2023.02353		Prepared By:	ERM	Date:	10/27/2025
CR 258		Checked By:	CWM	Date:	10/27/2025

AMERICAN STRUCTUREPOINT INC.

Contributing Zone Plan

CR 258

Williamson County, Texas

Prepared for

WILCO TEXAS

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STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED PROFESSIONAL ENGINEER

10/27/2025

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: CR 258						**2. Regulated Entity No.:**			
3. Customer Name: WILLIAMSON COUNTY						**4. Customer No.:CN600897888**			
5. Project Type: **(Please circle/check one)**	New	Modification				Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential	Non-residential				**8. Site (acres):**			9.73
9. Application Fee:	$5,000		**10. Permanent BMP(s):**			VEGETATIVE FILTER STRIPS			
11. SCS (Linear Ft.):			**12. AST/UST (No. Tanks):**						
13. County:	WILLIAMSON		**14. Watershed:**			NORTH FORK SAN GABRIEL RIVER			

Application Distribution

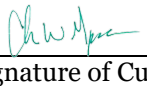
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which 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.)	___	___	_X_
Region (1 req.)	___	___	_X_
County(ies)	___	___	_X_
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander _X_Liberty Hill ___Pflugerville ___Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	___	___	___	___
Region (1 req.)	___	___	___	___	___
County(ies)	___	___	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	___Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge ___New Braunfels ___Schertz	NA	___San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. CHASE W. MYERS
Print Name of Customer/Authorized Agent  10/27/2025
Signature of Customer/Authorized Agent Date

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

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: Chase Myers

Date: 10/27/2025

Signature of Customer/Agent:

Project Information

1. Regulated Entity (Project) Name: CR 258
2. County: Williamson
3. Stream Basin(s): Dyeus Branch
4. Groundwater Conservation District (if applicable): N/A
5. Customer (Applicant):

   Contact Person: Adam Boatright, PE
   Entity: Williamson County
   Mailing Address: 3151 S.E. Inner Loop
   City, State: Georgetown,TX Zip: 78626
   Telephone: 512-943-3374
   Email Address: adam.boatright@wilco.org

6. Agent (Representative):

   Contact Person: Chase Myers, PE
   Entity: American Structurepoint
   Mailing Address: 810 Hesters Crossing Rd Suite 105
   City, State: Round Rock,TX Zip: 78681
   Telephone: 512-884-6257
   Email Address: cmyers@structurepoint.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: Adam Boatright
   Entity: Williamson County
   Mailing Address: 3151 S.E. Inner Loop
   City, State: Georgetown,TX Zip: 78626
   Telephone: 512-943-3374
   Email Address: adam.boatright@wilco.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: 9/2024

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: 9.73 (ac.)
Length: 2491 ft.
Width: varies from 120 ft. to 228 ft.
Impervious cover (IC): 2.87 (ac.)
Total of Pavement area 2.87 (ac.) ÷ R.O.W. area 9.73 (ac.) x 100 = 29.5% IC.

- ☒ CAD program was used to determine areas.
- ☒ Number of travel lanes: proposed: 2, existing: 2
- ☒ Typical widths of lanes: 12 (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): _____.

    ☒ 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: Dyeus Branch
    - ☐ 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	☐ Shared-use paths
☒ Related turn lanes	☐ Off-site improvements and staging areas
☒ Demolition plans	☐ Utility relocations
☐ Other improved areas: _____	

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

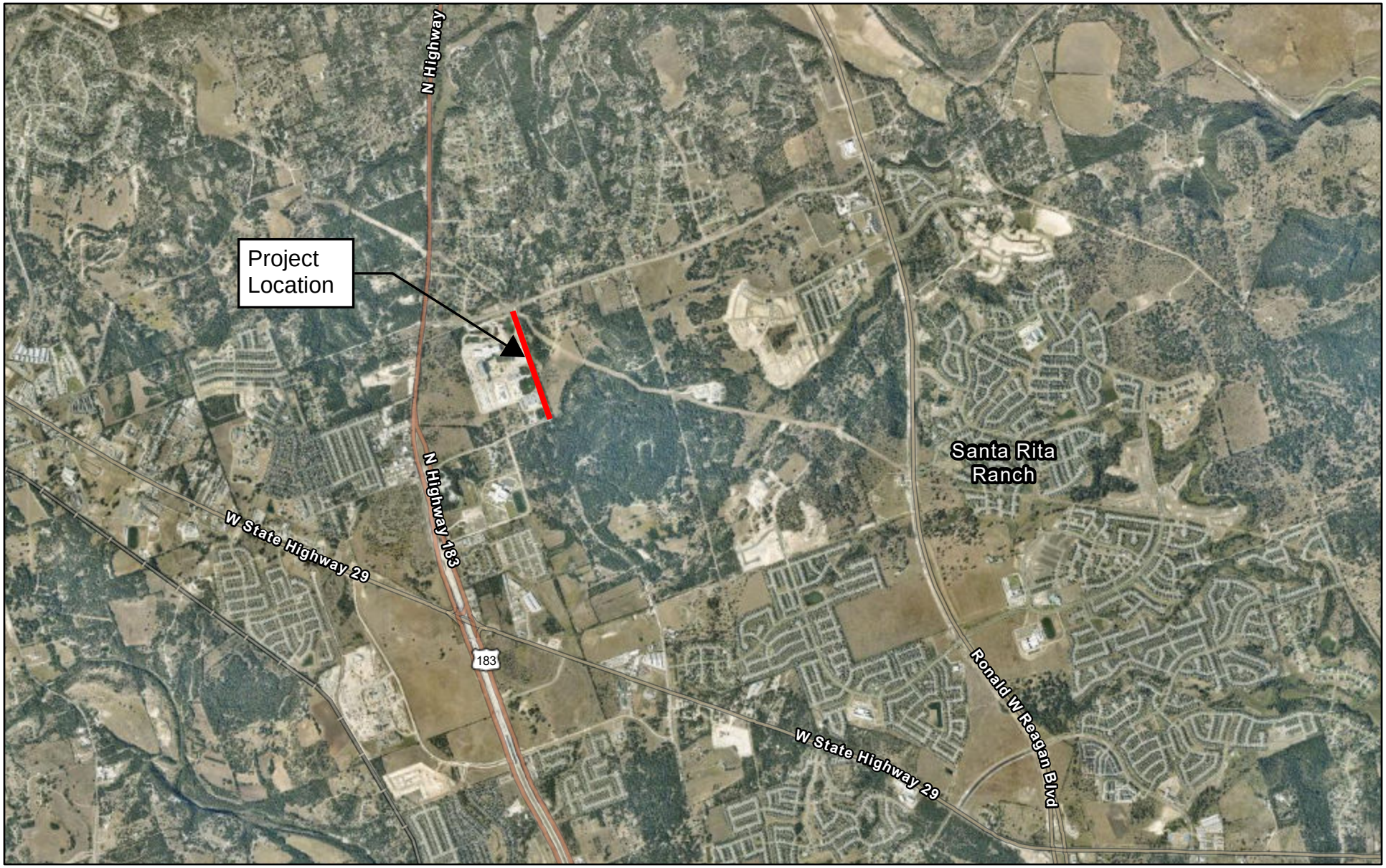
39. ☒ Submit one (1) original and one (1) copy of the application, plus one electronic copy as needed, for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ is required to distribute the additional copies to these jurisdictions.

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

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

    ☐ TxDOT roadway project.

Contributing Zone Plan Application
TCEQ-20872
Attachment A - Road Map



7/22/2025

1:48,589

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

World Imagery
Low Resolution 15m Imagery
High Resolution 60cm Imagery
High Resolution 30cm Imagery
Citations
9.6m Resolution Metadata

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Williamson County TX, Maxar

Attachment B: Edwards Aquifer Map

7/22/2025, 11:01:32 AM

1:12,474

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

- TCEQ_EDWARDS_OFFICIAL_MAPS
- 7.5 Minute Quad Grid
- TX Counties
- Edwards Aquifer Boundary central line
- Edwards Aquifer Boundary
- Edwards Aquifer Label

Layers

- Red: Band_1
- Green: Band_2
- Blue: Band_3

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS

Form 20872 – Contributing Zone Plan Application
Attachment C - Project Description

Project Background

Williamson County plans to construct a 2 inch overlay over the existing CR 258 that runs North to South and widen to provide turn lanes at intersections along the roadway as seen in Attachment A (Road Map) and in Attachment G (Construction Plans). The project consists of 2491 ft of proposed work on a roadway that runs parallel to US 183. The turn lanes to be constructed on this project are to provide additional deceleration and storage for traffic entering Legacy Ranch High/Middle School. The existing and proposed portions of roadway are in the Edwards Aquifer Contributing Zone, thus requiring storm water runoff from any added impervious cover, within the project limits, to be treated based on the Texas Commission on Environmental Quality (TCEQ) recommended methods.

Site Description

The existing CR 258 consists of one 12 foot lane in each direction with 6 foot shoulders with existing right of way varying between 80 to 90 feet. The proposed project will consist of one 12 foot lane in each direction with 6 foot shoulders to be overlayed by 2 inches with left and right turn lanes being added at the intersections. The proposed right of way varies between 120 to 228 feet. The CR 258 land cover type is wooded to the East of where the roadway will be overlayed. Total project area is 9.73 acres and existing impervious area is 2.44 acres and proposed impervious area will increase to 2.87 acres. Total disturbed area is 5.14 acres. Generally, offsite water flows to the project from the east. Offsite water will be routed along the east side of the proposed roadway, through proposed roadside ditches and proposed culverts.

The CR 258 Project begins at the intersection with the CR 258 Extension Project. The water quality design of the CR 258 Extension Project will not be impacted by CR 258 project.

Land Use and Site History

The changes from existing land use would be the proposed turn lane additional pavement. There are no areas to be demolished, only removal of some roadside features to where road widening is taking place.

Offsite Upgradient Stormwater

Offsite upgradient stormwater will flow to the project from the East and conveyed through proposed ditches and cross culverts to the outfall at Dyeus Branch.

Permanent Best Management Practices (BMPs)

Regarding water quality treatment, the proposed build-out will consist of approximately 2491 LF of proposed roadway, which fall within Edwards Aquifer Contributing Zone and will be treated for water quality. Proposed CR 258 storm water will be treated by vegetative filter strips prior to mixing with offsite water in roadside ditches or culverts.

Form 20872 – Contributing Zone Plan Application

Attachment D - Factors Affecting Water Quality

Pre-Construction

Under existing conditions and before construction commences, the major factors affecting water quality are the daily vehicle traffic which deposits carbon from tires, leaked petroleum from vehicles and presents the potential for release of hydrocarbons into the environment as a result of vehicular accidents. There also exists the potential for release of commercial and industrial substances, both liquid and soluble solids from passing commercial traffic or accidents involving commercial carriers.

During Construction

During construction the potential exists for the release of hydrocarbons from construction equipment, passing private and commercial vehicles and accidents resulting from decreased travel area and congestion created by excavation and construction. The action of excavating will also mobilize sediment that could be transported into local surface water bodies and into the shallow subsurface as recharge to the Edwards Aquifer in the area. The variety of sealants and paving materials that will be used also present potential negative impacts to the surface water quality.

To prevent impacting water quality, the temporary controls will include the placement of sediment control fence on the downstream perimeter of all disturbed areas to intercept sediment from the overland runoff of storm water. In addition, rock filter dams will be placed to also intercept sediment from both overland runoff and concentrated flow as the ditches are constructed. Stabilized construction exits will be utilized during construction to prevent sediment track out from vehicles leaving the construction areas. The location of the temporary sediment controls are shown on the Erosion Control Plans. Guidelines for the proper handling of these activities are specified in TCEQ Construction General Permit (TXR150000) and summarized as part of the attached SWPPP. Some other potential sources of water quality contamination during construction include concrete truck washouts, the handling and disposal of waste materials, and sanitary waste.

Post-Construction

The water quality impacts from the post-construction phase will involve the release of hydrocarbons from passing vehicular traffic. Additionally, the increased impervious cover associated with the CR 258 Extension will generate additional runoff with associated potential for increased entrained and dissolved contaminant loading.

Form 20872 – Contributing Zone Plan Application

Attachment E - BMPS for Upgradient (Offsite) Stormwater

Surface water runoff that originates upgradient of the CR 258 construction site will follow its normal drainage path and be conveyed to and through the project and outfall into the Dyeus Branch stream as it does for existing conditions. Offsite stormwater will be treated with temporary and permanent BMPs listed below.

TEMPORARY

- Silt Fence
- Rock Filter Dam
- Seeding

PERMANENT

- Seeding
- Soil Retention Blankets
- Vegetative Filter Strips

Attachment F – BMPs for On-Site Stormwater

On-site stormwater will be treated per the TCEQ Technical Guidance on Best Management Practices Manual (RG-348). In order to meet the water quality requirements established in the RG-348, the proposed roadway project must have an 80% total suspended solids (TSS) removal from the site. Vegetative Filter Strips are the proposed Best Management Practice's (BMPs) for the project in order to meet the TSS removal requirement. The onsite stormwater will be treated before mixing with offsite water.

Total area to be treated by the BMP's is 2.87 acres. See the TCEQ TSS Removal calculations spreadsheet and the Site Plan for BMP design details.

Form 20872 – Contributing Zone Plan Application

Attachment G–Construction Plans

See Attached.

WILLIAMSON COUNTY

CR 258

PRECINCT NUMBER 2

Williamson County Project No. 26IFB

ROADWAY	CLASSIFICATION	DESIGN SPEED
CR 258	URBAN MINOR ARTERIAL	45 MPH

ROADWAY	ADT (CURRENT)	ADT (DESIGN YEAR)
CR 258	924	12,700 (2039)

NET LENGTH OF ROADWAY = 2490.88 FT (0.472 MILES)
NET LENGTH OF BRIDGE = 0 FT (0 MILES)
NET LENGTH OF PROJECT = 2490.88 FT (0.472 MILES)

LIMITS: FROM CR 258 EXTENSION TO SEWARD JUNCTION NORTH LOOP

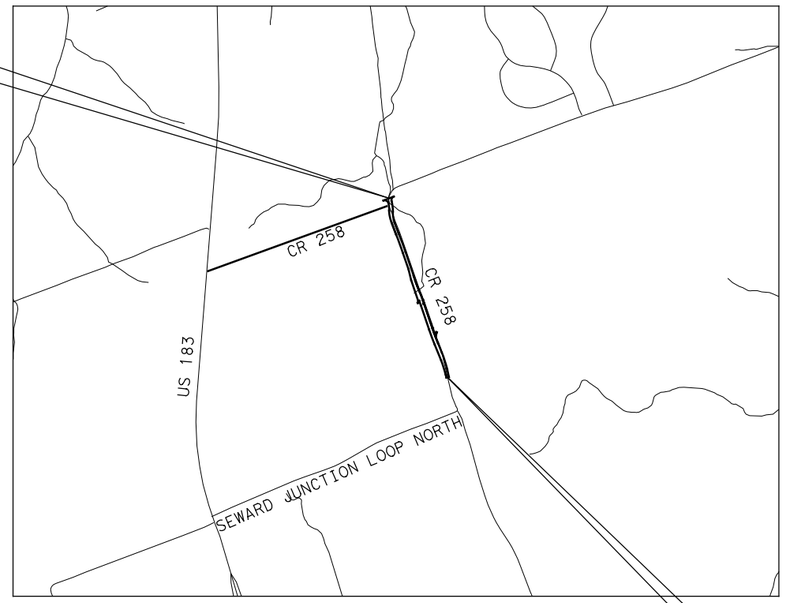
FOR THE CONSTRUCTION OF THE CR 258 TURN BAYS AND OVERLAY OF EXISTING ROAD, GRADING, DRAINAGE STRUCTURES, EROSION CONTROL, AND SIGNING AND STRIPING.

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	INDEX OF SHEETS

THE STANDARD DRAWINGS SHOWN IN THE INDEX OF SHEETS ABOVE AND IDENTIFIED HEREIN BY THE SYMBOL * HAVE BEEN SELECTED BY ME OR UNDER MY DIRECT SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

BEGIN PROJECT
STA. 100+09.12



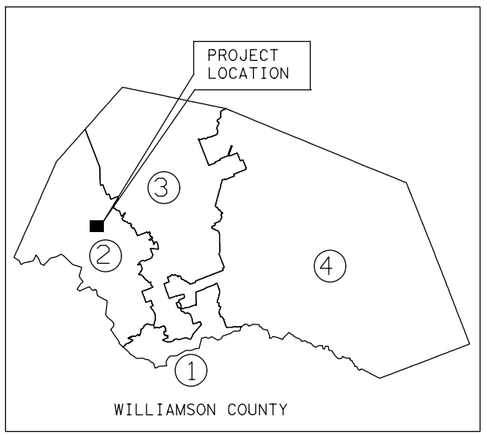
VICINITY MAP
N.T.S.

END PROJECT
STA. 125+00.00

N

EXCEPTIONS: N/A
EQUATIONS: N/A
RAILROAD CROSSINGS: N/A
WATERSHED: N/A
AREA OF DISTURBANCE: 5.14 ACRES

REQUIRED SIGNS SHALL BE PLACED IN ACCORDANCE WITH STANDARD SHEETS BC(1)-21 THRU BC(12)-21 AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.:



TxDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES ADOPTED ON SEPTEMBER 1, 2024 AND ALL APPLICABLE SPECIAL PROVISIONS AND SPECIAL SPECIFICATIONS AS INDICATED IN THE BID DOCUMENTS SHALL GOVERN ON THIS PROJECT.

AMERICAN STRUCTUREPOINT INC.

PREPARED BY:
AMERICAN STRUCTUREPOINT

CHASE MYERS
PROJECT MANAGER

DATE

STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED PROFESSIONAL ENGINEER

Chase W. Myers PE

10/22/2025

WILCO TEXAS

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APPROVED BY:
WILLIAMSON COUNTY

STEVEN SNELL
WILLIAMSON COUNTY JUDGE

DATE

APPROVED BY:
WILLIAMSON COUNTY

CYNTHIA LONG
WILLIAMSON COUNTY COMMISSIONER, PRECINCT 2

DATE

APPROVED BY:
HNTB CORPORATION

CHRISTEN ESCHBERGER, PE
ROAD BOND MANAGEMENT TEAM

DATE

CM	CK: EM	DW: EM	CK: EM	DW: EM

SHEET NUMBER	DESCRIPTION
	GENERAL
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2	INDEX OF SHEETS
3	PROJECT LAYOUT
4 - 5	TYPICAL SECTION
6A - 6P	GENERAL NOTES
7 - 8	SURVEY CONTROL SHEETS
9 - 11	SUMMARY OF QUANTITIES
	TRAFFIC CONTROL
12	TRAFFIC CONTROL PLAN SEQUENCE OF WORK (SOW)
13	TRAFFIC CONTROL PLAN TYPICAL SECTIONS
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33	WZ(STPM)-23***
34	TCP(1-2)-18***
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44	GF(31)-19*
45	GF(31)DAT-19*
46	GF(31)MS-19*
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50	DRAINAGE AREA MAP
51	ROADSIDE DITCH DRAINAGE AREA MAP
52	CULVERT HYDRAULIC DATA SHEET CC-5B EXISTING
53	CULVERT HYDRAULIC DATA SHEET CC-5B PROPOSED

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55	CULVERT HYDRAULIC DATA SHEET CC-5A PROPOSED
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75	TRAFFIC SIGNAL LAYOUT
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99	EC(2)-16*
100	TCEQ-CZ-19(AUS)*
	CROSS SECTIONS
XS1 - XS18	CROSS SECTIONS

STATE OF TEXAS
FRANK H. OLSHEFSKI
61292
LICENSED
PROFESSIONAL ENGINEER
10/3/2025

TRAFFIC CONTROL AND SIGNING AND PAVEMENT MARKING STANDARDS

THE STANDARDS SHEETS SPECIFICALLY IDENTIFIED WITH (***) ABOVE HAVE BEEN SELECTED BY MY, OR UNDER MY SUPERVISION AND ARE APPLICABLE TO THE PROJECT.

STATE OF TEXAS
JACOB WATTS
139198
LICENSED
PROFESSIONAL ENGINEER
10/3/2025

DRIANAGE STANDARDS

THE STANDARDS SHEETS SPECIFICALLY IDENTIFIED WITH (**) ABOVE HAVE BEEN SELECTED BY MY, OR UNDER MY SUPERVISION AND ARE APPLICABLE TO THE PROJECT.

STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED
PROFESSIONAL ENGINEER
10/3/2025

ROADWAY AND ENVIRONMENTAL STANDARDS

THE STANDARDS SHEETS SPECIFICALLY IDENTIFIED WITH (*) ABOVE HAVE BEEN SELECTED BY MY, OR UNDER MY SUPERVISION AND ARE APPLICABLE TO THE PROJECT.

STATE OF TEXAS
ERIK R. HANSEN
145965
LICENSED
PROFESSIONAL ENGINEER
10/3/2025

THE STANDARDS SHEETS SPECIFICALLY IDENTIFIED WITH (****) ABOVE HAVE BEEN SELECTED BY MY, OR UNDER MY SUPERVISION AND ARE APPLICABLE TO THE PROJECT.

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SUITE 105
ROUND ROCK, TX 78681
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www.structurepoint.com

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CR 258

INDEX OF SHEETS

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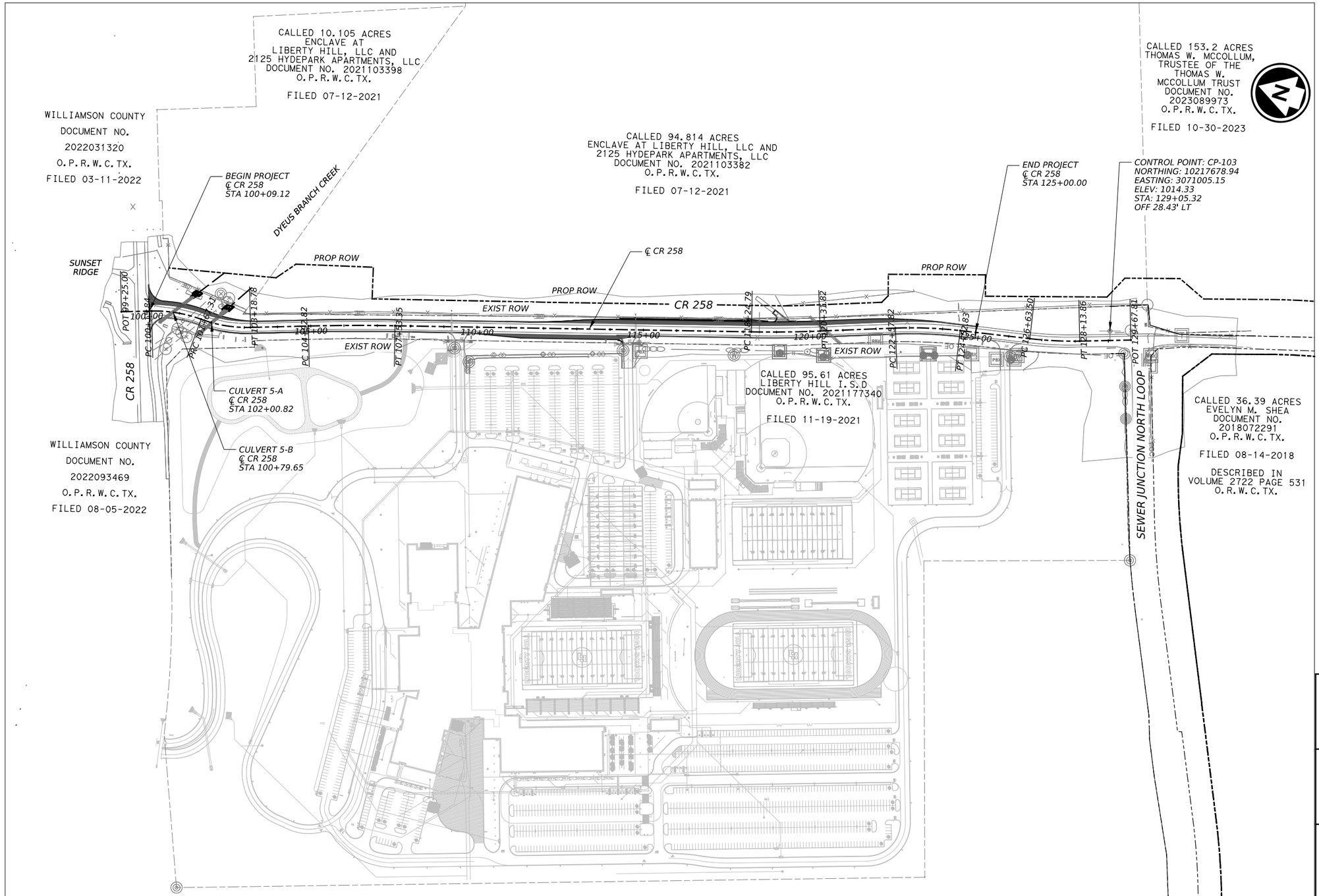

ALL PROJECT COORDINATES ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NAD 83 (93)/NAVD 88, GEOID MODEL 12B. ALL COORDINATES SHOWN HEREON ARE ADJUSTED TO SURFACE BY MULTIPLYING BY A COMBINED ADJUSTMENT FACTOR OF 1.00012 UNITS: U.S. SURVEY FEET.

STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED PROFESSIONAL ENGINEER

Chase W. Myers PE

9/29/2025

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PROJECT LAYOUT

SHEET 1 OF 1

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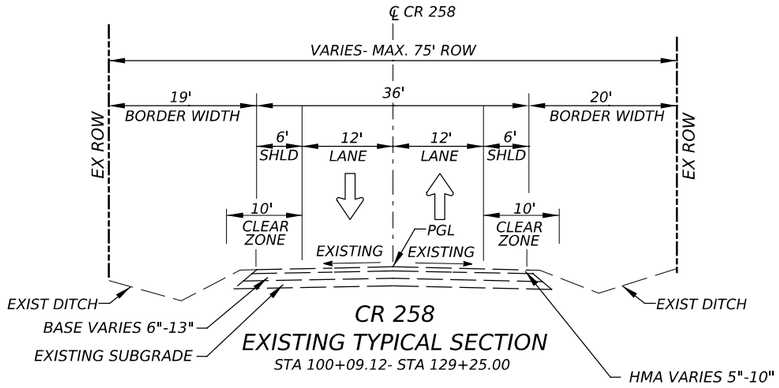
NOTES

1. 14" FLEXBASE TO BE PLACED IN 3 LIFTS
2. ***FOR INFORMATION ONLY



CR 258
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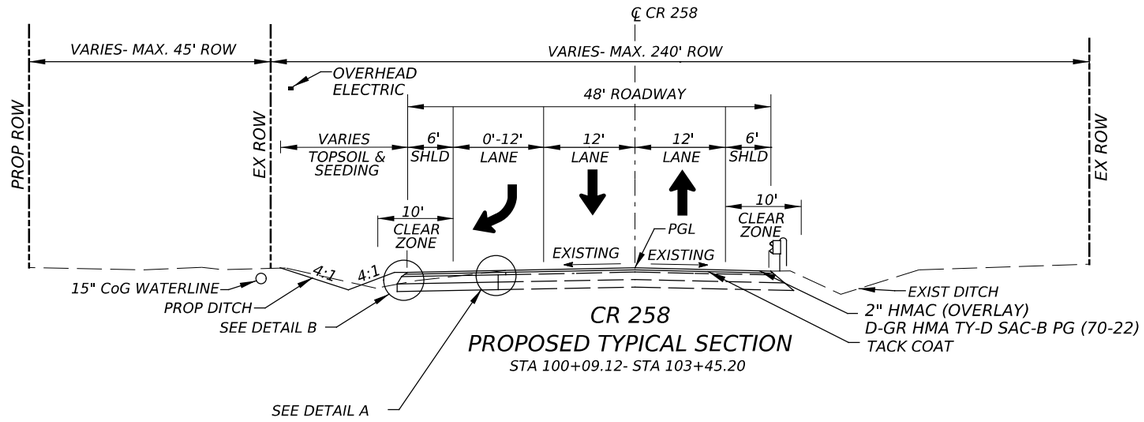
STA 100+09.12- STA 129+25.00



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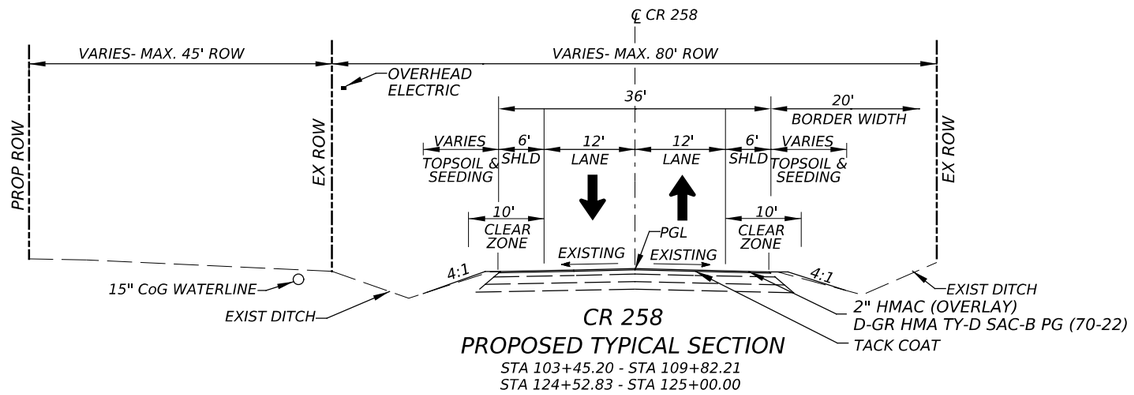
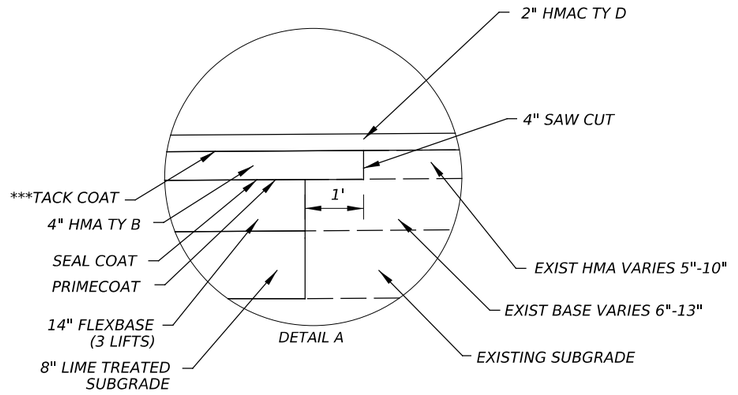
STA 100+09.12- STA 103+45.20



CR 258
PROPOSED TYPICAL SECTION
STA 103+45.20 - STA 109+82.21
STA 124+52.83 - STA 125+00.00



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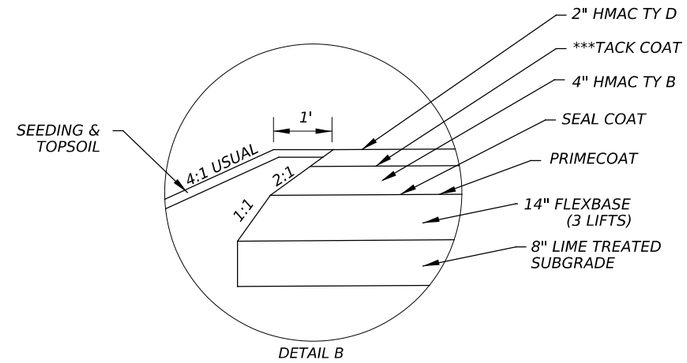

DETAIL B

STATE OF TEXAS
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94895
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PROFESSIONAL ENGINEER

9/29/2025

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TYPICAL SECTIONS

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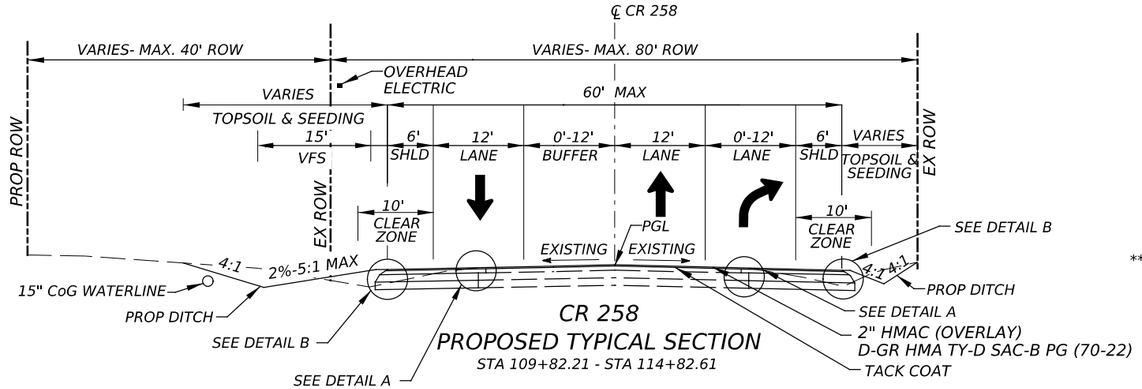
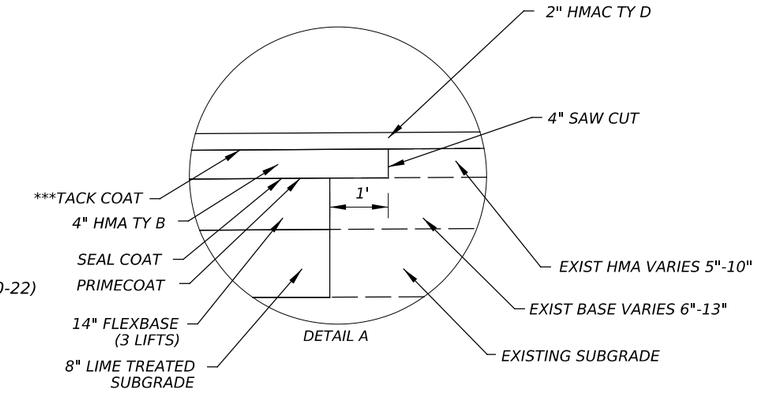
NOTES

1. 14" FLEXBASE TO BE PLACED IN 3 LIFTS
2. ***FOR INFORMATION ONLY



CR 258
PROPOSED TYPICAL SECTION
STA 109+82.21 - STA 114+82.61



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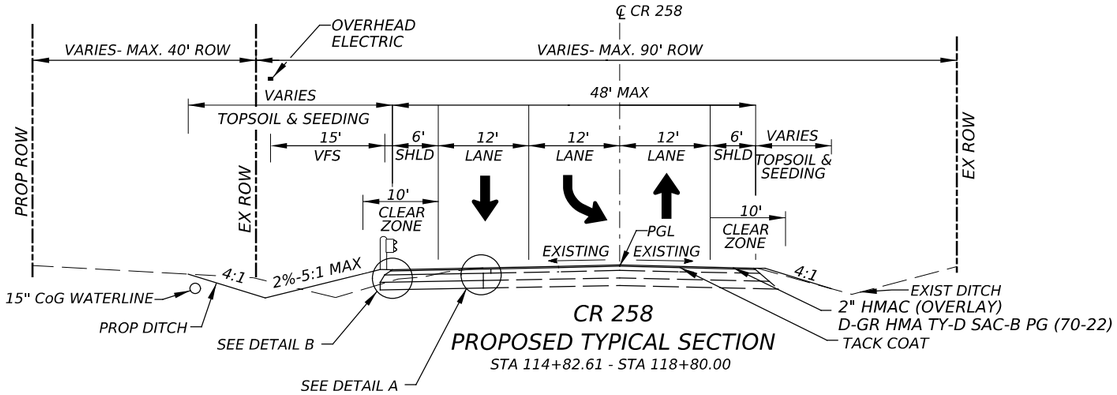
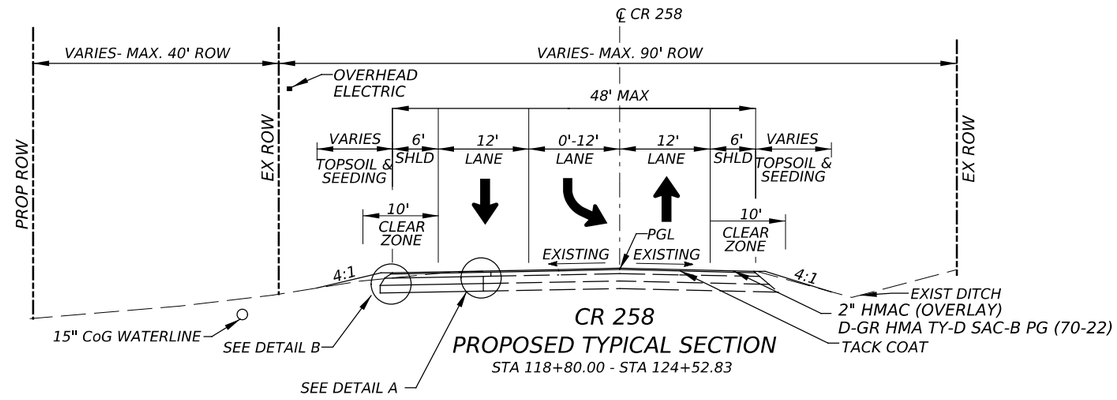


CR 258
PROPOSED TYPICAL SECTION
STA 114+82.61 - STA 118+80.00



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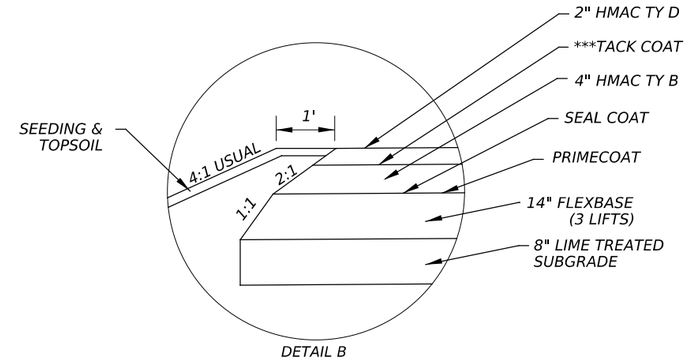
PROPOSED TYPICAL SECTION
STA 118+80.00 - STA 124+52.83



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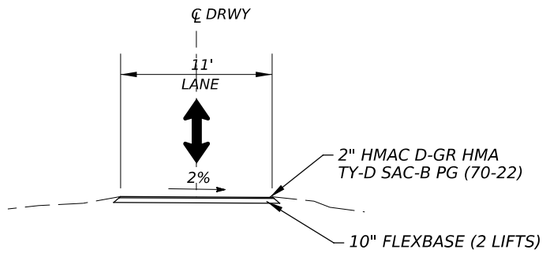

DRIVEWAY
PROPOSED TYPICAL SECTION

STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED PROFESSIONAL ENGINEER

9/29/2025

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TYPICAL SECTIONS

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DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
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GENERAL NOTES: May 20, 2025 Version

Basis of Estimate

Item	Description	**Rate	Unit
160	**Furnishing and Placing Topsoil (4")**	1 CY/9 SY	SY
164	**Seed for Erosion Control** (Item 164) (Temp) (Cool) (TY 4) (Item 164) (Perm) (Warm) (TY 5) (Item 164) (Temp) (Warm) (TY 10) (	 4840 SY/AC 4840 SY/AC 4840 SY/AC	 SY SY SY
166	**Fertilizer (13-13-13)**	1/8 LB/SY	TON
168	**Vegetative Watering** (Item 162)	20 GAL/SY	TGL
247	**FL BS (CMP IN PLC)** (TY A GR 4)	27 SY/CY	CY
260	**Lime** (Hydrated Lime (Slurry))	36 LB/SY @ 8"	TON
310	**Prime Coat (Multi Option)**	0.20 GAL/SY	GAL
316	**Surface Treatments** **Seal Coat:** Asphalt Aggregate (Ty PD,GR 5)	Total 0.32 GAL/SY 1 CY/150 SY	 GAL CY
***341	Tack Coat	.08 GAL/SY	GAL
341	**Dense-Graded Hot-Mix Asphalt** TY B PG 64-22 TY D SAC-B PG70-22	115.0 LB/SY/IN	TON

*** FOR INFORMATION ONLY

Williamson County
Project: CR 258

Sheet: 6

MODIFIED STANDARDS

N/A

GENERAL

References to manufacturer's trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project, and are approved.

If work is performed at Contractor's option, when inclement weather is impending, and the work is damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the work, if required.

The roadbed shall be free of organic material prior to placing any section of the pavement structure.

Equip all construction equipment used in roadway work with highly visible omnidirectional flashing warning lights.

Provide a smooth, clean saw-cut along the existing asphalt pavement structure, as directed. Consider subsidiary to the pertinent Items.

Supply litter barrels in enough numbers at locations as directed to control litter within the project. Consider subsidiary to pertinent Items.

Use a self-contained vacuum broom to sweep the roadway and keep it free of sediment as directed. The contractor will be responsible for any sweeping beyond the normal maintenance required to keep fugitive sediment off the roadway as directed by the Construction Observer. This work is subsidiary.

Protect all areas of the right of way, which are not included in the actual limits of the proposed construction areas, from disturbance. Restore any area disturbed because of the Contractor's operations to a condition as good as, or better than, before the beginning of work at no cost to the County.

Damage to existing pipes and SETs due to Contractor operations shall be repaired at Contractor's expense.

All locations used for storing construction equipment, materials, and stockpiles of any type, within the right of way, will be as directed. Use of right of way for these purposes will be restricted to those locations where driver sight distance to businesses and side street intersections is not obstructed and at other locations where an unsightly appearance will not exist. The Contractor will not have exclusive use of right of way but will cooperate in the use of the right of way with the city/county and various public utility companies as required.

Contractor must coordinate with Liberty Hill Independent School District for any work in the vicinity of Legacy Ranch school ROW.

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GENERAL NOTES

SHEET 1 OF 16

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
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	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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The Project Superintendent will be capable of speaking English and will be available at all times when work is being performed, including subcontractor work. The Superintendent will be available and on-call 24 hours a day.

Coordinate and obtain approval from the Construction Observer for all bridgework over existing roadways.

Measure all minimum vertical clearances for all structures (including, but not limited to, signal mast arms, span wires, and overhead sign bridge structures) within the limits of the project for all roadway alignments in all directions of travel. Coordinate with the Construction Observer to take these measurements and obtain prior to opening roadways to traffic unless otherwise approved. The Construction Observer will report all minimum vertical clearance information on State maintained roadways to the local bridge engineer at AUS_BRG_notify@txdot.gov.

Use materials from prequalified material producers list as shown on the Texas Department of Transportation (TxDOT) – Construction Division's (CST) materials producers list. Refer to TxDOT's website for list of pre-qualified manufacturers. No substitutions will be allowed for materials found on the list. Submit list of approved suppliers/materials from TxDOT website to show items are TxDOT approved. Submit this list with request for material approval.
When a precast or cast-in-place concrete element is included in the plans, a precast concrete alternate may be submitted in accordance with the latest version of the TxDOT details, PCA-SUP and PCA-SUB found at https://www.dot.state.tx.us/insdtdot/orgchart/cmd/cserve/standard/bridge-e.htm

When any abandoned well is encountered, cease construction operations in this area and notify the Construction Observer who will coordinate the proper plugging procedures. A water well driller licensed in the State of Texas must be used to plug a well.

Erosion control and stabilization measures must be initiated immediately in portions of the site where construction activities have temporarily ceased and will not resume for a period exceeding 14 calendar days. Track all exposed soil, stockpiles, and slopes. Tracking consists of operating a tracked vehicle or equipment up and down the slope, leaving track marks perpendicular to the direction of the slope. Re-track slopes and stockpiles after each rain event or every 14 days, whichever occurs first. This work is subsidiary.

Perform maintenance of vehicles or equipment at designated maintenance sites. Keep a spill kit on-site during fueling and maintenance. This work is subsidiary.

Maintain positive drainage for permanent and temporary work for the duration of the project. Be responsible for any items associated with the temporary or interim drainage and all related maintenance. This work is subsidiary.

Suspend all activities near any significant recharge features, such as sinkholes, caves, or any other subterranean openings that are discovered during construction or core sampling. Do not proceed until the designated Geologist or TCEQ representative is present to evaluate and approve remedial action.

Williamson County **Sheet: 6**
Project: CR 258

No above ground storage tanks will be allowed.
Project Specific Location (PSL) in Edwards Aquifer Recharge and Contributing Zone.
Obtain written approval from the Construction Observer for all on or off right of way PSLs not specifically addressed in the plans. Provide a signed sketch of the location 30 business days prior to use of the PSL. Include a list of materials, equipment and portable facilities that will be stored at the PSL. County will coordinate with the necessary agencies. Approval of the PSL is not guaranteed. Unapproved PSL is not a compensable impact.

Project Specific Location (PSL) in USACE Jurisdictional Area.
Do not initiate activities in a PSL associated with a U.S. Army Corps of Engineers (USACE) jurisdictional area that have not been previously evaluated by the USACE as part of the permit review of this project. Such activities include, but are not limited to, haul roads, equipment staging areas, borrow and disposal sites. Associated defined here means materials are delivered to or from the PSL. The jurisdictional area includes all waters of the U.S. including wetlands or associated wetlands affected by activities associated with this project. Special restrictions may be required for such work. Consult with the USACE regarding activities, including PSLs that have not been previously evaluated by the USACE. Provide the Construction Observer with a copy of all USACE coordination and approvals before initiating activities.

Proceed with activities in PSLs that do not affect a USACE jurisdictional area if self-determination has been made that the PSL is non-jurisdictional or proper clearances have been obtained in USACE jurisdictional areas or have been previously evaluated by the USACE as part of the permit review of this project. Document any determinations that PSL activities do not affect a USACE jurisdictional area. Maintain copies of PSL determinations for review by the County or any regulatory agency. The Contractor must document and coordinate with the USACE, if required, before any excavation material hauled from or embankment material hauled into a USACE jurisdictional area by either (1) or (2) below.

1. Restricted Use of Materials for the Previously Evaluated Permit Areas. When an area within the project limits has been evaluated by the USACE as part of the permit process for this project:
    a. suitable excavation of required material in the areas shown on the plans and cross sections as specified in Standard Specification Item 110, Excavation is used for permanent or temporary fill within a USACE jurisdictional area;
    b. suitable embankment from within the USACE jurisdictional area is used as fill within a USACE evaluated area;
    c. Unsuitable excavation or excess excavation that is disposed of at an approved location within a USACE evaluated area.
2. Contractor Materials from Areas Other than Previously Evaluated Areas. Provide the Construction Observer with a copy of all USACE coordination and approvals before initiating any activities in a jurisdictional area within the project limits that has not been evaluated by the USACE or for any off right of way locations used for the following, but not limited to, haul roads, equipment staging areas, borrow and disposal sites:
    a. Standard Specification Item 132, Embankment is used for temporary or permanent fill within a USACE jurisdictional area;
    b. Unsuitable excavation or excess excavation that is disposed of outside a USACE evaluated area.

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GENERAL NOTES

SHEET 2 OF 16

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
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	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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Work over or near Bodies of Water (Lakes, Rivers, Ponds, Creeks, Dry Waterways, etc.).
Keep on site a universal spill kit adequate for the body of water and the work being performed. Debris is not allowed to fall into the ordinary high-water level (OHWL). Debris that falls into the OHWL must be removed at the end of each workday. Debris that falls into the floodway must be removed at the end of each work week or prior to a rain event. Install and maintain traffic control devices to maintain a navigable corridor for water traffic, except during bridge demo and beam placement. When not in use and at the end of each work shift, all material and equipment must be stored more than 100 ft. away from the ordinary high-water mark. This work is subsidiary.

Obtain written approval from the Engineer for temporary fill or crossings not specifically addressed in the plans. Provide a signed sketch of the location 60 business days prior to begin work at the location. Approval of the work is not guaranteed. Unapproved work is not a compensable impact.

DSHS Asbestos and Demolition Notification.
Complete and provide the Texas Department of State Health Services (DSHS) notification form to the Construction Observer at least 30 calendar days prior to bridge or bridge class culvert removal or renovation. Notify the Construction Observer via email of any changes to the work start date.

Migratory Birds and Bats.
Migratory birds may be nesting within the project limits and concentrated on roadway structures such as bridges and culverts. Remove all old and unoccupied migratory bird nests from any structures, trees, etc. between September 16th and February 28th. Prevent migratory birds from re-nesting between March 1st and September 15th.

All methods used for the removal of unoccupied bird nests and the prevention of re-nesting must be submitted to the Construction Observer for approval thirty days prior to begin work.

In the event that any active nests are encountered on-site during construction, all construction activity within 25 feet radius of the nest must cease immediately. Contact the Construction Observer to determine how to proceed.

Bats may roost within the project limits under bridges, in culverts, in large hollow trees, in dead standing trees, and in trees with shaggy bark. Maternity colonies may occur from April 1st through August 31st. If bats are present, ensure bats are not harmed. Exclusion protocols for known colonies should be followed well in advance of commencement of construction activities. Exclusion measures by qualified individuals are used to relocate existing colonies, except from April 1st through August 31st when such measures may separate mothers and pups. Exclusion measures are also the means of preventing establishment of new colonies and re-establishment of relocated colonies.

No extension of time or compensation payment will be granted for a delay or suspension of work caused by migratory birds or bats. This work is subsidiary.

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Law Enforcement Personnel. If a law enforcement officer is required, patrol vehicles must be clearly marked to correspond with the officer's agency and equipped with appropriate lights to identify them as law enforcement. Preference will be given to Williamson County officers or officers in local jurisdiction. No payment will be made for law enforcement used for moving contractor equipment.

The sequence of work shown on the plans demonstrates a volume of work available in each phase of construction that will ensure the Contractor is not impacted by the unapproved environmental permits, outstanding inter-agency agreements, right-of-way (ROW), railroad permits and utility conflicts. Contractor is to work on simultaneous phases or deviate from the sequence of work shown on the plans, as directed by the Engineer to keep progressing the work and minimize impacts to the project schedule.

The existence and location of utilities, either underground or overhead, indicated on the plans are taken from the best records available and are approximate. It Is the Contractor's responsibility to locate all utilities (Private/Public and shown/not shown) prior to commencing work. The Contractor is fully responsible for any damages caused by the failure to locate, preserve, and protect these utilities.

Contractor will Coordinate with electric company (PEC) to establish power source and install service meter.

A Minimum of 48 hours (excluding weekends and holidays) prior to commencing construction activities relating to the CR 258 Project , Contractor will (i) confirm that the local One-Call has been notified of the construction activities. (Contractor or its agents may contact One-Call by dialing 811) and (ii) contact Enterprise Operations representatives Brancon Mobley at (979) 337-7870, so that Mr. Mobley or his designated representative can be present during any approved construction operations.

Contractor understands that moving heavy construction equipment across the Enterprise Gas lines and/or the Enterprise Gas line Easement can damage the Enterprise Gas line, thereby posing a threat to the environment and the safety of the of persons in the vicinity and the public. Contractor will provide Enterprise with the minimum of 72 hours' notice prior to the crossing of the Enterprise Gas lines with any heavy equipment. Contractor will place eight inch (8") thick timber matting over the Enterprise Gas line as determined by Enterprise Representative. NOTE: It is the responsibility of Contractor to confirm that eight inch (8") thick timber matting is constructed in a manner that will sustain proposed heavy equipment. No medium to large vibratory compaction equipment is allowed is allowed within a minimum ten feet (10') from the Enterprise Gas lines, only walk-behind vibratory rollers/compactors are allowed. Entity will maintain a minimum of two feet (2") or the existing cover over the top of the Enterprise Gas lines at locations where construction or maintenance activities will take place over the Enterprise Gas lines.

Contractor may place excavated material inside the Enterprise Gas line easement, but may not place such materials over the pipeline unless approved by Enterprise. No equipment will be allowed to work over the Enterprise Gas lines unless approved by Enterprise Representative. Enterprise requires hand excavation to be performed within eighteen-inches (18") plus half the

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GENERAL NOTES

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diameter of the Enterprise Gas lines; however, at no point should mechanical excavation perfumed less than two feet (2') from the Enterprise Gas line. All mechanical digging equipment must have the teeth removed or barred with a plate welded across the teeth, no detachable implements will be allowed. No excavation or removal of cover will be permitted within the Enterprise Gas lines right-of-way without prior approval.

ITEM 100 – PREPARING RIGHT OF WAY
Do not burn brush, unless otherwise approved.

Trim vegetation around signs and other obstructions. Consider subsidiary to pertinent Items.

Use hand methods or other means to remove objectionable material and obstructions, if doing work by mechanical methods is impractical. Consider subsidiary to the pertinent Items.

Tree removal is subsidiary to this item. The size and quantity of trees shown are approximate and are provided for information only, if provided in project plan set.

Prep ROW limits include the entire limits of construction from ROW line to ROW line and includes all easements for construction and drainage, unless otherwise noted on the plans. No additional payment will be made for clearing of other areas necessary to complete the Work.

ITEM 110 & 132 – EXCAVATION & EMBANKMENT
At no time will the retaining wall backfill material exceed the adjacent embankment operation by more than one embankment lift. At no time will the embankment adjacent to the retaining wall backfill exceed the wall backfill by any elevation.

In sections of Excavation (cut), the removal of existing asphalt and base (Item 105 Removing Treated and Untreated Base and Asphalt Pavement) is subsidiary to Item 110 Excavation.

In Embankment sections (fill), the removal of existing asphalt pavement shall be subsidiary to Item 132 Embankment. Existing base may remain in place under embankment.

Unsuitable material encountered in a cut or fill section will be considered waste. Replacement of unsuitable material will be paid for using excavation and embankment bid items. The Construction Observer will define unsuitable material. Material, which the Contractor might deem to be unsatisfactory or unsuitable, due to moisture content, will not be considered unsuitable material, unless otherwise approved.

Obtain approval of all compaction equipment prior to all backfilling and embankment operations.

ITEM 132 – EMBANKMENT
The underlying layer or existing subgrade must be prepared and inspected prior to placement of the embankment. Proof roll the pavement area according to Item 216 prior to placement of embankment or subsequent layers. Payment for proof rolling will be subsidiary to the various bid Items of the contract.

Correct unstable material (e.g., dry, wet, loose, etc.) to a depth of six (6) inches below existing grade. This work will be considered subsidiary to pertinent bid Items. Drying required deeper than six (6) inches below existing grade will be paid for in accordance with General Condition 6.03, "Extra Work." However, there will be no payment to correct failures in the subgrade areas that were constructed under this Contract.

ITEM 132 – EMBANKMENT TY B
Embankment shall be ordinary compaction Type B.

The Construction Observer must approve the embankment material before use on the project.

Furnish embankment material from off-site sources with a maximum PI of 25 that does not contain sulfate contents higher than 3000 ppm. Material provided shall contain rocks less than 8 inches in nominal dimension.

Embankment material with a PI higher than 25 shall not be used within 75 feet of abutments, for culvert backfill, or for backfill behind retaining walls. On-site material with a maximum PI of 35 may be used for embankment but must be placed at least 7 feet below finished grade. Do not use embankment with a PI greater than 35 unless approved by the Construction Observer.

Track ALL embankment slopes left idle for more than 14 days, within or at the end of the 14-day idle period, to prevent erosion. Tracking consists of operating a tracked vehicle or equipment up and down the slope, leaving track marks perpendicular to the direction of the slope. Re-track slopes after rain events, as directed. Consider tracking of slopes to prevent erosion as subsidiary to the pertinent Items.

Correct subgrade (e.g., unstable areas, soft spots, etc.) prior to dumping of Flex Base or HMACP. Consider subsidiary to the pertinent Items.

Scarify and re-compact existing base sections, which are not called out to be removed in fill sections, where bottom of the proposed pavement structure is higher than and over the top of the existing asphalt surface, in order to reduce the possibility of a slip plane.

When subgrade materials contain sulfates, as determined by Tex-145-E, use the following table for treatment of material placed under the pavement structure.

Sulfate Content (SC, ppm)	Action
SC < 3000 ppm	Apply calcium-based additive as specified by the pertinent item.
3000 ppm ≤ SC < 7000 ppm	Perform a minimum of 7 days of mellowing and continuous water curing, in accordance with TxDOT guidelines for soil treatment of sulfate-laden soils.
SC ≥ 7000 ppm	Do not treat with calcium-based additives. Undercut to the specified depth and fill with select material or implement fly ash treatment as specified in the general notes for Item 265.

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ITEM 132 – EMBANKMENT TY C

The Construction Observer must approve the embankment material before use on the project. Do not furnish shale clays. Furnish embankment with sulfate content less than 3000 ppm if treated with calcium-based chemicals or within 5 ft. of the finished subgrade elevation. Existing material from within the project limits that meets the Type C Substitute requirements may be substituted for Type C but is not allowed to substitute for C1, C2, or density-controlled material. Offsite material may be used to blend with onsite material to achieve the Type C requirements. The Type C substitute may also be existing material in accordance with Item 132 for rock embankment.

Type C				
Percent Retained		LL	PI	PI
3”		Max	Max	Min
0		55	20	6
Type C Substitute				
Percent Retained			PI	
3”	#4		Max	
Max 10	10-90		25	

Embankment Material Requirements – Item 132 [TY C)

TY C1 and C2

Description	Percent Retained					LL Max	PI Max	PI Min
	3”	1 3/4"	3/8"	#4	#40			
Embankment (Ordinary) (TY C1)	0	0-10	-	45-75	60-85	45	20	6
Embankment (Ordinary) (TY C2)	-	-	0	30-75	50-85	55	25	8

Embankment placed over the area of MSE backfill must meet the same backfill requirements for the type specified under Item 423 in the plans.

If abutment backfill is granular, provide weep holes in wingwalls.

Stockpile imported TY C embankment at an approved location until it meets all testing requirements. Offsite material may be used to blend with onsite material to achieve the Type C requirements. The stockpile must be between 500 CY and 5000 CY and must not exceed a height of 15 ft. It is the Contractor's responsibility to identify and notify the Construction Observer of the location of the borrow source to allow time for testing and approval to avoid delay to the project. Allow a minimum of five (5) working days for testing.

ITEM 160 – TOPSOIL

No sandy loam allowed. Obtain approval of the actual depth of the topsoil sources for both on-site and off-site sources.

ITEM 164 – SEEDING FOR EROSION CONTROL

Item 164-WC10 (Type 10 seed) is to be used in eastern areas of the county for Temporary Warm and Permanent applications where use of off-site herbicides limits establishment of seasonal seeding. The quantity shown in the plans is 1.5 times the total seeding area to provide quantity for the Temporary and Permanent Warm use of the grass. Item 164-WC04 (Type 4 seed) should also be included at 0.5 of the total seeding area to provide Temporary Cool season coverage

ITEM 169 – SOIL RETENTION BLANKETS

Type A blankets containing straw fibers are not allowed. Type B and D blankets shall be a spray type blanket.

ITEM 216 – PROOF ROLLING

Correct and perform “Proof Rolling” retest at the Contractor’s expense, to the satisfaction of the Construction Observer, when initial “Proof Rolling” yields a failing result. All Proof Rolling is subsidiary to pertinent items.

ITEM 247 – FLEXIBLE BASE

Furnish Type A material.

Furnish flexible base meeting Grade 4 requirements.

The layer thickness will be 4 in. to 6 in. unless shown on the plans. Placing in a single layer is allowed when total thickness of base is less than 8 in. When placed in multiple layers, compact the bottom and middle layers to at least 95% and 98% of the maximum dry density, respectively. When placed in a single layer or the final layer, compact to at least 100%. Maximum density shall not exceed 105%. Any density test result exceeding 105% requires additional sample testing and proctor.

Referee testing will be performed by a mutually agreed third party laboratory.

Table 1
Flexible Base Material Requirements

Property	Test Method	Grade 4
Master gradation sieve size		**% Retained**
2½ in.		0
1¾ in.		0
7/8 in.	Tex-110-E	10-35
3/8 in.		30-65
No. 4		45-75
No. 40		70-90
No. 200		87-95
Liquid Limit, % Max.[1]	Tex-104-E	35
Plasticity Index, Max.[1]	Tex-106-E	10
Wet ball mill, % Max.	Tex-116-E	40

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Property	Test Method	Grade 4
Wet ball mill, % Max. increase passing the No. 40 sieve		20
Min. compressive strength, psi	Tex-117-E	
Lateral pressure 0 psi		–
Lateral pressure 3 psi		90
Lateral pressure 15 psi		175

1. Determine plastic index in accordance with Tex-107-E (linear shrinkage) when liquid limit is unattainable as defined in Tex-104-E.

Correct subgrade (e.g., unstable areas, soft spots, etc.) prior to placing Flex Base. Consider subsidiary to the pertinent Items.

Complete all subgrade, ditches, slopes, and place all drainage structures to conform to required lines, grades, and cross-sections, as shown and directed, prior to the placement of Flex Base.

For Flex Base placed over the box culverts, do not use a Vibratory Roller to compact the material.

ITEM 260 – LIME TREATMENT (ROAD-MIXED)
Apply Commercial Lime Slurry as directed or as indicated in the plans and specifications. For embankment sections four feet thick or less, when select material is used, the existing material shall be lime treated prior to placing any embankment material. The compaction method shall be Density Control.
The Contractor is responsible for testing of materials encountered at subgrade to determine the target lime content and optimum moisture content in accordance with Tex-121-E. The test results shall be submitted to the Construction Observer for concurrence 10 days prior to application and processing of the lime into the subgrade. The Contractor may propose a mix design developed in accordance with Tex-121-E. The Engineer will use Tex-121-E to verify the Contractor's proposed mix design before acceptance. The Construction Observer will provide written confirmation of lime content prior to application. All testing should be performed according to the Guide Schedule for Sampling and Testing included in the Project Construction Manual. All testing should be performed according to the Guide Schedule for Sampling and Testing included in the Project Construction Manual. Additionally, field samples shall be tested in accordance with Tex-121-E Parts II and III and have a minimum pH of 12.4.

Measure the sulfate content, in accordance with Tex-145-E, for subgrade soil to be treated. Perform one test per 500 ft. measured along roadway centerline.

If the sulfate content is less than or equal to 3000 ppm, apply, mix, and mellow the subgrade soil with lime slurry in accordance with the standard specification. Hydrated lime or lime slurry can be used when the sulfate content is below 3000 ppm.

If the sulfate content is greater than 3000 ppm, but less than or equal to 7000 ppm, perform the following after applying and mixing lime slurry into the subgrade:

- Apply an additional 4 percentage points of moisture above optimum moisture

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- Mix in the additional moisture
- Allow the mixture to mellow at least 7 days

Use lime slurry when sulfate content is greater than 3000 ppm, but less than or equal to 7000 ppm.

If the sulfate content is greater than 7000 ppm, do not apply lime slurry. Undercut to the same depth schedule for lime treatment and replace with select material, in accordance with the plan notes for Item 110 and 132.

The Contractor is responsible for determining the roadway density and moisture content of completed sections in accordance with Tex-115-E. Compact the lime treated subgrade to at least 95% of the maximum density determine in accordance with Tex-121-E.

Before final acceptance, the Contractor shall perform tests to measure the treated depth of the lime treated material in accordance with Tex-140-E at the locations determined by the Engineer.
The Contractor must correct areas deficient by more than ½ in. in thickness or more than ½% in target lime content by adding lime as required, reshaping, recompacting, and refinishing at the Contractor's expense.

ITEM 310 & 316
Perform work during good weather, unless otherwise directed. If work is performed at Contractor's option, when inclement weather is impeding, and the work is damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the work, if required.

ITEM 310 – PRIME COAT
Apply blotter material to all driveways and intersections.

Use bituminous material grade MC-30.

Provide Construction Observer with current Distributor Certification confirming calibration of asphalt measurement equipment.

Distribute prime coat smoothly and evenly at the rate of 0.2 gallons per square yard.

Apply Prime to finished flex base surface at the rate shown in the plans. Hot mix can be applied to the primed surface of flex base after the prime has penetrated and cured for a minimum of 36 hours depending on weather conditions or as approved by the Construction Observer. Provide the Construction Observer with a copy of the asphalt deliver ticket prior to application.

Apply blotter material to all driveways and intersections. This work is subsidiary. When Multi Option is allowed, provide MC 30, EC 30, or AE-P.

ITEM 316 – SEAL COAT
Use ionically compatible asphalt to precoated aggregate, which is compatible with the asphalt specified for each specific Surface Treatment.

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Do not apply asphalt within 1½ hours of sunset, or later, unless otherwise directed.

Grade 4 and 5 Type D or Type E is allowed as AGGR (MULTI OPTION) for an underseal.

Ensure that all underseal surface treatment operations are covered by HMACP before exposing to traffic, including construction traffic.

Apply both the first and second course of the two-course surface treatment on the same day.

Use paper or other approved material at the beginning and end of each shot so that the transverse joint is straight and prevents overlap of asphalt shots.

Any areas with excessive asphalt or aggregate will be removed.

The Contractor is required to provide recommendations to the Construction Observer on adjusting aggregate and asphalt rates, when the road conditions, material properties or construction methods change.

Furnish medium pneumatic-tire rollers in accordance with Item 210, "Rolling." Roll before opening to traffic.

Surface all transitions, tapers, climbing lanes and intersections to the limits as directed.

Keep all traffic, including construction traffic, off freshly placed surface treatment, as directed.

Provide Construction Observer with current Distributer Certification confirming calibration of asphalt measurement equipment.

Provide Construction Observer with a copy of the shipping ticket for the asphalt prior to application. Contractor must sample asphalt, in accordance with the applicable item. Label the sample can with date and project numbers. Samples must be stored where they are readily available to the County representative at the plant. The Contractor will be responsible for supplying storage for all samples until the project achieves substantial completion or otherwise directed.

Removal and proper disposal off the ROW of audible/profile markings, reflectorized markings, and raised markers is subsidiary.

ITEMS 341 (HMACP Testing)
[Hot Mix Asphaltic Concrete (HMAC) Core Holes]
Refill and compact all HMAC core holes to the same elevation as the adjacent roadway. Use hot mix of the type being used in the project to fill core holes. As an alternative a high-performance cold patching mix such as Rapid Cure Patching Mix meeting the requirements of DMS-9203, or Medium Cure Patching mix made with SCM meeting requirements of DMS-9202. Consider this work subsidiary to the pertinent Items.

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Mill a transverse butt joint to transition from the new ACP to the existing surface tie-in. Make the transition a minimum of 50 feet H: 1-inch V slope ratio of newly placed ACP. Make the temporary joint, at the tie-in, a minimum of 10 feet longitudinally and covering the entire width. Saw-cut existing pavement as directed. Prior to milling, core the existing pavement to determine its thickness. Do not proceed with milling until directed. Consider this work subsidiary to the pertinent Items.

ITEMS 341 – DENSE-GRADED HOT-MIX ASPHALT
Contractor to submit for approval a current mix design (less than 6 months old) to the Construction Observer that meets the following requirements prior to use on the project.

PPA and REOBS are not allowed.

Lime or an approved anti-stripping agent must be used when crushed gravel is utilized to meet a SAC "A" requirement.

Aggregates used on shoulders and ramps are required to meet SAC requirements.

Target laboratory molded density is 97% for all mixtures for Texas Gyratory Compactor (TGC) mixture designs.

When using Superpave Gyratory Compactor (SGC) to design mixtures, submit the SGC mix design to the Construction Observer for approval.

When using substitute binders, mold specimens for mix design and production at the temperature required for the substitute binder used to produce the HMA.

All mixtures must meet the Hamburg requirement as stated in the table below.

High-Temperature Binder Grade	Test Method	Hamburg Wheel Test Requirements [1]		
		Minimum # of Passes	Maximum Rut Depth (mm)[2]	Minimum Rut Depth (mm)[2,3]
PG 64 or lower	Tex-242-F	7,000	12.5	3
PG 70	Tex-242-F	15,000	12.5	3
PG 76 or higher	Tex-242-F	20,000	12.5	3

1. The Construction Observer may accept Hamburg Wheel test results for production and placement if no more than 1 of the 5 most recent tests is below the specified number of passes and the failing test is no more than 2,000 passes below the specified number of passes.
2. Rut depth tested @ 122°F
3. Unless approved otherwise.

Remove and dispose of off the ROW the audible/profile markings, reflectorized markings, and raised markers.

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Install a butt joint with 24 in. H: 1 in. V transition from the new ACP to a driveway, pullout, or intersection. Saw cut the existing pavement at the butt joints. This work is subsidiary.

Use a device to create a maximum 3H:1V notched wedge joint on all longitudinal joints of 2 in. or greater. This work is subsidiary.

Prior to milling, core the existing pavement to verify thickness. This work is subsidiary.

Ensure placement sequence to avoid excess distance of longitudinal joint lap back not to exceed one day's production rates.

Submit any proposed adjustments or changes to a JMF before production of the new JMF.

Tack every layer. Do not dilute tack coat. Apply it evenly through a distributor spray bar. Provide a minimum transition of 10' for intersections, 10' for commercial driveways, and 6' for residential driveways unless otherwise shown on the plans.

Irregularities will require the replacement of a full lane width using an asphalt paver. Replace the entire sublot if the irregularities are greater than 40% of the sublot area.

Lime or an approved anti-stripping agent must be used when crushed gravel is utilized to meet a SAC "A" requirement.

Use of RAS is not allowed. When using RAP, include the management methods of processing, stockpiling, and testing of RAP in the QCP submitted for the project. Blending of RAP in one feeder bin or in a stockpile is not permitted.

RAP is not allowed for any surface mix applications.

No more than 20% RAP by weight of aggregate is allowed in any mix application.

Complete all roadways before final surface course placement, unless directed otherwise.

Ensure placement sequence to avoid excess distance of longitudinal joint lapback not to exceed one day's production rates.

The Contractor shall utilize a material transfer device per item 320 and a grade reference (such as a ski) for overlay operations. Consider subsidiary to the pertinent items.

Use a device to create a maximum 3H: 1V notched wedge joint on all hot mix joints of two (2) inches or greater. Consider subsidiary to the pertinent Items.

Taper transverse faces at ends of passes as directed.

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Make transverse tapers on each end of pass using a minimum slope rate of 60H:1V. Tapers shall be removed directly before placement of final lift. Consider subsidiary to the pertinent Items.

Provide a minimum transition for all side streets of at least 12 ft. and driveways of at least six (6) feet, unless otherwise shown on the plans or otherwise approved/directed.

Tack every intermediate layer, unless otherwise directed. Do not dilute tack coat. Apply it evenly through a distributor spray bar. Provide a minimum transition of 10' for intersections, 10' for commercial driveways, and 6' for residential driveways unless otherwise shown on the plans. Submit any proposed adjustments or changes to a job mix formula to the Construction Observer before production of the new job mix formula.

For Mixture Design Verification, provide the Construction Observer with two 5-gallon buckets of each aggregate stockpile to be used on the project with three gallons of each PG binder from the plant to be used on the project. Sufficient quantities of any other additives that will be used in the HMA mixture shall also be provided.

Prior to allowing production of the trial batch, the Construction Observer will use the materials provided by the Contractor to perform the following tests to verify the HMA mixture.

1. Indirect Tensile Test in accordance with Tex-266-F
2. HAMBURG Wheel Test in accordance with Tex-242-F
3. Overlay Test in accordance with Tex-248-F
4. Cantabro Test in accordance with Tex-245-F

For mixtures designed with a Texas Gyratory Compactor (TGC), the Construction Observer may require that the target laboratory molded density be raised to no more than 97.5% or may lower the design number of gyrations to no less than 35 for mixtures designed with an SGC if any of the following conditions exist:

1. The Indirect Tensile Test results in a value greater than 200 PSI
2. The Hamburg Wheel Test results in a value less than 3.0 mm
3. The Overlay Test results in a value less than 100 cycles
4. The Cantabro Test results in a value of more than 20% loss

In lieu of or in addition to evaluating the mixture design prior to allowing a trial batch to be produced, the Construction Observer may also evaluate the mixture produced during the trial batch for compliance with the four tests listed above.

Submit thermal and segregation profiles as well as longitudinal joint densities on electronic forms provided by County to the Construction Observer.

When surface irregularities, as defined in Article 3076.4.9.3.3.5, "Irregularities," are detected or measured, the Contractor must take immediate corrective action defined as the removal and replacement of a full lane width of the defective area using a paver to place new mix, unless otherwise directed. Replace the entire sublot if the irregularities are greater than 40% of the sublot area.

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CR 258

GENERAL NOTES

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Referee testing will be performed by a mutually agreed third party laboratory

ITEM 354 – PLANING AND TEXTURING PAVEMENT
Milling machines must be able to meet the longitudinal grade and cross slope required.

Remove the loose material from the roadway before opening to traffic.

Complete seal coat or overlay of planed surface within 24 hours of planing operation.

A single cut will be permitted if at most a 1¼-inch vertical offset is created against adjacent lanes when opened to traffic at the end of a work period.

Accomplish the 2-inch Planed Butt Joint only when there is at least 4 inches of existing thickness of ACP. Consider the determination of existing thickness of ACP as subsidiary to the various Items.

Make Transverse Tapers on each end of each pass using a minimum slope rate of 50 feet H to 1-inch V.

Plane the designated areas and depths specified in the plans, including bridge decks, shoulders, and ramps, as required. Mill the pavement producing a final pavement surface with transverse pattern of 0.2 inches center to center of each strike area with difference no greater than 1/16 inch between the ridge and valley (RVD) measurement of the final milled surface. Construct a uniform finish free from gouges and ridges that does not vary more than 1/8 inch in width of the cut.

Use planning machine that is power-driven, self-propelled micro-milling equipment possessing the size and shape to allow traffic safe passage through areas adjacent to the work.

Also, ensure the micro milling equipment will be:

- Equipped with a cutting mandrel with carbide or equivalent tipped cutting teeth designed for micro-milling bituminous pavement full lane width to close tolerances
- Capable of removing pavement to an accuracy of 1/16 inch (1.6 mm) with a maximum tool spacing of 5/8 inches
- Equipped with grade and slope controls operating from a string line or ski and based on mechanical or sonic operation
- Furnished with a lighting system for night work, as necessary
- Provided with conveyors capable of side, rear, or front loading to transfer the milled material from the roadway to a truck

Prior to commencement of the work, construct a test section that is 1000 ft. in length with a uniformly textured surface and cross section as approved by the Construction Observer to demonstrate compliance with the transverse pattern, cross slope, and RVD measurement requirements. Stop milling operation and submit a written plan of action detailing proposed steps to improve operations if any of these requirements are exceeded in the test section. If approved by the Construction Observer, construct another 1000 ft. test section in a different area than the initial

section using the approved corrective action. The second test section is subject to the same requirements as those required in the initial test section. Continual micro-milling is prohibited until an acceptable test section is obtained.

Ensure micro-milling methods produce a uniform finished surface and maintain a constant cross slope between pavement edges in each lane. Provide positive drainage to prevent water accumulation on the micro-milled pavement, as shown on the Plans or directed by the Construction Observer. The cross slope must be uniform with no depressions or slope misalignments greater than ¼ per 12 ft. exit when the slope is tested with a straightedge placed perpendicular to the center line.

Bevel back the longitudinal vertical edges greater than two (2) inches (50 mm) produced by the removal process and left exposed to traffic. Bevel the vertical edges back at least three (3) inches for each two (2) inches (75 mm for each 50 mm) of material removed. Use an attached mold board or other approved method.

Taper the transverse edges 10 ft. (3 m) to avoid creating a traffic hazard and to produce a smooth surface when removing material at ramp areas and ends of milled sections.

Protect with a temporary asphaltic concrete tie-in (paper joint) vertical edges at other areas such as bridge approach slabs, drainage structures, and utility appurtenances greater than ½ in areas left open to transversing vehicles. Place the temporary tie-in at taper rate of at least 6 to 1 horizontal to vertical distance. Do not micro-mill bridge joints. Damage due to micro-milling will be repaired at the Contractor's expense and to the satisfaction of the Construction Observer.

Remove dust, residue, and loose milled material from the micro-milled surface. Do not allow traffic on the milled surface and do not place asphaltic concrete on the milled surface until removal is complete.

Measure the milled surface with a 10-foot straightedge at locations determined by the Construction Observer for quality acceptance and acceptance of test section of milling operation. Remove and replace any areas

ITEM 360 – CONCRETE PAVEMENT
Provide Class K concrete as necessary to follow work sequence, comply with closure restrictions, and meet requirements for opening to traffic. This work is subsidiary.

Tining will be longitudinal.

After preparation of subgrade and base courses for CRCP, saw cut and remove 2 in. of existing CRCP prior to widening CRCP to create a clean vertical joint for widening. Unless otherwise specified on the plans, the work performed, materials furnished, equipment, labor, tools, and incidentals will not be paid for directly but will be subsidiary.

The use of transverse bridge screed/slope paver is not permitted.

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Provide approved connectors to existing pavement. Consider subsidiary to the pertinent Items.

ITEM 416 – DRILLED SHAFT FOUNDATIONS
Stake all Foundations, for approval, before beginning drilling operations, as directed. Examples of types of foundations are Bridge Supports, Traffic Signal Pole Foundation, Roadway Illumination Assembly Foundations, Sign Support Locations, etc.

Calculate the vertical signal head clearance before placing any Traffic Signal Pole Foundation.

Obtain approval before placing additional exposed Traffic Pole Foundation.

Set anchor bolts for Mast-Arm Signal Poles and Strain Poles. Set two in tension and two in compression. Obtain approval of anchor bolt placement as directed before placing concrete.

Field cut holes for anchor bolts only as directed.

Class "C" concrete will be required for drilled shaft foundations involving overhead sign structures.

Remove spoils, daily, out of flood plain, or as directed.

ITEM 432 – RIPRAP
Fibers for Concrete as defined in DMS-4550 will not be allowed.

Make five (5) inches thick unless otherwise noted or directed.
Make all mow strip riprap four (4) inches, unless otherwise directed.

Saw-cut existing riprap then epoxy 12 in. long No. 3 or No. 4 bars 6 in. deep at a maximum spacing of 18 in. in each direction to tie new riprap to existing riprap. This work is subsidiary.
Provide Type A Grade 3, 4 or 5 flexible base for cement stabilized riprap. Compressive strengths for flexible base are waived.

Additional riprap may be required, as determined by the Construction Observer, near the end of project completion, due to unanticipated erosion locations. Any additional, approved riprap will be paid under this Item.

Consider saw cutting of riprap as subsidiary.

Provide Class B Concrete for riprap.

Provide Class II Concrete for pneumatically placed concrete.

Remove all loose Formwork and other Materials from the Floodplain or drainage areas, daily, which could float off in a Storm Water Event, as directed.

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ITEM 464 – REINFORCED CONCRETE PIPE
No cross pipes or parallel pipes that are less than 24 inches, inside diameter, in Fill/Wall sections.

ITEM 467 – SAFETY END TREATMENT
Cut pipe ends, in the field, to match roadway side slopes, or as directed. Apply asphalt base aluminum paint to the cut ends.

All Type II SETs shall have mitered pipe ends and cast-in-place riprap aprons.

Use Class **C** concrete.

Remove all loose Formwork and other Materials from the Floodplain or drainage areas, daily, which could float off in a Storm Water Event, as directed.

ITEM 496 – REMOVING STRUCTURES
The Contractor's attention is directed to the fact that migratory birds tend to concentrate nesting on transportation structures. If migratory bird nests are present within the project limits, remove all old migratory bird nests only between September 16th and February 28th from any structure where work will be done. In addition, be prepared to prevent migratory birds from building nests between March 1st and September 15th.

All methods used for the removal of old bird nests and the prevention of re-nesting must be approved by the Construction Observer, well in advance of the planned use.

In the event that any active nest of migratory birds is encountered on-site during project construction, all construction activity, within the immediate vicinity of the nest, will cease immediately. Contact the Construction Observer to determine how to proceed.

Include a Traffic Control Plan (TCP) for any Structure(s) Removal, as directed.

The structure or structures to be removed may have surface coatings, which may contain hazardous materials. Provide for the safety and health of employees and abide by all OSHA Standards and Regulations as well as those set by Texas Department of State Health Services (DSHS).

The structural steel to be removed may contain lead paint. Submit a proposed demolition plan for approval by the Construction Observer at least 60 days prior to the desired demolition date. Demolition plan should limit disturbing where lead paint is located when possible. If flame cutting methods will be used and lead paint cannot be avoided, the County will arrange to have the paint removed at the indicated flame-cutting locations. The paint will be removed by a separate contractor for a width of four (4) inches. No paint removal will be required if other demolition methods are employed.

ITEM 502 – BARRICADES, SIGNS, AND TRAFFIC HANDLING

Unless otherwise approved, one (1) lane in each direction shall remain open at all times.

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No work will be allowed between 8:00 PM to 5:00 AM without approval from Construction Observer. Nighttime closures will only be allowed with approval from Construction Observer and only from 8:00 PM to 5:00 AM, unless otherwise shown on the plans.

No Daytime Lane Closures will be allowed, unless otherwise shown on the plans or as directed by the GEC.

The GEC is the authority to approve additional lane closures, prior to any work.

Maintain a written record of documentation of "The Additional Approved Lane Closures."

Submit and secure concurrence, prior to the publication of any notices or placement of any traffic control devices for implementation of the traffic control plan, hereinafter called a Lane Closure Notice (LCN).

Present to GEC, an LCN for traffic control, which is proposed for implementation, a minimum of four (4) full working days preceding any proposed implementation date. Indicate the estimated date, time, duration, and location for the proposed work. As a part of the LCN submit a written description of the lane closure(s) depicting the proposed traffic control devices used, based on the appropriate plan sheet, TxDOT or Texas Manual on Uniform Traffic Control Devices (TMUTCD) standards, and an operational description of the work to be performed.

Present to GEC, LCN's proposed to detour traffic, a minimum of seven (7*)* full calendar days preceding any proposed implementation date.

Present to GEC, LCN's proposed for night work, a minimum of seven (7) full calendar days preceding any proposed implementation date.

Receive concurrence prior to LCN implementation.

Submit a cancellation of any lane closures, no later than noon on the day preceding the proposed work.

Coordinate lane closures with adjacent projects.

Take immediate action to modify Closures / Traffic Control, if at any time backup (roadway queuing) becomes unreasonable (greater than 20 minutes). Have in place, a contingency plan of how this will occur.

Utilize Shadow Vehicle with Truck Mounted Attenuator for setup and removal of each lane closure.

Do not set up any Lane Closure / TCP when the pavement is wet prior to the "setup," unless otherwise directed. Revise Traffic Control, when inclement weather is imminent, as directed.

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Incorporate and maintain a 3H: 1V safety wedge into the proposed construction for any roadway edge of 2 inches or greater adjacent to a roadway under traffic.

Within the limits of the project, provide standard barricades, warning signs, delineators, lights, 28-inch cones, and flaggers in enough numbers and combinations, as directed.

For lanes use night-work and same-night remove-and-replace operations.

Temporarily relocate mailbox assemblies as shown on the plans or as directed. Maintain access to all mailboxes throughout the duration of the project. Maintenance of existing mailboxes is subsidiary to Item 502.

No closures will be allowed on the weekends, which include the following holidays: January 1st, the last Monday in May, July 4th, the first Monday in September, the fourth Thursday in November, December 25th, Easter weekend, and the working day prior to or immediately after any of the aforementioned holidays. Unless otherwise approved, no closures will be allowed on the weekends of special events that could be impacted by the construction. Ensure all equipment, vehicles, workers, etc., associated with these closures are off the roadways and all lanes re-opened, at least, by noon of the Friday before these holidays and special events.

Maintain a minimum of one (1) through lane(s) in each direction, during the daylight hours, as directed.

Provide uniformed law enforcement personnel with officially marked patrol vehicles as directed.

Business access signs will be paid using safety contingency. Install as directed by the Engineer. Company logos will not be permitted on the signs. Maintenance of the signs will be subsidiary to Item 502.

ITEM 503 – PORTABLE CHANGEABLE MESSAGE SIGN
Place PCMS 07 calendar days prior to begin work stating what is to happen and dates, for example as follows. "Road Closure, Use Detour, To Begin xx/xx/2025".

Place PCMS at time of LCN request. Place the PCMS at the expected end of queue caused by the closure. When the closure is active, revise the message to reflect the actual condition during the closure, such as "RIGHT LN CLOSED XXX FT."

ITEM 505 – TRUCK MOUNTED ATTENUATOR AND TRAILER ATTENUATOR
The TMA/TA used for installation/removal of traffic control for a work area will be subsidiary to the TMA/TA used to perform the work.

The contractor will be responsible for determining if one or more operations will be ongoing at the same time to determine the total number of TMA/TA required for the work. TMA/TAs paid by the day is full compensation for all worksite locations during an entire day.
TMA/TAs used to protect damaged attenuators will be paid by the day using the force account item for the repair.

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ITEM 506 - TEMPORARY EROSION, SEDIMENTATION, AND ENV CONTROLS
If SW3P plan sheets are not provided, place the control measures as directed.
Install, maintain, remove control measures in areas of the right of way utilized by the Contractor that are outside the limits of disturbance required for construction. Permanently stabilize the area. This work is subsidiary.

Erosion control measures must be initiated immediately in areas where construction activities have ceased and will not resume for a period exceeding 14 calendar days. Vertical track all exposed soil, stockpiles, and slopes. Re-track after each rain event or every 14 days, whichever occurs first. Sheep foot roller is allowed for vertical tracking. This work is subsidiary.

For routine or anticipated dewatering, notify the engineer 72 hours before beginning dewatering. Notify the Engineer within 1 hour of beginning emergency or recent rainfall dewatering. Water located within the ROW that will leave the ROW must appear free of pollutants such as suspended sediment, oil sheen, floating solids, etc. Dirty water must pass thru adequate BMPs prior to leaving the ROW to prevent discharge of dirty water. Bypass pumping of water found in a navigable waterway that enters from outside the ROW and is discharged downstream of the ROW will not require the use of BMPs. Dewatering BMPs will be paid for in conformance with the applicable bid items. However, if the necessary BMP item is not included in the Contract, payment for the BMP will be in accordance with Article 9.7., "Payment for Extra Work and Force Account Method." The act of dewatering and the equipment used to dewater will not be paid for directly but will be subsidiary to pertinent bid items.

Unless a specific pay item is provided in the plans, the installation of the 6:1 or flatter for RFD side slopes in the safety zone will be subsidiary to pertinent bid items.

Cover small waste containers (100 gallons or less) at all times. This work is subsidiary. Large waste containers (more than 100 gallons) must have a secondary discharge containment system around the container using erosion control logs. Installation of the log for each container location will be paid using existing bid items. Repair, remove, or replace of the log will not be paid. Revisions, repairs, remove or replace of the log during exchange of empty/full containers at the same location will not be paid.

Portable restrooms must be located more than 50 ft. from a waterway. Tie or stake down portable restrooms to prevent tipping due to vandalism or weather. This work is subsidiary.

Provide a designated location for disposal when excess and waste, including waste generated from cleaning of all equipment used for mixing, hauling, and transfer concrete is disposed in the ROW or PSL. Manufactured disposal containers must be metal or a plastic material with minimum 10 mil thickness. Paper, earthen berms, or pits must be lined with minimum 10 mill thickness polyethylene sheeting. Disposal locations must be located a minimum of 50 ft. from a waterway, tree, or sensitive feature. The disposal location must have a minimum height of 6 in. Maintain a minimum 4 in. of freeboard at all times. Disposal locations are not required for cleaning of small hand tools. Hardened concrete waste may be used as embankment if placed in accordance with Item 132.

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Dust Control
Stockpiles that will be inactive for greater than 14 days must be treated to contain dust by covering with chemical dust suppressant, soil blanket, vertical tracking, or method other than sprinkling with water. Stockpiles that are actively being used must be treated to contain dust by vertical tracking or a method determined by the Contractor. This work is subsidiary.

Provide designated construction traffic routes when feasible. Construction site traffic must be directed to use designated routes.

ITEM 530 – INTERSECTIONS, DRIVEWAYS, AND TURNOUTS
Notify property owners a minimum of 48 hours in advance of beginning work on their driveways. Provide, to GEC, a list of each notification and contact prior to each closure.

Provide access, at all times, to adjacent property. Construct driveways one-half sections, to allow access.

Do not completely close driveways for reconstruction purposes, unless a reasonable alternate access exists to the property, as approved.

Install and maintain material across a work zone as temporary access. This work is subsidiary.

Place the Flex Base for the Driveways using Ordinary Compaction.

The following typical section notes apply to all driveways and turnouts:
For ACP or SURF TREAT, the pavement structure will match the adjacent roadway unless detailed on the plans.

For CONC, the pavement structure will be 6 in. thick and have 3 in. flexible base bedding unless detailed on the plans.
Driveways that are public (county road and city street) the pavement structure will match the adjacent roadway, unless specified in plans.

ITEM 540 – METAL BEAM GUARD FENCE (MBGF)
Before beginning the installation of the proposed Metal Beam Guard Fence (MBGF), stake the locations for approval. Adjust the limits of the MBGF to meet field conditions, as directed, before erection.

Furnish round timber posts for guard fence. Steel posts for low fill culvert applications are subsidiary including use of low fill culvert application due to other concrete structures such as inlets. Long span application at inlets may be used as an alternate to low fill culvert. Unless otherwise specified on the plans, use of low fill culvert or long span at inlets will be subsidiary to pertinent items. Install delineators before opening the road to traffic.

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GENERAL NOTES

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Adjust existing rail as per plans and in accordance with the latest TxDOT standard. Removal, replacement, or installation of mow strip block out material will be subsidiary. Constructing new or backfilling, using class B concrete, unused mow strip block outs will be subsidiary.

Provide Rail Elements that meet AASHTO M 180 TY I Galvanization (1.80 oz. per SY).

Rail and rail elements that are in compliance with current standards and are undamaged should stockpiled at a location, approved by the Construction Observer, within the project limits for pick up by the County.

Retain all materials. Existing materials that are structurally sound and dent free may be reused, if approved by Observer. All reused material will be from this project and in compliance with current standards. Structurally sound rust spots with the largest dimension of 4 in. may be cleaned and repaired in accordance with Section 540.3.5. Punch or field drill holes in the metal rail element to accommodate post spacing. Additional holes for splice or connections are not allowed. Space the field holes in accordance with the latest standard but no closer than the minimum spacing shown on the current standard.

Remove, replace, and install mow strip block out material. Construct new block outs and backfill unused block outs with class B concrete. This work is subsidiary.

Repair of mow strip damage, not caused by contractor negligence, and installation of new mow strip will be paid with appropriate bid items. Backfill and shoulder up of area around fence and mow strip will be paid using embankment item.

ITEMS 600s & 6000s – ITS, TOLLING, LIGHTING, SIGNING, MARKINGS, AND SIGNALS

Meet the requirements of the NEC, Texas MUTCD, TxDOT standards, and TxDOT Standard Specifications. Notify the Engineer if existing elements to remain do not meet code or specification.

Provide all service, equipment and material required to provide a functional item and interface with existing equipment and software.

Provide a 14-day advance email notice to the Engineer to request illumination or traffic signal punch list inspection.

All items must be completed per the plans prior to traffic signal activation including deficiencies found in the punch list.

The contractor must have a qualified technician and a representative from the controller and detection supplier on the project site to place the traffic signals in operation.
For existing traffic signals, provide a 14-day advance email notice to the Engineer with Contractor signal technician contact information and signal locations prior to working or assuming operations of illumination or traffic signal.

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Provide a 60-day advance email notice to the Engineer to request signal timing if timing is not provided in the plans.

Prior to relief of maintenance, a Test Period is required for signals and ITS equipment in accordance with Item 680.3.1.7. Response time to reported trouble calls shall be less than 2 hours.

Complete repairs within 24 hours. Notify the Engineer and maintain a logbook in the controller cabinet of each trouble call. Do not clear the error log in the conflict monitor without approval.

Use materials from prequalified material producers list as shown on the Texas Department of Transportation (TxDOT) – Construction Division's (CST) materials producers list. Refer to TxDOT's website for list of pre-qualified manufacturers. No substitutions will be allowed for materials found on the list.

ITEM 618 – CONDUIT

Do not use cast iron junction boxes in concrete bridge rails. Use polymer concrete junction boxes only. Mount the junction boxes flush (+ 0", - ½") with concrete surface of concrete bridge rail.

Do not use cast iron junction boxes in concrete traffic barriers and single slope traffic barriers. Use polymer concrete junction boxes shown on Standard Sheets CSB(4)-10, AND SSCB(4)-10. Mount the junction boxes flush (+ 0", - ½") with concrete surface of concrete barrier.

Shift the locations of conduit and ground boxes to accommodate field conditions. Install conduit not exceeding 2 feet in any direction from a straight line. Install conduit at a minimum depth of 2 ft. below finished grade. Installation of the conduit by jacking or boring method will be at a depth of at least 1 ft. below bottom of subgrade.

Install a high tension, non-metallic pull rope in all empty conduit runs. This work is subsidiary. Use a coring device, not a hammer drill, when drilling holes through concrete structures.

Structurally mounted junction boxes will be as shown on the plans. When used for traffic signal installations, these boxes will be 12" x 12" x 8". This work is subsidiary.

For underground conduit, smooth wall schedule 40 equivalent HDPE can be substituted for schedule 40 PVC. For SCH 80 bore conduits, a schedule 40 equivalent HDPE carrier pipe of adequate size to carry the proposed conduits can be used as substitute. HDPE must transition to RMC/PVC per ED (11)-14.

Use materials from prequalified material producers list as shown on the Texas Department of Transportation (TxDOT) – Construction Division's (CST) materials producers list. Category is "Roadway Illumination and Electrical Supplies."

Consider the polymer concrete barrier boxes subsidiary to Item 618, "Conduit."

Refer to plans and specifications for type of conduit. Waterproof and tighten all couplings and connections. Bring all proposed and existing conduit into a ground box and 'elbow' it unless

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otherwise shown on the plans. Provide a bushing to protect the wire from abrasion when a conduit run terminates.

Replace sections of conduit with the size and type shown on the plans in the event the existing conduit proves unusable due to location or damage.

Secure permission from the proper authority, as directed, before cutting into or removing any sidewalks or curbs for installation of this Item.

Saw cut and replace any riprap, which must be removed to install the conduit. Replace riprap with material and texture as directed.

The locations of conduit and ground boxes are diagrammatic and so shift, as directed, to accommodate field conditions.

Install conduit in an area not exceeding two (2) feet in any direction from a straight line with the depth of the conduit at least two (2) feet, unless otherwise shown on the plans. Installation of the conduit by jacking or boring method will be at a depth of at least one (1) foot below the bottom of the base material of the roadway. Evidence of damage to the roadway during the jacking or boring operation will be enough grounds to stop the method being used.

Install conduit on a 2-inch sand cushion and backfill with at least six (6) inches of sand. Backfill the remainder of the trench with flexible base, soil or two-sack concrete as required by the location of the conduit or as directed.

Consider all conduit elbows and rigid metal extensions required to be installed on PVC conduit systems subsidiary.

Install a high tension, non-metallic pull rope in all conduit runs. The pull ropes are for future use. Cap all empty conduit runs using standard weather tight conduit caps as directed. Consider this work subsidiary to the pertinent Item.

Install a continuous bare or green insulated copper wire No. 8 AWG or larger in every conduit throughout the electrical system including installed loop detectors and traffic signal cables which are in conformance with the Electrical Detail Standard Sheets and the latest edition of the National Electrical Code (NEC).

Placement of conduit under the existing pavement using the open trench method will not be allowed without prior approval.

Seal all conduit ends with a permanently soft, non-toxic duct seal. The dust seal must not adversely affect plastic materials or corrode metals.

Use a coring device when drilling holes through concrete structures. Do not use masonry or concrete drills, unless otherwise approved.

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Structurally mounted junction boxes shall be as shown on the plans. When used for traffic signal installations, these boxes shall be 12" x 12" x 8” and shall be approved. Consider these boxes subsidiary to this Item.

Use conduit hangers for three (3) inch and larger conduit when hanging conduit from structures.

Place conduit a minimum depth of 42 inches below the bottom of ties.

Existing conduit may be proposed for reuse in this project. If the existing conduit cannot be used to place or add new electrical conductors, repair, or replace this conduit, as directed. Repair of the conduit will be paid as “Extra Work” on a “Force Account” basis. Probe the existing conduit when locating drill shafts so that the existing conduit’s location will be known before it is needed.

When using existing conduit, ensure that all conduits have bushings and are cleaned of dirt, mud, grease, and other debris. Re-strap conduit that is being relocated to new timber poles as if it were a new installation. Consider this work subsidiary to this Item.

Consider all fittings, brackets, and junction boxes necessary to complete the installations subsidiary to the pertinent Items.

Abandoned underground conduit must have all conductors removed.

ITEM 619 – MULTI-DUCT CONDUIT SYSTEM
Concrete or flowable fill encasement is not required unless stated in bid item code.

In addition to PVC, HDPE approved material may be used. Blue Diamond 4 in. SIDR 11.5 casing with 4-1 in. SDR 13.5 innerducts is acceptable substitute for PVC and HDPE multi duct.

ITEM 620 – ELECTRICAL CONDUCTORS
For both transformer and shoe-base type illumination poles, provide double-pole breakaway fuse holder from manufacturers pre-qualified by the Traffic Operations Division. Fuse holder is shown on the producer list under Items 610 & 620.
Provide and install approved 10-amp time delay fuses.

Provide breakaway disconnects in all breakaway poles. For Flashing Beacons (Item 685) and Pedestal Poles (Item 687) within the project provide single-pole breakaway disconnects. Use Bussman HEBW, Littelfuse LEB, Ferraz-Shawmut FEB, or equal on ungrounded conductors. For all grounded conductors use Bussman HET, Littelfuse LET, Ferraz-Shawmut FEBN, or equal. These breakaway connectors have a white colored marking and a permanently installed solid neutral.

Clearly and permanently, mark “Illumination” on the Illumination Conductors installed in a Signal Mast-Arm Pole or Strain Pole. Make the marks easily visible from the hand hole.

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CR 258

GENERAL NOTES

SHEET 14 OF 16

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	6N
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

CM DW: EM CK:EM DW: EM CK:EM

DATE: 10/22/2025
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Identify the conductors as shown on the Electrical Details Standard Sheets when two or more conductors are present in one conduit or enclosure. Use identification tag with two plastic straps. Each tag will indicate circuit number, letter, or other identification as shown on the plans.

Bond grounding conductors, which share the same conduit, junction box or structures, together at every accessible point, in accordance with the Electrical Detail Standard Sheets and the latest edition of the National Electrical Code (NEC).

All wiring will be in accordance with the National Electrical Code (NEC) and the appropriate TxDOT standard sheets.

ITEM 624 – GROUND BOXES
Aggregate for fill under the box will be crushed, have a maximum size of 2 in. and minimum size of ½ in.

ITEM 628 – ELECTRICAL SERVICES
Contact the utility company upon execution of contract and prior to the pre-construction meeting to make arrangements for all work and materials provided by the utility company. Contact Williamson County for account approval and information. Accounts shall be placed in the name of Williamson County.

The service enclosure provided in this contract will have provisions for pad locking the enclosure shut.

The traffic signal system will require 120/240-Volt Power Service provided by the Local Electric Utility Company. Contractor shall make all arrangements for power.

ITEM 644 – SMALL ROADSIDE SIGN ASSEMBLIES
Fabricate all small signs not detailed on the plans in conformance with the latest edition of the "Standard Highway Sign Designs for Texas," refer to TxDOT's website.

Triangular slip base must be the clamp style to secure the post to the slip base. Set screw style slip base will not be allowed.

ITEM 666 – RETRO-REFLECTORIZED PAVEMENT MARKINGS
Notify the Engineer at least 24 hr. before beginning work.

All projects, including resurfacing, must increase center-to-center width for center line markings to 18 in. unless the plans or existing is greater than 18 in.

Use of temporary flexible reflective roadway marker tabs is subsidiary and at the Contractor's option. Replace missing or damaged tabs nightly. If using tabs, place longitudinal markings weekly by 5 AM Friday for all weekday work and by 5 AM Monday for all weekend work. Failure to maintain tabs or place longitudinal markings by deadline will require nightly placement of longitudinal markings.

Place longitudinal markings no later than 7 calendar days after placement of the surface for roadways with AADT greater than 20,000.

When the raised portion of a profile marking is placed as a separate operation from the pavement marking, the raised portion must be placed first then covered with TY I.

When using black shadow to cover existing stripe apply a non-retroreflective angular abrasive bead drop. The marking color shall be adjusted to resemble the pavement color. If Item 677 is not used prior to placement of black shadow, scrape the top of the marking with a blade or large piece of equipment unless surface is a seal coat. The scraping of the marking is subsidiary.

