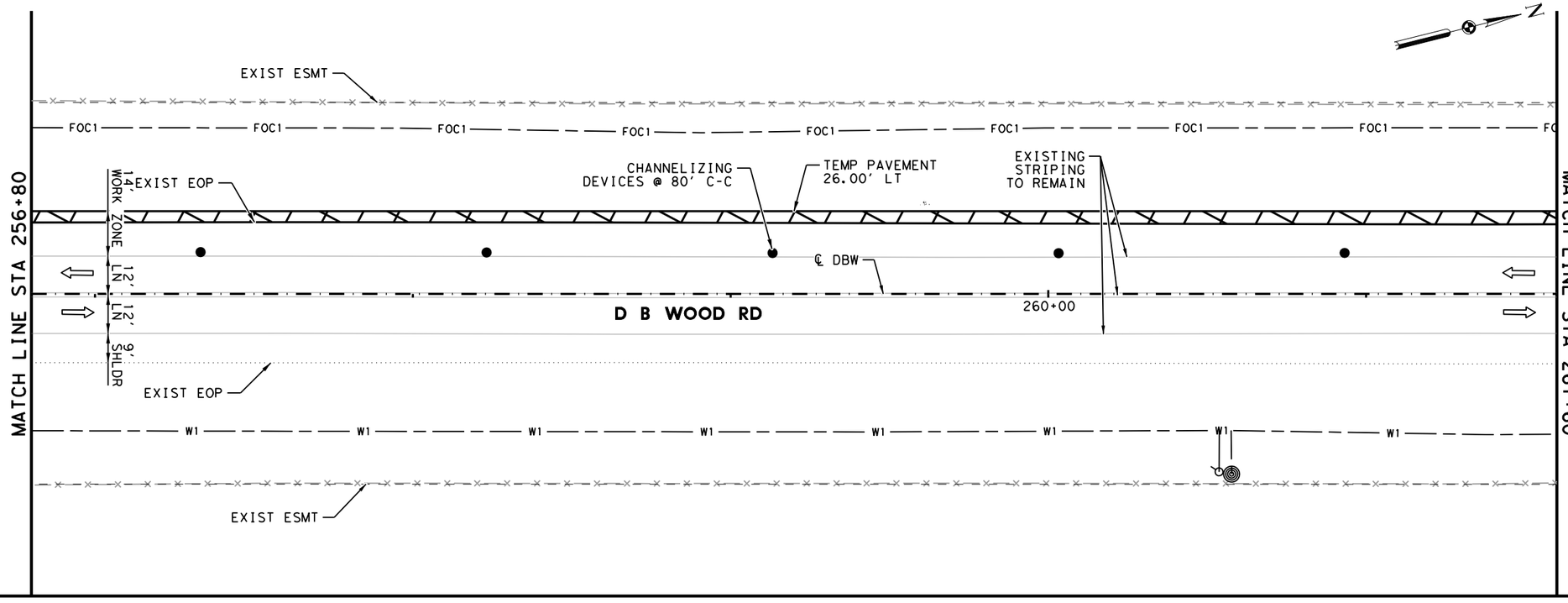
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 242+40 TO 252+00

SHEET 7 OF 12 | 29

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
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124922
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4/21/2024

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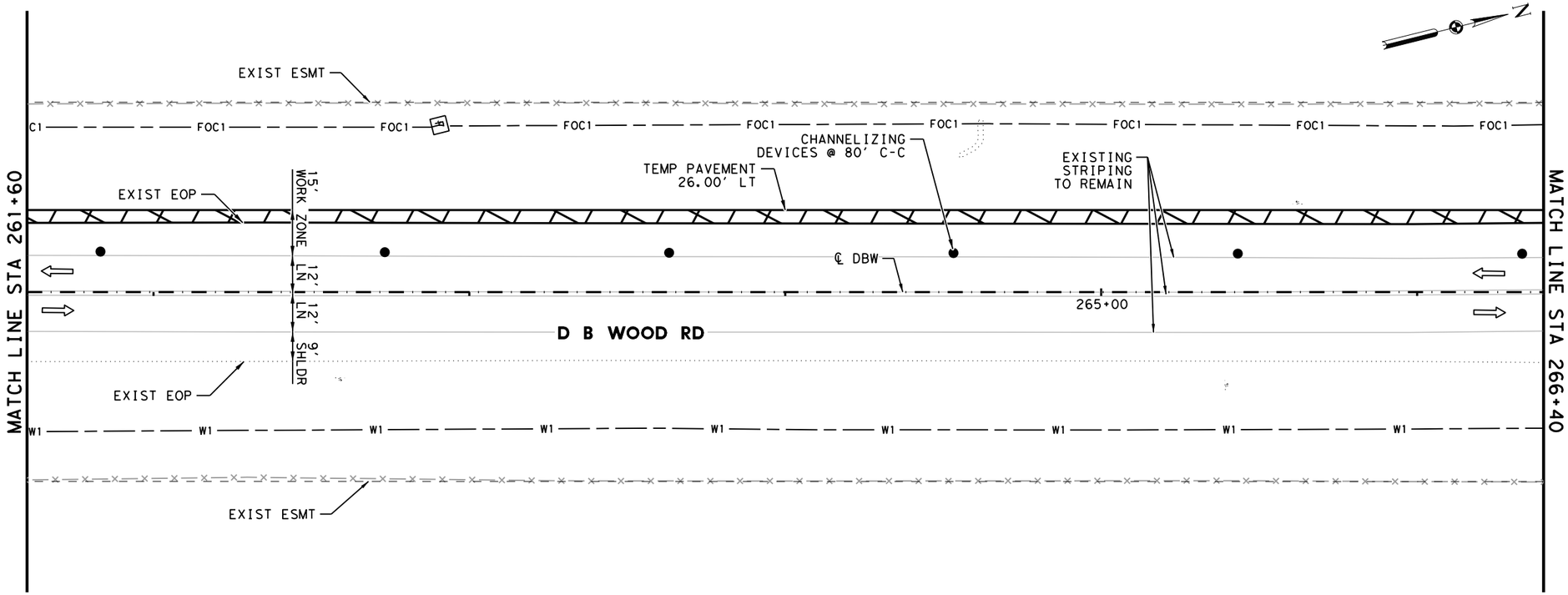
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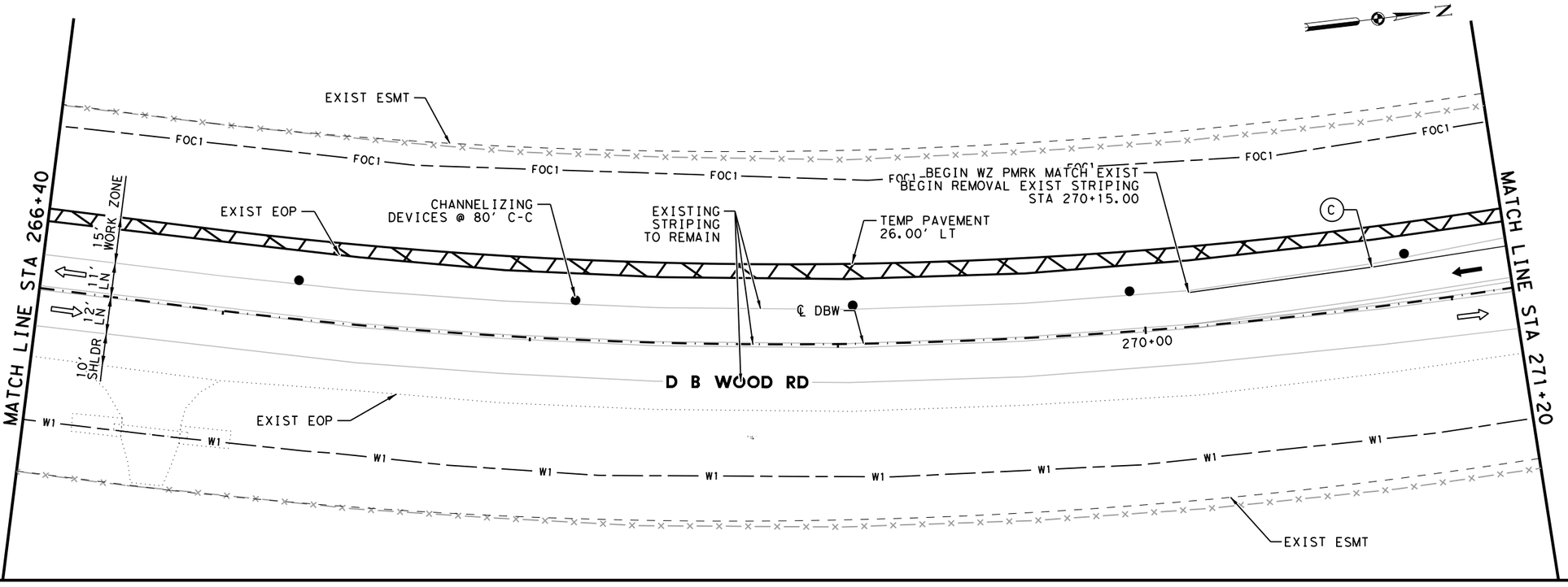
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 252+00 TO 261+60

SHEET 8 OF 12 | 30

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
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124922
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4/21/2024

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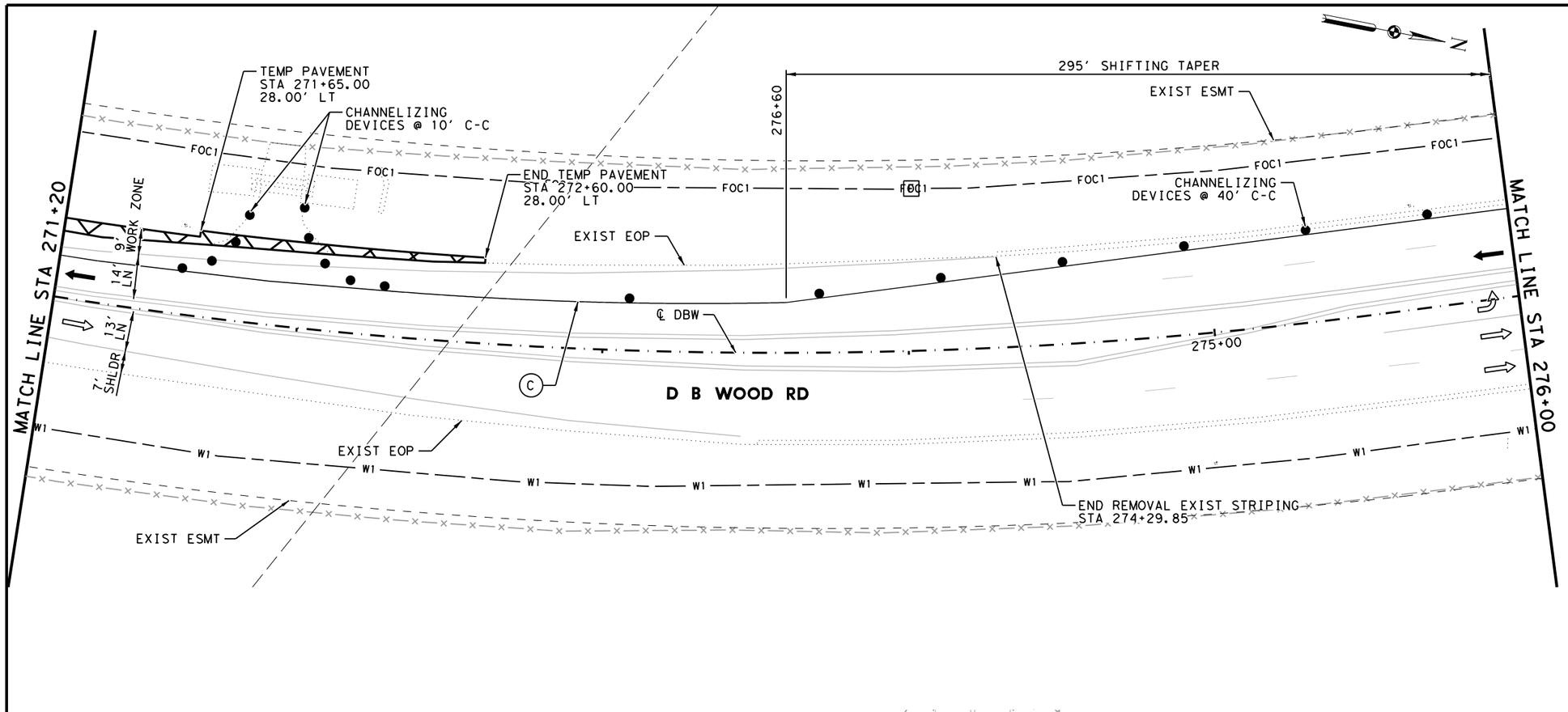
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more than welcome

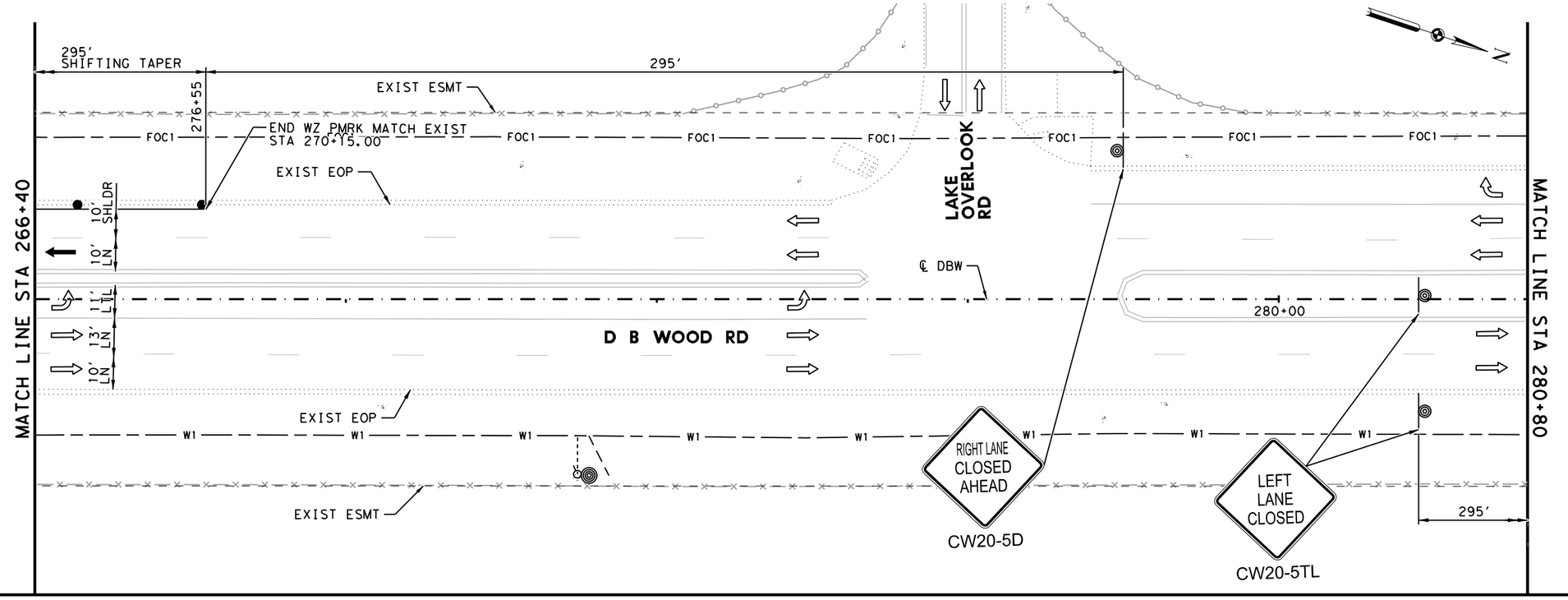
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 261+60 TO 271+20

SHEET 9 OF 12 | 31

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
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124922
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4/21/2024

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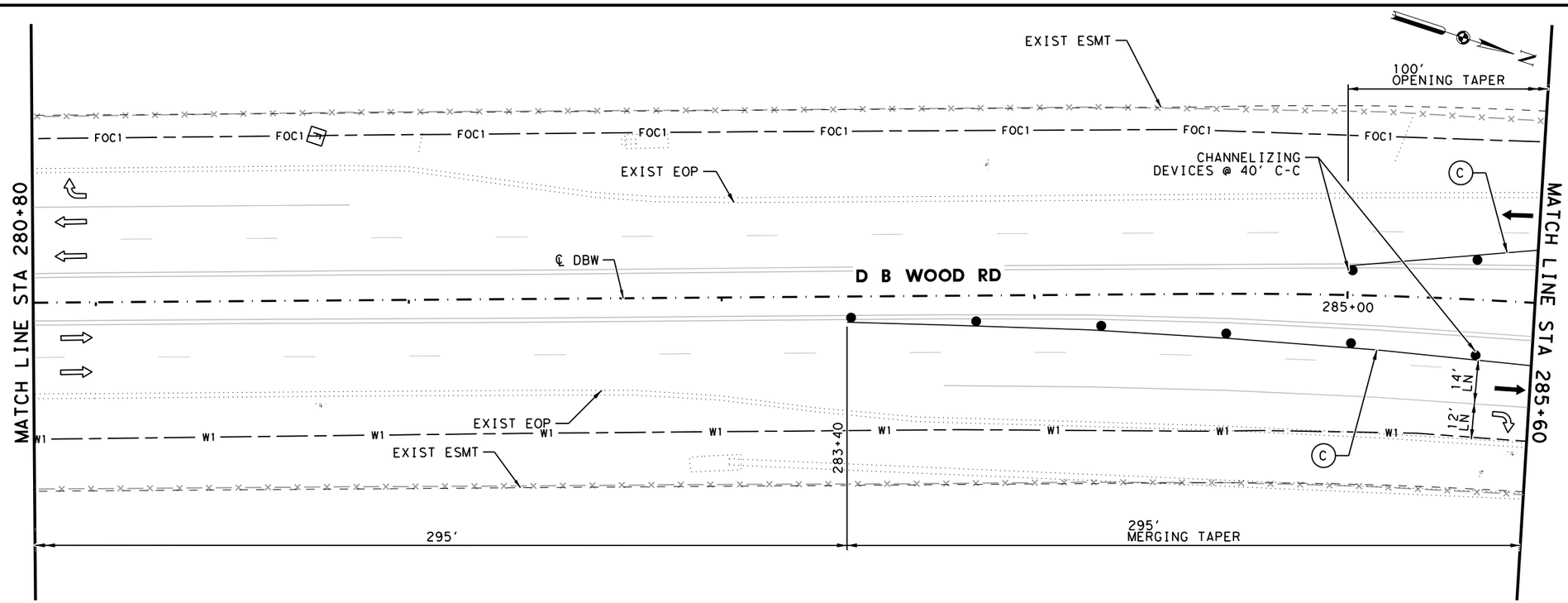
GEORGETOWN
TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 271+20 TO 280+80

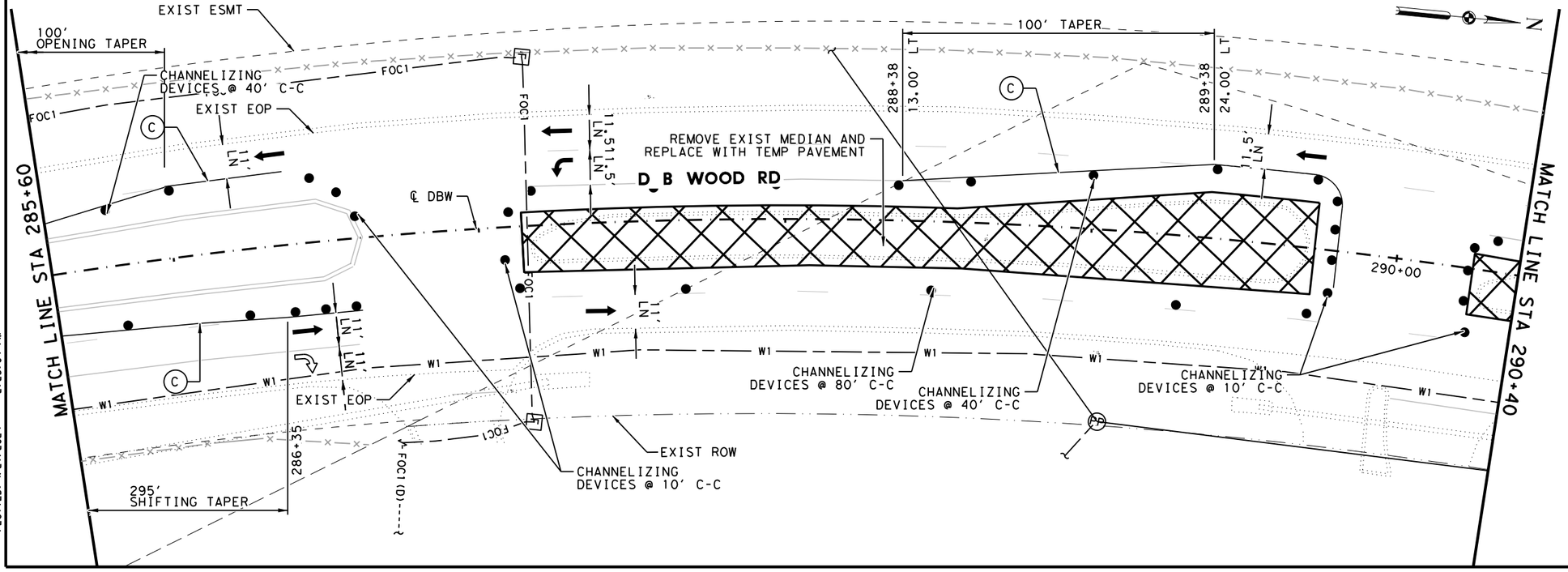
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)



0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/21/2024

Kimley»Horn F-928

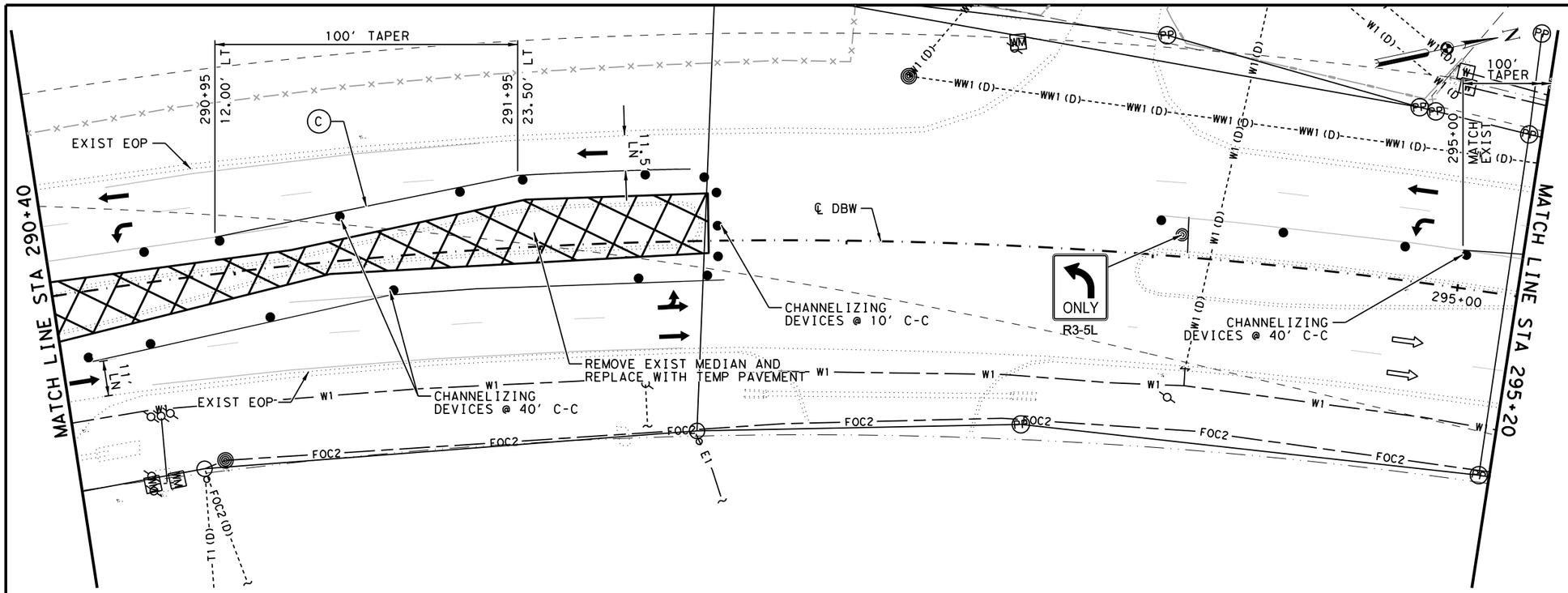
GEORGETOWN
TEXAS
more than welcome

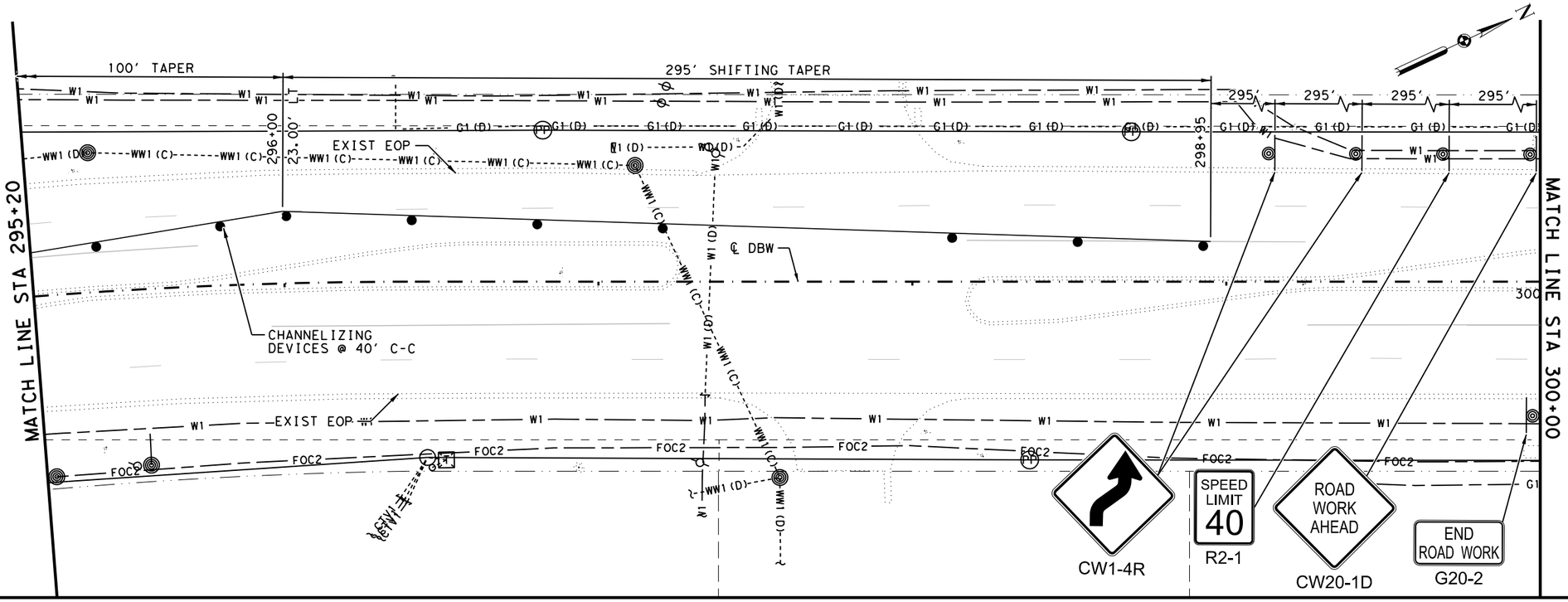
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 280+80 TO 290+40

SHEET 11 OF 12 | 33

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Design Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH1_S1_11
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

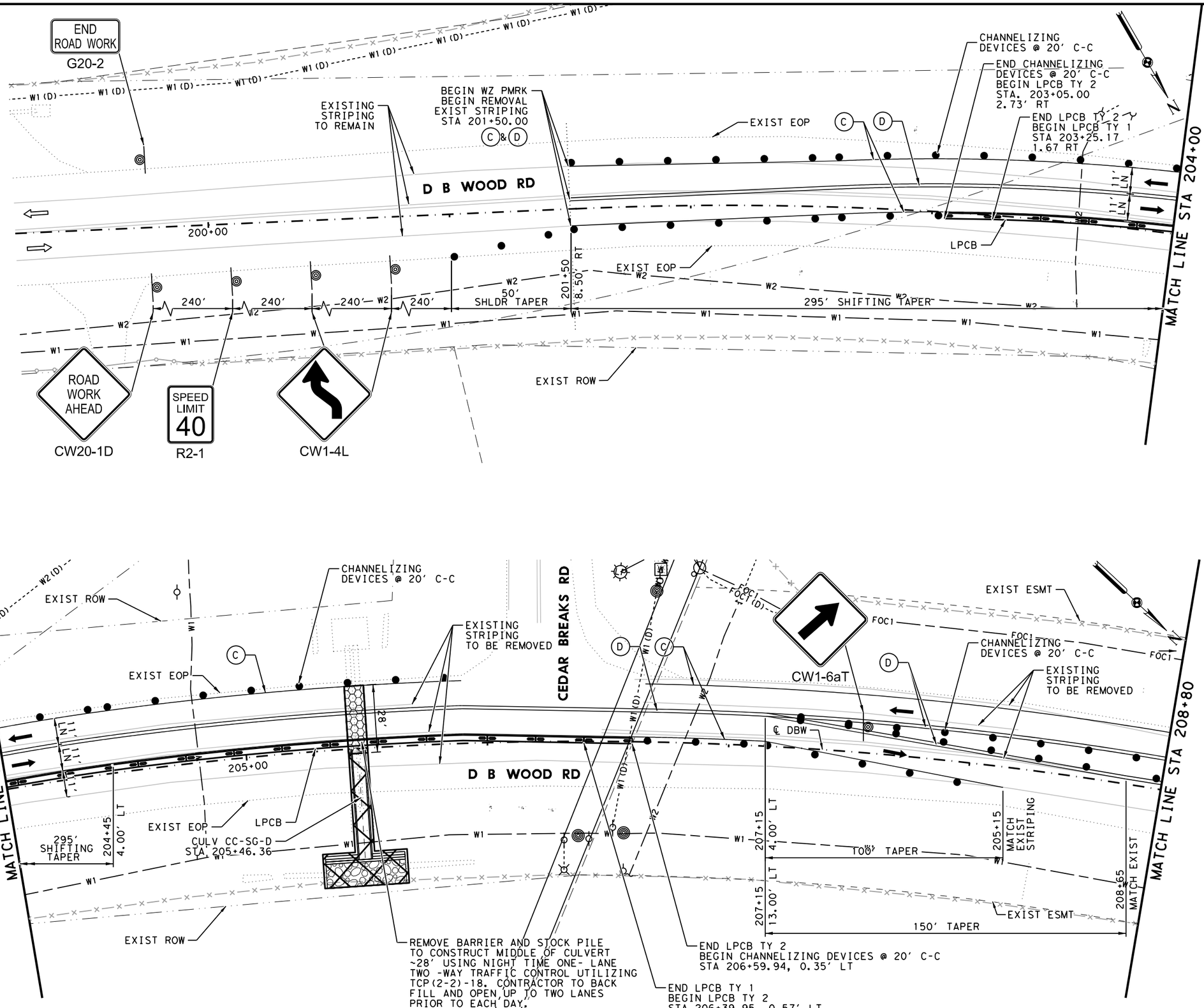
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 1
STA 290+40 TO 300+00

SHEET 12 OF 12 | 34

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH1_S1_12
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
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PROFESSIONAL ENGINEER

4/21/2024

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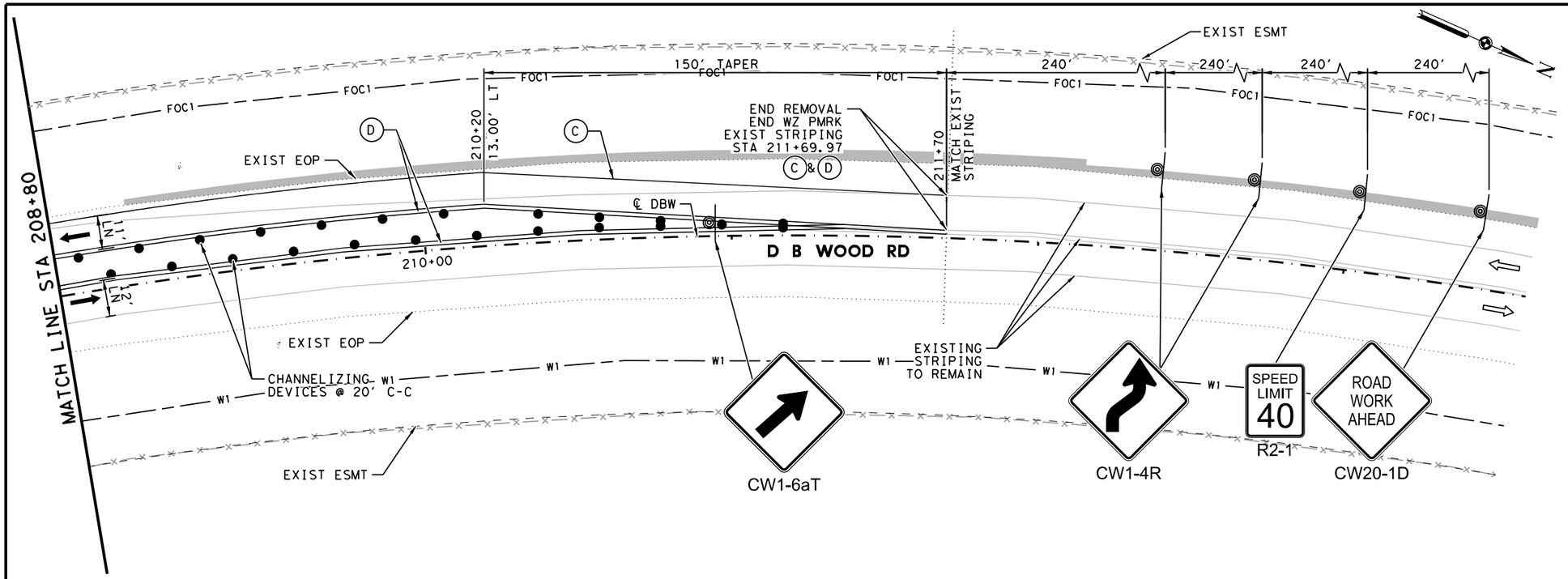
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 2
STA 199+20 TO 208+80

SHEET 1 OF 3 | 35

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH1_S2_01.dgn
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/21/2024

REFERENCE TCP PHASE 1 STEP 1
PLANS FROM STA 213+60.00 TO STA 242+40.00

Kimley»Horn F-928

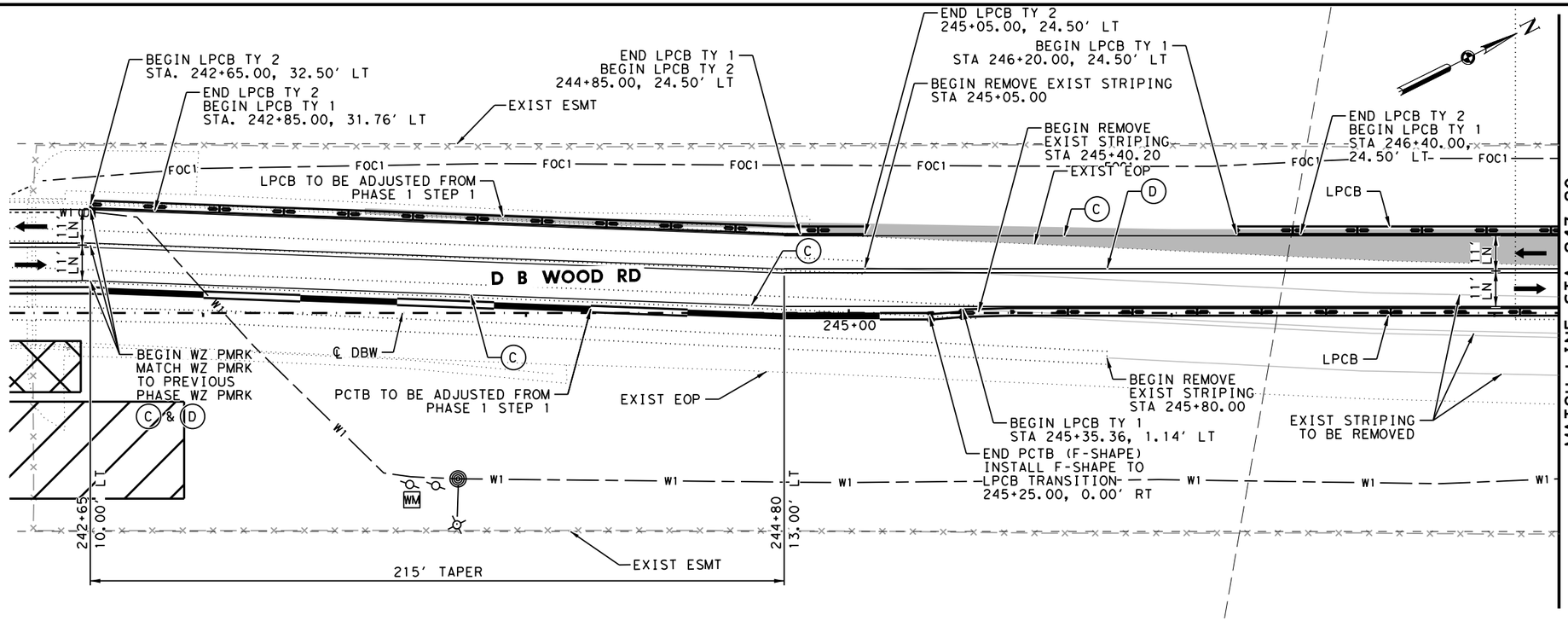
GEORGETOWN TEXAS
more than welcome

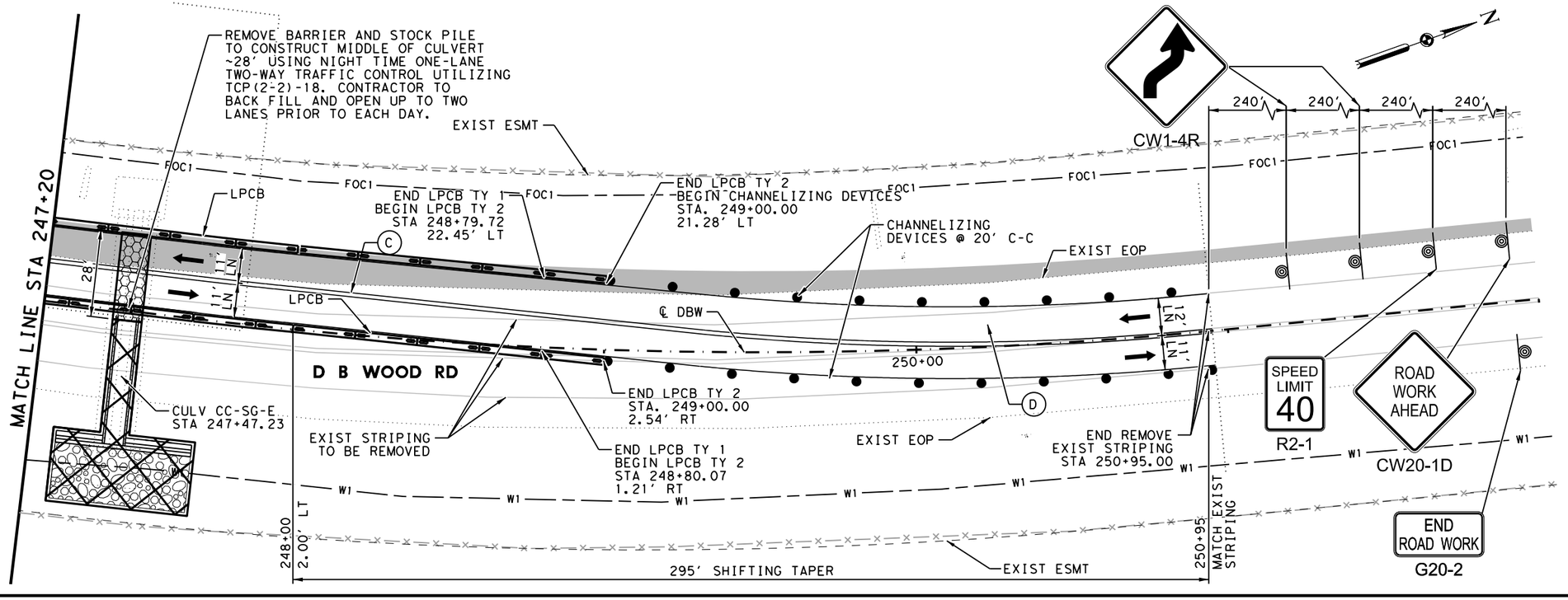
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 2
STA 208+80 TO 213+60

SHEET 2 OF 3 | 36

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
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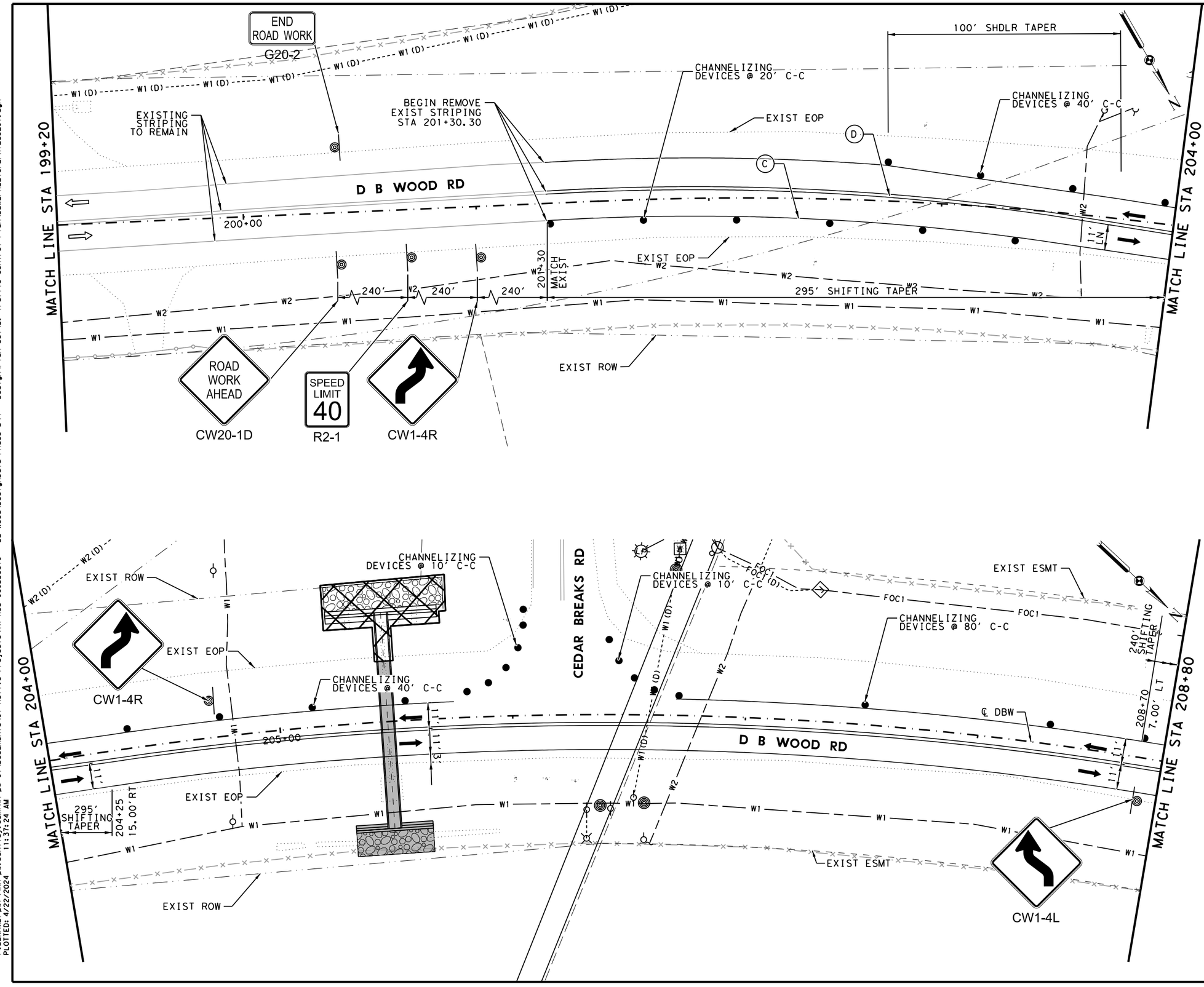
GEORGETOWN
TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE I STEP 2
STA 242+40 TO 252+00

SHEET 3 OF 3 | 37

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH1_S2_03.dgn
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/22/2024

AUSTIN S. HELTON 124922 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS

Kimley»Horn F-928

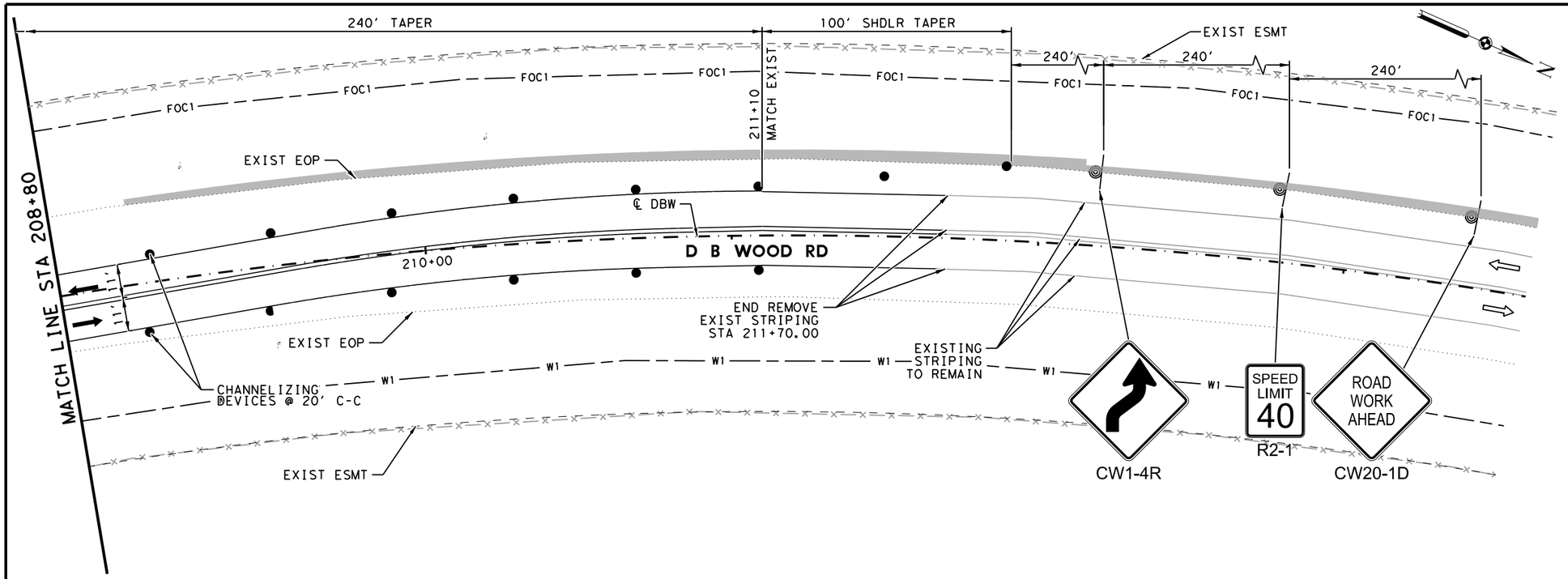
GEORGETOWN TEXAS more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE I STEP 3
STA 199+20 TO 208+80

SHEET 1 OF 3 | 38

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/21/2024

REFERENCE TCP PHASE 1 STEP 1
PLANS FROM STA 213+60.00 TO STA 242+40.00

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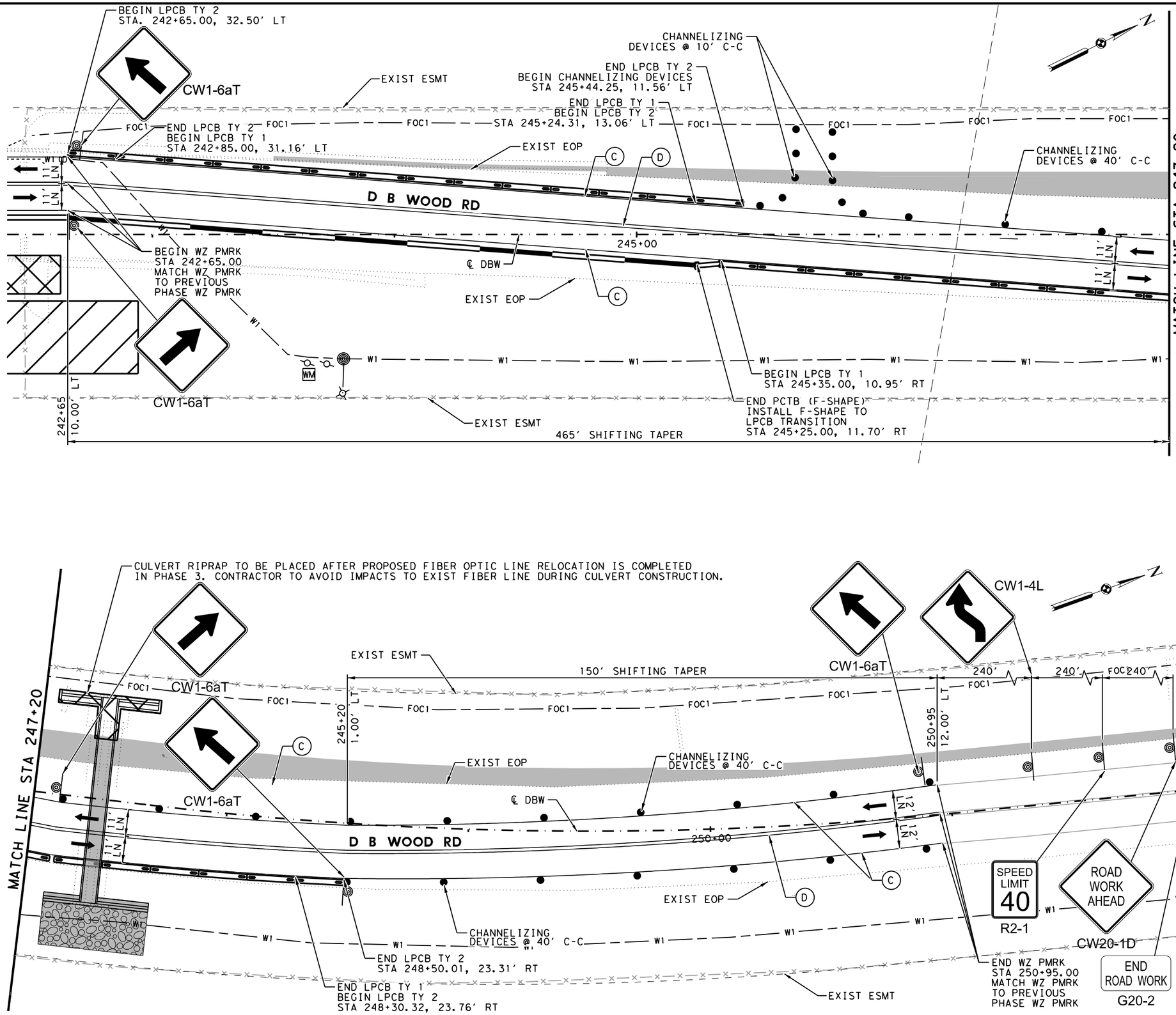
GEORGETOWN
TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE 1 STEP 3
STA 208+80 TO 213+60

SHEET 2 OF 3 | 39

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH1_S3_02.dgn
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

NOTES:

1. CONTRACTOR TO INSTALL STONE RIP RAP PROTECTION ON UPSTREAM OF CULVERT FOLLOWING SPLICE AND RELOACTION OF FIBER LINE

0' 20' 40'

4/22/2024

STATE OF TEXAS
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124922
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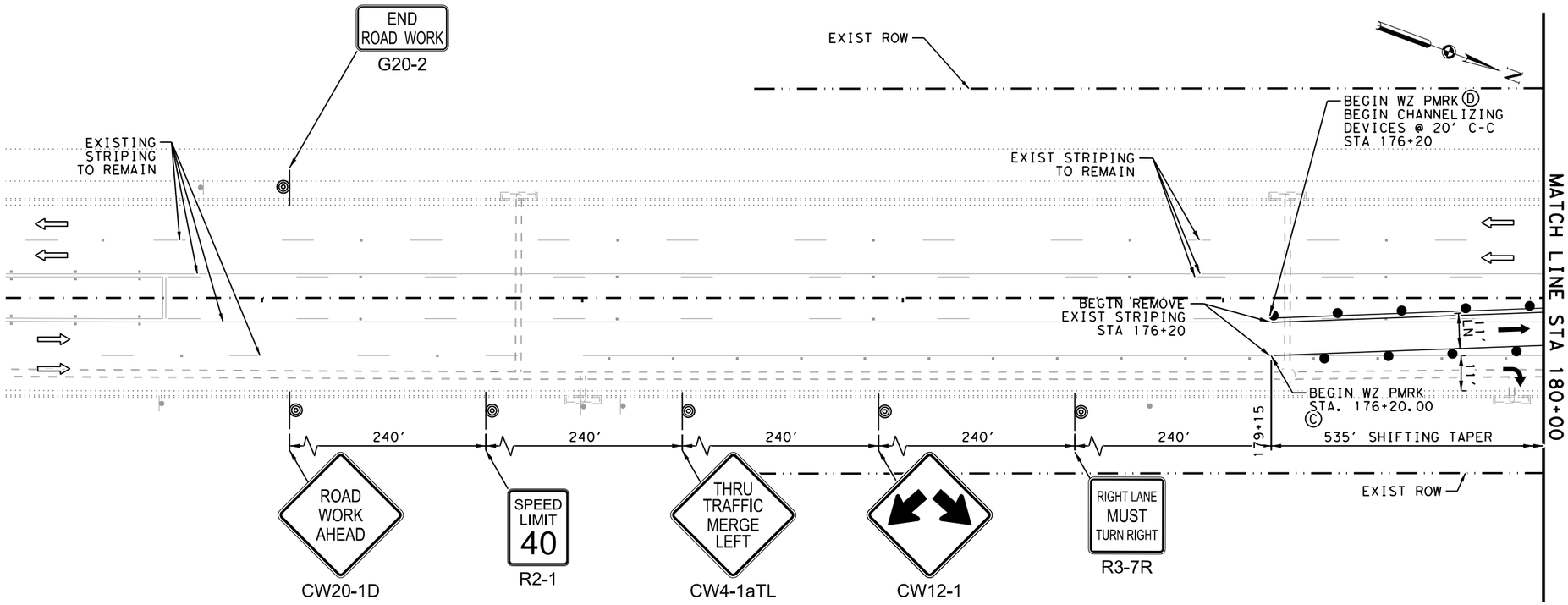
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE I STEP 3
STA 242+40 TO 252+00

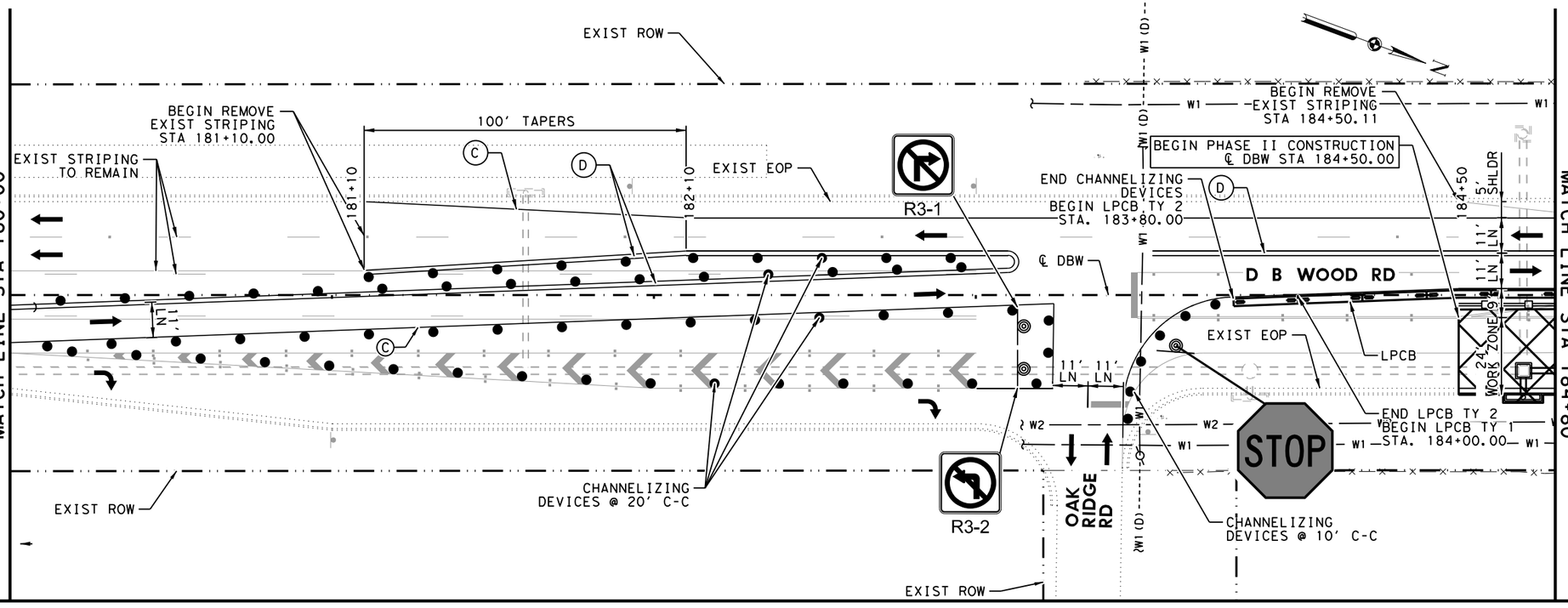
SHEET 3 OF 3 | 40

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)



0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/21/2024

Kimley»Horn F-928

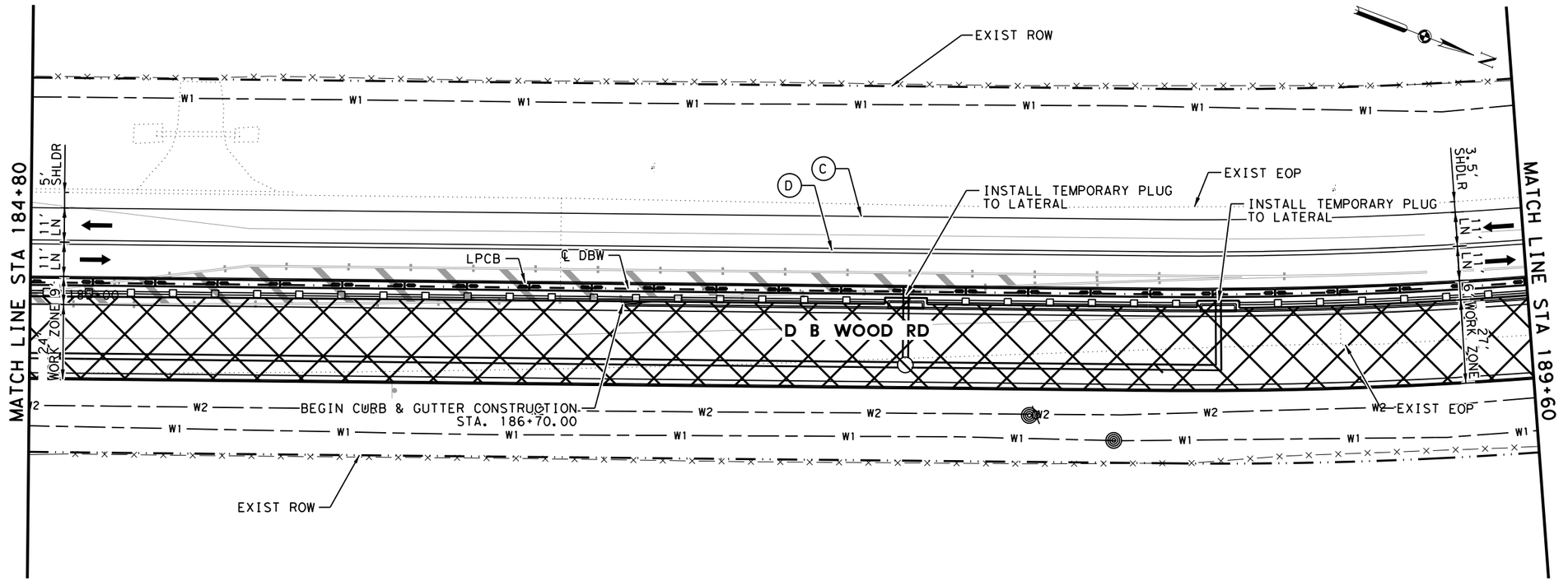
GEORGETOWN
TEXAS
more than welcome

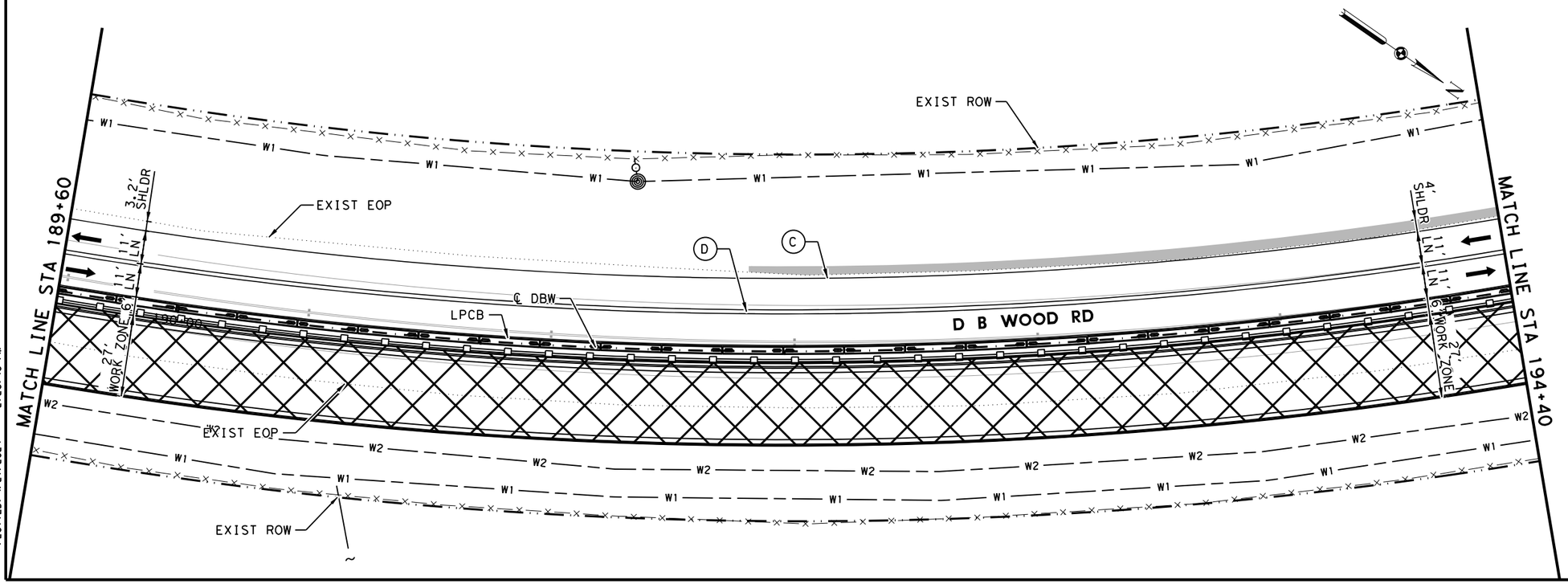
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 175+20 TO 184+80

SHEET 1 OF 14 | 41

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH2_01.dgn
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/21/2024

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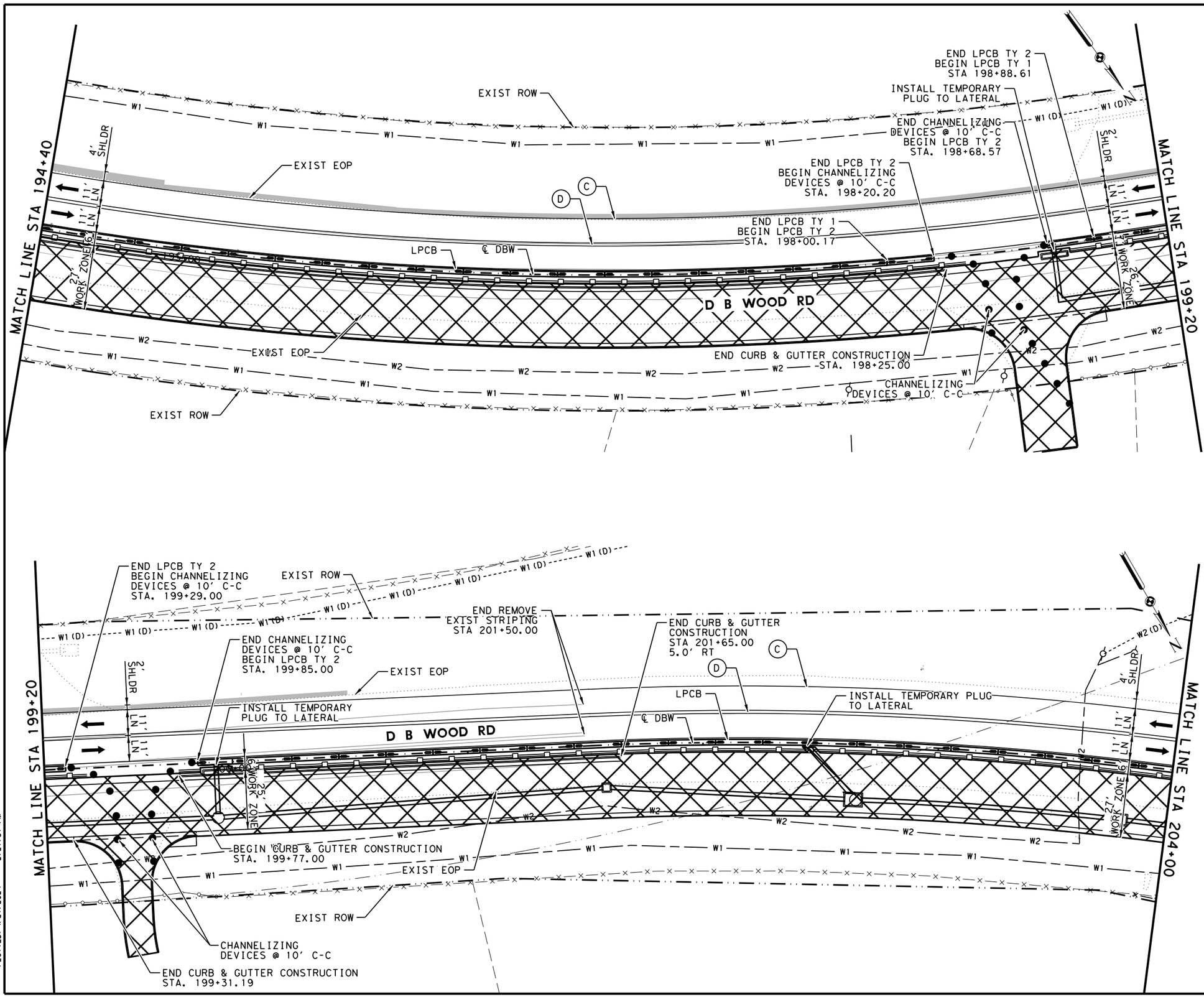
GEORGETOWN TEXAS
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D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 184+80 TO 194+40

SHEET 2 OF 14 | 42

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/21/2024

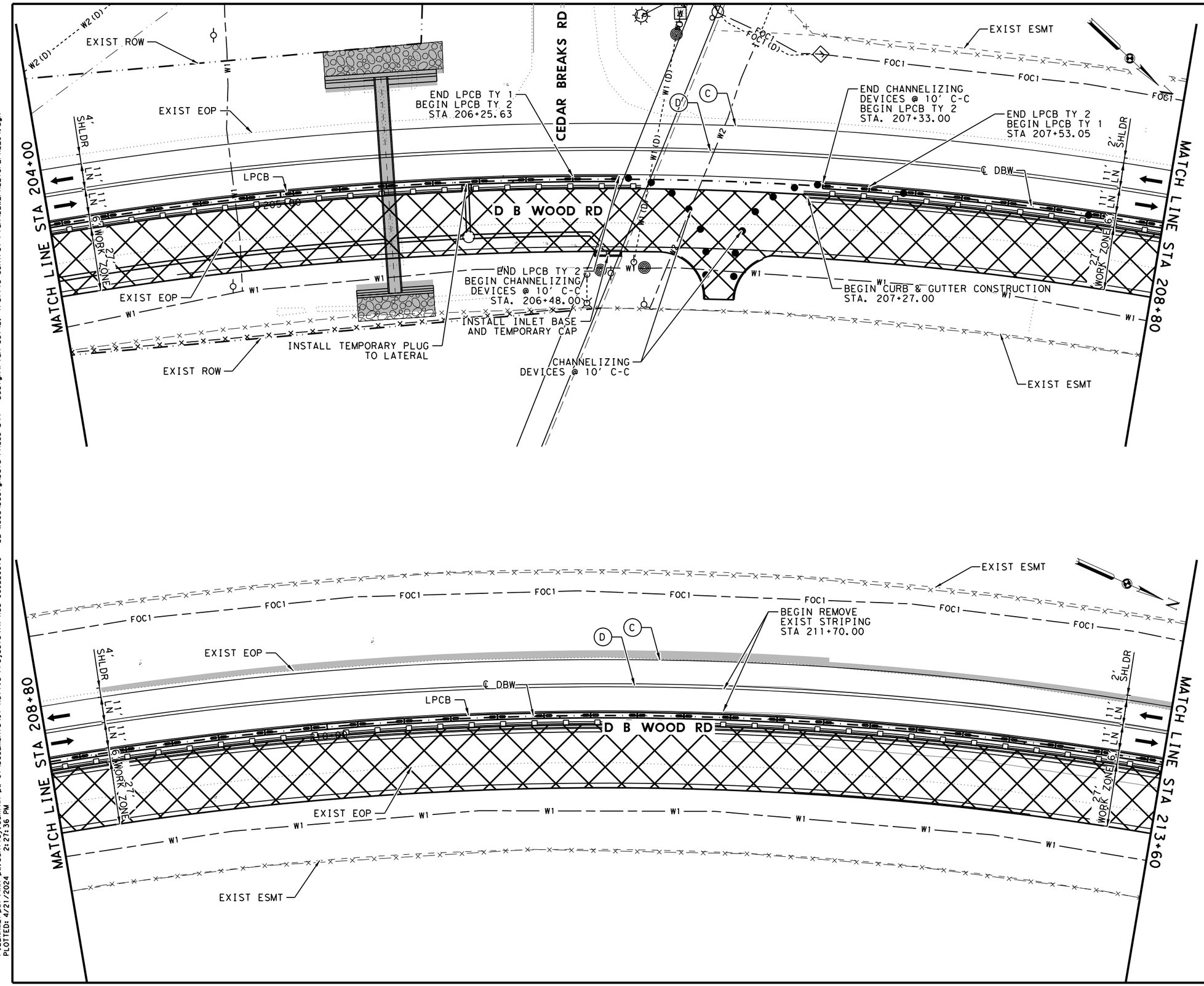
Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 194+40 TO 204+00

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

NOTES:

1. TEMPORARY INLET CAP WILL NOT BE PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO PERTINANET ITEMS.

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/21/2024

Kimley»Horn F-928

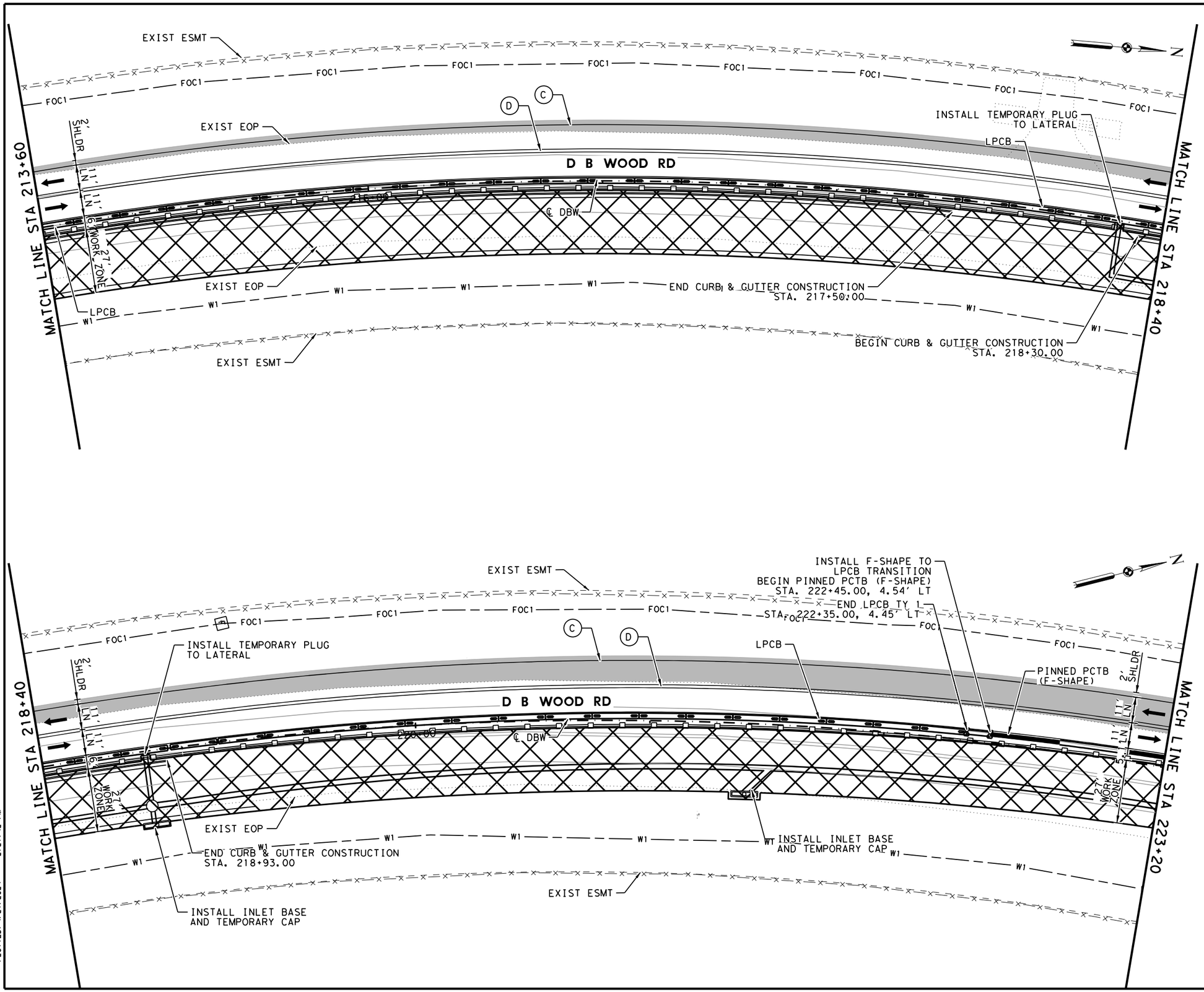
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 204+00 TO 213+60

SHEET 4 OF 14 | 44

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH2_04.dgn
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

NOTES:

1. TEMPORARY INLET CAP WILL NOT BE PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO PERTINANET ITEMS.

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
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4/21/2024

Kimley»Horn F-928

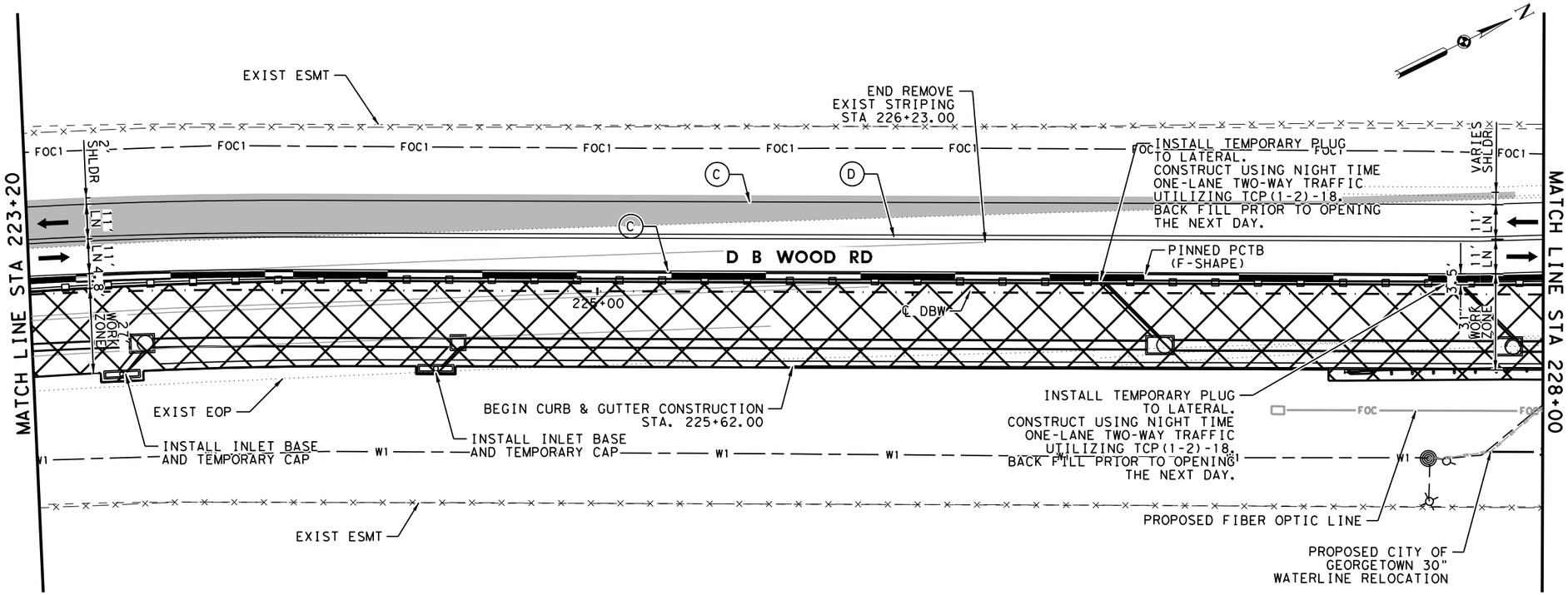
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 213+60 TO 223+20

SHEET 5 OF 14 | 45

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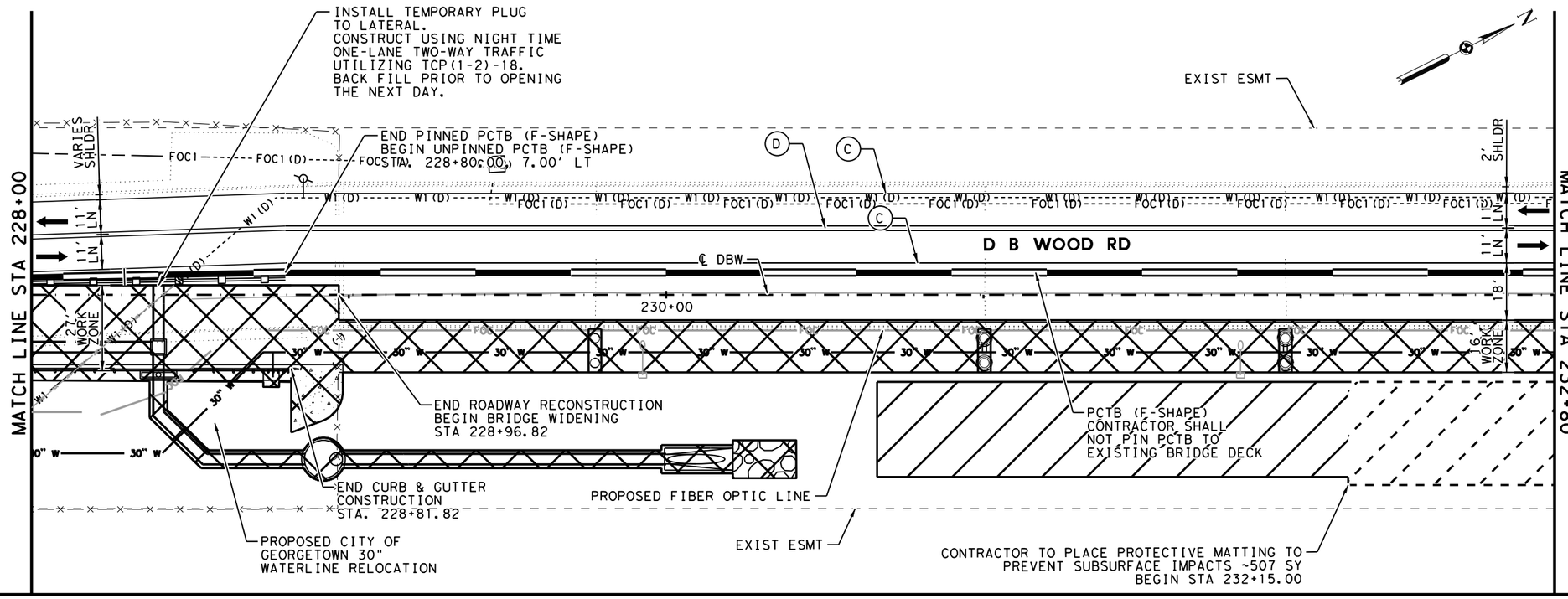


LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

NOTES:

1. TEMPORARY INLET CAP WILL NOT BE PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO PERTINANET ITEMS.



0' 20' 40'

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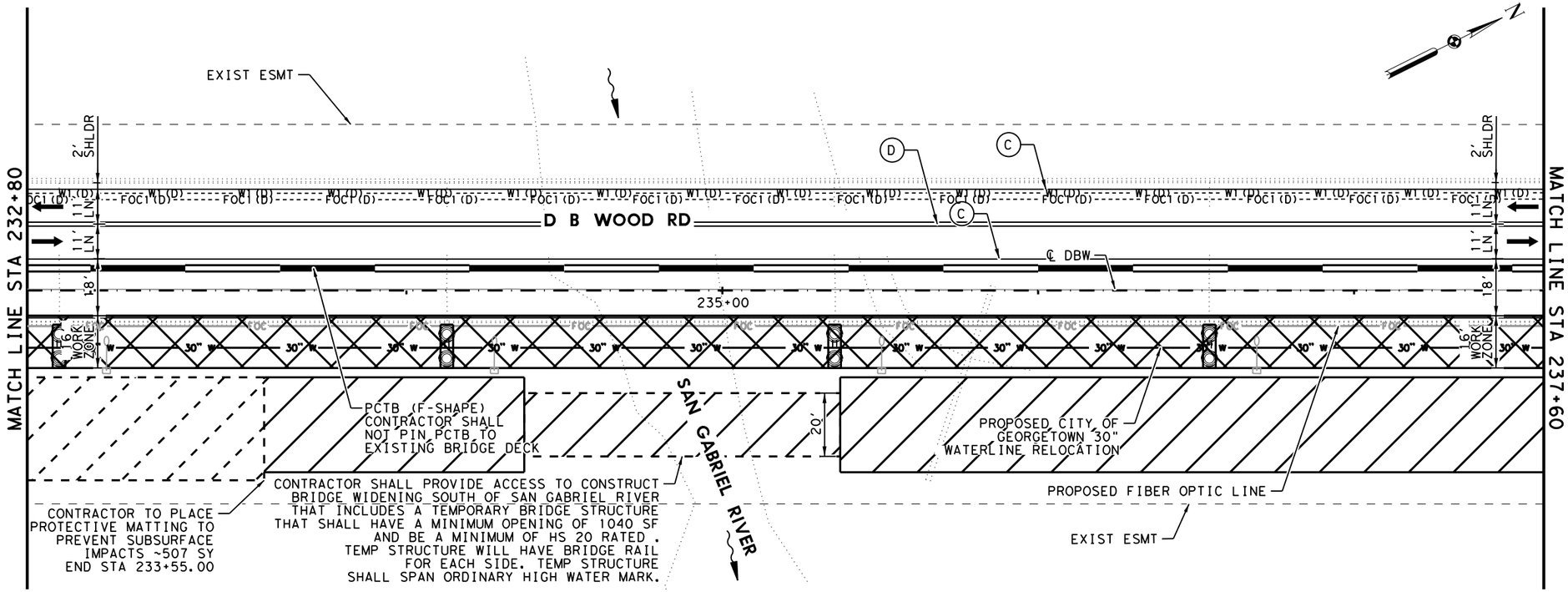
GEORGETOWN TEXAS
more than welcome

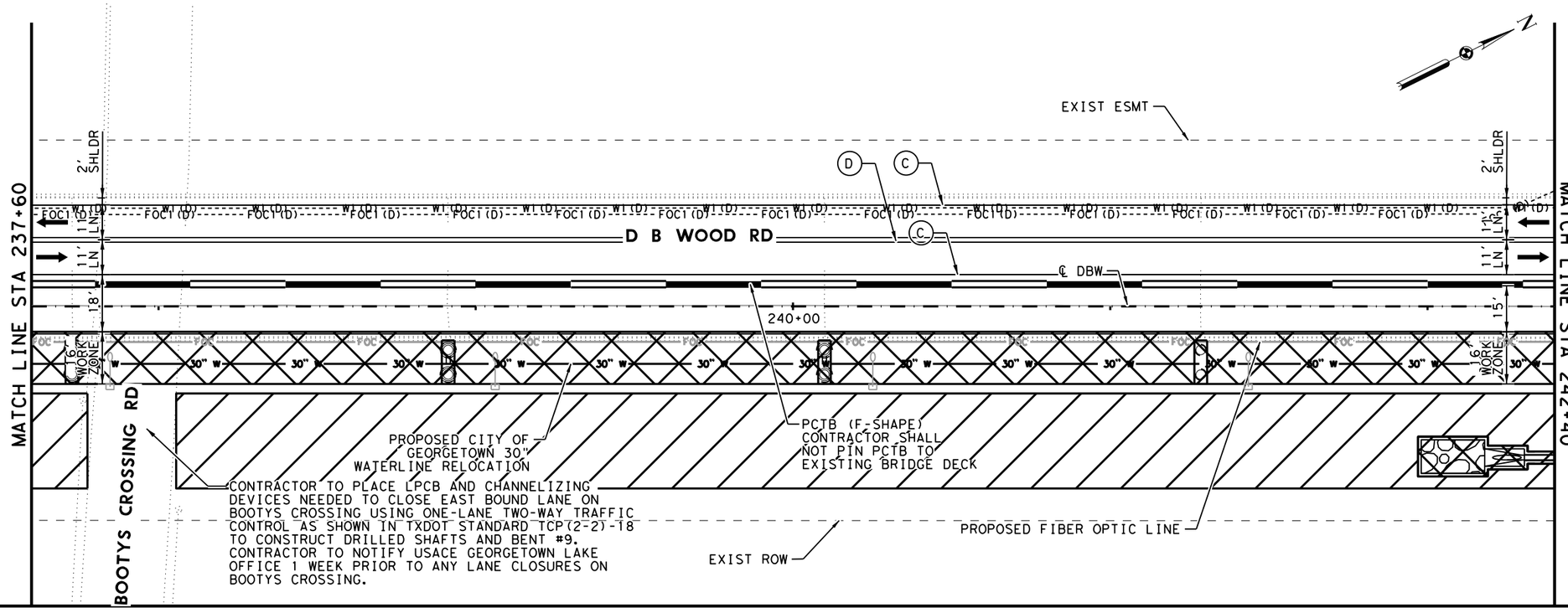
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 223+20 TO 232+80

SHEET 6 OF 14 | 46

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

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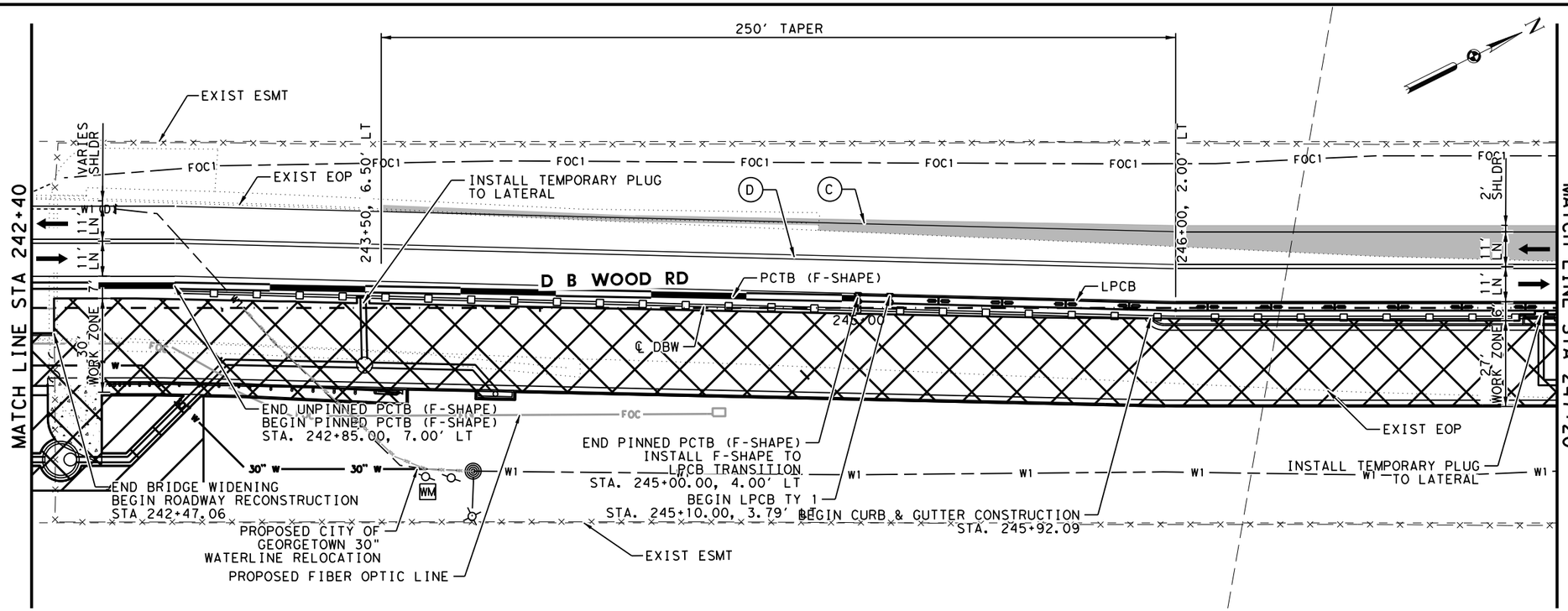
GEORGETOWN TEXAS
more than welcome

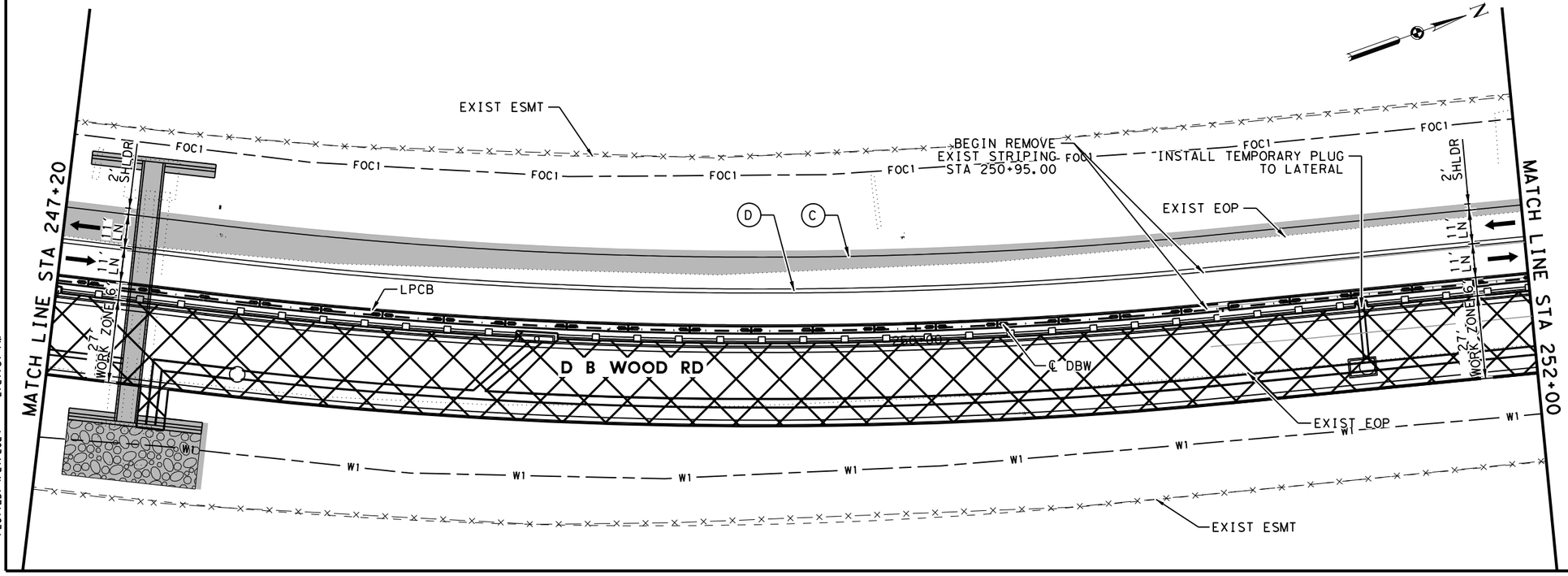
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 232+80 TO 242+40

SHEET 7 OF 14 | 47

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

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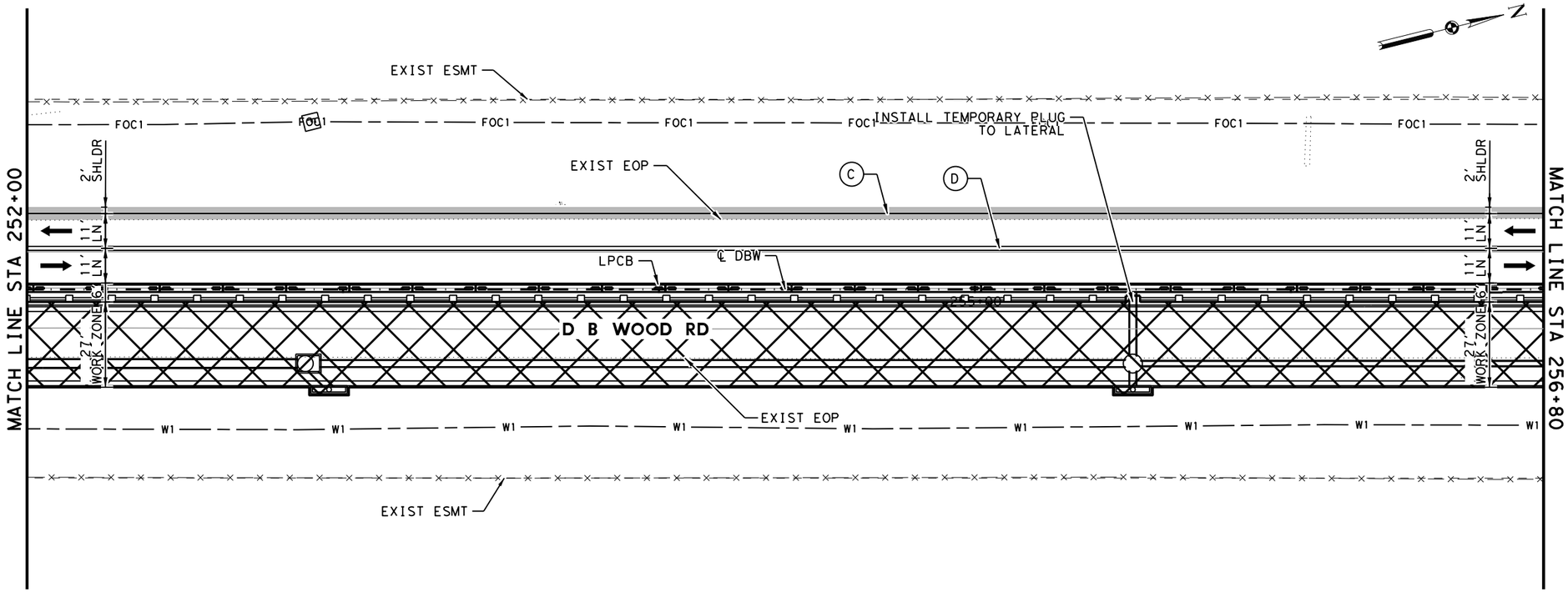
GEORGETOWN TEXAS
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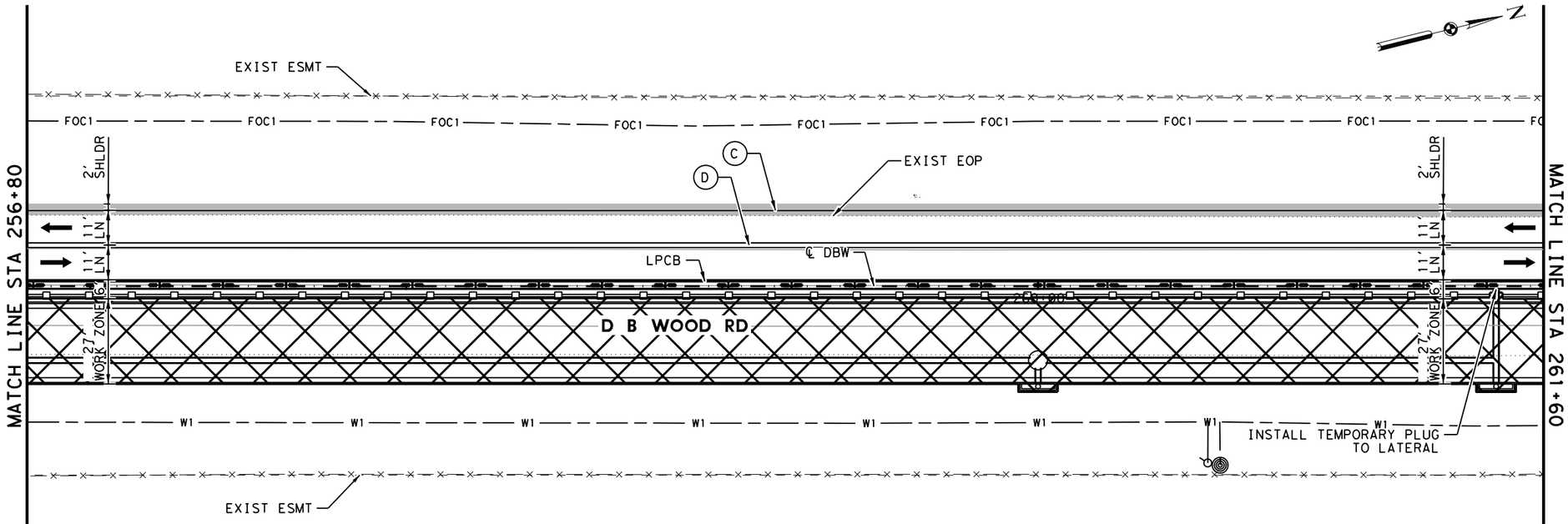
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 242+40 TO 252+00

SHEET 8 OF 14 | 48

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

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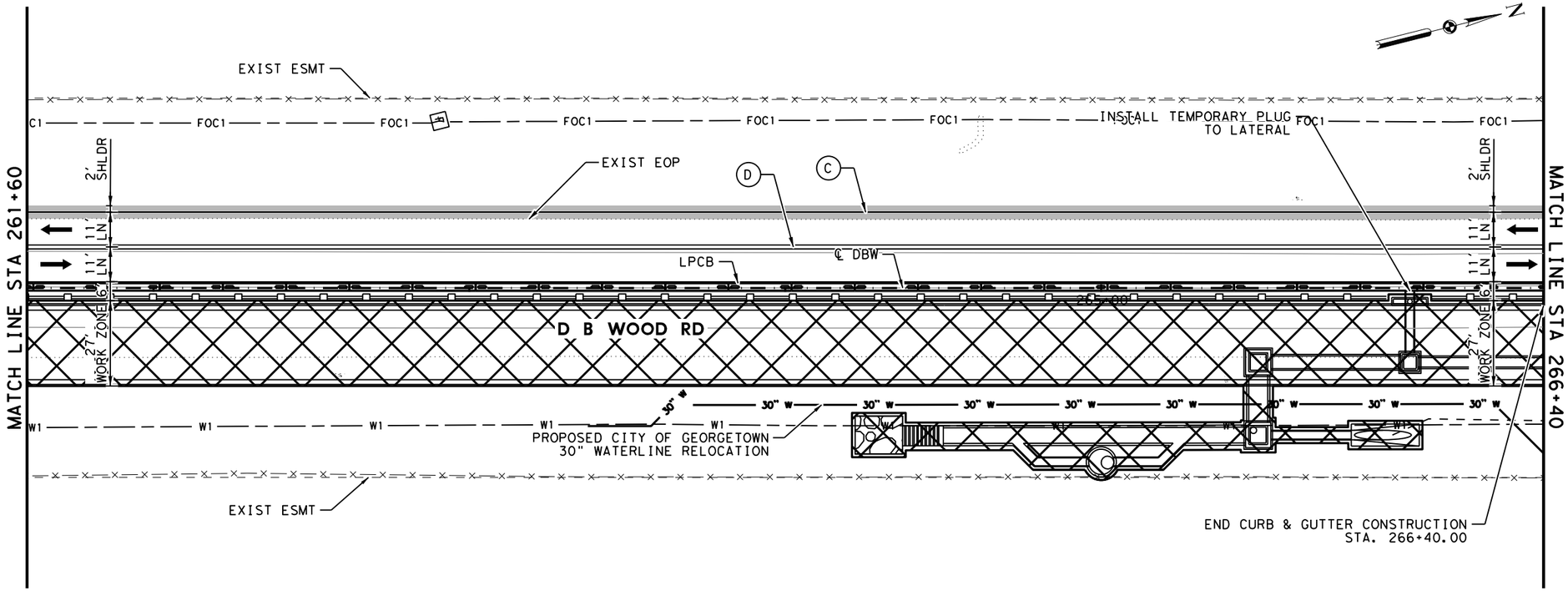
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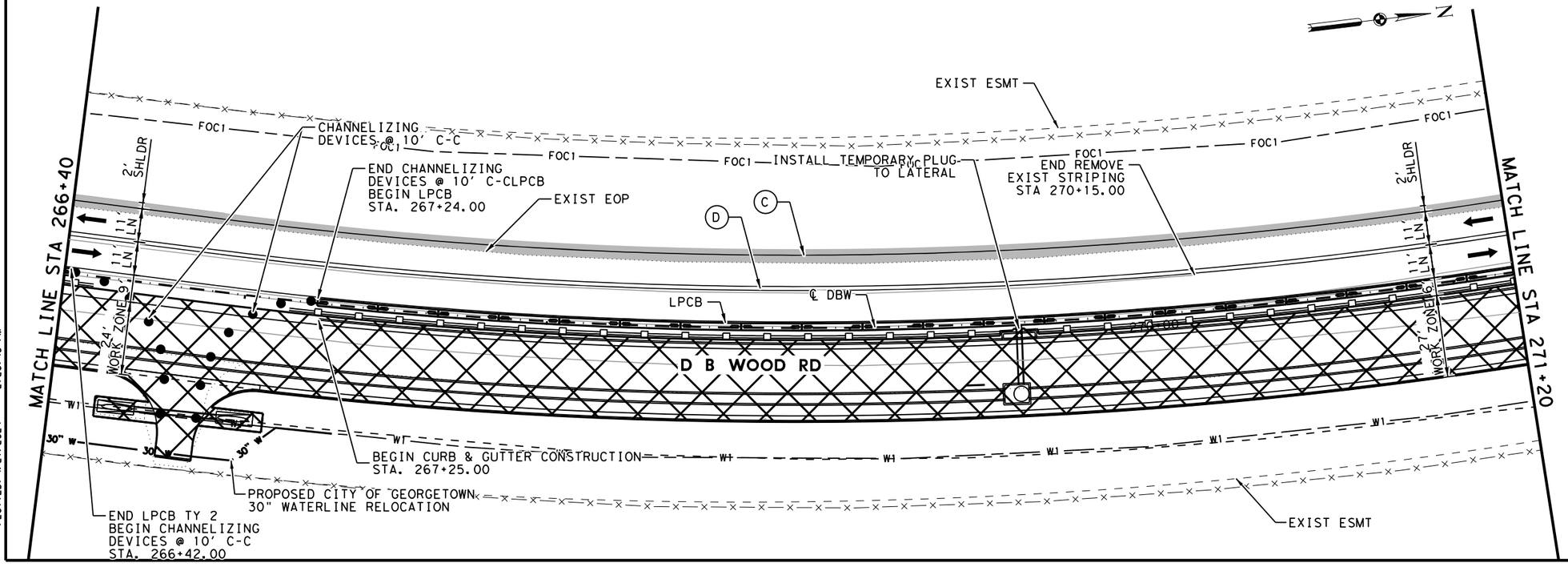
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 252+00 TO 261+60

SHEET 9 OF 14 | 49

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
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4/21/2024

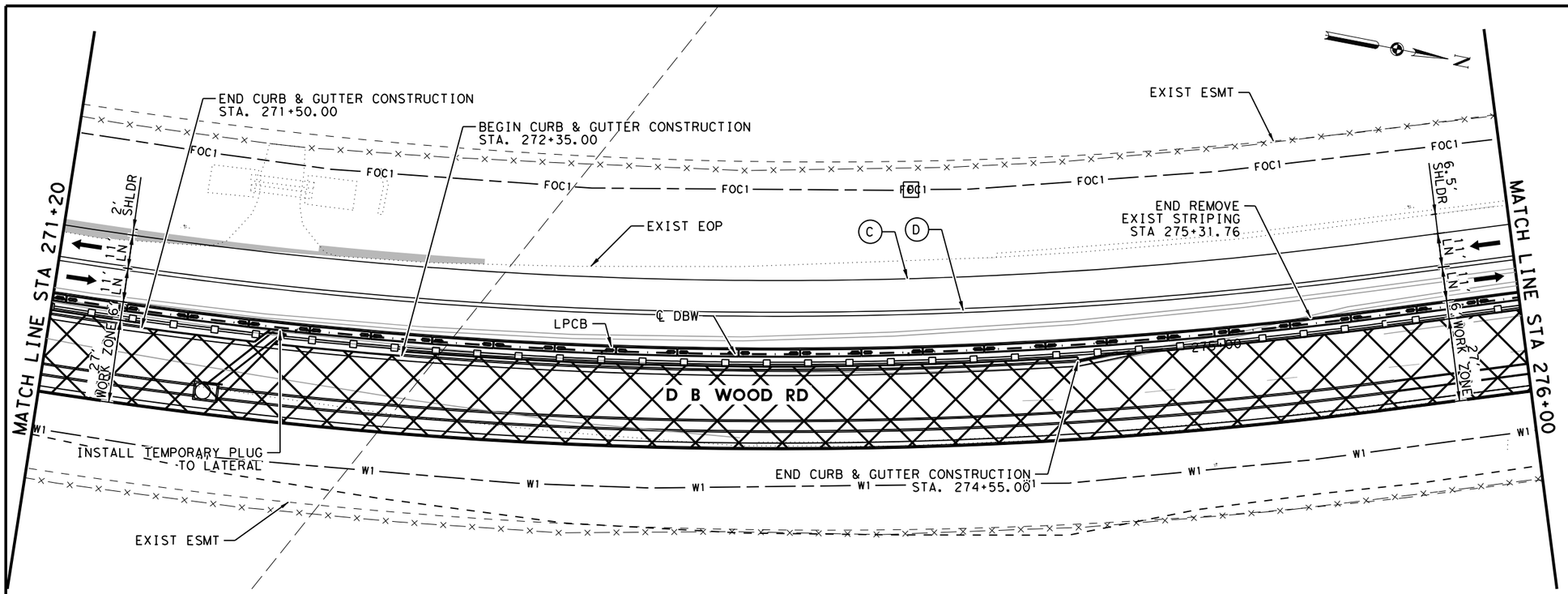
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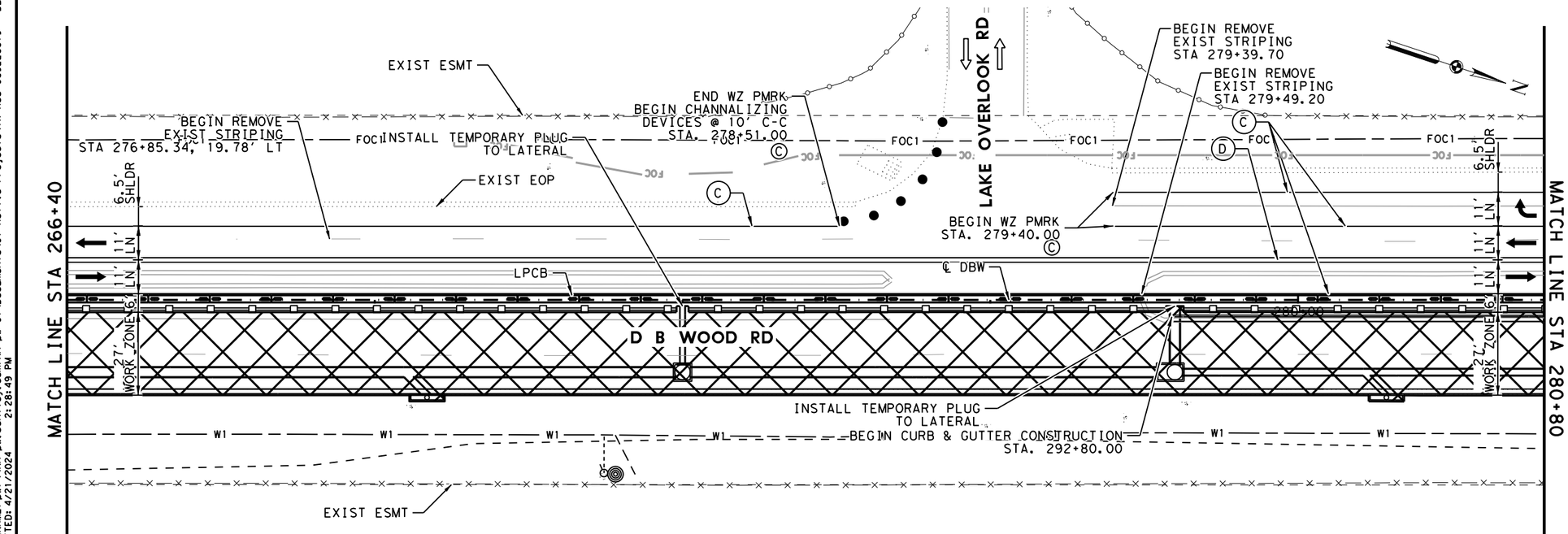
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D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 261+60 TO 271+20

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

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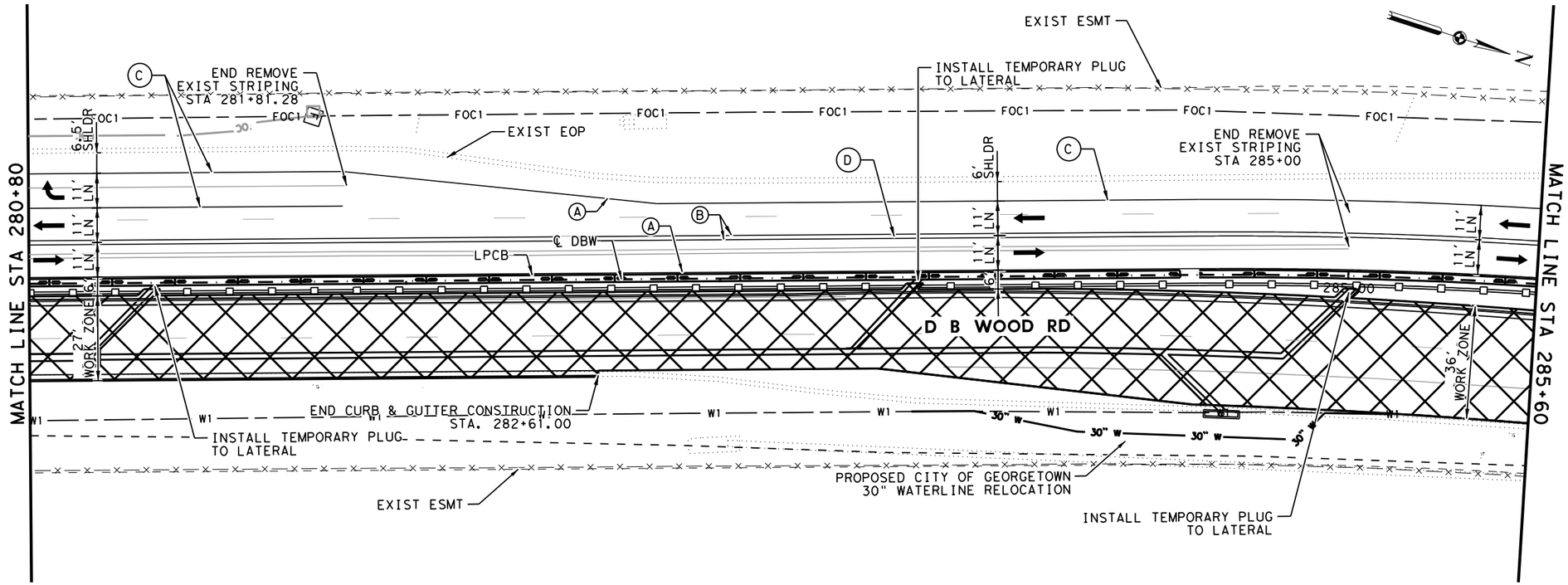
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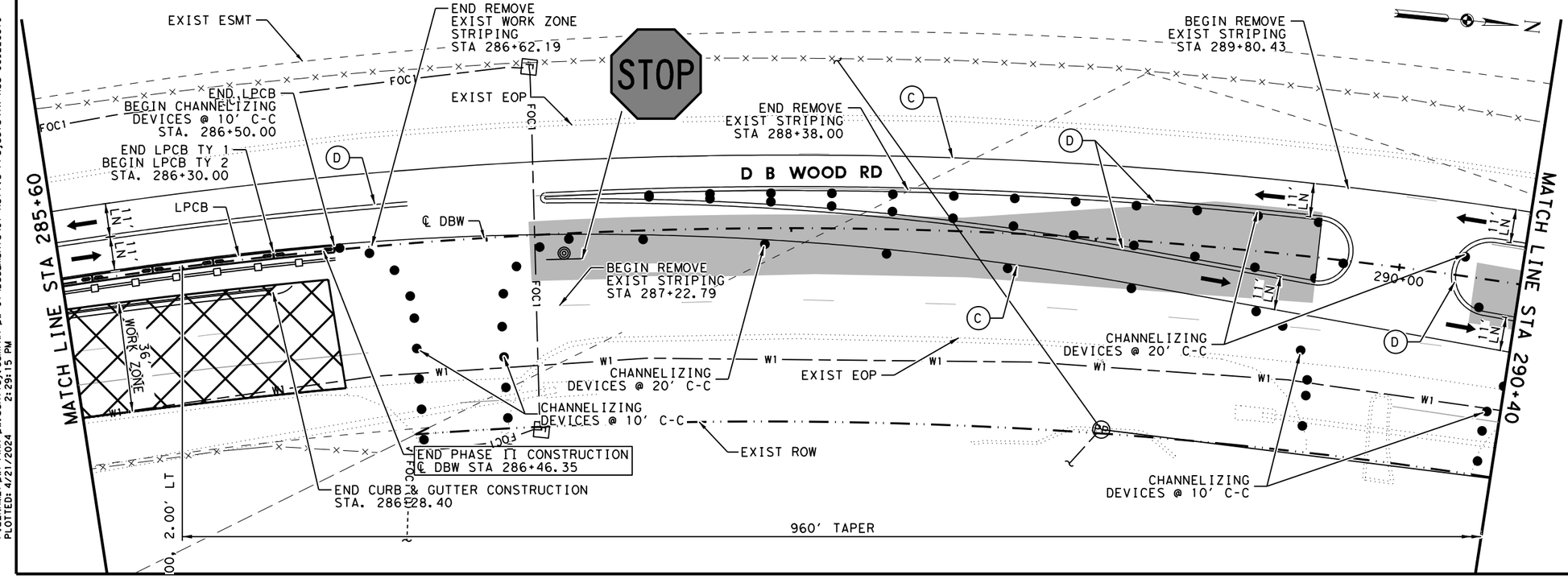
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 271+20 TO 280+80

SHEET 11 OF 14 | 51

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

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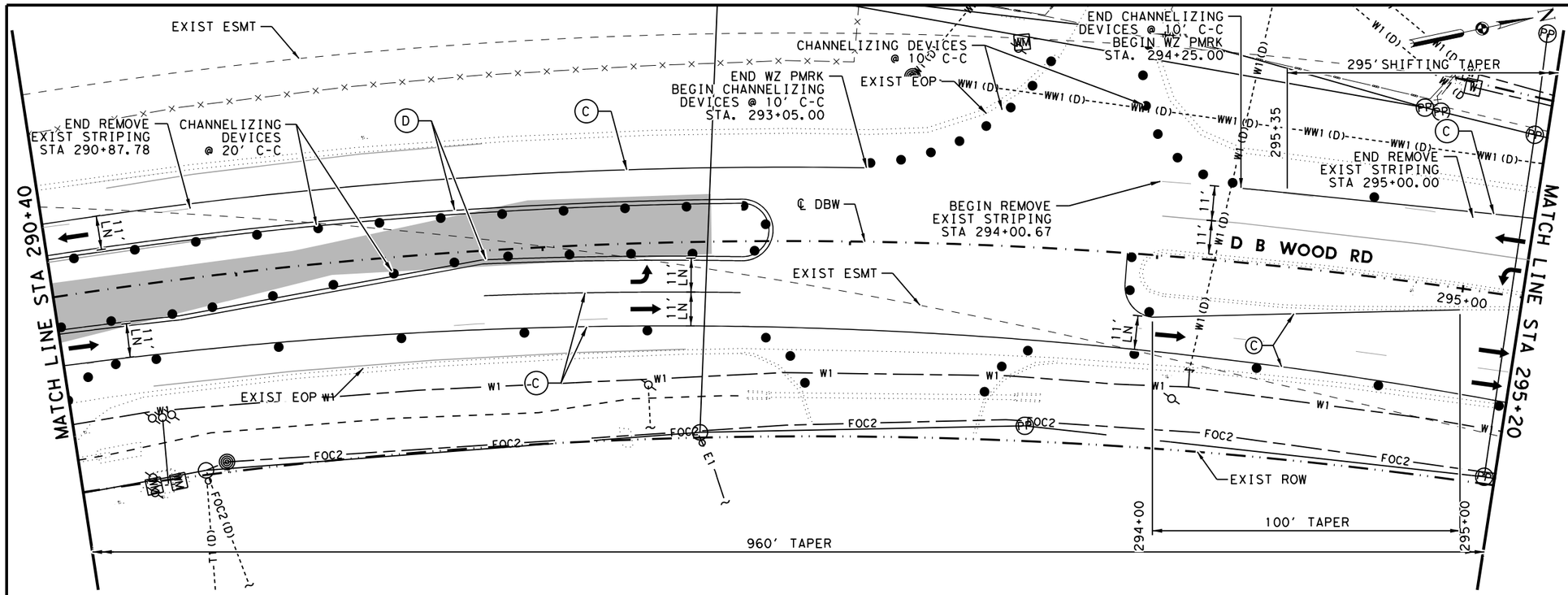
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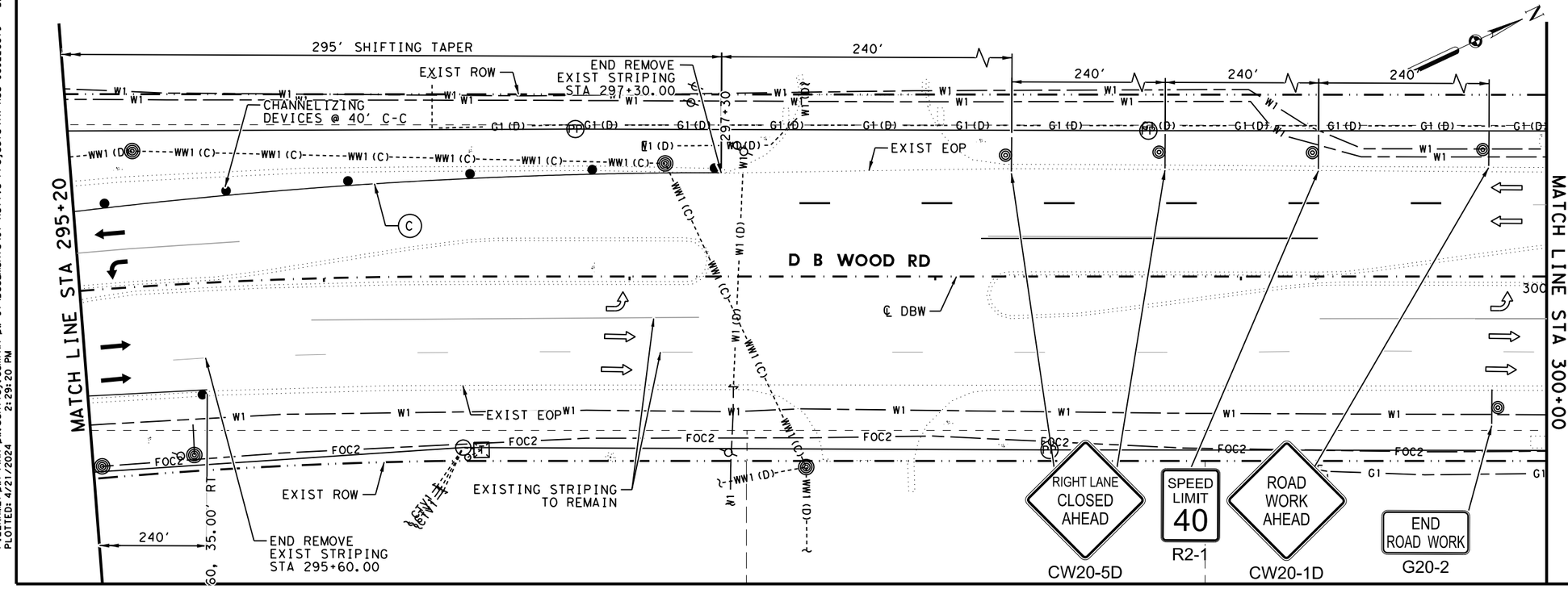
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D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 280+80 TO 290+40

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

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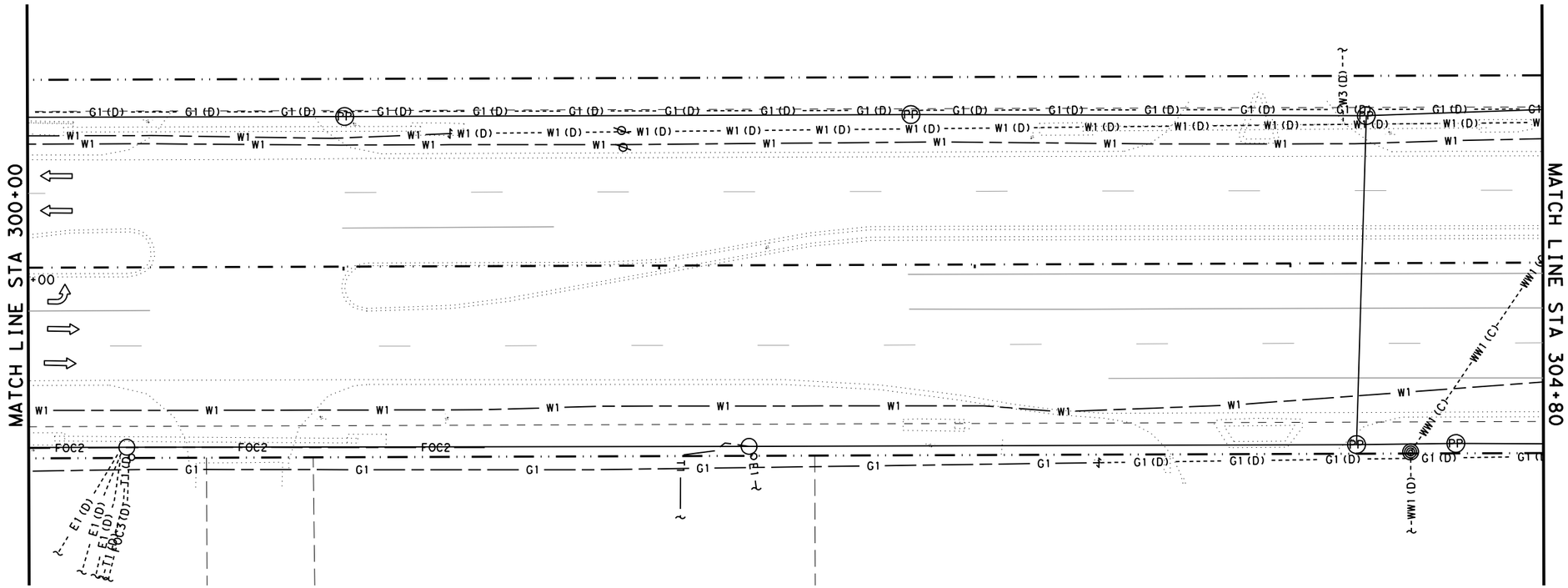
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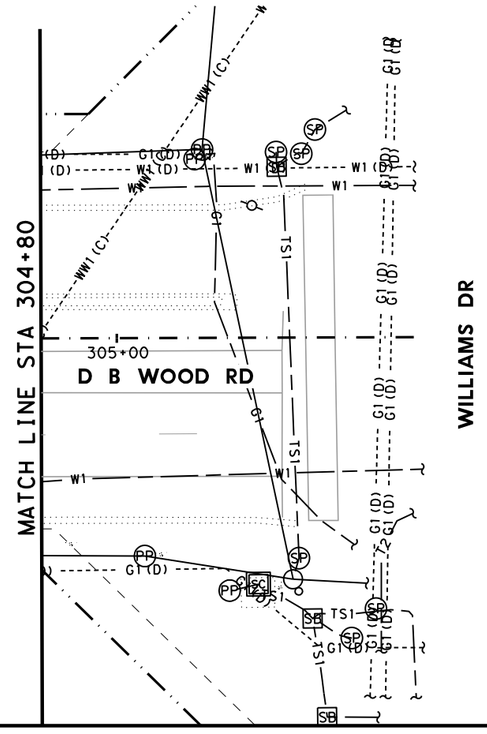
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 290+40 TO 300+00

SHEET 13 OF 14 | 53

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

N

0' 20' 40'

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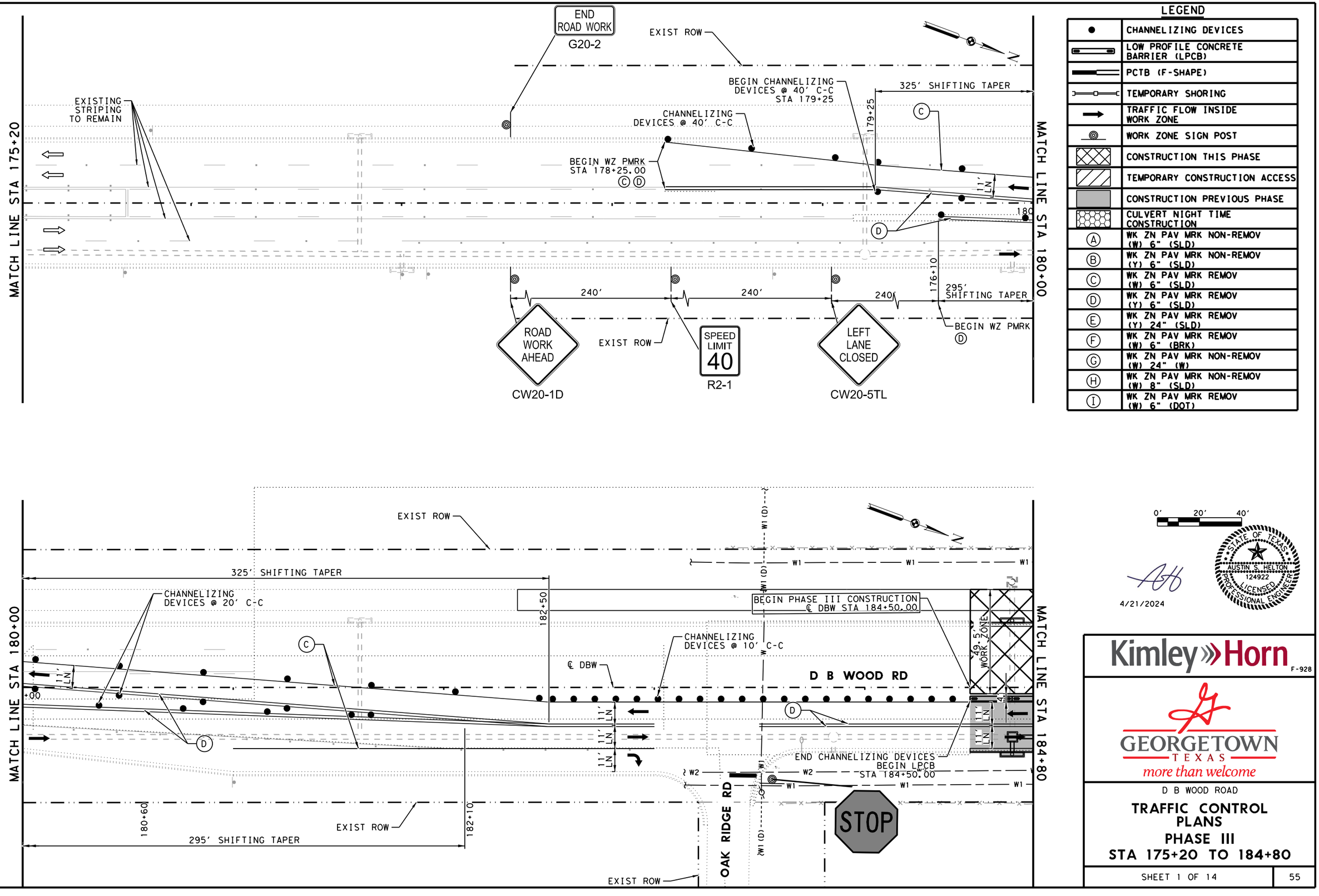
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D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE II
STA 300+00 TO END PROJECT

SHEET 14 OF 14 | 54

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH2_14.dgn
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

AUSTIN S. HELTON
124922
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STATE OF TEXAS

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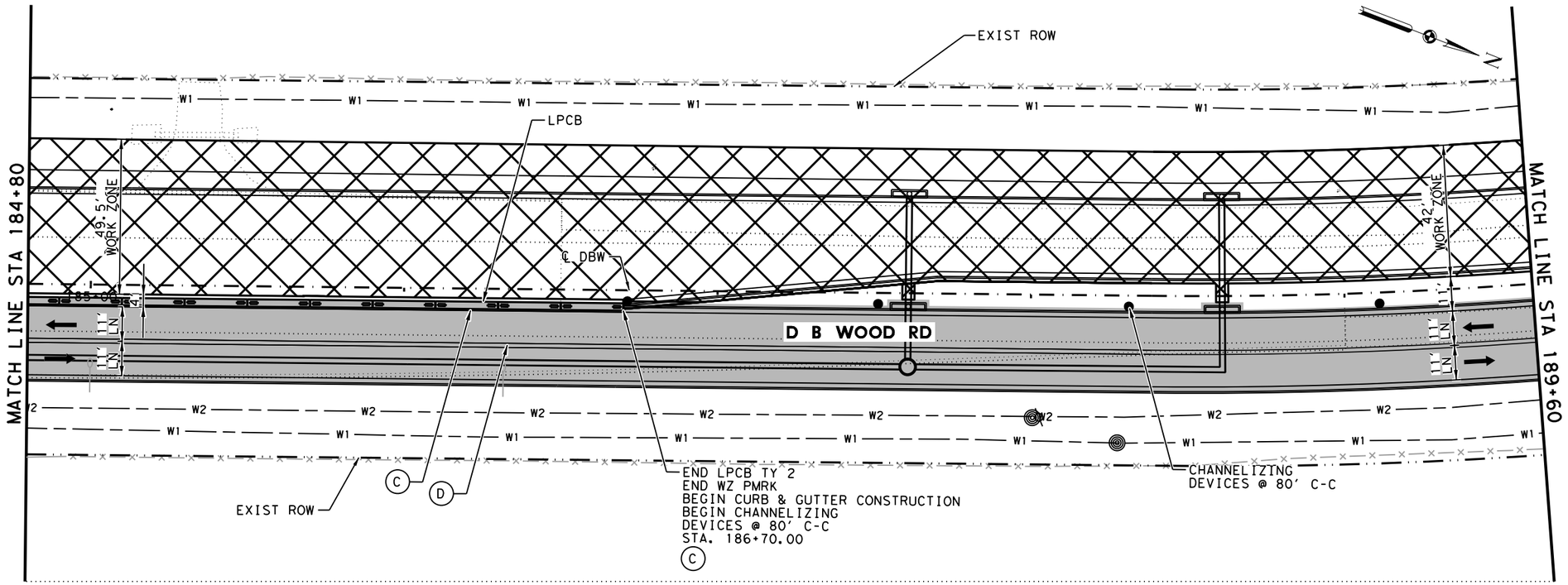
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more than welcome

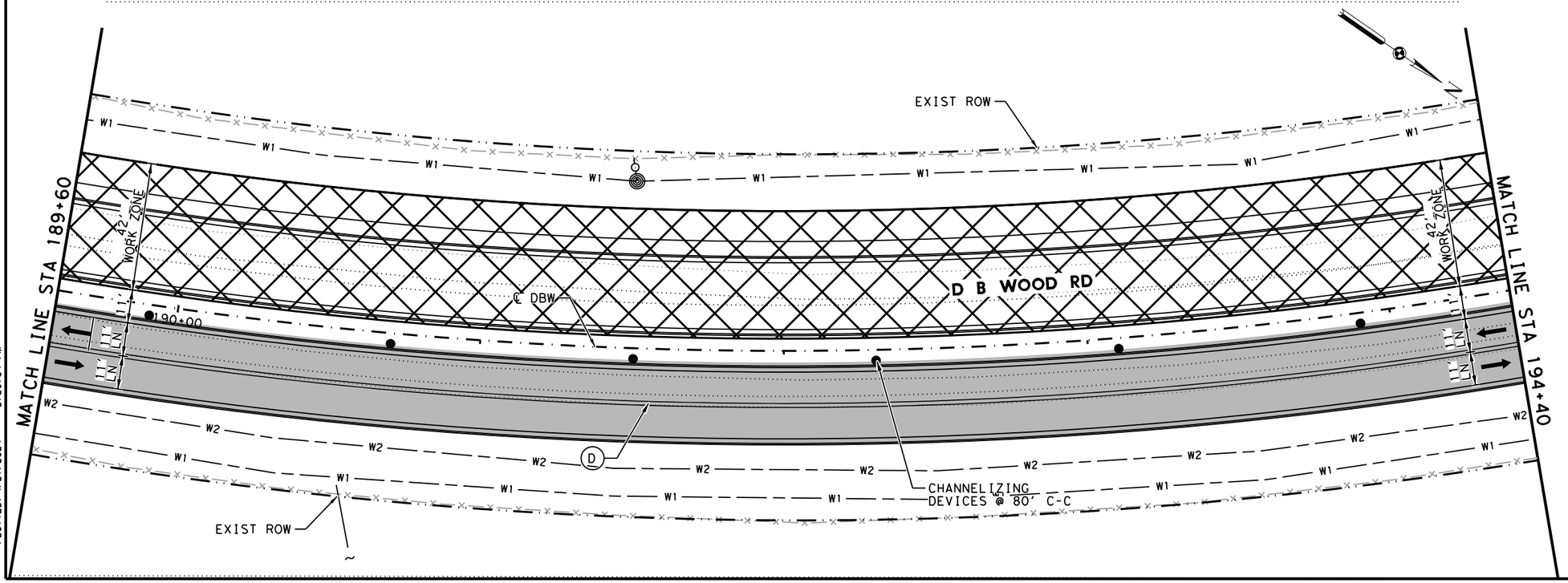
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 175+20 TO 184+80

SHEET 1 OF 14 | 55

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

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PROFESSIONAL ENGINEER

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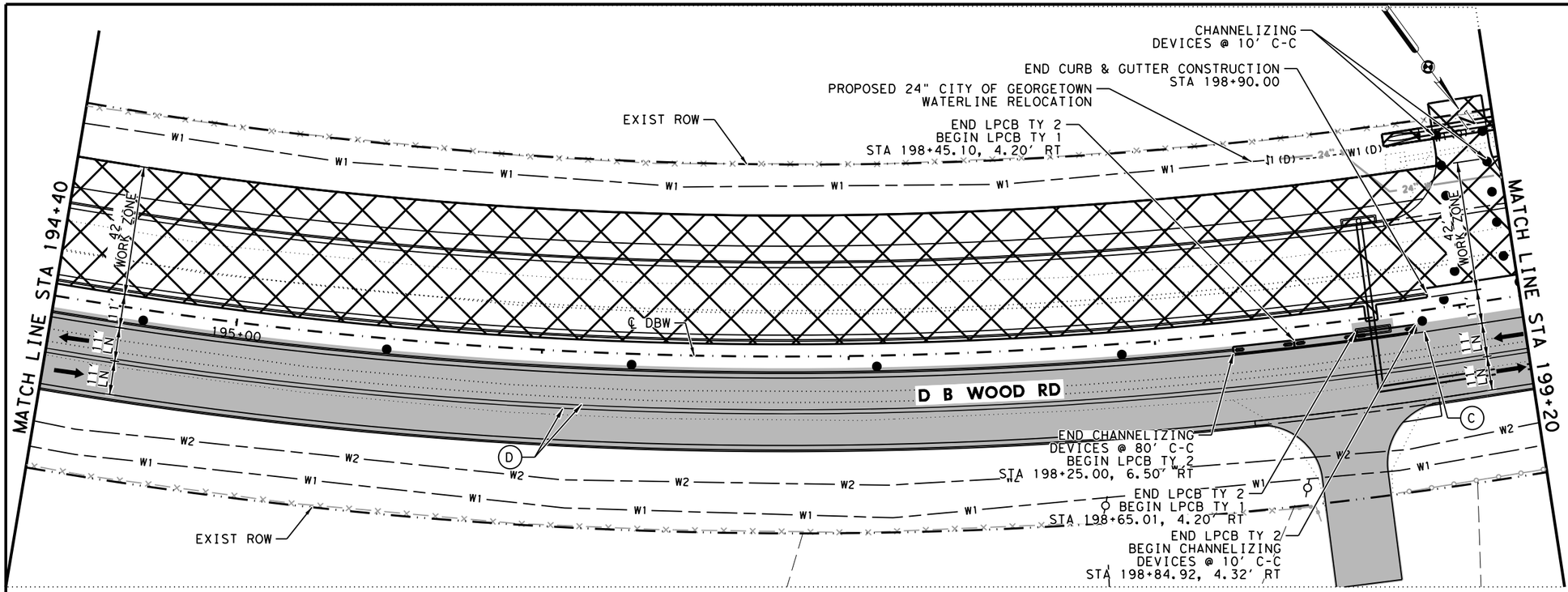
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more than welcome

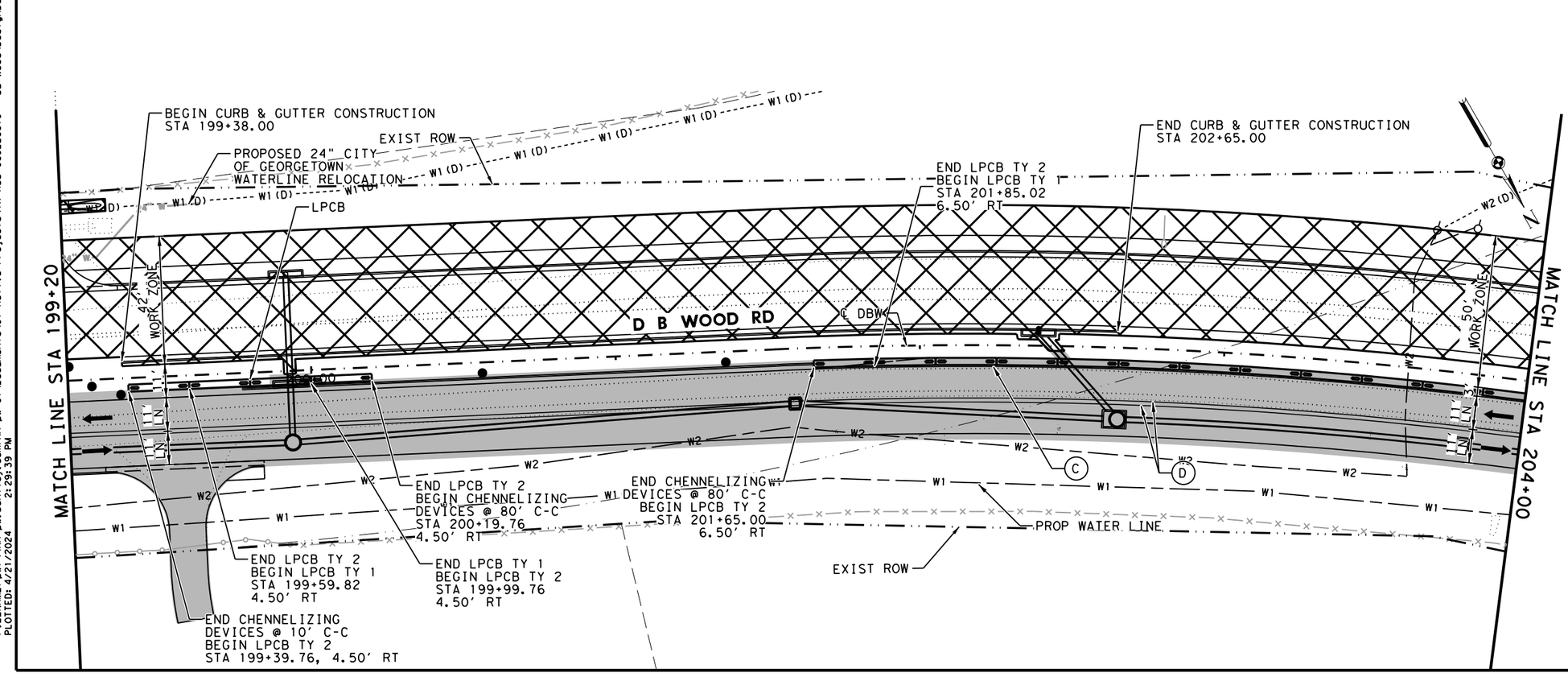
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 184+80 TO 194+40

SHEET 2 OF 14 | 56

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

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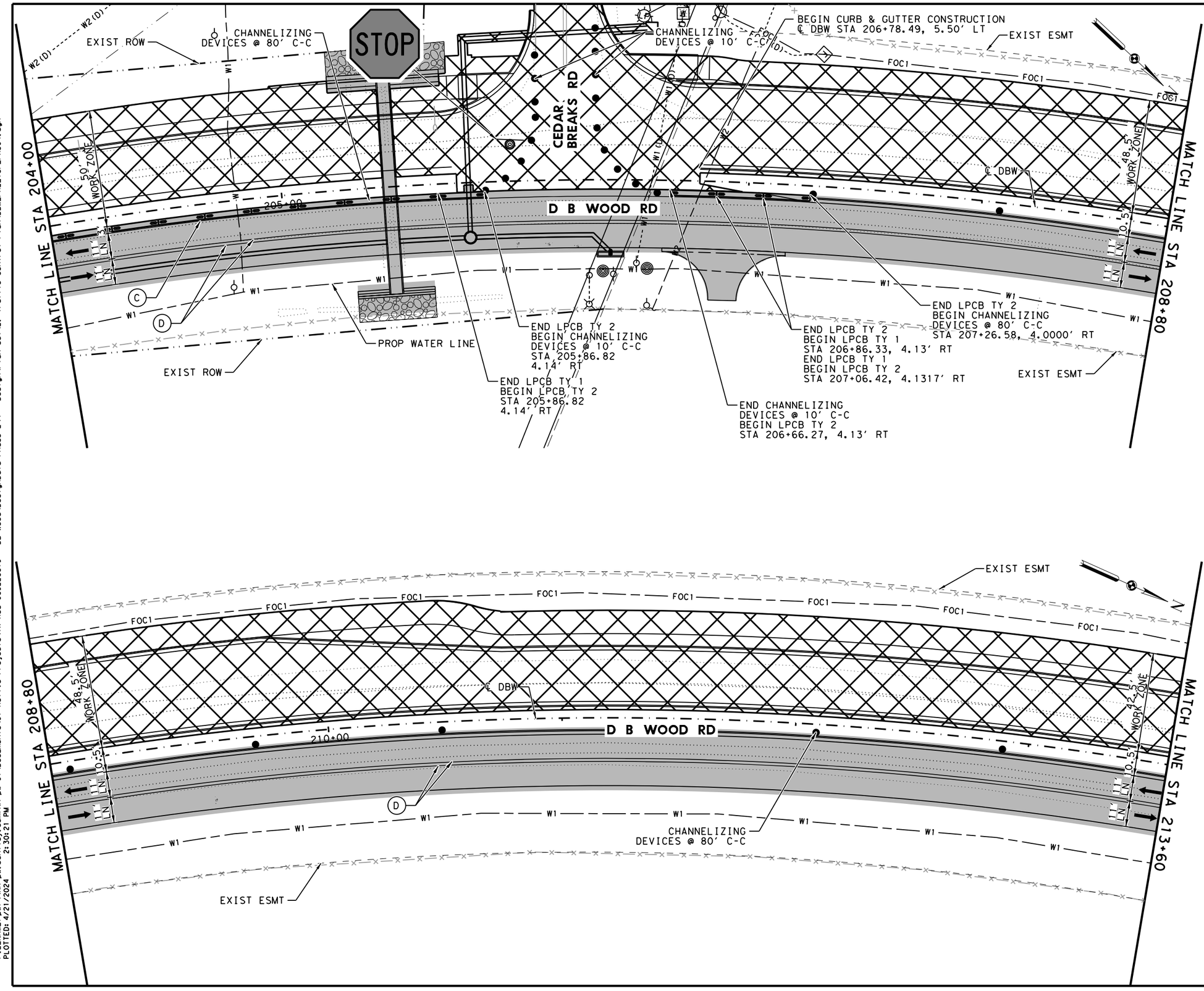
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 194+40 TO 204+00

SHEET 3 OF 14 | 57

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
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124922
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4/21/2024

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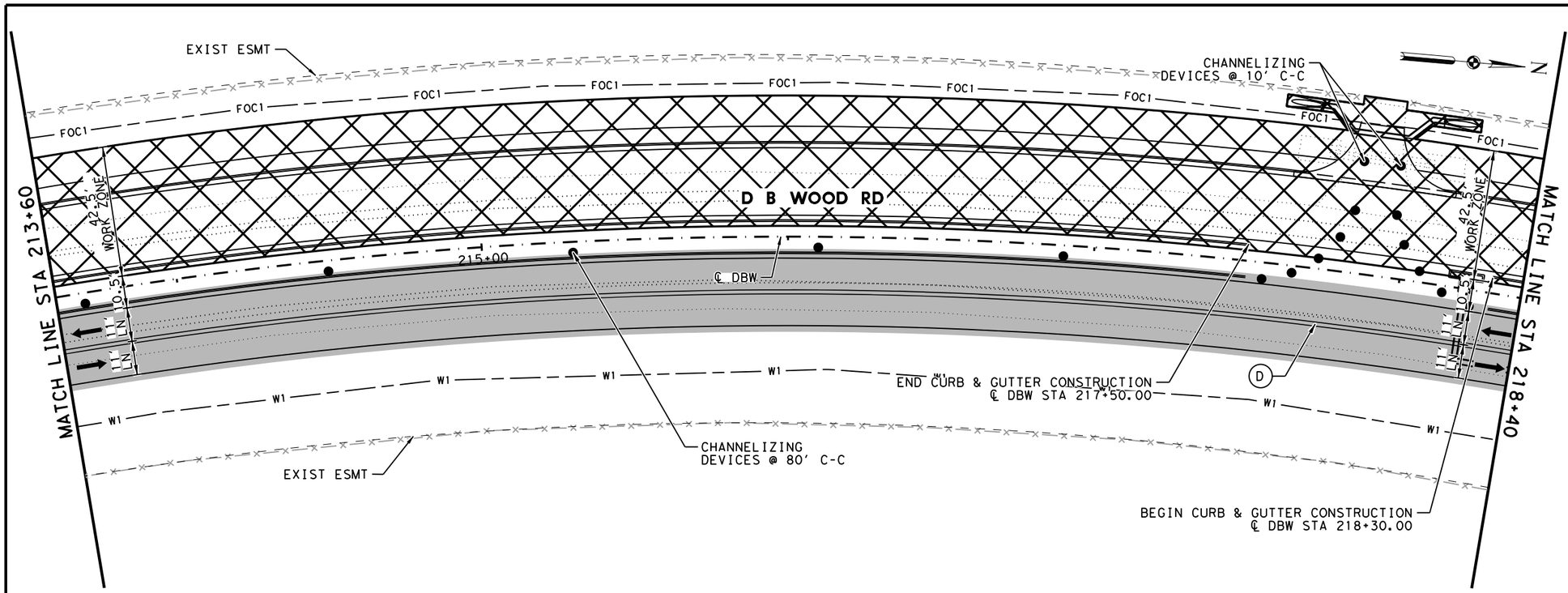
GEORGETOWN TEXAS
more than welcome

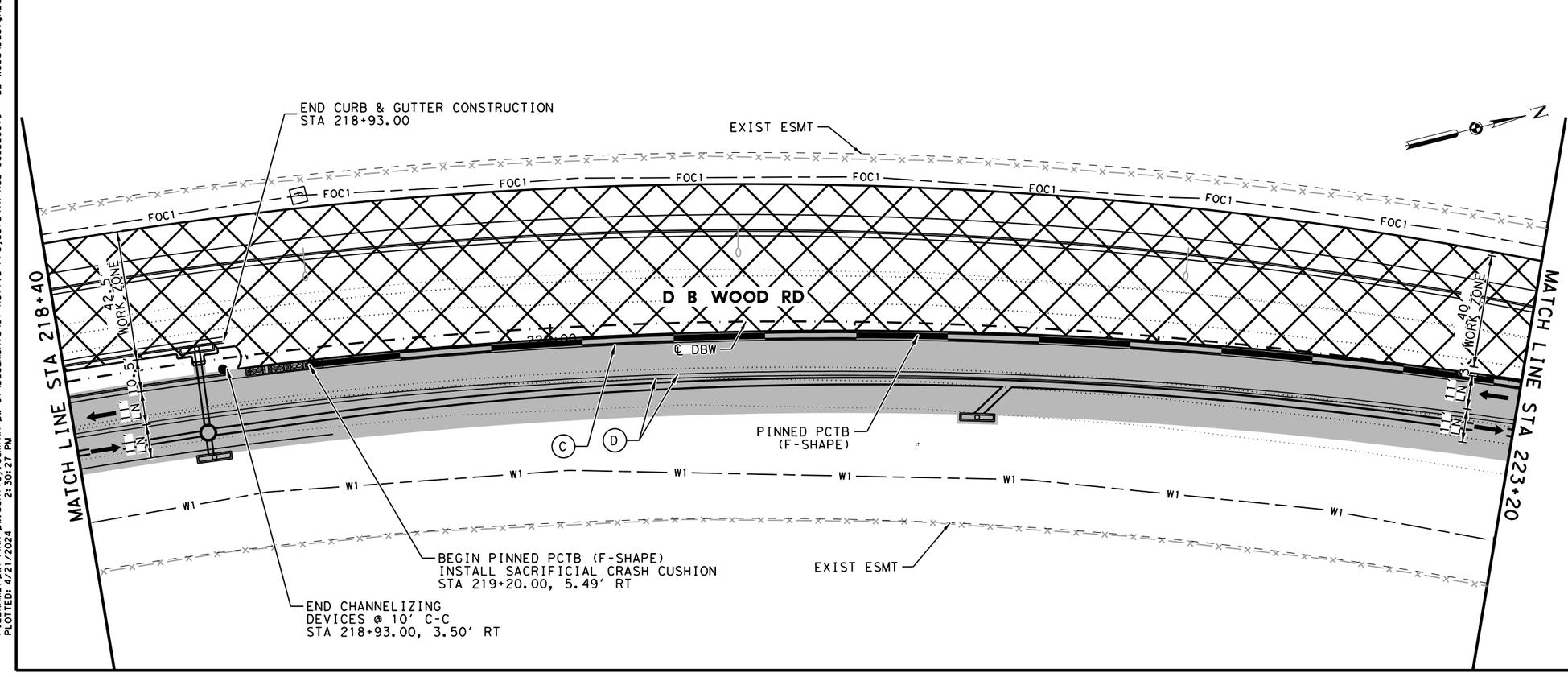
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 204+00 TO 213+60

SHEET 4 OF 14 | 58

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

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4/21/2024

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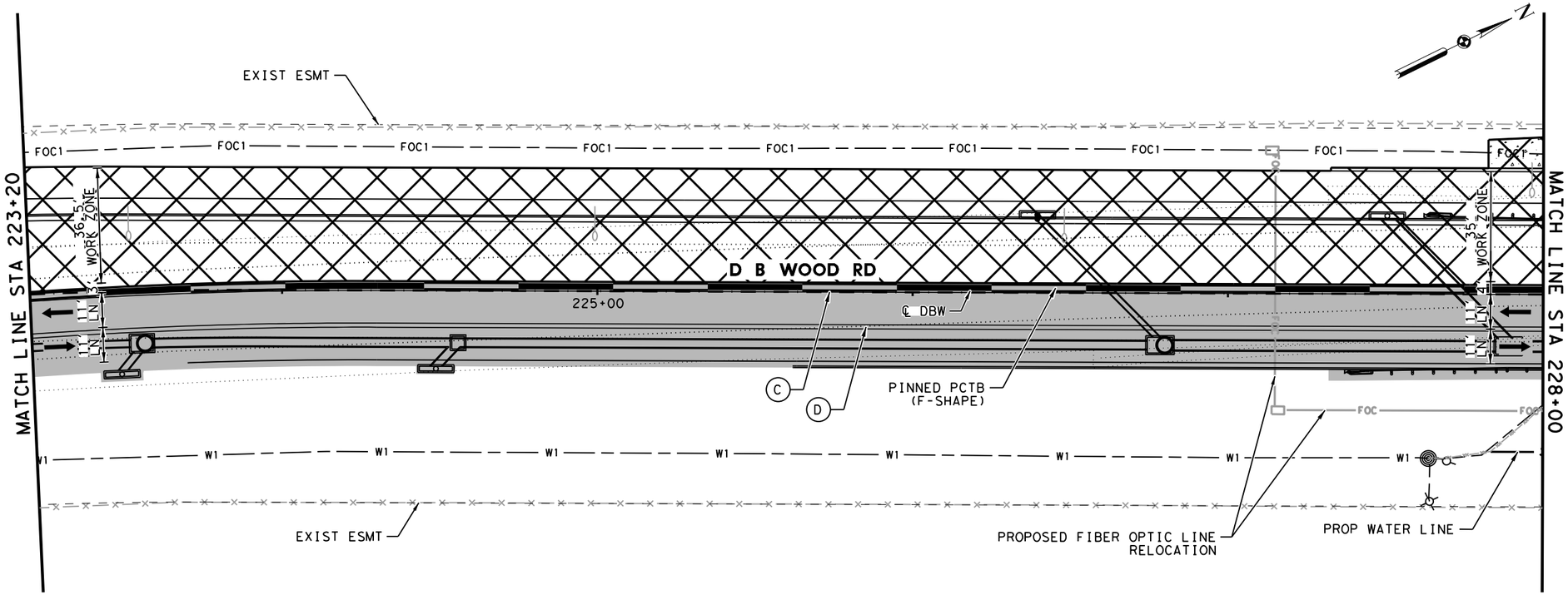
GEORGETOWN TEXAS
more than welcome

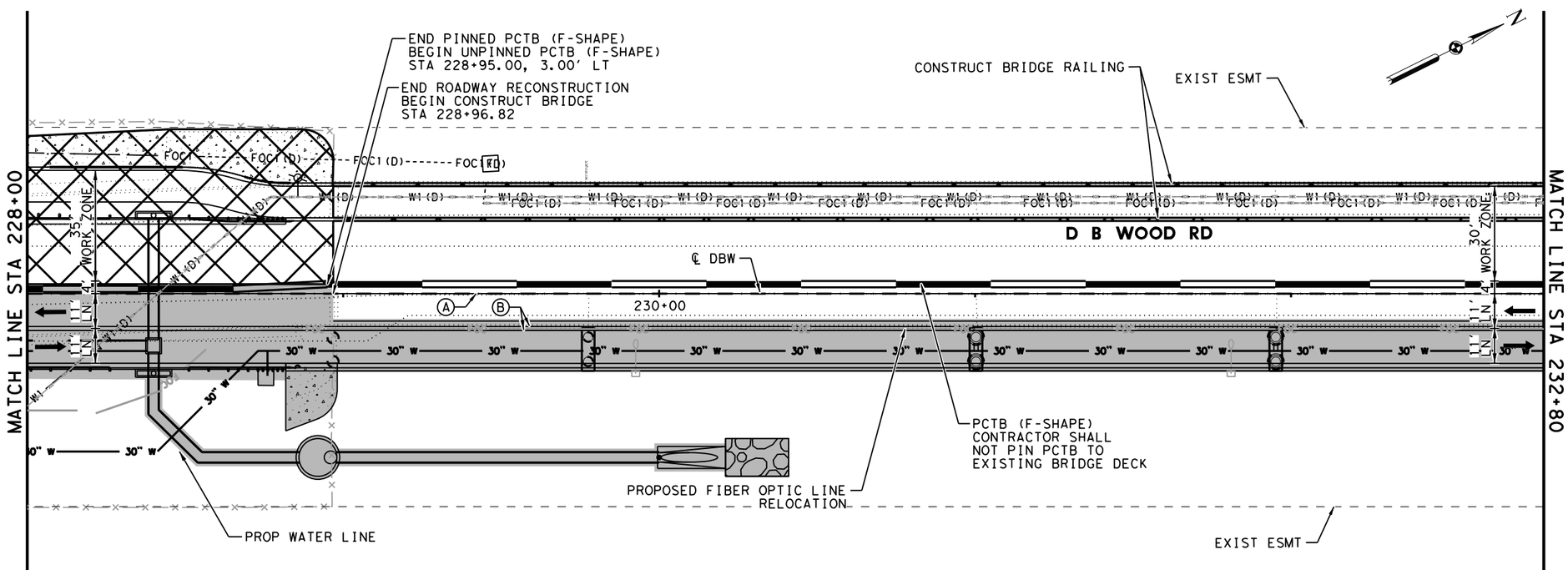
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 213+60 TO 223+20

SHEET 5 OF 14 | 59

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
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124922
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4/21/2024

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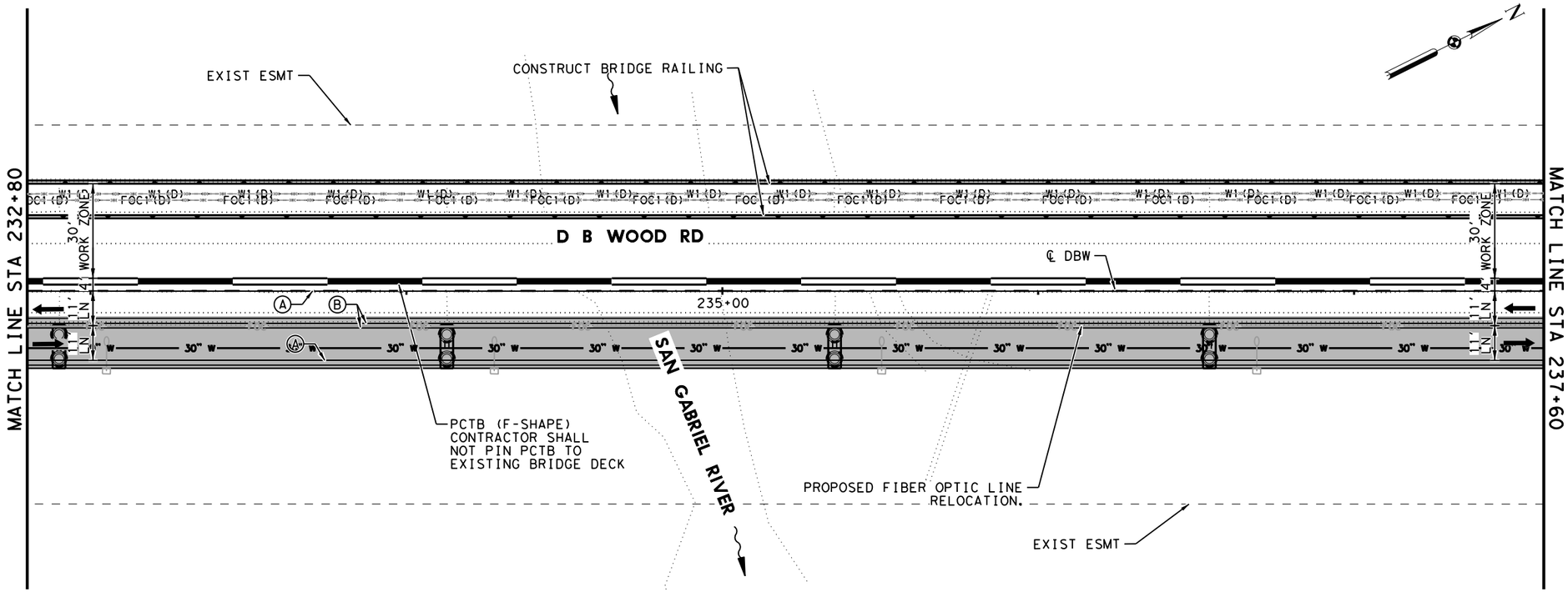
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TEXAS
more than welcome

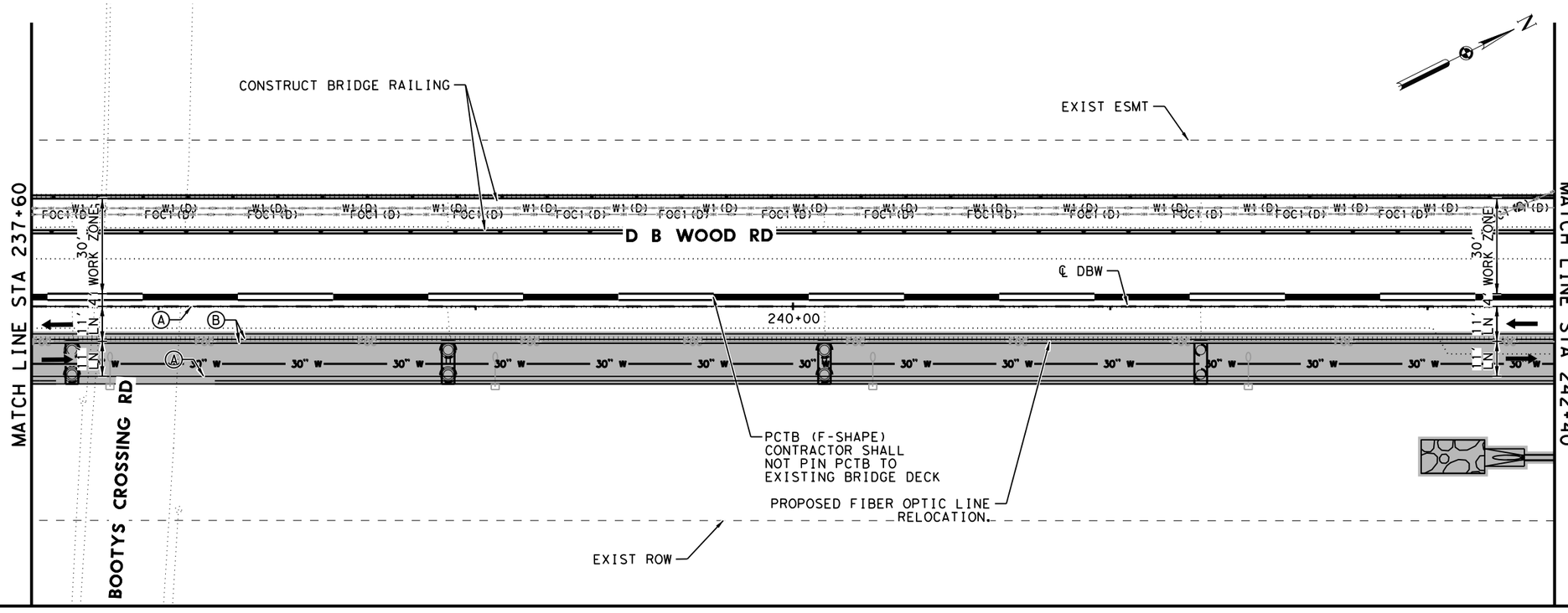
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 223+20 TO 232+80

SHEET 6 OF 14 | 60

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
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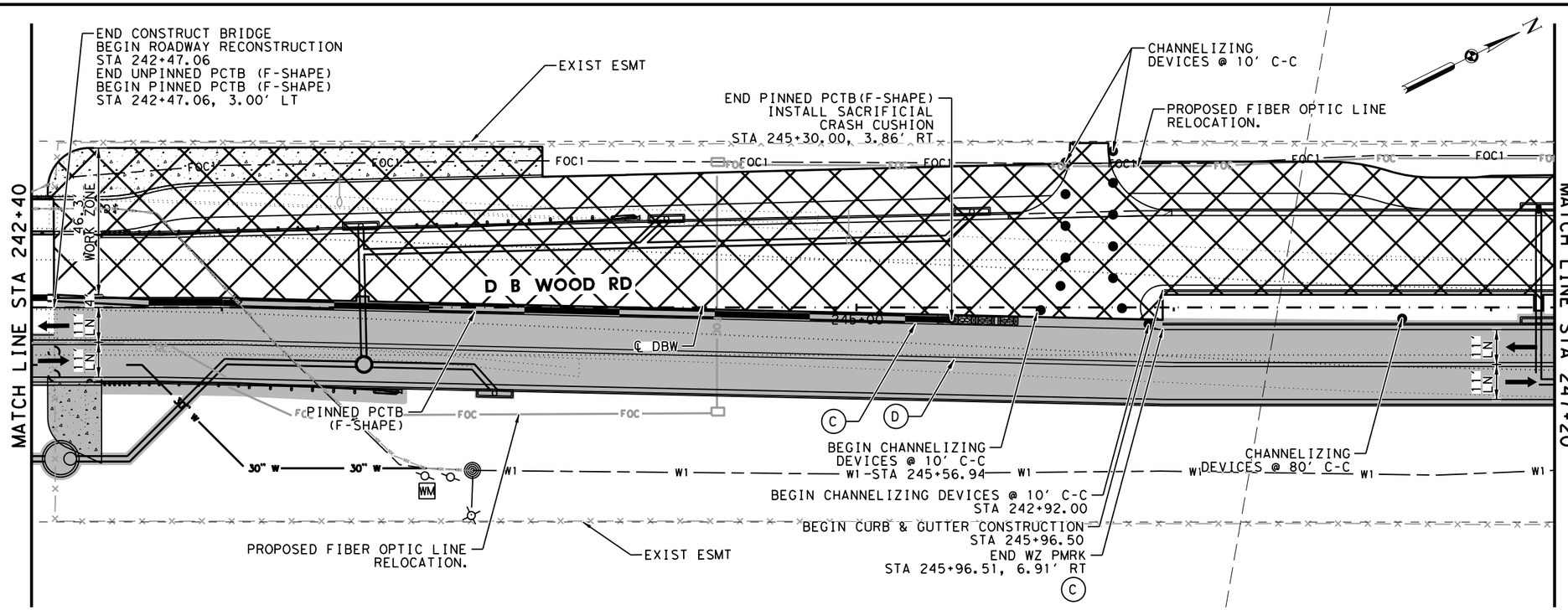
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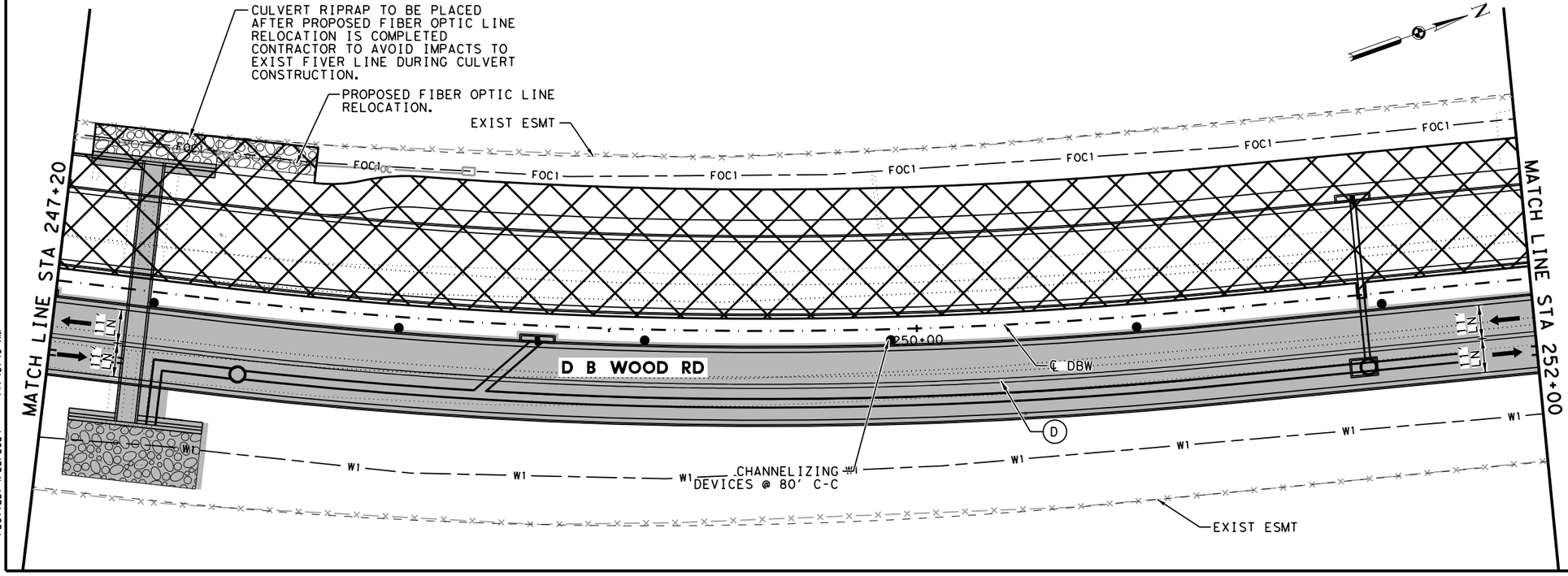
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 232+80 TO 242+40

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
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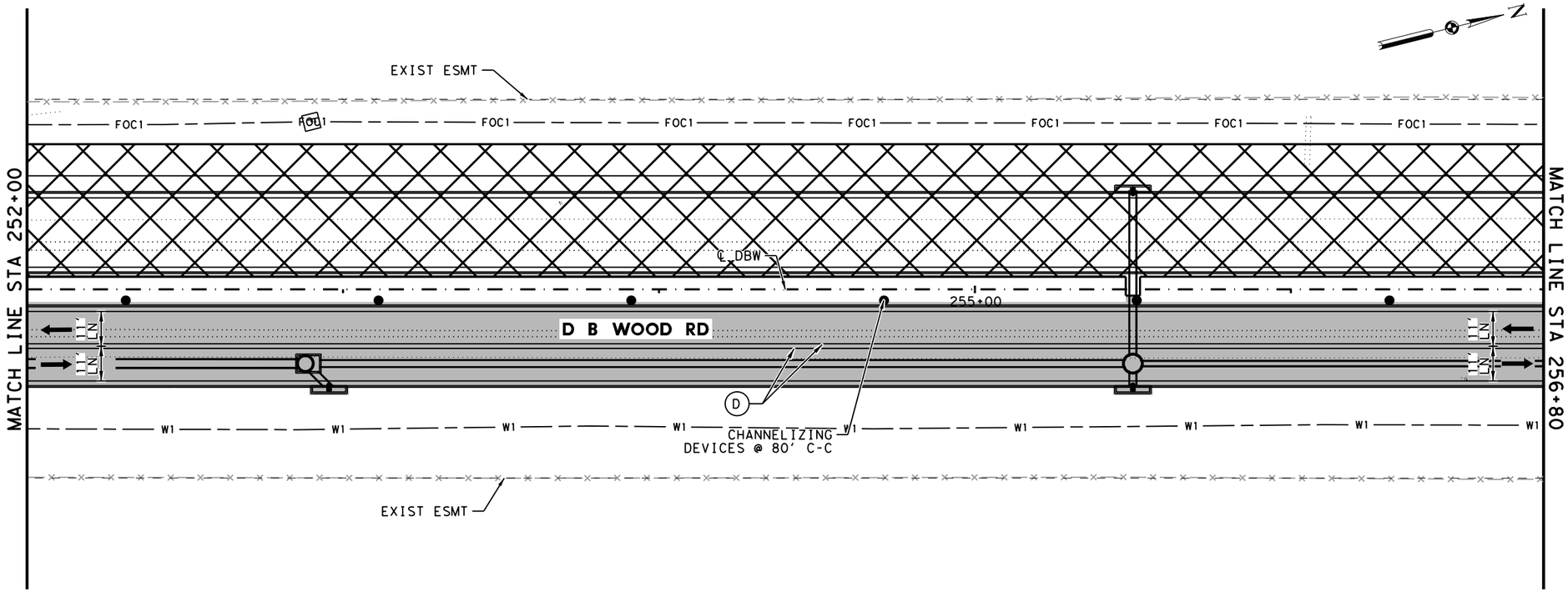
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TEXAS
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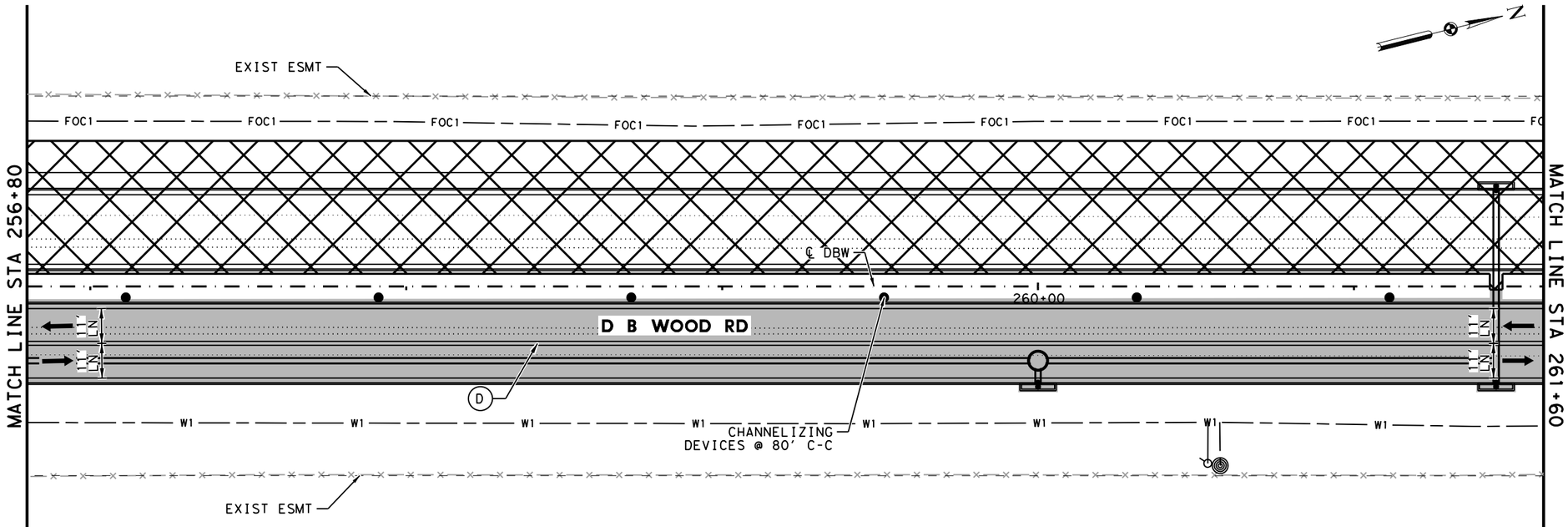
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 242+40 TO 252+00

SHEET 8 OF 14 | 62

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

AUSTIN S. HELTON
124922
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STATE OF TEXAS

Kimley»Horn F-928

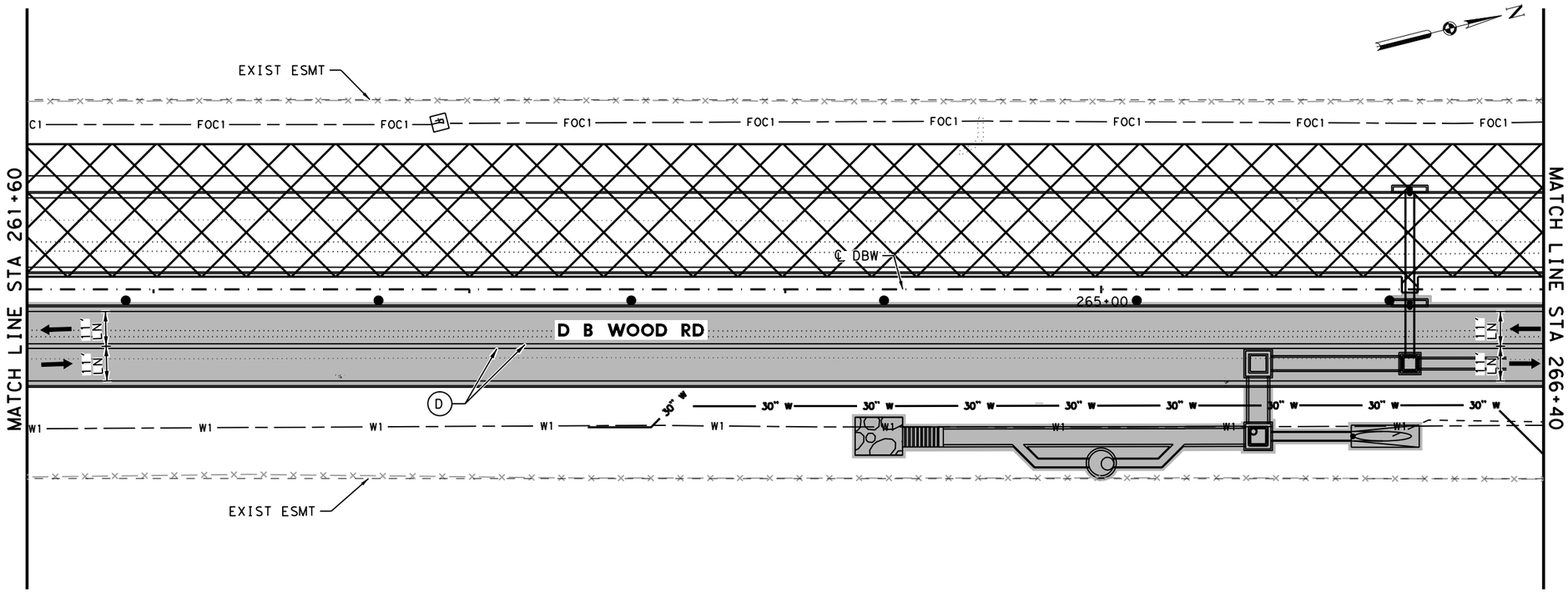
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TEXAS
more than welcome

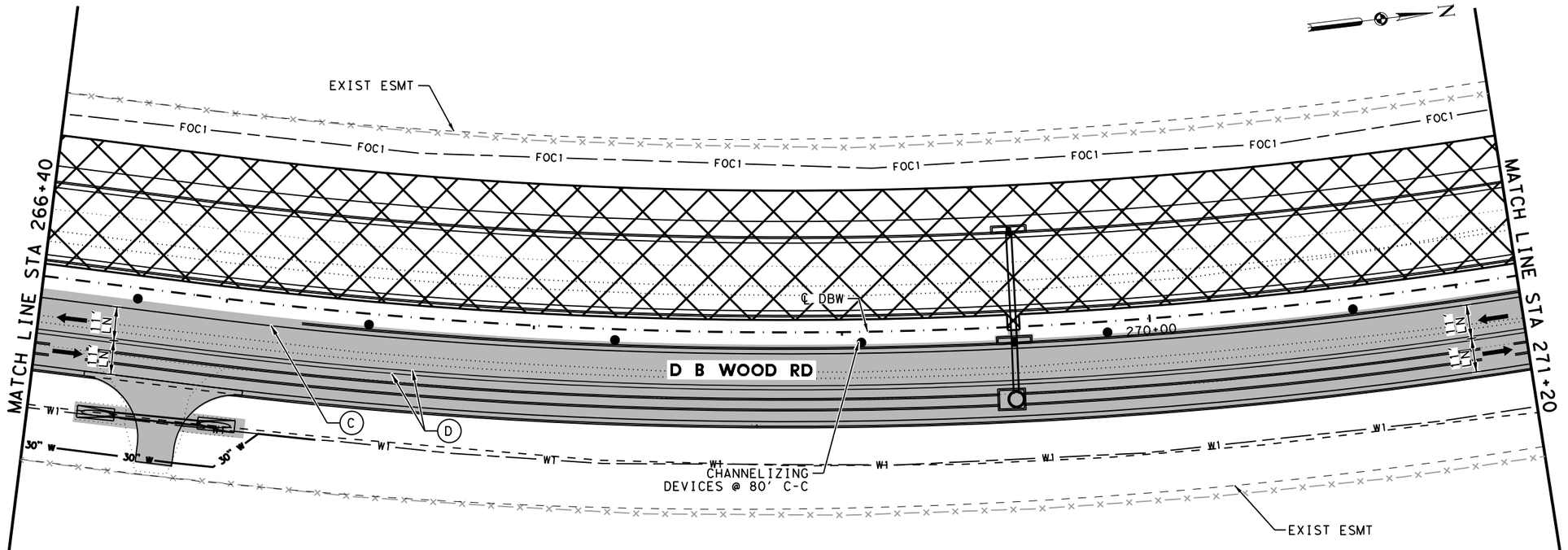
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 252+00 TO 261+60

SHEET 9 OF 14 | 63

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
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PROFESSIONAL ENGINEER

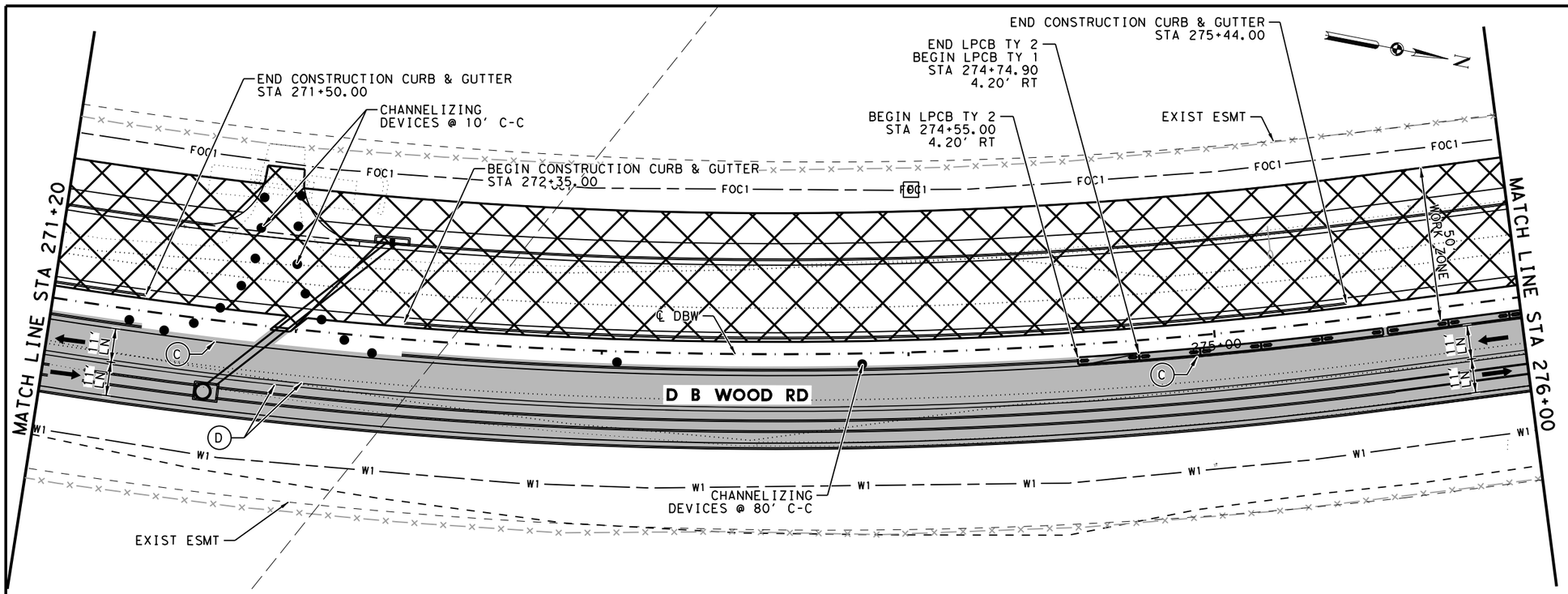
Kimley»Horn F-928

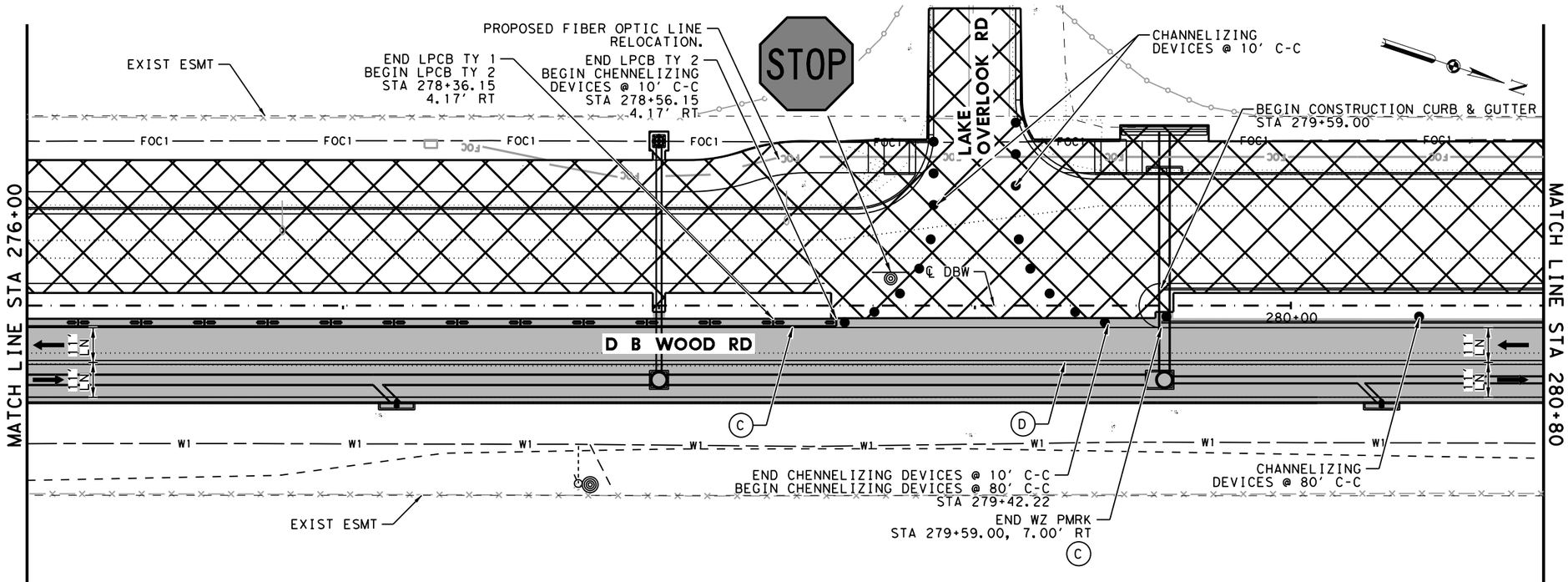
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 261+60 TO 271+20

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
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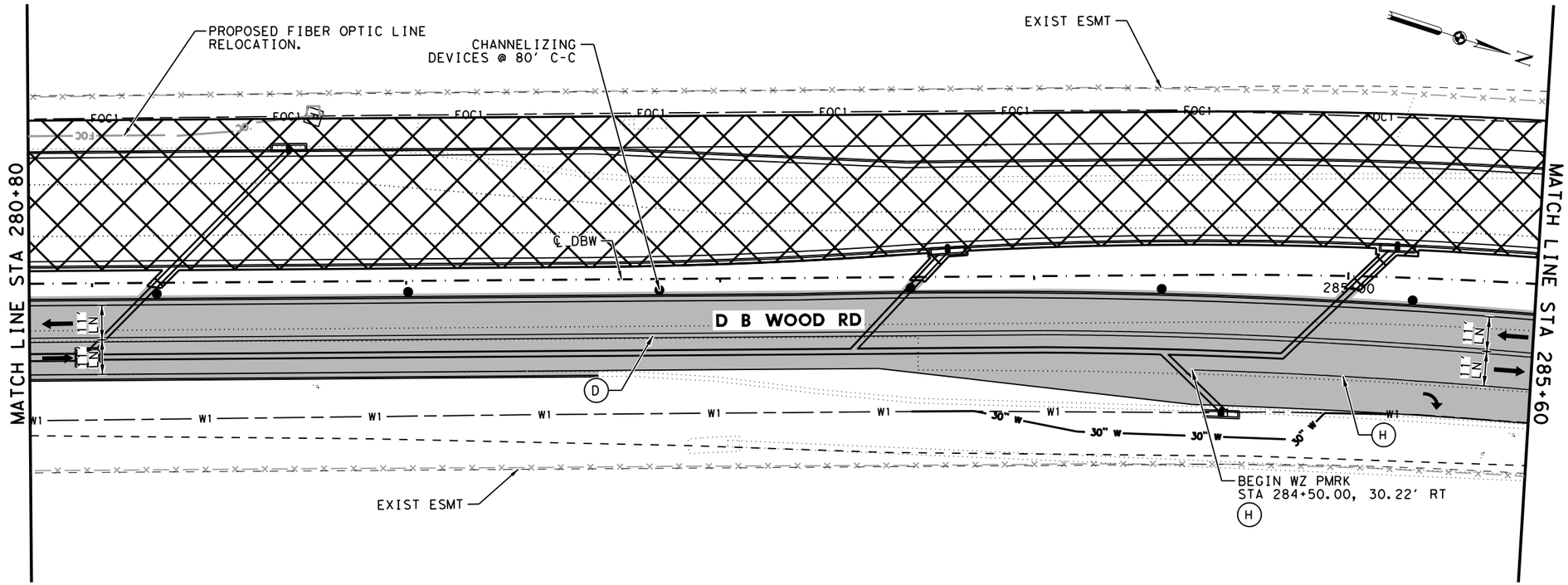
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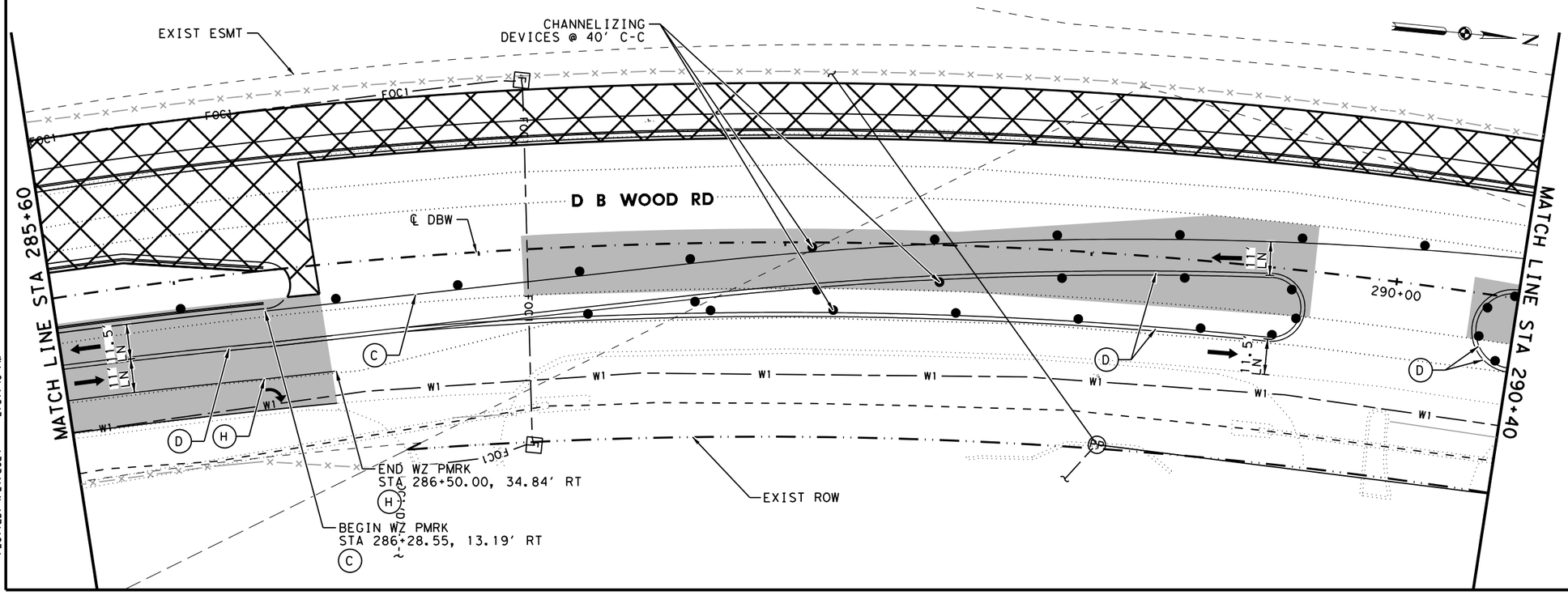
GEORGETOWN
TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 271+20 TO 280+80

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

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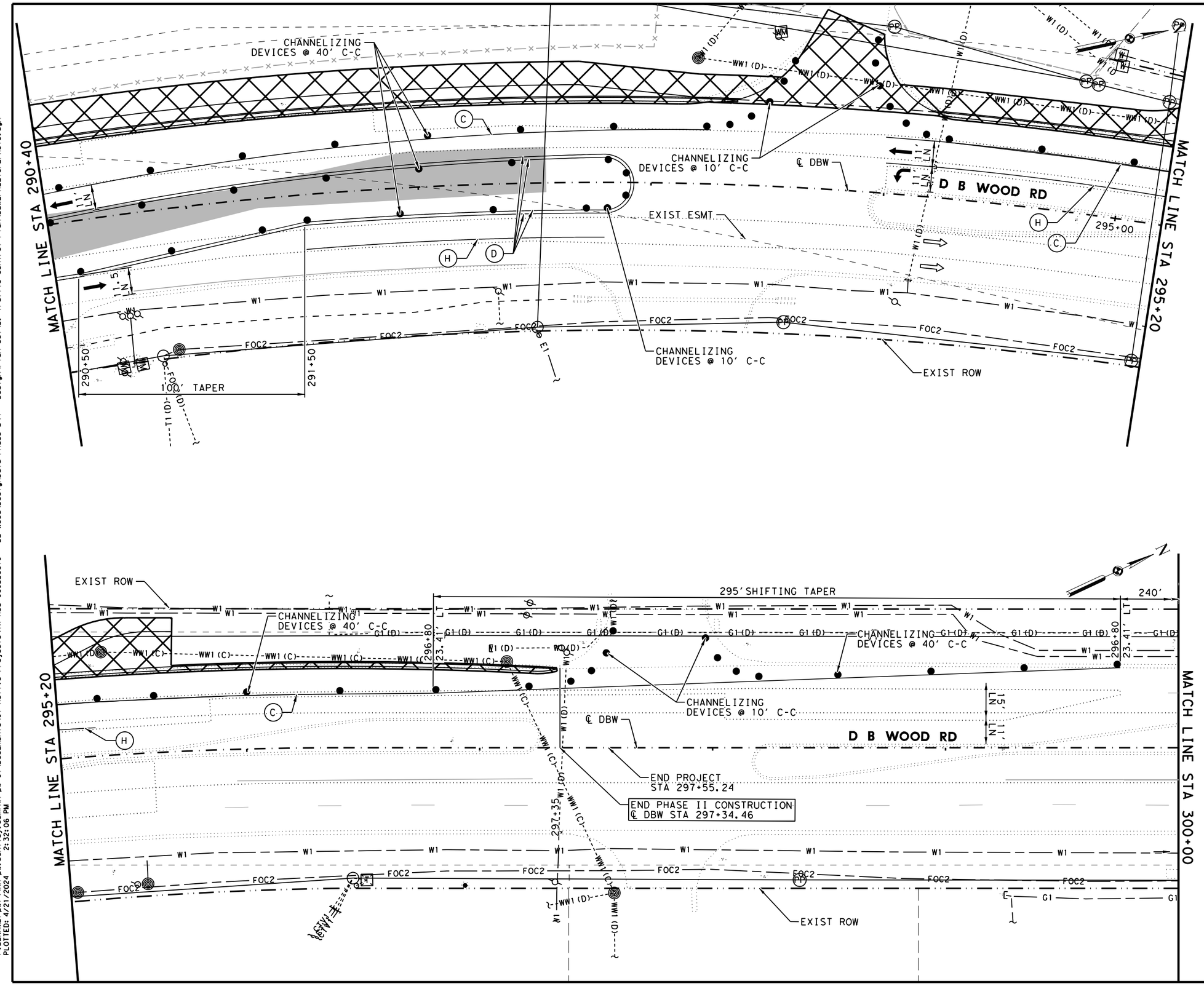
GEORGETOWN TEXAS
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D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 280+80 TO 290+40

SHEET 12 OF 14 | 66

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH312.dgn
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

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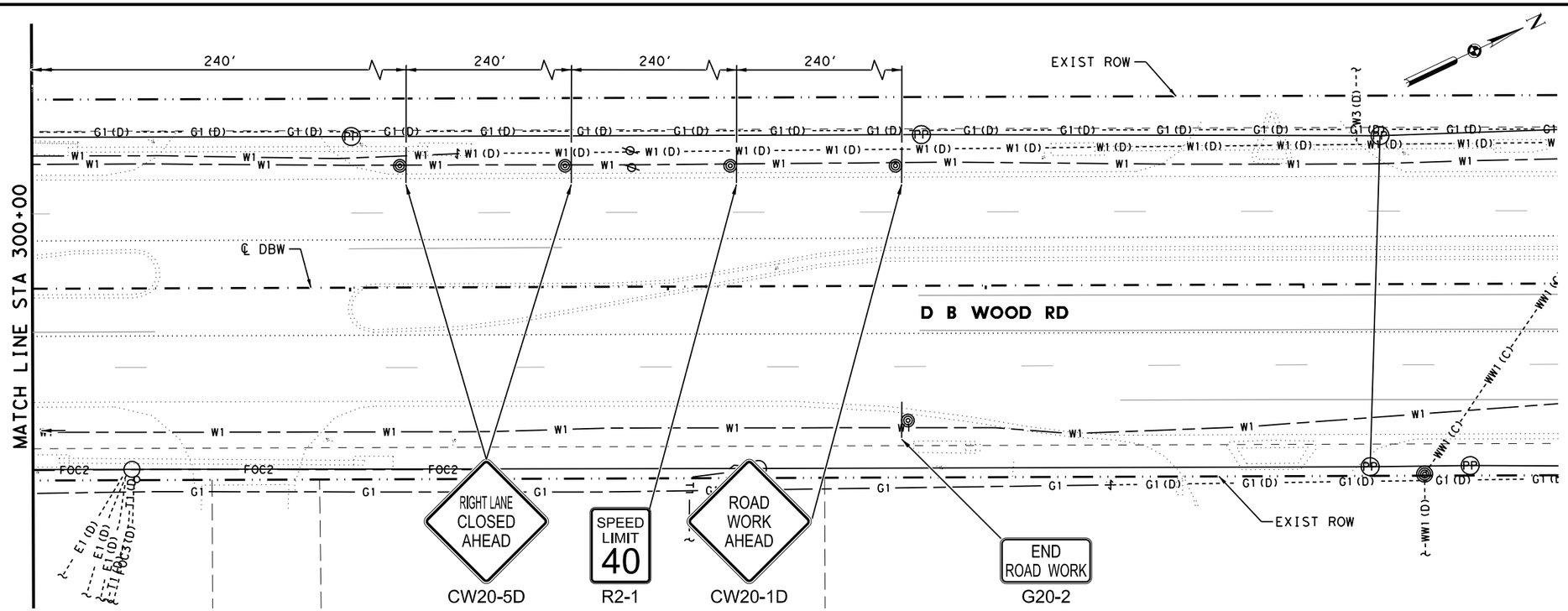
GEORGETOWN TEXAS
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D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE III
STA 290+40 TO 300+00

SHEET 13 OF 14 | 67

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

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D B WOOD ROAD

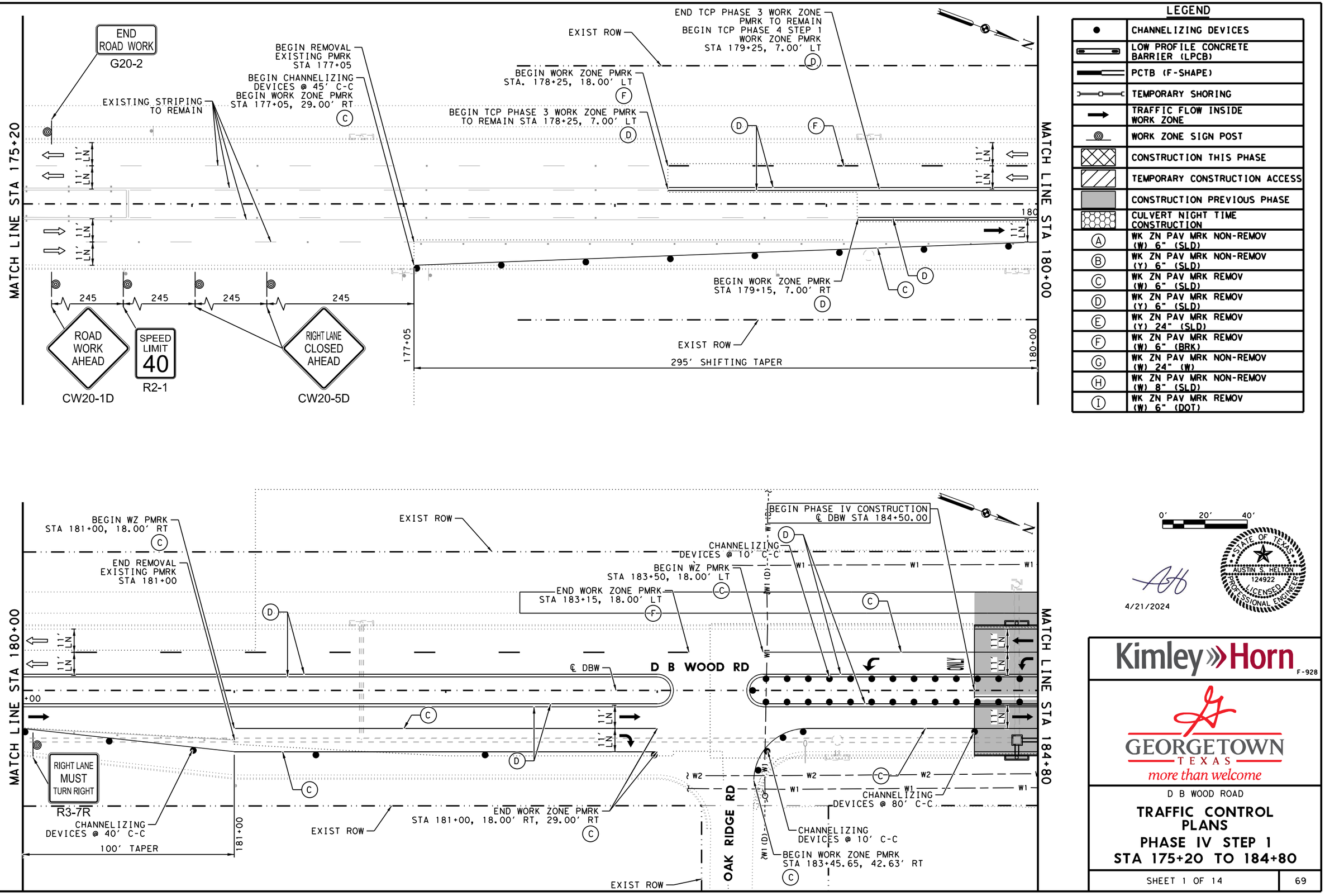
TRAFFIC CONTROL PLANS

PHASE III

STA 300+00 TO END PROJECT

SHEET 14 OF 14 | 68

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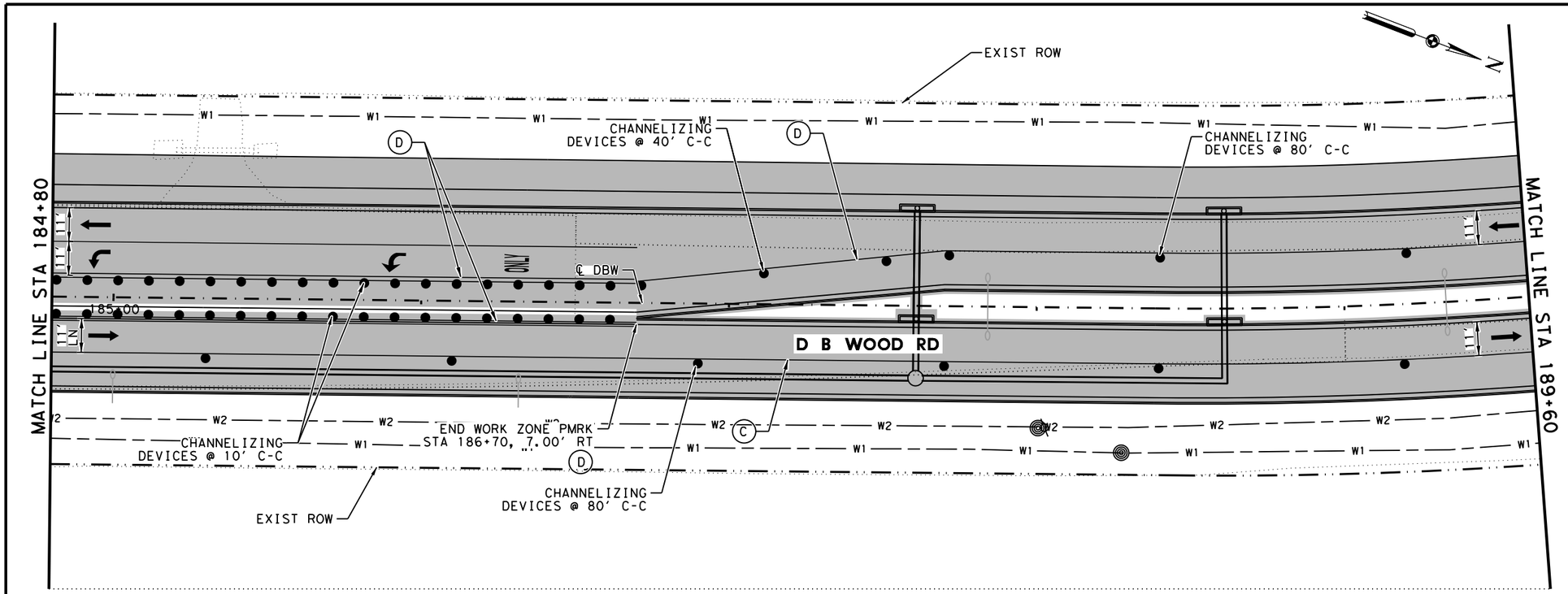
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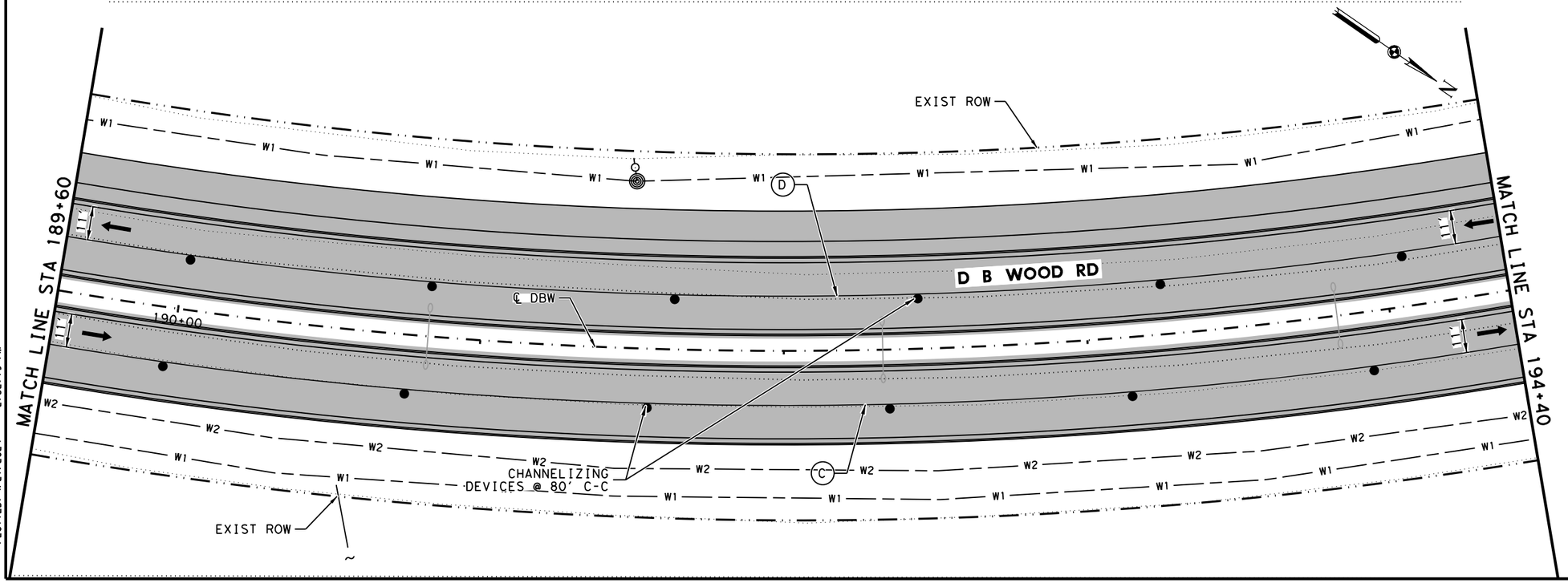
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D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 175+20 TO 184+80





LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

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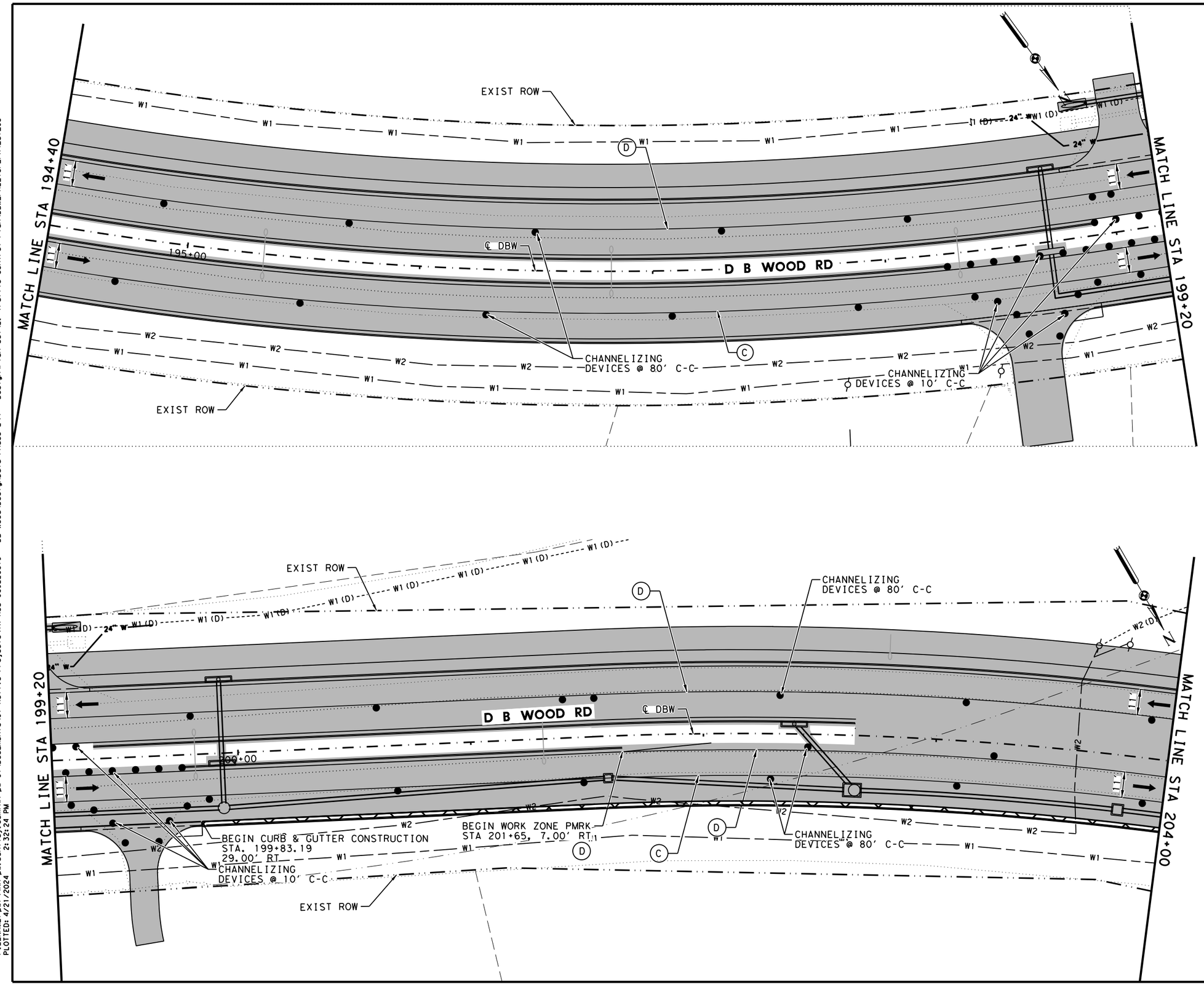
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 184+80 TO 194+40

SHEET 2 OF 14 | 70

FILENAME: pw:\\Xkh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH4_S1_02
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

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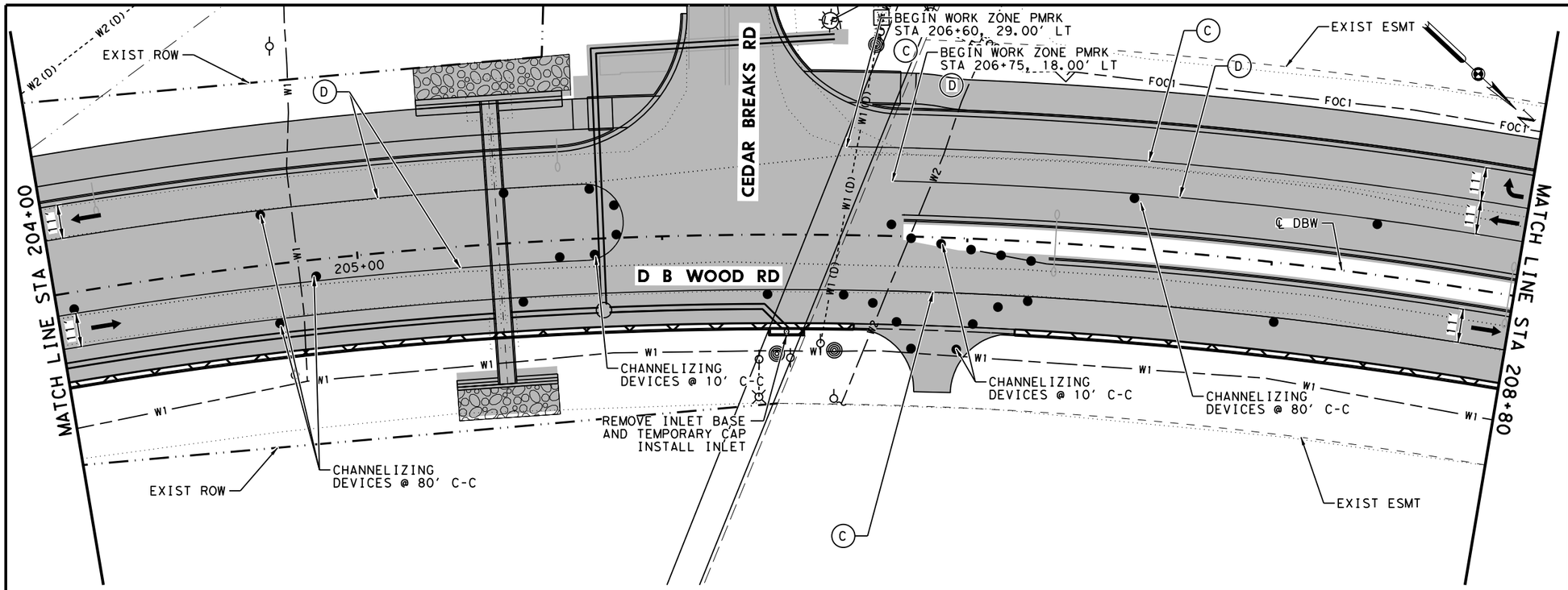
GEORGETOWN
TEXAS
more than welcome

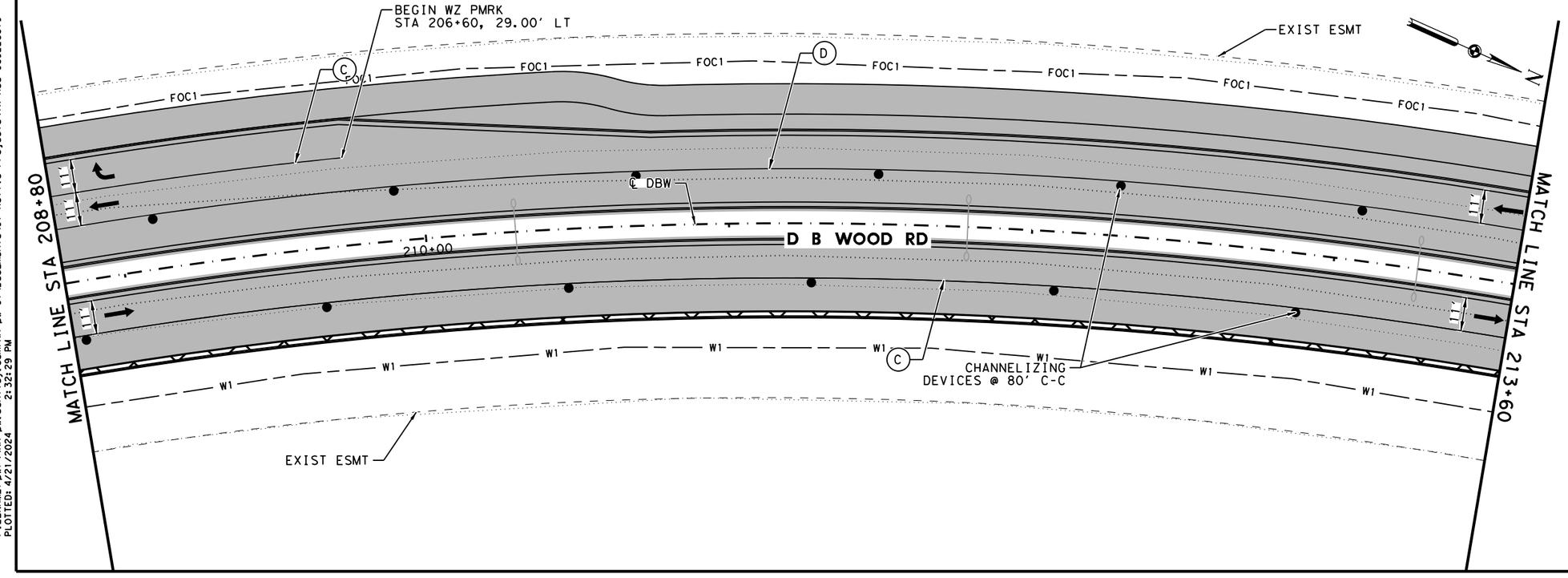
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 194+40 TO 204+00

SHEET 3 OF 14 | 71

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
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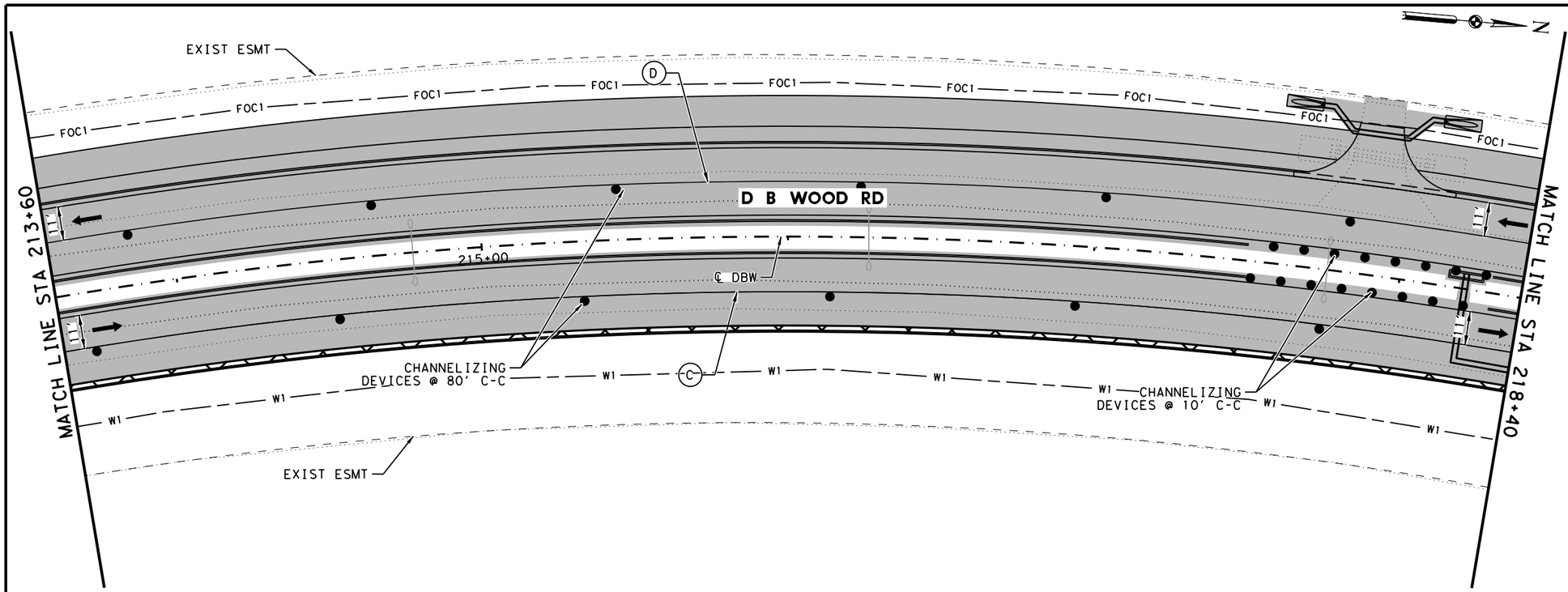
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TEXAS
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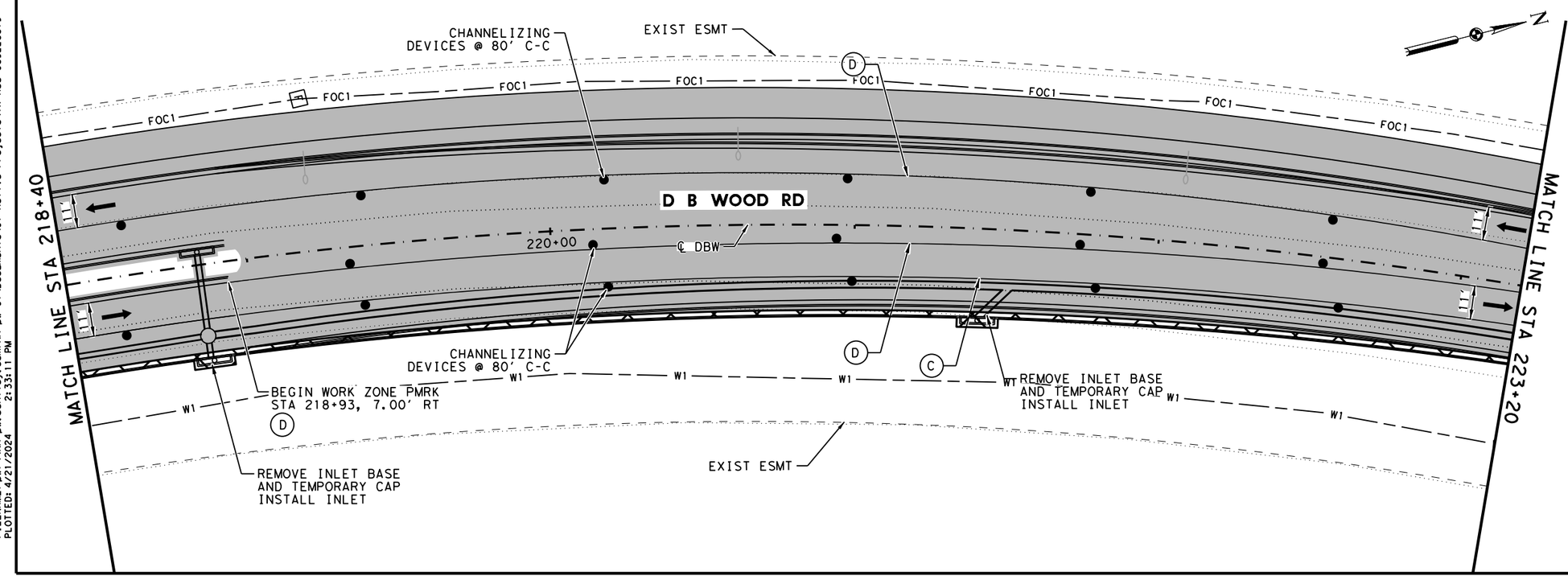
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 204+00 TO 213+60

