FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
15	F 2B24(170)		1
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	MEDINA	
CONT.	SECT.	JOB	HIGHWAY NO.
0848	04	052	FM 462

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT
PROJECT NO. F 2B24(170)
CSJ:0848-04-052

MEDINA COUNTY
FM 462

LIMITS FROM: 1.5 MI NORTH OF CR 331
TO: CR 433

NET LENGTH OF ROADWAY = 30200 FT = 5.720 MI
NET LENGTH OF BRIDGE = 0 FT = 0 MI
NET LENGTH OF PROJECT = 30200 FT = 5.720 MI

DESIGN SPEED = 30 MPH
AREA OF DISTRUBED SOIL = 38.61 AC
A.D.T. (2024)= 700
A.D.T. (2044)= 900

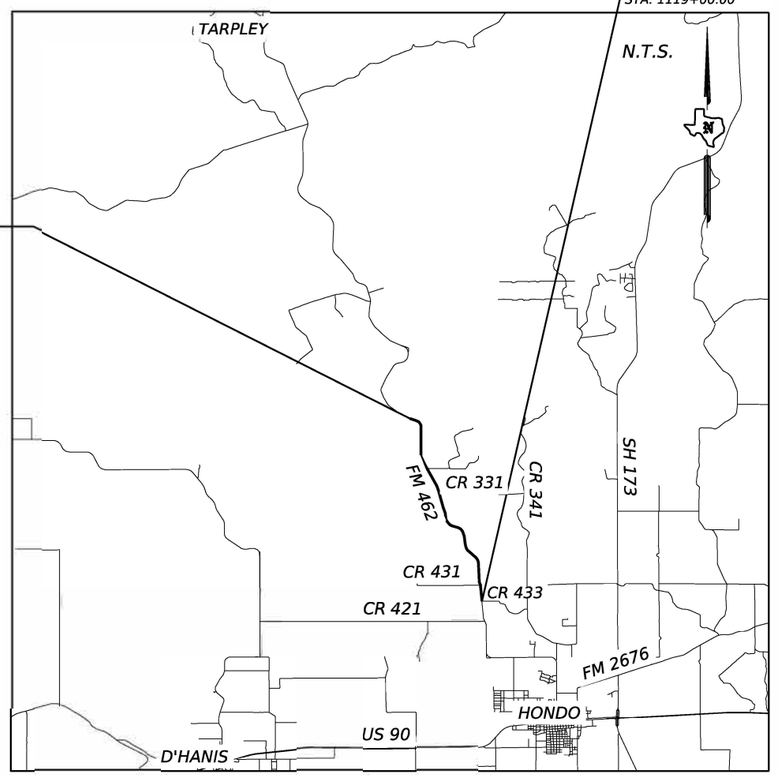
INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

FOR WORK CONSISTING OF REHABILITATION AND WIDENING OF EXISTING ROAD

BEGIN PROJECT
CSJ: 0848-04-052
STA: 817+00.00

END PROJECT
CSJ: 0848-04-052
STA: 1119+00.00



EXCEPTIONS: NONE
EQUATIONS: NONE
R.R. CROSSINGS: NONE

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, OCTOBER 23, 2023)

PLANS PREPARED BY

Kimley»Horn F-928

10814 JOLLYVILLE ROAD, CAMPUS IV,
SUITE 200, AUSTIN, TX 78759
TEL: 512-418-1771
FAX: 972-239-3820

FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS ACCEPTED: _____

FINAL CONTRACT COST: $ _____

CONTRACTOR: _____

FINAL PLANS STATEMENT:

THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS.

_____ *P.E.* _____
AREA ENGINEER *DATE*

TEXAS DEPARTMENT OF TRANSPORTATION

SUBMITTED FOR LETTING 3/20/2024
DocuSigned by: Roger G. Collard, P.E.
TRANSPORTATION ENGINEER SUPERVISOR

RECOMMENDED FOR LETTING 3/21/2024
DocuSigned by: Clayton Ripps, P.E.
DEPUTY DISTRICT ENGINEER

REVIEWED FOR LETTING 3/20/2024
DocuSigned by: D.R. Rogers, P.E.
TRANSPORTATION ENGINEER SUPERVISOR

APPROVED FOR LETTING 3/25/2024
DocuSigned by: Charles Benavides
DISTRICT ENGINEER

COUNTY _____ *PROJ. NO.* _____
HWY. NO. _____ *LETTING DATE* _____
DATE ACCEPTED _____

FILE LOCATION AND NAME
T:\Engdata\Standards\Design\TITLESHEET-2014Specs.DGN

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1/31/2024

STATE OF TEXAS
TREY NEAL
106194
LICENSED
PROFESSIONAL ENGINEER

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A "*" HAVE BEEN SELECTED BY ME OR UNDER MY SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

Kimley»Horn F-928

Texas Department of Transportation

FM 462

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0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		2

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1/31/2024

STATE OF TEXAS
TREY NEAL
106194
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0' 250' 500'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

PROJECT LAYOUT

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
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SAT	MEDINA		3

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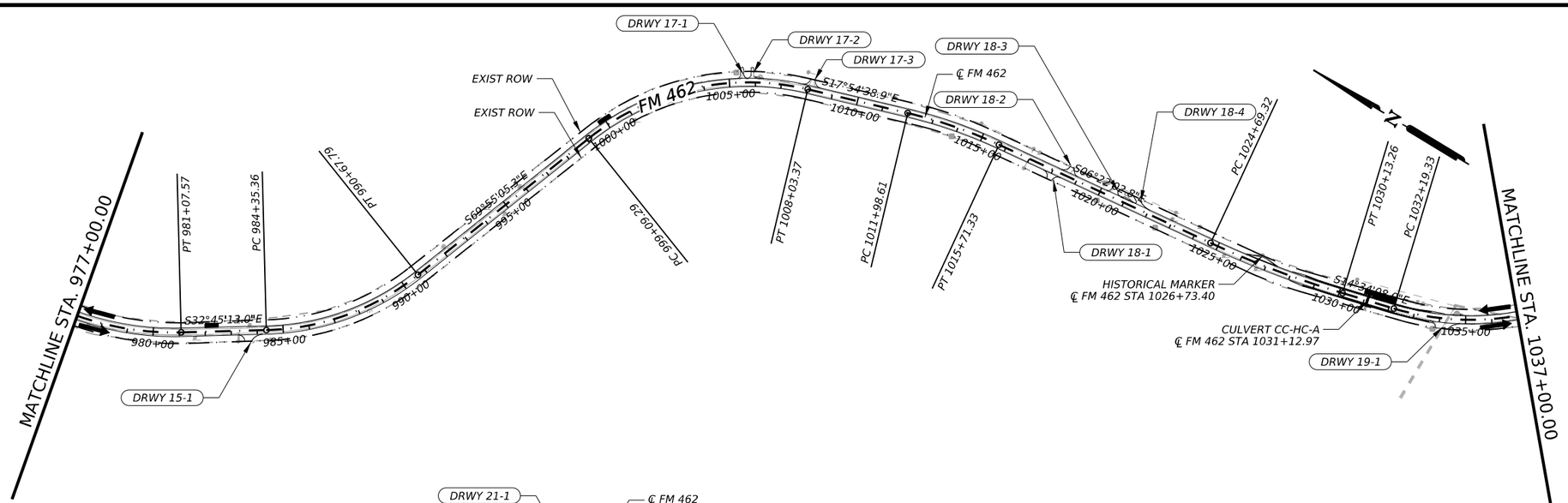

1/31/2024

STATE OF TEXAS
TREY NEAL
106194
LICENSED
PROFESSIONAL ENGINEER

0' 250' 500'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

PROJECT LAYOUT

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		4

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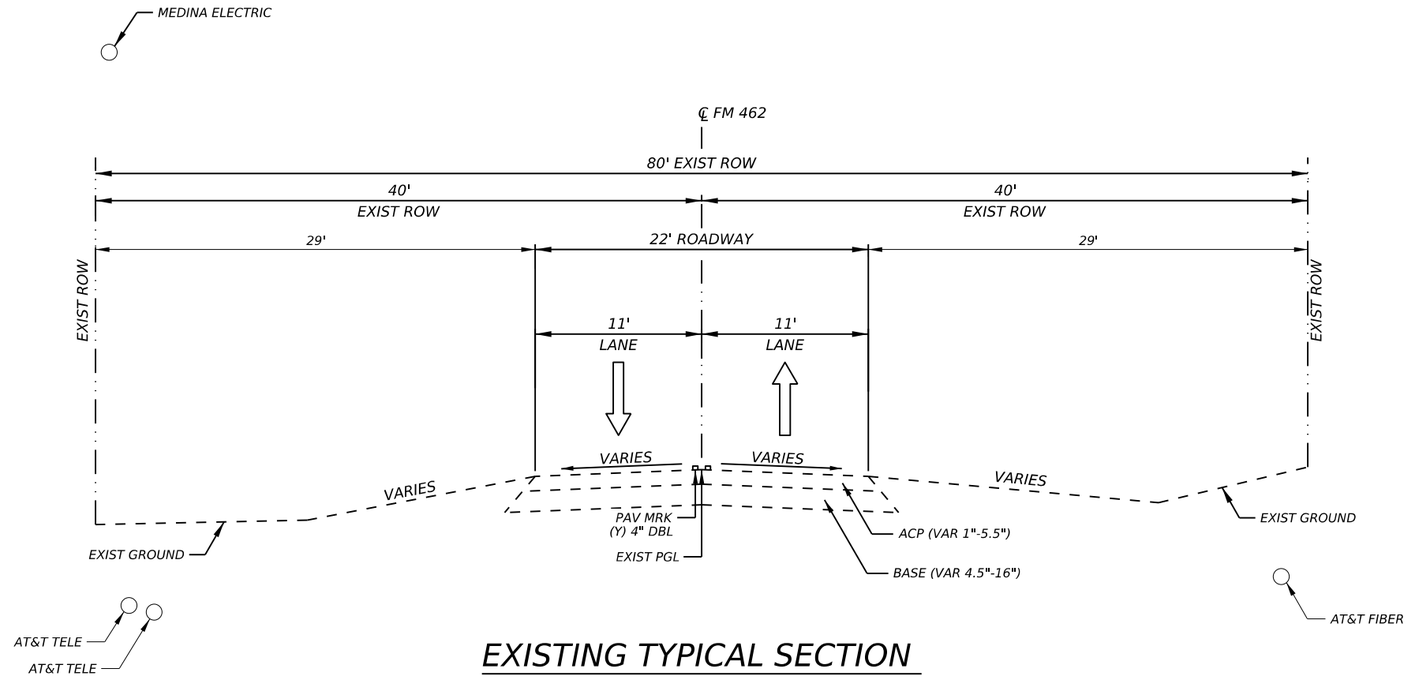

EXISTING TYPICAL SECTION

1/31/2024

STATE OF TEXAS
TREY NEAL
106194
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PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

FM 462

EXISTING
TYPICAL SECTION

SHEET 1 OF 1

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DIST	COUNTY		SHEET NO.
SAT	MEDINA		5

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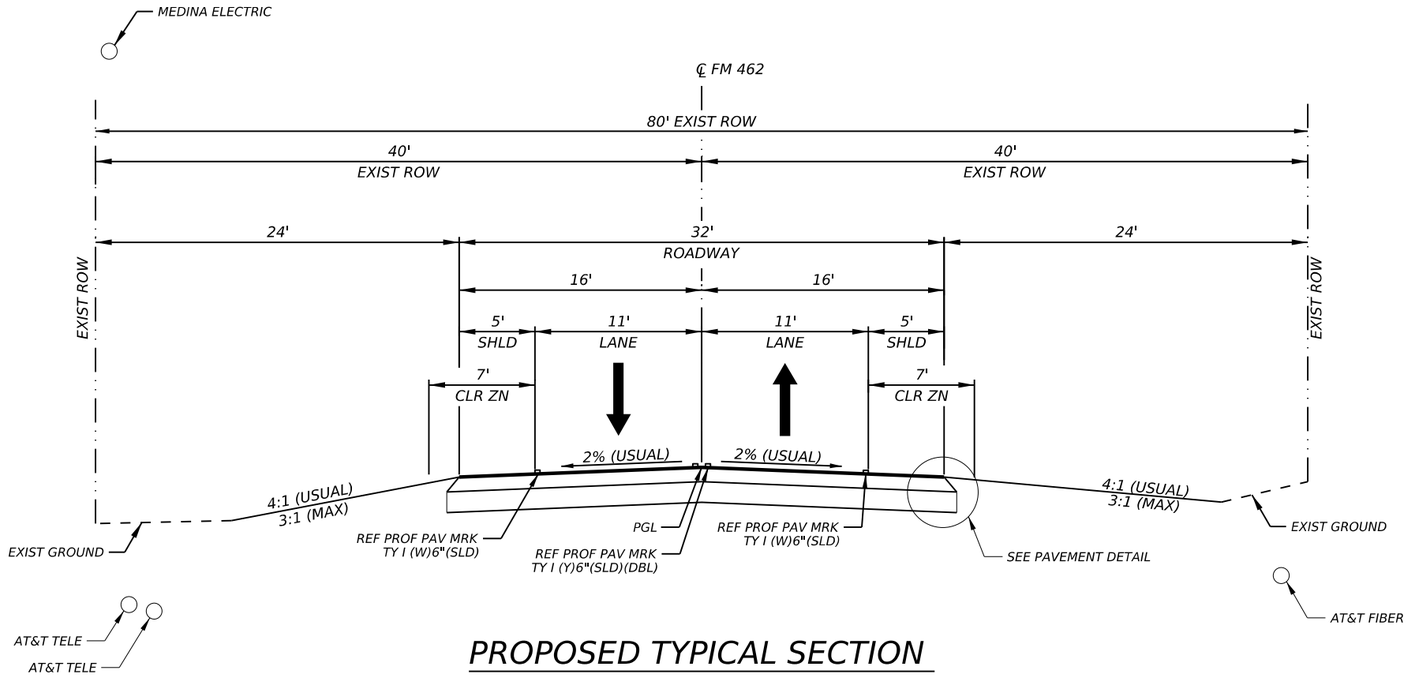
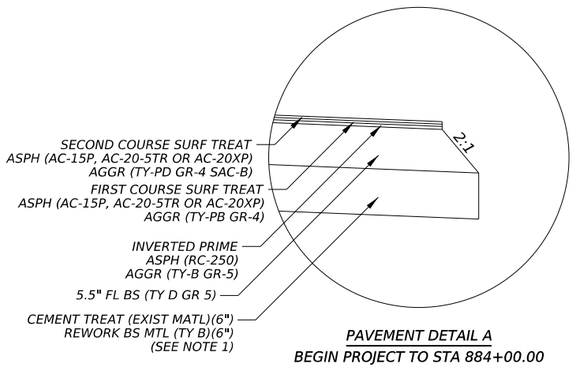
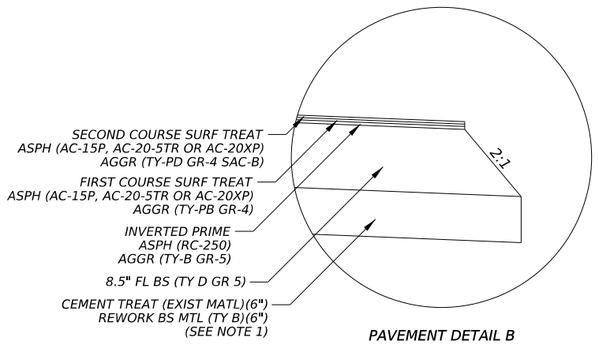


PROPOSED TYPICAL SECTION



PAVEMENT DETAIL A
BEGIN PROJECT TO STA 884+00.00



PAVEMENT DETAIL B
STA 884+00.00 TO END PROJECT

NOTES:

1. MATERIAL FOR CEMENT TREATED BASE SHALL BE COMPOSED OF REWORKING EXISTING PAVEMENT TO PROPOSED DEPTH AND WIDTH. IN LOCATIONS WHERE THERE IS NOT SUFFICIENT EXISTING MATERIAL, MIX WITH NEW MATERIAL. THIS WORK SHALL BE PAID AS ITEM 251. NEW BASE SHALL BE PAID FOR AS ITEM 247.
2. REFER TO GENERAL NOTES BASIS OF ESTIMATES FOR RATES OF APPLICATION.

1/31/2024

STATE OF TEXAS
TREY NEAL
106194
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

FM 462

PROPOSED
TYPICAL SECTION

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
SAT	MEDINA		6

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DW:
CK:
DW:

**********GENERAL NOTES**********
2014 Specification Book (Revised March 1, 2024)

========== Basis of Estimate ==========

Item	Description	Rate/Area	Quant-Unit
0275-6001	Cement	3%(125 pcf)/115634 sy	997 ton

========== Surface Treatment Data ==========

Description	Inverted Prime	1st Course	2nd Course
Area	106892 sy	107417 sy	107417 sy
	-----See Bid Item-----		
Asphalt—rate (gal/sy)	0.20/1 = 21379 gal	0.34/1 = 36522 gal	0.30/1 = 32225 gal
Aggregate--type/gr	TY-B GR-5	TY-PB GR-4	TY-PD GR-4
Aggregate—rate (cy/sy)	1/140 = 764 cy	1/120 = 896 cy	1/120 = 896 cy

--General--

Any materials removed and not reused and determined to be salvageable shall be stored within the project limits at an approved location or delivered undamaged to the storage yard as directed. Deface traffic signs so that they will not reappear in public as signs.

Any sign panels that are adjusted or removed and replaced, shall be done the same workday unless otherwise approved. This work shall be considered subsidiary to Item 502.

Hurricane Evacuation

Hurricane Season is from June 1 thru November 30. As the closest metropolitan city inland from the Texas Coast, the City of San Antonio is a major shelter destination during mandatory hurricane evacuations. As such, planned work zone lane or road closures may be restricted and/or suspended during mandatory hurricane evacuation operations. The District will coordinate these restrictions at a minimum H-120 from any projected impact to the Texas Coast.

No time charges will be made if the Engineer determines that work on the project was impacted by the hurricane.

The Engineer may order changes in the Traffic Control Plan to accommodate evacuation traffic, and may suspend the work, all or in part, to ensure timely completion of this work. All work to

implement changes in the Traffic Control Plan will be paid through existing bid prices or through Item 9.5, Force Account. However, the Department will not entertain any request for delay damages, loss of efficiency that may be attributed to the restriction or suspension of road or lane closures, or to changes in the Traffic Control Plan.

In accordance with the Underground Facility Damage Prevention Act (One Call Bill) the phone number for a utility locator is 811. It is the Contractor's responsibility to plan for utility locators as needed.

Underground utilities owned by the Texas Department of Transportation may be present within the Right-Of-Way. Call or email the TxDOT offices listed below for locates a minimum of 48 hours in advance of excavation. If city or town owned irrigation facilities are present, call the appropriate department of the local city or town a minimum of 48 hours in advance of excavation. The Contractor is liable for all damages incurred to the above-mentioned utilities when working without having the utilities located prior to excavation.

Contractor questions on this project are to be addressed to the following individual(s):
Frances Merecka, Area Engineer, frances.merecka@txdot.gov
Jules Zinsmeyer, jules.zinsmeyer@txdot.gov

Contractor questions will be accepted through email, phone and in person by the above individuals. Questions may also be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:
https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

--Item 5—
Prevention of Migratory Bird Nesting

It is anticipated that migratory birds, a protected group of species, may try to nest on bridges, culverts, vegetation, or gravel substrate, at any time of the year. The preferred nesting season for migratory birds is from February 15 through October 1. When practicable, schedule construction operations outside of the preferred nesting season. Otherwise, nests containing migratory birds must be avoided and no work will be performed in the nesting areas until the young birds have fledged.

Structures

Bridge and culvert construction operations cannot begin until swallow nesting prevention is implemented, until after October 1 if it's determined that swallow nesting is actively occurring, or until it's determined swallow nests have been abandoned. If the State installed nesting deterrent on the bridges and culverts, maintain the existing nesting deterrent to prevent swallow nesting until October 1 or completion of the bridge and culvert work, whichever occurs earlier. If new nests are built and occupied after the beginning of the work, do not perform work that can interfere with or discourage swallows from returning to their nests. Prevention of swallow nesting can be performed by one of the following methods:

1. By February 15 begin the removal of any existing mud nests and all other mud placed by swallows for the construction of nests on any portion of the bridge and culverts. The Engineer will inspect the bridges and culverts for nest building activity. If swallows begin nest building, scrape, or wash down all nest sites. Perform these activities daily unless the Engineer determines the need to do this work more frequently. Remove nests and mud through October 1 or until bridge and culvert construction operations are completed.

2. By February 15 place a nesting deterrent (which prevents access to the bridge and culvert by swallows) on the entire bridge (except deck and railing) and culverts. This work is subsidiary to the various bid items.

No extension of time or compensation payment will be granted for a delay or suspension of work caused by nesting swallows.

Provide a non-intrusive back-up alarm system on all heavy equipment used in close proximity to residential areas. This item is subsidiary to various bid items.

When a precast or cast-in-place concrete element is included in the plans, a precast concrete alternate may be submitted in accordance with "Standard Operating Procedure for Alternate Precast Proposal Submission" found online at https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/publications/bridge.html#design. Acceptance or denial of an alternate is at the sole discretion of the Engineer. Impacts to the project schedule and any additional costs resulting from the use of alternates are the sole responsibility of the Contractor.

--Item 6--
Show the stockpile lot and/or sub lot numbers on all tickets for all materials.

To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit an original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

The Buy America Material Classification Sheet is located at the below link. https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html for clarification on material categorization.

--Item 7--
The project's total disturbed area is 38.61 acres. The disturbed area in all project locations and Contractor project specific locations (PSL's), within 1/4 mile of the project limits, will further establish the authorization requirements for storm water discharges. The department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. Obtain any required authorization from the TCEQ for any PSL's on or off the ROW. When the total area disturbed on the project and PSL's within 1/4 mile of the project exceeds 5 acres, provide a copy of the Contractor NOI for PSL's to the Engineer (to the appropriate MS4 operator when the project is on an off-state system route).

Notify the Engineer of the disturbed acreage within one (1) mile of the project limits. Obtain authorization from the TCEQ for Contractor PSL's for construction support activities on or off ROW.

No significant traffic generators events identified.

--Item 8--
Working days will be computed and charged in accordance with Article 8.3.1.4 : Standard work week.

A Special Provision to Item 8 for a delayed authorized date to begin work has been included in the contract. The reason for including the Special Provision is for material processing or contractor mobilization.

Create and maintain a CPM schedule.

The CPM schedule shall be created and maintained using software fully compatible with Primavera Project Planner version P6 Professional R15.2 .

--Item 100--
Trim and remove brush and trees within the stations noted in the plans and as needed for construction operations. Unless shown otherwise in the plans or a designated non-mow area, perform trimming or removal for areas to the ROW limits. Trim or remove to provide minimum of 5 ft. of horizontal clearance and 7 ft. of vertical clearance for the following: sidewalks, paths,

guard fence, rails, signs, object markers, and structures. Trim to provide a minimum of 12 ft. vertical clearance under all trees.

Obtain approval for proposed method of tree and brush trimming and removal. Vertical flailing equipment is not allowed. Treat damaged or cut branches, roots and/or stumps of all oak trees with a commercial tree wound dressing. Disinfect all pruning tools with a solution of 70% alcohol before moving from one tree to another. Unless otherwise approved remove all resulting vegetative debris from the ROW within 24 hours. The Engineer can stop all construction operations if the dressing, cut and removal requirements are not followed.

Removal and disposal of existing abandoned utilities that were unable to be identified before letting required to support this project's construction shall be performed under the overall Preparing Right of Way. If you are uncertain whether the utility is active, contact the District Utility Section.

--Item 132--

Table 5.2 Select Fill Gradation and Property Requirements

Select Fill Requirements	Percent Retained Sieve
1-3/4″	0-10
7/8″	-
3/8″	-
#4	45-75
#40	60-85
Liquid Limit (LL)	≤ 45
Plasticity Index (PI)	≤ 15
Bar Linear Shrinkage	≥ 2

--Item 162--
Furnish and place Bermuda grass sod.

--Item 164--
Drill seeding of permanent grasses requires the use of approved grass seeding equipment capable of properly storing and metering the release of small seeds (such as Bermuda grass) separately from fluffy type seeds (such as bluestems). Equipment manufactured for planting grain crops is acceptable for planting temporary cool season seeds, but not for planting the permanent seed mix.

If performing a permanent seeding in an area with established temporary grass cover and mowing is performed instead of tilling, seed and fertilizer may be distributed simultaneously during "Broadcast Seeding" operations, provided each component is applied at the specified rate.

--Item 168--
Apply vegetative watering as needed to supplement natural rainfall during the vegetation establishment period. Plan quantity of irrigation water is based on the application of a total of 1.3 gal of water each week for each sq. yd. of area that is sodded or seeded. Establishment time is estimated to be 12 weeks for both sod and permanent seed mixes. Temporary seeding will require less time for establishment. Provide a schedule and coordinate watering cycles and rates per cycle with the Engineer. Obtain approval if the quantity of water to be applied is expected to exceed the plan quantity. Adjust the amount of water applied with each cycle and the number of cycles each wk. according to actual site conditions. Drought or other conditions, as determined by the Engineer, may require the application of supplemental irrigation during hours other than normal working hours.

--Item 247--
There is no minimum PI requirement for this project.

--Item 275--
The Engineer will designate a target cement content and optimum moisture content necessary to produce a stabilized mixture that meets the strength requirements and moisture susceptibility requirements shown in Table 1. The Contractor shall furnish the Engineer with representative samples of the materials to be used in production of the cement treated base.

Table 1
Requirements for Cement Treatment

Description	Minimum	Maximum
Cement Content (by dry weight of base)	2%	5%
	Procedure	Minimum
7-Day Unconfined Compressive Strength	Tex-120-E, Part I	150 psi
Retained Strength after Moisture Conditioning	Tex-120-E, Part I (Submerged in water for 24 hrs. after seven days of curing)	80% of 7—Day Unconfined Compressive Strength

Microcracking will be required in accordance with Item 275.4.7.

--Item 302--

Previously tested aggregates found to contain excessive quantities of dust (more than 0.5 percent passing the No. 40 sieve) during precoating, stockpiling or hauling operations, may be rejected. Use Test Method Tex-200-F, Part I for testing.

--Item 316--
Asphalt season will be year-round but meet temperature limitations specified in the standard specifications for Item 316.

Ensure that the asphalt for precoating the aggregate and the asphalt used for the surface treatment will not result in a reaction that may adversely affect the bonding of the aggregate and asphalt during the surface treatment operation.
Do not add bag house fines in the production of precoated material.
Clean all concrete curbs, islands, medians, etc. that get coated with asphalt.

--Item 320--
Construct all longitudinal ACP joints adjacent to a travel lane with a joint maker device that will create a 3:1 to 6:1 taper. For placement of 2 inches or more, the device shall provide a maximum ½ inch vertical edge. Taper outside edges (next to the grass) or backfill (shoulder-up) the same day.

--Item 500--
"Materials on Hand" payments will not be considered in determining percentages for mobilization payments.

--Item 502--
General

In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have an employee available to respond on the project for emergencies and for taking corrective measures within 2 hours or within a reasonable time frame as specified by the Engineer.

Treat the pavement drop-offs as shown in the TCP.

Avoid placing stockpiles, equipment, and other construction materials within the roadway's horizontal clear zone or at any location that will constitute a hazard and will endanger traffic. If a stockpile is placed within the clear zone, address in accordance with the TMUTCD.
If Nighttime work is required and work is not behind positive barrier then full Class 3 reflective gear is required to be worn by all workers, hard hat halos are required to be worn by the flaggers at flagging stations, TY III barricades are required to be spaced at 500 ft, and a mandatory night work meeting is required.

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Mounting and moving the mailbox as needed for the various construction phases is subsidiary to Item 502.

Access to adjoining property must be maintained at all times.

Barricades, Signs, and Traffic Control Devices

When advanced warning flashing arrow panels and/or changeable message sign is specified, have one standby unit in good condition at the job site. Standby time shall be considered subsidiary to the bid item.

After written notification, the time frame is provided on the Form 599 to provide properly maintained signs and barricades before considered in non-compliance with this item.

Moving an existing sign to a temporary location is subsidiary to Item 502. Installations with permanent supports at permanent locations will be paid for under the applicable bid item(s).

Cover permanent signs if not used. This is subsidiary to Item 502.

Lane and Ramp Closures and Detours

Notify the Engineer in writing 10 business days in advance of any temporary or permanent lane, ramp, connector, etc. closures/detours, restrictions to lane widths, alterations to vertical clearances, or modifications to radii. Any other modifications to the roadway that may adversely affect the mobility of oversized/overweight trucks also require 10 business days advance written notice to the Engineer. At least one lane must always remain open.

For closures not listed in the TCP; the lane closures are limited to between the hours of 8:00 am and 4:00 pm, and at least one lane must remain open at all times.

At no time shall two consecutive intersecting roadways be closed at one time during construction.

At no time shall two consecutive ramps be closed at one time during construction or overlay operations.

Unless otherwise noted in the plans and/or as directed by the Engineer, daily lane closures shall be limited according to the following restrictions:

No lane closures will be permitted for the following dates and/or special events:
Between December 15 and January 1
Wednesday before Thanksgiving thru the Sunday after Thanksgiving
Saturday and Sunday before Memorial Day and Labor Day
Saturday or Sunday when July 4 falls on a Friday or Monday
Easter weekend, April 20th 2025

Hauling

The use of rubber-tired equipment will be required for moving dirt or other materials along or across pavement surfaces. Where the contractor desires to move any equipment not licensed for operation on public highways, on or across pavement, they shall protect the pavement from damage as directed/approved by the Engineer.

Throughout construction operations, the Contractor will be required to conduct their hauling operations in a manner such that vehicles will not haul over previously recompacted subgrade or compacted base material, except in short sections for dumping manipulations.

The Contractor shall keep the roadway clean and free of dirt or other materials during hauling operations. If the Contractor does not maintain a clean roadway, they shall cease all construction operations, when directed by the Engineer, to clean the roadway to the satisfaction of the Engineer.

--Item 506--
An Inspector will perform a regularly scheduled SWP3 inspection every 7 calendar days.

Failure to address items noted on the SW3P inspection report within two report cycles may result in the Department stopping all construction operations, exclusive of time charges, or withholding that month's estimate until the SW3P deficiencies are corrected unless the Engineer determines that the area is too wet to correct SW3P deficiencies.

Failure to correctly maintain daily monitoring reports and submitting to TxDOT on a daily/weekly basis may result in the monthly estimate being withheld.

--Item 510--
The length of the one-way traffic control section is limited to 0.75 miles or as shown in the plans.

--Item 540--
Guard fence posts placed in proposed and/or existing areas of riprap, sidewalks or other concrete shall have an 18 inch +/- (square or round) leave-out in the concrete as shown in the state standard for MBGF Mow Strip. After the posts are installed, fill the leave-outs with a Grout mixture as shown in the state standard for MBGF Mow Strip.

--Item 644--
The wedge anchor system shown on State Standard Sheet SMD (TWT) is not allowed.

Triangular Slipbase Systems with set screws are not allowed.

--Item 666--
Use TY II markings (vs. an acrylic or epoxy) on asphalt surfaces as the sealer for the TY I markings, unless otherwise approved by the Engineer.

--Item 672--
Place all adhesive material directly from the heated dispenser to the pavement. Do not use portable or non-heated containers. Use adhesive of sufficient thickness so that when the marker is pressed into the adhesive, 1/8" or more adhesive will remain under 100% of the marker. The adhesive should extend not less than 1/2" but not more than 1 1/2" beyond the perimeter of the marker.

--Item 677--
Obtain approval before using the mechanical method for the elimination of existing thermoplastic pavement markings.

--Item 730--
Mow full-width and hand trim the right of way, including newly seeded or sodded areas, when vegetation reaches a height of 16" or when directed. Removal of brush sprouts growing within guardrail, concrete barriers or at other locations where mowing or hand trimming is done within the limits of construction is required and subsidiary to this item. Mowing may be required more often in newly sodded or seeded areas than in other parts of the project because of the supplemental irrigation these areas receive and the resulting weed growth. Coordinate mowing to avoid rutting or compaction of the soil when mowing where supplemental irrigation is being used. Use mowing equipment that will not adversely affect soil retention blankets or mulches that have been applied. Work performed under this item does not replace the mowing required when placing permanent seeding in an area that has established temporary seeding as described in Article 164.3, Construction.

--Item 734--
Perform Litter Removal once a month or as directed by the Engineer.

County: Medina

Highway: FM 462

--Item 3076

1. Table 10 in Item 3076 and Table 11in Item 3077, Hamburg Wheel Test Requirements tested in accordance with Tex-242-F are changed for PG 64-22 or lower and PG 70-22. Minimum number of passes at 12.55 mm Rut Depth, Tested at 50 degrees C will be 5,000 and 10,000 respectively.

2. Submit a copy of the Tex 233-F production charts on a weekly basis. At the end of the ACP work, provide all originals.

3. Crushing of aggregate for hot mix and immediate use for production of the mix is not allowed. Stockpile the aggregate until enough material is available for five days of production unless prior approval is provided

4. Hold a pre-paving meeting one month prior to the placement of the hot mix. The date and time of pre-paving meeting should be coordinated with the Engineer prior to scheduling.

5. Do not use diesel or solvents as asphalt release agents in production, transportation, or construction. A list of approved asphalt release agents is available from the District Laboratory.

No more than one hot mix lot will be open for any specific type of hot mix, unless authorized. After a lot is open and the Contractor gets approval to change plants, the previous lot will be closed, and a new lot will be opened. The numbering for the lots produced at the new plant will start with No. 1. If allowed to switch back to the original or previous plant, the next lot from that plant will resume numbering sequentially from the last lot produced by that plant.

--Item 6185--

1 shadow vehicle with TMA will be required for this project. The TMA's will be measured and paid for by the DAY for each TMA/TA set up and operational on the worksite. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA's needed for the project. See TMA and TA Summary sheet in the plans.

ITEM 6509 "DRIVEWAY ASSISTANCE DEVICE (DAD) SYSTEM"

8 Driveway Assistance Devices will be required as shown in the Traffic Control Plans.

Driveway Assistance Devices are under Interim Approval and therefore will require the Texas A&M Transportation Institute to collect field observation data via camera recordings.

The daily payment deduction for a failed system will be the monthly payment divided by 30 days (average days per month) for a consistent application.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0848-04-052 **DISTRICT** San Antonio **COUNTY** Medina
HIGHWAY FM 462

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0848-04-052**			
		PROJECT ID		**A00188249**			
		COUNTY		**Medina**			
		HIGHWAY		**FM 462**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	100-6002	PREPARING ROW	STA	302.000		302.000	
	104-6009	REMOVING CONC (RIPRAP)	SY	118.000		118.000	
	105-6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	1,962.000		1,962.000	
	110-6001	EXCAVATION (ROADWAY)	CY	26,033.000		26,033.000	
	132-6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	2,474.000		2,474.000	
	160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	72,851.000		72,851.000	
	162-6008	ROLL SODDING	SY	8,167.000		8,167.000	
	164-6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	64,684.000		64,684.000	
	164-6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	64,684.000		64,684.000	
	168-6001	VEGETATIVE WATERING	MG	2,146.200		2,146.200	
	169-6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	64,684.000		64,684.000	
	216-6001	PROOF ROLLING	HR	26.000		26.000	
	247-6475	FL BS (CIP)(TY D GR 1-2, OR 5)FINAL POS	CY	25,281.000		25,281.000	
	251-6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	115,634.000		115,634.000	
	275-6001	CEMENT	TON	997.000		997.000	
	275-6002	CEMENT TREAT (EXIST MATL) (6")	SY	82,400.000		82,400.000	
	275-6004	CEMENT TREAT (MX EXST MTL & NW BS) (6")	SY	33,234.000		33,234.000	
	316-6029	ASPH (RC-250)	GAL	21,379.000		21,379.000	
	316-6240	AGGR(TY-PD GR-4 SAC-B)	CY	896.000		896.000	
	316-6414	AGGR (TY-B GR-5)	CY	764.000		764.000	
	316-6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	68,747.000		68,747.000	
	316-6431	AGGR (TY-PB GR-4)	CY	896.000		896.000	
	400-6006	CUT & RESTORING PAV	SY	52.000		52.000	
	401-6001	FLOWABLE BACKFILL	CY	27.000		27.000	
	402-6001	TRENCH EXCAVATION PROTECTION	LF	66.000		66.000	
	403-6001	TEMPORARY SPL SHORING	SF	384.000		384.000	
	432-6002	RIPRAP (CONC)(5 IN)	CY	59.000		59.000	
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	150.100		150.100	
	459-6001	GABIONS (GALV)	CY	145.000		145.000	
	459-6007	GABION MATTRESSES (GALV)(12 IN)	SY	655.000		655.000	
	459-6008	GABION MATTRESSES (GALV)(18 IN)	SY	276.000		276.000	
	462-6003	CONC BOX CULV (4 FT X 2 FT)	LF	46.000		46.000	
	462-6006	CONC BOX CULV (5 FT X 2 FT)	LF	92.000		92.000	
	466-6179	WINGWALL (PW - 1) (HW=4 FT)	EA	1.000		1.000	
	466-6180	WINGWALL (PW - 1) (HW=5 FT)	EA	2.000		2.000	
	467-6171	SET (TY I)(S= 5 FT)(HW= 3 FT)(3:1) (C)	EA	2.000		2.000	
	496-6004	REMOV STR (SET)	EA	2.000		2.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0848-04-052 **DISTRICT** San Antonio **COUNTY** Medina
HIGHWAY FM 462

							TOTAL EST.	TOTAL FINAL
			CONTROL SECTION JOB		**0848-04-052**			
			PROJECT ID		**A00188249**			
			COUNTY		**Medina**			
			HIGHWAY		**FM 462**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**		EST.	FINAL		
	496-6006	REMOV STR (HEADWALL)	EA		2.000		2.000	
	496-6007	REMOV STR (PIPE)	LF		32.000		32.000	
	496-6008	REMOV STR (BOX CULVERT)	LF		35.000		35.000	
	500-6001	MOBILIZATION	LS		1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO		20.000		20.000	
	506-6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF		100.000		100.000	
	506-6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF		120.000		120.000	
	506-6011	ROCK FILTER DAMS (REMOVE)	LF		220.000		220.000	
	506-6020	CONSTRUCTION EXITS (INSTALL) (TY 1)	SY		224.000		224.000	
	506-6024	CONSTRUCTION EXITS (REMOVE)	SY		224.000		224.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF		13,670.000		13,670.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF		13,670.000		13,670.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF		3,025.000		3,025.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF		3,025.000		3,025.000	
	508-6001	CONSTRUCTING DETOURS	SY		24,889.000		24,889.000	
	510-6001	ONE-WAY TRAF CONT (FLAGGER CONT)	HR		96.000		96.000	
	510-6002	ONE-WAY TRAF CONT (PILOT CAR)	HR		48.000		48.000	
	510-6003	ONE-WAY TRAF CONT (PORT TRAF SIG)	MO		4.000		4.000	
	512-6009	PORT CTB (FUR & INST)(LOW PROF)(TY 1)	LF		1,520.000		1,520.000	
	512-6010	PORT CTB (FUR & INST)(LOW PROF)(TY 2)	LF		160.000		160.000	
	512-6033	PORT CTB (MOVE)(LOW PROF)(TY 1)	LF		1,520.000		1,520.000	
	512-6034	PORT CTB (MOVE)(LOW PROF)(TY 2)	LF		160.000		160.000	
	512-6057	PORT CTB (REMOVE)(LOW PROF)(TY 1)	LF		1,520.000		1,520.000	
	512-6058	PORT CTB (REMOVE)(LOW PROF)(TY 2)	LF		160.000		160.000	
	530-6003	INTERSECTIONS (SURF TREAT)	SY		253.000		253.000	
	530-6006	DRIVEWAYS (SURF TREAT)	SY		2,659.000		2,659.000	
	530-6009	TURNOUTS (SURF TREAT)	SY		320.000		320.000	
	540-6001	MTL W-BEAM GD FEN (TIM POST)	LF		2,000.000		2,000.000	
	540-6033	MTL BM GD FEN (LONG SPAN SYSTEM)	EA		3.000		3.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA		10.000		10.000	
	552-6001	WIRE FENCE (TY A)	LF		775.000		775.000	
	560-6006	MAILBOX INSTALL-M (TWG-POST) TY 2	EA		1.000		1.000	
	560-6007	MAILBOX INSTALL-S (WC-POST) TY 3	EA		4.000		4.000	
	560-6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA		6.000		6.000	
	560-6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA		4.000		4.000	
	560-6015	MAILBOX INSTALL-S (TIM-POST) TY 5	EA		1.000		1.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA		71.000		71.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0848-04-052 **DISTRICT** San Antonio **COUNTY** Medina
HIGHWAY FM 462

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0848-04-052**			
		PROJECT ID		**A00188249**			
		COUNTY		**Medina**			
		HIGHWAY		**FM 462**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	4.000		4.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	28.000		28.000	
	658-6046	INSTL OM ASSM (OM-2X)(WC)GND	EA	6.000		6.000	
	658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	100.000		100.000	
	662-6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	132,215.000		132,215.000	
	662-6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	173,975.000		173,975.000	
	662-6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	528.000		528.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	4,520.000		4,520.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	24.000		24.000	
	666-6225	PAVEMENT SEALER 6"	LF	103,434.000		103,434.000	
	666-6230	PAVEMENT SEALER 24"	LF	24.000		24.000	
	666-6343	REF PROF PAV MRK TY I(W)6"(SLD)(100MIL)	LF	60,865.000		60,865.000	
	666-6346	REF PROF PAV MRK TY I(Y)6"(BRK)(100MIL)	LF	4,440.000		4,440.000	
	666-6347	REF PROF PAV MRK TY I(Y)6"(SLD)(100MIL)	LF	38,129.000		38,129.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	764.000		764.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	71,400.000		71,400.000	
	678-6002	PAV SURF PREP FOR MRK (6")	LF	103,434.000		103,434.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF	24.000		24.000	
	730-6107	FULL - WIDTH MOWING	CYC	7.000		7.000	
	734-6002	LITTER REMOVAL	CYC	20.000		20.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	32.000		32.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.000		2.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	8.000		8.000	
	6509-6001	DRIVEWAY ASSISTANCE DEVICE(DAD) SYSTEM	MO	18.000		18.000	
	08	CONTRACTOR FORCE ACCOUNT SAFETY CONTINGENCY (NON-PARTICIPATING)	LS	1.000		1.000	
		CONTRACTOR FORCE ACCOUNT EROSION CONTROL MAINTENANCE (NON-PARTICIPATING)	LS	1.000		1.000	

PHASE	DESCRIPTION	0400 6006 CUT & RESTORING PAV SY	0402 6001 TRENCH EXCAVATION PROTECTION LF	0403 6001 TEMPORARY SPL SHORING SF	0508 6001 (5" Depth) CONSTR-UCTING DETOURS SY	0508 6001 (10" Depth) CONSTR-UCTING DETOURS SY	0510 6003 ONE-WAY TRAF CONT (PORT TRAF SIG) MO	0512 6009 PORT CTB (FUR & INSTA) (LOW PROF) (TY 1) LF	0512 6010 PORT CTB (FUR & INSTA) (LOW PROF) (TY 2) LF	0512 6033 PORT CTB (MOVE) (LOW PROF) (TY 1) LF	0512 6034 PORT CTB (MOVE) (LOW PROF) (TY 2) LF	0512 6057 PORT CTB (REMOVE) (LOW PROF) (TY 1) LF	0512 6058 PORT CTB (REMOVE) (LOW PROF) (TY 2) LF	0662 6037 WK ZN PAV MRK NON-REMOV (Y) 6" (SLD) LF	0662 6067 WK ZN PAV MRK REMOV (W) 6" (SLD) LF	0662 6075 WK ZN PAV MRK REMOV (W)24" (SLD) LF	0662 6111 WK ZN PAV MRK SHT TERM (TAB) TY Y-2 EA	0677 6001 ELIM EXT PAV MRK & MRKS (4") LF	6001 6001 PORTABLE CHANGEABLE MESSAGE SIGN DAY	6001 6002 PORTABLE CHANGEABLE MESSAGE SIGN EA	6185 6005 TMA (MOBILE OPERATION) DAY	6509 6001 DRIVEWAY ASSISTANCE DEVICE (DAD) SYSTEM MO
PHASE 1A CULVERT-HC-A	STEP 1	4	14		1351			380	40						1080	22		2460				
	STEP 2	13	19	198				380	40	380	40			2460	1700	22						
PHASE 1B CULVERT-HC-B	STEP 1	11	14		986					380	40				1200	22		2740				
	STEP 2	24	19	186						380	40	380	40	2740	1840	22						
PHASE 2 (STEP 1)	BEGIN TO 847+00				2434									6250	3025	11		6250				
	847+00 TO 862+00				1168									2700	1600	11		3300				
PHASE 2 (STEP 2)	862+00 TO 895+00				2676									7000	3350	11		6300				
	895+00 TO 900+00				493									1200	500	22		1300				
PHASE 2 (STEP 3)	900+00 TO 931+00				2415									6600	3200	11		5900				
	931+00 TO 937+00				468									800	700	11		1500				
PHASE 2 (STEP 4)	937+00 TO 967+00				2359									6400	3100	11		5700				
	967+00 TO 974+00				489									800	700	11		1500				
PHASE 2 (STEP 5)	974+00 TO 1003+00				2328									6400	3100	11		5700				
	1003+00 TO 1016+00				1042									2200	1400	11		2900				
PHASE 2 (STEP 6)	1016+00 TO 1039+00				1202									5000	2400	11		4300				
	1039+00 TO 1055+00				1248									2400	2100	11		4300				
PHASE 2 (STEP 7)	1055+00 TO 1075+00				1607									4800	2325	11		2900				
	1075+00 TO 1082+30				570									1960	830	11		1960				
PHASE 2 (STEP 8)	1092+30 TO END				173	1880								6600	3050	44		6600				
PHASE 3 (STEP 1)	BEGIN TO 847+00														6175	11		400				
	847+00 TO 864+00														3700	11		400				
PHASE 3 (STEP 2)	BEGIN TO 847+00													6250	6150							
	847+00 TO 864+00													2600	3600							
PHASE 4 (STEP 1)	864+00 TO 895+00														6950	11						
	895+00 TO 902+00														1700	22		400				
PHASE 4 (STEP 2)	862+00 TO 895+00													7000	6910							
	895+00 TO 900+00													600	1455							
PHASE 5 (STEP 1)	902+00 TO 931+00														6500	11						
	931+00 TO 939+00														1900	11		400				
PHASE 5 (STEP 2)	900+00 TO 931+00													6600	6445							
	931+00 TO 937+00													800	1500							
PHASE 6 (STEP 1)	939+00 TO 967+00														6350	11						
	967+00 TO 975+00														2600	11		1100				
PHASE 6 (STEP 2)	937+00 TO 967+00													6400	6250							
	967+00 TO 973+00													2700	1400	11						
PHASE 7 (STEP 1)	975+00 TO 1003+00														6740	11						
	1003+00 TO 1017+15														4367	11		1300				
PHASE 7 (STEP 2)	973+00 TO 1003+00													6800	6718							
	1003+00 TO 1016+00													3610	2785	11						
PHASE 8 (STEP 1)	1017+15 TO 1039+00											380	40		4915	11		110				
	1039+00 TO 1057+00														4213	11		700				
PHASE 8 (STEP 2)	1016+00 TO 1039+00													5000	4905							
	1039+00 TO 1055+00													2350	3895							
PHASE 9 (STEP 1)	1057+00 TO 1075+00														4385	11						
	1075+00 TO 1092+00														3697	11		400				
PHASE 9 (STEP 2)	1055+00 TO 1075+00													4850	4680							
	1075+00 TO 1091+00													2600	3560							
PHASE 10 (STEP 1)	1092+00 TO END														6080	44		580				
PHASE 10 (STEP 2)	1091+00 TO END													7745	6250							
PHASE 11	BEGIN TO END																				32	
TOTAL		52	66	384	23009	1880	4	760	80	1140	120	760	80	132215	173975	528	4520	71400	32	2	32	18

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Kimley»Horn F-928

Texas Department of Transportation

FM 462

SUMMARY OF TRAFFIC CONTROL QUANTITIES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		9

SHEET NO.	STATION	0100 6002 PREPARING ROW	0104 6009 REMOVING CONC (RIPRAP)	0110 6001 EXCAVATION (ROADWAY)	0132 6005 EMBANKMENT (FINAL) (ORD COMP) (TY C)	0216 6001 PROOF ROLLING	0247 6475 FL BS (CIP)(TY D GR 1-2, OR 5) FINAL POS	SEE NOTE 1 0247 6475 FL BS (CIP)(TY D GR 1-2, OR 5) FINAL POS	0251 6025 REWORK BS MTL (TY B)(6") (ORD COMP)	0275 6001 CEMENT	0275 6002 CEMENT TREAT (EXIST MATL) (6")	0275 6004 CEMENT TREAT (MX EXIST MATL & NW BS) (6")	INVERTED PRIME 0316 6029 ASPH (RC-250)	INVERTED PRIME 0316 6414 AGGR (TY-B GR-5)	FIRST COURSE 0316 6419 ASPH (AC-15P, AC-20-5TR OR AC-20XP)	FIRST COURSE 0316 6431 AGGR (TY-PB GR-4)	SECOND COURSE 0316 6419 ASPH (AC-15P, AC-20-5TR OR AC-20XP)	SECOND COURSE 0316 6240 AGGR (TY-PD GR-4 SAC-B)
		STA	SY	CY	CY	HR	CY	CY	SY	TON	SY	SY	*SY	*SY	*SY	*SY	*SY	*SY
1 OF 26	BEGIN TO 823+00	6.0		157	142	1	294	12	1974	17	987	987	1867	1867	2169	2169	2169	2169
2 OF 26	823+00 TO 835+00	12.0		755	274	1	671	82	4512	39	2256	2256	4267	4267	4267	4267	4267	4267
3 OF 26	835+00 TO 847+00	12.0		615	350	1	671		4512	39	4512		4267	4267	4267	4267	4267	4267
4 OF 26	847+00 TO 859+00	12.0		788	113	1	671	45	4512	39	2256	2256	4267	4267	4267	4267	4267	4267
5 OF 26	859+00 TO 871+00	12.0		584	32	1	671	45	4512	39	2256	2256	4267	4267	4267	4267	4267	4267
6 OF 26	871+00 TO 883+00	12.0		609	121	1	671	110	4512	39	2256	2256	4267	4267	4267	4267	4267	4267
7 OF 26	883+00 TO 895+00	12.0		1631	8	1	1020	91	4632	40	2316	2316	4267	4267	4267	4267	4267	4267
8 OF 26	895+00 TO 907+00	12.0		906	49	1	1053	10	4646	40	2323	2323	4267	4267	4267	4267	4267	4267
9 OF 26	907+00 TO 919+00	12.0		1116	9	1	1053	112	4646	40	2323	2323	4267	4267	4267	4267	4267	4267
10 OF 26	919+00 TO 931+00	12.0		924	74	1	1053		4645	40	4645		4267	4267	4267	4267	4267	4267
11 OF 26	931+00 TO 943+00	12.0		1015	46	1	1053		4645	40	4645		4267	4267	4267	4267	4267	4267
12 OF 26	943+00 TO 955+00	12.0		1178	27	1	1053		4645	40	4645		4267	4267	4267	4267	4267	4267
13 OF 26	955+00 TO 967+00	12.0	63	1189	58	1	1053		4645	40	4645		4267	4267	4267	4267	4267	4267
14 OF 26	967+00 TO 979+00	12.0		1422	49	1	1053		4645	40	4645		4267	4267	4267	4267	4267	4267
15 OF 26	979+00 TO 991+00	12.0		1078	27	1	1053		4645	40	4645		4267	4267	4267	4267	4267	4267
16 OF 26	991+00 TO 1003+00	12.0		1387	30	1	1053	56	4646	40	2323	2323	4267	4267	4267	4267	4267	4267
17 OF 26	1003+00 TO 1015+00	12.0		1121	91	1	1053	84	4646	40	2323	2323	4267	4267	4267	4267	4267	4267
18 OF 26	1015+00 TO 1027+00	12.0		1104	71	1	1053	38	4646	40	2323	2323	4267	4267	4267	4267	4267	4267
19 OF 26	1027+00 TO 1039+00	12.0	22	823	345	1	1053		4645	40	4645		4267	4267	4267	4267	4267	4267
20 OF 26	1039+00 TO 1051+00	12.0		1226	24	1	1053	47	4646	40	2323	2323	4267	4267	4267	4267	4267	4267
21 OF 26	1051+00 TO 1063+00	12.0		983	187	1	1053	112	4646	40	2323	2323	4267	4267	4267	4267	4267	4267
22 OF 26	1063+00 TO 1075+00	12.0		1298	18	1	1053	47	4646	40	2323	2323	4267	4267	4267	4267	4267	4267
23 OF 26	1075+00 TO 1087+00	12.0		1007	55	1	1053	121	4646	40	2323	2323	4267	4267	4267	4267	4267	4267
24 OF 26	1087+00 TO 1099+00	12.0	33	923	269	1	1053		4645	40	4645		4267	4267	4267	4267	4267	4267
25 OF 26	1099+00 TO 1111+00	12.0		1366	3	1	1053		4645	40	4645		4267	4267	4267	4267	4267	4267
26 OF 26	1111+00 TO END	8.0		828	2	1	646		2849	25	2849		2617	2617	2840	2840	2840	2840
TOTAL		302.0	118	26033	2474	26	24269	1012	115634	997	82400	33234	106892	106892	107417	107417	107417	107417

* FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.

SHEET NO.	STATION	0432 6002 RIPRAP (CONC) (5 IN)	0432 6045 RIPRAP (MOW STRIP) (4 IN)	0459 6001 GABIONS (GALV)	0459 6007 GABION MATTRESSES (GALV) (12 IN)	0459 6008 GABION MATTRESSES (GALV) (18 IN)	0530 6009 TURNOUTS (SURF TREAT)	0540 6001 MTL W-BEAM GD FEN (TIM POST)	0540 6033 MTL BM GD FEN (LONG SPAN SYSTEM)	0544 6001 GUARDRAIL END TREATMENT (INSTALL)	0552 6001 WIRE FENCE (TY A)	0560 6006 MAILBOX INSTALL-M (TWG-POST) TY 2	0560 6007 MAILBOX INSTALL-S (WC-POST) TY 3	0560 6011 MAILBOX INSTALL-S (TWW-POST) TY 4	0560 6013 MAILBOX INSTALL-M (TWW-POST) TY 4	0560 6015 MAILBOX INSTALL-S (TIM-POST) TY 5
		CY	CY	CY	SY	SY	SY	LF	EA	EA	LF	EA	EA	EA	EA	EA
1 OF 26	BEGIN TO 823+00	59	21.2					370		1	400					
2 OF 26	823+00 TO 835+00		12.2					155		1	200					
3 OF 26	835+00 TO 847+00															
4 OF 26	847+00 TO 859+00						17									1
5 OF 26	859+00 TO 871+00				84		9						1			
6 OF 26	871+00 TO 883+00						17						1			
7 OF 26	883+00 TO 895+00						11							1		
8 OF 26	895+00 TO 907+00						12								1	
9 OF 26	907+00 TO 919+00				84		18								1	
10 OF 26	919+00 TO 931+00															
11 OF 26	931+00 TO 943+00				84											
12 OF 26	943+00 TO 955+00		8.4		84		11	65		1					1	
13 OF 26	955+00 TO 967+00		21.1	132			11	360		1			1			
14 OF 26	967+00 TO 979+00				67											
15 OF 26	979+00 TO 991+00				84											
16 OF 26	991+00 TO 1003+00				84											
17 OF 26	1003+00 TO 1015+00						10							1		
18 OF 26	1015+00 TO 1027+00						105							1		
19 OF 26	1027+00 TO 1039+00		57.6			277	43	700	2	4	175	1				
20 OF 26	1039+00 TO 1051+00															
21 OF 26	1051+00 TO 1063+00						10						1			
22 OF 26	1063+00 TO 1075+00						26							2		
23 OF 26	1075+00 TO 1087+00		11.4		84			145		1						
24 OF 26	1087+00 TO 1099+00		16.4		9		20	205	1	1				1	1	
25 OF 26	1099+00 TO 1111+00															
26 OF 26	1111+00 TO END															
TOTAL		59	148.3	132	664	277	320	2000	3	10	775	1	4	6	4	1

NOTES:

1. ADDITIONAL FLEX BASE IS FOR AREAS ESTIMATED TO NOT HAVE ENOUGH EXISTING PAVEMENT TO REWORK INTO THE PROPOSED CEMENT TREATED BASE LAYER. REFER TO TYPICAL SECTIONS FOR MORE INFORMATION.

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SUMMARY OF ROADWAY QUANTITIES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		10

CK:
DW:
CK:
DW:

DATE: 1/31/2024 7:21:13 PM
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SHEET NO.	DRIVEWAY	0105 6008 REMOVING STAB BASE AND ASPH PAV (6")	0530 6003 INTERSEC-TIONS (SURF TREAT)	0530 6006 DRIVEWAYS (SURF TREAT)
		SY	SY	SY
1 OF 1	CR 331 & CR 431	297	253	
1 OF 16	DRIVEWAY 2-1 & 3-1			238
2 OF 16	DRIVEWAY 3-2 & 4-1	102		183
3 OF 16	DRIVEWAY 4-2 & 5-1	52		158
4 OF 16	DRIVEWAY 5-2 & 6-1	96		145
5 OF 16	DRIVEWAY 6-2 & 7-1	85		147
6 OF 16	DRIVEWAY 9-1 & 9-2	114		185
7 OF 16	DRIVEWAY 12-1 & 13-1	142		162
8 OF 16	DRIVEWAY 13-2 & 14-1	89		124
9 OF 16	DRIVEWAY 15-1 & 17-1	25		187
10 OF 16	DRIVEWAY 17-2 & 17-3	77		143
11 OF 16	DRIVEWAY 18-1 & 18-2			167
12 OF 16	DRIVEWAY 18-3 & 18-4	202		159
13 OF 16	DRIVEWAY 19-1 & 21-1	321		261
14 OF 16	DRIVEWAY 22-1 & 22-2	135		158
15 OF 16	DRIVEWAY 22-3 & 23-1	122		142
16 OF 16	DRIVEWAY 25-1 & 25-2	103		100
TOTAL		1962	253	2659

CK:
DW:
CK:
DN:

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Kimley»Horn F-928

Texas Department of Transportation

FM 462

SUMMARY OF DRIVEWAY QUANTITIES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		11

ESTIMATED QUANTITIES				
STATION	TO	STATION	EXCAV (CY)	EMBANK (CY)
817+00	-	818+00	0	0
818+00	-	819+00	0	1
819+00	-	820+00	49	7
820+00	-	821+00	43	14
821+00	-	822+00	36	45
822+00	-	823+00	29	75
823+00	-	824+00	48	52
824+00	-	825+00	85	22
825+00	-	826+00	93	27
826+00	-	827+00	73	28
827+00	-	828+00	51	14
828+00	-	829+00	40	12
829+00	-	830+00	51	12
830+00	-	831+00	58	12
831+00	-	832+00	62	16
832+00	-	833+00	69	27
833+00	-	834+00	59	29
834+00	-	835+00	66	23
835+00	-	836+00	81	17
836+00	-	837+00	70	17
837+00	-	838+00	50	31
838+00	-	839+00	36	42
839+00	-	840+00	39	37
840+00	-	841+00	51	27
841+00	-	842+00	49	29
842+00	-	843+00	44	30
843+00	-	844+00	45	31
844+00	-	845+00	42	34
845+00	-	846+00	43	31
846+00	-	847+00	65	24
847+00	-	848+00	73	25
848+00	-	849+00	59	32
849+00	-	850+00	76	18
850+00	-	851+00	71	5
851+00	-	852+00	64	7
852+00	-	853+00	103	4
853+00	-	854+00	121	0
854+00	-	855+00	87	1
855+00	-	856+00	36	3
856+00	-	857+00	25	5
857+00	-	858+00	38	4
858+00	-	859+00	35	9
859+00	-	860+00	40	8
860+00	-	861+00	44	2
861+00	-	862+00	50	2
862+00	-	863+00	68	1
863+00	-	864+00	59	1
864+00	-	865+00	49	1
865+00	-	866+00	44	1
866+00	-	867+00	44	2
867+00	-	868+00	38	4
868+00	-	869+00	40	4
869+00	-	870+00	56	1
870+00	-	871+00	52	5
871+00	-	872+00	66	5
872+00	-	873+00	72	10
873+00	-	874+00	50	18
874+00	-	875+00	40	17
875+00	-	876+00	39	17
876+00	-	877+00	44	16
877+00	-	878+00	49	10
878+00	-	879+00	45	6
879+00	-	880+00	42	10
880+00	-	881+00	39	9
881+00	-	882+00	47	2
882+00	-	883+00	76	1
883+00	-	884+00	113	1
884+00	-	885+00	145	0
885+00	-	886+00	153	0
886+00	-	887+00	154	1
887+00	-	888+00	168	1
888+00	-	889+00	166	0
889+00	-	890+00	150	1
890+00	-	891+00	124	1
891+00	-	892+00	118	1
892+00	-	893+00	136	0
893+00	-	894+00	118	1
894+00	-	895+00	86	1
895+00	-	896+00	72	8
896+00	-	897+00	53	17
897+00	-	898+00	64	11
898+00	-	899+00	73	3
899+00	-	900+00	63	2
900+00	-	901+00	80	2
901+00	-	902+00	88	1
902+00	-	903+00	80	1
903+00	-	904+00	78	1
904+00	-	905+00	82	1
905+00	-	906+00	86	1
906+00	-	907+00	87	1
907+00	-	908+00	93	1
908+00	-	909+00	89	1
909+00	-	910+00	83	1
910+00	-	911+00	85	1
911+00	-	912+00	78	1
912+00	-	913+00	94	1
913+00	-	914+00	113	0
914+00	-	915+00	107	0
915+00	-	916+00	97	0
916+00	-	917+00	89	1
917+00	-	918+00	93	1
918+00	-	919+00	95	1
919+00	-	920+00	89	1
920+00	-	921+00	93	1
921+00	-	922+00	95	0
922+00	-	923+00	94	0
923+00	-	924+00	98	0
924+00	-	925+00	80	2
925+00	-	926+00	57	10
926+00	-	927+00	52	19
927+00	-	928+00	48	23
928+00	-	929+00	58	13
929+00	-	930+00	82	2
930+00	-	931+00	78	3
931+00	-	932+00	74	3
932+00	-	933+00	87	3
933+00	-	934+00	98	2
934+00	-	935+00	90	3
935+00	-	936+00	68	12
936+00	-	937+00	63	14
937+00	-	938+00	83	5
938+00	-	939+00	90	1
939+00	-	940+00	82	1
940+00	-	941+00	82	1
941+00	-	942+00	94	1
942+00	-	943+00	104	0
943+00	-	944+00	102	1
944+00	-	945+00	104	1
945+00	-	946+00	124	1
946+00	-	947+00	122	0
947+00	-	948+00	91	1
948+00	-	949+00	70	3
949+00	-	950+00	80	5
950+00	-	951+00	102	6
951+00	-	952+00	102	4
952+00	-	953+00	94	2
953+00	-	954+00	92	1
954+00	-	955+00	95	2
955+00	-	956+00	82	8
956+00	-	957+00	88	10
957+00	-	958+00	82	10
958+00	-	959+00	56	13
959+00	-	960+00	76	8
960+00	-	961+00	107	2
961+00	-	962+00	113	1
962+00	-	963+00	116	1
963+00	-	964+00	125	0
964+00	-	965+00	110	1
965+00	-	966+00	108	1
966+00	-	967+00	126	3
967+00	-	968+00	133	12
968+00	-	969+00	123	13
969+00	-	970+00	130	5
970+00	-	971+00	138	8
971+00	-	972+00	135	6
972+00	-	973+00	123	1
973+00	-	974+00	106	1
974+00	-	975+00	126	0
975+00	-	976+00	114	0
976+00	-	977+00	105	1
977+00	-	978+00	105	1
978+00	-	979+00	84	1
979+00	-	980+00	94	1
980+00	-	981+00	91	1
981+00	-	982+00	79	1
982+00	-	983+00	87	1
983+00	-	984+00	88	1
984+00	-	985+00	81	1
985+00	-	986+00	79	1
986+00	-	987+00	106	1
987+00	-	988+00	118	1
988+00	-	989+00	93	2
989+00	-	990+00	79	7
990+00	-	991+00	83	9
991+00	-	992+00	84	5
992+00	-	993+00	90	1
993+00	-	994+00	102	1
994+00	-	995+00	100	0
995+00	-	996+00	95	0
996+00	-	997+00	97	0
997+00	-	998+00	118	0
998+00	-	999+00	142	0
999+00	-	1000+00	151	1
1000+00	-	1001+00	151	2
1001+00	-	1002+00	137	8
1002+00	-	1003+00	120	12
1003+00	-	1004+00	104	15
1004+00	-	1005+00	81	17
1005+00	-	1006+00	78	12
1006+00	-	1007+00	97	6
1007+00	-	1008+00	98	9
1008+00	-	1009+00	91	9
1009+00	-	1010+00	86	3
1010+00	-	1011+00	81	3
1011+00	-	1012+00	89	2
1012+00	-	1013+00	111	2
1013+00	-	1014+00	114	5
1014+00	-	1015+00	91	8
1015+00	-	1016+00	87	18
1016+00	-	1017+00	82	19
1017+00	-	1018+00	87	6
1018+00	-	1019+00	98	1
1019+00	-	1020+00	88	1
1020+00	-	1021+00	86	2
1021+00	-	1022+00	107	1
1022+00	-	1023+00	109	1
1023+00	-	1024+00	95	7
1024+00	-	1025+00	99	6
1025+00	-	1026+00	93	3
1026+00	-	1027+00	73	6
1027+00	-	1028+00	60	8
1028+00	-	1029+00	62	8
1029+00	-	1030+00	80	22
1030+00	-	1031+00	65	56
1031+00	-	1032+00	57	86
1032+00	-	1033+00	59	72
1033+00	-	1034+00	61	43
1034+00	-	1035+00	86	22
1035+00	-	1036+00	80	6
1036+00	-	1037+00	70	4
1037+00	-	1038+00	68	8
1038+00	-	1039+00	75	10
1039+00	-	1040+00	89	3
1040+00	-	1041+00	106	1
1041+00	-	1042+00	113	1
1042+00	-	1043+00	100	1
1043+00	-	1044+00	78	4
1044+00	-	1045+00	68	6
1045+00	-	1046+00	85	4
1046+00	-	1047+00	90	1
1047+00	-	1048+00	83	1
1048+00	-	1049+00	103	1
1049+00	-	1050+00	148	1
1050+00	-	1051+00	163	0
1051+00	-	1052+00	139	11
1052+00	-	1053+00	96	23
1053+00	-	1054+00	71	20
1054+00	-	1055+00	72	14
1055+00	-	1056+00	69	14
1056+00	-	1057+00	69	16
1057+00	-	1058+00	72	13
1058+00	-	1059+00	79	6
1059+00	-	1060+00	90	10
1060+00	-	1061+00	97	22
1061+00	-	1062+00	70	23
1062+00	-	1063+00	59	15
1063+00	-	1064+00	86	5
1064+00	-	1065+00	95	1
1065+00	-	1066+00	112	1
1066+00	-	1067+00	126	1
1067+00	-	1068+00	113	1
1068+00	-	1069+00	99	1
1069+00	-	1070+00	102	1
1070+00	-	1071+00	110	1
1071+00	-	1072+00	116	1
1072+00	-	1073+00	122	1
1073+00	-	1074+00	120	1
1074+00	-	1075+00	97	3
1075+00	-	1076+00	68	7
1076+00	-	1077+00	59	7
1077+00	-	1078+00	75	7
1078+00	-	1079+00	82	8
1079+00	-	1080+00	76	5
1080+00	-	1081+00	73	1
1081+00	-	1082+00	83	1
1082+00	-	1083+00	79	1
1083+00	-	1084+00	74	1
1084+00	-	1085+00	87	1
1085+00	-	1086+00	109	3
1086+00	-	1087+00	142	13
1087+00	-	1088+00	122	29
1088+00	-	1089+00	78	62
1089+00	-	1090+00	70	55
1090+00	-	1091+00	77	27
1091+00	-	1092+00	69	16
1092+00	-	1093+00	56	6
1093+00	-	1094+00	65	17
1094+00	-	1095+00	75	21
1095+00	-	1096+00	64	17
1096+00	-	1097+00	58	13
1097+00	-	1098+00	82	5
1098+00	-	1099+00	107	1
1099+00	-	1100+00	110	0
1100+00	-	1101+00	121	0
1101+00	-	1102+00	132	0
1102+00	-	1103+00	126	0
1103+00	-	1104+00	119	0
1104+00	-	1105+00	122	0
1105+00	-	1106+00	131	0
1106+00	-	1107+00	111	0
1107+00	-	1108+00	94	1
1108+00	-	1109+00	96	1
1109+00	-	1110+00	99	1
1110+00	-	1111+00	105	0
1111+00	-	1112+00	98	0
1112+00	-	1113+00	89	0
1113+00	-	1114+00	80	1
1114+00	-	1115+00	80	1
1115+00	-	1116+00	100	0
1116+00	-	1117+00	116	0
1117+00	-	1118+00	136	0
1118+00	-	1119+00	129	0
		TOTAL	26033	2474

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Kimley»Horn F-928

Texas Department of Transportation

FM 462

SUMMARY OF EARTHWORK QUANTITIES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		12

SHEET NO.	CULVERT	0401 6001 FLOWABLE BACKFILL	0462 6003 CONC BOX CULV (4FT X 2FT)	0462 6006 CONC BOX CULV (5FT X 2FT)	0466 6179 WINGWALL (PW-1) (HW=4 FT)	0466 6180 WINGWALL (PW-1) (HW=5 FT)	0467 6171 SET (TY 1) (S= 5 FT) (HW= 3 FT) (3:1)(C)	0496 6004 REMOV STR (SET)	0496 6006 REMOV STR (HEADWALL)	0496 6007 REMOV STR (PIPE)	0496 6008 REMOV STR (BOX CULVERT)
		CY	LF	LF	EA	EA	EA	EA	EA	LF	LF
1 OF 2	CULVERT CC-HC-A	15.0	46		1	1		2			35
2 OF 2	CULVERT CC-HC-B	20.0		92		1	1		2	32	
TOTAL		35.0	46	92	1	2	1	2	2	32	35

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Kimley»Horn F-928

Texas Department of Transportation

FM 462

SUMMARY OF DRAINAGE QUANTITIES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		13

SHEET NO.	STATION	0644 6001 IN SM RD SN SUP&AM TY10BWG (1)SA(P)	0644 6004 IN SM RD SN SUP&AM TY10BWG (1)SA(T)	0644 6076 REMOVE SM RD SN SUP&AM	0658 6046 INSTL OM ASSM (OM-2X) (WC)GND	0658 6062 INSTL DEL ASSM (D-SW)SZ1 (BRF)GF2(BI)	0666 6048 REFL PAV MRK TY I (W)24"(SLD) (100MIL)	0666 6225 PAVEMENT SEALER 6"	0666 6230 PAVEMENT SEALER 24"	0666 6343 REFL PROF PAV MRK TY I (W)6"(SLD) (100 MIL)	0666 6346 REFL PROF PAV MRK TY I (Y)6"(BRK) (100 MIL)	0666 6347 REFL PROF PAV MRK TY I (Y)6"(SLD) (100 MIL)	0672 6009 REFL PAV MRKR TY II-A-A	0678 6002 PAV SURF PREP FOR MRK (6")	0678 6008 PAV SURF PREP FOR MRK (24")
		EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	EA	LF	LF
1 OF 13	BEGIN TO 835+00	10		1		24		7700		3850		3850	49	7700	
2 OF 13	835+00 TO 859+00	4		2				8599		4800	320	3479	60	8599	
3 OF 13	859+00 TO 883+00	9		2				8206		4800	410	2996	60	8206	
4 OF 13	883+00 TO 907+00	3		2			12	5900	12	4700	600	600	60	5900	12
5 OF 13	907+00 TO 931+00	2						8259		4800	370	3089	60	8259	
6 OF 13	931+00 TO 955+00	3		1		4		7024		4800	530	1694	60	7024	
7 OF 13	955+00 TO 979+00	4	1	3		16		8141		4800	390	2951	60	8141	
8 OF 13	979+00 TO 1003+00	8		5				9600		4800		4800	60	9600	
9 OF 13	1003+00 TO 1027+00	9	1	3				8648		4800	310	3538	60	8648	
10 OF 13	1027+00 TO 1051+00	8		2	3	38		9148		4800	160	4188	60	9148	
11 OF 13	1051+00 TO 1075+00	4	1	2				8141		4800	430	2911	60	8141	
12 OF 13	1075+00 TO 1099+00	5	1	4	3	18	12	8388	12	4715	370	3303	60	8388	12
13 OF 13	1099+00 TO END	2		1				5680		4400	550	730	55	5680	
TOTAL		71	4	28	6	100	24	103434	24	60865	4440	38129	764	103434	24

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Texas Department of Transportation

FM 462

SUMMARY OF SIGNING AND PAVEMENT MARKING QUANTITIES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		14

SHEET NO.	STATION	0160 6003 FURNISHING AND PLACING TOPSOIL (4")	0162 6008 ROLL SODDING	0164 6035 DRILL SEEDING (PERM) (RURAL) (CLAY)	0164 6051 DRILL SEED (TEMP) (WARM OR COOL)	0168 6001 VEGETATIVE WATERING	0169 6001 SOIL RETENTION BLANKETS (CL 1) (TY A)	0506 6001 ROCK FILTER DAMS (INSTALL) (TY 1)	0506 6002 ROCK FILTER DAMS (INSTALL) (TY 2)	0506 6011 ROCK FILTER DAMS (REMOVE)	0506 6020 CONSTRUCTION EXITS (INSTALL) (TY I)	0506 6024 CONSTRUCTION EXITS (REMOVE)	0506 6038 TEMP SEDMT CONT FENCE (INSTALL)	0506 6039 TEMP SEDMT CONT FENCE (REMOVE)
		SY	SY	SY	SY	MG	SY	LF	LF	LF	SY	SY	LF	LF
1 OF 13	BEGIN TO 835+00	4387	528	3859	3859	128.7	3859						1692	1692
2 OF 13	835+00 TO 859+00	8743	6471	2272	2272	171.9	2272						771	771
3 OF 13	859+00 TO 883+00	6249	1168	5081	5081	176.8	5081						163	163
4 OF 13	883+00 TO 907+00	5498		5498	5498	171.6	5498						632	632
5 OF 13	907+00 TO 931+00	5351		5351	5351	167	5351						568	568
6 OF 13	931+00 TO 955+00	5201		5201	5201	162.3	5201						559	559
7 OF 13	955+00 TO 979+00	6101		6101	6101	190.4	6101						1501	1501
8 OF 13	979+00 TO 1003+00	6481		6481	6481	202.3	6481						2383	2383
9 OF 13	1003+00 TO 1027+00	5454		5454	5454	170.2	5454						907	907
10 OF 13	1027+00 TO 1051+00	4647		4647	4647	145	4647	50	60	110			1868	1868
11 OF 13	1051+00 TO 1075+00	5224		5224	5224	163	5224						1318	1318
12 OF 13	1075+00 TO 1099+00	5236		5236	5236	163.4	5236	50	60	110			1308	1308
13 OF 13	1099+00 TO END	4279		4279	4279	133.6	4279							
TOTAL		72851	8167	64684	64684	2146.2	64684	100	120	220	224	224	13670	13670

SHEET NO.	STATION	0506 6041 BIODEG EROSN CONT LOGS (INSTL) (12")	0506 6043 BIODEG EROSN CONT LOGS (REMOVE)	0730 6107 FULL - WIDTH MOWING	0734 6002 LITTER REMOVAL
		LF	LF	CYC	CYC
1 OF 13	BEGIN TO 835+00	200	200		
2 OF 13	835+00 TO 859+00	200	200		
3 OF 13	859+00 TO 883+00	200	200		
4 OF 13	883+00 TO 907+00	250	250		
5 OF 13	907+00 TO 931+00	275	275		
6 OF 13	931+00 TO 955+00	225	225		
7 OF 13	955+00 TO 979+00	250	250		
8 OF 13	979+00 TO 1003+00	300	300		
9 OF 13	1003+00 TO 1027+00	250	250		
10 OF 13	1027+00 TO 1051+00	175	175		
11 OF 13	1051+00 TO 1075+00	225	225		
12 OF 13	1075+00 TO 1099+00	225	225		
13 OF 13	1099+00 TO END	250	250		
TOTAL		3025	3025	4	4

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Texas Department of Transportation

FM 462

SUMMARY OF SW3P QUANTITIES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		15

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TRAFFIC CONTROL PLAN SEQUENCE OF WORK

(1) THIS PROJECT WILL BE CONSTRUCTED IN (11) PHASES. BEFORE THE COMMENCEMENT OF EACH PHASE, INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS AND BARRICADES AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER. DAILY LANE CLOSURES WILL BE USED IN ACCORDANCE WITH STATE TCP STANDARDS. DROP OFF CONDITIONS OF GREATER THAN 2" MUST HAVE A 3:1 SLOPE AT THE END OF EACH DAY, AS WELL AS THROUGHOUT THE PROJECT WHERE ACCESS TO ADJACENT PROPERTIES IS ALLOWED TO DRIVEWAYS AND SIDE STREETS.

(2) PREPARING ROW / REMOVAL OF EXISTING ITEMS TO BE DONE ONLY IN AREAS WHERE WORK IS OCCURRING, AS PER THE PHASES NOTED BELOW.

(3) PLANING, SURFACE TREATMENTS AND OVERLAYS SHALL BE PERFORMED IN THE DIRECTION OF TRAFFIC. BEGIN SURFACE CONSTRUCTION ON HIGH SIDE OF ROAD TO AVOID WATER PONDING ISSUES.

(4) THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF ITEM 7, "LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC" AND ITEM 502, "BARRICADES, SIGNS, AND TRAFFIC HANDLING", OF THE STANDARD SPECIFICATIONS, AND TO THE GENERAL NOTES

(5) A BRIEF DESCRIPTION OF THESE PHASES ARE AS FOLLOWS:
PHASE 1 – CONSTRUCT CULVERTS
PHASE 2 – CONSTRUCT TEMPORARY PAVEMENT WIDENING FROM BEGIN TO END PROJECT
PHASE 3 – CONSTRUCT PAVEMENT FROM BEGIN PROJECT TO STA 864+00 (RIGHT SIDE); BEGIN PROJECT TO STA 862+00 (LEFT SIDE)
PHASE 4 – CONSTRUCT PAVEMENT FROM STA 864+00 TO STA 902+00 (RIGHT SIDE); STA 862+00 TO STA 900+00.00 (LEFT SIDE)
PHASE 5 – CONSTRUCT PAVEMENT FROM STA 902+00 TO STA 939+00 (RIGHT SIDE); STA 900+00 TO STA 937+00 (LEFT SIDE)
PHASE 6 – CONSTRUCT PAVEMENT FROM STA 939+00 TO STA 975+00 (RIGHT SIDE); STA 937+00 TO STA 973+00 (LEFT SIDE)
PHASE 7 – CONSTRUCT PAVEMENT FROM STA 975+00.00 TO STA 1019+00 (RIGHT SIDE); STA 973+00 TO STA 1017+00 (LEFT SIDE)
PHASE 8 – CONSTRUCT PAVEMENT FROM STA 1019+00 TO STA 1057+00 (RIGHT SIDE); STA 1017+00 TO STA 1055+00 (LEFT SIDE)
PHASE 9 – CONSTRUCT PAVEMENT FROM STA 1057+00 TO STA 1092+00 (RIGHT SIDE); STA 1055+00 TO STA 1090+00 (LEFT SIDE)
PHASE 10 – CONSTRUCT PAVEMENT FROM STA 1092+00 TO END PROJECT (RIGHT SIDE); STA 1090+00 TO END PROJECT (LEFT SIDE)
PHASE 11 – CONSTRUCT FINAL SURFACE COURSE

PHASE 1A
THE INTENT OF THIS PHASE IS TO CONSTRUCT CULVERT A.

STEP 1 – LEFT SIDE

(1) INSTALL ADVANCE WARNIN1G SIGNS, TEMPORARY PORTABLE SIGNALS, TEMPORARY PORTABLE TRAFFIC BARRIER, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.
(2) PLACE TEMPORARY EROSION CONTROL DEVICES AS SHOWN IN THE PLANS.
(3) REMOVE EXIST PAVEMENT AND INSTALL TRENCH EXCAVATION PROTECTION.
(4) CONSTRUCT DOWNSTREAM END OF CULVERT AND END TREATMENT.
(5) RESTORE PAVEMENT AND CONSTRUCT TEMPORARY PAVEMENT WIDENING AS SHOWN IN THE PLANS.
(6) INSTALL GABION MATTRESSES PER PLANS AT CULVERT CC-HC-A.
(7) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING ON DISTURBED AREAS.

STEP 2 – RIGHT SIDE

(1) ADJUST ADVANCE WARNING SIGNS, TEMPORARY PORTABLE SIGNALS, TEMPORARY PORTABLE TRAFFIC BARRIER, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.
(2) PLACE TEMPORARY EROSION CONTROL DEVICES AS SHOWN IN THE PLANS.
(3) REMOVE EXIST PAVEMENT AND INSTALL TRENCH EXCAVATION PROTECTION.
(4) CONSTRUCT UPSTREAM END OF CULVERT AND END TREATMENT.
(5) RESTORE PAVEMENT.
(6) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING ON DISTURBED AREAS.
(7) INSTALL TEMPORARY PAVEMENT MARKINGS AND RETURN TRAFFIC TO TWO-LANE TWO-WAY OPERATIONS.

PHASE 1B
THE INTENT OF THIS PHASE IS TO CONSTRUCT CULVERT B.

STEP 1 – LEFT SIDE

(8) INSTALL ADVANCE WARNING SIGNS, TEMPORARY PORTABLE SIGNALS, TEMPORARY PORTABLE TRAFFIC BARRIER, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.
(9) PLACE TEMPORARY EROSION CONTROL DEVICES AS SHOWN IN THE PLANS.
(10) REMOVE EXIST PAVEMENT AND INSTALL TRENCH EXCAVATION PROTECTION.
(11) CONSTRUCT DOWNSTREAM END OF CULVERT AND END TREATMENT.
(12) RESTORE PAVEMENT AND CONSTRUCT TEMPORARY PAVEMENT WIDENING AS SHOWN IN THE PLANS.
(13) INSTALL GABION MATTRESSES PER PLANS AT CULVERT CC-HC-B.
(14) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING ON DISTURBED AREAS.

STEP 2 – RIGHT SIDE

(1) ADJUST ADVANCE WARNING SIGNS, TEMPORARY PORTABLE SIGNALS, TEMPORARY PORTABLE TRAFFIC BARRIER, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.
(2) PLACE TEMPORARY EROSION CONTROL DEVICES AS SHOWN IN THE PLANS.
(3) REMOVE EXIST PAVEMENT AND INSTALL TRENCH EXCAVATION PROTECTION.
(4) CONSTRUCT UPSTREAM END OF CULVERT AND END TREATMENT.
(5) RESTORE PAVEMENT.
(6) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING ON DISTURBED AREAS.
(7) INSTALL TEMPORARY PAVEMENT MARKINGS AND RETURN TRAFFIC TO TWO-LANE TWO-WAY OPERATIONS.

PHASE 2
THE INTENT OF THIS PHASE IS TO CONSTRUCT TEMPORARY PAVEMENT WIDENING.

*NOTE: THE LENGTH OF WORK ZONE WILL BE LIMITED TO LIMITS SHOWN IN THE PLANS OR AS APPROVED BY THE ENGINEER.
COMPLETE THE FOLLOWING STEPS FOR EACH WORK ZONE BEFORE MOVING TO THE NEXT LOCATION:

(1) INSTALL ADVANCE WARNING SIGNS, TEMPORARY PORTABLE SIGNALS, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.
(2) PLACE TEMPORARY EROSION CONTROL DEVICES AS SHOWN IN THE PLANS.
(3) CONSTRUCT PROPOSED TEMPORARY PAVEMENT WIDENING AS SHOWN IN THE PLANS.
(4) INSTALL TEMPORARY PAVEMENT MARKINGS AND RETURN TRAFFIC TO TWO-LANE TWO-WAY OPERATIONS.

PHASE 3, 4, 5, 6, 7, 8, 9, 10
THE INTENT OF THIS PHASE IS TO CONSTRUCT PAVEMENT REHABILITATION.

*NOTE: THE LENGTH OF WORK ZONE WILL BE LIMITED TO LIMITS SHOWN IN THE PLANS OR AS APPROVED BY THE ENGINEER
COMPLETE THE FOLLOWING STEPS FOR EACH PHASE BEFORE MOVING TO THE NEXT PHASE:

STEP 1 – RIGHT SIDE

(1) INSTALL ADVANCE WARNING SIGNS, TEMPORARY PORTABLE SIGNALS, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.
(2) PLACE TEMPORARY EROSION CONTROL DEVICES AS SHOWN IN THE PLANS.
(3) REMOVE AND SALVAGE EXISTING PAVEMENT MATERIAL.
(4) PREPARE SUBGRADE TO PROPOSED WIDTH AND DEPTH.
(5) CONSTRUCT CEMENT TREATED BASE BY MIXING AND RELAYING EXISTING PAVEMENT MATERIAL TO PROPOSED WIDTH AND DEPTH. MIX IN NEW BASE AS NEEDED. TREAT WITH CEMENT AND CURE.
(6) CONSTRUCT FLEX BASE.
(7) CONSTRUCT INVERT PRIME AND CURE.
(8) CONSTRUCT FIRST COURSE SURFACE TREATMENT.

STEP 2 – LEFT SIDE

(1) ADJUST ADVANCE WARNING SIGNS, TEMPORARY PORTABLE SIGNALS, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.
(2) PLACE TEMPORARY EROSION CONTROL DEVICES AS SHOWN IN THE PLANS.
(3) REMOVE AND SALVAGE EXISTING PAVEMENT MATERIAL AND PREVIOUSLY PLACED TEMPORARY WIDENING MATERIAL.
(4) PREPARE SUBGRADE TO PROPOSED WIDTH AND DEPTH.
(5) CONSTRUCT CEMENT TREATED BASE BY MIXING AND RELAYING EXISTING PAVEMENT MATERIAL AND TEMPORARY WIDENING MATERIAL TO PROPOSED WIDTH AND DEPT1H. TREAT WITH CEMENT AND CURE.
(6) CONSTRUCT FLEX BASE.
(7) CONSTRUCT INVERT PRIME AND CURE.
(8) CONSTRUCT FIRST COURSE SURFACE TREATMENT.
(9) INSTALL TEMPORARY PAVEMENT MARKINGS AND RETURN TRAFFIC TO TWO-LANE TWO-WAY OPERATIONS.

PHASE 11
THE INTENT OF THIS PHASE IS TO CONSTRUCT THE SURFACE COURSE AND FINALIZE CONSTRUCTION.

(1) AS APPLICABLE, INSTALL TCP SIGNS AND BARRICADES FOR SURFACING OPERATIONS AND MOBILE OPERATIONS.
(2) PLACE FINAL SURFACE COURSE FROM BEGIN TO END PROJECT.
(3) INSTALL WORK ZONE TABS AT THE END OF EACH DAY AS NEEDED AND MAINTAIN FOR THE DURATION OF SURFACING OPERATIONS.
(4) ADJUST TCP SIGNING AND MAINTAIN WORK ZONE TABS AT THE BEGINNING OF EACH WORKDAY AS WORK PROGRESSES.
(5) INSTALL FINAL SIGNS AND PAVEMENT MARKINGS FOR ENTIRE PROJECT LIMITS.
(6) INSTALL PERMANENT EROSION CONTROL DEVICES AS SHOWN IN PLANS.
(7) PERFORM FINAL CLEAN-UP.
(8) OPEN ALL LANES TO TRAFFIC AS APPROVED AND/OR DIRECTED BY THE ENGINEER.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN NARRATIVE

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		16

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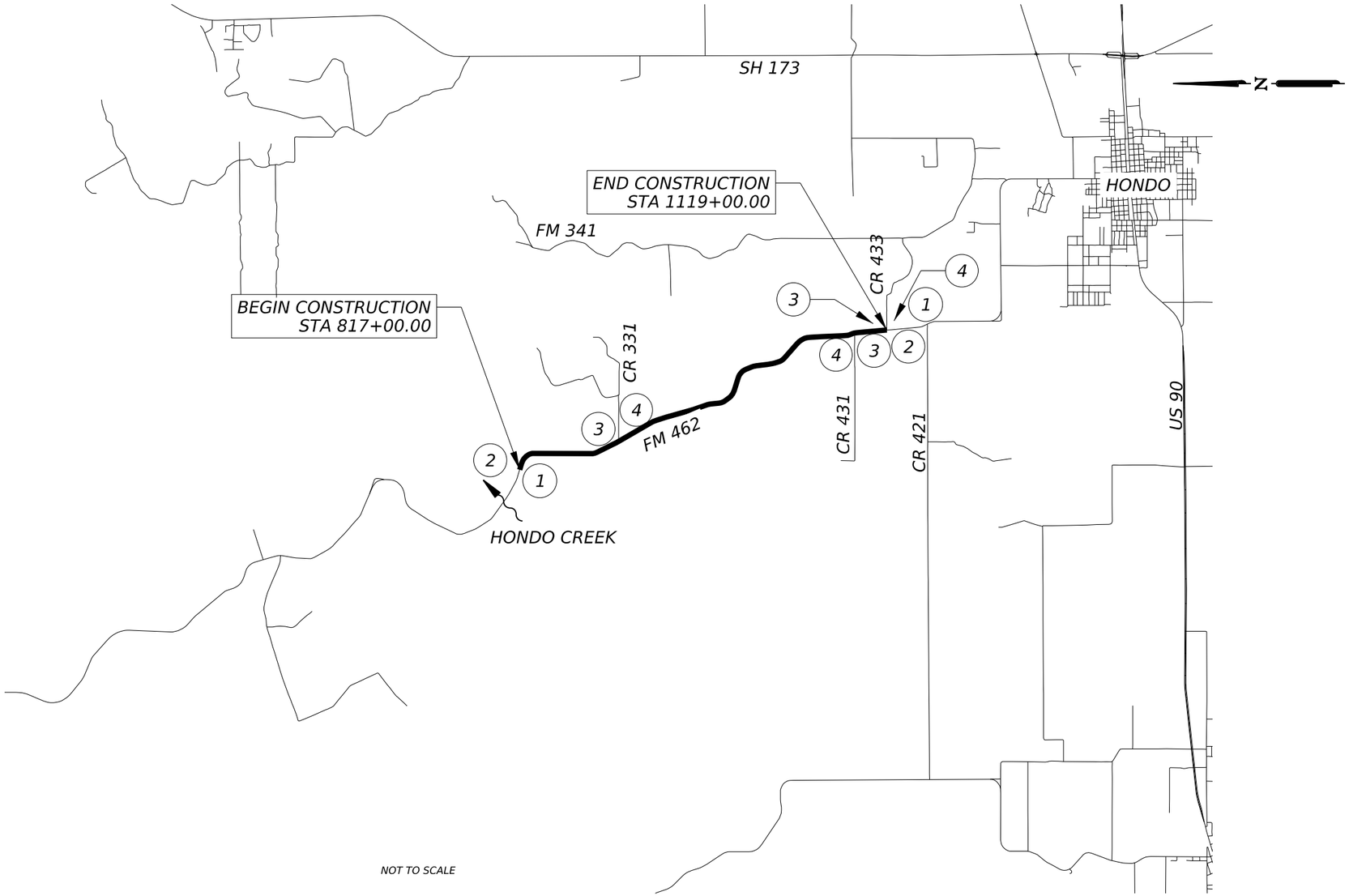

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NOTES:

1. CERTAIN SIGNS MUST BE USED IN CONJUNCTION WITH OTHER SIGNS.
2. BARRICADES AND WARNING SIGNS ON THIS SHEET ARE MINIMAL CONSTRUCTION ZONE SIGNING. ADDITIONAL BARRICADES, WARNING SIGNS, ARROW PANELS, CONES, ETC. IN ACCORDANCE WITH BC(1) THRU BC(12) AND THE TEXAS MUTCD MAY BE REQUIRD IN AREAS OF ACTUAL CONSTRUCTION.
3. SEE TCP SHEETS FOR ADDITIONAL SIGNING REQUIREMENTS. APPLICABLE TCP SHEETS FOR THIS PROJECT ARE: TCP(2-8), TCP(3-1), TCP(3-3), TCP(7-1)
4. ALL ITEMS ON THIS SHEET ARE SUBSIDIARY TO ITEM 502 UNLESS STATED OTHERWISE.

DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

1/31/2024

SCHEDULE OF TRAFFIC CONTROL DEVICES

LOCATION	USAGE	OBSERVE WARNING SIGNS STATE LAW	STAY ALERT TALK OR TEXT LATER	BEGIN WORK ZONE	TRAFFIC FINES DOUBLE	WHEN WORKERS ARE PRESENT	BEGIN ROAD WORK NEXT X MILES	NAME ADDRESS CITY STATE CONTRACTOR	SPEED LIMIT XX	ROAD WORK AHEAD	END ROAD WORK	END WORK ZONE	ROAD WORK NEXT XX MILES NEXT XX MILES	ROAD CONSTRUCTION NEXT XX MILES	ROAD CONSTRUCTION NEXT XX MILES		STOP HERE ON RED		XX MPH	DO NOT PASS
	TYPE	R20-3T	G20-10T	G20-9TP	R20-5T	R20-5aTP	G20-5T	G20-6T	R2-1	CW20-1D	G20-2	G20-2bT	G20-1aT	G20-1bTR	G20-1bTL	CHANNELIZING DEVICES	R10-6L	CW3-3	CW13-1P	R4-1
1	APPROACHES TO PROJECT	X	X	X	X	X	X	X	X	X										
2	DEPARTURES FROM PROJECT								X		X	X								
3	SIDE STREET APPROACHES									X			X	X	X					
4	SIDE STREET DEPARTURES										X	X								
5	AS DIRECTED								X	X	X	X				X	X	X	X	X

SCHEDULE OF TRAFFIC CONTROL DEVICES

LOCATION	USAGE	BE PREPARED TO STOP	WORK CONVOY	X VEHICLE CONVOY	PASS WITH CARE		LOOSE GRAVEL	ONE LANE ROAD AHEAD	NO CENTER LINE										
	TYPE	CW3-4	CW21-10cT		R4-2	TY III BARRICADE	CW8-7	CW20-4D	CW8-12										
1	APPROACHES TO PROJECT																		
2	DEPARTURES FROM PROJECT																		
3	SIDE STREET APPROACHES																		
4	SIDE STREET DEPARTURES																		
5	AS DIRECTED	X	X		X	X	X	X	X										

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Texas Department of Transportation

FM 462

SCHEDULE OF BARRICADES & ADVANCE WARNING DEVICES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		17

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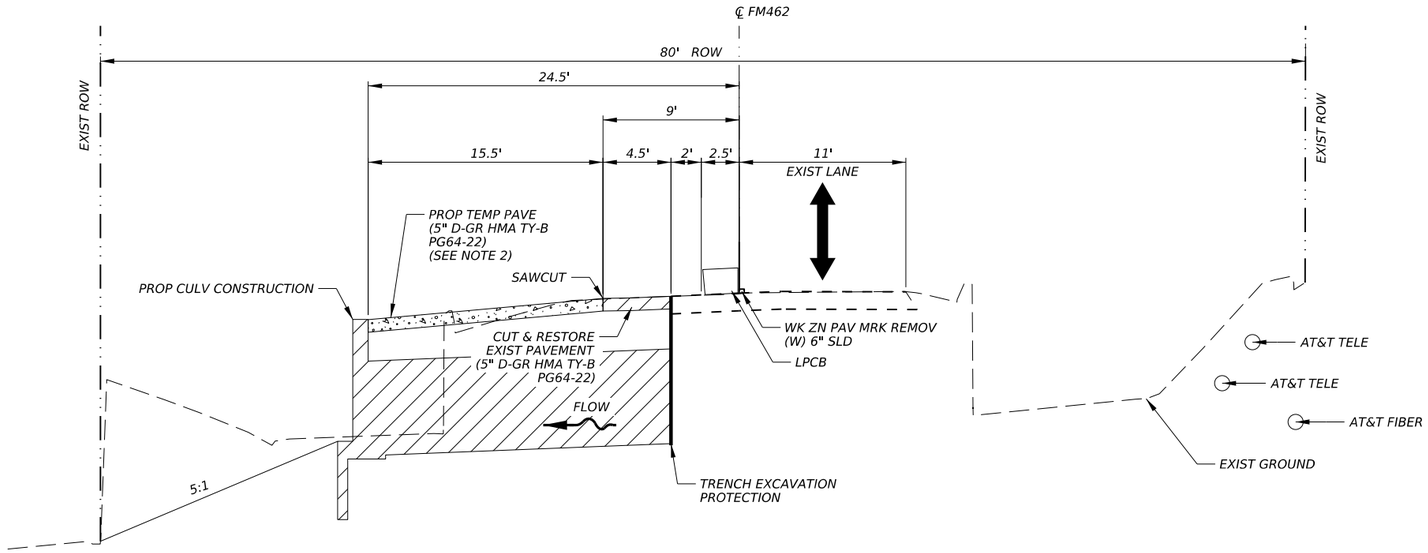
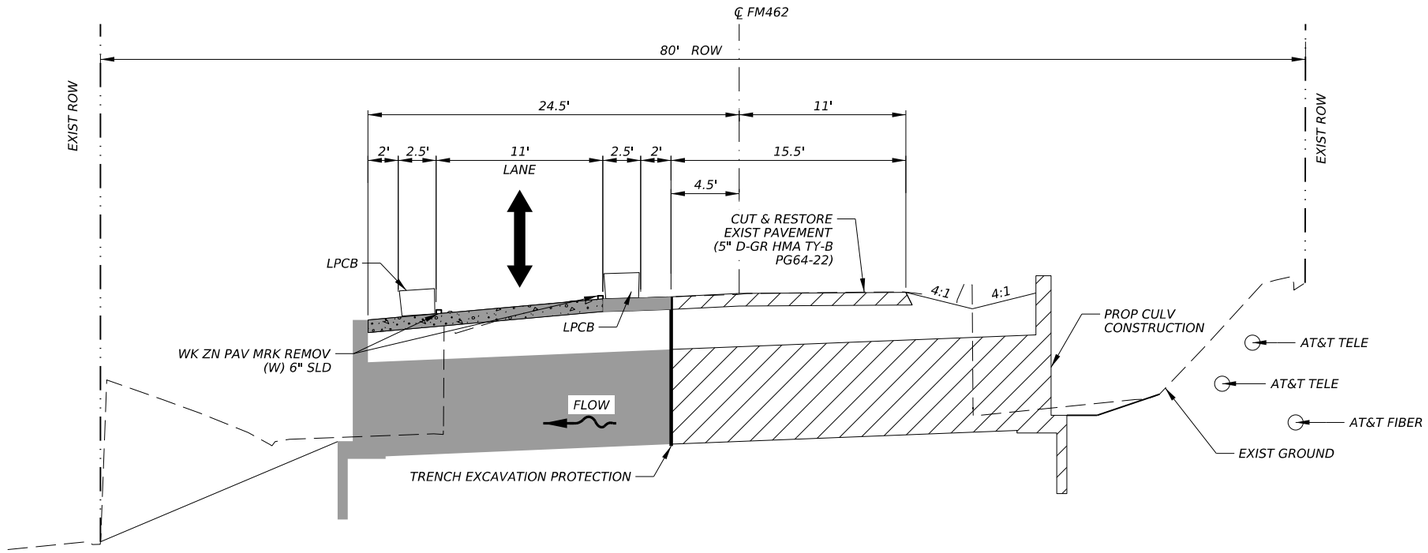


PHASE 1A - STEP 1

CONSTRUCT DOWNSTREAM
CULVERT CC-HC-A
STA 1031+12.97



PHASE 1A - STEP 2

CONSTRUCT UPSTREAM
CULVERT CC-HC-A
STA 1031+12.97

LEGEND

- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP

NOTES

1. TYPICAL SECTIONS ARE NOT TO SCALE.
2. TEMPORARY PAVEMENT PLACEMENT SHALL BE PAID FOR AS ITEM 508. SAWCUT AND EXISTING PAVEMENT REMOVAL SHALL BE SUBSIDIARY TO ITEM 508.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE 1A

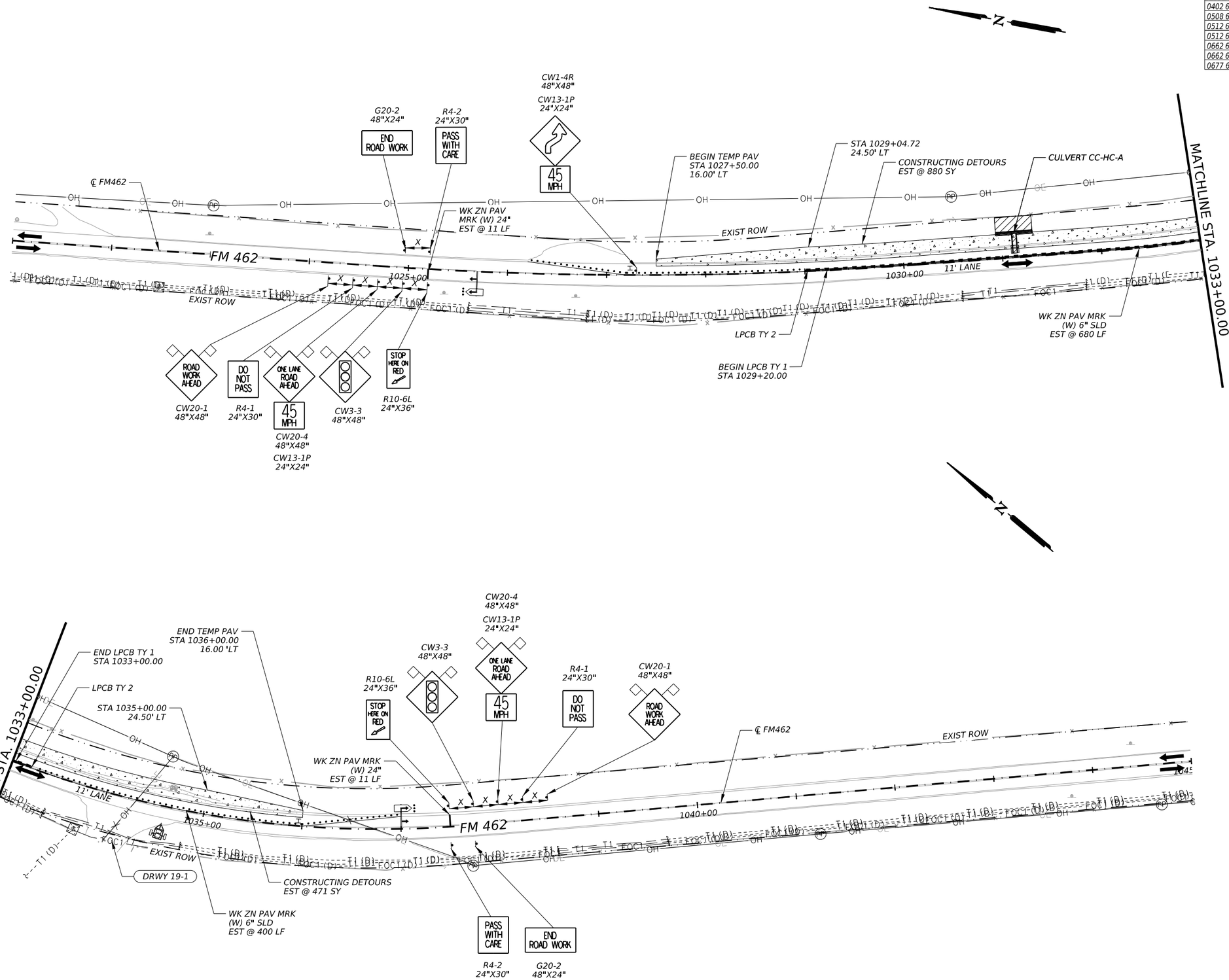
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		18

DATE: 1/31/2024 5:09:51 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_TYP_P1AS01.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0400 6006	CUT & RESTORING PAV	SY	4
0402 6001	TRENCH EXCAVATION PROTECTION	LF	14
0508 6001*	CONSTRUCTING DETOURS	SY	1351
0512 6009	PORT CTB (FUR & INST)(LOW PROF)(TY 1)	LF	380
0512 6010	PORT CTB (FUR & INST)(LOW PROF)(TY 2)	LF	40
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1080
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	22
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	2460



*5" THICKNESS

LEGEND

- EXIST FEATURES
- EXIST RIGHT OF WAY
- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)
- LOW PROFILE CONCETE BARRIER

NOTES:

1. REFER TO STANDARD TCP (2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN CULVERT REPLACEMENT PHASE 1A STEP 1 CULVERT CC-HC-A

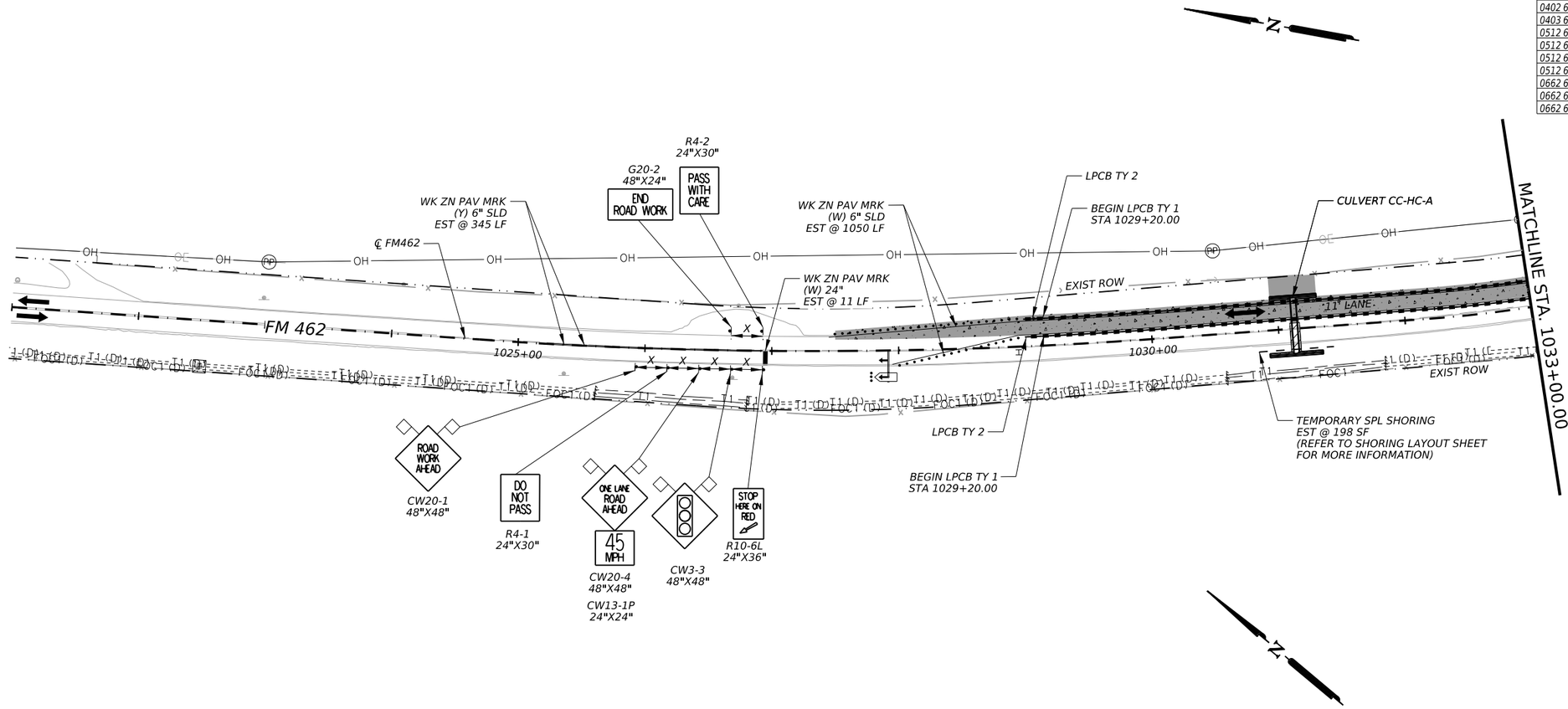
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		19

CK:
DW:
CK:
DW:

DATE: 1/31/2024 5:10:40 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH1A_ST1.dgn

ITEM	DESCRIPTION	UNIT	QTY
0400 6006	CUT & RESTORING PAV	SY	13
0402 6001	TRENCH EXCAVATION PROTECTION	LF	19
0403 6001	TEMPORARY SPL SHORING	SF	198
0512 6009	PORT CTB (FUR & INST)(LOW PROF)(TY 1)	LF	380
0512 6010	PORT CTB (FUR & INST)(LOW PROF)(TY 2)	LF	40
0512 6033	PORT CTB (MOVE)(LOW PROF)(TY 1)	LF	380
0512 6034	PORT CTB (MOVE)(LOW PROF)(TY 2)	LF	40
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	2460
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1700
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	22



LEGEND

- EXIST FEATURES
- EXIST RIGHT OF WAY
- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)
- LOW PROFILE CONCETE BARRIER

NOTES:

1. REFER TO STANDARD TCP (2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

DAVID H. GUTIERREZ 143301 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

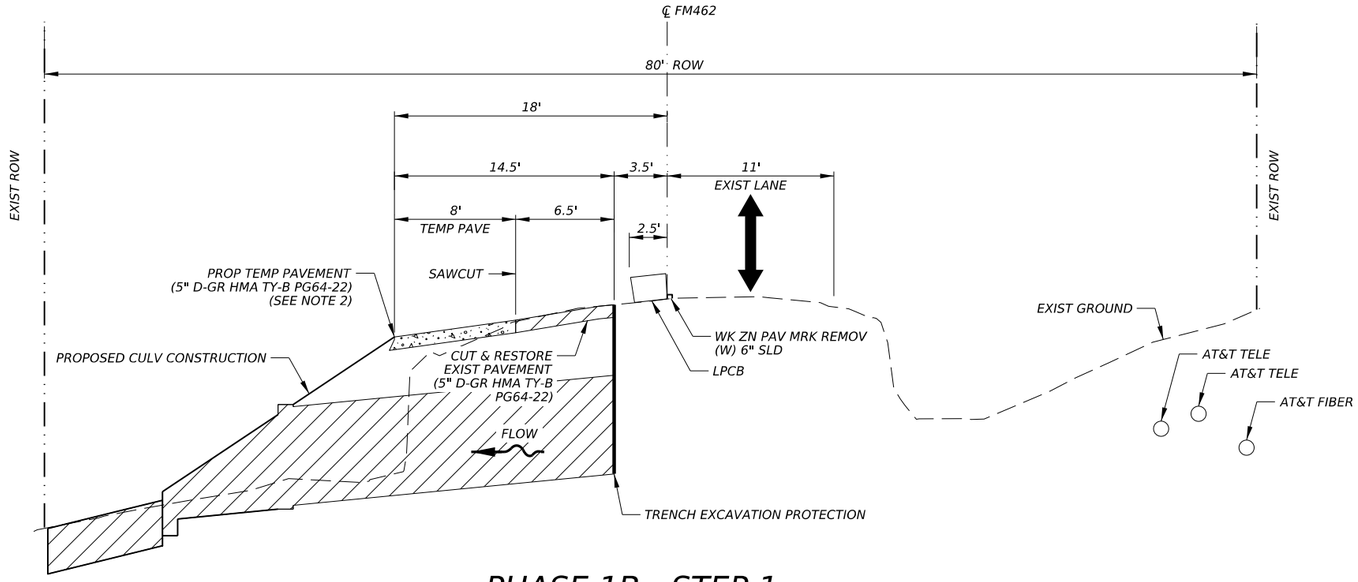
TRAFFIC CONTROL PLAN CULVERT REPLACEMENT PHASE 1A - STEP 2 CULVERT CC-HC-A

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		20

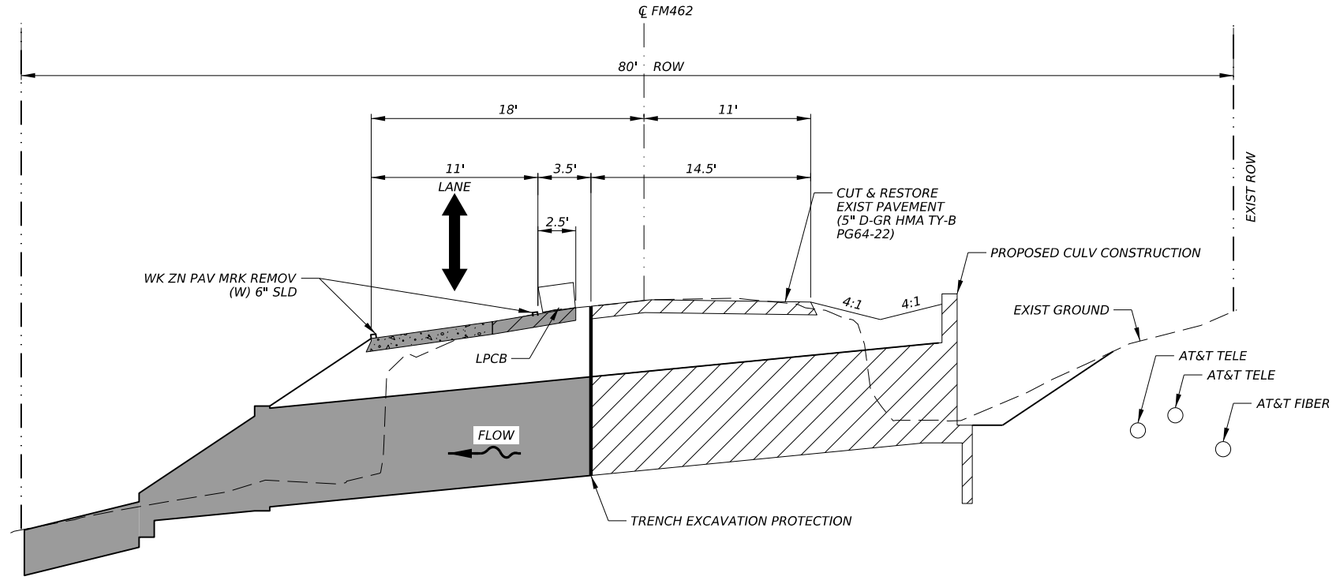
DATE: 1/31/2024 5:11:09 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH1A_ST2.dgn

CK: DW: CK: DW:



PHASE 1B - STEP 1

CONSTRUCT DOWNSTREAM
CULVERT CC-HC-B
STA 1087+54.06



PHASE 1B - STEP 2

CONSTRUCT UPSTREAM
CULVERT CC-HC-B
STA 1087+54.06

LEGEND

- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP

NOTES

1. TYPICAL SECTIONS ARE NOT TO SCALE.
2. TEMPORARY PAVEMENT PLACEMENT SHALL BE PAID FOR AS ITEM 508. SAWCUT AND EXISTING PAVEMENT REMOVAL SHALL BE SUBSIDIARY TO ITEM 508.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
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Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE 1B

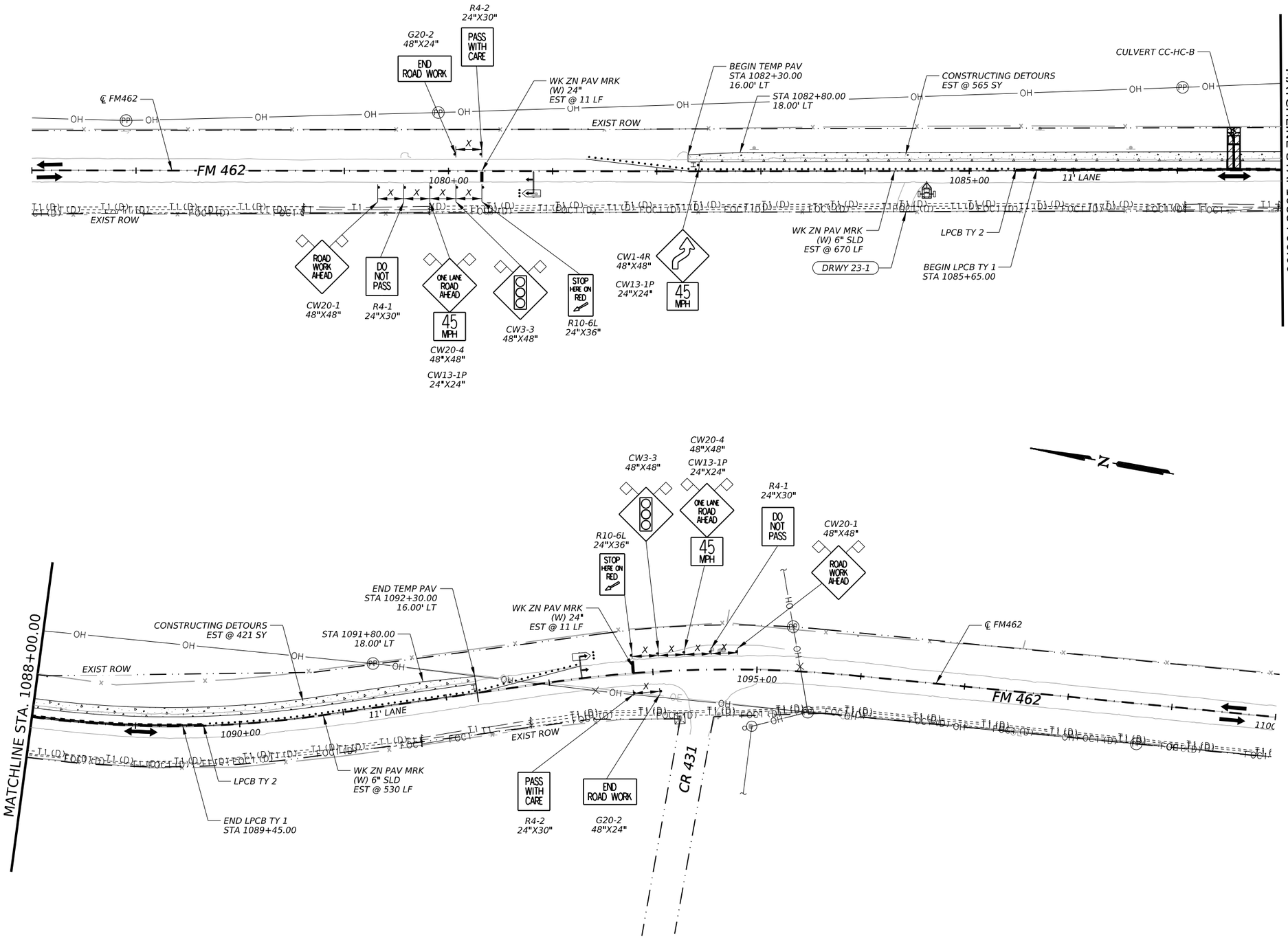
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		21

DATE: 1/31/2024 5:11:41 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_TYP_P1BS01.dgn

CK:
DW:
CK:
DN:

ITEM	DESCRIPTION	UNIT	QTY
0400 6006	CUT & RESTORING PAV	SY	11
0402 6001	TRENCH EXCAVATION PROTECTION	LF	14
0508 6001*	CONSTRUCTING DETOURS	SY	986
0512 6033	PORT CTB (MOVE)(LOW PROF)(TY 1)	LF	380
0512 6034	PORT CTB (MOVE)(LOW PROF)(TY 2)	LF	40
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1200
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	22
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	2740



LEGEND

- EXIST FEATURES
- EXIST RIGHT OF WAY
- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)
- LOW PROFILE CONCETE BARRIER

NOTES:

1. REFER TO STANDARD TCP (2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
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PROFESSIONAL ENGINEER

0' 50' 100'

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN CULVERT REPLACEMENT PHASE 1B STEP 1 CULVERT CC-HC-B

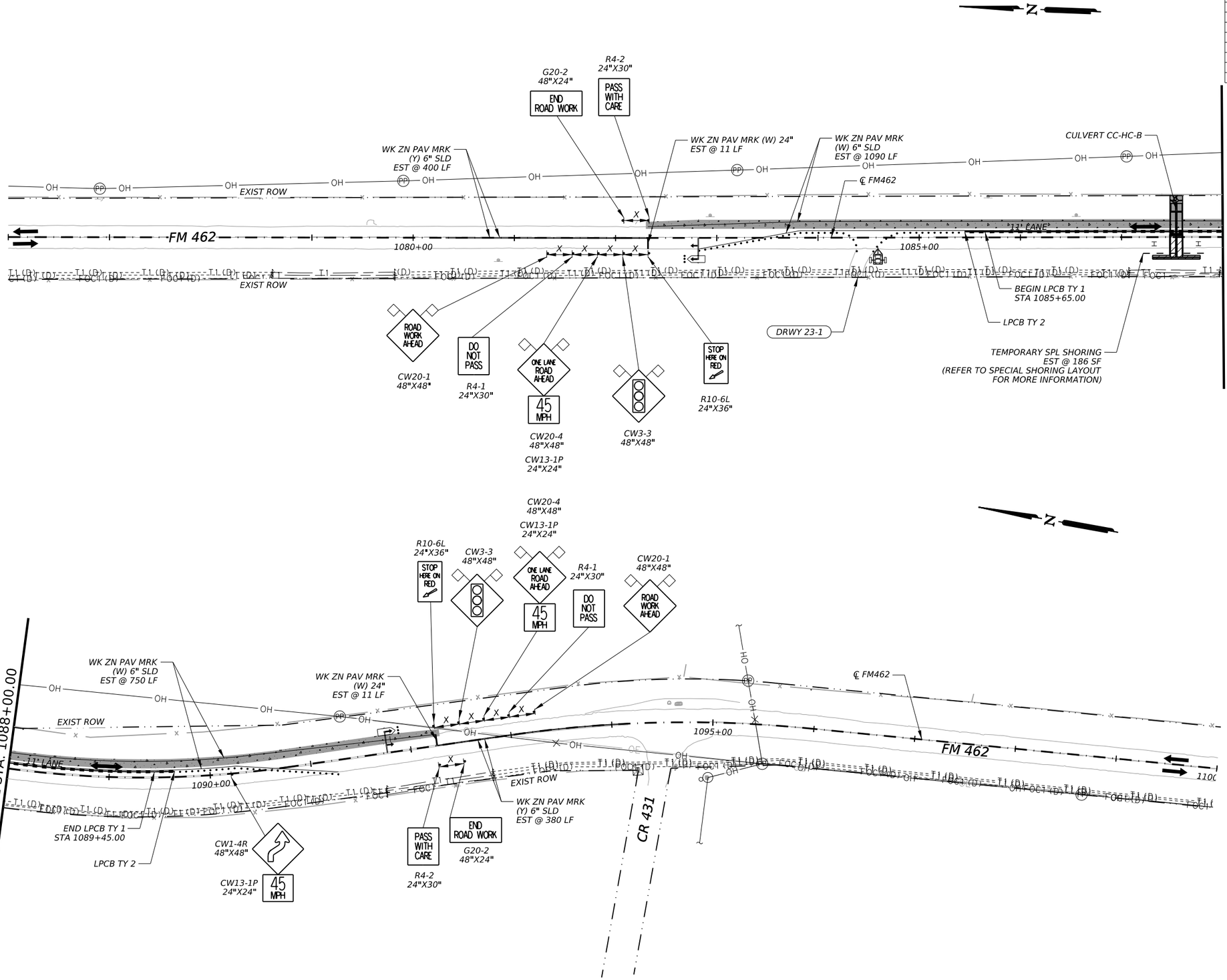
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		22

DATE: 1/31/2024 5:12:11 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH1B_ST1.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0400 6006	CUT & RESTORING PAV	SY	24
0402 6001	TRENCH EXCAVATION PROTECTION	LF	19
0403 6001	TEMPORARY SPL SHORING	SF	186
0512 6033	PORT CTB (MOVE)(LOW PROF)(TY 1)	LF	380
0512 6034	PORT CTB (MOVE)(LOW PROF)(TY 2)	LF	40
0512 6057	PORT CTB (REMOVE)(LOW PROF)(TY 1)	LF	380
0512 6058	PORT CTB (REMOVE)(LOW PROF)(TY 2)	LF	40
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	2740
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1840
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	22



MATCHLINE STA. 1088+00.00

LEGEND

- EXIST FEATURES
- EXIST RIGHT OF WAY
- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)
- LOW PROFILE CONCETE BARRIER

NOTES:

1. REFER TO STANDARD TCP (2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
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PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN CULVERT REPLACEMENT PHASE 1B - STEP 2 CULVERT CC-HC-B

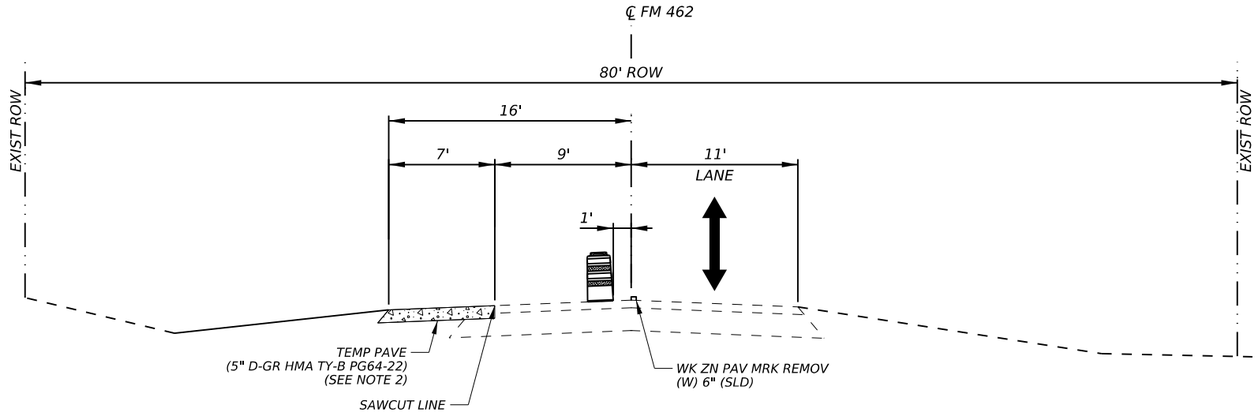
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		23

DATE: 1/31/2024 5:12:37 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH1B_ST2.dgn

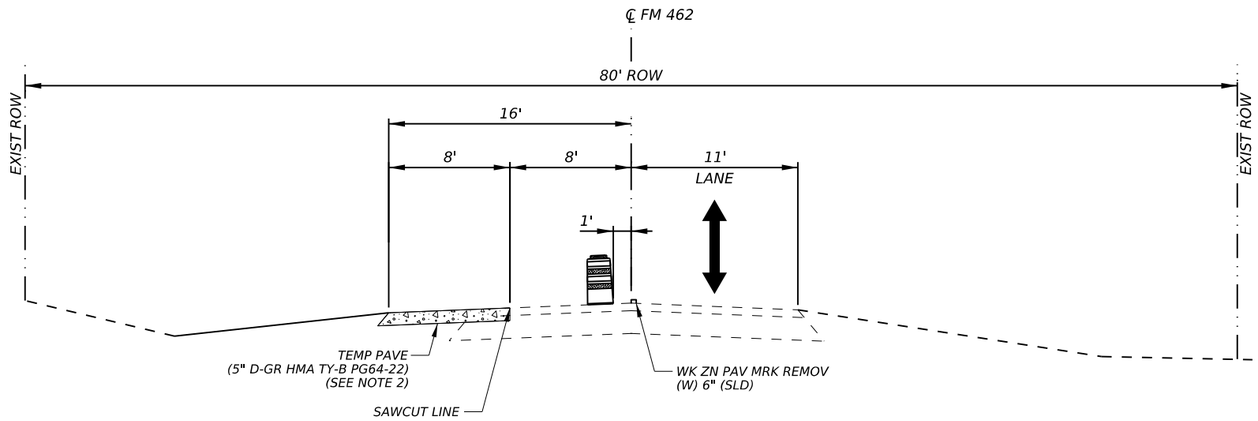
CK:
DW:
CK:
DN:

CK:
DW:
CK:
DW:



TCP TYPICAL SECTION PHASE 2

STA 817+75.00 TO STA 821+00.00
STA 834+00.00 TO STA 889+00.00
STA 894+50.00 TO STA 1094+00.00



TCP TYPICAL SECTION PHASE 2

STA 821+00.00 TO STA 834+00.00
STA 889+00.00 TO STA 894+50.00

LEGEND

- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP

NOTES

1. TYPICAL SECTIONS ARE NOT TO SCALE.
2. TEMPORARY PAVEMENT PLACEMENT SHALL BE PAID FOR AS ITEM 508. SAWCUT AND EXISTING PAVEMENT REMOVAL SHALL BE SUBSIDIARY TO ITEM 508.

DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

1/31/2024

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE 2

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		24

DATE: 1/31/2024 5:13:07 PM
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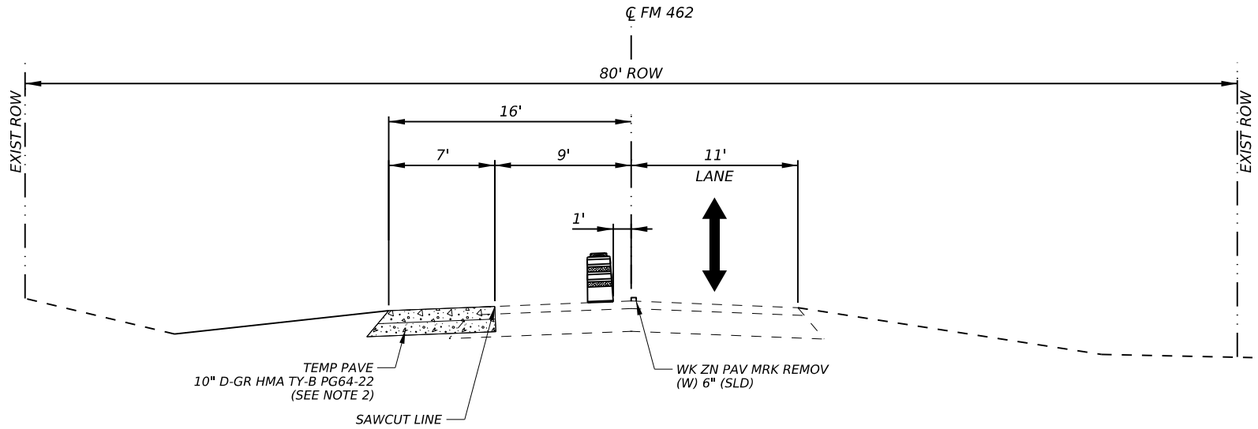

TCP TYPICAL SECTION PHASE 2

STA 1094+00.00 TO END

LEGEND

- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP

NOTES

1. TYPICAL SECTIONS ARE NOT TO SCALE.
2. TEMPORARY PAVEMENT PLACEMENT SHALL BE PAID FOR AS ITEM 508. SAWCUT AND EXISTING PAVEMENT REMOVAL SHALL BE SUBSIDIARY TO ITEM 508.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
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Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE 2

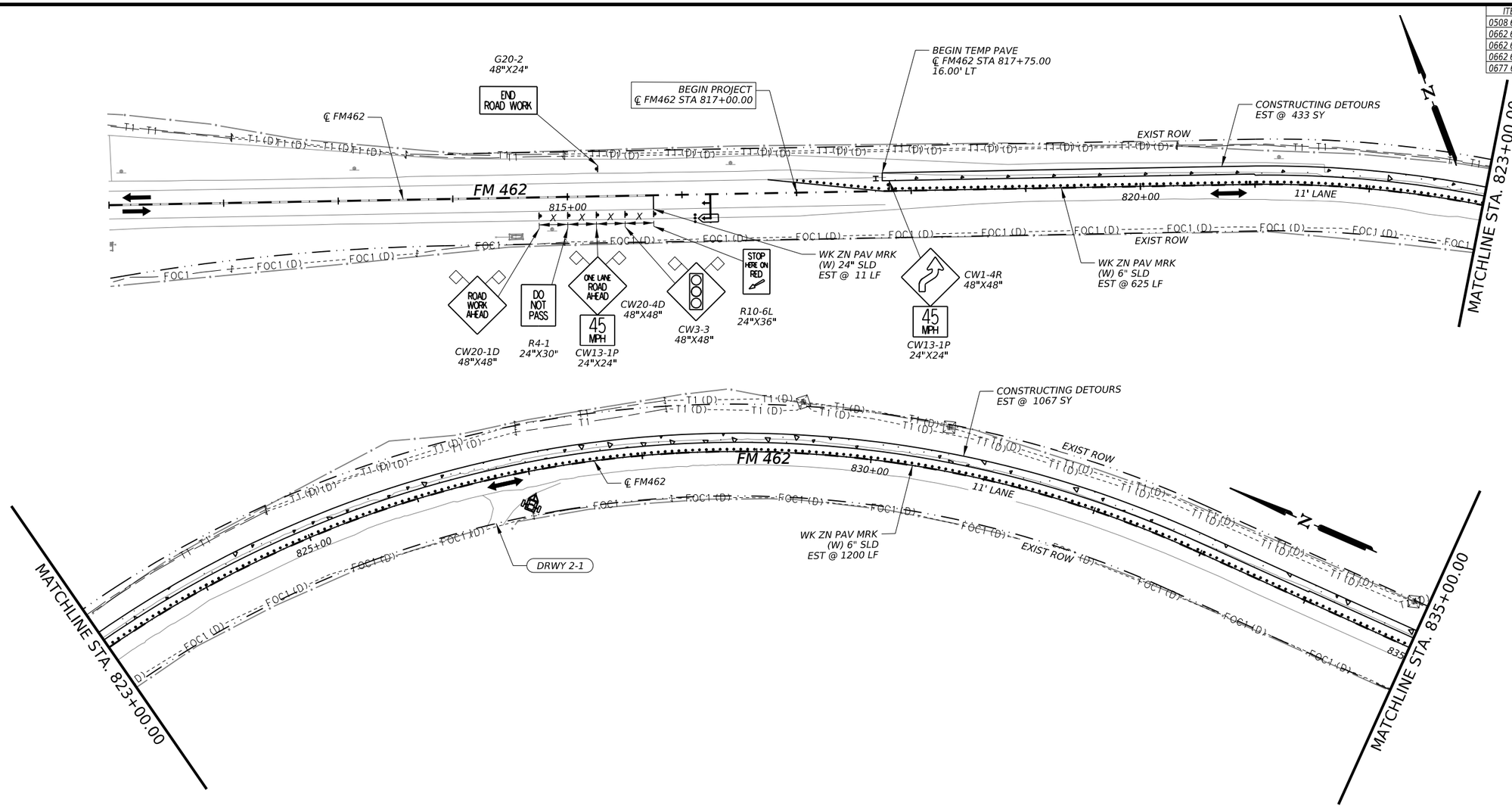
SHEET 2 OF 2

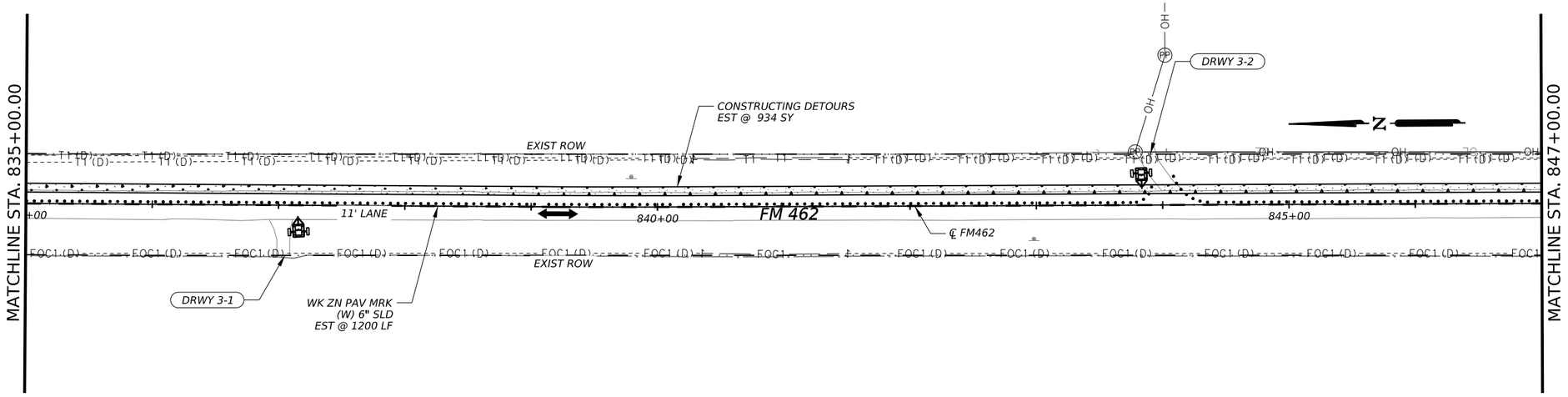
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		25

DATE: 1/31/2024 5:13:36 PM
FILE: c:\pw\kh1\d02856151\FM462_TCP_TYP_ST2_10.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	2434
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	6250
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3025
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	6250





*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

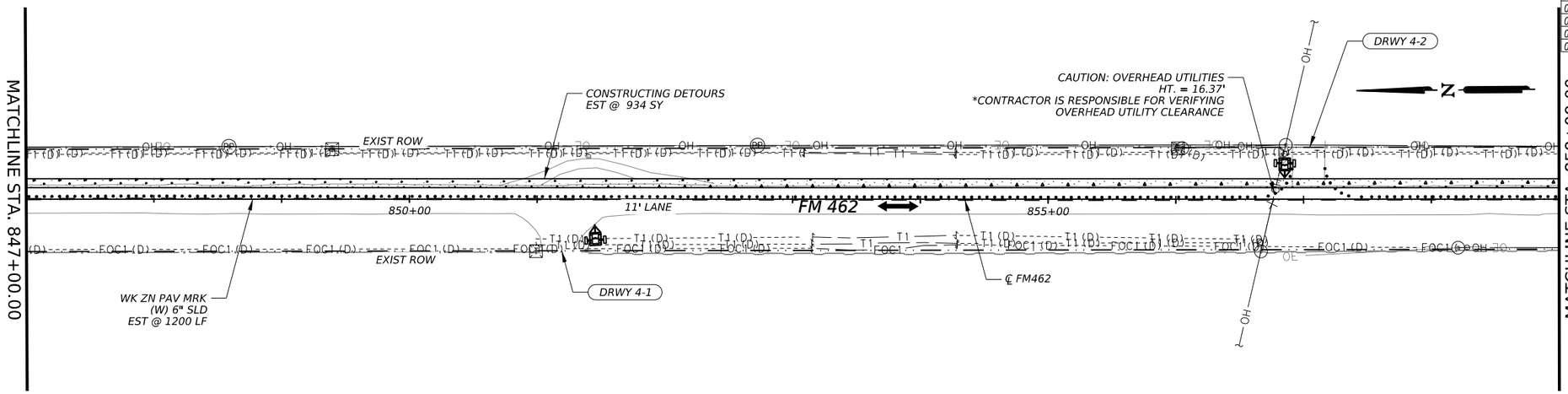
TRAFFIC CONTROL PLAN
PHASE 2
STEP 1

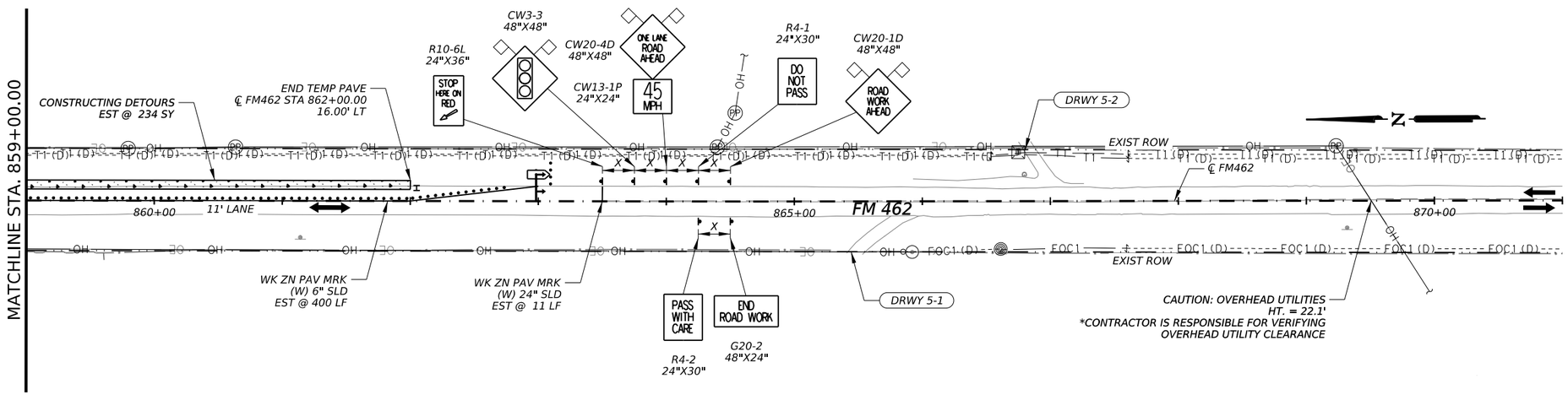
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		26

DATE: 1/31/2024 5:14:05 PM
FILE: c:\pw\khi1d028561\FM462_TCP_PH2_ST1A.dgn

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	1168
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	2700
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1600
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	3300





*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 2
STEP 1

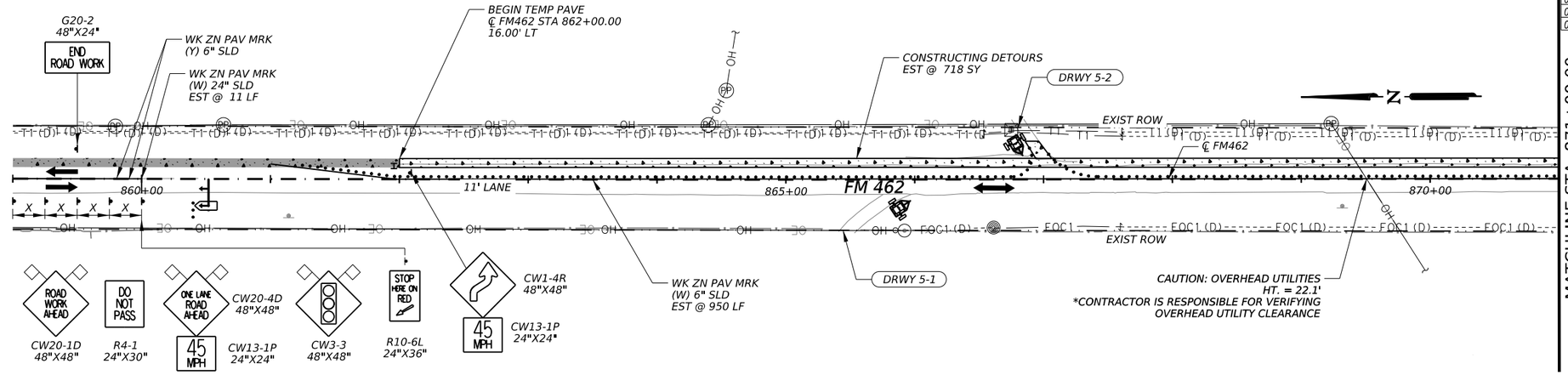
SHEET 2 OF 2

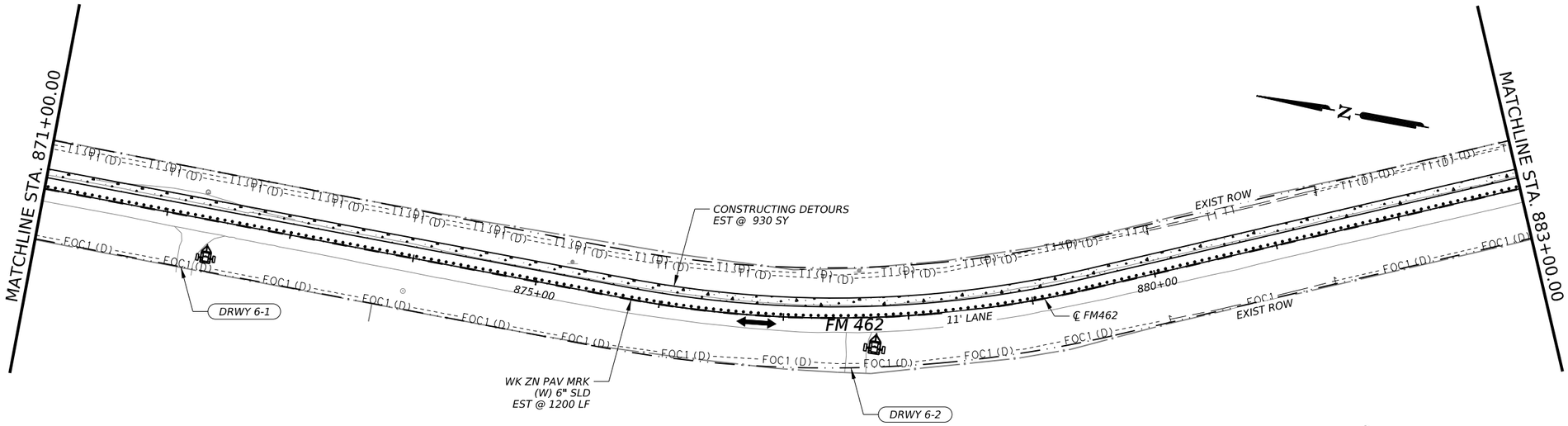
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		27

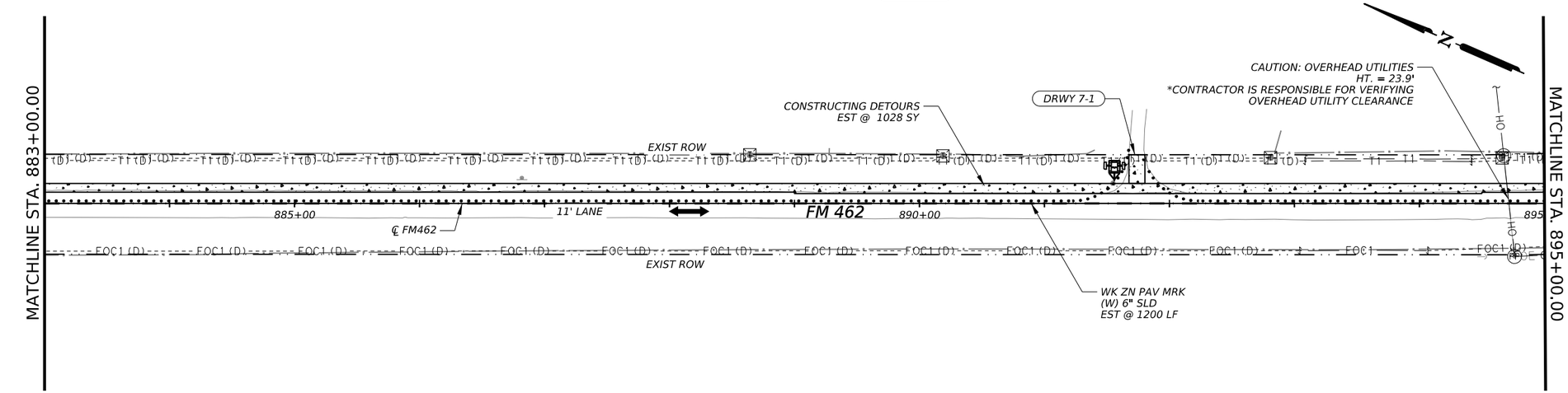
CK:
DW:
CK:
DW:

DATE: 1/31/2024 5:14:33 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST1B.dgn

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	2676
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	7000
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3350
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	6300







*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

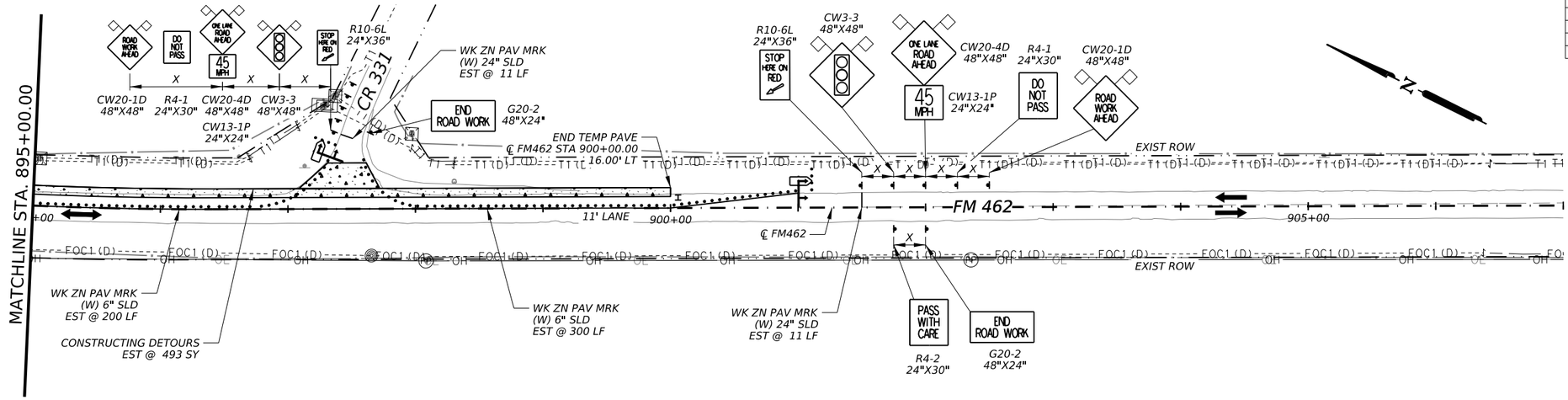
TRAFFIC CONTROL PLAN
PHASE 2
STEP 2

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		28

DATE: 1/31/2024 5:15:03 PM
FILE: c:\pw\khi1d0285615\FM462_TCP_PH2_ST2A.dgn

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	493
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	1200
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	500
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	22
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	1300



*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
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0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 2
STEP 2

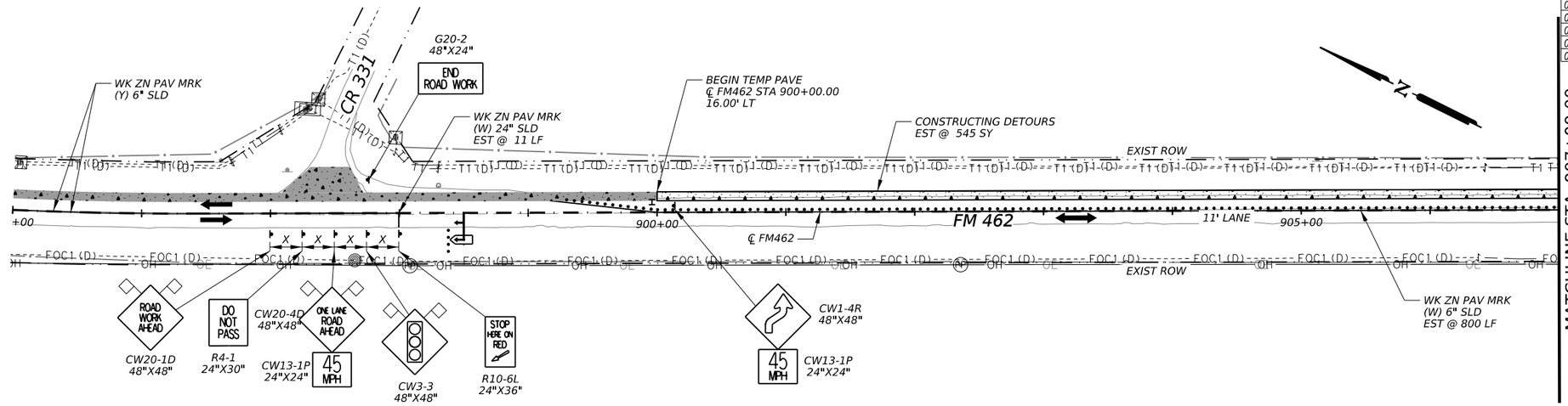
SHEET 2 OF 2

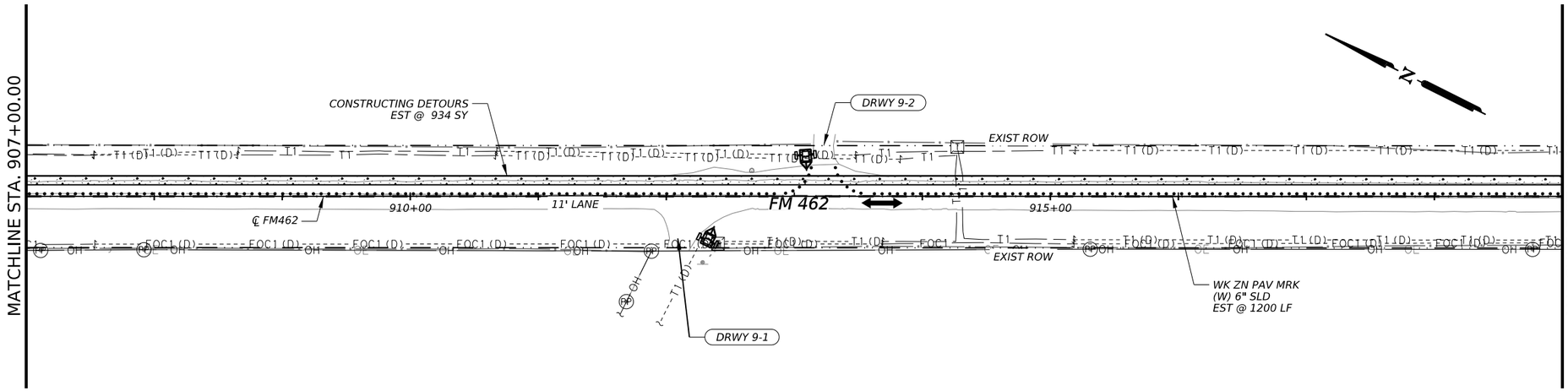
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		29

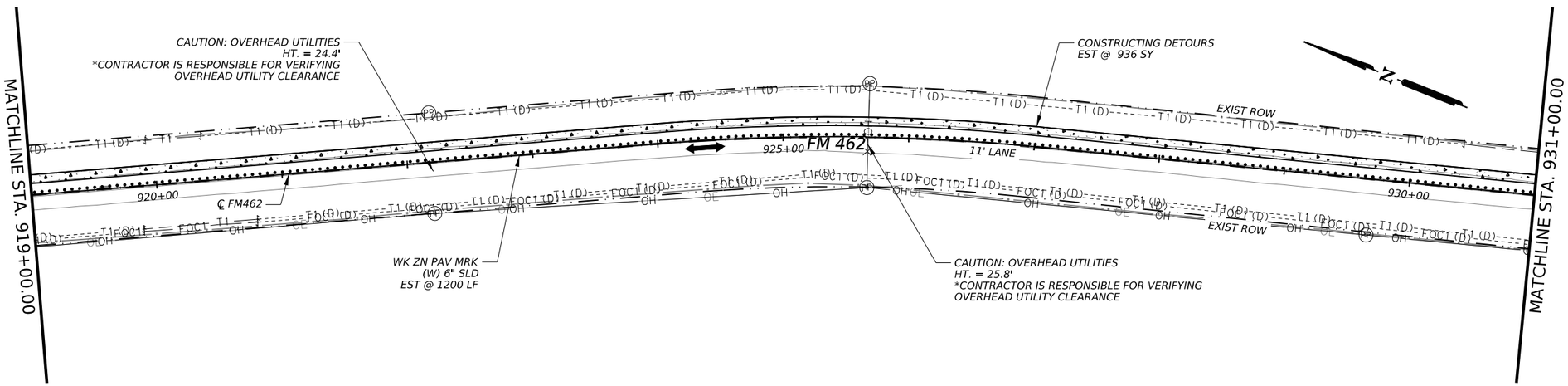
DATE: 1/31/2024 5:15:28 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST2B.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	2415
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	6600
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3200
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	5900







*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN PHASE 2 STEP 3

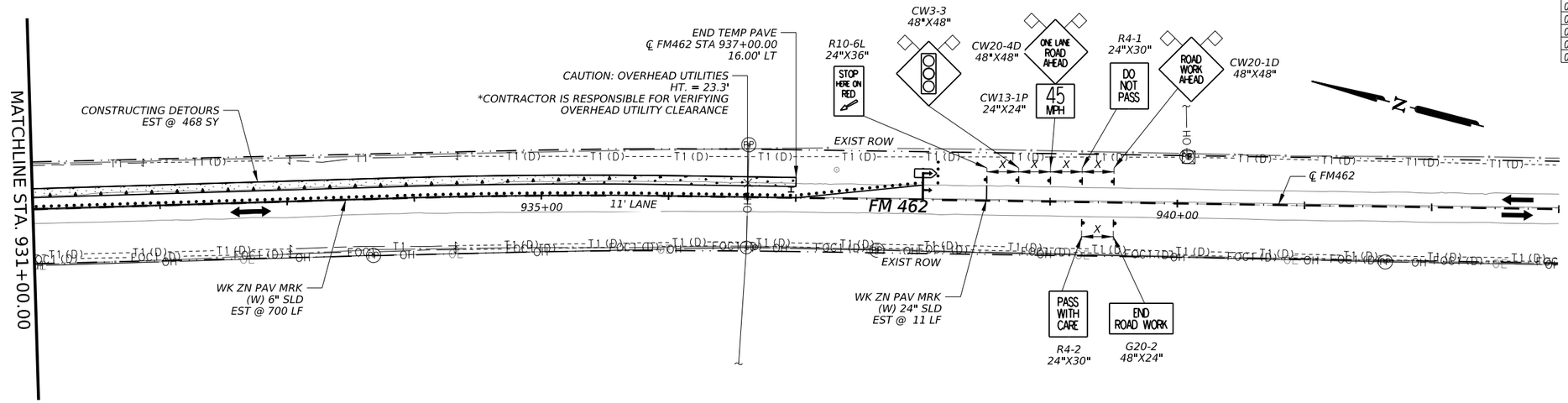
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		30

DATE: 1/31/2024 5:15:55 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST3A.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	468
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	800
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	700
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	1500



*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 2
STEP 3

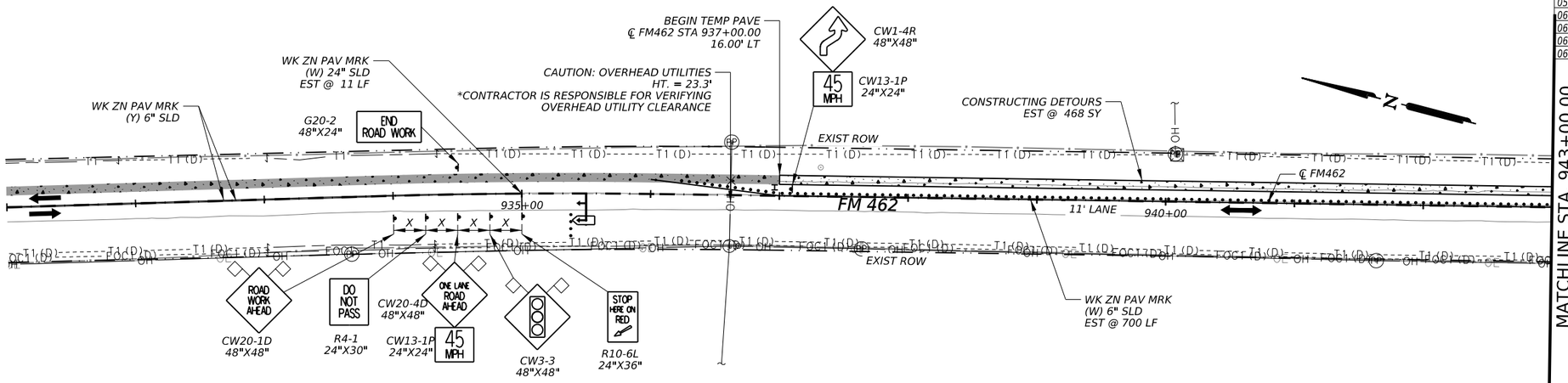
SHEET 2 OF 2

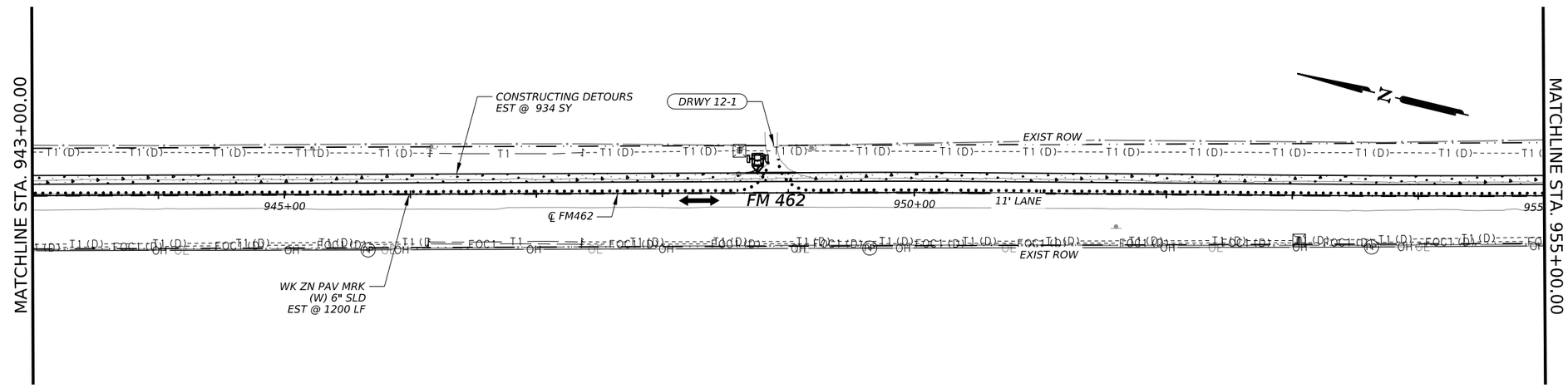
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		31

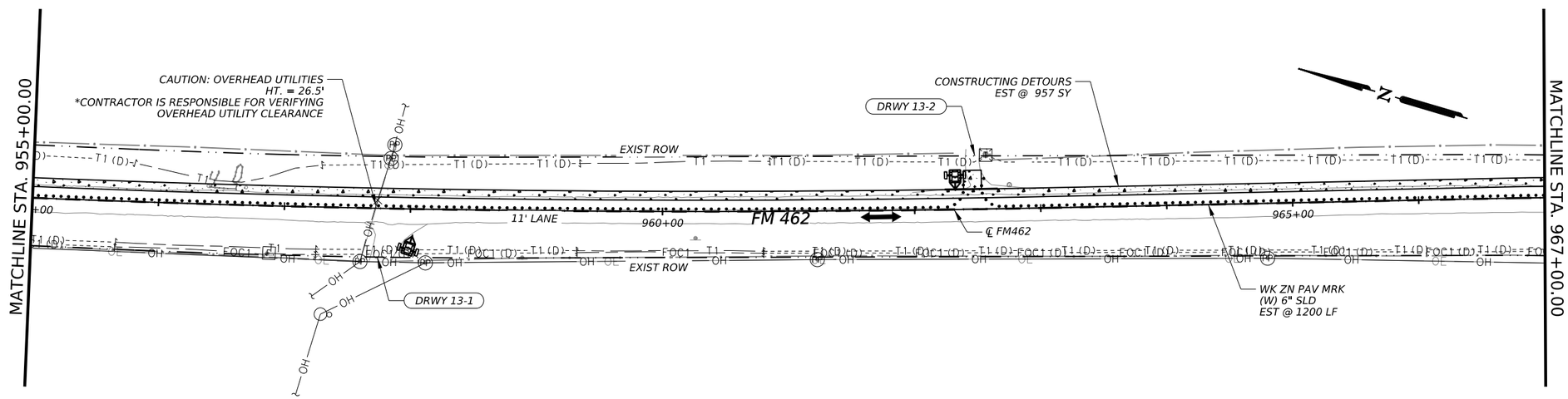
DATE: 1/31/2024 5:16:21 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST3B.dgn

DW:
CK:
DW:
CK:

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	2359
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	6400
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3100
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	5700







*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
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LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

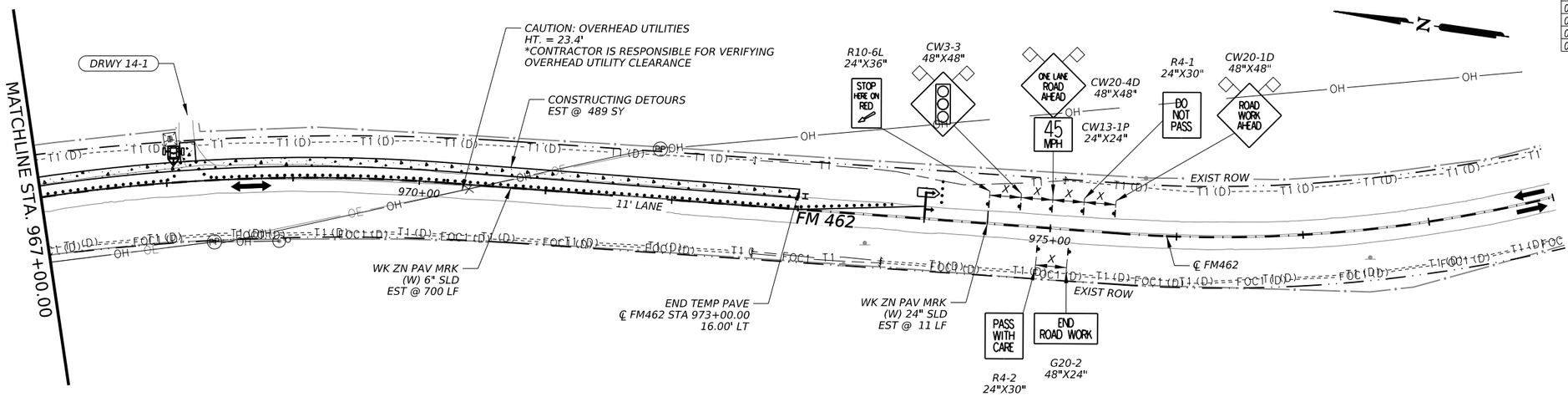
TRAFFIC CONTROL PLAN
PHASE 2
STEP 4

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		32

DATE: 1/31/2024 5:16:48 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST4A.dgn

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	489
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	800
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	700
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	1500



*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 2
STEP 4

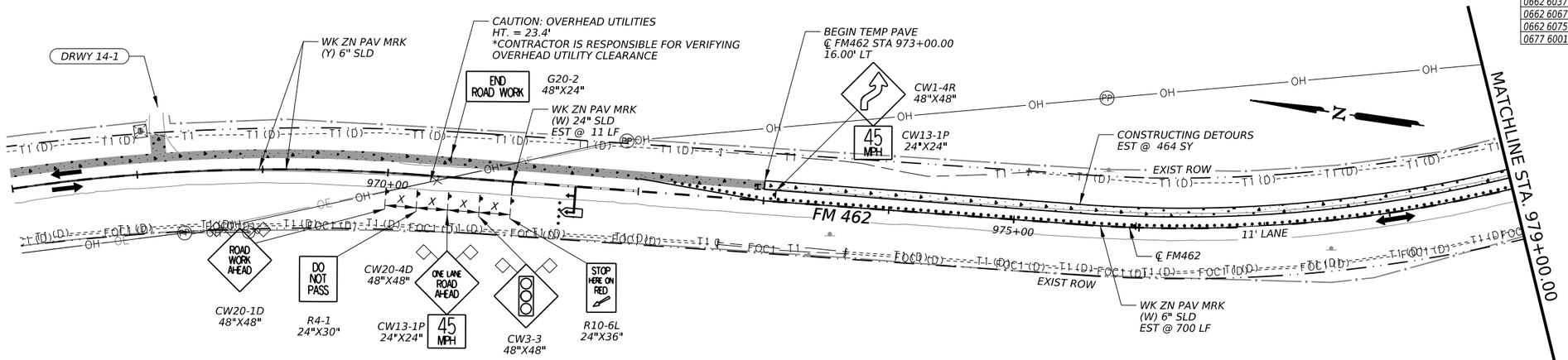
SHEET 2 OF 2

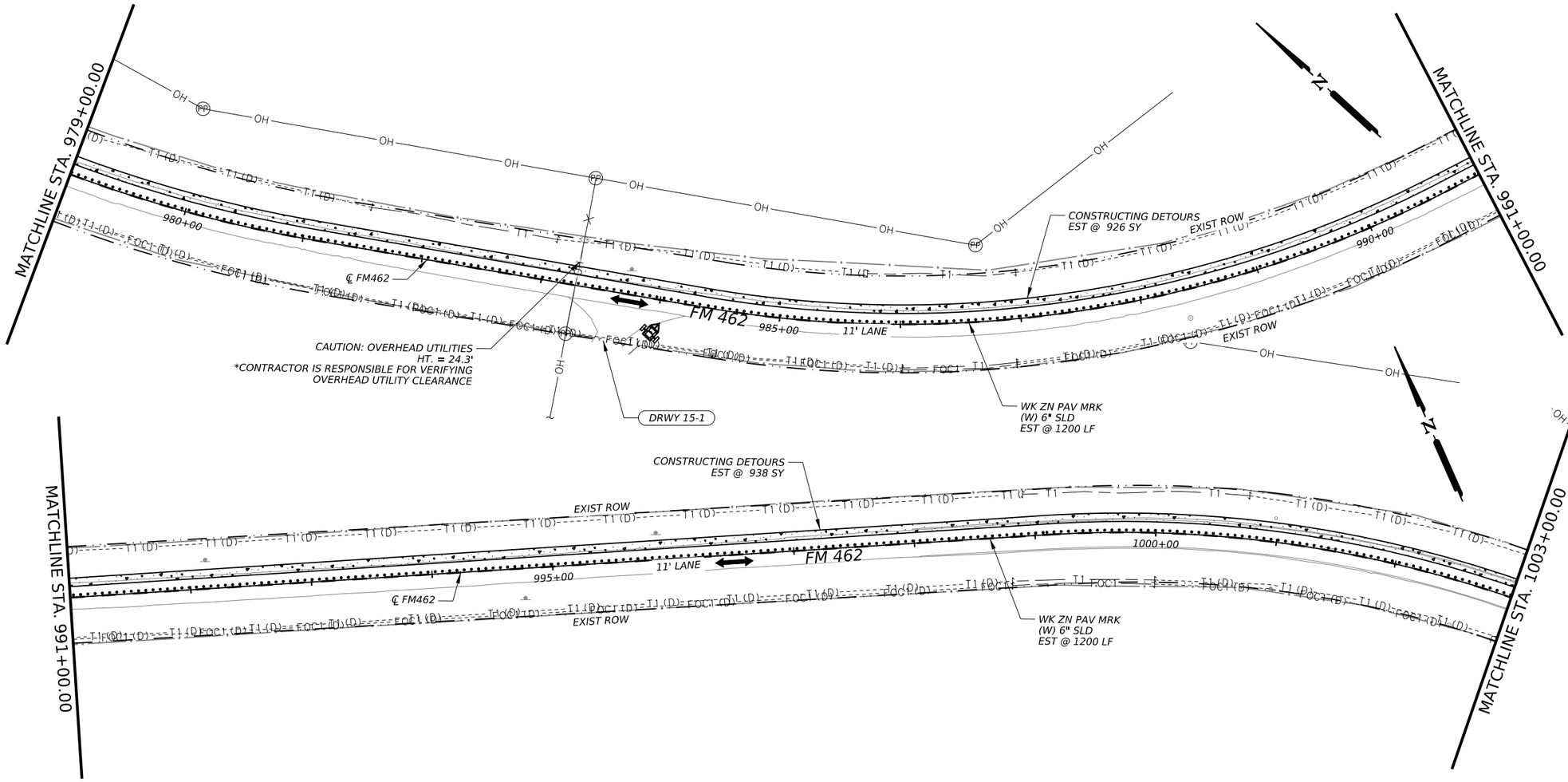
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		33

DATE: 1/31/2024 5:17:13 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST4B.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	2328
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	6400
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3100
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	5700





*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

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0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

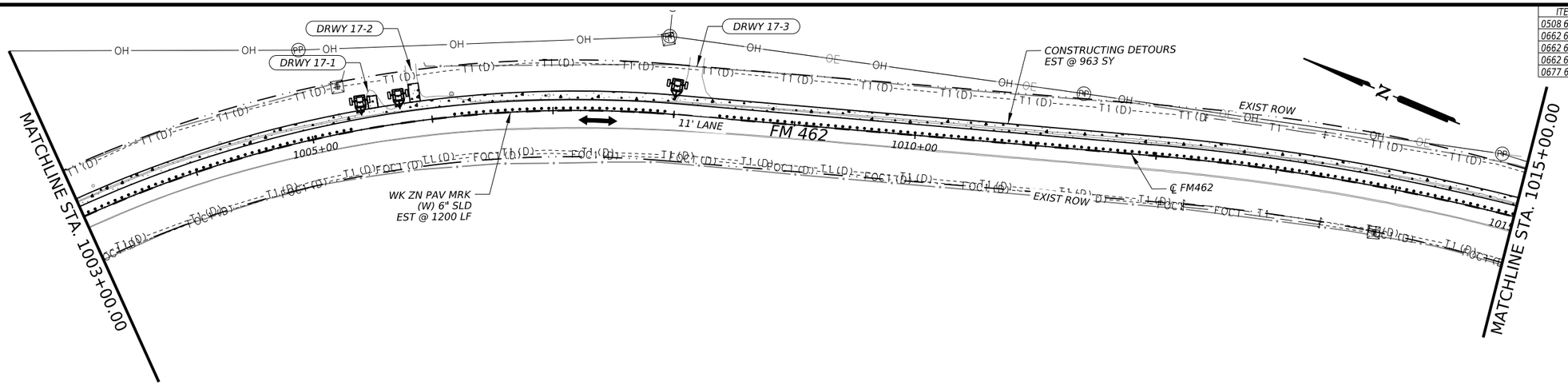
TRAFFIC CONTROL PLAN
PHASE 2
STEP 5

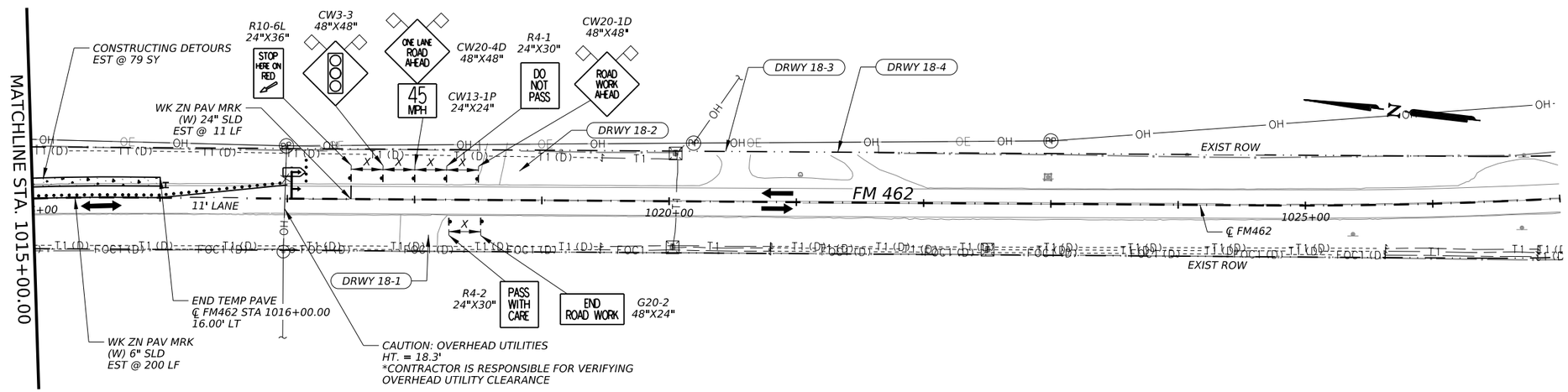
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		34

DATE: 1/31/2024 5:17:38 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST5A.dgn

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	1042
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	2200
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1400
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	2900





*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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Texas Department of Transportation

FM 462

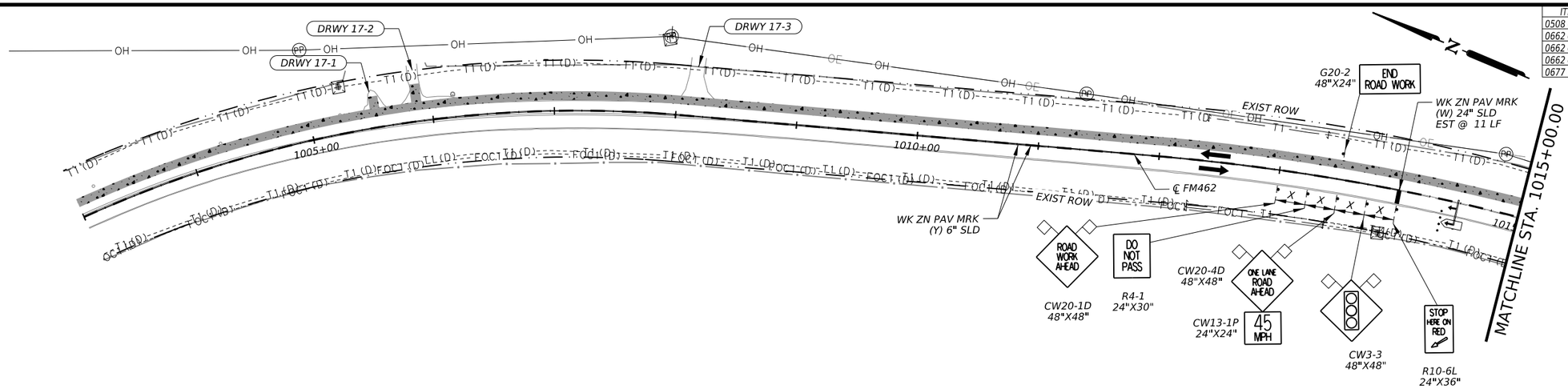
TRAFFIC CONTROL PLAN
PHASE 2
STEP 5

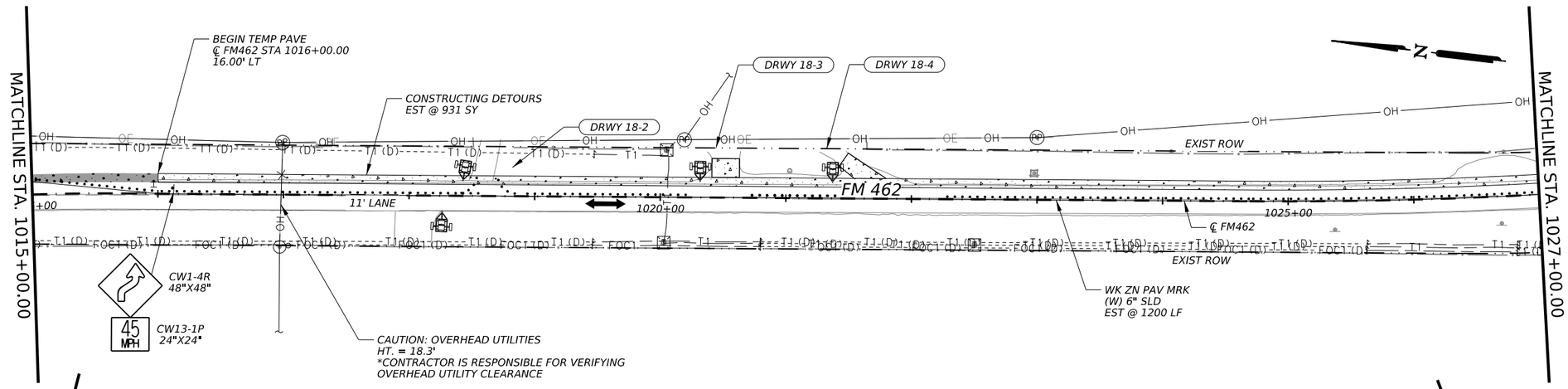
SHEET 2 OF 2

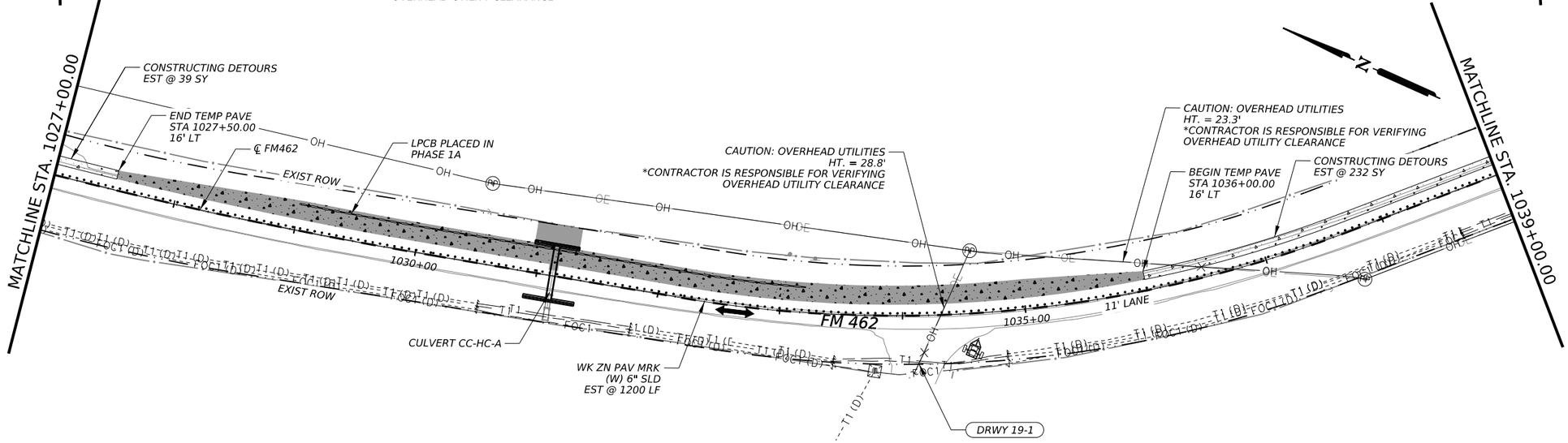
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		35

DATE: 1/31/2024 5:18:05 PM
FILE: c:\pwikh1\d0285615\FM462_TCP_PH2_ST5B.dgn

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	1202
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	5000
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	2400
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	4300







*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

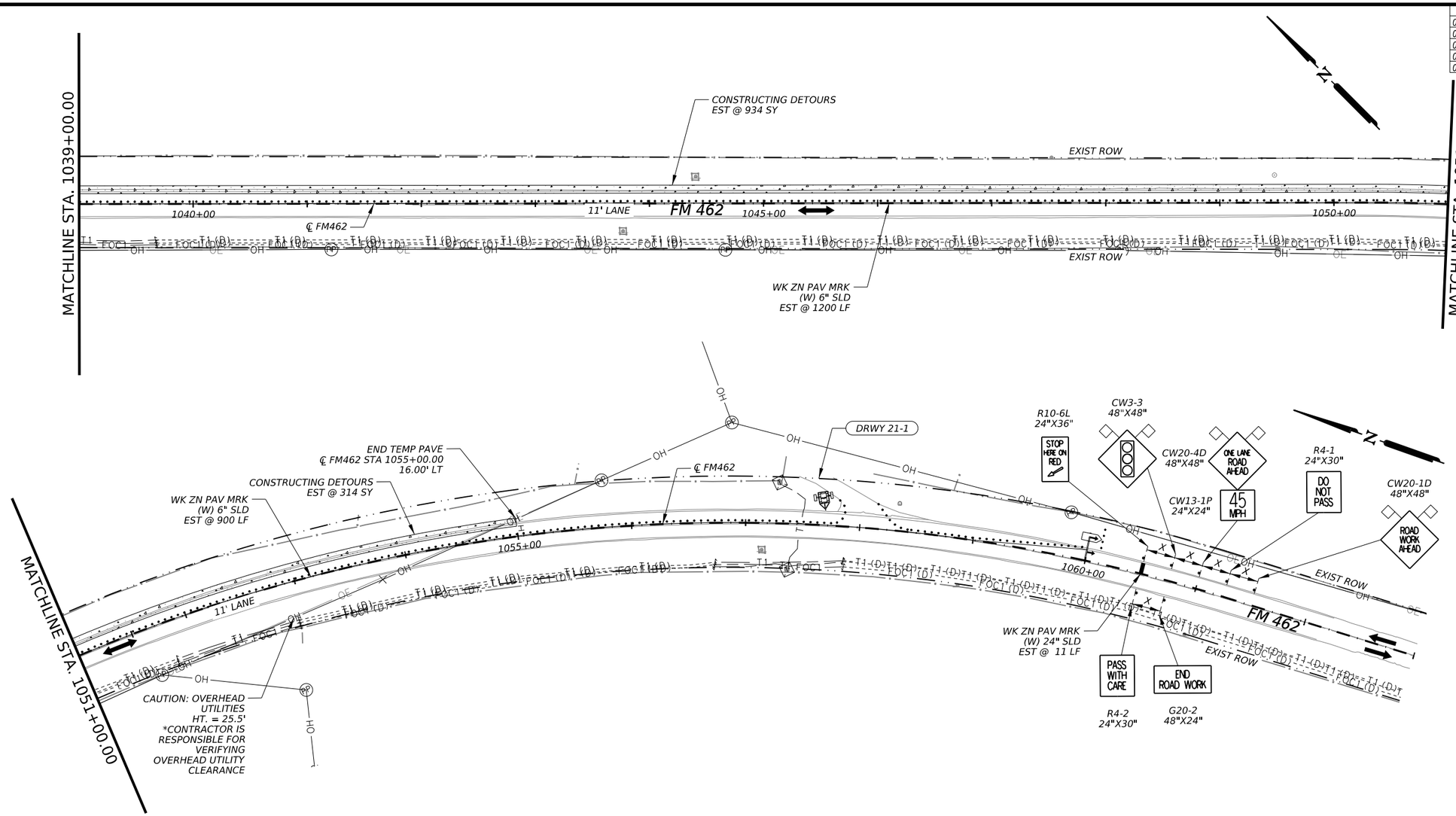
TRAFFIC CONTROL PLAN
PHASE 2
STEP 6

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		36

DATE: 1/31/2024 8:55:37 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST6A.dgn

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	1248
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	2400
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	2100
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	4300