ITEM 672 – RAISED PAVEMENT MARKERS
Place the bituminous adhesive at a temperature range of 380°F to 390°F. Place the pavement marker on the bituminous adhesive within approximately 20 seconds after the adhesive is placed on the pavement. Ensure the pavement marker rests solely on the adhesive and not the pavement surface. Ensure that a minimum of ⅛ inch layer of bituminous adhesive remains between the pavement marker and the pavement surface.

Place Type I-C and II-C-R markers at 40 ft. spacing for all lane lines.

ITEM 682 – VEHICLE AND PEDESTRIAN SIGNAL HEADS
Install signal head attachments so the wiring to each passes from the signal pole through the attachment hardware to the signal head. Use UV rated tie wraps.

Ensure the signal heads are made of aluminum and are hooded and covered until the signal system is put into operation.

Installed traffic signal heads within the project will have backplates unless otherwise shown on the plans. Backplates will be black aluminum with reflective borders.

Provide louvers, which have five (5) vanes with a black finish on inside surfaces when required within the project. Fasten a hardware cloth screen, securely, with ⅝" or smaller mesh size to the front face of each louver to prevent entry by birds.

Mount signal heads level and plumb as directed.

Replace, at Contractor's expense, all burned out or defective lamps for a period of four (4) weeks from the date of the initial turn on. At the end of this 4-week period, the Construction Observer will relieve the Contractor of any maintenance of this portion of the signal system.

Use the four-point mounting system (TY A) for signal heads, except in cases of skewed or vertical heads when (TY B) will be used.

Place LEDs at the proper angle with the ground. The wording "top" or the "up arrow" indicates the proper fixed alignment within the signal head. Hang the head parallel to the ground once attached and not angled down as with incandescent heads. Ensure the signal head to be level and within tolerances. LEDs are designed to direct the indication towards the roadway surface.

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CR 258

GENERAL NOTES

SHEET 15 OF 16

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	60
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

CM DW: EM CK: EM DW: EM CK: EM

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Variance in head leveling will cause the LED indication to appear dim during slight movement. Ensure each LED head to be properly leveled and sight tested before final acceptance.

ITEM 684 – TRAFFIC SIGNAL CABLES
For Type A cables, cables meeting the requirements of IMSA 19-1 can be substituted for IMSA 20-1. For all types of cables, an increase of one size larger wire diameter and thickness can be substituted for plan size. For example, 12 AWG can be substituted for 14 AWG.

Leave at least two (2) feet for each cable run in each pull box and leave at least two (2) feet in each steel pole in addition to the required length for each separate cable. Provide an extra five (5) feet of each conductor terminating in the controller cabinet. Ensure conductors are continuous without splice from terminal point to terminal point or as directed. Do not use wire nuts.

Provide a separate multi-conductor signal cable (14 AWG) inside pedestal poles and mast-arm signal poles from the terminal strip to each signal head as shown on the plans

ITEM 686 – TRAFFIC SIGNAL POLE ASSEMBLIES (STEEL)
Provide and install damping plates on all mast arms of 40 ft. and over. For mast arms less than 40 ft., refer to SMA and DMA Vibration Notes for guidance. Consider the cost for the provision and installation of damping plates as subsidiary to the various bid Items found within this project.

Provide double nuts on top and bottom of the base plate as shown on the standards.

Provide signal pole assemblies as shown on plans. Luminaire lamps and the installation of the arms and lamps are considered subsidiary to the pertinent Items.

When luminaires are to be installed on mast arm poles, provide a separate terminal strip in the signal pole access compartment. The terminal strip shall be a 4-circuit Buchanan-Type 104SN, Kulka-Type 985-GP-4 CU, or equivalent.

Provide a 10-amp time-delay fuse for traffic signal poles onto which luminaires are to be installed. Place the fuse in the fuse block indicated within note #4 found on State standard MA-D-12.

ITEM 6006 - VIDEO IMAGING VEHICLE DETECTION SYSTEM (VIVDS)
Install the VIVDS cameras onto the mast arms with the attachment mechanisms provided with the camera system. Install the VIVDS detection zones as directed. Have qualified personnel on site at the time of the signal turn-on to assist with the installation of detection zones. If the camera locations shown in the plans do not allow for proper sight of the proposed detection zones, relocate the cameras as needed and as directed. Place the traffic signal cable (TY A) (3-conductor) (16 AWG) in continuous and separate runs from each VIVDS camera to the controller. This work is subsidiary.

Aim and adjust the cameras, install the cables and VIVDS cards into the controller cabinet and complete any other necessary work to bring the traffic signal into operation.

Williamson County **Sheet: 6**
Project: CR 258

Provide a Video Processor System (VPS) that can provide up to thirty-two detector outputs to the controller from up to eight camera/video processor units (C/VPU). Route the detector outputs through the Bus Interface Unit (BIU) or approved product, which replaces the functions of the BIU. Field of view for each C/VPU will provide a minimum of thirty-two virtual detection zones for vehicle detection.

Install all cables necessary to provide complete VIVDS operation. Provide a minimum of 10 cables to direct connect the notebook to the VIVDS port.

Phase red and green load switch outputs from up to sixteen phases of a NEMA TS2 Type 2 controller will be provided as inputs to the VPU for use with internal detector extend/delay timing functions. The C/VPU will be able to condition the detector outputs and detection zones based on the state of the associated phase number and color.

The serial communication port on the front of the VPU will be a DB-9 RS-232 connector. Supply a package that will operate with Windows XP and NT and provide the functionality defined in both sections 7.0 and 8.0 in both a direct connect and remote communications mode. The software resident in the VPU and the personal computer will be capable of transmitting and receiving all information needed for zone set up, monitoring vehicle detection by viewing flashing detection zone overlays, and uploading/downloading and interrogating all stored data within the VPU. Remote communications with the VCU will be possible with the addition of external communication devices (modem, Codec, etc.) using the RS-232 and video output ports on the front of the VPU.

The VPU operational software will be stored internally in flash memory and be capable of being updated without the removal and replacement of memory devices.

All surge protection will be din rail mounted.

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CR 258

GENERAL NOTES

SHEET 16 OF 16

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
C	S	J	J	6P
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: $DATE$
FILE: $FILE$

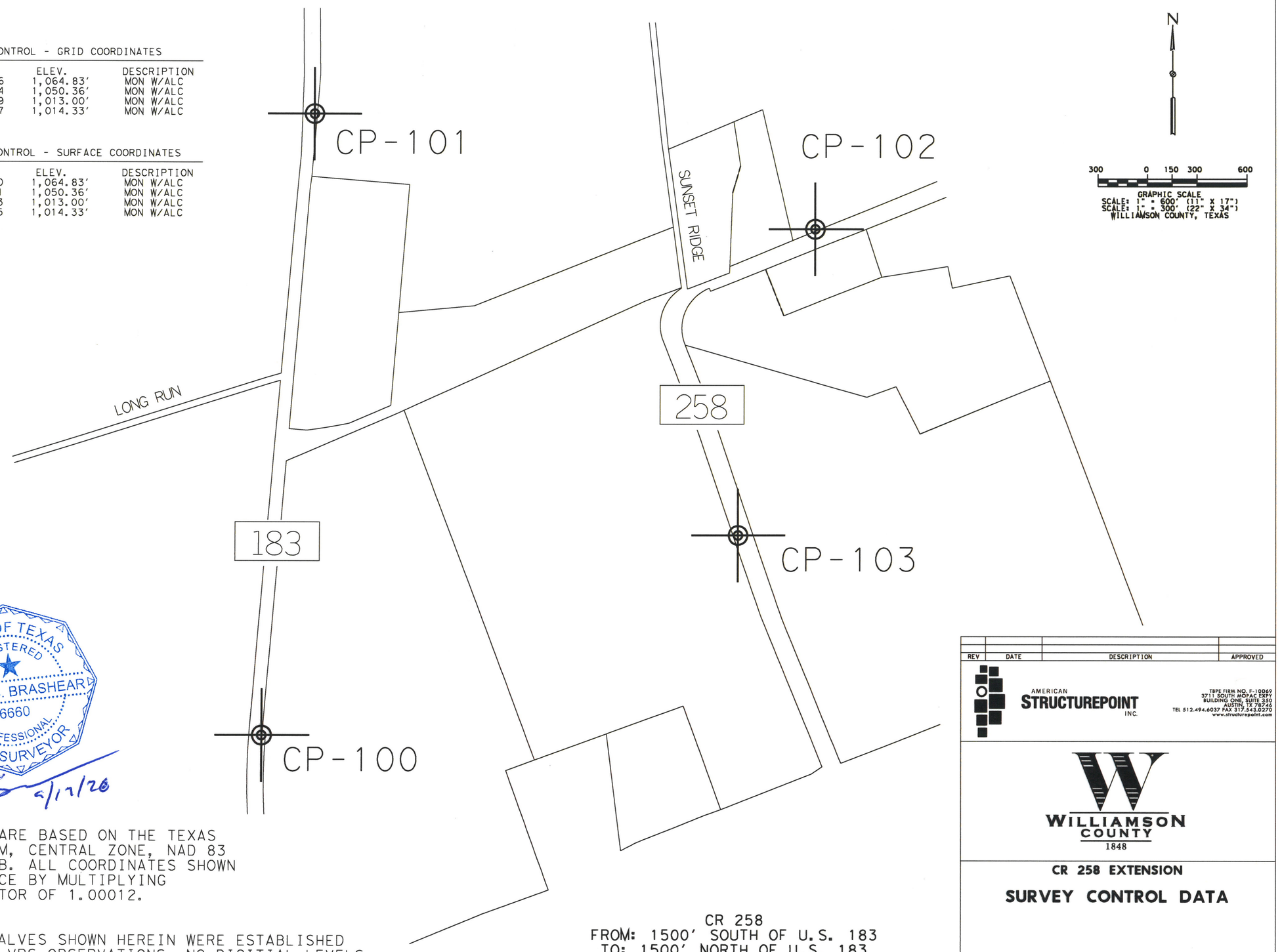
$USER$ $TIME$

HORIZONTAL / VERTICAL CONTROL - GRID COORDINATES

PT	NORTHING	EASTING	ELEV.	DESCRIPTION
CP-100	10215246.70	3067775.36	1,064.83'	MON W/ALC
CP-101	10218991.52	3068075.14	1,050.36'	MON W/ALC
CP-102	10218296.96	3071102.69	1,013.00'	MON W/ALC
CP-103	10216452.97	3070636.67	1,014.33'	MON W/ALC

HORIZONTAL / VERTICAL CONTROL - SURFACE COORDINATES

PT	NORTHING	EASTING	ELEV.	DESCRIPTION
CP-100	10216472.52	3068143.50	1,064.83'	MON W/ALC
CP-101	10220217.80	3068443.31	1,050.36'	MON W/ALC
CP-102	10219523.16	3071471.23	1,013.00'	MON W/ALC
CP-103	10217678.94	3071005.15	1,014.33'	MON W/ALC



NOTES:

1. ALL PROJECT COORDINATES ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NAD 83 (93)/NAVD 88, GEOID MODEL 12B. ALL COORDINATES SHOWN HEREON ARE ADJUSTED TO SURFACE BY MULTIPLYING BY A COMBINED ADJUSTMENT FACTOR OF 1.00012. UNITS: U.S. SURVEY FEET.

2. HORIZONTAL AND VERTICAL VALVES SHOWN HEREIN WERE ESTABLISHED USING A SERIES OF REPETITIVE VRS OBSERVATIONS. NO DIGITIAL LEVELS WERE RUN FOR THIS PROJECT

3. A SITE CALIBRATION SHOULD BE PERFORMED WHEN UTILIZING THE CONTROL SHOWN HEREIN.

CR 258
FROM: 1500' SOUTH OF U.S. 183
TO: 1500' NORTH OF U.S. 183
FROM: 200' SOUTH OF CR 258
TO: 150' NORTH OF SUNSET RIDGE
CONTRACT NO. 201900541
SEPTEMBER, 2019

REV	DATE	DESCRIPTION	APPROVED

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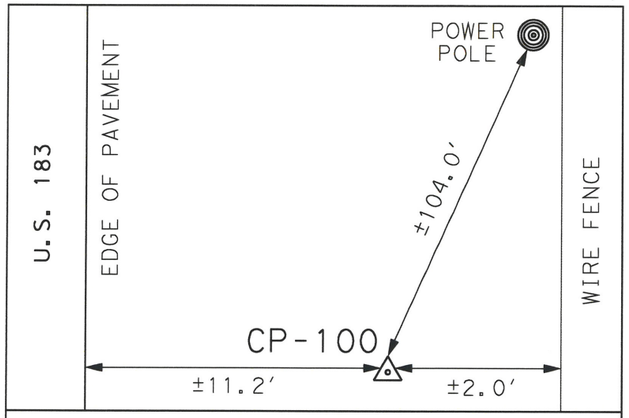
WILLIAMSON COUNTY
1848

CR 258 EXTENSION

SURVEY CONTROL DATA

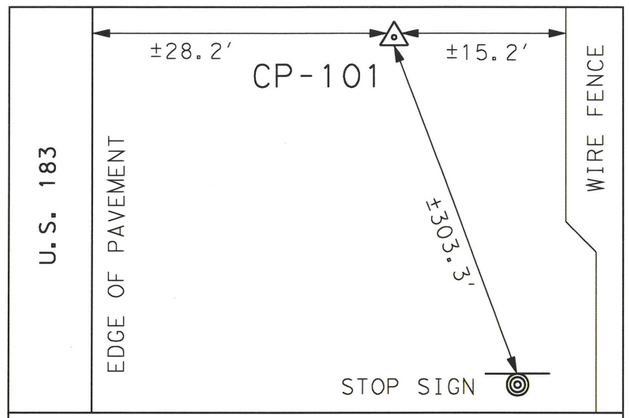
SHEET 1 OF 2

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
HNS	HNS	RJZ	RJZ	7
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	



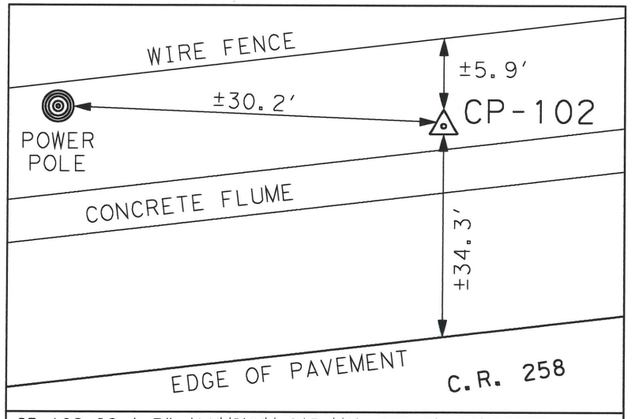
CP-100 IS A 3" ALUMINUM CAP MON SET IN CONCRETE LOCATED IN THE EAST RIGHT-OF-WAY OF U.S. 183, ±2.0 FEET WEST OF A WIRE FENCE, ±11.2 FEET EAST OF THE EDGE OF PAVEMENT, AND ±104.0 FEET SOUTH OF A WOOD POWER POLE.

SURFACE COORDINATES	GRID COORDINATES
N = 10216472.52	N = 10215246.70
E = 3068143.50	E = 3067775.36
ELEV = 1,064.83'	ELEV = 1,064.83'



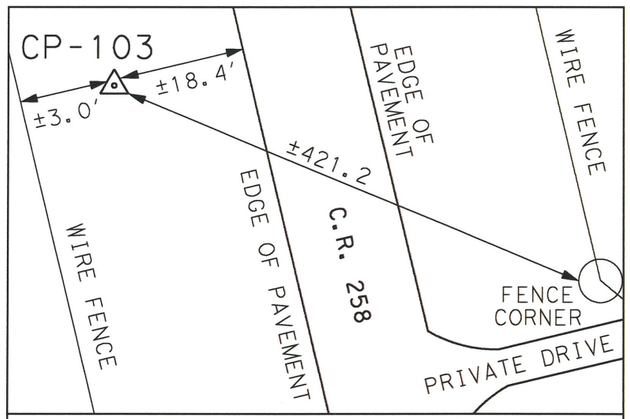
CP-101 IS A 3" ALUMINUM CAP MON SET IN CONCRETE LOCATED IN THE EAST RIGHT-OF-WAY OF U.S. 183, ±303.3 FEET NORTHWEST OF A STOP SIGN, ±28.2 FEET EAST OF THE EDGE OF PAVEMENT, AND ±15.2 FEET WEST OF A WIRE FENCE.

SURFACE COORDINATES	GRID COORDINATES
N = 10220217.80	N = 10218991.52
E = 3068443.31	E = 3068075.14
ELEV = 1,050.36'	ELEV = 1,050.36'



CP-102 IS A 3" ALUMINUM CAP MON SET IN CONCRETE LOCATED IN THE NORTH RIGHT-OF-WAY OF C.R. 258, ±5.9 FEET SOUTH OF A WIRE FENCE, ±34.3 FEET NORTH OF THE EDGE OF PAVEMENT, AND ±30.2 FEET SOUTHEAST OF A POWER POLE.

SURFACE COORDINATES	GRID COORDINATES
N = 10219523.16	N = 10218296.96
E = 3071471.23	E = 3071102.69
ELEV = 1,013.00'	ELEV = 1,013.00'



CP-103 IS A 3" ALUMINUM CAP MON SET IN CONCRETE LOCATED IN THE WESTRIGHT-OF-WAY OF C.R. 258, ±421.2 FEET NORTHWEST OF A FENCE CORNER OF PRIVATE DRIVE, ±3.0 FEET EAST OF A WIRE FENCE, AND ±18.4 FEET WEST OF THE EDGE OF PAVEMENT.

SURFACE COORDINATES	GRID COORDINATES
N = 10217678.94	N = 10216452.97
E = 3071005.15	E = 3070636.67
ELEV = 1,014.33'	ELEV = 1,014.33'

N

NOTES:

1. ALL PROJECT COORDINATES ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NAD 83 (93)/NAVD 88, GEOID MODEL 12B. ALL COORDINATES SHOWN HEREON ARE ADJUSTED TO SURFACE BY MULTIPLYING BY A COMBINED ADJUSTMENT FACTOR OF 1.00012. UNITS: U.S. SURVEY FEET.

2. HORIZONTAL AND VERTICAL VALVES SHOWN HEREIN WERE ESTABLISHED USING A SERIES OF REPETITIVE VRS OBSERVATIONS. NO DIGITIAL LEVELS WERE RUN FOR THIS PROJECT

3. A SITE CALIBRATION SHOULD BE PERFORMED WHEN UTILIZING THE CONTROL SHOWN HEREIN.

STATE OF TEXAS
REGISTERED
SCOTT C. BRASHEAR
6660
PROFESSIONAL
LAND SURVEYOR
9/17/20

REV	DATE	DESCRIPTION	APPROVED

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CR 258 EXTENSION

SURVEY CONTROL DATA

SHEET 2 OF 2

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
HNS	HNS	RJZ	RJZ	8
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

CM | DW: EM | CK: EM | DW: EM | CK: EM

ROADWAY QUANTITIES

LOCATION	100 7002 PREPARING ROW	247 7178 FL BS (CMP IN PLC)(TY A GR 4)(FNAL POS)	260 7003 LIME (QUICKLIME (SLURRY))	260 7007 LIME TRT (EXIST MATL)(8")	310 7013 PRIME COAT(MC-30 OR AE-P)	316 7078 ASPH (AC-15P OR CRS-2P)	316 7187 AGGR (TY-D, GR-5)(SAC-B)	341 7001 D-GR HMA TY-B PG64-22	341 7050 D-GR HMA TY-D SAC-B PG70-22	341 7082 TACK COAT	*** 354 7002 PLANE & TEXT ASPH CONC PAV(0" TO 2")	360 7029 CONC PVMT(TRANSITION SLAB) (6")
RATE			36 [LB/SY]		0.2 [GAL/SY]	0.32 [GAL/SY]	1 CY/150 SY	115 [LBS/SY *IN]	115 [LBS/SY *IN]	0.08 [GAL/SY]		
DEPTH		14"						4"	2"			
	STA	CY	TON	SY	GAL	GAL	CY	TON	TON	GAL	SY	SY
STA 100+09.12 - STA 112+00.000	11.9	266	13	724	142	227	5	163	623	434	1367	5
STA 112+00.00 - STA 124+00.00	12	755	36.8	2045	401	642	13	461	747	521	986	
STA 124+00.00 - STA 125+00.00	1	5	0.27	15	3	4		3	46	32	200	
PROJECT TOTALS	**24.9**	**1026**	**50**	**2784**	**546**	**873**	**18**	**627**	**1416**	**987**	**2553**	**5**

ROADWAY QUANTITIES CONT.

LOCATION	432 7013 RIPRAP (MOW STRIP)(4 IN)	530 7010 DRIVEWAYS (ACP)	540 7001 MTL W-BEAM GD FEN (TIM POST)	540 7015 DOWNSTREAM ANCHOR TERMINAL SECTION	544 7001 GUARDRAIL END TREATMENT (INSTALL)	SP.W3.21.E ADJUST EXISTING WATER VALVE RISER BOX TO FINAL GRADE
RATE						
DEPTH						
	CY	SY	LF	EA	EA	EA
STA 100+09.12 - STA 112+00.000						2
STA 112+00.00 - STA 124+00.00	20	89	325	1	1	
STA 124+00.00 - STA 125+00.00						
PROJECT TOTALS	**20**	**89**	**325**	**1**	**1**	**2**

*** FOR INFORMATION ONLY

REMOVAL QUANTITIES

LOCATION	104 7006 REMOV CONC (RIPRAP)	104 7016 REMOV CONC (CURB)	479 7001 ADJUSTING MANHOLES	496 7004 REMOV STR (SET)	496 7006 REMOV STR (HEADWALL)	644 7073 REMOVE SM RD SN SUP&AM
	SY	LF	EA	EA	EA	EA
STA 100+09.12 - STA 112+00.000			1	1	1	1
STA 112+00.00 - STA 124+00.00	2	7				
STA 124+00.00 - STA 125+00.00						
PROJECT TOTALS	**2**	**7**	**1**	**1**	**1**	**1**

TCP QUANTITIES

LOCATION	502 7001 BARRICADES, SIGNS AND TRAFFIC HANDLING	503 7002 PORTABLE CHANGEABLE MESSAGE SIGN	505 7001 TMA (STATIONARY)
	MO	EA	DAY
PHASE 1	4	3	
PHASE 2			
PHASE 3			14
PROJECT TOTALS	**4**	**3**	**14**

SPM QUANTITIES

LOCATION	636 7001 ALUMINUM SIGNS (TY A)	644 7064 IN SM RD SN SUP&AM (INST SIGN ONLY)	644 7065 RELOCATE SM RD SN SUP&AM TY 10BWG	644 7068 RELOCATE SM RD SN SUP&AM TY TWT	666 7036 REFL PAV MRK TY I (W)24"(SLD)(100MIL)	666 7042 REFL PAV MRK TY I (W)(ARROW)(100MIL)	666 7123 REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	666 7159 RE PM TY I (W)(WORD)(100MIL)(CAL LOUT)	666 7175 RE PM TY II (W) 6" (SLD)	666 7184 RE PM TY II (W) 24" (SLD)
	SF	EA	EA	EA	LF	EA	LF	EA	LF	LF
100+09.12-125+00	86	2	11	1	98	10	488	10	5987	98
PROJECT TOTALS	**86**	**2**	**11**	**1**	**98**	**10**	**488**	**10**	**5987**	**98**

SPM QUANTITIES CONT.

LOCATION	666 7186 RE PM TY II (W) (ARROW)	666 7194 RE PM TY II (W) (WORD)	666 7213 RE PM TY II (Y) 6" (SLD)	666 7217 RE PM TY II (Y) 24" (SLD)	666 7266 RE PROFILE PM TY I(W)6"(SLD)(100MIL)	666 7270 RE PROFILE PM TY I(Y)6"(SLD)(100MIL)	672 7004 REFL PAV MRKR TY II-A-A
	EA	EA	LF	LF	LF	LF	EA
100+09.12-125+00	10	10	5632	488	5987	5632	141
PROJECT TOTALS	**10**	**10**	**5632**	**488**	**5987**	**5632**	**141**

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CR 258

SUMMARY OF QUANTITIES

SHEET 1 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	9
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 10/22/2025
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DRAINAGE QUANTITIES

LOCATION	432 7043	464 7003	464 7007	467 7308	467 7345	467 7346
	RIPRAP (STONE PROTECTION)(18 IN)	RC PIPE (CL III)(18 IN)	RC PIPE (CL III)(30 IN)	SET (TY II) (18 IN) (RCP) (6:1) (P)	SET (TY II) (30 IN) (RCP) (3:1) (C)	SET (TY II) (30 IN) (RCP) (4:1) (C)
	CY	LF	LF	EA	EA	EA
CULVERT 5B	24		16		2	
CULVERT 5A	32		28			2
DRIVEWAY 1		36		2		
PROJECT TOTALS	**56**	**36**	**44**	**2**	**2**	**2**

EROSION CONTROL QUANTITIES

LOCATION	160 WC01	161 WC01	164 WC04	164 WC05	164 WC10	166 7002	168 WC01	169 7001	506 7003	506 7004	506 7011	506 7021	506 7024	506 7039	506 7041
	FURNISHING AND PLACING TOPSOIL	EROSION CONTROL COMPOST (3")	SEEDING FOR EROSION CONTROL (TEMP)(COOL)(TY 4)	SEEDING FOR EROSION CONTROL (PERM)(WARM)(TY5)	SEEDING FOR EROSION CONTROL (TEMP)(WARM)(TY 10)	FERTILIZER	VEGETATIVE WATERING	SOIL RET BLKT(SL_MOD_CLAY_SHORT)	ROCK FILTER DAMS (INSTALL) (TY 3)	ROCK FILTER DAMS (INSTALL) (TY 4)	ROCK FILTER DAMS (REMOVE)	CONSTRUCTION EXITS (INSTALL) (TY 2)	CONSTRUCTION EXITS (REMOVE)	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)
	SY	SY	SY	SY	SY	TON	TGL	SY	LF	LF	LF	SY	SY	LF	LF
STA 100+09.12 - STA 112+00.000	5377	1344	2689	5377	2689	0.34	107.5	5377	45	120	165	70	70		
STA 112+00.00 - STA 124+00.00	5483	1371	2742	5483	2742	0.343	109.7	5483		80	80			490	490
STA 124+00.00 - STA 125+00.00	1336	334	668	1336	668	0.084	26.7	1336						606	606
PROJECT TOTALS	**12196**	**3049**	**6099**	**12196**	**6099**	**0.767**	**243.9**	**12196**	**45**	**200**	**245**	**70**	**70**	**1096**	**1096**

TRAFFIC SIGNAL QUANTITIES

LOCATION	416 7043	416 7044	416 7046	618 7054	618 7055	620 7009	620 7010	621 7006	624 7001	628 7156	682 7001	682 7002	682 7003	682 7004
	DRILL SHAFT (TRF SIG POLE) (30 IN)	DRILL SHAFT (TRF SIG POLE) (36 IN)	DRILL SHAFT (TRF SIG POLE) (48 IN)	CONDT (PVC) (SCH 80) (2")	CONDT (PVC) (SCH 80) (2") (BORE)	ELEC CONDR (NO.6) BARE	ELEC CONDR (NO.6) INSULATED	TRAY CABLE (4 CONDR) (12 AWG)	GROUND BOX TY A (122311)	ELC SRV TY D 120/240 060(NS)SS(N)SP(O)	VEH SIG SEC (12")LED(GRN)	VEH SIG SEC (12")LED(GRN ARW)	VEH SIG SEC (12")LED(YEL)	VEH SIG SEC (12")LED(YEL ARW)
	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA
CR 258 & SUNSET RIDGE		26	22	261	124	37	58	356	3	1	6	0	6	0
CR 258 & MIDDLE SCHOOL	11		44	306	194	264	54	268	3	1	6	1	6	1
PROJECT TOTALS	**11**	**26**	**66**	**567**	**318**	**301**	**112**	**624**	**6**	**2**	**12**	**1**	**12**	**1**

TRAFFIC SIGNAL QUANTITIES CONT.

LOCATION	682 7005	682 7006	682 7039	684 7010	686 7031	686 7033	686 7035	686 7047	686 7063	686 7067	6006 7007	6006 7025
	VEH SIG SEC (12")LED(RED)	VEH SIG SEC (12")LED(RED ARW)	BACKPLATE W/REFL BRDR(3 SEC)ALUM	TRF SIG CBL (TY A)(12 AWG)(5 CONDR)	INS TRF SIG PL AM(S)1 ARM(28')LUM	INS TRF SIG PL AM(S)1 ARM(32')	INS TRF SIG PL AM(S)1 ARM(32')LUM	INS TRF SIG PL AM(S)1 ARM(44')LUM	INS TRF SIG PL AM(S)1 ARM(60')LUM	INS TRF SIG PL AM(S)1 ARM(65')LUM	VIVDS CABLING	VIDEO IMAGING VEHICLE DETECTION SYSTEM
	EA	EA	EA	LF	EA	EA	EA	EA	EA	EA	LF	EA
CR 258 & SUNSET RIDGE	6	0	6	966			1	1		1	481	1
CR 258 & MIDDLE SCHOOL	6	1	7	1455	1	1			1		599	1
PROJECT TOTALS	**12**	**1**	**13**	**2421**	**1**	**1**	**1**	**1**	**1**	**1**	**1080**	**2**

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CR 258

SUMMARY OF QUANTITIES

SHEET 2 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	10
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 10/22/2025
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CM | DW: EM | CK: EM | DW: EM | CK: EM

EARTHWORK QUANTITIES

CR 258 EARTHWORK QUANTITY SUMMARY		
STATION	110	132
	7001	7003
	EXCAV (ROADWAY)	EMBANK (FNL)(OC)(TY B)
	CY	CY
10009.120 R1	0	0
10050.000 R1	95	19
10100.000 R1	17	102
10150.000 R1	15	159
10200.000 R1	15	137
10250.000 R1	18	90
10300.000 R1	16	33
10350.000 R1	7	1
10400.000 R1	1	2
10450.000 R1	10	15
10500.000 R1	21	44
10550.000 R1	36	51
10600.000 R1	52	37
10650.000 R1	65	31
10700.000 R1	78	24
10750.000 R1	79	27
10800.000 R1	65	33
10850.000 R1	46	20
10900.000 R1	44	17
10950.000 R1	44	24
11000.000 R1	46	17
11050.000 R1	55	12
11100.000 R1	63	12
11150.000 R1	68	17
11200.000 R1	49	31
11250.000 R1	45	51
11300.000 R1	56	55
11350.000 R1	89	46
11400.000 R1	126	35
11450.000 R1	107	20
11500.000 R1	64	15
11550.000 R1	54	18
11600.000 R1	64	22
11650.000 R1	58	28
11700.000 R1	47	40
11750.000 R1	39	43
11800.000 R1	41	27
11850.000 R1	57	11
11900.000 R1	90	2
11950.000 R1	92	5
12000.000 R1	63	18
12050.000 R1	41	32
12100.000 R1	28	58
12150.000 R1	25	57
12200.000 R1	29	35
12250.000 R1	37	35
12300.000 R1	45	39
12350.000 R1	47	39
12400.000 R1	46	30
12450.000 R1	41	30
12500.000 R1	39	44
12550.000 R1	34	27
12600.000 R1	25	0
12650.000 R1	20	0
12700.000 R1	20	0
12750.000 R1	18	0
12800.000 R1	16	0
12850.000 R1	10	0
12900.000 R1	6	0
PROJECT TOTAL	2624	1814

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SUMMARY OF QUANTITIES

SHEET 3 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	11
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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GENERAL SEQUENCE OF WORK:

PORTABLE MESSAGE BOARDS WILL BE PLACED A MINIMUM OF TWO WEEKS PRIOR CONSTRUCTION.

INSTALL ADVANCE WARNING SIGNS FOR THE PROJECT IN ACCORDANCE WITH TXDOT BC (1)-21 THRU BC (12)-21 AND THE TEXAS MUTCD.

SETUP SWP3 AND TREE PROTECTION ALONG THE AREA. EROSION AND SEDIMENTATION CONTROL BMPS SHALL REMAIN IN PLACE FROM PREVIOUSLY COMPLETED WORKZONES UNTIL REMOVAL IS APPROVED.

INSTALL DRUMS, BARRIERS AND/OR CHANNELIZING DEVICES, REFER TO THE TCP (2-3)-23 TXDOT STANDARD FOR TYPICAL LANE CLOSURES.

MAINTAIN ACCESS TO ADJACENT DRIVEWAYS AT ALL TIMES.

AFTER EACH COMPLETED PHASE, RELOCATE DRUMS, REMOVE TEMPORARY SIGNAGE AND PAVEMENT MARKING THAT MIGHT BE IN CONFLICT WITH THE SUBSEQUENT PHASE.

OVERVIEW:

THIS PROJECT WILL BE CONSTRUCTED IN THREE (3) PHASES. A BRIEF DESCRIPTION OF EACH PHASE IS AS FOLLOWS:

PHASE-1: CONSTRUCT WIDENING ON THE EAST AND WEST SIDES OF CR 258 WHILE MAINTAINING TRAFFIC ON EXISTING PAVEMENT.

PHASE-2: APPLY 2" HMAC-TY D OVERLAY OVER THE FULL WIDTH OF CR 258.

PHASE-3: INSTALL PERMANENT PAVEMENT MARKINGS AND FINAL ROADWAY ITEMS, AND ESTABLISH VEGETATION WITHIN THE RIGHT-OF-WAY. USE STANDARD DETAILS OR SHORT TERM WORK ZONES AND PERFORM FINAL CLEAN-UP AND REMOVAL OF SWP3 DEVICES.

PHASE-1: WIDENING

MAINTAIN SWP3 MEASURES AND PLACE TRAFFIC CONTROL PLAN DEVICES AS SHOWN IN PLANS AND AS PER TXDOT STANDARDS AND TEXAS MUTCD. CONSTRUCT PROPOSED WIDENED PAVEMENT ON BOTH THE EAST AND WEST SIDES OF CR 258 PER ROADWAY PLANS INCLUDING GRADING ROADSIDE DITCHES AND INSTALL SIGNING.

PHASE-2: OVERLAY

STEP-1: APPLY 2" HMAC-TY D OVERLAY DURING OFF-PEAK HOURS WHILE MAINTAINING TRAFFIC USING ONE-LANE ONE-WAY FLAGGING OPERATIONS. OVER HALF THE WIDTH OF ROADWAY.

STEP-2: APPLY 2" HMAC-TY D OVERLAY DURING OFF-PEAK HOURS WHILE MAINTAINING TRAFFIC USING ONE-LANE, ONE-WAY FLAGGING OPERATIONS. OVER THE OTHER HALF OF THE ROADWAY.

PHASE-3: PAVEMENT MARKINGS & CLEAN-UP

APPLY PERMANENT PAVEMENT MARKINGS PER THE PAVEMENT MARKING PLANS. ESTABLISH VEGETATION ON BOTH SIDES OF ROADWAY FROM OUTER EDGE OF PAVEMENT TO RIGHT-OF-WAY LINES. PERFORM FINAL CLEAN-UP AND REMOVE ALL SWP3 DEVICES.

PAYMENT:

1. REMOVAL OF EXISTING PAVEMENT MARKINGS WILL NOT BE PAID FOR DIRECTLY BUT BE SUBSIDIARY TO **TxDOT ITEM 502** "BARRICADES AND TRAFFIC HANDLING."

2. ALL NECESSARY FLAGGERS, DRUMS, DEVICES, WORK AND MATERIALS FOR APPROPRIATE SIGNING TO SAFELY GUIDE TRAFFIC WILL NOT BE PAID FOR DIRECTLY BUT BE SUBSIDIARY TO **TxDOT ITEM 502** "BARRICADES AND TRAFFIC HANDLING."

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CR 258

TRAFFIC CONTROL PLAN SEQUENCE OF WORK (SOW)

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	12
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 8/12/2025
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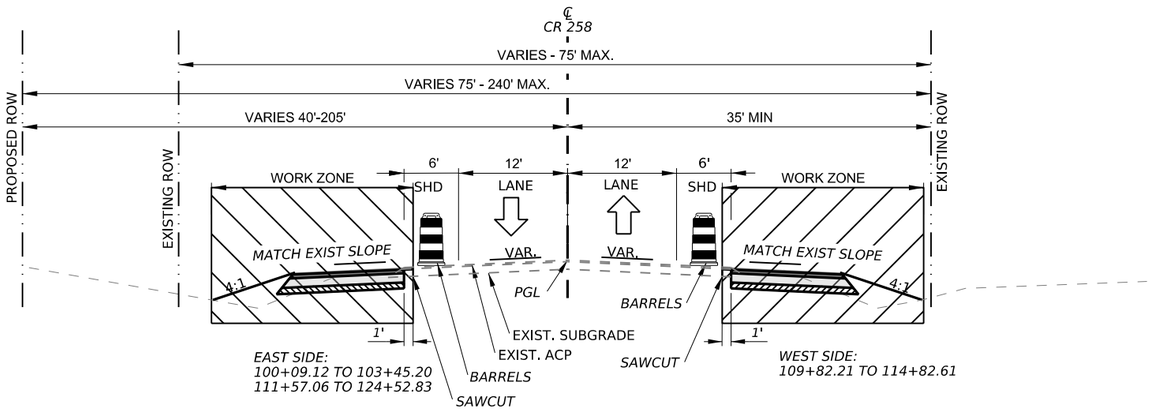
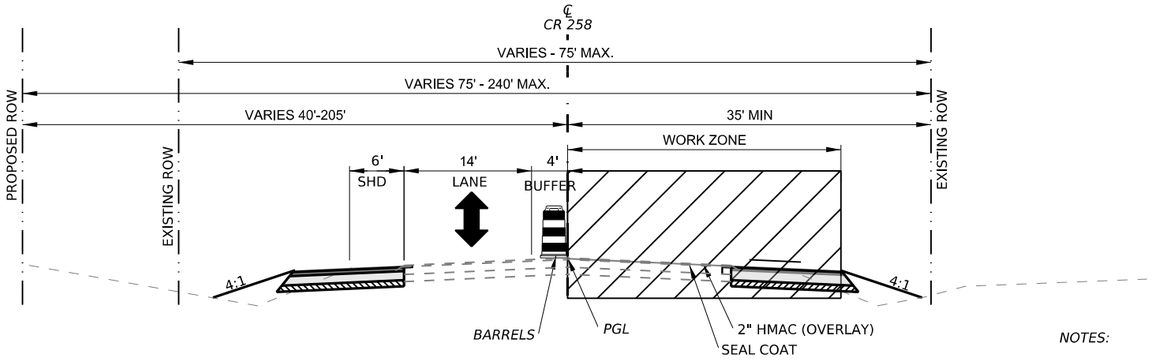


TCP PHASE-1
WIDENING EAST & WEST

NTS

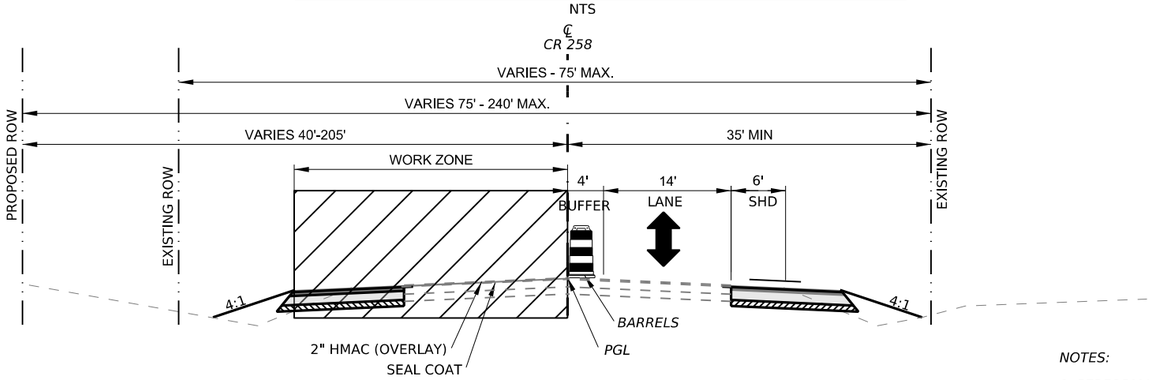


TCP PHASE-2 STEP 1
HMAC OVERLAY
WORKZONE STA 100+00 TO STA 125+00

NTS

NOTES:

1. PERFORM WORK DURING OFF-PEAK HOURS WHILE MAINTAINING TRAFFIC USING ONE-LANE, TWO-WAY FLAGGING OPERATIONS FOR EXISTING TRAFFIC. SEE TCP (1-2)-18 FOR DETAILS.



TCP PHASE-2 STEP 2
HMAC OVERLAY
WORKZONE STA 100+00 TO STA 125+00

NTS

NOTES:

1. PERFORM WORK DURING OFF-PEAK HOURS WHILE MAINTAINING TRAFFIC USING ONE-LANE, TWO-WAY FLAGGING OPERATIONS FOR EXISTING TRAFFIC. SEE TCP (1-2)-18 FOR DETAILS.

LEGEND:

WORK ZONE THIS PHASE

PROP. TCP LANE OF TRAVEL

EXIST. LANE OF TRAVEL

NOTES:

1. REFER TO LATEST TCP (1-2)-18 & (2-3)-23 TXDOT STANDARD FOR TYPICAL LANE CLOSURES.

2. REFER TO EXIST. UTILITY LAYOUTS FOR MORE INFORMATION.

3. ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES.

PHASE 3:

APPLY PERMANENT PAVEMENT MARKINGS PER THE PAVEMENT MARKING PLANS.

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TRAFFIC CONTROL PLAN
TYPICAL SECTIONS

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	13
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 8/13/2025
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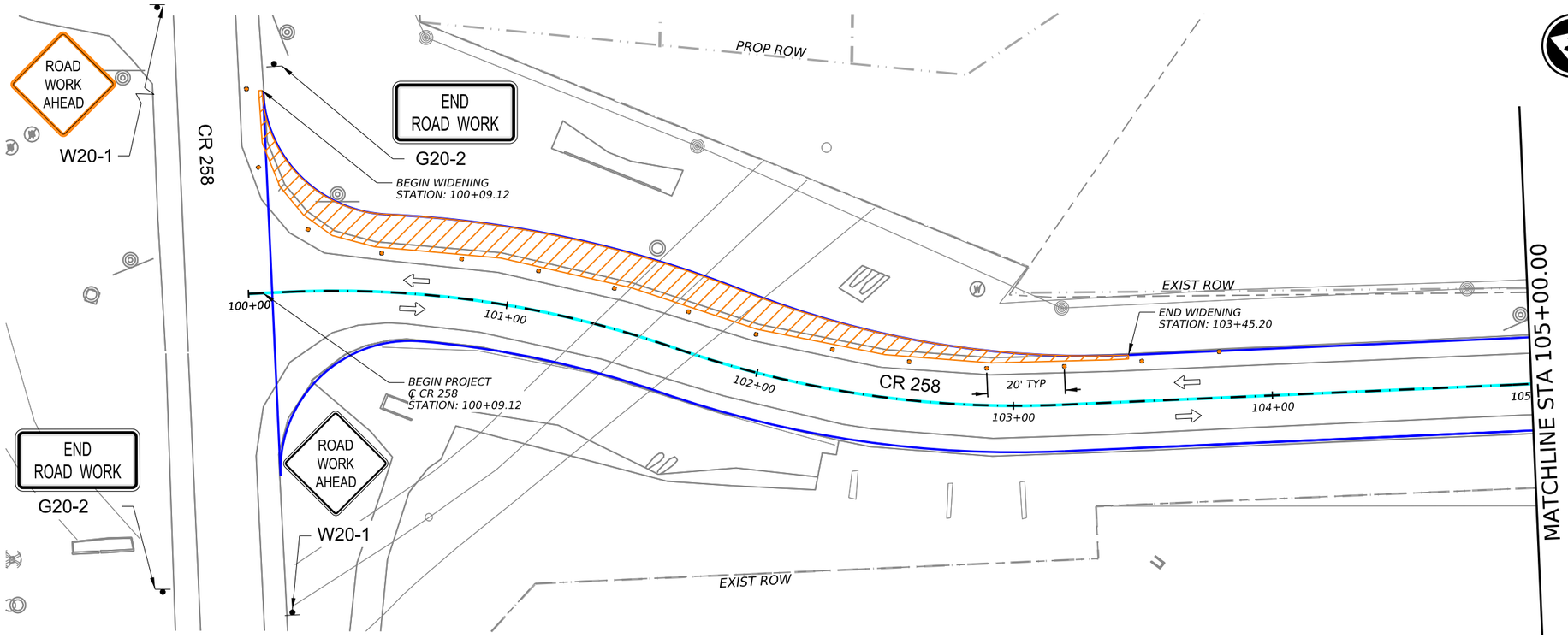

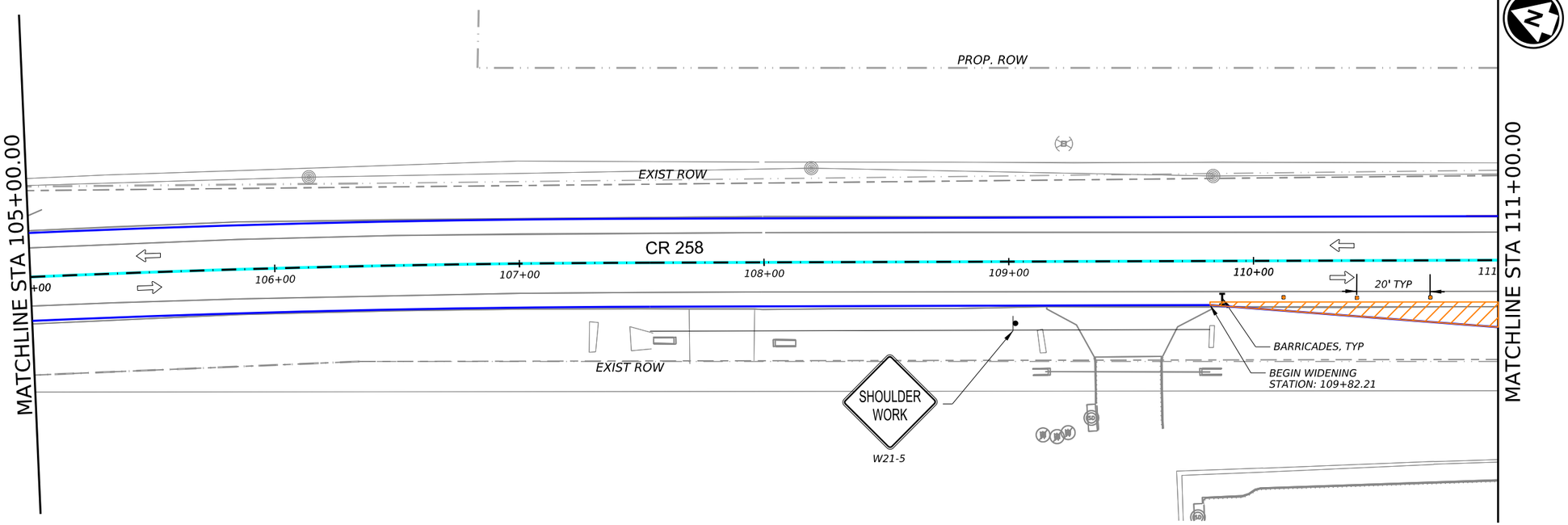

0 25 50
SCALE IN FEET

LEGEND:
- WORK ZONE THIS PHASE
- DRUMS @ 20' SPACING
- BARRICADE (TYPE III)
- TEMPORARY SIGN
- PROP. TCP LANE OF TRAVEL
- EXIST. LANE OF TRAVEL

NOTES:
1. ALL CALLOUTS AND DIMENSIONS ARE TO CENTER OF STRIPING UNLESS OTHERWISE NOTED.
2. ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES.
3. REFER TO EXIST. UTILITY LAYOUTS FOR MORE INFORMATION.
4. REFER TO LATEST TCP (2-3)-23 TXDOT STANDARD FOR TYPICAL LANE CLOSURES.

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TRAFFIC CONTROL PLAN
PHASE 1

SHEET 1 0F 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	
	STATE	COUNTY	PRECINCT	14
	TX	WILCO	PCT 2	

DATE: 9/23/2025
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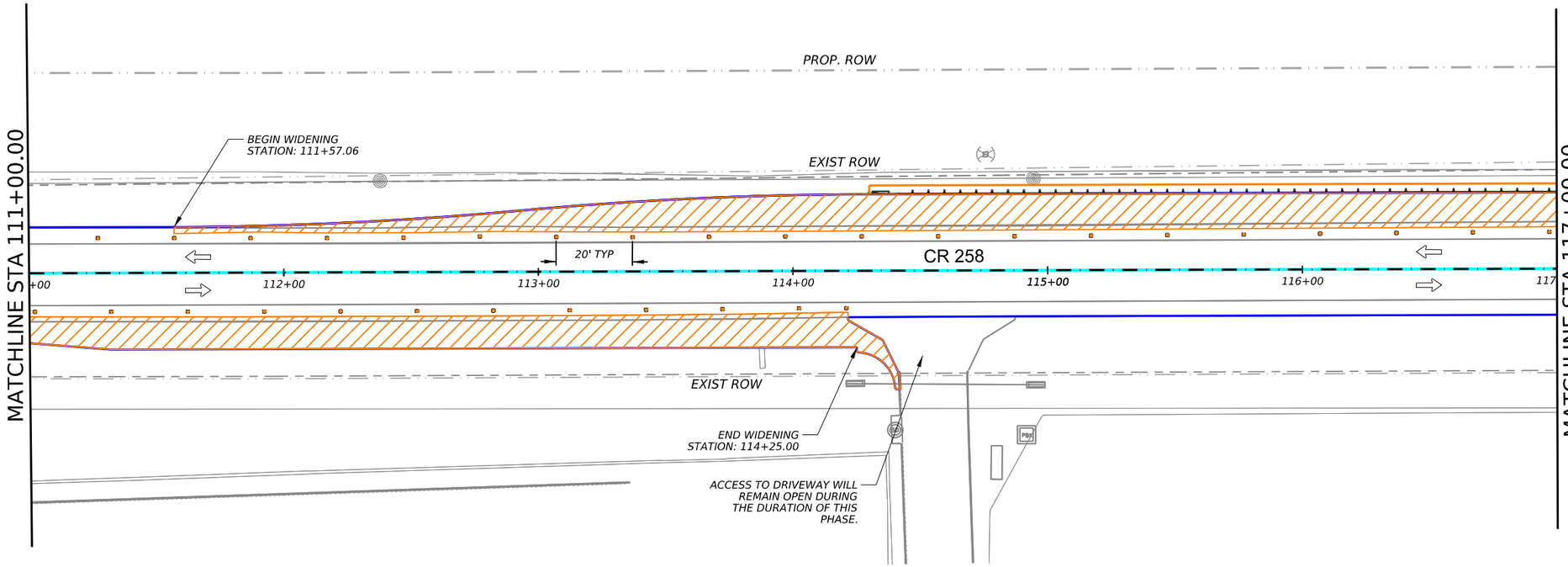

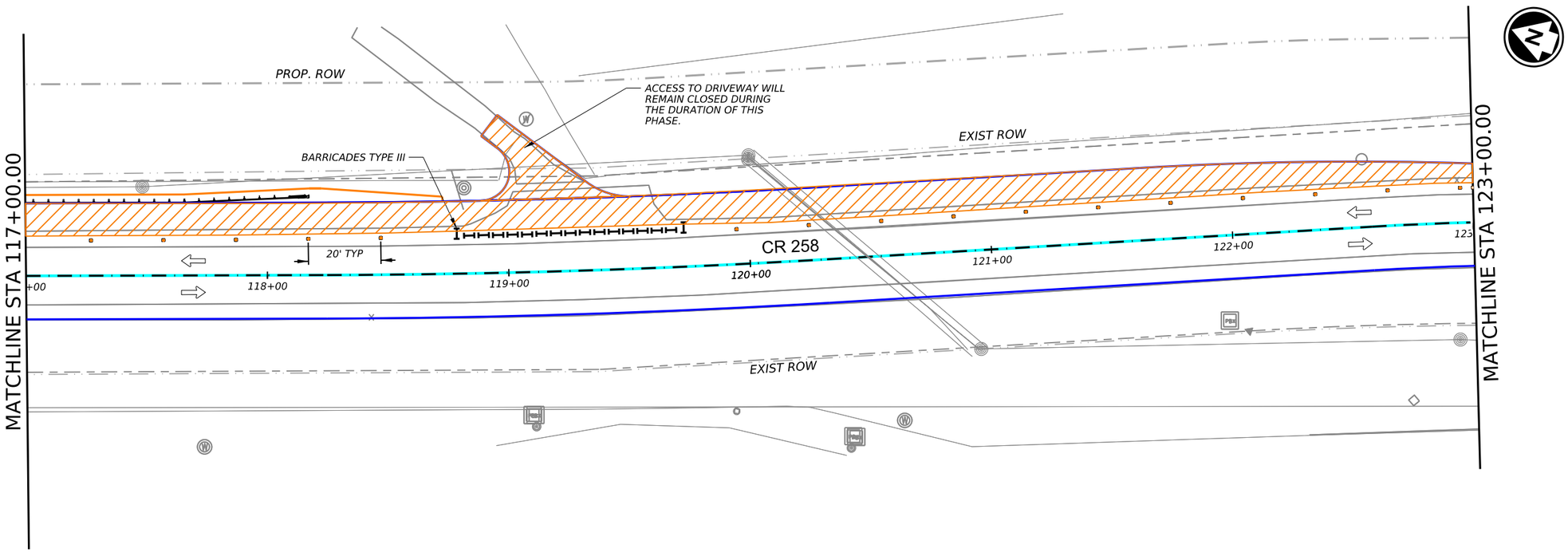

0 25 50
SCALE IN FEET

LEGEND:

- WORK ZONE THIS PHASE
- DRUMS @ 20' SPACING
- BARRICADE (TYPE III)
- TEMPORARY SIGN
- PROP. TCP LANE OF TRAVEL
- EXIST. LANE OF TRAVEL

NOTES:

1. ALL CALLOUTS AND DIMENSIONS ARE TO CENTER OF STRIPING UNLESS OTHERWISE NOTED.
2. ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES.
3. REFER TO EXIST. UTILITY LAYOUTS FOR MORE INFORMATION.
4. REFER TO LATEST TCP (2-3)-23 TXDOT STANDARD FOR TYPICAL LANE CLOSURES.
5. REMOVE CONFLICTING MARKINGS, FOLLOW FINAL STRIPING LAYOUT AND USE TY II WATER BASED PAVEMENT MARKINGS.

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TRAFFIC CONTROL PLAN PHASE 1

SHEET 2 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	15
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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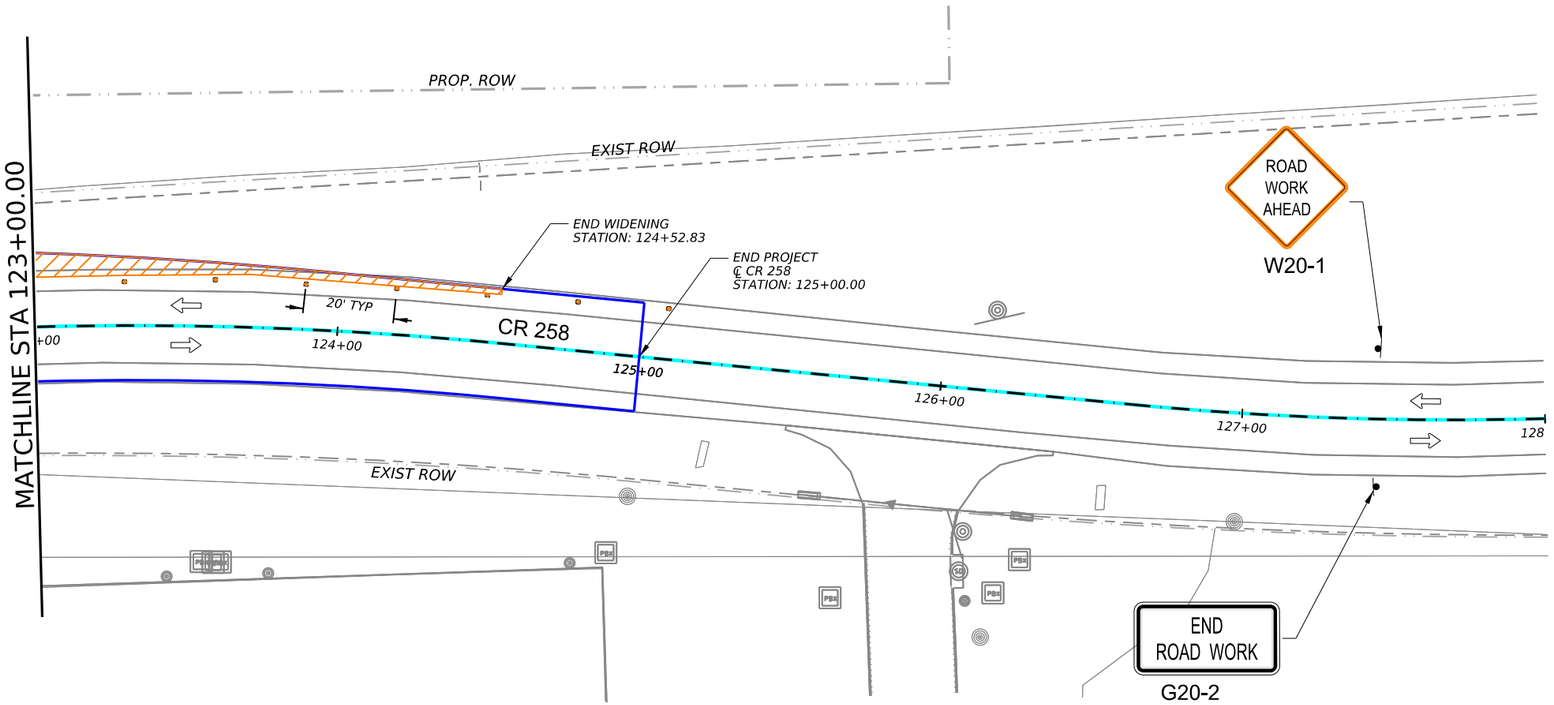


0 25 50

SCALE IN FEET

LEGEND:

- WORK ZONE THIS PHASE
- DRUMS @ 20' SPACING
- BARRICADE (TYPE III)
- TEMPORARY SIGN
- PROP. TCP LANE OF TRAVEL
- EXIST. LANE OF TRAVEL

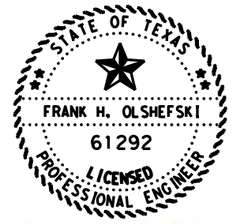
NOTES:

1. ALL CALLOUTS AND DIMENSIONS ARE TO CENTER OF STRIPING UNLESS OTHERWISE NOTED.

2. ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES.

3. REFER TO EXIST. UTILITY LAYOUTS FOR MORE INFORMATION.

4. REFER TO LATEST TCP (2-3)-23 TXDOT STANDARD FOR TYPICAL LANE



Frank H. Olshefski

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TRAFFIC CONTROL PLAN PHASE 1

SHEET 3 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	16
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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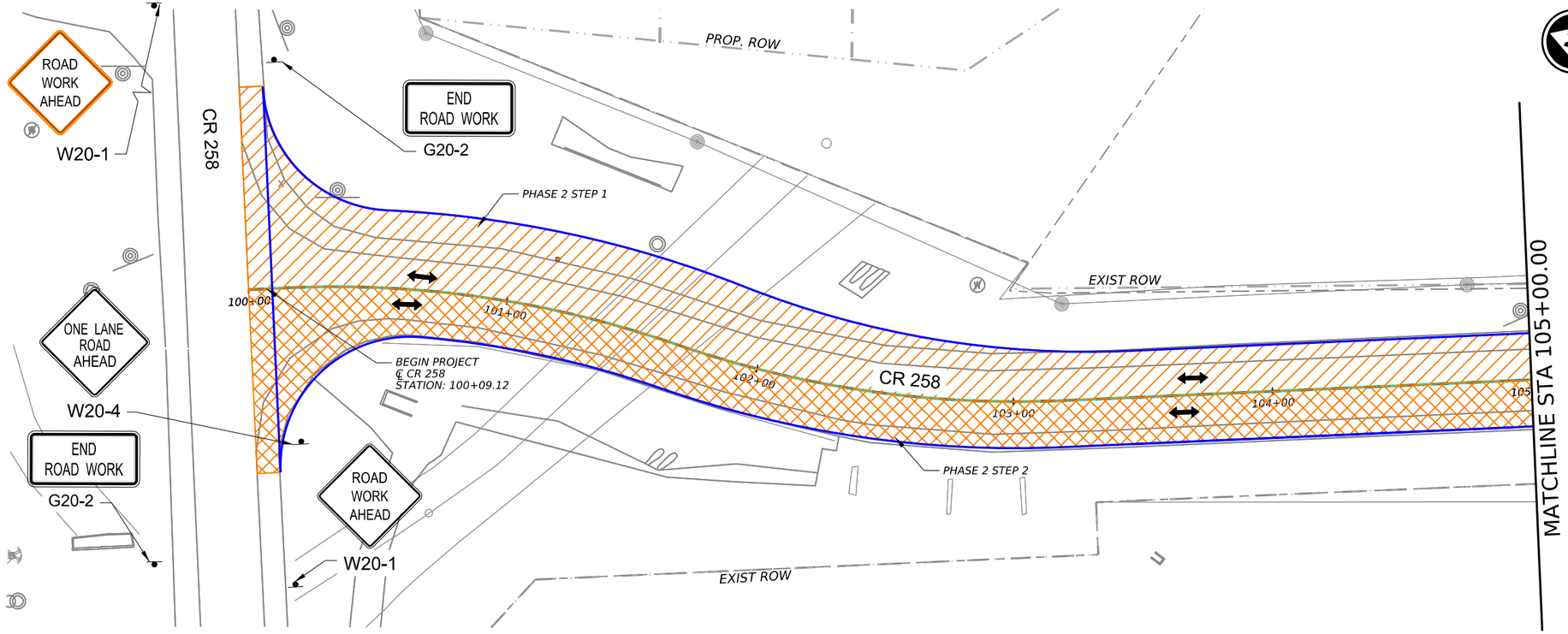

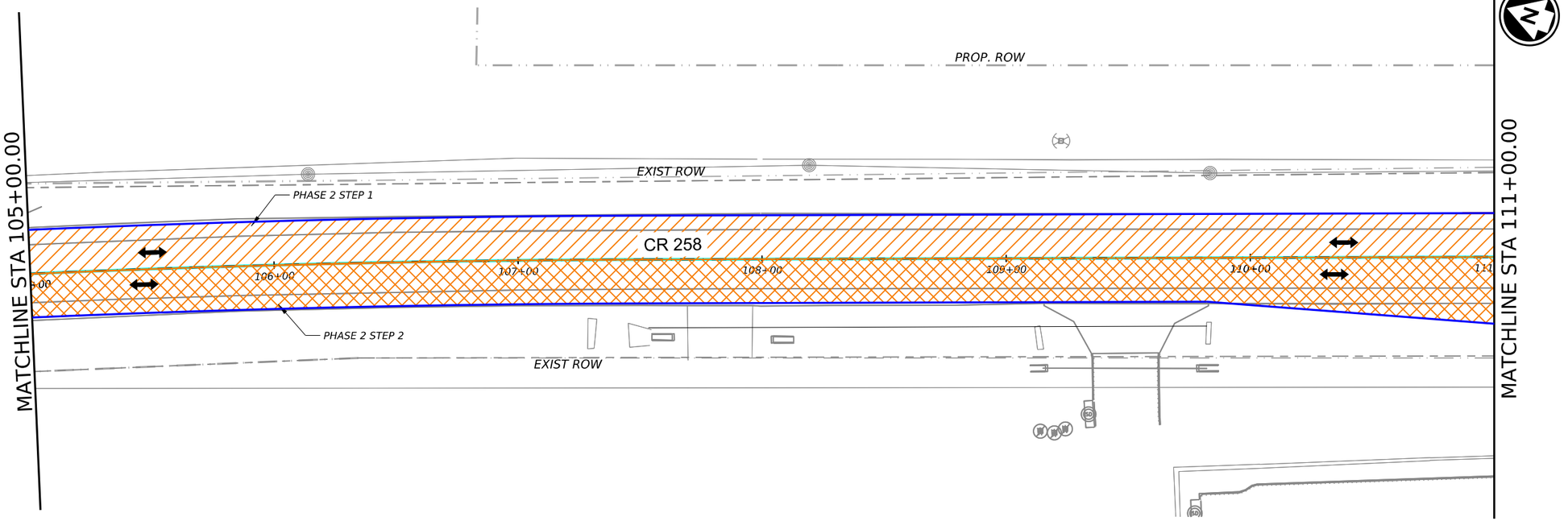

0 25 50
SCALE IN FEET

LEGEND:
- WORK ZONE PHASE 2 STEP 1
- WORK ZONE PHASE 2 STEP 2
- DRUMS
- BARRICADE (TYPE III)
- TEMPORARY SIGN
- PROP. TCP LANE OF TRAVEL
- EXIST. LANE OF TRAVEL

NOTES:
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2. ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES.
3. REFER TO EXIST. UTILITY LAYOUTS FOR MORE INFORMATION.
4. REFER TO LATEST TCP (2-3)-23 TXDOT STANDARD FOR TYPICAL LANE CLOSURES.

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TBPE Firm Number: 3937
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AMERICAN STRUCTUREPOINT INC.
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CR 258

TRAFFIC CONTROL PLAN
PHASE 2

SHEET 1 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	17
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

SUB
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DATE: 9/23/2025
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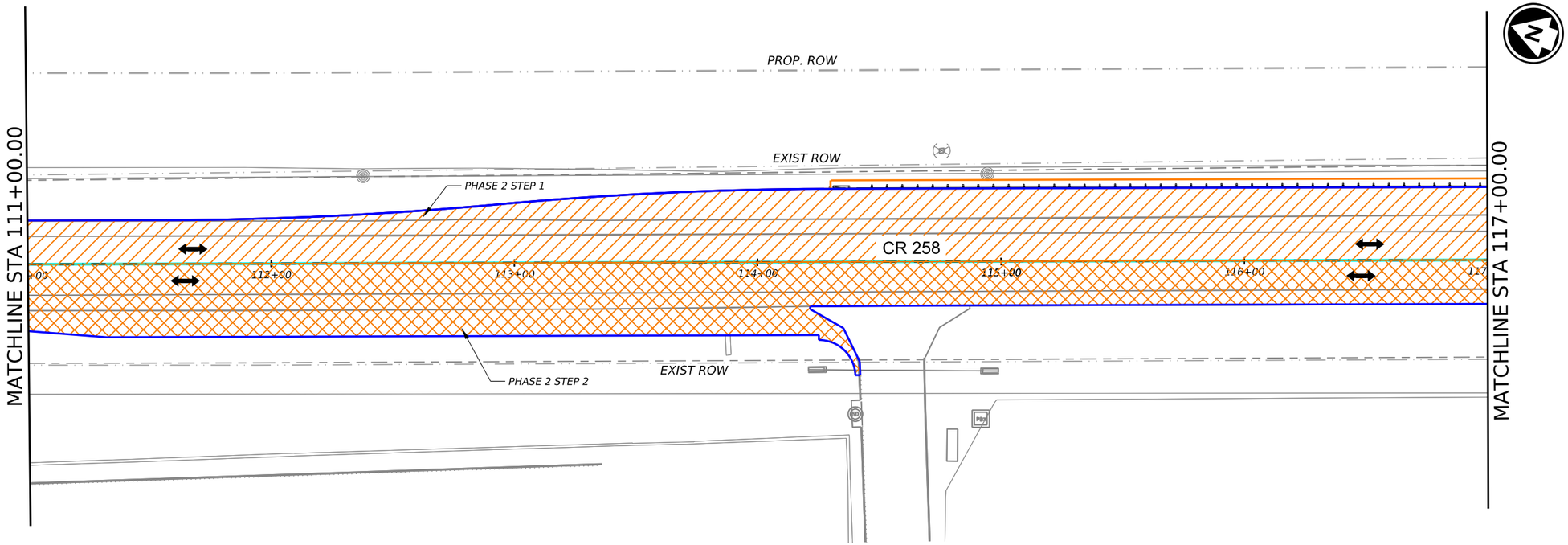

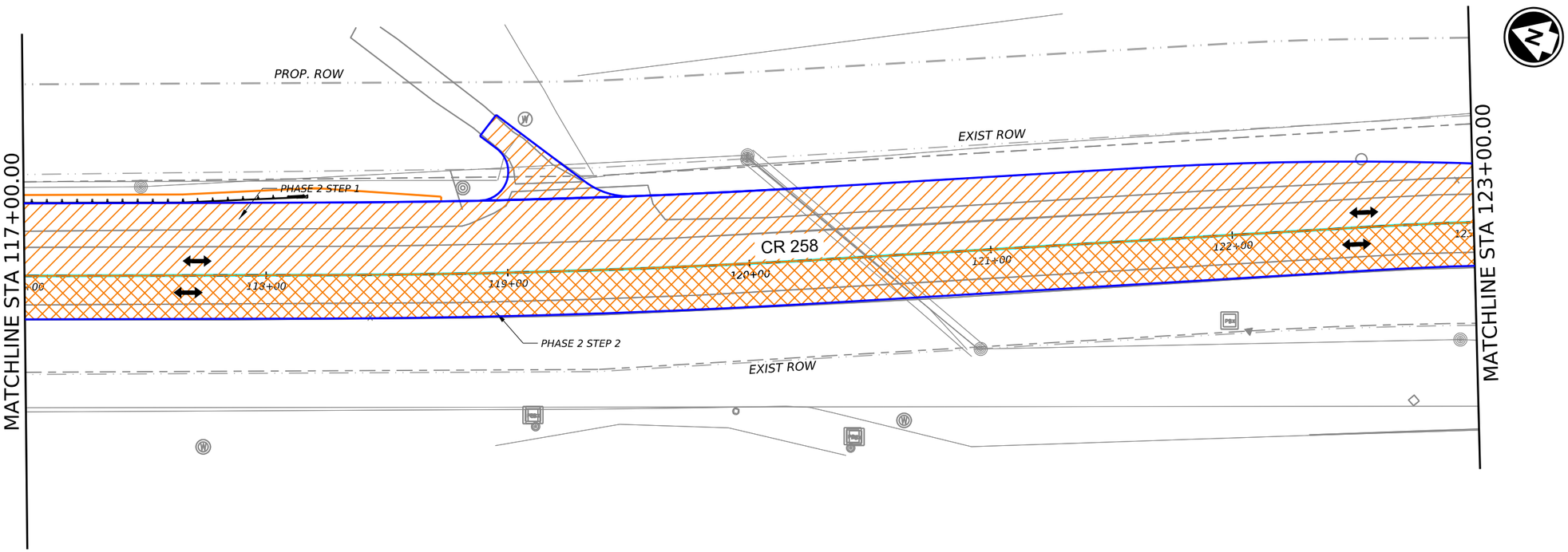

0 25 50

SCALE IN FEET

LEGEND:

- WORK ZONE PHASE 2 STEP 1
- WORK ZONE PHASE 2 STEP 2
- DRUMS
- BARRICADE (TYPE III)
- TEMPORARY SIGN
- PROP. TCP LANE OF TRAVEL
- EXIST. LANE OF TRAVEL

NOTES:

1. ALL CALLOUTS AND DIMENSIONS ARE TO CENTER OF STRIPING UNLESS OTHERWISE NOTED.
2. ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES.
3. REFER TO EXIST. UTILITY LAYOUTS FOR MORE INFORMATION.
4. REFER TO LATEST TCP (2-3)-23 TXDOT STANDARD FOR TYPICAL LANE CLOSURES.

STATE OF TEXAS
FRANK H. OLSHEFSKI
61292
LICENSED
PROFESSIONAL ENGINEER

Frank H. Olshefski

9-26-2025

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CR 258

TRAFFIC CONTROL PLAN
PHASE 2

SHEET 2 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	18
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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SUB
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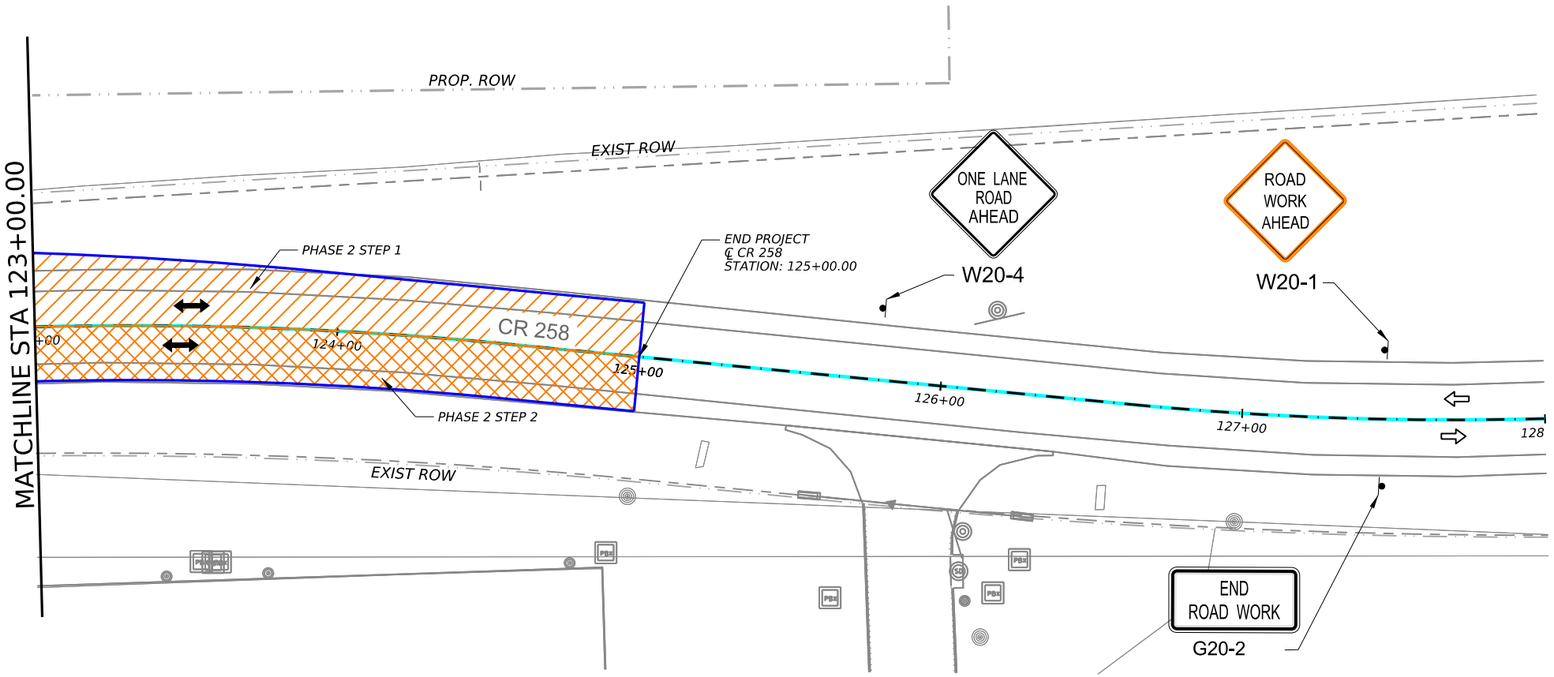
dw XXX | cx:YYY | dw XXX | cx:YYY
SUB



0 25 50
SCALE IN FEET

LEGEND:

- WORK ZONE PHASE 2 STEP 1
- WORK ZONE PHASE 2 STEP 2
- DRUMS
- BARRICADE (TYPE III)
- TEMPORARY SIGN
- PROP. TCP LANE OF TRAVEL
- EXIST. LANE OF TRAVEL

NOTES:

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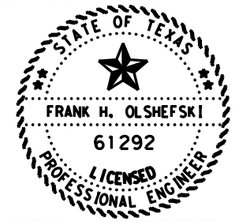
2. ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES.
3. REFER TO EXIST. UTILITY LAYOUTS FOR MORE INFORMATION.
4. REFER TO LATEST TCP (2-3)-23 TXDOT STANDARD FOR TYPICAL LANE CLOSURES.
5. REMOVE CONFLICTING MARKINGS, FOLLOW FINAL STRIPING LAYOUT AND USE TY II WATER BASED PAVEMENT MARKINGS.



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CR 258

TRAFFIC CONTROL PLAN PHASE 2

SHEET 3 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	19
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 9/23/2025
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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP)is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21	DIST	COUNTY		SHEET NO. 20

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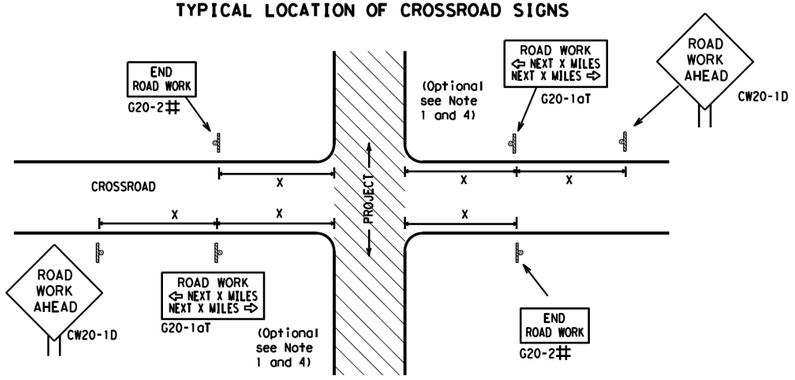
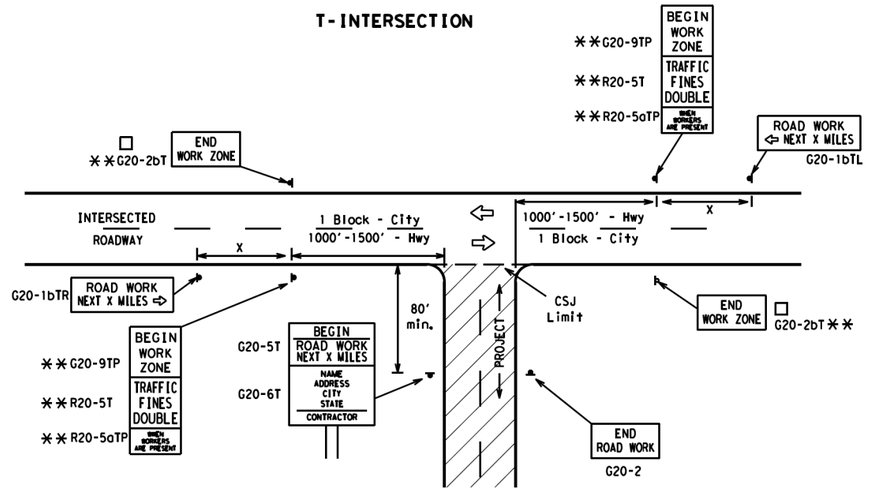
TYPICAL LOCATION OF CROSSROAD SIGNS



May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[4,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign △ Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
*	*[3]

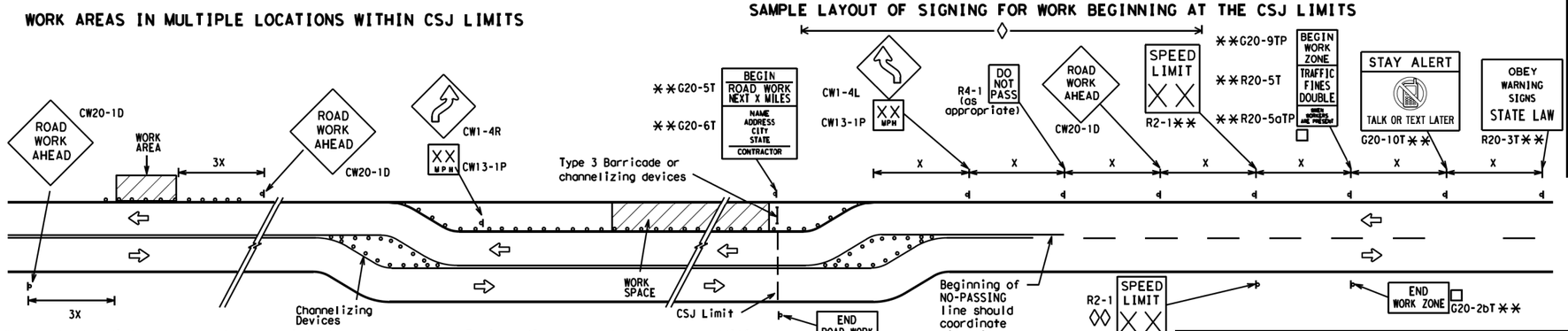
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

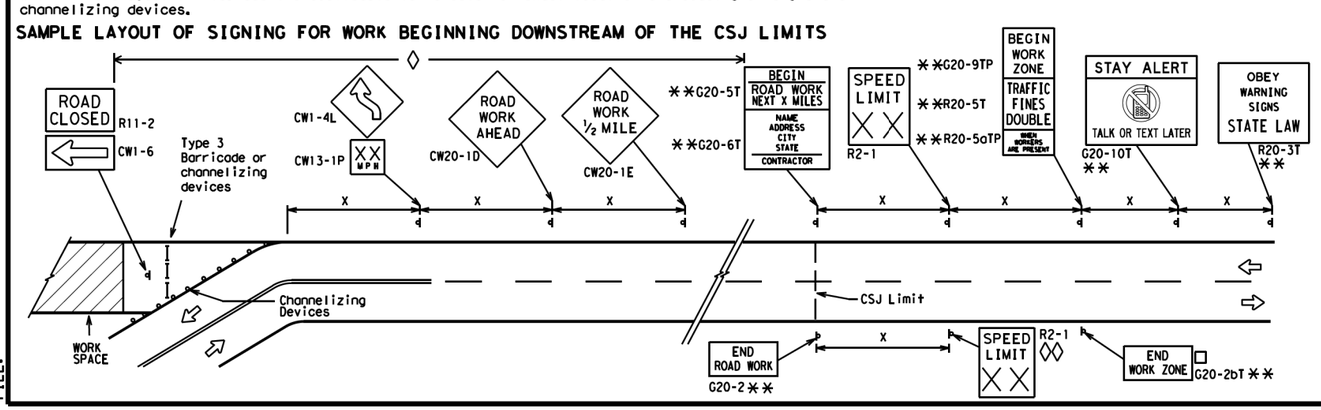
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

□ The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND	
⟷	Type 3 Barricade
o o o	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21				21

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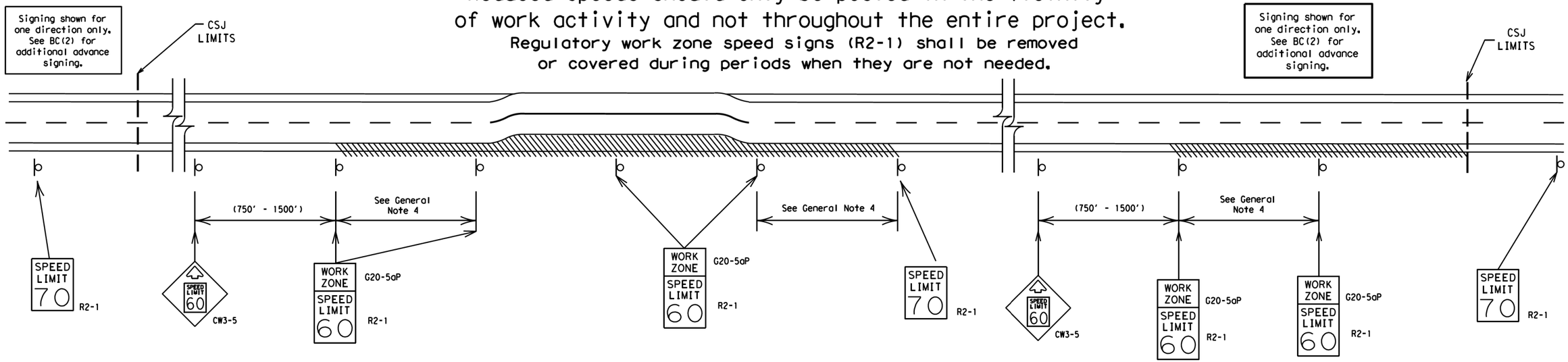
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered.
(See Removing or Covering on BC(4)).

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the"ADVANCE SPEED LIMIT"(CW3-5)sign, "WORK ZONE"(G20-5aP) plaque and the "SPEED LIMIT"(R2-1)signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

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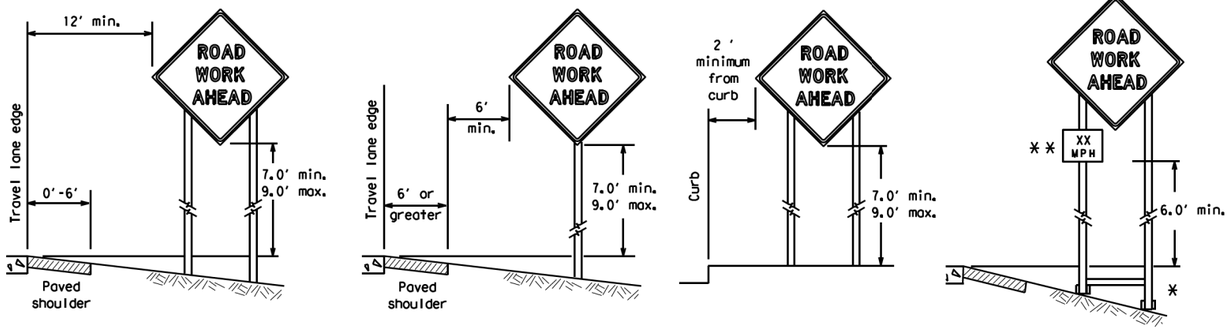
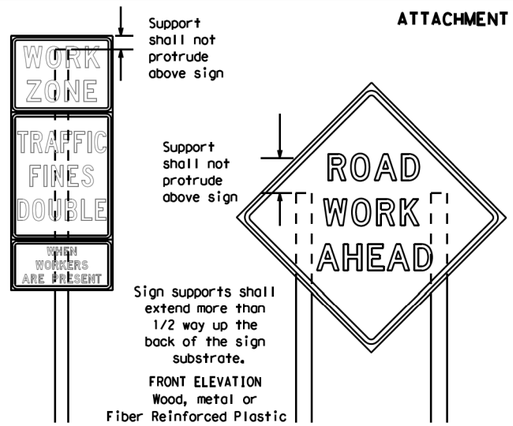
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

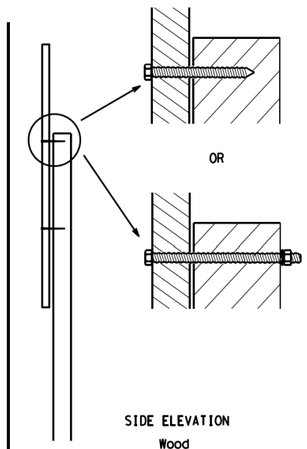


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS





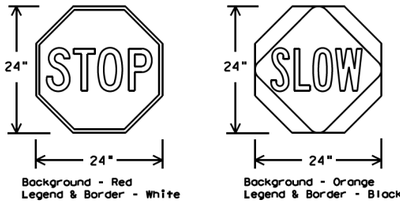
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflectorized when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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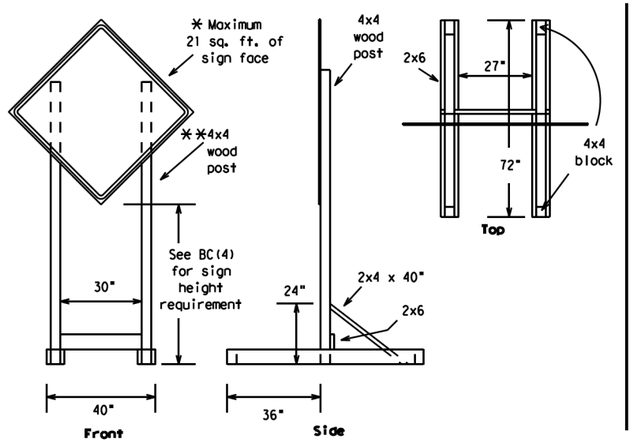
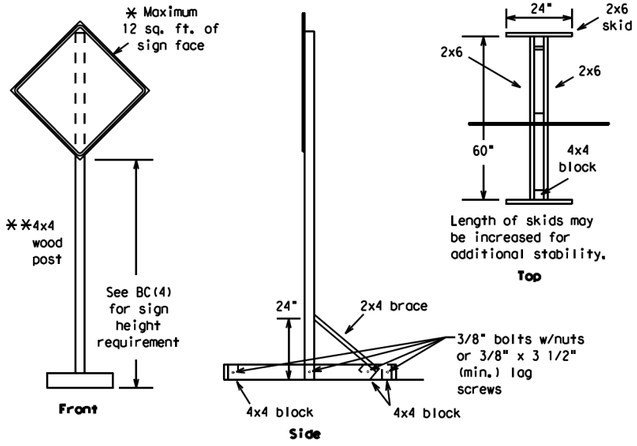
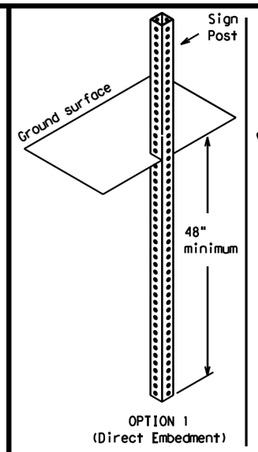
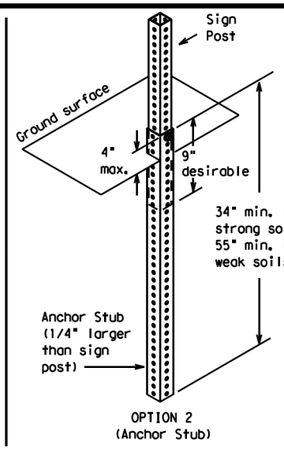


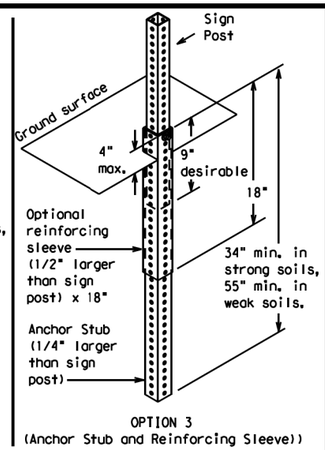


SKID MOUNTED WOOD SIGN SUPPORTS

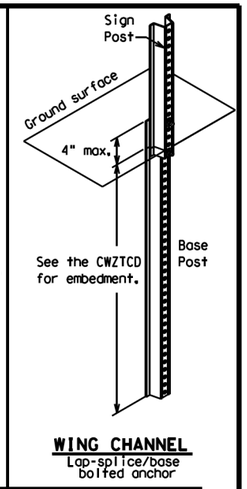
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







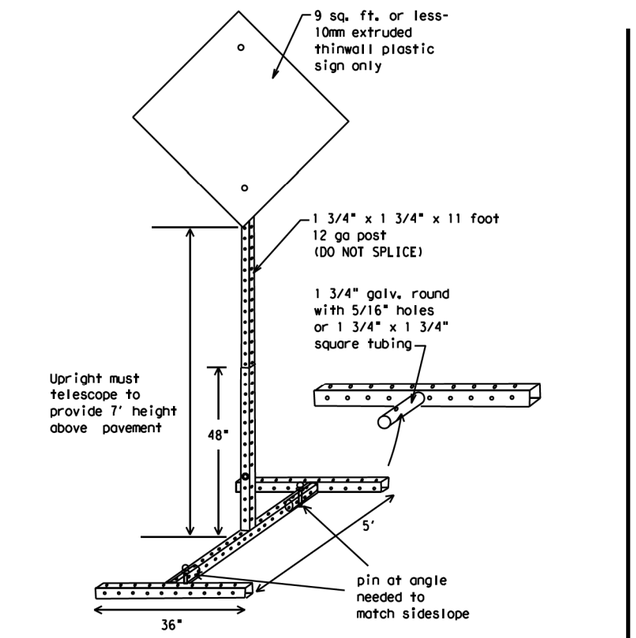
PERFORATED SQUARE METAL TUBING

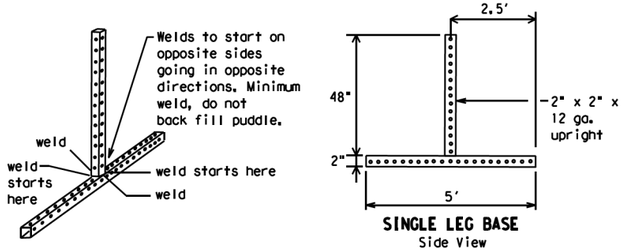


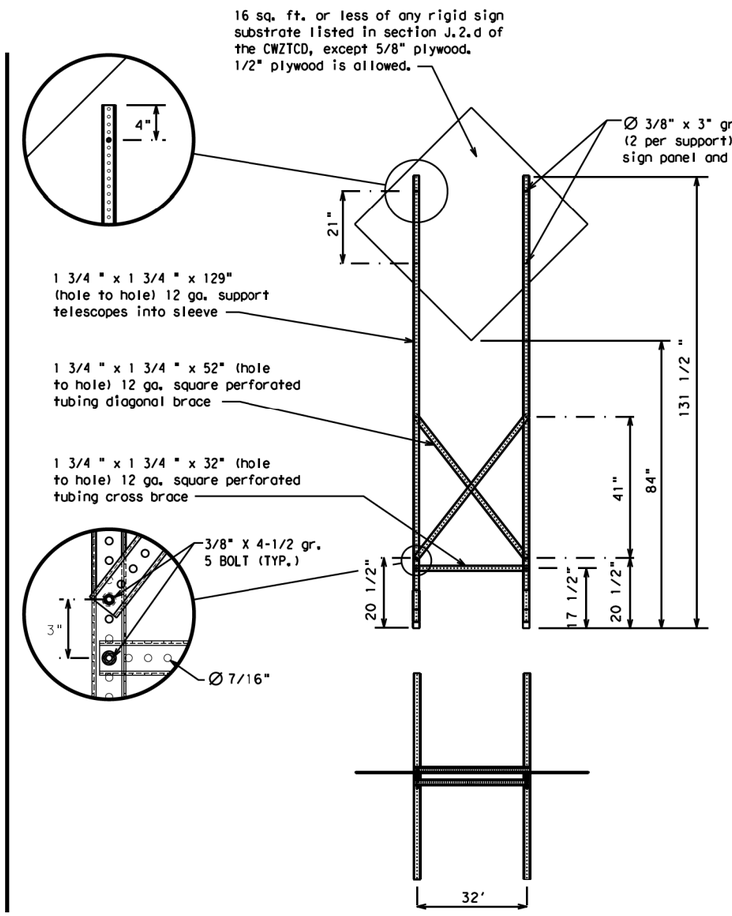
WING CHANNEL
Lap-splice/base bolted anchor

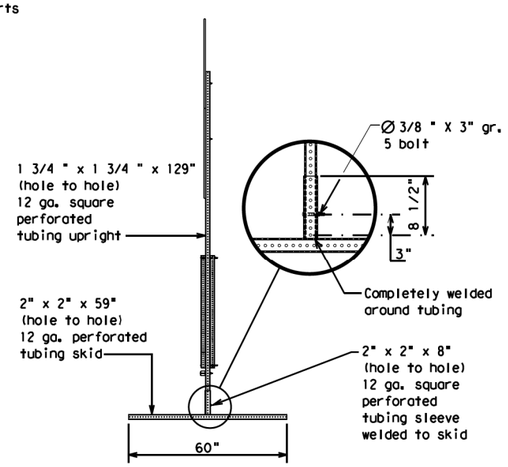
GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.









SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

* See BC(4) for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

□ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

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BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
3. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
4. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
5. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
6. When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
7. The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
8. The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
9. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
10. Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
11. Do not use the word "Danger" in message.
12. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
13. Do not display messages that scroll horizontally or vertically across the face of the sign.
14. The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
15. PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
16. Each line of text should be centered on the message board rather than left or right justified.
17. If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

Roadway designation * IH-number, US-number, SH-number, FM-number

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

- FREEWAY CLOSED X MILE
- FRONTAGE ROAD CLOSED
- ROAD CLOSED AT SH XXX
- SHOULDER CLOSED XXX FT
- ROAD CLSD AT FM XXXX
- RIGHT LN CLOSED XXX FT
- RIGHT X LANES CLOSED
- RIGHT X LANES OPEN
- CENTER LANE CLOSED
- DAYTIME LANE CLOSURES
- NIGHT LANE CLOSURES
- I-XX SOUTH EXIT CLOSED
- VARIOUS LANES CLOSED
- EXIT XXX CLOSED X MILE
- EXIT CLOSED
- RIGHT LN TO BE CLOSED
- MALL DRIVEWAY CLOSED
- X LANES CLOSED TUE - FRI
- XXXXXXXX BLVD CLOSED

Other Condition List

- ROADWORK XXX FT
- ROAD REPAIRS XXXX FT
- FLAGGER XXXX FT
- LANE NARROWS XXXX FT
- RIGHT LN NARROWS XXXX FT
- TWO-WAY TRAFFIC XX MILE
- MERGING TRAFFIC XXXX FT
- CONST TRAFFIC XXX FT
- LOOSE GRAVEL XXXX FT
- UNEVEN LANES XXXX FT
- DETOUR X MILE
- ROUGH ROAD XXXX FT
- ROADWORK PAST SH XXXX
- ROADWORK NEXT FRI-SUN
- BUMP XXXX FT
- US XXX EXIT X MILES
- TRAFFIC SIGNAL XXXX FT
- LANES SHIFT *

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

- MERGE RIGHT
- FORM X LINES RIGHT
- DETOUR NEXT X EXITS
- USE XXXXX RD EXIT
- USE EXIT XXX
- USE EXIT I-XX NORTH
- STAY ON US XXX SOUTH
- USE I-XX E TO I-XX N
- TRUCKS USE US XXX N
- WATCH FOR TRUCKS
- WATCH FOR TRUCKS
- EXPECT DELAYS
- EXPECT DELAYS
- PREPARE TO STOP
- REDUCE SPEED XXX FT
- END SHOULDER USE
- USE OTHER ROUTES
- WATCH FOR WORKERS
- STAY IN LANE *

Location List

- AT FM XXXX
- BEFORE RAILROAD CROSSING
- NEXT X MILES
- PAST US XXX EXIT
- XXXXXXX TO XXXXXXX
- US XXX TO FM XXXX

Warning List

- SPEED LIMIT XX MPH
- MAXIMUM SPEED XX MPH
- MINIMUM SPEED XX MPH
- ADVISORY SPEED XX MPH
- RIGHT LANE EXIT
- USE CAUTION
- DRIVE SAFELY
- DRIVE WITH CARE

** Advance Notice List

- TUE-FRI XX AM- X PM
- APR XX-XX X PM-X AM
- BEGINS MONDAY
- BEGINS MAY XX
- MAY X-X XX PM - XX AM
- NEXT FRI-SUN
- XX AM TO XX PM
- NEXT TUE AUG XX
- TONIGHT XX PM- XX AM

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

1. Only 1 or 2 phases are to be used on a PCMS.
2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
4. A Location Phase is necessary only if a distance or location is not included in the first phase selected.
5. If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
6. For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

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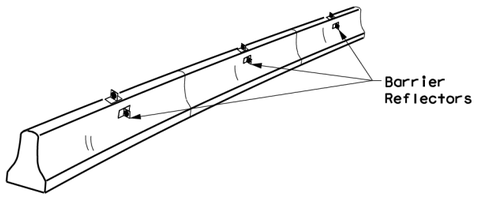
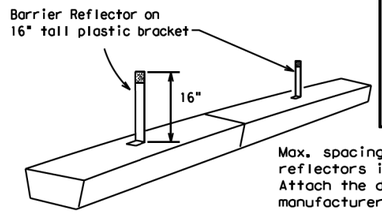
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

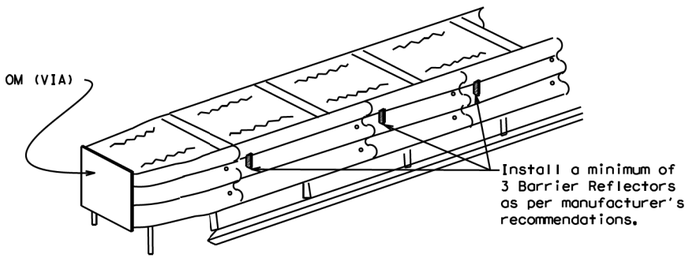


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)

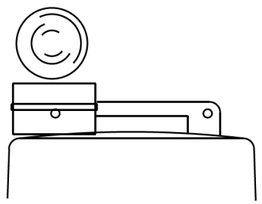


DELINEATION OF END TREATMENTS

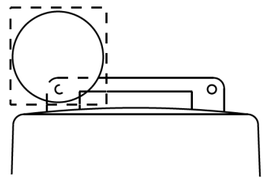
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

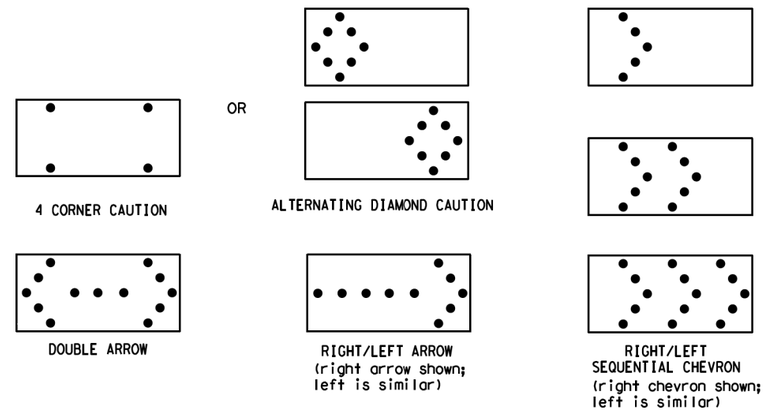
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:



5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

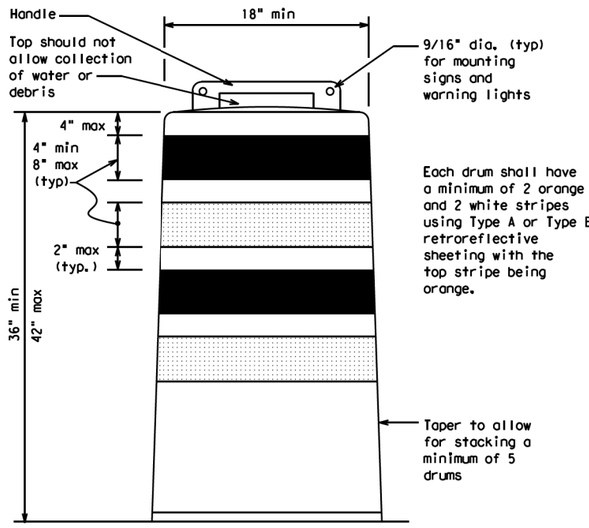
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

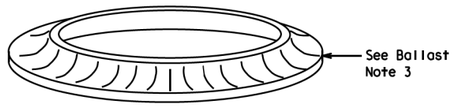
RETROREFLECTIVE SHEETING

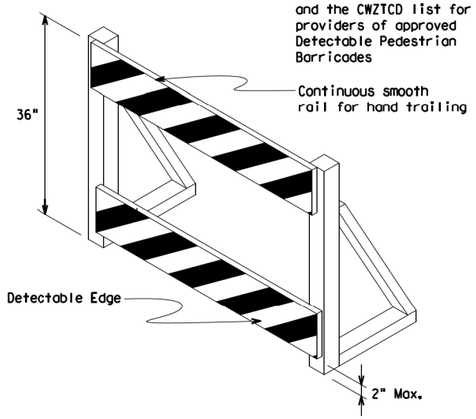
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

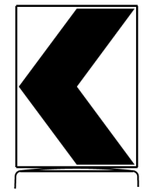




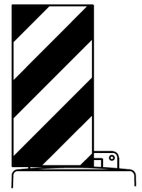


DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

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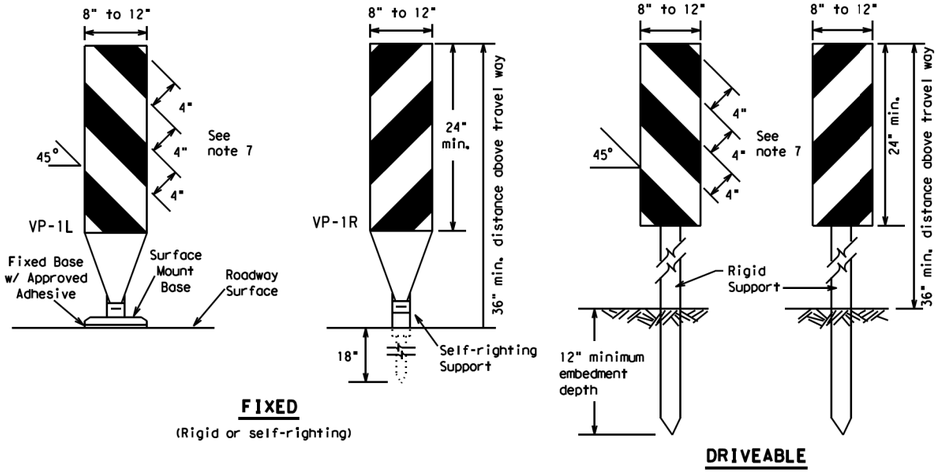


FIXED
(Rigid or self-righting)

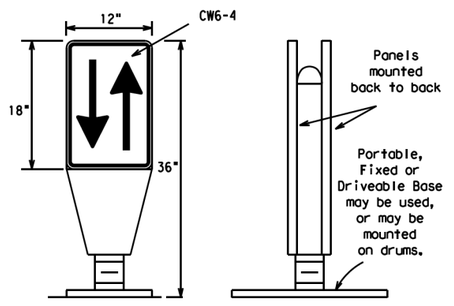
DRIVEABLE

(Rigid or self-righting)

PORTABLE

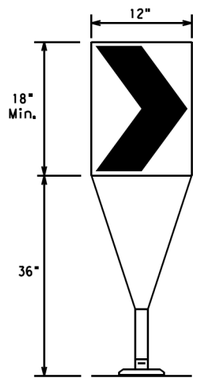
VERTICAL PANELS (VPs)

1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



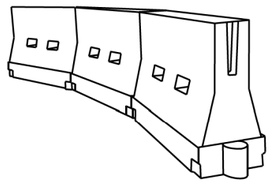
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

**Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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REVISIONS				
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7-13 5-21				28

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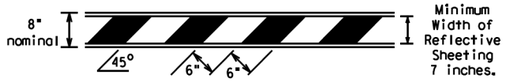
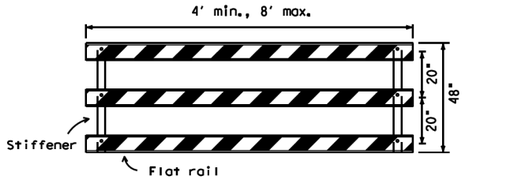
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



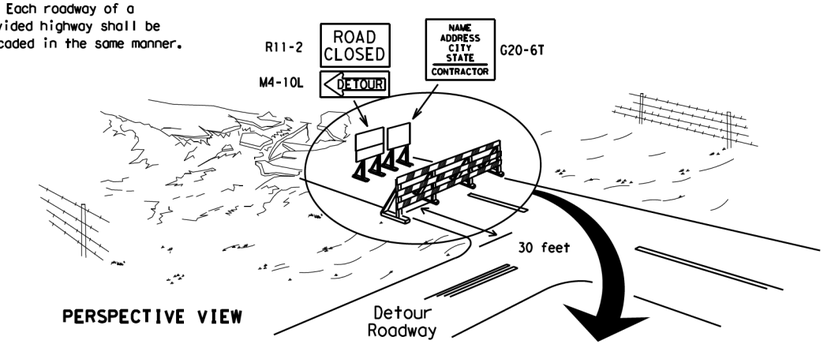
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

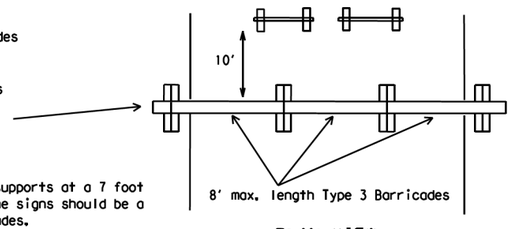
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

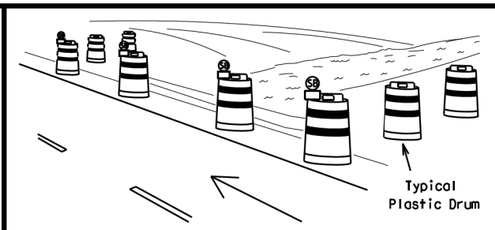
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

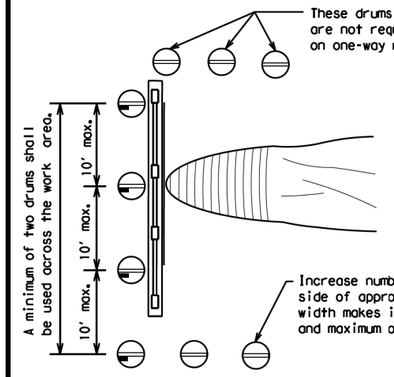
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

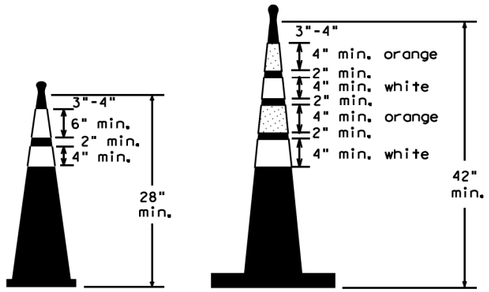
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



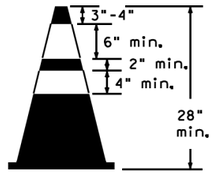
LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

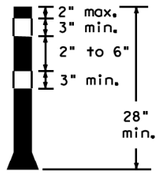
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

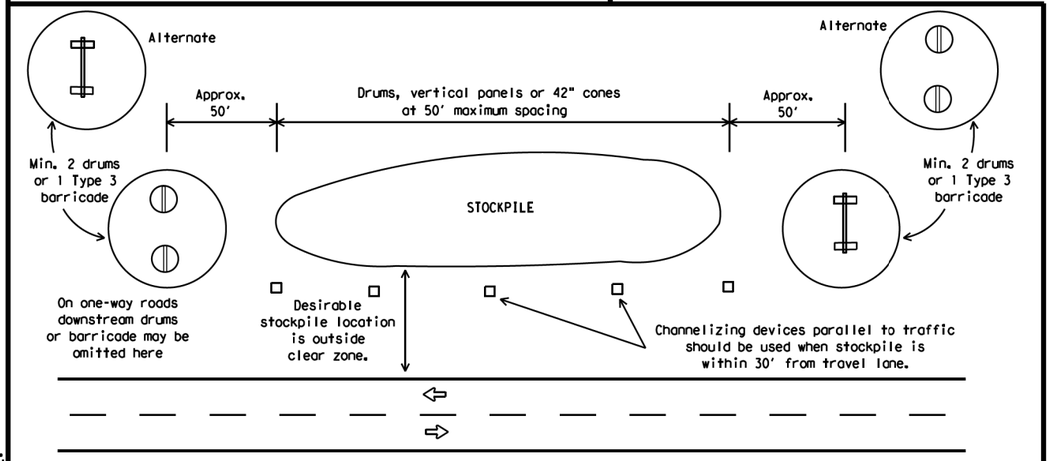


Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

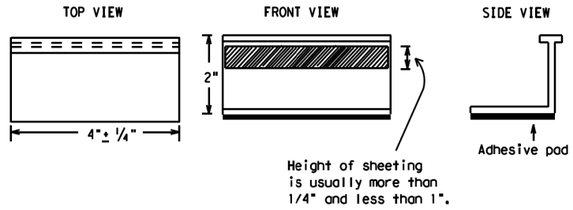
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

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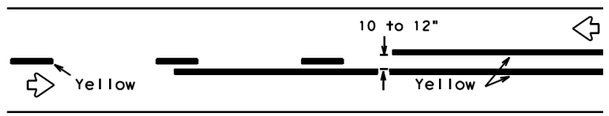
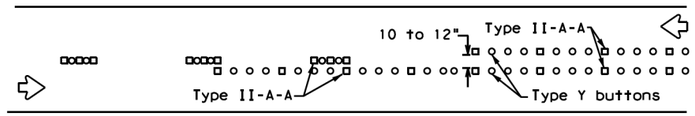
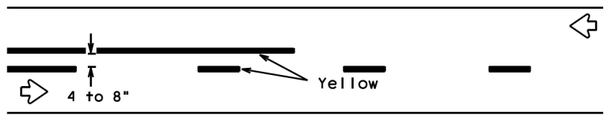
PAVEMENT MARKING PATTERNS



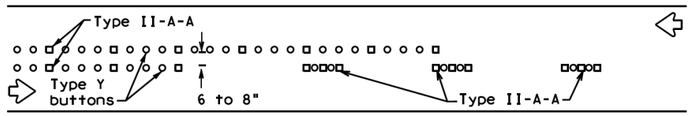
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



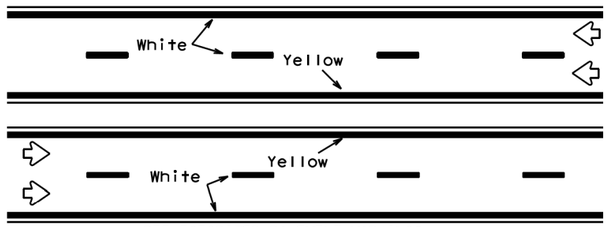
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



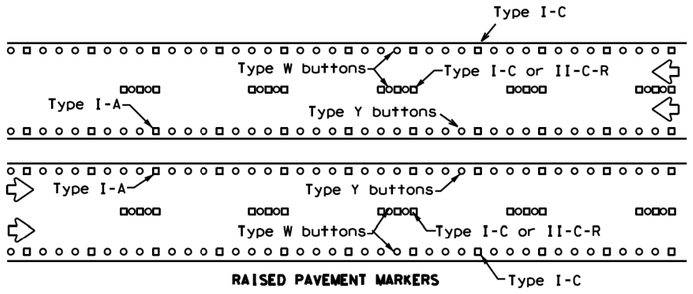
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer.
Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



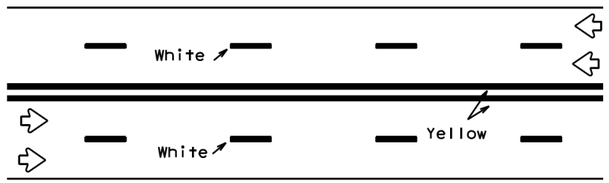
REFLECTORIZED PAVEMENT MARKINGS



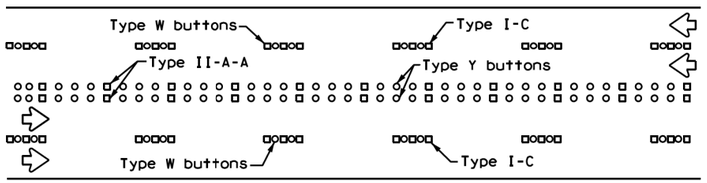
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



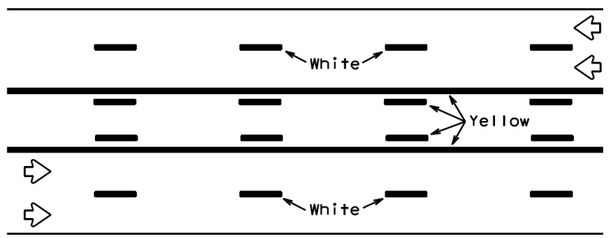
REFLECTORIZED PAVEMENT MARKINGS



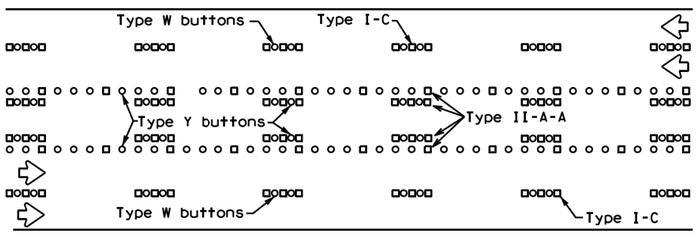
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

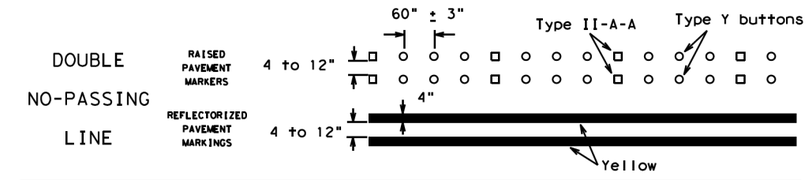
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

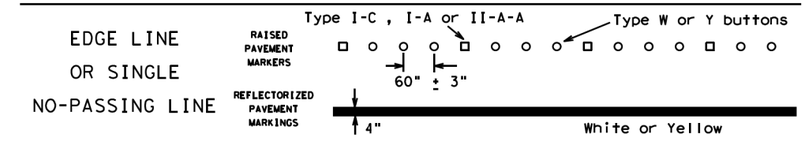
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

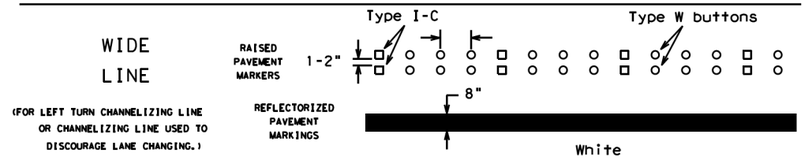


EDGE LINE OR SINGLE NO-PASSING LINE



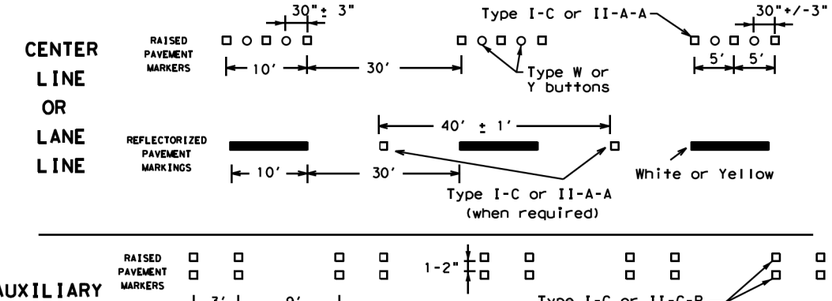
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

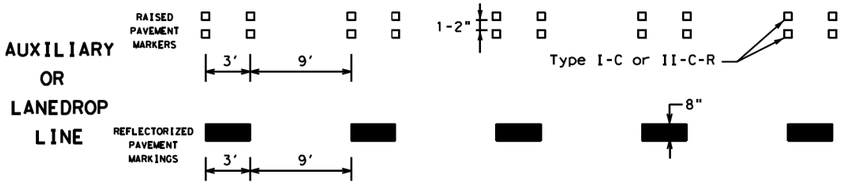


BROKEN LINES

CENTER LINE OR LANE LINE

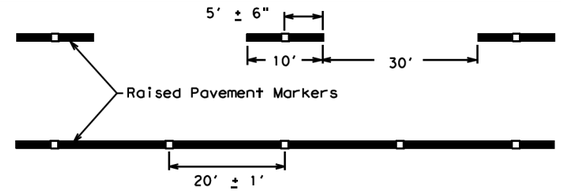


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	DIST	COUNTY		SHEET NO. 31

106

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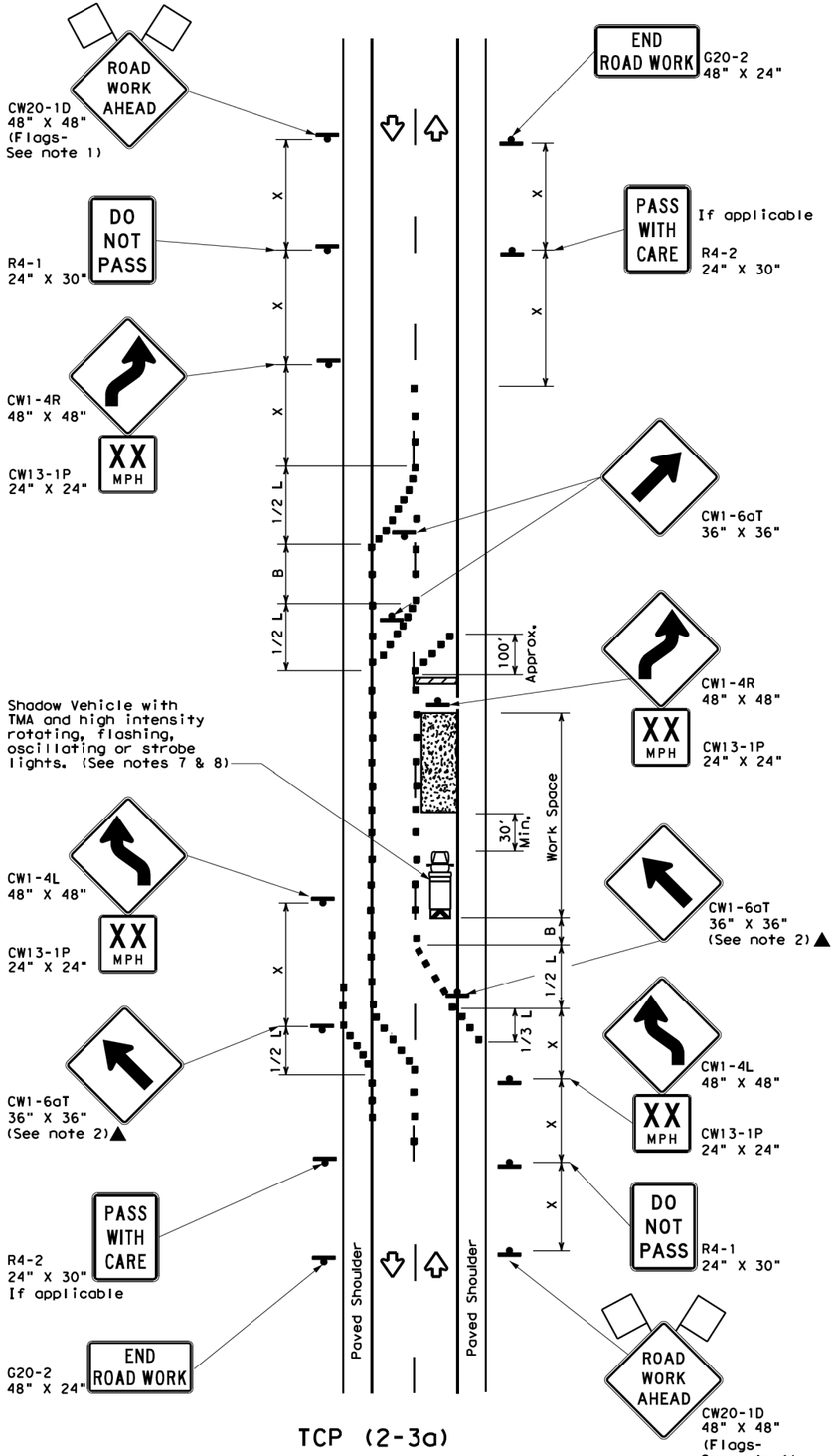
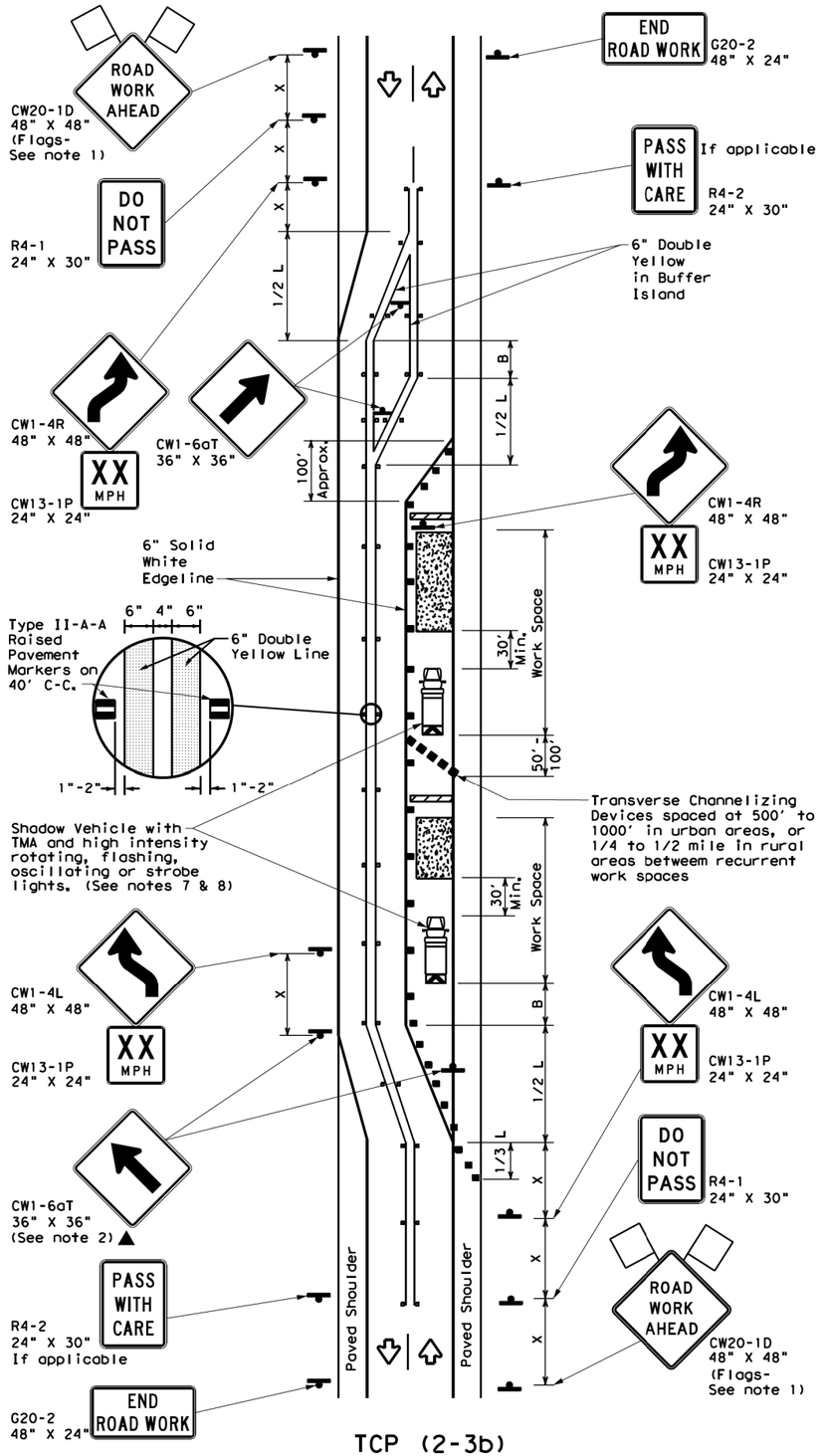
DATE:
FILE:



TCP (2-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



TCP (2-3b)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

LEGEND

	Type 3 Barricade	■ ■	Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	....	Raised Pavement Markers Ty II-AA
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
				TCP(2-3b)ONLY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
4. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
5. The R4-1 "DO NOT PASS," R4-2 " PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
6. Conflicting pavement marking shall be removed for long term projects.
7. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted.
8. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-3a)

9. Conflicting pavement markings shall be removed for long-term projects. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter device spacing is intended for the area of the conflicting markings, not the entire work zone.

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC CONTROL PLAN TRAFFIC SHIFTS ON TWO-LANE ROADS

TCP(2-3)-23

FILE: tcp(2-3)-23.dgn	DN:	CK:	DW:	CK:
©TxDOT April 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS 12-85 4-98 2-18 / 8-95 3-03 4-23 / 1-97 2-12	DIST	COUNTY		SHEET NO. 32

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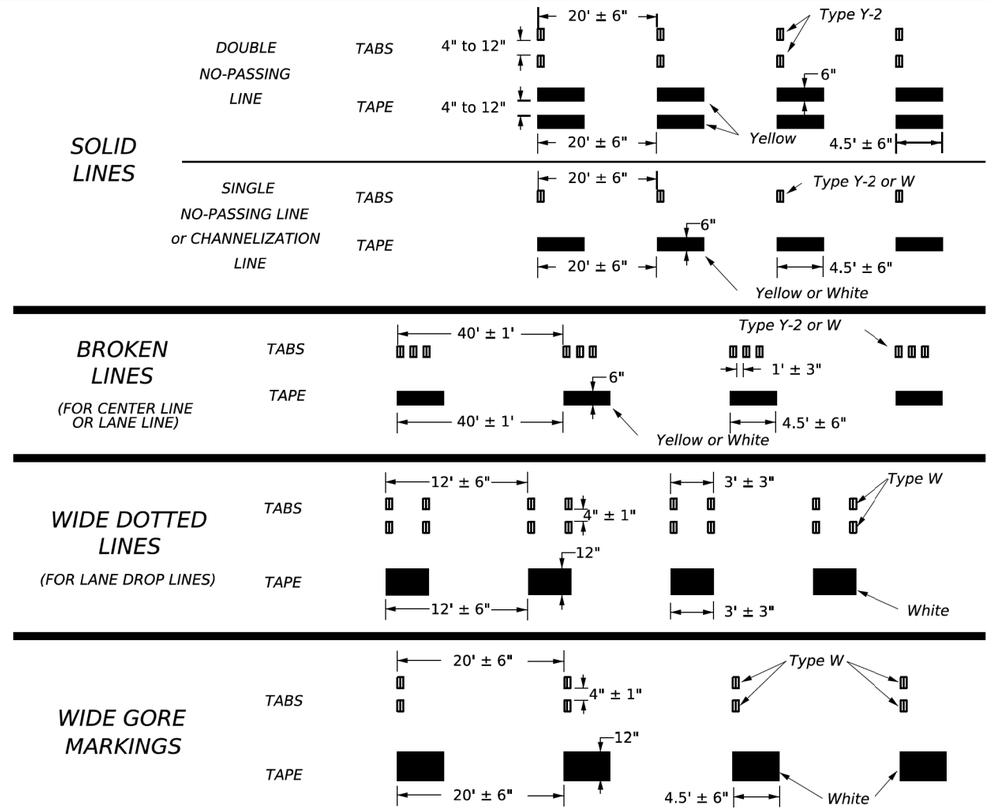
WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



NOTES:

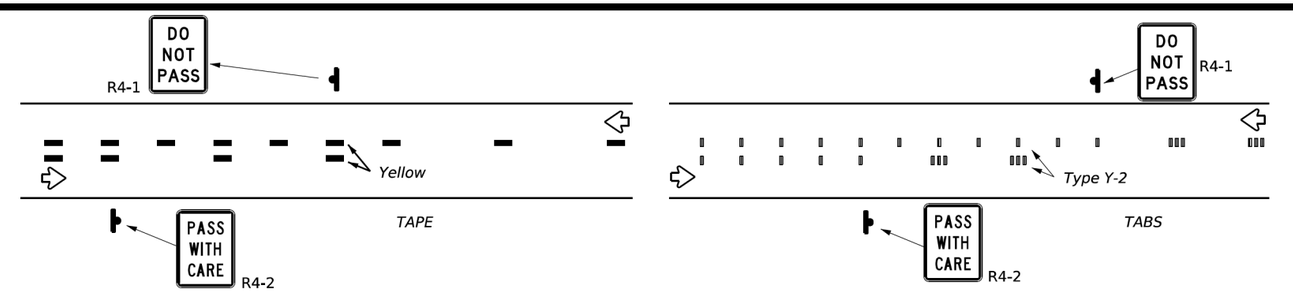
1. Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible reflective roadway marker tabs unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
4. Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
5. No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
6. For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
7. For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).
8. For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

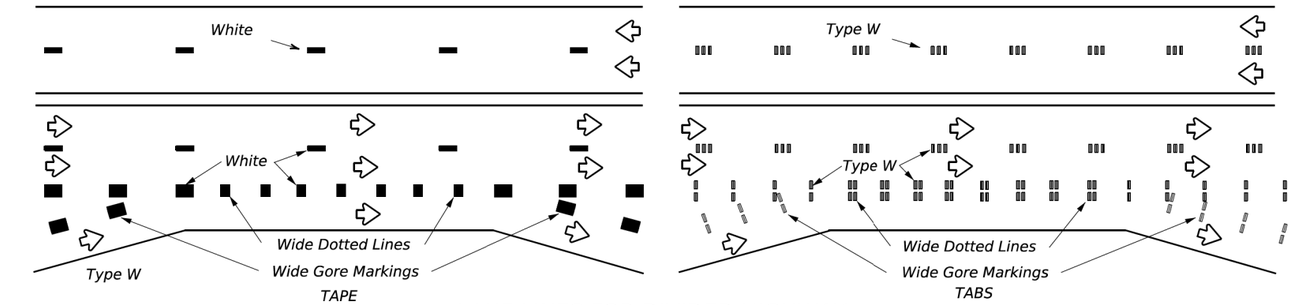
1. Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
4. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

DATE:
FILE:

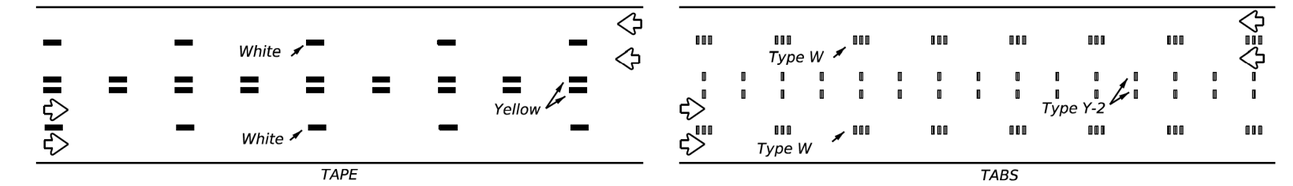
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



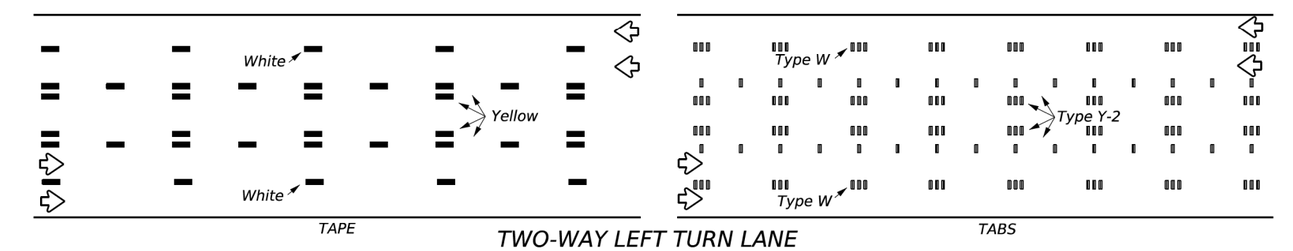
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



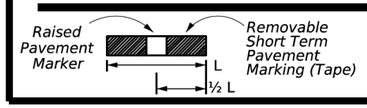
LANE LINES FOR DIVIDED HIGHWAY



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE



If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.

PREFABRICATED PAVEMENT MARKINGS

1. Temporary Removable Prefabricated Pavement Markings shall meet the requirements of DMS-8241.
2. Non-removable Prefabricated Pavement Markings shall meet the requirements of either DMS-8240 "Permanent Prefabricated Pavement Markings" or DMS-8243 "Temporary Costruction-Grade Prefabricated Pavement Markings."

RAISED PAVEMENT MARKERS

1. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and DMS-4200.

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)

1. DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:

http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm

Texas Department of Transportation

Traffic Safety Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ(STPM)-23

FILE: wzstpm-23.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS				
4-92 7-13	DIST	COUNTY		SHEET NO.
1-97 2-23				33
3-03				

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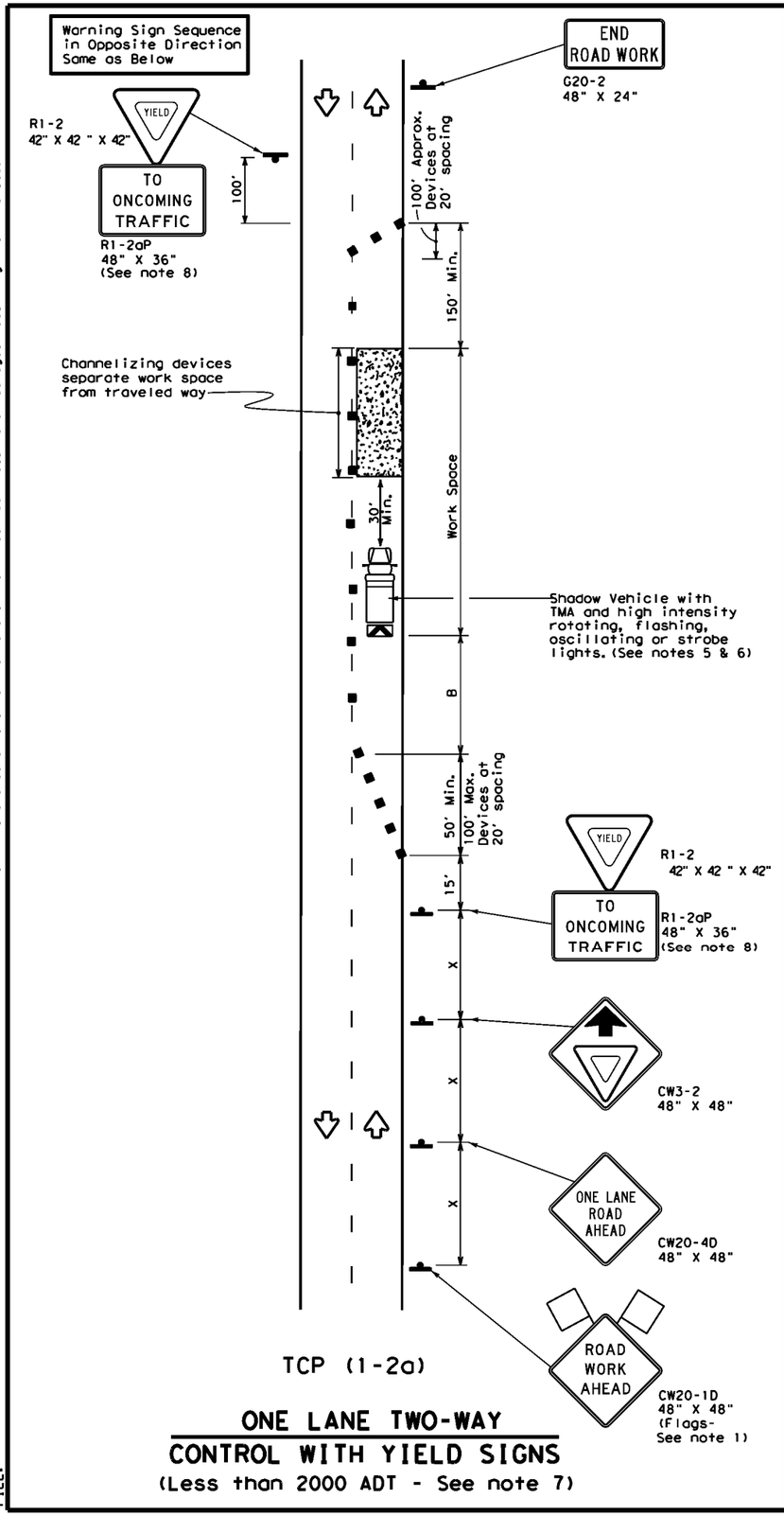
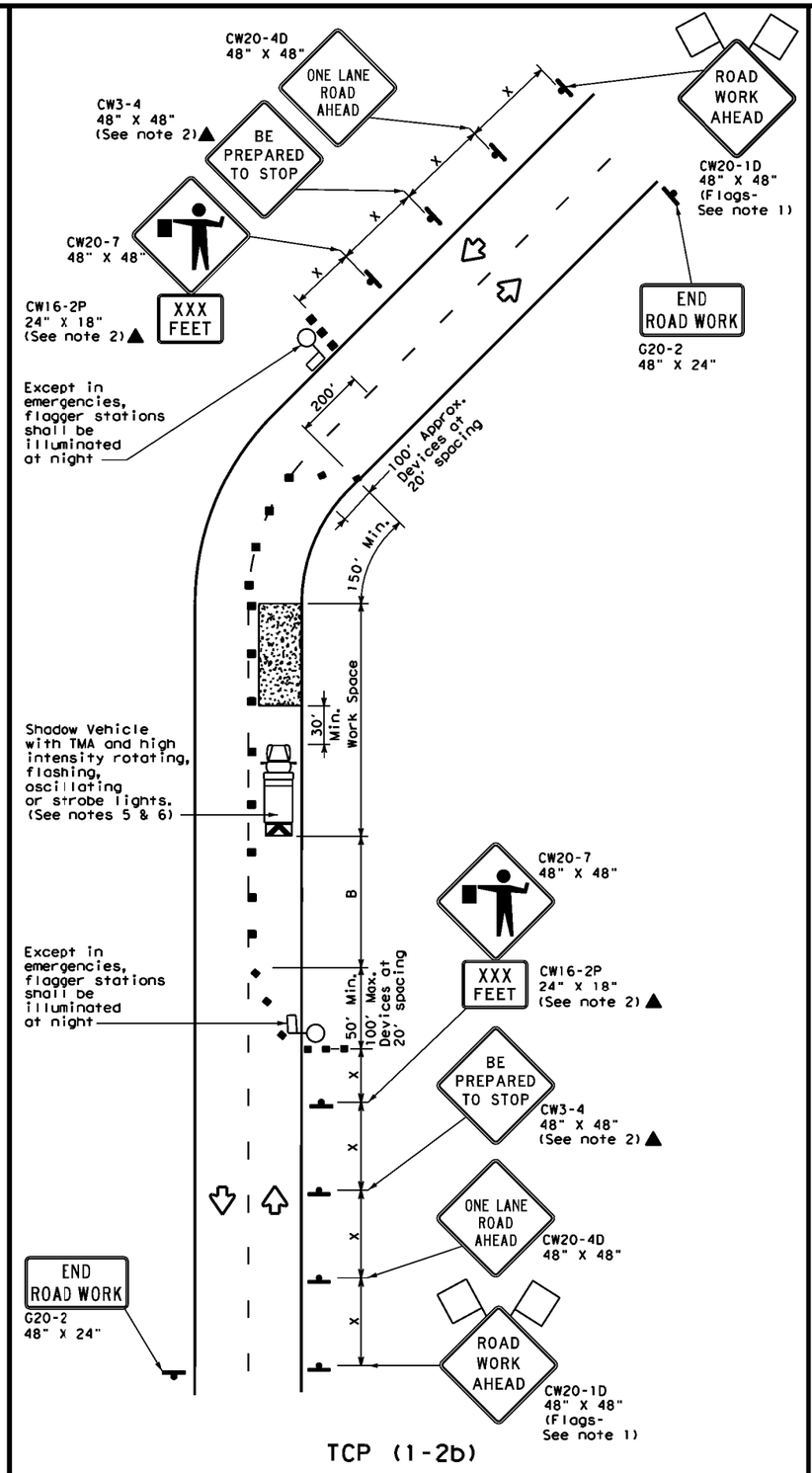
DATE:
FILE:



TCP (1-2a)

ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See note 7)



TCP (1-2b)

ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L=WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only
** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

7. R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
8. R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.

TCP (1-2b)

9. Flaggers should use two-way radios or other methods of communication to control traffic.
10. Length of work space should be based on the ability of flaggers to communicate.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
12. Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
13. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP(1-2)-18

FILE: tcp1-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS				
4-90 4-98	DIST	COUNTY		SHEET NO.
2-94 2-12				34
1-97 2-18				

HORIZONTAL ALIGNMENT REPORT

Alignment name: CR 258
Alignment description:
Report Created: Thursday, July 10, 2025
Time: 5:12:33 PM

	STATION	X	Y
POT	9925.000 R1	3070563.594	10219174.078
PC	10015.844 R1	3070596.485	10219089.398
Tangential Direction:	S21.227□E		
Tangential Length:	90.844		
PC	10015.844 R1	3070596.485	10219089.398
PI	10092.496 R1	3070624.237	10219017.945
CC		3070223.623	10218944.573
PRC	10167.313 R1	3070623.609	10218941.295
Radius:	400.000		
Delta:	21.696□ Right		
Degree of Curvature(Arc):	14.324□		
Length:	151.469		
Tangent:	76.653		
Chord:	150.566		
Middle Ordinate:	7.148		
External:	7.278		
Tangent Back Direction:	S21.227□E		
Radial Direction:	S68.773□W		
Chord Direction:	S10.379□E		
Radial Direction:	N89.530□W		
Tangent Ahead Direction:	S0.470□W		
PRC	10167.313 R1	3070623.609	10218941.295
PI	10243.965 R1	3070622.981	10218864.645
CC		3071023.596	10218938.017
PT	10318.782 R1	3070650.734	10218793.193
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Delta:	21.696□ Left		
Degree of Curvature(Arc):	14.324□		
Length:	151.469		
Tangent:	76.653		
Chord:	150.566		
Middle Ordinate:	7.148		
External:	7.278		
Tangent Back Direction:	S0.470□W		
Radial Direction:	N89.530□W		
Chord Direction:	S10.379□E		
Radial Direction:	S68.773□W		
Tangent Ahead Direction:	S21.227□E		
PT	10318.782 R1	3070650.734	10218793.193
PC	10492.821 R1	3070713.747	10218630.962
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Tangential Length:	174.039		
PC	10492.821 R1	3070713.747	10218630.962
PI	10623.105 R1	3070760.917	10218509.517
CC		3064841.173	10216349.980
PT	10753.352 R1	3070803.027	10218386.226
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External:	1.347		
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Radial Direction:	S68.773□W		
Chord Direction:	S20.042□E		
Radial Direction:	S71.143□W		
Tangent Ahead Direction:	S18.857□E		
PT	10753.352 R1	3070803.027	10218386.226
PC	11824.787 R1	3071149.329	10217372.299
Tangential Direction:	S18.857□E		
Tangential Length:	1071.435		
PC	11824.787 R1	3071149.329	10217372.299
PI	11928.332 R1	3071182.796	10217274.312
CC		3074603.419	10218552.029
PT	12031.821 R1	3071221.765	10217178.379
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Chord:	207.007		
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Radial Direction:	S71.143□W		
Chord Direction:	S20.482□E		
Radial Direction:	S67.893□W		
Tangent Ahead Direction:	S22.107□E		
PT	12031.821 R1	3071221.765	10217178.379
PC	12257.823 R1	3071306.819	10216968.993
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Tangential Length:	226.002		
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PI	12355.526 R1	3071343.589	10216878.473
CC		3070148.718	10216498.565
PT	12452.833 R1	3071365.847	10216783.339
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Chord:	194.813		
Middle Ordinate:	3.801		
External:	3.813		
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Radial Direction:	S67.893□W		
Chord Direction:	S17.638□E		
Radial Direction:	S76.831□W		
Tangent Ahead Direction:	S13.169□E		
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PC	12663.504 R1	3071413.842	10216578.208
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CC		3072484.916	10216828.808
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Chord:	150.238		
Middle Ordinate:	2.568		
External:	2.574		
Tangent Back Direction:	S13.169□E		
Radial Direction:	S76.831□W		
Chord Direction:	S17.084□E		
Radial Direction:	S69.000□W		
Tangent Ahead Direction:	S21.000□E		
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POT	12967.814 R1	3071513.152	10216290.870
Tangential Direction:	S21.000□E		
Tangential Length:	153.955		

CHASE W. MYERS
94895
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

9/29/2025

AMERICAN STRUCTUREPOINT INC.
TBPELS FIRM NO. F-10069
810 HESTERS CROSSING RD
SUITE 105
ROUND ROCK, TX 78681
TEL 512.884.6257 FAX 317.543.0270
www.structurepoint.com

WILCO TEXAS

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CR 258

HORIZONTAL ALIGNMENT DATA

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	35
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

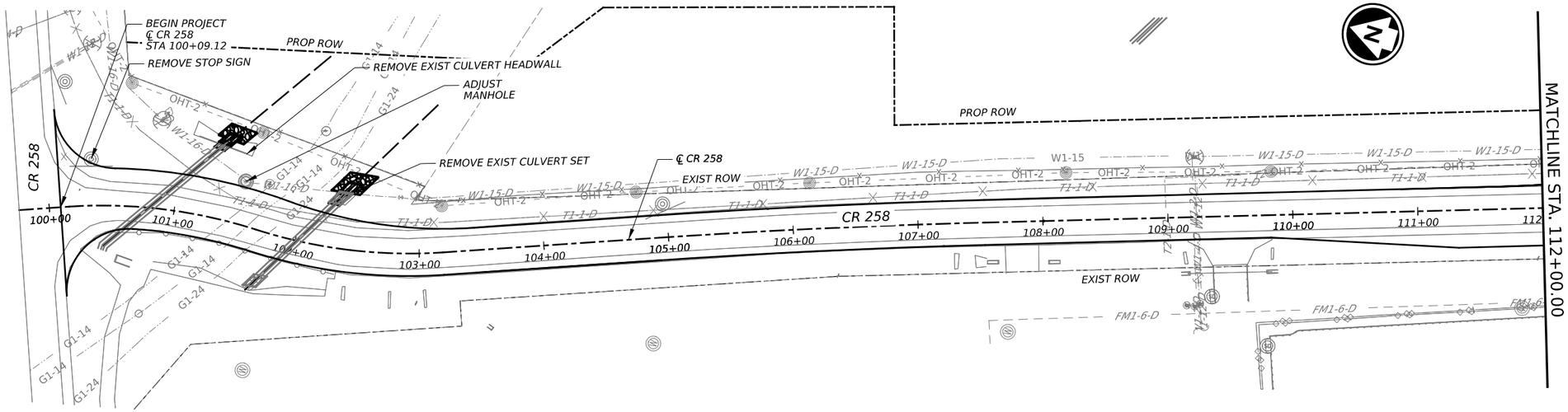
DW: EM C:EM DW: EM C:EM DW: EM C:EM

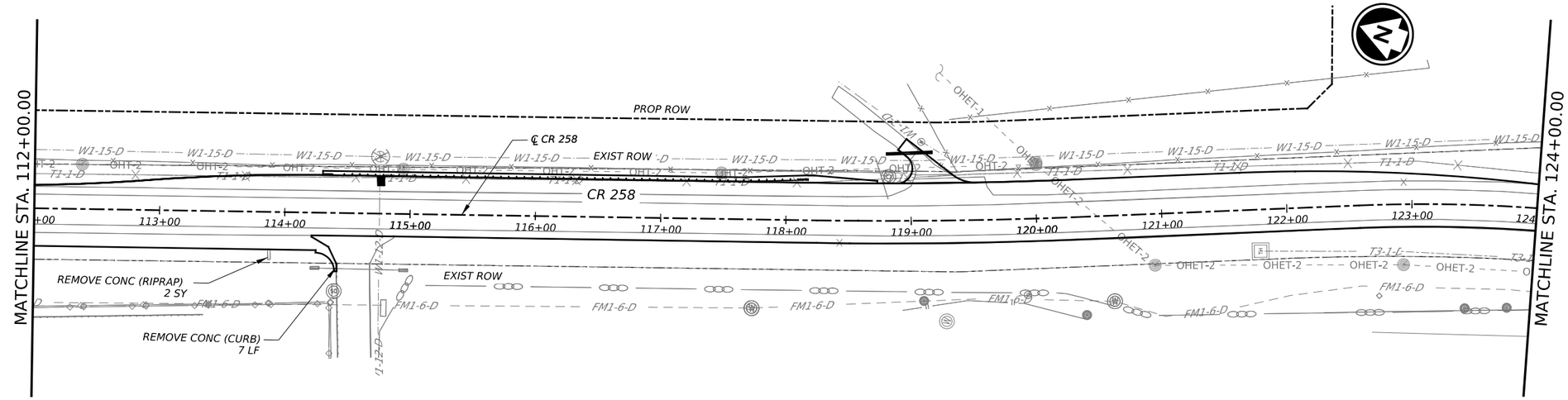
CM

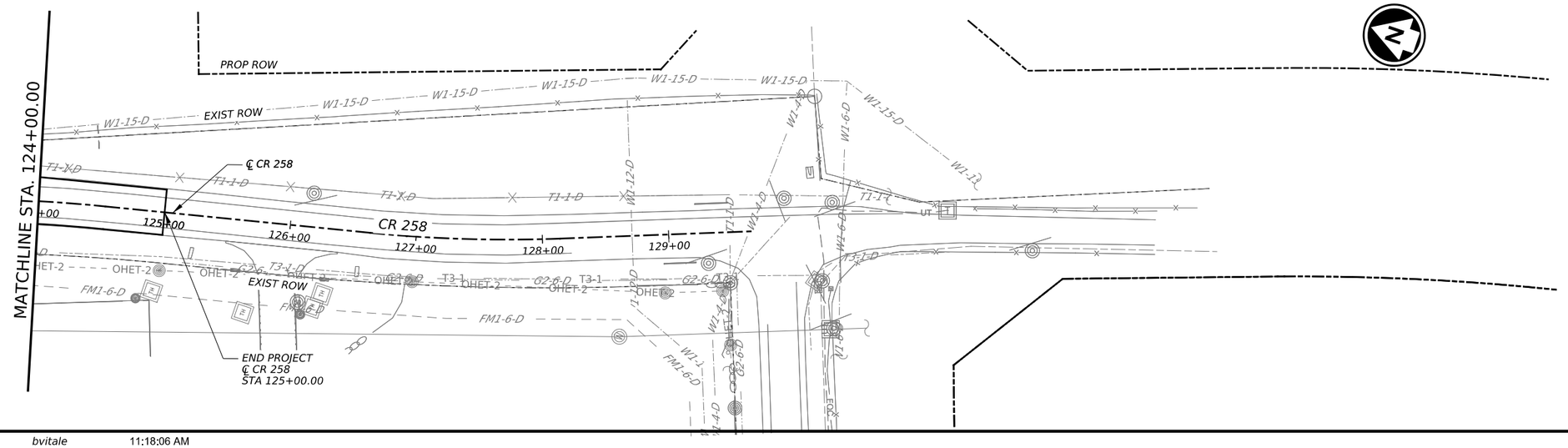
DATE: 9/29/2025
FILE: P:\2023\03253\D. Drawings\Sheets\2023.03253.RD.HAD.dgn

bvitale 1:09:12 PM

CM | DW: EM | Ck: EM | DW: EM | Ck: EM







0 50 100
H: SCALE IN FEET

STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED PROFESSIONAL ENGINEER

Chase W. Myers PE

10/2/2025

AMERICAN STRUCTUREPOINT INC.
TBPELS FIRM NO. F-10065
810 HESTERS CROSSING RD
SUITE 105
ROUND ROCK, TX 78681
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CR 258

REMOVAL PLAN

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	36
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 10/2/2025
FILE: P:\2023\03253\D. Drawings\Sheets\2023.03253.RD.REM.dgn

bvitale 11:18:06 AM

CALLED 10.105 ACRES
ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
DOCUMENT NO. 2021103398
O.P.R.W.C.TX.
FILED 07-12-2021

CALLED 94.814 ACRES
ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
DOCUMENT NO. 2021103382
O.P.R.W.C.TX.
FILED 07-12-2021

CALLED 95.61 ACRES
LIBERTY HILL I.S.D
DOCUMENT NO. 2021177340
O.P.R.W.C.TX.
FILED 11-19-2021

℄ CR 258
STA 100+09.03
OFF 78.00 LT

BEGIN 2"-0"
MILL & OVERLAY
℄ CR 258
STA 100+09.12

BEGIN PROJECT
BEGIN WIDENING
BEGIN OVERLAY
℄ CR 258
STA 100+09.12

℄ CR 258
STA 100+09.03
OFF 30.00 LT

END 2"-0"
MILL & OVERLAY
℄ CR 258
STA 100+59.12

LT DITCH

PROP ROW

BEGIN TAPER
℄ CR 258
STA 101+86.50
OFF 29.20' LT

END TAPER
END WIDENING
℄ CR 258
STA 103+45.20
OFF 18.00' LT

BORING NO. B-4
LAT: 30.67385
LON: -97.87169
℄ CR 258
STA 105+25.54
OFF 7.35 LT

GRADE AREA TO DRAIN TO CULVERTS.
DO NOT IMPACT GAS LINES

1 CONTRACTOR TO ADJUST MANHOLE TO FINAL GRADE

2 EXISTING POLE TO REMAIN IN PLACE. CONTRACTOR TO NOTIFY erich.westphal@charter.com M (512-808-9836) 72 HOURS PRIOR TO EXCAVATION. CONTRACTOR TO BRACE POLE DURING CONSTRUCTION.

3 SPECTRUM POLE TO REMAIN IN PLACE. CONTRACTOR TO EXCERCISE CAUTION

4 CONTRACTOR TO ADJUST WATER VALVE TO FINAL GRADE.

5 EXISTING ENTERPRISE GAS LINE IN THE AREA. CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING NEAR FACILITIES. CONTRACTOR TO FOLLOW STIPULATIONS SET FORTH IN THE LETTER OF NO OBJECTION, WHILE WORKING CLOSE TO ENTERPRISE PIPELINES

PLANE ASPHALT
TO EXIST DRIVEWAY
678 SY

BEGIN VFS-1
STA 109+82.00

ABANDONED ATT
TELEPHONE LINE

BORING NO. B-3
LAT: 30.67250
LON: -97.87125
℄ CR 258
STA 110+46.50
OFF 8.08 RT

BEGIN TAPER
℄ CR 258
STA 111+57.06
OFF 18.00' LT

MATCHLINE STA. 112+00.00

AVOID IMPACT
TO FIRE
HYDRANT

PLANE
ASPHALT
394 SY

CULVERT 5A
2-30" RCP
℄ CR 258
STA 102+00.82

END 2" - 0" OVERLAY TAPER
4' WIDE - DOWN TO EXIST MOW STRIP
℄ CR 258
102+35.50

PLANE ASPHALT
95 SY

CULVERT 5B
2-30" RCP
℄ CR 258
STA 100+79.65

BEGIN 2" - 0" OVERLAY TAPER
4' WIDE - DOWN TO EXIST MOW STRIP
℄ CR 258
100+59.12

RT DITCH

EXIST ROW

BEGIN 0"-2"
MILL & OVERLAY
℄ CR 258
107+10.00

END 0"-2"
MILL & OVERLAY
℄ CR 258
107+60.00

BEGIN 2"-0"
MILL & OVERLAY
℄ CR 258
OFF 0' LT - 18' LT
STA 109+82.21

BEGIN TAPER
BEGIN WIDENING
℄ CR 258
STA 109+82.21
OFF 18.00' LT

END 2"-0"
MILL & OVERLAY
℄ CR 258
110+32.21

END TAPER
℄ CR 258
STA 111+32.21
OFF 30.00' RT

PI	100+92.50
Δ	21°41'46.8" (RT)
D	14°19'26.2"
T	76.65'
L	151.47'
R	400.00'
PC	100+15.84
PT	101+67.31

PI	102+43.97
Δ	21°41'46.8" (LT)
D	14°19'26.2"
T	76.65'
L	151.47'
R	400.00'
PC	101+67.31
PT	103+18.78

PI	106+23.10
Δ	02°22'09.9" (RT)
D	00°54'34.0"
T	130.28'
L	260.53'
R	6300.00'
PC	104+92.82
PT	107+53.35

LEGEND
- FLOW ARROW
- TRAFFIC DIRECTION
- PROP ROW
- EXIST ROW
- VEGATATIVE FILTER STRIP
- DITCH FLOWLINE
- AREA TO BE MILLED
- (#) DRIVEWAY NUMBER
- OHT-2 — EXIST OVERHEAD SPECTRUM/TELECOM
- G1-14 — EXIST GASLINE
- W1-15-D — EXIST WATER SERVICE
- FM1-6-D — EXIST FORCEMAIN
- T1-1-D — EXIST TELEPHONE LINE

NOTES
1. POTHOLING ALL UTILITIES WITHIN THE ROW ARE THE RESPONSIBLITY OF THE CONTRACTOR AND NO ADDITIONAL COMPENSATION WILL BE MADE.
2. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS, ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY THE FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
3. CONTRACTOR WILL COORDINATE WITH ELECTRIC COMPANY (PEC) TO ESTABLISH POWER SOURCE AND INSTALL SERVICE METER.
4. EXISTING GUY ANCHORS OWNED BY CHARTER TO REMAIN IN PLACE. CONTACT ERICH WESTPHAL erich.westphal@charter.com or 512-808-9836

* VERTICAL CURVE INFORMATION SHOWN IS FROM A GRAPHICAL BEST FIT FOR INFORMATION ONLY*

BEGIN PROJECT
BEGIN OVERLAY
℄ CR 258
STA 100+09.12

STA 101+57.34
EL 975.83'
ex 3.33'
K 79
L 458.63'

EXISTING PGL

STA 111+71.48
EL 1004.71'
ex 0.90'
K 79
L 238.79'

STA 108+53.70
EL 1003.32'
ex -1.32'
K 85
L 300.00'

EXISTING WATERLINE

-1.858%
+3.948%
+0.435%
+3.468%

BEGIN LT DITCH
STA 100+90.00
SLOPE = -1.70%

END LT DITCH
STA 101+26.00

LT DITCH

CULVERT 5A

CULVERT 5B

24" GAS LINE

14" GAS LINE

BEGIN LT DITCH
STA 106+40.00
SLOPE = 2.60%

990.22 989.29 988.40 987.50 986.84 986.52 986.48 986.80 987.38 988.26 989.52 991.34 993.37 995.31 997.20 998.93 1,000.58 1,002.05 1,003.05 1,003.62 1,003.96 1,004.15 1,004.55 1,005.23

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00

965 970 975 980 985 990 995 1000 1005 1010 1015

STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED
PROFESSIONAL ENGINEER

10/22/2025

AMERICAN STRUCTUREPOINT INC.
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CR 258

ROADWAY PLAN & PROFILE

SHEET 1 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	37
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 10/22/2025
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CM

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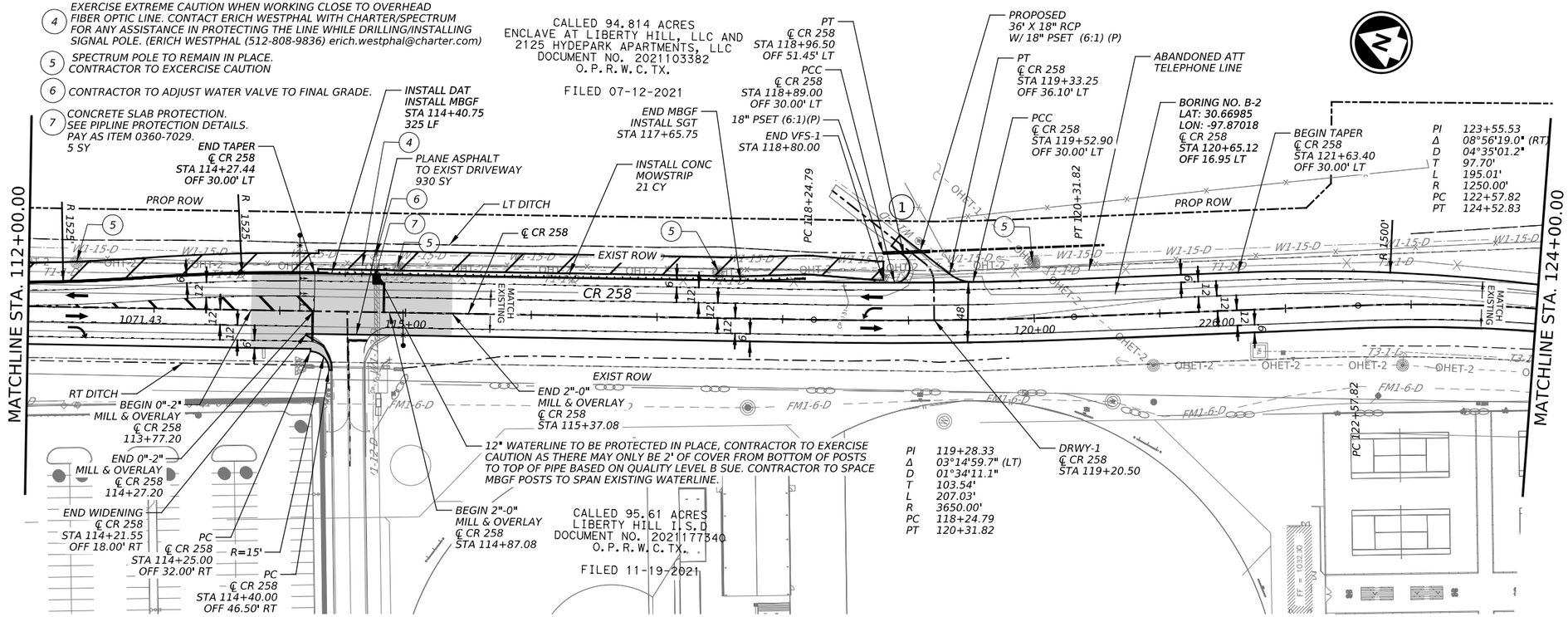
4 EXERCISE EXTREME CAUTION WHEN WORKING CLOSE TO OVERHEAD FIBER OPTIC LINE. CONTACT ERICH WESTPHAL WITH CHARTER/SPECTRUM FOR ANY ASSISTANCE IN PROTECTING THE LINE WHILE DRILLING/INSTALLING SIGNAL POLE. (ERICH WESTPHAL (512-808-9836) erich.westphal@charter.com)

5 SPECTRUM POLE TO REMAIN IN PLACE. CONTRACTOR TO EXCERCISE CAUTION

6 CONTRACTOR TO ADJUST WATER VALVE TO FINAL GRADE.

7 CONCRETE SLAB PROTECTION. SEE PIPLINE PROTECTION DETAILS. PAY AS ITEM 0360-7029. 5 SY



0 50 100 H: SCALE IN FEET 0 5 10 V: SCALE IN FEET

LEGEND

- FLOW ARROW
- TRAFFIC DIRECTION
- PROP ROW
- EXIST ROW
- VEGATATIVE FILTER STRIP
- DITCH FLOWLINE
- AREA TO BE MILLED
- (#) DRIVEWAY NUMBER
- OHT-2 EXIST OVERHEAD SPECTRUM/TELECOM
- G1-14 EXIST GASLINE
- W1-15-D EXIST WATER SERVICE
- FM1-6-D EXIST FORCEMAIN
- T1-1-D EXIST TELEPHONE LINE

NOTES

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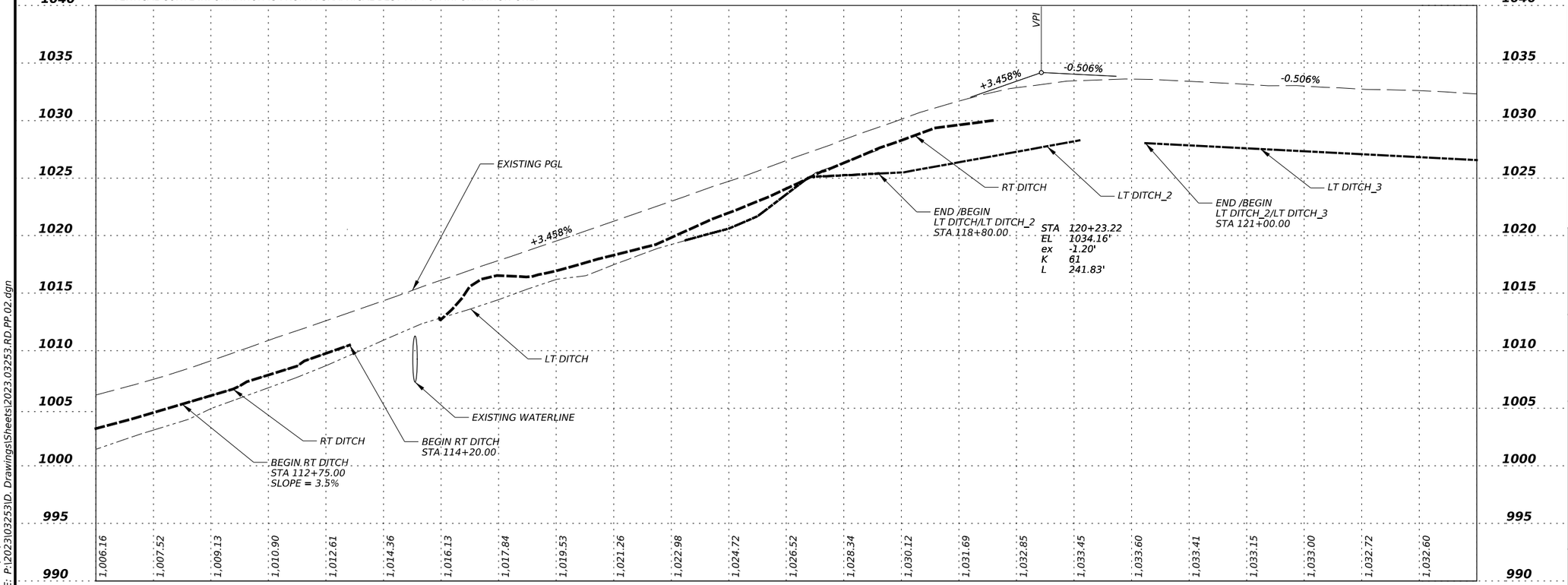
4. EXISTING GUY ANCHORS OWNED BY CHARTER TO REMAIN IN PLACE. CONTACT ERICH WESTPHAL erich.westphal@charter.com or 512-808-9836

VERTICAL CURVE INFORMATION IS FROM A GRAPHICAL BEST FIT FOR INFORMATION ONLY



STATE OF TEXAS
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Chase W. Myers PE

10/24/2025

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CR 258

ROADWAY PLAN AND PROFILE

SHEET 2 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	38
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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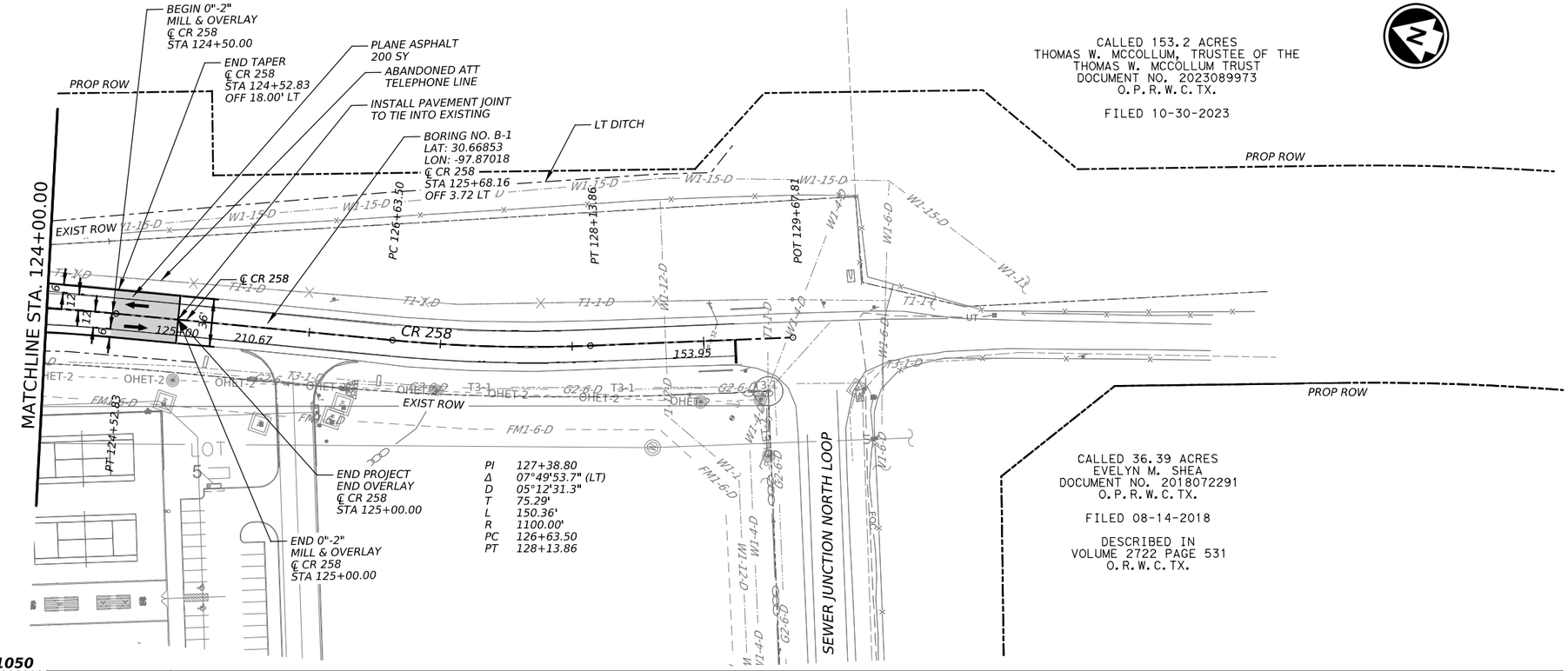

NOTES

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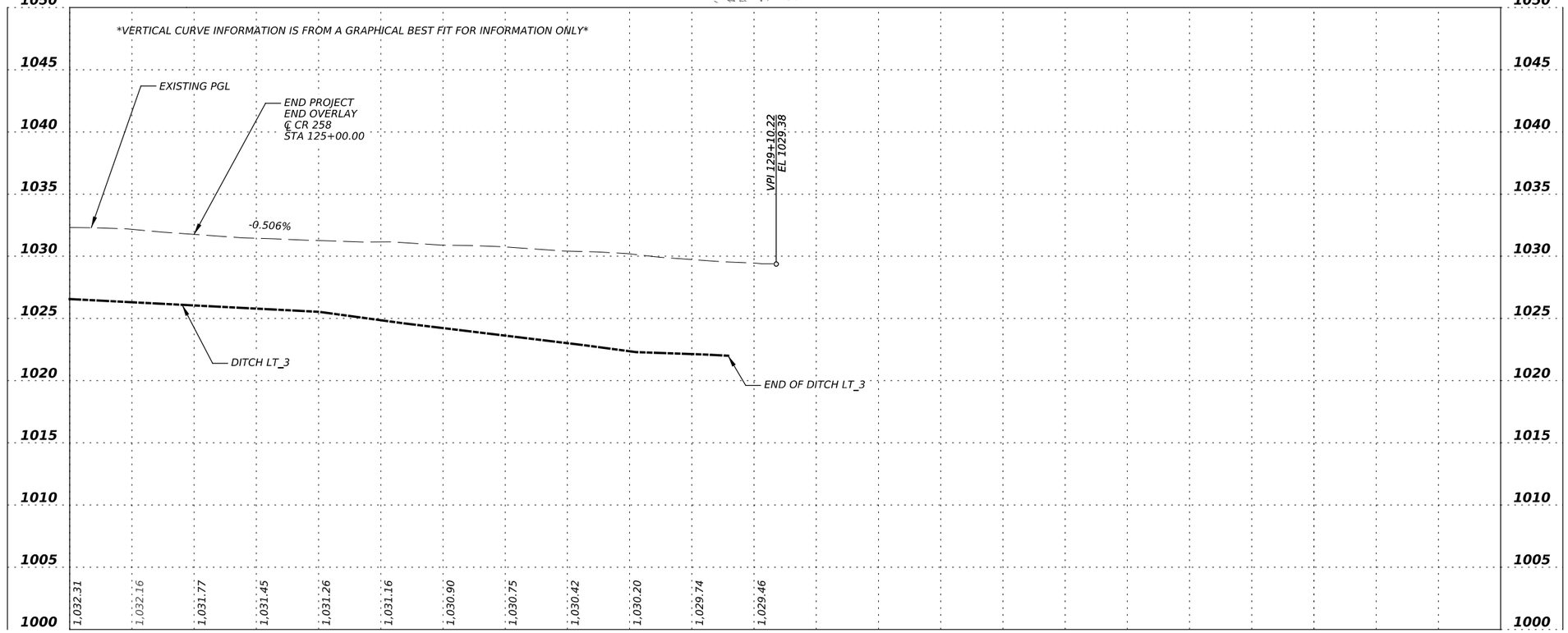

CHASE W. MYERS
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STATE OF TEXAS

Ch W. Myers PE

10/22/2025

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ROADWAY PLAN AND PROFILE

SHEET 3 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	39
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

CM
DW: EM
CK: EM
DW: EM
CK: EM

DATE: 10/22/2025
FILE: P:\2023\03253\ID. Drawings\Sheets\2023.03253.RD.PP.03.dgn

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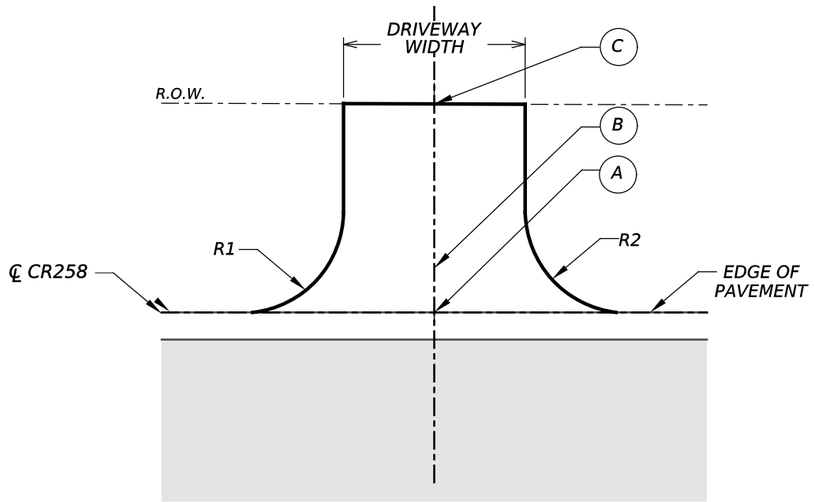
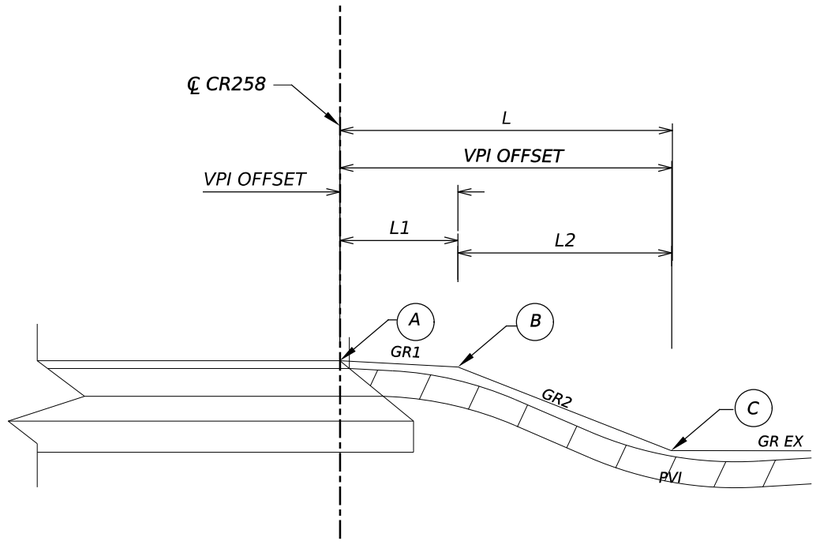
DRIVEWAY ID.	TYPE	STATION	RT/LT	WIDTH	RADIUS (R1) (FT)	RADIUS (R2) (FT)	LENGTH (L) (FT)	LENGTH (L1) (FT)	LENGTH (L2) (FT)	DRIVEWAY GRADE (GR1)(%)	DRIVEWAY GRADE (GR2)(%)	EXISTING GRADE TIE IN (GR EX)(%)	A ELEV	B ELEV	C ELEV	SURFACE TYPE	0530 7010 DRIVEWAYS (ACP) (SY)
1	RESID.	119+20.50	LT	11	12	30	42.8	4.0	38.8	-3.80%	-4.73%	-2.80%	1029.88	1029.72	1027.63	Asphalt	89.0

NOTE:- SEE DRIVEWAY TYPICAL FOR DETAILS



TYPICAL DRIVEWAY WITH RADIUS LAYOUT

NTS



SECTION A-A POSITIVE

NTS

STATE OF TEXAS
CHASE W. MYERS
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PROFESSIONAL ENGINEER

Ch w. Myers PE

10/3/2025

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DRIVEWAY CONSTRUCTION DETAIL

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	40
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DW: EM C:EM DW: EM C:EM CM

DATE: 10/3/2025
FILE: P:\2023\03253\ID. Drawings\Sheets\2023.03253.RD.DRWY.dgn

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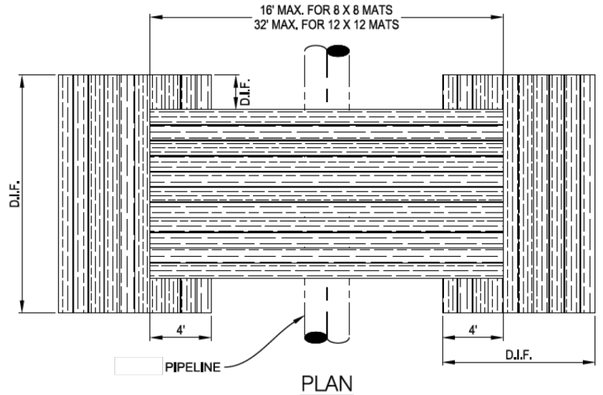
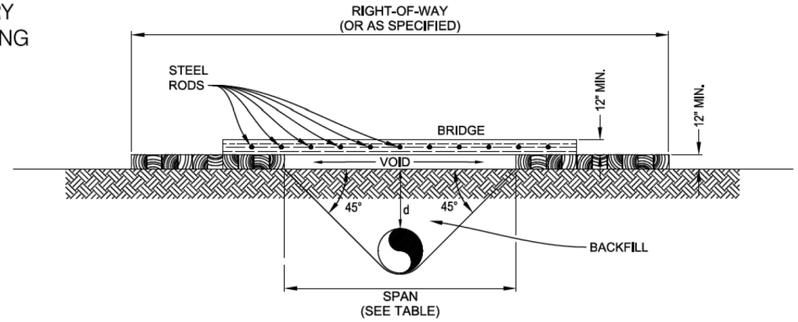
DATE:
FILE:

PIPELINE OPTION 1

TEMPORARY MAT CROSSING



PLAN



ELEVATION

NOTES: (OPTION 1)

1. LUMBER MUST BE:
   - 1.1 FREE OF HEART CENTER.
   - 1.2 #1 DOUGLAS FIR OR BETTER.
   - 1.3 MINIMUM THICKNESS:
     - 8–INCH FOR 24' MATS;
     - 12–INCH FOR 40' MATS.
   - 1.4 ASSEMBLED WITH STEEL RODS FOR BRIDGE SECTION.
2. THIRD PARTY MUST PROVIDE DESIGN AND SPECIFICATIONS SEALED BY PROFESSIONAL ENGINEER.

DEPTH (d) (FT)	SPAN (FT)
1 OR LESS	8
2	8
3	10
4	10
5 OR MORE	N/A

NOTES

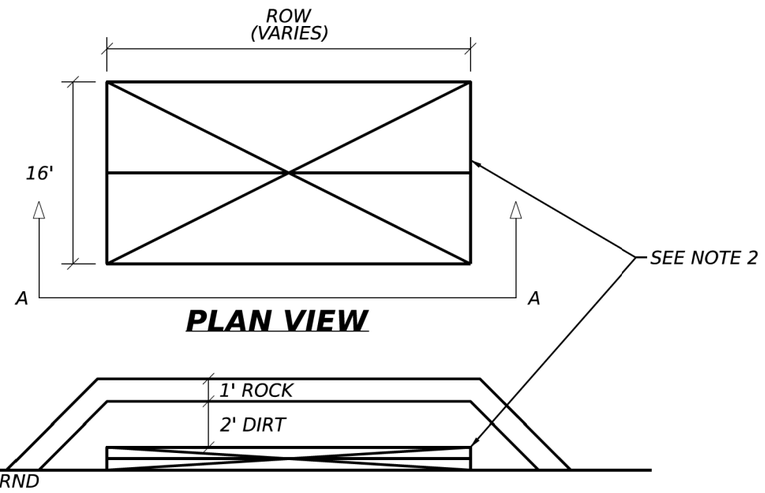
1. Furnish No. 2 quality or better railroad ties and timbers for long-term construction exits, free of large and loose knots and treated to control rot. Fasten timbers using nuts and bolts or lag bolts, of at least 1/2 in. diameter, unless otherwise shown on the plans or allowed. Provide plywood or pressed wafer board at least 8 in. thick when working around the 'Enterprise' pipeline.
2. Temporary mat crossing is paid for under item 506-7021. All materials, tools, and equipment required is included within this bid item.

STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED
PROFESSIONAL ENGINEER

Chase W. Myers PE

9/29/2025

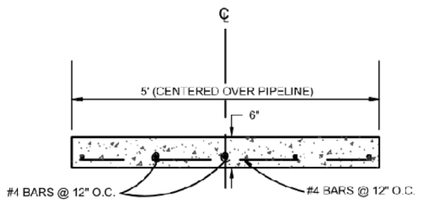
TEMPORARY TIMBER MAT CROSSINGS



PLAN VIEW

DETAIL A-A

NOTES:
1. *MATS IN 4' WIDE SECTIONS. 4 MATS TO GET 16' WIDTH.*
2. *12" X 12" X 16'/20' TIMBER MATS*



CONCRETE SLAB PROTECTION DETAIL FOR PIPELINE

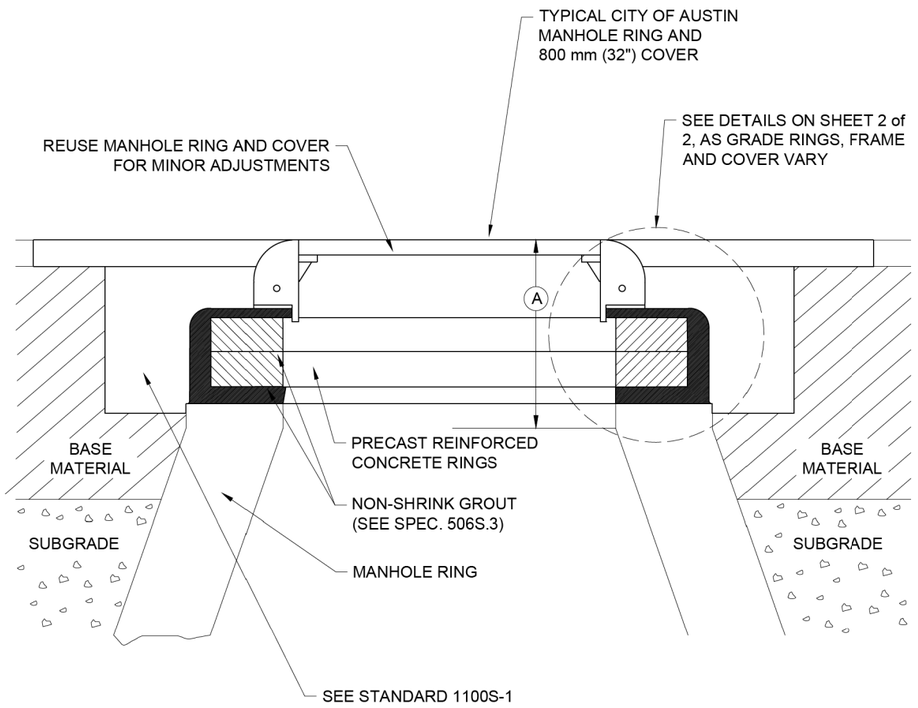
JOINT DUCT BANK

PIPELINE PROTECTION DETAILS

FILE: jdb1-24.dgn	DN:	CK:	DW:	CK:
July 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS				CR 258
	DIST	COUNTY		SHEET NO.
	AUS	WILCO		41

Sheet Details
Not to Scale

CM | DW: EM | CK: EM | DW: EM | CK: EM



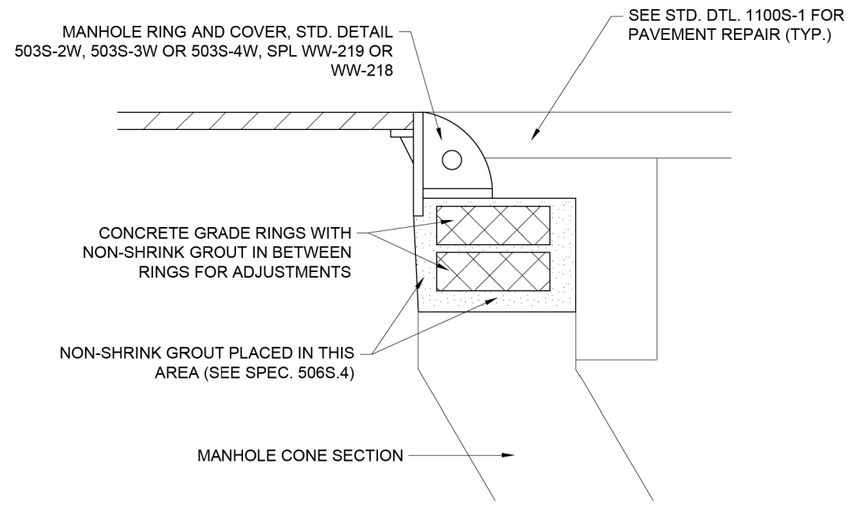
(A) VERTICAL FACE = ALLOWABLE THROAT OR CHIMNEY HEIGHT
= NEW CONSTRUCTION = 525mm = (21") Max.
= EXISTING CONSTRUCTION = 675mm (27") Max.

NOTES:

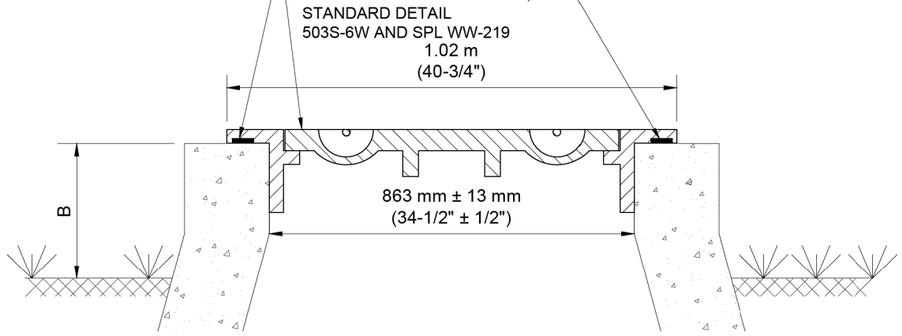
1. NON-SHRINK GROUT SHALL NOT EXCEED 25 mm (1") IN ANY DIMENSION.
2. SUB-GRADE AND BASE MATERIALS SHALL BE COMPACTED ACCORDING TO ITEMS 201S AND 210S, RESPECTIVELY, OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
3. REFER TO STANDARD 1100S-1 FOR REPAIRS AROUND MANHOLES.
4. SEE STANDARD 506S-4A FOR HDPE RING INSTALLATION (FOR USE IN PAVED AREAS ONLY).

CITY OF AUSTIN AUSTIN WATER UTILITY		MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION	
RECORD COPY SIGNED BY KATHI L FLOWERS	08/31/2011 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 506S-4 1 OF 2

INSIDE PAVEMENT DETAIL



OUTSIDE PAVEMENT DETAIL



NOTES:

1. FOR USE IN UNPAVED AREAS ONLY.
2. WHEN USED WITHIN 100-YEAR FLOODPLAIN, SEE DTL. 506S-6 FOR ADDITIONAL M.H. REQUIREMENTS.
3. DIMENSION B=150-300 mm (6"-12") FOR M.H. LOCATED IN 100-YR FLOOD PLAN; B=50-300 mm (2"-12") FOR M.H. OUTSIDE 100-YR FLOOD PLAN.

CITY OF AUSTIN AUSTIN WATER UTILITY		MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION	
RECORD COPY SIGNED BY KATHI L FLOWERS	08/31/2011 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 506S-4 2 OF 2

Ch W. Myers PE

10/3/2025

AMERICAN STRUCTUREPOINT INC.
TBPELS FIRM NO. F-10069
810 HESTERS CROSSING RD
SUITE 105
ROUND ROCK, TX 78681
TEL 512.884.6257 FAX 317.543.0270
www.structurepoint.com

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CR 258

MINOR MANHOLE ADJUSTMENT

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	42
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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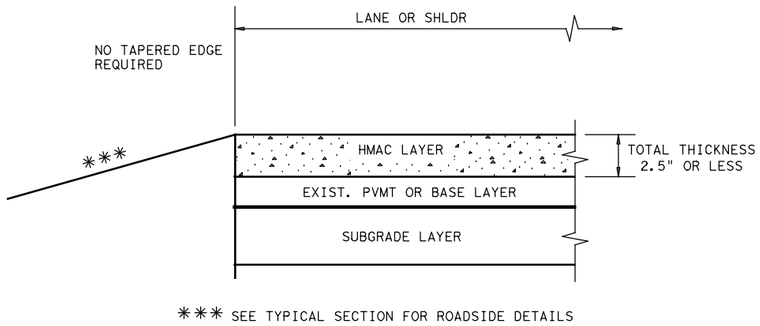
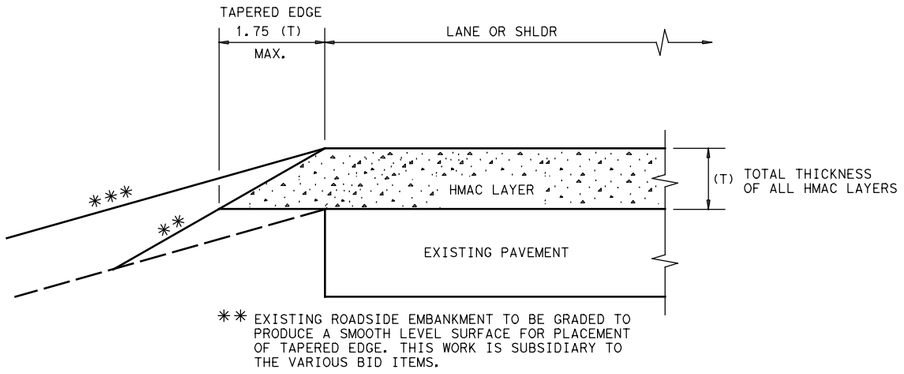


*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

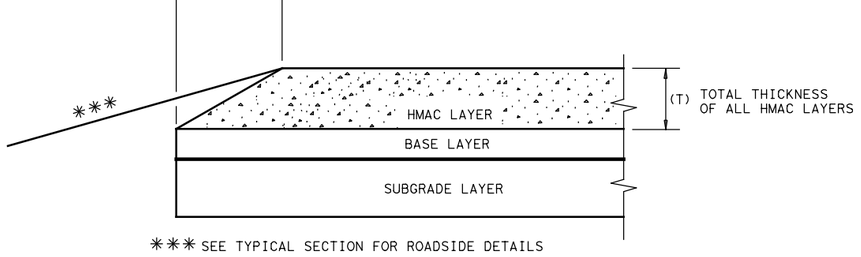
CONDITION - 1
THIN HMAC SURFACES OR HMAC OVERLAY WITH THICKNESS OF 2.5" OR LESS



** EXISTING ROADSIDE EMBANKMENT TO BE GRADED TO PRODUCE A SMOOTH LEVEL SURFACE FOR PLACEMENT OF TAPERED EDGE. THIS WORK IS SUBSIDIARY TO THE VARIOUS BID ITEMS.

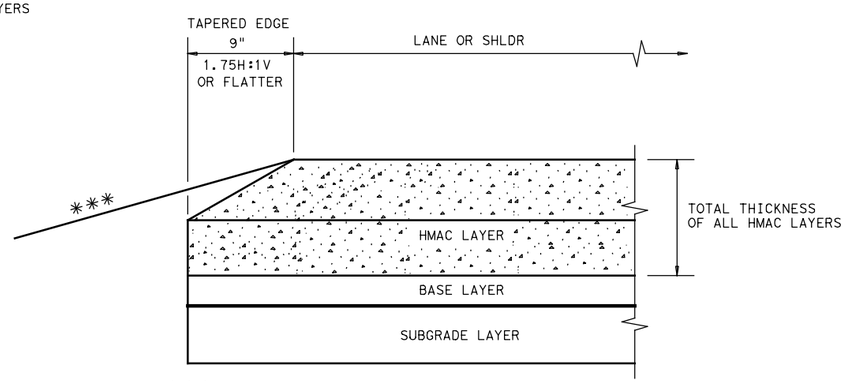
*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 2
OVERLAY OF EXISTING PAVEMENT HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 3
NEW OR RECONSTRUCTED PAVEMENT HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 4
NEW OR RECONSTRUCTED PAVEMENT HMAC THICKNESS 5" OR GREATER

(NOT TO SCALE)

GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, A VERTICAL EDGE IS PERMISSIBLE FOR HMAC PLACED GREATER THAN 5" BELOW THE EDGE OF PAVEMENT AND FOR THICKNESS OF HMAC LESS THAN 2.5".
2. FOR FURTHER INFORMATION REGARDING THE ROADSIDE AND PAVEMENT DETAILS, SEE TYPICAL SECTIONS.
3. PAYMENT FOR TAPERED EDGE WILL BE IN ACCORDANCE WITH APPLICABLE ITEMS IN THE CONTRACT.
4. THE SLOPE OF THE TAPERED EDGE SHALL BE 1.75H:1V OR FLATTER.
5. THE TAPERED EDGE SHALL BE PRODUCED BY USE OF A SCREED ATTACHMENT CAPABLE OF PRODUCING A SMOOTH COMPACTED SURFACE. ADDITIONAL COMPACTING EFFORT BEHIND THE SCREED IS NOT REQUIRED.

Texas Department of Transportation

Design Division Standard

TAPERED EDGE DETAILS HMAC PAVEMENT

TE(HMAC)-11

FILE: tehmac11.dgn	DN: TxDOT	CK: RL	DW: KB	CK:
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REVISIONS				CR 258
	DIST	COUNTY		SHEET NO.
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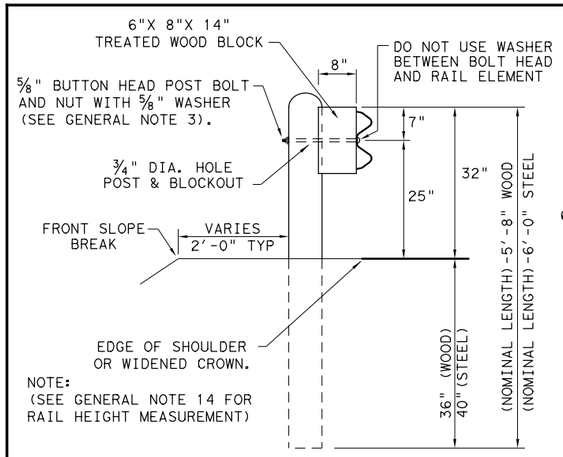
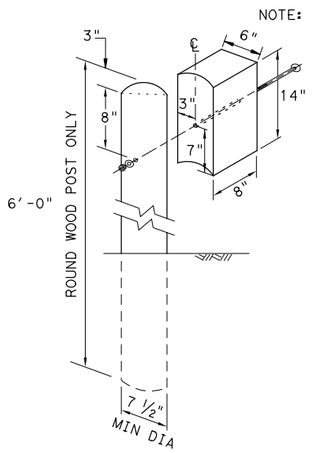
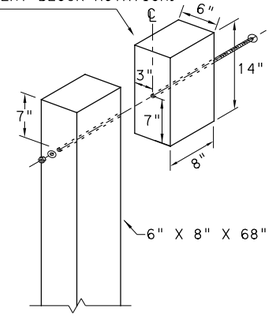


TYPICAL POST PLACEMENT

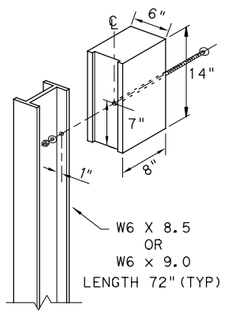


WOOD BLOCK TO ROUND WOOD POST

NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.

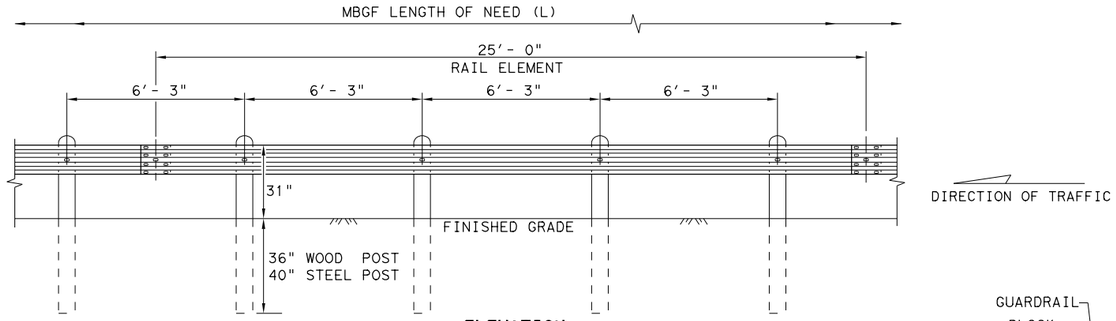


WOOD BLOCK TO RECTANGULAR WOOD POST



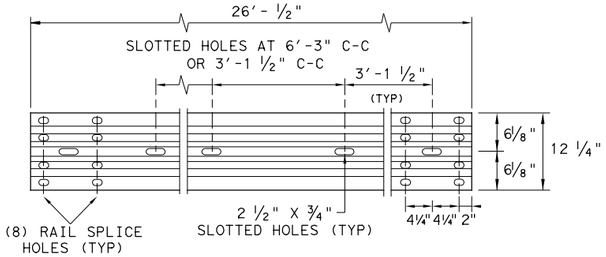
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

NOTE: ✻✻ "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.