SHEET 4 OF 14 | 72

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

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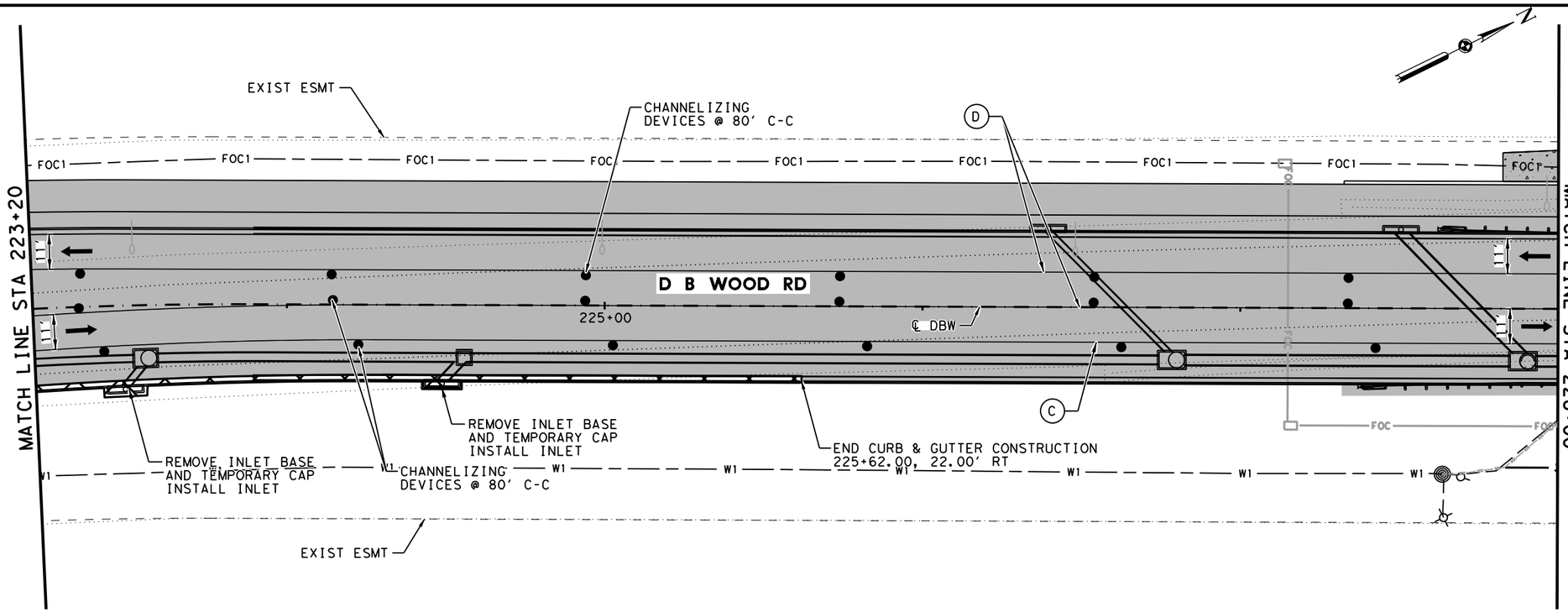
GEORGETOWN TEXAS
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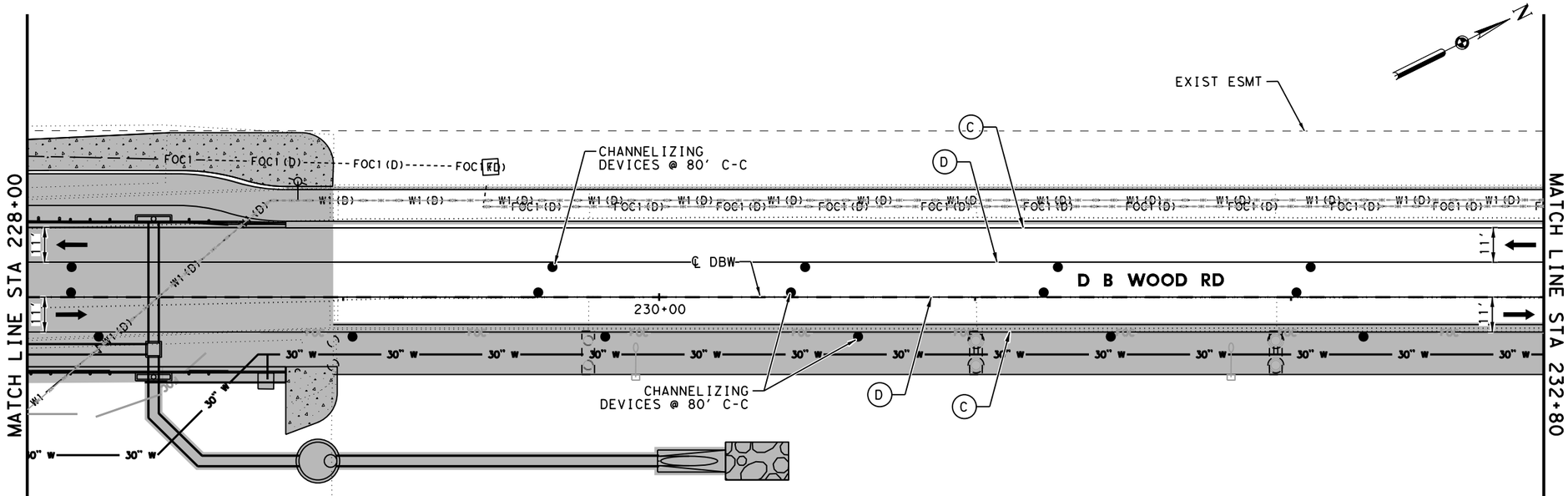
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 213+60 TO 223+20

SHEET 5 OF 14 | 73

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/22/2024

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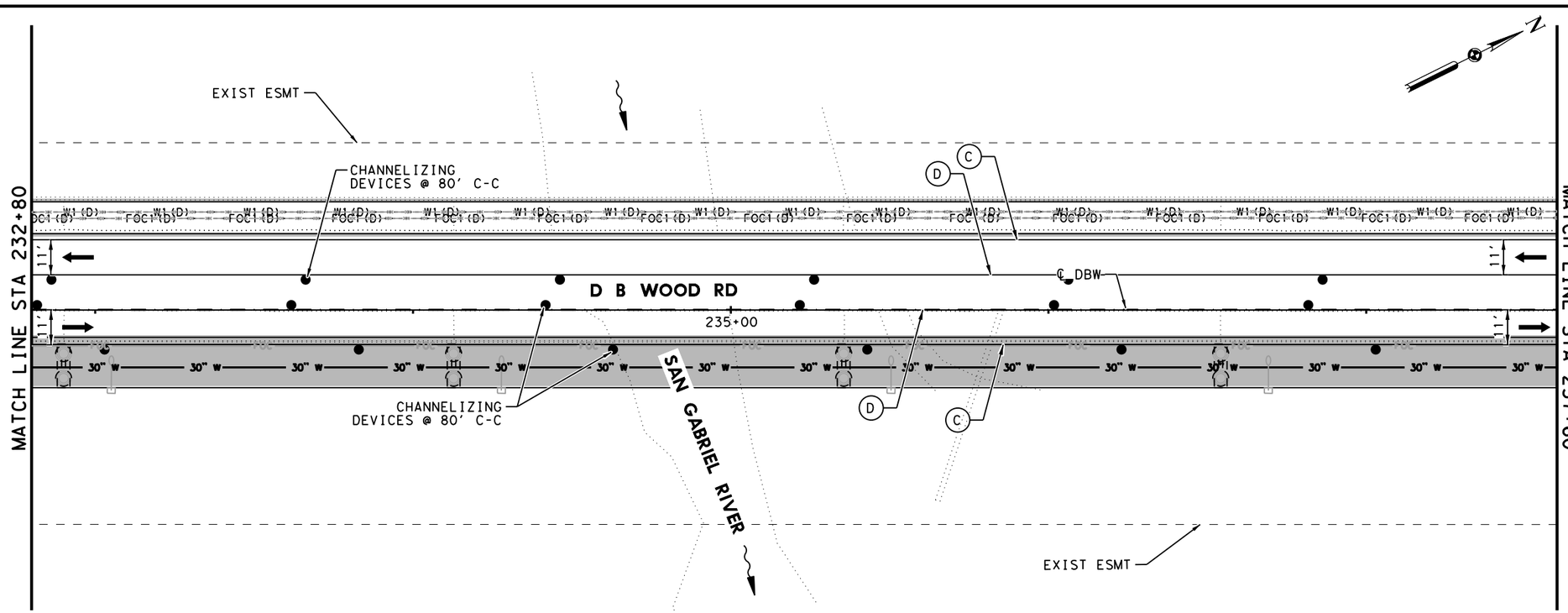
GEORGETOWN TEXAS
more than welcome

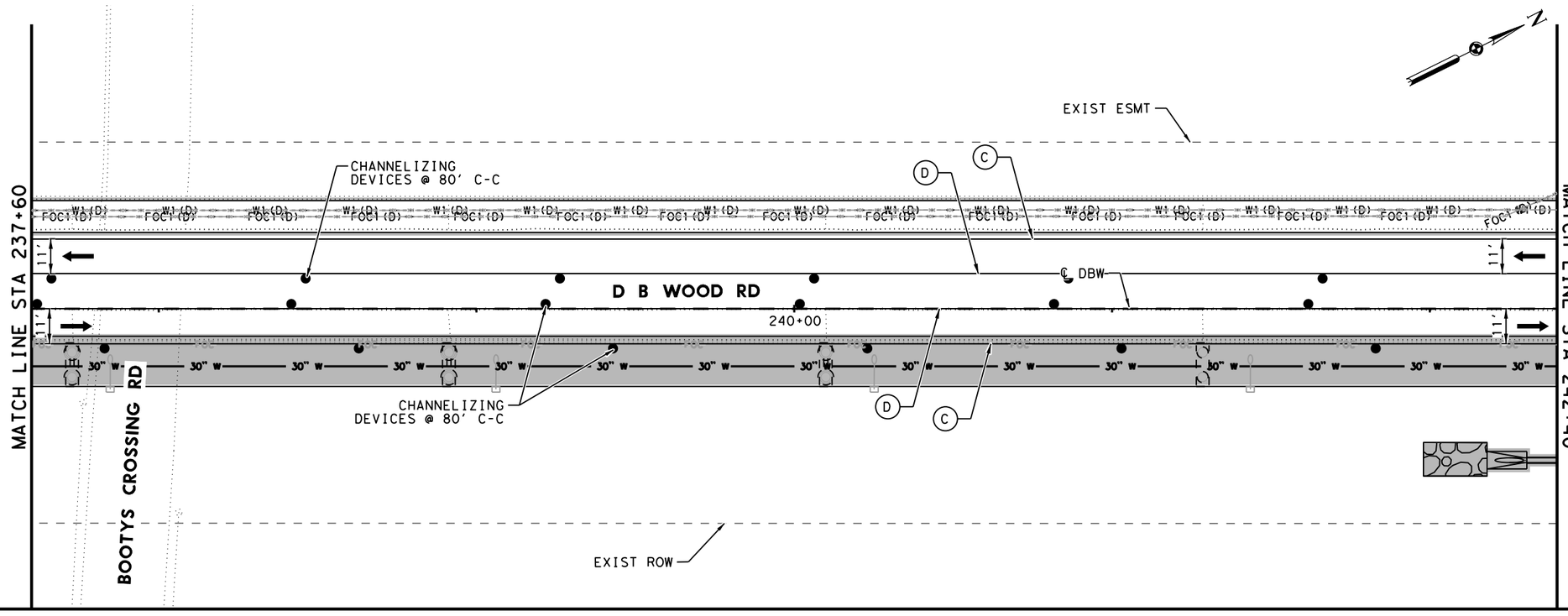
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 223+20 TO 232+80

SHEET 6 OF 14 | 74

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/22/2024

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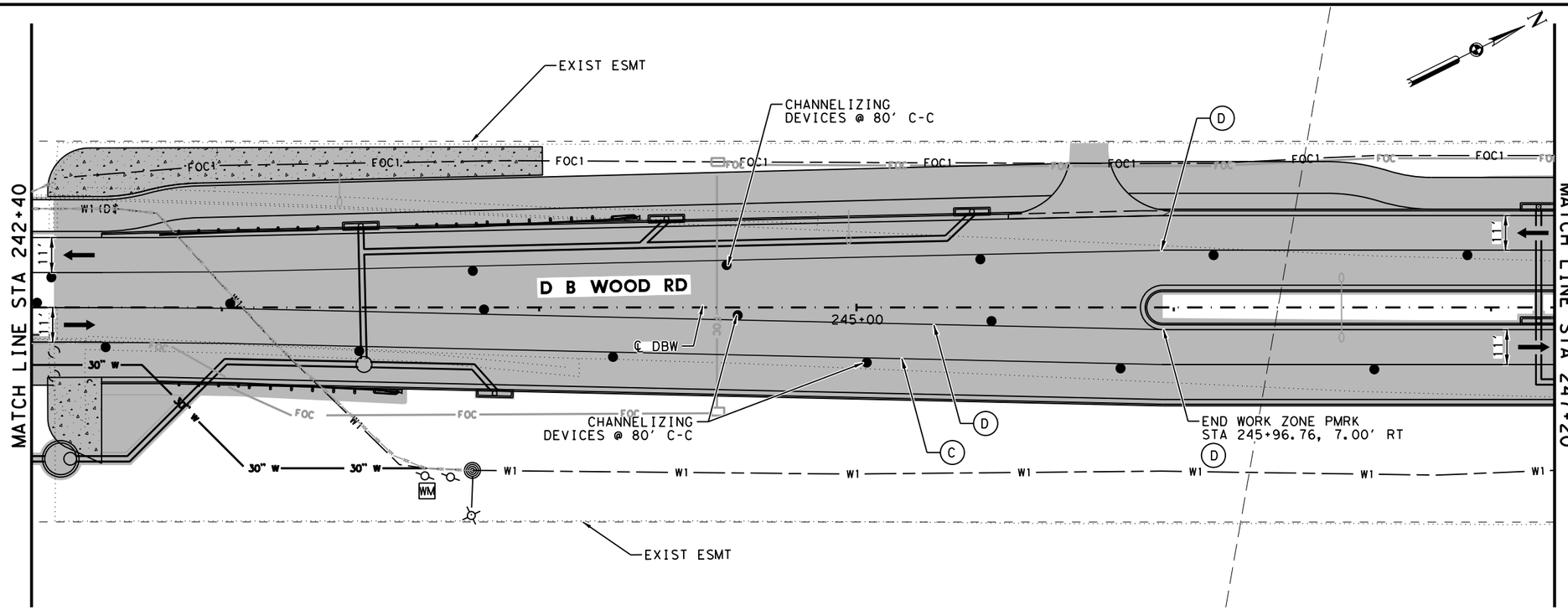
GEORGETOWN TEXAS
more than welcome

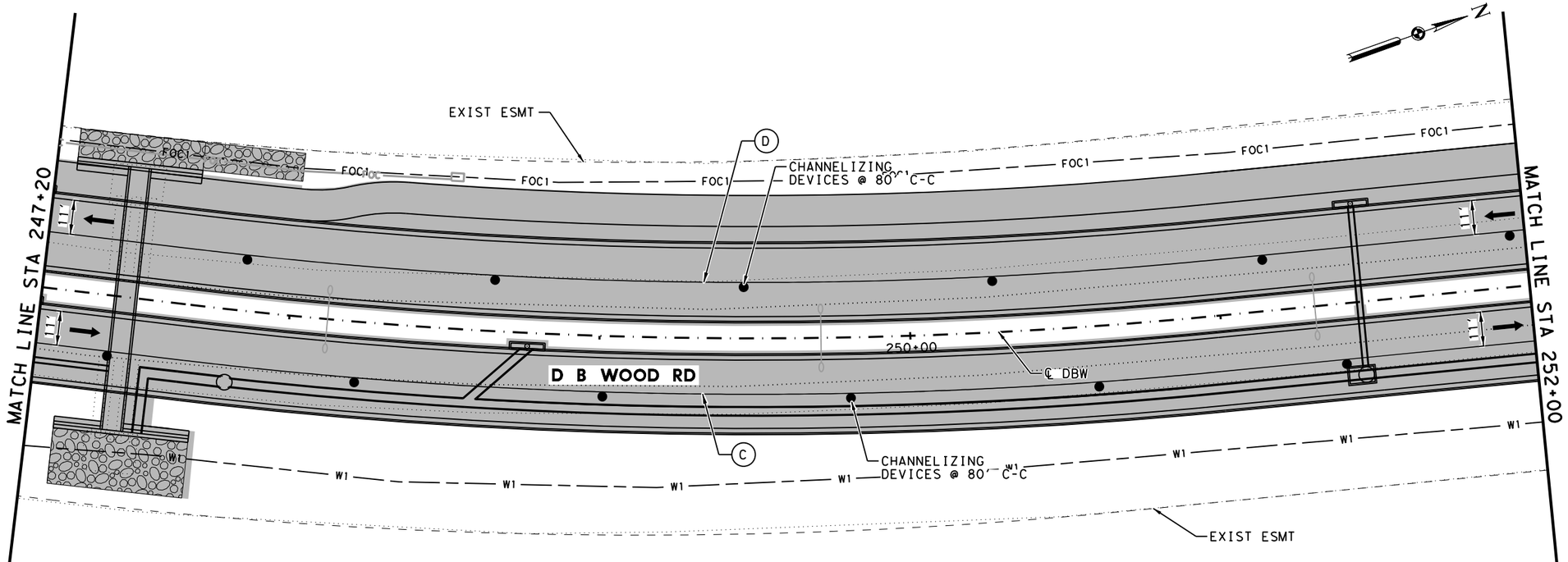
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 232+80 TO 242+40

SHEET 7 OF 14 | 75

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/22/2024

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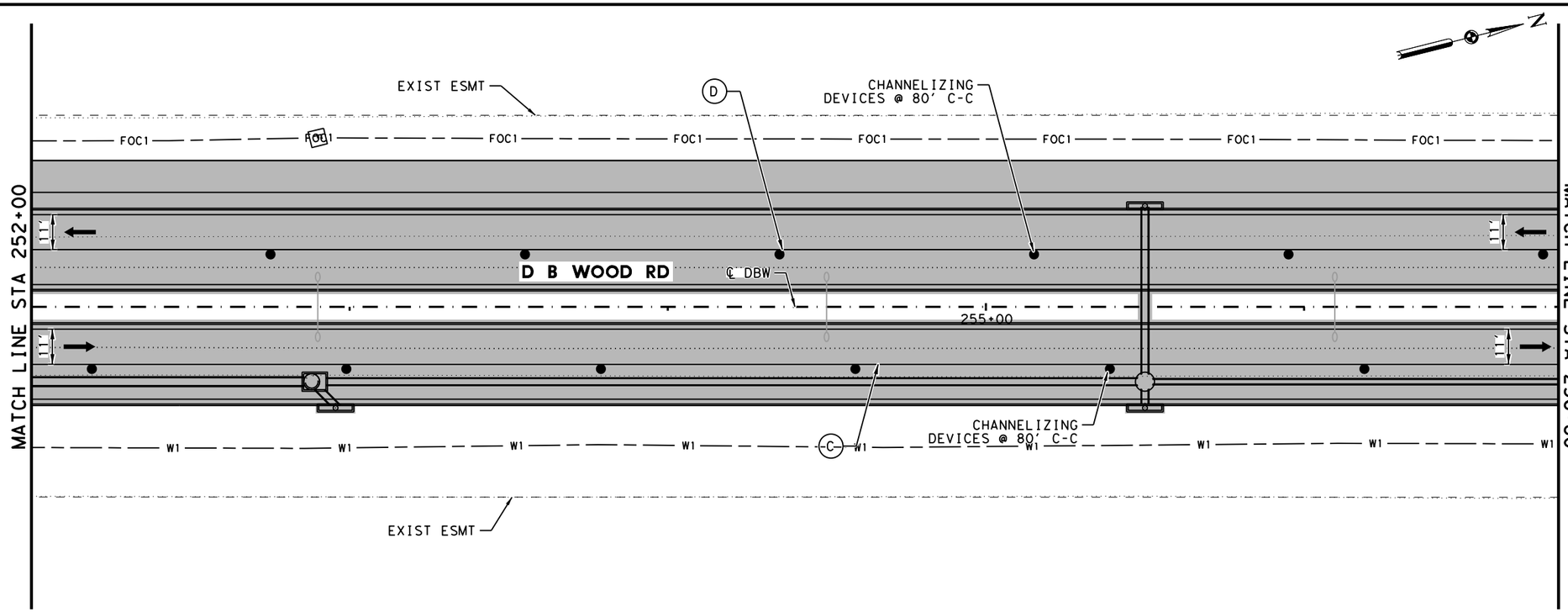
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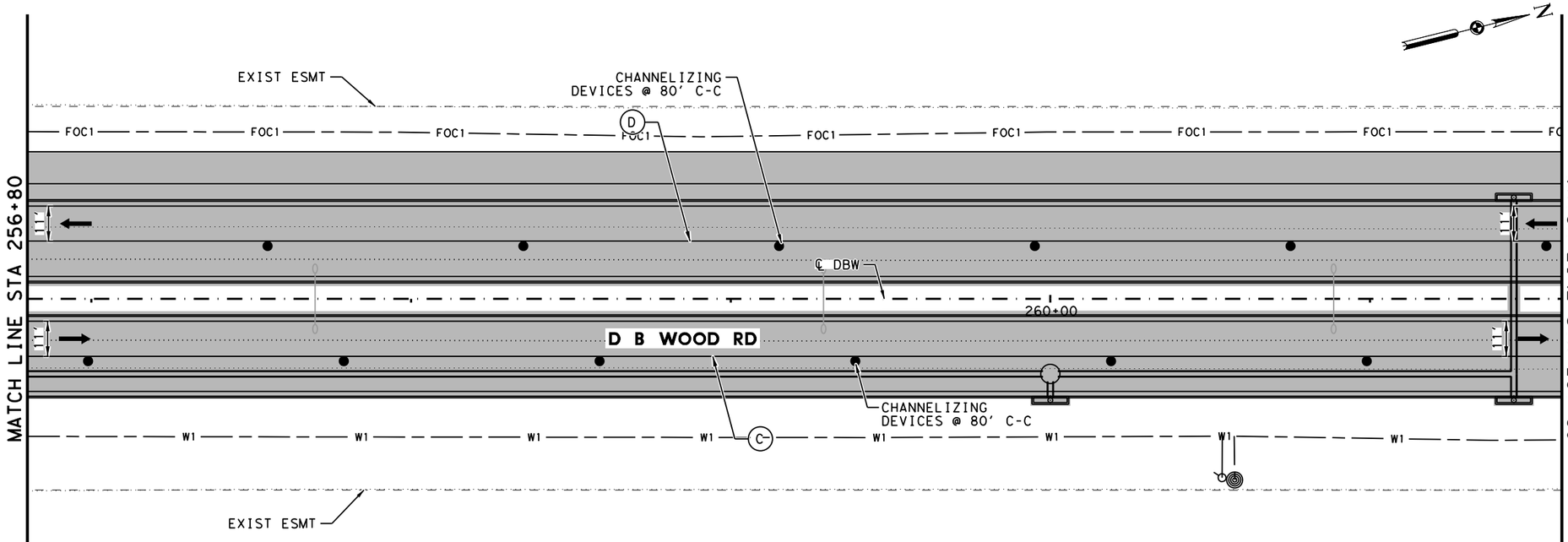
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 242+40 TO 252+00

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

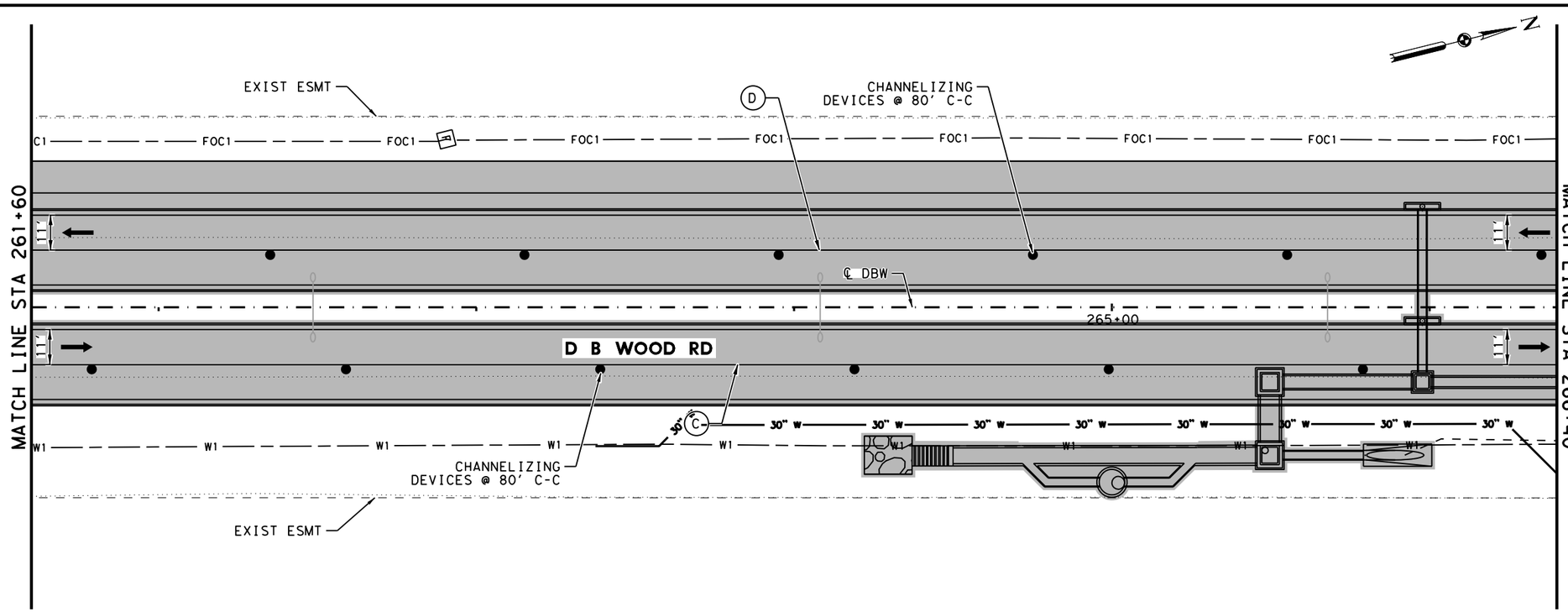
GEORGETOWN TEXAS
more than welcome

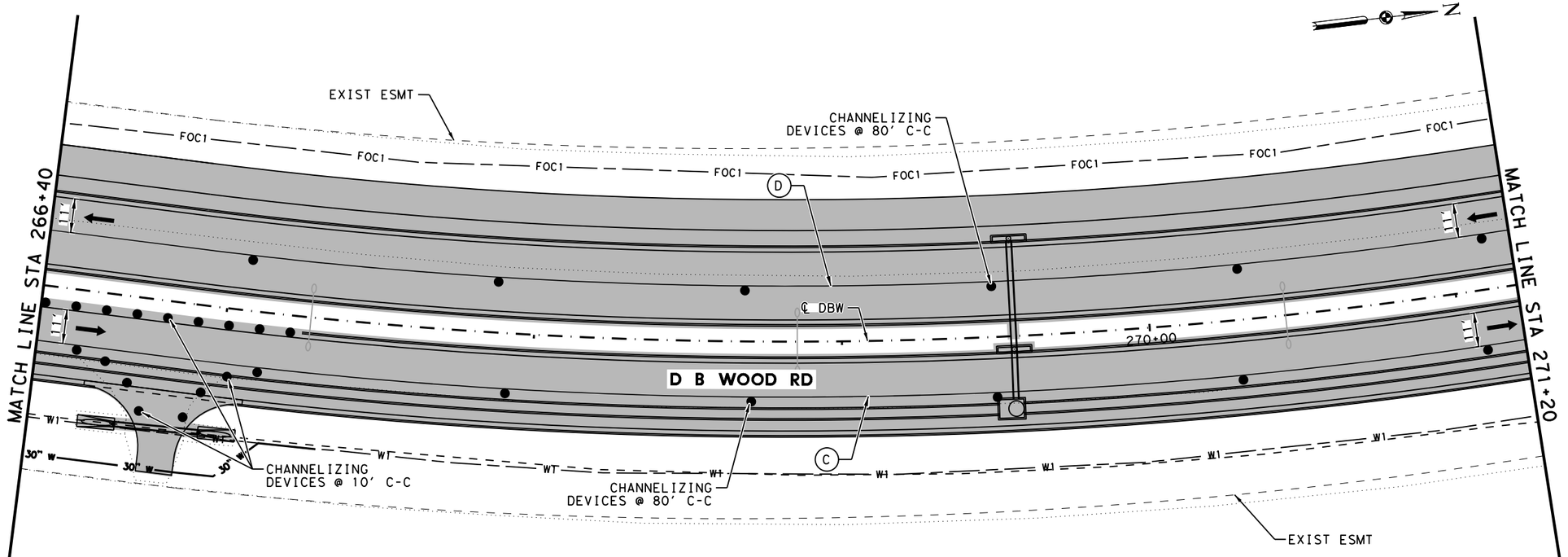
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 252+00 TO 261+60

SHEET 9 OF 14 | 77

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\2. Traffic Control Plan\DBW_PH2_TCP_PH4_S1_09
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

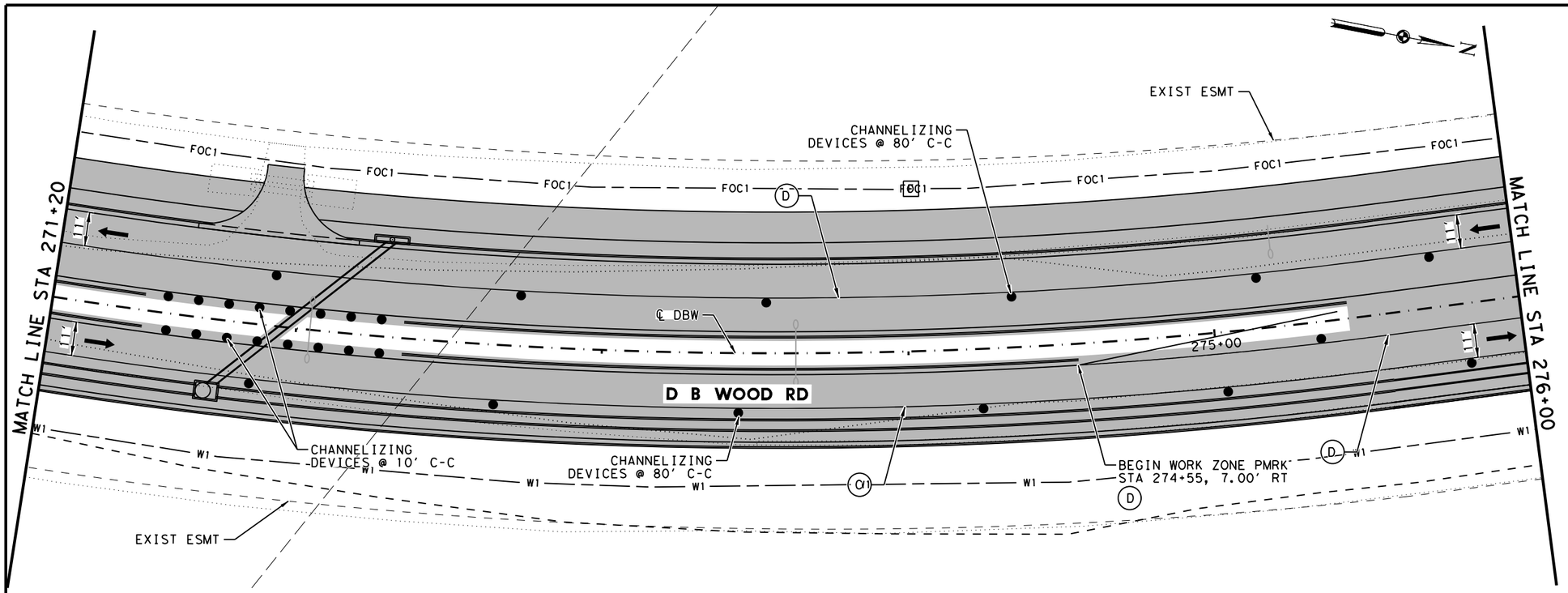
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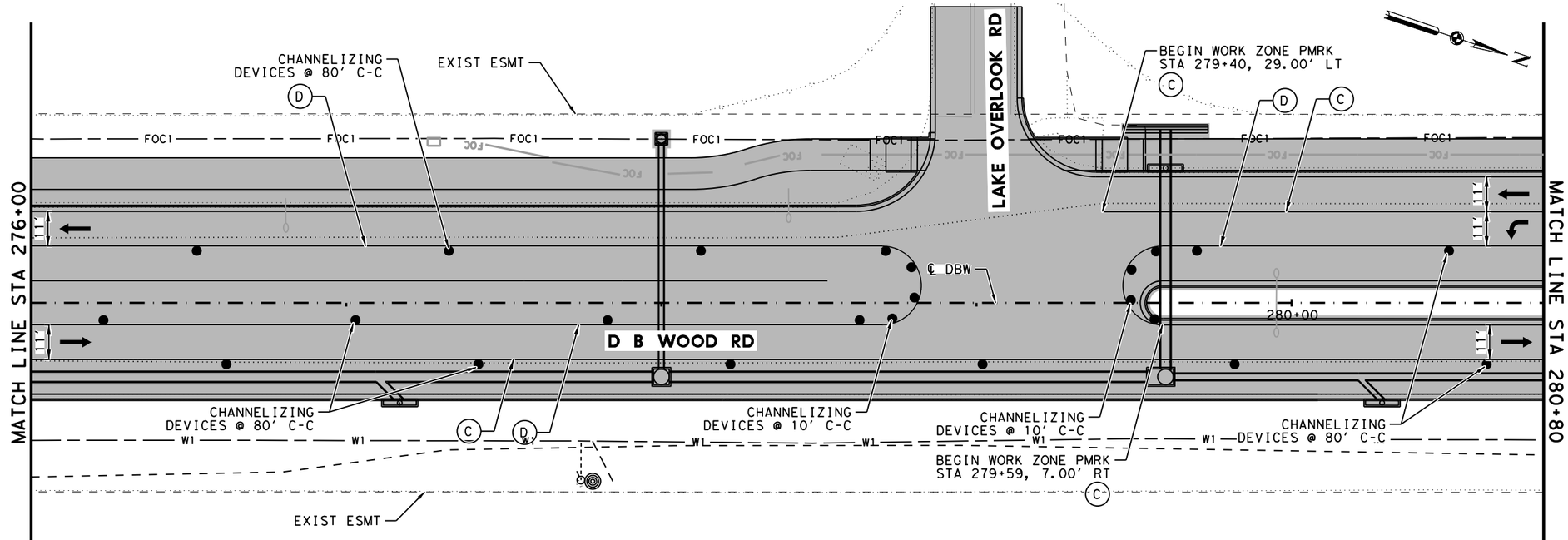
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 261+60 TO 271+20

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

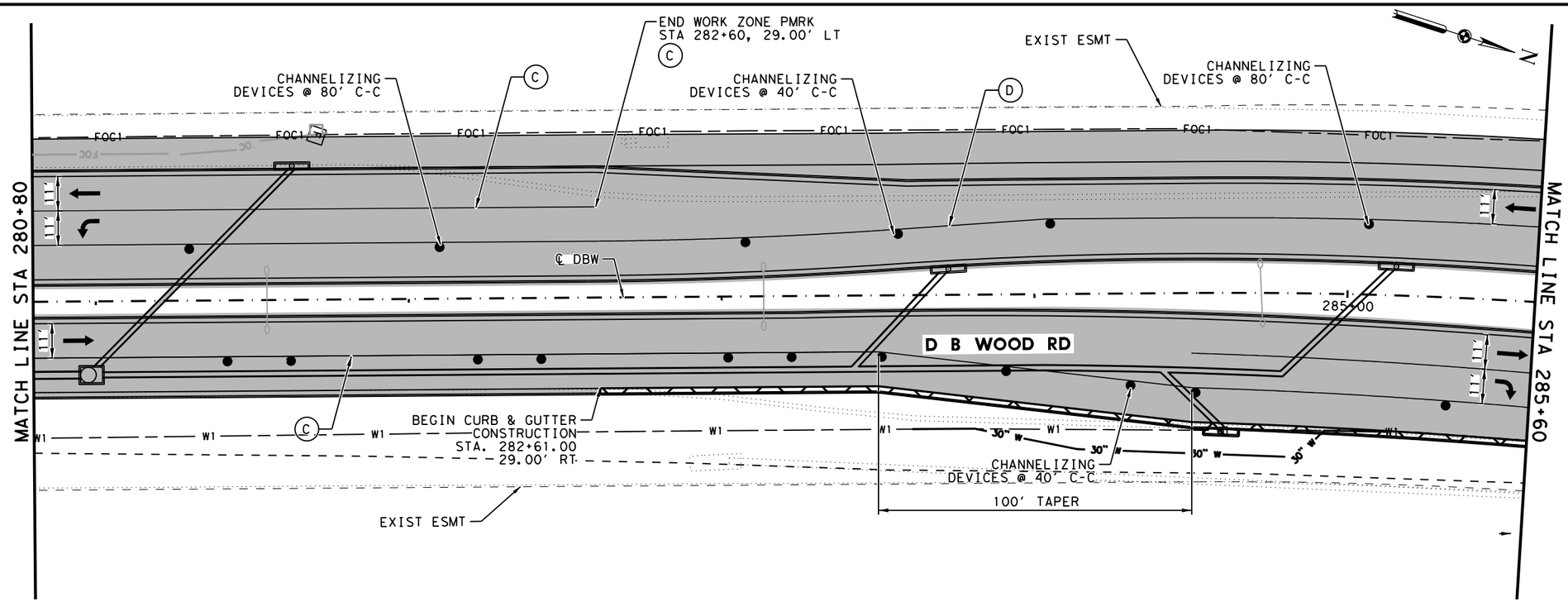
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 271+20 TO 280+80

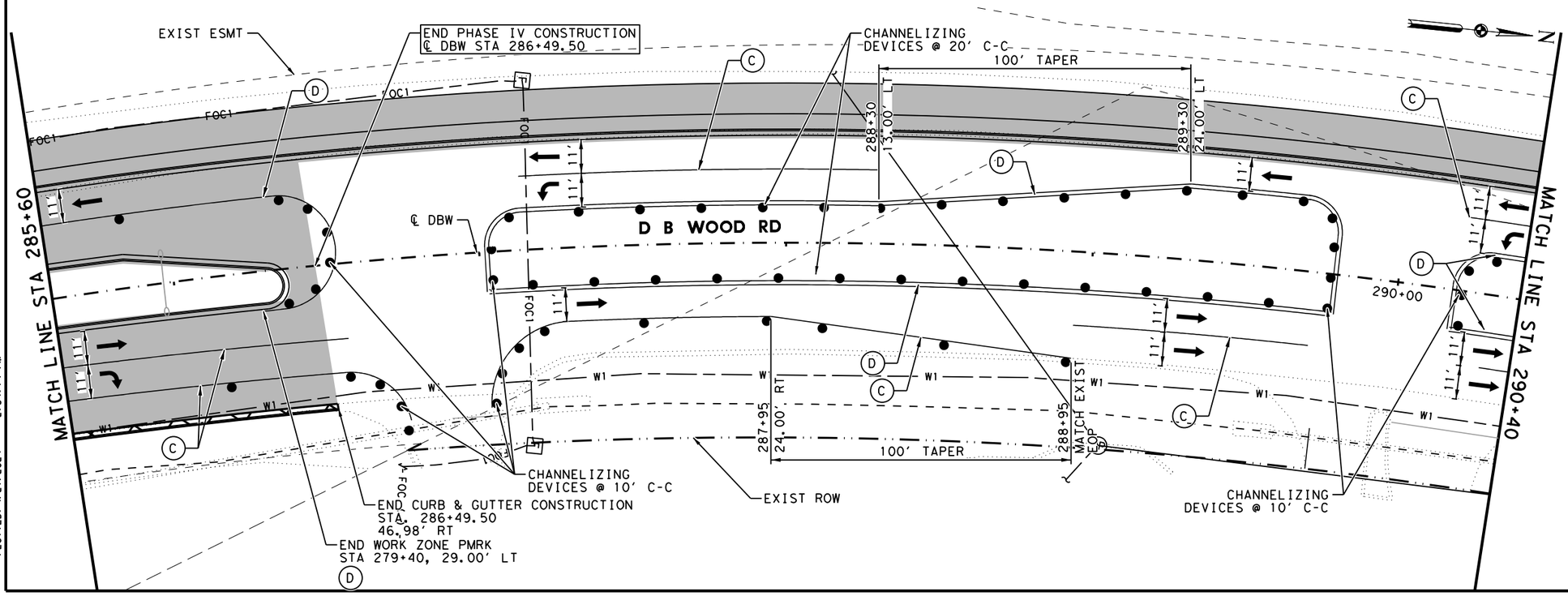
SHEET 11 OF 14 | 79

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)



0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
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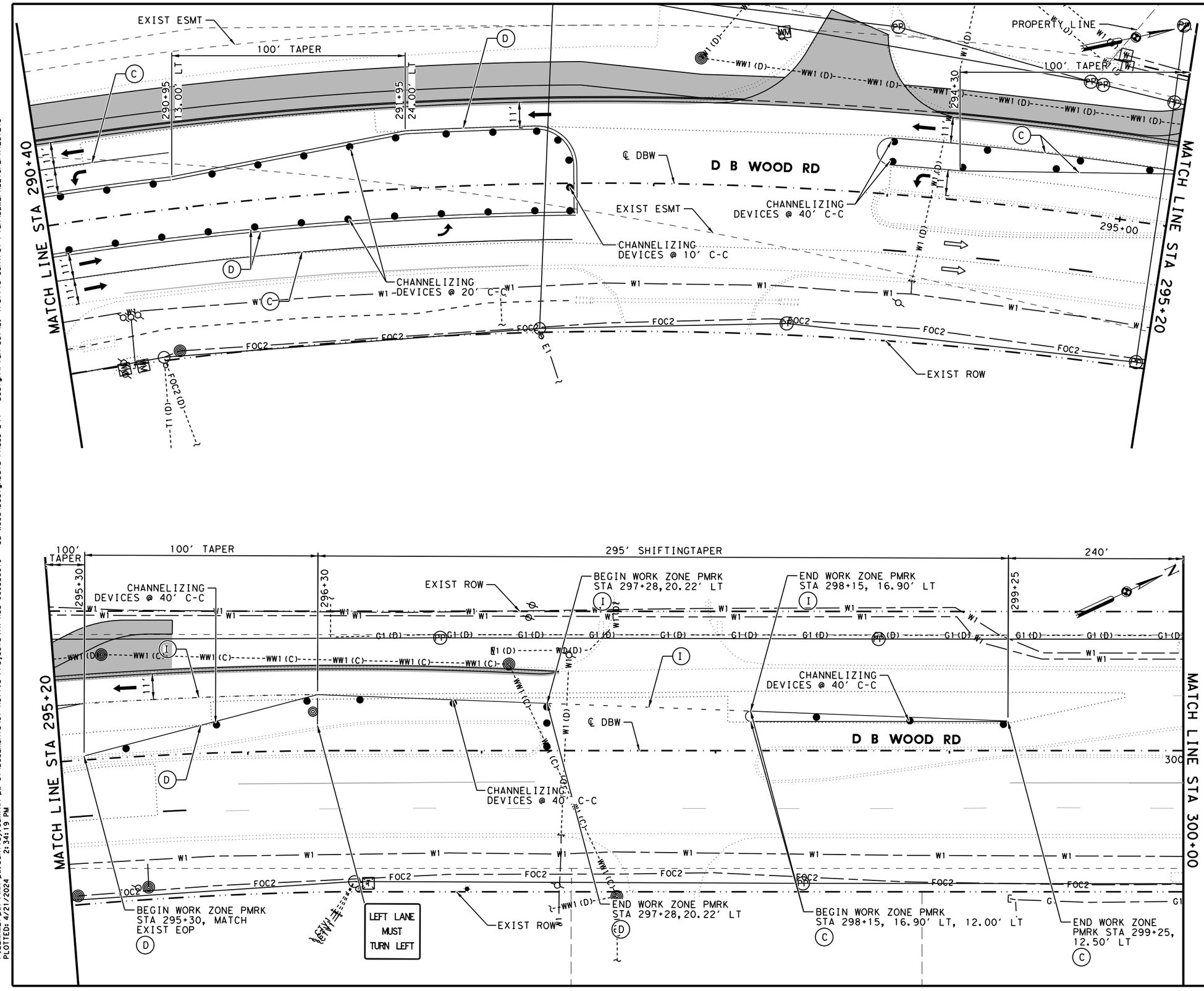
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 280+80 TO 290+40

SHEET 12 OF 14 | 80

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

4/21/2024

STATE OF TEXAS
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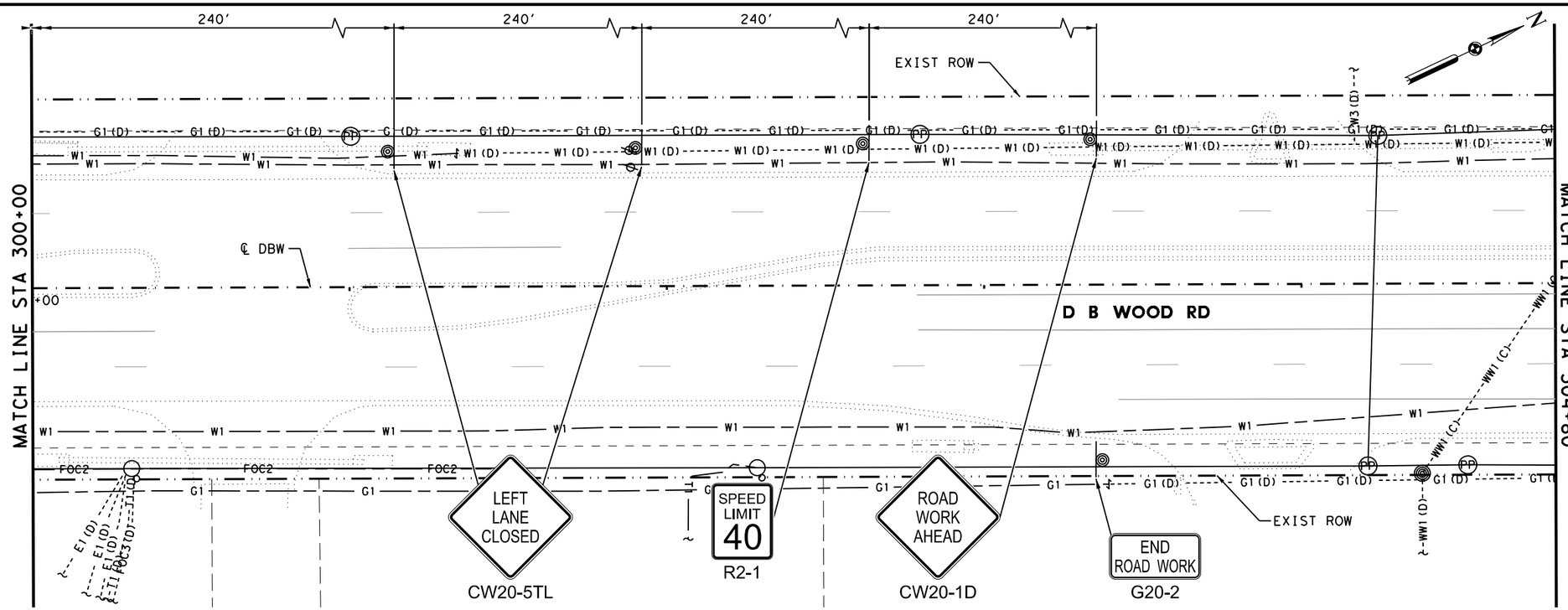
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 290+40 TO 300+00

SHEET 13 OF 14 | 81

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
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4/21/2024

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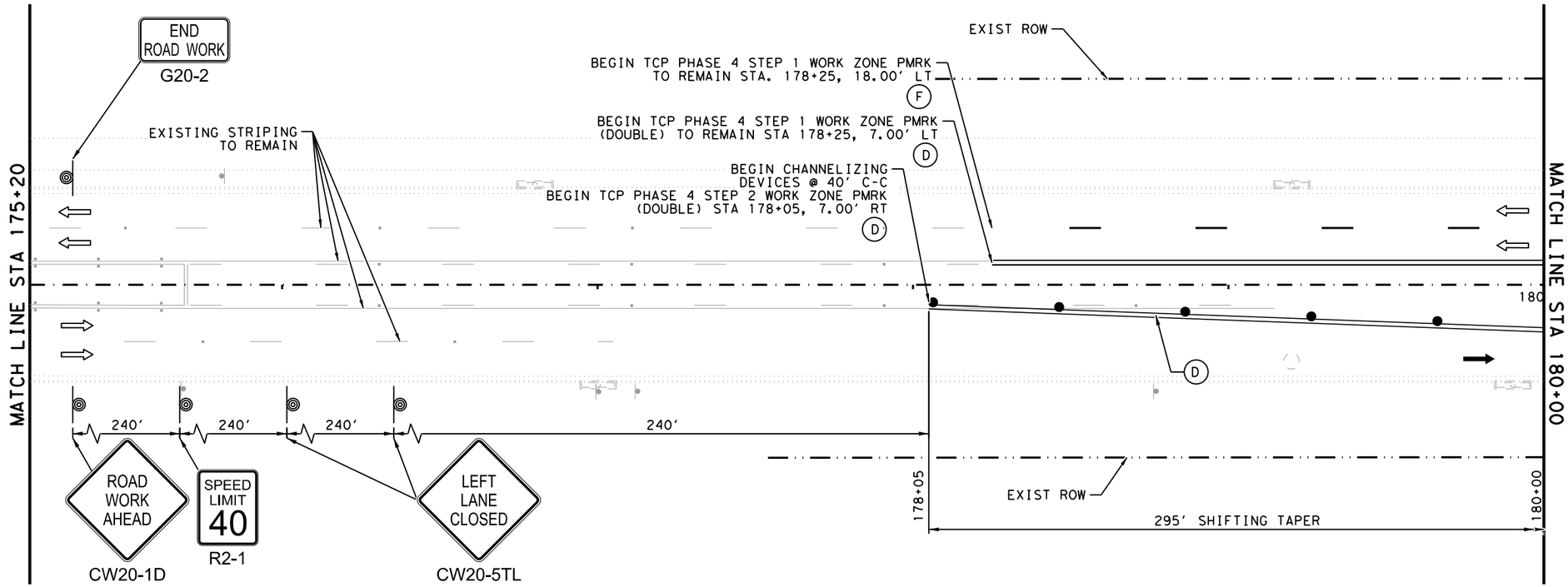
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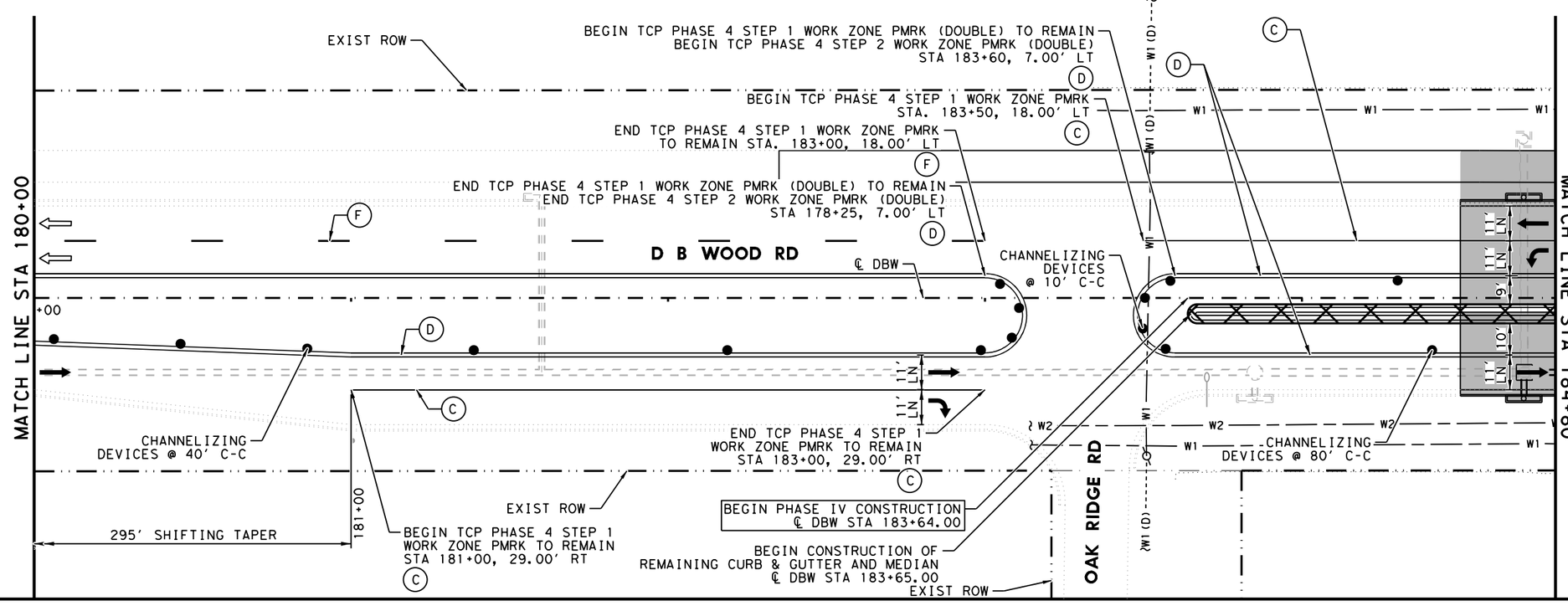
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 1
STA 300+00 TO END PROJECT

SHEET 14 OF 14 | 82

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
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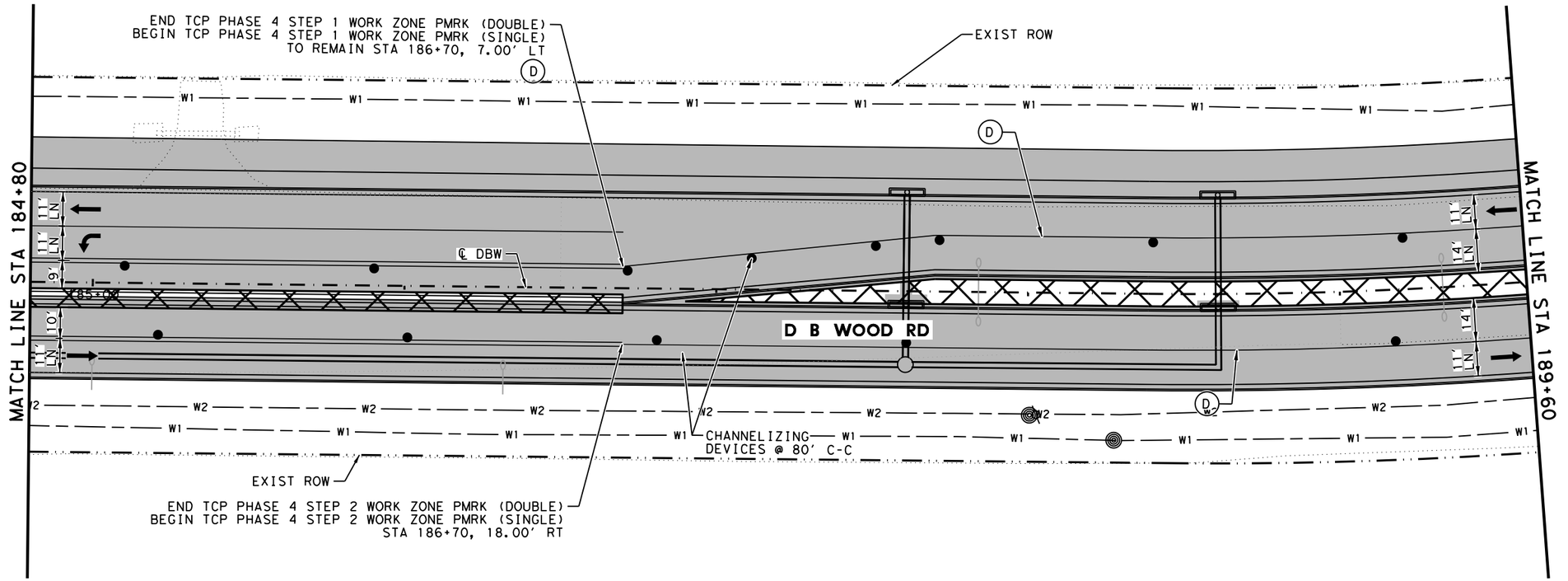
GEORGETOWN
TEXAS
more than welcome

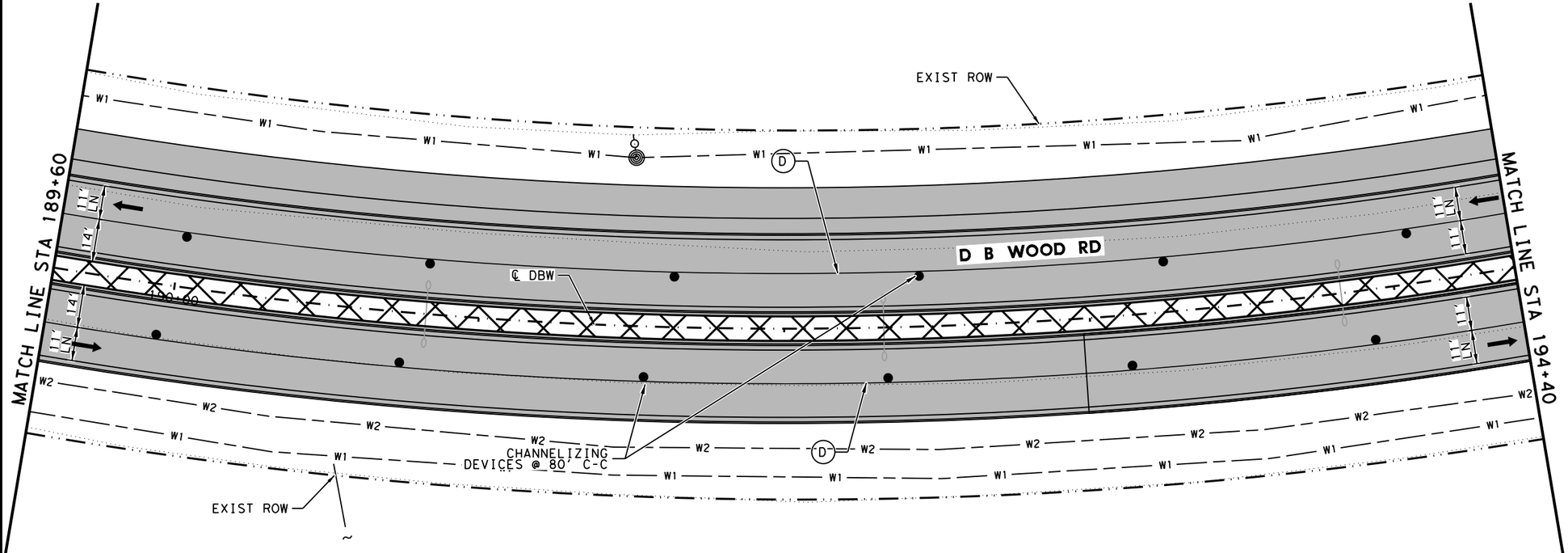
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 175+20 TO 184+80

SHEET 1 OF 14 | 83

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
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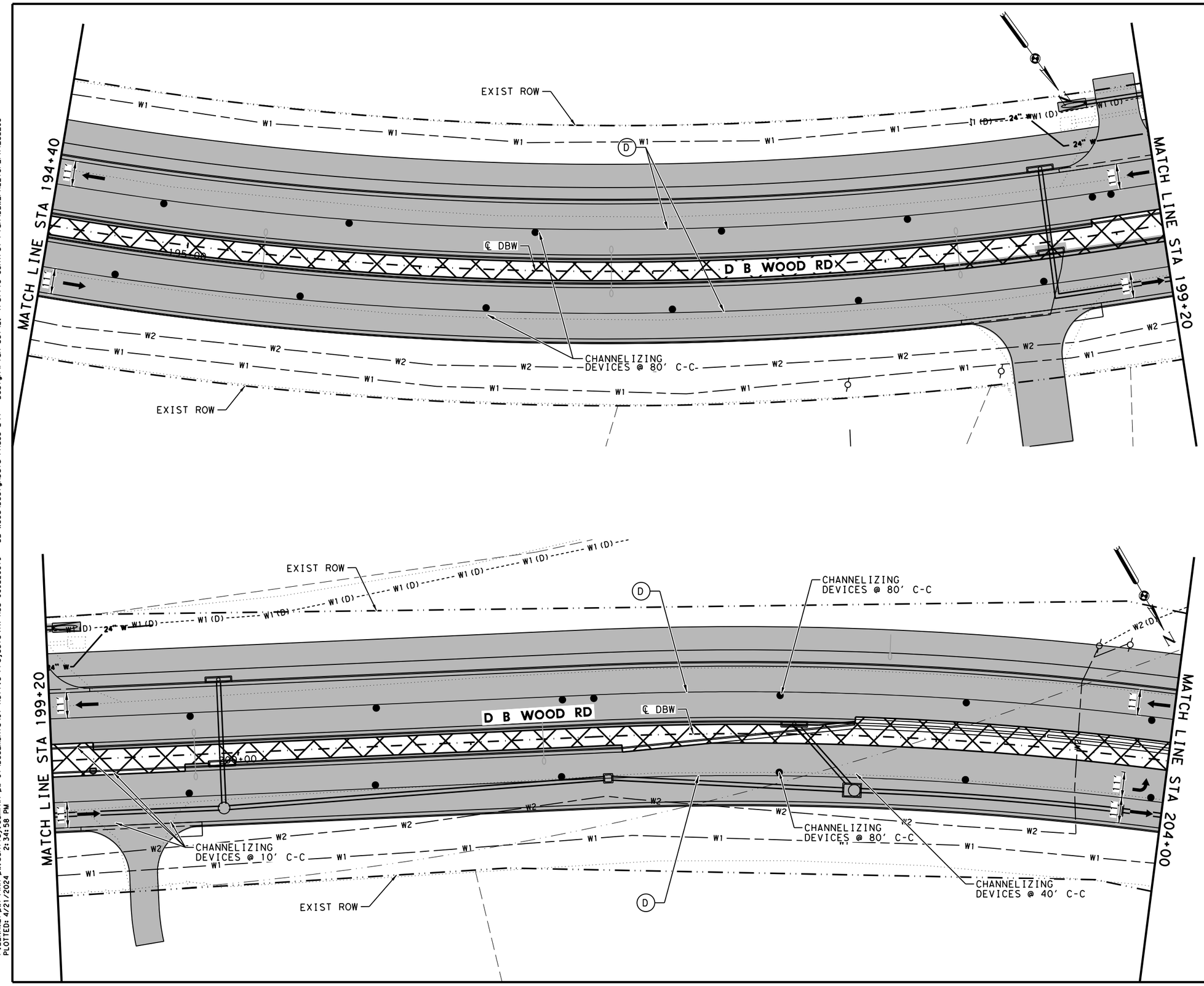
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 184+80 TO 194+40

SHEET 2 OF 14 | 84

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/21/2024

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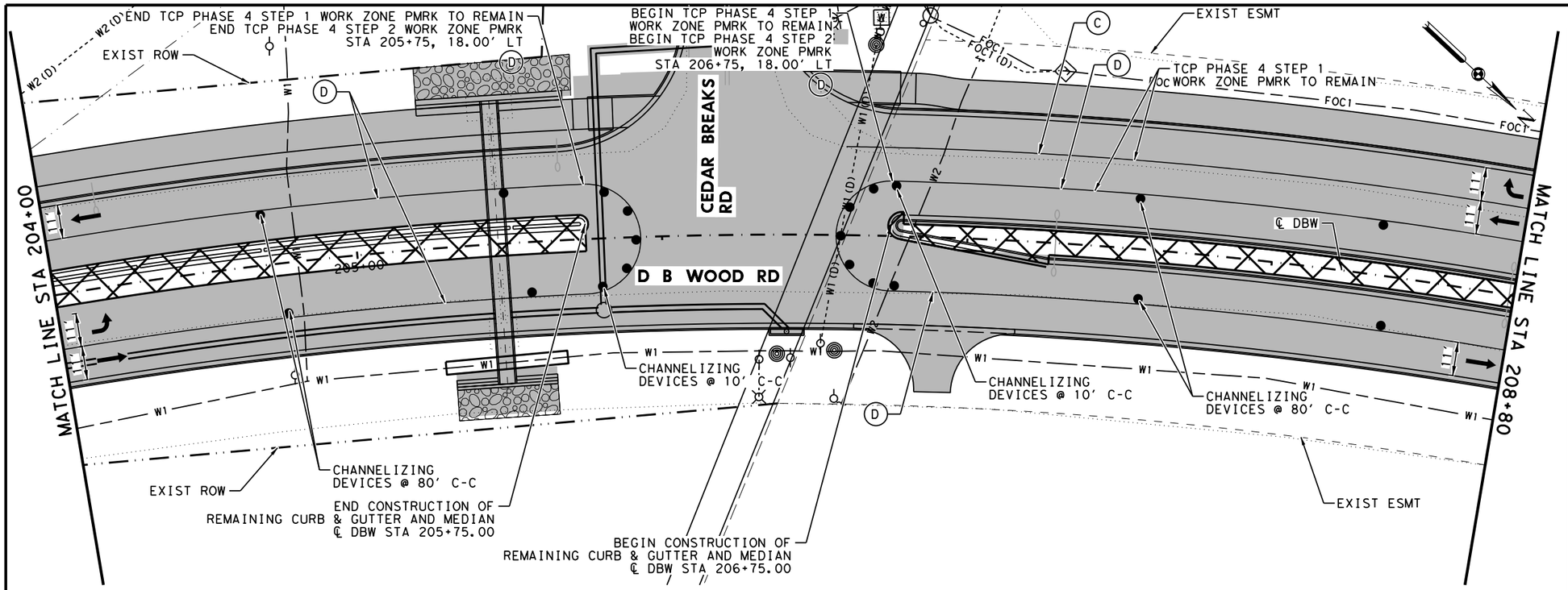
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 194+40 TO 204+00

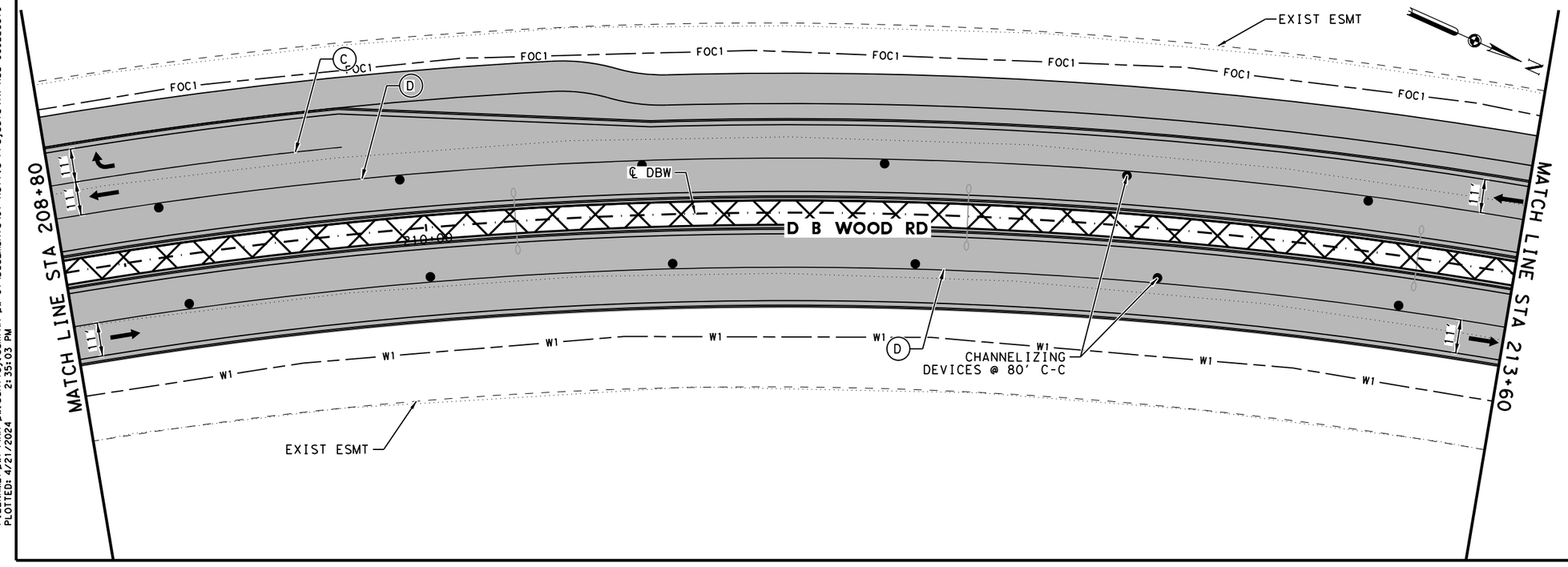
SHEET 3 OF 14 | 85

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)



4/21/2024

STATE OF TEXAS
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124922
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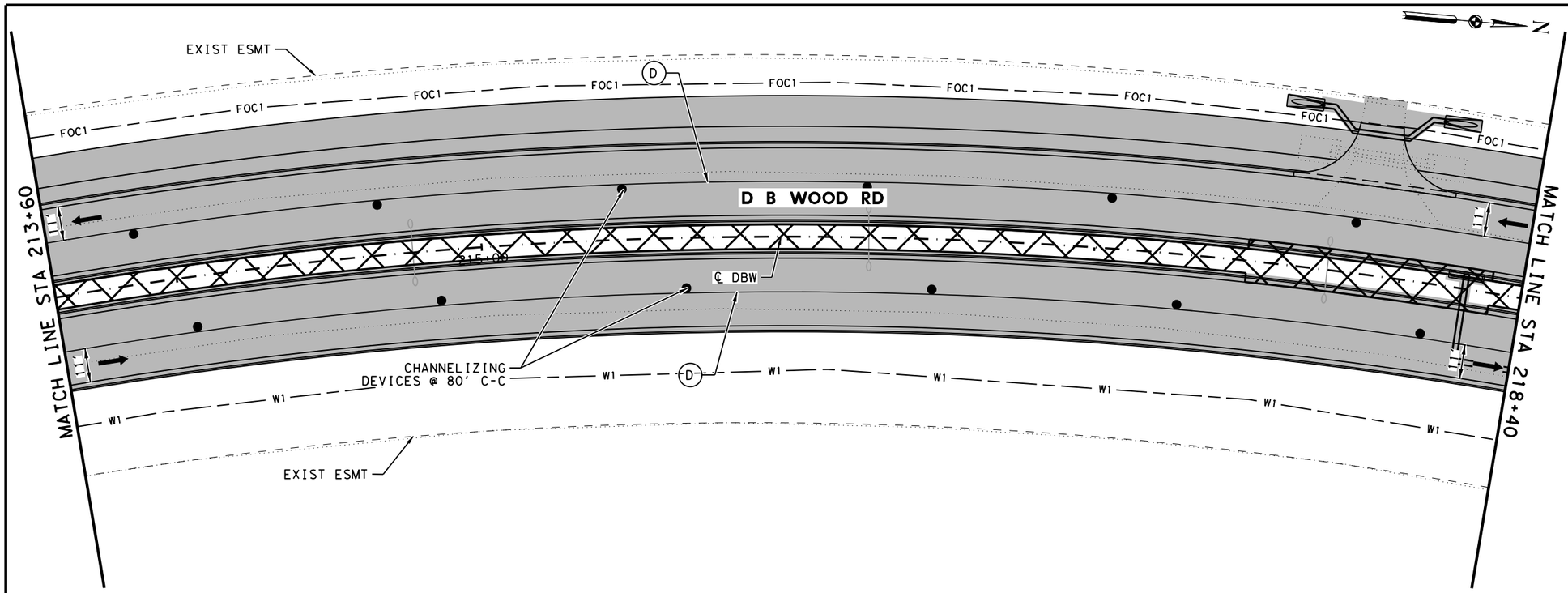
GEORGETOWN TEXAS
more than welcome

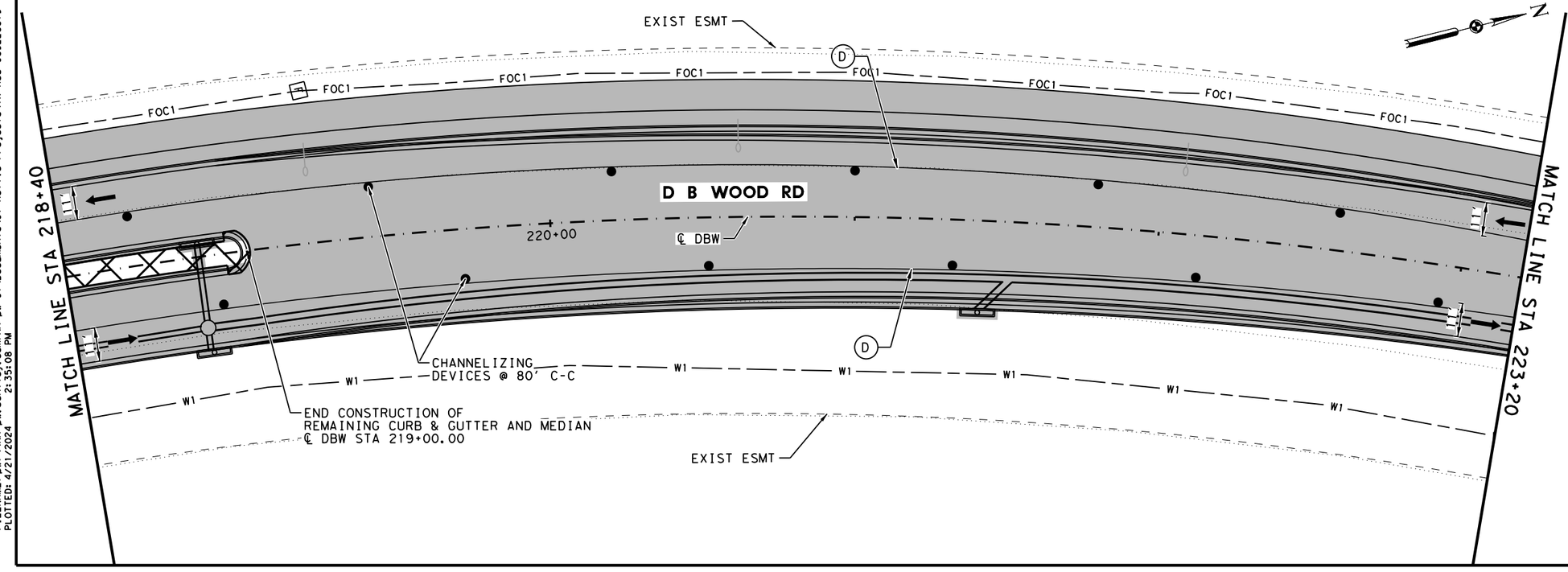
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 204+00 TO 213+60

SHEET 4 OF 14 | 86

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

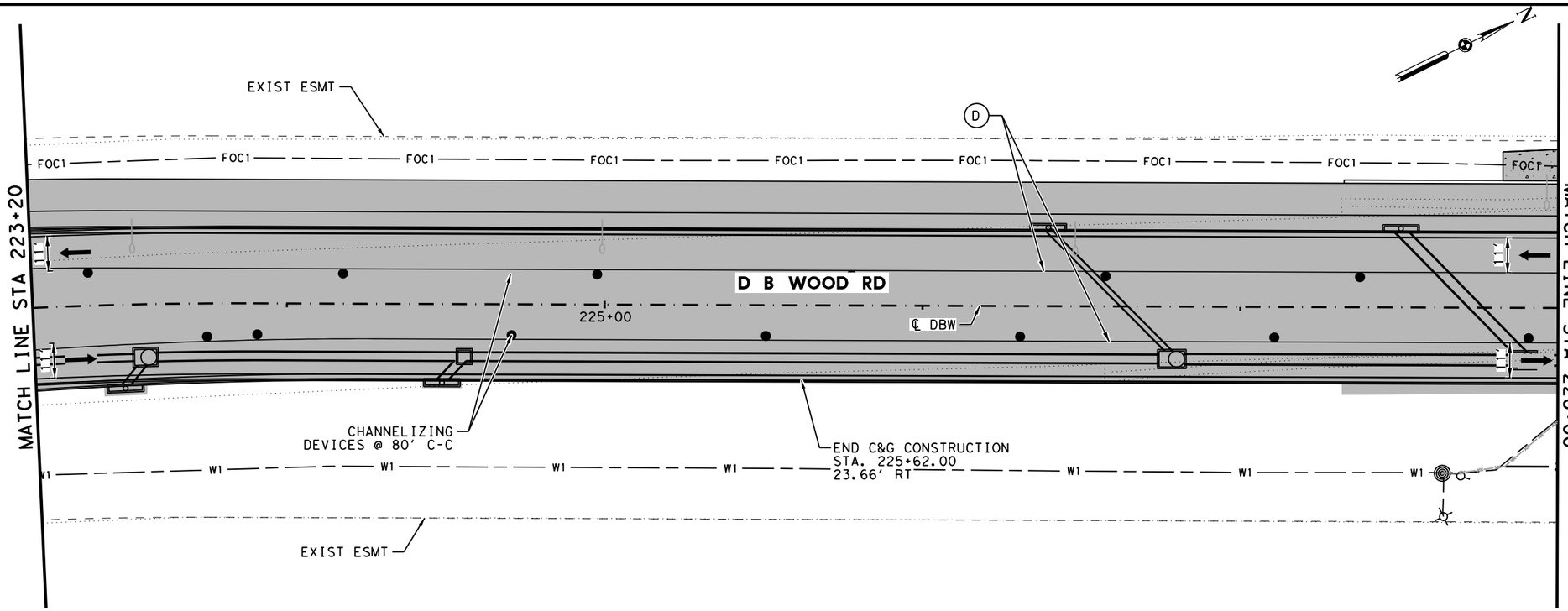
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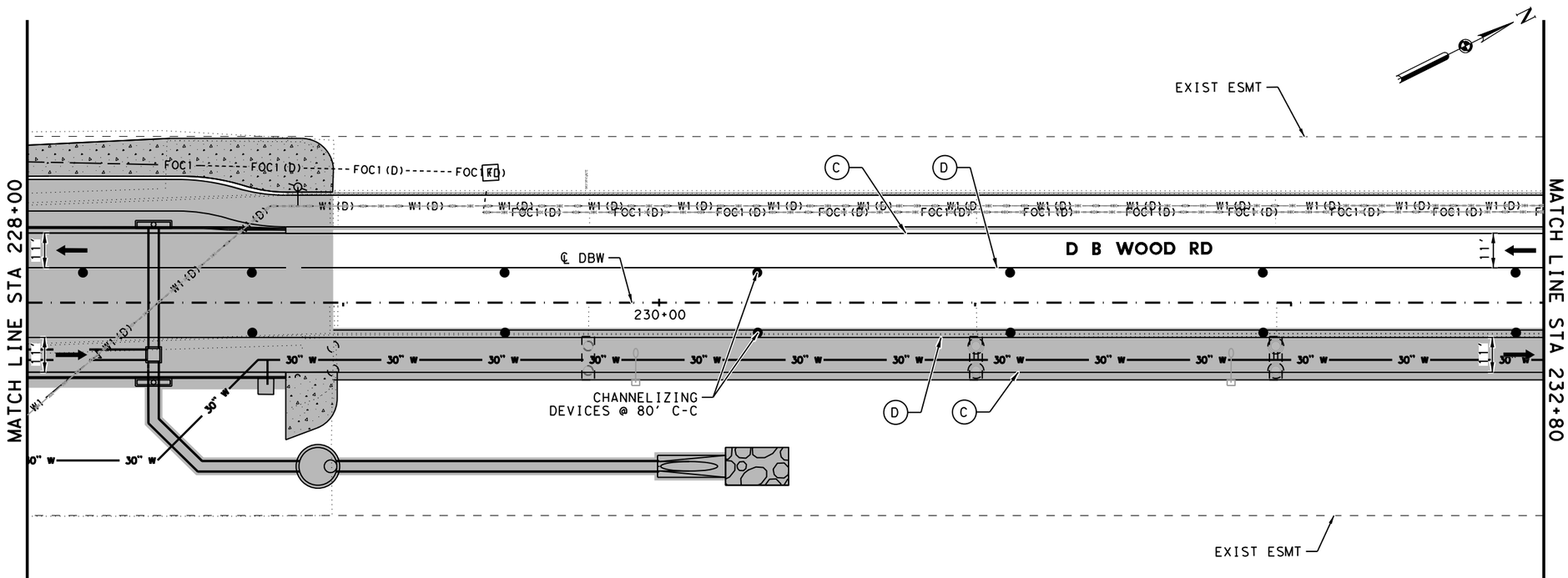
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 213+60 TO 223+20

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

STATE OF TEXAS
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124922
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PROFESSIONAL ENGINEER

4/21/2024

Kimley»Horn F-928

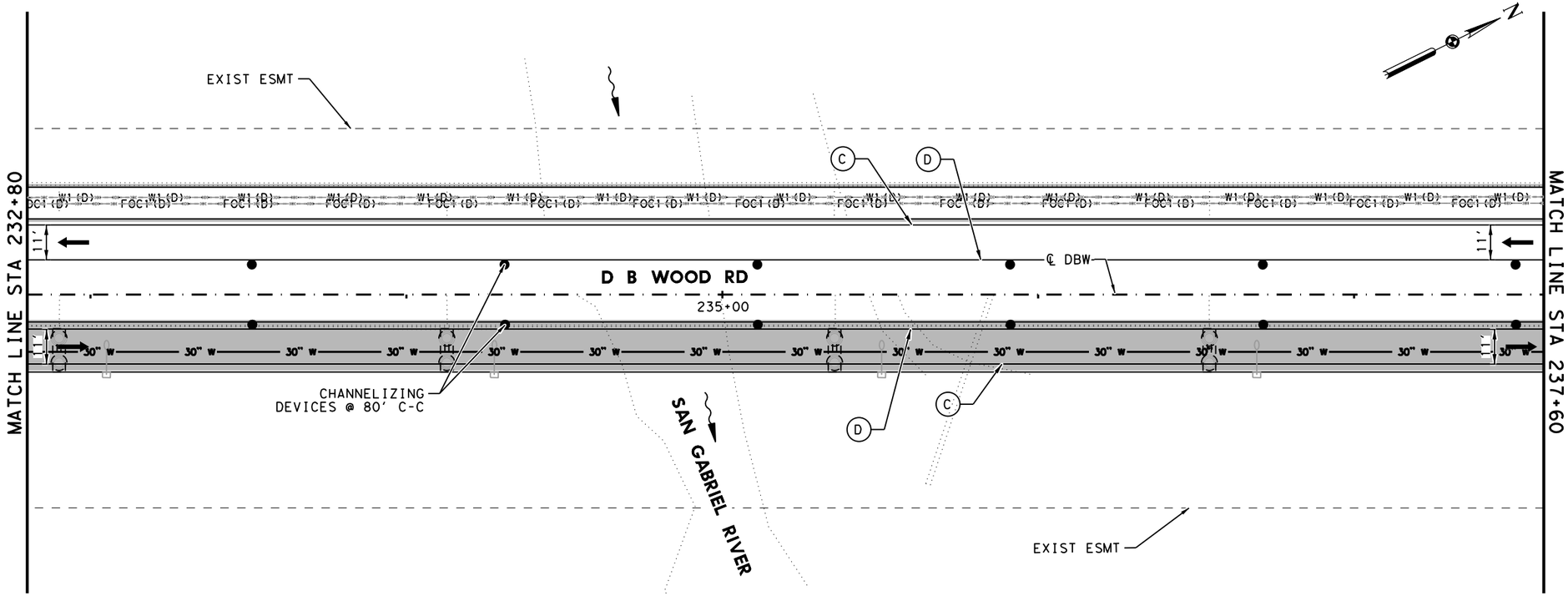
GEORGETOWN TEXAS
more than welcome

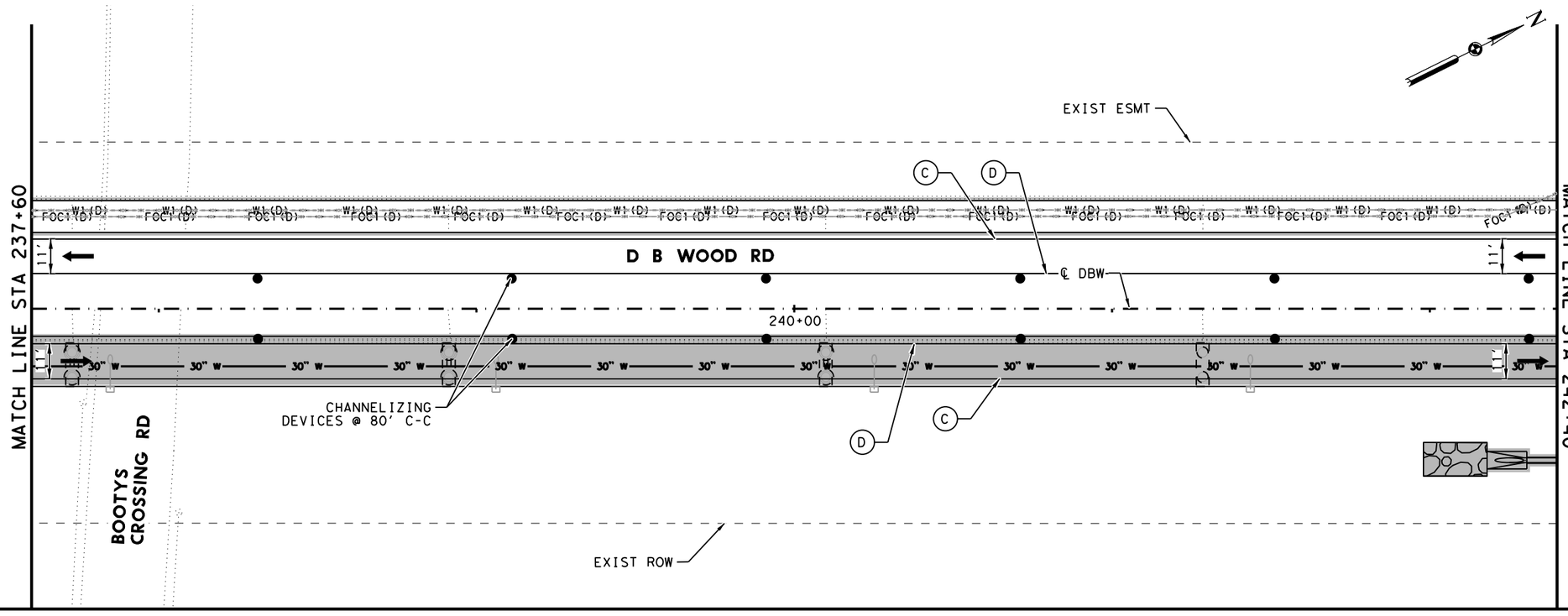
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 223+20 TO 232+80

SHEET 6 OF 14 | 88

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

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124922
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PROFESSIONAL ENGINEER

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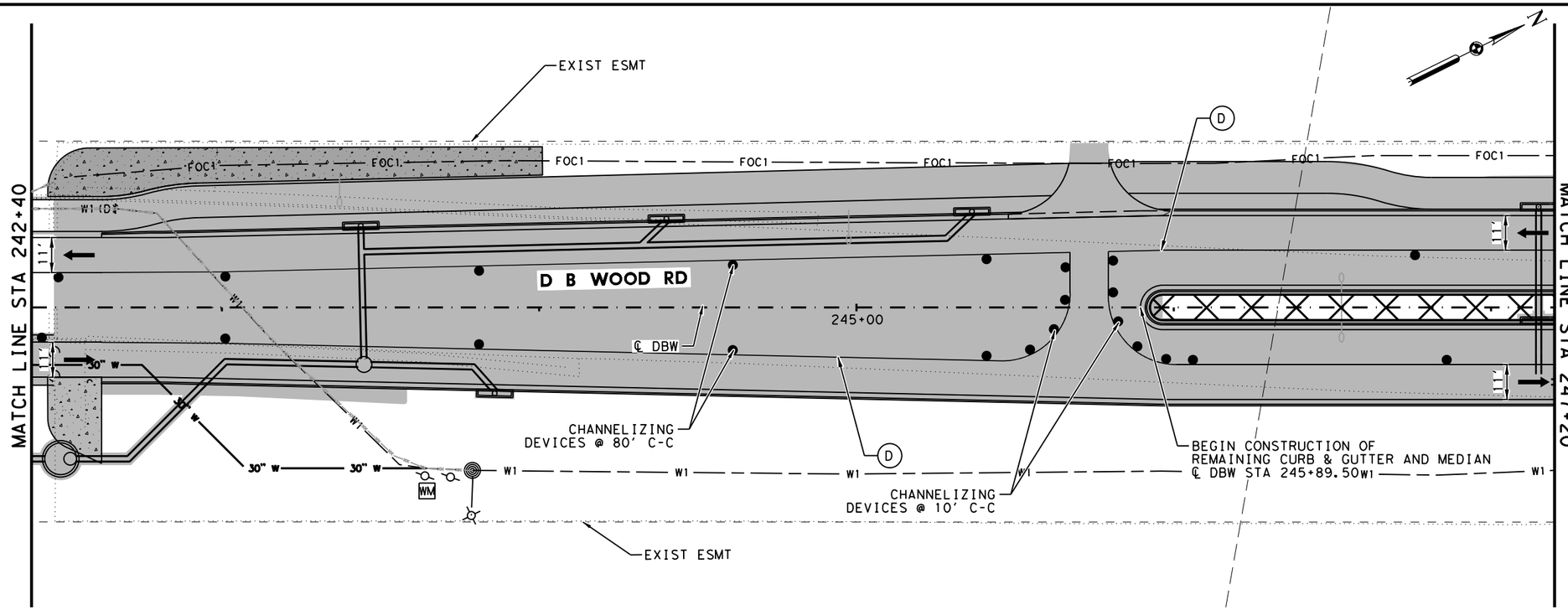
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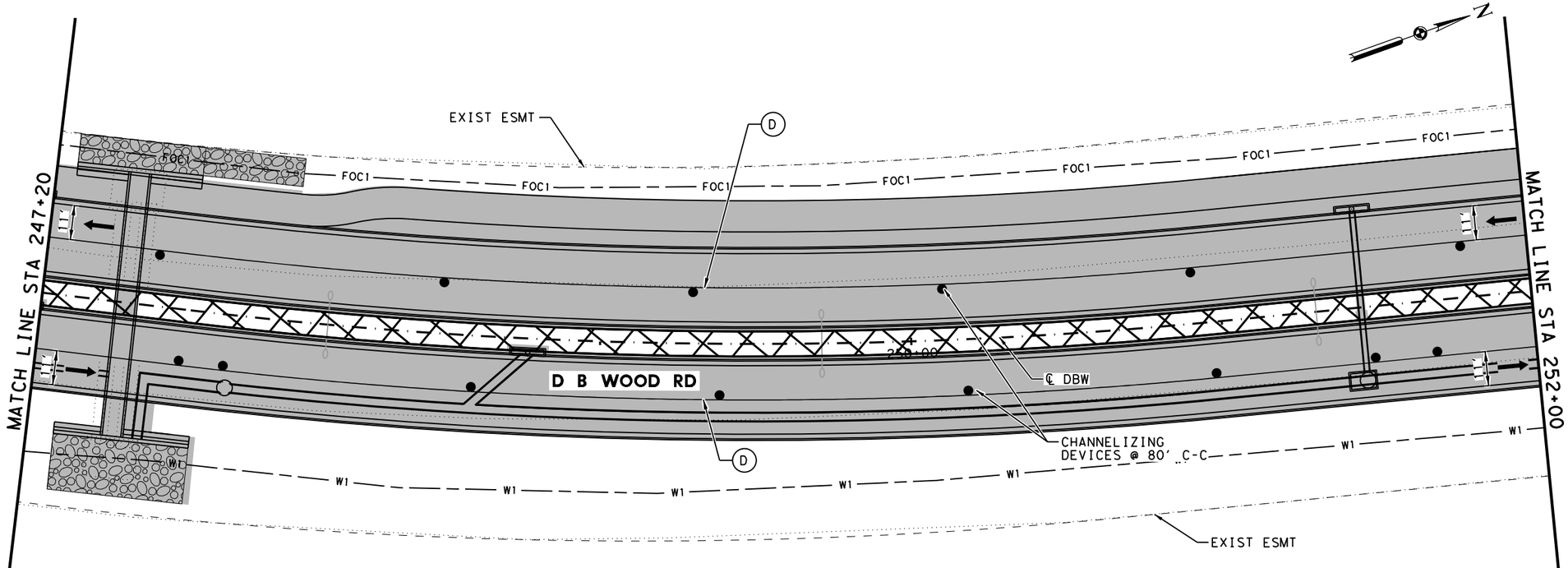
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 232+80 TO 242+40

SHEET 7 OF 14 | 89

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/22/2024

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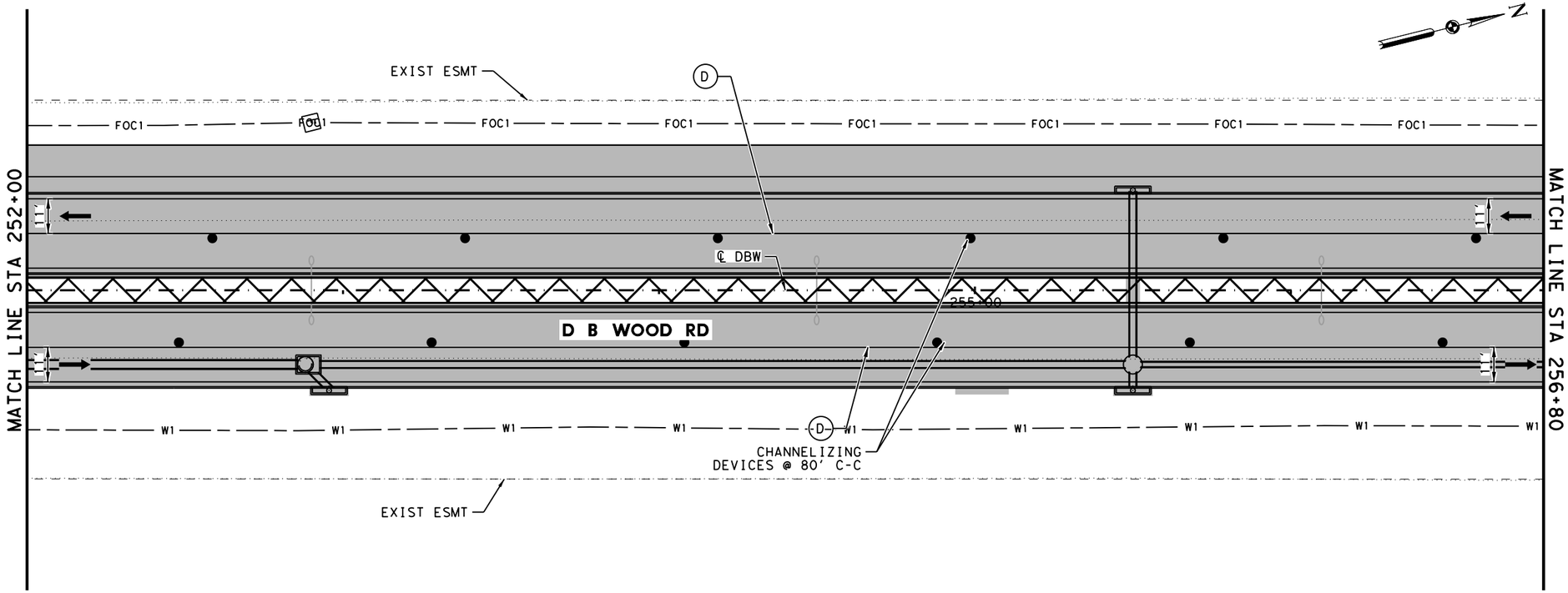
GEORGETOWN TEXAS
more than welcome

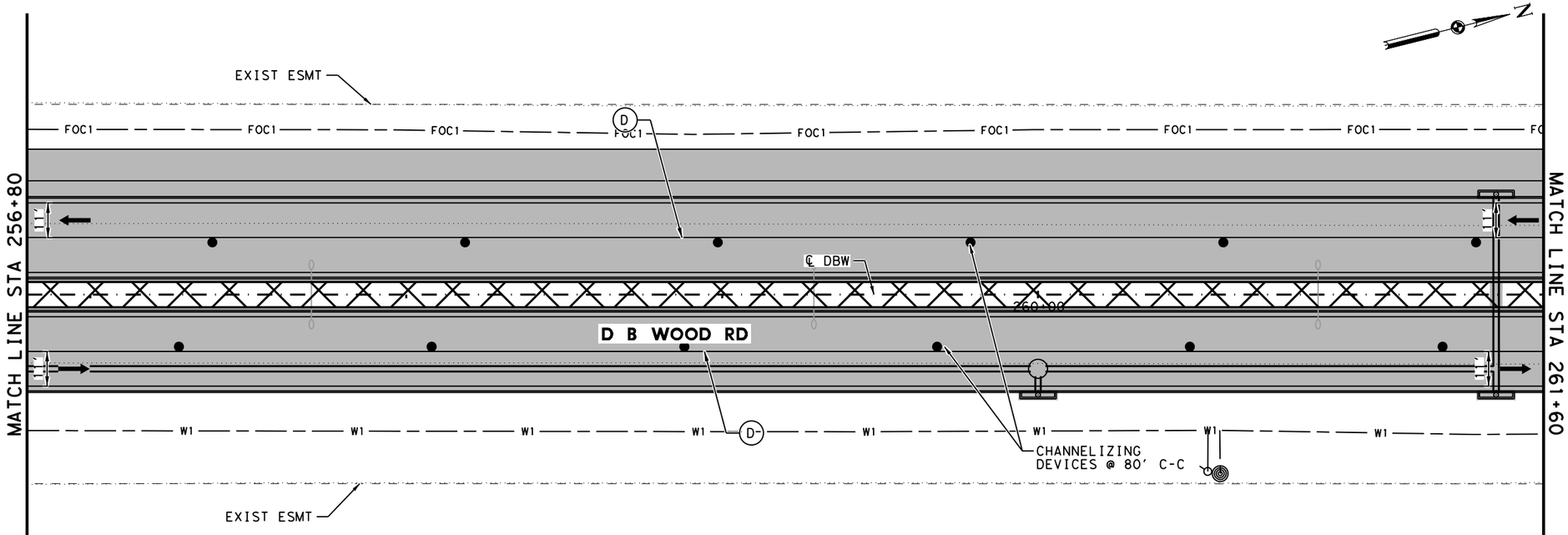
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 242+40 TO 252+00

SHEET 8 OF 14 | 90

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
→	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

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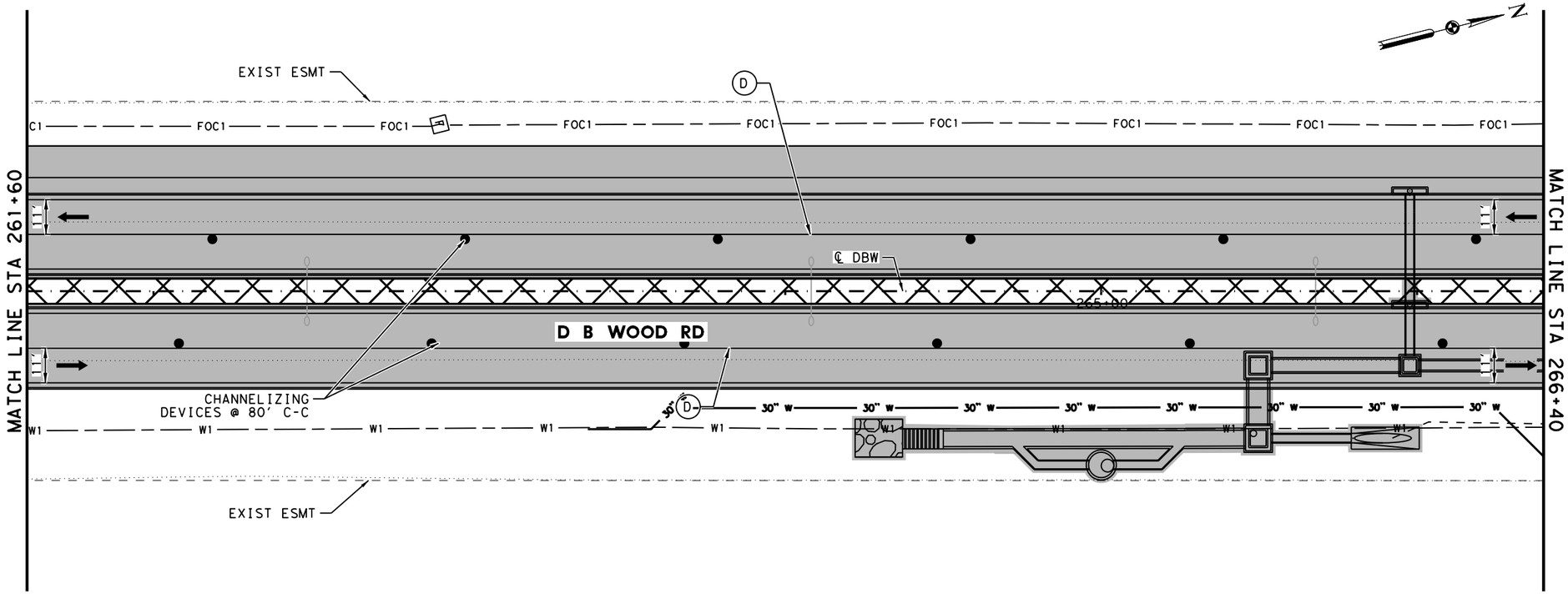
GEORGETOWN TEXAS
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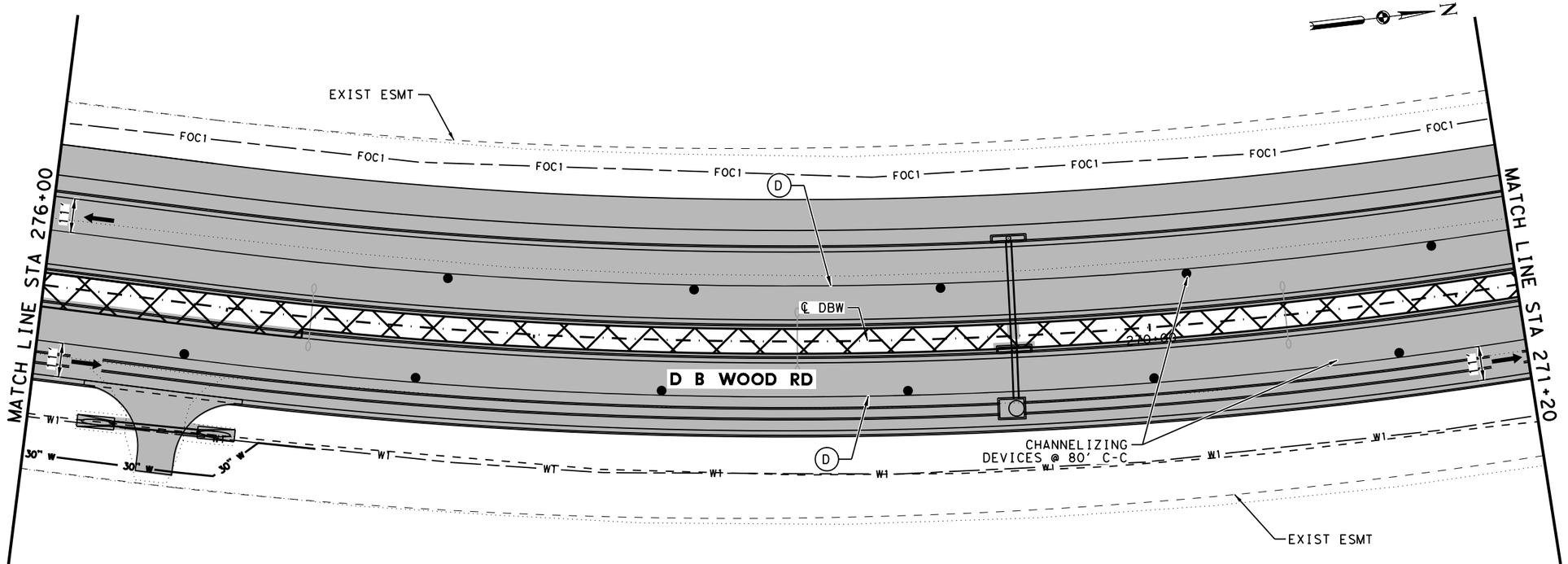
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 252+00 TO 261+60

SHEET 9 OF 14 | 91

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

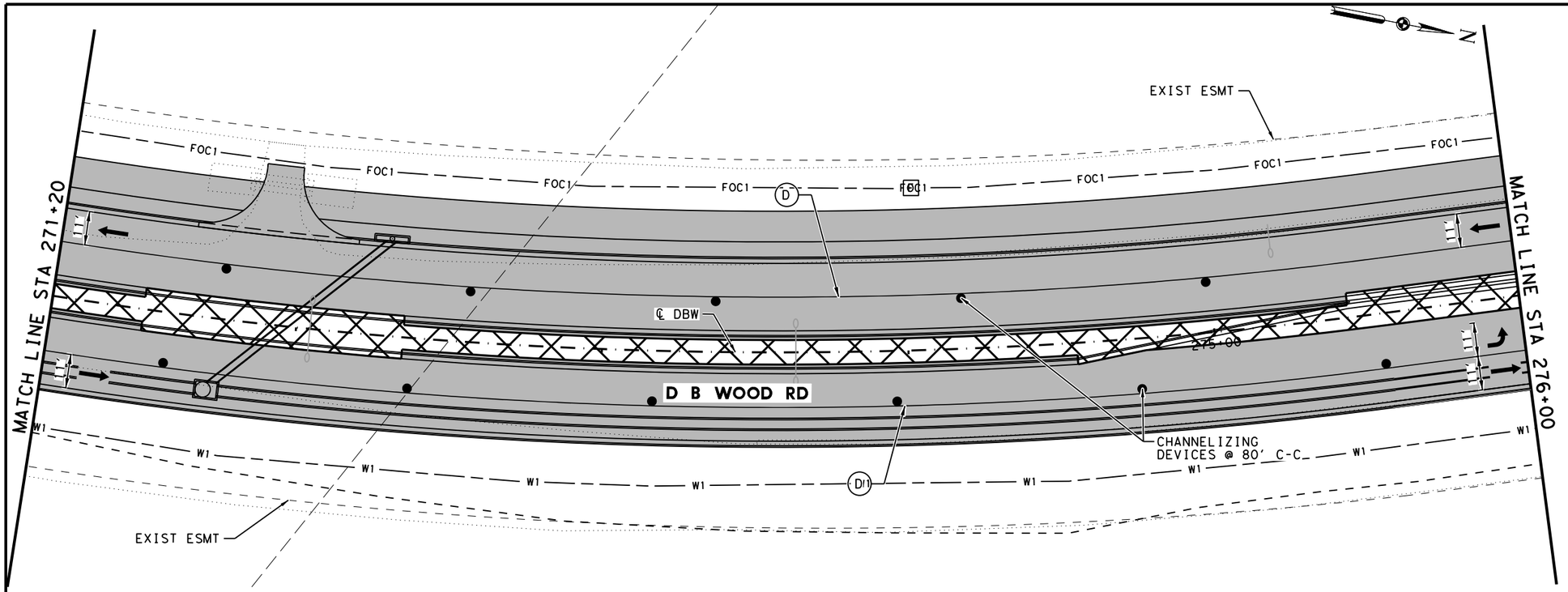
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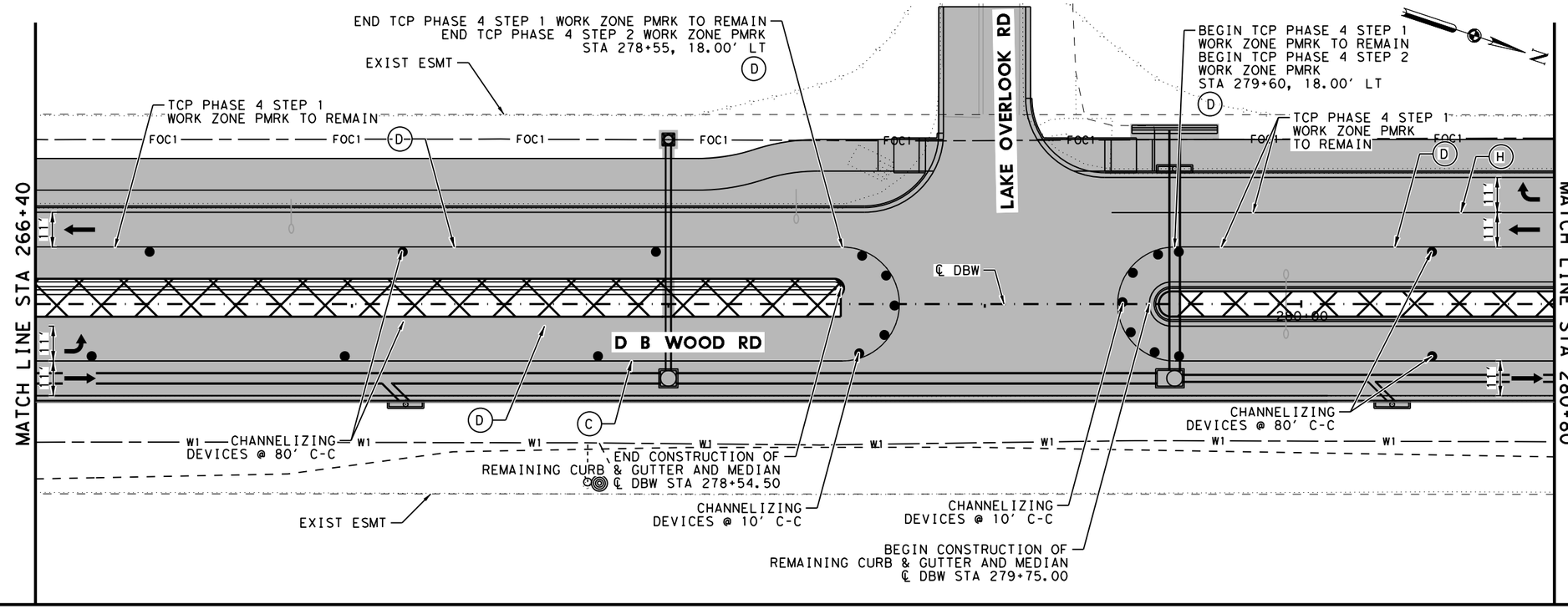
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 261+60 TO 271+20

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
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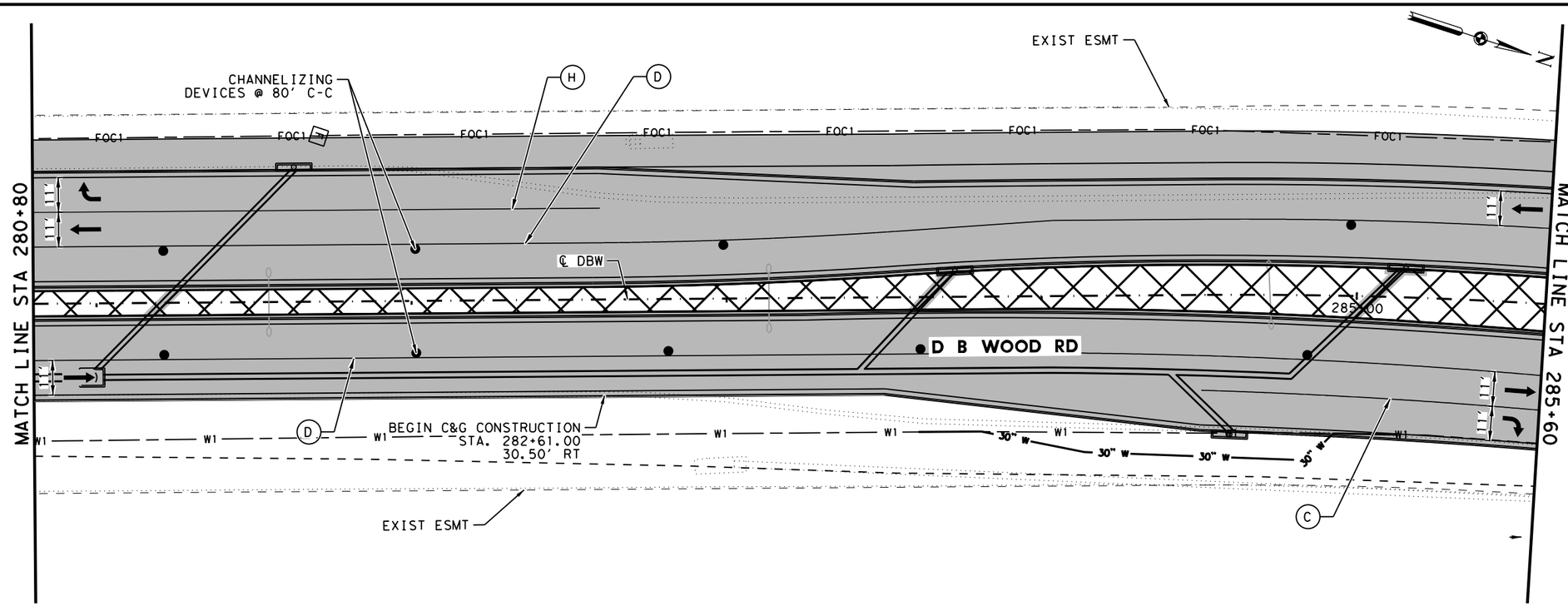
GEORGETOWN TEXAS
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D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 271+20 TO 280+80

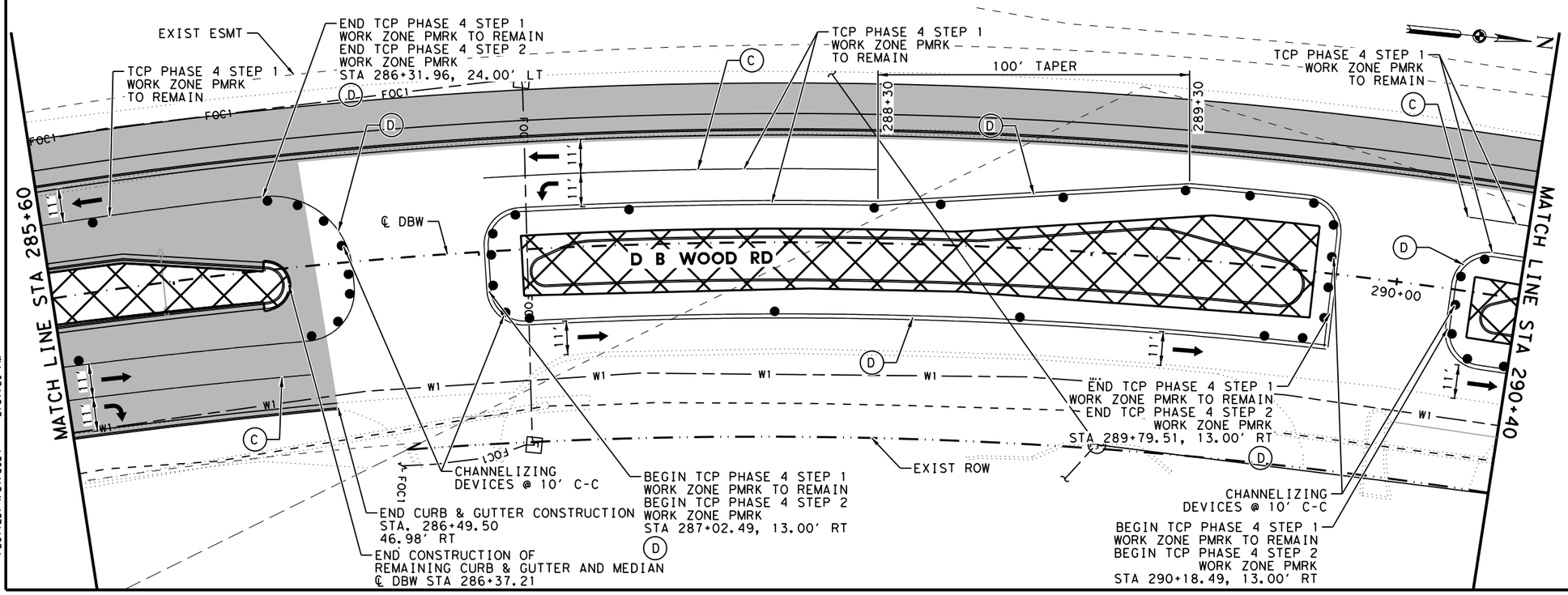
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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)



0' 20' 40'

4/21/2024

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124922
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STATE OF TEXAS

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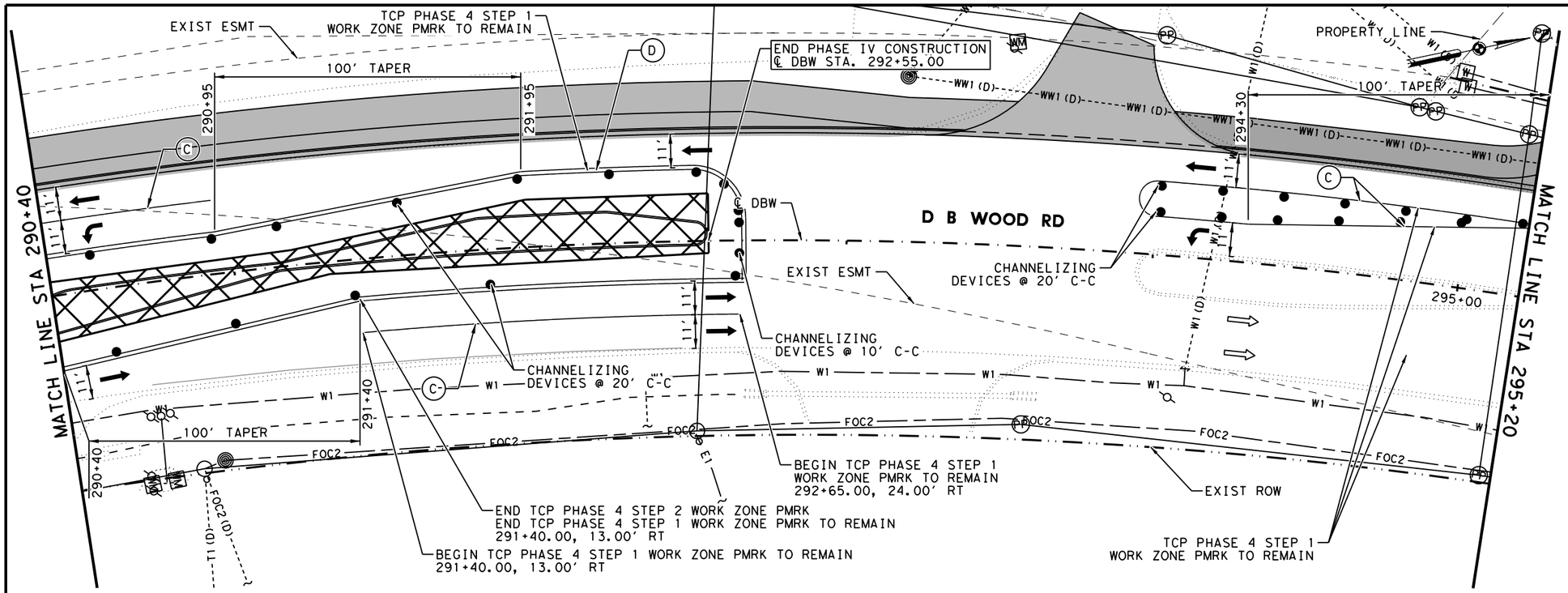
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TEXAS
more than welcome

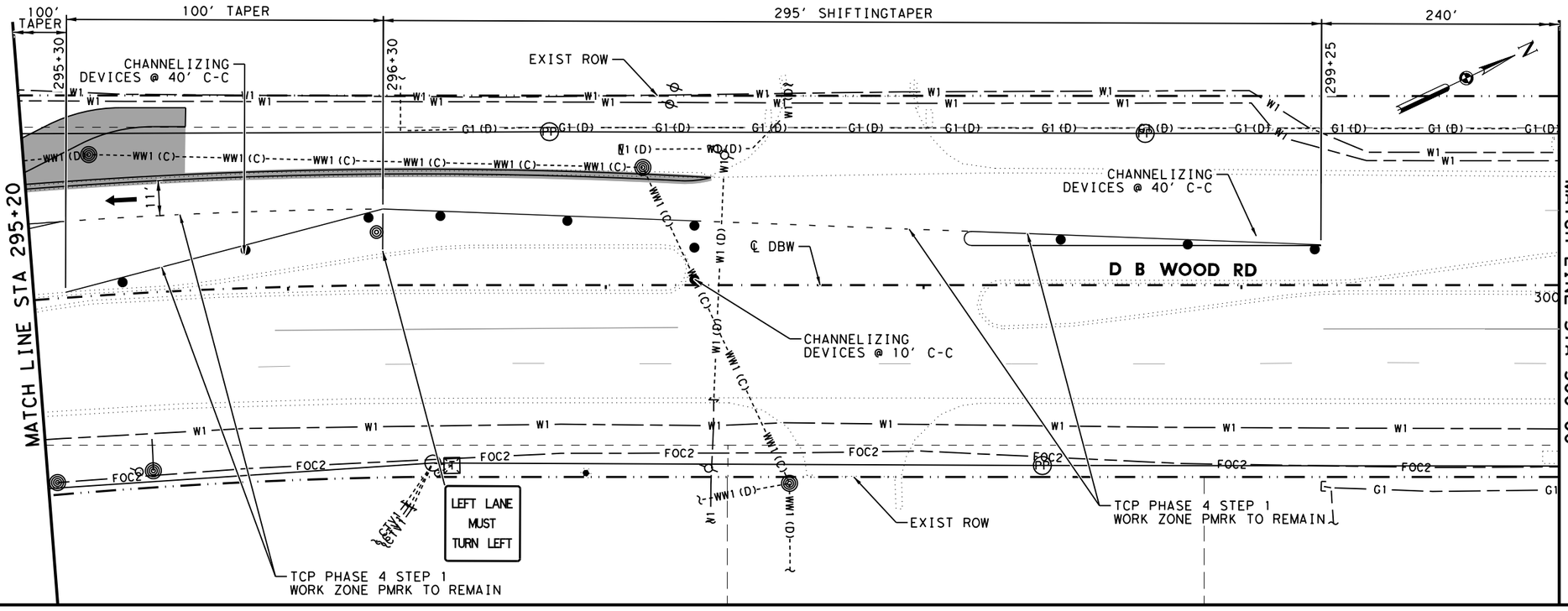
D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 280+80 TO 290+40

SHEET 12 OF 14 | 94

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LEGEND

●	CHANNELIZING DEVICES
	LOW PROFILE CONCRETE BARRIER (LPCB)
	PCTB (F-SHAPE)
	TEMPORARY SHORING
	TRAFFIC FLOW INSIDE WORK ZONE
	WORK ZONE SIGN POST
	CONSTRUCTION THIS PHASE
	TEMPORARY CONSTRUCTION ACCESS
	CONSTRUCTION PREVIOUS PHASE
	CULVERT NIGHT TIME CONSTRUCTION
Ⓐ	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)
Ⓑ	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)
Ⓒ	WK ZN PAV MRK REMOV (W) 6" (SLD)
Ⓓ	WK ZN PAV MRK REMOV (Y) 6" (SLD)
Ⓔ	WK ZN PAV MRK REMOV (Y) 24" (SLD)
Ⓕ	WK ZN PAV MRK REMOV (W) 6" (BRK)
Ⓖ	WK ZN PAV MRK NON-REMOV (W) 24" (W)
Ⓗ	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)
Ⓘ	WK ZN PAV MRK REMOV (W) 6" (DOT)

0' 20' 40'

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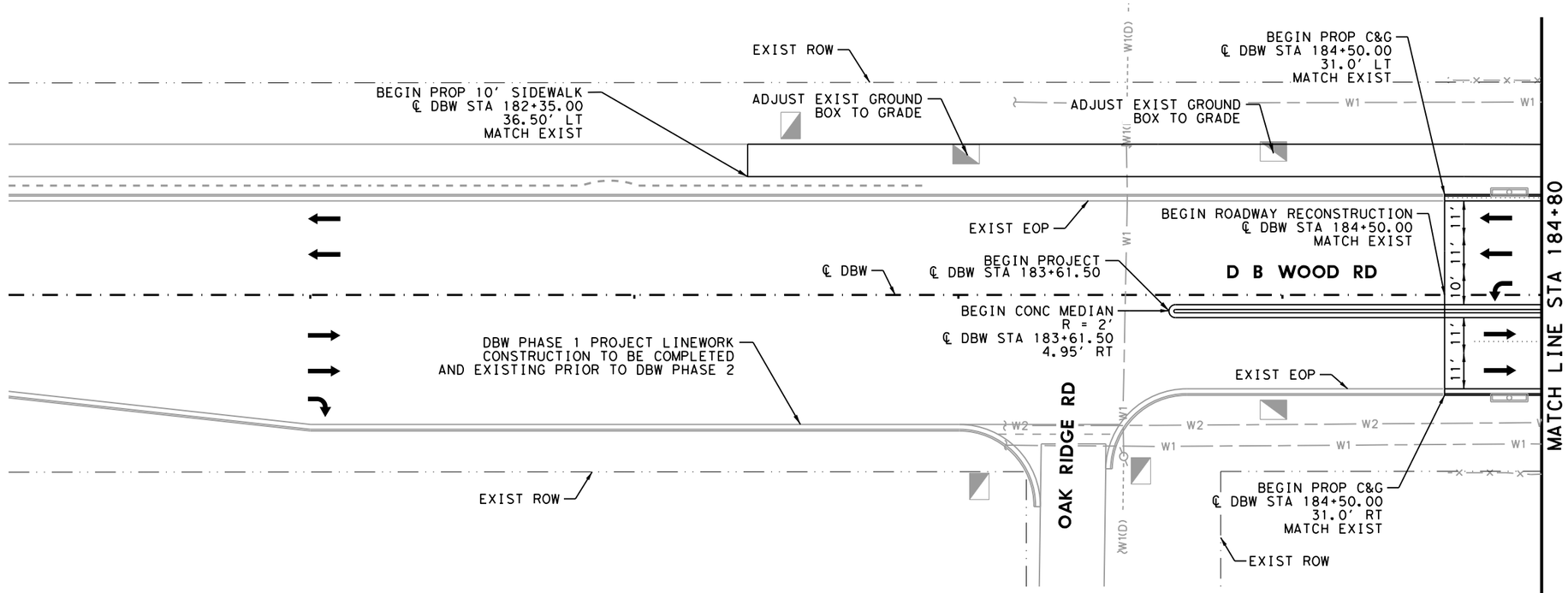
GEORGETOWN
TEXAS
more than welcome

D B WOOD ROAD

TRAFFIC CONTROL PLANS
PHASE IV STEP 2
STA 290+40 TO 300+00

SHEET 13 OF 14 | 95

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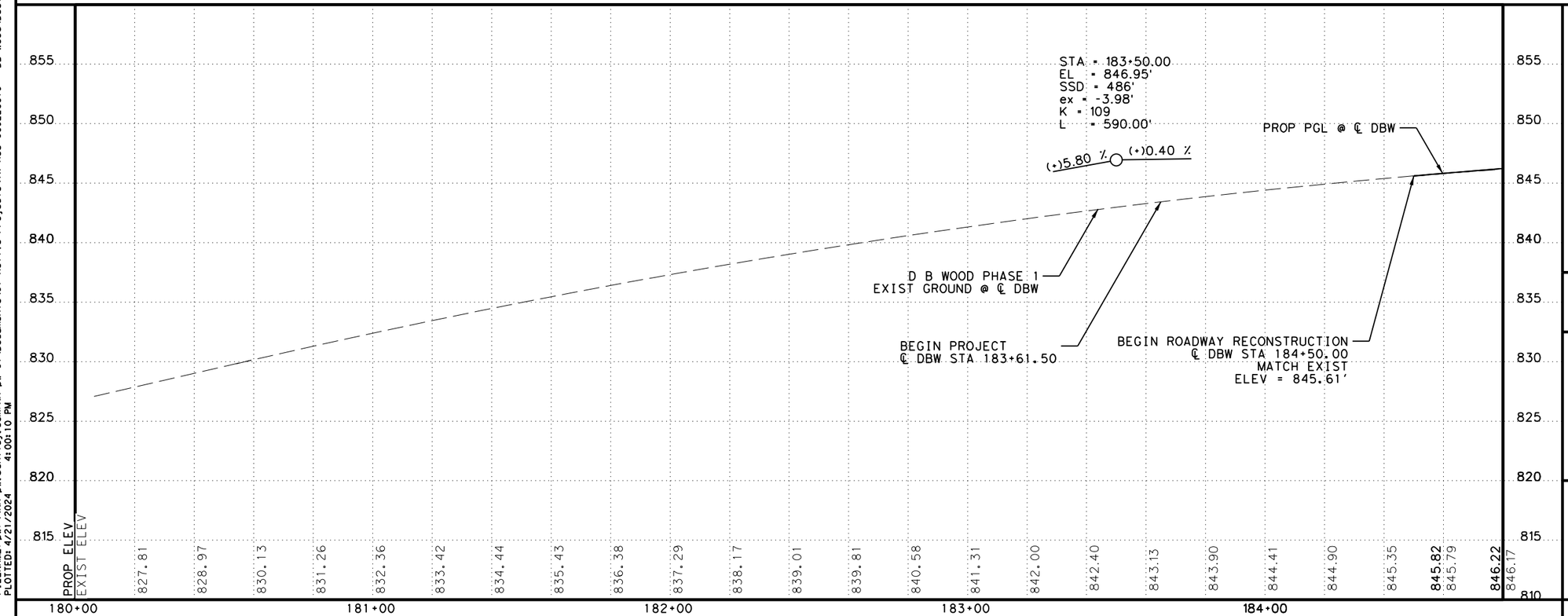


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST FENCE LINE

NOTES:

1. SEE DRIVEWAY AND INTERSECTION SHEETS FOR MORE INFORMATION.
2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. SEE CULVERT LAYOUT SHEETS FOR MORE INFORMATION.
4. SEE REMOVAL SHEETS FOR REMOVAL AND REPLACEMENT OF FENCE AND GATES AT DRIVEWAYS.



0' 20' 40' HORZ
0' 5' 10' VERT

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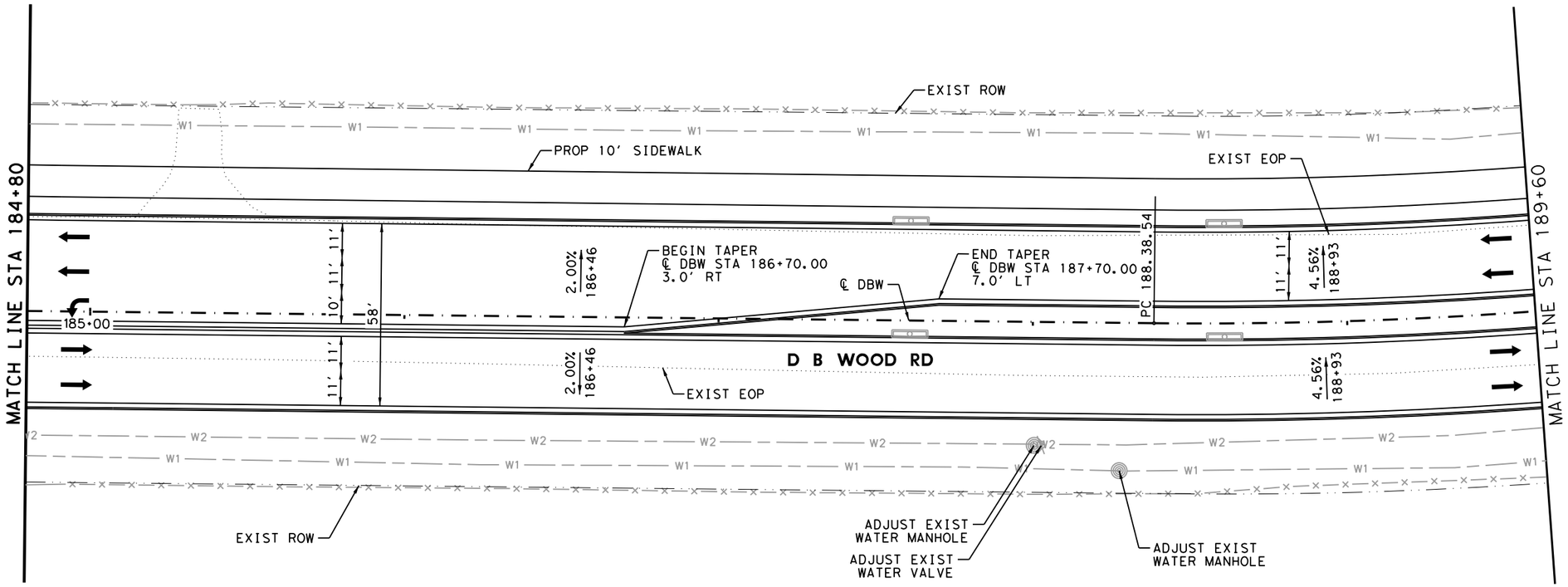
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

ROADWAY PLAN & PROFILE BEGIN TO STA 184+80

SHEET 1 OF 25 | 140

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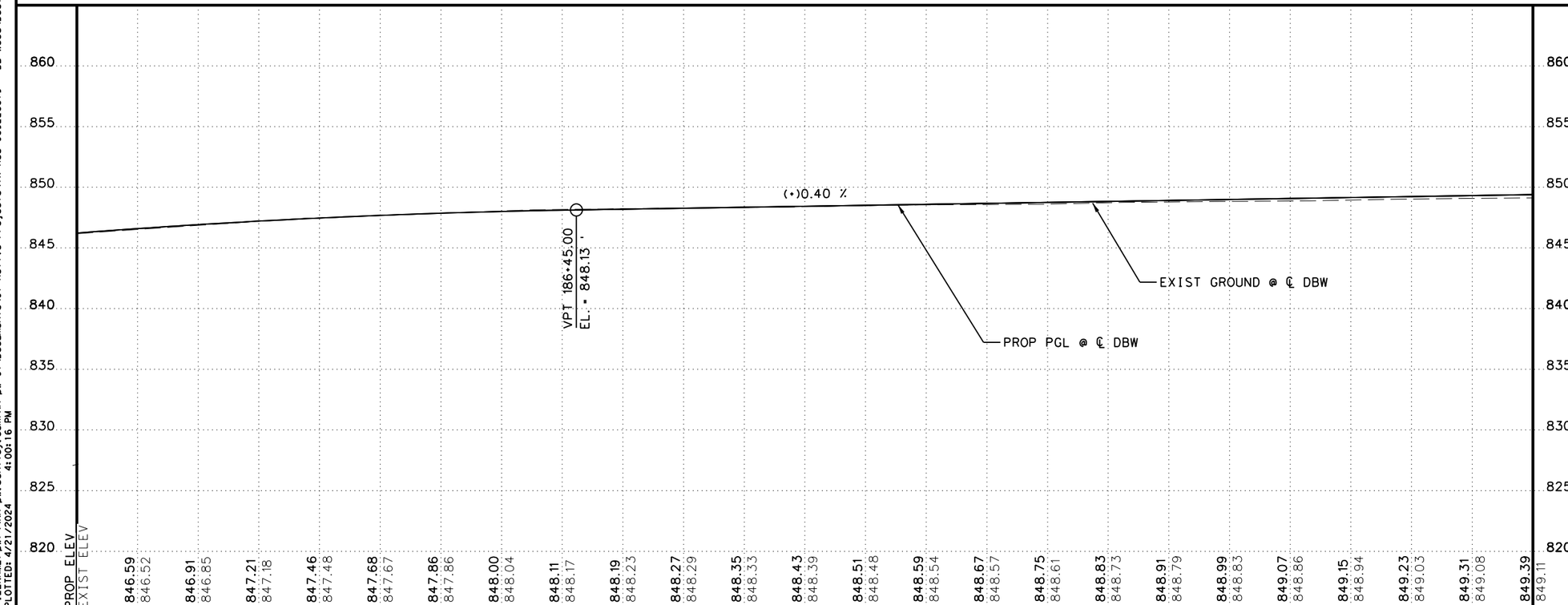


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OHE — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST FENCE LINE

NOTES:

1. SEE DRIVEWAY AND INTERSECTION SHEETS FOR MORE INFORMATION.
2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. SEE CULVERT LAYOUT SHEETS FOR MORE INFORMATION.
4. SEE REMOVAL SHEETS FOR REMOVAL AND REPLACEMENT OF FENCE AND GATES AT DRIVEWAYS.



0' 20' 40' HORZ
0' 5' 10' VERT

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/21/2024

Kimley»Horn F-928

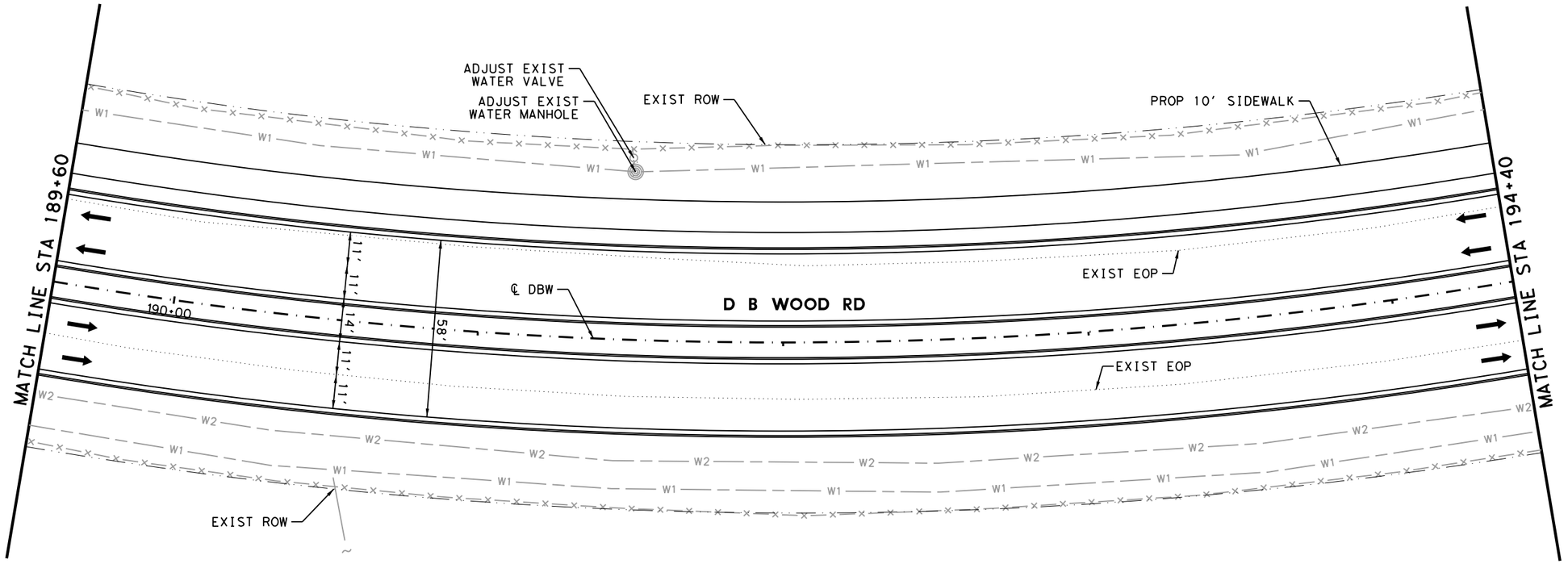
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 184+80 TO STA 189+60

SHEET 2 OF 25 | 141

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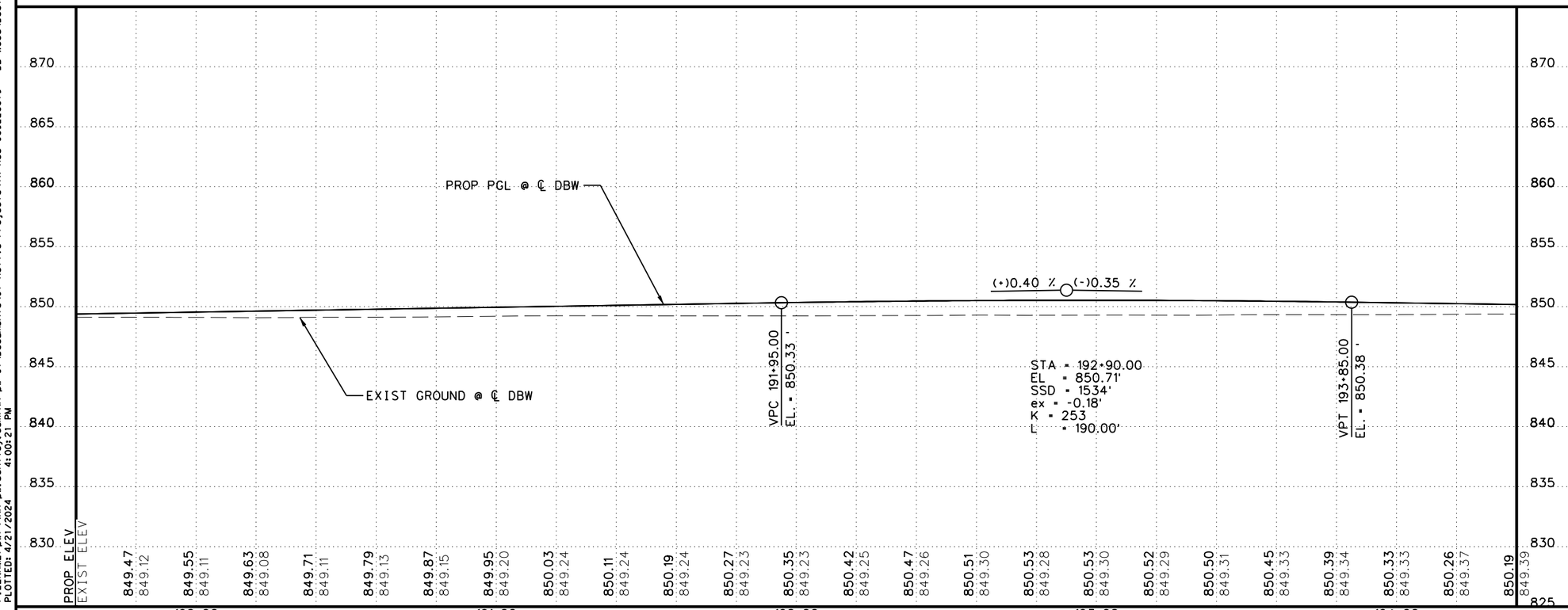


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST FENCE LINE

NOTES:

1. SEE DRIVEWAY AND INTERSECTION SHEETS FOR MORE INFORMATION.
2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. SEE CULVERT LAYOUT SHEETS FOR MORE INFORMATION.
4. SEE REMOVAL SHEETS FOR REMOVAL AND REPLACEMENT OF FENCE AND GATES AT DRIVEWAYS.



0' 20' 40' HORZ
0' 5' 10' VERT

STATE OF TEXAS
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4/21/2024

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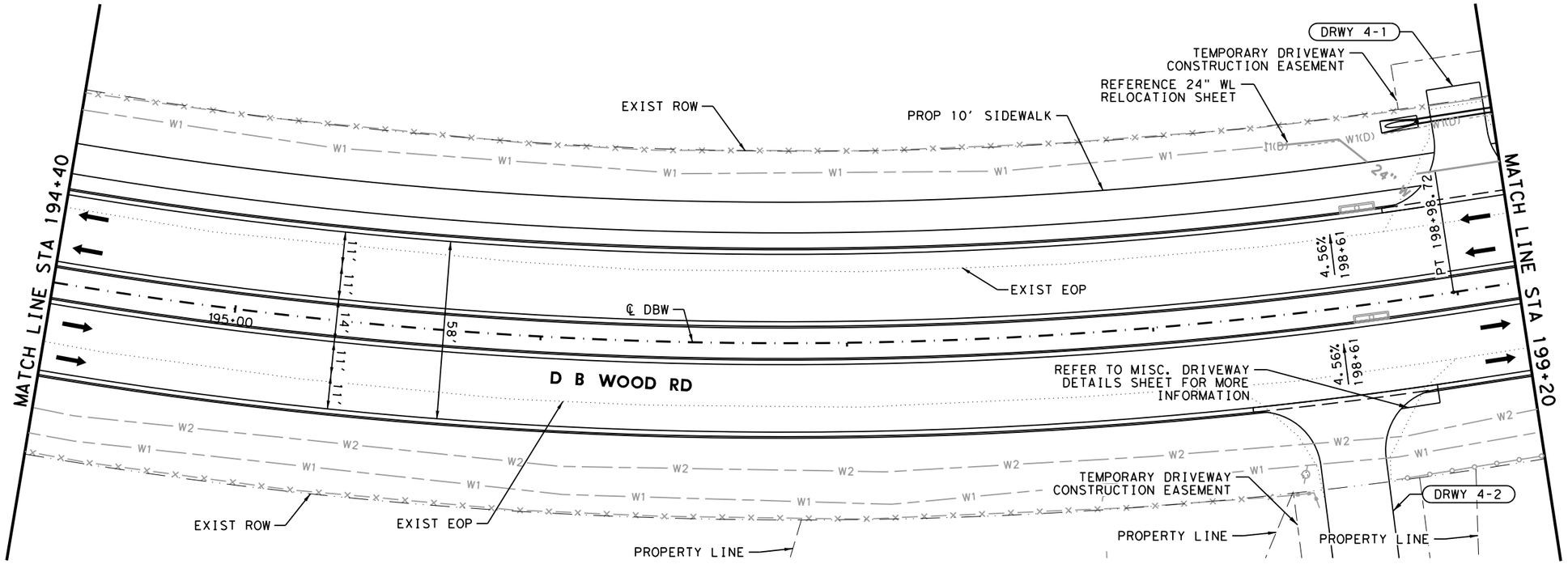
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 189+60 TO STA 194+40

SHEET 3 OF 25 | 142

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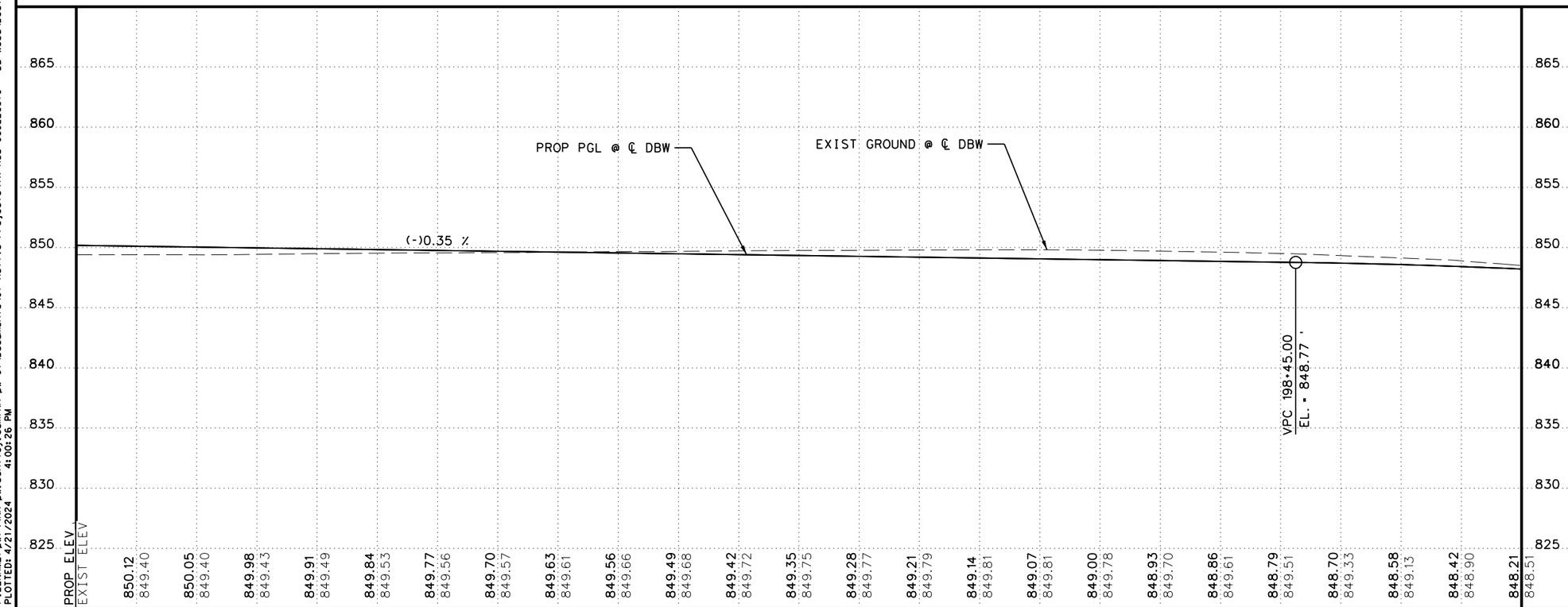


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST FENCE LINE

NOTES:

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2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
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4. SEE REMOVAL SHEETS FOR REMOVAL AND REPLACEMENT OF FENCE AND GATES AT DRIVEWAYS.



0' 20' 40' HORZ
0' 5' 10' VERT

4/21/2024

STATE OF TEXAS
AUSTIN S. HELTON
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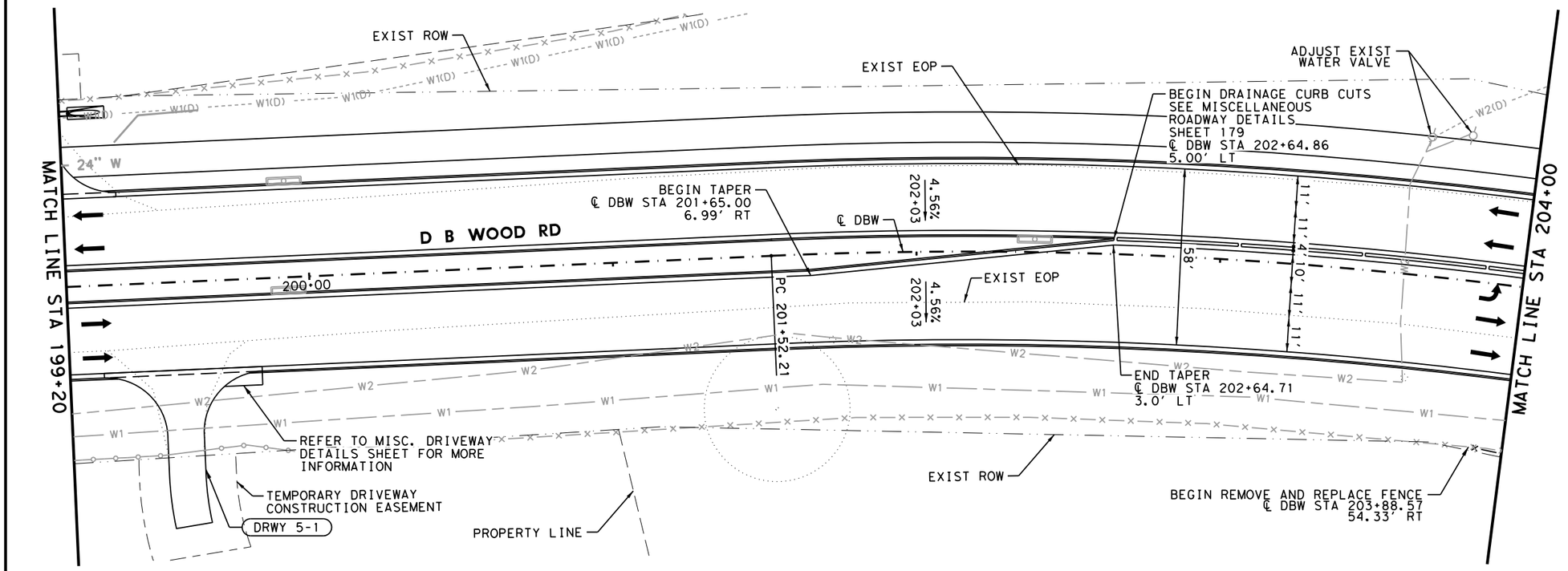
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 194+40 TO STA 199+20

SHEET 4 OF 25 | 143

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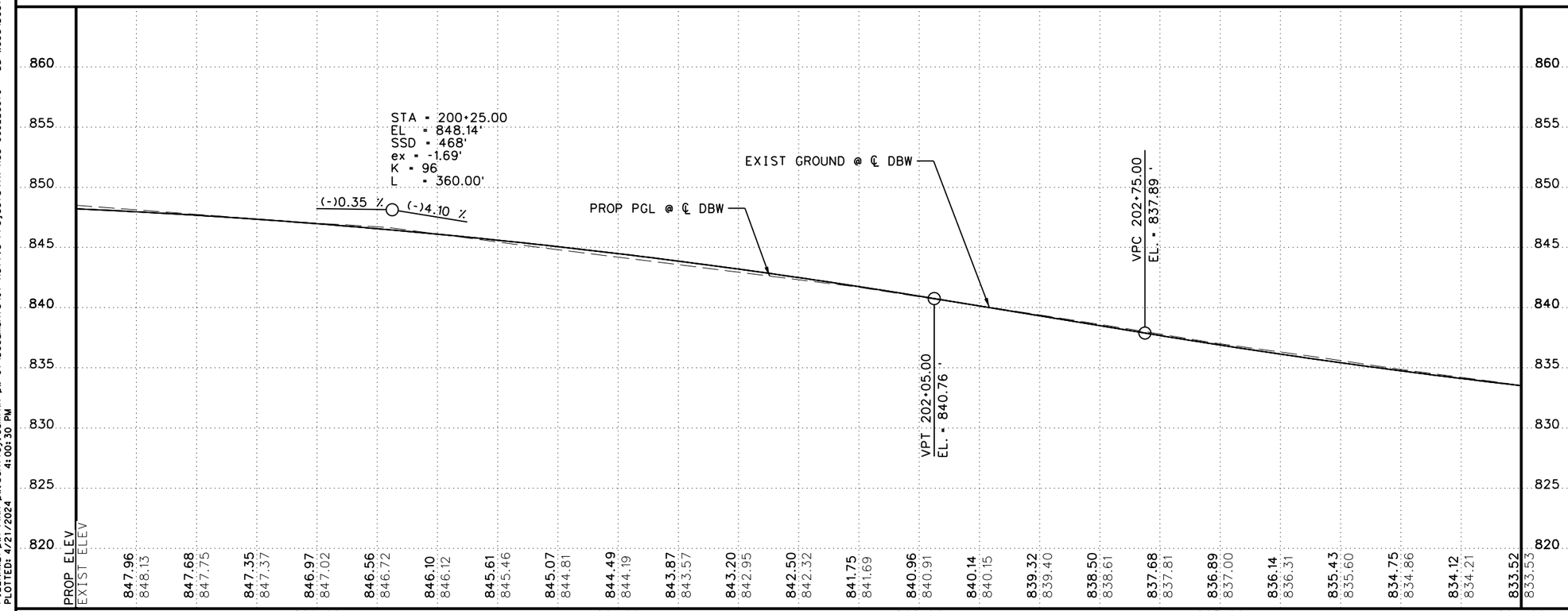


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST FENCE LINE

NOTES:

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2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
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0' 20' 40' HORZ
0' 5' 10' VERT

STATE OF TEXAS
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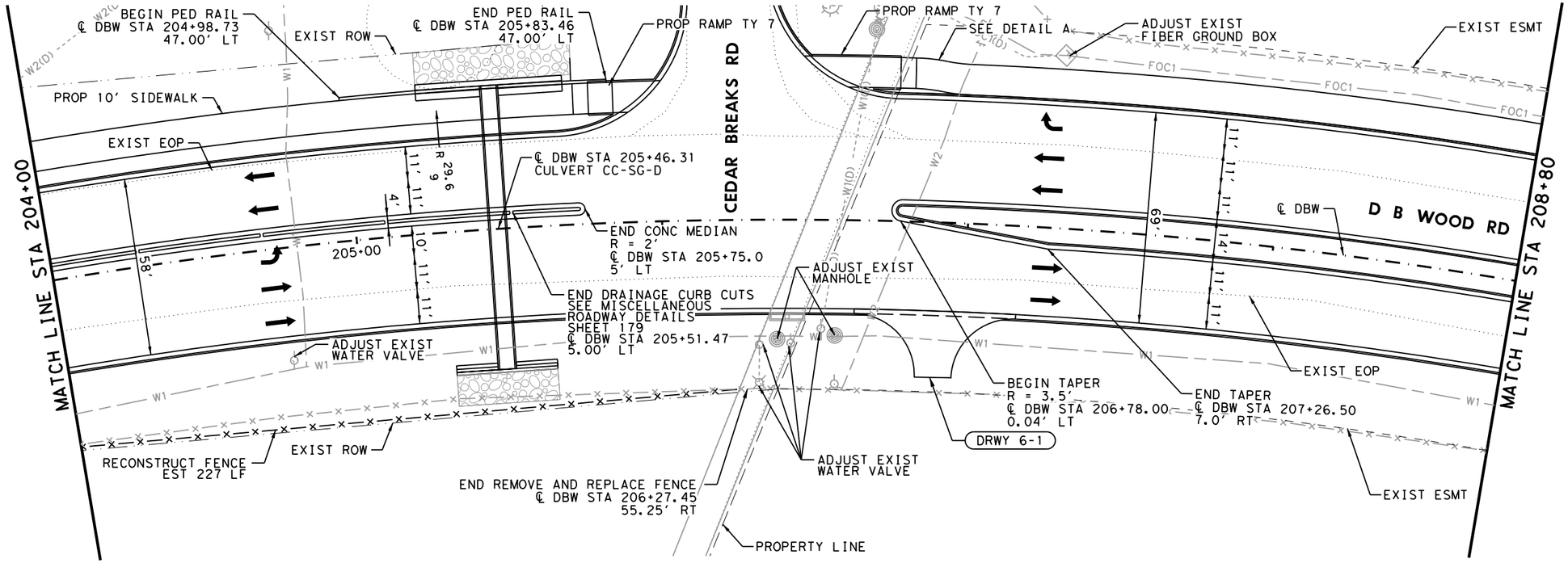
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 199+20 TO STA 204+00

SHEET 5 OF 25 | 144

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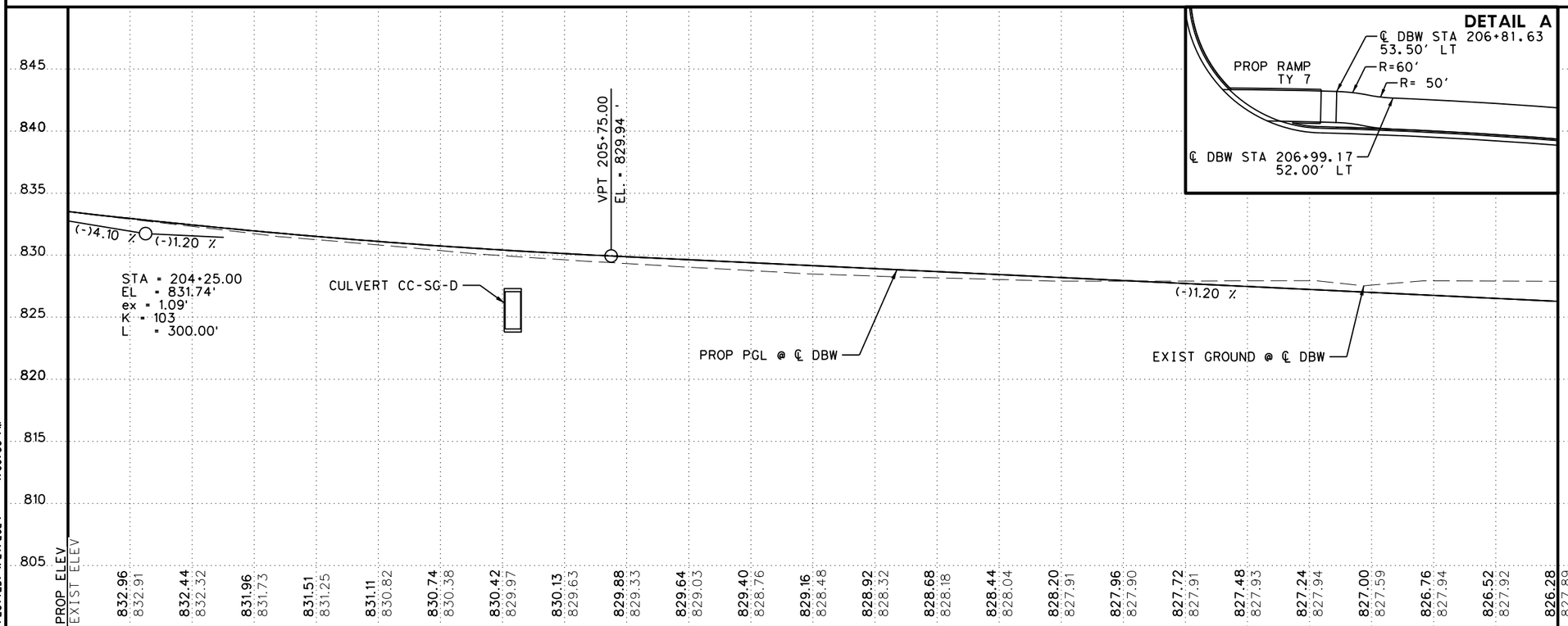


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST FENCE LINE

NOTES:

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2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
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4. SEE REMOVAL SHEETS FOR REMOVAL AND REPLACEMENT OF FENCE AND GATES AT DRIVEWAYS.



0' 20' 40' HORZ
0' 5' 10' VERT

STATE OF TEXAS
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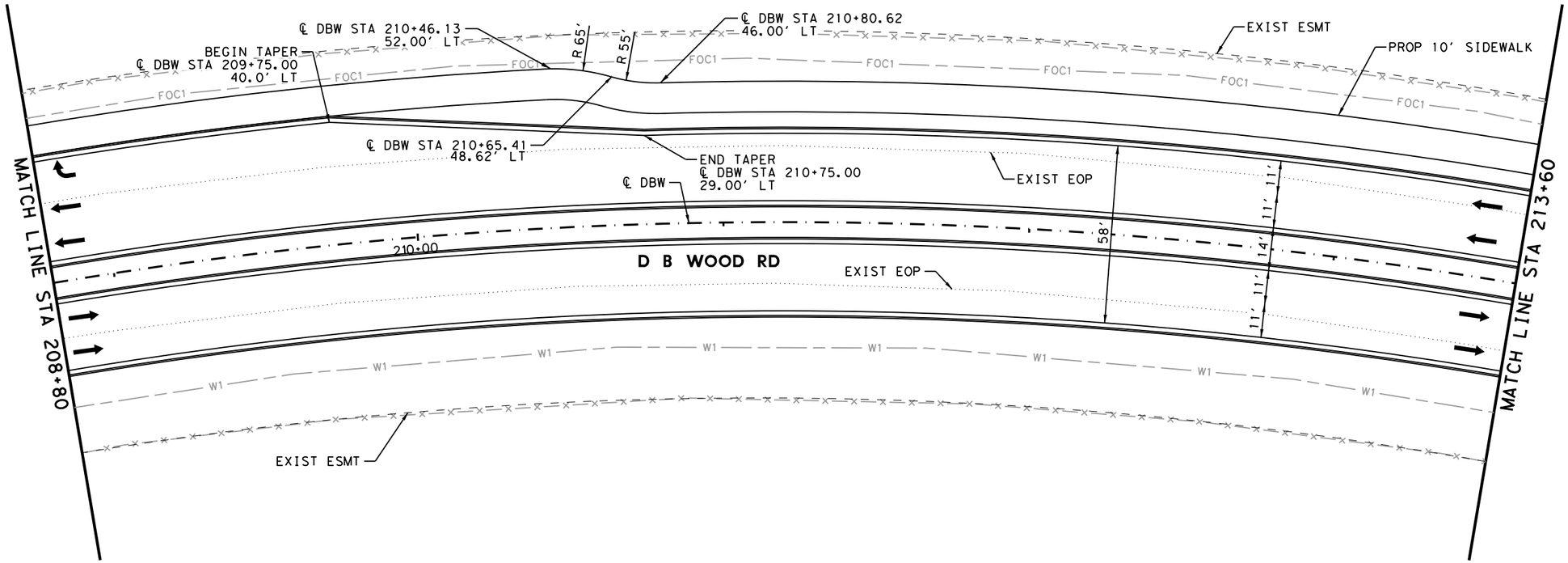
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 204+00 TO STA 208+80

SHEET 6 OF 25 | 145

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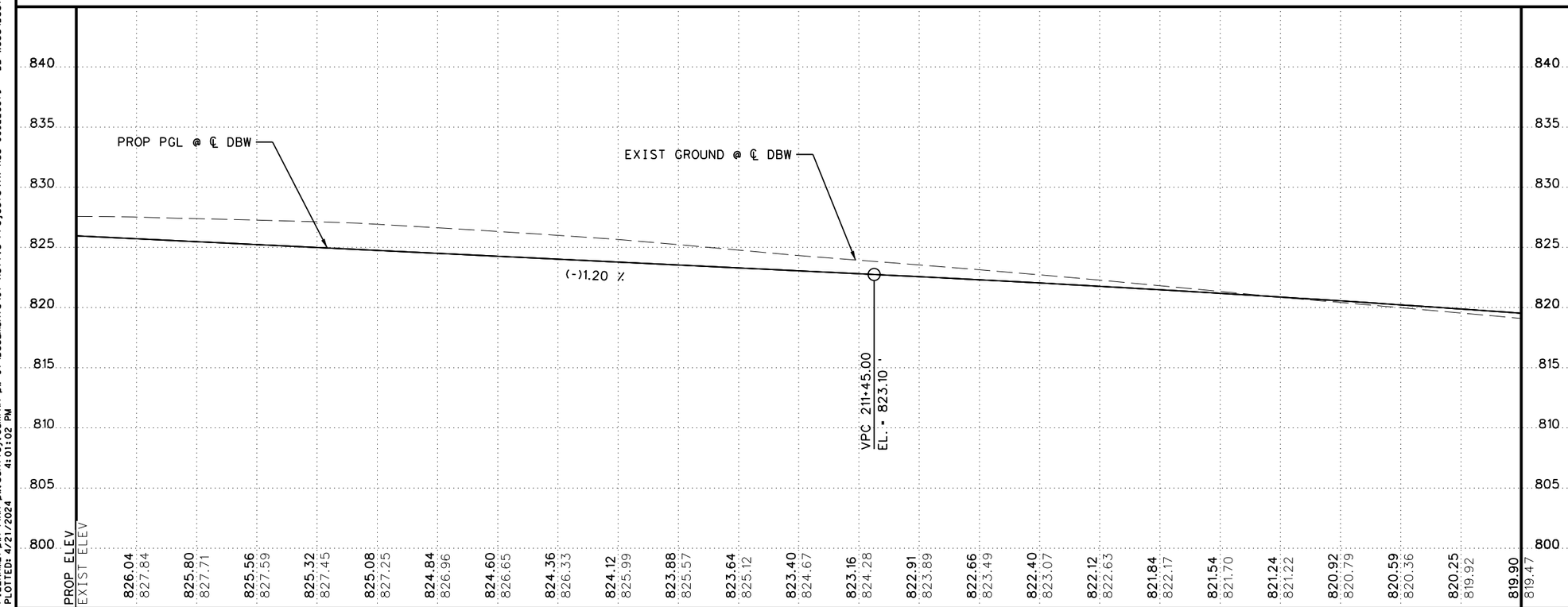


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST FENCE LINE

NOTES:

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2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
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0' 20' 40' HORZ
0' 5' 10' VERT

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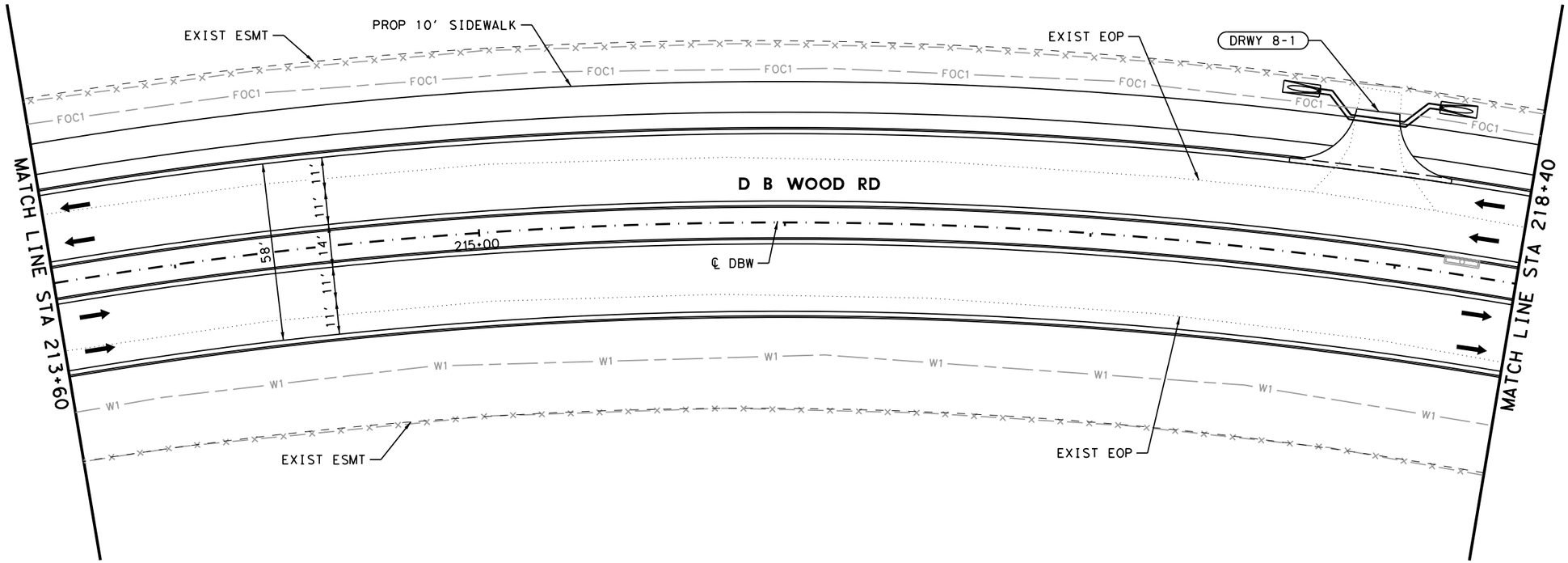
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 208+80 TO STA 213+60

SHEET 7 OF 25 | 146

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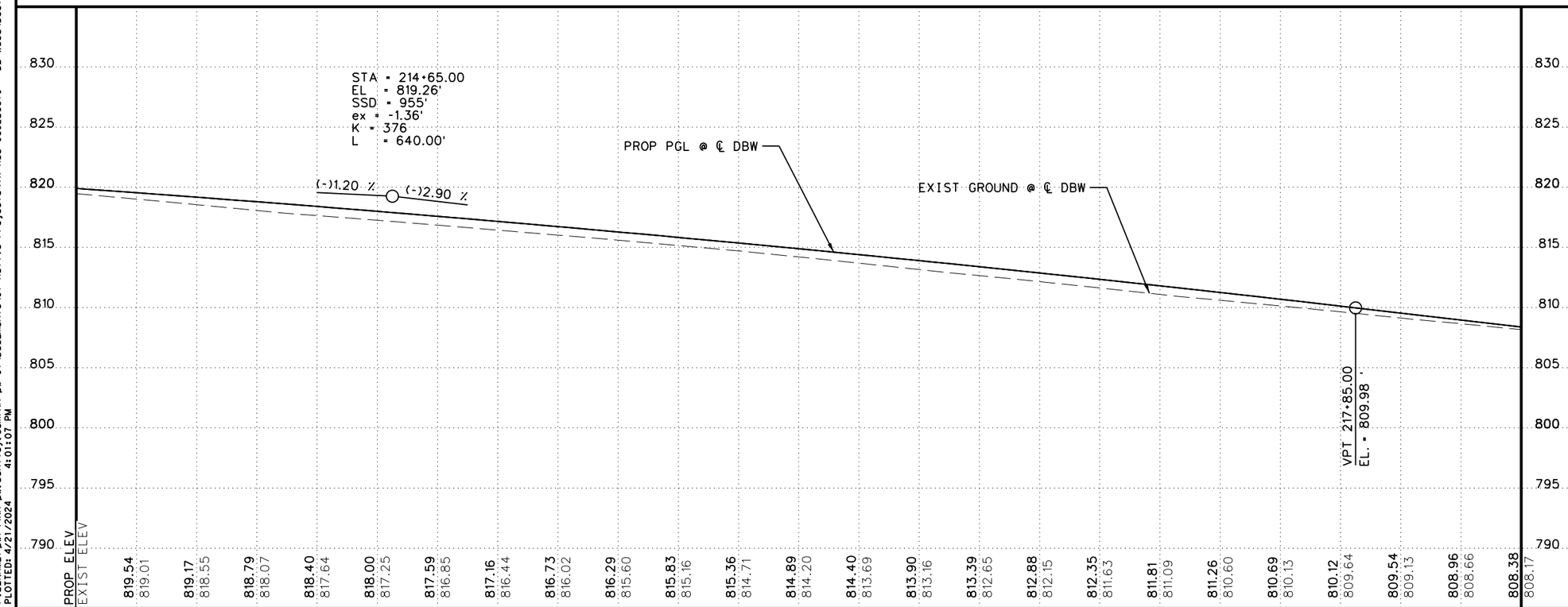


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
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NOTES:

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0' 20' 40' HORZ
0' 5' 10' VERT

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4/21/2024

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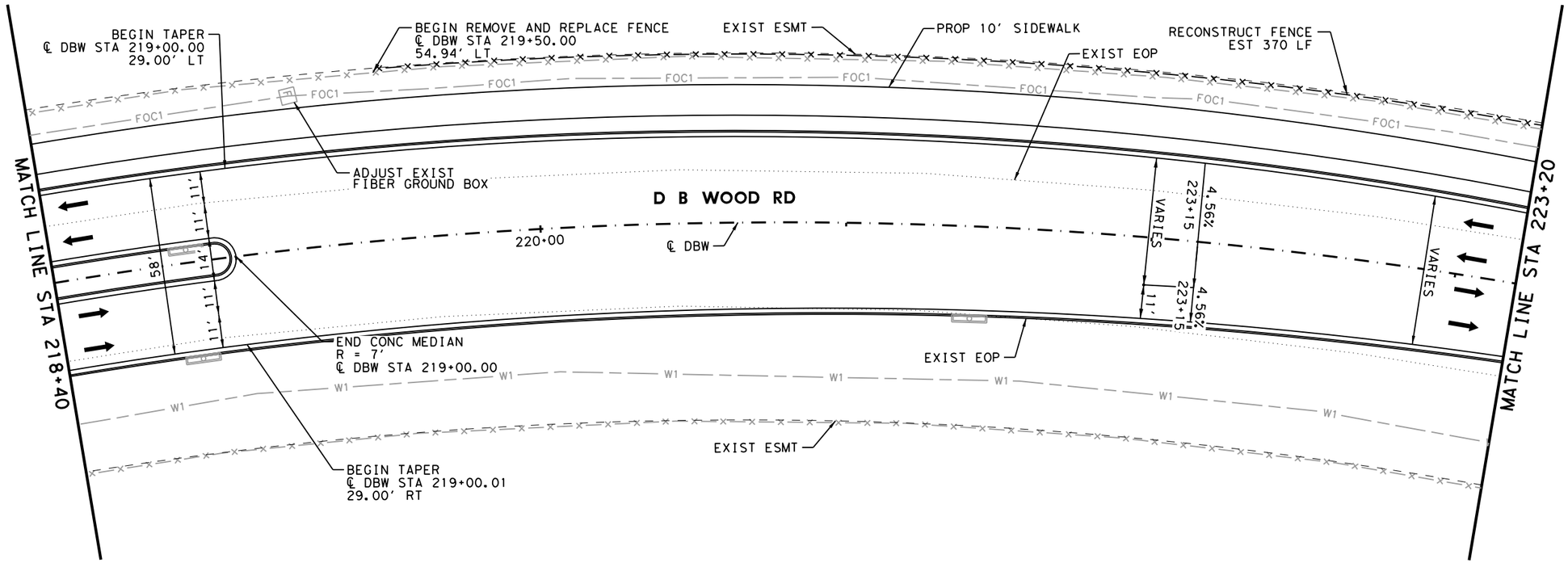
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 213+60 TO STA 218+40

SHEET 8 OF 25 | 147

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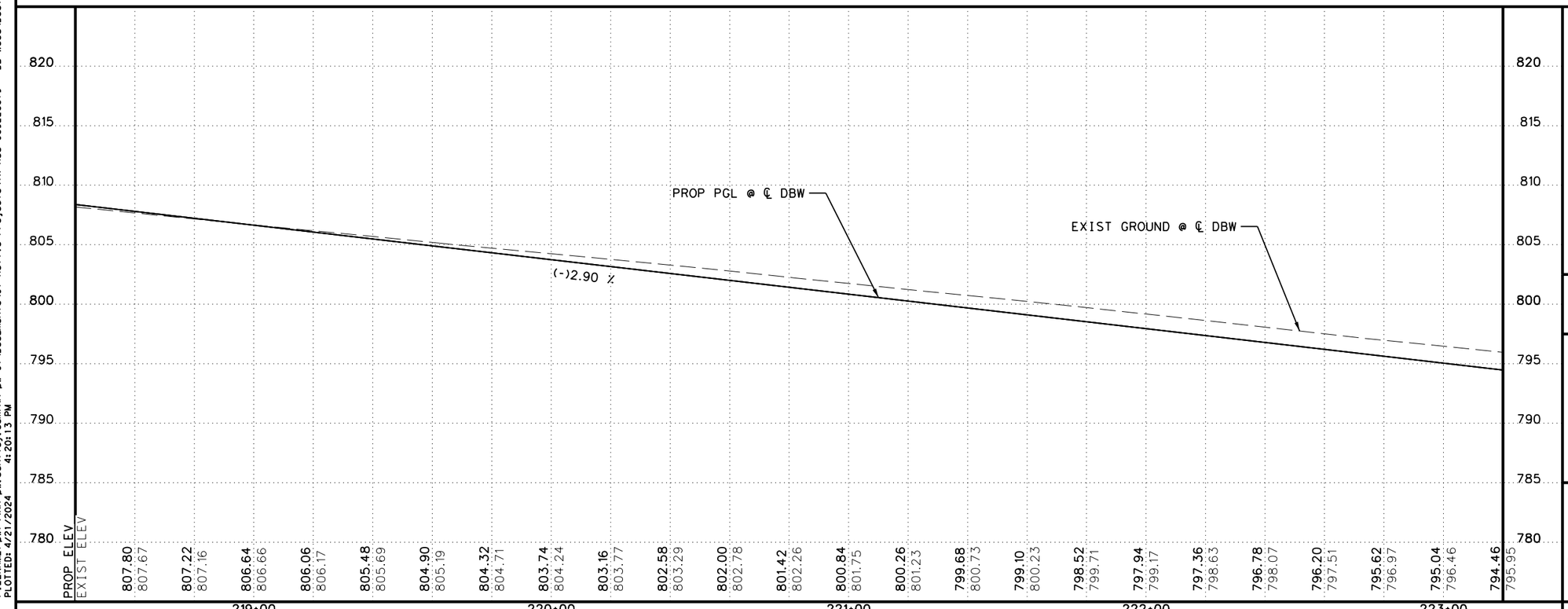


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
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NOTES:

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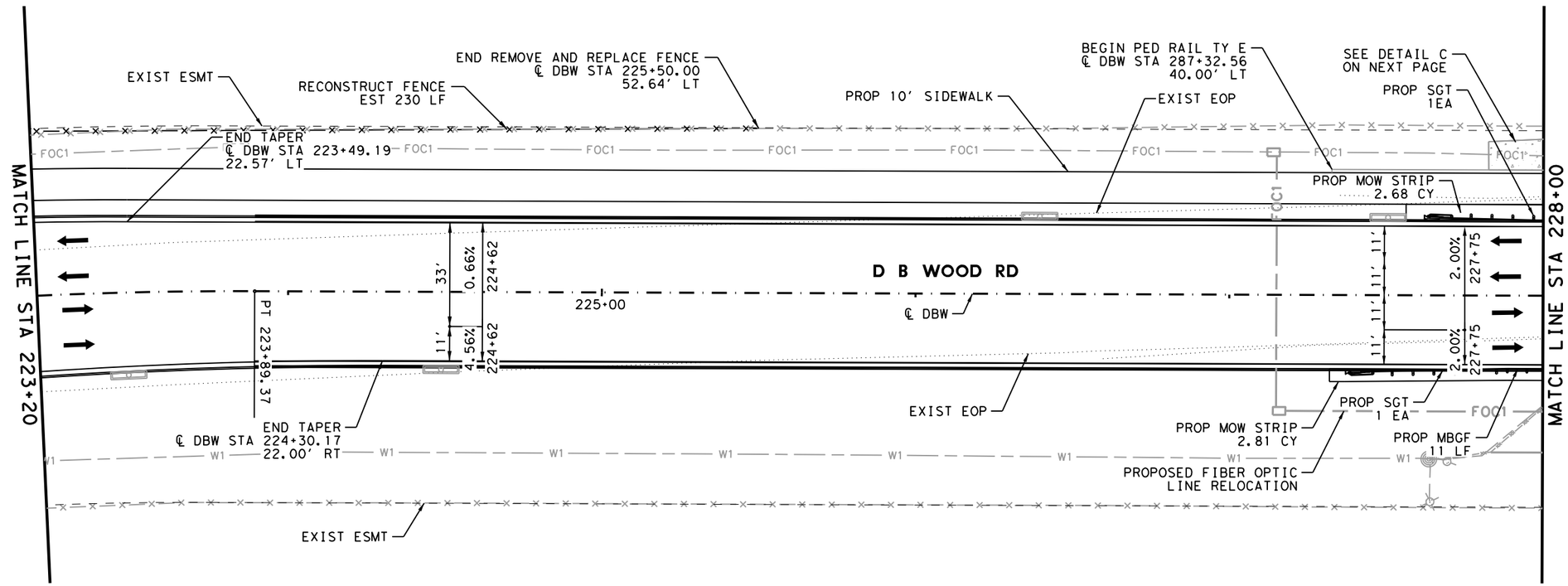
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 218+40 TO STA 223+20

SHEET 9 OF 25 | 148

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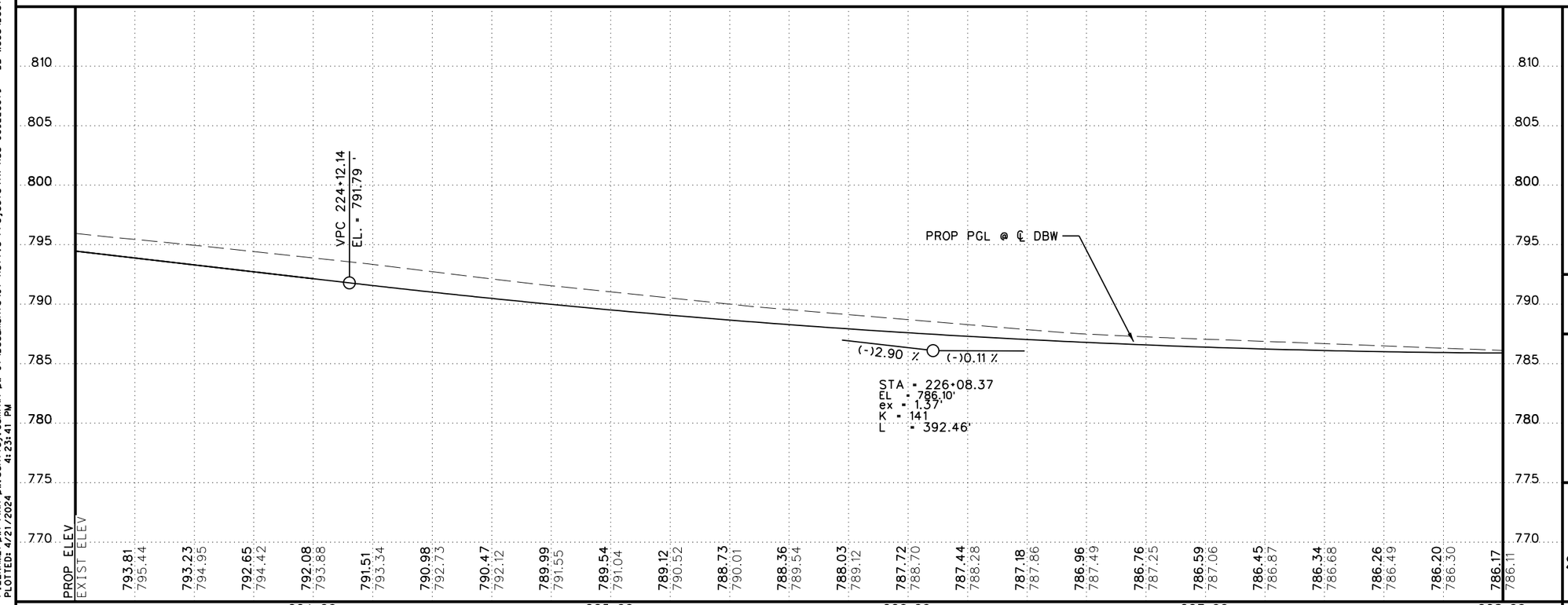


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
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- EXIST FENCE LINE

NOTES:

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2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
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0' 20' 40' HORZ
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4/21/2024

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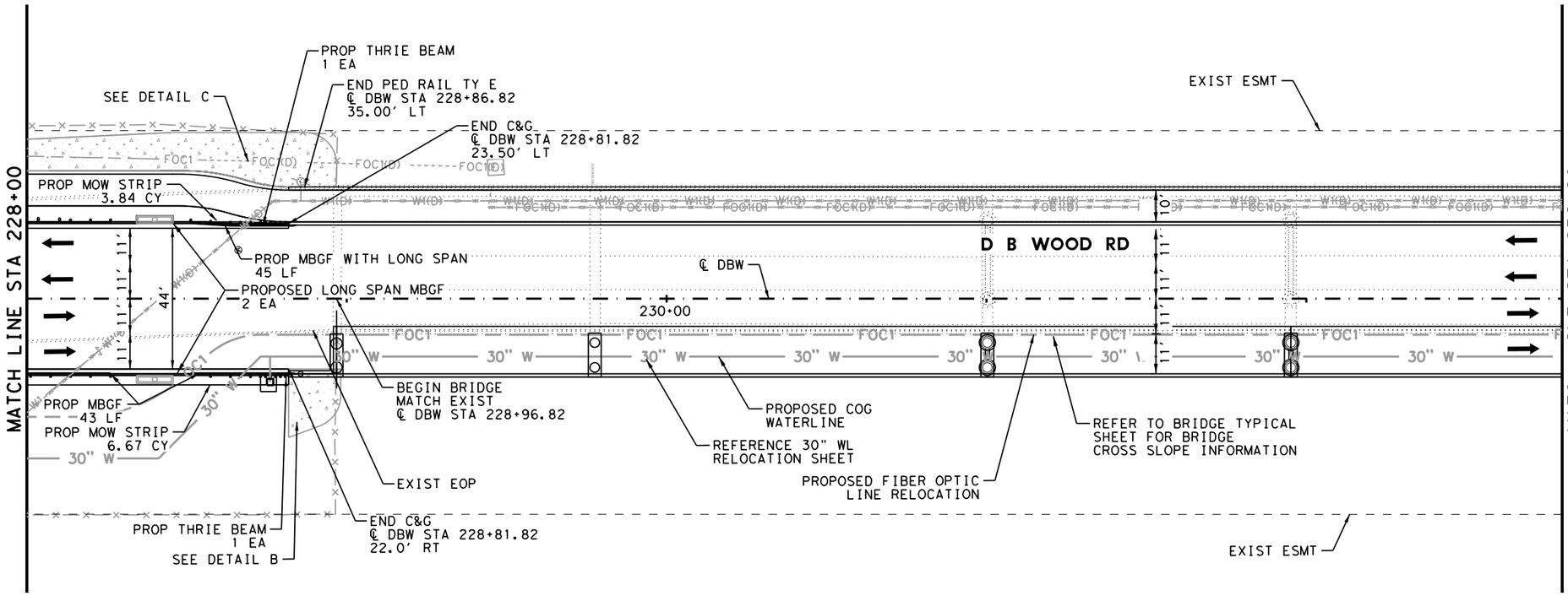
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 223+20 TO STA 228+00

SHEET 10 OF 25 | 149

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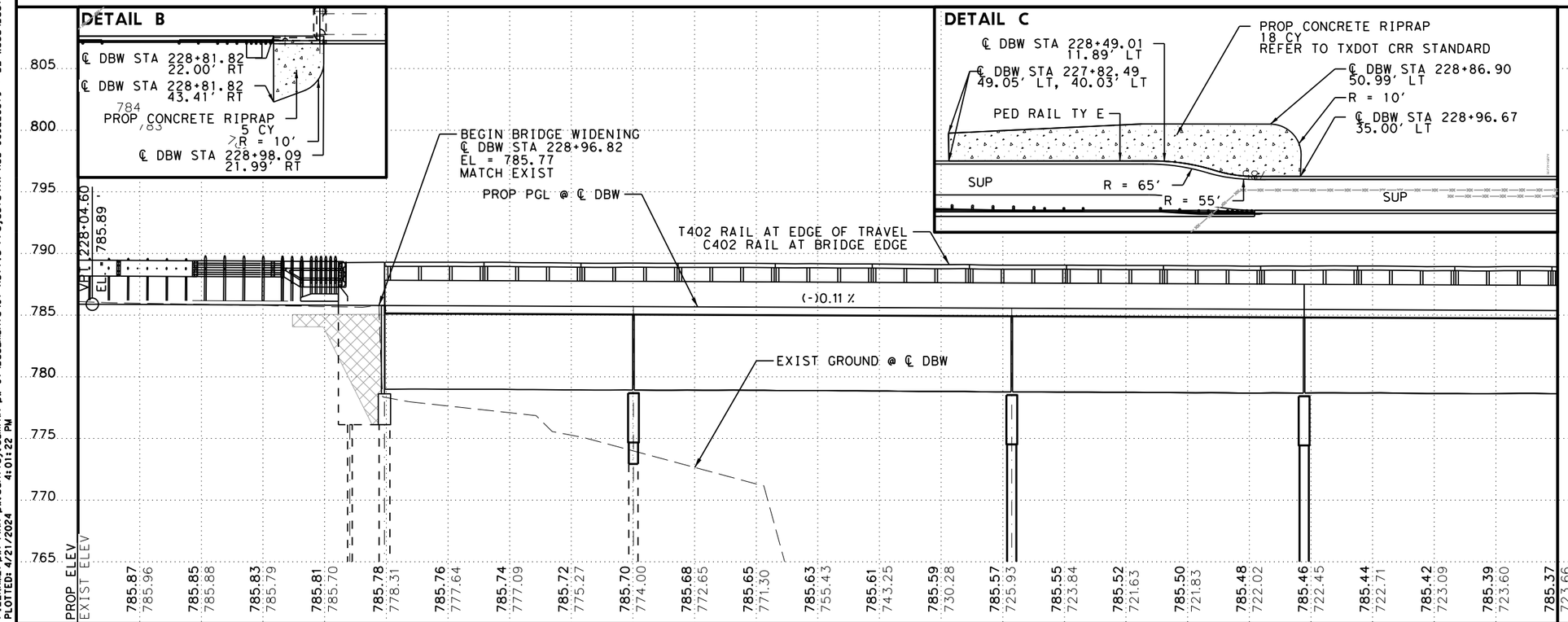


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
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NOTES:

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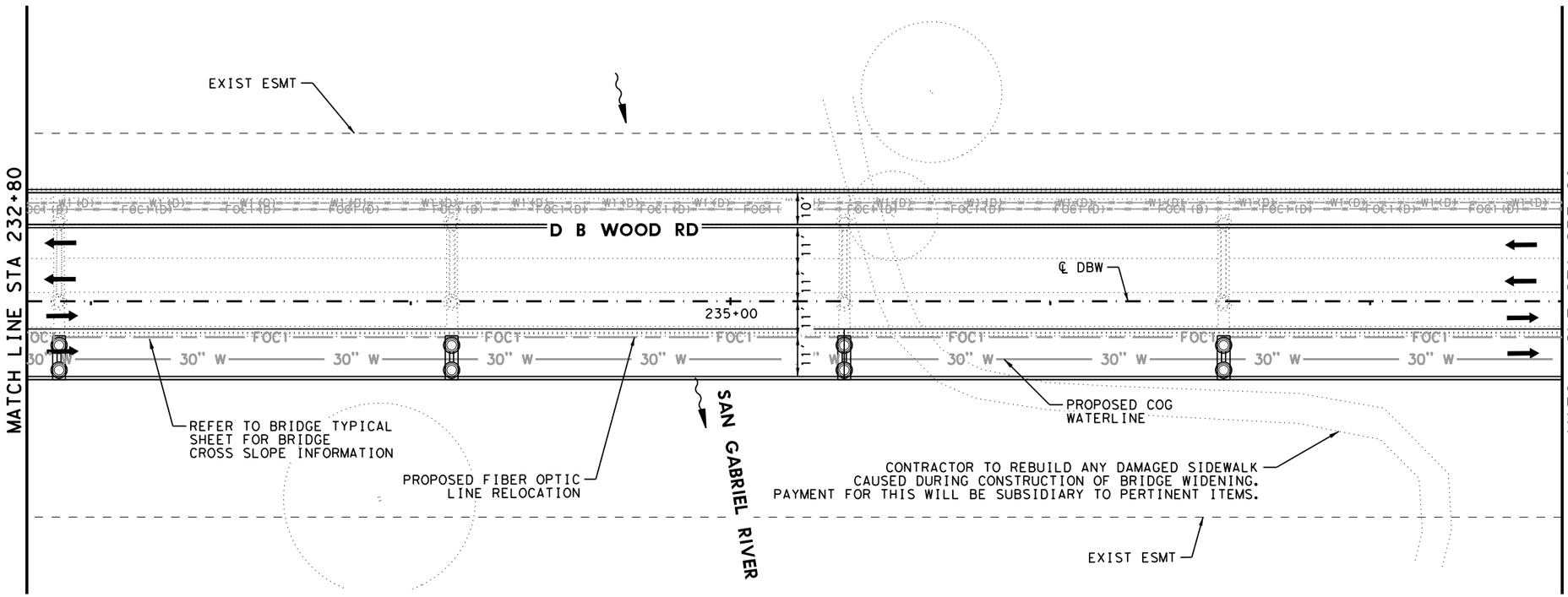
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 228+00 TO STA 232+80

SHEET 11 OF 25 | 150

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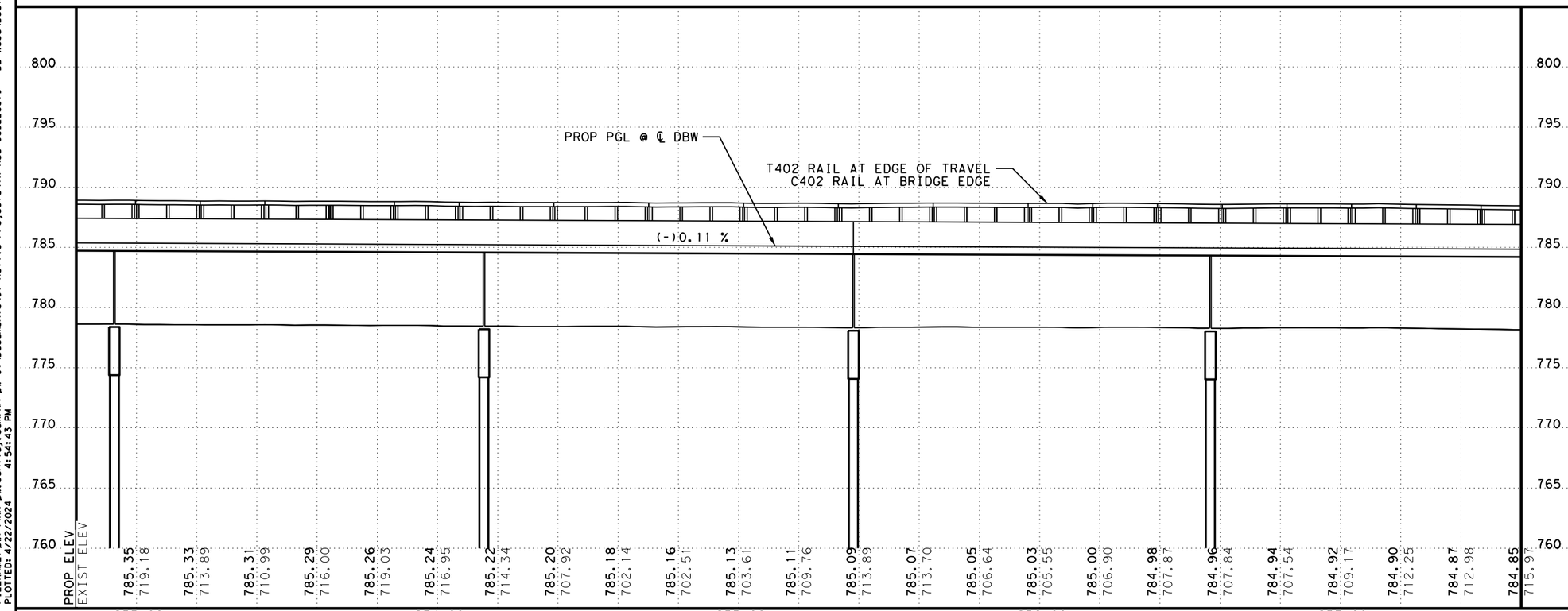


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
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NOTES:

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0' 20' 40' HORZ
0' 5' 10' VERT

4/22/2024

STATE OF TEXAS
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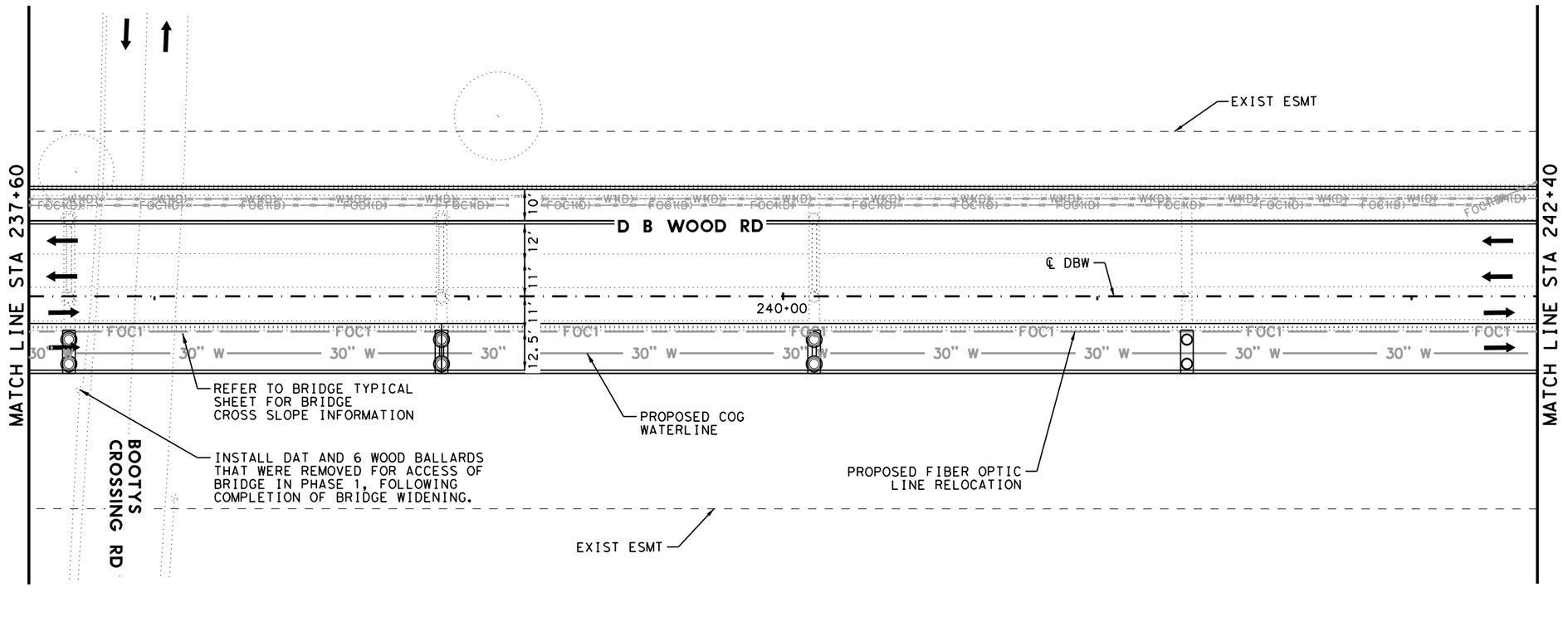
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 232+80 TO STA 237+60

SHEET 12 OF 25 | 151

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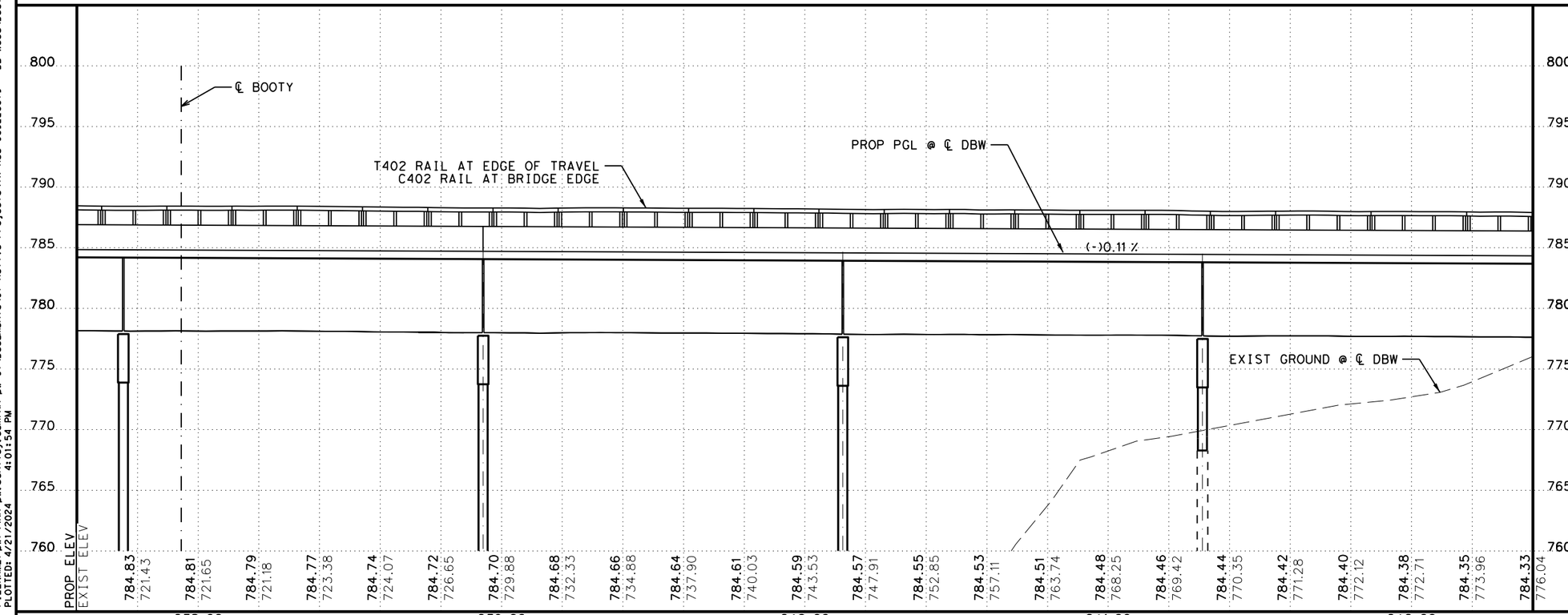


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST FENCE LINE

NOTES:

1. SEE DRIVEWAY AND INTERSECTION SHEETS FOR MORE INFORMATION.
2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. SEE CULVERT LAYOUT SHEETS FOR MORE INFORMATION.
4. SEE REMOVAL SHEETS FOR REMOVAL AND REPLACEMENT OF FENCE AND GATES AT DRIVEWAYS.