*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 2
STEP 6

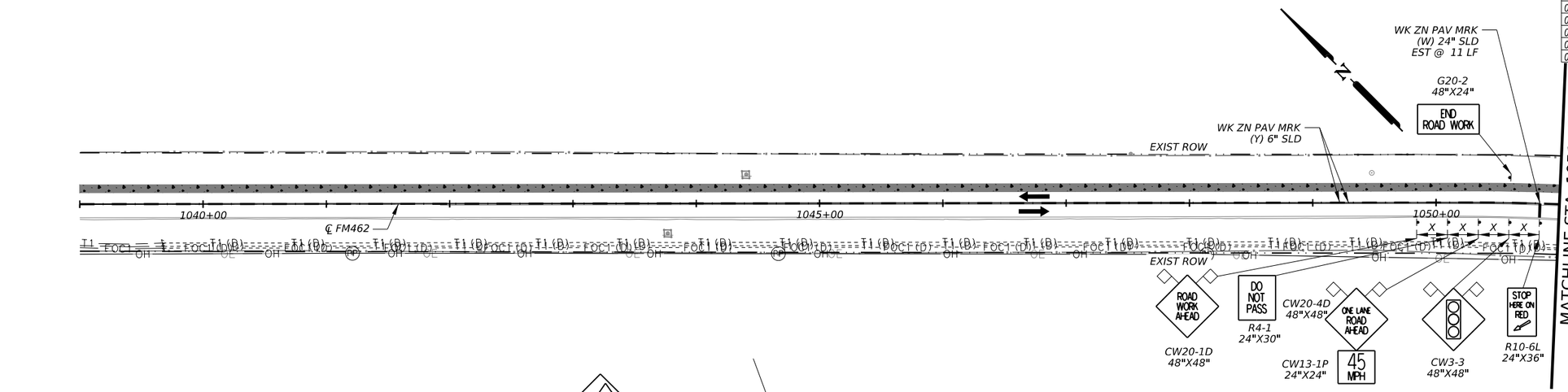
SHEET 2 OF 2

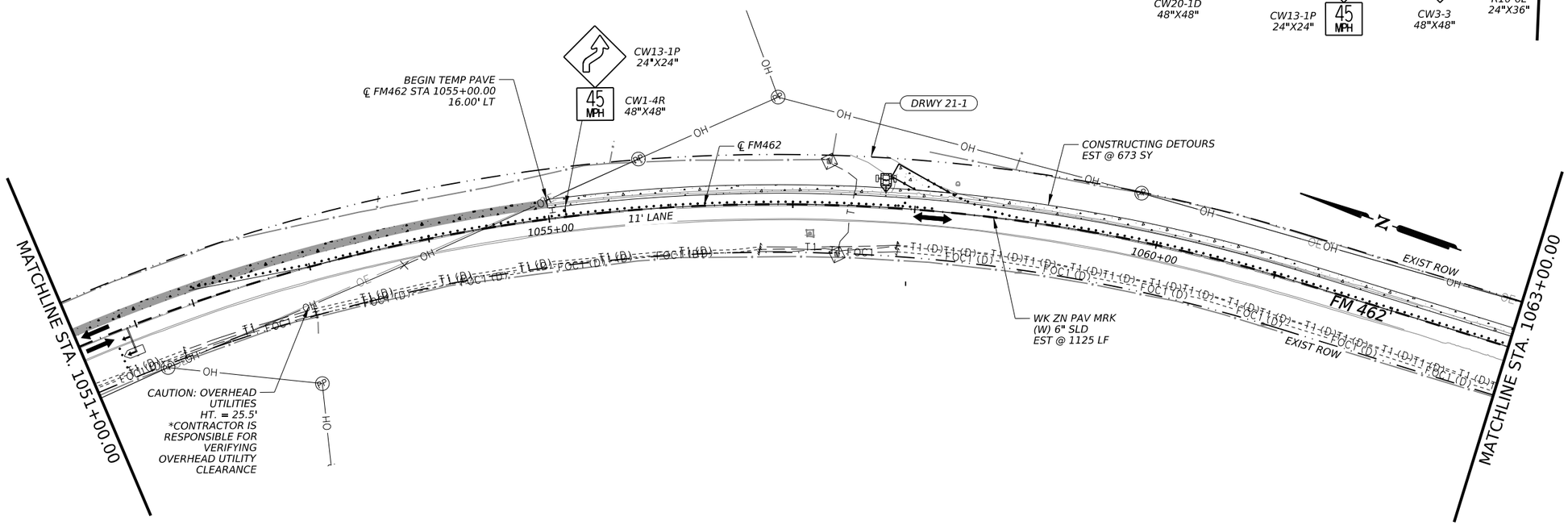
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		37

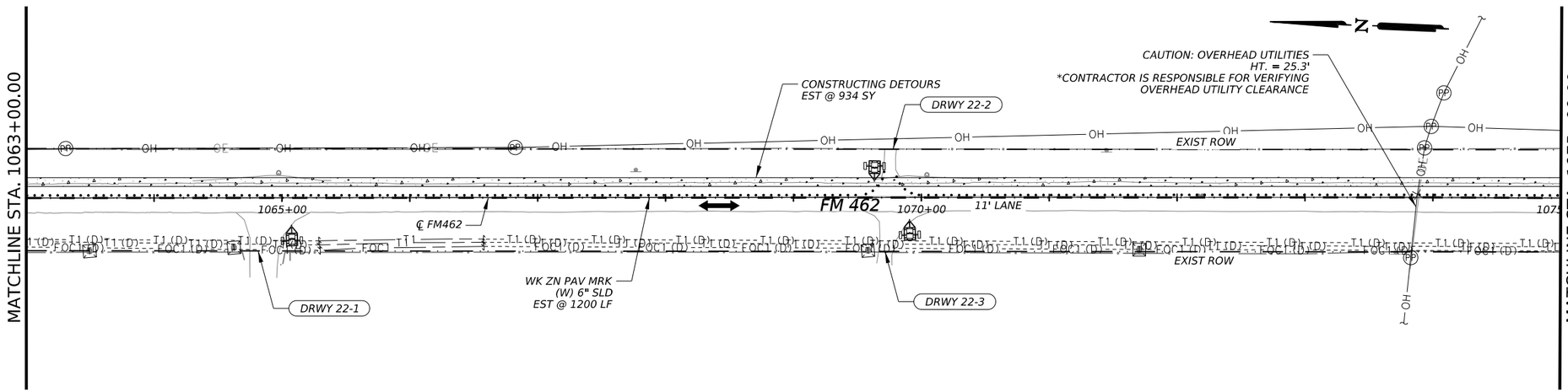
DATE: 1/31/2024 5:19:02 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST6B.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	1607
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	4800
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	2325
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	2900







*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 2
STEP 7

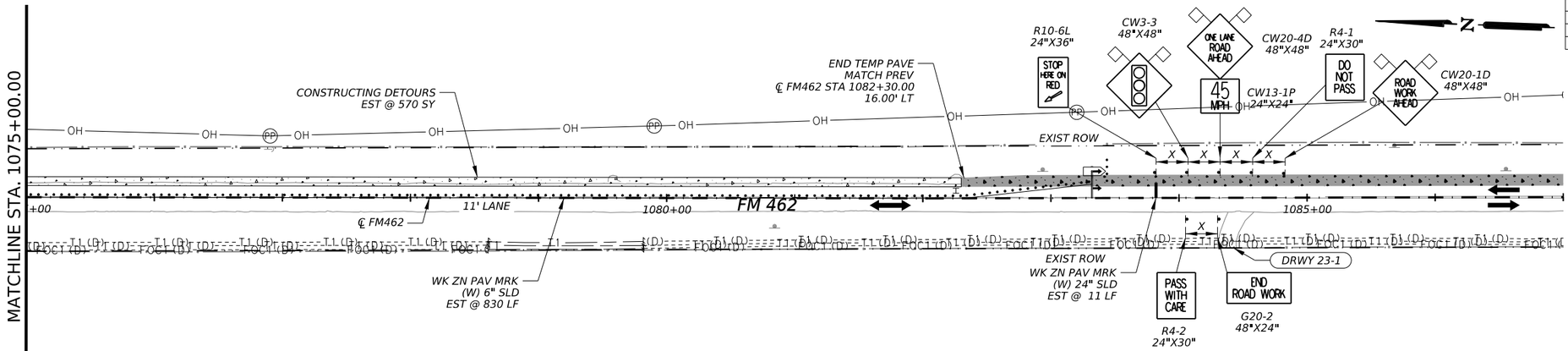
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		38

DATE: 1/31/2024 6:58:03 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST7_01.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	570
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	1960
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	830
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	1960



*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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1/31/2024

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DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 2
STEP 7

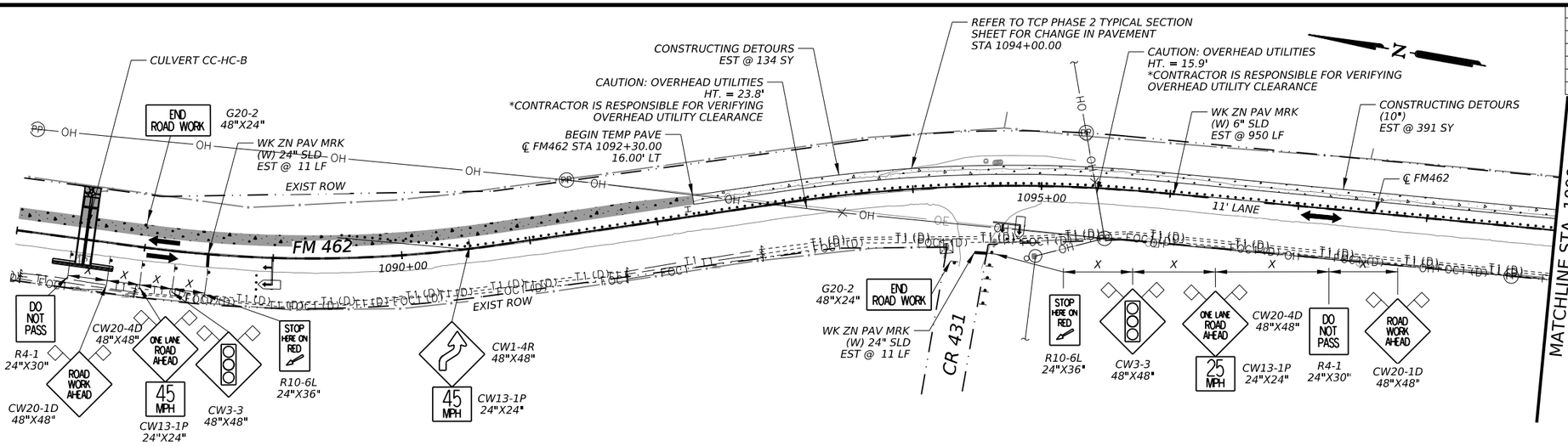
SHEET 2 OF 2

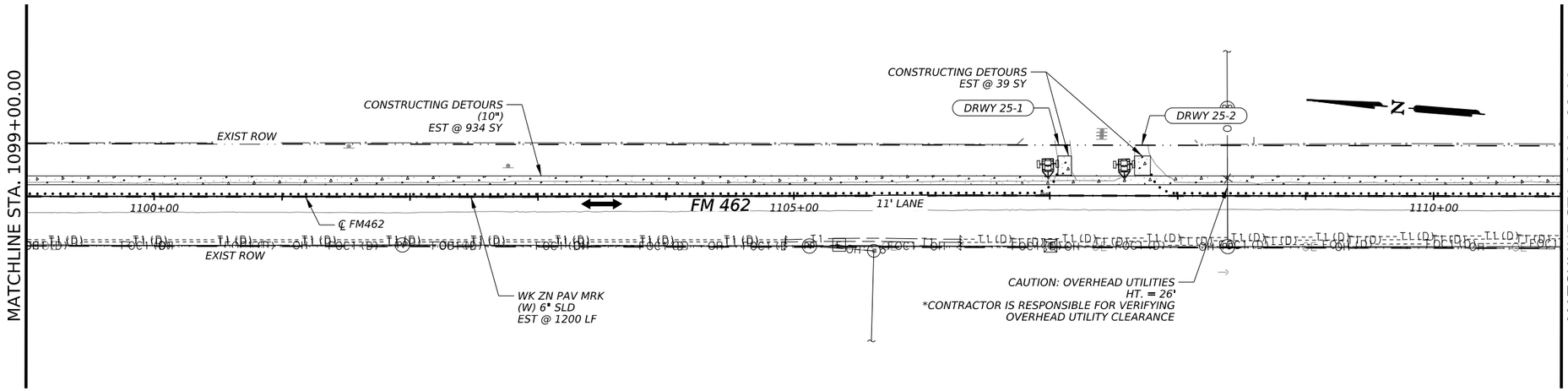
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		39

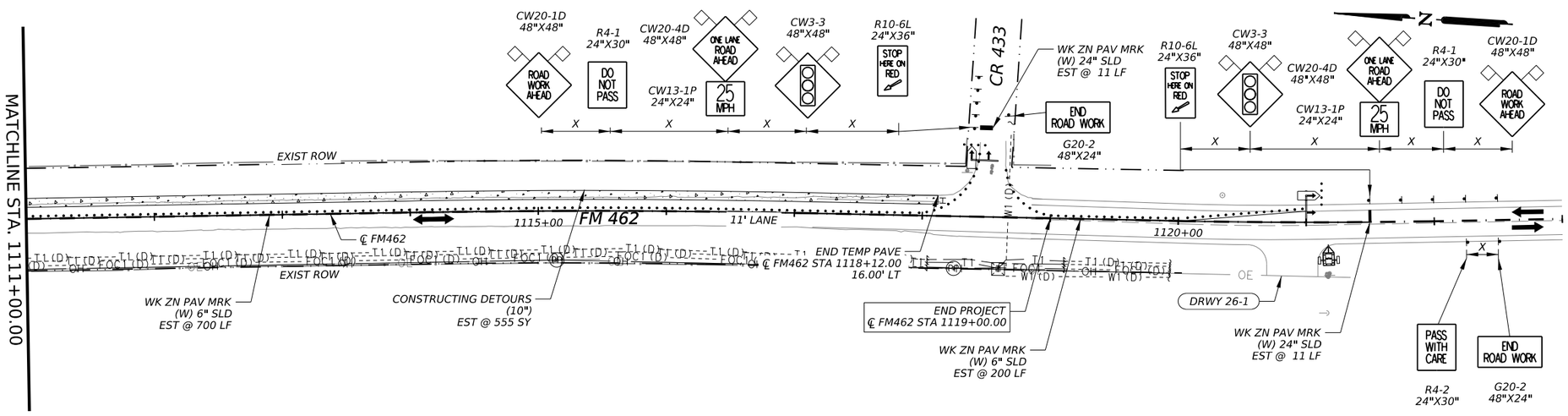
DATE: 1/31/2024 5:19:57 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST7_02.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0508 6001*	CONSTRUCTING DETOURS	SY	173
0508 6001**	CONSTRUCTING DETOURS	SY	1880
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	6600
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3050
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	44
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	6600







*5" THICKNESS
**10" THICKNESS

LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 2
STEP 8

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		40

DATE: 1/31/2024 5:20:28 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH2_ST8A.dgn

CK: DW: CK: DW:

NOTES:

1. LAYOUT FOR CONTRACTOR'S INFORMATION ONLY. REFER TO THE TCP LAYOUT SHEETS FOR MORE INFORMATION.

1/31/2024

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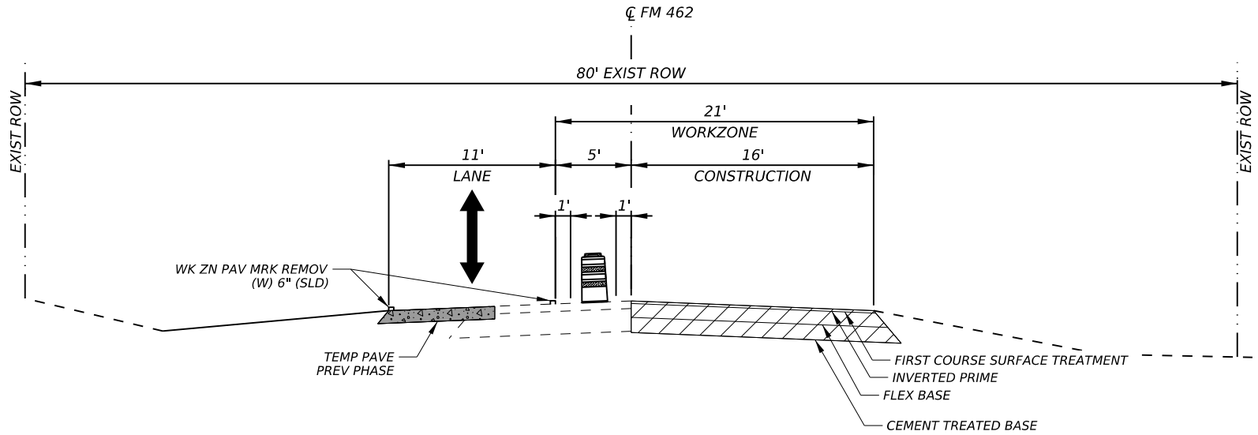
FM 462

TRAFFIC CONTROL PLAN
PHASING LAYOUT
PHASE 3 THRU 10

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		41

DATE: 1/31/2024 5:20:51 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_LAYOUT.dgn



TCP TYPICAL SECTION PHASE 3,4,5,6,7,8,9,10 - STEP 1

STA 817+75.00 TO STA 1118+60.00

TCP TYPICAL SECTION PHASE 3,4,5,6,7,8,9,10 - STEP 2

STA 817+75.00 TO STA 1118+12.00

LEGEND

- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP

NOTES

1. TYPICAL SECTIONS ARE NOT TO SCALE.
2. REFER TO PROPOSED TYPICAL SECTIONS FOR PAVEMENT DETAILS.

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TRAFFIC CONTROL PLAN
TYPICAL SECTIONS
PHASE 3,4,5,6,7,8,9,10

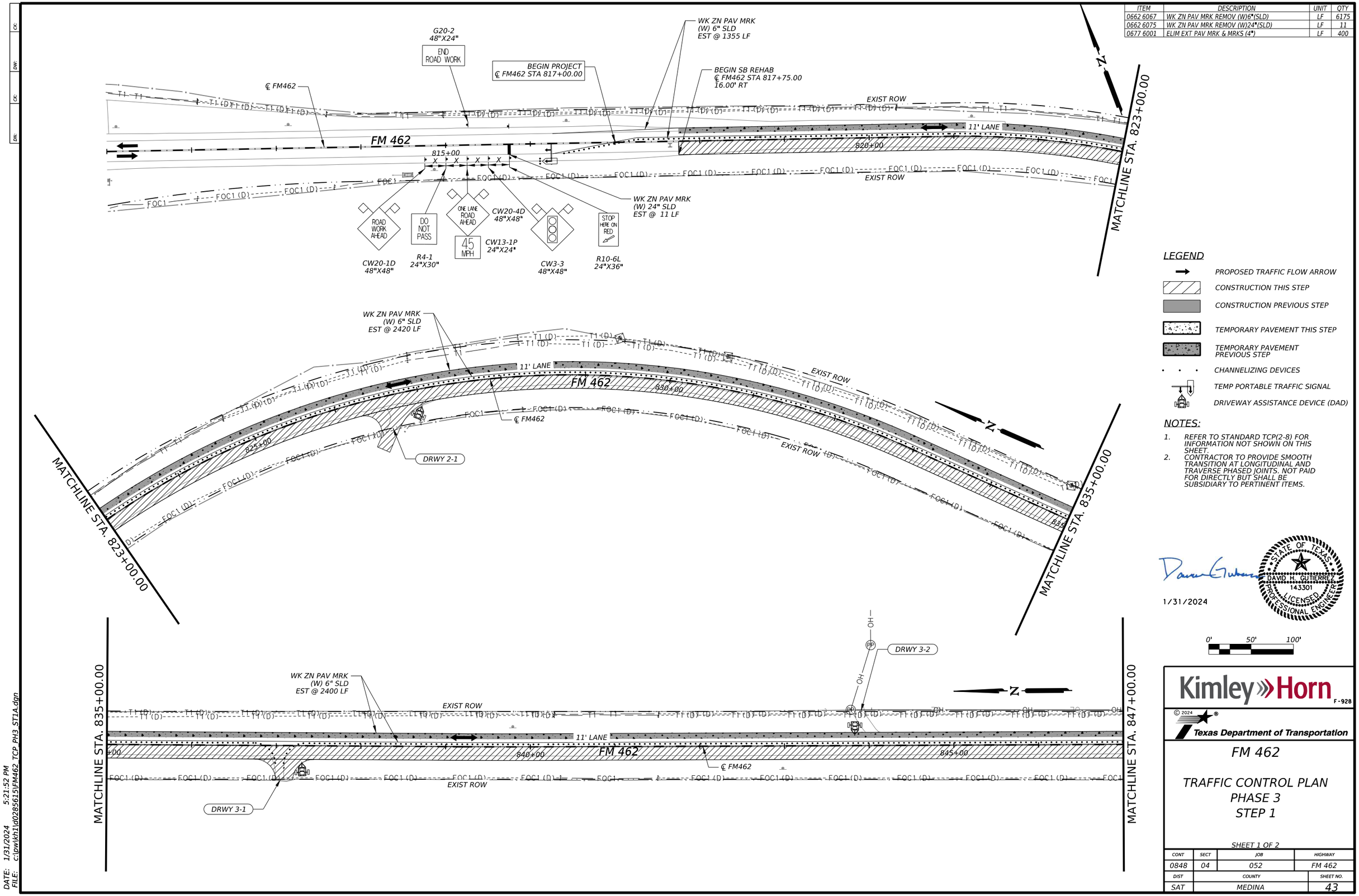
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		42

DATE: 1/31/2024 5:21:21 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_TYP_P03.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6175
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	400



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

DAVID H. GUTIERREZ
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STATE OF TEXAS

1/31/2024

0' 50' 100'

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 3
STEP 1

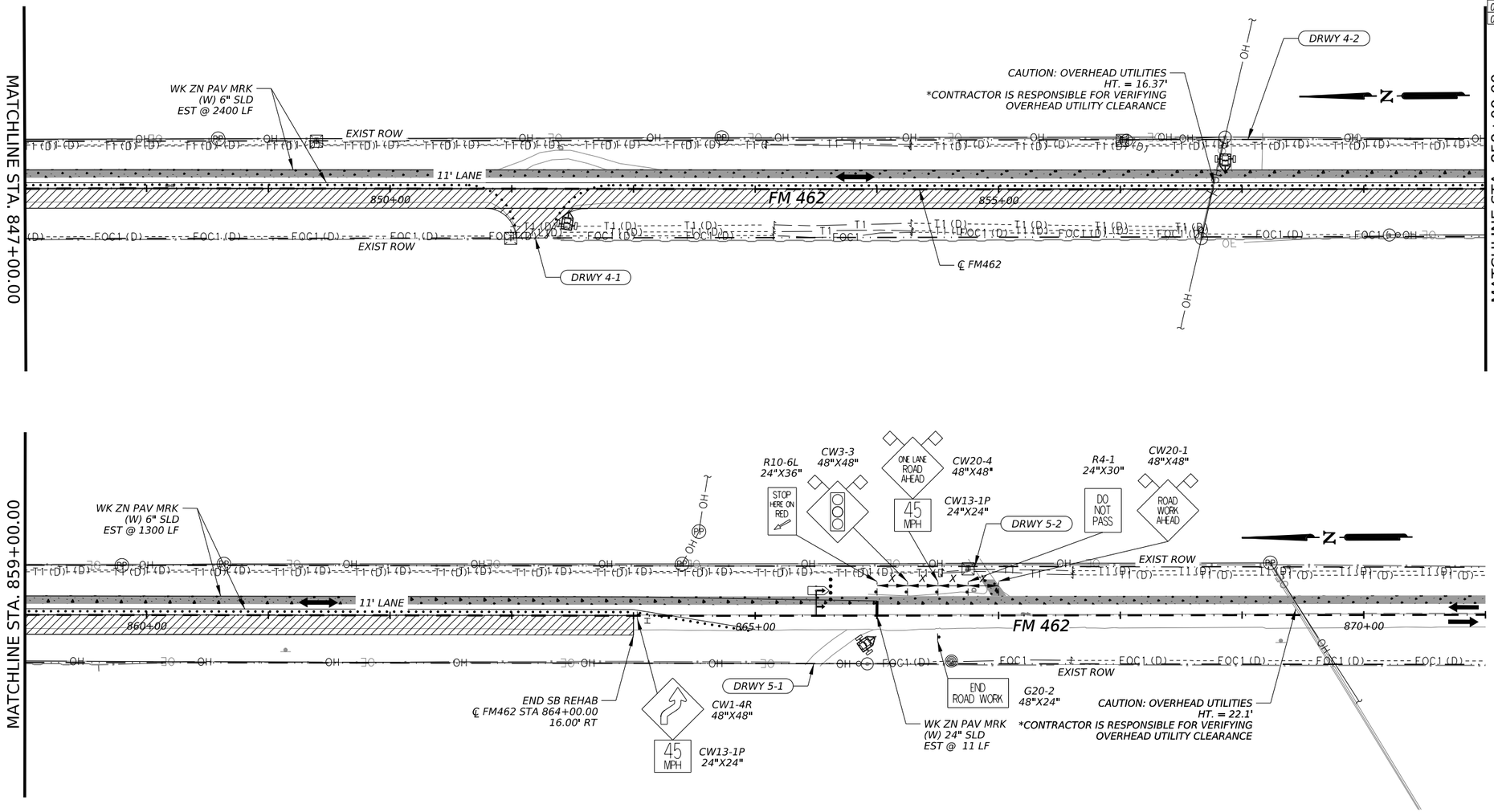
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		43

DATE: 1/31/2024 5:21:52 PM
FILE: c:\pwikh1\d0285615\FM462_TCP_PH3_ST1A.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3700
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	400



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

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FM 462

TRAFFIC CONTROL PLAN
PHASE 3
STEP 1

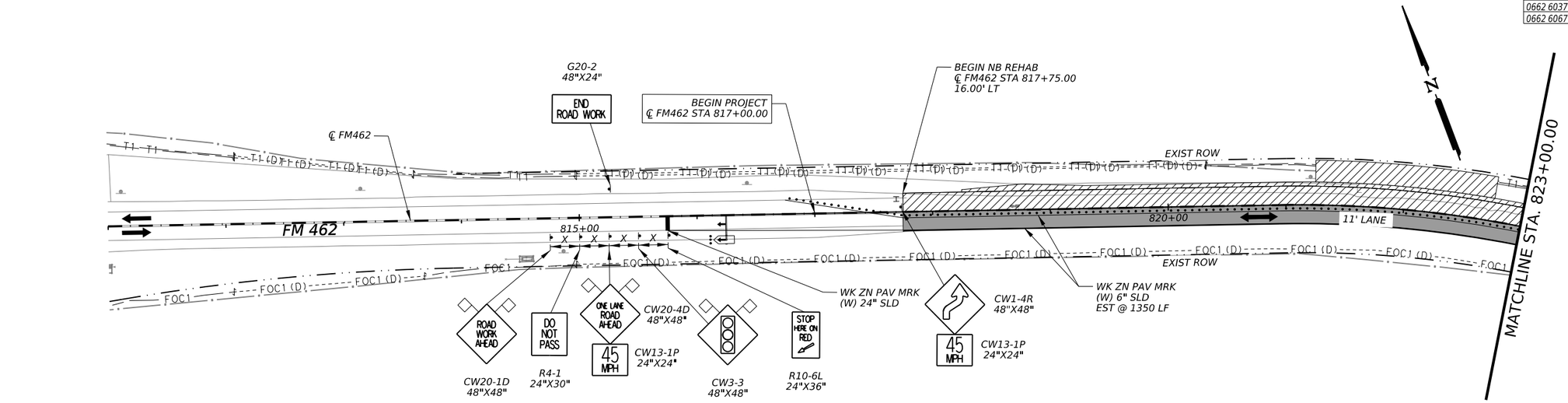
SHEET 2 OF 2

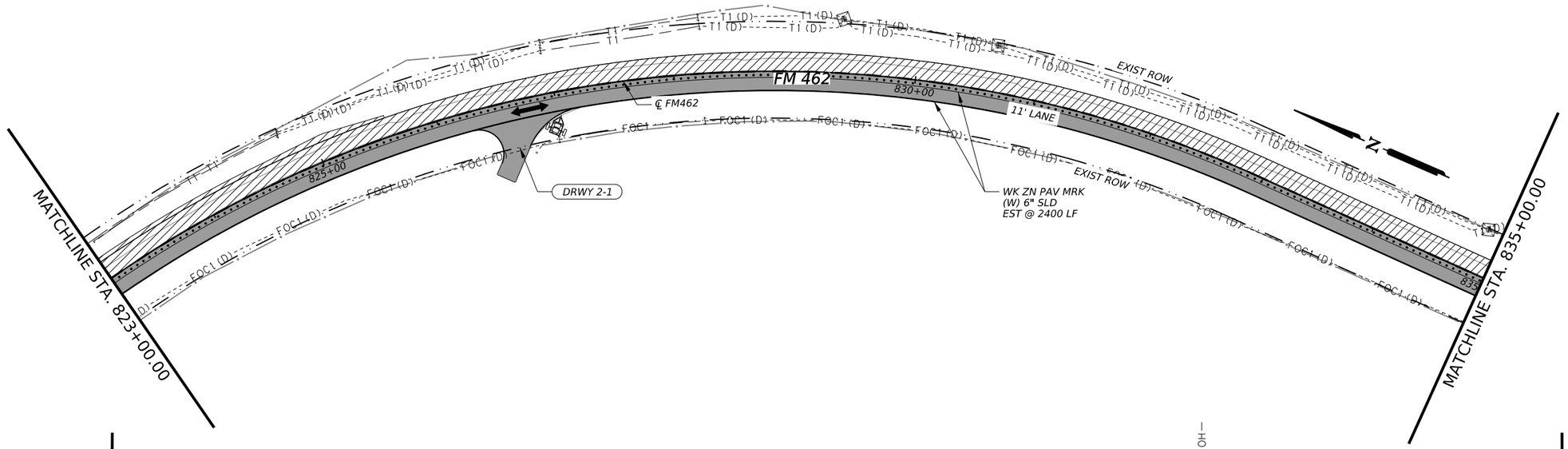
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		44

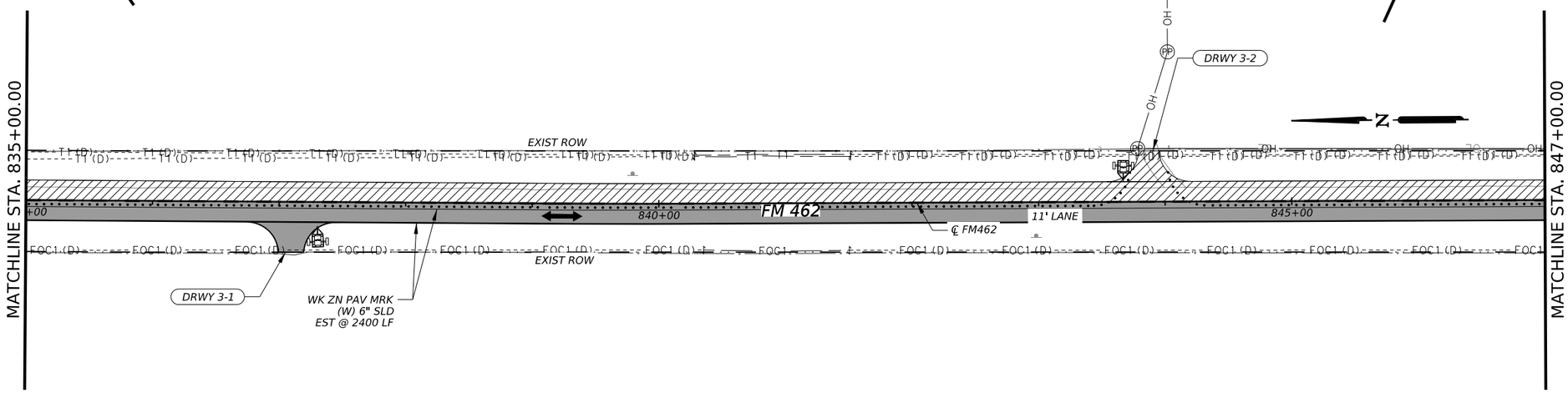
DATE: 1/31/2024 5:22:26 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH3_ST1B.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	6250
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6150







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

DAVID H. GUTIERREZ
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STATE OF TEXAS

1/31/2024

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 3
STEP 2

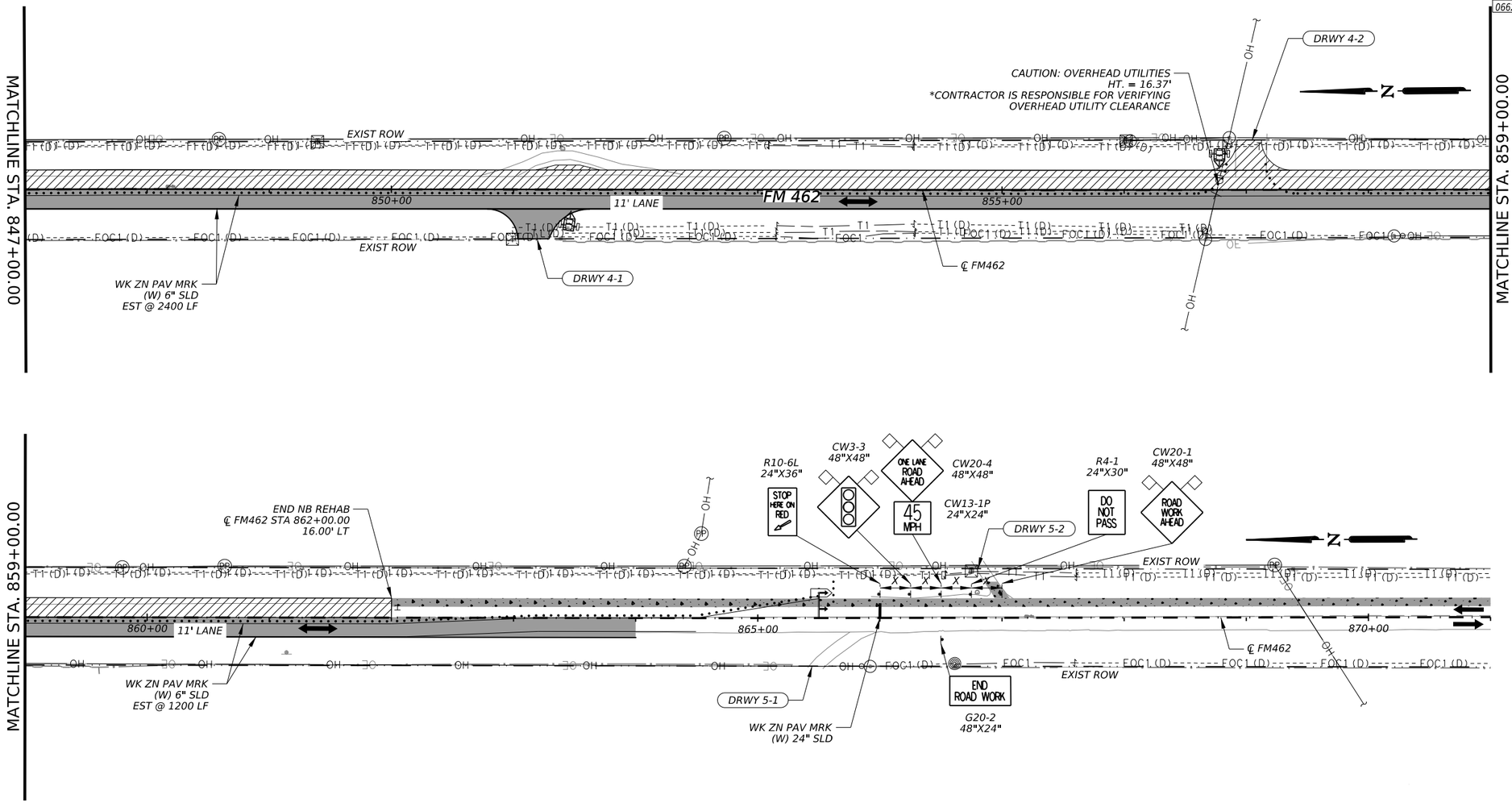
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		45

DATE: 1/31/2024 5:22:53 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH3_ST2A.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	2600
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3600



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
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1/31/2024

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0' 50' 100'

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 3
STEP 2

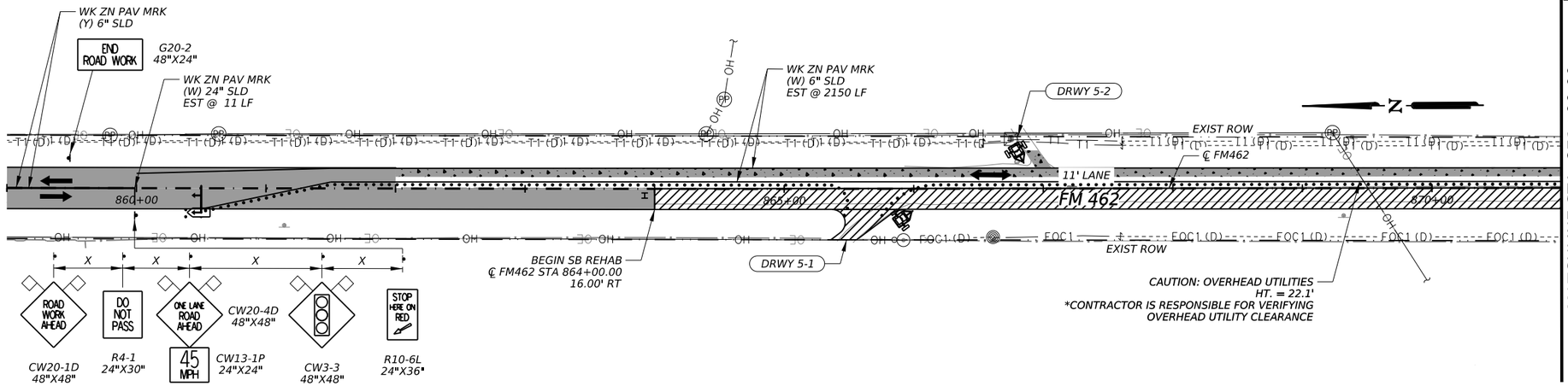
SHEET 2 OF 2

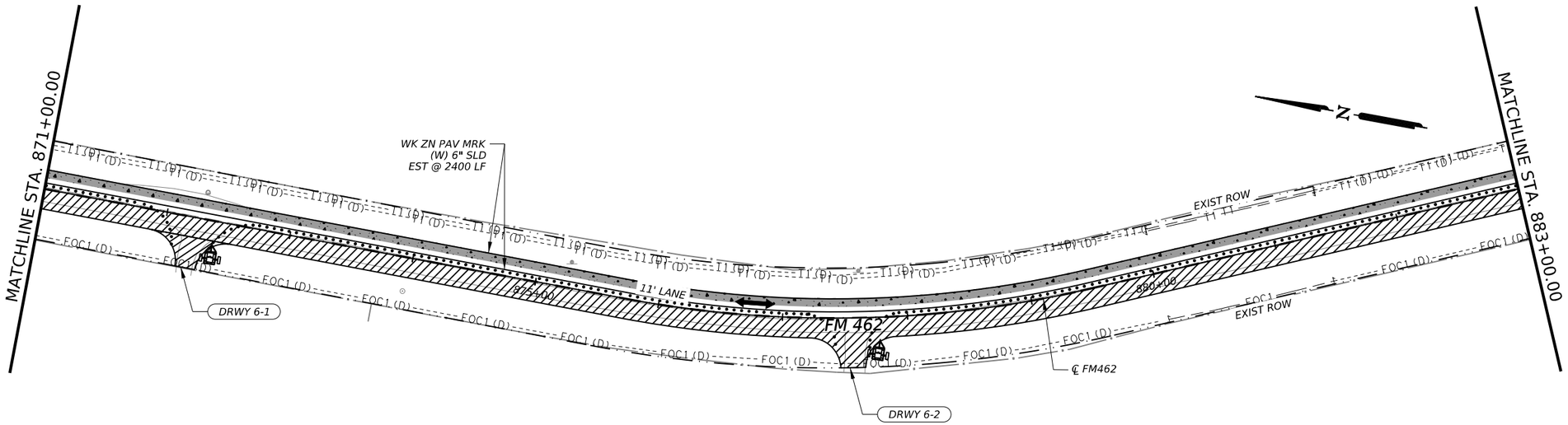
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		46

DATE: 1/31/2024 5:23:20 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH3_ST2B.dgn

CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6950
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11





LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN PHASE 4 STEP 1

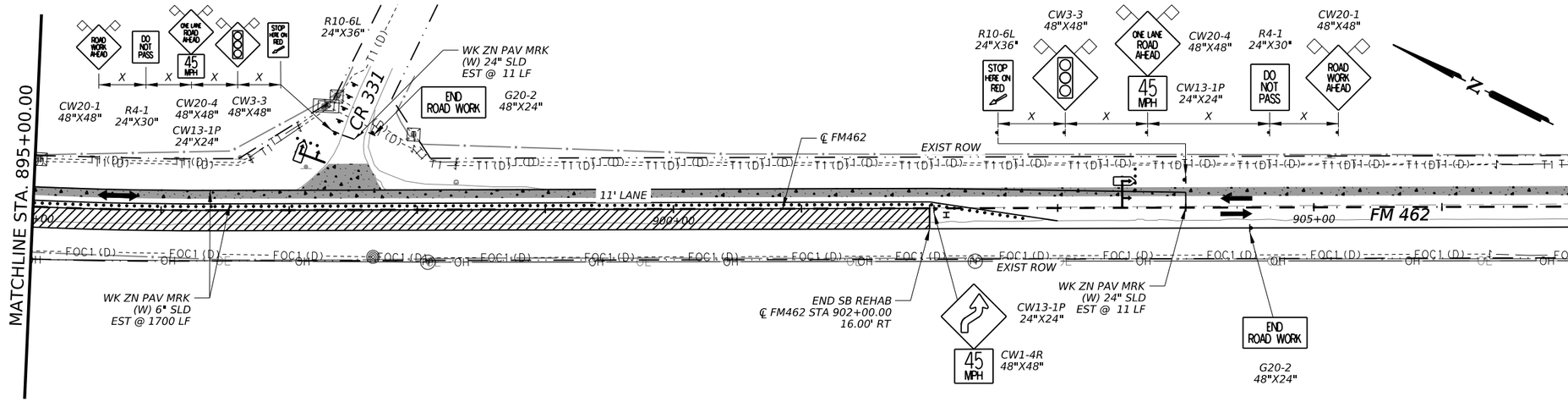
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		47

DATE: 1/31/2024 5:23:45 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH4_ST1A.dgn

CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1700
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	22
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	400



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

1/31/2024

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 4
STEP 1

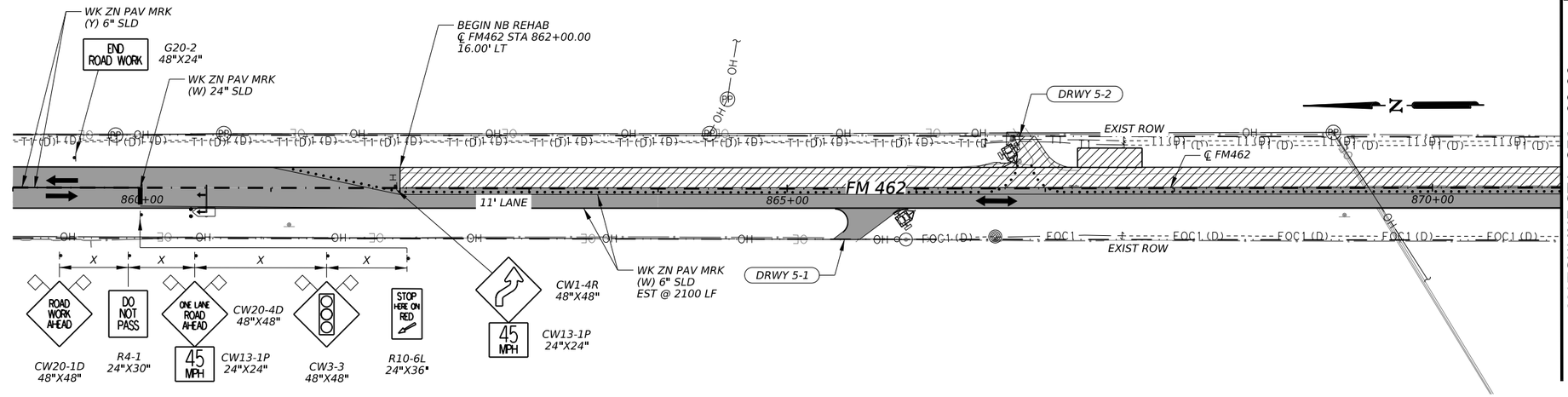
SHEET 2 OF 2

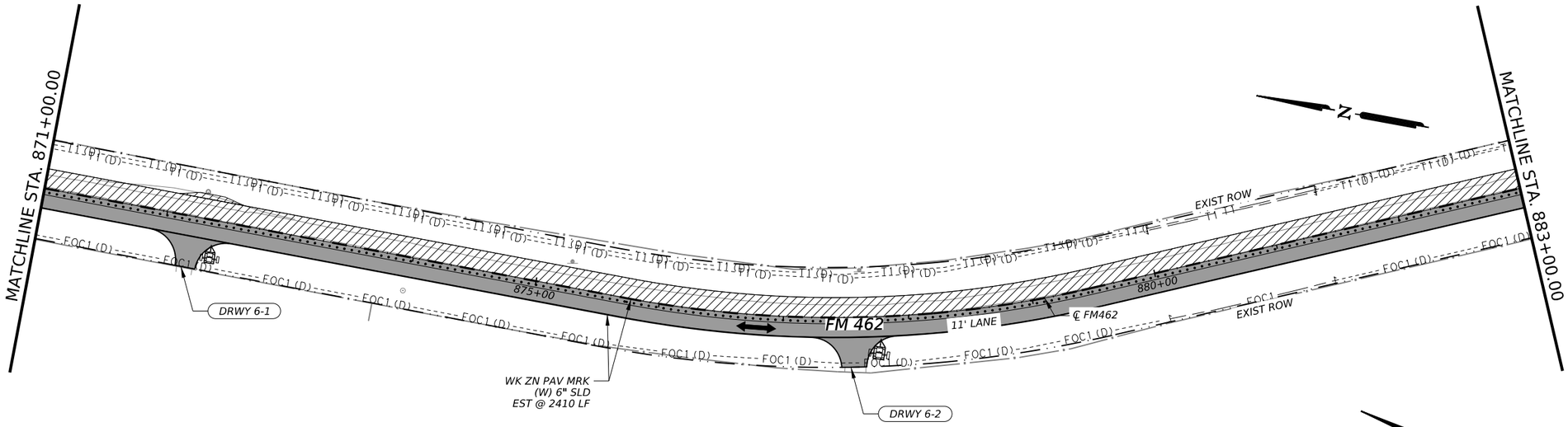
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		48

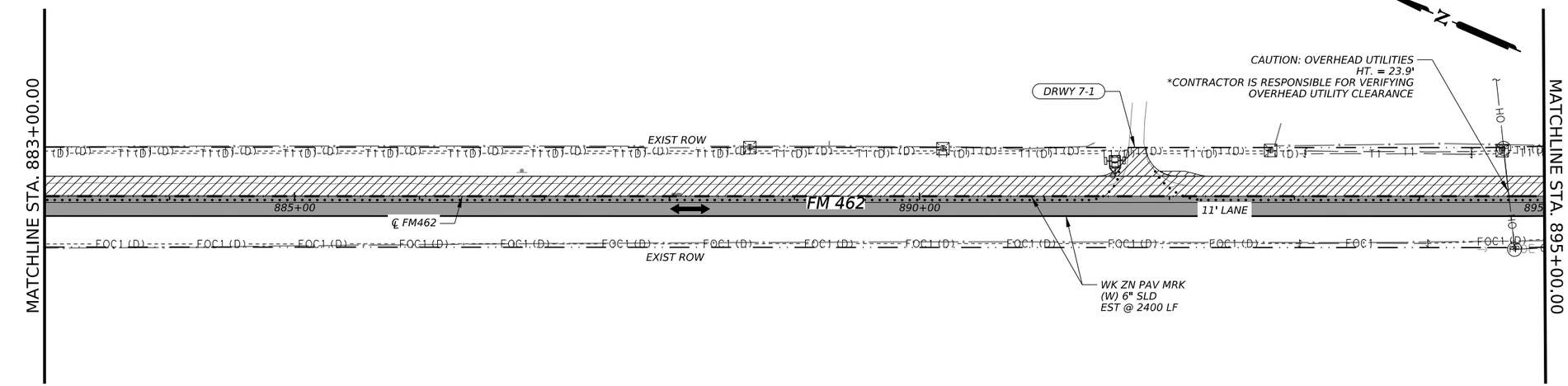
DATE: 1/31/2024 5:24:10 PM
FILE: c:\pw\khi1\d0285615\FM462_TCP_PH4_ST1B.dgn

DW:
CK:
DW:
CK:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	7000
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6910







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

1/31/2024

STATE OF TEXAS
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LICENSED
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0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN PHASE 4 STEP 2

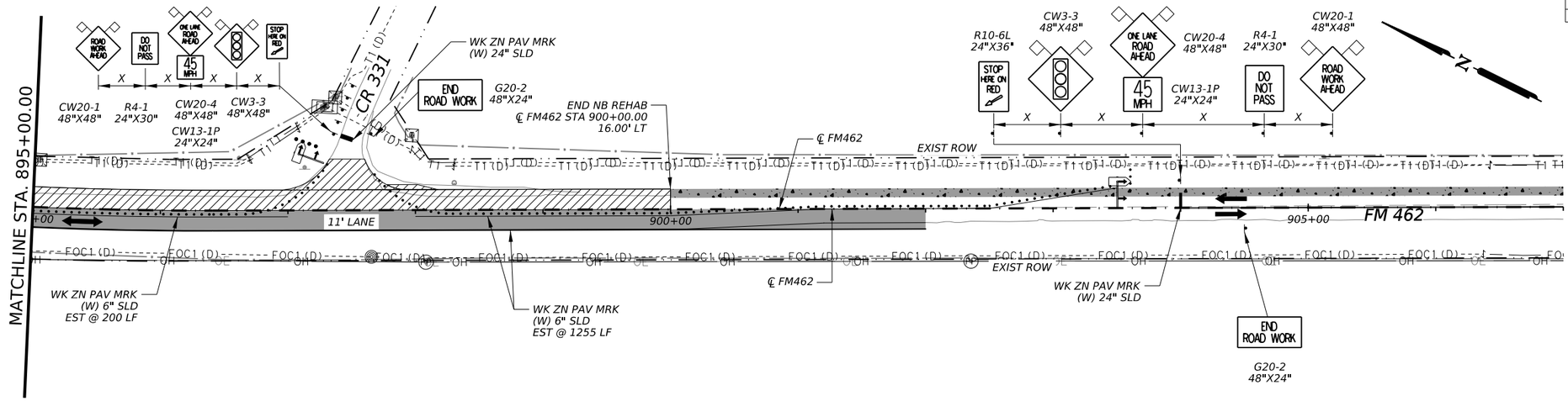
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		49

DATE: 1/31/2024 5:24:36 PM
FILE: c:\pw\khi1d0285615\FM462_TCP_PH4_STZA.dgn

CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	600
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1455



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

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Texas Department of Transportation

FM 462

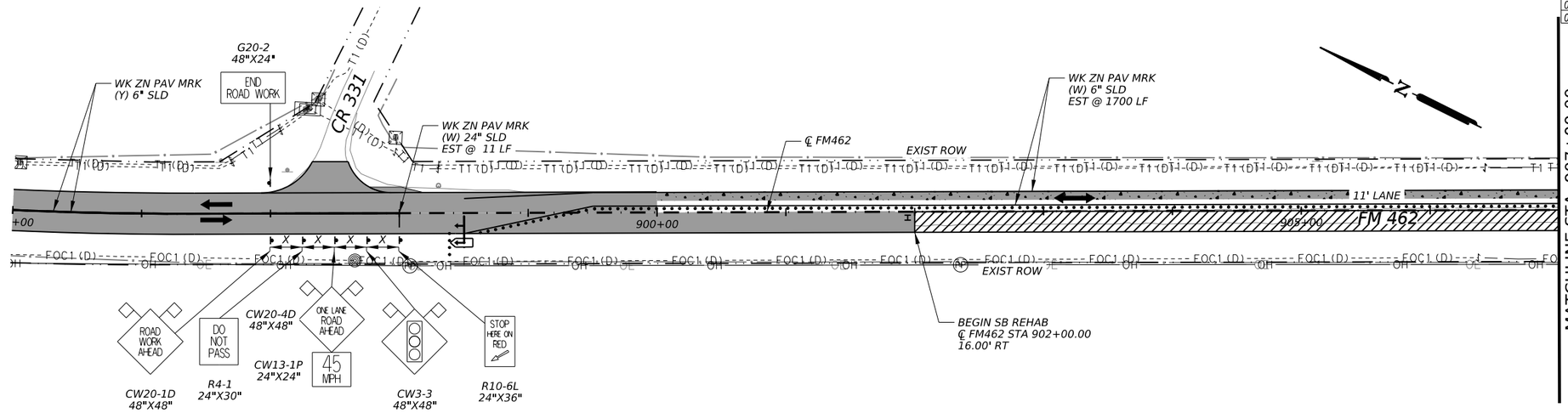
TRAFFIC CONTROL PLAN
PHASE 4
STEP 2

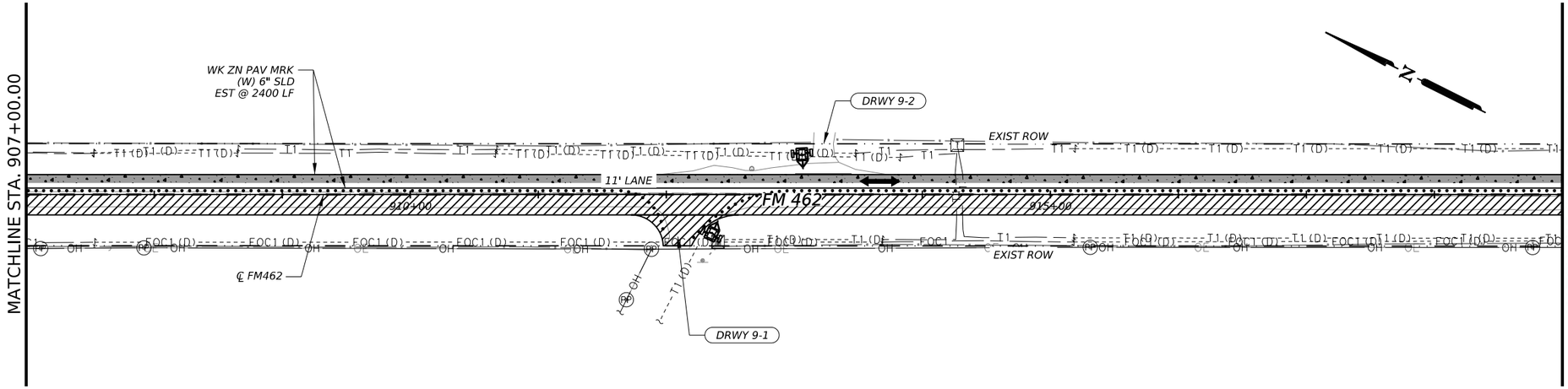
SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		50

DATE: 1/31/2024 5:25:04 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH4_ST2B.dgn

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6500
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11





LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

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0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN PHASE 5 STEP 1

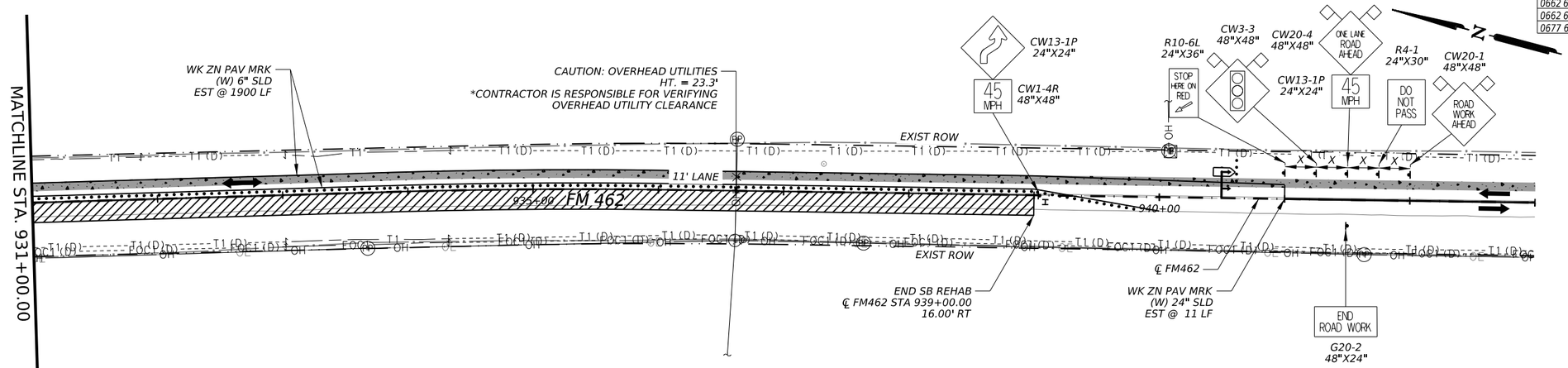
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		51

DATE: 1/31/2024 5:25:31 PM
FILE: c:\pwikh1\d0285615\FM462_TCP_PH5_ST1A.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1900
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	400



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

1/31/2024

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0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

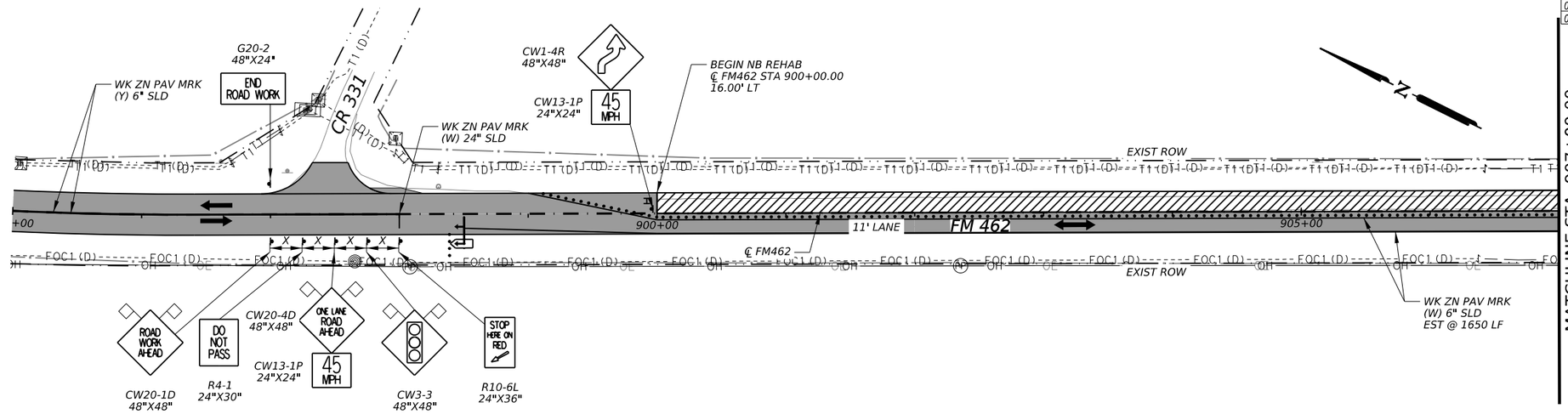
TRAFFIC CONTROL PLAN
PHASE 5
STEP 1

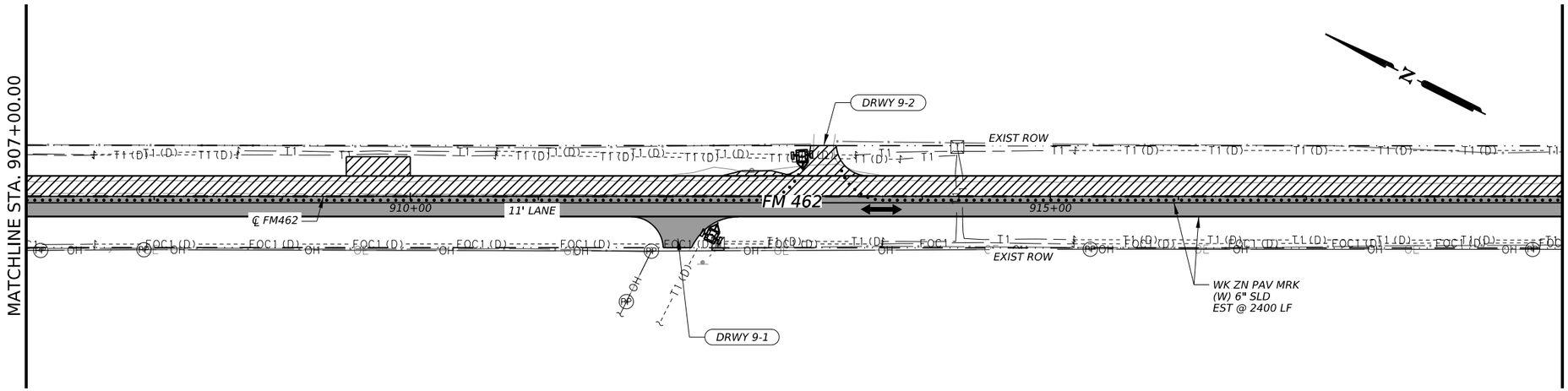
SHEET 2 OF 2

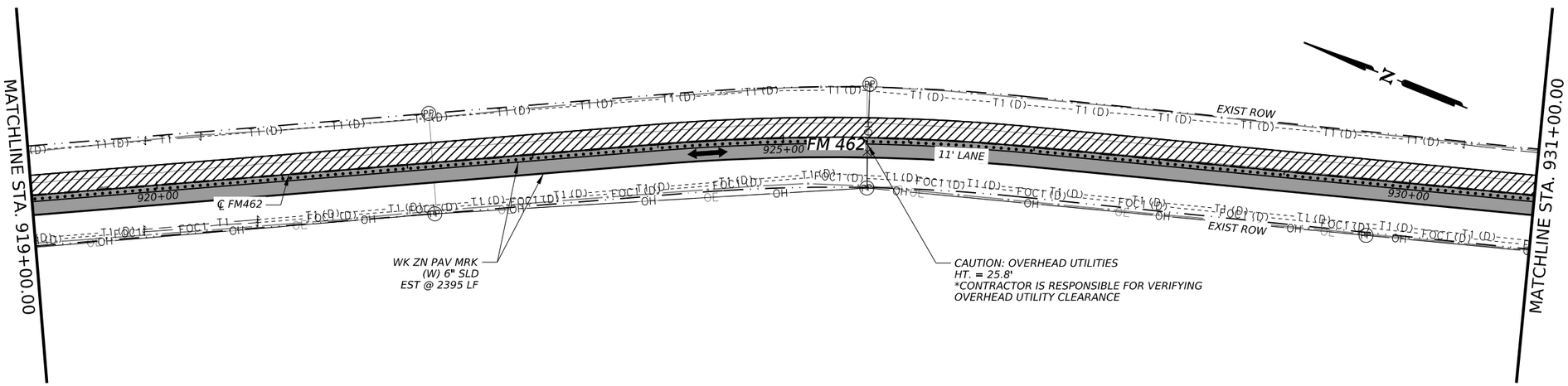
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		52

DATE: 1/31/2024 5:25:58 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH5_ST1B.dgn

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	6600
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6445







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

1. REFER TO STANDARD TCP(2-8) FOR INFORMATION NOT SHOWN ON THIS SHEET.
2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 5
STEP 2

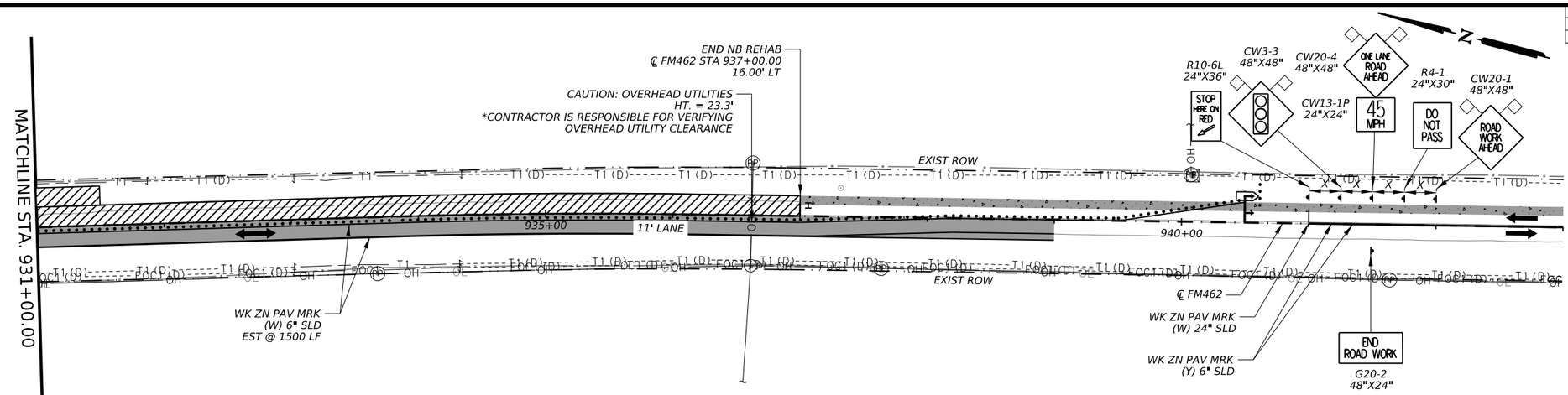
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		53

DATE: 1/31/2024 5:26:28 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH5_STZA.dgn

DW: DW: CK: CK:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	800
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1500



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 5
STEP 2

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		54

DATE: 1/31/2024 5:26:54 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH5_ST2B.dgn

CK:
DW:
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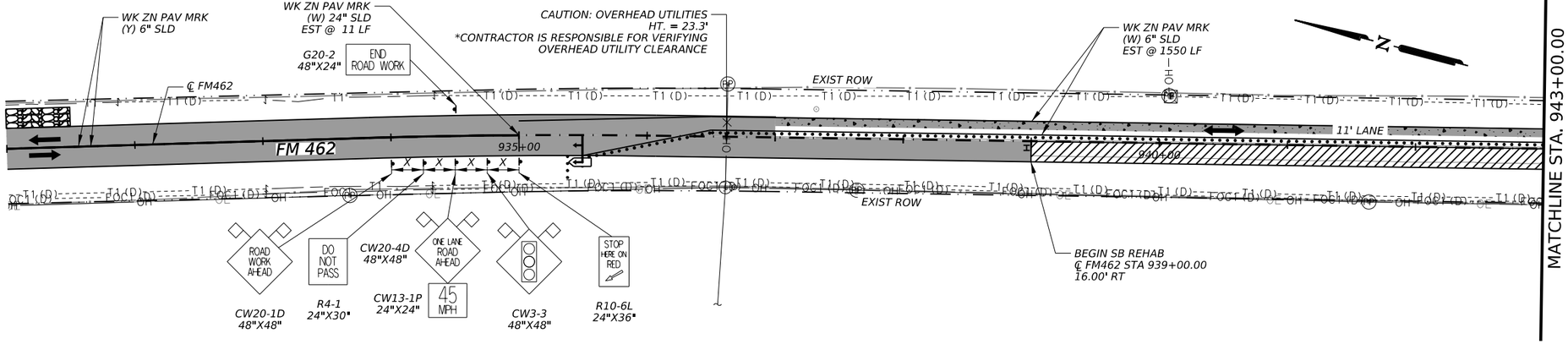
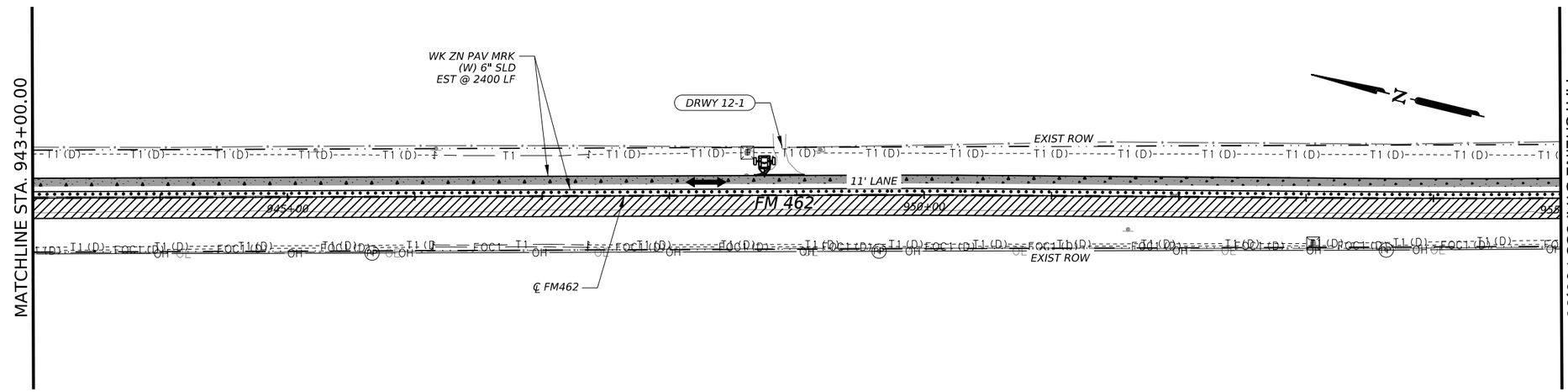
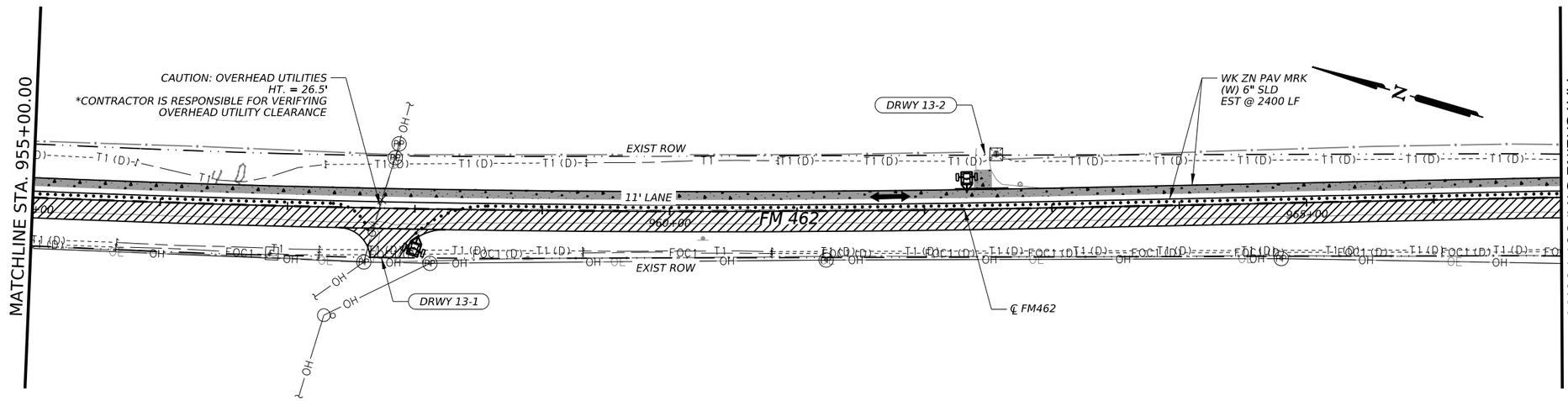
ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6350
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 6
STEP 1

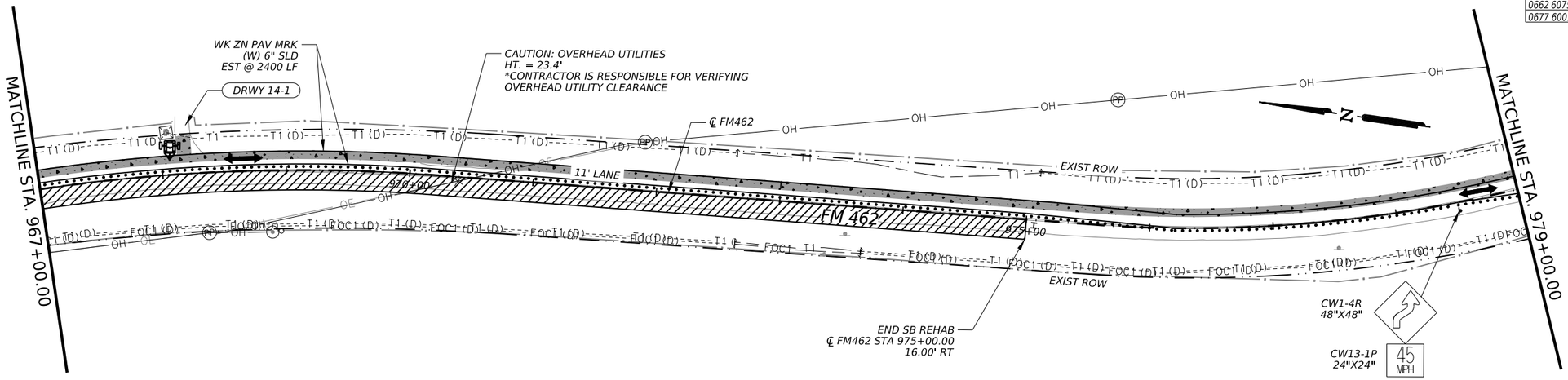
SHEET 1 OF 2

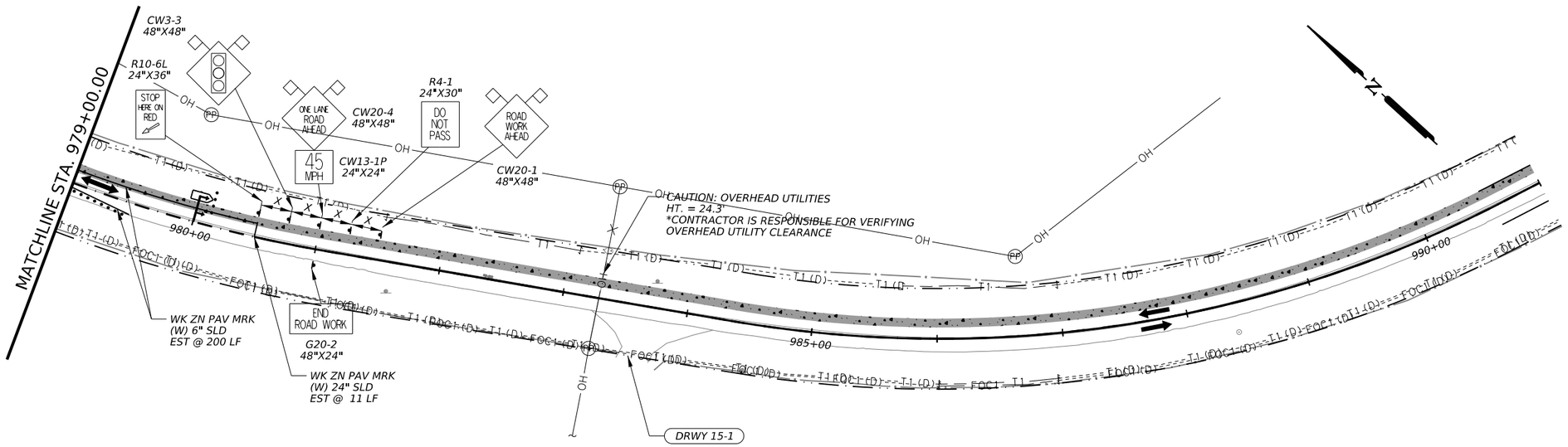
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		55

DATE: 1/31/2024 5:27:21 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH6_ST1A.dgn

DW:
CK:
DW:
CK:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	2600
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	1100





LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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FM 462

TRAFFIC CONTROL PLAN PHASE 6 STEP 1

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		56

DATE: 1/31/2024 5:27:50 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH6_ST1B.dgn

CK:
DW:
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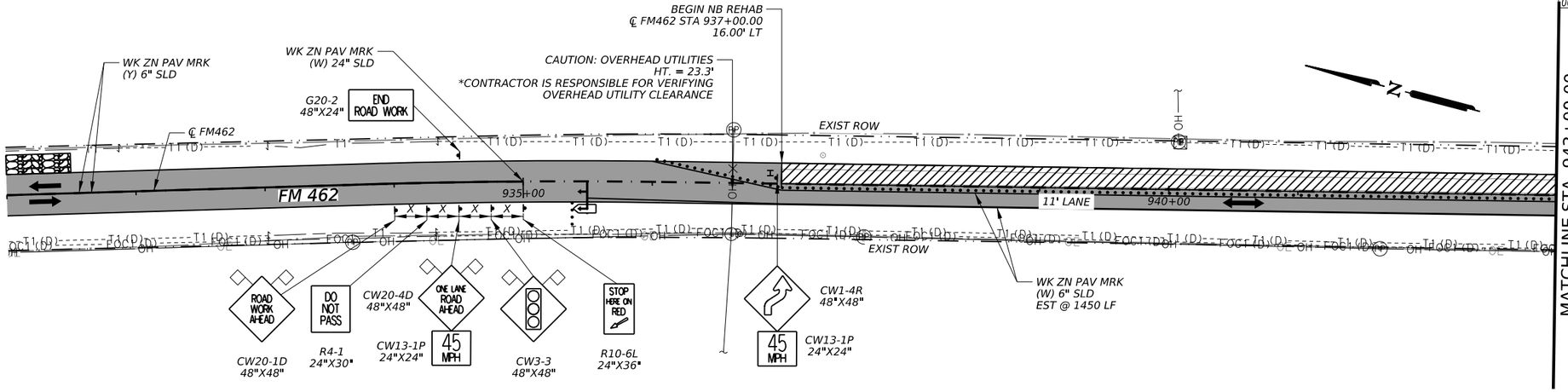
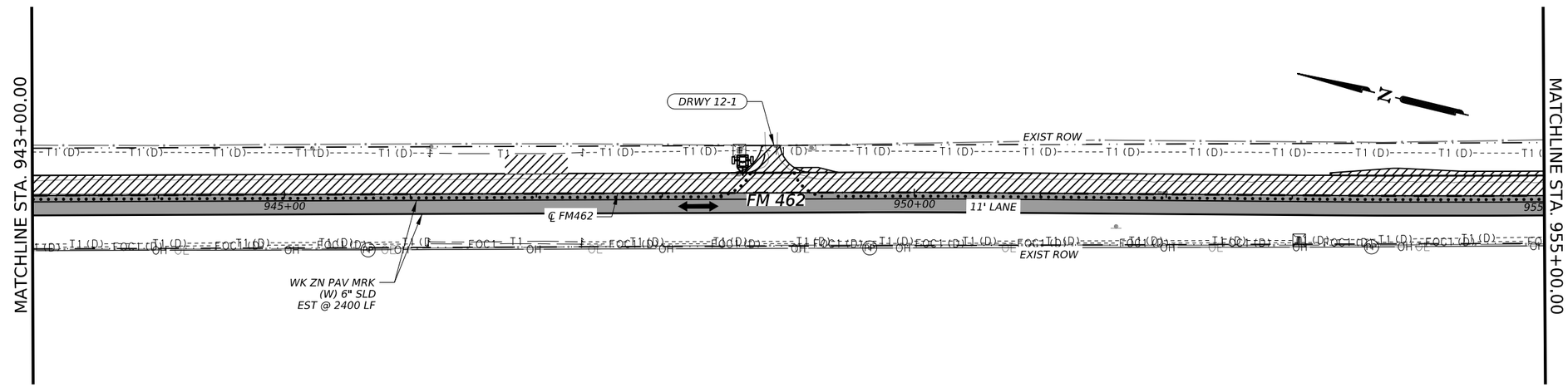
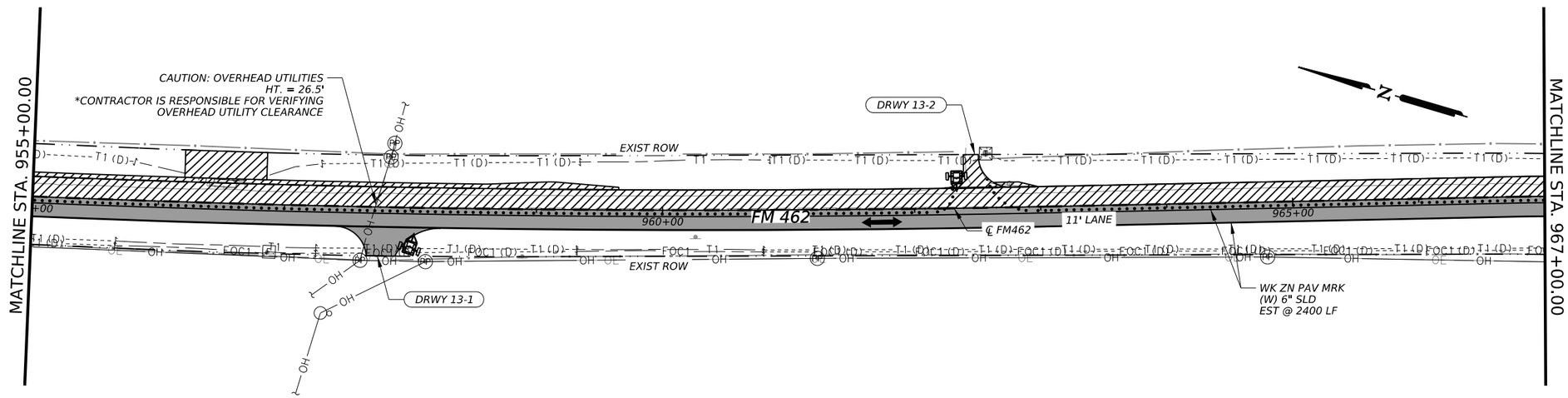
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	6400
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6250







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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FM 462

TRAFFIC CONTROL PLAN
PHASE 6
STEP 2

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		57

DATE: 1/31/2024 5:28:15 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH6_ST2A.dgn

CK:
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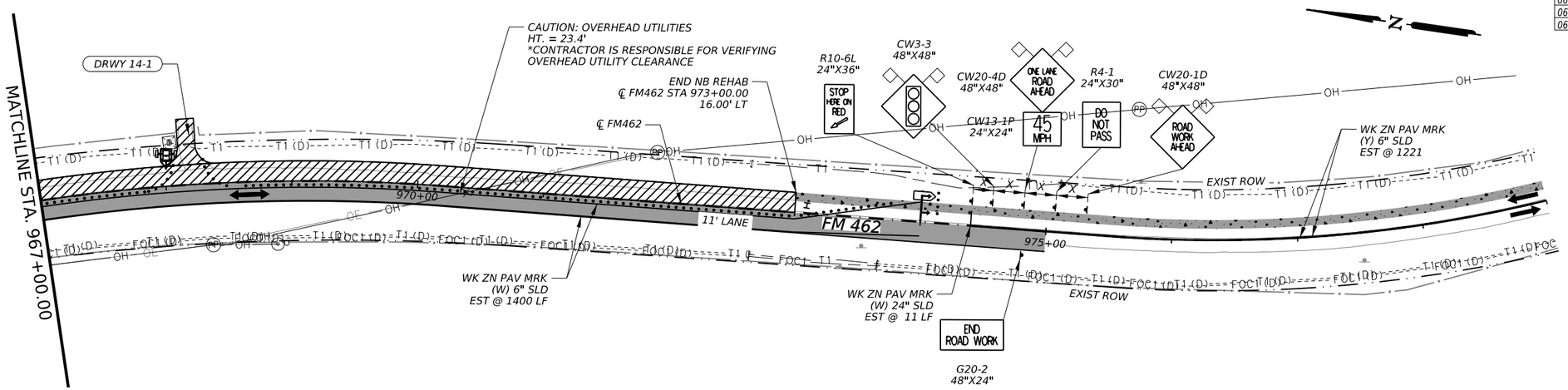
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	2700
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1400
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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FM 462

TRAFFIC CONTROL PLAN
PHASE 6
STEP 2

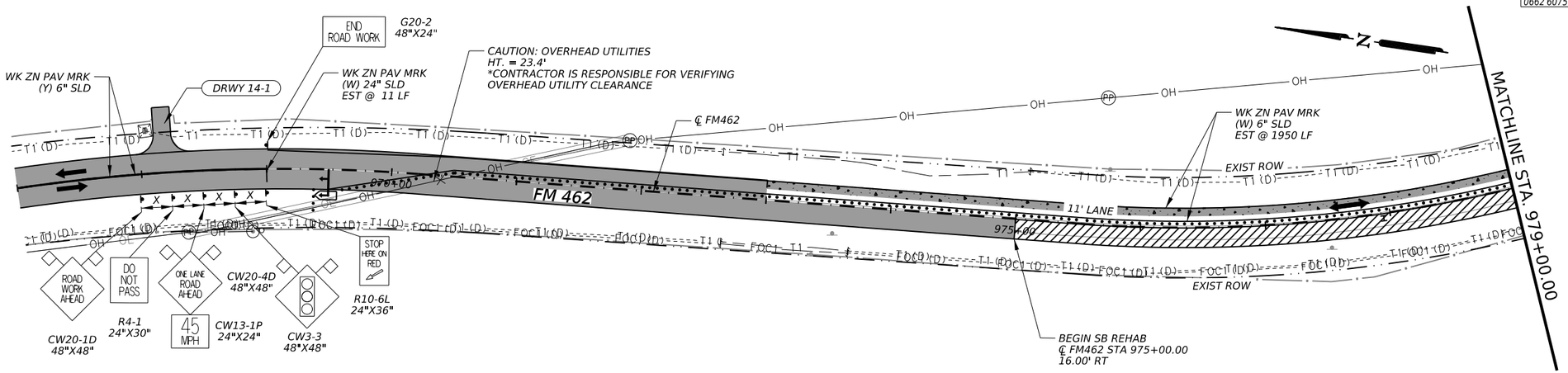
SHEET 2 OF 2

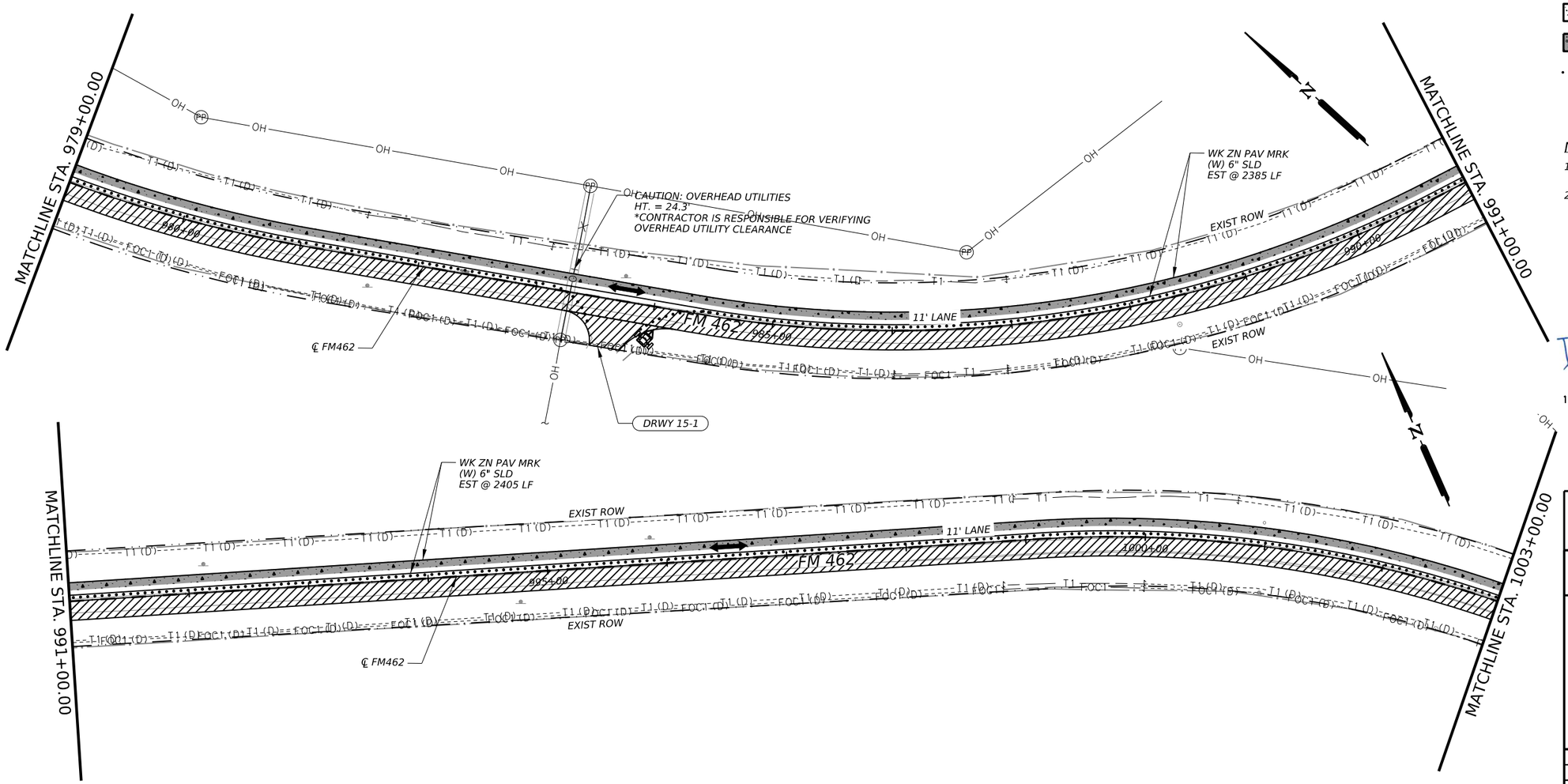
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		58

DATE: 1/31/2024 5:28:39 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH6_ST2B.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6740
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11





LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 7
STEP 1

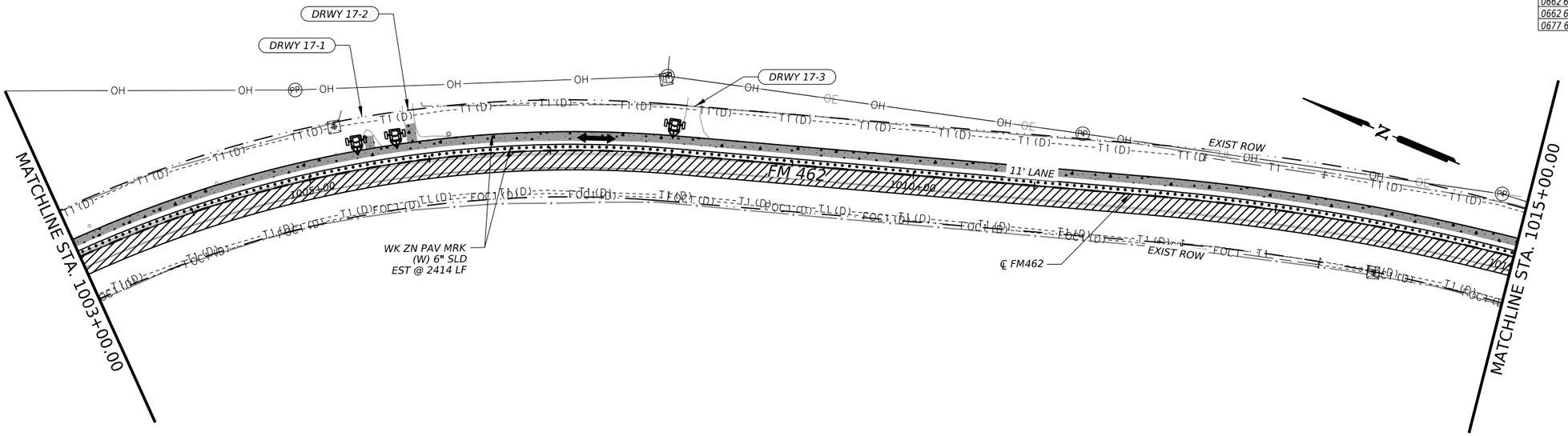
SHEET 1 OF 2

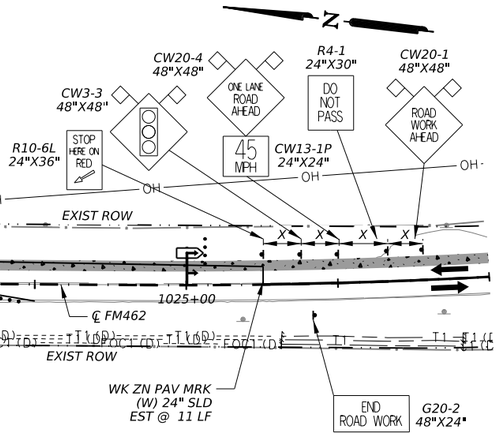
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		59

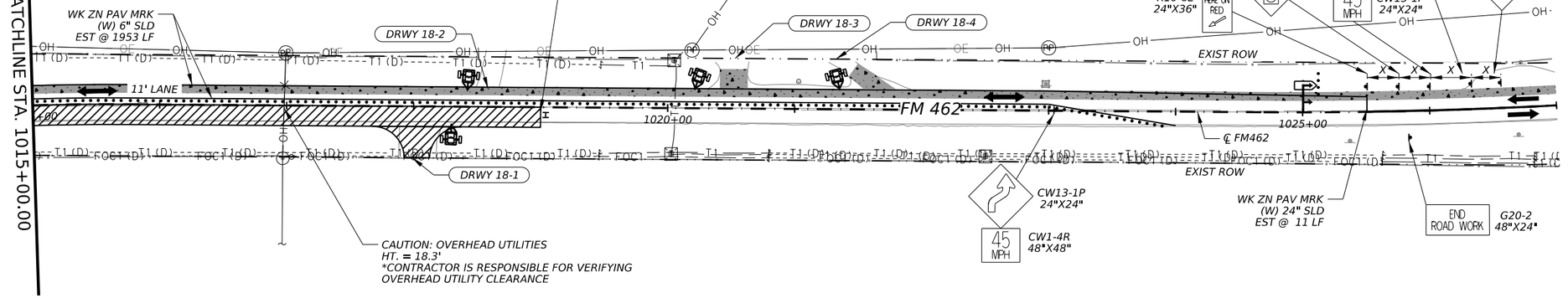
DATE: 1/31/2024 5:29:09 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH7_ST1A.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	4367
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	1300







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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FM 462

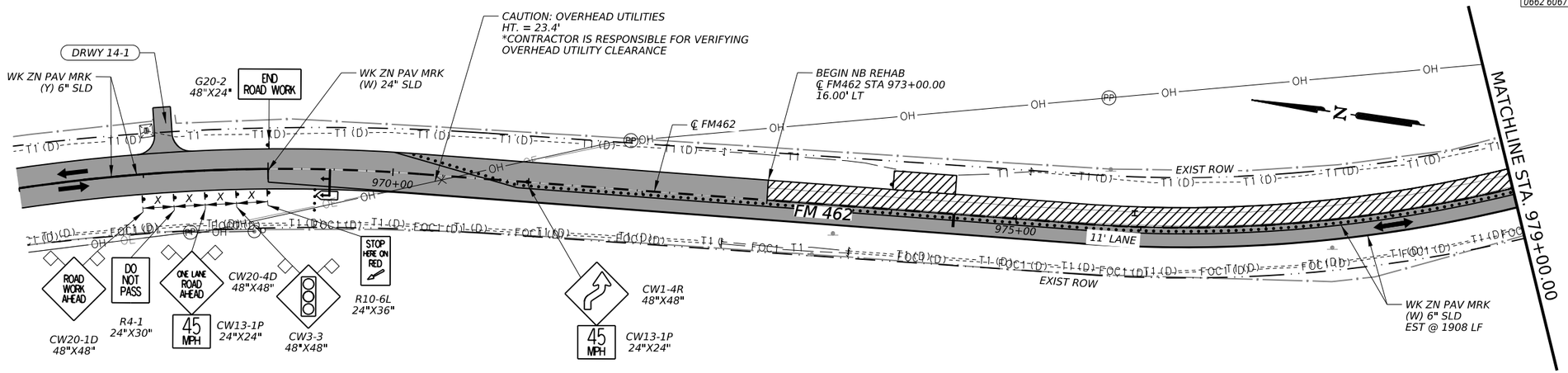
TRAFFIC CONTROL PLAN
PHASE 7
STEP 1

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		60

DATE: 1/31/2024 5:29:37 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH7_ST1B.dgn