ELEVATION
MID-SPAN RAIL SPLICE

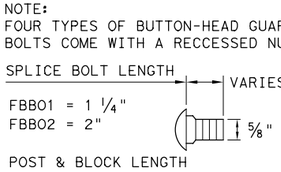
SHOWING A 25'- 0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



ELEVATION 25'- 0"(NOM.) W-BEAM SECTION

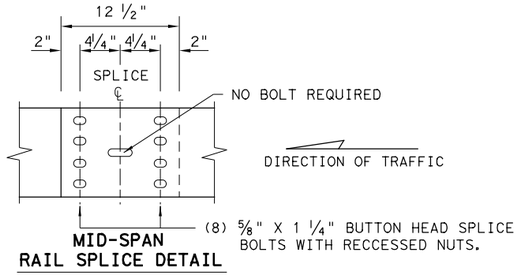
NOTES: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES.
SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.

NOTE:
FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECCESSED NUT.



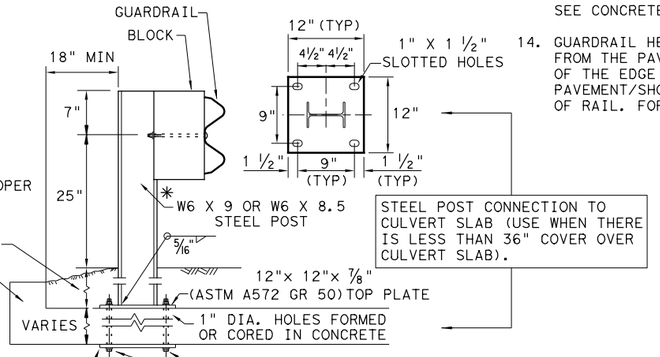
BUTTON HEAD BOLT

NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



MID-SPAN RAIL SPLICE DETAIL

NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.



✻ POST(S) MAY REQUIRE FIELD MODIFICATION TO ENSURE PROPER GUARDRAIL HEIGHT.

STEEL POST CONNECTION TO CULVERT SLAB (USE WHEN THERE IS LESS THAN 36" COVER OVER CULVERT SLAB).

LOW FILL CULVERT POST

NOTE: TWO INSTALLATION OPTIONS.

1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. ⅞" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS.
   NOTE: BOLT LENGTH = SLAB PLUS 2 ¼" MIN.

2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE ⅞" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS ¼" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

NOTE: TRANSISTIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS.
SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS.
SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540,"METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 ½" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅝" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210,"COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE
TL-3 MASH COMPLIANT
GF(31)-19

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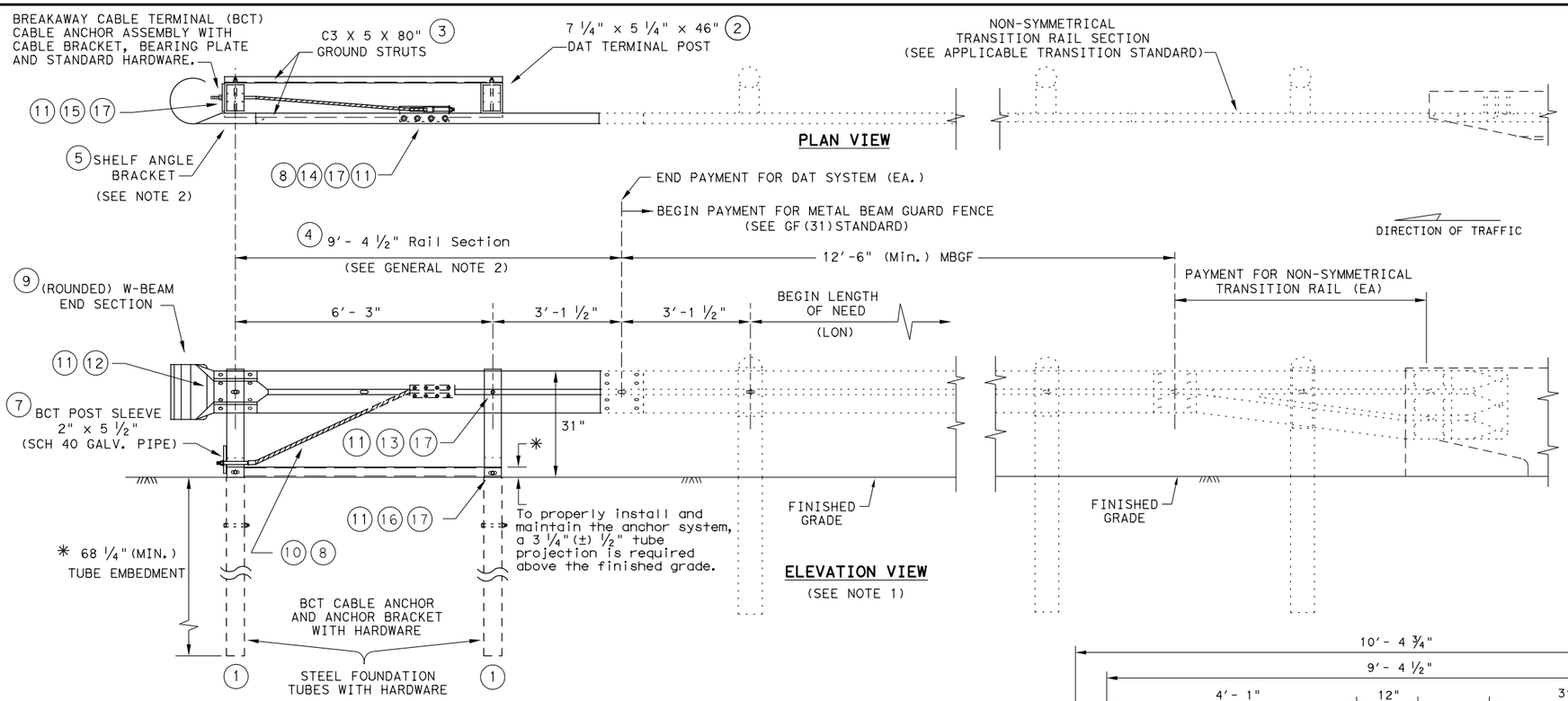


DOWNSTREAM ANCHOR TERMINAL (DAT)

NOTE: ONLY FOR DOWNSTREAM USE, WHEN LOCATED OUTSIDE THE HORIZONTAL CLEARANCE AREA OF OPPOSING TRAFFIC.

GENERAL NOTES

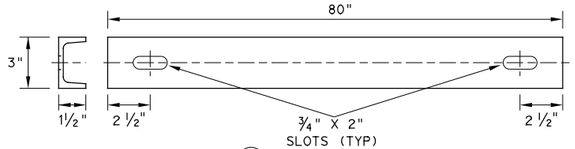
1. THE DETAIL SHOWN IS THE MINIMUM LENGTH OF NEED (LON) FOR A DOWNSTREAM ANCHOR TERMINAL (DAT) CONNECTED TO A CONCRETE RAIL.
2. THE RAIL SECTION AT THE END POST IS SUPPORTED BY THE SHELF ANGLE BRACKET. THE RAIL ELEMENT IS NOT ATTACHED TO THE END POST.
3. THE FOUNDATION TUBES SHALL NOT PROJECT MORE THAN 3 3/4" ABOVE THE FINISHED GRADE.
4. ALL HARDWARE FOR DAT SHALL BE ASTM A307 UNLESS OTHERWISE SHOWN.
5. REFER TO GF(31) SHEET FOR TERMINAL CONNECTION DETAILS.

MOW STRIP INSTALLATION

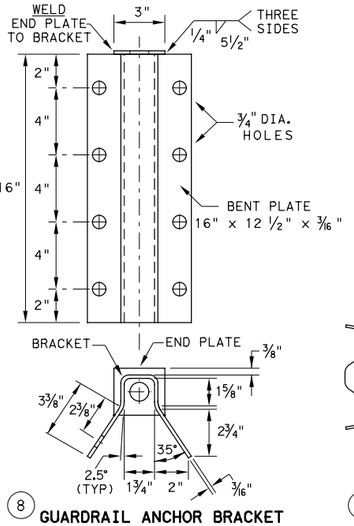
IF A MOW STRIP IS REQUIRED WITH THE DAT INSTALLATION THE LEAVE-OUT AREA AROUND THE STEEL FOUNDATION TUBES AND THE TWO CHANNEL STRUTS MAY BE OMITTED. THIS WILL REQUIRE A FULL POUR AT THE FOUNDATION TUBES.

#	(DAT) PARTS LIST	QTY
(1)	STEEL FOUNDATION TUBE	2
(2)	DAT TERMINAL POST	2
(3)	CHANNEL STRUT	2
(4)	TERMINAL RAIL ELEMENT	1
(5)	SHELF ANGLE BRACKET	1
(6)	BCT BEARING PLATE	1
(7)	BCT POST SLEEVE	1
(8)	GUARDRAIL ANCHOR BRACKET	1
(9)	(ROUNDED) W-BEAM END SECTION	1
(10)	BCT CABLE ANCHOR	1
(11)	RECESSED NUT, GUARDRAIL	20
(12)	1 1/4" BUTTON HEAD BOLT	4
(13)	10" BUTTON HEAD BOLT	2
(14)	5/8" X 2" HEX HEAD BOLT	8
(15)	5/8" X 8" HEX HEAD BOLT	4
(16)	5/8" X 10" HEX HEAD BOLT	2
(17)	5/8" FLAT WASHER	18

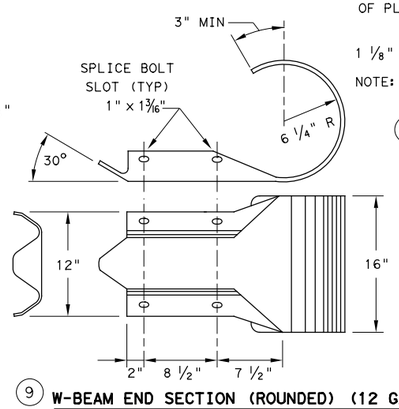
(4) TERMINAL RAIL ELEMENT FOR DAT



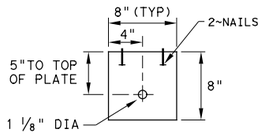
(3) CHANNEL STRUT
C3 X 5 X 80", GRADE A36



(8) GUARDRAIL ANCHOR BRACKET

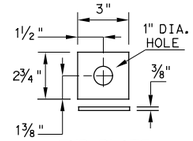


(9) W-BEAM END SECTION (ROUNDED) (12 GA.)

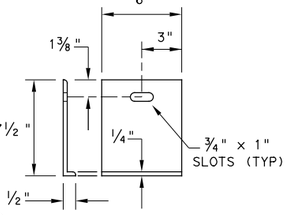


NOTE: DRIVE NAILS AND BEND OVER TO PREVENT PLATE ROTATION

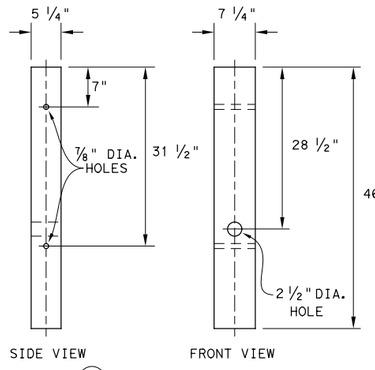
(6) BEARING PLATE
8"x 8"x 5/8" R



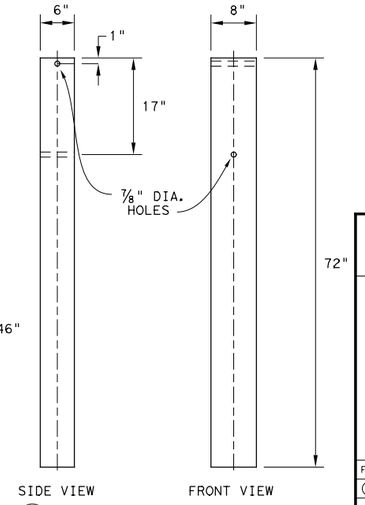
END PLATE



(5) SHELF ANGLE BRACKET



(2) TERMINAL POST
7 1/4"x 5 1/4"x 46" WOOD POST



(1) STEEL FOUNDATION TUBE
6"x 8"x 1/8" x 72" STEEL TUBE

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE
(DOWNSTREAM ANCHOR TERMINAL)
TL-3 MASH COMPLIANT
GF(31)DAT-19

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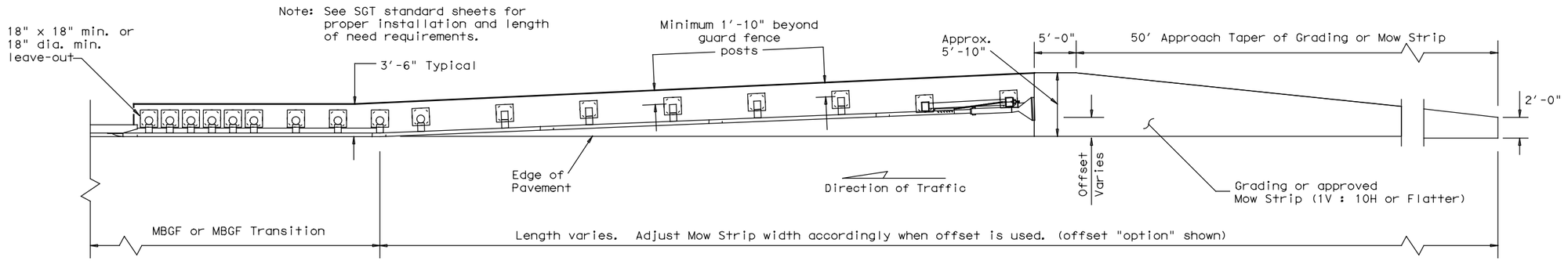
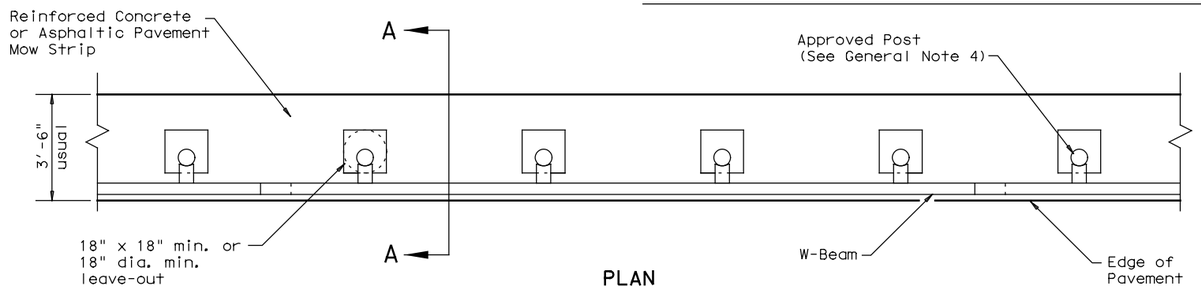


GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS



PLAN

GF(31) shown with Mow Strip
(See GF(31) standard sheet for proper installation)

SECTION A-A

Typical

MOW STRIP DETAIL

Reinforced Concrete Mow Strip with 18" x 18" Square or 18" Dia. minimum leave-out.

CURB OPTION (1)

This option will increase the post embedment throughout the system.

CURB OPTION (2)

Curb shown on top of mow strip

CURB OPTION (3)

Note: Site Condition(s)

Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.

Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.

GENERAL NOTES

1. This mow strip design is for use with metal beam guard fence, guard fence transitions, and guard fence end treatments. See applicable GF(31) MBGF or GF(31) Transition Standard sheet for additional information.
2. Mow strips shall be reinforced concrete with (wire mesh or synthetic fiber), as shown on the plans and will be paid for under the pertinent bid item. Reinforced concrete shall be placed in accordance with Item 432, "Riprap." The use of the synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Material Producer List (MPL), maintained by TxDOT, Construction Division.
3. The leave-out behind the post shall be a minimum of 7".
4. Only steel (W6 x 8.5 or W6 x 9.0), or 7 ½" Dia. round wood posts are acceptable for use in the mow strip. See GF(31) Standard for additional details.
5. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
6. Thickness of the mow strip will be 4".
7. The limits of payment for reinforced concrete will include leave-outs for the posts.
8. The leave-outs shall be filled with a Grout mixture consisting of: 2719 pounds sand, 188 pounds Type 1 or II cement, and 550 pounds of water per cubic yard, with a 28-day compressive strength of approximately 230 psi or less. Provide grout with a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (Suggested Maximum leave-out of 20"). Payment for furnishing and placing the grout mixture will be subsidiary to the pay item of riprap mow strip.

Texas Department of Transportation

Design Division Standard

METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT

GF(31)MS-19

FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				CR 258
	DIST	COUNTY		SHEET NO.
	AUS	WILCO		46

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NOTE: STEEL I-BEAM POST W6 X 8.5 (6'-0") PN: 533G
STANDARD WOOD BLOCKOUTS (6"X8"X14") PN: 4076B
AT (POSTS 2 THRU 8)

⅝" X 10" HGR BOLT PN: 3500G
⅝" HGR NUT PN: 3340G

LINE AT THE BACK OF POST #2 THRU #8

FROM THE CENTERLINE OF POST(1) & POST(0)

ANCHOR PADDLE PN: 15204A

ANGLE STRUT PN: 15202G

16"

POST(8) POST(7) POST(6) POST(5) POST(4) POST(3) POST(1) POST(0)

DO NOT BOLT ANCHOR RAIL TO - POST (2)

SEE DETAIL 1

BEGIN LENGTH OF NEED

PLAN VIEW

TRAFFIC FLOW

MASH TEST LEVEL 3 (TL-3) LENGTH OF SoftStop TERMINAL (50'-9 ½")

50'-9 ½" STANDARD INSTALLATION LENGTH (MASH TL-3 SoftStop)

BEGIN STANDARD MBGF

END PAYMENT FOR SGT

6¼" 3'-1 ½" 6'-3" 6'-3"

ANCHOR RAIL WITH SLOTS - (THREADED THRU HEAD)
SEE SoftStop MANUAL FOR COMPLETE DETAILS

MIDDLE SLOT CUTOUT (1) 1 ¾" X 6'-10 ¼"

OUTSIDE SLOTS CUTOUT (2)½" X 6'-9 ⅝"

SoftStop FACE SEE GN(3) & NOTE: B

MBGF LAPPED IN DIRECTION OF TRAFFIC FLOW

25'-0" DOWNSTREAM W-BEAM GUARDRAIL PN: 61G

SoftStop ANCHOR RAIL (12GA) PN: 15215G

3'-1 ½"(+/-) 6'-3" 6'-3" 6'-3" 6'-3" 6'-3" 6'-3" 5'-8" 4'-7"

B B A A

SEE NOTE: C

ANCHOR PADDLE PN: 15204A

END OF ANCHOR RAIL PN: 15215G

SEE NOTE: A

POST 32" HEIGHT

31"

RAIL HEIGHT

RAIL 25'-0" PN: 61G

RAIL 25'-0" PN: 15215G

31"

RAIL HEIGHT

DO NOT BOLT ANCHOR RAIL TO POST(2)

SEE DETAIL 2

13/16" DIA. YIELDING HOLES

13/16" DIA. YIELDING HOLES

SEE DETAIL 3

6'-1⅜"

(8) ⅝"x 1- ¼" GR BOLTS PN: 3360G
⅝" HEX NUTS PN: 3340G

POST 40" DEPTH (TYP 1-8)

(8) ⅝"x 1- ¼" HGR BOLTS PN: 3360G
⅝" HEX NUTS PN: 3340G

POST(8) POST(7) POST(6) POST(5) POST(4) POST(3) POST(2) 6'-0" (SYTP) PN: 15000G POST(1) 4'-9 ½" SYTP PN: 15203G POST(0) 6'-5 ⅜" PN: 15205A

ELEVATION VIEW

HARDWARE FOR POST(2) THRU POST(8)
(1) ⅝"x 10" HGR BOLT PN: 3500G
(1) ⅝" HGR HEX NUT PN: 3340G

NOTE: DO NOT BOLT ANCHOR RAIL PANEL TO POST(2)

(1) ⅝" x 1 ¾" HEX HD BOLT PN 3391G

ANGLE STRUT PN: 15202G

(2) ⅝" WASHERS PN 4372G

(1) ⅝" HGR HEX NUT PN 3340G

DETAIL 1
SHOWN AT POST(1) NEAR GROUND

(1) ⅝" HEX NUT

(1) ⅝" x 1- ½" HEX HD BOLT-GR-5 PN: 105286

(2) ⅝" ROUND WASHERS PN: 3240G

DETAIL 2
SHOWN AT POST(1)

ANCHOR KEEPER PLATE (24 GA) PN: 15207G

ANCHOR PLATE WASHER ½" THICK PN: 15206G

1" ROUND WASHER F463 PN: 4902G

(2) ⅝" x 2 ½" HEX HD BOLT GR-5 PN: 105285G

ALTERNATE BLOCKOUT SEE GENERAL NOTE: 6

(2) ⅝" ROUND WASHER (WIDE) PN: 3240G

1" NUT PN: 3908G SHALL BE SECURELY TIGHTENED AFTER FINAL ASSEMBLY, BUT NOT DEFORMING THE KEEPER PLATE.

ANCHOR PADDLE PN: 15204A

(2) ⅝" HEX NUT A563 GR. DH PN: 3245G

W-BEAM FLATTENED (4 PLIES)

ANGLE STRUT PN: 15202G

SEE NOTE: A

(2) ¾" x 2 ½" HEX BOLT (TYP) PN: 3717G

(4) ¾" FLAT WASHER (TYP) PN: 3701G

(2) ¾" HEX NUT (TYP) PN: 3704G

6'-1 ⅜" POST DEPTH

(2) ANCHOR POST ANGLE PN: 15201G

DETAIL 3
AT POST(0)
6'-5 ⅜" (W6 X 15)
I-BEAM POST PN: 15205A

TRAFFIC FLOW

ALTERNATE BLOCKOUT SEE GENERAL NOTE: 6

4" X 7 ½" X 14" BLOCKOUT COMPOSITE PN: 6777B

6" X 8" X 14" BLOCKOUT WOOD PN: 4076B

NOTE: DO NOT BOLT ANCHOR RAIL TO POST(2)

8" 6" 14"

⅝" HGR NUT PN: 3340G

⅝" X 10" HGR POST BOLT PN: 3500G

13/16"DIAMETER YIELDING HOLES LOCATED IN FLANGES

FINISHED GRADE

(HOLES APROXIMATELY CENTERED AT FINISHED GRADE)

ISOMETRIC VIEW POST(1 & 2)
W6 X 8.5 I-BEAM POST SHOWING STANDARD WOOD BLOCKOUT

NOTE: NO BLOCKOUT INSTALLED AT POST(1)

W-BEAM RAIL 25'-0"

6" X 8" X 14" BLOCKOUT WOOD

⅝" X 10" HGR POST BOLT PN: 3500G

⅝" HGR NUT PN: 3340G

POST HEIGHT 32"

31" RAIL HEIGHT

40"

LINE POST (3, 4, 5, 6, 7 & 8)

FINISHED GRADE

SECTION VIEW B-B
6'-0" (W6 X 8.5)
I-BEAM POST PN: 533G

6" X 8" X 14" BLOCKOUT WOOD

W-BEAM RAIL 25'-0"

⅝" X 10" HGR POST BOLT PN: 3500G

⅝" HGR NUT PN: 3340G

POST HEIGHT 32"

31" RAIL HEIGHT

40"

POST(2)

FINISHED GRADE

SECTION VIEW A-A
6'-0" (W6 X 8.5)
(SYTP) I-BEAM POST PN: 15000G

NOTE: DO NOT BOLT ANCHOR RAIL PANEL TO POST(2)

POST 17"- ½" HEIGHT

4'- 9 ½"

13/16" DIA. YIELDING HOLES

40"

POST(1)

FRONT VIEW POST(1)
4'-9 ½" (W6 X 8.5)
(SYTP) I-BEAM POST PN: 15203G

NOTE: NO BLOCKOUT INSTALLED AT POST(1)

APPROX 5'-10"

5'-0"

50' APPROACH GRADING

2'-0"

STANDARD MBGF

EDGE OF PAVEMENT

NOTE: ADJUST WIDTH ACCORDINGLY WHEN OFFSET IS USED. (OFFSET "OPTION" SHOWN)

2'-0" MAX. RAIL OFFSET

APPROACH GRADING (1V:10H OR FLATTER) SEE PRODUCT ASSEMBLY MANUAL FOR ADDITIONAL GUIDANCE.

APPROACH GRADING AT GUARDRAIL END TREATMENTS

GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: TRINITY HIGHWAY AT 1(888)323-6374. 2525 N. STEMMONS FREEWAY, DALLAS, TX 75207
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE; SoftStop END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL. PN: 620237B
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. A COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
7. IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL AND REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
8. POSTS SHALL NOT BE SET IN CONCRETE.
9. IT IS ACCEPTABLE TO INSTALL THE SoftStop IMPACT HEAD PARALLEL TO THE GRADE LINE OR WITH AN UPWARD TILT.
10. DO NOT ATTACH THE SoftStop SYSTEM DIRECTLY TO A RIGID BARRIER.
11. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE SoftStop SYSTEM BE CURVED.
12. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.

NOTE: A	THE INSTALLATION HEIGHT OF FULLY ASSEMBLED ANCHOR POST WILL VARY FROM 3-¾" MIN. TO 4" MAX. ABOVE FINISHED GRADE.
NOTE: B	PART PN: 5852B RIGHT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING) PART PN: 5851B LEFT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING)
NOTE: C	W-BEAM SPLICE LOCATED BETWEEN LINE POST(4) AND LINE POST(5) GUARDRAIL PANEL 25'-0" PN: 61G ANCHOR RAIL 25'-0" PN: 15215G LAP GUARDRAIL IN DIRECTION OF TRAFFIC FLOW.

PART	QTY	MAIN SYSTEM COMPONENTS
620237B	1	PRODUCT DESCRIPTION ASSEMBLY MANUAL (LATEST REV.)
15208A	1	SoftStop HEAD (SEE MANUAL FOR RIGHT-LEFT APPROACH)
15215G	1	SoftStop ANCHOR RAIL (12GA) WITH CUTOUT SLOTS
61G	1	SoftStop DOWNSTREAM W-BEAM RAIL (12GA) (25'- 0")
15205A	1	POST #0 - ANCHOR POST (6'- 5 ⅞")
15203G	1	POST #1 - (SYTP) (4'- 9 ½")
15000G	1	POST #2 - (SYTP) (6'- 0")
533G	6	POST #3 THRU #8 - I-BEAM (W6 x 8.5) (6'- 0")
4076B	7	BLOCKOUT - WOOD (ROUTED) (6" x 8" x 14")
6777B	7	BLOCKOUT - COMPOSITE (4" x 7 ½" x 14")
15204A	1	ANCHOR PADDLE
15207G	1	ANCHOR KEEPER PLATE (24 GA)
15206G	1	ANCHOR PLATE WASHER (½" THICK)
15201G	2	ANCHOR POST ANGLE (10" LONG)
15202G	1	ANGLE STRUT
		HARDWARE
4902G	1	1" ROUND WASHER F436
3908G	1	1" HEAVY HEX NUT A563 GR.DH
3717G	2	¾" x 2 ½" HEX BOLT A325
3701G	4	¾" ROUND WASHER F436
3704G	2	¾" HEAVY HEX NUT A563 GR.DH
3360G	16	⅝" x 1 ¼" W-BEAM RAIL SPLICE BOLTS HGR
3340G	25	⅝" W-BEAM RAIL SPLICE NUTS HGR
3500G	7	⅝" x 10" HGR POST BOLT A307
3391G	1	⅝" x 1 ¾" HEX HD BOLT A325
4489G	1	⅝" x 9" HEX HD BOLT A325
4372G	4	⅝" WASHER F436
105285G	2	⅝" x 2 ½" HEX HD BOLT GR-5
105286G	1	⅞" x 1 ½" HEX HD BOLT GR-5
3240G	6	⅝" ROUND WASHER (WIDE)
3245G	3	⅝" HEX NUT A563 GR.DH
5852B	1	HIGH INTENSITY REFLECTIVE SHEETING - SEE NOTE: B

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE SoftStop END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation

Design Division Standard

TRINITY HIGHWAY
SOFTSTOP END TERMINAL
MASH - TL-3
SGT(10S)31-16

FILE: sgt10s3116	DN: TxDOT	CK: KM	DW: VP	CK: MB/VP
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REVISIONS				CR 258
	DIST	COUNTY		SHEET NO.
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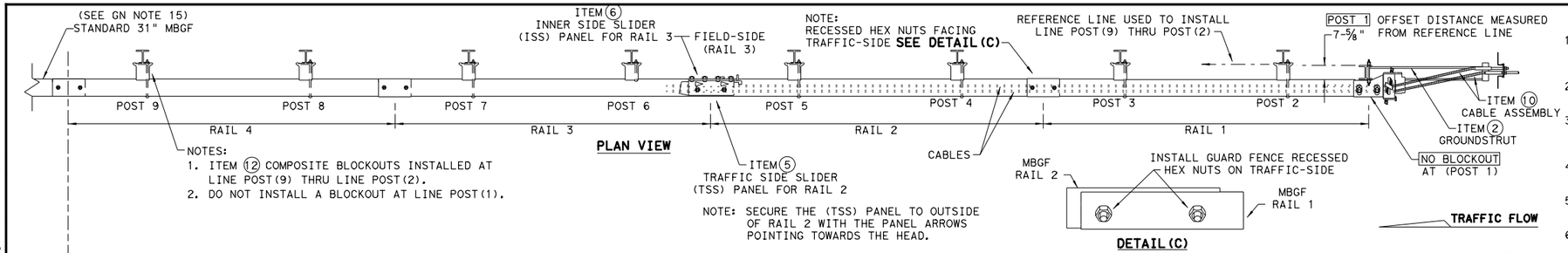

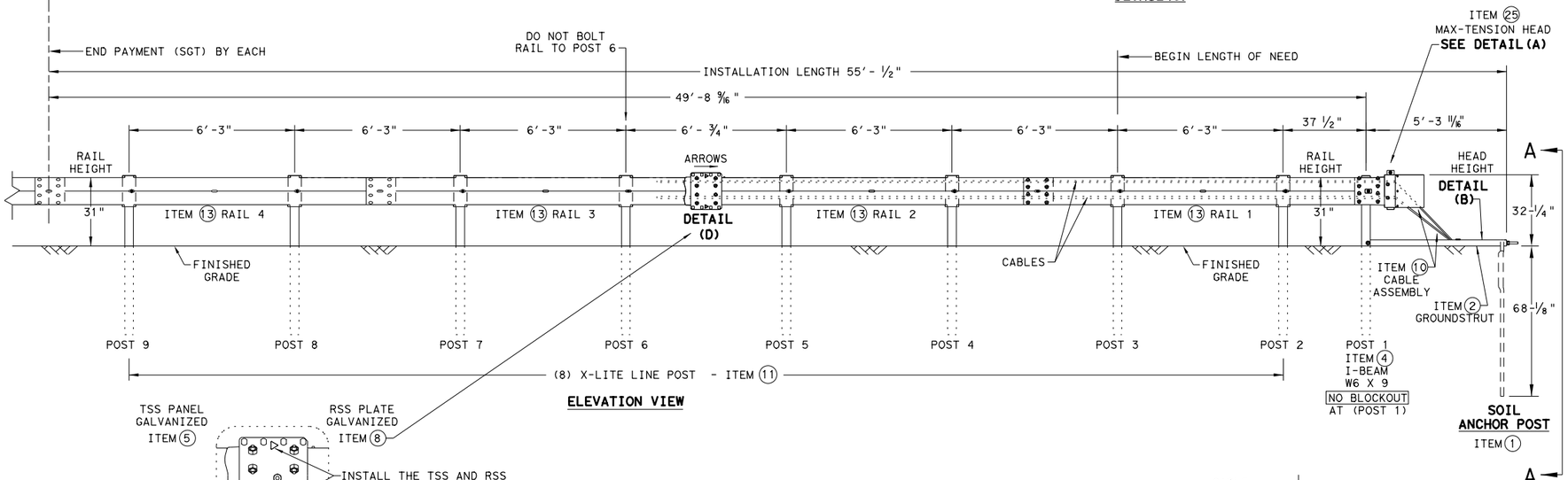

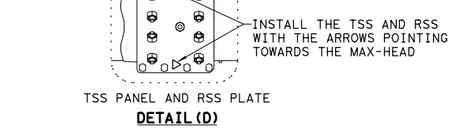

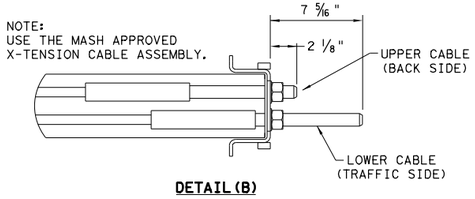

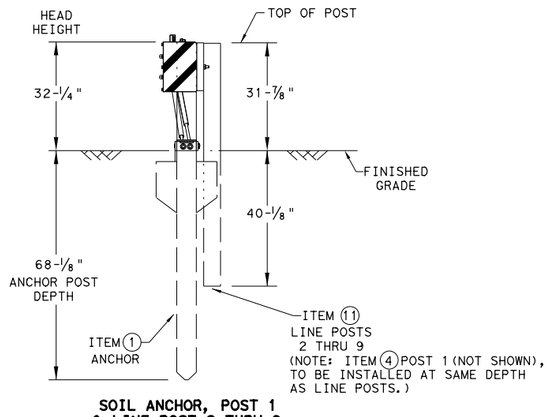

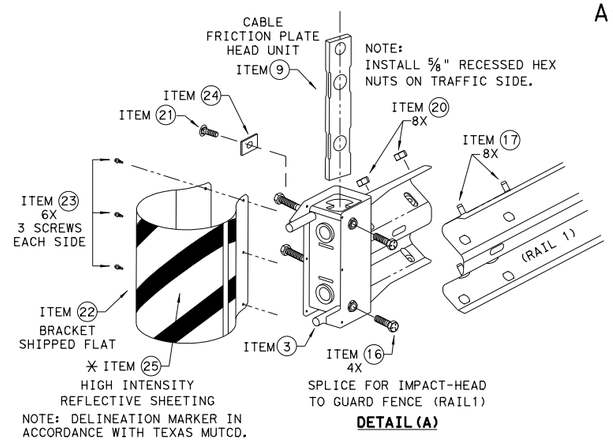

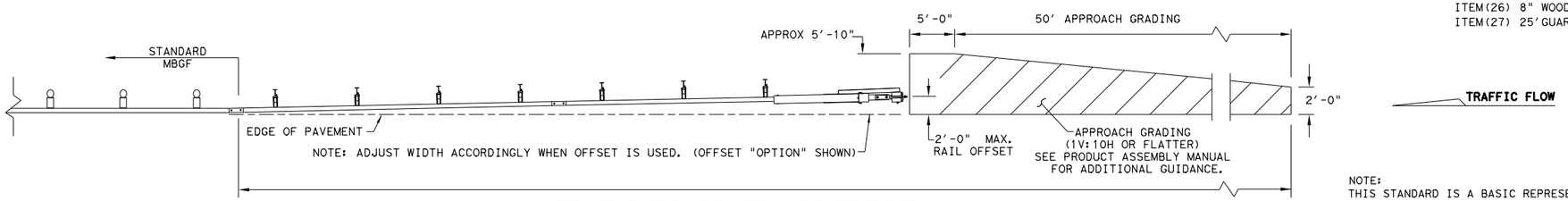

GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800
2. FOR INSTALLATION, REPAIR, & MAINTENANCE REFER TO THE; MAX-TENSION INSTALLATION INSTRUCTION MANUAL. P/N MANMAX REV D (ECN 3516).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURE'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. ALL STEEL COMPONENTS ARE GALVANIZED PER ASTM A123 OR EQUIVALENT UNLESS OTHERWISE STATED.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POST WITH COMPOSITE BLOCKOUTS.
7. COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST(MPL)FOR CERTIFIED PRODUCERS.
8. REFER TO INSTALLATION MANUAL FOR SPECIFIC PANEL LAPPING GUIDANCE.
9. IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL FOR INSTALLATION GUIDANCE.
10. POSTS SHALL NOT BE SET IN CONCRETE.
11. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POST TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST.
12. MAX-TENSION SYSTEM SHALL NEVER BE INSTALLED WITHIN A CURVED SECTION OF GUARDRAIL.
13. IF A DELINEATION MARKER IS REQUIRED, MARKER SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
14. THE SYSTEM IS SHOWN WITH 12'-6" MBGF PANELS, 25'-0" MBGF PANELS ARE ALSO ALLOWED.
15. A MINIMUM OF 12'-6" OF 12GA. MBGF IS REQUIRED IMMEDIATELY DOWNSTREAM OF THE MAX-TENSION SYSTEM.

ITEM #	PART NUMBER	DESCRIPTION	QTY
1	BSI-1610060-00	SOIL ANCHOR - GALVANIZED	1
2	BSI-1610061-00	GROUND STRUT - GALVANIZED	1
3	BSI-1610062-00	MAX-TENSION IMPACT HEAD	1
4	BSI-1610063-00	W6x9 I-BEAM POST 6FT.-GALVANIZED	1
5	BSI-1610064-00	TSS PANEL - TRAFFIC SIDE SLIDER	1
6	BSI-1610065-00	ISS PANEL - INNER SIDE SLIDER	1
7	BSI-1610066-00	TOOTH - GEOMET	1
8	BSI-1610067-00	RSS PLATE - REAR SIDE SLIDER	1
9	B061058	CABLE FRICTION PLATE - HEAD UNIT	1
10	BSI-1610069-00	CABLE ASSEMBLY - MASH X-TENSION	2
11	BSI-1012078-00	X-LITE LINE POST-GALVANIZED	8
12	B090534	8" W-BEAM COMPOSITE-BLOCKOUT XT110	8
13	BSI-4004386	12'-6" W-BEAM GUARD FENCE PANELS 12GA.	4
14	BSI-1102027-00	X-LITE SQUARE WASHER	1
15	BSI-2001886	5/8" X 7" THREAD BOLT HH (GR.5)GEOMET	1
16	BSI-2001885	3/4" X 3" ALL-THREAD BOLT HH (GR.5)GEOMET	4
17	4001115	5/8" X 1 1/4" GUARD FENCE BOLTS (GR.2)MGAL	48
18	2001840	5/8" X 10" GUARD FENCE BOLTS MGAL	8
19	2001636	5/8" WASHER F436 STRUCTURAL MGAL	2
20	4001116	5/8" RECESSED GUARD FENCE NUT (GR.2)MGAL	59
21	BSI-2001888	5/8" X 2" ALL THREAD BOLT (GR.5)GEOMET	1
22	BSI-1701063-00	DELINEATION MOUNTING (BRACKET)	1
23	BSI-2001887	1/4" X 3/4" SCREW SD HH 410SS	7
24	4002051	GUARDRAIL WASHER RECT AASHTO FWR03	1
* 25	SEE NOTE BELOW	HIGH INTENSITY REFLECTIVE SHEETING	1
** 26	4002337	8" W-BEAM TIMBER-BLOCKOUT, PDB01B	8
** 27	BSI-4004431	25' W-BEAM GUARDRAIL PANEL,8-SPACE,12GA.	2
28	MANMAX Rev-(D)	MAX-TENSION INSTALLATION INSTRUCTIONS	1

* TO BE PROVIDED BY DISTRIBUTOR OR CONTRACTOR.

** ALTERNATIVE ITEMS NOT SHOWN.
ITEM(26) 8" WOOD-BLOCKOUTS
ITEM(27) 25'GUARD FENCE PANELS

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE MAX-TENSION END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation

Design Division Standard

MAX-TENSION END TERMINAL MASH - TL-3

SGT(11S)31-18

FILE: sgt11s3118.dgn	DN: TxDOT	CK: KM	DW: TxDOT	CK: CL
© TxDOT: FEBRUARY 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS				CR 258
	DIST	COUNTY		SHEET NO.
	AUS	WILCO		48

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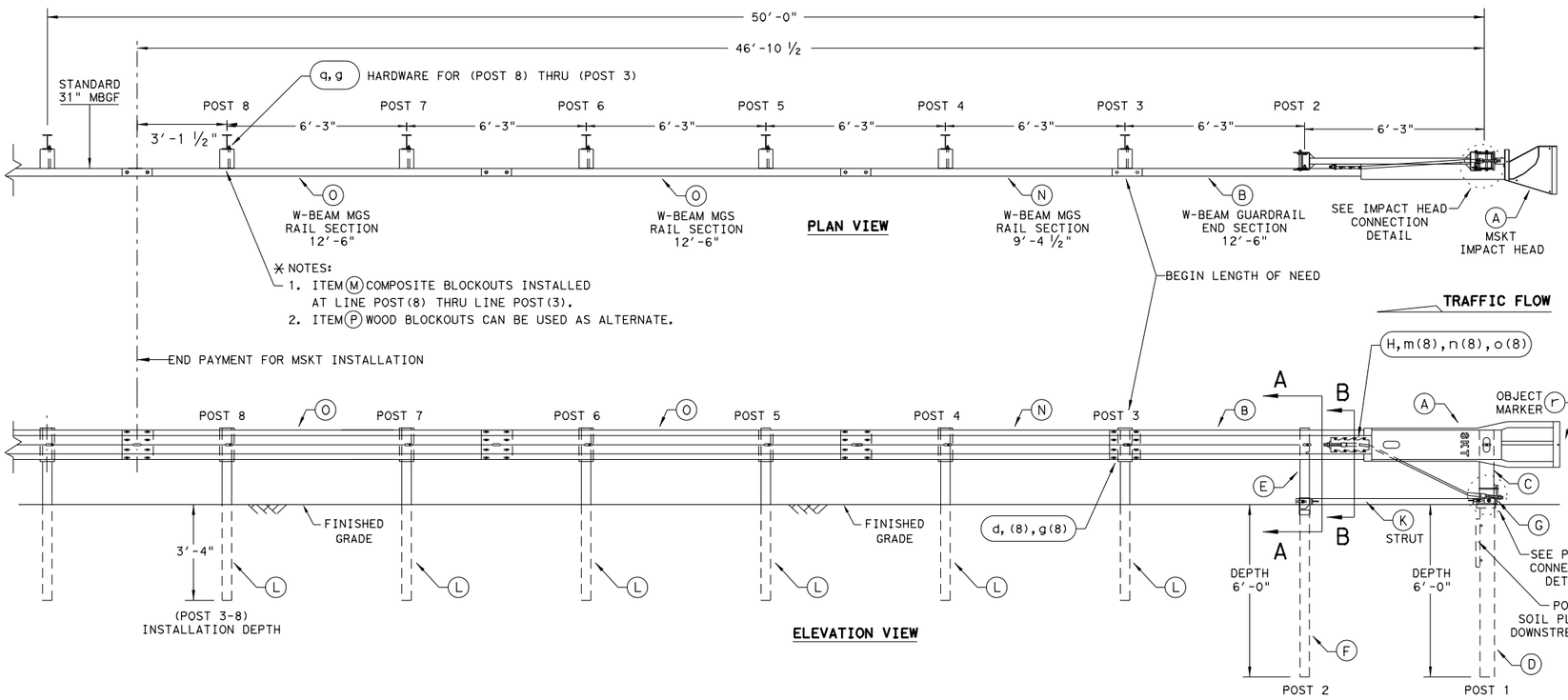
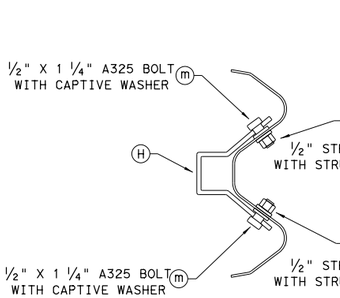
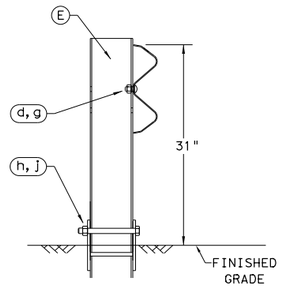


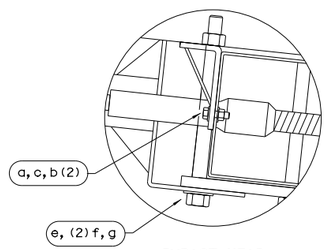
NOTE: SEE (GENERAL NOTE 14) FOR DRIVING CAP INFORMATION.



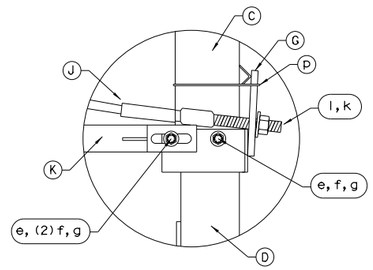
SECTION B-B
ANCHOR BRACKET



POST 2
SECTION A-A



IMPACT HEAD
CONNECTION DETAIL



POST 1
CONNECTION DETAIL

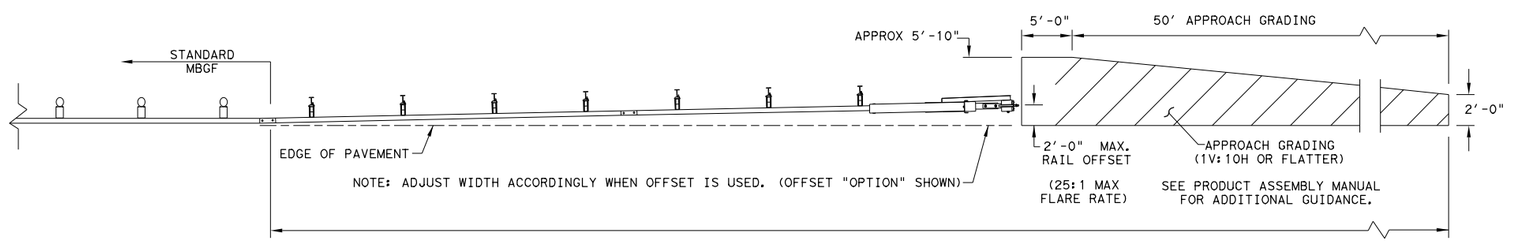
GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: ROAD SYSTEMS, INC. (432)263-2435. 3616 OLD HOWARD COUNTY AIRPORT, BIG SPRING, TX 79720
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE; MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION~062717).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POSTS WITH COMPOSITE BLOCKOUTS.
7. A COMPOSITE MATERIAL BLOCKOUTS THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
8. IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, & REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
9. POSTS SHALL NOT BE SET IN CONCRETE.
10. SYSTEM MUST BE ATTACHED TO STANDARD 31" MBGF.
11. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
12. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
13. THE SYSTEM IS SHOWN WITH TWO 12'-6" MBGF PANELS, ONE 25'-0" MBGF PANEL IS ALSO ALLOWED IN THEIR PLACE.
14. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POSTS 3-8 TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST. SPECIAL DRIVING CAP TO BE USED ON LOWER POSTS 1 & 2 TO PREVENT DAMAGE TO THE WELDED PLATES.

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM NUMBERS
A	1	MSKT IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	POST 1 - TOP (6" X 6" X 1/8" TUBE)	MTPHP1A
D	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
E	1	POST 2 - ASSEMBLY TOP	UHP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	GROUND STRUT	MS785
L	6	W6x9 OR W6x8.5 STEEL POST	P621
M	6	COMPOSITE BLOCKOUTS	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 1/2")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G1209
		SMALL HARDWARE	
a	2	5/8" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	5/8" WASHER	W0516
c	2	5/8" HEX NUT	N0516
d	25	5/8" Dia. x 1 1/4" SPLICE BOLT (POST 2)	B580122
e	2	5/8" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	5/8" WASHER	W050
g	33	5/8" Dia. H.G.R NUT	N050
h	1	3/4" Dia. x 8 1/2" HEX BOLT (GRD A449)	B340854A
j	1	3/4" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2" x 1 1/4" A325 BOLT WITH CAPTIVE WASHER	SB12A
n	8	1/2" STRUCTURAL NUTS	N012A
o	8	1 1/16" O.D. x 9/16" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	5/8" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151

SEE NOTES: ✳

ALTERNATIVE ITEMS NOT SHOWN. ✳✳
✳ ITEM(P) 8" WOOD-BLOCKOUT
✳✳ ITEM(Q) 25'GUARD FENCE PANEL



APPROACH GRADING AT GUARDRAIL END TREATMENTS

TRAFFIC FLOW

NOTE: TXDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE MSKT END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

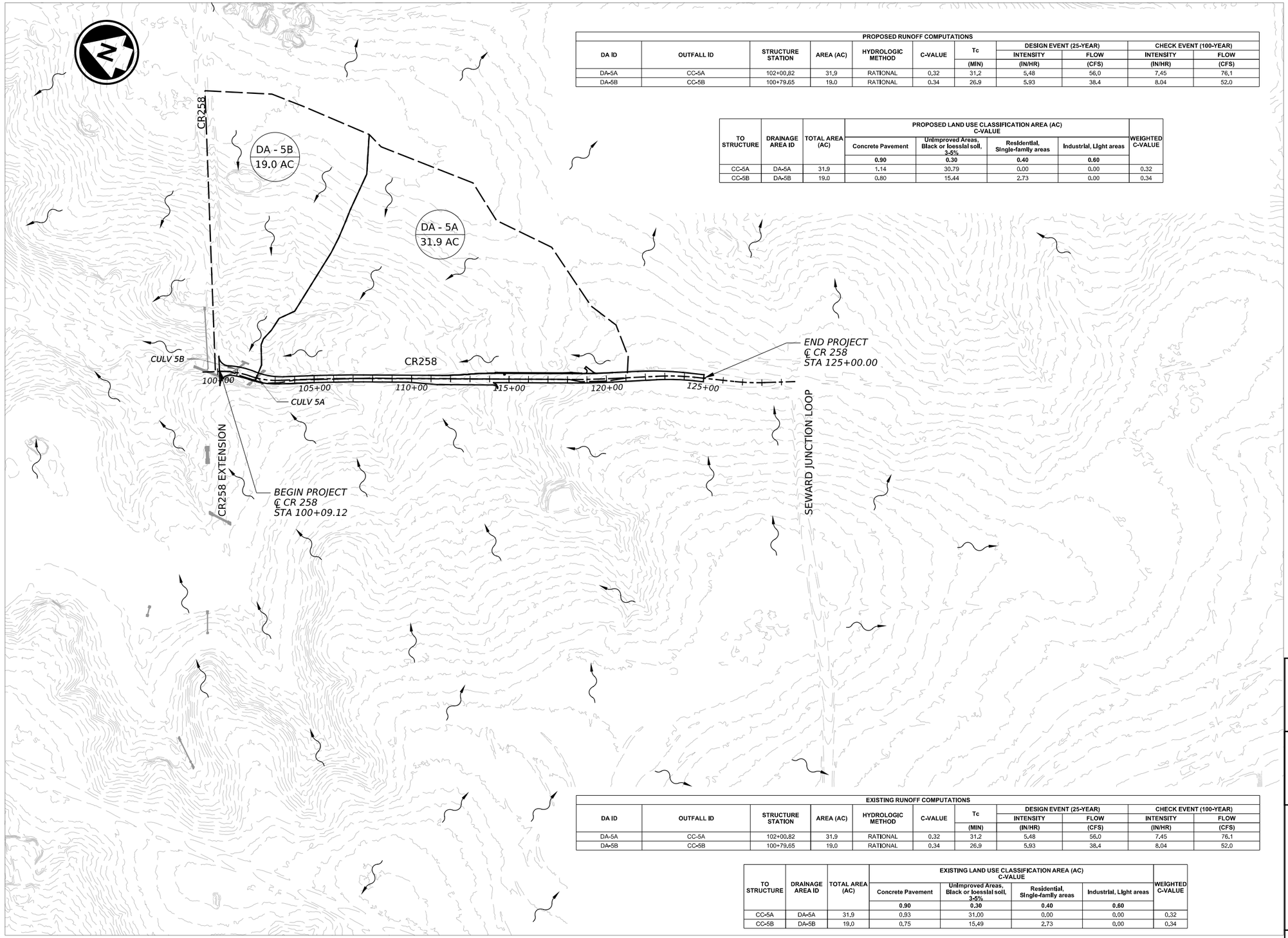
Texas Department of Transportation

Design Division Standard

SINGLE GUARDRAIL TERMINAL
MSKT-MASH-TL-3
SGT(12S)31-18

FILE: sgt12s3118.dgn	DN: TxDOT	CK: KM	DW: VP		CK: CL
© TxDOT: APRIL 2018	CONT	SECT	JOB		HIGHWAY
REVISIONS					CR 258
	DIST	COUNTY			SHEET NO.
	AUS	WILCO			49

CM | DW: EM | CK: EM | DW: EM | CK: EM



PROPOSED RUNOFF COMPUTATIONS

DA ID	OUTFALL ID	STRUCTURE STATION	AREA (AC)	HYDROLOGIC METHOD	C-VALUE	Tc	DESIGN EVENT (25-YEAR)		CHECK EVENT (100-YEAR)	
							INTENSITY	FLOW	INTENSITY	FLOW
						(MIN)	(IN/HR)	(CFS)	(IN/HR)	(CFS)
DA-5A	CC-5A	102+00.82	31.9	RATIONAL	0.32	31.2	5.48	56.0	7.45	76.1
DA-5B	CC-5B	100+79.65	19.0	RATIONAL	0.34	26.9	5.93	38.4	8.04	52.0

TO STRUCTURE	DRAINAGE AREA ID	TOTAL AREA (AC)	PROPOSED LAND USE CLASSIFICATION AREA (AC) C-VALUE				WEIGHTED C-VALUE
			Concrete Pavement	Unimproved Areas, Black or loesslal soil, 3-5%	Residential, Single-family areas	Industrial, LIght areas	
			0.90	0.30	0.40	0.60	
CC-5A	DA-5A	31.9	1.14	30.79	0.00	0.00	0.32
CC-5B	DA-5B	19.0	0.80	15.44	2.73	0.00	0.34

EXISTING RUNOFF COMPUTATIONS

DA ID	OUTFALL ID	STRUCTURE STATION	AREA (AC)	HYDROLOGIC METHOD	C-VALUE	Tc	DESIGN EVENT (25-YEAR)		CHECK EVENT (100-YEAR)	
							INTENSITY	FLOW	INTENSITY	FLOW
						(MIN)	(IN/HR)	(CFS)	(IN/HR)	(CFS)
DA-5A	CC-5A	102+00.82	31.9	RATIONAL	0.32	31.2	5.48	56.0	7.45	76.1
DA-5B	CC-5B	100+79.65	19.0	RATIONAL	0.34	26.9	5.93	38.4	8.04	52.0

TO STRUCTURE	DRAINAGE AREA ID	TOTAL AREA (AC)	EXISTING LAND USE CLASSIFICATION AREA (AC) C-VALUE				WEIGHTED C-VALUE
			Concrete Pavement	Unimproved Areas, Black or loesslal soil, 3-5%	Residential, SIngle-family areas	Industrial, LIght areas	
			0.90	0.30	0.40	0.60	
CC-5A	DA-5A	31.9	0.93	31.00	0.00	0.00	0.32
CC-5B	DA-5B	19.0	0.75	15.49	2.73	0.00	0.34

LEGEND

- DRAINAGE AREA BOUNDARY
- INTERNAL DRAINAGE AREA BOUNDARY
- FLOW ARROW
- EXISTING CONTOUR
- DA - X / XX — INTERIOR DRAINAGE AREA

0 250 500

SCALE 1:500'

STATE OF TEXAS
JACOB WATTS
139198
LICENSED PROFESSIONAL ENGINEER

10/3/2025

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CR 258

DRAINAGE AREA MAP

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	50
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 10/3/2025
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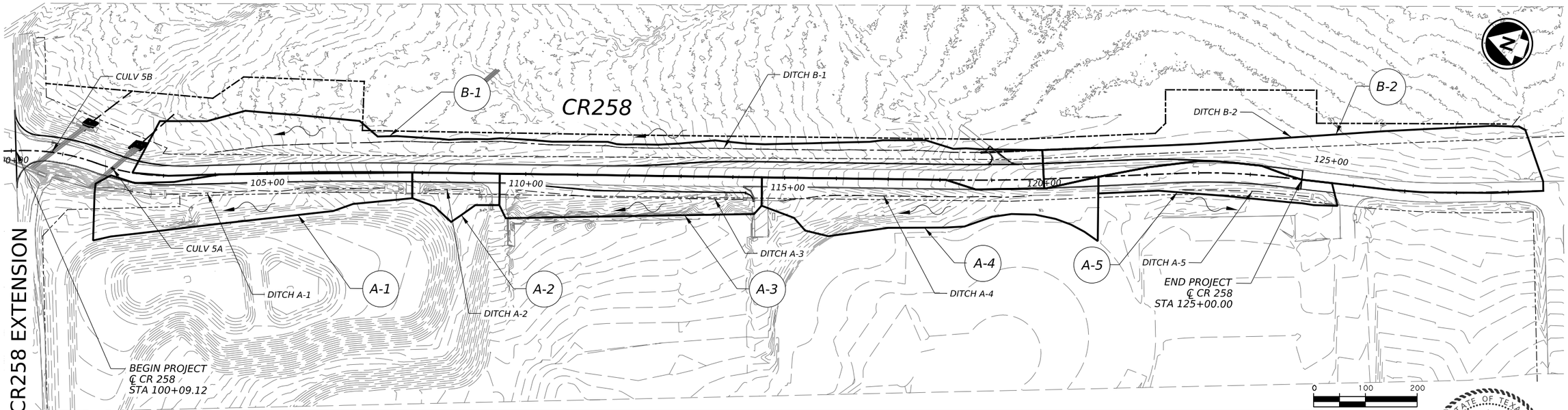
PROPOSED RUNOFF COMPUTATIONS								
DA ID	AREA (AC)	HYDROLOGIC METHOD	C-VALUE	Tc	DESIGN EVENT (10-YEAR)		CHECK EVENT (100-YEAR)	
					INTENSITY	FLOW	INTENSITY	FLOW
				(MIN)	(IN/HR)	(CFS)	(IN/HR)	(CFS)
A-1+ A-2+ A-3+ A-4	3.6	RATIONAL	0.44	12.1	6.83	10.9	11.22	17.8
A-2 + A-3 + A-4	2.4	RATIONAL	0.45	8.7	7.66	8.3	12.41	13.5
A-3 + A-4	2.1	RATIONAL	0.44	7.7	7.95	7.4	12.81	11.9
A-4	1.2	RATIONAL	0.39	5.0	8.88	4.2	14.07	6.6
A-5	0.6	RATIONAL	0.65	5.0	8.88	3.5	14.07	5.5
B-1	3.1	RATIONAL	0.49	10.7	7.15	10.9	11.67	17.8
B-2	1.8	RATIONAL	0.43	7.2	8.11	6.3	13.03	10.1

EXISTING RUNOFF COMPUTATIONS								
DA ID	AREA (AC)	HYDROLOGIC METHOD	C-VALUE	Tc	DESIGN EVENT (10-YEAR)		CHECK EVENT (100-YEAR)	
					INTENSITY	FLOW	INTENSITY	FLOW
				(MIN)	(IN/HR)	(CFS)	(IN/HR)	(CFS)
A-1+ A-2+ A-3+ A-4	3.6	RATIONAL	0.42	12.1	6.83	10.4	11.22	17.0
A-2 + A-3 + A-4	2.4	RATIONAL	0.42	8.7	7.66	7.8	12.41	12.6
A-3 + A-4	2.1	RATIONAL	0.42	7.7	7.95	7.1	12.81	11.3
A-4	1.2	RATIONAL	0.39	5.0	8.88	4.2	14.07	6.6
A-5	0.6	RATIONAL	0.65	5.0	8.88	3.5	14.07	5.5
B-1	2.9	RATIONAL	0.51	10.7	7.15	10.6	11.67	17.3



PROPOSED DITCH COMPUTATIONS -HYDRAULICS												
DITCH ID	FREQUENCY (YR)	DRAINAGE AREA ID	AREA (AC)	ALLOWABLE DEPTH	N-VALUE	CHANNEL SLOPE (FT/FT)	FORESLOPE (H:V)	BACKSLOPE (H:V)	BOTTOM WIDTH (FT)	VELOCITY (FT/S)	FLOW DEPTH (FT)	SHEAR STRESS (LB/SQFT)	PROPOSED CHANNEL LINING
DITCH A-1	10	A-1+ A-2+ A-3+ A-4	3.6	1.5	0.03	0.027	4	4	0	4.43	0.78	1.41	GRASS
DITCH A-1	100	A-1+ A-2+ A-3+ A-4	3.6	1.5	0.03	0.027	4	4	0	5	0.94	1.7	GRASS
DITCH A-2	10	A-2 + A-3 + A-4	2.4	1	0.03	0.026	4	4	0	4.14	0.71	1.28	GRASS
DITCH A-2	100	A-2 + A-3 + A-4	2.4	1	0.03	0.026	4	4	0	4.67	0.85	1.54	GRASS
DITCH A-3	10	A-3 + A-4	2.1	1	0.03	0.025	4	4	0	4.02	0.68	1.23	GRASS
DITCH A-3	100	A-3 + A-4	2.1	1	0.03	0.025	4	4	0	4.53	0.81	1.47	GRASS
DITCH A-4	10	A-4	1.2	1	0.03	0.027	4	4	0	3.7	0.53	1.12	GRASS
DITCH A-4	100	A-4	1.2	1	0.03	0.027	4	4	0	4.15	0.63	1.34	GRASS
DITCH A-5	10	A-5	0.6	1	0.03	0.002	4	4	0	1.42	0.78	0.15	GRASS
DITCH A-5	100	A-5	0.6	1	0.03	0.002	4	4	0	1.59	0.93	0.17	GRASS
DITCH B-1	10	B-1	3.1	1	0.03	0.028	4	4	0	3.28	0.91	0.74	GRASS
DITCH B-1	100	B-1	3.1	1	0.03	0.028	4	4	0	3.71	1.09	0.88	GRASS
DITCH B-2	10	B-2	1.8	1	0.03	0.006	4	4	0	2.14	0.86	0.32	GRASS
DITCH B-2	100	B-2	1.8	1	0.03	0.006	4	4	0	2.41	1.03	0.39	GRASS

EXIST DITCH COMPUTATIONS -HYDRAULICS										
DITCH ID	FREQUENCY (YR)	DRAINAGE AREA ID	AREA (AC)	ALLOWABLE DEPTH	N-VALUE	CHANNEL SLOPE (FT/FT)	FORESLOPE (H:V)	BACKSLOPE (H:V)	BOTTOM WIDTH (FT)	VELOCITY (FT/S)	FLOW DEPTH
DITCH A-1	10	A-1+ A-2+ A-3+ A-4	3.6	1.5	0.03	0.027	4	4	0	4.38	0.77
DITCH A-1	100	A-1+ A-2+ A-3+ A-4	3.6	1.5	0.03	0.027	4	4	0	4.95	0.93
DITCH A-2	10	A-2 + A-3 + A-4	2.4	1	0.03	0.026	4	4	0	4.07	0.69
DITCH A-2	100	A-2 + A-3 + A-4	2.4	1	0.03	0.026	4	4	0	4.59	0.83
DITCH A-3	10	A-3 + A-4	2.1	1	0.03	0.025	4	4	0	3.98	0.67
DITCH A-3	100	A-3 + A-4	2.1	1	0.03	0.025	4	4	0	4.47	0.79
DITCH A-4	10	A-4	1.2	0.5	0.03	0.027	4	4	0	3.7	0.53
DITCH A-4	100	A-4	1.2	0.5	0.03	0.027	4	4	0	4.15	0.63
DITCH A-5	10	A-5	0.6	1	0.03	0.002	4	4	0	1.42	0.78
DITCH A-5	100	A-5	0.6	1	0.03	0.002	4	4	0	1.59	0.93
DITCH B-1	10	B-1	2.9	1	0.03	0.026	4	4	0	3.26	0.90
DITCH B-1	100	B-1	2.9	1	0.03	0.026	4	4	0	3.68	1.08

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CR 258

ROADSIDE DITCH DRAINAGE AREA MAP

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	51
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

CM EM CK EM DW EM CK EM DW

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CULVERT 5B - EXISTING

Crossing Discharge Data

Discharge Slection Method: Recurrence

Table 1 - Summary of Culvert Flows at Crossing: Culv5B-EXIST

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Roadway Discharge (cfs)	Iterations
977.04	2 year	18.60	18.60	0.00	1
977.39	10 year	30.60	30.60	0.00	1
977.69	25 year	38.40	38.40	0.00	1
977.94	50 year	44.80	44.80	0.00	1
978.24	100 year	52.00	52.00	0.00	1
986.50	Overtopping	149.08	149.08	0.00	Overtopping

Table 2 - Culvert Summary Table: Culvert

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	18.60	18.60	977.04	1.436	1.599	1-S1f	0.800	1.017	2.500	2.500	1.895	0.000
10 year	30.60	30.60	977.39	1.954	1.738	1-JS1f	1.046	1.319	2.500	2.500	3.117	0.000
25 year	38.40	38.40	977.69	2.254	1.956	1-JS1f	1.189	1.486	2.500	2.500	3.911	0.000
50 year	44.80	44.80	977.94	2.501	2.171	5-JS1f	1.301	1.610	2.500	2.500	4.563	0.000
100 year	52.00	52.00	978.24	2.795	2.453	5-JS1f	1.426	1.738	2.500	2.500	5.297	0.000

****

Straight Culvert

Inlet Elevation (invert): 975.44 ft, Outlet Elevation (invert): 974.30 ft

Culvert Length: 129.01 ft, Culvert Slope: 0.0088

****

Table 3 - Downstream Channel Rating Curve (Crossing: Culv5B-EXIST)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)
18.60	976.80	2.50
30.60	976.80	2.50
38.40	976.80	2.50
44.80	976.80	2.50
52.00	976.80	2.50

Tailwater Channel Data - Culv5B-EXIST

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 976.80 ft

Roadway Data for Crossing: Culv5B-EXIST

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 60.00 ft

Crest Elevation: 986.50 ft

Roadway Surface: Paved

Roadway Top Width: 51.00 ft

Site Data - Culvert

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 975.44 ft

Outlet Station: 129.00 ft

Outlet Elevation: 974.30 ft

Number of Barrels: 2

Culvert Data Summary - Culvert

Barrel Shape: Circular

Barrel Diameter: 2.50 ft

Barrel Material:

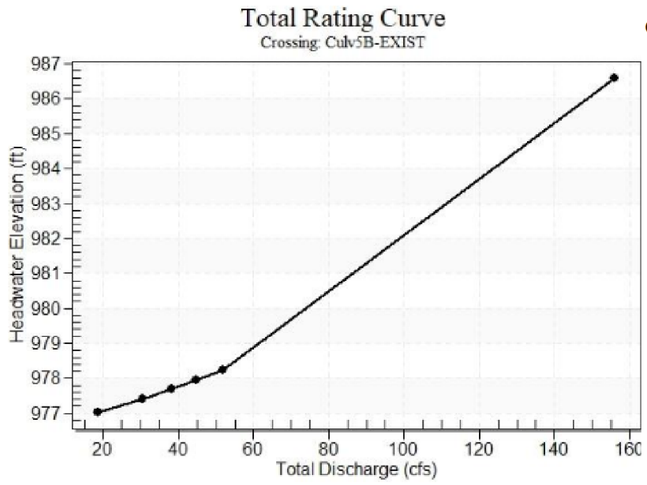
Embedment: 0.00 in

Barrel Manning's n: 0.0120

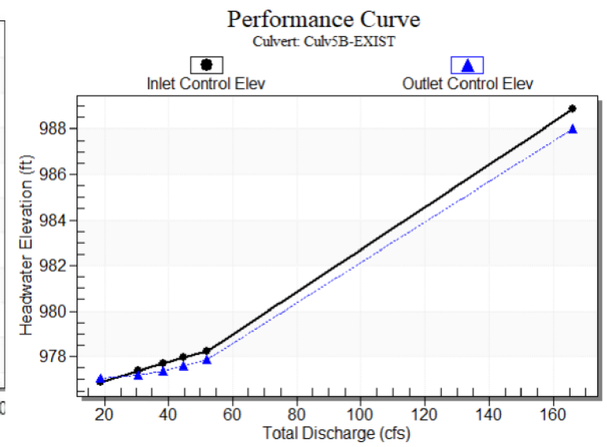
Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

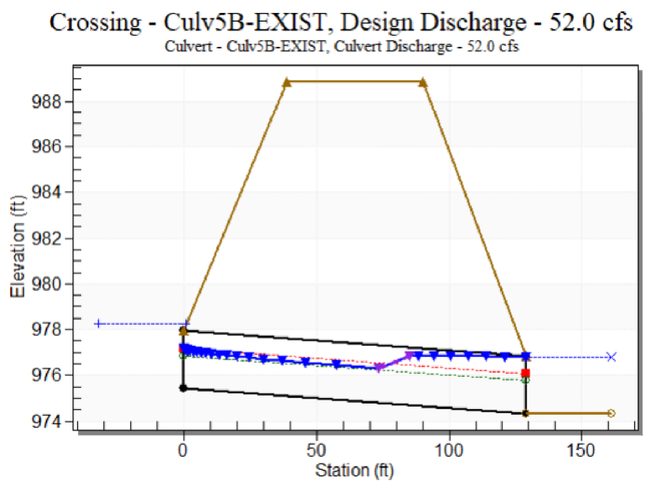
Inlet Depression: None



Culvert Performance Curve Plot: Culv5B-EXIST



Water Surface Profile Plot for Culvert: Culv5B-EXIST



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CR 258

CULVERT HYDRAULIC DATA SHEET CULV 5B EX

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	52
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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CULVERT 5B - PROPOSED

Crossing Discharge Data

Discharge Slection Method: Recurrence

Table 1 - Summary of Culvert Flows at Crossing: Culv5B-PROP

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Roadway Discharge (cfs)	Iterations
977.10	2 year	18.60	18.60	0.00	1
977.45	10 year	30.60	30.60	0.00	1
977.77	25 year	38.40	38.40	0.00	1
978.05	50 year	44.80	44.80	0.00	1
978.42	100 year	52.00	52.00	0.00	1
987.00	Overtopping	138.22	138.22	0.00	Overtopping

Table 2 - Culvert Summary Table: Culvert

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	18.60	18.60	977.10	1.493	1.629	1-S1f	0.801	1.017	2.500	2.500	1.895	0.000
10 year	30.60	30.60	977.45	1.981	1.743	1-JS1f	1.047	1.319	2.500	2.500	3.117	0.000
25 year	38.40	38.40	977.77	2.296	1.981	1-JS1f	1.190	1.486	2.500	2.500	3.911	0.000
50 year	44.80	44.80	978.05	2.582	2.216	5-JS1f	1.303	1.610	2.500	2.500	4.563	0.000
100 year	52.00	52.00	978.42	2.948	2.523	5-JS1f	1.428	1.738	2.500	2.500	5.297	0.000

****

Straight Culvert

Inlet Elevation (invert): 975.47 ft, Outlet Elevation (invert): 974.30 ft

Culvert Length: 133.01 ft, Culvert Slope: 0.0088

****

Table 3 - Downstream Channel Rating Curve (Crossing: Culv5B-PROP)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)
18.60	976.80	2.50
30.60	976.80	2.50
38.40	976.80	2.50
44.80	976.80	2.50
52.00	976.80	2.50

Roadway Data for Crossing: Culv5B-PROP

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 60.00 ft

Crest Elevation: 987.00 ft

Roadway Surface: Paved

Roadway Top Width: 68.00 ft

Site Data - Culvert

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 975.47 ft

Outlet Station: 133.00 ft

Outlet Elevation: 974.30 ft

Number of Barrels: 2

Culvert Data Summary - Culvert

Barrel Shape: Circular

Barrel Diameter: 2.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

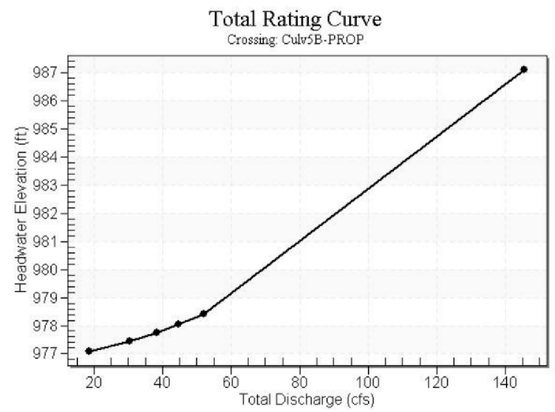
Barrel Manning's n: 0.0120

Culvert Type: Straight

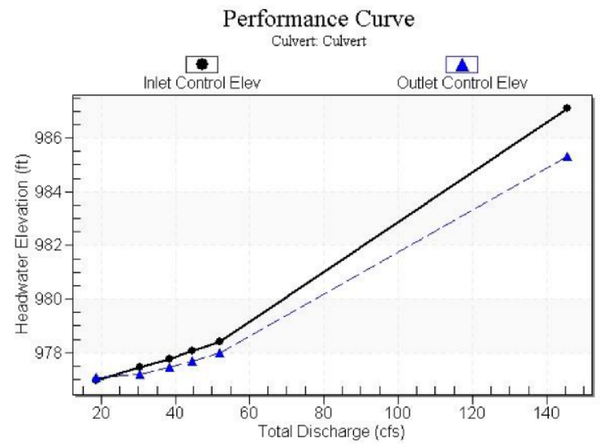
Inlet Configuration: Mitered to Conform to Slope

Inlet Depression: None

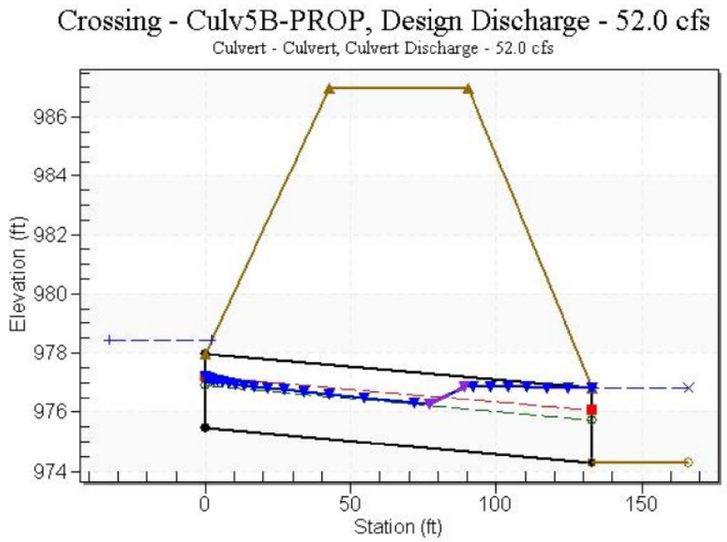
Rating Curve Plot for Crossing: Culv5B-PROP



Culvert Performance Curve Plot: Culvert



Water Surface Profile Plot for Culvert: Culvert



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CR 258

CULVERT HYDRAULIC DATA SHEET CULV 5B PROP

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
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	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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CULVERT 5A - EXISTING

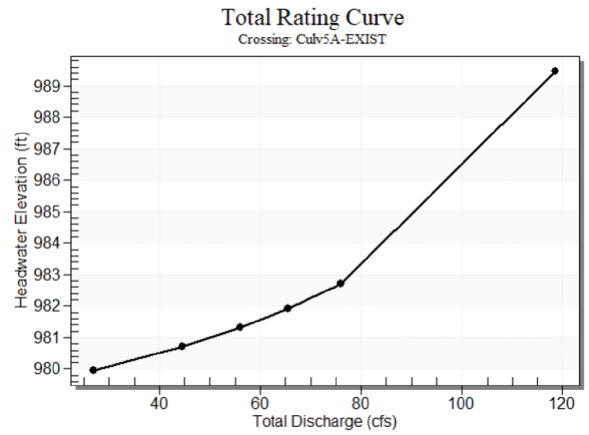
Crossing Discharge Data

Discharge Slection Method: Recurrence

Table 1 - Summary of Culvert Flows at Crossing: Culv5A-EXIST

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Roadway Discharge (cfs)	Iterations
979.97	2 year	26.90	26.90	0.00	1
980.70	10 year	44.60	44.60	0.00	1
981.31	25 year	56.00	56.00	0.00	1
981.93	50 year	65.60	65.60	0.00	1
982.72	100 year	76.10	76.10	0.00	1
986.50	Overtopping	115.03	115.03	0.00	Overtopping

Rating Curve Plot for Crossing: Culv5A-EXIST



Culvert Performance Curve Plot: Culv5A-EXIST

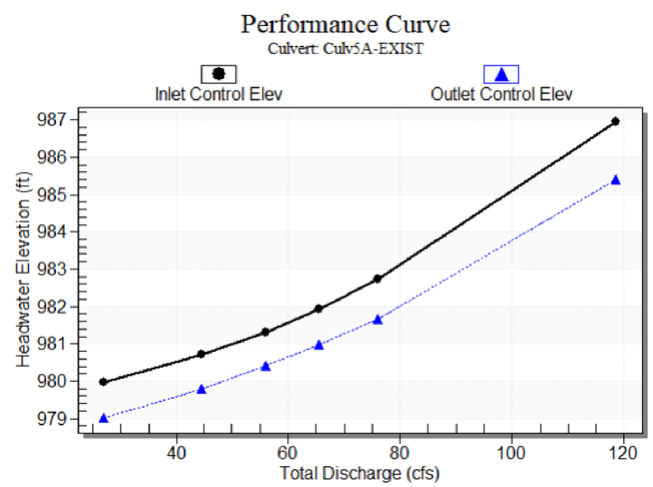


Table 2 - Culvert Summary Table: Culv5A-EXIST

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)
2 year	26.90	26.90	979.97	1.837	0.887	1-S2n	0.938	1.234	0.978	1.436	7.298
10 year	44.60	44.60	980.70	2.573	1.676	5-S2n	1.249	1.603	1.310	1.736	8.292
25 year	56.00	56.00	981.31	3.176	2.275	5-S2n	1.437	1.802	1.508	1.891	8.775
50 year	65.60	65.60	981.93	3.795	2.843	5-S2n	1.599	1.947	1.673	2.007	9.128
100 year	76.10	76.10	982.72	4.587	3.534	5-S2n	1.790	2.083	1.862	2.121	9.449

****

Straight Culvert

Inlet Elevation (invert): 978.13 ft, Outlet Elevation (invert): 977.30 ft

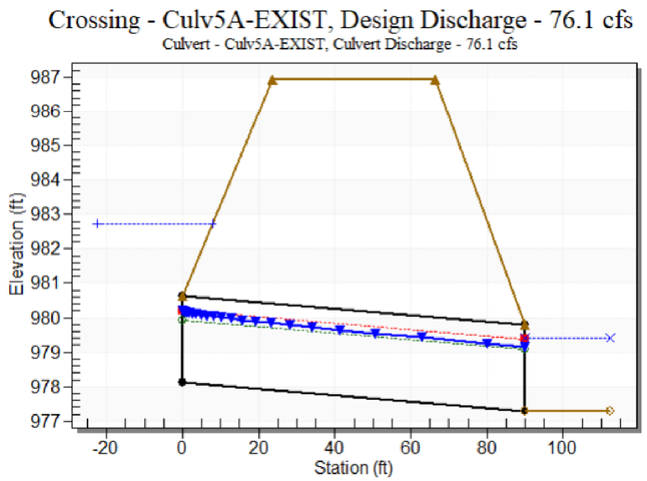
Culvert Length: 90.00 ft, Culvert Slope: 0.0092

****

Table 3 - Downstream Channel Rating Curve (Crossing: Culv5A-EXIST)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
26.90	978.74	1.44	6.52	0.45	1.36
44.60	979.04	1.74	7.40	0.54	1.40
56.00	979.19	1.89	7.83	0.59	1.42
65.60	979.31	2.01	8.15	0.63	1.43
76.10	979.42	2.12	8.45	0.66	1.45

Water Surface Profile Plot for Culvert: Culv5A-EXIST



Tailwater Channel Data - Culv5A-EXIST

Tailwater Channel Option: Triangular Channel
Side Slope (H:V): 2.00 (_:1)
Channel Slope: 0.0050
Channel Manning's n: 0.0120
Channel Invert Elevation: 977.30 ft

Roadway Data for Crossing: Culv5A-EXIST

Roadway Profile Shape: Constant Roadway Elevation
Crest Length: 45.00 ft
Crest Elevation: 986.50 ft
Roadway Surface: Paved
Roadway Top Width: 43.00 ft

Site Data - Culv5A-EXIST

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 978.13 ft
Outlet Station: 90.00 ft
Outlet Elevation: 977.30 ft
Number of Barrels: 2

Culvert Data Summary - Culv5A-EXIST

Barrel Shape: Circular
Barrel Diameter: 2.50 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: Mitered to Conform to Slope
Inlet Depression: None

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CR 258

CULVERT HYDRAULIC DATA SHEET CULV 5A EX

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
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CULVERT 5A - PROPOSED

Crossing Discharge Data

Discharge Slection Method: Recurrence

Table 1 - Summary of Culvert Flows at Crossing: Culv5A-PROP

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Roadway Discharge (cfs)	Iterations
980.08	2 year	26.90	26.90	0.00	1
980.81	10 year	44.60	44.60	0.00	1
981.42	25 year	56.00	56.00	0.00	1
982.04	50 year	65.60	65.60	0.00	1
982.83	100 year	76.10	76.10	0.00	1
986.50	Overtopping	114.14	114.14	0.00	Overtopping

Table 2 - Culvert Summary Table: Culvert

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	26.90	26.90	980.08	1.837	0.787	1-S2n	0.963	1.233	0.976	1.436	7.582	6.519
10 year	44.60	44.60	980.81	2.573	1.597	5-S2n	1.282	1.606	1.304	1.736	8.611	7.397
25 year	56.00	56.00	981.42	3.176	2.213	5-S2n	1.476	1.804	1.502	1.891	9.091	7.830
50 year	65.60	65.60	982.04	3.795	2.798	5-S2n	1.642	1.949	1.667	2.007	9.433	8.146
100 year	76.10	76.10	982.83	4.587	3.511	5-S2n	1.838	2.085	1.858	2.121	9.724	8.455

****

Straight Culvert

Inlet Elevation (invert): 978.24 ft, Outlet Elevation (invert): 977.30 ft

Culvert Length: 102.00 ft, Culvert Slope: 0.0092

****

Table 3 - Downstream Channel Rating Curve (Crossing: Culv5A-PROP)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
26.90	978.74	1.44	6.52	0.45	1.36
44.60	979.04	1.74	7.40	0.54	1.40
56.00	979.19	1.89	7.83	0.59	1.42
65.60	979.31	2.01	8.15	0.63	1.43
76.10	979.42	2.12	8.45	0.66	1.45

Tailwater Channel Data - Culv5A-PROP

Tailwater Channel Option: Triangular Channel

Side Slope (H:V): 2.00 (_:1)

Channel Slope: 0.0050

Channel Manning's n: 0.0120

Channel Invert Elevation: 977.30 ft

Roadway Data for Crossing: Culv5A-PROP

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 45.00 ft

Crest Elevation: 986.50 ft

Roadway Surface: Paved

Roadway Top Width: 48.00 ft

Site Data - Culvert

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 978.24 ft

Outlet Station: 102.00 ft

Outlet Elevation: 977.30 ft

Number of Barrels: 2

Culvert Data Summary - Culvert

Barrel Shape: Circular

Barrel Diameter: 2.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

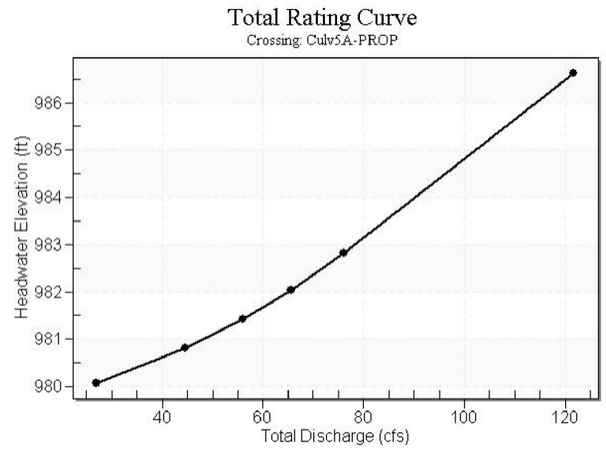
Barrel Manning's n: 0.0120

Culvert Type: Straight

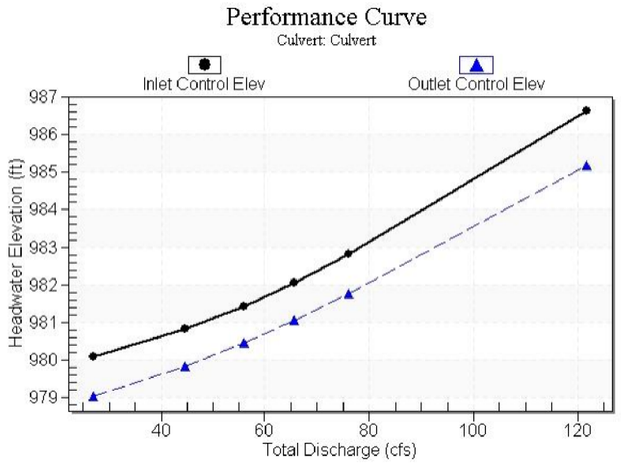
Inlet Configuration: Mitered to Conform to Slope

Inlet Depression: None

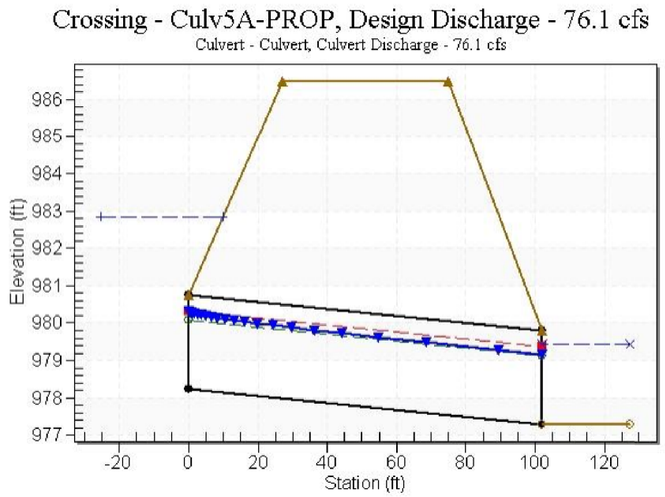
Rating Curve Plot for Crossing: Culv5A-PROP



Culvert Performance Curve Plot: Culvert



Water Surface Profile Plot for Culvert: Culvert



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10/3/2025

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CR 258

CULVERT HYDRAULIC DATA SHEET CULV 5A PROP

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
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	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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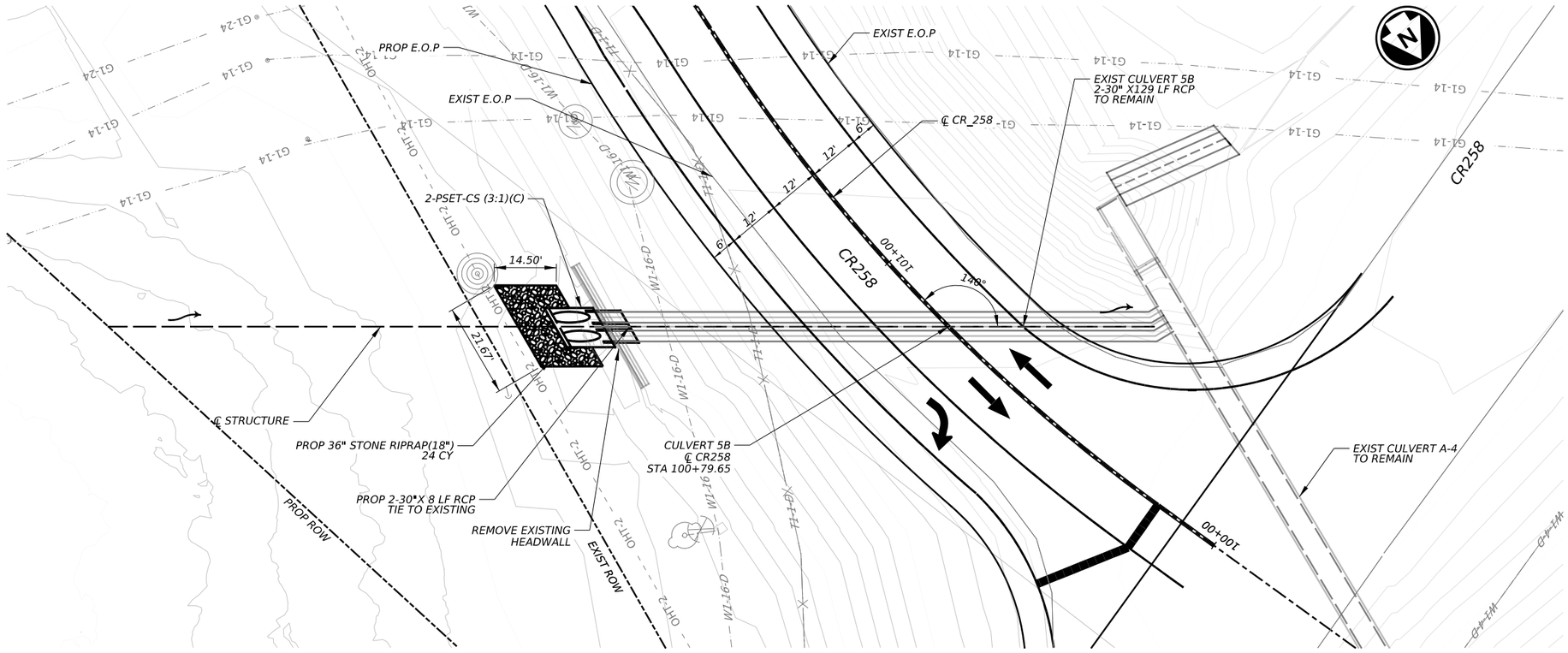
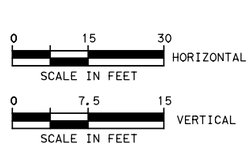
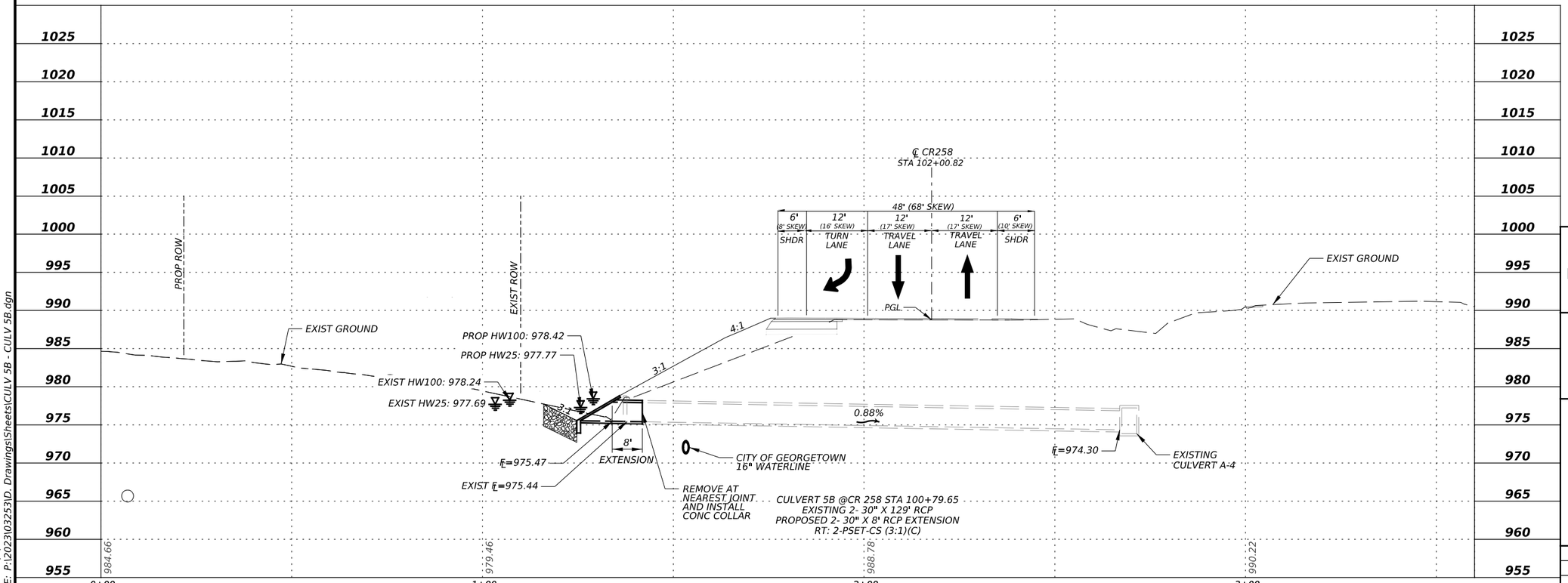




NOTE:

1. *FOR PIPE COLLAR CONNECTION BETWEEN EXISTING AND PROPOSED RCP, SEE MDF(FTW) STANDARD. MATERIALS AND LABOR FOR PIPE COLLAR ARE SUBSIDIARY TO ITEM 464.*



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CR 258

CULVERT 5B
PLAN & PROFILE
CR 258 STA 100+79.65

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
EM	EM	CM	CR 258
DIST	COUNTY		SHEET NO.
AUS	WILCO		56

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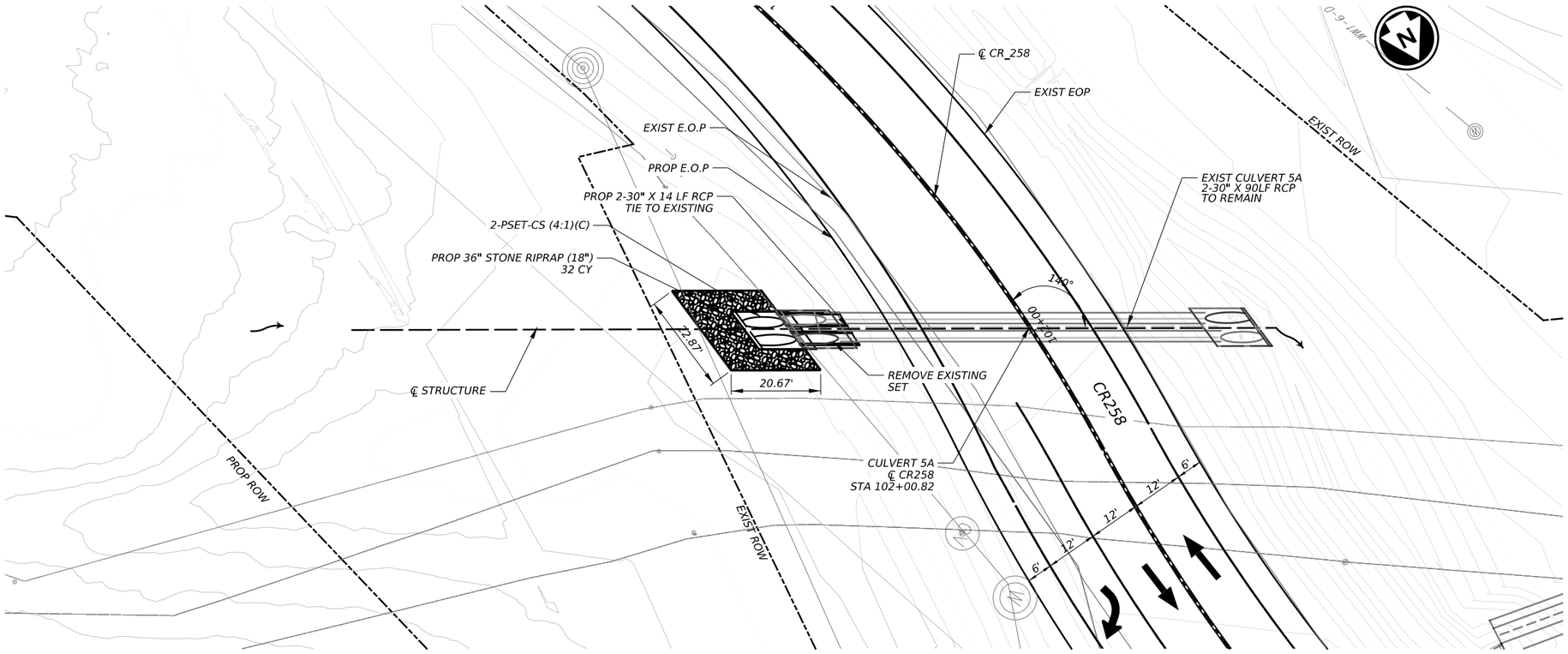
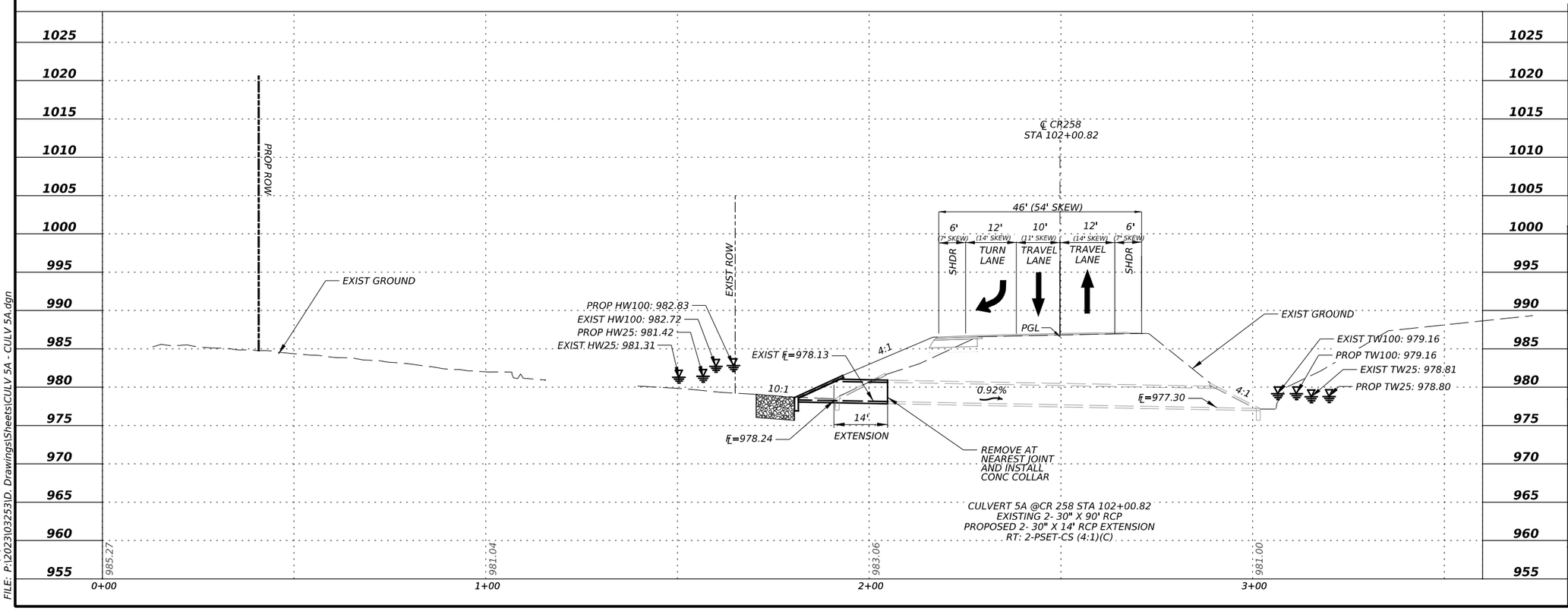


0 15 30 HORIZONTAL SCALE IN FEET

0 7.5 15 VERTICAL SCALE IN FEET

NOTE:

1. *FOR PIPE COLLAR CONNECTION BETWEEN EXISTING AND PROPOSED RCP, SEE MDD(FTW) STANDARD. MATERIALS AND LABOR FOR PIPE COLLAR ARE SUBSIDIARY TO ITEM 464.*



CULVERT 5A @CR 258 STA 102+00.82
EXISTING 2- 30" X 90' RCP
PROPOSED 2- 30" X 14' RCP EXTENSION
RT: 2-PSET-CS (4:1)(C)

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CULVERT 5A
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CR 258 STA 102+00.82

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
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	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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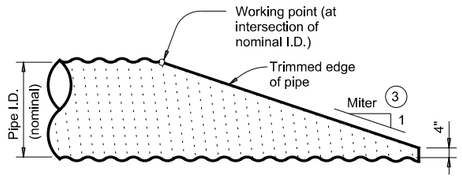
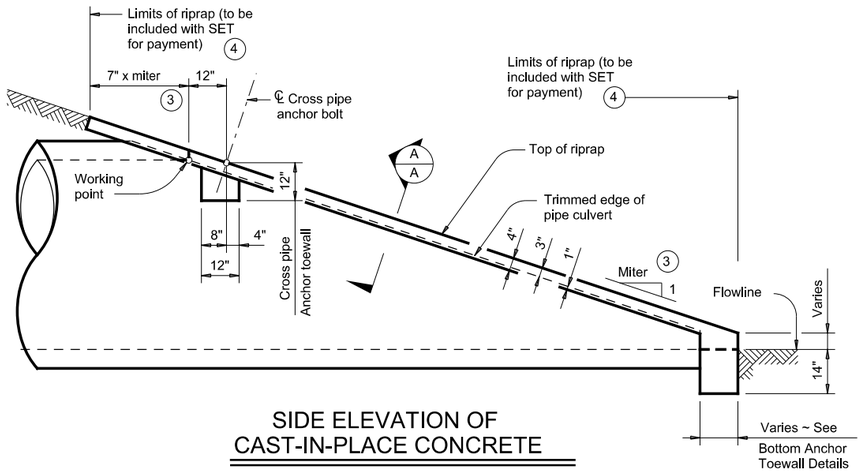


NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

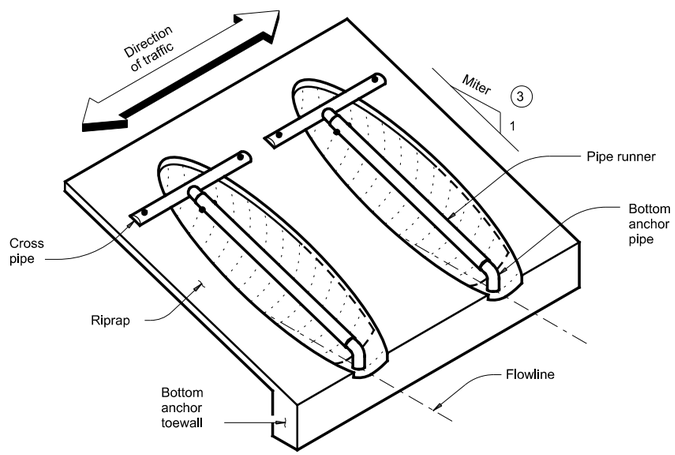
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert. Details of reinforced concrete pipe (RCP) culvert are similar.)