0' 20' 40' HORZ
0' 5' 10' VERT

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AUSTIN S. HELTON
124922
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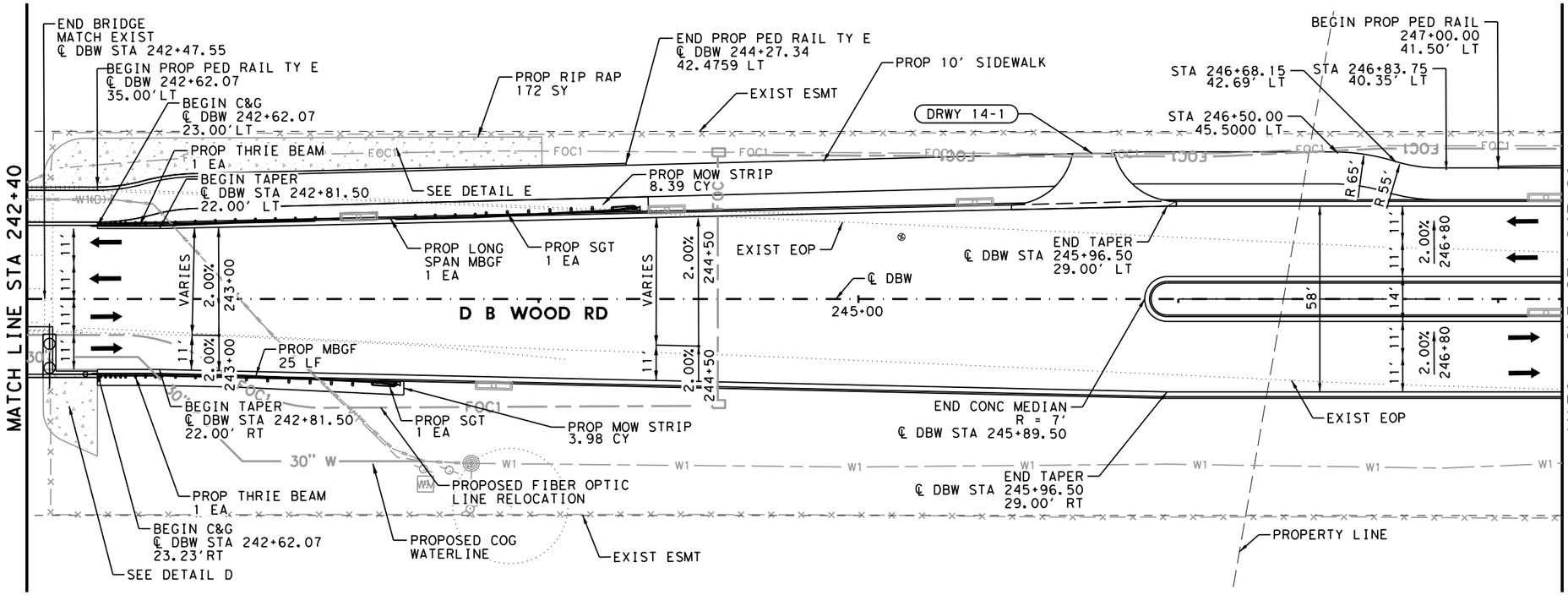
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 237+60 TO STA 242+40

SHEET 13 OF 25 | 152

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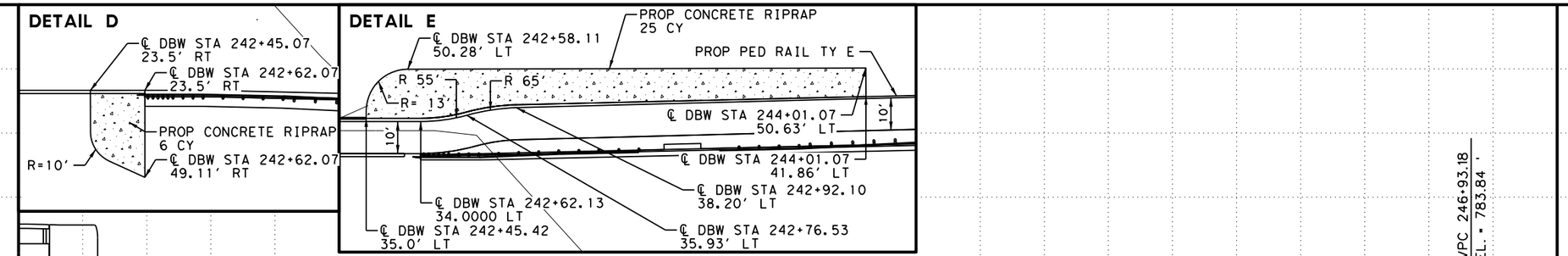


LEGEND

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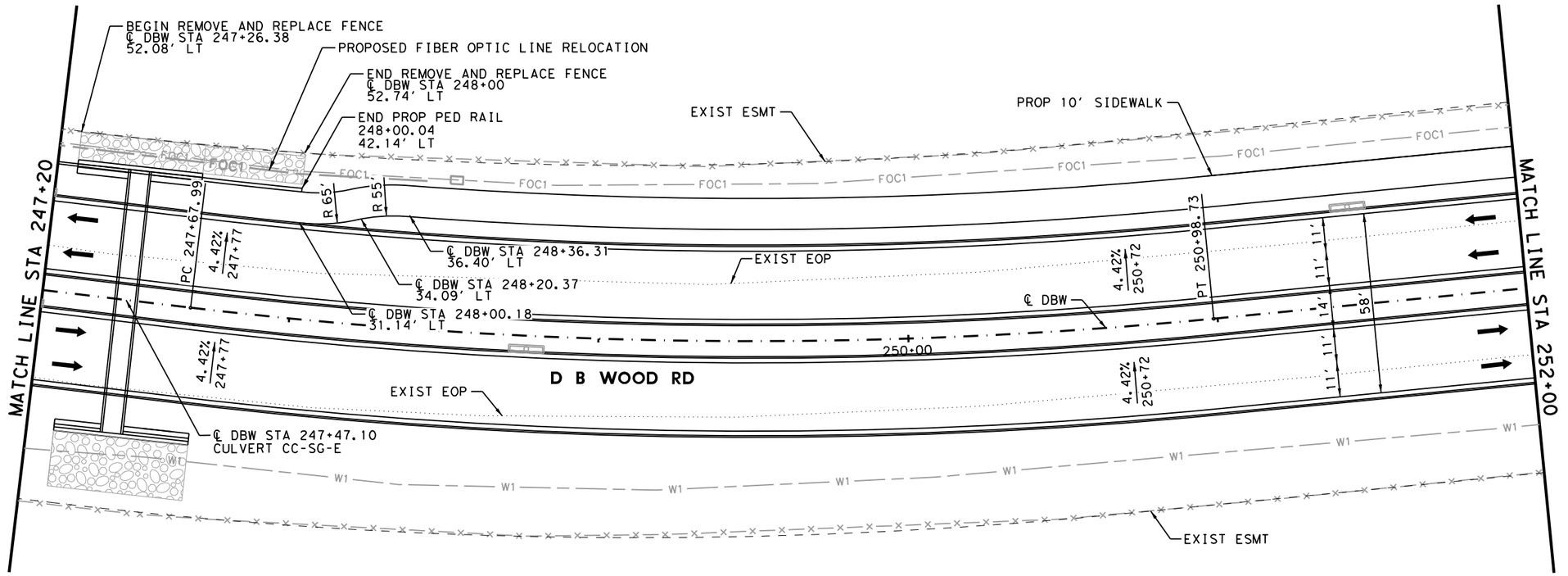
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 242+40 TO STA 247+20

SHEET 14 OF 25 | 153

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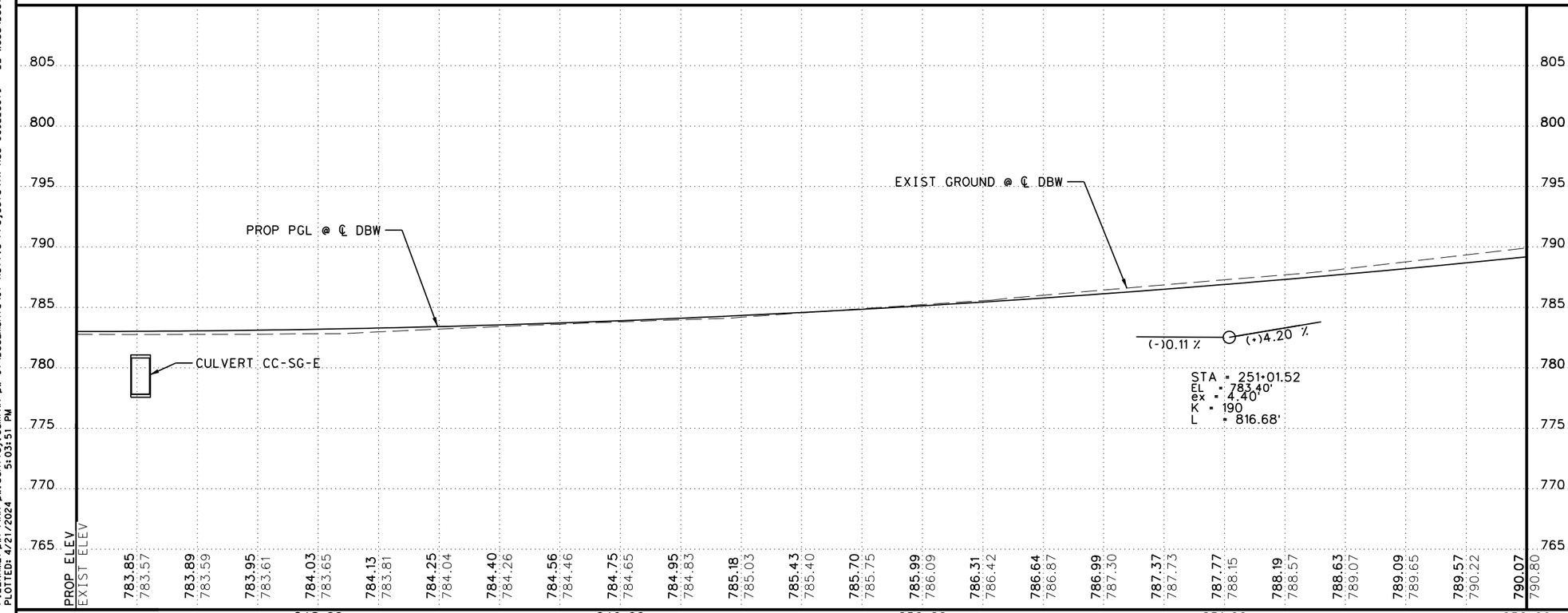


LEGEND

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- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
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NOTES:

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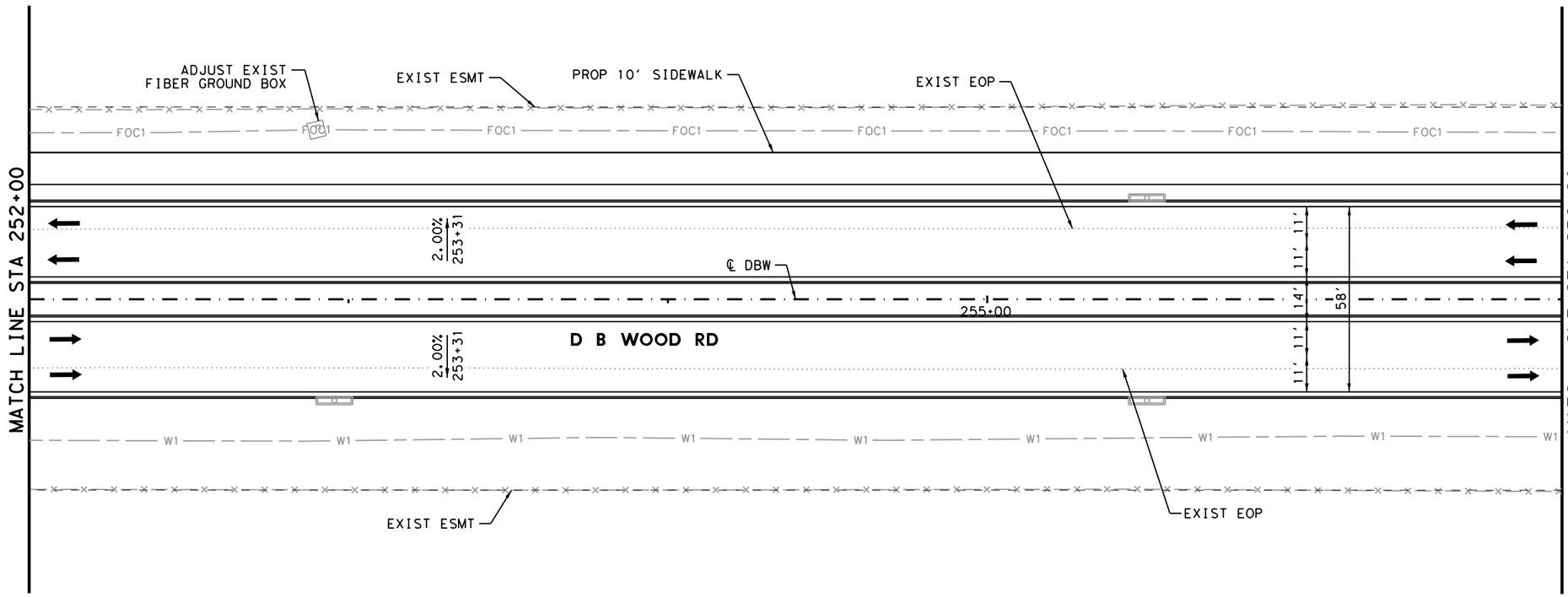
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 247+20 TO STA 252+00

SHEET 15 OF 25 | 154

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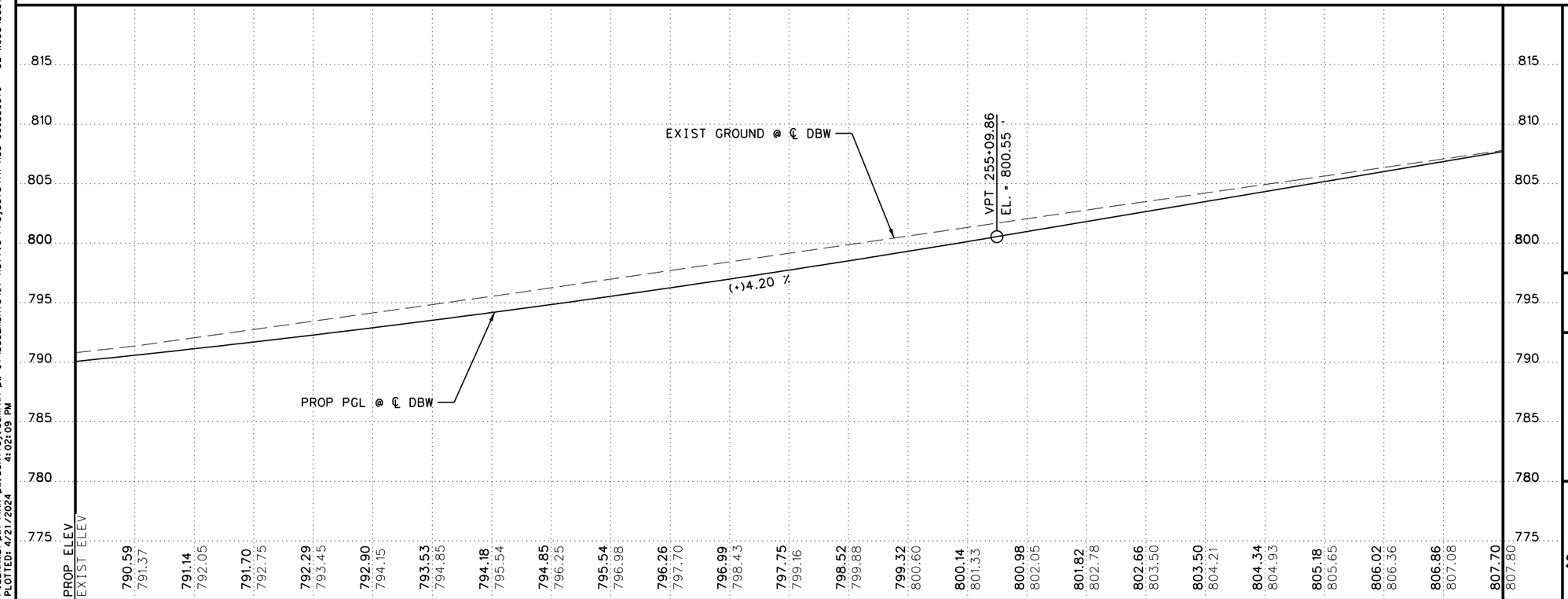


LEGEND

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- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
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- PROPOSED CONCRETE PROTECTION RIPRAP
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NOTES:

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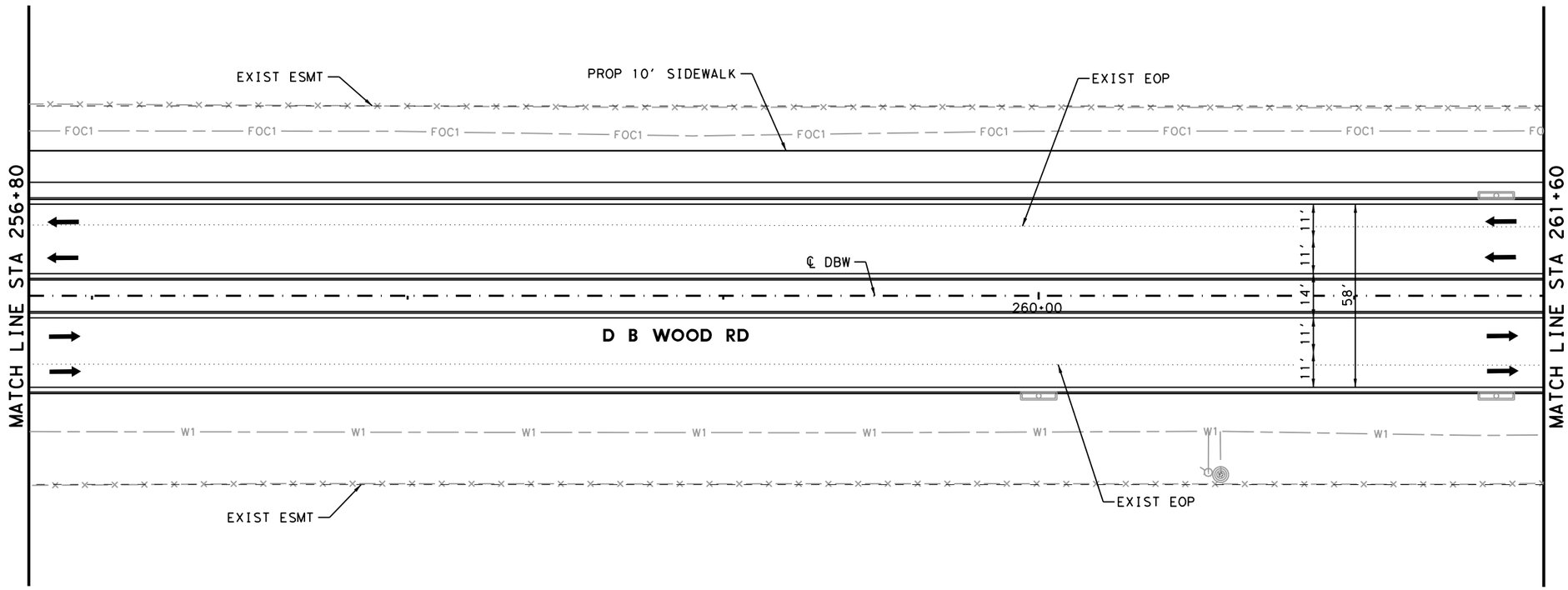
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 252+00 TO STA 256+80

SHEET 16 OF 25 | 155

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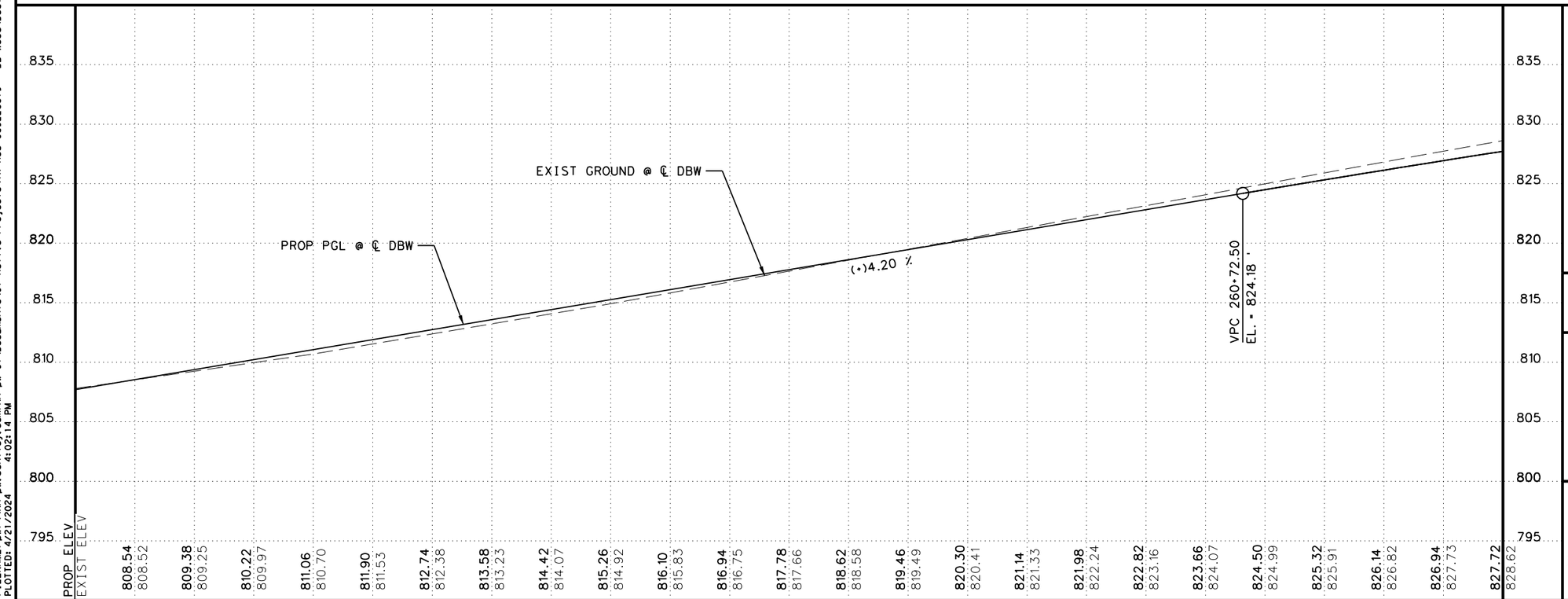


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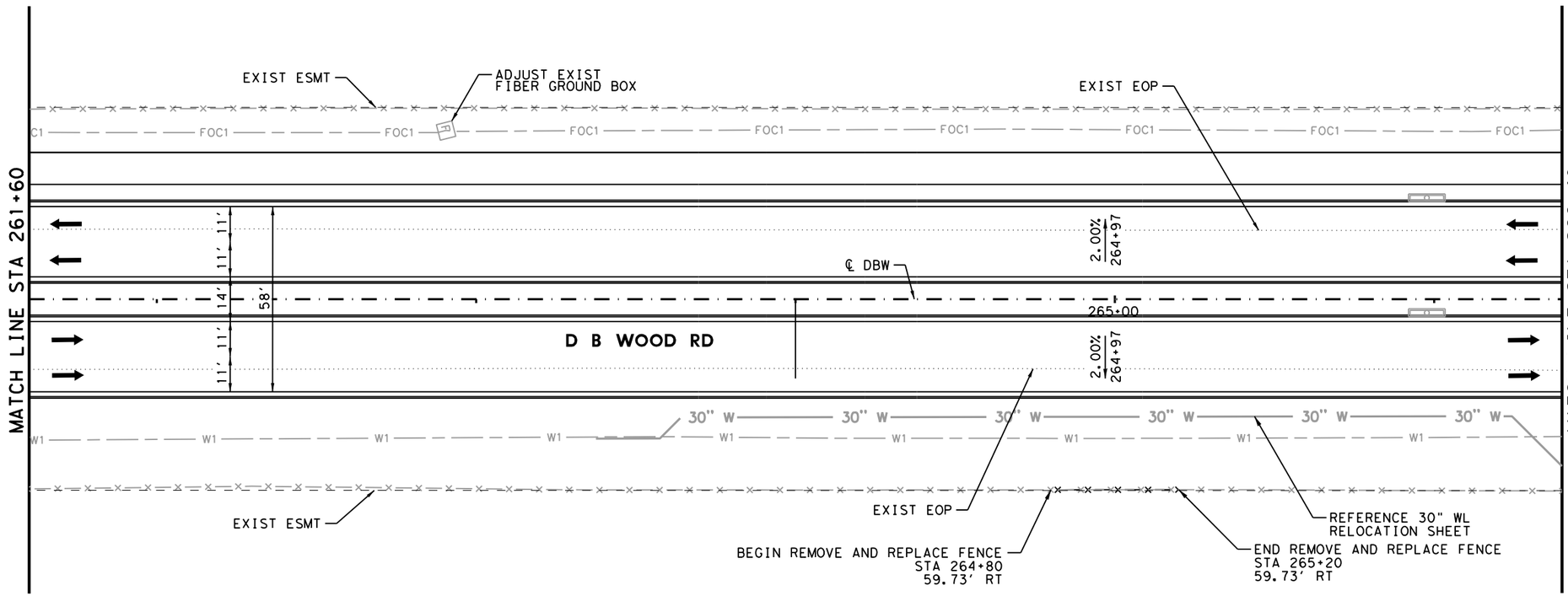
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 256+80 TO STA 261+60

SHEET 17 OF 25 | 156

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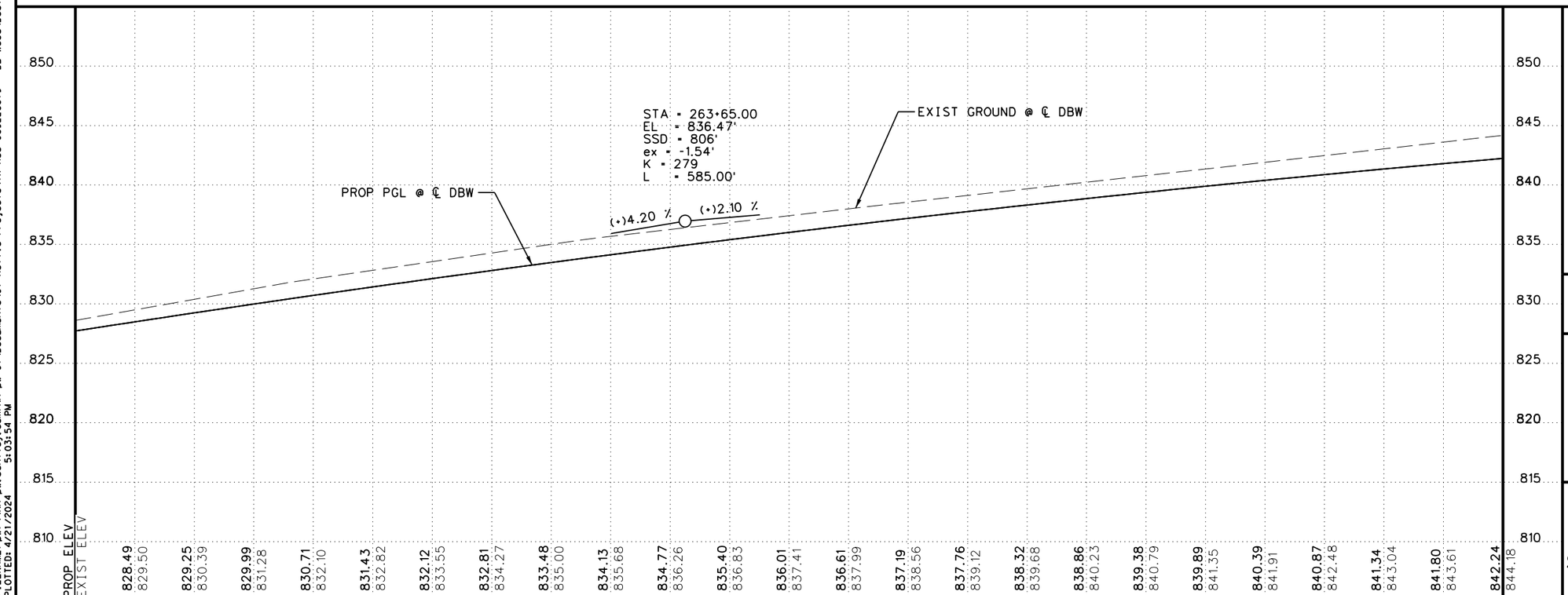


LEGEND

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NOTES:

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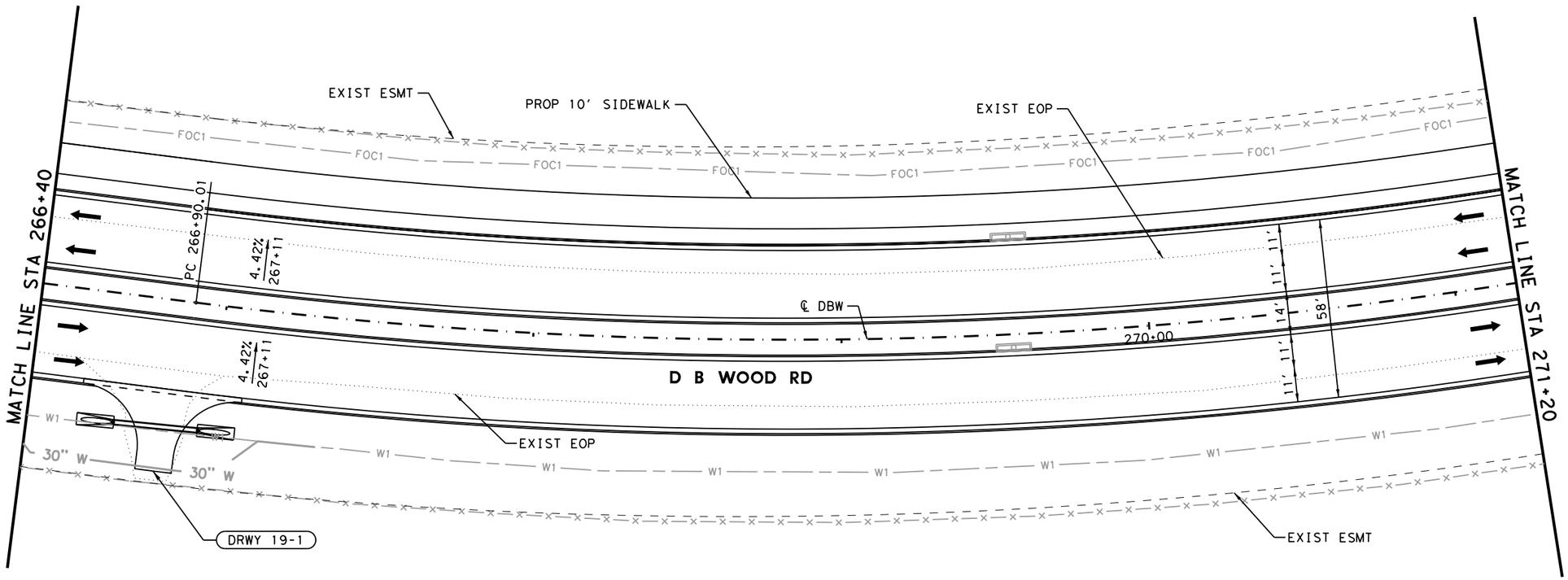
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 261+60 TO STA 266+40

SHEET 18 OF 25 | 157

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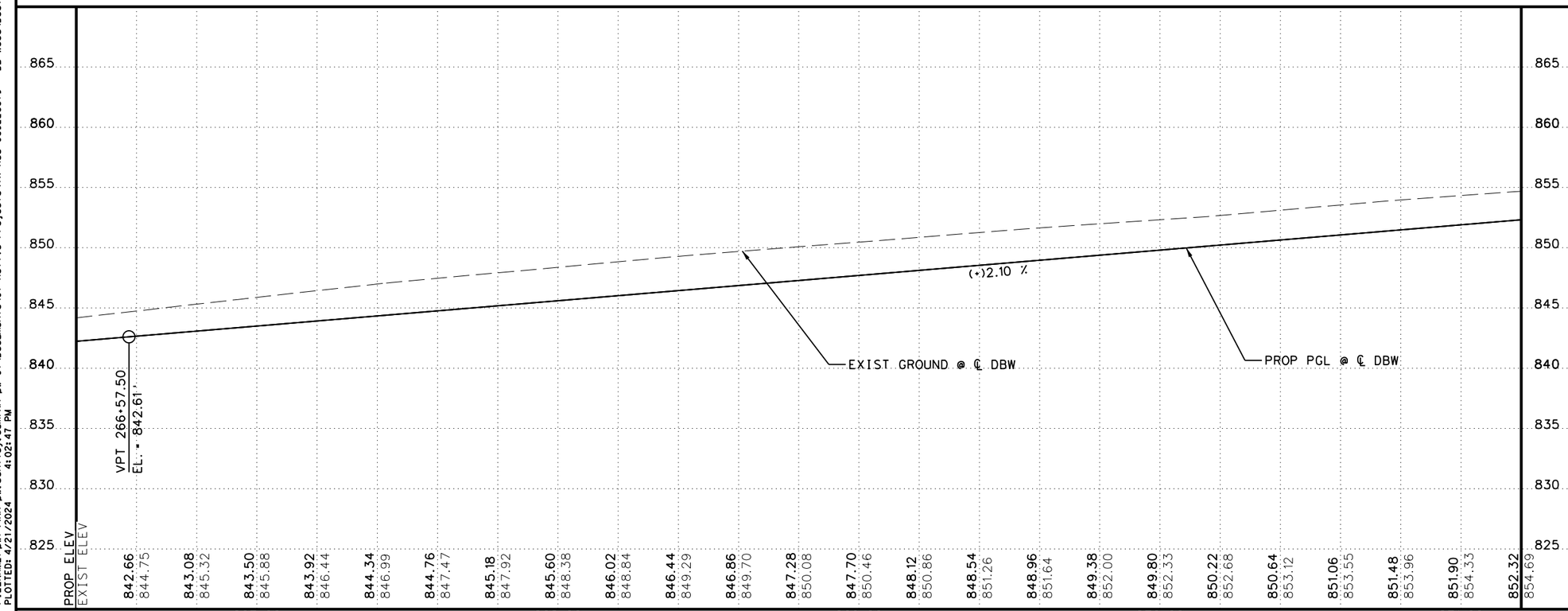


LEGEND

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- OH — PEDERNALES OVERHEAD ELECTRIC
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NOTES:

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0' 20' 40' HORZ
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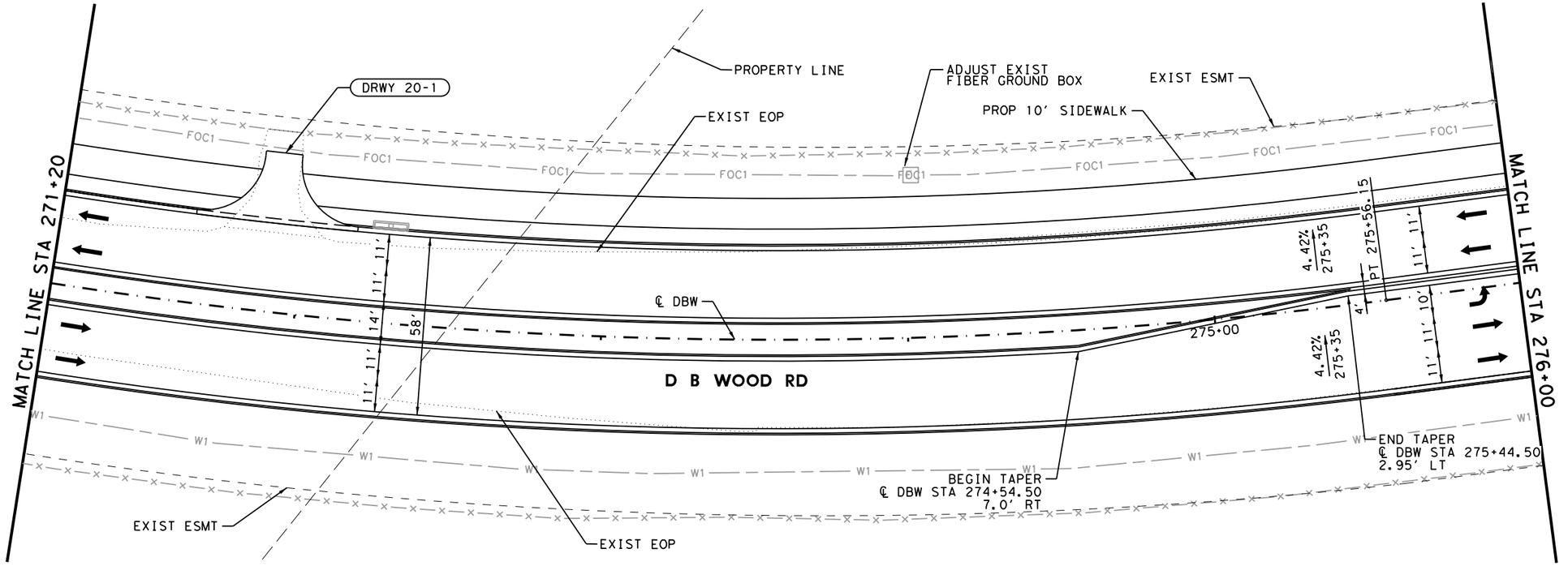
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 266+40 TO STA 271+20

SHEET 19 OF 25 | 158

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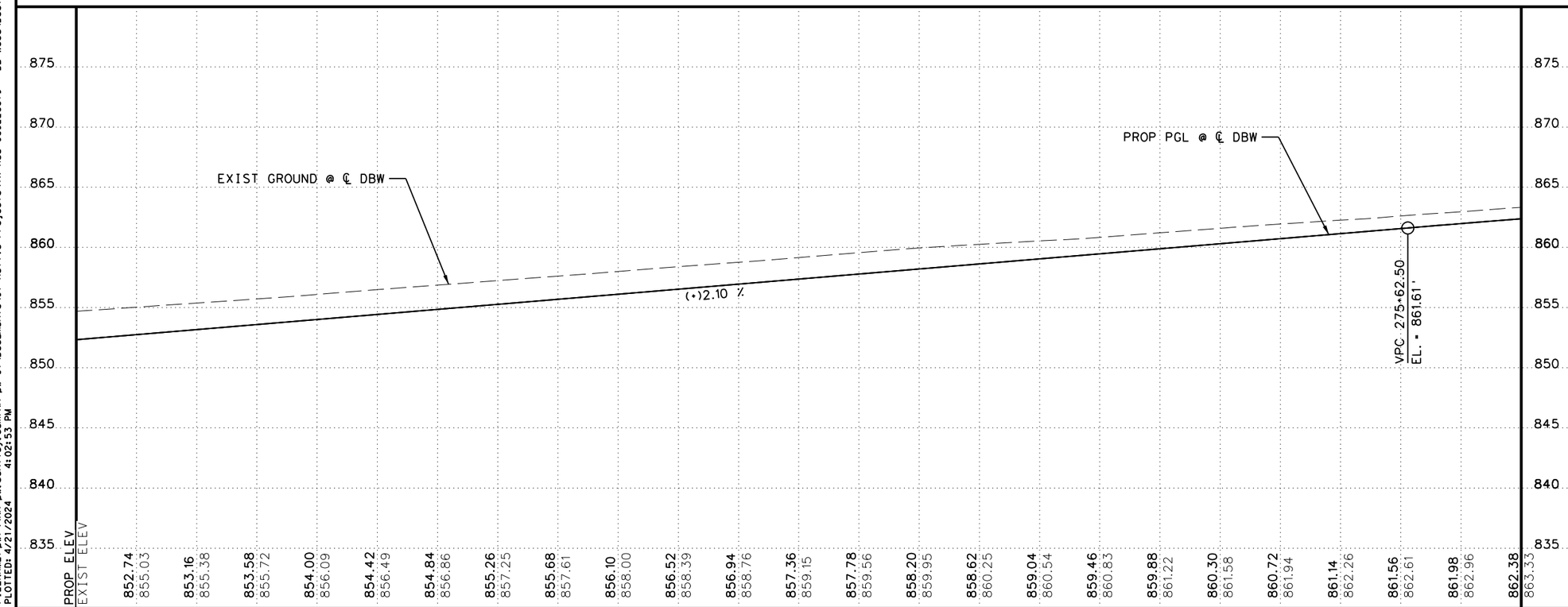


LEGEND

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STATE OF TEXAS
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4/21/2024

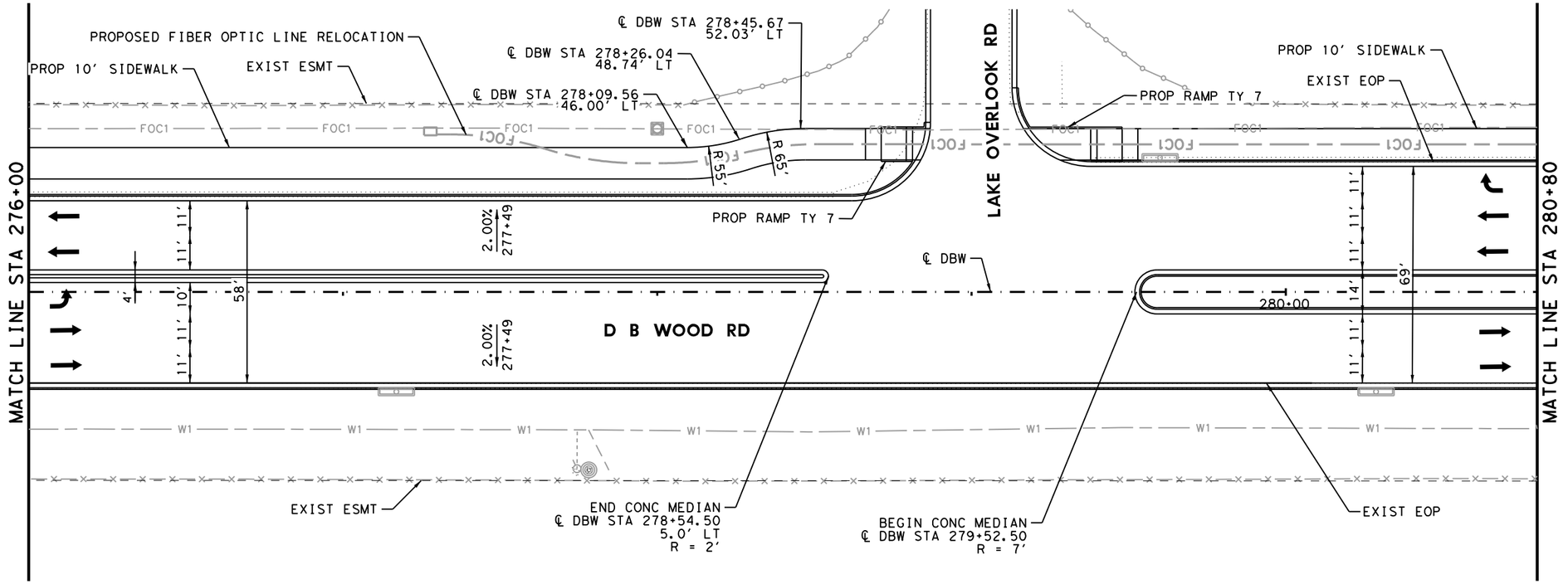
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 271+20 TO STA 276+00

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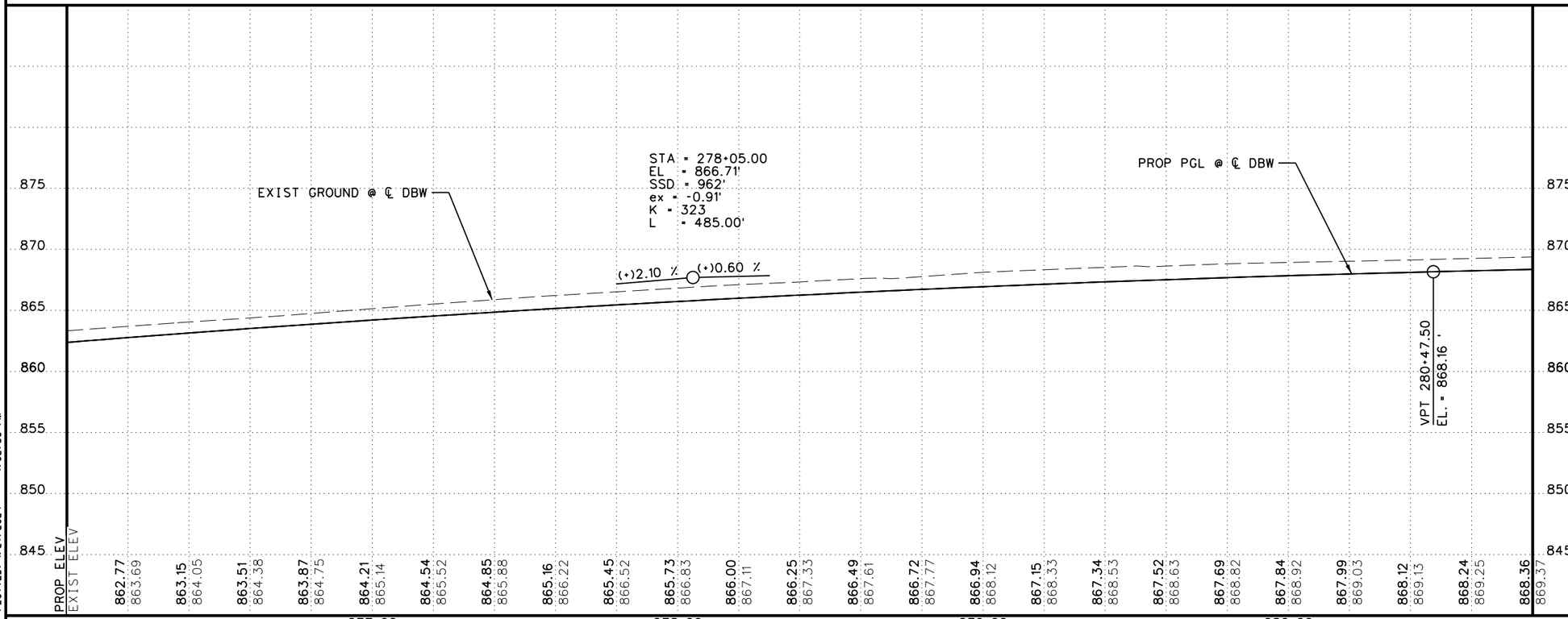


LEGEND

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- 24"W — PROPOSED CITY OF GEORGETOWN WATER
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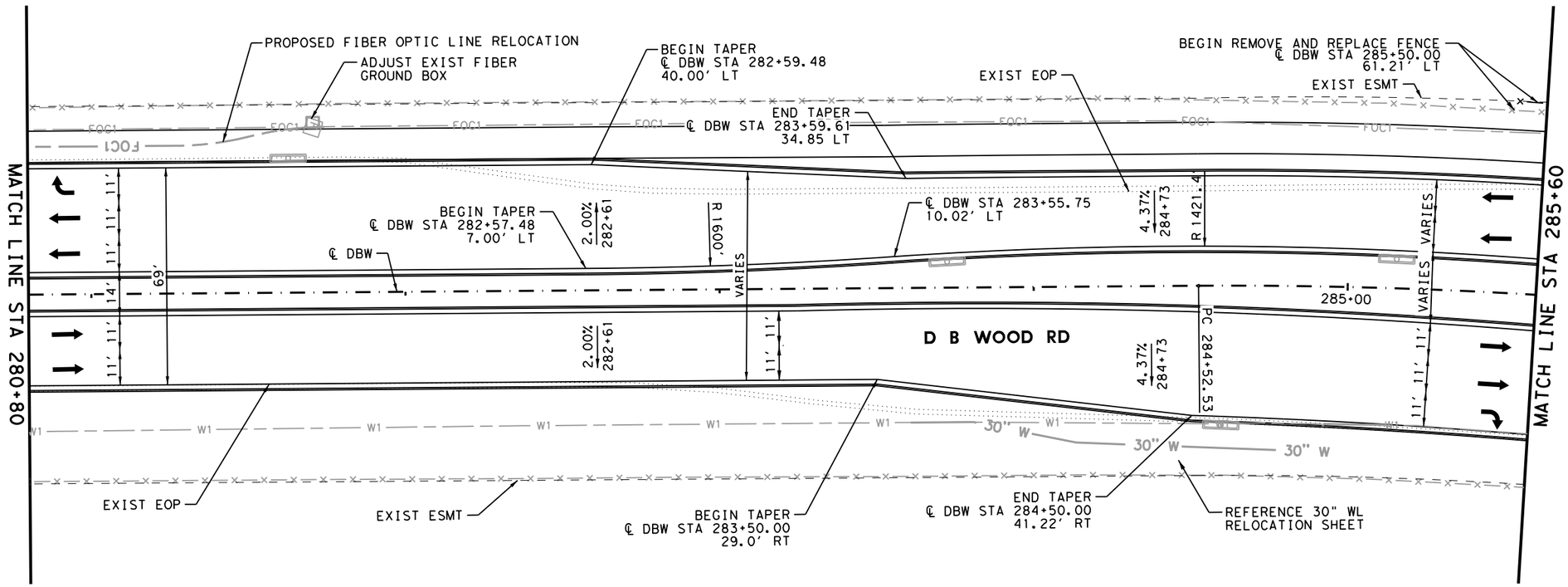
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 276+00 TO STA 280+80

SHEET 21 OF 25 | 160

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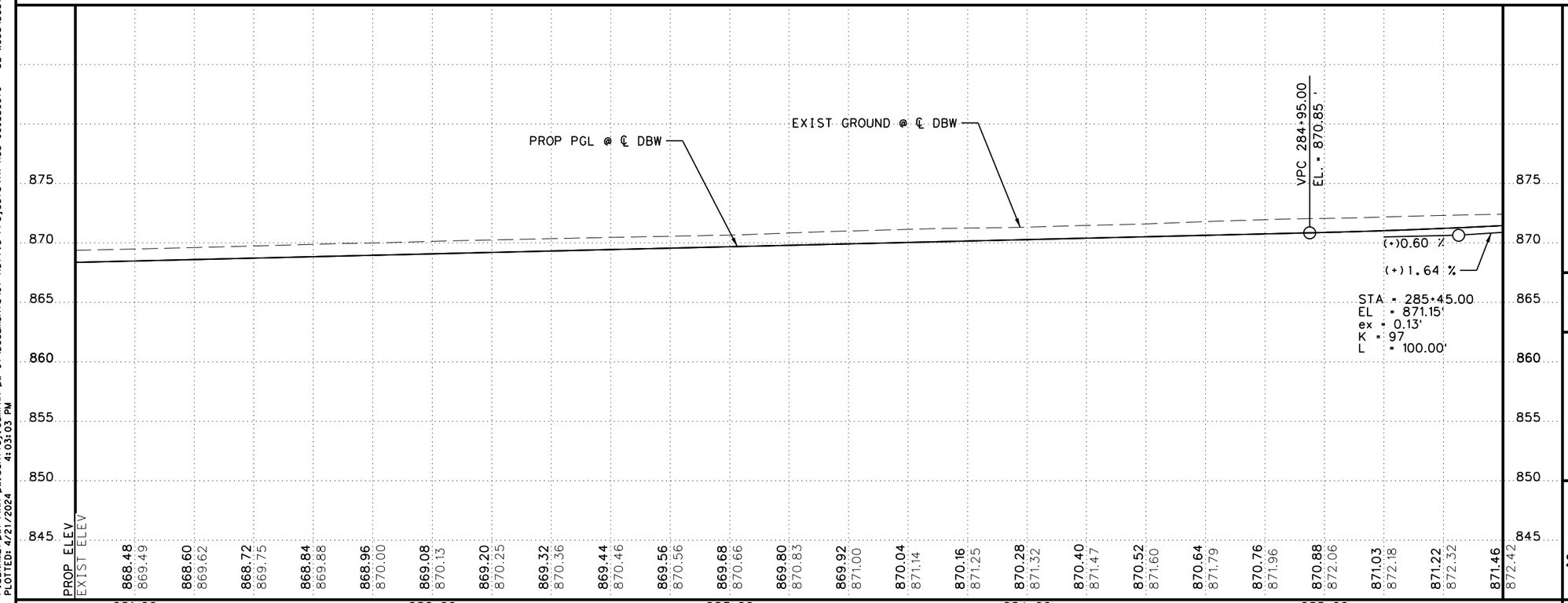


LEGEND

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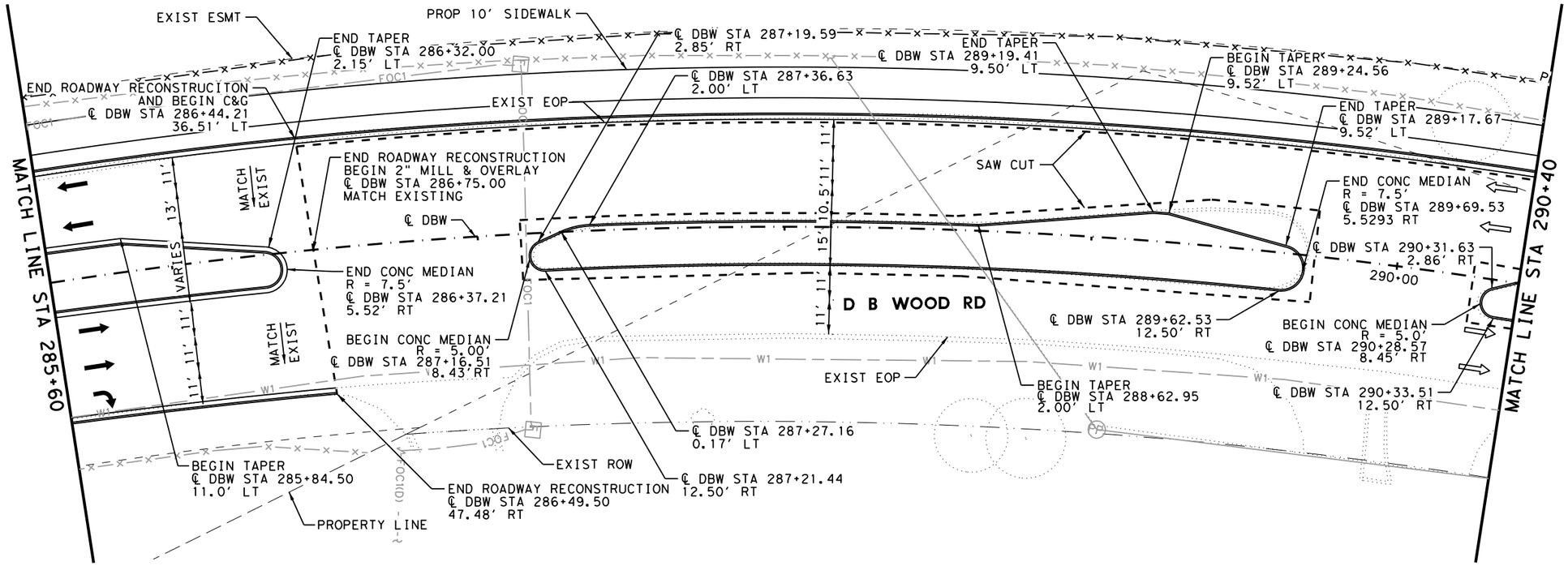
GEORGETOWN TEXAS
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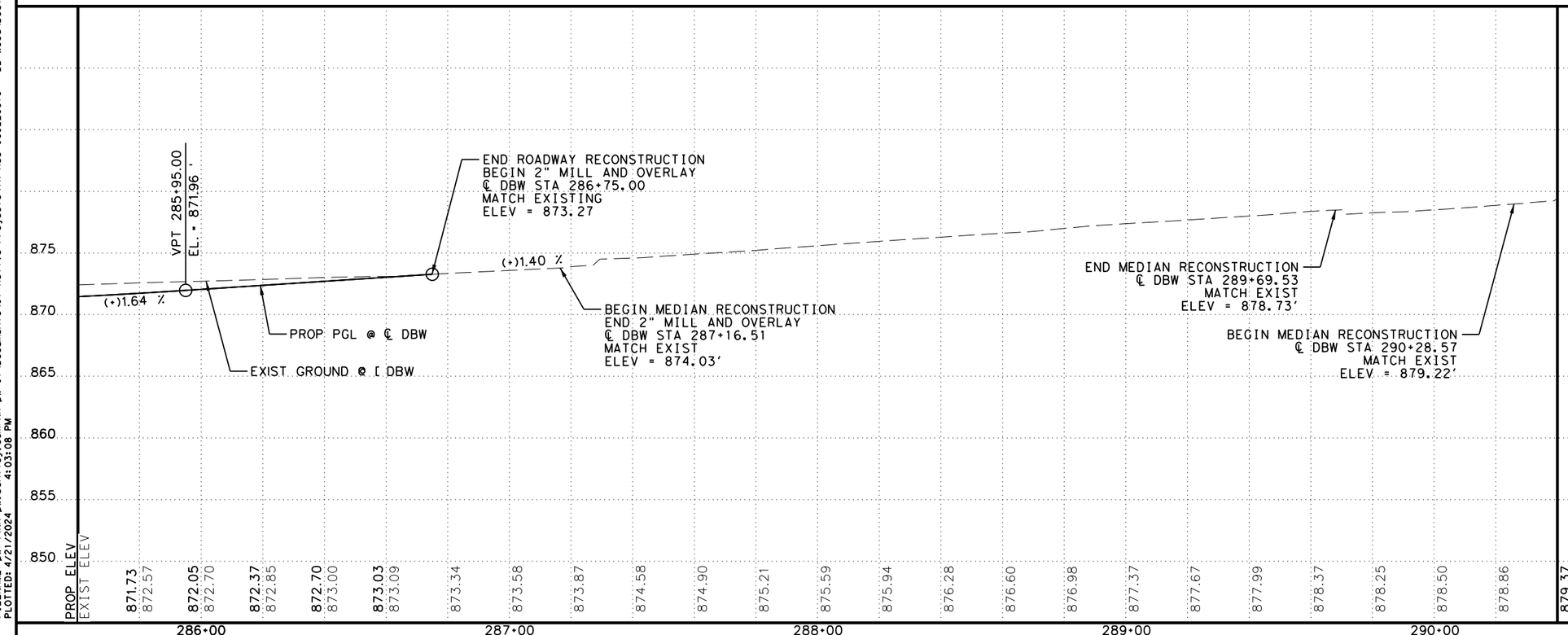
D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 280+80 TO STA 285+60

SHEET 22 OF 25 | 161

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LEGEND

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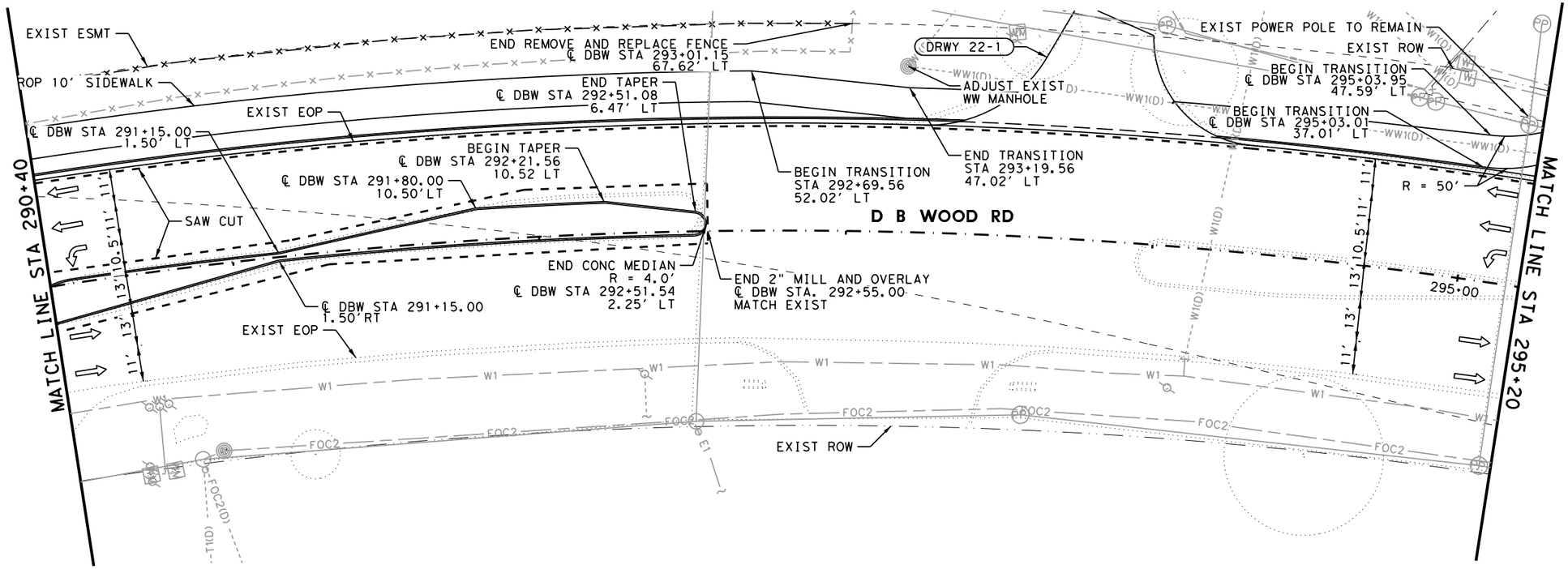
GEORGETOWN TEXAS
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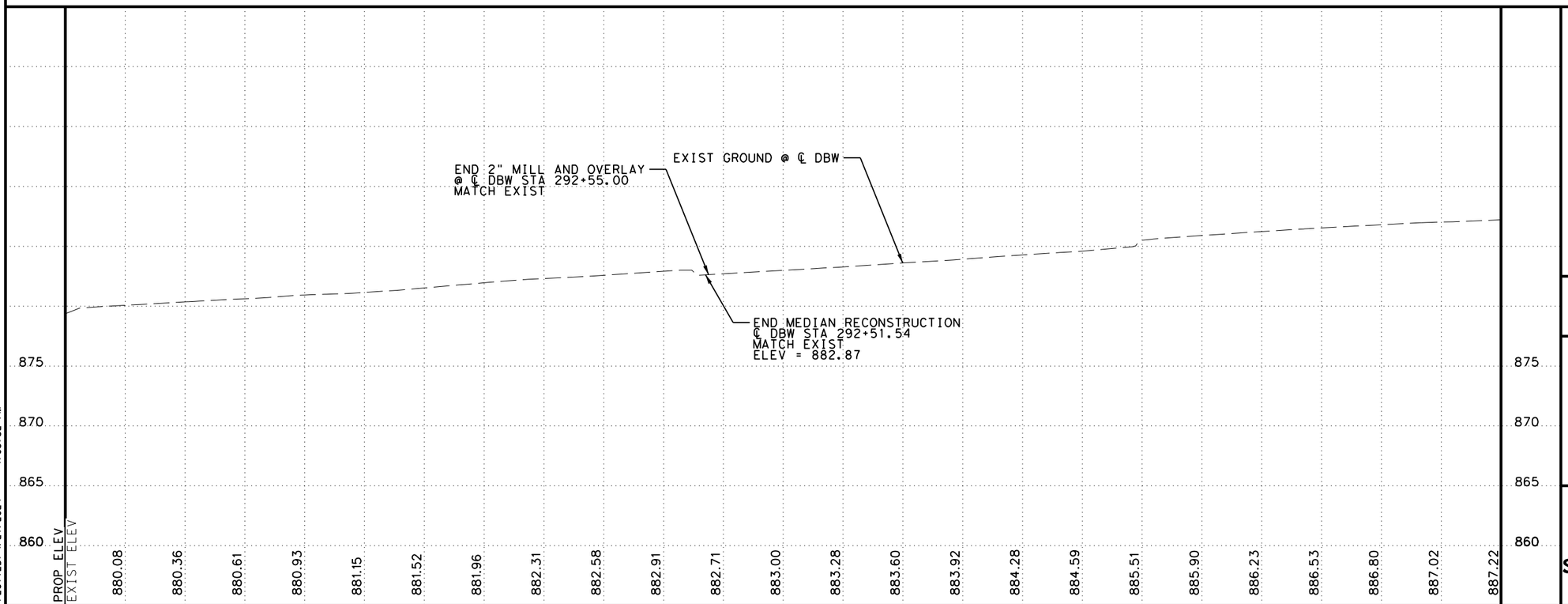
D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 285+60 TO STA 290+40

SHEET 23 OF 25 | 162

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\3. Roadway\DBW_PH2_RDWY_PP23.dgn
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LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST FENCE LINE

NOTES:

1. SEE DRIVEWAY AND INTERSECTION SHEETS FOR MORE INFORMATION.
2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. SEE CULVERT LAYOUT SHEETS FOR MORE INFORMATION.
4. SEE REMOVAL SHEETS FOR REMOVAL AND REPLACEMENT OF FENCE AND GATES AT DRIVEWAYS.

0' 20' 40' HORZ
0' 5' 10' VERT

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124922
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PROFESSIONAL ENGINEER

4/21/2024

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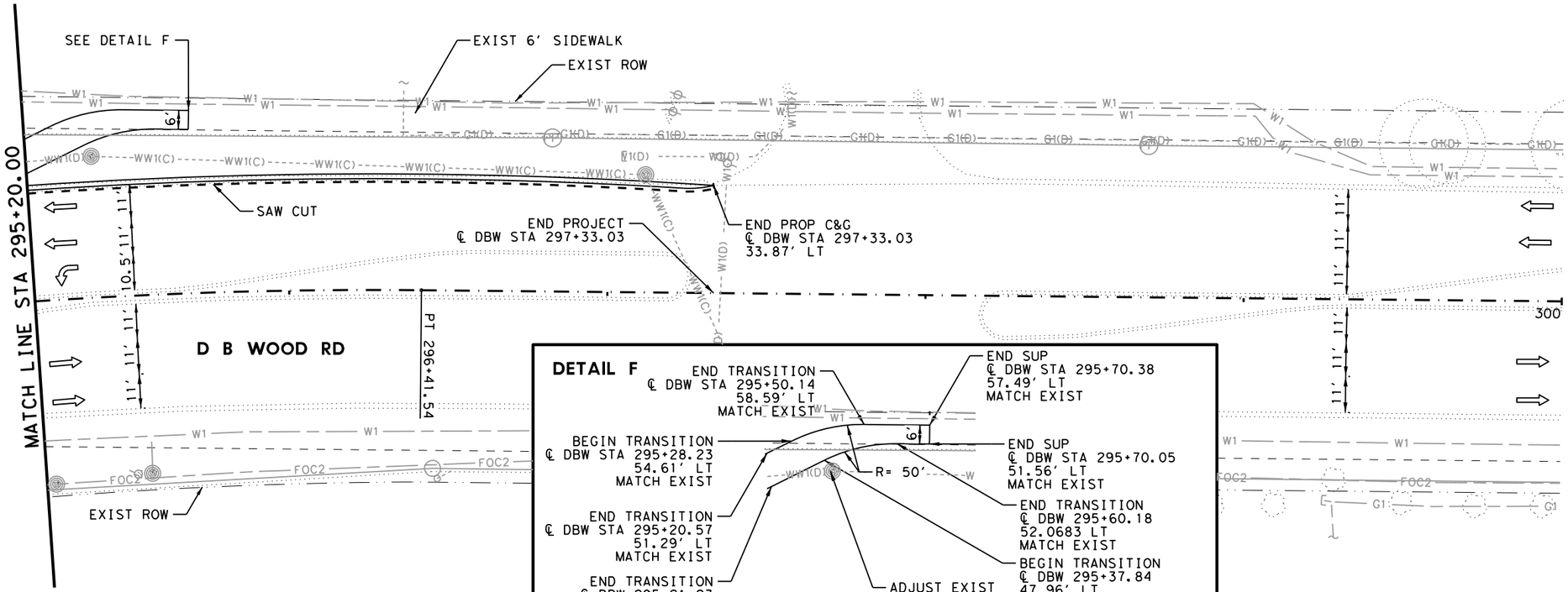
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 290+40 TO STA 295+20

SHEET 24 OF 25 | 163

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - Design\Plan Set\3. Roadway\DBW_PH2_RDWY_PP24.dgn
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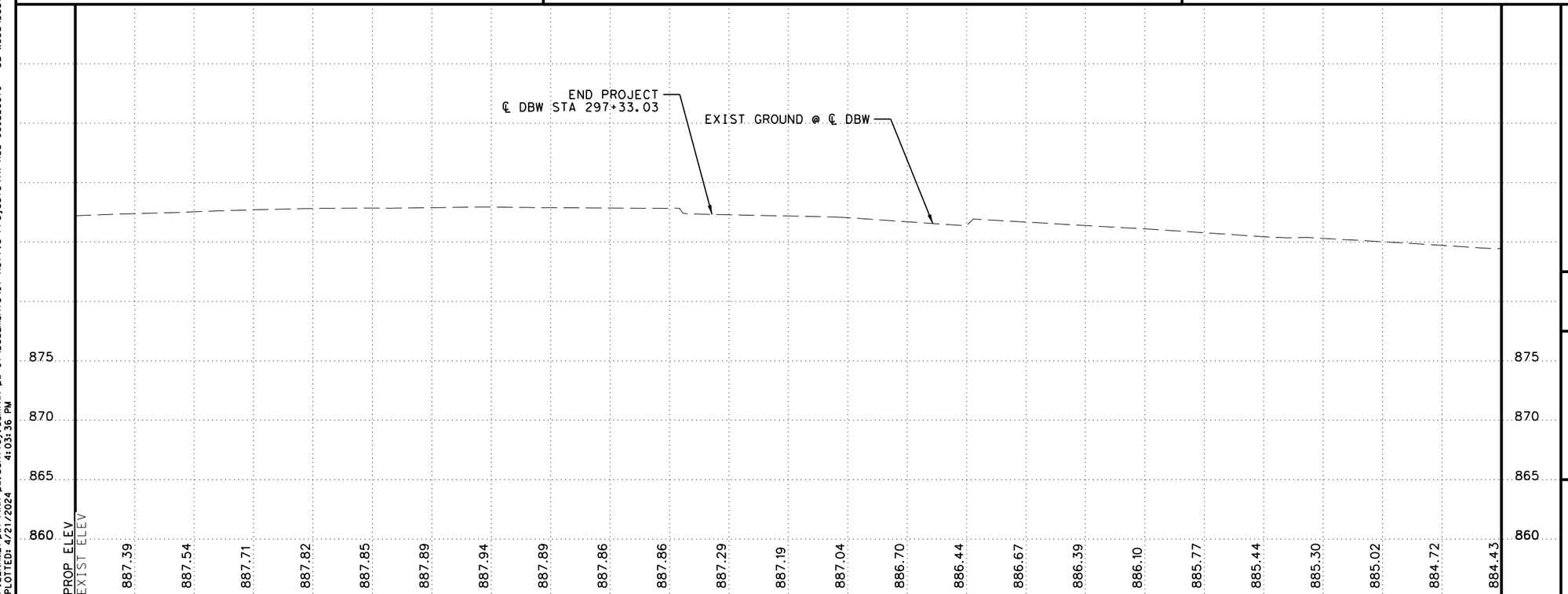


LEGEND

- W1 — CITY OF GEORGETOWN WATER (QLB)
- W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- 24"W — PROPOSED CITY OF GEORGETOWN WATER
- 30"W — PROPOSED CITY OF GEORGETOWN WATER
- FOC1 — CITY OF GEORGETOWN FIBER OPTIC (QLB)
- OH — PEDERNALES OVERHEAD ELECTRIC
- PROPOSED STONE PROTECTION RIPRAP
- PROPOSED CONCRETE PROTECTION RIPRAP
- EXIST ROW
- PROP ROW
- EXIST EASEMENT
- EXIST PROPERTY LINE
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NOTES:

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0' 20' 40' HORZ
0' 5' 10' VERT

STATE OF TEXAS
AUSTIN S. HELTON
124922
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PROFESSIONAL ENGINEER

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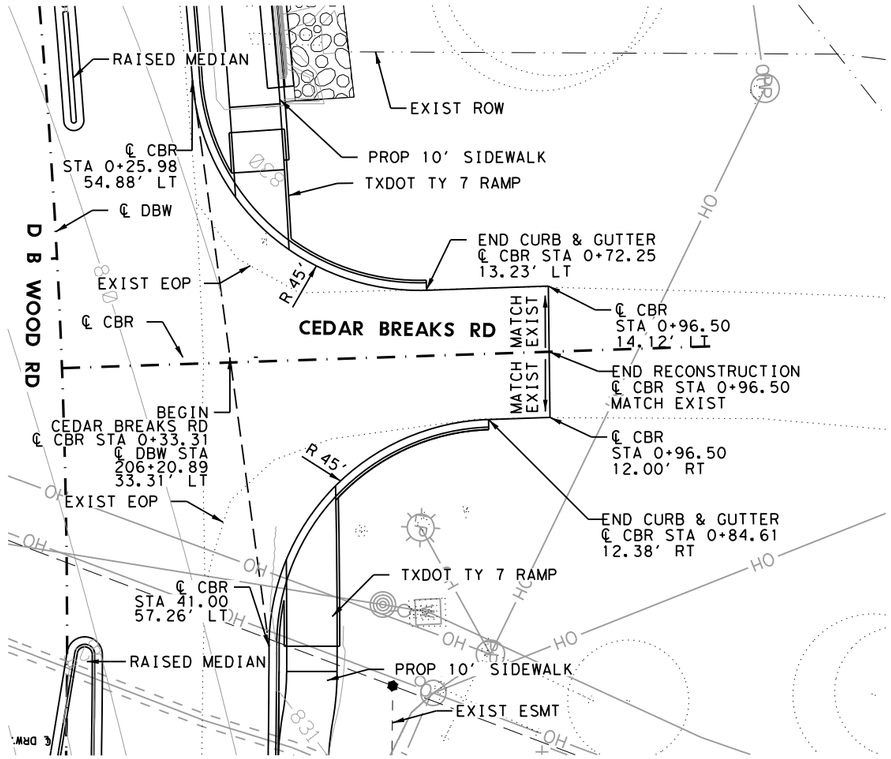
GEORGETOWN TEXAS
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D B WOOD ROAD

ROADWAY PLAN & PROFILE STA 295+20 TO END

SHEET 25 OF 25 | 164

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\3. Roadway\DBW_PH2_RDWY_PP25.dgn
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Beginning chain ℄ CBR description

Point 66 N 10,213,726.6723 E 3,117,603.9659 Sta 0+00.00

Course from 66 to PC INTS_1_3 S 48° 07' 54.37" W Dist 157.7735

Curve Data

Curve INTS_1_3

P.I. Station	2+80.94	N	10,213,539.1706	E	3,117,394.7585
Delta =	52° 27' 14.61" (RT)				
Degree =	22° 55' 05.92"				
Tangent =	123.1618				
Length =	228.8740				
Radius =	250.0000				
External =	28.6913				
Long Chord =	220.9645				
Mid. Ord. =	25.7375				
P.C. Station	1+57.77	N	10,213,621.3712	E	3,117,486.4749
P.T. Station	3+86.65	N	10,213,561.7964	E	3,117,273.6929
C.C.		N	10,213,807.5416	E	3,117,319.6199

Back = S 48° 07' 54.37" W
Ahead = N 79° 24' 51.03" W
Chord Bear = S 74° 21' 31.67" W

Course from PT INTS_1_3 to 67 N 79° 24' 51.03" W Dist 415.9747

Point 67 N 10,213,638.2144 E 3,116,864.7977 Sta 8+02.62

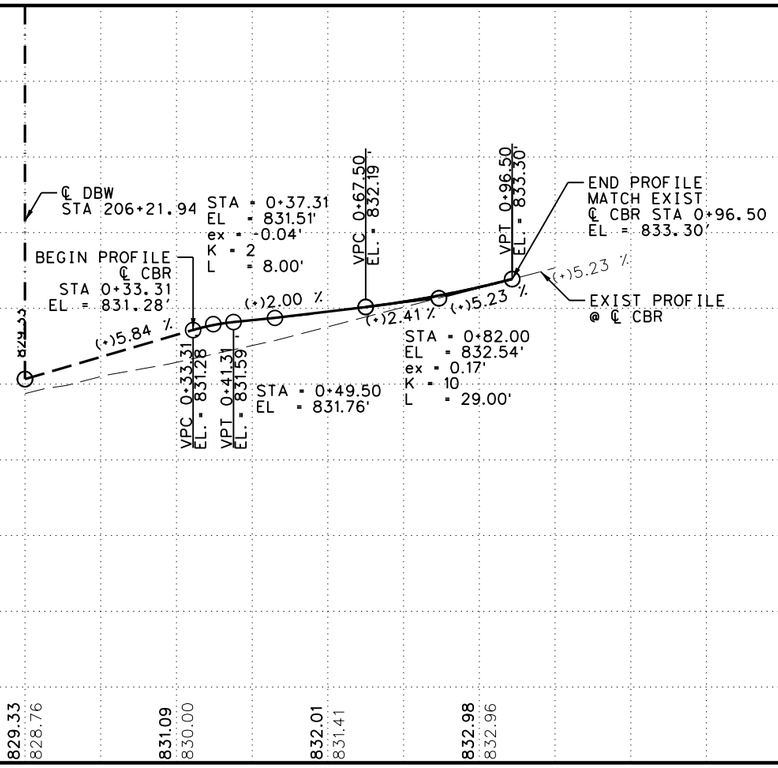
Ending chain ℄ CBR description

LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC — CITY OF GEORGETOWN FIBER
- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
- EXIST PROPERTY LINE
- EXIST ESMT

NOTES:

1. SEE MISCELLANEOUS DRIVEWAY DETAILS FOR MORE INFORMATION.
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0' 15' 30' HORZ
0' 3' 6' VERT

4/22/2024

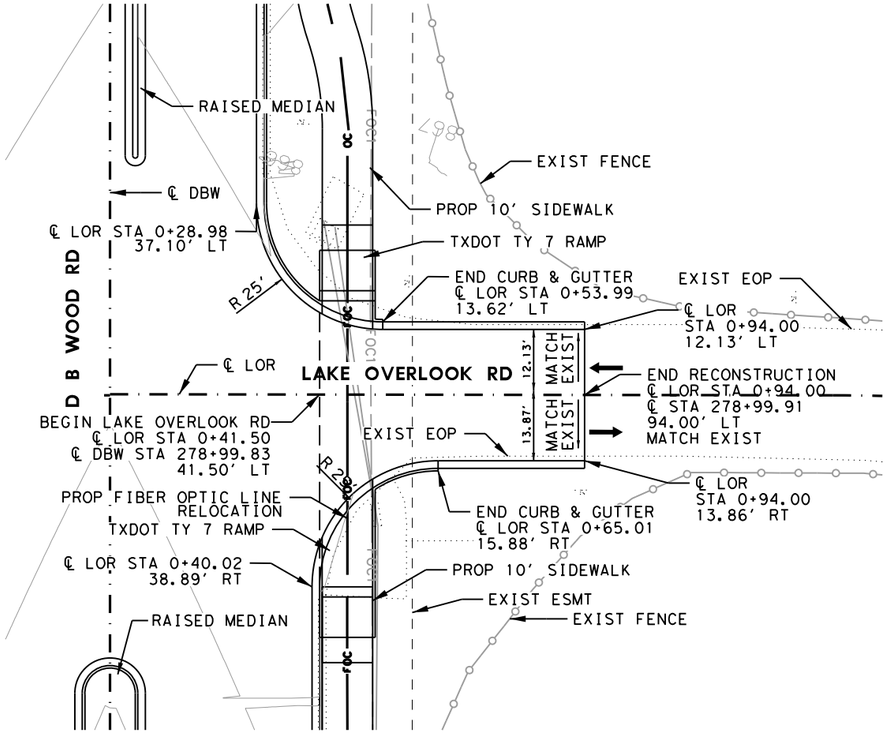
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GEORGETOWN TEXAS
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INTERSECTION PLAN & PROFILE
CEDAR BREAKS RD

SHEET 1 OF 2 | 165

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - Design\Plan Set\3. Roadway\DBW_PH2_INT_PP01.dgn
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Beginning chain ℄ LOR description

Point 52 N 10,220,530.9600 E 3,118,766.0775 Sta 0+00.00

Course from 52 to PC LK_OVER_CL_3 S 71° 36' 53.12" W Dist 119.2959

Curve Data

Curve LK_OVER_CL_3					
P.I. Station		2+39.89	N 10,220,455.2963	E	3,118,538.4284
Delta	=	23° 27' 09.75" (RT)			
Degree	=	9° 51' 41.69"			
Tangent	=	120.5980			
Length	=	237.8190			
Radius	=	581.0000			
External	=	12.3843			
Long Chord	=	236.1622			
Mid. Ord.	=	12.1258			
P.C. Station		1+19.30	N 10,220,493.3335	E	3,118,652.8708
P.T. Station		3+57.11	N 10,220,465.9486	E	3,118,418.3017
C.C.			N 10,221,044.6777	E	3,118,469.6207
Back	= S 71° 36' 53.12" W				
Ahead	= N 84° 55' 57.14" W				
Chord Bear	= S 83° 20' 27.99" W				

Course from PT LK_OVER_CL_3 to 53 N 84° 55' 57.14" W Dist 82.6487

Point 53 N 10,220,473.2488 E 3,118,335.9761 Sta 4+39.76

Ending chain ℄ LOR description

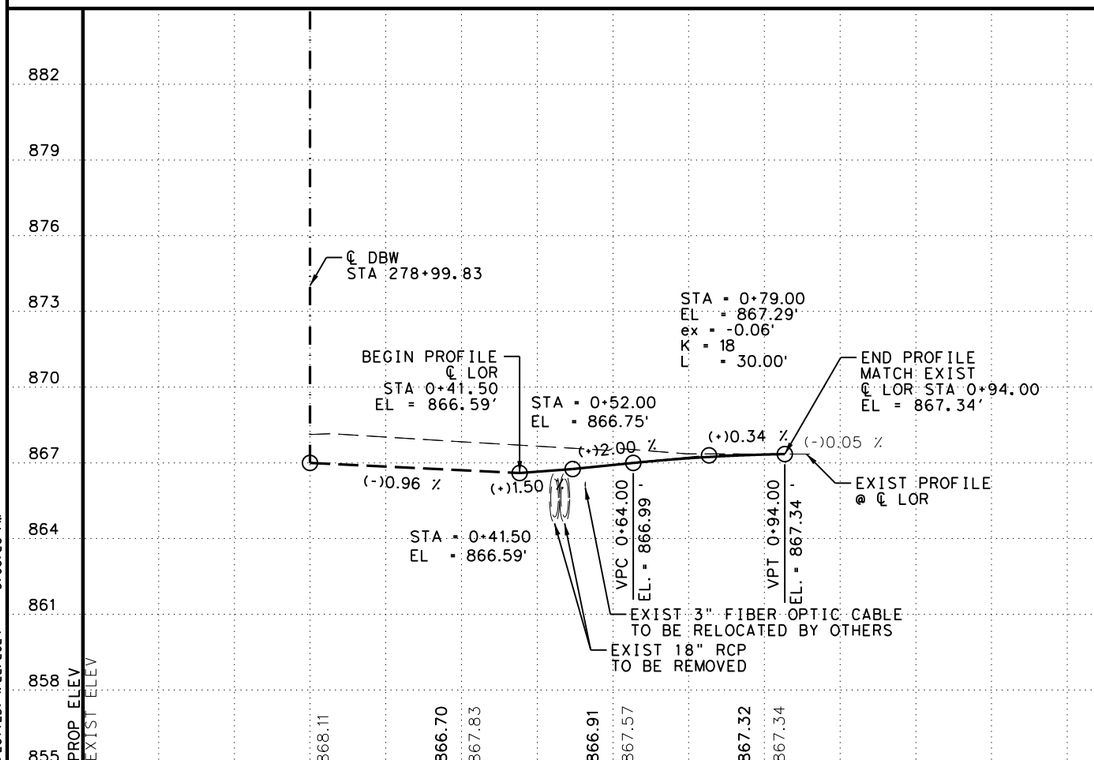
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LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC — CITY OF GEORGETOWN FIBER
- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
- EXIST PROPERTY LINE
- EXIST ESMT

NOTES:

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0' 15' 30' HORZ
0' 3' 6' VERT

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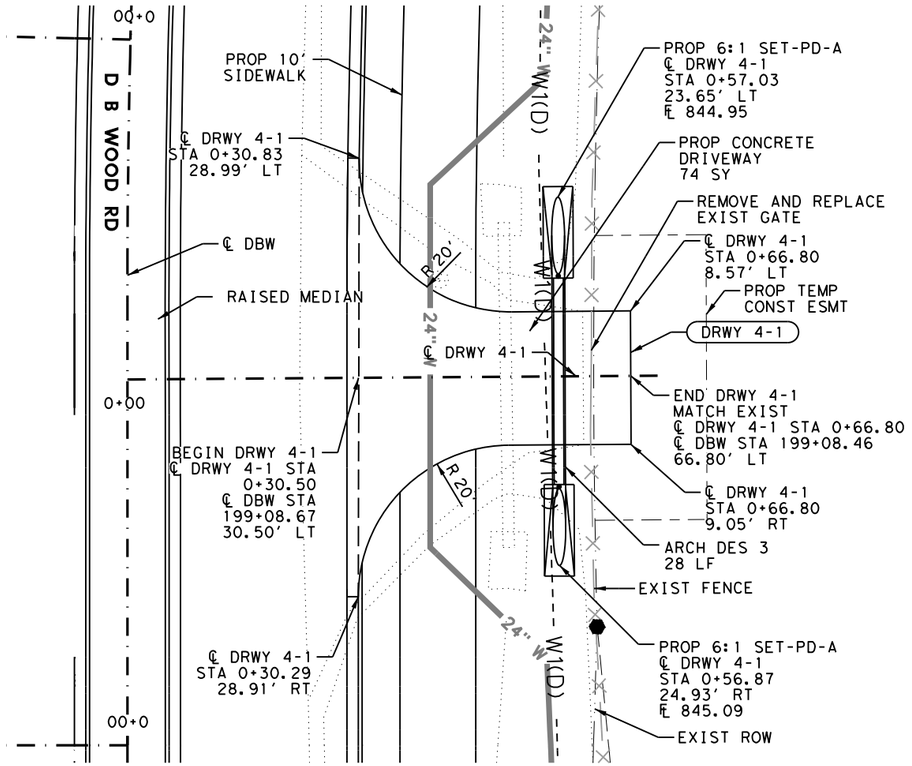
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INTERSECTION PLAN & PROFILE

LAKE OVERLOOK RD

SHEET 2 OF 2 | 166

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\3. Roadway\DBW_PH2_INT_PP02.dgn
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Beginning chain DRWY 4-1 description

Point 30	N 10,213,336.6471	E 3,118,193.2128	Sta	0+00.00
Course from 30 to 31 S 26° 59' 10.35" W Dist 70.0185				
Point 31	N 10,213,274.2525	E 3,118,161.4401	Sta	0+70.02

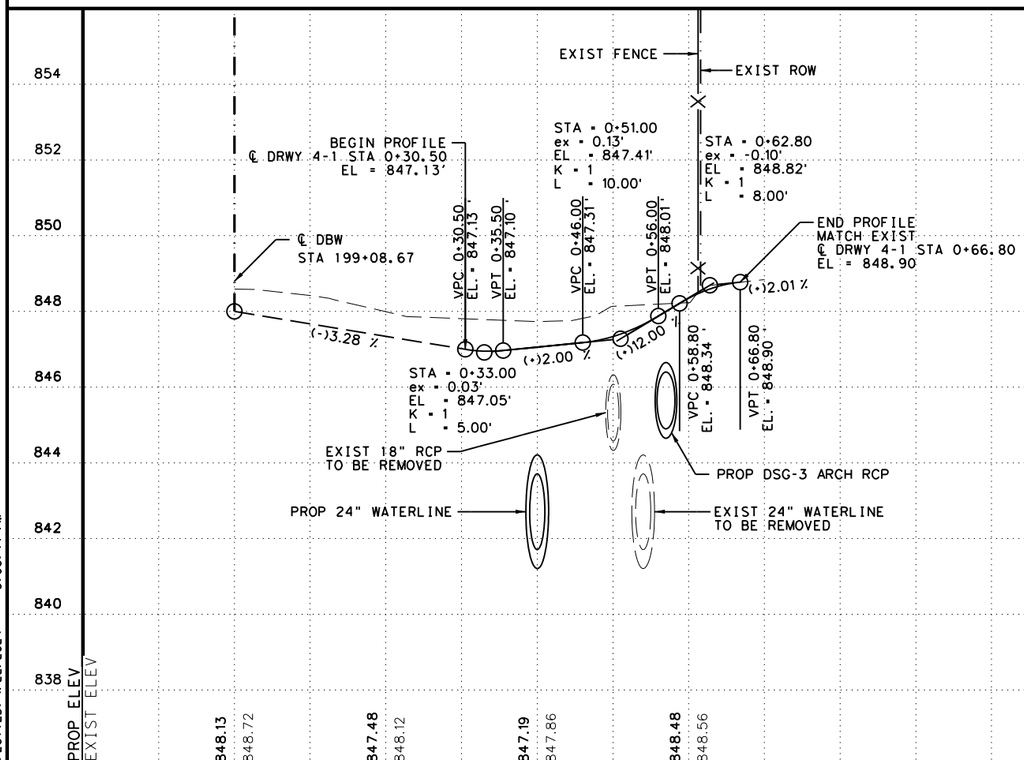
Ending chain DRWY 4-1 description

LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC1 — CITY OF GEORGETOWN FIBER
- 24"W — PROP CITY OF GEORGETOWN WATER
- 30"W — PROP CITY OF GEORGETOWN WATER
- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
- EXIST PROPERTY LINE

NOTES:

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2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. LIMITS OF TEMPORARY CONSTRUCTION EASEMENT. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER DURING CONSTRUCTION.



0' 15' 30' HORZ
0' 3' 6' VERT

4/22/2024

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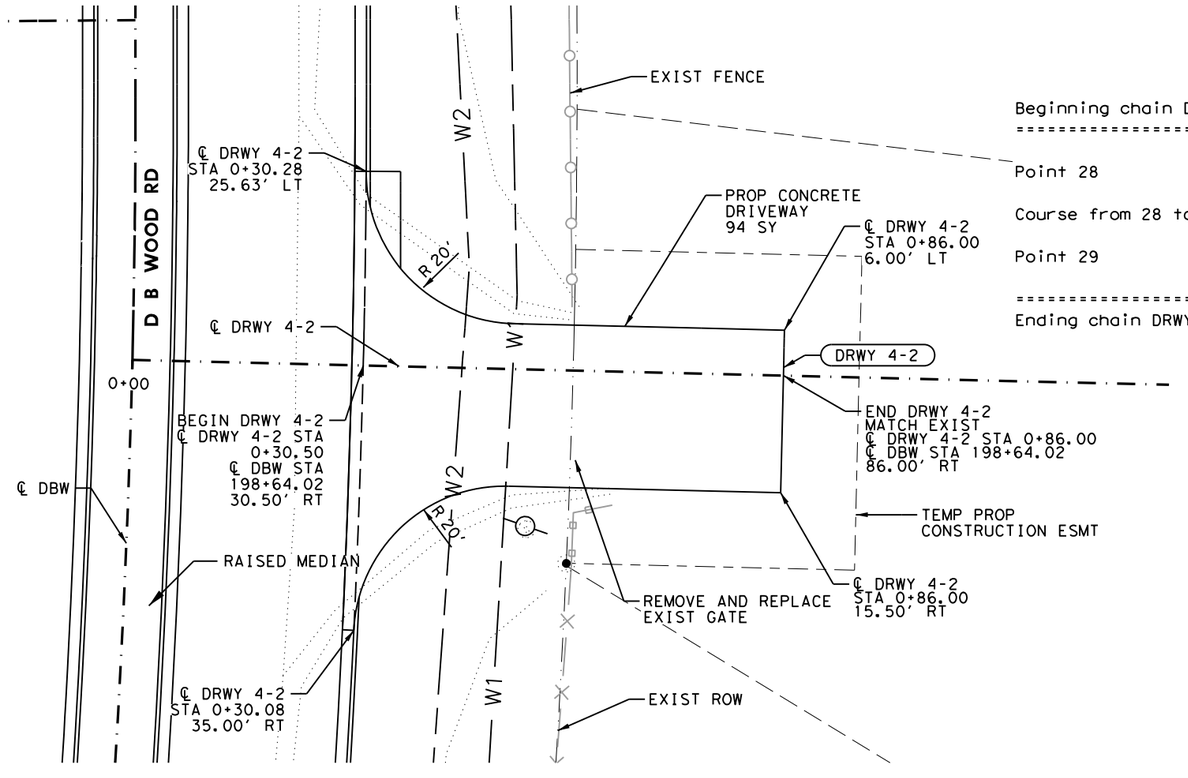
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DRIVEWAY PLAN & PROFILE

DRIVEWAY 4-1

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Beginning chain DRWY 4-2 description

Point 28	N 10,213,315.6325	E 3,118,232.8609	Sta	0+00.00
Course from 28 to 29 N 28° 46' 18.10" E Dist 136.9302				
Point 29	N 10,213,435.6579	E 3,118,298.7682	Sta	1+36.93

Ending chain DRWY 4-2 description

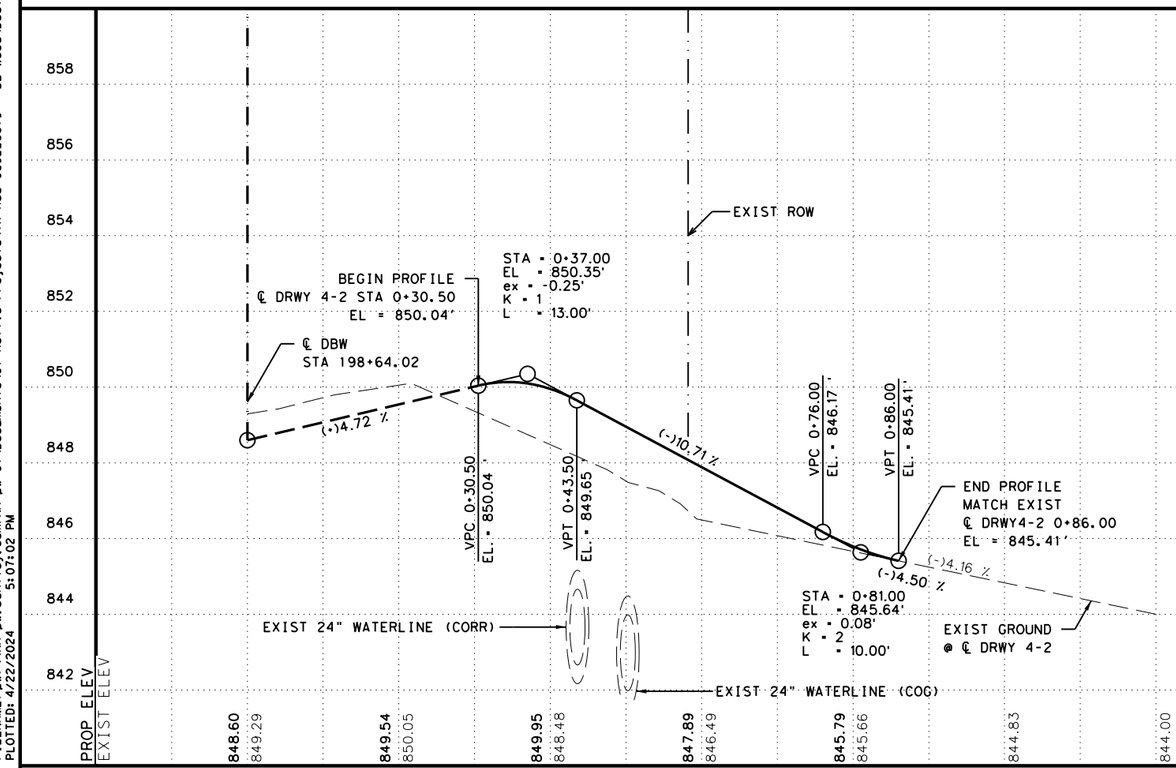
GATE NOTE: CONTRACTOR TO REMOVE AND SALVAGE EXISTING FENCE AND GATE FOR DRIVEWAY CONSTRUCTION. RECONSTRUCT FENCE AND GATE TO MATCH EXISTING CONDITIONS. IF EXISTING FENCE AND GATE CANNOT BE SALVAGED, CONTRACTOR TO COORDINATE WITH PROPERTY OWNER AND CITY.

LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC1 — CITY OF GEORGETOWN FIBER
- 24"W — PROP CITY OF GEORGETOWN WATER
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- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
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NOTES:

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0' 15' 30' HORZ
0' 3' 6' VERT

4/22/2024

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124922
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STATE OF TEXAS

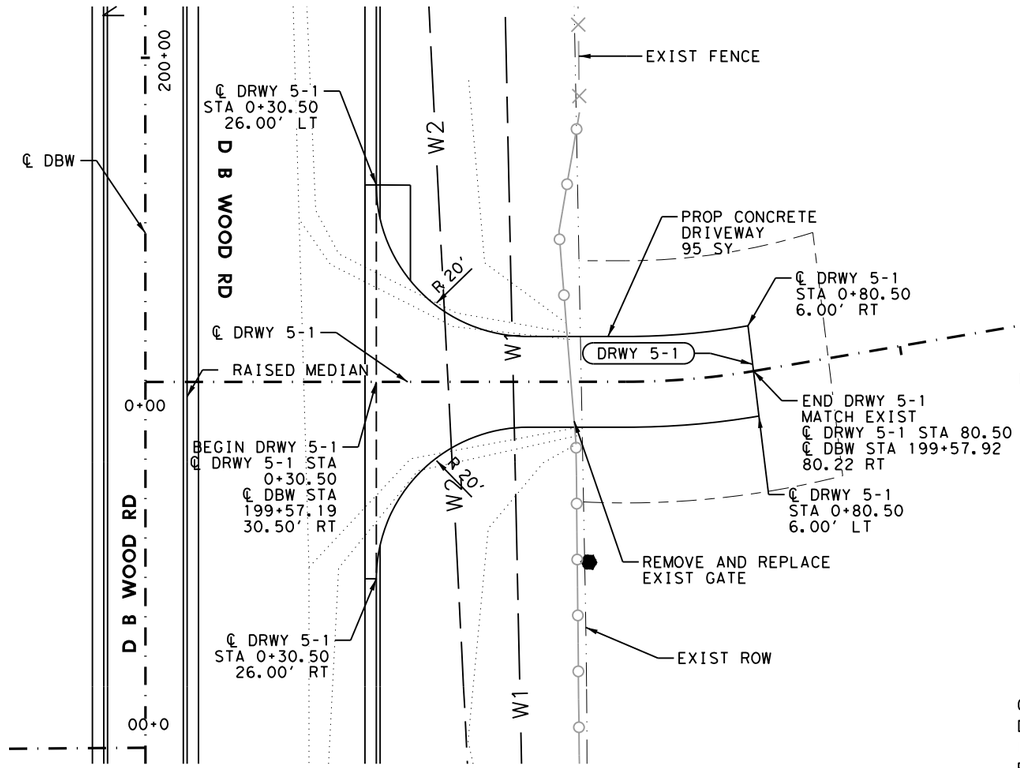
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DRIVEWAY PLAN & PROFILE

DRIVEWAY 4-2

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Beginning chain DRWY 5-1 description

Point 32	N	10,213,358.8686	E	3,118,150.3262	Sta 0+00.00

Course from 32 to PC DRWY 5-1 3 N 27° 23′ 13.20" E Dist 63.4750

Curve Data

Curve DRWY 5-1 3					
P.I. Station	0+71.91	N	10,213,422.7165	E	3,118,183.4034
Delta =	9° 38′ 20.07" (LT)				
Degree =	57° 17′ 22.41"				
Tangent =	8.4323				
Length =	16.8249				
Radius =	100.0109				
External =	0.3549				
Long Chord =	16.8051				
Mid. Ord. =	0.3536				
P.C. Station	0+63.47	N	10,213,415.2293	E	3,118,179.5246
P.T. Station	0+80.30	N	10,213,430.7475	E	3,118,185.9739
C.C.		N	10,213,461.2341	E	3,118,090.7229
Back = N	27° 23′ 13.20" E				
Ahead = N	17° 44′ 53.13" E				
Chord Bear = N	22° 34′ 03.17" E				

Course from PT DRWY 5-1 3 to 33 N 17° 44′ 53.13" E Dist 50.9359

Point 33	N	10,213,479.2592	E	3,118,201.5008	Sta 1+31.24

Ending chain DRWY 5-1 description

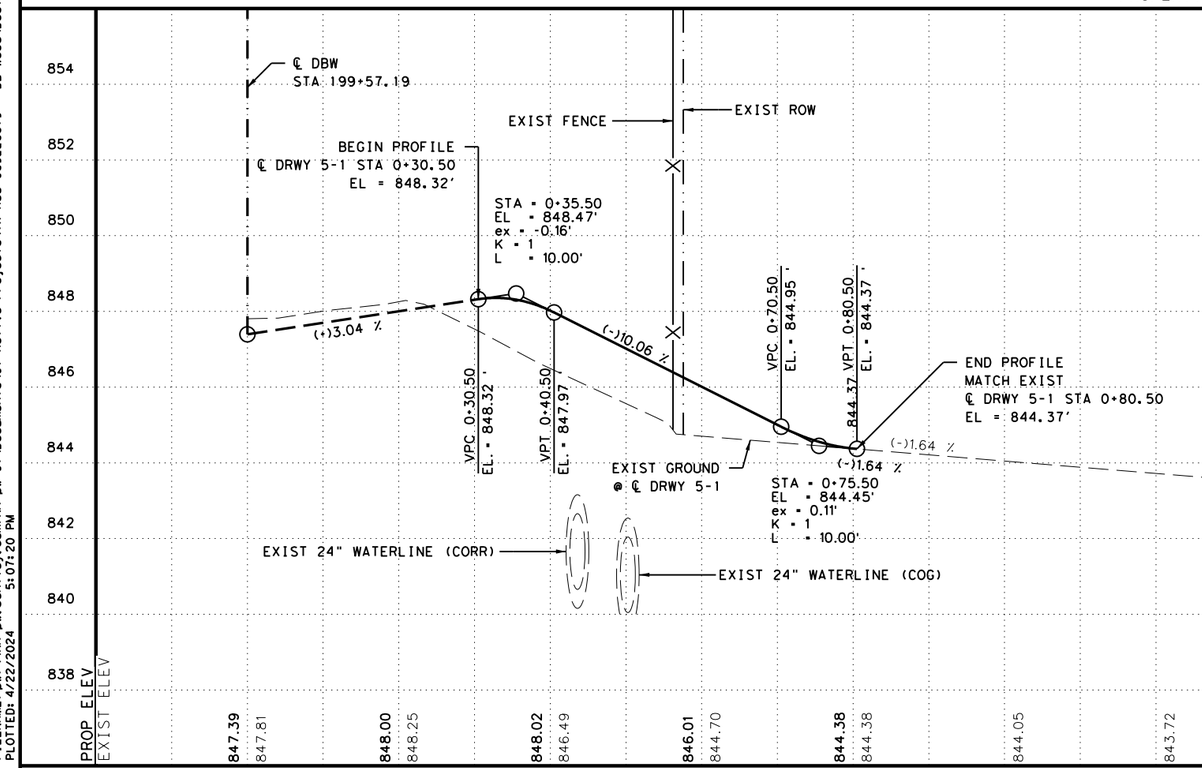
GATE NOTE: CONTRACTOR TO REMOVE AND SALVAGE EXISTING FENCE AND GATE FOR DRIVEWAY CONSTRUCTION. RECONSTRUCT FENCE AND GATE TO MATCH EXISTING CONDITIONS. IF EXISTING FENCE AND GATE CANNOT BE SALVAGED, CONTRACTOR TO COORDINATE WITH PROPERTY OWNER AND CITY.

LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC1 — CITY OF GEORGETOWN FIBER
- 24"W — PROP CITY OF GEORGETOWN WATER
- 30"W — PROP CITY OF GEORGETOWN WATER
- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
- EXIST PROPERTY LINE

NOTES:

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0′ 15′ 30′ HORZ
0′ 3′ 6′ VERT

4/22/2024

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STATE OF TEXAS

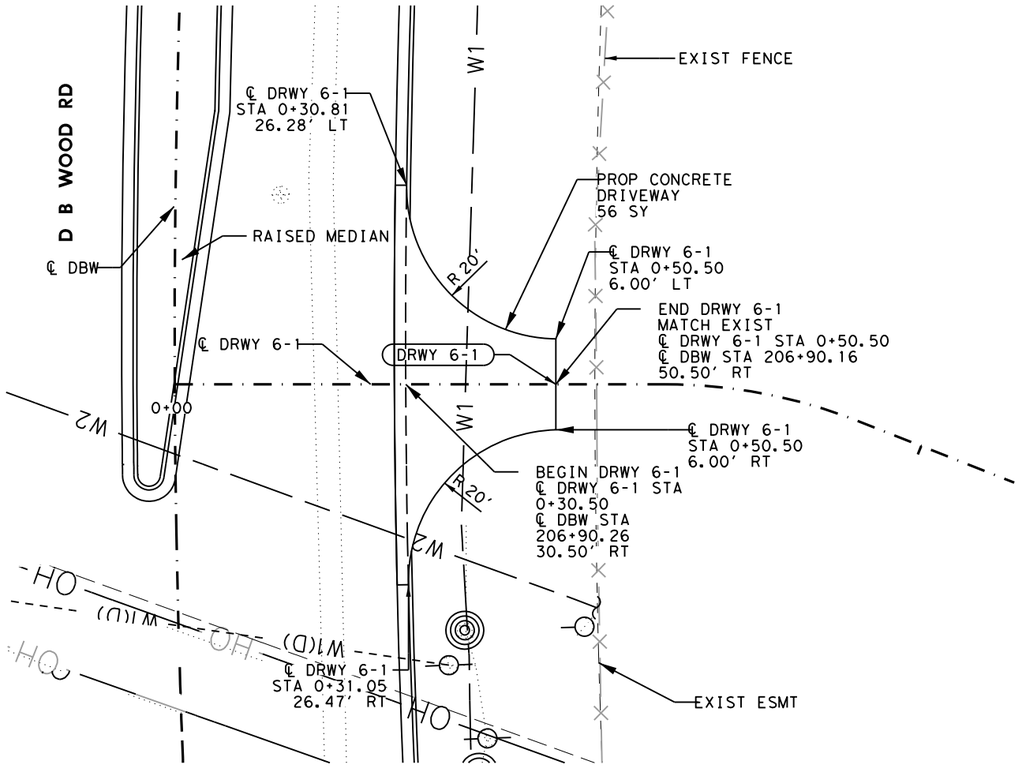
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DRIVEWAY PLAN & PROFILE

DRIVEWAY 5-1

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Beginning chain DRWY 6-1 description

Point 34 N 10,213,778.6006 E 3,117,555.9634 Sta 0+00.00

Course from 34 to PC DRWY 6-1 3 N 49° 03' 31.39" E Dist 64.9713

Curve Data

Curve DRWY 6-1 3

P.I. Station	0+78.13	N	10,213,829.7963	E	3,117,614.9793
Delta =	21° 32' 17.61" (RT)				
Degree =	82° 50' 05.91"				
Tangent =	13.1560				
Length =	26.0014				
Radius =	69.1686				
External =	1.2400				
Long Chord =	25.8485				
Mid. Ord. =	1.2182				
P.C. Station	0+64.97	N	10,213,821.1753	E	3,117,605.0415
P.T. Station	0+90.97	N	10,213,834.1668	E	3,117,627.3881
C.C.		N	10,213,768.9267	E	3,117,650.3667

Back = N 49° 03' 31.39" E
Ahead = N 70° 35' 48.99" E
Chord Bear = N 59° 49' 40.19" E

Course from PT DRWY 6-1 3 to 35 N 70° 35' 49.00" E Dist 22.2235

Point 35 N 10,213,841.5497 E 3,117,648.3493 Sta 1+13.20

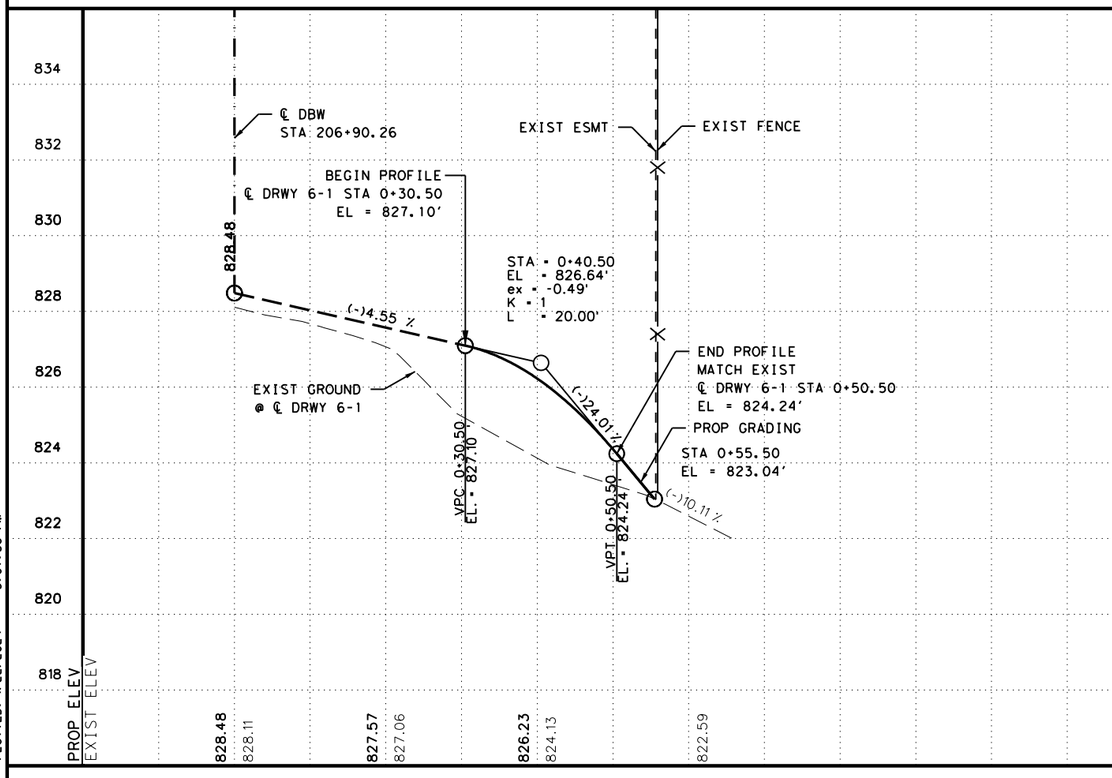
Ending chain DRWY 6-1 description

LEGEND

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- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC1 — CITY OF GEORGETOWN FIBER
- 24"W — PROP CITY OF GEORGETOWN WATER
- 30"W — PROP CITY OF GEORGETOWN WATER
- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
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NOTES:

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0' 15' 30' HORZ
0' 3' 6' VERT

STATE OF TEXAS
AUSTIN S. HELTON
124922
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4/22/2024

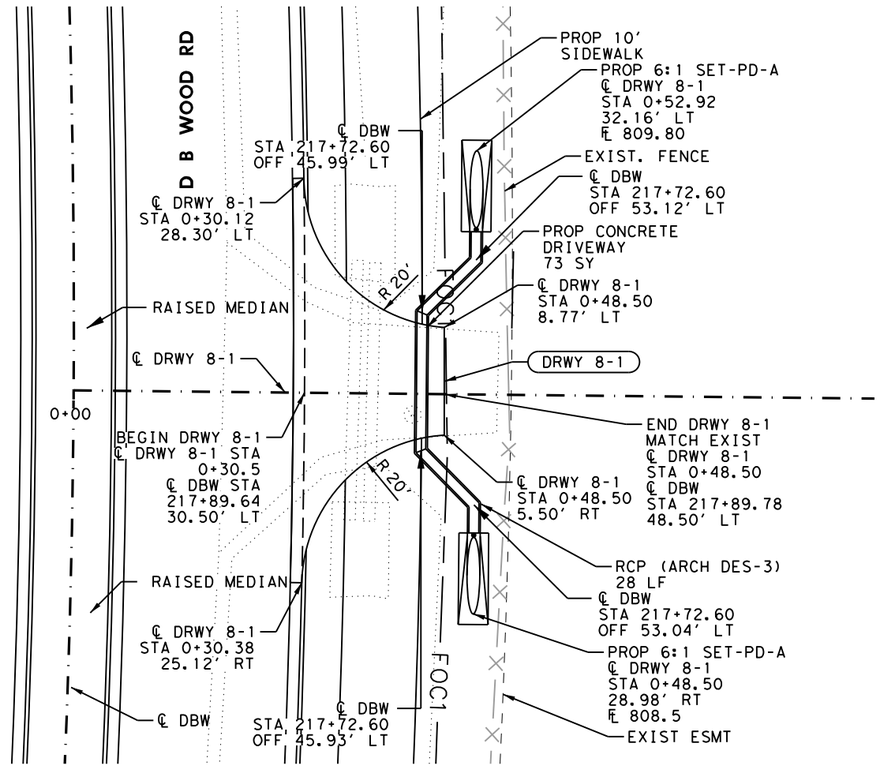
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TEXAS
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DRIVEWAY PLAN & PROFILE

DRIVEWAY 6-1

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Beginning chain DRWY 8-1 description

Point 70	N 10,214,790.8979	E 3,117,201.0639	Sta	0+00.00
Course from 70 to 71 N 87° 14' 09.71" W Dist 105.7521				
Point 71	N 10,214,795.9975	E 3,117,095.4348	Sta	1+05.75

Ending chain DRWY 8-1 description

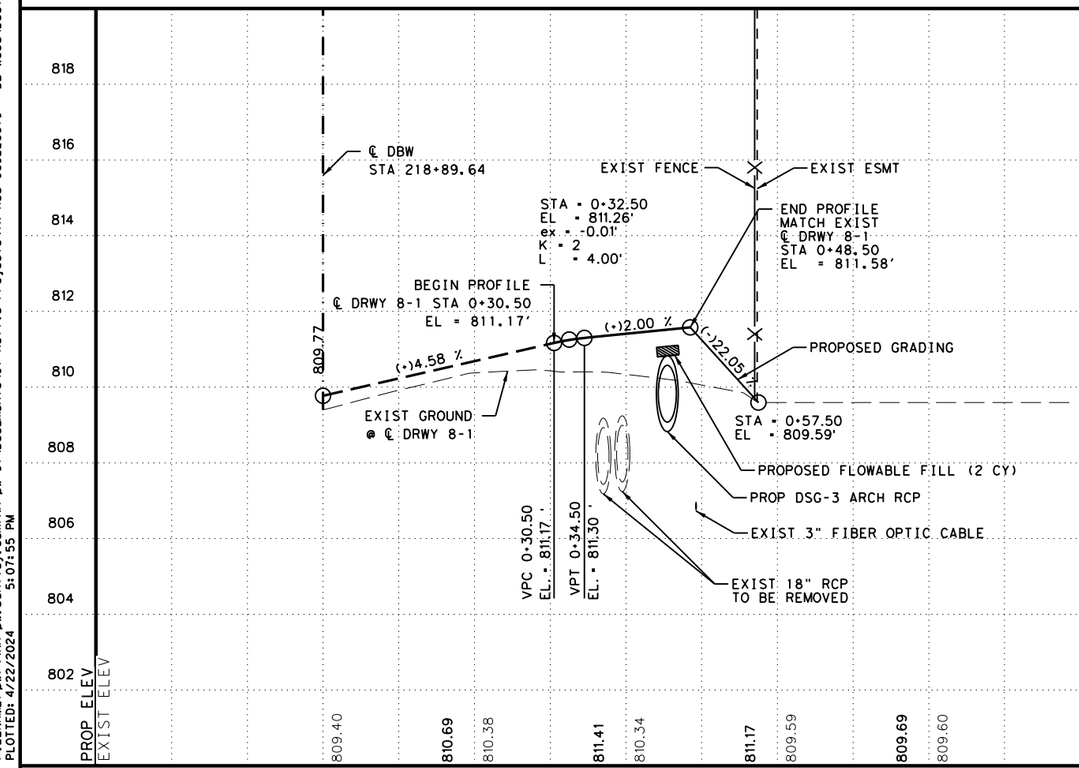
N

LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC1 — CITY OF GEORGETOWN FIBER
- 24"W — PROP CITY OF GEORGETOWN WATER
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NOTES:

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0' 15' 30' HORZ
0' 3' 6' VERT

4/22/2024

STATE OF TEXAS
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LICENSED
PROFESSIONAL ENGINEER

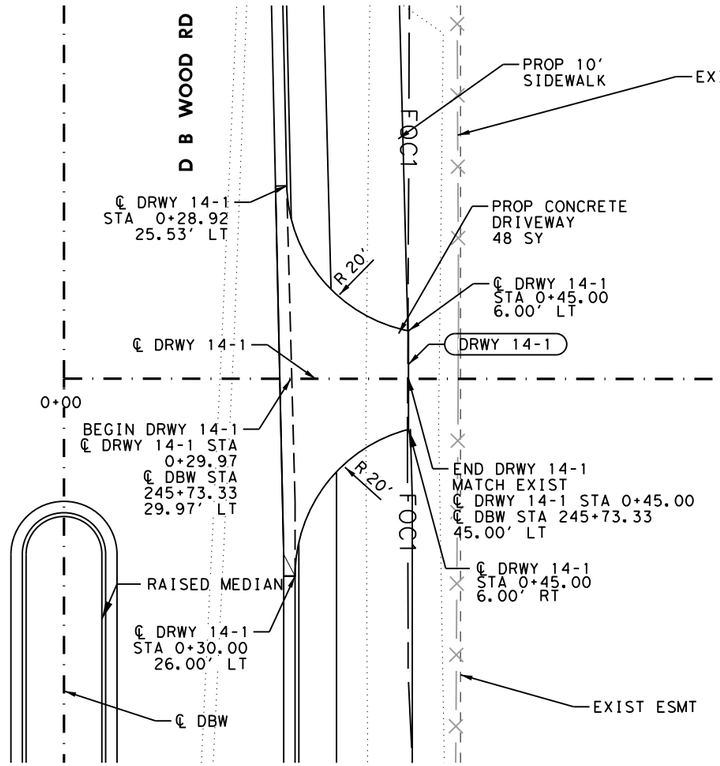
Kimley»Horn F-928

GEORGETOWN
TEXAS
more than welcome

DRIVEWAY PLAN & PROFILE

DRIVEWAY 8-1

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - Design\Plan Set\3. Roadway\DBW_PH2_DRWY_PP06.dgn
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Beginning chain DRWY 14-1 description

Point 38	N 10,217,323.9084	E 3,118,320.6665	Sta	0+00.00
Course from 38 to 39 N 63° 35' 43.91" W Dist 104.3460				
Point 39	N 10,217,370.3116	E 3,118,227.2062	Sta	1+04.35

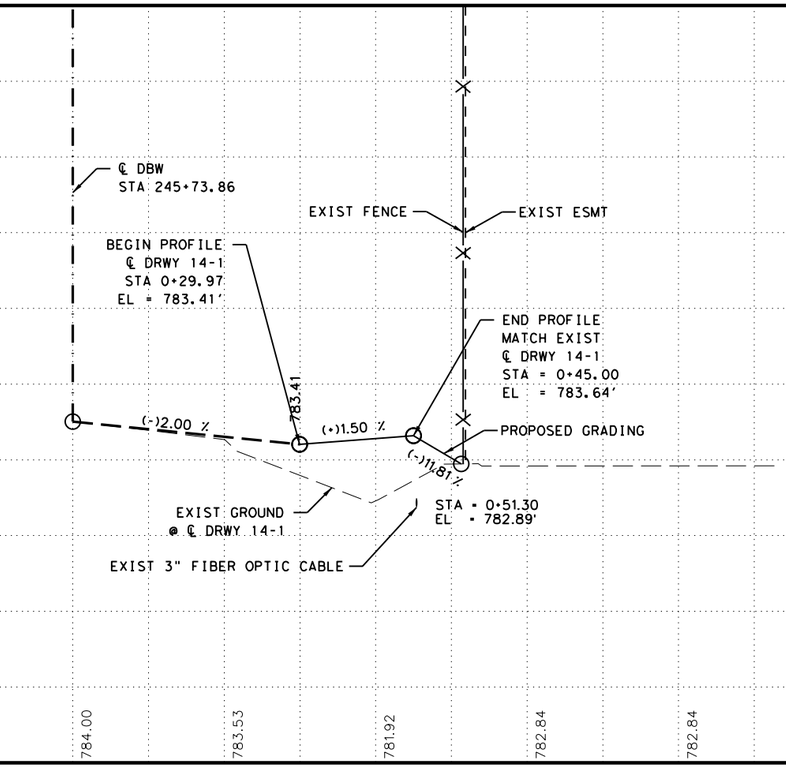
Ending chain DRWY 14-1 description

LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC1 — CITY OF GEORGETOWN FIBER
- 24"W — PROP CITY OF GEORGETOWN WATER
- 30"W — PROP CITY OF GEORGETOWN WATER
- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
- EXIST PROPERTY LINE

NOTES:

1. SEE MISCELLANEOUS DRIVEWAY DETAILS FOR MORE INFORMATION.
2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. LIMITS OF TEMPORARY CONSTRUCTION EASEMENT. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER DURING CONSTRUCTION.



0' 15' 30' HORZ
0' 3' 6' VERT

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

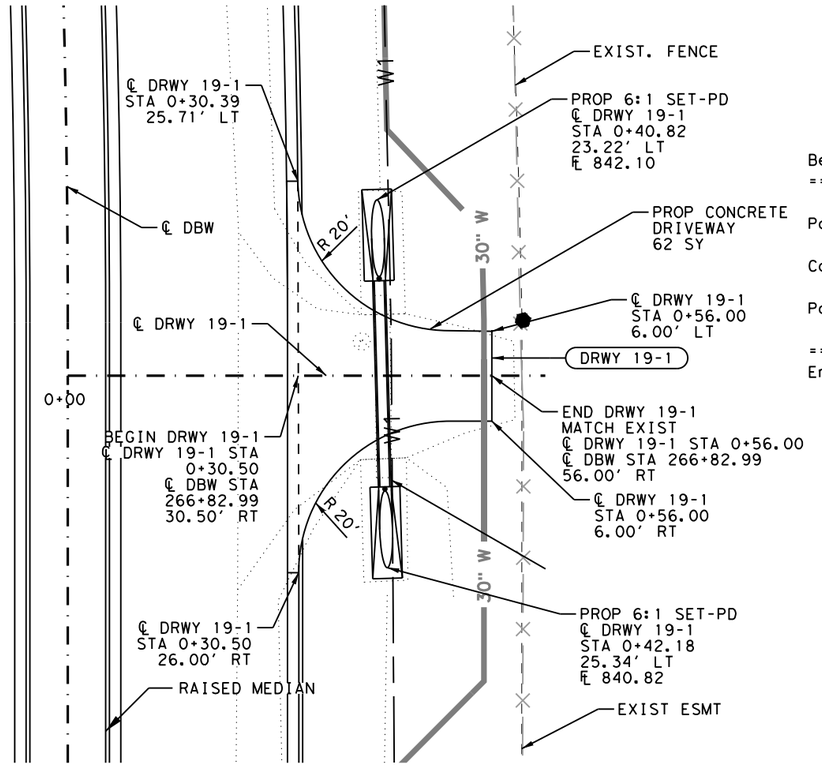
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GEORGETOWN TEXAS
more than welcome

DRIVEWAY PLAN & PROFILE

DRIVEWAY 14-1

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Design Data-Phase 2\4 - Design\Plan Set\3. Roadway\DBW_PH2_DRWY_PP07.dgn
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Beginning chain DRWY 19-1 description

Point 40	N 10,219,344.8419	E 3,118,905.4847	Sta	0+00.00
Course from 40 to 41 S 75° 58' 51.41" E Dist 63.0578				
Point 41	N 10,219,329.5665	E 3,118,966.6643	Sta	0+63.06

Ending chain DRWY 19-1 description

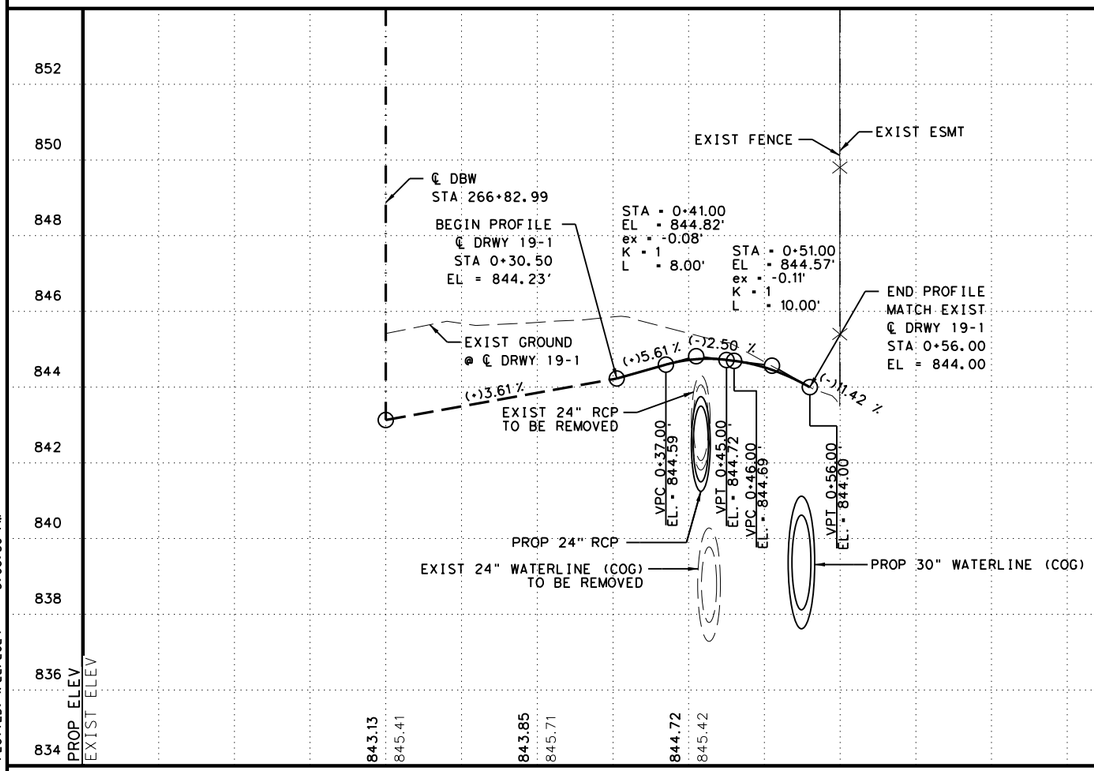


LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- 30"W — CITY OF GEORGETOWN FIBER
- 24"W — PROP CITY OF GEORGETOWN WATER
- 30"W — PROP CITY OF GEORGETOWN WATER
- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
- EXIST PROPERTY LINE

NOTES:

1. SEE MISCELLANEOUS DRIVEWAY DETAILS FOR MORE INFORMATION.
2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. LIMITS OF TEMPORARY CONSTRUCTION EASEMENT. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER DURING CONSTRUCTION.



0' 15' 30' HORZ
0' 3' 6' VERT

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

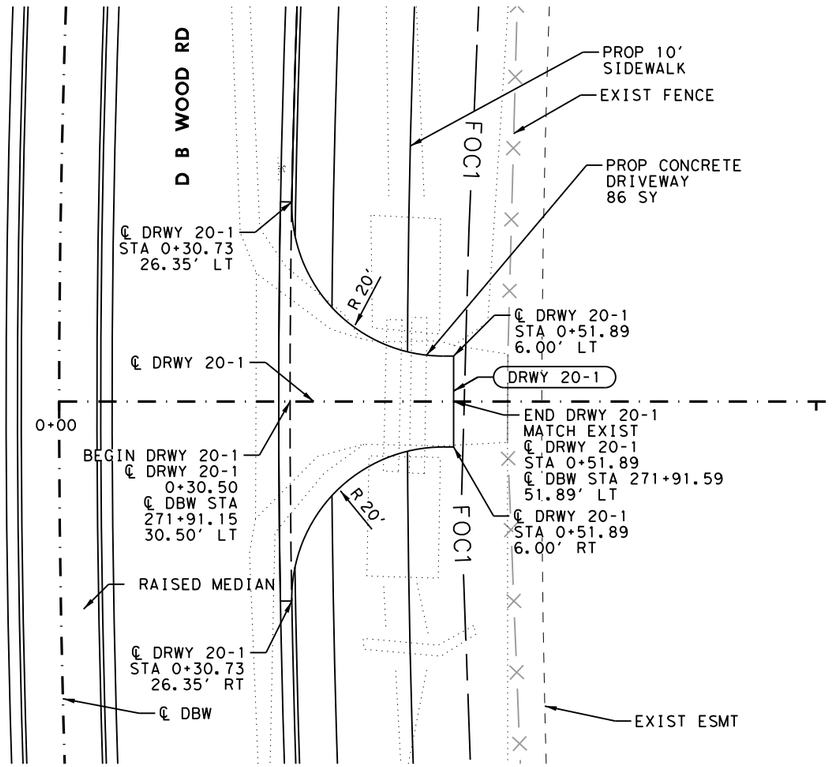
Kimley»Horn F-928

GEORGETOWN
TEXAS
more than welcome

DRIVEWAY PLAN & PROFILE

DRIVEWAY 19-1

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Beginning chain DRWY 20-1 description

Point 42	N 10,219,848.9282 E	3,118,947.5063 Sta	0+00.00
Course from 42 to 43 S 85° 14' 56.41" W Dist 101.8522			
Point 43	N 10,219,840.4922 E	3,118,846.0041 Sta	1+01.85

Ending chain DRWY 20-1 description

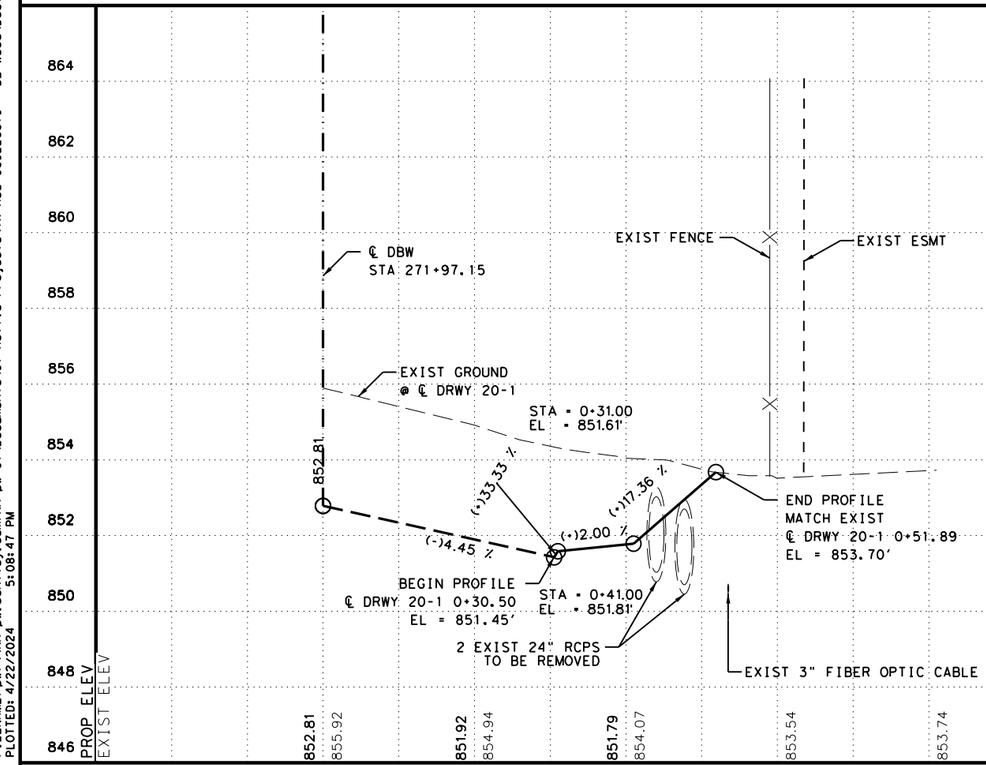
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LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC1 — CITY OF GEORGETOWN FIBER
- 24"W — PROP CITY OF GEORGETOWN WATER
- 30"W — PROP CITY OF GEORGETOWN WATER
- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
- EXIST PROPERTY LINE

NOTES:

1. SEE MISCELLANEOUS DRIVEWAY DETAILS FOR MORE INFORMATION.
2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. LIMITS OF TEMPORARY CONSTRUCTION EASEMENT. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER DURING CONSTRUCTION.



0' 15' 30' HORZ
0' 3' 6' VERT

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

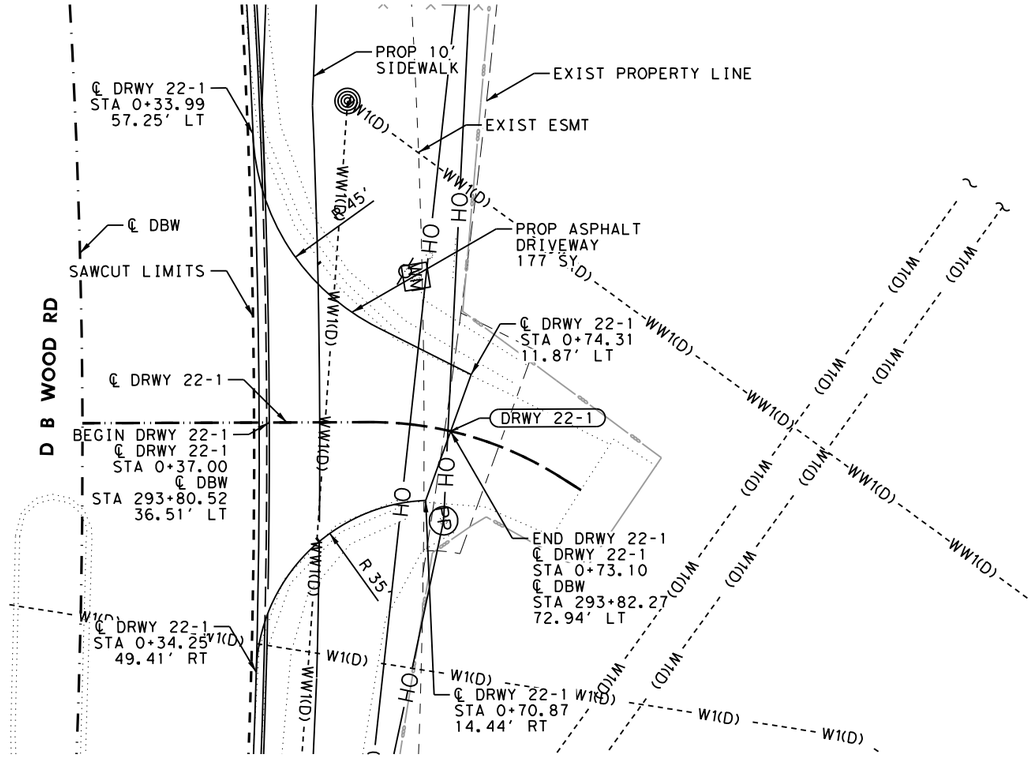
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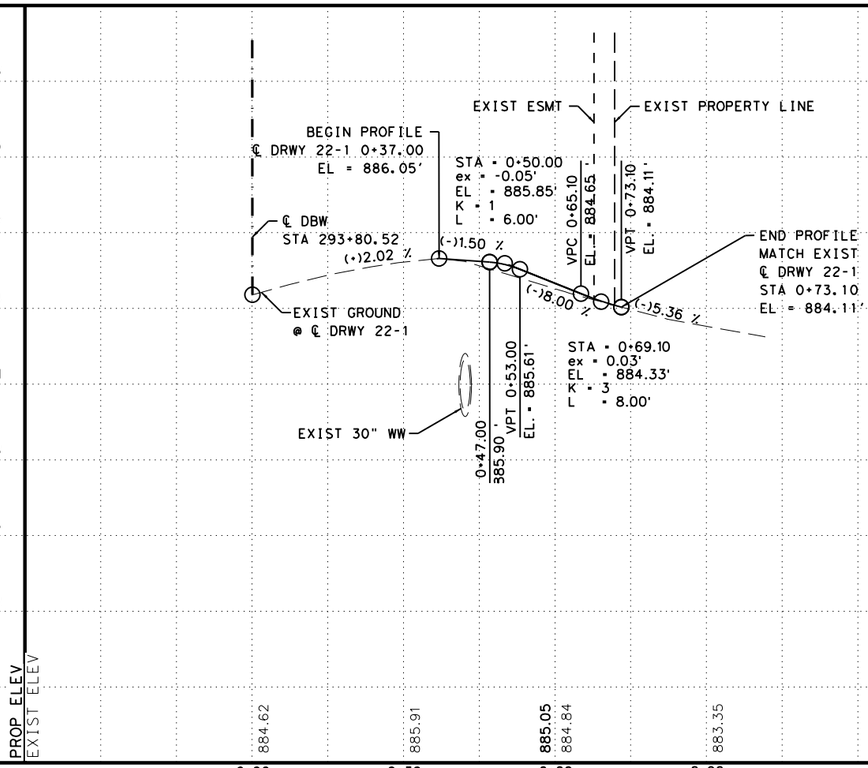
GEORGETOWN TEXAS
more than welcome

DRIVEWAY PLAN & PROFILE

DRIVEWAY 20-1

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LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- 30"W — CITY OF GEORGETOWN FIBER
- 24"W — PROP CITY OF GEORGETOWN WATER
- 30"W — PROP CITY OF GEORGETOWN WATER
- OH — PEDERNALES OVERHEAD ELECTRIC
- EXIST ROW
- EXIST PROPERTY LINE

NOTES:

1. SEE MISCELLANEOUS DRIVEWAY DETAILS FOR MORE INFORMATION.
2. DIMENSIONS AND OFFSETS ARE TO EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
3. LIMITS OF TEMPORARY CONSTRUCTION EASEMENT. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER DURING CONSTRUCTION.

0' 15' 30' HORZ
0' 3' 6' VERT

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

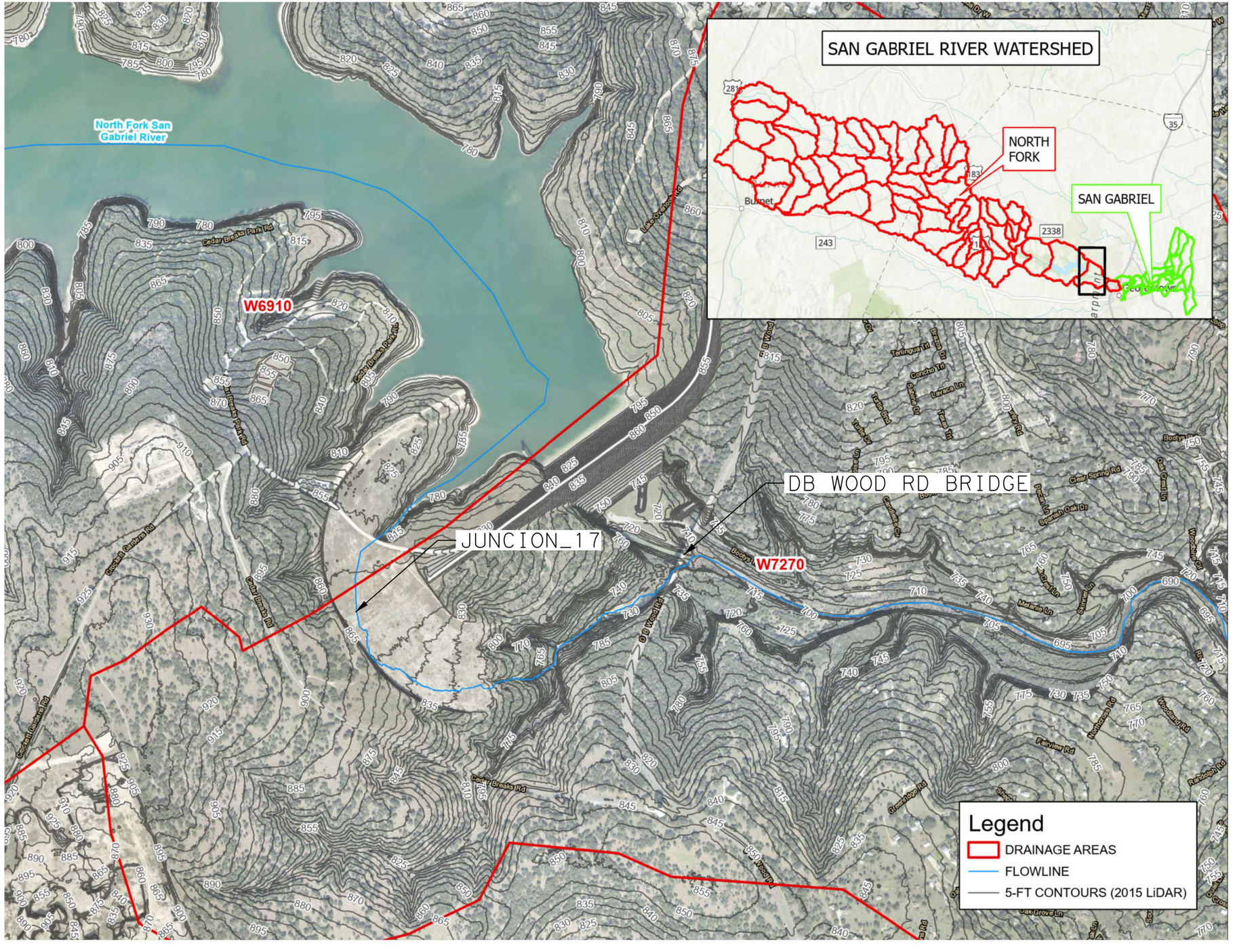
Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

DRIVEWAY PLAN & PROFILE

DRIVEWAY 22-1

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\3. Roadway\DBW_PH2_DRWY_PP10.dgn
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N

0' 500' 1000'

4/22/2024

STATE OF TEXAS
HUDSON D. STONE
142690
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

BRIDGE DRAINAGE AREA MAP

SHEET 1 OF 1 | 202

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_BRG_AREA_MAP.dgn
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LEGEND

- DRAINAGE AREA
- STREAM CENTERLINE
- 100-YR FLOODPLAIN
- EXIST 10' CONTOURS
- XX-X / XX.X AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS

NOTES:

1. PREFIXES
   SG = SAN GABRIEL RIVER
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS.
3. H&H FILES WERE SENT TO THE LOCAL FLOODPLAIN ADMINISTRATOR WESLEY WRIGHT ON 04/17/2024.
4. DRAINAGE BASINS WERE DELINEATED USING 2022 LIDAR FROM WILLIAMSON COUNTY.
5. REFER TO HYDROLOGIC DATA SHEETS FOR ADDITIONAL NOTES.
6. SAN GABRIEL RIVER WATERSHED. SEE BRIDGE DRAINAGE AREA MAP FOR MORE INFORMATION.

0' 400' 800'

MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

Malia Caldwell
4/19/2024

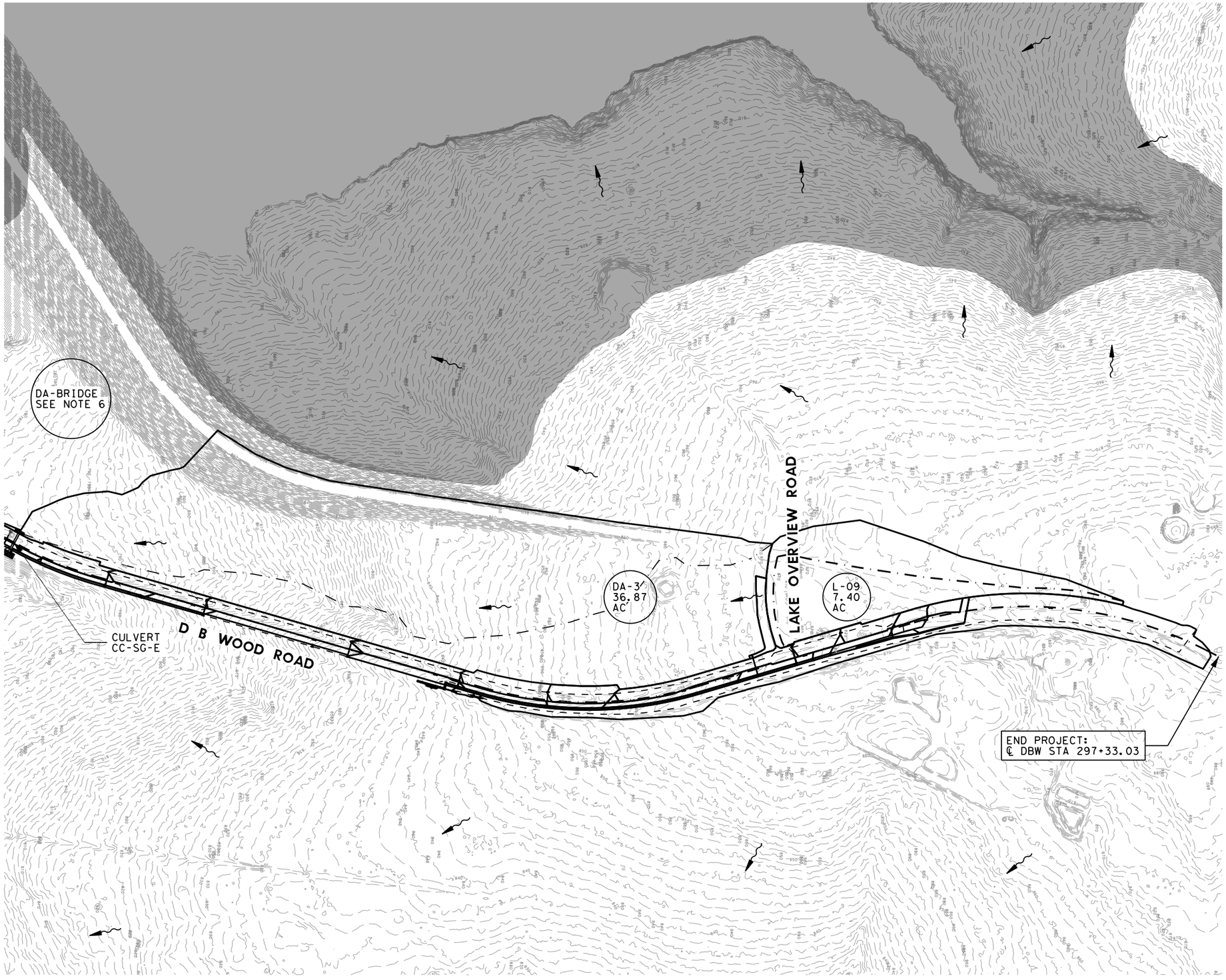
Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

OVERALL DRAINAGE AREA MAP

SHEET 1 OF 2 | 203

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_AREA_MAP01.dgn
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LEGEND

- DRAINAGE AREA
- STREAM CENTERLINE
- 100-YR FLOODPLAIN
- EXIST 10' CONTOURS
- XX-X / XX.X AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS

NOTES:

1. PREFIXES
   SG = SAN GABRIEL RIVER
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS.
3. H&H FILES WERE SENT TO THE LOCAL FLOODPLAIN ADMINISTRATOR WESLEY WRIGHT ON 04/17/2024.
4. DRAINAGE BASINS WERE DELINEATED USING 2022 LIDAR FROM WILLIAMSON COUNTY.
5. REFER TO HYDROLOGIC DATA SHEETS FOR ADDITIONAL NOTES.
6. SAN GABRIEL RIVER WATERSHED. SEE BRIDGE DRAINAGE AREA MAP FOR MORE INFORMATION.

0' 400' 800'

MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

4/19/2024

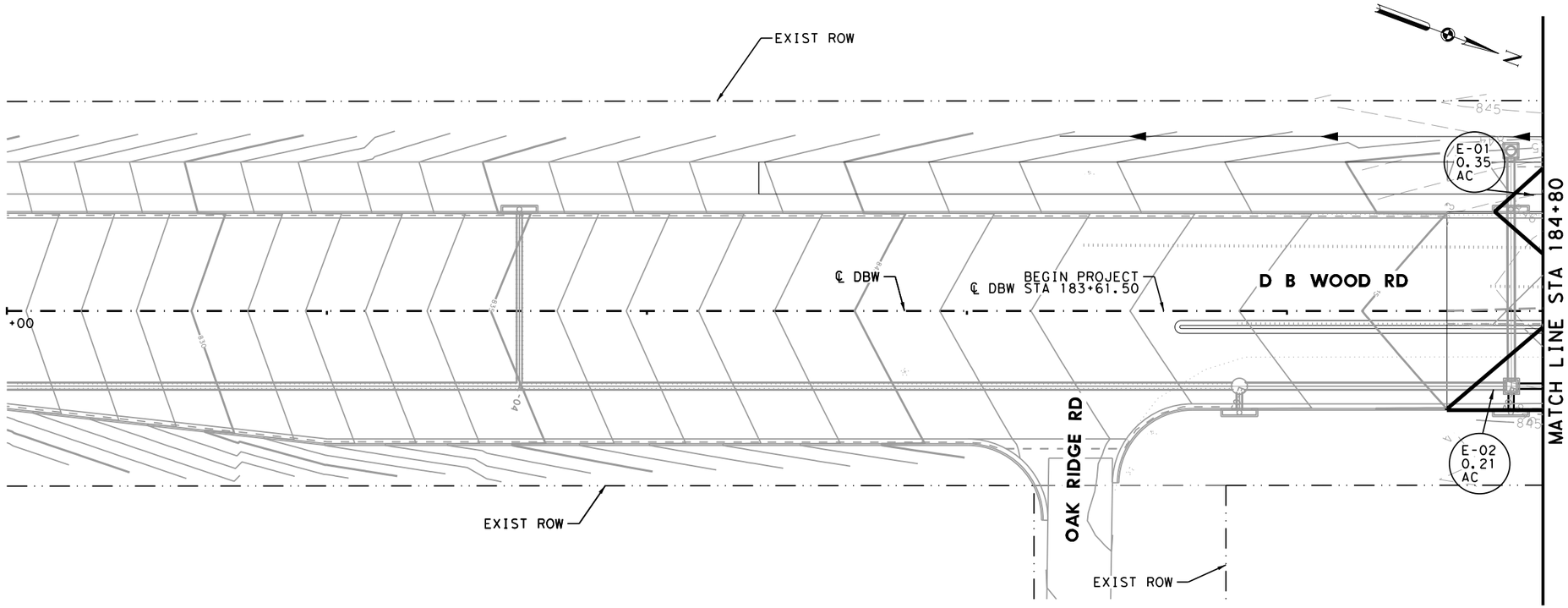
Kimley»Horn F-928

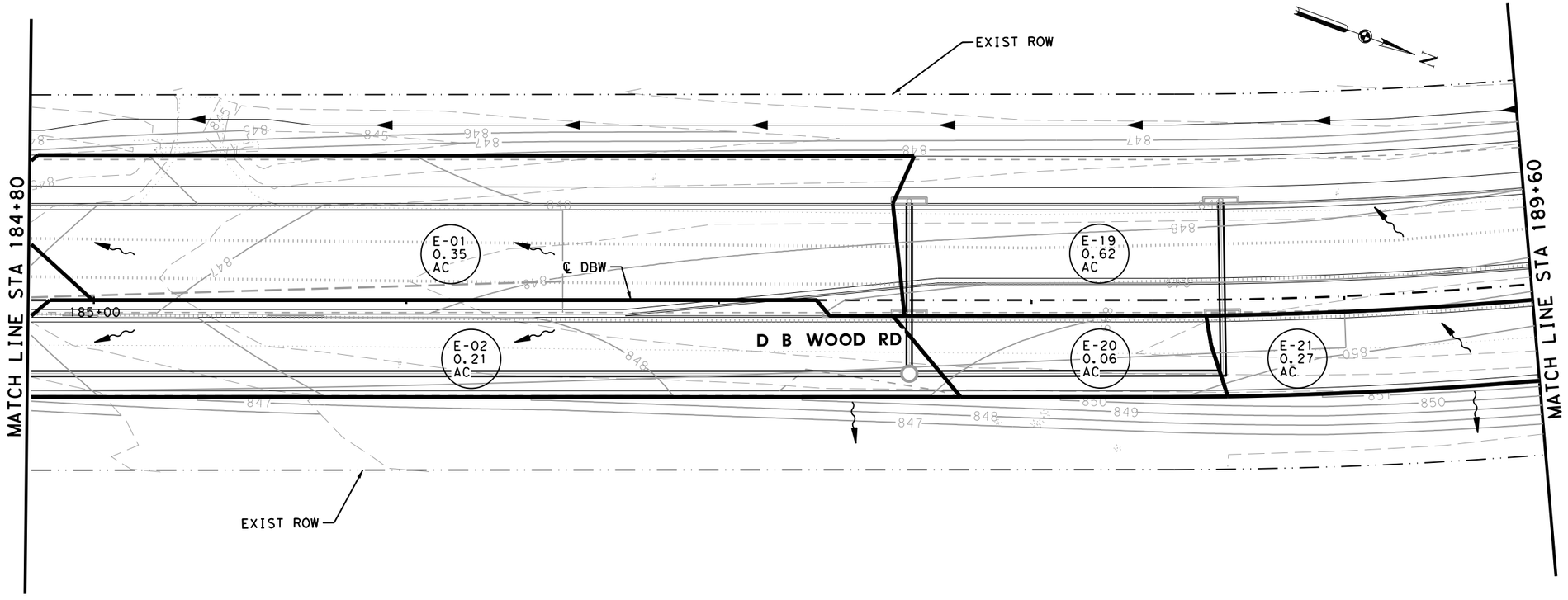
GEORGETOWN TEXAS
more than welcome

OVERALL DRAINAGE AREA MAP

SHEET 2 OF 2 | 204

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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/19/2024

Kimley»Horn F-928

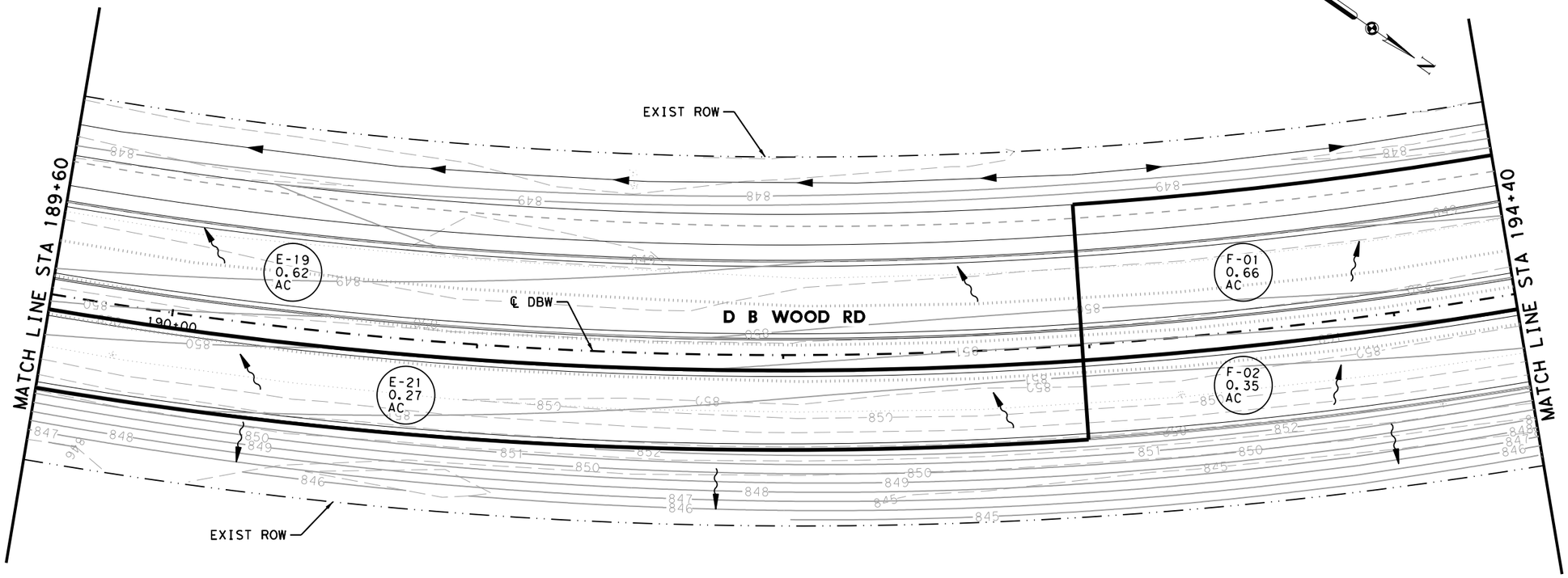
GEORGETOWN
TEXAS
more than welcome

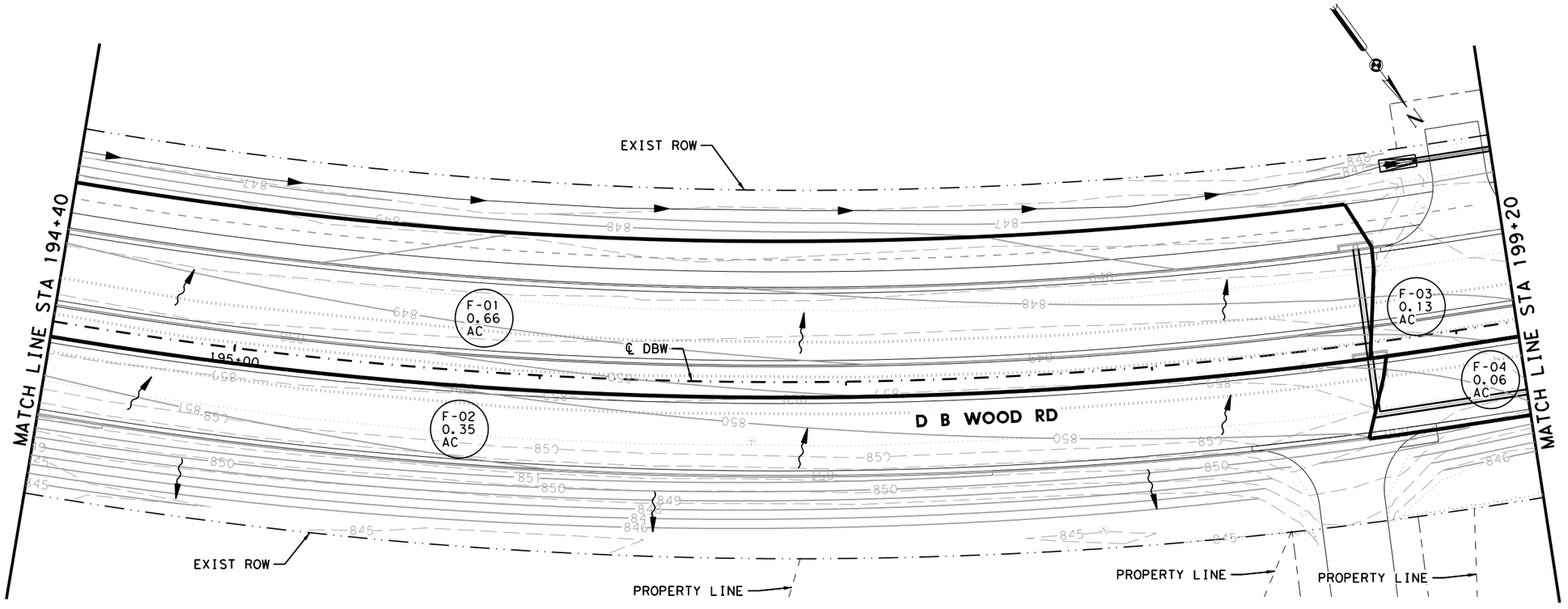
DRAINAGE AREA MAPS

BEGIN PROJET TO STA 189+60

SHEET 1 OF 12 | 205

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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/22/2024

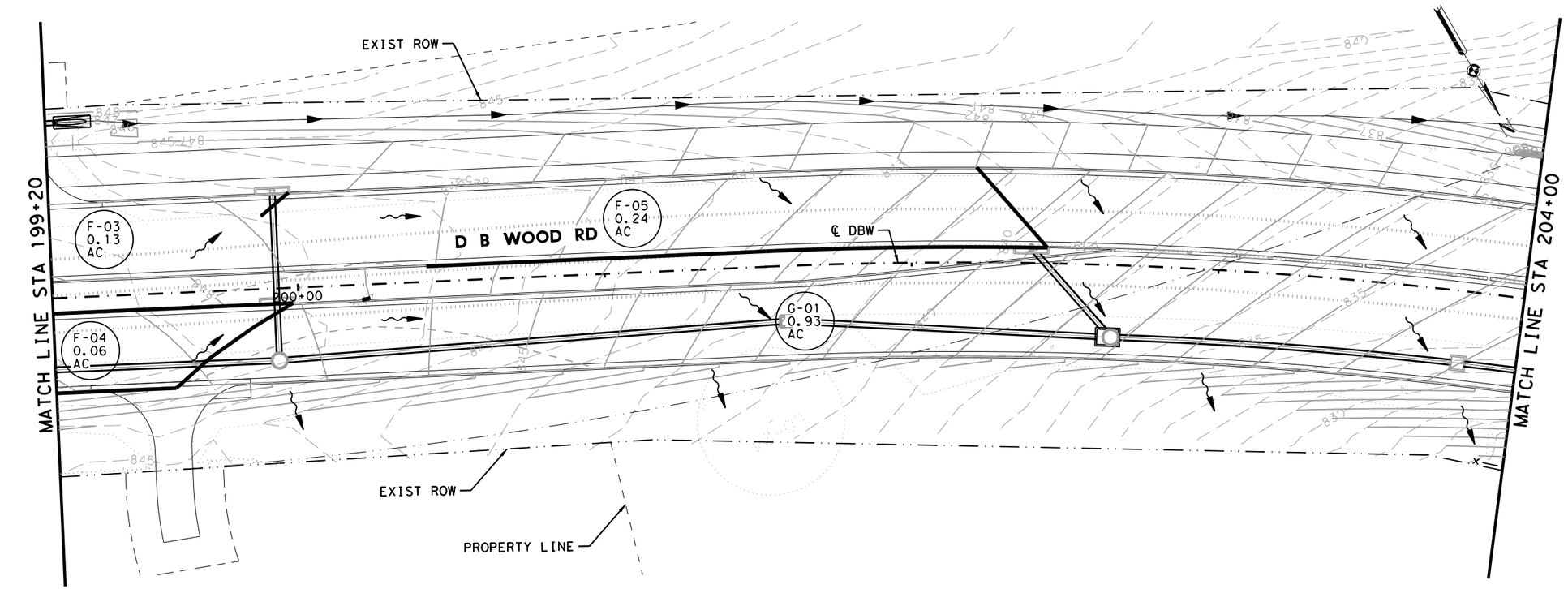
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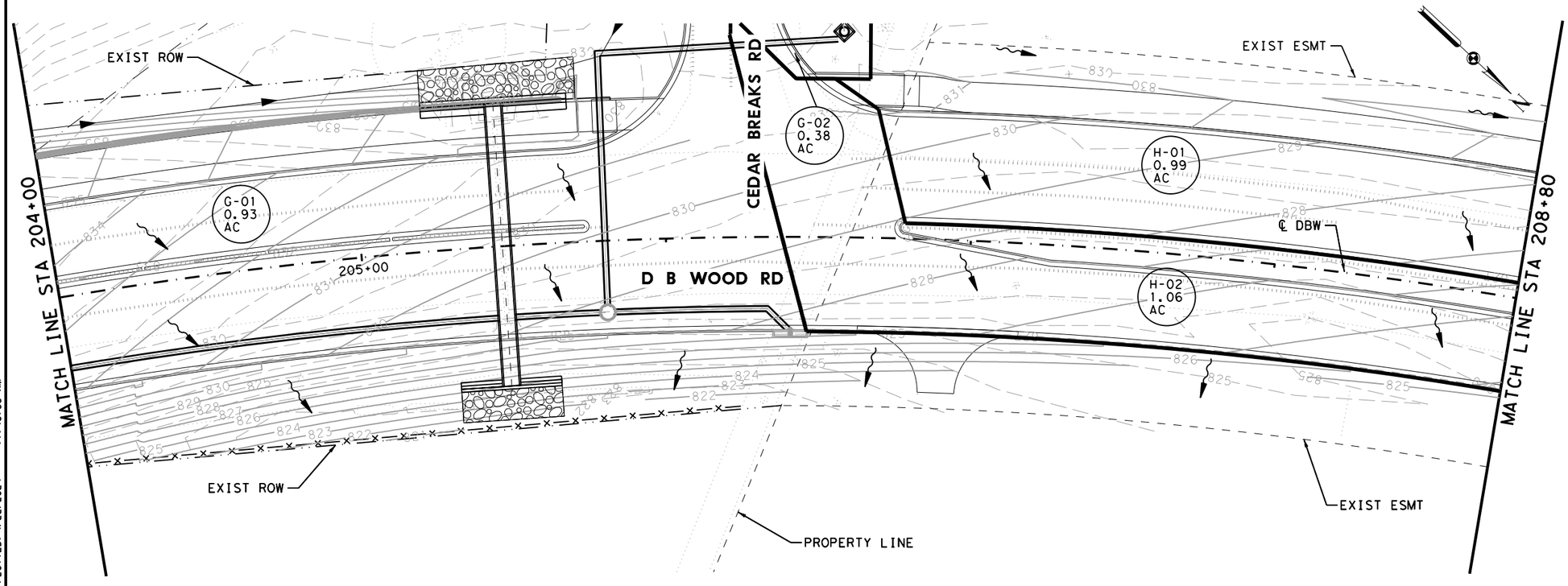
GEORGETOWN
TEXAS
more than welcome

DRAINAGE AREA MAPS

STA 189+60 TO STA 199+20

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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/22/2024

Kimley»Horn F-928

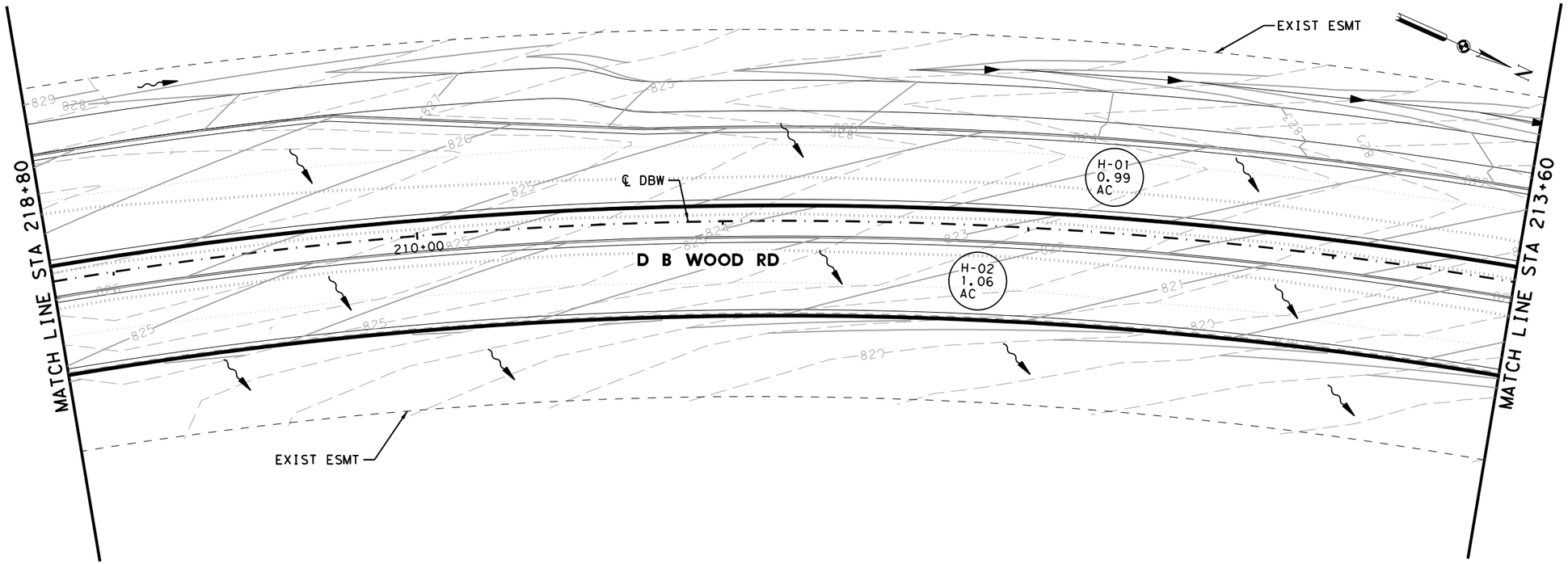
GEORGETOWN TEXAS
more than welcome

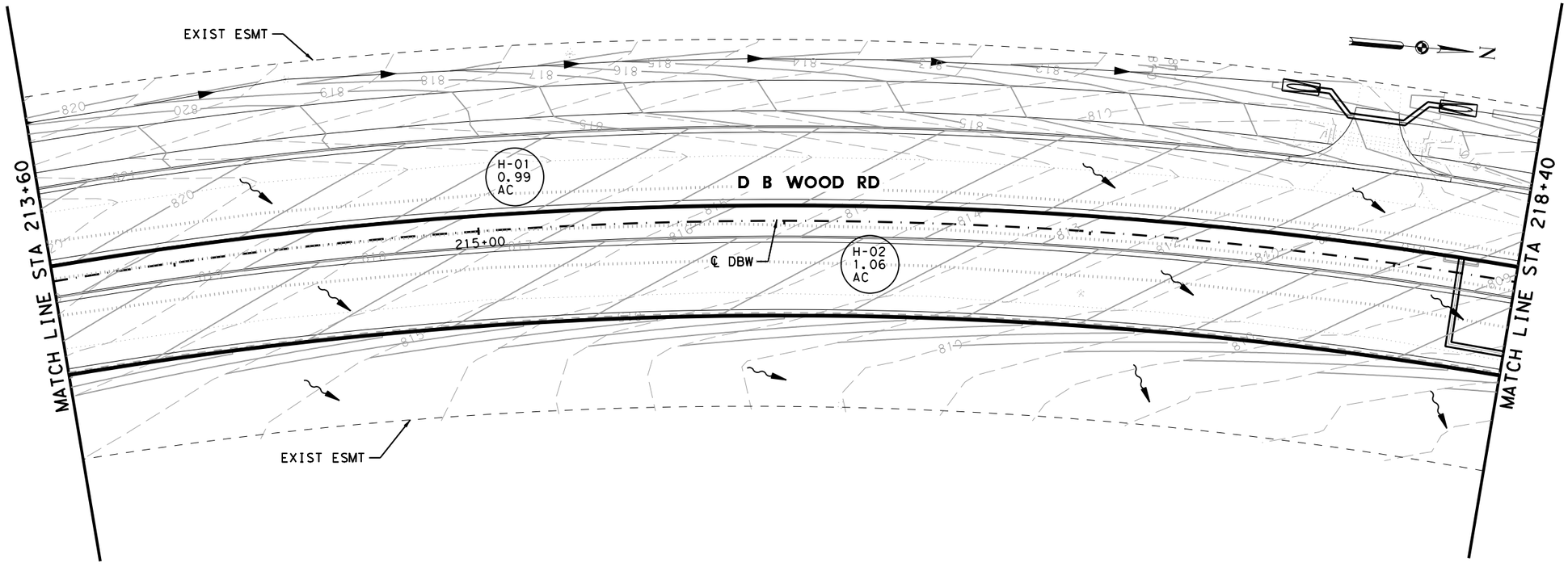
DRAINAGE AREA MAPS

STA 199+20 TO STA208+80

SHEET 3 OF 12 | 207

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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/19/2024

Kimley»Horn F-928

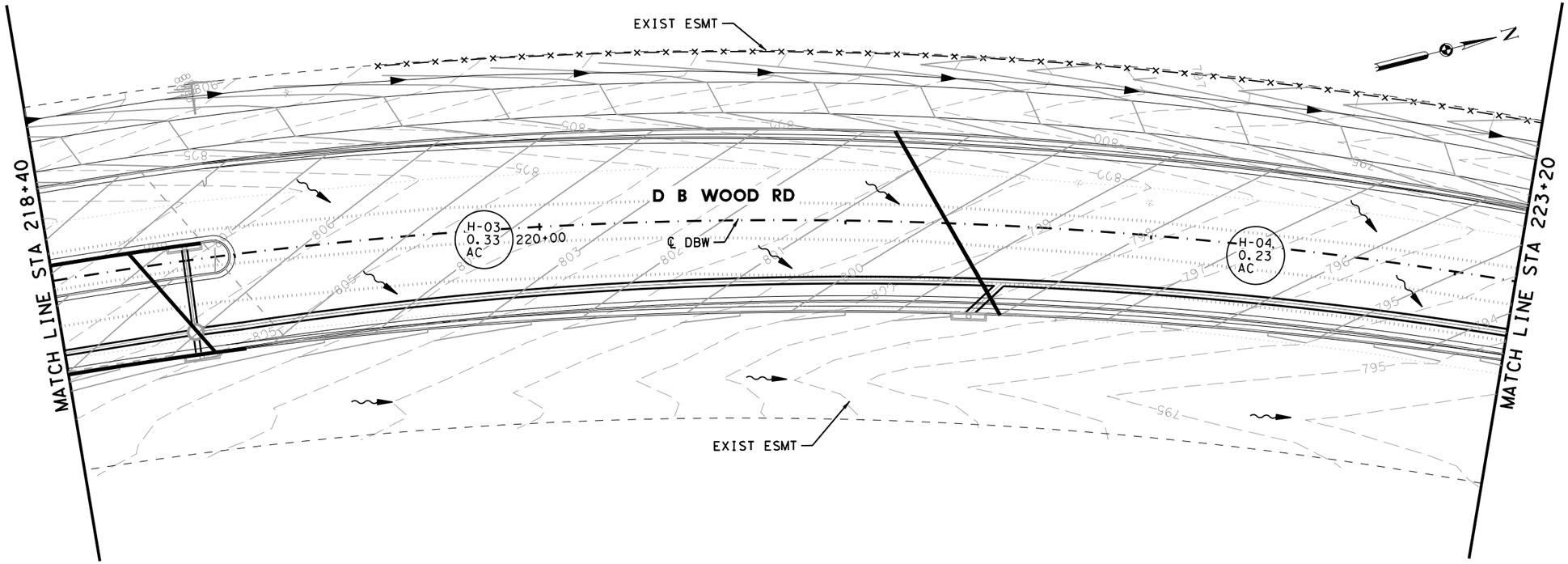
GEORGETOWN TEXAS
more than welcome

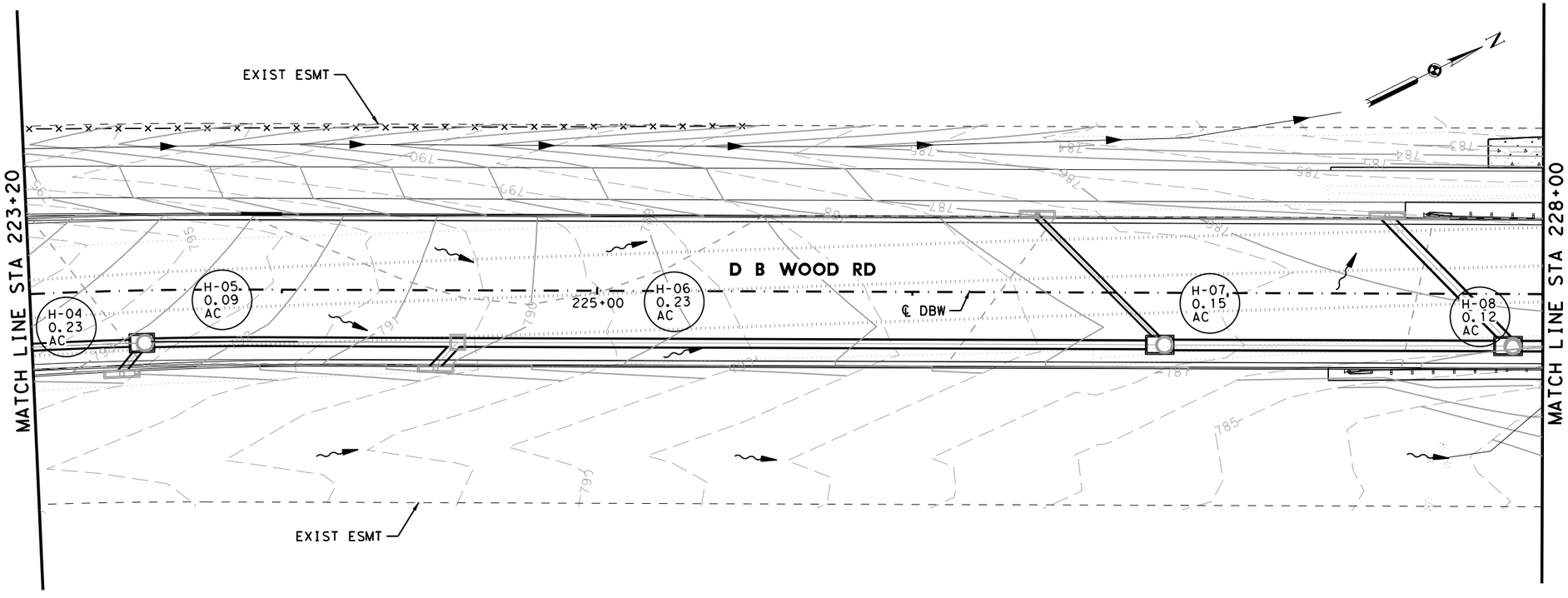
DRAINAGE AREA MAPS

STA 208+80 TO STA 218+40

SHEET 4 OF 12 | 208

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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

4/19/2024

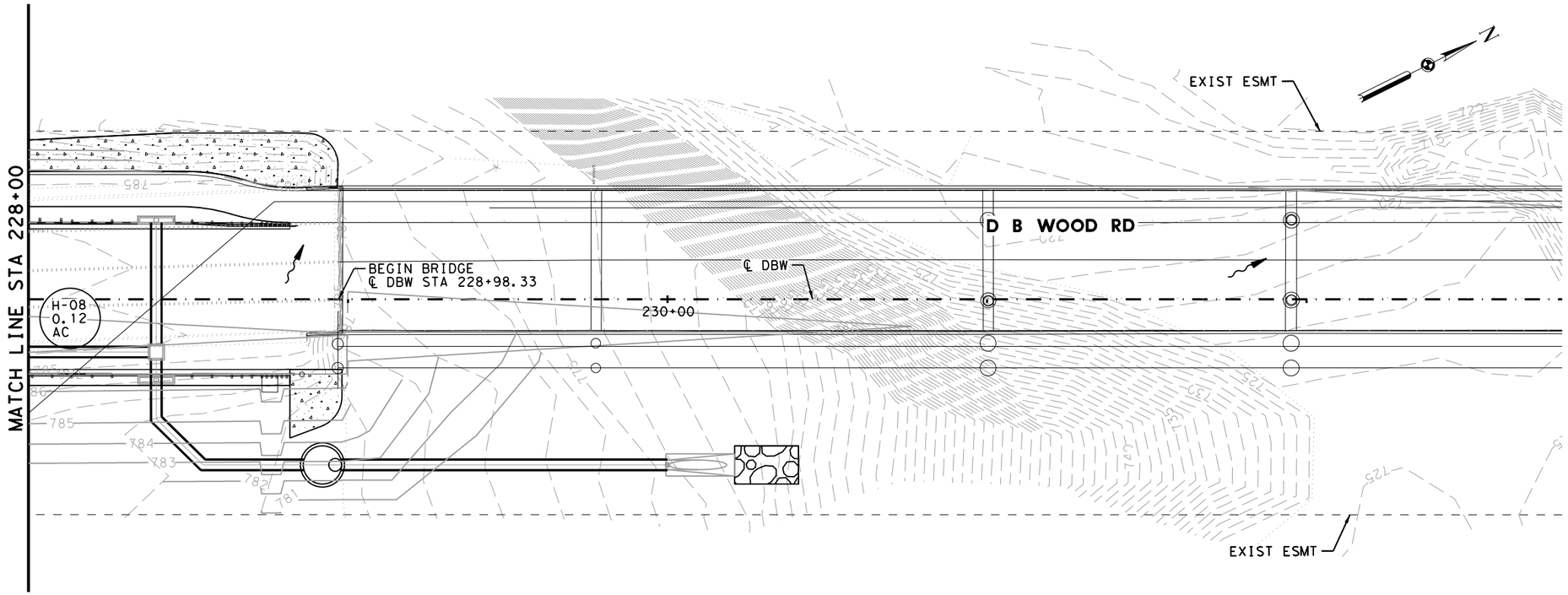
Kimley»Horn F-928

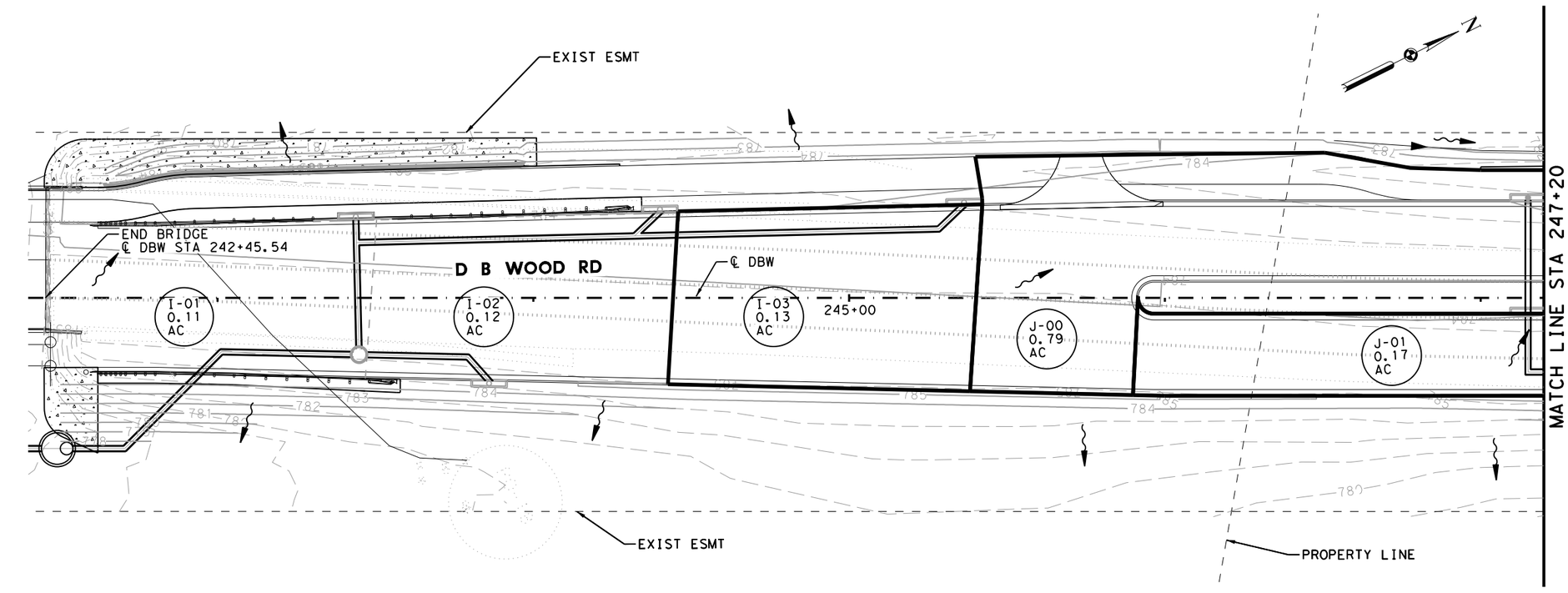
GEORGETOWN TEXAS
more than welcome

DRAINAGE AREA MAPS

STA 218+40 TO STA 228+00

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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/19/2024

Kimley»Horn F-928

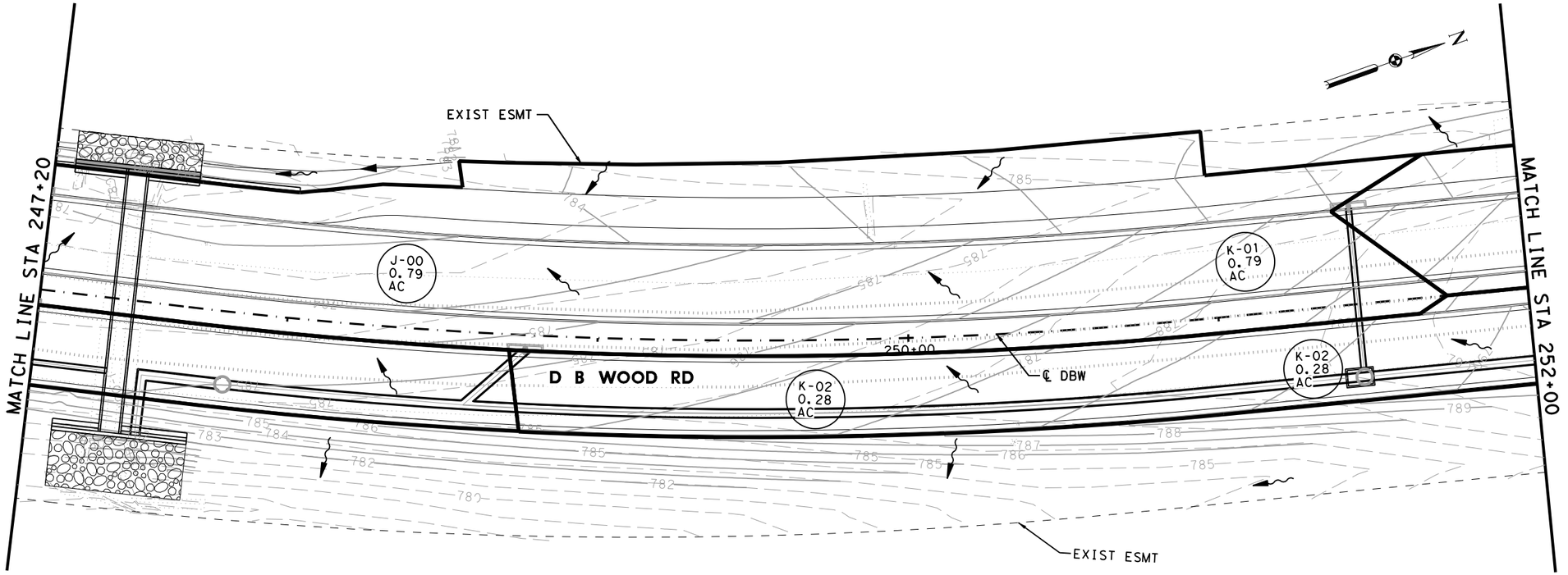
GEORGETOWN
TEXAS
more than welcome

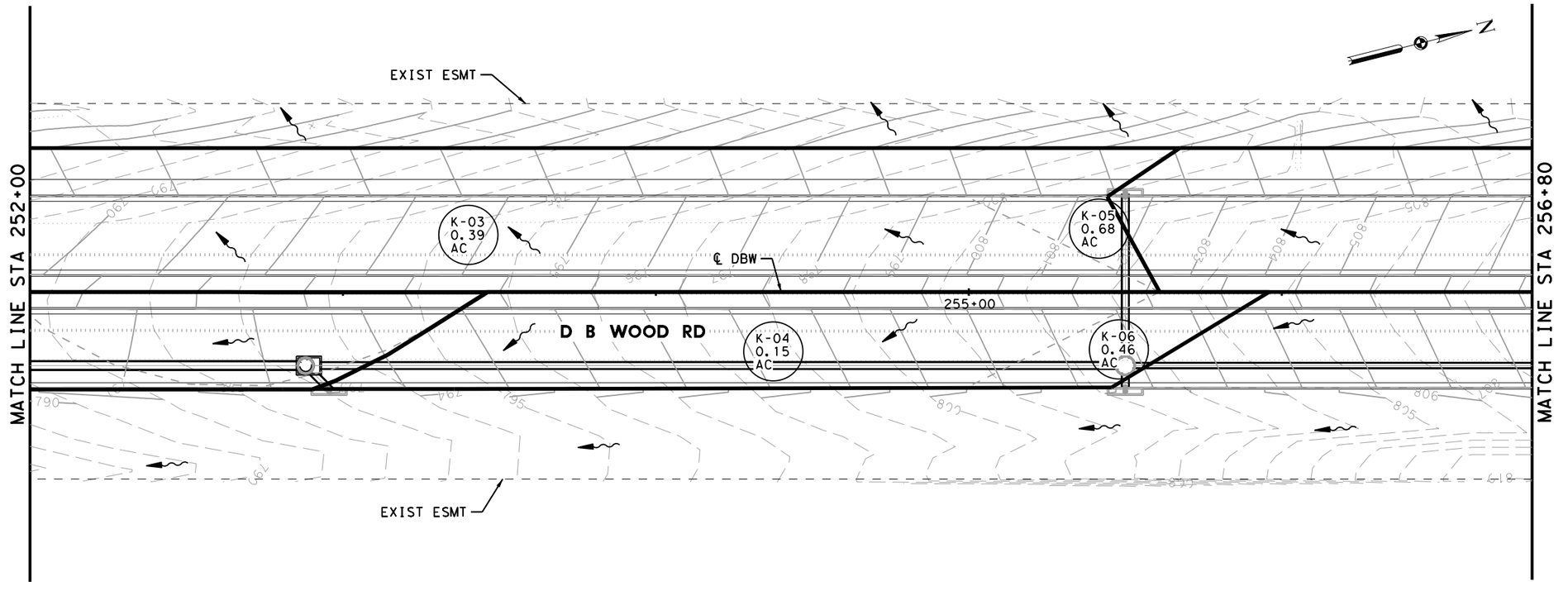
DRAINAGE AREA MAPS

STA 228+00 TO STA 247+20

SHEET 6 OF 12 | 210

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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

Malia Caldwell
4/19/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

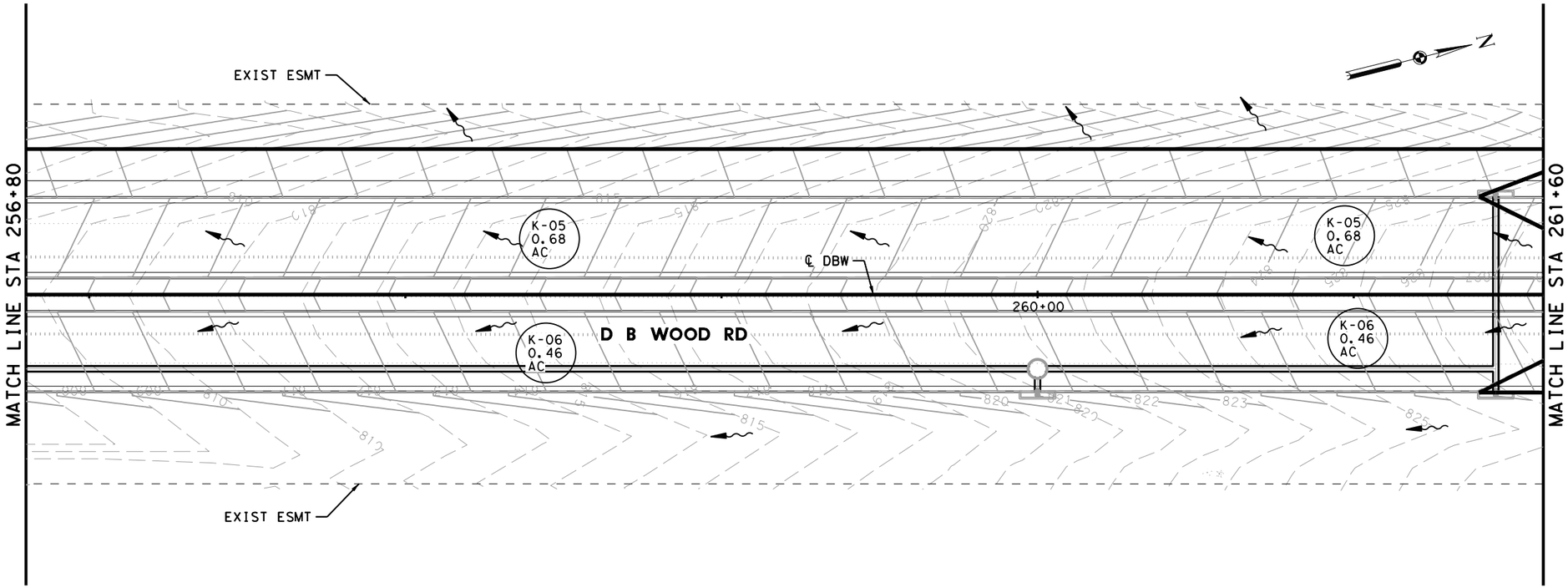
GEORGETOWN
TEXAS
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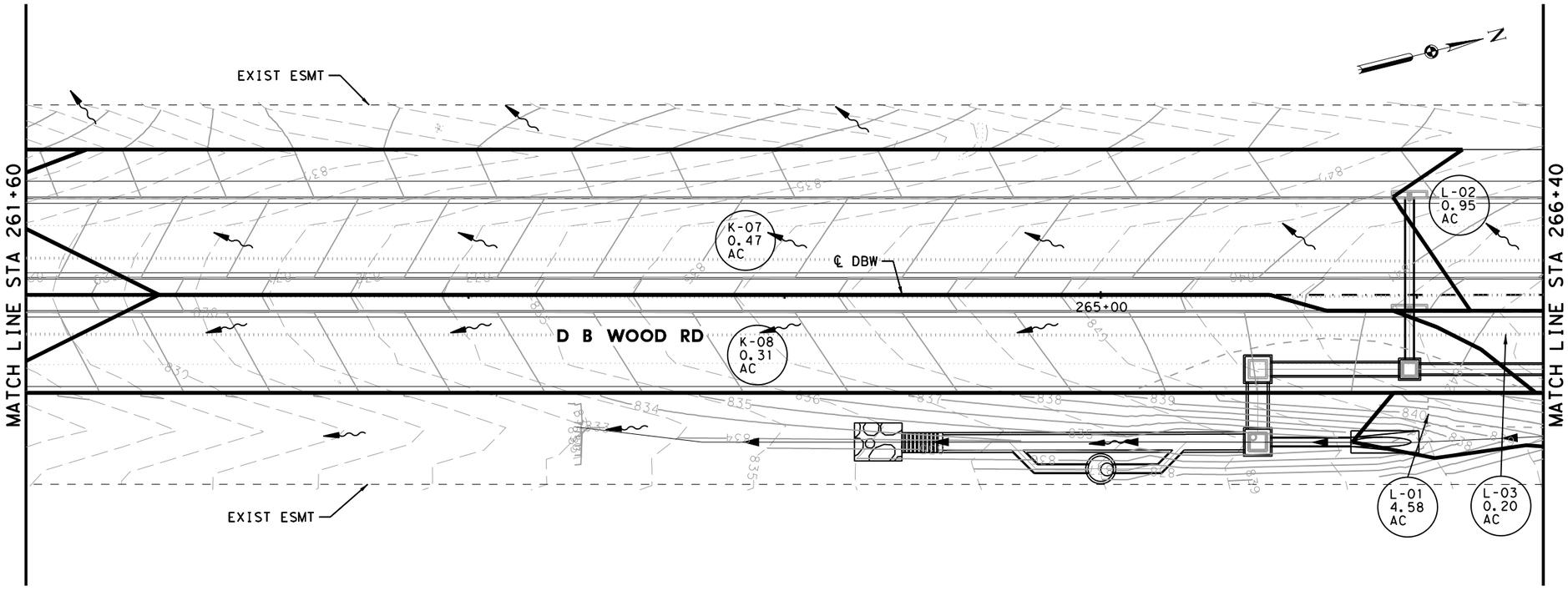
DRAINAGE AREA MAPS

STA 247+20 TO STA 256+80

SHEET 7 OF 12 | 211

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_INT DAM_07.dgn
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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/19/2024

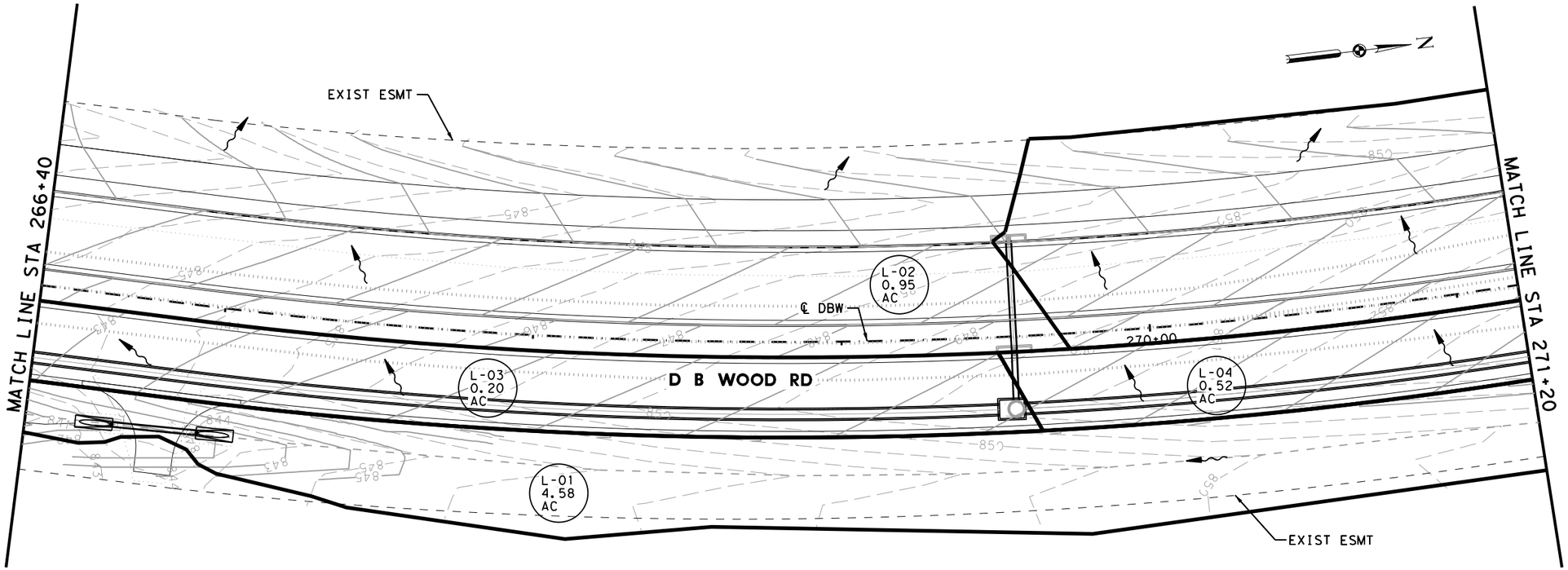
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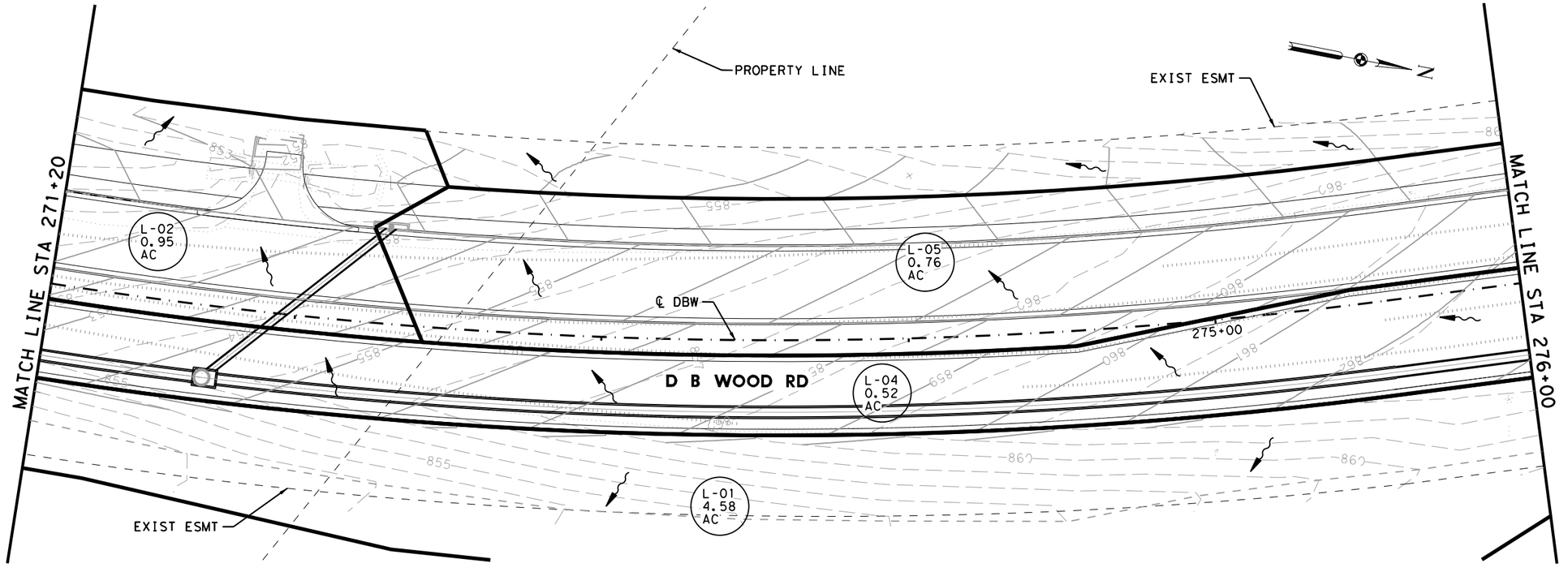
GEORGETOWN
TEXAS
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DRAINAGE AREA MAPS

STA 256+80 TO STA 266+40

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_INT DAM_08.dgn
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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

Malia Caldwell
4/19/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

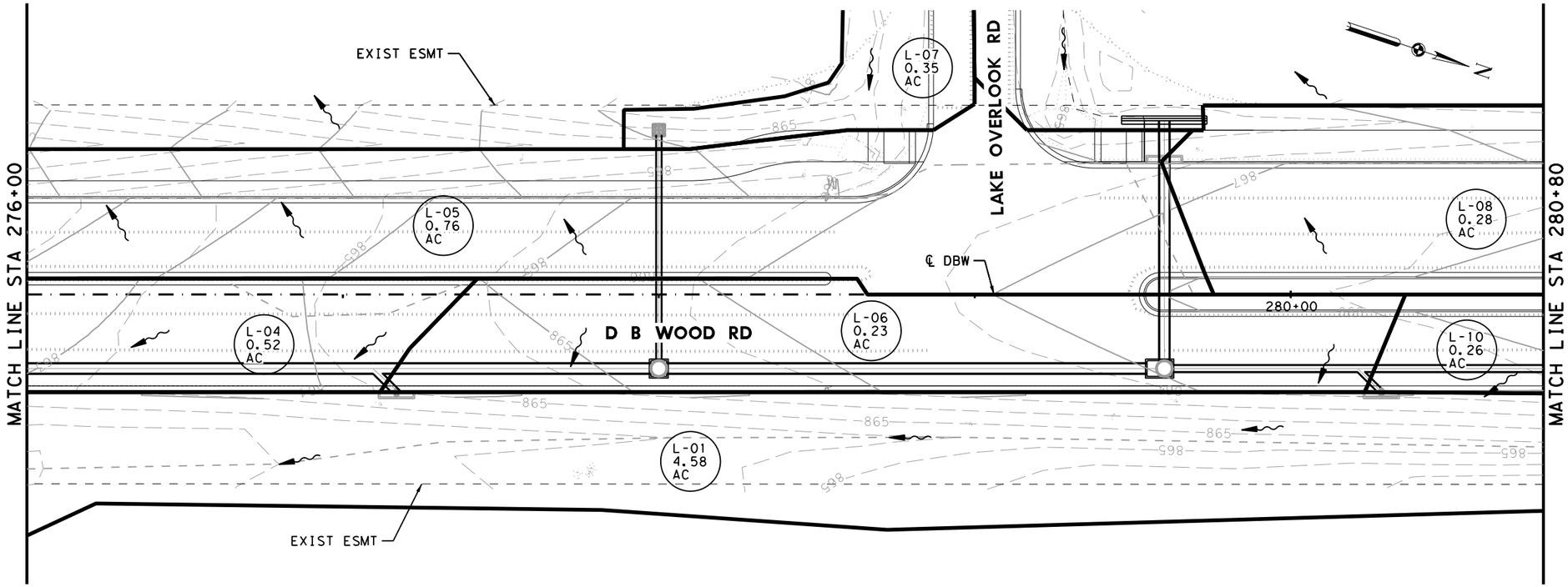
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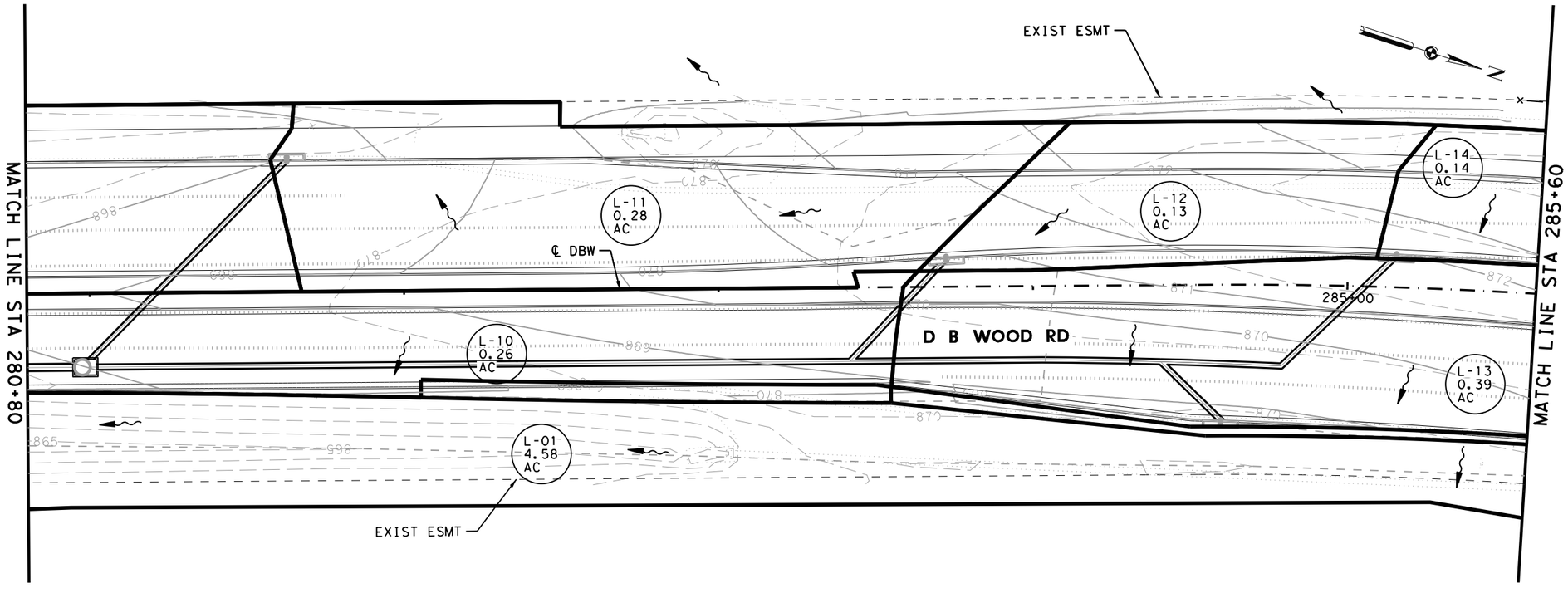
GEORGETOWN TEXAS
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DRAINAGE AREA MAPS

STA 266+40 TO STA 276+00

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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/19/2024

Kimley»Horn F-928

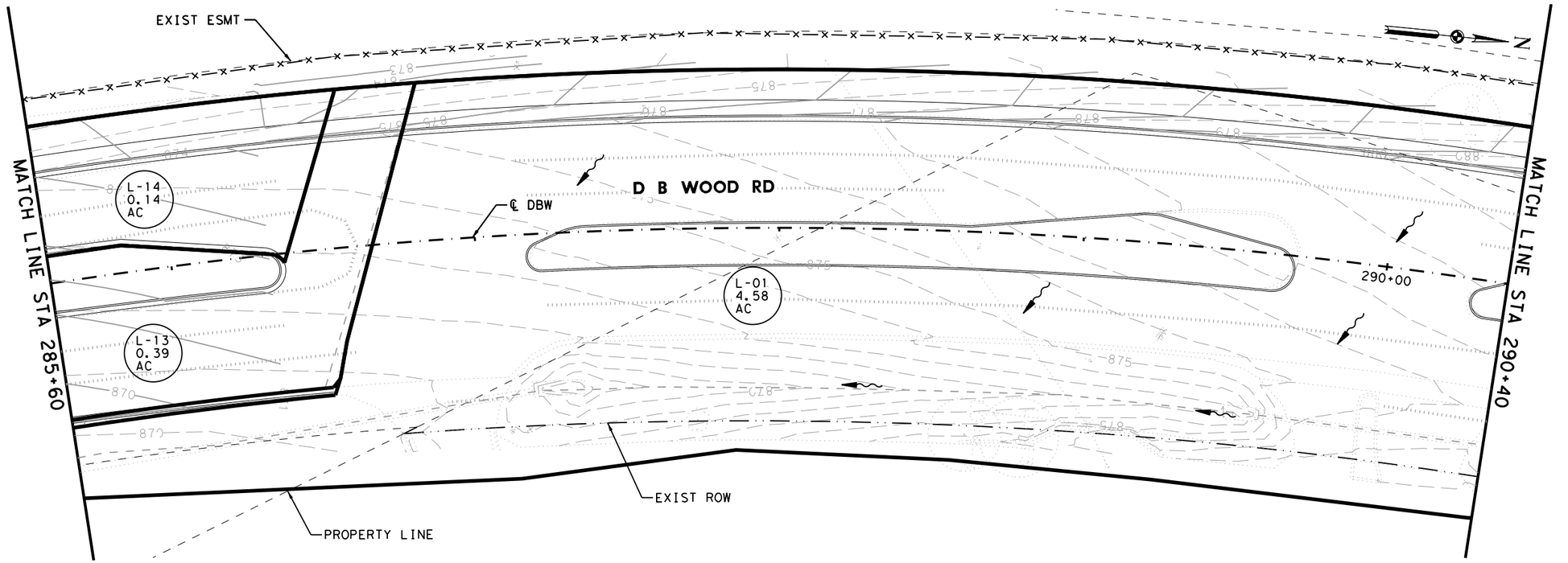
GEORGETOWN
TEXAS
more than welcome

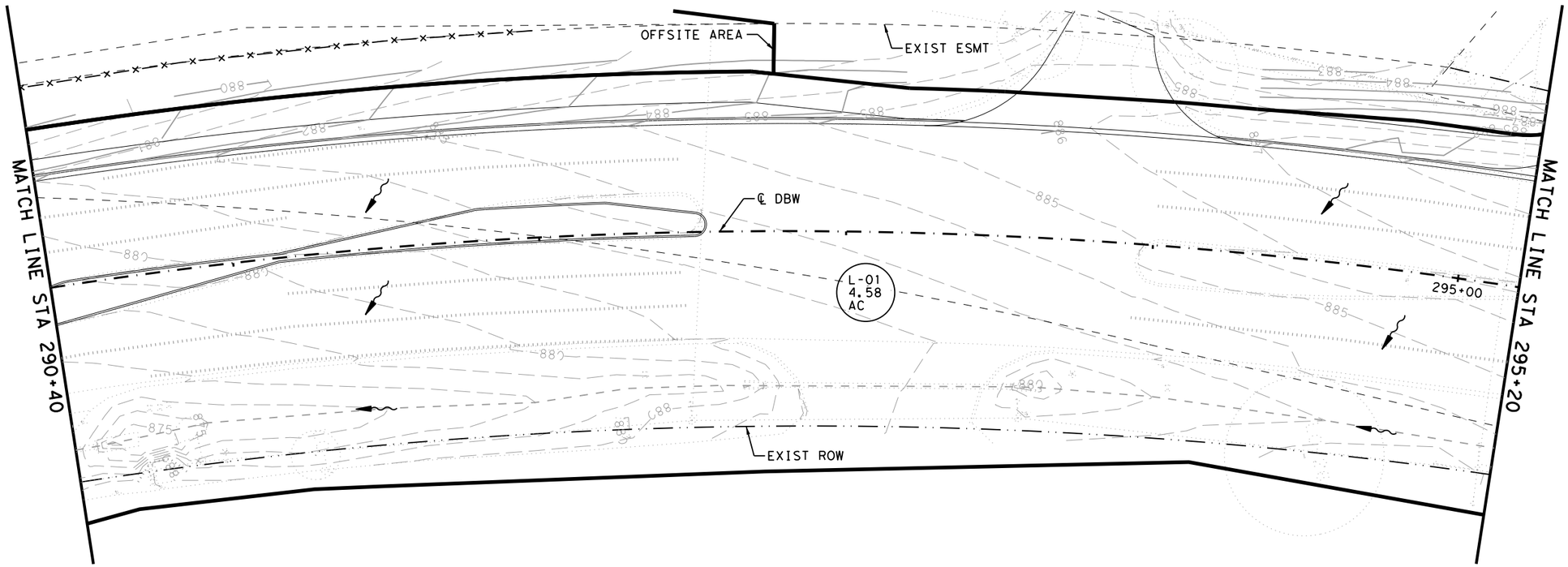
DRAINAGE AREA MAPS

STA 276+00 TO STA 285+60

SHEET 10 OF 12 | 214

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_INT DAM_10.dgn
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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/19/2024

Kimley»Horn F-928

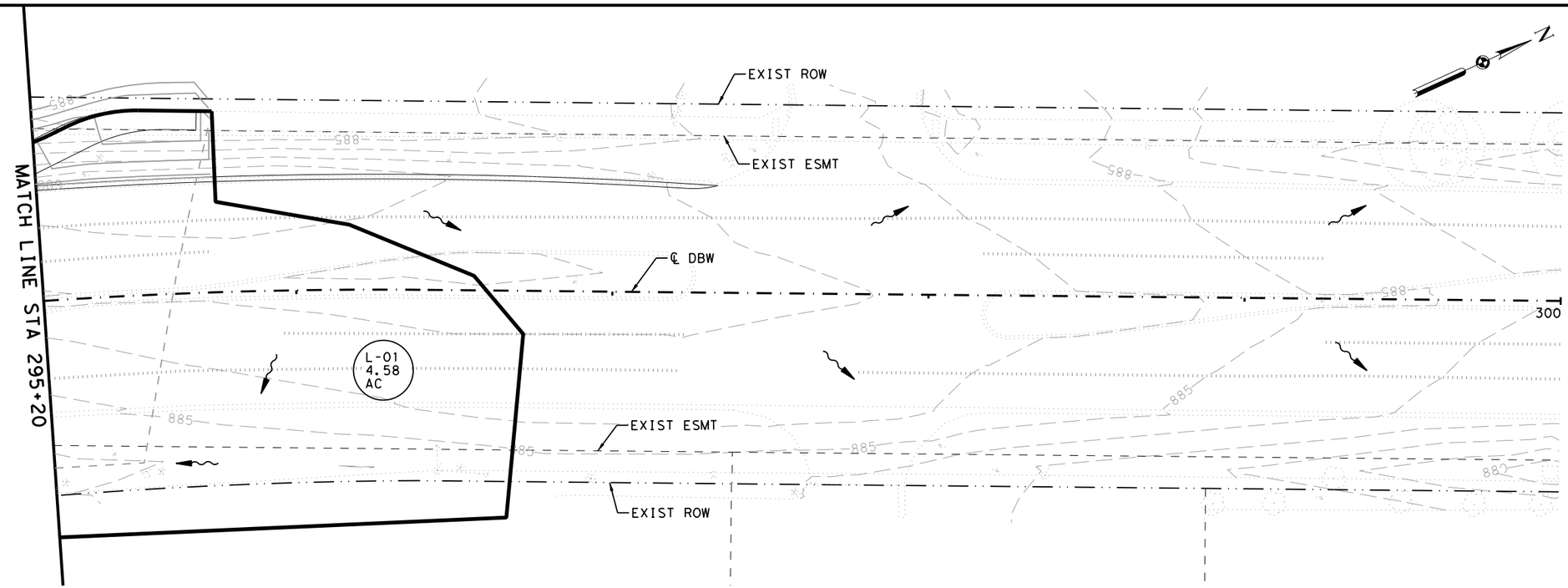
GEORGETOWN TEXAS
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DRAINAGE AREA MAPS

STA 285+60 TO STA 295+20

SHEET 11 OF 12 | 215

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Design Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_INT DAM_11.dgn
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LEGEND

- DRAINAGE AREA
- STREAM/DITCH CENTERLINE
- EXIST CONTOURS
- PROPOSED CONTOURS
- X-XX / X.XX AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS
- EXIST ROW
- EXIST EASEMENT LINE
- EXIST PROPERTY LINE
- DITCH FLOWLINE

NOTES:

1. SEE OVERALL DRAINAGE AREA MAP FOR FULL PROJECT DRAINAGE AREAS.
2. REFER TO THE HYDROLOGIC DATA SHEETS FOR DETAILED CALCULATIONS

0' 20' 40'

MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

4/19/2024

Kimley»Horn F-928

GEORGETOWN
TEXAS
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DRAINAGE AREA MAPS

STA 295+20 TO END PROJECT

SHEET 12 OF 12 | 216

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Design Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_INT DAM_12.dgn
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HYDROLOGY VARIABLES FOR EXISTING AND PROPOSED CONDITIONS						
24-HOUR PRECIPITATION DEPTH (IN)						
	5-YR	10-YR	25-YR	50-YR	100-YR	
	5.15	6.30	8.04	9.53	11.20	
MF JUNCTION_17 PEAK FLOWS (CFS)						
	5-YR	10-YR	25-YR	50-YR	100-YR	
	4034	4187	4387	4529	4664	
LOSS METHOD (SCS CURVE NUMBER)						
SUBBASIN W6910						
WEIGHTED RUNOFF CURVE NUMBER (RCN)						79
IMPERVIOUS COVER (%)						25.46
TRANSFORM METHOD (SCS UNIT HYDROGRAPH)						
SUBBASIN W6910						
LAG TIME (MIN)						52.66

NOTES:

1. THE D B WOOD CROSSING OF SAN GABRIEL RIVER IS LOCATED IN A FEMA ZONE AE AREA IN WILLIAMSON COUNTY ON MAP NUMBER 48491C0290E EFFECTIVE SEPTEMBER 26, 2008. THE EXISTING HYDROLOGIC AND HYDRAULIC MODELS FOR MIDDLE FORK SAN GABRIEL WERE OBTAINED FROM WILLIAMSON COUNTY.
2. FLOWS SHOWN ARE BASED ON EXISTING LAND CONDITIONS. PROPOSED FLOWS SHOWN ARE BASED ON FULLY DEVELOPED CONDITIONS.
3. ATLAS-14 PRECIPITATION DATA INCORPORATED INTO HYDROLOGIC CALCULATIONS.
4. FLOWS ARE THE SAME IN EXISTING A AND PROPOSED CONDITIONS.
5. REFER TO D B WOOD FLOODPLAIN STUDY DATED DECEMBER 2023 FOR MORE INFORMATION.

Hudson Stone
4/21/2024

STATE OF TEXAS
HUDSON D. STONE
142690
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

GEORGETOWN
TEXAS
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D B WOOD ROAD

HYDROLOGIC DATA
BRIDGE AT SAN GABRIEL RIVER

SHEET 1 OF 1 | 217

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_HYDRODATA_BRIDGE.dgn
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EXISTING HYDROLOGIC INPUT PARAMETERS														
			WEIGTHED C VALUE						INTENSITY					
Drainage Area	Culvert Name	Area	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr	Tc	2 yr	5 yr	10 yr	25 yr	50 yr
		(ac)							(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)
DA-1	CC-SG-D	19.85	0.66	0.66	0.67	0.69	0.7	0.71	30	2.93	3.64	4.25	5.11	5.79
DA-3	CC-SG-E	44.92	0.41	0.44	0.46	0.49	0.52	0.55	31	2.90	3.68	4.34	5.38	6.22

	EXISTING FLOW COMPUTATIONS				
Drainage Area	Culvert Name	2 yr	5 yr	10 yr	25 yr	50 yr
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
DA-1	CC-SG-D	29.50	36.60	42.80	51.40	58.30
DA-3	CC-SG-E	59.55	80.06	98.41	131.14	160.01

PROPOSED HYDROLOGIC INPUT PARAMETERS															
			WEIGTHED C VALUE						INTENSITY						
Drainage Area	Culvert Name	Area	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr	Tc	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
		(ac)							(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)
DA-1	CC-SG-D	19.85	0.66	0.66	0.67	0.69	0.70	0.71	30	2.93	3.64	4.25	5.11	5.79	6.51
DA-3	CC-SG-E	36.87	0.28	0.30	0.32	0.35	0.37	0.40	77	2.90	3.60	4.20	5.05	5.73	6.44

PROPOSED FLOW COMPUTATIONS						
Drainage Area	Culvert Name	2 yr	5 yr	10 yr	25 yr	50 yr
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
DA-1	CC-SG-D	38.16	47.40	55.35	66.54	75.40
DA-3	CC-SG-E	29.47	36.62	42.76	51.43	58.29

NOTES:

1. CITY OF GEORGETOWN DRAINAGE CRITERIA MANUAL AND RATIONAL METHOD USED FOR HYDROLOGIC CALCULATIONS.
2. ATLAS-14 PRECIPITATION DATA INCORPORATED INTO EXISTING AND PROPOSED HYDROLOGIC CALCULATIONS.

Malia Caldwell
4/21/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

HYDROLOGIC DATA CULVERT

SHEET 1 OF 1 | 218

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_HYDRODATA_CULV.dgn
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PROPOSED HYDROLOGIC INPUT PARAMETERS													
			WEIGTHED C VALUE						INTENSITY				
DA	Ditch Name	Area	2 yr	5 yr	10 yr	25 yr*	50 yr	100 yr	Tc	2 yr	5 yr	10 yr	25 yr*	50 yr
		(ac)							(min)	(in/hr)	(in/hr)	(in/hr)	(in/hr)	(in/hr)
DA-0	DITCH 01	2.60	0.75	0.76	0.77	0.78	0.79	0.80	46	2.37	2.96	3.47	4.20	4.78
DA-1.1	DITCH 02	7.28	0.71	0.72	0.73	0.74	0.75	0.76	38	2.65	3.30	3.86	4.65	5.28
DA-2	DITCH 03	11.20	0.36	0.38	0.40	0.44	0.47	0.50	31	2.90	3.60	4.20	5.05	5.73

PROPOSED FLOW COMPUTATIONS							
DA	Ditch Name	2 yr	5 yr	10 yr	25 yr*	50 yr	100 yr
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
DA-0	DITCH 01	4.65	5.81	6.81	8.24	9.37	10.58
DA-1.1	DITCH 02	13.77	17.15	20.06	24.18	27.45	30.92
DA-2	DITCH 03	11.60	14.41	16.83	20.24	22.94	25.80

*25 yr is design year



4/21/2024

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GEORGETOWN TEXAS
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D B WOOD ROAD

HYDROLOGIC DATA DITCH

SHEET 1 OF 1 | 219

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25-Yr Storm Discharge Calculations						
Area - ID	Area - Composite Area	Area - Composite C Value	Area - Time of Concentration	Area - Tc Used	Area - Intensity	Area - Discharge
	(acre)		(min)	(min)	(in/hr)	(cfs)
E01	0.3	0.89	3	5	11.59	3.07
E02	0.21	0.95	2	5	11.59	2.3
E19	0.13	0.9	3	5	11.59	1.38
E20	0.06	0.95	2	5	11.59	0.61
E21	0.27	0.95	2	5	11.59	2.92
E22	0.49	0.9	5	5	11.59	5.12
F01	0.66	0.91	5	5	11.59	6.97
F02	0.35	0.95	6	6	11.13	3.67
F03	0.13	0.91	2	5	11.59	1.34
F04	0.06	0.95	2	5	11.59	0.69
F05	0.24	0.89	2	5	11.59	2.46
G01	0.94	0.92	3	5	11.59	10
G02	0.38	0.61	5	5	11.59	2.67
H00	0.97	0.93	6	6	11.13	10.08
H01	0.04	0.94	2	5	11.59	0.42
H02	1.06	0.95	2	5	11.59	11.68
H03	0.36	0.91	6	6	11.13	3.62
H04	0.26	0.9	2	5	11.59	2.7
H05	0.09	0.94	2	5	11.59	1.02
H06	0.18	0.95	2	5	11.59	1.95
H07	0.1	0.95	2	5	11.59	1.07
H08	0.08	0.95	3	5	11.59	0.85
H09	0.12	0.95	3	5	11.59	1.29
I01	0.08	0.95	2	5	11.59	0.92
I02	0.1	0.95	2	5	11.59	1.13
I03	0.13	0.95	2	5	11.59	1.38
I04	0.04	0.95	2	5	11.59	0.48
J00	0.79	0.88	3	5	11.59	8.09
J01	0.17	0.95	3	5	11.59	1.87
K02	0.28	0.95	2	5	11.59	3.02
K03	0.39	0.9	2	5	11.59	4.09
K04	0.18	0.95	2	5	11.59	1.94
K05	0.68	0.9	2	5	11.59	7.08
K06	0.33	0.95	2	5	11.59	3.63
K06A	0.1	0.95	2	5	11.59	1.07
K07	0.47	0.9	2	5	11.59	4.86
K08	0.31	0.95	2	5	11.59	3.44
L01	4.58	0.7	9	9	9.98	32.07
L02	0.52	0.81	3	5	11.59	4.94
L03	0.2	0.95	2	5	11.59	2.24
L04	0.52	0.95	2	5	11.59	5.68
L04A	0.43	0.8	2	5	11.59	3.98
L05	0.76	0.9	3	5	11.59	7.9
L06	0.23	0.95	2	5	11.59	2.56
L07	0.35	0.69	5	5	11.59	2.76
L08	0.28	0.89	3	5	11.59	2.89
L09	7.4	0.55	5	5	11.59	46.79
L10	0.26	0.95	3	5	11.59	2.81
L11	0.28	0.89	2	5	11.59	2.89
L12	0.13	0.9	3	5	11.59	1.4
L13	0.39	0.95	3	5	11.59	4.29
L14	0.14	0.9	2	5	11.59	1.49

NOTES:

1. EXISTING FLOWS SHOWN ARE BASED ON EXISTING LAND CONDITIONS. PROPOSED FLOWS SHOWN ARE BASED ON FULLY DEVELOPED CONDITIONS.
2. ATLAS-14 PRECIPITATION DATA INCORPORATED INTO EXISTING AND PROPOSED HYDROLOGIC CALCULATIONS.

Malia Caldwell
4/21/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

GEORGETOWN TEXAS
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D B WOOD ROAD

HYDROLOGIC DATA
STORM SEWER

SHEET 1 OF 2 | 220

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_HYDRODATA_SS_01.dgn
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100-Yr Storm Discharge Calculations						
Area - ID	Area - Composite Area	Area - Composite C	Area - Time of Concentration	Area - Tc Used	Area - Intensity	Area - Discharge
	(acre)		(min)	(min)	(in/hr)	(cfs)
E01	0.30	0.89	3	5	15.25	4.04
E02	0.21	0.95	2	5	15.25	3.03
E19	0.13	0.90	3	5	15.25	1.82
E20	0.06	0.95	2	5	15.25	0.80
E21	0.27	0.95	2	5	15.25	3.84
E22	0.49	0.90	5	5	15.25	6.74
F01	0.66	0.91	5	5	15.25	9.18
F02	0.35	0.95	6	6	14.72	4.85
F03	0.13	0.91	2	5	15.25	1.77
F04	0.06	0.95	2	5	15.25	0.91
F05	0.24	0.89	2	5	15.25	3.24
G01	0.94	0.92	3	5	15.25	13.17
G02	0.38	0.61	5	5	15.25	3.51
H00	0.97	0.93	6	6	14.72	13.34
H01	0.04	0.94	2	5	15.25	0.56
H02	1.06	0.95	2	5	15.25	15.38
H03	0.36	0.91	6	6	14.72	4.78
H04	0.26	0.90	2	5	15.25	3.55
H05	0.09	0.94	2	5	15.25	1.34
H06	0.18	0.95	2	5	15.25	2.57
H07	0.10	0.95	2	5	15.25	1.41
H08	0.08	0.95	3	5	15.25	1.12
H09	0.12	0.95	3	5	15.25	1.70
I01	0.08	0.95	2	5	15.25	1.22
I02	0.10	0.95	2	5	15.25	1.48
I03	0.13	0.95	2	5	15.25	1.82
I04	0.04	0.95	2	5	15.25	0.63
J00	0.79	0.88	3	5	15.25	10.65
J01	0.17	0.95	3	5	15.25	2.46
K02	0.28	0.95	2	5	15.25	3.98
K03	0.39	0.90	2	5	15.25	5.38
K04	0.18	0.95	2	5	15.25	2.56
K05	0.68	0.90	2	5	15.25	9.32
K06	0.33	0.95	2	5	15.25	4.78
K06A	0.10	0.95	2	5	15.25	1.41
K07	0.47	0.90	2	5	15.25	6.40
K08	0.31	0.95	2	5	15.25	4.53
L01	4.58	0.70	9	9	13.36	42.91
L02	0.52	0.81	3	5	15.25	6.50
L03	0.20	0.95	2	5	15.25	2.95
L04	0.52	0.95	2	5	15.25	7.48
L04A	0.43	0.80	2	5	15.25	5.23
L05	0.76	0.90	3	5	15.25	10.41
L06	0.23	0.95	2	5	15.25	3.37
L07	0.35	0.69	5	5	15.25	3.63
L08	0.28	0.89	3	5	15.25	3.80
L09	7.40	0.55	5	5	15.25	61.60
L10	0.26	0.95	3	5	15.25	3.70
L11	0.28	0.89	2	5	15.25	3.80
L12	0.13	0.9	3	5	15.25	1.84
L13	0.39	0.95	3	5	15.25	5.65
L14	0.14	0.9	2	5	15.25	1.96

NOTES:

1. EXISTING FLOWS SHOWN ARE BASED ON EXISTING LAND CONDITIONS. PROPOSED FLOWS SHOWN ARE BASED ON FULLY DEVELOPED CONDITIONS.
2. ATLAS-14 PRECIPITATION DATA INCORPORATED INTO EXISTING AND PROPOSED HYDROLOGIC CALCULATIONS.

Malia Caldwell
4/21/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

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D B WOOD ROAD

HYDROLOGIC DATA
STORM SEWER

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HEC-RAS River: N_SG Reach: N_SG Profile: 100YR

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
N_SG	99656	100YR	EX-A14	86599.00	749.41	835.50		835.51	0.000000	0.55	166193.90	2869.27	0.01
N_SG	99656	100YR	PC-A14	86599.00	749.41	835.50		835.51	0.000000	0.55	166193.90	2869.27	0.01
N_SG	99119	100YR	EX-A14	86599.00	747.71	835.50		835.50	0.000001	0.70	133285.50	2361.07	0.02
N_SG	99119	100YR	PC-A14	86599.00	747.71	835.50		835.50	0.000001	0.70	133285.50	2361.07	0.02
N_SG	98652	100YR	EX-A14	86599.00	746.25	835.49		835.50	0.000001	0.78	114501.80	2020.57	0.02
N_SG	98652	100YR	PC-A14	86599.00	746.25	835.49		835.50	0.000001	0.78	114501.80	2020.57	0.02
N_SG	98177	100YR	EX-A14	86599.00	744.75	835.49		835.50	0.000001	0.87	110772.50	2000.35	0.02
N_SG	98177	100YR	PC-A14	86599.00	744.75	835.49		835.50	0.000001	0.87	110772.50	2000.35	0.02
N_SG	97664	100YR	EX-A14	86599.00	743.13	835.49		835.50	0.000001	0.84	110521.00	1873.00	0.02
N_SG	97664	100YR	PC-A14	86599.00	743.13	835.49		835.50	0.000001	0.84	110521.00	1873.00	0.02
N_SG	76310	100YR	EX-A14	4664.00	834.00	835.25	834.87	835.46	0.005522	3.66	1275.43	5436.15	0.58
N_SG	76310	100YR	PC-A14	4664.00	834.00	835.25	834.87	835.46	0.005522	3.66	1275.43	5436.15	0.58
N_SG	76012			Inl Struct									
N_SG	71322	100YR	EX-A14	4664.00	702.13	712.18	708.27	712.77	0.002129	6.15	757.88	226.43	0.41
N_SG	71322	100YR	PC-A14	4664.00	702.13	712.15	708.27	712.75	0.002156	6.18	754.55	226.10	0.41
N_SG	71076	100YR	EX-A14	4664.00	702.11	711.24	708.39	712.08	0.003497	7.37	632.61	99.44	0.52
N_SG	71076	100YR	PC-A14	4664.00	702.11	711.19	708.39	712.05	0.003578	7.43	627.47	99.11	0.52
N_SG	70782			Bridge									
N_SG	70556	100YR	EX-A14	4664.00	702.09	711.16	707.09	711.29	0.000721	2.91	1604.50	317.32	0.23
N_SG	70556	100YR	PC-A14	4664.00	702.09	711.16	707.09	711.29	0.000721	2.91	1604.50	317.32	0.23
N_SG	69916	100YR	EX-A14	4664.00	701.58	709.43		710.26	0.004895	7.30	638.69	110.95	0.54
N_SG	69916	100YR	PC-A14	4664.00	701.58	709.43		710.26	0.004895	7.30	638.69	110.95	0.54

NOTES:

1. THE D B WOOD CROSSING OF SAN GABRIEL RIVER IS LOCATED IN A FEMA ZONE AE AREA IN WILLIAMSON COUNTY ON MAP NUMBER 48491C0290E EFFECTIVE SEPTEMBER 26, 2008. THE EXISTING HYDROLOGIC AND HYDRAULIC MODELS FOR MIDDLE FORK SAN GABRIEL WERE OBTAINED FROM WILLIAMSON COUNTY.
2. FLOWS SHOWN ARE BASED ON EXISTING LAND CONDITIONS. PROPOSED FLOWS SHOWN ARE BASED ON FULLY DEVELOPED CONDITIONS.
3. ATLAS-14 PRECIPITATION DATA INCORPORATED INTO HYDROLOGIC CALCULATIONS.
4. FLOWS ARE THE SAME IN EXISTING A AND PROPOSED CONDITIONS.
5. REFER TO D B WOOD FLOODPLAIN STUDY DATED DECEMBER 2023 FOR MORE INFORMATION.

Hudson Stone 4/21/2024

STATE OF TEXAS · HUDSON D. STONE · 142690 · LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

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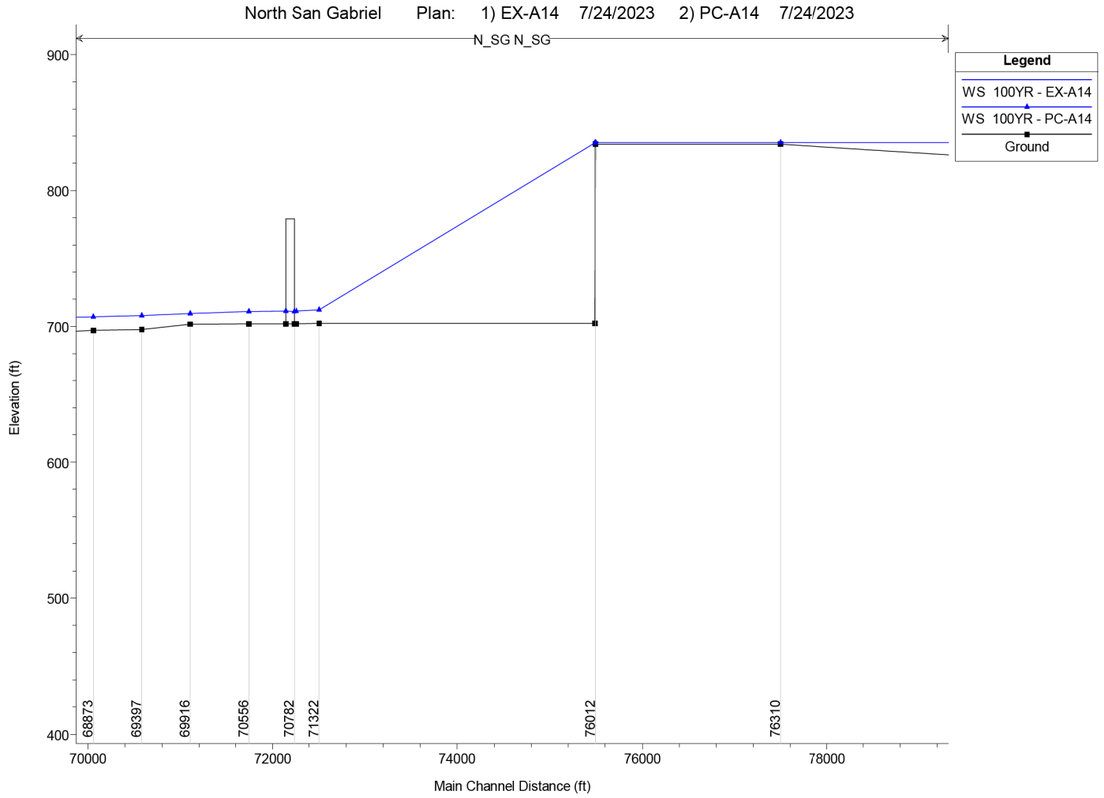
D B WOOD ROAD

HYDRAULIC DATA BRIDGE

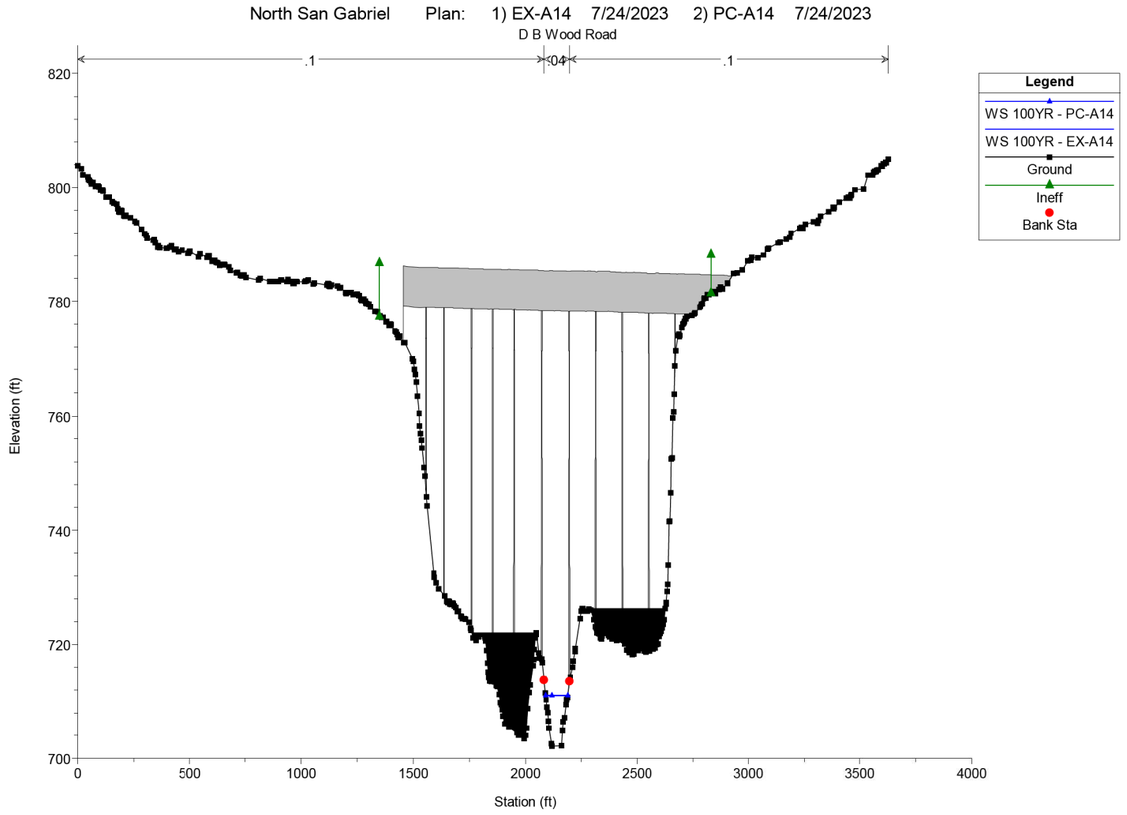
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HEC-RAS WATER SURFACE PROFILES



HEC-RAS PROP BRIDGE PROFILE



HEC-RAS PROP BRIDGE CROSS SECTION SUMMARY

Plan: PC-A14 N_SG N_SG RS: 70782 Profile: 100YR

E.G. US. (ft)	712.05	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	711.19	E.G. Elev (ft)	711.95	711.58
Q Total (cfs)	4664.00	W.S. Elev (ft)	711.05	711.45
Q Bridge (cfs)	4664.00	Crit W.S. (ft)	708.39	707.17
Q Weir (cfs)		Max Chl Dpth (ft)	8.94	9.36
Weir Sta Lft (ft)		Vel Total (ft/s)	7.60	2.86
Weir Sta Rgt (ft)		Flow Area (sq ft)	613.80	1632.34
Weir Submerg		Froude # Chl	0.54	0.22
Weir Max Depth (ft)		Specif Force (cu ft)	3474.45	5688.67
Min El Weir Flow (ft)	777.27	Hydr Depth (ft)	6.25	5.29
Min El Prs (ft)	779.19	W.P. Total (ft)	101.63	340.40
Delta EG (ft)	0.76	Conv. Total (cfs)	75616.9	172436.0
Delta WS (ft)	0.03	Top Width (ft)	98.23	308.79
BR Open Area (sq ft)	53878.52	Frctn Loss (ft)	0.14	0.29
BR Open Vel (ft/s)	7.60	C & E Loss (ft)	0.23	0.00
BR Sluice Coef		Shear Total (lb/sq ft)	1.43	0.22
BR Sel Method	Energy only	Power Total (lb/ft s)	10.90	0.63

Hudson Stone
4/21/2024

STATE OF TEXAS
HUDSON D. STONE
142690
LICENSED
PROFESSIONAL ENGINEER

NOTES:

1. HYDRAULICS ANALYZED USING HEC-RAS VERSION 5.0.7 WITH STEADY FLOW ANALYSIS.
2. THE D B WOOD CROSSING OF SAN GABRIEL RIVER IS LOCATED IN A FEMA ZONE AE AREA IN WILLIAMSON COUNTY ON MAP NUMBER 48491C0290E EFFECTIVE SEPTEMBER 26, 2008. THE EXISTING HYDROLOGIC AND HYDRAULIC MODELS FOR MIDDLE FORK SAN GABRIEL WERE OBTAINED FROM WILLIAMSON COUNTY.
3. REFER TO D B WOOD FLOODPLAIN STUDY DATED DECEMBER 2023 FOR MORE INFORMATION.