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	6800
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6718



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 7
STEP 2

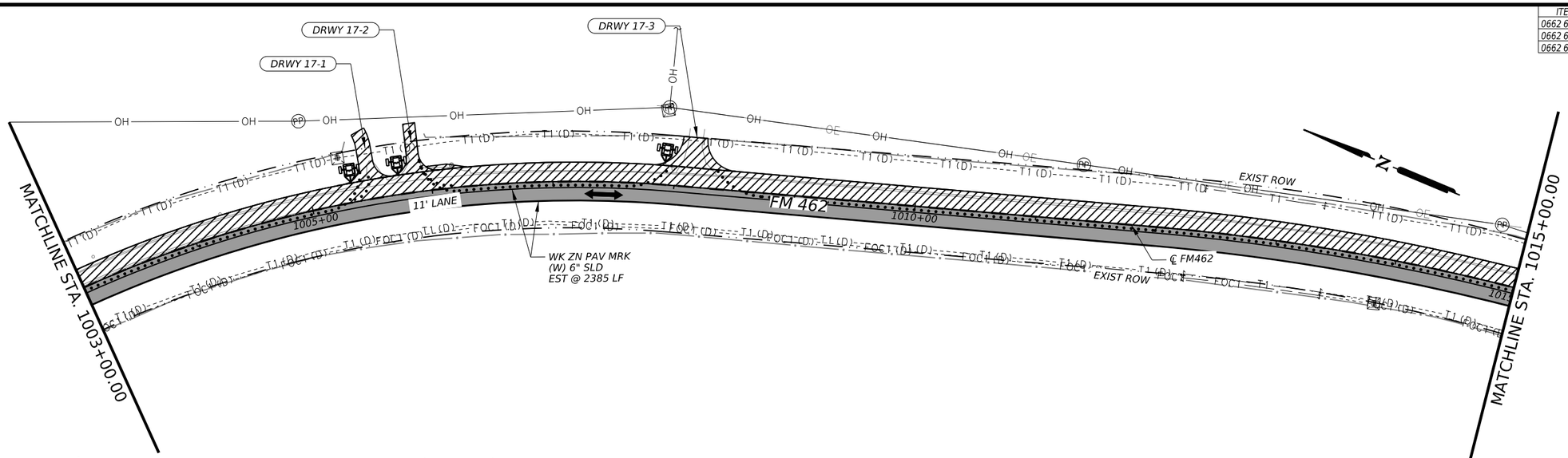
SHEET 1 OF 2

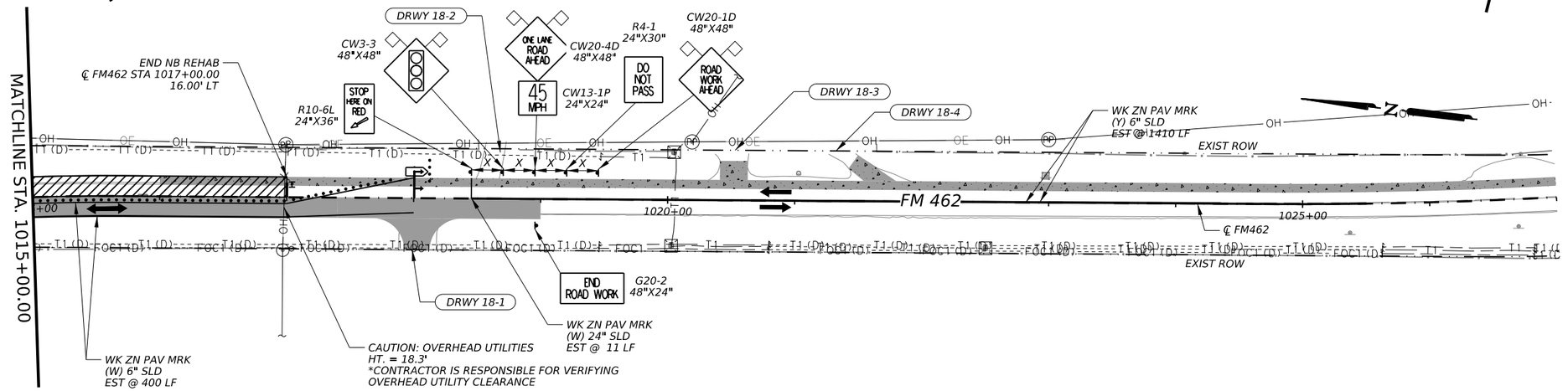
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		61

DATE: 1/31/2024 5:30:06 PM
FILE: c:\pwikh1\d0285615\FM462_TCP_PH7_ST2A.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	3610
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	2785
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11





LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

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Texas Department of Transportation

FM 462

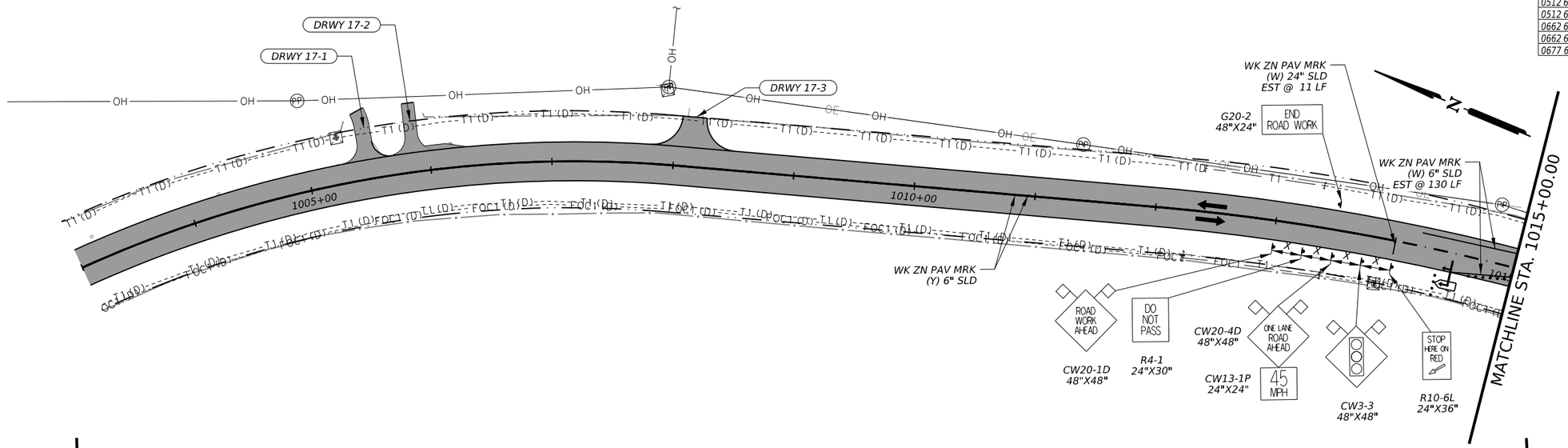
TRAFFIC CONTROL PLAN
PHASE 7
STEP 2

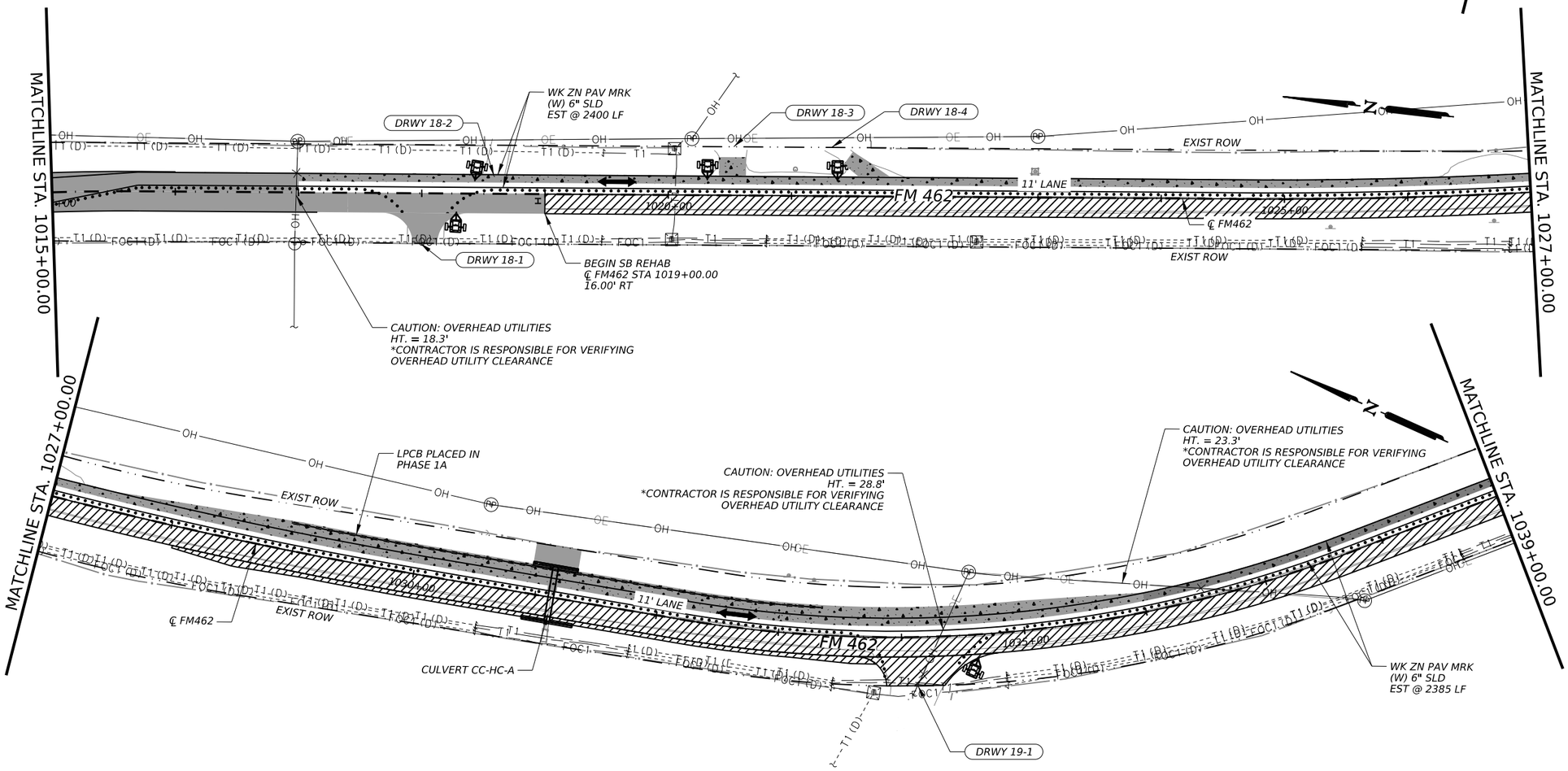
SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		62

DATE: 1/31/2024 5:30:31 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP PH7_ST2B.dgn

ITEM	DESCRIPTION	UNIT	QTY
0512 6057	PORT CTB (REMOVE)(LOW PROF)(TY 1)	LF	380
0512 6058	PORT CTB (REMOVE)(LOW PROF)(TY 2)	LF	40
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	4915
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	110





LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
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NOTES:

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2. CONTRACTOR TO PROVIDE SMOOTH TRANSITION AT LONGITUDINAL AND TRAVERSE PHASED JOINTS. NOT PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO PERTINENT ITEMS.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 8
STEP 1

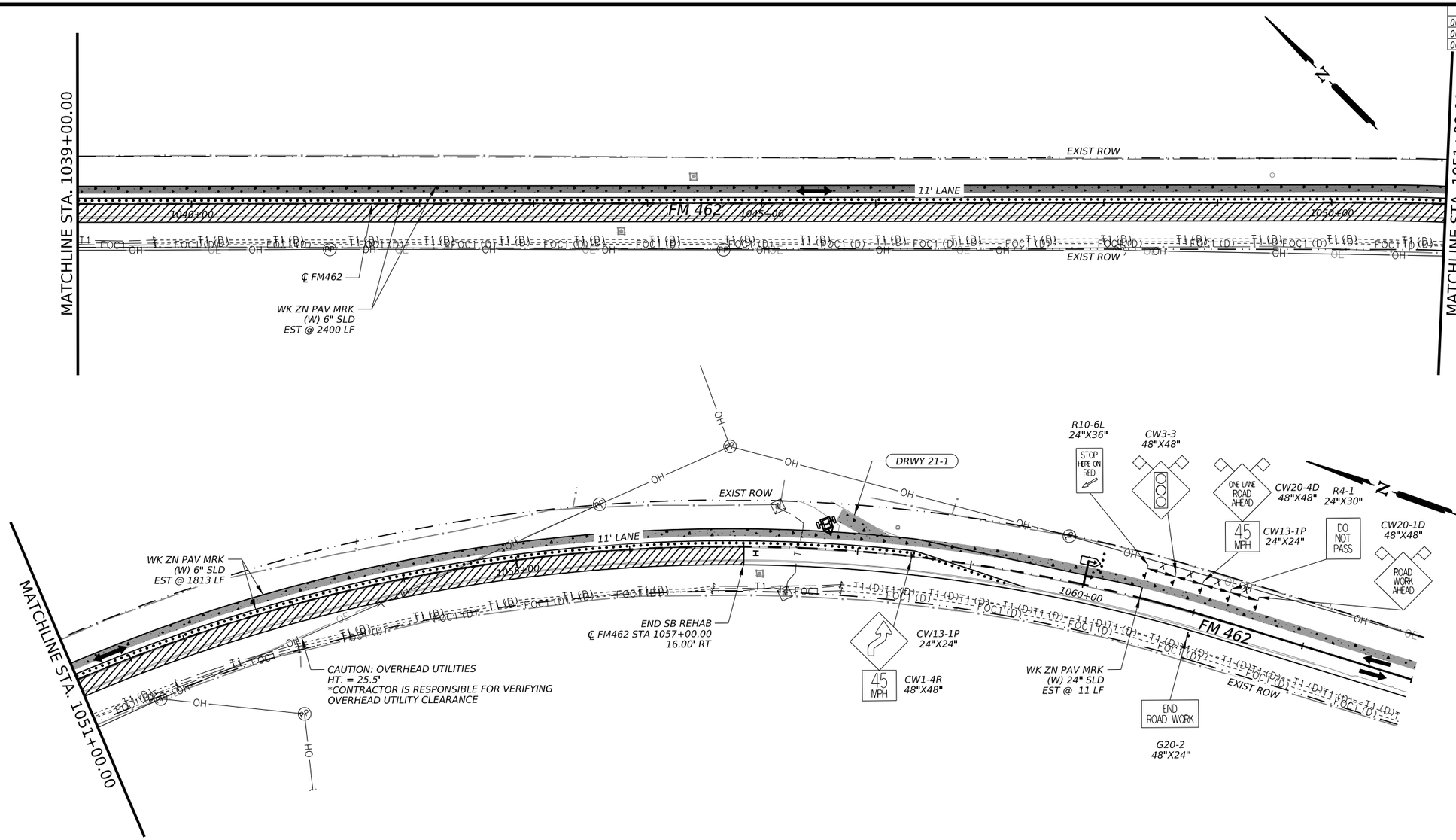
SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		63

DATE: 1/31/2024 5:55:19 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH8_ST1_01.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	4213
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	700



LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

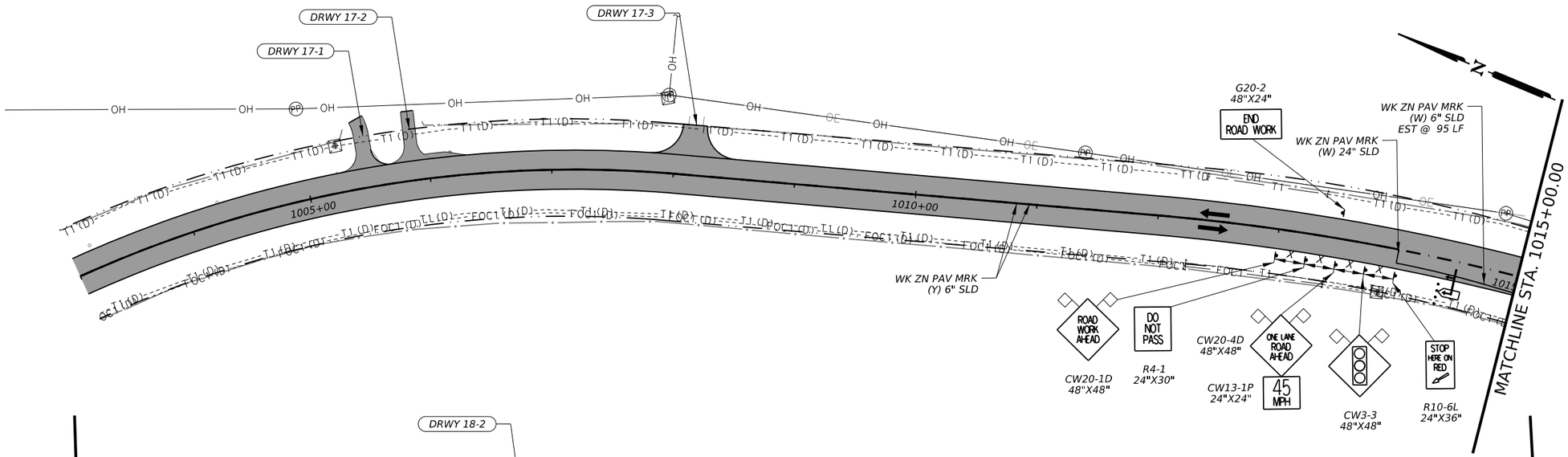
TRAFFIC CONTROL PLAN
PHASE 8
STEP 1

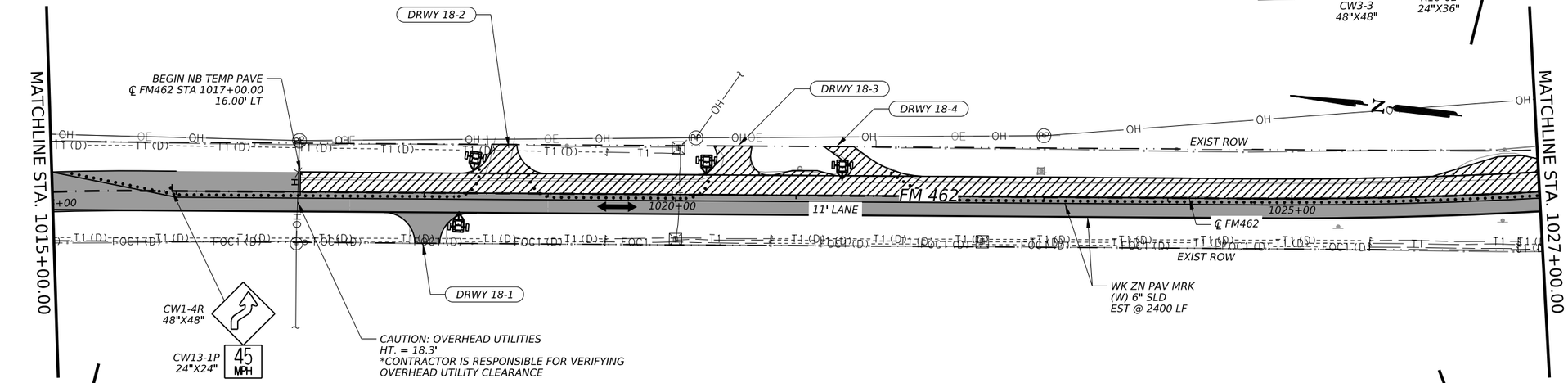
SHEET 2 OF 2

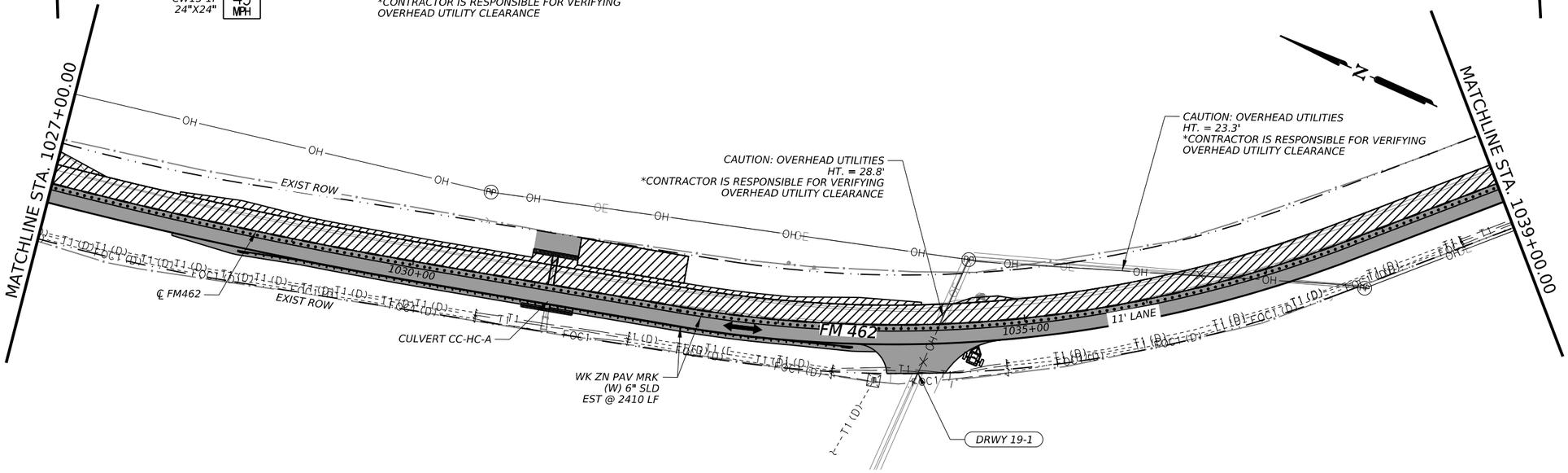
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		64

DATE: 1/31/2024 5:55:49 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP PH8 ST1_02.dgn

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	5000
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	4905







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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1/31/2024

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PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 8
STEP 2

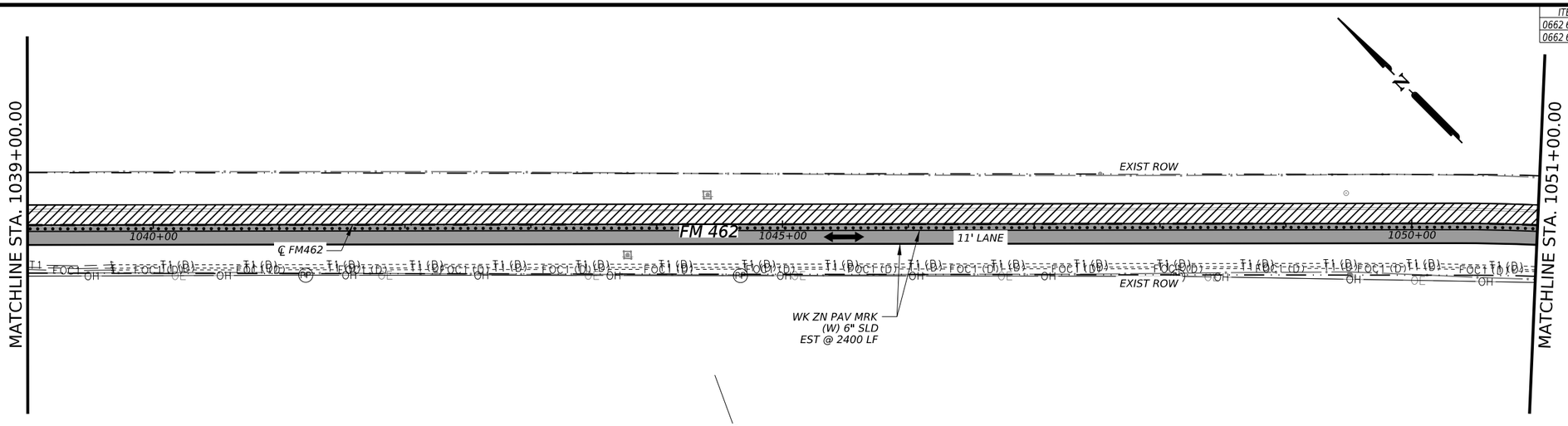
SHEET 1 OF 2

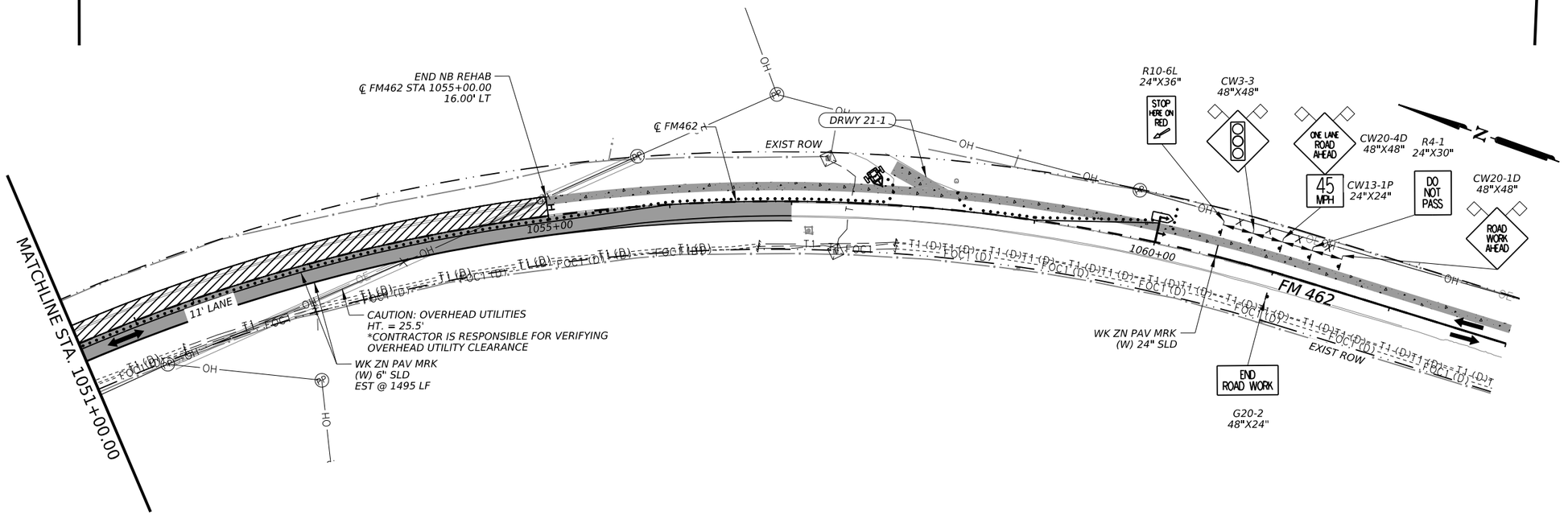
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		65

DATE: 1/31/2024 5:31:58 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP PH8 ST2A.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	2350
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3895





LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

NOTES:

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Kimley»Horn
F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 8
STEP 2

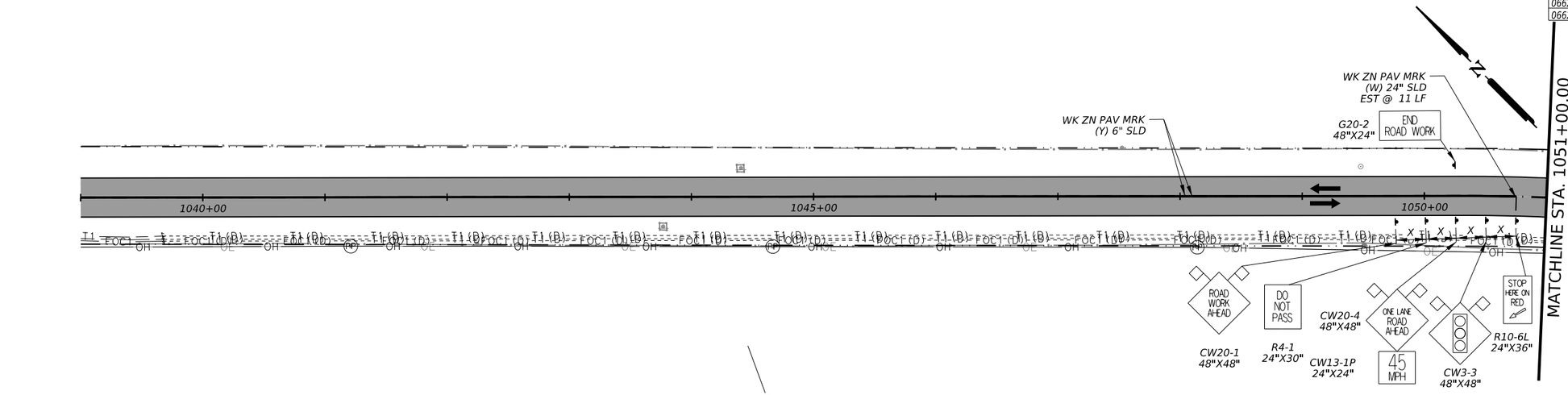
SHEET 2 OF 2

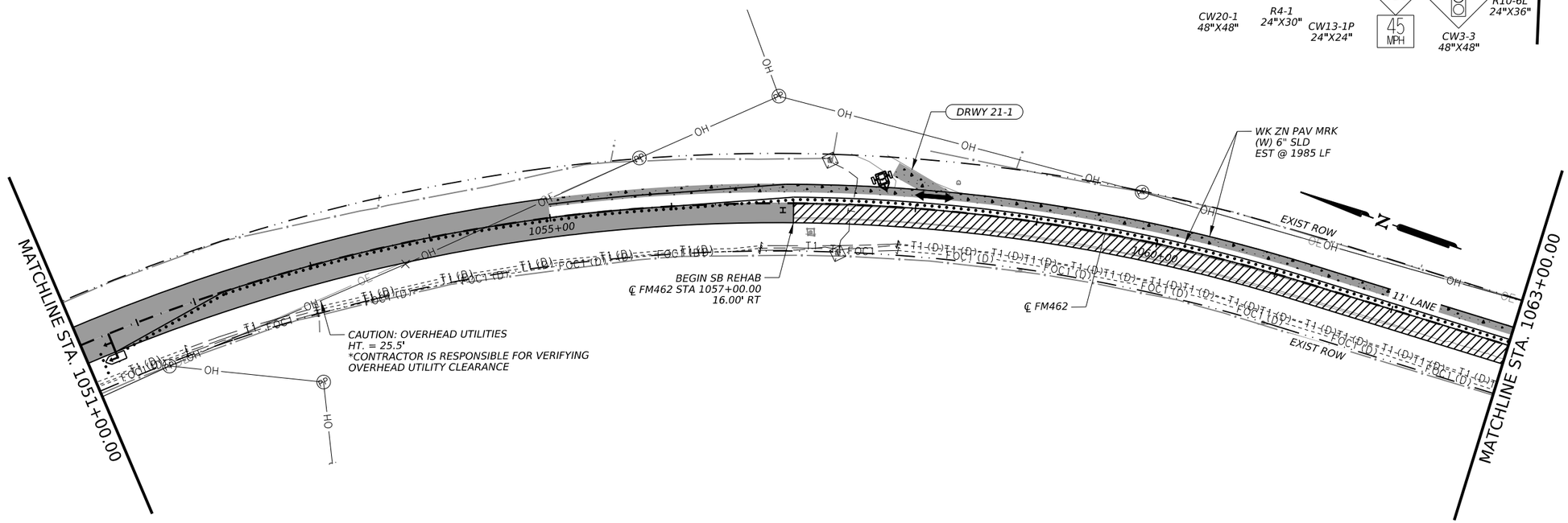
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		66

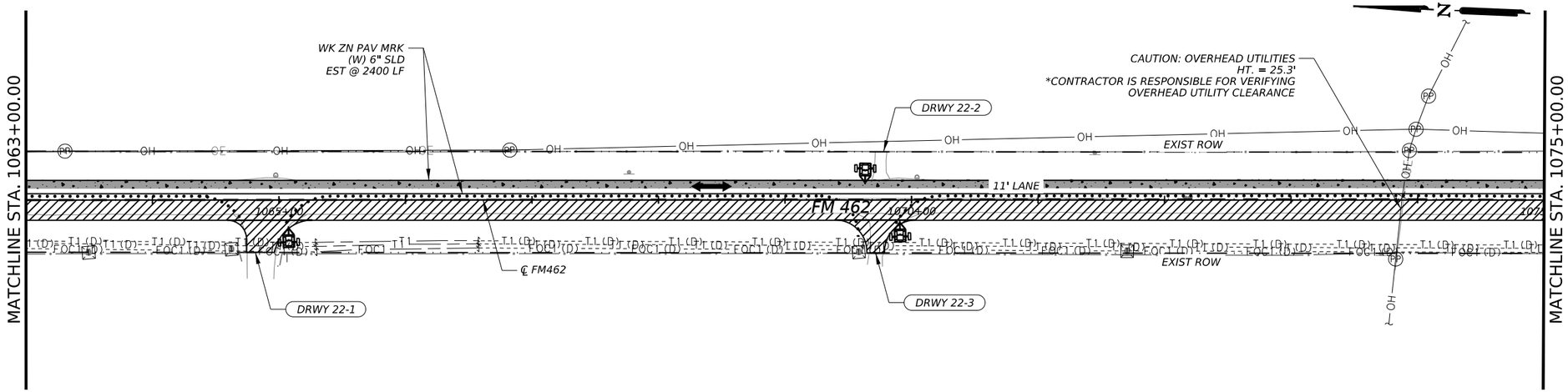
DATE: 1/31/2024 5:32:29 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH8_ST2B.dgn

DW:
CK:
DW:
CK:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	4385
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 9
STEP 1

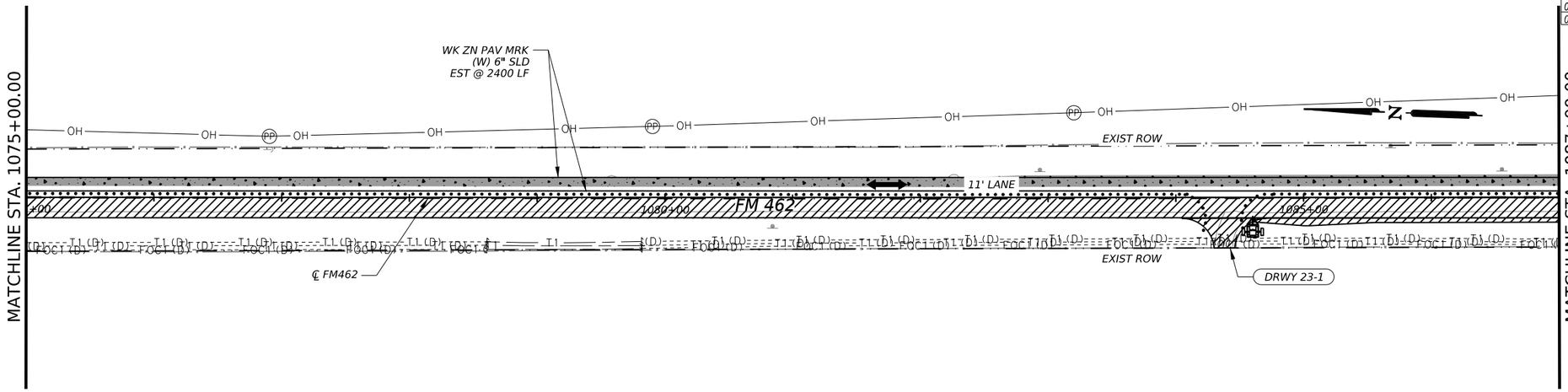
SHEET 1 OF 2

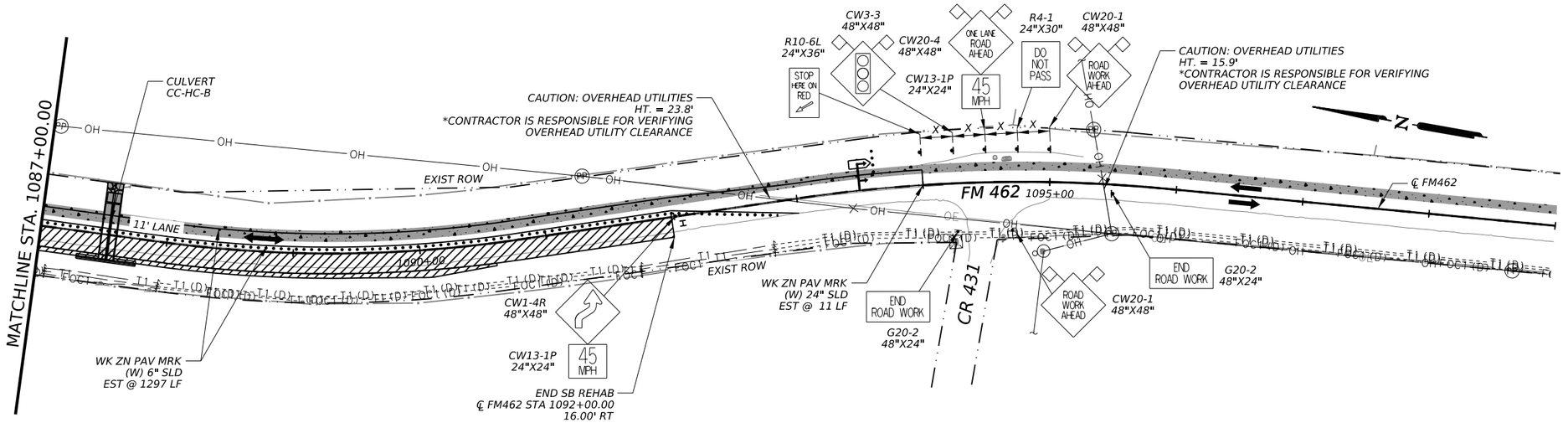
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		67

DATE: 1/31/2024 5:32:57 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH9_ST1_01.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3697
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	11
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	400





LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 9
STEP 1

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		68

DATE: 1/31/2024 5:33:25 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH9_ST1_02.dgn

ITEM	DESCRIPTION	UNIT	QTY
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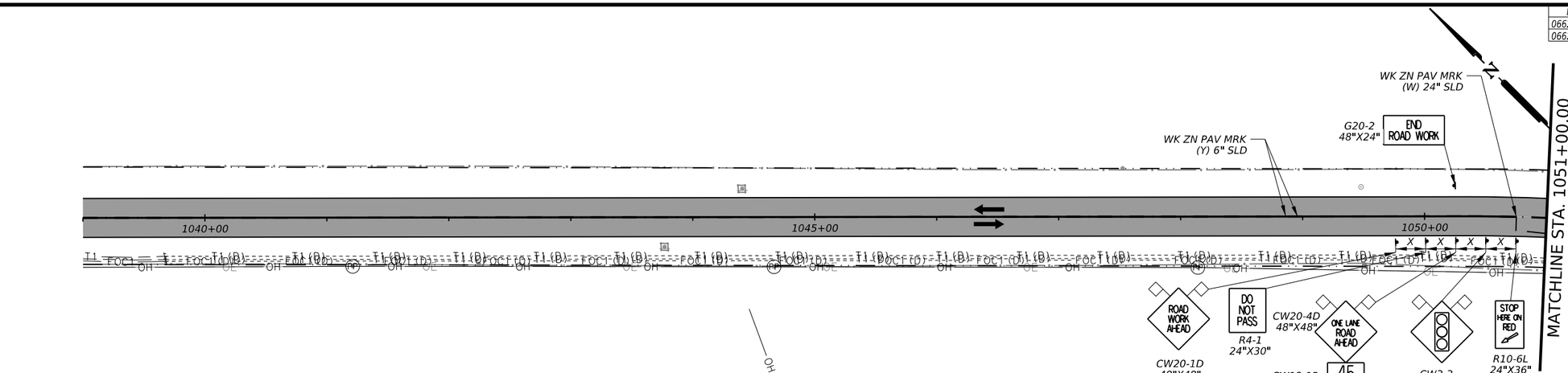
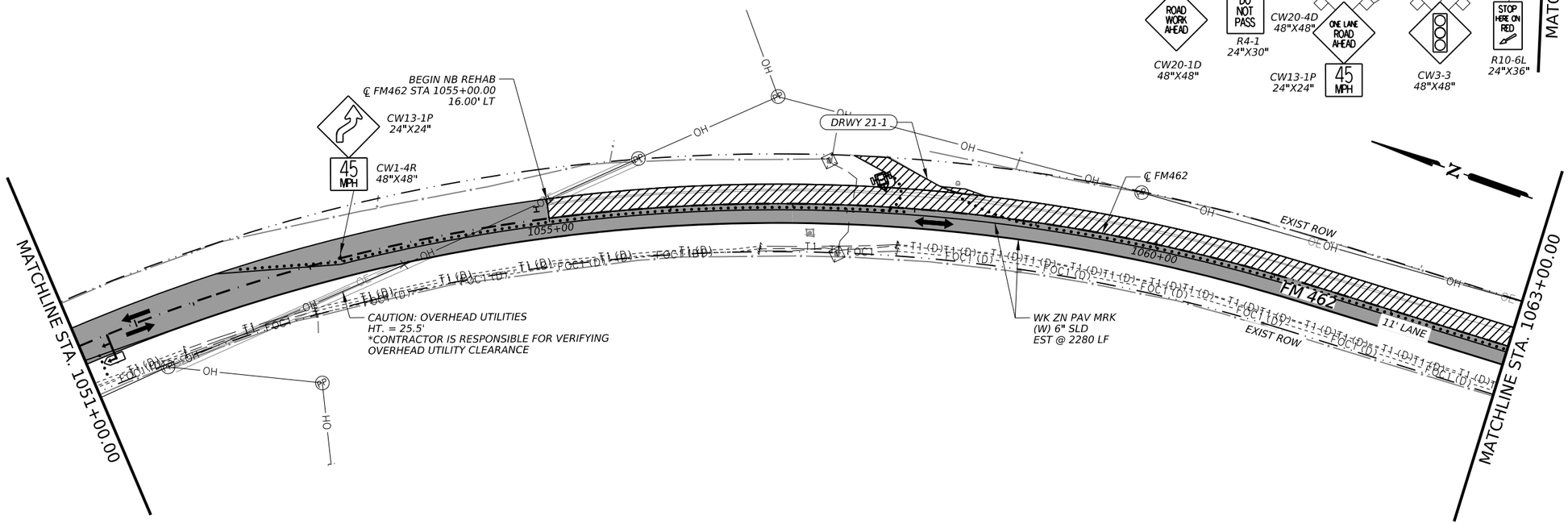
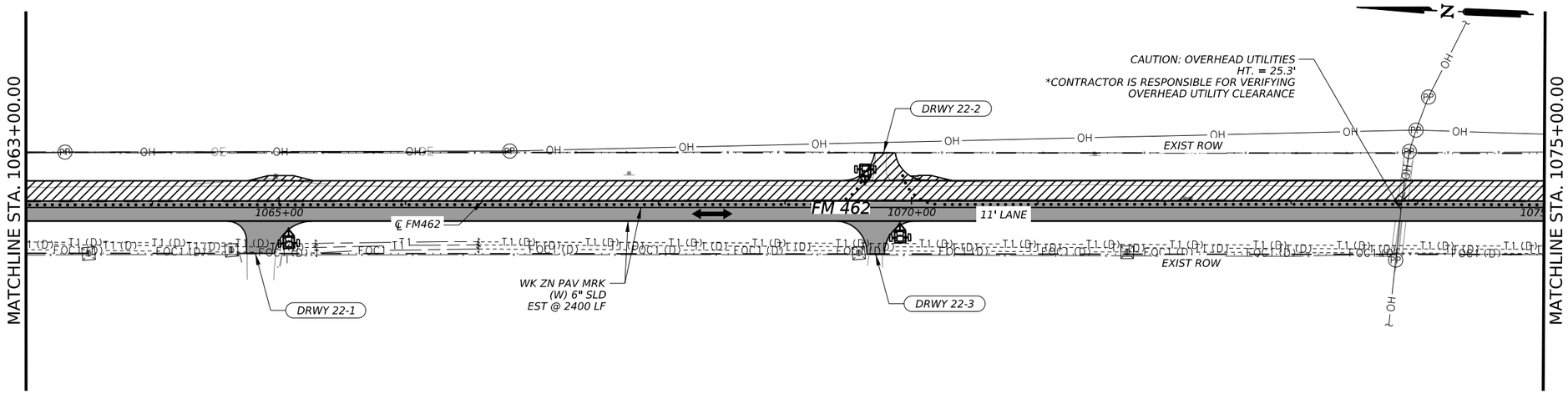
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	4680







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 9
STEP 2

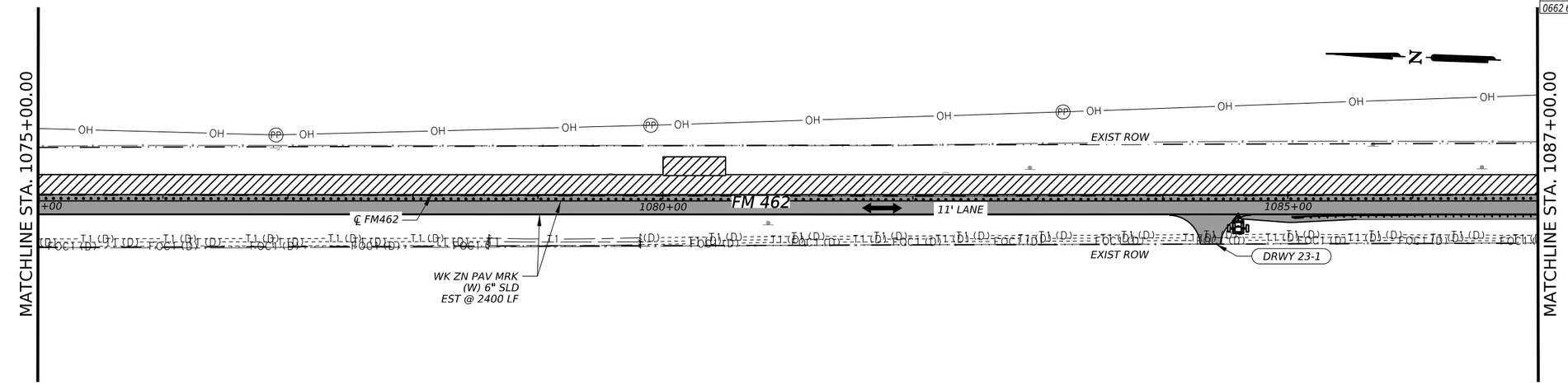
SHEET 1 OF 2

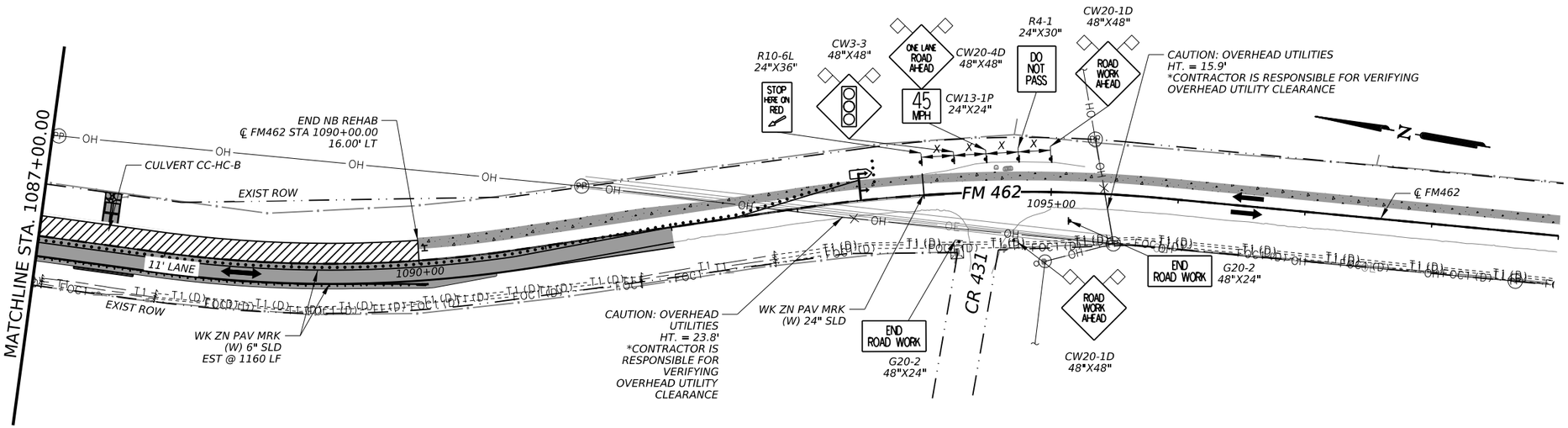
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		69

DATE: 1/31/2024 5:33:55 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH9_ST2_01.dgn

DW:
CK:
DW:
CK:

ITEM	DESCRIPTION	UNIT	QTY
0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	2600
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	3560





LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE (DAD)

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Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN
PHASE 9
STEP 2

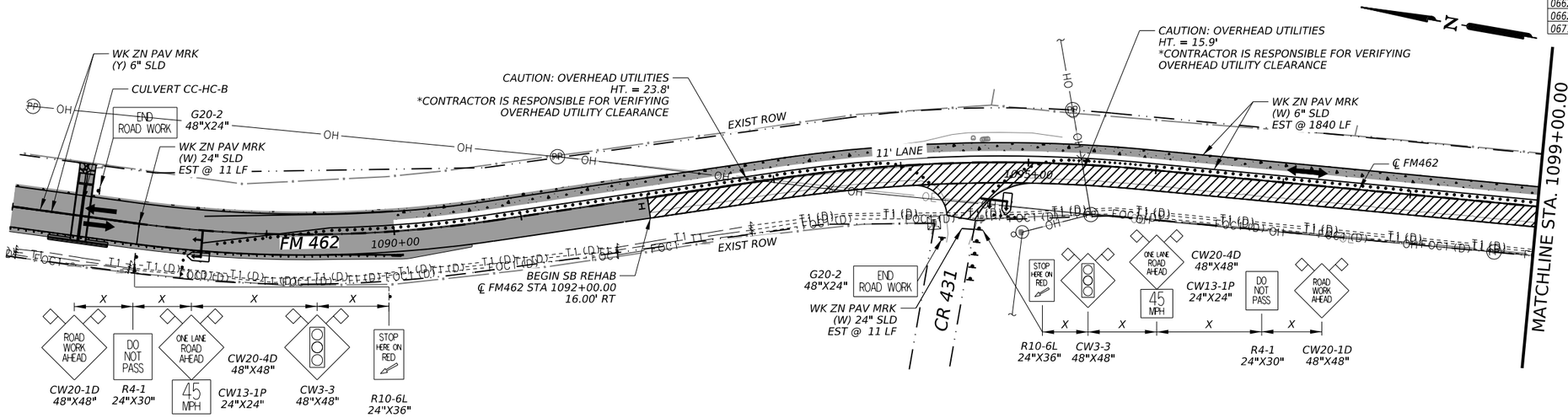
SHEET 2 OF 2

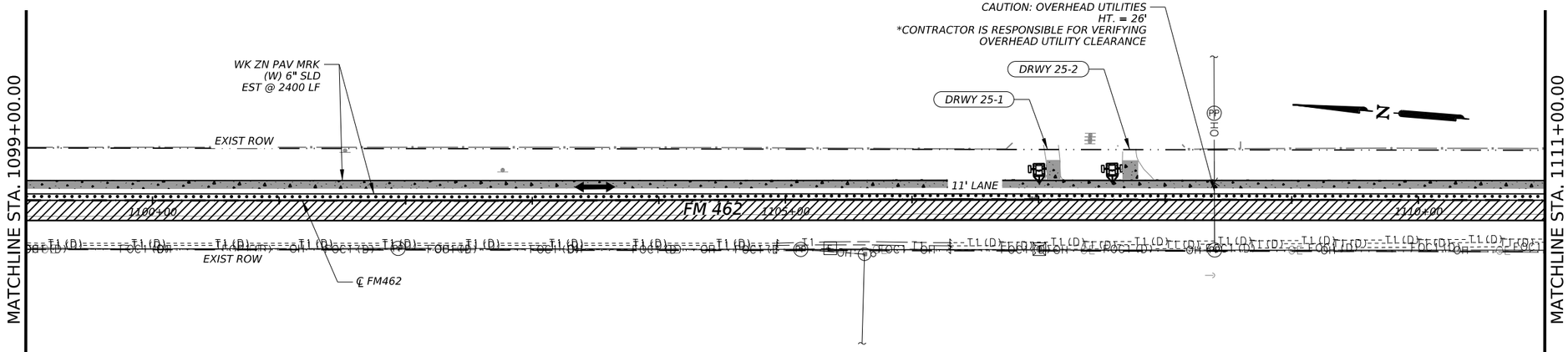
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		70

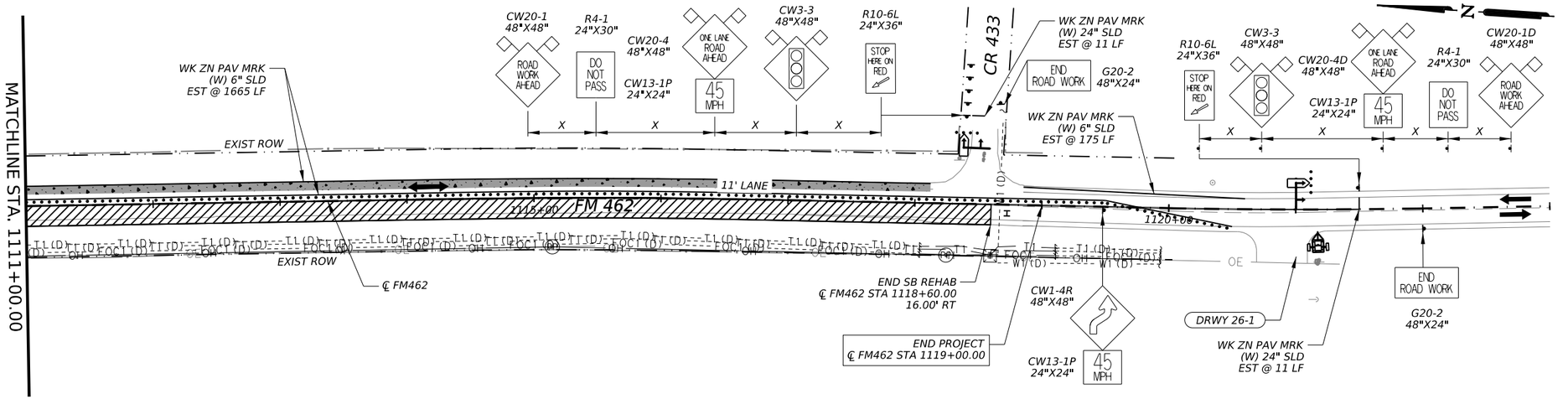
DATE: 1/31/2024 5:34:23 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH9_ST2_02.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6080
0662 6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	44
0677 6001	ELIM EXT PAV MRK & MRKS (4")	LF	580







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
- TEMP PORTABLE TRAFFIC SIGNAL
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STATE OF TEXAS

1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

TRAFFIC CONTROL PLAN PHASE 10 STEP 1

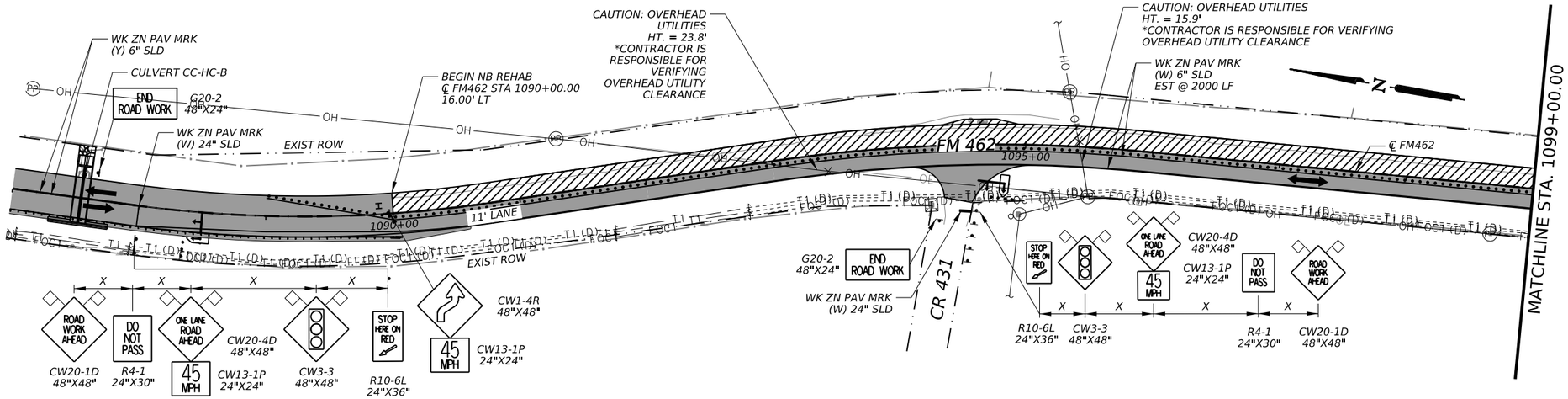
SHEET 1 OF 1

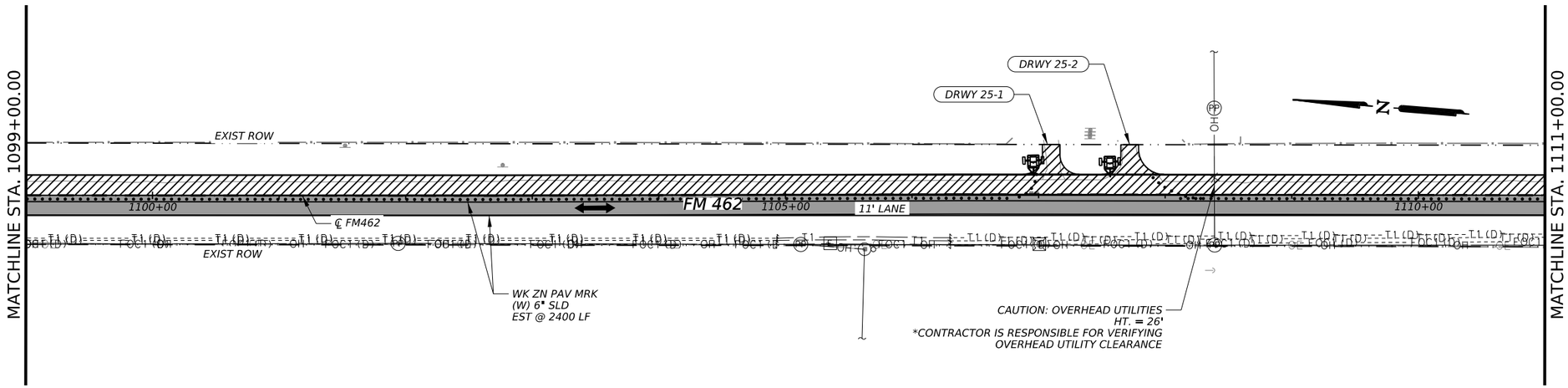
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		71

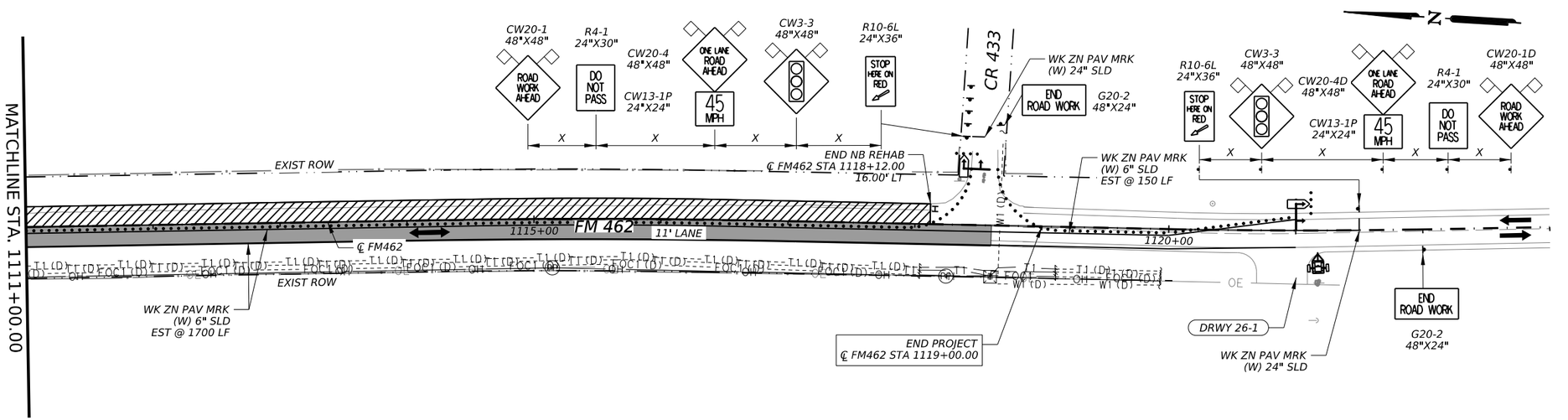
DATE: 1/31/2024 5:34:52 PM
FILE: c:\pw\kh1\d0285615\PM462_TCP_PH10_ST1A.dgn

CK:
DW:
CK:
DW:

0662 6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	7745
0662 6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	6250







LEGEND

- PROPOSED TRAFFIC FLOW ARROW
- CONSTRUCTION THIS STEP
- CONSTRUCTION PREVIOUS STEP
- TEMPORARY PAVEMENT THIS STEP
- TEMPORARY PAVEMENT PREVIOUS STEP
- CHANNELIZING DEVICES
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Texas Department of Transportation

FM 462

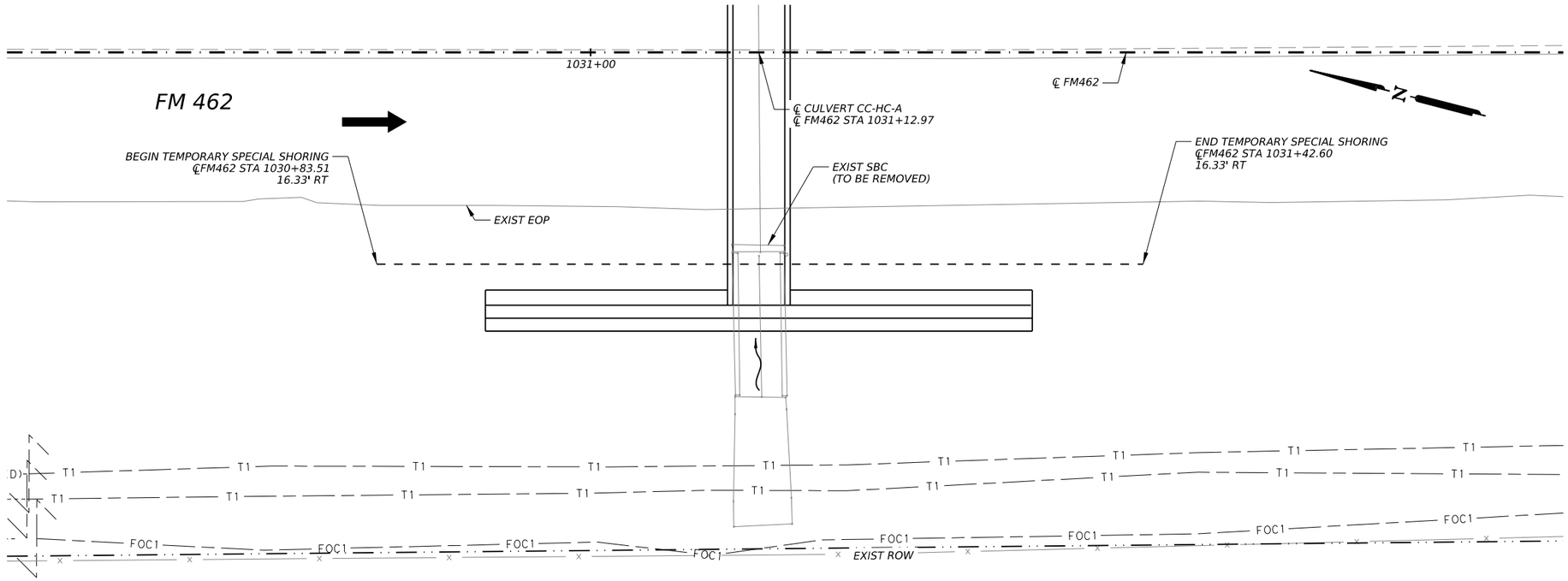
TRAFFIC CONTROL PLAN PHASE 10 STEP 2

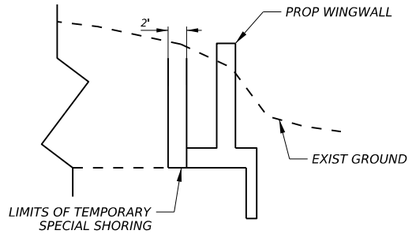
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		72

DATE: 1/31/2024 5:35:25 PM
FILE: c:\pw\kh1\d0285615\FM462_TCP_PH10_ST2A.dgn

CK: DW: CK: DW:



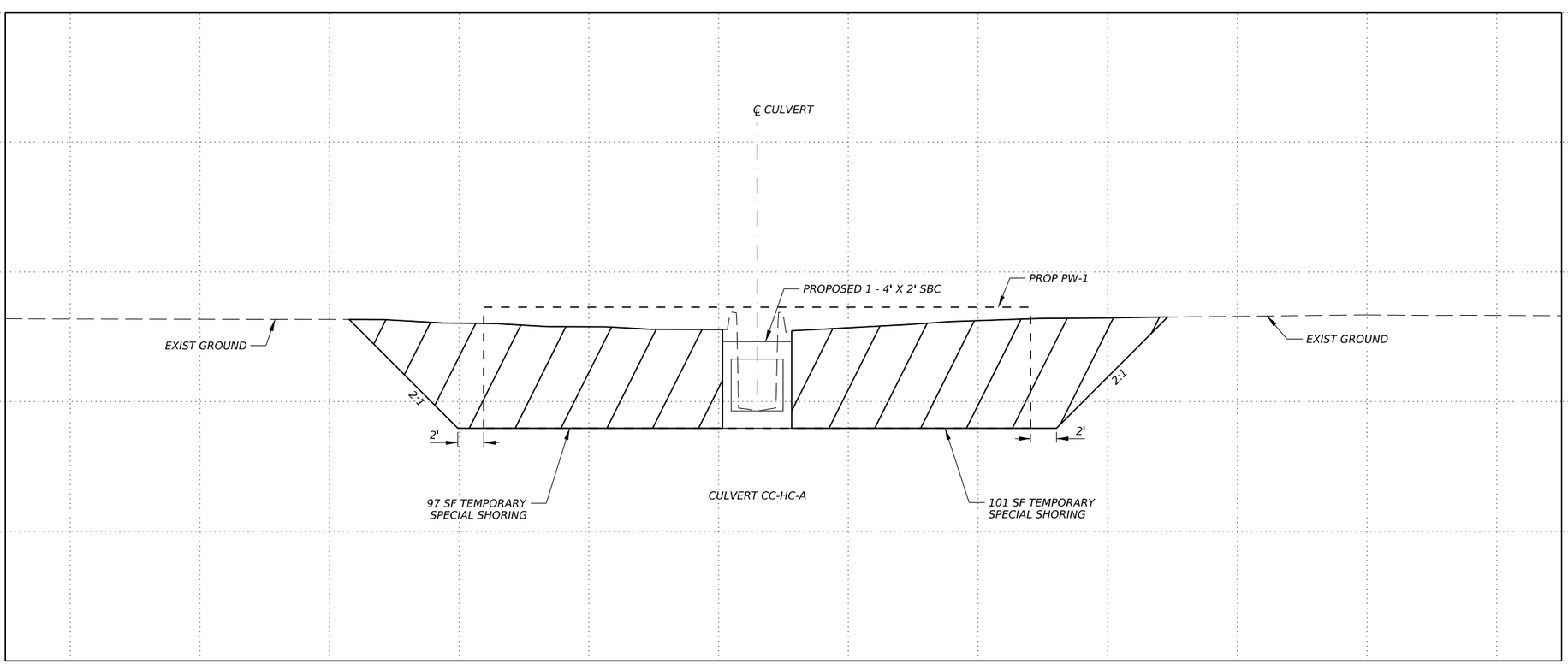


SHORING TYPICAL SECTION

N.T.S.

NOTES:

1. REFER TO TCP PHASE 1A FOR QUANTITIES.



DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

1/31/2024

0' 5' 10' HORIZ
0' 2.5' 5' VERT

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SHORING LAYOUT
CULVERT CC-HC-A

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		73

DATE: 1/31/2024 5:35:54 PM
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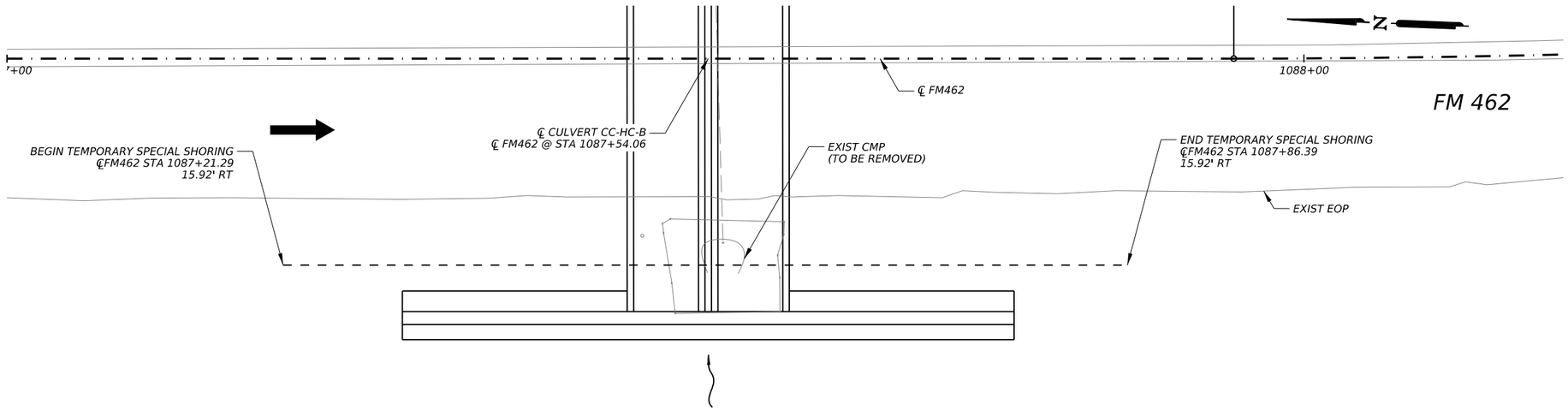
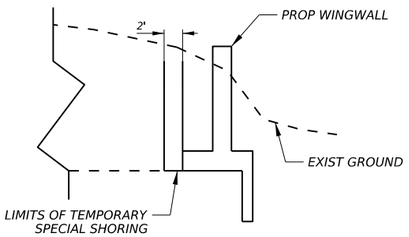


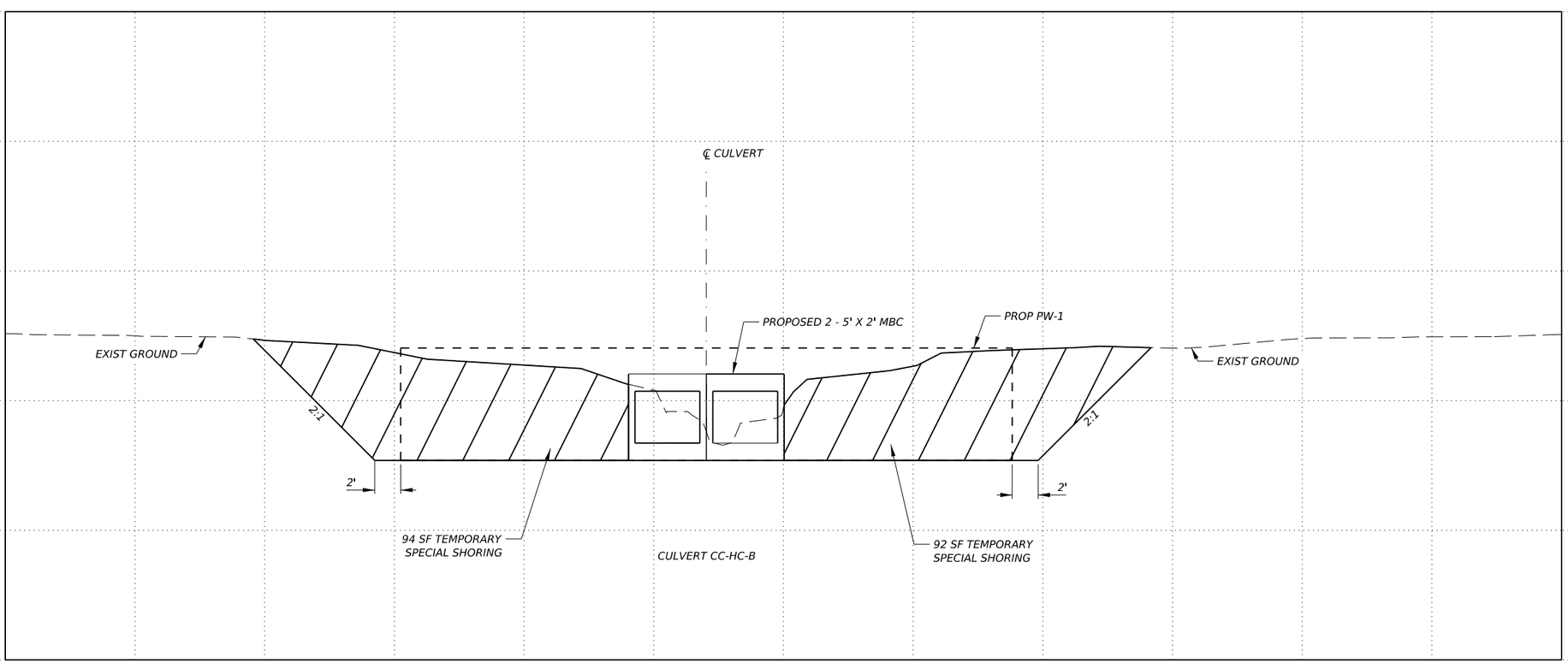


SHORING TYPICAL SECTION

N.T.S.

NOTES:

1. REFER TO TCP PHASE 1B FOR QUANTITIES.



1/31/2024

0' 5' 10' HORIZ

0' 2.5' 5' VERT

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Texas Department of Transportation

FM 462

SHORING LAYOUT
CULVERT CC-HC-B

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		74

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DW:
CK:
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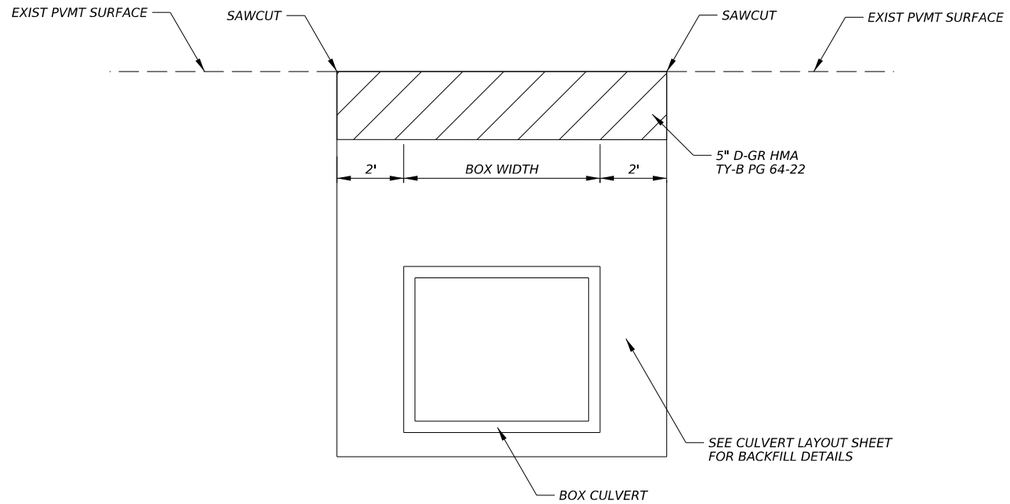

CUT & RESTORE DETAIL

NOTES

1. SAWCUT OF EXISTING PAVEMENT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 400.
2. HMA TY-B MATERIAL SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 400.
3. CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR CUTS WIDER THAN AS INDICATED IN THIS DETAIL.
4. HMA TY-B TO BE PLACED IN COMPACTED LIFTS IN ACCORDANCE WITH SPECIAL SPECIFICATION 3076

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

FM 462

MISCELLANEOUS
TCP DETAILS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		75

DATE: 1/31/2024 5:37:36 PM
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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	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		76

DATE: 1/31/2024 5:38:00 PM
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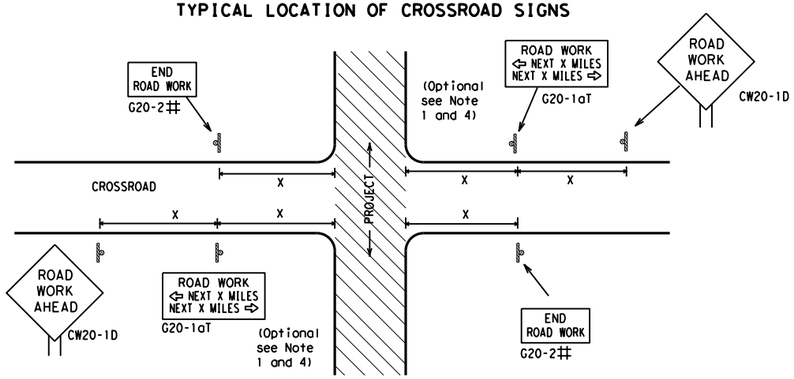
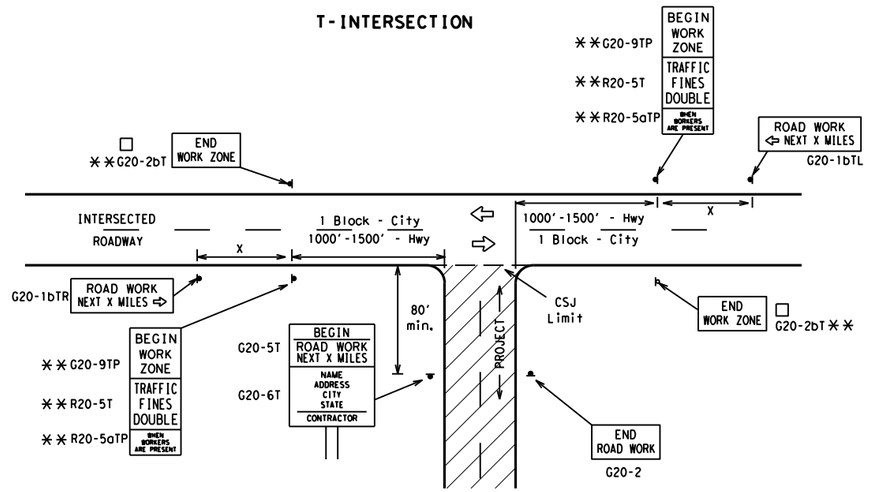
TYPICAL LOCATION OF CROSSROAD SIGNS



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[1,5,6]

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]

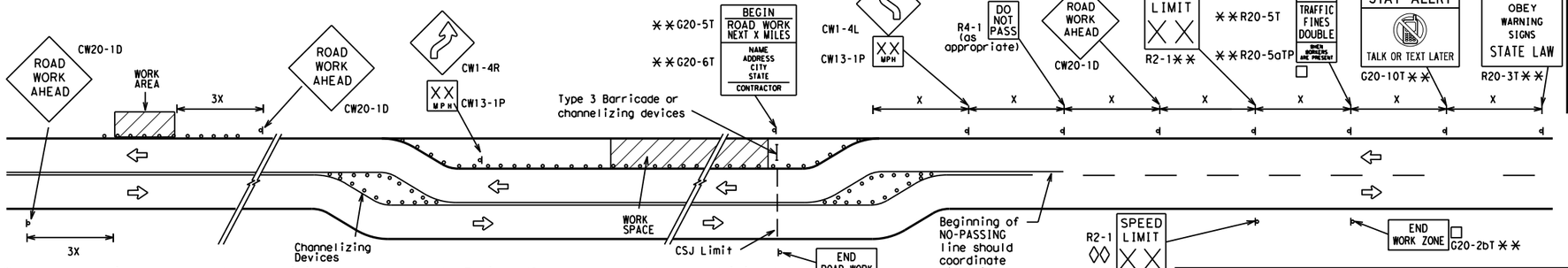
✱ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

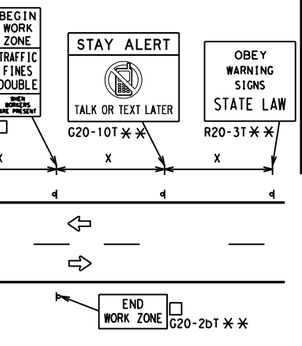
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may 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

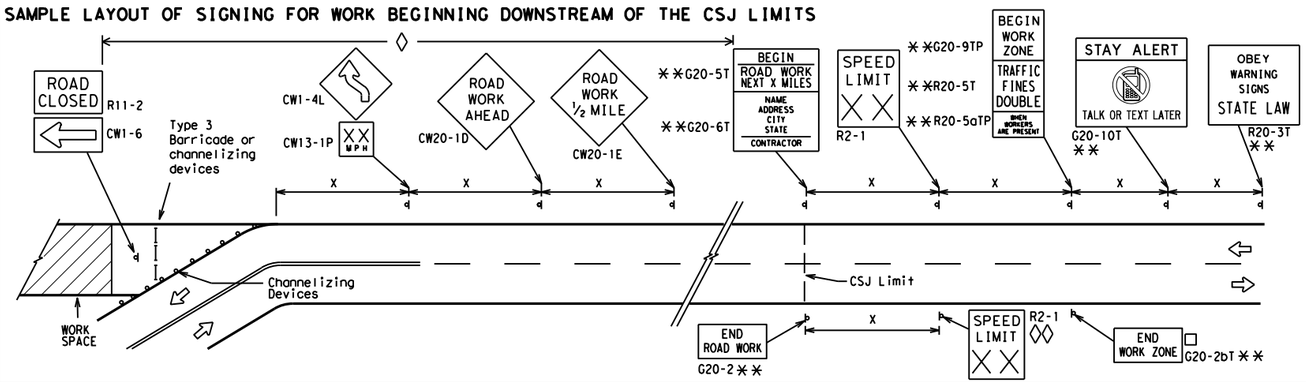


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing 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
○ ○ ○	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
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	MEDINA		77

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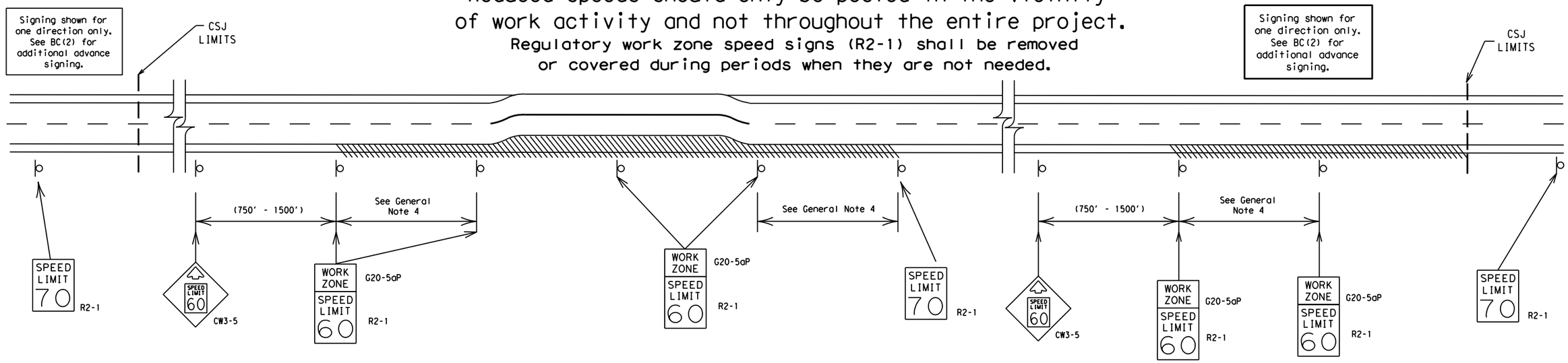
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		78

DATE: 1/31/2024 5:38:01 PM
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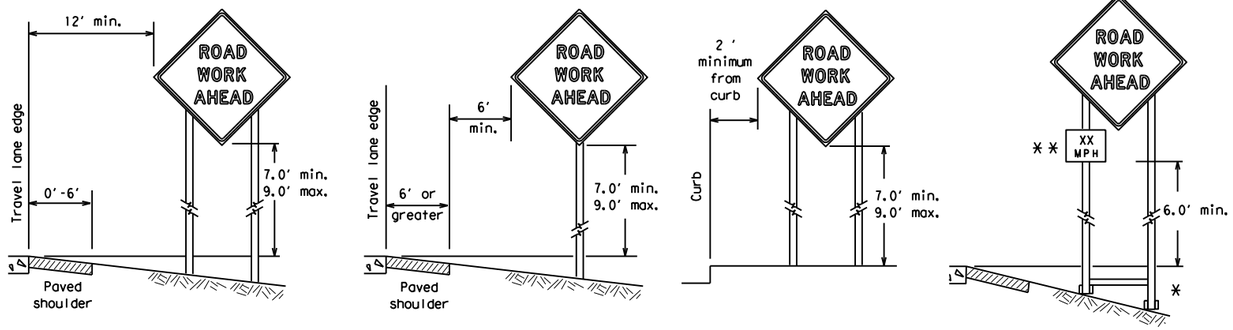
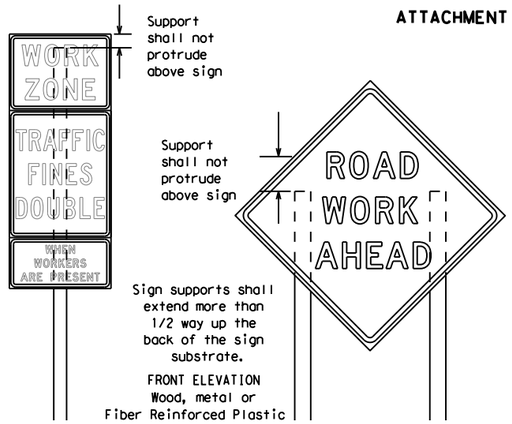
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

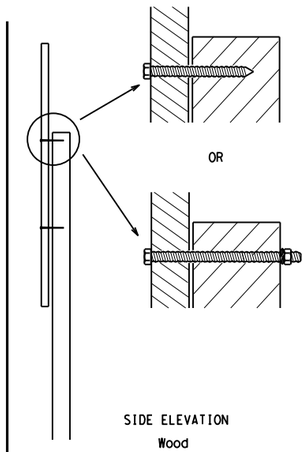


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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





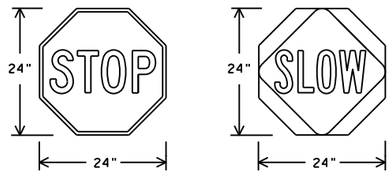
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	MEDINA		79

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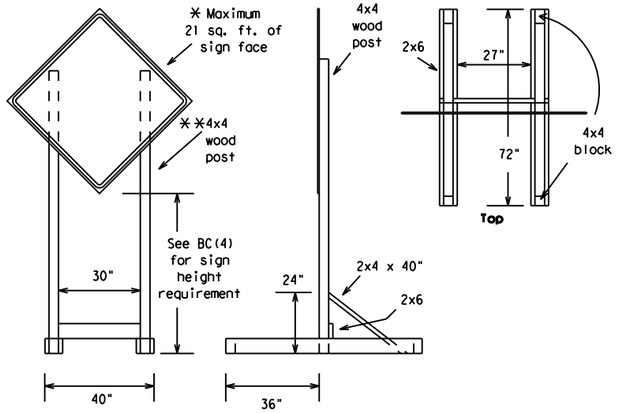
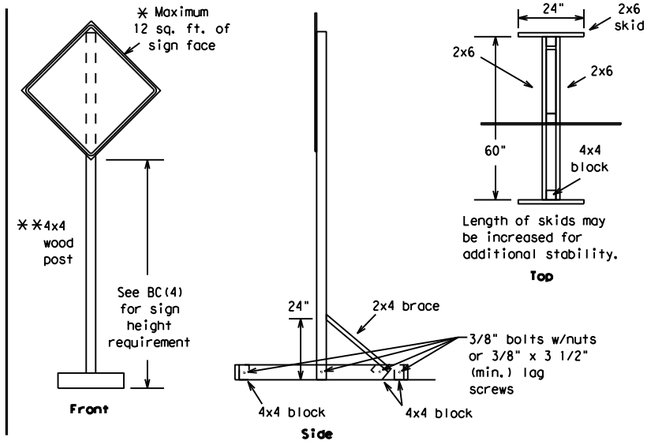
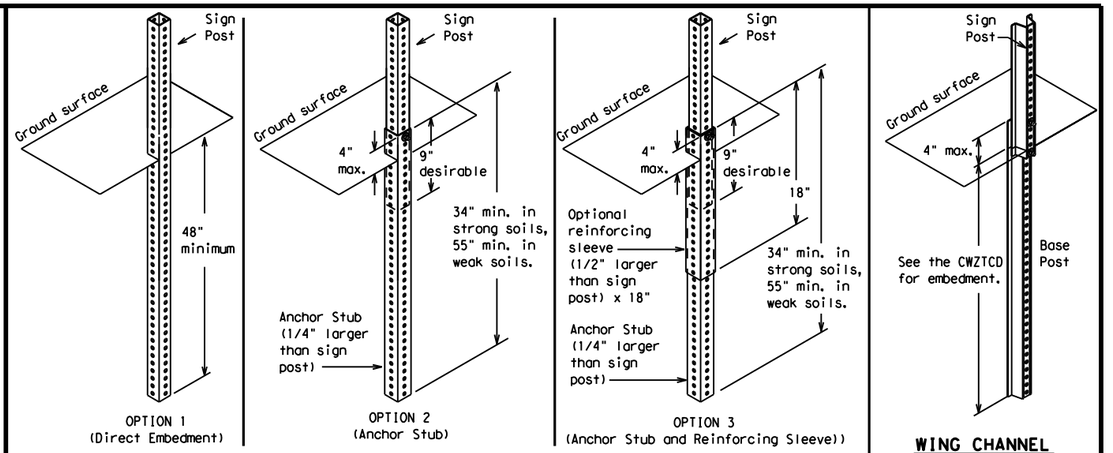




SKID MOUNTED WOOD SIGN SUPPORTS

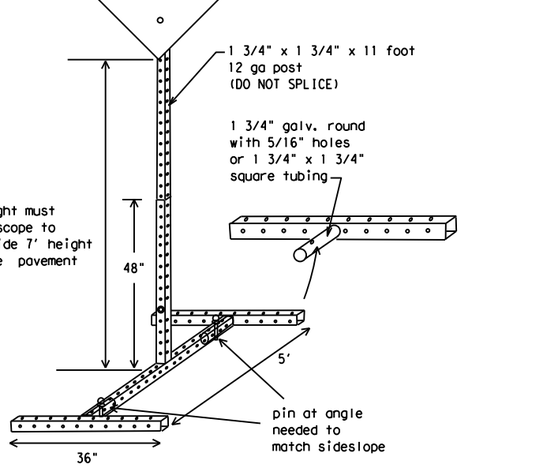
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

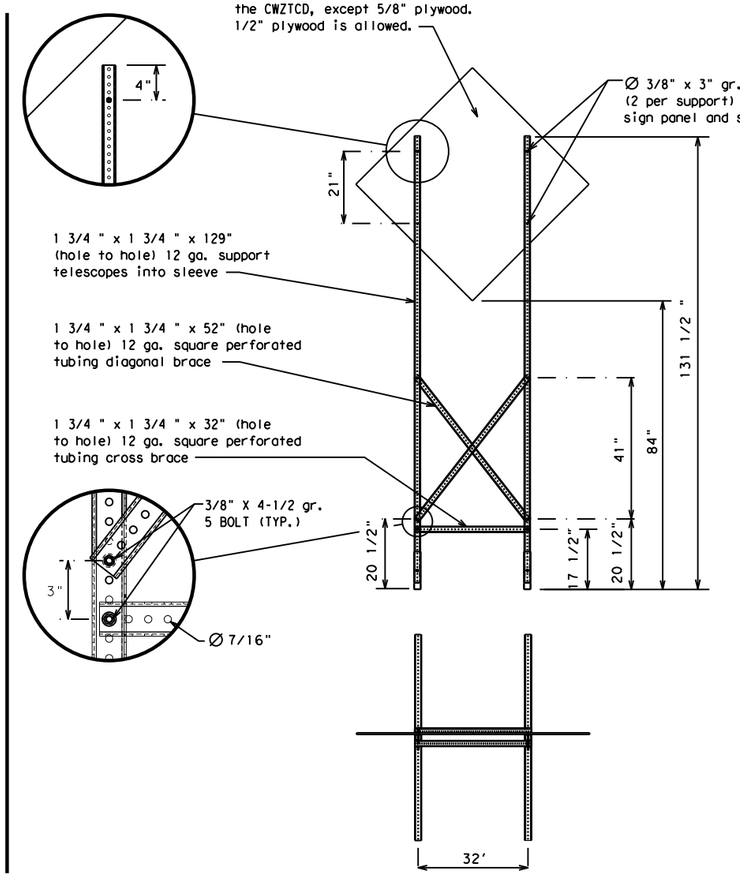


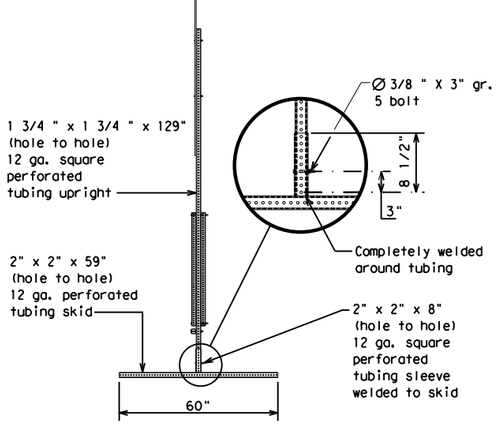
PERFORATED SQUARE METAL TUBING

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.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	MEDINA		80

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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

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

** 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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7-13 5-21		SAT	MEDINA		81

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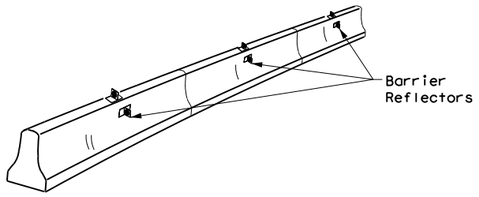
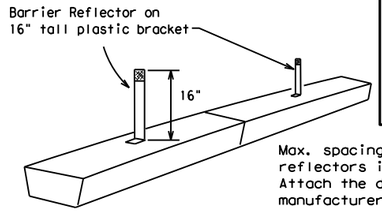
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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

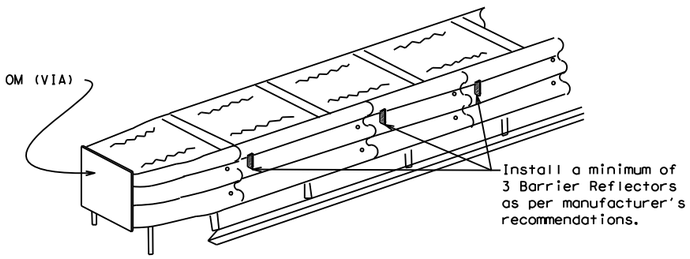


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

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)

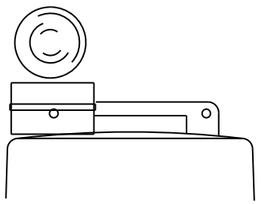


DELINEATION OF END TREATMENTS

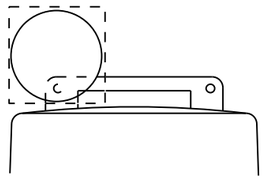
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

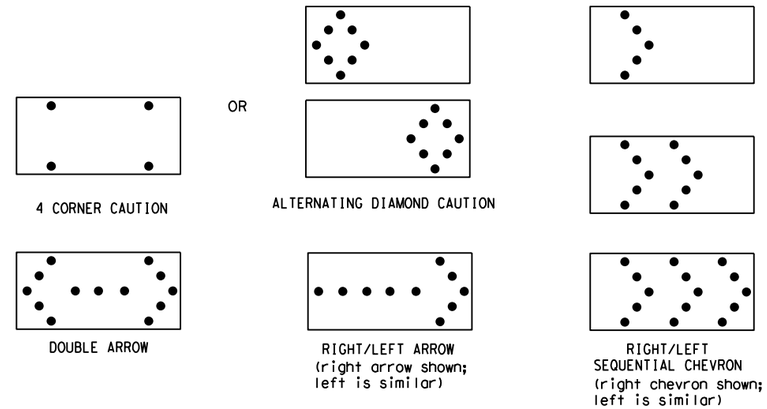
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
9-07 8-14	DIST	COUNTY		SHEET NO.
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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:

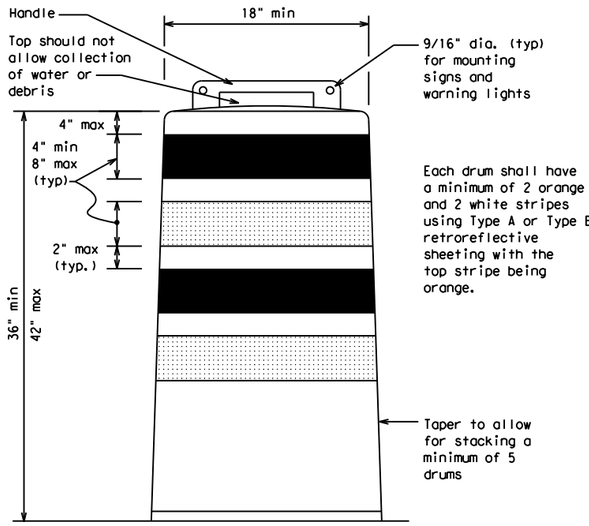
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents 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.