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details of corrugated metal pipe (CMP) culvert are similar. Pipe runners not shown for clarity)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS (1) (2)

Nominal Culvert I.D.	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
			3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
			0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
24"	1' - 7"	3' - 5"	N/A	N/A	N/A	5' - 10"	N/A	N/A	N/A	8' - 1"	N/A	N/A	N/A	12' - 9"
27"	1' - 8"	3' - 8"	N/A	N/A	5' - 5"	6' - 11"	N/A	N/A	7' - 7"	9' - 7"	N/A	N/A	11' - 11"	14' - 11"
30"	1' - 10"	3' - 11"	N/A	N/A	6' - 4"	8' - 0"	N/A	N/A	8' - 9"	11' - 0"	N/A	N/A	13' - 8"	17' - 0"
33"	1' - 11"	4' - 2"	6' - 2"	6' - 5"	7' - 3"	9' - 1"	8' - 6"	8' - 10"	10' - 0"	12' - 5"	13' - 3"	13' - 9"	15' - 5"	19' - 2"
36"	2' - 1"	4' - 5"	6' - 11"	7' - 3"	8' - 2"	10' - 2"	9' - 6"	9' - 11"	11' - 2"	13' - 10"	14' - 9"	15' - 3"	17' - 2"	21' - 3"
42"	2' - 4"	4' - 11"	8' - 6"	8' - 10"	9' - 11"	12' - 4"	11' - 7"	12' - 0"	13' - 6"	16' - 8"	17' - 9"	18' - 5"	20' - 8"	25' - 7"
48"	2' - 7"	5' - 5"	10' - 1"	10' - 5"	11' - 9"	N/A	13' - 7"	14' - 2"	15' - 10"	N/A	20' - 9"	21' - 6"	24' - 2"	N/A
54"	3' - 0"	5' - 11"	11' - 8"	12' - 1"	N/A	N/A	15' - 8"	16' - 3"	N/A	N/A	23' - 10"	24' - 8"	N/A	N/A
60"	3' - 3"	6' - 5"	13' - 3"	N/A	N/A	N/A	17' - 9"	N/A	N/A	N/A	26' - 10"	N/A	N/A	N/A

TYPICAL PIPE CULVERT MITERS (3)

Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED (2)

Nominal Culvert I.D.	Single Pipe Culvert	Multiple Pipe Culverts
12" thru 21"	Skews thru 45°	Skews thru 45°
24"	Skews thru 45°	Skews thru 30°
27"	Skews thru 30°	Skews thru 15°
30"	Skews thru 15°	Skews thru 15°
33"	Skews thru 15°	Always required
36"	Normal (no skew)	Always required
42" thru 60"	Always required	Always required

STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS (1)

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10' - 0"
4" STD	4.500"	4.026"	19' - 8"
5" STD	5.563"	5.047"	34' - 2"

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

Nominal Culvert I.D.	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
12"	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8
15"	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
18"	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0
21"	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.2
24"	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1	1.3
27"	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.2	1.4
30"	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.6
33"	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.7
36"	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.4	1.4	1.5	1.6	1.8
42"	1.0	1.0	1.1	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.8	2.1
48"	1.1	1.1	1.2	N/A	1.4	1.4	1.5	N/A	1.9	1.9	2.1	N/A
54"	1.3	1.3	N/A	N/A	1.6	1.6	N/A	N/A	2.1	2.1	N/A	N/A
60"	1.4	N/A	N/A	N/A	1.7	N/A	N/A	N/A	2.3	N/A	N/A	N/A

(1) Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe stub out and bottom anchor pipe of the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runner Lengths table.

(2) This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.
For 54" culvert pipes, the skew must not exceed 15°.
For 48" culvert pipes, the skew must not exceed 30°.
For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT Roadway Design Manual.

(3) Miter = slope of mitered end of pipe culvert.

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap."

(5) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

DISCLAIMER:
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.

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SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT
FOR 12" DIA TO 60" DIA PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE: CD-SETP-CD-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				CR 258
	DIST	COUNTY		SHEET NO.
	AUS	WILCO		58

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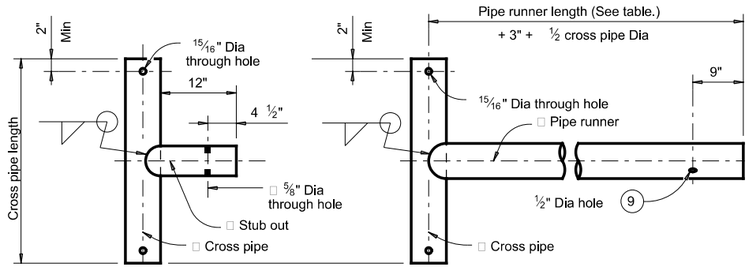
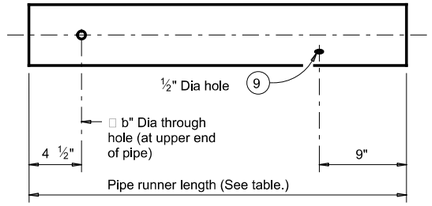


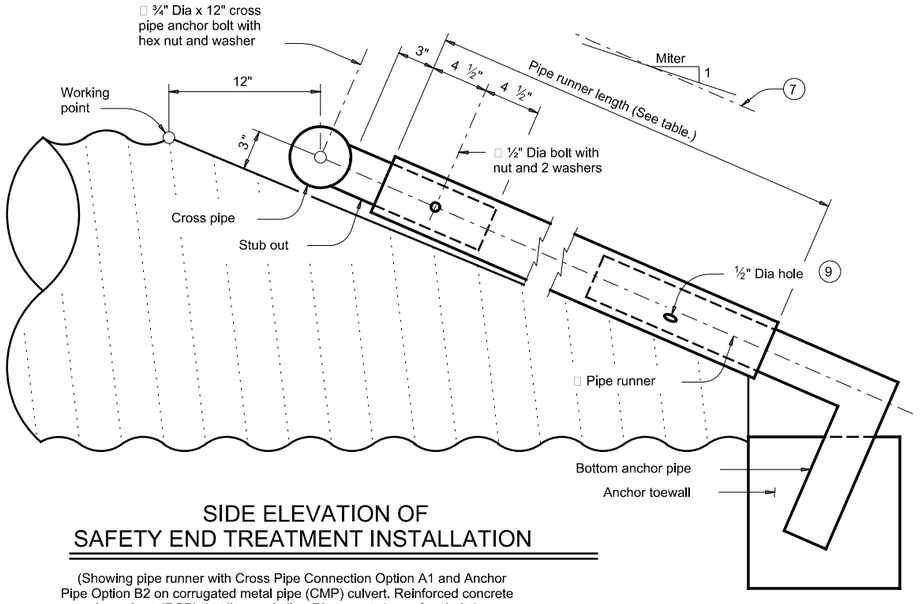
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



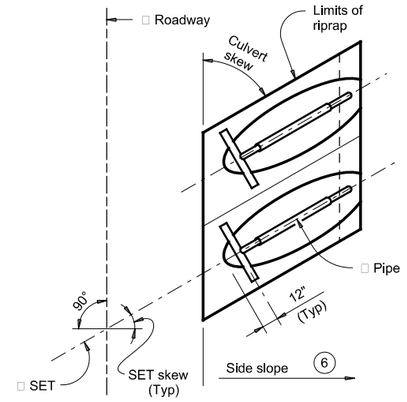
NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS

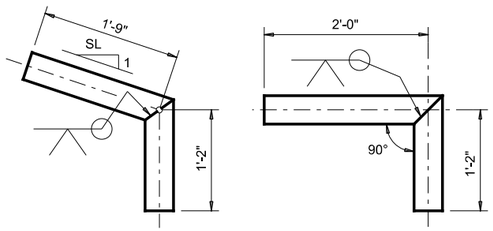


SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Anchor Pipe Option B2 on corrugated metal pipe (CMP) culvert. Reinforced concrete pipe culvert (RCP) details are similar. Riprap not shown for clarity)

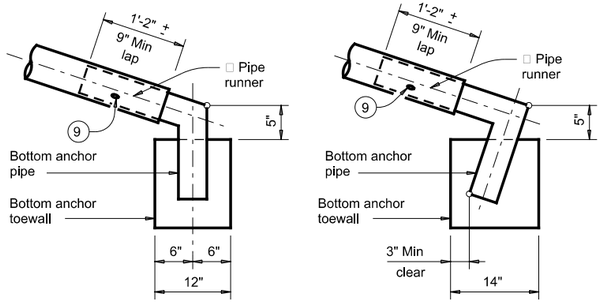


PLAN OF SKEWED INSTALLATION



OPTION B1 OPTION B2

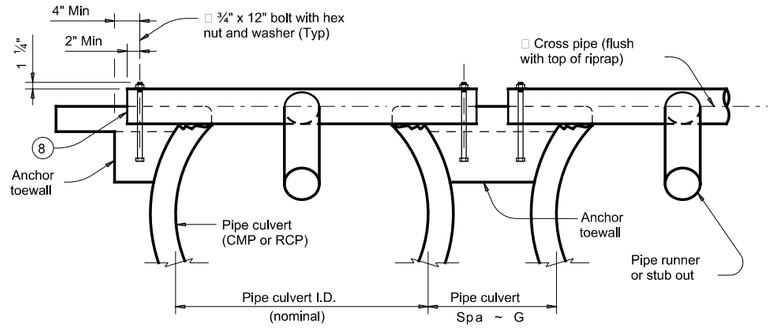
BOTTOM ANCHOR PIPE DETAILS (10)



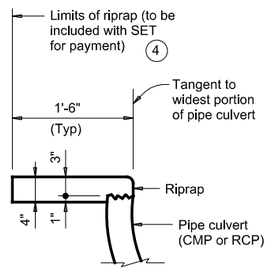
OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS

(Culvert and riprap not shown for clarity.)



SHOWING CROSS PIPE AND ANCHOR TOEWALL



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SECTION A-A

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap."

(6) Recommended values of side slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

(7) Note that actual slope of pipe runner may vary slightly from side slope of riprap and trimmed culvert pipe edge.

(8) Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(9) After installation, inspect the ½" hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.

(10) At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MATERIAL NOTES:
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
Provide pipe runners, cross pipes, and anchor pipes conforming to the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.
Provide ASTM A307 bolts and nuts.
Galvanize all steel components, except concrete reinforcing, after fabrication.
Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:
Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.
Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
Payment for riprap and toewall is included in the price bid for each safety end treatment.
Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap."

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT
FOR 12" DIA TO 60" DIA PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE
SETP-CD

FILE: CD-SETP-CD-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF	
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY	
REVISIONS				CR 258	
	DIST	COUNTY		SHEET NO.	
	AUS	WILCO		59	

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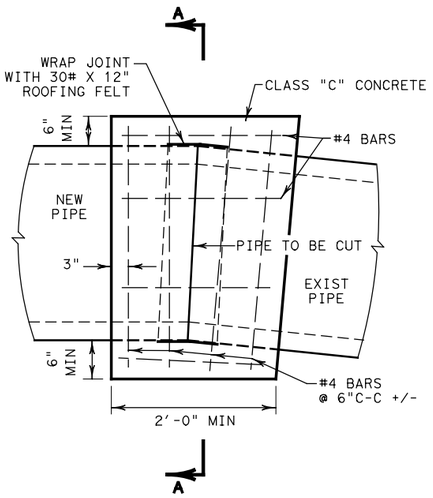
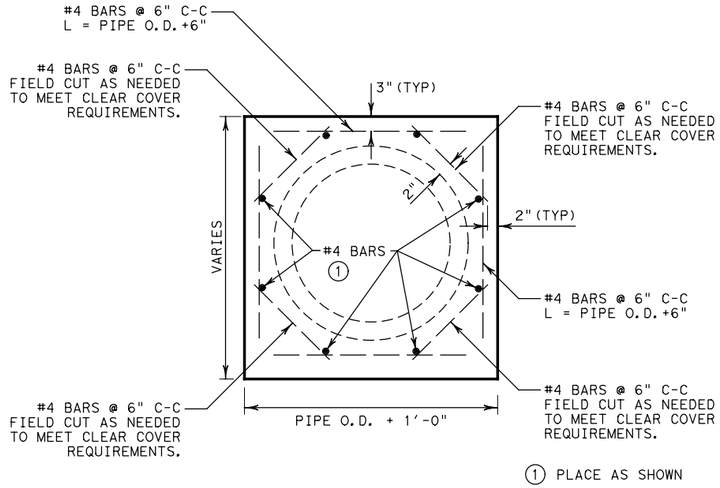


PLAN/ELEVATION



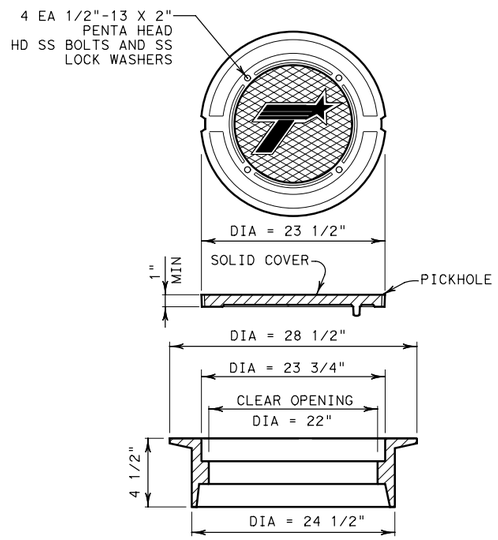
SECTION A-A

PIPE COLLAR DETAIL

FOR HORIZONTAL OR VERTICAL PLACEMENT
N.T.S.

PIPE COLLAR GENERAL NOTES

1. THE CONTRACTOR SHALL TAKE STEPS TO ENSURE A SMOOTH JOINT ALONG THE INSIDE WALL OF PIPE.
2. ANY SPILLAGE OF CONCRETE THROUGH THE JOINT SHALL BE REMOVED AND THE INSIDE PIPE SURFACES SMOOTHED AS DIRECTED BY THE ENGINEER.
3. PIPE COLLARS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 464.



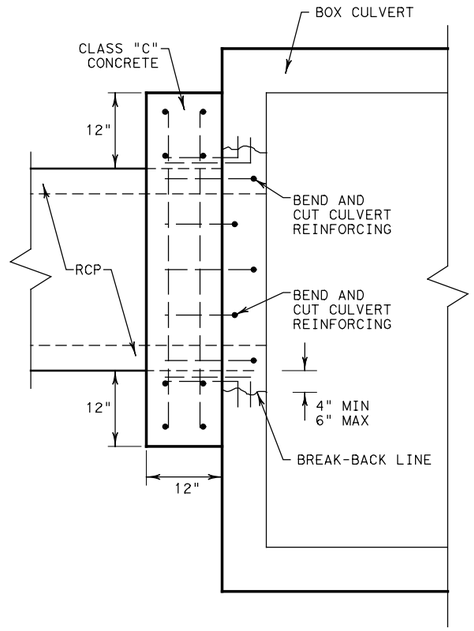
RING AND COVER DETAILS

MANHOLES AND CURB INLETS
N.T.S.

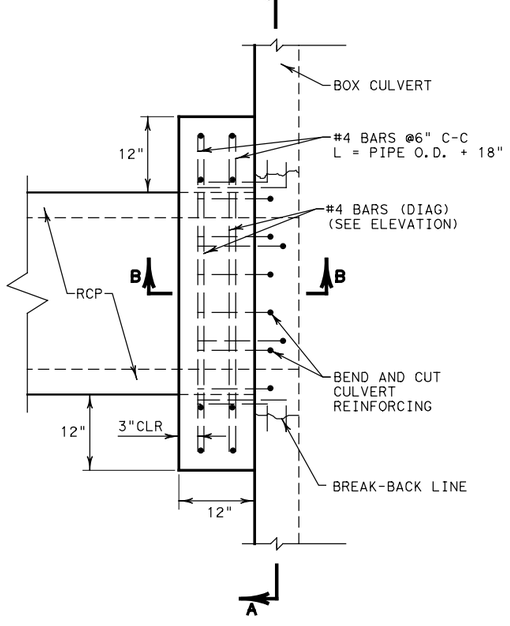
RING AND COVER SHALL CONFORM TO THE REQUIREMENTS OF ITEM 471 AND SHALL BE INCLUDED IN THE CURRENT TXDOT "APPROVED CAST IRON PRODUCTS SHEETS"

DIMENSIONS SHOWN ARE APPROXIMATE; ACTUAL DIMENSIONS PER MANUFACTURE/FABRICATOR.

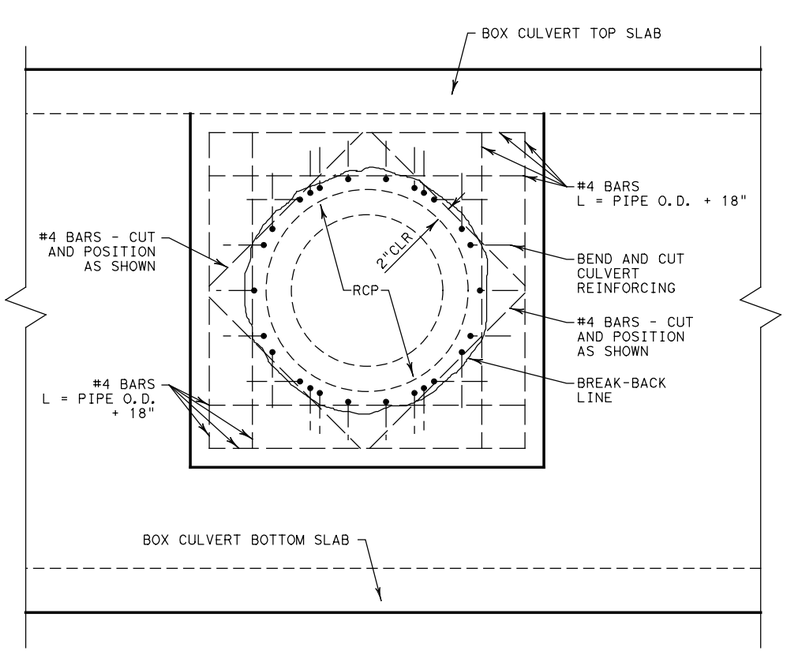
IF RING AND COVER ARE LOCATED IN PAVEMENT; SECURE COVER WITH BOLTS AS SHOWN.



SECTION B-B



PLAN VIEW



SECTION A-A

PIPE STUB-IN CONNECTION TO BOX CULVERT OR EXISTING DRAINAGE STRUCTURE

N.T.S.

PIPE STUB-IN GENERAL NOTES

1. SAW CUT A MAXIMUM 1/2" DEPTH AT BREAK-BACK LINE. USE REMOVAL METHODS THAT WILL NOT DAMAGE REMAINING CONCRETE OR CULVERT REINFORCING.
2. EXPOSE AND CLEAN BOX CULVERT REINFORCING. BEND BARS INTO PROPOSED CONNECTION AND TIE TO CONNECTION REINFORCING.
3. ROUGHEN AND CLEAN EXISTING CONCRETE SURFACES THAT ARE IN CONTACT WITH NEW CONCRETE BEFORE PLACING FORMS.
4. MATERIAL & LABOR FOR PIPE/BOX CONNECTIONS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE SUBSIDIARY TO ITEMS 462 AND 464.

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Texas Department of Transportation

Fort Worth District Standard

MISCELLANEOUS DRAINAGE DETAILS
MDD(FTW)

ORIGINAL DRAWING: 05/2019	mdd-ftw.dgn	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DATE	REVISIONS	6			
05/2019	NEW STANDARD	STATE	STATE DIST.NO.	COUNTY	
07/2022	REVISE AND CORRECT RING AND COVER NOTES	TEXAS	FTW		
		CONT.	SECT.	JOB	HIGHWAY NO.
					60

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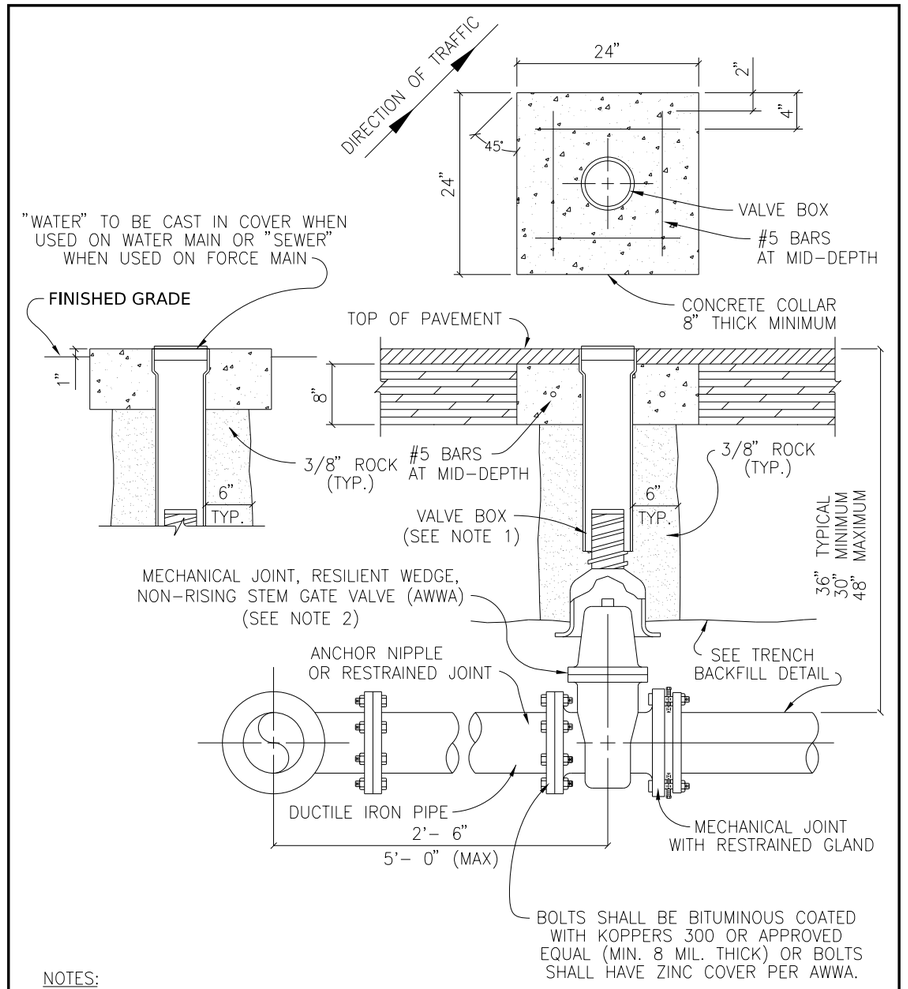

NOTES:

1. VALVE BOX SHALL BE 5 1/4" CAST IRON ADJUSTABLE HAVING AN ADJUSTABLE RANGE OF + OR - 6 INCHES FROM INSTALLED FINISH GRADE.
2. ACCEPTABLE GATE VALVES ARE:
   A. AMERICAN FLOW CONTROL - SERIES 2500
   B. MUELLER - 2360 SERIES
   C. CLOW

The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

GEORGETOWN TEXAS EST. 1848
Georgetown Utility Systems
Your Community Owned Utility

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

TYPICAL VALVE SETTING

DRAWING NAME: W07

SCALE:	DATE:
NTS	1/2003
DRAWN BY:	APPROVED BY:
MRS	TRB

STATE OF TEXAS
JACOB WATTS
139198
LICENSED PROFESSIONAL ENGINEER

10/3/2025

AMERICAN STRUCTUREPOINT INC.
TBPELS FIRM NO. F-10069
810 HESTERS CROSSING RD
SUITE 105
ROUND ROCK, TX 78681
TEL 512.884.6257 FAX 317.543.0270
www.structurepoint.com

WILCO TEXAS

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CR 258

W07

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	61
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

CM | DW: EM | CK: EM | DW: EM | CK: EM

DATE: 10/3/2025
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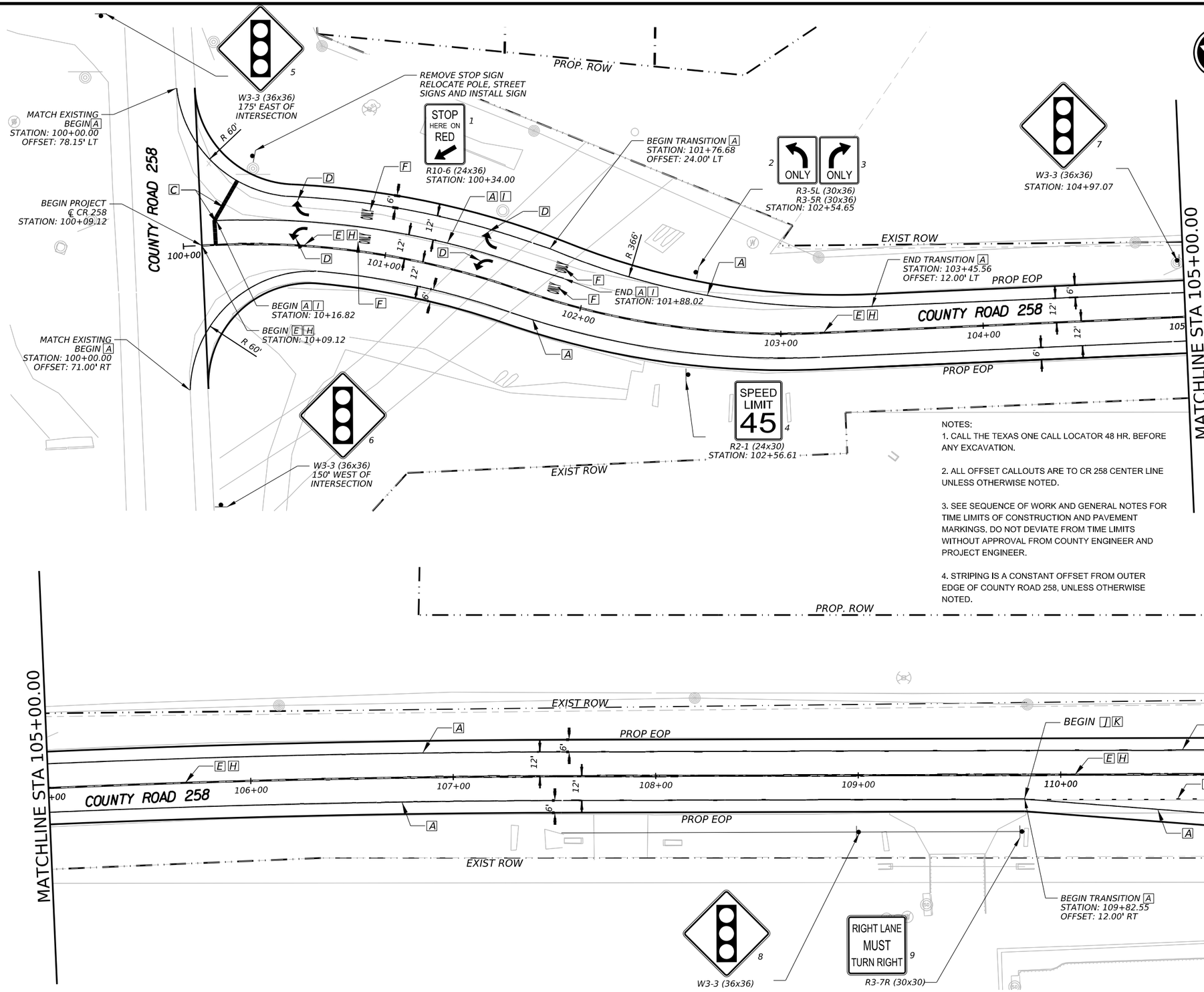

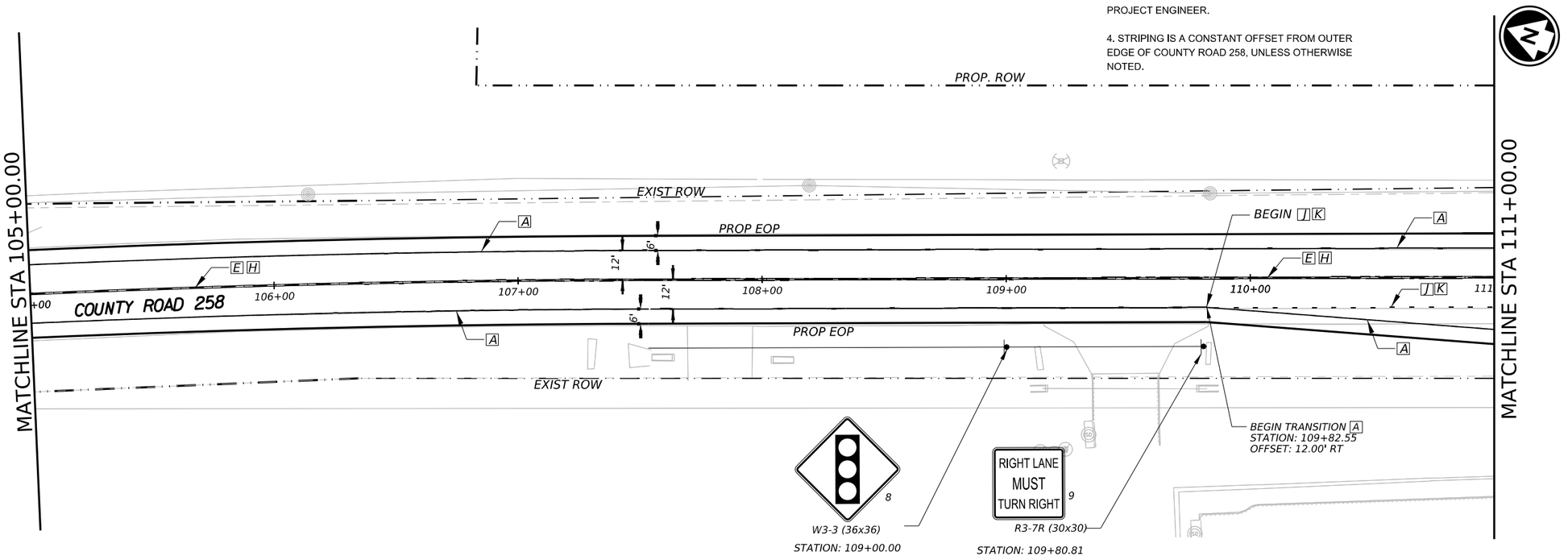

0 25 50
SCALE IN FEET

LEGEND:

- A RE PM TY I (W) 6" (SLD)
- B RE PM TY I (Y) 6" (SLD)
- C RE PM TY I (W) 24" (SLD)
- D RE PM TY II (W) (ARROW)
- E RE PM TY I (Y) 6" (DBL)(SLD)
- F RE PM TY II (W) (WORD)
- G RE PM TY I (Y) 24" (SLD)
- H REFL PAV MRKR TY II-A-A
- I REFL PAVE MRKR TY I-C
- J REFL PAV MRK TY I (W)6"(DOT)(100MIL)
- K RE PM TY II (W)6"(DOT)
- PROPOSED SIGN

NOTES:

1. CALL THE TEXAS ONE CALL LOCATOR 48 HR. BEFORE ANY EXCAVATION.

2. ALL OFFSET CALLOUTS ARE TO CR 258 CENTER LINE UNLESS OTHERWISE NOTED.

3. SEE SEQUENCE OF WORK AND GENERAL NOTES FOR TIME LIMITS OF CONSTRUCTION AND PAVEMENT MARKINGS. DO NOT DEVIATE FROM TIME LIMITS WITHOUT APPROVAL FROM COUNTY ENGINEER AND PROJECT ENGINEER.

4. STRIPING IS A CONSTANT OFFSET FROM OUTER EDGE OF COUNTY ROAD 258, UNLESS OTHERWISE NOTED.

STATE OF TEXAS
FRANK H. OLSHEFSKI
61292
LICENSED PROFESSIONAL ENGINEER

Frank H. Olshefski

9-26-2025

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TBPELS Firm Number: 10194551

AMERICAN STRUCTUREPOINT INC.
TBPELS FIRM NO. F-10069
2600 VIA FORTUNA
BUILDING 1, SUITE 300
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WILCO
TEXAS

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CR 258

SIGNING & PAVEMENT MARKING PLANS

SHEET 1 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	62
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 9/26/2025
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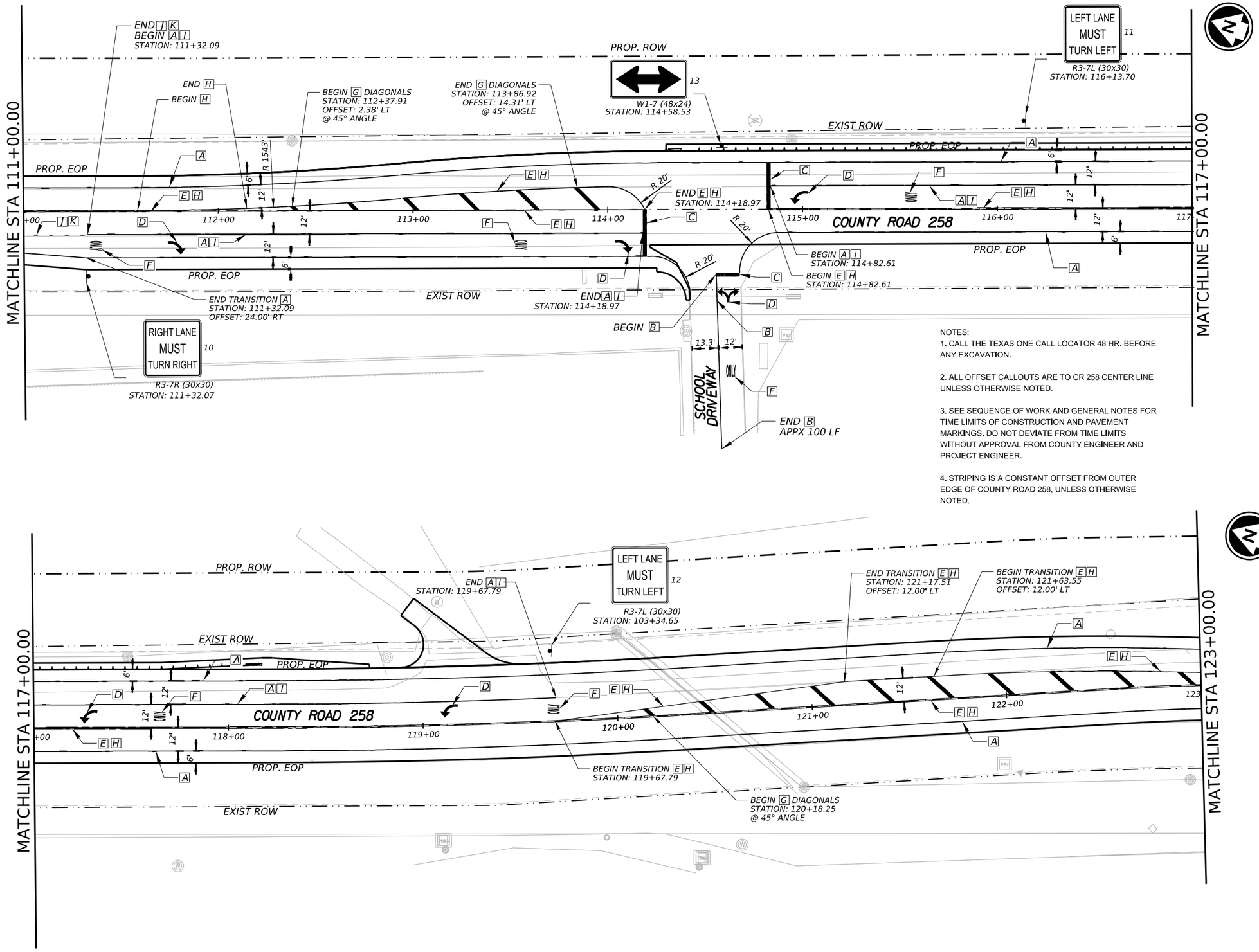

0 25 50
SCALE IN FEET

LEGEND:

- A RE PM TY I (W) 6" (SLD)
- B RE PM TY I (Y) 6" (SLD)
- C RE PM TY I (W) 24" (SLD)
- D RE PM TY II (W) (ARROW)
- E RE PM TY I (Y) 6" (DBL)(SLD)
- F RE PM TY II (W) (WORD)
- G RE PM TY I (Y) 24" (SLD)
- H REFL PAV MRKR TY II-A-A
- I REFL PAVE MRKR TY I-C
- J REFL PAV MRK TY I (W)6"(DOT)(100MIL)
- K RE PM TY II (W)6"(DOT)
- PROPOSED SIGN

NOTES:

1. CALL THE TEXAS ONE CALL LOCATOR 48 HR. BEFORE ANY EXCAVATION.

2. ALL OFFSET CALLOUTS ARE TO CR 258 CENTER LINE UNLESS OTHERWISE NOTED.

3. SEE SEQUENCE OF WORK AND GENERAL NOTES FOR TIME LIMITS OF CONSTRUCTION AND PAVEMENT MARKINGS. DO NOT DEVIATE FROM TIME LIMITS WITHOUT APPROVAL FROM COUNTY ENGINEER AND PROJECT ENGINEER.

4. STRIPING IS A CONSTANT OFFSET FROM OUTER EDGE OF COUNTY ROAD 258, UNLESS OTHERWISE NOTED.

STATE OF TEXAS
FRANK H. OLSHEFSKI
61292
LICENSED PROFESSIONAL ENGINEER

Frank H. Olshefski
9-26-2025

DOUCET
A Kleinfelder Company
Civil Engineering // Entitlements // Geospatial
7401 B. Highway 71 W. Ste. 160
Austin, TX 78735, Tel: (512)-583-2600
www.doucetengineers.com
TBPE Firm Number: 3937
TBPELS Firm Number: 10194551

AMERICAN STRUCTUREPOINT INC.
TBPELS FIRM NO. F-10069
2600 VIA FORTUNA
BUILDING 1, SUITE 300
AUSTIN, TX 78746
TEL 512.494.6037 FAX 317.543.0270
www.structurepoint.com

WILCO TEXAS

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CR 258

SIGNING & PAVEMENT MARKING PLANS

SHEET 2 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	63
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

SUB DW XXX DW YYY DW XXX DW YYY
DATE: 9/26/2025
FILE: pw://kleinfelder-pw.bentley.com:doucet-pw-01/Documents/Active Projects/24005527.001A/61.0 TR CADD/61.4 Sheets/24005527-S-PM.dgn
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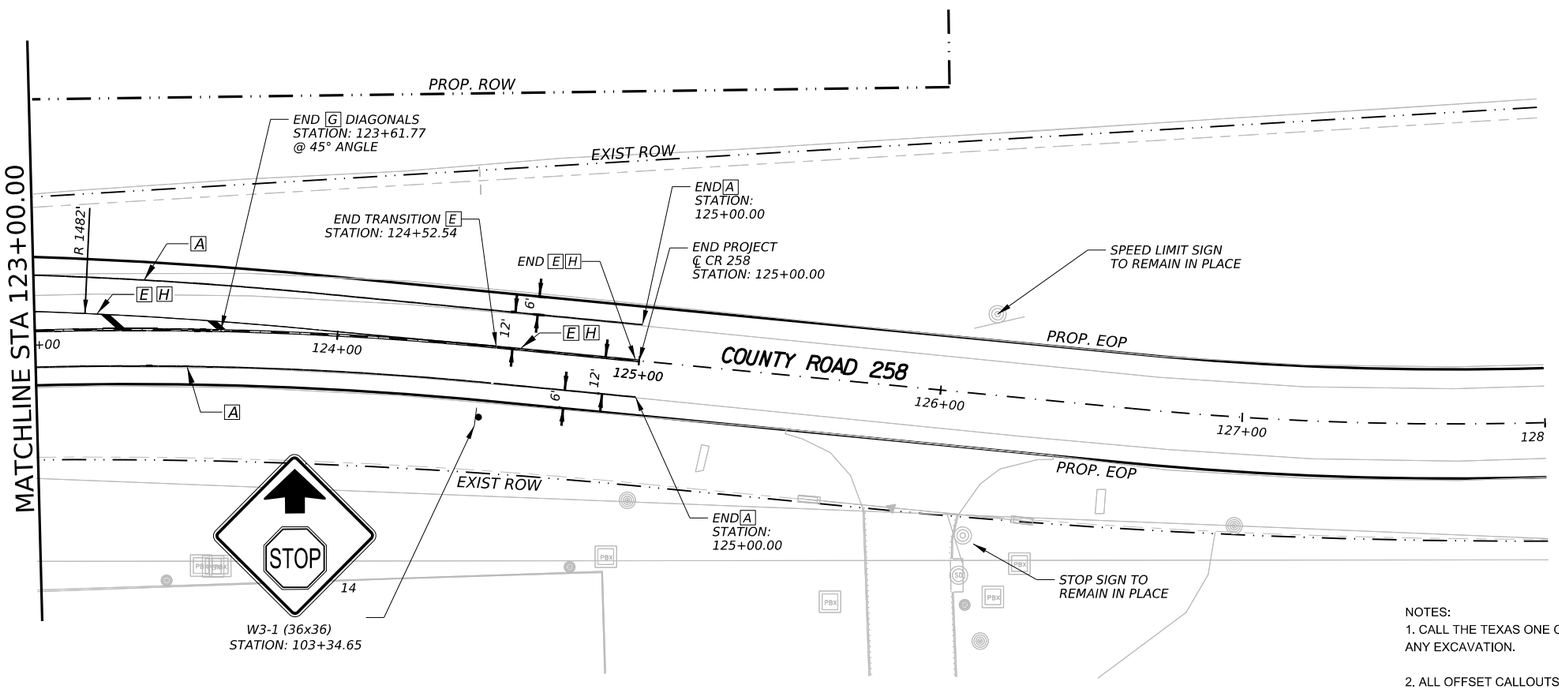

0 25 50
SCALE IN FEET

LEGEND:

A	RE PM TY I (W) 6" (SLD)
B	RE PM TY I (Y) 6" (SLD)
C	RE PM TY I (W) 24" (SLD)
D	RE PM TY II (W) (ARROW)
E	RE PM TY I (Y) 6" (DBL)(SLD)
F	RE PM TY II (W) (WORD)
G	RE PM TY I (Y) 24" (SLD)
H	REFL PAV MRKR TY II-A-A
I	REFL PAVE MRKR TY I-C
J	REFL PAV MRK TY I (W)6"(DOT)(100MIL)
K	RE PM TY II (W)6"(DOT)
	PROPOSED SIGN

NOTES:
1. CALL THE TEXAS ONE CALL LOCATOR 48 HR. BEFORE ANY EXCAVATION.

2. ALL OFFSET CALLOUTS ARE TO CR 258 CENTER LINE UNLESS OTHERWISE NOTED.

3. SEE SEQUENCE OF WORK AND GENERAL NOTES FOR TIME LIMITS OF CONSTRUCTION AND PAVEMENT MARKINGS. DO NOT DEVIATE FROM TIME LIMITS WITHOUT APPROVAL FROM COUNTY ENGINEER AND PROJECT ENGINEER.

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STATE OF TEXAS
FRANK H. OLSHEFSKI
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LICENSED
PROFESSIONAL ENGINEER

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9-26-2025

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TEXAS

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CR 258

SIGNING & PAVEMENT MARKING PLANS

SHEET 3 OF 3

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	64
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

SUB
DW $XXXS | CX$YYYS | DW $YYYS | DW $XXXS | CX$YYYS
DATE: 9/23/2025
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$USER$ 10:54:24 AM

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
62												
	1	R10-6	STOP HERE ON RED	24x36	X		10BWG	1	SA	P		
	2	R3-5L	ONLY ONLY	30x36	X		10BWG	1	SA	P		
	3	R3-5R		30x36								
	4	R2-1	SPEED LIMIT 45	24x30	X		10BWG	1	SA	P		
	5	W3-3		36x36	X		10BWG	1	SA	P		
	6	W3-3		36x36	X		10BWG	1	SA	P		
	7	W3-3		36x36	X		10BWG	1	SA	P		
	8	W3-3		36x36	X		10BWG	1	SA	P		
	9	R3-7R	RIGHT LANE MUST TURN RIGHT	30x30	X		10BWG	1	SA	P		
63												
	10	R3-7R	RIGHT LANE MUST TURN RIGHT	30x30	X		10BWG	1	SA	P		
	11	R3-7L	LEFT LANE MUST TURN LEFT	30x30	X		10BWG	1	SA	P		
	12	R3-7L	LEFT LANE MUST TURN LEFT	30x30	X		10BWG	1	SA	P		
	13	W1-7		48x24	X		10BWG	1	SA	P		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS					
4-16		DIST	COUNTY		SHEET NO.
8-16			WILLIAMSON		65

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DATE: DATE TIME
FILE: DOCUMENT NAME

SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
64												
	14	W3-1		36x36	X		10BWG	1	SA	P		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

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2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS				
4-16 8-16	DIST	COUNTY		SHEET NO.
		WILLIAMSON		66

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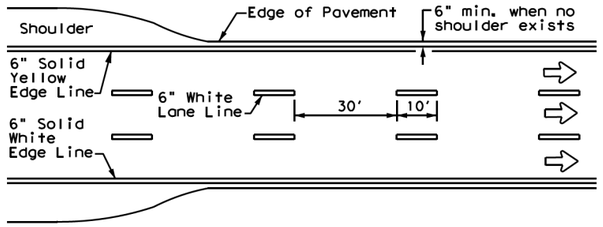
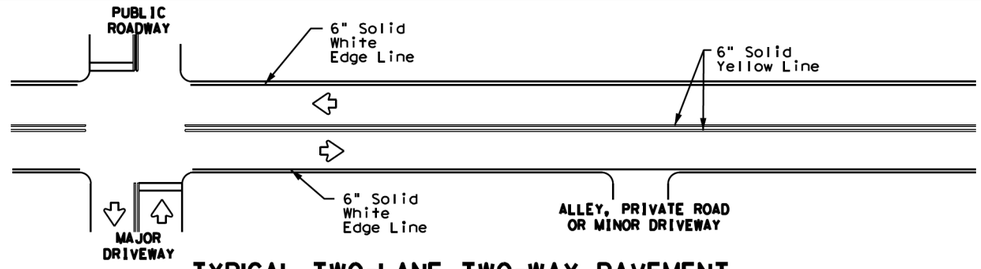
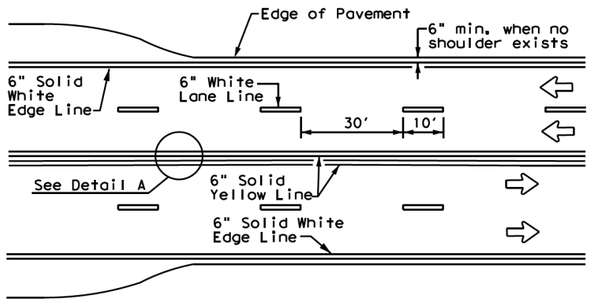
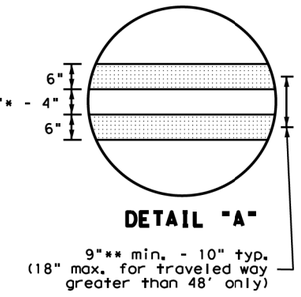


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS





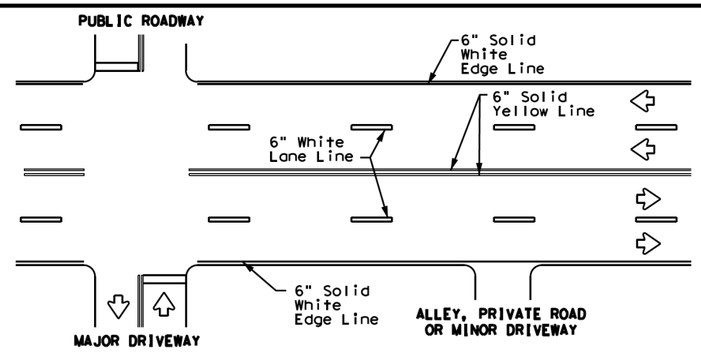
DETAIL "A"

9"** min. - 10" typ.
(18" max. for traveled way greater than 48' only)

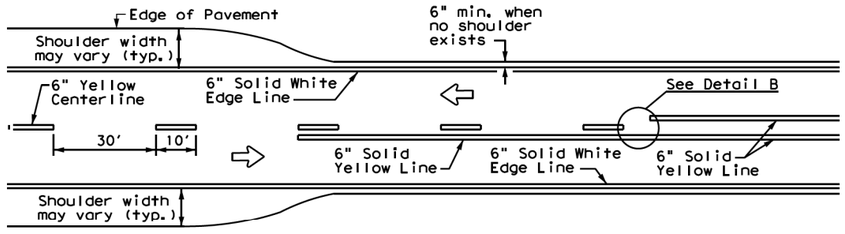
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

* 2" minimum for restripe projects when approved by the Engineer.

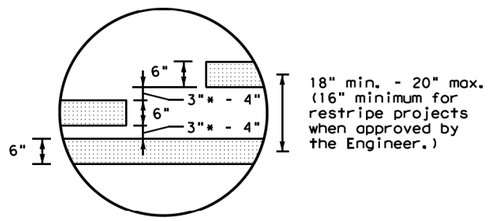
** 8" minimum for restripe projects when approved by the Engineer.



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

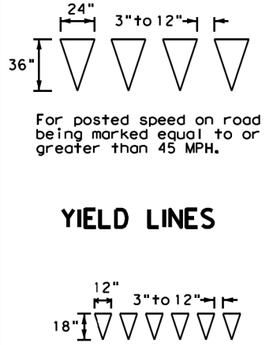


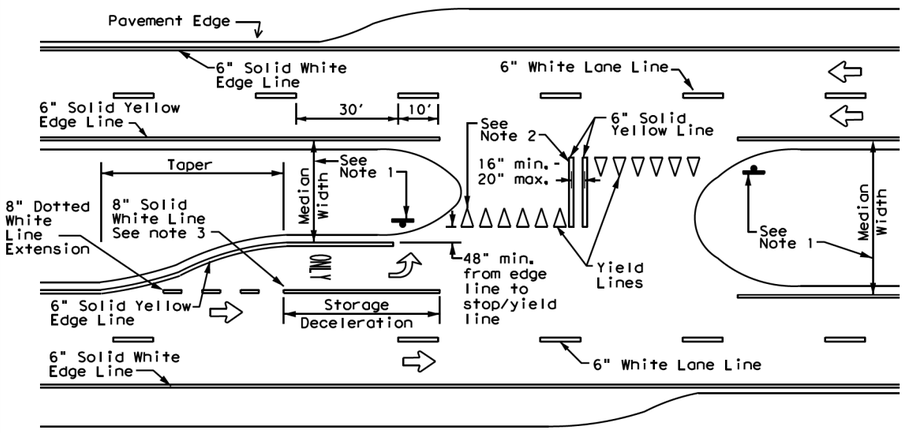
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.





FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

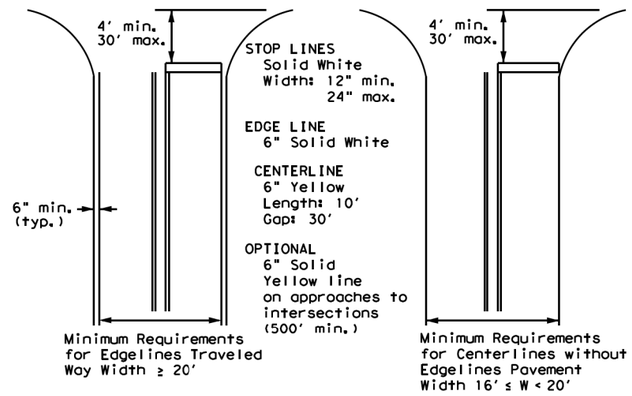
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Deportmental Material Specifications as specified by the plans.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 11-78 8-00 6-20 / 8-95 3-03 12-22 / 5-00 2-12	DIST	COUNTY		SHEET NO. 67

22A

DATE:
FILE:

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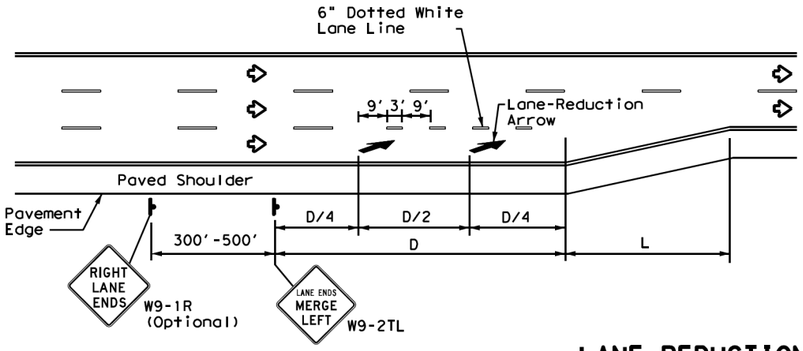


LANE REDUCTION

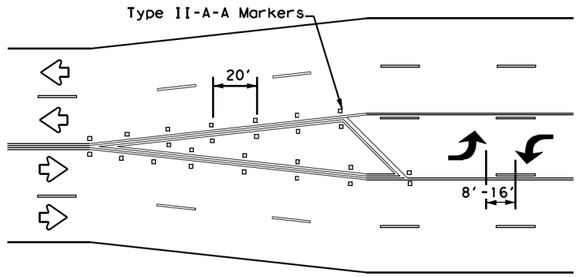
NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

GENERAL NOTES

1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

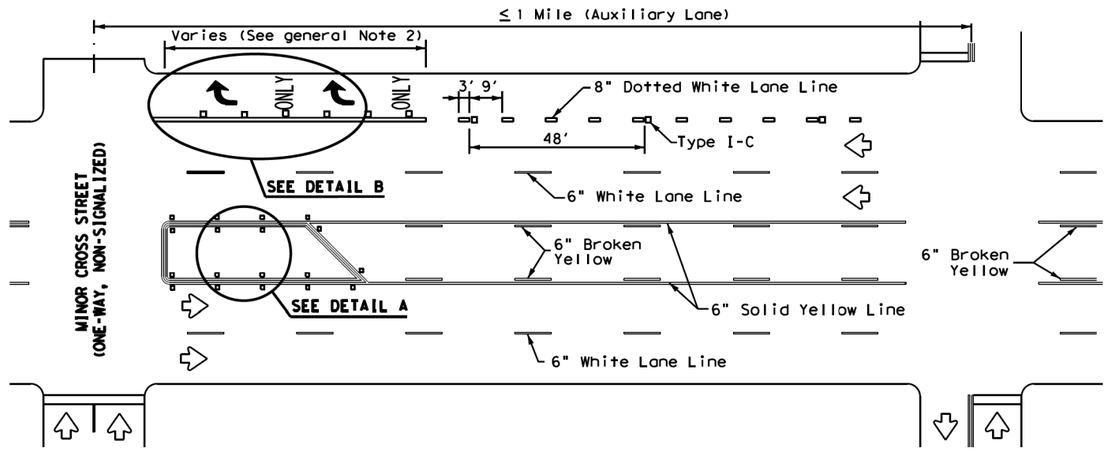


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

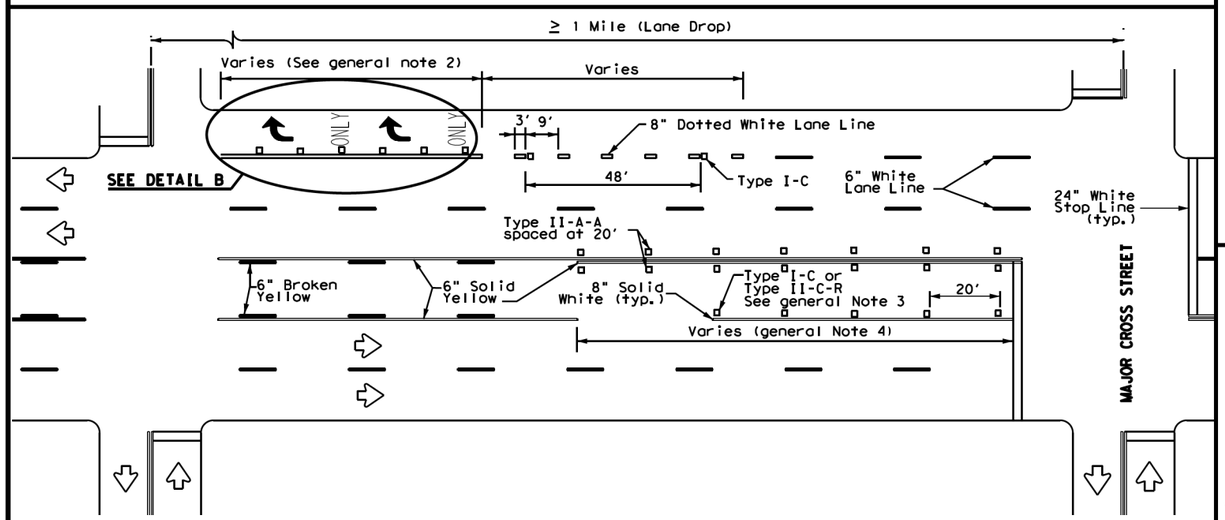
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

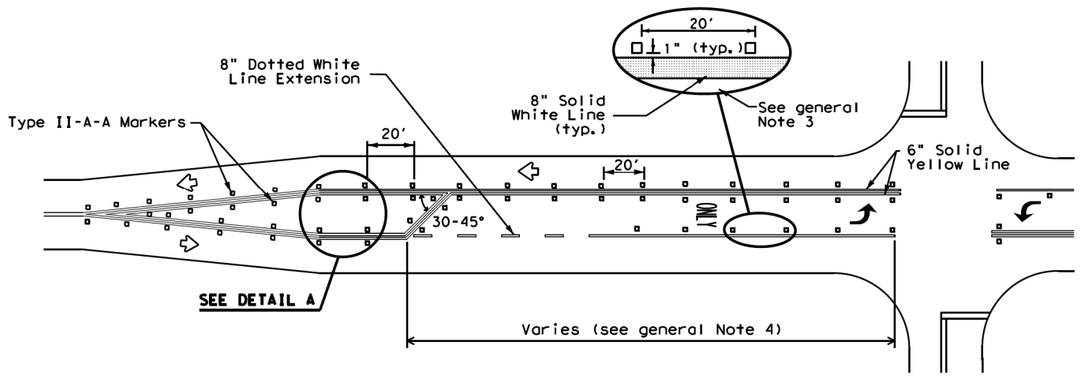
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



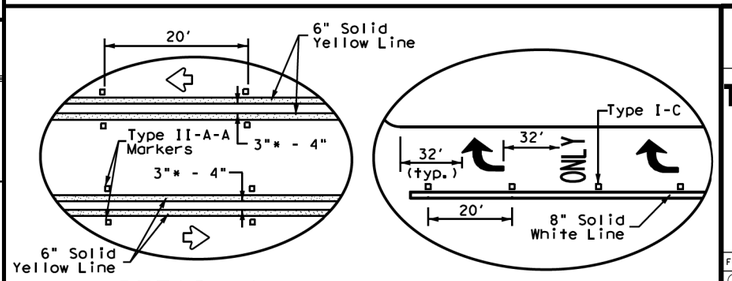
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	DIST	COUNTY		SHEET NO. 68

22C

DATE:
FILE:

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DATE:
FILE:

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

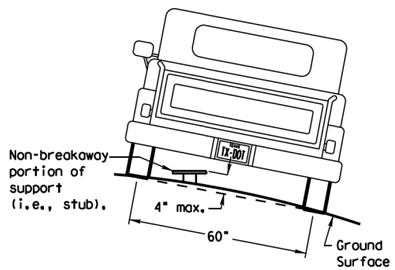
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

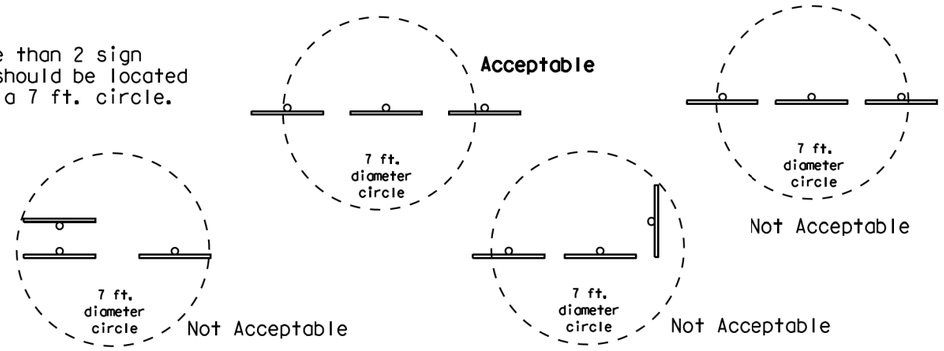
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-1) to (SLIP-3))

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



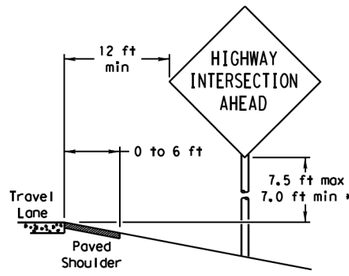
To avoid vehicle undercorriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

No more than 2 sign posts should be located within a 7 ft. circle.



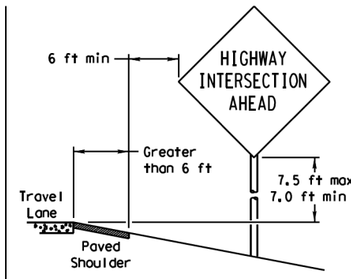
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

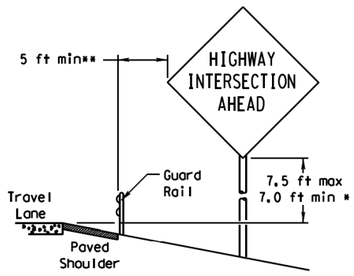
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



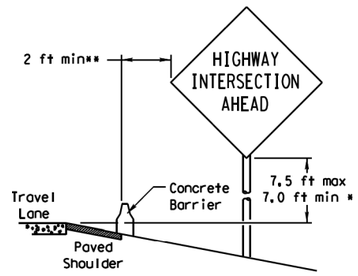
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

BEHIND BARRIER



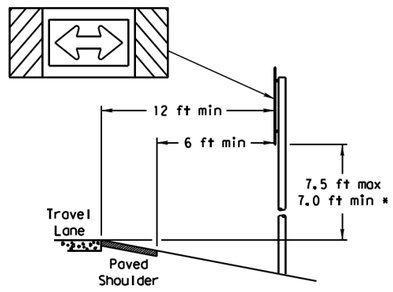
BEHIND GUARDRAIL



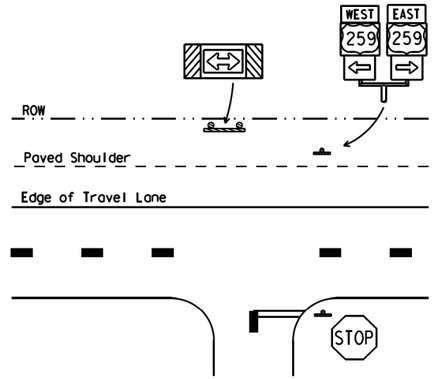
BEHIND CONCRETE BARRIER

****Sign clearance based on distance required for proper guard rail or concrete barrier performance.**

T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

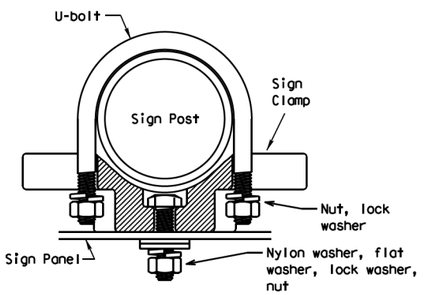
The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

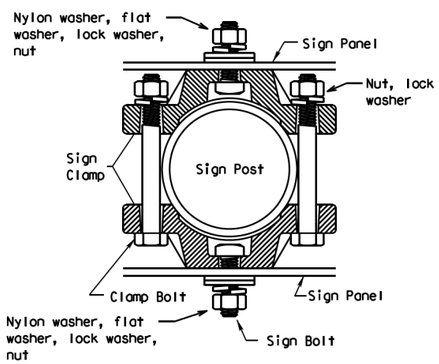


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

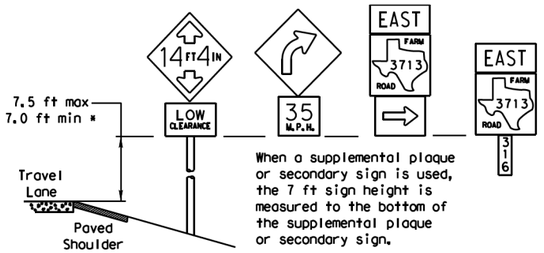
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



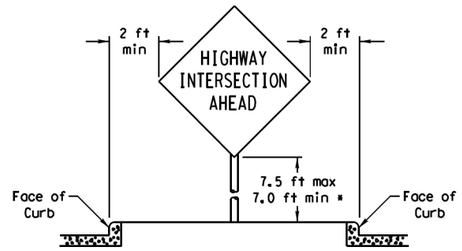
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



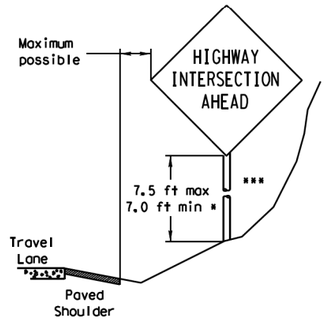
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

©TxDOT July 2002	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.
				69

26A

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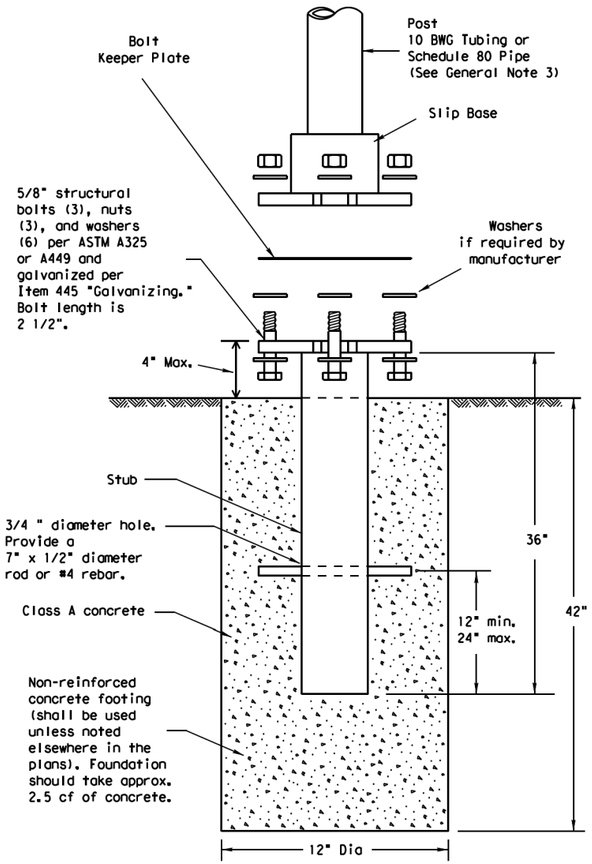
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

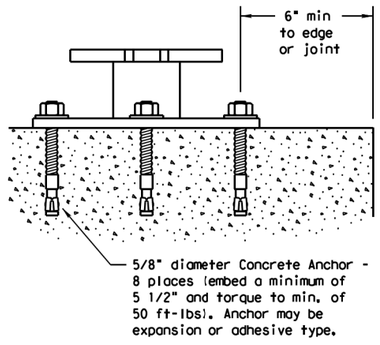
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
			70

9-08 REVISIONS

DATE:
FILE:

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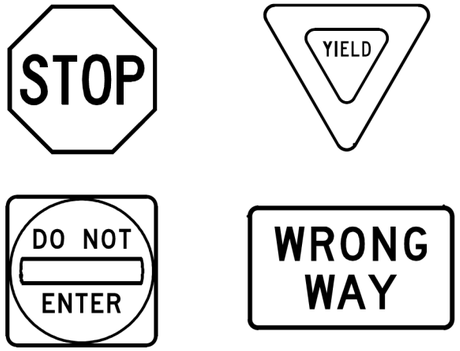
REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

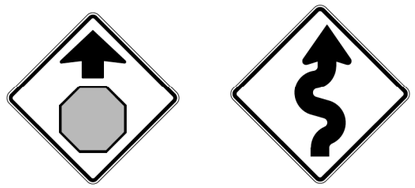
REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND, BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
6. Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
8. Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080
7.5 to 15	0.100
Greater than 15	0.125

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(4)-13

FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS				
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08				71

DATE:
FILE:

4

CM

DN: EM | CK: EM | DW: EM | CK: EM

MATCHLINE B

Groundbox, Typ A
STA 99+62.20
OFF 63.38' LT

Pole 2
STA 99+56.62
OFF 68.37' LT

V6-1A

CR 258 (40 MPH)

Groundbox, Typ A
STA 100+22.29
OFF 64.42' LT

Ground Mounted
Controller Cabinet
STA 100+26.74
OFF 69.28' LT

Electrical Service
STA 100+32.97
OFF 66.88' LT

Pole 1
STA 100+28.62
OFF 60.78' LT

V1

S1

V4-1A

SUNSET RIDGE DR (45 MPH)

100+00

101+00

102+00

S1

V2

Groundbox, Typ A
STA 99+61.76
OFF 14.71' RT

V3

Pole 3
STA 99+57.20
OFF 20.54 ' RT

MATCHLINE A

ADV-V2-1B
(175' TO STOP BAR)

ADV-V2-1C
(290' TO STOP BAR)

CR 258 (45 MPH)

V2-1A

MATCHLINE A

0 20 40
SCALE IN FEET

ADV-V6-1C
(240' TO STOP BAR)

ADV-V6-1B
(110' TO STOP BAR)

MATCHLINE B

0 20 40
SCALE IN FEET

0 15 30
SCALE IN FEET

LEGEND:

- SIGNAL POLE AND MAST ARM
- HORIZONTAL LED SIGNAL HEAD W/ BACKPLATE
- OVERHEAD SHEET SIGN
- ELECTRICAL SERVICE
- CONTROLLER CABINET
- GROUND BOX, TYPE A
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- CONDUIT RUN NUMBER
- SIGNAL HEAD NUMBER
- DETECTION ZONE
- VIDEO DETECTION CAMERA
- SIGNAL LUMINAIRE

PHASING DIAGRAM

RING 1

RING 2

ORIENTATION VIEW

Ø6

Ø4

Ø2

SIGNAL HEAD SCHEDULE

R Y G

1 2 3

4 5 6

STREET NAME SIGN

CR 258

S1

STATE OF TEXAS
ERIK R. HANSEN
145965
LICENSED
PROFESSIONAL ENGINEER

09/29/2025

Erik Hansen

AMERICAN STRUCTUREPOINT INC.
TBPELS FIRM NO. F-10069
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SUITE 105
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www.structurepoint.com

WILCO TEXAS

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CR 258

TRAFFIC SIGNAL LAYOUT
CR 258 AT
SUNSET RIDGE

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	72
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 9/29/2025
FILE: P:\2023\03253\D. Drawings\Sheets\2023.03253.XRF_TR.SIG.01.dgn

ehansen 10:37:21 AM

CM | DN: EM | CK: EM | DW: EM | CK: EM

ELECTRICAL SERVICE DATA								
ELECTRICAL SERVICE DESCRIPTION (SEE ED(5)-14)	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT. BRK. POLE/AMP	PANE. LBD./ LOAD CENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE/AMPS	KVA LOAD
ELC SRV TY D 120/240 060 (NS)SS(N)SP(O)	2	3/#6	N/A	2P/60	100	A	1P/50	4.8

VIVDS DETECTOR CHART					
CAMERA NUMBER	VIVDS ZONE	DIRECTION	DIMENSION	SETTING	FUNCTION
1	V2-1A	EASTBOUND THRU	6' X 40'	PRESENCE	NON-LOCKING - PH 2
1	ADV-V2-1B	EASTBOUND THRU	6' X 6'	PRESENCE	NON-LOCKING - PH 2
1	ADV-V2-1C	EASTBOUND THRU	6' X 6'	PRESENCE	NON-LOCKING - PH 2
2	V4-1A	NORTHBOUND LEFT	6' X 40'	PRESENCE	LOCKING - PH 4
2	V4-1A	NORTHBOUND RIGHT	6' X 40'	PRESENCE	LOCKING - PH 4
3	V6-1A	WESTBOUND THRU	6' X 40'	PRESENCE	NON-LOCKING - PH 6
3	ADV-V6-1B	WESTBOUND THRU	6' X 6'	PRESENCE	NON-LOCKING - PH 6
3	ADV-V6-1C	WESTBOUND THRU	6' X 6'	PRESENCE	NON-LOCKING - PH 6

ELECTRICAL SCHEDULE										
ITEM	TOTAL QTY.	RUN NUMBER	1	2	3	4	5	6	7	8
		RUN LENGTH (FT)	8	8	13	9	62	8	78	8
POWER	42	1/C #6 INSULATED	2		2					
	29	1/C # 6 BARE	1	1	1					
VEHICULAR SIGNAL CABLE	502	5/C #14 AWG		6		2	4	2	2	2
VIVDS CAMERAS*	251	VIVDS COMM CABLE		3		1	2	1	1	1
ILLUMINATION*	266	4/C - #12 POWER			3	1	2	1	1	1
CONDUIT	385	2" PVC (SCHD. 80)	1	1	3	2	2	2	2	2

* RUN HOT WIRES IN SEPARATE CONDUIT FROM VEHICULAR SIGNAL CABLES

	#12 AWG	ILLUM	VIVDS CABLES
INSIDE POLES	5/C	TRAY 4/C	
	(FT)	(FT)	(FT)
POLE 1	60	30	30
POLE 2	60	30	30
POLE 3	60	30	30

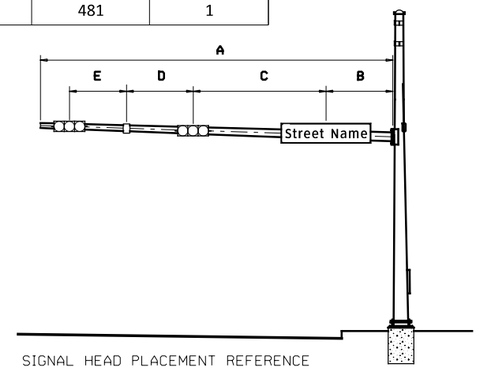
	#12 AWG	VIVDS CABLES
INSIDE ARMS	5/C	
	(FT)	(FT)
POLE 1	67	33
POLE 2	107	52
POLE 3	50	25

	#12 AWG	VIVDS CABLES	1/C #6 INSULATED	1/C #6 BARE
INSIDE CABINET	5/C			
	(FT)	(FT)	(FT)	(FT)
TOTAL	60	30	16	8

SIGNAL HEAD & POLE PLACEMENT										
POLE NUMBER	STATION	OFFSET	POLE DESIGN	POLE HEIGHT	A	B	C	D	E	FDN TYPE
POLE 1	100+28.62	60.78 LT	44 SMA	30'	44	12	15	6	7	36A
POLE 2	99+56.62	68.37 LT	65 LMA	30'	65	38	6	8	11	48A
POLE 3	99+57.20	20.51 RT	32 SMA	30'	32	8	11.5	5.5	5.5	36A

416	416	618	618	620	620	621	624	628	636	680
7044	7046	7054	7055	7009	7010	7006	7001	7156	7001	7002
DRILL SHAFT (TRF SIG POLE) (36 IN)	DRILL SHAFT (TRF SIG POLE) (48 IN)	CONDT (PVC) (SCH 80) (2")	CONDT (PVC) (SCH 80) (2") (BORE)	ELEC. CONDR. (NO.6) BARE	ELEC. CONDR. (NO.6) INSULATED	TRAY CABLE (4 CONDR) (12 AWG)	GROUND BOX TYP A (122311)	ELC SRV TY D 120/240 060 (NS)SS(N)SP(O)	ALUMINUM SIGNS (TY A)	INSTALL HWY TRF SIG (ISOLATED)
LF	LF	LF	LF	LF	LF	LF	EA	EA	SF	EA
26.4	21.9	261	124	37	58	356	3	1	24	1

682	682	682	682	684	686	686	686	6006	6006
7039	7001	7003	7005	7010	7035	7047	7067	7007	7025
BACKPLATE W/REFL BRDR (3 SEC) ALUM	VEH SIG SEC (12") LED (GRN)	VEH SIG SEC (12") LED (YEL)	VEH SIG SEC (12") LED (RED)	TRF SIG CBL (TYA) 12 AWG 5 CONDR	INS TRF SIG PL AM(S) 1 ARM (32') LUM	INS TRF SIG PL AM(S) 1 ARM (44') LUM	INS TRF SIG PL AM(S) 1 ARM (65') LUM	VIVDS CABLING	VIDEO IMAGING VEHICLE DETECTION SYSTEM
EA	EA	EA	EA	LF	EA	EA	EA	LF	EA
6	6	6	6	966	1	1	1	481	1



SIGNAL HEAD PLACEMENT REFERENCE

STATE OF TEXAS
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CR 258

TRAFFIC SIGNAL DETAIL CR 258 AT SUNSET RIDGE

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	73
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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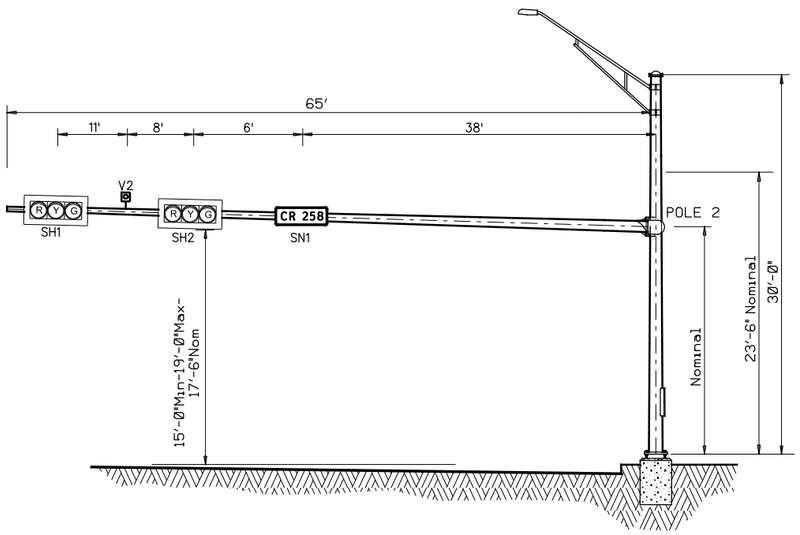
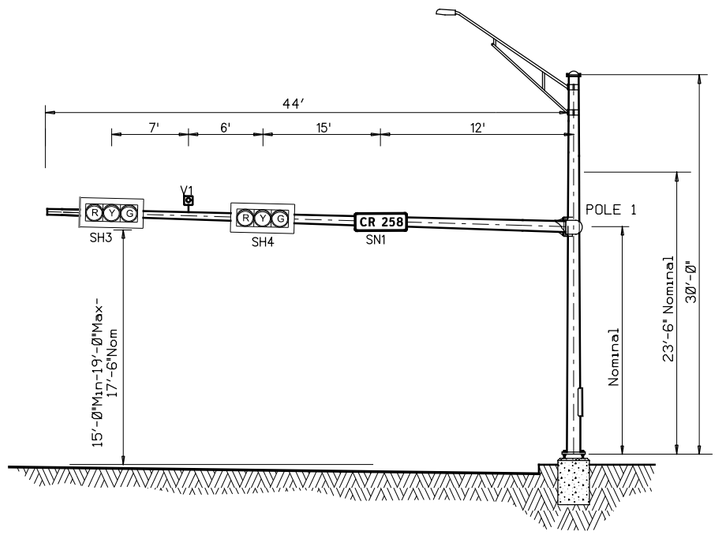
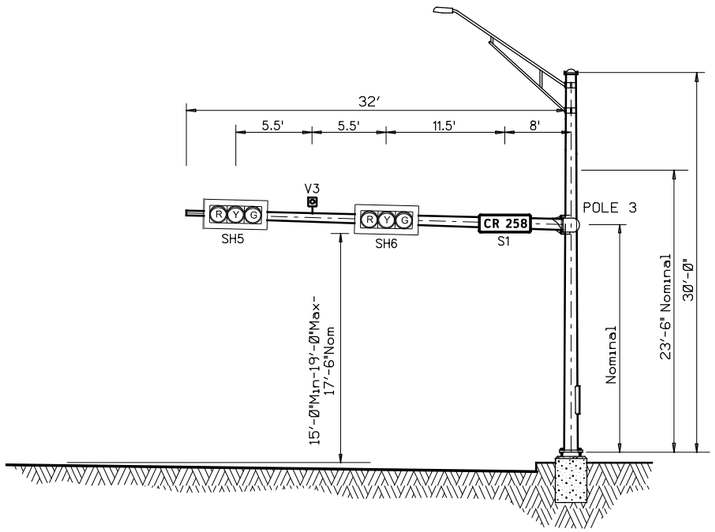


CR 258
FACING NORTHBOUND
(N.T.S)



CR 258
FACING EASTBOUND
(N.T.S.)



CR 258
FACING WESTBOUND
(N.T.S.)

CABLE TERMINATIONS				
TERMINAL #	CONDUCTOR COLOR	CABLE 1 HEAD 1 PHASE 4	CABLE 2 HEAD 2 PHASE 4	CABLE 3 HEAD 3 PHASE 2
		5/C	5/C	5/C
1	BLACK	Y	Y	Y
2	WHITE	SIGNAL COMMON	SIGNAL COMMON	SIGNAL COMMON
3	RED	R	R	R
4	GREEN	G	G	G
5	ORANGE	SPARE	SPARE	SPARE

TERMINAL #	CONDUCTOR COLOR	CABLE 4 HEAD 4 PHASE 2	CABLE 5 HEAD 5 PHASE 6	CABLE 6 HEAD 6 PHASE 6
		5/C	5/C	5/C
1	BLACK	Y	Y	Y
2	WHITE	SIGNAL COMMON	SIGNAL COMMON	SIGNAL COMMON
3	RED	R	R	R
4	GREEN	G	G	G
5	ORANGE	SPARE	SPARE	SPARE

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CR 258

ELEVATION DETAIL CR 258 AT SUNSET RIDGE

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	74
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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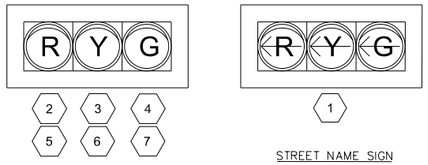
SIGNAL HEAD SCHEDULE

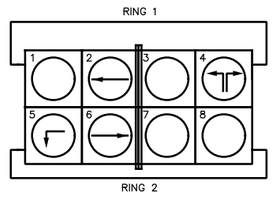


STREET NAME SIGN

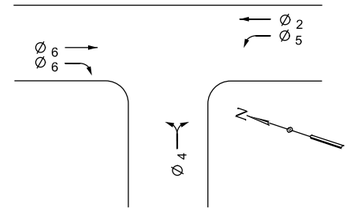
CR 258

S1

PHASING DIAGRAM



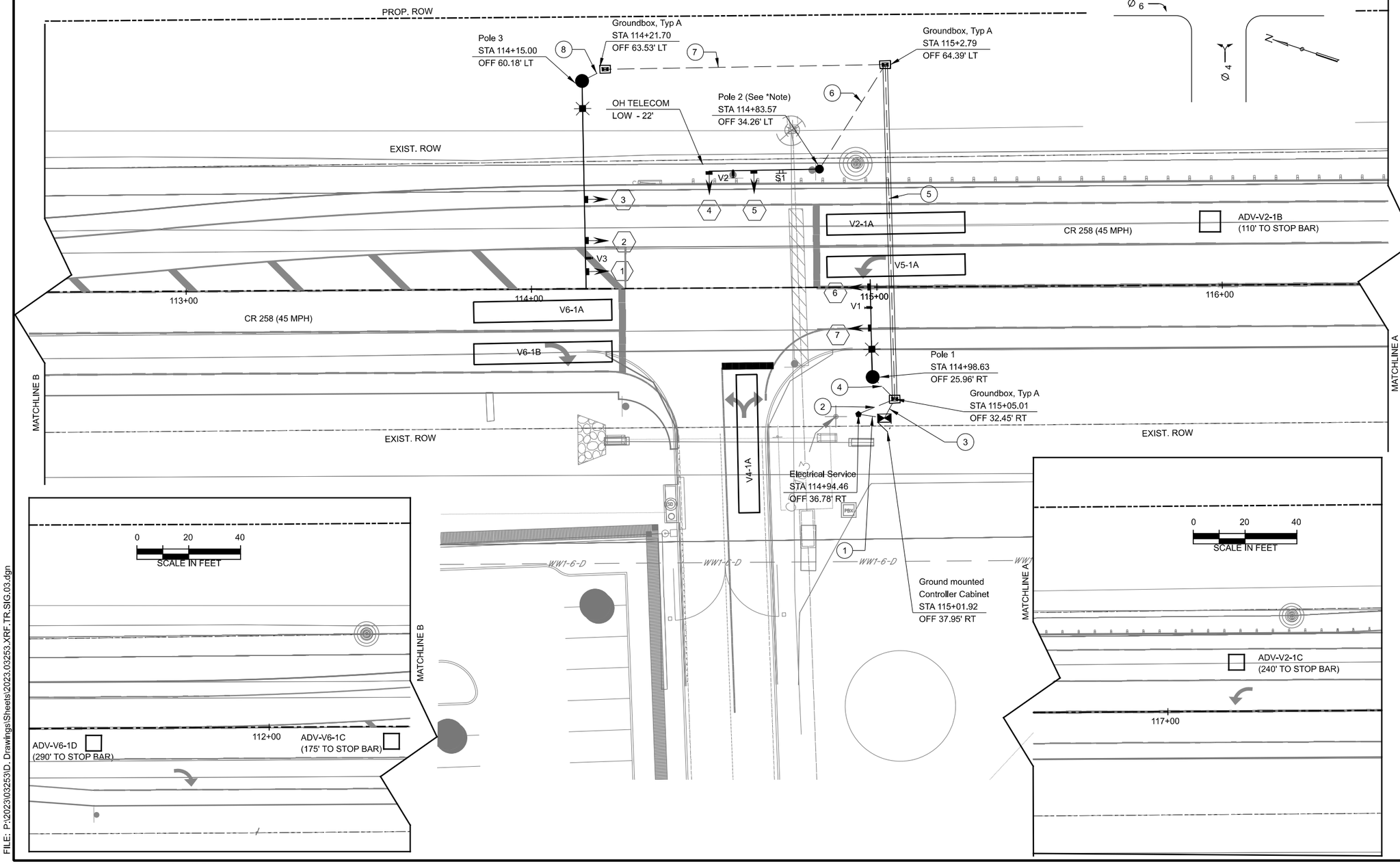
ORIENTATION VIEW



0 15 30
SCALE IN FEET

LEGEND:

- SIGNAL POLE AND MAST ARM
- HORIZONTAL LED SIGNAL HEAD W/ BACKPLATE
- OVERHEAD SHEET SIGN
- ELECTRICAL SERVICE
- CONTROLLER CABINET
- GROUND BOX, TYPE A
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- CONDUIT RUN NUMBER
- SIGNAL HEAD NUMBER
- DETECTION ZONE
- VIDEO DETECTION CAMERA
- SIGNAL LUMINAIRE



*NOTE:
POLE 2 IS IN CLOSE PROXIMITY TO THE OH TELECOM (Spectrum) LINE (22' LOW).

CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING CLOSE TO THE OVERHEAD FIBER OPTIC LINE. CONTACT Erich Westphal FOR ANY ASSISTANCE IN PROTECTING THE LINE WHILE DRILLING/INSTALLING THE SIGNAL POLE.

CONTACT INFORMATION:
Erich Westphal, (512) 808-9836,
erich.westphal@charter.com

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Erik Hansen

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CR 258

TRAFFIC SIGNAL LAYOUT CR 258 AT HIGH SCHOOL DRIVEWAY

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	75
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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ELECTRICAL SERVICE DATA								
ELECTRICAL SERVICE DESCRIPTION (SEE ED(5)-14)	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT. BRK. POLE/AMP	PANE. LBD./ LOAD CENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE/AMPS	KVA LOAD
ELC SRV TY D 120/240 060 (NS)SS(N)SP(O)	2	3/#6	N/A	2P/60	100	A	1P/50	4.8

VIVDS DETECTOR CHART					
CAMERA NUMBER	VIVDS ZONE	DIRECTION	DIMENSION	SETTING	FUNCTION
1	V6-1A	SOUTHBOUND THRU	6' X 40'	PRESENCE	NON-LOCKING - PH 6
1	V6-1B	SOUTHTBOUND RIGHT	6' X 40'	PRESENCE	NON-LOCKING - PH 6
1	ADV-V6-1C	SOUTHBOUND THRU	6' X 6'	PRESENCE	NON-LOCKING - PH 6
1	ADV-V6-1D	SOUTHBOUND THRU	6' X 6'	PRESENCE	NON-LOCKING - PH 6
2	V4-1A	EASTBOUND LEFT/RIGHT	6' X 40'	PRESENCE	LOCKING - PH 4
3	V2-1A	NORTHBOUND THRU	6' X 40'	PRESENCE	NON-LOCKING - PH 2
3	ADV-V2-1B	NORTHBOUND THRU	6' X 6'	PRESENCE	NON-LOCKING - PH 2
3	ADV-V2-1C	NORTHBOUND THRU	6' X 6'	PRESENCE	NON-LOCKING - PH 2

INSIDE POLES	#12 AWG 5/C (FT)	ILLUM TRAY 4/C (FT)	VIVDS CABLES (FT)
POLE 1	60	30	30
POLE 2	60	0	30
POLE 3	60	30	30

INSIDE ARMS	#12 AWG 5/C (FT)	VIVDS CABLES (FT)
POLE 1	26	20
POLE 2	50	25
POLE 3	135	51

INSIDE CABINET	#12 AWG 5/C (FT)	VIVDS CABLES (FT)	1/C #6 INSULATED (FT)	1/C #6 BARE (FT)
TOTAL	70	30	16	8

SIGNAL HEAD & POLE PLACEMENT											
POLE NUMBER	STATION	OFFSET	POLE DESIGN	POLE HEIGHT	A	B	C	D	E	F	FDN TYPE
POLE 1	114+98.63	25.96 RT	28 LMA*	30'	28		14	6	6		48A
POLE 2	114+83.57	34.26 LT	32 SMA	20'	32	11	8	6	6		30A
POLE 3	114+25.47	60.32 LT	60 LMA	30'	60		34	12	5	4	48A

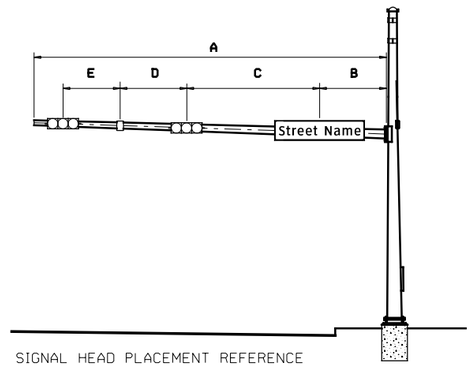
* LMA DESIGN FOR LONGER ARM TO REPLACE

SUMMARY OF QUANTITIES											
416	416	618	618	620	620	621	624	636	680	628	682
7043	7046	7054	7055	7009	7010	7006	7001	7002	7156	7001	
DRILL SHAFT (TRF SIG POLE) (30 IN)	DRILL SHAFT (TRF SIG POLE) (48 IN)	CONDT (PVC) (SCH 80) (2")	CONDT (PVC) (SCH 80) (2") (BORE)	ELEC. CONDR. (NO.6) BARE	ELEC. CONDR. (NO.6) INSULATED	TRAY CABLE (4 CONDR) (12 AWG)	GROUND BOX TYP A (122311)	ALUMINUM SIGNS (TY A)	INSTALL HWY TRF SIG (ISOLATED)	ELC SRV TY D 120/240 060 (NS)SS(N)SP(O)	VEH SIG SEC (12") LED (GRN)
LF	LF	LF	LF	LF	LF	LF	EA	SF	EA	EA	EA
11.3	43.8	306	194	264	54	268	3	24	1	1	6

682	682	682	682	682	682	684	686	686	686	6006	6006
7002	7003	7004	7005	7006	7039	7010	7031	7033	7063	7007	7025
VEH SIG SEC (12") LED (GRN ARW)	VEH SIG SEC (12") LED (YEL)	VEH SIG SEC (12") LED (YEL ARW)	VEH SIG SEC (12") LED (RED)	VEH SIG SEC (12") LED (RED ARW)	BACKPLATE W/REFL BRDR (3 SEC) ALUM	TRF SIG CBL (TYA) 12 AWG 5 CONDR	INS TRF SIG PL AM(S) 1 ARM (28') LUM	INS TRF SIG PL AM(S) 1 ARM (32')	INS TRF SIG PL AM(S) 1 ARM (60') LUM	VIVDS CABLING	VIDEO IMAGING VEHICLE DETECTION SYSTEM
EA	EA	EA	EA	EA	EA	LF	EA	EA	EA	LF	EA
1	6	1	6	1	7	1455	1	1	1	599	1

ELECTRICAL SCHEDULE										
ITEM	TOTAL QTY.	RUN NUMBER	1	2	3	4	5	6	7	8
		RUN LENGTH (FT)	8	11	7	9	97	35	81	8
POWER	38	1/C #6 INSULATED	2	2						
	256	1/C # 6 BARE	1	1	1	1	1	1	1	1
VEHICULAR SIGNAL CABLE	994	5/C #14 AWG			7	2	5	5	3	3
VIVIDS CABLE *	383	VIVDS COMM CABLE			3	1	2	2	1	1
ILLUMINATION*	208	4/C - #12 POWER		2			1		1	1
CONDUIT	500	2" PVC (SCHD. 80)	1	1	3	2	2	2	2	2

* RUN VIVDS CABLE IN SEPARATE CONDUIT FROM ALL OTHER CABLES.



SIGNAL HEAD PLACEMENT REFERENCE

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CR 258

TRAFFIC SIGNAL DETAIL CR 258 AT HIGH SCHOOL DRIVEWAY

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	76
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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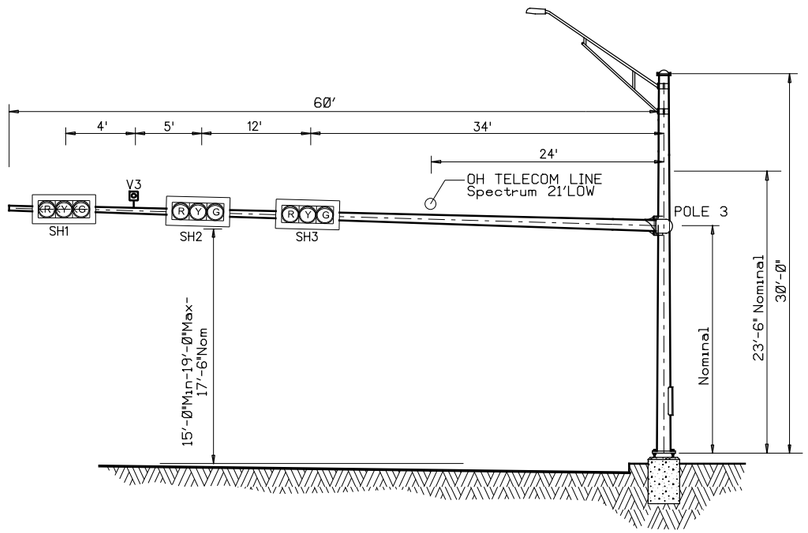
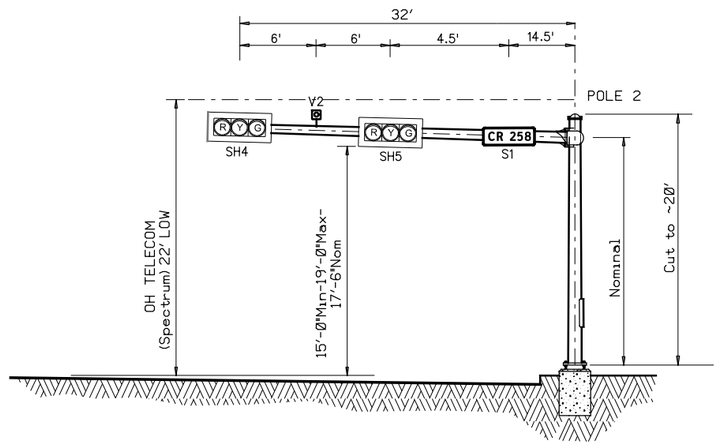
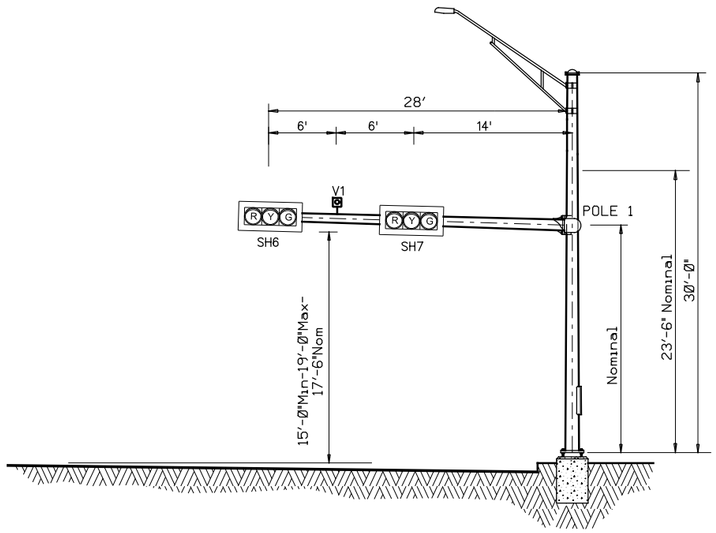


CR 258
FACING NORTHBOUND
(N.T.S)



HIGH SCHOOL
DRIVEWAY
FACING EASTBOUND
(N.T.S.)