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D B WOOD ROAD

HYDRAULIC DATA BRIDGE

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EXISTING CULVERT CC-SG-D

SUMMARY OF CULVERT FLOWS AT CROSSING: CC-SG-D

HEADWATER ELEVATION (FT)	DISCHARGE NAMES	TOTAL DISCHARGE (CFS)	CULVERT D EXIST DISCHARGE (CFS)	ROADWAY DISCHARGE (CFS)	ITERATIONS
827.74	2 year	38.20	38.20	0.00	1
828.05	5 year	47.40	47.40	0.00	1
828.31	10 year	55.30	55.30	0.00	1
828.66	25 year	66.50	66.50	0.00	1
828.94	50 year	75.40	75.40	0.00	1
829.25	100 year	84.80	84.80	0.00	1
831.04	Overtopping	130.23	130.23	0.00	Overtopping

Site Data - Culvert D Exisiting

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 825.52 ft
Outlet Station: 66.19 ft
Outlet Elevation: 824.36 ft
Number of Barrels: 2

Culvert Data Summary - Culvert D Existing

Barrel Shape: Circular
Barrel Diameter: 2.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0130
Culvert Type: Straight
Inlet Configuration: Square Edge with Headwall (Ke=0.5)
Inlet Depression: None

Tailwater Channel Data - CC-SG-D

Tailwater Channel Option: Irregular Channel
Channel Slope: Irregular Channel
Channel Manning's n: 0.0350
Channel Invert Elevation: 824.36 ft

Irregular Roadway Cross-Section: CC-SG-D

COORD NO.	STATION (FT)	ELEVATION (FT)
0	-50	832.05
1	0	831.03
2	50	830.23

Roadway Data for Crossing: CC-SG-D

Roadway Profile Shape: Irregular Roadway Shape (coordinates)
Roadway Surface: Paved
Roadway Top Width: 45.88 ft

CULVERT SUMMARY TABLE: CC-SG-D

DISCHARGE NAMES	TOTAL DISCHARGE (CFS)	CULVERT D DISCHARGE (CFS)	HEADWATER ELEVATION (FT)	INLET CONTROL DEPTH (FT)	OUTLET CONTROL DEPTH (FT)	FLOW TYPE	NORMAL DEPTH (FT)	CRITICAL DEPTH (FT)	OUTLET DEPTH (FT)	TAILWATER DEPTH (FT)	OUTLET VELOCITY (FT/S)	TAILWATER VELOCITY (FT/S)
2 year	38.20	38.20	827.74	2.02	0*	1-S2n	0.55	1.22	0.59	0.16	12.88	2.89
5 year	47.40	47.40	828.05	2.33	0*	1-S2n	0.64	1.41	0.69	0.18	13.66	3.13
10 year	55.30	55.30	828.31	2.59	0*	1-S2n	0.71	1.56	0.78	0.19	14.25	3.31
25 year	66.50	66.50	828.66	2.94	0*	1-S2n	0.80	1.76	0.89	0.21	14.87	3.53
50 year	75.40	75.40	828.94	3.22	0*	5-S2n	0.87	1.92	0.98	0.22	15.32	3.70
100 year	84.80	84.80	829.25	3.53	0*	5-S2n	0.94	2.07	1.08	0.23	15.75	3.85

DOWNSTREAM CHANNEL RATING CURVE: CC-SG-D

DISCHARGE NAMES	FLOW (CFS)	WATER SURFACE ELEV (FT)	DEPTH (FT)	VELOCITY (FT/S)	SHEAR (PSF)	FROUDE NUMBER
2 YR	38.20	821.41	0.16	2.89	0.91	1.55
5 YR	47.40	821.42	0.18	3.13	1.00	1.58
10 YR	55.30	821.44	0.19	3.31	1.07	1.6
25 YR	66.50	821.45	0.21	3.53	1.16	1.63
50 YR	75.40	821.47	0.22	3.70	1.23	1.65
100 YR	84.80	821.48	0.23	3.85	1.3	1.66

PROPOSED CULVERT CC-SG-D

SUMMARY OF CULVERT FLOWS AT CROSSING: CC-SG-D PROPOSED

HEADWATER ELEVATION (FT)	DISCHARGE NAMES	TOTAL DISCHARGE (CFS)	CULVERT D PROPOSED DISCHARGE (CFS)	ROADWAY DISCHARGE (CFS)	ITERATIONS
827.74	2 year	38.20	38.20	0.00	1
828.05	5 year	47.40	47.40	0.00	1
828.31	10 year	55.30	55.30	0.00	1
828.66	25 year	66.50	66.50	0.00	1
828.94	50 year	75.40	75.40	0.00	1
829.25	100 year	84.80	84.80	0.00	1
831.04	Overtopping	130.23	130.23	0.00	Overtopping

Site Data - Culvert D Proposed

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 825.72 ft
Outlet Station: 93.00 ft
Outlet Elevation: 822.43 ft
Number of Barrels: 1

Culvert Data Summary - Culvert D Proposed

Barrel Shape: Concrete Box
Barrel Span: 5.00 ft
Barrel Rise: 3.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: Square Edge (90 & 15 degree flare) Wingwall (Ke=0.5)
Inlet Depression: None

Tailwater Channel Data - CC-SG-D PROPOSED

Tailwater Channel Option: Irregular Channel
Channel Slope: Irregular Channel
Channel Manning's n: 0.0350
Channel Invert Elevation: 822.36 ft

Irregular Roadway Cross-Section: CC-SG-D PROPOSED

COORD NO.	STATION (FT)	ELEVATION (FT)
0	-50	832.81
1	0	831.53
2	50	831.04

Roadway Data for Crossing: CC-SG-D PROPOSED

Roadway Profile Shape: Irregular Roadway Shape (coordinates)
Irregular Roadway Cross-Section:
Roadway Surface: Paved
Roadway Top Width: 61.00 ft

CULVERT SUMMARY TABLE: CC-SG-D PROPOSED

DISCHARGE NAMES	TOTAL DISCHARGE (CFS)	CULVERT D DISCHARGE (CFS)	HEADWATER ELEVATION (FT)	INLET CONTROL DEPTH (FT)	OUTLET CONTROL DEPTH (FT)	FLOW TYPE	NORMAL DEPTH (FT)	CRITICAL DEPTH (FT)	OUTLET DEPTH (FT)	TAILWATER DEPTH (FT)	OUTLET VELOCITY (FT/S)	TAILWATER VELOCITY (FT/S)
2 year	38.20	38.20	827.74	2.02	0*	1-S2n	0.55	1.22	0.59	0.16	12.88	2.89
5 year	47.40	47.40	828.05	2.33	0*	1-S2n	0.64	1.41	0.69	0.18	13.66	3.13
10 year	55.30	55.30	828.31	2.59	0*	1-S2n	0.71	1.56	0.78	0.19	14.25	3.31
25 year	66.50	66.50	828.66	2.94	0*	1-S2n	0.80	1.76	0.89	0.21	14.87	3.53
50 year	75.40	75.40	828.94	3.22	0*	5-S2n	0.87	1.92	0.98	0.22	15.32	3.70
100 year	84.80	84.80	829.25	3.53	0*	5-S2n	0.94	2.07	1.08	0.23	15.75	3.85

DOWNSTREAM CHANNEL RATING CURVE: CC-SG-D PROPOSED

DISCHARGE NAMES	FLOW (CFS)	WATER SURFACE ELEV (FT)	DEPTH (FT)	VELOCITY (FT/S)	SHEAR (PSF)	FROUDE NUMBER
2 YR	38.20	821.41	0.16	2.89	0.91	1.55
5 YR	47.40	821.42	0.18	3.13	1.00	1.58
10 YR	55.30	821.44	0.19	3.31	1.07	1.6
25 YR	66.50	821.45	0.21	3.53	1.16	1.63
50 YR	75.40	821.47	0.22	3.70	1.23	1.65
100 YR	84.80	821.48	0.23	3.85	1.3	1.66

Malia Caldwell
4/21/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

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D B WOOD ROAD

HYDRAULIC DATA
CULVERT CC-SG-D

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EXISTING CULVERT CC-SG-E

SUMMARY OF CULVERT FLOWS AT CROSSING: CC-SG-E

HEADWATER ELEVATIO (FT)	DISCHARGE NAMES	TOTAL DISCHARGE (CFS)	CULVERT E EXIST DISCHARGE (CFS)	ROADWAY DISCHARGE (CFS)	ITERATIONS
780.17	2 year	48.60	48.60	0.00	1
780.55	5 year	66.10	66.10	0.00	1
780.86	10 year	81.80	81.80	0.00	1
781.42	25 year	110.40	110.40	0.00	1
781.97	50 year	135.80	135.80	0.00	1
782.79	100 year	167.30	167.30	0.00	1
784.64	Overtopping	221.53	221.53	0.00	Overtopping

Site Data - Culvert E Existing

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 778.33 ft
Outlet Station: 70.51 ft
Outlet Elevation: 777.86 ft
Number of Barrels: 3

Culvert Data Summary - Culvert E Existing

Barrel Shape: Circular
Barrel Diameter: 3.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0130
Culvert Type: Straight
Inlet Configuration: Square Edge with Headwall (Ke=0.5)
Inlet Depression: None

Tailwater Channel Data - CC-SG-E

Tailwater Channel Option: Irregular Channel
Channel Slope: 0.1200
Channel Manning's n: 0.0600
Channel Invert Elevation: 777.86 ft

Irregular Roadway Cross-Section: CC-SG-E

COORD NO.	STATION (FT)	ELEVATION (FT)
0	-50	778.75
1	0	776.87
2	50	776.88

Roadway Data for Crossing: CC-SG-E

Roadway Profile Shape: Irregular Roadway Shape (coordinates)
Roadway Surface: Paved
Roadway Top Width: 44.00 ft

CULVERT SUMMARY TABLE: CC-SG-E

DISCHARGE NAMES	TOTAL DISCHARGE (CFS)	CULVERT E DISCHARGE (CFS)	HEADWATER ELEVATION (FT)	INLET CONTROL DEPTH (FT)	OUTLET CONTROL DEPTH (FT)	FLOW TYPE	NORMAL DEPTH (FT)	CRITICAL DEPTH (FT)	OUTLET DEPTH (FT)	TAILWATER DEPTH (FT)	OUTLET VELOCITY (FT/S)	TAILWATER VELOCITY (FT/S)
2 Year	48.60	48.60	780.17	1.84	0.979	1-S2n	1.120	1.29	1.13	0.270	6.66	3.100
5 Year	66.10	66.10	780.55	2.22	1.342	1-S2n	1.330	1.51	1.34	0.320	7.22	3.430
10 Year	81.80	81.80	780.86	2.53	1.681	1-S2n	1.500	1.69	1.51	0.350	7.63	3.670
25 Year	110.40	110.40	781.42	3.09	2.348	5-S2n	1.800	1.97	1.82	0.420	8.22	4.030
50 Year	135.80	135.80	781.97	3.64	3.000	5-S2n	2.090	2.19	2.09	0.460	8.6	4.290
100 Year	167.30	167.30	782.79	4.46	4.324	7-M2c	2.520	2.42	2.42	0.520	9.12	4.570

DOWNSTREAM CHANNEL RATING CURVE: CC-SG-E

DISCHARGE NAMES	FLOW (CFS)	WATER SURFACE ELEV (FT)	DEPTH (FT)	VELOCITY (FT/S)	SHEAR (PSF)	FROUDE NUMBER
2 YR	48.60	777.13	0.27	3.10	2.00	1.17
5 YR	66.10	777.18	0.32	3.43	2.36	1.2
10 YR	81.80	777.22	0.35	3.67	2.65	1.22
25 YR	110.40	777.28	0.42	4.03	3.11	1.25
50 YR	135.80	777.33	0.46	4.29	3.48	1.27
100 YR	167.30	777.38	0.52	4.57	3.88	1.29

PROPOSED CULVERT CC-SG-E

SUMMARY OF CULVERT FLOWS AT CROSSING: CC-SG-E PROPOSED

HEADWATER ELEVATION (FT)	DISCHARGE NAMES	TOTAL DISCHARGE (CFS)	CULVERT E PROPOSED DISCHARGE (CFS)	ROADWAY DISCHARGE (CFS)	ITERATIONS
779.55	2 year	29.50	29.50	0.00	1
779.79	5 year	36.60	36.60	0.00	1
779.99	10 year	42.80	42.80	0.00	1
780.25	25 year	51.40	51.40	0.00	1
780.45	50 year	58.30	58.30	0.00	1
780.65	100 year	65.60	65.60	0.00	1
783.81	Overtopping	167.66	167.66	0.00	Overtopping

Site Data - Culvert E Proposed

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 777.98 ft
Outlet Station: 85.10 ft
Outlet Elevation: 777.89 ft
Number of Barrels: 1

Culvert Data Summary - Culvert E Proposed

Barrel Shape: Concrete Box
Barrel Span: 6.00 ft
Barrel Rise: 3.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: Square Edge ($90^{5}/_{64}$) Headwall (Ke=0.5)
Inlet Depression: None

Tailwater Channel Data - CC-SG-E PROPOSED

Tailwater Channel Option: Irregular Channel
Channel Slope: 0.4000
Channel Manning's n: 0.0350
Channel Invert Elevation: 777.88ft

Irregular Roadway Cross-Section: CC-SG-E PROPOSED

COORD NO.	STATION (FT)	ELEVATION (FT)
0	-50	783.86
1	0	783.81
2	50	783.87

Roadway Data for Crossing: CC-SG-E PROPOSED

Roadway Profile Shape: Irregular Roadway Shape (coordinates)
Irregular Roadway Cross-Section:
Roadway Surface: Paved
Roadway Top Width: 62.00 ft

CULVERT SUMMARY TABLE: CC-SG-E PROPOSED

DISCHARGE NAMES	TOTAL DISCHARGE (CFS)	CULVERT DISCHARGE (CFS)	HEADWATER ELEVATION (FT)	INLET CONTROL DEPTH (FT)	OUTLET CONTROL DEPTH (FT)	FLOW TYPE	NORMAL DEPTH (FT)	CRITICAL DEPTH (FT)	OUTLET DEPTH (FT)	TAILWATER DEPTH (FT)	OUTLET VELOCITY (FT/S)	TAILWATER VELOCITY (FT/S)
2 year	29.50	29.50	779.55	1.56	1.57	2-M2c	1.290	0.910	0.910	0.200	5.410	2.620
5 year	36.60	36.60	779.79	1.79	1.81	2-M2c	1.500	1.050	1.050	0.230	5.810	2.820
10 year	42.80	42.80	779.99	1.98	2.01	2-M2c	1.670	1.160	1.160	0.250	6.120	2.970
25 year	51.40	51.40	780.25	2.23	2.27	2-M2c	1.900	1.320	1.320	0.280	6.510	3.160
50 year	58.30	58.30	780.45	2.42	2.47	2-M2c	2.080	1.430	1.430	0.290	6.790	3.290
100 year	65.60	65.60	780.65	2.62	2.67	2-M2c	2.270	1.550	1.550	0.310	7.060	3.420

DOWNSTREAM CHANNEL RATING CURVE: CC-SG-E PROPOSED

DISCHARGE NAMES	FLOW (CFS)	WATER SURFACE ELEV (FT)	DEPTH (FT)	VELOCITY (FT/S)	SHEAR (PSF)	FROUDE NUMBER
2 YR	29.50	777.07	0.2	2.62	1.52	1.12
5 YR	36.60	777.09	0.23	2.82	1.71	1.14
10 YR	42.80	777.11	0.25	2.97	1.86	1.16
25 YR	51.40	777.14	0.28	3.16	2.06	1.18
50 YR	58.30	777.16	0.29	3.29	2.21	1.19
100 YR	65.60	777.18	0.31	3.42	2.35	1.2

Malia Caldwell
4/21/2024

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MALIA S. CALDWELL
147577
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PROFESSIONAL ENGINEER

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HYDRAULIC DATA
CULVERT CC-SG-E

25-Yr Inlet Calculations									
Inlet - ID	Inlet - Profile Type	Inlet - Discharge	Inlet - Capacity	Inlet - By Pass Flow	Inlet - By Pass Node ID	Inlet - Computed Ponded Width	Inlet - Max Ponded Width	Inlet - Computed Ponded Depth	Inlet - Max Ponded Depth
		(cfs)	(cfs)	(cfs)		(ft)	(ft)	(ft)	(ft)
E01	On Grade	3.07	3.02	0.05	E-31	9.43	12.5	0.19	0.5
E02	On Grade	2.3	2.3	0	E-32	8.46	12.5	0.17	0.5
E19	On Grade	1.38	1.38	0	E01	6.97	12.5	0.23	0.5
E20	On Grade	0.61	0.61	0	E02	10.71	12.5	0.11	0.5
E21	On Grade	2.92	2.92	0	E20	8.46	12.5	0.32	0.5
E22	On Grade	5.12	5.12	0	E19	11.39	12.5	0.37	0.5
F01	On Grade	6.97	6.82	0.16	F03	9.4	12.5	0.39	0.5
F02	On Grade	3.67	3.67	0	F04	7.39	12.5	0.31	0.5
F03	On Grade	1.5	1.5	0	F05	10.97	12.5	0.11	0.5
F04	On Grade	0.69	0.69	0	G01	7.32	12.5	0.09	0.5
F05	On Grade	2.46	2.46	0	G01	4.53	12.5	0.21	0.5
G01	On Grade	10	8.79	1.22	H02	9.64	12.5	0.44	0.5
G02	Sag	2.67	13.01	0		4.33	12.5	0.17	0.5
H00	On Grade	10.08	7.76	2.32	H01	8.29	12.5	0.37	0.5
H01	On Grade	2.74	2.74	0	H03	5.09	12.5	0.23	0.5
H02	On Grade	12.9	9	3.9	H03	9.09	12.5	0.41	0.5
H03	On Grade	7.52	6.46	1.06	H04	7.35	12.5	0.34	0.5
H04	On Grade	3.76	3.76	0	H05	5.67	12.5	0.26	0.5
H05	On Grade	1.02	1.02	0	H09	3.57	12.5	0.16	0.5
H06	On Grade	1.95	1.95	0	H07	8.77	12.5	0.18	0.5
H07	On Grade	1.07	1.07	0	H08	8.81	12.5	0.18	0.5
H08	On Grade	0.85	0.85	0	BRIDGE	9.86	12.5	0.2	0.5
H09	On Grade	1.29	1.29	0	BRIDGE	11.51	12.5	0.23	0.5
I01	On Grade	0.92	0.92	0	I02	10.16	12.5	0.2	0.5
I02	On Grade	1.13	1.13	0	I03	10.94	12.5	0.22	0.5
I03	On Grade	1.38	1.38	0	J00	12.07	12.5	0.24	0.5
I04	On Grade	0.48	0.48	0	I02	7.95	12.5	0.16	0.5
J00	Sag	8.78	10.33	0		10.15	12.5	0.45	0.5
J01	Sag	1.87	10.33	0		9.73	12.5	0.16	0.5
K02	On Grade	3.08	3.08	0	J01	7.05	12.5	0.31	0.5
K03	On Grade	6.56	5.87	0.69	J00	8.45	12.5	0.31	0.5
K04	On Grade	2.15	2.09	0.06	K02	10.33	12.5	0.13	0.5
K05	On Grade	8.24	5.77	2.47	K03	9.47	12.5	0.27	0.5
K06	On Grade	3.63	3.42	0.21	K04	7.05	12.5	0.2	0.5
K06A	On Grade	1.46	1.46	0	K06	12.05	12.5	0.24	0.5
K07	On Grade	5.23	4.06	1.17	K05	10.13	12.5	0.2	0.5
K08	On Grade	3.56	3.17	0.38	K06A	8.77	12.5	0.18	0.5
L02	On Grade	5.02	4.65	0.37	K07	8.33	12.5	0.26	0.5
L03	On Grade	2.24	2.12	0.12	K08	12.41	12.5	0.12	0.5
L04	On Grade	5.76	5.49	0.27	I11	7.04	12.5	0.32	0.5
L04A	On Grade	4.97	4.89	0.08	L02	6.72	12.5	0.3	0.5
L05	On Grade	7.9	6.91	0.99	L04A	7.93	12.5	0.36	0.5
L06	On Grade	2.56	2.47	0.08	L04	12.37	12.5	0.15	0.5
L07	Sag	2.76	9.76	0		10.77	12.5	0.22	0.5
L08	On Grade	2.89	2.89	0	L05	10.72	12.5	0.21	0.5
L10	On Grade	2.81	2.81	0	I15	11.23	12.5	0.22	0.5
L11	On Grade	2.89	2.89	0	L08	11.55	12.5	0.23	0.5
L12	On Grade	1.4	1.4	0	I19	12.1	12.5	0.15	0.5
L13	Sag	4.29	10.33	0		7.61	12.5	0.28	0.5
L14	On Grade	1.49	1.49	0	L12	5.25	12.5	0.23	0.5

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_HYDRADATA_SS_01.dgn
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Malia Caldwell
4/21/2024

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147577
LICENSED
PROFESSIONAL ENGINEER

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HYDRAULIC DATA
STORM SEWER

100-Yr Inlet Calculations									
Inlet - ID	Inlet - Profile Type	Inlet - Discharge	Inlet - Capacity	Inlet - By Pass Flow	Inlet - By Pass Node ID	Inlet - Computed Ponded Width	Inlet - Max Ponded Width	Inlet - Computed Ponded Depth	Inlet - Max Ponded Depth
		(cfs)	(cfs)	(cfs)		(ft)	(ft)	(ft)	(ft)
E01	On Grade	4.04	3.74	0.31	E-31	10.45	N/A	0.21	0.5
E02	On Grade	3.03	2.98	0.04	E-32	9.38	N/A	0.19	0.5
E19	On Grade	1.83	1.83	0	E01	7.75	N/A	0.25	0.5
E20	On Grade	0.8	0.8	0	E02	11.88	N/A	0.12	0.5
E21	On Grade	3.84	3.84	0	E20	9.37	N/A	0.35	0.5
E22	On Grade	6.74	6.72	0.01	E19	12.63	N/A	0.41	0.5
F01	On Grade	9.18	8.43	0.75	F03	10.42	N/A	0.44	0.5
F02	On Grade	4.85	4.85	0	F04	8.2	N/A	0.34	0.5
F03	On Grade	2.51	2.34	0.17	F05	13.31	N/A	0.13	0.5
F04	On Grade	0.91	0.91	0	G01	8.12	N/A	0.1	0.5
F05	On Grade	3.42	3.4	0.01	G01	5.12	N/A	0.23	0.5
G01	On Grade	13.19	10.54	2.65	H02	10.7	N/A	0.49	0.5
G02	Sag	3.51	13.01	0		4.8	N/A	0.21	0.5
H00	On Grade	13.34	9.17	4.16	H01	9.21	N/A	0.41	0.5
H01	On Grade	4.72	4.58	0.14	H03	6.24	N/A	0.28	0.5
H02	On Grade	18.03	10.88	7.15	H03	10.31	N/A	0.46	0.5
H03	On Grade	12.08	8.7	3.38	H04	8.77	N/A	0.4	0.5
H04	On Grade	6.93	6.11	0.82	H05	7.13	N/A	0.32	0.5
H05	On Grade	2.17	2.17	0	H09	4.73	N/A	0.22	0.5
H06	On Grade	2.57	2.57	0	H07	9.72	N/A	0.19	0.5
H07	On Grade	1.41	1.41	0	H08	9.77	N/A	0.2	0.5
H08	On Grade	1.12	1.12	0	BRIDGE	10.93	N/A	0.22	0.5
H09	On Grade	1.7	1.7	0	BRIDGE	12.76	N/A	0.26	0.5
I01	On Grade	1.22	1.22	0	I02	11.26	N/A	0.23	0.5
I02	On Grade	1.48	1.48	0	I03	12.13	N/A	0.24	0.5
I03	On Grade	1.82	1.82	0	J00	13.38	N/A	0.27	0.5
I04	On Grade	0.63	0.63	0	I02	8.82	N/A	0.18	0.5
J00	Sag	13.05	10.33	0		13.22	N/A	*0.58	0.5
J01	Sag	2.46	10.33	0		10.79	N/A	0.19	0.5
K02	On Grade	4.38	4.38	0	J01	8.04	N/A	0.36	0.5
K03	On Grade	10.22	7.83	2.4	J00	9.98	N/A	0.37	0.5
K04	On Grade	3.18	2.78	0.4	K02	11.95	N/A	0.15	0.5
K05	On Grade	11.93	7.09	4.84	K03	10.88	N/A	0.31	0.5
K06	On Grade	4.78	4.16	0.62	K04	7.81	N/A	0.22	0.5
K06A	On Grade	2.41	2.41	0	K06	14.55	N/A	0.29	0.5
K07	On Grade	7.67	5.07	2.61	K05	11.7	N/A	0.23	0.5
K08	On Grade	4.9	3.91	1	K06A	9.89	N/A	0.2	0.5
L02	On Grade	7.25	5.98	1.28	K07	9.57	N/A	0.3	0.5
L03	On Grade	2.95	2.58	0.38	K08	13.75	N/A	0.14	0.5
L04	On Grade	7.82	6.86	0.96	I11	7.89	N/A	0.36	0.5
L04A	On Grade	7.38	6.63	0.75	L02	7.79	N/A	0.35	0.5
L05	On Grade	10.43	8.29	2.14	L04A	8.79	N/A	0.4	0.5
L06	On Grade	3.37	3.03	0.34	L04	13.71	N/A	0.16	0.5
L07	Sag	3.63	9.76	0		12.94	N/A	0.26	0.5
L08	On Grade	3.8	3.78	0.02	L05	11.89	N/A	0.24	0.5
L10	On Grade	3.7	3.7	0	I15	12.45	N/A	0.25	0.5
L11	On Grade	3.8	3.8	0	L08	12.8	N/A	0.26	0.5
L12	On Grade	1.84	1.84	0	I19	13.42	N/A	0.16	0.5
L13	Sag	5.65	10.33	0		8.43	N/A	0.33	0.5
L14	On Grade	1.96	1.96	0	L12	5.81	N/A	0.25	0.5

*PONDED DEPTH EXCEEDS CURB HEIGHT BUT MAINTAINED IN ROW. ROW IS 0.60' ABOVE GUTTER FLOWLINE.

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4/21/2024

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HYDRAULIC DATA
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25-Yr Link Calculations											
Link - ID	Link - Upstream Node	Link - Downstream Node	Link - Invert Upstream	Link - Invert Downstream	Link - Actual Length	Link - Hydraulic Length	Link - Slope	Link - Number of Barrels	Link - Library Description	Link - Discharge	Link - Uniform Velocity
					(ft)	(ft)	(%)			(cfs)	(ft/s)
EXIST LAT E-01	E01	EXIST E-02	839.31	839.09	54	55.25	0.4	1	18" RCP	3.07	3.93
LAT E-02	E02	EXIST E-02	839.12	839.09	7.5	8.25	0.4	1	18" RCP	2.3	3.62
LAT E-19	E19	E20	844.12	843.97	36	37.5	0.4	1	18" RCP	1.38	3.14
LAT E-20	E20	MH-E-19	843.97	843.89	16.5	19.25	0.4	1	18" RCP	1.99	3.48
LAT F-03	F03	F04	842.00	839.83	36	37.5	5.8	1	18" RCP	1.34	8.03
LAT F-04	F04	MH-F-02	839.83	839.00	16.5	19.25	4.29	1	18" RCP	2.03	8.16
LAT F-05	F05	MH-F-04	830.75	829.96	36.91	39.66	2	1	18" RCP	2.46	6.59
LAT G-02	G02	G-3 90 DEG BEND	825.10	824.95	79.17	81.17	0.19	1	18" RCP	2.67	2.92
LAT G-02B	G-3 90 DEG BEND	MH-G-1	824.95	824.60	83	85	0.4	1	18" RCP	2.67	3.77
LAT H-01	H01	MH-H-01	801.62	800.80	26.5	29.25	2.8	1	18" RCP	0.42	4.4
LAT H-02	H02	MH-H-01	800.34	800.30	5.56	8.31	0.4	1	24" RCP	11.68	5.45
LAT H-03	H03	H-02 45 DEG WYE	793.47	793.40	15.01	15.76	0.4	1	18" RCP	3.62	4.11
LAT H-04	H04	MH-H-03	787.61	787.56	9.67	12.42	0.4	1	18" RCP	2.7	3.77
LAT H-05	H05	PJB-H-04	784.62	784.58	10.26	11.01	0.4	1	18" RCP	1.02	2.9
LAT H-06	H06	MH-H-05	782.00	781.77	55.28	58.03	0.4	1	18" RCP	1.95	3.47
LAT H-07	H07	MH-H-06	781.52	781.29	54.92	57.67	0.4	1	18" RCP	1.07	2.93
LAT H-08	H08	PJB-H-07	781.21	781.05	38.5	41.25	0.4	1	18" RCP	0.85	2.73
LAT I-01	I01	I-02 90 DEG TEE	777.57	777.45	7.47	8.22	1.5	1	18" RCP	0.92	4.47
LAT I-02	I02	I-03 45 DEG WYE	777.91	777.82	11.1	11.85	0.8	1	18" RCP	1.13	3.8
LAT I-04A	I04	I-05 45 DEG BEND	777.73	777.63	10.17	10.92	0.93	1	18" RCP	0.48	3.1
LAT I-04B	I-05 45 DEG BEND	MH-01B	777.63	777.31	32.44	34.44	0.93	1	18" RCP	0.48	3.12
LAT K-02	K02	K-03 45 DEG WYE	781.00	780.07	26.61	27.36	3.41	1	18" RCP	3.02	8.45
LAT K-03	K03	MH-K-04	783.00	782.51	52.5	55.25	0.88	1	24" RCP	4.09	5.51
LAT K-04	K04	MH-K-05	787.62	786.48	8.61	11.36	10	1	18" RCP	1.94	10.86
LAT K-05	K05	MH-K-06	796.00	795.00	52	55.25	1.81	1	18" RCP	7.08	8.49
LAT K-06	K06	MH-K-06	795.50	795.00	5	8.25	6.06	1	18" RCP	3.63	10.93
LAT K-06A	K06A	MH-K-07	814.00	813.00	5	8.25	12.12	1	18" RCP	1.07	9.73
LAT K-07	K07	K-08 90 DEG TEE	822.00	821.00	54.5	55.25	1.81	1	18" RCP	4.86	7.7
LAT L-01	L01	L01A	838.48	836.50	8	8	23.75	1	30" RCP	42.91	34.36
LAT L-01A	L01A	PJB-L-01	836.50	834.53	19.5	22	6.68	1	30" RCP	42.91	21.69
LAT L-02	L02	L03	836.19	836.01	36	37.5	0.5	1	24" RCP	6.5	5.1
LAT L-03	L03	PJB-L-03	836.01	835.91	16.5	19.25	0.5	1	24" RCP	9.45	5.62
LAT L-04	L04	MH-L-04	842.51	842.14	16.5	19.25	1.91	1	24" RCP	12.71	10.01
LAT L-04A	L04A	L04	843.00	842.51	36	37.5	1.31	1	24" RCP	5.23	6.84
LAT L-05	L05	MH-L-05	846.91	845.32	76.51	79.26	2	1	24" RCP	10.59	9.68
LAT L-06	L06	L-06 45 DEG WYE	857.39	856.24	10.26	11.51	10	1	18" RCP	3.37	12.77
LAT L-07	L07	MH-L-07	861.92	857.99	75	78.5	5	1	18" RCP	3.63	10.21
LAT L-08	L08	MH-L-08	860.97	859.35	63.5	66.25	2.45	1	36" RCP	65.19	16.57
LAT L-09	L09	L08	863.68	860.97	13	13.75	19.68	1	36" RCP	61.6	35
LAT L-10	L10	L-10 45 DEG WYE	862.21	861.64	10.61	11.36	5	1	18" RCP	3.7	10.26
LAT L-11	L11	MH-L-11	863.48	862.55	90.63	93.38	1	1	18" RCP	3.8	5.8
LAT L-12	L12	L-12 45 DEG WYE	865.54	863.76	44.78	45.53	3.91	1	18" RCP	1.84	7.67
LAT L-13	L13	L-13 45 DEG WYE	864.36	864.25	26.61	27.86	0.4	1	18" RCP	5.65	4.51
EXIST TRUNK E-03	EXIST E-02	EXIST E-03	838.59	837.52	85.01	85.01	1.26	1	24" RCP	14.72	8.9
TRUNK E-19	MH-E-19	EXIST E-02	843.89	839.09	288.71	290.71	1.65	1	18" RCP	9.79	8.86
TRUNK E-20	E-20 90 DEG BEND	MH-E-19	844.21	843.89	98.49	100.49	0.32	1	18" RCP	7.99	4.64
TRUNK E-21	E21	E-20 90 DEG BEND	844.29	844.21	18.5	19.25	0.4	1	18" RCP	7.99	4.64
TRUNK E-22	E22	E21	844.46	844.32	36	37.5	0.38	1	18" RCP	5.12	4.36
TRUNK F-01	F01	F02	842.53	841.78	36	37.5	2	1	18" RCP	6.97	8.78
TRUNK F-02	F02	F-01 90 DEG BEND	841.79	841.41	18.5	19.25	2	1	18" RCP	10.37	9.66
TRUNK F-03	F-01 90 DEG BEND	MH-F-02	841.41	839.00	120.33	122.33	1.97	1	18" RCP	10.37	9.62
TRUNK F-04	MH-F-02	PJB F-03	839.00	833.50	161.89	165.39	3.33	1	18" RCP	12.21	12.21
TRUNK F-05	PJB F-03	MH-F-04	833.50	829.98	102.29	105.79	3.33	1	18" RCP	12.21	12.23
TRUNK F-06	MH-F-04	PJB-F-05	829.46	828.44	110.91	113.3	0.9	1	24" RCP	14.35	7.78
TRUNK F-07	PJB-F-05	F-OUT	826.92	823.82	160.42	160.42	1.93	1	24" RCP	14.35	10.38
TRUNK G-01	MH-G-1	G-OUT	824.12	824.03	28.58	30.58	0.3	1	24" RCP	12.25	4.86
TRUNK G-02	G-2 45 DEG BEND	MH-G-1	824.76	824.60	49.97	52.28	0.3	1	18" RCP	10	5.81
TRUNK G-03	G01	G-2 45 DEG BEND	824.81	824.76	10.62	11.37	0.47	1	18" RCP	10	5.81
TRUNK H-00	H00	H-00 90 DEG BEND	803.55	802.47	28.5	29.25	3.7	1	18" RCP	10.08	12.13
TRUNK H-01	H-00 90 DEG BEND	MH-H-01	802.47	800.80	59.48	61.48	2.71	1	18" RCP	10.08	10.79
TRUNK H-02	MH-H-01	H-02 45 DEG WYE	800.30	792.90	262.31	264.3	2.8	1	24" RCP	21.6	13.24
TRUNK H-03	H-02 45 DEG WYE	MH-H-03	792.90	787.06	199.1	201.6	2.9	1	24" RCP	24.88	13.88
TRUNK H-04	MH-H-03	PJB-H-04	786.56	783.58	96.74	99.24	3	1	30" RCP	27.17	14.31
TRUNK H-05	PJB-H-04	MH-H-05	783.57	780.77	222.14	224.14	1.25	1	30" RCP	28.01	10.42
TRUNK H-06	MH-H-05	MH-H-06	780.23	779.79	106.5	110.5	0.4	1	36" RCP	29.43	6.83
TRUNK H-07	MH-H-06	PJB-H-07	772.59	772.34	45.5	49.5	0.49	1	36" RCP	30.12	7.44
TRUNK H-08	PJB-H-07	H09	772.35	772.34	6	8.75	0.11	1	36" RCP	30.77	4.47
TRUNK H-09	H09	H-08 45 DEG BEND	772.34	772.30	13	13.75	0.31	1	36" RCP	31.9	6.29

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25-Yr Link Calculations											
Link - ID	Link - Upstream Node	Link - Downstream Node	Link - Invert Upstream	Link - Invert Downstream	Link - Actual Length	Link - Hydraulic Length	Link - Slope	Link - Number of Barrels	Link - Library Description	Link - Discharge	Link - Uniform Velocity
					(ft)	(ft)	(%)			(cfs)	(ft/s)
TRUNK H-10	H-08 45 DEG BEND	H-09 45 DEG BEND	772.3	772.23	20.51	20.51	0.34	1	36" RCP	31.9	6.61
TRUNK H-11	H-09 45 DEG BEND	H-OUT	772.23	771.73	145.35	145.35	0.34	1	36" RCP	31.9	6.61
TRUNK I-01	I-01 45 DEG BEND	I-OUT	776.33	775.85	40.56	40.56	1.18	1	18" RCP	3.91	6.2
TRUNK I-01A	MH-I-01	I-01A 45 DEG BEND	777.31	776.83	41.62	43.62	1.09	1	18" RCP	3.91	6.05
TRUNK I-01B	I-02 90 DEG TEE	MH-I-01	777.45	777.31	33.5	35.5	0.4	1	18" RCP	3.43	4.05
TRUNK I-02	I-01A 45 DEG BEND	I-01 45 DEG BEND	776.83	776.33	43.32	43.32	1.17	1	18" RCP	3.91	6.2
TRUNK I-03	I-03 45 DEG WYE	I-02 90 DEG TEE	777.81	777.45	88.13	88.13	0.4	1	18" RCP	2.51	3.71
TRUNK I-04	I-04 45 DEG BEND	I-03 45 DEG WYE	778.18	777.82	96.32	96.32	0.38	1	18" RCP	1.38	3.09
TRUNK I-05	I03	I-04 45 DEG BEND	778.23	778.18	11.12	11.87	0.4	1	18" RCP	1.38	3.14
TRUNK J-00	J00	J01	779.38	779.23	36	37.5	0.4	1	18" RCP	8.09	4.7
TRUNK J-01	J01	J-01 90 DEG BEND	779.23	779.15	18.5	19.25	0.38	1	18" RCP	9.96	5.78
TRUNK J-02	J-01 90 DEG BEND	J-OUT	779.15	779.04	28.76	28.76	0.4	1	18" RCP	9.96	5.78
TRUNK K-01	K-01 90 DEG BEND	K-OUT	777.91	777.89	19.59	19.6	0.1	1	36" RCP	29.13	4.23
TRUNK K-02	MH-K-02	K-01 90 DEG BEND	778.05	777.91	24.21	26.21	0.53	1	36" RCP	29.13	7.69
TRUNK K-03	K-03 45 DEG WYE	MH-K-02	779.07	778.55	75.62	77.62	0.67	1	30" RCP	29.13	8.27
TRUNK K-04	MH-K-04	K-03 45 DEG WYE	781.97	779.07	288.66	288.66	1	1	30" RCP	26.11	9.44
TRUNK K-05	MH-K-05	MH-K-04	785.45	781.97	139.07	143.07	2.43	1	30" RCP	22.02	12.52
TRUNK K-06	MH-K-06	MH-K-05	794.5	785.95	257.43	261.93	3.26	1	24" RCP	20.08	13.76
TRUNK K-07	MH-K-07	MH-K-06	813	795	445	450	4	1	18" RCP	9.37	12.24
TRUNK K-08	K-08 90 DEG TEE	MH-K-07	821	813	142.49	144.99	5.52	1	18" RCP	8.3	13.35
TRUNK K-09	K08	K-08 90 DEG TEE	821.5	821	7.5	8.25	6.06	1	18" RCP	3.44	10.76
TRUNK L-01	PJB-L-01	L-OUT	833.4	833	97.16	99.66	0.4	1	5'S x 4'H Box Culv	149.57	9.67
TRUNK L-02	PJB-L-02	PJB-L-01	833.49	833.4	18.03	23.03	0.4	1	5'S x 4'H Box Culv	115.22	9.08
TRUNK L-03	PJB-L-03	PJB-L-02	833.86	833.67	46.03	48.03	0.4	1	5'S x 4'H Box Culv	115.22	9.08
TRUNK L-04	MH-L-04	PJB-L-03	841	834.91	353.98	361.97	1.68	1	5'S x 3'H Box Culv	107.73	15.1
TRUNK L-05	MH-L-05	MH-L-04	844.32	841	217.45	219.95	1.51	1	3'S x 3'H Box Culv	96.41	14.2
TRUNK L-06	L-06 45 DEG WYE	MH-L-05	854.74	844.32	543.17	543.47	1.93	1	36" RCP	87.9	16.03
TRUNK L-07	MH-L-07	L-06 45 DEG WYE	856.49	854.74	88.53	90.53	1.93	1	36" RCP	84.87	15.96
TRUNK L-08	MH-L-08	MH-L-07	858.09	856.49	156	160	1	1	36" RCP	81.93	11.89
TRUNK L-09	L-10 45 DEG WYE	MH-L-08	860.14	859.35	59.23	61.23	1.29	1	36" RCP	16.94	9.16
TRUNK L-10	MH-L-11	L-10 45 DEG WYE	861.05	860.14	74.23	76.23	1.2	1	36" RCP	13.24	8.31
TRUNK L-11	L-12 45 DEG WYE	MH-L-11	863.26	862.05	242.22	244.22	0.5	1	24" RCP	9.44	5.61
TRUNK L-12	L-13 45 DEG WYE	L-12 45 DEG WYE	863.75	863.26	98.76	98.76	0.5	1	24" RCP	7.61	5.36
TRUNK L-13	L-14 45 DEG BEND	L-13 45 DEG WYE	863.94	863.75	38.32	38.32	0.5	1	24" RCP	1.96	3.64
TRUNK L-14	L14	L-14 45 DEG BEND	864.19	863.94	49.38	50.13	0.49	1	24" RCP	1.96	3.64

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100-Yr Link Calculations											
Link - ID	Link - Upstream Node	Link - Downstream Node	Link - Invert Upstream	Link - Invert Downstream	Link - Actual Length	Link - Hydraulic Length	Link - Slope	Link - Number of Barrels	Link - Library Description	Link - Discharge	Link - Uniform Velocity
					(ft)	(ft)	(%)			(cfs)	(ft/s)
EXIST LAT E-01	E01	EXIST E-02	839.31	839.09	54.00	55.25	0.40	1	18" RCP	4.04	4.43
LAT E-02	E02	EXIST E-02	839.12	839.09	7.50	8.25	0.40	1	18" RCP	3.03	4.02
LAT E-19	E19	E20	844.12	843.97	36.00	37.50	0.40	1	18" RCP	1.82	3.46
LAT E-20	E20	MH-E-19	843.97	843.89	16.50	19.25	0.40	1	18" RCP	2.62	3.85
LAT F-03	F03	F04	842.00	839.83	36.00	37.50	5.80	1	18" RCP	1.77	3.42
LAT F-04	F04	MH-F-02	839.83	839.00	16.50	19.25	4.29	1	18" RCP	2.67	3.88
LAT F-05	F05	MH-F-04	830.75	829.96	36.91	39.66	2.00	1	18" RCP	3.24	4.12
LAT G-02	G02	G-3 90 DEG BEND	825.10	824.95	79.17	81.17	0.19	1	18" RCP	3.51	4.23
LAT G-02B	G-3 90 DEG BEND	MH-G-1	824.95	824.60	83.00	85.00	0.40	1	18" RCP	3.51	4.23
LAT H-01	H01	MH-H-01	801.62	800.80	26.50	29.25	2.80	1	18" RCP	0.56	2.44
LAT H-02	H02	MH-H-01	800.34	800.30	5.56	8.31	0.40	1	24" RCP	15.38	6.48
LAT H-03	H03	H-02 45 DEG WYE	793.47	793.40	15.01	15.76	0.40	1	18" RCP	4.78	4.69
LAT H-04	H04	MH-H-03	787.61	787.56	9.67	12.42	0.40	1	18" RCP	3.55	4.24
LAT H-05	H05	PJB-H-04	784.62	784.58	10.26	11.01	0.40	1	18" RCP	1.34	3.17
LAT H-06	H06	MH-H-05	782.00	781.77	55.28	58.03	0.40	1	18" RCP	2.57	3.83
LAT H-07	H07	MH-H-06	781.52	781.29	54.92	57.67	0.40	1	18" RCP	1.41	3.22
LAT H-08	H08	PJB-H-07	781.21	781.05	38.50	41.25	0.40	1	18" RCP	1.12	3.01
LAT I-01	I01	I-02 90 DEG TEE	777.57	777.45	7.47	8.22	1.50	1	18" RCP	1.22	3.07
LAT I-02	I02	I-03 45 DEG WYE	777.91	777.82	11.10	11.85	0.80	1	18" RCP	1.48	3.26
LAT I-04A	I04	I-05 45 DEG BEND	777.73	777.63	10.17	10.92	0.93	1	18" RCP	0.63	2.63
LAT I-04B	I-05 45 DEG BEND	MH-I-01	777.63	777.31	32.44	34.44	0.93	1	18" RCP	0.63	2.63
LAT K-02	K02	K-03 45 DEG WYE	781.00	780.07	26.61	27.36	3.41	1	18" RCP	3.98	4.40
LAT K-03	K03	MH-K-04	783.00	782.51	52.50	55.25	0.88	1	24" RCP	5.38	4.45
LAT K-04	K04	MH-K-05	787.62	786.48	8.61	11.36	10.00	1	18" RCP	2.56	3.82
LAT K-05	K05	MH-K-06	796.00	795.00	52.00	55.25	1.81	1	18" RCP	9.32	6.25
LAT K-06	K06	MH-K-06	795.50	795.00	5.00	8.25	6.06	1	18" RCP	4.78	4.69
LAT K-06A	K06A	MH-K-07	814.00	813.00	5.00	8.25	12.12	1	18" RCP	1.41	3.22
LAT K-07	K07	K-08 90 DEG TEE	822.00	821.00	54.50	55.25	1.81	1	18" RCP	6.40	5.24
LAT L-01	L01	L01A	838.48	836.50	8.00	8.00	23.75	1	30" RCP	42.91	9.42
LAT L-01A	L01A	PJB-L-01	836.50	834.53	19.50	22.00	6.68	1	30" RCP	42.91	9.42
LAT L-02	L02	L03	836.19	836.01	36.00	37.50	0.50	1	24" RCP	6.50	4.72
LAT L-03	L03	PJB-L-03	836.01	835.91	16.50	19.25	0.50	1	24" RCP	9.45	5.35
LAT L-04	L04	MH-L-04	842.51	842.14	16.50	19.25	1.91	1	24" RCP	12.71	5.97
LAT L-04A	L04A	L04	843.00	842.51	36.00	37.50	1.31	1	24" RCP	5.23	4.41
LAT L-05	L05	MH-L-05	846.91	845.32	76.51	79.26	2.00	1	24" RCP	10.59	5.57
LAT L-06	L06	L-06 45 DEG WYE	857.39	856.24	10.26	11.51	10.00	1	18" RCP	3.37	4.17
LAT L-07	L07	MH-L-07	861.92	857.99	75.00	78.50	5.00	1	18" RCP	3.63	4.28
LAT L-08	L08	MH-L-08	860.97	859.35	63.50	66.25	2.45	1	36" RCP	65.19	10.05
LAT L-09	L09	L08	863.68	860.97	13.00	13.75	19.68	1	36" RCP	61.60	9.69
LAT L-10	L10	L-10 45 DEG WYE	862.21	861.64	10.61	11.36	5.00	1	18" RCP	3.70	4.29
LAT L-11	L11	MH-L-11	863.48	862.55	90.63	93.38	1.00	1	18" RCP	3.80	4.34
LAT L-12	L12	L-12 45 DEG WYE	865.54	863.76	44.78	45.53	3.91	1	18" RCP	1.84	3.47
LAT L-13	L13	L-13 45 DEG WYE	864.36	864.25	26.61	27.86	0.40	1	18" RCP	5.65	4.99
EXIST TRUNK E-03	EXIST E-02	EXIST E-03	838.59	837.52	85.01	85.01	1.26	1	24" RCP	19.57	7.31
TRUNK E-19	MH-E-19	EXIST E-02	843.89	839.09	288.71	290.71	1.65	1	18" RCP	12.98	7.75
TRUNK E-20	E-20 90 DEG BEND	MH-E-19	844.21	843.89	98.49	100.49	0.32	1	18" RCP	10.53	6.71
TRUNK E-21	E21	E-20 90 DEG BEND	844.29	844.21	18.50	19.25	0.40	1	18" RCP	10.53	6.71
TRUNK E-22	E22	E21	844.46	844.32	36.00	37.50	0.38	1	18" RCP	6.74	5.36
TRUNK F-01	F01	F02	842.53	841.78	36.00	37.50	2.00	1	18" RCP	9.18	6.20
TRUNK F-02	F02	F-01 90 DEG BEND	841.79	841.41	18.50	19.25	2.00	1	18" RCP	13.72	8.09
TRUNK F-03	F-01 90 DEG BEND	MH-F-02	841.41	839.00	120.33	122.33	1.97	1	18" RCP	13.72	8.09
TRUNK F-04	MH-F-02	PJB F-03	839.00	833.50	161.89	165.39	3.33	1	18" RCP	16.17	9.32
TRUNK F-05	PJB F-03	MH-F-04	833.50	829.98	102.29	105.79	3.33	1	18" RCP	16.17	9.32
TRUNK F-06	MH-F-04	PJB-F-05	829.46	828.44	110.91	113.30	0.90	1	24" RCP	19.05	7.20
TRUNK F-07	PJB-F-05	F-OUT	826.92	823.82	160.42	160.42	1.93	1	24" RCP	19.05	7.20
TRUNK G-01	MH-G-1	G-OUT	824.12	824.03	28.58	30.58	0.30	1	24" RCP	16.23	6.64
TRUNK G-02	G-2 45 DEG BEND	MH-G-1	824.76	824.60	49.97	52.28	0.30	1	18" RCP	13.17	7.83
TRUNK G-03	G01	G-2 45 DEG BEND	824.81	824.76	10.62	11.37	0.47	1	18" RCP	13.17	7.83
TRUNK H-00	H00	H-00 90 DEG BEND	803.55	802.47	28.50	29.25	3.70	1	18" RCP	13.34	7.91
TRUNK H-01	H-00 90 DEG BEND	MH-H-01	802.47	800.80	59.48	61.48	2.71	1	18" RCP	13.34	7.91
TRUNK H-02	MH-H-01	H-02 45 DEG WYE	800.30	792.90	262.31	264.30	2.80	1	24" RCP	28.59	9.46
TRUNK H-03	H-02 45 DEG WYE	MH-H-03	792.90	787.06	199.10	201.60	2.90	1	24" RCP	33.01	10.70
TRUNK H-04	MH-H-03	PJB-H-04	786.56	783.58	96.74	99.24	3.00	1	30" RCP	36.10	8.43
TRUNK H-05	PJB-H-04	MH-H-05	783.57	780.77	222.14	224.14	1.25	1	30" RCP	37.24	8.58
TRUNK H-06	MH-H-05	MH-H-06	780.23	779.79	106.50	110.50	0.40	1	36" RCP	39.22	7.67
TRUNK H-07	MH-H-06	PJB-H-07	772.59	772.34	45.50	49.50	0.49	1	36" RCP	40.19	7.75
TRUNK H-08	PJB-H-07	H09	772.35	772.34	6.00	8.75	0.11	1	36" RCP	41.09	7.82
TRUNK H-09	H09	H-08 45 DEG BEND	772.34	772.30	13.00	13.75	0.31	1	36" RCP	42.62	7.95

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STORM SEWER

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FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_HYDRADATA_SS.05.dgn
PLOTTED: 4/22/2024 12:28:45 PM

100-Yr Link Calculations											
Link - ID	Link - Upstream Node	Link - Downstream Node	Link - Invert Upstream	Link - Invert Downstream	Link - Actual Length	Link - Hydraulic Length	Link - Slope	Link - Number of Barrels	Link - Library Description	Link - Discharge	Link - Uniform Velocity
					(ft)	(ft)	(%)			(cfs)	(ft/s)
TRUNK H-10	H-08 45 DEG BEND	H-09 45 DEG BEND	772.30	772.23	20.51	20.51	0.34	1	36" RCP	42.62	7.95
TRUNK H-11	H-09 45 DEG BEND	H-OUT	772.23	771.73	145.35	145.35	0.34	1	36" RCP	42.62	7.95
TRUNK I-01	I-01 45 DEG BEND	I-OUT	776.33	775.85	40.56	40.56	1.18	1	18" RCP	5.15	4.82
TRUNK I-01A	MH-I-01	I-01A 45 DEG BEND	777.31	776.83	41.62	43.62	1.09	1	18" RCP	5.15	4.82
TRUNK I-01B	I-02 90 DEG TEE	MH-I-01	777.45	777.31	33.50	35.50	0.40	1	18" RCP	4.52	4.60
TRUNK I-02	I-01A 45 DEG BEND	I-01 45 DEG BEND	776.83	776.33	43.32	43.32	1.17	1	18" RCP	5.15	4.82
TRUNK I-03	I-03 45 DEG WYE	I-02 90 DEG TEE	777.81	777.45	88.13	88.13	0.40	1	18" RCP	3.30	4.14
TRUNK I-04	I-04 45 DEG BEND	I-03 45 DEG WYE	778.18	777.82	96.32	96.32	0.38	1	18" RCP	1.82	3.45
TRUNK I-05	I03	I-04 45 DEG BEND	778.23	778.18	11.12	11.87	0.40	1	18" RCP	1.82	3.45
TRUNK J-00	J00	J01	779.38	779.23	36.00	37.50	0.40	1	18" RCP	10.65	6.75
TRUNK J-01	J01	J-01 90 DEG BEND	779.23	779.15	18.50	19.25	0.38	1	18" RCP	13.12	7.81
TRUNK J-02	J-01 90 DEG BEND	J-OUT	779.15	779.04	28.76	28.76	0.40	1	18" RCP	13.12	7.81
TRUNK K-01	K-01 90 DEG BEND	K-OUT	777.91	777.89	19.59	19.60	0.10	1	36" RCP	38.36	7.59
TRUNK K-02	MH-K-02	K-01 90 DEG BEND	778.05	777.91	24.21	26.21	0.53	1	36" RCP	38.36	7.59
TRUNK K-03	K-03 45 DEG WYE	MH-K-02	779.07	778.55	75.62	77.62	0.67	1	30" RCP	38.36	8.74
TRUNK K-04	MH-K-04	K-03 45 DEG WYE	781.97	779.07	288.66	288.66	1.00	1	30" RCP	34.38	8.19
TRUNK K-05	MH-K-05	MH-K-04	785.45	781.97	139.07	143.07	2.43	1	30" RCP	28.99	7.50
TRUNK K-06	MH-K-06	MH-K-05	794.50	785.95	257.43	261.93	3.26	1	24" RCP	26.43	8.89
TRUNK K-07	MH-K-07	MH-K-06	813.00	795.00	445.00	450.00	4.00	1	18" RCP	12.34	7.46
TRUNK K-08	K-08 90 DEG TEE	MH-K-07	821.00	813.00	142.49	144.99	5.52	1	18" RCP	10.92	6.86
TRUNK K-09	K08	K-08 90 DEG TEE	821.50	821.00	7.50	8.25	6.06	1	18" RCP	4.53	4.60
TRUNK L-01	PJB-L-01	L-OUT	833.4	833	97.16	99.66	0.4	1	5'S x 4'H Box Culv	149.57	9.87
TRUNK L-02	PJB-L-02	PJB-L-01	833.49	833.4	18.03	23.03	0.4	1	5'S x 4'H Box Culv	115.22	9.05
TRUNK L-03	PJB-L-03	PJB-L-02	833.86	833.67	46.03	48.03	0.4	1	5'S x 4'H Box Culv	115.22	9.05
TRUNK L-04	MH-L-04	PJB-L-03	841	834.91	353.98	361.97	1.68	1	5'S x 3'H Box Culv	107.73	8.85
TRUNK L-05	MH-L-05	MH-L-04	844.32	841	217.45	219.95	1.51	1	3'S x 3'H Box Culv	96.41	10.71
TRUNK L-06	L-06 45 DEG WYE	MH-L-05	854.74	844.32	543.17	543.47	1.93	1	36" RCP	87.90	12.71
TRUNK L-07	MH-L-07	L-06 45 DEG WYE	856.49	854.74	88.53	90.53	1.93	1	36" RCP	84.87	12.33
TRUNK L-08	MH-L-08	MH-L-07	858.09	856.49	156.00	160.00	1.00	1	36" RCP	81.93	11.97
TRUNK L-09	L-10 45 DEG WYE	MH-L-08	860.14	859.35	59.23	61.23	1.29	1	36" RCP	16.94	5.68
TRUNK L-10	MH-L-11	L-10 45 DEG WYE	861.05	860.14	74.23	76.23	1.20	1	36" RCP	13.24	5.26
TRUNK L-11	L-12 45 DEG WYE	MH-L-11	863.26	862.05	242.22	244.22	0.50	1	24" RCP	9.44	5.34
TRUNK L-12	L-13 45 DEG WYE	L-12 45 DEG WYE	863.75	863.26	98.76	98.76	0.50	1	24" RCP	7.61	4.97
TRUNK L-13	L-14 45 DEG BEND	L-13 45 DEG WYE	863.94	863.75	38.32	38.32	0.50	1	24" RCP	1.96	3.32
TRUNK L-14	L14	L-14 45 DEG BEND	864.19	863.94	49.38	50.13	0.49	1	24" RCP	1.96	3.32
TRUNK I-01A	I-01B	I-01A	777.31	776.83	41.62	43.62	1.09	1	18" RCP	3.91	6.05
TRUNK I-01B	I-02	I-01B	777.45	777.31	33.50	35.50	0.40	1	18" RCP	3.43	4.05

Malia Caldwell
4/21/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

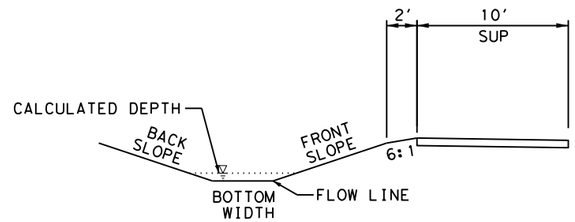
D B WOOD ROAD

HYDRAULIC DATA
STORM SEWER

SHEET 6 OF 6 | 231

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\5. Drainage\DBW_PH2_DRN_HYDRADATA_SS_06.dgn
PLOTTED: 4/21/2024 6:00:58 PM

STATION	FLOW LINE ELEVATION	CONTROLLING TOP DITCH ELEVATION	DITCH GRADE	FLAT BOTTOM WIDTH	NORMAL DEPTH (FT)	FRONT SLOPE (X:1)	BACK SLOPE (X:1)	CHANNEL n	DITCH CAPACITY (CFS)	DESIGN VELOCITY (FPS)	DESIGN Q(25) (CFS)	DELTA CAPACITY CAP - DES (CFS)	ALLOW SHEAR STRESS	DESIGN SHEAR STRESS	DELTA SHEAR ALLOW - DES
DITCH 01/ DA0															
185+50	845.45	846.24	0.26%	0	0.87	3	8	0.04	3.45	1.07	3.41	0.05	3.70	0.14	3.56
186+00	845.32	846.47	0.26%	0	0.87	3	8	0.04	9.40	1.07	4.41	4.99	3.70	0.14	3.56
186+50	845.71	846.81	0.78%	0	0.69	3	8	0.04	14.46	1.59	4.11	10.35	3.70	0.33	3.37
187+00	845.97	847.14	0.52%	0	0.72	3	8	0.04	13.92	1.34	3.82	10.10	3.70	0.23	3.47
187+50	846.24	847.39	0.54%	0	0.69	3	8	0.04	13.55	1.33	3.53	10.02	3.70	0.23	3.47
188+00	846.52	847.75	0.56%	0	0.67	3	8	0.04	16.51	1.32	3.23	13.27	3.70	0.23	3.47
188+50	846.60	847.84	0.16%	0	0.81	3	8	0.04	9.02	0.81	2.94	6.08	3.70	0.08	3.62
189+00	846.77	847.90	0.34%	0	0.68	3	8	0.04	10.26	1.04	2.64	7.61	3.70	0.14	3.56
189+50	846.95	848.35	0.36%	0	0.64	3	8	0.04	18.69	1.03	2.35	16.34	3.70	0.14	3.56
190+00	847.20	848.83	0.50%	0	0.58	3	8	0.04	33.04	1.13	2.06	30.99	3.70	0.18	3.52
190+50	847.32	848.50	0.24%	0	0.62	3	8	0.04	9.67	0.83	1.76	7.91	3.70	0.09	3.61
191+00	847.56	848.70	0.48%	0	0.51	3	8	0.04	12.48	1.02	1.47	11.01	3.70	0.15	3.55
191+50	847.97	848.90	0.82%	0	0.43	3	8	0.04	9.48	1.18	1.18	8.30	3.70	0.22	3.48
192+00	847.59	849.00	0.76%	0	0.39	3	8	0.04	27.68	1.07	0.88	26.80	3.70	0.18	3.52
DITCH 2/DA 1.1															
192+00	847.59	849.00	0.16%	0	0.53	3	8	0.04	12.70	0.60	0.06	12.64	3.70	0.05	3.65
192+50	847.51	849.49	0.16%	0	0.53	3	8	0.04	31.40	0.60	1.06	30.34	3.70	0.05	3.65
193+00	847.32	849.54	0.38%	0	0.52	3	8	0.04	65.66	0.92	1.59	64.07	3.70	0.12	3.58
193+50	847.11	849.48	0.42%	0	0.57	3	8	0.04	82.17	1.03	2.12	80.05	3.70	0.15	3.55
194+00	847.18	849.33	0.14%	0	0.70	6	8	0.04	46.88	0.68	2.65	44.22	3.70	0.06	3.64
194+50	847.25	849.15	0.14%	0	0.75	6	8	0.04	33.71	0.72	3.18	30.53	3.70	0.07	3.63
195+00	847.32	848.98	0.14%	0	0.79	6	8	0.04	23.52	0.74	3.72	19.80	3.70	0.07	3.63
195+50	847.22	848.80	0.20%	0	0.78	6	8	0.04	24.64	0.88	4.25	20.39	3.70	0.10	3.60
196+00	847.00	848.96	0.44%	0	0.72	3	10	0.04	60.06	1.24	4.78	55.28	3.70	0.20	3.50
196+50	846.81	848.28	0.38%	0	0.77	3	10	0.04	25.92	1.20	5.31	20.61	3.70	0.18	3.52
197+00	846.65	848.61	0.32%	0	0.83	3	10	0.04	51.22	1.15	5.84	45.38	3.70	0.16	3.54
197+50	846.48	847.65	0.34%	0	0.90	3	8	0.04	11.26	1.25	6.37	4.89	3.70	0.19	3.51
198+00	846.40	847.81	0.16%	0	1.15	3	6	0.04	10.34	1.01	6.90	3.44	3.70	0.12	3.58
198+50	846.30	847.64	0.20%	0	1.14	5	4	0.04	10.11	1.12	7.43	2.68	3.70	0.14	3.56
199+00	846.00	847.61	0.60%	2.5	0.78	3	3	0.04	32.37	1.84	7.96	24.41	3.70	0.29	3.41
199+50	845.73	847.53	0.54%	0	1.16	3	3	0.04	23.88	1.84	8.49	15.39	3.70	0.39	3.31
200+00	845.66	847.05	0.14%	0	1.31	3	6	0.04	9.31	1.03	9.02	0.29	3.70	0.11	3.59
200+50	844.24	845.68	2.84%	0	0.89	3	3	0.04	30.21	3.52	9.55	20.65	3.70	1.58	2.12
201+00	843.65	845.38	1.18%	0	0.85	3	8	0.04	59.50	2.24	10.08	49.42	3.70	0.62	3.08
201+50	842.23	844.15	2.84%	0	0.73	3	8	0.04	121.87	3.16	10.62	111.26	3.70	1.30	2.40
202+00	841.19	842.65	2.08%	0	0.79	3	8	0.04	50.24	2.84	11.15	39.10	3.70	1.02	2.68
202+50	839.89	840.96	2.60%	0	0.77	3	8	0.04	24.53	3.13	11.68	12.85	3.70	1.25	2.45
203+00	837.88	838.64	4.02%	0	0.72	3	8	0.04	12.25	3.73	12.21	0.04	3.70	1.81	1.89
203+50	834.87	836.50	6.02%	0	0.77	3	5	0.04	82.73	4.72	12.74	69.99	3.70	2.89	0.81
204+00	832.54	835.00	4.66%	0	0.82	3	5	0.04	218.13	4.33	13.27	204.86	3.70	2.38	1.32
204+50	831.23	833.00	2.62%	0	0.93	3	5	0.04	67.99	3.52	13.80	54.19	3.70	1.51	2.19



PROPOSED DITCH TYPICAL SECTION

STA 185+50 TO STA 204+50
STA 207+00 TO STA 226+50
STA 246+50 TO STA 248+00
STA 263+50 TO STA 267+50

NOTES:

1. DITCHES DESIGNED TO 25-YR STORM. SEE HDYROLOGIC DATA - DITCH FOR MORE INFORMATION.

Malia Caldwell
4/21/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

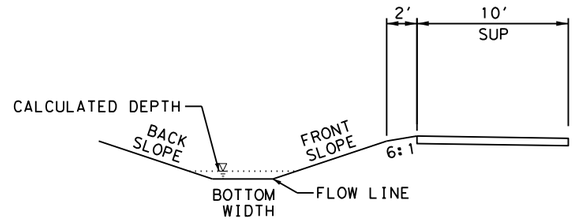
D B WOOD ROAD

DITCH CALCULATIONS

SHEET 1 OF 3 | 232

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - DesignPlan Set\5. Drainage\DBW_PH2_DRN_DITCH CALC_01.dgn
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STATION	FLOW LINE ELEVATION	CONTROLLING TOP DITCH ELEVATION	DITCH GRADE	FLAT BOTTOM WIDTH	NORMAL DEPTH (FT)	FRONT SLOPE (X:1)	BACK SLOPE (X:1)	CHANNEL n	DITCH CAPACITY (CFS)	DESIGN VELOCITY (FPS)	DESIGN Q(25) (CFS)	DELTA CAPACITY CAP - DES (CFS)	ALLOW SHEAR STRESS	DESIGN SHEAR STRESS	DELTA SHEAR ALLOW - DES
DITCH 3/ DA 2															
207+00	830.07	830.91	0.62%	0	0.31	3	10	0.04	7.44	0.84	0.53	6.91	3.70	0.12	3.58
207+50	829.76	830.31	0.62%	0	0.31	3	10	0.04	2.41	0.84	0.53	1.88	3.70	0.12	3.58
208+00	828.71	829.71	2.10%	0	0.29	3	10	0.04	21.81	1.46	0.79	21.02	3.70	0.38	3.32
208+50	828.11	829.11	1.20%	0	0.41	6	3	0.04	11.33	1.39	1.05	10.28	3.70	0.31	3.39
209+00	827.51	828.51	1.20%	0	0.45	6	3	0.04	11.33	1.47	1.32	10.01	3.70	0.33	3.37
209+50	827.04	827.91	0.94%	0	0.50	6	3	0.04	6.92	1.40	1.58	5.34	3.70	0.29	3.41
210+00	826.45	827.20	1.18%	0	0.51	6	3	0.04	5.22	1.59	1.85	3.37	3.70	0.37	3.33
210+50	825.51	826.37	1.88%	0	0.49	6	3	0.04	9.49	1.96	2.11	7.38	3.70	0.57	3.13
211+00	824.53	825.68	1.96%	0	0.51	6	3	0.04	21.02	2.05	2.37	18.65	3.70	0.62	3.08
211+50	823.93	825.08	1.20%	0	0.58	6	3	0.04	16.45	1.75	2.64	13.81	3.70	0.43	3.27
212+00	822.86	824.03	2.14%	0	0.54	6	3	0.04	23.00	2.22	2.90	20.10	3.70	0.72	2.98
212+50	821.96	823.13	1.80%	0	0.67	3	3	0.04	13.82	2.33	3.16	10.66	3.70	0.76	2.94
213+00	821.02	822.24	1.88%	0	0.69	3	3	0.04	15.79	2.41	3.43	12.37	3.70	0.81	2.89
213+50	819.73	821.15	2.58%	0	0.67	3	3	0.04	27.74	2.77	3.69	24.05	3.70	1.07	2.63
214+00	818.83	819.90	1.80%	0	0.73	3	3	0.04	10.89	2.46	3.95	6.94	3.70	0.82	2.88
214+50	817.86	818.72	1.94%	0	0.74	3	3	0.04	6.31	2.57	4.22	2.10	3.70	0.89	2.81
215+00	816.76	817.33	2.20%	3	0.42	3	3	0.04	8.12	2.54	4.48	3.64	3.70	0.57	3.13
215+50	814.90	816.05	3.72%	3	0.37	3	3	0.04	42.77	3.11	4.75	38.03	3.70	0.86	2.84
216+00	813.73	814.67	2.34%	0	0.76	3	3	0.04	8.79	2.88	5.01	3.78	3.70	1.11	2.59
216+50	812.49	813.27	2.48%	0	0.77	3	3	0.04	5.50	2.98	5.27	0.23	3.70	1.19	2.51
217+00	811.19	811.98	2.60%	3	0.44	3	3	0.04	16.65	2.87	5.54	11.12	3.70	0.72	2.98
217+50	810.06	811.48	2.26%	3	0.47	3	3	0.04	52.09	2.77	5.80	46.29	3.70	0.67	3.03
218+00	808.95	810.50	2.22%	1	0.68	3	3	0.04	42.14	2.95	6.06	36.08	3.70	0.94	2.76
218+50	806.93	807.71	4.04%	4	0.37	3	3	0.04	24.90	3.34	6.33	18.57	3.70	0.93	2.77
219+00	805.54	807.21	2.78%	0	0.82	3	3	0.04	44.37	3.29	6.59	37.78	3.70	1.42	2.28
219+50	804.09	804.99	2.90%	0	0.82	3	3	0.04	8.69	3.38	6.85	1.84	3.70	1.49	2.21
220+00	802.62	803.55	2.94%	0	0.83	3	3	0.04	9.58	3.43	7.12	2.46	3.70	1.53	2.17
220+50	801.16	802.11	2.92%	0	0.84	3	3	0.04	10.13	3.45	7.38	2.75	3.70	1.54	2.16
221+00	799.72	801.35	2.88%	0	0.86	3	3	0.04	42.33	3.46	7.65	34.69	3.70	1.54	2.16
221+50	797.69	799.5	4.06%	0	0.81	3	3	0.04	66.46	3.97	7.91	58.55	3.70	2.06	1.64
222+00	795.92	797.00	3.54%	0	0.85	3	3	0.04	15.66	3.80	8.17	7.49	3.70	1.87	1.83
222+50	793.53	795.27	4.78%	0	0.81	3	3	0.04	64.91	4.29	8.44	56.47	3.70	2.41	1.29
223+00	793.05	794.16	0.96%	0	1.11	3	3	0.04	8.77	2.37	8.70	0.07	3.70	0.66	3.04
223+50	791.49	793.00	3.12%	0	0.90	3	3	0.04	35.93	3.71	8.96	26.97	3.70	1.75	1.95
224+00	790.12	791.76	2.74%	0	0.93	3	3	0.04	41.97	3.56	9.23	32.74	3.70	1.59	2.11
224+50	788.49	790.15	3.26%	0	0.91	3	3	0.04	47.28	3.83	9.49	37.79	3.70	1.85	1.85
225+00	786.95	788.28	3.08%	0	0.93	3	3	0.04	25.45	3.77	9.75	15.70	3.70	1.78	1.92
225+50	785.59	787.26	2.72%	0	0.96	3	3	0.04	43.89	3.63	10.02	33.87	3.70	1.63	2.07
226+00	784.65	786.31	1.88%	0	1.04	3	3	0.04	35.91	3.18	10.28	25.62	3.70	1.22	2.48
226+50	783.96	785.62	1.38%	0	1.11	3	3	0.04	30.76	2.85	10.55	20.22	3.70	0.96	2.74



PROPOSED DITCH TYPICAL SECTION

STA 185+50 TO STA 204+50
STA 207+00 TO STA 226+50
STA 246+50 TO STA 248+00
STA 263+50 TO STA 267+50

NOTES:

1. DITCHES DESIGNED TO 25-YR STORM. SEE HDYROLOGIC DATA - DITCH FOR MORE INFORMATION.

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4/21/2024

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D B WOOD ROAD

DITCH CALCULATIONS

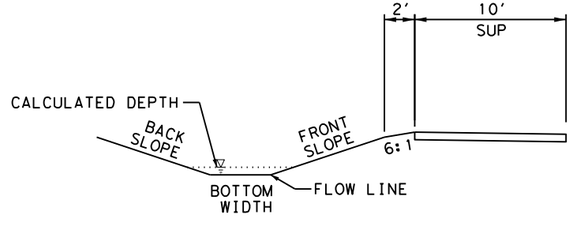
SHEET 2 OF 3 | 233

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STATION	FLOW LINE ELEVATION	CONTROLLING TOP DITCH ELEVATION	DITCH GRADE	FLAT BOTTOM WIDTH	NORMAL DEPTH (FT)	FRONT SLOPE (X:1)	BACK SLOPE (X:1)	CHANNEL n	DITCH CAPACITY (CFS)	DESIGN VELOCITY (FPS)	DESIGN Q(25) (CFS)	DELTA CAPACITY CAP - DES (CFS)	ALLOW SHEAR STRESS	DESIGN SHEAR STRESS	DELTA SHEAR ALLOW - DES
DITCH 4/ DA 3															
246+50	782.73	784.00	0.15%	0	0.49	3	3	0.04	5.00	0.55	0.40	4.60	3.70	0.05	3.65
247+00	781.97	783.38	1.52%	0	0.49	3	3	0.04	20.89	1.72	1.40	19.49	3.70	0.46	3.24
247+50	777.98	783.36	7.98%	0	1.36	3	3	0.04	1701.75	7.85	50.00	1651.75	3.70	6.79	-3.09
248+00	781.50	783.31	7.04%	2	1.46	1	1	0.04	66.55	8.66	50.00	16.55	3.70	6.41	-2.71
DITCH 5/ DA L-01															
263+50	832.00	833.71	1.22%	0	1.18	8	8	0.04	86.02	2.87	32.07	53.95	3.70	0.90	2.80
264+00	832.50	835.30	1.00%	0	1.37	6	6	0.04	216.71	2.86	32.00	184.71	3.70	0.85	2.85
266+00	838.48	842.16	6.96%	4	0.72	3	3	0.04	869.47	6.32	28.00	841.47	3.70	3.12	0.58
266+50	841.36	842.43	5.76%	4	0.73	4	3	0.04	58.39	5.70	27.00	31.39	3.70	2.61	1.09
267+00	843.49	844.55	4.26%	4	0.79	3	3	0.04	46.49	5.19	26.00	20.49	3.70	2.09	1.61
267+50	844.28	845.35	1.58%	4	1.00	3	3	0.04	28.85	3.59	25.00	3.85	3.70	0.98	2.72

NOTES:

1. DITCHES DESIGNED TO 25-YR STORM. SEE HDYROLOGIC DATA - DITCH FOR MORE INFORMATION.



PROPOSED DITCH TYPICAL SECTION

STA 185+50 TO STA 204+50
STA 207+00 TO STA 226+50
STA 246+50 TO STA 248+00
STA 263+50 TO STA 267+50

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4/22/2024

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D B WOOD ROAD

DITCH CALCULATIONS

SHEET 3 OF 3 | 234

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HEC-RAS Model Information

Cross Section ID	Corresponding HEC-RAS
Cross Section 4	71322
Cross Section 3	71076
Cross Section BU	70782 BR U
Cross Section BD	70782 BR D
Cross Section 2	70556
Cross Section 1	69916

Model Name
North_Fork_RAS 5.0.7\NorthSanGabriel

Plan Used
Proposed Conditions

Total Scour Depth (ft) Summary

		Scour Design Flood 50-year	Scour Design Check Flood 100-year
Live-Bed Contraction Scour Depth (ft)	Left Overbank	0.0	0.0
	Main Channel	1.0	1.5
	Right Overbank	0.0	0.0
Pier Scour Depth (ft)	Left Overbank	N/A	N/A
	Main Channel	N/A	N/A
	Right Overbank	N/A	N/A
Total Scour Depth (ft)	Left Overbank	0.0	0.0
	Main Channel	1.0	1.5
	Right Overbank	0.0	0.0

Scour Design Flood - HEC-18 (50-YEAR)

Critical Velocity

$$V_C = K_u y^{1/6} D_{50}^{1/3}$$

V_C = critical velocity above which bed material of size D and smaller will be transported (ft/s)
V_1 = mean velocity in **Cross Section 4** (ft/s)
y_1 = average depth of flow in **Cross Section 4**. Refer to Figure 1 for cross section location. (ft)
D_{50} = median grain size of bed material (ft) ≥ 0.00066 ft. Refer to Figure 2 for selection guidance.
K_u = 11.17 English units

Conveyance zone	y_1	D_{50}	K_u	V_C	V_1	Regime
Left Overbank	-	-	-	-	-	-
Main Channel	7.00	0.0007	11.17	1.4	6.18	Live-Bed
Right Overbank	-	-	-	-	-	-

Clear–water contraction scour = $V_c > V_1$
Live-bed contraction scour = $V_c < V_1$

Live-Bed Contraction Scour

$$\frac{y_2}{y_1} = \left(\frac{Q_2}{Q_1}\right)^{6/7} \left(\frac{W_1}{W_2}\right)^{k_1}$$

$$y_s = y_2 - y_0$$

y_s = average contraction scour depth in **Cross Section BU** (ft)
y_0 = existing depth in **Cross Section BU** before scour (ft)
y_1 = average depth of flow in **Cross Section 4** (ft)
y_2 = average depth of flow in **Cross Section BU** (ft)
Q_1 = flow transporting sediment in **Cross Section 4** (cfs)
Q_2 = flow in **Cross Section BU** (cfs)
a = width of pier (ft)
W_1 = width of flow contributing to transport of bed material in **Cross Section 4** (ft)
W_0 = width of flow contributing to transport of bed material in **Cross Section BU** (ft) including pier widths
W_2 = width of flow contributing to transport of bed material in **Cross Section BU** (ft) less pier widths
k_1 = determined via a relationship between Shear Velocity and Fall Velocity. See Table 2.
V_* = shear velocity in **Cross Section 4** (ft/s)
S_1 = slope of energy grade line of main channel **Cross Section 4** (ft/ft)
ω = fall velocity based on the D_{50} (ft/s)

Conveyance zone	S_1	y_1	V_*	ω	k_1
Left Overbank	-	-	-	-	-
Main Channel	0.0024	6.92	0.7282	0.0892	0.69
Right Overbank	-	-	-	-	-

Conveyance zone	Q_1	Q_2	a	Number of Piers	W_1	W_0	W_2
Left Overbank	-	-	-	-	-	-	-
Main Channel	4529	4259	0	0	107	97.56	98
Right Overbank	-	-	-	-	-	-	-

Conveyance zone	y_0	y_2	y_s
Left Overbank	-	-	-
Main Channel	6.18	7.00	1.0
Right Overbank	-	-	-

Scour Check Flood - HEC-18 (100-YEAR)

Critical Velocity

$$V_C = K_u y^{1/6} D_{50}^{1/3}$$

V_C = critical velocity above which bed material of size D and smaller will be transported (ft/s)
V_1 = mean velocity in **Cross Section 4** (ft/s)
y_1 = average depth of flow in **Cross Section 4**. Refer to Figure 1 for cross section location. (ft)
D_{50} = median grain size of bed material (ft) ≥ 0.00066 ft. Refer to Figure 2 for selection guidance.
K_u = 11.17 English units

Conveyance zone	y_1	D_{50}	K_u	V_C	V_1	Regime
Left Overbank	0.00	0	11.17	0.0	0.00	Clear Water
Main Channel	7.00	0.0007	11.17	1.4	6.18	Live-Bed
Right Overbank	0.00	0	11.17	0.0	0.00	Clear Water

Clear–water contraction scour = $V_c > V_1$
Live-bed contraction scour = $V_c < V_1$

Live-Bed Contraction Scour

$$\frac{y_2}{y_1} = \left(\frac{Q_2}{Q_1}\right)^{6/7} \left(\frac{W_1}{W_2}\right)^{k_1}$$

$$y_s = y_2 - y_0$$

y_s = average contraction scour depth in **Cross Section BU** (ft)
y_0 = existing depth in **Cross Section BU** before scour (ft)
y_1 = average depth of flow in **Cross Section 4** (ft)
y_2 = average depth of flow in **Cross Section BU** (ft)
Q_1 = flow transporting sediment in **Cross Section 4** (cfs)
Q_2 = flow in **Cross Section BU** (cfs)
a = width of pier (ft)
W_1 = width of flow contributing to transport of bed material in **Cross Section 4** (ft)
W_0 = width of flow contributing to transport of bed material in **Cross Section BU** (ft) including pier widths
W_2 = width of flow contributing to transport of bed material in **Cross Section BU** (ft) less pier widths
k_1 = determined via a relationship between Shear Velocity and Fall Velocity. See Table 2.
V_* = shear velocity in **Cross Section 4** (ft/s)
S_1 = slope of energy grade line of main channel **Cross Section 4** (ft/ft)
ω = fall velocity based on the D_{50} (ft/s)

Conveyance zone	S_1	y_1	V_*	ω	k_1
Left Overbank	-	-	-	-	-
Main Channel	0.0024	7.00	0.7324	0.0892	0.69
Right Overbank	-	-	-	-	-

Conveyance zone	Q_1	Q_2	a	Number of Piers	W_1	W_0	W_2
Left Overbank	-	-	-	-	-	-	-
Main Channel	4664	4664	0	0	108	98.23	98
Right Overbank	-	-	-	-	-	-	-

Conveyance zone	y_0	y_2	y_s
Left Overbank	-	-	-
Main Channel	6.25	7.46	1.5
Right Overbank	-	-	-

NOTES:

1. ALL FLOW CONTAINED WITHIN MAIN CHANNEL AND THERE ARE NO PIERS LOCATED WITHIN MAIN CHANNEL, THEREFORE NO SCOUR CALCULATIONS PERFORMED FOR OUTER BANKS OR PIERS.
2. SCOUR DESIGN FLOOD EVENT = 50 YR
   SCOUR DESIGN CHECK EVENT = 100 YR

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147577
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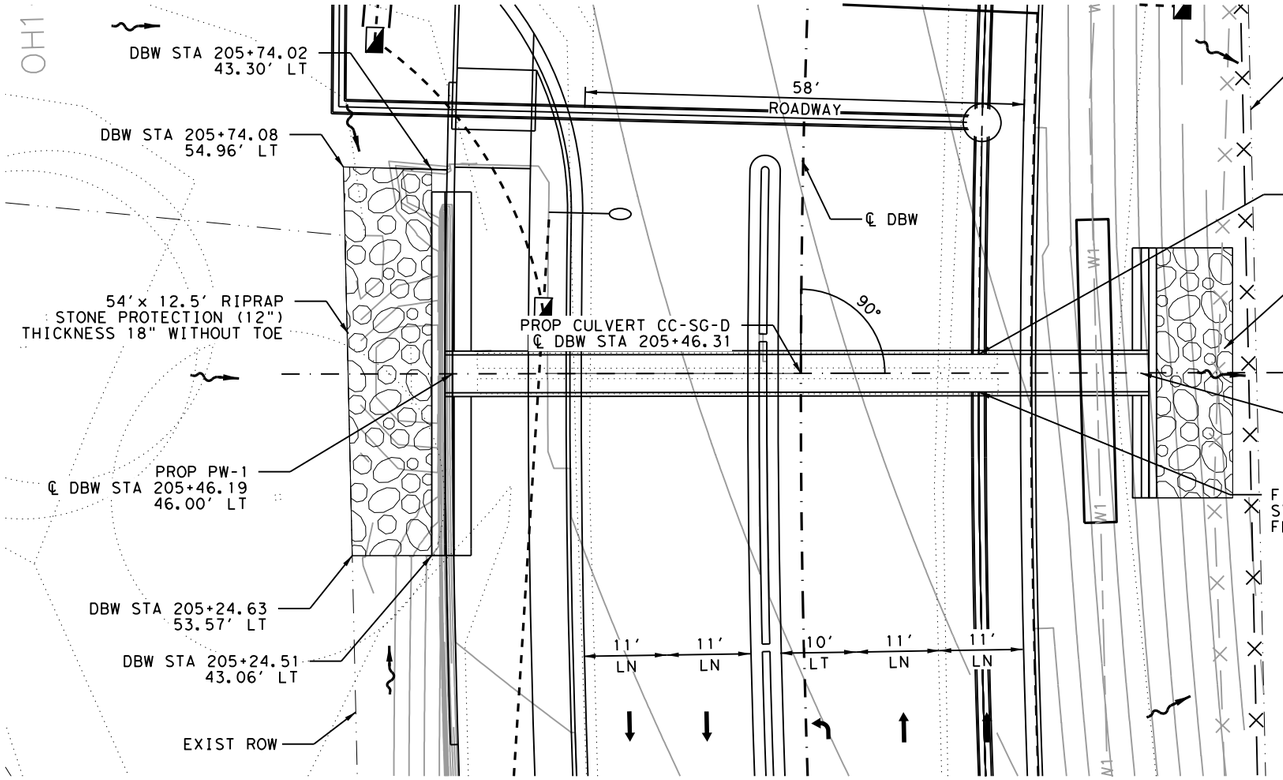
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D B WOOD ROAD

SCOUR CALCULATIONS

SHEET 1 OF 1 | 235

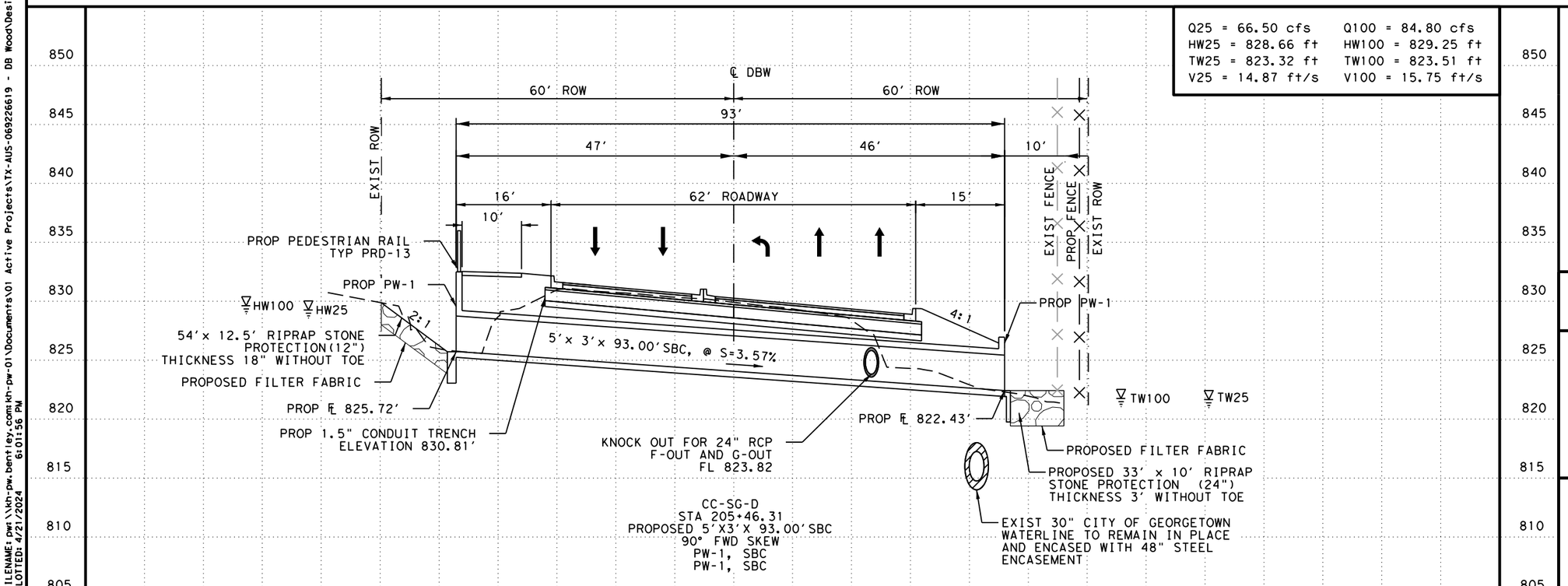


LEGEND

- W1 — CITY OF GEORGETOWN WATER
- W2 — CITY OF ROUNDROCK WATER (RAW)
- FOC — CITY OF GEORGETOWN FIBER
- OH — PEDERNALES OVERHEAD ELECTRIC
- STEEL ENCASEMENT
- FLOW DIRECTION
- PROPOSED STONE PROTECTION RIP RAP
- EXIST ROW
- EXIST PROPERTY LINE

NOTES:

1. SEE HYDRAULIC DATA SHEET FOR DETAILED HYDRAULIC ANALYSIS.



Q25 = 66.50 cfs	Q100 = 84.80 cfs
HW25 = 828.66 ft	HW100 = 829.25 ft
TW25 = 823.32 ft	TW100 = 823.51 ft
V25 = 14.87 ft/s	V100 = 15.75 ft/s

0' 10' 20' HORZ
0' 5' 10' VERT

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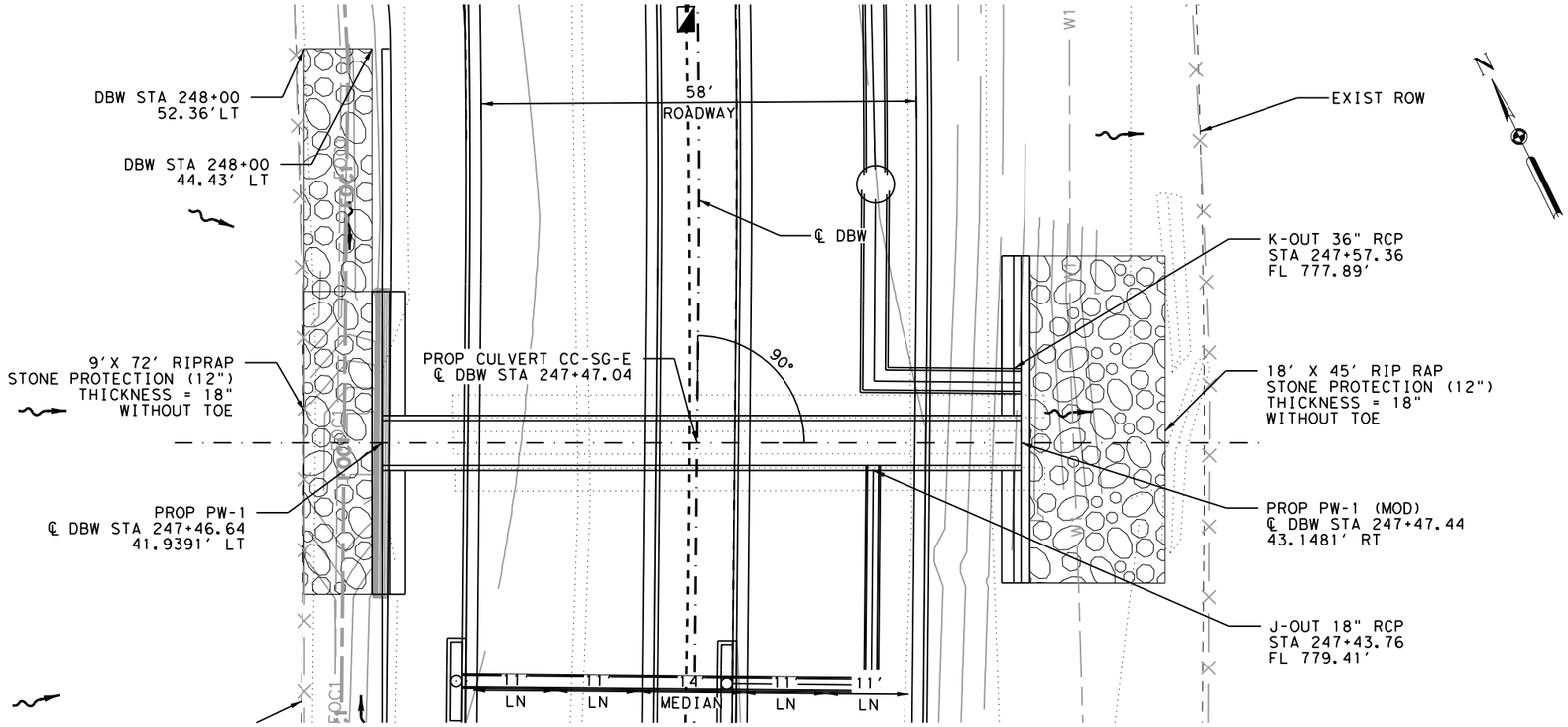
D B WOOD ROAD

CULVERT LAYOUT

CC-SG-D

SHEET 1 OF 2 | 236

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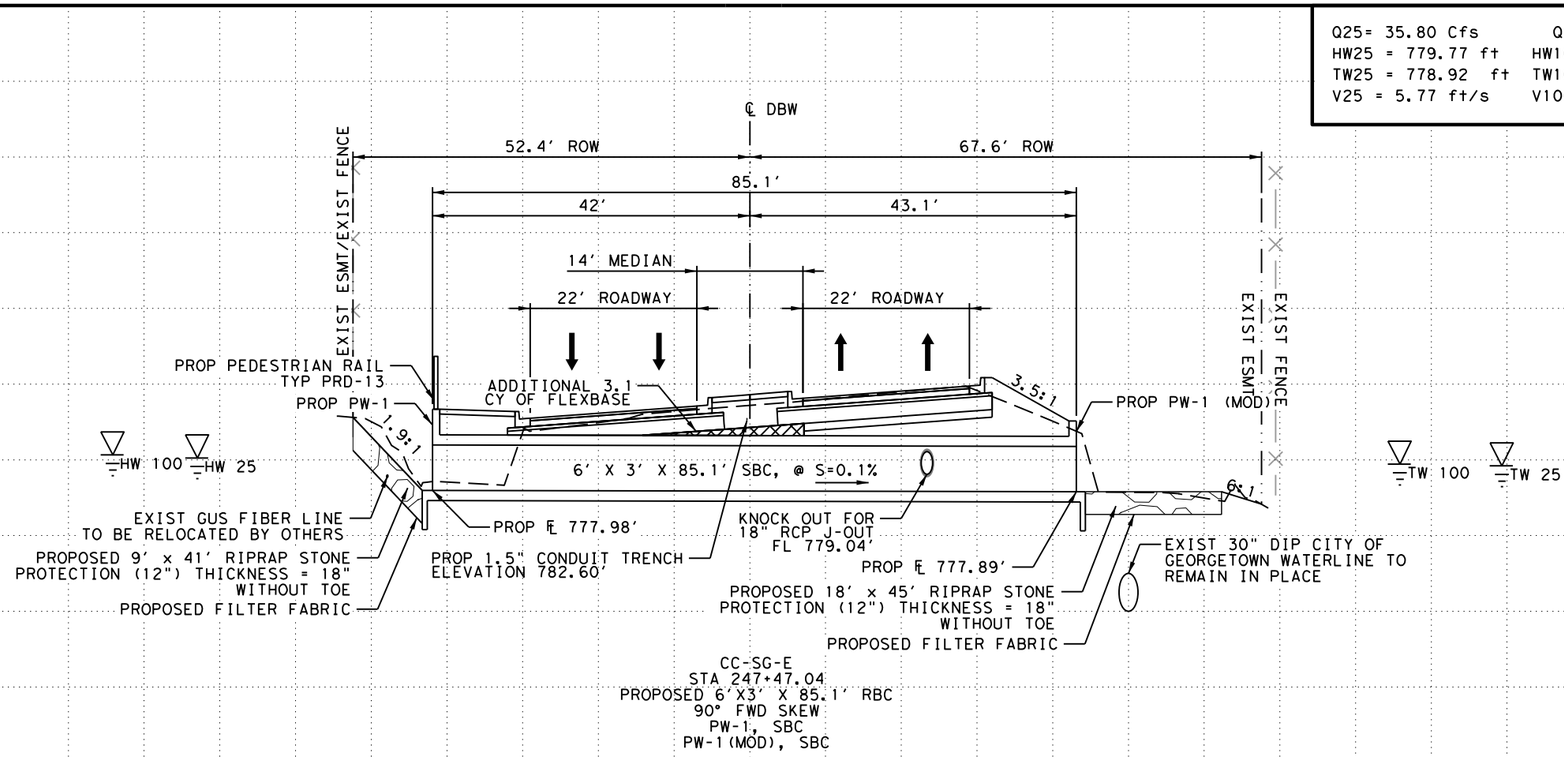


LEGEND

W1	CITY OF GEORGETOWN WATER
W2	CITY OF ROUNDROCK WATER (RAW)
FOC	CITY OF GEORGETOWN FIBER
OH	PEDERNALES OVERHEAD ELECTRIC
	STEEL ENCASEMENT
	FLOW DIRECTION
	PROPOSED STONE PROTECTION RIP RAP
	EXIST ROW
	EXIST PROPERTY LINE

NOTES:

1. SEE HYDRAULIC DATA SHEET FOR DETAILED HYDRAULIC ANALYSIS.



0' 10' 20' HORZ
0' 5' 10' VERT

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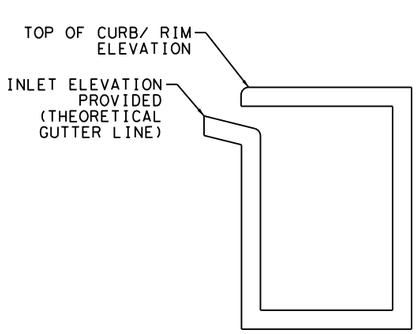
D B WOOD ROAD

CULVERT LAYOUT

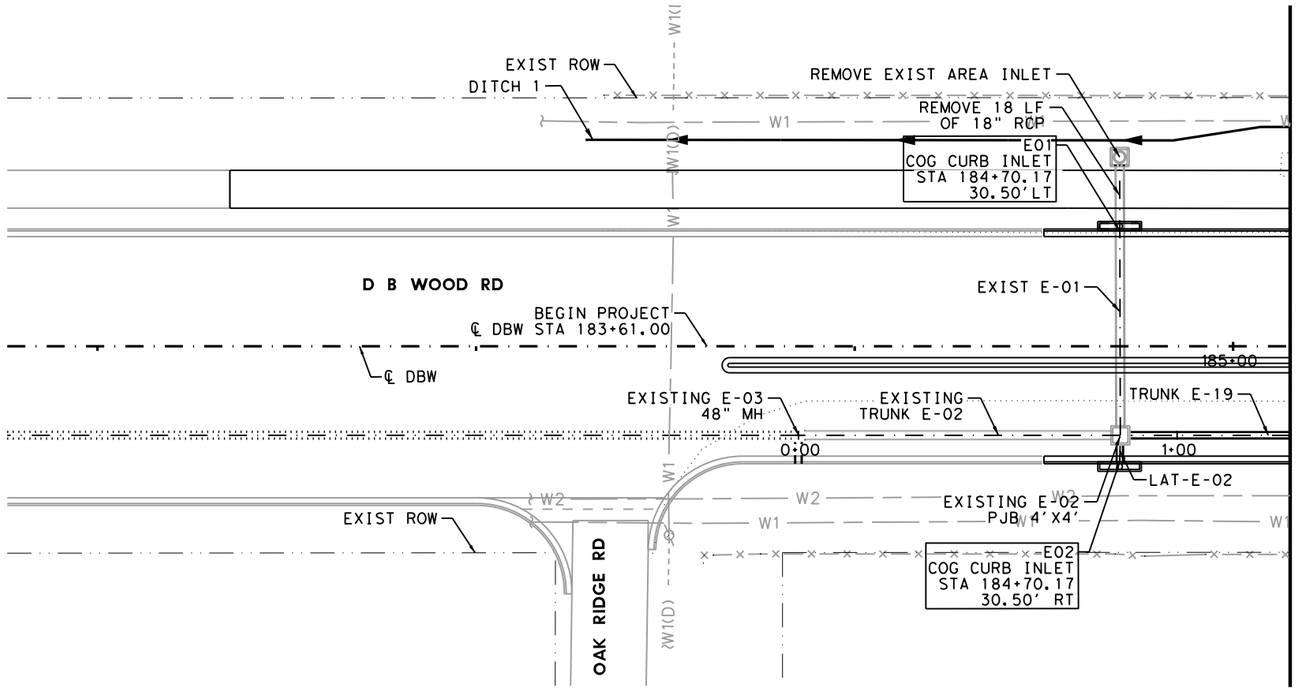
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SHEET 2 OF 2 | 237

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DRAINAGE DETAIL A

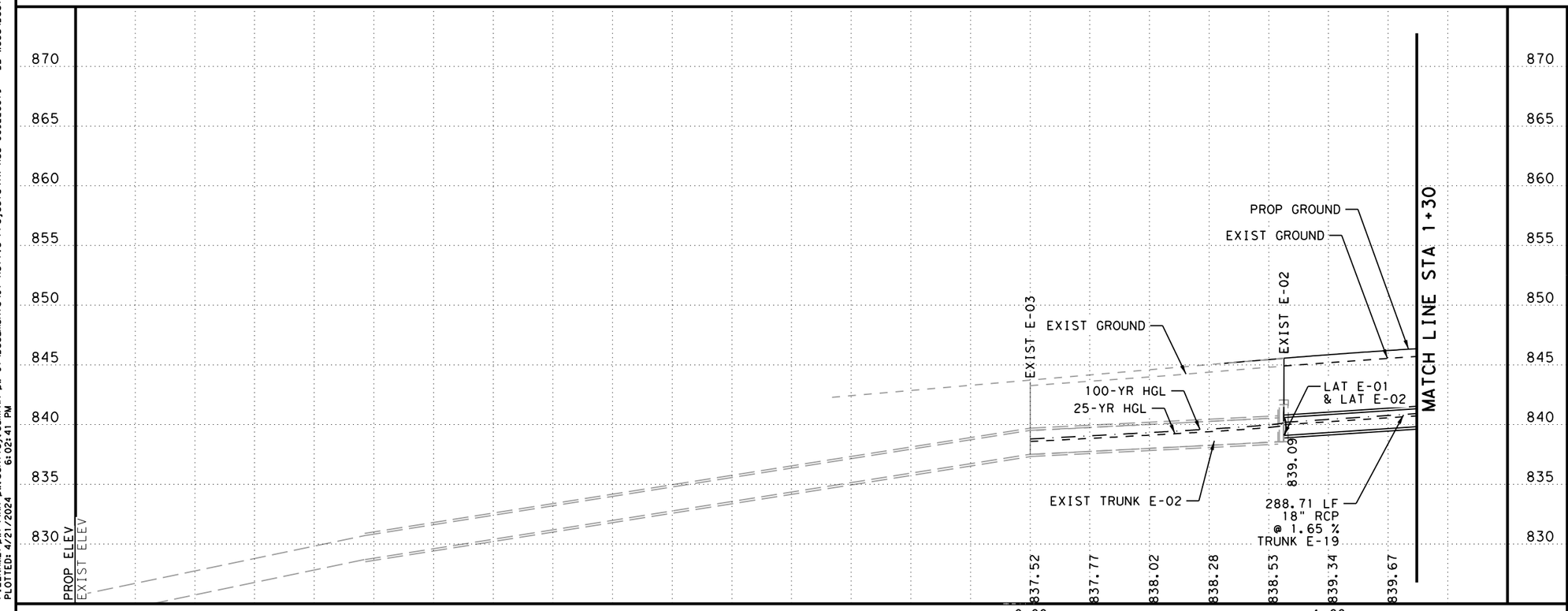


LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
- JUNCTION BOX
- STORM SEWER CONDUIT
- EXIST ROW
- EXIST PROPERTY LINE
- PROP DITCH ℄
- EXISTING FENCE
- 25 YR HGL
- 100 YR HGL

NOTES:

1. SEE HYDRAULIC DATA - STORM SEWER SHEETS FOR INLET AND CONDUIT COMPUTATIONS
2. SEE UTILITY PLANS AND DETAILS FOR MORE INFORMATION
3. SEE CROSS SECTIONS FOR DITCH INFORMATION
4. BASE SIZES ARE CALLED OUT FOR CLARIFICATION ONLY AND ARE SUBSIDIARY TO MANHOLES.
5. SEE CULVERT LAYOUTS FOR MORE INFORMATION.



0' 20' 40'

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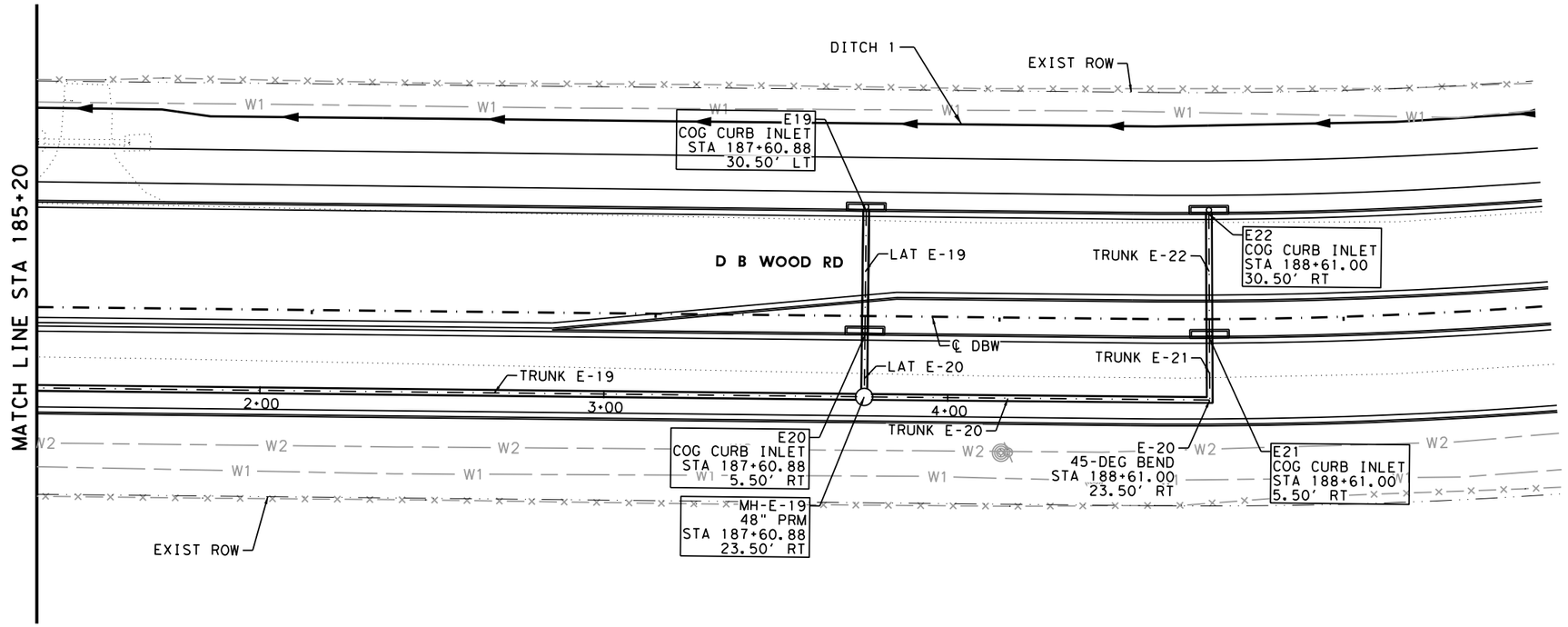
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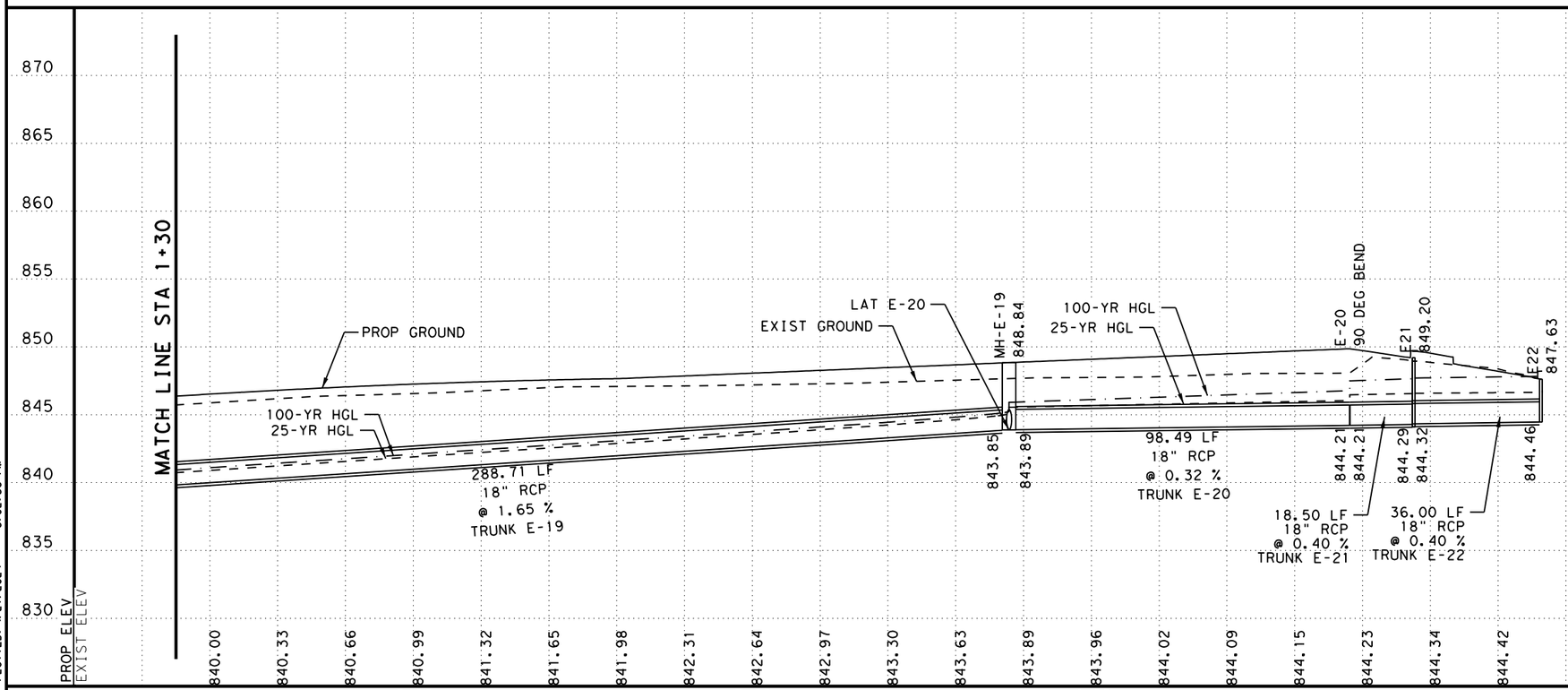
D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM E

SHEET 1 OF 20 | 238

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LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
- JUNCTION BOX
- STORM SEWER CONDUIT
- EXIST ROW
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NOTES:

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0' 20' 40'

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4/21/2024

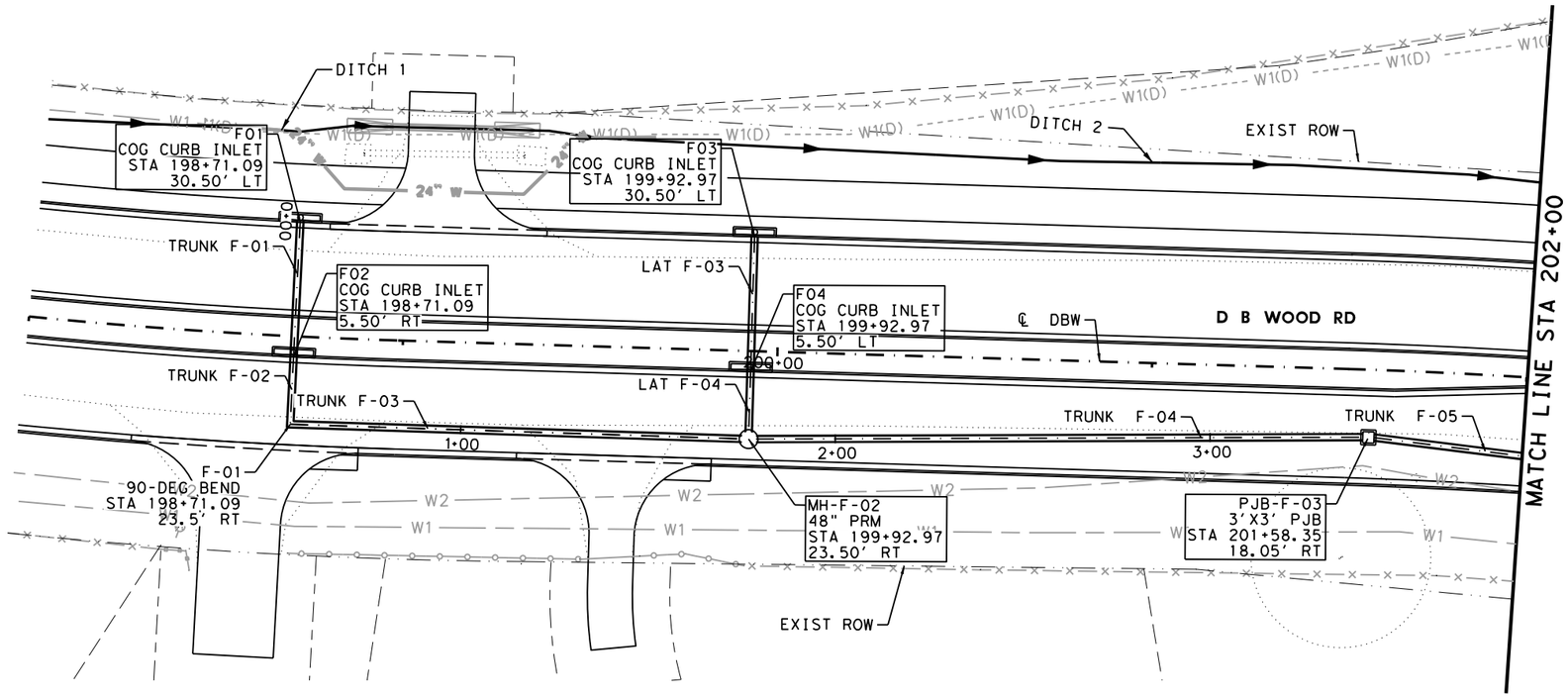
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM E

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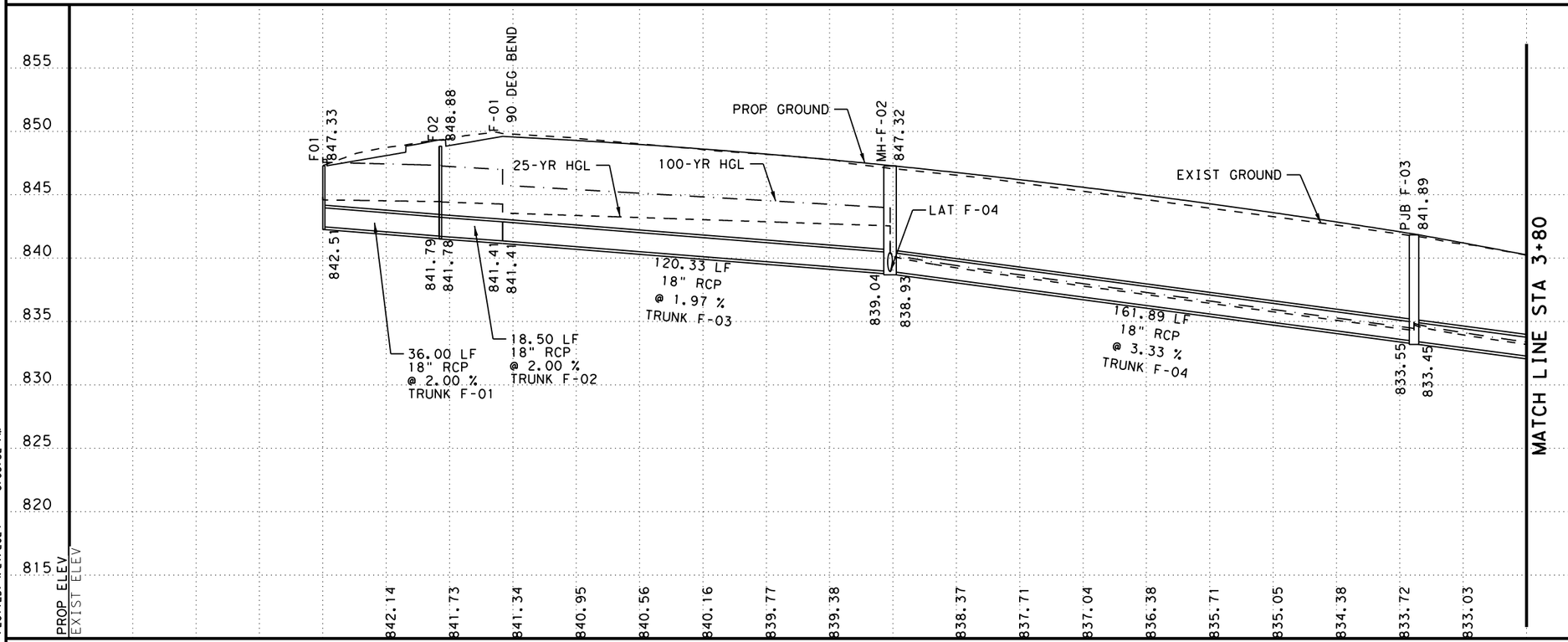


LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
- JUNCTION BOX
- STORM SEWER CONDUIT
- EXIST ROW
- EXIST PROPERTY LINE
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NOTES:

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0' 20' 40'

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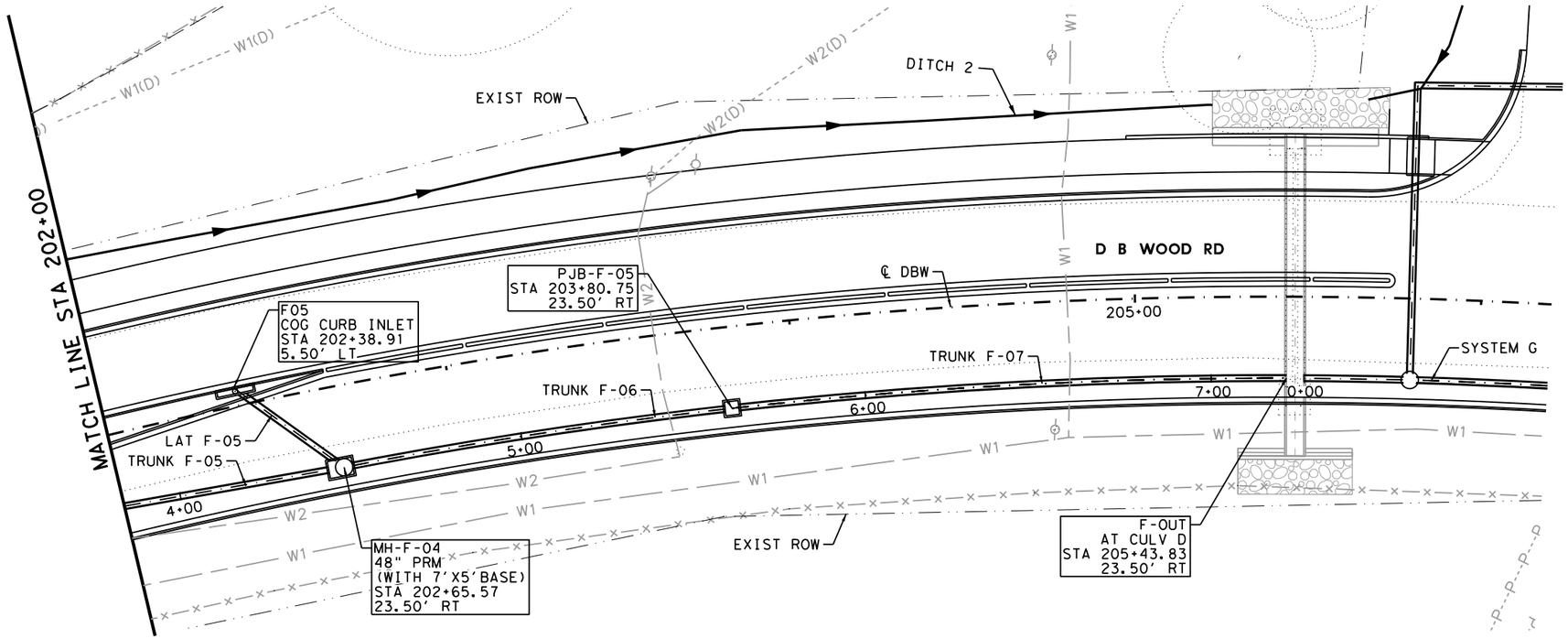
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM F

SHEET 3 OF 20 | 240

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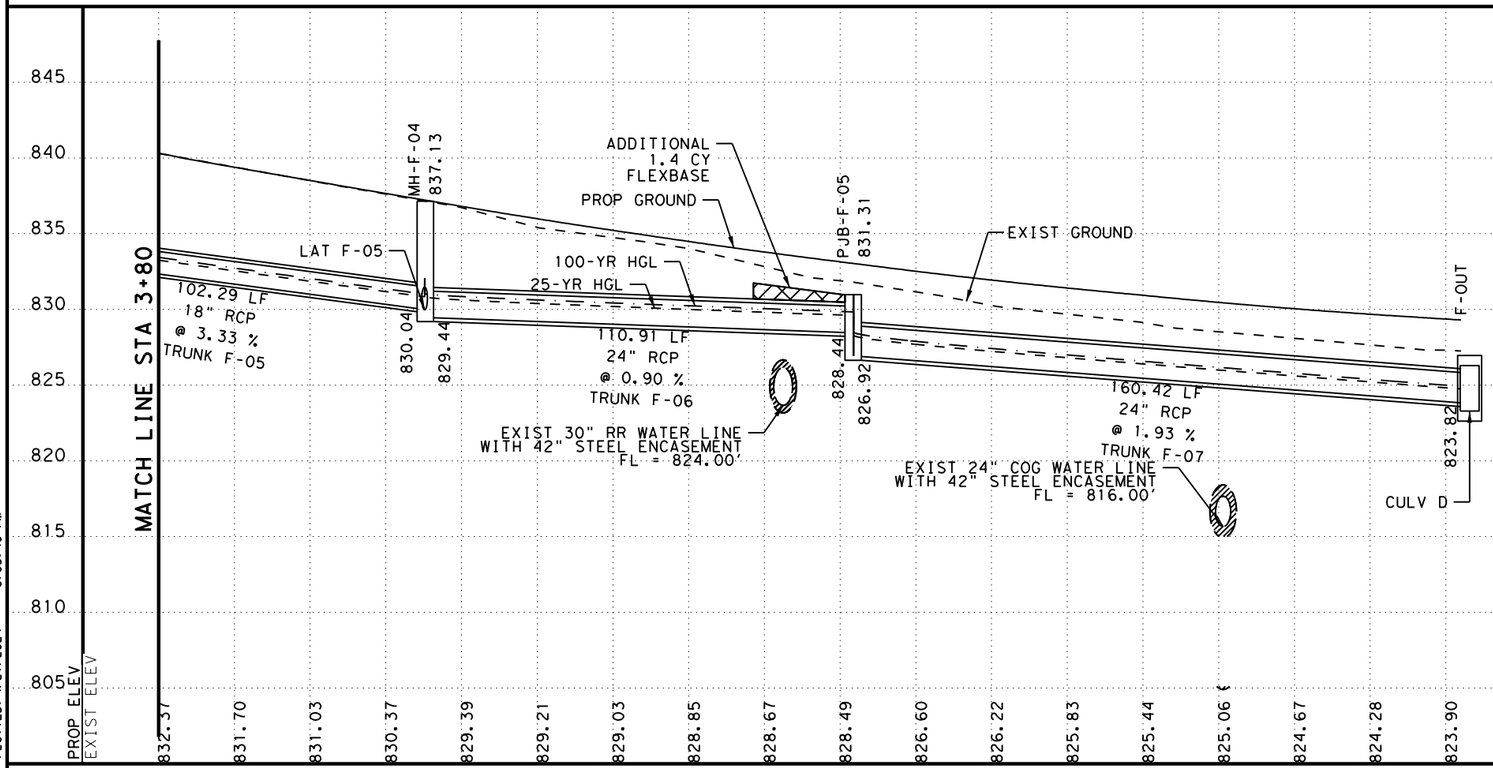


LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
- JUNCTION BOX
- STORM SEWER CONDUIT
- EXIST ROW
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NOTES:

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0' 20' 40'

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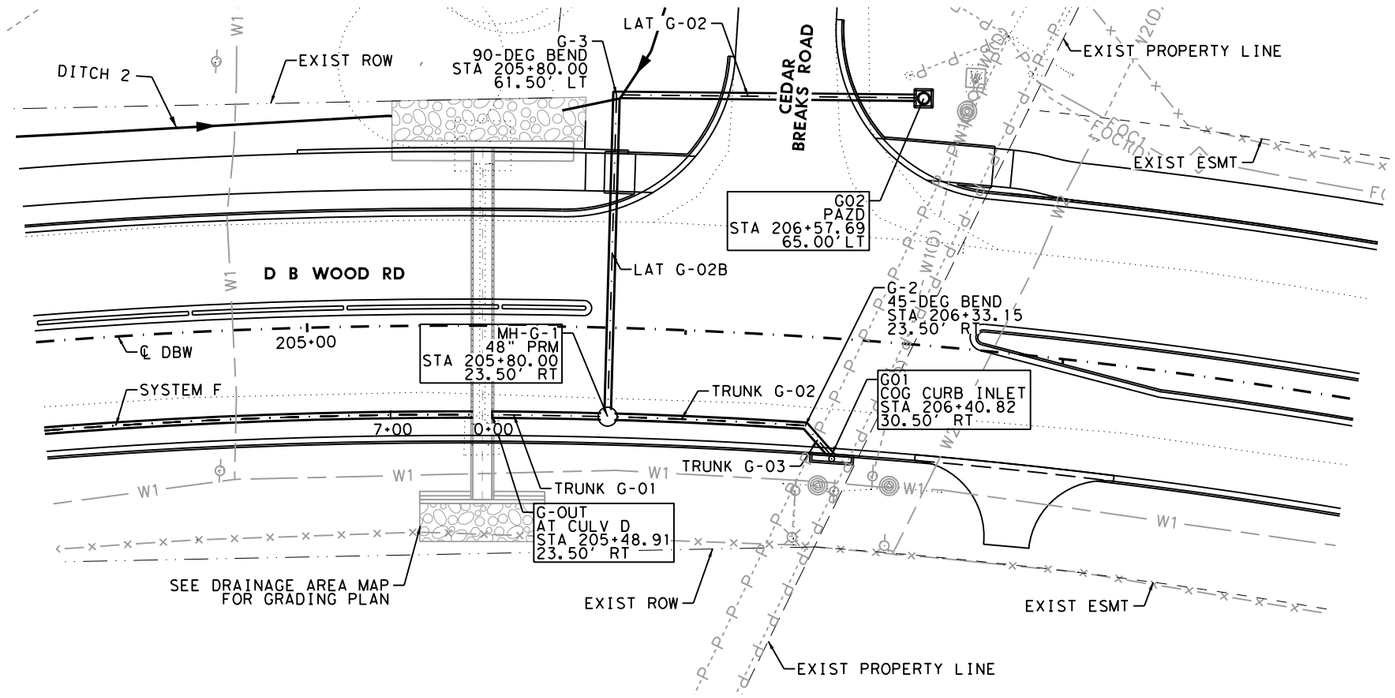
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TEXAS
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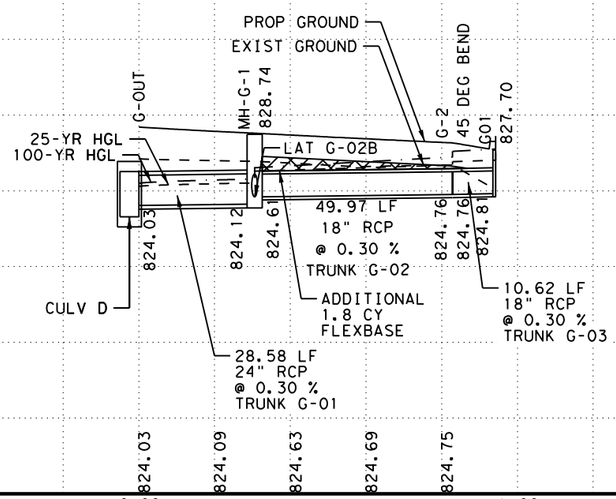
D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM F

SHEET 4 OF 20 | 241

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LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
- JUNCTION BOX
- STORM SEWER CONDUIT
- EXIST ROW
- EXIST PROPERTY LINE
- PROP DITCH ℄
- EXISTING FENCE
- 25 YR HGL
- 100 YR HGL

NOTES:

1. SEE HYDRAULIC DATA - STORM SEWER SHEETS FOR INLET AND CONDUIT COMPUTATIONS
2. SEE UTILITY PLANS AND DETAILS FOR MORE INFORMATION
3. SEE CROSS SECTIONS FOR DITCH INFORMATION
4. BASE SIZES ARE CALLED OUT FOR CLARIFICATION ONLY AND ARE SUBSIDIARY TO MANHOLES.
5. SEE CULVERT LAYOUTS FOR MORE INFORMATION.

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/21/2024

Kimley»Horn F-928

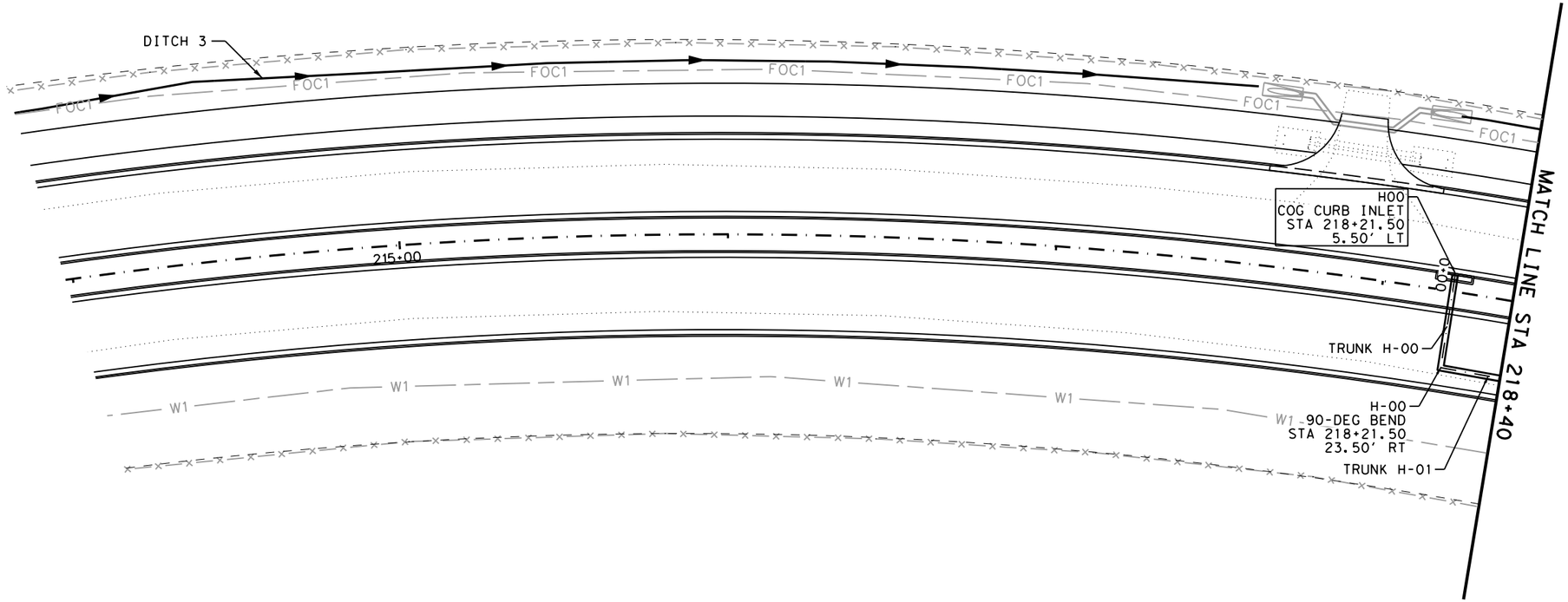
GEORGETOWN TEXAS
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM G

SHEET 5 OF 20 | 242

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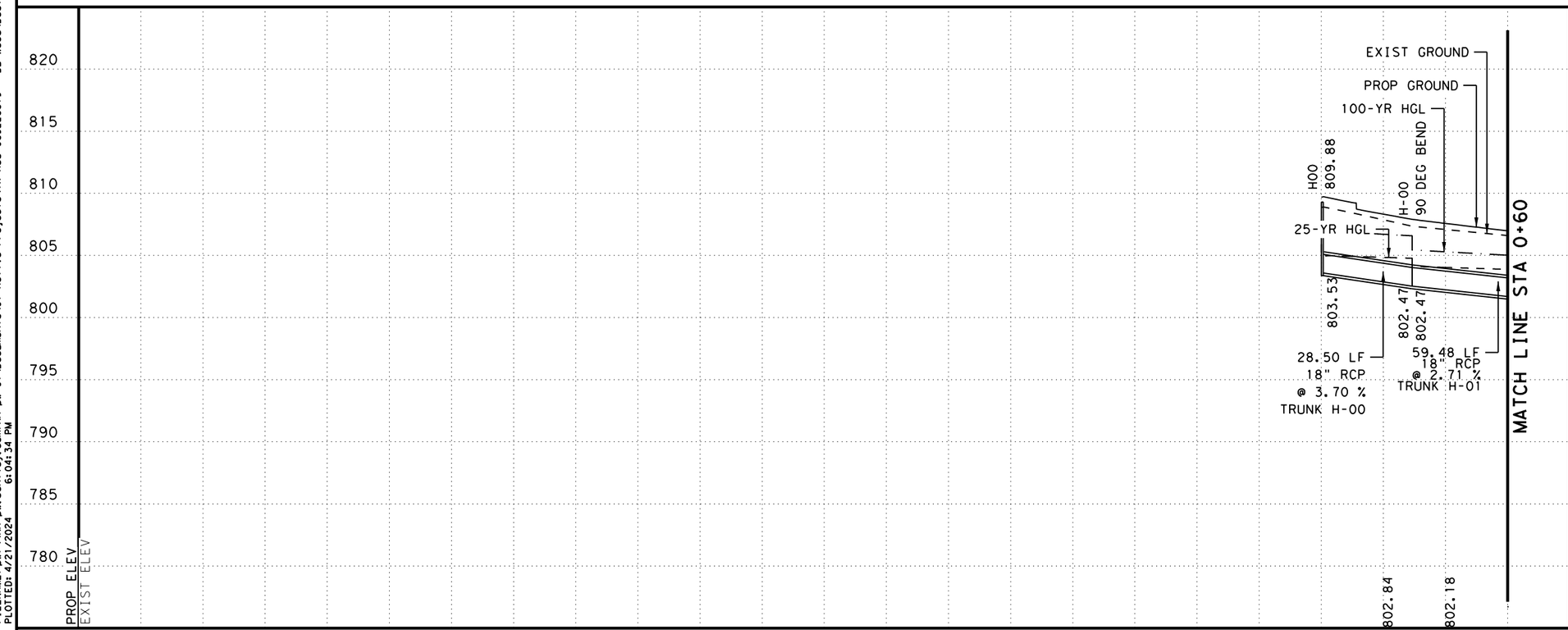
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LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
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0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
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PROFESSIONAL ENGINEER

Malia Caldwell

4/21/2024

Kimley»Horn F-928

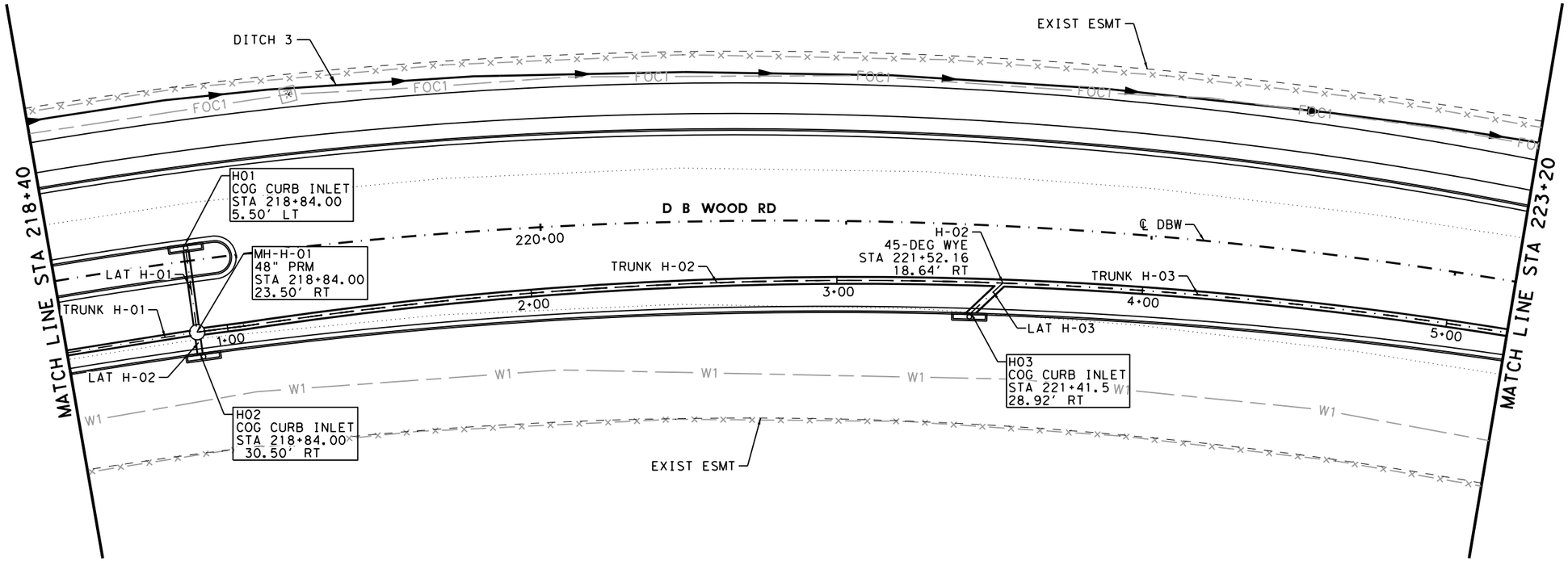
GEORGETOWN TEXAS
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM H

SHEET 6 OF 20 | 243

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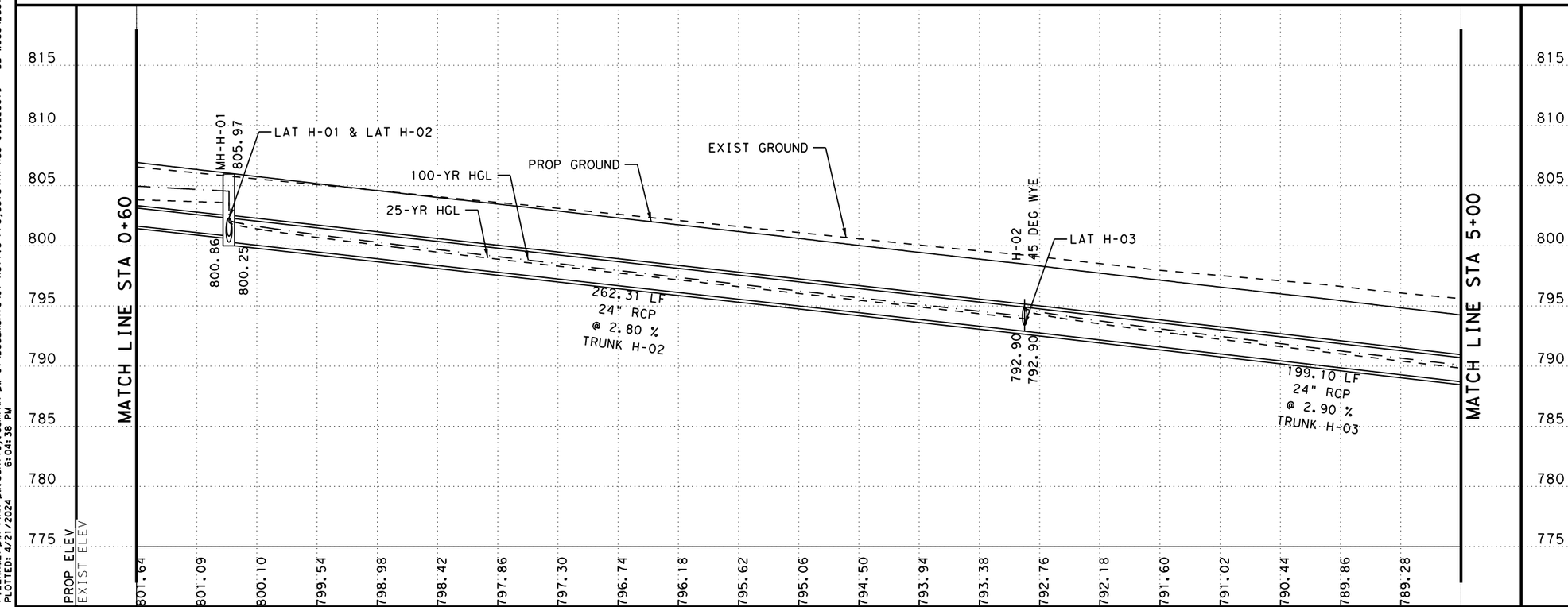


LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
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0' 20' 40'

STATE OF TEXAS
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Malia Caldwell
4/21/2024

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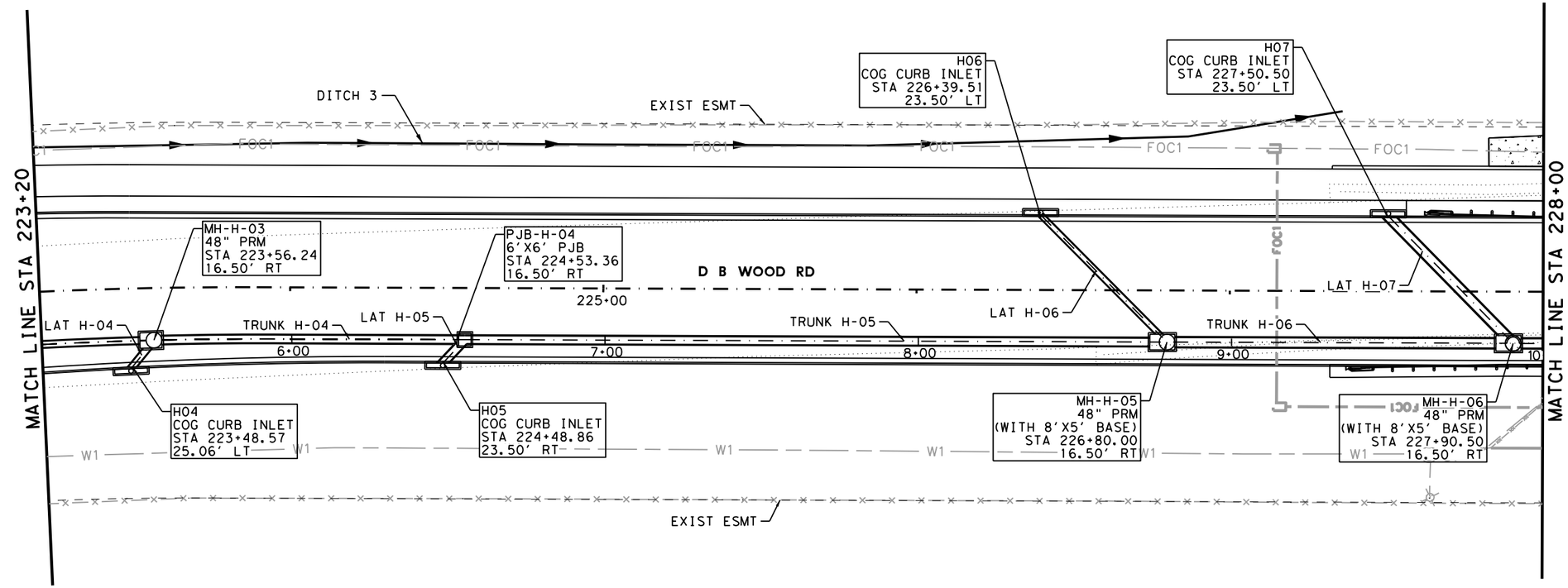
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM H

SHEET 7 OF 20 | 244

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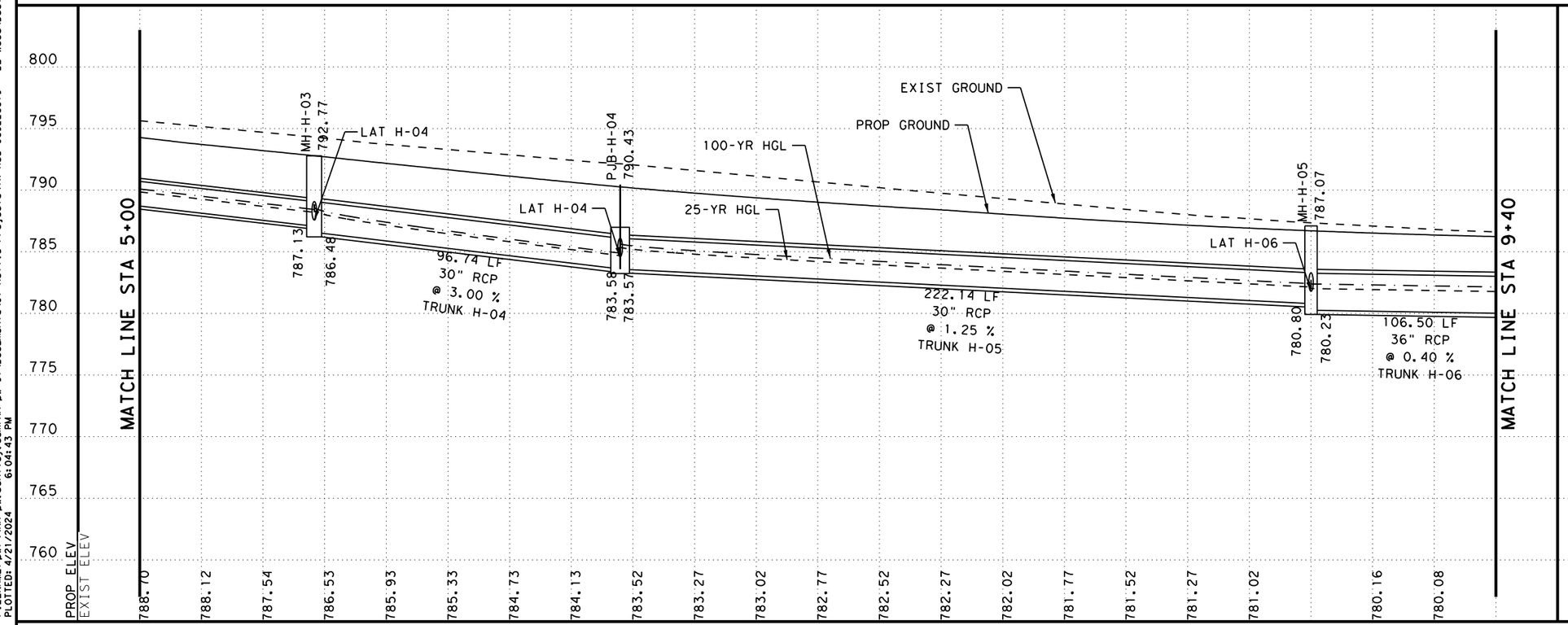


LEGEND

- COG CURB INLET
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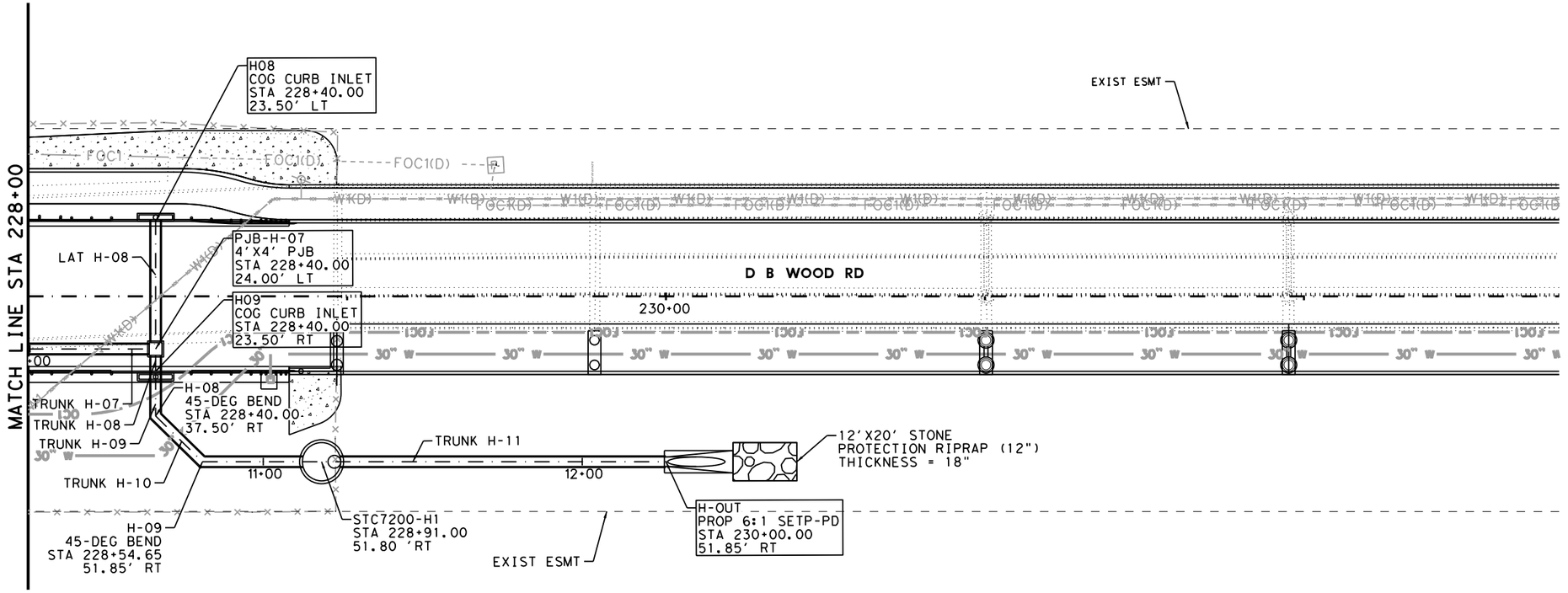
GEORGETOWN
TEXAS
more than welcome

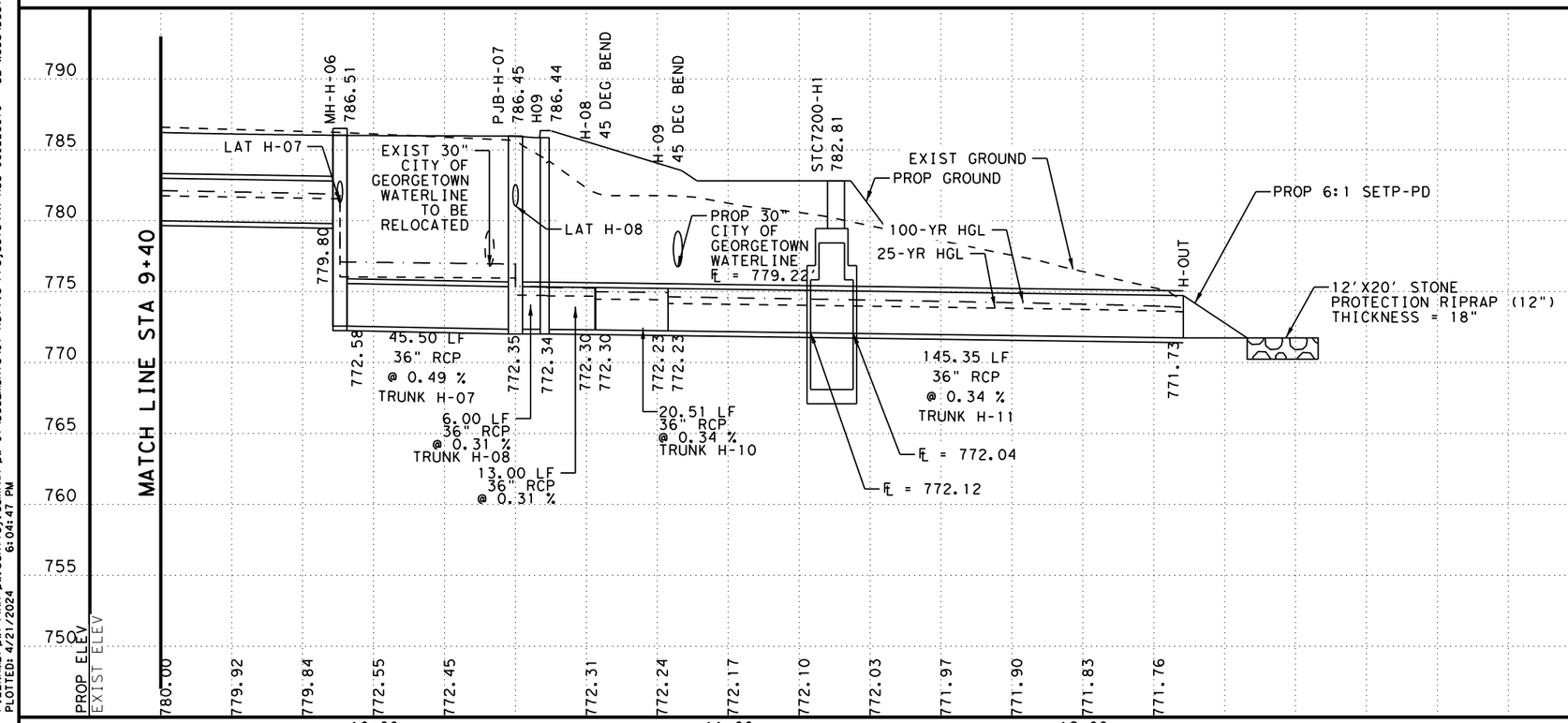
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STORM SEWER PLAN & PROFILE SYSTEM H

SHEET 8 OF 20 | 245

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LEGEND

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147577
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PROFESSIONAL ENGINEER

Malia Caldwell
4/21/2024

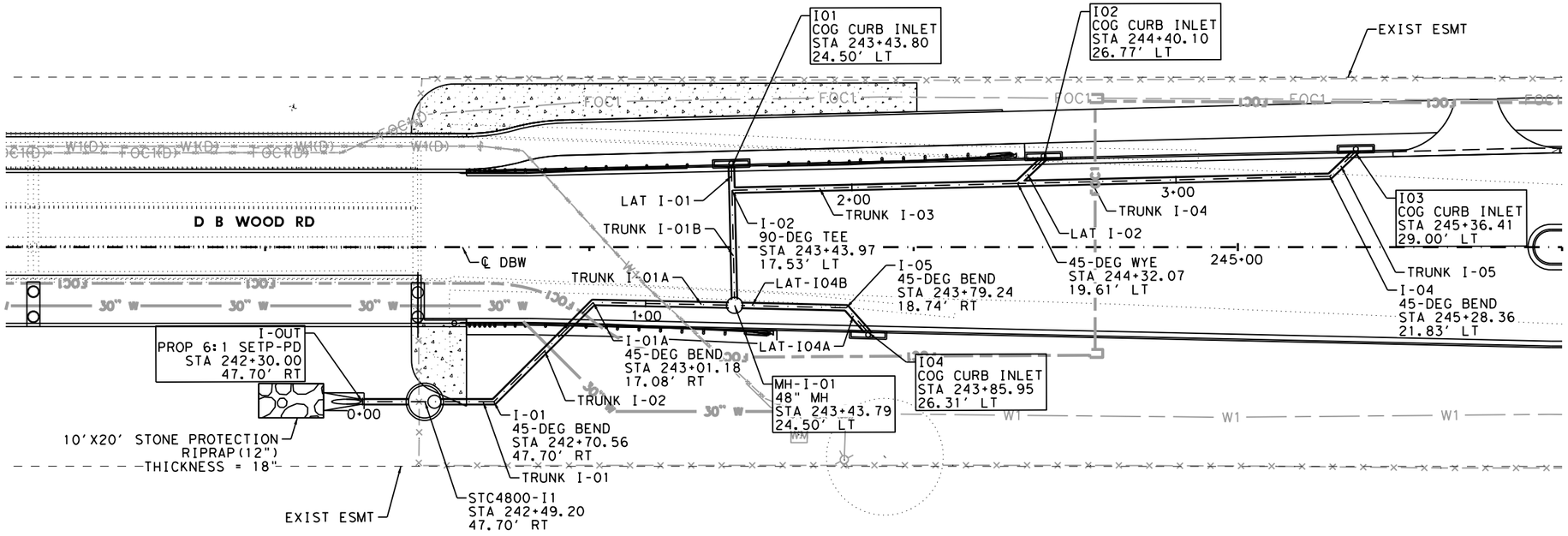
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STORM SEWER PLAN & PROFILE SYSTEM H

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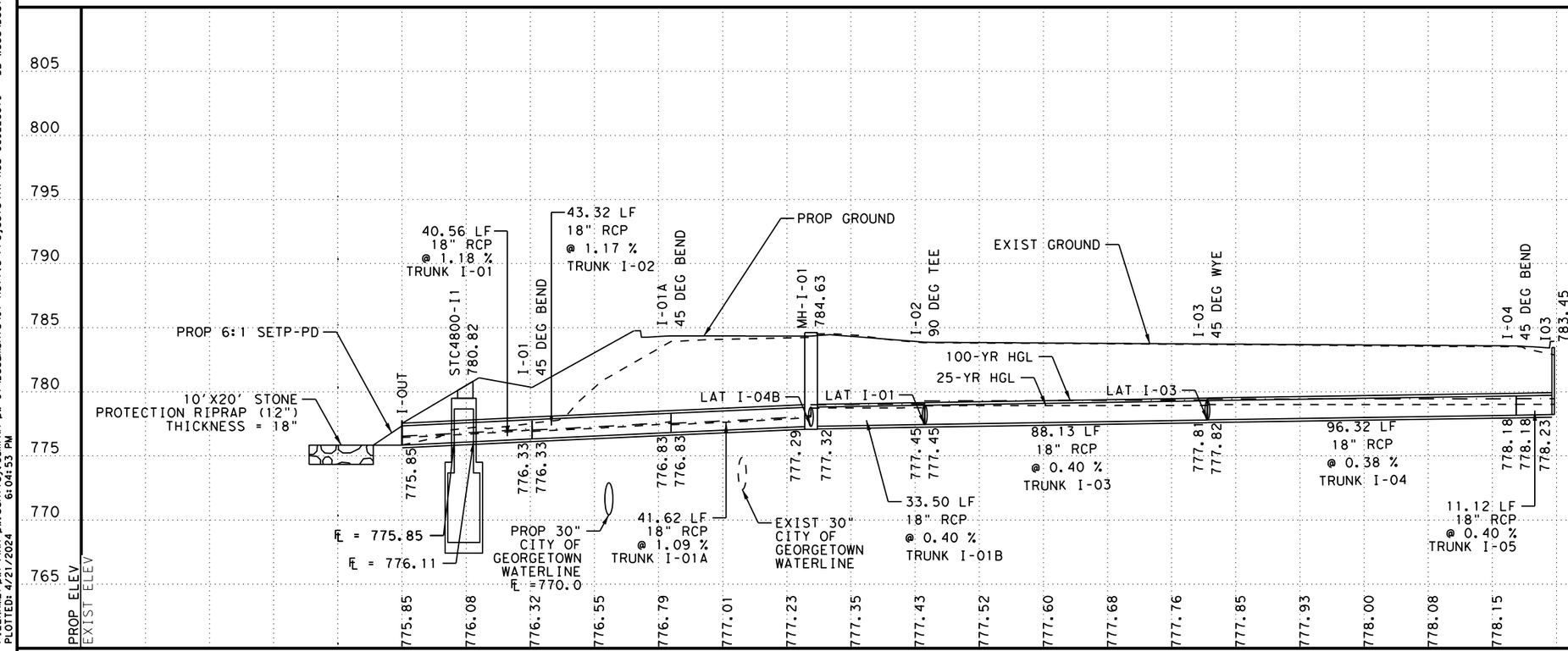


LEGEND

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0' 20' 40'

Malia Caldwell
4/21/2024

STATE OF TEXAS
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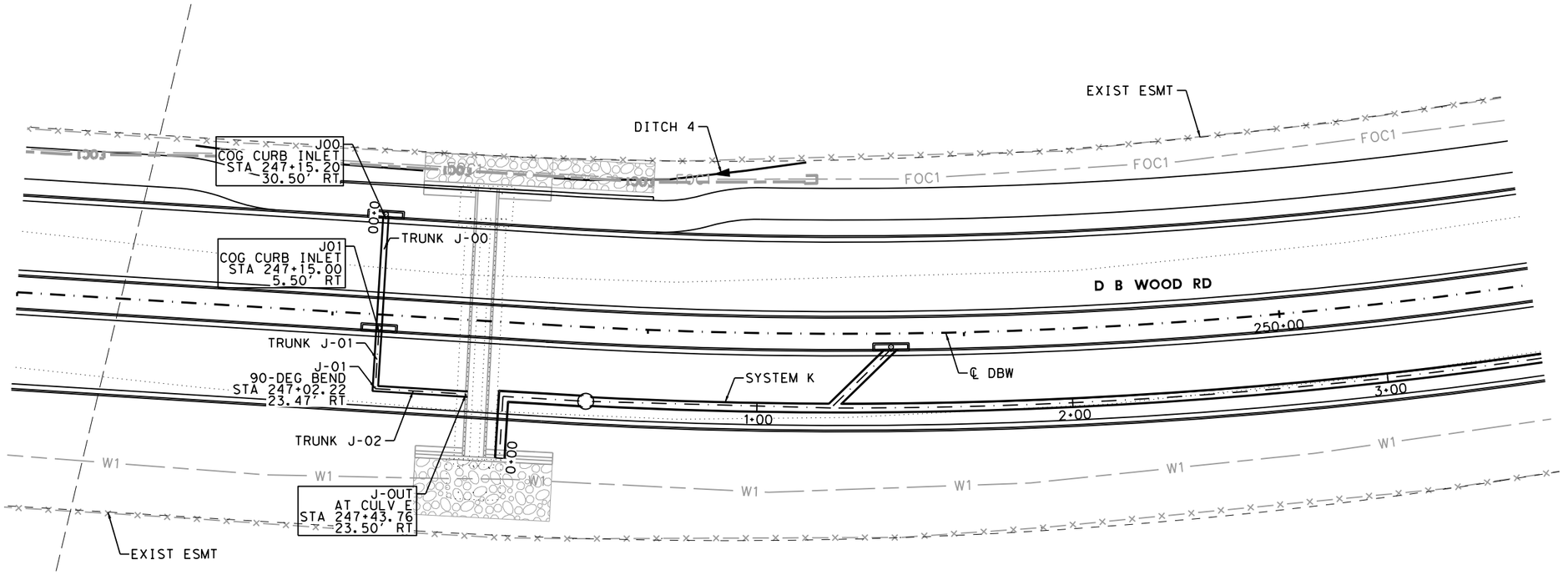
GEORGETOWN TEXAS
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM I

SHEET 10 OF 20 | 247

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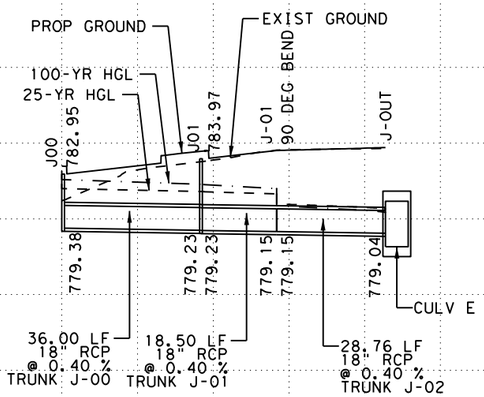


LEGEND

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0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
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PROFESSIONAL ENGINEER

4/21/2024

Kimley»Horn F-928

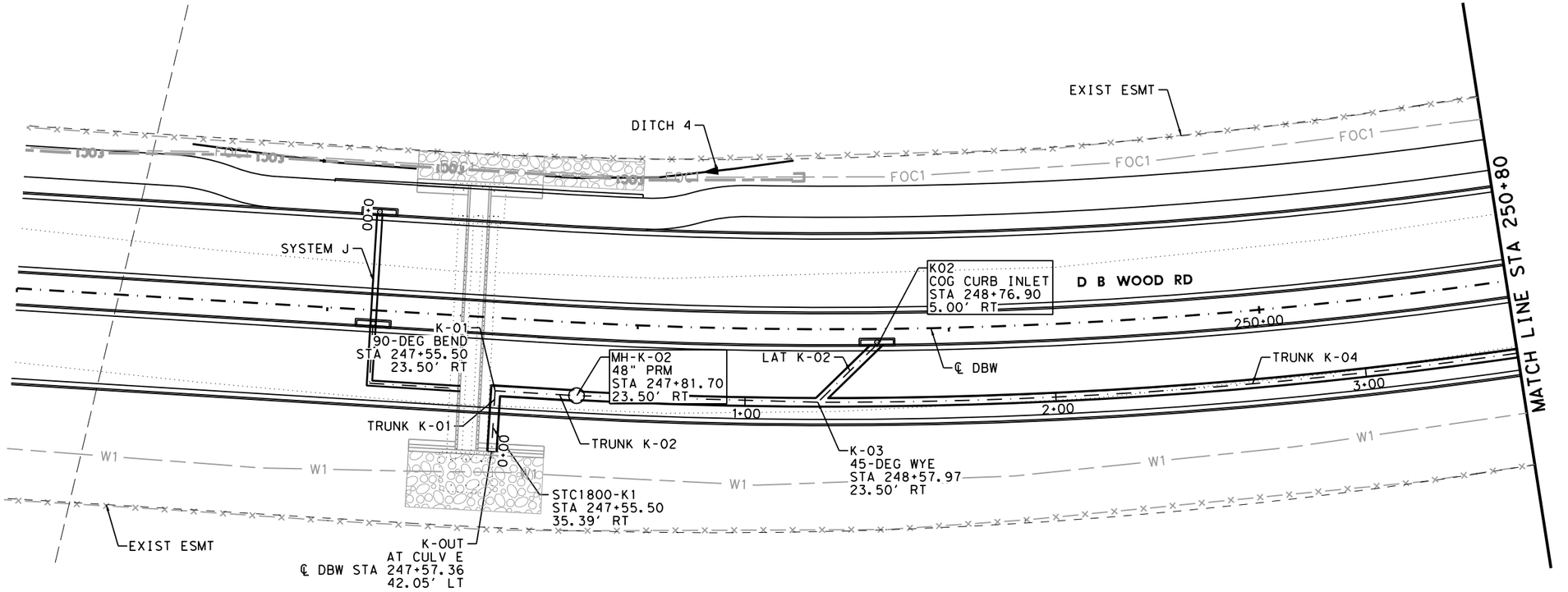
GEORGETOWN TEXAS
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM J

SHEET 11 OF 20 | 248

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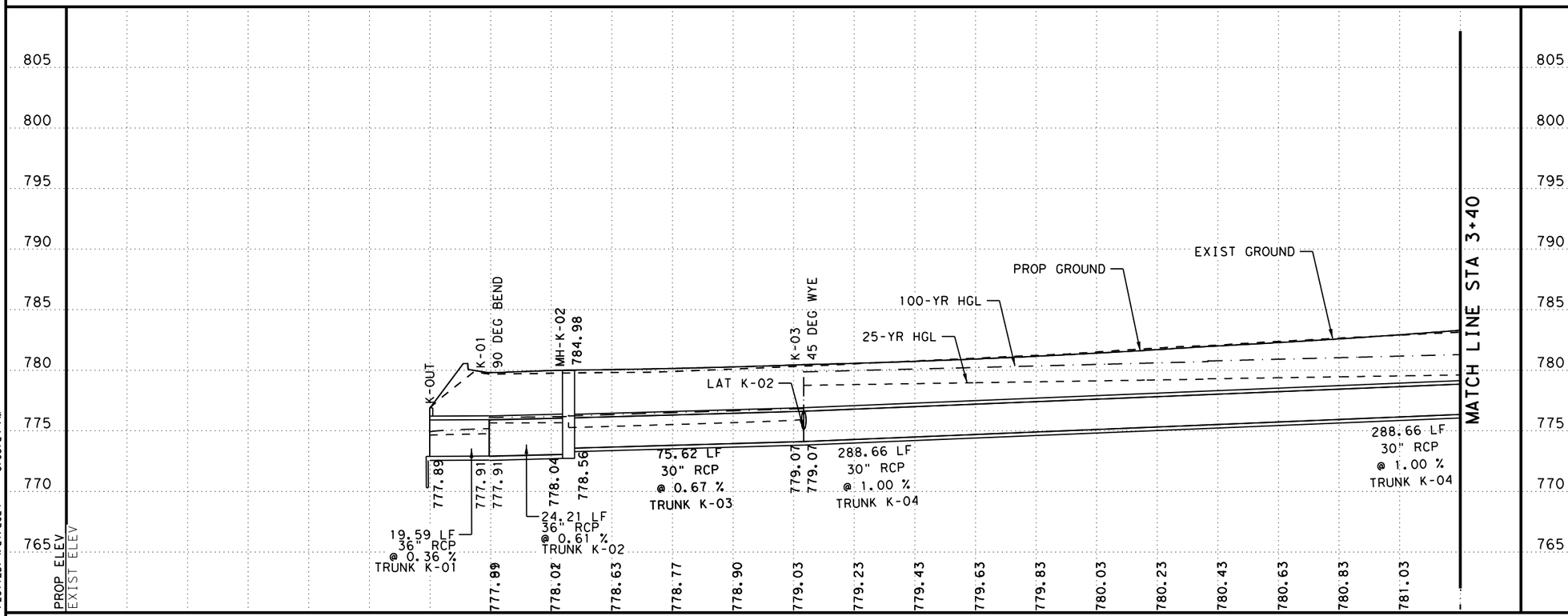


LEGEND

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0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/21/2024

Kimley»Horn F-928

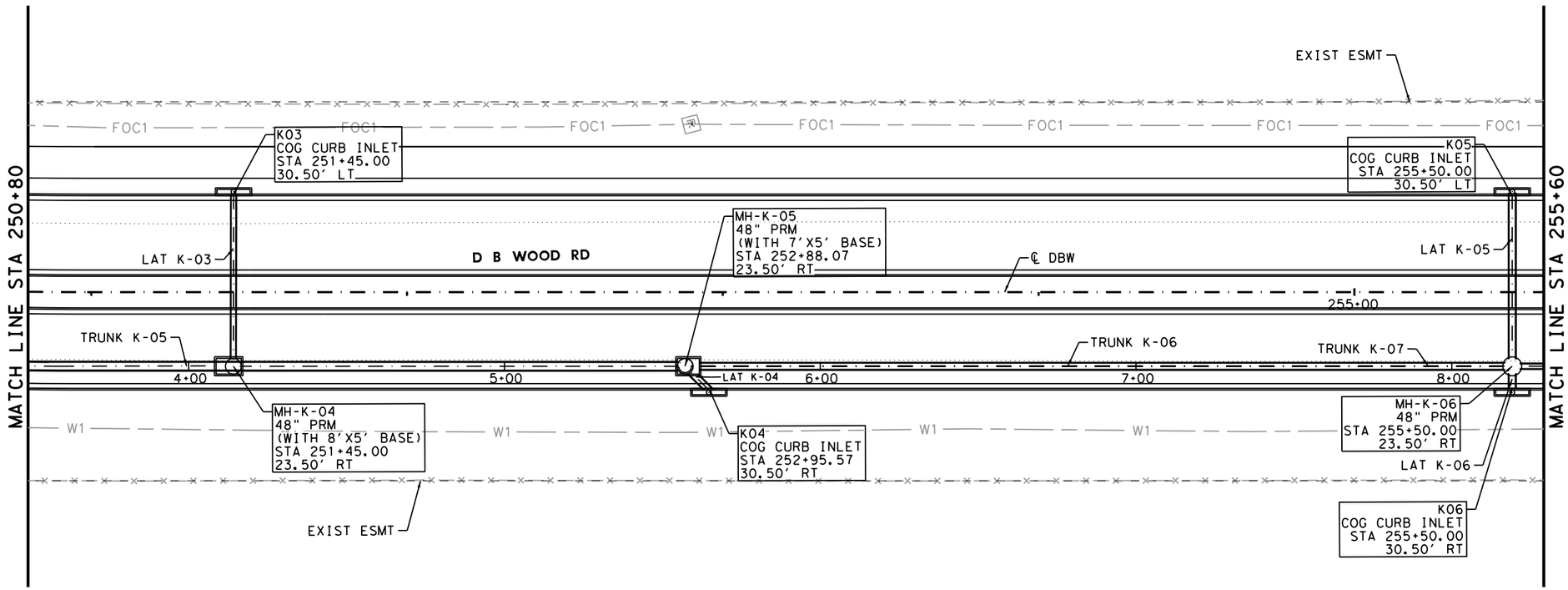
GEORGETOWN TEXAS
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM K

SHEET 12 OF 20 | 249

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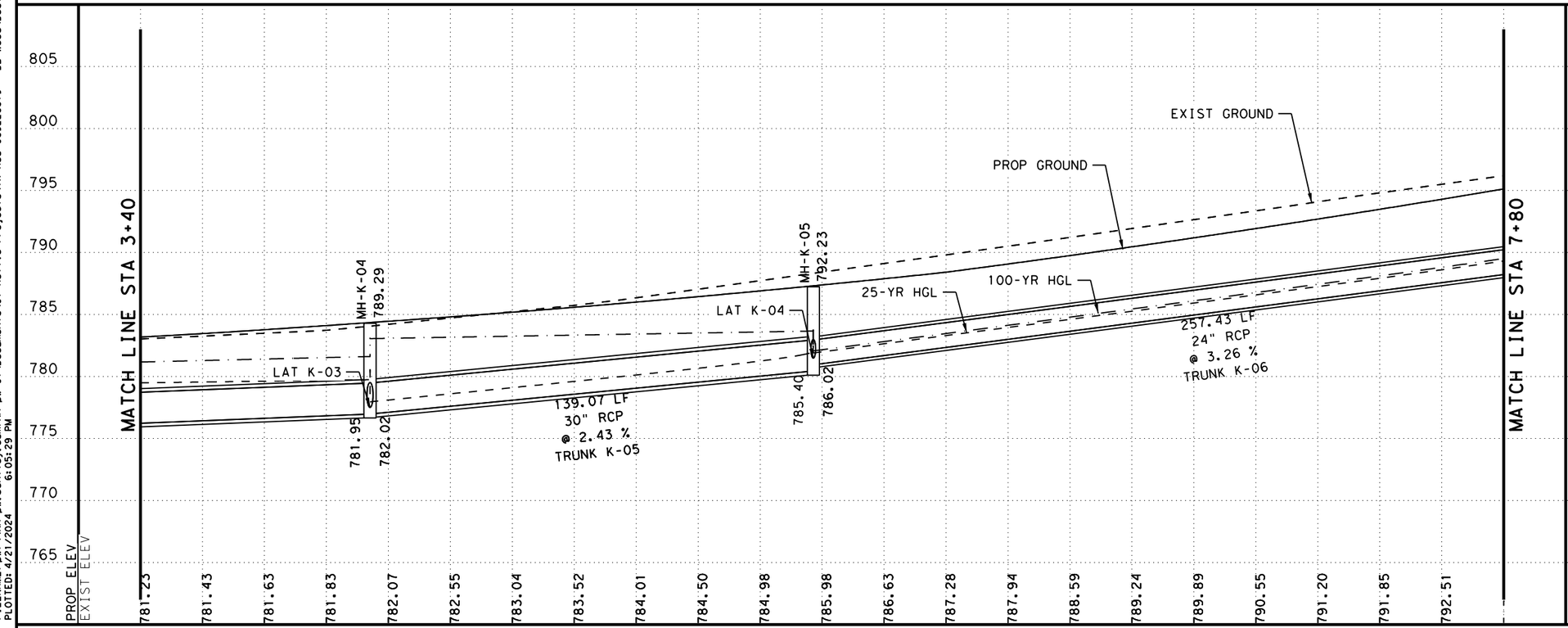


LEGEND

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0' 20' 40'

STATE OF TEXAS
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Malia Caldwell
4/21/2024

Kimley»Horn F-928

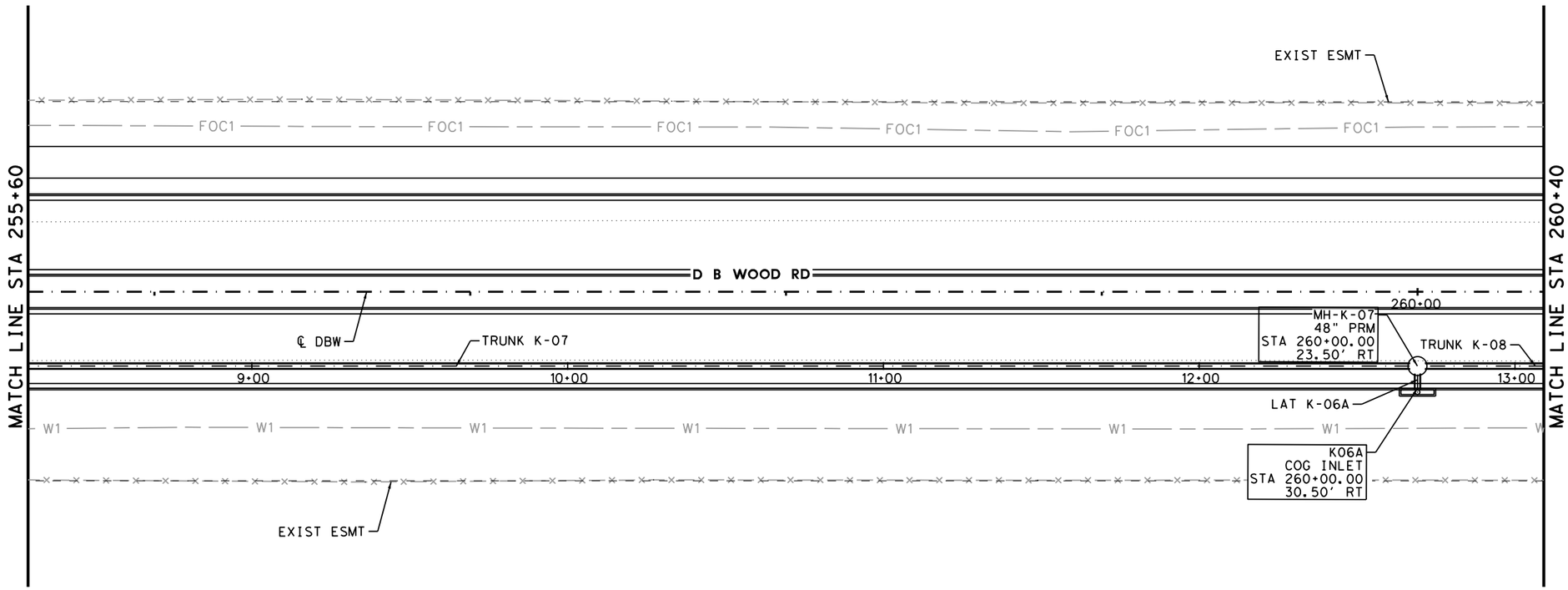
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM K

SHEET 13 OF 20 | 250

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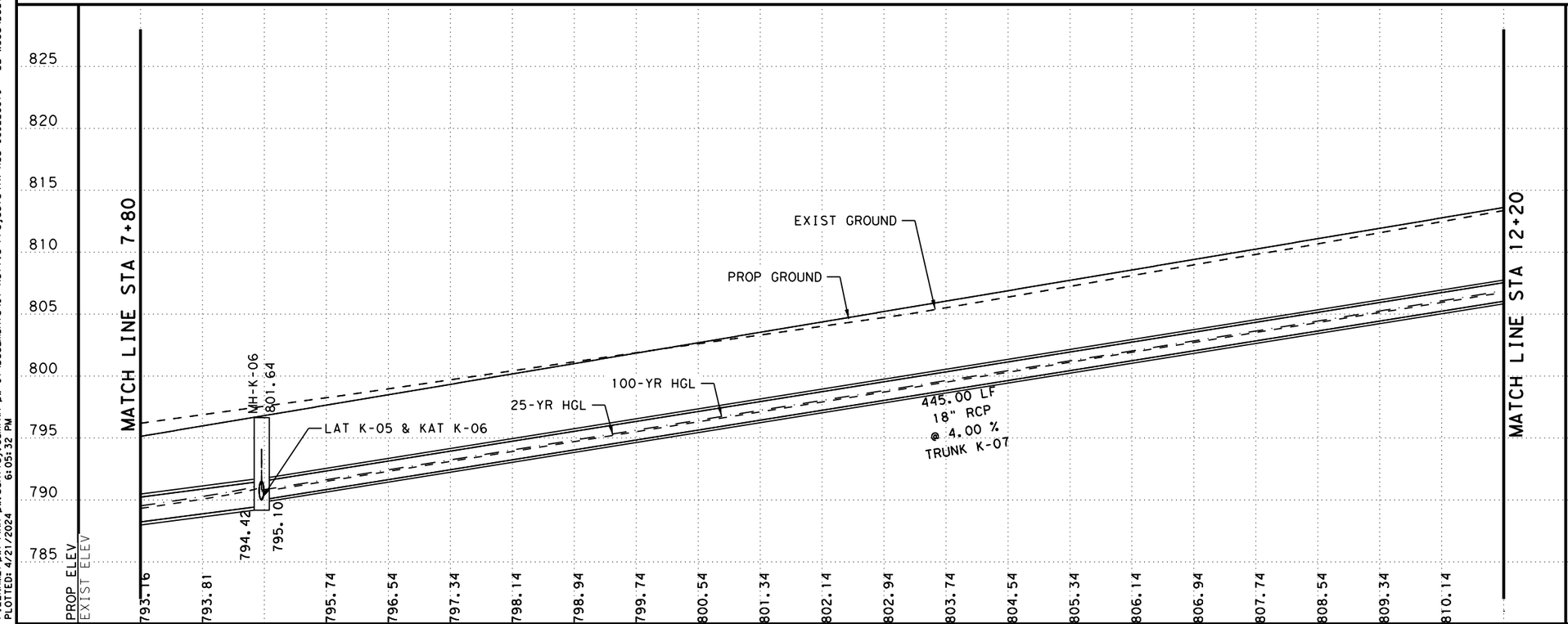


LEGEND

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STATE OF TEXAS
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Malia Caldwell
4/21/2024

Kimley»Horn F-928

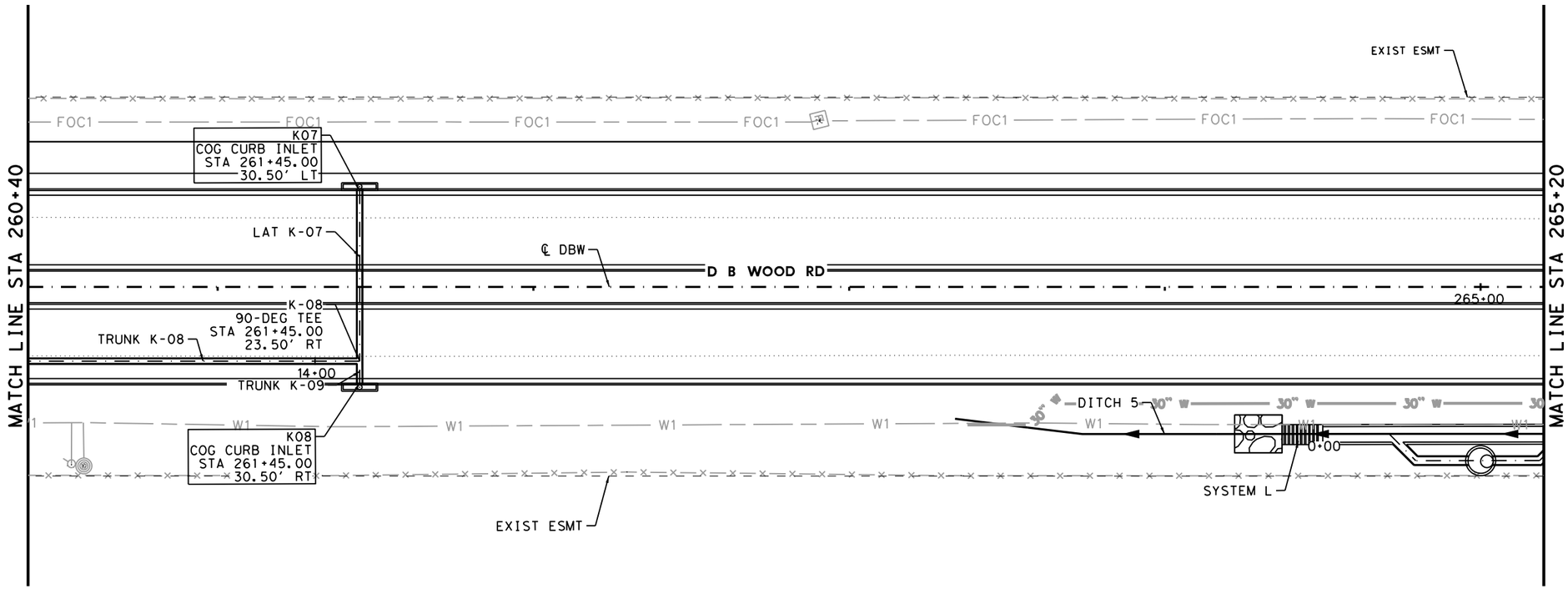
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM K

SHEET 14 OF 20 | 251

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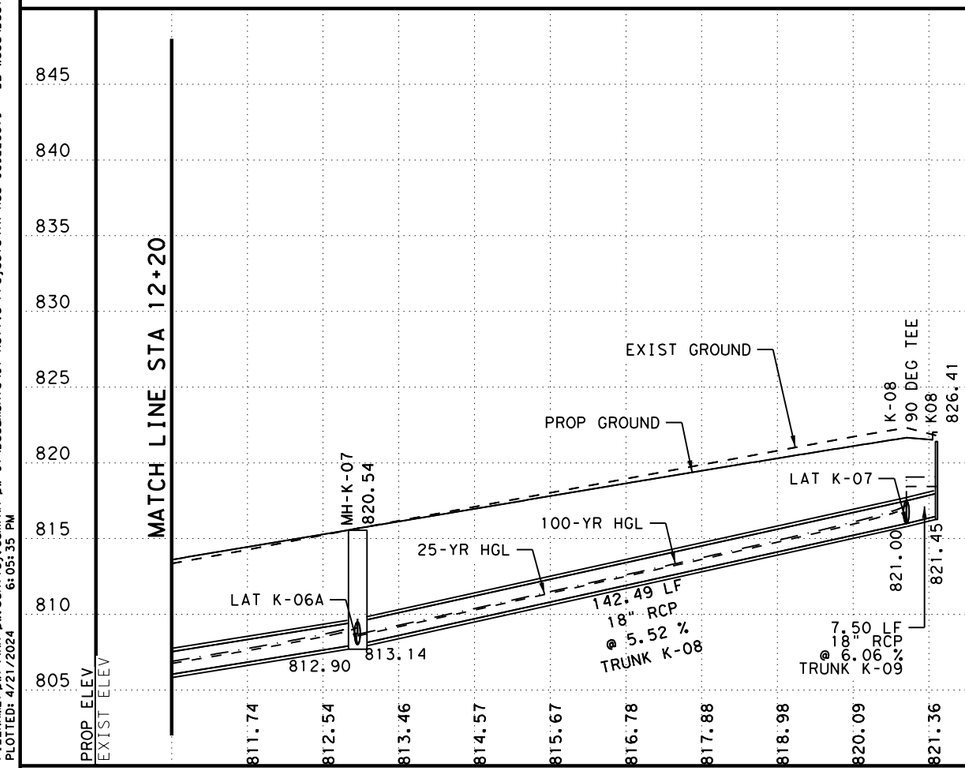


LEGEND

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0' 20' 40'

Malia Caldwell
4/21/2024

STATE OF TEXAS
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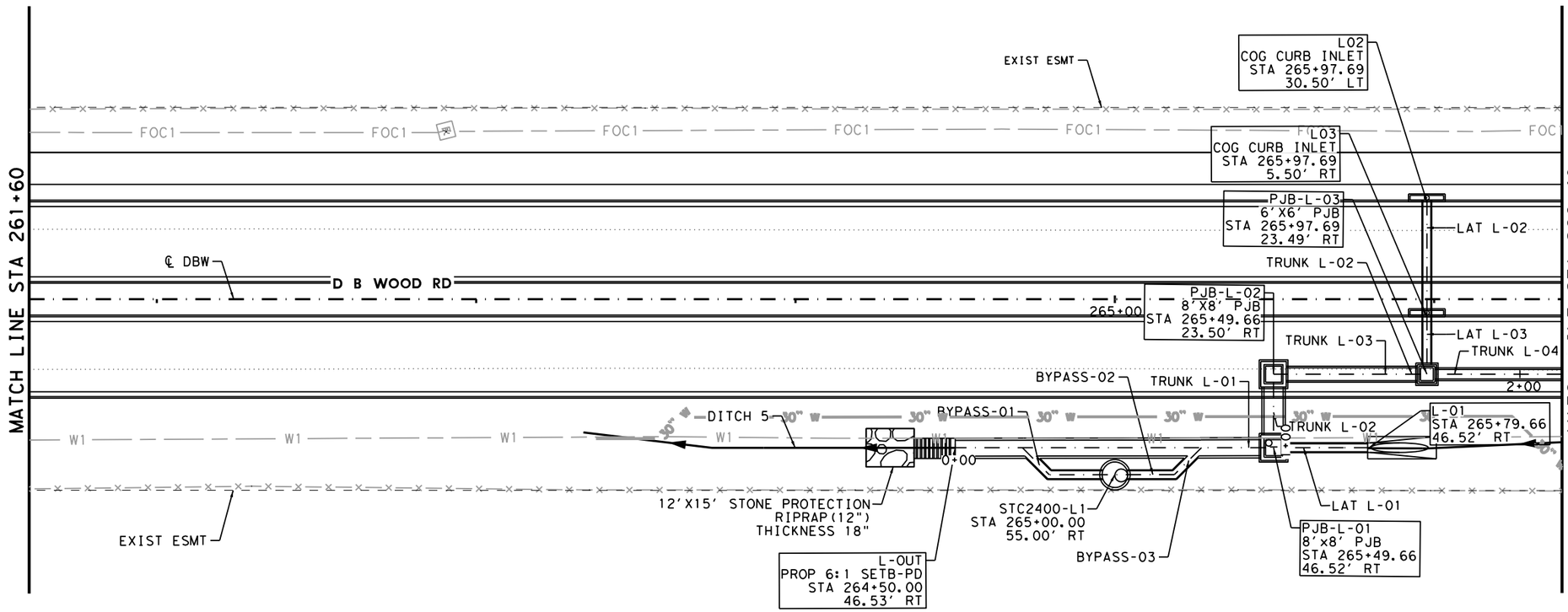
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM K

SHEET 15 OF 20 | 252

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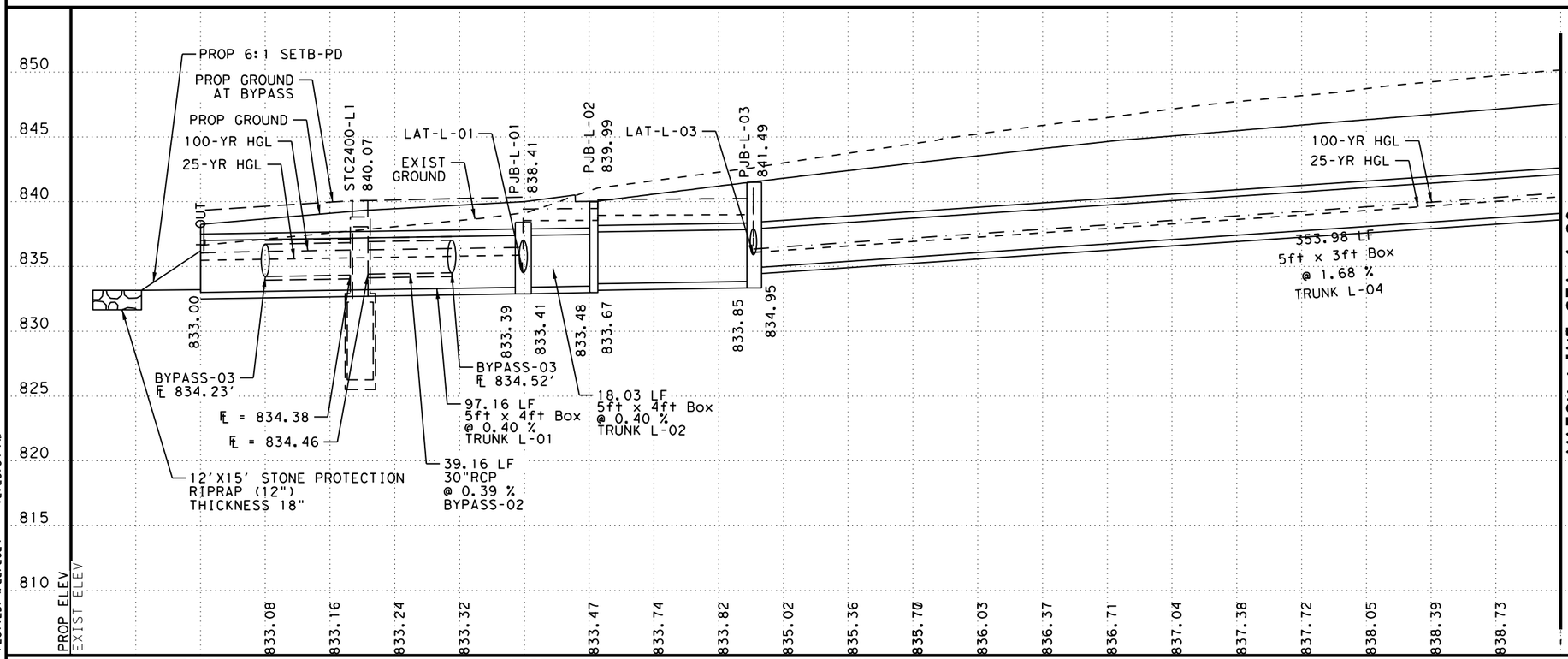


LEGEND

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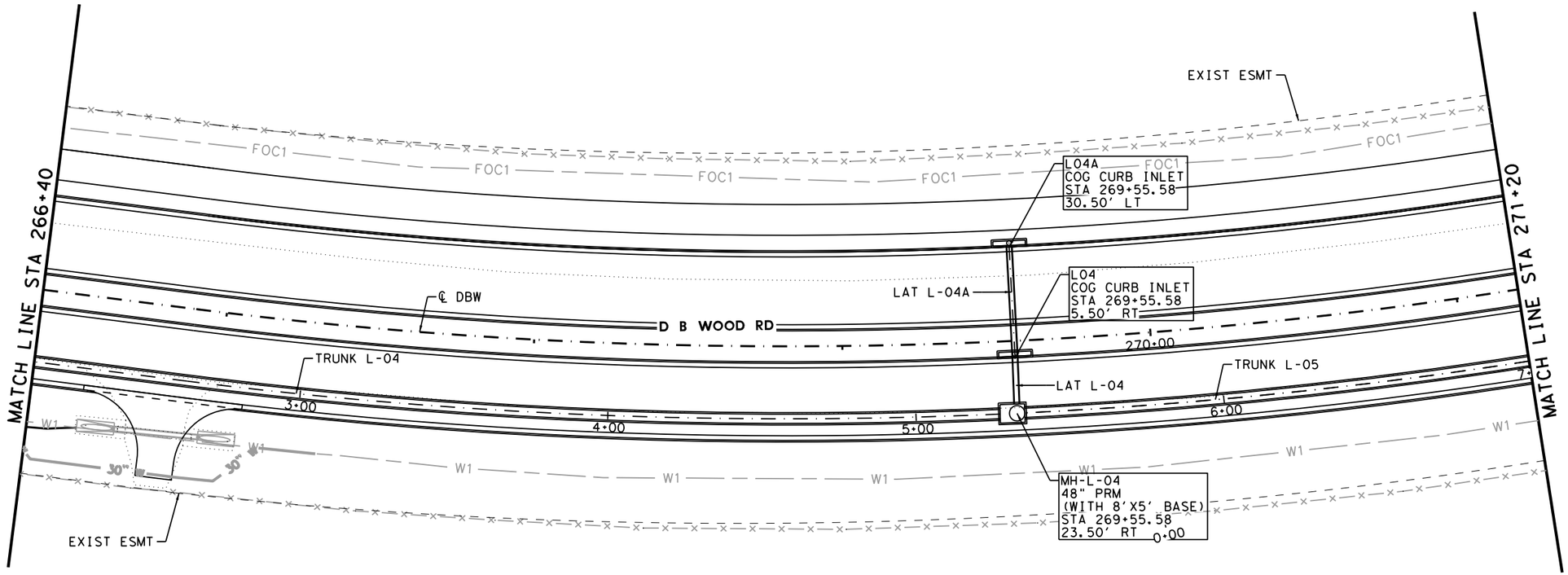
GEORGETOWN TEXAS
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D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM L

SHEET 16 OF 20 | 253

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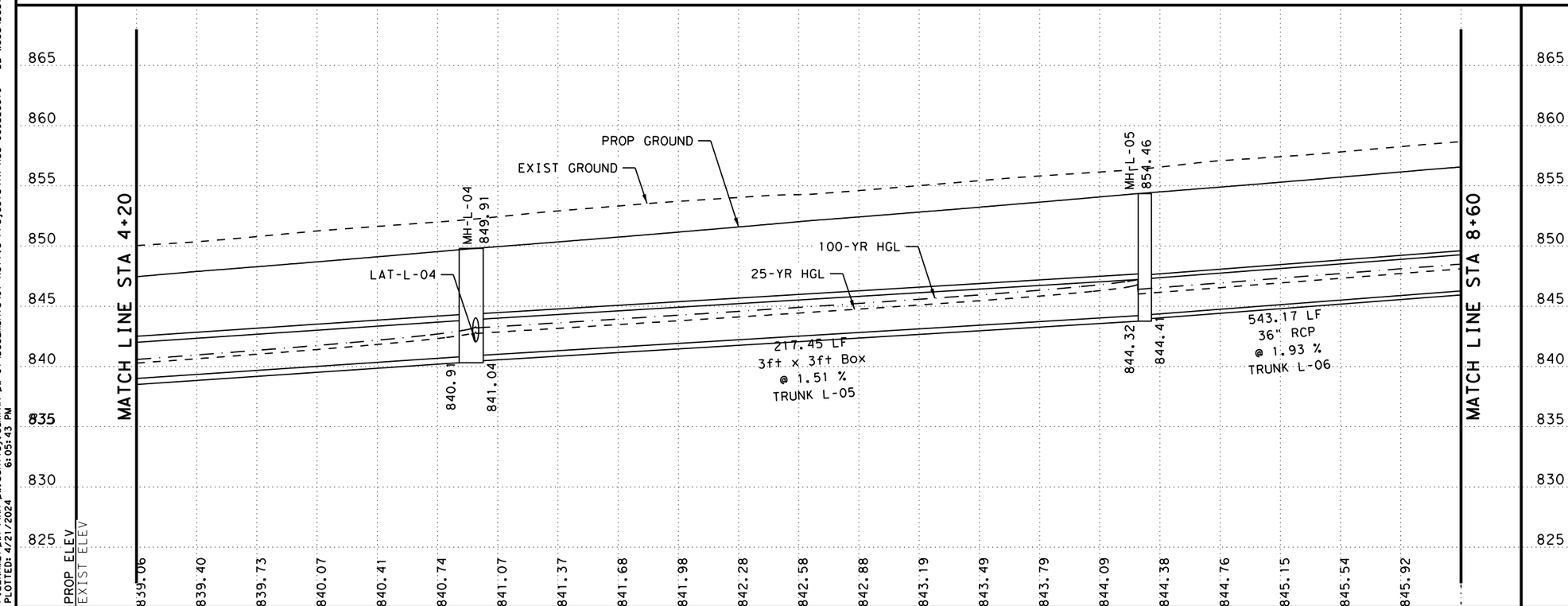


LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
- JUNCTION BOX
- STORM SEWER CONDUIT
- EXIST ROW
- EXIST PROPERTY LINE
- PROP DITCH ℄
- EXISTING FENCE
- 25 YR HGL
- 100 YR HGL

NOTES:

1. SEE HYDRAULIC DATA - STORM SEWER SHEETS FOR INLET AND CONDUIT COMPUTATIONS
2. SEE UTILITY PLANS AND DETAILS FOR MORE INFORMATION
3. SEE CROSS SECTIONS FOR DITCH INFORMATION
4. BASE SIZES ARE CALLED OUT FOR CLARIFICATION ONLY AND ARE SUBSIDIARY TO MANHOLES.
5. SEE CULVERT LAYOUTS FOR MORE INFORMATION.



0' 20' 40'



Malia Caldwell
4/21/2024

Kimley»Horn F-928

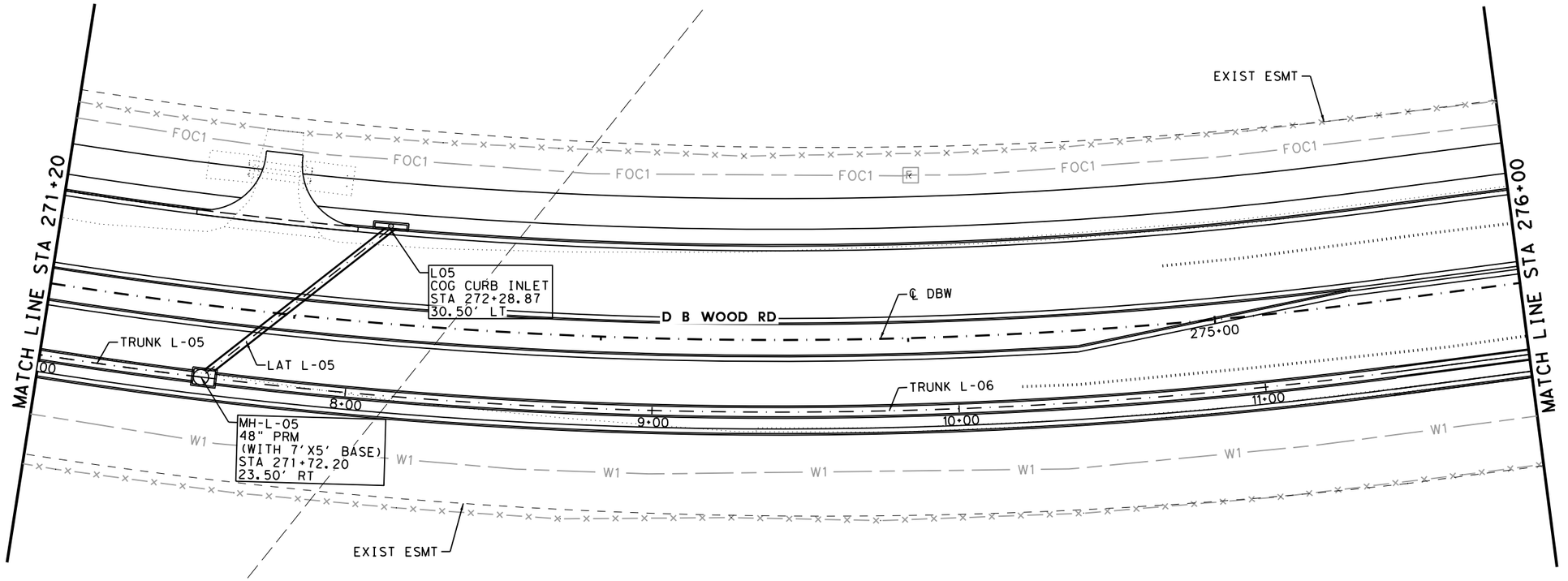
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM L

SHEET 17 OF 20 | 254

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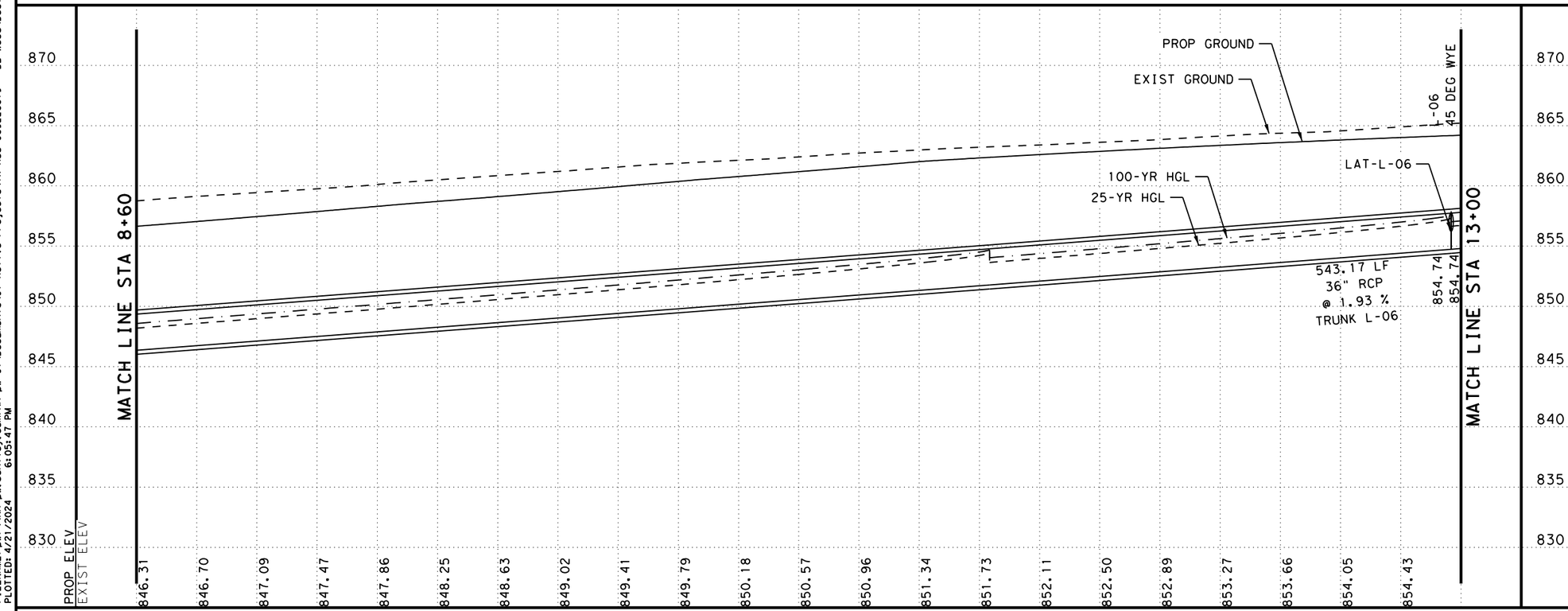


LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
- JUNCTION BOX
- STORM SEWER CONDUIT
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0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/21/2024

Kimley»Horn F-928

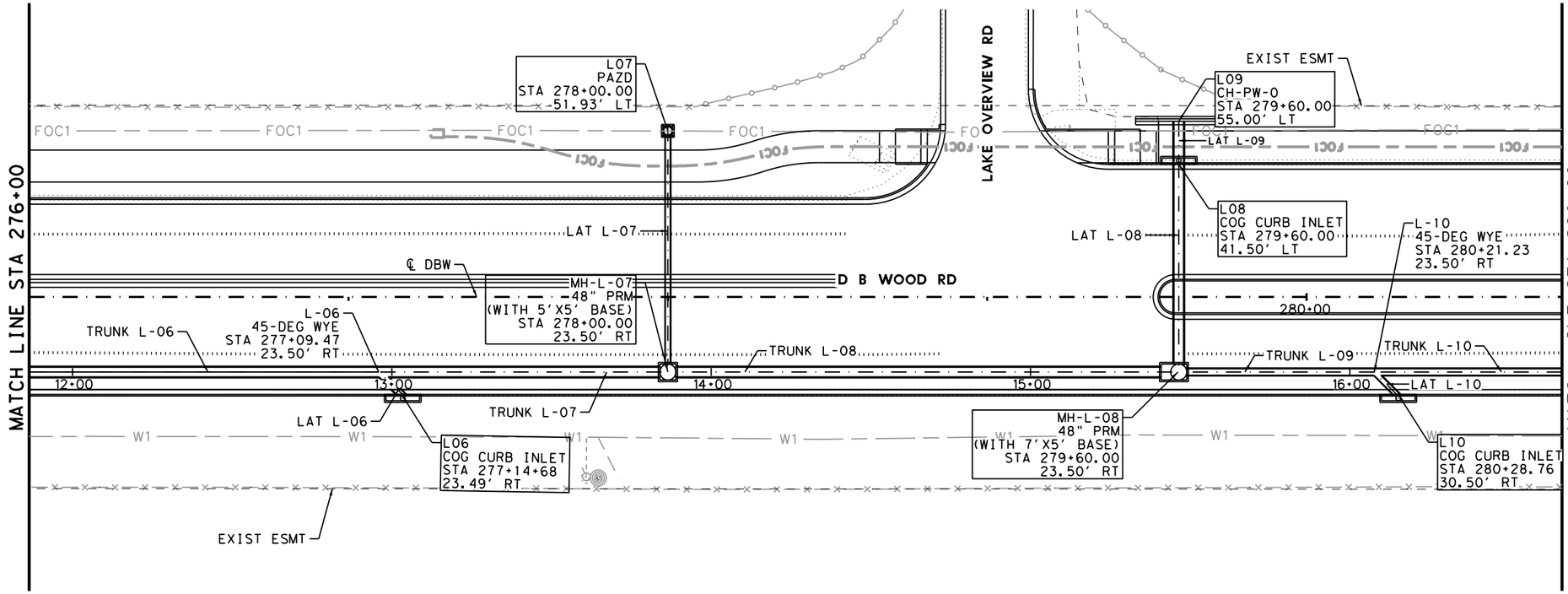
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM L

SHEET 18 OF 20 | 255

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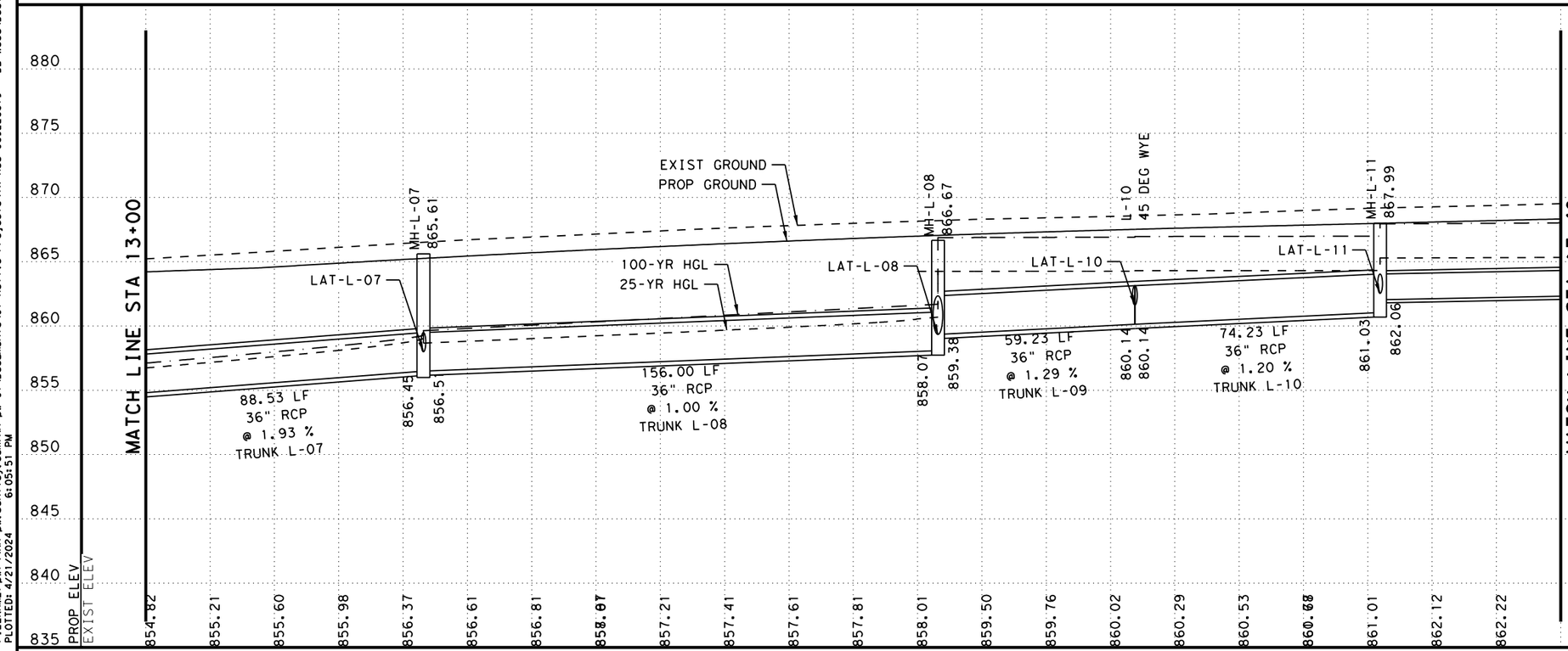


LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
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0' 20' 40'

STATE OF TEXAS
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147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/21/2024

Kimley»Horn F-928

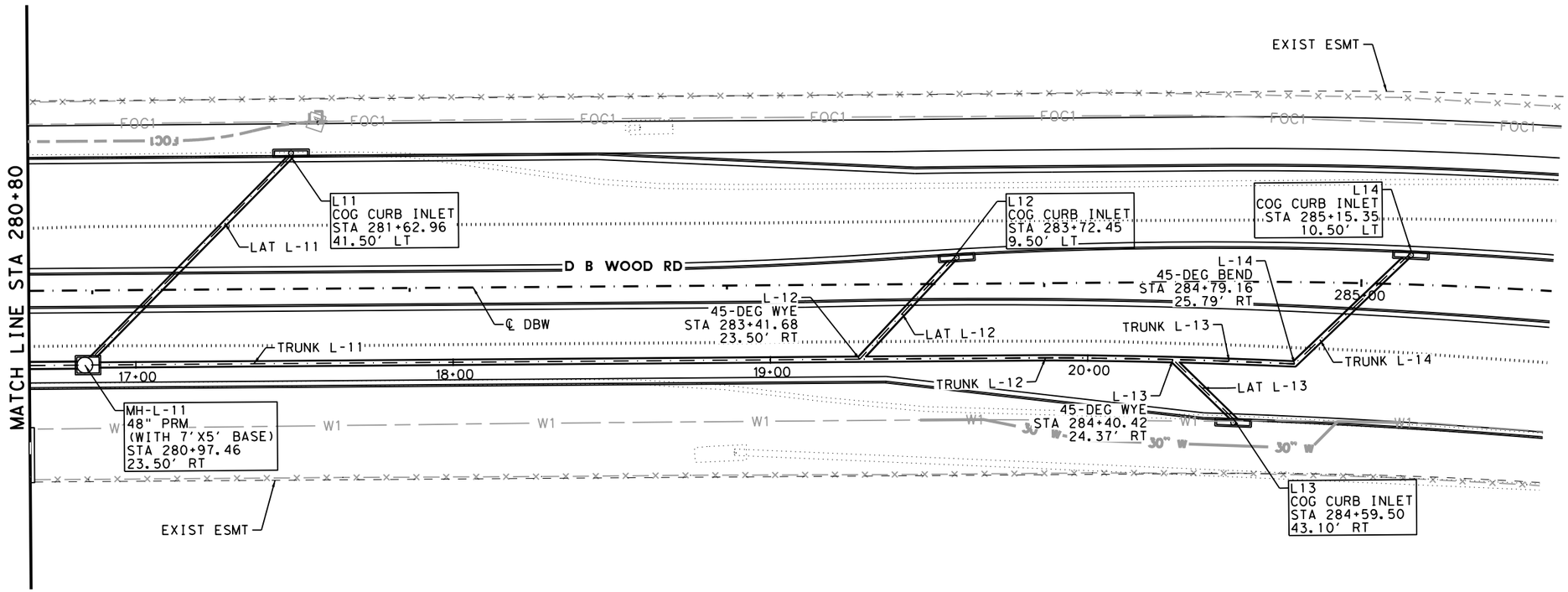
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

STORM SEWER PLAN & PROFILE SYSTEM L

SHEET 19 OF 20 | 256

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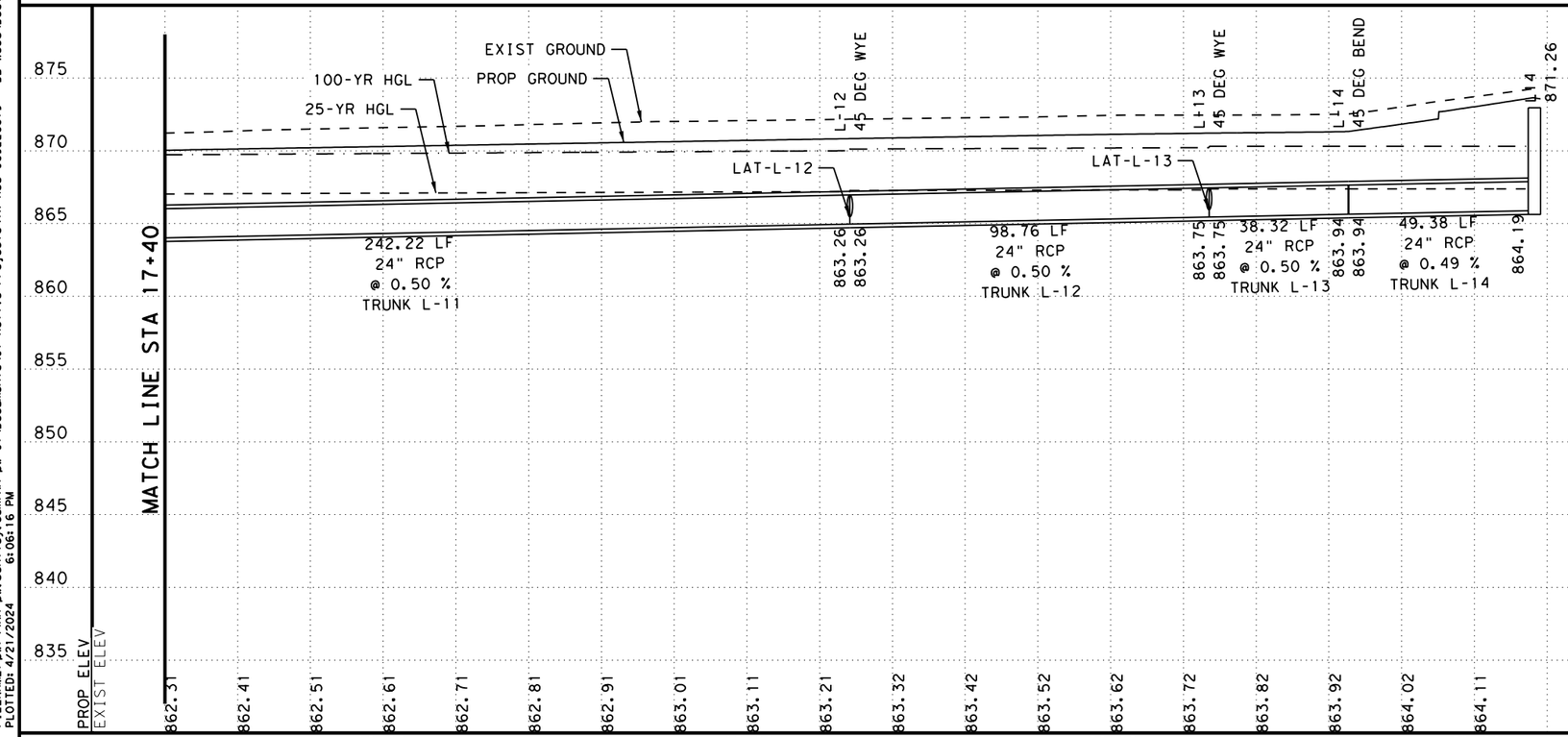


LEGEND

- COG CURB INLET
- TxDOT PAZD
- 48" PRM
- JUNCTION BOX
- STORM SEWER CONDUIT
- EXIST ROW
- EXIST PROPERTY LINE
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STATE OF TEXAS
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147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/21/2024

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

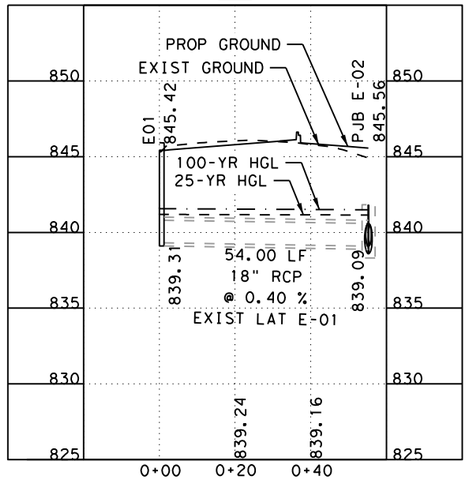
STORM SEWER PLAN & PROFILE SYSTEM L

SHEET 20 OF 20 | 257

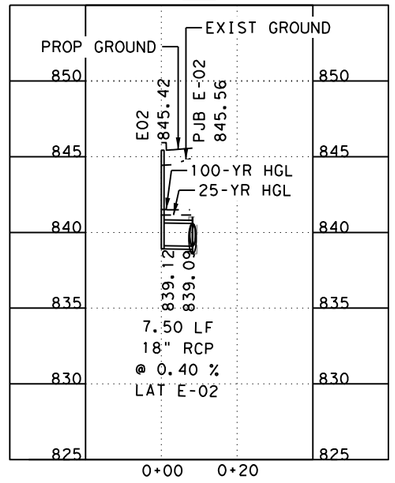
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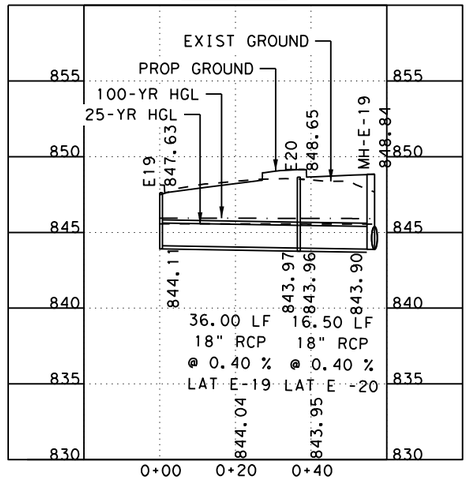
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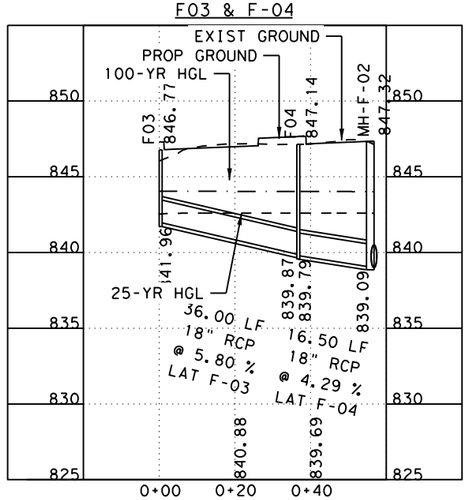
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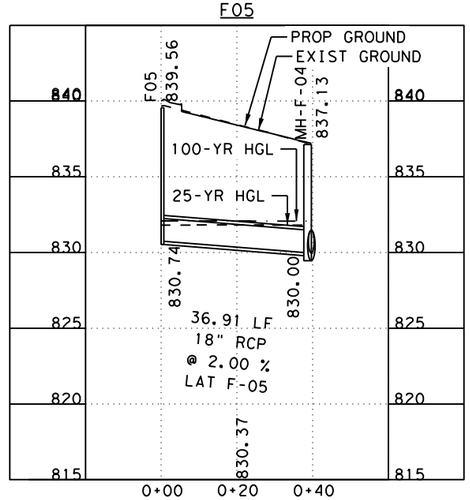
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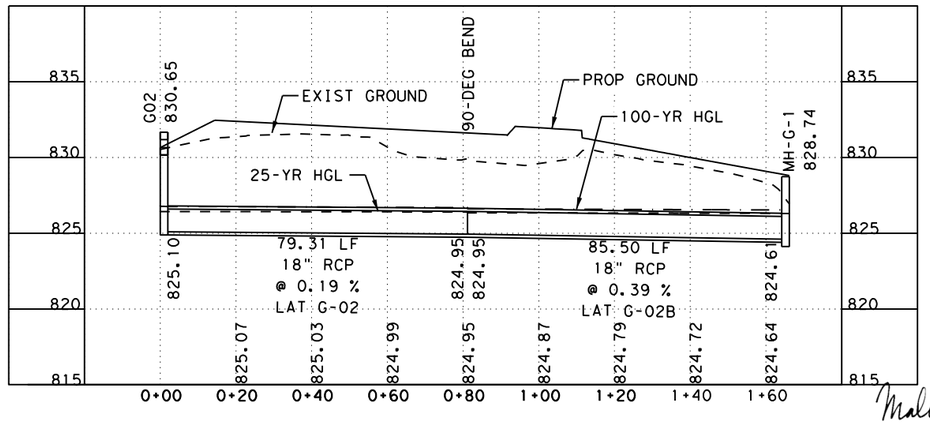
F03 & F-04



F05



G02 & G02B



LEGEND

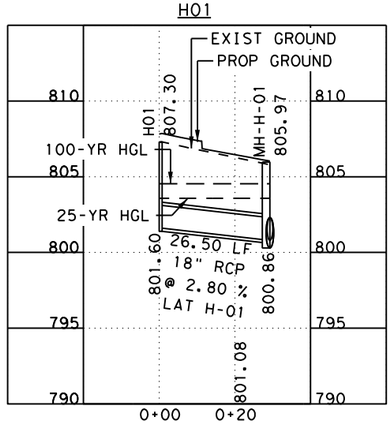
- — — 25-YR HGL
- — · — 100-YR HGL

0' 20' 40'

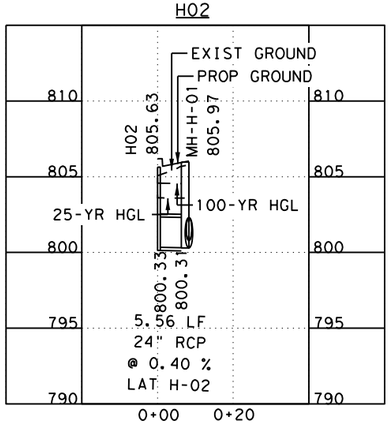
STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/21/2024

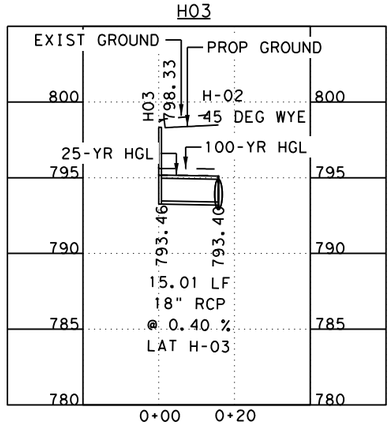
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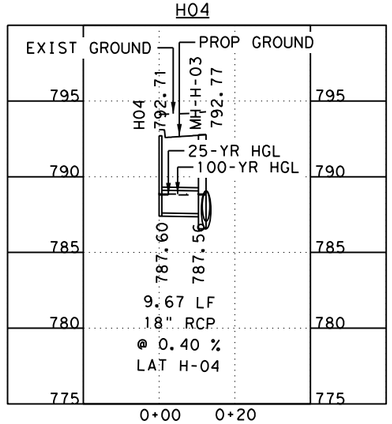
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H03



H04



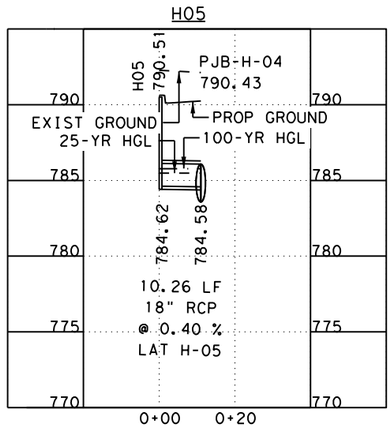
Kimley»Horn F-928

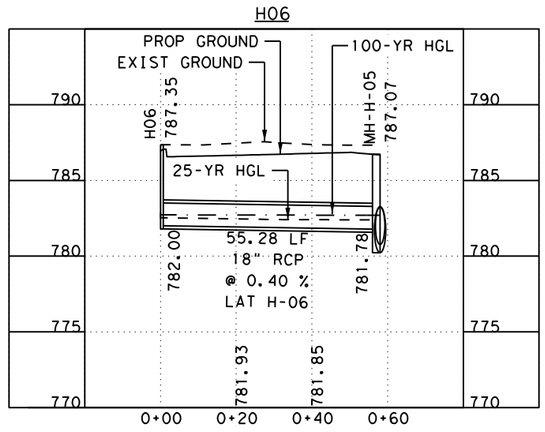
GEORGETOWN TEXAS
more than welcome

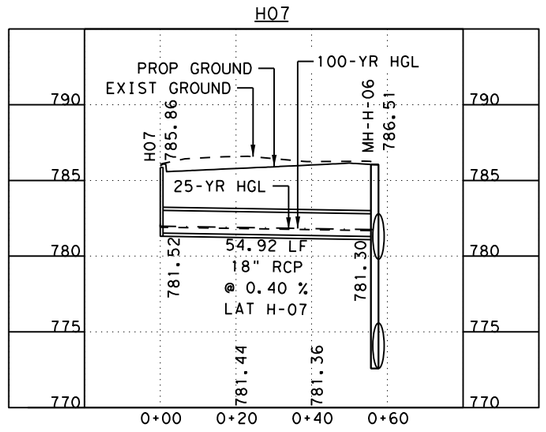
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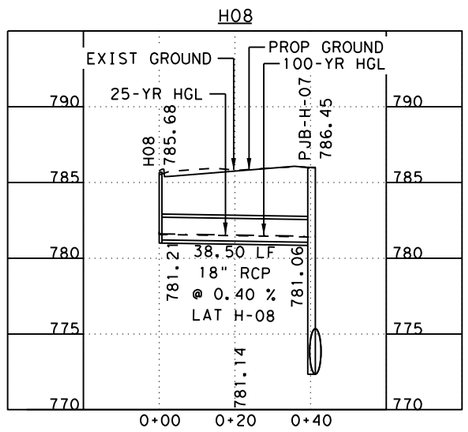
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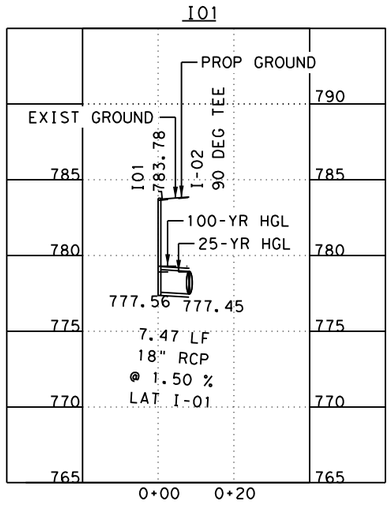
SHEET 1 OF 4 | 258

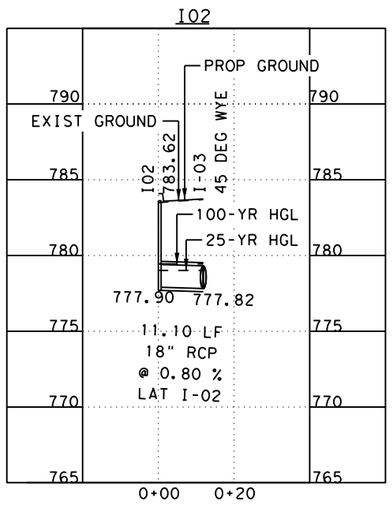


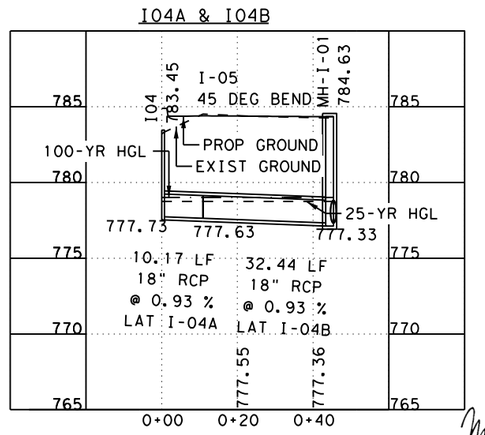


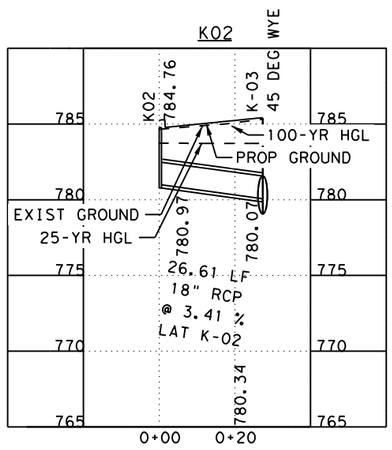


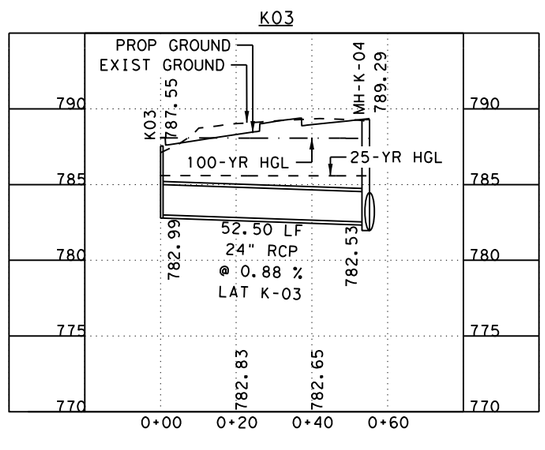


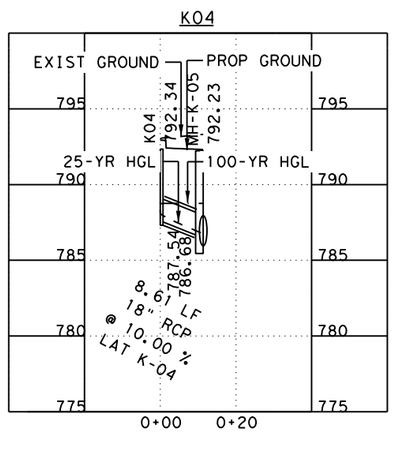












LEGEND

- – – – 25-YR HGL
- — · — 100-YR HGL

0' 20' 40'

Malia Caldwell
4/21/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

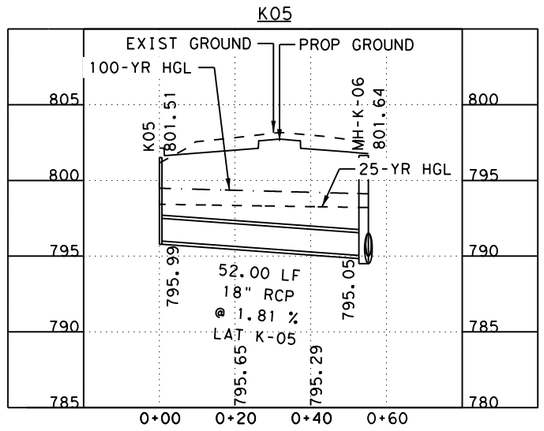
GEORGETOWN TEXAS
more than welcome

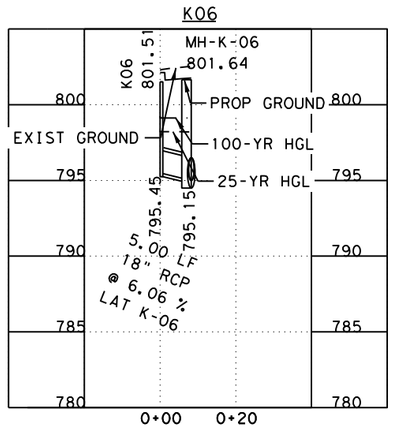
D B WOOD ROAD

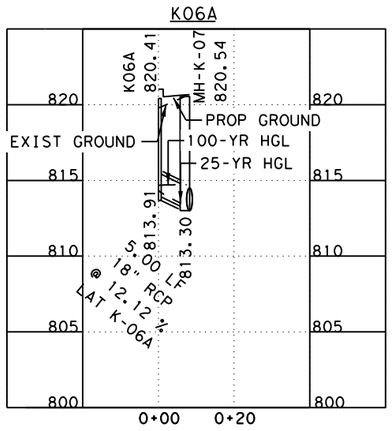
STORM SEWER LATERALS

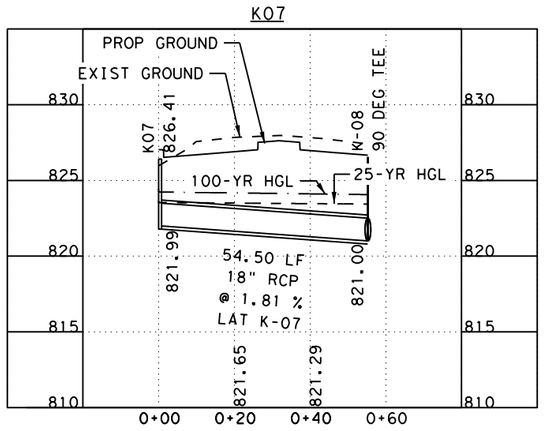
SHEET 2 OF 4 | 259

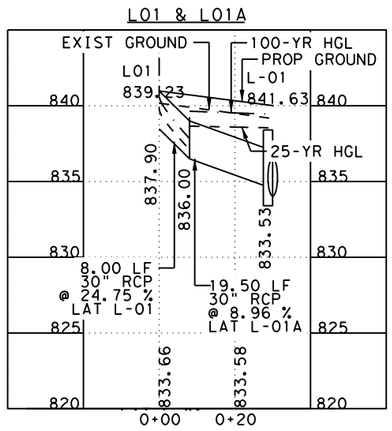
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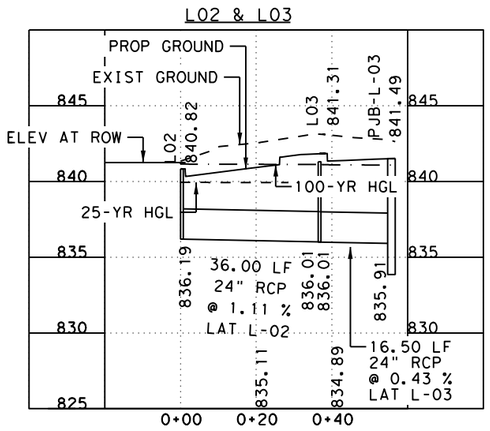


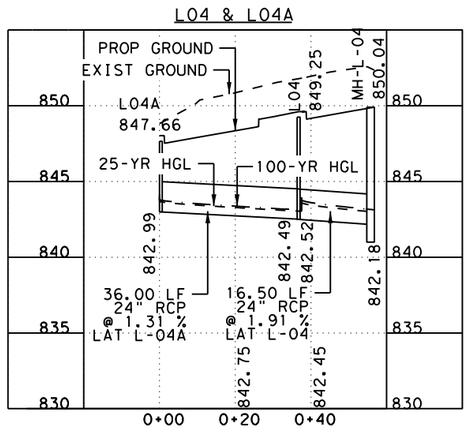


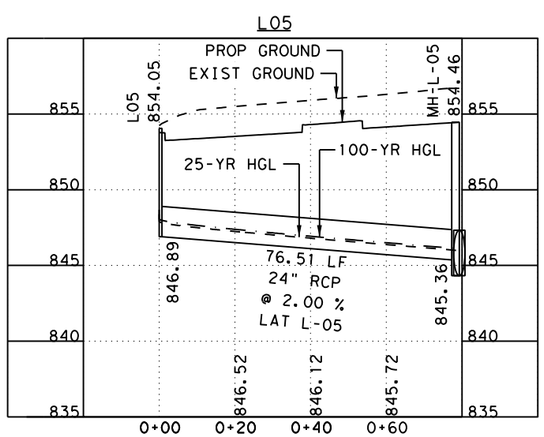


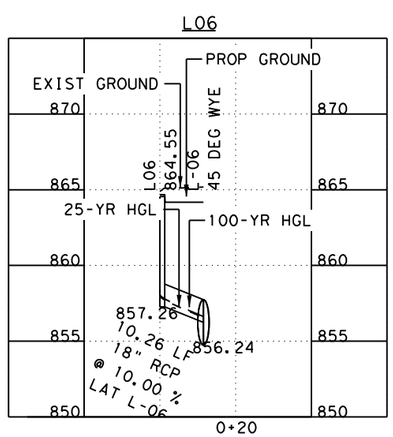


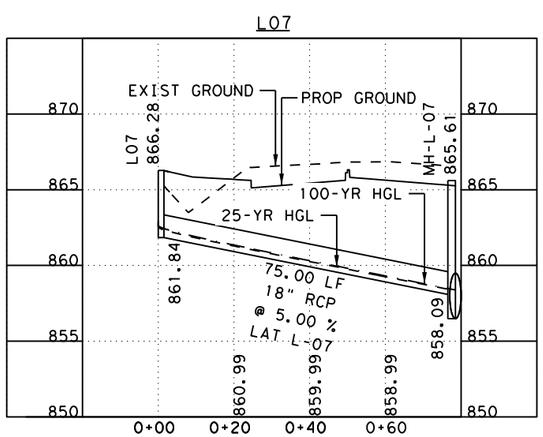












LEGEND

- – – 25-YR HGL
- — · — 100-YR HGL

0' 20' 40'

Malia Caldwell
4/22/2024

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
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Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

STORM SEWER LATERALS

SHEET 3 OF 4 | 260

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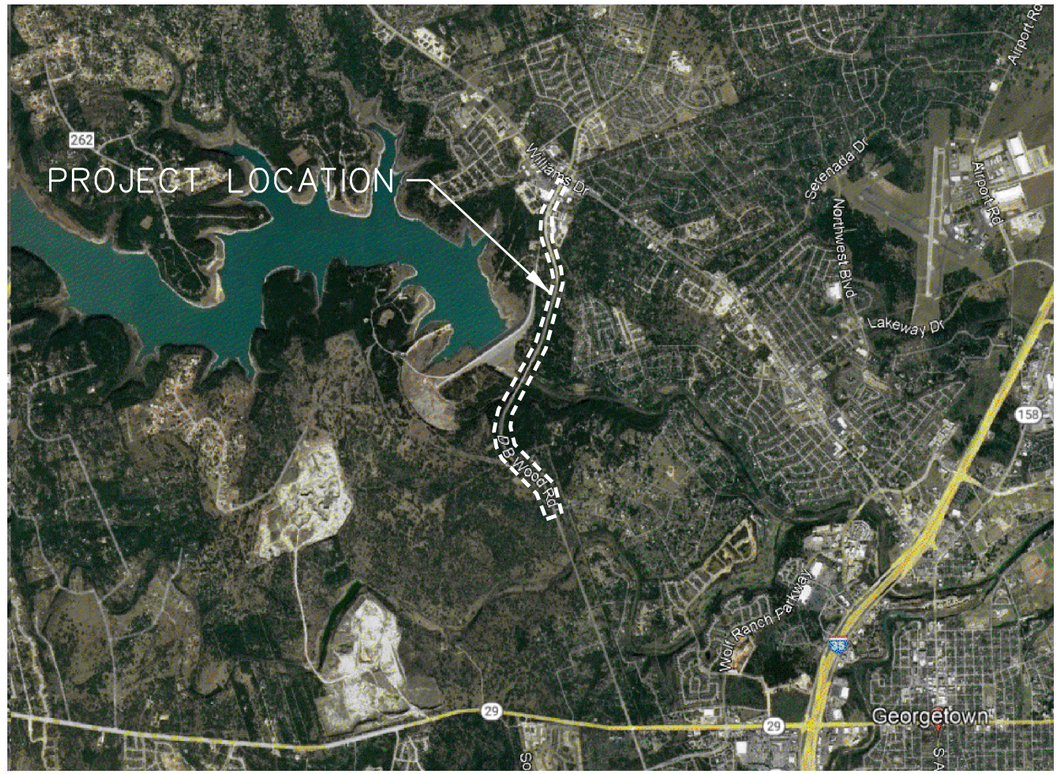
SUBSURFACE UTILITY ENGINEERING PLANS
CITY OF GEORGETOWN

DB WOOD RD (PHASE 2)

GEORGETOWN, TEXAS
WILLIAMSON COUNTY

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	INDEX LAYOUT
3–16	S.U.E. PLAN SHEET



PROJECT LOCATION
SCALE: NTS

N

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

04-15-2024

Subsurface Utility Engineering (SUE) Certification

The engineer's seal hereon is to certify that the utilities shown have been investigated in accordance with standard SUE industry practices. Where indicated utility sizes and materials taken from best available records. All other information hereon has been provided by others and is not a part of this certification.