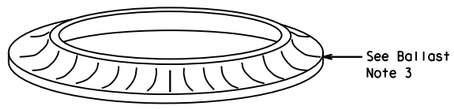
RETROREFLECTIVE SHEETING

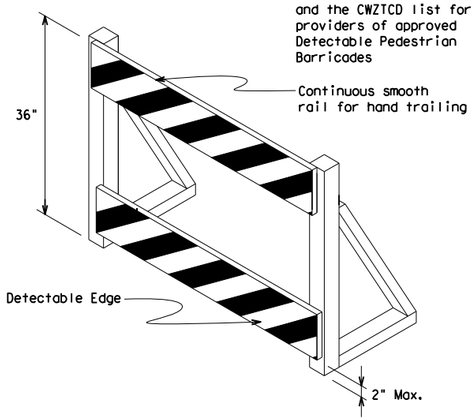
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall 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.

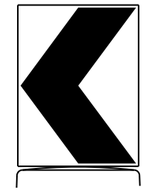




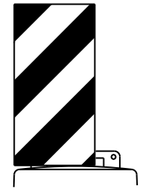


DETECTABLE PEDESTRIAN BARRICADES

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.

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0848	04	052	FM 462
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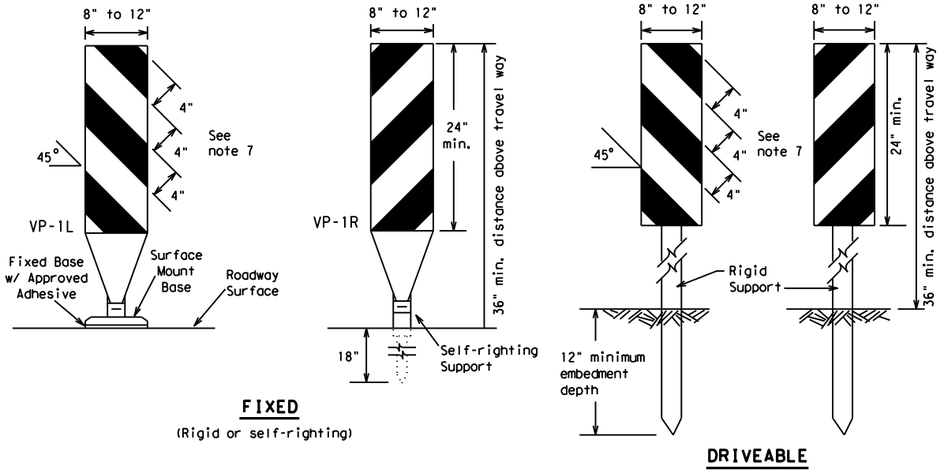
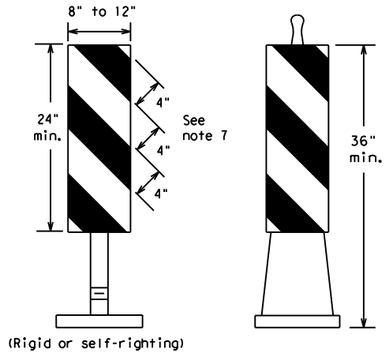


FIXED
(Rigid or self-righting)

DRIVEABLE

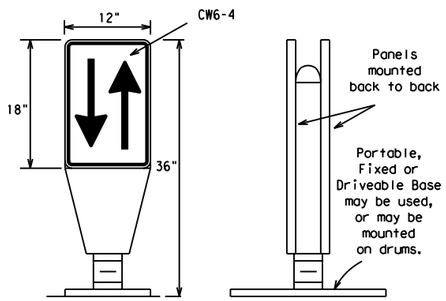


(Rigid or self-righting)

PORTABLE

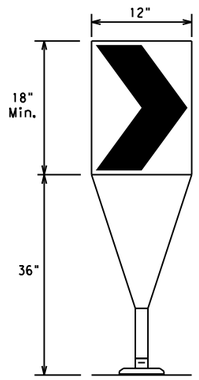
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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.

VERTICAL PANELS (VPs)



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)



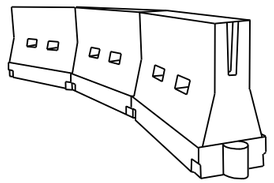
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

SHEET 9 OF 12

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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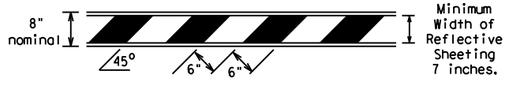
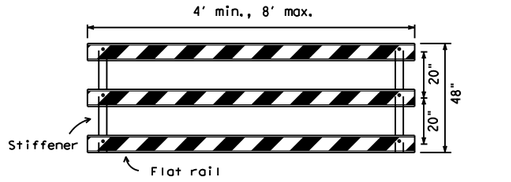
TYPE 3 BARRICADES

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.



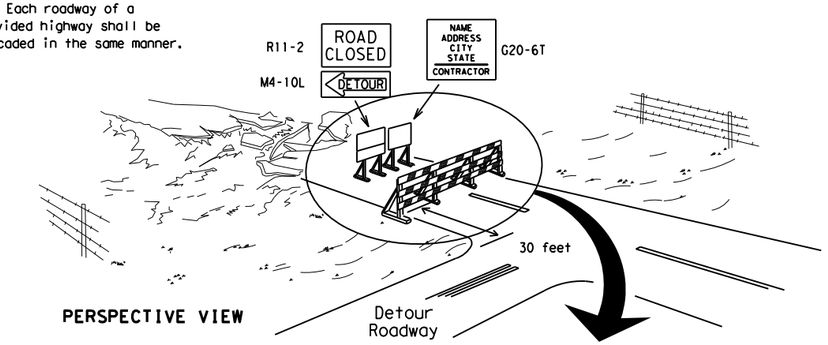
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

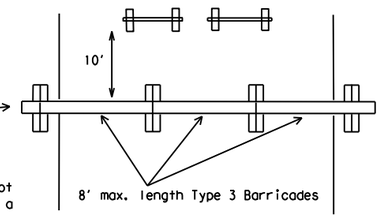
Each roadway of a divided highway shall be barricaded in the same manner.



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.

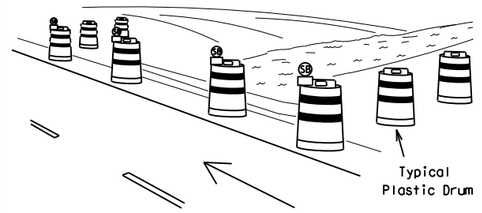
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

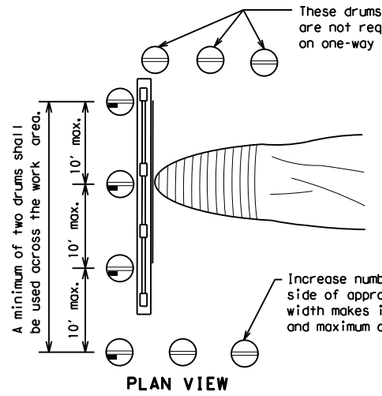
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

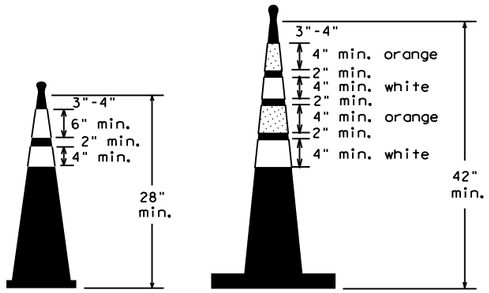
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder 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

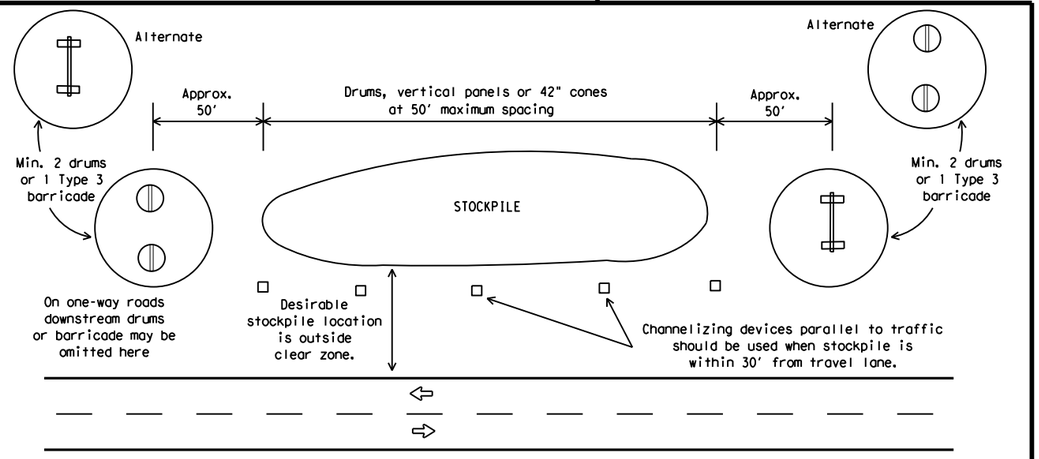
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	MEDINA		85

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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.

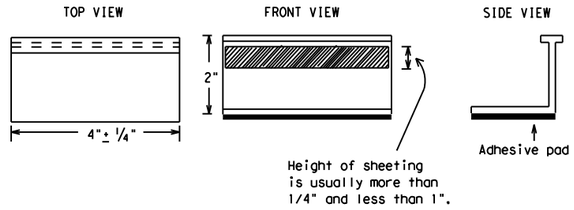
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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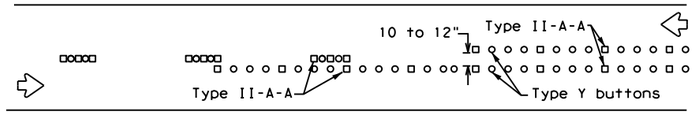
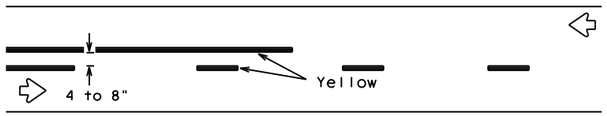
REVISIONS 2-98 9-07 5-21 1-02 7-13 11-02 8-14	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		86

PAVEMENT MARKING PATTERNS

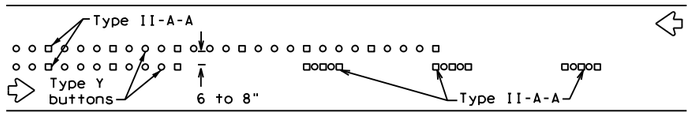
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



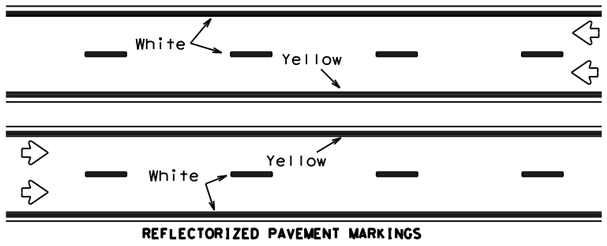
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



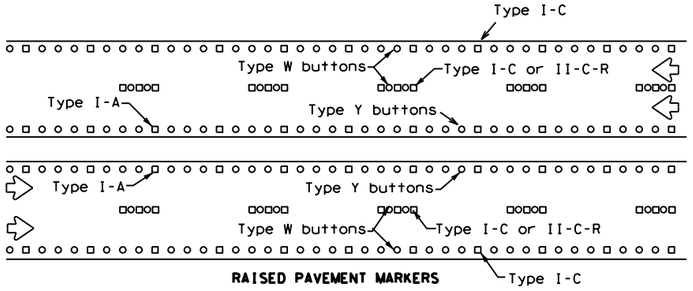
RAISED PAVEMENT MARKERS - PATTERN B

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



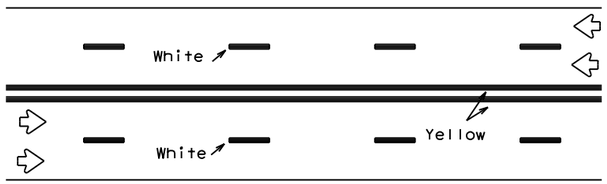
REFLECTORIZED PAVEMENT MARKINGS



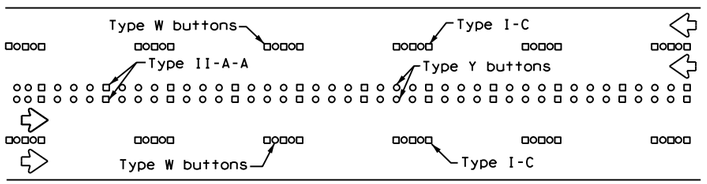
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



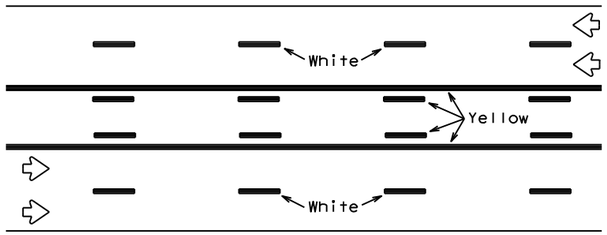
REFLECTORIZED PAVEMENT MARKINGS



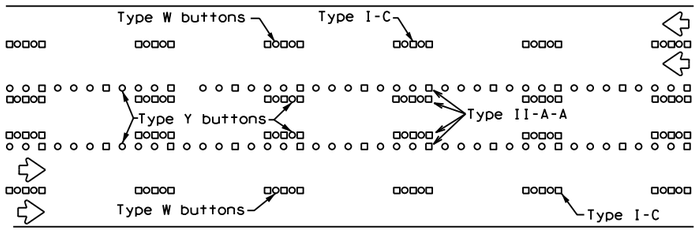
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

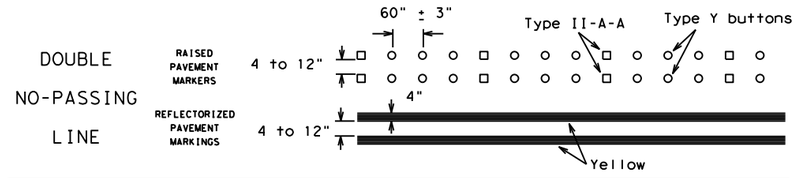
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

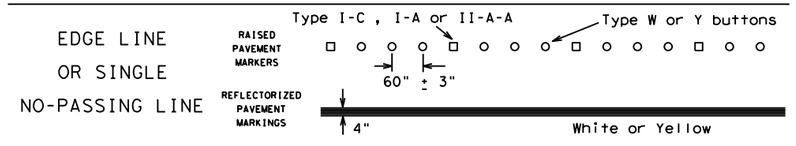
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

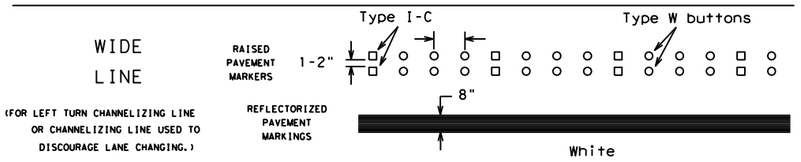


EDGE LINE OR SINGLE NO-PASSING LINE



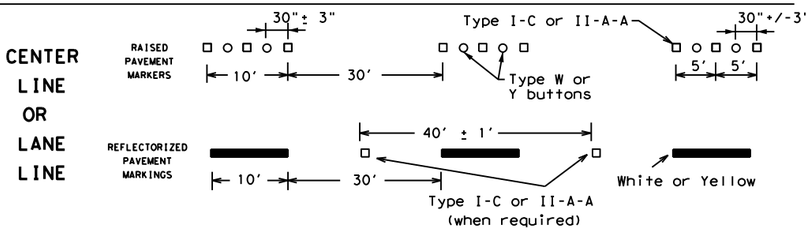
WIDE LINE

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

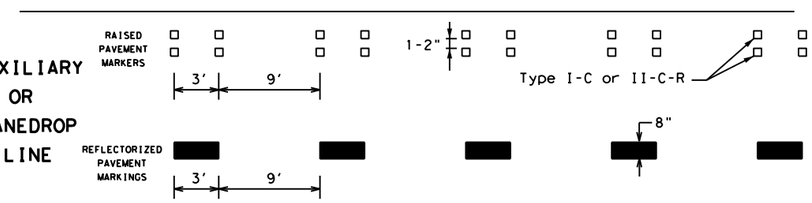


BROKEN LINES

CENTER LINE OR LANE LINE

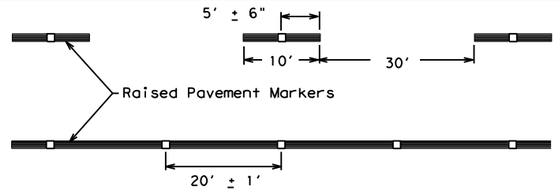


AUXILIARY OR LANEDROP LINE



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."

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Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

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	SAT	MEDINA		87

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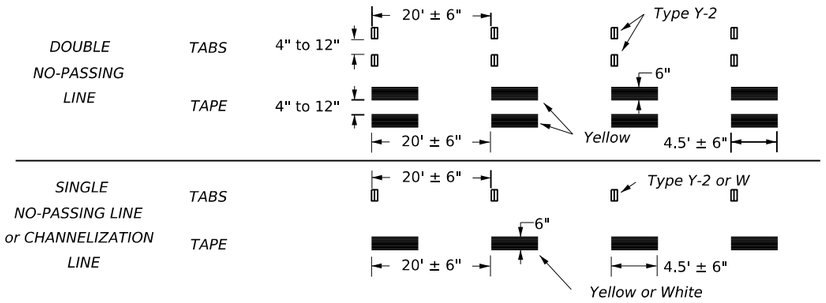
WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



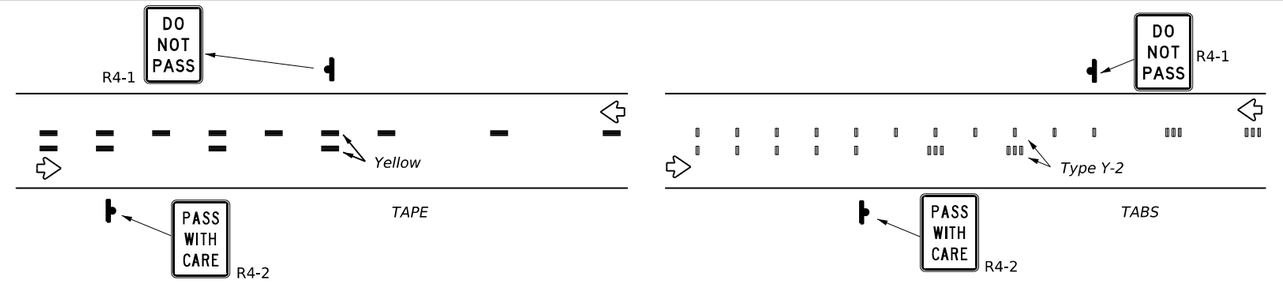
NOTES:

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.

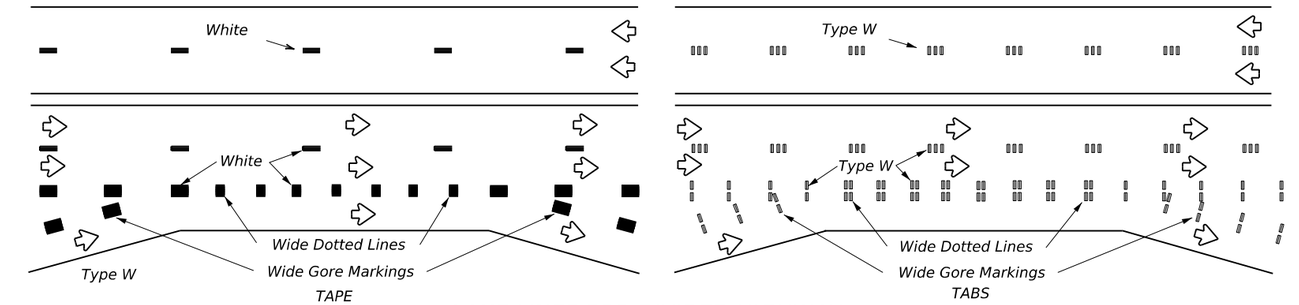
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

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.

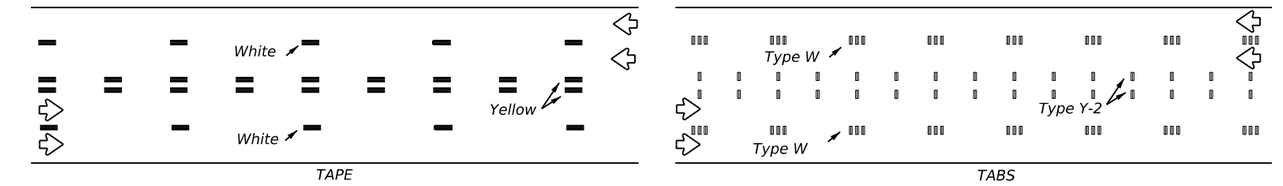
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



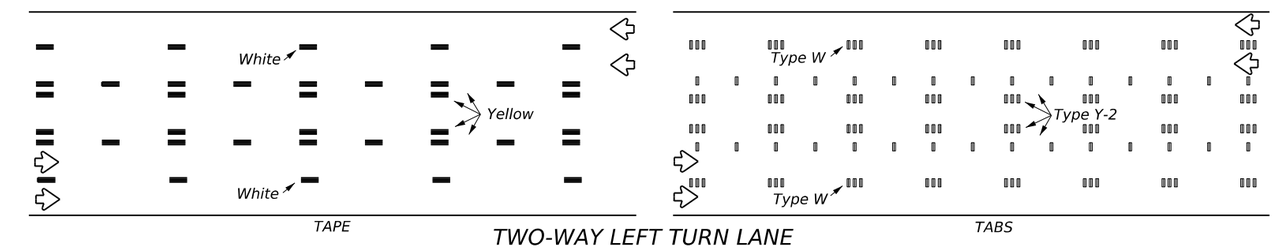
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



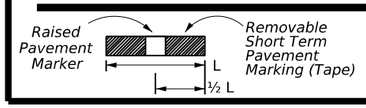
LANE LINES FOR DIVIDED HIGHWAY



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

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REVISIONS	0848	04	052	FM 462
4-92 7-13	DIST	COUNTY		SHEET NO.
1-97 2-23	SAT	MEDINA		88
3-03				

111

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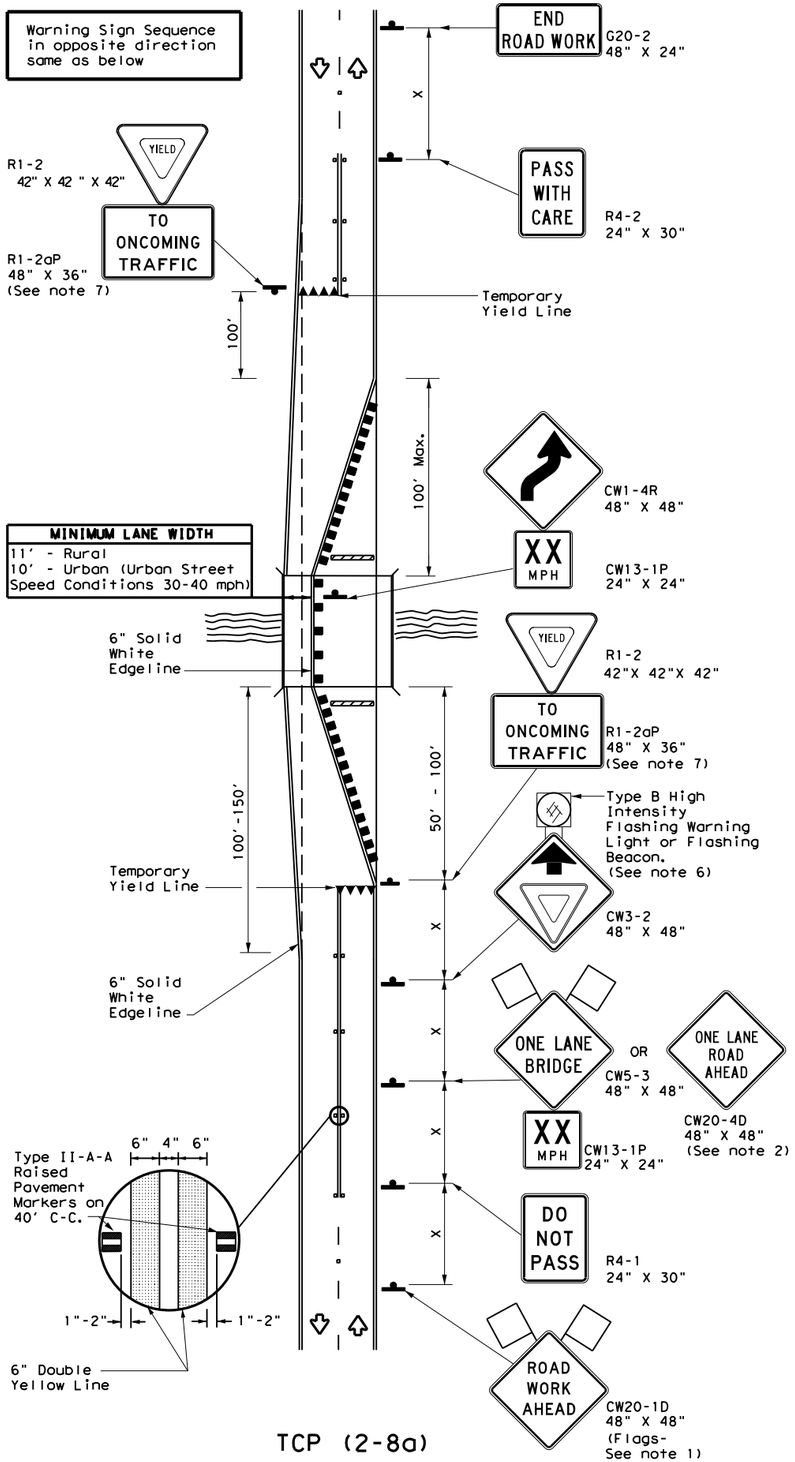
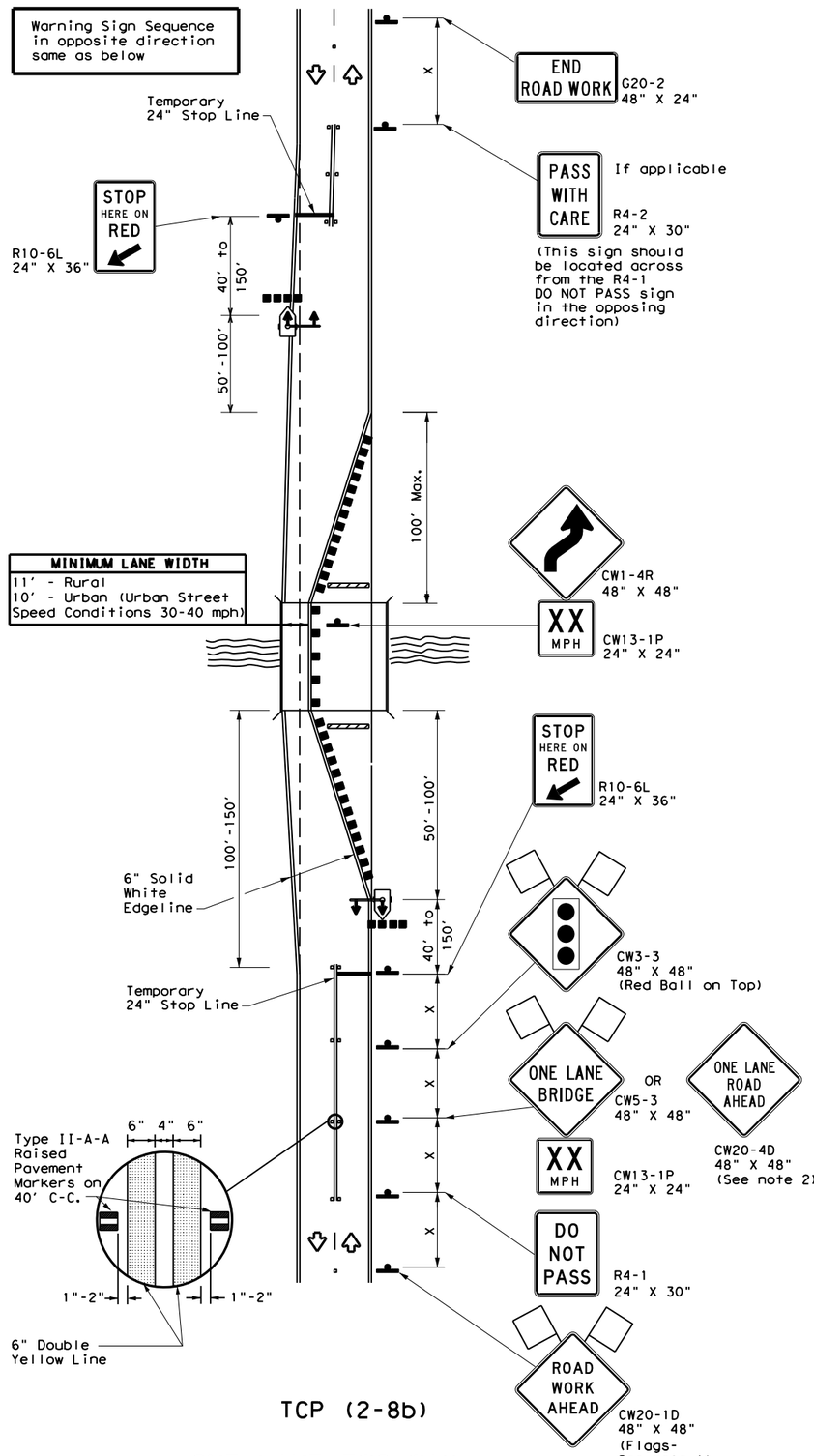


TCP (2-8a)

ONE LANE TWO-WAY
TRAFFIC CONTROL WITH YIELD SIGNS
(Less Than 2000 ADT-See Note 5)



TCP (2-8b)

ONE LANE TWO-WAY
TRAFFIC CONTROL WITH TRAFFIC SIGNAL

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Sign		Traffic Flow
	Flag		Flagger
	Raised Pavement Markers Ty II-AA		Temporary or Portable Traffic Signal

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. When this TCP is used at a location which does not involve a bridge, a 48" x 48" CW20-4D "ONE LANE ROAD AHEAD" signs should be used in lieu of the CW5-3 "ONE LANE BRIDGE" signs. The CW13-1P Advisory Speed Plaque is required with either warning sign.
3. Raised pavement markers shall be placed 40 feet c-c on centerline between DO NOT PASS signs and stop or yield lines.
4. For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 20 feet is recommended. The 20 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.

TCP (2-8a)

5. Traffic control by CW3-2 "YIELD AHEAD" symbol signs for one lane two-way traffic control operations should be limited to work spaces less than 400 feet long and roadways with less than 2000 ADT. Otherwise, portable traffic signals should be used.
6. If power is available, a flashing beacon should be attached to the CW3-2 "YIELD AHEAD" symbol sign for emphasis.
7. The R1-2 "YIELD" and R1-2aP "TO ONCOMING TRAFFIC" signs and other regulatory signs shall be installed at 7 foot minimum mounting height.

TCP (2-8b)

8. A list of approved Portable Traffic Signals can be found in the "Compliant Work Zone Traffic Control Devices" list.
9. Portable traffic signals should be located to provide adequate stopping sight distance for approaching motorist (See table above).

Texas Department of Transportation — Traffic Safety Division Standard

TRAFFIC CONTROL PLAN LONG TERM ONE-LANE TWO-WAY CONTROL

TCP(2-8)-23

FILE: tcp2-8-23.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	0848	04	052	FM 462
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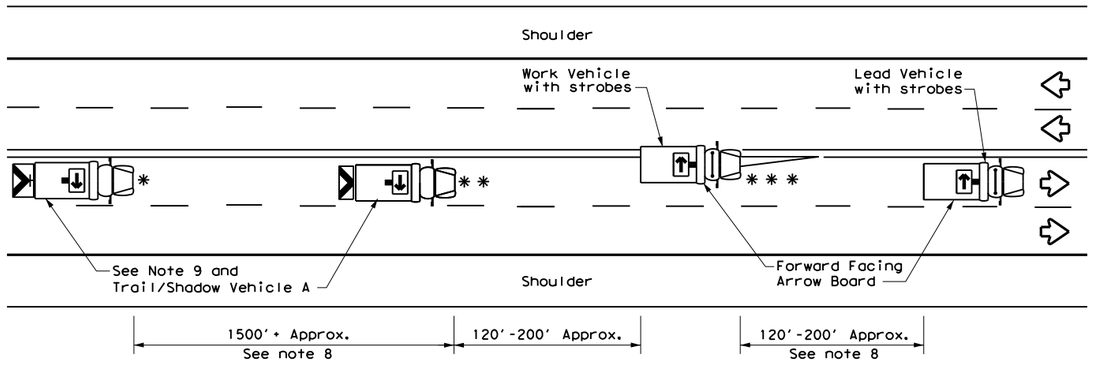
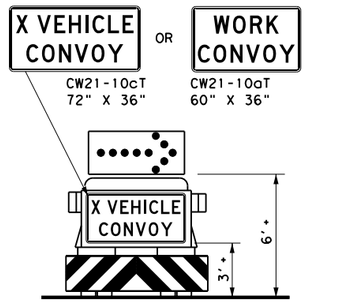


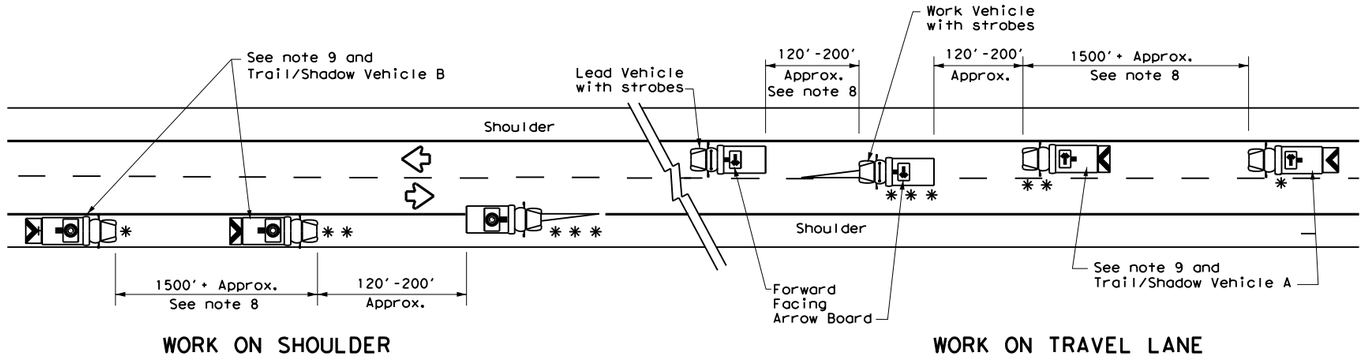
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

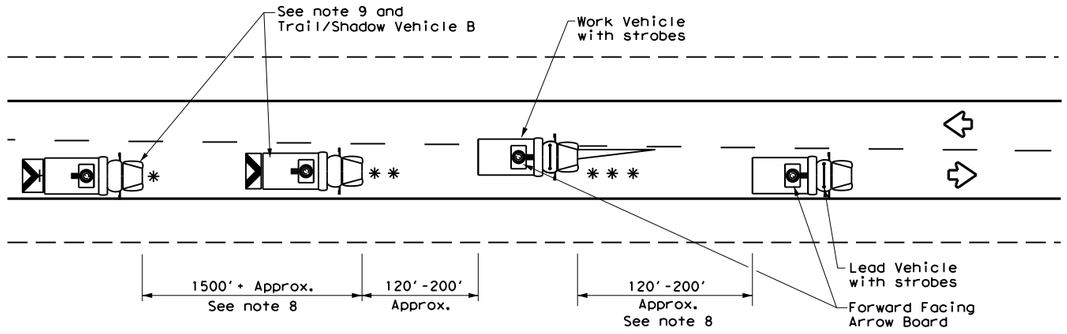


WORK ON SHOULDER

WORK ON TRAVEL LANE

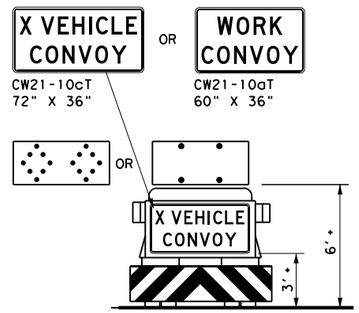
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

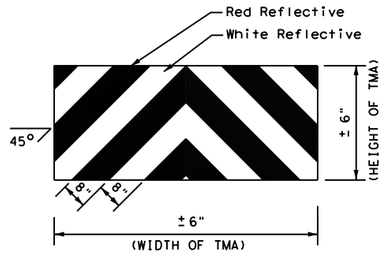
with Flashing Arrow Board in CAUTION display

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
* *	Shadow Vehicle		
* * *	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

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

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. "X VEHICLE CONVOY" (CW21-10cT) or "WORK CONVOY" (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" X 48" diamond shaped "WORK CONVOY"(CW21-10T) or "X VEHICLE CONVOY" (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The "X VEHICLE CONVOY" sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a "DO NOT PASS" (R4-1) sign should be placed on the back of the rearmost protection vehicle.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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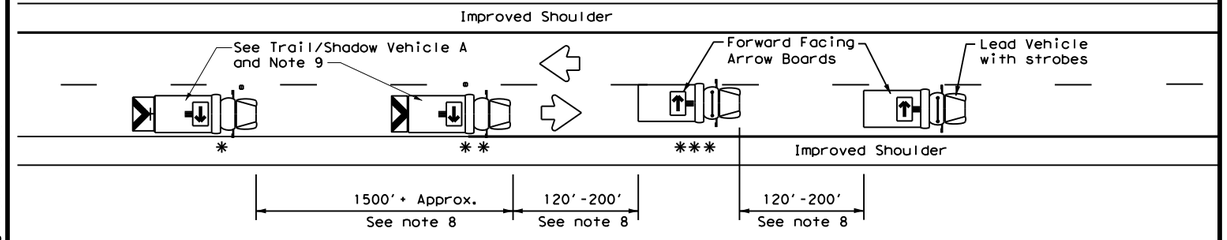
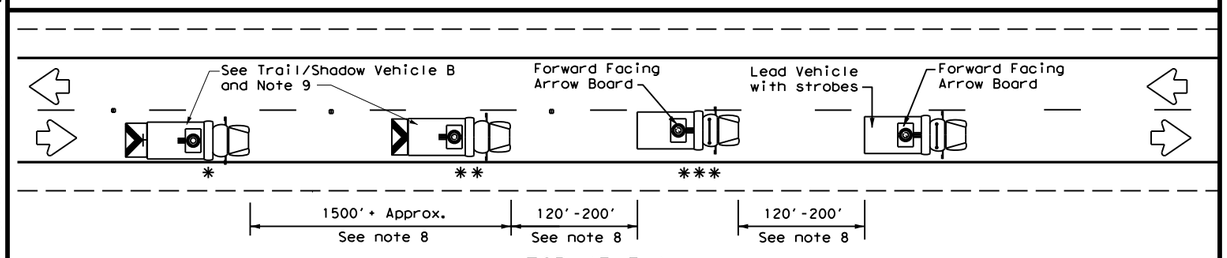
	SAT	MEDINA		90



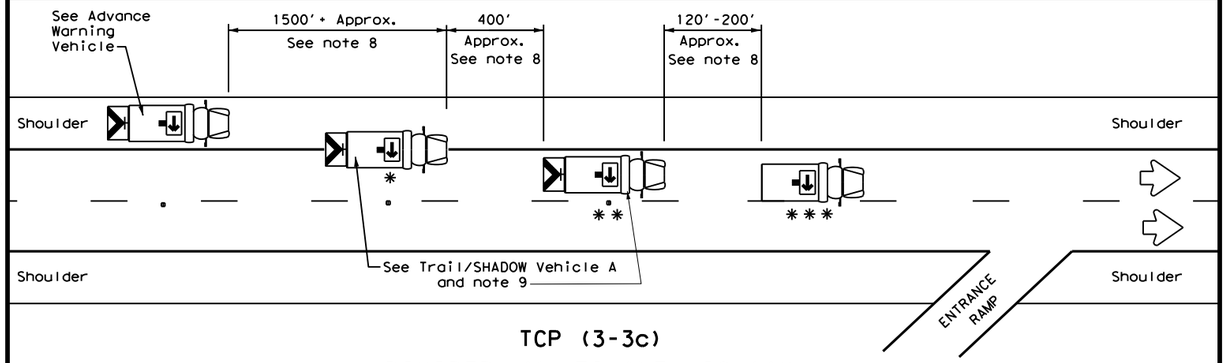
TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS (WORK ON TRAVEL LANE)



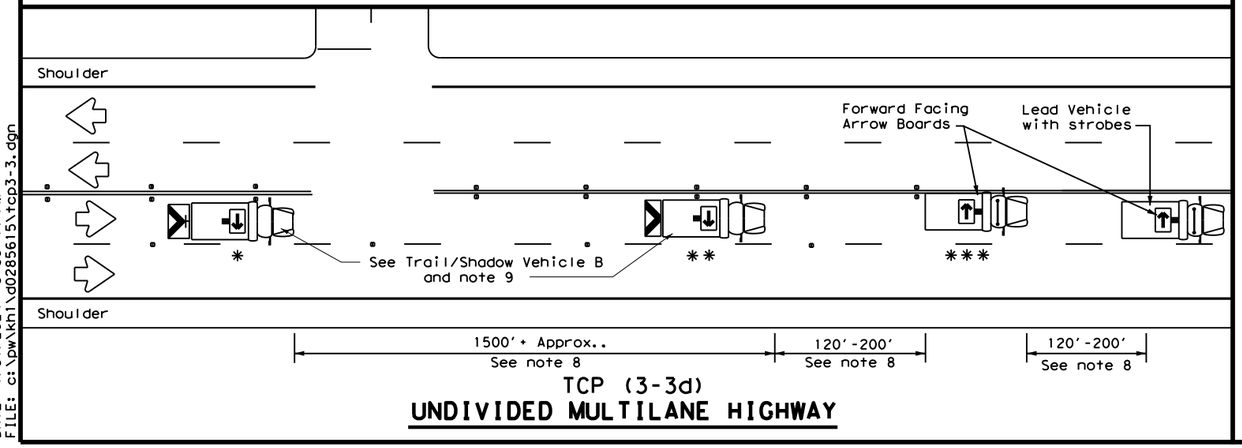
TCP (3-3b)

TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS (WORK ON TRAVEL LANE)



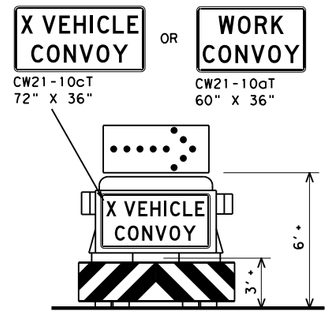
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



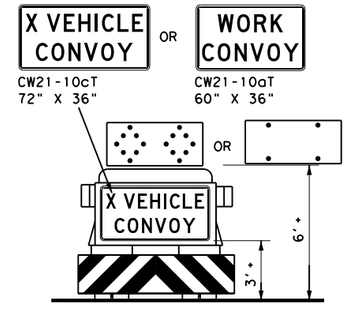
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



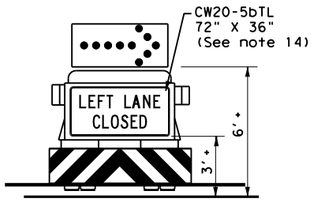
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

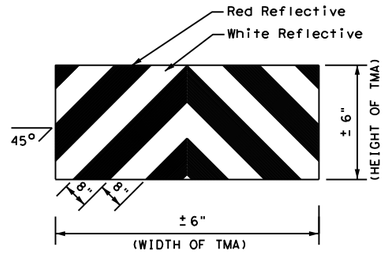


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

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

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used on two way roads the WORK vehicle must have an arrow board. For divided roadways, the arrow board on the WORK vehicle is optional based on the type of work being performed. The Engineer will determine if the LEAD vehicle and/or TRAIL vehicle are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. X VEHICLE CONVOY (CW21-10cT) or WORK CONVOY (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. For divided highways with two or three lanes in one direction, the appropriate LEFT LANE CLOSED (CW20-5bTL), RIGHT LANE CLOSED (CW20-5bTR), or CENTER LANE CLOSED (CW20-5dT) sign should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board may be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
12. For divided highways with three or four lanes in each direction, use TCP(3-2).
13. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
14. The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
15. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a DO NOT PASS (R4-1) sign should be placed on the back of the rearmost protection vehicle.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL

TCP(3-3)-14

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©TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
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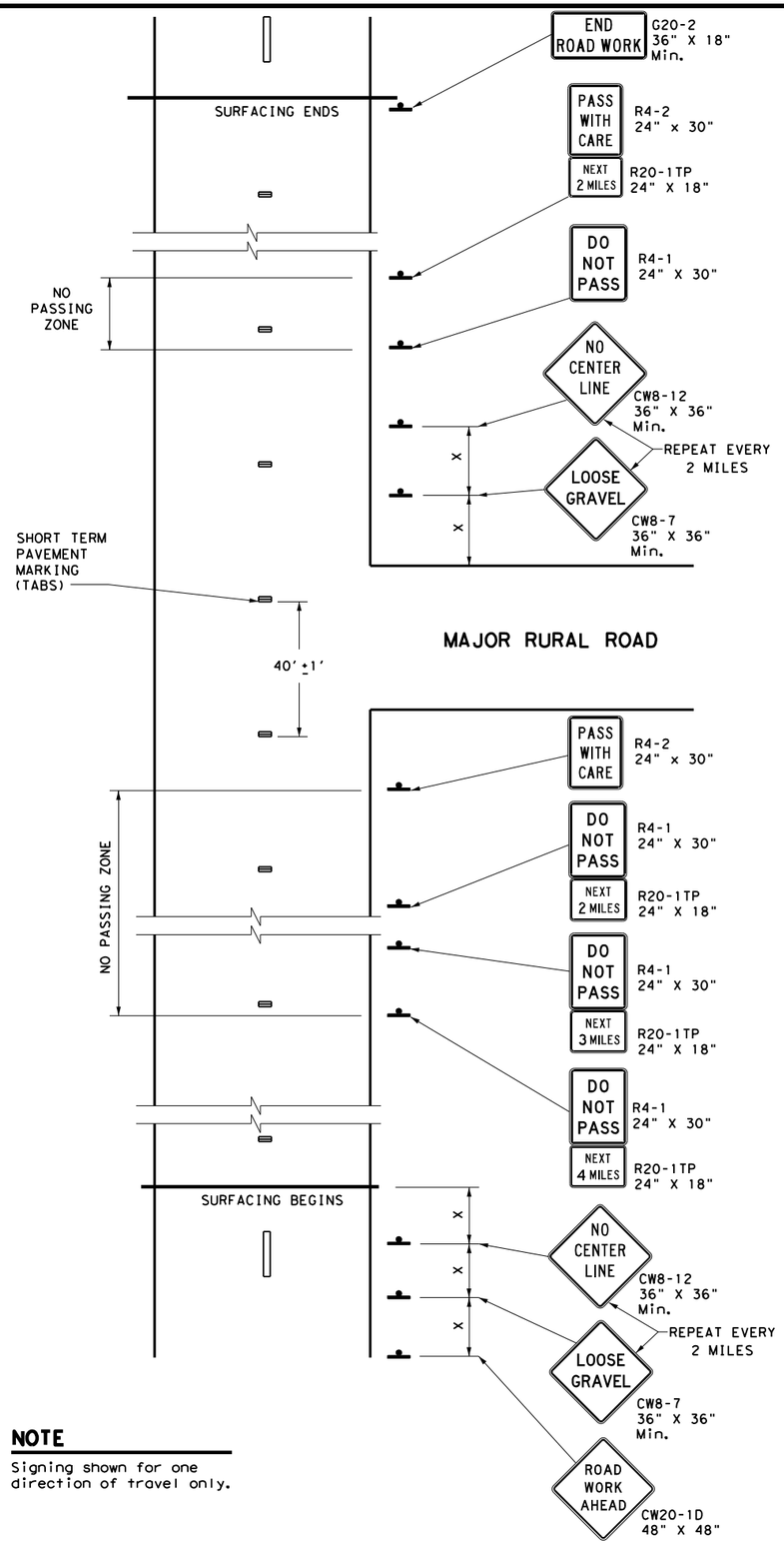
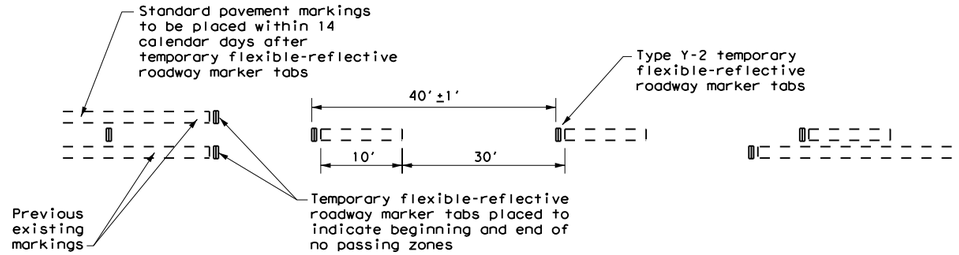


NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS

For seal coat, micro-surface or similar operations

"DO NOT PASS" SIGN (R4-1) and NO-PASSING ZONES

A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.

C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshield and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.

D. R4-1 and R4-2 are to remain in place until standard pavement markings are installed.

"NO CENTER LINE" SIGN (CW8-12)

A. Center line markings are yellow pavement markings that delineate the separation of travel lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.

B. At the time construction activity obliterates the existing center line markings(low volume roads may not have an existing centerline), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately 2 mile intervals within the work area, beyond major intersections and other locations deemed necessary by the Engineer.

C. The NO CENTER LINE signs are to remain in place until standard pavement markings are installed.

"LOOSE GRAVEL" SIGN (CW8-7)

A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately 2 miles in rural areas and closer in urban areas.

B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

PAVEMENT MARKINGS

A. Temporary markings for surfacing projects shall be Temporary Flexible-reflective Roadway Marker Tabs unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement
no more than two (2) days before the surfacing is applied. After the surfacing is rolled and swept, the cover over the reflective strip shall be removed.

B. Tabs shall not be used to simulate edge lines.

C. Tab placement for overlay/inlay operations shall be as shown on the WZ(STPM) standard sheet.

COORDINATION OF SIGN LOCATIONS

A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.

B. Where possible the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed in the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) and the TRAFFIC FINES DOUBLE (R20-5T) sign, and one "X" sign spacing prior to the CONTRACTOR (G20-6T)sign typically located at or near the limits of surfacing. LOOSE GRAVEL and NO CENTER LINE signs will then be repeated as described above.

Posted Speed *	Minimum Sign Spacing "X" Distance
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

* Conventional Roads Only

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

GENERAL NOTES

1. The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where tabs must be placed prior to the surfacing operation which will cover or obliterate the existing pavement markings.
2. The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.
3. Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Long-Term / Intermediate-Term Work Zone Sign Supports.
4. When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".
5. Signs on divided highways, freeways and expressways will be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS

TCP(7-1)-13

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©TxDOT March 1991	CONT	SECT	JOB	HIGHWAY
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1-97 7-13	SAT	MEDINA		92

210

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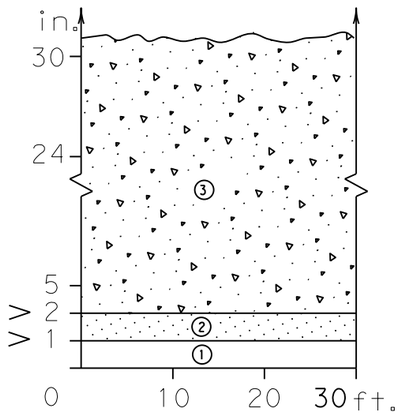
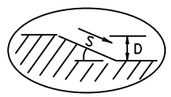
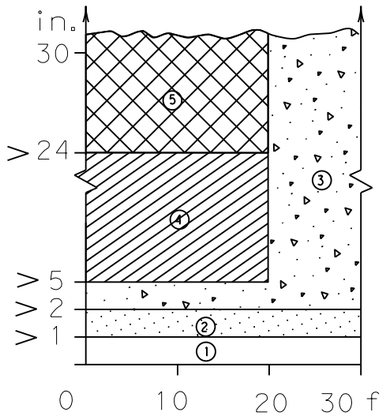
DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

Edge Height (D) in Inches versus Lateral Clearance (Y) in Feet

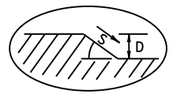


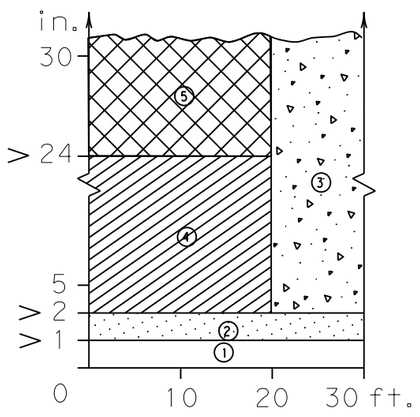
Edge Condition I
S = (3:1) (or flatter)



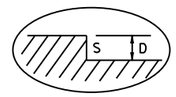


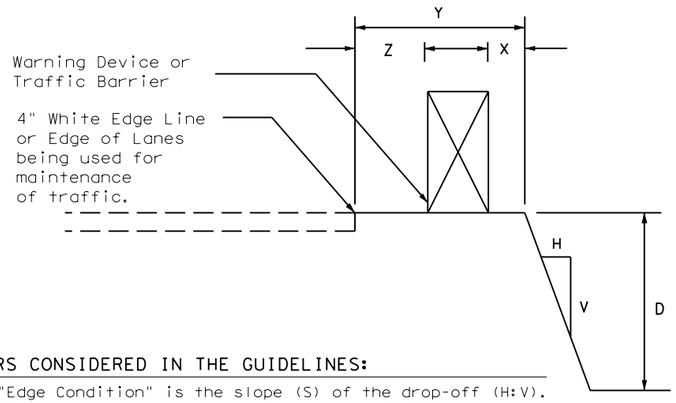
Edge Condition II
S = ((2.99):1) to (1:1)





Edge Condition III
S is steeper than (1:1)





FACTORS CONSIDERED IN THE GUIDELINES:

1. The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height is the depth of the drop-off "D".

2. Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.

3. In addition to the factors considered in the guidelines, each construction zone drop-off situation should be analyzed individually, taking into account other variables, such as: traffic mix, posted speed in the construction zone, horizontal curvature, and the practicality of the treatment options.

4. The conditions for indicating the use of positive or protective barriers are given by Zone-5 and Figure-1. Traffic barriers are primarily applicable for high speed conditions. Urban areas with speeds of 30 mph or less may have a lesser need for signing, delineation, and barriers. Right-angled edges, however, with "D" greater than 2 inches and located within a lateral offset of 6 feet, may indicate a higher level of treatment.

5. If the distance "Y" must be less than 3 feet, the use of a positive barrier may not be feasible. In such a case, consider either: 1) narrowing the lanes to a desired 11 to 12 feet or 10 foot minimum (see CW20-8 sign), or 2) provide an edge slope such as Edge Condition I.

Zone	Treatment Types Guidelines:
①	No treatment
②	CW 8-11 "Uneven Lanes" signs.
③	CW 8-9a Shoulder Drop-Off" or CW 8-11 signs plus vertical panels.
④	CW8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge slope to that of the profered Edge Condition I.
⑤	Check indications (Figure-1) for possitive barrier. Where positive barrier is not indicated, the treatment shown above for Zone-4 may be used after consideration of other applicable factors.

Edge Condition Notes:

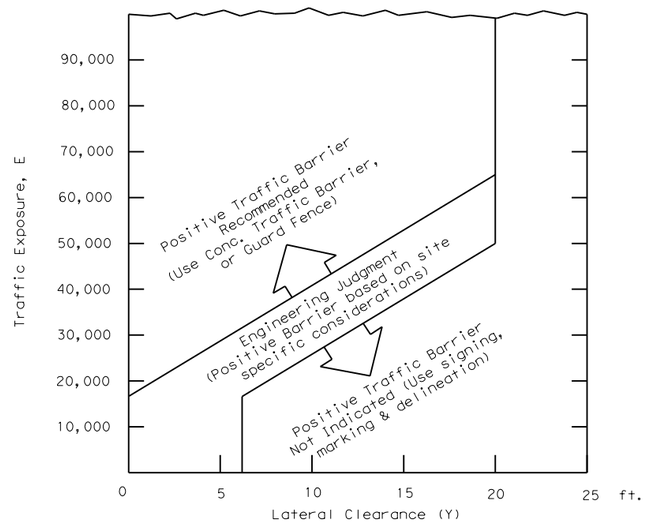
1. Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.

2. Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 to 1) and (1 to 1) so long as "D" does not exceed 5 inches. Under-carriage drag on most automobiles will occur when "D" exceeds 6 inches. As "D" exeeds 24 inches, the possibility for rollover is greater in most vehicles.

3. Edge Condition III: When slopes are greater than (1 to 1) and where "D" is greater than 2 inches, a more difficult control factor may exist for some vehicles, if not properly treated. For example, where "D" is greater than 2 inches and up to 24 inches different types of vehicles may experience different steering control at different edge heights. Automobiles might experience more steering control differential when "D" is greater than 2 inches and up to 5 inches. Trucks, particularly those with high loads, have more steering control differential when "D" is greater than 5 inches and up to 24 inches. When "D" exceeds 24 inches, the possibility of rollover is greater for most vehicles.

4. Milling or overlay operations that result in Edge Condition III should not be in place without appropriate warning treatments, and these conditions should not be left in place for extended periods of time.

FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5 (▨)



1. E = ADT x T
   Where ADT is that portion of the average daily traffic volume traveling within 20 feet (generally two adjacent lanes) of the edge dropoff condition; and, T is the duration time in years of the dropoff condition.

2. Figure-1 provides a practical approach to the use of positive barriers for the protection of vehicles from pavement drop-offs. Other factors, such as the presence of heavy machinery, construction workers, or the mix and volume of traffic may make the use of positive barriers appropriate, even when the edge condition alone may not justify the use of a barrier.

3. An approved end treatment should be provided for any positive barrier end located within the clear zone.

These guidelines apply to temporary traffic control areas or work zones where continuous pavement edges or drop-offs exists parallel and adjacent to a lane used by traffic. The edge conditions may be present between shoulders and travel lanes, between adjacent or opposing travel lanes, or at intermediate points across the width of the paved surface. Due to the variability in construction operations, tolerances in the variables may be allowed by the engineer. These guidelines do not apply to short term operations. These guidelines do not constitute a rigid standard or policy; rather, they are guidance to be used in conjunction with engineering judgement. These guidelines may be updated on the Design Division's on-line manuals.

Engineer's Seal

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

Date 1/31/2024

Texas Department of Transportation

Traffic Safety Division Standard

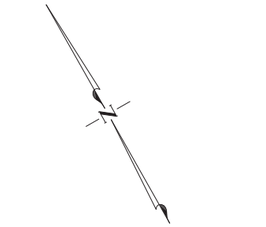
TREATMENT FOR VARIOUS EDGE CONDITIONS

FILE: edgecon.dgn	DN:	CK:	DW:	CK:
©TxDOT August 2000	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
03-01 08-01 9-21	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		93

DATE: 1/31/2024 5:40:36 PM
FILE: c:\pw\khl\d0285615\edgecon-21.dgn

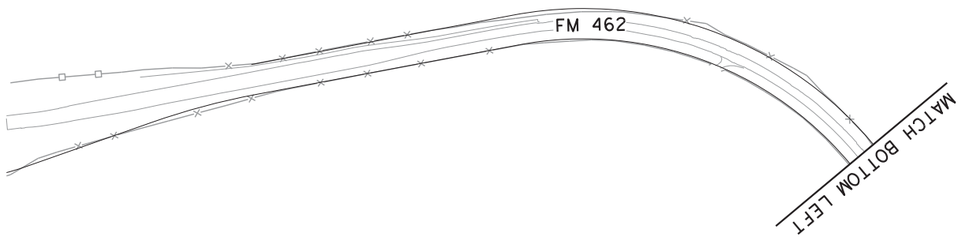
SURVEY CONTROL POINTS - SURFACE COORDINATES				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
14RMT7987860647	13,722,141.82′	1,902,712.14′	1,054.47′	TXDOT ALUMINUM DISK SET IN CONCRETE
14RMT8079858710	13,715,783.88′	1,905,730.72′	1,031.64′	TXDOT ALUMINUM DISK SET IN CONCRETE

SURVEY CONTROL POINTS - GRID COORDINATES				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
14RMT7987860647	13,720,358.17′	1,902,464.82′	1,054.47′	TXDOT ALUMINUM DISK SET IN CONCRETE
14RMT8079858710	13,714,001.06′	1,905,483.00′	1,031.64′	TXDOT ALUMINUM DISK SET IN CONCRETE



SCALE 1" = 200′ 22"X34"
SCALE 1" = 400′ 11"X17"

14RMT7987860647



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I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL DATA SHOWN HEREON WAS DETERMINED BY MULTIPLE GPS OBSERVATIONS (RTN) IN JULY 2023.

10/23/2023

CHRIS I. CONRAD, REG. PROF. LAND SURVEYOR NO. 5623 — DATE

Texas Department of Transportation

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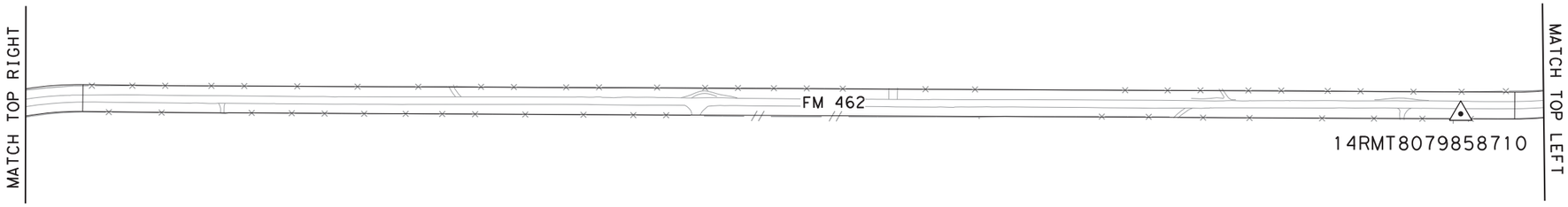


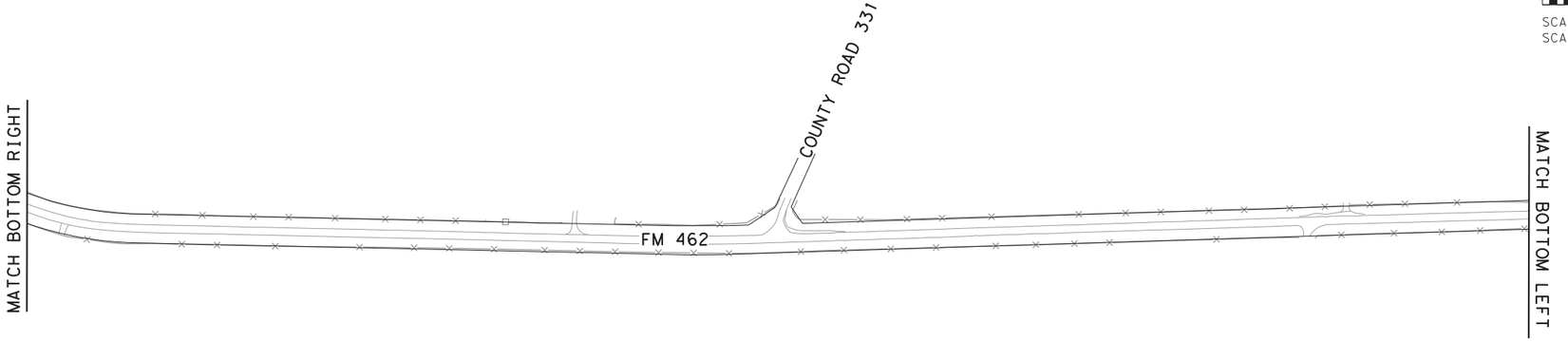
CONTROL INDEX SHEET

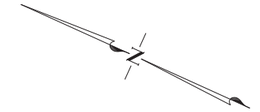
FM 462 FROM 1.7 MI. NORTH OF CR 311 TO CR 433

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET
	TEXAS		1 OF 5
STATE DISTRICT	COUNTY	TXDOT CONTROL-SECTION-JOB NO.	HWY. NO.
15	MEDINA	0848-04-052	FM 462

SURVEY CONTROL POINTS - SURFACE COORDINATES				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
14RMT8154056937	13,709,962.96′	1,908,169.13′	1,009.55′	TXDOT ALUMINUM DISK SET IN CONCRETE

SURVEY CONTROL POINTS - GRID COORDINATES				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
14RMT8154056937	13,708,180.89′	1,907,921.10′	1,009.55′	TXDOT ALUMINUM DISK SET IN CONCRETE





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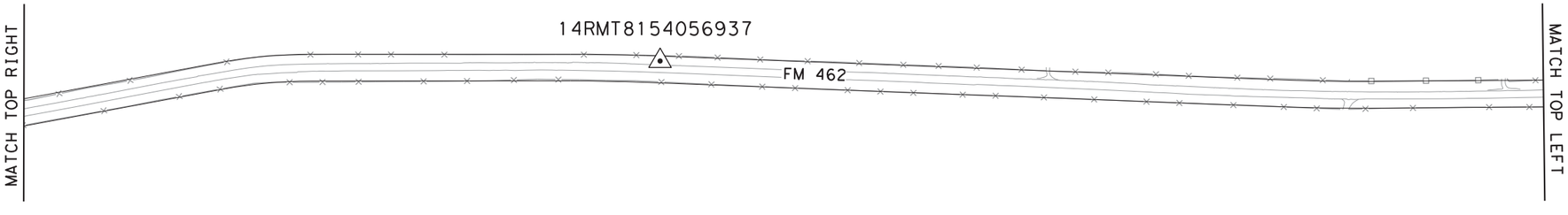

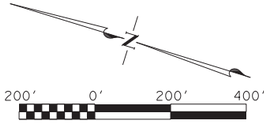

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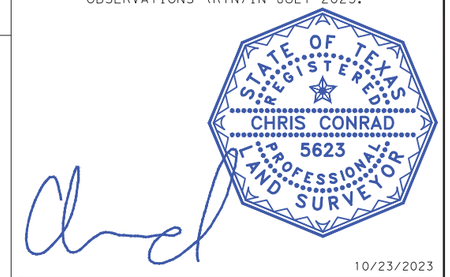

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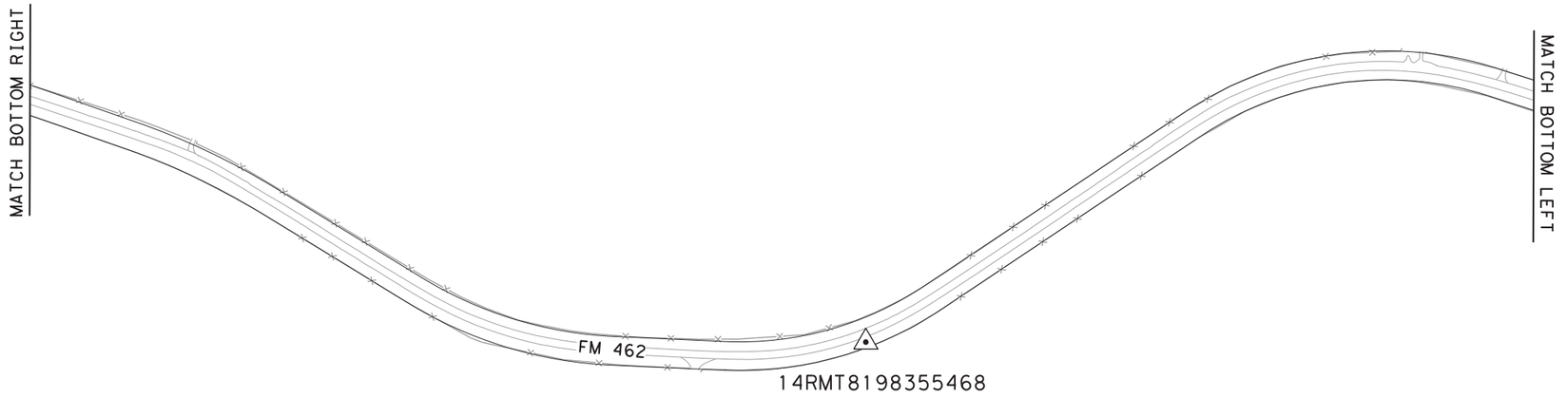
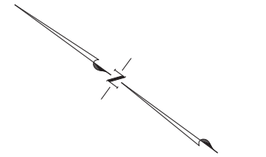
FM 462 FROM 1.7 MI. NORTH OF CR 311 TO CR 433

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET
	TEXAS		2 OF 5
STATE DISTRICT	COUNTY	TXDOT CONTROL-SECTION-JOB NO.	HWY. NO.
15	MEDINA	0848-04-052	FM 462

SURVEY CONTROL POINTS - SURFACE COORDINATES				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
14RMT8198355468	13,705,143.97′	1,909,620.91′	996.64′	TXDOT ALUMINUM DISK SET IN CONCRETE
14RMT8295354053	13,700,496.91′	1,912,802.35′	975.34′	TXDOT ALUMINUM DISK SET IN CONCRETE

SURVEY CONTROL POINTS - GRID COORDINATES				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
14RMT8198355468	13,703,362.53′	1,909,372.69′	996.64′	TXDOT ALUMINUM DISK SET IN CONCRETE
14RMT8295354053	13,698,716.08′	1,912,553.71′	975.34′	TXDOT ALUMINUM DISK SET IN CONCRETE





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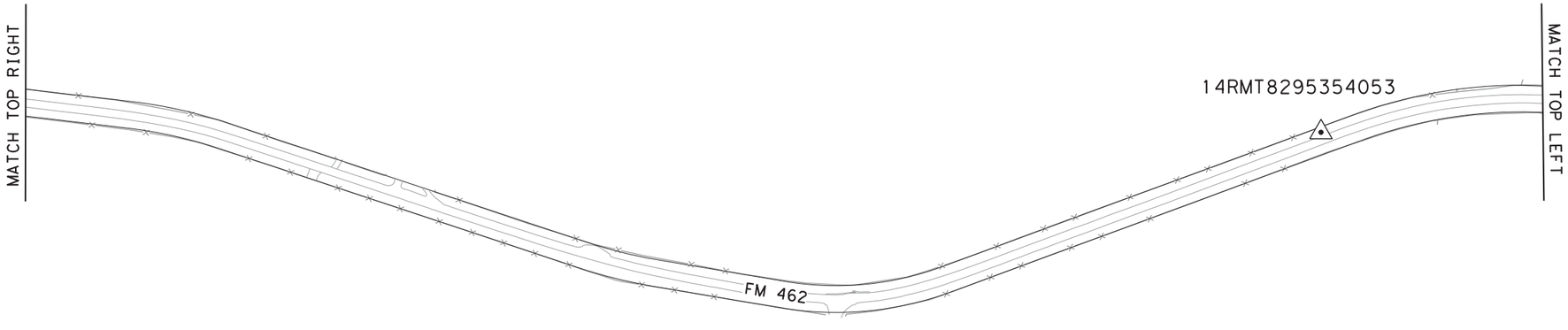

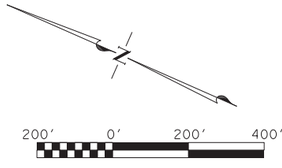

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FM 462 FROM 1.7 MI. NORTH OF CR 311 TO CR 433

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET
	TEXAS		3 OF 5
STATE DISTRICT	COUNTY	TXDOT CONTROL-SECTION-JOB NO.	HWY. NO.
15	MEDINA	0848-04-052	FM 462

SURVEY CONTROL POINTS - SURFACE COORDINATES				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
14RMT8324451942	13,693,568.30′	1,913,761.79′	954.81′	TXDOT ALUMINUM DISK SET IN CONCRETE

SURVEY CONTROL POINTS - GRID COORDINATES				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
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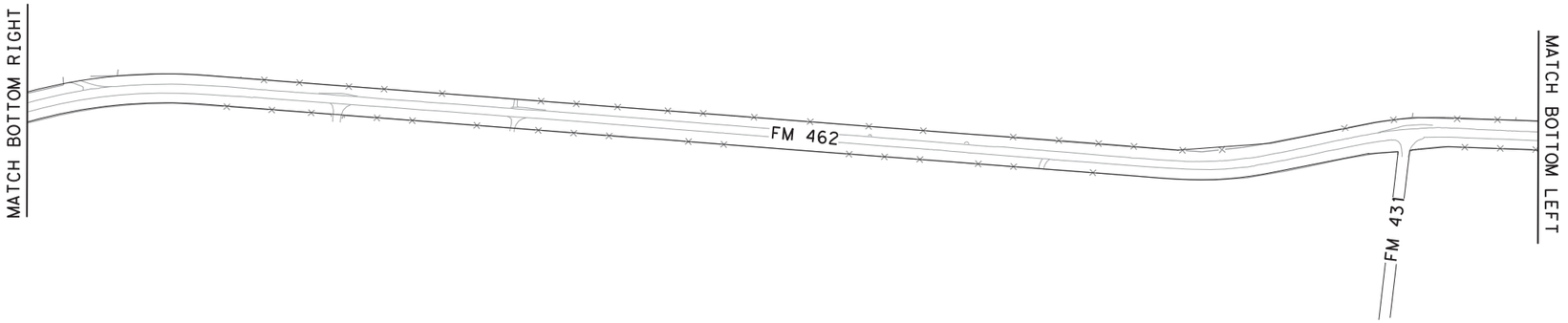

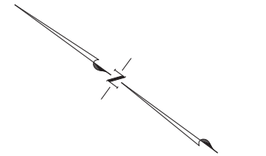

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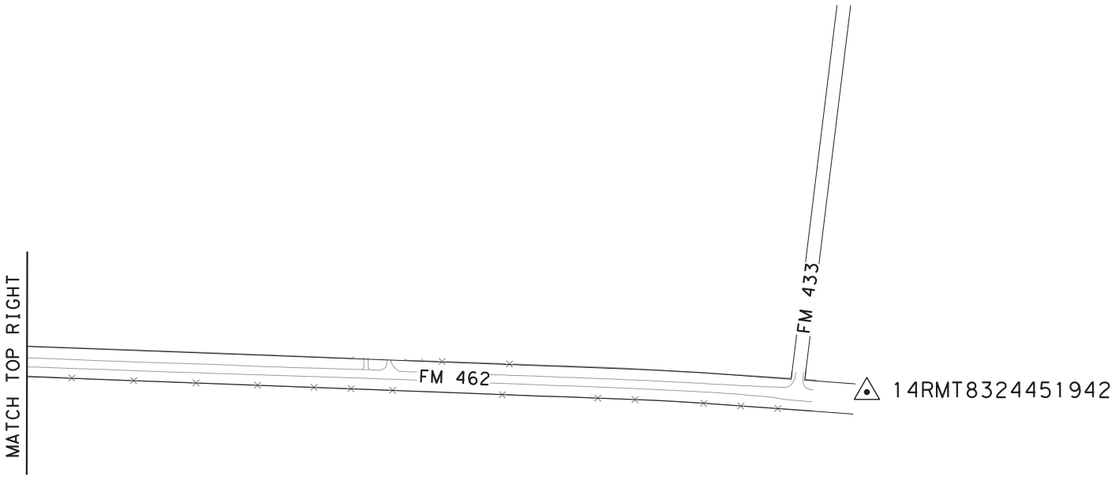

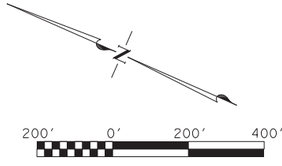

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	TEXAS		4 OF 5
STATE DISTRICT	COUNTY	TXDOT CONTROL-SECTION-JOB NO.	HWY. NO.
15	MEDINA	0848-04-052	FM 462

HORIZONTAL AND VERTICAL CONTROL POINT NO. 14RMT7987860647
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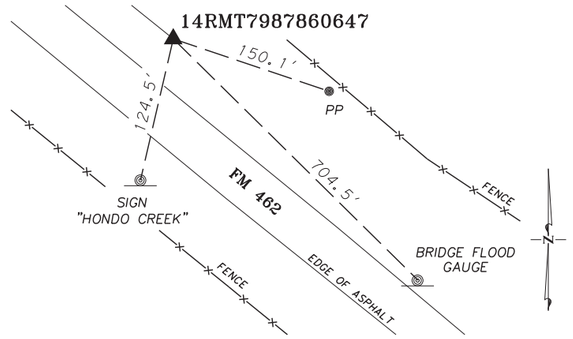
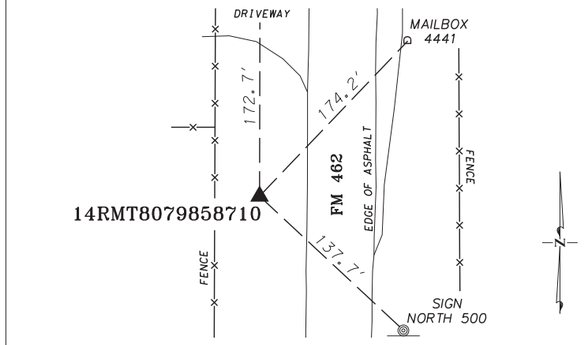


NOT-TO-SCALE

DESCRIPTION: LOCATED ON THE EAST SIDE OF F.M. 462, +/- 5.7 MI. NORTH OF THE INTERSECTION OF F.M. 462 AND CR 431; 124.5′ NORTHEAST OF A SIGN "HONDO CREEK", 704.5′ NORTHWEST OF A BRIDGE FLOOD GAUGE, AND 150.1′ NORTHWEST OF A POWERPOLE.

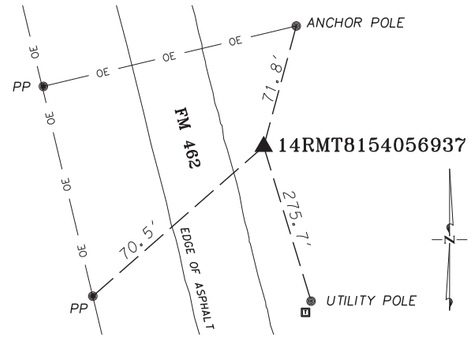
HORIZONTAL AND VERTICAL CONTROL POINT NO. 14RMT8079858710
N= 13,715,783.88′ E= 1,905,730.72′ ELEV.= 1,031.64′



NOT-TO-SCALE

DESCRIPTION: LOCATED ON THE EAST SIDE OF F.M. 462, +/- 4.2 MI. NORTH OF THE INTERSECTION OF F.M. 462 AND CR 431; 137.7′ NORTHWEST OF A SIGN "NORTH 500", 174.2′ SOUTHWEST OF A MAILBOX, AND 172.1′ SOUTH OF A DRIVEWAY.

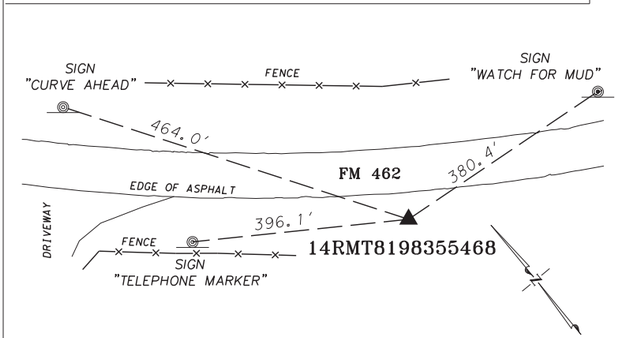
HORIZONTAL AND VERTICAL CONTROL POINT NO. 14RMT8154056937
N= 13,709,962.96′ E= 1,908,169.13′ ELEV.= 1,009.55′



NOT-TO-SCALE

DESCRIPTION: LOCATED ON THE EAST SIDE OF F.M. 462, +/- 2.9 MI. NORTH OF THE INTERSECTION OF F.M. 462 AND CR 431; 71.8′ SOUTHWEST OF A ANCHOR POLE, 70.5′ NORTHEAST OF A POWER POLE, AND 275.7′ NORTHWEST OF A UTILITY POLE.

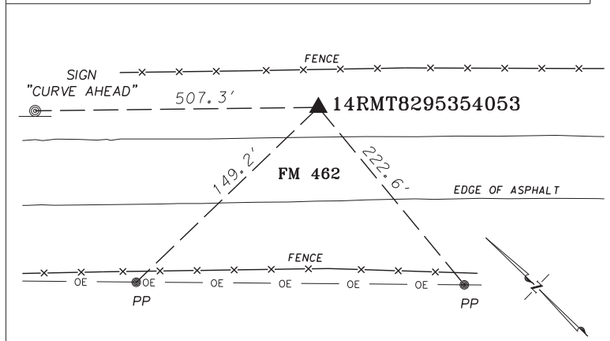
HORIZONTAL AND VERTICAL CONTROL POINT NO. 14RMT8198355468
N= 13,705,143.97′ E= 1,909,620.91′ ELEV.= 996.64′



NOT-TO-SCALE

DESCRIPTION: LOCATED ON THE WEST SIDE OF F.M. 462, +/- 2.0 MI. NORTH OF THE INTERSECTION OF F.M. 462 AND CR 431; 464.0′ SOUTHEAST OF A SIGN "CURVE AHEAD", 380.4′ SOUTHWEST OF A SIGN "WATCH FOR MUD", AND 396.1′ SOUTHEAST OF A TMK.

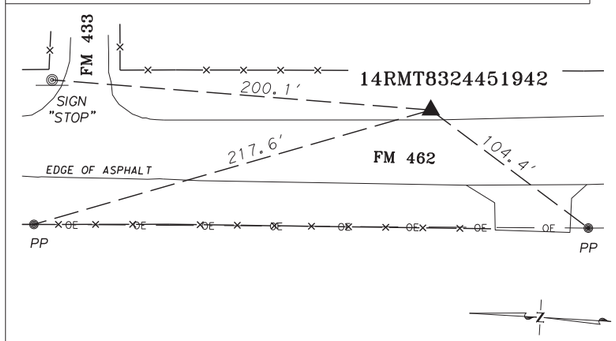
HORIZONTAL AND VERTICAL CONTROL POINT NO. 14RMT8295354053
N= 13,700,496.91′ E= 1,912,802.35′ ELEV.= 975.34′



NOT-TO-SCALE

DESCRIPTION: LOCATED ON THE EAST SIDE OF F.M. 462, +/- 4,500′ NORTH OF THE INTERSECTION OF F.M. 462 AND CR 431; 507.3′ SOUTHEAST OF A SIGN "CURVE AHEAD", 222.6′ NORTHEAST OF A POWER POLE, AND 149.2′ SOUTHEAST OF A POWER POLE.

HORIZONTAL AND VERTICAL CONTROL POINT NO. 14RMT8324451942
N= 13,693,568.30′ E= 1,913,761.79′ ELEV.= 954.81′



NOT-TO-SCALE

DESCRIPTION: LOCATED ON THE WEST SIDE OF F.M. 462, +/- 180.0′ SOUTH OF THE INTERSECTION OF F.M. 462 AND CR 433; 200.1′ SOUTH OF A SIGN "STOP", 217.6′ SOUTHEAST OF A POWER POLE, AND 104.4′ NORTHEAST OF A POWER POLE.

HORIZONTAL & VERTICAL CONTROL SHEET

NOTES:

1. ALL COORDINATES SHOWN HEREON ARE SURFACE COORDINATES AND IN U.S. SURVEY FEET.
2. THIS PROJECT IS REFERENCED, FOR ALL BEARING AND COORDINATE BASIS, TO THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NORTH AMERICAN DATUM OF 1983 (2011) EPOCH 2010.00, GEOID 18.
3. ALL COORDINATES SHOWN HEREON ARE SURFACE COORDINATES AND CAN BE ADJUSTED TO GRID BY DIVIDING BY THE SURFACE ADJUSTMENT FACTOR OF 1.00013.
4. ALL ELEVATIONS SHOWN HEREON ARE NORTH AMERICAN VERTICAL DATUM (NAVD) 88 AND WERE DERIVED FROM GPS OBSERVATIONS.

I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL DATA SHOWN HEREON WAS DETERMINED BY MULTIPLE GPS OBSERVATIONS (RTN) IN JULY 2023.