CR 258
FACING SOUTHBOUND
(N.T.S.)

CABLE TERMINATIONS					
TERMINAL #	CONDUCTOR COLOR	CABLE 1 HEAD 1 PHASE 5	CABLE 2 HEAD 2 PHASE 2	CABLE 3 HEAD 3 PHASE 2	CABLE 4 HEAD 4 PHASE 4
		7/C	5/C	5/C	5/C
1	BLACK	SPARE	Y	Y	Y
2	WHITE	SIGNAL COMMON	SIGNAL COMMON	SIGNAL COMMON	SIGNAL COMMON
3	RED	R ARW	R	R	R
4	GREEN	SPARE	G	G	G
5	ORANGE	Y ARW	SPARE	SPARE	SPARE
6	BLUE	G ARW	--	--	--
7	WHITE/BLACK	SPARE	--	--	--

TERMINAL #	CONDUCTOR COLOR	CABLE 5 HEAD 5 PHASE 4	CABLE 6 HEAD 6 PHASE 6	CABLE 7 HEAD 7 PHASE 6
		5/C	5/C	5/C
1	BLACK	Y	Y	Y
2	WHITE	SIGNAL COMMON	SIGNAL COMMON	SIGNAL COMMON
3	RED	R	R	R
4	GREEN	G	G	G
5	ORANGE	SPARE	SPARE	SPARE
6	BLUE	--	--	--
7	WHITE/BLACK	--	--	--

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CR 258

ELEVATION DETAIL CR 258 AT HIGH SCHOOL DRIVEWAY

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	
	STATE	COUNTY	PRECINCT	77
	TX	WILCO	PCT 2	

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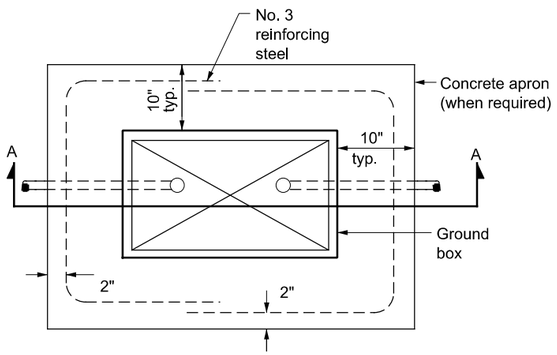
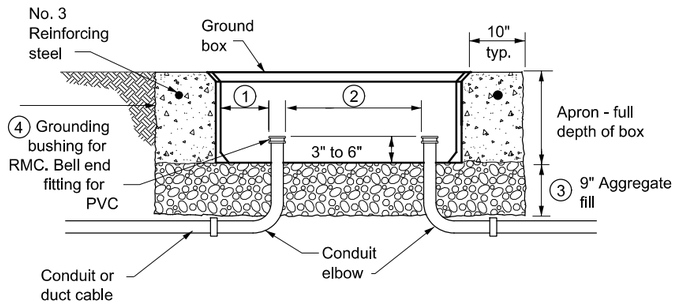
APRON FOR GROUND BOX

PLAN VIEW



SECTION A - A



SECTION A - A NOTES:

1. Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.
2. Maintain sufficient space between conduits to allow for proper installation of bushing.
3. Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.
4. Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOXES	
TYPE	OUTSIDE DIMENSIONS (Width x Length X Depth)
A	12" X 23" X 11"
B	12" X 23" X 22"
C	16" X 29" X 11"
D	16" X 29" X 22"
E	12" X 23" X 17"

GROUND BOX COVERS								
TYPE	DIMENSIONS							
	H	I	J	K	L	M	N	P
A, B & E	23 ¼"	23"	13 ¾"	13 ½"	9 ⅞"	5 ⅛"	1 ⅜"	2"
C & D	30 ½"	30 ¼"	17 ½"	17 ¼"	13 ¼"	6 ¾"	1 ⅜"	2"

NOTES:

A. MATERIALS

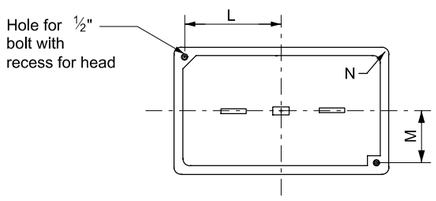
1. Provide polymer concrete ground boxes measuring 16 in. x 30 in. x 24 in. (W x L x D) or smaller in accordance with Departmental Material Specification DMS-11070, "Ground Boxes" and Item 624, "Ground Boxes."
2. Provide Type A, B, C, D, and E ground boxes as shown in the plans and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.
3. Ensure ground box cover is correctly labeled in accordance with DMS-11070.
4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

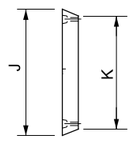
1. Before setting ground box and after placing and capping conduits, lay an aggregate bed a minimum of 9 in. deep that extends 10 in. beyond the sides of the ground box. Provide coarse aggregate sized 3/4 in. to 2 in., with no more than 20% material passing through a no. 8 sieve, and as defined by the current ASTM C33/33M standard. Clean aggregate and dirt from conduits according to Item 618.
2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.
3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.
4. Install all conduits and elbows in a professional and skillful manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.
5. Temporarily seal all conduits in the ground box until conductors are installed.
6. Permanently seal conduits immediately after the completion of conductor installation. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit seal. Do not use silicone caulk as a sealant.
7. Bond all equipment grounding conductors in a ground box together with listed connectors.
8. When a Type B or D ground box is stacked to meet volume requirements, an appropriately sized hole may be cut for conduit entry in the side wall at least 18 in. below grade.
9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper that is the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.
10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.
11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.

GROUND BOX COVER

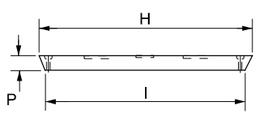
PLAN VIEW



END



SIDE



Texas Department of Transportation — Traffic Safety Division Standard

ELECTRICAL DETAILS GROUND BOXES

ED(4)-25

FILE: ed4-25.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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ELECTRICAL SERVICES NOTES

1. Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS)-11080, "Electrical Services" and Item 628, "Electrical Services." Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.

2. Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.

3. Provide a Master Lock, Model No. 2, M1, or 6121, keyed to code 2195. Master Lock 2195 keys and locks become property of the Department. Unless otherwise approved, do not energize electrical service equipment until locks are installed.

4. Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.

5. When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.

6. Provide wiring and electrical components rated for 75°C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify conductors per ED(3). Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 1.5 ft. to 3 ft. as required by electric utility.

7. Provide rigid metal conduit (RMC) for all conduits on service, except for the ½ in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 in. underground and then couple to the type and schedule of the conduit shown on the plans. Install a grounding bushing on the RMC where it terminates in the service enclosure.

8. Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees from each other. Size this LFMC the same size as the service entrance conduit. LFMC must not exceed 3 ft. in length. Strap LFMC within 1 ft. of each end. Terminate each end of the LFMC with a grounding bushing or fitting. The LFMC must contain a grounded (neutral) conductor. Ensure bends in LFMC do not exceed 180 degrees. A pull test is required on all installed conductors, with at least 6 in. of free conductor movement demonstrated to the satisfaction of the Engineer.

9. Ensure all mounting hardware and installation details of services conform to utility company specifications.

10. Provide the following documents in the electrical service document pocket: schematic drawing unique to the service from the UL 508 shop; plan sheet showing Electrical Service Data Chart for the service; plan sheets for the circuits powered by the service; and red lined plan sheets if installation differs from the original design. Reduce larger sheets to 8 ½ in. x 11 in. and laminate all documents.

11. When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in. before laminating. When the enclosure has no door pocket, deliver these drawings to the Engineer before completion of the work.

12. Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a watertight conduit hub or meter hub.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

1. Field drill flange-mounted remote operator handle, if needed, to ensure handle is lockable in both the "On" and "Off" positions.

2. When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

PHOTOELECTRIC CONTROL

1. Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

ELECTRICAL SERVICE DATA (EXAMPLE) *

ELEC. SERVICE ID	PLAN SHEET NUMBER	ELECTRICAL SERVICE DESCRIPTION	SERVICE CONDUIT SIZE * *	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN CKT. BKR. POLE/AMPS	LIGHTING CONTACTOR AMPS	PANELBOARD/ LOADCENTER AMP RATING	BRANCH CIRCUIT ID	BRANCH CKT. BKR. POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	2P/100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 ¼"	3/#6	N/A	2P/60	2P/30	100	Sig. Controller	1P/30	23	5.3
									Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 ¼"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

* * Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National Electrical Code.

ELECTRICAL SERVICE BID ITEM DESCRIPTIONS

ELEC SERV TY X XXX/XXX XXX(XX)XX(X)XX(X)XX(X)

SCHEMATIC TYPE

SERVICE VOLTAGE

DISCONNECT AMP RATING
NOTE: 000 indicates main lug only, typically Type T

SAFETY SWITCH
(SS) = Safety Switch Ahead of Meter - Check with Utility
(NS) = No Safety Switch Ahead of Meter - Check with Utility

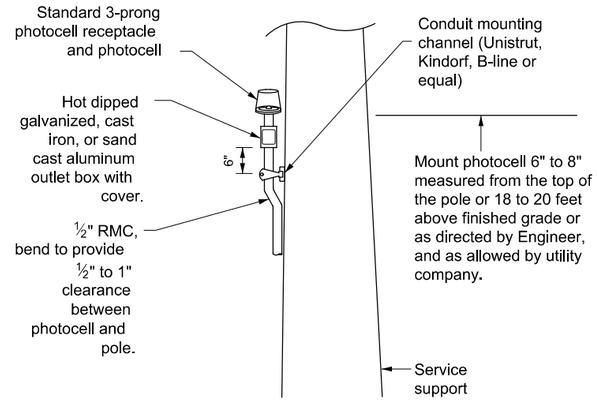
ENCLOSURE TYPE
GS = Galvanized steel ("off the shelf")
SS = Stainless steel (Custom Enclosure) - See MPL
AL = Aluminum (Custom Enclosure) - See MPL

PHOTOCELL MOUNTING LOCATION
(E) = Inside Service/Enclosure Mounted
(T) = Top of pole
(L) = Luminaire mounted
(N) = None - No Photocell or Lighting Contactor Required

SERVICE SUPPORT TYPE
GC = Granite concrete
OC = Other concrete
TP = Timber pole
SP = Steel pole
SF = Steel frame
OT = Pole by others or paid for separately
EX = Existing pole
TS = Service on traffic signal pole
PS = Pedestal Service

SERIVCE FEED
O = Overhead Service Feed from Utility
U = Underground Service Feed from Utility

TOP MOUNTED PHOTOCELL



Install conduit strap maximum 3 ft. from box. Spacing between straps supporting conduit is 5 ft. maximum.

Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS SERVICE NOTES & DATA

ED(5)-25

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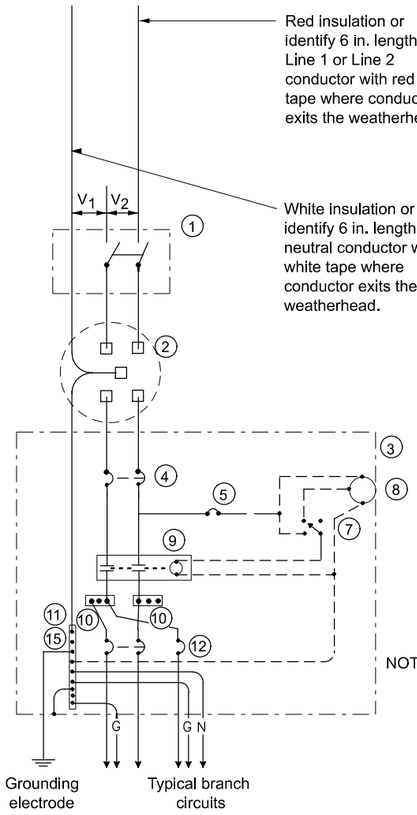
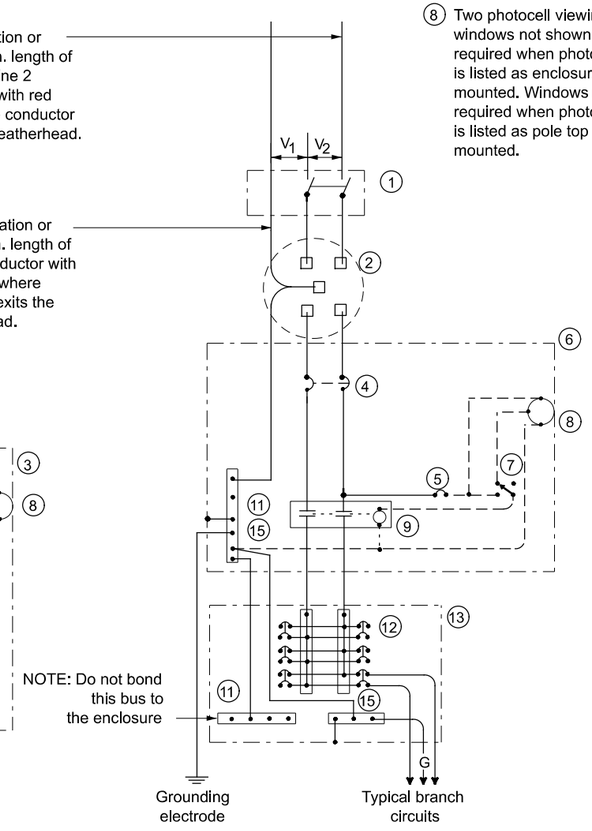
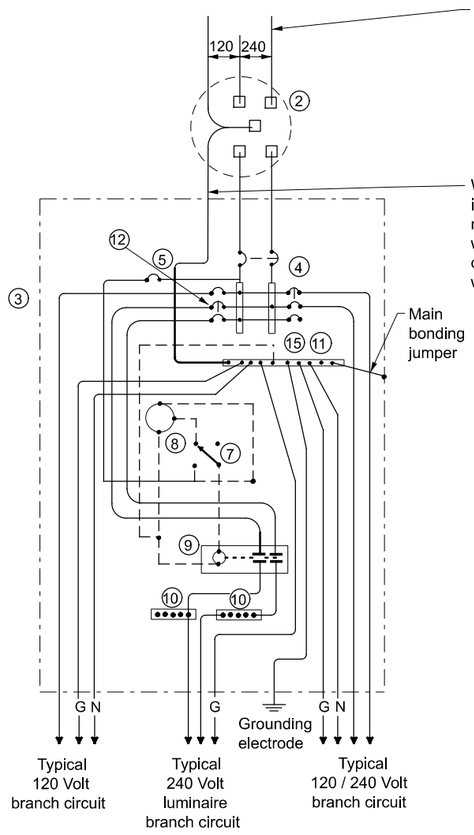
TYPE A
THREE WIRE



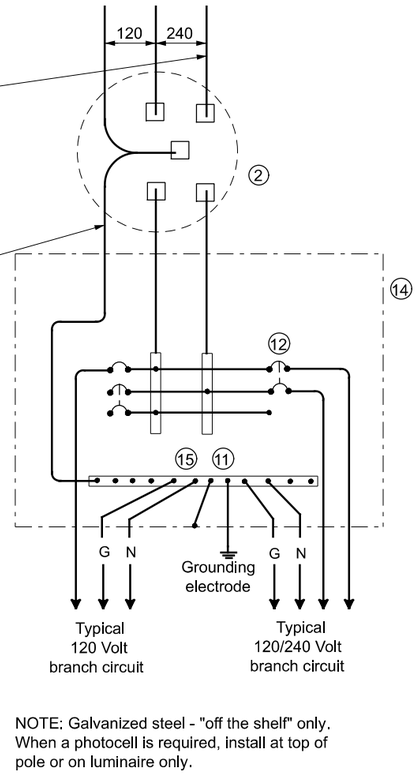
TYPE C
THREE WIRE



TYPE D - CUSTOM
120/240 VOLTS - THREE WIRE



TYPE T
120/240 VOLTS - THREE WIRE



NOTE: Galvanized steel - "off the shelf" only. When a photocell is required, install at top of pole or on luminaire only.

WIRING LEGEND	
———	Power Wiring
- - - -	Control Wiring
—N—	Neutral Conductor
—G—	Equipment grounding conductor (always required)

SCHEMATIC NOTES:

1. Safety Switch (when required)
2. Meter (when required - verify with electric utility provider)
3. Service Assembly Enclosure
4. Main Disconnect Breaker (See Electrical Service Data)
5. Circuit Breaker, 15 Amp (Control Circuit)
6. Auxiliary Enclosure
7. Control Station ("H-O-A" Switch)
8. Photo Electric Control (enclosure-mounted shown)
9. Lighting Contactor
10. Power Distribution Terminal Blocks
11. Neutral Bus
12. Branch Circuit Breaker (See Electrical Service Data)
13. Separate Circuit Breaker Panelboard
14. Load Center
15. Ground Bus

Texas Department of Transportation — Traffic Safety Division Standard

ELECTRICAL DETAILS SERVICE SCHEMATICS AND NOTES

ED(6)-25

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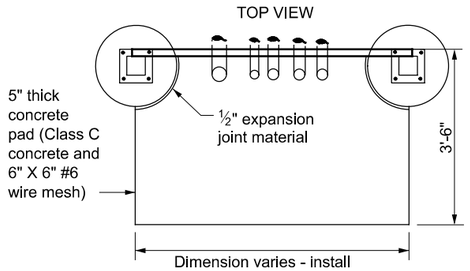
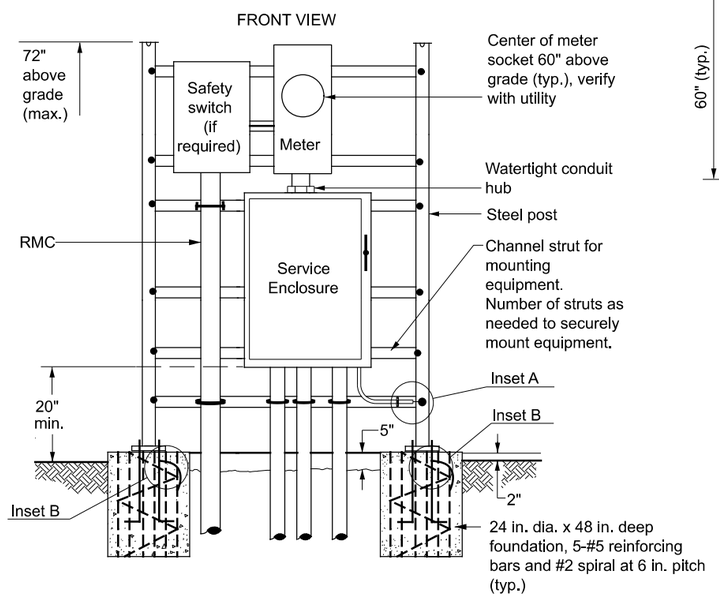
SUPPORT TYPE STEEL POLE (SP) AND STEEL FRAME (SF) NOTES:

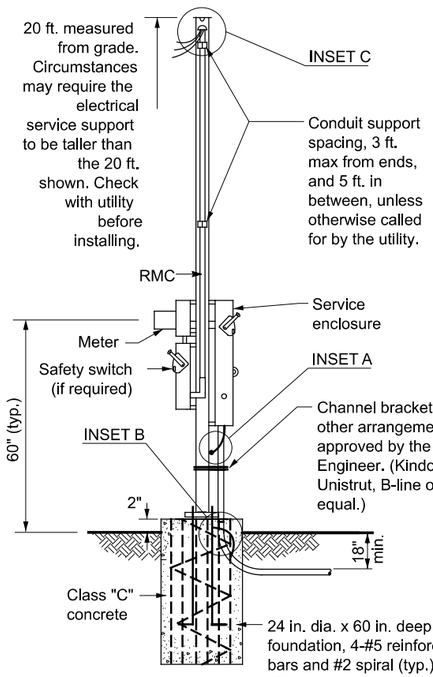
1. Provide steel pole and steel frame supports as per TxDOT Departmental Material Specification DMS-11080, "Electrical Services." Mount all equipment and conduit on 12 gauge galvanized steel or stainless steel channel strut, 1 ½ in. or 1 ⅝ in. wide by 1 in. to 3 ¾ in. deep Unistrut, Kindorf, B-line or equal. Drill, tap, and bolt or weld all channel and hardware to vertical members as approved. Do not stack channel. File smooth and paint field-cut ends of all channel with zinc-rich paint before installing.
2. Install a one point rack or eye bolt bracket 6 in. to 12 in. below the weatherhead as an overhead service drop anchoring point for the electric utility. Attaching bolt must pass through the pole and use a nut, washer, and locking washer on the other size. Self-tapping screws or lag bolts are not allowed.
3. Provide and install galvanized ¾ in. x 18 in. x 4 in. (dia. x length x hook length) anchor bolts for underground service supports. Provide and install galvanized ¾ in. x 56 in. x 4 in. anchor bolts for overhead service supports. Ensure anchor bolts have 3 in. of thread, with 3 ¼ in. to 3 ½ in. of the exposed anchor bolt projecting above finished foundation. Provide and install leveling nuts for all anchor bolts.
4. Use Class C concrete for foundations. Ensure reinforcing steel is Grade 60 with 3 in. of unobstructed concrete cover.
5. Shop drawings are not required for service support structure unless specifically stated elsewhere or directed by the Engineer.
6. Avoid contact of the service drop and service entrance conductors with the metal pole to prevent abrasion of the insulated conductors.
7. Placement of the meter and service enclosure may vary based on the installation of a safety switch.
8. Drill and tap steel poles and frames for ½ in. x 13 UNC tank ground fitting. For steel pole service supports, provide and install tank ground fitting 4 in. to 6 in. directly below the electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting.
9. For steel frame service supports, provide and install tank ground fitting on steel frame post. Install service grounding electrode conductor in a non-metallic conduit or tubing from the enclosure to the steel frame post. Connect electrical service grounding electrode conductor to the tank ground fitting. See SF, SP details and Inset A for more information.
10. Provide and install grounding bushings where RMC terminates in the enclosure. Grounding bushings are not required when RMC is fitted into a watertight conduit hub or meter hub.
11. If steel pole or frame is painted, bond each separate painted piece with a bonding jumper and lugs screwed into tapped holes.
12. Provide ¼ in. x 20 UNC machine screws for bonding. Do not use sheet metal screws. Remove all non-conductive material at contact points. Terminate bonding jumpers with listed devices. Install 6 AWG or larger stranded copper bonding jumpers. Make up all threaded bonding connections wrench-tight.
13. Bond one of the anchor bolts to the rebar cage with 6 AWG bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete. See Inset B.

TYPE SF(U)
UNDERGROUND SERVICE

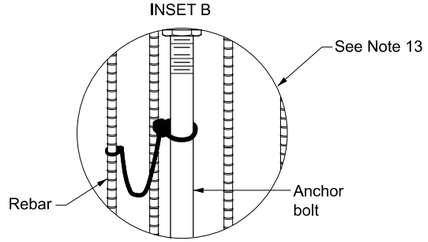




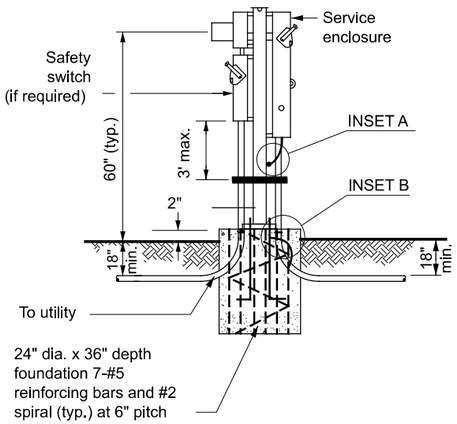
TYPE SP(O)
OVERHEAD SERVICE



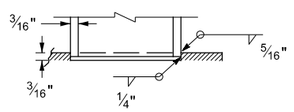
INSET B



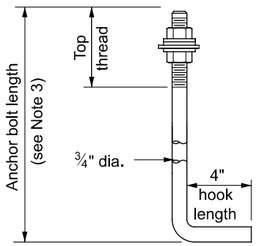
TYPE SP(U)



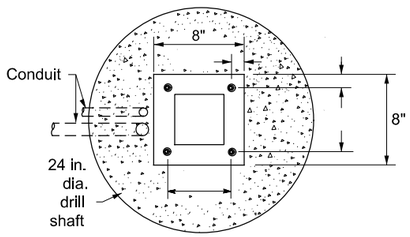
BOTTOM OF POLE DETAIL
TYPES SF & SP



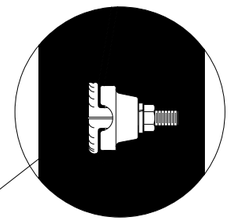
HOOKED ANCHOR DETAIL



BASE PLATE DETAIL

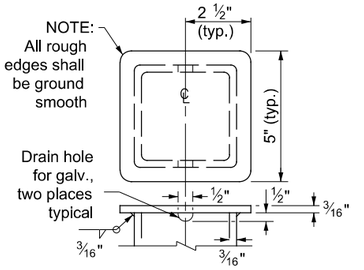


INSET A
FRONT VIEW

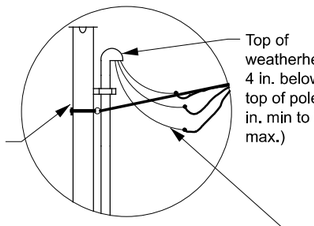


Drill, tap, and thread ½" x 13 UNC. Install tank ground fitting, connect electrical service grounding electrode conductor. See Note 8.

POLE TOP PLATE DETAIL



INSET C
SIDE VIEW



Identify conductors red, black, and white as specified in ED(3), Electrical Conductors, Note A.2.
Provide 1.5 ft. to 3 ft. of conductor length as required by electric utility.

Texas Department of Transportation — Traffic Safety Division Standard

ELECTRICAL DETAILS SERVICE SUPPORT TYPES SF & SP

ED(7)-25

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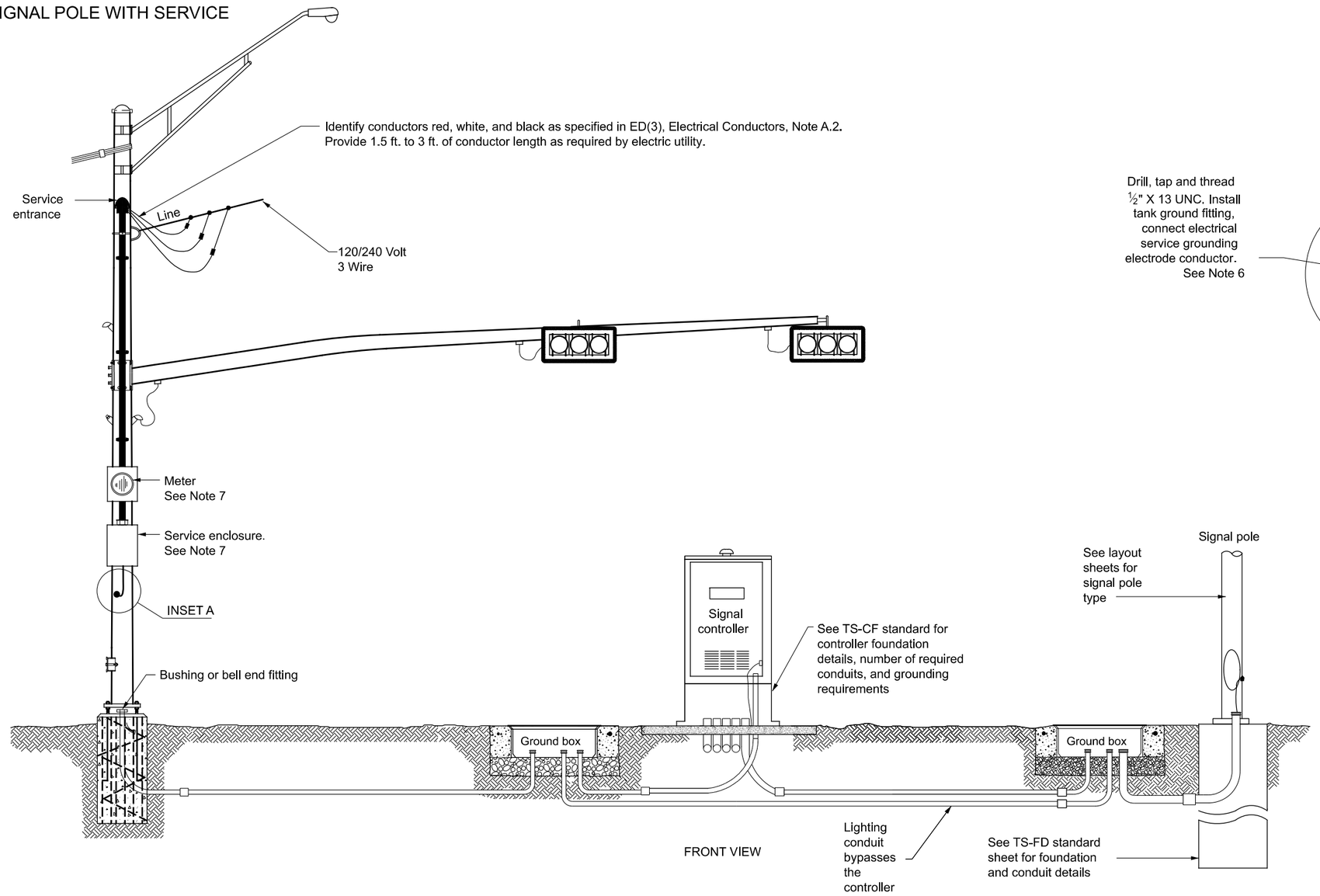
NOTES:

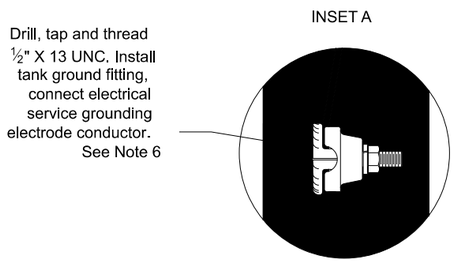
1. Do not pass luminaire conductors through the signal controller cabinet.
2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding conductor.
3. Provide roadway luminaires, when required, in accordance with Item 610, "Roadway Illumination Assemblies," except for performance testing of luminaires. Test installed roadway luminaires for proper operation as a part of the associated traffic signal system test.
4. Ground internally lighted street name (ILSN) signs to the pole with a 12 AWG green XHHW conductor.
5. Bond anchor bolts to rebar cage in two locations using #3 bars or 6 AWG stranded copper conductors. Use listed mechanical connectors rated for embedment in concrete. See TXDOT standard TS-FD for further details.
6. Drill and tap signal poles for ½ in. x 13 UNC tank ground fitting. Provide and install tank ground fitting 4 in. to 6 in. directly below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Connect the electrical service grounding electrode conductor to the tank ground fitting. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. See Inset A detail for further information. Size service entrance conduit and branch circuit conduit as shown in the plans.
7. Mount electrical service enclosure and meter to signal pole with stainless steel bands. Ensure bands are at least ¾ in. wide. Secure enclosures to bands using two-bolt brackets. Install brackets near top and bottom of each enclosure. Install properly sized stainless steel washers on each bolt in the enclosure. Band or drill and tap properly sized stand-off straps to signal pole for attaching conduit.
8. Lock all enclosures and bolt down all ground box covers before applying power to the signal installation.
9. Terminate conduits entering the top of enclosures with a watertight conduit hub or meter hub. Install a grounding bushing on all metal conduits not connected to conduit-sealing hub or threaded boss. Bond the grounding bushing to the ground bus with a bonding jumper. Seal all conduits entering enclosures with duct seal or expanding foam. Do not use silicone to seal conduit ends.

SIGNAL POLE WITH SERVICE



FRONT VIEW

INSET A



Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS
TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS
ED(8)-25

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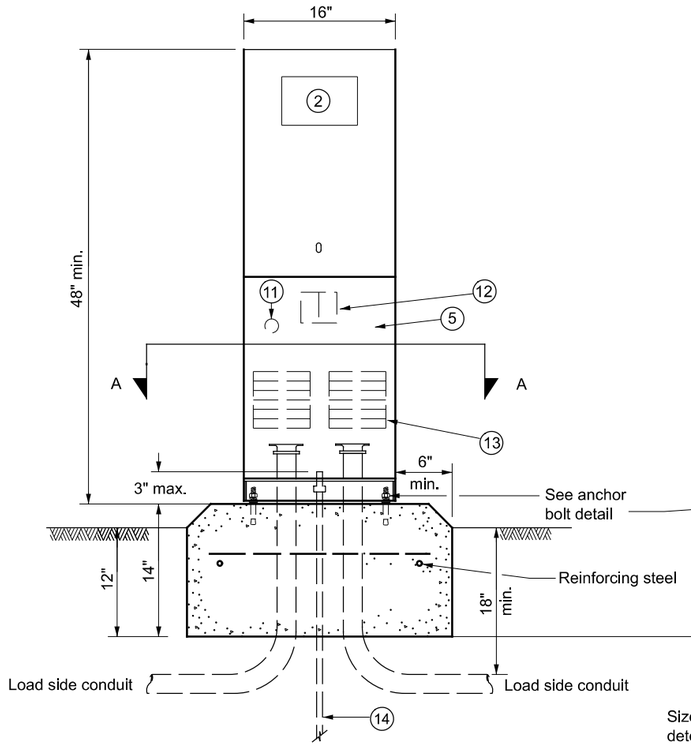
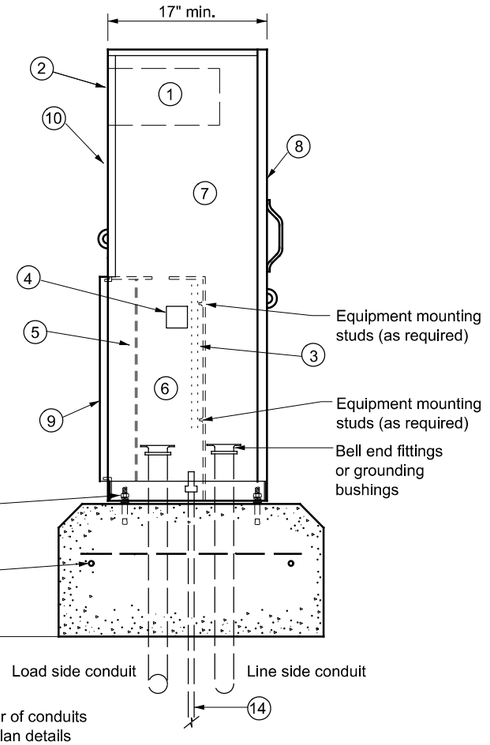
FRONT VIEW

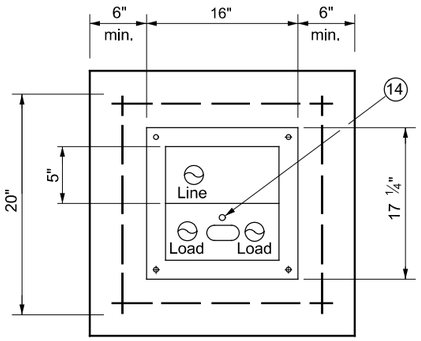


SIDE VIEW

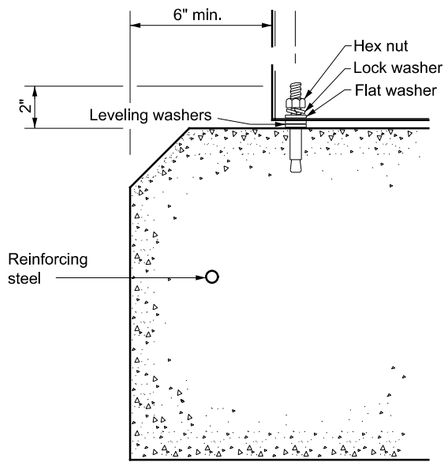


NOTE: Type D shown, Type A similar except that Type A shall have circuit breakers (CB) mounted on an equipment mounting panel. CB handles shall protrude through hinged deadfront trim.

SECTION A-A



ANCHOR BOLT DETAIL



DETAIL CALLOUTS:

1. Meter socket (when required)
2. Meter socket window (when required)
3. Equipment mounting panel
4. Photoelectric control window (when required)
5. Hinged deadfront trim
6. Load side conduit area
7. Line side conduit area
8. Utility access door, with handle
9. Pedestal door
10. Hinged meter access
11. Control station (H-O-A switch)
12. Main disconnect
13. Branch circuit breakers
14. Copper clad ground rod (in load side of cabinet) - 5/8" x 10'

NOTES:

1. Manufacture pedestal electrical services in accordance with Departmental Material Specifications DMS-11080, "Electrical Services," DMS-11085, "Electrical Services-Pedestal (PS)" and Item 628, "Electrical Services." Provide pedestal electrical services listed on the Material Producer list (MPL) under "Roadway Illumination and Electrical Supplies," Item 628. Ensure all mounting hardware and installation details of services meet utility company specifications. Contact the local utility company for approval of pedestal details prior to installing the electrical pedestal service. Submit any changes required by the utility company prior to manufacturing the pedestal enclosure.
2. When a meter socket is required, provide a socket with a 100 amp (minimum) rating that complies with local utility requirements.
3. Provide concrete for pedestal service foundations in accordance with Item 656, "Foundations for Traffic Control Devices" except that concrete will not be paid for directly but is considered subsidiary to Item 628.
4. Provide #4 reinforcing steel for foundations in accordance with Item 440, "Reinforcement for Concrete."
5. Install ½ in. X 2 1/16 in. minimum length concrete single expansion type anchors for mounting pedestal enclosure to foundation. Match anchor location to mounting holes in each corner of enclosure. Secure each of the four corners of the pedestal enclosure to the anchors in the foundation with a ½ in. galvanized or stainless steel machine thread bolt, a properly sized locknut and a flat washer.
6. Finish top of concrete foundation in a professional and skillful manner. If leveling washers are used, ensure no more than ⅛ in. of gap exists at any corner. Do not exceed a maximum dip or rise in the foundation of ⅛ in. per foot. Ensure the top of the service enclosure is level front to back and side to side within ¼ in. Repair rocking or movement of the service enclosure at no additional cost to the Department.
7. Do not use liquidtight flexible metal conduit (LFMC) on pedestal services.
8. Ensure all elbows in the foundation are sized to meet utility provider's conduit requirements for underground conduit and feeders. PVC conduit extensions may be installed provided the ends of the rigid metal conduits are more than 2 in. below the top of the concrete foundation. Where extension conduits are metal, grounding bushings must be installed with a properly terminated bonding jumper.

Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS
PEDESTAL SERVICE TYPE PS

ED(9)-25

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GENERAL NOTES:

1. For overhead services, install a one point rack or eye bolt bracket 6 in. to 12 in. below the weatherhead as a service drop anchoring point for the electric utility. Attaching bolt must pass through the pole and use a nut, washer, and locking washer on the other side. Self-tapping screws or lag bolts are not permitted.
2. Identify service entrance conductors red, white, and black as specified in ED(3), Electrical Conductors, Note A.2. Provide 1.5 ft. to 3 ft. of conductor length as required by electric utility.
3. Install Type A and Type C services so that the center of the grip of the service's external disconnect handle in the on position is no more than 6 ft. 7 in. above grade.

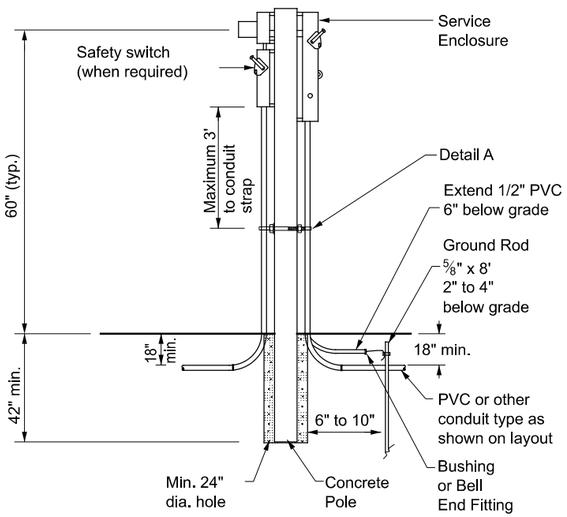
GRANITE CONCRETE (GC) & OTHER CONCRETE (OC) SERVICE NOTES

1. Ensure electrical service support structures bid as type Granite Concrete (GC) or Other Concrete (OC) meet the requirements of DMS-11080, "Electrical Services."
2. Provide prestressed concrete poles suitable for direct embedment into the ground without special foundations.
3. Verify poles are marked as required on DMS-11080. Location of marking should be approximately 4 ft. above final grade. Use the two-point pickup locations when handling pole in horizontal position, and one-point pickup location for use in raising the pole to a vertical position. These marks are small but conspicuous.
4. Embed poles 42 in. or 10% of the length plus 2 ft., whichever is greater.
5. Furnish and install galvanized or stainless steel channel strut 1 ½ in. or 1 ⅝ in. wide by 1 in. up to 3 ¾ in. deep (Unistrut, Kindorf, B-line or equal). Attach channel strut with stainless steel concrete anchors (max. 1 in. depth), square U-bolts or back to back channel strut with long bolts, or other secure mounting as approved by the Engineer. Ensure bolts are galvanized in accordance with ASTM A153. Do not stack channel struts.

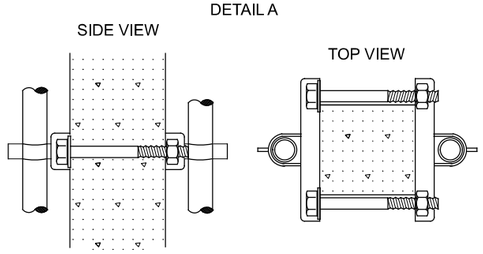
TIMBER POLE (TP) SERVICE NOTES

1. Ensure electrical service support is a class 5 treated timber pole as per Item 627, "Treated Timber Poles." Embed timber pole to depth required in Item 627.
2. Gain pole as required to provide flat surface for each channel. Gain timber pole to ⅝ in. max. depth and 1 ⅞ in. max. height. Gain pole in a professional and skillful manner.
3. Mount meter and service equipment on stainless steel or galvanized channel (Unistrut, Kindorf, or equal). Provide channel sized 1 in. to 3 ¾ in. maximum depth, and 1 ½ in. to 1 ⅝ in. maximum width. File smooth the cut ends of galvanized channel and paint with zinc rich paint before installing on pole. Secure each channel section to timber pole with two galvanized or stainless steel lag bolts, ¼ in. minimum diameter by 1 ½ in. minimum length. Use a galvanized or stainless steel flat washer on each lag bolt. Do not stack channel.
4. When excess length must be trimmed from poles, trim from the top end only.
5. Install point of attachment below weatherhead.

TYPES GC(U) & OC(U)
UNDERGROUND SERVICE

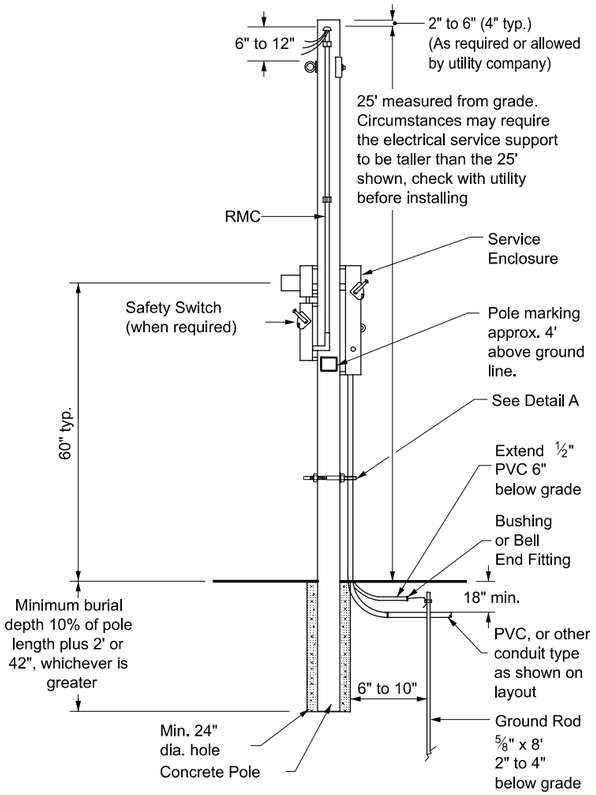


DETAIL A

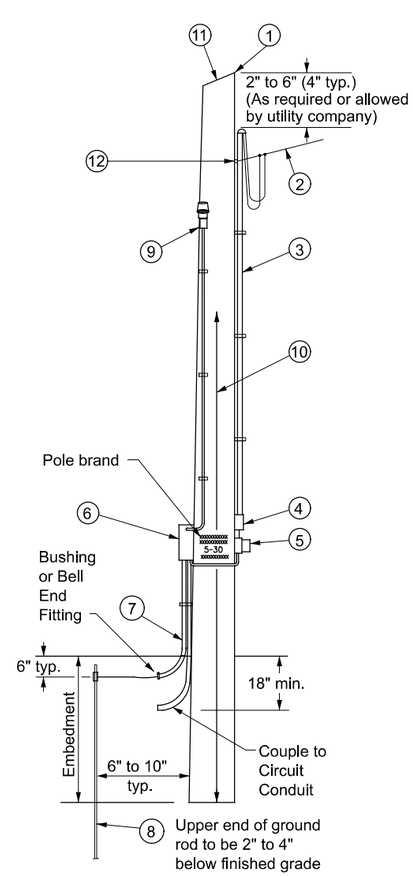


See GC & OC Note 5. Before installing channel that has been cut, file sharp edges and paint with zinc-rich paint. Ensure there is no paint splatter on the pole.

TYPES GC(O) & OC(O)
OVERHEAD SERVICE



TYPE TP(O)
OVERHEAD SERVICE



DETAIL CALLOUTS:

1. Class 5 pole, height as required
2. Service drop from utility company (attached below weatherhead)
3. Service conduit (RMC) and service entrance conductors - one red, one black, one white (see Electrical Service Data)
4. Safety switch (when required)
5. Meter (when required)
6. Service enclosure
7. 6 AWG solid bare copper grounding electrode conductor in ½ in. PVC to ground rod - extend conduit 6 in. underground.
8. ⅝ in. x 8 ft. copper clad ground rod - drive ground rod to a depth of 2 in. to 4 in. below grade.
9. See pole-top mounted photocell detail on ED(5).
10. When required by the serving utility provide bare 6 AWG copper conductor. Run wire from pole top to butt wrap or copper butt plate. Protect conductor with non-conductive material to a height of 8 ft. above finished grade.
11. When required by utility, cut top of pole at an angle to enhance rain run off.
12. Point of attachment (typ.)

Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS SERVICE SUPPORT TYPES GC, OC, & TP

ED(10)-25

FILE: ed10-25.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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NOTES:

1. Provide duct cable in accordance with Departmental Material Specification DMS-11060, "Duct Cable" and Special Specification 6000, "Duct Cable." Provide duct cable as listed on the Material Producer List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Special Specification 6000 - Duct Cable. Provide and install duct cable according to NEC Article 354, Nonmetallic Underground Conduit with Conductors (NUCC).

2. Provide High-Density Polyethylene (HDPE) conduit in accordance with DMS-11030 and Item 618, "Conduit." Provide HDPE as listed on the MPL on the Department web site under "Roadway Illumination and Electrical Supplies," Item 618.

3. Supply duct cable with a minimum 2 in. diameter, unless otherwise shown in the plans. Provide duct cable and HDPE conduit as shown by descriptive code or on the plans. Bend duct cable and HDPE conduit as recommended by the manufacturer, with a minimum bending radius of 26 in. for 2 in. duct. Follow manufacturers' recommendations when handling duct cable and HDPE conduit reels and during installation of duct cable and HDPE conduit.

4. Do not splice conductors within duct cable or HDPE conduit. Couple duct cable and HDPE entering a ground box or foundation to a PVC elbow. When galvanized steel rigid metal conduit (RMC) elbows are called for in the plans and any portion of the RMC elbow is buried less than 18 in. from possible contact, ground the RMC elbow.

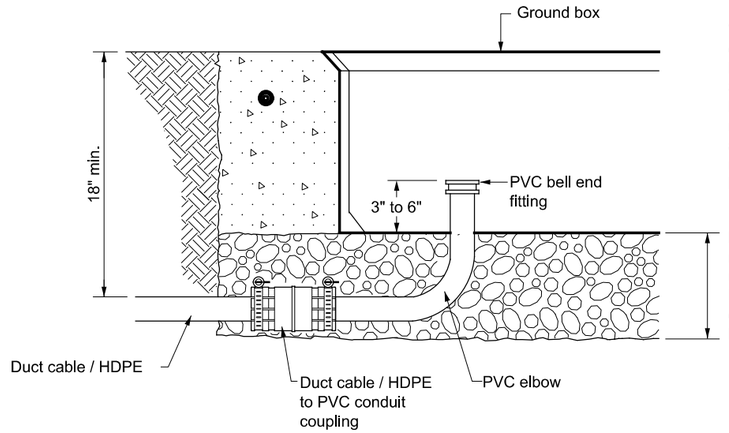
5. When conduit casing is called for in the plans, extend duct cable or HDPE conduit through the conduit casing in one continuous length without connection to the casing.

6. Seal the ends of duct cable or HDPE conduit with duct seal, expandable foam, or other approved method after installation.

7. Provide minimum cover of 24 in. under roadways, 18 in. in other locations, or as shown on the plans.

8. Furnish and install listed fittings to couple duct cable or HDPE conduit to other types of conduit. Duct cable and HDPE conduit may be field-threaded and spliced with PVC or RMC threaded couplings; connected with listed tie-wrap fittings; connected using listed couplings made of HDPE with stainless steel external banding clamps and locking rings; connected with approved electrofusion conduit couplings; or connected using an approved chemical fusion method using an epoxy or adhesive specifically designed for HDPE couplings and connectors. Install connectors in accordance with manufacturer's instructions. Do not use PVC glue on HDPE. Do not use water pipe fittings, or connect conduit with heat shrink tubing.

DUCT CABLE/HDPE AT GROUND BOX

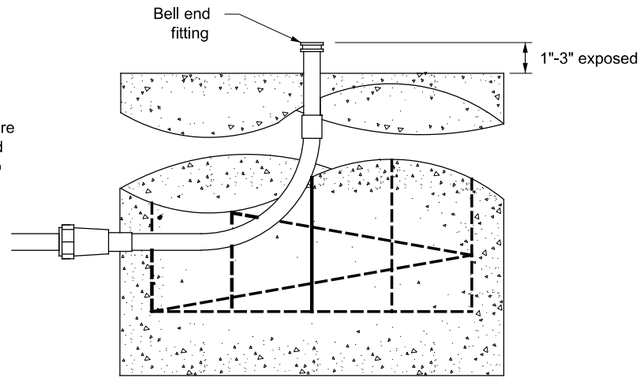


When the upper end of an RMC elbow does not enter the ground box,it may be extended with a SCH-40 PVC conduit nipple and bell end, provided there is a minimum of 18 in. of cover over all parts of the elbow. If not, a rigid extension and ground bushing is required.

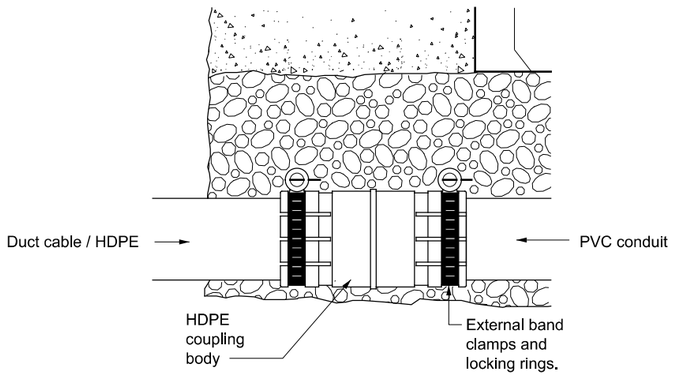
Bed of aggregate is to be a minimum of 9 in. deep, placed under and not in the ground box. Ensure the aggregate does not encroach into the interior of the box.

DUCT CABLE / HDPE AT FOUNDATION

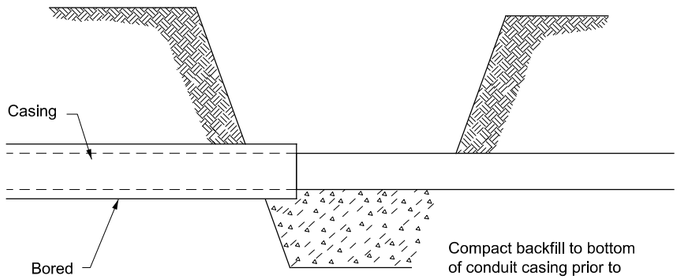
Couple duct to conduit elbow at foundations. Ensure conductors extend into pole base. Do not splice conductors in conduit.



DUCT CABLE / HDPE TO PVC



BORE PIT DETAIL



Compact backfill to bottom of conduit casing prior to placing duct cable, to prevent kinking.

Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS
DUCT CABLE/ HDPE CONDUIT
ED(11)-25

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NOTES:

A. MATERIALS

1. Provide polymer concrete or fiberglass reinforced plastic (FRP) battery box and cover in accordance with Departmental Material Specification DMS-11071, "Battery Box Ground Boxes." Battery box will accommodate up to 4 batteries, each measuring 8 in. x 13.5 in. x 10 in. (W x L x D). Label battery box cover in accordance with DMS-11071.

2. Supply marine grade batteries with covers. Secure the batteries to the stainless steel rack in the bottom of the ground box with tie down straps.

B. CONSTRUCTION METHODS

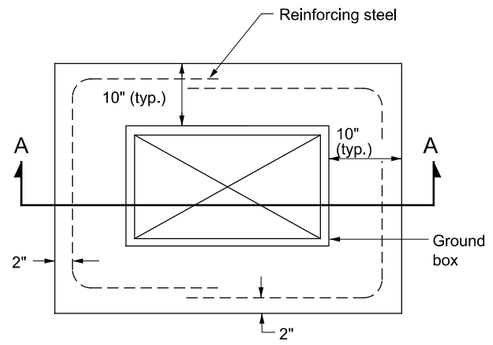
1. Ensure conduit entry will not interfere with placement of the batteries in the battery box.

2. Before setting battery box and after placing and capping conduits, lay an aggregate bed a minimum of 9 in. deep that extends 10 in. beyond the sides of the box. Provide coarse aggregate size 3/4 in. to 2 in., with no more than 20% material passing through a no. 8 sieve, and as defined by the current ASTM C33/33M standard. Clean aggregate and dirt from conduits according to Item 618.

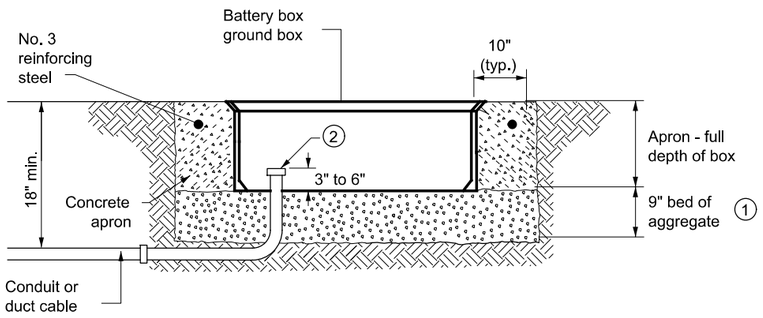
3. Cast battery box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Battery box ground box aprons, including concrete and reinforcing steel, are subsidiary to battery box ground boxes when called for by descriptive code.

4. Bolt covers down when not working in battery box ground boxes. Keep bolt holes in the box clear of dirt.

APRON FOR BATTERY BOX GROUND BOXES



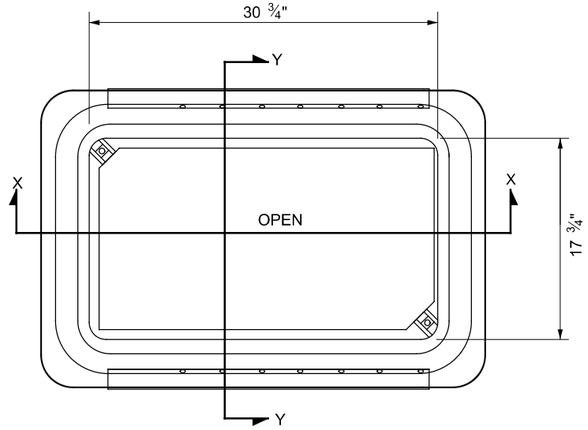
PLAN VIEW



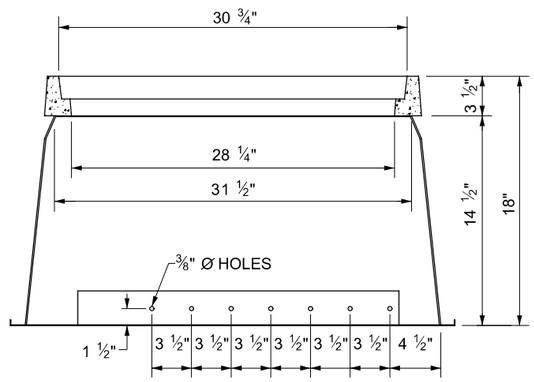
SECTION A - A

1. Place aggregate under the box and not in the box. Aggregate should not encroach on the interior volume of the box.
2. Install bushing or bell end fitting on ends of all conduit entering the box.

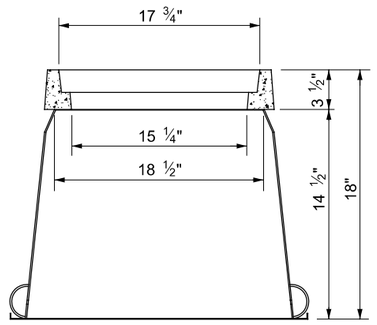
BATTERY BOX TOP VIEW

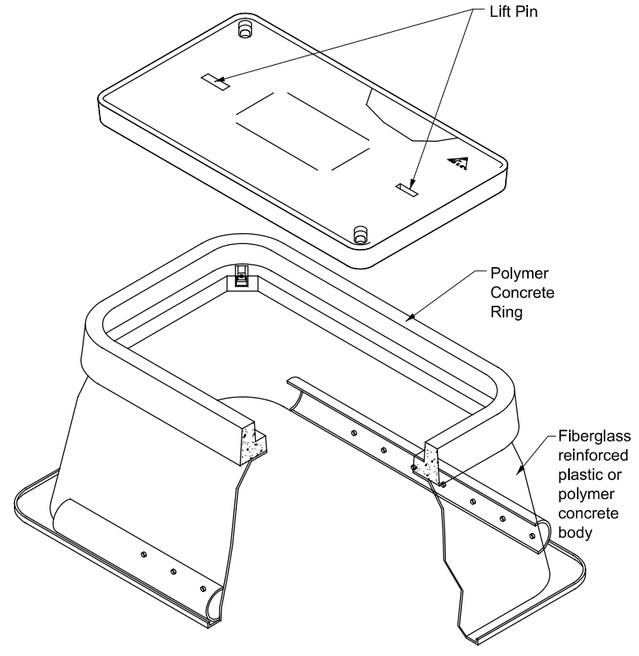


SECTION X-X



SECTION Y-Y





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Traffic Safety Division Standard

ELECTRICAL DETAILS
BATTERY BOX GROUND BOXES
ED(12)-25

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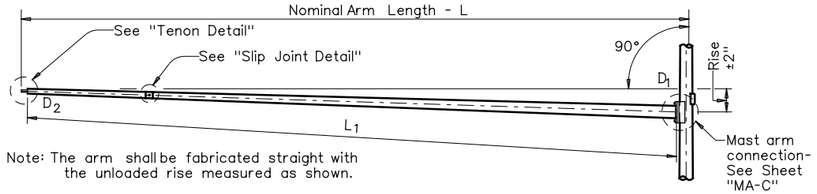
Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
32	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
36	12.0	9.3	8.6	7.8	.239	12.5	9.5	8.7	7.8	.239	36-A
40	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
44	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1'-9"	19.1	7.0	3.5	.179	1'-8"
24	23.1	7.5	4.3	.179	1'-10"	23.1	7.5	3.5	.179	1'-9"
28	27.1	8.0	4.2	.179	1'-11"	27.1	8.0	3.5	.179	1'-10"
32	31.0	9.0	4.7	.179	2'-1"	31.0	9.0	3.5	.179	2'-0"
36	35.0	9.5	4.6	.179	2'-4"	35.0	10.0	3.5	.179	2'-1"
40	39.0	9.5	4.1	.239	2'-8"	39.0	9.5	3.5	.239	2'-3"
44	43.0	10.0	4.1	.239	2'-11"	43.0	10.0	3.5	.239	2'-6"
48	47.0	10.5	4.1	.239	3'-4"	47.0	11.0	3.5	.239	2'-9"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)

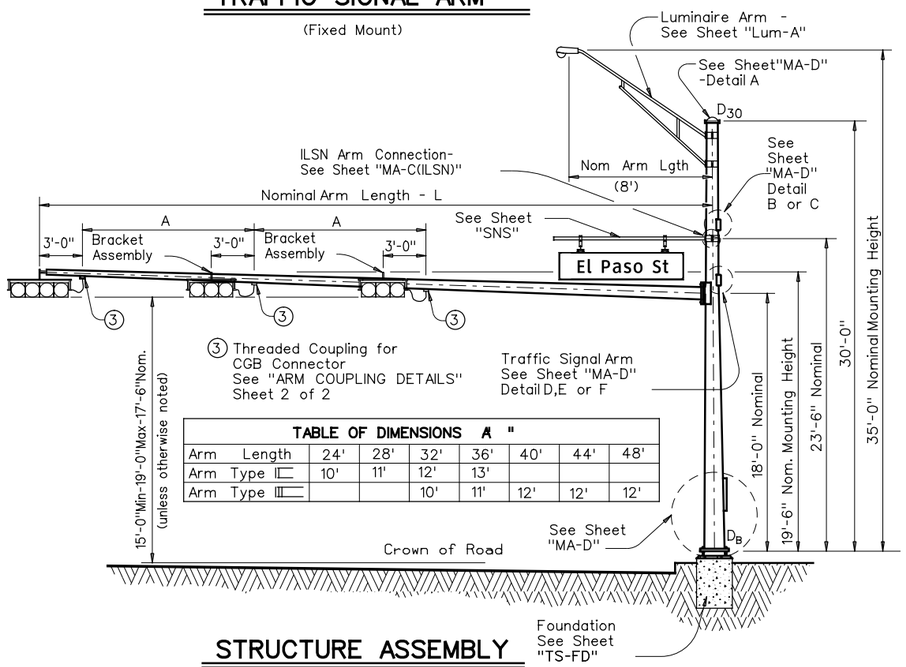


TABLE OF DIMENSIONS A "

Arm Length	24'	28'	32'	36'	40'	44'	48'
Arm Type ⊏	10'	11'	12'	13'			
Arm Type ⊏⊐			10'	11'	12'	12'	12'

STRUCTURE ASSEMBLY

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30' Poles With Luminaire		24' Poles With ILSN		19' Poles With No Luminaire and No ILSN	
	Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80		20S-80		20-80	
24	24L-80		24S-80		24-80	
28	28L-80		28S-80		28-80	
32	32L-80	2	32S-80		32-80	
36	36L-80		36S-80		36-80	
40	40L-80		40S-80		40-80	
44	44L-80	1	44S-80		44-80	
48	48L-80		48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80	1	28II-80			
32			32II-80	2	32III-80	
36			36II-80		36III-80	
40					40III-80	
44					44III-80	1
48					48III-80	

Luminaire Arms (1 per 30' pole)

Nominal Arm Length	Quantity
8' Arm	2

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7' Arm	
9' Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3'-4"	1
1 ¾"	3'-10"	2

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

SHEET 1 OF 2

STATE OF TEXAS
ERIK R. HANSEN
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LICENSED PROFESSIONAL ENGINEER
10/23/2025

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY (80 MPH WIND ZONE)

SMA-80(1)-12

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122A

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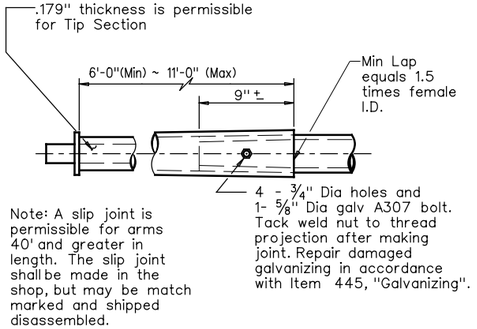
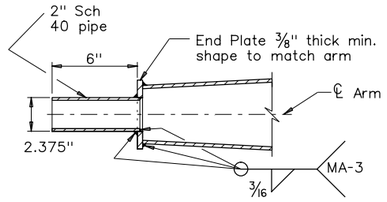


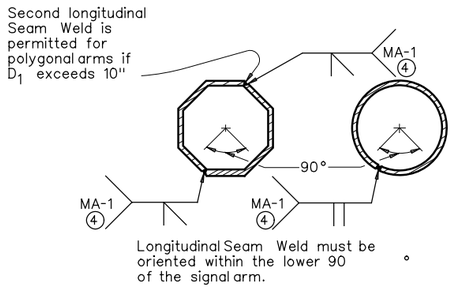
SLIP JOINT DETAIL



TENON DETAIL

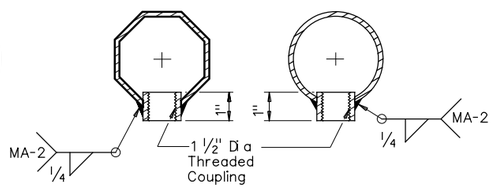
Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY



ARM WELD DETAIL

④ 60% Min. penetration 100% pemetration within 6" of circumferential base welds.



ARM COUPLING DETAILS

VIBRATION WARNING

Mast Arms of SMA and DMA structures and clamp-on Arms of LMA structures of approximately 40 ft or longer are subject to harmonic vertical vibrations in light wind conditions due to the aeroelastic characteristics of a few of the myriads of possible combinations of the following: signal numbers, weights and positions; existence/solidity of backplates; presence of additional attachments to the arm, such as signs and cameras; arm-wind orientation; and arm-pole stiffness.

Such vibrations may cause fatigue damage to the structure and may lead to galloping in moderate wind conditions which may further damage the structure and alarm the public. Tests have indicated that when wind is blowing toward the back side of signal heads having un-vented backplates attached the probability of unacceptable harmonic vibration and/or galloping is rather high.

If backplates are not required for improved visibility they should not be applied to the signal heads or, if they must be applied, they should be vented as a first and inexpensive measure to mitigate vibrations.

The traffic signal mast arms shall be visually inspected in 5 to 20 mph wind conditions after installation of signal heads and any attachments, including any required backpates. If vertical movements with a total excursion (maximum upward excursion to maximum downward excursion) of more than approximately 8" are observed at the arm tip, a damping plate shall be fitted to the arm. See "Damping Plate Mounting Details" on standard sheet, MA-DPD-10.

This visual inspection shall be repeated after each modification of the structure that could affect its aeroelastic response. Excessive vibrations shall not be allowed to continue for more than two days.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor.

Poles are designed to support one 8'-0" luminaire arm, one 9'-0" internally lighted street name sign and one traffic signal arm with a length as tabulated. The specified luminaire load applied at the end of the luminaire arm equals 60 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.6 sq ft. The specified internally lighted street name sign load applied 4.5 ft from the centerline of the pole equals 85 lbs vertical dead load plus horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

See Standard Sheet "MA-D" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
SINGLE MAST ARM ASSEMBLY
(80 MPH WIND ZONE)
SMA-80(2)-12

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FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft 4 5 6			ANCHOR BOLT DESIGN (1)				FOUNDATION DESIGN LOAD (2)		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	3/4"	36	12 3/4"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 1/2"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 3/4"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 1/4"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

NOTES:

(1) Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

(2) Foundation Design Loads are the allowable moments and shears at the base of the structure.

(3) Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

(4) Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

(5) If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

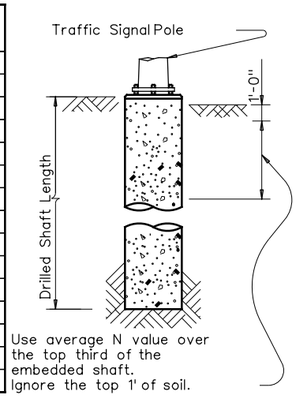
(6) Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

FOUNDATION SUMMARY TABLE (3)

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH (FEET) (6)				
				24-A	30-A	36-A	36-B	42-A
SUNSET RIDGE								
POLE 1		36-A	1			13.2		
POLE 3		36-A	1			13.2		
HS DRIVEWAY								
POLE 2		30-A	1		11.3			
TOTAL DRILLED SHAFT LENGTHS					11.3	26.4		

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'



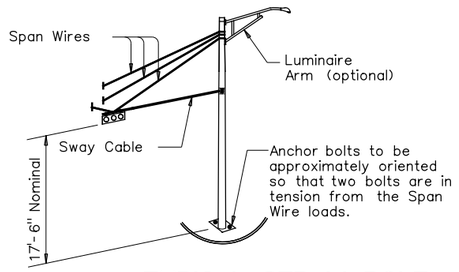
Use average N value over the top third of the embedded shaft. Ignore the top 1' of soil.

ANCHOR BOLT & TEMPLATE SIZES

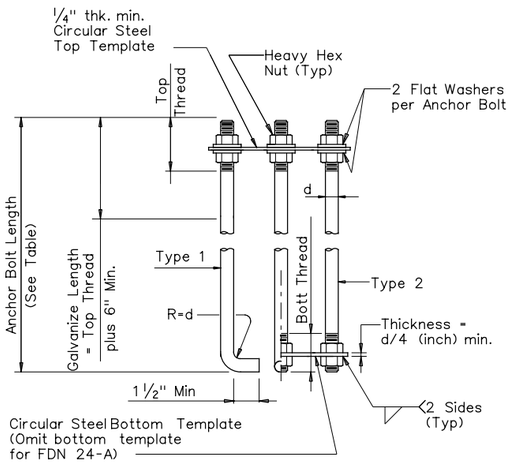
BOLT DIA IN.	(7) BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
3/4"	1'-6"	3"	—	12 3/4"	7 1/8"	5 5/8"
1 1/2"	3'-4"	6"	4"	17"	10"	7"
1 3/4"	3'-10"	7"	4 1/2"	19"	11 1/4"	7 3/4"
2"	4'-3"	8"	5"	21"	12 1/2"	8 1/2"
2 1/4"	4'-9"	9"	5 1/2"	23"	13 3/4"	9 1/4"

(7) Min dimensions given, longer bolts are acceptable.

EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.



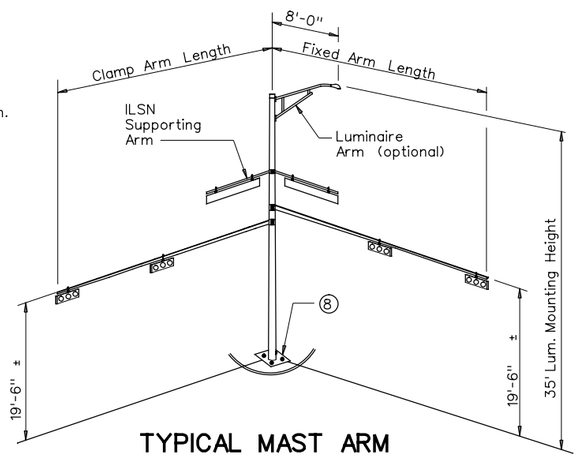
TYPICAL STRAIN POLE ASSEMBLY



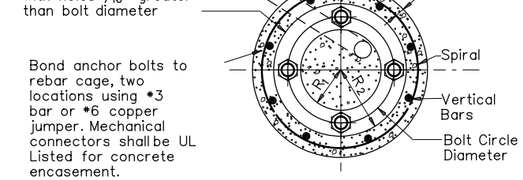
HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

ANCHOR BOLT ASSEMBLY

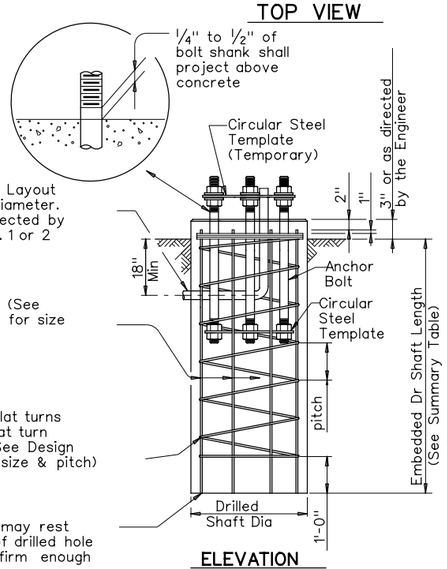
(8) Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



TYPICAL MAST ARM ASSEMBLY



TOP VIEW



ELEVATION

FOUNDATION DETAILS

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

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Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

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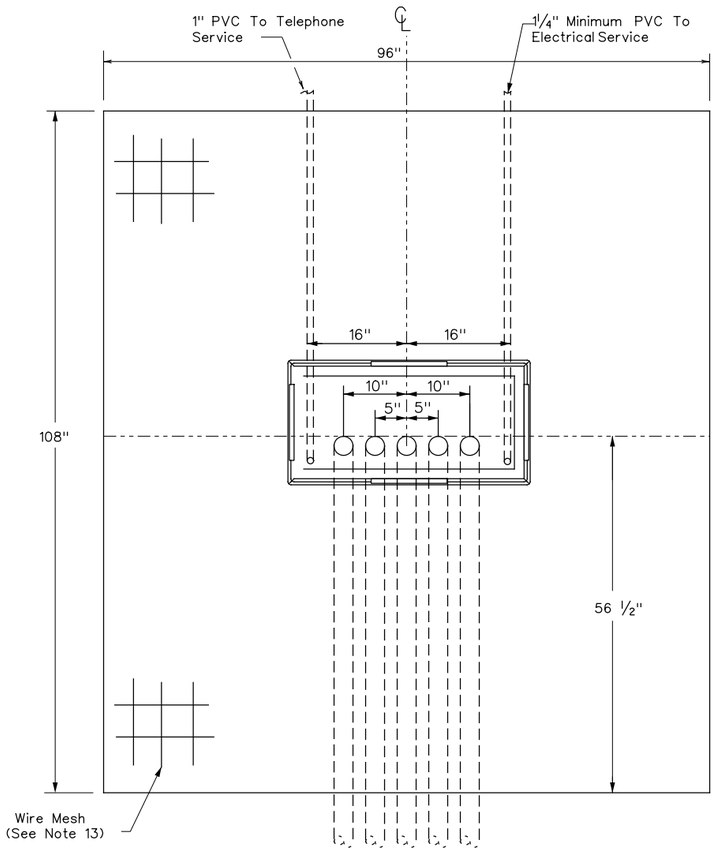
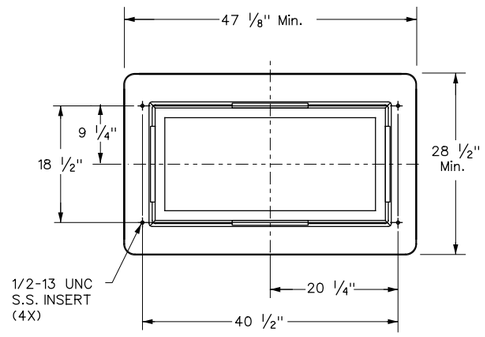
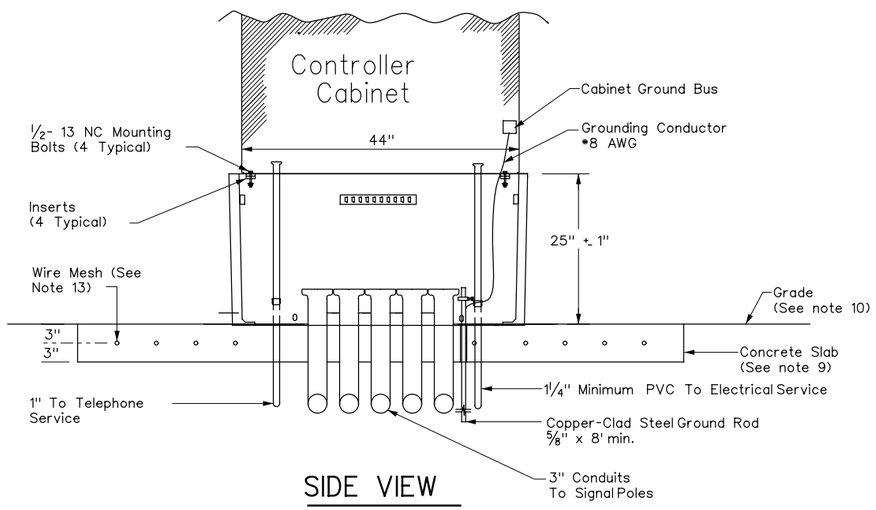


TOP VIEW



CABINET BASE



SIDE VIEW

TRAFFIC SIGNAL CONTROLLER BASE:

1. Provide a traffic signal controller base (cabinet base) manufactured of polymer concrete material consisting of calcareous and siliceous stone; glass fibers and thermoset polyester resin. The polymer concrete cabinet base must be reinforced on the inside of the cabinet base with fiberglass matting. Provide one of the following bases: Armorcast Part # A6001848X24, Quazite Model # PG3048Z709, or other as approved by TxDOT Traffic Safety Division.

2. The polymer concrete material must have a minimum compressive strength of 10,300 pounds per square inch (psi), minimum flexural strength of 3600 psi, and minimum shear strength of 3600 psi.

3. The polymer concrete cabinet base must conform to the dimensions shown and must accommodate a standard TxDOT basemount cabinet.

4. Supply the cabinet base with four 1#2"-13 UNC stainless steel inserts for attachment of the cabinet to the base. Inserts must withstand a minimum torque of 50 ft-lb and a minimum straight pull out strength of 750 lbs.

5. Provide the cabinet base with 4 cable racks mounted one on each side of the base 2" to 7 " from the top edge of the base. Unless approved otherwise, cable racks must be 1-1/2 x 9#16x 3#16inch steel channel with eight T-slots spaced at 1-1/2 inches. The cable racks must easily accommodate the insertion of tie wraps to attach field wiring to the racks to serve as strain relief. Secure cable racks to the base using 1#2"-13 UNC stainless steel screws and inserts.

6. The cabinet base, when secured to the concrete slab with controller cabinet attached, must withstand a minimum wind load of 125 mph or a 850 lb force applied at 49" above the bottom of the base without causing the base or cabinet to come out of their anchored position or cause any permanent deformation. The manufacturer must supply certification by an independent testing laboratory or sealed by a Texas Licensed Professional Engineer. Provide the cabinet base with hardware for attachment to a concrete slab.

7. The traffic signal base must be permanently marked either by impress or by permanent ink with the manufacturer's model number and name or logo.

8. Seal the base to the concrete with a silicone caulk bead and fastened to the slab per manufacturer's instructions.

CONCRETE SLAB:

9. Traffic signal controller pad must be a portland cement concrete slab poured in place, must conform to the dimensions shown, and must be level.

10. Grade earthwork such that it is flush with the concrete pad on all four sides, unless otherwise shown on the plans. Subsidiary to ITEM 680, four inch rip rap may be used in lieu of earthwork. Slopes shall gradually contour to match plans.

11. Bond a #8 AWG copper ground wire and an 8 ft ground rod bonded to the reinforcing mesh by a suitable UL Listed clamp and terminated to the cabinet grounding bus for the purpose of providing a local ground for the electrical grounding conductor. The electrical grounding conductor specified in Item 680-3.A.4 is required and must be terminated to the cabinet ground bus.

12. Install a PVC sleeve to prevent the ground rod from direct embedment in the slab.

13. Provide welded wire mesh 6X6-W2.9 X W2.9 for reinforcement. Provide joints and splices in the mesh with a minimum 6-inch overlap. Center the mesh between top and bottom and provide a minimum 3 inch cover on the edges.

14. Provide Class B concrete minimum for the slab in accordance with Item 421. Construct the slab in accordance with Item 531.

CONDUITS:

15. Stub up and run 3-inch conduits through the slab to the various traffic signal poles and ground boxes as shown on the layouts. Install the number of conduits as shown on layouts plus two additional 3 inch conduits for future use. Terminate the conduits with a bushing between 2 and 4-inches above the slab.

16. Extend conduits for future use at least 18-inches from the edge of the slab, terminate underground with a coupling, and cap and seal so that the seal can be removed without damaging the coupling. This must also apply to unused telephone conduit.

17. Stub up two separate conduits through the slab from the electrical and telephone services. Run the conduit for the electrical feed directly to the electrical service enclosure. Run the conduit for the telephone line directly to the telephone service, usually located on the same pole as the electrical service. Telephone must not under any circumstance share a conduit with any other function.

18. Terminate electric and telephone conduits above the slab with a coupling. After the base is installed, extend the conduits above the top of the base and secure to the base using a steel one-hole strap or similar suitable substitute.

CONTROLLER CABINET:

19. Anchor the controller cabinet to the base using four stainless steel 1/2-13 NC bolts.

20. The silicone caulk bead specified in Item 680.3.B must be RTV 133.

PAYMENT:

21. Bid TS-CF as subsidiary to Item 680.

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC SIGNAL CONTROLLER CABINET BASE AND PAD

TS-CF-21

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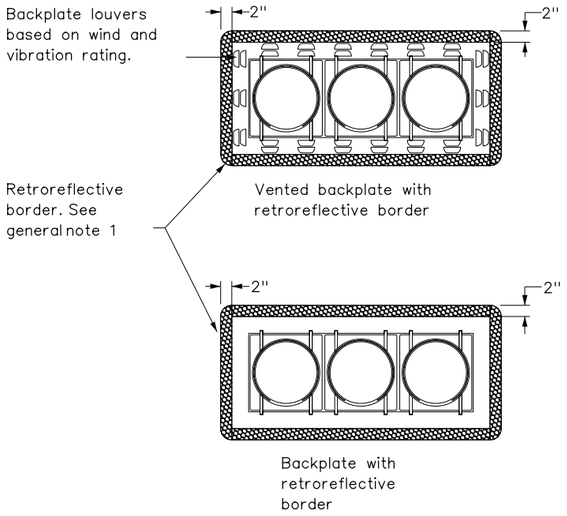

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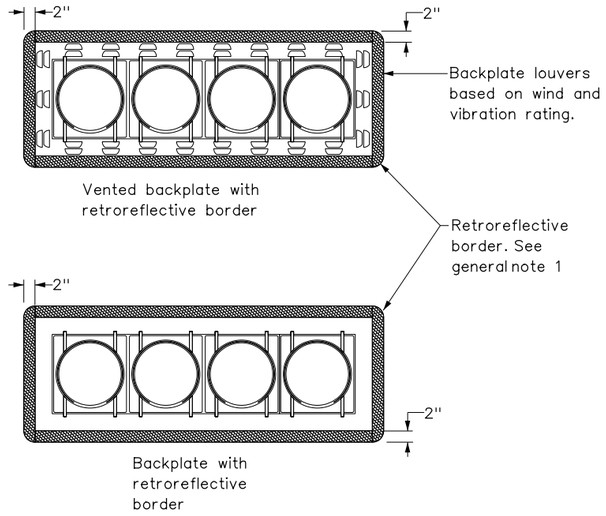

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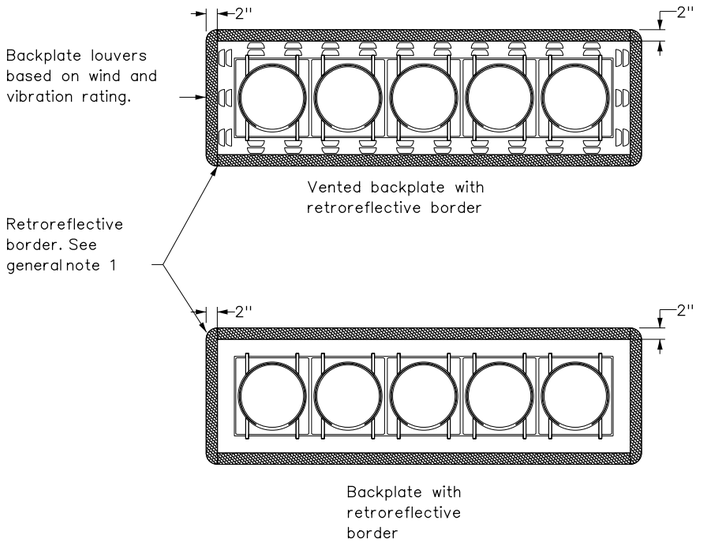
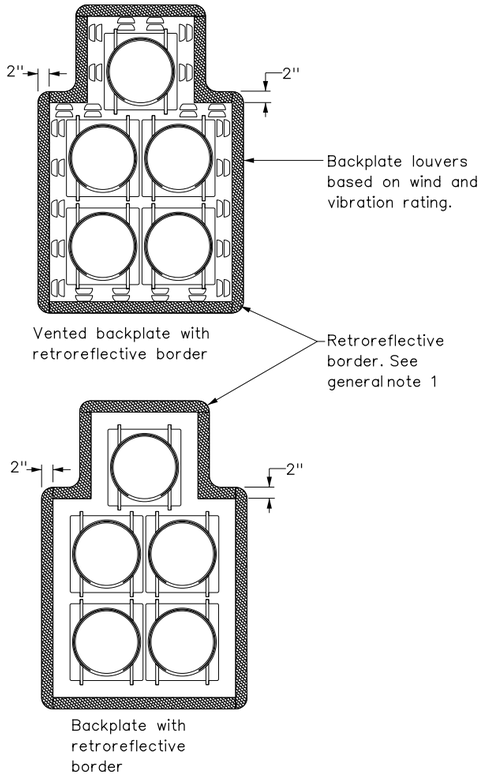
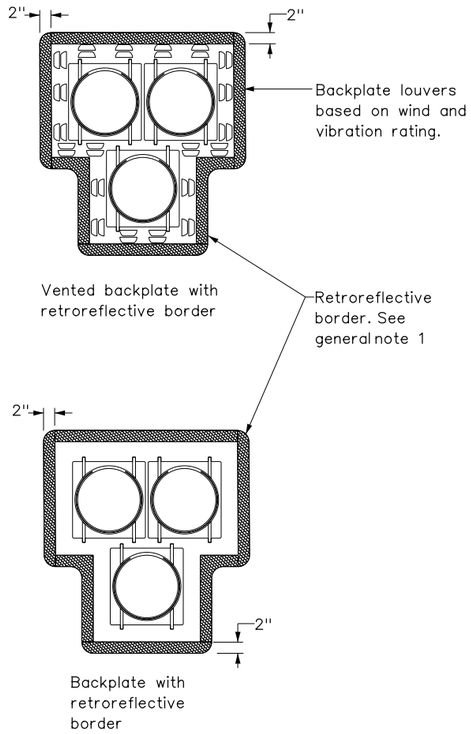


FIVE-SECTION HEAD
HORIZONTAL OR VERTICAL



FIVE-SECTION HEAD
CLUSTER



PEDESTRIAN HYBRID
BEACON

GENERAL NOTES:

1. Backplates are optional for traffic signals and pedestrian hybrid beacons. When backplates are used, a 2-inch wide fluorescent yellow AASHTO Type B or C_L or C_{RL} retroreflective border conforming to TxDOT DMS-8300 is required. Place on all approaches when used.
2. Signal head and backplate compatability must be verified by the contractor prior to installation.
3. When using backplates on signal heads, venting is preferred to reduce cyclic vibration stress.
4. When a vented backplate is used, the retroreflective border must not be placed over the louvers.
5. This standard sheet applies to all signal heads with backplates, including but not limited to:
   - Pole mounted
   - Overhead mounted
   - Span wire mounted
   - Mast arm mounted
   - Vertical signal heads
   - Horizontal signal heads
   - Clustered signal heads
   - Pedestrian hybrid beacons

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC SIGNAL HEAD WITH BACKPLATE
TS-BP-20

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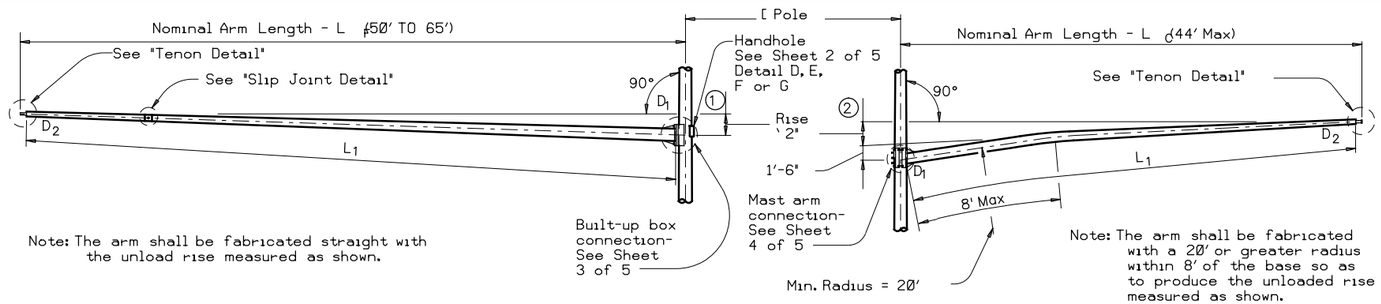
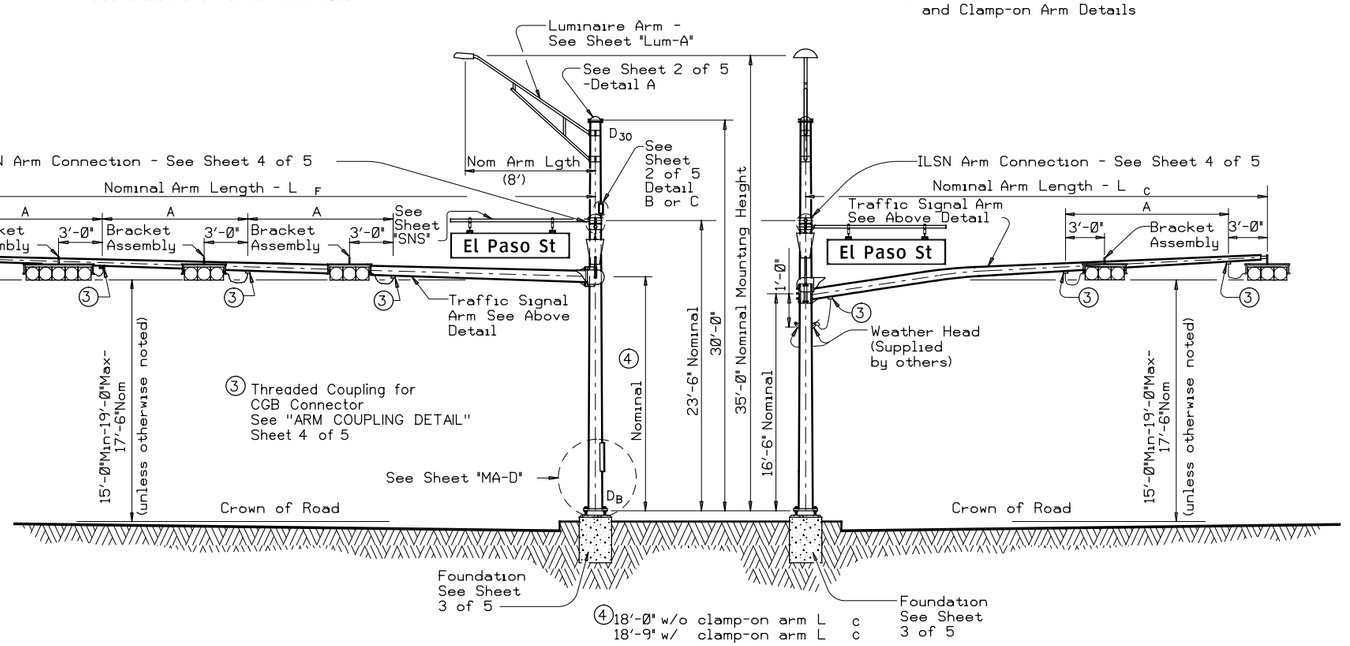


FIXED MOUNT TRAFFIC SIGNAL ARM

①See Sheet 3 of 5 for Arm Rise

CLAMP-ON TRAFFIC SIGNAL ARM (IF REQUIRED)

②See Sheet 4 of 5 for Arm Rise and Clamp-on Arm Details

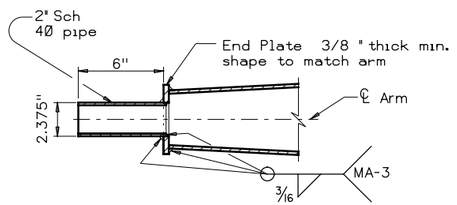


ELEVATION
(Showing fixed mount arm)

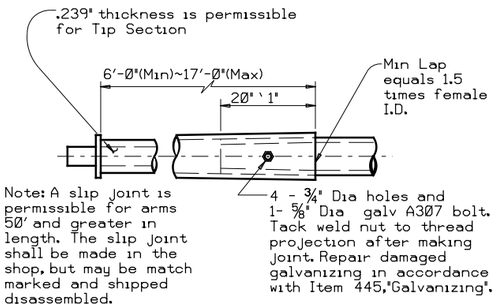
STRUCTURE ASSEMBLY

ELEVATION
(Showing clamp-on arm)

TABLE OF DIMENSIONS 'A'										
Arm Length	24'	28'	32'	36'	40'	44'	50'	55'	60'	65'
Arm Type II	10'	11'	12'	13'						
Arm Type III			10'	11'	12'	12'				
Arm Type IV							12'	12'	12'	12'



TENON DETAIL



Note: A slip joint is permissible for arms 50' and greater in length. The slip joint shall be made in the shop, but may be match marked and shipped disassembled.

SLIP JOINT DETAIL(FIXED MOUNT ARM)

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed can be either 100 mph or 80 mph plus a 1.3 gust factor. If clamp-on traffic signal is required, designs are based on an arm included angle of 90 degrees or more. Angles of less than approximately 75 degrees will require a special design.

Poles are designed to support one 8'-Ø" luminaire arm, two 9'-Ø" internally lighted street name (ILSN) signs and two traffic signal arms with limited length combinations.

Each arm with its related attachment is shown below

Arm	Equivalent DL ⑤	WL EPA ⑤⑥
8' Luminaire Arm	Luminaire 60 lbs	1.6 sq ft
9' ILSN Arm	Sign 85 lbs	11.5 sq ft
50' to 65' Fixed Mount Arm	Signal Loads 310 lbs	52 sq ft
Up to 44' Clamp-on Arm	Signal Loads 180 lbs	32.4 sq ft

⑤ Equivalent dead load plus horizontal wind load applied at the end of arm except ILSN arm, which applied 4.5' from the centerline of the pole.

⑥ Effective projected area (actual area times drag coefficient) for the application of horizontal wind load.

Except as noted in Sheet 1 thru 5 of 5, other details not covered shall refer to Standard Sheet "MA-D" for pole details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Material, fabrication tolerances, and shipping practices shall also meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing" after fabrication.

Deviations from the details and dimensions shown herein require submission of shop drawings in accordance with the Item 441, "Steel Structures". Alternate designs are not acceptable.

Installation of damping plate for the long mast arm is not recommended.

Provision of the bracket assembly used to support the traffic signal heads shall be under the direction of the Engineer for approval.

Design also conforms to NCHRP Report 412 for fatigue resistance except that there are no stiffeners at the base plate. TxDOT is conducting tests to determine if stiffeners at the base plate will or will not result in optimal performance; depending upon the results of the tests, poles may need a retrofit to ensure optimal fatigue performance.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)
LMA(1)-12

Sheet 1 of 5

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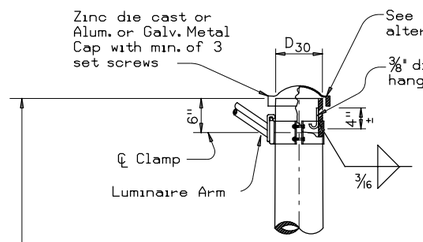
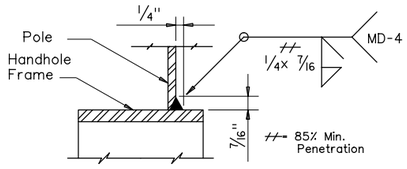
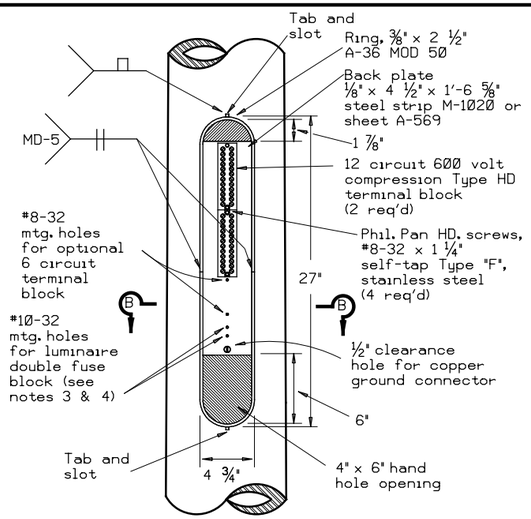


DETAIL A

(for pole with luminaire)



DETAIL H

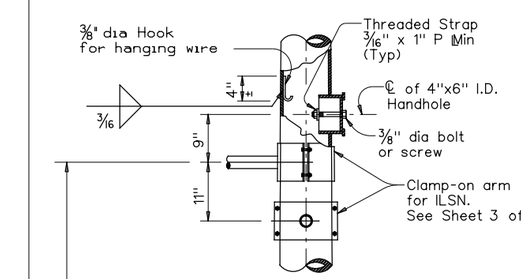


ACCESS COMPARTMENT

MATERIALS	
Round Shafts or Polygonal Shafts (7)	ASTM A595 Gr.A, A588, A1008 HSLAS Gr.50 Class 2, A1011 HSLAS Gr.50 Class 2, A572 Gr.50 or A1011 SS Gr.50 (8)
Plates (7)	ASTM A36, A588, or A572 Gr.50
Connection Bolts	ASTM A325, or A449 except where noted
Pin Bolts	ASTM A325
Pipe (7)	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50, A1011 HSLAS-F Gr.50
Misc. Hardware	Galvanized steel or stainless steel or as noted

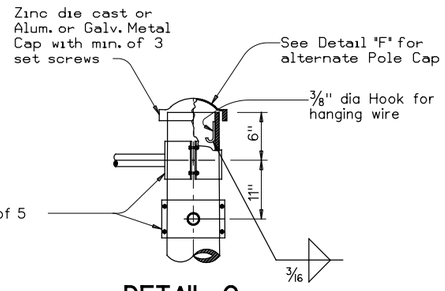
(7) ASTM A572, A1008 HSLAS, A1011 HSLAS, A1008 HSLAS-F, A1011 HSLAS-F, or A1011 SS may have higher yield strengths but shall not have less elongation than the grade indicated.

(8) ASTM A1011 SS Gr.50 shall also have a minimum elongation of 18 percent in 8 inches or 23 percent in 2 inches. Material thickness in excess of those stipulated under A1011 SS will be acceptable providing the material meets all other A1011 SS requirements and the requirements of this item.