GEORGETOWN TEXAS
more than welcome

Kimley»Horn

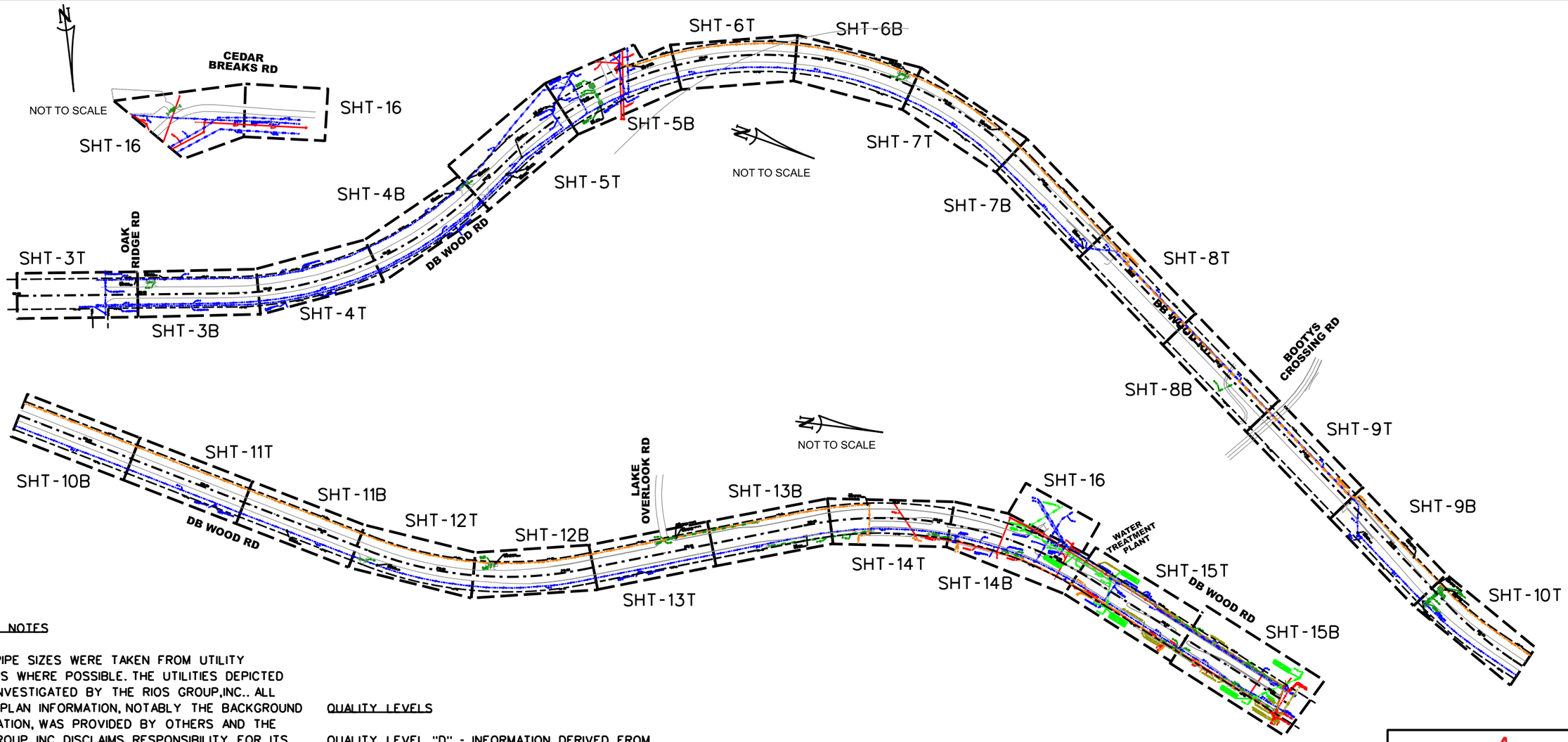
REV	DATE	BY	DESCRIPTION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
575 Round Rock West Dr.
Suite #K400
Round Rock, TX 78681

DB WOOD RD PHASE 2
GEORGETOWN, TEXAS

S.U.E. COVER SHEET

DESIGNED BY: RH	CHECKED BY: TI	DATE: 04-15-2024
TRG # KHA_2259.00		286



SPECIAL NOTES

1. ALL PIPE SIZES WERE TAKEN FROM UTILITY RECORDS WHERE POSSIBLE. THE UTILITIES DEPICTED WERE INVESTIGATED BY THE RIOS GROUP,INC.. ALL OTHER PLAN INFORMATION, NOTABLY THE BACKGROUND INFORMATION, WAS PROVIDED BY OTHERS AND THE RIOS GROUP, INC. DISCLAIMS RESPONSIBILITY FOR ITS ACCURACY.

2. EXISTING SUBSURFACE UTILITY INVESTIGATIONS WERE COMPLETED ON 05/08/2023. THE RIOS GROUP, INC. EXPRESSLY DISCLAIMS ANY AND ALL RESPONSIBILITY FOR NEW UTILITY INSTALLATIONS, MODIFICATIONS, AND/OR ADJUSTMENTS TO EXISTING UTILITIES AFTER THE COMPLETION DATE.

3. UTILITY LOCATIONS ON THESE DRAWINGS ARE INTENDED FOR DESIGN PURPOSES AND NOT CONSTRUCTION. THEY REFLECT SUBSURFACE UTILITIES AT THE TIME OF FIELD INVESTIGATION. CALL TEXAS ONE CALL SYSTEM (800)245-4545 FOR UTILITY LOCATIONS 48 HOURS PRIOR TO ANY WORK.

4. WHERE POSSIBLE, WATER, GAS, AND COMMUNICATION SERVICE LINES WERE DESIGNATED. HOWEVER, SOME SERVICE LINES ARE CONSTRUCTED OF NON-CONDUCTIVE MATERIAL AND UTILITY COMPANY DRAWINGS MAY NOT SHOW SERVICE LINE LOCATIONS. THEREFORE ALL SERVICE LINES MAY NOT BE SHOWN.

QUALITY LEVELS

QUALITY LEVEL "D" - INFORMATION DERIVED FROM EXISTING RECORDS AND/OR ORAL COLLECTION.

QUALITY LEVEL "C" - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING INFORMATION TO QUALITY LEVEL "D" INFORMATION.

QUALITY LEVEL "B" - DESIGNATE: TWO-DIMENSIONAL HORIZONTAL MAPPING. THIS INFORMATION IS OBTAINED THROUGH THE APPLICATION AND INTERPRETATION OF APPROPRIATE NON-DESTRUCTIVE SURFACE GEOPHYSICAL METHODS. UTILITY INDICATIONS ARE REFERENCED TO ESTABLISHED SURVEY CONTROL. INCORPORATES QUALITY LEVELS "C" AND "D" INFORMATION TO PRODUCE QUALITY LEVEL "B" INFORMATION.

QUALITY LEVEL "A" - LOCATE: PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES AT A SPECIFIC POINT. DIAMETERS SHOWN ARE VERIFIED VISUALLY AND MAY NOT BE EXACT.

MATERIAL ABBREVIATIONS

STL - STEEL
PE - POLYETHYLENE
AC - TRANSITE
CI - CAST IRON
DI - DUCTILE IRON
PVC - POLYVINYL CHLORIDE
DBC - DIRECT BURIED CABLE
RCP - REINFORCED CONCRETE PIPE
VC - VITRIFIED CLAY
FG - FIBERGLASS
CSC - CONCRETE/STEEL CYLINDER
CMP - CORRUGATED METAL PIPE
CONC - CONCRETE
CLAY - CLAY
UNK - UNKNOWN

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED PROFESSIONAL ENGINEER

04-15-2024

Subsurface Utility Engineering (SUE) Certification

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GEORGETOWN TEXAS
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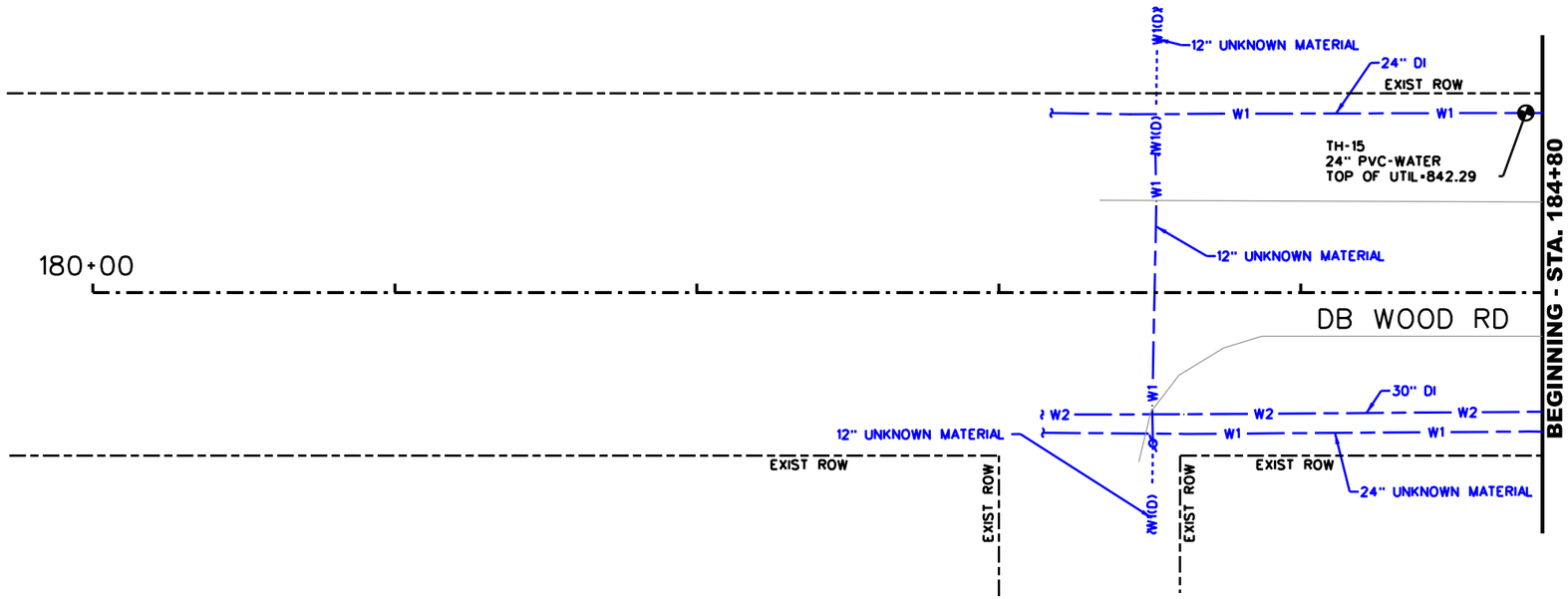
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

575 Round Rock West Dr.
Suite #K400
Round Rock, TX 78681

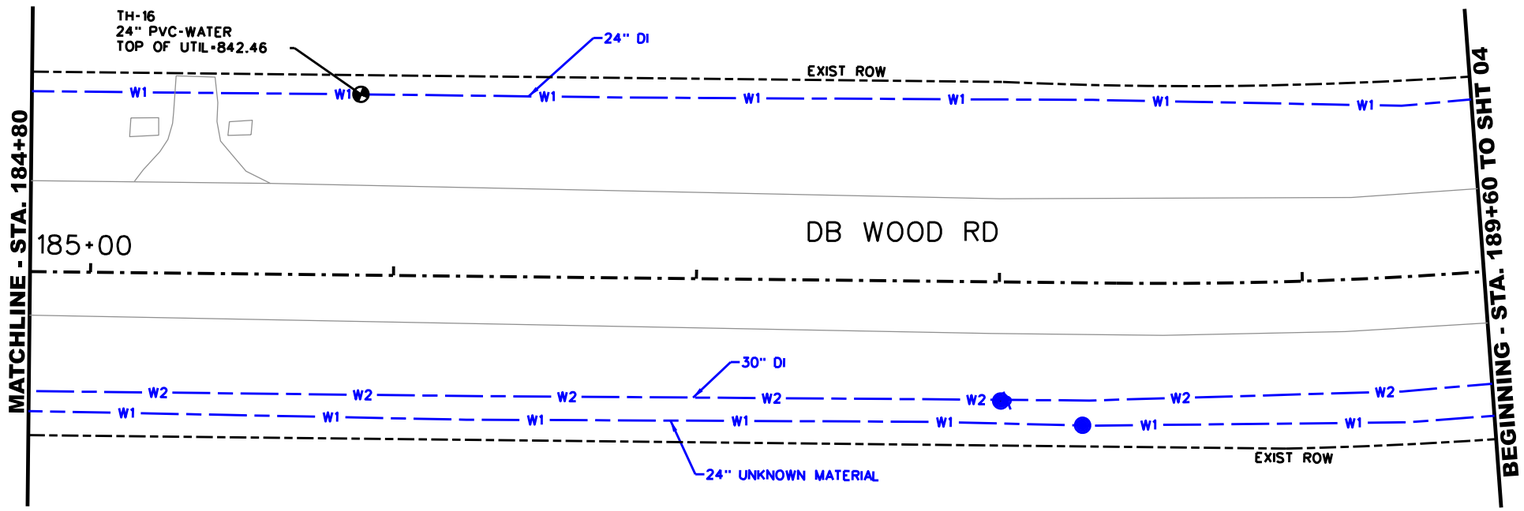
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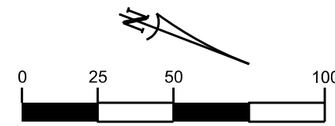
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LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
- QUALITY LEVEL "C" — X# (C) —
- QUALITY LEVEL "D" — X# (D) —
- ABANDONED UTILITY
- PROPOSED UTILITY
- UNKNOWN UTILITY

COMMUNICATIONS (QL "B")
- ATT (TELE) — T1
- FRONTIER (TELE) — T2
- GUS (FO/DUCT) — FOC1
- ATT (FO/DUCT) — FOC2
- SUDDENLINK (FO/DUCT) — FOC3
- SUDDENLINK (CABLE) — CTV1

ELECTRIC / POWER (QL "B")
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GAS / PETROLEUM (QL "B")
- ATMOS — G1

SANITARY SEWER (QL "B")
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WATER (QL "B")
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- CITY OF ROUND ROCK (RAW) — W2
- PRIVATE — W3

TRAFFIC SIGNALS (QL "B")
- CITY OF GEORGETOWN — TS1

OVERHEAD UTILITY (QL "C"/QL "D")
- OH 1-PEDERNALES ELECTRIC
- OH 2-GUS
- OH 3-FRONTIER
- OH 4-SUDDENLINK
- OH 5-ATT

— OH —

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET
- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
- TELEPHONE CABINET
- TELEPHONE HANDHOLE (VAULT)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE POLE
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE
- ELECTRIC JUNCTION BOX (CABINET)
- ELECTRIC MANHOLE
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The Rios Group, Inc.
TBPE Firm # F-14595

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GEORGETOWN TEXAS
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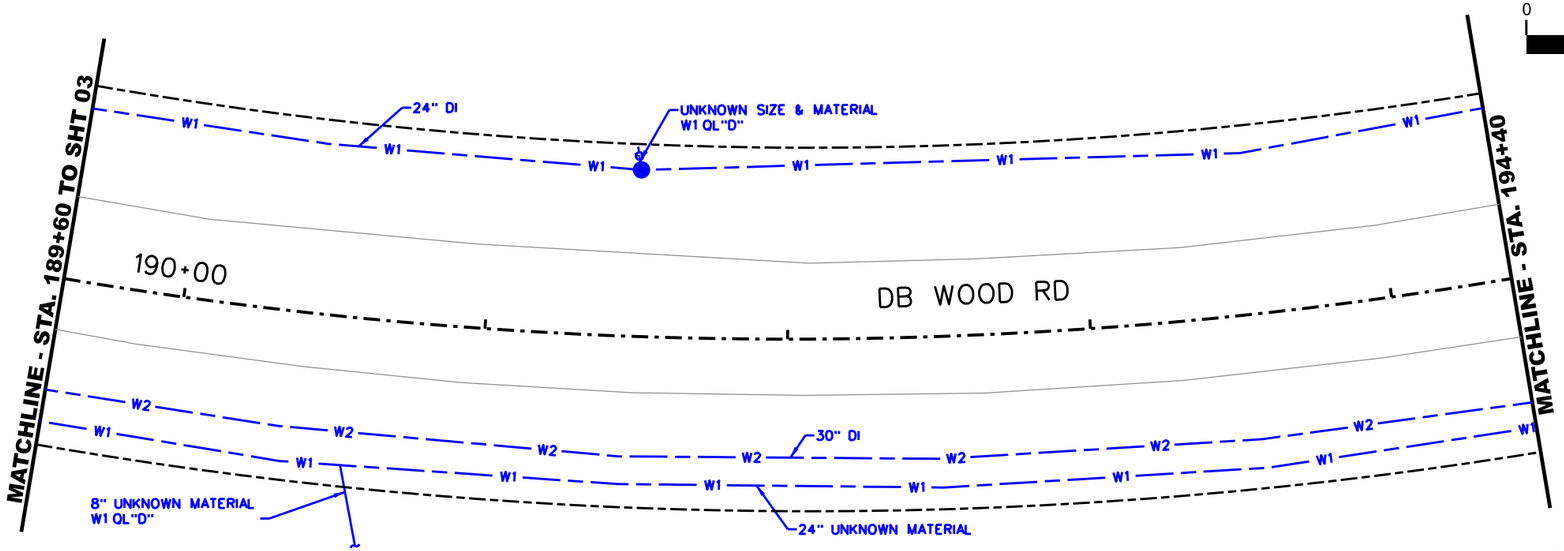
THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
575 Round Rock West Dr.
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Round Rock, TX 78681

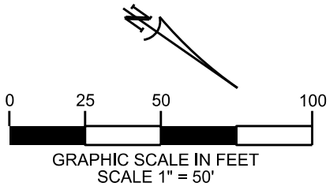
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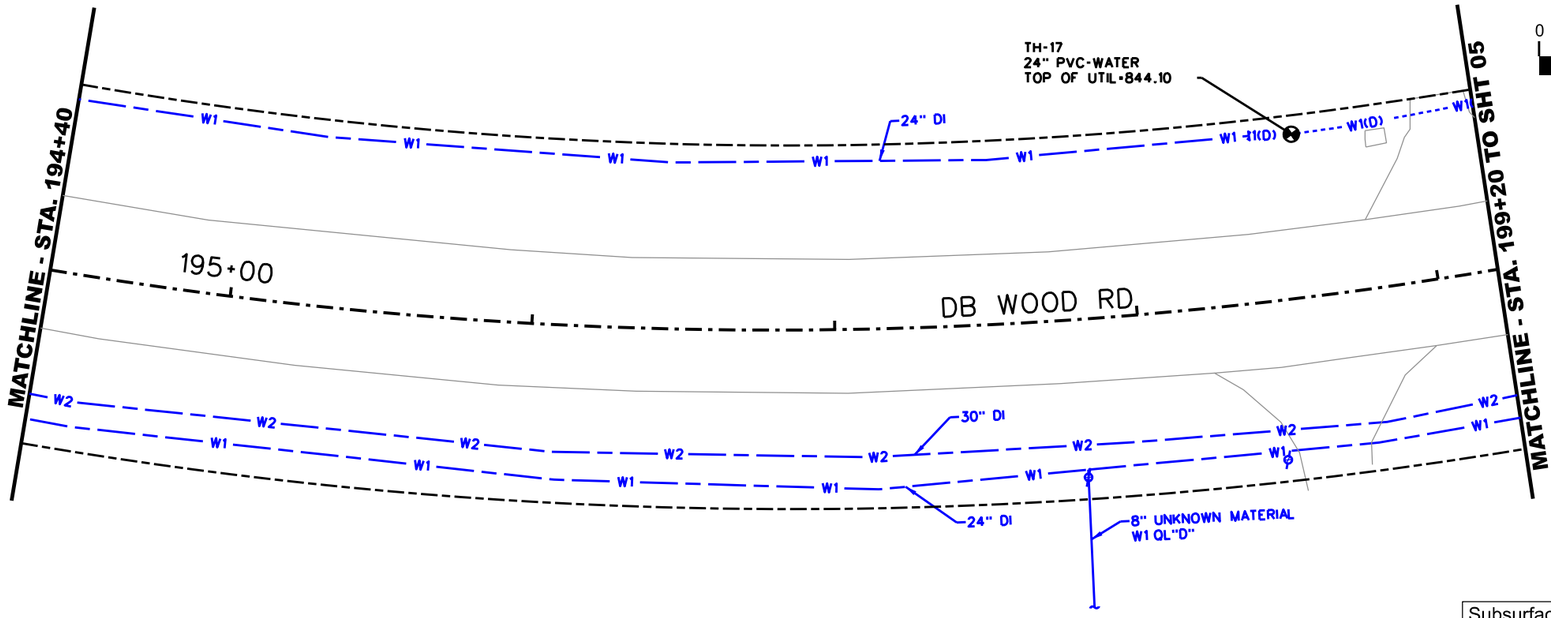
S.U.E. PLAN SHEET

BEGINNING TO STA. 189+60

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LEGEND OF UTILITY TYPES

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- QUALITY LEVEL "B" — X# —
- QUALITY LEVEL "C" — X# (C) —
- QUALITY LEVEL "D" — X# (D) —
- ABANDONED UTILITY
- PROPOSED UTILITY
- UNKNOWN UTILITY

COMMUNICATIONS (QL "B")
- ATT (TELE) — T1
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- GUS (FO/DUCT) — FOC1
- ATT (FO/DUCT) — FOC2
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- SUDDENLINK (CABLE) — CTV1

ELECTRIC / POWER (QL "B")
- PEDERNALES ELECTRIC — E1

GAS / PETROLEUM (QL "B")
- ATMOS — G1

SANITARY SEWER (QL "B")
- CITY OF GEORGETOWN — WW1

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- CITY OF GEORGETOWN (POTABLE) — W1
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OVERHEAD UTILITY (QL "C"/QL "D")
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- OH 4-SUDDENLINK
- OH 5-ATT

— OH —

LEGEND OF UTILITY SYMBOLS

- END CAP — C
- QUALITY LEVEL CHANGE — #
- TEST HOLE — #
- UTILITY CONTINUATION
- CATV CABINET — CC
- CATV HANDHOLE — C
- CATV PEDESTAL — C
- FIBER HANDHOLE — F
- TELEPHONE CABINET — T
- TELEPHONE HANDHOLE (VAULT) — T
- TELEPHONE MANHOLE — T
- TELEPHONE PEDESTAL — T
- TELEPHONE POLE — TP
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE — E
- ELECTRIC JUNCTION BOX (CABINET) — EC
- ELECTRIC MANHOLE — E
- ELECTRIC POLE (POWER) — EP
- ELECTRIC POLE W/RISER — EP
- LIGHT POLE — LP
- SIGNAL POLE — SP
- SIGNAL HANDHOLE/BOX — S
- TRANSMISSION POLE — TP
- GAS METER — GM
- GAS TEST STATION — GS
- GAS VALVE — GV
- GAS VENT PIPE (GAS RISER) — GV
- STORM INLET — SI
- STORM OUTFALL
- STORM MANHOLE — S
- WASTE WATER CLEANOUT — WW
- WASTE WATER MANHOLE — WW
- FIRE HYDRANT — FH
- AIR VALVE — AV
- WATER MANHOLE — W
- WATER METER — WM
- WATER VALVE — WV
- WATER VAULT — W

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THE RIOS GROUP

SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

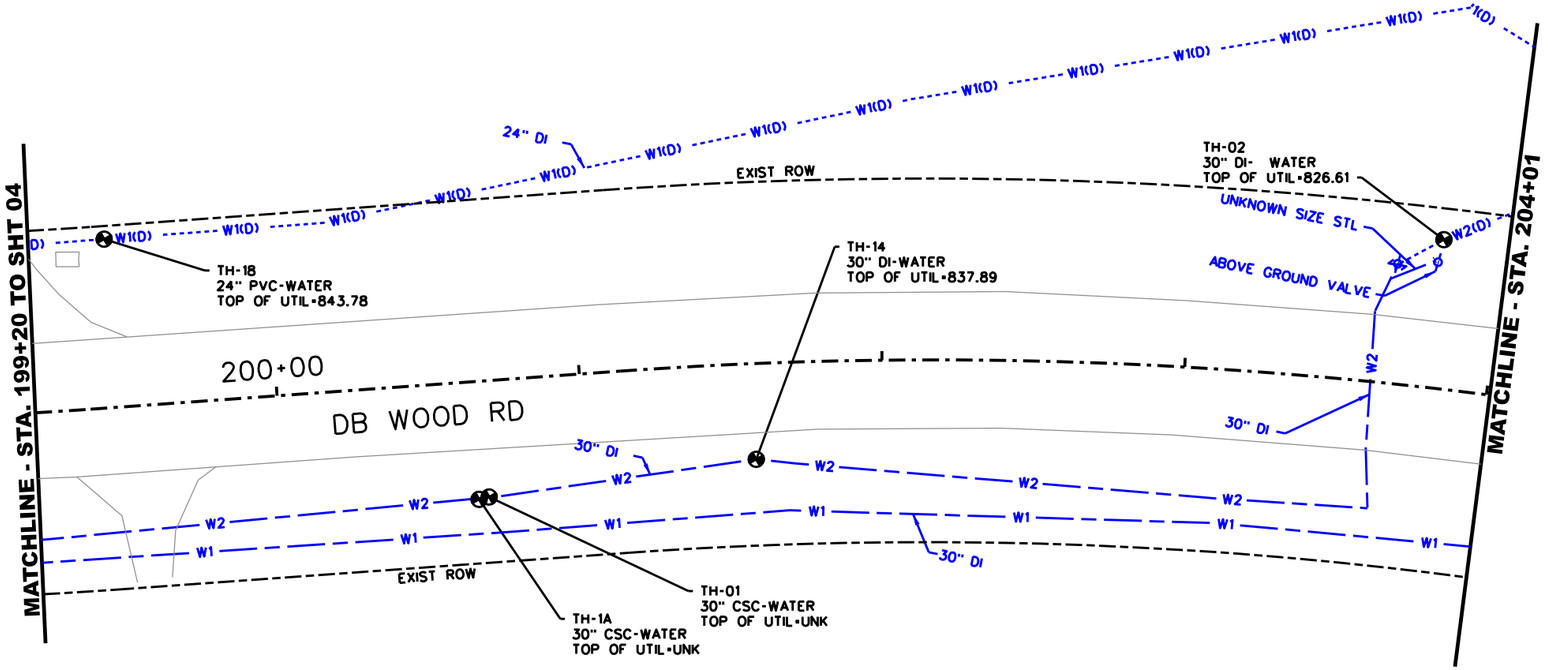
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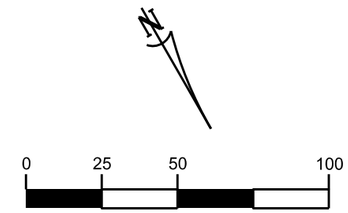
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GEORGETOWN, TEXAS

S.U.E. PLAN SHEET

STA. 189+60 TO STA. 199+20

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LEGEND OF UTILITY TYPES

QUALITY LEVELS
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TRAFFIC SIGNALS — QL "B"
- CITY OF GEORGETOWN — TS1

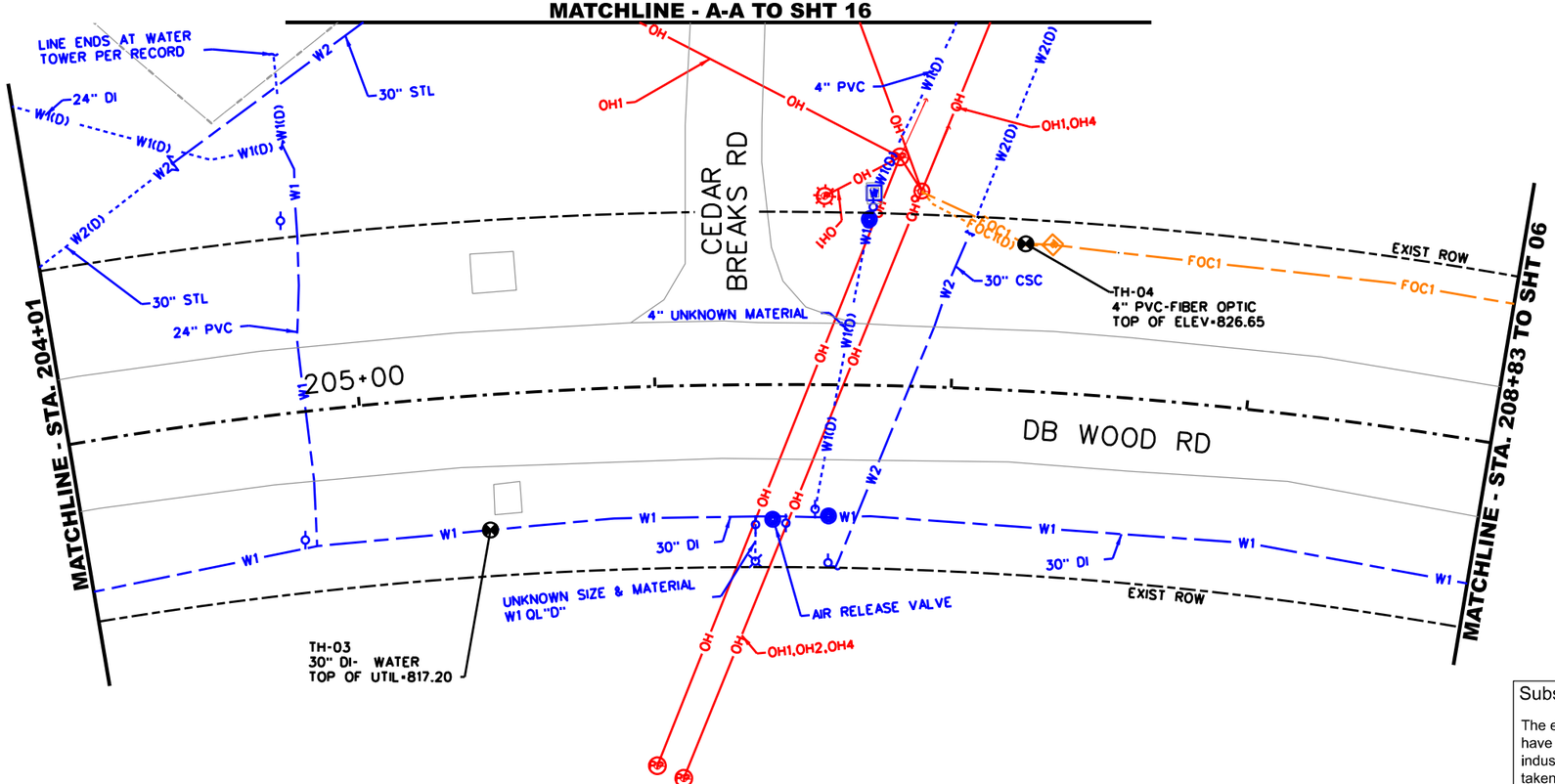
OVERHEAD UTILITY — QL "C"/QL "D"
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- OH 5-ATT

— OH —

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MATCHLINE - A-A TO SHT 16





The Rios Group, Inc.
TBPE Firm # F-14595

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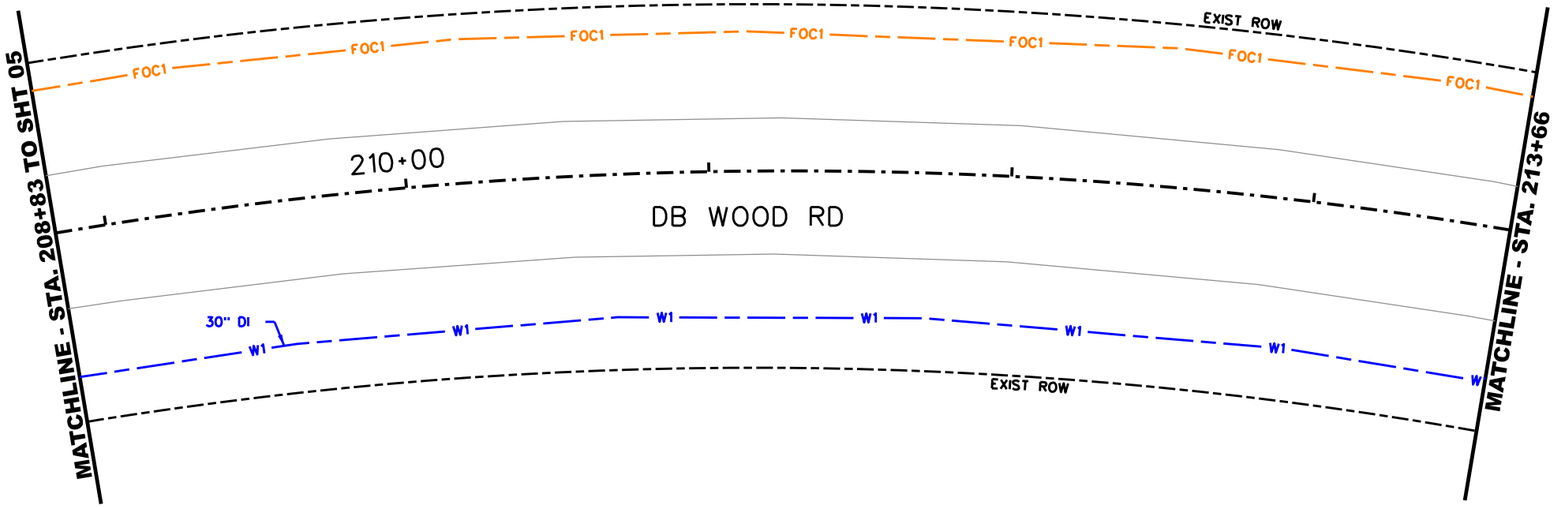
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UTILITY COORDINATION
575 Round Rock West Dr.
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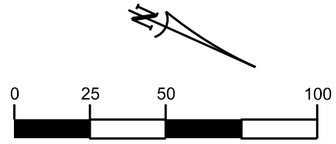
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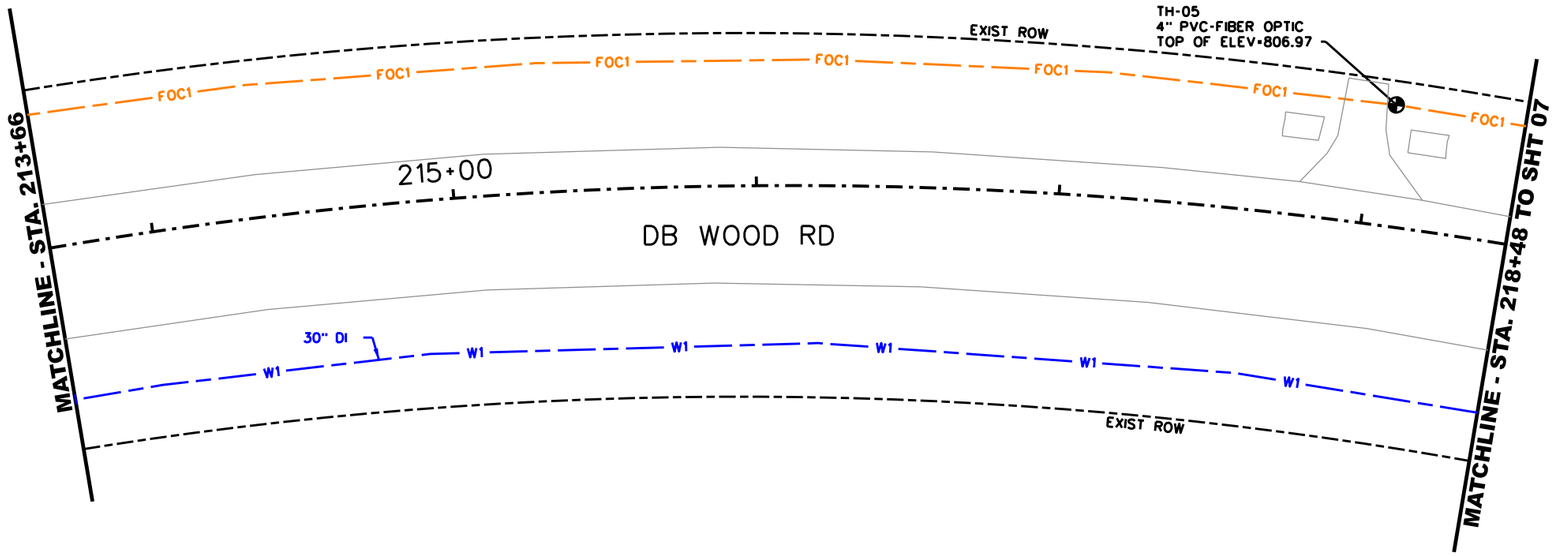
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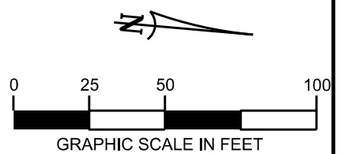
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ELECTRIC / POWER — QL "B"
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GAS / PETROLEUM — QL "B"
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TRAFFIC SIGNALS — QL "B"
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LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
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GEORGETOWN TEXAS
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REV	DATE	BY	DESCRIPTION

THE RIOS GROUP

SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

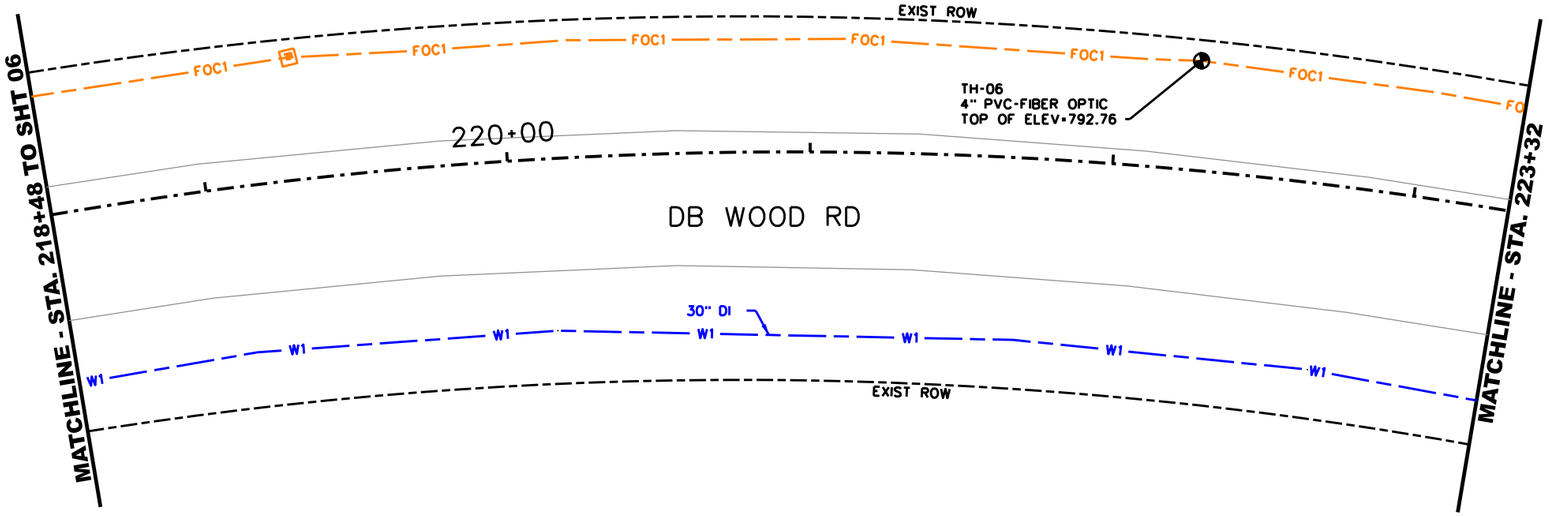
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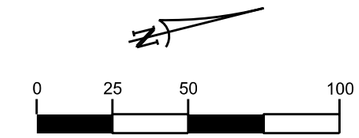
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S.U.E. PLAN SHEET

STA. 208+83 TO STA. 218+48

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TRG #: KHA_2259.00		291





LEGEND OF UTILITY TYPES

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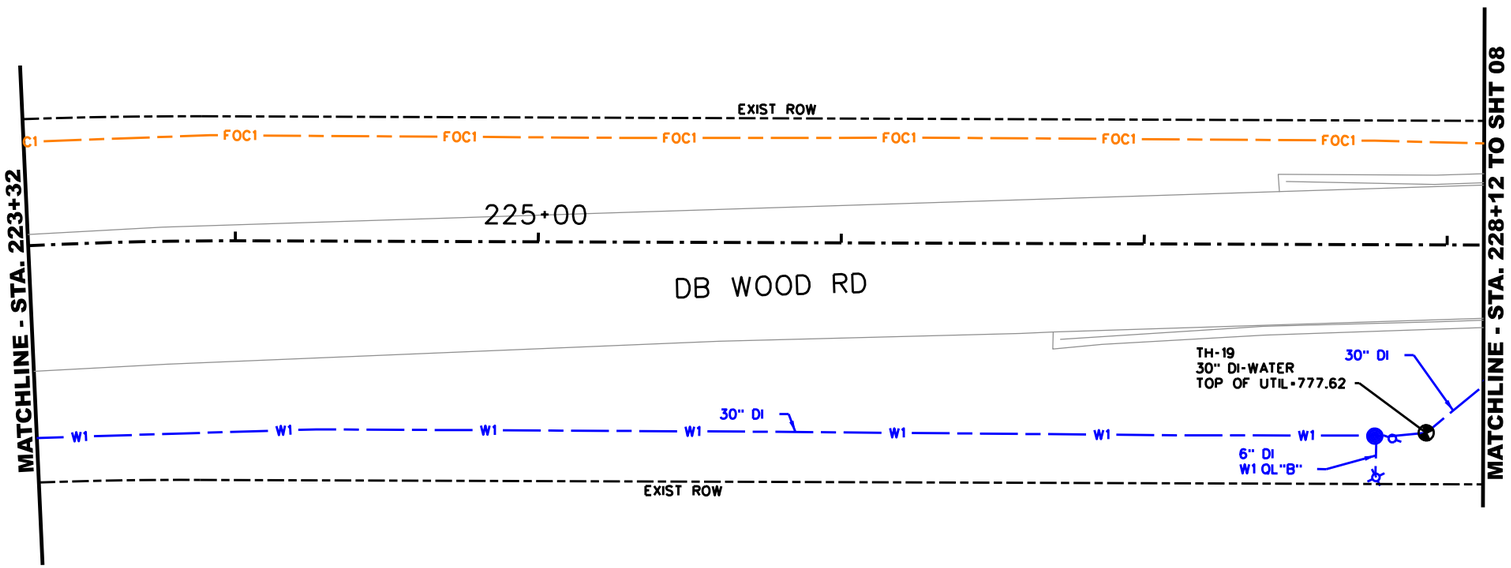
TRAFFIC SIGNALS — QL "B"
- CITY OF GEORGETOWN — TS1

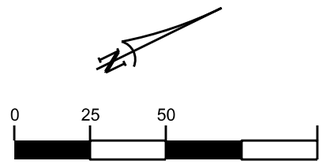
OVERHEAD UTILITY — QL "C"/QL "D"
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- TELEPHONE MANHOLE
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- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE
- ELECTRIC JUNCTION BOX (CABINET)
- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER)
- ELECTRIC POLE W/RISER
- LIGHT POLE
- SIGNAL POLE
- SIGNAL HANDHOLE/BOX
- TRANSMISSION POLE
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GEORGETOWN TEXAS
more than welcome

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REV	DATE	BY	DESCRIPTION

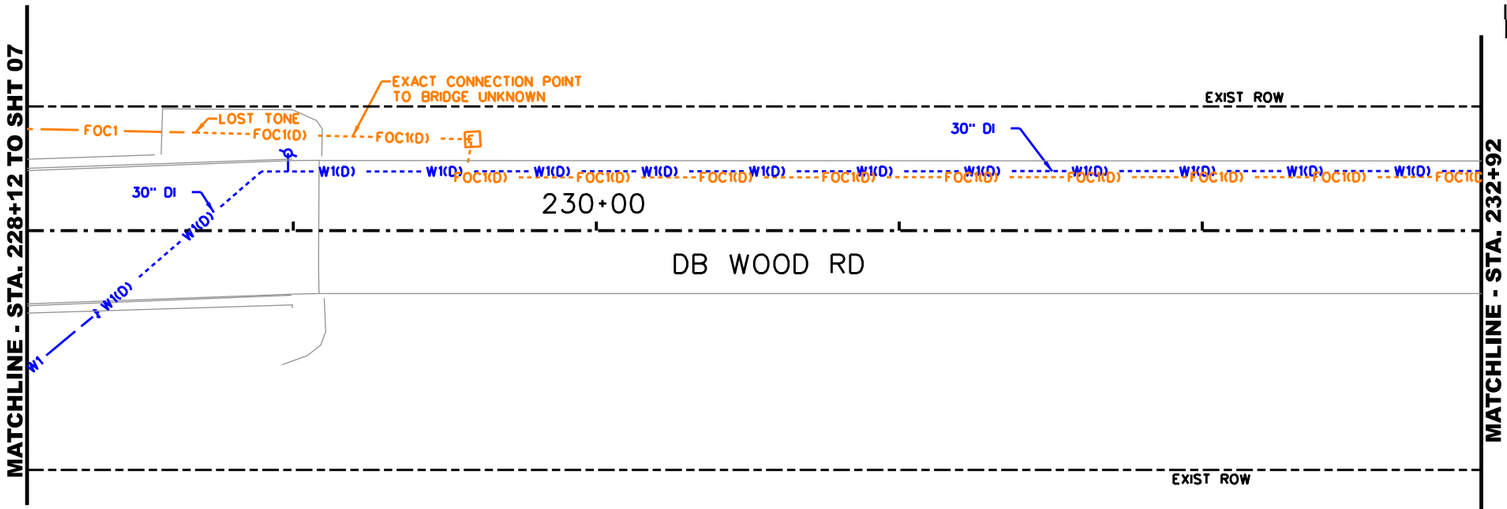
THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
575 Round Rock West Dr.
Suite #K400
Round Rock, TX 78681

DB WOOD RD PHASE 2
GEORGETOWN, TEXAS

S.U.E. PLAN SHEET

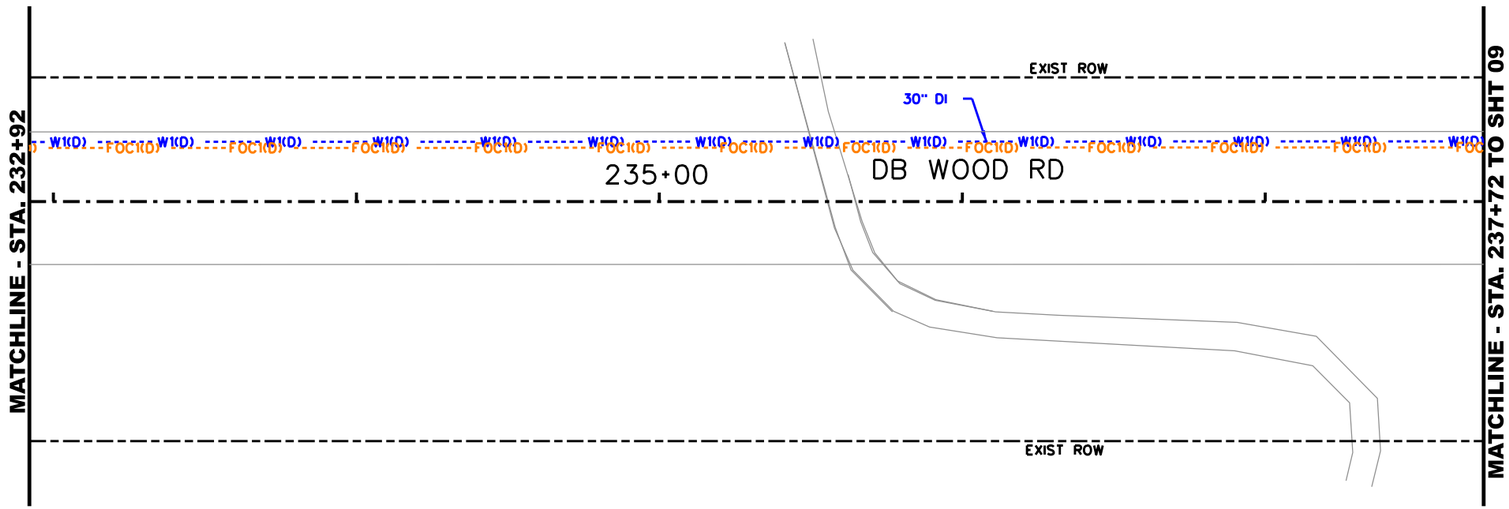
STA. 218+48 TO STA. 228+12

DESIGNED BY: RH	CHECKED BY: TI	DATE: 04-15-2024
TRG # KHA_2259.00		292



0 25 50 100

GRAPHIC SCALE IN FEET
SCALE 1" = 50'



0 25 50 100

GRAPHIC SCALE IN FEET
SCALE 1" = 50'

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

04-15-2024

Subsurface Utility Engineering (SUE) Certification

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LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
- QUALITY LEVEL "C" — X#(C) —
- QUALITY LEVEL "D" — X#(D) —
- ABANDONED UTILITY
- PROPOSED UTILITY
- UNKNOWN UTILITY

COMMUNICATIONS — QL "B"
- ATT (TELE) — T1
- FRONTIER (TELE) — T2
- GUS (FO/DUCT) — FOC1
- ATT (FO/DUCT) — FOC2
- SUDDENLINK (FO/DUCT) — FOC3
- SUDDENLINK (CABLE) — CTV1

ELECTRIC / POWER — QL "B"
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GAS / PETROLEUM — QL "B"
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SANITARY SEWER — QL "B"
- CITY OF GEORGETOWN — WW1

WATER — QL "B"
- CITY OF GEORGETOWN (POTABLE) — W1
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- PRIVATE — W3

TRAFFIC SIGNALS — QL "B"
- CITY OF GEORGETOWN — TS1

OVERHEAD UTILITY — QL "C"/QL "D"
- OH 1-PEDERNALES ELECTRIC
- OH 2-GUS
- OH 3-FRONTIER
- OH 4-SUDDENLINK
- OH 5-ATT

— OH —

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET
- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
- TELEPHONE CABINET
- TELEPHONE HANDHOLE (VAULT)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE POLE
- TELEPHONE POLE W/RISER
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- GAS TEST STATION
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- GAS VENT PIPE (GAS RISER)
- STORM INLET
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- WASTE WATER MANHOLE
- FIRE HYDRANT
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- WATER VALVE
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GEORGETOWN TEXAS
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REV	DATE	BY	DESCRIPTION

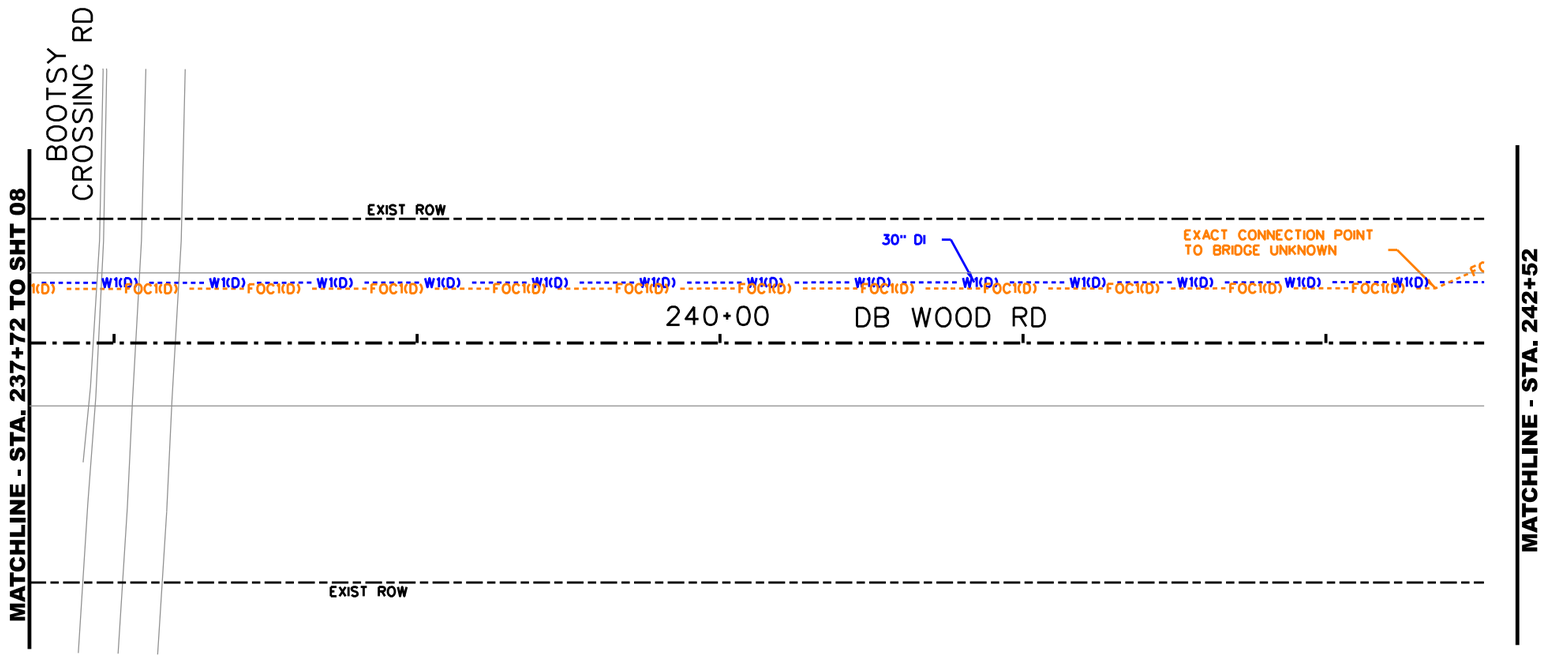
THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
575 Round Rock West Dr.
Suite #K400
Round Rock, TX 78681

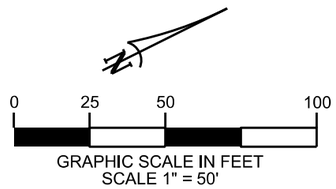
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GEORGETOWN, TEXAS

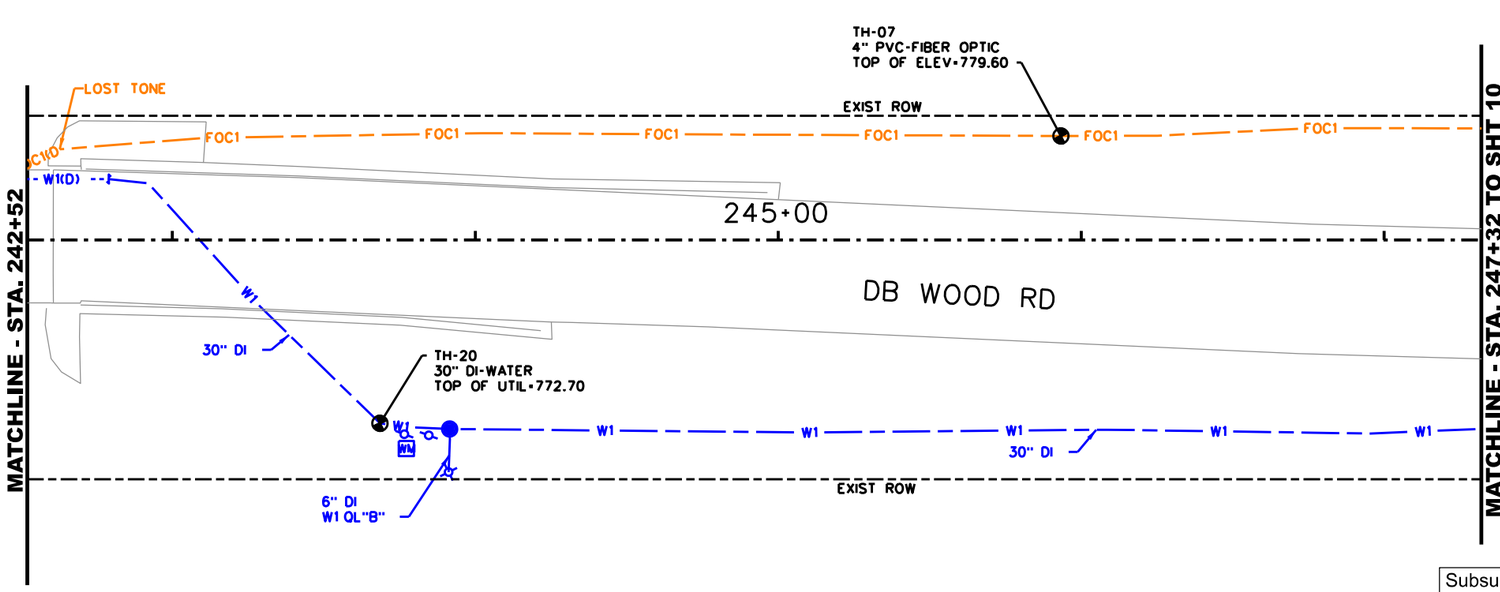
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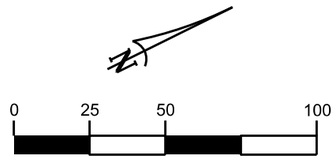
STA. 228+12 TO STA. 237+72

DESIGNED BY: RH	CHECKED BY: TI	DATE: 04-15-2024
TRG #: KHA_2259.00		293

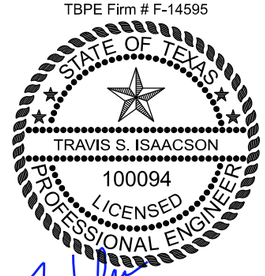








The Rios Group, Inc.
TBPE Firm # F-14595



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Subsurface Utility Engineering (SUE) Certification

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- ATT (FO/DUCT) — FOC2
- SUDDENLINK (FO/DUCT) — FOC3
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GAS / PETROLEUM — QL "B"
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- OH 4-SUDDENLINK
- OH 5-ATT

— OH —

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET
- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
- TELEPHONE CABINET
- TELEPHONE HANDHOLE (VAULT)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE POLE
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- AIR VALVE
- WATER MANHOLE
- WATER METER
- WATER VALVE
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GEORGETOWN TEXAS
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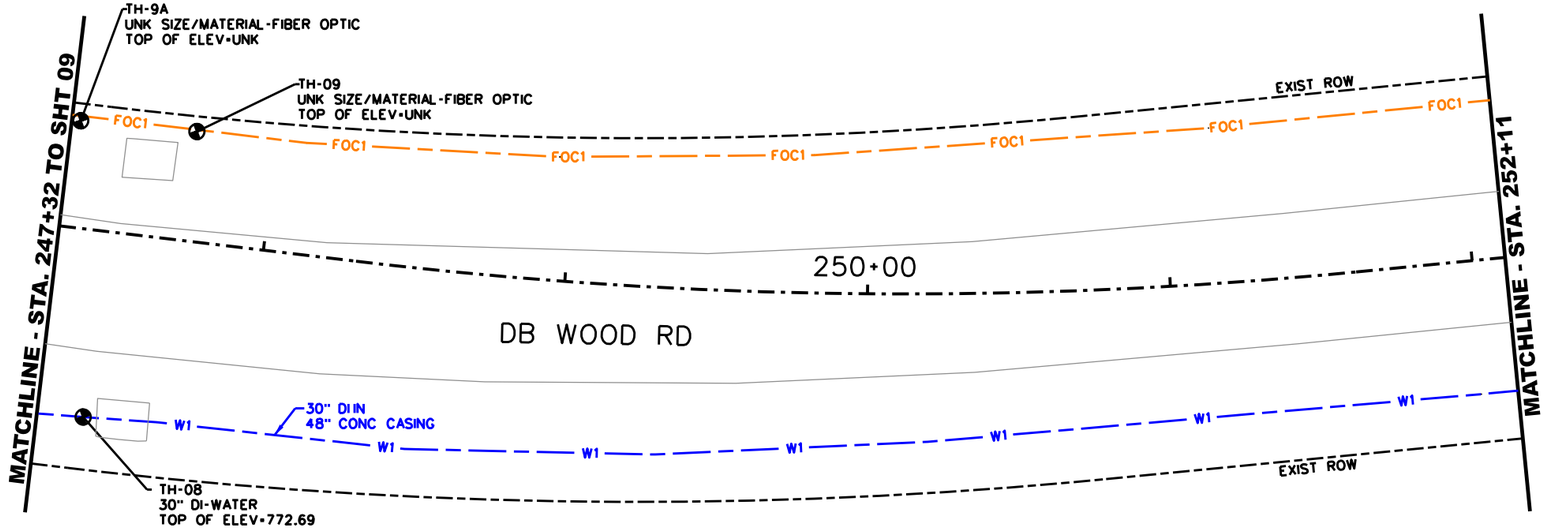
THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
575 Round Rock West Dr.
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Round Rock, TX 78681

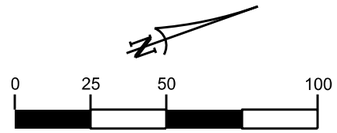
DB WOOD RD PHASE 2
GEORGETOWN, TEXAS

S.U.E. PLAN SHEET

STA. 237+72 TO STA. 247+32

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TRG # KHA_2259.00		294





LEGEND OF UTILITY TYPES

QUALITY LEVELS
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- QUALITY LEVEL "D"
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WATER (QL "B")
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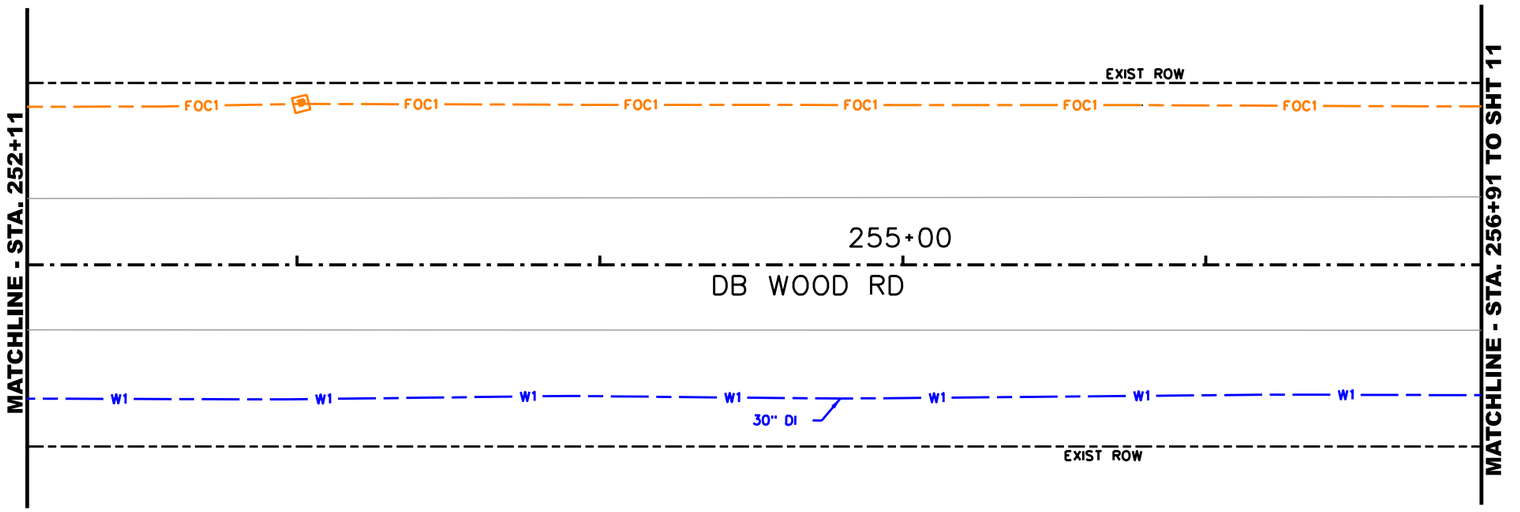
TRAFFIC SIGNALS (QL "B")
- CITY OF GEORGETOWN — TS1

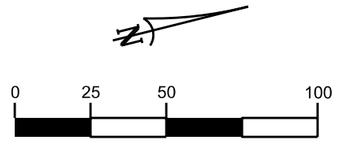
OVERHEAD UTILITY (QL "C"/QL "D")
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— OH —

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THE RIOS GROUP

SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

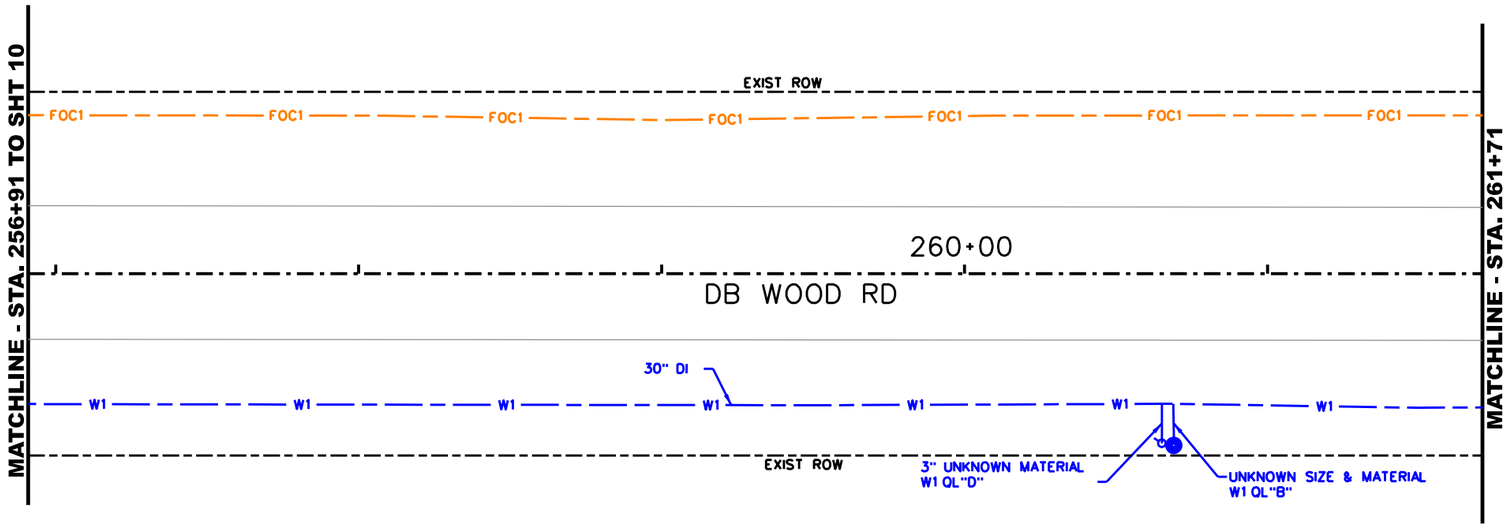
575 Round Rock West Dr.
Suite #K400
Round Rock, TX 78681

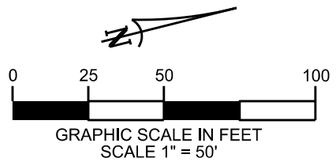
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GEORGETOWN, TEXAS

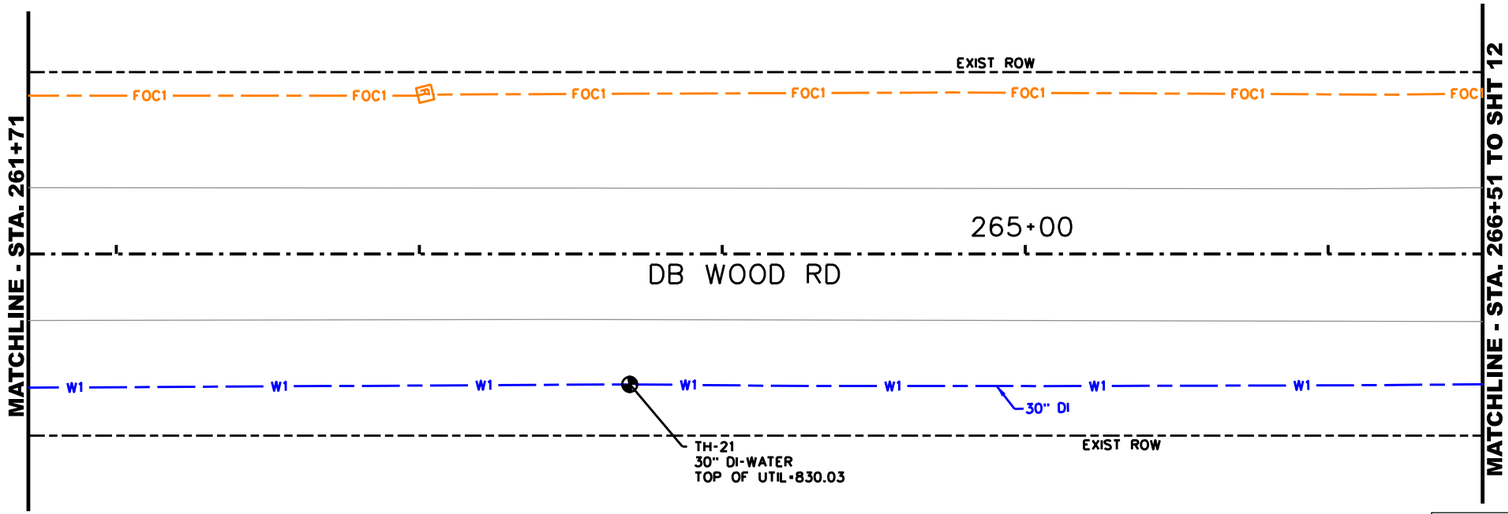
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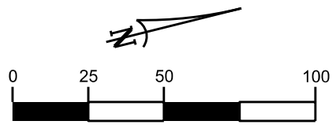
STA. 247+32 TO STA. 256+91

DESIGNED BY: RH	CHECKED BY: TI	DATE: 04-15-2024
TRG #: KHA_2259.00		295









LEGEND OF UTILITY TYPES

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ELECTRIC / POWER (QL "B")
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GAS / PETROLEUM (QL "B")
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TRAFFIC SIGNALS (QL "B")
- CITY OF GEORGETOWN — TS1

OVERHEAD UTILITY (QL "C"/QL "D")
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- OH 2-GUS
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— OH —

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
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- UTILITY CONTINUATION
- CATV CABINET
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TBPE Firm # F-14595

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GEORGETOWN TEXAS
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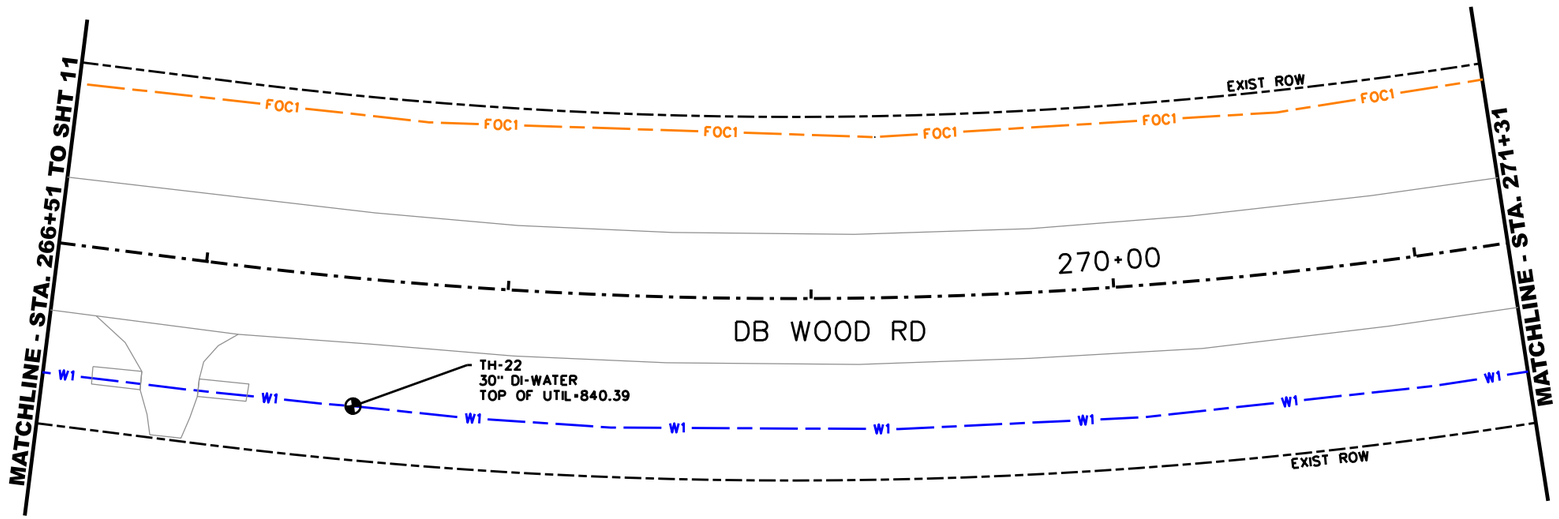
THE RIOS GROUP
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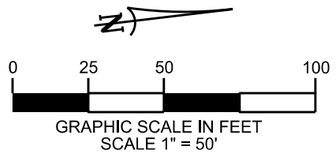
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GEORGETOWN, TEXAS

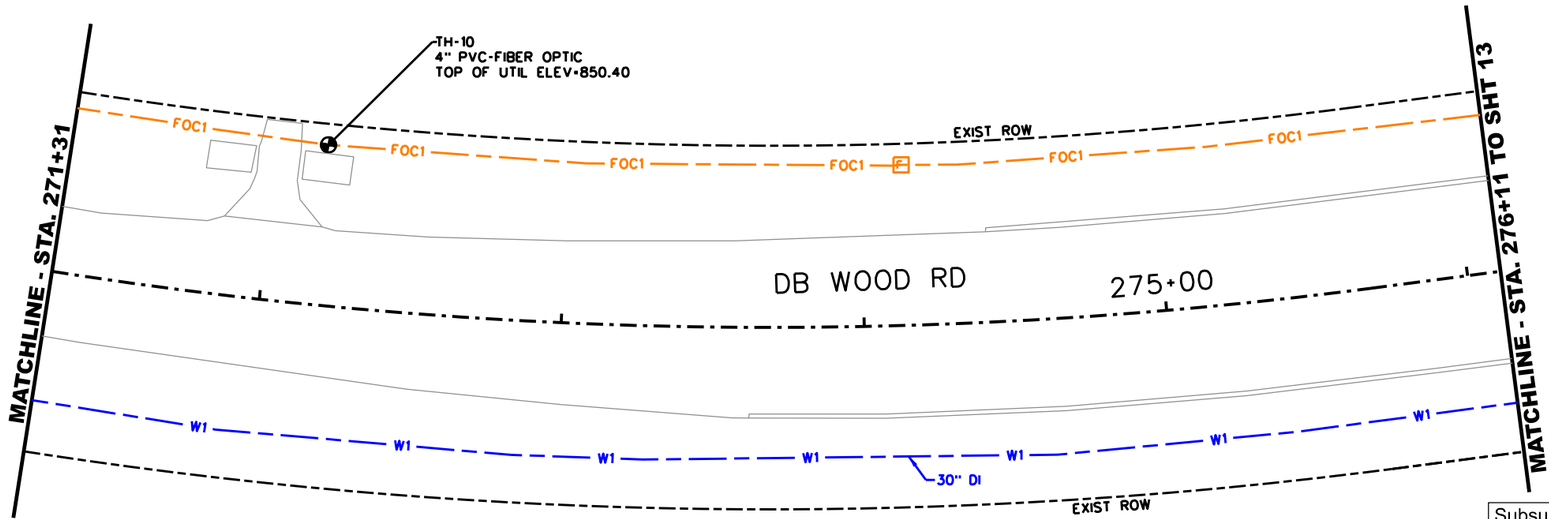
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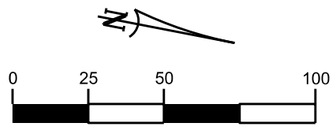
STA. 256+91 TO STA. 266+51

DESIGNED BY: RH	CHECKED BY: TI	DATE: 04-15-2024
TRG #: KHA_2259.00		296









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GEORGETOWN TEXAS
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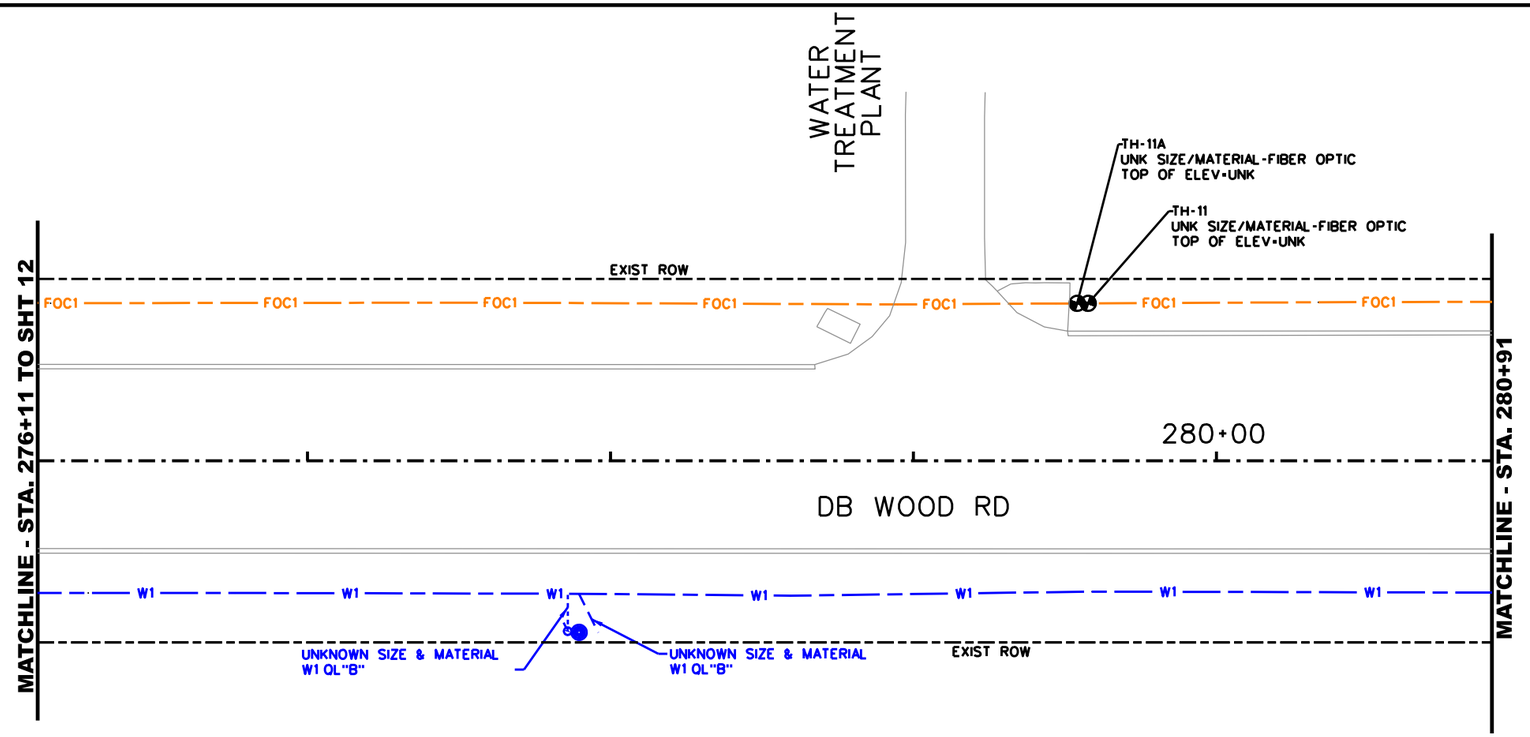
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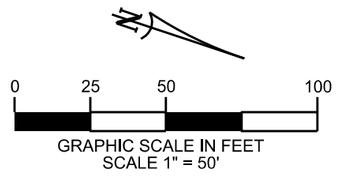
DB WOOD RD PHASE 2
GEORGETOWN, TEXAS

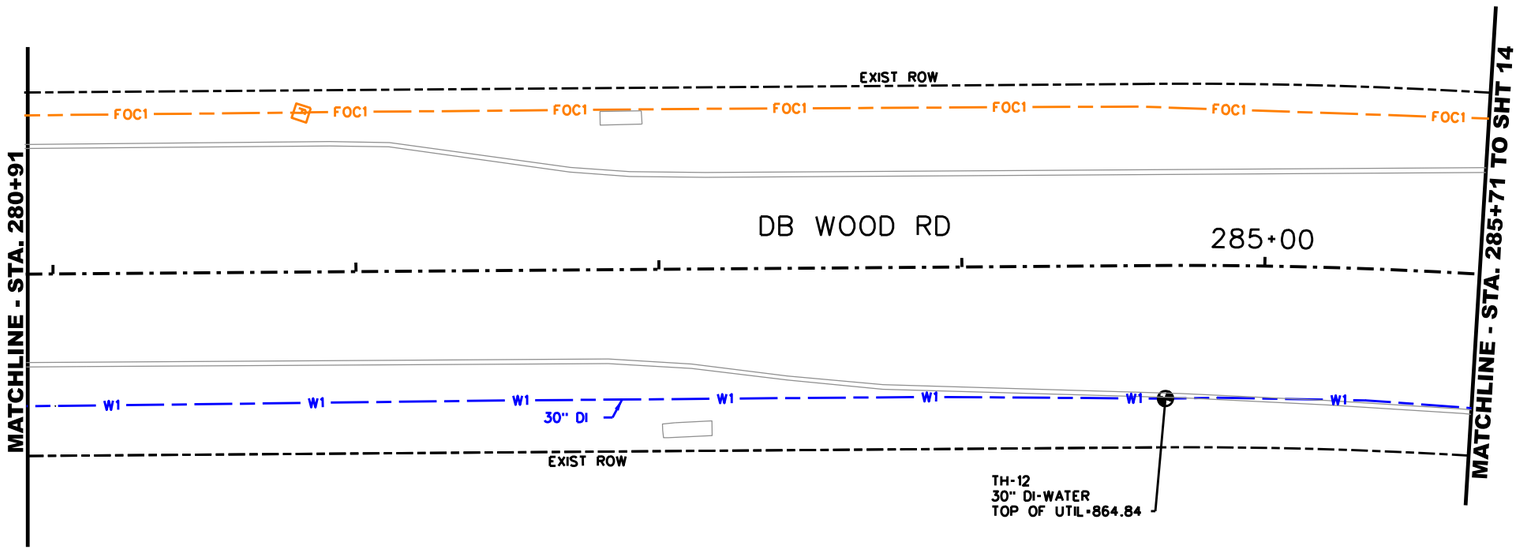
S.U.E. PLAN SHEET

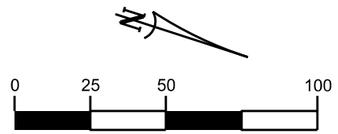
STA. 266+51 TO STA. 276+11

DESIGNED BY: RH	CHECKED BY: TI	DATE: 04-15-2024
TRG #: KHA_2259.00		297









LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
- QUALITY LEVEL "C" — X# (C) —
- QUALITY LEVEL "D" — X# (D) —
- ABANDONED UTILITY
- PROPOSED UTILITY
- UNKNOWN UTILITY

COMMUNICATIONS — QL "B"
- ATT (TELE) — T1
- FRONTIER (TELE) — T2
- GUS (FO/DUCT) — FOC1
- ATT (FO/DUCT) — FOC2
- SUDDENLINK (FO/DUCT) — FOC3
- SUDDENLINK (CABLE) — CTV1

ELECTRIC / POWER — QL "B"
- PEDERNALES ELECTRIC — E1

GAS / PETROLEUM — QL "B"
- ATMOS — G1

SANITARY SEWER — QL "B"
- CITY OF GEORGETOWN — WW1

WATER — QL "B"
- CITY OF GEORGETOWN (POTABLE) — W1
- CITY OF ROUND ROCK (RAW) — W2
- PRIVATE — W3

TRAFFIC SIGNALS — QL "B"
- CITY OF GEORGETOWN — TS1

OVERHEAD UTILITY — QL "C"/QL "D"
- OH 1-PEDERNALES ELECTRIC
- OH 2-GUS
- OH 3-FRONTIER
- OH 4-SUDDENLINK
- OH 5-ATT

— OH —

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET
- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
- TELEPHONE CABINET
- TELEPHONE HANDHOLE (VAULT)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE POLE
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE
- ELECTRIC JUNCTION BOX (CABINET)
- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER)
- ELECTRIC POLE W/RISER
- LIGHT POLE
- SIGNAL POLE
- SIGNAL HANDHOLE/BOX
- TRANSMISSION POLE
- GAS METER
- GAS TEST STATION
- GAS VALVE
- GAS VENT PIPE (GAS RISER)
- STORM INLET
- STORM OUTFALL
- STORM MANHOLE
- WASTE WATER CLEANOUT
- WASTE WATER MANHOLE
- FIRE HYDRANT
- AIR VALVE
- WATER MANHOLE
- WATER METER
- WATER VALVE
- WATER VAULT

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

04-15-2024

Subsurface Utility Engineering (SUE) Certification

The engineer's seal hereon is to certify that the utilities shown have been investigated in accordance with standard SUE industry practices. Where indicated utility sizes and materials taken from best available records. All other information hereon has been provided by others and is not a part of this certification.

GEORGETOWN TEXAS
more than welcome

Kimley»Horn

REV	DATE	BY	DESCRIPTION

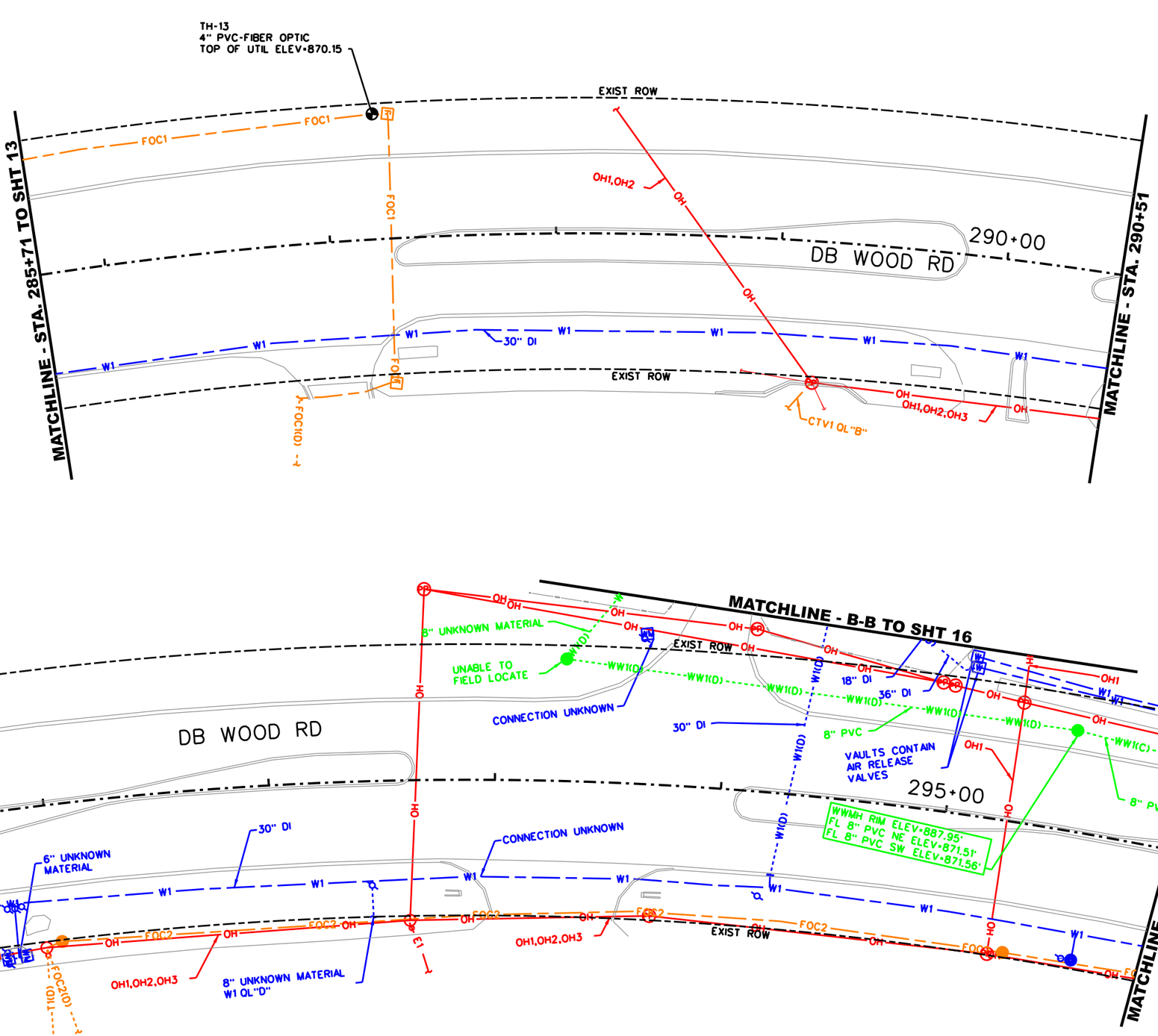
THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
575 Round Rock West Dr.
Suite #K400
Round Rock, TX 78681

DB WOOD RD PHASE 2
GEORGETOWN, TEXAS

S.U.E. PLAN SHEET

STA. 276+11 TO STA. 285+71

DESIGNED BY: RH	CHECKED BY: TI	DATE: 04-15-2024
TRG # KHA_2259.00		298



LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X#
- QUALITY LEVEL "C" — X# (C)
- QUALITY LEVEL "D" — X# (D)
- ABANDONED UTILITY
- PROPOSED UTILITY
- UNKNOWN UTILITY

COMMUNICATIONS (QL "B")
- ATT (TELE) — T1
- FRONTIER (TELE) — T2
- GUS (FO/DUCT) — FOC1
- ATT (FO/DUCT) — FOC2
- SUDDENLINK (FO/DUCT) — FOC3
- SUDDENLINK (CABLE) — CTV1

ELECTRIC / POWER (QL "B")
- PEDERNALES ELECTRIC — E1

GAS / PETROLEUM (QL "B")
- ATMOS — G1

SANITARY SEWER (QL "B")
- CITY OF GEORGETOWN — WW1

WATER (QL "B")
- CITY OF GEORGETOWN (POTABLE) — W1
- CITY OF ROUND ROCK (RAW) — W2
- PRIVATE — W3

TRAFFIC SIGNALS (QL "B")
- CITY OF GEORGETOWN — TS1

OVERHEAD UTILITY (QL "C"/QL "D")
- OH 1-PEDERNALES ELECTRIC
- OH 2-GUS
- OH 3-FRONTIER
- OH 4-SUDDENLINK
- OH 5-ATT

— OH

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET
- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
- TELEPHONE CABINET
- TELEPHONE HANDHOLE (VAULT)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE POLE
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE
- ELECTRIC JUNCTION BOX (CABINET)
- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER)
- ELECTRIC POLE W/RISER
- LIGHT POLE
- SIGNAL POLE
- SIGNAL HANDHOLE/BOX
- TRANSMISSION POLE
- GAS METER
- GAS TEST STATION
- GAS VALVE
- GAS VENT PIPE (GAS RISER)
- STORM INLET
- STORM OUTFALL
- STORM MANHOLE
- WASTE WATER CLEANOUT
- WASTE WATER MANHOLE
- FIRE HYDRANT
- AIR VALVE
- WATER MANHOLE
- WATER METER
- WATER VALVE
- WATER VAULT

The Rios Group, Inc.
TBPE Firm # F-15595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

04-15-2024

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GEORGETOWN TEXAS
more than welcome

Kimley»Horn

REV	DATE	BY	DESCRIPTION

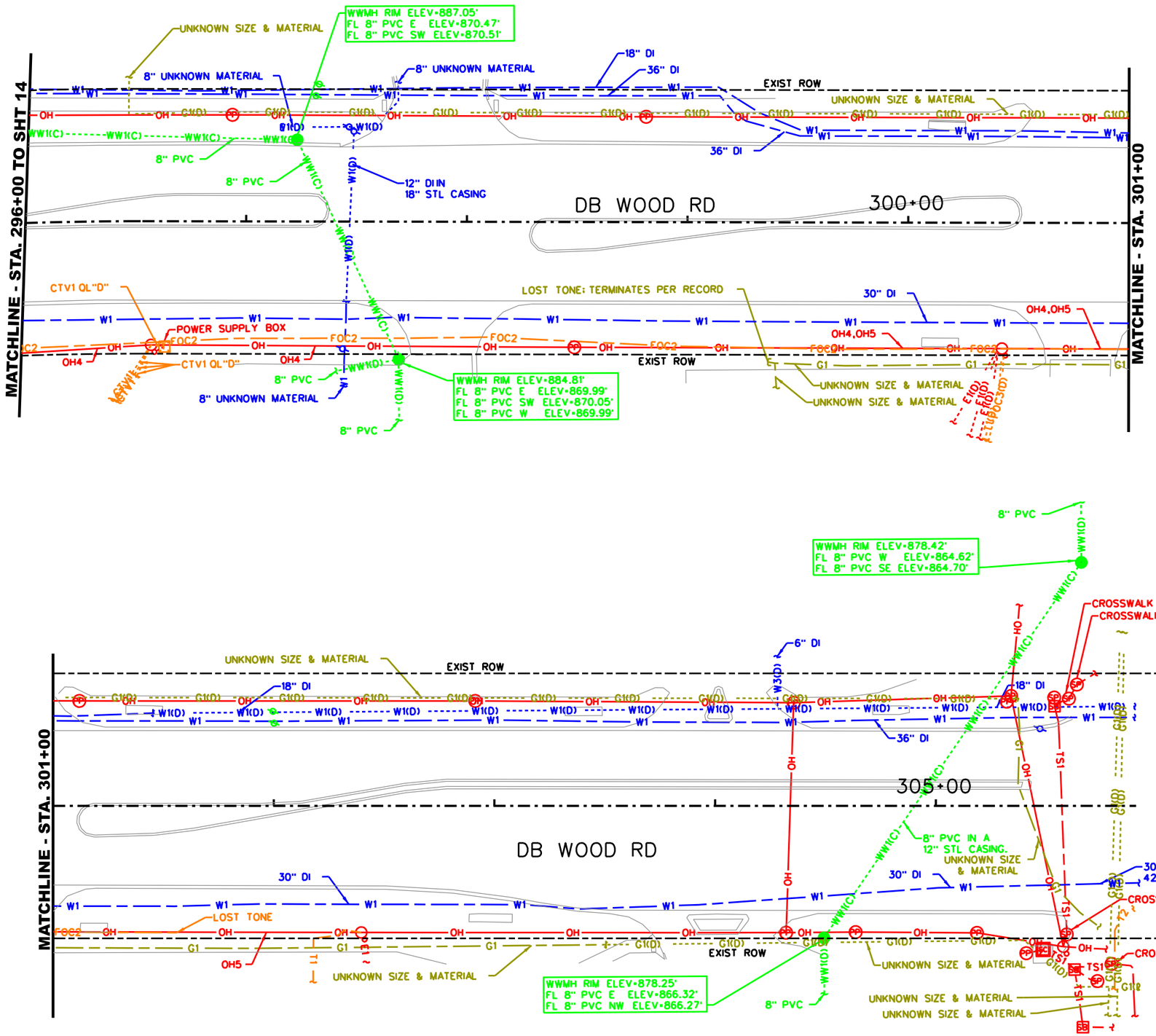
THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
575 Round Rock West Dr.
Suite #K400
Round Rock, TX 78681

DB WOOD RD PHASE 2
GEORGETOWN, TEXAS

S.U.E. PLAN SHEET

STA. 285+71 TO STA. 296+00

DESIGNED BY: RH	CHECKED BY: TI	DATE: 04-15-2024
TRG #: KHA_2259.00		299



0 25 50 100

GRAPHIC SCALE IN FEET
SCALE 1" = 50'

LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X#
- QUALITY LEVEL "C" — X#(C)
- QUALITY LEVEL "D" — X#(D)
- ABANDONED UTILITY
- PROPOSED UTILITY
- UNKNOWN UTILITY

COMMUNICATIONS (QL "B")
- ATT (TELE) — T1
- FRONTIER (TELE) — T2
- GUS (FO/DUCT) — FOC1
- ATT (FO/DUCT) — FOC2
- SUDDENLINK (FO/DUCT) — FOC3
- SUDDENLINK (CABLE) — CTV1

ELECTRIC / POWER (QL "B")
- PEDERNALES ELECTRIC — E1

GAS / PETROLEUM (QL "B")
- ATMOS — G1

SANITARY SEWER (QL "B")
- CITY OF GEORGETOWN — WW1

WATER (QL "B")
- CITY OF GEORGETOWN (POTABLE) — W1
- CITY OF ROUND ROCK (RAW) — W2
- PRIVATE — W3

TRAFFIC SIGNALS (QL "B")
- CITY OF GEORGETOWN — TS1

OVERHEAD UTILITY (QL "C"/QL "D")
- OH 1-PEDERNALES ELECTRIC
- OH 2-GUS
- OH 3-FRONTIER
- OH 4-SUDDENLINK
- OH 5-ATT

— OH —

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET
- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
- TELEPHONE CABINET
- TELEPHONE HANDHOLE (VAULT)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE POLE
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE
- ELECTRIC JUNCTION BOX (CABINET)
- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER)
- ELECTRIC POLE W/RISER
- LIGHT POLE
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- GAS TEST STATION
- GAS VALVE
- GAS VENT PIPE (GAS RISER)
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- STORM OUTFALL
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- WASTE WATER CLEANOUT
- WASTE WATER MANHOLE
- FIRE HYDRANT
- AIR VALVE
- WATER MANHOLE
- WATER METER
- WATER VALVE
- WATER VAULT

0 25 50 100

GRAPHIC SCALE IN FEET
SCALE 1" = 50'

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

04-15-2024

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GEORGETOWN TEXAS
more than welcome

Kimley»Horn

REV	DATE	BY	DESCRIPTION

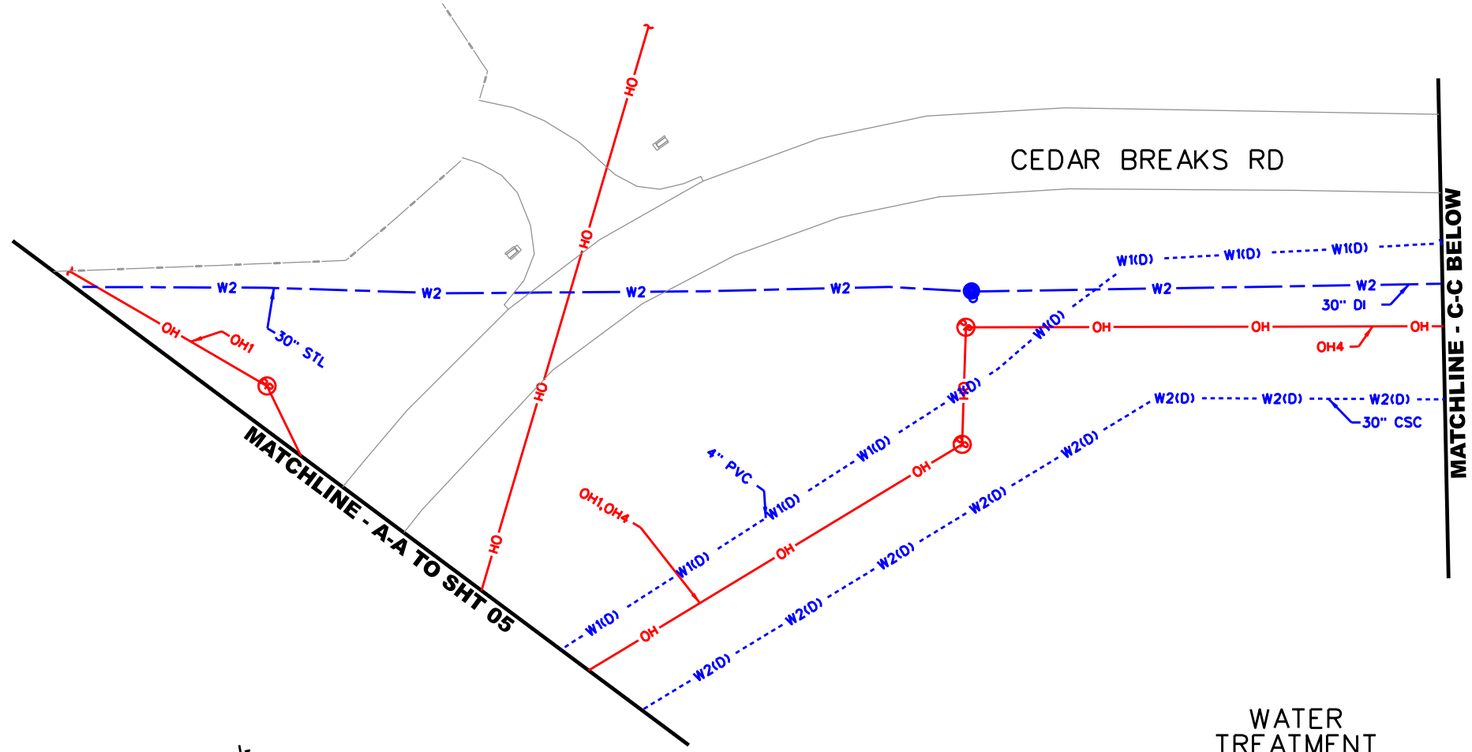
THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
575 Round Rock West Dr.
Suite #K400
Round Rock, TX 78681

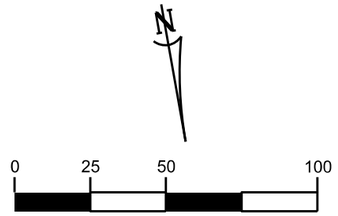
DB WOOD RD PHASE 2
GEORGETOWN, TEXAS

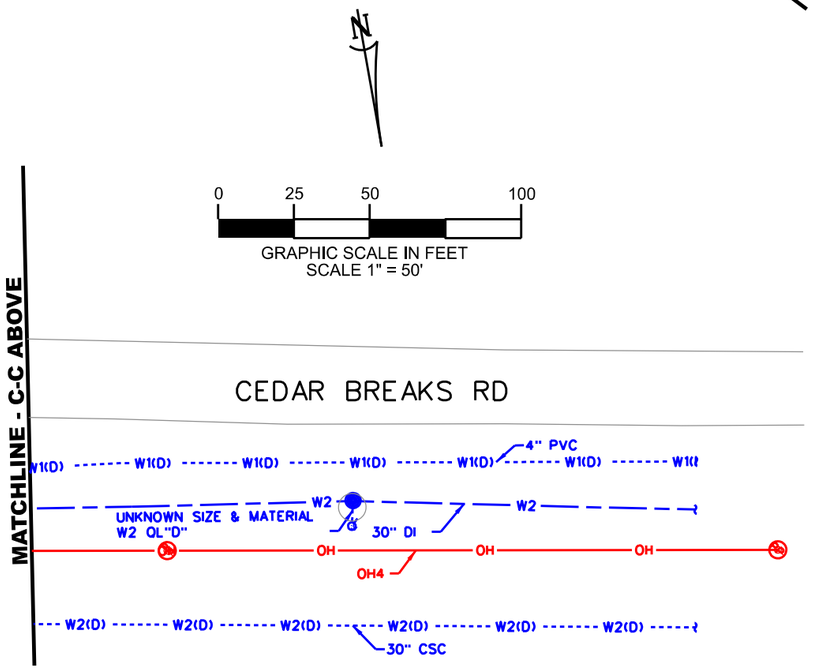
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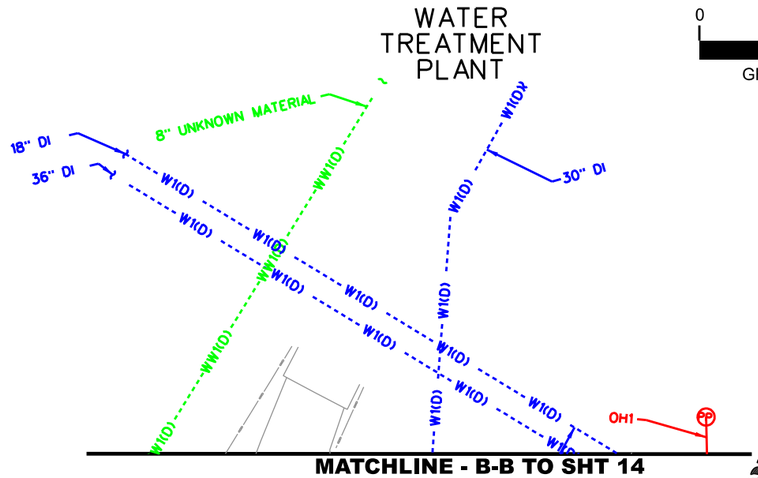
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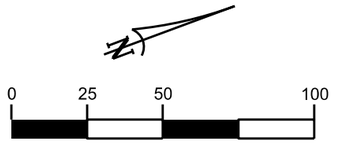
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LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X#
- QUALITY LEVEL "C" — X# (C)
- QUALITY LEVEL "D" — X# (D)
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- UNKNOWN UTILITY

COMMUNICATIONS (QL "B")
- ATT (TELE) — T1
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GAS / PETROLEUM (QL "B")
- ATMOS — G1

SANITARY SEWER (QL "B")
- CITY OF GEORGETOWN — WW1

WATER (QL "B")
- CITY OF GEORGETOWN (POTABLE) — W1
- CITY OF ROUND ROCK (RAW) — W2
- PRIVATE — W3

TRAFFIC SIGNALS (QL "B")
- CITY OF GEORGETOWN — TS1

OVERHEAD UTILITY (QL "C"/QL "D")
- OH 1-PEDERNALES ELECTRIC
- OH 2-GUS
- OH 3-FRONTIER
- OH 4-SUDDENLINK
- OH 5-ATT

— OH —

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET
- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
- TELEPHONE CABINET
- TELEPHONE HANDHOLE (VAULT)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE POLE
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE
- ELECTRIC JUNCTION BOX (CABINET)
- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER)
- ELECTRIC POLE W/RISER
- LIGHT POLE
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- SIGNAL HANDHOLE/BOX
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- GAS METER
- GAS TEST STATION
- GAS VALVE
- GAS VENT PIPE (GAS RISER)
- STORM INLET
- STORM OUTFALL
- STORM MANHOLE
- WASTE WATER CLEANOUT
- WASTE WATER MANHOLE
- FIRE HYDRANT
- AIR VALVE
- WATER MANHOLE
- WATER METER
- WATER VALVE
- WATER VAULT

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

04-15-2024

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GEORGETOWN TEXAS
more than welcome

Kimley»Horn

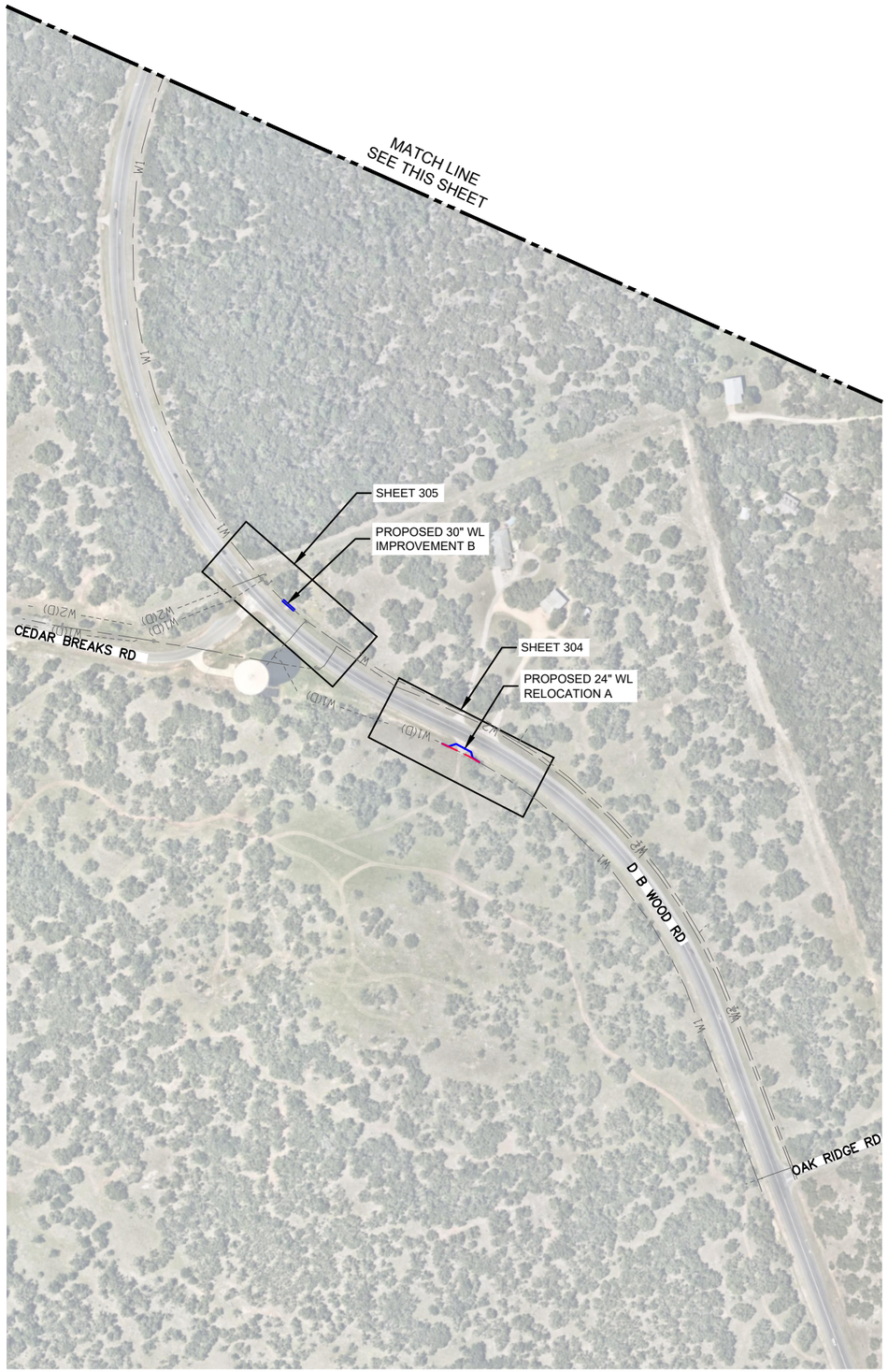
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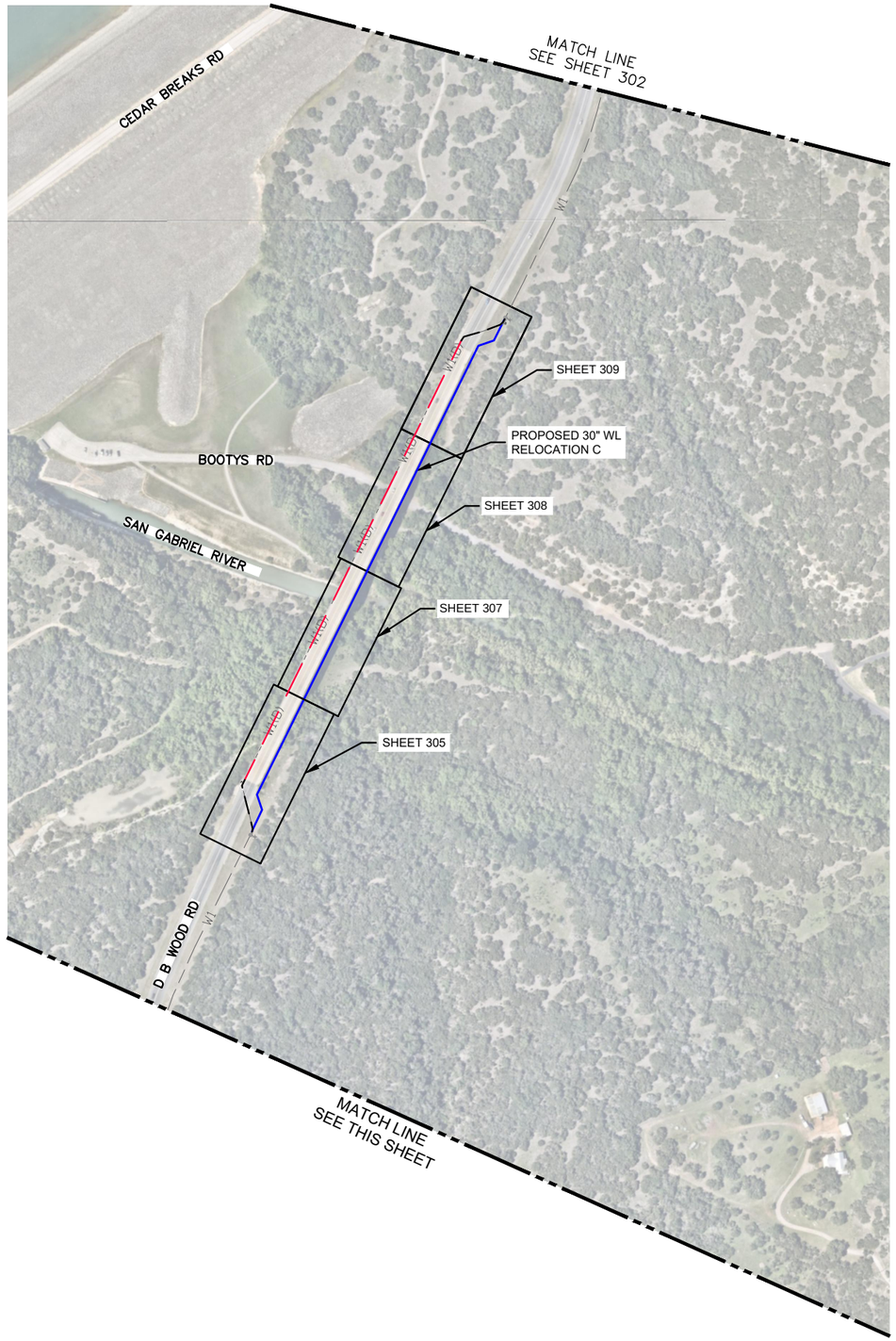
THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
575 Round Rock West Dr.
Suite #K400
Round Rock, TX 78681

DB WOOD RD PHASE 2
GEORGETOWN, TEXAS

S.U.E. PLAN SHEET

DESIGNED BY: RH	CHECKED BY: TI	DATE: 04-15-2024
TRG # KHA_2259.00		301





NORTH

GRAPHIC SCALE IN FEET
0 100 200 400

LEGEND

- PROP WATER LINE RELOCATION
- W1 CITY OF GEORGETOWN WL
- W2 CITY OF ROUND ROCK WL
- TO BE REMOVED
- TO BE ABANDONED IN PLACE
- EXIST GATE VALVE
- EXIST FIRE HYDRANT
- EXIST AIR VALVE

NOTES

1. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES THAT MIGHT BE OCCASIONED BY THE FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. ANY DISCREPANCIES FROM WHAT IS SHOWN SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. ALL FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C110 OR C153.
4. CONTRACTOR TO FIELD VERIFY LOCATION OF NEAREST EXISTING JOINT AND EXTERNALLY RESTRAINT THE JOINT. IF EXISTING JOINT IS LESS THAN INDICATED LENGTH FROM CONNECTION POINT, CONTRACTOR TO EXTERNALLY RESTRAINT THE NEXT JOINT AS WELL.

STATE OF TEXAS
TARA R. RAOOF
141851
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

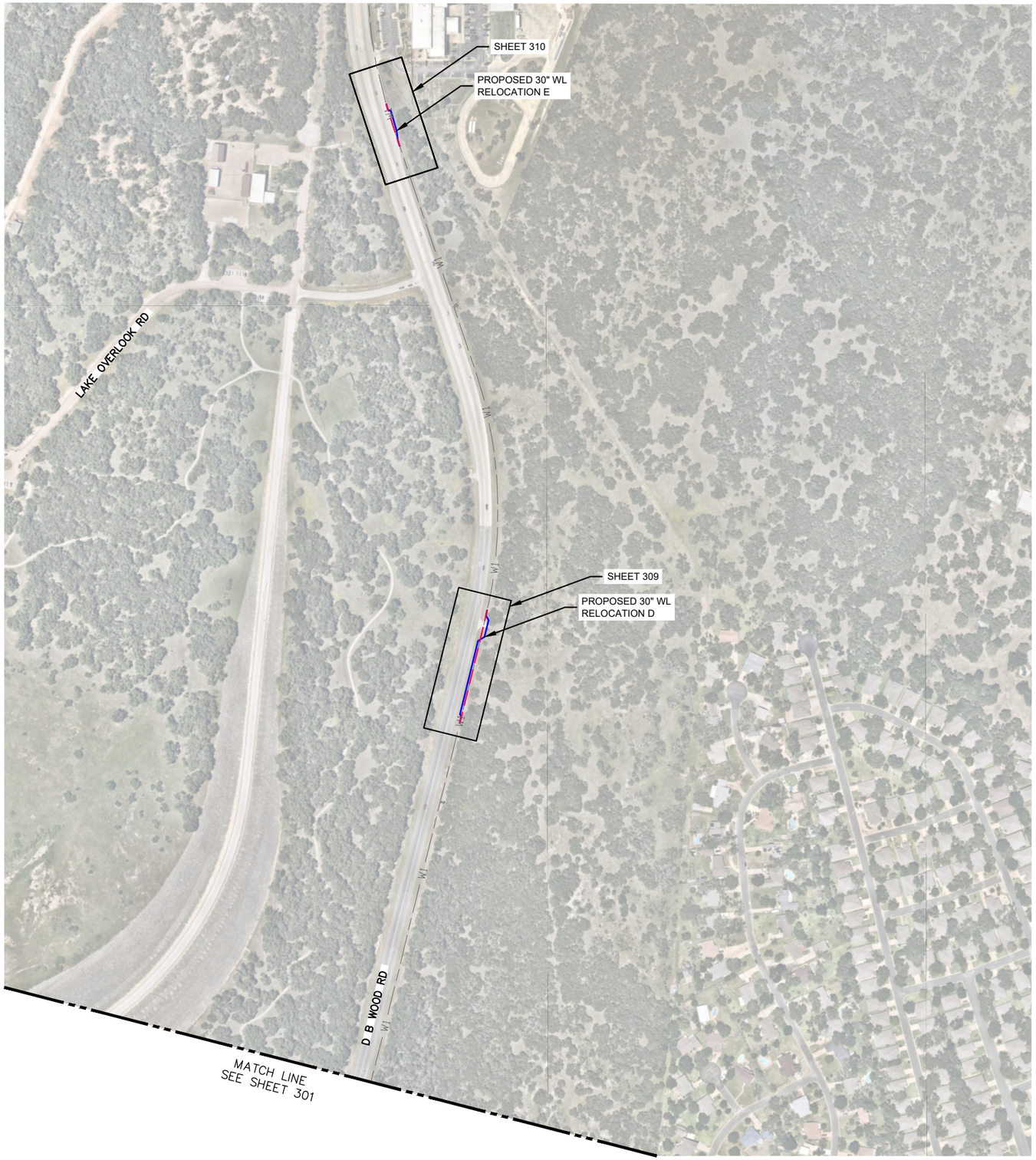
GEORGETOWN
TEXAS
more than welcome

D B WOOD ROAD

WATER GENERAL LAYOUT

SHEET 1 OF 2 | 302

FILENAME: K:\AUS_WR\069226621_DB_Wood_Ph2\CAD\PLANSHEETS\C-WATR-LAYOUT.dwg
PLOTTED: Friday, April 19, 2024 1:09:45 PM



NORTH

GRAPHIC SCALE IN FEET
0 100 200 400

LEGEND

- PROP WATER LINE RELOCATION
- W1 CITY OF GEORGETOWN WL
- W2 CITY OF ROUND ROCK WL
- TO BE REMOVED
- TO BE ABANDONED IN PLACE
- EXIST GATE VALVE
- EXIST FIRE HYDRANT
- EXIST AIR VALVE

NOTES

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2. ANY DISCREPANCIES FROM WHAT IS SHOWN SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. ALL FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C110 OR C153.
4. CONTRACTOR TO FIELD VERIFY LOCATION OF NEAREST EXISTING JOINT AND EXTERNALLY RESTRAINT THE JOINT. IF EXISTING JOINT IS LESS THAN INDICATED LENGTH FROM CONNECTION POINT, CONTRACTOR TO EXTERNALLY RESTRAINT THE NEXT JOINT AS WELL.

STATE OF TEXAS
TARA R. RAOOF
141851
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

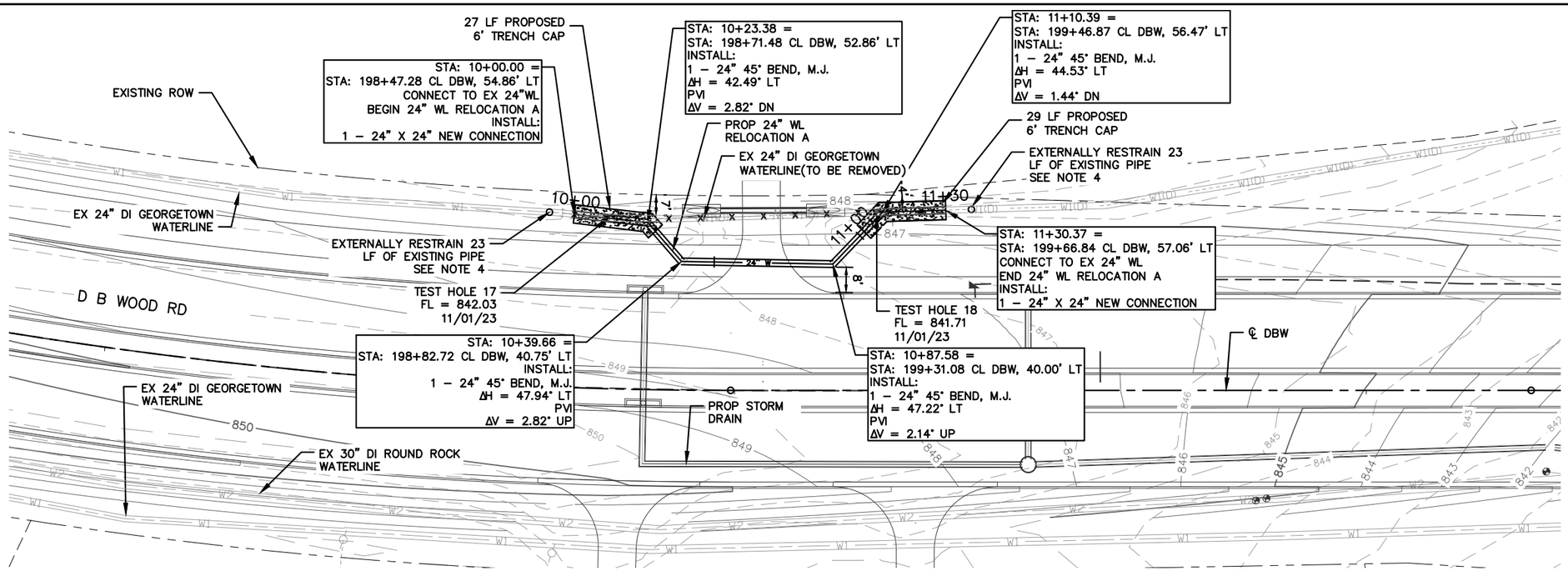
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

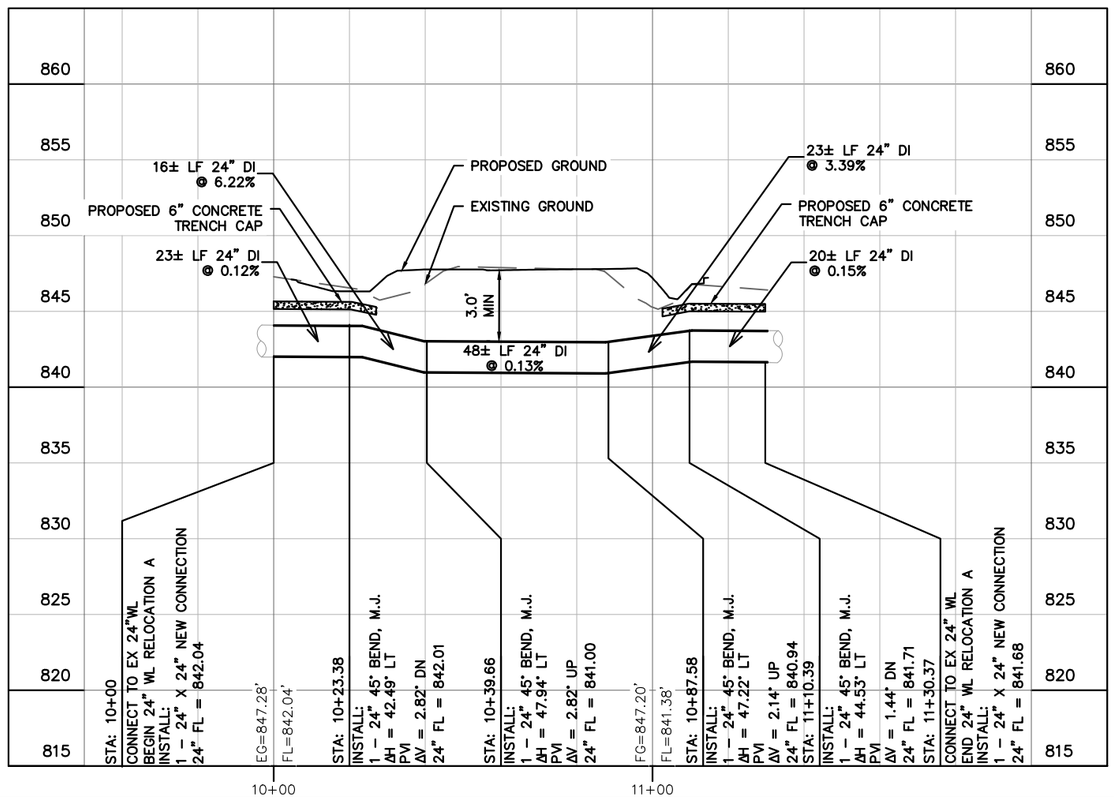
WATER GENERAL LAYOUT

SHEET 2 OF 2 | 303

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PLOTTED: Friday, April 19, 2024 1:09:53 PM



RESTRAIN ±130 LF FOR PIPES,
JOINTS, AND FITTINGS



GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 2.5 5 10
VERTICAL

LEGEND

- PROP WATER LINE
- PROP STORM DRAIN
- ROAD CENTERLINE
- EXIST RIGHT OF WAY
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST OVERHEAD ELECTRIC
- EXIST STORM DRAIN
- CITY OF GEORGETOWN WL
- CITY OF ROUND ROCK WL
- EXIST CONTOURS
- PROP CONTOURS
- EXIST POWER POLE
- EXIST GATE VALVE
- EXIST FIRE HYDRANT
- EXIST AIR VALVE
- EXIST CURB INLET
- EXIST LIGHT POLE

NOTES

1. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES THAT MIGHT BE OCCASIONED BY THE FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
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3. ALL FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C110 OR C153.
4. CONTRACTOR TO FIELD VERIFY LOCATION OF NEAREST EXISTING JOINT AND EXTERNALLY RESTRAINT THE JOINT. IF EXISTING JOINT IS LESS THAN INDICATED LENGTH FROM CONNECTION POINT, CONTRACTOR TO EXTERNALLY RESTRAINT THE NEXT JOINT AS WELL.

STATE OF TEXAS
TARA R. RAOOF
141851
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

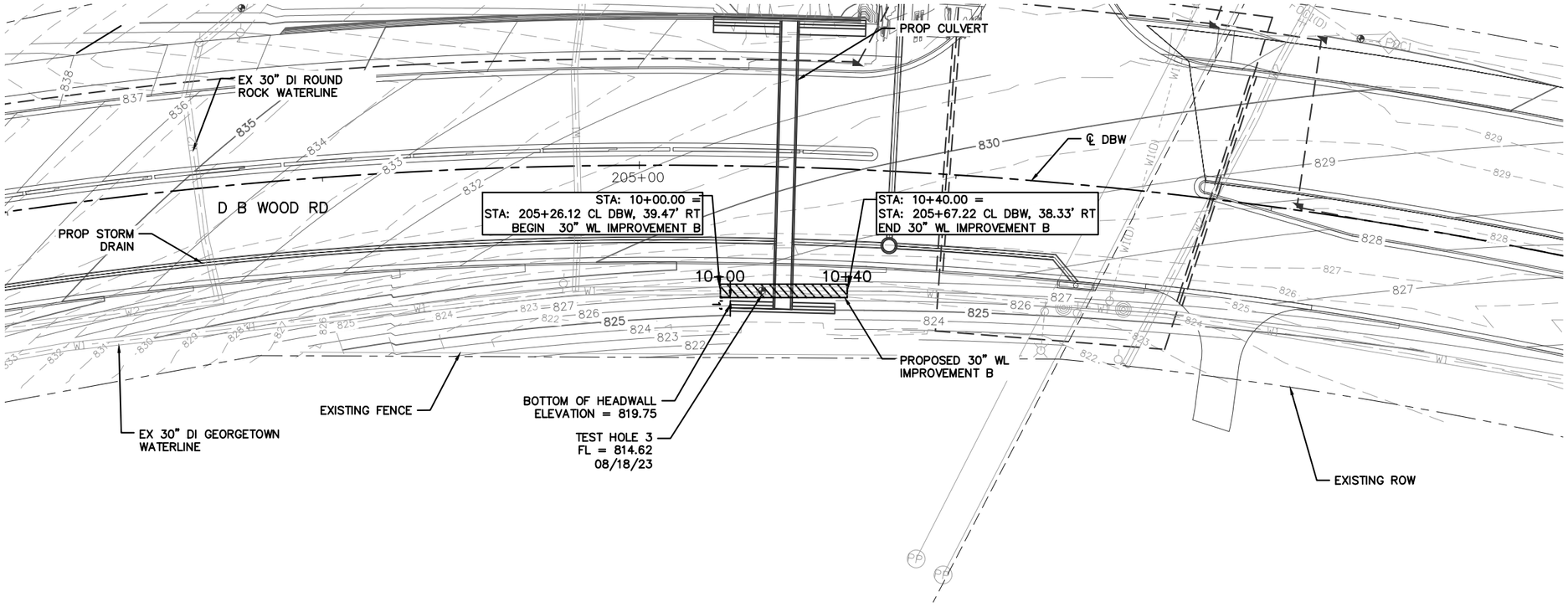
GEORGETOWN
TEXAS
more than welcome

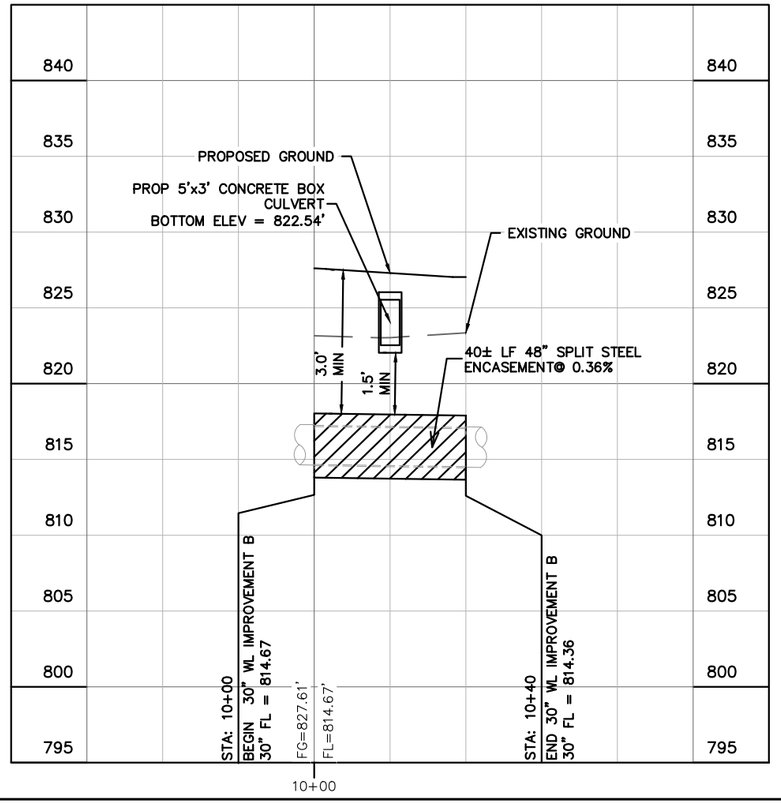
D B WOOD ROAD

PROPOSED 24–IN WL RELOCATION "A" PLAN AND PROFILE

SHEET 1 OF 1 | 304

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PLOTTED: Friday, April 19, 2024 1:12:28 PM





GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 2.5 5 10
VERTICAL

NORTH

LEGEND

- PROP WATER LINE
- PROP STORM DRAIN
- ROAD CENTERLINE
- EXIST RIGHT OF WAY
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST OVERHEAD ELECTRIC
- EXIST STORM DRAIN
- CITY OF GEORGETOWN WL
- CITY OF ROUND ROCK WL
- EXIST CONTOURS
- PROP CONTOURS
- EXIST POWER POLE
- EXIST GATE VALVE
- EXIST FIRE HYDRANT
- EXIST AIR VALVE
- EXIST CURB INLET
- EXIST LIGHT POLE

NOTES

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3. ALL FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C110 OR C153.
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STATE OF TEXAS
TARA R. RAOOF
141851
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

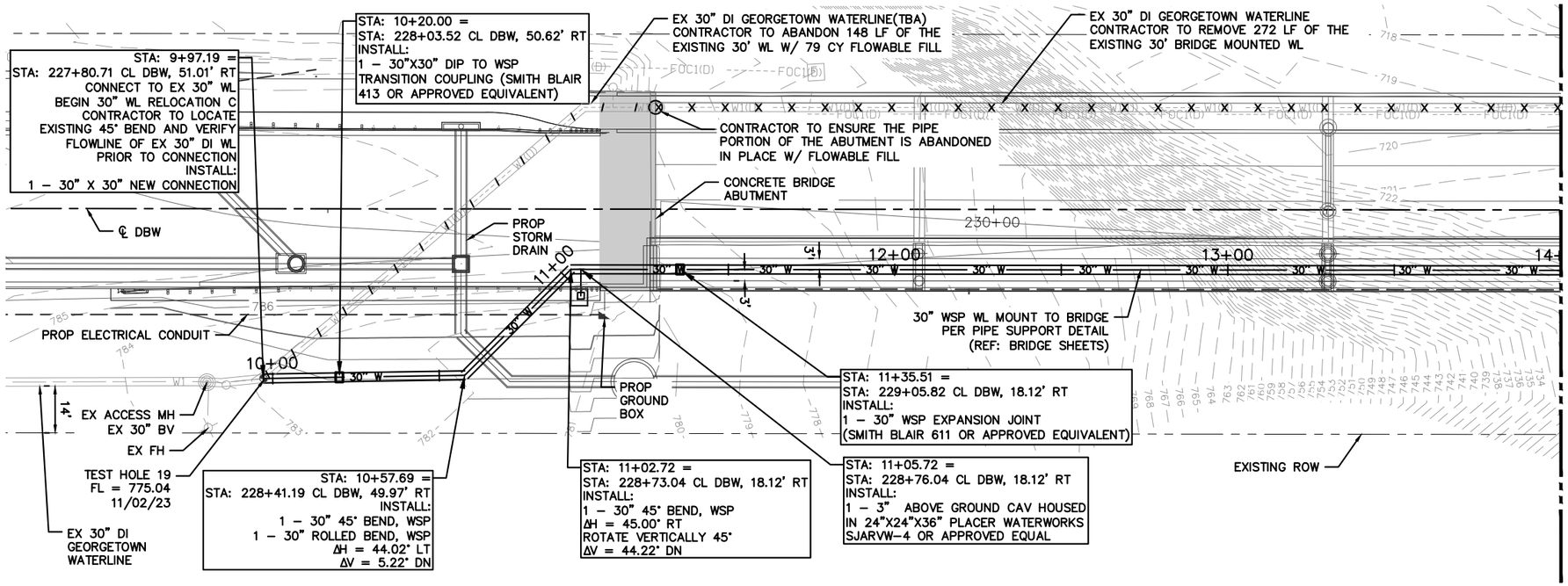
GEORGETOWN TEXAS
more than welcome

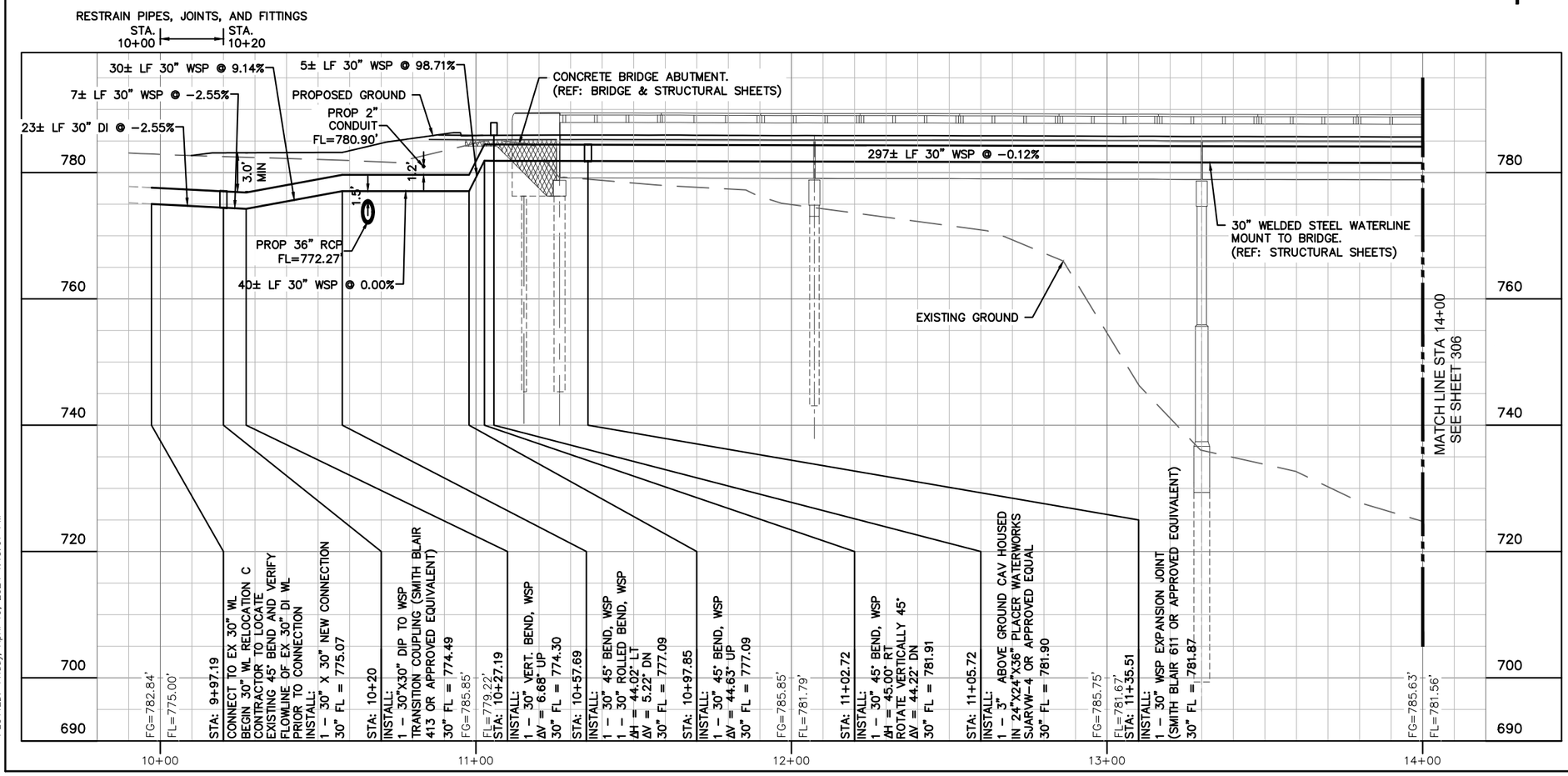
D B WOOD ROAD

PROPOSED 30-IN WL IMPROVEMENT "B" PLAN AND PROFILE

SHEET 1 OF 1 | 305

FILENAME: K:\AUS_WR\069226621_DB_Wood_Ph2\CAD\PLANSHEETS\C-WATR-PNP1.dwg
PLOTTED: Friday, April 19, 2024 1:12:32 PM





GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 5 10 20
VERTICAL

NORTH

LEGEND

- PROP WATER LINE
- PROP STORM DRAIN
- ROAD CENTERLINE
- EXIST RIGHT OF WAY
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST OVERHEAD ELECTRIC
- EXIST STORM DRAIN
- CITY OF GEORGETOWN WL
- CITY OF ROUND ROCK WL
- EXIST CONTOURS
- PROP CONTOURS
- EXIST POWER POLE
- EXIST GATE VALVE
- EXIST FIRE HYDRANT
- EXIST AIR VALVE
- EXIST CURB INLET
- EXIST LIGHT POLE

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5. FOR BURIED WELDED STEEL PIPE, CONTRACTOR TO INSTALL MIN 0.5" OF CEMENT MORTAR LINING AND MIN 25 MM OF POLYURETHANE COATING. REFERENCE SPECIFICATION SPW1 FOR WELDED STEEL PIPE REQUIREMENTS.
6. FOR EXPOSED WELDED STEEL PIPE, CONTRACTOR TO INSTALL MIN 0.02" OF POLYURETHANE LINING AND MIN 25 MM OF POLYURETHANE COATING. REFERENCE SPECIFICATION SPW1 FOR WELDED STEEL PIPE REQUIREMENTS.

STATE OF TEXAS
TARA R. RAOOF
141851
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

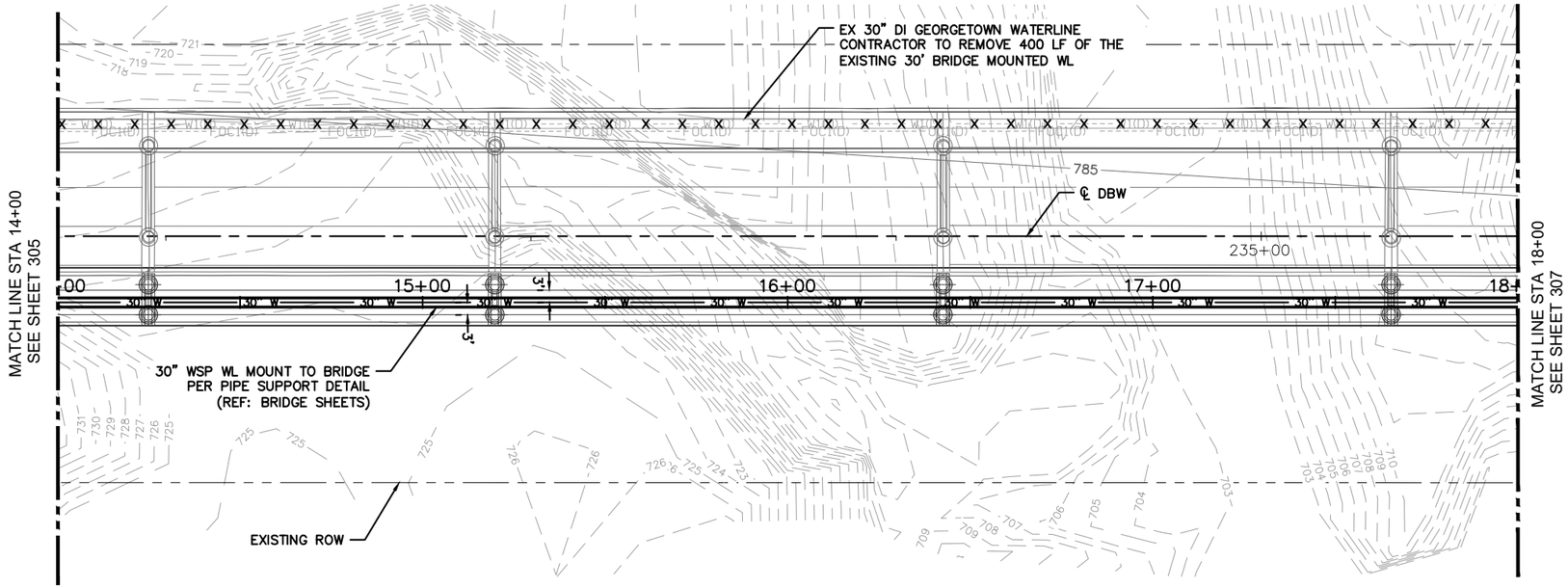
GEORGETOWN TEXAS
more than welcome

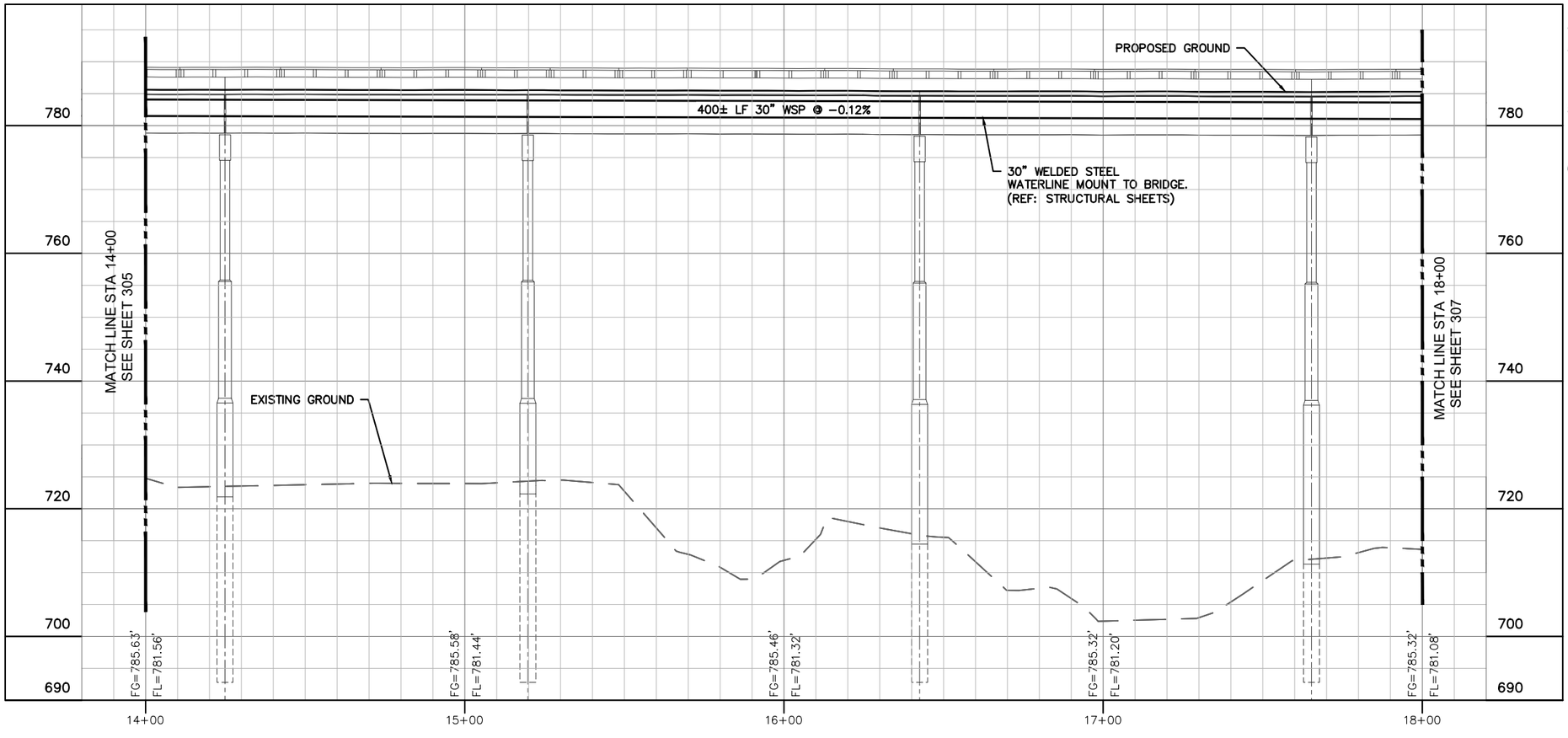
D B WOOD ROAD

PROPOSED 30–IN WL RELOCATION "C" PLAN AND PROFILE

SHEET 1 OF 4 | 306

FILENAME: K:\AUS_WR\069226621_DB_Wood_Ph2\CAD\PLANSHEETS\C-WATR-PNP1.5.dwg
PLOTTED: Friday, April 19, 2024 1:13:07 PM





GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 5 10 20
VERTICAL

NORTH

LEGEND

30" W	PROP WATER LINE
	PROP STORM DRAIN
	ROAD CENTERLINE
	EXIST RIGHT OF WAY
	EXIST EASEMENT
	EXIST PROPERTY LINE
OH	EXIST OVERHEAD ELECTRIC
SD1(C)	EXIST STORM DRAIN
W1	CITY OF GEORGETOWN WL
W2	CITY OF ROUND ROCK WL
832	EXIST CONTOURS
832	PROP CONTOURS
	EXIST POWER POLE
	EXIST GATE VALVE
	EXIST FIRE HYDRANT
	EXIST AIR VALVE
	EXIST CURB INLET
	EXIST LIGHT POLE

NOTES
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STATE OF TEXAS
TARA R. RAOOF
141851
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

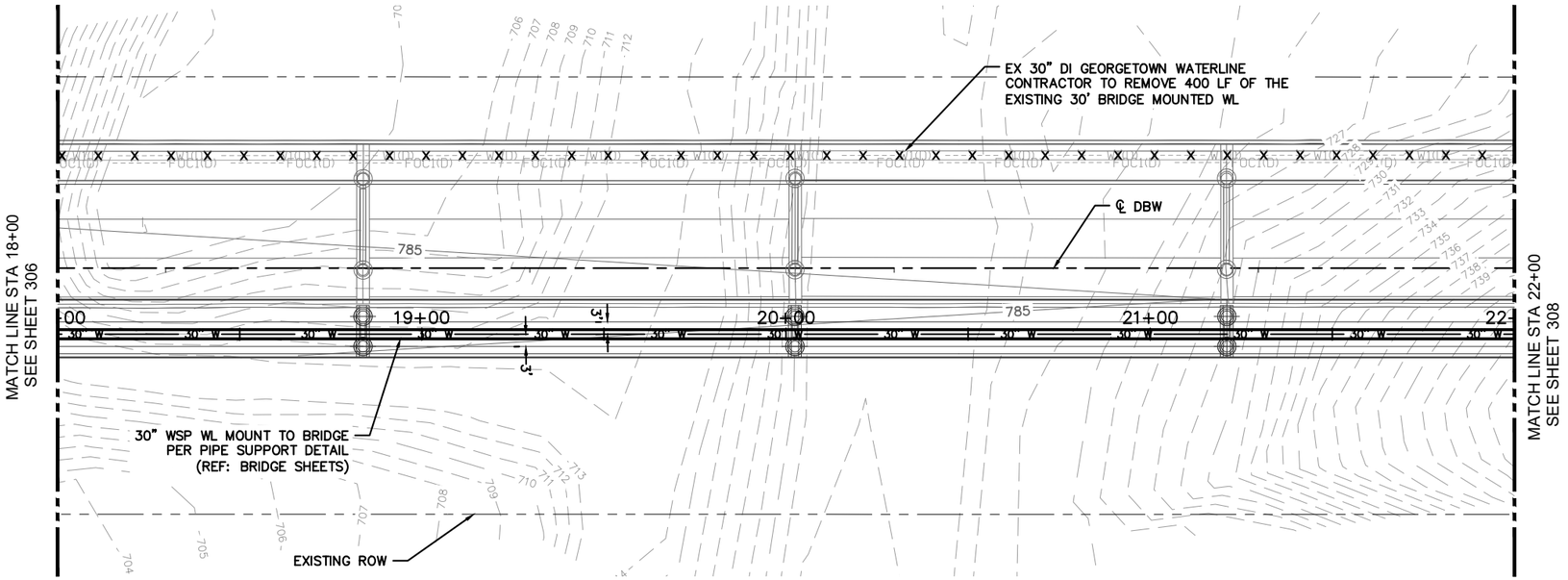
GEORGETOWN TEXAS
more than welcome

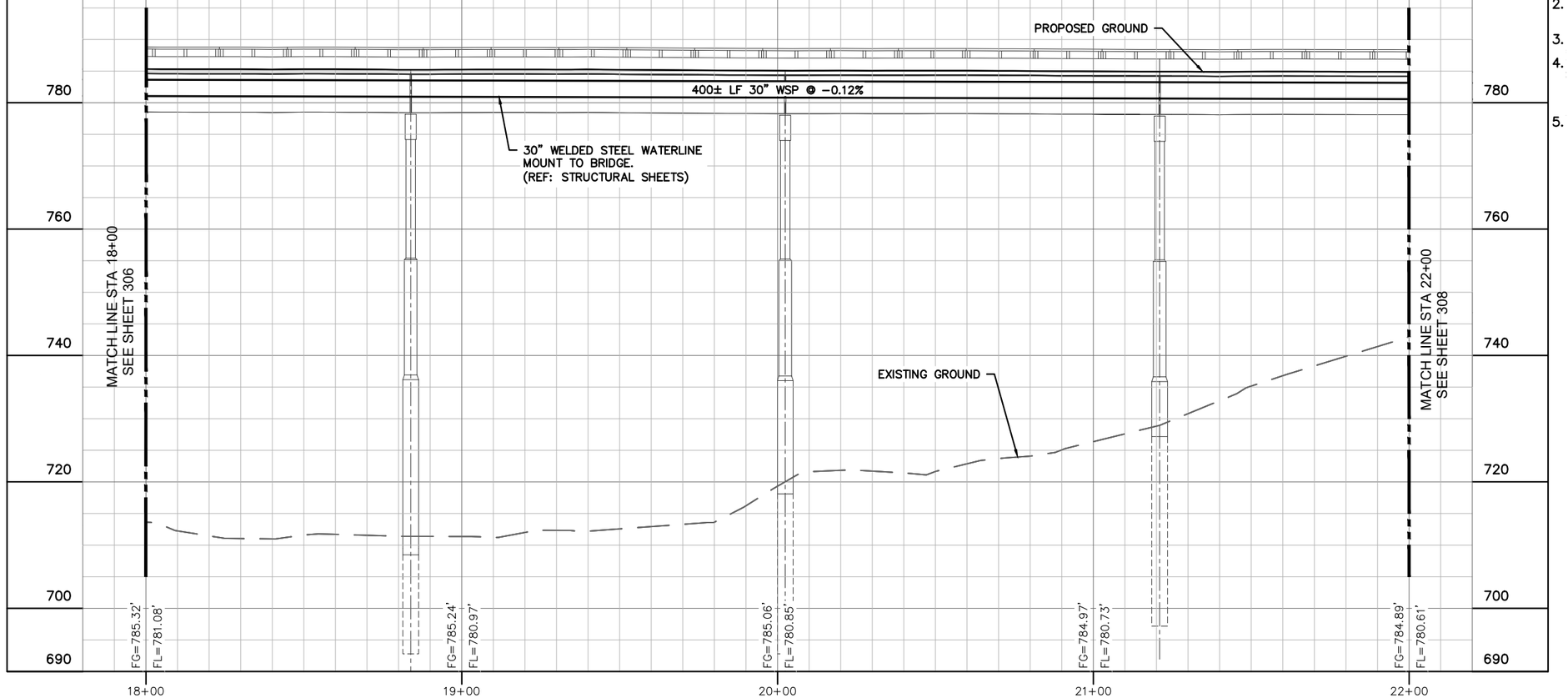
D B WOOD ROAD

PROPOSED 30-IN WL RELOCATION "C" PLAN AND PROFILE

SHEET 2 OF 4 | 307

FILENAME: K:\AUS_WR\069226621_DB_Wood_Ph2\CAD\PLANSHEETS\C-WATR-PNP2.dwg
PLOTTED: Friday, April 19, 2024 1:13:43 PM





GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 5 10 20
VERTICAL

NORTH

LEGEND

- PROP WATER LINE
- PROP STORM DRAIN
- ROAD CENTERLINE
- EXIST RIGHT OF WAY
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST OVERHEAD ELECTRIC
- EXIST STORM DRAIN
- CITY OF GEORGETOWN WL
- CITY OF ROUND ROCK WL
- EXIST CONTOURS
- PROP CONTOURS
- EXIST POWER POLE
- EXIST GATE VALVE
- EXIST FIRE HYDRANT
- EXIST AIR VALVE
- EXIST CURB INLET
- EXIST LIGHT POLE

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5. FOR WELDED STEEL PIPE, CONTRACTOR TO INSTALL MIN 0.5" OF CEMENT MORTAR LINING, MIN 1" OF CEMENT MORTAR COATING, AND MIN 35 MM OF POLYURETHANE COATING. REFERENCE SPECIFICATION SPW1 FOR WELDED STEEL PIPE REQUIREMENTS.

STATE OF TEXAS
TARA R. RAOOF
141851
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

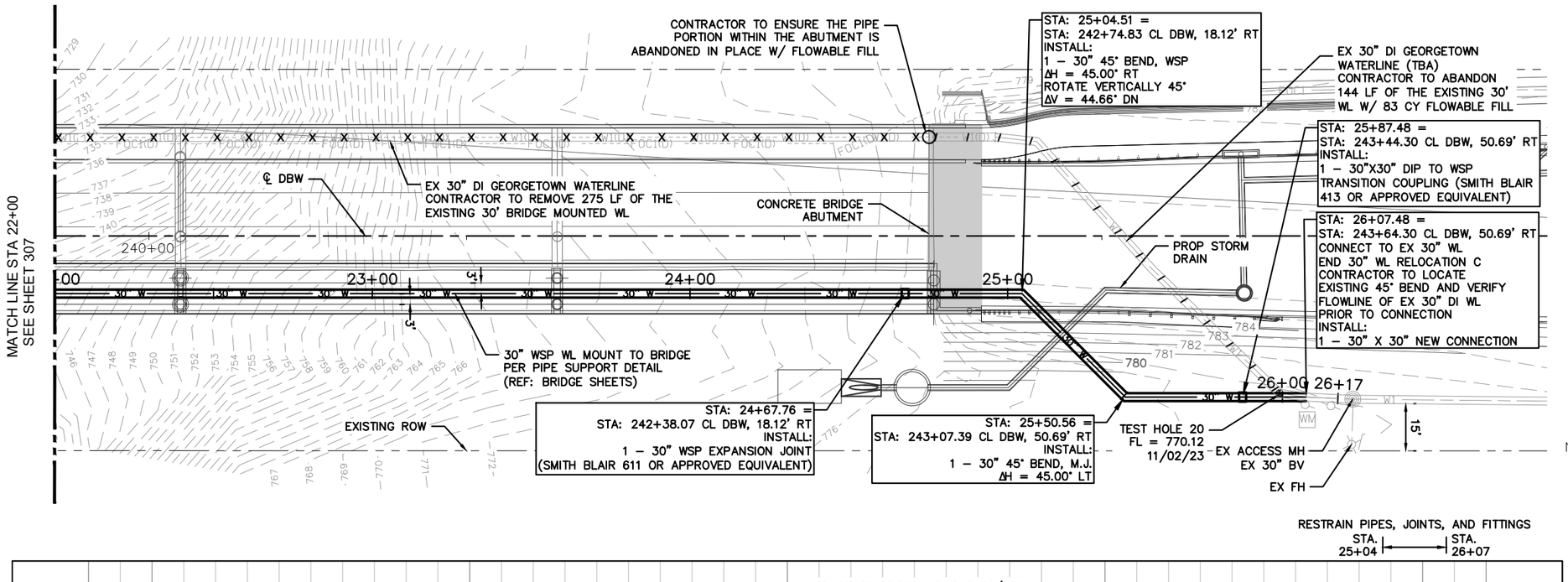
GEORGETOWN TEXAS
more than welcome

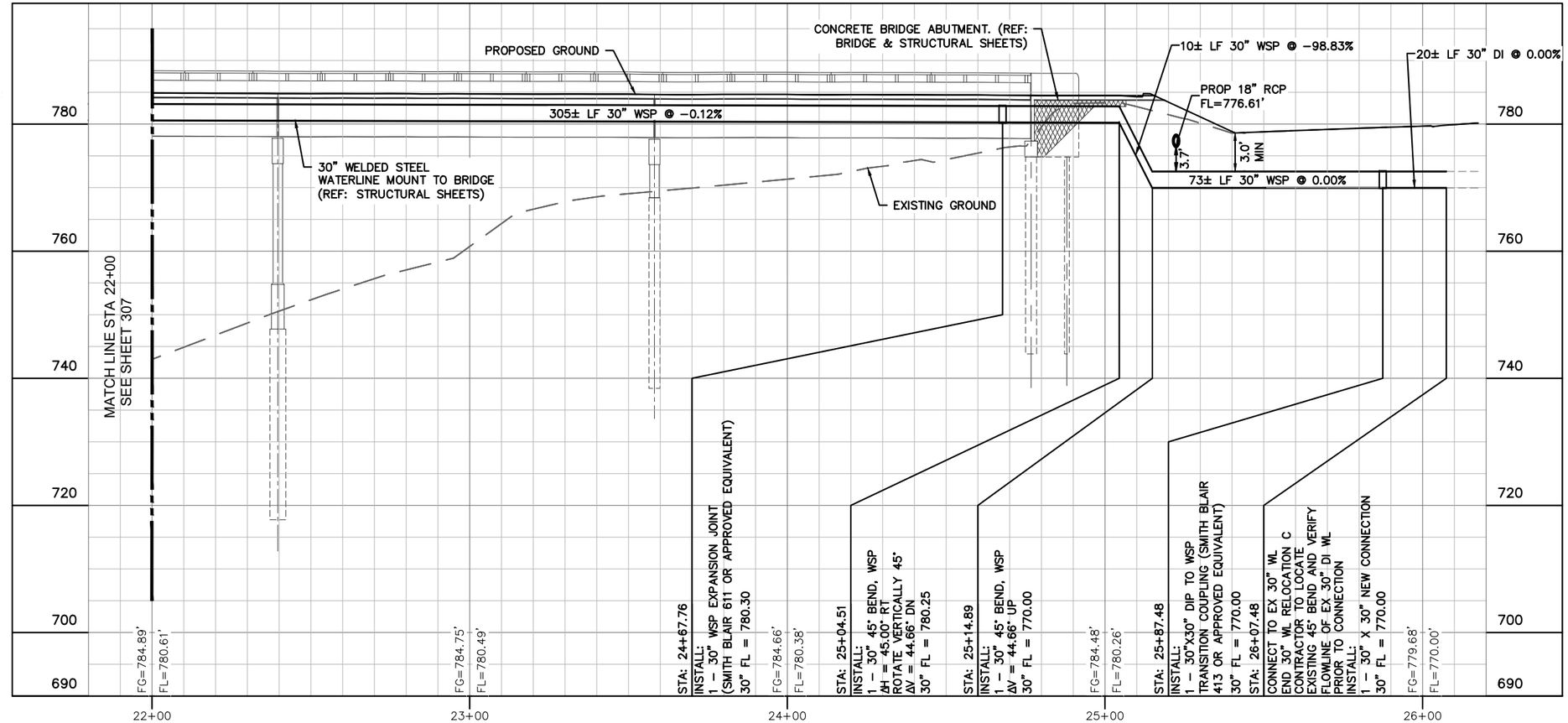
D B WOOD ROAD

PROPOSED 30-IN WL RELOCATION "C" PLAN AND PROFILE

SHEET 3 OF 4 | 308

FILENAME: K:\AUS_WR\069226621_DB_Wood_Ph2\CAD\PLANSHEETS\C-WATR-PNP2.dwg
PLOTTED: Friday, April 19, 2024 1:13:48 PM





GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 5 10 20
VERTICAL

NORTH

LEGEND

- PROP WATER LINE
- PROP STORM DRAIN
- ROAD CENTERLINE
- EXIST RIGHT OF WAY
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST OVERHEAD ELECTRIC
- EXIST STORM DRAIN
- CITY OF GEORGETOWN WL
- CITY OF ROUND ROCK WL
- EXIST CONTOURS
- PROP CONTOURS
- EXIST POWER POLE
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STATE OF TEXAS
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PROFESSIONAL ENGINEER

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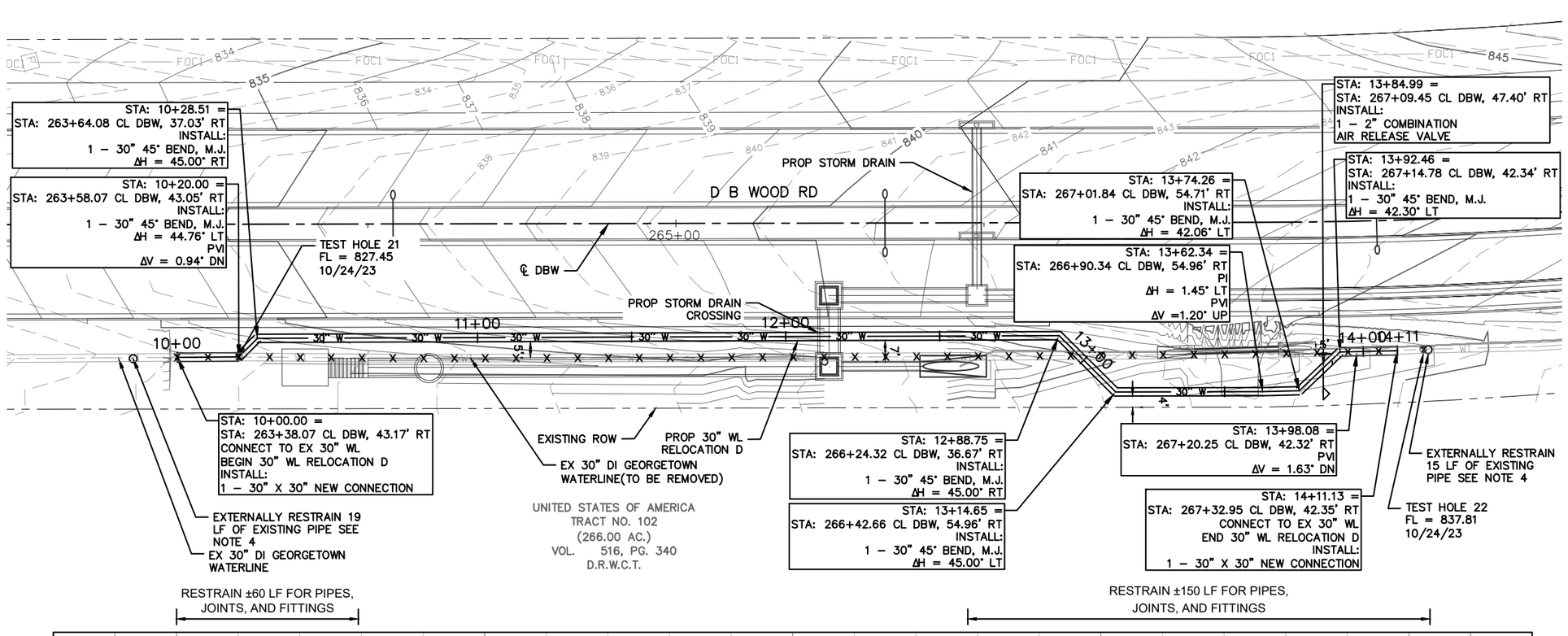
GEORGETOWN TEXAS
more than welcome

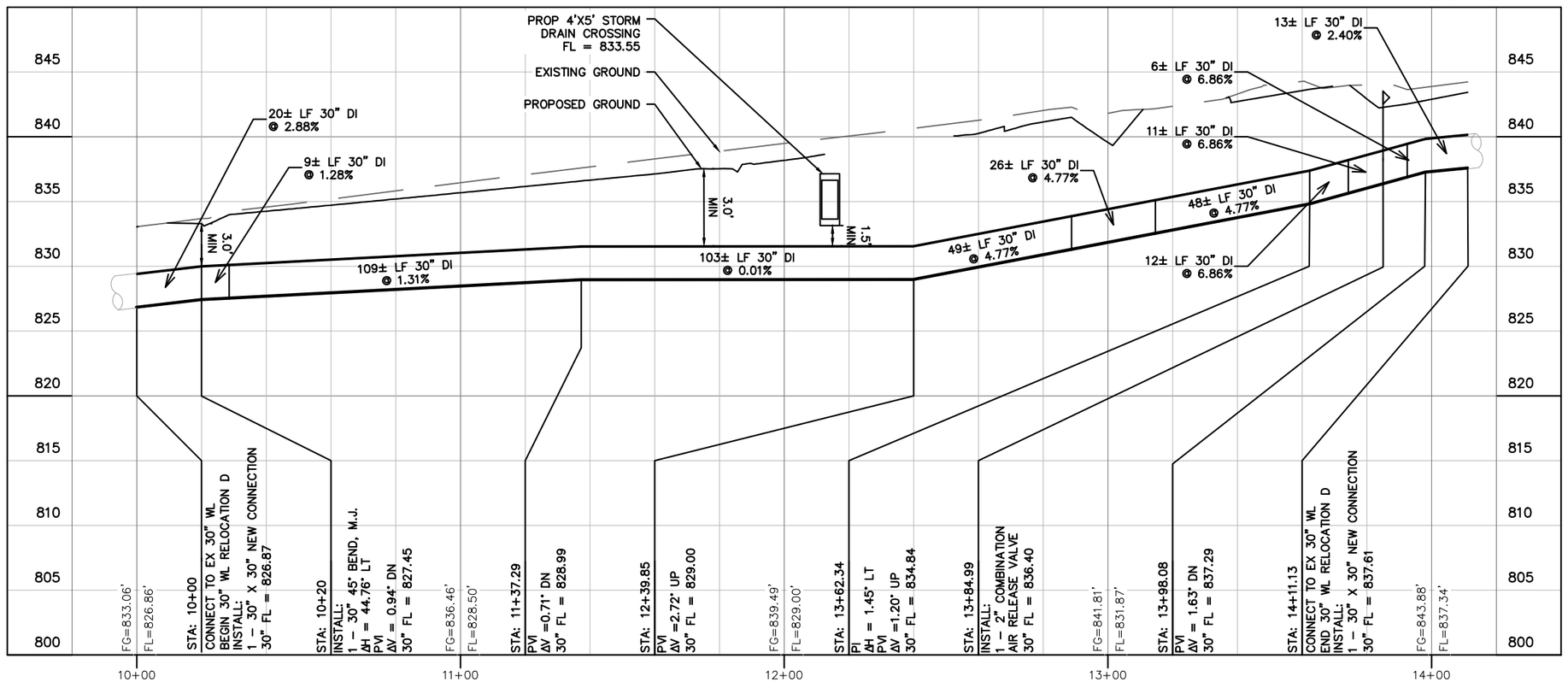
D B WOOD ROAD

PROPOSED 30–IN WL RELOCATION "C" PLAN AND PROFILE

SHEET 4 OF 4 | 309

FILENAME: K:\AUS_WR\069226621_DB_Wood_Ph2\CAD\PLANSHEETS\C-WATR-PNP2.dwg
PLOTTED: Friday, April 19, 2024 1:13:52 PM





NOTES

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STATE OF TEXAS
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141851
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

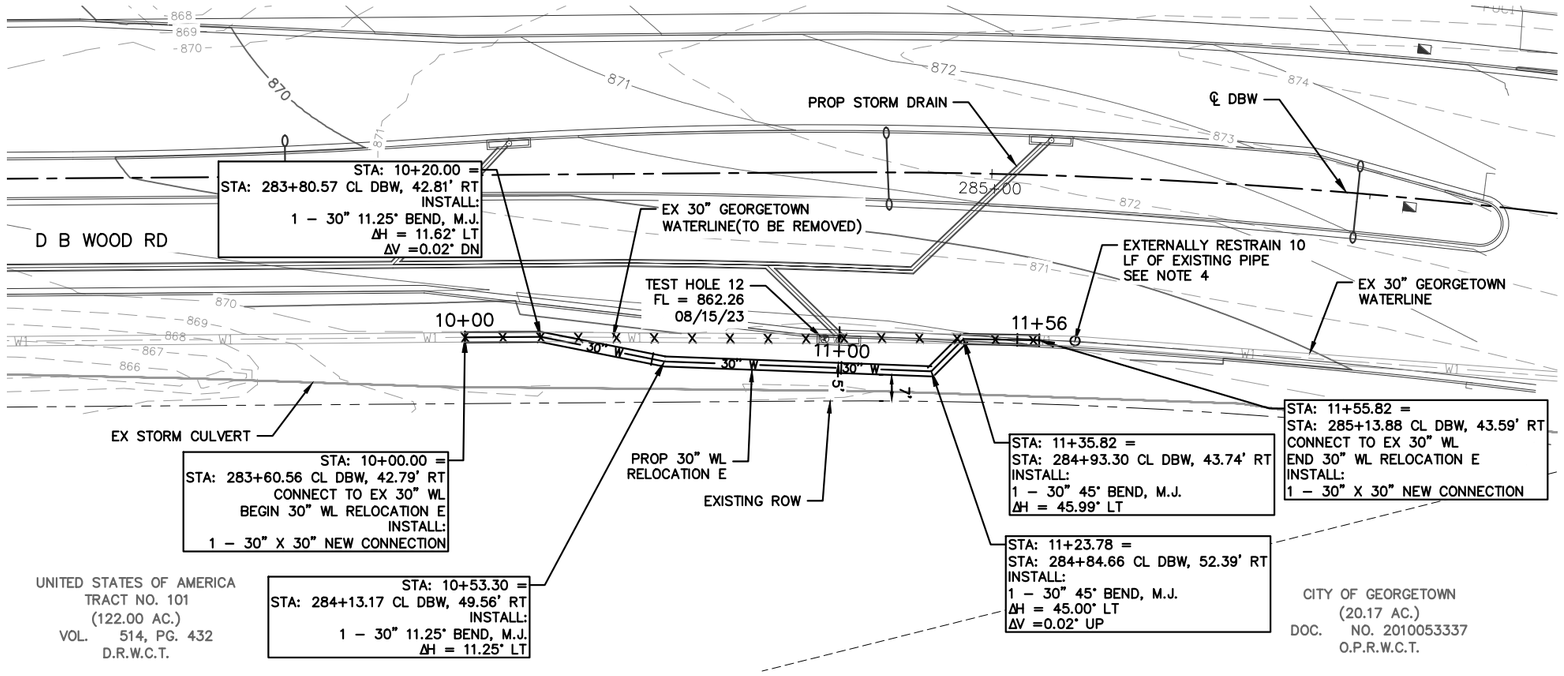
GEORGETOWN TEXAS more than welcome

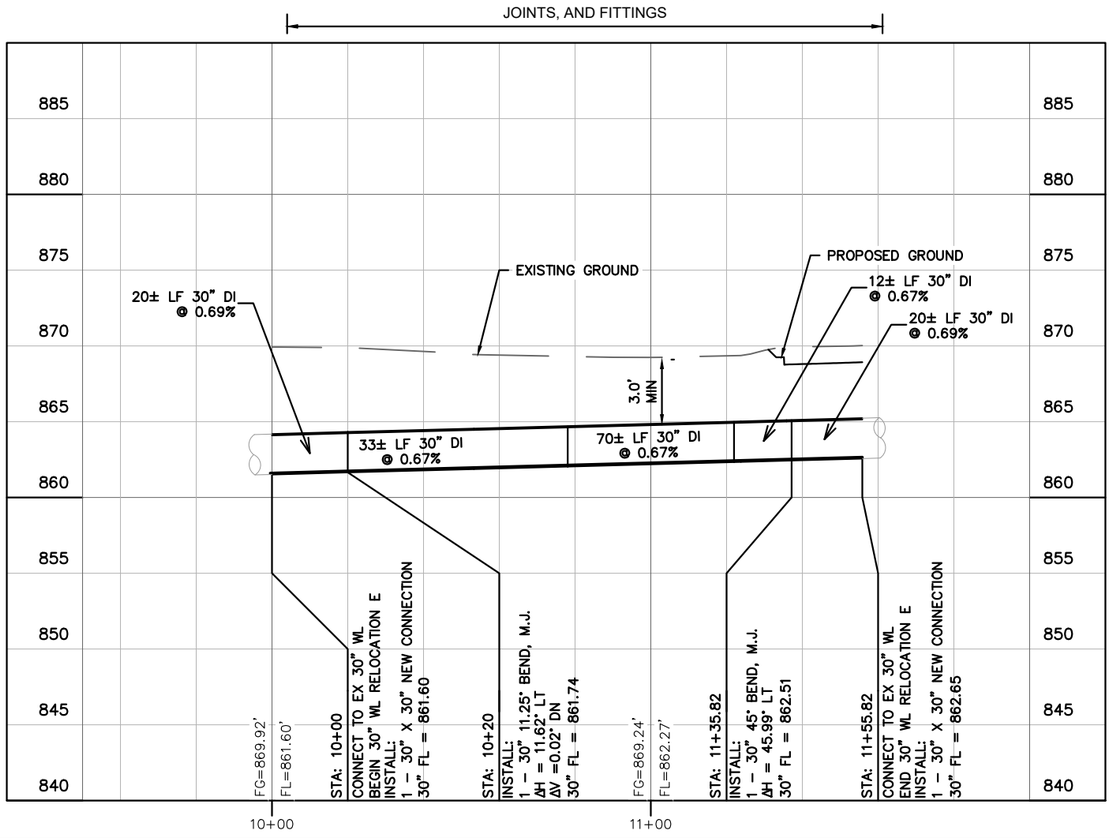
D B WOOD ROAD

PROPOSED 30–IN WL RELOCATION "D" PLAN AND PROFILE

SHEET 1 OF 1 | 310

FILENAME: K:\AUS_WR\069226621_DB_Wood_Ph2\CAD\PLANSHEETS\C-WATR-PNP3.dwg
PLOTTED: Friday, April 19, 2024 1:14:17 PM





GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 2.5 5 10
VERTICAL

NORTH

LEGEND

- PROP WATER LINE
- PROP STORM DRAIN
- ROAD CENTERLINE
- EXIST RIGHT OF WAY
- EXIST EASEMENT
- EXIST PROPERTY LINE
- EXIST OVERHEAD ELECTRIC
- EXIST STORM DRAIN
- CITY OF GEORGETOWN WL
- CITY OF ROUND ROCK WL
- EXIST CONTOURS
- PROP CONTOURS
- EXIST POWER POLE
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Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

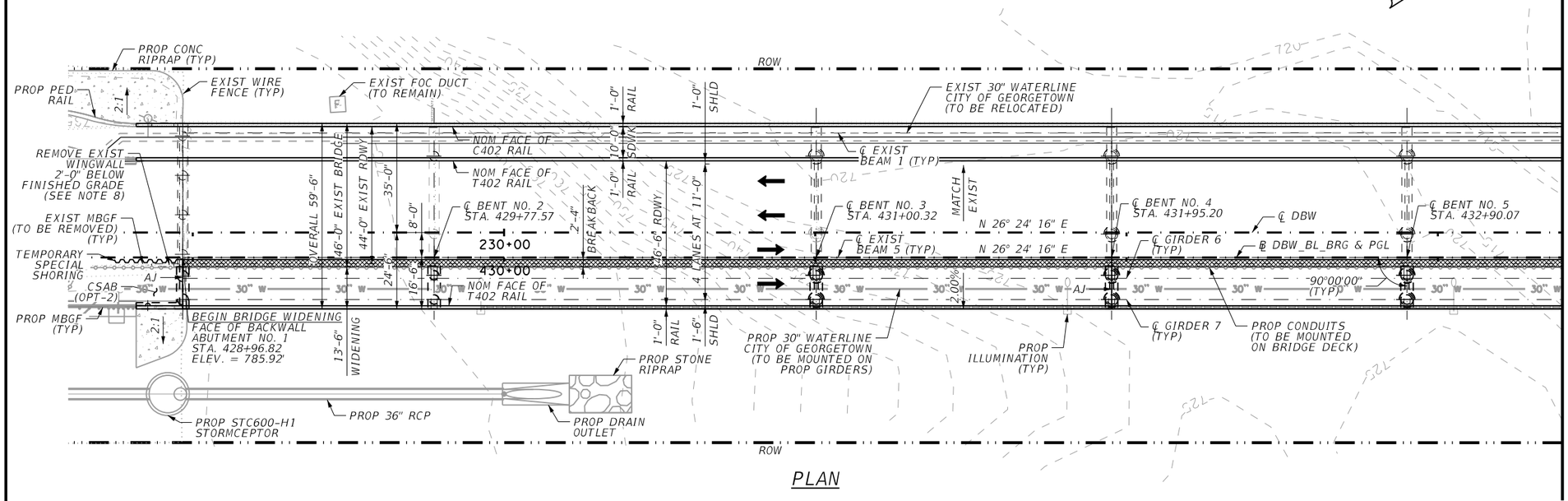
D B WOOD ROAD

PROPOSED 30–IN WL RELOCATION "E" PLAN AND PROFILE

SHEET 1 OF 1 | 311

FILENAME: K:\AUS_WR\069226621_DB_Wood_Ph2\CAD\PLANSHEETS\C-WATR-PNP3.dwg
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ALL ABUTMENTS AND BENTS ARE PERPENDICULAR TO ALIGNMENT UNLESS NOTED OTHERWISE



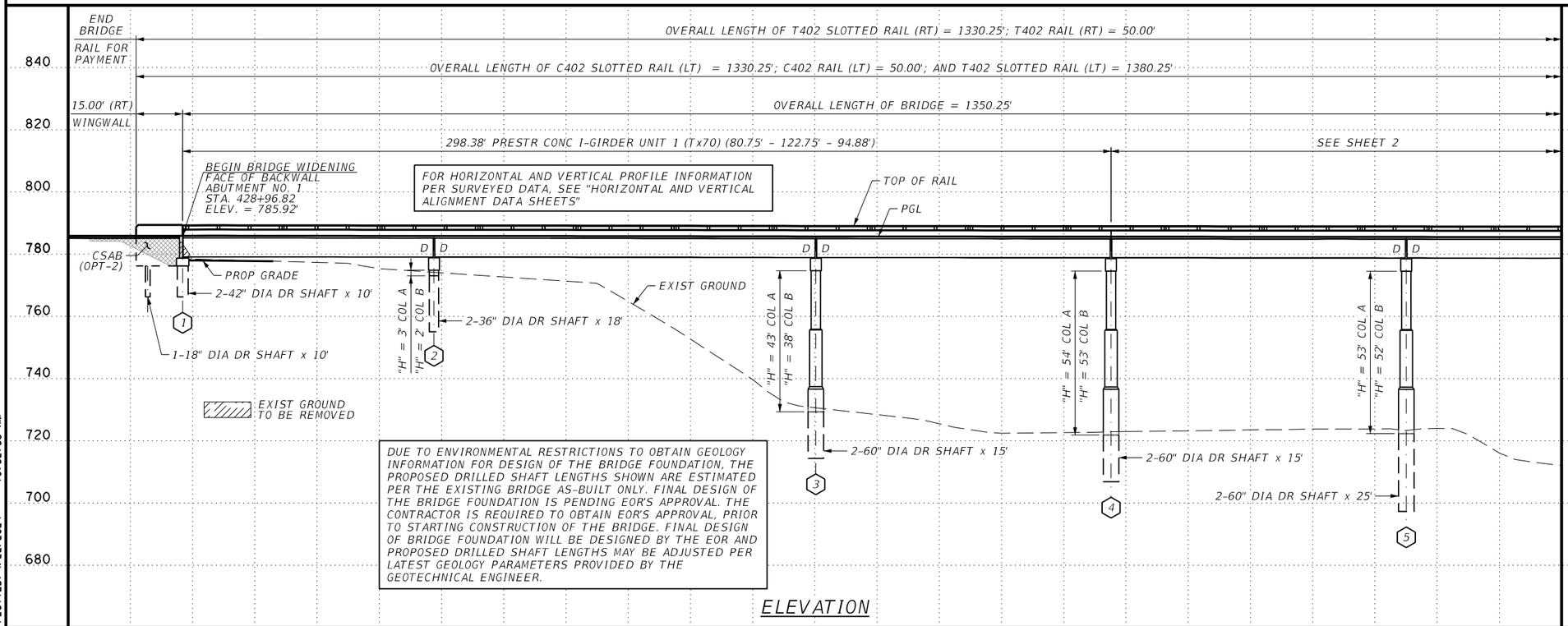
PLAN

GENERAL NOTES:

1. BRIDGE WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).
2. THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS AND ARE FOR BIDDING PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATING THE ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITION.
3. EXTEND DRILLED SHAFTS TO THE LENGTHS SHOWN OR LONGER AS NECESSARY TO OBTAIN A MINIMUM OF TWO (2) DRILLED SHAFT DIAMETERS INTO COMPETENT SHALE. SEE BORING SHEETS FOR ADDITIONAL DRILLING LOG INFORMATION.
4. BEARING CONDITIONS. DOWEL LOCATIONS SHOWN CORRESPOND TO EXISTING BRIDGE AS-BUILT CONDITION.
   D = DOWEL; BLANK = NO DOWEL
5. SEE BRIDGE TYPICAL SECTION SHEETS FOR ADDITIONAL NOTES AND DETAILS.
6. CONTRACTOR TO FIELD SURVEY LOCATIONS OF EXISTING STRUCTURES AND UTILITIES AND COORDINATE ANY NECESSARY REMOVAL AND RELOCATION PRIOR TO CONSTRUCTION.
7. SAW-CUT GROOVING OF THE BRIDGE DECK IS REQUIRED.
8. REMOVAL OF EXISTING WINGWALLS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO REMOVAL OF EXISTING ABUTMENT.
9. SEE "TRAFFIC CONTROL PLAN – TEMPORARY SHORING DETAILS" SHEETS FOR TEMPORARY SPECIAL SHORING DETAILS.
10. SEE ILLUMINATION PLANS FOR PROPOSED ILLUMINATION POLE STATION, OFFSET AND DETAILS.

DESIGN SPEED	= 45 MPH
ADT (2021)	= 13,994
ADT (2041)	= 30,663
FUNCT CLASS	= MAJOR ARTERIAL
EXIST NBI NO	= 14-246-0-D016-70-001

SUPERSTRUCTURE INV/OPR RATINGS: 1.01/1.52



ELEVATION

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

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

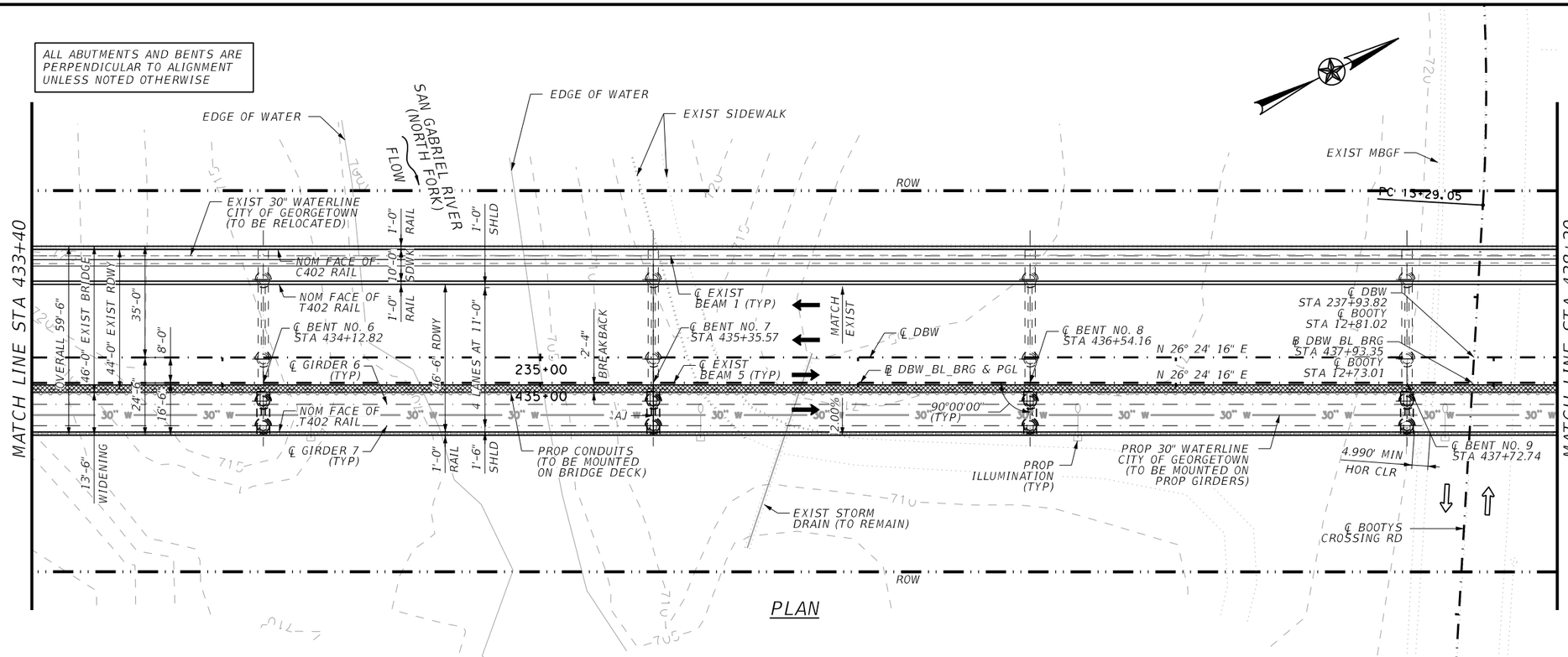
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

BRIDGE LAYOUT
SAN GABRIEL RIVER BRIDGE (NORTH FORK)

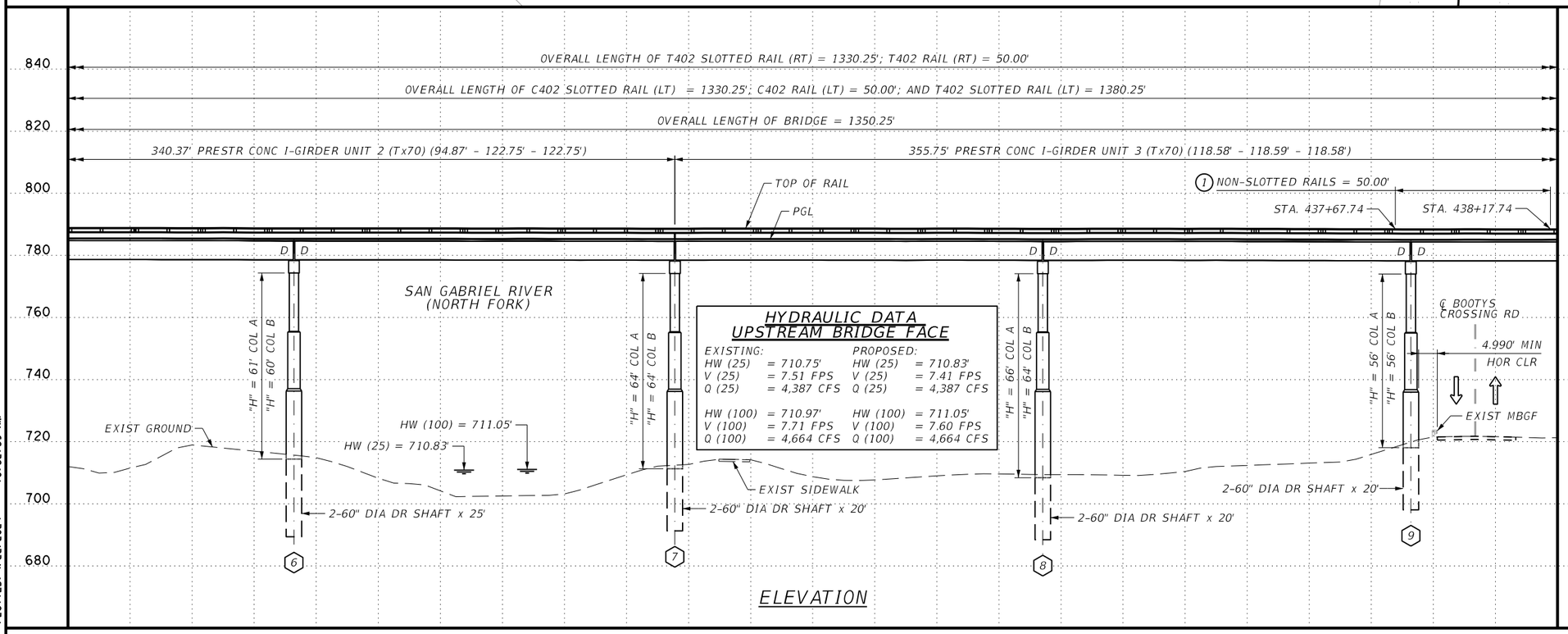
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PLOTTED: 4/22/2024 10:52:53 AM

ALL ABUTMENTS AND BENTS ARE PERPENDICULAR TO ALIGNMENT UNLESS NOTED OTHERWISE



PLAN

SUPERSTRUCTURE INV/OPR RATINGS: 1.01/1.52



ELEVATION

1 APPLICABLE TO EXTERIOR RAILS ONLY.

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

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

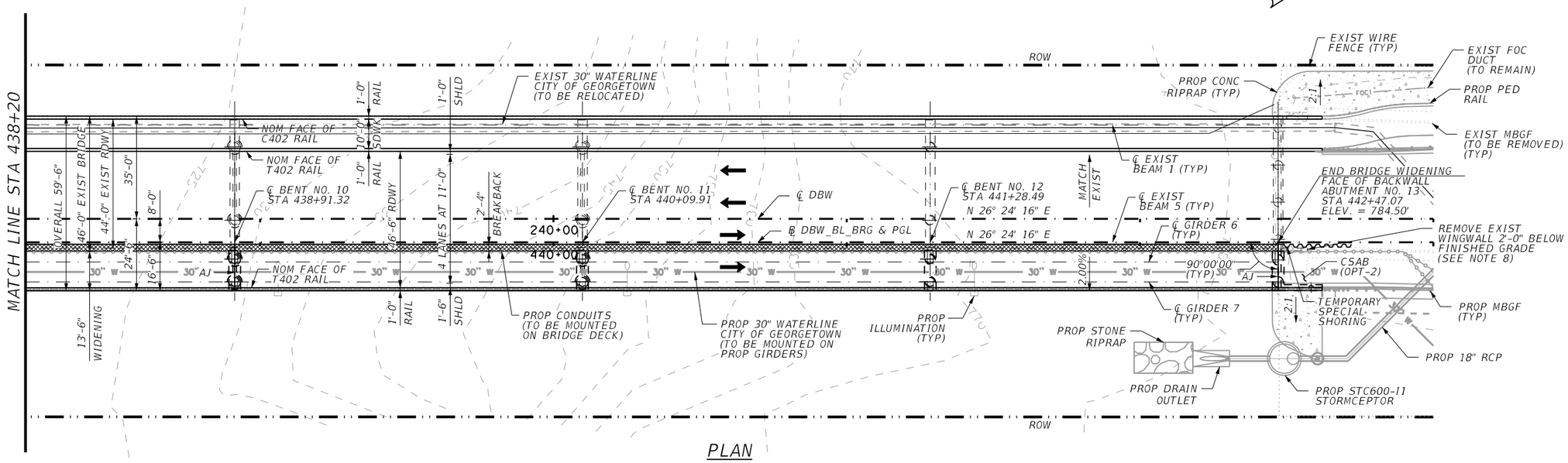
D B WOOD ROAD

BRIDGE LAYOUT SAN GABRIEL RIVER BRIDGE (NORTH FORK)

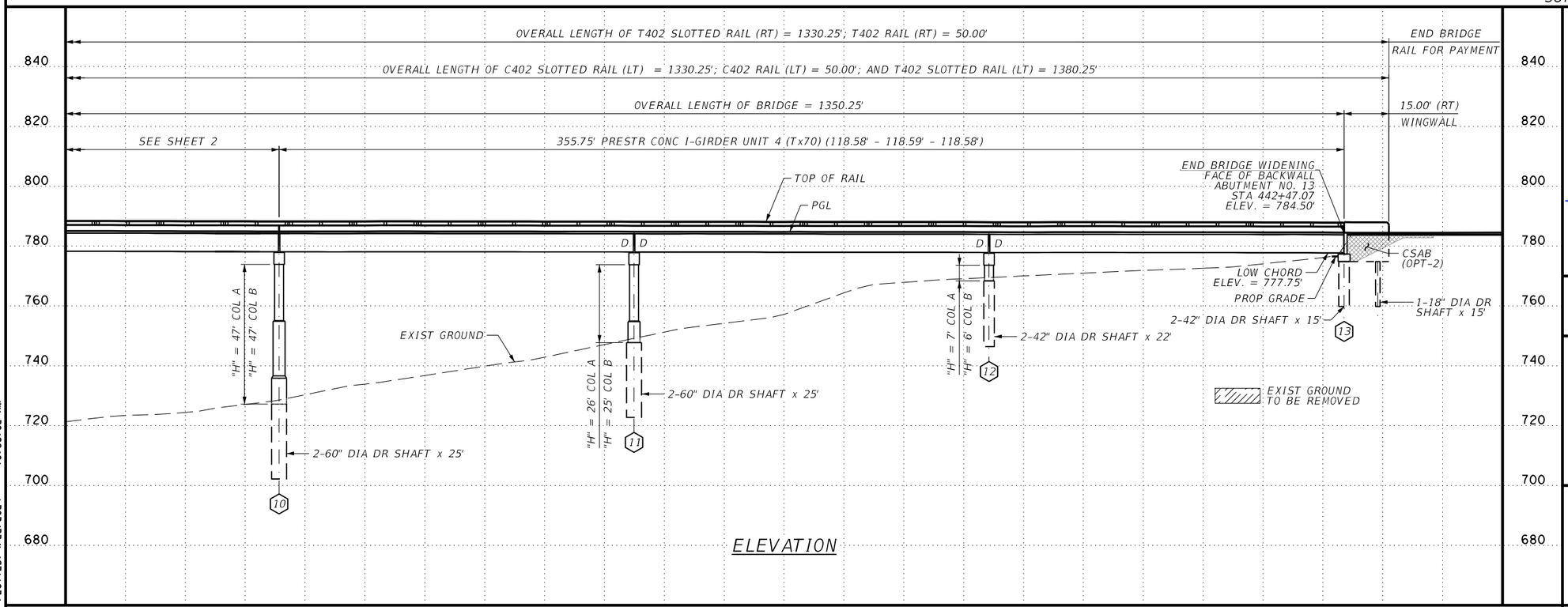
SHEET 2 OF 3 | 316

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ALL ABUTMENTS AND BENTS ARE PERPENDICULAR TO ALIGNMENT UNLESS NOTED OTHERWISE



SUPERSTRUCTURE INV/OPR RATINGS: 1.01/1.52



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

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

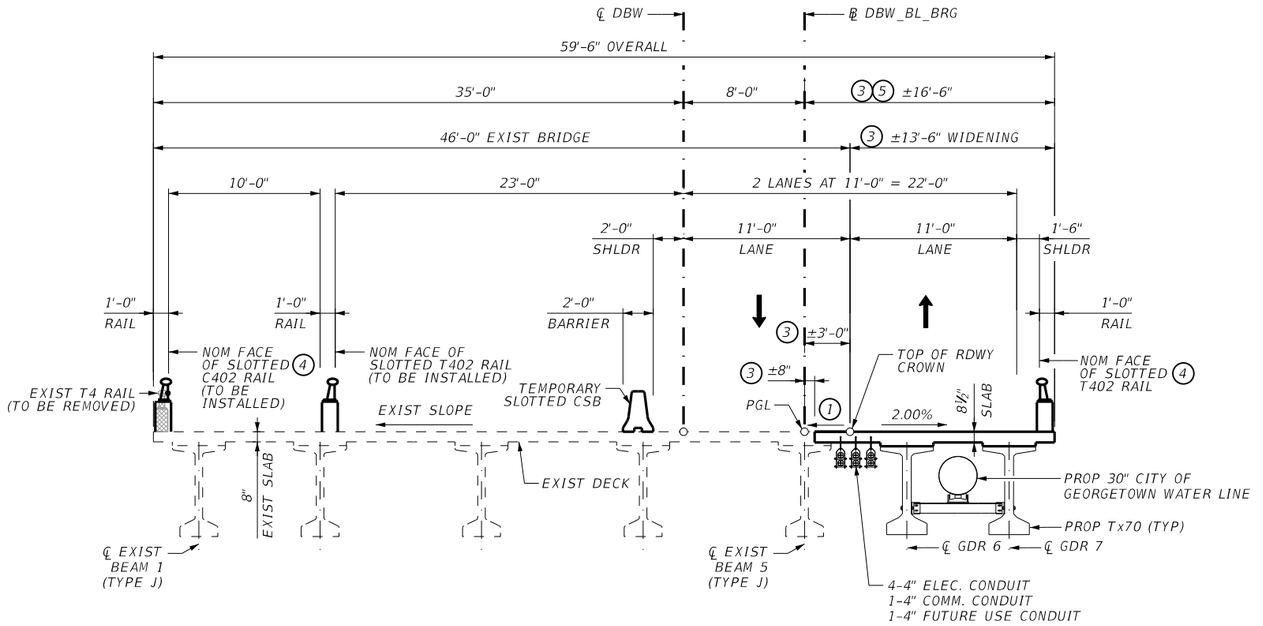
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

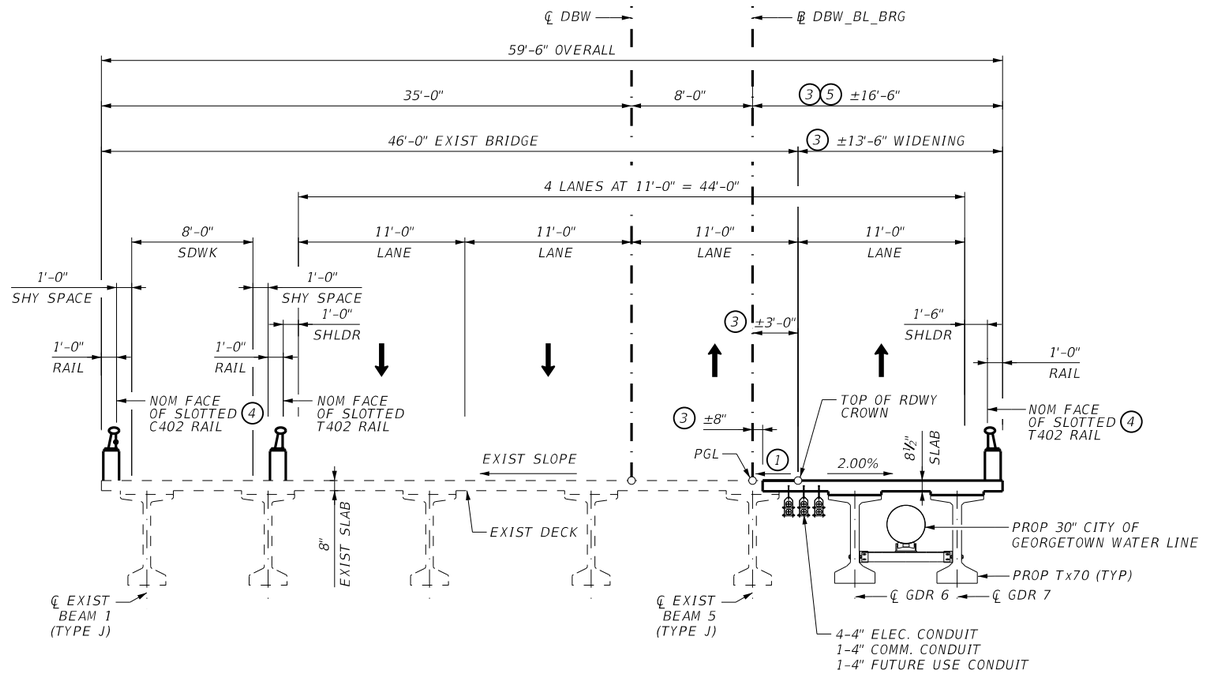
BRIDGE LAYOUT
SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 3 OF 3 | 317

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - Design\Plan Set\7. Bridge\07103_DBW_PH2_BR01_BLAY03.dgn
PLOTTED: 4/22/2024 10:53:02 AM



TCP PHASE 3 TYPICAL SECTION



COMPLETE TYPICAL SECTION

1. MATCH EXIST SLOPE
3. CONTRACTOR TO FIELD VERIFY DIMENSION PRIOR TO CONSTRUCTION
4. PARTIAL NON-SLOTTED RAIL IS USED ON UNIT 3. SEE BRIDGE LAYOUT FOR LIMITS OF NON-SLOTTED RAIL.
5. BRIDGE WIDENING IS NOT DESIGNED FOR A FUTURE WEARING SURFACE.

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

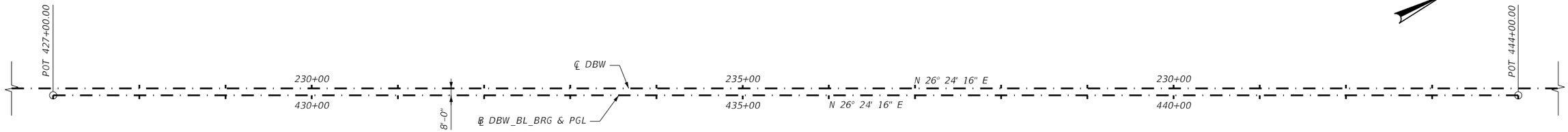
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

BRIDGE TYPICAL SECTION
SAN GABRIEL RIVER BRIDGE
(NORTH FORK)

SHEET 2 OF 2 | 319

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\7. Bridge\07172_DBW_PH2_BR01_BTYP02.dgn
PLOTTED: 4/22/2024 10:53:10 AM



HORIZONTAL ALIGNMENT DIAGRAM

GENERAL NOTES:

THE VERTICAL PROFILE DATA PROVIDED ON THIS SHEET IS BASED ON THE SURVEY RECEIVED ON 03/27/2023 BY INLAND GEODETICS AND IS PROVIDED FOR INFORMATION ONLY.