STATE OF TEXAS
REGISTERED
CHRIS CONRAD
5623
PROFESSIONAL
LAND SURVEYOR

10/23/2023

CHRIS I. CONRAD, REG. PROF. LAND SURVEYOR NO. 5623 — DATE

Texas Department of Transportation

McGRAY & McGRAY
LAND SURVEYORS, INC.
TBPELS SURVEY FIRM # 10095500
3301 HANCOCK DRIVE #6
AUSTIN, TEXAS 78731
(512) 451-8591
www.mcgray.com

FM 462 FROM 1.7 MI. NORTH OF CR 311 TO CR 433

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET
	TEXAS		5 OF 5
STATE DISTRICT	COUNTY	TXDOT CONTROL-SECTION-JOB NO.	HWY. NO.
15	MEDINA	0848-04-052	FM 462

℄ FM 462

Alignment Name: FM462
Alignment Description:
Alignment Style: Alignment\Baseline

	Station	Northing	Easting
Element: Linear			
POT	79450.000 R1	13722016.34	1902820.468
PC	80122.187 R1	13721592.42	1903342.129
Tangential Direction:	S50°54'06.243"E		
Tangential Length:	672.187		
Element: Curve - 1			
PC	80122.187 R1	13721592.42	1903342.129
PI	80529.188 R1	13721335.75	1903657.989
CC		13723427.82	1904833.622
PT	80928.294 R1	13721199.43	1904041.482
Radius:	2365		
Delta:	19°31'45.110" Left		
Degree of Curvature (Arc):	02°25'21.556"		
Length:	806.107		
Tangent:	407.002		
Chord:	802.211		
Middle Ordinate:	34.262		
External:	34.766		
Back Tangent Direction:	S50°54'06.243"E		
Back Radial Direction:	S39°05'53.757"W		
Chord Direction:	S60°39'58.798"E		
Ahead Radial Direction:	S19°34'08.647"W		
Ahead Tangent Direction:	S70°25'51.353"E		
Element: Linear			
PT	80928.294 R1	13721199.43	1904041.482
PC	82094.633 R1	13720808.77	1905140.451
Tangential Direction:	S70°25'51.353"E		
Tangential Length:	1166.339		
Element: Curve - 2			
PC	82094.633 R1	13720808.77	1905140.451
PI	82784.805 R1	13720577.6	1905790.758
CC		13719899.51	1904817.231
PT	83292.888 R1	13719887.48	1905782.156
Radius:	965		
Delta:	71°08'42.161" Right		
Degree of Curvature (Arc):	05°56'14.591"		
Length:	1198.255		
Tangent:	690.172		
Chord:	1122.745		
Middle Ordinate:	180.088		
External:	221.408		
Back Tangent Direction:	S70°25'51.353"E		
Back Radial Direction:	S19°34'08.647"W		
Chord Direction:	S34°51'30.273"E		
Ahead Radial Direction:	N89°17'09.192"W		
Ahead Tangent Direction:	S00°42'50.808"W		
Element: Linear			
PT	83292.888 R1	13719887.48	1905782.156
PC	83908.278 R1	13719272.14	1905774.486
Tangential Direction:	S00°42'50.808"W		
Tangential Length:	615.39		
Element: Curve - 3			
PC	83908.278 R1	13719272.14	1905774.486
PI	83961.975 R1	13719218.45	1905773.817
CC		13719147.51	1915773.71
PT	84015.672 R1	13719164.75	1905773.725
Radius:	10000		
Delta:	00°36'55.145" Left		
Degree of Curvature (Arc):	00°34'22.648"		
Length:	107.393		
Tangent:	53.697		
Chord:	107.393		
Middle Ordinate:	0.144		
External:	0.144		
Back Tangent Direction:	S00°42'50.808"W		
Back Radial Direction:	N89°17'09.192"W		
Chord Direction:	S00°24'23.235"W		
Ahead Radial Direction:	N89°54'04.338"W		
Ahead Tangent Direction:	S00°05'55.662"W		
Element: Linear			
PT	84015.672 R1	13719164.75	1905773.725
PI	84779.378 R1	13718401.04	1905772.408
Tangential Direction:	S00°05'55.662"W		
Tangential Length:	763.707		
Element: Linear			
PI	84779.378 R1	13718401.04	1905772.408
PI	85531.484 R1	13717648.96	1905766.13
Tangential Direction:	S00°28'41.691"W		
Tangential Length:	752.105		

Element: Linear

PI	85531.484 R1	13717648.96	1905766.13
PI	86467.827 R1	13716712.64	1905760.738
Tangential Direction:	S00°19'47.819"W		
Tangential Length:	936.344		

Element: Linear

PI	86467.827 R1	13716712.64	1905760.738
PC	87573.523 R1	13715606.95	1905757.364
Tangential Direction:	S00°10'29.339"W		
Tangential Length:	1105.696		

Element: Curve - 4

PC	87573.523 R1	13715606.95	1905757.364
PI	87763.253 R1	13715417.22	1905756.785
CC		13715604.2	1906657.36
PT	87947.507 R1	13715243.4	1905832.846
Radius:	900		
Delta:	23°48'30.804" Left		
Degree of Curvature (Arc):	06°21'58.312"		
Length:	373.984		
Tangent:	189.73		
Chord:	371.299		
Middle Ordinate:	19.356		
External:	19.781		
Back Tangent Direction:	S00°10'29.339"W		
Back Radial Direction:	N89°49'30.661"W		
Chord Direction:	S11°43'46.063"E		
Ahead Radial Direction:	S66°21'58.535"W		
Ahead Tangent Direction:	S23°38'01.465"E		

Element: Linear

PT	87947.507 R1	13715243.4	1905832.846
PC	89481.917 R1	13713837.69	1906447.973
Tangential Direction:	S23°38'01.465"E		
Tangential Length:	1534.41		

Element: Curve - 5

PC	89481.917 R1	13713837.69	1906447.973
PI	89561.506 R1	13713764.77	1906479.88
CC		13715040.35	1909196.354
PT	89641.058 R1	13713693.65	1906515.608
Radius:	3000		
Delta:	03°02'21.755" Left		
Degree of Curvature (Arc):	01°54'35.494"		
Length:	159.141		
Tangent:	79.589		
Chord:	159.123		
Middle Ordinate:	1.055		
External:	1.056		
Back Tangent Direction:	S23°38'01.465"E		
Back Radial Direction:	S66°21'58.535"W		
Chord Direction:	S25°09'12.342"E		
Ahead Radial Direction:	S63°19'36.780"W		
Ahead Tangent Direction:	S26°40'23.220"E		

Element: Linear

PT	89641.058 R1	13713693.65	1906515.608
PC	92398.775 R1	13711229.41	1907753.546
Tangential Direction:	S26°40'23.220"E		
Tangential Length:	2757.717		

Element: Curve - 6

PC	92398.775 R1	13711229.41	1907753.546
PI	92550.003 R1	13711094.27	1907821.432
CC		13710466.28	1906234.456
PT	92700.437 R1	13710949.28	1907864.399
Radius:	1700		
Delta:	10°10'01.324" Right		
Degree of Curvature (Arc):	03°22'13.224"		
Length:	301.662		
Tangent:	151.228		
Chord:	301.266		
Middle Ordinate:	6.687		
External:	6.713		
Back Tangent Direction:	S26°40'23.220"E		
Back Radial Direction:	S63°19'36.780"W		
Chord Direction:	S21°35'22.558"E		
Ahead Radial Direction:	S73°29'38.104"W		
Ahead Tangent Direction:	S16°30'21.896"E		

Element: Linear

PT	92700.437 R1	13710949.28	1907864.399
PC	93382.900 R1	13710294.94	1908058.298
Tangential Direction:	S16°30'21.896"E		
Tangential Length:	682.463		

Element: Curve - 7

PC	93382.900 R1	13710294.94	1908058.298
PI	93494.948 R1	13710187.51	1908090.133
CC		13708874.35	1903264.35
PT	93606.959 R1	13710078.76	1908117.123
Radius:	5000		
Delta:	02°34'03.105" Right		
Degree of Curvature (Arc):	01°08'45.296"		
Length:	224.059		
Tangent:	112.048		
Chord:	224.04		
Middle Ordinate:	1.255		
External:	1.255		
Back Tangent Direction:	S16°30'21.896"E		
Back Radial Direction:	S73°29'38.104"W		
Chord Direction:	S15°13'20.344"E		
Ahead Radial Direction:	S76°03'41.209"W		
Ahead Tangent Direction:	S13°56'18.791"E		

Element: Linear

PT	93606.959 R1	13710078.76	1908117.123
PC	94956.115 R1	13708769.33	1908442.109
Tangential Direction:	S13°56'18.791"E		
Tangential Length:	1349.156		

Element: Curve - 8

PC	94956.115 R1	13708769.33	1908442.109
PI	95002.201 R1	13708724.6	1908453.211
CC		13706842.28	1900677.672
PT	95048.285 R1	13708679.75	1908463.796
Radius:	8000		
Delta:	00°39'36.443" Right		
Degree of Curvature (Arc):	00°42'58.310"		
Length:	92.171		
Tangent:	46.086		
Chord:	92.17		
Middle Ordinate:	0.133		
External:	0.133		
Back Tangent Direction:	S13°56'18.791"E		
Back Radial Direction:	S76°03'41.209"W		
Chord Direction:	S13°36'30.570"E		
Ahead Radial Direction:	S76°43'17.651"W		
Ahead Tangent Direction:	S13°16'42.349"E		

Element: Linear

PT	95048.285 R1	13708679.75	1908463.796
PC	95318.382 R1	13708416.87	1908525.833
Tangential Direction:	S13°16'42.349"E		
Tangential Length:	270.097		

Element: Curve - 9

PC	95318.382 R1	13708416.87	1908525.833
PI	95811.895 R1	13707936.55	1908639.184
CC		13711402.75	1921178.283
PT	96304.935 R1	13707466.21	1908788.626
Radius:	13000		
Delta:	04°20'53.154" Left		
Degree of Curvature (Arc):	00°26'26.652"		
Length:	986.552		
Tangent:	493.513		
Chord:	986.316		
Middle Ordinate:	9.357		
External:	9.364		
Back Tangent Direction:	S13°16'42.349"E		
Back Radial Direction:	S76°43'17.651"W		
Chord Direction:	S15°27'08.926"E		
Ahead Radial Direction:	S72°22'24.497"W		
Ahead Tangent Direction:	S17°37'35.503"E		

Element: Linear

PT	96304.935 R1	13707466.21	1908788.626
PC	96677.371 R1	13707111.26	1908901.403
Tangential Direction:	S17°37'35.503"E		
Tangential Length:	372.437		

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn
F-928

Texas Department of Transportation

FM 462

HORIZONTAL ALIGNMENT DATA

SHEET 1 OF 3

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		99

DATE: 1/31/2024 2:45:33 PM
FILE: c:\pw\kh1\d0285597\FM462_TEXT_HAD.dgn

Element: Curve - 10			
PC	96677.371 R1	13707111.26	1908901.403
PI	96849.974 R1	13706946.76	1908953.669
CC		13706672.18	1907519.48
PT	97020.959 R1	13706774.59	1908965.859
Radius:	1450		
Delta:	13°34'35.968" Right		
Degree of Curvature (Arc):	03°57'05.159"		
Length:	343.588		
Tangent:	172.602		
Chord:	342.785		
Middle Ordinate:	10.165		
External:	10.237		
Back Tangent Direction:	S17°37'35.503"E		
Back Radial Direction:	S72°22'24.497"W		
Chord Direction:	S10°50'17.519"E		
Ahead Radial Direction:	S85°57'00.465"W		
Ahead Tangent Direction:	S04°02'59.535"E		

Element: Linear			
PT	97020.959 R1	13706774.59	1908965.859
PC	97551.491 R1	13706245.38	1909003.328
Tangential Direction:	S04°02'59.535"E		
Tangential Length:	530.531		

Element: Curve - 11			
PC	97551.491 R1	13706245.38	1909003.328
PI	97835.497 R1	13705962.08	1909023.386
CC		13706323.77	1910110.556
PT	98107.573 R1	13705723.23	1909177.041
Radius:	1110		
Delta:	28°42'13.428" Left		
Degree of Curvature (Arc):	05°09'42.415"		
Length:	556.082		
Tangent:	284.006		
Chord:	550.285		
Middle Ordinate:	34.641		
External:	35.757		
Back Tangent Direction:	S04°02'59.535"E		
Back Radial Direction:	S85°57'00.465"W		
Chord Direction:	S18°24'06.249"E		
Ahead Radial Direction:	S57°14'47.037"W		
Ahead Tangent Direction:	S32°45'12.963"E		

Element: Linear			
PT	98107.573 R1	13705723.23	1909177.041
PC	98435.364 R1	13705447.56	1909354.385
Tangential Direction:	S32°45'12.963"E		
Tangential Length:	327.792		

Element: Curve - 12			
PC	98435.364 R1	13705447.56	1909354.385
PI	98763.152 R1	13705171.89	1909531.727
CC		13705975.06	1910174.365
PT	99067.792 R1	13705059.34	1909839.587
Radius:	975		
Delta:	37°09'52.324" Left		
Degree of Curvature (Arc):	05°52'35.365"		
Length:	632.427		
Tangent:	327.788		
Chord:	621.399		
Middle Ordinate:	50.83		
External:	53.625		
Back Tangent Direction:	S32°45'12.963"E		
Back Radial Direction:	S57°14'47.037"W		
Chord Direction:	S51°20'09.125"E		
Ahead Radial Direction:	S20°04'54.713"W		
Ahead Tangent Direction:	S69°55'05.287"E		

Element: Linear			
PT	99067.792 R1	13705059.34	1909839.587
PC	99909.288 R1	13704770.4	1910629.922
Tangential Direction:	S69°55'05.287"E		
Tangential Length:	841.496		

Element: Curve - 13			
PC	99909.288 R1	13704770.4	1910629.922
PI	100389.783 R1	13704605.42	1911081.204
CC		13703845.28	1910291.71
PT	100803.372 R1	13704148.21	1911228.974
Radius:	985		
Delta:	52°00'26.346" Right		
Degree of Curvature (Arc):	05°49'00.589"		
Length:	894.083		
Tangent:	480.494		
Chord:	863.704		
Middle Ordinate:	99.715		
External:	110.947		
Back Tangent Direction:	S69°55'05.287"E		
Back Radial Direction:	S20°04'54.713"W		
Chord Direction:	S43°54'52.114"E		
Ahead Radial Direction:	S72°05'21.059"W		
Ahead Tangent Direction:	S17°54'38.941"E		

Element: Linear			
PT	100803.372 R1	13704148.21	1911228.974
PC	101198.607 R1	13703772.13	1911350.523
Tangential Direction:	S17°54'38.941"E		
Tangential Length:	395.235		

Element: Curve - 14			
PC	101198.607 R1	13703772.13	1911350.523
PI	101385.599 R1	13703594.2	1911408.03
CC		13703203.18	1909590.181
PT	101571.326 R1	13703408.36	1911428.768
Radius:	1850		
Delta:	11°32'36.151" Right		
Degree of Curvature (Arc):	03°05'49.449"		
Length:	372.719		
Tangent:	186.993		
Chord:	372.089		
Middle Ordinate:	9.379		
External:	9.426		
Back Tangent Direction:	S17°54'38.941"E		
Back Radial Direction:	S72°05'21.059"W		
Chord Direction:	S12°08'20.865"E		
Ahead Radial Direction:	S83°37'57.210"W		
Ahead Tangent Direction:	S06°22'02.790"E		

Element: Linear			
PT	101571.326 R1	13703408.36	1911428.768
PC	102469.321 R1	13702515.9	1911528.36
Tangential Direction:	S06°22'02.790"E		
Tangential Length:	897.995		

Element: Curve - 15			
PC	102469.321 R1	13702515.9	1911528.36
PI	102741.756 R1	13702245.15	1911558.574
CC		13702937.34	1915304.918
PT	103013.261 R1	13701981.47	1911627.103
Radius:	3800		
Delta:	08°12'05.182" Left		
Degree of Curvature (Arc):	01°30'28.021"		
Length:	543.94		
Tangent:	272.435		
Chord:	543.476		
Middle Ordinate:	9.728		
External:	9.753		
Back Tangent Direction:	S06°22'02.790"E		
Back Radial Direction:	S83°37'57.210"W		
Chord Direction:	S10°28'05.381"E		
Ahead Radial Direction:	S75°25'52.028"W		
Ahead Tangent Direction:	S14°34'07.972"E		

Element: Linear			
PT	103013.261 R1	13701981.47	1911627.103
PC	103219.335 R1	13701782.02	1911678.94
Tangential Direction:	S14°34'07.972"E		
Tangential Length:	206.074		

Element: Curve - 16			
PC	103219.335 R1	13701782.02	1911678.94
PI	103501.066 R1	13701509.35	1911749.808
CC		13702041.11	1912675.821
PT	103769.344 R1	13701310.71	1911949.592
Radius:	1030		
Delta:	30°35'43.341" Left		
Degree of Curvature (Arc):	05°33'45.709"		
Length:	550.01		
Tangent:	281.731		
Chord:	543.498		
Middle Ordinate:	36.495		
External:	37.835		
Back Tangent Direction:	S14°34'07.972"E		
Back Radial Direction:	S75°25'52.028"W		
Chord Direction:	S29°51'59.642"E		
Ahead Radial Direction:	S44°50'08.688"W		
Ahead Tangent Direction:	S45°09'51.312"E		

Element: Linear			
PT	103769.344 R1	13701310.71	1911949.592
PC	105035.505 R1	13700417.97	1912847.466
Tangential Direction:	S45°09'51.312"E		
Tangential Length:	1266.161		

Element: Curve - 17			
PC	105035.505 R1	13700417.97	1912847.466
PI	105607.216 R1	13700014.87	1913252.883
CC		13699382.64	1911818.054
PT	106125.334 R1	13699443.66	1913276.778
Radius:	1460		
Delta:	42°46'07.979" Right		
Degree of Curvature (Arc):	03°55'27.726"		
Length:	1089.828		
Tangent:	571.71		
Chord:	1064.702		
Middle Ordinate:	100.514		
External:	107.945		
Back Tangent Direction:	S45°09'51.312"E		
Back Radial Direction:	S44°50'08.688"W		
Chord Direction:	S23°46'47.323"E		
Ahead Radial Direction:	S87°36'16.666"W		
Ahead Tangent Direction:	S02°23'43.334"E		

Element: Linear			
PT	106125.334 R1	13699443.66	1913276.778
PI	107395.751 R1	13698174.35	1913329.875
Tangential Direction:	S02°23'43.334"E		
Tangential Length:	1270.417		

Element: Linear			
PI	107395.751 R1	13698174.35	1913329.875
PI	108204.446 R1	13697366.19	1913359.369
Tangential Direction:	S02°05'24.422"E		
Tangential Length:	808.695		

Element: Linear			
PI	108204.446 R1	13697366.19	1913359.369
PC	108794.590 R1	13696776.52	1913382.84
Tangential Direction:	S02°16'45.598"E		
Tangential Length:	590.144		

Element: Curve - 18			
PC	108794.590 R1	13696776.52	1913382.84
PI	108936.171 R1	13696635.05	1913388.471
CC		13696816.29	1914382.049
PT	109075.882 R1	13696500.7	1913433.152
Radius:	1000		
Delta:	16°07'00.754" Left		
Degree of Curvature (Arc):	05°43'46.481"		
Length:	281.293		
Tangent:	141.581		
Chord:	280.366		
Middle Ordinate:	9.874		
External:	9.973		
Back Tangent Direction:	S02°16'45.598"E		
Back Radial Direction:	S87°43'14.402"W		
Chord Direction:	S10°20'15.975"E		
Ahead Radial Direction:	S71°36'13.647"W		
Ahead Tangent Direction:	S18°23'46.353"E		

Element: Linear			
PT	109075.882 R1	13696500.7	1913433.152
PC	109302.491 R1	13696285.67	1913504.667
Tangential Direction:	S18°23'46.353"E		
Tangential Length:	226.609		

Element: Curve - 19			
PC	109302.491 R1	13696285.67	1913504.667
PI	109447.653 R1	13696147.93	1913550.478
CC		13695906.97	1912365.99
PT	109591.412 R1	13696003.24	1913562.123
Radius:	1200		
Delta:	13°47'41.821" Right		
Degree of Curvature (Arc):	04°46'28.734"		
Length:	288.921		
Tangent:	145.162		
Chord:	288.223		
Middle Ordinate:	8.685		
External:	8.748		
Back Tangent Direction:	S18°23'46.353"E		
Back Radial Direction:	S71°36'13.647"W		
Chord Direction:	S11°29'55.442"E		
Ahead Radial Direction:	S85°23'55.468"W		
Ahead Tangent Direction:	S04°36'04.532"E		

Element: Linear			
PT	109591.412 R1	13696003.24	1913562.123
PI	110261.460 R1	13695335.35	1913615.875
Tangential Direction:	S04°36'04.532"E		
Tangential Length:	670.048		

Element: Linear			
PI	110261.460 R1	13695335.35	1913615.875
PI	110636.637 R1	13694961.5	1913647.409
Tangential Direction:	S04°49'17.187"E		
Tangential Length:	375.178		

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
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PROFESSIONAL ENGINEER

Kimley»Horn
F-928

Texas Department of Transportation

FM 462

HORIZONTAL ALIGNMENT DATA

SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		100

DATE: 1/31/2024 2:45:34 PM
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Element: Linear			
PI			*110636.637 R1*
PC			*111406.606 R1*
Tangential Direction:	*S04°34'37.849"E*		
Tangential Length:	*769.969*		
Element: Curve - 20			
PC	*111406.606 R1*	*13694193.98*	*1913708.854*
PI	*111556.568 R1*	*13694044.5*	*1913720.821*
CC		*13693555.57*	*1905734.368*
PT	*111706.495 R1*	*13693894.67*	*1913727.177*
Radius:	*8000*		
Delta:	*02°08'52.047" Right*		
Degree of Curvature (Arc):	*00°42'58.310"*		
Length:	*299.888*		
Tangent:	*149.962*		
Chord:	*299.871*		
Middle Ordinate:	*1.405*		
External:	*1.405*		
Back Tangent Direction:	*S04°34'37.849"E*		
Back Radial Direction:	*S85°25'22.151"W*		
Chord Direction:	*S03°30'11.826"E*		
Ahead Radial Direction:	*S87°34'14.198"W*		
Ahead Tangent Direction:	*S02°25'45.802"E*		
Element: Linear			
PT	*111706.495 R1*	*13693894.67*	*1913727.177*
PC	*112001.755 R1*	*13693599.68*	*1913739.693*
Tangential Direction:	*S02°25'45.802"E*		
Tangential Length:	*295.26*		
Element: Curve - 21			
PC	*112001.755 R1*	*13693599.68*	*1913739.693*
PI	*112098.663 R1*	*13693502.86*	*1913743.801*
CC		*13693811.62*	*1918735.199*
PT	*112195.546 R1*	*13693406.27*	*1913751.657*
Radius:	*5000*		
Delta:	*02°13'14.489" Left*		
Degree of Curvature (Arc):	*01°08'45.296"*		
Length:	*193.792*		
Tangent:	*96.908*		
Chord:	*193.78*		
Middle Ordinate:	*0.939*		
External:	*0.939*		
Back Tangent Direction:	*S02°25'45.802"E*		
Back Radial Direction:	*S87°34'14.198"W*		
Chord Direction:	*S03°32'23.046"E*		
Ahead Radial Direction:	*S85°20'59.709"W*		
Ahead Tangent Direction:	*S04°39'00.291"E*		
Element: Linear			
PT	*112195.546 R1*	*13693406.27*	*1913751.657*
POT	*114199.986 R1*	*13691408.43*	*1913914.157*
Tangential Direction:	*S04°39'00.291"E*		
Tangential Length:	*2004.44*		

℄ CR 331

Alignment Name: CR 331
Alignment Description:
Alignment Style: Alignment\Baseline

	Station	*Northing*	*Easting*
Element: Linear			
POT	*900.000 R1*	*13713601.74*	*1906561.783*
PC	*916.592 R1*	*13713609.18*	*1906576.609*
Tangential Direction:	*N63°19'36.780"E*		
Tangential Length:	*16.592*		
Element: Curve - 1			
PC	*916.592 R1*	*13713609.18*	*1906576.609*
PI	*949.742 R1*	*13713624.07*	*1906606.231*
CC		*13713475.15*	*1906643.944*
PT	*981.842 R1*	*13713625.08*	*1906639.365*
Radius:	*150*		
Delta:	*24°55'25.499" Right*		
Degree of Curvature (Arc):	*38°11'49.871"*		
Length:	*65.25*		
Tangent:	*33.149*		
Chord:	*64.737*		
Middle Ordinate:	*3.534*		
External:	*3.619*		
Back Tangent Direction:	*N63°19'36.780"E*		
Back Radial Direction:	*S26°40'23.220"E*		
Chord Direction:	*N75°47'19.529"E*		
Ahead Radial Direction:	*S01°44'57.721"E*		
Ahead Tangent Direction:	*N88°15'02.279"E*		
Element: Linear			
PT	*981.842 R1*	*13713625.08*	*1906639.365*
POT	*1000.027 R1*	*13713625.63*	*1906657.541*
Tangential Direction:	*N88°15'02.279"E*		
Tangential Length:	*18.184*		

℄ CR 431

Alignment Name: CR 431
Alignment Description:
Alignment Style: Alignment\Baseline

	Station	*Northing*	*Easting*
Element: Linear			
POT	*900.000 R1*	*13696139.89*	*1913343.368*
POT	*1100.000 R1*	*13696138.89*	*1913543.365*
Tangential Direction:	*S89°42'55.384"E*		
Tangential Length:	*200*		

1/31/2024

STATE OF TEXAS
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FM 462

HORIZONTAL ALIGNMENT DATA

SHEET 3 OF 3

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		101

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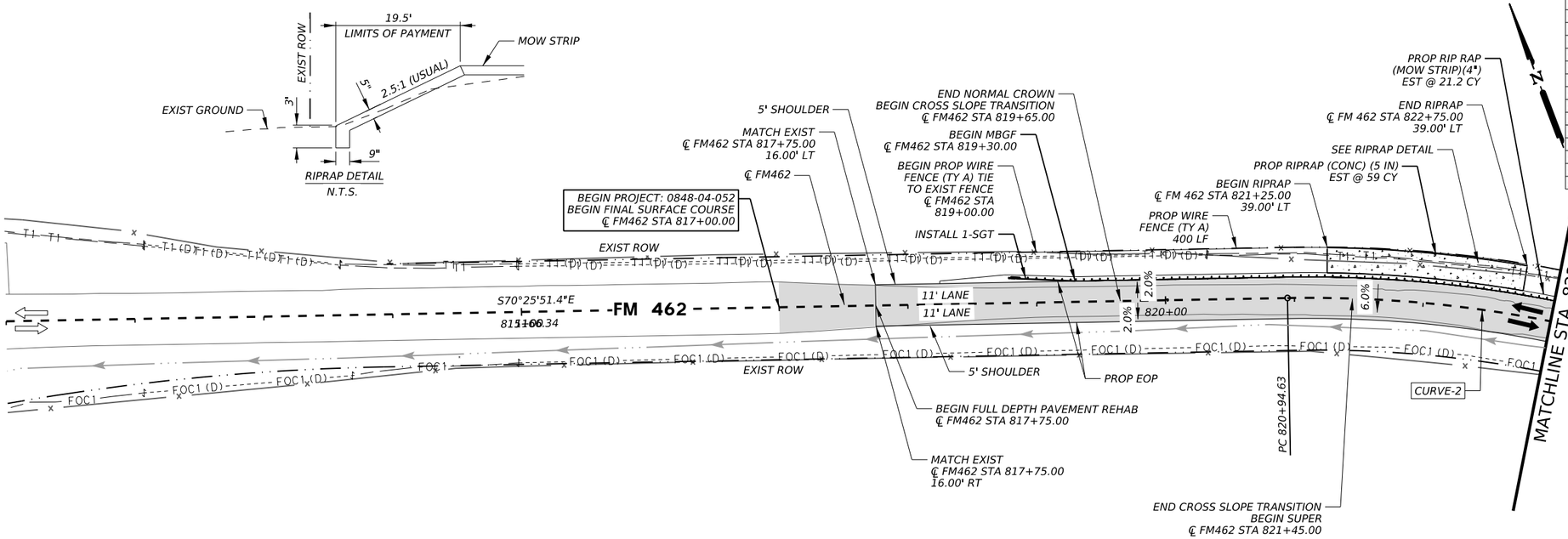


ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	6
0110 6001	EXCAVATION (ROADWAY)	CY	157
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	142
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	294
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	12
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	1974
0275 6001	CEMENT	TON	17
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	987
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	987
0316 6029	ASPH (RC-250)	#SY	1867
0316 6414	AGGR (TY-B GR-5)	#SY	1867
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	2169
0316 6431*	AGGR (TY-PB GR-4)	#SY	2169
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	2169
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	2169
0432 6002	RIPRAP (CONC)(5 IN)	CY	59
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	21.2
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	370
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	1
0552 6001	WIRE FENCE (TY A)	LF	300

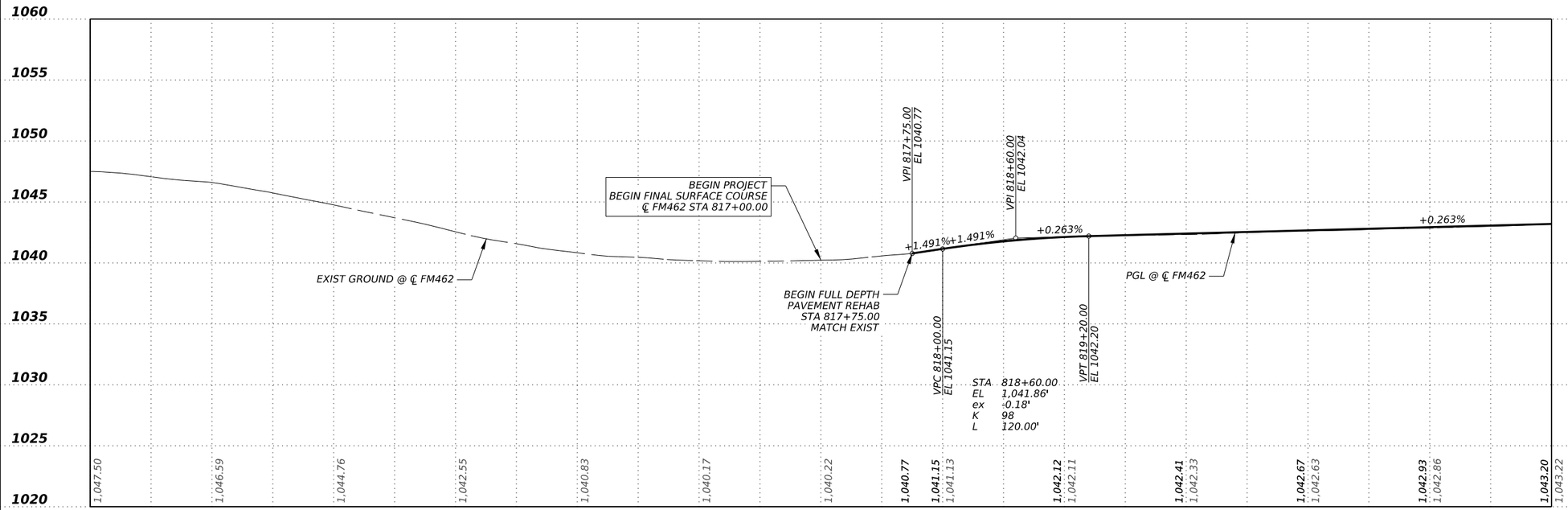
* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC / OH AT&T TELE / OH AT&T FO

NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY AND INTERSECTION PLAN AND PROFILE SHEETS FOR MORE INFORMATION.
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



DAVID H. GUTIERREZ
143301
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

1/31/2024

0' 50' 100'
0' 5' 10'

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FM 462

ROADWAY PLAN AND PROFILE

SHEET 1 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		102

DATE: 1/31/2024 6:48:41 PM
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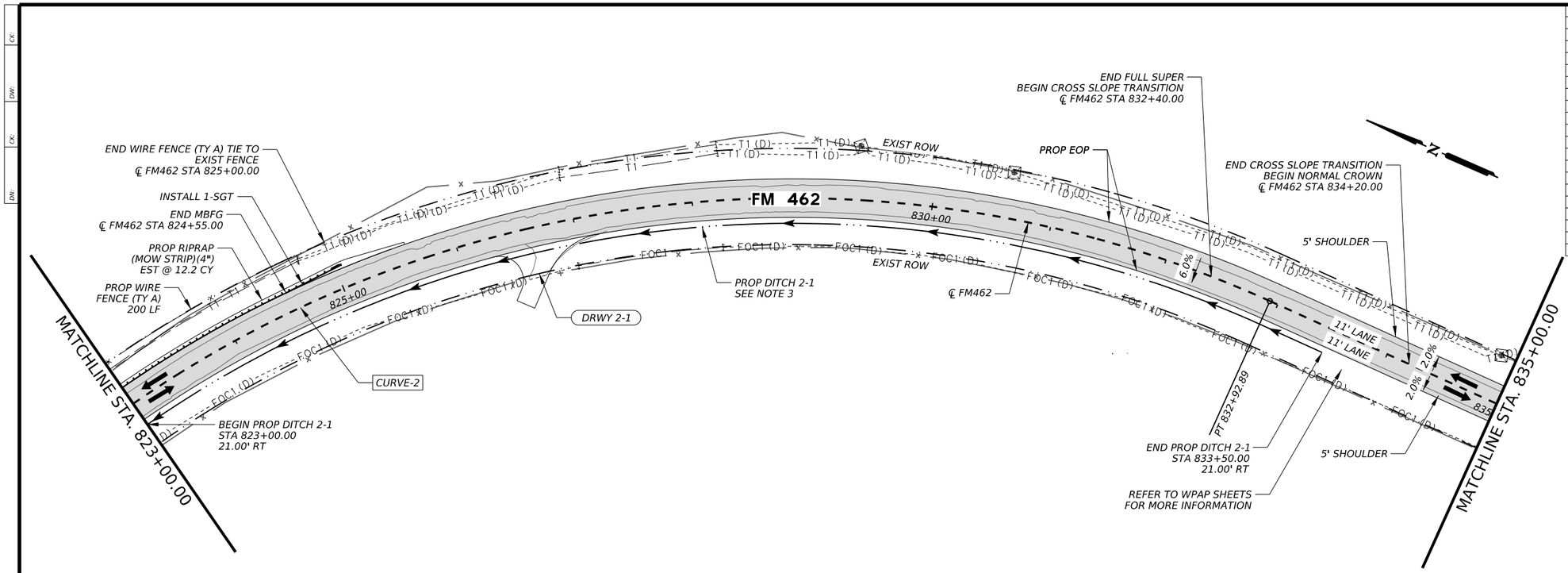

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	755
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	274
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	671
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	82
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4512
0275 6001	CEMENT	TON	39
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2256
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2256
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	12.2
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	155
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	1
0552 6001	WIRE FENCE (TY A)	LF	200

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~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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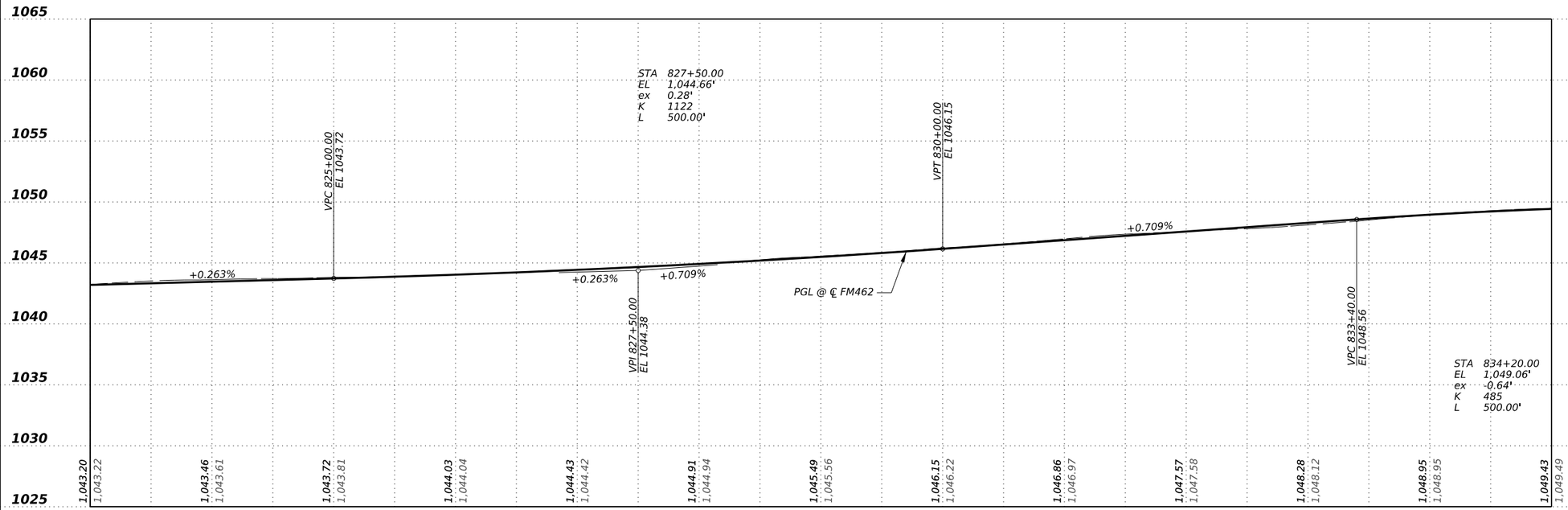

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY
PLAN AND PROFILE

SHEET 2 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		103

DATE: 1/31/2024 6:48:42 PM
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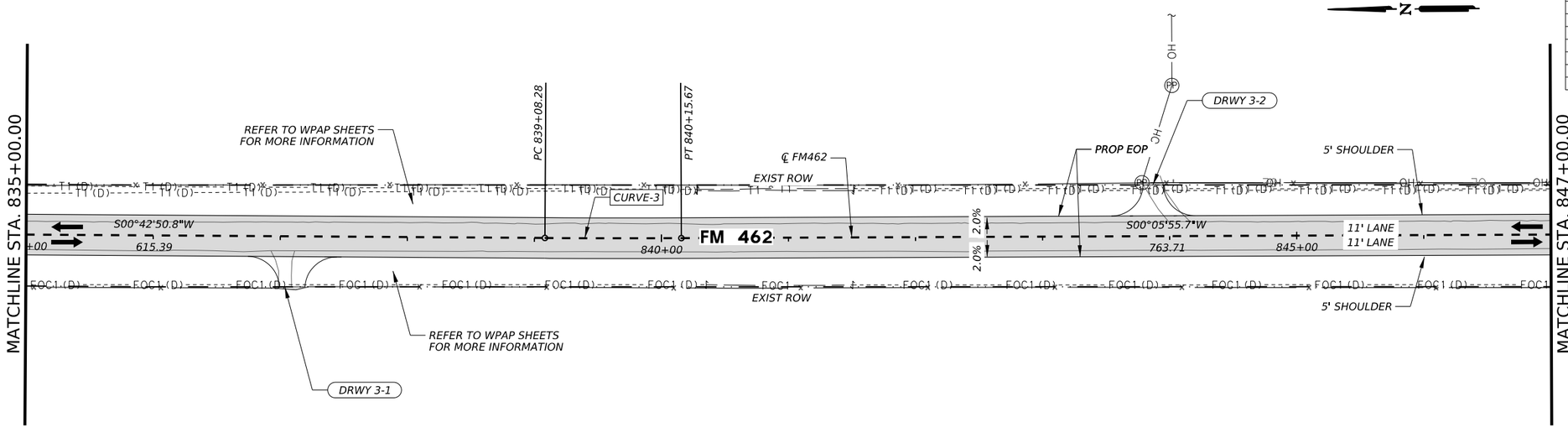
ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	615
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	350
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	671
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4512
0275 6001	CEMENT	TON	39
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4512
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC; OH AT&T TELE; OH AT&T FO

NOTES:

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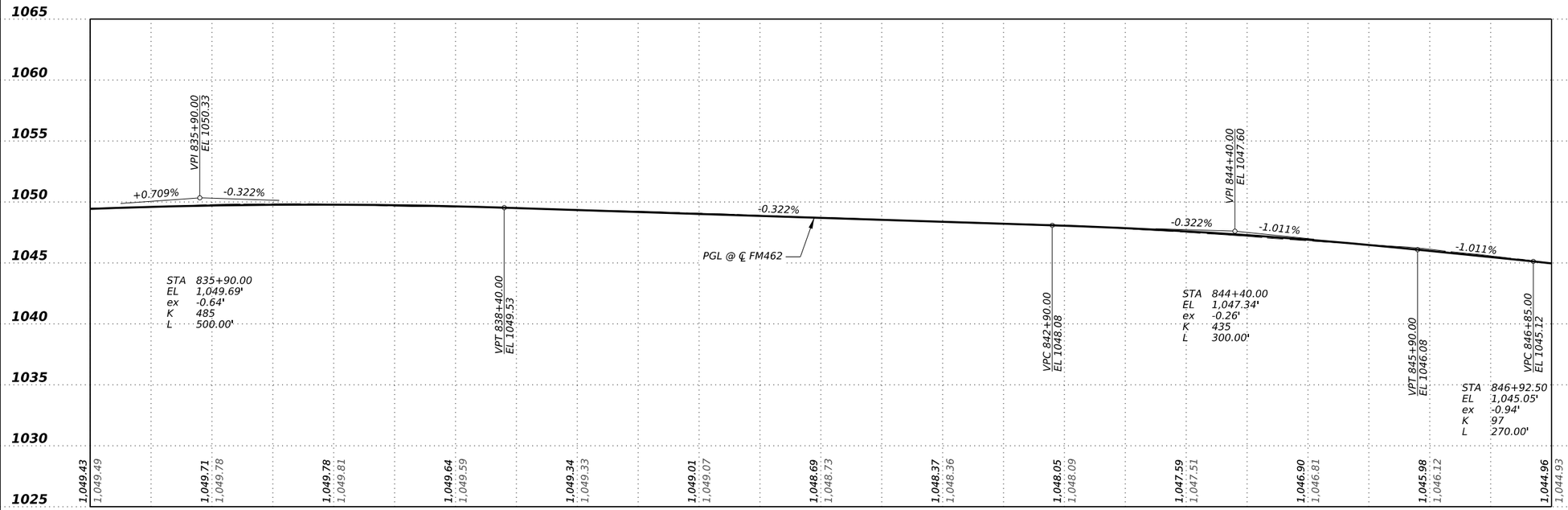

1/31/2024

0' 50' 100'
0' 5' 10'

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Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

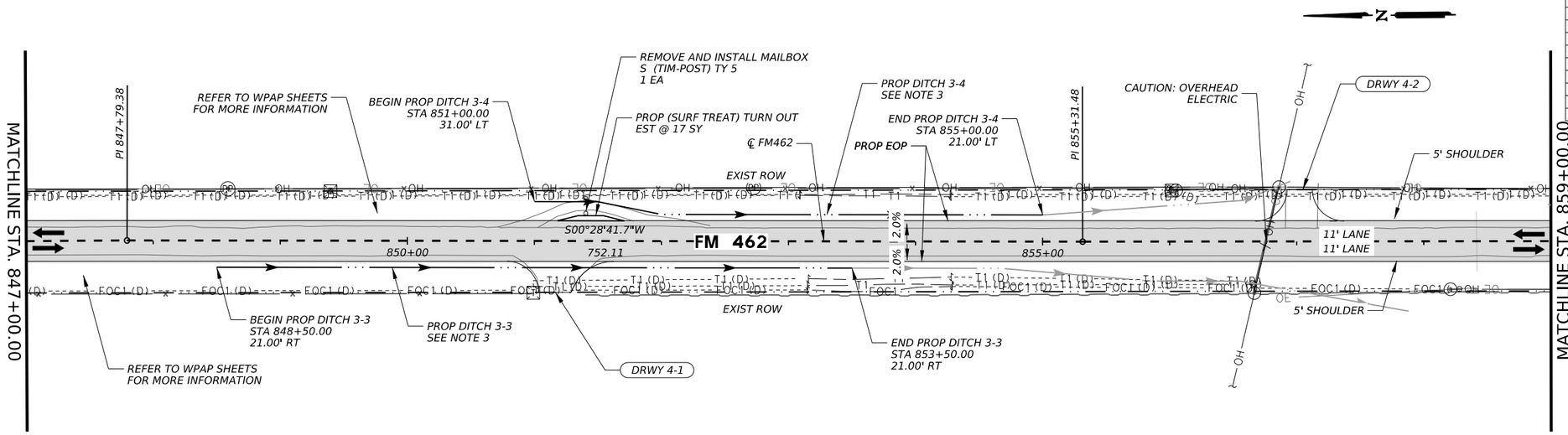
SHEET 3 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		104

DATE: 1/31/2024 2:46:08 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	788
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	113
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	671
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	45
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4512
0275 6001	CEMENT	TON	39
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2256
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2256
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0530 6009	TURNOUTS (SURF TREAT)	SY	17
0560 6015	MAILBOX INSTALL-S (TIM-POST) TY 5	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC; OH AT&T TELE; OH AT&T FO

NOTES:

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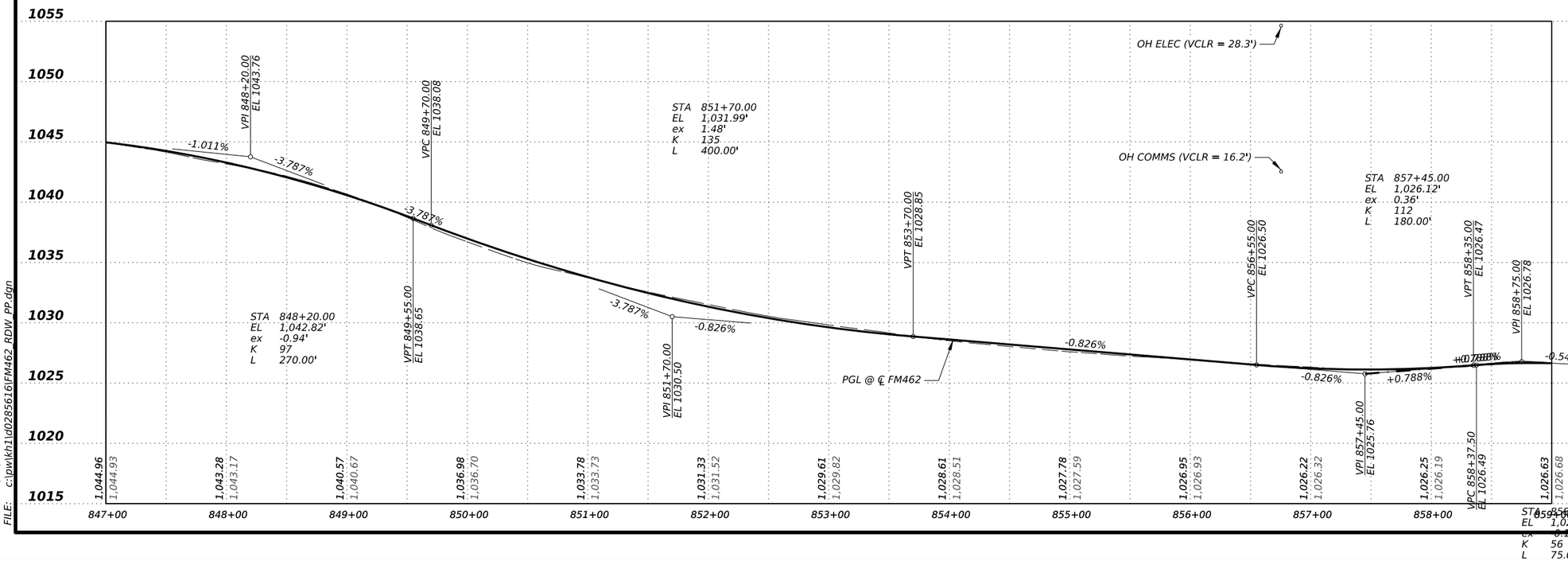

1/31/2024

0' 50' 100'
0' 5' 10'

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Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

SHEET 4 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		105

DATE: 1/31/2024 2:46:08 PM
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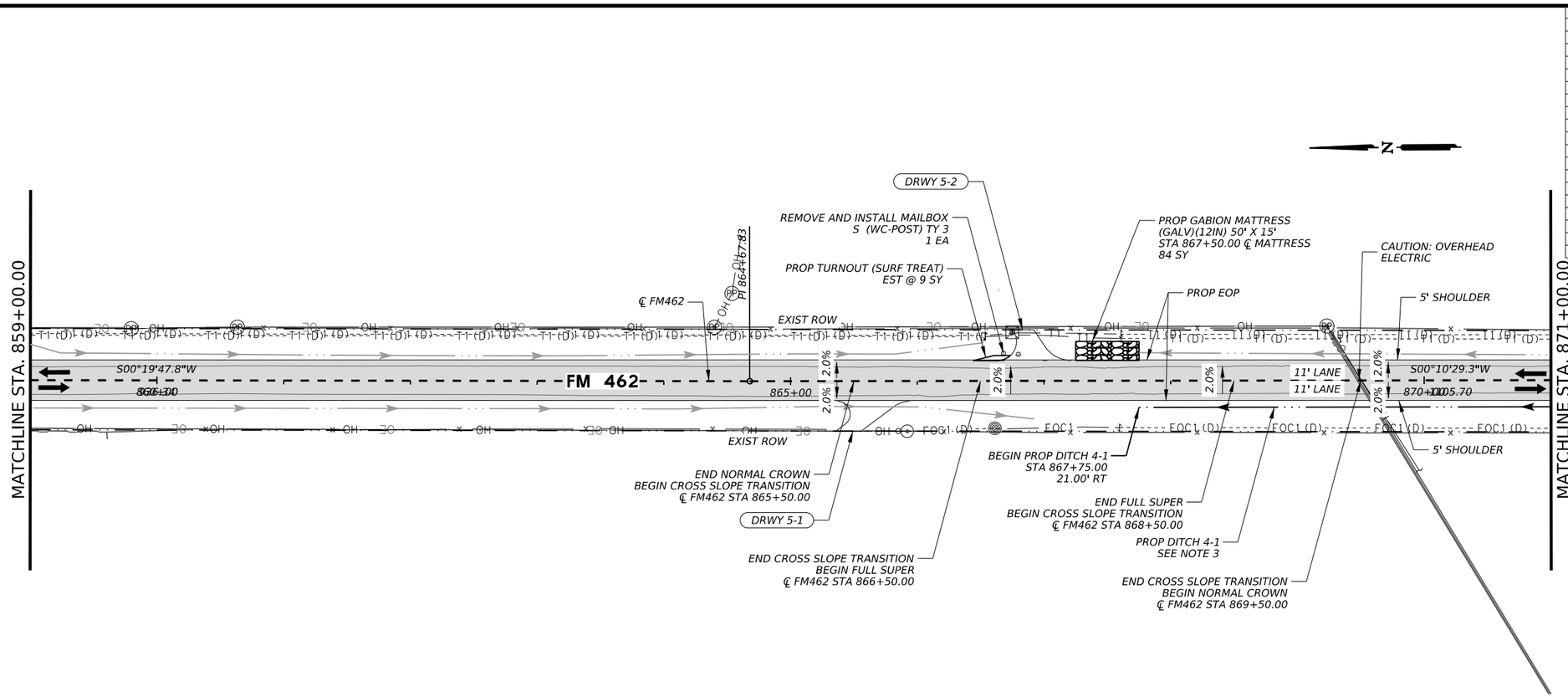
CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	584
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	32
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	671
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	45
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4512
0275 6001	CEMENT	TON	39
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2256
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2256
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0459 6007	GABION MATTRESSES (GALV)(12 IN)	SY	84
0530 6009	TURNOUTS (SURF TREAT)	SY	9
0560 6007	MAILBOX INSTALL-S (WC-POST) TY 3	EA	1



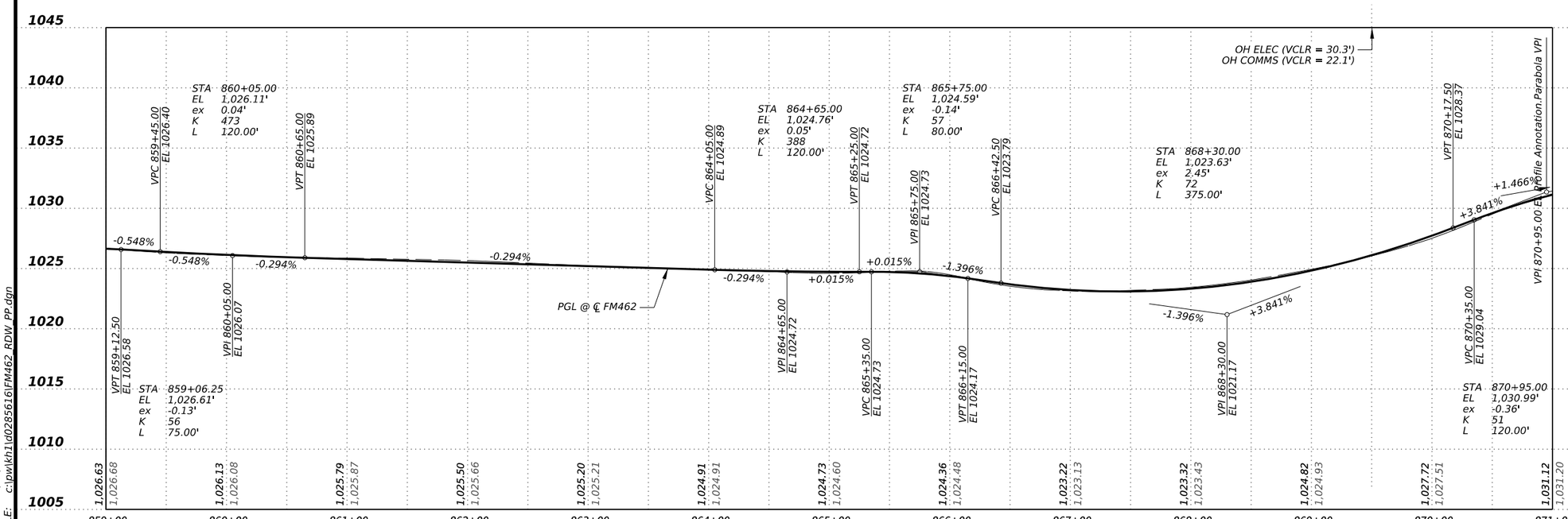
* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC / OH AT&T TELE / OH AT&T FO

NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY AND INTERSECTION PLAN AND PROFILE SHEETS FOR MORE INFORMATION.
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY
PLAN AND PROFILE

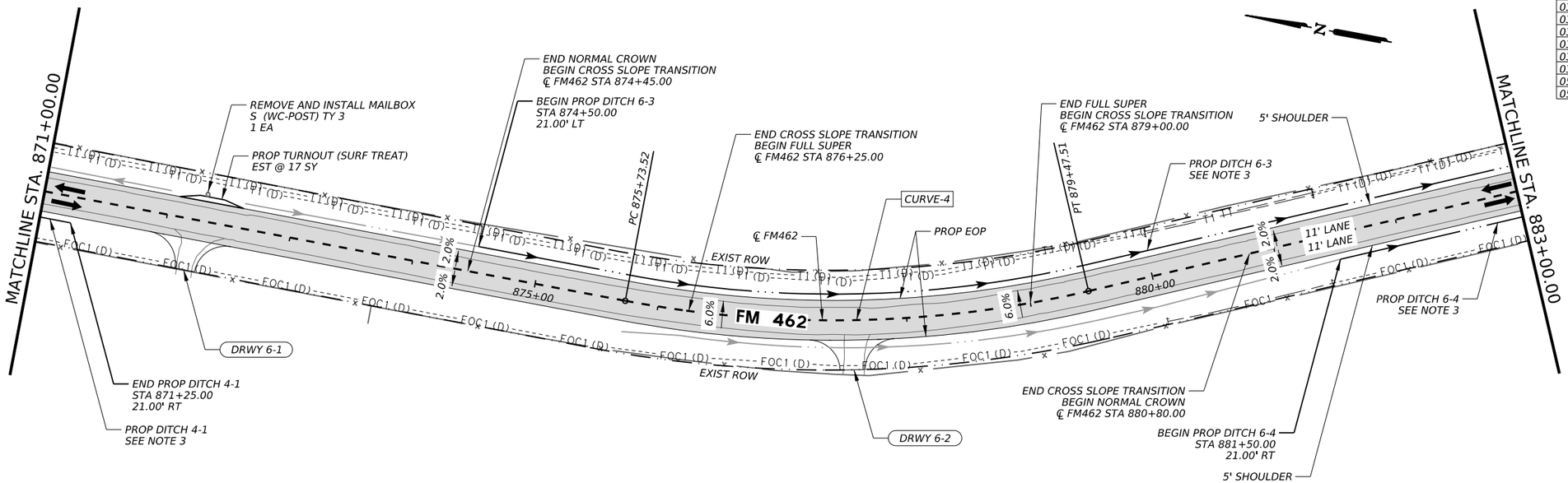
SHEET 5 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		106

DATE: 1/31/2024 2:46:09 PM
FILE: c:\pw\khtx\d0285616\FM462_RDW_PP.dgn

DW: DW: CK: CK:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	609
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	121
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	671
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	110
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4512
0275 6001	CEMENT	TON	39
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2256
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2256
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0530 6009	TURNOUTS (SURF TREAT)	SY	17
0560 6007	MAILBOX INSTALL-S (WC-POST) TY 3	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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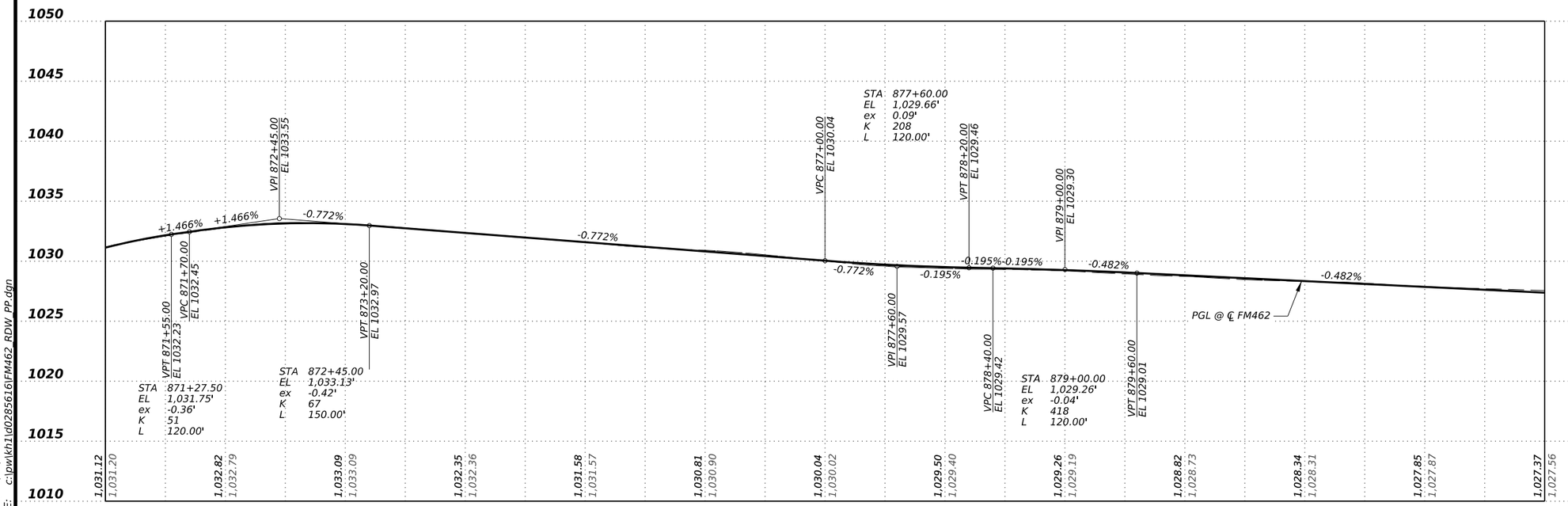
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

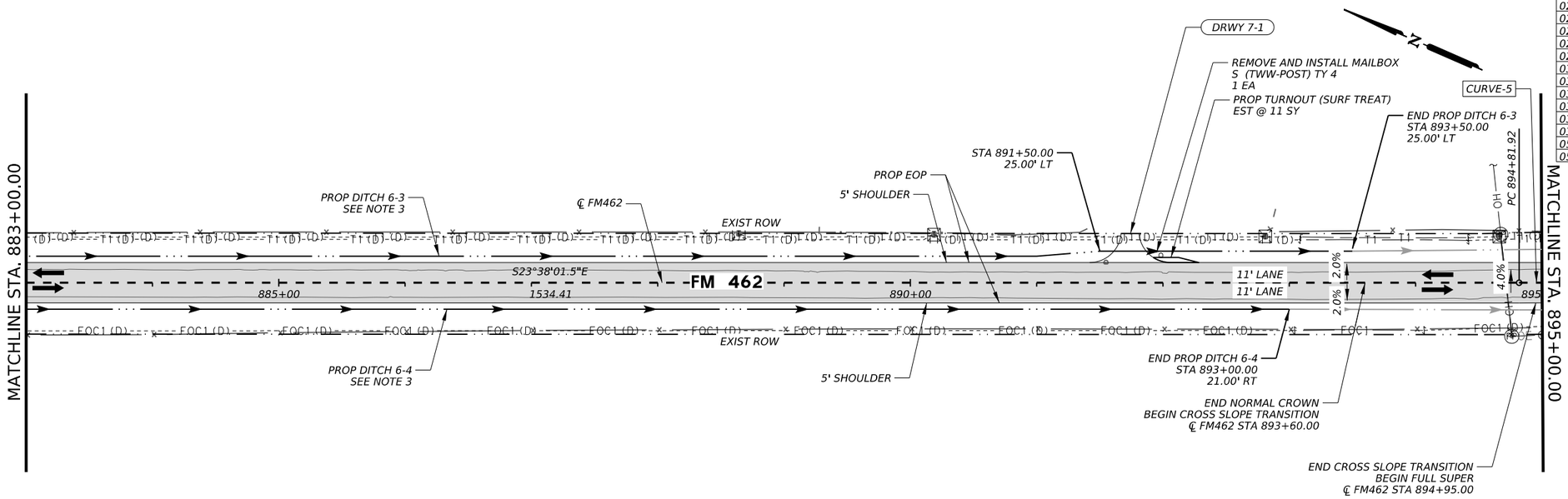
ROADWAY
PLAN AND PROFILE

SHEET 6 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		107

DATE: 1/31/2024 2:46:10 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1631
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	8
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1020
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	91
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4632
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2316
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2316
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0530 6009	TURNOUTS (SURF TREAT)	SY	11
0560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC / OH AT&T TELE / OH AT&T FO

NOTES:

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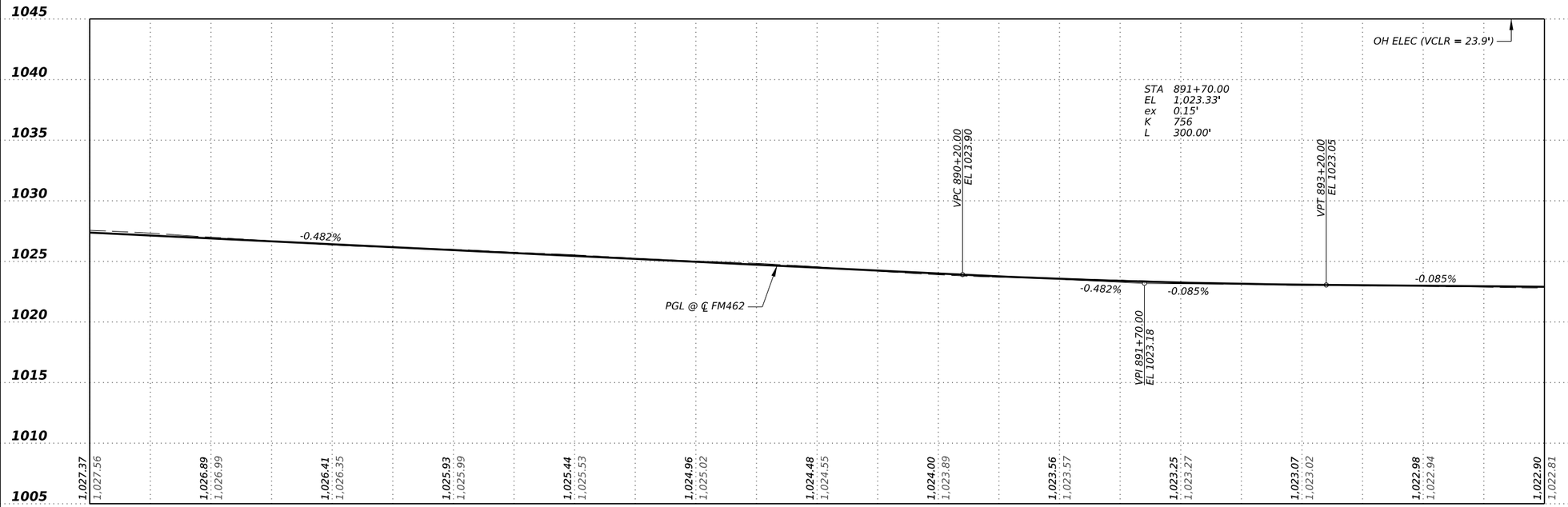
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

SHEET 7 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		108

DATE: 1/31/2024 2:46:10 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

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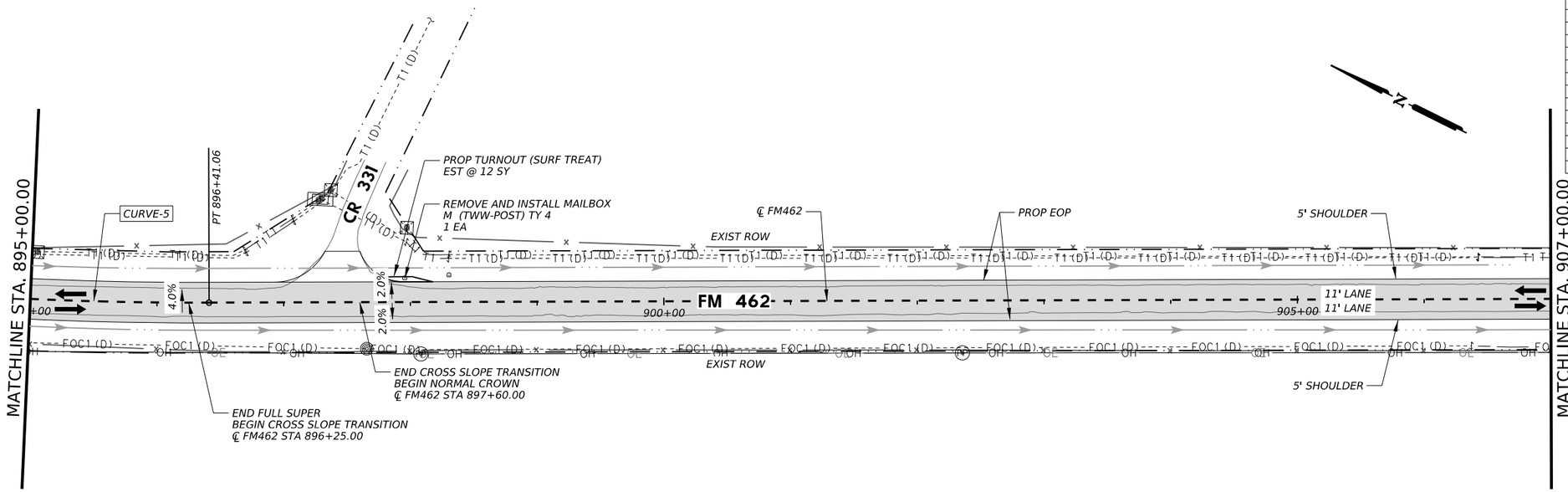
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	906
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	49
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	10
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4646
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2323
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2323
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0530 6009	TURNOUTS (SURF TREAT)	SY	12
0560 6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC / OH AT&T TELE / OH AT&T FO

NOTES:

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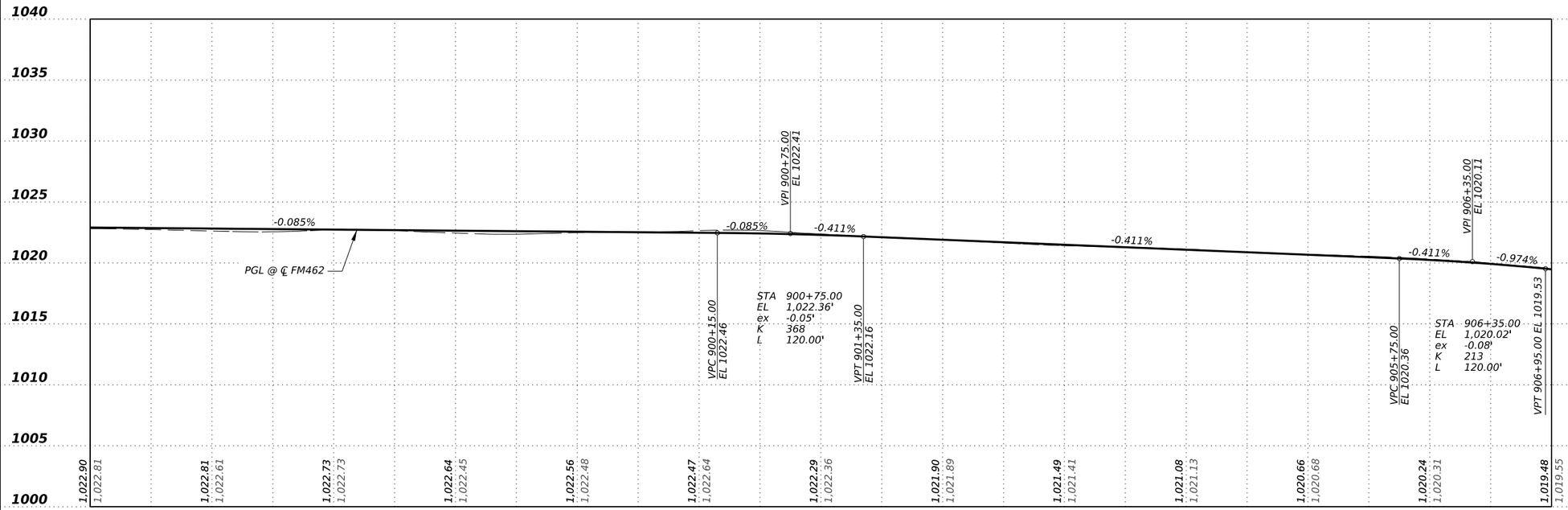

1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

SHEET 8 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		109

DATE: 1/31/2024 2:46:11 PM
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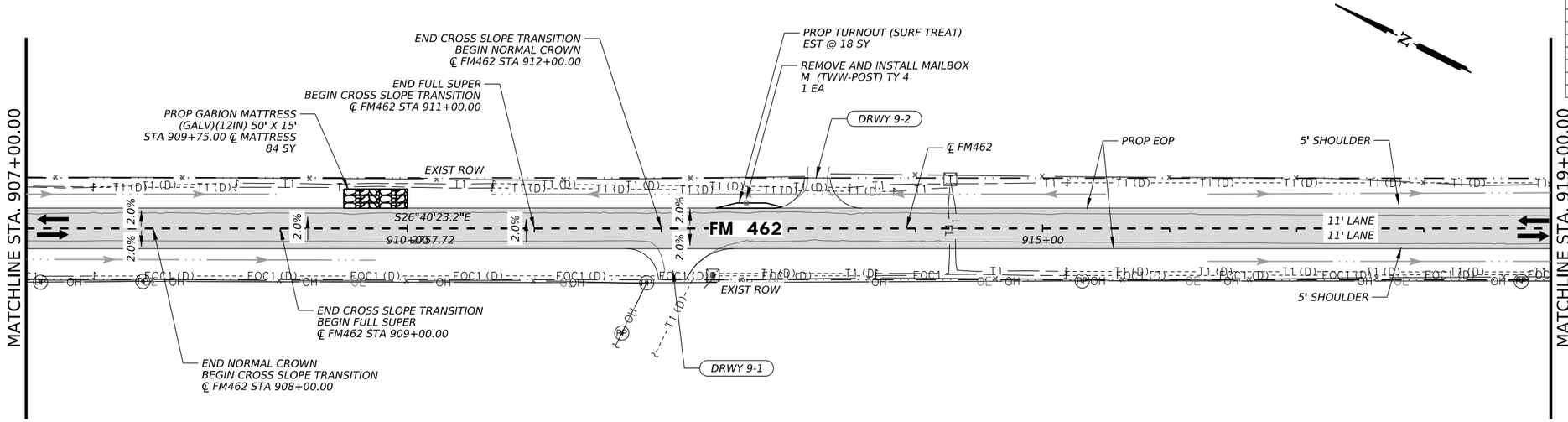
ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1116
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	9
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	112
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4646
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2323
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2323
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0459 6007	GABION MATTRESSES (GALV)(12 IN)	SY	84
0530 6009	TURNOUTS (SURF TREAT)	SY	18
0560 6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC / OH AT&T TELE / OH AT&T FO

NOTES:

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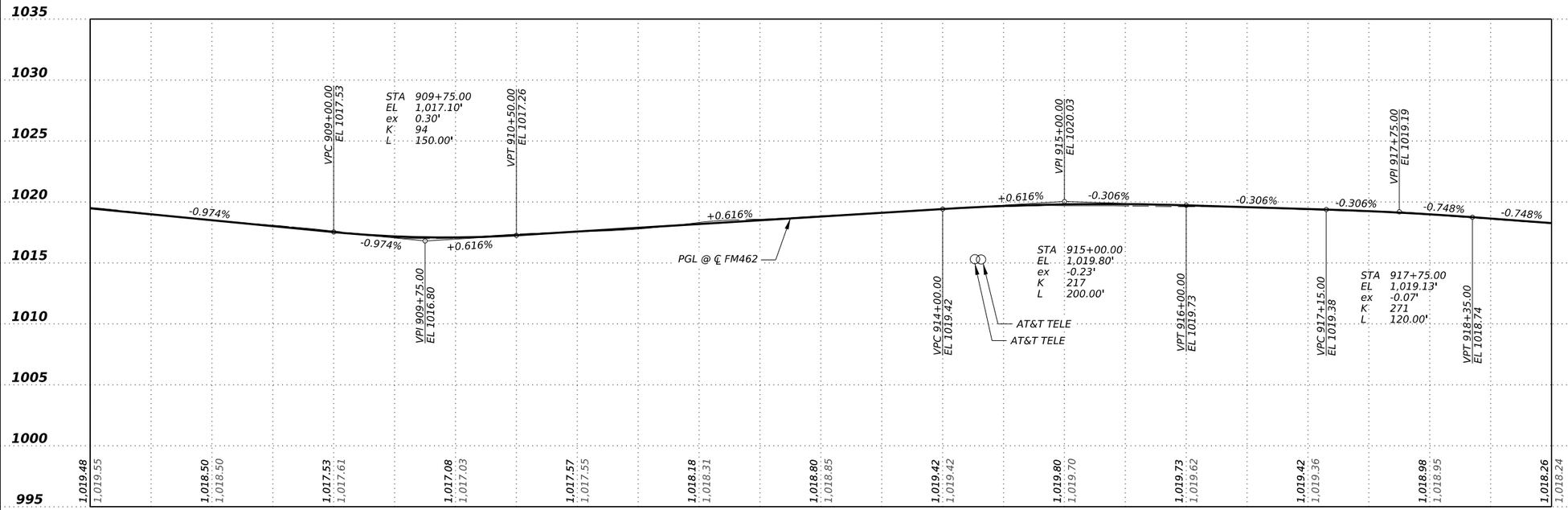
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

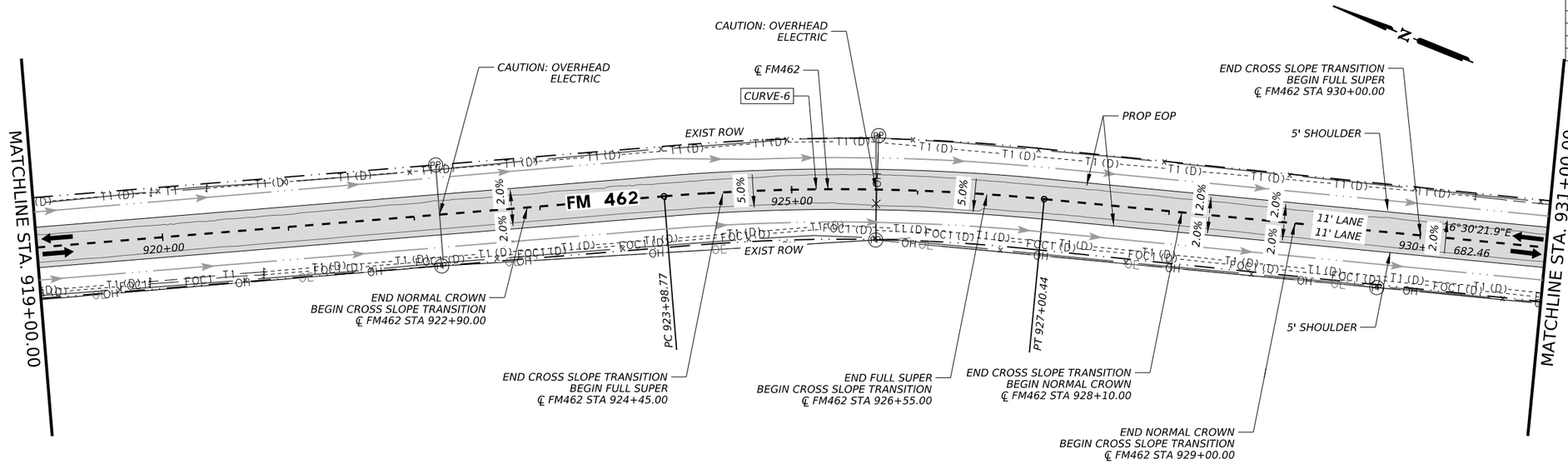
SHEET 9 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		110

DATE: 1/31/2024 2:46:12 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	924
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	74
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4645
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4645
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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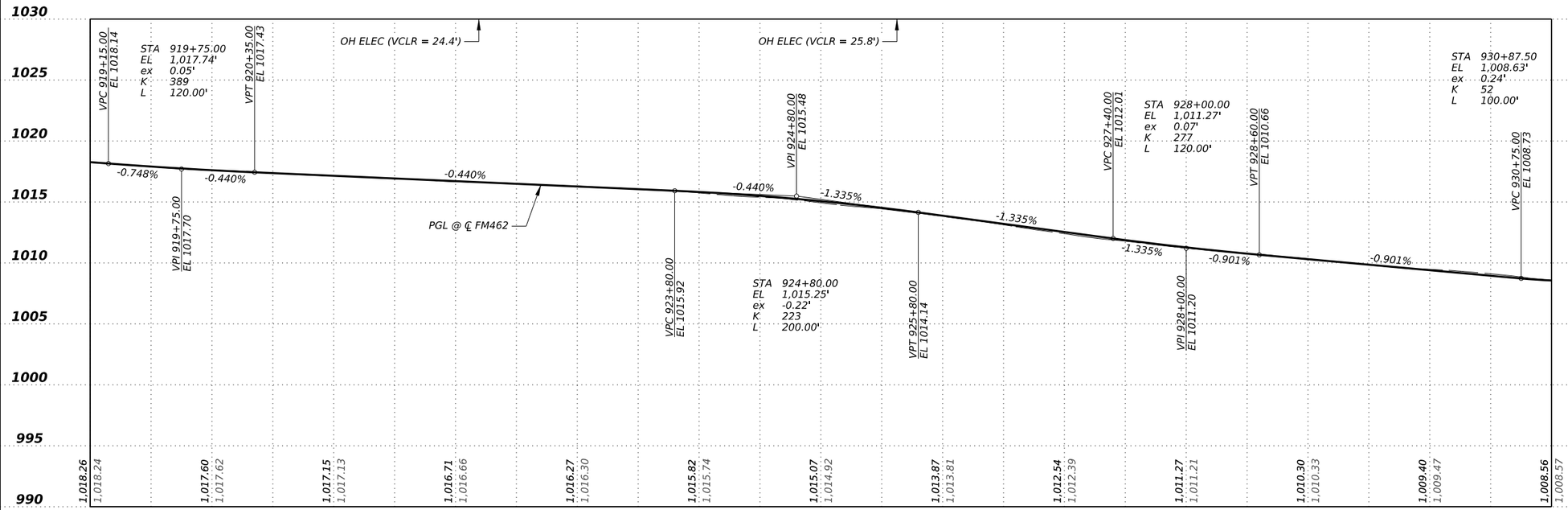


1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

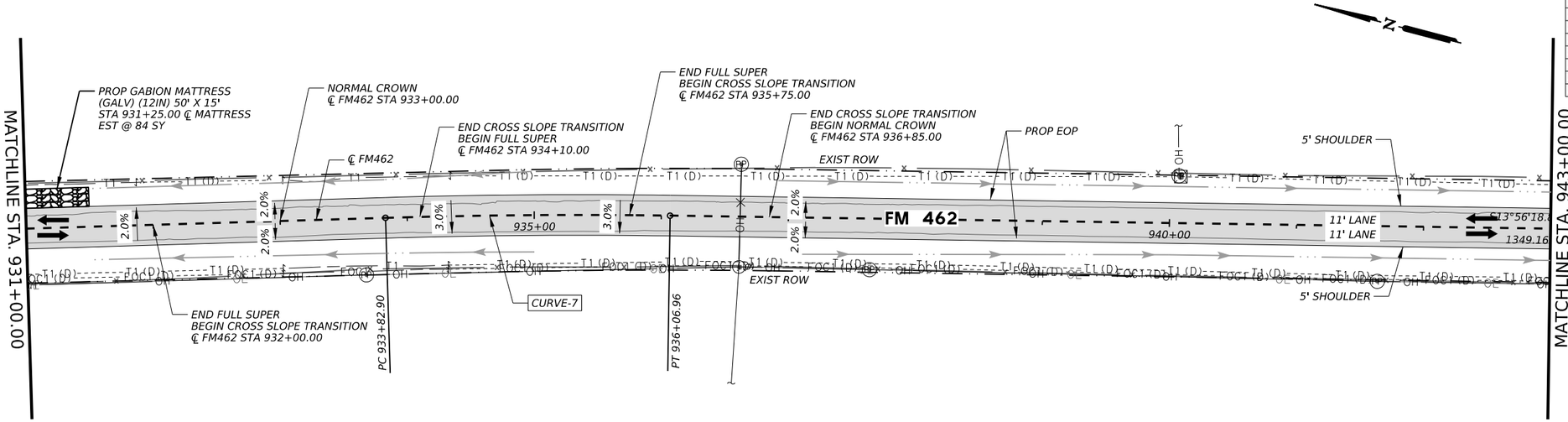
ROADWAY PLAN AND PROFILE

SHEET 10 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		111

DATE: 1/31/2024 2:46:12 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1015
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	46
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4645
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4645
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0459 6007	GABION MATTRESSES (GALV)(12 IN)	SY	84



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC; OH AT&T TELE; OH AT&T FO

NOTES:

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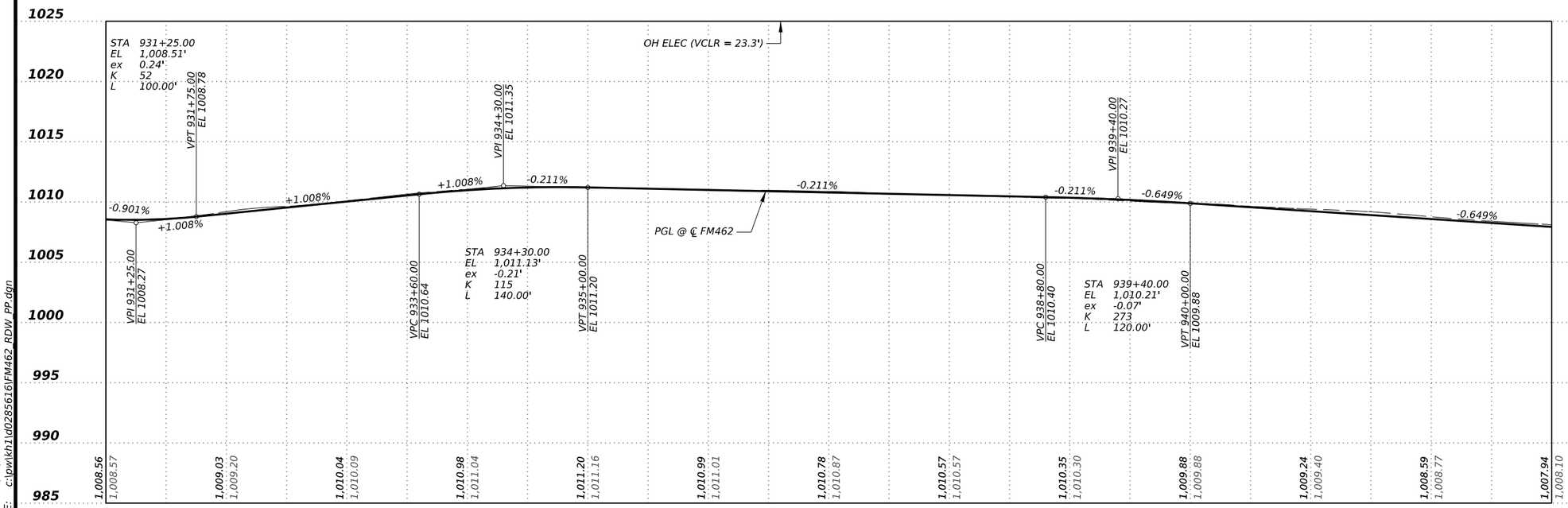
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

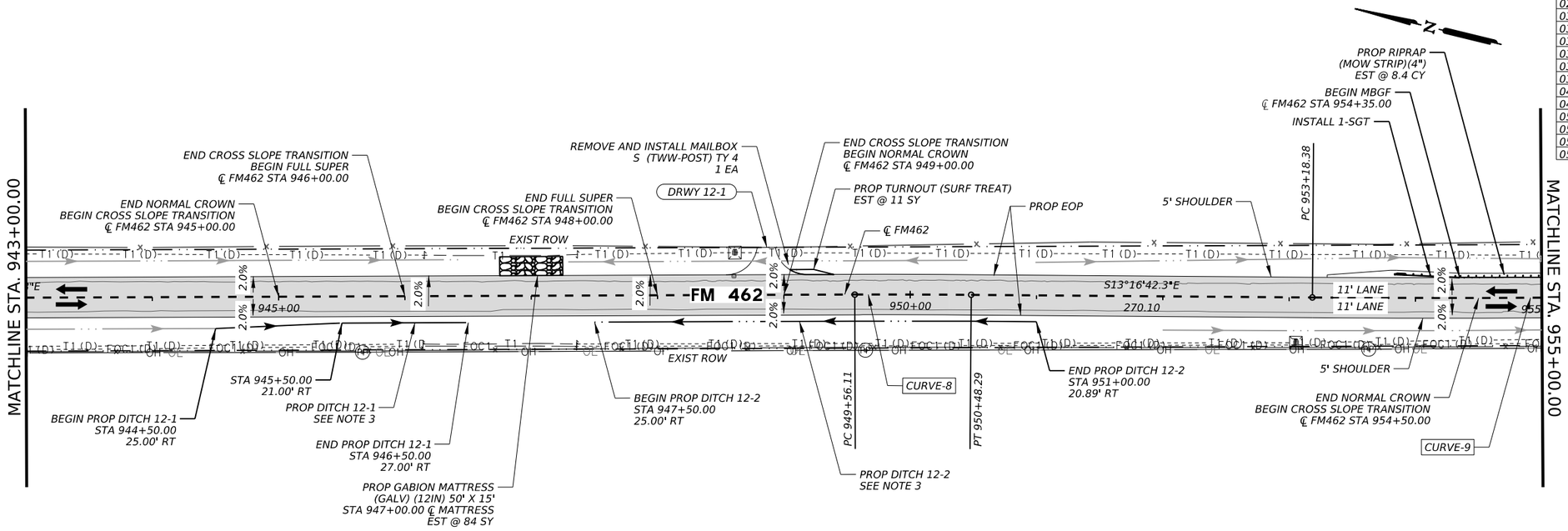
ROADWAY PLAN AND PROFILE

SHEET 11 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		112

DATE: 1/31/2024 2:46:13 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1178
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	27
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4645
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4645
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	8.4
0459 6007	GABION MATTRESSES (GALV)(12 IN)	SY	84
0530 6009	TURNOUTS (SURF TREAT)	SY	11
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	65
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	1
0560 6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC / OH AT&T TELE / OH AT&T FO

NOTES:

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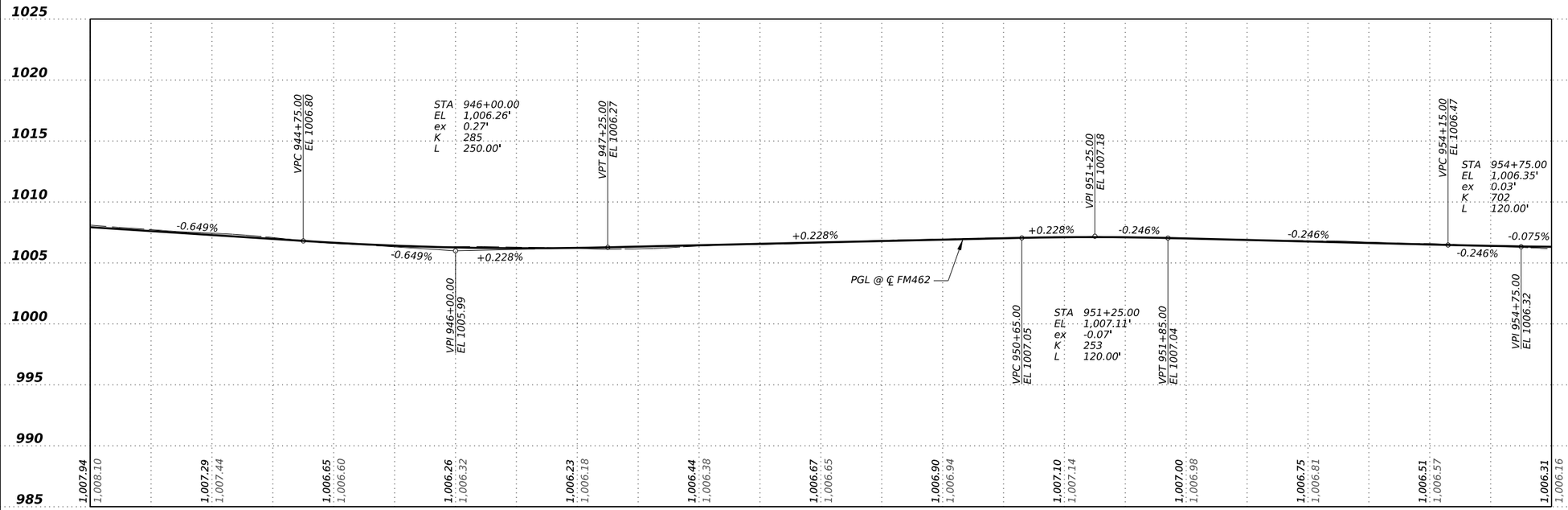
2. SEE DRIVEWAY AND INTERSECTION PLAN AND PROFILE SHEETS FOR MORE INFORMATION.
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

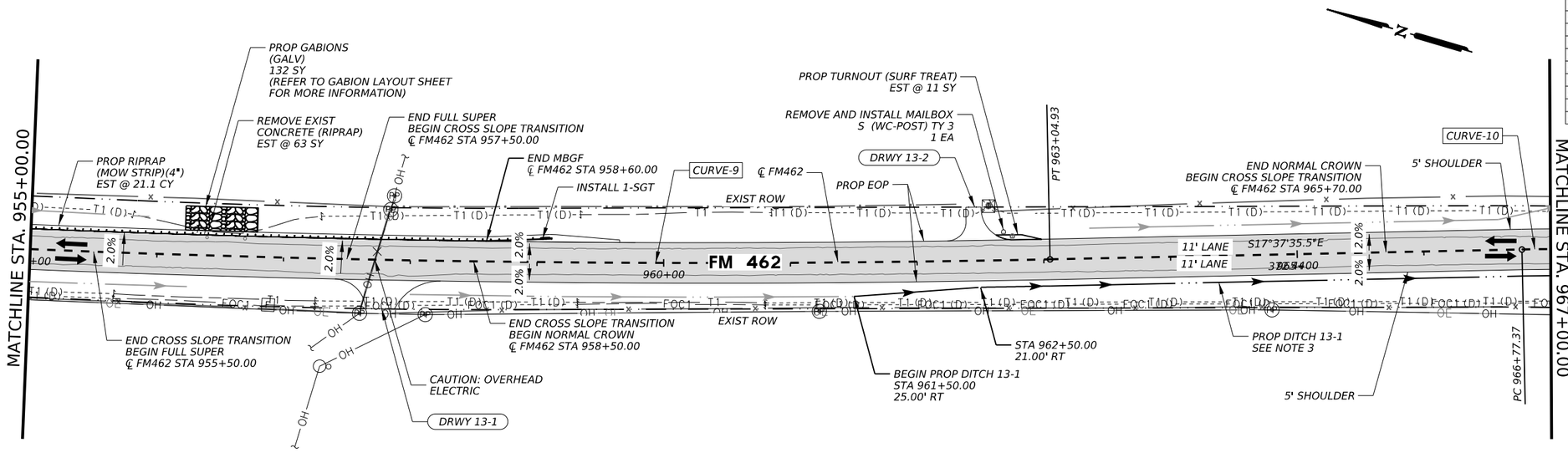
SHEET 12 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		113

DATE: 1/31/2024 2:46:14 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0104 6009	REMOVING CONC (RIPRAP)	SY	63
0110 6001	EXCAVATION (ROADWAY)	CY	1189
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	58
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4645
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4645
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	21.1
0459 6001	GABIONS (GALV)	CY	132
0530 6009	TURNOUTS (SURF TREAT)	SY	11
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	360
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	1
0560 6007	MAILBOX INSTALL-S (WC-POST) TY 3	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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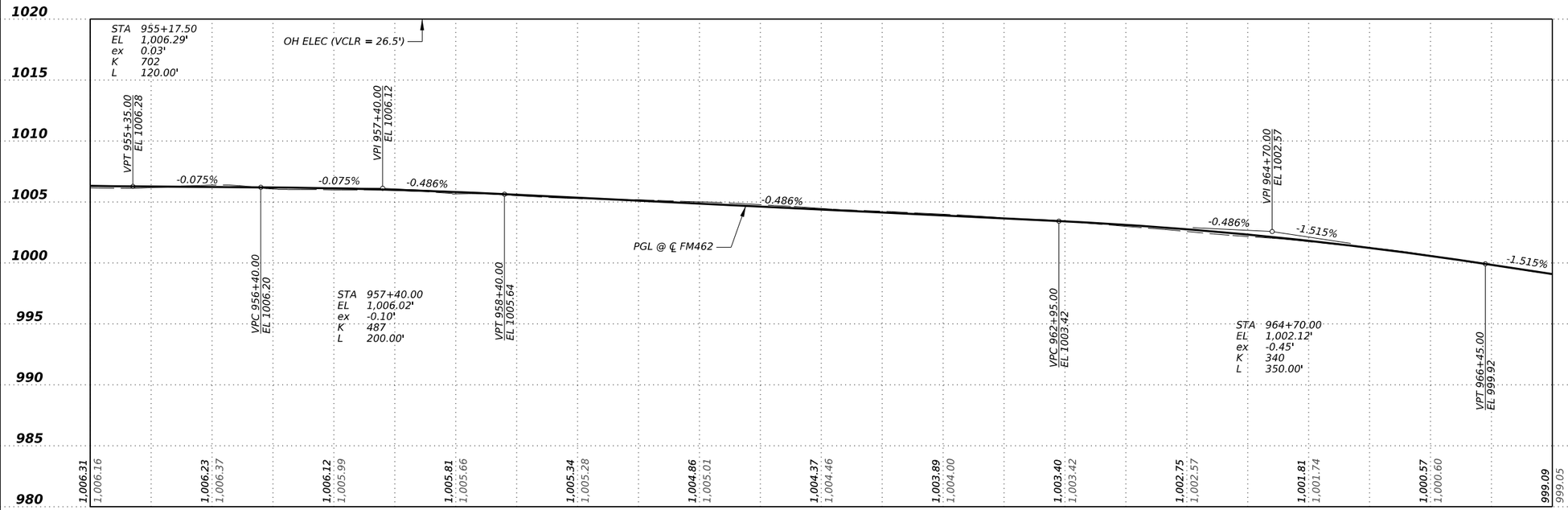
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY
PLAN AND PROFILE

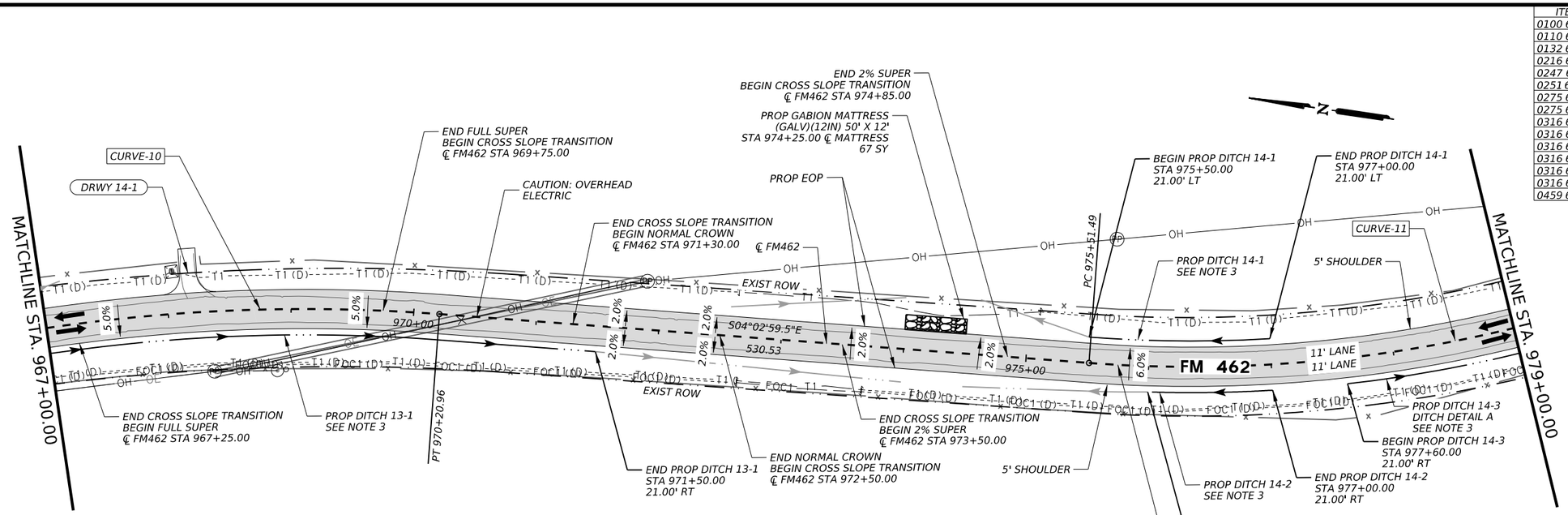
SHEET 13 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		114