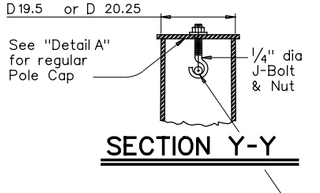


DETAIL B

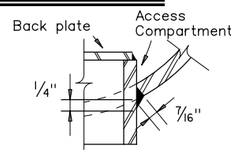
(If ILSN applied)



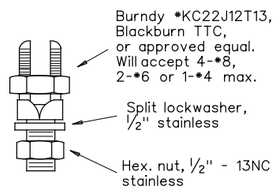
DETAIL C



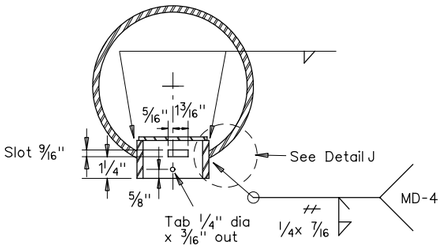
SECTION Y-Y



DETAIL J



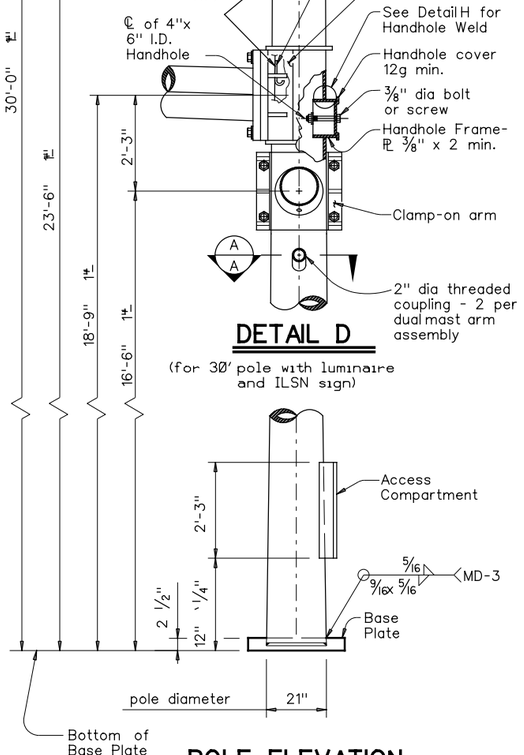
COPPER GROUND CONNECTOR



SECTION B-B

85% Min. Penetration

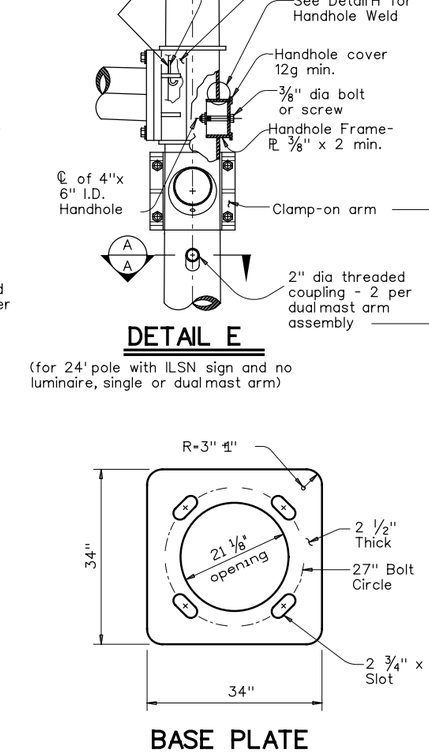
Opening for access compartment shall be no more than 1/16 inch wider than the access compartment itself.



DETAIL D

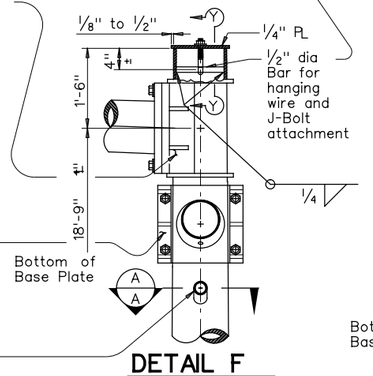
(for 30' pole with luminaire and ILSN sign)

POLE ELEVATION



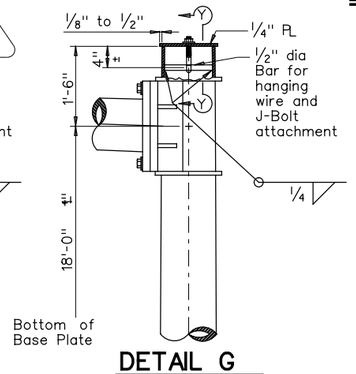
DETAIL E

(for 24' pole with ILSN sign and no luminaire, single or dual mast arm)



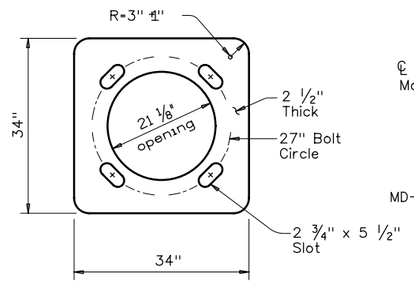
DETAIL F

(for 20.25' pole with no ILSN sign and no luminaire, dual mast arm)

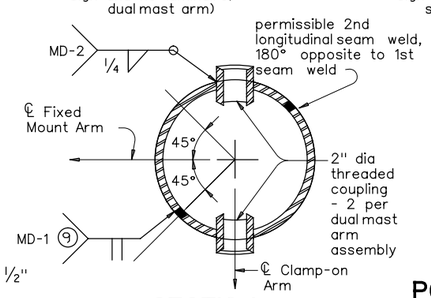


DETAIL G

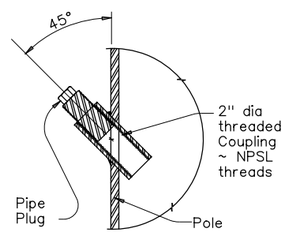
(for 19.5' pole with no ILSN sign and no luminaire, single mast arm)



BASE PLATE



SECTION A-A



POLE COUPLING DETAIL

(9) Longitudinal seam weld must be oriented within 90° (45° rotation each side) along the fixed mount arm. 60% min penetration required, 100% penetration within 6" of circumferential base weld.

ACCESS COMPARTMENT NOTES:

1. The cover shall be one piece formed from ABS plastic, shall be a pearl gray color, and shall be suitable for exposure to harsh sunlight and extreme weather. Cover shall latch with two screw latches and shall fit tightly to the enclosure ring to create a rainproof seal. Latch screws shall be 1/4-20 stainless flat socket head screws with tamper proof feature.
2. The pole manufacturer shall provide with each pole a separate kit consisting of: one cover with two latching assemblies, two terminal strips (Marathon #985GP12CU or approved equal), four #8-32 x 1 1/4" self tapping type "F" stainless steel pan head screws, and one ground connector (Blackburn TTC, Burndy KC22J12T13, or Ilsco SSS-5). The traffic signal contractor shall install the kit items in the field.
3. The screw hole spacing on the enclosure back plate shall be for two Marathon #985GP12 terminal strips, one Marathon #985GP06CU terminal strip, and one Bussmann #BM6032B fuse block.
4. Install one Bussmann #BM6032B, Littelfuse #L60030M-2C, or Ferraz-Shawmut #30352 fuse block for poles where luminaires are to be installed.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)
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Sheet 2 of 5

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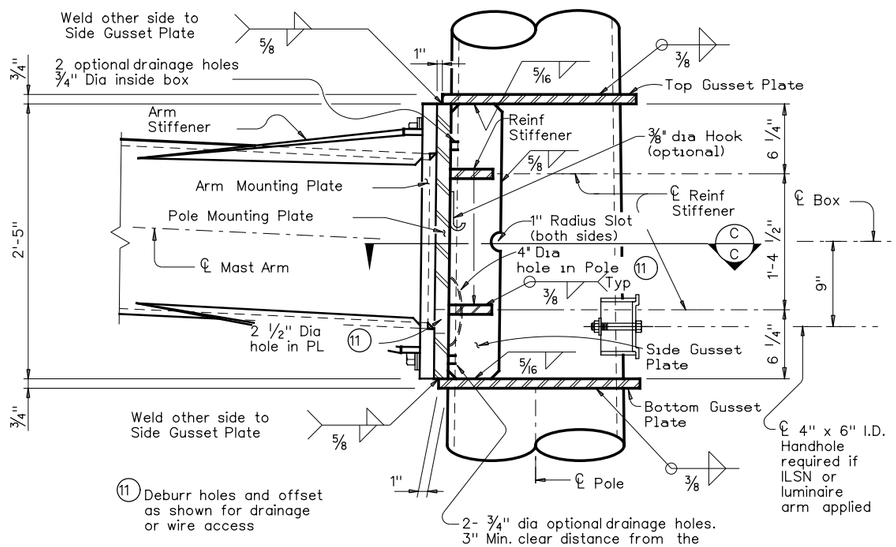
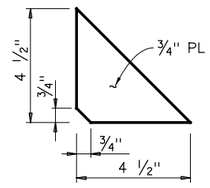
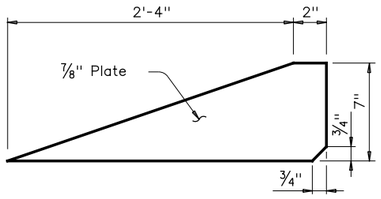


BUILT-UP BOX CONNECTION



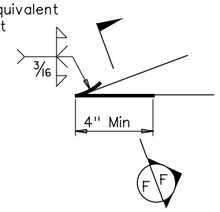
REINFORCING STIFFENER



ARM STIFFENER

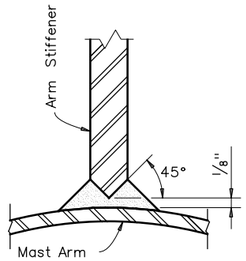
(Cut to match arm inclination and taper)

Provide Detail shown in SECTION F-F or equivalent 100% complete joint penetration weld from both sides.



Only 4" length at tip of Arm Stiffener requires a complete joint penetration weld. Smooth weld radius to connect Stiffener. Only a fillet weld is required for the remaining weld length.

DETAIL "K"



SECTION F-F

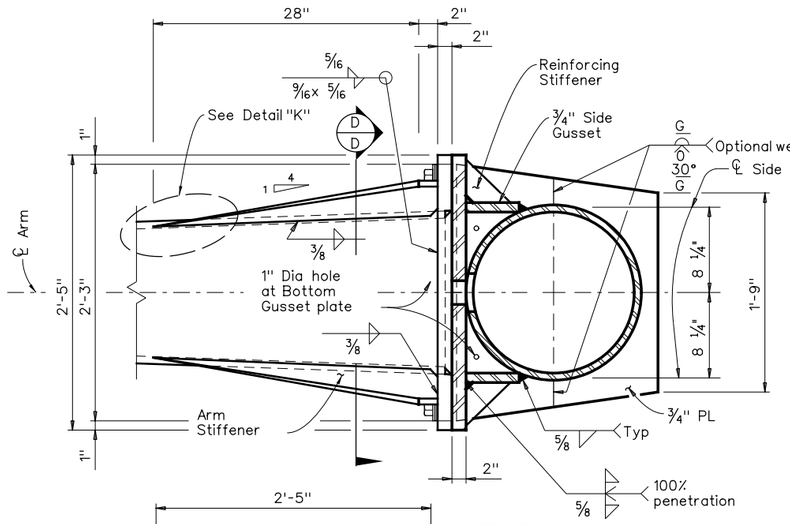
Fixed Mount Arm LF	ROUND POLES (13)					Foundation Type
	D_B	$D_{19.5}$ or $D_{20.25}$	D_{24}	D_{30}	(12) thk	
ft.	in.	in.	in.	in.	in.	
50',55' 60',65'	21.0	18.2	17.6	16.8	.3125	48-A

Fixed Mount Arm LF	ROUND ARMS (13)				
	L_1	D_1	D_2	(12) thk	Rise
ft.	ft.	in.	in.	in.	
50	49	18.5	11.7	.3125	3'- 3"
55	54	18.5	11.0	.3125	3'- 7"
60	59	18.5	10.3	.3125	3'-11"
65	64	18.5	9.6	.3125	4'- 4"

D_B = Pole Base O.D.
$D_{19.5}$ = Pole Top O.D. with no Luminaire and no ILSN (single mast arm)
$D_{20.25}$ = Pole Top O.D. with no Luminaire and no ILSN (dual mast arm)
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L_F = Fixed Arm Length

(12) Thickness shown is minimum, thicker materials may be used.

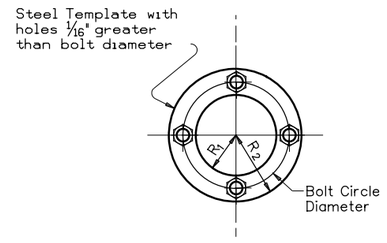
(13) Shaft profile 16-sided or 18-sided is considered to be equivalent to round section.



SECTION C-C

NUT ANCHOR (TYPE 2)

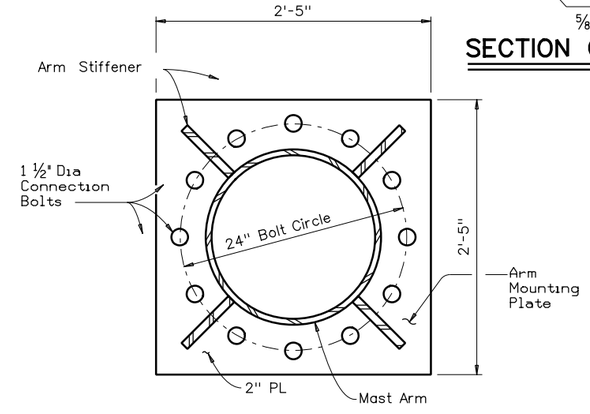
ANCHOR BOLT ASSEMBLY



TEMPLATE DETAIL

ANCHOR BOLT & TEMPLATE SIZE						
Bolt Dia in.	Length ǂ	Top Thread	Bottom Thread	Bolt Circle	R_2	R_1
2 1/2"	5'-2"	10"	6 1/2"	27"	16"	11"

ǂ Min dimension given, longer bolts are acceptable.



SECTION D-D

FOUNDATION DESIGN TABLE													
FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		DRILLED SHAFT LENGTH-ft (16), (17), (18)			ANCHOR BOLT DESIGN (14)				FOUNDATION DESIGN LOAD (15)		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
48-A	48"	20 #9	#4 at 6"	21.9	19.5	14.7	2 1/2"	55	27"	2	490	10	50' to 65' Mast arm assembly.

SEE SHEET "TS-FD" FOR ADDITIONAL DETAILS.

(14) Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

(15) Foundation Design Loads are the allowable moments and shears at the base of the structure.

(16) Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

(17) If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

(18) Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

GENERAL NOTES:

Built-up Box Connection: For the welded arm-to-pole connection as a build-up box configuration illustrated here is an example only, fabricators are required to submit a shop drawing of box connection for approval. The drawing shall specify the details of each box element, welds of arm-to-pole connection, arm-to-plate socket connection, and arm rise creation. Specify the proper location of drain holes along the pole. 2 1/2" dia hole in the pole mounting plate and 4" dia hole in the pole need to be aligned for wiring access or drainage. Arm stiffeners cut to match arm inclination and taper shall also be included.

The deviation from flat for either arm or pole mounting plate shall not exceed 3/32in., which is measured along the center of mounting plate to a radial distance of 13.5 in. The deformed-from-flat connection between arm and pole mounting plates shall not be allowed if the center of both mounting plates cannot contact directly.

Fixed mount details are used for single mast arm assemblies and for the first arm on dual mast arm assemblies.

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TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)

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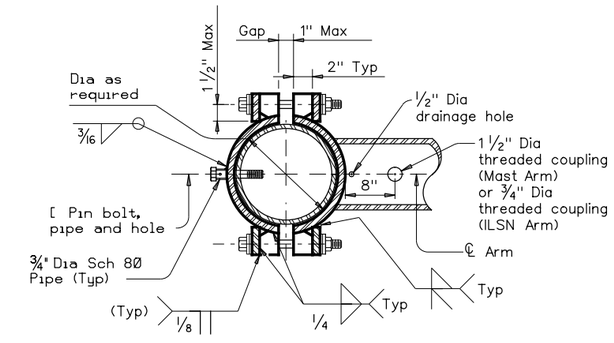
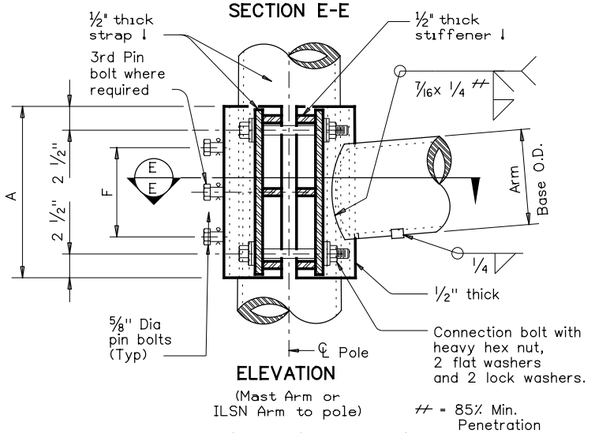


SECTION E-E



ELEVATION
(Mast Arm or ILSN Arm to pole)

⁄⁄ = 85% Min. Penetration

CLAMP-ON CONNECTION

80 MPH WIND

Clamp-on Arm LC	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	thk (12)	Rise	L_1	D_1	D_2	thk (12)	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1'-9"	19.1	7.0	3.5	.179	1'-8"
24	23.1	7.5	4.3	.179	1'-10"	23.1	7.5	3.5	.179	1'-9"
28	27.1	8.0	4.2	.179	1'-11"	27.1	8.0	3.5	.179	1'-10"
32	31.0	9.0	4.7	.179	2'-1"	31.0	9.0	3.5	.179	2'-0"
36	35.0	9.5	4.6	.179	2'-4"	35.0	10.0	3.5	.179	2'-1"
40	39.0	9.5	4.1	.239	2'-8"	39.0	9.5	3.5	.239	2'-3"
44	43.0	10.0	4.1	.239	2'-11"	43.0	10.0	3.5	.239	2'-6"

100 MPH WIND

Clamp-on Arm LC	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	thk (12)	Rise	L_1	D_1	D_2	thk (12)	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	8.0	5.3	.179	1'-8"	19.1	8.0	3.5	.179	1'-7"
24	23.1	9.0	5.8	.179	1'-9"	23.1	9.0	3.5	.179	1'-8"
28	27.1	9.5	5.7	.179	1'-10"	27.1	10.0	3.5	.179	1'-9"
32	31.0	9.5	5.2	.239	1'-11"	31.0	9.5	3.5	.239	1'-10"
36	35.0	10.0	5.1	.239	2'-0"	35.0	10.0	3.5	.239	1'-11"
40	39.0	10.5	5.1	.239	2'-3"	39.0	11.0	3.5	.239	2'-1"
44	43.0	11.0	5.1	.239	2'-8"	43.0	11.5	4.0	.239	2'-3"

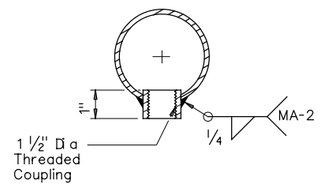
D1 = Arm Base O.D.
D2 = Arm End O.D.
L1 = Shaft Length
LC = Clamp-on Arm Length

(12) Thickness shown is minimum, thicker materials may be used.

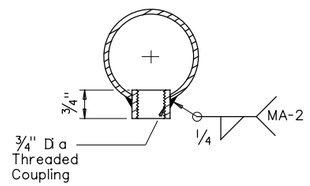
CLAMP-ON ARM CONNECTION

ILSN Arm Size		A	F	4 Conn. Bolts	5/8" Dia. Pin Bolts
Sch 40 pipe Dia	Thick			Dia	No.
in.	in.	in.	in.	in.	ea
3	.216	10	4	¾	2

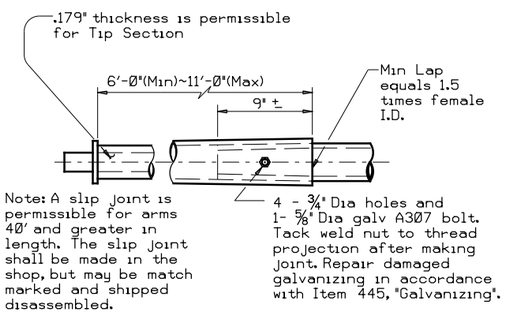
Mast Arm Size		A	F	4 Conn. Bolts	5/8" Dia. Pin Bolts
Base Dia	Thick			Dia	No.
in.	in.	in.	in.	in.	ea
6.5	.179	12	6	1	2
7.5	.179	14	8	1	2
8.0	.179	14	8	1	2
9.0	.179	16	10	1	2
9.5	.179	18	12	1 ¼	3
9.5	.239	18	12	1 ¼	3
10.0	.239	18	12	1 ¼	3
10.5	.239	18	12	1 ¼	3
11.0	.239	18	12	1 ¼	3
11.5	.239	18	12	1 ¼	3



ARM COUPLING DETAIL



ILSN ARM COUPLING DETAIL

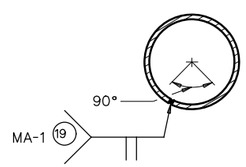


Note: A slip joint is permissible for arms 40' and greater in length. The slip joint shall be made in the shop, but may be match marked and shipped disassembled.

SLIP JOINT DETAIL(CLAMP-ON ARM)

Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY



ARM WELD DETAIL

(19) Longitudinal Seam Weld must be oriented within the lower 90° of the signal arm.
60% Min penetration
100% penetration within 6" of circumferential base welds.

GENERAL NOTES:

Clamp-on details are used for the second arm on dual mast arm assemblies or ILSN arm support. For a clamp-on mast arm, a maximum 1 ½" wide vertical slotted hole may be cut in the front clamp plate to facilitate drainage during galvanizing. The slot shall be centered behind the arm and shall be no longer than the arm diameter minus 1". For an ILSN arm, a 1 ½" diameter hole shall be cut in the front clamp plate for wire access. A matched hole shall be field drilled through the pole to provide wire access after arm is oriented. Deburr both holes.

Where duplicate parts occur on a detail, welds shown for part shall apply to all similar parts on the detail.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces. Pin bolts shall be ASTM A325 with threads excluded from the shear plane. Pin bolt and ¾" diameter pipe shall have 3/16" diameter holes for a ⅛" diameter galvanized cotter pin. Back clamp plate shall be furnished with a ¾" diameter hole for each pin bolt. An 11/16" diameter hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT)
(80 AND 100 MPH WIND ZONE)

Sheet 4 of 5 — LMA(4)-12

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DN: JK	CK: GRB	DW: FDN	CK: CAL

REVISIONS
4-20-01
1-12

CONT	SECT	JOB	HIGHWAY
			CR 258

DIST	COUNTY	SHEET NO.
AUS	WILCO	95

131D

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Shipping Parts List

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers, and any additional hardware listed in the table.

Nominal Arm Length	30′ Poles with Luminaire See note above plus: one (or two if ILSN attached) small hand hole, clamp-on simplex		24′ Poles with ILSN See note above plus one small hand hole		19.50′ (Single Mast Arm) 20.25′ (Dual Mast Arm) Poles with no Luminaire and no ILSN See note above	
Single Mast Arm						
Lf ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
50	50L		50S		50	
55	55L		55S		55	
60	60L	1	60S		60	
65	65L	1	65S		65	
Dual Mast Arm						
Lf ft. / Lc ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
50 / 20	5020L		5020S		5020	
50 / 24	5024L		5024S		5024	
50 / 28	5028L		5028S		5028	
50 / 32	5032L		5032S		5032	
50 / 36	5036L		5036S		5036	
50 / 40	5040L		5040S		5040	
50 / 44	5044L		5044S		5044	
55 / 20	5520L		5520S		5520	
55 / 24	5524L		5524S		5524	
55 / 28	5528L		5528S		5528	
55 / 32	5532L		5532S		5532	
55 / 36	5536L		5536S		5536	
55 / 40	5540L		5540S		5540	
55 / 44	5544L		5544S		5544	
60 / 20	6020L		6020S		6020	
60 / 24	6024L		6024S		6024	
60 / 28	6028L		6028S		6028	
60 / 32	6032L		6032S		6032	
60 / 36	6036L		6036S		6036	
60 / 40	6040L		6040S		6040	
60 / 44	6044L		6044S		6044	
65 / 20	6520L		6520S		6520	
65 / 24	6524L		6524S		6524	
65 / 28	6528L		6528S		6528	
65 / 32	6532L		6532S		6532	
65 / 36	6536L		6536S		6536	
65 / 40	6540L		6540S		6540	
65 / 44	6544L		6544S		6544	

Shipping Parts List

Traffic Signal Arms (Fixed Mount) (1 per pole)
Ship each arm with listed equipment attached

Nominal Arm Length	Type IV Arm (4 Signals) 3 Bracket Assembly and 4 CGB Connectors	
ft.	Designation	Quantity
50	50IV	
55	55IV	
60	60IV	1
65	65IV	1

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	3

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	

Traffic Signal Arms (80 MPH Clamp-On Mount) (1 per pole) Ship each arm with listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal) 2 CGB connector and 1 clamp w/bolts and washers		Type II Arm (2 Signals) 1 Bracket Assembly and 3 CGB connectors, and 1 clamp w/bolts and washers		Type III Arm (3 Signals) 2 Bracket Assembly and 4 CGB connectors, and 1 clamp w/bolts and washers	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	
40					40III-80	
44					44III-80	

Traffic Signal Arms (100 MPH Clamp-On Mount) (1 per pole) Ship each arm with listed equipment attached

Nominal Arm	Type I Arm (1 Signal) 2 CGB connector and 1 clamp w/bolts and washers		Type II Arm (2 Signals) 1 Bracket Assembly and 3 CGB connectors, and 1 clamp		Type III Arm (3 Signals) 2 Bracket Assembly and 4 CGB connectors, and 1 clamp	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-100					
24	24I-100		24II-100			
28	28I-100		28II-100			
32			32II-100		32III-100	
36			36II-100		36III-100	
40					40III-100	
44					44III-100	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
2 1/2 "	5′ - 3"	3

Each anchor bolt assembly consists of the following: Top and bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers and 4 nut anchor devices (type 2) per Standard Drawing "TS-FD". Templates may be removed for shipment.

Foundation Summary Table **

Location Ident.	Avg. N Blow/ft.	No. Each	Drill Shaft *** Length (feet)
			48-A
SUNSET RIDGE			
POLE 2			21.9
HS DRIVEWAY			
POLE 1			21.9
POLE 3			21.9
Total Drill Shaft Length			65.7

Notes

** Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

*** Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

Abbreviations
Lf= Fixed Arm Length
Lc= Clamp-on Arm Length (44′ Max.)

STATE OF TEXAS
ERIK R. HANSEN
145965
LICENSED
PROFESSIONAL ENGINEER
10/23/2025

Texas Department of Transportation
Traffic Operations Division

LONG MAST ARM ASSEMBLY PARTS LIST

LMA(5)-12

Sheet 5 of 5

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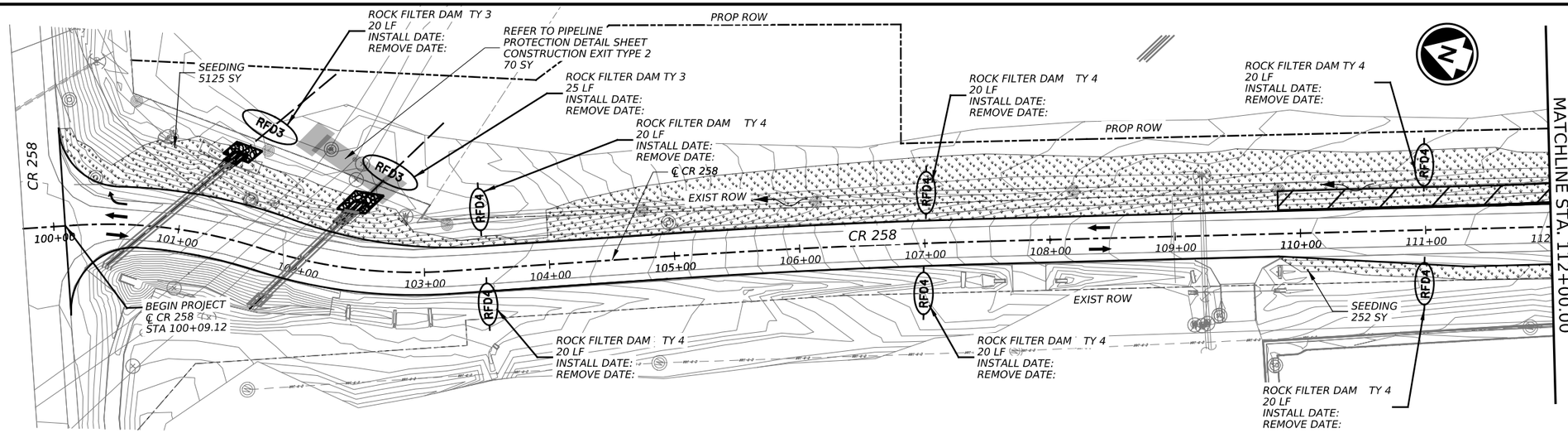
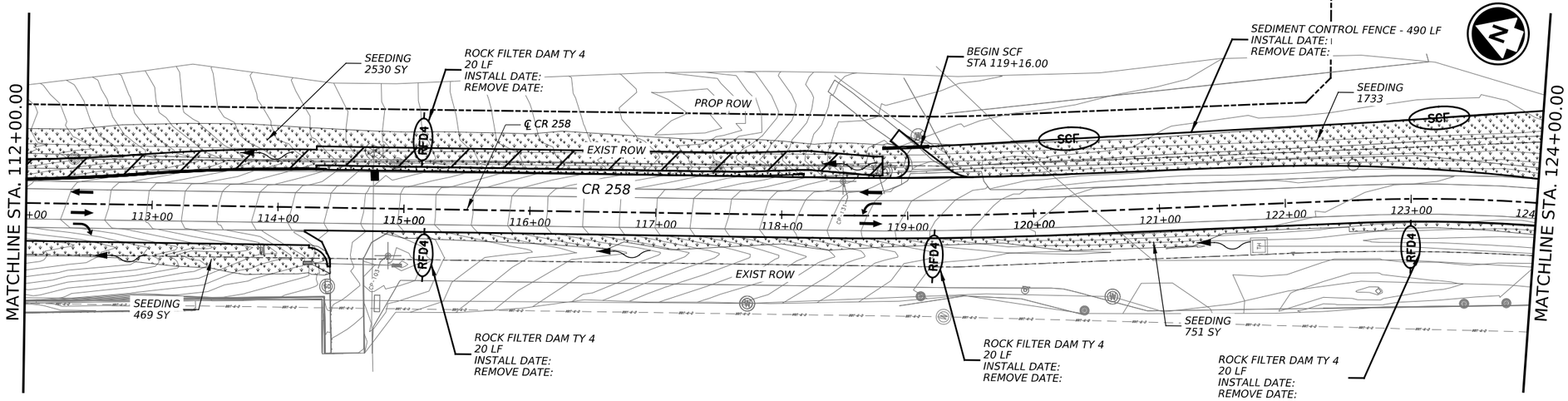
DN: JK	CK: GRB	DW: FDN	CK: CAL

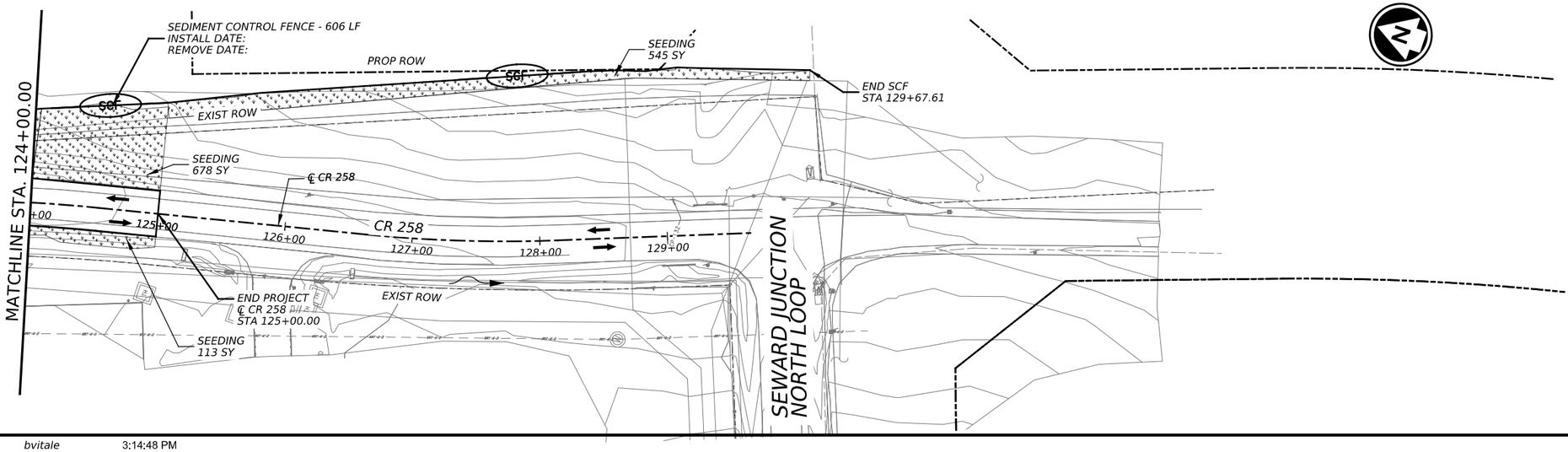
REVISIONS	CONT	SECT	JOB	HIGHWAY
4-20-01 1-12				
	DIST	COUNTY		SHEET NO.
				96

131E

CM | DW: EM | CK: EM | DW: EM | CK: EM







LEGEND

- DIRECTION OF TRAFFIC
- EXISTING ROW
- EASEMENT
- FLOW DIRECTION
- RFD3 — ROCK FILTER DAM TY3
- RFD4 — ROCK FILTER DAM TY4
- SCF — SILT FENCE
- SEEDING
- VEGATATIVE FILTER STRIP
- EXIST CONTOURS

STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED
PROFESSIONAL ENGINEER

10/3/2025

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TBPELS FIRM NO. F-10069
810 HESTERS CROSSING RD
SUITE 105
ROUND ROCK, TX 78681
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CR 258

EROSION CONTROL PLAN

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	97
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

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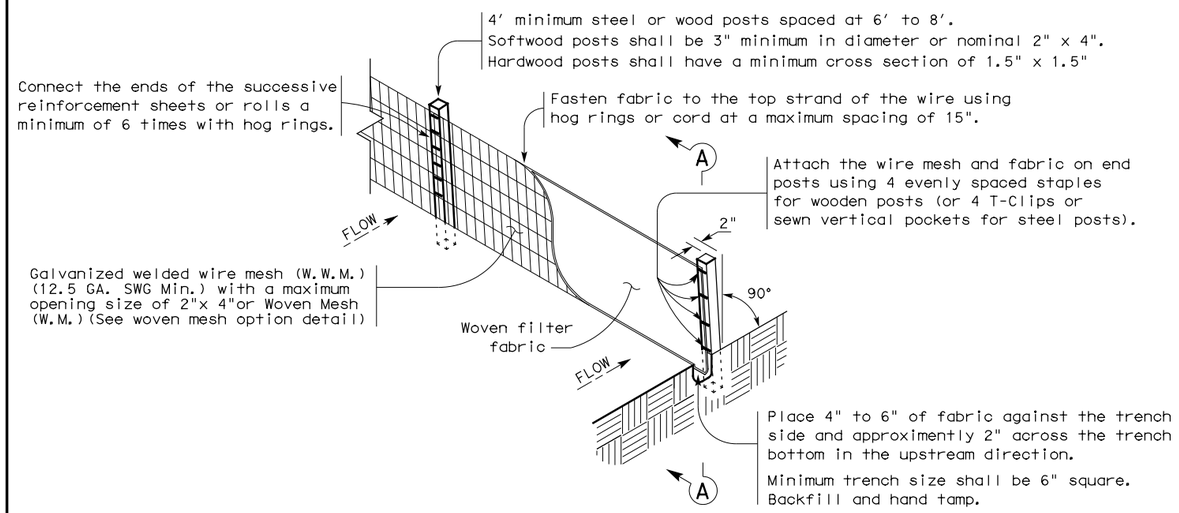
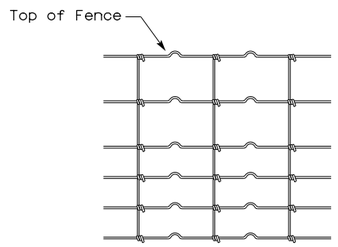
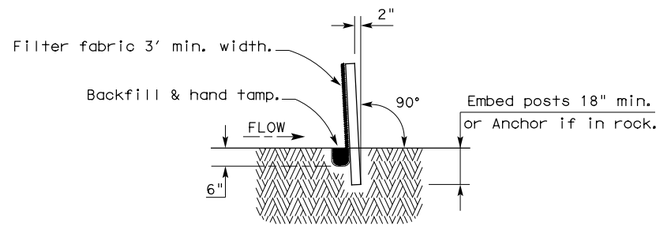


TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

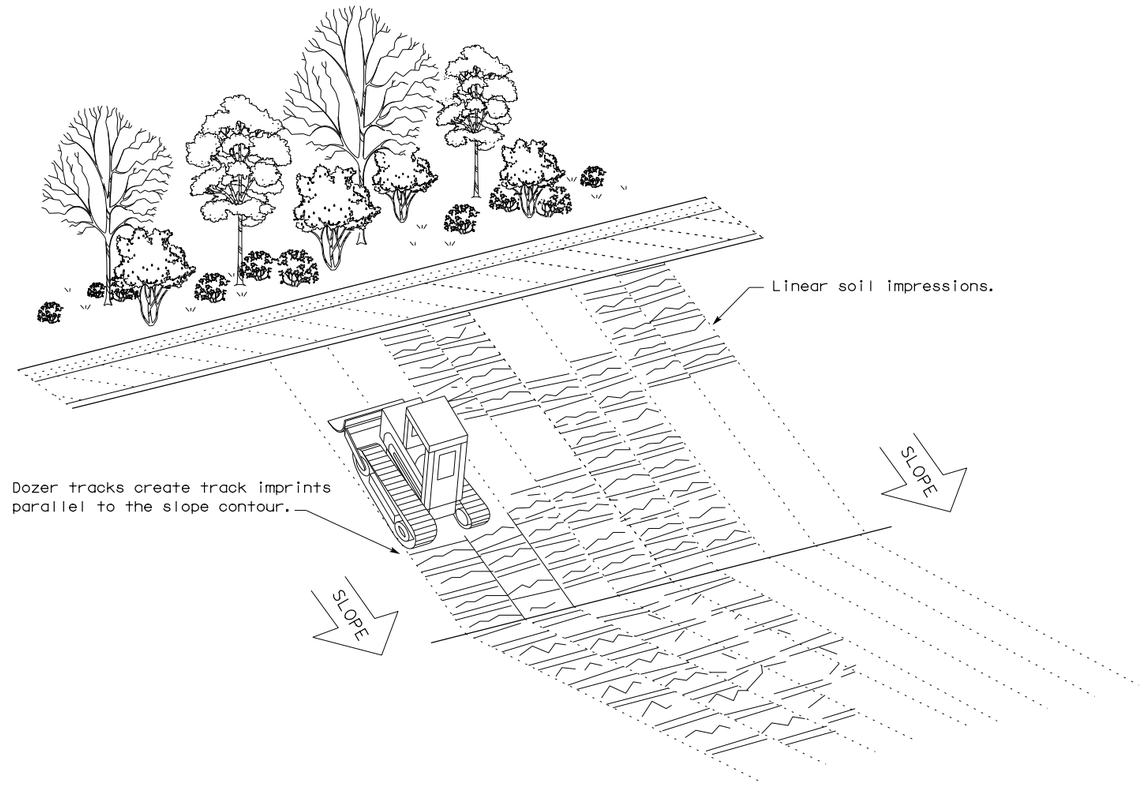
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS				CR 258	
	DIST	COUNTY		SHEET NO.	
	AUS	WILCO		98	

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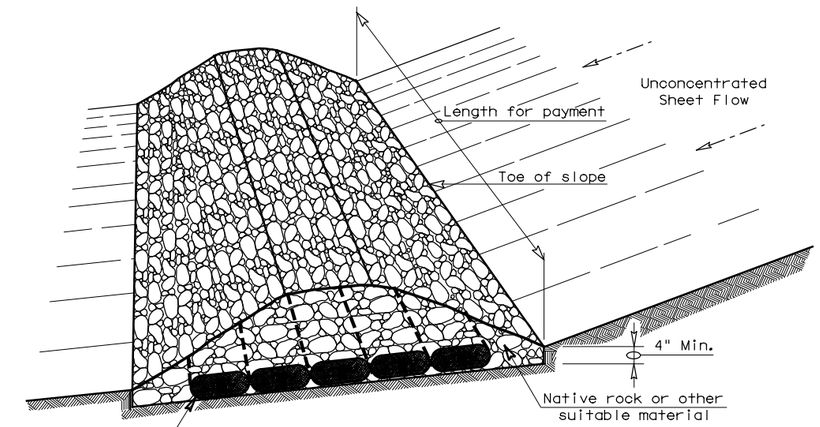
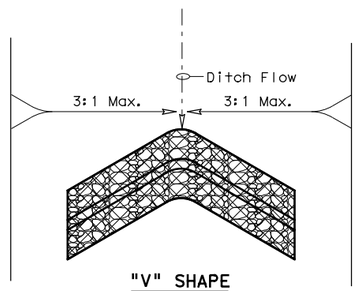
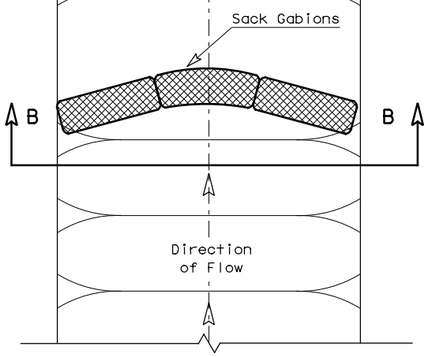


FILTER DAM AT TOE OF SLOPE

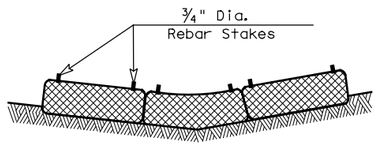
RFD1



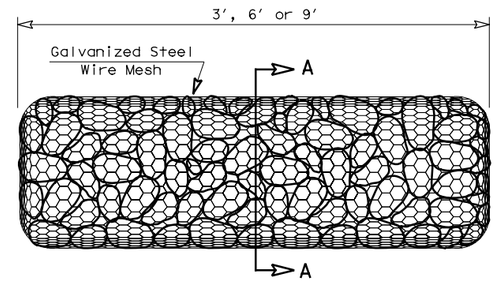
"V" SHAPE PLAN VIEW



PLAN VIEW

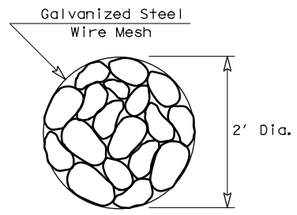


SECTION B-B

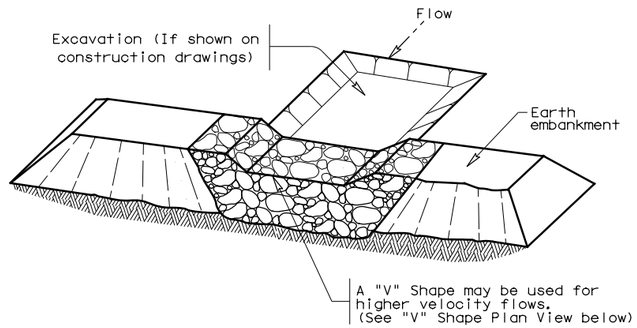


TYPE 4 (SACK GABIONS)

RFD4

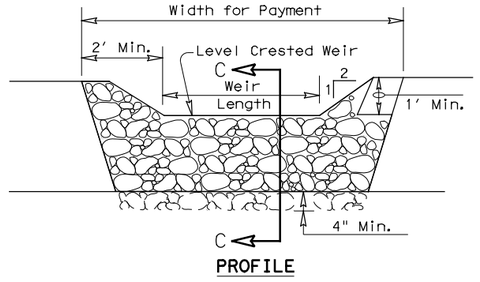


SECTION A-A

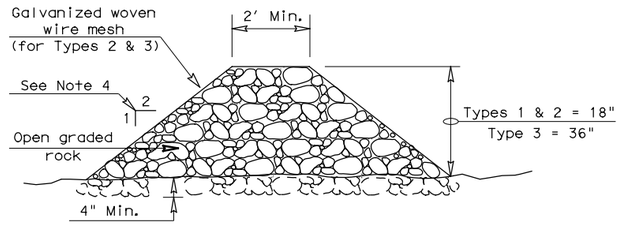


FILTER DAM AT SEDIMENT TRAP

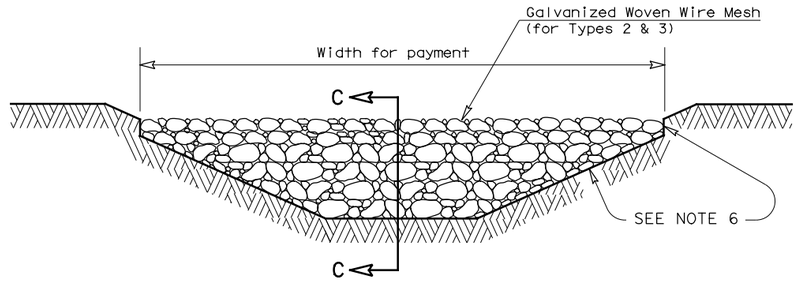
RFD1 — OR — RFD2



PROFILE



SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 — OR — RFD2 — OR — RFD3

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT^2 of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximently 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼"
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam	RFD1
Type 2 Rock Filter Dam	RFD2
Type 3 Rock Filter Dam	RFD3
Type 4 Rock Filter Dam	RFD4

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-16

FILE: ec216	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS		
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY		
REVISIONS				CR 258		
	DIST	COUNTY		SHEET NO.		
	AUS	WILCO		99		

The following TCEQ requirements (Form TCEQ-0592A, Rev. 7/15/15) are applicable to all work that disturbs 5 or more acres in the contributing zone of the Edwards Aquifer in Hays, Travis and/or Williamson Counties and must be adhered to by the Contractor and all Subcontractors:

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any ground disturbance or construction activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

2. All contractors conducting regulated activities associated with this project should be provided with complete copies of the approved Contributing Zone Plan (CZP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractor(s) should keep copies of the approved plan and approval letter on-site.

3. No hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.

4. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.

5. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.

6. Sediment must be removed from the sediment traps or sedimentation basins when it occupies 50% of the basin's design capacity.

7. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.

8. All excavated material that will be stored on-site must have proper E&S controls.

9. If portions of the site will have a cease in construction activity lasting longer than 14 days, soilstabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.

10. The following records should be maintained and made available to the TCEQ upon request:
    - the dates when major grading activities occur;
    - the dates when construction activities temporarily or permanently cease on a portion of the site; and
    - the dates when stabilization measures are initiated.

11. The holder of any approved CZP must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

    A. any physical or operational modification of any best management practices (BMPs) or structure(s), including but not limited to temporary or permanent ponds, dams, berms, silt fences, and diversionary structures;
    B. any change in the nature or character of the regulated activity from that which was originally approved;
    C. any change that would significantly impact the ability to prevent pollution of the Edwards Aquifer; or
    D. any development of land previously identified as undeveloped in the approved contributing zone plan.

TCEQ REGIONAL OFFICE

Austin Regional Office
12100 Park 35 Circle
Bldg A, Room 179
Austin, Texas 78753
Phone: (512) 339-2929
Fax: (512) 339-3795

Texas Department of Transportation

Austin District Standard

TCEQ REQUIREMENTS FOR THE CONTRIBUTING ZONE OF THE EDWARDS AQUIFER

(DISTURBING 5 OR MORE ACRES)

TCEQ-CZ-19(AUS)

©TxDOT♦YEAR♦

REVISIONS
01/10/14: REQUIREMENTS AND ADDRESS UPDATED
01/21/16: REQUIREMENTS UPDATED
09/24/19: UPDATED RELEASE YEAR

CONT	SECT	JOB	HIGHWAY
			CR 258
DIST	COUNTY		SHEET NO.
AUS	WILCO		100

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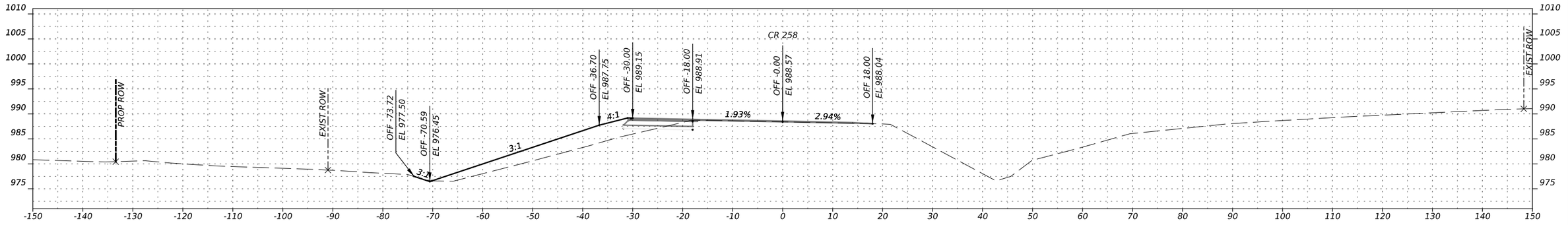

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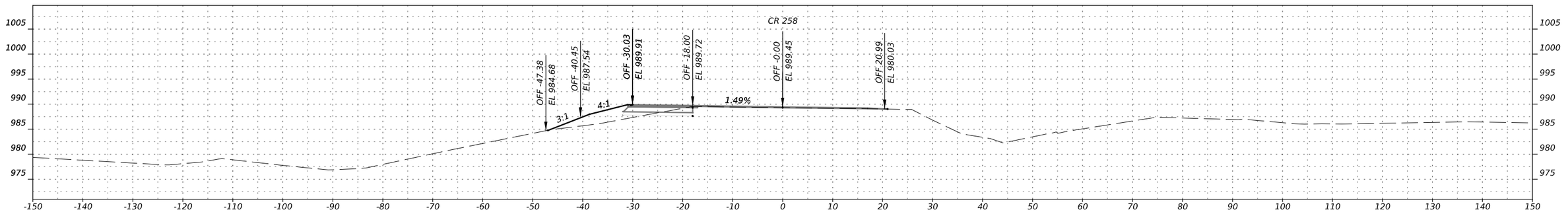

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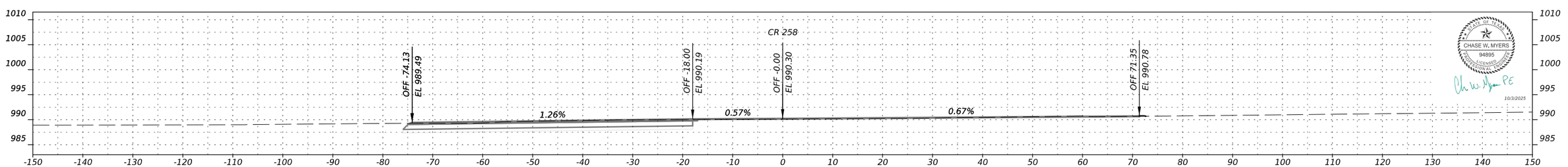

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CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
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CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

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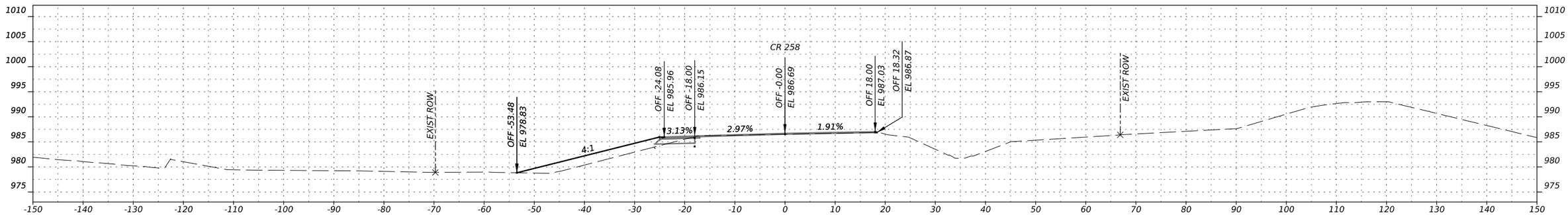

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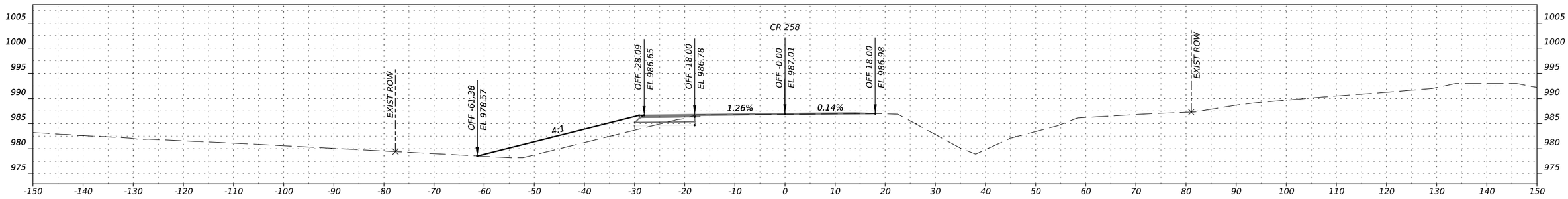

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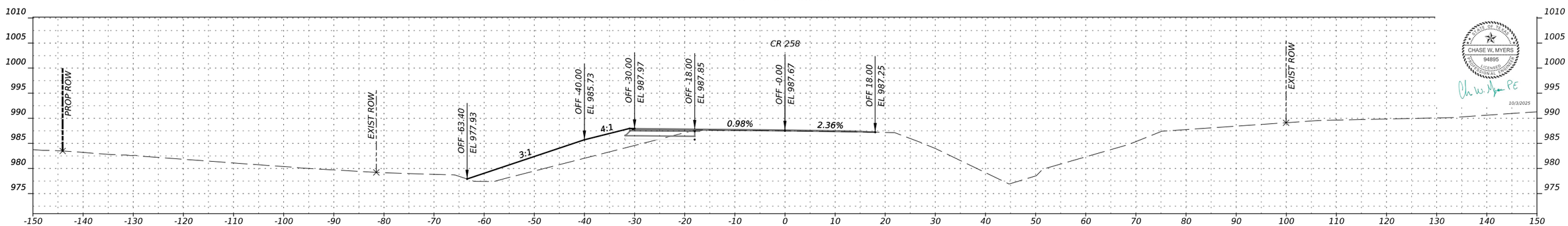

STA 101+50.00

CHASE W. MYERS
94895
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

Chase W. Myers PE
10/3/2025

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CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

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CHECK	CONTROL	SECTION	JOB	
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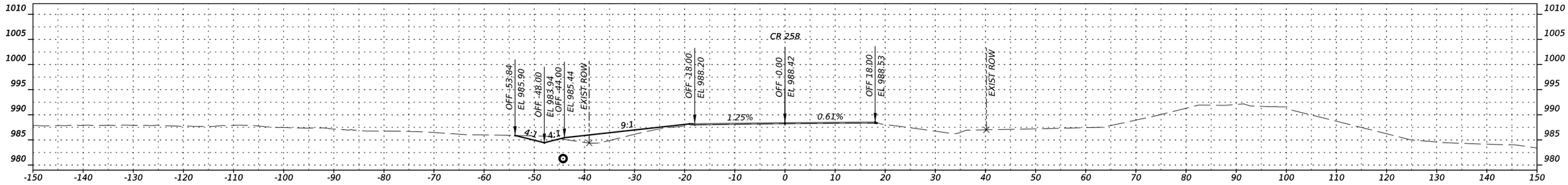

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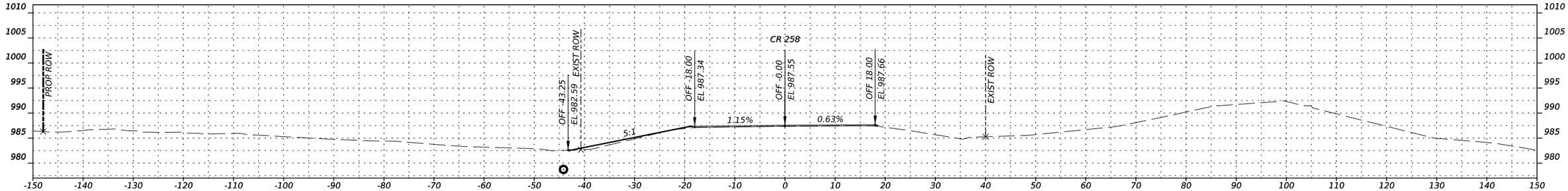

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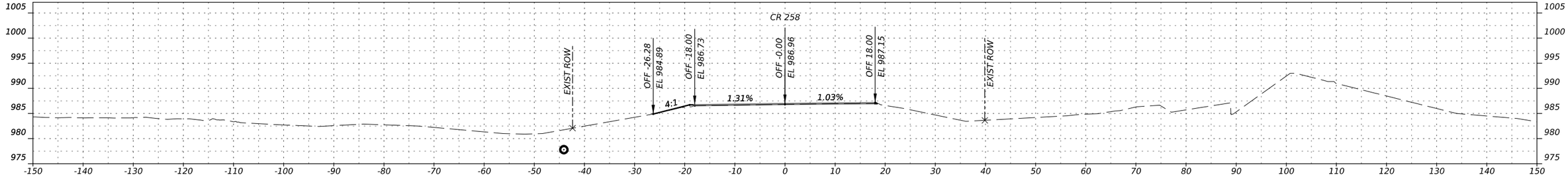

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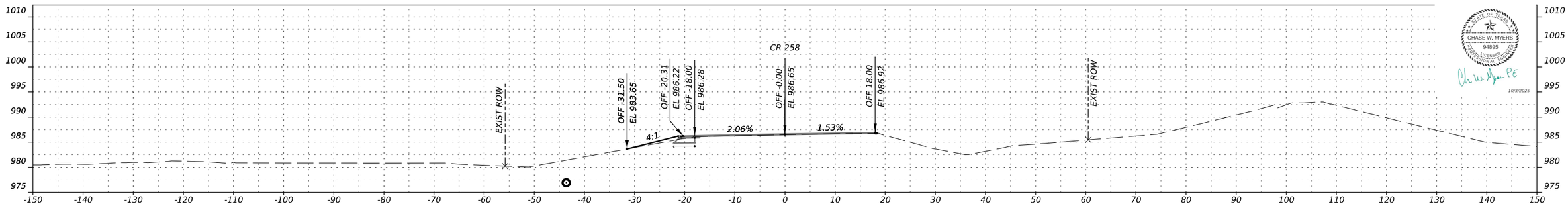

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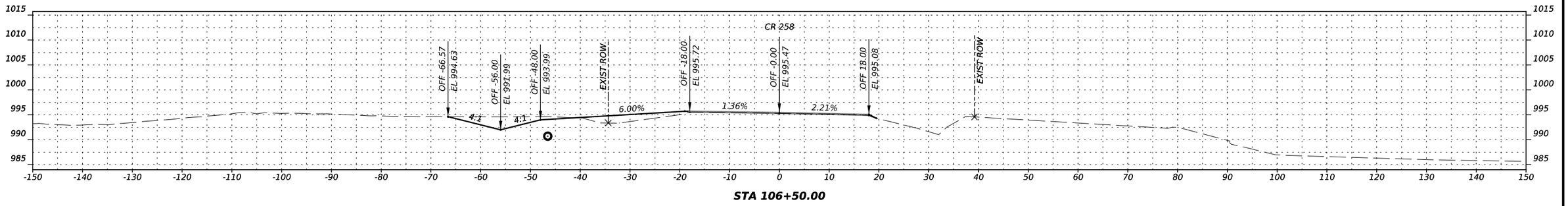

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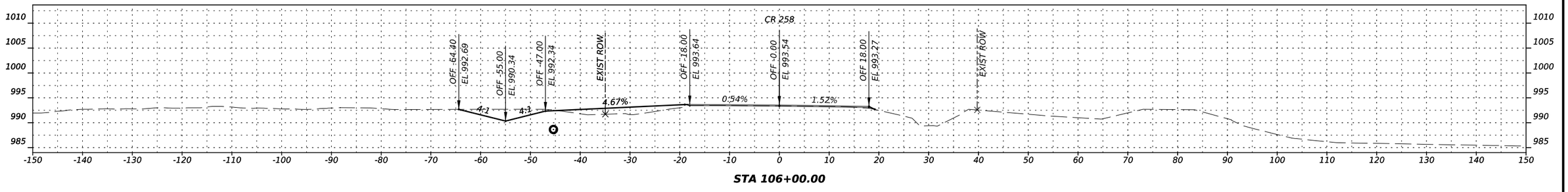

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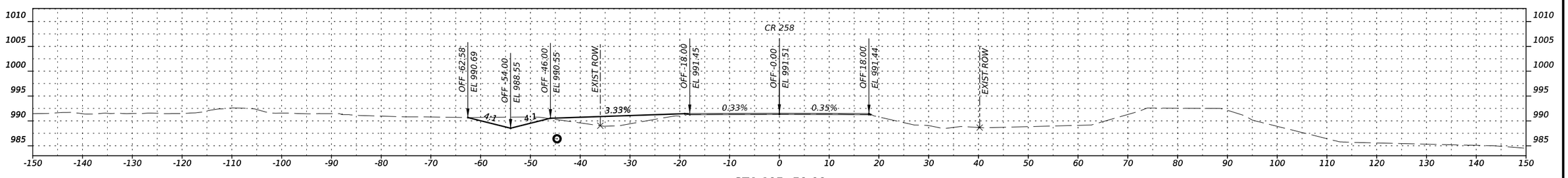

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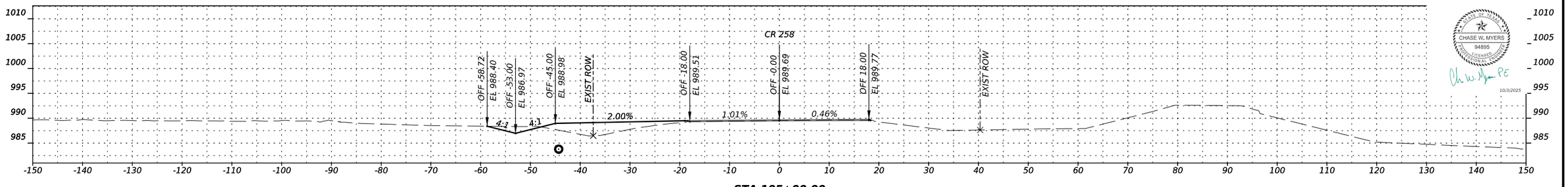

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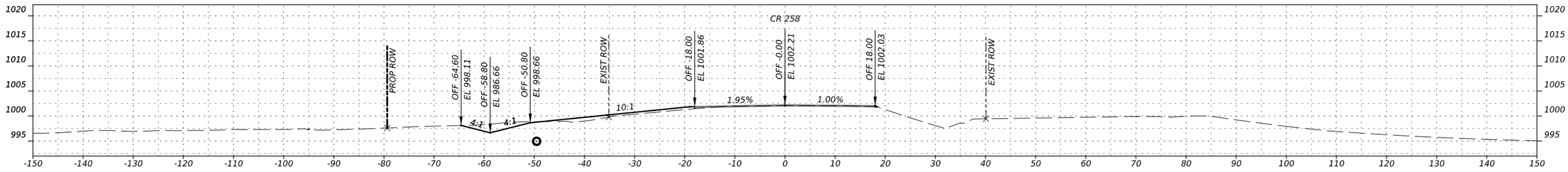

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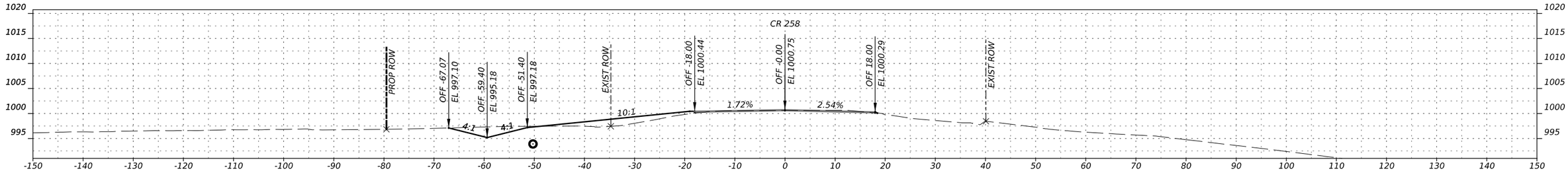

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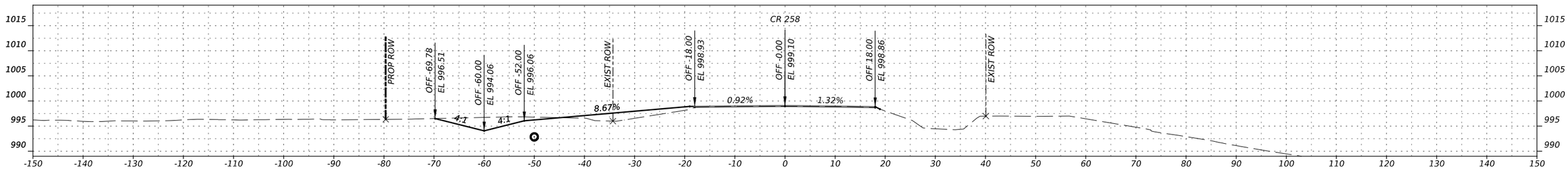

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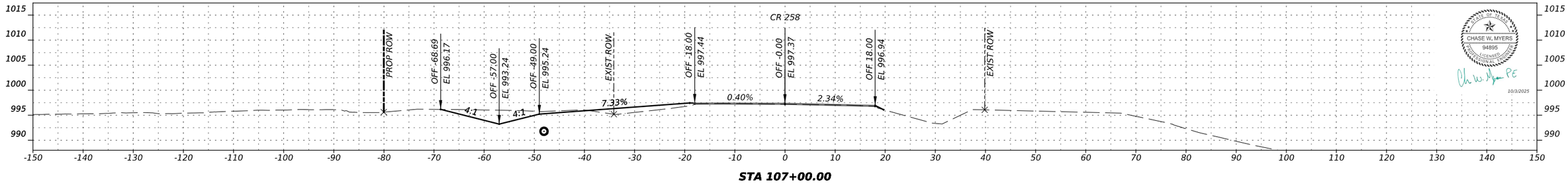

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CHASE W. MYERS 94895 — 10/3/2025

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CHECK	CONTROL	SECTION	JOB	
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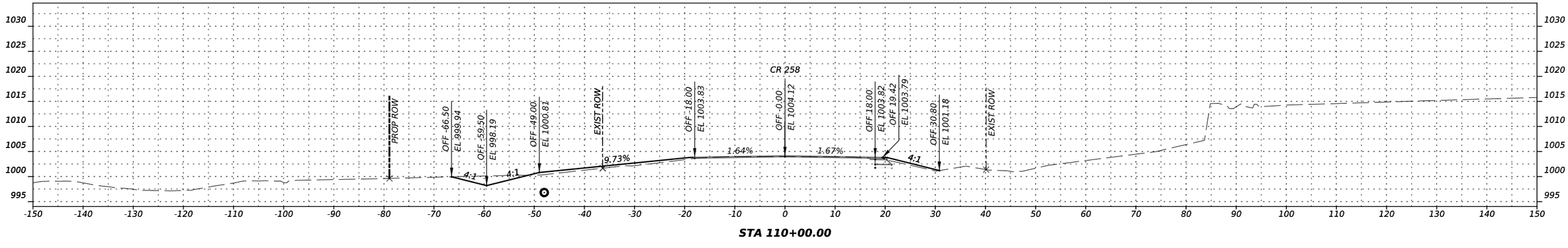

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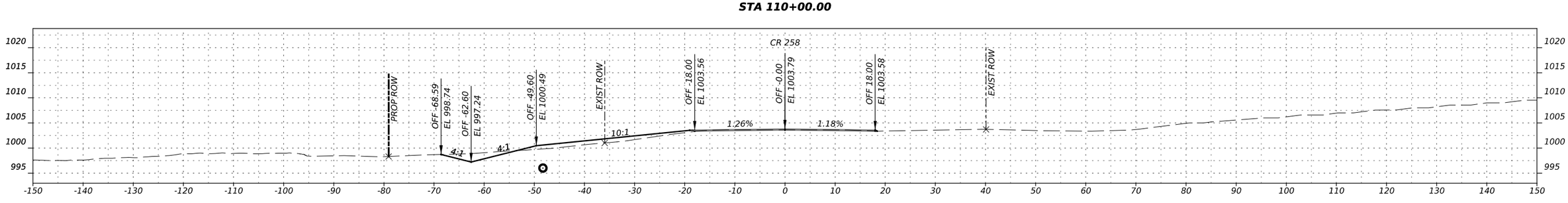

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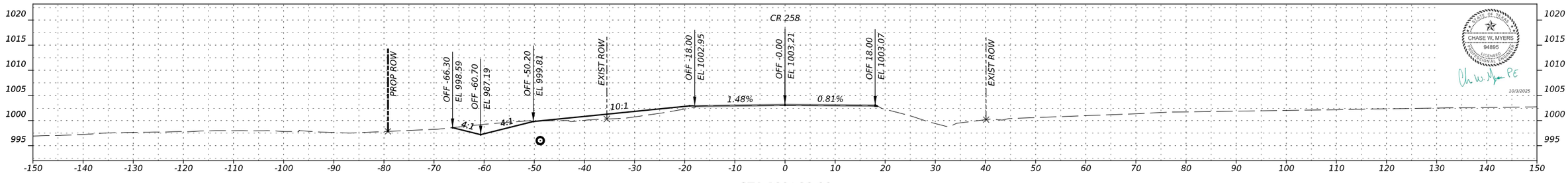

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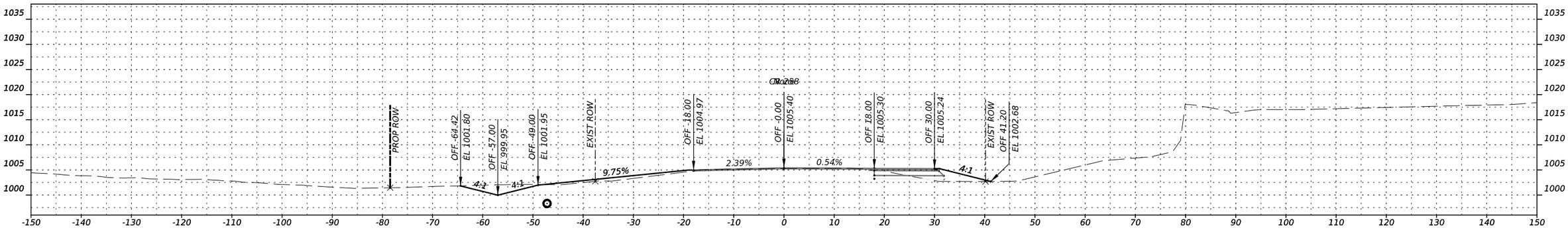

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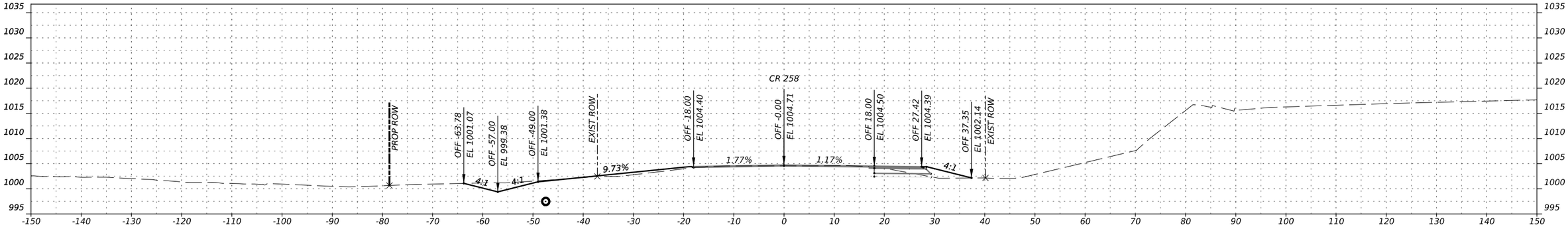

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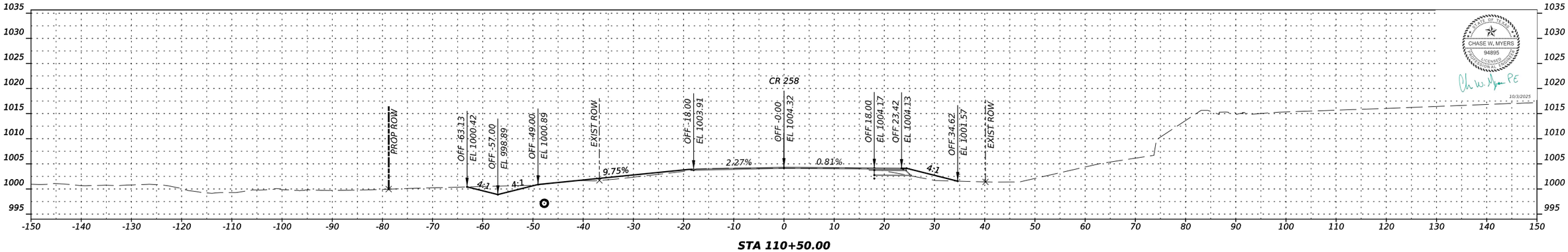

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DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
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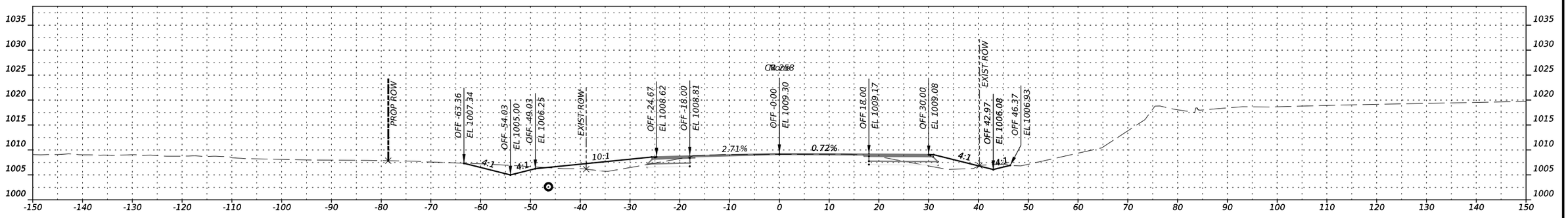

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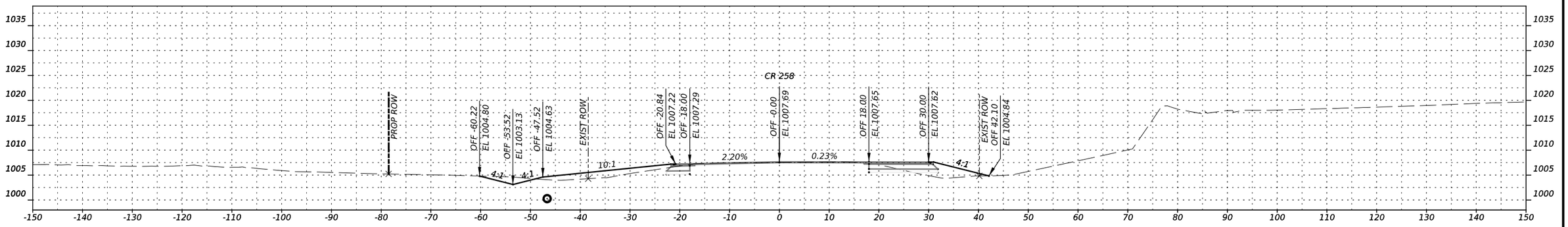

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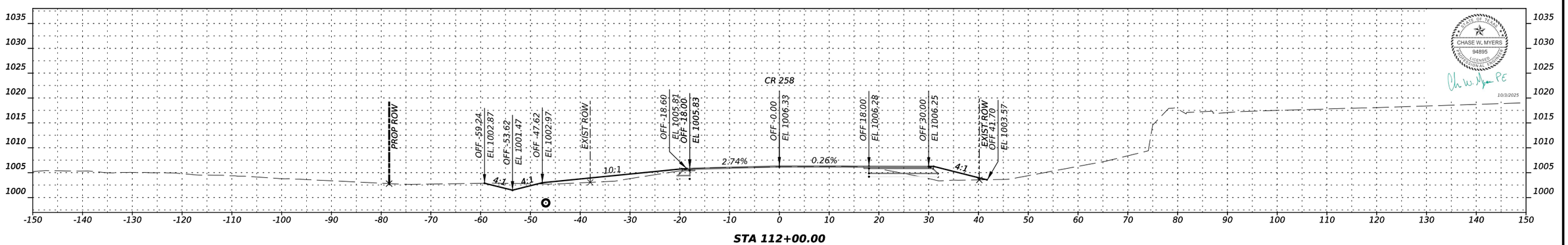

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CHASE W. MYERS
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PROFESSIONAL ENGINEER
10/3/2025

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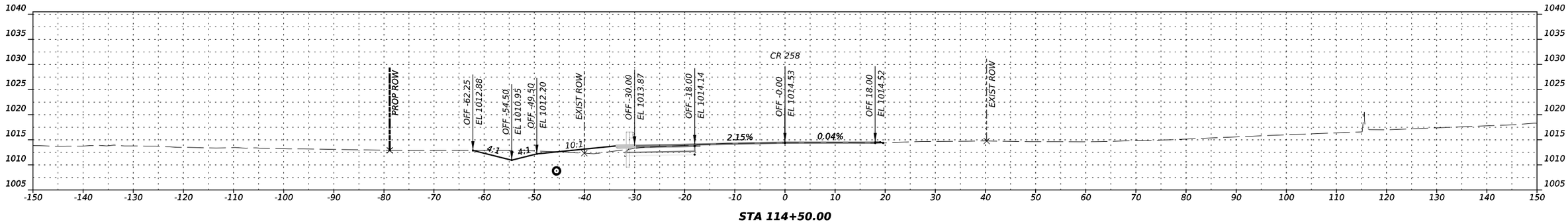
CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS8
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

CM



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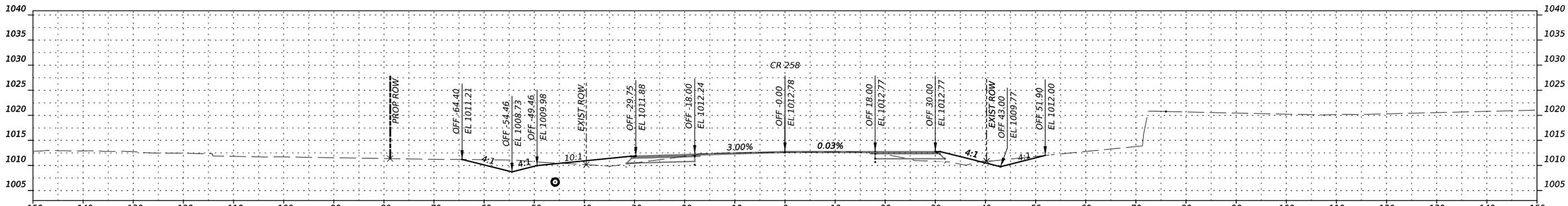

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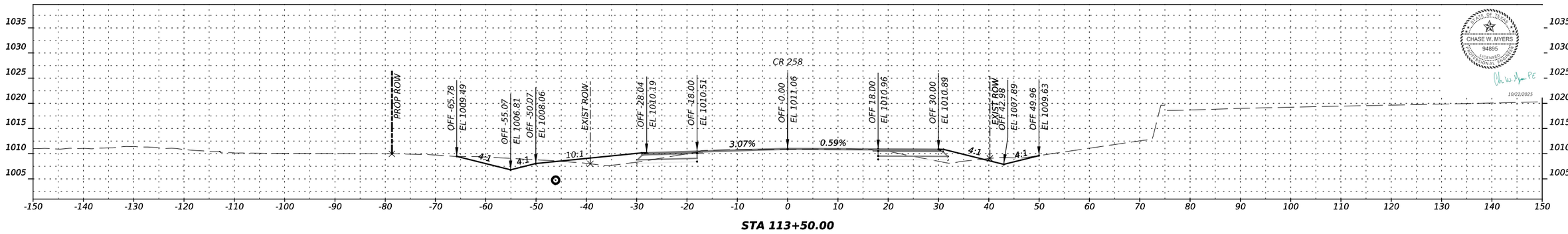

STA 113+50.00

CHASE W. MYERS
94895
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PROFESSIONAL
ENGINEER
STATE OF TEXAS

10/22/2025

AMERICAN STRUCTUREPOINT INC.

TBPELS FIRM NO. F-10069
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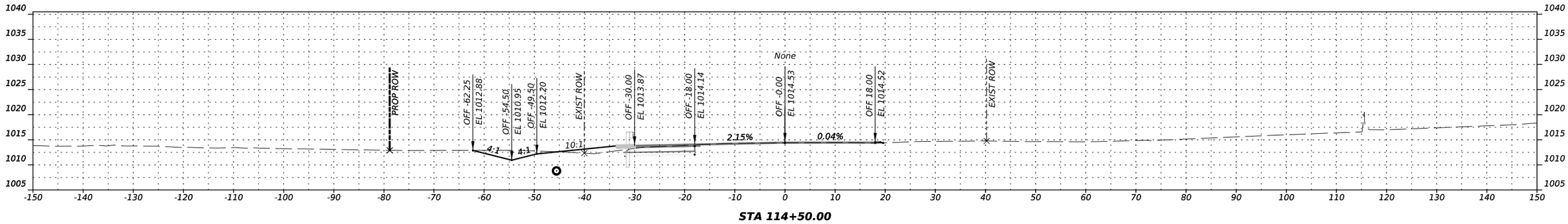
CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	
CHECK	CONTROL	SECTION	JOB	SNX
EM	EM	EM	CM	

CM



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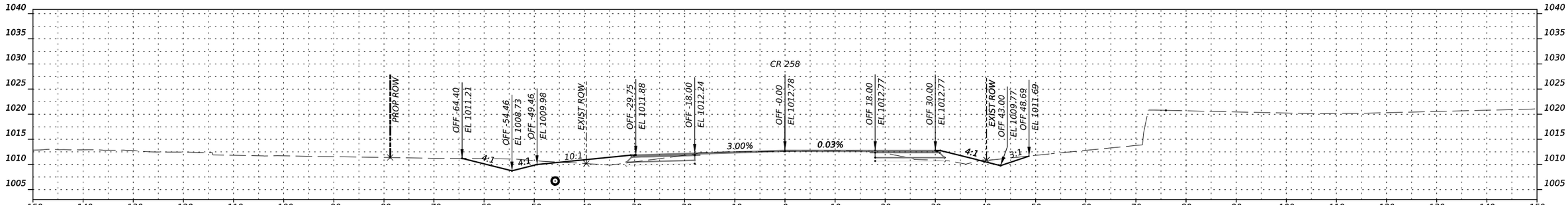

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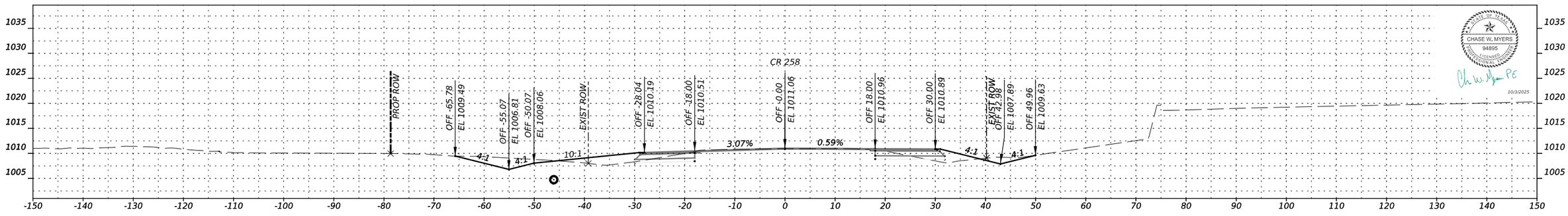

STA 113+50.00

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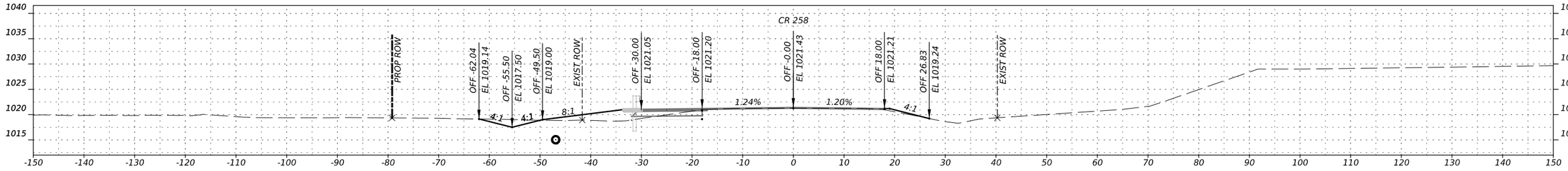
CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS9
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

CM



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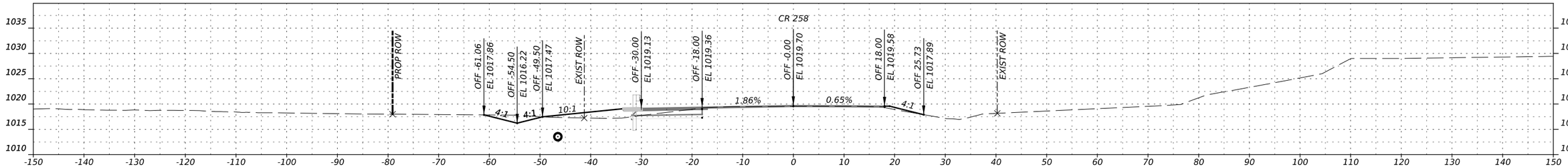

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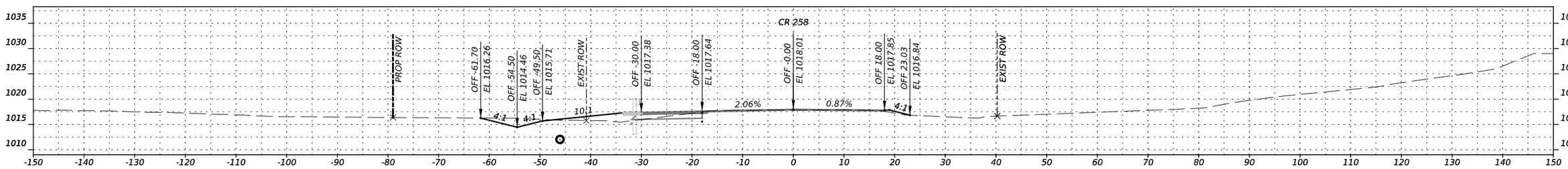

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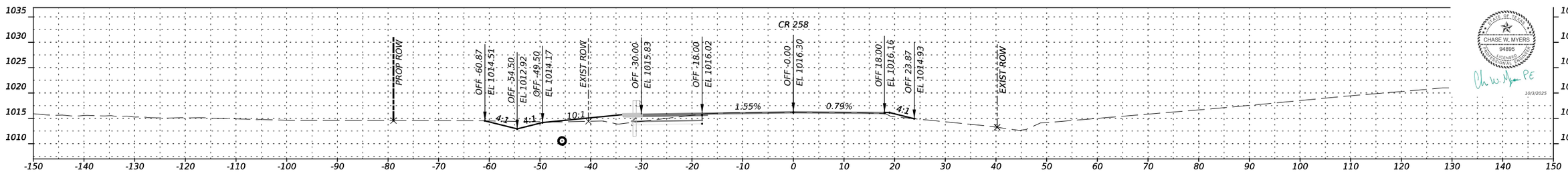

STA 115+00.00

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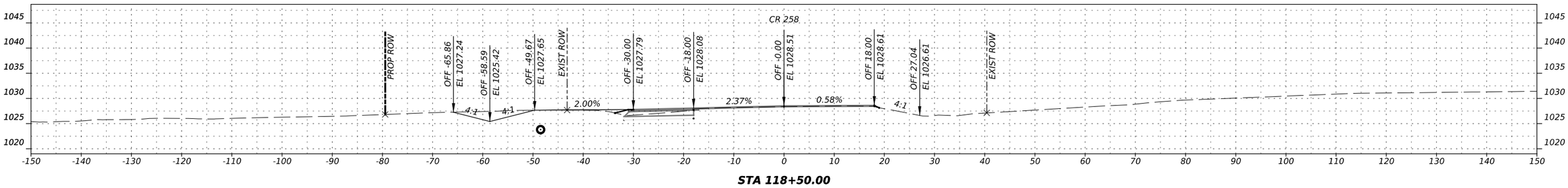
CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS10
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

CM



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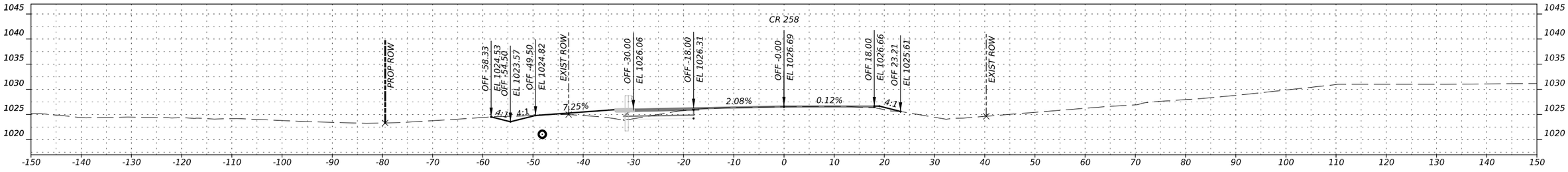

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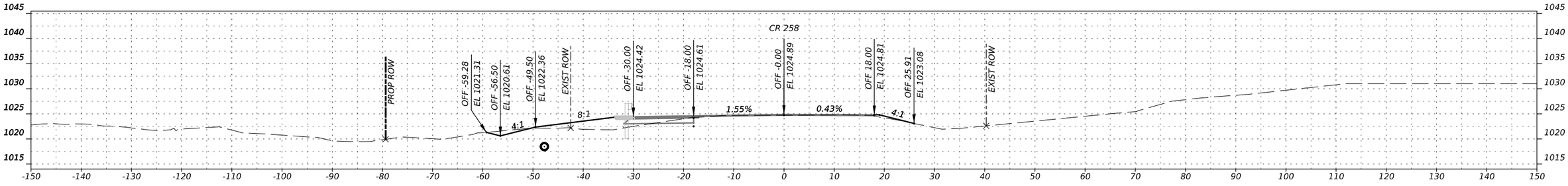

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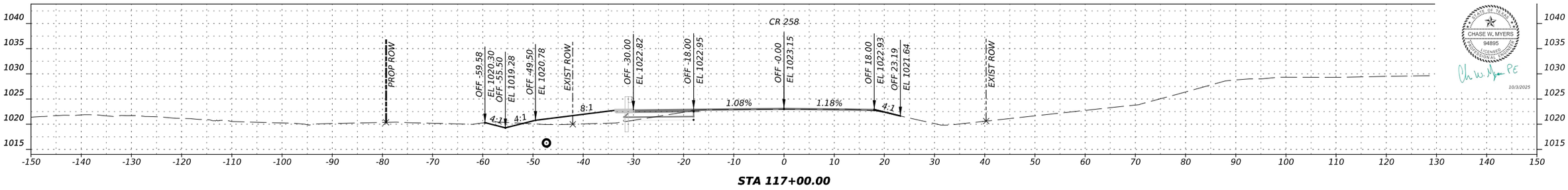

STA 117+00.00

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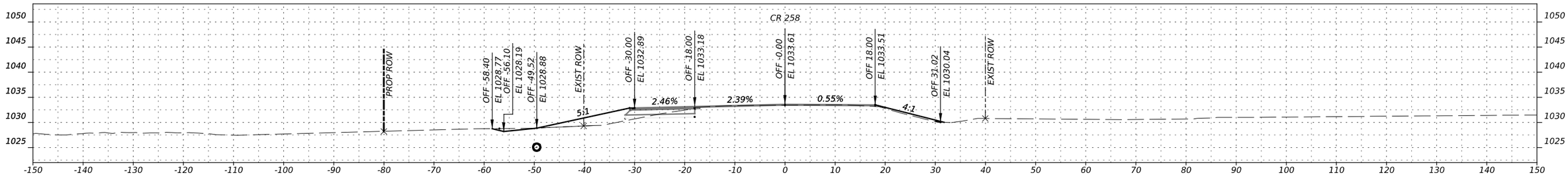
CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS11
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

CM



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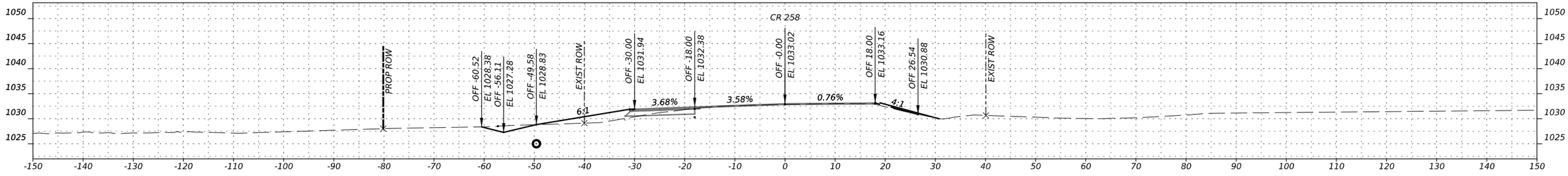

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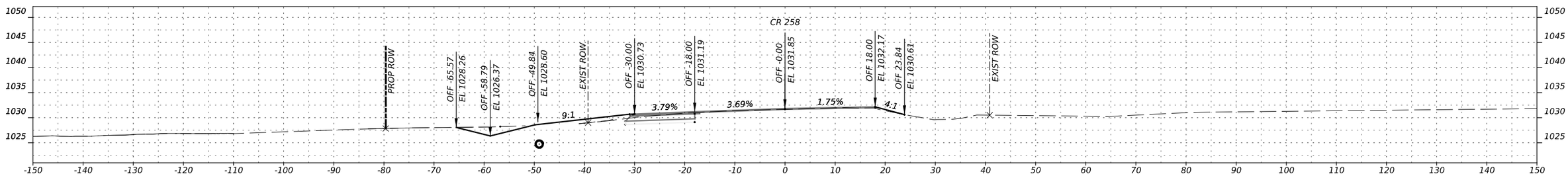

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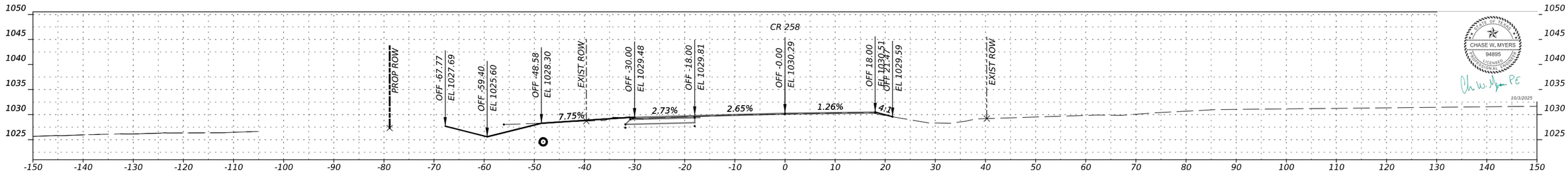

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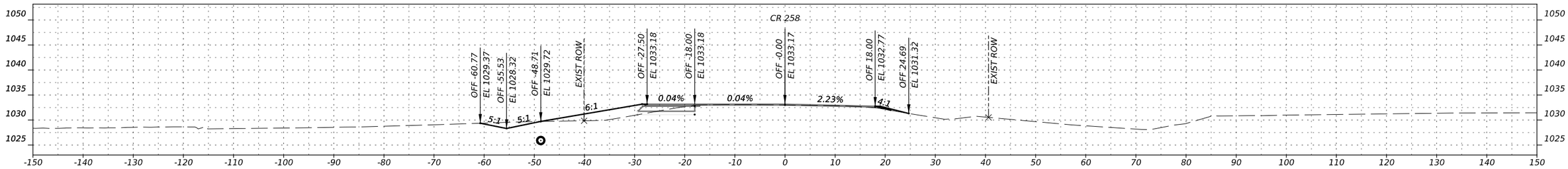
CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS12
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

CM



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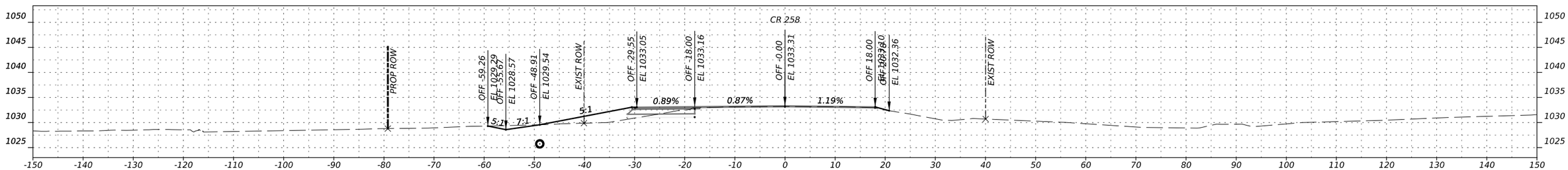

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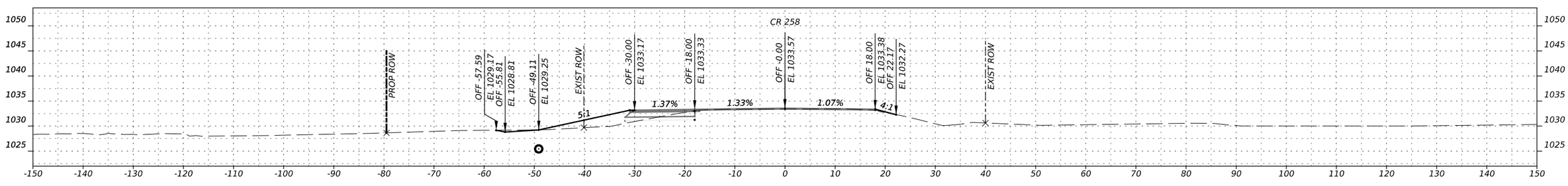

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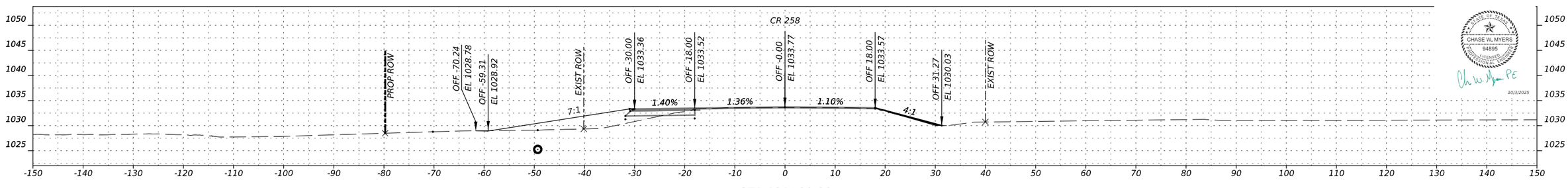

STA 121+00.00

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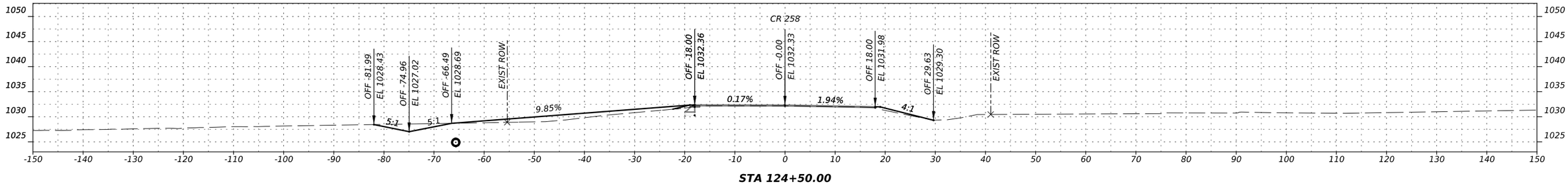
CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS13
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

CM



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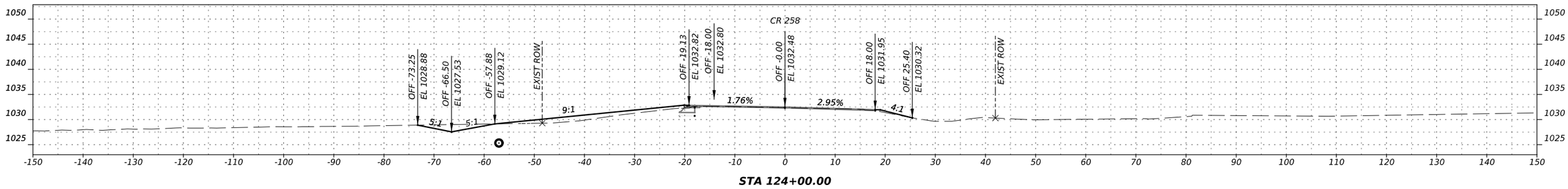

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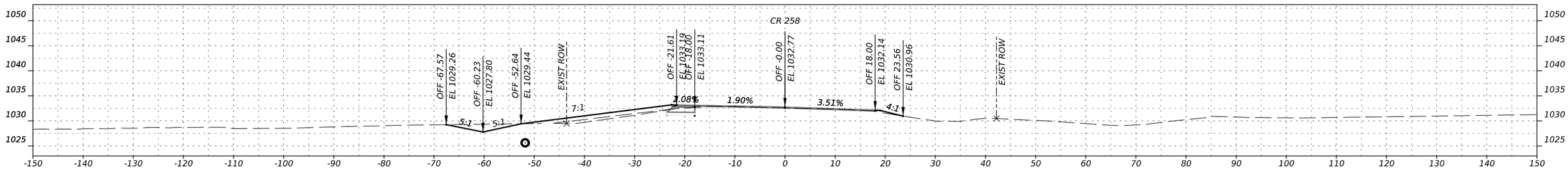