Beginning profile DBW_BL_BRG description:
==========

		STATION	ELEV(FT)	GRADE(%)
VPI	1	427+95.00	786.186	
VPI	2	428+20.00	786.086	-0.402
VPI	3	428+45.00	785.985	-0.402
VPI	4	428+70.00	785.880	-0.423
VPI	5	428+95.00	785.922	0.171
VPI	6	428+97.14	785.922	-0.017
VPI	7	429+00.00	785.926	0.142
VPI	8	429+05.00	785.933	0.142
VPI	9	429+10.00	785.932	-0.017
VPI	10	429+15.00	785.926	-0.122
VPI	11	429+20.00	785.923	-0.057
VPI	12	429+25.00	785.921	-0.055
VPI	13	429+30.00	785.925	0.086
VPI	14	429+35.00	785.922	-0.048
VPI	15	429+40.00	785.899	-0.468
VPI	16	429+45.00	785.889	-0.204
VPI	17	429+50.00	785.883	-0.112
VPI	18	429+55.00	785.872	-0.215
VPI	19	429+60.00	785.864	-0.180
VPI	20	429+65.00	785.851	-0.241
VPI	21	429+70.00	785.848	-0.064
VPI	22	429+75.00	785.860	0.244
VPI	23	429+80.00	785.853	-0.150
VPI	24	429+85.00	785.843	-0.208
VPI	25	429+90.00	785.845	0.051
VPI	26	429+95.00	785.846	0.026
VPI	27	430+00.00	785.840	-0.135
VPI	28	430+05.00	785.842	0.043
VPI	29	430+10.00	785.847	0.097
VPI	30	430+15.00	785.842	-0.098
VPI	31	430+20.00	785.836	-0.106
VPI	32	430+25.00	785.815	-0.430
VPI	33	430+30.00	785.806	-0.171
VPI	34	430+35.00	785.813	0.128
VPI	35	430+40.00	785.805	-0.151
VPI	36	430+45.00	785.794	-0.231
VPI	37	430+50.00	785.791	-0.060
VPI	38	430+55.00	785.786	-0.089
VPI	39	430+60.00	785.780	-0.122
VPI	40	430+65.00	785.758	-0.439
VPI	41	430+70.00	785.746	-0.243
VPI	42	430+75.00	785.738	-0.159
VPI	43	430+80.00	785.739	0.025
VPI	44	430+85.00	785.744	0.092
VPI	45	430+90.00	785.710	-0.680
VPI	46	430+95.00	785.693	-0.332
VPI	47	431+00.00	785.694	0.005
VPI	48	431+05.00	785.695	0.019
VPI	49	431+10.00	785.697	0.045
VPI	50	431+15.00	785.692	-0.098
VPI	51	431+20.00	785.687	-0.106
VPI	52	431+25.00	785.684	-0.044
VPI	53	431+30.00	785.675	-0.190
VPI	54	431+35.00	785.666	-0.173
VPI	55	431+40.00	785.668	0.029
VPI	56	431+45.00	785.665	-0.059
VPI	57	431+50.00	785.660	-0.086
VPI	58	431+55.00	785.649	-0.229
VPI	59	431+60.00	785.635	-0.277
VPI	60	431+65.00	785.638	0.060
VPI	61	431+70.00	785.634	-0.091
VPI	62	431+75.00	785.607	-0.525
VPI	63	431+80.00	785.607	-0.001
VPI	64	431+85.00	785.625	0.349
VPI	65	431+90.00	785.621	-0.080
VPI	66	431+95.00	785.609	-0.242
VPI	67	432+00.00	785.625	0.323
VPI	68	432+05.00	785.630	0.107
VPI	69	432+10.00	785.620	-0.211
VPI	70	432+15.00	785.622	0.043
VPI	71	432+20.00	785.628	0.117
VPI	72	432+25.00	785.608	-0.388
VPI	73	432+30.00	785.593	-0.297
VPI	74	432+35.00	785.573	-0.404
VPI	75	432+40.00	785.578	0.089
VPI	76	432+45.00	785.577	-0.013
VPI	77	432+50.00	785.557	-0.403
VPI	78	432+55.00	785.558	0.028
VPI	79	432+60.00	785.576	0.358
VPI	80	432+65.00	785.584	0.166
VPI	81	432+70.00	785.584	-0.011
VPI	82	432+75.00	785.564	-0.405
VPI	83	432+80.00	785.550	-0.271
VPI	84	432+85.00	785.543	-0.130
VPI	85	432+90.00	785.559	0.315
VPI	86	432+95.00	785.556	-0.072
VPI	87	433+00.00	785.525	-0.623
VPI	88	433+05.00	785.519	-0.116
VPI	89	433+10.00	785.515	-0.079
VPI	90	433+15.00	785.504	-0.209
VPI	91	433+20.00	785.490	-0.286
VPI	92	433+25.00	785.496	0.112
VPI	93	433+30.00	785.493	-0.060
VPI	94	433+35.00	785.493	0.011
VPI	95	433+40.00	785.506	0.257
VPI	96	433+45.00	785.489	-0.340
VPI	97	433+50.00	785.466	-0.471
VPI	98	433+55.00	785.475	0.186
VPI	99	433+60.00	785.478	0.072
VPI	100	433+65.00	785.471	-0.145
VPI	101	433+70.00	785.458	-0.264
VPI	102	433+75.00	785.442	-0.314
VPI	103	433+80.00	785.447	0.098
VPI	104	433+85.00	785.452	0.093
VPI	105	433+90.00	785.458	0.114
VPI	106	433+95.00	785.443	-0.285
VPI	107	434+00.00	785.397	-0.934
VPI	108	434+05.00	785.391	-0.105
VPI	109	434+10.00	785.382	-0.185
VPI	110	434+15.00	785.389	0.143
VPI	111	434+20.00	785.380	-0.193
VPI	112	434+25.00	785.358	-0.431
VPI	113	434+30.00	785.358	0.007
VPI	114	434+35.00	785.362	0.063
VPI	115	434+40.00	785.362	0.003
VPI	116	434+45.00	785.363	0.026
VPI	117	434+50.00	785.364	0.024
VPI	118	434+55.00	785.369	0.091
VPI	119	434+60.00	785.376	0.139
VPI	120	434+65.00	785.347	-0.575
VPI	121	434+70.00	785.320	-0.541
VPI	122	434+75.00	785.329	0.193
VPI	123	434+80.00	785.339	0.191
VPI	124	434+85.00	785.348	0.182
VPI	125	434+90.00	785.353	0.090
VPI	126	434+95.00	785.343	-0.184
VPI	127	435+00.00	785.308	-0.711
VPI	128	435+05.00	785.296	-0.239
VPI	129	435+10.00	785.299	0.060
VPI	130	435+15.00	785.302	0.065
VPI	131	435+20.00	785.302	-0.000
VPI	132	435+25.00	785.287	-0.301
VPI	133	435+30.00	785.266	-0.415
VPI	134	435+35.00	785.249	-0.341
VPI	135	435+40.00	785.277	0.555
VPI	136	435+45.00	785.294	0.340
VPI	137	435+50.00	785.300	0.121
VPI	138	435+55.00	785.303	0.055
VPI	139	435+60.00	785.319	0.318
VPI	140	435+65.00	785.322	0.056
VPI	141	435+70.00	785.325	0.064
VPI	142	435+75.00	785.305	-0.389
VPI	143	435+80.00	785.300	-0.111
VPI	144	435+85.00	785.297	-0.044

VERTICAL PROFILE DATA

4/22/2024

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

BRIDGE HORIZONTAL AND VERTICAL ALIGNMENT DATA
SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 1 OF 2 | 320

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\7. Bridge\07181_DBW_PH2_BR01_BGEOM01.dgn
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VPI	145	435+90.00	785.294	-0.065
VPI	146	435+95.00	785.298	0.074
VPI	147	436+00.00	785.297	-0.023
VPI	148	436+05.00	785.289	-0.149
VPI	149	436+10.00	785.240	-0.981
VPI	150	436+15.00	785.277	0.736
VPI	151	436+20.00	785.301	0.472
VPI	152	436+25.00	785.304	0.066
VPI	153	436+30.00	785.295	-0.188
VPI	154	436+35.00	785.281	-0.278
VPI	155	436+40.00	785.269	-0.227
VPI	156	436+45.00	785.254	-0.305
VPI	157	436+50.00	785.221	-0.668
VPI	158	436+55.00	785.207	-0.272
VPI	159	436+60.00	785.208	0.026
VPI	160	436+65.00	785.229	0.411
VPI	161	436+70.00	785.236	0.146
VPI	162	436+75.00	785.245	0.177
VPI	163	436+80.00	785.250	0.097
VPI	164	436+85.00	785.251	0.035
VPI	165	436+90.00	785.251	-0.008
VPI	166	436+95.00	785.245	-0.122
VPI	167	437+00.00	785.231	-0.288
VPI	168	437+05.00	785.236	0.100
VPI	169	437+10.00	785.258	0.453
VPI	170	437+15.00	785.236	-0.438
VPI	171	437+20.00	785.212	-0.486
VPI	172	437+25.00	785.196	-0.315
VPI	173	437+30.00	785.181	-0.297
VPI	174	437+35.00	785.164	-0.345
VPI	175	437+40.00	785.148	-0.325
VPI	176	437+45.00	785.132	-0.321
VPI	177	437+50.00	785.115	-0.335
VPI	178	437+55.00	785.097	-0.371
VPI	179	437+60.00	785.085	-0.224
VPI	180	437+65.00	785.074	-0.234
VPI	181	437+70.00	785.061	-0.244
VPI	182	437+75.00	785.054	-0.149
VPI	183	437+80.00	785.059	0.092
VPI	184	437+85.00	785.066	0.140
VPI	185	437+90.00	785.075	0.187
VPI	186	437+95.00	785.070	-0.108
VPI	187	438+00.00	785.053	-0.324
VPI	188	438+05.00	785.059	0.117
VPI	189	438+10.00	785.064	0.095
VPI	190	438+15.00	785.062	-0.036
VPI	191	438+20.00	785.066	0.083
VPI	192	438+25.00	785.071	0.090
VPI	193	438+30.00	785.068	-0.056
VPI	194	438+35.00	785.054	-0.287
VPI	195	438+40.00	785.036	-0.350
VPI	196	438+45.00	785.030	-0.127
VPI	197	438+50.00	785.019	-0.217
VPI	198	438+55.00	784.999	-0.406
VPI	199	438+60.00	784.980	-0.378
VPI	200	438+65.00	784.978	-0.031
VPI	201	438+70.00	784.967	-0.232
VPI	202	438+75.00	784.949	-0.347
VPI	203	438+80.00	784.932	-0.350
VPI	204	438+85.00	784.918	-0.268
VPI	205	438+90.00	784.920	0.037
VPI	206	438+95.00	784.918	-0.033
VPI	207	439+00.00	784.917	-0.038
VPI	208	439+05.00	784.905	-0.230
VPI	209	439+10.00	784.879	-0.528
VPI	210	439+15.00	784.904	0.503
VPI	211	439+20.00	784.921	0.343
VPI	212	439+25.00	784.930	0.188
VPI	213	439+30.00	784.933	0.057
VPI	214	439+35.00	784.932	-0.034
VPI	215	439+40.00	784.920	-0.223
VPI	216	439+45.00	784.911	-0.183
VPI	217	439+50.00	784.901	-0.196
VPI	218	439+55.00	784.893	-0.166
VPI	219	439+60.00	784.893	-0.010
VPI	220	439+65.00	784.892	-0.009
VPI	221	439+70.00	784.889	-0.055
VPI	222	439+75.00	784.878	-0.222
VPI	223	439+80.00	784.869	-0.190
VPI	224	439+85.00	784.857	-0.228
VPI	225	439+90.00	784.849	-0.168
VPI	226	439+95.00	784.841	-0.154
VPI	227	440+00.00	784.835	-0.133
VPI	228	440+05.00	784.827	-0.160
VPI	229	440+10.00	784.802	-0.488
VPI	230	440+15.00	784.789	-0.257
VPI	231	440+20.00	784.777	-0.250
VPI	232	440+25.00	784.789	0.247
VPI	233	440+30.00	784.801	0.240
VPI	234	440+35.00	784.785	-0.321
VPI	235	440+40.00	784.778	-0.135
VPI	236	440+45.00	784.789	0.214
VPI	237	440+50.00	784.788	-0.027
VPI	238	440+55.00	784.754	-0.679
VPI	239	440+60.00	784.754	0.009
VPI	240	440+65.00	784.769	0.287
VPI	241	440+70.00	784.753	-0.312
VPI	242	440+75.00	784.744	-0.172
VPI	243	440+80.00	784.735	-0.191
VPI	244	440+85.00	784.724	-0.217
VPI	245	440+90.00	784.720	-0.078
VPI	246	440+95.00	784.721	0.027
VPI	247	441+00.00	784.724	0.053
VPI	248	441+05.00	784.726	0.029
VPI	249	441+10.00	784.721	-0.090
VPI	250	441+15.00	784.717	-0.085
VPI	251	441+20.00	784.708	-0.167
VPI	252	441+25.00	784.671	-0.743
VPI	253	441+30.00	784.650	-0.424
VPI	254	441+35.00	784.632	-0.363
VPI	255	441+40.00	784.631	-0.017
VPI	256	441+45.00	784.640	0.182
VPI	257	441+50.00	784.659	0.373
VPI	258	441+55.00	784.658	-0.009
VPI	259	441+60.00	784.664	0.112
VPI	260	441+65.00	784.661	-0.056
VPI	261	441+70.00	784.659	-0.047
VPI	262	441+75.00	784.630	-0.577
VPI	263	441+80.00	784.614	-0.321
VPI	264	441+85.00	784.619	0.097
VPI	265	441+90.00	784.624	0.107
VPI	266	441+95.00	784.627	0.058
VPI	267	442+00.00	784.617	-0.203
VPI	268	442+05.00	784.611	-0.124
VPI	269	442+10.00	784.610	-0.022
VPI	270	442+15.00	784.596	-0.276
VPI	271	442+20.00	784.576	-0.402
VPI	272	442+25.00	784.577	0.024
VPI	273	442+30.00	784.582	0.102
VPI	274	442+35.00	784.555	-0.541
VPI	275	442+40.00	784.538	-0.330
VPI	276	442+45.00	784.511	-0.542
VPI	277	442+46.85	784.501	-0.542
VPI	278	442+50.00	784.478	-0.736
VPI	279	442+75.00	784.475	-0.011
VPI	280	443+00.00	784.483	0.030
VPI	281	443+25.00	784.491	0.031
VPI	282	443+50.00	784.479	-0.045

VERTICAL PROFILE DATA (CONT'D)

GENERAL NOTES:

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4/22/2024

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

BRIDGE HORIZONTAL AND VERTICAL ALIGNMENT DATA SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 2 OF 2 | 321

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - Design\Plan Set\7. Bridge\07182_DBW_PH2_BR01_BGEOM02.dgn
PLOTTED: 4/22/2024 10:53:17 AM

TABLE OF ESTIMATED QUANTITIES

SPEC ITEM #	0400 6005	0416 6001	0416 6004	0416 6005	0416 6008	0420 6013	0420 6029	0420 6037	0420 6156	0422 6001	0425 6041	0442 6007	0450 6010	0451 6011	0451 6035	0454 6003	4021 6001
BID ITEM DESCRIPTION	CEM STABIL BKFL	DRILL SHAFT (18 IN)	DRILL SHAFT (36 IN)	DRILL SHAFT (42 IN)	DRILL SHAFT (60 IN)	CL C CONC (ABUT)	CL C CONC (CAP)	CL C CONC (COLUMN)	CL C CONC (WEBWALL)	REINF CONC SLAB	PRESTR CONC GIRDER (TX70)	STR STEEL (MISC NON (4) - BRIDGE)	RAIL (TY T402) (2)	RETROFIT RAIL (TY T402)	RETROFIT RAIL (TY C402) (2)	ARMOR JOINT (3)	TIP TESTING (DRILL SHAFT)
BRIDGE COMPONENT	CY	LF	LF	LF	LF	CY	CY	CY	CY	SF	LF	LB	LF	LF	LF	LF	EA
2 - ABUTMENTS	126	25		50		31.0							30.0	30.0	30.0		
11 - BENTS			36	44	380		91.3	445.8	26.1								18
1 - 298.38' PRESTR CONC Tx70 I-GIRDER UNIT 1										4,725	593.76		298.4	298.4	298.4	14	
1 - 340.37' PRESTR CONC Tx70 I-GIRDER UNIT 2										5,390	677.74		340.4	340.4	340.4	14	
1 - 355.75' PRESTR CONC Tx70 I-GIRDER UNIT 3										5,634	708.50		355.8	355.8	355.8	14	
1 - 355.75' PRESTR CONC Tx70 I-GIRDER UNIT 4										5,634	708.50		355.7	355.7	355.7	28	
TOTAL	126	25	36	94	380	31.0	91.3	445.8	26.1	21,383	2,688.50	17,710	1,380.3	1,380.3	1,380.3	70	18

BEARING SEAT ELEVATION (1)

	GIRDER 1	GIRDER 2
BENT 1 (FWD)	778.809	778.674
BENT 2 (BK)	778.744	778.609
BENT 2 (FWD)	778.720	778.585
BENT 3 (BK)	778.559	778.424
BENT 3 (FWD)	778.580	778.445
BENT 4 (BK)	778.497	778.362
BENT 4 (FWD)	778.499	778.364
BENT 5 (BK)	778.442	778.307
BENT 5 (FWD)	778.403	778.268
BENT 6 (BK)	778.229	778.094
BENT 6 (FWD)	778.252	778.117
BENT 7 (BK)	778.115	777.980
BENT 7 (FWD)	778.144	778.009
BENT 8 (BK)	778.098	777.963
BENT 8 (FWD)	778.093	777.958
BENT 9 (BK)	777.945	777.810
BENT 9 (FWD)	777.942	777.807
BENT 10 (BK)	777.806	777.671
BENT 10 (FWD)	777.805	777.670
BENT 11 (BK)	777.693	777.558
BENT 11 (FWD)	777.665	777.530
BENT 12 (BK)	777.526	777.391
BENT 12 (FWD)	777.538	777.403
BENT 13 (BK)	777.391	777.256

(1) BEARING SEAT ELEVATIONS ARE CALCULATED WITH THE ASSUMPTION THAT THE PROPOSED TOP OF DECK WILL PARTIALLY MATCH EXISTING CROSS SLOPE OF 2.0% AS SHOWN ON THE AS-BUILTS. CONTRACTOR SHALL FIELD VERIFY THAT EXISTING CONDITION CONFORM TO THE AS-BUILT DRAWING BEFORE FABRICATION OF ANY BRIDGE ELEMENTS. CONTRACTOR SHALL COORDINATE WITH EOR BEFORE MAKING ANY MAJOR MODIFICATIONS.

(2) INCLUDES PAYMENT FOR BOTH SLOTTED AND NON-SLOTTED RAILS QUANTITY.

(3) ARMOR JOINT QUANTITY DOES NOT INCLUDE FIELD SPLICE TO EXISTING ARMOR JOINT PLATE OR FULL SEAL REPLACEMENT.

(4) ESTIMATED QUANTITIES FOR PIPE SUPPORT. QUANTITY INCLUDES 5% ALLOWANCE FOR PIPE SUPPORT CONNECTION BOLTS.

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

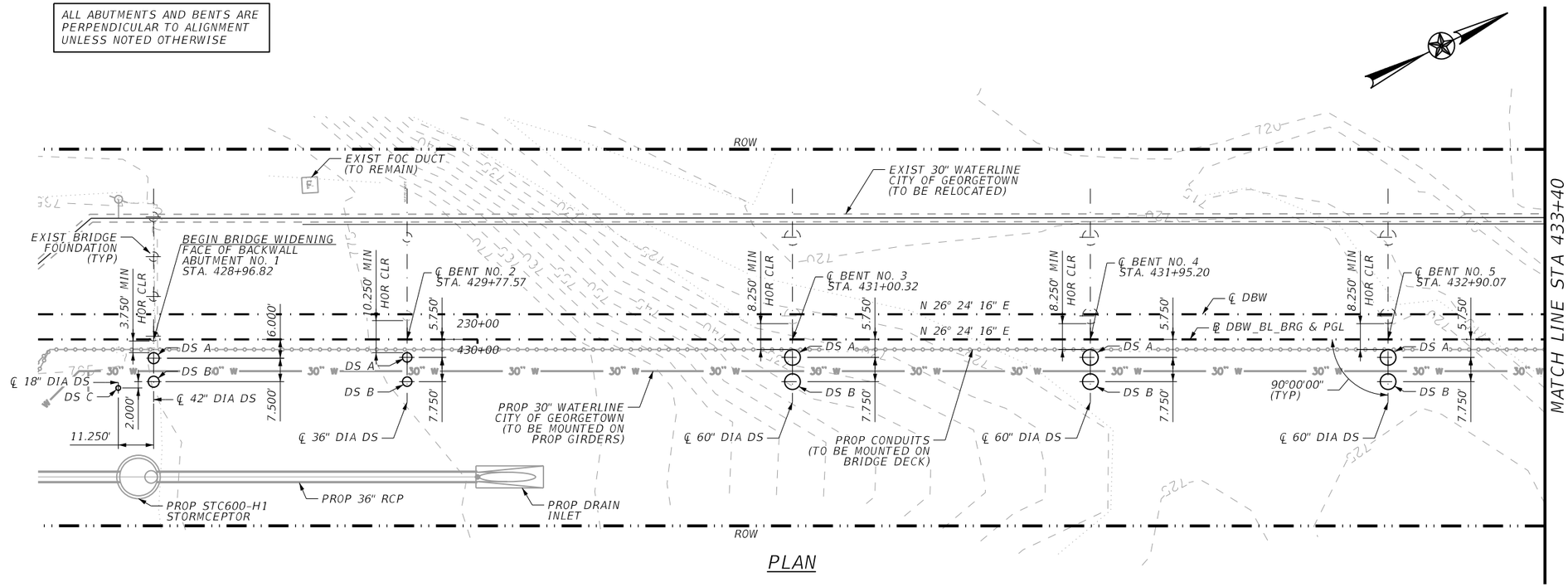
D B WOOD ROAD

ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS SAN GABRIEL RIVER BRIDGE (NORTH FORK)

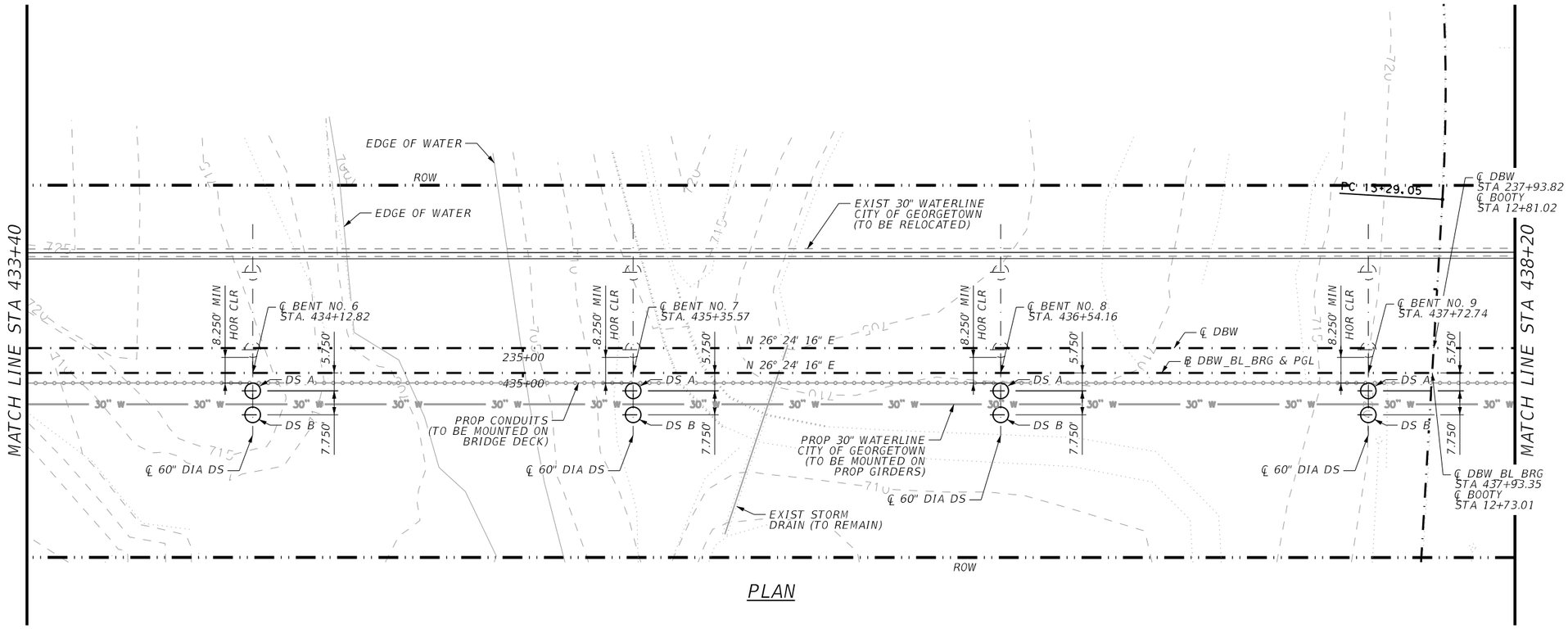
SHEET 1 OF 1 | 322

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ALL ABUTMENTS AND BENTS ARE PERPENDICULAR TO ALIGNMENT UNLESS NOTED OTHERWISE



PLAN



PLAN

GENERAL NOTES:

1. UTILITIES SHOWN ARE IN APPROXIMATE LOCATIONS. CONTRACTOR SHALL VERIFY LOCATION PRIOR TO CONSTRUCTION AND ORDERING MATERIALS.
2. SEE BRIDGE LAYOUT SHEETS FOR FOUNDATION LENGTHS.
3. SEE ABUTMENT AND BENT DETAILS SHEETS FOR ALL FOUNDATION DETAILS AND NOTES NOT SHOWN.

TESTING NOTES:

1. THERMAL INTEGRITY PROFILER (TIP) TESTING OF DRILLED SHAFT (SS 4021): PERFORM THE NONDESTRUCTIVE TESTING (NDT) METHOD TERMED THERMAL INTEGRITY PROFILER (TIP) TESTING TO CHECK THE INTEGRITY OF DESIGNATED PRODUCTION DRILLED SHAFTS AS SHOWN IN THE TABLE BELOW. TESTING SHALL BE COORDINATED WITH THE ENGINEER A MINIMUM OF ONE WEEK PRIOR TO THE DESIRED TESTING DATE. THE ENGINEER WILL CHOOSE THE DRILLED SHAFTS TO BE TESTED.

ITEM CODE	DESCRIPTION	UNIT	TOTAL
SS 4021-6001	THERMAL INTEGRITY PROFILER (TIP) TESTING OF DRILLED SHAFTS	60"	18

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

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4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

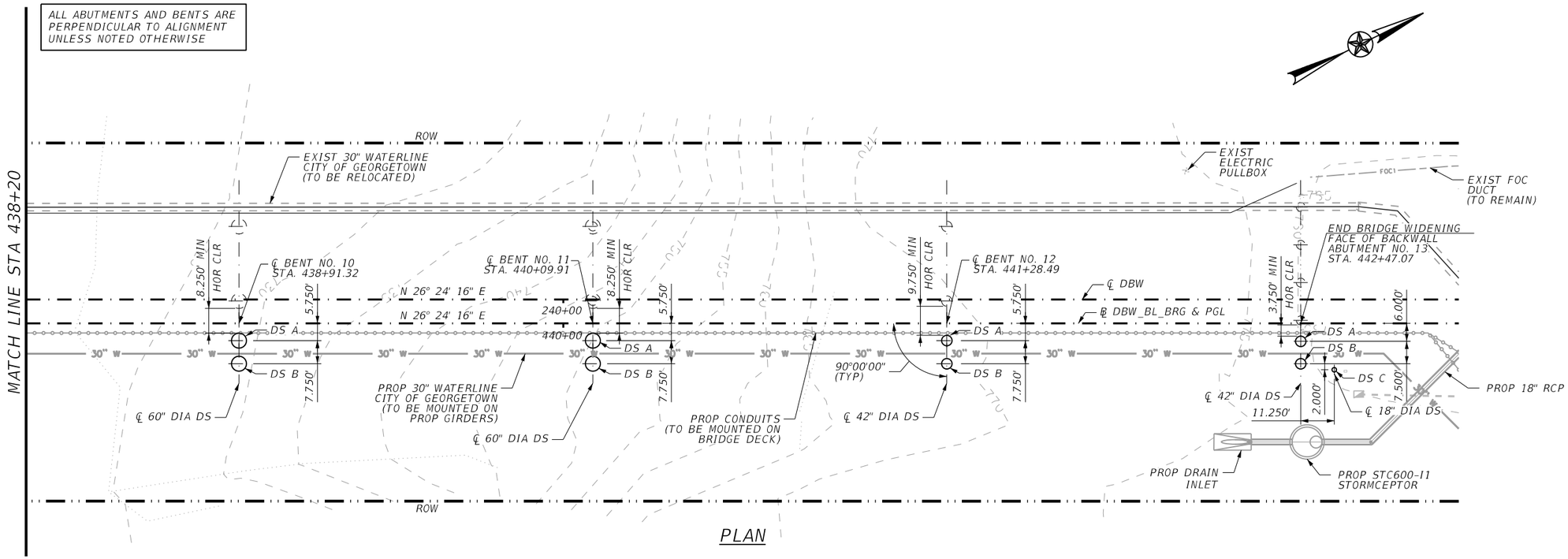
D B WOOD ROAD

FOUNDATION LAYOUT SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 1 OF 2 | 323

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ALL ABUTMENTS AND BENTS ARE PERPENDICULAR TO ALIGNMENT UNLESS NOTED OTHERWISE



PLAN

CONTROL ELEVATIONS

TOP OF DS ELEVATION			
	A	B	C
ABUT 1	776.137	775.987	775.947
BENT 2	771.615	772.460	-
BENT 3	731.454	736.299	-
BENT 4	720.392	721.237	-
BENT 5	721.298	722.143	-
BENT 6	713.124	713.969	-
BENT 7	710.010	709.855	-
BENT 8	707.988	709.833	-
BENT 9	717.837	717.682	-
BENT 10	726.700	726.545	-
BENT 11	747.560	748.405	-
BENT 12	766.421	767.266	-
ABUT 13	774.719	774.569	774.529

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

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

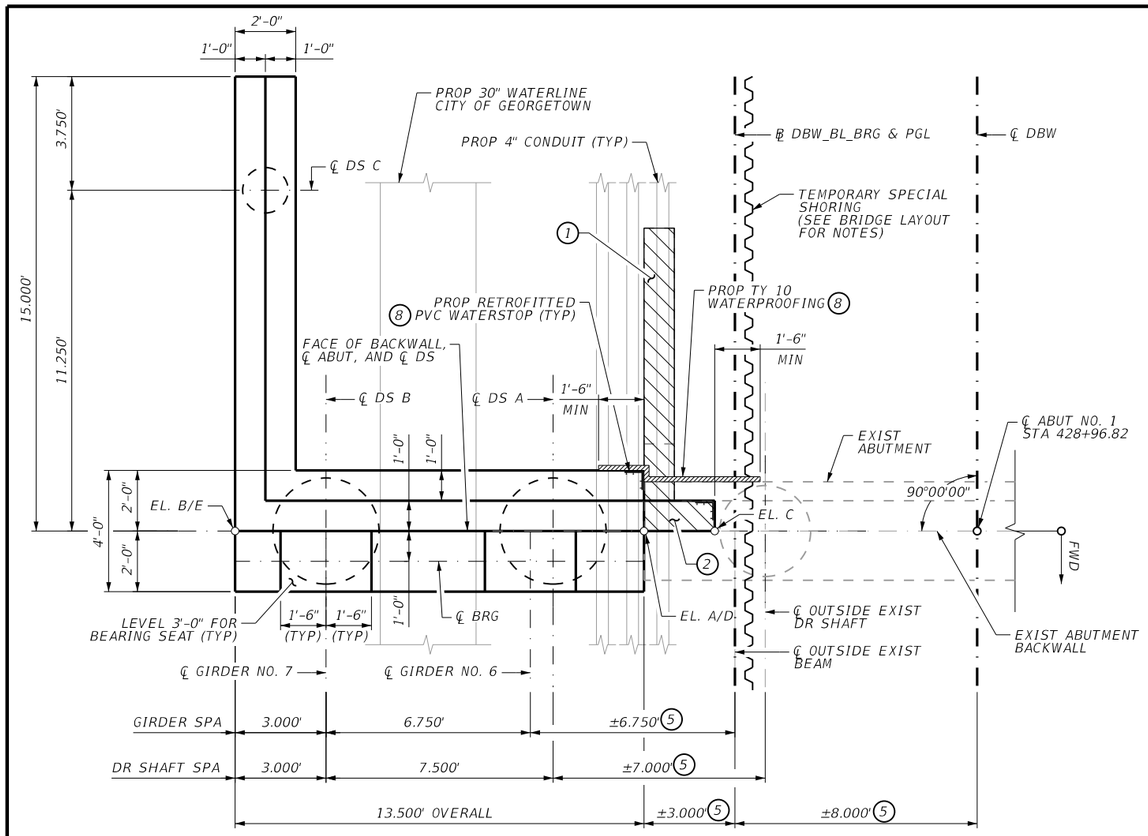
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

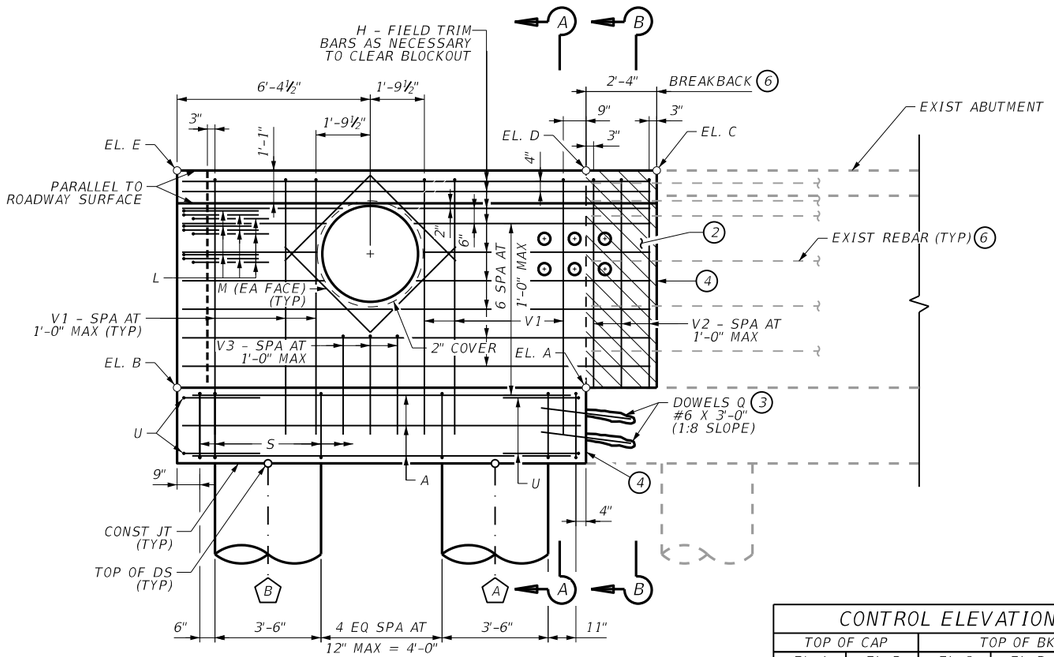
FOUNDATION LAYOUT SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 2 OF 2 | 324

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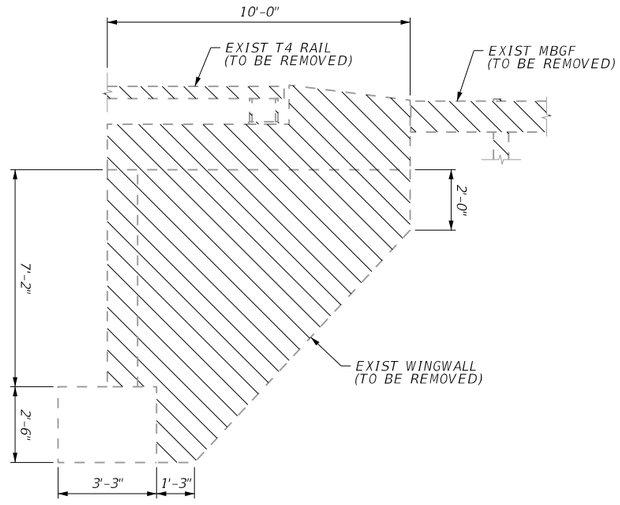


PLAN

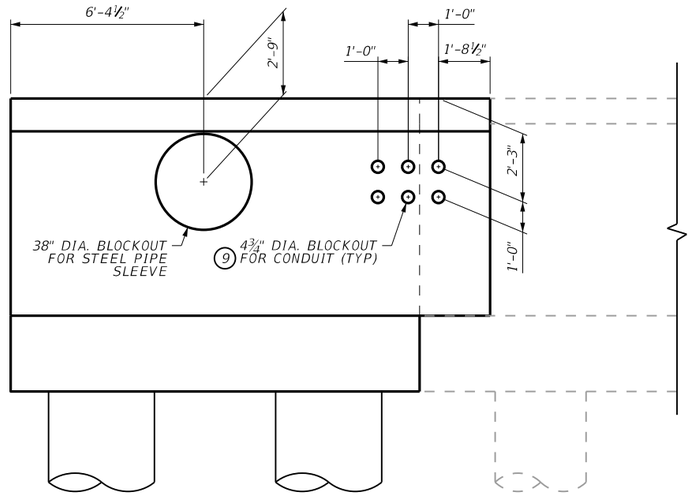


ELEVATION
LOOKING BACKSTATION

CONTROL ELEVATIONS				
TOP OF CAP		TOP OF BKWL		
EL. A	EL. B	EL. C	EL. D	EL. E
778.697	778.427	785.817	785.863	785.593



WINGWALL & RAIL REMOVAL DETAIL



BACKWALL BLOCKOUT DETAIL

6. CLEAN AND EXTEND EXISTING BACKWALL HORIZONTAL REINFORCING INTO WIDENED BACKWALL AND LAP 1'-7" MIN WITH EXISTING REINFORCING. FIELD BEND EXISTING REINFORCING AS NECESSARY TO MAINTAIN MINIMUM 2" CLEAR COVER.
7. MATCH PROP TOP OF CAP ELEVATION TO EXIST TOP OF CAP ELEVATION.
8. WATERPROOFING AND WATERSTOP SYSTEM TO BE PAID IN SUBSIDIARY TO CLASS "C" CONC (ABUT).
9. SEE CITY OF GEORGETOWN STANDARD, GEO-229, FOR PULL BOX DETAILS.

GENERAL NOTES:

1. BRIDGE WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).
2. CONCRETE SHALL BE CLASS "C" WITH A STRENGTH OF f'c = 3,600 PSI.
3. ALL REINFORCING STEEL SHALL BE GRADE 60.
4. SEE BRIDGE LAYOUT FOR HEADER SLOPE AND FOUNDATION TYPE, SIZE AND LENGTH.
5. SEE COMMON FOUNDATION DETAILS (FD) STANDARD SHEET FOR ALL FOUNDATION DETAILS AND NOTES.
6. SEE CONCRETE RIPRAP STANDARD SHEET, CRR, FOR RIPRAP ATTACHMENT DETAILS.
7. SEE RAIL TYPE SSTR DETAIL STANDARD SHEET FOR RAIL ANCHORAGE IN WINGWALLS.
8. CALCULATED FOUNDATION LOADS:
   165 TONS/SHAFT (SERVICE)
   223 TONS/SHAFT (STRENGTH)

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

1. REMOVE SHADED PORTION OF EXISTING WINGWALL TO 2'-0" BELOW FINISH GRADE. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ITEM 104 6027.
2. REMOVE SHADED PORTION OF EXISTING BACKWALL LEAVING HORIZONTAL BACKWALL REINFORCING INTACT. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ITEM 104 6027.
3. DRILL AND EPOXY DOWELS Q 1'-6" MINIMUM INTO EXISTING STRUCTURE IN ACCORDANCE WITH ITEM 420.4.7.10 AND DMS-6100. SEE ITEM 420 FOR INFORMATION ON CLEANING DRILLED HOLES.
4. ROUGHEN CONTACT SURFACES OF EXISTING ABUTMENT TO AN AMPLITUDE OF APPROX. ¼".
5. FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS PRIOR TO ORDERING MATERIALS AND BEGINNING WORK.

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

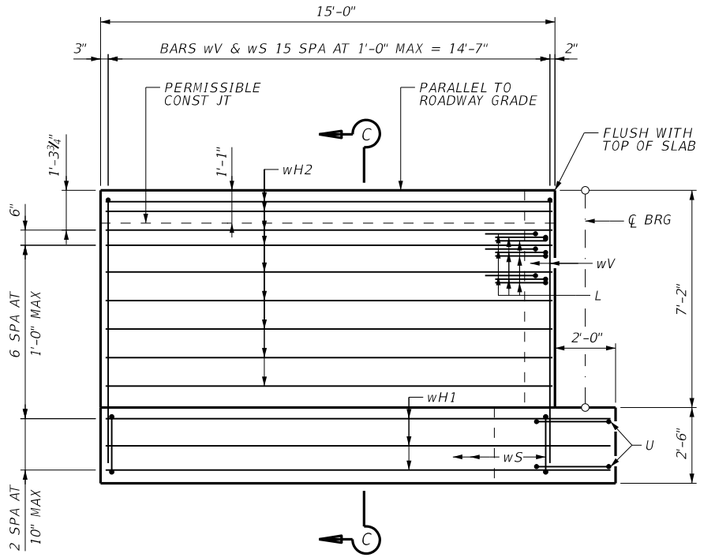
D B WOOD ROAD

ABUTMENT NO. 1 DETAILS SAN GABRIEL RIVER BRIDGE (NORTH FORK)

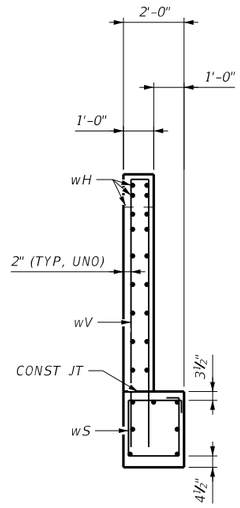
SHEET 1 OF 2 | 325

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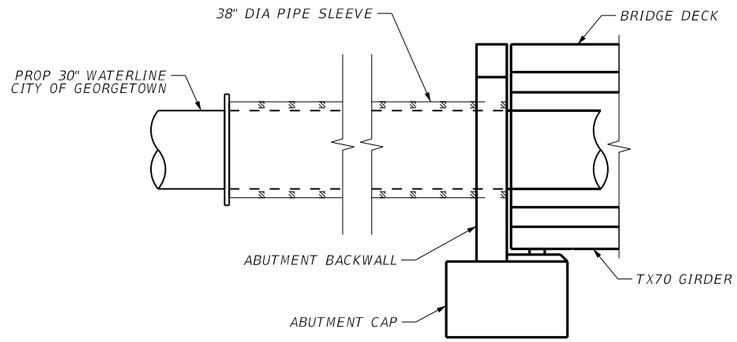
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WINGWALL ELEVATION



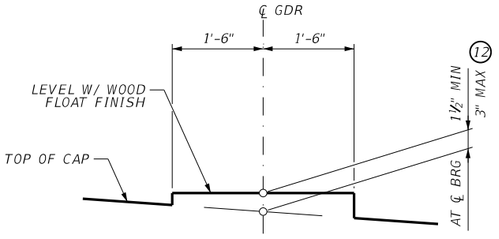
SECTION C-C



WATER PIPE SECTION THROUGH ABUTMENT

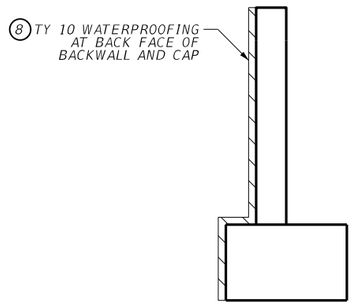
TABLE OF ESTIMATED QUANTITIES ABUTMENT 1

BAR	NO.	SIZE	LENGTH	WEIGHT
A	10	#11	12'-6"	665
H	18	#6	15'-6"	420
Q	4	#6	3'-0"	19
L	9	#6	4'-0"	55
M	4	#5	8'-0"	34
S	9	#5	12'-6"	118
U	4	#6	8'-7"	52
V1	11	#5	18'-4"	211
V2	3	#5	14'-6"	46
V3	3	#5	8'-0"	26
wH1	7	#6	16'-8"	176
wH2	18	#6	14'-8"	397
wS	16	#4	7'-10"	84
wV	16	#5	18'-4"	306
(10) REINFORCING STEEL			LB	2,609
CLASS "C" CONC (ABUT)			CY	15.5

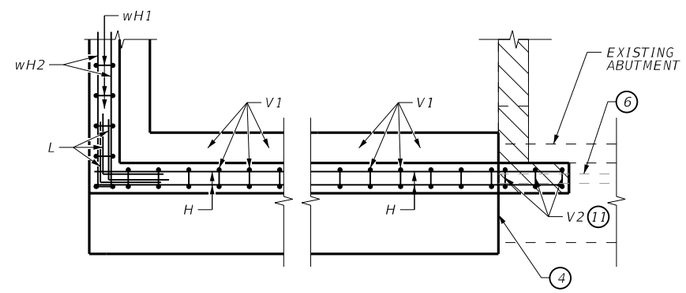


BEARING SEAT DETAIL

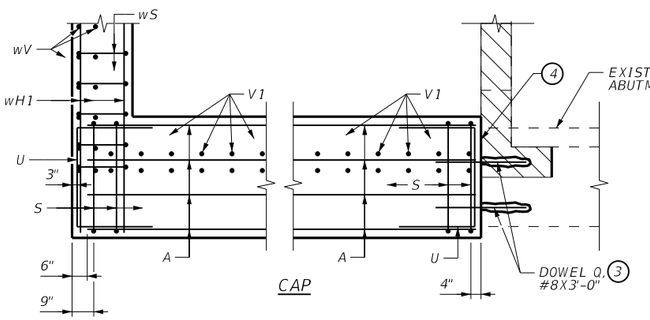
(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)



WATERPROOFING DETAIL

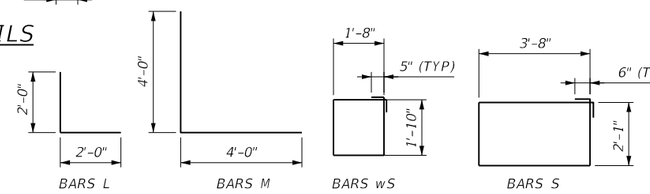


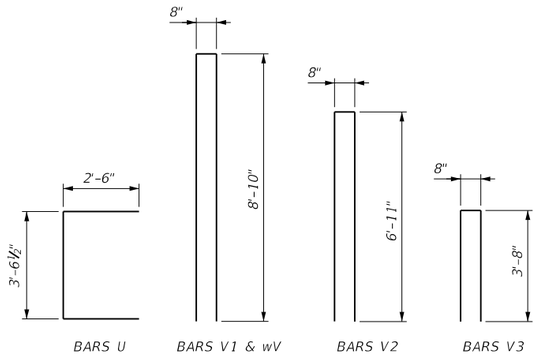
BACKWALL



CAP

CORNER DETAILS





(3) DRILL AND EPOXY DOWELS Q 1'-6" MINIMUM INTO EXISTING STRUCTURE IN ACCORDANCE WITH ITEM 420.4.7.10 AND DMS-6100. DRILL HOLES TWICE THE DIAMETER OF THE DOWEL BARS. SEE ITEM 420 FOR INFORMATION ON CLEANING DRILLED HOLES.

(4) ROUGHEN CONTACT SURFACES OF EXISTING ABUTMENT TO AMPLITUDE OF APPROX. ¼".

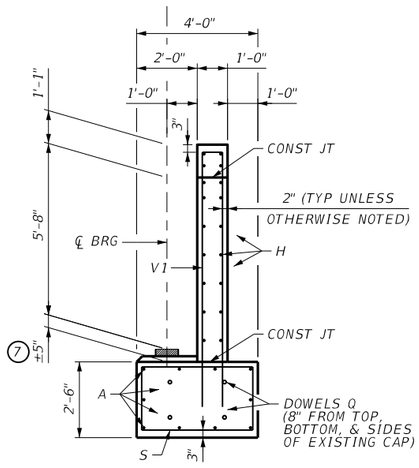
(6) CLEAN AND EXTEND EXISTING BACKWALL HORIZONTAL REINFORCING INTO WIDENED BACKWALL AND LAP 1'-7" MIN WITH EXISTING REINFORCING. FIELD BEND EXISTING REINFORCING AS NECESSARY TO MAINTAIN MINIMUM 2" CLEAR COVER.

(8) WATERPROOFING AND WATERSTOP SYSTEM TO BE PAID IN SUBSIDIARY TO CLASS "C" CONC (ABUT).

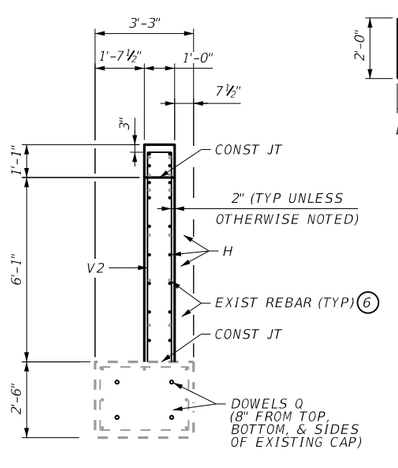
(10) FOR CONTRACTOR'S INFORMATION ONLY.

(11) SPACE BARS V2 WITH EXISTING BACKWALL VERTICAL REINFORCING.

(12) IF BEARING SEAT IS CONSTRUCTED WITH DEPTH GREATER THAN 3" AT ℄ BRG, SEE "BEARING SEAT REINFORCEMENT DETAILS" SHEET.



SECTION A-A



SECTION B-B

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

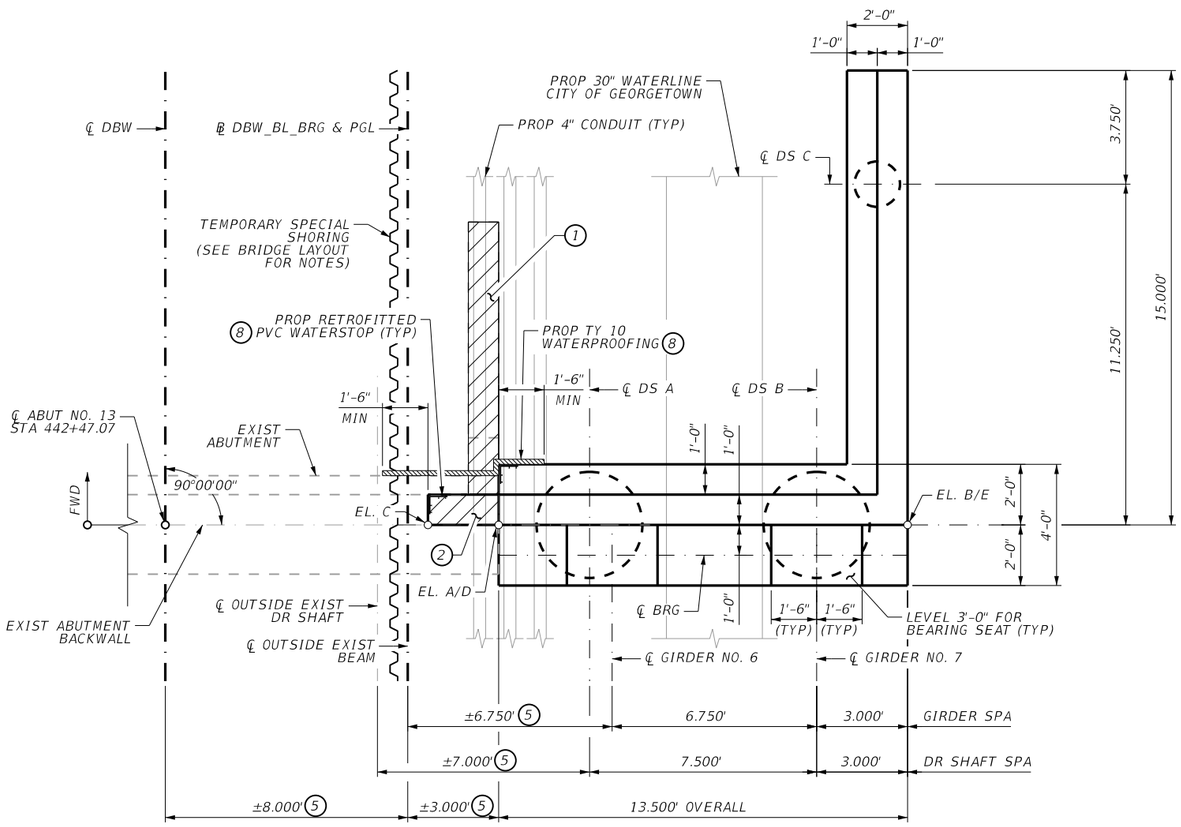
Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

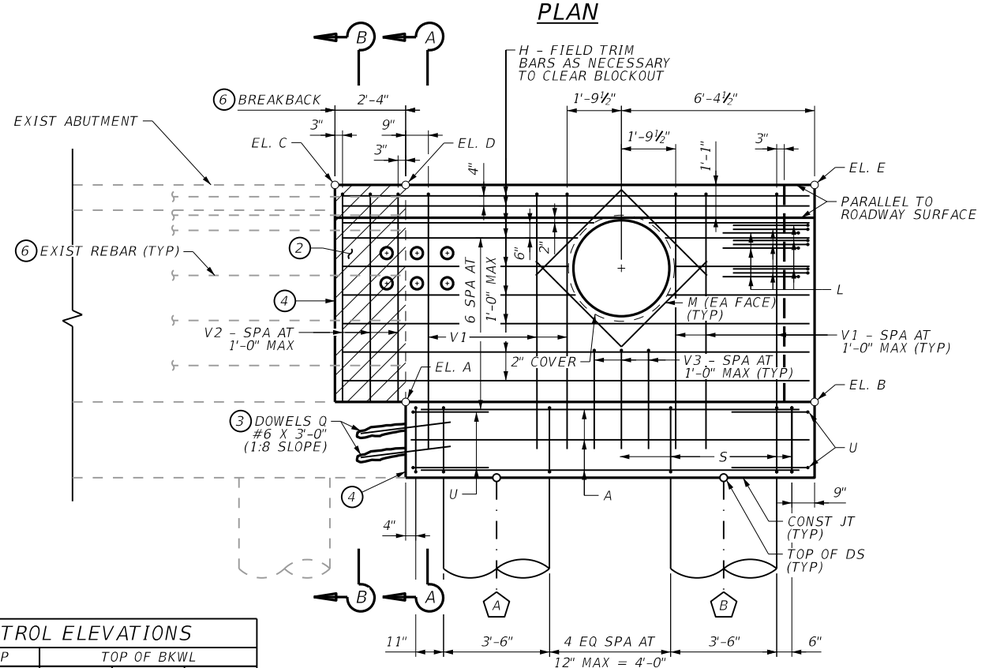
D B WOOD ROAD

ABUTMENT NO. 1 DETAILS SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 2 OF 2 | 326



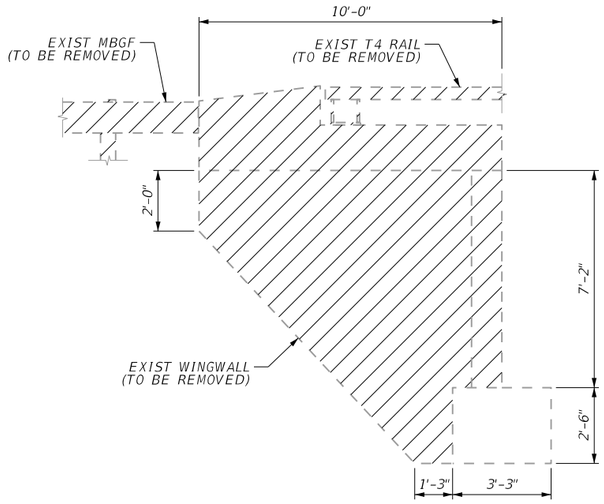
PLAN



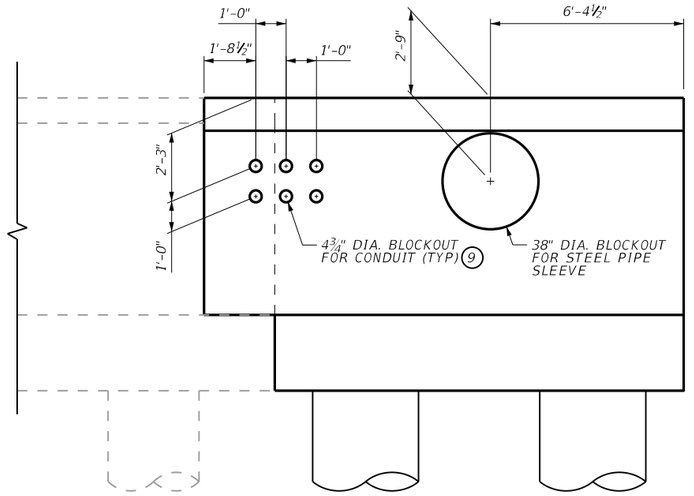
ELEVATION

LOOKING UPSTATION

CONTROL ELEVATIONS				
TOP OF CAP		TOP OF BKWL		
EL. A	EL. B	EL. C	EL. D	EL. E
777.279	777.009	784.399	784.445	784.175



WINGWALL & RAIL REMOVAL DETAIL



BACKWALL BLOCKOUT DETAIL

6 CLEAN AND EXTEND EXISTING BACKWALL HORIZONTAL REINFORCING INTO WIDENED BACKWALL AND LAP 1'-7" MIN WITH EXISTING REINFORCING. FIELD BEND EXISTING REINFORCING AS NECESSARY TO MAINTAIN MINIMUM 2" CLEAR COVER.

7 MATCH PROP TOP OF CAP ELEVATION TO EXIST TOP OF CAP ELEVATION.

8 WATERPROOFING AND WATERSTOP SYSTEM TO BE PAID IN SUBSIDIARY TO CLASS "C" CONC (ABUT).

9 SEE CITY OF GEORGETOWN STANDARD, GEO-229, FOR PULL BOX DETAILS.

GENERAL NOTES:

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2. CONCRETE SHALL BE CLASS "C" WITH A STRENGTH OF f'c = 3,600 PSI.
3. ALL REINFORCING STEEL SHALL BE GRADE 60.
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5. SEE COMMON FOUNDATION DETAILS (FD) STANDARD SHEET FOR ALL FOUNDATION DETAILS AND NOTES.
6. SEE CONCRETE RIPRAP STANDARD SHEET, CRR, FOR RIPRAP ATTACHMENT DETAILS.
7. SEE RAIL TYPE SSTR DETAIL STANDARD SHEET FOR RAIL ANCHORAGE IN WINGWALLS.
8. CALCULATED FOUNDATION LOADS:
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COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

1 REMOVE SHADED PORTION OF EXISTING WINGWALL TO 2'-0" BELOW FINISH GRADE. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ITEM 104 6027.

2 REMOVE SHADED PORTION OF EXISTING BACKWALL LEAVING HORIZONTAL BACKWALL REINFORCING INTACT. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ITEM 104 6027.

3 DRILL AND EPOXY DOWELS Q 1'-6" MINIMUM INTO EXISTING STRUCTURE IN ACCORDANCE WITH ITEM 420.4.7.10 AND DMS-6100. SEE ITEM 420 FOR INFORMATION ON CLEANING DRILLED HOLES.

4 ROUGHEN CONTACT SURFACES OF EXISTING ABUTMENT TO AN AMPLITUDE OF APPROX. ¼".

5 FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS PRIOR TO ORDERING MATERIALS AND BEGINNING WORK.

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED PROFESSIONAL ENGINEER
4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

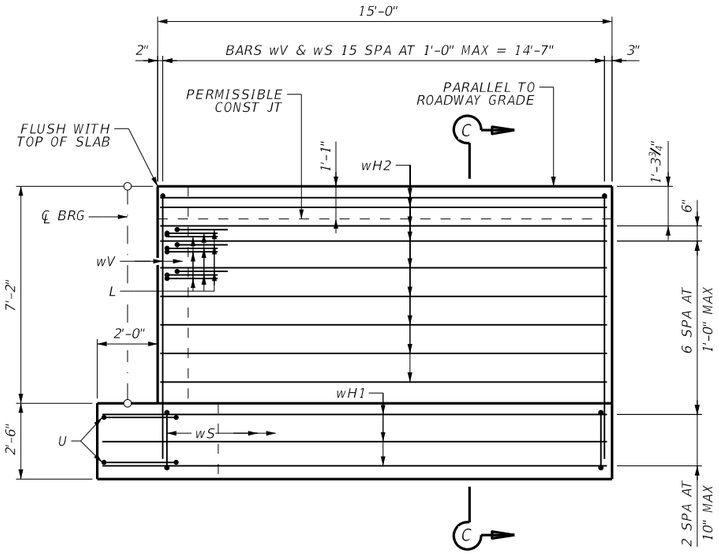
Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

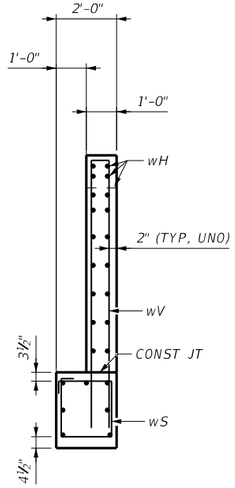
D B WOOD ROAD

ABUTMENT NO. 13 DETAILS SAN GABRIEL RIVER BRIDGE (NORTH FORK)

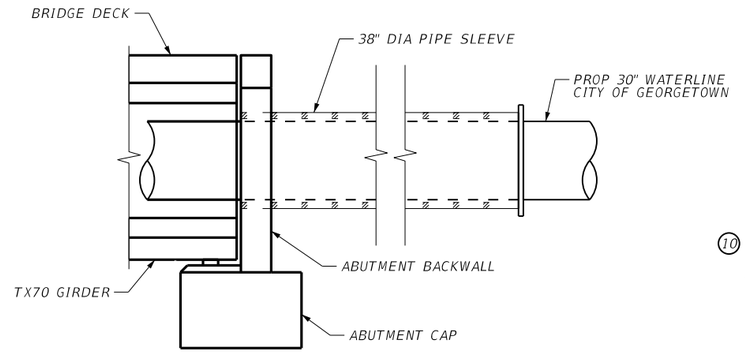
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WINGWALL ELEVATION



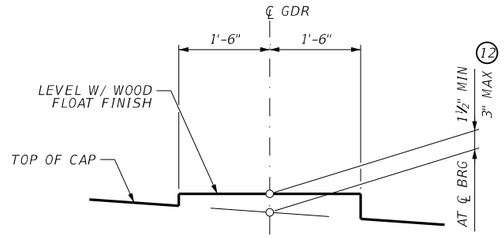
SECTION C-C



WATER PIPE SECTION THROUGH ABUTMENT

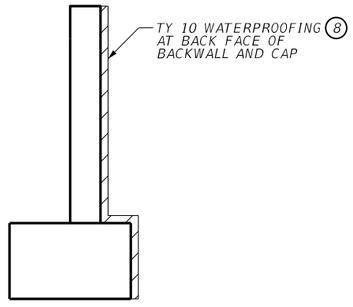
TABLE OF ESTIMATED QUANTITIES ABUTMENT 13

BAR	NO.	SIZE	LENGTH	WEIGHT
A	10	#11	12'-6"	665
H	18	#6	15'-6"	420
Q	4	#6	3'-0"	19
L	9	#6	4'-0"	55
M	4	#5	8'-0"	34
S	9	#5	12'-6"	118
U	4	#6	8'-7"	52
V1	11	#5	18'-4"	211
V2	3	#5	14'-6"	46
V3	3	#5	8'-0"	26
wH1	7	#6	16'-8"	176
wH2	18	#6	14'-8"	397
wS	16	#4	7'-10"	84
wV	16	#5	18'-4"	306
(10) REINFORCING STEEL			LB	2,609
CLASS "C" CONC (ABUT)			CY	15.5

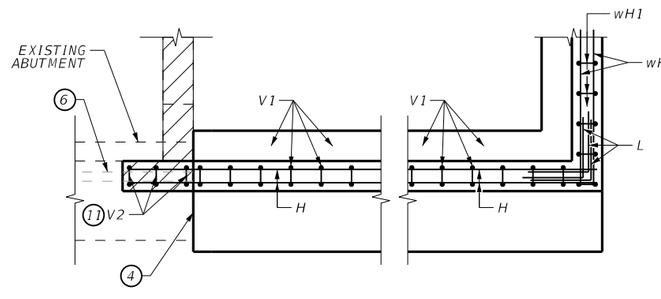


BEARING SEAT DETAIL

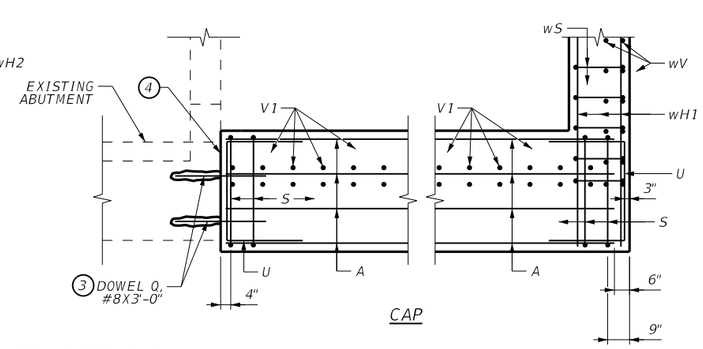
(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)



WATERPROOFING DETAIL

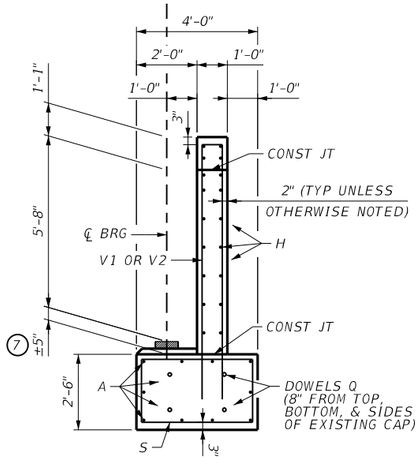


BACKWALL

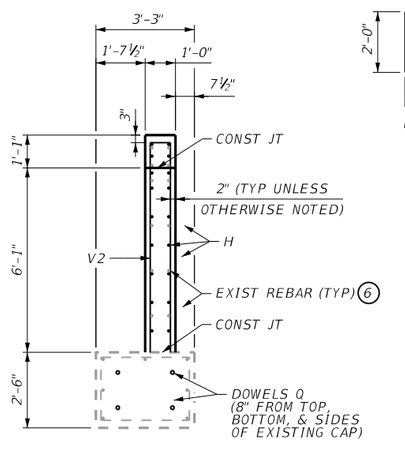


CAP

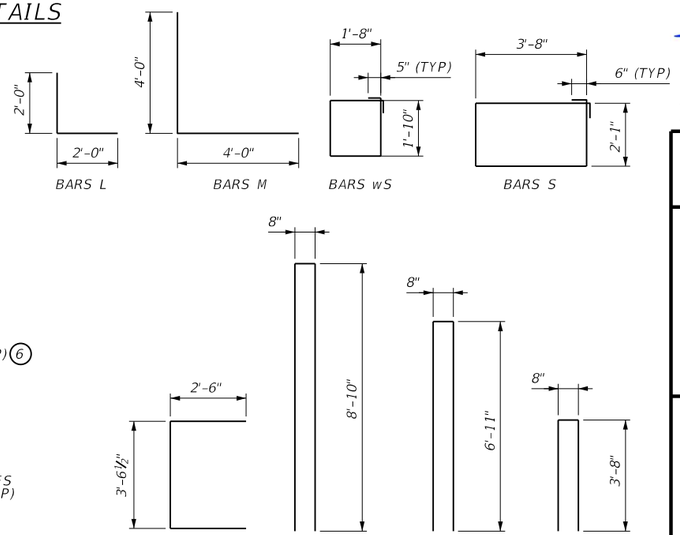
CORNER DETAILS



SECTION A-A



SECTION B-B



(3) DRILL AND EPOXY DOWELS Q 1'-6" MINIMUM INTO EXISTING STRUCTURE IN ACCORDANCE WITH ITEM 420.4.7.10 AND DMS-6100. DRILL HOLES TWICE THE DIAMETER OF THE DOWEL BARS. SEE ITEM 420 FOR INFORMATION ON CLEANING DRILLED HOLES.

(4) ROUGHEN CONTACT SURFACES OF EXISTING ABUTMENT TO AMPLITUDE OF APPROX. ¼".

(6) CLEAN AND EXTEND EXISTING BACKWALL HORIZONTAL REINFORCING INTO WIDENED BACKWALL AND LAP 1'-7" MIN WITH EXISTING REINFORCING. FIELD BEND EXISTING REINFORCING AS NECESSARY TO MAINTAIN MINIMUM 2" CLEAR COVER.

(8) WATERPROOFING AND WATERSTOP SYSTEM TO BE PAID IN SUBSIDIARY TO CLASS "C" CONC (ABUT).

(10) FOR CONTRACTOR'S INFORMATION ONLY.

(11) SPACE BARS V2 WITH EXISTING BACKWALL VERTICAL REINFORCING.

(12) IF BEARING SEAT IS CONSTRUCTED WITH DEPTH GREATER THAN 3" AT ℄ BRG, SEE "BEARING SEAT REINFORCEMENT DETAILS" SHEET.

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

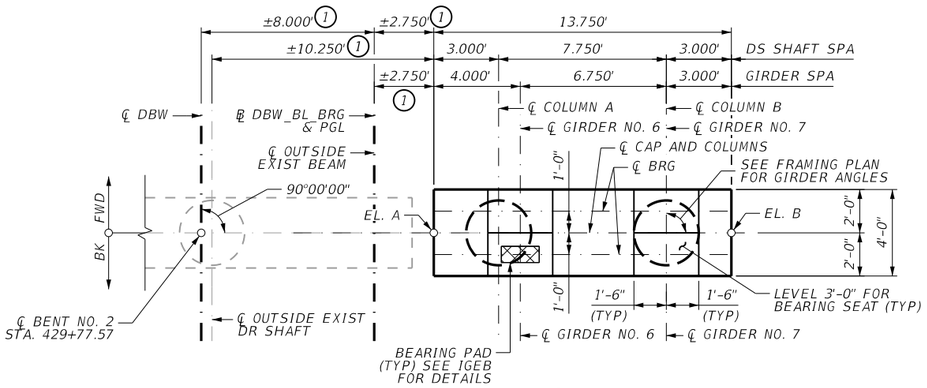
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

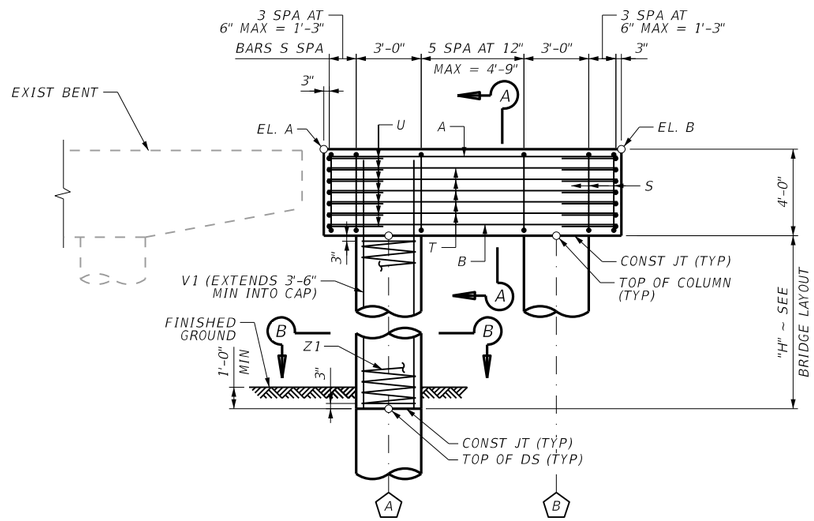
ABUTMENT NO. 13 DETAILS
SAN GABRIEL RIVER BRIDGE
(NORTH FORK)

SHEET 2 OF 2 | 328

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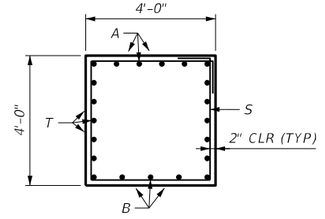


PLAN

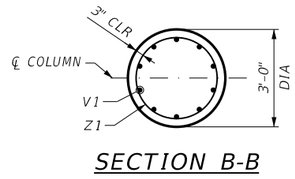


ELEVATION

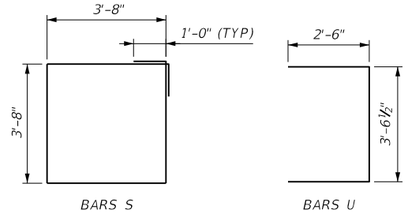


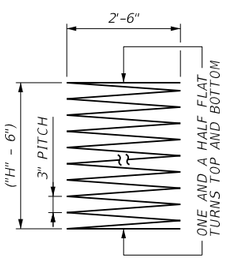


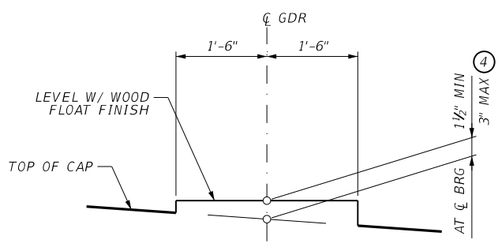
SECTION A-A



SECTION B-B







BEARING SEAT DETAIL

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)

CONTROL ELEVATIONS			
TOP OF CAP		TOP OF COL	
EL. A	EL. B	COL. A	COL. B
778.675	778.400	774.615	774.460

TABLE OF VARIABLE COLUMN QUANTITIES (3)									TOTAL ESTIMATED COLUMN QUANTITIES	
BENT	NO. OF COL	"H"	BARS V1 - #9			BARS Z1 - #4			CL "C" CONC (COLUMN)	REINFORCING STEEL (2)	CL "C" CONC (COLUMN)
			NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
		FT			LB			LB	CY	LB	CY
2	A	3	10	6'-6"	221	1	102'-2"	69	0.8	290	0.8
	B	2	10	5'-6"	187	1	70'-9"	48	0.6	235	0.6
									TOTAL	525	1.4

GENERAL NOTES:

1. BRIDGE WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).
2. PROVIDE CLASS "C" CONCRETE (f'c = 3,600 psi).
3. PROVIDE GRADE 60 REINFORCING STEEL.
4. SEE BRIDGE LAYOUT FOR DRILLED SHAFT LENGTH.
5. SEE COMMON FOUNDATION DETAILS (FD) STANDARD SHEET FOR ALL FOUNDATION DETAILS AND NOTES.
6. FOR BEARING SEAT ELEVATIONS, SEE BEARING SEAT ELEVATIONS SHEET.
7. CALCULATED FOUNDATION LOADS:
   242 TONS/SHAFT (SERVICE)
   312 TONS/SHAFT (STRENGTH)

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

(1) FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS PRIOR TO ORDERING MATERIALS AND BEGINNING WORK.

(2) FOR CONTRACTOR'S INFORMATION ONLY.

(3) FOR EACH LINEAR FOOT VARIATION IN "H" VALUE, MAKE THE FOLLOWING ADJUSTMENT:
   BARS V1 LENGTH: 1'-0"
   BARZ Z1 LENGTH: 31'-5"
   REINFORCEMENT: 355 LB
   CLASS "C" CONC COL: 0.3 CY

(4) IF BEARING SEAT IS CONSTRUCTED WITH DEPTH GREATER THAN 3" AT ℄ BRG, SEE "BEARING SEAT REINFORCEMENT DETAILS" SHEET.

ESTIMATED CAP QUANTITIES (ONE BENT ONLY)				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	6	#11	13'-5"	428
B	5	#11	13'-5"	357
S	14	#5	16'-8"	244
T	10	#5	13'-5"	140
U	14	#5	8'-7"	126
(2) REINFORCING STEEL			LB	1,295
CLASS "C" CONC (CAP)			CY	8.3

4/22/2024

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

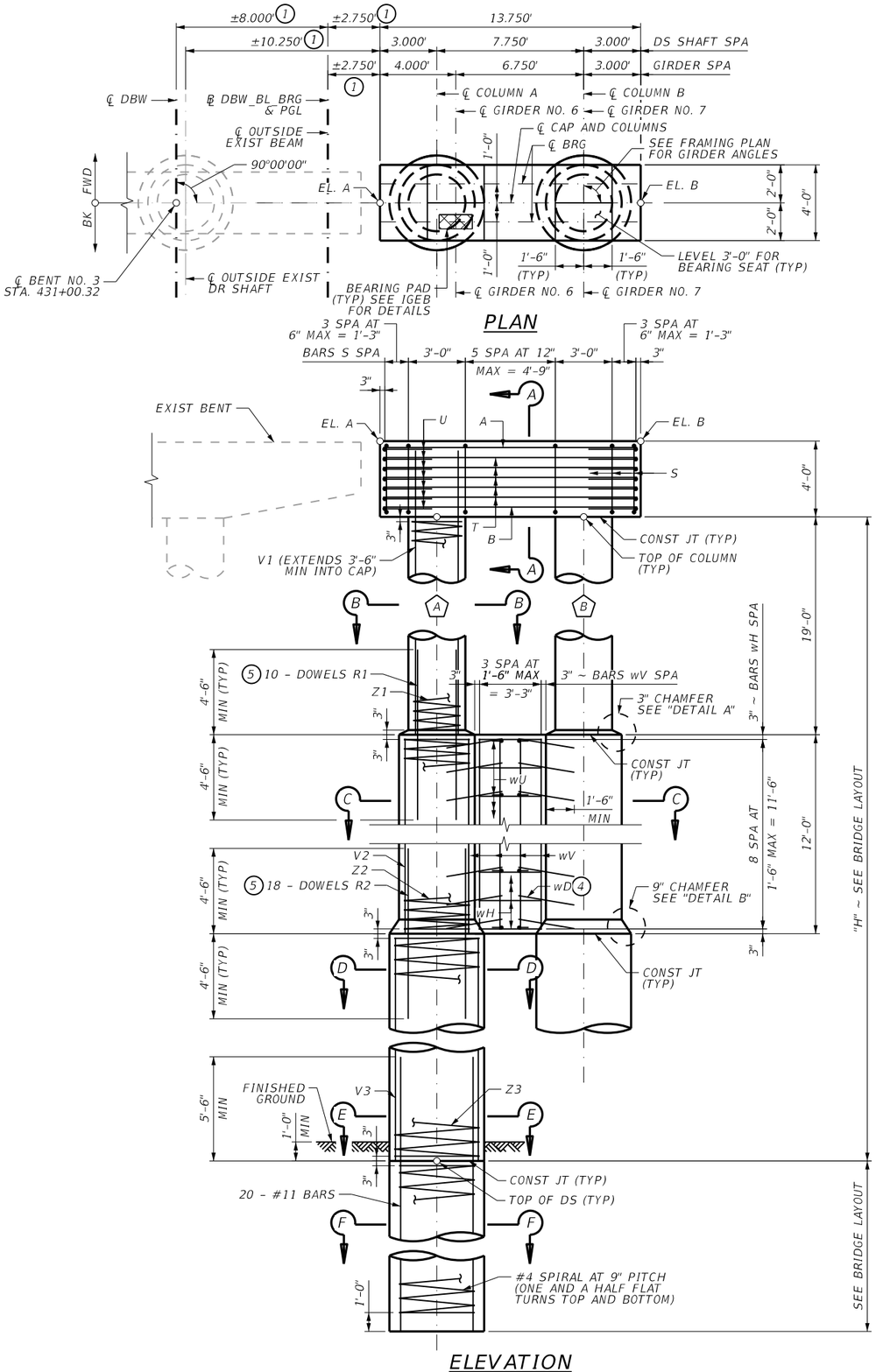
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

BENT NO. 2 DETAILS
SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 1 OF 1 | 329

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\Design\Data-Phase 2\4 - Design\Plan Set\7. Bridge\07601_DBW_PH2_BR01_BBNT01.dgn
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PLAN

ELEVATION

GENERAL NOTES:

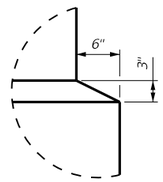
1. BRIDGE WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).
2. PROVIDE CLASS "C" CONCRETE (f'_c = 3,600 psi).
3. PROVIDE GRADE 60 REINFORCING STEEL.
4. SEE BRIDGE LAYOUT FOR DRILLED SHAFT LENGTH.
5. FOR BEARING SEAT ELEVATIONS, SEE BEARING SEAT ELEVATIONS SHEET.
6. CALCULATED FOUNDATION LOADS:
   461 TONS/SHAFT (SERVICE)
   640 TONS/SHAFT (STRENGTH)

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

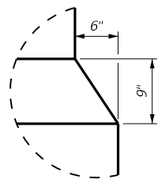
(1) FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS PRIOR TO ORDERING MATERIALS AND BEGINNING WORK.

(4) AT THE CONTRACTOR'S OPTION, BARS wD MAY BE PLACED WITH COLUMNS OR MAY BE ATTACHED USING AN ADHESIVE ANCHORAGE SYSTEM WITH THE ANCHORAGE END SLOPED 1:6 INTO COLUMN.

(5) AT THE CONTRACTOR'S OPTION, DOWELS CAN BE OMITTED AND REPLACED WITH EXTENDING COLUMN CAGE LENGTH BY THE SPECIFIED EMBEDMENT LENGTH.



DETAIL A



DETAIL B

CONTROL ELEVATIONS			
TOP OF CAP		TOP OF COL	
EL. A	EL. B	COL. A	COL. B
778.514	778.239	774.454	774.299

4/22/2024

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

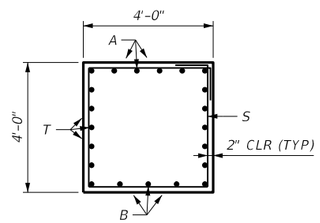
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

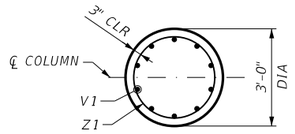
BENT NO. 3 DETAILS
SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 1 OF 2 | 330

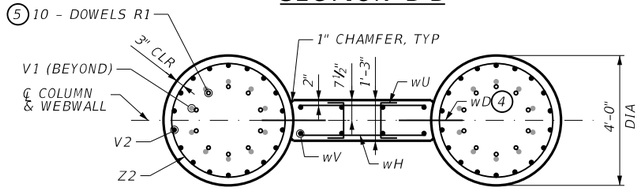
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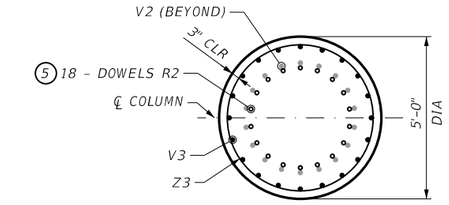
SECTION A-A



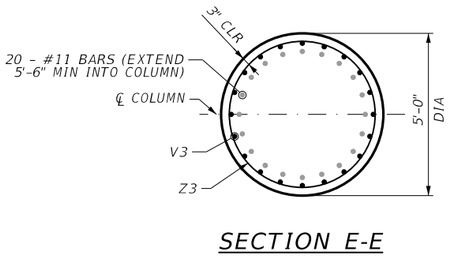
SECTION B-B



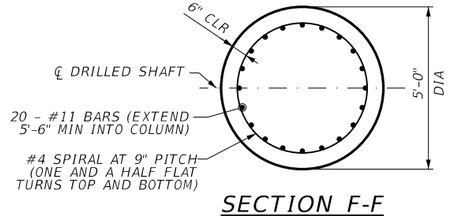
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

TABLE OF CONSTANT COLUMN QUANTITIES (ONE COLUMN ONLY)

BAR	NO.	SIZE	LENGTH	WEIGHT
V1	10	#9	22'-6"	765
V2	18	#9	11'-9"	720
Z1	1	#4	604'-10"	405
Z2	1	#4	539'-0"	361
R1	10	#9	9'-0"	306
R2	18	#9	9'-0"	551
(2) REINFORCING STEEL			LB	3,108
CLASS "C" CONC (COLUMN)			CY	10.7

TABLE OF VARIABLE COLUMN QUANTITIES (3)

BENT	NO. OF COL	"H"	BARS V3 - #11			BARS Z3 - #4			CL "C" CONC (COLUMN)
			NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	
		FT			LB			LB	CY
3	A	43	20	11'-9"	1,249	1	260'-0"	174	8.8
	B	38	20	6'-9"	718	1	165'-5"	111	5.1
								TOTAL	8,468

TOTAL ESTIMATED COLUMN QUANTITIES

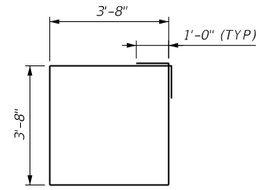
REINFORCING STEEL (2)	CL "C" CONC (COLUMN)
LB	CY
4,531	19.5
3,937	15.8
35.3	

ESTIMATED WEBWALL QUANTITIES (ONE BENT ONLY)

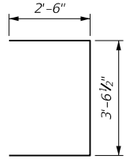
BAR	NO.	SIZE	LENGTH	WEIGHT
wD	18	#6	2'-9"	75
wH	18	#6	3'-3"	88
wU	10	#4	1'-11"	13
wV	8	#6	11'-6"	139
(2) REINFORCING STEEL			LB	315
CLASS "C" CONC (WEBWALL)			CY	2.1

ESTIMATED CAP QUANTITIES (ONE BENT ONLY)

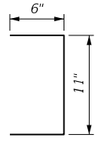
BAR	NO.	SIZE	LENGTH	WEIGHT
A	6	#11	13'-5"	428
B	5	#11	13'-5"	357
S	14	#5	16'-8"	244
T	10	#5	13'-5"	140
U	14	#5	8'-7"	126
(2) REINFORCING STEEL			LB	1,295
CLASS "C" CONC (CAP)			CY	8.3



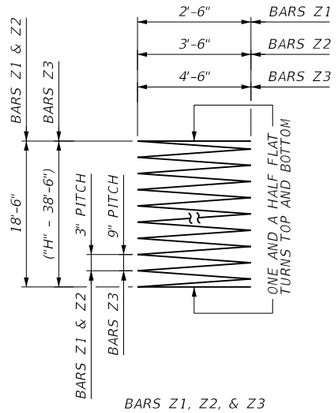
BARS S



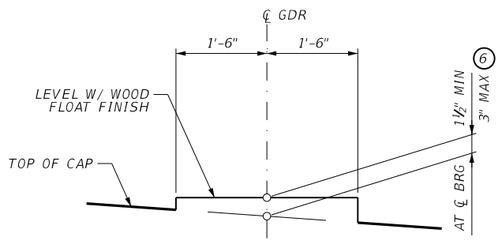
BARS U



BARS wU



BARS Z1, Z2, & Z3



BEARING SEAT DETAIL

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)

(2) FOR CONTRACTOR'S INFORMATION ONLY.

(3) FOR EACH LINEAR FOOT VARIATION IN "H" VALUE, MAKE THE FOLLOWING ADJUSTMENT:
BARS V3 LENGTH: 1'-0"
BARS Z3 LENGTH: 18'-11"
REINFORCEMENT: 646 LB
CLASS "C" CONC COL: 0.8 CY

(4) AT THE CONTRACTOR'S OPTION, BARS wD MAY BE PLACED WITH COLUMNS OR MAY BE ATTACHED USING AN ADHESIVE ANCHORAGE SYSTEM WITH THE ANCHORAGE END SLOPED 1:6 INTO COLUMN.

(5) AT THE CONTRACTOR'S OPTION, DOWELS CAN BE OMITTED AND REPLACED WITH EXTENDING COLUMN CAGE LENGTH BY THE SPECIFIED EMBEDMENT LENGTH.

(6) IF BEARING SEAT IS CONSTRUCTED WITH DEPTH GREATER THAN 3" AT ℄ BRG, SEE "BEARING SEAT REINFORCEMENT DETAILS" SHEET.

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

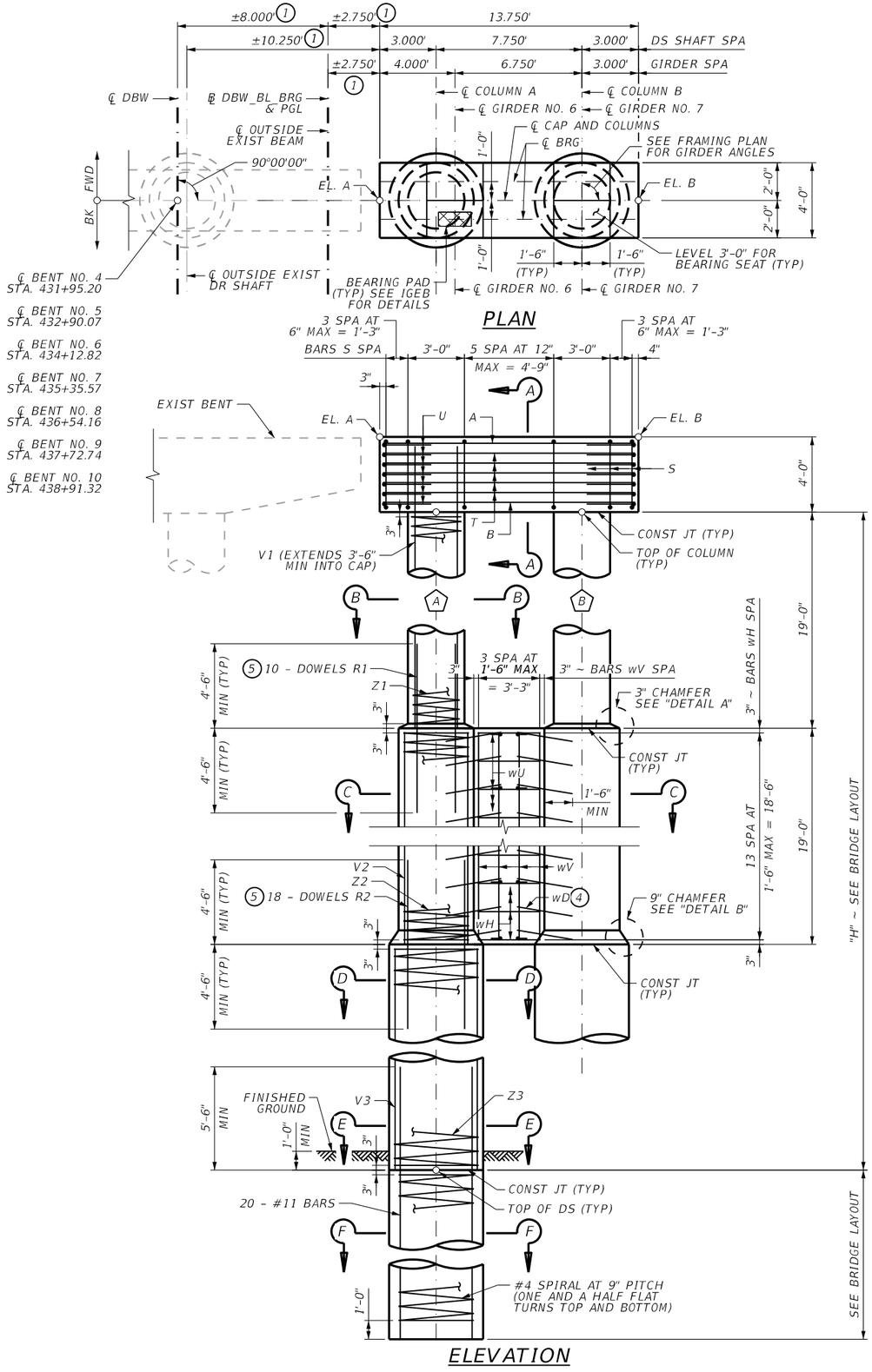
Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

BENT NO. 3 DETAILS
SAN GABRIEL RIVER BRIDGE (NORTH FORK)

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GENERAL NOTES:

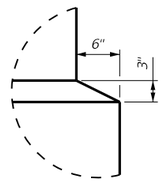
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2. PROVIDE CLASS "C" CONCRETE (f'_c = 3,600 psi).
3. PROVIDE GRADE 60 REINFORCING STEEL.
4. SEE BRIDGE LAYOUT FOR DRILLED SHAFT LENGTH.
5. FOR BEARING SEAT ELEVATIONS, SEE BEARING SEAT ELEVATIONS SHEET.
6. CALCULATED FOUNDATION LOADS:
   461 TONS/SHAFT (SERVICE)
   640 TONS/SHAFT (STRENGTH)

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

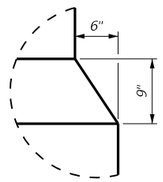
(1) FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS PRIOR TO ORDERING MATERIALS AND BEGINNING WORK.

(4) AT THE CONTRACTOR'S OPTION, BARS wD MAY BE PLACED WITH COLUMNS OR MAY BE ATTACHED USING AN ADHESIVE ANCHORAGE SYSTEM WITH THE ANCHORAGE END SLOPED 1:6 INTO COLUMN.

(5) AT THE CONTRACTOR'S OPTION, DOWELS CAN BE OMITTED AND REPLACED WITH EXTENDING COLUMN CAGE LENGTH BY THE SPECIFIED EMBEDMENT LENGTH.



DETAIL A



DETAIL B

CONTROL ELEVATIONS				
BENT	TOP OF CAP		TOP OF COL	
	EL. A	EL. B	COL. A	COL. B
4	778.452	778.177	774.392	774.237
5	778.358	778.083	774.298	774.143
6	778.184	777.909	774.124	773.969
7	778.070	777.795	774.010	773.855
8	778.048	777.773	773.988	773.833
9	777.897	777.622	773.837	773.682
10	777.760	777.485	773.700	773.545

4/22/2024

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

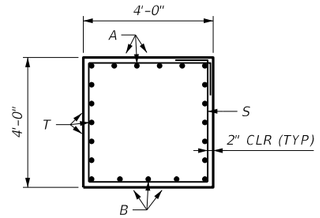
Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

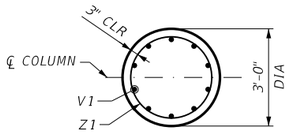
D B WOOD ROAD

BENT NO. 4-10 DETAILS SAN GABRIEL RIVER BRIDGE (NORTH FORK)

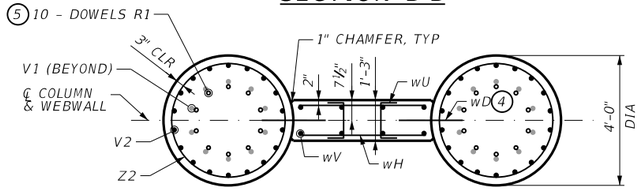
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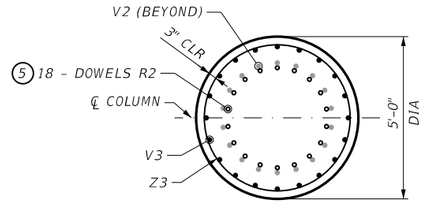
SECTION A-A



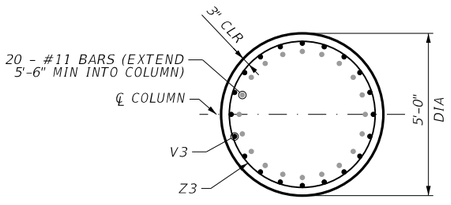
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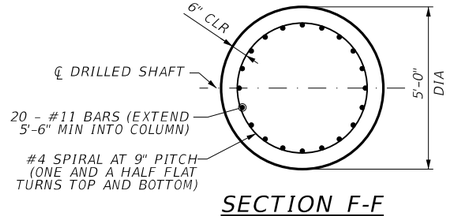
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

TABLE OF CONSTANT COLUMN QUANTITIES (ONE COLUMN ONLY)

BAR	NO.	SIZE	LENGTH	WEIGHT
V1	10	#9	22'-6"	765
V2	18	#9	18'-9"	1,148
Z1	1	#4	604'-10"	405
Z2	1	#4	847'-0"	566
R1	10	#9	9'-0"	306
R2	18	#9	9'-0"	551
(2) REINFORCING STEEL			LB	3,741
CLASS "C" CONC (COLUMN)			CY	14.0

TABLE OF VARIABLE COLUMN QUANTITIES (3)

BENT	NO. OF COL	"H"	BARS V3 - #11			BARS Z3 - #4			CL "C" CONC (COLUMN)
			NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	
		FT			LB			LB	CY
4	A	54	20	15'-9"	1,674	1	335'-8"	225	11.7
	B	53	20	14'-9"	1,568	1	316'-9"	212	11.0
5	A	53	20	14'-9"	1,568	1	316'-9"	212	11.0
	B	52	20	13'-9"	1,462	1	297'-10"	199	10.2
6	A	61	20	22'-9"	2,418	1	468'-1"	313	16.8
	B	60	20	21'-9"	2,312	1	449'-2"	301	16.0
7	A	64	20	25'-9"	2,737	1	524'-10"	351	19.0
	B	64	20	25'-9"	2,737	1	524'-10"	351	19.0
8	A	66	20	27'-9"	2,949	1	562'-8"	376	20.4
	B	64	20	25'-9"	2,737	1	524'-10"	351	19.0
9	A	56	20	17'-9"	1,887	1	373'-6"	250	13.1
	B	56	20	17'-9"	1,887	1	373'-6"	250	13.1
10	A	47	20	8'-9"	930	1	203'-3"	136	6.6
	B	47	20	8'-9"	930	1	203'-3"	136	6.6
								TOTAL	83,833

TOTAL ESTIMATED COLUMN QUANTITIES

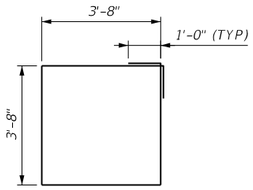
REINFORCING STEEL (2)	CL "C" CONC (COLUMN)
LB	CY
5,640	25.7
5,521	25.0
5,521	25.0
5,402	24.2
6,472	30.8
6,354	30.0
6,829	33.0
6,829	33.0
7,066	34.4
6,829	33.0
5,878	27.1
5,878	27.1
4,807	20.6
4,807	20.6
83,333	389.5

ESTIMATED WEBWALL QUANTITIES (ONE BENT ONLY)

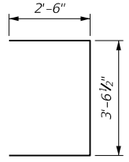
BAR	NO.	SIZE	LENGTH	WEIGHT
wD	28	#6	2'-9"	116
wH	28	#6	3'-3"	137
wU	16	#4	1'-11"	21
wV	8	#6	18'-6"	223
(2) REINFORCING STEEL			LB	497
CLASS "C" CONC (WEBWALL)			CY	3.3

ESTIMATED CAP QUANTITIES (ONE BENT ONLY)

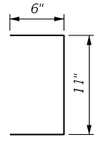
BAR	NO.	SIZE	LENGTH	WEIGHT
A	6	#11	13'-5"	428
B	5	#11	13'-5"	357
S	14	#5	16'-8"	244
T	10	#5	13'-5"	140
U	14	#5	8'-7"	126
(2) REINFORCING STEEL			LB	1,295
CLASS "C" CONC (CAP)			CY	8.3



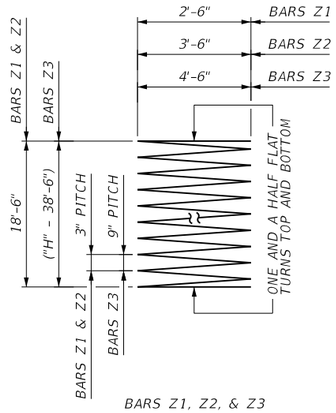
BARS S



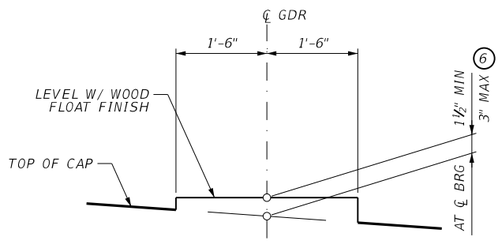
BARS U



BARS wU



BARS Z1, Z2, & Z3



BEARING SEAT DETAIL

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)

(2) FOR CONTRACTOR'S INFORMATION ONLY.

(3) FOR EACH LINEAR FOOT VARIATION IN "H" VALUE, MAKE THE FOLLOWING ADJUSTMENT:
BARS V3 LENGTH: 1'-0"
BARS Z3 LENGTH: 18'-11"
REINFORCEMENT: 646 LB
CLASS "C" CONC COL: 0.8 CY

(4) AT THE CONTRACTOR'S OPTION, BARS wD MAY BE PLACED WITH COLUMNS OR MAY BE ATTACHED USING AN ADHESIVE ANCHORAGE SYSTEM WITH THE ANCHORAGE END SLOPED 1:6 INTO COLUMN.

(5) AT THE CONTRACTOR'S OPTION, DOWELS CAN BE OMITTED AND REPLACED WITH EXTENDING COLUMN CAGE LENGTH BY THE SPECIFIED EMBEDMENT LENGTH.

(6) IF BEARING SEAT IS CONSTRUCTED WITH DEPTH GREATER THAN 3" AT ℄ BRG, SEE "BEARING SEAT REINFORCEMENT DETAILS" SHEET.

4/22/2024

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

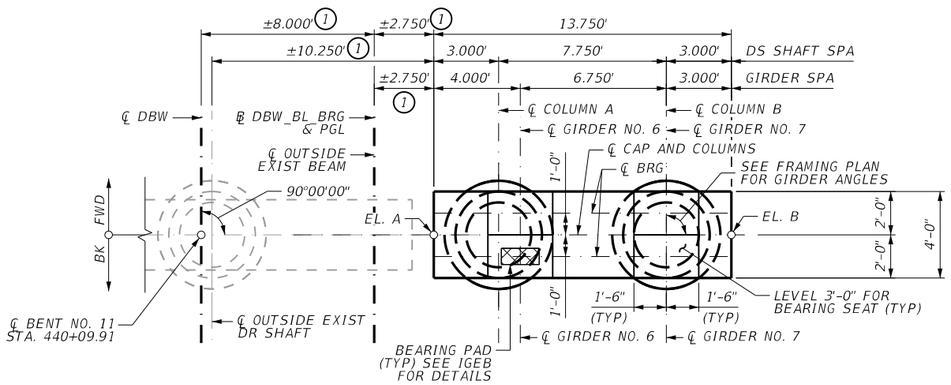
Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

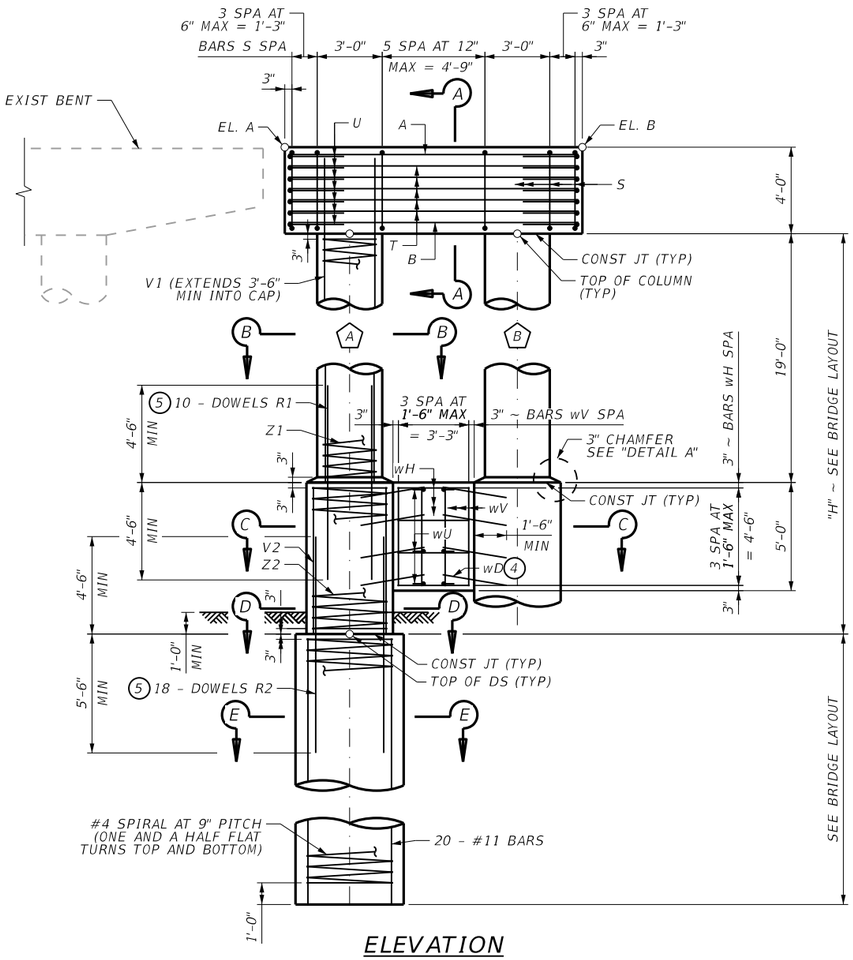
D B WOOD ROAD

BENT NO. 4-10 DETAILS SAN GABRIEL RIVER BRIDGE (NORTH FORK)

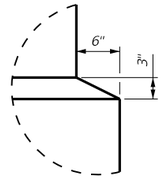
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PLAN



ELEVATION



DETAIL A

CONTROL ELEVATIONS			
TOP OF CAP		TOP OF COL	
EL. A	EL. B	COL. A	COL. B
777.620	777.345	773.560	773.405

GENERAL NOTES:

1. BRIDGE WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).
2. PROVIDE CLASS "C" CONCRETE (f'_c = 3,600 psi).
3. PROVIDE GRADE 60 REINFORCING STEEL.
4. SEE BRIDGE LAYOUT FOR DRILLED SHAFT LENGTH.
5. FOR BEARING SEAT ELEVATIONS, SEE BEARING SEAT ELEVATIONS SHEET.
6. CALCULATED FOUNDATION LOADS:
   337 TONS/SHAFT (SERVICE)
   430 TONS/SHAFT (STRENGTH)

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

(1) FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS PRIOR TO ORDERING MATERIALS AND BEGINNING WORK.

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YAN G. LINWOOD
131665
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

GEORGETOWN TEXAS
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D B WOOD ROAD

BENT NO. 11 DETAILS
SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 1 OF 2 | 334

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TABLE OF CONSTANT COLUMN QUANTITIES (ONE COLUMN ONLY)

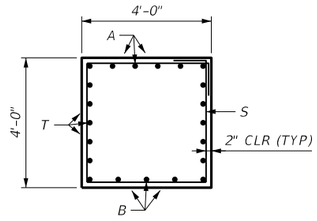
BAR	NO.	SIZE	LENGTH	WEIGHT
V1	10	#9	22'-6"	765
Z1	1	#4	604'-10"	405
R1	10	#9	9'-0"	306
R2	18	#9	10'-0"	612
(2) REINFORCING STEEL			LB	2,088
CLASS "C" CONC (COLUMN)			CY	5.0

TABLE OF VARIABLE COLUMN QUANTITIES (3)

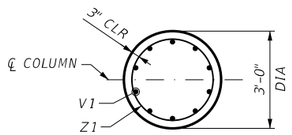
BENT	NO. OF COL	"H"	BARS V2 - #9			BARS Z2 - #4			CL "C" CONC (COLUMN)
			NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	
		FT			LB			LB	CY
11	A	26	18	6'-9"	414	1	319'-0"	214	3.3
	B	25	18	5'-9"	352	1	275'-0"	184	2.8
								TOTAL	6.1

TOTAL ESTIMATED COLUMN QUANTITIES

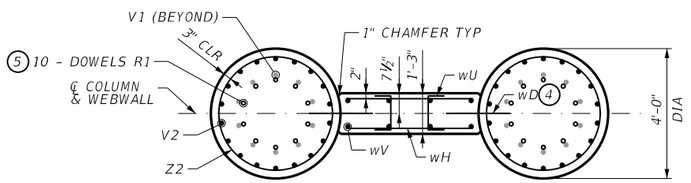
REINFORCING STEEL (2)	CL "C" CONC (COLUMN)
LB	CY
2,716	8.3
2,624	7.8
5,340	16.1



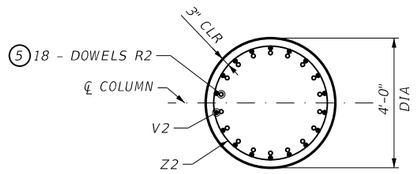
SECTION A-A



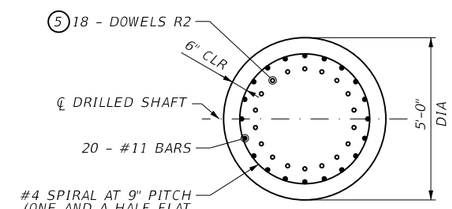
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SECTION C-C



SECTION D-D



SECTION E-E

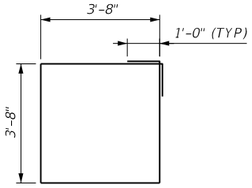
(2) FOR CONTRACTOR'S INFORMATION ONLY.

(3) FOR EACH LINEAR FOOT VARIATION IN "H" VALUE, MAKE THE FOLLOWING ADJUSTMENT:
BARS V2: 1'-0"
BARS Z2: 44'-0"
REINFORCEMENT: 448 LB
CLASS "C" CONC COL: 0.5 CY

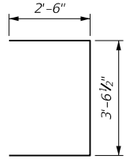
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(5) AT THE CONTRACTOR'S OPTION, DOWELS CAN BE OMITTED AND REPLACED WITH EXTENDING COLUMN CAGE LEGNTH BY THE SPECIFIED EMBEDMENT LENGTH.

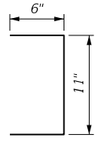
(6) IF BEARING SEAT IS CONSTRUCTED WITH DEPTH GREATER THAN 3" AT ℄ BRG, SEE "BEARING SEAT REINFORCEMENT DETAILS" SHEET.



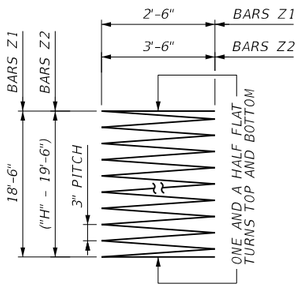
BARS S



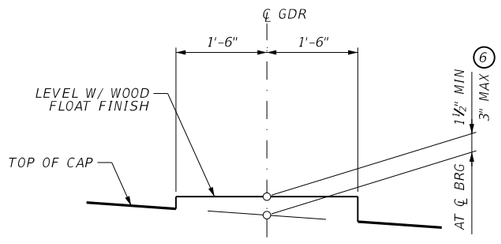
BARS U



BARS wU



BARS Z1 & Z2



BEARING SEAT DETAIL
(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)

ESTIMATED WEBWALL QUANTITIES (ONE BENT ONLY)

BAR	NO.	SIZE	LENGTH	WEIGHT
wD	8	#6	2'-9"	34
wH	8	#6	3'-3"	40
wU	6	#4	1'-11"	8
wV	8	#6	4'-6"	55
(2) REINFORCING STEEL			LB	137
CLASS "C" CONC (WEBWALL)			CY	0.9

ESTIMATED CAP QUANTITIES (ONE BENT ONLY)

BAR	NO.	SIZE	LENGTH	WEIGHT
A	6	#11	13'-5"	428
B	5	#11	13'-5"	357
S	14	#5	16'-8"	244
T	10	#5	13'-5"	140
U	14	#5	8'-7"	126
(2) REINFORCING STEEL			LB	1,295
CLASS "C" CONC (CAP)			CY	8.3

4/22/2024

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

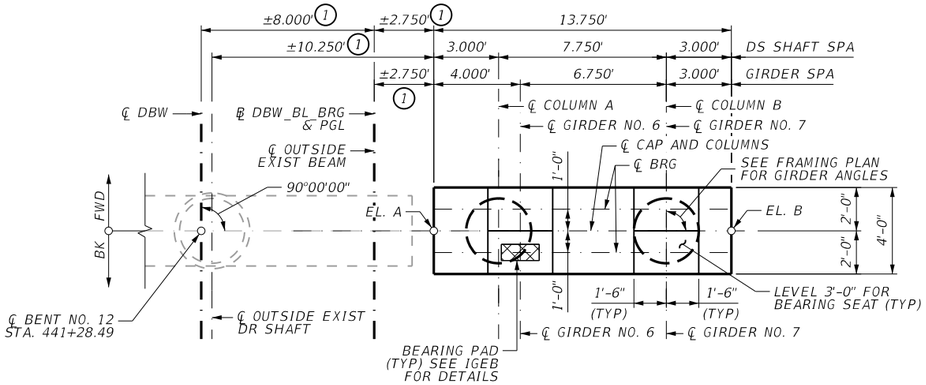
HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

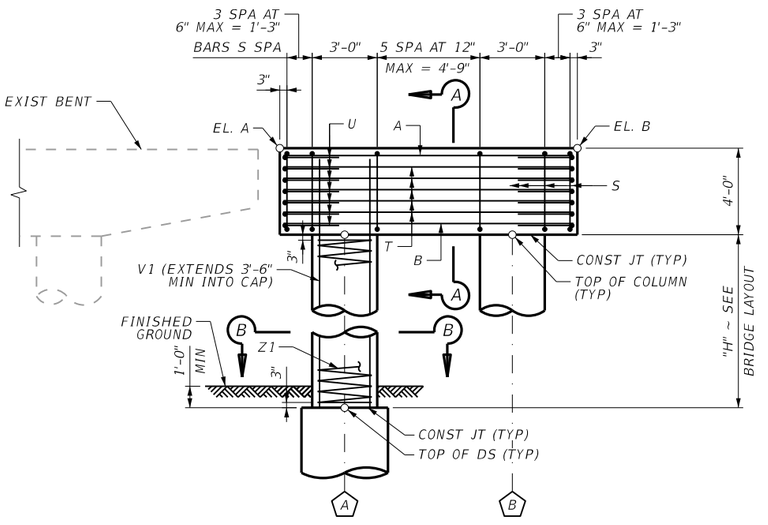
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

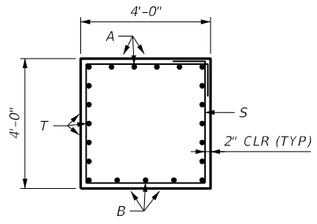
BENT NO. 11 DETAILS
SAN GABRIEL RIVER BRIDGE (NORTH FORK)



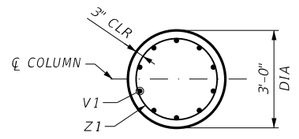
PLAN



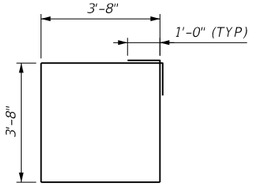
ELEVATION



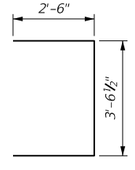
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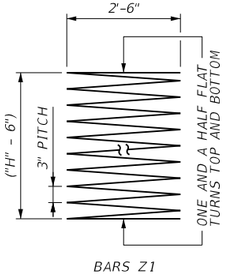
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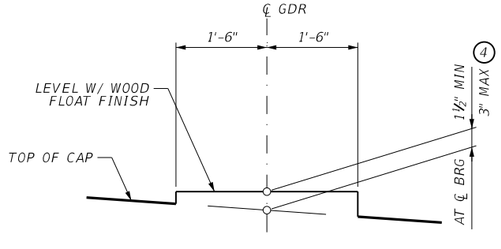
BARS S



BARS U



BARS Z1



BEARING SEAT DETAIL

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)

GENERAL NOTES:

1. BRIDGE WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).
2. PROVIDE CLASS "C" CONCRETE (f'c = 3,600 psi).
3. PROVIDE GRADE 60 REINFORCING STEEL.
4. SEE BRIDGE LAYOUT FOR DRILLED SHAFT LENGTH.
5. SEE COMMON FOUNDATION DETAILS (FD) STANDARDS SHEET FOR ALL FOUNDATION DETAILS AND NOTES.
6. FOR BEARING SEAT ELEVATIONS, SEE BEARING SEAT ELEVATIONS SHEET.
7. CALCULATED FOUNDATION LOADS:
   277 TONS/SHAFT (SERVICE)
   357 TONS/SHAFT (STRENGTH)

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

(1) FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS PRIOR TO ORDERING MATERIALS AND BEGINNING WORK.

(2) FOR CONTRACTOR'S INFORMATION ONLY.

(3) FOR EACH LINEAR FOOT VARIATION IN "H" VALUE, MAKE THE FOLLOWING ADJUSTMENT:
   BARS V1: 1'-0"
   BARS Z1: 31'-5"
   REINFORCEMENT: 355 LB
   CLASS "C" CONC COL: 0.3 CY

(4) IF BEARING SEAT IS CONSTRUCTED WITH DEPTH GREATER THAN 3" AT ℄ BRG, SEE "BEARING SEAT REINFORCEMENT DETAILS" SHEET.

ESTIMATED CAP QUANTITIES (ONE BENT ONLY)

BAR	NO.	SIZE	LENGTH	WEIGHT
A	6	#11	13'-5"	428
B	5	#11	13'-5"	357
S	14	#5	16'-8"	244
T	10	#5	13'-5"	140
U	14	#5	8'-7"	126
(2) REINFORCING STEEL			LB	1,295
CLASS "C" CONC (CAP)			CY	8.3

CONTROL ELEVATIONS

TOP OF CAP		TOP OF COL	
EL. A	EL. B	COL. A	COL. B
777.481	777.206	773.421	773.266

TABLE OF VARIABLE COLUMN QUANTITIES (3)

BENT	NO. OF COL	"H"	BARS V1 - #9			BARS Z1 - #4			CL "C" CONC (COLUMN)	TOTAL ESTIMATED COLUMN QUANTITIES: REINFORCING STEEL (2)	TOTAL ESTIMATED COLUMN QUANTITIES: CL "C" CONC (COLUMN)
			NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT			
		FT			LB			LB	CY	LB	CY
12	A	7	10	10'-6"	357	1	227'-10"	153	1.9	510	1.9
	B	6	10	9'-6"	323	1	196'-5"	132	1.6	455	1.6
									TOTAL	965	3.5

4/22/2024

STATE OF TEXAS
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131665
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PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

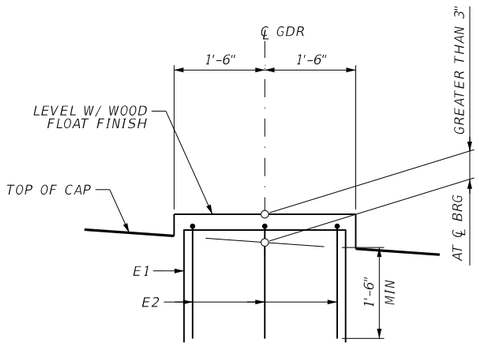
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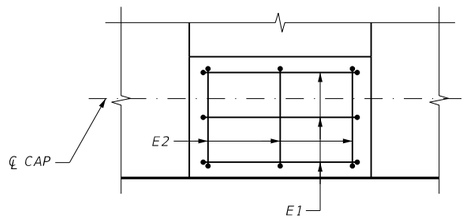
D B WOOD ROAD

BENT NO. 12 DETAILS SAN GABRIEL RIVER BRIDGE (NORTH FORK)

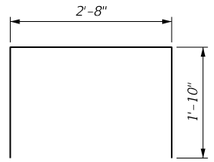
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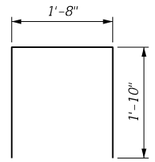
ELEVATION



PLAN



BARS E1



BARS E2

BEARING SEAT DETAIL

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD.)

GENERAL NOTES:

1. BARS E1 AND E2 PRESENT ONLY IF BEARING SEAT IS CONSTRUCTED WITH DEPTH GREATER THAN 3" AT ℄ BRG.
2. PROVIDE CLASS "C" CONCRETE (f'c = 3,600 psi).
3. PROVIDE GRADE 60 REINFORCING STEEL.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.



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HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

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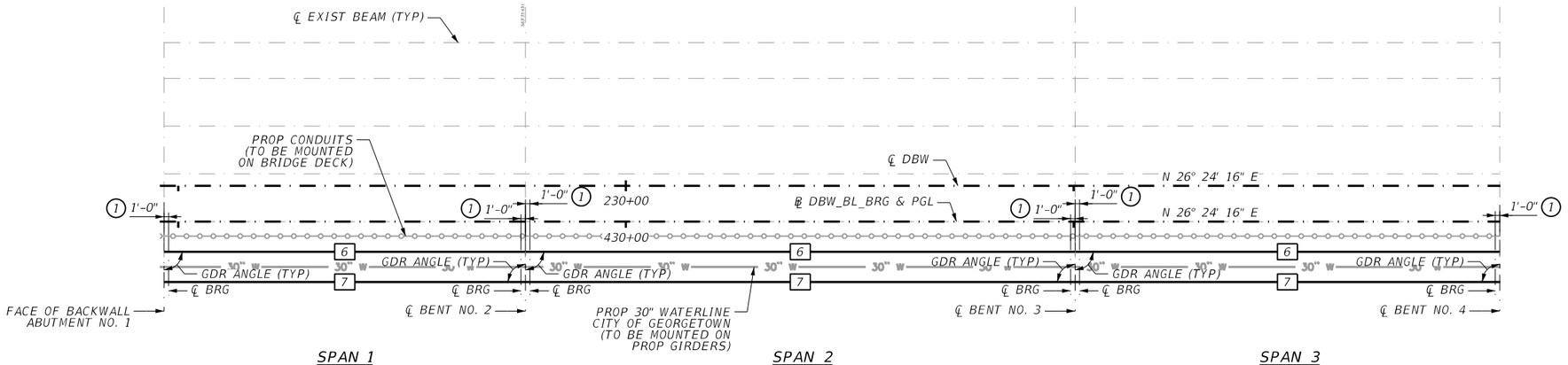
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D B WOOD ROAD

BEARING SEAT REINFORCEMENT DETAILS
SAN GABRIEL RIVER BRIDGE
(NORTH FORK)

SHEET 1 OF 1 | 337

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PLAN

(1) SEE IGEB FOR ORIENTATION OF DIMENSION.

(2) GIRDER LENGTHS SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

[X] GIRDER NUMBER

0' 15' 30'
SCALE: 1" = 30'

BENT REPORT

ABUT NO. 1 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 1	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT NO. 2 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 1	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT REPORT

BENT NO. 2 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 2	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT NO. 3 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 2	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT REPORT

BENT NO. 3 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 3	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT NO. 4 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 3	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

GIRDER REPORT

GDR REPORT, SPAN 1

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GDR SLOPE
GDR	1	80.750	78.750	80.25	-0.0008
GDR	2	80.750	78.750	80.25	-0.0008

GIRDER REPORT

GDR REPORT, SPAN 2

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GDR SLOPE
GDR	1	122.750	120.750	122.25	-0.0013
GDR	2	122.750	120.750	122.25	-0.0013

GIRDER REPORT

GDR REPORT, SPAN 3

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GDR SLOPE
GDR	1	94.880	92.880	94.38	-0.0009
GDR	2	94.880	92.880	94.38	-0.0009

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HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

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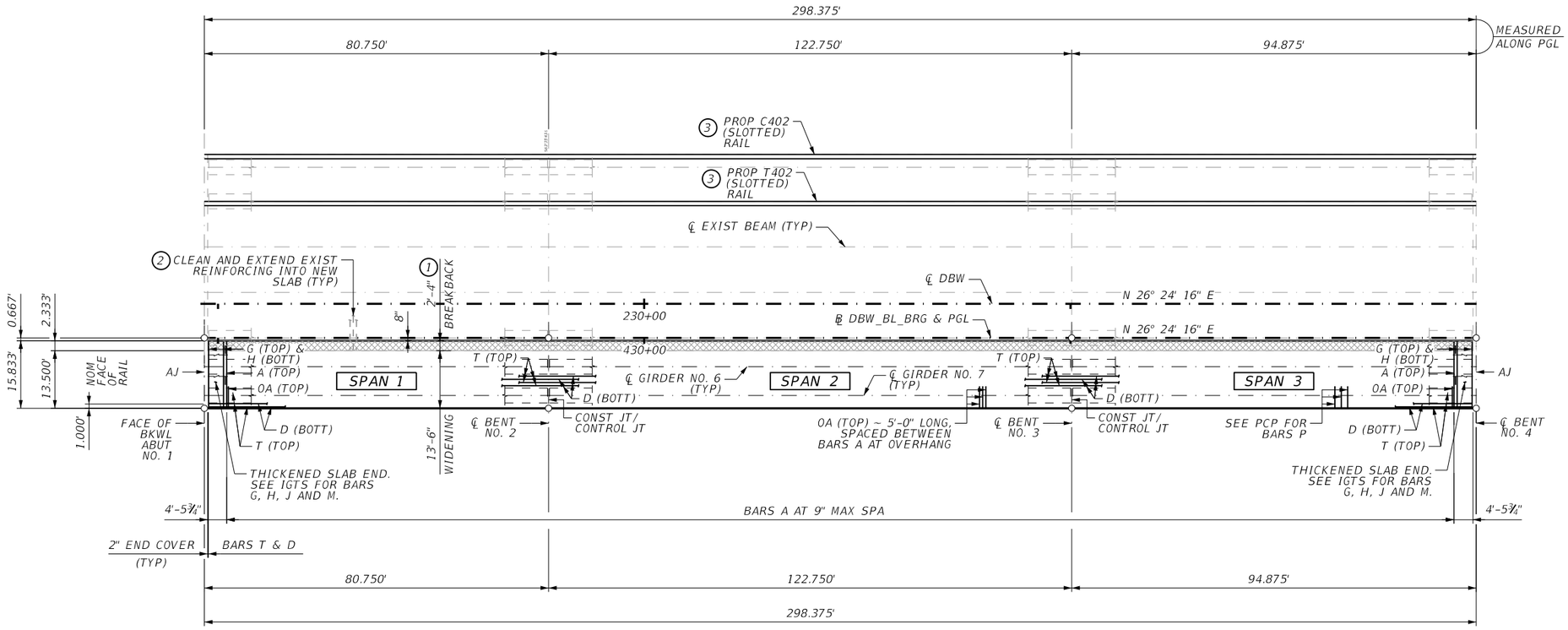
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D B WOOD ROAD

FRAMING PLAN (SPANS 1-3) (UNIT 1) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 1 OF 1 | 338

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PLAN

(PROP RAIL ON BRIDGE WIDENING OMITTED FOR CLARITY)

1. HATCHED AREAS INDICATE PORTIONS OF EXISTING SLAB AND RAILING TO BE REMOVED. SAW CUT A VERTICAL JOINT TO A DEPTH OF 1" AT THE BREAKBACK LINE PRIOR TO REMOVING CONCRETE.

2. CONTRACTOR SHALL NOT DAMAGE EXISTING REINFORCING STEEL, HAUNCH CONCRETE AND SLAB TO REMAIN. EXISTING SLAB REINFORCING SHALL BE CLEANED AND STRAIGHTENED TO LAP A MINIMUM OF 2'-0" WITH NEW REINFORCING STEEL. IF EXISTING BARS ARE DAMAGED DURING SLAB REMOVAL, THEY MAY EITHER BE SPLICED USING MECHANICAL COUPLERS OR REPLACED WITH DOWELS. IF USING DOWELS, ASSESS EACH DAMAGED BAR, AND REPAIR USING THE FOLLOWING INSTRUCTIONS:

   DRILL AND EPOXY A #5 BAR WITH A MINIMUM EMBEDMENT OF 7½".

   HILTI HIT-RE 500 V3 ADHESIVE OR APPROVED EQUAL SHALL BE USED.

3. SEE MODIFIED RETROFIT GUIDE FOR CONCRETE RAILS (C-RAIL-R (MOD)) STANDARD SHEETS FOR RAIL ANCHORAGE IN EXISTING BRIDGE SLAB AND EXISTING APPROACH SLAB FOR T402 AND C402 RAILS.

GENERAL NOTES:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).

2. SEE PRESTRESSED CONCRETE PANELS (PCP) AND PRESTRESSED CONCRETE PANEL FABRICATION DETAILS (PCP-FAB) STANDARD SHEETS FOR PANEL DETAILS NOT SHOWN.

3. SEE THICKENED SLAB END DETAILS (IGTS) STANDARD SHEET FOR THICKENED SLAB END DETAILS AND QUANTITY ADJUSTMENTS.

4. SEE MISCELLANEOUS SLAB DETAILS (IGMS) STANDARD SHEET FOR MISCELLANEOUS DETAILS AND REINFORCEMENT FOR HAUNCH GREATER THAN 3½".

5. SEE TRAFFIC RAIL T402 STANDARD SHEETS FOR RAIL ANCHORAGE IN SLAB.

6. SEE PERMANENT METAL DECK FORMS (PMDF) STANDARD SHEET FOR DETAILS AND QUANTITY ADJUSTMENTS, IF THIS OPTION IS USED.

MATERIAL NOTES:

PROVIDE CLASS "S" CONCRETE (f'c = 4,000 psi).

PROVIDE GRADE 60 REINFORCING STEEL.

PROVIDE BAR LAPS, WHERE REQUIRED, AS FOLLOWS:

UNCOATED ~ #4 = 1'-7"

DEFORMED WELDED WIRE REINFORCEMENT (WWR) (ASTM A1064) OF EQUAL SIZE AND SPACING MAY BE SUBSTITUTED FOR BARS A, D, 0A, P OR T, UNLESS NOTED OTHERWISE. PROVIDE THE SAME LAPS AS REQUIRED FOR REINFORCING BARS.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE

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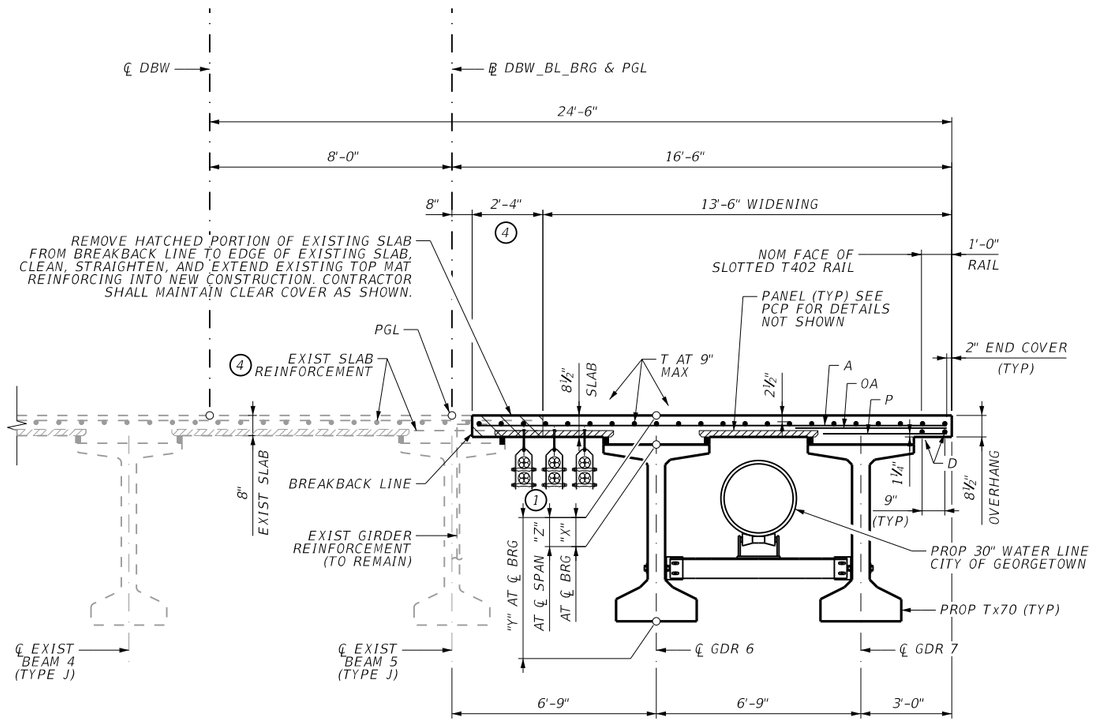
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D B WOOD ROAD

298.38' PRESTR CONC I-GIRDER UNIT 1 (SPANS 1-3) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

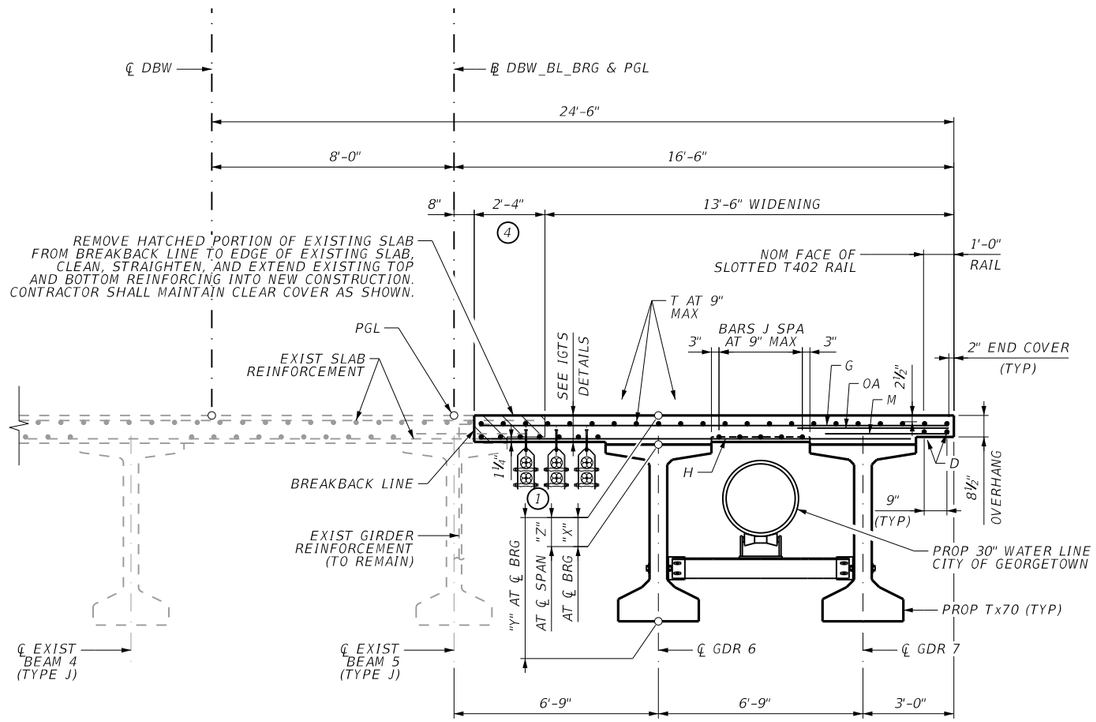
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TYPICAL TRANSVERSE SECTION

(SHOWING TYPICAL SLAB)



TYPICAL TRANSVERSE SECTION

(SHOWING THICKENED END SLAB)

TABLE OF ESTIMATED QUANTITIES UNIT 1

SPAN NO.	REINFORCED CONCRETE SLAB	PRESTRESSED (2) CONCRETE GIRDERS (Tx70)	TOTAL REINFORCING STEEL (3)
	SF	LF	LB
SPAN 1	1,279	160.50	2,942
SPAN 2	1,944	244.50	4,472
SPAN 3	1,502	188.76	3,455
TOTAL	4,725	593.76	10,869

TABLE OF SECTION DEPTHS

SPAN NO.	GIRDER NO.	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ BRG (1)
1	6-7	11"	6' - 9"	10 5/8"
2	6	11 1/4"	6' - 9 1/4"	9 5/8"
	7			9 1/2"
3	6	11"	6' - 9"	10 3/8"
	7			10 1/4"

DEAD LOAD DEFLECTION TABLES

SPAN NO.	GIRDER NO.	A FT	B FT
1	6	0.009	0.013
	7	0.009	0.012
2	6	0.052	0.073
	7	0.047	0.066
3	6	0.019	0.026
	7	0.016	0.023

BAR TABLE

BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4

GENERAL NOTES:

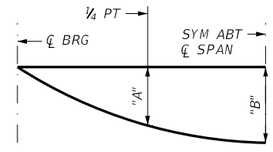
1. ALL EXPANSION JOINTS SHALL BE ARMOR JOINT CONFORMING TO STANDARD AJ, EXCEPT AS MODIFIED ON THIS SHEET.
2. NEW JOINT MODEL AND MANUFACTURER SHALL MATCH EXISTING JOINT IN ORDER TO FACILITATE FIELD SPLICING OF STEEL RAILS AND FOR NEW SEAL COMPATIBILITY WHEN INSERTED INTO BOTH EXISTING AND NEW STEEL RAIL LOCATIONS.
3. WHERE IT IS NOT POSSIBLE TO PROVIDE A SINGLE, CONTINUOUS SEAL, FIELD SPLICE(S) SHALL BE VULCANIZED PER THE JOINT MANUFACTURER'S RECOMMENDATIONS.

(1) THEORETICAL DIMENSION

(2) QUANTITIES SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE. SEE FRAMING PLAN SHEET FOR GIRDER LENGTHS.

(3) FOR CONTRACTOR'S INFORMATION ONLY. REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 2.3 psf.

(4) FIELD BEND EXISTING BOTTOM MAT REINFORCING TO LAY FLAT ABOVE PANEL AND BELOW TOP MAT REINFORCING.



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEFLECTIONS SHOWN ARE DUE TO PCP PANELS AND CONCRETE SLAB. (E= 5,000 KSI) CALCULATED DEFLECTIONS SHOWN ARE THEORETICAL AND ACTUAL DEFLECTIONS MAY BE LESS. ADJUST VALUE AS REQUIRED IF OPTIONAL SLAB FORMING IS USED. THESE VALUES MAY REQUIRE FIELD VERIFICATION.

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4/22/2024
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HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

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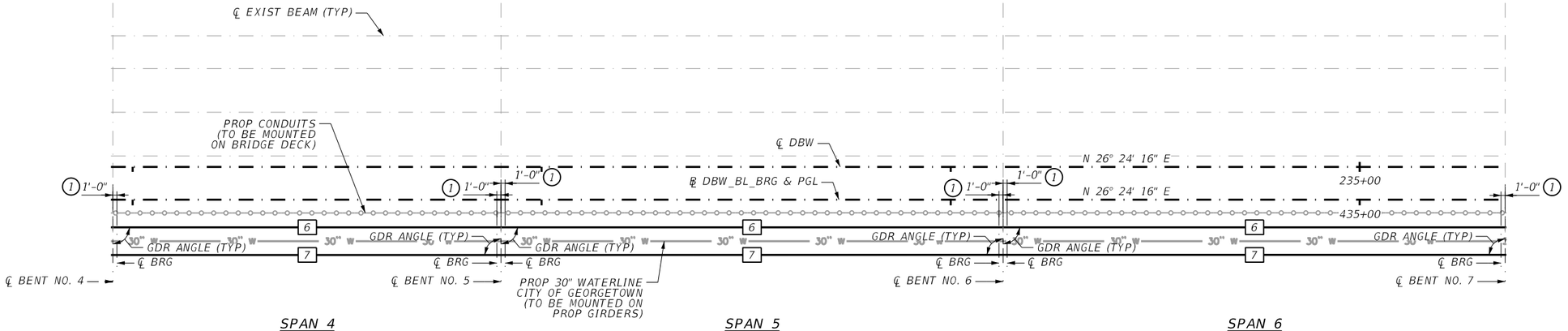
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D B WOOD ROAD

298.38' PRESTR CONC I-GIRDER UNIT 1 (SPANS 1-3) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 2 OF 2 | 340

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SPAN 4
(Tx70 GIRDERS)

SPAN 5
(Tx70 GIRDERS)

SPAN 6
(Tx70 GIRDERS)

PLAN

(1) SEE IGEB FOR ORIENTATION OF DIMENSION.

(2) GIRDER LENGTHS SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

[X] GIRDER NUMBER

0' 15' 30'
SCALE: 1" = 30'

BENT REPORT

BENT NO. 4 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 4	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT NO. 5 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 4	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT REPORT

BENT NO. 5 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 5	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT NO. 6 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 5	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT REPORT

BENT NO. 6 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 6	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT NO. 7 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 6	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

GIRDER REPORT

GDR REPORT, SPAN 4

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GDR SLOPE
GDR	1	94.870	92.870	94.37	-0.0006
GDR	2	94.870	92.870	94.37	-0.0006

GIRDER REPORT

GDR REPORT, SPAN 5

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GDR SLOPE
GDR	1	122.750	120.750	122.25	-0.0014
GDR	2	122.750	120.750	122.25	-0.0014

GIRDER REPORT

GDR REPORT, SPAN 6

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GDR SLOPE
GDR	1	122.750	120.750	122.25	-0.0011
GDR	2	122.750	120.750	122.25	-0.0011

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HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

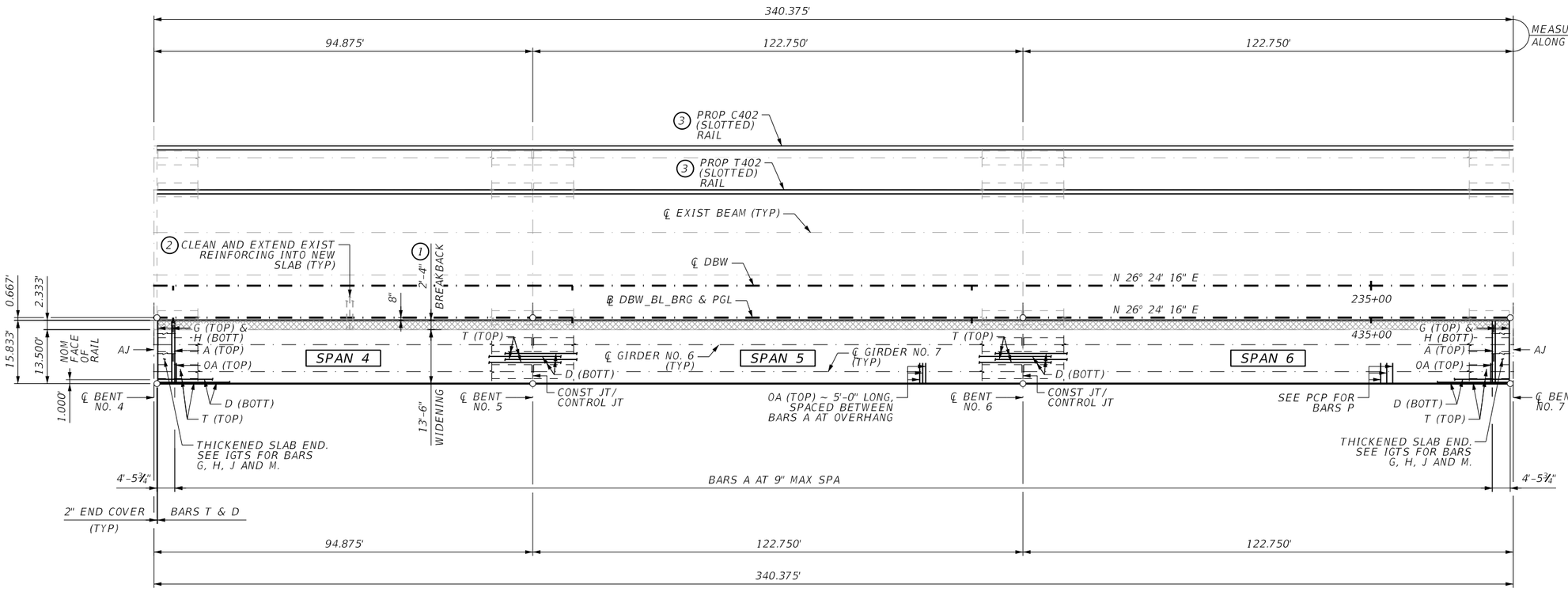
GEORGETOWN TEXAS
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D B WOOD ROAD

FRAMING PLAN (SPANS 4-6) (UNIT 2) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 1 OF 1 | 341

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PLAN

(PROP RAIL ON BRIDGE WIDENING OMITTED FOR CLARITY)

1. HATCHED AREAS INDICATE PORTIONS OF EXISTING SLAB AND RAILING TO BE REMOVED. SAW CUT A VERTICAL JOINT TO A DEPTH OF 1" AT THE BREAKBACK LINE PRIOR TO REMOVING CONCRETE.

2. CONTRACTOR SHALL NOT DAMAGE EXISTING REINFORCING STEEL, HAUNCH CONCRETE AND SLAB TO REMAIN. EXISTING SLAB REINFORCING SHALL BE CLEANED AND STRAIGHTENED TO LAP A MINIMUM OF 2'-0" WITH NEW REINFORCING STEEL. IF EXISTING BARS ARE DAMAGED DURING SLAB REMOVAL, THEY MAY EITHER BE SPLICED USING MECHANICAL COUPLERS OR REPLACED WITH DOWELS. IF USING DOWELS, ASSESS EACH DAMAGED BAR, AND REPAIR USING THE FOLLOWING INSTRUCTIONS:

   DRILL AND EPOXY A #5 BAR WITH A MINIMUM EMBEDMENT OF 7½".

   HILTI HIT-RE 500 V3 ADHESIVE OR APPROVED EQUAL SHALL BE USED.

3. SEE MODIFIED RETROFIT GUIDE FOR CONCRETE RAILS (C-RAIL-R (MOD)) STANDARD SHEETS FOR RAIL ANCHORAGE IN EXISTING BRIDGE SLAB AND EXISTING APPROACH SLAB FOR T402 AND C402 RAILS.

GENERAL NOTES:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).
2. SEE PRESTRESSED CONCRETE PANELS (PCP) AND PRESTRESSED CONCRETE PANEL FABRICATION DETAILS (PCP-FAB) STANDARD SHEETS FOR PANEL DETAILS NOT SHOWN.
3. SEE THICKENED SLAB END DETAILS (IGTS) STANDARD SHEET FOR THICKENED SLAB END DETAILS AND QUANTITY ADJUSTMENTS.
4. SEE MISCELLANEOUS SLAB DETAILS (IGMS) STANDARD SHEET FOR MISCELLANEOUS DETAILS AND REINFORCEMENT FOR HAUNCH GREATER THAN 3½".
5. SEE TRAFFIC RAIL T402 STANDARD SHEETS FOR RAIL ANCHORAGE IN SLAB.
6. SEE PERMANENT METAL DECK FORMS (PMDF) STANDARD SHEET FOR DETAILS AND QUANTITY ADJUSTMENTS, IF THIS OPTION IS USED.

MATERIAL NOTES:

PROVIDE CLASS "S" CONCRETE (f'c = 4,000 psi).

PROVIDE GRADE 60 REINFORCING STEEL.

PROVIDE BAR LAPS, WHERE REQUIRED, AS FOLLOWS:

UNCOATED ~ #4 = 1'-7"

DEFORMED WELDED WIRE REINFORCEMENT (WWR) (ASTM A1064) OF EQUAL SIZE AND SPACING MAY BE SUBSTITUTED FOR BARS A, D, OA, P OR T, UNLESS NOTED OTHERWISE. PROVIDE THE SAME LAPS AS REQUIRED FOR REINFORCING BARS.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE

STATE OF TEXAS
YAN G. LINWOOD
131665
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4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

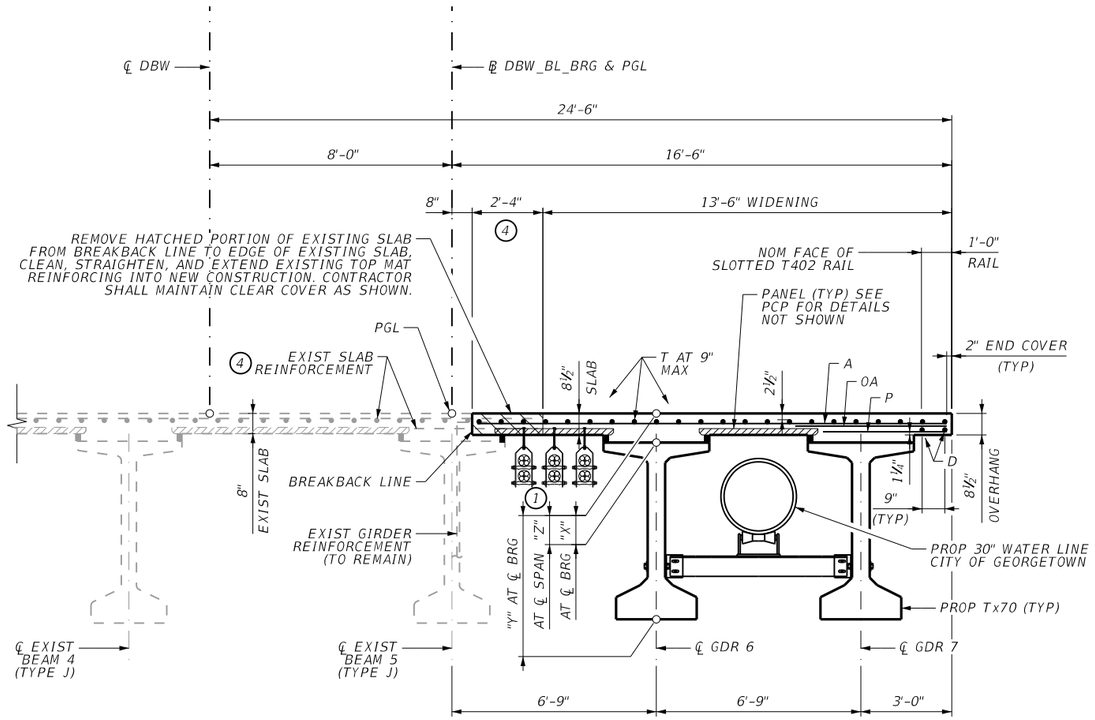
GEORGETOWN TEXAS
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D B WOOD ROAD

340.37' PRESTR CONC I-GIRDER UNIT 2 (SPANS 4-6) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

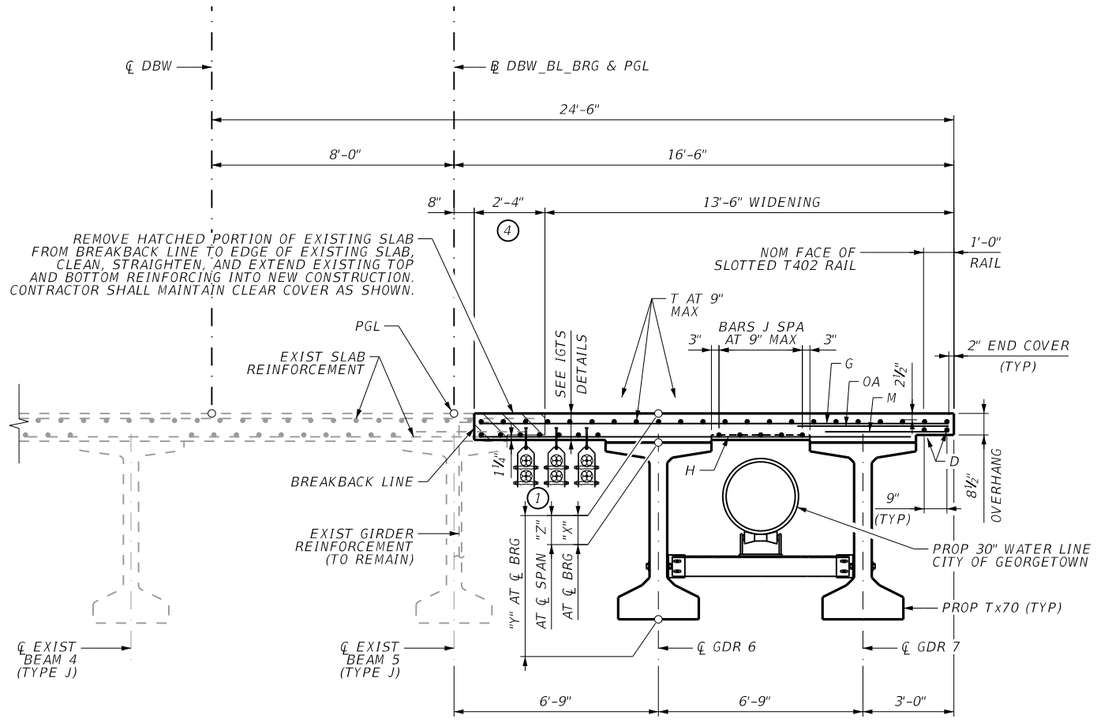
SHEET 1 OF 2 | 342

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TYPICAL TRANSVERSE SECTION

(SHOWING TYPICAL SLAB)



TYPICAL TRANSVERSE SECTION

(SHOWING THICKENED END SLAB)

TABLE OF ESTIMATED QUANTITIES UNIT 2

SPAN NO.	REINFORCED CONCRETE SLAB	PRESTRESSED (2) CONCRETE GIRDERS (Tx70)	TOTAL REINFORCING STEEL (3)
	SF	LF	LB
SPAN 4	1,502	188.74	3,455
SPAN 5	1,944	244.50	4,472
SPAN 6	1,944	244.50	4,472
TOTAL	5,390	677.74	12,399

TABLE OF SECTION DEPTHS

SPAN NO.	GIRDER NO.	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ BRG (1)
4	6-7	11"	6' - 9"	10 3/8"
5	6-7	11 1/2"	6' - 9 1/2"	9 3/4"
6	6	11 1/4"	6' - 9 1/4"	9 3/4"
	7			9 5/8"

DEAD LOAD DEFLECTION TABLES

SPAN NO.	GIRDER NO.	A	B
		FT	FT
4	6	0.019	0.026
	7	0.016	0.023
5	6	0.052	0.073
	7	0.047	0.066
6	6	0.052	0.073
	7	0.047	0.066

BAR TABLE

BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4

GENERAL NOTES:

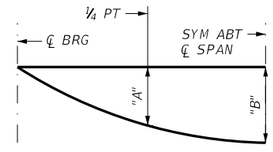
1. ALL EXPANSION JOINTS SHALL BE ARMOR JOINT CONFORMING TO STANDARD AJ, EXCEPT AS MODIFIED ON THIS SHEET.
2. NEW JOINT MODEL AND MANUFACTURER SHALL MATCH EXISTING JOINT IN ORDER TO FACILITATE FIELD SPLICING OF STEEL RAILS AND FOR NEW SEAL COMPATIBILITY WHEN INSERTED INTO BOTH EXISTING AND NEW STEEL RAIL LOCATIONS.
3. WHERE IT IS NOT POSSIBLE TO PROVIDE A SINGLE, CONTINUOUS SEAL, FIELD SPLICE(S) SHALL BE VULCANIZED PER THE JOINT MANUFACTURER'S RECOMMENDATIONS.

(1) THEORETICAL DIMENSION

(2) QUANTITIES SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE. SEE FRAMING PLAN SHEET FOR GIRDER LENGTHS.

(3) FOR CONTRACTOR'S INFORMATION ONLY. REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 2.3 psf.

(4) FIELD BEND EXISTING BOTTOM MAT REINFORCING TO LAY FLAT ABOVE PANEL AND BELOW TOP MAT REINFORCING.



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEFLECTIONS SHOWN ARE DUE TO PCP PANELS AND CONCRETE SLAB. (E= 5,000 KSI) CALCULATED DEFLECTIONS SHOWN ARE THEORETICAL AND ACTUAL DEFLECTIONS MAY BE LESS. ADJUST VALUE AS REQUIRED IF OPTIONAL SLAB FORMING IS USED. THESE VALUES MAY REQUIRE FIELD VERIFICATION.

4/22/2024

STATE OF TEXAS · YAN G. LINWOOD · 131665 · LICENSED PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

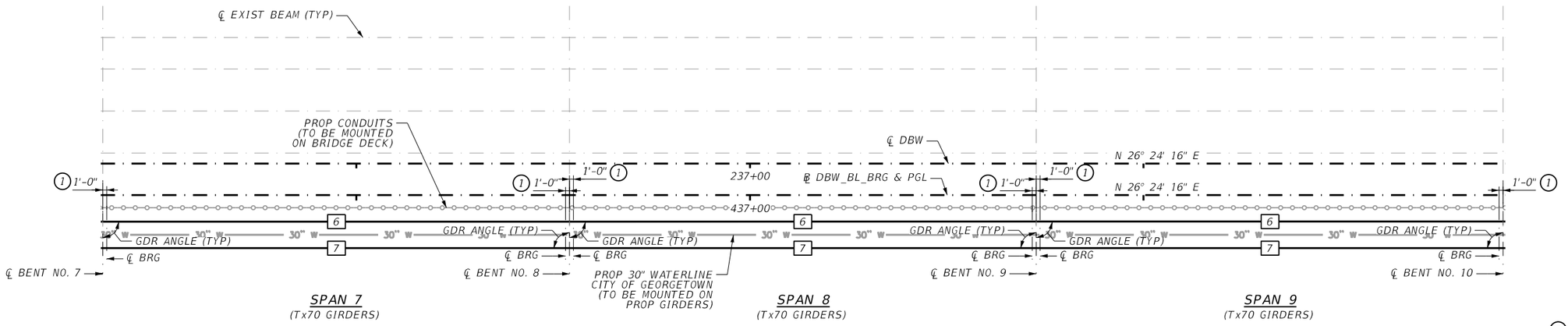
GEORGETOWN TEXAS
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D B WOOD ROAD

340.37' PRESTR CONC I-GIRDER UNIT 2 (SPANS 4-6) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 2 OF 2 | 343

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PLAN

(1) SEE IGEB FOR ORIENTATION OF DIMENSION.

(2) GIRDER LENGTHS SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

[X] GIRDER NUMBER

0' 15' 30'
SCALE: 1" = 30'

BENT REPORT

BENT NO. 7 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 7	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT NO. 8 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 7	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT REPORT

BENT NO. 8 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 8	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT NO. 9 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 8	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT REPORT

BENT NO. 9 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 9	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

BENT NO. 10 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

			GDR SPAC. (C.L. BENT)	GDR ANGLE D M S
SPAN 9	GDR	1	0.000	90 0 0
	GDR	2	6.750	90 0 0
	TOTAL		6.750	

GDR REPORT

GDR REPORT, SPAN 7

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GDR SLOPE
GDR	1	118.580	116.580	118.08	-0.0004
GDR	2	118.580	116.580	118.08	-0.0004

GDR REPORT

GDR REPORT, SPAN 8

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GDR SLOPE
GDR	1	118.590	116.590	118.09	-0.0013
GDR	2	118.590	116.590	118.09	-0.0013

GDR REPORT

GDR REPORT, SPAN 9

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. GDR. FLG. (2)	GDR SLOPE
GDR	1	118.580	116.580	118.08	-0.0012
GDR	2	118.580	116.580	118.08	-0.0012

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER
4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

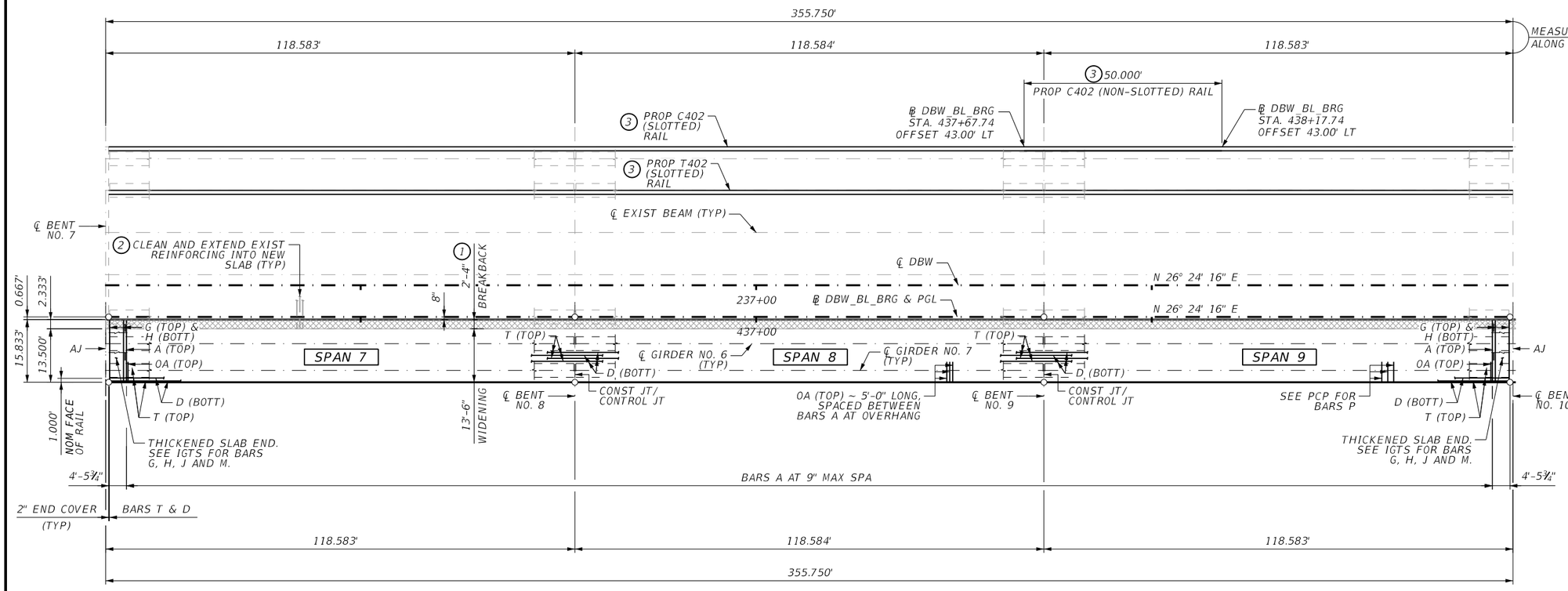
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D B WOOD ROAD

FRAMING PLAN (SPANS 7-9) (UNIT 3) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 1 OF 1 | 344

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PLAN

(PROP RAIL ON BRIDGE WIDENING OMITTED FOR CLARITY)

1. HATCHED AREAS INDICATE PORTIONS OF EXISTING SLAB AND RAILING TO BE REMOVED. SAW CUT A VERTICAL JOINT TO A DEPTH OF 1" AT THE BREAKBACK LINE PRIOR TO REMOVING CONCRETE.

2. CONTRACTOR SHALL NOT DAMAGE EXISTING REINFORCING STEEL, HAUNCH CONCRETE AND SLAB TO REMAIN. EXISTING SLAB REINFORCING SHALL BE CLEANED AND STRAIGHTENED TO LAP A MINIMUM OF 2'-0" WITH NEW REINFORCING STEEL. IF EXISTING BARS ARE DAMAGED DURING SLAB REMOVAL, THEY MAY EITHER BE SPLICED USING MECHANICAL COUPLERS OR REPLACED WITH DOWELS. IF USING DOWELS, ASSESS EACH DAMAGED BAR, AND REPAIR USING THE FOLLOWING INSTRUCTIONS:

   DRILL AND EPOXY A #5 BAR WITH A MINIMUM EMBEDMENT OF 7½".

   HILTI HIT-RE 500 V3 ADHESIVE OR APPROVED EQUAL SHALL BE USED.

3. SEE MODIFIED RETROFIT GUIDE FOR CONCRETE RAILS (C-RAIL-R (MOD)) STANDARD SHEETS FOR RAIL ANCHORAGE IN EXISTING BRIDGE SLAB AND EXISTING APPROACH SLAB FOR T402 AND C402 RAILS.

GENERAL NOTES:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).
2. SEE PRESTRESSED CONCRETE PANELS (PCP) AND PRESTRESSED CONCRETE PANEL FABRICATION DETAILS (PCP-FAB) STANDARD SHEETS FOR PANEL DETAILS NOT SHOWN.
3. SEE THICKENED SLAB END DETAILS (IGTS) STANDARD SHEET FOR THICKENED SLAB END DETAILS AND QUANTITY ADJUSTMENTS.
4. SEE MISCELLANEOUS SLAB DETAILS (IGMS) STANDARD SHEET FOR MISCELLANEOUS DETAILS AND REINFORCEMENT FOR HAUNCH GREATER THAN 3½".
5. SEE TRAFFIC RAIL T402 STANDARD SHEETS FOR RAIL ANCHORAGE IN SLAB.
6. SEE PERMANENT METAL DECK FORMS (PMDF) STANDARD SHEET FOR DETAILS AND QUANTITY ADJUSTMENTS, IF THIS OPTION IS USED.

MATERIAL NOTES:

PROVIDE CLASS "S" CONCRETE (f'c = 4,000 psi).

PROVIDE GRADE 60 REINFORCING STEEL.

PROVIDE BAR LAPS, WHERE REQUIRED, AS FOLLOWS:

UNCOATED ~ #4 = 1'-7"

DEFORMED WELDED WIRE REINFORCEMENT (WWR) (ASTM A1064) OF EQUAL SIZE AND SPACING MAY BE SUBSTITUTED FOR BARS A, D, OA, P OR T, UNLESS NOTED OTHERWISE. PROVIDE THE SAME LAPS AS REQUIRED FOR REINFORCING BARS.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE

STATE OF TEXAS
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131665
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PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

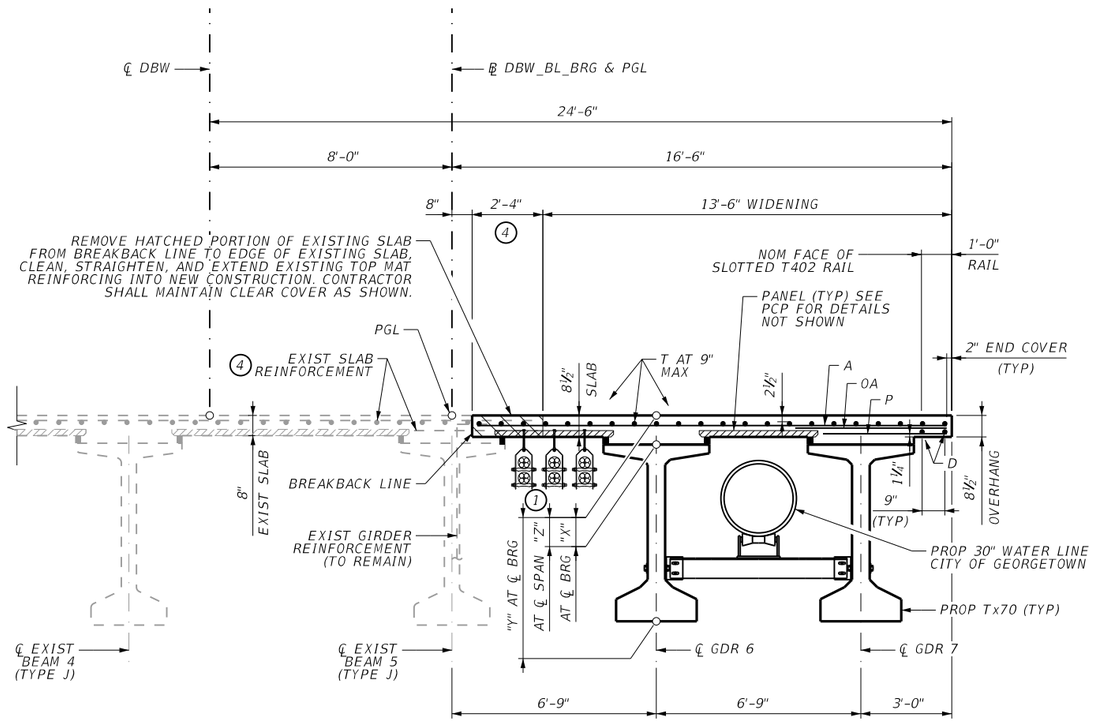
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D B WOOD ROAD

355.75' PRESTR CONC I-GIRDER UNIT 3 (SPANS 7-9)
SAN GABRIEL RIVER BRIDGE (NORTH FORK)

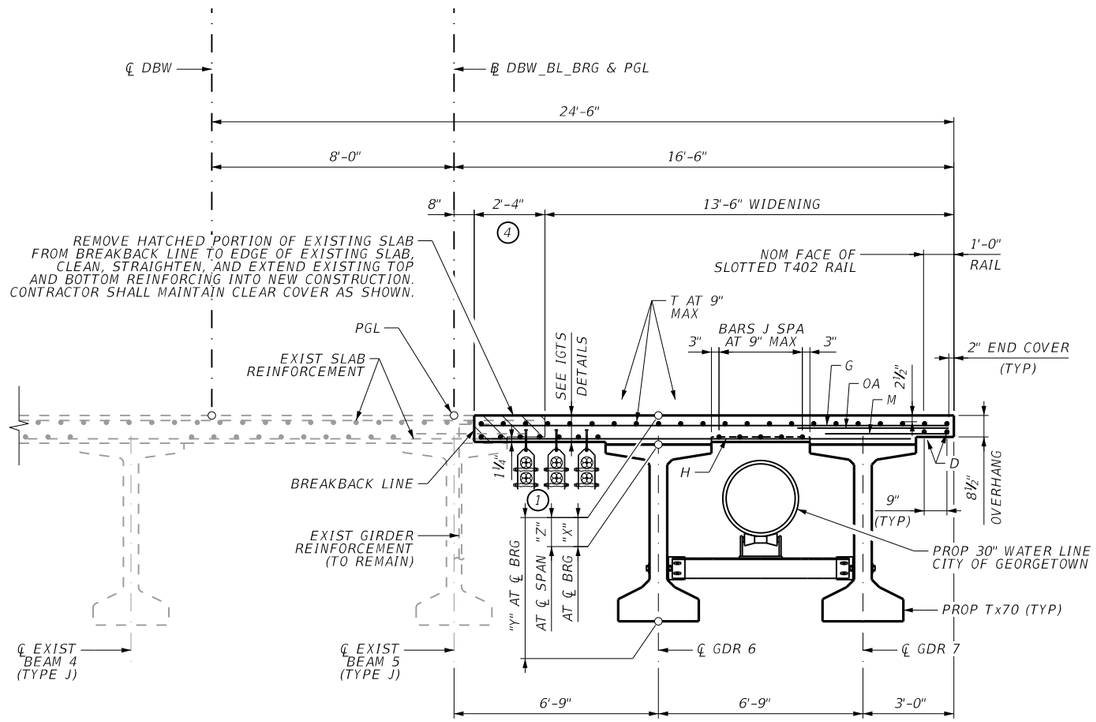
SHEET 1 OF 2 | 345

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TYPICAL TRANSVERSE SECTION

(SHOWING TYPICAL SLAB)



TYPICAL TRANSVERSE SECTION

(SHOWING THICKENED END SLAB)

TABLE OF ESTIMATED QUANTITIES UNIT 3

SPAN NO.	REINFORCED CONCRETE SLAB	PRESTRESSED (2) CONCRETE GIRDERS (Tx70)	TOTAL REINFORCING STEEL (3)
	SF	LF	LB
SPAN 7	1,878	236.16	4,320
SPAN 8	1,878	236.18	4,320
SPAN 9	1,878	236.16	4,320
TOTAL	5,634	708.50	12,960

TABLE OF SECTION DEPTHS

SPAN NO.	GIRDER NO.	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ BRG (1)
7	6-7	11"	6' - 9"	9 7/8"
8	6-7	11"	6' - 9"	10 3/8"
9	6-7	11"	6' - 9"	9 7/8"

DEAD LOAD DEFLECTION TABLES

SPAN NO.	GIRDER NO.	A FT	B FT
7	6	0.045	0.063
	7	0.041	0.057
8	6	0.045	0.063
	7	0.041	0.057
9	6	0.045	0.063
	7	0.041	0.057

BAR TABLE

BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4

GENERAL NOTES:

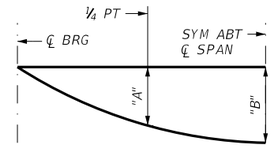
1. ALL EXPANSION JOINTS SHALL BE ARMOR JOINT CONFORMING TO STANDARD AJ, EXCEPT AS MODIFIED ON THIS SHEET.
2. NEW JOINT MODEL AND MANUFACTURER SHALL MATCH EXISTING JOINT IN ORDER TO FACILITATE FIELD SPLICING OF STEEL RAILS AND FOR NEW SEAL COMPATIBILITY WHEN INSERTED INTO BOTH EXISTING AND NEW STEEL RAIL LOCATIONS.
3. WHERE IT IS NOT POSSIBLE TO PROVIDE A SINGLE, CONTINUOUS SEAL, FIELD SPLICE(S) SHALL BE VULCANIZED PER THE JOINT MANUFACTURER'S RECOMMENDATIONS.

(1) THEORETICAL DIMENSION

(2) QUANTITIES SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE. SEE FRAMING PLAN SHEET FOR GIRDER LENGTHS.

(3) FOR CONTRACTOR'S INFORMATION ONLY. REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 2.3 psf.

(4) FIELD BEND EXISTING BOTTOM MAT REINFORCING TO LAY FLAT ABOVE PANEL AND BELOW TOP MAT REINFORCING.



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEFLECTIONS SHOWN ARE DUE TO PCP PANELS AND CONCRETE SLAB. (E= 5,000 KSI) CALCULATED DEFLECTIONS SHOWN ARE THEORETICAL AND ACTUAL DEFLECTIONS MAY BE LESS. ADJUST VALUE AS REQUIRED IF OPTIONAL SLAB FORMING IS USED. THESE VALUES MAY REQUIRE FIELD VERIFICATION.

4/22/2024

STATE OF TEXAS · YAN G. LINWOOD · 131665 · LICENSED PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

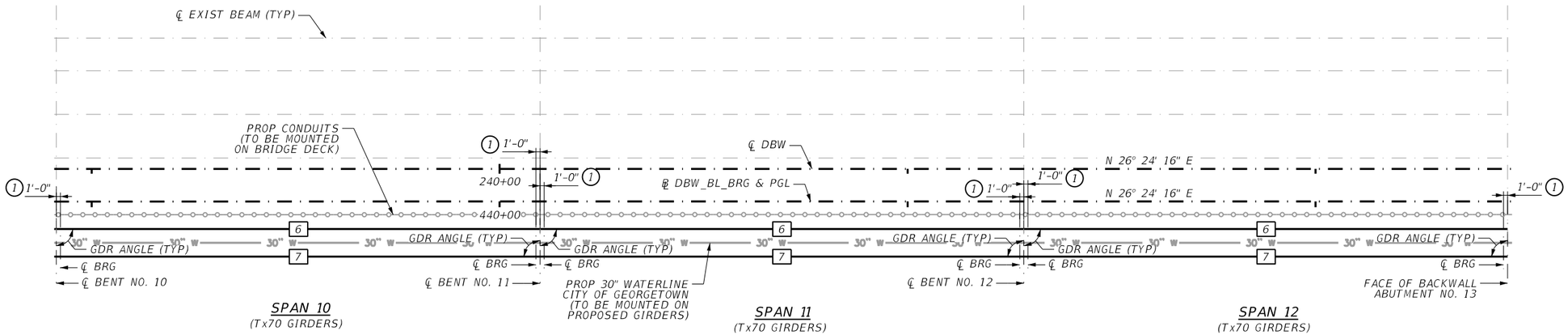
GEORGETOWN TEXAS
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D B WOOD ROAD

355.75' PRESTR CONC I-GIRDER UNIT 3 (SPANS 7-9) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 2 OF 2 | 346

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PLAN

(1) SEE IGEB FOR ORIENTATION OF DIMENSION.

(2) GIRDER LENGTHS SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

[X] GIRDER NUMBER

0' 15' 30'
SCALE: 1" = 30'

BENT REPORT

BENT NO. 10 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

		GDR	SPAC. (C.L. BENT)	ANGLE D	M	S
SPAN 10	GDR	1	0.000	90	0	0
	GDR	2	6.750	90	0	0
	TOTAL		6.750			

BENT NO. 11 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

		GDR	SPAC. (C.L. BENT)	ANGLE D	M	S
SPAN 10	GDR	1	0.000	90	0	0
	GDR	2	6.750	90	0	0
	TOTAL		6.750			

GIRDER REPORT

GDR REPORT, SPAN 10

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. BM. FLG.	GDR SLOPE
GDR	1	118.580	116.580	118.08	-0.0010
GDR	2	118.580	116.580	118.08	-0.0010

BENT REPORT

BENT NO. 11 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

		GDR	SPAC. (C.L. BENT)	ANGLE D	M	S
SPAN 11	GDR	1	0.000	90	0	0
	GDR	2	6.750	90	0	0
	TOTAL		6.750			

BENT NO. 12 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

		GDR	SPAC. (C.L. BENT)	ANGLE D	M	S
SPAN 11	GDR	1	0.000	90	0	0
	GDR	2	6.750	90	0	0
	TOTAL		6.750			

GIRDER REPORT

GDR REPORT, SPAN 11

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. BM. FLG.	GDR SLOPE
GDR	1	118.590	116.590	118.09	-0.0012
GDR	2	118.590	116.590	118.09	-0.0012

BENT REPORT

BENT NO. 12 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

		GDR	SPAC. (C.L. BENT)	ANGLE D	M	S
SPAN 12	GDR	1	0.000	90	0	0
	GDR	2	6.750	90	0	0
	TOTAL		6.750			

ABUT NO. 13 (N 63 35 43.85 W)
DISTANCE BETWEEN STATION LINE AND GDR 1, 6.750 R

		GDR	SPAC. (C.L. BENT)	ANGLE D	M	S
SPAN 12	GDR	1	0.000	90	0	0
	GDR	2	6.750	90	0	0
	TOTAL		6.750			

GIRDER REPORT

GDR REPORT, SPAN 12

		HORIZONTAL DISTANCE C-C BENT	C-C BRG.	TRUE DISTANCE BOT. BM. FLG.	GDR SLOPE
GDR	1	118.580	116.580	118.08	-0.0013
GDR	2	118.580	116.580	118.08	-0.0013

STATE OF TEXAS
YAN G. LINWOOD
131665
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

Kimley»Horn F-928

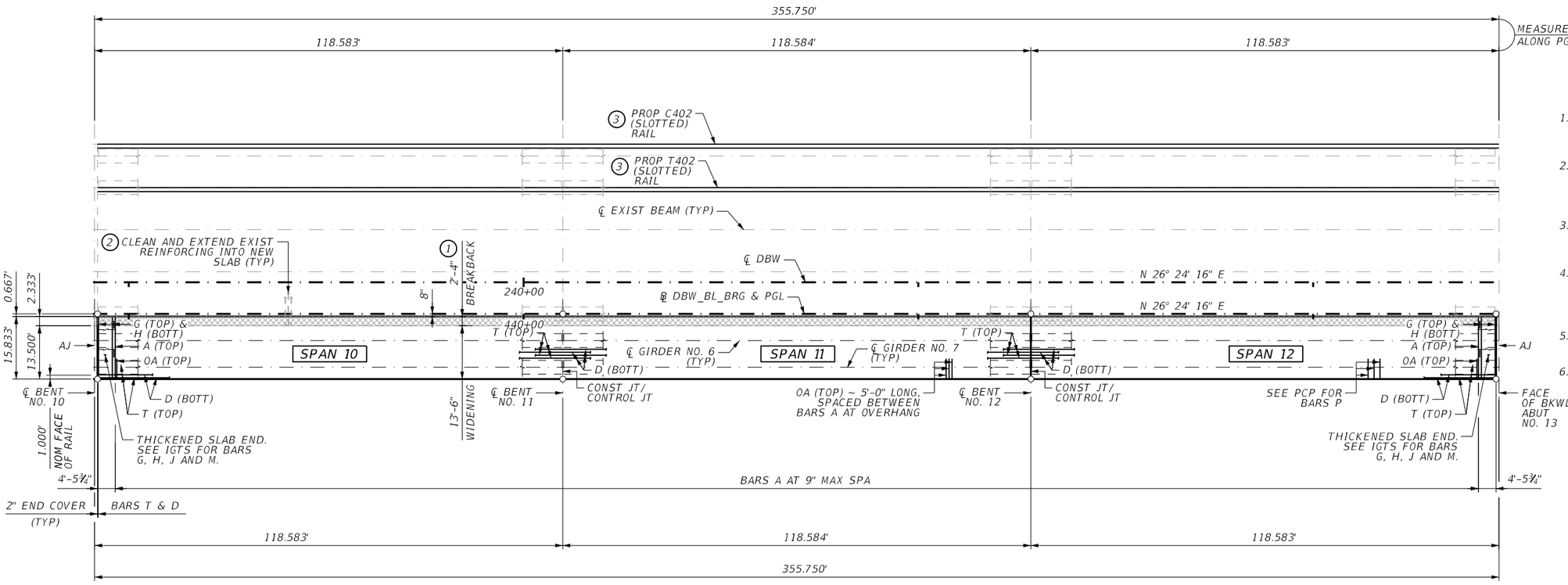
GEORGETOWN TEXAS
more than welcome

D B WOOD ROAD

FRAMING PLAN (SPANS 10-12) (UNIT 4) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 1 OF 1 | 347

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PLAN

(PROP RAIL ON BRIDGE WIDENING OMITTED FOR CLARITY)

1. HATCHED AREAS INDICATE PORTIONS OF EXISTING SLAB AND RAILING TO BE REMOVED. SAW CUT A VERTICAL JOINT TO A DEPTH OF 1" AT THE BREAKBACK LINE PRIOR TO REMOVING CONCRETE.

2. CONTRACTOR SHALL NOT DAMAGE EXISTING REINFORCING STEEL, HAUNCH CONCRETE AND SLAB TO REMAIN. EXISTING SLAB REINFORCING SHALL BE CLEANED AND STRAIGHTENED TO LAP A MINIMUM OF 2'-0" WITH NEW REINFORCING STEEL. IF EXISTING BARS ARE DAMAGED DURING SLAB REMOVAL, THEY MAY EITHER BE SPLICED USING MECHANICAL COUPLERS OR REPLACED WITH DOWELS. IF USING DOWELS, ASSESS EACH DAMAGED BAR, AND REPAIR USING THE FOLLOWING INSTRUCTIONS:

   DRILL AND EPOXY A #5 BAR WITH A MINIMUM EMBEDMENT OF 7½".

   HILTI HIT-RE 500 V3 ADHESIVE OR APPROVED EQUAL SHALL BE USED.

3. SEE MODIFIED RETROFIT GUIDE FOR CONCRETE RAILS (C-RAIL-R (MOD)) STANDARD SHEETS FOR RAIL ANCHORAGE IN EXISTING BRIDGE SLAB AND EXISTING APPROACH SLAB FOR T402 AND C402 RAILS.

GENERAL NOTES:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TxDOT BRIDGE DESIGN MANUAL (JAN. 2023).
2. SEE PRESTRESSED CONCRETE PANELS (PCP) AND PRESTRESSED CONCRETE PANEL FABRICATION DETAILS (PCP-FAB) STANDARD SHEETS FOR PANEL DETAILS NOT SHOWN.
3. SEE THICKENED SLAB END DETAILS (IGTS) STANDARD SHEET FOR THICKENED SLAB END DETAILS AND QUANTITY ADJUSTMENTS.
4. SEE MISCELLANEOUS SLAB DETAILS (IGMS) STANDARD SHEET FOR MISCELLANEOUS DETAILS AND REINFORCEMENT FOR HAUNCH GREATER THAN 3½".
5. SEE TRAFFIC RAIL T402 STANDARD SHEETS FOR RAIL ANCHORAGE IN SLAB.
6. SEE PERMANENT METAL DECK FORMS (PMDF) STANDARD SHEET FOR DETAILS AND QUANTITY ADJUSTMENTS, IF THIS OPTION IS USED.

MATERIAL NOTES:

PROVIDE CLASS "S" CONCRETE (f'_c = 4,000 psi).

PROVIDE GRADE 60 REINFORCING STEEL.

PROVIDE BAR LAPS, WHERE REQUIRED, AS FOLLOWS:

UNCOATED ~ #4 = 1'-7"

DEFORMED WELDED WIRE REINFORCEMENT (WWR) (ASTM A1064) OF EQUAL SIZE AND SPACING MAY BE SUBSTITUTED FOR BARS A, D, OA, P OR T, UNLESS NOTED OTHERWISE. PROVIDE THE SAME LAPS AS REQUIRED FOR REINFORCING BARS.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE

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HL93 LOADING (WIDENING)

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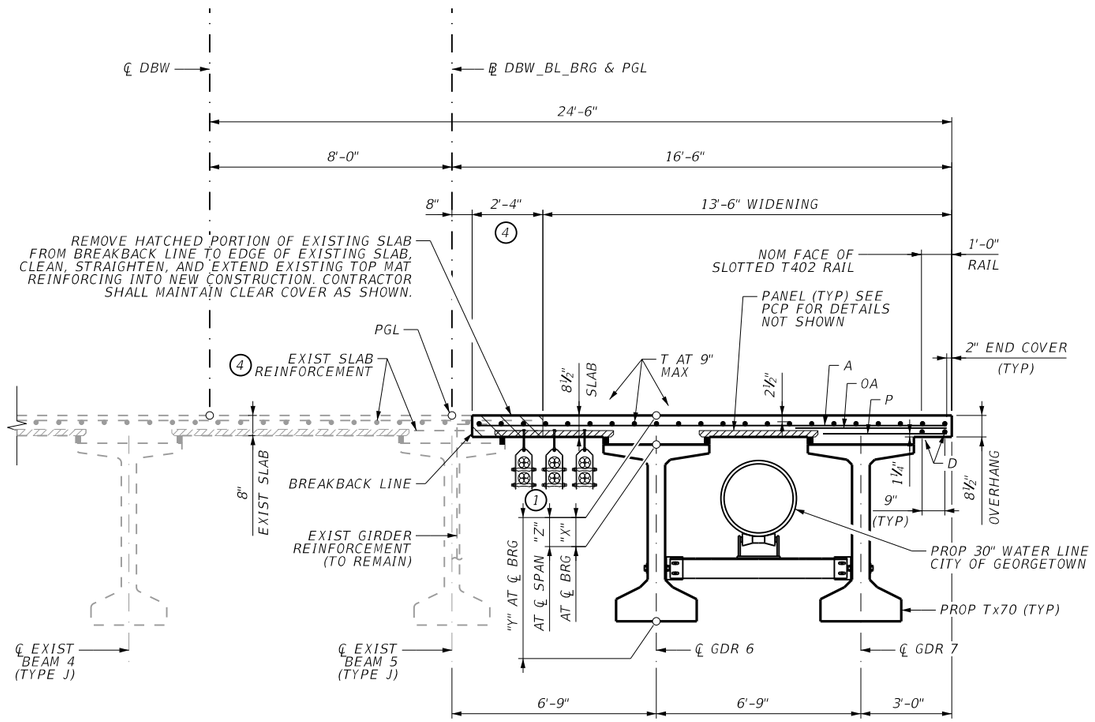
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D B WOOD ROAD

355.75' PRESTR CONC I-GIRDER UNIT 4 (SPANS 10-12)
SAN GABRIEL RIVER BRIDGE (NORTH FORK)

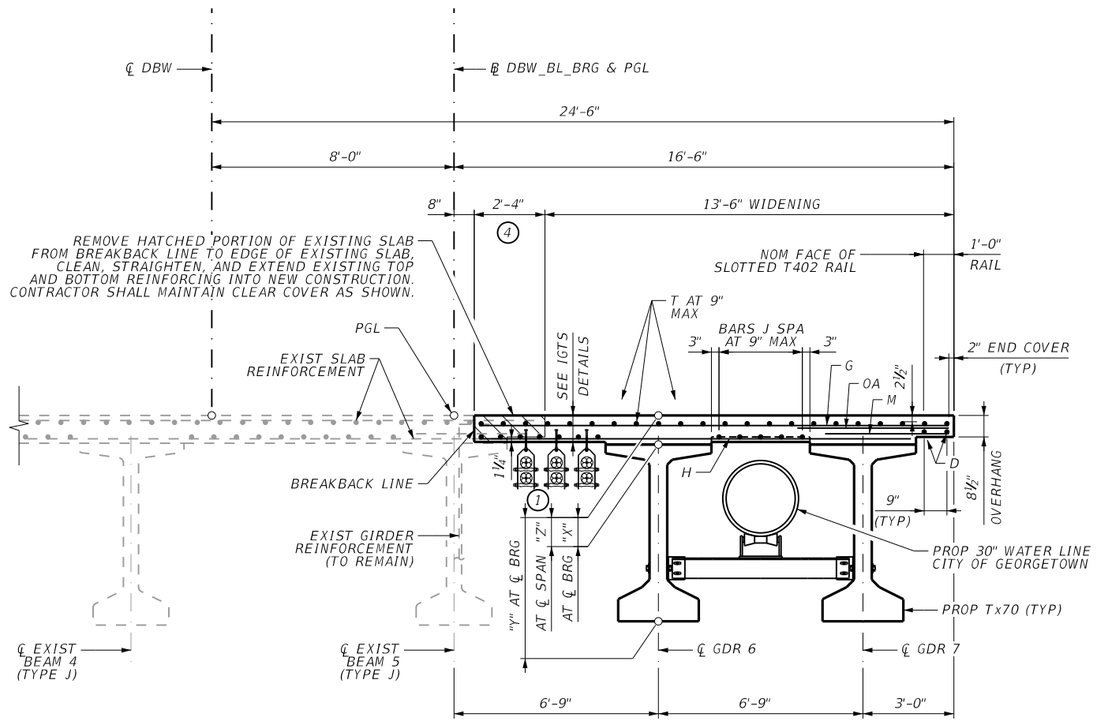
SHEET 1 OF 2 | 348

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TYPICAL TRANSVERSE SECTION

(SHOWING TYPICAL SLAB)



TYPICAL TRANSVERSE SECTION

(SHOWING THICKENED END SLAB)

TABLE OF ESTIMATED QUANTITIES UNIT 4

SPAN NO.	REINFORCED CONCRETE SLAB	PRESTRESSED (2) CONCRETE GIRDERS (Tx70)	TOTAL REINFORCING STEEL (3)
	SF	LF	LB
SPAN 10	1,878	236.16	4,320
SPAN 11	1,878	236.18	4,320
SPAN 12	1,878	236.16	4,320
TOTAL	5,634	708.50	12,960

TABLE OF SECTION DEPTHS

SPAN NO.	GIRDER NO.	"X" AT ℄ BRG	"Y" AT ℄ BRG	"Z" AT ℄ BRG (1)
10	6-7	11"	6' - 9"	9 5/8"
11	6-7	11 1/4"	6' - 9 1/4"	9 5/8"
12	6-7	11"	6' - 9"	9 3/4"

DEAD LOAD DEFLECTION TABLES

SPAN NO.	GIRDER NO.	A	B
		FT	FT
10	6	0.045	0.063
	7	0.041	0.057
11	6	0.045	0.063
	7	0.041	0.057
12	6	0.045	0.063
	7	0.041	0.057

BAR TABLE

BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4

GENERAL NOTES:

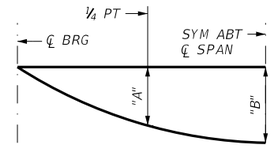
1. ALL EXPANSION JOINTS SHALL BE ARMOR JOINT CONFORMING TO STANDARD AJ, EXCEPT AS MODIFIED ON THIS SHEET.
2. NEW JOINT MODEL AND MANUFACTURER SHALL MATCH EXISTING JOINT IN ORDER TO FACILITATE FIELD SPLICING OF STEEL RAILS AND FOR NEW SEAL COMPATIBILITY WHEN INSERTED INTO BOTH EXISTING AND NEW STEEL RAIL LOCATIONS.
3. WHERE IT IS NOT POSSIBLE TO PROVIDE A SINGLE, CONTINUOUS SEAL, FIELD SPLICE(S) SHALL BE VULCANIZED PER THE JOINT MANUFACTURER'S RECOMMENDATIONS.

(1) THEORETICAL DIMENSION

(2) QUANTITIES SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE. SEE FRAMING PLAN SHEET FOR GIRDER LENGTHS.

(3) FOR CONTRACTOR'S INFORMATION ONLY. REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 2.3 psf.

(4) FIELD BEND EXISTING BOTTOM MAT REINFORCING TO LAY FLAT ABOVE PANEL AND BELOW TOP MAT REINFORCING.



DEAD LOAD DEFLECTION DIAGRAM

NOTE: DEFLECTIONS SHOWN ARE DUE TO PCP PANELS AND CONCRETE SLAB. (E= 5,000 KSI) CALCULATED DEFLECTIONS SHOWN ARE THEORETICAL AND ACTUAL DEFLECTIONS MAY BE LESS. ADJUST VALUE AS REQUIRED IF OPTIONAL SLAB FORMING IS USED. THESE VALUES MAY REQUIRE FIELD VERIFICATION.

4/22/2024

STATE OF TEXAS · YAN G. LINWOOD · 131665 · LICENSED PROFESSIONAL ENGINEER

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

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D B WOOD ROAD

355.75' PRESTR CONC I-GIRDER UNIT 4 (SPANS 10-12) SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 2 OF 2 | 349

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STRUCTURE	DESIGNED GIRDERS									DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN					LOAD RATING FACTORS				
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS						NO.	TO END (in)	RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR (2)		STRENGTH I		SERVICE III
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ℄ (in)	"e" END (in)								Moment	Shear	Inv	Opr	Inv
SAN GABRIEL RIVER BRIDGE (NORTH FORK)	1	6-7	Tx70		16	0.6	270	29.16	29.16	-	-	4.000	5.000	1.509	-1.534	5107	0.648	0.725	1.51	1.96	1.83
	2, 5-6	6-7	Tx70		34	0.6	270	27.89	17.65	6	64.5	4.000	5.900	3.372	-3.260	9235	0.579	0.725	1.68	2.18	1.01
	3-4	6-7	Tx70		18	0.6	270	28.97	28.97	-	-	4.000	5.000	2.048	-2.040	6007	0.621	0.725	1.18	1.52	1.10
	7-12	6-7	Tx70		32	0.6	270	28.04	19.79	6	50.5	4.000	5.000	3.159	-3.054	8721	0.585	0.725	1.68	2.18	1.05

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER

(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

Tension = $0.24\sqrt{f'ci}$

Optional designs must likewise conform.

(2) Portion of full HL93.

DESIGN NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications. Load rated using Load and Resistance Factor Rating according to AASHTO Manual for Bridge Evaluation.

Optional designs for girders 120 feet or longer must have a calculated residual camber equal to or greater than that of the designed girder.

Prestress losses for the designed girders have been calculated for a relative humidity of 60 percent. Optional designs must likewise conform.

FABRICATION NOTES:

Provide Class H concrete.

Provide Grade 60 reinforcing steel bars.

Use low relaxation strands, each pretensioned to 75 percent of fpu.

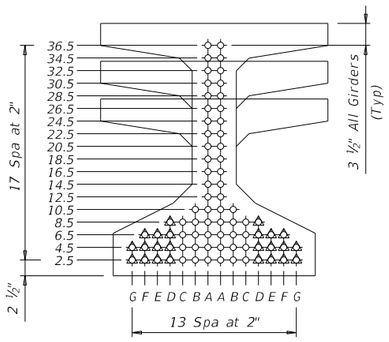
Strand debonding must comply with Item 424.4.2.2.2.4. Full-length debonded strands are only permitted in positions marked △. Double wrap full-length debonded strands in outer most position of each row.

When shown on this sheet, the Fabricator has the option of furnishing either the designed girder or an approved optional design. All optional design submittals must be signed, sealed and dated by a Professional Engineer registered in the State of Texas.

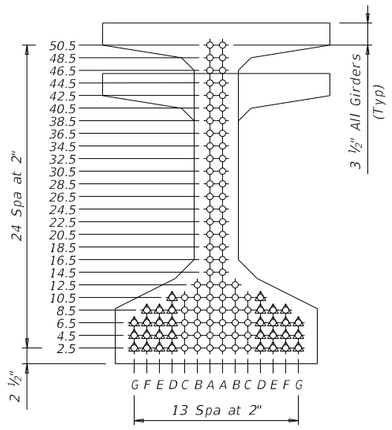
Seal cracks in girder ends exceeding 0.005" in width as directed by the Engineer. The fabricator is permitted to decrease the spacing of Bars R and S by providing additional bars to help limit crack width provided the decreased spacing results in no less than 1" clear between bars. The fabricator must take an approved corrective action if cracks greater than 0.005" form on a repetitive basis.

DEPRESSED STRAND DESIGNS:

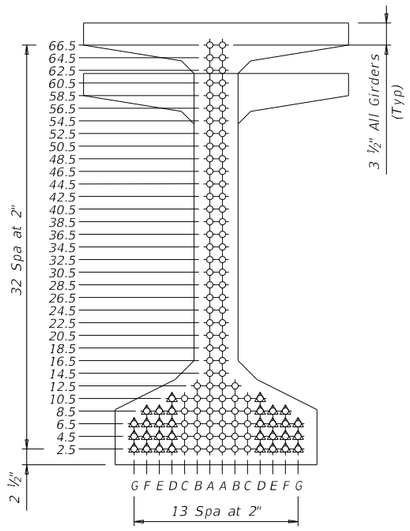
Locate strands for the designed girder as low as possible on the 2" grid system unless a non-standard strand pattern is indicated. Fill row "2.5", then row "4.5", then row "6.5", etc., beginning each row in the "A" position and working outward until the required number of strands is reached. All strands in the "A" position must be depressed, maintaining the 2" spacing so that, at the girder ends, the upper two strands are in the position shown in the table.



TYPE Tx28, Tx34 & Tx40



TYPE Tx46 & Tx54



TYPE Tx62 & Tx70

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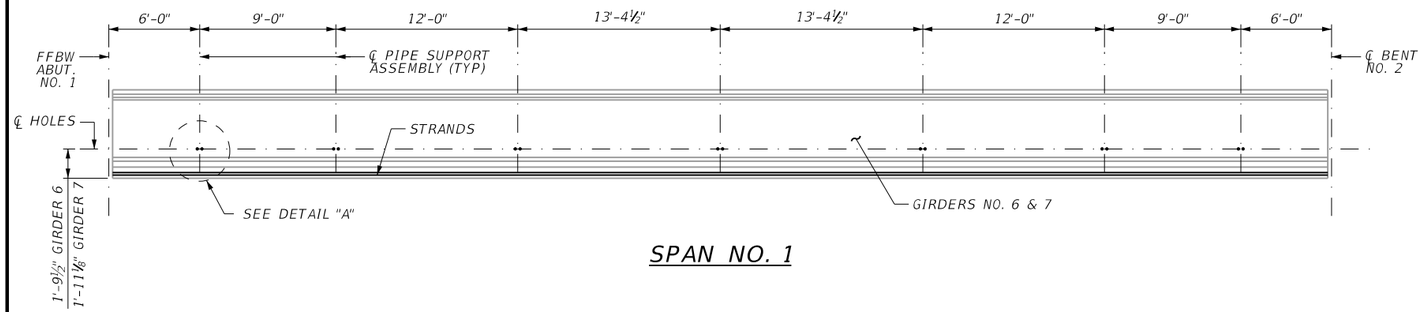
HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

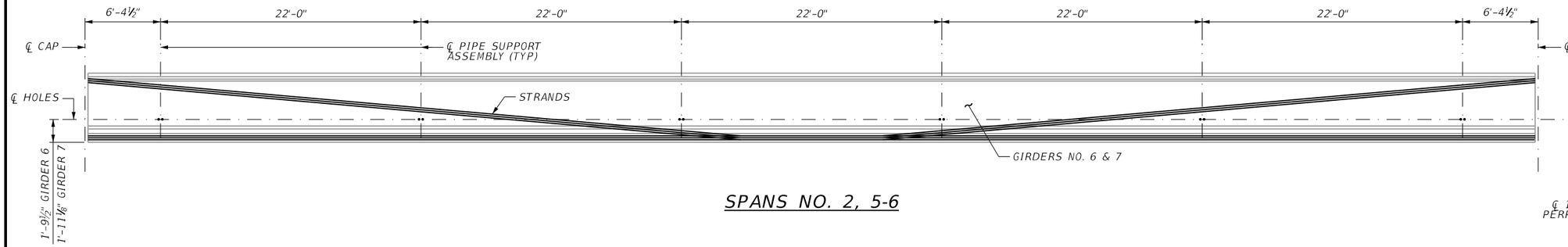
PRESTRESSED CONCRETE I-GIRDER DESIGNS (NON-STANDARD SPANS)

SHEET 1 OF 1 IGND

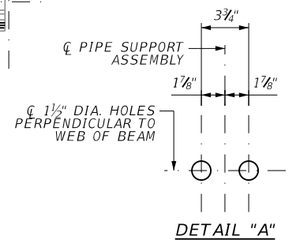
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REVISIONS				
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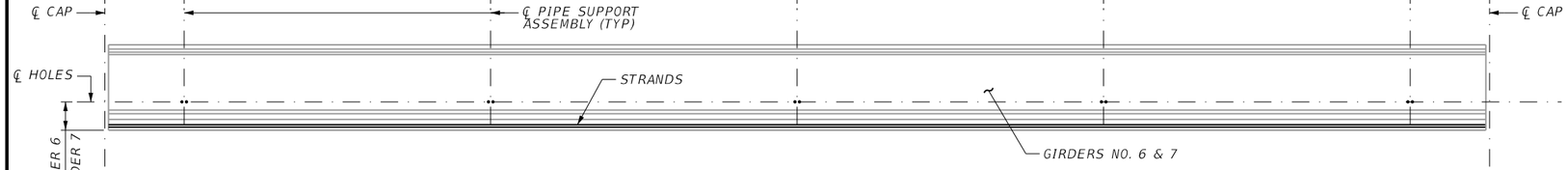
SPAN NO. 1



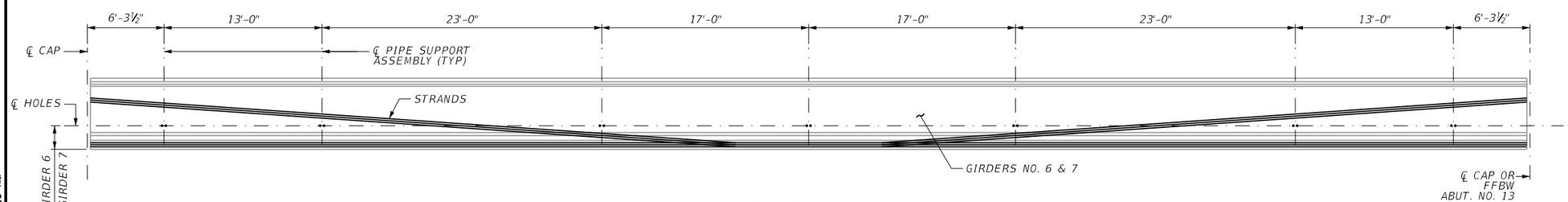
SPANS NO. 2, 5-6



DETAIL "A"



SPANS NO. 3-4



SPANS NO. 7-12

GENERAL NOTES:

1. FOR DETAILS NOT SHOWN SEE PIPE SUPPORT DETAILS SHEET 2 OF 2

YAN G. LINWOOD
131665
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STATE OF TEXAS

4/22/2024

HS20 LOADING (EXISTING)
HL93 LOADING (WIDENING)

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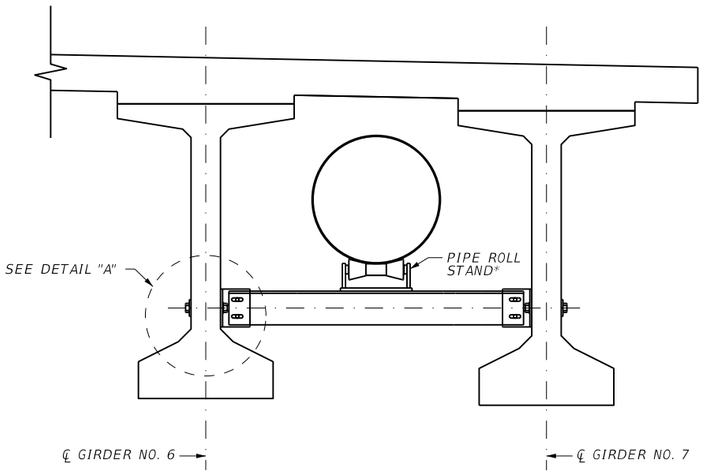
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D B WOOD ROAD

PIPE SUPPORT DETAILS SAN GABRIEL RIVER BRIDGE (NORTH FORK)

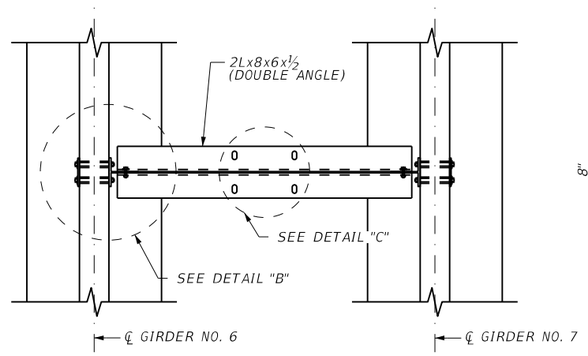
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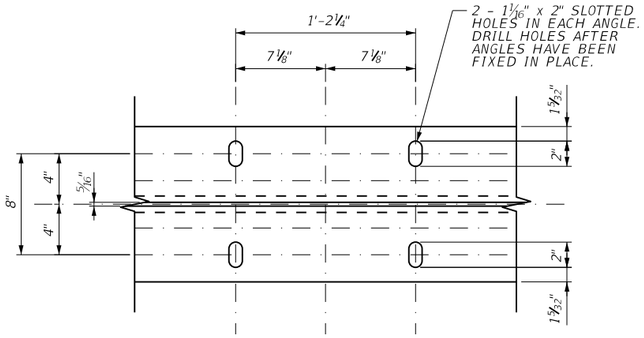


ELEVATION OF PIPE SUPPORT

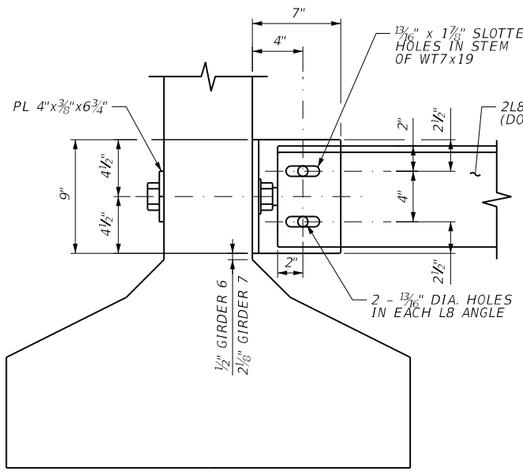
* GRINNEL PIPE ROLL FOR 30" PIPE SIZE OR EQUIVALENT. CONTRACTOR MAY USE ADJUSTABLE PIPE ROLL STAND WHERE APPROVED BY THE ENGINEER.



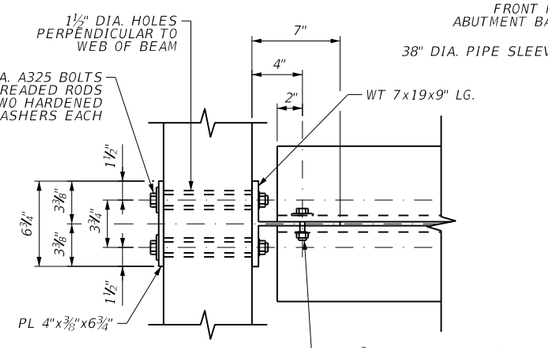
PIPE SUPPORT FRAMING PLAN



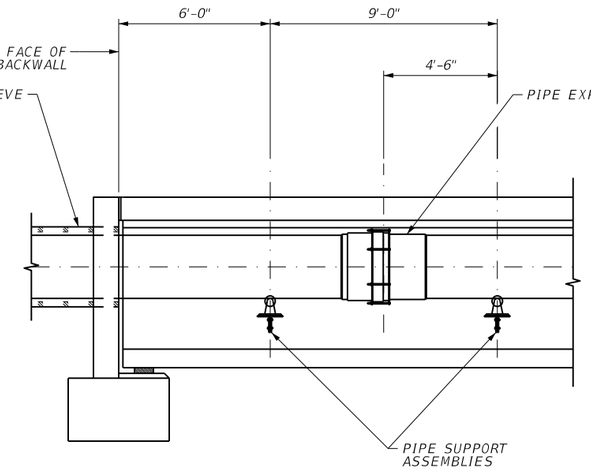
DETAIL "C"



DETAIL "A"



DETAIL "B"



PIPE EXPANSION JOINT DETAIL

ABUTMENT 1 SHOWN
(ABUTMENT 13 MIRRORED)

GENERAL NOTES:

1. AT THE CONTRACTOR'S OPTION, IT IS RECOMMENDED TO INSTALL PIPE SUPPORT ASSEMBLIES ON GIRDERS PRIOR TO ERECTION.
2. ALL STEEL FOR PIPE SUPPORT MUST MEET THE REQUIREMENTS OF ASTM A709 GR 50.
3. ALL STEEL SHALL BE GALVANIZED. GALVANIZING MUST MEET THE REQUIREMENTS OF ITEM 445.
4. PIPE ROLLER SUPPORTS ARE SUBSIDIARY TO 30" DIA WATERLINE.
5. SUBMIT COMPLETE SHOP DRAWINGS OF ALL PIPING, PIPE SUPPORTS, PIPE EXPANSION JOINTS, AND CONNECTIONS PRIOR TO FABRICATION.
6. PAYMENT FOR PIPE SUPPORT MUST BE BY THE POUND OF "STRUCTURAL STEEL (MISC NON-BRIDGE)" AS PER ITEM 442, "METAL FOR STRUCTURES".
7. ESTIMATED WEIGHT OF ONE PIPE SUPPORT IS 230 LBS.

(1) SEE UTILITY PLANS FOR PIPE EXPANSION JOINT DETAILS.