DATE: 1/31/2024 2:46:14 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1422
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	49
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4645
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4645
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0459 6007	GABION MATTRESSES (GALV)(12 IN)	SY	67



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC / OH AT&T TELE / OH AT&T FO

NOTES:

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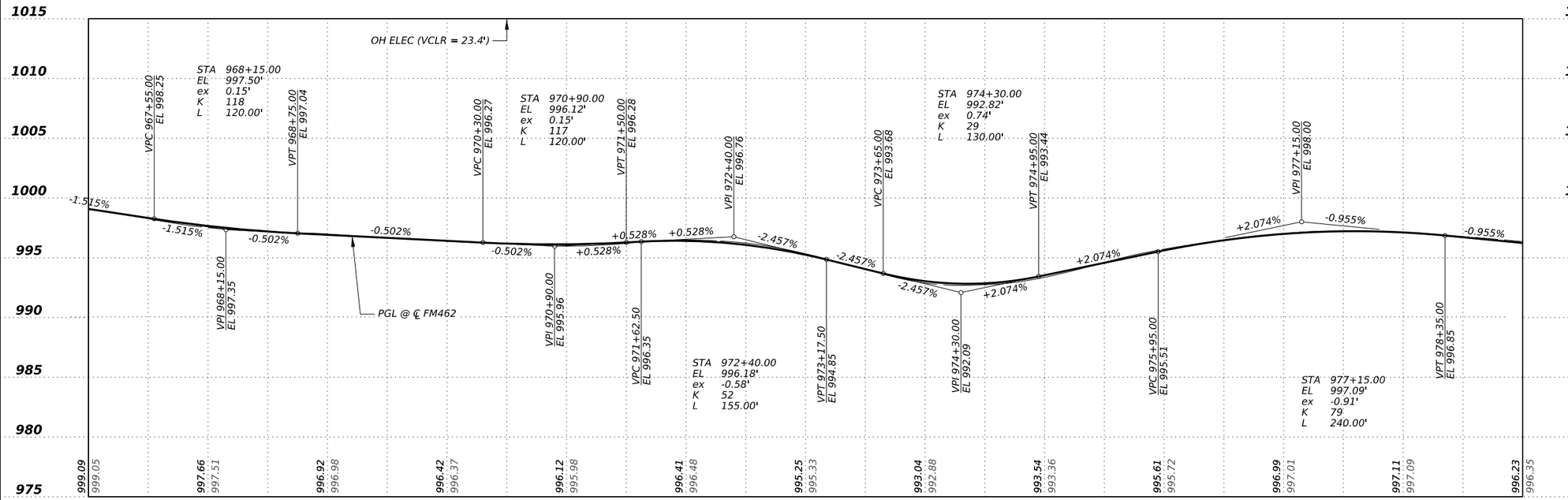
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

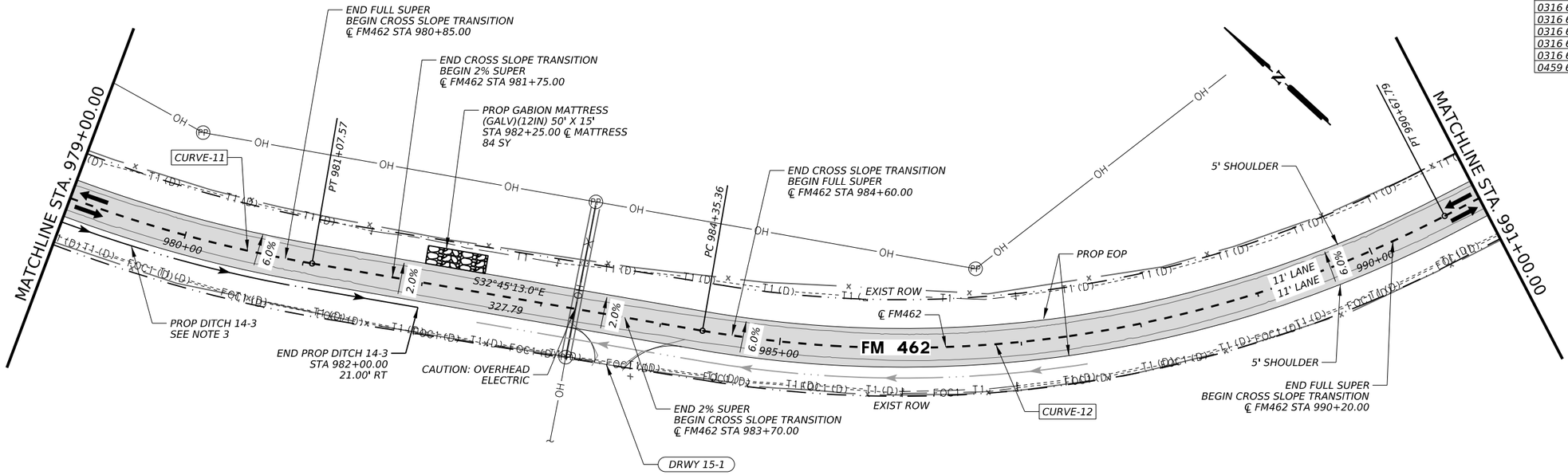
ROADWAY PLAN AND PROFILE

SHEET 14 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		115

DATE: 1/31/2024 2:46:15 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1078
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	27
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4645
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4645
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0459 6007	GABION MATTRESSES (GALV)(12 IN)	SY	84



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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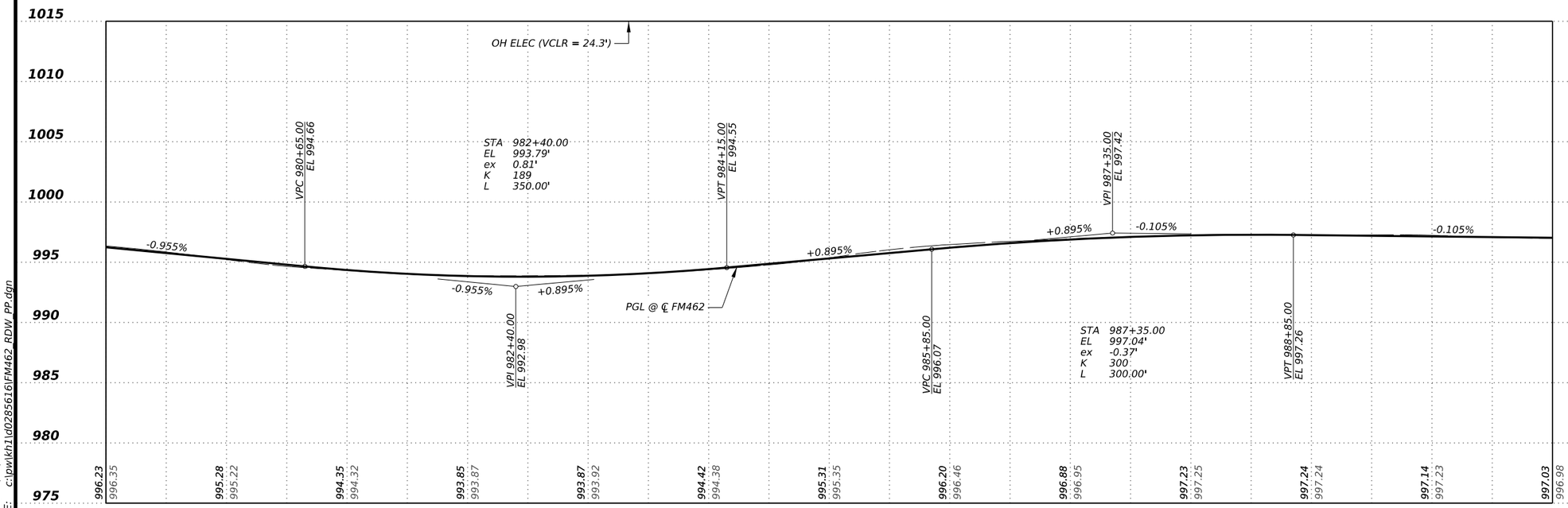
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY
PLAN AND PROFILE

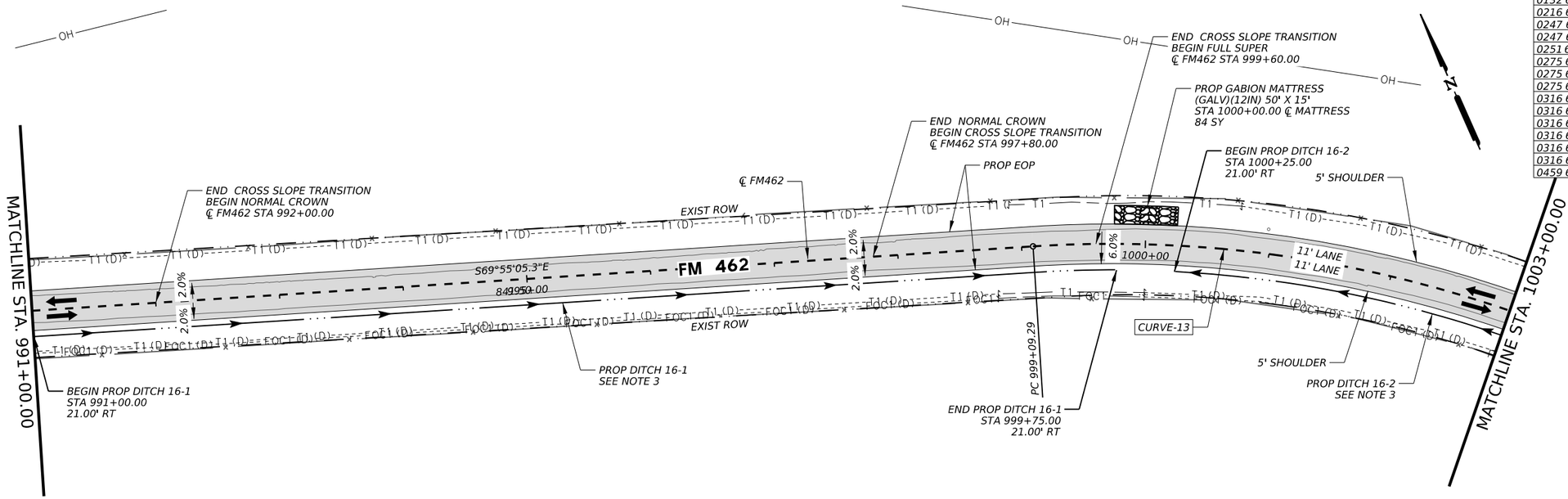
SHEET 15 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		116

DATE: 1/31/2024 2:46:16 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

DW: CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1387
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	30
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	56
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4646
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2323
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2323
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0459 6007	GABION MATTRESSES (GALV)(12 IN)	SY	84



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC / OH AT&T TELE / OH AT&T FO

NOTES:

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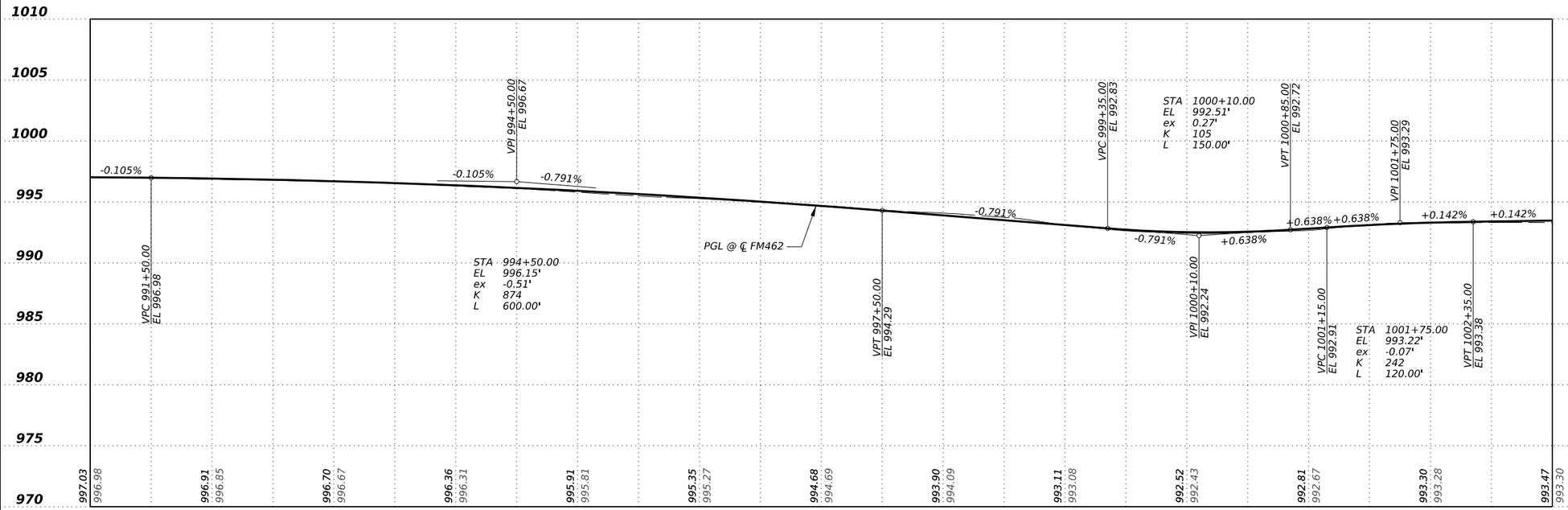


1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

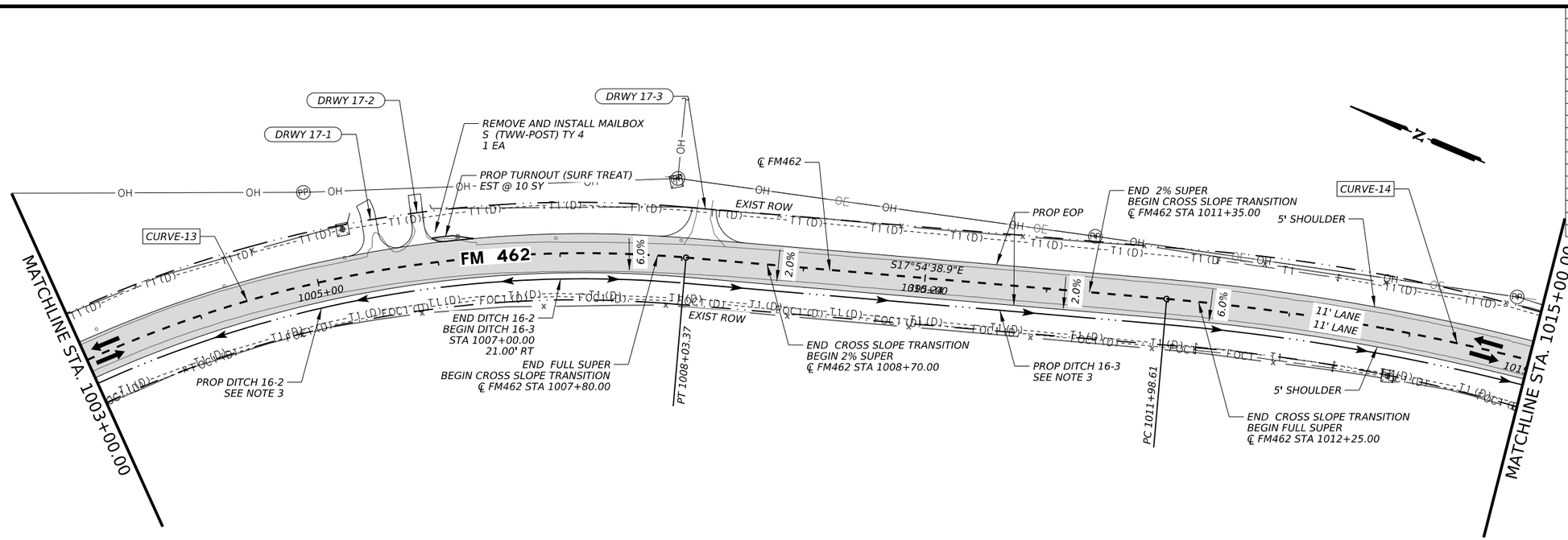
SHEET 16 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		117

DATE: 1/31/2024 2:46:17 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1121
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	91
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	84
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4646
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2323
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2323
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0530 6009	TURNOUTS (SURF TREAT)	SY	10
0560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
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~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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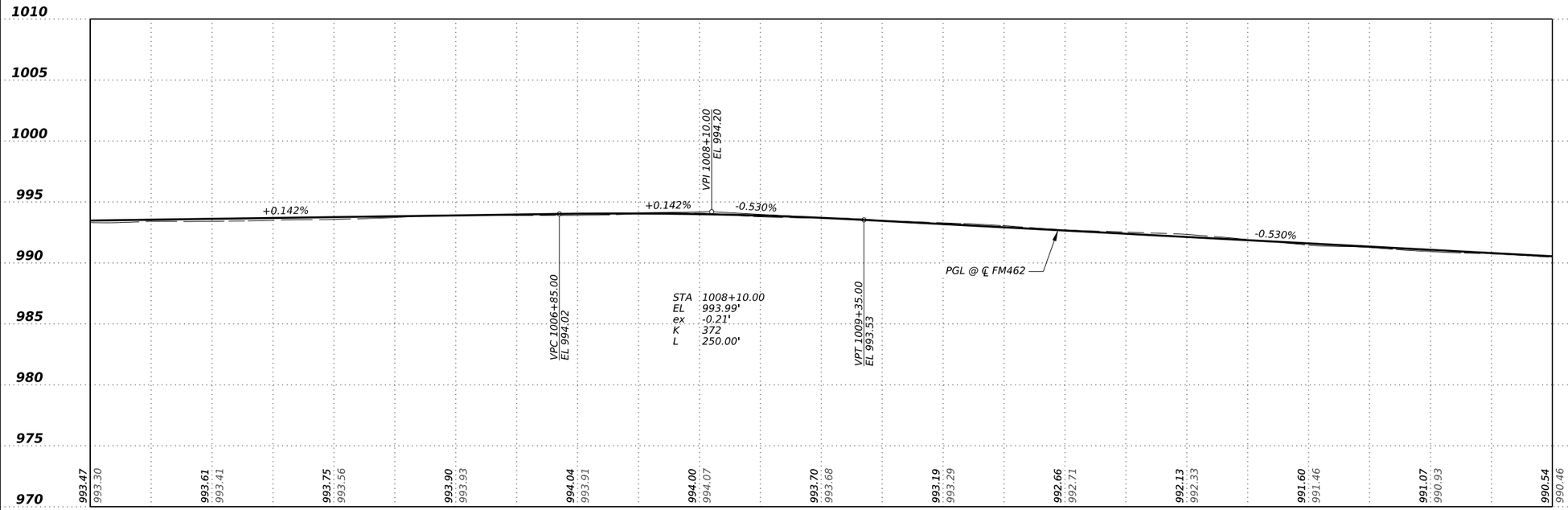


1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

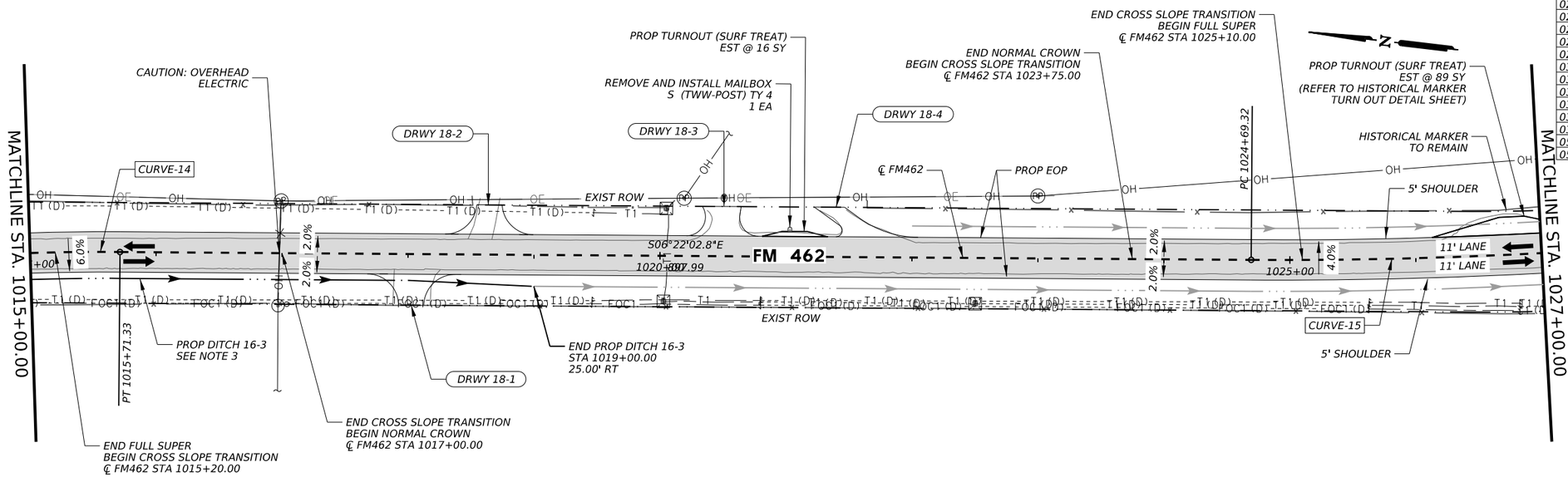
ROADWAY PLAN AND PROFILE

SHEET 17 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		118

DATE: 1/31/2024 2:46:17 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1104
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	71
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	38
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4646
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2323
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2323
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0530 6009	TURNOUTS (SURF TREAT)	SY	105
0560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
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~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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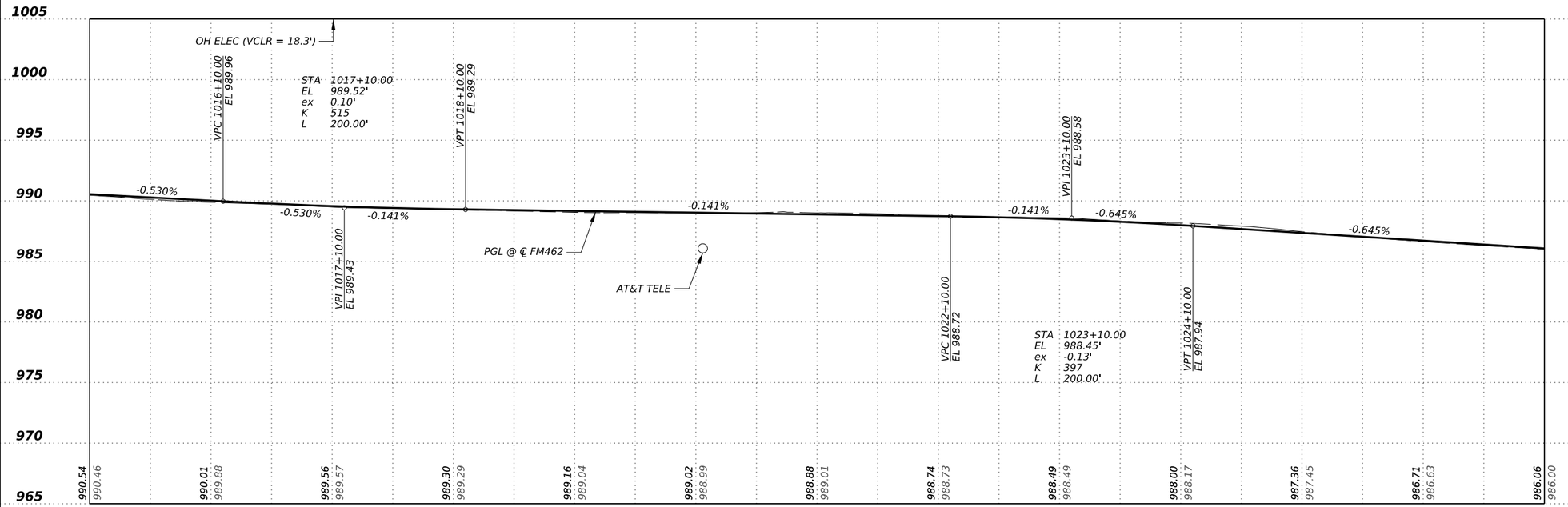
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY
PLAN AND PROFILE

SHEET 18 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		119

DATE: 1/31/2024 7:16:00 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0104 6009	REMOVING CONC (RIPRAP)	SY	22
0110 6001	EXCAVATION (ROADWAY)	CY	823
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	345
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4645
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4645
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	57.6
0459 6008	GABION MATTRESSES (GALV)(18 IN)	SY	277
0530 6009	TURNOUTS (SURF TREAT)	SY	43
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	700
0540 6033	MTL BM GD FEN (LONG SPAN SYSTEM)	EA	2
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	4
0552 6001	WIRE FENCE (TY A)	LF	175
0560 6006	MAILBOX INSTALL-M (TWG-POST) TY 2	EA	1

* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY AND INTERSECTION PLAN AND PROFILE SHEETS FOR MORE INFORMATION.
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.

1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY
PLAN AND PROFILE

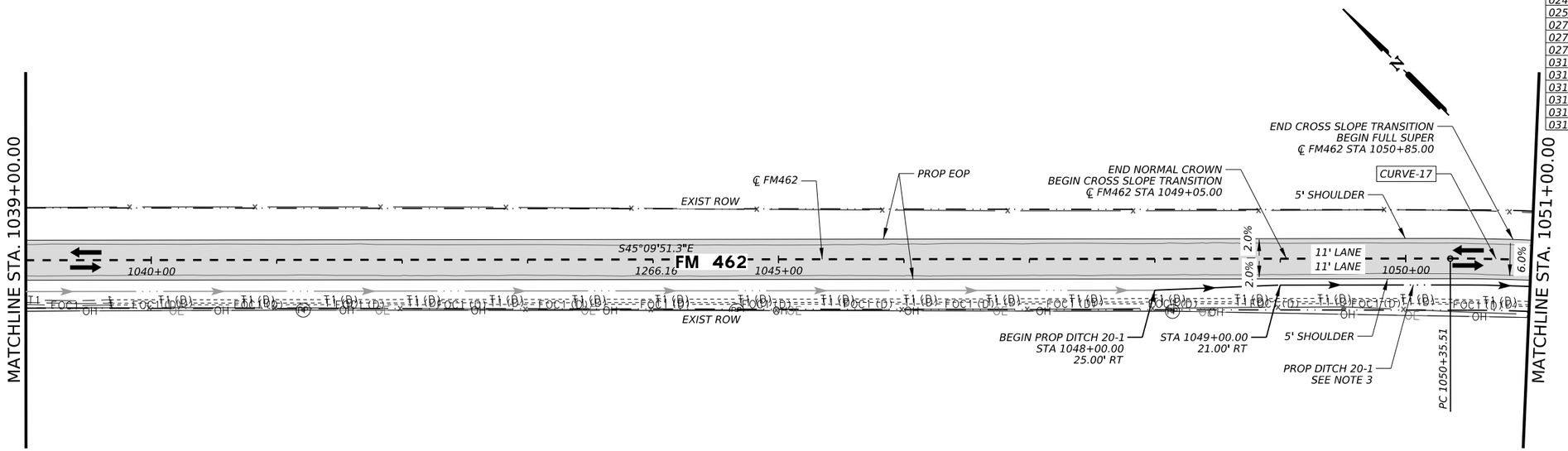
SHEET 19 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		120

DATE: 1/31/2024 7:16:01 PM
FILE: c:\pw\kh1\d0285616\FM462_RDW_PP.dgn

DW: CK: DW: CK:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1226
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	24
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	47
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4646
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2323
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2323
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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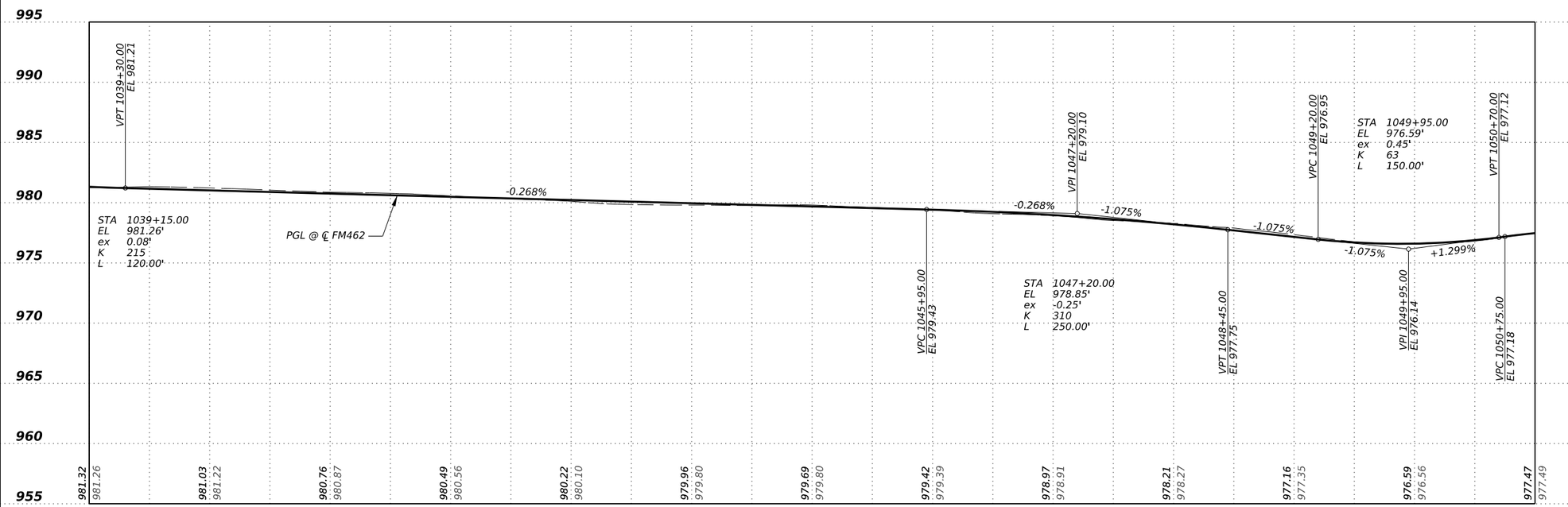


1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY
PLAN AND PROFILE

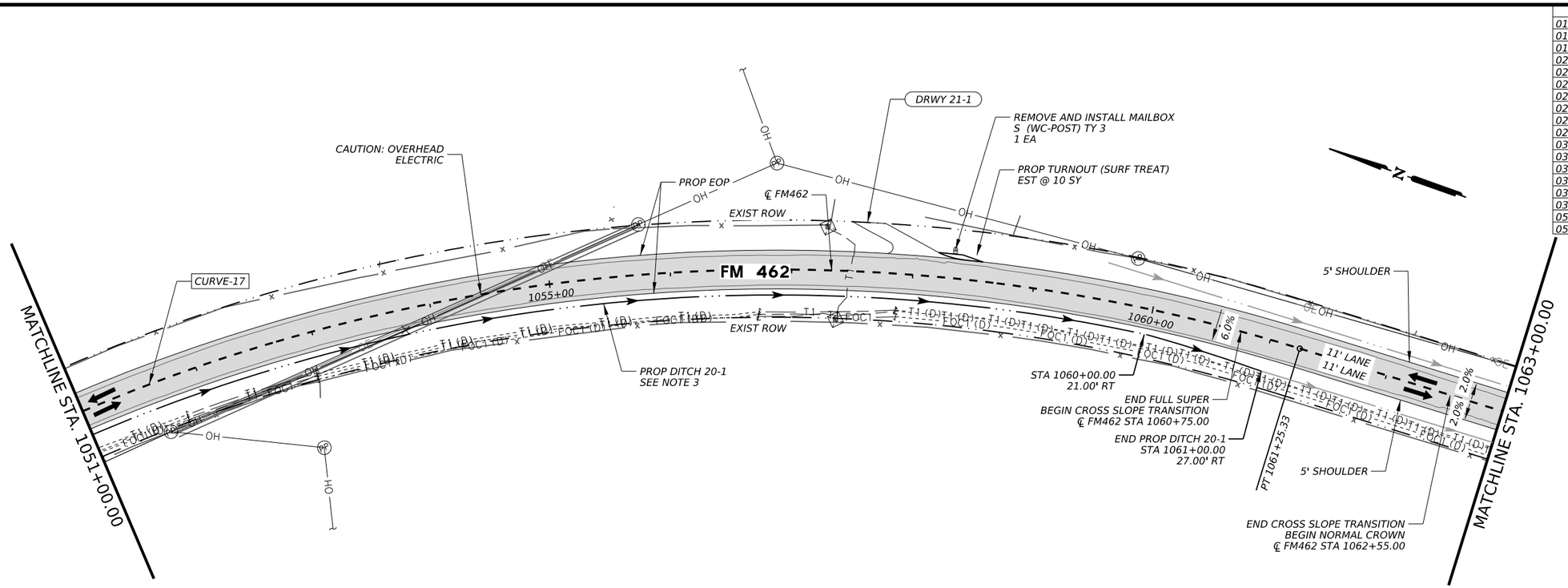
SHEET 20 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		121

DATE: 1/31/2024 2:46:20 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	983
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	187
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	112
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4646
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2323
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2323
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0530 6009	TURNOUTS (SURF TREAT)	SY	10
0560 6007	MAILBOX INSTALL-S (WC-POST) TY 3	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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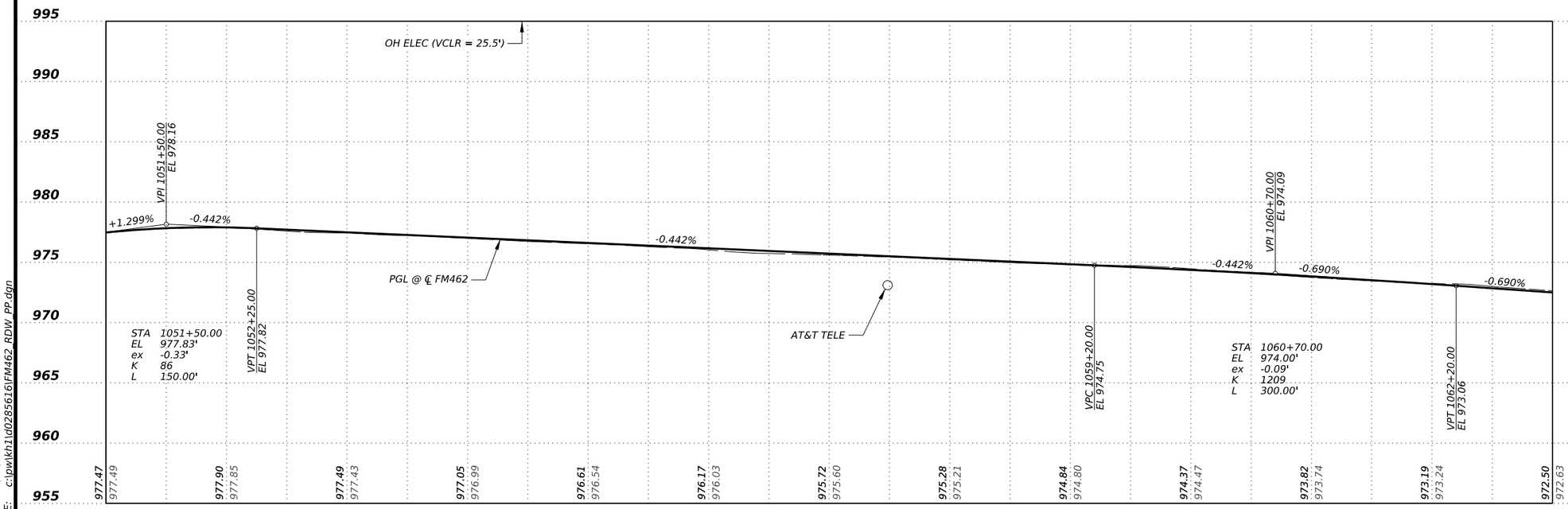
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY
PLAN AND PROFILE

SHEET 21 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		122

DATE: 1/31/2024 2:46:21 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

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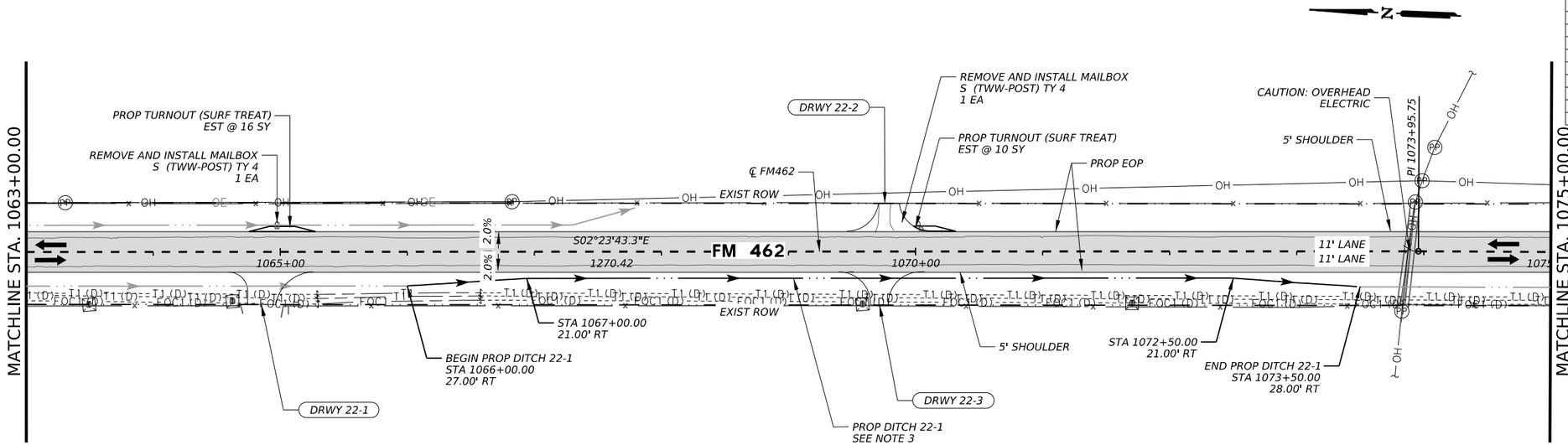
ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1298
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	18
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	47
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4646
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2323
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2323
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0530 6009	TURNOUTS (SURF TREAT)	SY	26
0560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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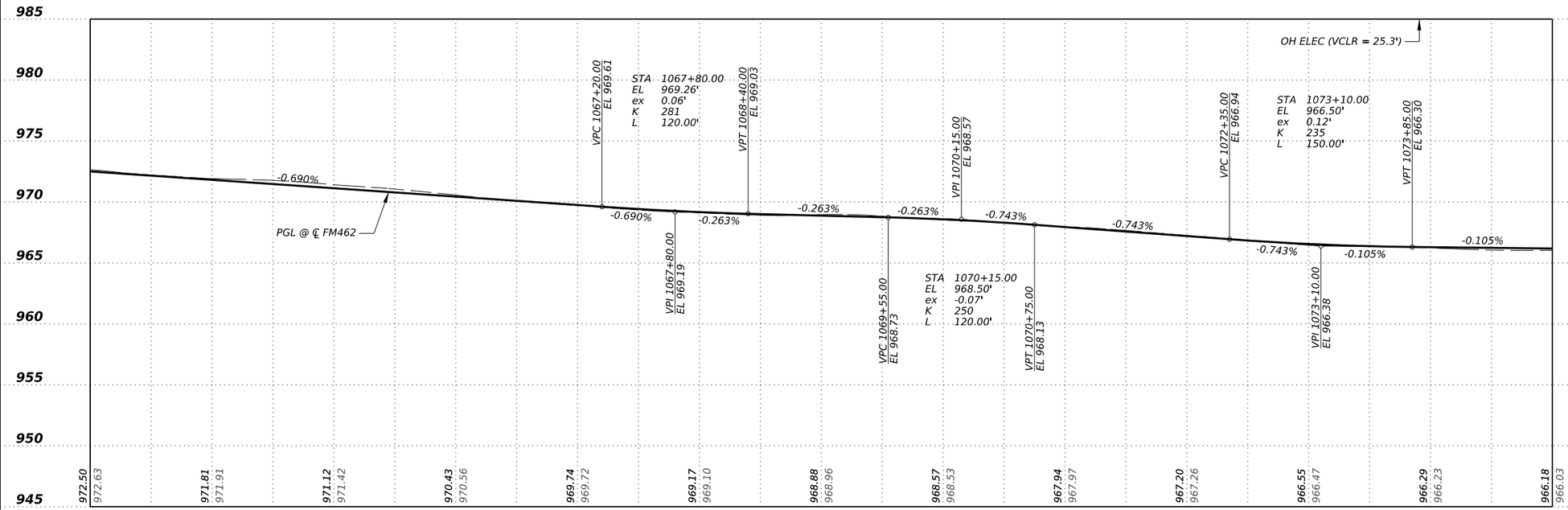
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

SHEET 22 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		123

DATE: 1/31/2024 2:46:22 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

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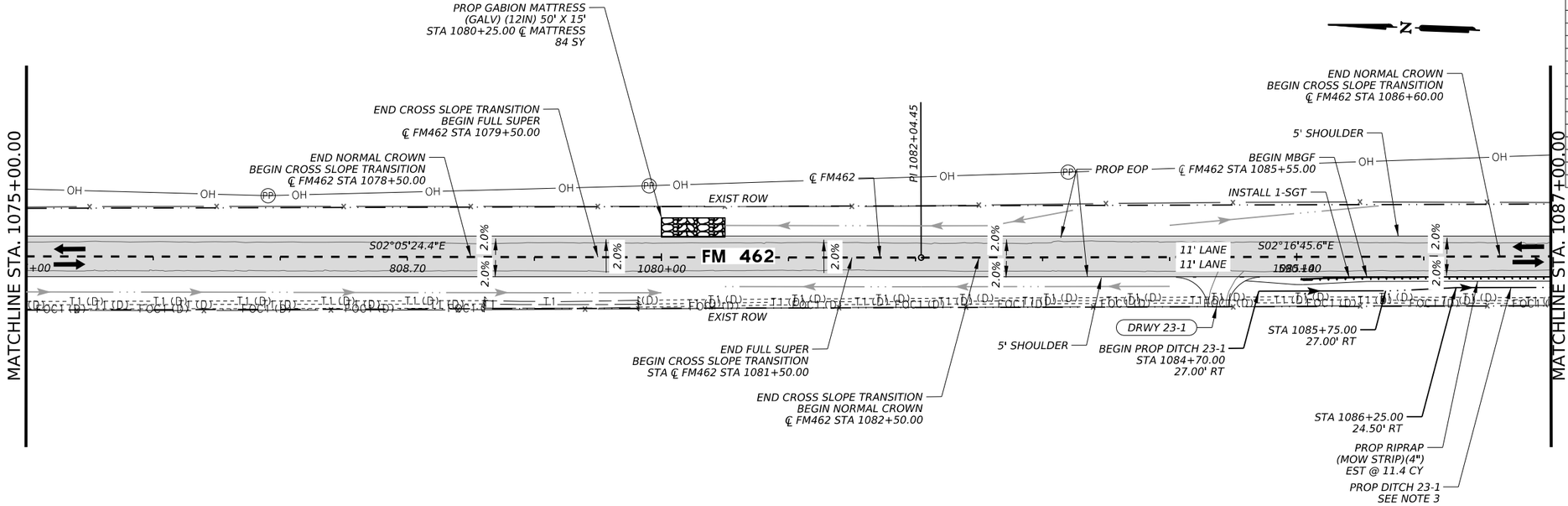
ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1007
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	55
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0247 6475~	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	121
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4646
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2323
0275 6004	CEMENT TREAT (MX EXST MTL & NW BS) (6"	SY	2323
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	11.4
0459 6007	GABION MATTRESSES (GALV)(12 IN)	SY	84
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	145
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	1



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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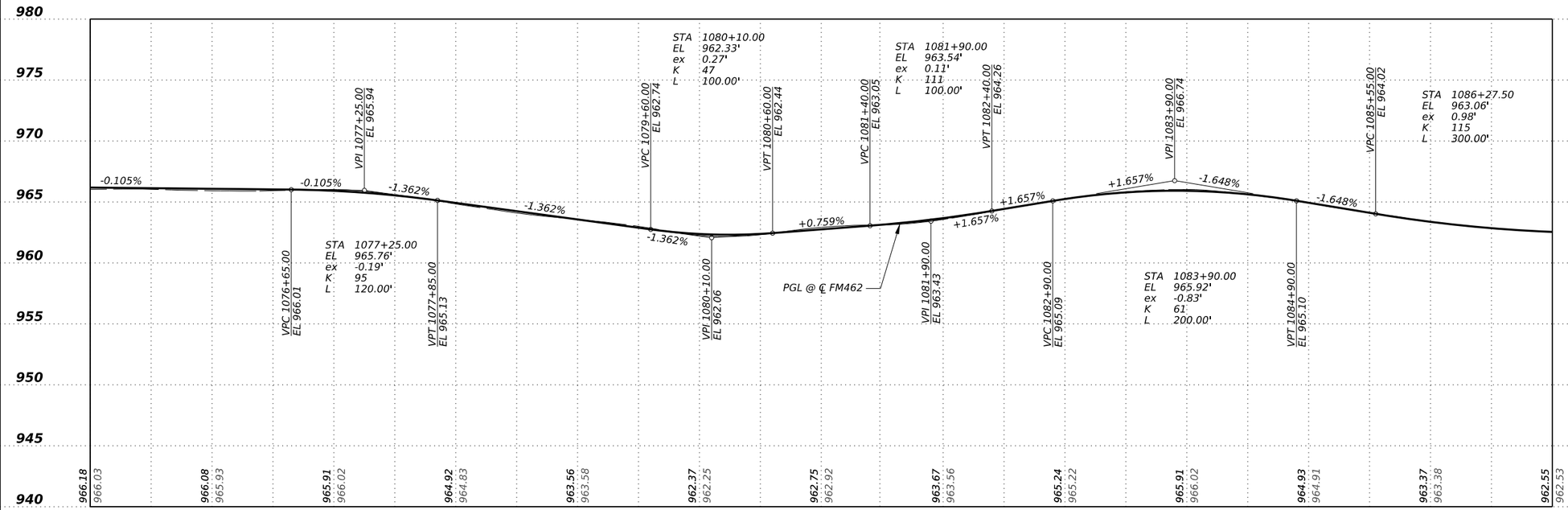
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

SHEET 23 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		124

DATE: 1/31/2024 2:46:22 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0104 6009	REMOVING CONC (RIPRAP)	SY	33
0110 6001	EXCAVATION (ROADWAY)	CY	923
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	269
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4645
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4645
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267
0432 6045	RIPRAP (MOW STRIP)(4 IN)	CY	16.4
0459 6007	GABION MATTRESSES (GALV)(12 IN)	SY	9
0530 6009	TURNOUTS (SURF TREAT)	SY	20
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	205
0540 6033	MTL BM GD FEN (LONG SPAN SYSTEM)	EA	1
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	1
0560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1
0560 6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	1

* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
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~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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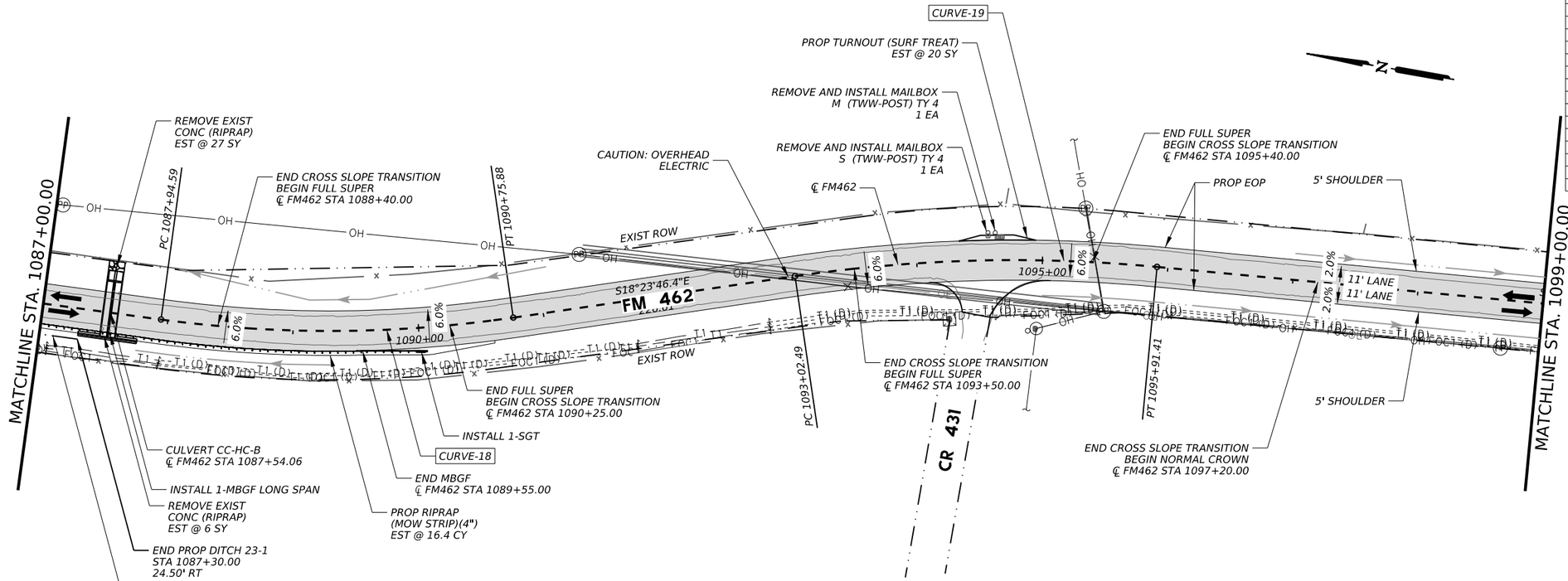

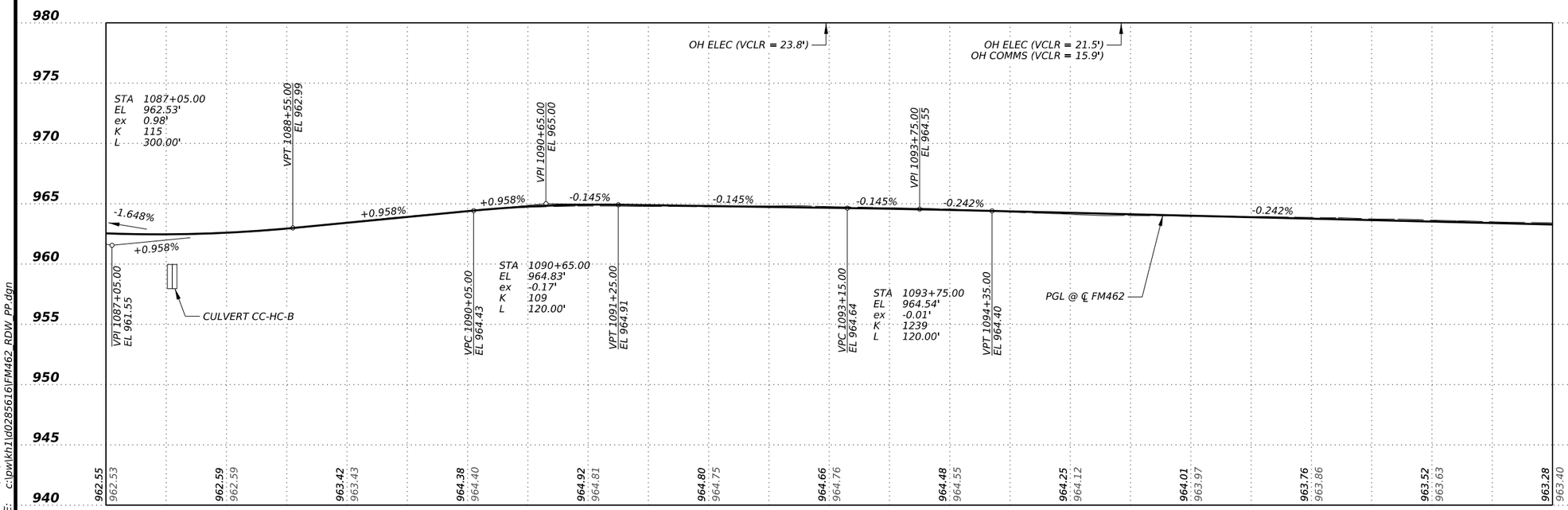

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

SHEET 24 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		125

DATE: 1/31/2024 2:46:23 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

CK:
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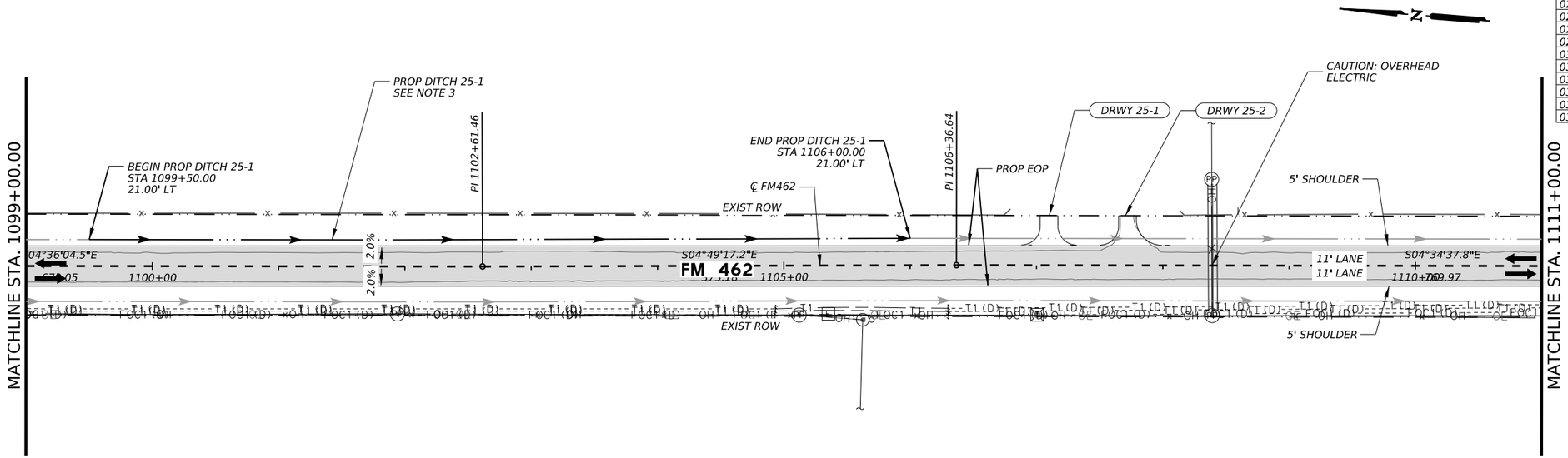
ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	12
0110 6001	EXCAVATION (ROADWAY)	CY	1366
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	3
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	1053
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	4645
0275 6001	CEMENT	TON	40
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	4645
0316 6029	ASPH (RC-250)	#SY	4267
0316 6414	AGGR (TY-B GR-5)	#SY	4267
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6431*	AGGR (TY-PB GR-4)	#SY	4267
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	4267
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	4267



* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
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~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
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- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC, OH AT&T TELE, OH AT&T FO

NOTES:

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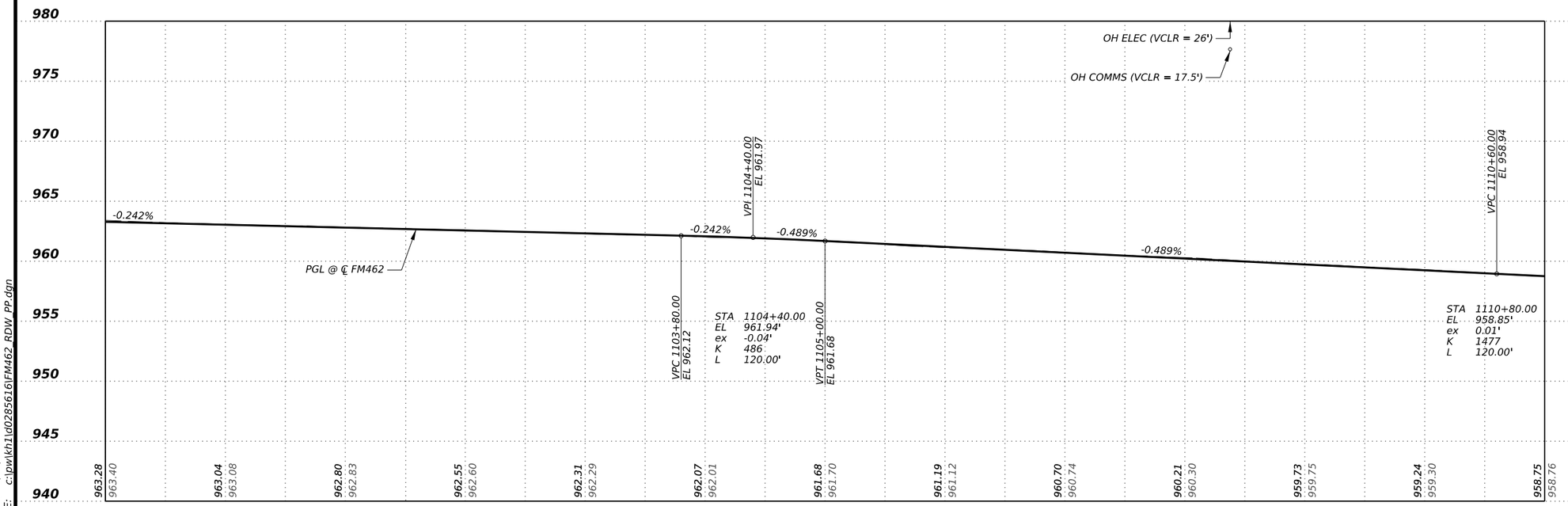

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1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

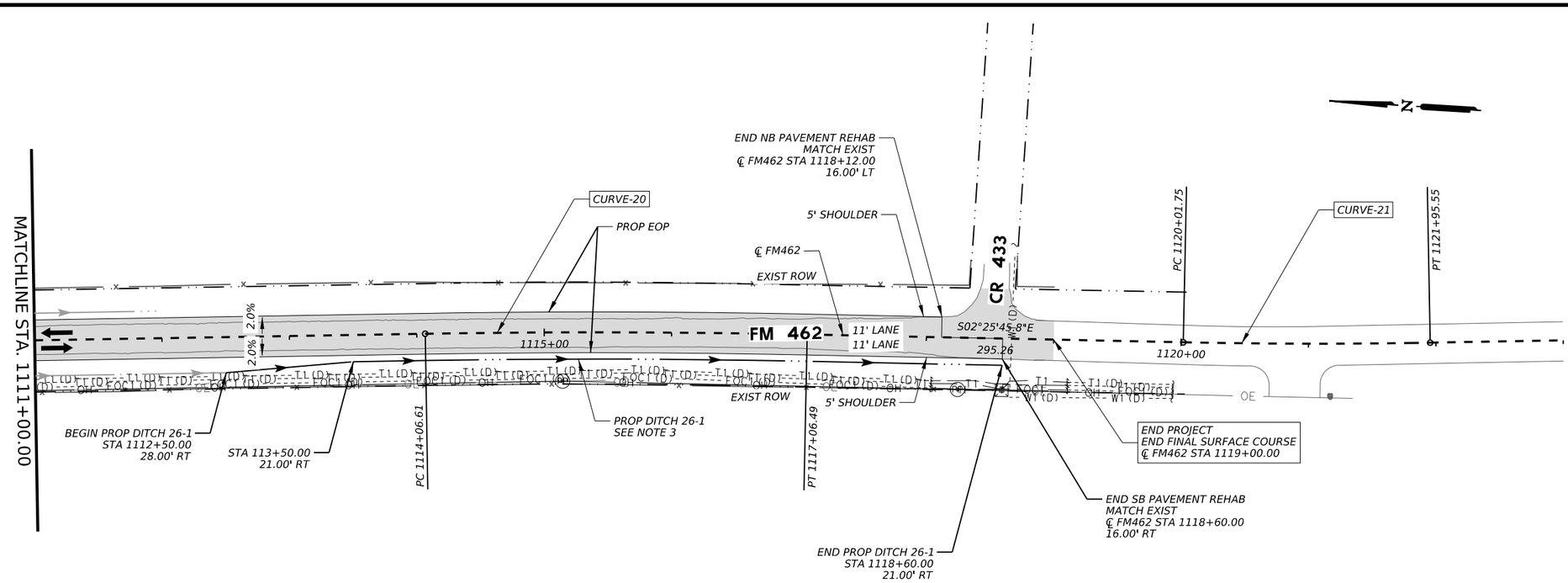
FM 462

ROADWAY
PLAN AND PROFILE

SHEET 25 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		126

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	8
0110 6001	EXCAVATION (ROADWAY)	CY	828
0132 6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	2
0216 6001	PROOF ROLLING	HR	1
0247 6475	FL BS (CIP) (TY D GR 1-2, OR 5) FINAL POS	CY	646
0251 6025	REWORK BS MTL (TY B) (6") (ORD COMP)	SY	2849
0275 6001	CEMENT	TON	25
0275 6002	CEMENT TREAT (EXIST MATL) (6")	SY	2849
0316 6029	ASPH (RC-250)	#SY	2617
0316 6414	AGGR (TY-B GR-5)	#SY	2617
0316 6419*	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	2840
0316 6431*	AGGR (TY-PB GR-4)	#SY	2840
0316 6419**	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	#SY	2840
0316 6240**	AGGR(TY-PD GR-4 SAC-B)	#SY	2840



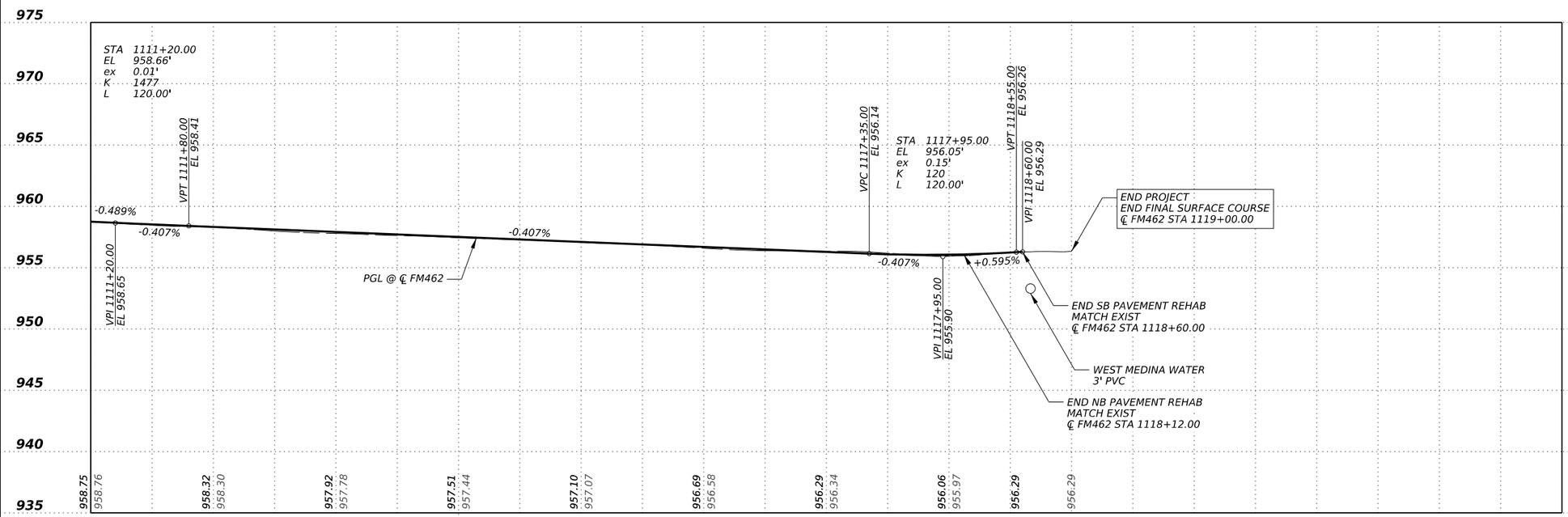
* FIRST COURSE SURFACE TREATMENT
** SECOND COURSE SURFACE TREATMENT
\# FOR CONTRACTOR'S INFORMATION ONLY, SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITIES.
~ FOR CEMENT TREAT BASE

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- EXIST DITCH
- PROP DITCH
- PROP ROADWAY
- E1 — MEDINA ELECTRIC
- T1 — AT&T (TELE)
- FOC1 — AT&T (FO/DUCT)
- W1 — WEST MEDINA WSC
- OH — OH MEDINA ELECTRIC / OH AT&T TELE / OH AT&T FO

NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY AND INTERSECTION PLAN AND PROFILE SHEETS FOR MORE INFORMATION.
3. SEE DITCH DETAILS SHEET FOR MORE INFORMATION.



1/31/2024

0' 50' 100'
0' 5' 10'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

ROADWAY PLAN AND PROFILE

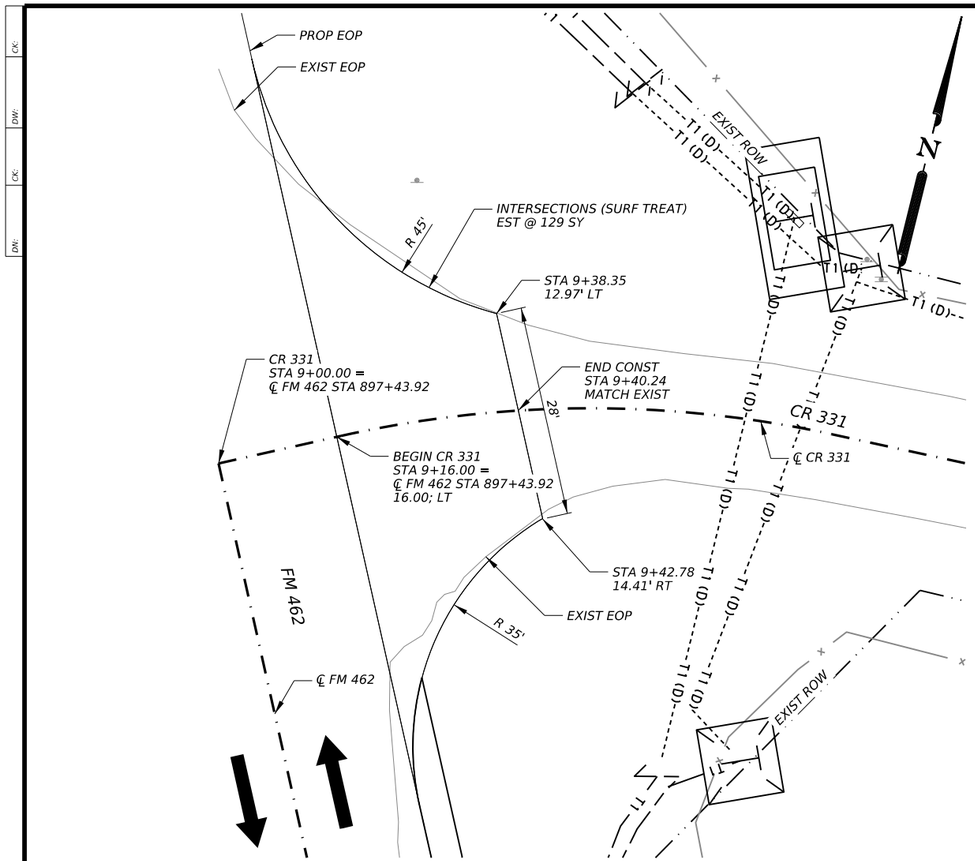
SHEET 26 OF 26

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		127

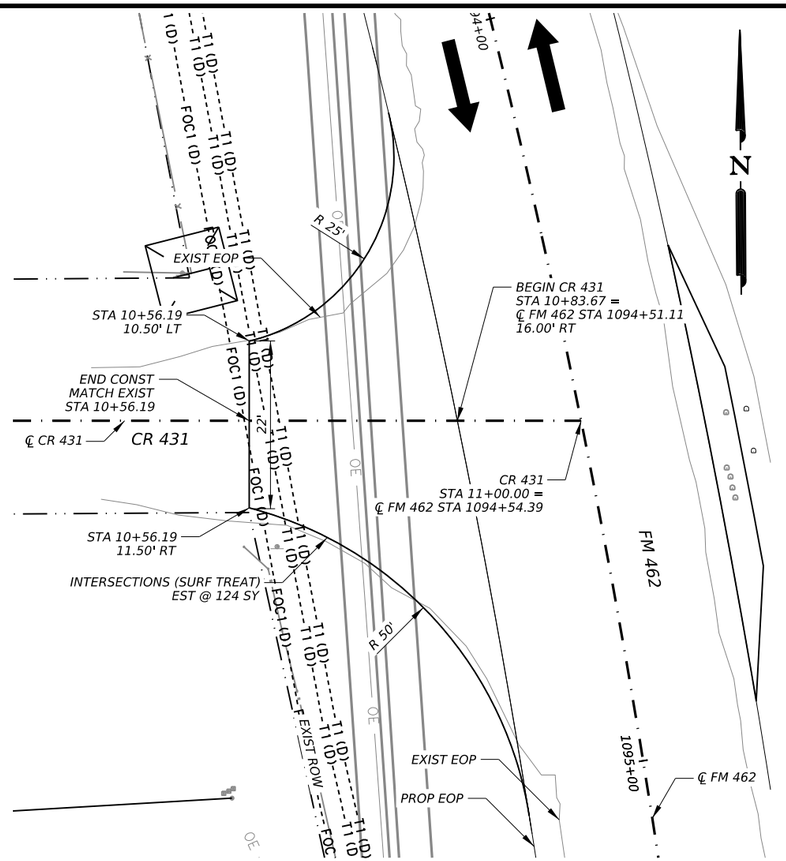
DATE: 1/31/2024 2:46:25 PM
FILE: c:\pw\kh1\d0285616\FM462_ROW_PP.dgn

CK:
DW:
CK:
DW:

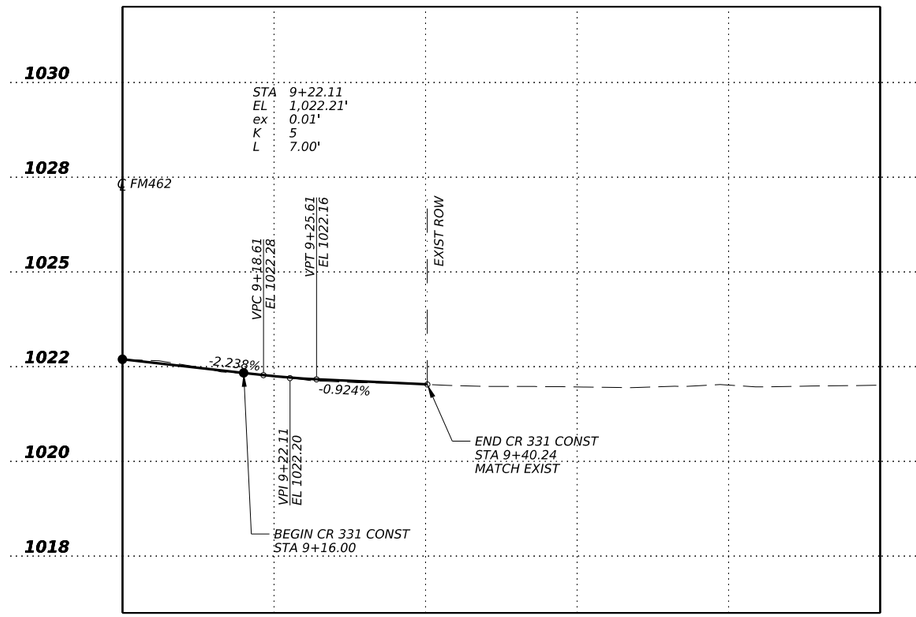
ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	297
0530 6003	INTERSECTIONS (SURF TREAT)	SY	253

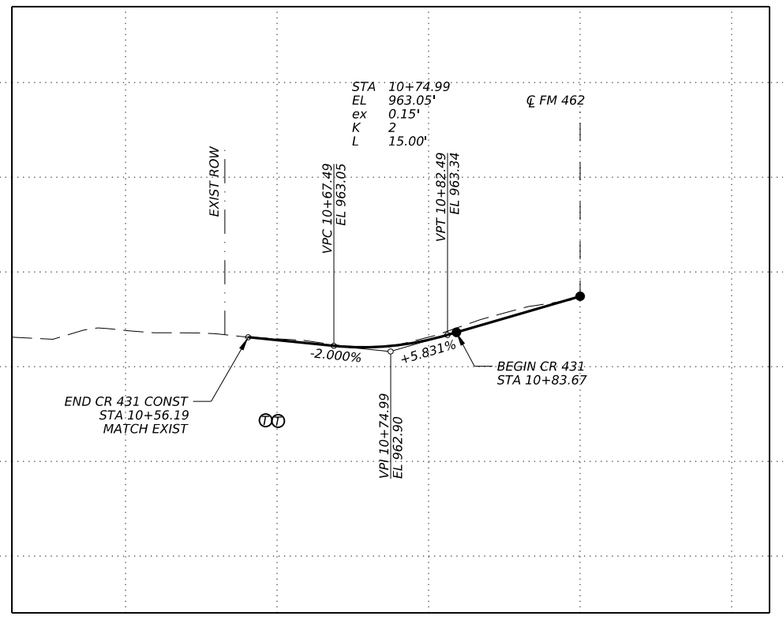


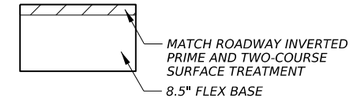
CR 331



CR 431







PAVEMENT DETAIL

*INTERSECTION PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6003.

LEGEND

EXIST ROW

EXIST FENCE

EXIST FEATURES

1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

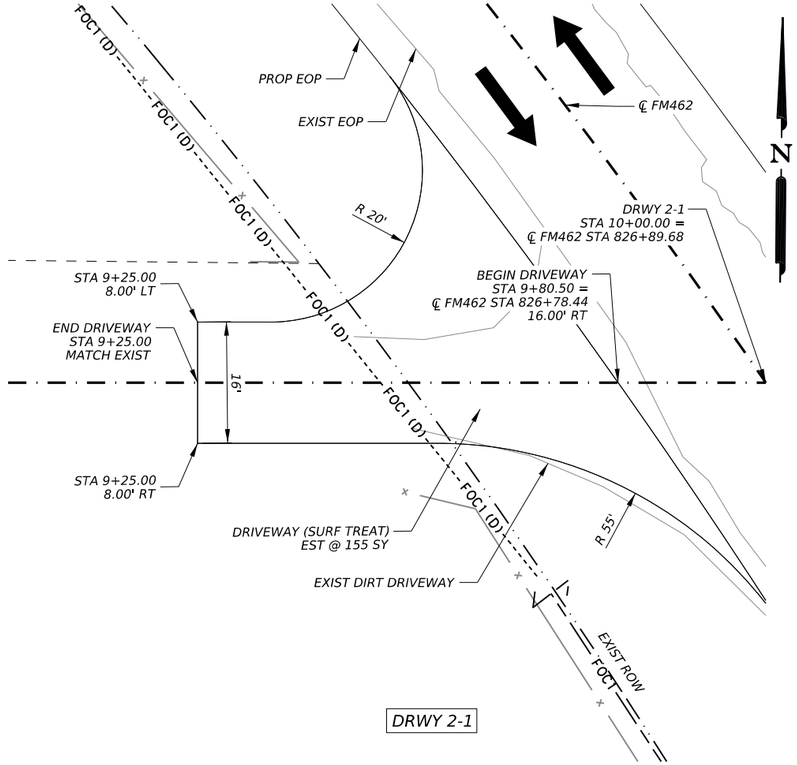
INTERSECTION
PLAN AND PROFILE

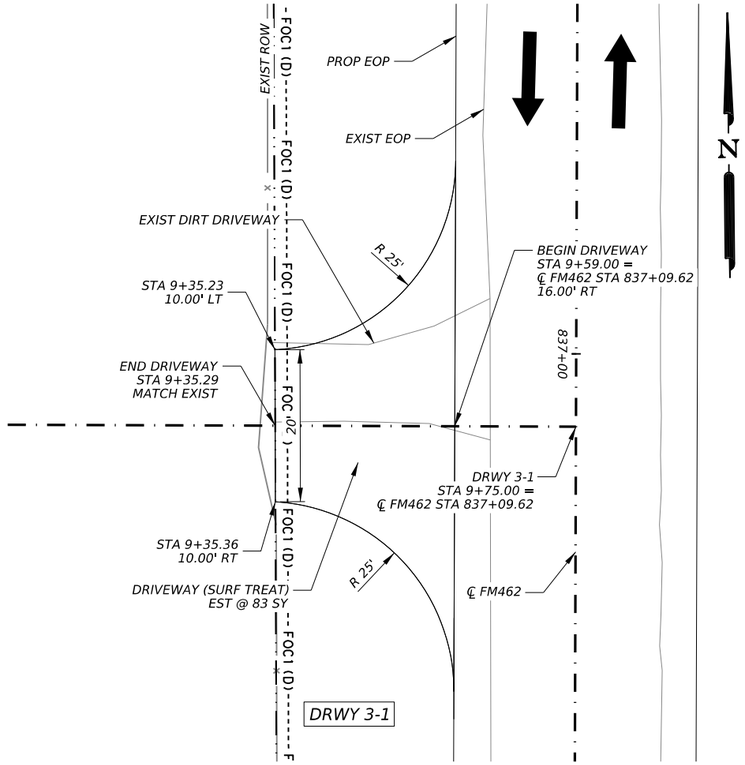
SHEET 1 OF 1

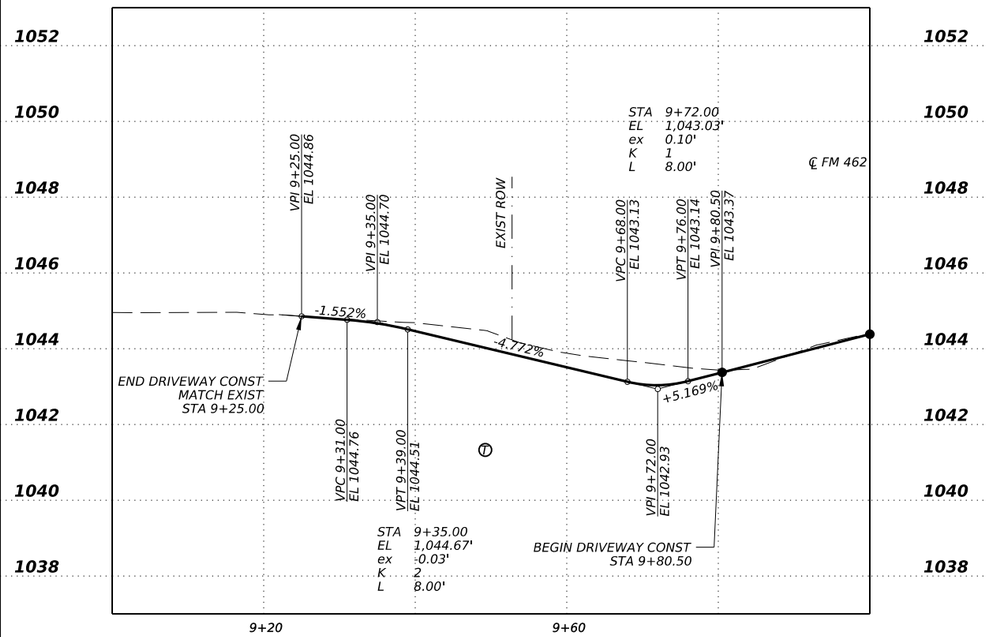
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		128

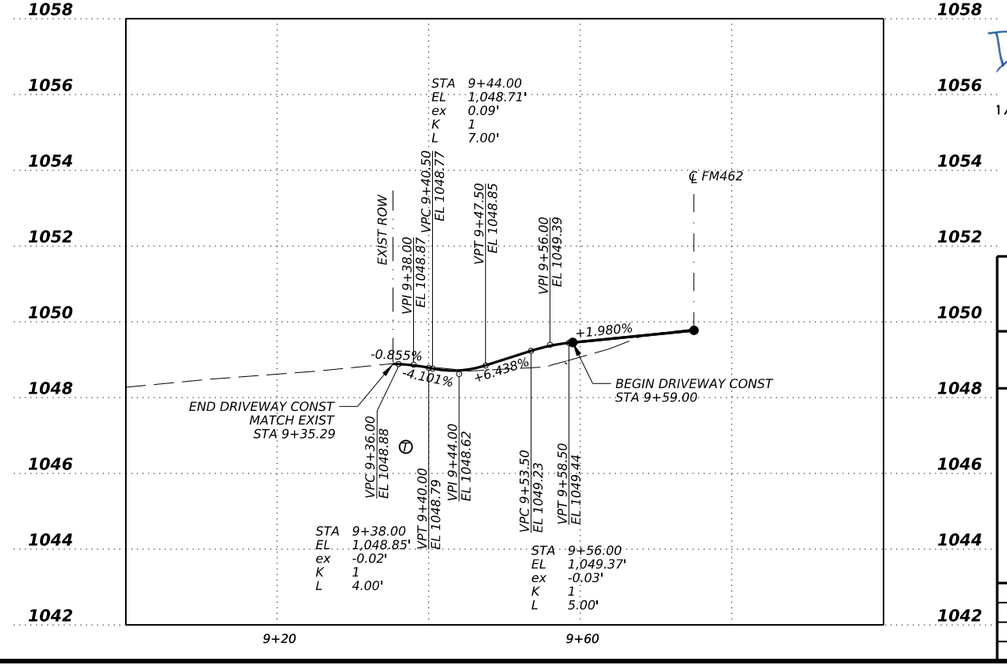
DATE: 1/31/2024 8:51:52 PM
FILE: c:\pw\kh1\d0285616\FM331 (5).dgn

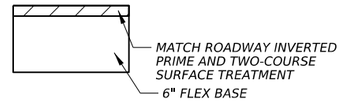
ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	238











PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

EXIST ROW

EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

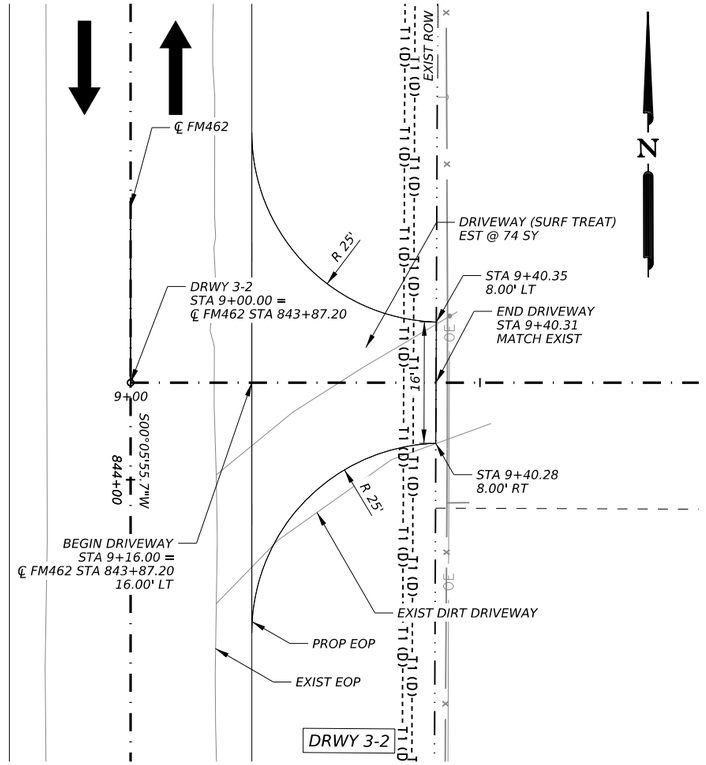
DRIVEWAY
PLAN AND PROFILE

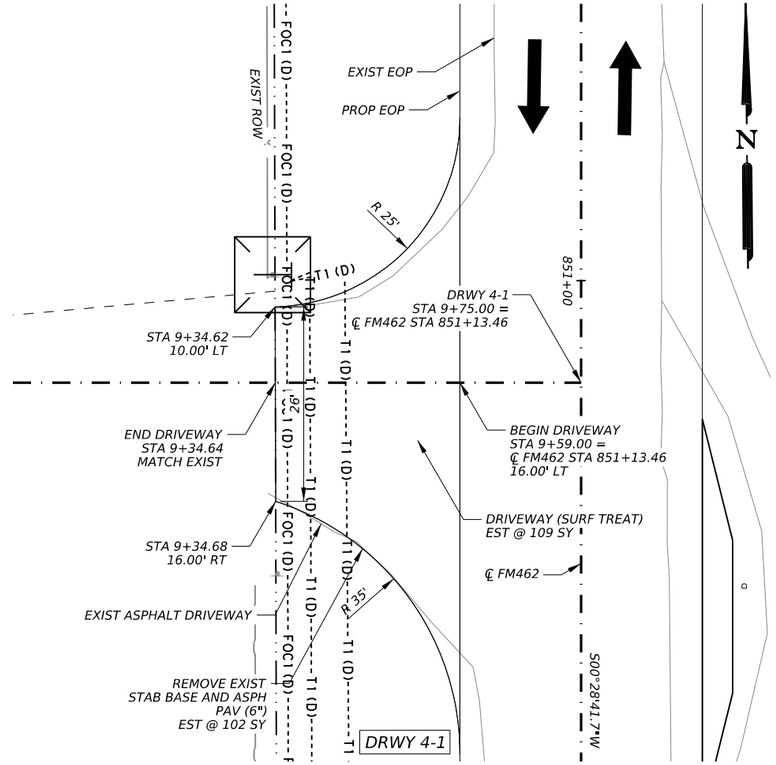
SHEET 1 OF 16

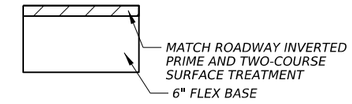
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		129

DATE: 1/31/2024 8:52:20 PM
FILE: c:\pwikh1\d0285616\DRWY_01.dgn

ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	102
0530 6006	DRIVEWAYS (SURF TREAT)	SY	183







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

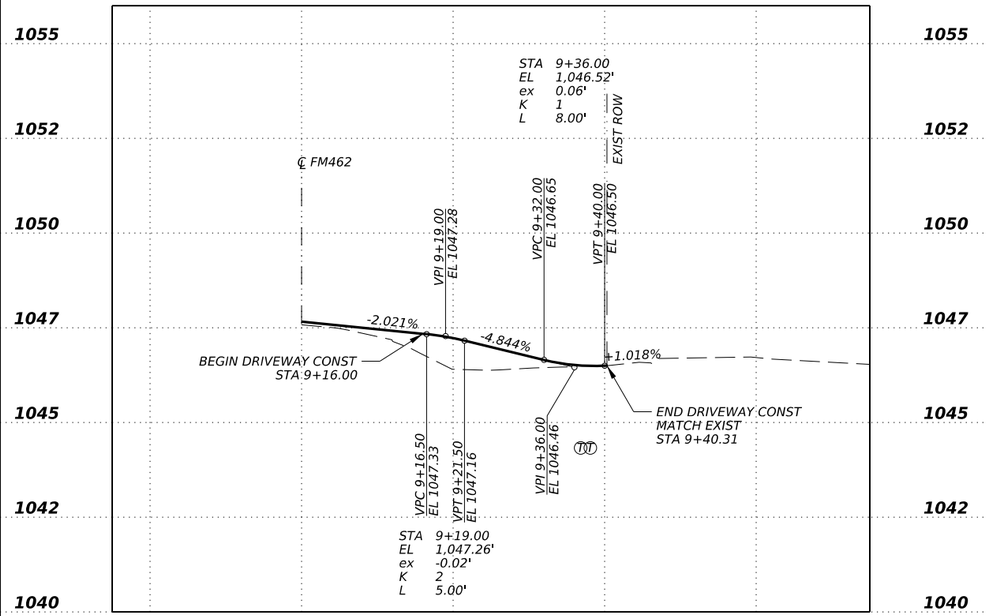
EXIST ROW

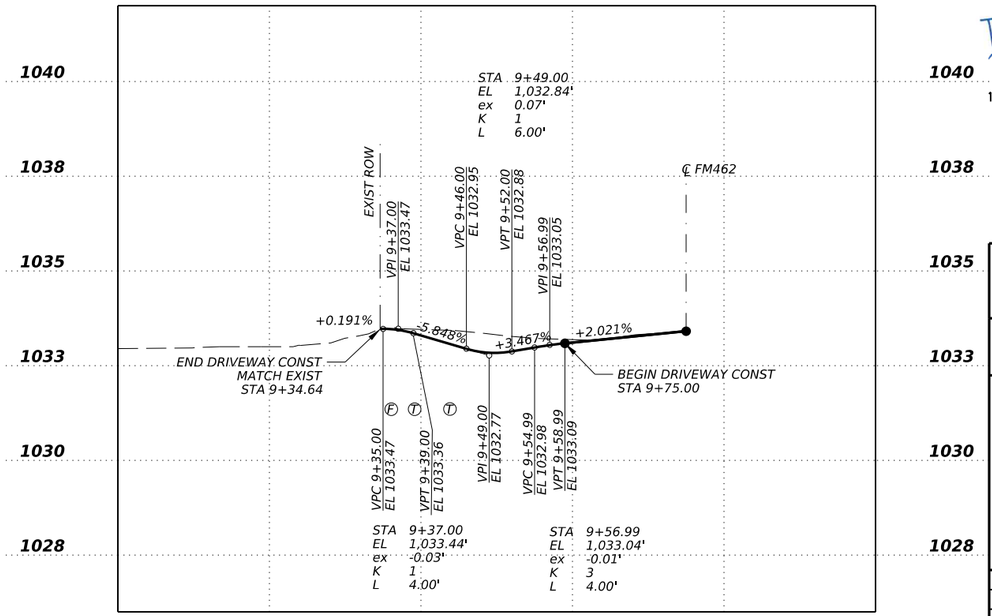
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

DRIVEWAY PLAN AND PROFILE

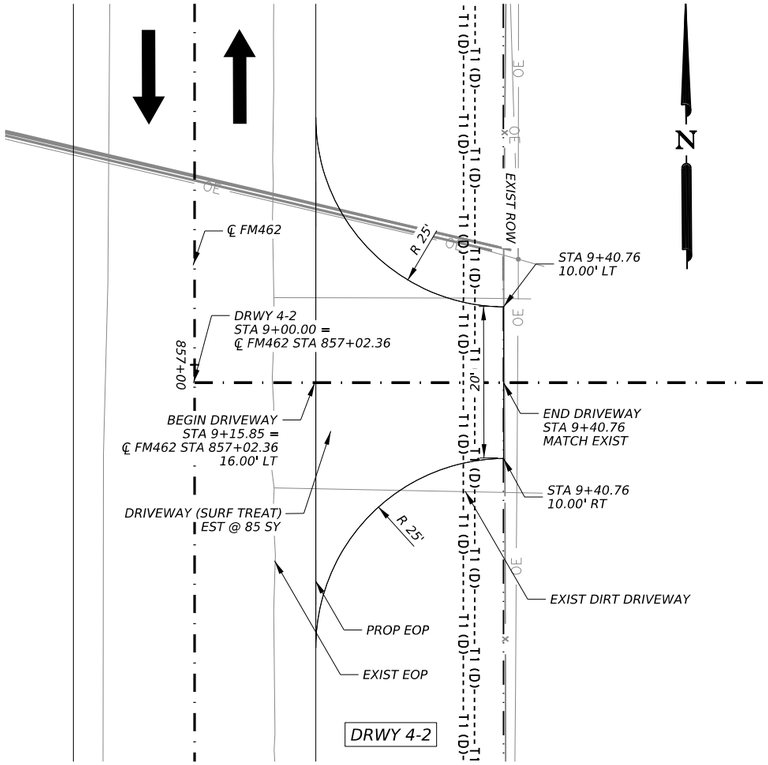
SHEET 2 OF 16

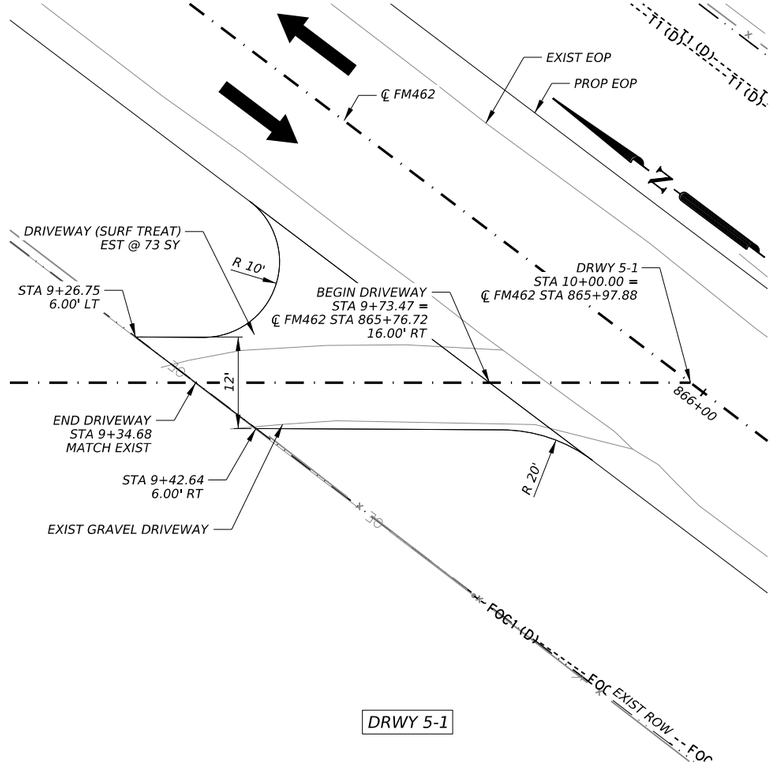
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		130

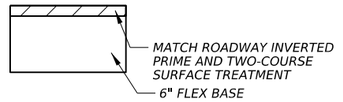
DATE: 1/31/2024 8:52:45 PM
FILE: c:\pwikh1\d0285616\DRWY 02.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	52
0530 6006	DRIVEWAYS (SURF TREAT)	SY	158