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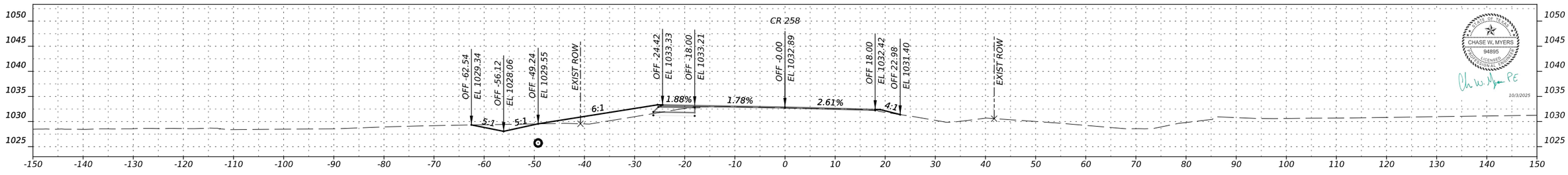

STA 123+00.00

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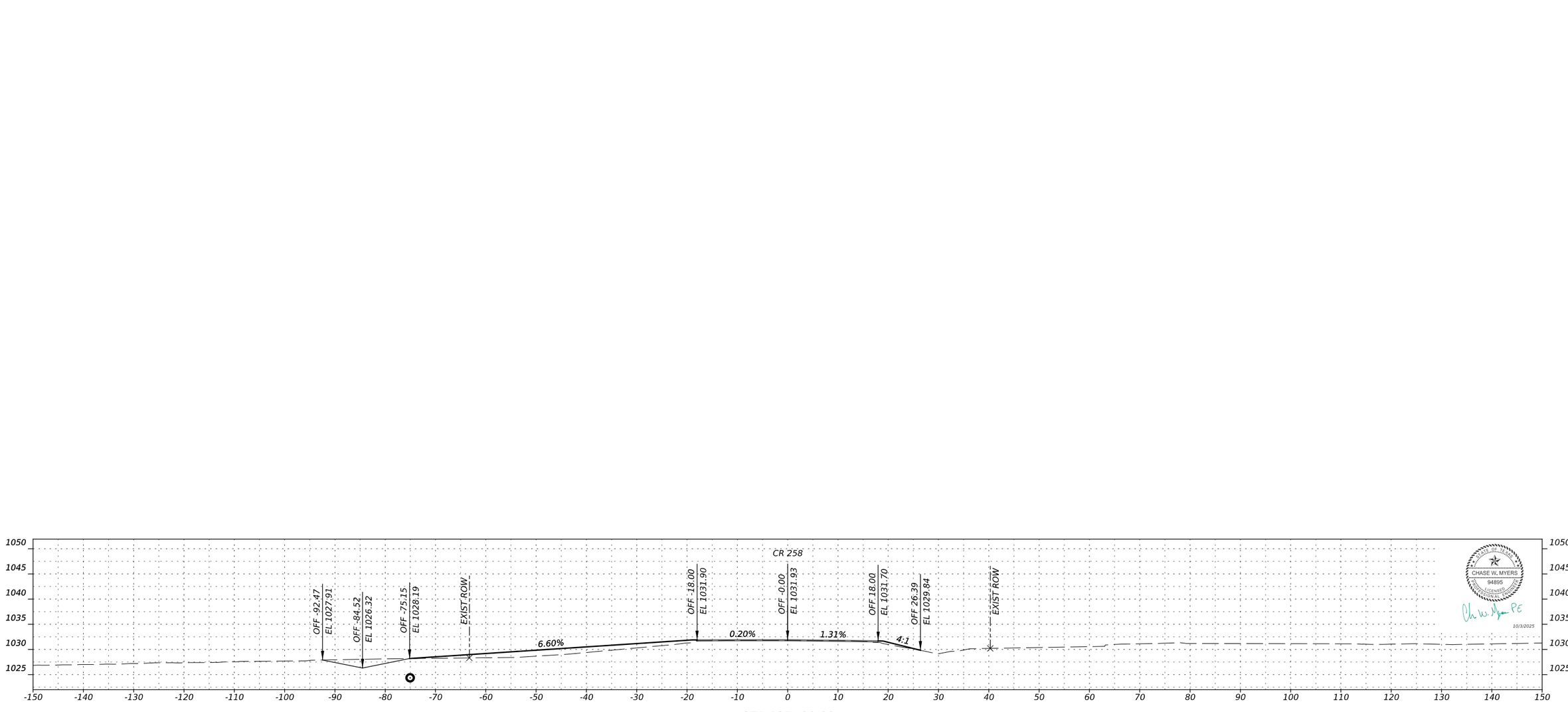
CHASE W. MYERS
94895
LICENSED PROFESSIONAL ENGINEER
10/3/2025

CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS14
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	



STA 125+00.00

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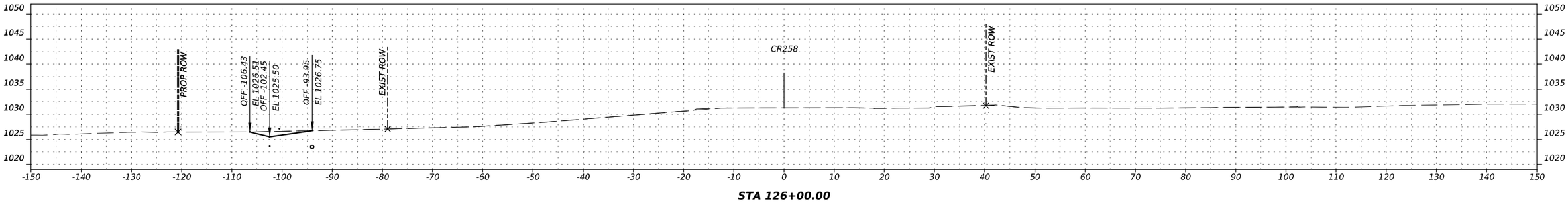
CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS15
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

CM



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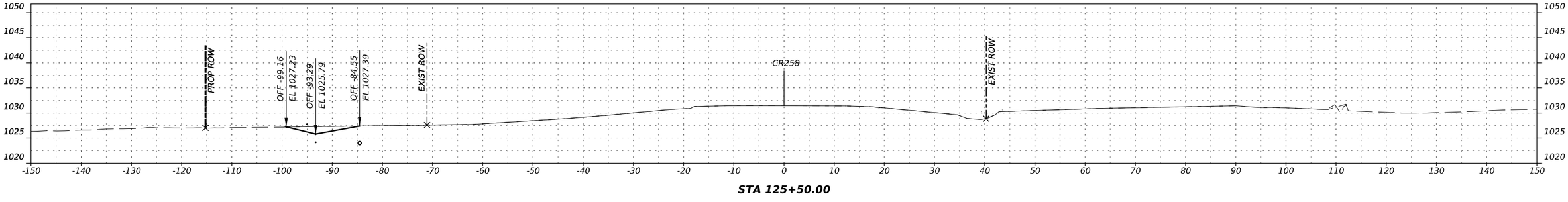

STA 125+50.00

STATE OF TEXAS
CHASE W. MYERS
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LICENSED
PROFESSIONAL ENGINEER

Chase W. Myers PE

10/3/2025

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CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS16
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

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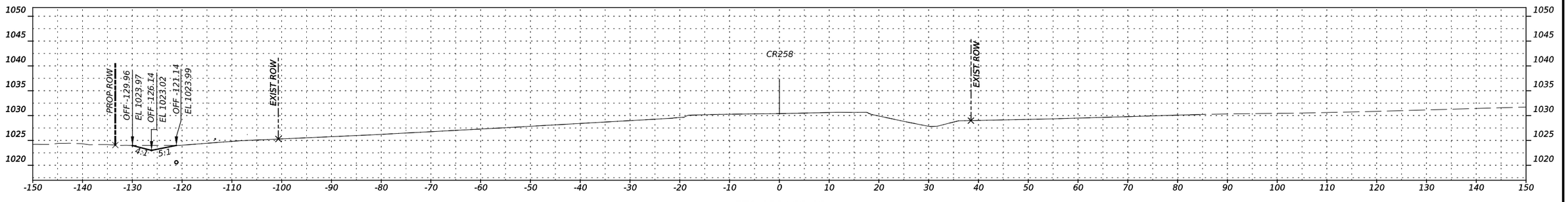
CM



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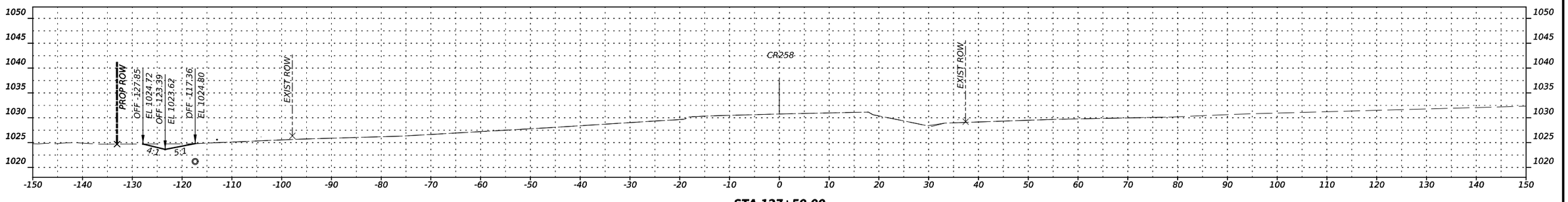

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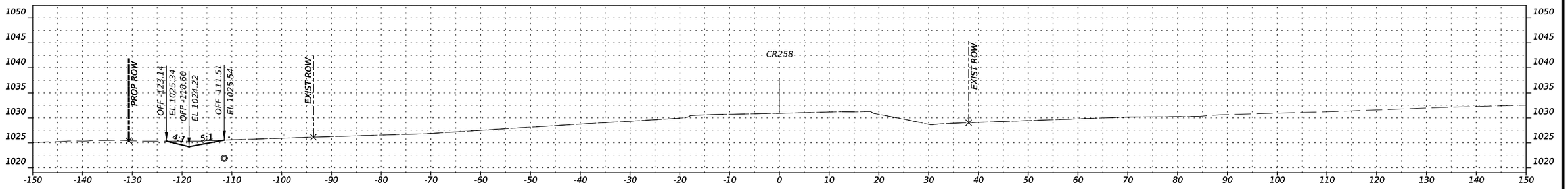

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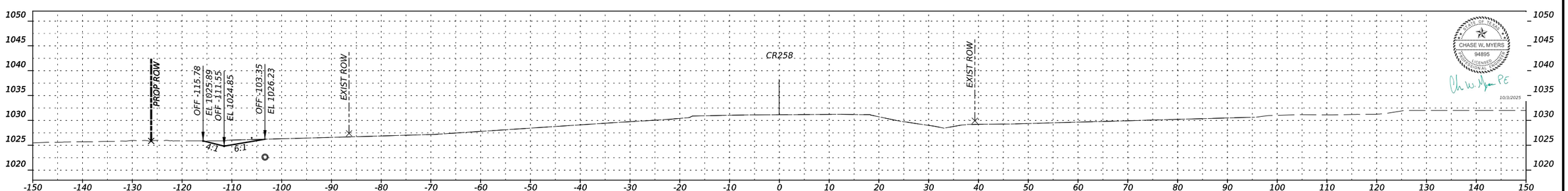

STA 126+50.00

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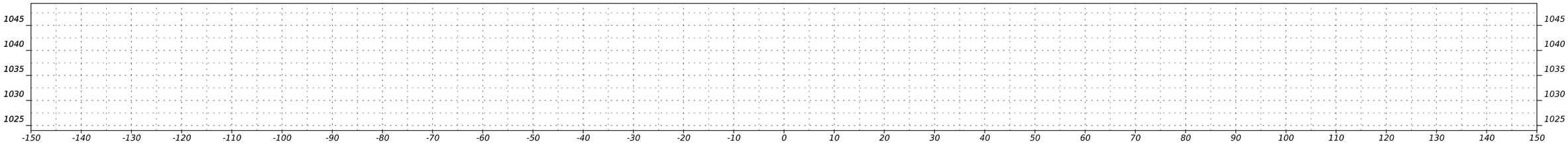
CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS17
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

CM



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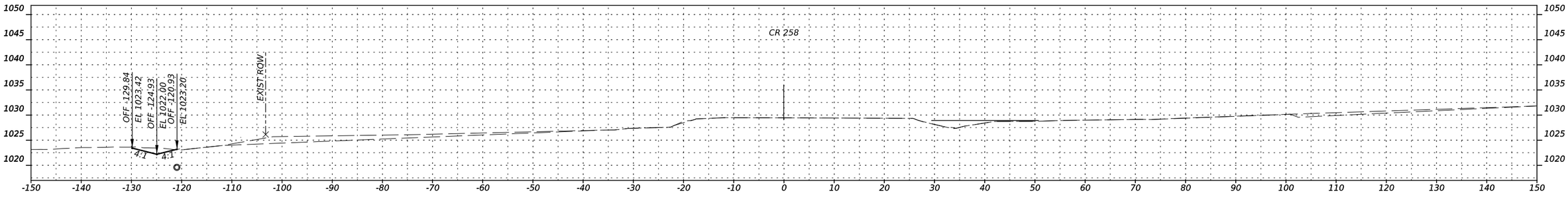

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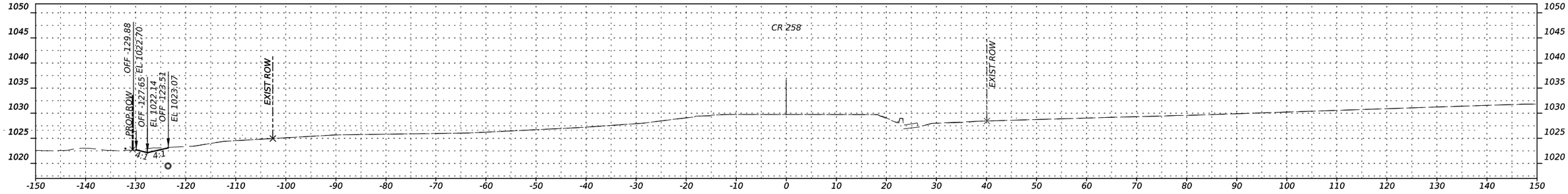

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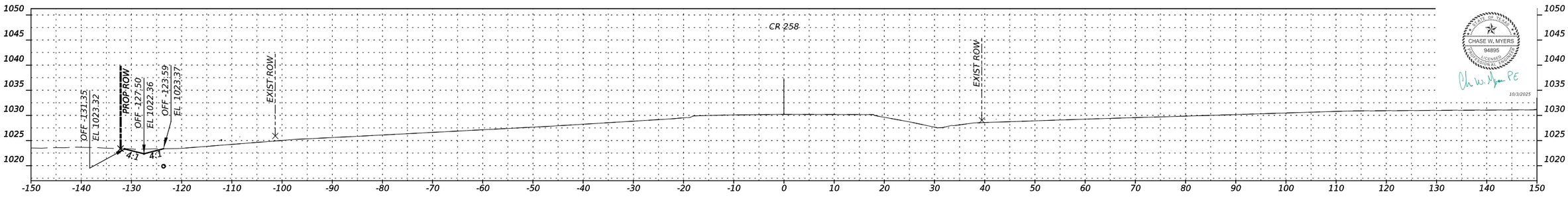

STA 128+50.00

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BUILDING 1, SUITE 300
AUSTIN, TX 78746
TEL 512.494.6037 FAX 317.543.0270
www.structurepoint.com

WILCO TEXAS

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CR 258

CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20', VERTICAL SCALE: 1" = 20'

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EM	-	SEE TITLE SHEET		CR 258
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EM	TX	AUS	WILCO	XS18
CHECK	CONTROL	SECTION	JOB	
EM	EM	EM	CM	

Form 20872 – Contributing Zone Plan Application

Attachment H – Inspection, Maintenance, Repair and Retrofit Plan

Vegetative Filter Strips

Inspection-

Inspections - Inspect filter strips at least twice annually for erosion or damage to vegetation; however, additional inspection after periods of heavy runoff is most desirable. The strip should be checked for uniformity of grass cover, debris and litter, and areas of sediment accumulation. Most frequent inspections of the grass cover during the first few years after establishment will help to determine if any problems are developing, and to plan for long term restorative maintenance needs. Bare spots and areas of erosion identified during semiannual inspections must be replanted and restored to meet specifications. Construction of a level spreader device may be necessary to reestablish shallow overland flow.

Maintenance-

Sediment Removal – Sediment removal is not normally required in filter strips, since the vegetation normally grows through it and binds it to the soil. However, sediment may accumulate along the upstream boundary of the strip preventing uniform overland flow. Excess sediment should be removed by hand or with flat-bottomed shovels.

Debris and Litter Removal – Trash tends to accumulate in vegetated areas, particularly along highways. Any filter strip structures (i.e. level spreaders) should be kept free of obstructions to reduce floatables being flushed downstream, and for aesthetic reasons. The need for this practice is determined through periodic inspection, but should be performed no less than 4 times per year.

Pest Management – An Integrated Pest Management (IPM) Plan should be developed for vegetated areas. This plan should specify how problem insects and weeds will be controlled with minimal or no use of insecticides and herbicides.

Seasonal Mowing and Lawn Care – If the filter strip is made up of turf grass, it should be mowed as needed to limit vegetation height to 18 inches, using a mulching mower (or removal of clippings). If native grasses are used, the filter may require less frequent mowing, but a minimum of twice annually. Grass clippings and brush debris should not be deposited on vegetated filter strip areas. Regular mowing should also include weed control practices, however herbicide use should be kept to a minimum (Urbonas et al., 1992). Healthy grass can be maintained without using fertilizers because runoff usually contains sufficient nutrients. Irrigation of the site can help assure a dense and healthy vegetative cover.

Record Keeping-

Recording keeping procedures include keeping track of all inspections, maintenance and repairs of the vegetative filter strips.

Repair and Retrofit-

Grass Reseeding and Mulching – A healthy dense grass should be maintained on the filter strip. If areas are eroded, they should be filled, compacted, and reseeded so that the final grade is level. Grass damaged during the sediment removal process should be promptly replaced using the same seed mix used during filter strip establishment. If possible, flow should be diverted from the damaged areas until the grass is firmly established. Bare spots and areas of erosion identified during semiannual inspections must be replanted and restored to meet specifications. Corrective maintenance, such as weeding or replanting should be done more frequently in the first two to three years after installation to ensure stabilization. Dense vegetation may require irrigation immediately after planting, and during particularly dry periods, particularly as the vegetation is initially established.

An amended copy of this document will be provided to the TCEQ within 30 days of any changes in the following information.

Responsible Party for Maintenance: Adam Boatright
Williamson County Engineer

Address: 3151 S.E. Inner Loop

City, State, Zip: Georgetown, TX, 78626

Telephone Number: (512) 943-3374

Signature of Responsible Party: Adam D. Boatright

Date: 10/10/2025

Form 20872 – Contributing Zone Plan Application

Attachment J–Measures For Minimizing Surface Stream Contamination

Surface stream contamination will be minimized through the use of vegetative filter strips designed to capture pollutants along the entire length of the filter strip contributing drainage area before the runoff enters the stream. Energy dissipation and soil stabilization measures such as gabion mattresses and soil retention blankets are proposed where cross drainage structures and ditches discharge into receiving waters and where the channels were regraded. These measures are expected to minimize erosion and stream scour.

Form 20872 – Contributing Zone Plan Application

Attachment K - Stormwater Volume and Character

For the proposed design, the calculated annual runoff volume for the project area is 259,967 cubic feet pre-construction and 293,876 cubic feet post-construction. The runoff coefficients (Rv) calculated, using TCEQ RG-348 equation 3.11, are 0.23 for pre-construction conditions and 0.26 for post construction conditions. Stormwater quality calculations can be found in Attachment M- Construction Plans.

Existing Conditions				
Impervious=	106,489	Sf=	2.44	ac
Pervious=	317,371	sf=	7.29	ac
Total=	423,860	sf=	9.73	ac
% Impervious=	25.1%			

Proposed Conditions				
Impervious=	125,047	sf=	2.87	ac
Pervious=	298,813	sf=	6.86	ac
Total=	423,860	sf=	9.73	ac
% Impervious=	29.5%			

TCEQ-RG348
Equation 3.11
Rv=1.72(IC)^3-1.97(IC)^2+1.23(IC)+.02

Rv(Existing)	0.23
Rv(Proposed)	0.26

TCEQ RG-348 Table 3-3
Williamson County

Average Annual Precipitation	32 in

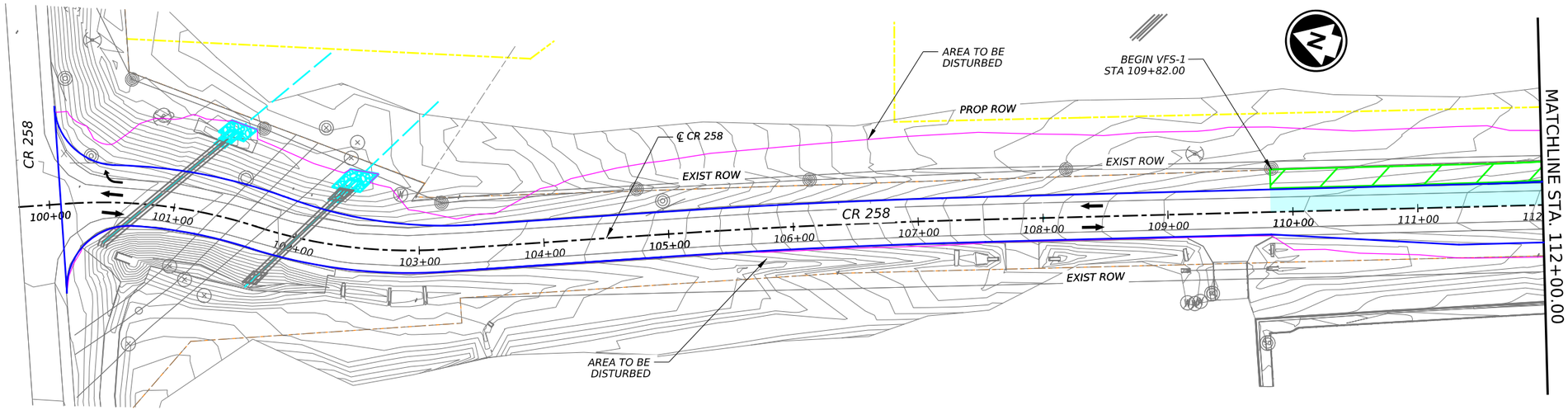
TCEQ RG-348
Equation 3.10

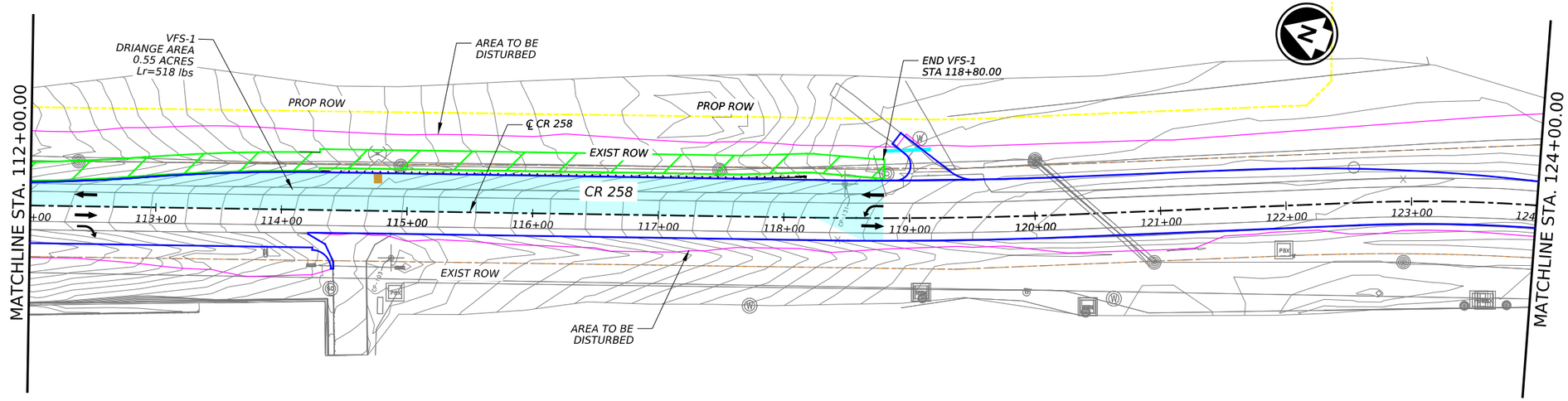
Volume(exist)=	259,967	cf
Volume(prop)=	293,876	cf

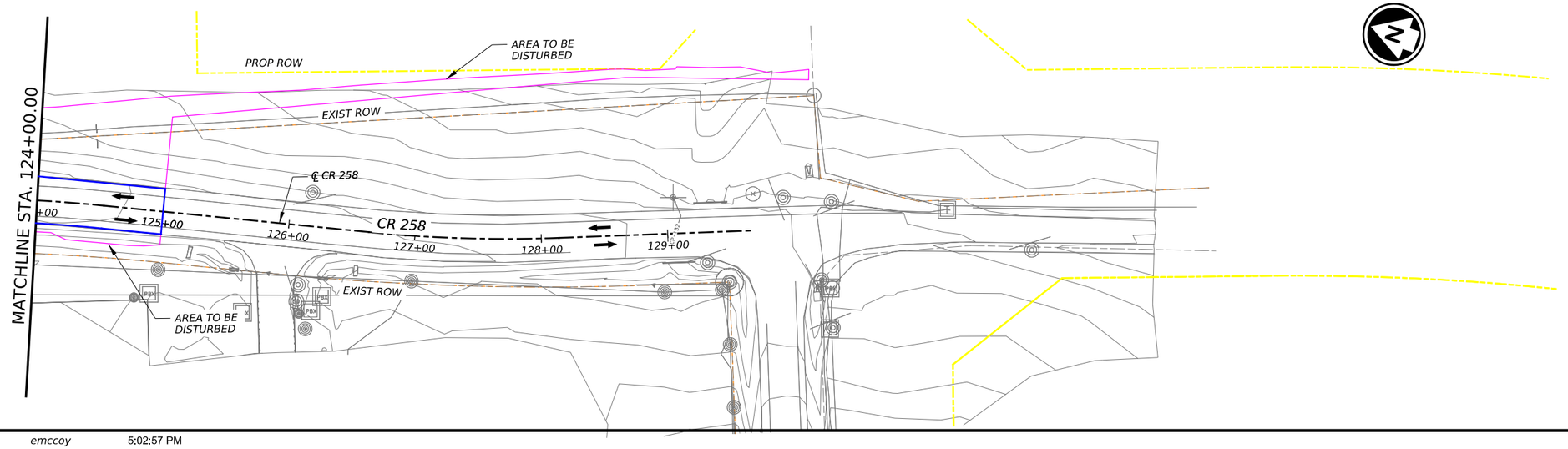
CR 258
Site Plan and TSS Calculations

CM

DW: EM | CK: EM | DW: EM | CK: EM







0 50 100 HORIZONTAL
SCALE IN FEET

STATE OF TEXAS
CHASE W. MYERS
94895
LICENSED PROFESSIONAL ENGINEER

Chase W. Myers PE

10/20/2025

AMERICAN STRUCTUREPOINT INC.

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CR 258

SITE PLAN

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 10/20/2025
FILE: P:\2023\03253\D. Drawings\Sheets\CR 258 - SITE1.dgn

emccoy 5:02:57 PM

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: CR 258
Date Prepared: 10/27/2025

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

County =	Williamson	
Total project area included in plan * =	9.73	acres
Predevelopment impervious area within the limits of the plan * =	2.44	acres
Total post-development impervious area within the limits of the plan* =	2.87	acres
Total post-development impervious cover fraction * =	0.29	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	374	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 1

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	9.73	acres
Predevelopment impervious area within drainage basin/outfall area =	2.44	acres
Post-development impervious area within drainage basin/outfall area =	2.87	acres
Post-development impervious fraction within drainage basin/outfall area =	0.29	
$L_{M\ THIS\ BASIN}$ =	374	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Cartridge Filter

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

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

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

where:

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

A_C =	**0.55**	acres
A_I =	**0.55**	acres
A_P =	**0.00**	acres
L_R =	**518**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**374**	lbs.
F =	**0.72**	

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: Chase Myers

Date: 10/27/2025

Signature of Customer/Agent:

Regulated Entity Name: CR 258

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: Dyeus Branch

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☐ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☐ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

Temporary Stormwater Section

Attachment A

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

1. Clean up leaks and spills immediately.

2. Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.

3. Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

1. Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

2. Use absorbent materials on small spills rather than hosing down or burying the spill.

3. Absorbent materials should be promptly removed and disposed of properly.

4. Follow the practice below for a minor spill:

- 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:

1. Contain spread of the spill.
2. Notify the project foreman immediately.
3. If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

4. If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

5. If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

1. Notify the TCEQ by telephone as soon as possible and within 24 hours at (512)339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

2. For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

3. Notification should first be made by telephone and followed up with a written report.

4. 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.

5. Other agencies which may need to be consulted include, but not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

Vehicle and Equipment Maintenance

1. If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.

2. Regularly inspect onsite vehicles and equipment for leaks and repair immediately

3. Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.

4. Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.

5. Place drip pans or absorbent materials under paving equipment when not in use.

6. Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
7. Promptly transfer used fluids to the proper waste or recycling drums. Donâ€™t leave full drip pans or other open containers lying around.

8. Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.

9. Store cracked batteries in a non- leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

1. If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.

2. Discourage “topping off” of fuel tanks.

3. Always use secondary containment, such as a drain pan, when fueling to catch spills/leaks.

Temporary Stormwater Section

Attachment B

Potential Sources of Contamination

The Stormwater Pollution Prevention Plan is attached in the Temporary Stormwater Section-Appendix A. The plan addresses the following pollutant types:

- Sediment loading during and after conctruction phase
- Waste materials
- Hazardous materials
- Sanitary waste

SUB
dw XXX ck YYY dw XXX ck YYY

GENERAL SEQUENCE OF WORK:

PORTABLE MESSAGE BOARDS WILL BE PLACED A MINIMUM OF TWO WEEKS PRIOR CONSTRUCTION.

INSTALL ADVANCE WARNING SIGNS FOR THE PROJECT IN ACCORDANCE WITH TXDOT BC (1)-21 THRU BC (12)-21 AND THE TEXAS MUTCD.

SETUP SWP3 AND TREE PROTECTION ALONG THE AREA. EROSION AND SEDIMENTATION CONTROL BMPS SHALL REMAIN IN PLACE FROM PREVIOUSLY COMPLETED WORKZONES UNTIL REMOVAL IS APPROVED.

INSTALL DRUMS, BARRIERS AND/OR CHANNELIZING DEVICES, REFER TO THE TCP (2-3)-23 TXDOT STANDARD FOR TYPICAL LANE CLOSURES.

MAINTAIN ACCESS TO ADJACENT DRIVEWAYS AT ALL TIMES.

AFTER EACH COMPLETED PHASE, RELOCATE DRUMS, REMOVE TEMPORARY SIGNAGE AND PAVEMENT MARKING THAT MIGHT BE IN CONFLICT WITH THE SUBSEQUENT PHASE.

OVERVIEW:

THIS PROJECT WILL BE CONSTRUCTED IN THREE (3) PHASES. A BRIEF DESCRIPTION OF EACH PHASE IS AS FOLLOWS:

PHASE-1: CONSTRUCT WIDENING ON THE EAST AND WEST SIDES OF CR 258 WHILE MAINTAINING TRAFFIC ON EXISTING PAVEMENT.

PHASE-2: APPLY 2" HMAC-TY D OVERLAY OVER THE FULL WIDTH OF CR 258.

PHASE-3: INSTALL PERMANENT PAVEMENT MARKINGS AND FINAL ROADWAY ITEMS, AND ESTABLISH VEGETATION WITHIN THE RIGHT-OF-WAY. USE STANDARD DETAILS OR SHORT TERM WORK ZONES AND PERFORM FINAL CLEAN-UP AND REMOVAL OF SWP3 DEVICES.

PHASE-1: WIDENING

MAINTAIN SWP3 MEASURES AND PLACE TRAFFIC CONTROL PLAN DEVICES AS SHOWN IN PLANS AND AS PER TXDOT STANDARDS AND TEXAS MUTCD. CONSTRUCT PROPOSED WIDENED PAVEMENT ON BOTH THE EAST AND WEST SIDES OF CR 258 PER ROADWAY PLANS INCLUDING GRADING ROADSIDE DITCHES AND INSTALL SIGNING.

PHASE-2: OVERLAY

STEP-1: APPLY 2" HMAC-TY D OVERLAY DURING OFF-PEAK HOURS WHILE MAINTAINING TRAFFIC USING ONE-LANE ONE-WAY FLAGGING OPERATIONS. OVER HALF THE WIDTH OF ROADWAY.

STEP-2: APPLY 2" HMAC-TY D OVERLAY DURING OFF-PEAK HOURS WHILE MAINTAINING TRAFFIC USING ONE-LANE, ONE-WAY FLAGGING OPERATIONS. OVER THE OTHER HALF OF THE ROADWAY.

PHASE-3: PAVEMENT MARKINGS & CLEAN-UP

APPLY PERMANENT PAVEMENT MARKINGS PER THE PAVEMENT MARKING PLANS. ESTABLISH VEGETATION ON BOTH SIDES OF ROADWAY FROM OUTER EDGE OF PAVEMENT TO RIGHT-OF-WAY LINES. PERFORM FINAL CLEAN-UP AND REMOVE ALL SWP3 DEVICES.

PAYMENT:

1. REMOVAL OF EXISTING PAVEMENT MARKINGS WILL NOT BE PAID FOR DIRECTLY BUT BE SUBSIDIARY TO **TxDOT ITEM 502** "BARRICADES AND TRAFFIC HANDLING."

2. ALL NECESSARY FLAGGERS, DRUMS, DEVICES, WORK AND MATERIALS FOR APPROPRIATE SIGNING TO SAFELY GUIDE TRAFFIC WILL NOT BE PAID FOR DIRECTLY BUT BE SUBSIDIARY TO **TxDOT ITEM 502** "BARRICADES AND TRAFFIC HANDLING."

STATE OF TEXAS
FRANK H. OLSHEFSKI
61292
LICENSED PROFESSIONAL ENGINEER

Frank H. Olshefski
9-26-2025

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TBPELS Firm Number: 10194551

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WILCO
TEXAS

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CR 258

TRAFFIC CONTROL PLAN SEQUENCE OF WORK (SOW)

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
CJ	CJ	DH	FO	12
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 8/12/2025
FILE: pw://kleinfelder-pw.bentley.com:doucet-pw-01/Documents/Active Projects/24005527.001A/61.0 TR CADD/61.4 Sheets/24005527-SOW.dgn
$USER$ 7:52:37 AM

Temporary Stormwater Section

Attachment D

Temporary Best Management Practices (BMPs)

Proposed temporary erosion, sedimentation, and water quality controls for the project include:

- Silt Fencing
- Rock Filter Dams
- Erosion Control Logs

Details pertaining to quantities, placement, maintenance, and inspection of the temporary BMPs are found in the Stormwater Pollution Prevention Plan attached in TCEQ-20872 Attachment G- Construction Plans.

All temporary stormwater BMPs are meant to minimize erosion and sediment discharge from the project site to receiving waters. Silt fencing will be installed along the downstream perimeter of the areas of proposed soil disturbances to filter stormwater runoff and prevent sedimentation downstream of the project site. Erosion control logs will be placed in areas where offsite drainage is coming into the site. Additionally, rock filter dams will be placed in the proposed roadside ditches and at ditch outfalls to also help with removing sediment generated during construction phase activities. Stabilized construction exits will be installed as directed by the engineer during construction phase to reduce vehicle track-out of sediment from the construction site. All disturbed areas shall be covered with mulch as a means of dust control and to reduce wind erosion. Maintenance of dust controls needs to occur until project site has been finally stabilized.

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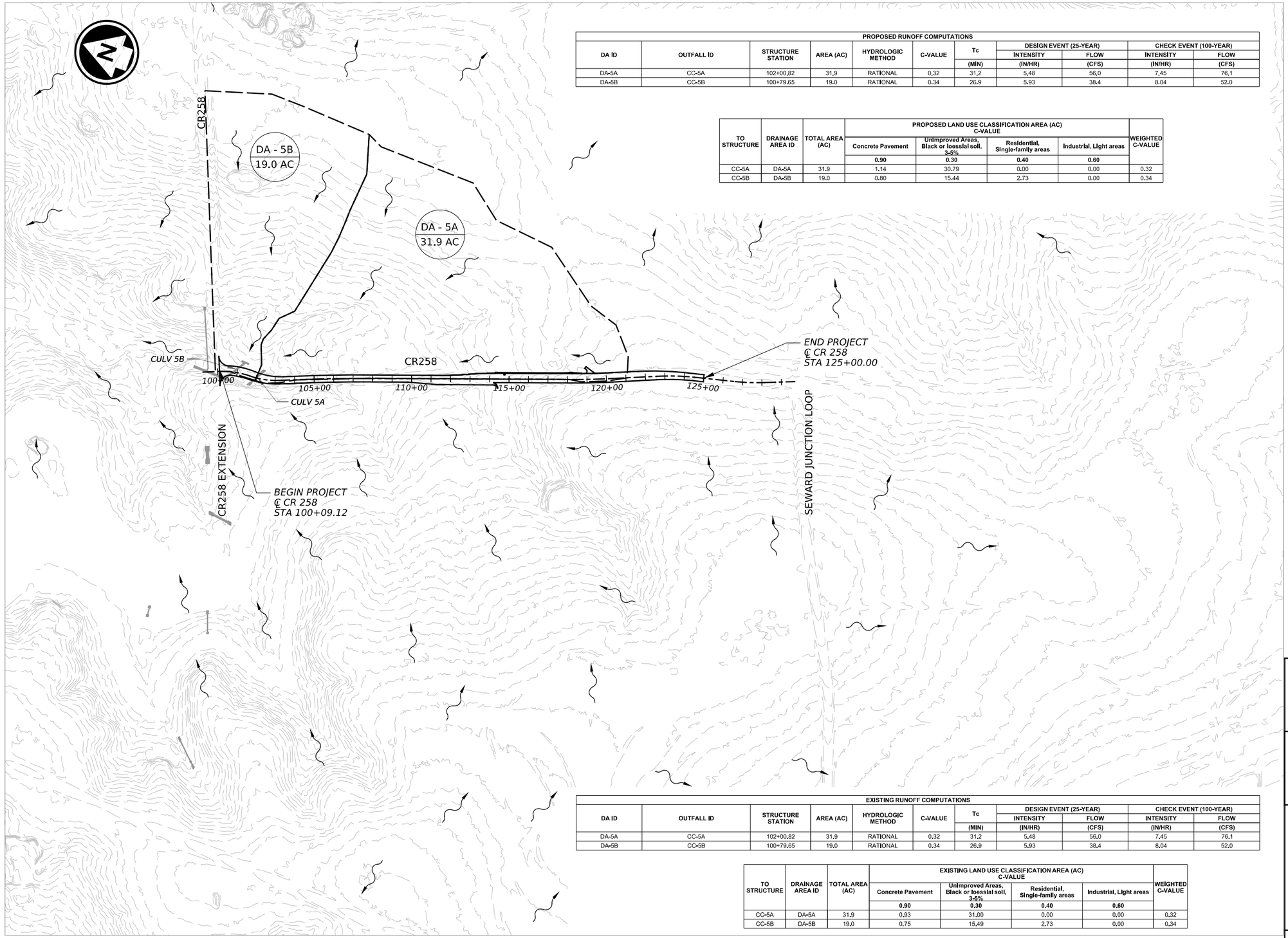

PROPOSED RUNOFF COMPUTATIONS

DA ID	OUTFALL ID	STRUCTURE STATION	AREA (AC)	HYDROLOGIC METHOD	C-VALUE	Tc	DESIGN EVENT (25-YEAR)		CHECK EVENT (100-YEAR)	
							INTENSITY	FLOW	INTENSITY	FLOW
						(MIN)	(IN/HR)	(CFS)	(IN/HR)	(CFS)
DA-5A	CC-5A	102+00.82	31.9	RATIONAL	0.32	31.2	5.48	56.0	7.45	76.1
DA-5B	CC-5B	100+79.65	19.0	RATIONAL	0.34	26.9	5.93	38.4	8.04	52.0

TO STRUCTURE	DRAINAGE AREA ID	TOTAL AREA (AC)	PROPOSED LAND USE CLASSIFICATION AREA (AC) C-VALUE				WEIGHTED C-VALUE
			Concrete Pavement	Unimproved Areas, Black or loesslal soil, 3-5%	Residential, Single-family areas	Industrial, LIght areas	
			0.90	0.30	0.40	0.60	
CC-5A	DA-5A	31.9	1.14	30.79	0.00	0.00	0.32
CC-5B	DA-5B	19.0	0.80	15.44	2.73	0.00	0.34

EXISTING RUNOFF COMPUTATIONS

DA ID	OUTFALL ID	STRUCTURE STATION	AREA (AC)	HYDROLOGIC METHOD	C-VALUE	Tc	DESIGN EVENT (25-YEAR)		CHECK EVENT (100-YEAR)	
							INTENSITY	FLOW	INTENSITY	FLOW
						(MIN)	(IN/HR)	(CFS)	(IN/HR)	(CFS)
DA-5A	CC-5A	102+00.82	31.9	RATIONAL	0.32	31.2	5.48	56.0	7.45	76.1
DA-5B	CC-5B	100+79.65	19.0	RATIONAL	0.34	26.9	5.93	38.4	8.04	52.0

TO STRUCTURE	DRAINAGE AREA ID	TOTAL AREA (AC)	EXISTING LAND USE CLASSIFICATION AREA (AC) C-VALUE				WEIGHTED C-VALUE
			Concrete Pavement	Unimproved Areas, Black or loesslal soil, 3-5%	Residential, SIngle-family areas	Industrial, LIght areas	
			0.90	0.30	0.40	0.60	
CC-5A	DA-5A	31.9	0.93	31.00	0.00	0.00	0.32
CC-5B	DA-5B	19.0	0.75	15.49	2.73	0.00	0.34

LEGEND

- DRAINAGE AREA BOUNDARY
- INTERNAL DRAINAGE AREA BOUNDARY
- FLOW ARROW
- EXISTING CONTOUR
- DA - X / XX — INTERIOR DRAINAGE AREA

0 250 500

SCALE 1:500'

STATE OF TEXAS
JACOB WATTS
139198
LICENSED PROFESSIONAL ENGINEER

10/3/2025

AMERICAN STRUCTUREPOINT INC.
TBPELS FIRM NO. F-10069
810 HESTERS CROSSING RD
SUITE 105
ROUND ROCK, TX 78681
TEL 512.884.6257 FAX 317.543.0270
www.structurepoint.com

WILCO TEXAS

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CR 258

DRAINAGE AREA MAP

SHEET 1 OF 1

DESIGN	GRAPHICS	CHECK	CHECK	SHEET NO.
EM	EM	CM	CM	50
	STATE	COUNTY	PRECINCT	
	TX	WILCO	PCT 2	

DATE: 10/3/2025
FILE: P:\2023\03253\D. Drawings\Master\2023.03253_XRF_RD.DA.MAP_EXIST.dgn

bvitale 9:43:18 AM

Temporary Stormwater Section

Attachment I

Inspection and Maintenance Practices

Maintenance Procedures:

All erosion and sediment controls shall be maintained in good working order. If a repair is necessary, it shall be performed before the next anticipated storm event but no later than seven (7) calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from equipment. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable. Disturbed areas on which construction activities have ceased, temporarily or permanently, shall be stabilized within 14 calendar days unless they are scheduled to and do resume within 21 calendar days. The areas adjacent to creeks and drainageways shall have priority followed by protecting storm sewer inlets.

Inspection Procedures:

For areas of the construction site that have not been finally stabilized, areas used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SW3P must inspect disturbed areas at least once every fourteen (14) calendar days. If this alternative schedule is developed, the inspection must occur on a specifically defined day, regardless of whether or not there has been rainfall since the previous inspection. An Inspection and Maintenance Report shall be prepared for each inspection and the controls shall be revised on the SW3p within seven (7) calendar days following the inspection.

Temporary Stormwater Section

Attachment J

Schedule of Interim and Permanent Soil Stabilization Practices

1. Install temporary erosion control, prepare ROW, and begin excavation.
2. Install culverts and construct roadside ditches
3. Place soil retention blankets on areas with earth-disturbing activities until permanent stabilization occurs.
4. Reseed bare soil as necessary to achieve permanent stabilization at the project site.
5. When all construction activity is complete and the site is stable and approved by Williamson County.

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

I Valerie Covey,
Print Name

Presiding Officer,
Title - Owner/President/Other

of Williamson County, Texas,
Corporation/Partnership/Entity Name

have authorized Chase Myers
Print Name of Agent/Engineer

of American Structurepoint
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:

Valerie Covey
Applicant's Signature

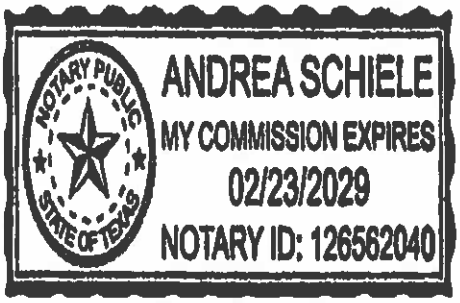
10/14/2025
Date

THE STATE OF Texas §

County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Valerie Covey 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 14 day of October, 2025.



Andrea L. Schiele
Andrea L. Schiele (Oct 15, 2025 12:44 CDT)
NOTARY PUBLIC

Andrea L. Schiele
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 02/23/2029

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: CR 258
Regulated Entity Location: WIlliamson County
Name of Customer: Williamson County
Contact Person: Chase Myers Phone: 512-884-6257
Customer Reference Number (if issued):CN 600897888
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	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residenti	9.73 Acres	$ 5000
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____ Date: 10/27/2025

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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 Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 600897888		**RN**

SECTION II: Customer Information

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

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

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

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

Williamson County

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

11. Type of Customer:

☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☒ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees

☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?

☐ **Yes** ☒ **No**

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

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:	710 S Main Street. Suite 101						
	City	Georgetown	**State**	TX	**ZIP**	78626	**ZIP + 4**

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	ctyjudge@wilco.org

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 943-1550		(512) 943-1662

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

CR 258

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

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	CR 258				
26. Nearest City			**State**	**Nearest ZIP Code**	
Liberty Hill			TX	78642	

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	30.671744		**28. Longitude (W) In Decimal:**	-97.870922	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	40	18.28	97	52	15.32

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)
		237310	

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

Construction of suburban arterial road

34. Mailing Address:	**710 S Main Street Suite 101**						
	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) 943-1550		**(512) 943-1662**

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

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

SECTION IV: Preparer Information

40. Name:	Chase Myers	**41. Title:**	Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512 **)** 884-6257		**( )** -	cmyers@structurepoint.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:	American Structurepoint	**Job Title:**	Project Manager
Name *(In Print):*	Chase Myers	**Phone:**	**(** 512 **)** 884- **6257**
Signature:	Chase W. Myers PE	**Date:**	10/27/2025

CR 258
RIGHT OF WAY DOCUMENTS

REAL ESTATE CONTRACT
CR 258 Right of Way

THIS REAL ESTATE CONTRACT ("Contract") is made by and between **ENCLAVE AT LIBERTY HILL, LLC, a Texas limited liability company, as to an 84% undivided interest, and 2125 HYDEPARK APARTMENTS LLC, a Florida limited liability company, as to a 16% undivided interest** (referred to in this Contract as "Seller", whether one or more) and **WILLIAMSON COUNTY, TEXAS** (referred to in this Contract as "Purchaser"), upon the terms and conditions set forth in this Contract.

ARTICLE I
PURCHASE AND SALE

By this Contract, Seller sells and agrees to convey, and Purchaser purchases and agrees to pay for, the tract(s) of land described as follows:

> All of that certain 4.317-acre (188,049 square foot) tract of land, out of and situated in the B. Manlove Survey, Abstract No. 417, in Williamson County, Texas; being more fully described by metes and bounds in Exhibit "A", attached hereto and incorporated herein (**Parcel 1);**

together with all and singular the rights and appurtenances pertaining to the property, including any right, title and interest of Seller in and to adjacent streets, alleys or rights-of-way (all of such real property, rights, and appurtenances being referred to in this Contract as the "Property"), and any improvements and fixtures situated on and attached to the Property described herein not otherwise retained by Seller, for the consideration and upon and subject to the terms, provisions, and conditions set forth below.

ARTICLE II
PURCHASE PRICE

Purchase Price

2.01. The Purchase Price for the Property described in Exhibit "A", any improvements located upon the Property, and any damage to or cost of cure for the remaining property of Seller, shall be the sum of TWO MILLION EIGHT HUNDRED TWENTY THOUSAND SEVEN HUNDRED THIRTY-FIVE and 00/100 Dollars ($2,820,735.00).

Payment of Purchase Price

2.03. The Purchase Price shall be payable in cash or other readily available funds at the Closing.

ARTICLE III
PURCHASER'S OBLIGATIONS

Conditions to Purchaser's Obligations

3.01. The obligations of Purchaser hereunder to consummate the transactions contemplated hereby are subject to the satisfaction of each of the following conditions (any of which may be waived in whole or in part by Purchaser at or prior to the Closing).

Miscellaneous Conditions

3.02. Seller shall have performed, observed, and complied with all of the covenants, agreements, and conditions required by this Contract to be performed, observed, and complied with by Seller prior to or as of the Closing.

ARTICLE IV
REPRESENTATIONS AND WARRANTIES OF SELLER

4.01. Seller hereby represents and warrants to Purchaser as follows, which representations and warranties shall be deemed made by Seller to Purchaser also as of the Closing Date, to the best of Seller's knowledge:

(a) There are no parties in possession of any portion of the Property as lessees, tenants at sufferance, or trespassers, other than previously disclosed to Purchaser.

(b) Seller has complied with all applicable laws, ordinances, regulations, statutes, rules and restrictions relating to the Property, or any part thereof.

4.02. The Property is being conveyed to Purchaser under threat of condemnation.

ARTICLE V
CLOSING

Closing Date

5.01. The Closing shall be held at the office of Longhorn Title Company on or before January 21, 2026, or at such time, date, and place as Seller and Purchaser may agree upon, or within 10 days after the completion of any title curative matters if necessary for items as shown on the Title Commitment or in the contract (which date is herein referred to as the "Closing Date").

Seller's Obligations at Closing

5.02. At the Closing Seller shall:

(1) Deliver to Purchaser a duly executed and acknowledged Deed conveying good and indefeasible title to Williamson County, Texas in fee simple to the right of way Property described in Exhibit "A", free and clear of any and all monetary liens and restrictions, except for the following:

(a) General real estate taxes for the year of closing and subsequent years not yet due and payable.

(b) Any exceptions approved by Purchaser pursuant to Article III hereof; and

(c) Any exceptions approved by Purchaser in writing.

(2) The Deed shall be in the form as shown in Exhibit "B" attached hereto and incorporated herein.

(3) Provide reasonable assistance as requested, at no cost to Seller, to cause the Title Company to deliver to Purchaser a Texas Owner's Title Policy at Purchaser's sole expense, in Grantee's favor in the full amount of the Purchase Price, insuring Purchaser's contracted interests in and to the permanent interests being conveyed in the Property subject only to those title exceptions listed herein, such other exceptions as may be approved in writing by Purchaser, and the standard printed exceptions contained in the usual form of Texas Owner's Title Policy, provided, however:

(a) The boundary and survey exceptions shall be deleted.

(b) The exception as to restrictive covenants shall be endorsed "None of Record", if applicable; and

(c) The exception as to the lien for taxes shall be limited to the year of closing and shall be endorsed "Not Yet Due and Payable".

(4) Deliver to Purchaser possession of the Property if not previously done.

Purchaser's Obligations at Closing

5.03. At the Closing, Purchaser shall:

(a) Pay the cash portion of the Purchase Price and Additional Compensation, if any.

Prorations

5.04. General real estate taxes for the current year relating to the portion of the Property conveyed in fee simple shall be prorated as of the Closing Date and shall be adjusted in cash at the Closing but shall otherwise remain the obligation of Seller to satisfy. If the Closing shall occur before the tax rate is fixed for the then current year, the apportionment of taxes shall be upon the basis of the tax rate for the next preceding year applied to the latest assessed valuation. Agricultural roll-back taxes, if any, which directly result from this Contract and conveyance shall be paid by Purchaser.

Closing Costs

5.05. All costs and expenses of closing in consummating the sale and purchase of the Property shall be borne and paid as follows:

(1) Owner's Title Policy and survey to be paid by Purchaser.

(2) Deed, tax certificates, and title curative matters, if any, paid by Purchaser.

(3) All other closing costs shall be paid by Purchaser.

(4) Attorney's fees paid by each respectively as incurred.

ARTICLE VI
BREACH BY SELLER

In the event Seller shall fail to fully and timely perform any of its obligations hereunder or shall fail to consummate the sale of the Property for any reason, except Purchaser's default, Purchaser may: (1) enforce specific performance of this Contract; or (2) request that the Escrow Deposit, if any, shall be forthwith returned by the title company to Purchaser.

ARTICLE VII
BREACH BY PURCHASER

In the event Purchaser should fail to consummate the purchase of the Property, the conditions to Purchaser's obligations set forth in Article III having been satisfied and Purchaser being in default and Seller not being in default hereunder, Seller shall have the right to receive the Escrow Deposit, if any, from the title company, the sum being agreed on as liquidated damages for the failure of Purchaser to perform the duties, liabilities, and obligations imposed upon it by the terms and provisions of this Contract, and Seller agrees to accept and take this cash payment as its total damages and relief and as Seller's sole remedy hereunder in such event. If no Escrow Deposit has been made, then Seller shall receive the amount of $500 as liquidated damages for any failure by Purchaser.

ARTICLE VIII
MISCELLANEOUS

Notice

8.01. Any notice required or permitted to be delivered hereunder shall be deemed received when sent by United States mail, postage prepaid, certified mail, return receipt requested, addressed to Seller or Purchaser, as the case may be, at the address set forth opposite the signature of the party.

Texas Law to Apply

8.02. This Contract shall be construed under and in accordance with the laws of the State of Texas, and all obligations of the parties created hereunder are performable in Williamson County, Texas.

Parties Bound

8.03. This Contract shall be binding upon and inure to the benefit of the parties and their respective heirs, executors, administrators, legal representatives, successors and assigns where permitted by this Contract.

Legal Construction

8.04. In case any one or more of the provisions contained in this Contract shall for any reason be held to be invalid, illegal, or unenforceable in any respect, this invalidity, illegality, or unenforceability shall not affect any other provision hereof, and this Contract shall be construed as if the invalid, illegal, or unenforceable provision had never been contained herein.

Prior Agreements Superseded

8.05. This Contract constitutes the sole and only agreement of the parties and supersedes any prior understandings or written or oral agreements between the parties respecting the within subject matter.

Time of Essence

8.06. Time is of the essence in this Contract.

Gender

8.07. Words of any gender used in this Contract shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, and vice versa, unless the context requires otherwise.

Memorandum of Contract

8.08. Upon request of either party, the parties shall promptly execute a memorandum of this Contract suitable for filing of record.

Compliance

8.09 In accordance with the requirements of Section 20 of the Texas Real Estate License Act, Purchaser is hereby advised that it should be furnished with or obtain a policy of title insurance or Purchaser should have the abstract covering the Property examined by an attorney of Purchaser's own selection.

Effective Date

8.10 This Contract shall be effective as of the date it is approved by the Williamson County commissioners' court, which date is indicated beneath the County Judge's signature below.

Counterparts

8.11 This Contract may be executed in any number of counterparts, which may together constitute the Contract. Signatures transmitted by facsimile or electronic mail may be considered effective as originals for purposes of this Contract.

Contingent Possession and Use Agreement

8.12. Upon completion of (1) the full execution of this Contract by all parties, and (2) acknowledgment by the Title Company of delivery by Purchaser of the full Purchase Price to the Title Company, Purchaser, its agents and contractors shall be permitted at any time after December 31, 2025 to enter and possess the Property prior to Closing for the purpose of completing any and all necessary testing, utility relocation and construction activities associated with the proposed Seward Junction improvement construction project of Purchaser, and Seller agrees to make any gate access available to Purchaser, its contractors or utility facility owners as necessary to carry out the purposes of this paragraph. The parties further agree to continue to use diligence in assisting with any title curative measures or mortgage lien release required by the Contract to complete the Closing of the purchase transaction.

SELLER:

ENCLAVE AT LIBERTY HILL, LLC,
a Texas limited liability company, as to an 84% undivided interest

By: K.V.N. Ramakrishna

Name: RAMAKRISHNA KANDULA

Title: MANAGER

Date: 12/10/2025

Address: 603 E. BROADWAY ST

PROSPER, TX 75078

SELLER:

2125 HYDEPARK APARTMENTS LLC,
a Florida limited liability company, as to a 16% undivided interest

By: K.V.N. Ramakrishna

Name: RAMAKRISHNA KANDULA

Title: MANAGER

Date: 12/10/2025

Address: 7901 4TH STREE N, STE 4058

ST. PETERSBURG, FL 33702

PURCHASER:

WILLIAMSON COUNTY, TEXAS

By: Steve Snell (Jan 5, 2026 09:07:18 CST)
Steven Snell
County Judge

Address: 710 Main Street, Suite 101
Georgetown, Texas 78626

Date: Jan 5, 2026

PROPERTY DESCRIPTION FOR PARCEL 1

DESCRIPTION OF A 4.317 ACRE (188,049 SQ. FT.) PARCEL OF LAND OUT OF THE B. MANLOVE SURVEY, ABSTRACT NO. 417, IN WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF THE FOLLOWING TWO (2) TRACTS OF LAND TO ENCLAVE AT LIBERTY HILL, LLC AND 2125 HYDEPARK APARTMENTS, LLC, TRACT NO. ONE A REMAINDER OF A CALLED 10.105 ACRE TRACT, RECORDED ON JULY 12, 2021, IN DOCUMENT NO. 2021103398, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS (O.P.R.W.C.TX.), AND TRACT NO. TWO A PORTION OF A CALLED 94.814 ACRE TRACT, RECORDED ON JULY 12, 2021, IN DOCUMENT NO. 2021103382, O.P.R.W.C.TX.; SAID 4.317 ACRE (188,049 SQ. FT.) PARCEL, AS SHOWN ON A PLAT PREPARED BY SAM, LLC, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" found 219.40 feet left of Engineer's Centerline Station (E.C.S.) 100+51.19 on the existing south right-of-way (R.O.W.) line of County Road 258 (C.R. 258), a variable width R.O.W., being a called 0.375 acre parcel to Williamson County, Texas, recorded in Document No. 2022031320, O.P.R.W.C.TX., for an interior ell corner of said remainder of a called 10.105 acre tract, from which a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" found bears the following two (2) courses and distances: (1) North 21°16'24" West, a distance of 15.00 feet to a calculated point, and (2) North 68°43'36" East, a distance of 113.73 feet;

THENCE, South 68°43'36" West, with the existing south R.O.W. line of said C.R. 258 and north line of said remainder of a called 10.105 acre tract, a distance of 88.68 feet to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" (Surface Coordinates: N=10,219,084.82, E=3,070,735.89) set 131.12 feet left of E.C.S. 100+57.14 on the proposed east R.O.W. line of C.R. 258, for the northeast corner and the **POINT OF BEGINNING** of the parcel described herein;

THENCE, departing the existing south R.O.W. line of said C.R. 258, with the proposed east R.O.W. line of said C.R. 258, over and across said 10.105 acre tract and said 94.814 acre tract, the following sixteen (16) courses and distances numbered 1-16:

1) **South 14°33'33" East,** a distance of **323.56 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 147.40 feet left of E.C.S. 103+99.14,

2) **South 54°11'41" East**, a distance of **72.78 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 187.01 feet left of E.C.S. 104+60.19,

3) **South 17°30"55" East**, a distance of **232.85 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 175.01 feet left of E.C.S. 106+87.19,

4) **South 72°29'05" West**, a distance of **94.84 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 80.23 feet left of E.C.S. 106+84.01,

5) **South 18°41'13" East**, a distance of **495.51 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 78.36 feet left of E.C.S. 111+78.63 for the beginning of a curve to the left,

6) With said curve to the left, having a radius of **6,440.77 feet**, an arc length of **31.01 feet**, through a **delta angle of 00°16'33"**, and a chord that bears **South 18°49'30" East**, a distance of **31.01 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 78.35 feet left of E.C.S. 112+09.64,

7) **South 18°57'46" East**, a distance of **696.60 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 78.70 feet left of E.C.S. 119+08.05 for the beginning of a curve to the left,

8) With said curve to the left, having a radius of **990.12 feet**, an arc length of **54.09 feet**, through a **delta angle of 03°07'48"**, and a chord that bears **South 20°31'40" East**, a distance of **54.08 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 78.63 feet left of E.C.S. 119+63.32,

9) **South 22°05'34" East**, a distance of **254.97 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 79.06 feet left of E.C.S. 122+19.62,

10) **South 64°26'22" East**, a distance of **27.52 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 97.73 feet left of E.C.S. 122+40.12,

11) **North 70°33'38" East**, a distance of **64.83 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 162.49 feet left of E.C.S. 122+43.13,

12) **South 19°27'23" East**, a distance of **292.00 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 175.03 feet left of E.C.S. 125+09.10,

13) **South 70°33'38" West**, a distance of **63.92 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 111.50 feet left of E.C.S. 125+16.08,

14) **South 19°26'22" East**, a distance of **365.82 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 130.84 feet left of E.C.S. 128+98.80,

15) **South 66°23'16" East**, a distance of **77.89 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 186.29 feet left of E.C.S. 129+53.50, and

16) **South 19°19'12" East**, a distance of **65.46 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" set 184.37 feet left of E.C.S. 130+18.94 on the south line of said 94.814 acre tract, also falling on the north line of a remainder of a called 155.911 acre tract of land described in a deed to McCullom 155, LP, recorded in Document No. 2025010733, O.P.R.W.C.TX., for the southeast corner of the parcel described herein, from which a 5/8-inch iron rod with a cap stamped "MCGRAY & MCGRAY" found on existing east R.O.W. line of said C.R. 258, being a called 6.780 acre parcel to Williamson County, Texas, recorded in Document No. 2025068047, O.P.R.W.C.TX., bears South 19°19'12" East, a distance of 2.14 feet;

17) **THENCE**, **South 68°35'14" West**, departing the proposed east R.O.W. line of said C.R. 258, with the south line of said 94.814 acre tract and the north line of said remainder of a called 155.911 acre tract, a distance of **79.50 feet** to a 1-inch iron pipe found on the existing east R.O.W. line of said C.R. 258, for the southwest corner of said 94.814 acre tract and of the parcel described herein, from which a 3/8-inch iron rod found for the southeast corner of a called 95.61 acre tract of land described in a deed to Liberty Hill Independent School District (I.S.D.), recorded in Document No. 2021177340, O.P.R.W.C.TX., bears North 84°33'38" West, a distance of 161.85 feet;

THENCE, departing the north line of said remainder of a called 155.911 acre tract, with the existing east R.O.W. line of said C.R. 258 and the west line of said 94.814 acre tract, the following three (3) courses and distances numbered 18-20:

18) **North 22°05'14" West,** a distance of **1,079.83 feet** to a 1/2-inch iron pipe found,

19) **North 19°16'28" West,** a distance of **1,620.34 feet** to a 1/2-inch iron rod with a plastic cap stamped "QUICK INC RPLS 6447" found, and

20) **North 15°17'26" West,** a distance of **16.35 feet** to a 1/2-inch iron rod with a plastic cap stamped "QUICK INC RPLS 6447" found for the northwest corner of said 94.814 acre tract, from which a 5/8-inch iron rod with an aluminum cap found for an ell corner of said 95.61 acre tract bears South 49°01'58" West, a distance of 88.21 feet;

21) **THENCE**, **South 74°02'52" East**, continuing with the existing east R.O.W. line of said C.R. 258, with the north line of said 94.814 acre tract, a distance of **13.04 feet** to a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" found for the southwest corner of said remainder of a called 10.105 acre tract;

22) **THENCE, North 03°14'16" East**, departing the north line of said 94.814 acre tract, continuing with the existing east R.O.W. line of said C.R. 258 and with the west line of said remainder of a called 10.105 acre tract, a distance of **253.13 feet** to a calculated point for the northwest corner of said remainder of a called 10.105 acre tract and of the parcel described herein, from which a 5/8-inch iron rod with an aluminum cap stamped "WILLIAMSON COUNTY" found bears South 47°13'05" East, a distance of 0.19 feet;

(THIS SPACE INTENTIONALLY LEFT BLANK)

23) **THENCE**, **North 68°43'36" East**, continuing with the existing east R.O.W. line of said C.R. 258 and with the north line of said remainder of a called 10.105 acre tract, a distance of **26.50 feet** to the **POINT OF BEGINNING**, and containing 4.317 acres (188,039 sq. ft.) of land.

Bearing Basis:
All coordinates are based on the Texas Coordinate System, Central Zone (4203), North American Datum of 1983 (NAD83), 2011 Adjustment (Epoch 2010.00). All coordinates shown hereon are surface and may be converted to grid by dividing by a Surface Adjustment Factor of 1.00012.
Units: U.S. Survey Feet.

Abstracting and field surveys were performed from April, 2024 through October, 2025.

A parcel plat of even date was prepared in conjunction with this property description.

THE STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF TRAVIS §

That I, Neil Hines, 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 under my direction and supervision.

WITNESS MY HAND AND SEAL at Austin, Travis County, Texas, on the date shown below.

PRELIMINARY

This document shall not be recorded for any purpose and shall not be used or viewed or relied upon as a final survey document.

SURVEYING AND MAPPING, LLC
4801 Southwest Pkwy
Building Two, Suite 100
Austin, Texas 78735
TX. Firm No. 10064300

Neil Hines Date
Registered Professional Land Surveyor
No. 5642 – State of Texas

EXHIBIT "A"

B. MANLOVE SURVEY, ABSTRACT NO. 417

ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
REMAINDER OF A CALLED 10.105 ACRES
RECORDED JULY 12, 2021
DOCUMENT NO. 2021103398
O.P.R.W.C.TX.

P.O.R.
W/ ALC
"WILLIAMSON COUNTY"

COUNTY ROAD 258
(VARIABLE WIDTH R.O.W.)

WILLIAMSON COUNTY, TEXAS
CALLED 0.375 ACRE
DOCUMENT NO. 2022031320
O.P.R.W.C.TX.

(L2) L2

(L1) L1

P.O.C.
W/ ALC
"WILLIAMSON COUNTY"
100+51.19
219.40' LT

(S68°43'58"W 115.17')

S68°43'36"W 88.68'

P.O.B.
100+57.14
131.12' LT
N=10,219,084.82
E=3,070,735.89

S14°33'33"E 323.56'
PROPOSED R.O.W.

N68°43'36"E 26.50'

N03°14'16"E 253.13'
(S03°14'38"W 253.07')

SEE DETAIL "B" PAGE 6 OF 9

S74°02'52"E 13.04'

1/2" W/PCAP"QUICK INC RPLS 6447"

W/ ALC "WILLIAMSON COUNTY"

1/2" W/PCAP "QUICK INC RPLS 6447"

N15°17'26"W 16.35'

(N74°02'44"W 1,138.16')

N19°16'28"W 1,620.34'

(N19°16'32"W 1620.34')

EXISTING R.O.W.

LINE TABLE

LINE NO.	BEARING	DISTANCE
L1	N21°16'24"W	15.00'
(L1)	(S21°16'02"W)	(15.00')
L2	N68°43'36"E	113.73'
(L2)	(S68°43'58"W)	(113.72')

50' GAS
PIPELINE EASEMENT
MERGER AGREEMENT BETWEEN ECP AND WCP
DOC. NO. 2020082921
O.P.R.W.C.TX.
ENTERPRISE CRUDE PIPELINE, LLC
DESCRIBED IN
DOC. NO. 2016010597
O.P.R.W.C.TX.

ENGINEER'S CENTERLINE CURVE DATA

PI	100+92.50'
Δ	21°41'46.8" (RT)
D	14°19'26.2"
T	76.65'
L	151.47'
R	400.00'
PC	100+15.84
PT	101+67.31

PI	102+43.97
Δ	21°41'46.8" (LT)
D	14°19'26.2"
T	76.65'
L	151.47'
R	400.00'
PC	101+67.31
PT	103+18.78

ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
CALLED 94.814 ACRES
RECORDED JULY 12, 2021
DOCUMENT NO. 2021103382
O.P.R.W.C.TX.

104+60.19
187.01' LT

S17°30'55"E 232.85'
PROPOSED R.O.W.

106+87.19
175.01' LT

S54°11'41"E
72.78'

103+99.14
147.40' LT

1

4.317 AC.
(188,049 SQ. FT.)

S72°29'05"W 94.84'

106+84.01
80.23' LT

S18°41'13"E 495.51'
PROPOSED R.O.W.

MATCH LINE PAGE 6 OF 10

PRC 101+67.31

102+00

S21°13'36.5"E 174.04'

S49°01'58"W
88.21'

ENGINEER'S CENTERLINE

S18°51'27"E 1,071.43'

108+00

PT 103+18.78

PT 103+18.78

PT 107+53.35

P.O.R.
W/ALC

LIBERTY HILL I.S.D
CALLED 95.61 ACRES
DOCUMENT NO. 2021177340
O.P.R.W.C.TX.

REF. FIELD NOTE NO. 51609

FILE:\\saminc\AUS\PROJECTS\1024086845A\100\Survey\03Exhibits\Parcel_1_Combined\Parcel 1_10.12

EXISTING	*104.544 AC.	ACQUIRE	4.317 AC.	REMAINING	100.227 AC. LEFT

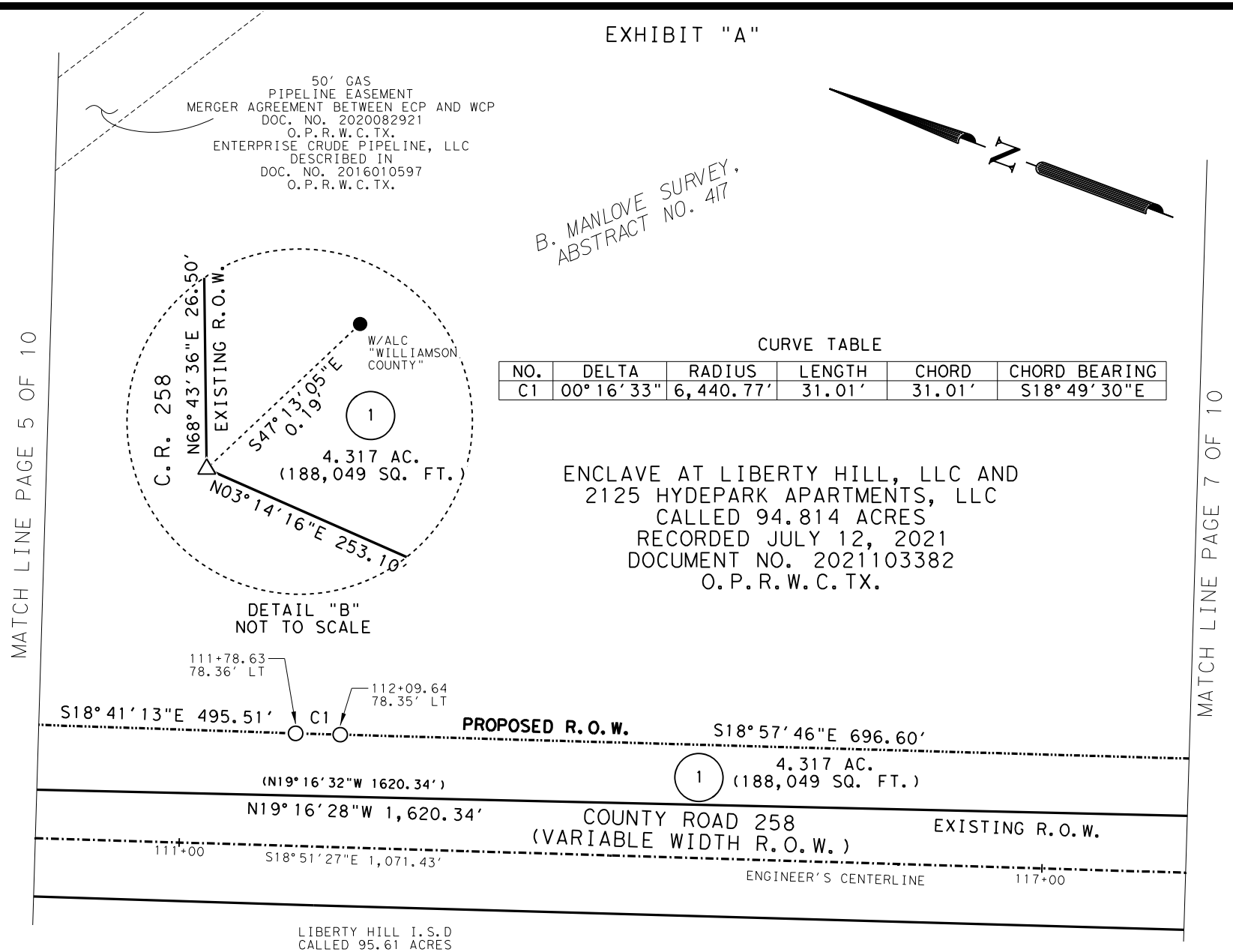
100 0 50 100

GRAPHIC SCALE
SCALE: 1" = 100'
WILLIAMSON COUNTY, TEXAS

SAM™
4801 Southwest Parkway
Building Two, Suite 100
Austin, Texas 78735
(512) 447-0575
Fax: (512) 326-3029
Texas Firm Registration No. 10064300

PARCEL SKETCH
SHOWING PROPERTY OF
ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
PARCEL 1
4.317 AC. (188,049 SQ. FT.)

EXHIBIT "A"



CURVE TABLE

NO.	DELTA	RADIUS	LENGTH	CHORD	CHORD BEARING
C1	00°16'33"	6,440.77'	31.01'	31.01'	S18°49'30"E

ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
CALLED 94.814 ACRES
RECORDED JULY 12, 2021
DOCUMENT NO. 2021103382
O.P.R.W.C.TX.

100 0 50 100

GRAPHIC SCALE
SCALE: 1" = 100'
WILLIAMSON COUNTY, TEXAS

REF. FIELD NOTE NO. 51609

FILE:\\saminc\AUS\PROJECTS\1024086845A\100\Survey\03Exhibits\Parcel_1_Combined\Parcel 1_2_10.12

EXISTING	*104.544 AC.	ACQUIRE	4.317 AC.	REMAINING	100.227 AC. LEFT

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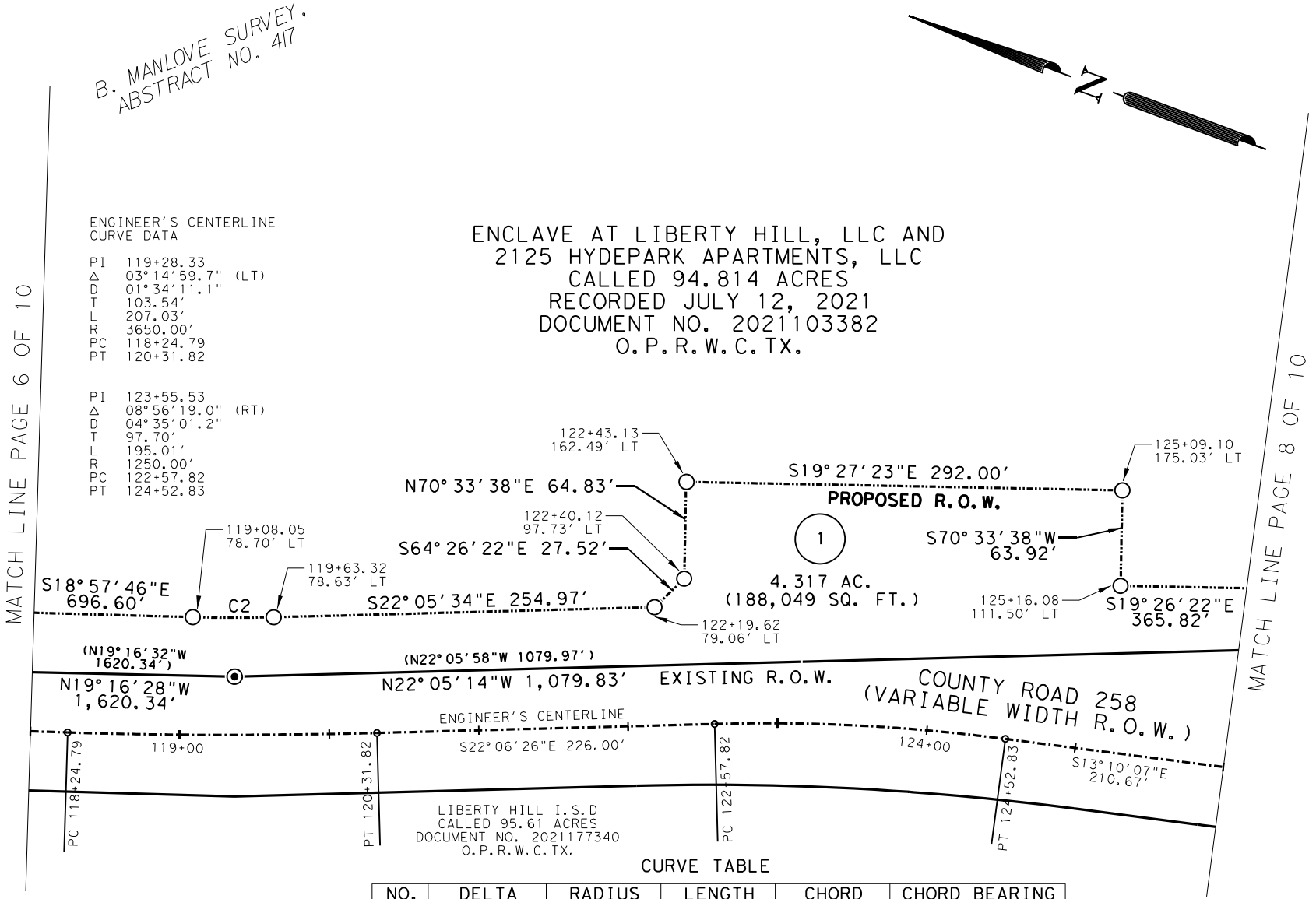
PARCEL SKETCH
SHOWING PROPERTY OF
ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
PARCEL 1
4.317 AC. (188,049 SQ. FT.)

EXHIBIT "A"



CURVE TABLE

NO.	DELTA	RADIUS	LENGTH	CHORD	CHORD BEARING
C2	03°07'48"	990.12'	54.09'	54.08'	S20°31'40"E

REF. FIELD NOTE NO. 51609

FILE:\\saminc\AUS\PROJECTS\1024086845A\100\Survey\03Exhibits\Parcel_1_Combined\Parcel 1_10.12

EXISTING	*104.544 AC.	ACQUIRE	4.317 AC.	REMAINING	100.227 AC. LEFT

100 0 50 100

GRAPHIC SCALE
SCALE: 1" = 100'
WILLIAMSON COUNTY, TEXAS

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PARCEL SKETCH
SHOWING PROPERTY OF
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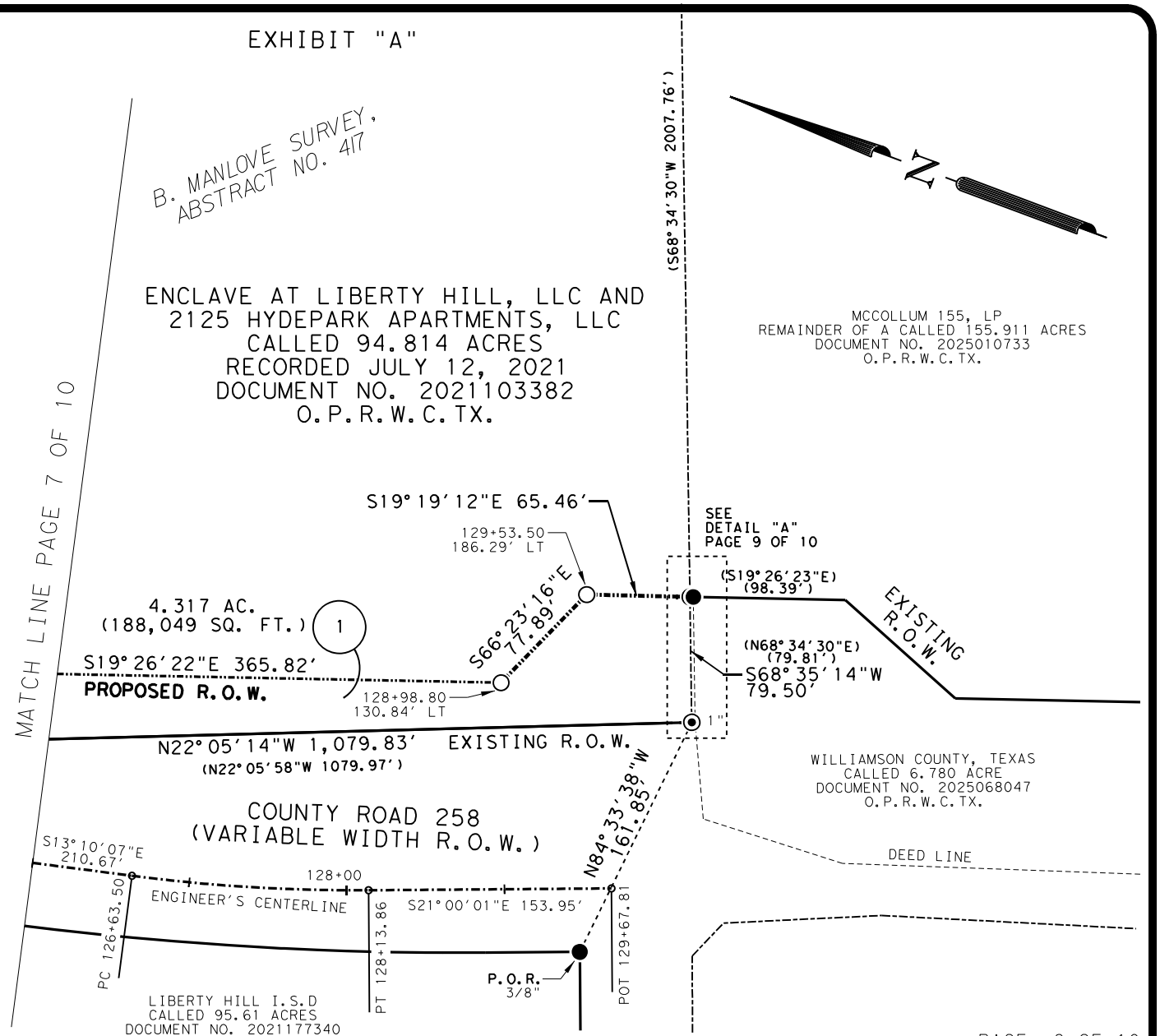
2125 HYDEPARK APARTMENTS, LLC
PARCEL 1
4.317 AC. (188,049 SQ. FT.)

EXHIBIT "A"



ENGINEER'S CENTERLINE
CURVE DATA

PI	127+38.80
△	07°49'53.7" (LT)
D	05°12'31.3"
T	75.29'
L	150.36'
R	1100.00'
PC	126+63.50
PT	128+13.86

100 0 50 100

GRAPHIC SCALE
SCALE: 1" = 100'
WILLIAMSON COUNTY, TEXAS

PAGE 8 OF 10
REF. FIELD NOTE NO. 51609

FILE:\\saminc\AUS\PROJECTS\1024086845A\100\Survey\03Exhibits\Parcel_1_Combined\Parcel 1_2_10.12

EXISTING	*104.544 AC.	ACQUIRE	4.317 AC.	REMAINING	100.227 AC. LEFT

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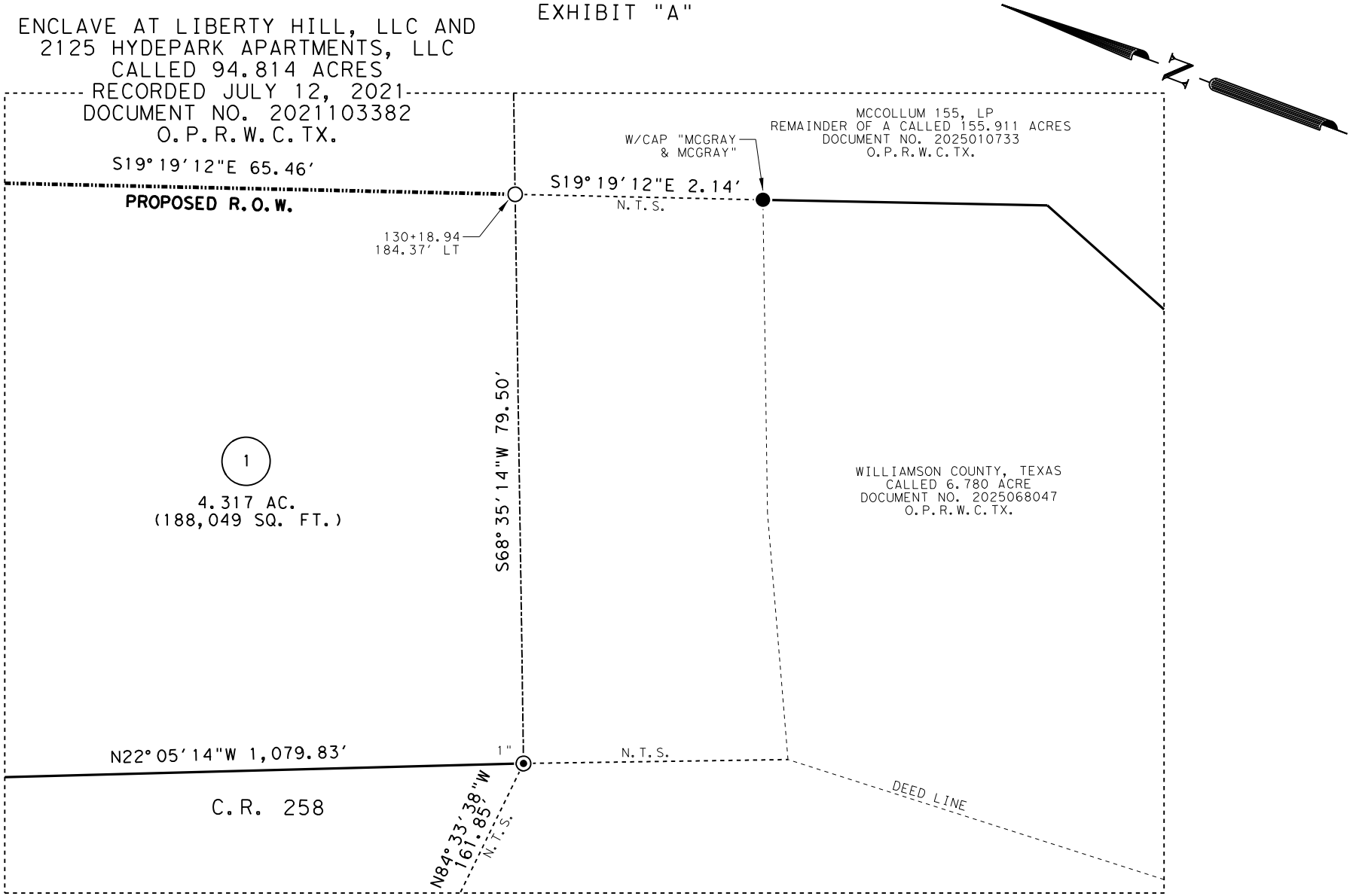
PARCEL SKETCH
SHOWING PROPERTY OF
ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
PARCEL 1
4.317 AC. (188,049 SQ. FT.)

EXHIBIT "A"



DETAIL "B"
NOT TO SCALE

REF. FIELD NOTE NO. 51609

FILE:\\saminc\AUS\PROJECTS\1024086845A\100\Survey\03Exhibits\Parcel_1_Combined\Parcel 1_10.12

EXISTING	*104.544 AC.	ACQUIRE	4.317 AC.	REMAINING	100.227 AC. LEFT

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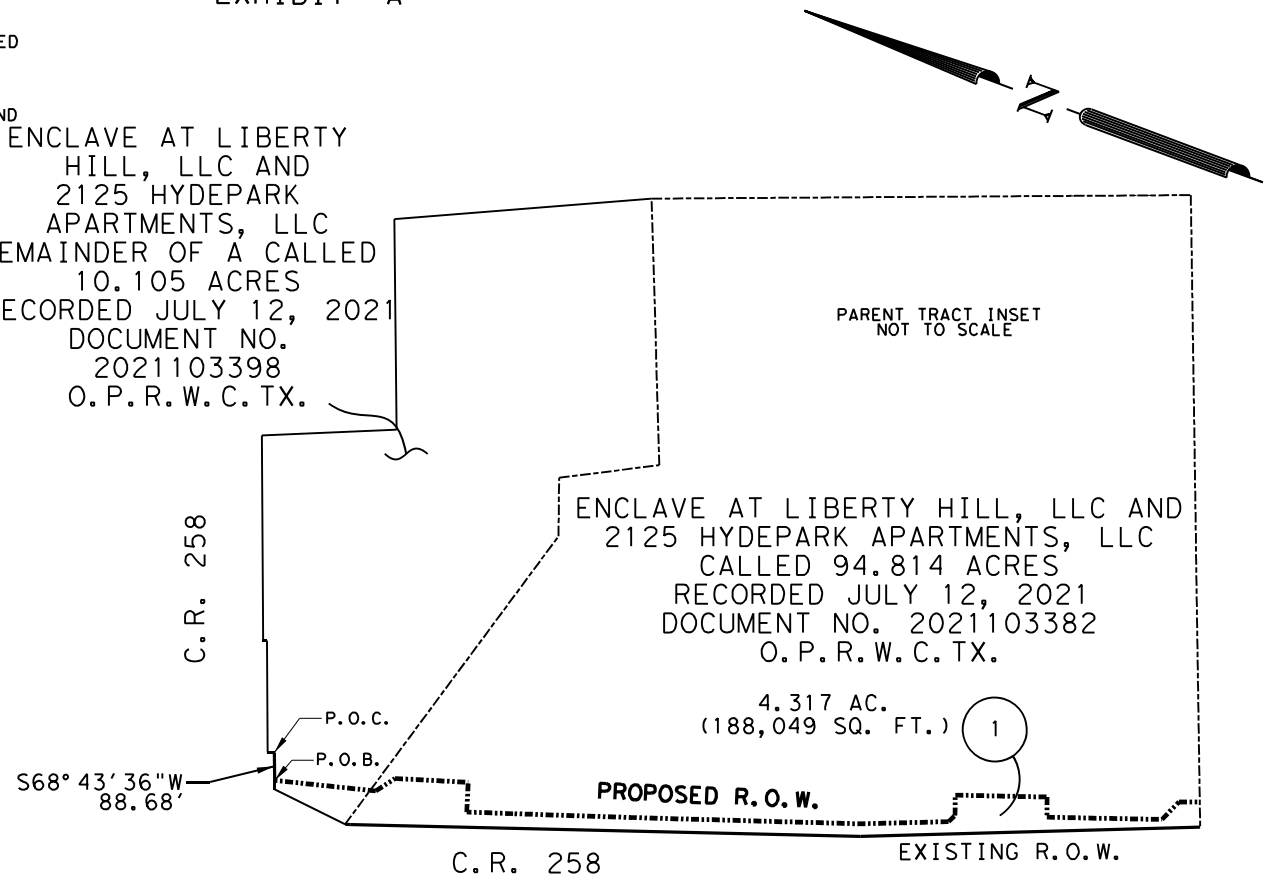
SHOWING PROPERTY OF
ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
PARCEL 1
4.317 AC. (188,049 SQ. FT.)

EXHIBIT "A"

LEGEND

○	5/8" IRON ROD SET WITH ALUMINUM CAP STAMPED "WILLIAMSON COUNTY"
■	TXDOT TYPE I CONCRETE MONUMENT FOUND
⊡	TXDOT TYPE II BRONZE DISK IN CONCRETE FOUND
●	5/8" IRON ROD FOUND (UNLESS NOTED)
⊙	1/2" IRON PIPE FOUND (UNLESS NOTED)
◎	COTTON SPINDLE FOUND
⊕	MAG NAIL FOUND (UNLESS NOTED)
✖	"X" SCRIBED IN CONCRETE FOUND
⬡	FENCE POST (TYPE NOTED)
△	CALCULATED POINT
( )	RECORD INFORMATION
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT
P.O.R.	POINT OF REFERENCE
N.T.S.	NOT TO SCALE
R.O.W.	RIGHT-OF-WAY
D.R.W.C.TX.	DEED RECORDS OF WILLIAMSON COUNTY, TEXAS
P.R.W.C.TX.	PLAT RECORDS OF WILLIAMSON COUNTY, TEXAS
O.P.R.W.C.TX.	OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS
O.R.W.C.TX.	OFFICIAL RECORDS OF WILLIAMSON COUNTY, TEXAS
---/----	DISTANCE N.T.S.
---Z---	DEED LINE (COMMON OWNERSHIP)
---℄---	PROPERTY LINE
_ _ _ _	APPROXIMATE SURVEY LINE
- - - -	R.O.W. DEED LINE
———	EXISTING R.O.W. LINE
——·——	PROPOSED R.O.W. LINE
- - - -	EXISTING EASEMENT LINE
- - - -	FLY-TIE LINE



NOTES:

1. ALL COORDINATES SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83, 2011 ADJUSTMENT (EPOCH 2010.00) / NAVD88, GEOID 18. ALL COORDINATES SHOWN HEREON ARE SURFACE AND MAY BE CONVERTED TO GRID BY DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00012.
   UNITS: U.S. SURVEY FEET
2. THIS SURVEY WAS COMPLETED WITHOUT THE BENEFIT OF A TITLE REPORT. THERE MAY BE EASEMENTS OR OTHER SURVEY MATTERS, RECORDED OR UNRECORDED, THAT MAY NOT BE SHOWN.
3. ABSTRACTING AND FIELD SURVEYRS WERE PERFOMED FROM APRIL, 2024 THROUGH OCTOBER, 2025.
4. ENGINEER'S CENTERLINE ALIGNMENT DERVIED FROM AMERICAN STRUCTUREPOINT, INC. RECIEVED BY SAM, LLC IN OCTOBER, 2025.
5. A PROPERTY DESCRIPTION OF EVEN DATE WAS PREPARED IN CONJUNCTION WITH THIS PARCEL PLAT.

* AREA CALCULATED BY SAM, LLC

I HEREBY CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND UNDER MY DIRECTION AND SUPERVISION AND THAT THIS PLAT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

PRELIMINARY

This document shall not be recorded for any purpose and shall not be used or viewed or relied upon as a final survey document.

NEIL HINES
REGISTERED PROFESSIONAL LAND SURVEYOR
NO. 5642, STATE OF TEXAS

DATE

REF. FIELD NOTE NO. 51609

FILE:\\saminc\AUS\PROJECTS\1024086845A\100\Survey\03Exhibits\Parcel_1_Combined\Parcel 1_10.12

EXISTING	*104.544 AC.	ACQUIRE	4.317 AC.	REMAINING	100.227 AC. LEFT

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Fax: (512) 326-3029
Texas Firm Registration No. 10064300

PARCEL SKETCH
SHOWING PROPERTY OF
ENCLAVE AT LIBERTY HILL, LLC AND
2125 HYDEPARK APARTMENTS, LLC
PARCEL 1
4.317 AC. (188,049 SQ. FT.)

EXHIBIT "B"

Parcel 1

SPECIAL WARRANTY DEED
CR 258 Right of Way

THE STATE OF TEXAS §
§
COUNTY OF WILLIAMSON §

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

NOW, THEREFORE, KNOW ALL BY THESE PRESENTS:

That **ENCLAVE AT LIBERTY HILL, LLC, a Texas limited liability company, as to an 84% undivided interest, and 2125 HYDEPARK APARTMENTS LLC, a Florida limited liability company, as to a 16% undivided interest,** hereinafter referred to as Grantor, whether one or more, for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration to Grantor in hand paid by Williamson County, Texas, the receipt and sufficiency of which is hereby acknowledged, and for which no lien is retained, either expressed or implied, have this day Sold and by these presents do Grant, Bargain, Sell and Convey unto **WILLIAMSON COUNTY, TEXAS**, all that certain tract(s) or parcel(s) of land lying and being situated in the County of Williamson, State of Texas, along with any improvements thereon, being more particularly described as follows (the "Property"):

> All of that certain 4.317 acre (188,049 square foot) tract of land, out of and situated in the B. Manlove Survey, Abstract No. 417, in Williamson County, Texas; being more fully described by metes and bounds in Exhibit "A", attached hereto and incorporated herein (**Parcel 1);**

SAVE AND EXCEPT, HOWEVER, it is expressly understood and agreed that Grantor is retaining title to the following improvements located on the Property, to wit: NONE

RESERVATIONS FROM AND EXCEPTIONS TO CONVEYANCE AND WARRANTY:

Visible and apparent easements not appearing of record.

Any discrepancies, conflicts, or shortages in area or boundary lines or any encroachments or any overlapping of improvements which a current survey would show.

Easements, restrictions, reservations, covenants, conditions, oil and gas leases, mineral severances, and encumbrances for taxes and assessments (other than liens and conveyances) presently of record in the Official Public Records of Williamson County, Texas, that affect the property, but only to the extent that said items are still valid and in force and effect at this time.

Grantor reserves all of the oil, gas and other minerals in and under the land herein conveyed but waives all rights of ingress and egress to the surface thereof for the purpose of exploring, developing, mining or drilling or pumping the same; provided, however, that operations for exploration or recovery of any such minerals shall be permissible so long as all surface operations in connection therewith are located at a point outside the acquired parcel and upon the condition that none of such operations shall be conducted so near the surface of said land as to interfere with the intended use thereof or in any way interfere with, jeopardize, or endanger the facilities of Williamson County, Texas or create a hazard to the public users thereof; it being intended, however, that nothing in this reservation shall affect the title and the rights of Grantee to take and use without additional compensation any, stone, earth, gravel, caliche, iron ore, gravel or any other road building material upon, in and under said land for the construction and maintenance of Grantee's roadway facilities and all related appurtenances.

TO HAVE AND TO HOLD the property herein described and herein conveyed together with all and singular the rights and appurtenances thereto in any wise belonging unto Williamson County, Texas and its assigns forever; and Grantor does hereby bind itself, its heirs, executors, administrators, successors and assigns to Warrant and Forever Defend all and singular the said premises herein conveyed unto Williamson County, Texas and its assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof when the claim is by, through, or under Grantor but not otherwise.

This deed is being delivered in lieu of condemnation.

IN WITNESS WHEREOF, this instrument is executed on this the ___ day of _____, 202___.

[signature page follows]

GRANTOR:

ENCLAVE AT LIBERTY HILL, LLC,
a Texas limited liability company, as to an 84% undivided interest

By:_____

Name:_____

Title:_____

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF _____ §

This instrument was acknowledged before me on this the ____ day of _____ 202__ by _____, in the capacity and for the purposes and consideration recited therein.

_____
Notary Public, State of Texas

GRANTOR:

2125 HYDEPARK APARTMENTS LLC,
a Florida limited liability company, as to a 16% undivided interest

By:_____

Name:_____

Title:_____

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF _____ §

This instrument was acknowledged before me on this the ____ day of _____ 202__ by _____, in the capacity and for the purposes and consideration recited therein.

_____
Notary Public, State of Texas

PREPARED IN THE OFFICE OF:

Sheets & Crossfield, PLLC
309 East Main
Round Rock, Texas 78664

GRANTEE'S MAILING ADDRESS:

Williamson County, Texas
Attn: County Auditor
710 Main Street, Suite 101
Georgetown, Texas 78626

AFTER RECORDING RETURN TO:

12/30/25 Agenda Item #69

Final Audit Report 2026-01-05

Created:	2026-01-02
By:	Alexandra Brunner (alexandra@scrrlaw.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAA8OT76xbSpII8BhgYvULjb-6swgJu1dul

"12/30/25 Agenda Item #69" History

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