4/22/2024

STATE OF TEXAS
YAN G. LINWOOD
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HS20 LOADING (EXISTING)
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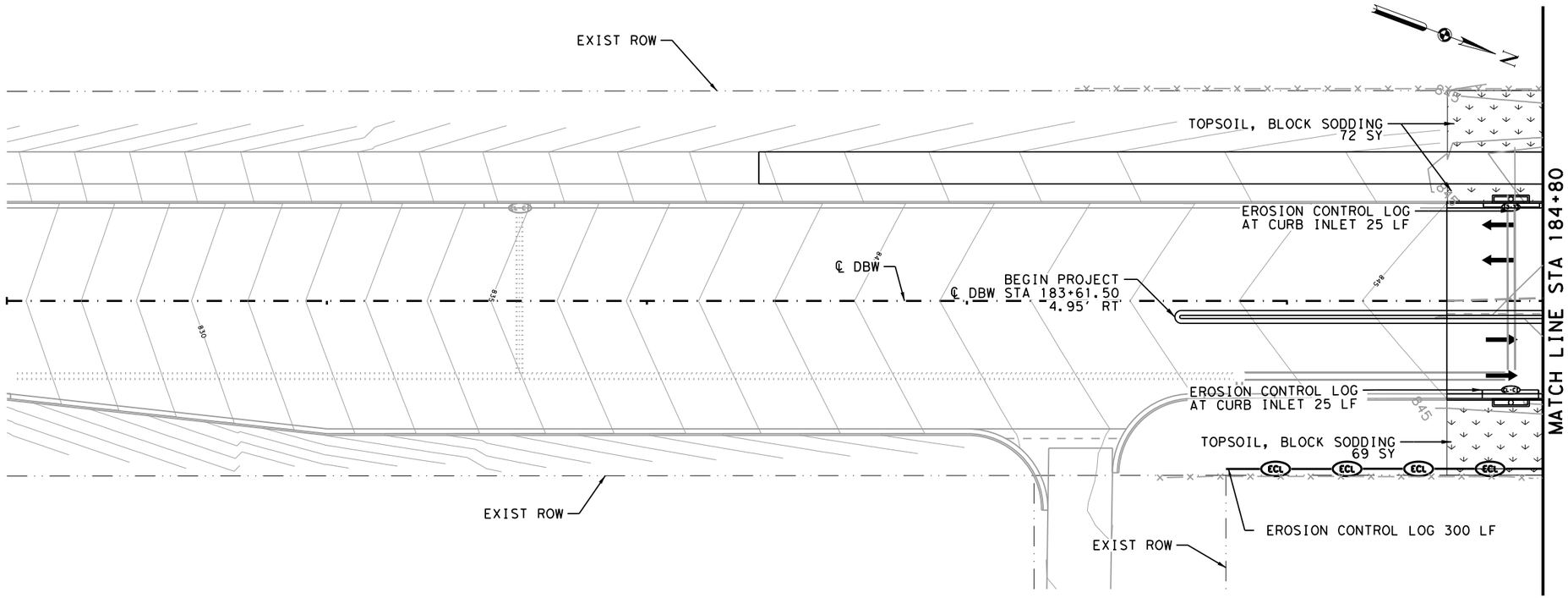
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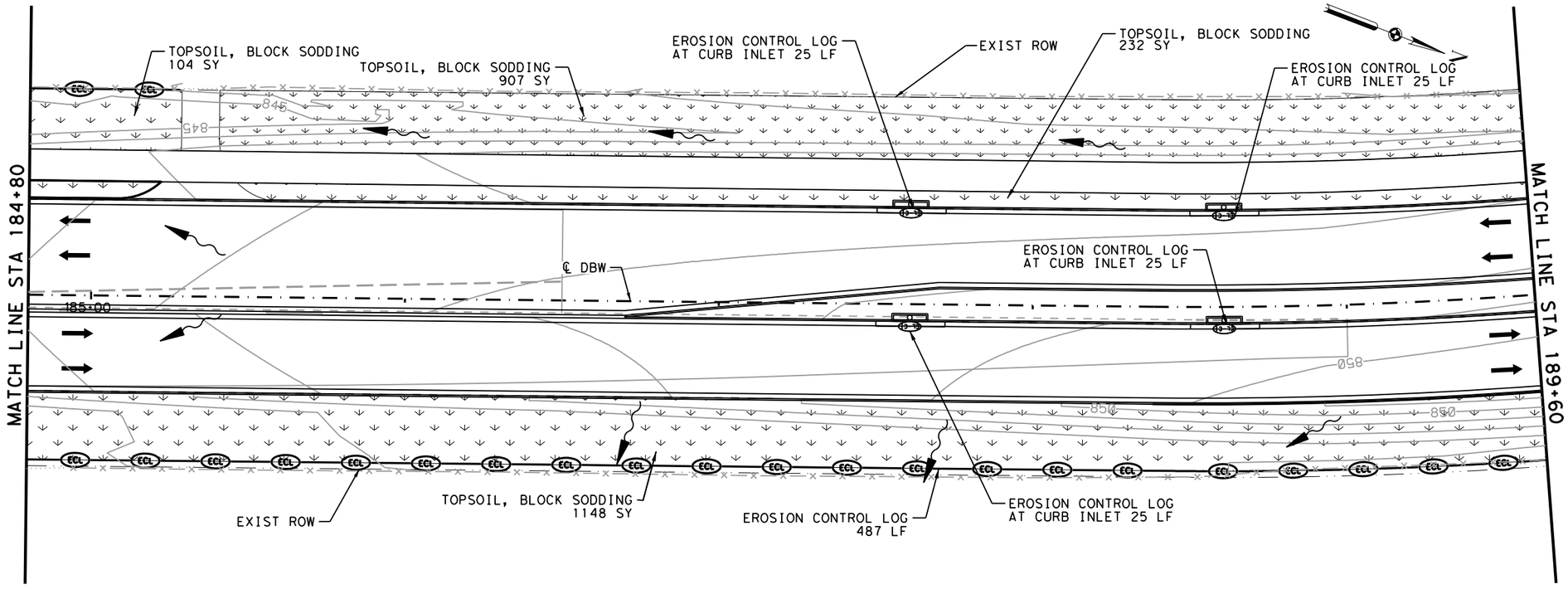
D B WOOD ROAD

PIPE SUPPORT DETAILS SAN GABRIEL RIVER BRIDGE (NORTH FORK)

SHEET 2 OF 2 | 352

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
- EXIST ROW
- EXIST ESMT

NOTES:

1. TOPSOIL DEPTH SHALL BE 4" MIN

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/22/2024

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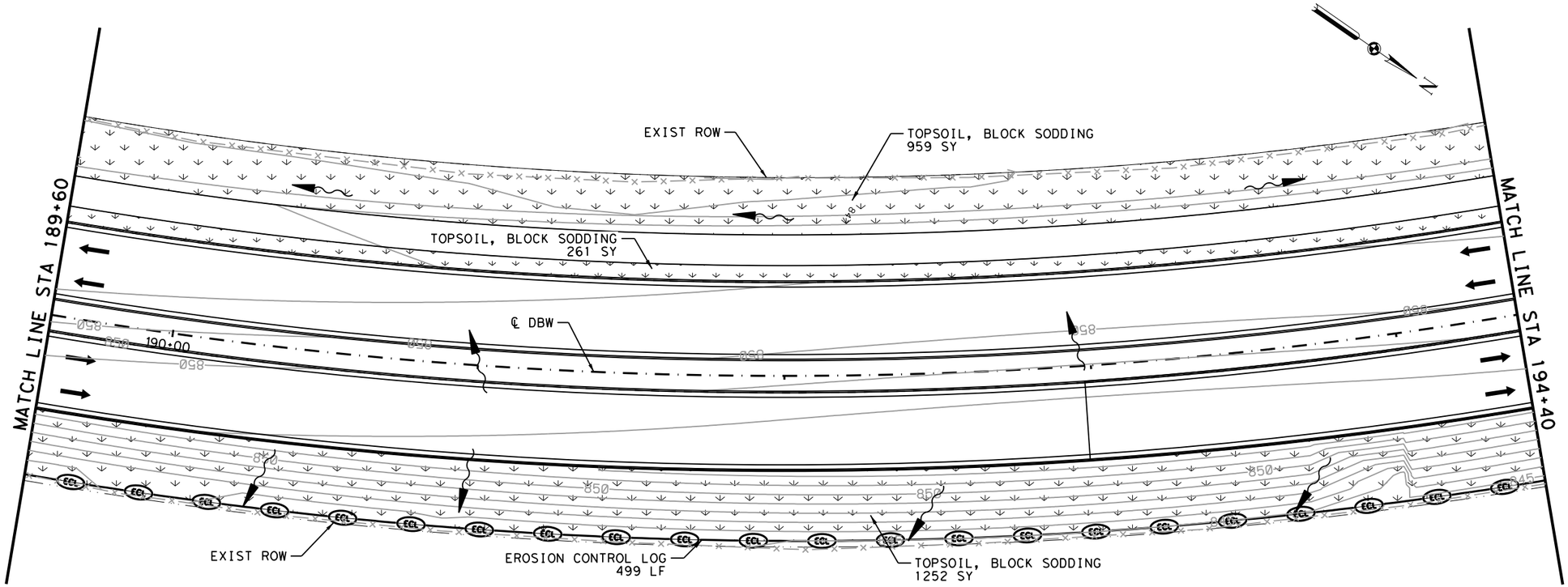
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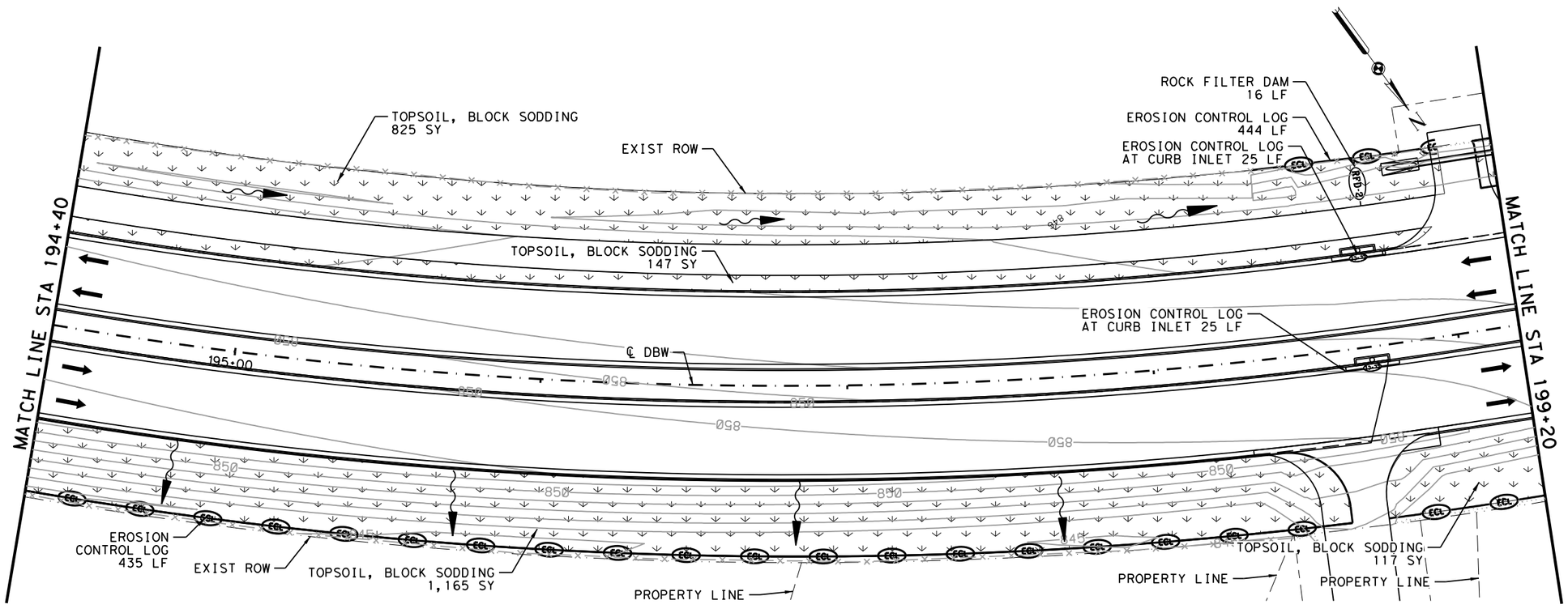
EROSION CONTROL PLAN

BEGIN PROJET TO STA 189+60

SHEET 1 OF 13 | 457

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
- EXIST ROW
- EXIST ESMT

NOTES:

1. TOPSOIL DEPTH SHALL BE 4" MIN

0' 20' 40'

STATE OF TEXAS
MALIA S. CALDWELL
147577
LICENSED
PROFESSIONAL ENGINEER

Malia Caldwell
4/22/2024

Kimley»Horn F-928

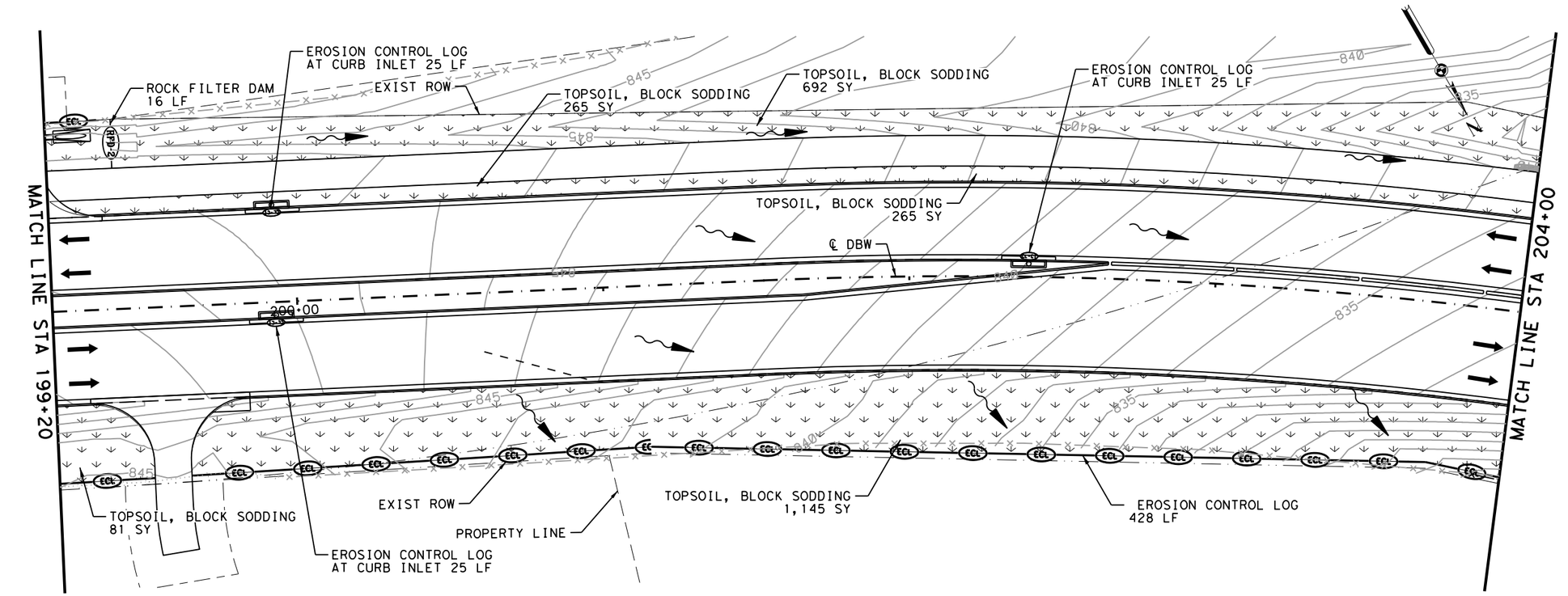
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more than welcome

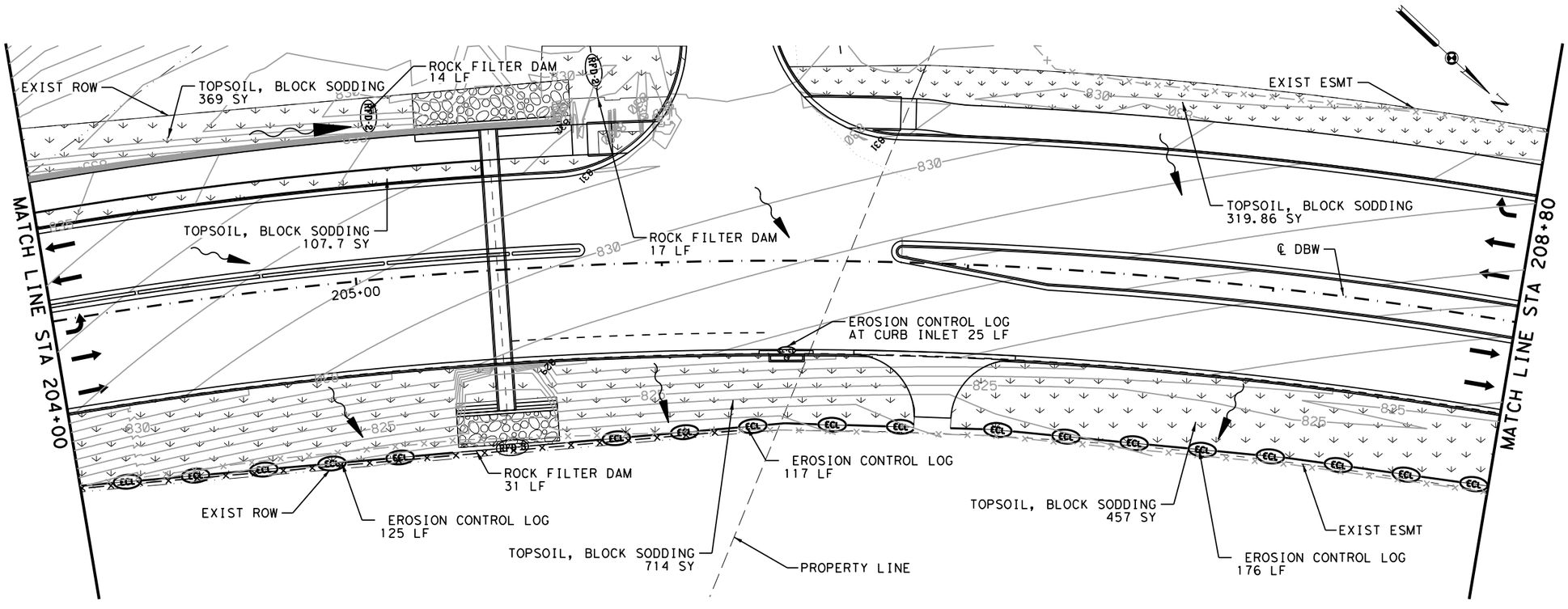
EROSION CONTROL PLAN

STA 189+60 TO STA 199+20

SHEET 2 OF 13 | 458

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
- EXIST ROW
- EXIST ESMT

NOTES:

1. TOPSOIL DEPTH SHALL BE 4" MIN

0' 20' 40'

Malia Caldwell
4/22/2024

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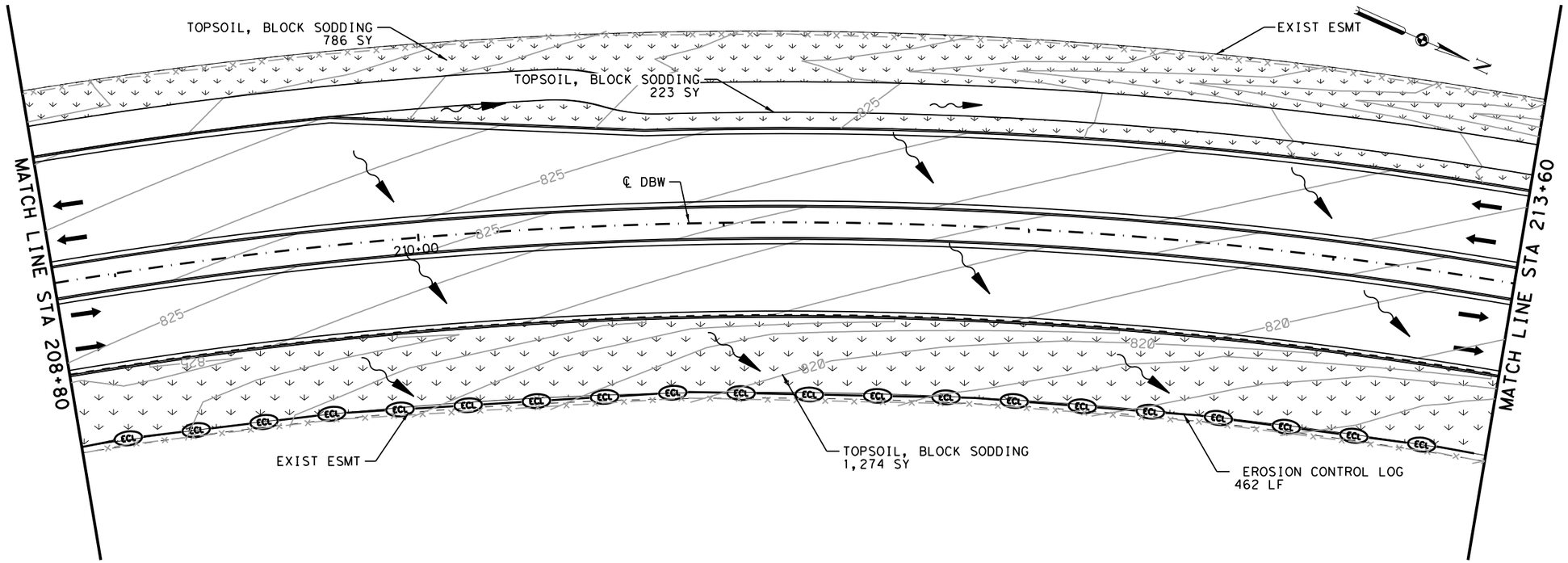
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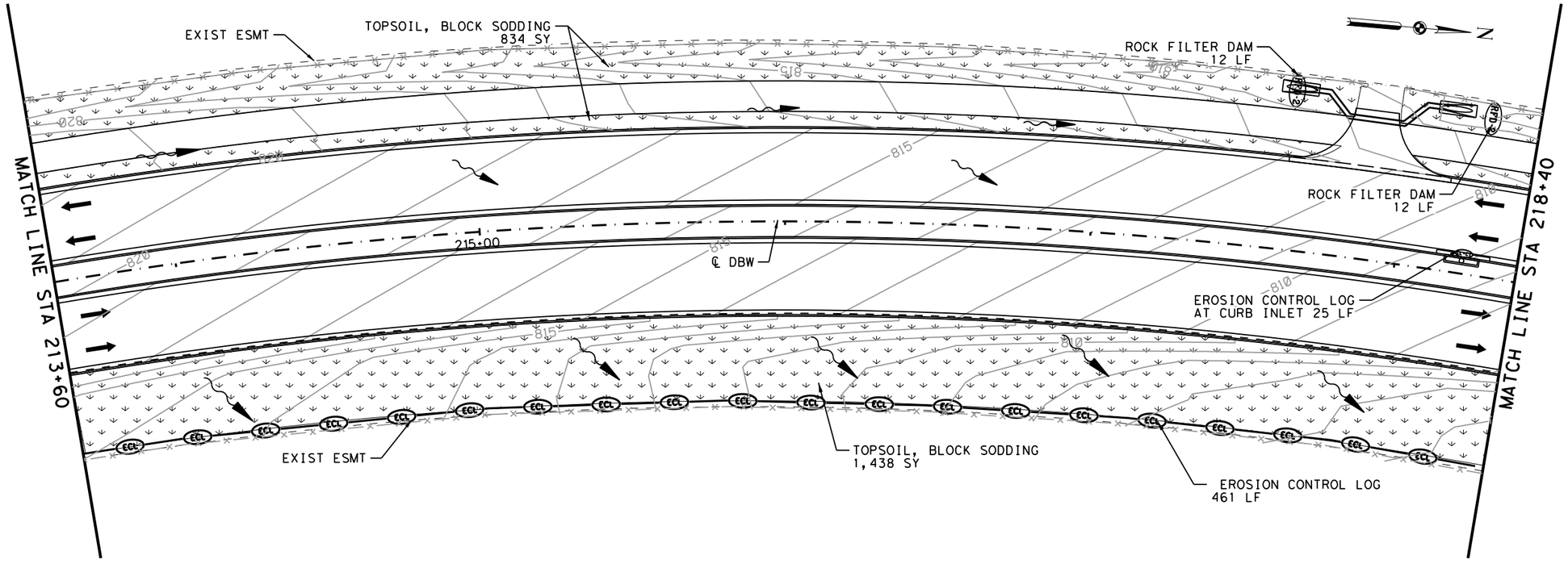
EROSION CONTROL PLAN

STA 199+20 TO STA 208+80

SHEET 3 OF 13 | 459

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
- EXIST ROW
- EXIST ESMT

NOTES:

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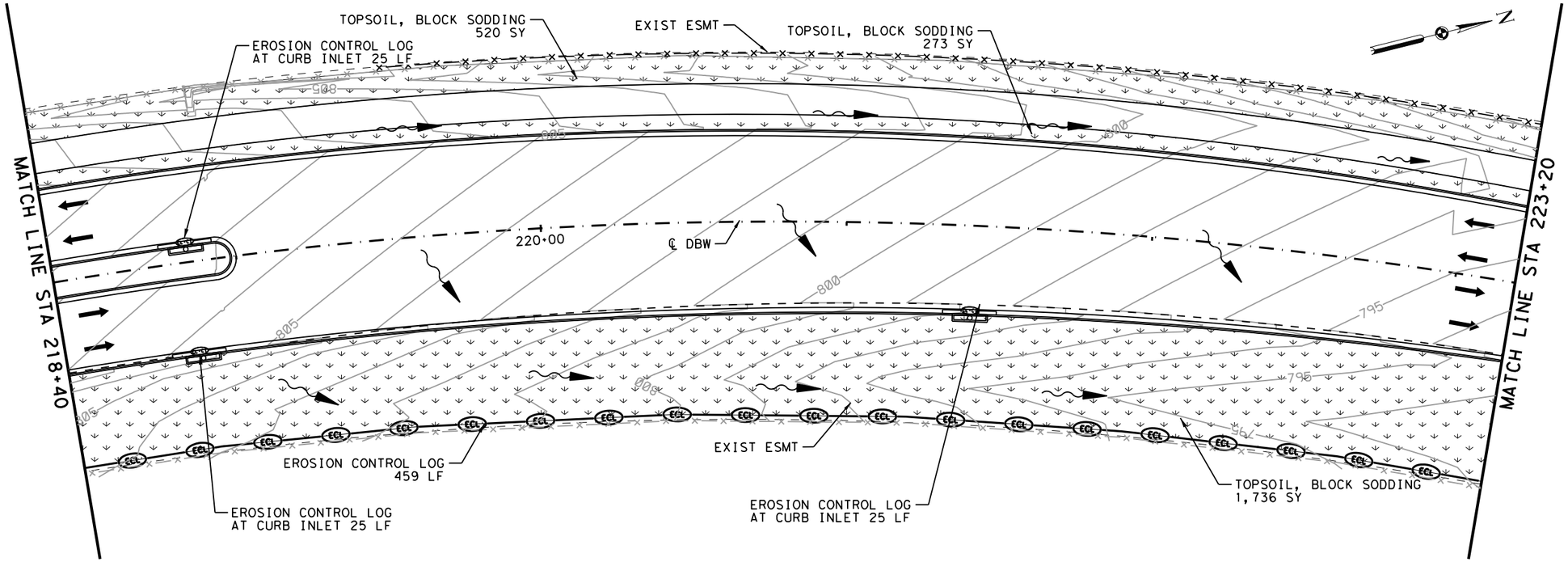
GEORGETOWN TEXAS
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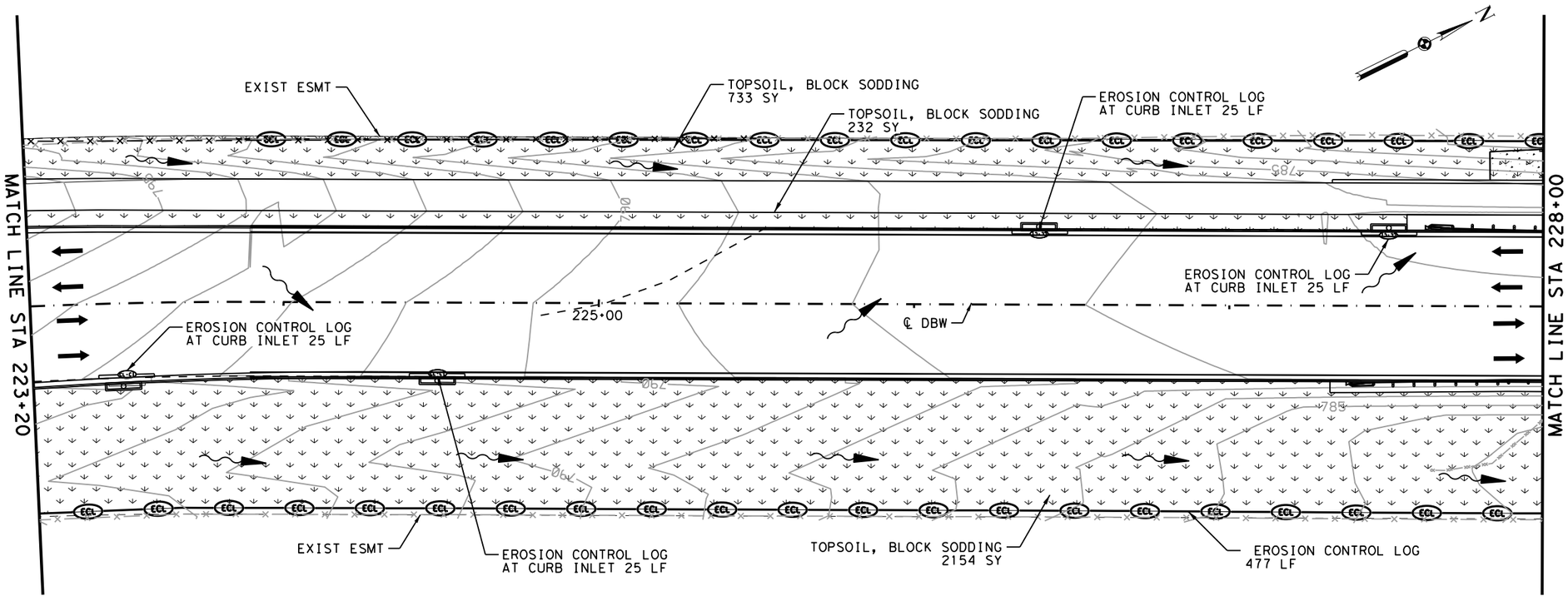
EROSION CONTROL PLAN

STA 208+80 TO STA 218+40

SHEET 4 OF 13 | 460

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
- EXIST ROW
- EXIST ESMT

NOTES:

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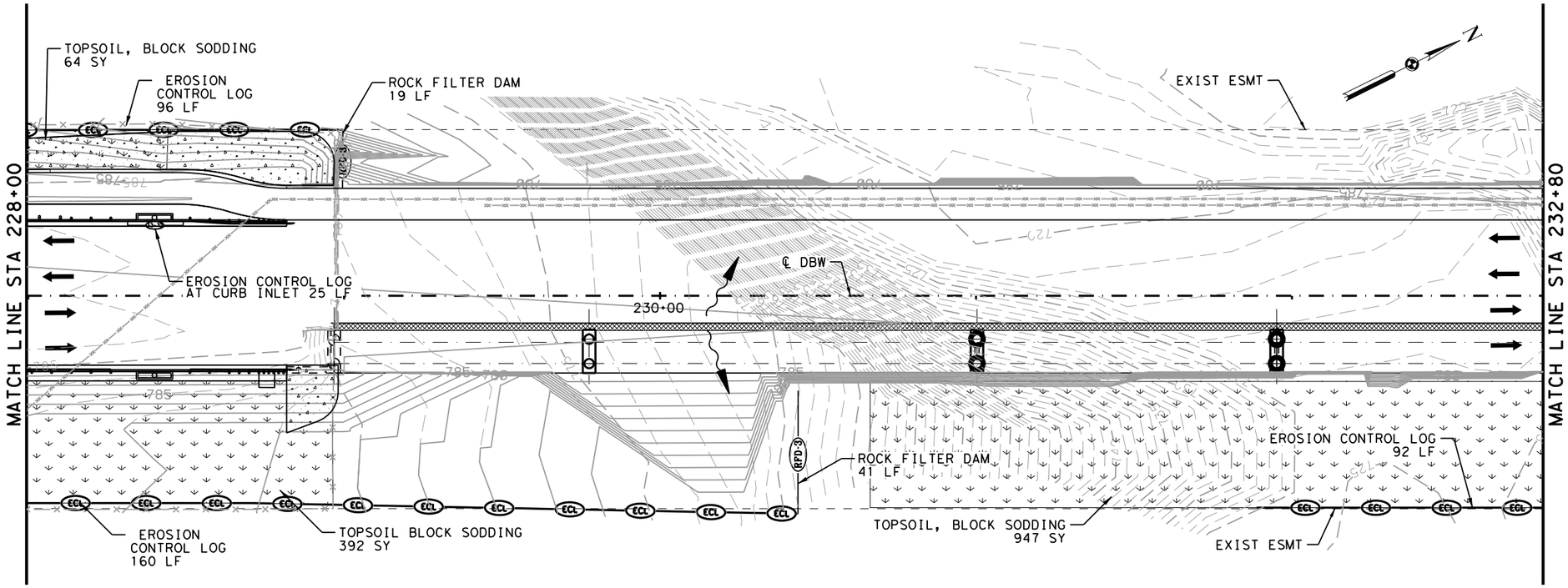
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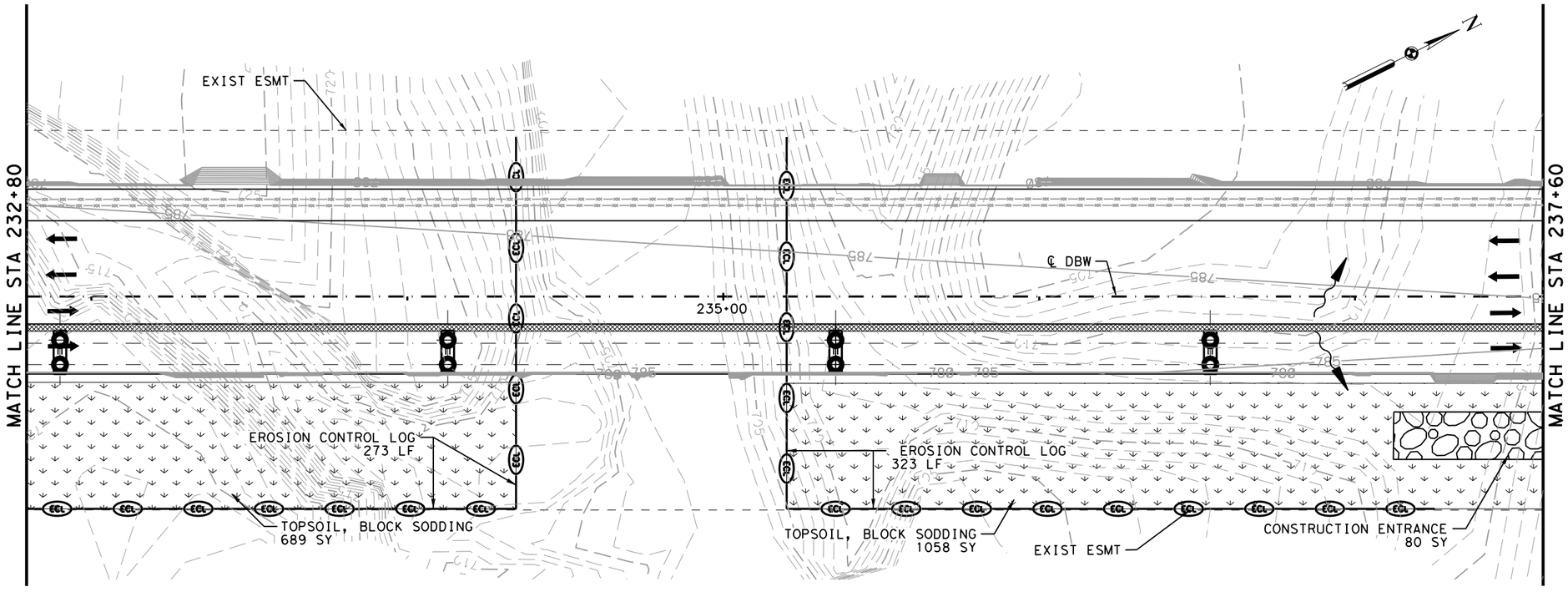
EROSION CONTROL PLAN

STA 218+40 TO STA 288+00

SHEET 5 OF 13 | 461

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
- EXIST ROW
- EXIST ESMT

NOTES:

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4/22/2024

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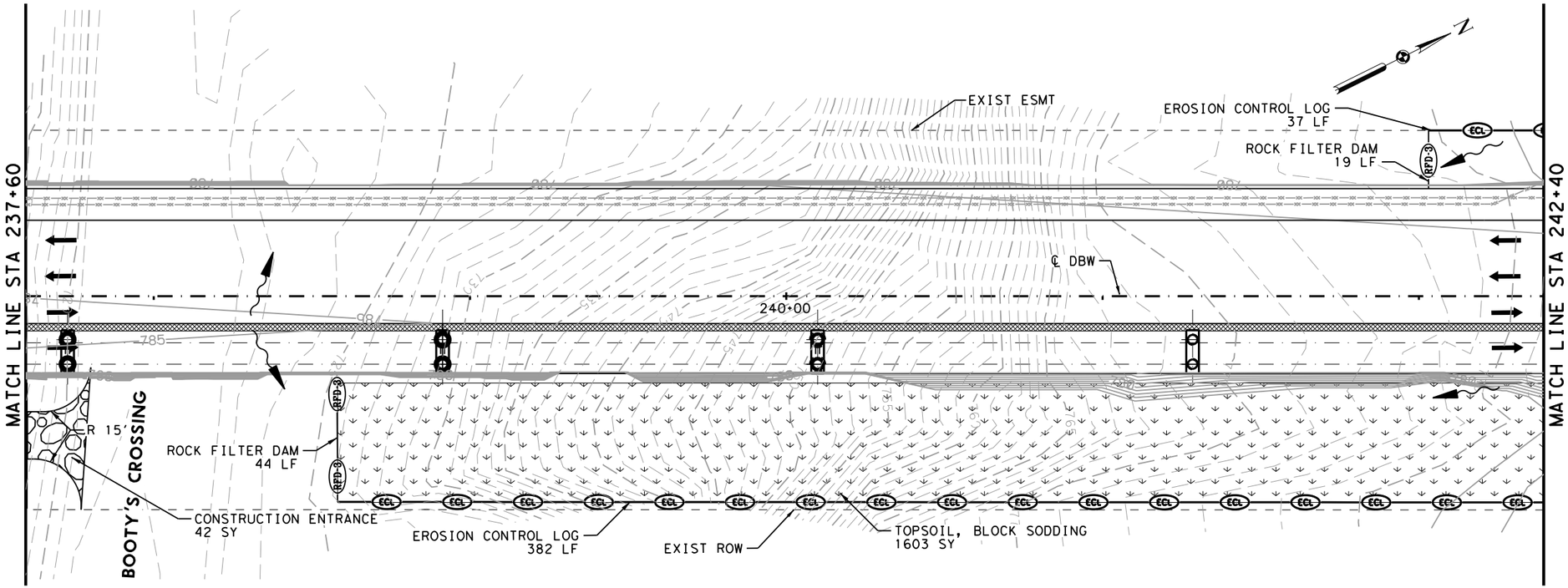
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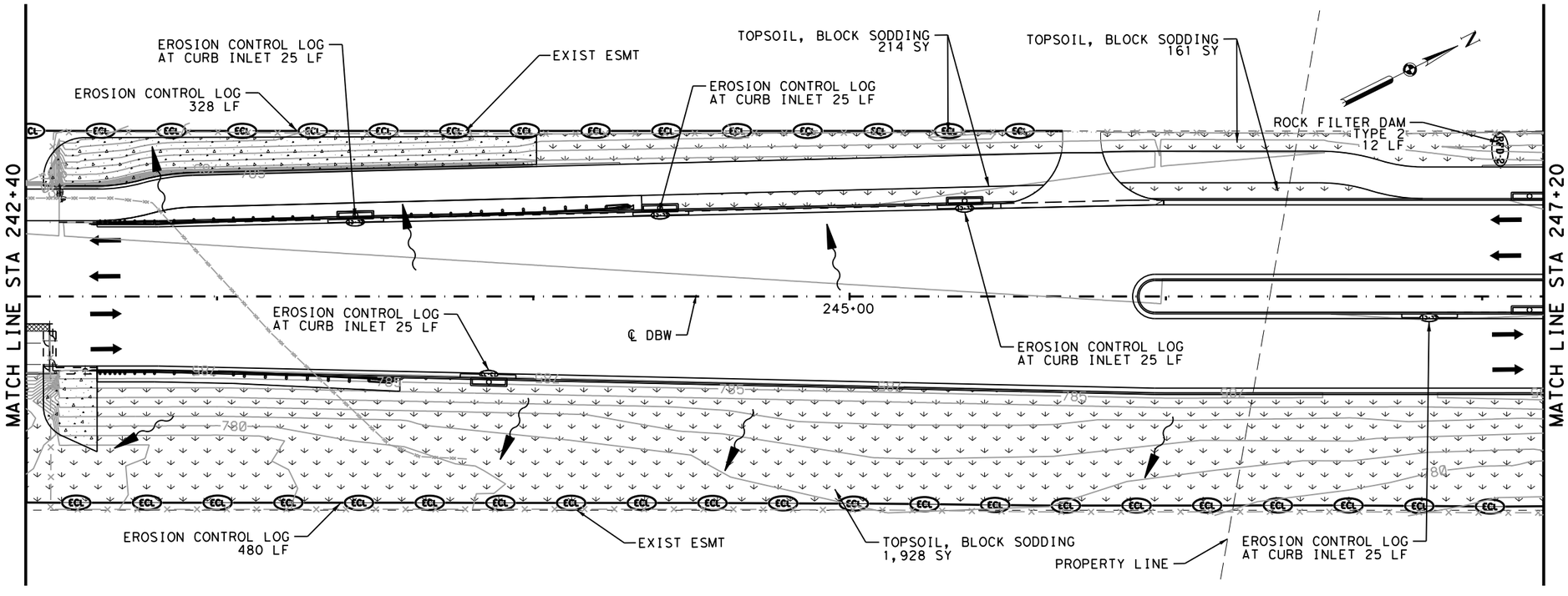
EROSION CONTROL PLAN

STA 288+00 TO STA 237+60

SHEET 6 OF 13 | 462

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
- EXIST ROW
- EXIST ESMT

NOTES:

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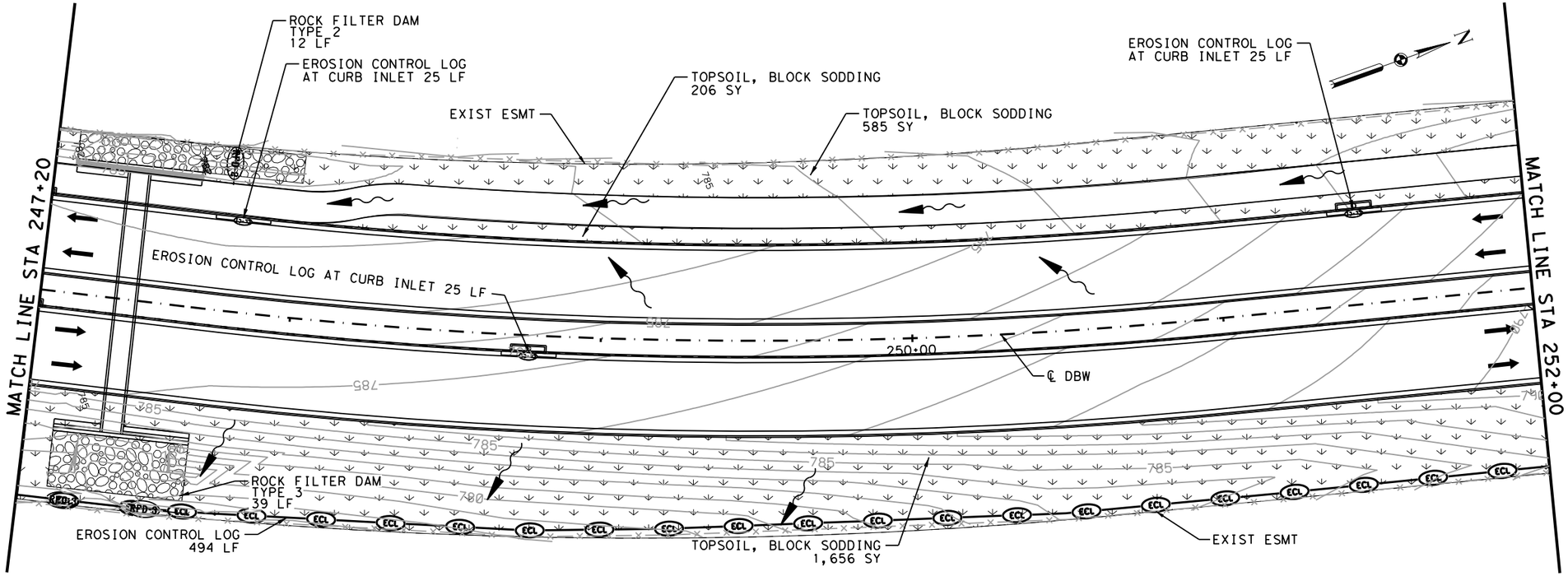
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TEXAS
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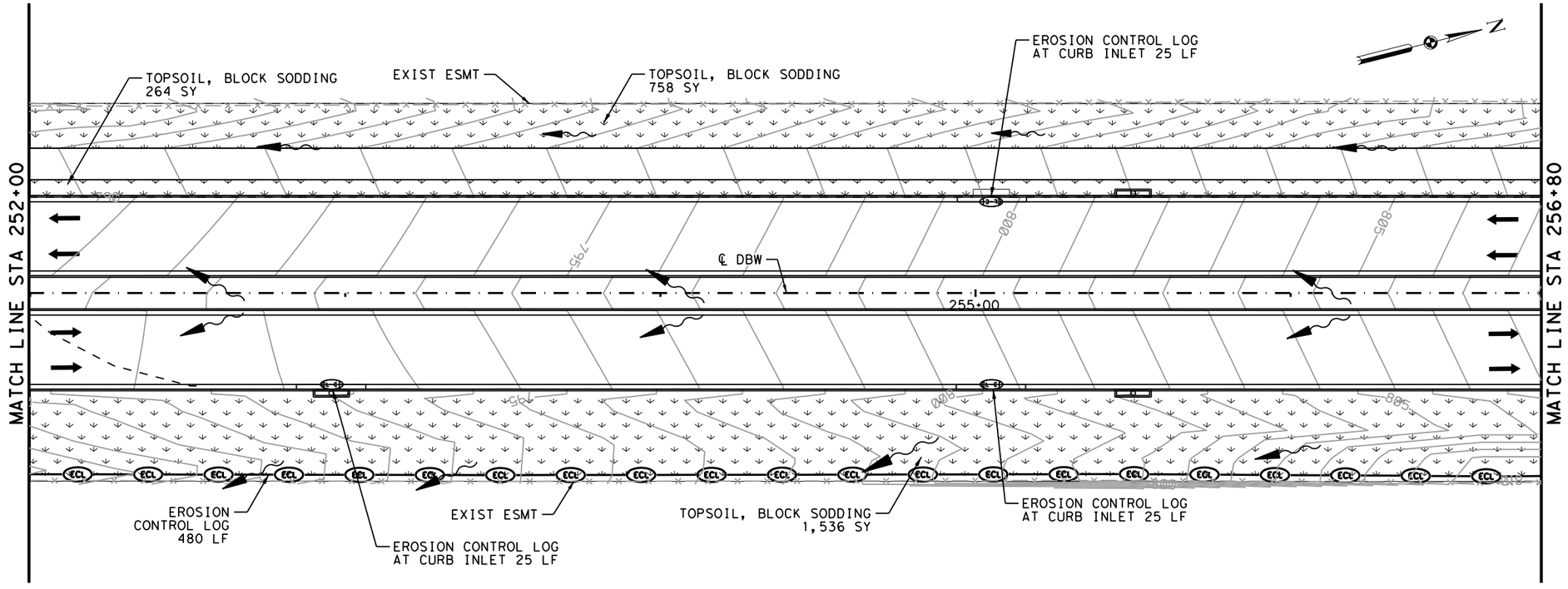
EROSION CONTROL PLAN

STA 237+60 TO STA 247+20

SHEET 7 OF 13 | 463

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
- EXIST ROW
- EXIST ESMT

NOTES:

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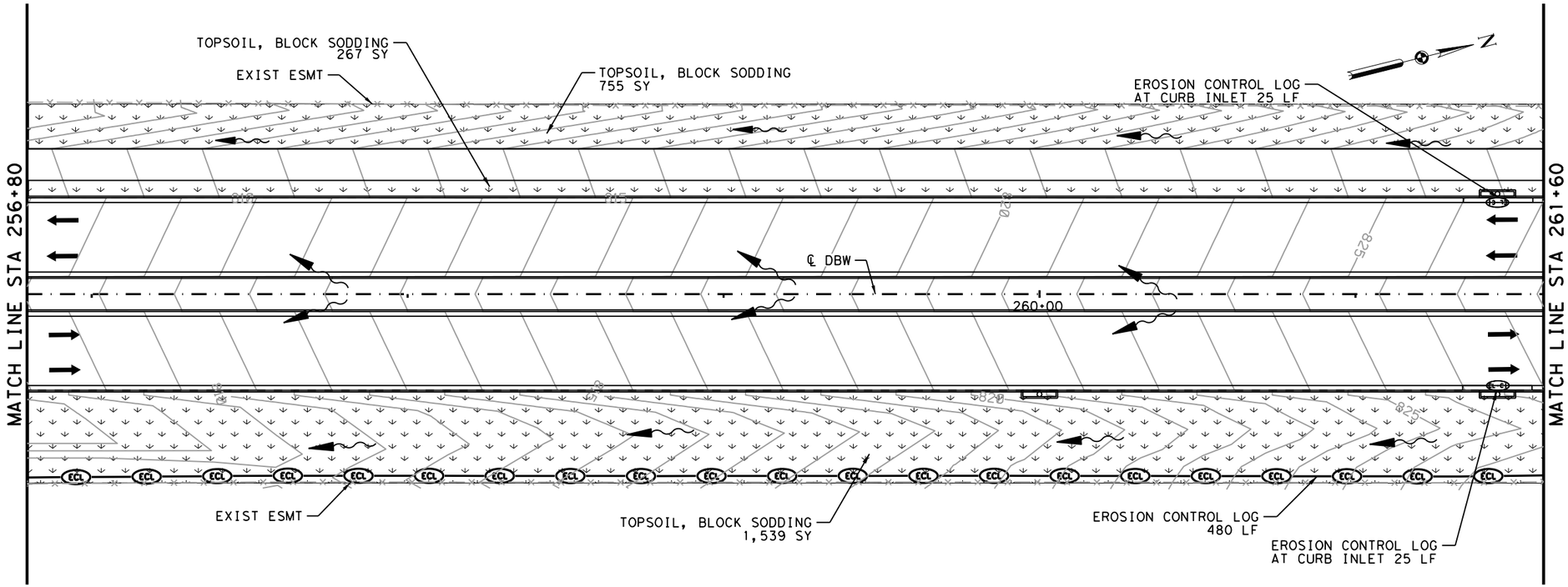
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TEXAS
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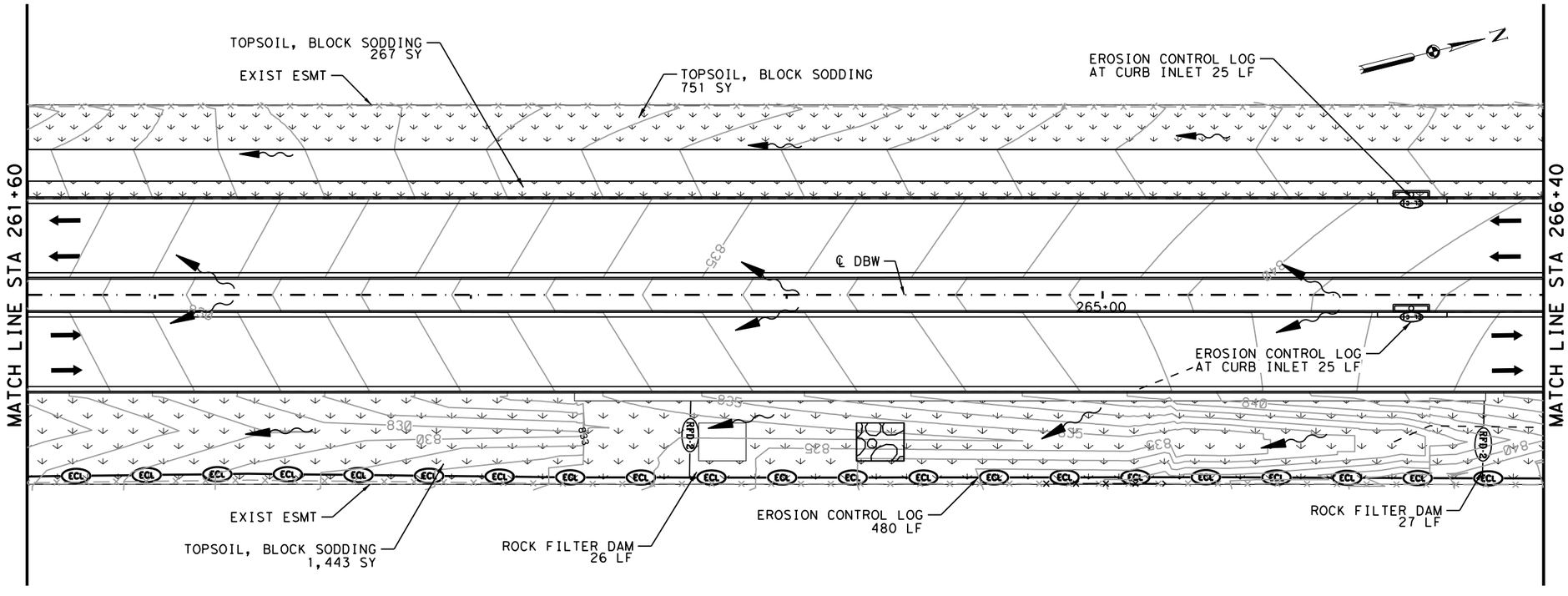
EROSION CONTROL PLAN

STA 247+20 TO STA 256+80

SHEET 8 OF 13 | 464

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
- EXIST ROW
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NOTES:

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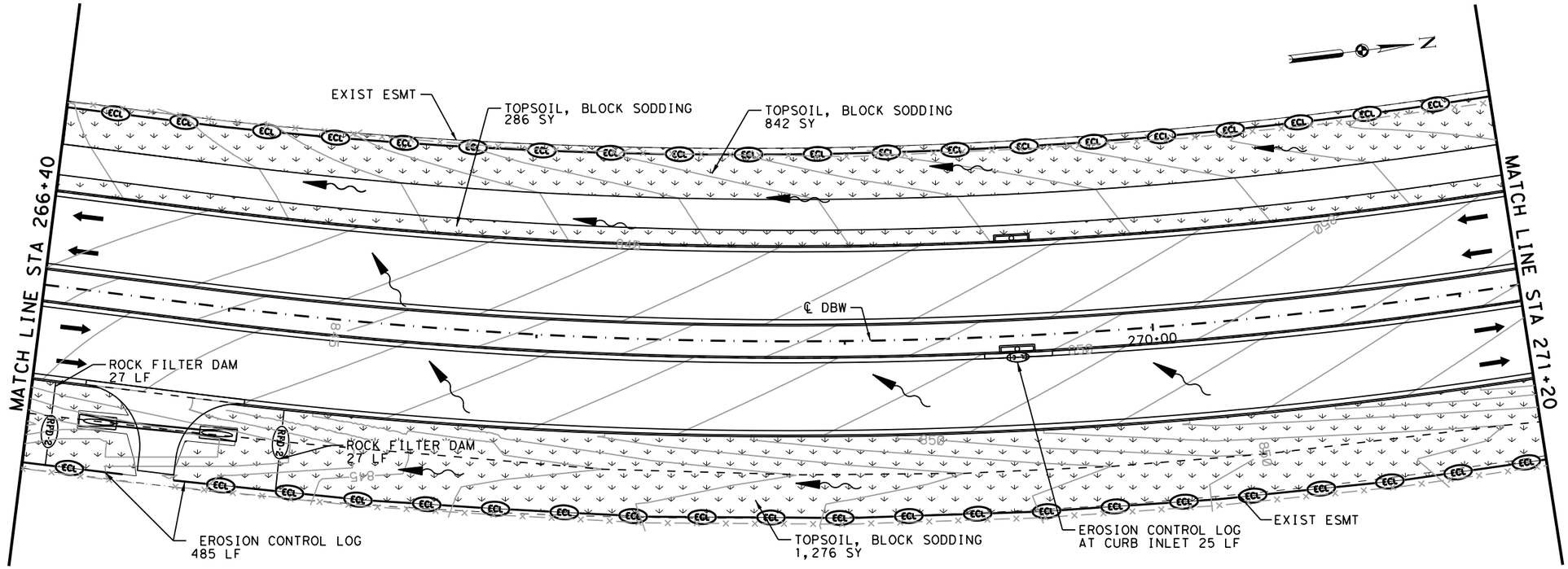
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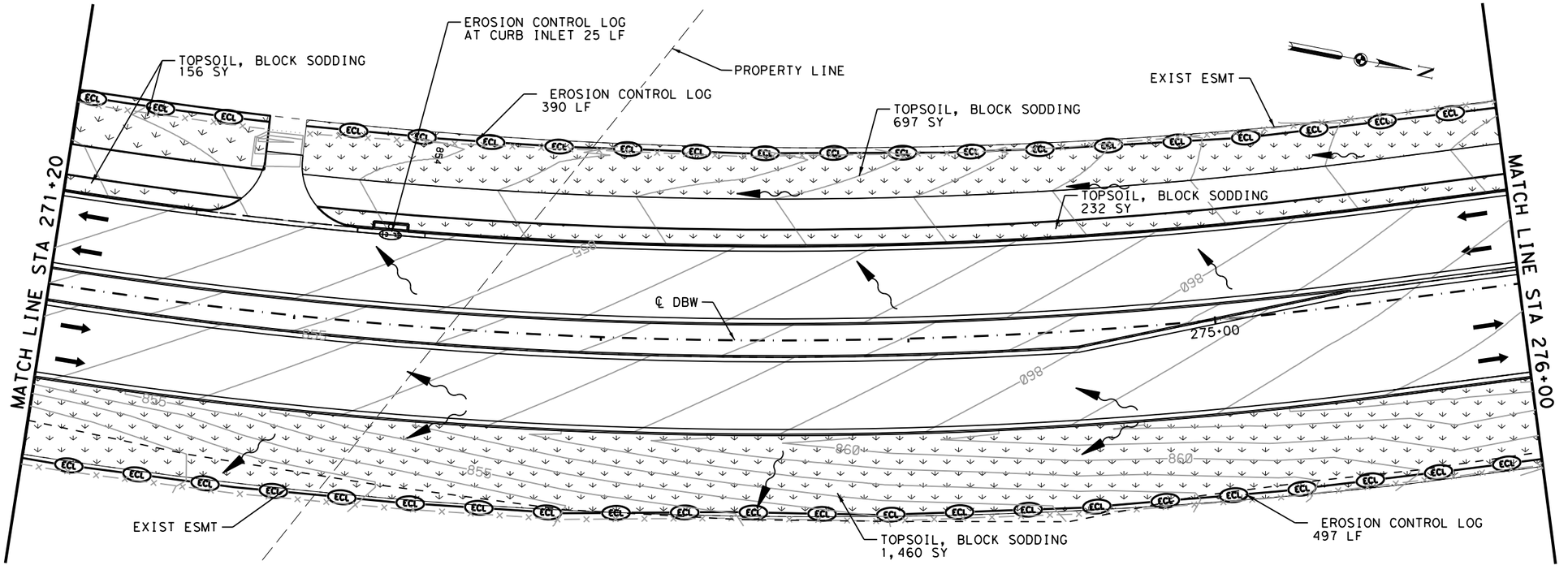
EROSION CONTROL PLAN

STA 256+80 TO STA 266+40

SHEET 9 OF 13 | 465

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
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NOTES:

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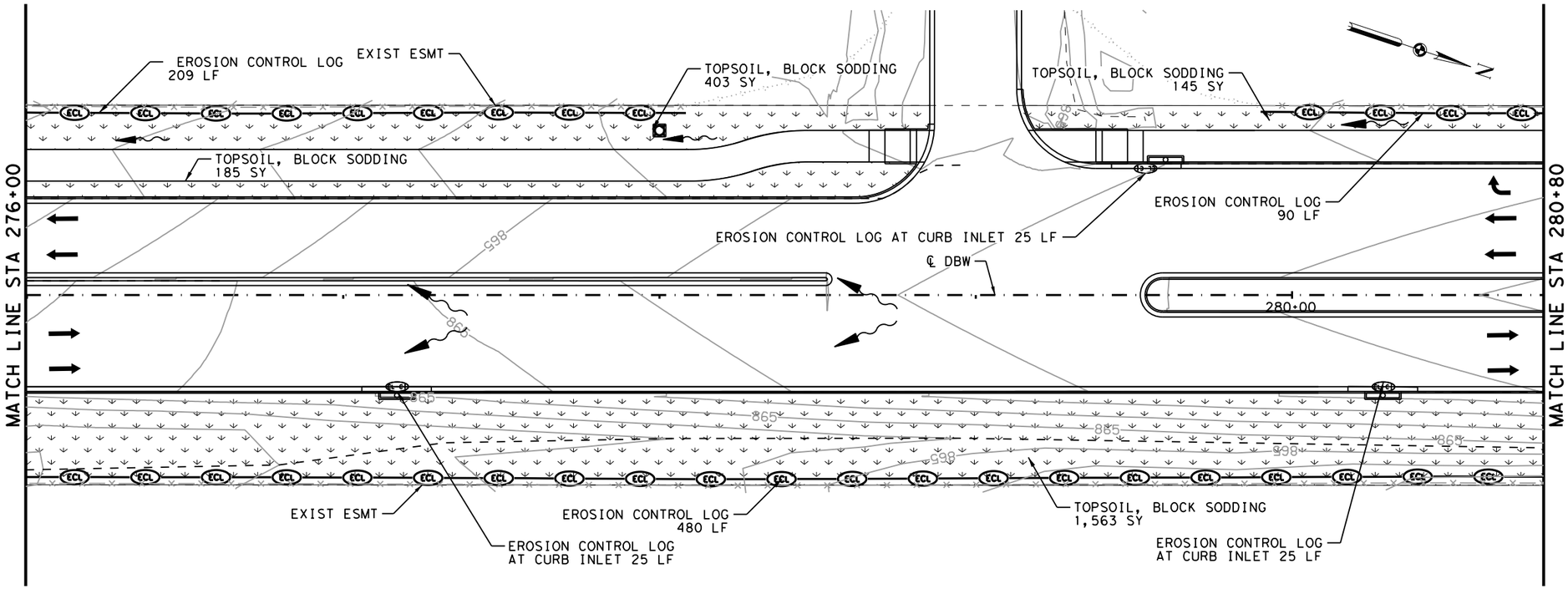
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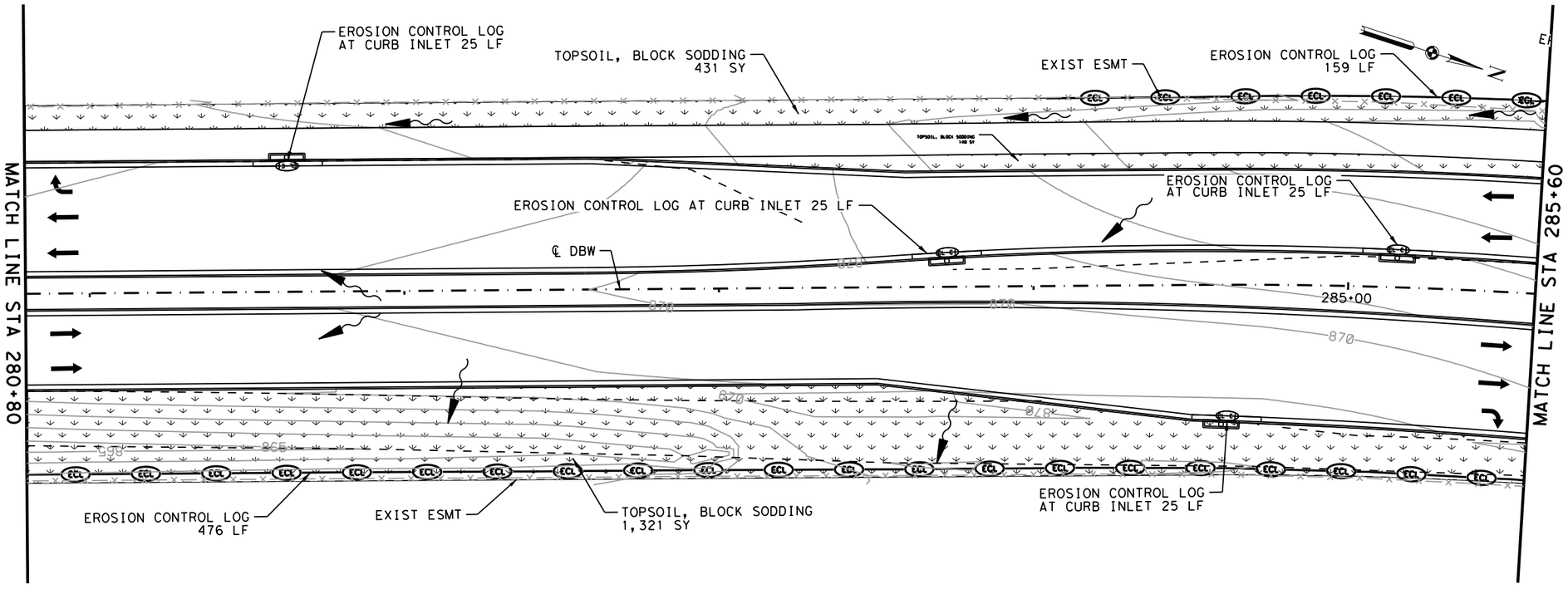
EROSION CONTROL PLAN

STA 266+40 TO STA 276+00

SHEET 10 OF 13 | 466

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
- FLOW ARROW
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NOTES:

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STATE OF TEXAS
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4/22/2024

Kimley»Horn F-928

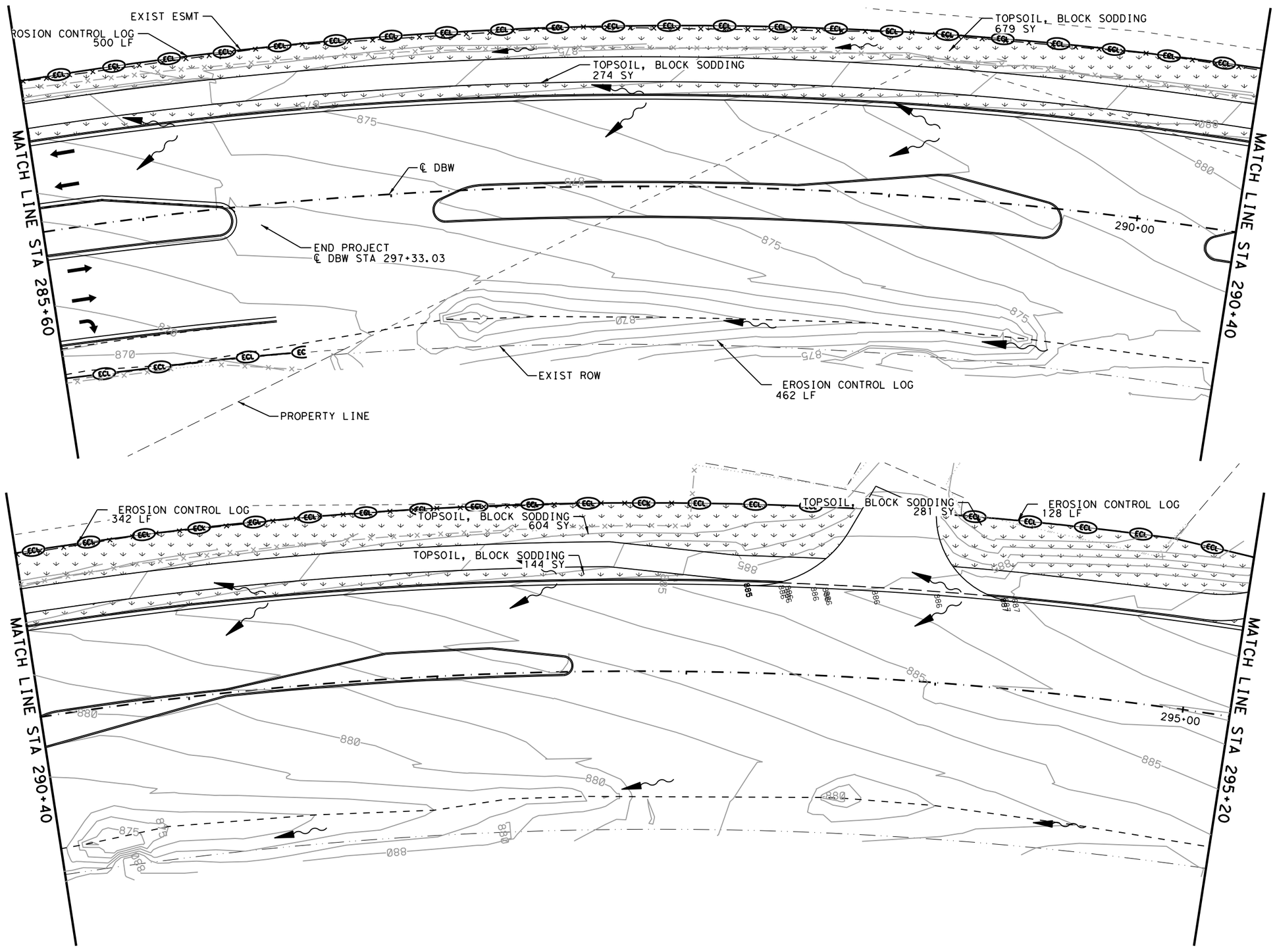
GEORGETOWN
TEXAS
more than welcome

EROSION CONTROL PLAN

STA 276+00 TO STA 285+60

SHEET 11 OF 13 | 467

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
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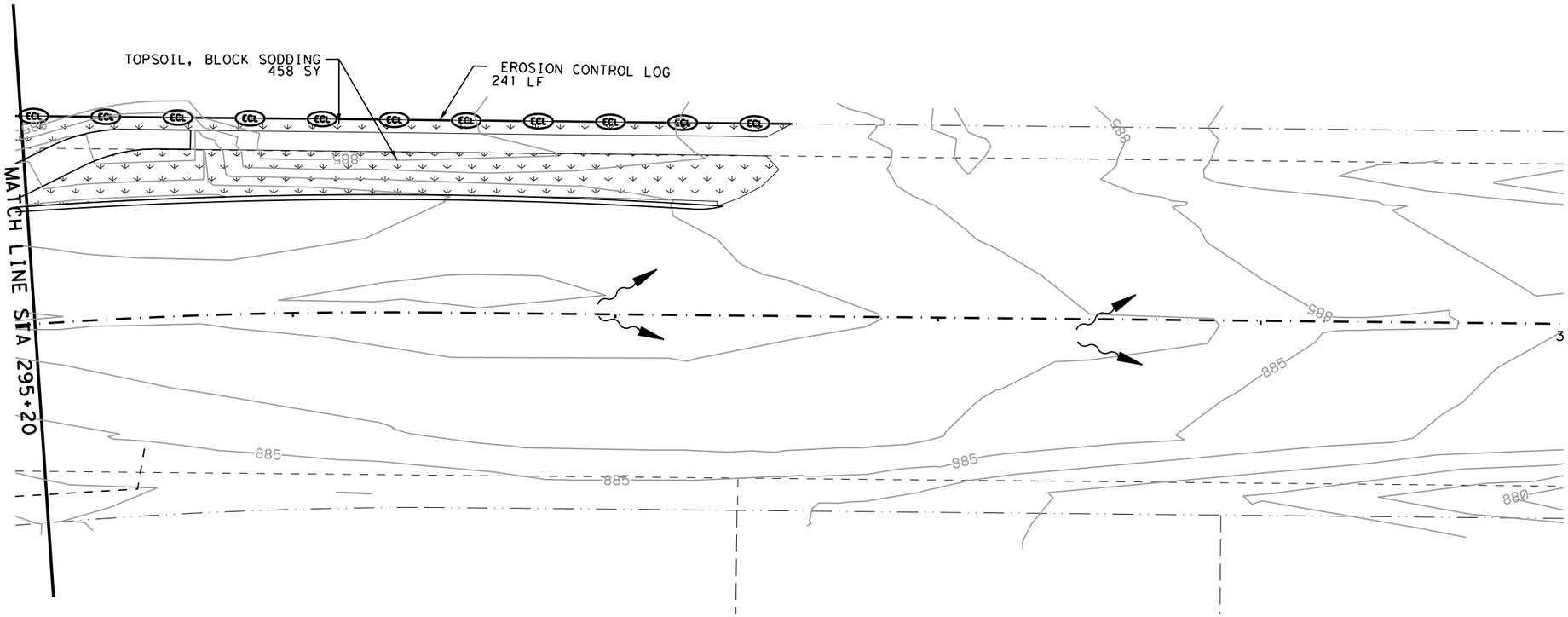
GEORGETOWN TEXAS
more than welcome

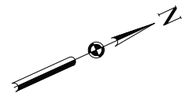
EROSION CONTROL PLAN

STA 285+60 TO STA 295+20

SHEET 12 OF 13 | 468

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LEGEND

- EROSION CONTROL LOG AT CURB INLET
- EROSION CONTROL LOG
- ROCK FILTER DAM (TY 2)
- ROCK FILTER DAM (TY 3)
- TOPSOIL AND BLOCK SODDING
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4/22/2024

Kimley»Horn F-928

GEORGETOWN
TEXAS
more than welcome

EROSION CONTROL PLAN
STA 295+20 TO END PROJECT

SHEET 13 OF 13 | 469

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - Design\Plan Set\10. Environmental\DBW_PH2_SW3P_PP13
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GUIDELINES FOR DESIGN AND INSTALLATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS

TYPE OF STRUCTURE	REACH LENGTH	MAXIMUM DRAINAGE AREA	SLOPE
SILT FENCE	N/A	2 ACRES	0 – 10%
	200 FEET	2 ACRES	10 – 20%
	100 FEET	1 ACRE	20 – 30%
	50 FEET	1/2 ACRE	> 30%
TRIANGLE FILTER DIKE	100 FEET	1/2 ACRE	< 30% SLOPE
	50 FEET	1/4 ACRE	> 30% SLOPE
ROCK BERM *, **	500 FEET	< 5 ACRES	0 – 10%

* FOR ROCK BERM DESIGN WHERE PARAMETERS ARE OTHER THAN STATED, DRAINAGE AREA CALCULATIONS AND ROCK BERM DESIGN MUST BE SUBMITTED FOR REVIEW.

** HIGH SERVICE ROCK BERMS MAY BE REQUIRED IN AREAS OF ENVIRONMENTAL SIGNIFICANCE AS DETERMINED BY THE CITY OF GEORGETOWN.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

EST. 1848 GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TEMPORARY EROSION AND SEDIMENTATION CONTROL GUIDELINES

DRAWING NAME: EC01

SCALE:	DATE:
NTS	1/2003
DRAWN BY:	APPROVED BY:
MRS	TRB

NOTE: THIS SECTION IS INTENDED TO ASSIST THOSE PERSONS PREPARING WATER POLLUTION ABATEMENT PLANS (WPAP) OR STORM WATER POLLUTION PREVENTION PLANS (SW3P) THAT COMPLY WITH FEDERAL, STATE AND/OR LOCAL STORM WATER REGULATIONS.

1. THE CONTRACTOR TO INSTALL AND MAINTAIN EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, GRADING, OR EXCAVATION). CONTRACTOR TO REMOVE EROSION/SEDIMENTATION CONTROLS AT THE COMPLETION OF PROJECT AND GRASS RESTORATION.
2. ALL PROJECTS WITHIN THE RECHARGE ZONE OF THE EDWARD'S AQUIFER SHALL SUBMIT A BEST MANAGEMENT PRACTICES AND WATER POLLUTION AND ABATEMENT PLAN TO THE TNRCC FOR APPROVAL PRIOR TO ANY CONSTRUCTION.
3. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS TO BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN AND WATER POLLUTION ABATEMENT PLAN. DEVIATIONS FROM THE APPROVED PLAN MUST BE SUBMITTED TO AND APPROVED BY THE OWNER'S REPRESENTATIVE.
4. ALL PLANTING SHALL BE DONE BETWEEN MAY 1 AND SEPTEMBER 15 EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING. IF PLANTING IS AUTHORIZED TO BE DONE OUTSIDE THE DATES SPECIFIED, THE SEED SHALL BE PLANTED WITH THE ADDITION OF WINTER FESCUE (KENTUCKY 31) AT A RATE OF 100lb/ACRE. GRASS SHALL BE COMMON BERMUDA GRASS, HULLED, MINIMUM 82% PURE LIVE SEED. ALL GRASS SEED SHALL BE FREE FROM NOXIOUS WEED, GRADE "A" RECENT CROP, RECLEANED AND TREATED WITH APPROPRIATE FUNGICIDE AT TIME OF MIXING. SEED SHALL BE FURNISHED IN SEALED, STANDARD CONTAINERS WITH DEALER'S GUARANTEED ANALYSIS.
5. ALL DISTURBED AREAS TO BE RESTORED AS NOTED IN THE WATER POLLUTION ABATEMENT PLAN.
6. THE PLANTED AREA TO BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF FOUR (4) INCHES. THE IRRIGATION TO OCCUR AT 10–DAY INTERVALS DURING THE FIRST TWO MONTHS TO INSURE GERMINATION AND ESTABLISHMENT OF THE GRASS . RAINFALL OCCURRENCES OF 1/2 INCH OR GREATER TO POSTPONE THE WATERING SCHEDULE ONE WEEK.
7. RESTORATION TO BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1–1/2 INCHES HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 25 SQUARE FEET EXIST.
8. A MINIMUM OF FOUR (4) INCHES OF TOPSOIL TO BE PLACED IN ALL AREAS DISTURBED BY CONSTRUCTION.
9. THE CONTRACTOR TO HYDROMULCH OR SOD (AS SHOWN ON PLANS) ALL EXPOSED CUTS AND FILLS UPON COMPLETION OF CONSTRUCTION.
10. EROSION AND SEDIMENTATION CONTROLS TO BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILDUP WITHIN TREE DRIPLINE.
11. TO AVOID SOIL COMPACTION, CONTRACTOR SHALL NOT ALLOW VEHICULAR TRAFFIC, PARKING, OR STORAGE OF EQUIPMENT OR MATERIALS IN THE TREE DRIPLINE AREAS.
12. WHERE A FENCE IS CLOSER THAN FOUR (4) FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED–ON PLANKING TO A HEIGHT OF EIGHT (8) FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE FENCING.
13. TREES TO BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.
14. ANY ROOT EXPOSED BY CONSTRUCTION ACTIVITY TO BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
15. CONTRACTOR TO PRUNE VEGETATION TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND EQUIPMENT BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.). ALL FINISHED PRUNING TO BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE "NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES").
16. THE CONTRACTOR IS TO INSPECT THE CONTROLS AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EXCEEDING 1/4 INCH TO VERIFY THAT THEY HAVE NOT BEEN SIGNIFICANTLY DISTURBED. ANY ACCUMULATED SEDIMENT AFTER A SIGNIFICANT RAINFALL TO BE REMOVED AND PLACED IN THE OWNER DESIGNATED SPOIL DISPOSAL SITE. THE CONTRACTOR TO CONDUCT PERIODIC INSPECTIONS OF ALL EROSION/SEDIMENTATION CONTROLS AND TO MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
17. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT IMMEDIATELY ADJACENT TO A PROTECTED TREE, ERECT THE FENCE APPROXIMATELY TWO TO FOUR FEET (2'–4') BEHIND THE AREA IN QUESTION.
18. NO ABOVE AND/OR BELOW GROUND TEMPORARY FUEL STORAGE FACILITIES TO BE STORED ON THE PROJECT SITE.
19. IF EROSION AND SEDIMENTATION CONTROL SYSTEMS ARE EXISTING FROM PRIOR CONTRACTS, OWNER'S REPRESENTATIVE AND THE CONTRACTOR TO EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEMS FOR DAMAGE PRIOR TO CONSTRUCTION. ANY DAMAGE TO PREEXISTING EROSION AND SEDIMENTATION CONTROLS NOTED TO BE REPAIRED AT OWNERS EXPENSE.
20. INTENTIONAL RELEASE OF VEHICLE OR EQUIPMENT FLUIDS ONTO THE GROUND IS NOT ALLOWED. CONTAMINATED SOIL RESULTING FROM ACCIDENTAL SPILL TO BE REMOVED AND DISPOSED OF PROPERLY.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

EST. 1848 GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
EROSION AND SEDIMENTATION AND TREE PROTECTION NOTES

DRAWING NAME: EC01A

SCALE:	DATE:
NTS	1/2003
DRAWN BY:	APPROVED BY:
MRS	TRB

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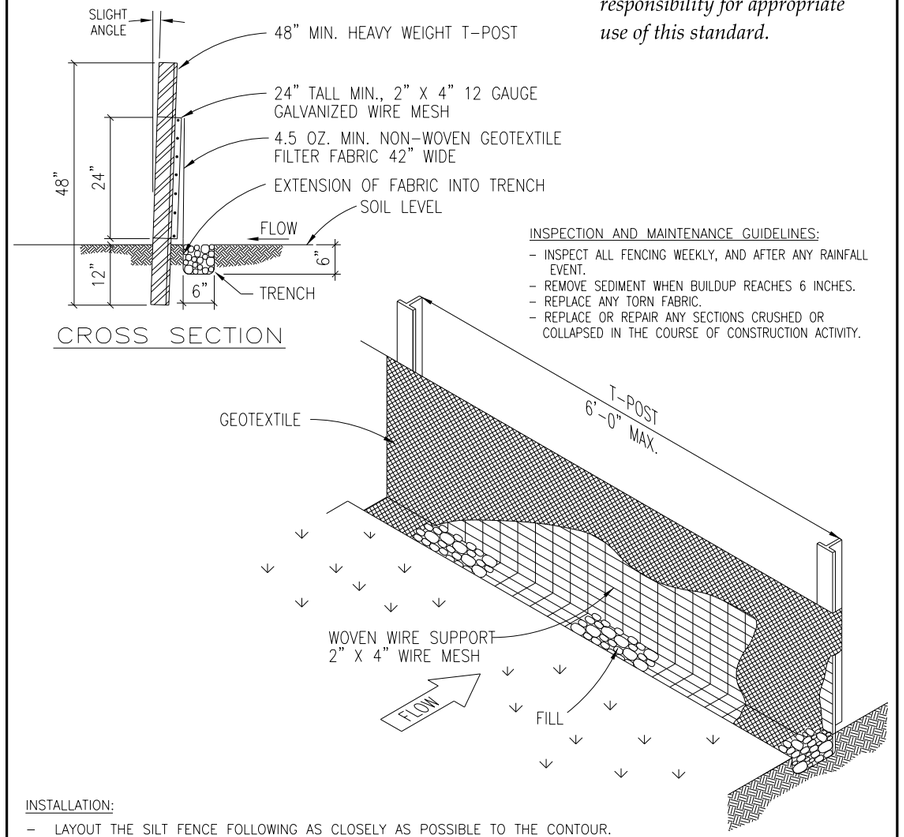
D B WOOD ROAD

COG ENVIRONMENTAL STANDARDS

SHEET 1 OF 5

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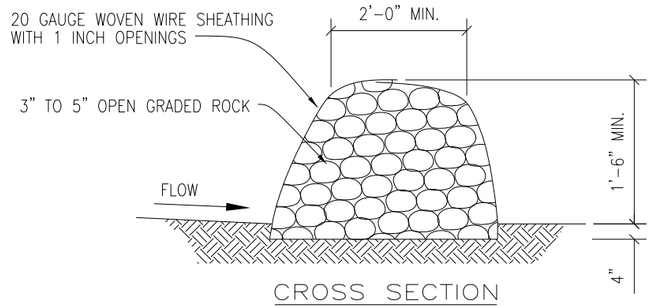
INSPECTION AND MAINTENANCE GUIDELINES:

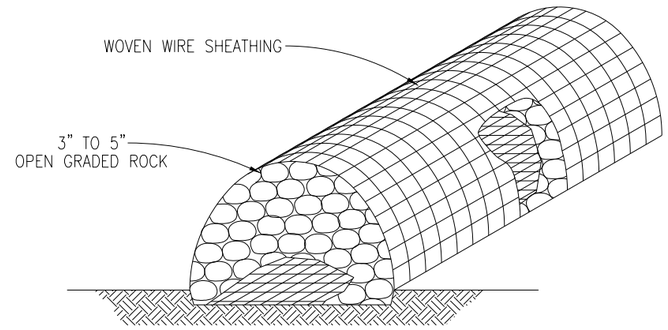
- INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL EVENT.
- REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
- REPLACE ANY TORN FABRIC.
- REPLACE OR REPAIR ANY SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY.

INSTALLATION:

- LAYOUT THE SILT FENCE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS, PLANTS (INCLUDING GRASSES TALLER THAN 2") TO PROVIDE A SMOOTH FLOW APPROACH SURFACE. EXCAVATE 6" DEEP X 6" WIDE TRENCH ON UPSTREAM SIDE OF FACE PER PLANS.
- DRIVE THE HEAVY DUTY T-POST AT LEAST 12 INCHES INTO THE GROUND AND AT A SLIGHT ANGLE TOWARDS THE FLOW.
- ATTACH THE 2" X 4" 12 GAUGE WELDED WIRE MESH TO THE T-POST WITH 11 1/2 GAUGE GALVANIZED T-POST CLIPS. THE TOP OF THE WIRE TO BE 24" ABOVE GROUND LEVEL. THE WELDED WIRE MESH TO BE OVERLAPPED 6" AND TIED AT LEAST 6 TIMES WITH HOG RINGS.
- THE SILT FENCE TO BE INSTALLED WITH A SKIRT A MINIMUM OF 6" WIDE PLACED ON THE UPHILL SIDE OF THE FENCE INSIDE EXCAVATED TRENCH. THE FABRIC TO OVERLAP THE TOP OF THE WIRE BY 1".
- ANCHOR THE SILT FENCE BY BACKFILLING WITH EXCAVATED DIRT AND ROCKS (NOT LARGER THAN 2").
- GEOTEXTILE SPLICES SHOULD BE A MINIMUM OF 18" WIDE ATTACHED IN AT LEAST 6 PLACES. SPLICES IN CONCENTRATED FLOW AREAS WILL NOT BE ACCEPTED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

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EST. 1848 GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS SILT FENCE DETAIL	DRAWING NAME: EC02 SCALE: NTS; DATE: 1/2003 DRAWN BY: MRS; APPROVED BY: TRB





INSTALLATION:

- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROX. 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

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EST. 1848 GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS ROCK BERM DETAIL	DRAWING NAME: EC03 SCALE: NTS; DATE: 1/2003 DRAWN BY: MRS; APPROVED BY: TRB

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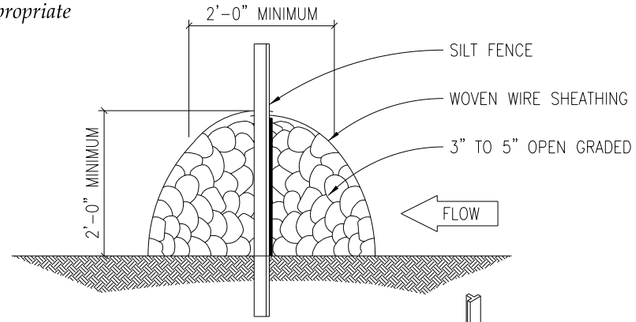
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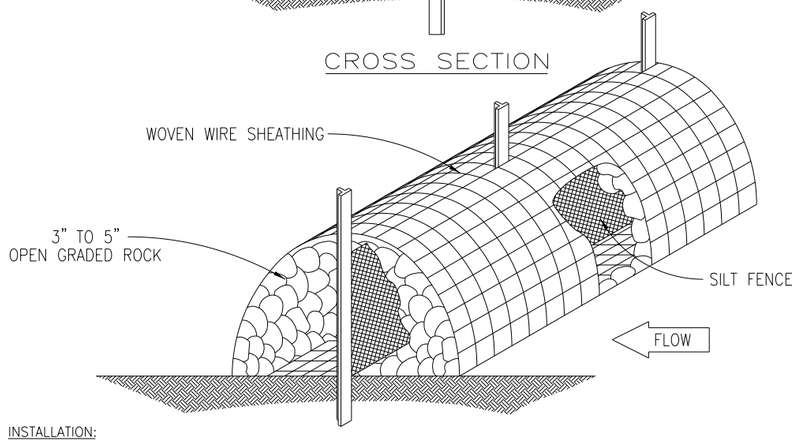
COG ENVIRONMENTAL STANDARDS

SHEET 2 OF 5

The Architect/Engineer assumes responsibility for appropriate use of this standard.



CROSS SECTION



INSTALLATION:

- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- INSTALL THE SILT FENCE ALONG THE CENTER OF THE PROPOSED BERM PLACEMENT. INSTALLATION SHOULD BE AS DESCRIBED IN DRAWING NO. EC-02 "SILT FENCE DETAIL".
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE AND ON BOTH SIDES OF THE SILT FENCE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE CONTRACTOR. FOR THE INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE ON ROCK BERM.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACES WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

REVISION NOTE: ADOPTED 6/21/2006

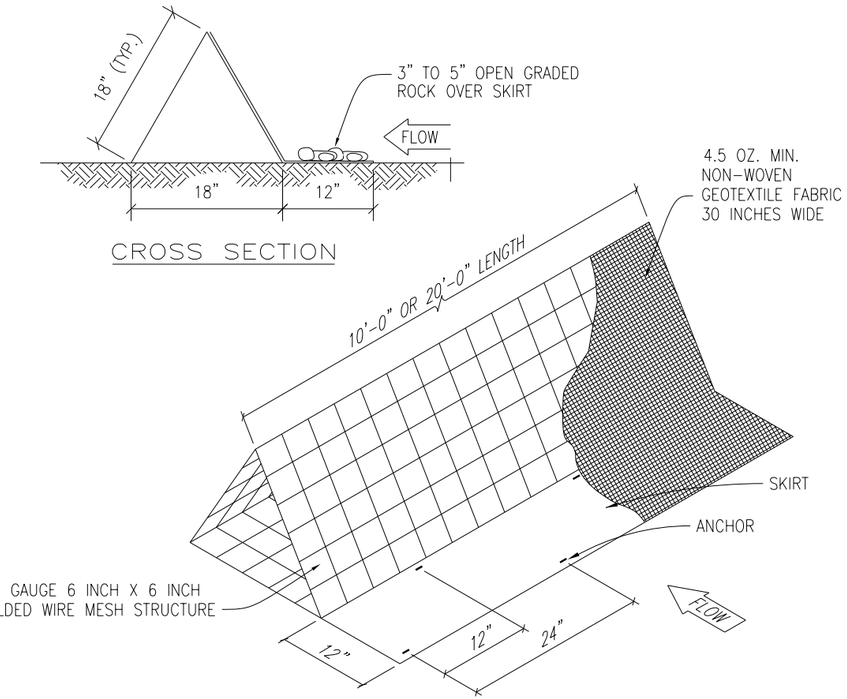
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CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

HIGH SERVICE ROCK BERM DETAIL

DRAWING NAME: EC04

SCALE:	DATE:
NTS	1/2003
DRAWN BY:	APPROVED BY:
MRS	TRB



CROSS SECTION

INSTALLATION:

- LAYOUT THE FILTER DIKE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE THE FILTER DIKE SECTIONS ONE AT A TIME, WITH THE SKIRT ON THE UPHILL SIDE TOWARDS THE DIRECTION OF FLOW, ANCHORING EACH SECTION TO THE GROUND BEFORE THE NEXT SECTION IS PLACED.
- ANCHORS SHOULD BE PLACED ON 2'-0" CENTERS ALTERNATING FROM FRONT TO BACK SO THAT THERE IS ACTUALLY ONLY 1'-0" IN BETWEEN ANCHORS.
- SECURELY FASTEN THE SKIRT FROM ONE SECTION OF FILTER DIKE TO THE NEXT.
- FILTER DIKES MUST MAINTAIN CONTINUOUS CONTACT WITH THE GROUND.
- AFTER THE SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHOULD BE REMOVED. SILT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHOULD BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- INSPECT AND REALIGN BERMS AS NEEDED TO PREVENT GAPS BETWEEN THE SECTIONS.
- ACCUMULATED SILT SHOULD BE REMOVED AFTER EACH RAINFALL EVENT, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.

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CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

TRIANGULAR FILTER DIKE

DRAWING NAME: EC05

SCALE:	DATE:
NTS	1/2003
DRAWN BY:	APPROVED BY:
MRS	TRB

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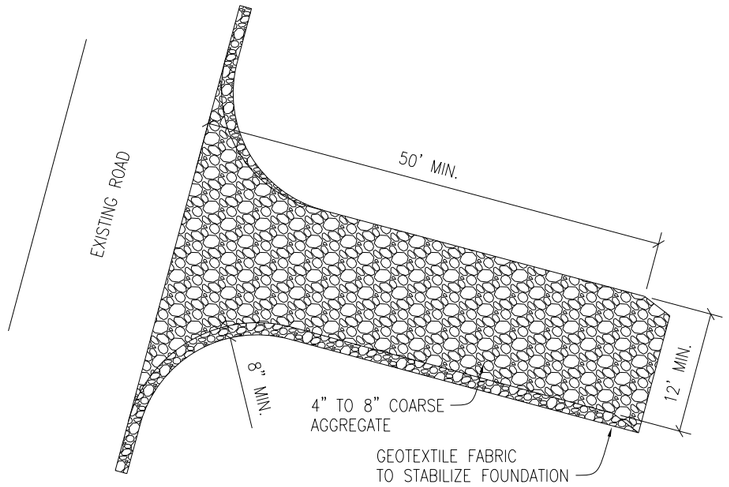
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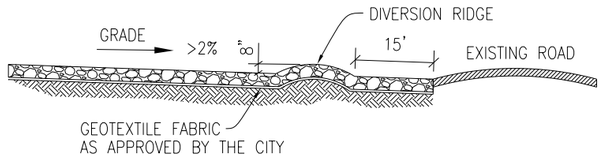
COG ENVIRONMENTAL STANDARDS

SHEET 3 OF 5

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INSTALLATION:

- CLEAR THE AREA OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- GRADE THE AREA FOR THE ENTRANCE TO FLOW BACK ON TO THE CONSTRUCTION SITE. RUNOFF FROM THE STABILIZED CONSTRUCTION
- PLACE GEOTEXTILE FABRIC AS APPROVED BY THE CITY.
- PLACE ROCK AS APPROVED BY THE CITY.

INSPECTIONS AND MAINTENANCE GUIDELINES:

- THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
- WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY.
- WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

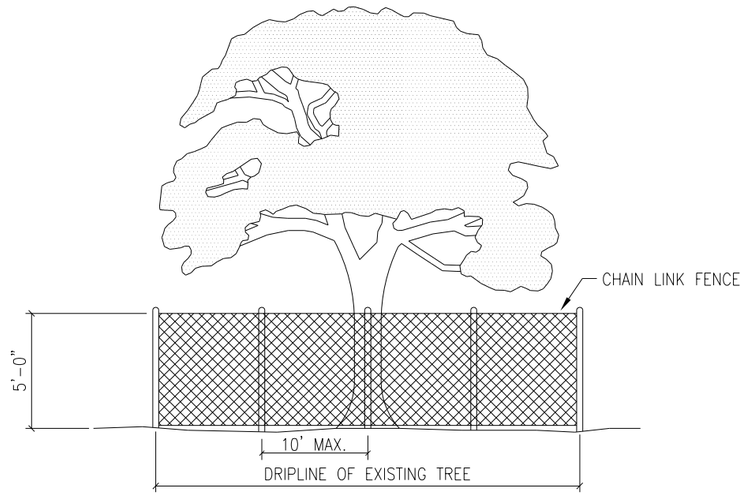
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Your Community Owned Utility

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
STABILIZED CONSTRUCTION ENTRANCE

DRAWING NAME: EC06

SCALE:	DATE:
NTS	1/2003
DRAWN BY:	APPROVED BY:
MRS	TRB



NOTES:

1. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING).
2. FENCES SHALL COMPLETELY SURROUND THE TREE, OR CLUSTERS OF TREES; WILL BE LOCATED AT THE OUTERMOST LIMIT OF THE TREE BRANCHES (DRIPLINE), AND WILL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MATERIALS.
   B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN SIX INCHES (6") CUT OR FILL, OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY.
   C. WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT.
   D. OTHER ACTIVITIES DETRIMENTAL TO TREES, SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING AND FIRE.
3. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:
   A. WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
   B. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN SIX FEET (6'-0") TO BUILDING.

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REVISION NOTE: ADOPTED 6/21/2006

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CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TREE PROTECTION – CHAIN LINK FENCE

DRAWING NAME: EC09

SCALE:	DATE:
NTS	1/2003
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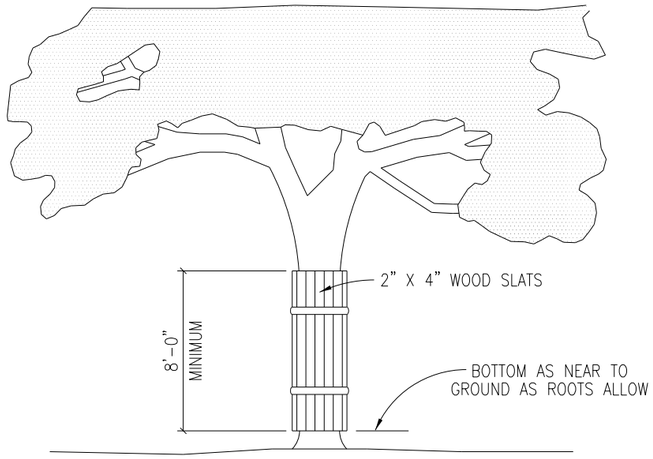
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D B WOOD ROAD

COG ENVIRONMENTAL STANDARDS

SHEET 4 OF 5

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NOTES:

1. WHERE ANY EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN FOUR FEET (4'-0") TO A TREE TRUNK; PROTECT THE TRUNK WITH STRAPPED-ON-PLANKING TO A HEIGHT OF EIGHT FEET (8'-0"), OR TO THE LIMITS OF LOWER BRANCHING IN ADDITION TO THE REDUCED FENCING PROVIDED.
2. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO (2) DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE, AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
3. PRIOR EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINE. MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT, TO MINIMIZE DAMAGE TO REMAINING ROOTS.
4. TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES SHOULD BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. TREE CROWNS SHOULD BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
5. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
6. NO LANDSCAPE TOPSOIL DRESSING GREATER THE FOUR INCHES (4") SHALL BE PERMITTED WITHIN THE DRIPLINE OF A TREE. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
7. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

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CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TREE PROTECTION – WOOD SLATS

DRAWING NAME: EC10

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MRS	TRB

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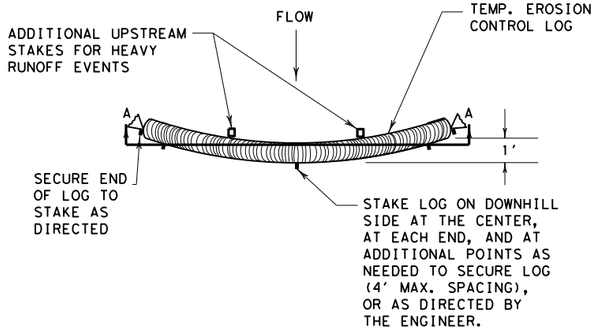
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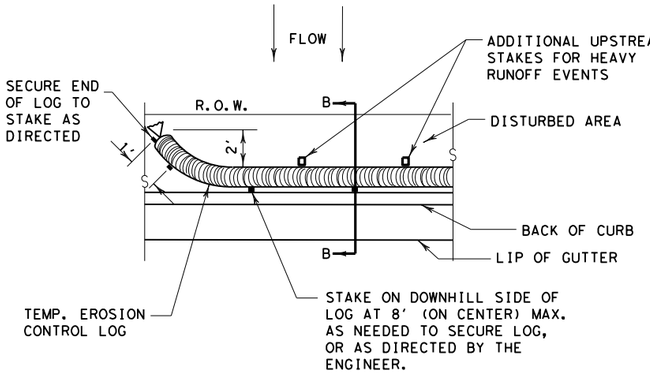
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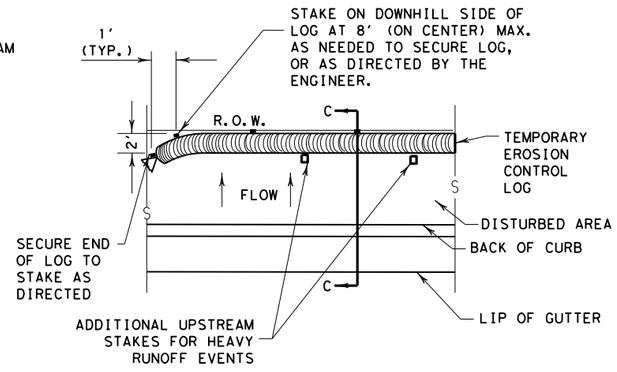
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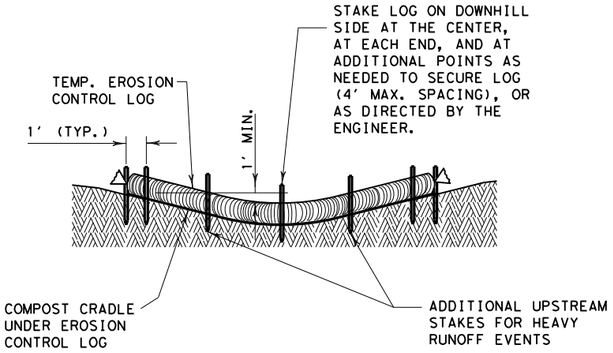
PLAN VIEW



PLAN VIEW



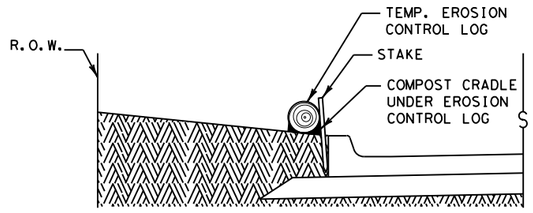
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

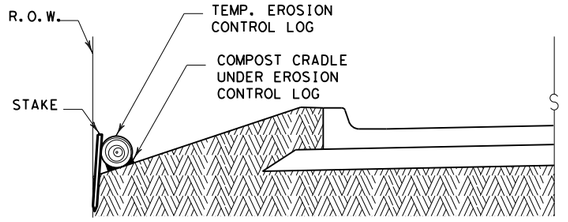
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SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

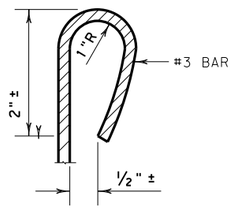
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

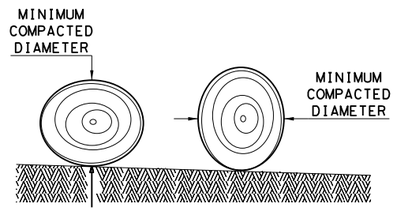
Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

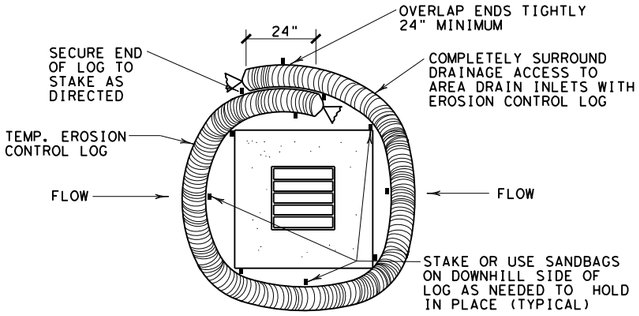
EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS					
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				475	

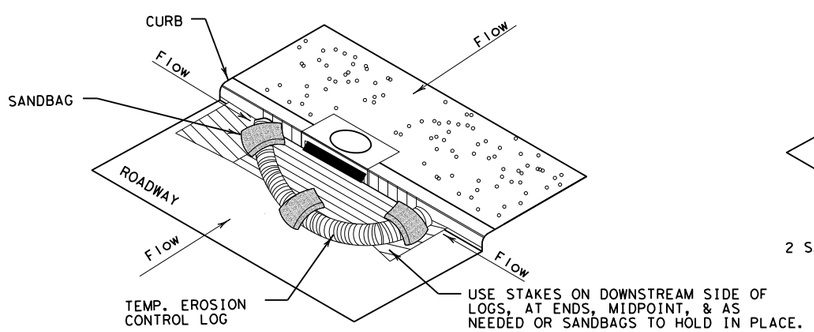
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The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



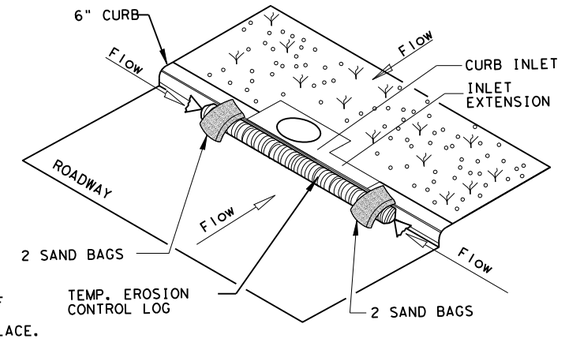
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

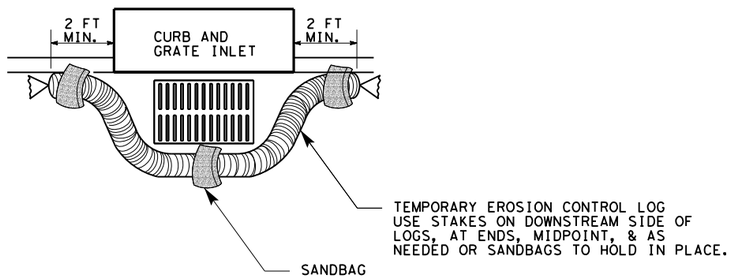
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.

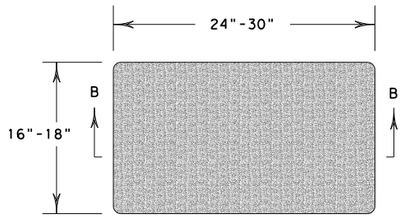


EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SECTION B-B



SANDBAG DETAIL

SHEET 2 OF 2

Texas Department of Transportation

Design Division Standard

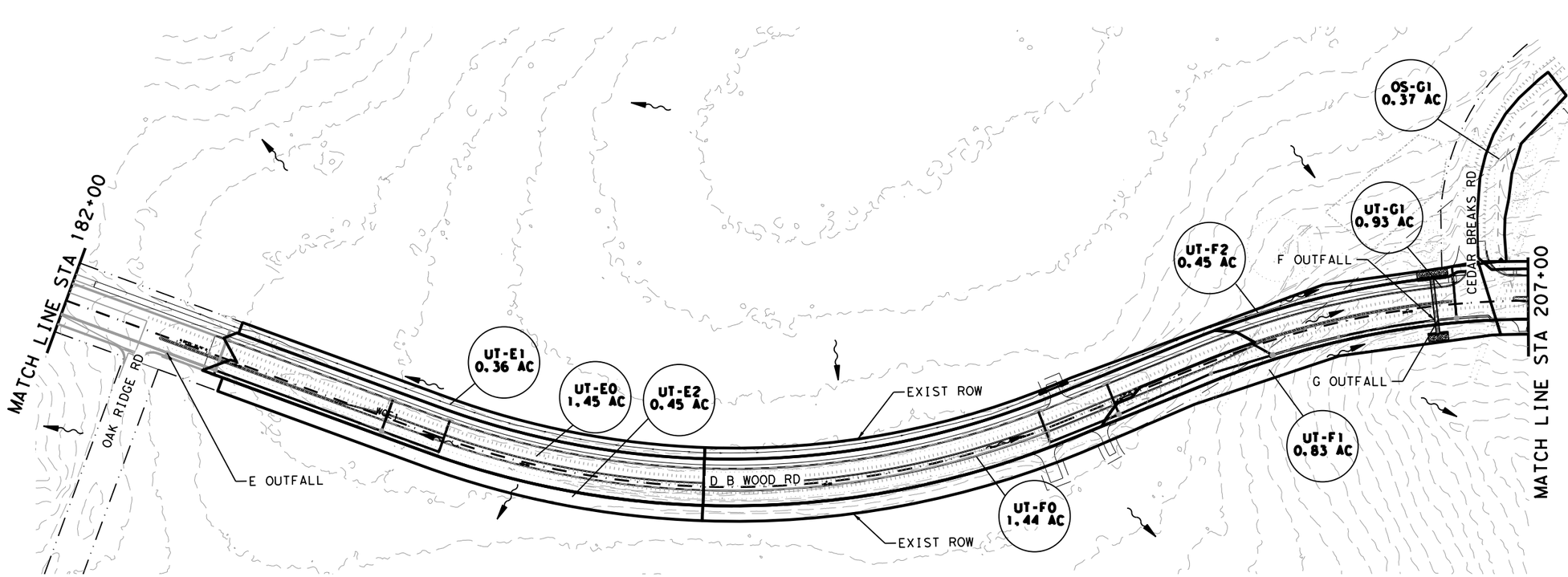
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

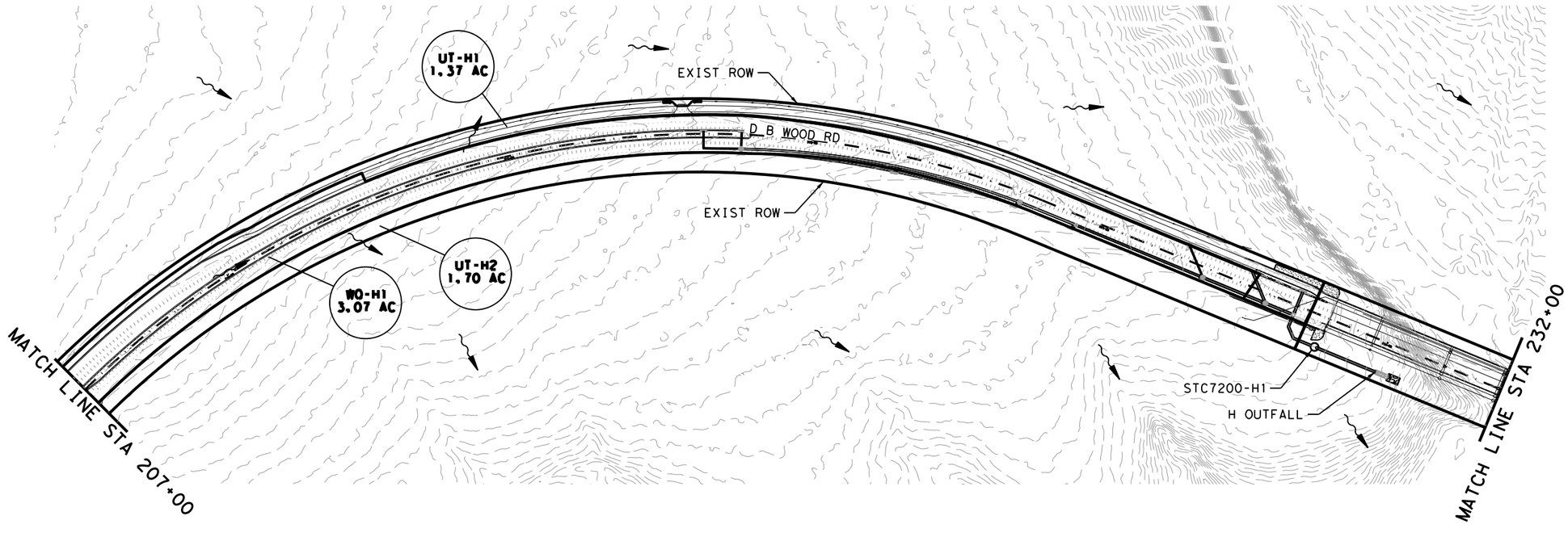
EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				476

DATE: 4/19/2024
FILE: c:\pw\kh1\d0339971\ec916 (2).dgn





0' 100' 200'

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4/19/2024

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MALIA S. CALDWELL
147577
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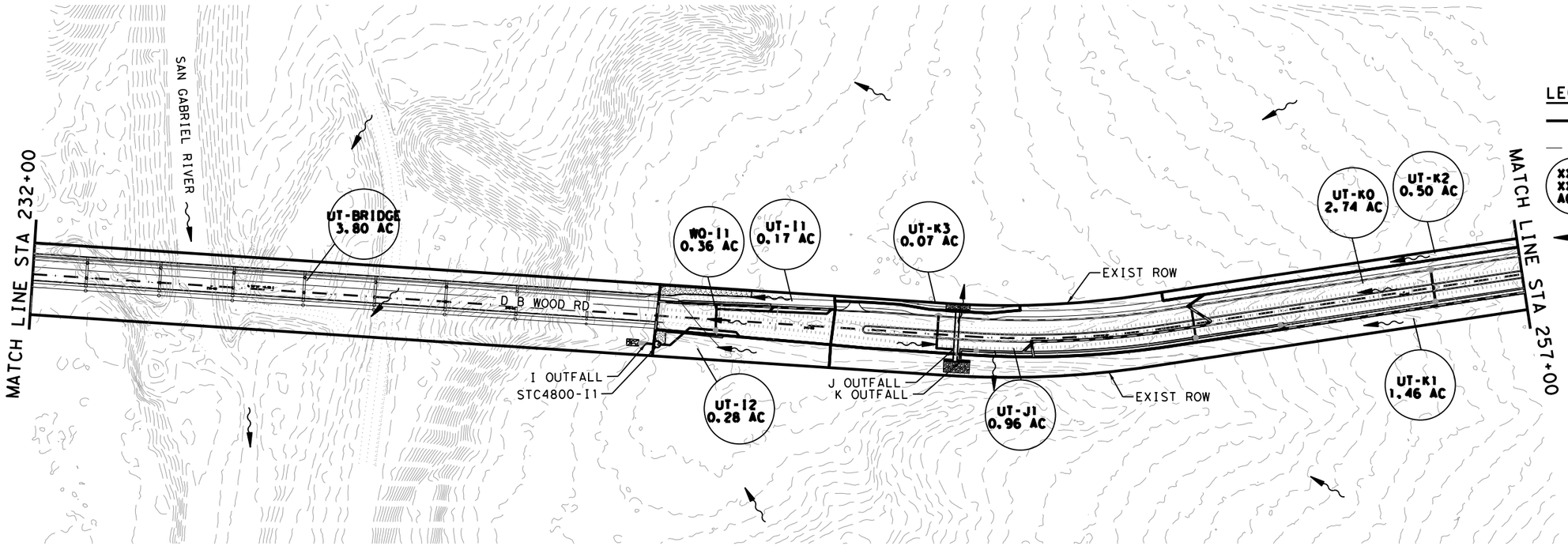
Kimley»Horn F-928

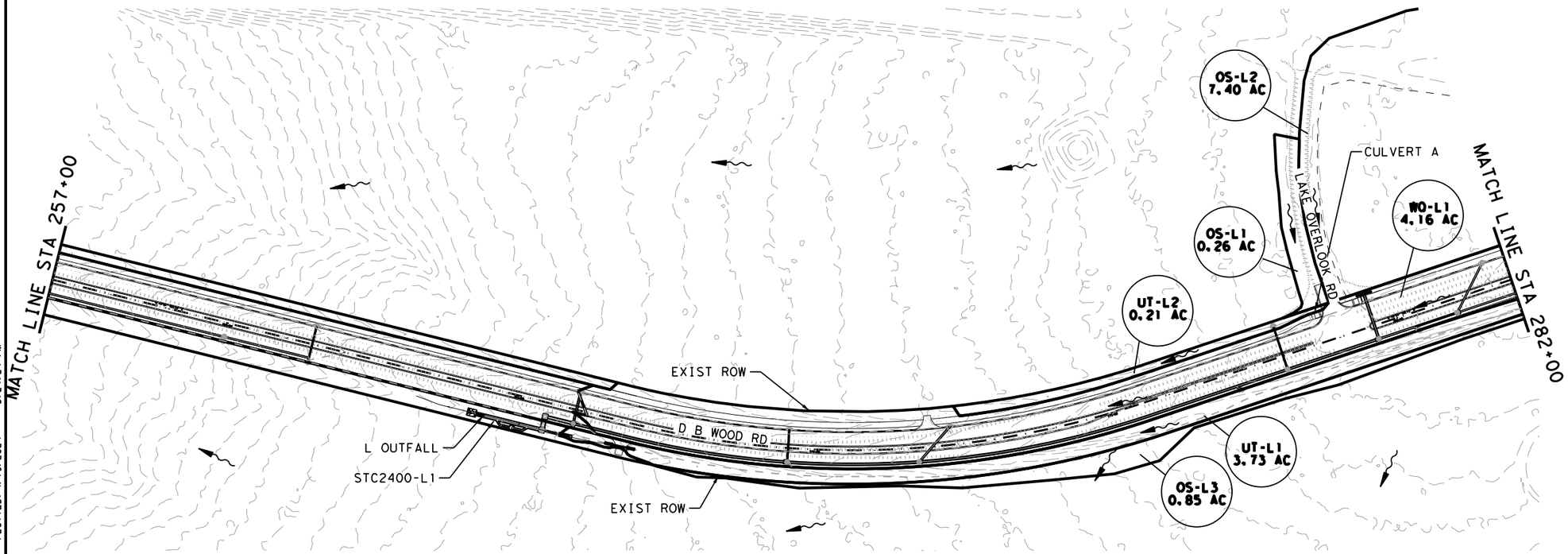
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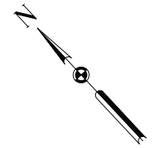
DB WOOD RD WATER QUALITY BASIN MAP

SHEET 1 OF 3 | 477

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LEGEND

- WATER QUALITY BASIN
- EXIST 10' CONTOURS
- XX-X / XX.X AC — WATER QUALIY BASIN LABEL
- DRAINAGE FLOW ARROWS

0' 100' 200'



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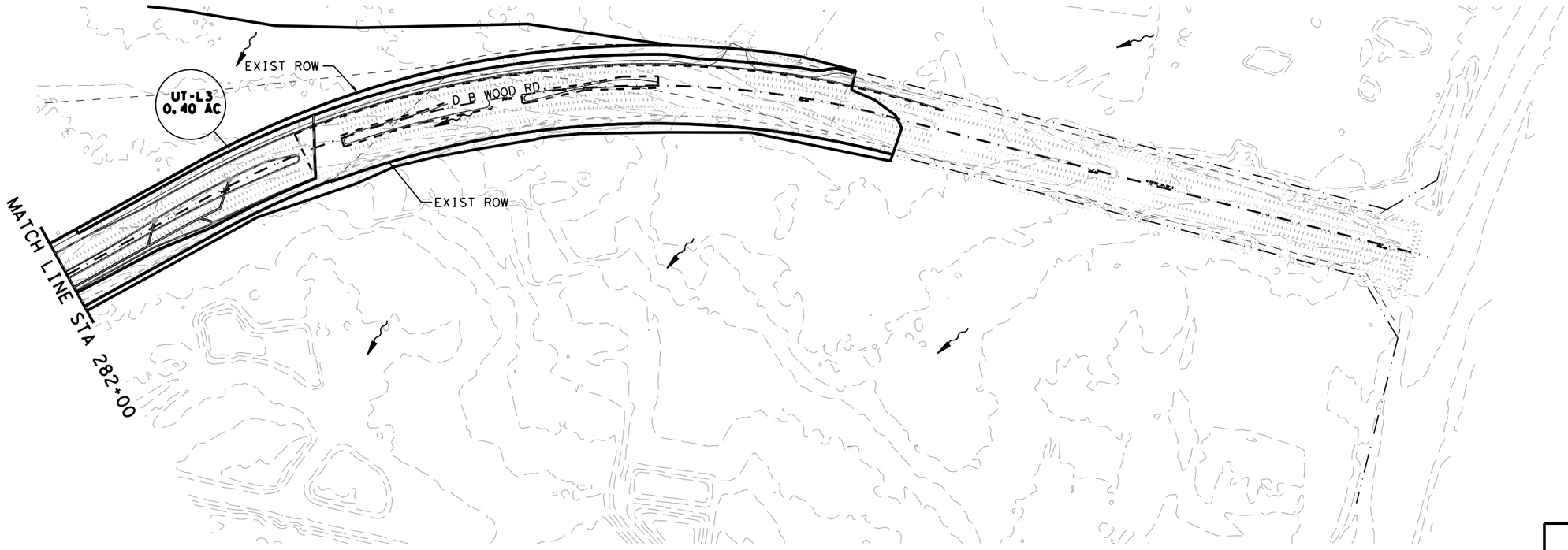
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DB WOOD ROAD WATER QUALITY BASIN MAP

SHEET 2 OF 3 | 478

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LEGEND

- WATER QUALITY BASIN
- EXIST 10' CONTOURS
- XX-X XX.X AC — WATER QUALIY BASIN LABEL
- DRAINAGE FLOW ARROWS

0' 100' 200'

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D B WOOD ROAD WATER QUALITY BASIN MAP

SHEET 3 OF 3 | 479

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1. The Required Load Reduction for the total project:

Site Data	Determine Required Load Removal Based on the Entire Project		
	County =	Williamson	
	Total project area included in plan * =	30.28	acres
	Predevelopment impervious area within the limit	13.28	acres
	Total post-development impervious area within th	18.93	acres
	Total post-development impervious cover fracto	0.63	
	P =	32.00	inches
Required	LM TOTAL PROJECT =	5219	lbs.
Removed	LM TOTAL PROJECT =	5359	lbs.

Overall Water Quality Drainage Basins							
Basin Name	Water Quality Basin Area	Total Impervious Cover	% Impervious Cover	Existing Impervious Cover	Net Increase Impervious Area	% Increase in Impervious Area	Proposed TSS Removal
	(ac)	(ac)		(ac)	(ac)		(lbs)
UT-E0	1.45	1.36	94%	0.85	0.51	35%	0
UT-E1	0.36	0.01	2%	0.01	0.00	0%	0
UT-E2	0.45	0.00	0%	0.00	0.00	0%	0
UT-F0	1.44	1.34	93%	0.88	0.46	32%	0
UT-F1	0.83	0.09	11%	0.03	0.06	7%	0
UT-F2	0.45	0.03	7%	0.01	0.02	4%	0
UT-G1	0.93	0.89	95%	0.56	0.33	35%	0
WQ-H1	3.07	3.07	100%	2.16	0.91	30%	2073
UT-H1	1.37	0.50	36%	0.16	0.34	25%	0
UT-H2	1.70	0.01	1%	0.00	0.01	1%	0
UT-BRG	3.80	1.88	50%	1.48	0.40	10%	0
WQ-I1	0.36	0.36	100%	0.30	0.06	17%	325
UT-I1	0.17	0.07	39%	0.05	0.02	9%	0
UT-I2	0.28	0.00	1%	0.00	0.00	0%	0
UT-J1	0.96	0.86	100%	0.50	0.35	37%	0
UT-K0	2.74	2.57	92%	1.57	1.00	36%	0
UT-K1	1.46	0.02	1%	0.01	0.01	1%	0
UT-K2	0.50	0.00	0%	0.00	0.00	0%	0
UT-K3	0.07	0.01	16%	0.00	0.01	16%	0
WQ-L1	4.16	3.89	94%	2.91	0.98	24%	2960
UT-L1	3.73	1.96	52%	1.78	0.18	5%	0
UT-L2	0.21	0.00	0%	0.00	0.00	0%	0
UT-L3	0.40	0.02	5%	0.02	0.00	0%	0
OS-G1	0.37	0.15	41%	0.15	0.00	0%	0
OS-L1	0.26	0.09	33%	0.09	0.00	0%	0.00
OS-L2	7.40	0.65	23%	0.65	0.00	0%	0.00
OS-L3	0.85	0.00	0%	0.00	0.00	0%	0.00

Offsite Total	8.88	0.89	10%	0.89	0.00	0%	0.00
Site Total	30.90	18.93	61%	13.28	5.64	18%	5359
Total	39.78	19.81	50%	14.17	5.64	14%	5359

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147577
LICENSED
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D B WOOD ROAD

WATER QUALITY HYDRAULIC DATA DATA SHEET

SHEET 1 OF 3 | 480

FILENAME: pw:\\kh-pw.bentley.com:kh-pw-01\Documents\01 Active Projects\TX-AUS-069226619 - DB Wood\DesignData-Phase 2\4 - Design\Plan Set\10. Environmental\DBW_WQ_DATA SHEET_01.dgn
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Texas Commission on Environmental Quality
TSS Removal Calculations
AREA PH1 DRAINAGE BASIN WQ-H1

Drainage Basin/Outfall Area No. =	H	
Total drainage basin/outfall area =	3.07	
Predevelopment impervious area within drainage basin/outfall area =	2.16	acres
Post-development impervious area within drainage basin/outfall area =	3.07	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
LM THIS BASIN =	842.99	lbs.

Proposed BMP =	Stormceptor
Removal efficiency =	61%

RG-348 Page 3-33 Equation 3.7:	
LR= (BMP efficiency) x P x (AI x 34.6 + AP x 0.54)	
AC =	Total On-Site drainage area in the BMP catchment area
AI =	Impervious area proposed in the BMP catchment area
AP =	Pervious area remaining in the BMP catchment area
LR =	TSS Load removed from this catchment area by the proposed BMP

AC =	3.07	acres
AI =	3.07	acres
AP =	0.00	acres
LR =	2073	lbs

Desired LM THIS BASIN =	842.99	lbs.
F =	0.41	

Texas Commission on Environmental Quality
TSS Removal Calculations
AREA OUTF DRAINAGE BASIN WQ-I1

Drainage Basin/Outfall Area No. =	I	
Total drainage basin/outfall area =	0.36	
Predevelopment impervious area within drainage basin/outfall area =	0.30	acres
Post-development impervious area within drainage basin/outfall area =	0.36	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
LM THIS BASIN =	57.51	lbs.

Proposed BMP =	Stormceptor
Removal efficiency =	82%

RG-348 Page 3-33 Equation 3.7:	
LR= (BMP efficiency) x P x (AI x 34.6 + AP x 0.54)	
AC =	Total On-Site drainage area in the BMP catchment area
AI =	Impervious area proposed in the BMP catchment area
AP =	Pervious area remaining in the BMP catchment area
LR =	TSS Load removed from this catchment area by the proposed BMP

AC =	0.36	acres
AI =	0.36	acres
AP =	0.00	acres
LR =	325	lbs

Desired LM THIS BASIN =	57.51	lbs.
F =	0.18	

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D B WOOD ROAD

WATER QUALITY HYDRAULIC DATA DATA SHEET

SHEET 2 OF 3 | 481

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Texas Commission on Environmental Quality
TSS Removal Calculations
AREA OUTK DRAINAGE BASIN WQ-L

Drainage Basin/Outfall Area No. =	L	
Total drainage basin/outfall area =	4.76	
Predevelopment impervious area within drainage basin/outfall area =	3.08	acres
Post-development impervious area within drainage basin/outfall area =	4.06	acres
Post-development impervious fraction within drainage basin/outfall area =	0.85	
LM THIS BASIN =	906.15	lbs.

Proposed BMP =	Stormceptor
Removal efficiency =	46%

RG-348 Page 3-33 Equation 3.7:	
LR= (BMP efficiency) x P x (AI x 34.6 + AP x 0.54)	
AC =	Total On-Site drainage area in the BMP catchment area
AI =	Impervious area proposed in the BMP catchment area
AP =	Pervious area remaining in the BMP catchment area
LR =	TSS Load removed from this catchment area by the proposed BMP

AC =	4.76	acres
AI =	4.06	acres
AP =	0.70	acres
LR =	2073	lbs

Desired LM THIS BASIN =	906	lbs.
F =	0.44	

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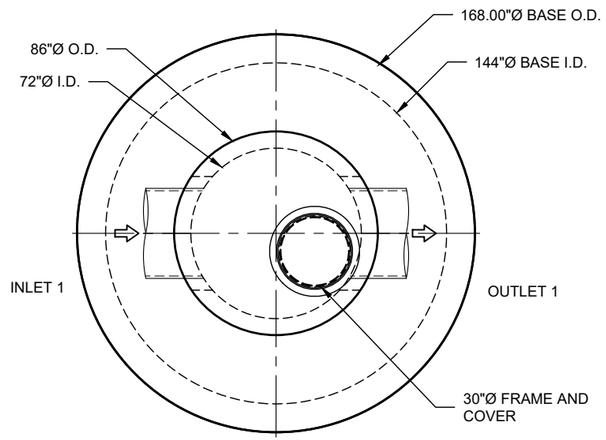
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D B WOOD ROAD

WATER QUALITY HYDRAULIC DATA DATA SHEET

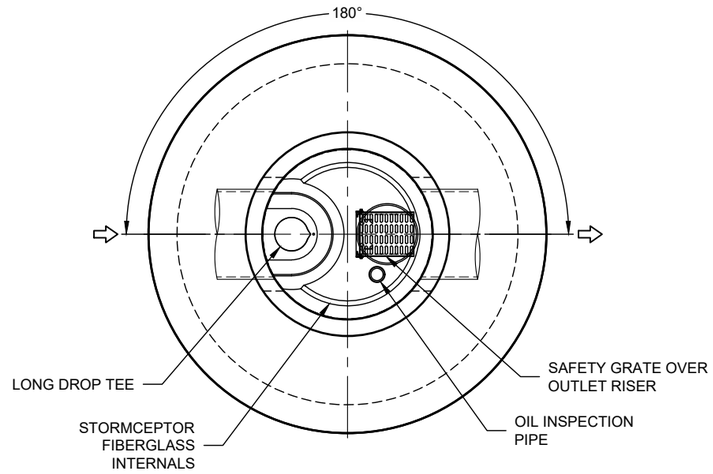
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PLAN VIEW

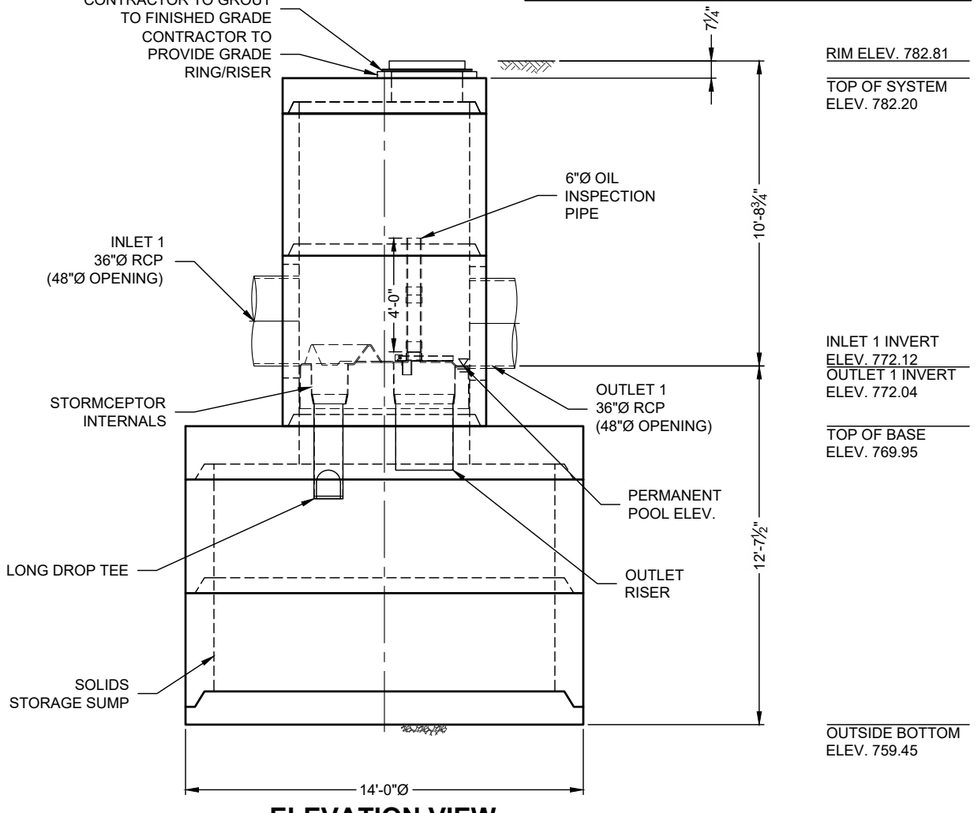
INTERNALS NOT SHOWN



SECTION FOR PIPE ORIENTATION

TOP SLAB NOT SHOWN

CONTRACTOR TO INSTALL LONG DROP TEE AND OUTLET RISER EXTENSION ON-SITE. SEE INSTALLATION INSTRUCTIONS



ELEVATION VIEW

MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
1	STC7200 6'Ø FIBERGLASS MULTI INSERT, STD	CONTECH
1	FIBERGLASS LONG DROP TEE	CONTRACTOR
1	FIBERGLASS 24"Ø OUTLET RISER EXTENSION PIPE	CONTRACTOR
1	ALUMINUM 24" SAFETY GRATE	CONTECH
2	6"Ø PVC OIL INSPECTION PIPE	CONTECH
1	6"Ø PVC COUPLING	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
1	30"Ø X 4" FRAME AND COVER, EJ #41600483, OR EQUIV.	CONTRACTOR

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
3. STORMCEPTOR 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 LOAD RATING, ASSUMING EARTH COVER OF 0' - 1', 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. STORMCEPTOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

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 STORMCEPTOR MANHOLE STRUCTURE.
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

STRUCTURE WEIGHT

APPROXIMATE HEAVIEST PICK = 26500 LBS.
OF 7 PIECES

MAXIMUM FOOTPRINT = 14.00'Ø

CONTECH
CONTRACT
DRAWING

SLY
LAYOUT 1A/1B

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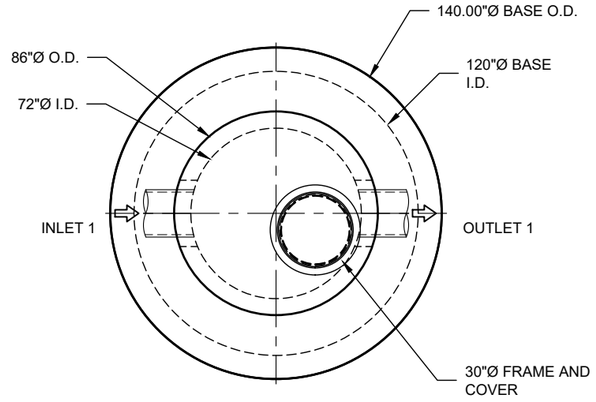
STC7200 - 783227-10
DB WOOD PH2
GEORGETOWN, TX
SITE DESIGNATION: H1

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

Stormceptor®
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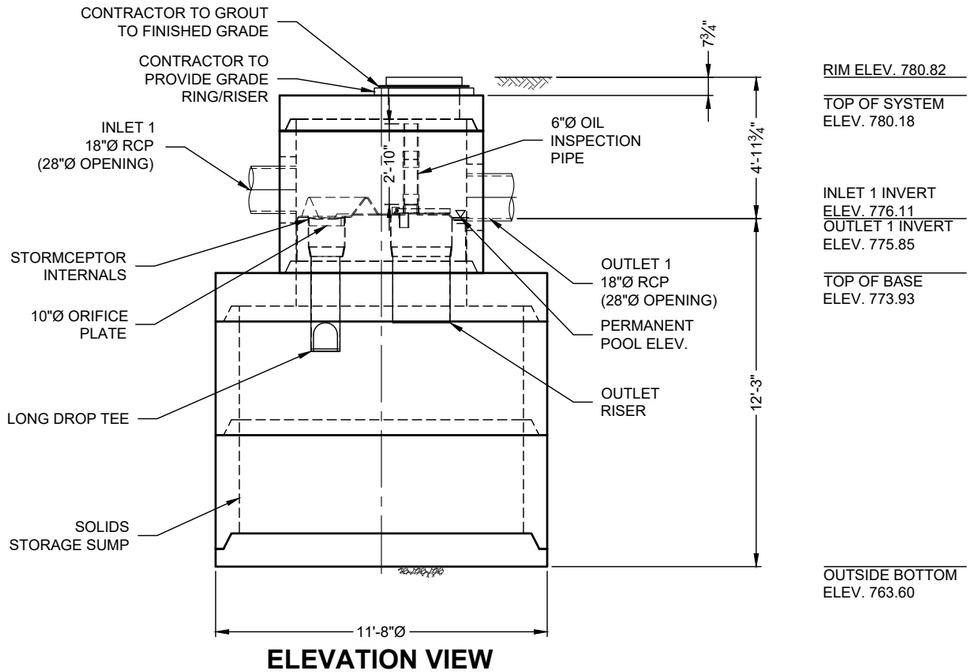
DATE:	04/12/2024
DESIGNED: LJK	DRAWN: MAA
CHECKED: LJK	APPROVED: LJK
PROJECT No.: 783227	SEQUENCE No.: 10
SHEET:	483

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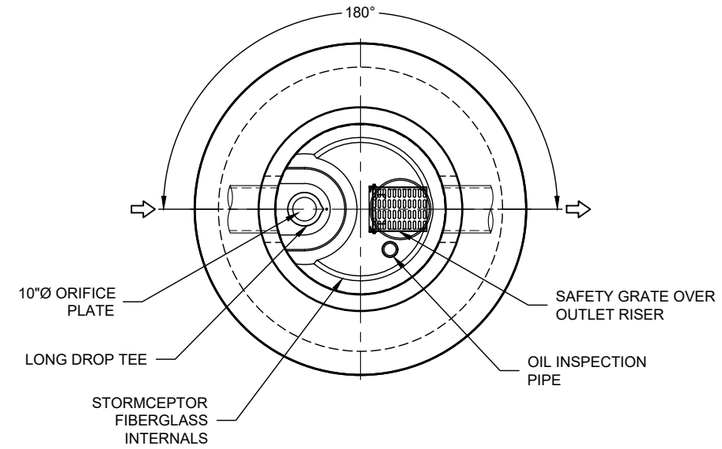


PLAN VIEW
INTERNALS NOT SHOWN

CONTRACTOR TO INSTALL LONG DROP TEE AND OUTLET RISER EXTENSION ON-SITE. SEE INSTALLATION INSTRUCTIONS



ELEVATION VIEW



SECTION FOR PIPE ORIENTATION
TOP SLAB NOT SHOWN

MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
1	STC4800 6'Ø FIBERGLASS SINGLE INSERT, STD	CONTECH
1	FIBERGLASS LONG DROP TEE	CONTRACTOR
1	FIBERGLASS 24"Ø OUTLET RISER EXTENSION PIPE	CONTRACTOR
1	FIBERGLASS 10"Ø ORIFICE PLATE	CONTRACTOR
1	ALUMINUM 24" SAFETY GRATE	CONTECH
2	6"Ø PVC OIL INSPECTION PIPE	CONTECH
1	6"Ø PVC COUPLING	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
1	30"Ø X 4" FRAME AND COVER, EJ #41600483, OR EQUIV.	CONTRACTOR

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
3. STORMCEPTOR 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 LOAD RATING, ASSUMING EARTH COVER OF 0' - 1', 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. STORMCEPTOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

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 STORMCEPTOR MANHOLE STRUCTURE.
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = 18500 LBS.
OF 6 PIECES

MAXIMUM FOOTPRINT = 11.67'Ø

CONTECH
CONTRACT
DRAWING

SLY
LAYOUT 1A/1B

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If discrepancies between the supplied information upon which this drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to CONTECH immediately to allow modification of the design. CONTECH assumes no liability for designs based on erroneous, incomplete or inaccurate information supplied by others.

MARK	DATE	REVISION DESCRIPTION	BY

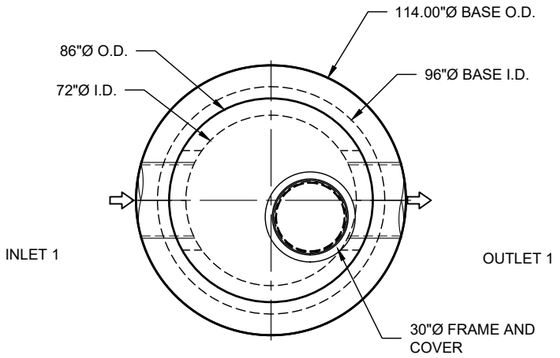
STC4800 - 783227-015
DB WOOD PH2
GEORGETOWN, TX
SITE DESIGNATION: I1

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

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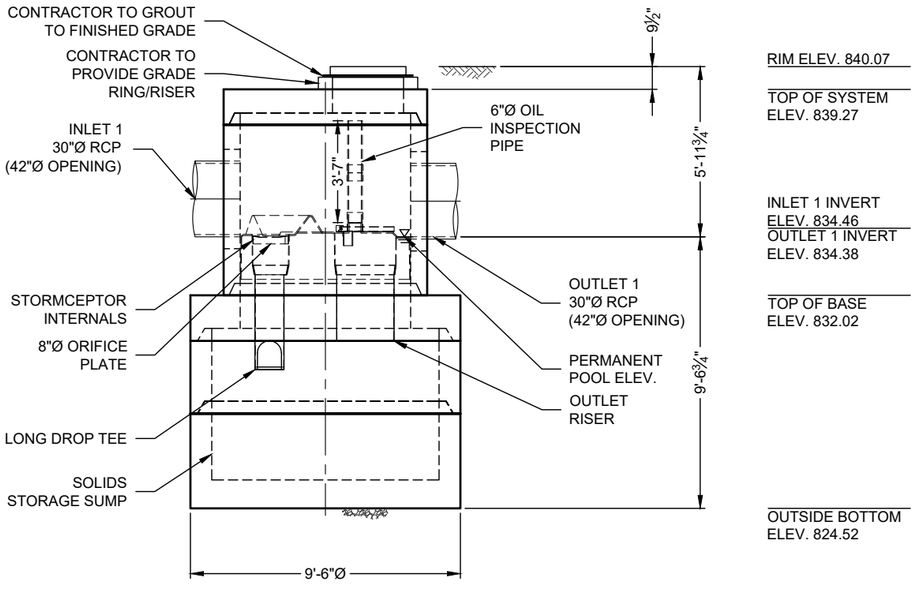
DATE:	4/12/2024
DESIGNED: LJK	DRAWN: MAA
CHECKED: LJK	APPROVED: LJK
PROJECT No.: 783227	SEQUENCE No.: 015
SHEET:	484

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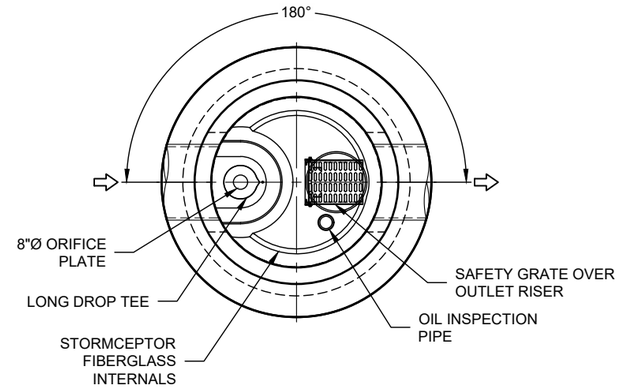


PLAN VIEW
INTERNALS NOT SHOWN

CONTRACTOR TO INSTALL LONG DROP TEE AND OUTLET RISER EXTENSION ON-SITE. SEE INSTALLATION INSTRUCTIONS



ELEVATION VIEW



SECTION FOR PIPE ORIENTATION
TOP SLAB NOT SHOWN

MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
1	STC2400 6'Ø FIBERGLASS SINGLE INSERT, STD	CONTECH
1	FIBERGLASS LONG DROP TEE	CONTRACTOR
1	FIBERGLASS 24"Ø OUTLET RISER EXTENSION PIPE	CONTRACTOR
1	FIBERGLASS 8"Ø ORIFICE PLATE	CONTRACTOR
1	ALUMINUM 24" SAFETY GRATE	CONTECH
2	6"Ø PVC OIL INSPECTION PIPE	CONTECH
1	6"Ø PVC COUPLING	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
1	30"Ø X 4" FRAME AND COVER, EJ #41600483, OR EQUIV.	CONTRACTOR

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D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = 19500 LBS.
OF 5 PIECES

MAXIMUM FOOTPRINT = 9.50'Ø

CONTECH
CONTRACT
DRAWING

SLY
LAYOUT 1A/1A

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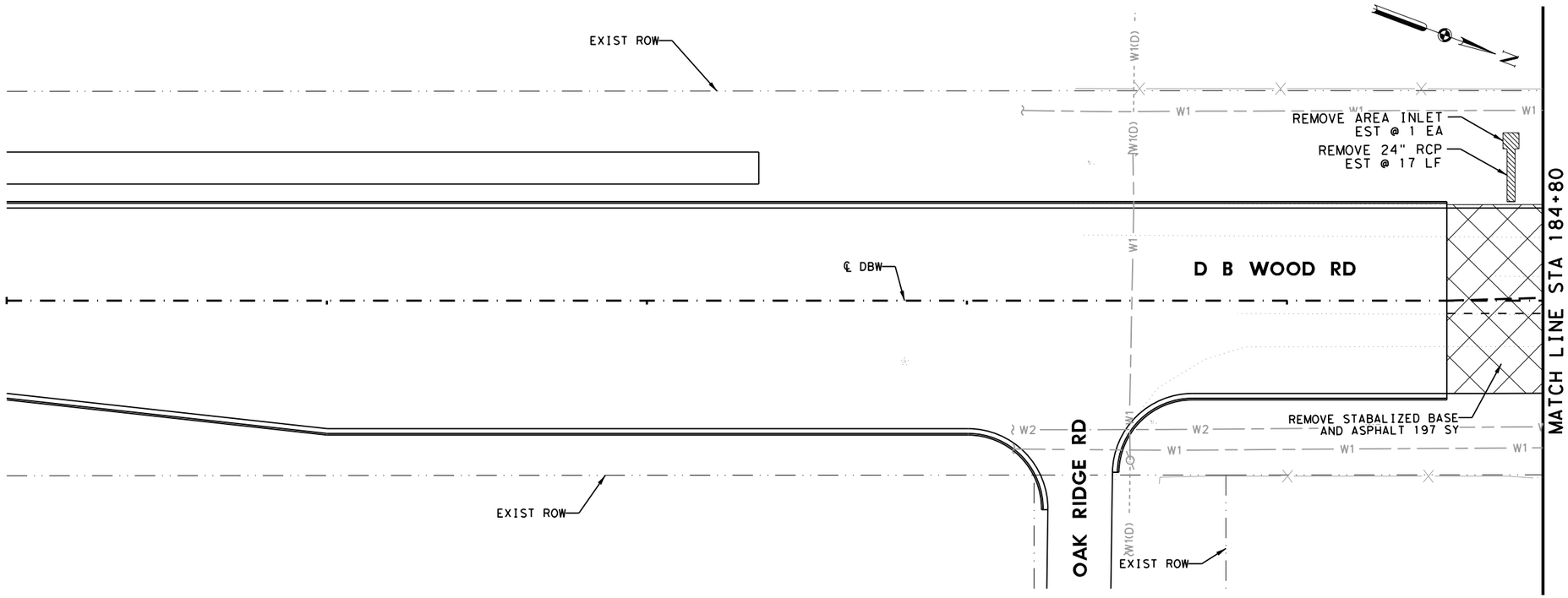
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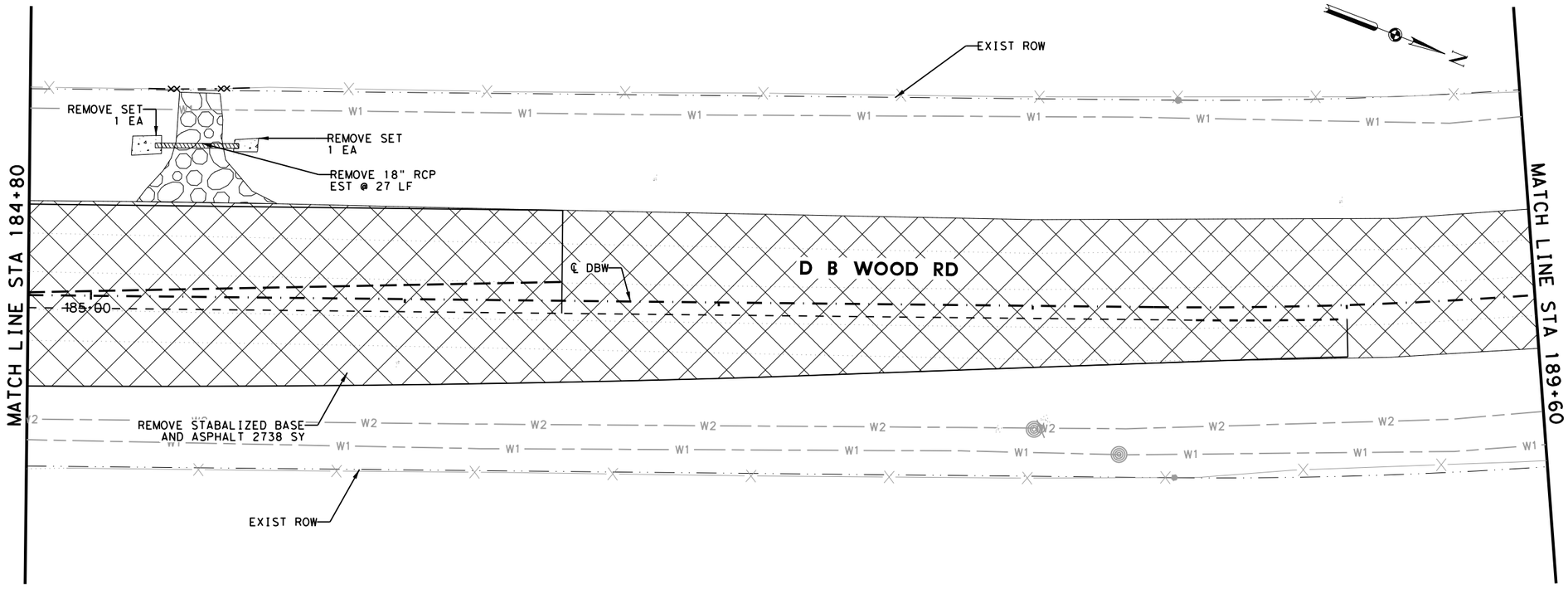
STC2400 - 783227-020
DB WOOD PH2
GEORGETOWN, TX
SITE DESIGNATION: L1

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
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DATE:	04/12/2024
DESIGNED: LJK	DRAWN: MAA
CHECKED: LJK	APPROVED: LJK
PROJECT No.: 783227	SEQUENCE No.: 020
SHEET:	485

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

1. TREE AND BRUCH REMOVAL, INCLUDING THOSE NOT SHOWN IN THE PLANS BUT ARE REQUIRED TO BE REMOVED WITHIN THE EXISTING EASMENT FOR BRIDGE CONSTRUCTION AND ACCESS ARE CONSIDERED SUBSIDIARY TO PREPARING ROW

2. REMOVAL AND DISPOSAL OF EXISTING UTILTIES REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE SUBSIDIARY TO PREPARE RIGHT-OF-WAY OTHER THAN THE REMOVAL OF THE EXISTING WATERLINE ON THE BRIDGE, WHICH WILL BE PAID FOR DIRECTLY UNDER ITEM 0496 6999 REMOV STR (PIPE) (BRIDGE).

0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

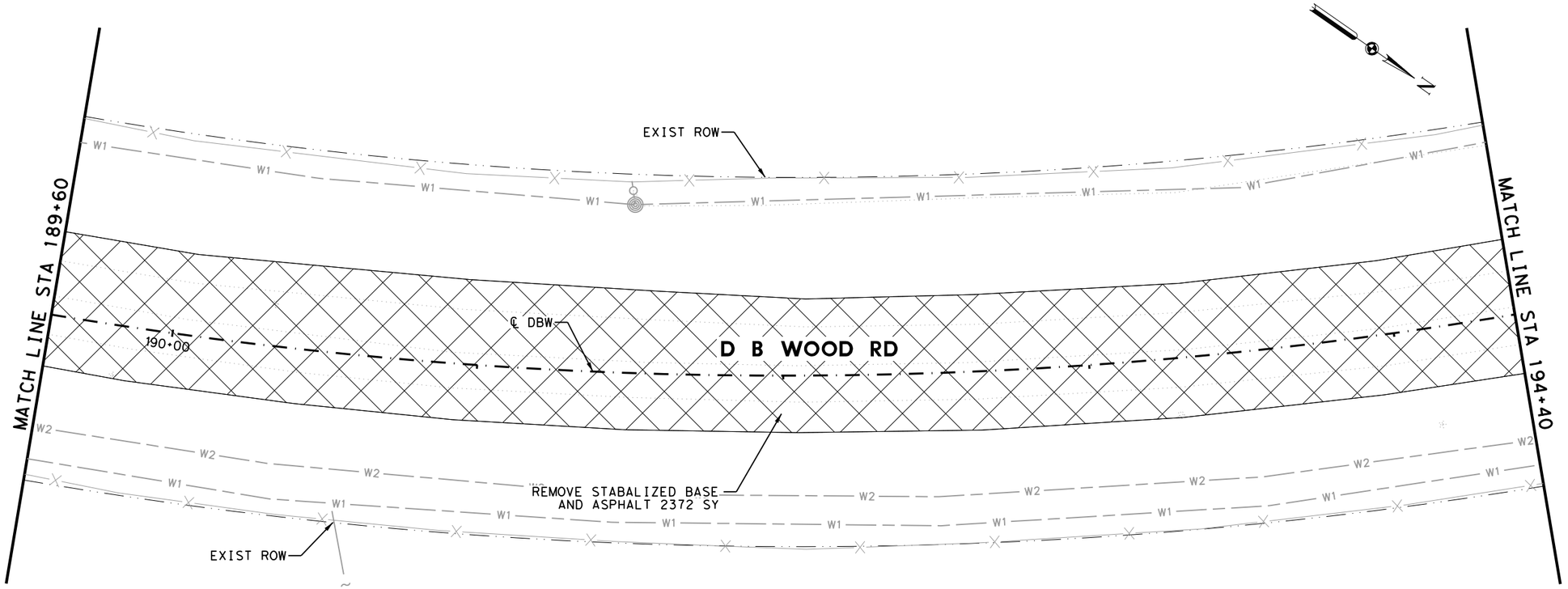
GEORGETOWN TEXAS
more than welcome

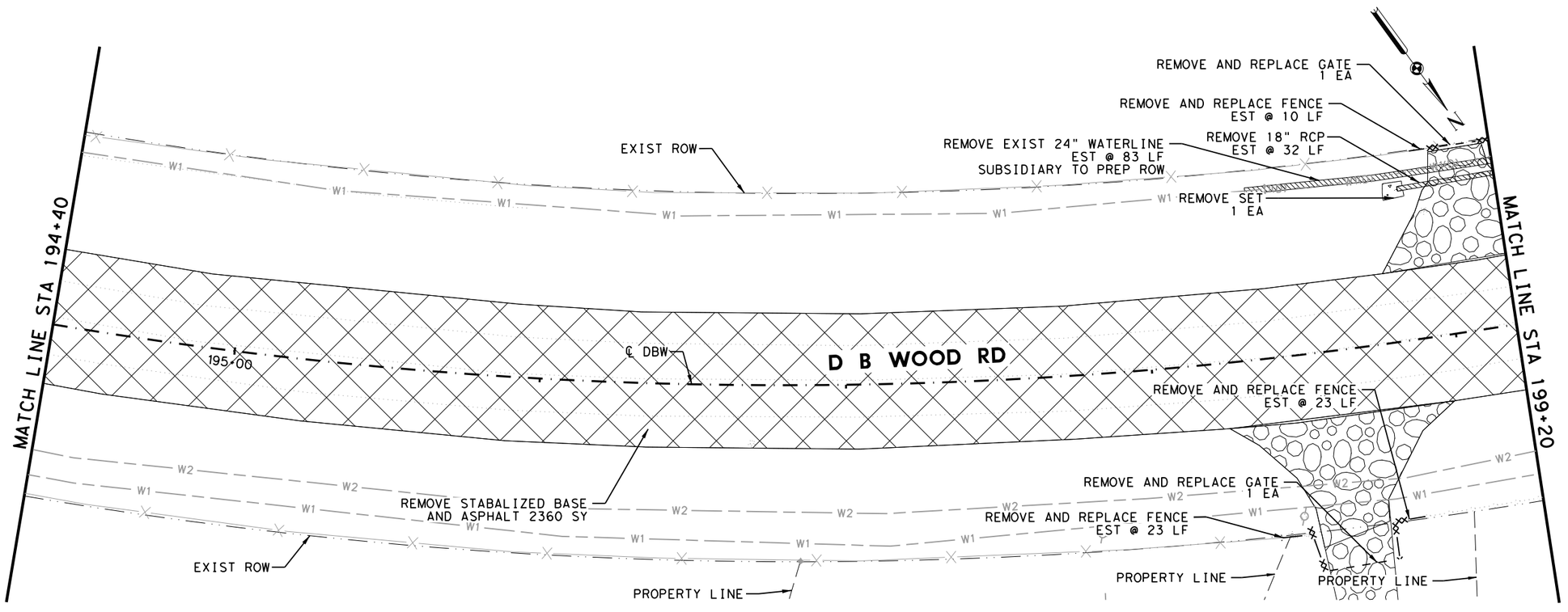
REMOVAL PLAN

BEGIN PROJECT TO STA 189+60

SHEET 1 OF 12 | 486

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

1. TREE AND BRUCH REMOVAL, INCLUDING THOSE NOT SHOWN IN THE PLANS BUT ARE REQUIRED TO BE REMOVED WITHIN THE EXISTING EASMENT FOR BRIDGE CONSTRUCTION AND ACCESS ARE CONSIDERED SUBSIDIARY TO PREPARING ROW

2. REMOVAL AND DISPOSAL OF EXISTING UTILTIES REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE SUBSIDIARY TO PREPARE RIGHT-OF-WAY OTHER THAN THE REMOVAL OF THE EXISTING WATERLINE ON THE BRIDGE, WHICH WILL BE PAID FOR DIRECTLY UNDER ITEM 0496 6999 REMOV STR (PIPE) (BRIDGE).

0' 20' 40'

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

4/22/2024

Kimley»Horn F-928

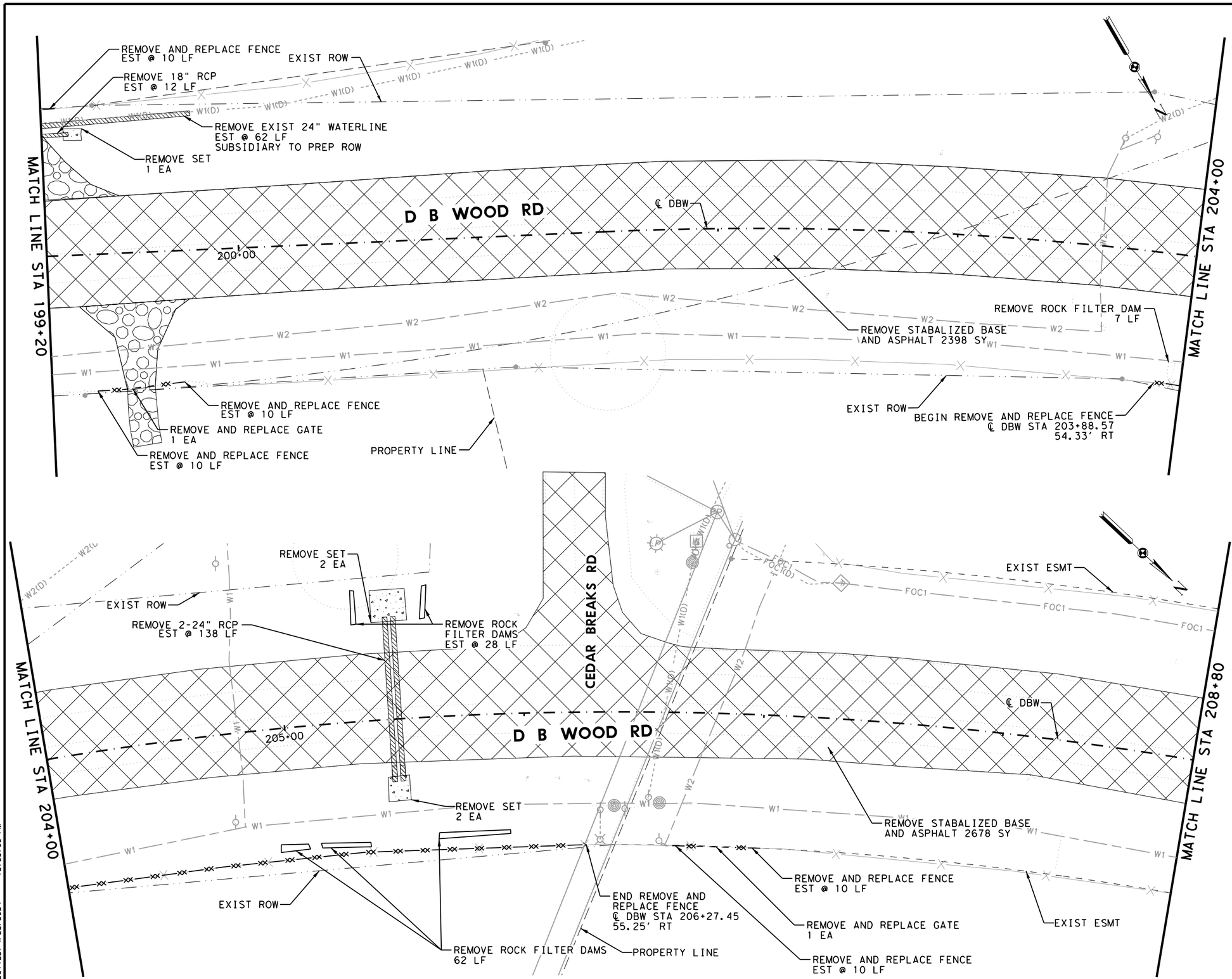
GEORGETOWN TEXAS
more than welcome

REMOVAL PLAN

STA 189+60 TO STA 199+20

SHEET 2 OF 12 | 487

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

1. TREE AND BRUCH REMOVAL, INCLUDING THOSE NOT SHOWN IN THE PLANS BUT ARE REQUIRED TO BE REMOVED WITHIN THE EXISTING EASMENT FOR BRIDGE CONSTRUCTION AND ACCESS ARE CONSIDERED SUBSIDIARY TO PREPARING ROW

2. REMOVAL AND DISPOSAL OF EXISTING UTILITIES REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE SUBSIDIARY TO PREPARE RIGHT-OF-WAY OTHER THAN THE REMOVAL OF THE EXISTING WATERLINE ON THE BRIDGE, WHICH WILL BE PAID FOR DIRECTLY UNDER ITEM 0496 6999 REMOV STR (PIPE) (BRIDGE).

0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

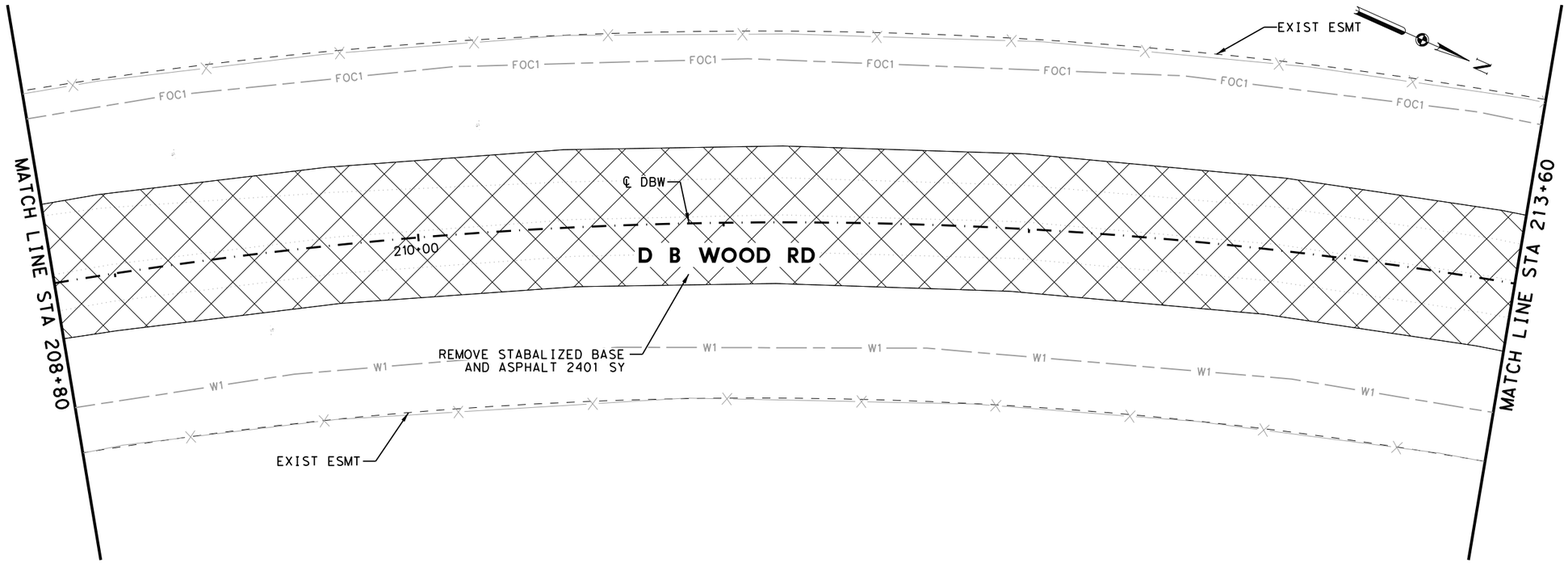
GEORGETOWN TEXAS
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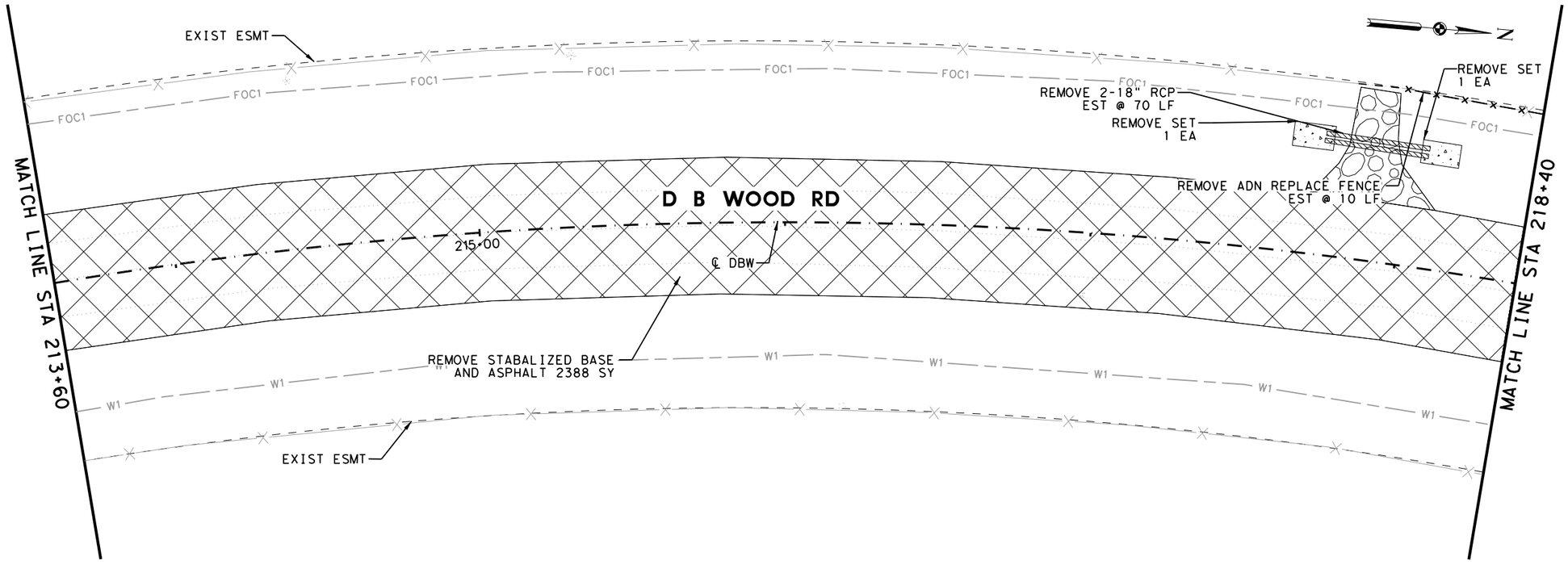
REMOVAL PLAN

STA 199+20 TO STA 208+80

SHEET 3 OF 12 | 488

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

1. TREE AND BRUCH REMOVAL, INCLUDING THOSE NOT SHOWN IN THE PLANS BUT ARE REQUIRED TO BE REMOVED WITHIN THE EXISTING EASMENT FOR BRIDGE CONSTRUCTION AND ACCESS ARE CONSIDERED SUBSIDIARY TO PREPARING ROW

2. REMOVAL AND DISPOSAL OF EXISTING UTILTIES REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE SUBSIDIARY TO PREPARE RIGHT-OF-WAY OTHER THAN THE REMOVAL OF THE EXISTING WATERLINE ON THE BRIDGE, WHICH WILL BE PAID FOR DIRECTLY UNDER ITEM 0496 6999 REMOV STR (PIPE) (BRIDGE).

0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
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Kimley»Horn F-928

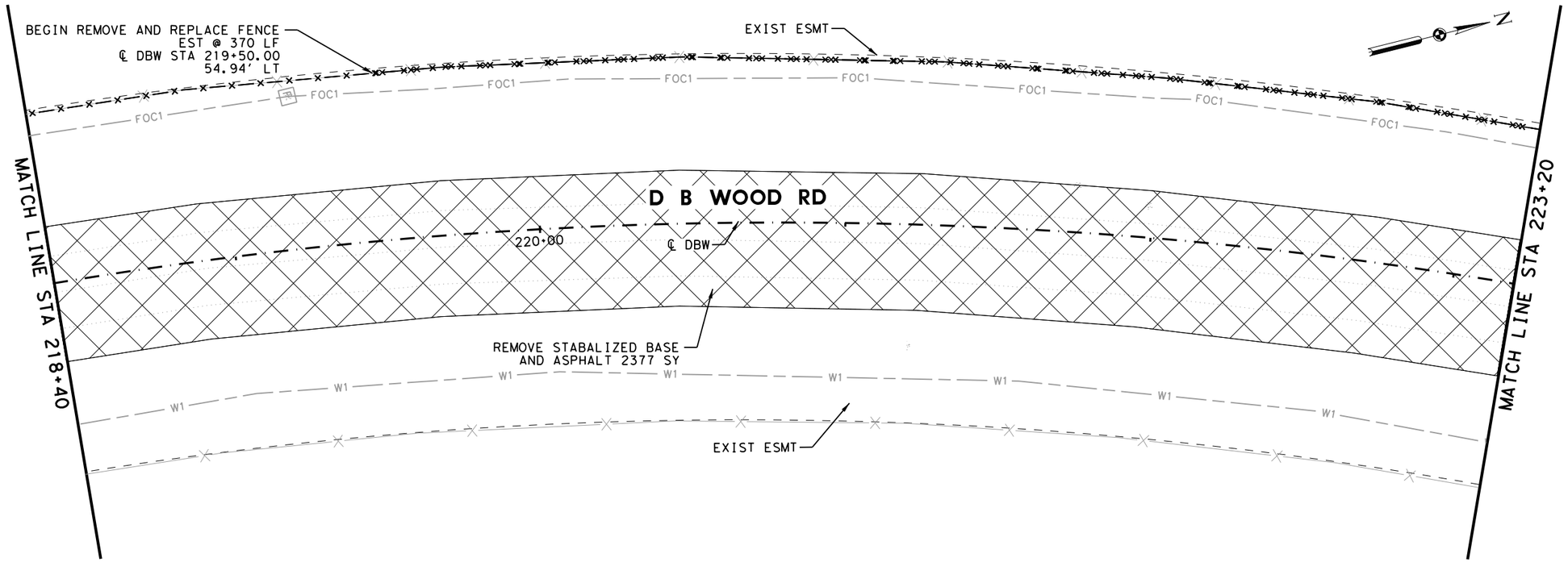
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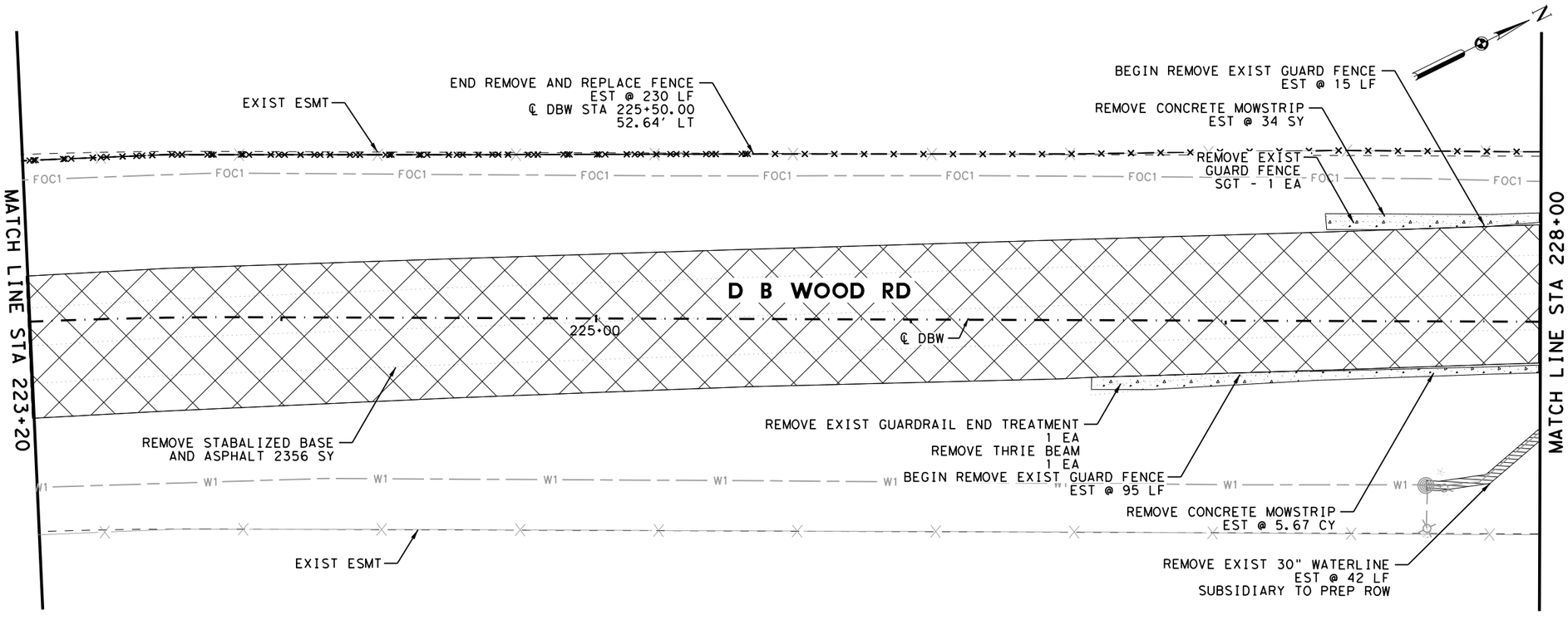
REMOVAL PLAN

STA 208+80 TO STA 218+40

SHEET 4 OF 12 | 489

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

1. TREE AND BRUCH REMOVAL, INCLUDING THOSE NOT SHOWN IN THE PLANS BUT ARE REQUIRED TO BE REMOVED WITHIN THE EXISTING EASMENT FOR BRIDGE CONSTRUCTION AND ACCESS ARE CONSIDERED SUBSIDIARY TO PREPARING ROW

2. REMOVAL AND DISPOSAL OF EXISTING UTILTIES REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE SUBSIDIARY TO PREPARE RIGHT-OF-WAY OTHER THAN THE REMOVAL OF THE EXISTING WATERLINE ON THE BRIDGE, WHICH WILL BE PAID FOR DIRECTLY UNDER ITEM 0496 6999 REMOV STR (PIPE) (BRIDGE).

0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

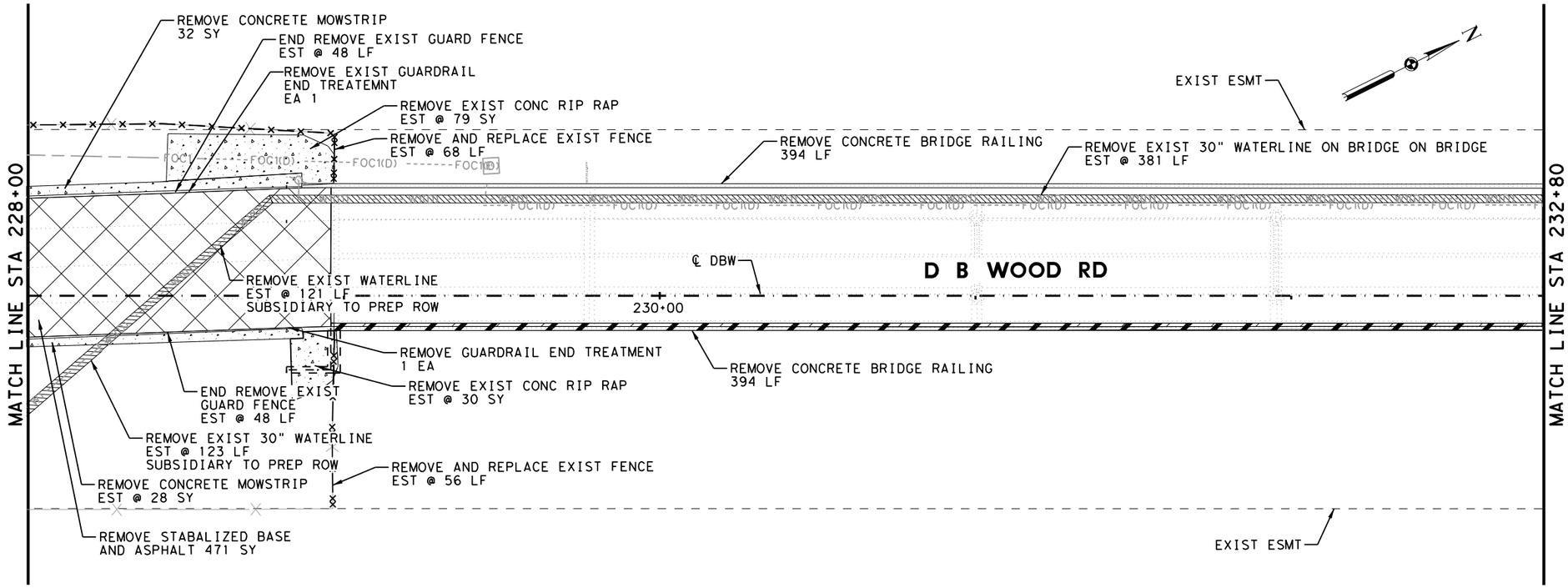
GEORGETOWN TEXAS
more than welcome

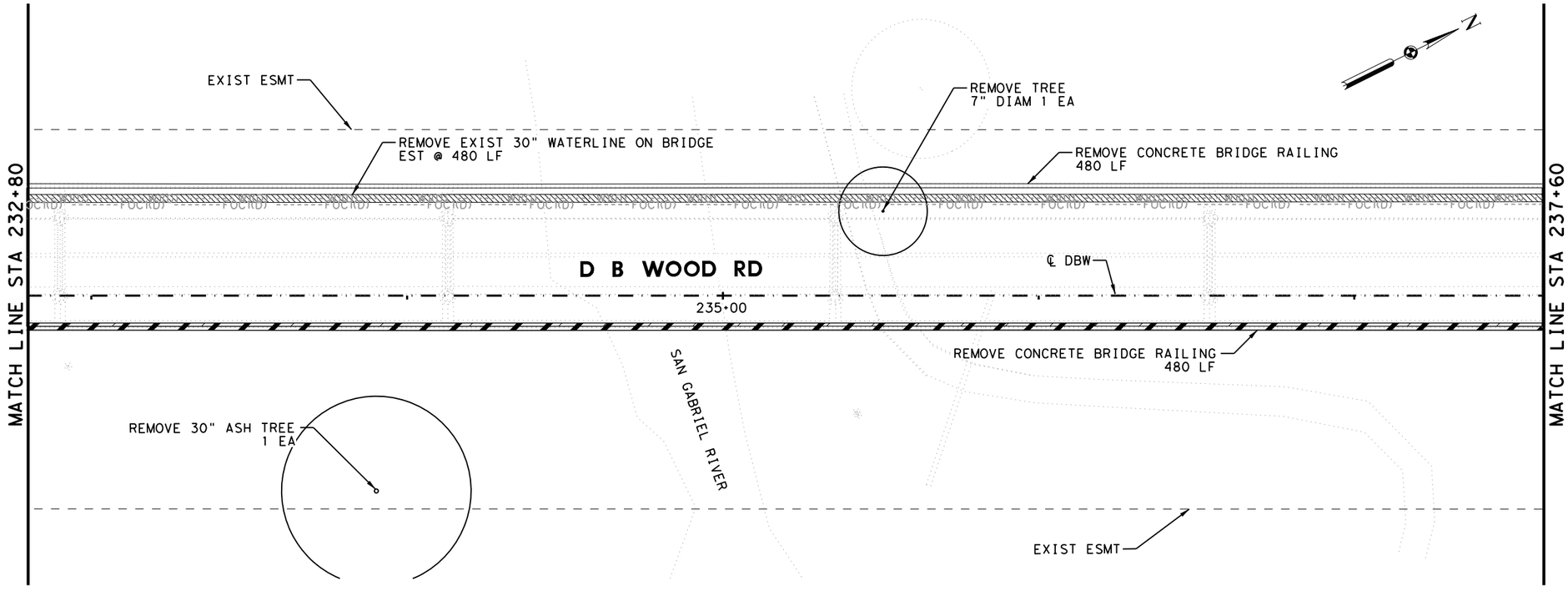
REMOVAL PLAN

STA 218+40 TO STA 288+00

SHEET 5 OF 12 | 490

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

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0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

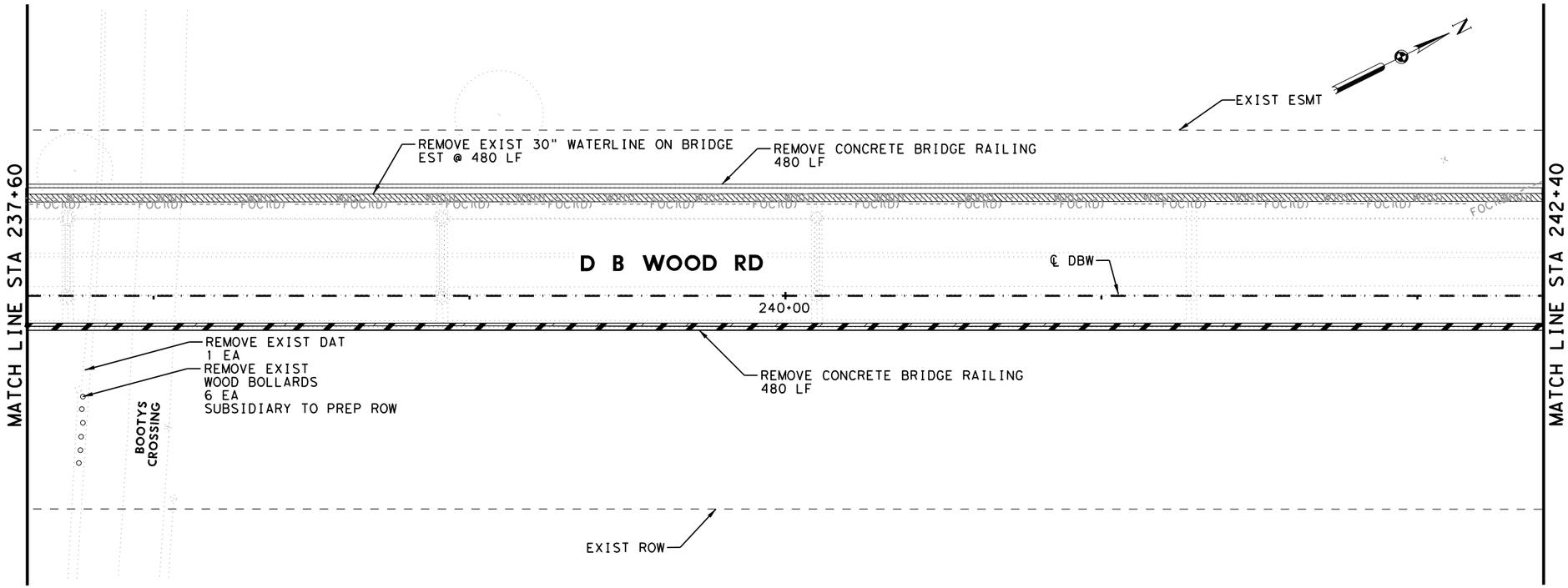
GEORGETOWN
TEXAS
more than welcome

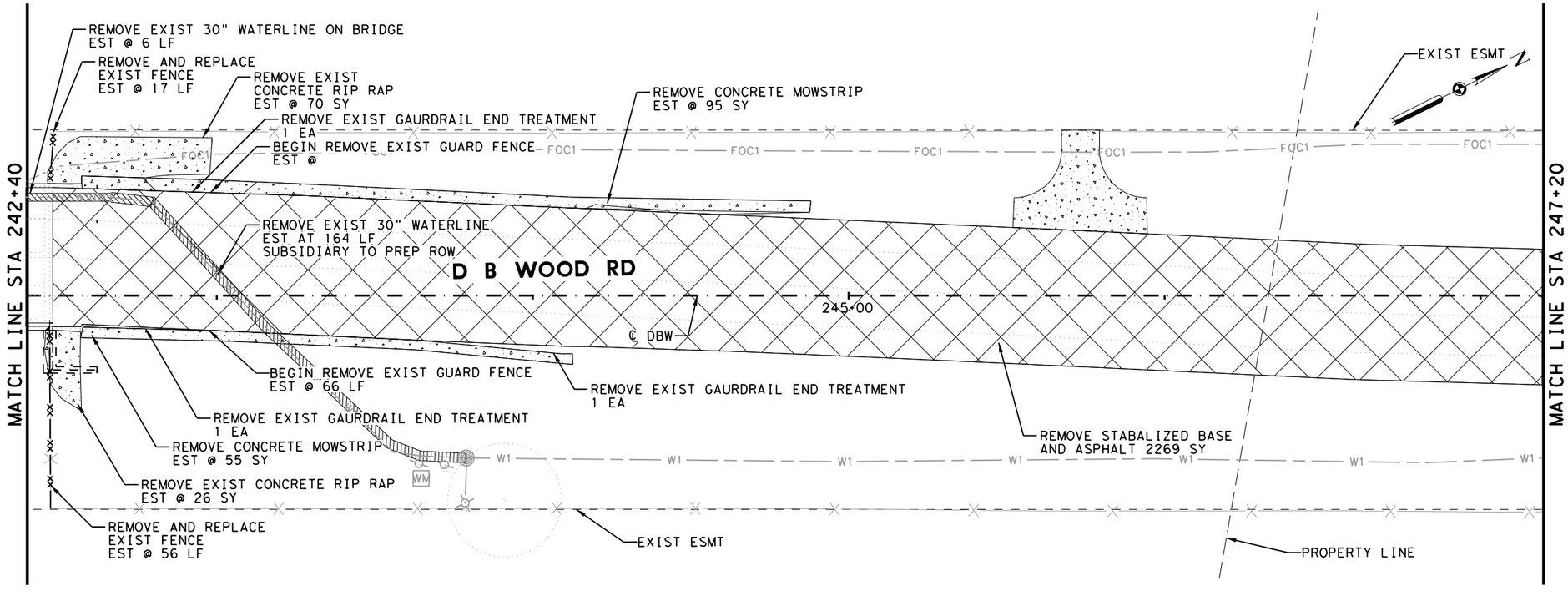
REMOVAL PLAN

STA 288+00 TO STA 237+60

SHEET 6 OF 12 | 491

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

1. TREE AND BRUCH REMOVAL, INCLUDING THOSE NOT SHOWN IN THE PLANS BUT ARE REQUIRED TO BE REMOVED WITHIN THE EXISTING EASMENT FOR BRIDGE CONSTRUCTION AND ACCESS ARE CONSIDERED SUBSIDIARY TO PREPARING ROW

2. REMOVAL AND DISPOSAL OF EXISTING UTILTIES REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE SUBSIDIARY TO PREPARE RIGHT-OF-WAY OTHER THAN THE REMOVAL OF THE EXISTING WATERLINE ON THE BRIDGE, WHICH WILL BE PAID FOR DIRECTLY UNDER ITEM 0496 6999 REMOV STR (PIPE) (BRIDGE).

0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

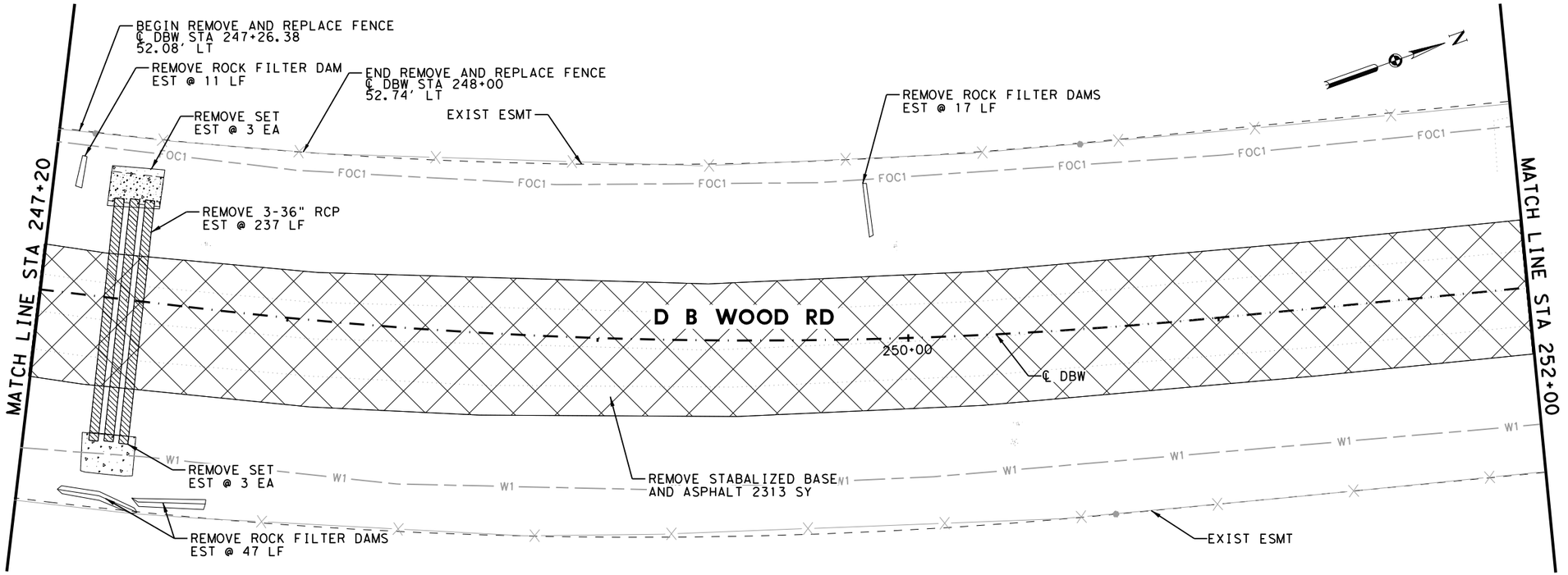
GEORGETOWN TEXAS
more than welcome

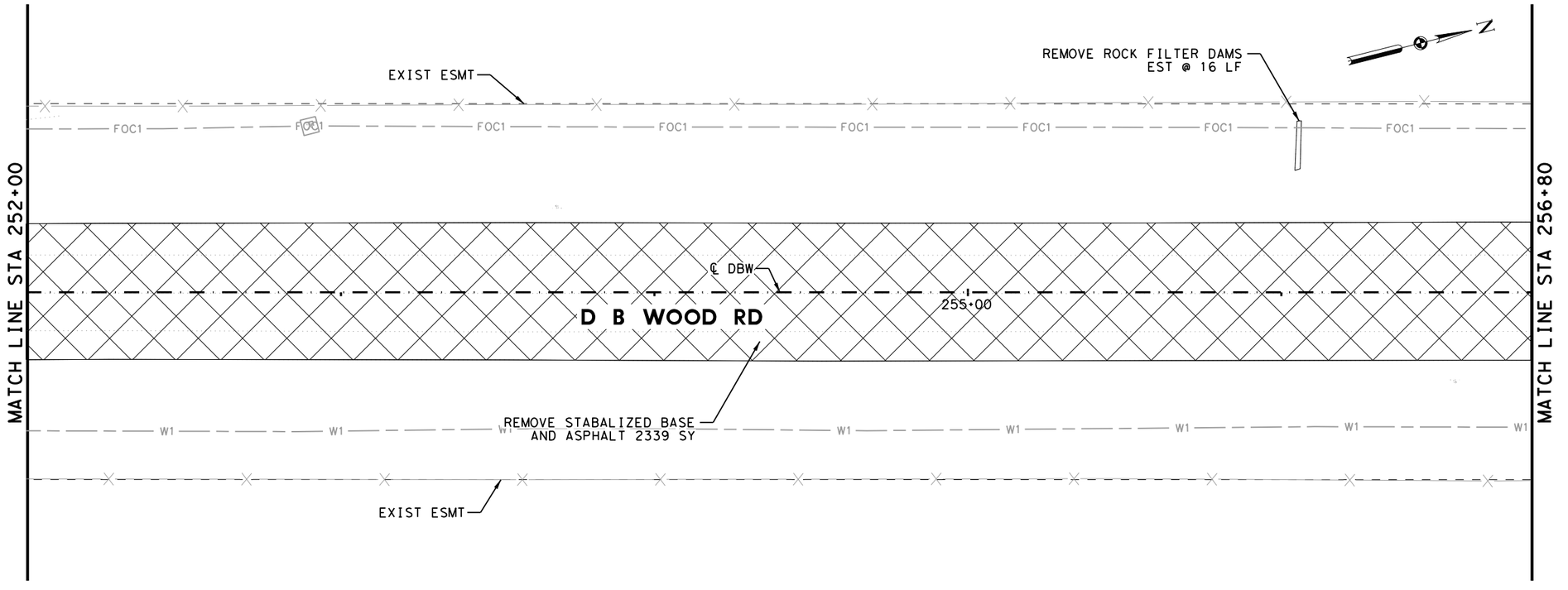
REMOVAL PLAN

STA 237+60 TO STA 247+20

SHEET 7 OF 12 | 492

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

1. TREE AND BRUCH REMOVAL, INCLUDING THOSE NOT SHOWN IN THE PLANS BUT ARE REQUIRED TO BE REMOVED WITHIN THE EXISTING EASMENT FOR BRIDGE CONSTRUCTION AND ACCESS ARE CONSIDERED SUBSIDIARY TO PREPARING ROW

2. REMOVAL AND DISPOSAL OF EXISTING UTILTIES REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE SUBSIDIARY TO PREPARE RIGHT-OF-WAY OTHER THAN THE REMOVAL OF THE EXISTING WATERLINE ON THE BRIDGE, WHICH WILL BE PAID FOR DIRECTLY UNDER ITEM 0496 6999 REMOV STR (PIPE) (BRIDGE).

0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

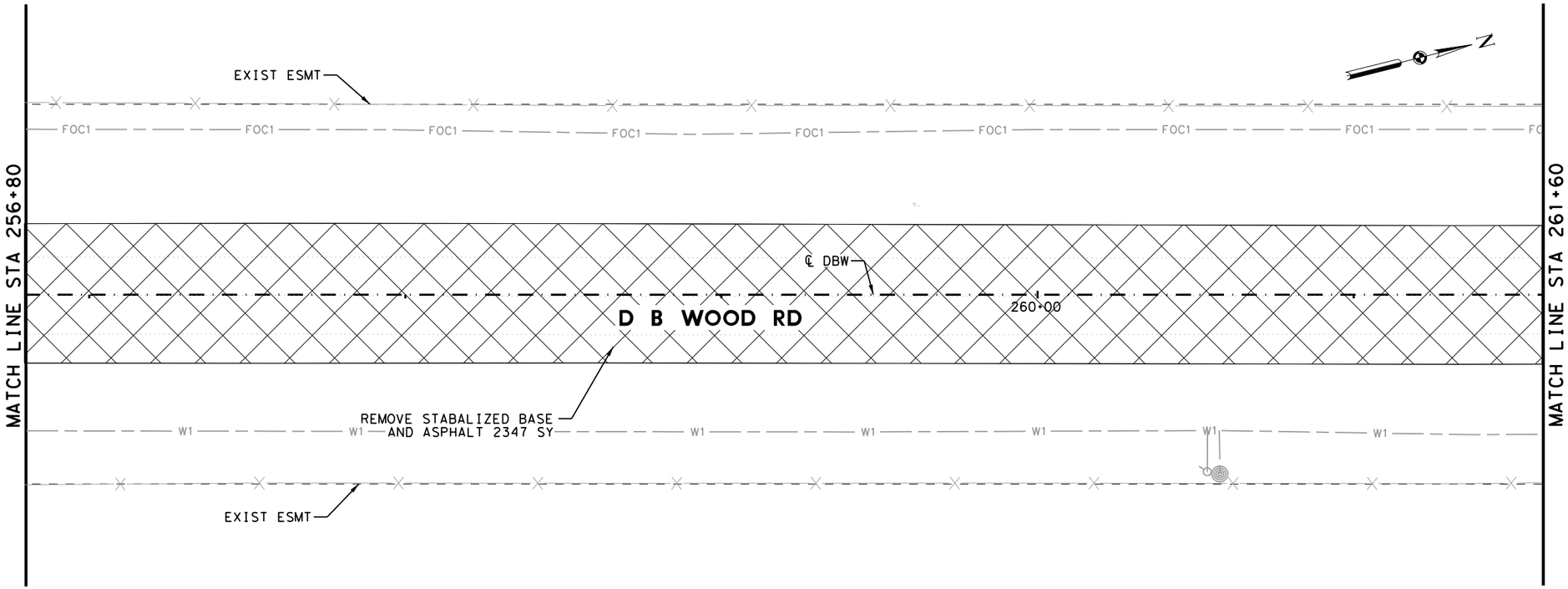
GEORGETOWN TEXAS
more than welcome

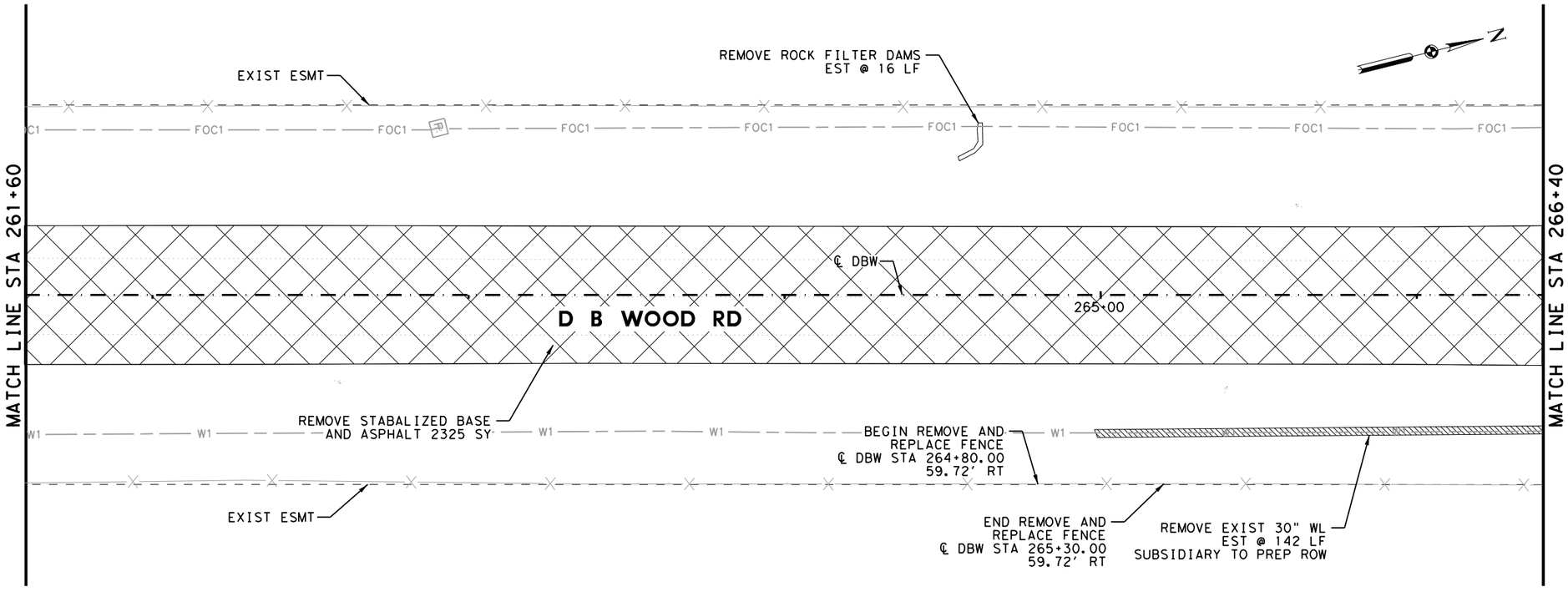
REMOVAL PLAN

STA 247+20 TO STA 256+80

SHEET 8 OF 12 | 493

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

1. TREE AND BRUCH REMOVAL, INCLUDING THOSE NOT SHOWN IN THE PLANS BUT ARE REQUIRED TO BE REMOVED WITHIN THE EXISTING EASMENT FOR BRIDGE CONSTRUCTION AND ACCESS ARE CONSIDERED SUBSIDIARY TO PREPARING ROW

2. REMOVAL AND DISPOSAL OF EXISTING UTILTIES REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE SUBSIDIARY TO PREPARE RIGHT-OF-WAY OTHER THAN THE REMOVAL OF THE EXISTING WATERLINE ON THE BRIDGE, WHICH WILL BE PAID FOR DIRECTLY UNDER ITEM 0496 6999 REMOV STR (PIPE) (BRIDGE).

0' 20' 40'

4/22/2024

AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

Kimley»Horn F-928

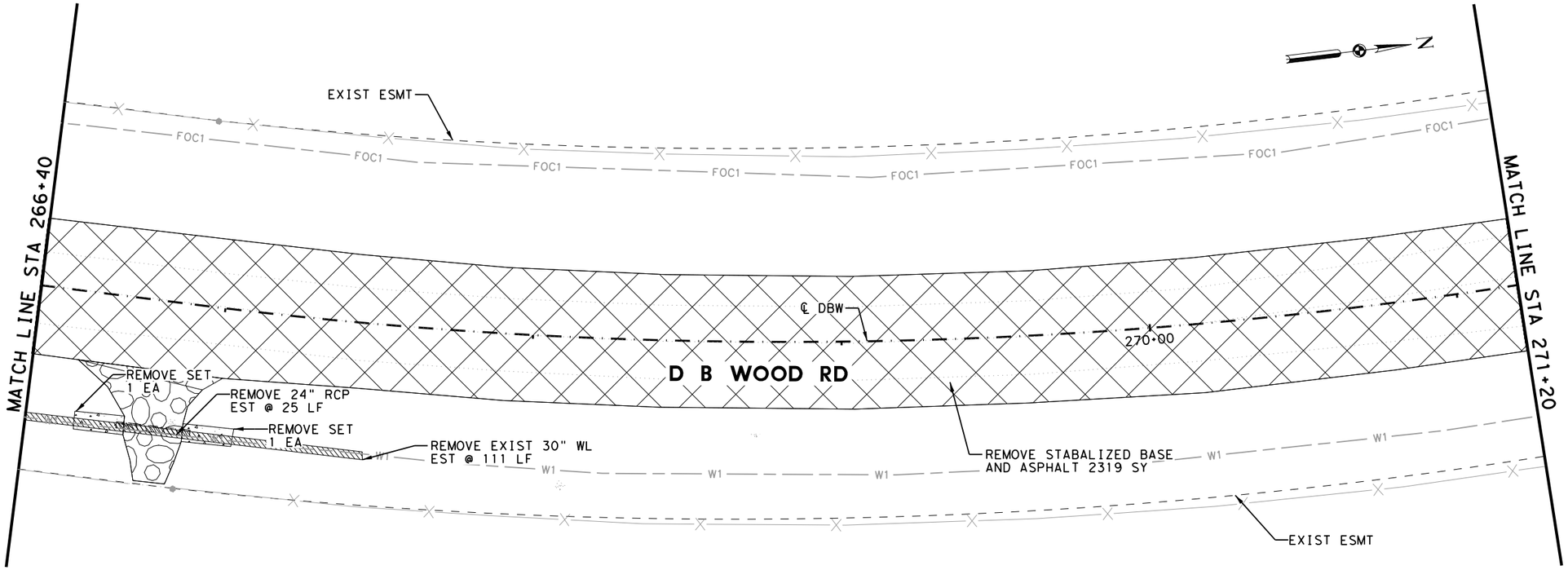
GEORGETOWN
TEXAS
more than welcome

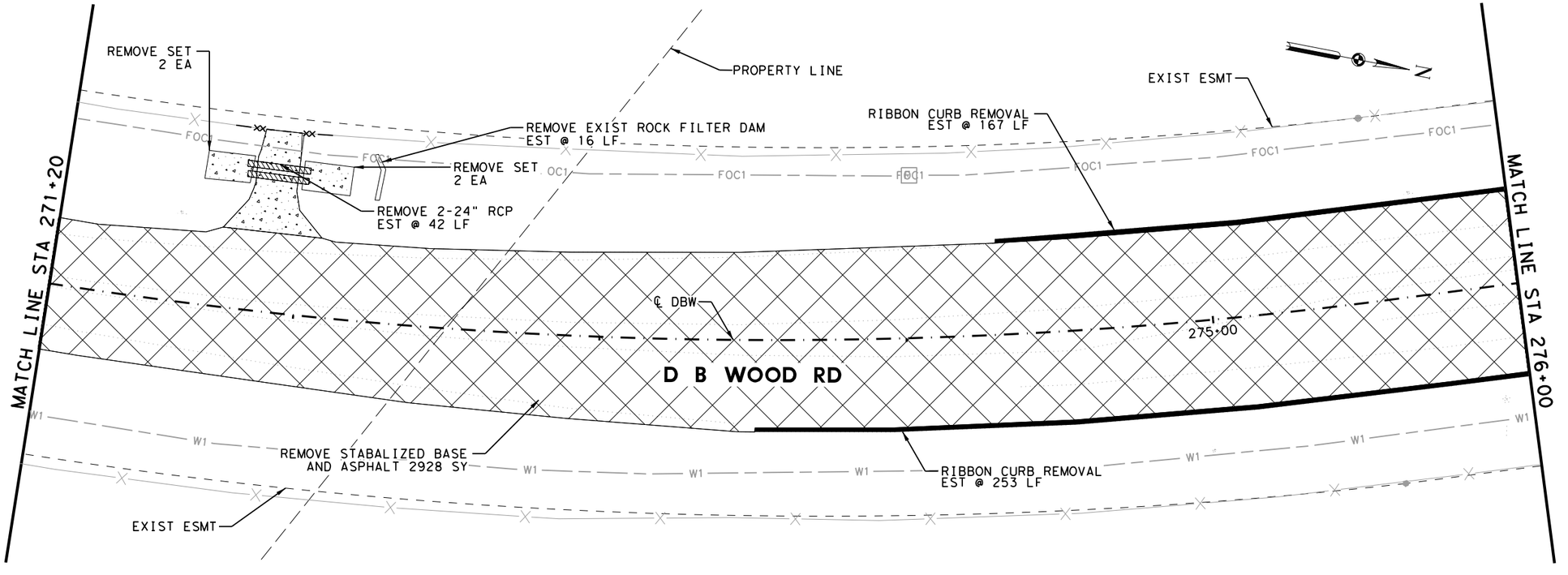
REMOVAL PLAN

STA 256+80 TO STA 266+40

SHEET 9 OF 12 | 494

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

1. TREE AND BRUCH REMOVAL, INCLUDING THOSE NOT SHOWN IN THE PLANS BUT ARE REQUIRED TO BE REMOVED WITHIN THE EXISTING EASMENT FOR BRIDGE CONSTRUCTION AND ACCESS ARE CONSIDERED SUBSIDIARY TO PREPARING ROW

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0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

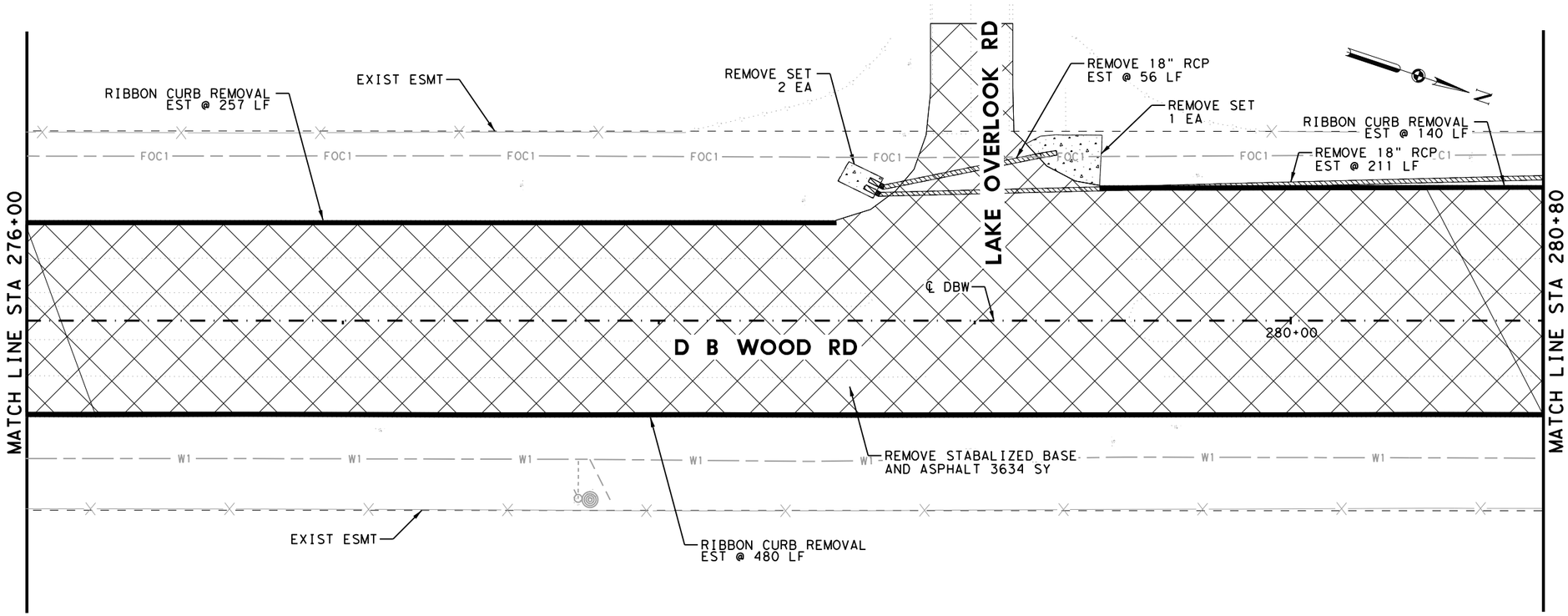
GEORGETOWN TEXAS
more than welcome

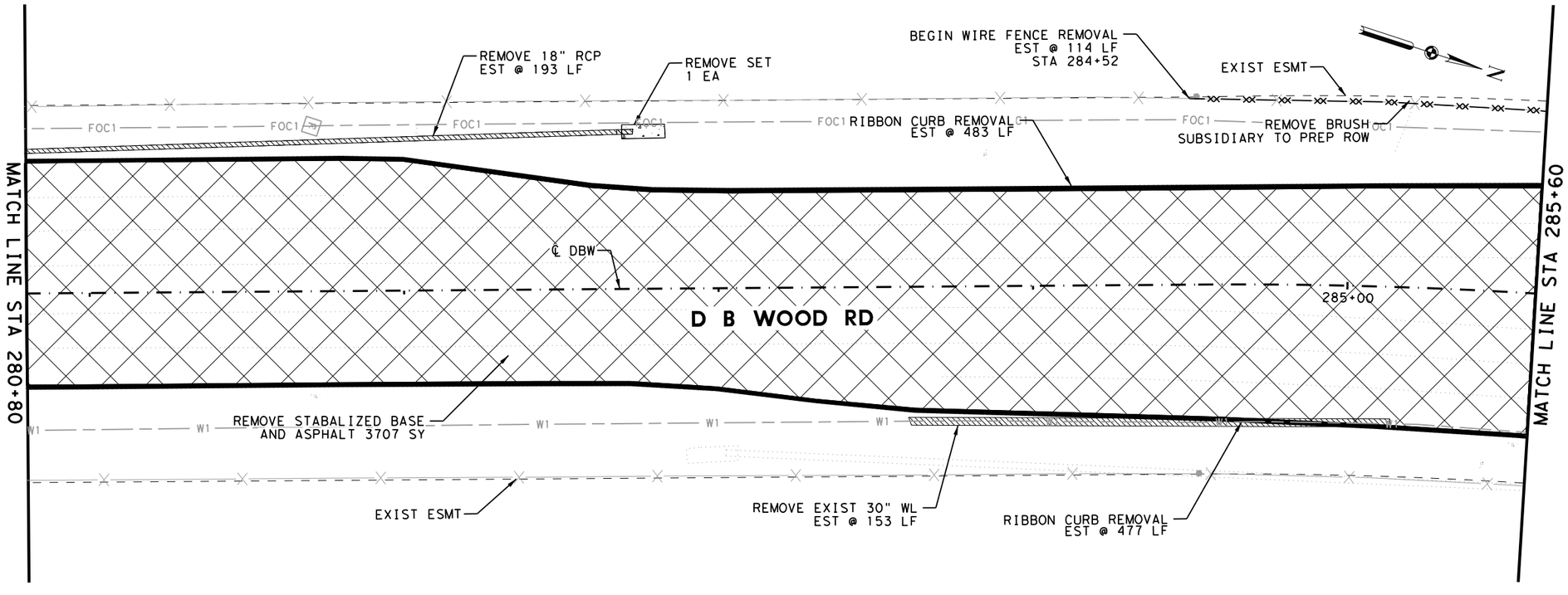
REMOVAL PLAN

STA 266+40 TO STA 276+00

SHEET 10 OF 12 | 495

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

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0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

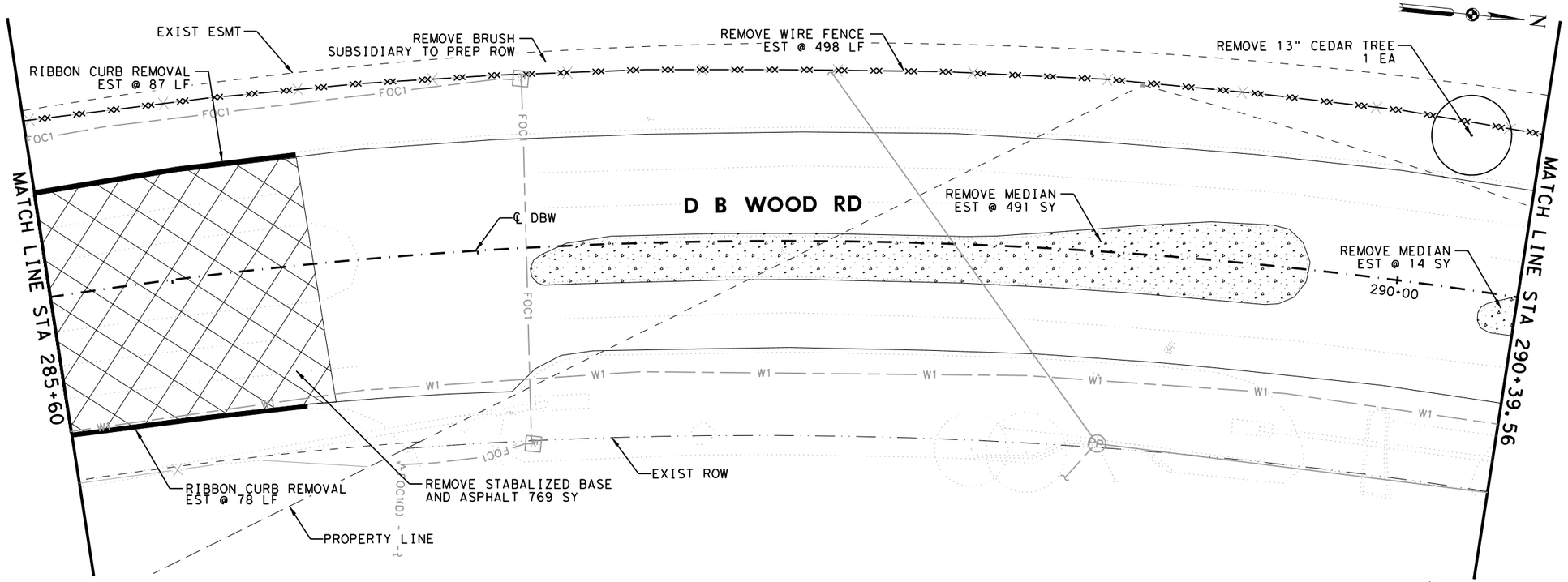
GEORGETOWN TEXAS
more than welcome

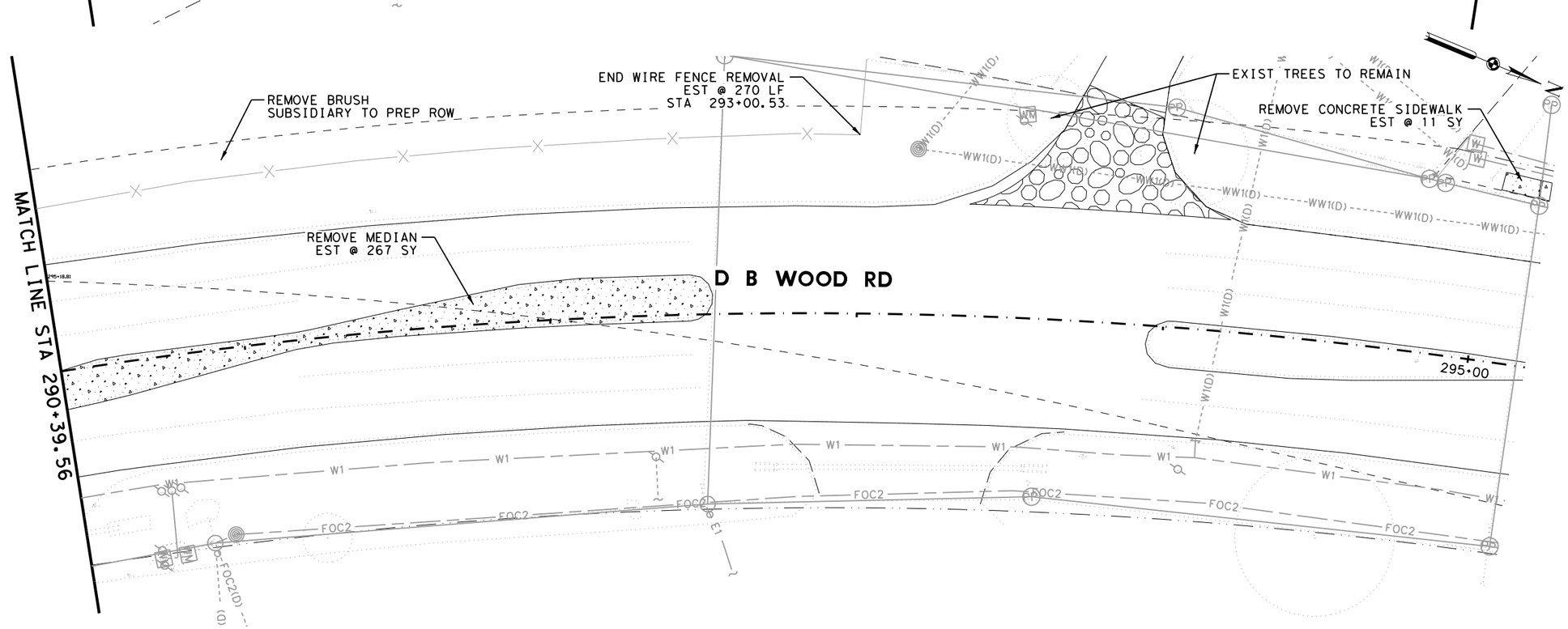
REMOVAL PLAN

STA 276+00 TO STA 285+60

SHEET 11 OF 12 | 496

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LEGEND

- REMOVE ASPHALT PAVEMENT & STAB BASE
- REMOVE BRIDGE
- REMOVE CONCRETE
- REMOVE ASPHALT
- REMOVE PIPE
- — W1 — CITY OF GEORGETOWN WATER (QLB)
- — W2 — CITY OF ROUNDROCK WATER (RAW) (QLB)
- —FOC1— CITY OF GEORGETOWN FIBER OPTIC (QLB)
- — OH — PEDERNALES OVERHEAD ELECTRIC

NOTES:

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0' 20' 40'

4/22/2024

STATE OF TEXAS
AUSTIN S. HELTON
124922
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

GEORGETOWN TEXAS
more than welcome

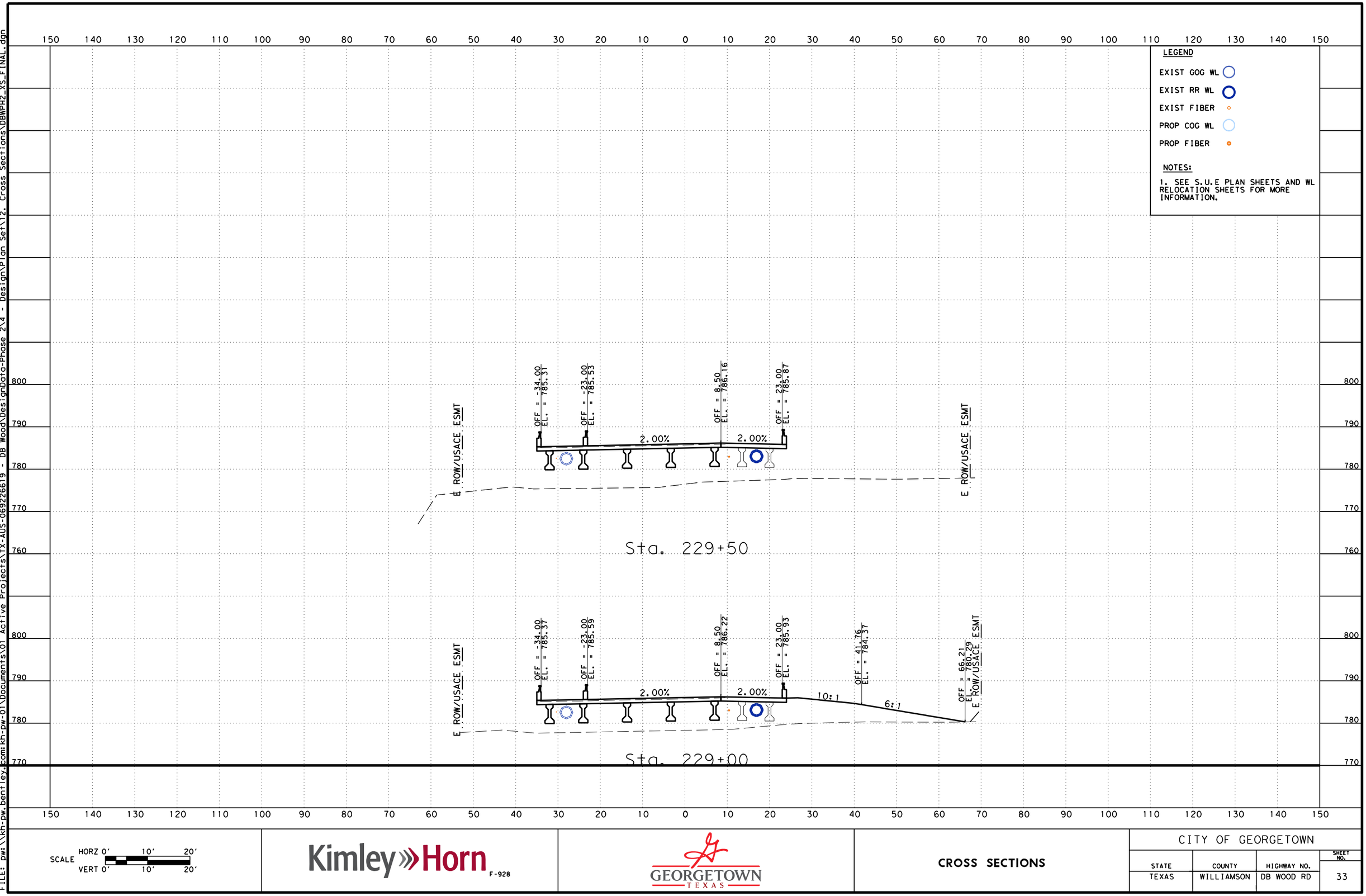
REMOVAL PLAN

STA 285+60 TO END PROJECT

SHEET 12 OF 12 | 497

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SCALE HORZ 0' 10' 20' VERT 0' 10' 20'

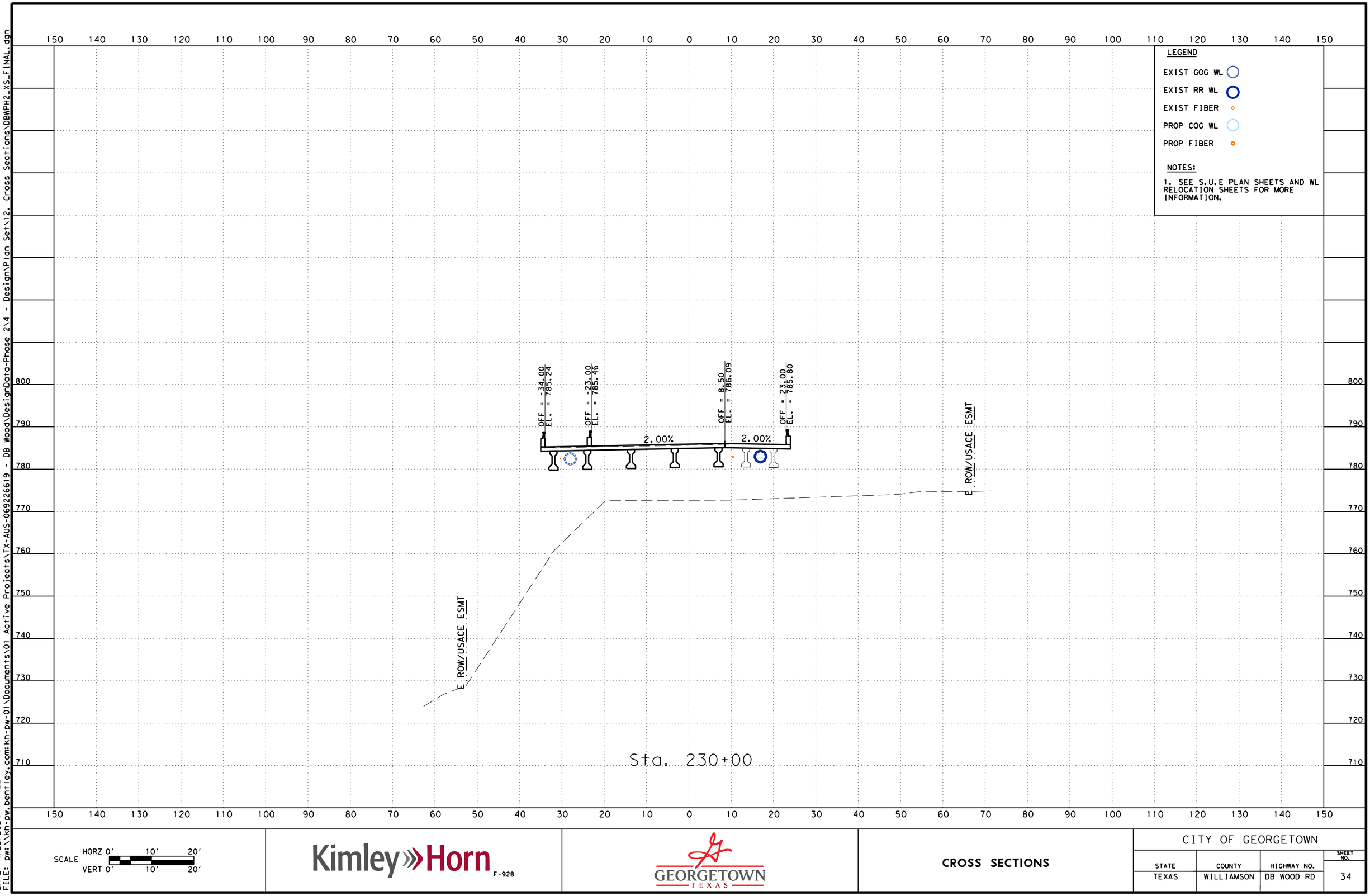
Kimley»Horn F-928

GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	33



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SCALE HORZ 0′ 10′ 20′
VERT 0′ 10′ 20′

Kimley»Horn F-928

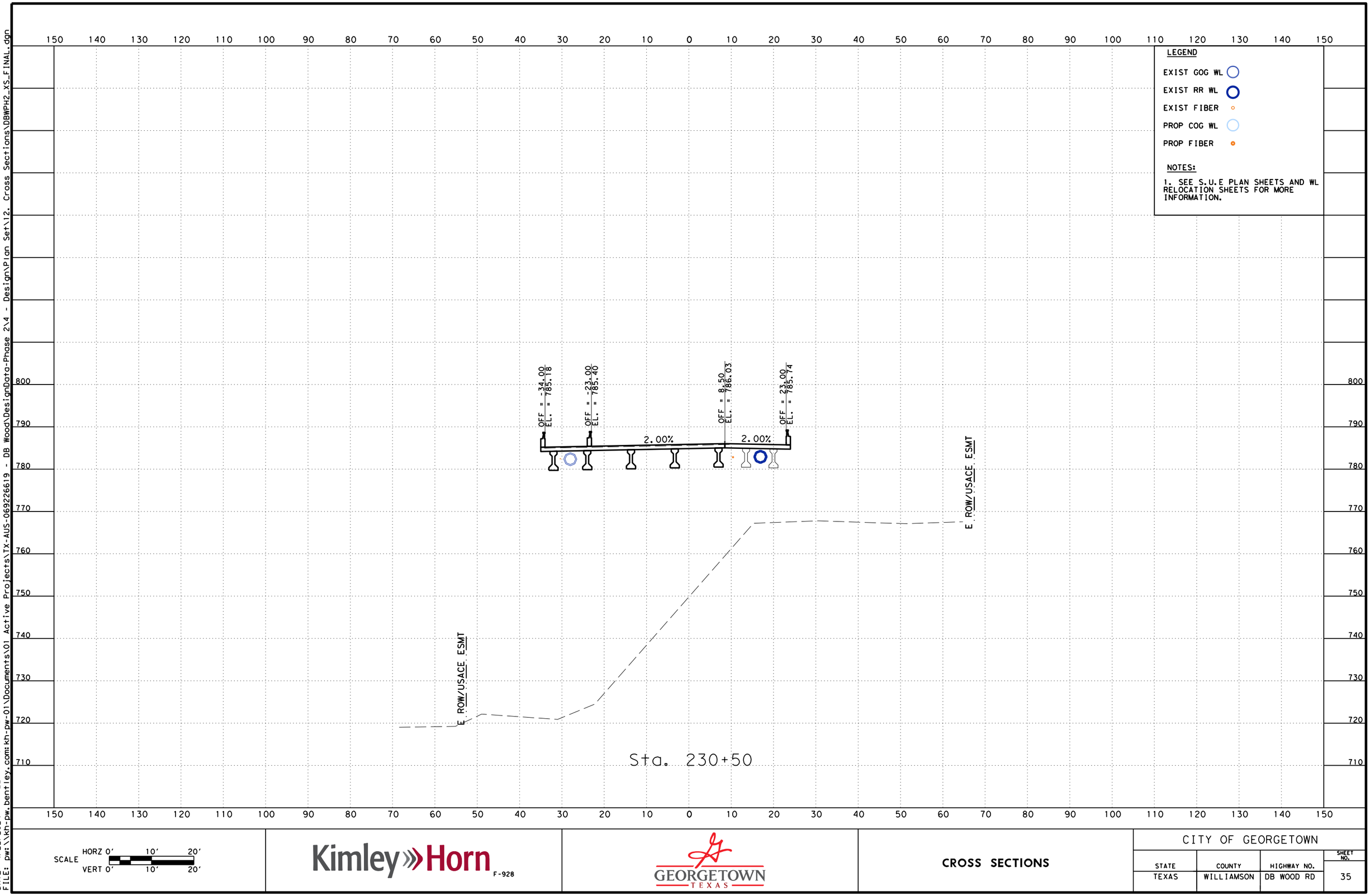
GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	34

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SCALE HORZ 0′ 10′ 20′ VERT 0′ 10′ 20′

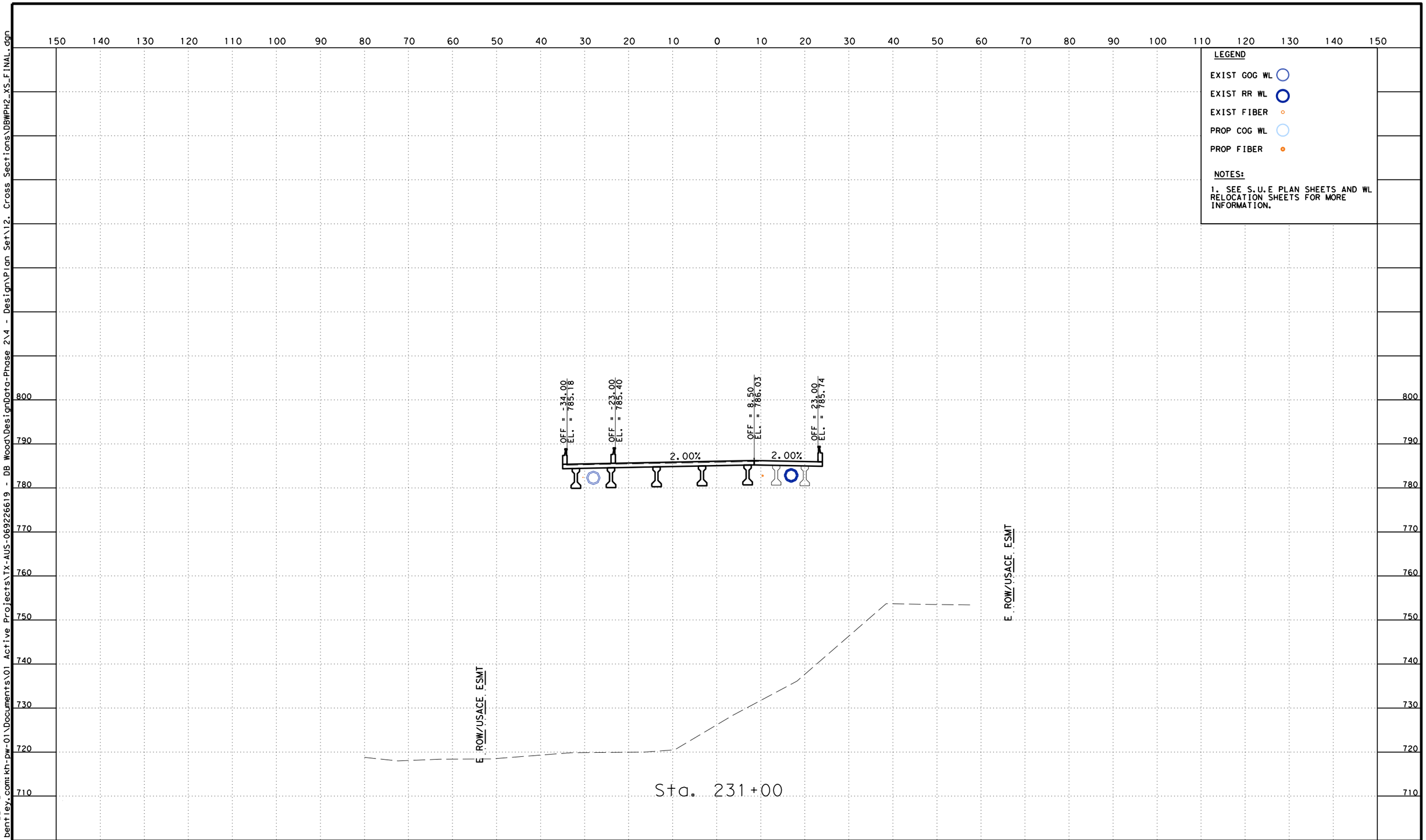
Kimley»Horn F-928

GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	35



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SCALE HORZ 0' 10' 20'
VERT 0' 10' 20'

Kimley»Horn F-928

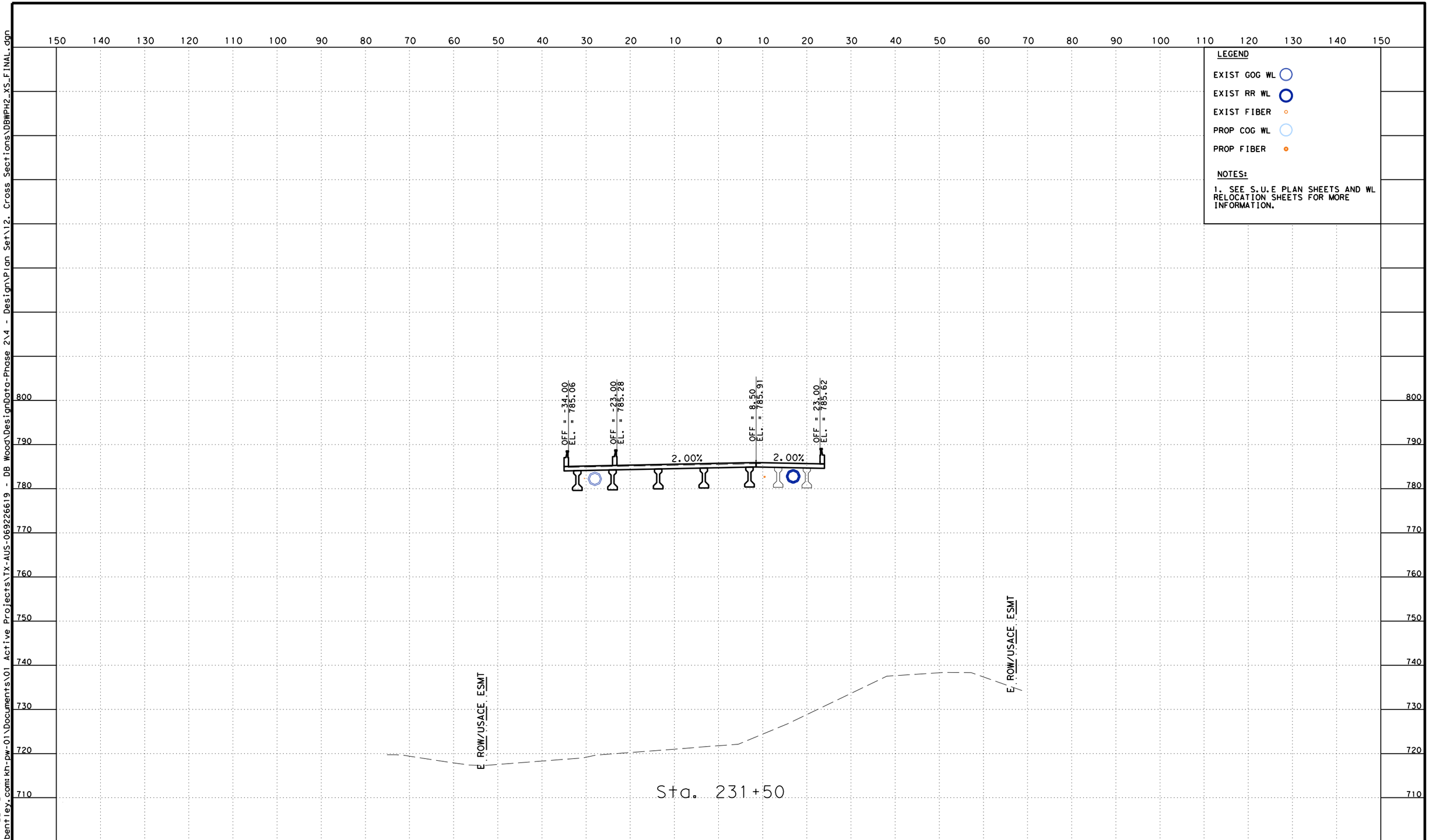
GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	36

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LEGEND

EXIST GOG WL

EXIST RR WL

EXIST FIBER

PROP COG WL

PROP FIBER

NOTES:

1. SEE S.U.E PLAN SHEETS AND WL RELOCATION SHEETS FOR MORE INFORMATION.

SCALE HORZ 0' 10' 20'
VERT 0' 10' 20'

Kimley»Horn F-928

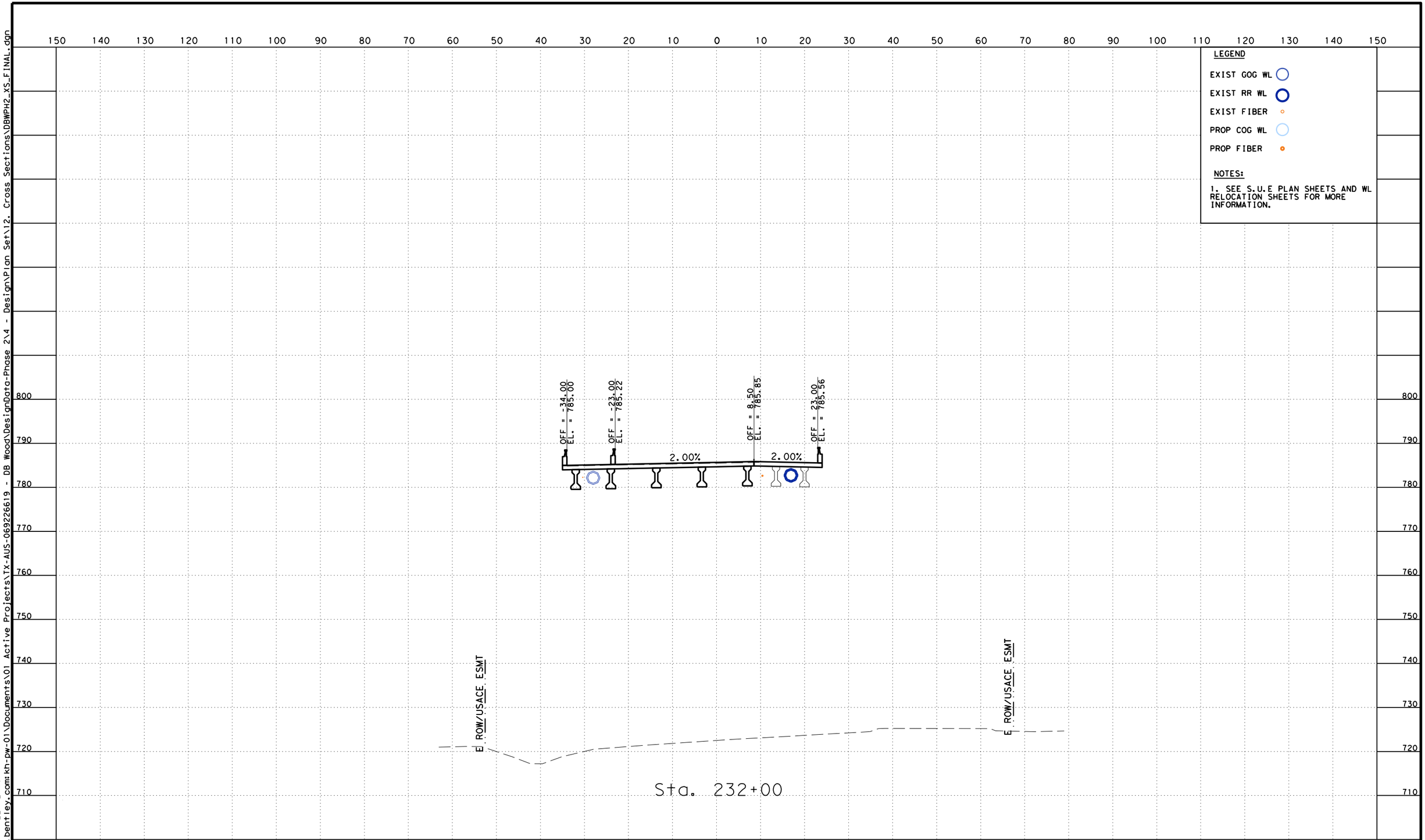
GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	37

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LEGEND

EXIST GOG WL

EXIST RR WL

EXIST FIBER

PROP COG WL

PROP FIBER

NOTES:

1. SEE S.U.E PLAN SHEETS AND WL RELOCATION SHEETS FOR MORE INFORMATION.

SCALE HORZ 0' 10' 20'
VERT 0' 10' 20'

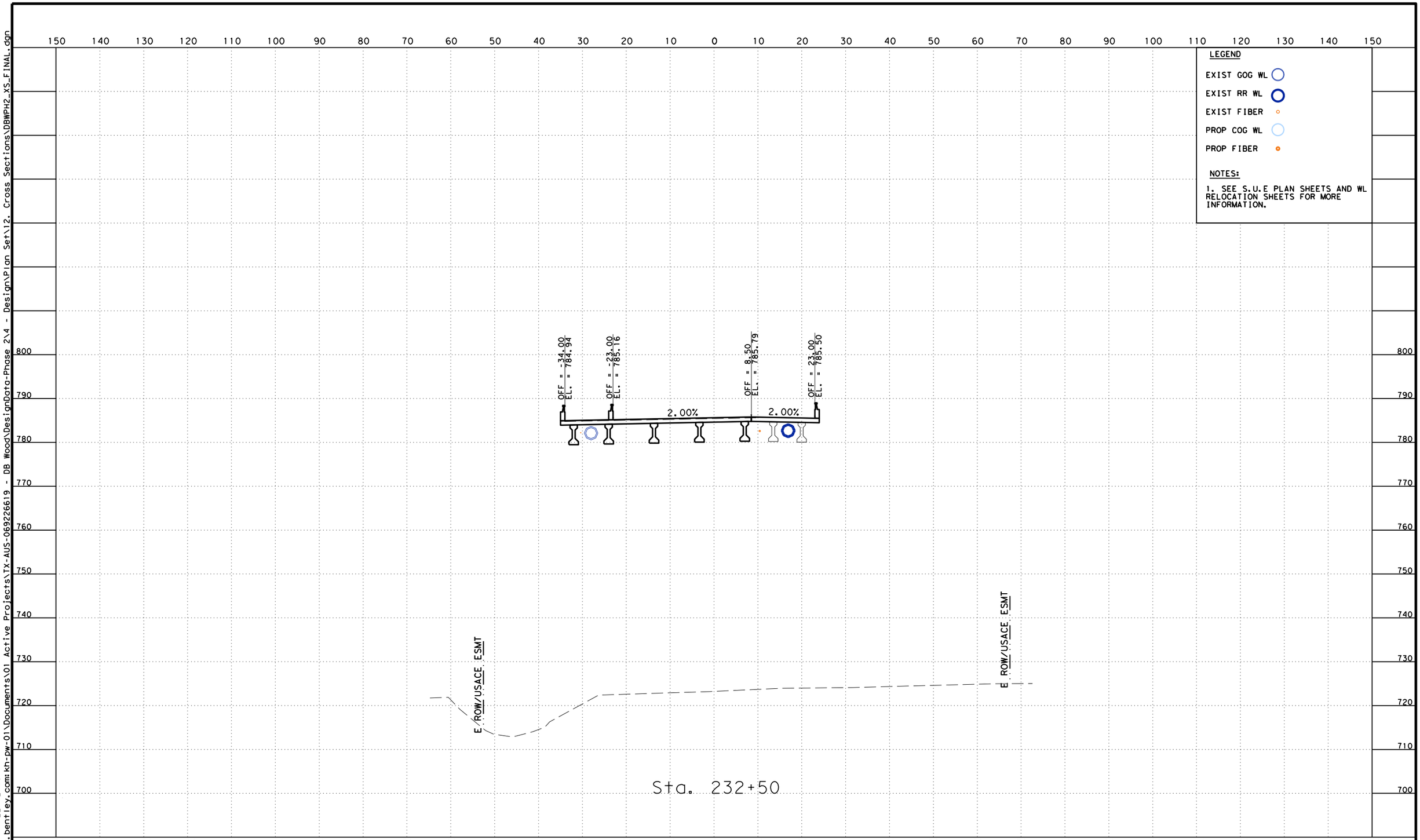
Kimley»Horn F-928

GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	38



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SCALE HORZ 0' 10' 20'
VERT 0' 10' 20'

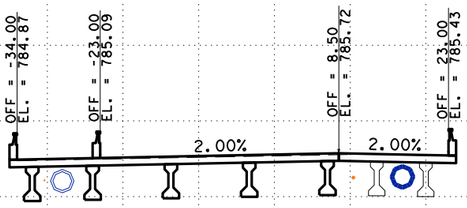
Kimley»Horn F-928

GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	39



LEGEND

EXIST GOG WL

EXIST RR WL

EXIST FIBER

PROP COG WL

PROP FIBER

NOTES:

1. SEE S.U.E PLAN SHEETS AND WL RELOCATION SHEETS FOR MORE INFORMATION.

E. ROW/USACE ESMT

E. ROW/USACE ESMT

Sta. 233+00

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SCALE HORZ 0' 10' 20'
VERT 0' 10' 20'

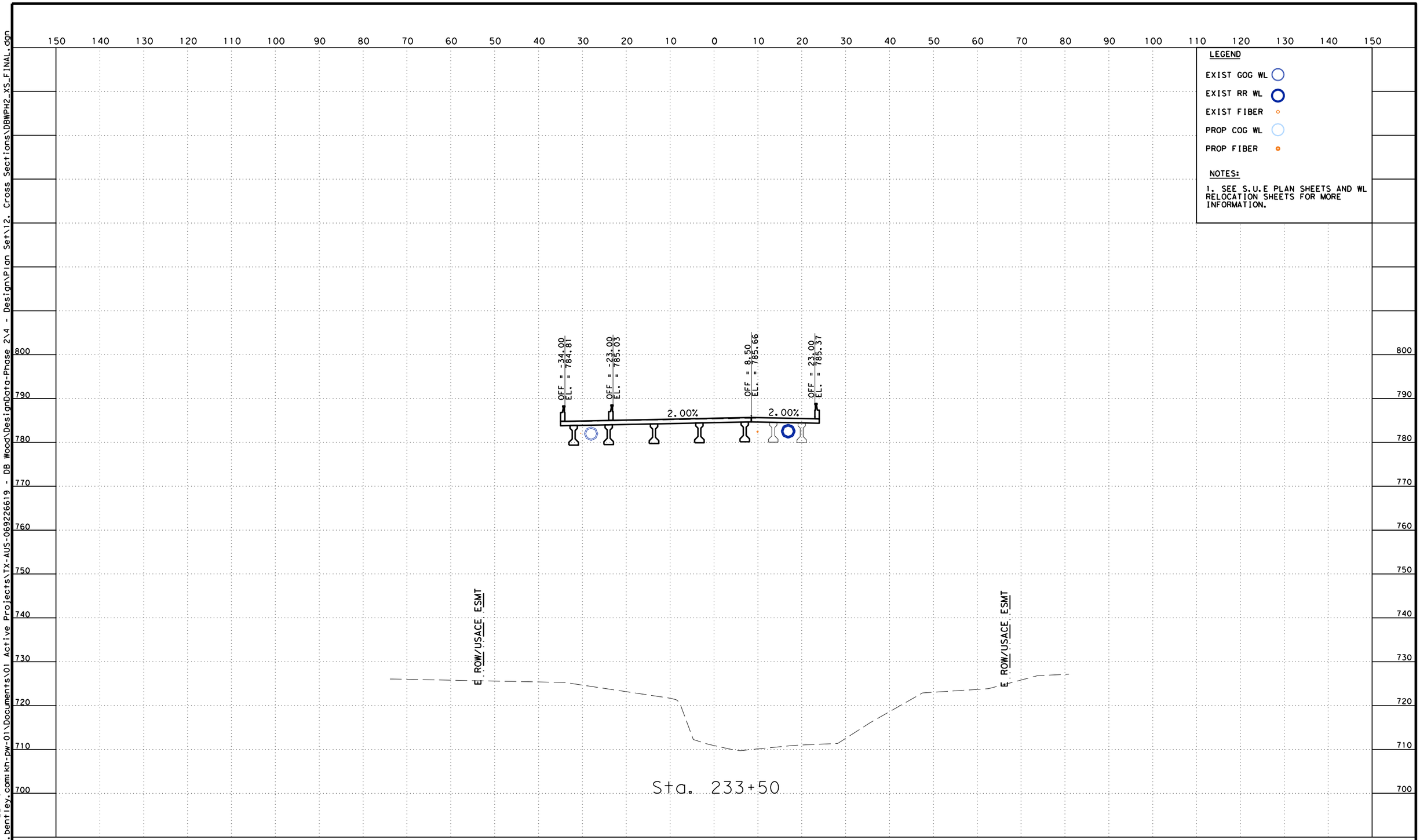
Kimley»Horn F-928

GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	40



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SCALE HORZ 0' 10' 20'
VERT 0' 10' 20'

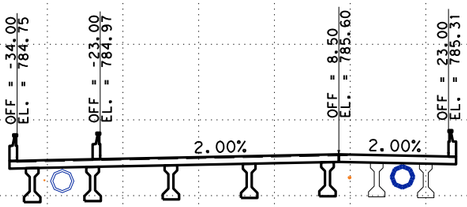
Kimley»Horn F-928

GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	41



LEGEND

EXIST GOG WL

EXIST RR WL

EXIST FIBER

PROP COG WL

PROP FIBER

NOTES:

1. SEE S.U.E PLAN SHEETS AND WL RELOCATION SHEETS FOR MORE INFORMATION.

E. ROW/USACE ESMT

E. ROW/USACE ESMT

Sta. 234+00

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SCALE HORZ 0' 10' 20'
VERT 0' 10' 20'

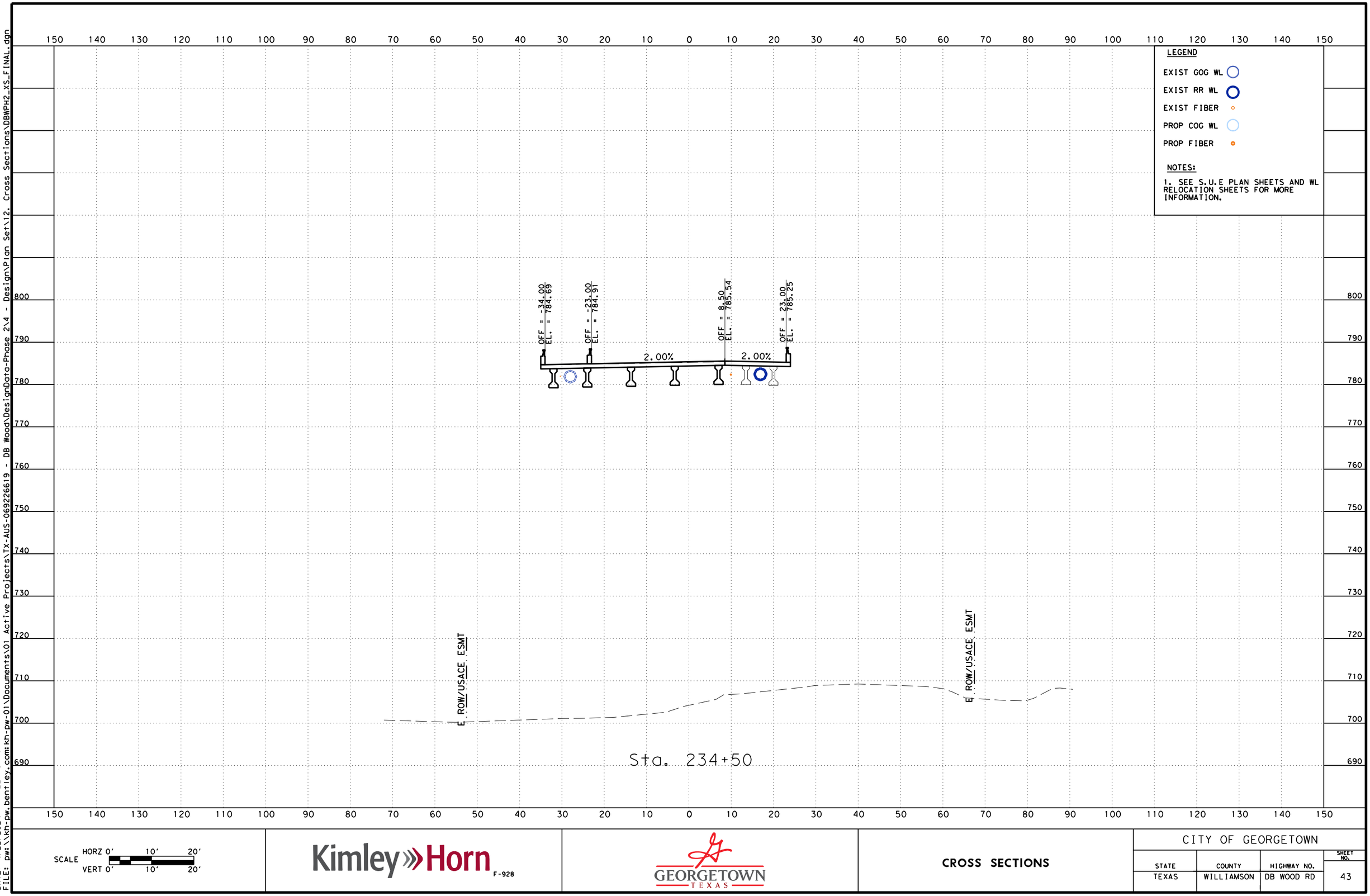
Kimley»Horn F-928

GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	42



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SCALE HORZ 0' 10' 20'
VERT 0' 10' 20'

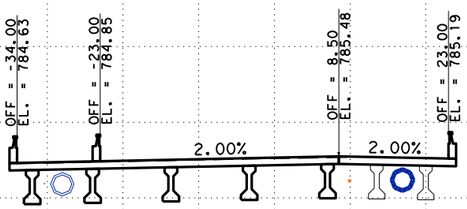
Kimley»Horn F-928

GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	43



LEGEND

EXIST GOG WL

EXIST RR WL

EXIST FIBER

PROP COG WL

PROP FIBER

NOTES:

1. SEE S.U.E PLAN SHEETS AND WL RELOCATION SHEETS FOR MORE INFORMATION.

E ROW/USACE ESMT

E ROW/USACE ESMT

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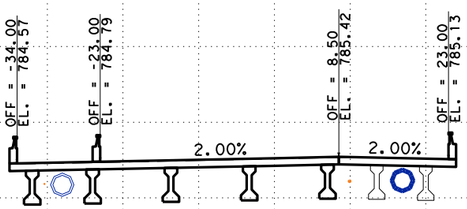
GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

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NOTES:

1. SEE S.U.E PLAN SHEETS AND WL RELOCATION SHEETS FOR MORE INFORMATION.

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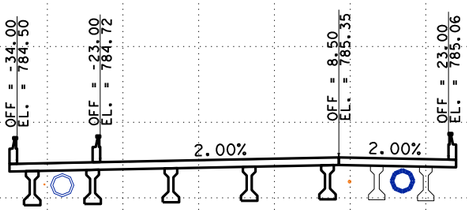
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CROSS SECTIONS

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NOTES:

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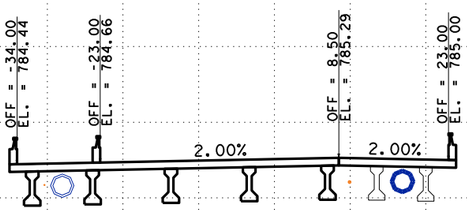
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CROSS SECTIONS

CITY OF GEORGETOWN

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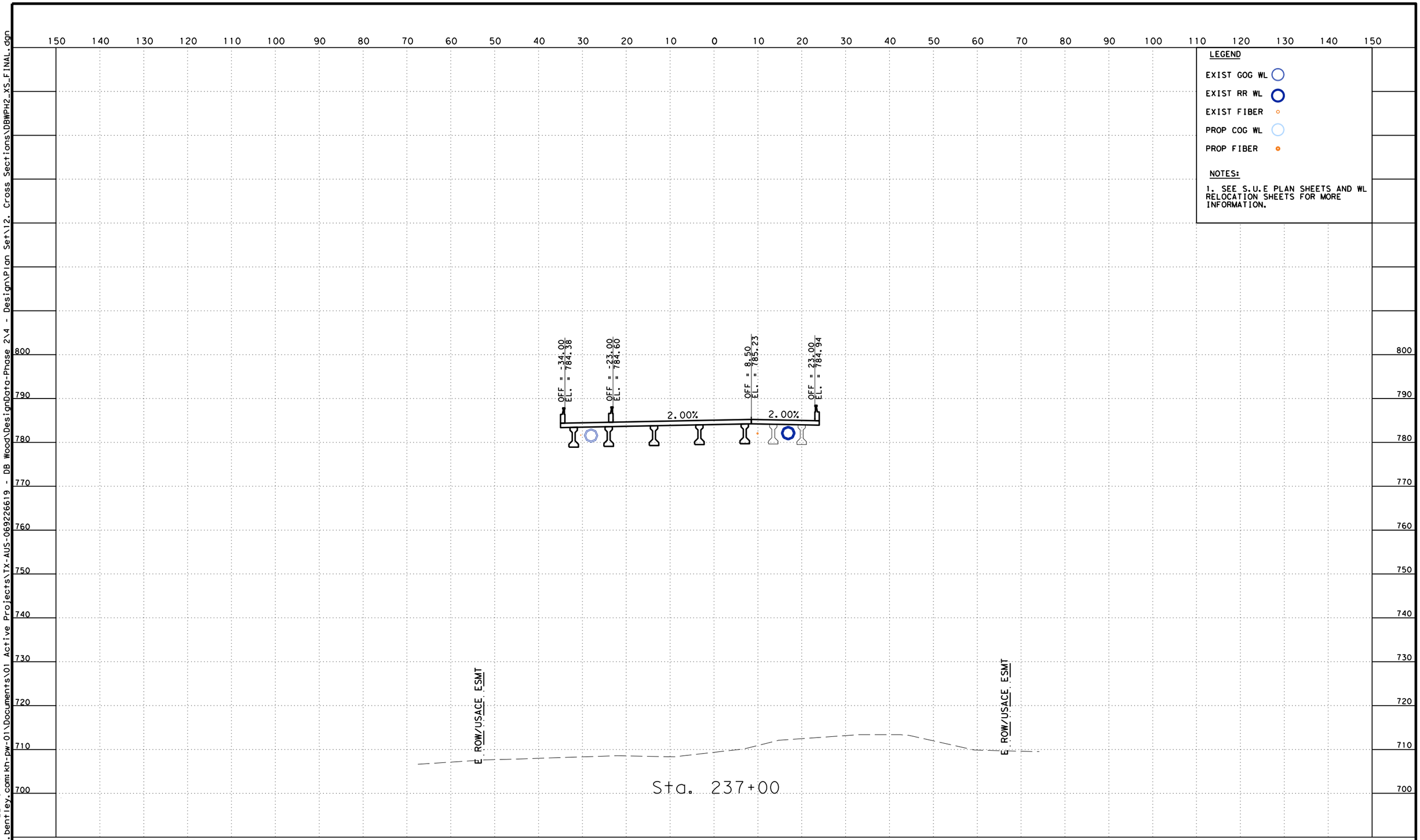
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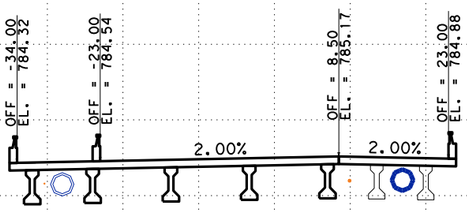
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CITY OF GEORGETOWN

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NOTES:

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CROSS SECTIONS

CITY OF GEORGETOWN

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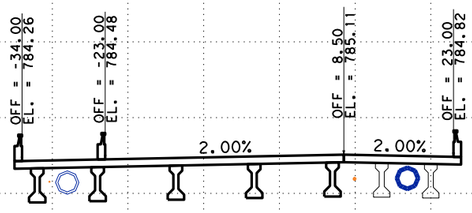
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NOTES:

1. SEE S.U.E PLAN SHEETS AND WL RELOCATION SHEETS FOR MORE INFORMATION.



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CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
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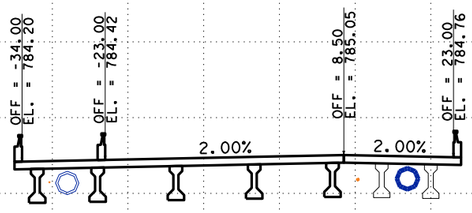
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NOTES:

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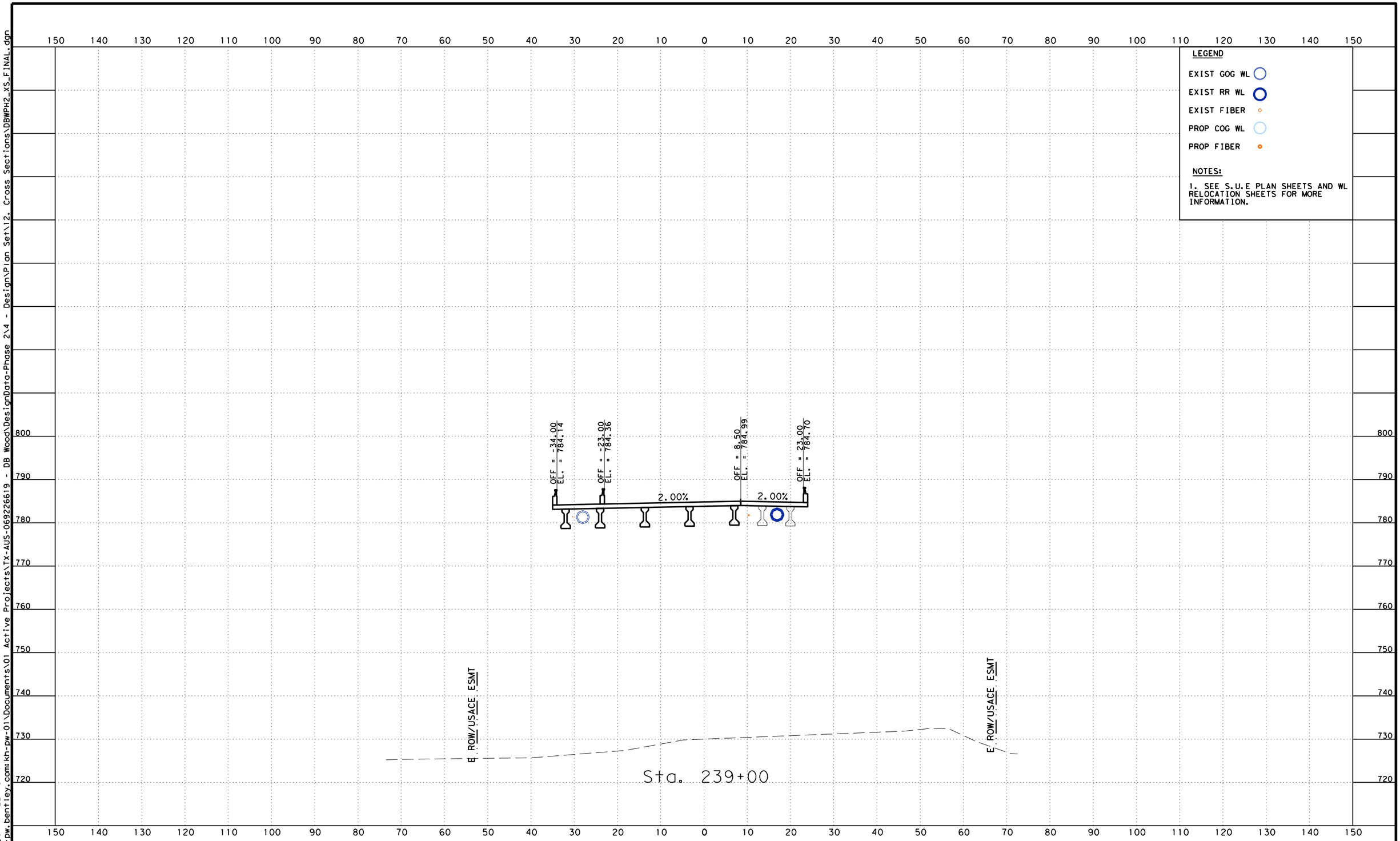
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CROSS SECTIONS

CITY OF GEORGETOWN

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GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

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800
790
780
770
760
750
740
730
720

OFF = -34.00
EL. = 784.07

OFF = -23.00
EL. = 784.29

OFF = 8.50
EL. = 784.92

OFF = 23.00
EL. = 784.63

2.00% 2.00%

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NOTES:

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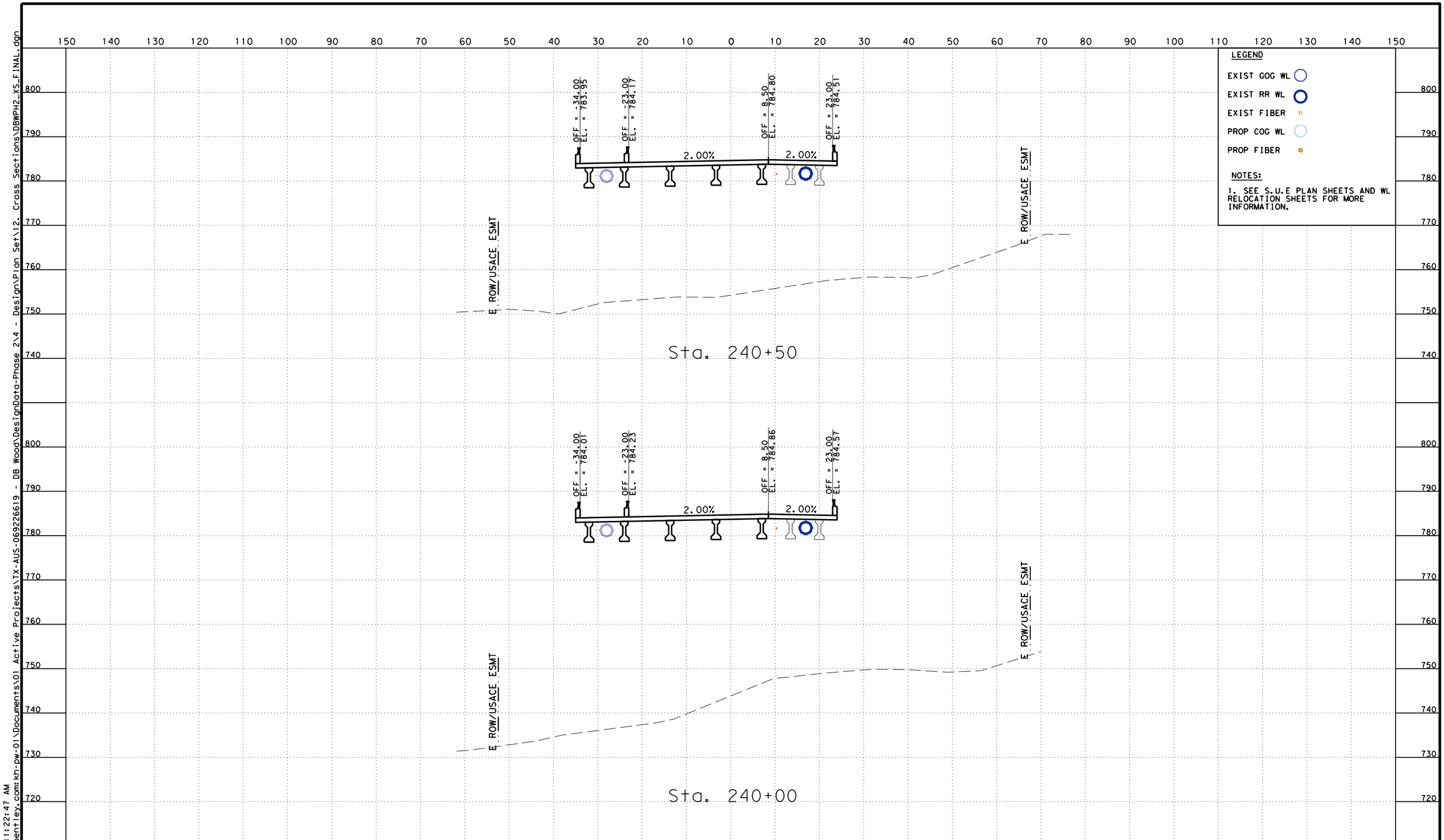
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CROSS SECTIONS

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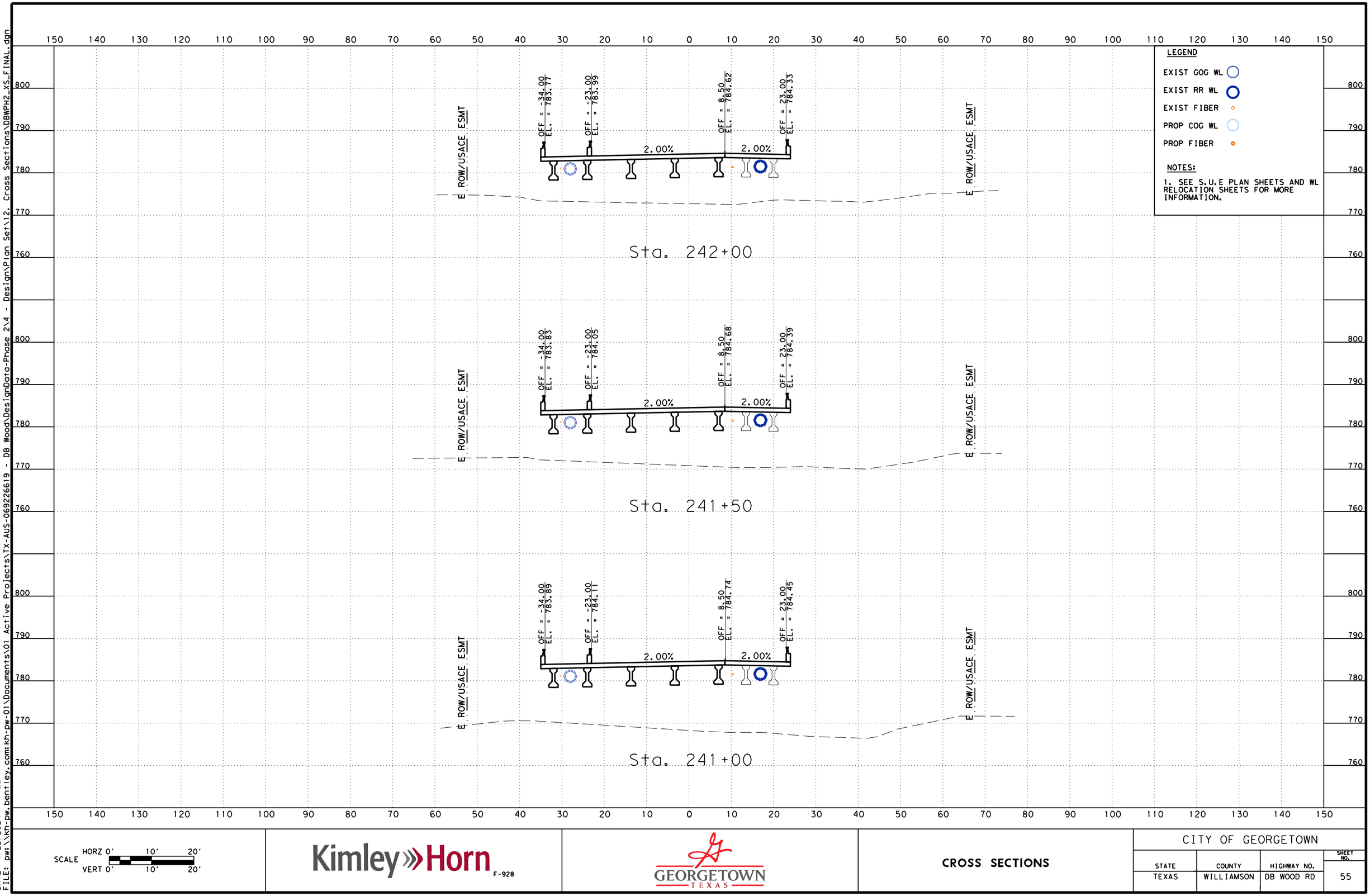
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GEORGETOWN TEXAS

CROSS SECTIONS

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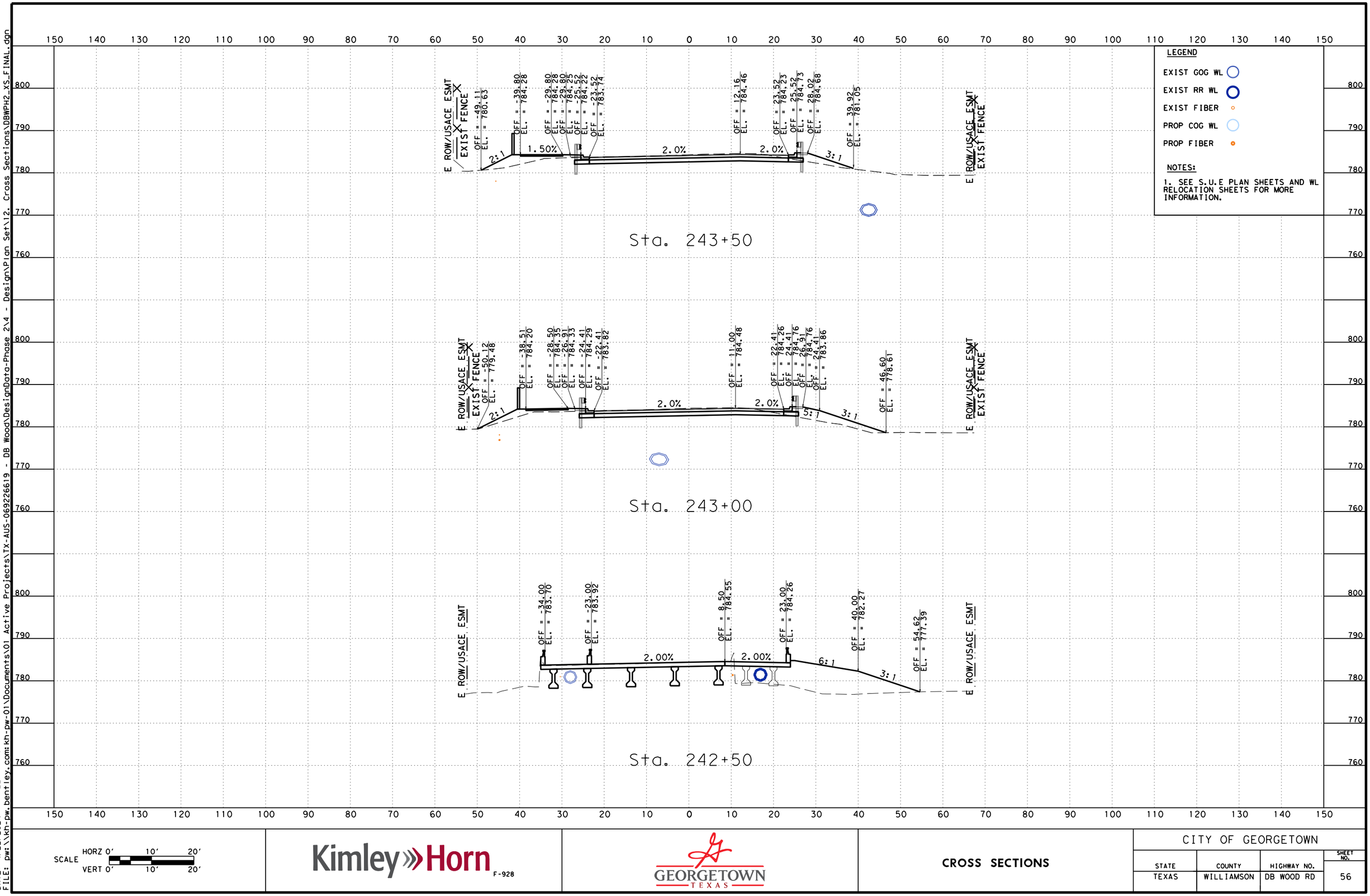
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GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

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GEORGETOWN TEXAS

CROSS SECTIONS

CITY OF GEORGETOWN

STATE	COUNTY	HIGHWAY NO.	SHEET NO.
TEXAS	WILLIAMSON	DB WOOD RD	56

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

The following sections address inspection and maintenance taken from the TNRCC Manual, "Complying with Edward Aquifer Rules: Technical Guidance on Best Management Practices."

Erosion Control Logs:

1. Inspection shall be made weekly and after each rainfall event, in accordance with Section 1.4.3 of RG-348.

2. Tom fabric shall be replaced or a second line of fencing parallel to the tom section shall be implemented as needed.

3. Accumulated silt shall be removed when it reaches a depth of six (6) inches. The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.

4. Erosion control logs shall be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

Inlet Protection:

1. Daily inspection shall be made by the Contractor and silt accumulation must be removed when depth reaches 50 mm (two (2) inches).

2. Contractor shall monitor the performance of inlet protection during each rainfall event and immediately remove the inlet protections if the stormwater begins to overtop the curb.

3. Inlet protections shall be removed as soon as the source of sediment is stabilized.

Stabilized Construction Entrance:

1. The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto public roadway. This may require periodic top dressing with additional stone as conditions demand. As well as repair and clean out of any measure device used to trap sediment. All sediments that are spilled, dropped, washed or tracked onto public roadway must be removed immediately.

2. Entrance shall be properly graded to prevent run-off from leaving the construction site.

Concrete Washout Area:

1. Routine inspection in accordance with Section 1.4.18 of RG-348 of the area to ensure that sufficient quantity and volume remain to contain all liquid and concrete waste generated by washout operations.

2. Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

3. When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Rock Berm

1. Inspection should be made weekly and after each rainfall in accordance to Section 1.4.5 of RG-348. If placed in streambeds, inspection should occur on a daily basis.

2. Accumulated silt shall be removed when it reaches a depth of six (6) inches. The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.

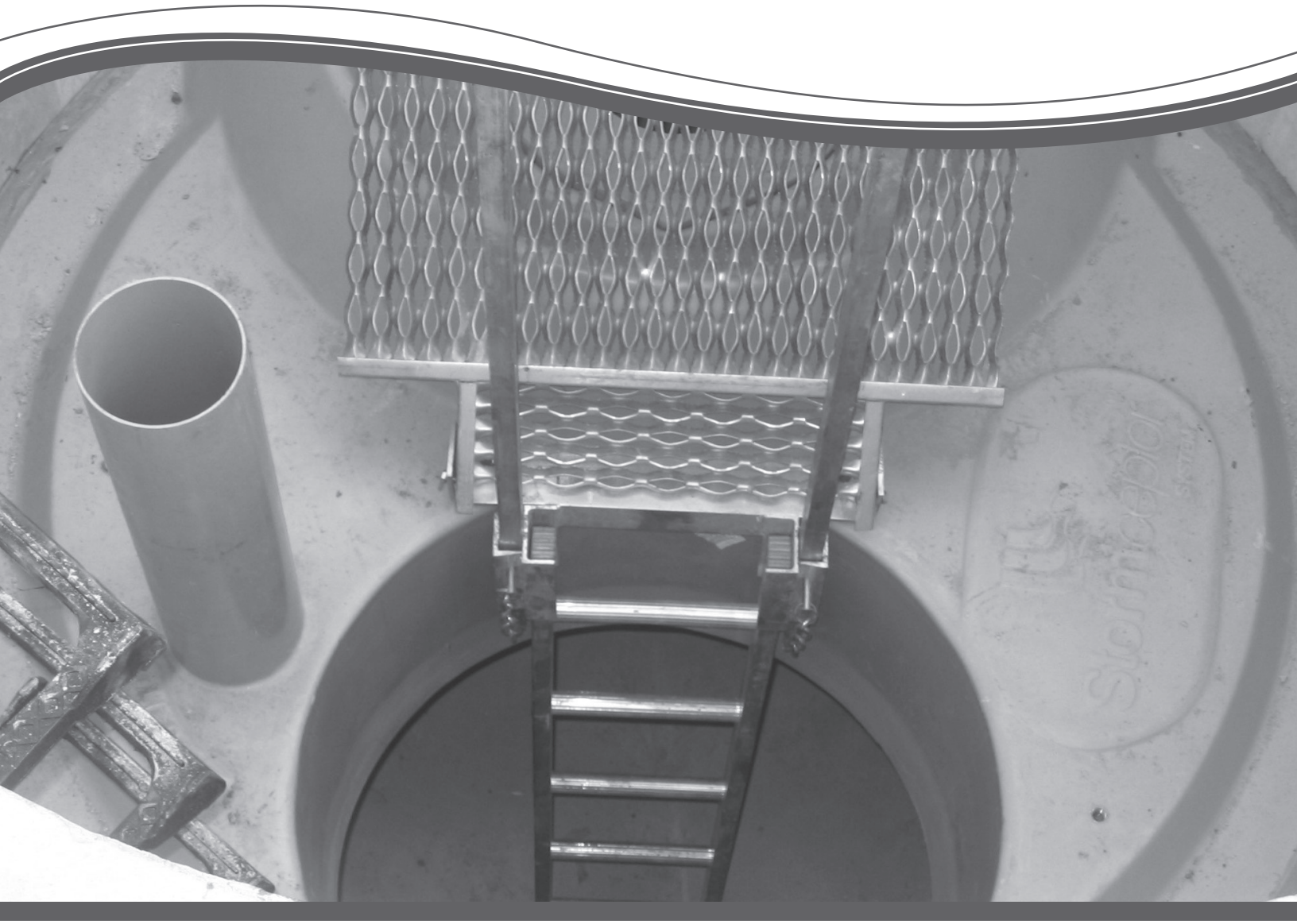
3. Loose wire sheathing shall be repaired immediately when necessary and the berm shall be reshaped as needed during inspection.

4. Berm shall be replaced if the structure ceases to function as initially intended due to factors such as silt accumulation, washout, construction traffic damage, etc.

5. When all upstream areas are stabilized and the accumulated silt has been removed, the rock berm should be removed and disposed of.

CONTECH®
ENGINEERED SOLUTIONS

Stormceptor® STC
Operation and Maintenance Guide



Stormceptor® STC

Stormceptor Design Notes

- Only the STC 450i is adaptable to function with a catch basin inlet and/or inline pipes.
- Only the Stormceptor models STC 450i to STC 7200 may accommodate multiple inlet pipes.

Inlet and outlet invert elevation differences are as follows:

Inlet and Outlet Pipe Invert Elevations Differences			
Inlet Pipe Configuration	STC 450i	STC 900 to STC 7200	STC 11000 to STC 16000
Single inlet pipe	3 in. (75 mm)	1 in. (25 mm)	3 in. (75 mm)
Multiple inlet pipes	3 in. (75 mm)	3 in. (75 mm)	Only one inlet pipe.

Maximum inlet and outlet pipe diameters:

Inlet/Outlet Configuration	Inlet Unit STC 450i	In-Line Unit STC 900 to STC 7200	Series* STC 11000 to STC 16000
Straight Through	24 inch (600 mm)	42 inch (1050 mm)	60 inch (1500 mm)
Bend (90 degrees)	18 inch (450 mm)	33 inch (825 mm)	33 inch (825 mm)

- The inlet and in-line Stormceptor units can accommodate turns to a maximum of 90 degrees.
- Minimum distance from top of grade to crown is 2 feet (0.6 m)
- Submerged conditions. A unit is submerged when the standing water elevation at the proposed location of the Stormceptor unit is greater than the outlet invert elevation during zero flow conditions. In these cases, please contact your local Stormceptor representative and provide the following information:
- Top of grade elevation
- Stormceptor inlet and outlet pipe diameters and invert elevations
- Standing water elevation
- Stormceptor head loss, K = 1.3 (for submerged condition, K = 4)

Stormceptor® STC

OPERATION AND MAINTENANCE GUIDE
Table of Content

1. About Stormceptor 4
2. Stormceptor Design Overview 4
3. Key Operation Features 6
4. Stormceptor Product Line 7
5. Sizing the Stormceptor System 10
6. Spill Controls 12
7. Stormceptor Options 14
8. Comparing Technologies 17
9. Testing 18
10. Installation 18
11. Stormceptor Construction Sequence 18
12. Maintenance 19

1. About Stormceptor

The Stormceptor® STC (Standard Treatment Cell) was developed by Imbrium™ Systems to address the growing need to remove and isolate pollution from the storm drain system before it enters the environment. The Stormceptor STC targets hydrocarbons and total suspended solids (TSS) in stormwater runoff. It improves water quality by removing contaminants through the gravitational settling of fine sediments and floatation of hydrocarbons while preventing the re-suspension or scour of previously captured pollutants.

The development of the Stormceptor STC revolutionized stormwater treatment, and created an entirely new category of environmental technology. Protecting thousands of waterways around the world, the Stormceptor System has set the standard for effective stormwater treatment.

1.1. Patent Information

The Stormceptor technology is protected by the following patents:

- Australia Patent No. 693,164 • 693,164 • 707,133 • 729,096 • 779401
- Austrian Patent No. 289647
- Canadian Patent No 2,009,208 •2,137,942 • 2,175,277 • 2,180,305 • 2,180,383 • 2,206,338 • 2,327,768 (Pending)
- China Patent No 1168439
- Denmark DK 711879
- German DE 69534021
- Indonesian Patent No 16688
- Japan Patent No 9-11476 (Pending)
- Korea 10-2000-0026101 (Pending)
- Malaysia Patent No PI9701737 (Pending)
- New Zealand Patent No 314646
- United States Patent No 4,985,148 • 5,498,331 • 5,725,760 • 5,753,115 • 5,849,181 • 6,068,765 • 6,371,690
- Stormceptor OSR Patent Pending • Stormceptor LCS Patent Pending

2. Stormceptor Design Overview

2.1. Design Philosophy

The patented Stormceptor System has been designed to focus on the environmental objective of providing long-term pollution control. The unique and innovative Stormceptor design allows for continuous positive treatment of runoff during all rainfall events, while ensuring that all captured pollutants are retained within the system, even during intense storm events.

An integral part of the Stormceptor design is PCSWMM for Stormceptor - sizing software developed in conjunction with Computational Hydraulics Inc. (CHI) and internationally acclaimed expert, Dr. Bill James. Using local historical rainfall data and continuous simulation modeling, this software allows a Stormceptor unit to be designed for each individual site and the corresponding water quality objectives.

By using PCSWMM for Stormceptor, the Stormceptor System can be designed to remove a wide range of particles (typically from 20 to 2,000 microns), and can also be customized to remove a specific particle size distribution (PSD). The specified PSD should accurately reflect what is in the stormwater runoff to ensure the device is achieving the desired water quality objective. Since stormwater runoff contains small particles (less than 75 microns), it is important to design a treatment system to remove smaller particles in addition to coarse particles.

2.2. Benefits

The Stormceptor System removes free oil and suspended solids from stormwater, preventing spills and non-point source pollution from entering downstream lakes and rivers. The key benefits, capabilities and applications of the Stormceptor System are as follows:

- Provides continuous positive treatment during all rainfall events
- Can be designed to remove over 80% of the annual sediment load
- Removes a wide range of particles
- Can be designed to remove a specific particle size distribution (PSD)
- Captures free oil from stormwater
- Prevents scouring or re-suspension of trapped pollutants
- Pre-treatment to reduce maintenance costs for downstream treatment measures (ponds, swales, detention basins, filters)
- Groundwater recharge protection
- Spills capture and mitigation
- Simple to design and specify
- Designed to your local watershed conditions
- Small footprint to allow for easy retrofit installations
- Easy to maintain (vacuum truck)
- Multiple inlets can connect to a single unit
- Suitable as a bend structure
- Pre-engineered for traffic loading (minimum AASHTO HS-20)
- Minimal elevation drop between inlet and outlet pipes
- Small head loss
- Additional protection provided by an 18" (457 mm) fiberglass skirt below the top of the insert, for the containment of hydrocarbons in the event of a spill.

2.3. Environmental Benefit

Freshwater resources are vital to the health and welfare of their surrounding communities. There is increasing public awareness, government regulations and corporate commitment to reducing the pollution entering our waterways. A major source of this pollution originates from stormwater runoff from urban areas. Rainfall runoff carries oils, sediment and other contaminants from roads and parking lots discharging directly into our streams, lakes and coastal waterways.

The Stormceptor System is designed to isolate contaminants from getting into the natural environment. The Stormceptor technology provides protection for the environment from spills that occur at service stations and vehicle accident sites, while also removing contaminated sediment in runoff that washes from roads and parking lots.

3. Key Operation Features

3.1. Scour Prevention

A key feature of the Stormceptor System is its patented scour prevention technology. This innovation ensures pollutants are captured and retained during all rainfall events, even extreme storms. The Stormceptor System provides continuous positive treatment for all rainfall events, including intense storms. Stormceptor slows incoming runoff, controlling and reducing velocities in the lower chamber to create a non-turbulent environment that promotes free oils and floatable debris to rise and sediment to settle.

The patented scour prevention technology, the fiberglass insert, regulates flows into the lower chamber through a combination of a weir and orifice while diverting high energy flows away through the upper chamber to prevent scouring. Laboratory testing demonstrated no scouring when tested up to 125% of the unit's operating rate, with the unit loaded to 100% sediment capacity (NJDEP, 2005). Second, the depth of the lower chamber ensures the sediment storage zone is adequately separated from the path of flow in the lower chamber to prevent scouring.

3.2. Operational Hydraulic Loading Rate

Designers and regulators need to evaluate the treatment capacity and performance of manufactured stormwater treatment systems. A commonly used parameter is the "operational hydraulic loading rate" which originated as a design methodology for wastewater treatment devices.

Operational hydraulic loading rate may be calculated by dividing the flow rate into a device by its settling area. This represents the critical settling velocity that is the prime determinant to quantify the influent particle size and density captured by the device. PCSWMM for Stormceptor uses a similar parameter that is calculated by dividing the hydraulic detention time in the device by the fall distance of the sediment.

$$v_{SC} = \frac{H}{6_H} = \frac{Q}{A_S}$$

Where:

v_{SC} = critical settling velocity, ft/s (m/s)

H = tank depth, ft (m)

$Ø_H$ = hydraulic detention time, ft/s (m/s)

Q = volumetric flow rate, ft3/s (m3/s)

A_S = surface area, ft^2 (m^2)

(Tchobanoglous, G. and Schroeder, E.D. 1987. Water Quality. Addison Wesley.)

Unlike designing typical wastewater devices, stormwater systems are designed for highly variable flow rates including intense peak flows. PCSWMM for Stormceptor incorporates all of the flows into its calculations, ensuring that the operational hydraulic loading rate is considered not only for one flow rate, but for all flows including extreme events.

3.3. Double Wall Containment

The Stormceptor System was conceived as a pollution identifier to assist with identifying illicit discharges. The fiberglass insert has a continuous skirt that lines the concrete barrel wall for a depth of 18 inches (457 mm) that provides double wall containment for hydrocarbons storage. This protective barrier ensures that toxic floatables do not migrate through the concrete wall into the surrounding soils.

4. Stormceptor Product Line

4.1. Stormceptor Models

A summary of Stormceptor models and capacities are listed in Table 1.

Table 1. Stormceptor Models

Stormceptor Model	Total Storage Volume U.S. Gal (L)	Hydrocarbon Storage Capacity U.S. Gal (L)	Maximum Sediment Capacity ft^3 (L)
STC 450i	470 (1,780)	86 (330)	46 (1,302)
STC 900	952 (3,600)	251 (950)	89 (2,520)
STC 1200	1,234 (4,670)	251 (950)	127 (3,596)
STC 1800	1,833 (6,940)	251 (950)	207 (5,861)
STC 2400	2,462 (9,320)	840 (3,180)	205 (5,805)
STC 3600	3,715 (1,406)	840 (3,180)	373 (10,562)
STC 4800	5,059 (1,950)	909 (3,440)	543 (15,376)
STC 6000	6,136 (23,230)	909 (3,440)	687 (19,453)
STC 7200	7,420 (28,090)	1,059 (4,010)	839 (23,757)
STC 11000	11,194 (42,370)	2,797 (10, 590)	1,086 (30,752)
STC 13000	13,348 (50,530)	2,797 (10, 590)	1,374 (38,907)
STC 16000	15,918 (60,260)	3,055 (11, 560)	1,677 (47,487)

NOTE: Storage volumes may vary slightly from region to region. For detailed information, contact your local Stormceptor representative.

4.2. Inline Stormceptor

The Inline Stormceptor, Figure 1, is the standard design for most stormwater treatment applications. The patented Stormceptor design allows the Inline unit to maintain continuous positive treatment of total suspended solids (TSS) year-round, regardless of flow rate. The Inline Stormceptor is composed of a precast concrete tank with a fiberglass insert situated at the invert of the storm sewer pipe, creating an upper chamber above the insert and a lower chamber below the insert.

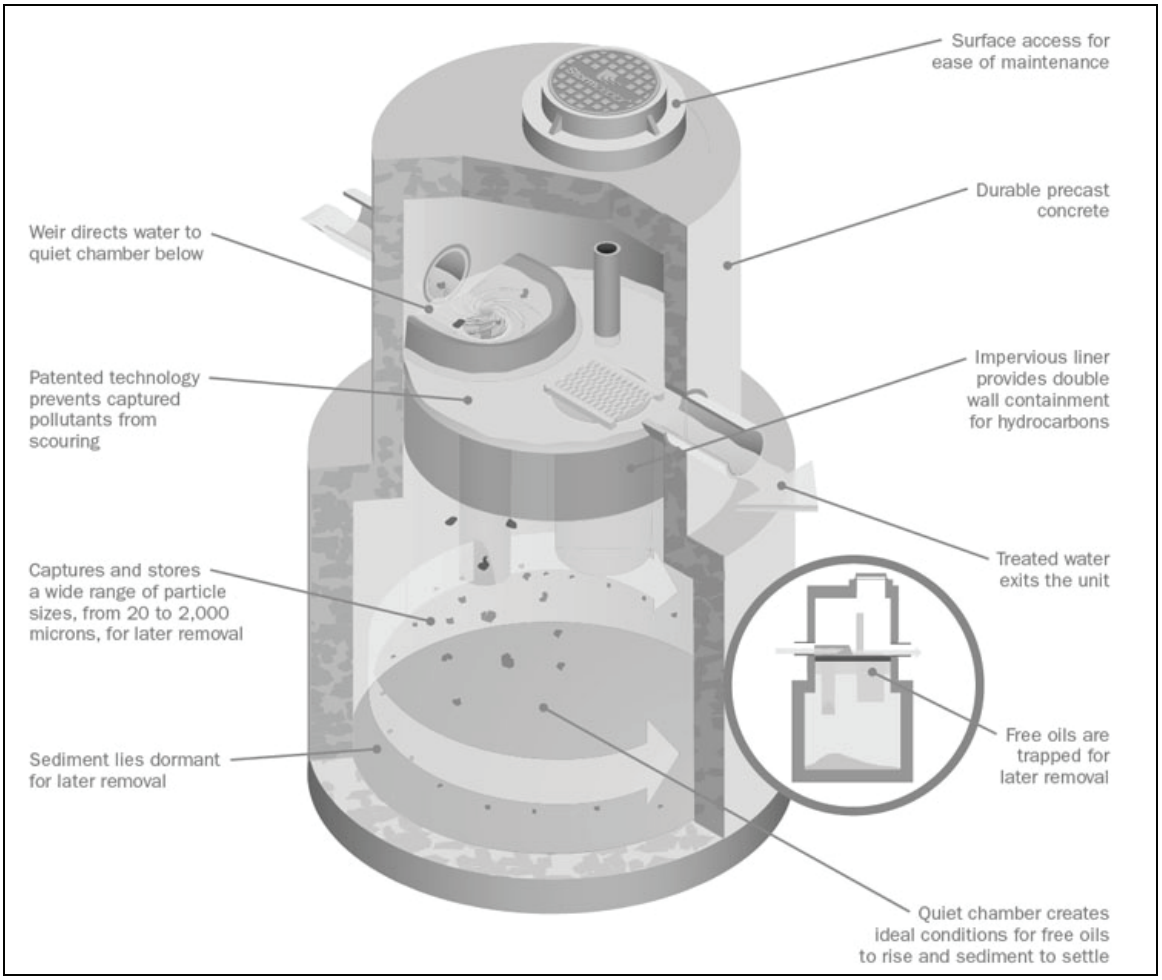


Figure 1. Inline Stormceptor

Operation

As water flows into the Stormceptor unit, it is slowed and directed to the lower chamber by a weir and drop tee. The stormwater enters the lower chamber, a non-turbulent environment, allowing free oils to rise and sediment to settle. The oil is captured underneath the fiberglass insert and shielded from exposure to the concrete walls by a fiberglass skirt. After the pollutants separate, treated water continues up a riser pipe, and exits the lower chamber on the downstream side of the weir before leaving the unit. During high flow events, the Stormceptor System's patented scour prevention technology ensures continuous pollutant removal and prevents re-suspension of previously captured pollutants.

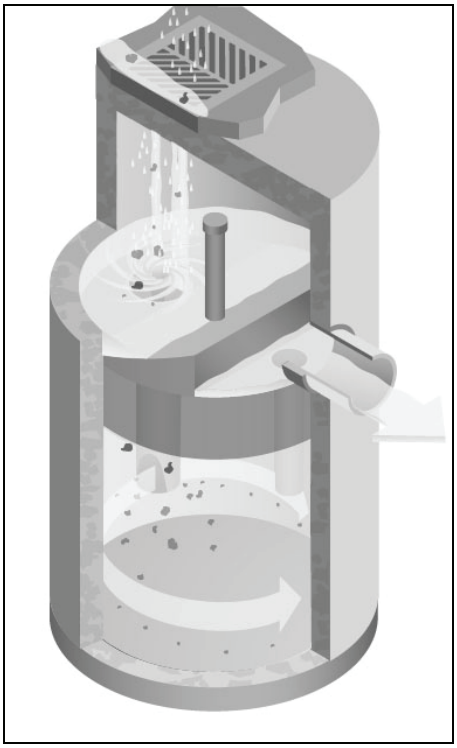


Figure 2. Inlet Stormceptor

4.3. Inlet Stormceptor

The Inlet Stormceptor System, Figure 2, was designed to provide protection for parking lots, loading bays, gas stations and other spill-prone areas. The Inlet Stormceptor is designed to remove sediment from stormwater introduced through a grated inlet, a storm sewer pipe, or both.

The Inlet Stormceptor design operates in the same manner as the Inline unit, providing continuous positive treatment, and ensuring that captured material is not re-suspended.

4.4. Series Stormceptor

Designed to treat larger drainage areas, the Series Stormceptor System, Figure 3, consists of two adjacent Stormceptor models that function in parallel. This design eliminates the need for additional structures and piping to reduce installation costs.

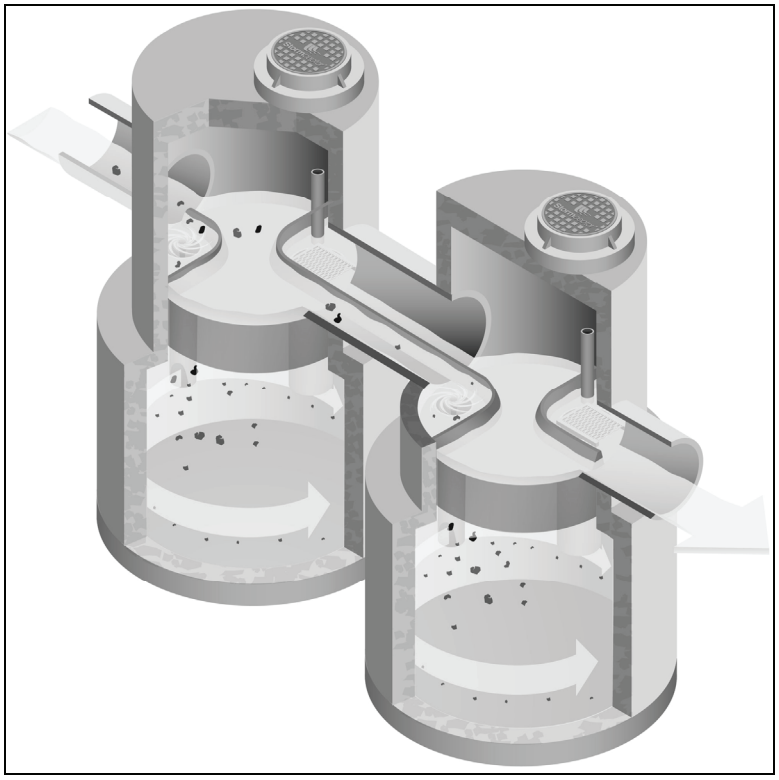


Figure 3. Series System

The Series Stormceptor design operates in the same manner as the Inline unit, providing continuous positive treatment, and ensuring that captured material is not re-suspended.

5. Sizing the Stormceptor System

The Stormceptor System is a versatile product that can be used for many different aspects of water quality improvement. While addressing these needs, there are conditions that the designer needs to be aware of in order to size the Stormceptor model to meet the demands of each individual site in an efficient and cost-effective manner.

PCSWMM for Stormceptor is the support tool used for identifying the appropriate Stormceptor model. In order to size a unit, it is recommended the user follow the seven design steps in the program. The steps are as follows:

STEP 1 – Project Details

The first step prior to sizing the Stormceptor System is to clearly identify the water quality objective for the development. It is recommended that a level of annual sediment (TSS) removal be identified and defined by a particle size distribution.

STEP 2 – Site Details

Identify the site development by the drainage area and the level of imperviousness. It is recommended that imperviousness be calculated based on the actual area of imperviousness based on paved surfaces, sidewalks and rooftops.

STEP 3 – Upstream Attenuation

The Stormceptor System is designed as a water quality device and is sometimes used in conjunction with onsite water quantity control devices such as ponds or underground detention systems. When possible, a greater benefit is typically achieved when installing a Stormceptor unit upstream of a detention facility. By placing the Stormceptor unit upstream of a detention structure, a benefit of less maintenance of the detention facility is realized.

STEP 4 – Particle Size Distribution

It is critical that the PSD be defined as part of the water quality objective. PSD is critical for the design of treatment system for a unit process of gravity settling and governs the size of a treatment system. A range of particle sizes has been provided and it is recommended that clays and silt-sized particles be considered in addition to sand and gravel-sized particles. Options and sample PSDs are provided in PCSWMM for Stormceptor. The default particle size distribution is the Fine Distribution, Table 2, option.

Table 2. Fine Distribution

Particle Size	Distribution	Specific Gravity
20	20%	1.3
60	20%	1.8
150	20%	2.2
400	20%	2.65
2000	20%	2.65

If the objective is the long-term removal of 80% of the total suspended solids on a given site, the PSD should be representative of the expected sediment on the site. For example, a system designed to remove 80% of coarse particles (greater than 75 microns) would provide relatively poor removal efficiency of finer particles that may be naturally prevalent in runoff from the site.

Since the small particle fraction contributes a disproportionately large amount of the total available particle surface area for pollutant adsorption, a system designed primarily for coarse particle capture will compromise water quality objectives.

STEP 5 – Rainfall Records

Local historical rainfall has been acquired from the U.S. National Oceanic and Atmospheric Administration, Environment Canada and regulatory agencies across North America. The rainfall data provided with PCSMM for Stormceptor provides an accurate estimation of small storm hydrology by modeling actual historical storm events including duration, intensities and peaks.

STEP 6 – Summary

At this point, the program may be executed to predict the level of TSS removal from the site. Once the simulation has completed, a table shall be generated identifying the TSS removal of each Stormceptor unit.

STEP 7 – Sizing Summary

Performance estimates of all Stormceptor units for the given site parameters will be displayed in a tabular format. The unit that meets the water quality objective, identified in Step 1, will be highlighted.

5.1. PCSWMM for Stormceptor

The Stormceptor System has been developed in conjunction with PCSWMM for Stormceptor as a technological solution to achieve water quality goals. Together, these two innovations model, simulate, predict and calculate the water quality objectives desired by a design engineer for TSS removal.

PCSWMM for Stormceptor is a proprietary sizing program which uses site specific inputs to a computer model to simulate sediment accumulation, hydrology and long-term total suspended solids removal. The model has been calibrated to field monitoring results from Stormceptor units that have been monitored in North America. The sizing methodology can be described by three processes:

1. Determination of real time hydrology
2. Buildup and wash off of TSS from impervious land areas
3. TSS transport through the Stormceptor (settling and discharge). The use of a calibrated model is the preferred method for sizing stormwater quality structures for the following reasons:
    - » The hydrology of the local area is properly and accurately incorporated in the sizing (distribution of flows, flow rate ranges and peaks, back-to-back storms, inter-event times)
    - » The distribution of TSS with the hydrology is properly and accurately considered in the sizing
    - » Particle size distribution is properly considered in the sizing
    - » The sizing can be optimized for TSS removal
    - » The cost benefit of alternate TSS removal criteria can be easily assessed
    - » The program assesses the performance of all Stormceptor models. Sizing may be selected based on a specific water quality outcome or based on the Maximum Extent Practicable

For more information regarding PCSWMM for Stormceptor, contact your local Stormceptor representative, or visit www.imbriumsystems.com to download a free copy of the program.

5.2. Sediment Loading Characteristics

The way in which sediment is transferred to stormwater can have a considerable effect on which type of system is implemented. On typical impervious surfaces (e.g. parking lots) sediment will build over time and wash off with the next rainfall. When rainfall patterns are examined, a short intense storm will have a higher concentration of sediment than a long slow drizzle. Together with rainfall data representing the site's typical rainfall patterns, sediment loading characteristics play a part in the correct sizing of a stormwater quality device.

Typical Sites

For standard site design of the Stormceptor System, PCSWMM for Stormceptor is utilized to accurately assess the unit's performance. As an integral part of the product's design, the program can be used to meet local requirements for total suspended solid removal. Typical installations of manufactured stormwater treatment devices would occur on areas such as paved parking lots or paved roads. These are considered "stable" surfaces which have non – erodible surfaces.

Unstable Sites

While standard sites consist of stable concrete or asphalt surfaces, sites such as gravel parking lots, or maintenance yards with stockpiles of sediment would be classified as "unstable". These types of sites do not exhibit first flush characteristics, are highly erodible and exhibit atypical sediment loading characteristics and must therefore be sized more carefully. Contact your local Stormceptor representative for assistance in selecting a proper unit sized for such unstable sites.

6. Spill Controls

When considering the removal of total petroleum hydrocarbons (TPH) from a storm sewer system there are two functions of the system: oil removal, and spill capture.

'Oil Removal' describes the capture of the minute volumes of free oil mobilized from impervious surfaces. In this instance relatively low concentrations, volumes and flow rates are considered. While the Stormceptor unit will still provide an appreciable oil removal function during higher flow events and/or with higher TPH concentrations, desired effluent limits may be exceeded under these conditions.

'Spill Capture' describes a manner of TPH removal more appropriate to recovery of a relatively high volume of a single phase deleterious liquid that is introduced to the storm sewer system over a relatively short duration. The two design criteria involved when considering this manner of introduction are overall volume and the specific gravity of the material. A standard Stormceptor unit will be able to capture and retain a maximum spill volume and a minimum specific gravity.

For spill characteristics that fall outside these limits, unit modifications are required. Contact your local Stormceptor Representative for more information.

One of the key features of the Stormceptor technology is its ability to capture and retain spills. While the standard Stormceptor System provides excellent protection for spill control, there are additional options to enhance spill protection if desired.

6.1. Oil Level Alarm

The oil level alarm is an electronic monitoring system designed to trigger a visual and audible alarm when a pre-set level of oil is reached within the lower chamber. As a standard, the oil

level alarm is designed to trigger at approximately 85% of the unit's available depth level for oil capture. The feature acts as a safeguard against spills caused by exceeding the oil storage capacity of the separator and eliminates the need for manual oil level inspection.

The oil level alarm installed on the Stormceptor insert is illustrated in Figure 4.

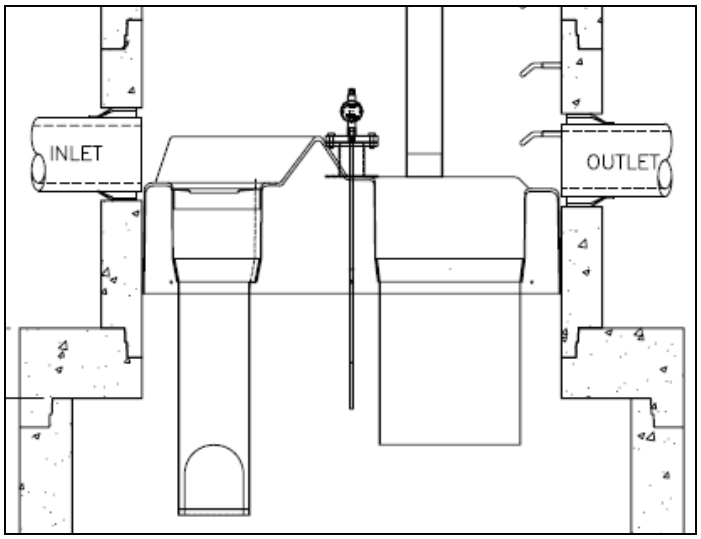


Figure 4. Oil level alarm

6.2. Increased Volume Storage Capacity

The Stormceptor unit may be modified to store a greater spill volume than is typically available. Under such a scenario, instead of installing a larger than required unit, modifications can be made to the recommended Stormceptor model to accommodate larger volumes. Contact your local Stormceptor representative for additional information and assistance for modifications.

7. Stormceptor Options

The Stormceptor System allows flexibility to incorporate to existing and new storm drainage infrastructure. The following section identifies considerations that should be reviewed when installing the system into a drainage network. For conditions that fall outside of the recommendations in this section, please contact your local Stormceptor representative for further guidance.

7.1. Installation Depth Minimum Cover

The minimum distance from the top of grade to the crown of the inlet pipe is 24 inches (600 mm). For situations that have a lower minimum distance, contact your local Stormceptor representative.

7.2. Maximum Inlet and Outlet Pipe Diameters

Maximum inlet and outlet pipe diameters are illustrated in Figure 5. Contact your local Stormceptor representative for larger pipe diameters

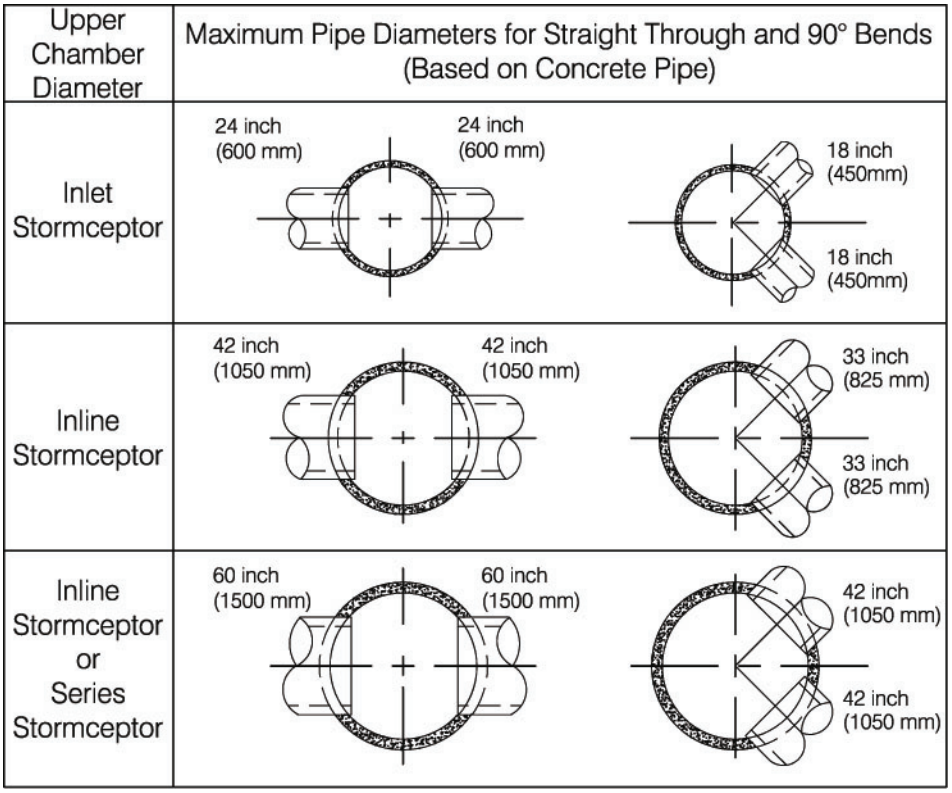


Figure 5. Maximum pipe diameters for straight through and bend applications

*The bend should only be incorporated into the second structure (downstream structure) of the Series Stormceptor System

7.3. Bends

The Stormceptor System can be used to change horizontal alignment in the storm drain network up to a maximum of 90 degrees. Figure 6 illustrates the typical bend situations of the Stormceptor System. Bends should only be applied to the second structure (downstream structure) of the Series Stormceptor System.

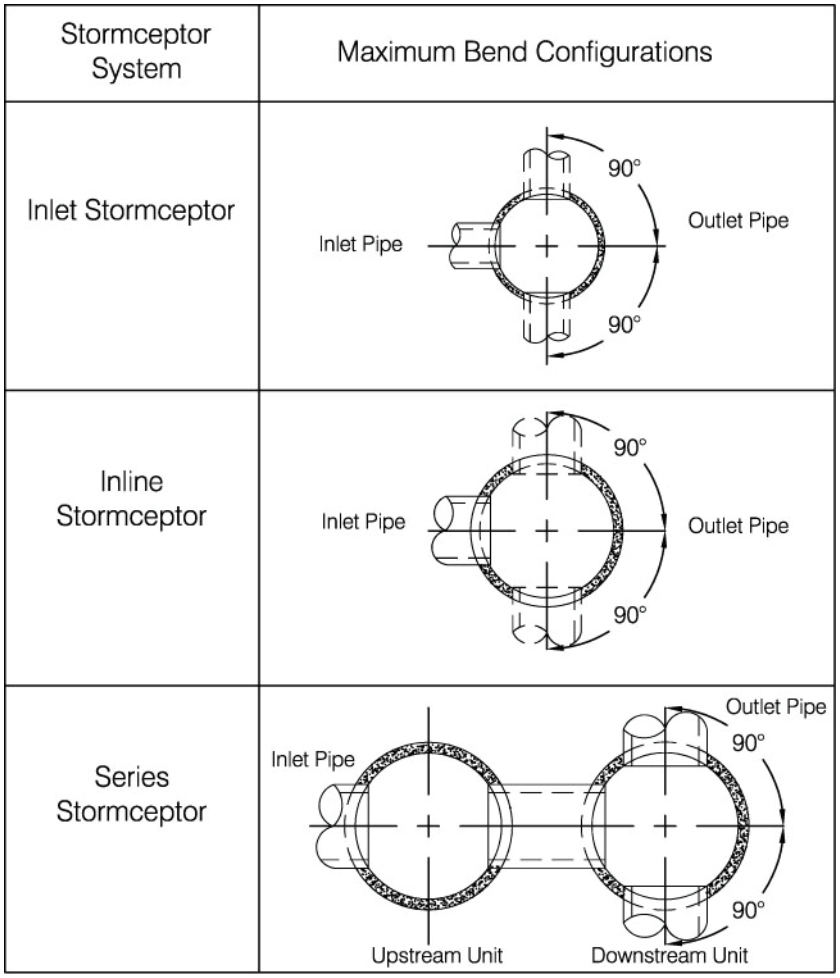


Figure 6. Maximum bend angles

7.4. Multiple Inlet Pipes

The Inlet and Inline Stormceptor System can accommodate two or more inlet pipes. The maximum number of inlet pipes that can be accommodated into a Stormceptor unit is a function of the number, alignment and diameter of the pipes and its effects on the structural integrity of the precast concrete. When multiple inlet pipes are used for new developments, each inlet pipe shall have an invert elevation 3 inches (75 mm) higher than the outlet pipe invert elevation.

7.5. Inlet/Outlet Pipe Invert Elevations

Recommended inlet and outlet pipe invert differences are listed in Table 3.

Table 3. Recommended Drops Between Inlet and Outlet Pipe Inverts

Number of Inlet Pipes	Inlet System	In-Line System	Series System
1	3 inches (75 mm)	1 inch (25 mm)	3 inches (75 mm)
>1	3 inches (75 mm)	3 inches (75 mm)	Not Applicable

7.6. Shallow Stormceptor

In cases where there may be restrictions to the depth of burial of storm sewer systems. In this situation, for selected Stormceptor models, the lower chamber components may be increased in diameter to reduce the overall depth of excavation required.

7.7. Customized Live Load

The Stormceptor system is typically designed for local highway truck loading (AASHTO HS- 20). When the project requires live loads greater than HS-20, the Stormceptor System may be customized structurally for a pre-specified live load. Contact your local Stormceptor representative for customized loading conditions.

7.8. Pre-treatment

The Stormceptor System may be sized to remove sediment and for spills control in conjunction with other stormwater BMPs to meet the water quality objective. For pretreatment applications, the Stormceptor System should be the first unit in a treatment train. The benefits of pre-treatment include the extension of the operational life (extension of maintenance frequency) of large stormwater management facilities, prevention of spills and lower total life- cycle maintenance cost.

7.9. Head loss

The head loss through the Stormceptor System is similar to a 60 degree bend at a manhole. The K value for calculating minor losses is approximately 1.3 (minor loss = k*1.3v2/2g).

However, when a Submerged modification is applied to a Stormceptor unit, the corresponding K value is 4.

7.10. Submerged

The Submerged modification, Figure 7, allows the Stormceptor System to operate in submerged or partially submerged storm sewers. This configuration can be installed on all models of the Stormceptor System by modifying the fiberglass insert. A customized weir height and a secondary drop tee are added.

Submerged instances are defined as standing water in the storm drain system during zero flow conditions. In these instances, the following information is necessary for the proper design and application of submerged modifications:

- Stormceptor top of grade elevation
- Stormceptor outlet pipe invert elevation
- Standing water elevation

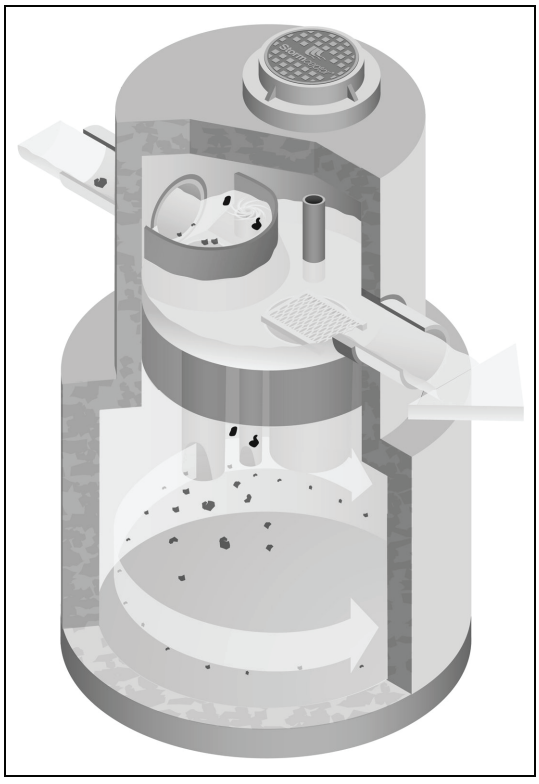


Figure 7. Submerged Stormceptor

8. Comparing Technologies

Designers have many choices available to achieve water quality goals in the treatment of stormwater runoff. Since many alternatives are available for use in stormwater quality treatment it is important to consider how to make an appropriate comparison between "approved alternatives". The following is a guide to assist with the accurate comparison of differing technologies and performance claims.

8.1. Particle Size Distribution (PSD)

The most sensitive parameter to the design of a stormwater quality device is the selection of the design particle size. While it is recommended that the actual particle size distribution (PSD) for sites be measured prior to sizing, alternative values for particle size should be selected to represent what is likely to occur naturally on the site. A reasonable estimate of a particle size distribution likely to be found on parking lots or other impervious surfaces should consist of a wide range of particles such as 20 microns to 2,000 microns (Ontario MOE, 1994).

There is no absolute right particle size distribution or specific gravity and the user is cautioned to review the site location, characteristics, material handling practices and regulatory requirements when selecting a particle size distribution. When comparing technologies, designs using different PSDs will result in incomparable TSS removal efficiencies. The PSD of the TSS removed needs to be standard between two products to allow for an accurate comparison.

8.2. Scour Prevention

In order to accurately predict the performance of a manufactured treatment device, there must be confidence that it will perform under all conditions. Since rainfall patterns cannot be predicted, stormwater quality devices placed in storm sewer systems must be able to withstand extreme events, and ensure that all pollutants previously captured are retained in the system.

In order to have confidence in a system's performance under extreme conditions, independent validation of scour prevention is essential when examining different technologies. Lack of independent verification of scour prevention should make a designer wary of accepting any product's performance claims.

8.3. Hydraulics

Full scale laboratory testing has been used to confirm the hydraulics of the Stormceptor System. Results of lab testing have been used to physically design the Stormceptor System and the sewer pipes entering and leaving the unit. Key benefits of Stormceptor are:

- Low head loss (typical k value of 1.3)
- Minimal inlet/outlet invert elevation drop across the structure
- Use as a bend structure
- Accommodates multiple inlets

The adaptability of the treatment device to the storm sewer design infrastructure can affect the overall performance and cost of the site.

8.4. Hydrology

Stormwater quality treatment technologies need to perform under varying climatic conditions. These can vary from long low intensity rainfall to short duration, high intensity storms. Since a treatment device is expected to perform under all these conditions, it makes sense that any system's design should accommodate those conditions as well.

Long-term continuous simulation evaluates the performance of a technology under the varying conditions expected in the climate of the subject site. Single, peak event design does not provide this information and is not equivalent to long-term simulation. Designers should request long-term simulation performance to ensure the technology can meet the long-term water quality objective.

9. Testing

The Stormceptor System has been the most widely monitored stormwater treatment technology in the world. Performance verification and monitoring programs are completed to the strictest standards and integrity. Since its introduction in 1990, numerous independent field tests and studies detailing the effectiveness of the Stormceptor System have been completed.

- Coventry University, UK – 97% removal of oil, 83% removal of sand and 73% removal of peat
- National Water Research Institute, Canada, - scaled testing for the development of the Stormceptor System identifying both TSS removal and scour prevention.
- New Jersey TARP Program – full scale testing of an STC 900 demonstrating 75% TSS removal of particles from 1 to 1000 microns. Scour testing completed demonstrated that the system does not scour. The New Jersey Department of Environmental Protection was followed.
- City of Indianapolis – full scale testing of an STC 900 demonstrating over 80% TSS removal of particles from 50 microns to 300 microns at 130% of the unit's operating rate. Scour testing completed demonstrated that the system does not scour.
- Westwood Massachusetts (1997), demonstrated >80% TSS removal
- Como Park (1997), demonstrated 76% TSS removal
- Ontario MOE SWAMP Program – 57% removal of 1 to 25 micron particles
- Laval Quebec – 50% removal of 1 to 25 micron particles

10. Installation

The installation of the concrete Stormceptor should conform in general to state highway, or local specifications for the installation of manholes. Selected sections of a general specification that are applicable are summarized in the following sections.

10.1. Excavation

Excavation for the installation of the Stormceptor should conform to state highway, or local specifications. Topsoil removed during the excavation for the Stormceptor should be stockpiled in designated areas and should not be mixed with subsoil or other materials.

Topsoil stockpiles and the general site preparation for the installation of the Stormceptor should conform to state highway or local specifications.

The Stormceptor should not be installed on frozen ground. Excavation should extend a minimum of 12 inches (300 mm) from the precast concrete surfaces plus an allowance for shoring and bracing where required. If the bottom of the excavation provides an unsuitable foundation additional excavation may be required.

In areas with a high water table, continuous dewatering may be required to ensure that the excavation is stable and free of water.

10.2. Backfilling

Backfill material should conform to state highway or local specifications. Backfill material should be placed in uniform layers not exceeding 12 inches (300mm) in depth and compacted to state highway or local specifications.

11. Stormceptor Construction Sequence

The concrete Stormceptor is installed in sections in the following sequence:

1. Aggregate base
2. Base slab
3. Lower chamber sections
4. Upper chamber section with fiberglass insert
5. Connect inlet and outlet pipes
6. Assembly of fiberglass insert components (drop tee, riser pipe, oil cleanout port and orifice plate
7. Remainder of upper chamber
8. Frame and access cover

The precast base should be placed level at the specified grade. The entire base should be in contact with the underlying compacted granular material. Subsequent sections, complete with joint seals, should be installed in accordance with the precast concrete manufacturer's recommendations.

Adjustment of the Stormceptor can be performed by lifting the upper sections free of the excavated area, re-leveling the base and re-installing the sections. Damaged sections and gaskets should be repaired or replaced as necessary. Once the Stormceptor has been constructed, any lift holes must be plugged with mortar.

12. Maintenance

12.1. Health and Safety

The Stormceptor System has been designed considering safety first. It is recommended that confined space entry protocols be followed if entry to the unit is required. In addition, the fiberglass insert has the following health and safety features:

- Designed to withstand the weight of personnel
- A safety grate is located over the 24 inch (600 mm) riser pipe opening
- Ladder rungs can be provided for entry into the unit, if required

12.2. Maintenance Procedures

Maintenance of the Stormceptor system is performed using vacuum trucks. No entry into the unit is required for maintenance (in most cases). The vacuum service industry is a well- established sector of the service industry that cleans underground tanks, sewers and catch basins. Costs to clean a Stormceptor will vary based on the size of unit and transportation distances.

The need for maintenance can be determined easily by inspecting the unit from the surface. The depth of oil in the unit can be determined by inserting a dipstick in the oil inspection/cleanout port.

Similarly, the depth of sediment can be measured from the surface without entry into the Stormceptor via a dipstick tube equipped with a ball valve. This tube would be inserted through the riser pipe. Maintenance should be performed once the sediment depth exceeds the guideline values provided in the Table 4.

Table 4. Sediment Depths Indicating Required Servicing*

Particle Size	Specific Gravity
Model	Sediment Depth inches (mm)
450i	8 (200)
900	8 (200)
1200	10 (250)
1800	15 (381)
2400	12 (300)
3600	17 (430)
4800	15 (380)
6000	18 (460)
7200	15 (381)
11000	17 (380)
13000	20 (500)
16000	17 (380)
* based on 15% of the Stormceptor unit's total storage	

Although annual servicing is recommended, the frequency of maintenance may need to be increased or reduced based on local conditions (i.e. if the unit is filling up with sediment more quickly than projected, maintenance may be required semi-annually; conversely once the site has stabilized maintenance may only be required every two or three years).

Oil is removed through the oil inspection/cleanout port and sediment is removed through the riser pipe. Alternatively oil could be removed from the 24 inches (600 mm) opening if water is removed from the lower chamber to lower the oil level below the drop pipes.

The following procedures should be taken when cleaning out Stormceptor:

1. Check for oil through the oil cleanout port
2. Remove any oil separately using a small portable pump
3. Decant the water from the unit to the sanitary sewer, if permitted by the local regulating authority, or into a separate containment tank
4. Remove the sludge from the bottom of the unit using the vacuum truck
5. Re-fill Stormceptor with water where required by the local jurisdiction

12.3. Submerged Stormceptor

Careful attention should be paid to maintenance of the Submerged Stormceptor System. In cases where the storm drain system is submerged, there is a requirement to plug both the inlet and outlet pipes to economically clean out the unit.

12.4. Hydrocarbon Spills

The Stormceptor is often installed in areas where the potential for spills is great. The Stormceptor System should be cleaned immediately after a spill occurs by a licensed liquid waste hauler.

12.5. Disposal

Requirements for the disposal of material from the Stormceptor System are similar to that of any other stormwater Best Management Practice (BMP) where permitted. Disposal options for the sediment may range from disposal in a sanitary trunk sewer upstream of a sewage treatment plant, to disposal in a sanitary landfill site. Petroleum waste products collected in the Stormceptor (free oil/chemical/fuel spills) should be removed by a licensed waste management company.

12.6. Oil Sheens

With a steady influx of water with high concentrations of oil, a sheen may be noticeable at the Stormceptor outlet. This may occur because a rainbow or sheen can be seen at very small oil concentrations (<10 mg/L). Stormceptor will remove over 98% of all free oil spills from storm sewer systems for dry weather or frequently occurring runoff events.

The appearance of a sheen at the outlet with high influent oil concentrations does not mean the unit is not working to this level of removal. In addition, if the influent oil is emulsified the Stormceptor will not be able to remove it. The Stormceptor is designed for free oil removal and not emulsified conditions.



SUPPORT

Drawings and specifications are available at www.ContechES.com.

Site-specific design support is available from our engineers.

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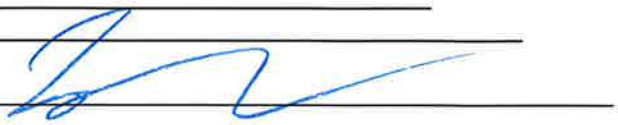
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Responsible Party for Maintenance: City of Georgetown

Address: 300 Industrial Ave #1

City, State, Zip: Georgetown, TX, 78626

Telephone Number: 512-930-8162

Signature of Responsible Party: 

PROJECT NAME: DB Wood Road – Oak Ridge Road to 820' South of Williams Drive
ADDRESS: DB Wood Road
CITY, STATE ZIP: Georgetown, Texas 78628

PILOT-SCALE FIELD TESTING PLAN

Not applicable

MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

During construction, Best Management Practices include the use of silt fence and inlet protection to capture sediment from the construction area contained within the storm water runoff. Silt fence will be installed along the downstream portion of the property and inlet protection will be installed around all existing and proposed inlet structures (once constructed).

After construction, all disturbed areas on the site will be re-vegetated and runoff from the proposed improvements will be captured by the proposed inlets and conveyed to BMP's or flow offsite. D B Wood has a total of eight basins, three of which are getting overtreated. The overall required removal for this in the current proposed phase of development is Lm = 5219 LBS. The proposed BMPs have been designed to provide 5359 LBS of TSS removal. The basins have been broken out and are shown on the construction drawings (D B Wood Road Water Quality Basin Map, Sheets 477 to 479). Water quality drainage area WQ-H1 will street flow to drainage inlets then pipe flow to a STC7200-H1 that will then discharge into San Gabriel River. WQ-H1 will provide a total of 2073 LBS of TSS removal. Water quality drainage area WQ-I1 will street flow to drainage inlets then pipe flow to a STC4800-I1 that will then discharge into San Gabriel River. WQ-I1 will provide a total of 325 LBS of TSS removal. Water quality drainage area WQ-L1 will street flow to drainage inlets then pipe flow to a STC2400-L1 that will then discharge an open ditch channel that runs parallel to D B Wood Road. WQ-L1 will provide a total of 2960 LBS of TSS removal. All proposed water quality BMP’s are shown in the construction drawings under Storm Sewer Plan and Profile sheets 238 to 257. The TSS Removal calculations are shown on the sheets 480 to 482. Please refer to the Erosion and Sedimentation Control for proposed temporary BMPs proposed on sheets 457 to 476.

VOLUME AND CHARACTER OF STORMWATER

The proposed BMP's were designed and sized to treat the proposed onsite and offsite flows. The proposed improvements create a total of 5.64 acres of impervious covers, making up 18.30% of the overall site that drains into the proposed BMPs. TCEQ TSS Removal calculations are referenced on sheets 480 to 482 in attached construction plans.

EASEMENT DOCUMENTATION

ES 2006009504
12 PGS

12

AMENDMENT NO. 1
TO
EASEMENT NO. DACW63-2-01-0523
GEORGETOWN LAKE, TEXAS

This Amendment No. 1 to Easement No. DACW63-2-01-0523, made and entered into by and between the Secretary of the Army and Williamson County, hereinafter referred to as grantee:

W I T N E S S E T H:

WHEREAS, on 27 February 2001, the Secretary of the Army granted to Williamson County, the above-numbered easement for 26.0 acres of land for road or street expansion on Tracts 101, 102 and 104, Georgetown Lake, Texas, as more specifically described in said easement; and

WHEREAS, the grantee has requested that the easement be amended to change the grantee from Williamson County to the City of Georgetown, and the Government is agreeable thereto.

NOW, THEREFORE, Easement No. DACW63-2-01-0523 is hereby amended in the following respects only:

The grantee in the granting clause is changed from Williamson County to the City of Georgetown.

That in Condition 3, the grantee is changed to City of Georgetown, 300 Industrial Avenue, Georgetown, Texas 78626.

That Condition 21.a. remains as is. Williamson County will remain responsible for monitoring the presence and mapping the territories of golden-cheeked warblers in the area south of the bridge through the 2007 survey season in accordance with the U.S. Fish and Wildlife Service biological opinion dated 21 Aug 2000, No. 2-15-98-F-1230.

That Condition 21.b. is deleted because construction is complete.

That Condition 21.c. is changed to read "This project has been coordinated with the State Historical and Preservation Officer (SHPO). Care will be exercised to avoid sites 41 WM 51 and 41 WM 52 with any work that may result in ground disturbance. If disturbance of these sites is likely to result from any activities, coordination with the Georgetown Lake Office, Fort Worth Operations Division Archeologist and SHPO will be required."

property owners and their clientele. This right will be transferable with the easement if operation of the road is subsequently assumed by another entity.

(b) In other areas where the easement is separated from privately-owned property by government-owned property outside the easement area, the Corps of Engineers reserves the right to restrict access by adjacent non-Government property owners. Corps property between the easement and adjacent property will be managed as natural buffer and wildlife habitat areas.

(c) This easement is granted for roadway purposes only. Placement of any utilities, pole, lines, pipelines or similar appurtenances within the easement area will not be authorized. Requests for such facilities within the easement area will be considered separately. Signs that are not necessary for the operation of the roadway will not be permitted, and the Grantee will be responsible for restricting the public from posting signs of any type. The grantee shall have non-exclusive use of the easement and the Government retains the right to permit utility easements to be placed within the existing easement, as well as to place signs within the easement, provided that any future easements and signs will not, in the opinion of the District Engineer, interfere with the use of the premises by the Grantee.

That a new Environmental Baseline Survey is added as Exhibit C-1.

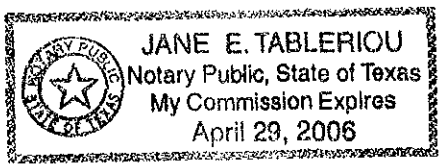
That a GIS map showing the location of the existing easement is attached as Exhibit A-1.

EXCEPT for the revisions above, the terms and conditions of the easement shall remain unchanged and in full force and effect.

STATE OF TEXAS

COUNTY OF WILLIAMSON

On this the 10th day of October, 2005, before me, the undersigned offider, personally appeared John C. Doerfler, County Judge of Williamson County, who acknowledged that he executed the same in the capacity therein stated on behalf of Williamson County, Texas.



Notary Public, State of Texas

CERTIFICATE

I, [illegible], certify that I am the

City of Williamson County, named as Grantee herein.

That [illegible] who signed this Amendment No.1 on behalf of the Grantee was then City Judge of Williamson County and said Amendment NO. 1 was duly signed for on behalf of Williamson County by authority of the governing body and is within the scope of its legal powers.

Date Oct 10, 08

[signature]

NOTE: Someone other than the individual who executes the amendment must complete this certificate.

CERTIFICATE

I, Patricia E. Carls, certify that I am the City Attorney of the City of Georgetown, named as Grantee herein. That Gary Nelon who signed this Amendment No.1 on behalf of the Grantee was then Mayor of the City of Georgetown and said Amendment NO. 1 was duly signed for on behalf of the City of Georgetown by authority of the governing body and is within the scope of its legal powers.

Date Sept. 27, 2005

Patricia E Carls

NOTE: Someone other than the individual who executes the amendment must complete this certificate.

ENVIRONMENTAL BASELINE SURVEY

GENERAL: Operations Division responsibilities for complying with CERCLA are satisfied by completing an Environmental Baseline Survey (EBS) (formerly the PAS/PEE) consisting of a review of available records and interviews with persons of agencies who may have knowledge of the past history of the property in question to determine if hazardous substances were released (vented or spilled), stored, or disposed of on the property in threshold quantities. Note: If any finding(s) are answered "Yes", describe details on a separate page and attach to this EBS.

Records Review

Records Review	Finding No	Finding Yes	Finding Date	Agency Interview	Finding No	Finding Yes	Finding Date
Master Plan	(X)	( )	01 Jul 2005	Aerial Photos	(X)	( )	01 Jul 2005
OMP	(X)	( )	01 Jul 2005	ERGO Reports	(X)	( )	01 Jul 2005
Permanent Files	(X)	( )	01 Jul 2005				

On-site Review

Finding No	Finding Yes	Finding N/A	Provision
(X)	( )		1) Is there any evidence of past or present treatment, storage, spillage, or disposal of hazardous substances in the action area?
( )	( )	(X)	2) Is there any lead-based paint on any of the structures? (Visually inspect existing buildings, if any, for lead based paint (LBP) usually, paint walls earlier than 1978.)
(X)	( )		3) Is there any evidence of polychlorinated biphenols (PCB) contamination? (Visually inspect boundaries and interior of the land area for presence of leaking electrical transformers, and other potential sources of PCB's.
( )	(X)		4) Are there any asbestos-containing materials in the area? (Visually inspect existing buildings, if any, for asbestos-containing materials). A 4" asbestos cement waterline, which formerly served the Georgetown Lake Office, was removed from the easement area during construction and still lies in place on the north northwest and south southeast sides of the easement area between Roads Stations 85 and 95.
(X)	( )		5) Are there USTs on the property?
(X)	( )		6) Are there above ground storage tanks on the property?

ENVIRONMENTAL BASELINE SURVEY
(Cont.)

Statement of Condition:

[X] a. According to the information above, no hazardous substances were identified as released, stored, or disposed on the property in threshold quantities.

[ ] b. The above information indicates hazardous substances were released, stored, or disposed of on the property in threshold quantities.

[ ] 1) The site has been tested and no contaminants were found in detectable levels. The property is considered safe for the proposed use.

[ ] 2) The site has been tested and contaminants were found in detectable levels. Remedial action has been taken and the property is considered safe for the proposed use.

[ ] 3) The site has been tested and contaminants were found in detectable levels. Remedial action has not been taken. Details and justification for outgranting in the current condition are attached.

[ ] 4) The site has been tested and contaminants were found in detectable levels. Remedial action has not been taken. Therefore, **Non-availability** is recommended. Therefore, **Non-availability** is recommended.

[ ] 5) The site has not been tested.

Statements and/or Conditions:
(Either a or b1-b5)

========== **Reserved for District Office** ==========

concur [X] nonconcur [ ] Condition:

(Statement and/or Conditions)

Signature: _____ Position: 22 July 05
(Natural Resource Manager)

MINIMUM SEEDING RATES FOR DISTURBED AREAS

Common Name	Variety	Lbs. Pure Live Seed/Acre
Little Bluestem	Native Texas	6.0
Indian grass	Lometa	1.5
Buffalo grass	Top Gun	5.3
Sideoats Grama	Haskell	3.6
Switchgrass*	Alamo	0.6
Big Bluestem	Kaw	1.5
Sand Lovegrass	Mason	3.6
Texas Bluebonnet		35.0 (bulk seed)
Firewheel		10.0 (bulk seed)
Showy (Pink Evening) Primrose		1.0 (bulk seed)
Verbena		2.0 (bulk seed)
Texas Paintbrush		0.25 (bulk seed)
Standing Cypress		6.0 (bulk seed)
Lemon Mint		3.0 (bulk seed)
Mealy Sage		8.0 (bulk seed)
Gay Feather		10.0 (bulk seed)
Clasping Coneflower		3.0 (bulk seed)
Engelmann Daisy		5.0 (bulk seed)
Narrow-leafed Coneflower		10.0 (bulk seed)
Purple Prairie Clover		8.0 (bulk seed)

Notes:

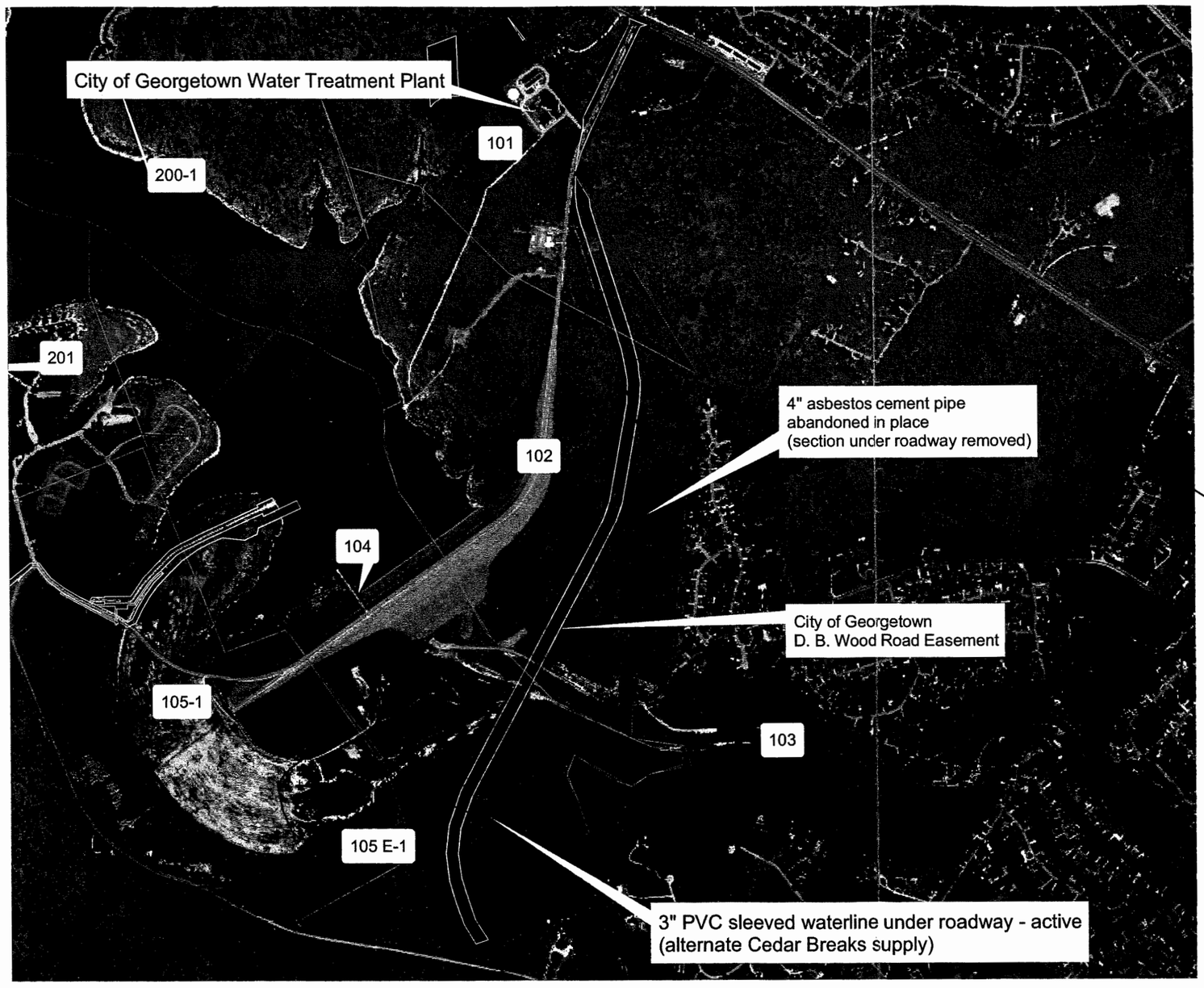
1. Minimum grass planting rates are given for hydro mulch, drill, or broadcast with mulch seeding techniques. If straight broadcast technique is used, double the rates. Optimum planting dates for native grass species are February 1 - May 15.

*2. *Use in areas subject to inundation or periodic flooding. Do not use where fire or deer will be a hazard.*

3. If soil cover is needed, use wheat or oats and wheat combination at the rate of 60 lbs. per acre. Optimum planting dates for cool season annuals is September 1 - November 30.

4. Flower seeding rates are for single species. For mixtures of flower seed sum the rates for each species included and divide by the number of species in the mix to derive the total rate, then apply the rate differences for each species as a percentage of the total mix. Optimum planting dates for native flowers is October 1-15.

Lake Georgetown - Proposed Transfer of Easement
DACW63-2-01-0523, D. B. Wood Road



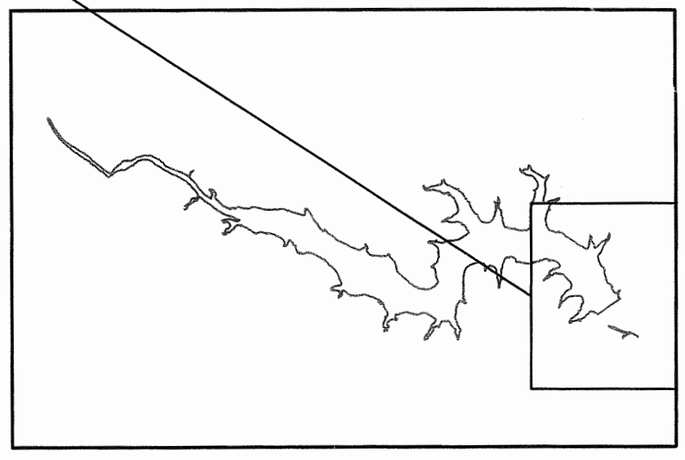
N

Legend

- Tract Number
- U. S. Government Property Line
- Outgrants
- Water Lines

Transfer of easement DACW63-2-01-0523 from Williamson County to the City of Georgetown
Operation and maintenance of a public roadway.
No public utility easement.
Williamson County retains responsibility to conduct golden-cheeked warber surveys and complete mitigation on Tract 105-1.

RECORDERS MEMORANDUM
All or parts of the text on this page was not clearly legible for satisfactory recordation.



ACKNOWLEDGMENT

STATE OF TEXAS }
} SS.
COUNTY OF TARRANT }

On this the 17th day of November, 2005, before me, the undersigned officer, personally appeared Rocky D. Lee, Real Estate Division, United States Army Engineer District, _____, _____, known to me to be the person described in the foregoing instrument, who acknowledged that he/she executed the same in the capacity therein stated and for the purpose therein contained.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

Mark B McMurry
Notary Public, State of Texas
My Commission Expires: _____
Printed Name: _____

MARK B. MCMURRY
Notary Public, State of Texas
My Commission Expires
August 03, 2008

Return to:
(2) City of Georgetown Mail Slot
or
P.O. Box 409
Georgetown TX 78626
ATTN: Jerri Calhoun

FILED AND RECORDED
OFFICIAL PUBLIC RECORDS 2006009504
Nancy E. Rister
02/07/2006 10:43 AM
DNORMAN $64.00
NANCY E. RISTER, COUNTY CLERK
WILLIAMSON COUNTY, TEXAS

EASEMENT NO. DACW63-2-01-0523

DEPARTMENT OF THE ARMY

EASEMENT FOR PUBLIC ROAD OR STREET

LOCATED ON

GEORGETOWN LAKE

WILLIAMSON COUNTY, TEXAS

THE SECRETARY OF THE ARMY under and by virtue of the authority vested in the Secretary by Title 10, United States Code, Section 2668, having found that the granting of this easement will not be against the public interest, hereby grants to Williamson County, a political subdivision of the State of Texas, hereinafter referred to as the grantee, an easement for road or street expansion, hereinafter referred to as the facilities, over, across, in and upon the lands of the United States as identified on Exhibits A, and B, attached hereto and made a part hereof, hereinafter referred to as the premises.

THIS EASEMENT is granted subject to the following conditions:

1. **TERM**

This easement is granted in perpetuity.

2. **CONSIDERATION**

The consideration for this easement shall be the construction, operation and maintenance of a public road for the benefit of the United States and the general public in accordance with the terms herein set forth.

3. **NOTICES**

All correspondence and notices to be given pursuant to this easement shall be addressed, if to the grantee, to Williamson County, 3151 SE Inner Loop, Suite C, Georgetown, Texas 78626, and if to the United States, to the District Engineer, Attention: Chief, Real Estate Division, Post

Office Box 17300, Fort Worth, Texas 76102-0300, or as may from time to time otherwise be directed by the parties. Notice shall be deemed to have been duly given if and when enclosed in a properly sealed envelope or wrapper addressed as aforesaid, and deposited, postage prepaid, in a post office regularly maintained by the United States Postal Service.

4. AUTHORIZED REPRESENTATIVES

Except as otherwise specifically provided, any reference herein to "Secretary", "District Engineer", or "said officer" shall include their duly authorized representatives. Any reference to "grantee" shall include assignees, transferees and their duly authorized representatives.

5. SUPERVISION BY THE DISTRICT ENGINEER

The construction, operation, maintenance, repair or replacement of said facilities, including culverts and other drainage facilities, shall be performed at no cost or expense to the United States and subject to the approval of the District Engineer, Fort Worth District, hereinafter referred to as said officer. Upon the completion of any of the above activities, the Grantee shall immediately restore the premises to the satisfaction of said officer. The use and occupation of the premises for the purposes herein granted shall be subject to such rules and regulations as said officer prescribes in writing from time to time.

6. APPLICABLE LAWS AND REGULATIONS

The grantee shall comply with all applicable Federal, state, county and municipal laws, ordinances and regulations wherein the premises are located.

7. CONDITION OF PREMISES

The grantee acknowledges that it has inspected the premises, knows the condition, and understands that the same is granted without any representation or warranties whatsoever and without any obligation on the part of the United States.

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8. INSPECTION AND REPAIRS

The grantee shall inspect the facilities at reasonable intervals and immediately repair any defects found by such inspection or when required by said officer to repair any such defects.

9. PROTECTION OF GOVERNMENT PROPERTY

The grantee shall be responsible for any damage that may be caused to property of the United States by the activities of the grantee under this easement, and shall exercise due diligence in the protection of all property located on the premises against fire or damage from any and all causes. Any property of the United States damaged or destroyed by the grantee incident to the exercise of the privileges herein granted shall be promptly repaired or replaced by the grantee to a condition satisfactory to said officer, or at the election of said officer, reimbursement made therefor by the grantee in an amount necessary to restore or replace the property to a condition satisfactory to said officer.

10. RIGHT TO ENTER

The right is reserved to the United States, its officers, agents, and employees to enter upon the premises at any time and for any purpose necessary or convenient in connection with government purposes, to make inspections, to remove timber or other material, except property of the grantee, to flood the premises and/or to make any other use of the lands as may be necessary in connection with government purposes, and the grantee shall have no claim for damages on account thereof against the United States or any officer, agent, or employee thereof.

11. RIGHT TO CONNECT

The United States reserves the right to make such connections between the road or street herein authorized and roads and streets on other government lands as said officer may from time consider necessary, and also reserves to itself rights-of-way for all purposes across, over or under the right-of-way hereby granted; provided that such rights shall be used in a manner that will not create

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unnecessary interference with the use and enjoyment by the grantee of the right-of-way herein granted.

12. OTHER AGENCY AGREEMENTS

It is understood that the provisions of the conditions on **SUPERVISION BY THE DISTRICT ENGINEER** and **RIGHT TO ENTER** above shall not abrogate or interfere with any agreements or commitments made or entered into between the grantee and any other agency of the United States with regard to financial aid to the grantee in connection with the construction, maintenance, or repair of the facilities herein authorized.

13. TERMINATION

This easement may be terminated by the Secretary upon 30 days written notice to the grantee if the Secretary shall determine that the right-of-way hereby granted interferes with the use or disposal of said land by the United States, or it may be revoked by the Secretary for failure of the grantee to comply with any or all of the conditions of this easement, or for non-use for a period of two (2) years, or for abandonment.

14. SOIL AND WATER CONSERVATION

The grantee shall maintain, in a manner satisfactory to said officer, all soil and water conservation structures that may be in existence upon said premises at the beginning of or that may be constructed by the grantee during the term of this easement, and the grantee shall take appropriate measures to prevent or control soil erosion within the right-of-way herein granted. Any soil erosion occurring outside the premises resulting from the activities of the grantee shall be corrected by the grantee as directed by said officer.

15. ENVIRONMENTAL PROTECTION

a. Within the limits of their respective legal powers, the parties hereto shall protect the premises against pollution of its air, ground and water. The grantee shall comply with any laws, regulations, conditions or instructions affecting the activity hereby authorized if and when issued by the Environmental Protection Agency, or

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any Federal, state, interstate or local governmental agency having jurisdiction to abate or prevent pollution. The disposal of any toxic or hazardous materials within the premises is specifically prohibited. Such regulations, conditions, or instructions in effect or prescribed by the said Environmental Protection Agency, or any Federal, state, interstate or local governmental agency are hereby made a condition of this easement. The grantee shall not discharge waste or effluent from the premises in such a manner that the discharge will contaminate streams or other bodies of water or otherwise become a public nuisance.

b. The use of any pesticides or herbicides within the premises shall be in conformance with all applicable Federal, state, interstate, and local laws and regulations. The grantee must obtain approval in writing from said officer before any pesticides or herbicides are applied to the premises.

c. The grantee will use all reasonable means available to protect the environment and natural resources, and where damage nonetheless occurs arising from the grantee's activities, the grantee shall be liable to restore the damaged resources.

16. ENVIRONMENTAL BASELINE SURVEY

An Environmental Baseline Survey (EBS), documenting the known history of the property with regard to the storage, release or disposal of hazardous substances thereon, is attached hereto and made a part hereof as Exhibit C. Upon revocation or termination of this easement, another EBS shall be prepared which will document the environmental condition of the property at that time. A comparison of the two assessments will assist the said officer in determining any environmental restoration requirements. Any such requirements will be completed by the grantee in accordance with the condition on **RESTORATION.**

17. HISTORIC PRESERVATION

The grantee shall not remove or disturb, or cause or permit to be removed or disturbed, any historical, archeological, architectural or other cultural artifacts, relics, remains, or objects of antiquity. In the event such items are

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discovered on the premises, the grantee shall immediately notify said officer and protect the site and the material from further disturbance until said officer gives clearance to proceed.

18. NON-DISCRIMINATION

a. The grantee shall not discriminate against any person or persons because of race, color, age, sex, handicap, national origin or religion.

b. The grantee, by acceptance of this easement, is receiving a type of Federal assistance and, therefore, hereby gives assurance that it will comply with the provisions of Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. □ 2000d); the Age Discrimination Act of 1975 (42 U.S.C. □ 6102); the Rehabilitation Act of 1973, as amended (29 U.S.C. □ 794); and all requirements imposed by or pursuant to the Directive of the Department of Defense (32 CFR Part 300) issued as Department of Defense Directive 5500.11 and 1020.1, and Army Regulation 600-7. This assurance shall be binding on the grantee, its agents, successors, transferees, and assignees.

19. RESTORATION

On or before the termination or revocation of this easement, the grantee shall, without expense to the United States and within such time as said officer may indicate, restore the premises to the satisfaction of said officer. In the event the grantee shall fail to restore the premises, at the option of said officer, said improvements shall either become the property of the United States without compensation therefore, or said officer shall have the option to perform the restoration at the expense of the grantee, and the grantee shall have no claim for damages against the United States or its officers or agents for such action.

20. DISCLAIMER

This instrument is effective only insofar as the rights of the United States in the premises are concerned; and the grantee shall obtain such permission as may be required on account of any other existing rights. It is understood that the granting of this easement does not eliminate the

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necessity for obtaining any Department of the Army permit which may be required pursuant to the provisions of Section 10 of the Rivers and Harbors Act of 3 March 1899 (30 Stat. 1151; 33 U.S.C. □ 403), Section 404 of the Clean Water Act (33 U.S.C. □ 1344) or any other permit or license which may be required by Federal, state, interstate or local laws in connection with the use of the premises.

21. ADDITIONAL CONDITION

a. Williamson County will comply with the terms of the Biological Opinion, Exhibit D, attached hereto and made a part hereof. Special attention should be given to the five non-discretionary measures listed under Terms and Conditions of the Biological Opinion, and Conservation Recommendation No. 3, listed in the Biological Opinion. The only exception to this requirement is that the Corps of Engineers will be responsible for monitoring the presence and mapping territories of the golden-cheeked warbler in Cedar Breaks Park. Williamson County will be responsible for monitoring the presence and mapping territories of the warbler in the project (easement) area. The annual reports specified in condition number five will be the responsibility of Williamson County. The required reports will be furnished to the Corps of Engineers at Lake Georgetown.

b. Construction will comply with the Biological Opinion issued by the U.S. Fish and Wildlife Service. For protection of the Golden-Cheeked Warbler, clearing on the south side of the river will only be done between September 1 and March 1. Construction in this area will be initiated prior to March 1. Golden-Cheeked Warbler surveys will be conducted during construction and for at least three (3) years following completion with annual reports submitted to U.S. Fish and Wildlife Service. For protection of known and unknown karst features on the north side of the river, runoff during construction and from the completed road will be diverted away from the identified karst feature, and work will stop pending investigation of any unknown subterranean voids discovered incidental to construction.

c. The proposed project has been coordinated with the State Historical Preservation Office (SHPO). The intact portion of site 41 WM 52 should be avoided if possible by construction activity. If not possible, further testing

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will be necessary. A qualified archeologist should be present when construction activity is in progress at the site. If archeological deposits are encountered during construction, activity will be stopped and the SHOP notified.

d. Special Conditions:

The following site specific recommendations are made as limitations, restrictions, safety issues, clearances for power and communication lines over reservoirs (sag height), or conditions to be included in the grant to make the proposed use compatible with the operation of the project:

(1) Required Work in New Easement Area

(a) Realign existing dam access road (Cedar Breaks Road) at the north end of the dam near the Project Office and the proposed new roadway. Realignment will result in a gentle curve which intersects at 90 degrees with the new road. Road shoulders and edges between the dam and the new realignment will be regraded/repaired. All abandoned pavement and excess road base will be scarified and removed, surface reshaped to natural contours and disturbed areas seeded with native grasses (not Bermuda Grass). Excess pavement and road base may be used in the new alignment or disposed of off of Government property.

(b) Traffic barrier installation for the entire easement corridor and realigned dam access road. Net and 3-strand barbed wire fencing will be constructed along the entire corridor with exception of the realigned dam access road in accordance with the attached Fencing Specifications, Exhibit E, attached hereto and made a part hereof, with four 16' metal tubing access gates at locations to be designated by Government personnel. Timber barriers will be placed along the realigned dam access road.

(c) Relocation and/or protection of the following Government improvements that are included in the area:

Two boundary line markers, 101-3 and 101-4. If these

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or other survey markers lie within the fenced easement, they need to be relocated/replaced in accordance with Fort Worth District standard survey procedures. A plat prepared by a registered surveyor will be furnished by the Grantee following relocation.

Approximately 230' of boundary fence on the north end, and approximately 120' of boundary fence on the south end (to be removed; terminations and corners to be placed at the juncture with new easement boundary fence).

Approximately 150' of Stilling Basin Access Road (under bridge - no effect unless damaged during construction).

Approximately 120' of 4" water line running from Greenridge Subdivision to Cedar Breaks Park on Tract 104. Crossing will require a sleeve as shown on the attached Typical Pipe Sleeve Installation Detail, Exhibit F, attached hereto and made a part hereof. The top of monument 101-4 is broken; otherwise all other property is in good condition.

(d) A separate construction easement will be required if area outside the easement is needed for construction. Heavy construction equipment and material hauling vehicles used during construction will be prohibited from crossing the dam.

(e) Clearing of hardwoods within the easement area should be limited to that necessary for construction of the road and safety to reduce mitigation and landscaping costs.

(f) The construction and maintenance of the road will be accomplished without cost or expense to the United States.

(2) Amendment to Easement No. DACW63-2-78-0631

(a) Closure of the north end of D.B. Wood at Cedar Breaks Park will consist of removal of pavement and fencing in accordance with the attached specifications on the ease side near the Cedar Breaks Part entrance where an existing easement, DACW63-2-78-0631, Parcel 2, currently allows adjacent landowners access to the dam access road. A metal tubing gate will be installed at a location

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designated by Government personnel. Adjacent landowners will be required to use the portion of the existing D.B. Wood Road between the Cedar Breaks Park entry and the new D.B. Wood Road realignment.

(b) Parcel No. 2 needs to be removed from Easement DACW63-2-78-0631 to prevent public access onto the dam access road, and incorporated in part into the new easement or the amendment to Easement No. DACW63-2-84-0671, whichever method is chosen to authorize the road realignment, to permit private access onto D. B. Wood Road. This may required a partial re-survey of the existing D. B. Road easement area.

(3) Amendment to Easement No. DACW63-2-84-0671

(a) The portion of the dam access road, also known as Cedar Breaks Road, between the new D. B. Wood Road realignment at the north end and the existing D. B. Wood intersection at the Cedar Breaks Park entry and Easement No. DACW63-2-78-0631 needs to be removed from Easement No. DAW63-2-84-0671. There is no preference over whether the new D. B. Wood Road realignment is added to the existing Easement No. DACW63-2-84-0671 or whether the existing easement is terminated in its entirety and a new easement issued that incorporates the new realignment as well as the existing section of D. B. Wood to remain open; however, only one easement for the entire roadway is preferred.

(4) Mitigation Requirements

(a) All abandoned 2-8" rock (approximately 16,000 cubic yards) and unclassified fill (approximately 70,000 cubic yards) on Tract 105-1 will be removed coincidental with construction of the new road. Restoration will include regrading to natural ground contours and seeding with native grasses (not Bermuda Grass). Boulders or other large rock will be disposed of off Government property. (Note: this work was credited as 24 acres in the mitigation plan and is already in progress).

(b) The mitigation plan calls for 48 acres total mitigation. Originally, this was to consist of the rock and fill removal and reseeding (24 acres), removal of the existing section of D. B. Wood Road and reseeding (12

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acres) and removal of Ash Juniper on an additional 12 acres. Since the existing section of D. B. Wood Road will no longer be removed, removal of Ash Juniper needs to be increased to 24 acres.

(5) Access Restrictions

(a) Where the easement directly adjoins one tract of non-Government owned property on the east side of the north end, Williamson County reserves the right to allow limited access within the easement area to adjacent non-Government property owners. This right will be transferable with the easement if operation of the road is subsequently assumed by the City of Georgetown or the Texas Department of Transportation.

(b) In other areas where the easement directly adjoins non-Government owned property and where the easement is separated from non-Government owned property by Government property outside the easement area, the Corps of Engineers reserves the right to restrict access by adjacent non-Government property owners. Corps property between the easement and the adjacent property will be managed as natural buffer and wildlife habitat areas.

(c) This easement is granted for roadway purposes only. Placement of any utilities, poles lines, pipelines or other similar appurtenances within the easement area will not be authorized. Requests for such facilities within the easement area will be considered separately.

Prior to execution of this easement, Condition No. 21 was added. All other conditions remain the same and in full force and effect.

THIS EASEMENT is not subject to Title 10, United States Code, Section 2662, as amended.

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IN WITNESS WHEREOF, I have hereunto set my hand by authority of the Secretary of the Army, this 27th day of July, 2001.

HYLA J. HEAD
Chief, Real Estate Division

21st **THIS EASEMENT** is also executed by the grantee this day of February, 2001.

WILLIAMSON COUNTY

BY: _____

Title

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CERTIFICATE

I, JANE TABLERIOU, certify that I am ~~the a~~ NOTARY Public of Williamson County that DAVID HAYS, who signed the foregoing instrument on behalf of the Williamson County was then COMMISSIONER Pct 3 of the County. I further certify that the said officer was acting within the scope of powers delegated to this officer by the governing body of the ~~city~~ COUNTY in executing said instrument.

Date: Feb 23, 2001

Jane E. Tableriou

(AFFIX ~~CORPORATE~~ SEAL)
NOTARY

JANE E. TABLERIOU
Notary Public, State of Texas
My Commission Expires
April 29, 2002

26.00 Acres
United States of America
Right-of-Way

F.N. 5351R (MDD)
November 7, 2000

A DESCRIPTION OF A 26.00 ACRE TRACT OF LAND OUT OF THE DAVID WRIGHT SURVEY, ABSTRACT NO. 13 AND THE JOSEPH FISH SURVEY, ABSTRACT NO. 232, LOCATED IN WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF THAT CERTAIN 122.00 ACRE TRACT OF LAND DESCRIBED IN A DEED TO THE UNITED STATES OF AMERICA, RECORDED IN VOLUME 514, PAGE 432 OF THE DEED RECORDS OF WILLIAMSON COUNTY, TEXAS, A PORTION OF THAT CERTAIN 266.00 ACRE TRACT OF LAND DESCRIBED IN A DEED TO THE UNITED STATES OF AMERICA, RECORDED IN VOLUME 516, PAGE 340 OF THE DEED RECORDS OF WILLIAMSON COUNTY, TEXAS, AND A PORTION OF THAT CERTAIN 333.00 ACRE TRACT OF LAND DESCRIBED IN A DEED TO THE UNITED STATES OF AMERICA, RECORDED IN VOLUME 516, PAGE 349 OF THE DEED RECORDS OF WILLIAMSON COUNTY, TEXAS, SAID 22.43 ACRES, AS SHOWN ON THE ACCOMPANYING SKETCH, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a concrete monument labeled U.S. Government Marker 101-4, found in the curving east right-of-way line of Cedar Breaks Road, said point being in the east line of said 122.00 acres and being also at the most westerly corner of that certain 21.407 acre tract of land described in a deed to Caskey-Thornton Venture, Inc., recorded in Volume 1365, Page 185, of the Deed Records of Williamson County, Texas, for the northwest corner of this tract;

THENCE, with the east line of said 122.00 acres, being the west line of said 21.407 acres S 31° 58' 59" E, a distance of 262.50 feet to a point;

THENCE, over and across said 122.00 acres, 256.00 acres and 333.00 acres respectively, the following seven (7) courses and distances:

1. a distance of 214.95 feet along the arc of a curve to the left, having a central angle of 8° 23' 22", a radius of 1468.00 feet and whose chord bears S 14° 13' 19" E, a distance of 214.75, to the point of tangency,

2. S 18° 24' 59" E, a distance of 896.91 to a point of curvature to the right,

3. a distance of 898.98 feet along the arc of said curve to the right, having a central angle of 32° 26' 08", a radius of 1588.00 feet and whose chord bears S 02° 11' 55" E, a distance of 887.02, to a point of tangency,

4. S 14° 01' 09" W, a distance of 1629.00 feet to a point of curvature to the right,

5. a distance of 343.27 feet along the arc of said curve to the right, having a central angle of 12° 23' 07", a radius of 1588.00 feet and whose chord bears S 20° 12' 42" W, a distance of 342.60 feet, to a point of tangency,

6. S 26° 24' 16"W, a distance of 2355.16 feet to a point of curvature to the left, and

7. a distance of 1668.03 feet along the arc of said curve to the left, having a central angle of 69° 37' 23", a radius of 1372.69 feet and whose chord bears S 08° 24' 26" E, a distance of 1567.28 feet to a point in the south line of said 333.00 acres, being also the north line of Lot 1, Block A of Home Place Subdivision, a subdivision recorded in Cabinet K, Slides 117-118 of the Plat Records of Williamson County, Texas, for the southeast corner of this tract;

THENCE, with the south line of said 333.00 acres, being also the north line of said Lot 1, Block A, S 69° 28' 40" W, a distance of 129.17 feet to a point for the southwest corner of this tract;

EXHIBIT A

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the north line of said

acres and said 122.00 acres respectively, the following eight (8) courses and distances:

1. a distance of 1764.00 feet along the arc of a curve to the right, having a central angle of 67° 42' 35", a radius of 1492.69 feet and whose chord bears N 07° 27' 02" W, a distance of 1663.13 feet, to a point of tangency,

2. N 26° 24' 16" E, a distance of 2355.16 feet to a point of curvature to the left,

3. a distance of 317.33 feet along the arc of said curve to the left, having a central angle of 12° 23' 07", a radius of 1468.00 feet and whose chord bears N 20° 12' 42" E, a distance of 316.71 feet, to a point of tangency,

4. N 14° 01' 09" E, a distance of 1629.00 feet to a point of curvature to the left,

5. a distance of 831.04 feet along the arc of said curve to the left, having a central angle of

26.00 Acres
United States of America
Right-of-Way

F.N. 5351R (MDD)
November 7, 2000

32° 26' 08", a radius of 1468.00 feet and whose chord bears N 02° 11' 55" W, a distance of 819.99 feet, to the point of tangency,

6. N 18° 24' 59" W, a distance of 896.91 feet to a point of curvature to the right,

7. a distance of 1079.04 feet along the arc of a said curve to the right, having a central angle of 38° 55' 56", a radius of 1588.00 and whose chord bears N 00° 08' 44" E, a distance of 1058.40 feet to a point on a curve in the southwest line of that certain 18.14 acre tract of land described in a deed to Robert L. Crouch, Trustee, et al, of record in Document Number 9722694 of the Real Property Records of Williamson County, Texas, said point being also in the notheast line of said 122 acre United States of American tract for a corner of this tract;

THENCE, with the southwest line of said 18.14 acre tract and the northeast line of said 122 acre tract, S 34° 56' 03" E, a distance of 11.54 feet to a concrete monument labeled U.S. Government Marker 101-3, found at the southeast corner of said 18.14 acre tract, said point being also in the west line of said Cedar Breaks Road, for an interior corner of this tract;

THENCE, with the west line of said Cedar Breaks Road and the east line of said 18.14 acre tract, N 25° 06' 55" E, 1007.10 feet to an iron pin found at the base of a fence corner post, and N 25° 59' 57" W, a distance of 126.23 feet to a point in the south right-of-way of F.M. Highway 2338, said point being at the most northerly northeast corner of said 18.14 acre tract, for the northwest corner of this tract;

THENCE, with the south right-of-way line of said F.M. 2338 and the north line of said U.S. Government 122 acre tract, S 65° 13' 43" E, a distance of 278.92 feet to a point at the northwest corner of that certain 15.8324 acre tract of land described in a deed to SEC Williams/Cedar Breaks, L.P., of record in Volume 2719, Page 22 of the Deed Records of Williamson County, Texas, said point being also at the northeast corner of the right-of-way of said Cedar Breaks Road, for the northeast corner of this tract;

THENCE, with the west line of said 15.8324 acre tract and the east line of said Cedar Breaks Road, S 69° 59' 04" W, a distance of 114.22 feet to an iron pipe found at an angle point in the west line of said 15.8324 acre tract and, S25° 06' 49" W at a distance of 745.12 feet, passing an iron rod found at the southwest corner of said 15.8324 acre tract, said point being also at the northeast corner of said Caskey-Thornton Venture, Inc. 21.407 acre tract, in all a distance of 1076.25 feet to an iron pipe found at a point of curvature to the left, and a distance of 499.24 feet along the arc of said curve to the left, having a central angle of 15° 22' 40', a radius of 1860.08 feet and whose chord bears S 17° 21' 37" W, a distance of 497.74 feet to the POINT OF BEGINNING and containing 26.00 acres of land.

ALONG WITH, a temporary construction easement along both sides of the above described right-of-way being 90 feet in width and parallel and concentric to the right-of-way lines described therein.

THE STATE OF TEXAS |
| KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF TRAVIS |

That I, R. David Strutton, a Registered Professional Land Surveyor, do hereby certify that the above description is true and correct to the best of my knowledge and belief and that the property described herein was determined by a survey made on the ground during November, 1999 under my direction and supervision.

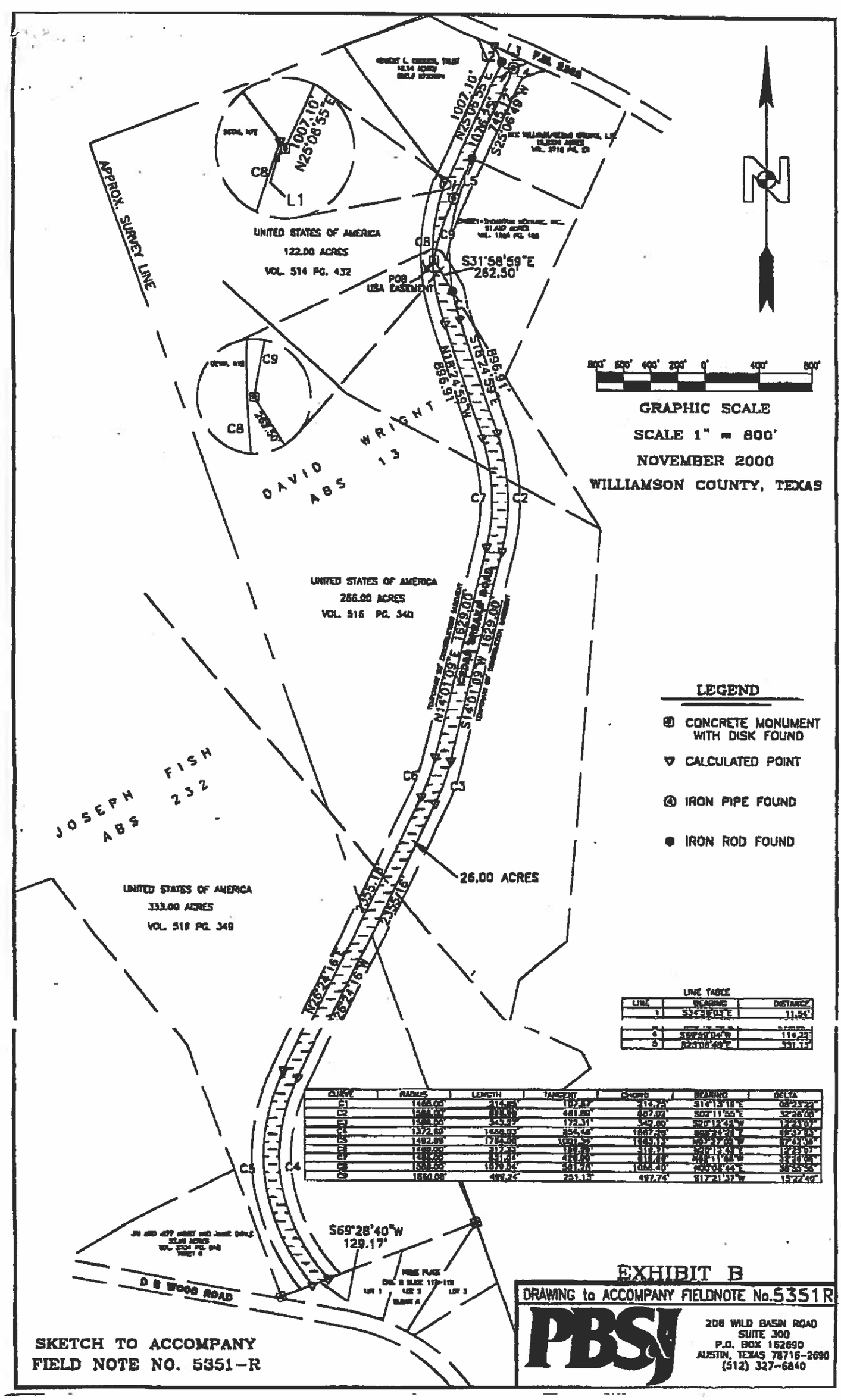
WITNESS MY HAND AND SEAL at Austin, Travis County, Texas this the 10th day of November, 2000 A.D.

PBS&J
206 Wild Basin Road. Suite 300
Austin, Texas 78746

R. David Strutton
Registered Professional Land Surveyor
No. 4312 - State of Texas



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ENVIRONMENTAL BASELINE SURVEY

GENERAL: Operations Division responsibilities for complying with CERCLA are satisfied by completing an Environmental Baseline Survey (EBS) (formerly the PAS/PEE) consisting of a review of available records and interviews with persons of agencies who may have knowledge of the past history of the property in question to determine if hazardous substances were released (vented or spilled), stored, or disposed of on the property in threshold quantities. Note: If any finding(s) are answered "Yes" , describe details on a separate page and attach to this EBS.

Records Review

Records Review	Finding No	Finding Yes	Date	Agency Interview	Finding No	Finding Yes	Date
Master Plan	(X)	( )	_____	Aerial Photos	(X)	( )	_____
OMP	(X)	( )	_____	ERGO Reports	(X)	( )	_____
Permanent Files	(X)	( )	_____				

On-site Review

Finding No	Finding Yes	Finding N/A	Provision
(X)	( )		1) Is there any evidence of past or present treatment, storage, spillage, or disposal of hazardous substances in the action area?
( )	( )	(X)	2) Is there any lead-based paint on any of the structures? (Visually inspect existing buildings, if any, for lead based paint (LBP) (usually, paint walls earlier than 1978.))
(X)	( )		3) Is there any evidence of polychlorinated biphenols (PCB) contamination? (Visually inspect boundaries and interior of the land area for presence of leaking electrical transformers, and other potential sources of (PCB's)).
(X)	( )		4) Is there any asbestos-containing materials in the area? (Visually inspect existing buildings, if any, for asbestos-containing materials)).
(X)	( )		5) Are there USTs on the property?
(X)	( )		6) Are there above ground storage tanks on the property?

EXHIBIT C

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ENVIRONMENTAL BASELINE SURVEY
(Cont.)

Statement of Condition:

[X] a. According to the information above, no hazardous substances were identified as released, stored, or disposed on the property in threshold quantities.

[ ] b. The above information indicates hazardous substances were released, stored, or disposed of on the property in threshold quantities.

[ ] 1) The Site has been tested and no contaminants were found in detectable levels. The property is considered safe for the proposed use.

[ ] 2) The Site has been tested and contaminants were found in detectable levels. Remedial action has been taken and the property is considered safe for the proposed use.

[ ] 3) The Site has been tested and contaminants were found in detectable levels. Remedial action has not been taken. Details and justification for outgranting in the current condition are attached.

[ ] 4) The Site has been tested and contaminants were found in detectable levels. Remedial action has not been taken. Therefore, **Non-availability** is recommended. Therefore, **Non-availability** is recommended.

[ ] 5) The site has not been tested.

Statements and/or Conditions: _____
(Either a, b, c, or d)

========== **Reserved for District Office** ==========

concur [X] nonconcur [ ] Condition: _____
(Statement and/or Conditions)

Signature: Ronald R. Weiss Position: 16 Aug 00
(Natural Resource Manager)

EXHIBIT C

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
10711 Burnet Road, Suite 200
Austin, Texas 78758
(512) 490-0057

AUG 2 1 2000

2-15-98-F-1230

William Fickel, Jr.
Chief, Environmental Division
Fort Worth District
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Dear Mr. Fickel:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of Williamson County's proposed extension and realignment of D.B. Wood Road from its present location on the North San Gabriel Dam to a route on the east boundary of the U.S. Army Corps of Engineers' (Corps) property at Lake Georgetown in Williamson County, Texas, and its effects on the following federally listed endangered species: black-capped vireo [vireo] *(Vireo atricapillus)*, golden-cheeked warbler [warbler] *(Dendroica chrysoparia)*, Bone Cave harvestman *(Texella reyesi)*, Coffin Cave mold beetle *(Batrisodes texanus)*, and Tooth Cave ground beetle *(Rhadine persephone)*, in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Your October 18, 1999 request for formal consultation was received on October 21, 1999. The Service received all of the information necessary to initiate formal consultation on the proposed project as outlined in the regulations governing interagency consultations (50 CFR §402.14) on May 24, 2000.

This biological opinion is based on the following:

- "Environmental Investigations Along the Proposed D.B. Wood Road Realignment, Williamson County, Texas, *Final Report*," (Investigation) by SWCA Inc. Environmental Consultants (SWCA), July 1996
- "Draft Finding of No Significant Impact," (Draft FONSI), by the Corps, May 7, 1998
- "Environmental Assessment for D.B. Wood Road Realignment at Lake Georgetown, Williamson County, Texas," (EA), by the Corps, May 13, 1998
- Meetings and site visits on July 15, 1997 and July 24, 1998

EXHIBIT D

This is your future. Don't leave it blank. - *Support the 2000 Census.*

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- "Results of 1999 Field Surveys for the Golden-cheeked Warbler on Selected Lands in the Vicinity of Lake Georgetown, Williamson County, Texas," (Vicinity Survey) by SWCA, June 1999

- "Results of Field Surveys for the Golden-cheeked Warbler Along a Portion of the Proposed D.B. Wood Road Re-alignment, Georgetown, Williamson County, Texas," (Survey A), by SWCA, June 30, 1999

- "Results of a Karst Invertebrate Habitat Assessment of Greenbriar Cave on (Corps) Property, Georgetown, Williamson County, Texas," (Karst Assessment A), by SWCA, January 12, 2000

- "Results of a Karst Invertebrate Habitat Assessment of Karst Feature F-4, Also Referred to as Greenbriar Cave, on (Corps) Property, Georgetown, Williamson County, Texas," (Karst Assessment B), by SWCA, March 27, 2000

- "Results of Field Surveys for the Golden-cheeked Warbler Along a Portion of the Proposed D.B. Wood Road Re-Alignment, Georgetown, Williamson County, Texas," (Survey B), by SWCA, May 19, 2000

This opinion is also based on project meetings held July 16, 1997, August 24, 1999, and November 16, 1999 to discuss the proposed project and associated impacts. There were also numerous telephone conversations between Service biologists Nathan Allan and Dianne Lee [beginning in mid-October 1999], and Corps, Williamson County (County), and SWCA staff. Other information used from our files is referenced and included in the Literature Cited section. A complete administrative record of this consultation is on file at this office.

Consultation History

During informal consultation, in a letter dated June 26, 1997, the Service provided the Corps with a list of the federally listed or proposed threatened and endangered species that could be found in Williamson County, and also provided written comments, dated June 30, 1998, on the EA (1998), Draft FONSI (1998), and supporting Investigation (1996). In that letter, the Service noted the bird surveys performed by SWCA did not follow established Service protocols for determining presence or absence of warblers and that the Corps' determination was based solely on this habitat assessment. Due to the proposed project's proximity to known warbler nesting habitat, the Service recommended a more-detailed investigation of the potential habitat to be impacted.

On July 15, 1997, an initial site visit was made to evaluate the proposed project. Attendees included Nathan Allan of the Service, Linda Ashe of the Corps (Fort Worth District), Robert Adams of the Corps (Little River Project Office), Peggy Horner of the Texas Parks and Wildlife Department, and William Elliot, karst invertebrate biologist. Only the northern portion of the proposed alignment was inspected, primarily for potential karst features and warbler habitat.

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On July 24, 1998, another site visit was made to assess the southern portion of the proposed D.B. Wood Road realignment for potential warbler habitat. Attendees included Nathan Allan and Lisa O'Donnell of the Service, Linda Lopez (Fort Worth District) and Robert Adams of the Corps), and Joe England (Williamson County Engineer). Potential, although marginal, habitat was found near the existing road and near the River, associated with dense wooded areas from the small drainage to the east. At that meeting (Conversation Notes, July 29, 1998), the Service recommended the following three options to the Corps and the County: 1) re-design the right-of-way to avoid the potential habitat; 2) conduct two consecutive years of presence/absence surveys using Service-approved protocols and if no birds are detected, the Service could concur with the Corps' determination that the proposed project is not likely to adversely affect the warbler; or 3) to expedite the process, instead of conducting surveys, assume the habitat is occupied and compensate for impacts through the alternative formal consultation process.

The Corps recommended, by letter dated January 8, 1999, the County conduct two consecutive years of breeding bird surveys or, because the Corps' preferred form of mitigation is avoidance, explore the possibility of re-routing the southern portion of the road realignment in an effort to avoid adverse impacts to warbler habitat. They also reminded the County of the option to proceed with the road re-alignment without conducting any bird surveys, and mitigate impacts through a plan developed in coordination with the Corps and the Service. In June of 1999, SWCA conducted a breeding bird survey along an approximately 4,000-foot long segment of the proposed D.B. Wood Road re-alignment (Survey A). They did not detect the presence of any warblers.

At an August 24, 1999 meeting attended by representatives from the County, the City of Georgetown, SWCA, Sun City Georgetown (Dell Webb Corporation), the Georgetown Chamber of Commerce, Senator Kay Bailey Hutchinson's Office, the Service, the Corps, and the Honorable David S. Hays (Williamson County Commissioner for Precinct 3) at the Corps' Lake Georgetown Project Office, Commissioner Hays asked why the Service would not accept one year of survey results and allow the project to proceed since no warblers were detected. The Service explained that established protocols request three, preferably consecutive, years of negative surveys to prove absence. However, due to the marginal nature of the habitat, the Service relaxed this guideline and only requested two years of consecutive surveys. If the County did not want to wait for another year of bird surveys, they could request to participate in the alternative formal consultation process. Through this expedited process, the project would be allowed to proceed under the assumption the area of potential habitat is occupied and compensation is made for this loss of habitat.

In a follow-up letter to Commissioner Hays, dated September 3, 1999, the Service re-stated its concerns about the proposed impacts to potential warbler habitat that may result from the re-alignment of D.B. Wood Road and stressed the need for two consecutive years of breeding bird surveys in order to concur the proposed project area did not contain occupied habitat, and therefore would not adversely impact the warbler. Also included in that letter, at the Corps' request, was an estimate of the acreage of habitat that may be directly or indirectly affected by the proposed road and an amount of compensation, should the County decide to pursue that option.

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The Service received a letter from Commissioner Hays, dated September 23, 1999, indicating the County's interest in compensating for the habitat to be lost, instead of conducting two consecutive years of bird surveys. Commissioner Hays also asked some questions about the conservation fund donation. The Service responded to his concerns in a letter, dated October 7, 1999. We received the Corps' October 18, 1999 request for formal consultation on October 21, 1999.

After receiving the Corps' request to initiate formal section 7 consultation, the Service determined that one of the cave features identified in the karst surveys performed by SWCA in 1996, needed further study. SWCA had considered the feature, referred to as the F-4 cave, later called Greenbriar Cave, to be outside of the proposed impact area because it was located, "approximately 90 feet from any proposed impacts." This cave was never investigated for the federally listed endangered karst invertebrates. The Service was concerned about the inadequate survey because there are known caves in the project's vicinity that contain listed karst invertebrates. In order to resolve this issue, a meeting was held on November 16, 1999 at the Service's Austin office. Attendees included Dianne Lee, David C. Frederick, and Dawn Whitehead of the Service, Don M. Rundell (Manager Systems Engineering for the City of Georgetown), Joe England (Williamson County), Paul Sunby of SWCA, and Commissioner Hays. The County agreed to have a qualified individual, holding a valid Service-approved scientific permit, conduct an endangered species survey of Greenbriar Cave under suitable survey conditions. The Service acknowledged receipt of the Corps' request for formal consultation in a letter dated November 24, 1999, however, it was noted that we did not have all of the information needed to complete the biological opinion at that time.

SWCA re-investigated Greenbriar Cave on December 22, 1999, and evaluated it for the presence of potential habitat. The Service reviewed SWCA's subsequent karst report, Karst Assessment A (2000), and provided written comments to the Corps, dated March 2, 2000. The assessment concluded Greenbriar Cave did not appear to contain habitat suitable for any of the listed karst invertebrates. Our comments noted that the assessment did not specify whether the survey was conducted by a qualified karst invertebrate biologist with a current Service-approved scientific permit, as was previously agreed upon. Also, the survey was not conducted under suitable sampling conditions (due to the drought) making the survey results unreliable. In addition, there was some confusion whether the cave that was investigated was indeed Greenbriar Cave, as first described by William Elliot in April 1997, and whether it was even located on Corps property. Upon further investigation, it was determined the correct cave had been investigated and is located on Corps property. We recommended at least one additional cave survey be conducted under suitable sampling conditions (*e.g.* shortly after a rainfall event) by a qualified, Service-approved scientific-permit holder, efforts be concentrated on biological collection, and more specific information be recorded such as temperature and relative humidity inside and outside of the cave.

On March 9, 2000, two days after a rain event, Kemble White, an SWCA biospeleologist and Paul Sunby, a scientific-permit holder for endangered karst invertebrate collection, conducted a follow-up biota survey of Greenbriar Cave. They were accompanied by Curtis Hoagland, Robert

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Adams, and Kerry Webber of the Corps. They reported low relative humidities both inside and outside of the cave and did not find any troglobitic species inside. They also noted that none of the accessible portions of the cave was in permanent darkness, a requirement of the karst invertebrate species. They concluded that the occurrence of any of the listed karst invertebrates was unlikely.

In a March 30,2000, telephone conversation with Curtis Hoagland, the Service was informed that the County was probably going to conduct the second year of surveys for warblers. If this second year of surveys, following Service protocols, was completed with negative results, the Service would be able to concur with a Corps determination that the proposed project was not likely to adversely affect the warbler and formal consultation would not be needed. However, one to two warblers were observed on both March 27 and April 4, 2000. The survey was stopped after two days because the presence of warblers had been confirmed. We received the Survey B report from SWCA on May 24, 2000.

By letter dated June 8, 2000, the Service acknowledged receipt of all necessary information, as outlined in the regulations governing interagency consultations (50 CFR §402.14), to provide a biological opinion.

BIOLOGICAL OPINION

Description of the Proposed Action

The following information regarding the project description was obtained from the EA (1998). The proposed project is located at Lake Georgetown on Corps'-owned property, approximately 25 miles north of Austin and approximately 3.5 miles west of the City of Georgetown in the western part of Williamson County, Texas. The project area lies east of the North San Gabriel Dam which is located at river mile 4.3 on the North Fork of the San Gabriel River (River). In July 1984, the Corps granted the County a temporary easement that allowed construction of a two-lane road across Corps-owned property, pending development of a new access road. This linkage, D.B. Wood Road, connected to the existing Cedar Breaks Park dam road and allowed traffic to be routed across the North San Gabriel Dam at Lake Georgetown. However, this road was not designed for heavy traffic use.

The County is anticipating traffic volume to double within the City of Georgetown (City) as a result of the higher-than-national-average growth rate. The results of a Traffic Impact Assessment prepared over five years ago showed that major road improvements were needed in the northwest quadrant of the City and would require a re-alignment and extension of D.B. Wood Road, including a new crossing of the San Gabriel River. The County had proposed to enlarge the existing road to accommodate the increasing traffic demands in the area, however, Corps engineers determined that widening D.B. Wood Road to accommodate the traffic growth could jeopardize the structural integrity of the dam. Consequently, the County proposed a re-alignment and extension of D.B. Wood Road.

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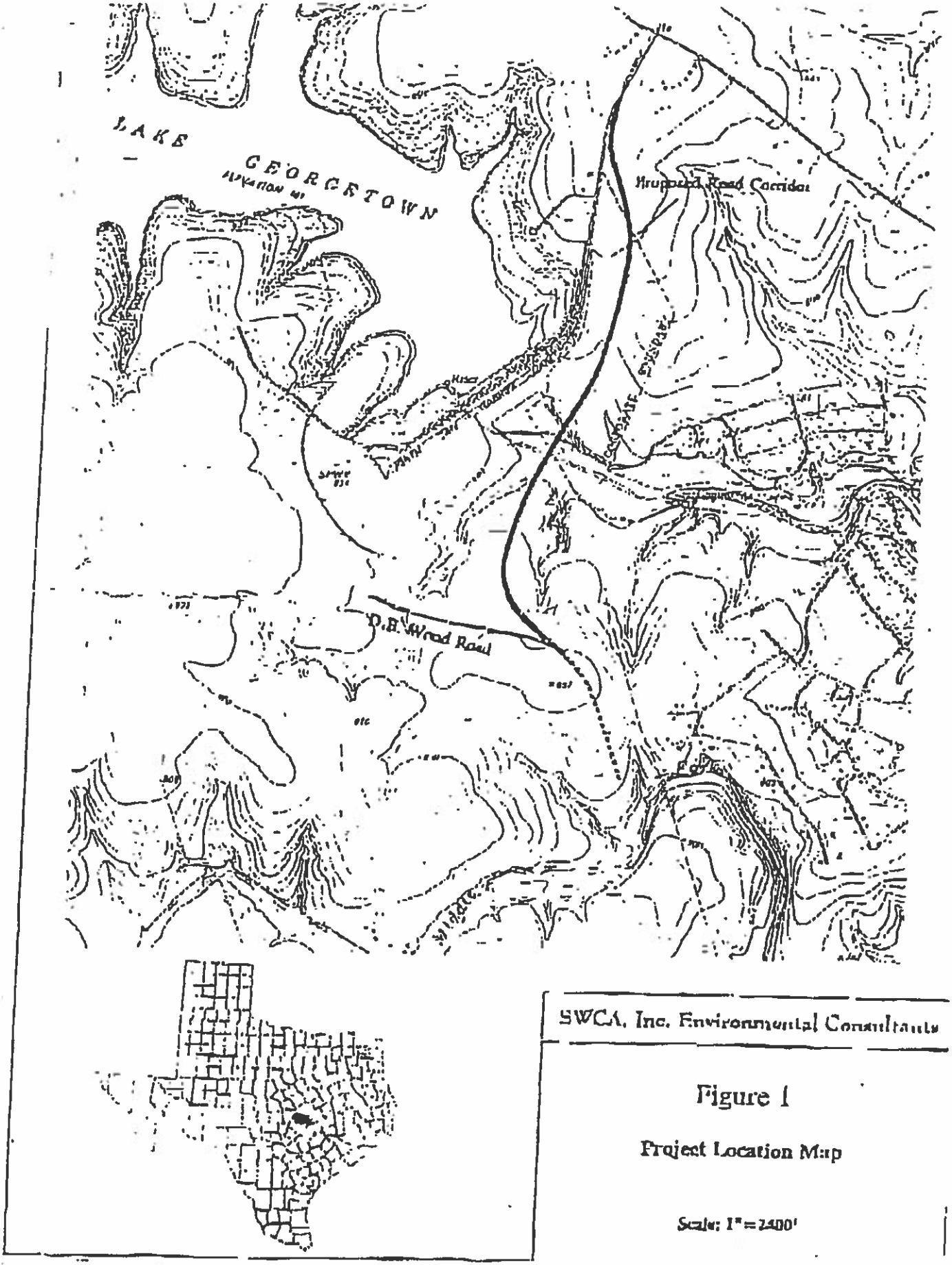
The proposed action will grant the County a 120-foot wide permanent easement for the purpose of constructing an extension and re-alignment of D.B. Wood Road and will require a permanent linear easement of 22.43 acres. For purposes of analysis in this biological opinion, the project area is considered to be all of the Corps property south and east of the existing D.B. Wood Road. The proposed road will essentially bisect Corps-owned property below the dam. The preferred alignment for the right-of-way (ROW) generally runs in a north-to-south direction approximately 1,700 feet east of the existing North San Gabriel Dam (Figure 1). From FM 2338, the proposed road will follow the existing Cedar Breaks Road for about 1,600 feet south to a concrete monument labeled U.S. Government Marker 101-4. The road will then curve eastward and will be constructed in a southeasterly direction for about 1,800 feet. The road will then curve to the southwest for 5,850 feet at which point it will curve back to the southeast until it joins the existing D.B. Wood Road just east of a concrete monument labeled U.S. Government Marker 104-1. The new road will be about two miles long, replacing the Cedar Breaks Park dam road as the only connector road west of Interstate Highway 35 between Farm to Market Road 2338 and State Highway 29. It will be a five-lane rural minor arterial consisting of four traffic lanes, a center median or turning lane, and emergency parking on both sides, and will also include a bridge measuring approximately 1,000 feet long over the River.

At the County's request, the Service estimated the amount of potential warbler habitat that would be directly and indirectly affected by the proposed road construction (letter to Commissioner Hays, dated September 3, 1999). The potential "direct take" includes 1.9 acres within the proposed ROW. The potential "indirect take" includes 5.3 acres within 250 feet of the proposed alignment. The formulas and values used to calculate the acreage of impact and amount of compensation are consistent with the Service's determinations used in other locations for this species. The County proposes to include this amount of compensation ($28,800) in the proposed action. These funds will be transmitted to the Golden-cheeked Warbler Conservation Fund (held by the National Fish and Wildlife Foundation). This transfer of funds is expected to be complete within three months of the date of the Service's final biological opinion.

Status of the Species/Critical Habitat

Six federally listed species may occur in Williamson County: endangered black-capped vireo, endangered golden-cheeked warbler, endangered whooping crane, endangered Bone Cave harvestman, endangered Coffin Cave mold beetle, and endangered Tooth Cave ground beetle. The only one of these species with federally designated Critical Habitat is the whooping crane. Its Critical Habitat is located along the Texas coast, well outside of the proposed project area. Habitat for the whooping crane, black-capped vireo, Bone Cave harvestman, Coffin Cave mold beetle, and Tooth Cave ground beetle was not present in the proposed project area. Therefore, the Service concludes that no effect is anticipated on these species and they will not be considered further in this consultation. Suitable habitat for the warbler was found in the proposed project area and the species' presence was confirmed.

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SWCA, Inc. Environmental Consultants

Figure 1

Project Location Map

Scale: 1"=2400'

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Golden-cheeked Warbler

The warbler was federally listed as endangered without Critical Habitat on December 27, 1990 (55 FR 53160). This small neotropical migrant measures 4.5 to 5 inches long with a wingspan of 7.75 inches. The male's back, throat, and cap are black and its cheeks are yellow with a black stripe through each eye. Females look similar but are less colorful. The lower breast and belly of both sexes are white with black-striped flanks.

The warbler breeds only in the mixed Ashe juniper-deciduous woodlands of the central Texas Hill Country, west and north of the Balcones Fault Line. It winters in the highland pine-oak woodlands of southern Mexico and northern Central America. The warbler requires the shredding bark of mature Ashe junipers *(Juniperus ashei)* for nesting material and forages for insects in Ashe juniper and various deciduous tree species, especially Texas oak (*Quercus buckleyi*). The males arrive in central Texas around March 1 and begin to establish breeding territories which they defend against other males by singing from visible perches within their territories. The females arrive a few days later but are more difficult to detect in the dense woodland habitat. Eggs are generally incubated in April and, unless there is a second nesting attempt, nestlings fledge in May to early June. By early August, the warblers begin their migration south.

The entire breeding range of this bird is found within 33 counties in the Edwards Plateau and the Lampasas Cutplain of Texas. The predominant deciduous species found in suitable habitat include live oak *(Quercus virginiana)*, Texas oak *(Quercus texana)*, scaly bark oak *(Quercus spp.)*, cedar elm *(Ulmus crassifolia)*, Mexican persimmon *(Diospyros texana)*, hackberry *(Celtis laevigata)*, Texas ash *(Fraxinus texensis)*, bald cypress *(Taxodium distichum)*, Arizona walnut *(Juglans spp.)*, big-tooth maple *(Acer grandidentatum)*, Lacey oak *(Quercus glaucoides)*, and sycamore *(Plantanus occidentalis)*. It is the only bird species whose entire nesting range is confined to Texas. Average nest height is 15 feet above ground, ranging from 5 to 32 feet above ground. There are typically three or four eggs in a clutch. Warblers feed almost entirely on insects and arachnids.

The warbler was emergency listed as endangered on May 4, 1990 (55 FR 18844) because of imminent and ongoing destruction of habitat. The final rule was published December 27, 1990. The greatest threats to the warbler continue to be loss of habitat and urban encroachment. Human activities have eliminated much warbler habitat within the central and northern parts of the its' range. The rate of habitat loss is accelerating as suburban developments spread into prime warbler habitat along the Balcones Escarpment, especially in the growth corridor between Austin and San Antonio.

Travis County contains the greatest amounts of warbler habitat in large, contiguous blocks, and lies at the center of the species' range. There is little connectivity between the large habitat blocks in Travis County and other large blocks in adjacent recovery regions. Research (Donovan *et al.* 1995a and b) indicates that declining populations of neotropical migrants in marginal, outlying habitats may be due to declining productivity in central populations that would normally

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supply emigrants to the less productive areas. Research on warblers indicates that occupancy and productivity are considerably lower in "small" patches of habitat than in larger ones (Coldren 1998, Maas-Barleigh 1997, D. Keddy-Hector, Austin Community College, pers. comm. 1998).

Currently there are only three significant populations receiving some degree of protection: those at the Balcones Canyonlands Preserve (BCP) [a regional 10(a)(1)(B) HCP] in Travis County, the nearby Balcones Canyonlands National Wildlife Refuge (BCNWR) in Travis, Burnet and Williamson counties, and the Fort Hood Military Reservation (Fort Hood) in Coryell and Bell counties. Although Fort Hood contains large contiguous blocks of habitat, data indicate the population is not truly self-sustaining and depends on immigration and gene flow from Travis County populations. Outside of the BCP and the BCNWR in western Travis County, in adjacent areas of southern Travis, Williamson, Hays, and Burnet counties, few large contiguous blocks of habitat remain. Other important areas receiving some protection include Government Canyon State Natural Area and Camp Bullis in Bexar County.

Populations of warblers and other neotropical migrants are less stable in small habitat patches surrounded by urbanization (Coldren 1998, Engels 1995, Arnold *et al.* 1996, Bolger *et al.* 1997, Moses 1996). Warbler populations are declining in suitable habitat in the rapidly urbanizing area east of Loop 360 in Travis County. For example, warblers that formerly occupied 450 acres of habitat at Wild Basin Preserve, now surrounded by urban development, no longer occur there on a regular basis despite proximity to a large habitat block. Some studies indicate that the abundance of several bird species, including the warbler, is reduced within 200-500 m (656-1640 ft.) of an urban edge (Engels 1995, Arnold *et al.* 1996, Bolger *et al.* 1997, Coldren 1998). Coldren (1998) reported that warbler occupancy declined with increasing residential development and roadway width. Additional information on the status of the species can be found in the "Golden-cheeked Warbler Recovery Plan" (USFWS 1992).

Environmental Baseline

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat and ecosystem within the action area, not including the effects of the proposed action.

The following excerpts describing the vegetation within the proposed project area come from the EA (1998). The project area within Williamson County is in the Edwards Plateau ecological zone. Soils are usually shallow with a variety of surface textures and are underlain by limestone. The vegetation in the proposed project area can be described in four distinct regions: 1) the region north of the River; 2) lands along the River; 3) upland areas south of the River; and 4) the vegetation along the two tributaries on either side of the south end of the proposed road. The vegetation found in the area of the proposed road north of the River consists primarily of an open live oak woodland with low densities of Ashe juniper. Large portions of this area are open and grassy. Live oak trees range in height between 15 and 26 feet. Junipers are mainly present as second growth individuals beneath the canopy of live oaks and range from 7 to 12 feet in height. Deciduous trees are sparsely distribute and include occasional cedar elm and shin oak. Shrub

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density is low with occasional agarita *(Berberis trifoliolata)*, Texas persimmon, and prickly pear *(Opuntia lindheimeri)*.

Vegetation along the River, including the slopes and floodplain, has been severely modified. On both the north and south sides of the River, a steep, short bluff face contains a dense hackberry and cedar elm woodland with occasional Texas oak and Ashe juniper trees. Vegetation along the River consists of mixed pecan *(Carya illinoisensis)*, American sycamore, walnut, Chinaberry *(Melia azedarach)*, and occasional black willow *(Salix nigra)*. Shrub density is moderate and consists mainly of hop tree *(Ptelea trifoliata)*, Texas persimmon, bacharis *(Bacharis neglecta)*, and an occasional redbud *(Cercis canadensis)*.

Vegetation in the upland areas south of the River consists mainly of a savannah-like mixture of live oak and Texas oak trees separated by large grassy openings. Ashe juniper occur in low densities throughout this area except for a thin strip near the River. Live oaks range in height between 18 and 44 feet throughout this area. Texas oak occurs in low densities and averages approximately 30 feet high. Overall canopy closure throughout this area is about 20%.

Vegetation along the western tributary consists of a mixture of large Texas oak, pecan, hackberry, and cedar elm trees. It appears Ashe juniper has been hand-cleared and occurs in only low to very low densities. Vegetation along the eastern tributary consists primarily of a dense Ashe juniper woodland with low to moderate densities of Texas oak and cedar elm trees. The height of deciduous trees varies between 14 and 35 feet.

The project area at Lake Georgetown is located in the warbler's northern range within Recovery Region 3 (USFWS 1992), between larger populations in protected in the Balcones Canyonlands Preserve in Travis County and at Fort Hood Military Training Installation in Bell County. Habitat availability in this part of the range is limited to small patches of oak-juniper woodlands remaining along river drainages and on small parcels of public land. Much of the region has been historically cleared of dense woodlands and converted to grasslands for cattle grazing and cropland for farming.

The area around Lake Georgetown is owned and managed by the Corps. As part of an unrelated biological opinion, the Corps contracted SWCA in June 1999 to conduct surveys for the warbler on selected lands in the vicinity of Lake Georgetown. One of the areas surveyed was Cedar Breaks Park, located just northwest of the proposed project area. This area consists of a dense woodland dominated by Ashe juniper. Live oak trees occur in low to moderate quantities. Other tree species present include cedar elm, Texas oak, and shin oak. Canopy closure was reported at generally greater than 85%. Two male warblers were observed in this area. There were other positive sightings in 1997 and 1998. SWCA concluded that the area in the vicinity of the inlet appears to support moderate densities of deciduous trees and, consequently contains suitable warbler habitat. Other sites on the lake and the river downstream of the project area are known to support warblers during the breeding season (DLS Associates, 1992). Compared to known occupied habitats around Lake Georgetown, this area was not considered habitat in previous surveys of the lake.

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The warbler habitat within the action area represents a very small portion of the habitat available for the species rangewide. However, preserving these remnant habitat patches may be important for conservation of the species within the recovery region and throughout the remainder of its range. "Sink" habitats, dependent on core areas for sustaining populations, could be important in maintaining genetic variability for the species range-wide. In addition, these small patches may be important as part of seasonal migratory routes of warblers.

In 1999, the Service completed formal consultation for the construction of the Williamson County Regional Raw Water Line in Bell and Williamson counties, Texas (Consultation No. 2-15-95-F-263). This project involved the construction of a water line to transfer water from Stillhouse Hollow Lake to Lake Georgetown. The pipeline outfall was to be located on the north side of Lake Georgetown and was determined to result in the permanent loss of about 1.3 acres of potential warbler habitat of marginal quality and the temporary loss of up to 1.9 acres of potential warbler habitat, also of marginal quality. This area of juniper woodlands was transected by the pipeline easement.

Also, in 1999 the Service concurred through informal consultation that a project by the Corps to upgrade the entrance at Cedar Breaks Park was not likely to adversely affect the warbler. Total ground disturbance was limited to 0.2 acres of potential habitat and all vegetation clearing was to be conducted outside the warbler breeding season.

Effects of the Proposed Action

The proposed action by the Corps will result in the direct effect of permanent habitat loss of approximately 1.9 acres of warbler habitat (letter to Commissioner Hays, dated September 3, 1999). This includes the areas identified as potential habitat within the proposed 120-foot wide highway ROW. The Service considers any loss of warbler habitat significant habitat degradation, but in comparison to the available habitat range wide, this is a very small portion of the available habitat.

Indirect effects to warbler habitat are anticipated within 250 feet of the edge of the highway ROW. This area of potential habitat totals approximately 10.6 acres (letter to Commissioner Hays, dated September 3, 1999). In addition, the proposed action will result in effects to warblers from disturbances during the breeding season, resulting from noise and activities associated with construction of the new highway. The driving of heavy trucks, clearing of vegetation, digging of foundations and trenches, and pouring of concrete are all examples of actions that could discourage nesting, feeding or establishing territories in areas that might otherwise be used by the warbler. The areas affected by these impacts include at least the 10.6 acres identified.

Additional indirect effects are possible at the project site associated with the maintenance of the highway right-of-way a small, but otherwise unfragmented patch of warbler habitat. The opening of the canopy may allow other birds more opportunity for predation on warblers or nest

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parasitism by cowbirds. In addition, the large highway may serve as a barrier between warbler habitat that occurs near the lake to the north and along the river to the south.

The mitigation measures for the proposed action will minimize to some extent the impacts on the warbler. The donation to the Golden-cheeked Warbler Conservation Fund may be used to purchase additional preserve lands within the core habitat area within the warbler's range and provide a benefit to the species' long term survival and recovery.

Cumulative Effects

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The population of Williamson County at present is predominantly rural outside of the small cities of Round Rock, Georgetown, Taylor, and Cedar Park. Urbanization tends to occur along interstate highway systems, particularly around major urban centers and around lakes or woodland habitats with recreational opportunities. Current trends toward decentralization of work centers is expected to increase, freeing people to locate further from urban core areas. The project is conveniently located near Interstate Highway 35.

The 1995 population of Williamson County was 184,370 and is projected to reach as high as 1,025,581 by 2030 (Texas State Data Center, Texas A&M University, 1998). This trend will lead to increased urbanization. The result will be additional residential and industrial development that may eliminate warbler habitat. Private properties around Lake Georgetown are being developed for single-family home estates due to the proximity of the Lake for recreation and closeness to city of Austin. The rapid growth of Williamson County, due to the economic expansion of the Austin metropolitan area will continue to result in the loss of natural oak-juniper woodlands, and therefore, warbler habitat.

CONCLUSION

After reviewing the current status of the warbler, the environmental baseline for the action area, the effects of the proposed road re-alignment, and the cumulative effects, it is the Service's biological opinion that the road re-alignment, as proposed, is not likely to jeopardize the continued existence of the golden-cheeked warbler. No Critical Habitat has been designated for this species, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to

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engage in such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by the Corps so that they become binding conditions of any grant or permit issued to Williamson County, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require Williamson County to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

Extent of Take

The Service anticipates the proposed action could result in the following incidental take of warblers:

1. Harm in the form of habitat degradation by loss of nesting habitat through permanent conversion of oak-juniper woodlands to highway ROW of mowed grasslands. Habitat loss is estimated at 1.9 acres of direct take and 10.6 acres of indirect take.

2. Harassment in the form of disturbance of territory establishment and breeding behaviors of warblers in the 12.5 acres south of San Gabriel Dam.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat when the reasonable and prudent measures are implemented.

Reasonable and Prudent Measures

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as

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appropriate, in order for the exemption in 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Pursuant to section 7(b)(4) of the Act, the following reasonable and prudent measures are necessary and appropriate to minimize take:

1. Implement construction schedules and locations in such a way as to minimize the inadvertent impacts to warbler breeding.

2. Implement construction actions to minimize the loss of oak-juniper woodlands that serve as nesting habitat for warblers.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. All vegetation clearing on the south side of the River will only occur between September 1 and March 1 to avoid the warbler breeding season.

2. Construction of the highway on the south side of the river will be initiated before March 1. Initiating construction means to begin work (clearing and occupying) prior to nest site selection by warblers. This will lessen the potential for a viable nest being abandoned due to construction noise.

3. The Corps will monitor the presence and map territories of the warbler in the project area and Cedar Breaks Park during project construction and for at least 3 years following project construction. Surveys will follow established Service protocols.

4. As proposed in the project description, Williamson County will contribute $28,800 to the Golden-cheeked Warbler Conservation Fund.

5. The Corps will provide annual reports to the Service documenting the results of the implementation of the proposed action including mitigation measures, reasonable and prudent measures, terms and conditions and any conservation recommendations that are initiated.

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The Service believes that no more than 12.5 acres of warbler habitat will be incidentally taken as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The following recommendations are provided for consideration by the Corps:

1. The Corps should develop and implement endangered species management plans for both Stillhouse Hollow and Georgetown lakes. These plans should include annual monitoring for endangered birds throughout the potential habitat on Corps property, implementation of management activities such as cowbird trapping, and designation of areas critical for conservation of endangered species for inclusion in future project plans. The Corps should include a comprehensive survey for listed karst invertebrates on project lands in Williamson County.

2. The Corps should provide information and assistance to Williamson County on the importance of conservation of the endangered species that occur in central Texas and the need for permits from the Service for any private action that may take listed species. The Service can provide written brochures and other materials to use in implementation of this recommendation.

3. Halt construction activities if any subsurface voids are encountered before or during construction. Have the void(s) investigated by a qualified hydrogeologist who is familiar with the habitat parameters of the endangered cave invertebrates, preferably within 24 hours. The void should be covered with a tarp to keep it from drying out. Both the Service and Texas Natural Resources Conservation Commission should be contacted and construction halted until concurrence is obtained from both agencies on how to proceed.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

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Reinitiation Notice

This concludes formal consultation on the action outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion or proposed mitigation measures are not implemented; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending re-initiation.

If you have any questions regarding this biological opinion, please contact Dianne Lee at 512/490-0057, extension 231.

Sincerely,

William Seawell

for

David C. Frederick
Supervisor

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CONSTRUCTION OF WOVEN AND BARBED WIRE FENCE

a. Furnish all labor, materials, tools, and equipment, to construct new fence in designated locations over various types of terrain in accordance with the following specifications.

b. A right-of-way of at least four (4) feet wide will be cleared inside the proposed fence by the Contractor prior to beginning work. The Contractor may also be required to trim overhanging limbs and branches before installing the fence.

c. The Contractor will construct one (1) continuous line of fence, supported by corner, stretch, anchor, and line posts. Woven and barbed wire will be installed as follows:

(1) First strand of barbed wire will be placed approximately two (2) inches above natural ground.

(2) Thirty-six (36) inch net wire will be placed approximately two (2) inches above the natural ground contour and secured to the first strand of barbed wire at five foot intervals by using hog rings or galvanized wire ties.

(3) Second strand of barbed wire will be placed approximately 2 inches above the net wire.

(4) Third strand of barbed wire will be placed approximately eight (8) inches above the net wire.

(5) Fourth strand of barbed wire will be placed approximately fourteen (14) inches above the net wire.

d. All material will be new and of the type, size, and dimensions listed:

(1) Stretch, corner, and anchor posts will be 6 inch (6") diameter by eight foot (8') long wooden posts of mountain cedar or treated pine.

(2) Intermediate line posts will be six (6) foot steel tee posts with anchor plates and shall not weigh less than 1.33 pounds per linear feet.

(3) Line posts will be six foot six inch (6'6") cedar posts and have at least a three (3) inch diameter top.

(4) Barbed wire will be 12 1/2 gauge strand with two (2) or four (4) points.

(5) Net wire will have 11 gauge top and bottom strands with 14 1/2 gauge intermediate stays and strands.

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(6) Screw anchors shall be used at all "H" braces, corners, gates, and fence terminations, and shall be galvanized, thirty-six inches (36") long, with six inch (6") blades.

e. Holes for corner, stretch, and anchor posts will be drilled by the Contractor for all work on fence.

(1) Stretch, corner, and anchor posts will be installed prior to stretching any wire. All posts will be set plumb, on line, and to grade by the Contractor. All angle points and terminations will have one "H" brace, except for inside corners where a double "H" brace (3 posts) will be used. "H" braces for terminations will be constructed the same as corners, but oriented against a unidirectional pull. 8-foot "H" brace posts will be set in the ground to extend 58" above ground level. Wooden posts will be backfilled by thoroughly tamping fill material in four (4) inch layers. Double "H" braces will be required at all corners, angle points, at three hundred and thirty (330) foot intervals, and at grade changes greater than ten (10) degrees. All stretch, corner, and anchor posts will be set with concrete, thirty-six inches (36") deep in dirt or broken rock, and twenty-four inches (24") deep in solid rock.

(2) Line posts will be set thirty-six (36) inches deep in dirt or broken rock or twenty-four (24) inches deep if in rock and anchored by concrete. Line posts will be placed at one hundred and ten (110) foot intervals or at contour change.

(3) Intermediate line posts will be driven a minimum of eighteen (18) inches into the ground and spaced at fifteen (15) foot intervals. Posts which cannot be driven to minimum depth will be set by drilling a pilot hole, sized to insure a tight fit, and filled to ground level with concrete. At grade depressions where stress tends to pull line posts out of the ground, the fence will be snubbed or guyed by means of double 11 gauge galvanized wire to a deadman anchor.

(4) Barbed and net wire will be fastened to all posts by staples or wire ties. Net wire will be stapled or tied at a minimum of four (4) locations on each post, including top and bottom strands. Staples will be 9 gauge, polished (bright), hard wire and should be driven diagonally with wood grain to avoid splitting.

(5) Cross braces will be made of 1 1/2 inch, schedule 40, galvanized pipe having a minimum length of 72 inches that is permanently fixed on both ends by driving 40d nails into posts and placing pipe over nails. Braces will not be less than three (3) feet above ground level. Brace wire will be cross trussed with double strands of 11 gauge wire twisted taut to provide needed rigidity.

EXHIBIT E

(6) When necessary, splice wire by using a "Western Union" style splice. This splice is made by overlapping ends of wire and wrapping each wire five (5) times around other wire.

f. The Government will not furnish any supplies or materials for the accomplishment of this job task. The Contractor must furnish all items required for the proper completion thereof.

g. Existing cross fencing from private property will be securely tied into new fence.

h. The Contractor will install stretch posts at water crossings, but will not install the gaps under this order.

i. All debris, trash, and other foreign material resulting from Contractor's operation shall be removed from area, and job site shall be cleaned and restored to natural condition upon completion of job task.

j. Work performed as prescribed by these specifications shall be paid for at the unit price bid for services by the linear foot installed, with a separate bid price for rock. The unit price shall be full compensation for furnishing all labor, tools, material, equipment, and incidentals necessary to complete all work as specified above.

k. When rock is encountered, the Contractor shall notify the Contracting Officer's Representative immediately for payment arrangements of the affected areas under a unit price for rock. Failure to notify the Contracting Officer's Representative and make the necessary arrangements will preclude payment under a rock price.

l. Work will be inspected periodically by the Contracting Officer's Representative and the Contractor will be advised as soon as possible of any deficiencies found. Upon being advised of a deficiency the Contractor will take immediate action to correct said deficiency and to ensure that the deficiency does not recur.

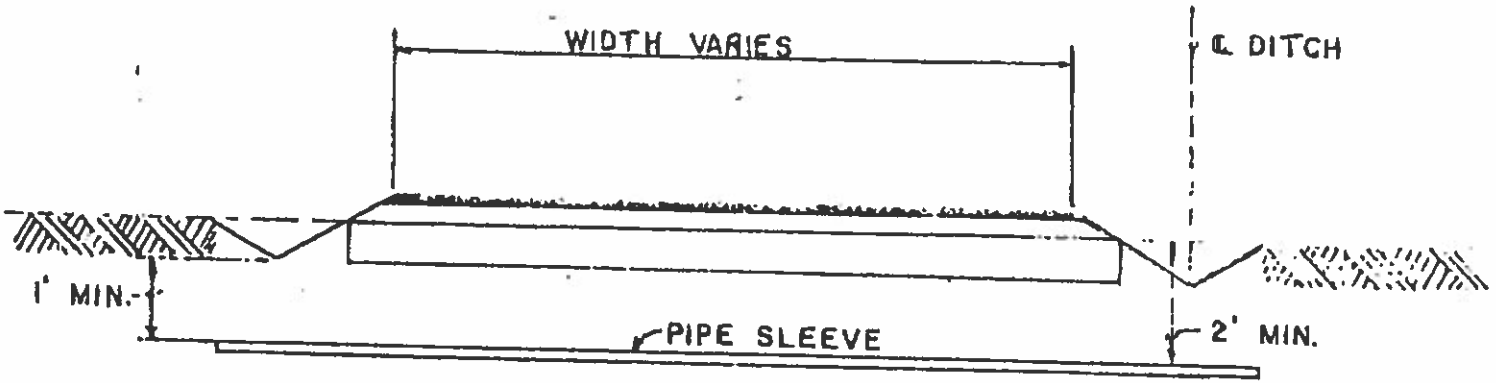
m. No payment shall be made until the job has been inspected and approved by the Contracting Officer's Representative.

EXHIBIT E

Jun. 7. 2003 12:44PM US Army Corp Of Engineers Georgetown No.1470 P. 43

NOTE:

1. Sleeves are to extend a min. of 5 ft. from the edge of pavement.
2. Sleeves are to be a minimum of 2 inches larger than the utility lines.



TYPICAL PIPE SLEEVE INSTALLATION DETAIL

(NOT TO SCALE)

EXHIBIT F

EXHIBIT F

SECTION 3:

GEOLOGICAL ASSESSMENT FORM (TCEQ-0585)

Geologic Assessment

D B Wood Road Improvements

Phase 2

Georgetown, Williamson County, Texas

June 14, 2023 | Project No. 9622P162

Prepared for:
Kimley-Horn & Associates Inc.
Austin, Texas



Terracon
Explore with us

Nationwide
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- Facilities
- Environmental
- Geotechnical
- Materials

5307 Industrial Oaks, Suite 160
Austin, Texas 78735
P 512-442-1122
F 512-442-1181
Terracon.com

June 14, 2023

Kimley-Horn & Associates Inc.
10814 Jollyville Road, Avalon IV, Ste. 300
Austin, TX 78759

Attn: Mr. Austin Helton
P: (512) 418-4538
E: austin.helton@kimley-horn.com

Re: Geologic Assessment
D B Wood Road Improvements Phase 2
D B Wood Road from north of the intersection with Oak Ridge Road to south of the intersection with Williams Drive; Georgetown, Williamson County, Texas
Terracon Project No. 9622P162

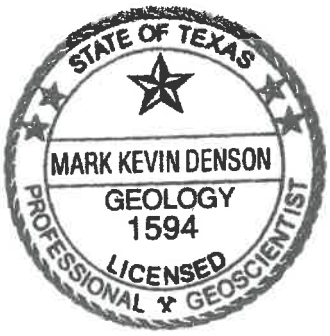
Dear Mr. Helton:

Enclosed is the Geologic Assessment conducted at the above referenced site. The attached report has been prepared in accordance with Title 30 of the Texas Administration Code Chapter 213: *Permanent Rules for the Edwards Aquifer*.

Terracon appreciates this opportunity to provide environmental consulting services to Kimley-Horn. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon

M. Kevin Denson, P.G.
Senior Geologist



Enclosure

Explore with us

Introduction

Site Name	D B Wood Road Improvements Phase 2
Site Location	D B Wood Road from north of the intersection with Oak Ridge Road to south of the intersection with Williams Drive, Georgetown Williamson County, Texas

Kimley-Horn & Associates Inc. (Client) retained Terracon Consultants, Inc. (Terracon) to conduct a Geologic Assessment (GA) on D B Wood Road from north of the intersection with Oak Ridge Road to south of the intersection with Williams Drive in Georgetown, Williamson County, Texas. The site is a corridor of land with an approximate width of 35 feet and length of 12,000 feet located adjacent to both the west and east sides of the existing D B Wood Road. The site also includes a wider temporary access easement to the east of D B Wood Road, south of the bridge over the North Fork of the San Gabriel River. The proposed project includes widening or reconstructing the road up to five lanes and will include an expansion or replacement of the bridge over the North Fork of the San Gabriel River, as well as placement of storm sewer lines. It is our understanding that this work will be conducted within existing right-of-way (ROW) of D B Wood Road. The attached Exhibit 1 depicts the approximate project boundary on the USGS Topographic map. The site is located entirely on the TCEQ designated Edwards Aquifer Recharge Zone (EARZ).

Explanation of Assessment

This assessment follows general guidelines contained in the TCEQ "*Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones*" (TCEQ Guidance 0585, dated October 4, 2004). The EARZ is known to contain karst features formed by selective dissolving of carbonate minerals by water. Karst features may be formed and be visible at the ground surface but more commonly tend to be smaller at the surface and develop with depth. Because the site is located on the EARZ, future development of the site must comply with the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program Rules specified in Title 30 of the Texas Administrative Code, Section 213 (30 TAC§ 213).

The assessment consisted of a pedestrian survey of the subject property and non-intrusive visual observations of readily accessible and visible surface conditions to identify the presence of geologic features. Geologic features, for the purposes of this assessment, are those features that are visible at the ground surface or have been mapped within the EARZ which have a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer. In accordance with the Geological Assessment guidelines, intrusive subsurface testing such as excavation, cave mapping, infiltrometer testing, geophysical studies, or tracer studies was not required or conducted for the geologic assessment of any feature identified at the site. The field assessment was performed by Mr. Kevin Denson, P.G. and Russell C. Ford, P.G., on April 11-12, 2023.

General Site Description

The site is a corridor of land with an approximate width of 40 feet and length of 12,000 feet located adjacent to both the west and east sides of the existing D B Wood Road. The site also includes a wider temporary access easement to the east of D B Wood Road, south of the bridge over the North Fork of the San Gabriel River. The attached Exhibit 1 depicts the project boundary on the USGS Topographic Map. The site consists primarily of maintained grasses in the ROW of D B Wood Road. According to the USGS Topographic Map, the topography of the site ranges from approximately 875 feet above mean sea level (msl) to 710 feet msl. The north and south endpoints of the site are generally at higher elevations, and site topography then slopes downward to the North Fork of the San Gabriel River in the center portion of the site.

Historical aerial photographs available through Google Earth Pro software were reviewed during this assessment. The site consisted of vacant, undeveloped land with the river evident until 1988 when the present-day D B Wood Road is evident. According to the Texas Water Development Board's (TWDB) website, there are no water wells mapped within the boundary of the project site, although up to six water wells are located within several hundred feet of the project corridor.

Narrative Description of Site Geology

Several published sources were reviewed to assist in identifying the underlying geology of the site, including maps from the U.S. Geological Survey (USGS) and the Bureau of Economic Geology (BEG). The following documents were reviewed as a part of this GA:

- *Geologic Atlas of Texas, Austin Sheet (Barnes, 1983)*
- *Geologic Map of the Georgetown Quadrangle, Texas; Bureau of Economic Geology Open-File Map (1997)*
- *Hydrogeology of the Northern Segment of the Edwards Aquifer, Austin Region (Senger. Collins, and Kreitler, 1990)*

Based on review of these documents, the site is located on the Edwards Group (Ked) deposits and the site is located entirely within the recharge zone of the Edwards Aquifer. Exhibit 2 (attached) is a geologic map of the site. The Edwards consists of massive too thin bedded limestones and dolostones. The formation is characterized by honeycomb textures, collapse breccias and cavern systems, which account for most of the significant porosity within the strata that compose most of the aquifer. The Edwards strata is approximately 150 feet thick in the vicinity of the site. Attachment B (attached) is a stratigraphic column prepared for the site.

Observations of the site were made to identify features such as caves, solution cavities, solution-enlarged fractures, faults, other natural bedrock features, swallow holes, sinkholes, non-karst closed depressions, and zone/clustered/aligned features, using the survey guidance from the TCEQ *Instructions to Geologists for Geologic Assessments* as revised October 1, 2004. Exposure of this unit onsite is generally obscured by the existing site development (DB Wood roadway) and vegetation present. No faulting was observed on the site and the nearest mapped fault is located approximately 4 miles east of the site. The fault, which trends toward the northeast, is associated with the Balcones

Fault zone which represents the dominant structural trend in the vicinity of the site. The completed Geologic Assessment form is attached.

A total of two geologic features, designated S-1 and S-2 on the attached Exhibit 2, were observed on the site and are described below:

Feature Assessment

S-1 *Non-karst closed depression*: This feature is a small non-karst closed depression located along the eastern property boundary to the south of the North Fork of the San Gabriel River. The feature is approximately four feet wide and one foot deep, and contained fine-grained soil infill. The feature scored 15 points on the Geologic Assessment Table, and potential recharge into the feature appears to be very low.

S-2 *Non-karst closed depression*: This feature is a small non-karst closed depression located along the western property boundary to the south of the North Fork of the San Gabriel River. The feature is approximately three feet wide and one foot deep, and contained fine-grained soil infill. The feature scored 15 points on the Geologic Assessment Table, and potential recharge into the feature appears to be very low

Due to the lack of any significant sensitive recharge features observed on the site and the presence of a relatively impermeable soil cover present, the potential for fluid movement to the Edwards Aquifer beneath the site is considered low.

It should be noted that a small spring was observed just east of the project boundary and south of the North Fork of the San Gabriel River (see location on Exhibit 2). A summary of the spring survey and a description of the spring is included in a separate *Spring Survey Letter Report,* prepared in conjunction with this *Geologic Assessment.*

Soil Description

Based on a review of the *United States Department of Agriculture (USDA) Web Soil Survey*, the soil types mapped at the site are the Eckrant stony clay (EeB), Eckrant-Rock outcrop associations (ErE), Eckrant-Rock outcrop association (ErG), Sunev silty clay loam (SvA), and Oakalla soils (Oc). Exhibit 3 (attached) depicts the locations of the mapped soil types relative to the project site boundaries.

EeB – This nearly level to gently sloping soil is on broad ridges and in shallow valleys on uplands. Available water capacity is very low because of the shallowness of the soil and stones in the soil. Fragments of limestone on the surface help prevent erosion. The soil is typically a very dark gray clay layer to a depth of about eleven inches and the underlying material is indurated limestone. These soils are classified as Soil Group D, having a very slow infiltration rate when thoroughly wetted.

ErE – This complex is located on uplands and consists of Eckrant soil and rock outcrop on hills, ridges, and along sides of drainageways. The surface layer is typically a dark grayish brown, extremely stony clay to a depth of about eight inches and the underlying material is indurated limestone. Available water capacity is very low, and these soils are classified as Soil Group D, having a very slow infiltration rate when thoroughly wetted.

ErG – This complex is located on uplands and consists of Eckrant soils and rock outcrop along ridges and ravines. The soil consists of a surface layer of brown clay loam about twelve inches thick, underlain by indurated limestones. The available water capacity is low, and these soils are classified as Soil Group D, having a very slow infiltration rate when thoroughly wetted.

SvA – This gently sloping soil is on stream terraces, and consists of silty clay loams to depths of up to 60 inches. The available water capacity is low, and these soils are classified as Soil Group D, having a very slow infiltration rate when thoroughly wetted.

OIA – These soils are on bottom lands in narrow stream valleys. This soil consists of dark brown loams and clay loams to depths of up to 66 inches. The soils are commonly flooded and water availability is high. These soils are classified as Soil Group B, having a moderate infiltration rate when thoroughly wetted.

Comments

Slight modification of the site topography or surface water flow during construction is anticipated. Within the Edwards Aquifer Recharge and Transition Zones, potential recharge features lacking visible surface expression (such as subsurface solution enlarged fractures, caves, cavities, and other karst features) are often present which would not be identifiable during the site inspection. Accordingly, this assessment does not address the possible presence of subsurface conditions that may be exposed during excavation or other construction activities. Should solution features or conditions be exposed during construction, construction should be halted and the TCEQ Edwards Aquifer Protection Program should be contacted and notified of the site conditions immediately in accordance with 30 TAC §213.5(f)(2).

References

Barnes, V.E., 1983, *Geologic Atlas of Texas, Austin Sheet: Bureau of Economic Geology, Scale 1:250,000.*

Collins, E.W., 1997, *Geologic Map of the Georgetown Quadrangle, Texas. The University of Texas at Austin, Bureau of Economic Geology.*

Google. *Google Earth Pro Software. V. 7.3.1.4507 (64-bit), accessed April 2023.*

Senger, Rainer K., Collins, Edward W., and Charles W. Kreitler, 1995, *Hydrogeology of the Northern Segment of the Edwards Aquifer, Austin Region. The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations No. 192.*

United States Department of Agriculture (USDA) Web Soil Survey

ATTACHMENTS

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

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

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

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: M. Kevin Denson Telephone: 512 442-1122

Date: June 14, 2023 Fax: _____

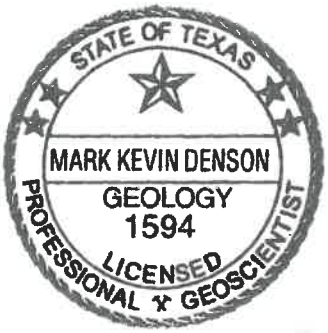
Representing: Terracon Consultants, Inc. (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: D B Wood Road Improvements Phase 2, D B Wood Road, Georgetown, Texas

Project Information



1. Date(s) Geologic Assessment was performed: April 11-12, 2023
2. Type of Project:
   - ☒ WPAP
   - ☒ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

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

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
EeB	D	1-2
ErE	D	1-2
ErG	D	1-3
SvA	B	1-5
OlA	B	1-5

** Soil Group Definitions (Abbreviated)*

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ Attachment B – Stratigraphic Column. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ Attachment C – Site Geology. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

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

   Applicant's Site Plan Scale: 1" = _ '
   Site Geologic Map Scale: 1" = 18,000'
   Site Soils Map Scale (if more than 1 soil type): 1" = 18,000 '

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.
   ☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.

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

12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

    ☐ Geologic or manmade features were not discovered on the project site during the field investigation.

13. ☐ The Recharge Zone boundary is shown and labeled, if appropriate.

14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    - ☐ The wells are not in use and have been properly abandoned.
    - ☐ The wells are not in use and will be properly abandoned.
    - ☐ The wells are in use and comply with 16 TAC Chapter 76.

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

Administrative Information

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

ATTACHMENT A

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: D B Wood Road Improvements Phase 2, D B Wood Road, Georgetown, Texas

LOCATION			FEATURE CHARACTERISTICS												EVALUATION					PHYSICAL SETTING	
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-1	30.65805	97.72361	CD	5	Ked	2	2	1					F	10	15	X		X		Hilltop
S-2	30.65778	97.72389	CD	5	Ked	1.5	1.5	1					F	10	15	X		X		Hilltop

* DATUM NAD27

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

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

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

I have read, I understood, and I have followed the Texas Natural Resource Conservation Commission's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC 213

Date 6/14/2023

TNRCC-0585-Table (Rev. 5-1-02)

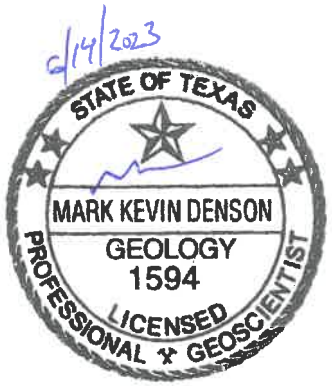
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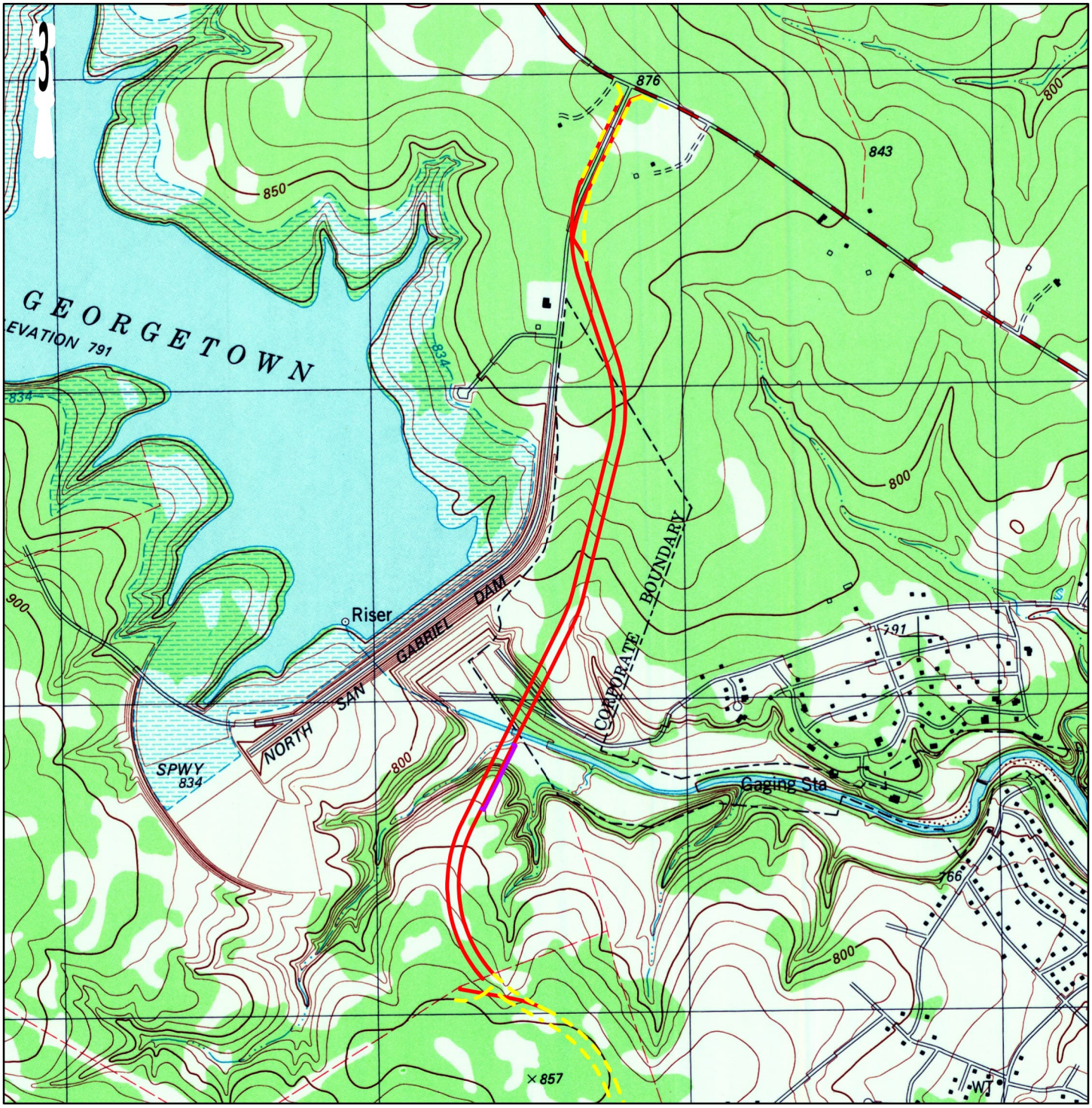
STATE OF TEXAS
MARK KEVIN DENSON
GEOLOGY
1594
LICENSED
PROFESSIONAL GEOSCIENTIST

ATTACHMENT B
Stratigraphic Column
D B Wood Road Improvements Phase 2
D B Wood Road
Georgetown, Texas

HYDROGEOLOGIC SUBDIVISION	FORMATION	THICKNESS (feet)	LITHOLOGY
Edwards Aquifer	Edwards Limestone	150	Mudstone to packstone, crystalline limestone, wackestone, chert

Source: Senger, Collins and Kreitler, 1990





Project Associated Boundaries (Provided by Client)

- Existing Right-of-Way Limits
- Temporary Access Easement
- Approximate Project Limits

0 500 1,000 2,000 Feet

Source: Historical Topographic Map Collection courtesy of the U.S. Geological Survey, Esri, Williamson County TX, Maxar

Project No.:	9622P162
Date:	Jun 2023
Drawn By:	RC
Reviewed By:	KD

Terracon
5037 Industrial Oaks Blvd. - #160 Austin, TX 78735
PH. (512) 442-1122 terracon.com

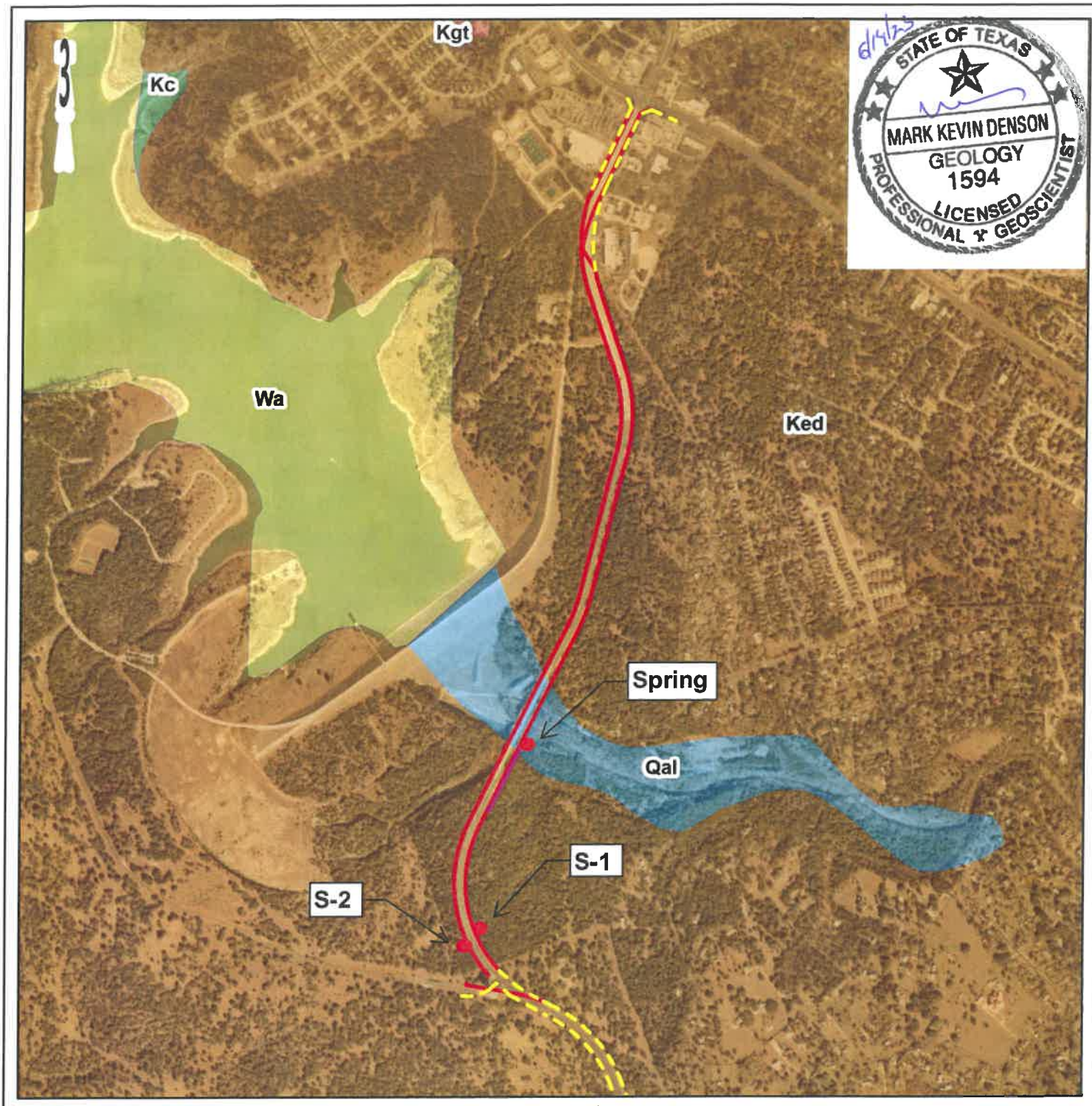
1982 USGS Topographic Map: Georgetown

DB Woods Phase II - Task 2
Geological Assessment
DB Woods Road, Georgetown, Williamson County, TX

Exhibit

1.0

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Project Associated Boundaries (Provided by Client)

- Existing Right-of-Way Limits
- Temporary Access Easement
- Approximate Project Limits

USGS Geologic Units

- Comanche Peak Limestone (Kc)
- Edwards Formation (Ked)
- Georgetown Formation (Kgt)
- Alluvium (Qal)
- Water (Wa)

Feet
0 500 1,000 2,000

Source: Williamson County TX, Maxar, USGS Pocket of Texas Geology

Project No.:	9622P162
Date:	Jun 2023
Drawn By:	RC
Reviewed By:	KD

Terracon
5037 Industrial Oaks Blvd. - #160 Austin, TX 78735
PH. (512) 442-1122 terracon.com

Site Specific Geology

DB Woods Phase II - Task 2 Geological Assessment

DB Woods Road, Georgetown, Williamson County, TX

Exhibit

2.0



Project Associated Boundaries (Provided by Client)

Existing Right-of-Way Limits

Temporary Access Easement

Approximate Project Limits

NRCS Web Soil Survey Data

Feet
0 500 1,000 2,000

Source: Williamson County TX, Maxar, NRCS WSS

Project No.:	9622P162
Date:	Jun 2023
Drawn By:	RC
Reviewed By:	KD

terracon

5037 Industrial Oaks Blvd. - #160 Austin, TX 78735

PH. (512) 442-1122 terracon.com

NRCS Web Soil Survey

DB Woods Phase II - Task 2 Geological Assessment

DB Woods Road, Georgetown, Williamson County, TX

Exhibit

3.0

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SECTION 4:
TEMPORARY STORMWATER SECTION (TCEQ 0602)

TEMPORARY STORMWATER SECTION

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

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

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

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Austin Helton

Date: 04/24/2024

Signature of Customer/Agent: _____

Regulated Entity Name: Kimley-Horn

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: Middle 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:

☐ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

☐ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☐ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☐ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

SOIL STABILIZATION PRACTICES

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18 ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

ADMINISTRATIVE INFORMATION

20 ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21 ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

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.

SPILL RESPONSE ACTIONS

If there is an accidental spill on site, the contractor shall respond with appropriate action. The contractor will be required to contact the owner and in turn the owner will contact the TCEQ in the event of a spill on site. In addition to the following guidance, reference the latest version of TCEQ's Technical Guidance Manual (TGM) RG-348 Section 1.4.16.

Cleanup

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

Minor Spills

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

Semi-Significant Spills

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

Spills should be cleaned up immediately:

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

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

- Notify the TCEQ by telephone as soon as possible and within 24 hours at (512)339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental

Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

- For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
- Notification should first be made by telephone and followed up with a written report.
- The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
- Other agencies which may need to be consulted include, but not limited to, the City Police Department, County Sheriff Office at (512) 393-7808, Fire Departments, County Emergency Services (911), County Environmental Health Department at (512) 393-2150,etc.

POTENTIAL SOURCES OF CONTAMINATION

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

Preventative Measures: Vehicle maintenance will be performed within the construction staging area or a local maintenance shop.

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

Preventative Measures: Trash containers will be placed throughout the site to encourage proper disposal of trash.

Potential Source: Silt leaving the site.

Preventative Measures: Contractor will install all temporary best management practices prior to start of construction including the stabilized construction entrance to prevent tracking onto adjoining streets.

Potential Source: Construction Debris.

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

Potential Source: Soil and Mud from Construction Vehicle tires as they leave the site.

Preventative Measures: A stabilized construction exit shall be utilized as vehicles leave the site. Any soil, mud, etc. carried from the project onto public roads shall be cleaned up within 24 hours.

Potential Source: Sediment from soil, sand, gravel and excavated materials stock piled on site.

Preventative Measures: Silt fence shall be installed on the down gradient side of the stock piled materials. Reinforced rock berms shall be installed at all downstream discharge locations.

Potential Source: Portable toilet spill.

Preventative Measures: Toilets on the site will be emptied on a regular basis by the contracted toilet company.

SEQUENCE OF MAJOR ACTIVITIES

PHASE I STEP 1- CONSTRUCT TEMPORARY PAVEMENT ADJACENT TO THE SB LANES, CONSTRUCT TEMPORARY BRIDGE FOR ACCESS TO CONSTRUCT BRIDGE WIDENING SOUTH OF SAN GABRIEL RIVER, AND BEGIN BRIDGE WIDENING.

1. MOBILIZATION
2. SET UP BARRICADES, SIGNS, AND STORMWATER POLLUTION PREVENTION MEASURES. CLOSE D B WOOD SHOULDERS AND LANES AND SHIFT TRAFFIC AS SHOWN IN PLANS.
3. REMOVE EXISTING D B WOOD PAVEMENT MARKINGS IN CONFLICT WITH THIS PHASE AND INSTALL WORK ZONE MARKINGS.
4. REMOVE EXISTING MEDIANS FROM STATION 287+14.00 TO 292+55.00.
5. CONSTRUCT TEMPORARY PAVEMENT ADJACENT TO THE SB LANES AND WHERE MEDIANS WERE REMOVED.
6. CONSTRUCT TEMPORARY SHORING FOR BRIDGE ABUTMENT AS SHOWN IN PLANS.
7. CONSTRUCT TEMPORARY CONSTRUCTION ACCESS INCLUDING TEMPORARY STRUCTURE OVER SAN GABRIEL RIVER TO ACCESS SOUTH END OF BRIDGE
8. BEGIN CONSTRUCTION OF DRILL SHAFTS, ABUTMENTS, BENTS, AND BRIDGE DECK WIDENING. EXISTING BRIDGE RAILS TO REMAIN IN PLACE DURING LAYING OF BEAMS.

PHASE I STEP 2- CONSTRUCT DOWNSTREAM SIDE OF CULVERTS.

1. ADJUST BARRICADES, SIGNS, AND STORMWATER POLLUTION PREVENTION MEASURES. CLOSE D B WOOD NB SHOULDER AND LANE AND SHIFT TRAFFIC AS SHOWN IN PLANS.
2. REMOVE EXISTING D B WOOD PAVEMENT MARKINGS IN CONFLICT WITH THIS PHASE AND INSTALL WORK ZONE MARKINGS.
3. CONSTRUCT TRENCH EXCAVATION SUPPORT FOR CULVERT.
4. CONSTRUCT DOWNSTREAM SIDE OF CULVERT.
5. CONSTRUCT MIDDLE OF CULVERT USING NIGHT TIME ONE-LANE TWO-WAY TRAFFIC CONTROL UTILIZING TCP (2-2)-18. CONTRACTOR TO BACK FILL AND OPEN UP TO TWO LANES PRIOR TO EACH DAY.
6. CONTINUE CONSTRUCTION OF BRIDGE.

PHASE I STEP 3 - CONSTRUCT UPSTREAM SIDE OF CULVERTS.

1. -ADJUST BARRICADES, SIGNS, AND STORMWATER POLLUTION PREVENTION MEASURES. CLOSE D B WOOD SB SHOULDER AND LANE AND SHIFT TRAFFIC AS SHOWN IN PLANS.CONTRACTOR SHALL UTILIZE NIGHTTIME ONE LANE TWO-WAY TRAFFIC CONTROL TO COMPLETE CONSTRUCTION OF CULVERT AS NEEDED.
2. -REMOVE EXISTING D B WOOD PAVEMENT MARKINGS IN CONFLICT WITH THIS PHASE AND INSTALL WORK ZONE MARKINGS.
3. -CONSTRUCT TRENCH EXCAVATION SUPPORT FOR CULVERT.
4. -CONSTRUCT UPSTREAM SIDE OF CULVERT.
5. -CONTINUE CONSTRUCTION OF BRIDGE.

PHASE II - REMOVE EXISTING PAVEMENT AND CONSTRUCT WATERLINE RELOCATIONS B, C, AND D, D B WOOD NB LANES, STORM SEWER IMPROVEMENTS,AND CONTINUE THE BRIDGE WIDENING AS SHOWN IN THE PLANS. TEMPORARY BRIDGE TO REMAIN UNTIL BRIDGE CONSTRUCTION IS COMPLETED. THE FULL PAVEMENT SECTION, UP TO BUT NOT INCLUDING THE FINAL 2" OF TY C, WILL BE CONSTRUCTED FOR THE WIDENING OF D B WOOD ROAD.

1. ADJUST BARRICADES, SIGNS, AND STORMWATER POLLUTION PREVENTION MEASURES. CLOSE D B WOOD SB SHOULDER AND LANE AND SHIFT TRAFFIC AS SHOWN IN PLANS. REMOVE EXIST PAVEMENT MARKINGS IN CONFLICT WITH THIS PHASE & INSTALL WORKZONE MARKINGS.
2. REMOVE EXIST D B WOOD ROAD PAVEMENT AS SHOWN IN THE PLANS.
3. CONSTRUCT CITY OF GEORGETOWN WATERLINE RELOCATIONS B AND D.
4. CONTRACTOR SHALL NOT CONSTRUCT SEGMENTS OF CURB AS SHOWN IN PLANS FOR TEMPORARY DRAINAGE.
5. CONTRACTOR SHALL INSTALL STORM DRAIN INLETS AND PIPE AS SHOWN IN PLANS. REFER TO TCP PLANS FOR LOCATIONS ON WHICH INLET BASES ARE TO BE INSTALLED AND TEMPORARILY CAPPED.
6. CONTRACTOR SHALL UTILIZE NIGHTTIME ONE LANE TWO-WAY TRAFFIC CONTROL TO COMPLETE CONSTRUCTION OF LATERALS AND INLETS SHOWN IN PLANS.
7. CONTRACTOR SHALL CONSTRUCT LATERALS 4' PAST THE MEDIAN BACK OF CURB AND PLUG AS SHOWN IN PLANS. PAYMENT FOR PLUGS WILL BE SUBSIDIARY TO PERTINENT ITEMS.
8. COMPLETE THE CONSTRUCTION OF DRILL SHAFTS, ABUTMENTS, BENTS, AND BRIDGE DECK WIDENING, CONDUIT AND ILLUMINATION ON BRIDGE. EXISTING BRIDGE RAILS TO REMAIN IN PLACE DURING LAYING OF BEAMS.
9. CONTRACTOR SHALL CONSTRUCT D B WOOD NB LANES.
10. BEGIN AND COMPLETE THE CONSTRUCTION OF WATERLINE AT BRIDGE. REMOVAL OF EXISTING WATERLINE ON WEST SIDE OF BRIDGE SHALL NOT BE REMOVED PRIOR TO WATERLINE INSTALLATION AND SWITCH OVER.
11. REMOVE EXISTING WATERLINE HUNG UNDER THE SB BRIDGE LANES.

PHASE III- REMOVE EXISTING PAVEMENT AND CONSTRUCT WATERLINE RELOCATION A, STORM SEWER IMPROVEMENTS, SB D B WOOD PAVEMENT,REMOVING THE EXISTING WL UNDER THE BRIDGE, AND ADDING THE PROPOSED SB BRIDGE RAIL SHOWN IN THE PLANS. THE FULL PAVEMENT SECTION, UP TO BUT NOT INCLUDING THE FINAL 2" OF TY C, WILL BE CONSTRUCTED FOR THE RECONSTRUCTION OF D B WOOD ROAD.

1. ADJUST BARRICADES, SIGNS, AND STORMWATER POLLUTION PREVENTION MEASURES. CLOSE D B WOOD SB SHOULDER AND LANE AND SHIFT TRAFFIC AS SHOWN IN PLANS.
2. REMOVE EXIST PAVEMENT MARKINGS & INSTALL WORKZONE MARKINGS.
3. REMOVE EXIST D B WOOD ROAD PAVEMENT AS SHOWN IN THE PLANS.
4. CONSTRUCT FIBER OPTIC CABLE GROUND BOXES AND CONDUIT FOR FIBER OPTIC CABLE RELOCATION.
5. CONSTRUCT CITY OF GEORGETOWN WATERLINE RELOCATION A.
6. CONSTRUCT PROPOSED STORM SEWER, CURB, ILLUMINATION, SHARED USED PATH, AND D B WOOD SB LANES.

7. BORE PROPOSED ILLUMINATION CONDUIT RUNS TO PROPOSED GROUND BOX LOCATIONS IN MEDIAN AND PROVIDE CONDUIT STUB FOR PHASE IV ILLUMINATION INSTALLATION.
8. AFTER THE REMOVAL OF THE EXISTING WATERLINE ON THE BRIDGE, CONSTRUCT THE BRIDGE RAILS ON THE WEST SIDE OF THE BRIDGE.
9. REMOVE TEMPORARY BRIDGE OVER SAN GABRIEL RIVER.

PHASE IV STEP 1 - CONSTRUCT THE REMAINING CURB AND INLETS ON THE OUTSIDE OF THE NB LANES AS SHOWN IN PLANS.

1. ADJUST BARRICADES, SIGNS, AND STORMWATER POLLUTION PREVENTION MEASURES. CLOSE OUTSIDE NB AND SB LANES AND SHIFT TRAFFIC AS SHOWN IN PLANS.
2. CONSTRUCT REMAINING CURB ON THE OUTSIDE OF THE NB LANES AND INSTALL INLETS THAT WERE CAPPED IN PHASE 2.

PHASE IV STEP 2 - CONSTRUCT THE MEDIAN AND REMAINING ILLUMINATION IMPROVEMENTS AS SHOWN
ON PLANS.

1. ADJUST BARRICADES, SIGNS, AND STORMWATER POLLUTION PREVENTION MEASURES.
2. CLOSE INSIDE NB AND SB LANES AND SHIFT TRAFFIC AS SHOWN IN PLANS.
3. CONSTRUCT THE MEDIAN AND REMAINING ILLUMINATION IMPROVEMENTS.

PHASE V - CONSTRUCT THE FINAL RIDING SURFACE AND PAVEMENT
MARKINGS FROM OAK RIDGE ROAD TO THE FIRE STATION DRIVEWAY USING MOBILE OPERATIONS.

1. PLANE 2" OF EXISTING PAVEMENT FROM STATION 286+50.00 TO 292+55.00.
2. CONSTRUCT FINAL 2" TY C THROUGHOUT THE LIMITS OF THE PROJECT UTILIZING MOBILE OPERATIONS.
3. PLACE FINAL PAVEMENT MARKINGS THROUGHOUT PROJECT LIMITS, AS SHOWN IN THE PLANS UTILIZING TCP STANDARDS; TCP (3-1)-13, TCP (3-2)-13, AND TCP (3-3)-18.
4. REMOVE ADVANCED WARNING SIGNS AND CHANNELIZING DEVICES.
5. PLACE TOPSOIL AND PERMANENT SEEDING
6. AFTER THE ESTABLISHMENT OF VEGETATION, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND RESEED ANY AREAS DISTURBED BY THEIR REMOVAL.
7. PERFORM FINAL CLEANUP.
8. OPEN TO TRAFFIC UNRESTRICTED.

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

A. There is no storm water that originates up gradient from the site that will flow across the site.

B. Temporary BMPs will be installed prior to soil disturbing construction activity. Silt fencing will be placed along the down-gradient sides of the property to prevent silt from escaping the construction area. A temporary construction entrance will be placed on site to reduce vehicle "tracking" onto adjoining streets. A concrete washout pit will be used to collect all excess concrete during construction.

   BMPs for this project will protect surface water or groundwater from turbid water, phosphorus, sediment, oil, and other contaminants, which may mobilize in storm water flows by slowing the flow of runoff to allow sediment and suspended solids to settle out of the runoff.

   Practices may also be implemented on site for interim and permanent stabilization. Stabilization practices may include but are not limited to: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, and other similar measures.

C. There are not any sensitive features within the boundaries of the project. The temporary onsite BMPs will be used to treat stormwater runoff before it leaves the project and prevent pollutants from entering into surface streams or any sensitive features down-gradient of the site.

D. There were not any sensitive features identified during the geologic assessment. However, the BMPs for this project are designed to allow water to pass through after sedimentation has occurred. Existing flow patterns will be maintained to any naturally-occurring sensitive features that are discovered during construction.

REQUEST TO TEMPORARILY SEAL A FEATURE

Naturally-occurring features will not be sealed on the site.

STRUCTURAL PRACTICES

Structural BMPs will be used to limit runoff discharge of pollutants from exposed areas of the site. BMPs will be installed prior to soil disturbing construction activity. Silt fencing will be placed along the down-gradient sides of the property to prevent silt from escaping the construction area. A temporary construction entrance will be placed at the site entry/exit point to reduce tracking onto adjoining streets. A construction staging area will be used onsite to perform all vehicle maintenance and for equipment and material storage. A concrete truck washout pit will be placed on site to provide containment and easier cleanup of waste from concrete operations. The location of all structural temporary BMP's are shown on the erosion control plan sheet and details and specifications are provided on the erosion control details sheet which can be found at the end of this report under Section 8.

Description of Temporary BMPs

1. Temporary Construction Entrance/Exit

The purpose of a temporary gravel construction entrance is to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. A stabilized construction entrance is a stabilized pad of crushed stone located at any point traffic will be entering or leaving the construction site from a public right-of-way, street, alley, sidewalk or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking or flowing of sediment onto public rights-of-way. This practice should be used at all points of construction ingress and egress.

Excessive amounts of mud can also present a safety hazard to roadway users. To minimize the amount of sediment loss to nearby roads, access to the construction site should be limited to as few points as possible and vegetation around the perimeter should be protected were access is not necessary. A rock stabilized construction entrance should be used at all designated access points.

2. Silt Fence

The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow.

Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

3. Concrete Washout Area

The purpose of concrete washout areas is to prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees and subcontractors.
The following steps will help reduce stormwater pollution from concrete wastes:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- For onsite washout:

- Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.

Below grade concrete washout facilities are typical. These consist of a lined excavation sufficiently large to hold expected volume of washout material. Above grade facilities are used if excavation is not practical. Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this section, with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

4. Rock Berm

The purpose of a rock berm is to serve as a check dam in areas of concentrated flow, to intercept sediment-laden runoff, detain the sediment and release the water in sheet flow. The rock berm should be used when the contributing drainage area is less than 5 acres. Rock berms are used in areas where the volume of runoff is too great for a silt fence to contain. They are less effective for sediment removal than silt fences, particularly for fine particles, but are able to withstand higher flows than a silt fence. As such, rock berms are often used in areas of channel flows (ditches, gullies, etc.). Rock berms are most effective at reducing bed load in channels and should not be substituted for other erosion and sediment control measures further up the watershed.

5. Triangular Filter Dike

The purpose of a triangular sediment filter dike is to intercept and detain water-borne sediment from unprotected areas of limited extent. The triangular sediment filter dike is used where there is no concentration of water in a channel or other drainage way above the barrier and the contributing drainage area is less than one acre. If the uphill slope above the dike exceeds 10%, the length of the slope above the dike should be less than 50 feet. If concentrated flow occurs after installation, corrective action should be taken such as placing rock berm in the areas of concentrated flow. This measure is effective on paved areas where installation of silt fence is not possible or where vehicle access must be maintained. The advantage of these controls is the ease with which they can be moved to allow vehicle traffic and then reinstalled to maintain sediment.

6. Inlet Protection

In developments for which drainage is to be conveyed by underground storm sewers (i.e., streets with curbs and gutters), all inlets that may receive storm runoff from disturbed areas should be protected. Temporary inlet protection is a series of different measures that provide protection against silt transport or accumulation in storm sewer systems. This clogging can greatly reduce or completely stop the flow in the pipes. The different measures are used for different site conditions and inlet types

7. Temporary Sedimentation Basin

Sediment basins are designed to provide an area for runoff to pool and settle out a portion of the sediment carried down gradient. Past designs used a perforated riser for dewatering, which allowed water to leave the basin from all depths. One way to improve the sediment capture rate is to have an outlet which dewaters the basin from the top of the water column where the water is cleanest. A skimmer is probably the most common method to dewater a sediment basin from the surface. The basic concept is that the

skimmer does not dewater the basin as fast as runoff enters it, but instead allows the basin to fill and then slowly drain over hours or days. This process has two effects. First, the sediment in the runoff has more time to settle out prior to discharge. Second, a pool of water forms early in a storm event and this further increases sedimentation rates in the basin. Many of the storms will produce more volume than the typical sediment basin capacity and flow rates in excess of the skimmer capability, resulting in flow over the emergency spillway. This water is also coming from the top of the water column and has thereby been "treated" to remove sediment as much as possible.

DRAINAGE AREA MAP

There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. An existing and proposed drainage area map is provided at the end of this report in Section 8 to support the aforementioned requirement.

TEMPORARY SEDIMENT POND(S) PLANS AND CALCULATIONS

The proposed development will not disturb areas over 10 acres. Therefore, temporary sediment ponds are not proposed.

INSPECTION AND MAINTENANCE FOR BMPS

All erosion and sediment control measures will be maintained in effective operating condition by following the Project maintenance procedures. The general maintenance and inspection requirements are provided in the SW3P included as Attachment G-IV. The maintenance plan for temporary BMPs meets the maintenance guidance provided in RG- 348.

The Contractor shall install and maintain the integrity of temporary erosion and sediment control devices to accumulate silt and debris until soil disturbing activities are complete, permanent erosion control features are in place, and sufficient vegetation has been established in accordance with contract documents including Standard TxDOT Specification 506.

Maintenance, repairs, or retrofits will adhere to the project standards and details for the BMP. Damaged portions of BMPs shall be removed and replaced as needed to adhere to the contract documents. BMPs that cannot be adequately repaired or retrofitted to meet project requirements, shall be removed, and replaced in entirely in accordance with the contract documents.

The maintenance documentation procedures and recordkeeping practices to be followed are summarized in the TCEQ Edwards Aquifer General Construction Notes, which are provided in the Roadway Application included as Attachment G.

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

The general order of soil disturbing construction activities is detailed below. The detailed construction sequence (Phase I – V) is included in the Traffic Control Plans in the Construction Plans provided under a separate cover. Before any soil is disturbed within the project limits, a notice of intent (NOI) must be provided to the TCEQ regional office 48 hours prior to the start of regulated activities.

Installation of Temporary Erosion and Sediment Controls – Phase I - Phase V
1. Installation of Erosion and Sediment Controls in accordance with the SW3P.

Culvert Reconstruction, Temporary Pavement, and Bridge Widening – Phase I
1. Clearing, grubbing, and grading at locations of culvert improvements.
2. Removal of culvert safety end treatments, headwalls, and metal beam guard rail fence where applicable.
3. Construction of temporary pavement.
4. Begin bridge widening
5. Construction of culvert.
6. Placement of topsoil for final planting and seeding.

Northbound Roadway Reconstruction – Phase II
1. Clearing, grubbing, and grading at locations of proposed pavement.
2. Construction of proposed pavement for the roadway.
3. Placement of topsoil for final planting and seeding.

Southbound Roadway Reconstruction – Phase III
1. Clearing, grubbing, and grading at locations of proposed pavement.
2. Construction of proposed pavement for the roadway.
3. Placement of topsoil for final planting and seeding.

Construction of remaining curb, median, and illumination – Phase IV
1. Construction of remaining curb, medians, and illumination
2. Placement of topsoil for final planting and seeding.

Final Improvements– Phase V
1. Construction of final pavement surface.
2. Placement of topsoil for final planting and seeding.
3. Removal of Temporary Erosion and Sediment Controls in accordance with the SW3P.

Where construction activity temporarily ceases for more than 21 days, these areas will be stabilized by the contractor with temporary seeding within 14 days of the last disturbance. Records will be kept at the site to document dated when:
· major grading activities occur;
· construction activities temporarily cease;
· construction activities permanently cease; and
· stabilization measures are initiated.

SECTION 5:
ADDITIONAL FORMS

Kimley»Horn

AGENT AUTHORIZATION FORM

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

I Chris Pousson,
Print Name

CIP Manager,
Title - Owner/President/Other

of City of Georgetown,
Corporation/Partnership/Entity Name

have authorized Austin Helton, P.E.
Print Name of Agent/Engineer

of Kimley-Horn and Associates, Inc.
Print Name of Firm

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

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been

filed with and approved by the Executive Director.

SIGNATURE PAGE:

Kimley»Horn

Applicant's Signature

5-15-24
Date

THE STATE OF TEXAS §

County of WILLIAMSON §

BEFORE ME, the undersigned authority, on this day personally appeared CHRIS POULSSON 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 15th day of MAY, 2024.

SHEILA KAYE MITCHELL
Notary Public, State of Texas
Comm. Expires 11-10-2025
Notary ID 133441435

NOTARY PUBLIC

SHEILA K. MITCHELL
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: NOV. 10, 2025

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: D B Wood Road

Regulated Entity Location: Oak Ridge Road to 820' south of Williams Drive

Name of Customer: City Georgetown

Contact Person: Chris Pousson

Phone: (512) 770-8503 Customer Reference Number (if issued):CN 600412043

Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☐ Comal ☐ Kinney

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

☒ Austin Regional Office
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	*Size*	*Fee Due*
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	N/A Acres	$ 0
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	N/A Acres	$0
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	22.57 Acres	$6,500
Sewage Collection System	N/A L.F.	$ 0
Lift Stations without sewer lines	N/A Acres	$ 0
Underground or Aboveground Storage Tank Facility	N/A Tanks	$ 0
Piping System(s)(only)	N/A Each	$ 0
Exception	N/A Each	$ 0
Extension of Time	N/A Each	$ 0

Signature: _____ Date: 4/24/2024 Application Fee Schedule

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plants and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	***Fee***
Exception Request	$500

Extension of Time Requests

Project	***Fee***
Extension of Time Request	$150

TCEQ Core Data Form

TCEQ Use Only

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 602491284		RN

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy): 7/7/2022

☐ 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:*

CITY OF GEORGETOWN

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

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☒ City ☐ County ☐ Federal ☐ 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:

300 Industrial Ave #1

City	State	ZIP	ZIP + 4
Georgetown	TX	78626	

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 930-8162		( ) -

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.)*

D B Wood Road - Oak Ridge to 820' south of Williams Dr

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

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	Oak Ridge to 820' south of Williams Dr				
26. Nearest City			State	Nearest ZIP Code	
Georgetown			TX	78626	
27. Latitude (N) In Decimal:		28. Longitude (W) In Decimal:			
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	39	9.50	97	43	7.10

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)
1611	N/A	237310	N/A

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

Roadway

34. Mailing Address:	300 Industrial Ave #1						
City	Georgetown	State	TX	ZIP	78626	ZIP + 4	
35. E-Mail Address:							

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(512) 930-8162		( ) -

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

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

SECTION IV: Preparer Information

40. Name:	Austin Helton, P.E.	41. Title:	Project Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 418-4538		( ) -	austin.helton@kimley-horn.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:	City of Georgetown	Job Title:	CIP Manager
Name *(In Print)*:	Chris Pousson	Phone:	(512) 930- 8162
Signature:		Date:	4-16-24