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

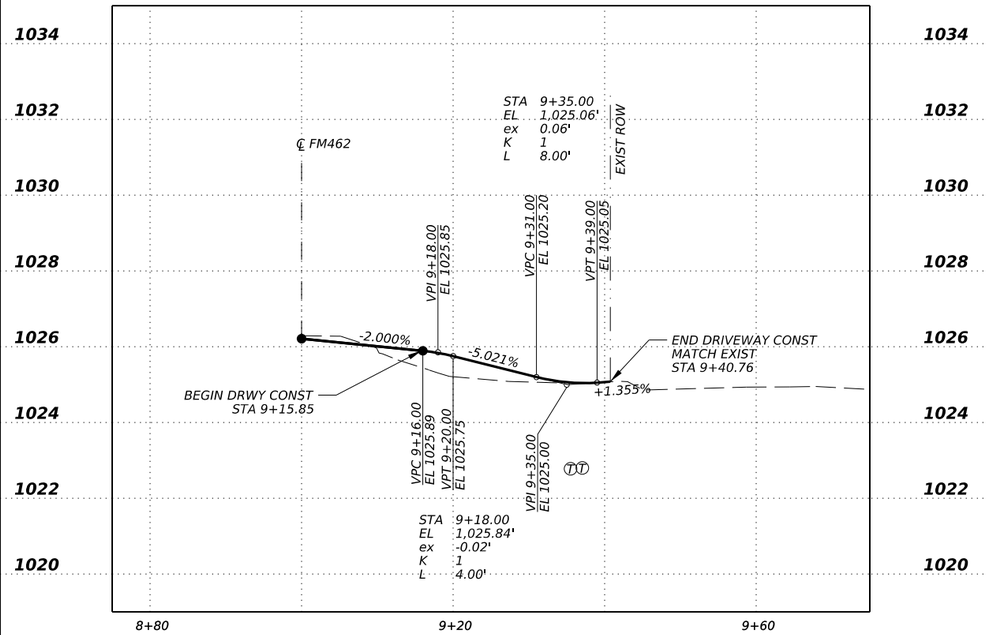
EXIST ROW

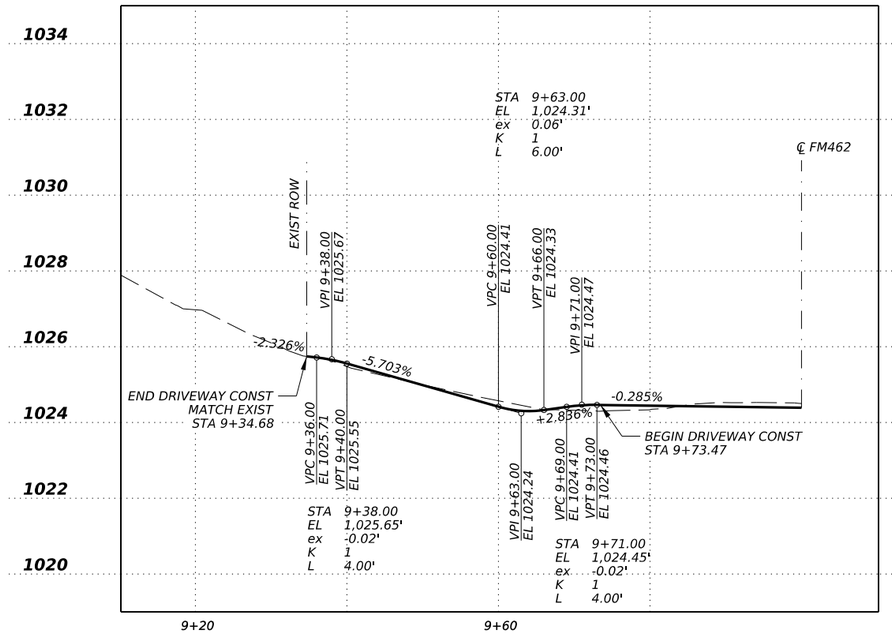
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

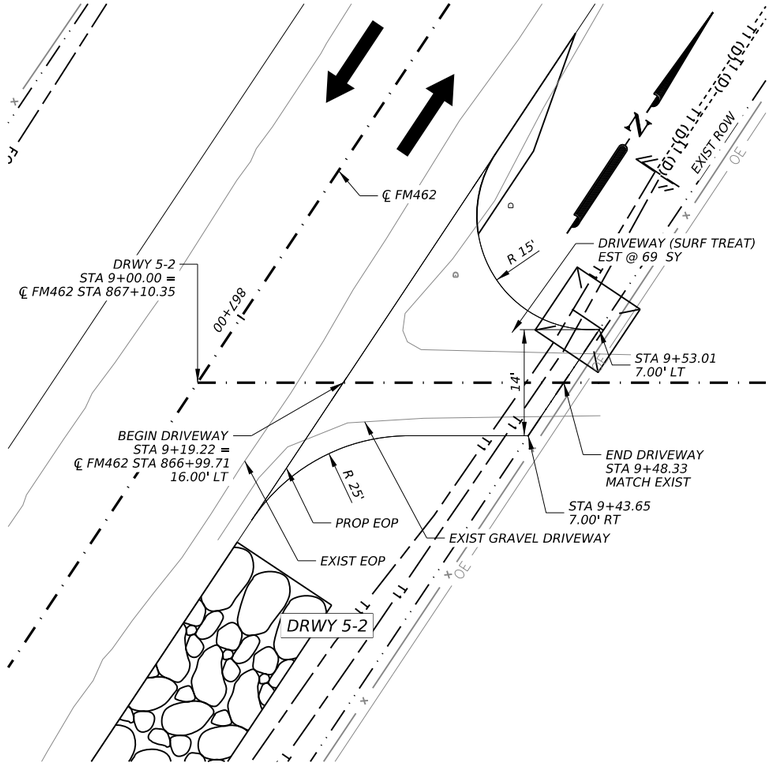
DRIVEWAY
PLAN AND PROFILE

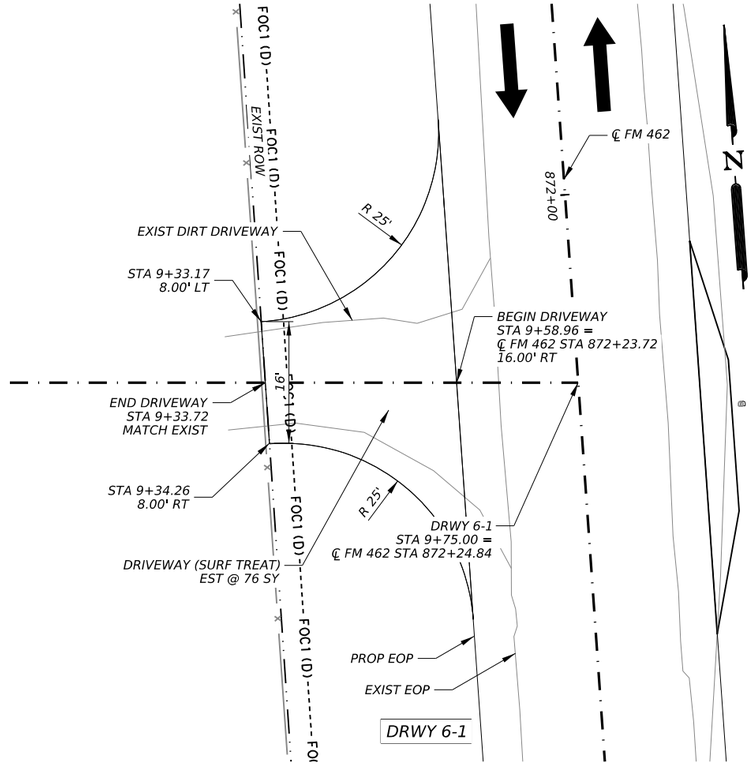
SHEET 3 OF 16

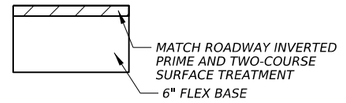
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		131

DATE: 1/31/2024 8:53:12 PM
FILE: c:\pw\kh1\d0285616\DRWY 03.dgn

ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	96
0530 6006	DRIVEWAYS (SURF TREAT)	SY	145







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

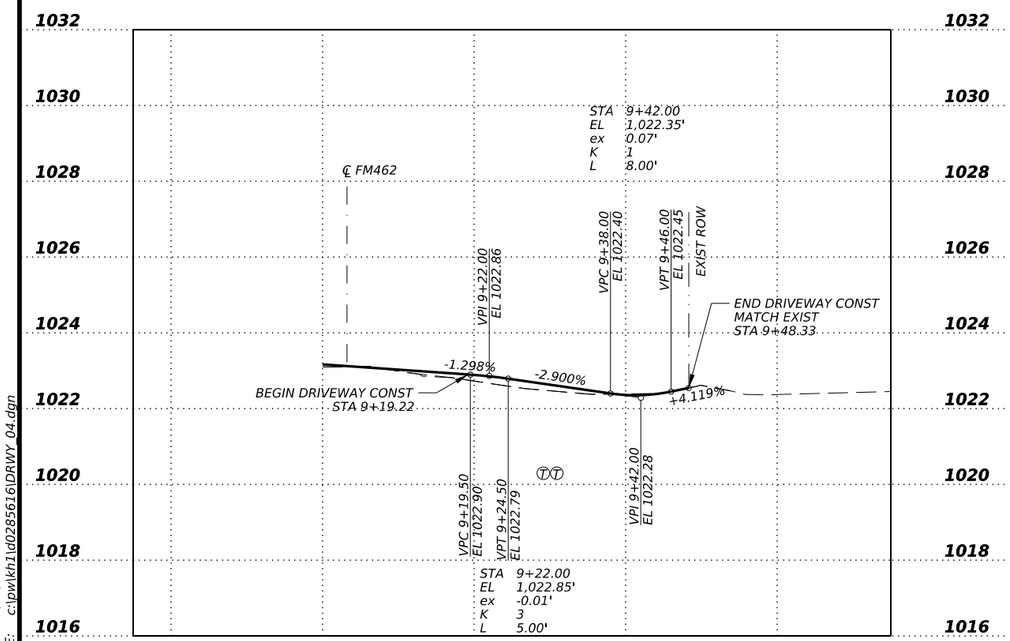
EXIST ROW

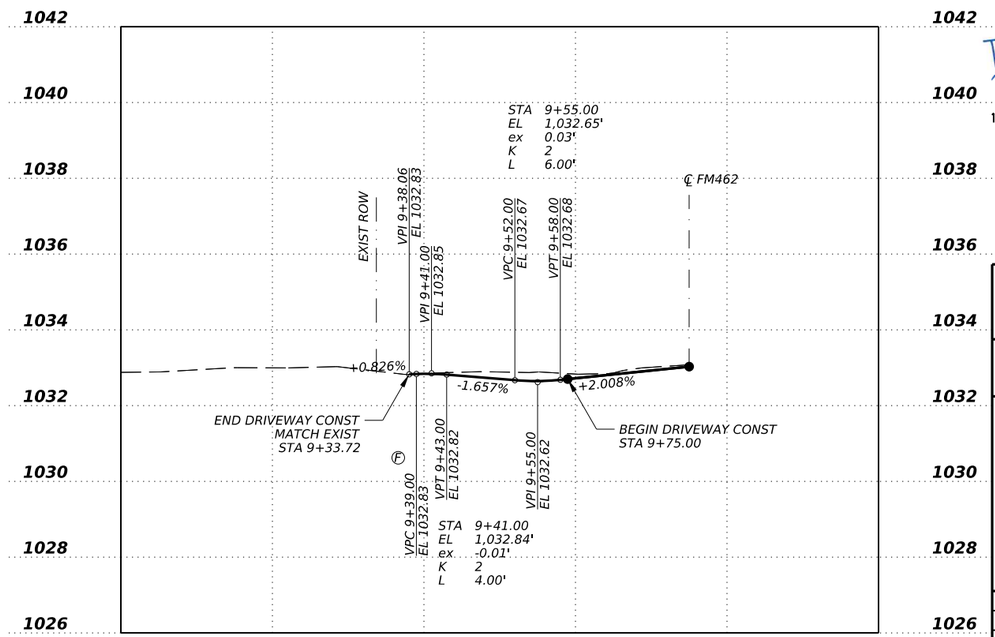
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

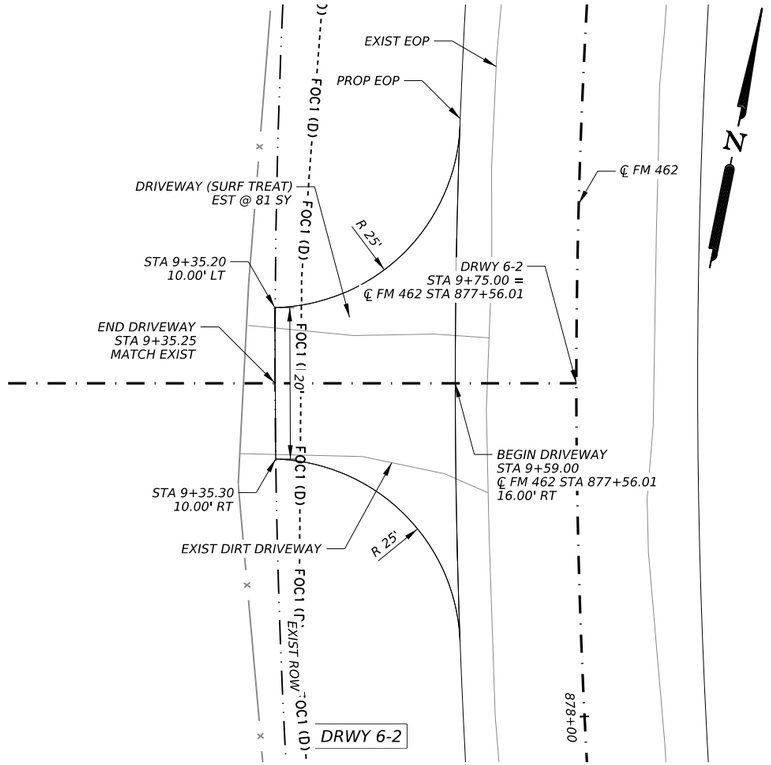
DRIVEWAY PLAN AND PROFILE

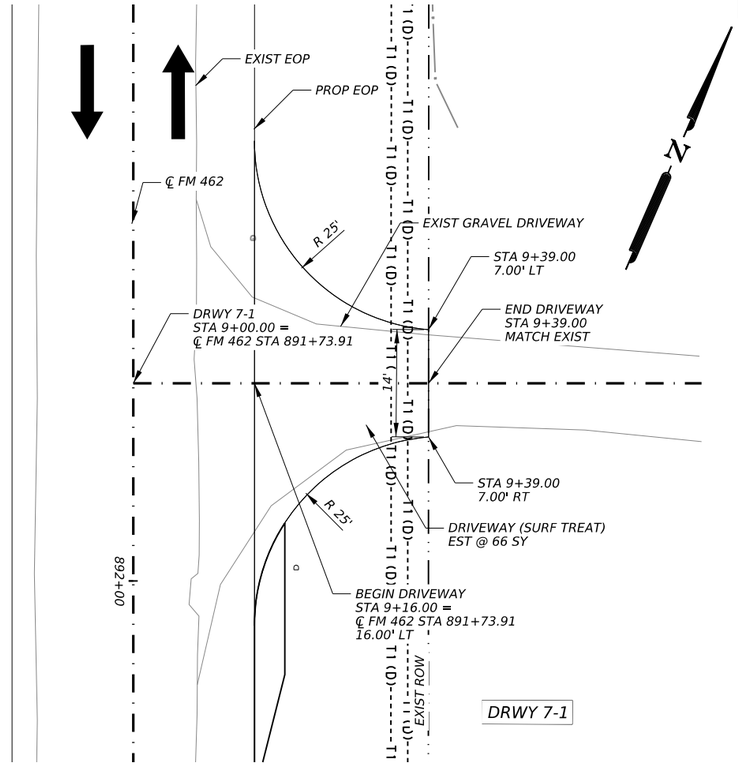
SHEET 4 OF 16

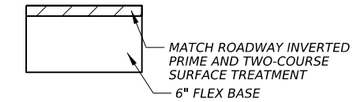
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		132

DATE: 1/31/2024 8:53:37 PM
FILE: c:\pw\kh1\d0285616\DRWY 04.dgn

ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	85
0530 6006	DRIVEWAYS (SURF TREAT)	SY	147







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

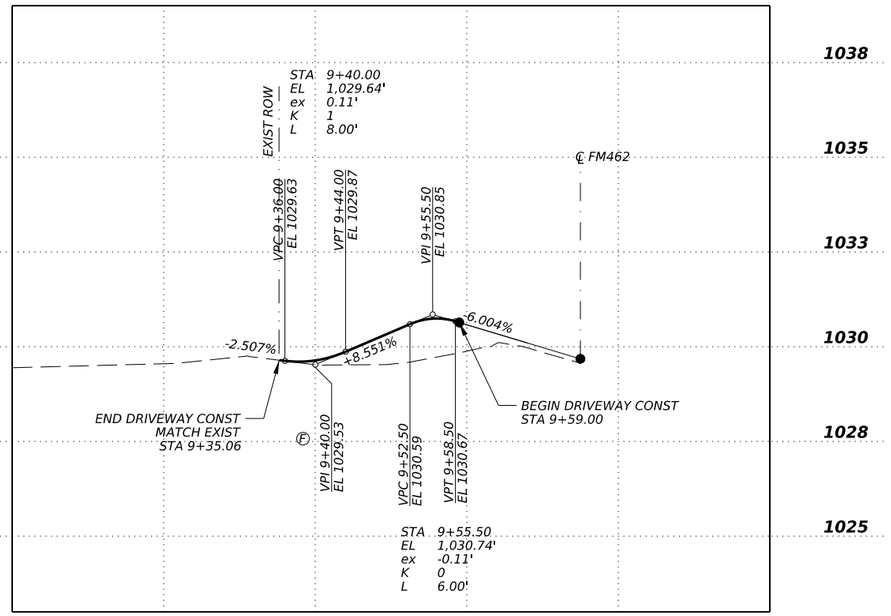
EXIST ROW

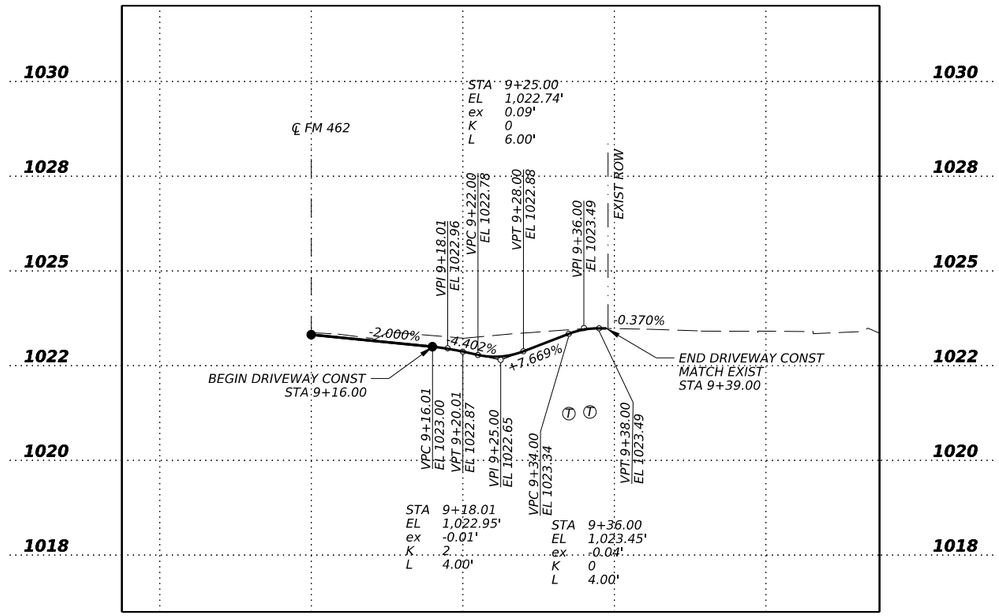
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

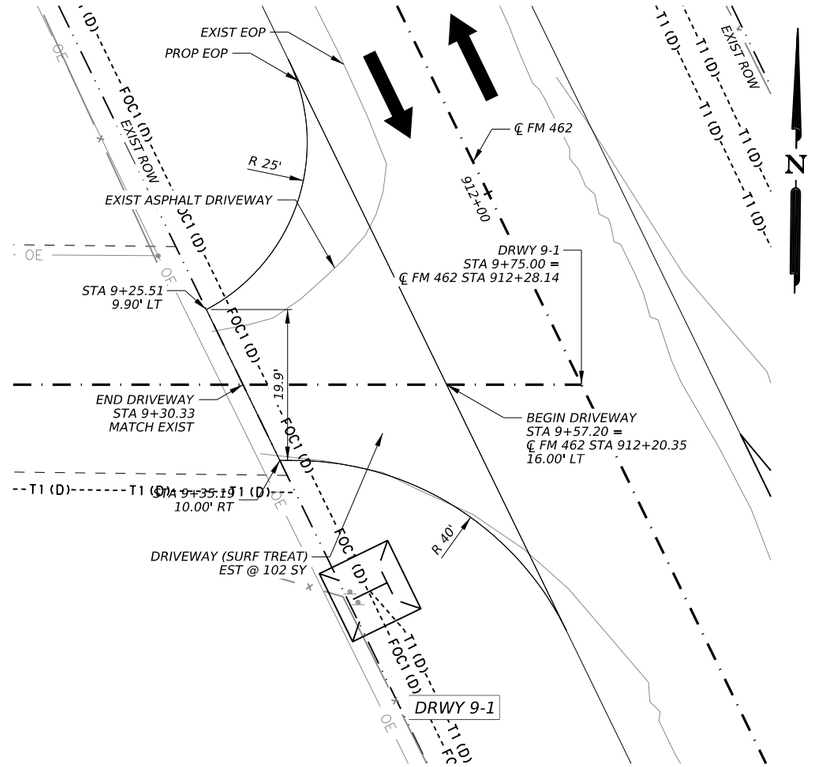
DRIVEWAY
PLAN AND PROFILE

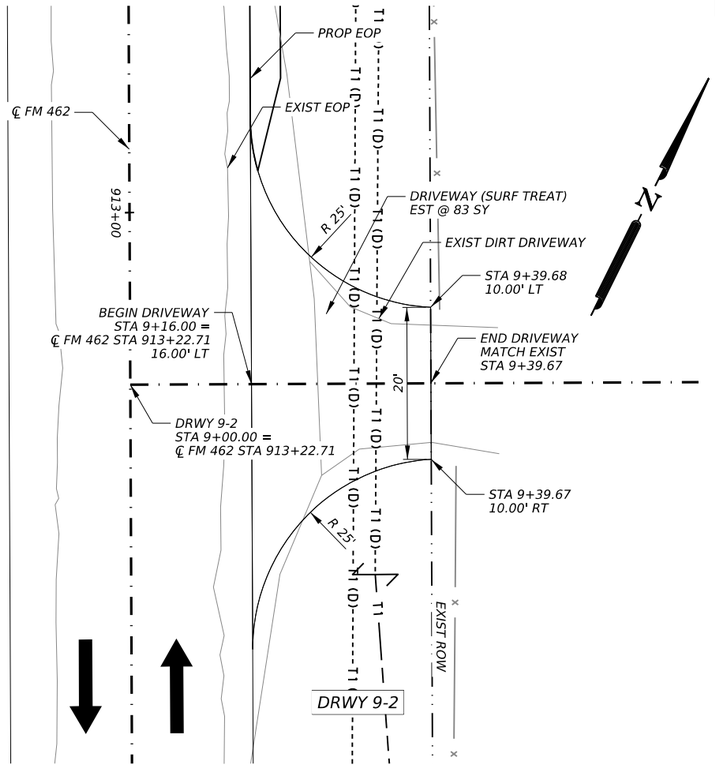
SHEET 5 OF 16

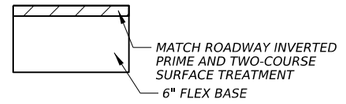
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		133

DATE: 1/31/2024 8:54:02 PM
FILE: c:\pw\kh1\d0285616\DRWY_05.dgn

ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	114
0530 6006	DRIVEWAYS (SURF TREAT)	SY	185







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

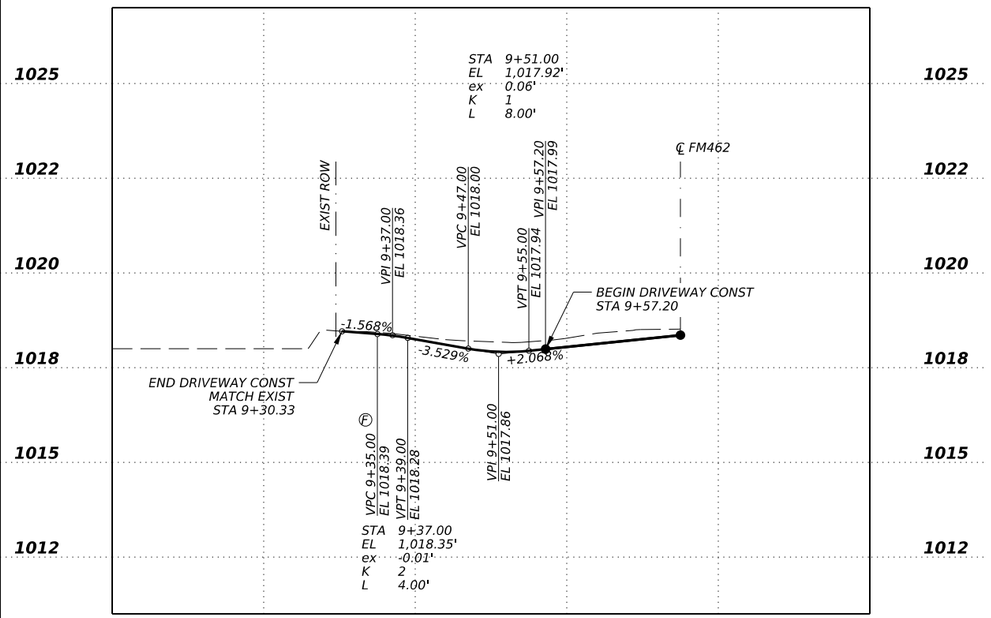
EXIST ROW

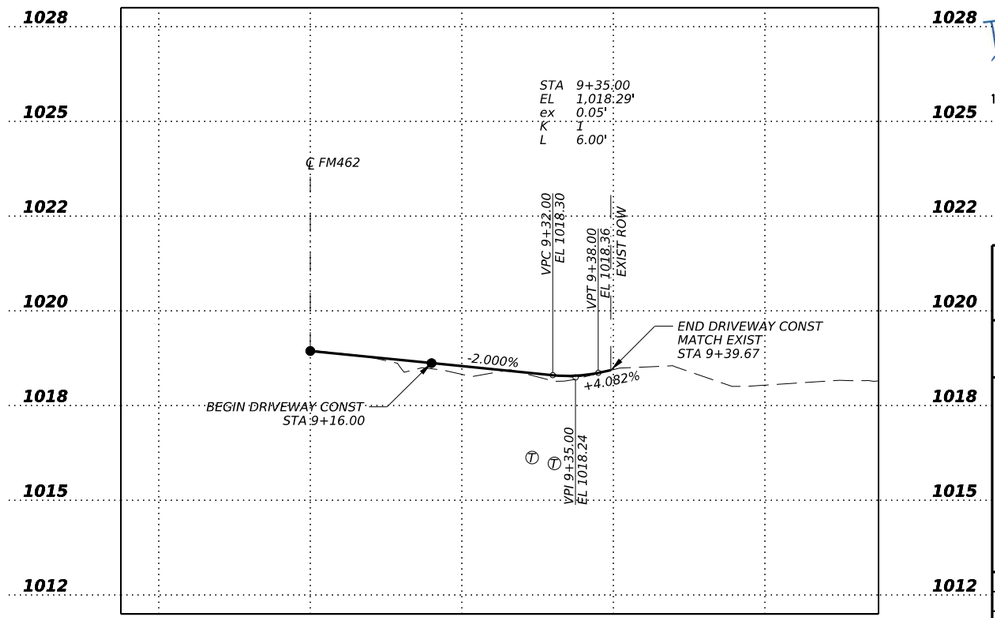
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

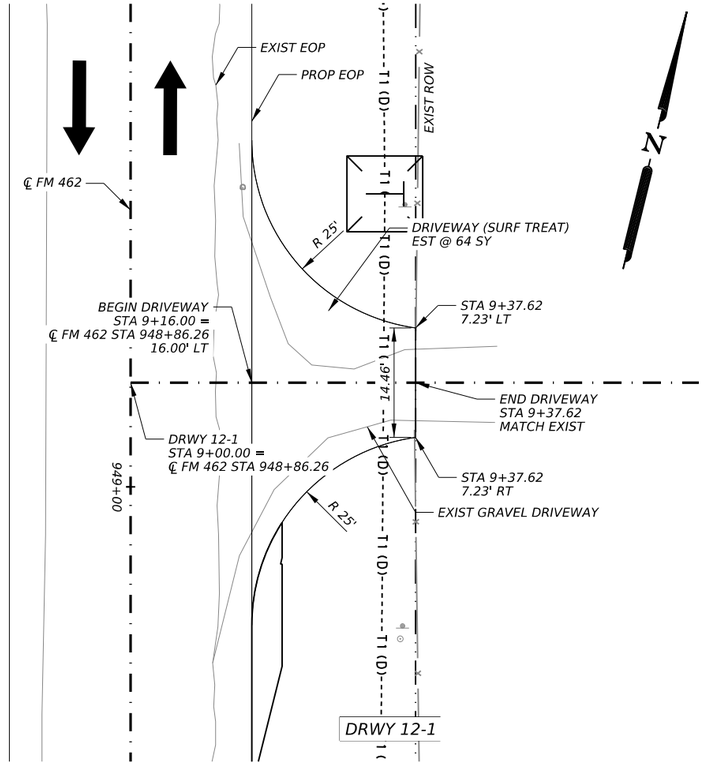
DRIVEWAY PLAN AND PROFILE

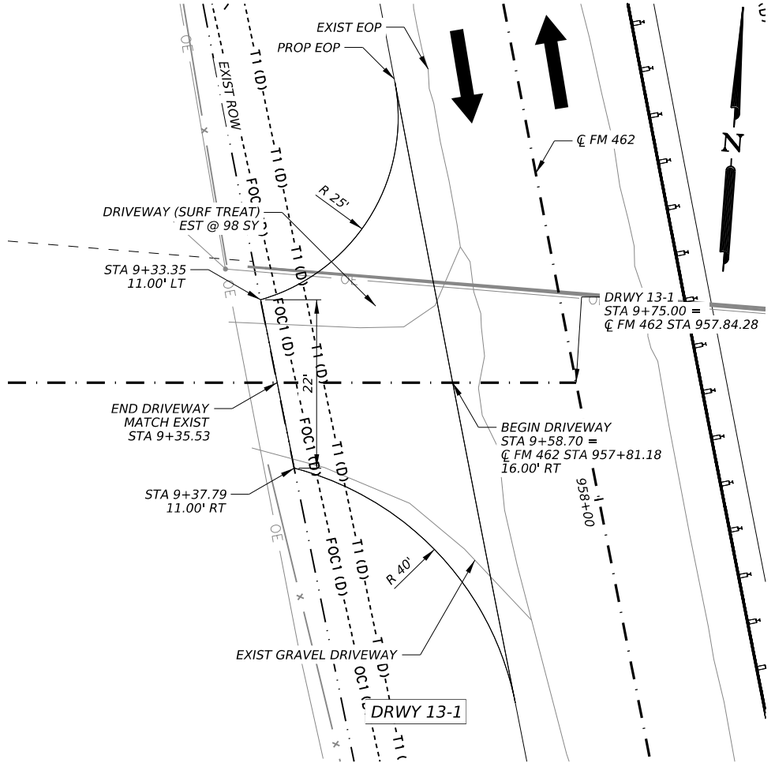
SHEET 6 OF 16

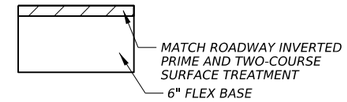
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		134

DATE: 1/31/2024 8:54:26 PM
FILE: c:\pw\kh1\d0285616\DRWY 06.dgn

ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	142
0530 6006	DRIVEWAYS (SURF TREAT)	SY	162







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

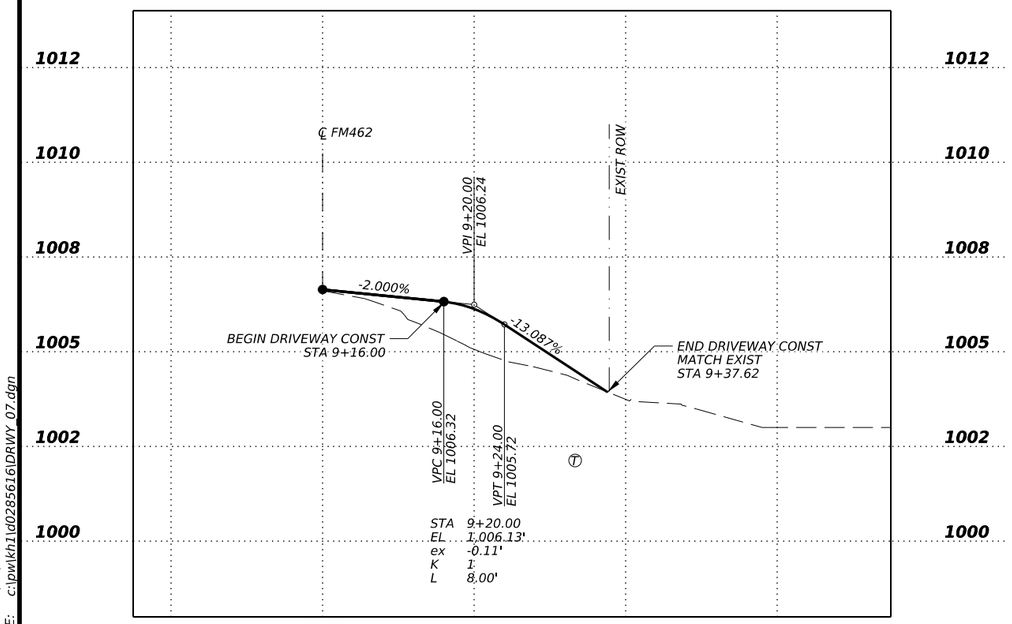
EXIST ROW

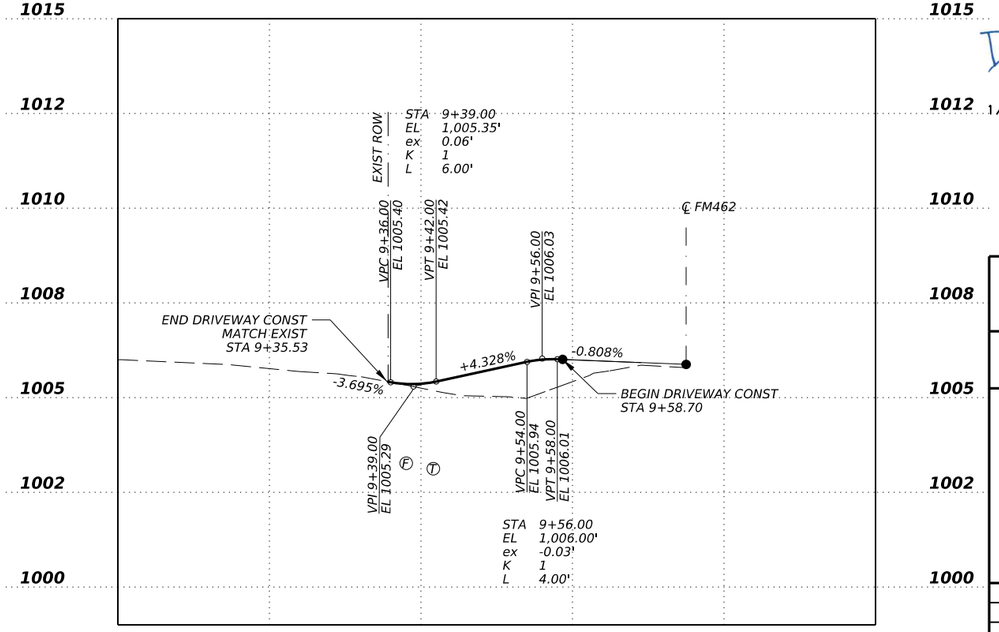
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

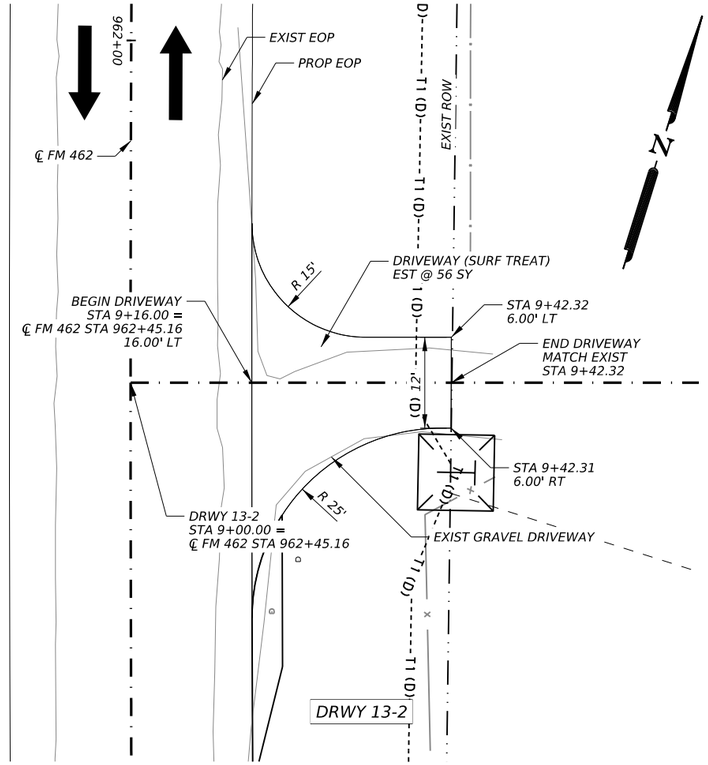
DRIVEWAY PLAN AND PROFILE

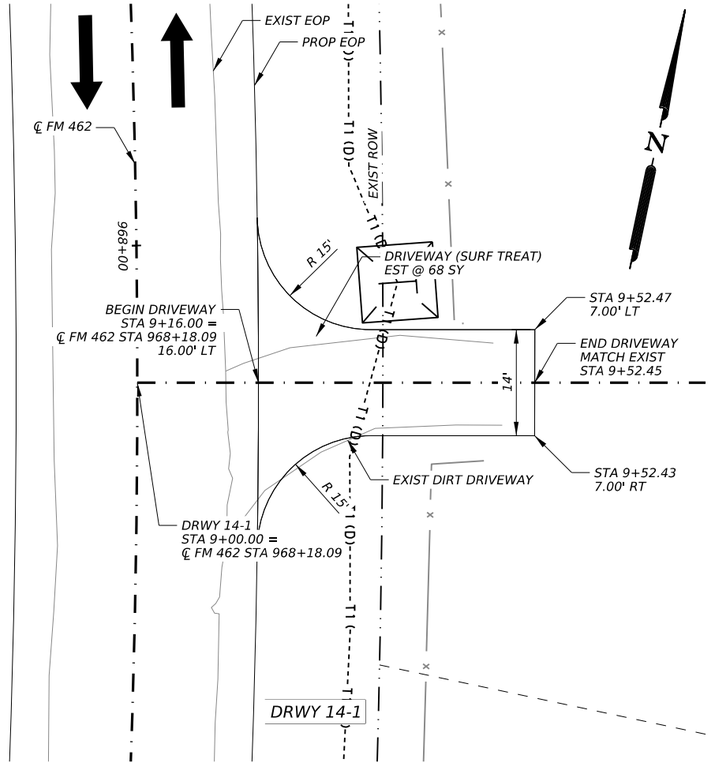
SHEET 7 OF 16

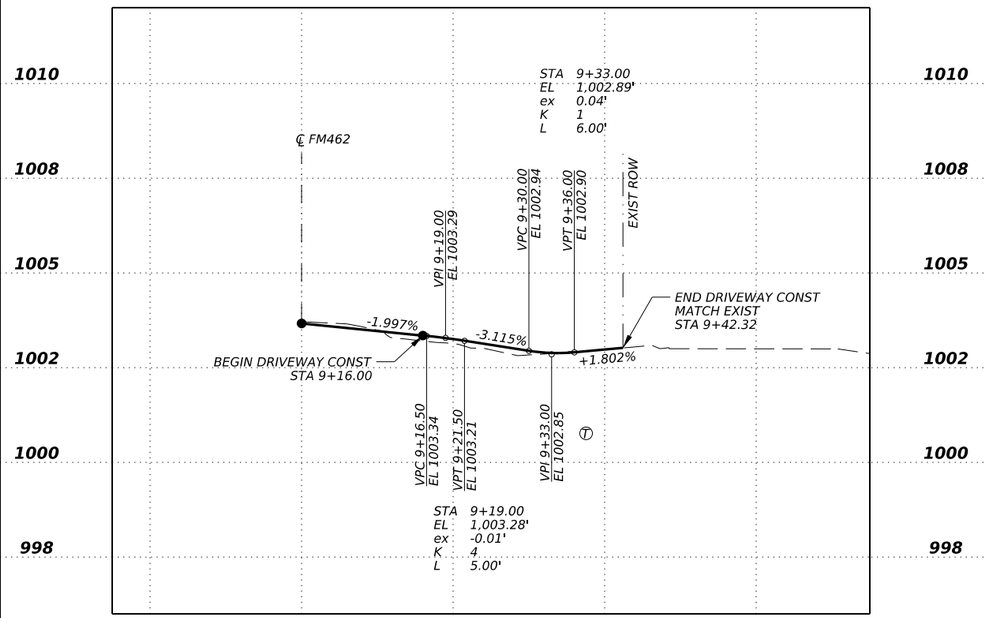
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		135

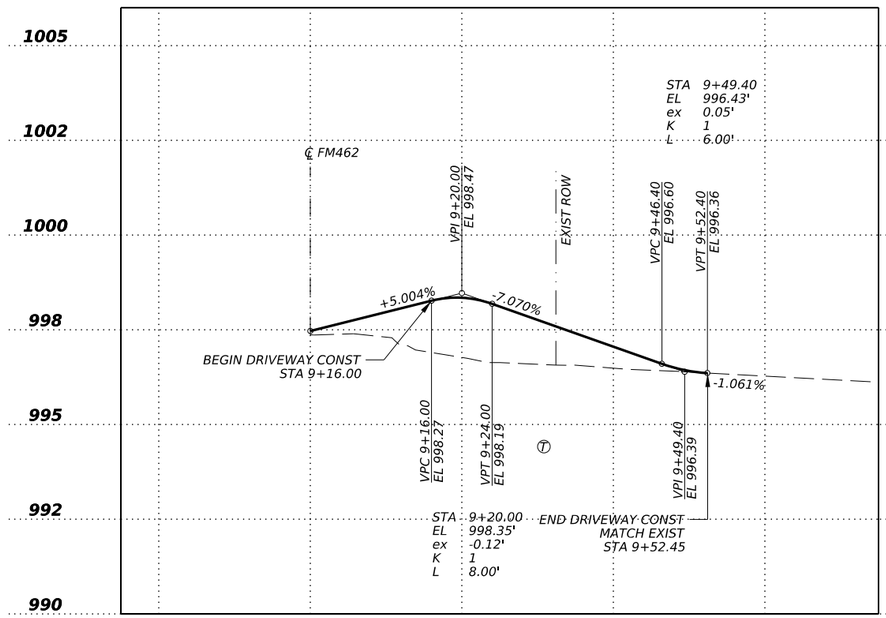
DATE: 1/31/2024 8:54:52 PM
FILE: c:\pw\kh1\d0285616\DRWY 07.dgn

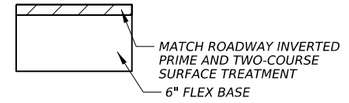
ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	89
0530 6006	DRIVEWAYS (SURF TREAT)	SY	124











PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

EXIST ROW

EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

DRIVEWAY
PLAN AND PROFILE

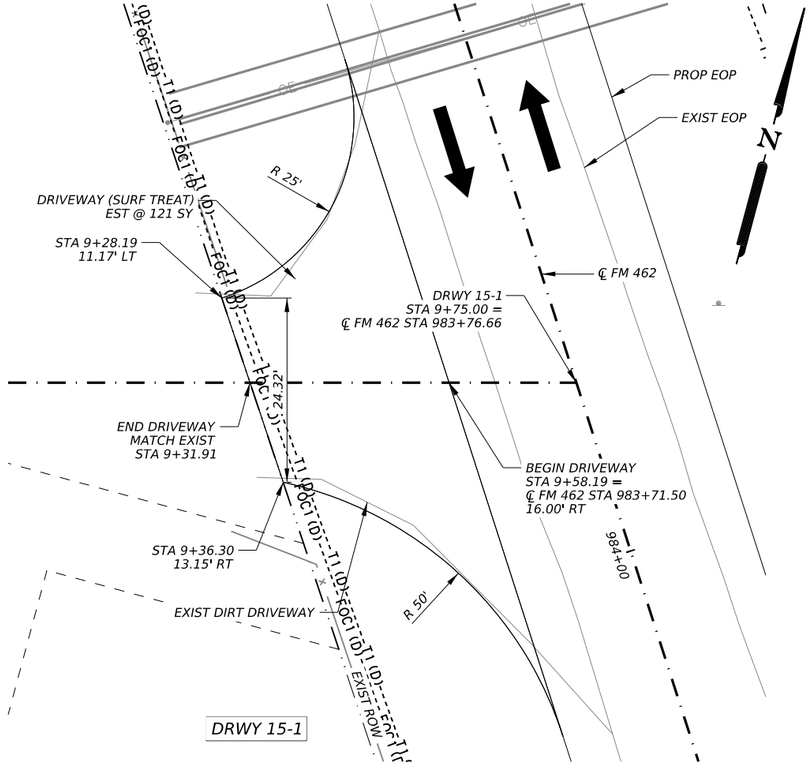
SHEET 8 OF 16

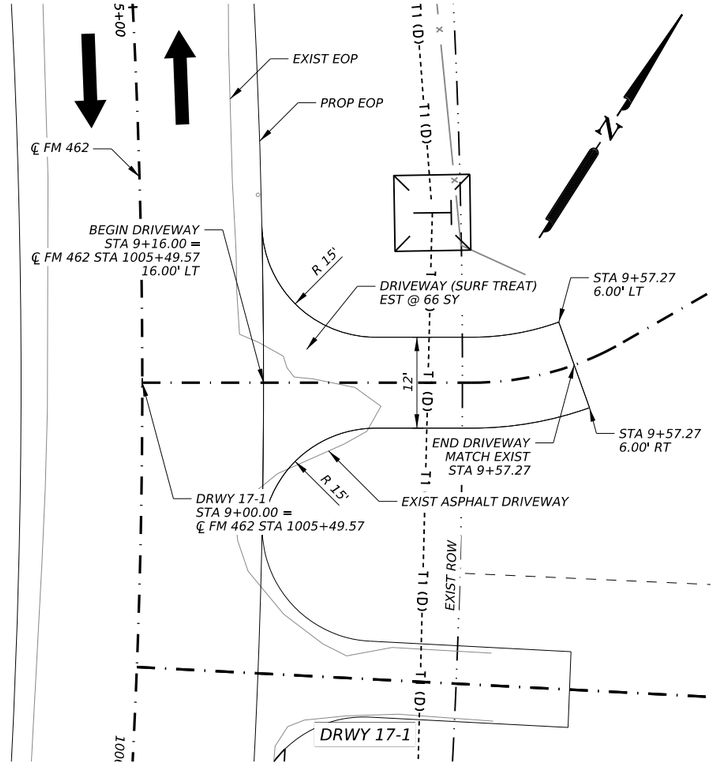
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		136

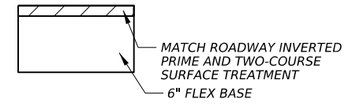
DATE: 1/31/2024 8:55:18 PM
FILE: c:\pw\kh1\d0285616\DRWY 08.dgn

CK:
DW:
CK:
DW:

ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	25
0530 6006	DRIVEWAYS (SURF TREAT)	SY	187







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

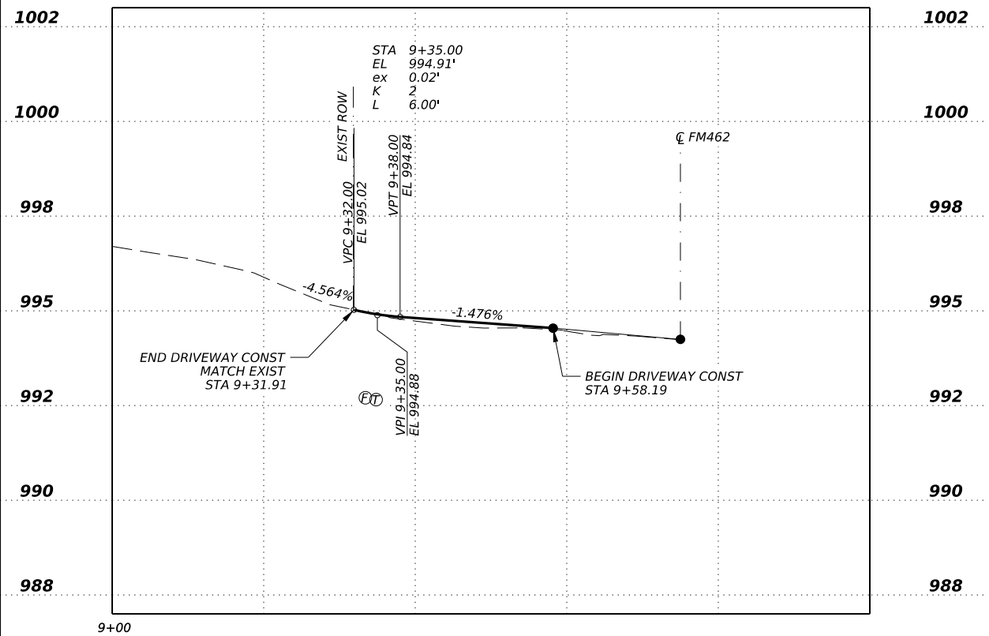
EXIST ROW

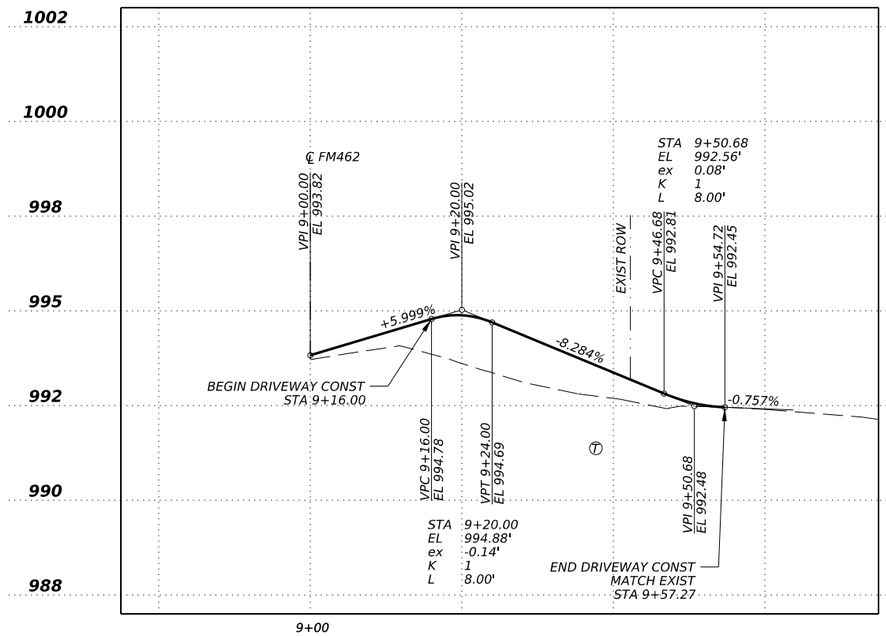
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

DRIVEWAY PLAN AND PROFILE

SHEET 9 OF 16

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		137

DATE: 1/31/2024 8:55:45 PM
FILE: c:\pw\kh1\d0285616\DRWY_09.dgn

CK: DW: CK: DW:

ITEM	DESCRIPTION	UNIT	QTY
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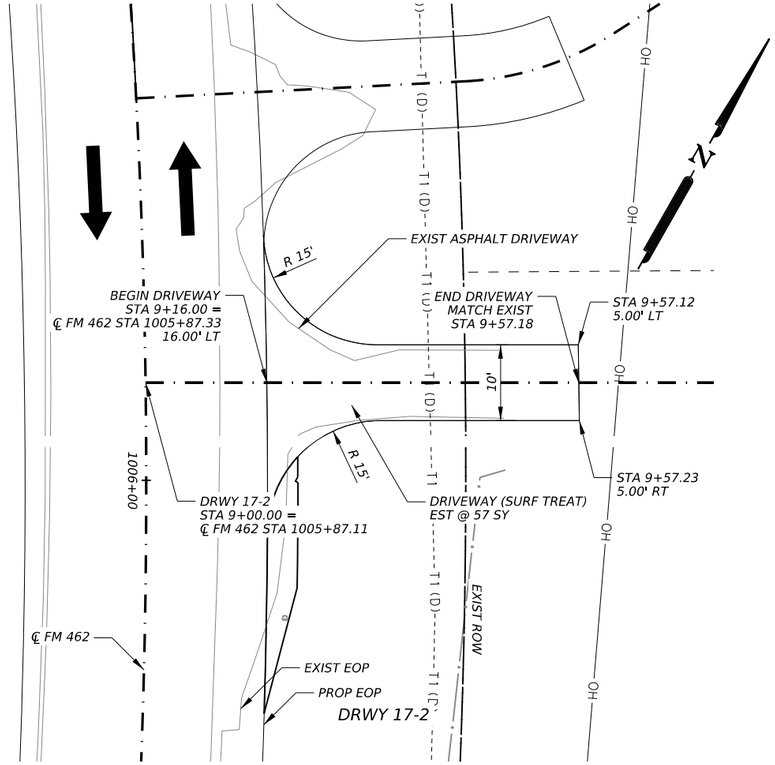
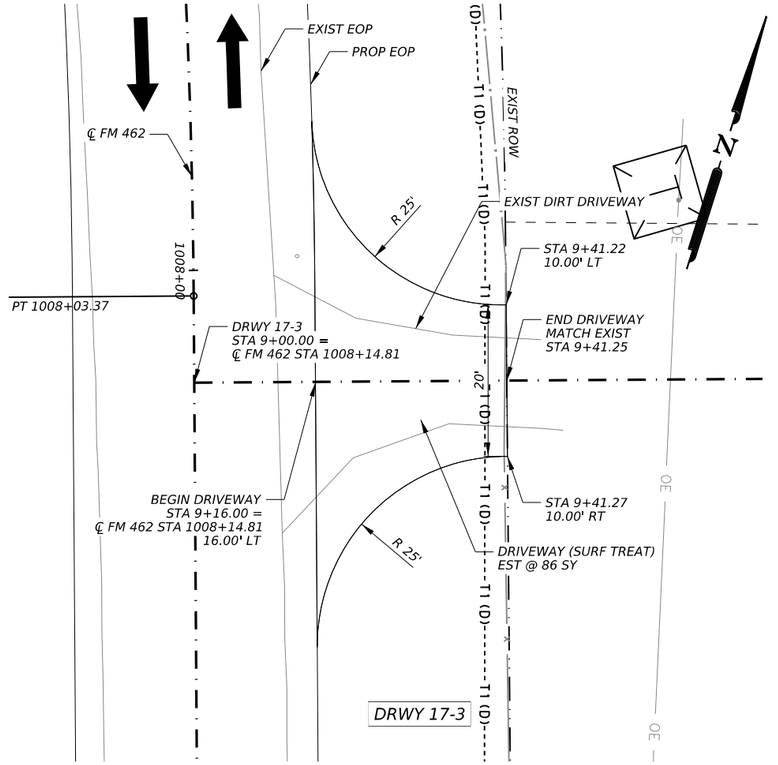
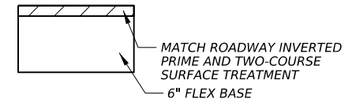
0530 6006	DRIVEWAYS (SURF TREAT)	SY	143







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

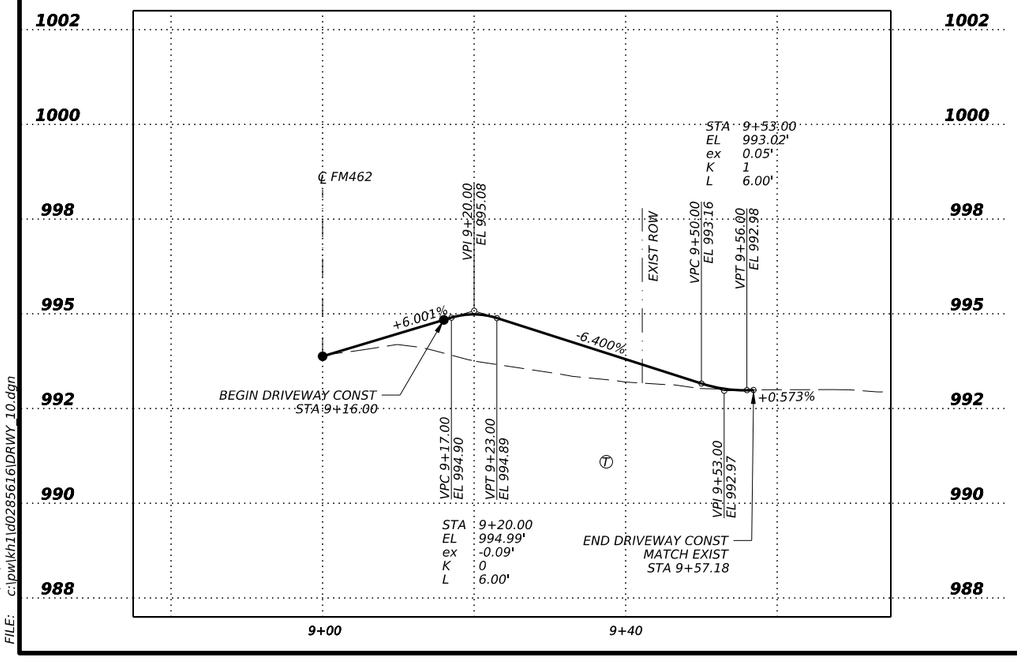
EXIST ROW

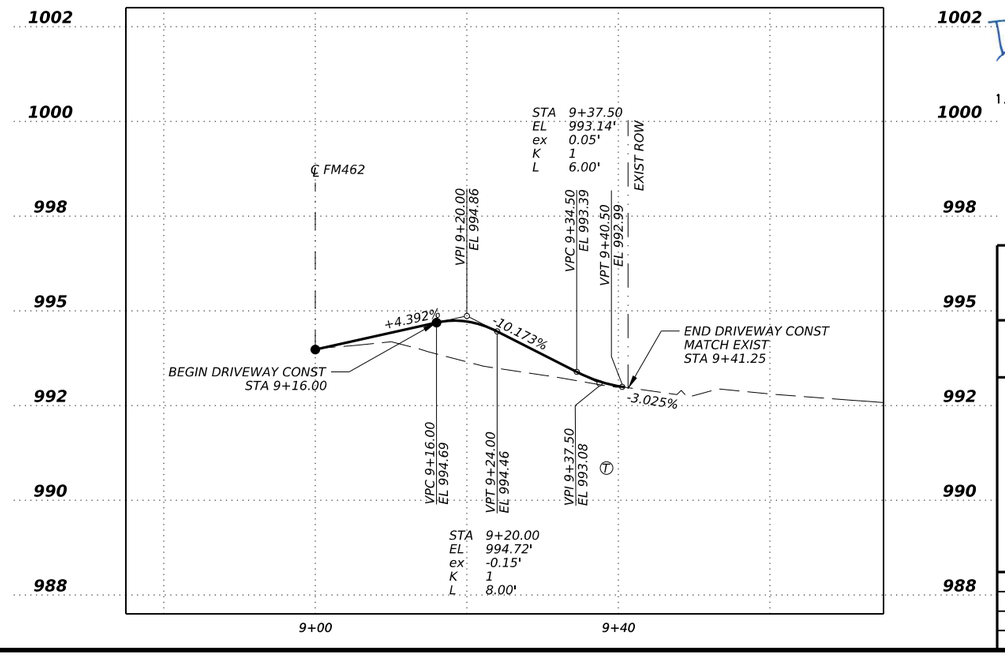
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

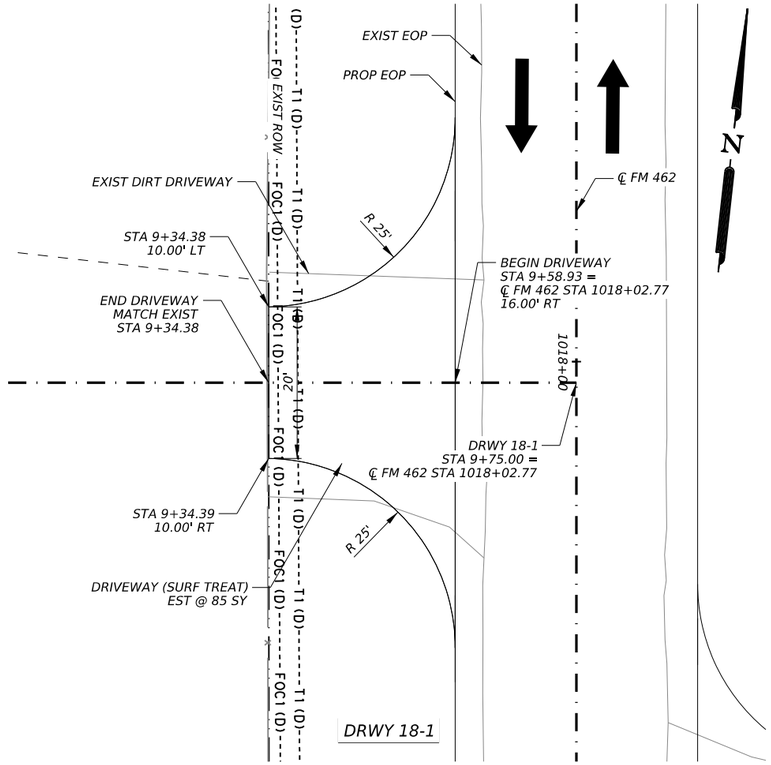
DRIVEWAY PLAN AND PROFILE

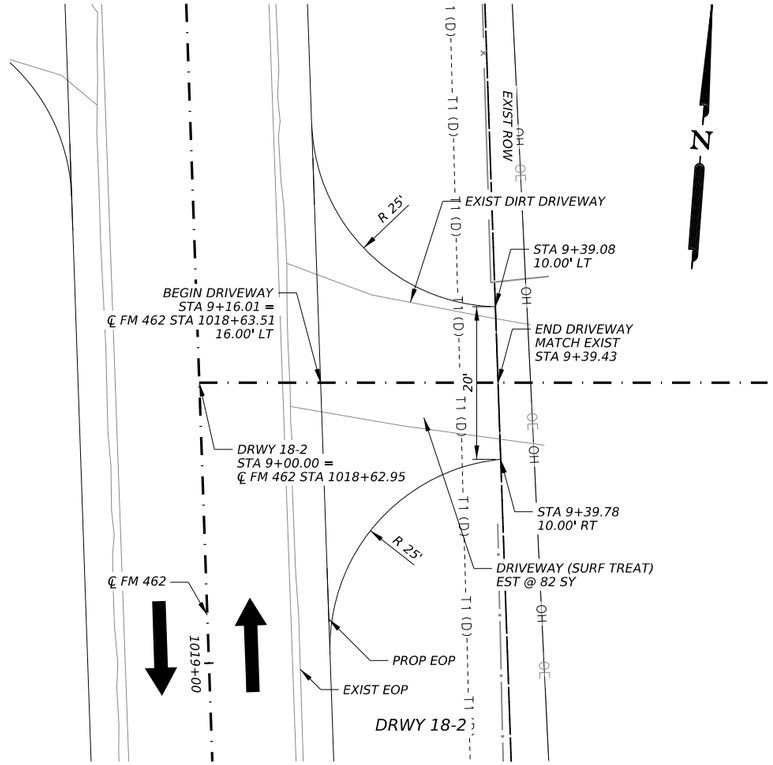
SHEET 10 OF 16

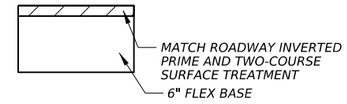
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		138

DATE: 1/31/2024 8:56:11 PM
FILE: c:\pw\kh1\d0285616\DRWY 10.dgn

ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	167







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

EXIST ROW

EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
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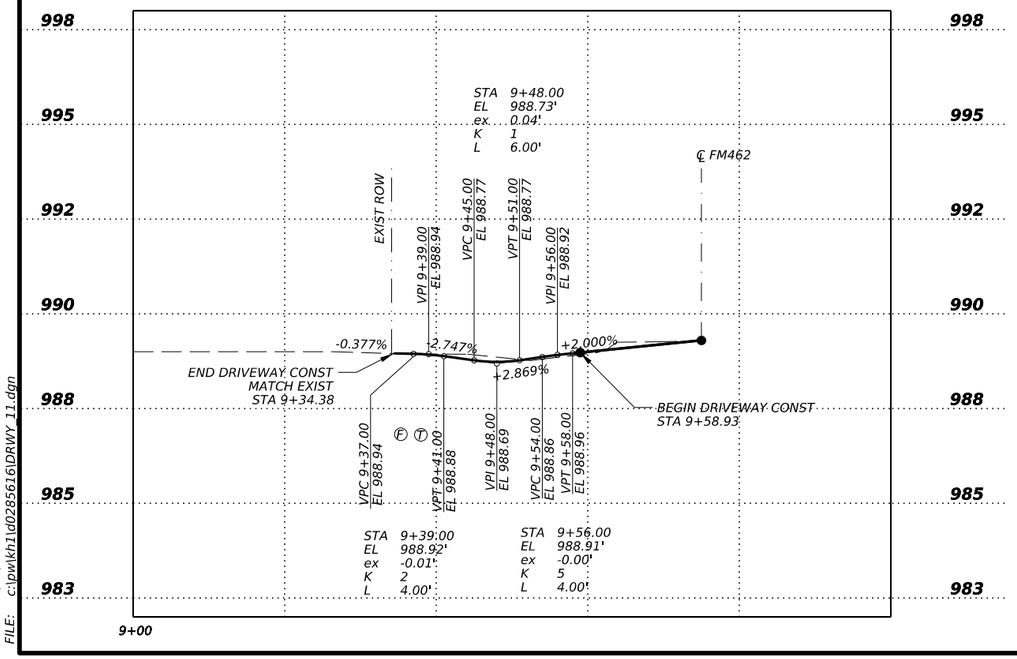
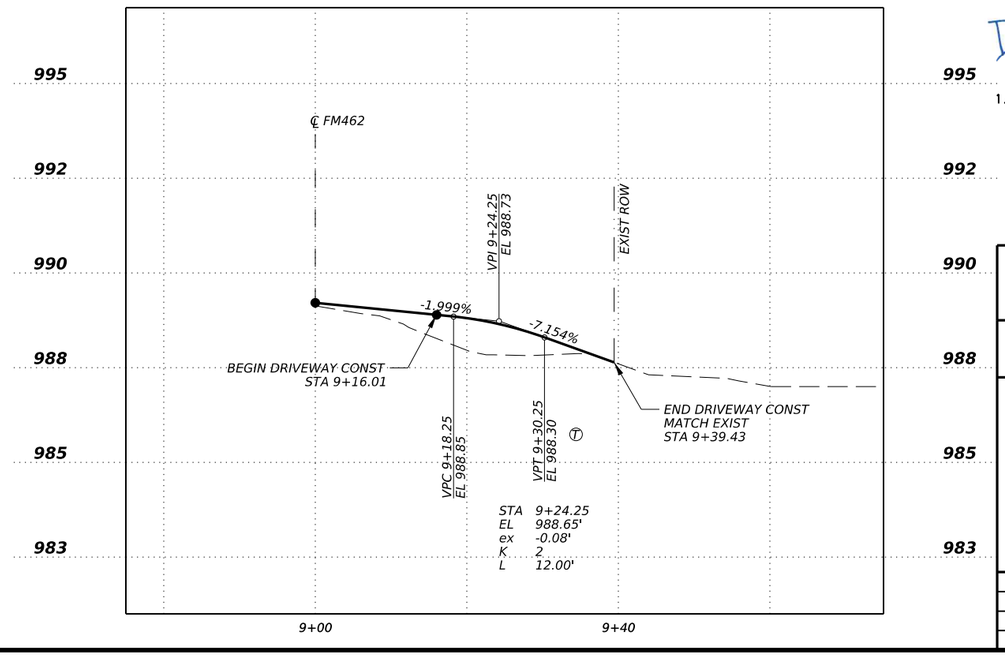




DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

DRIVEWAY
PLAN AND PROFILE

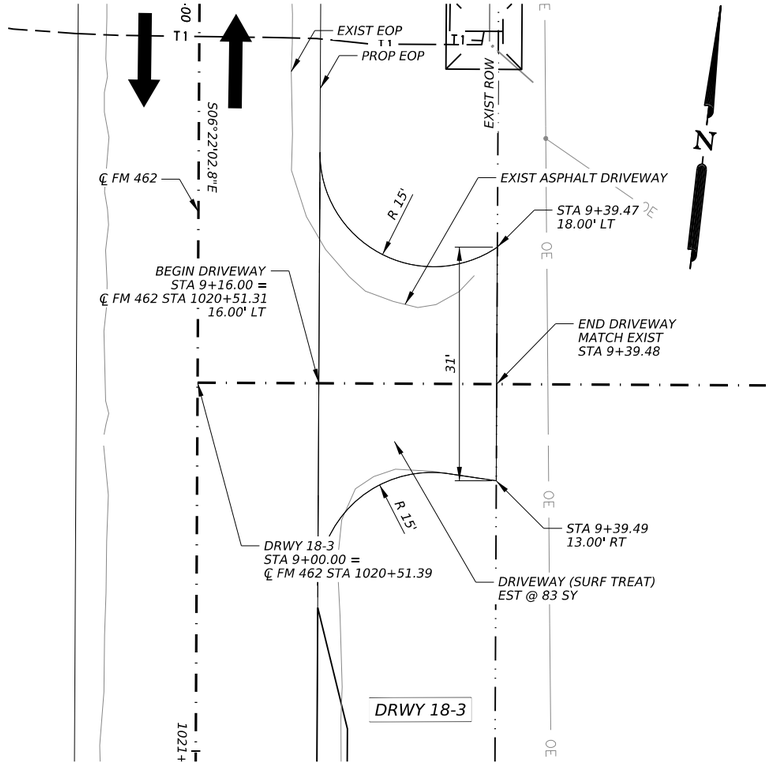
SHEET 11 OF 16

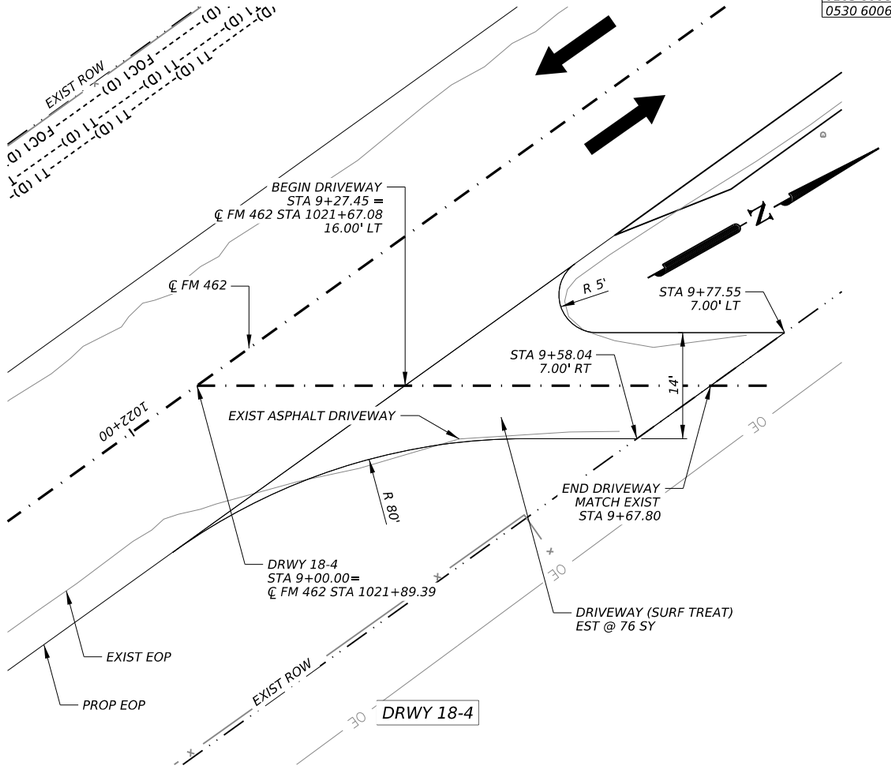
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		139

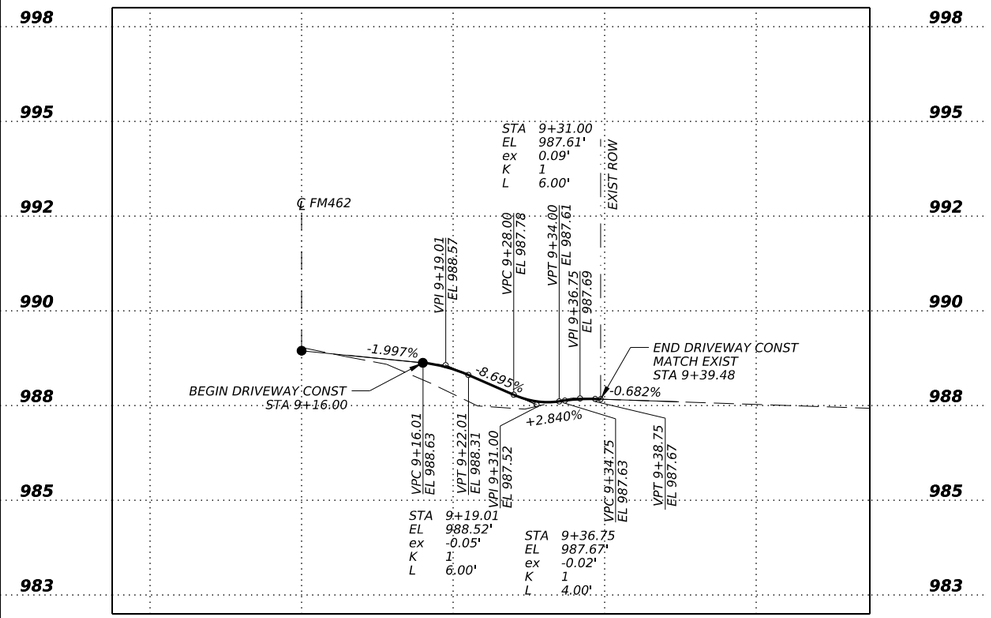
DATE: 1/31/2024 8:56:37 PM
FILE: c:\pw\kh1\d0285616\DRWY 11.dgn

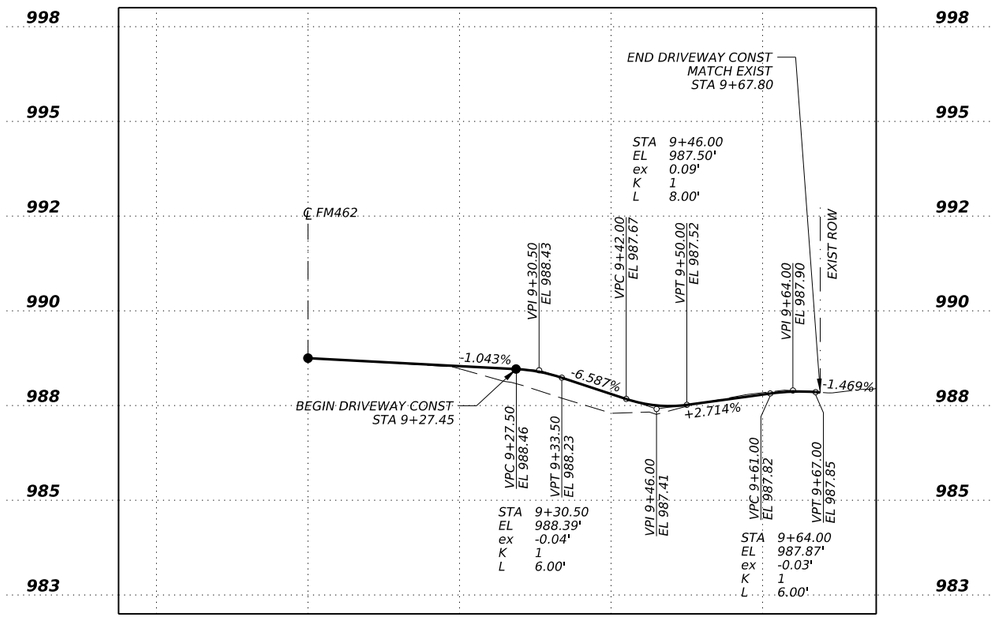
CK:
DW:
CK:
DW:

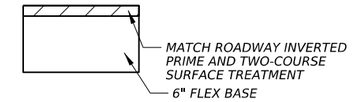
ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	202
0530 6006	DRIVEWAYS (SURF TREAT)	SY	159











PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

EXIST ROW

EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.

1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

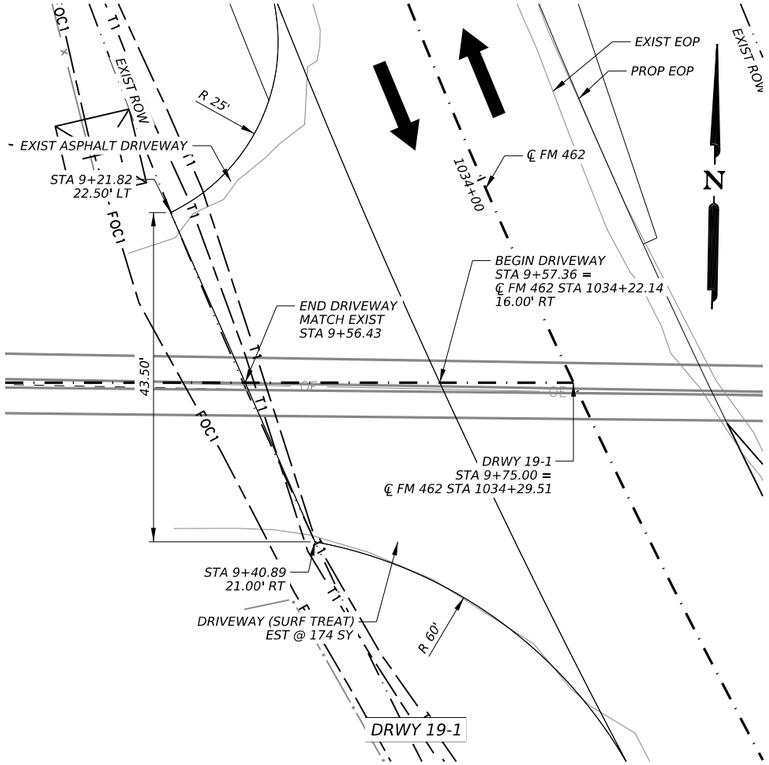
DRIVEWAY PLAN AND PROFILE

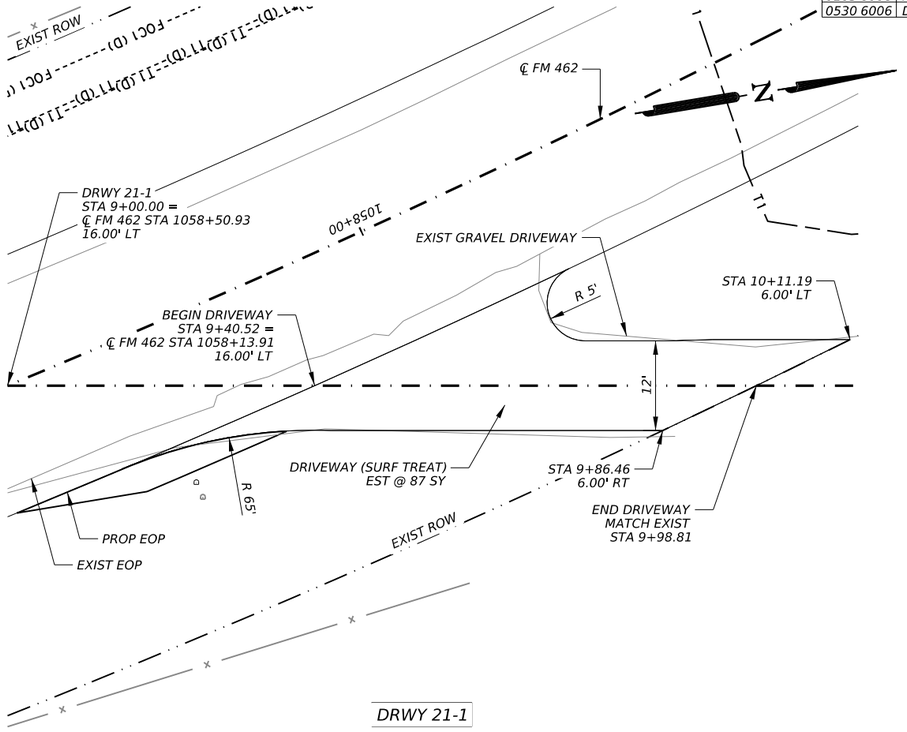
SHEET 12 OF 16

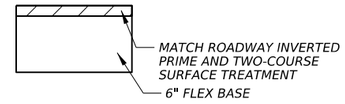
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		140

DATE: 1/31/2024 8:57:01 PM
FILE: c:\pw\kh1\d0285616\DRWY 12.dgn

ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	321
0530 6006	DRIVEWAYS (SURF TREAT)	SY	261







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

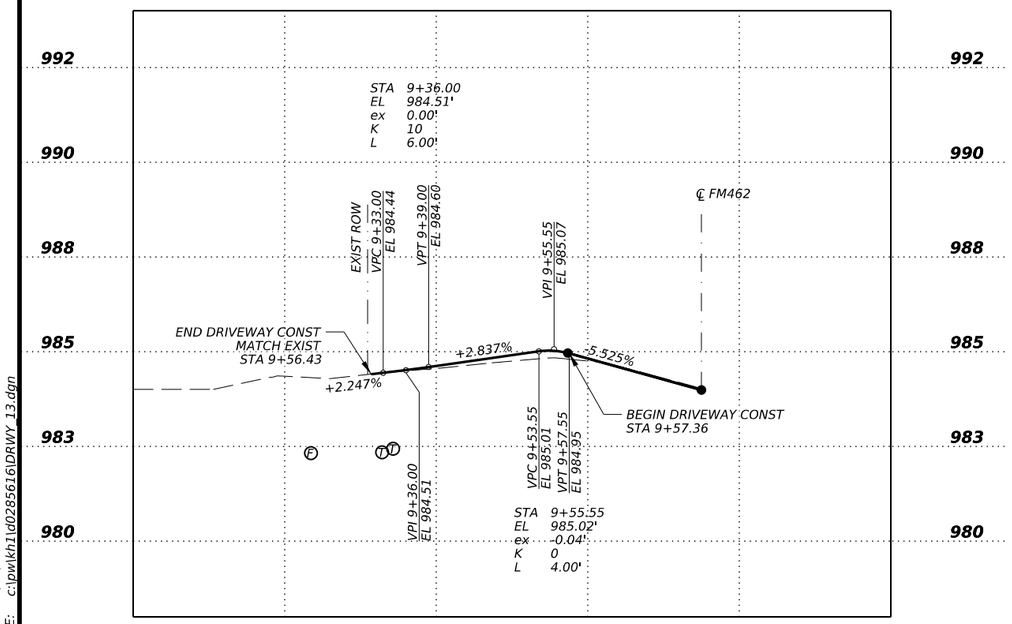
EXIST ROW

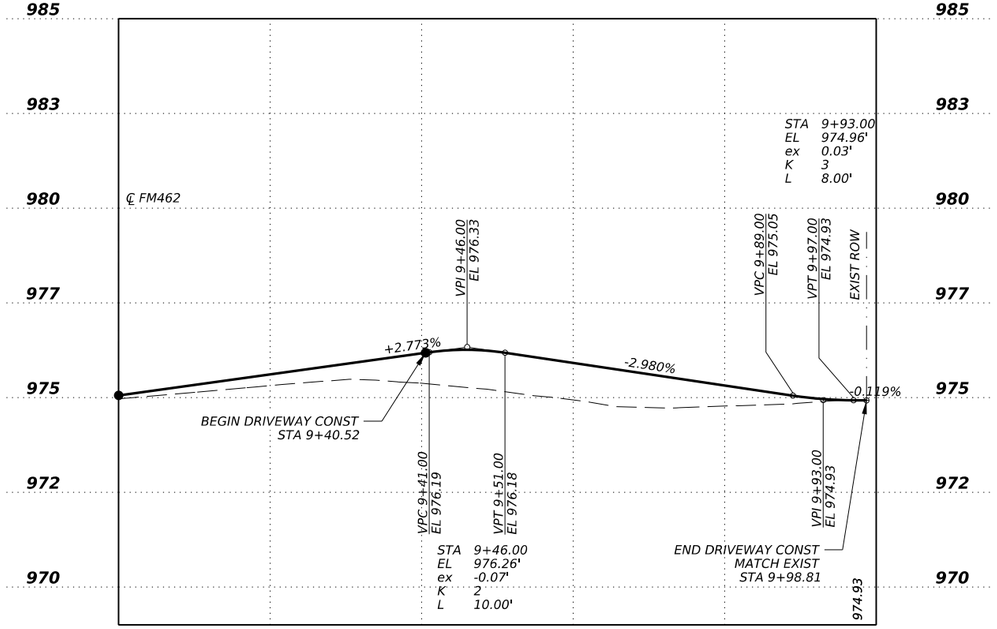
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

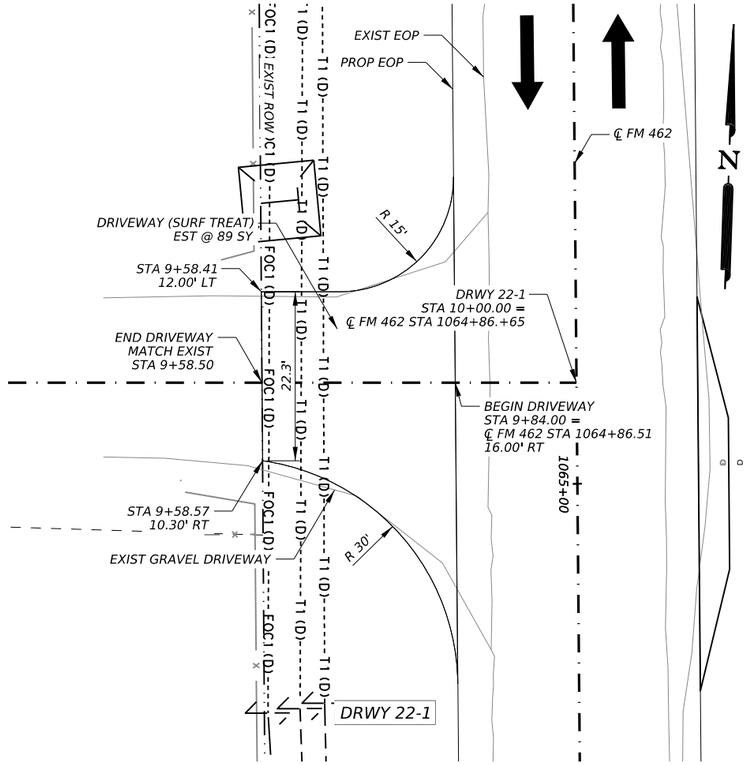
DRIVEWAY
PLAN AND PROFILE

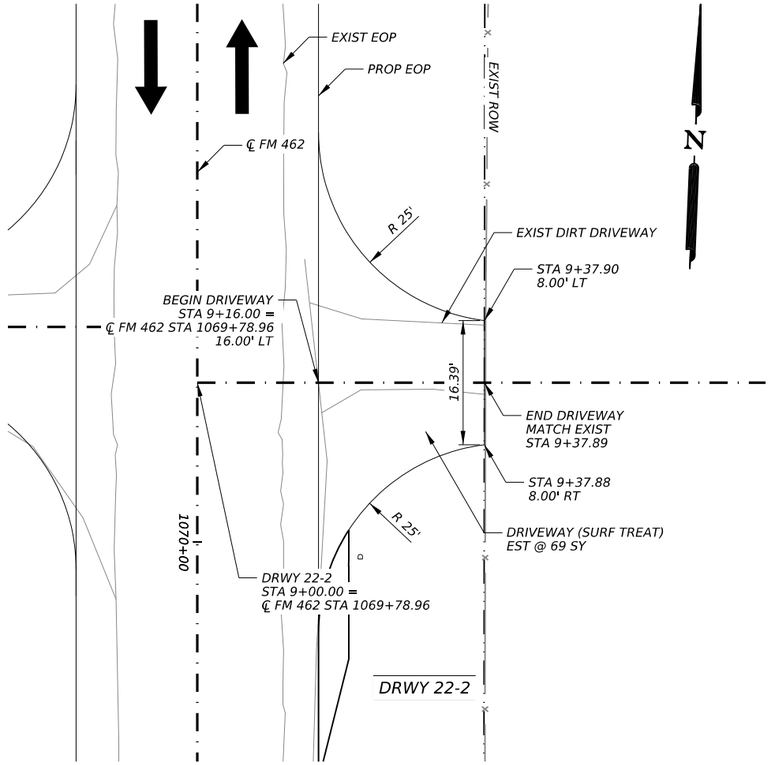
SHEET 13 OF 16

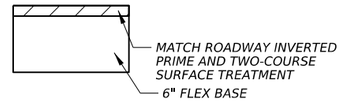
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		141

DATE: 1/31/2024 8:57:26 PM
FILE: c:\pw\kh1\d0285616\DRWY 13.dgn

ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	135
0530 6006	DRIVEWAYS (SURF TREAT)	SY	158







PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

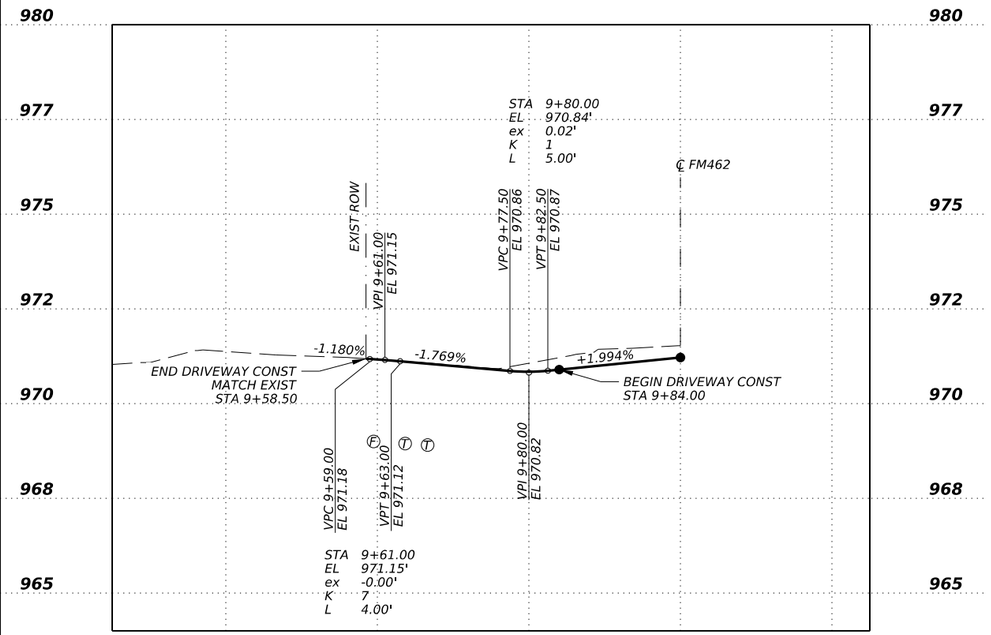
EXIST ROW

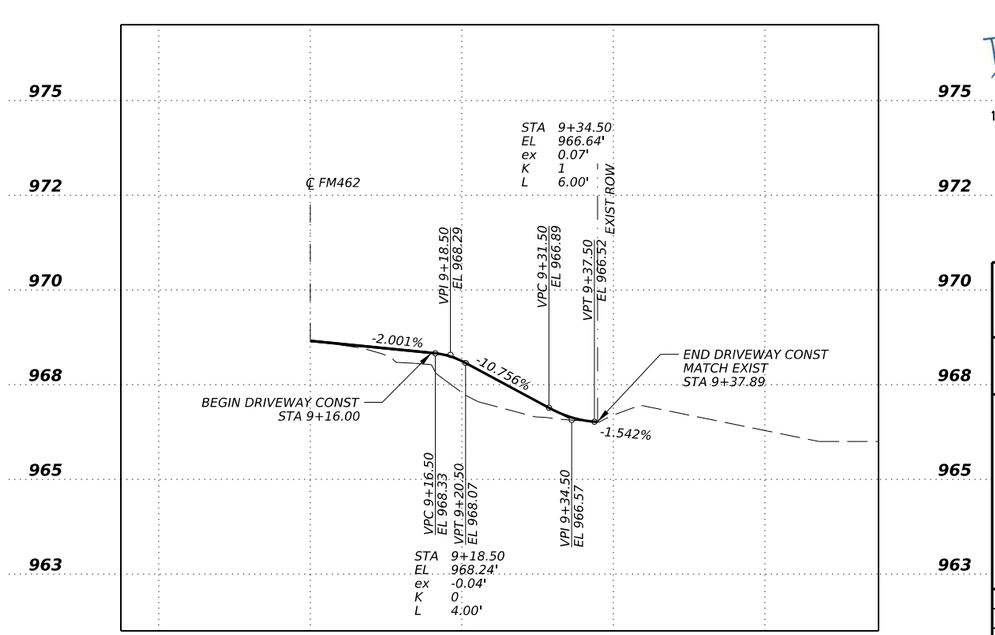
EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.





DAVID H. GUTIERREZ
143301
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

DRIVEWAY
PLAN AND PROFILE

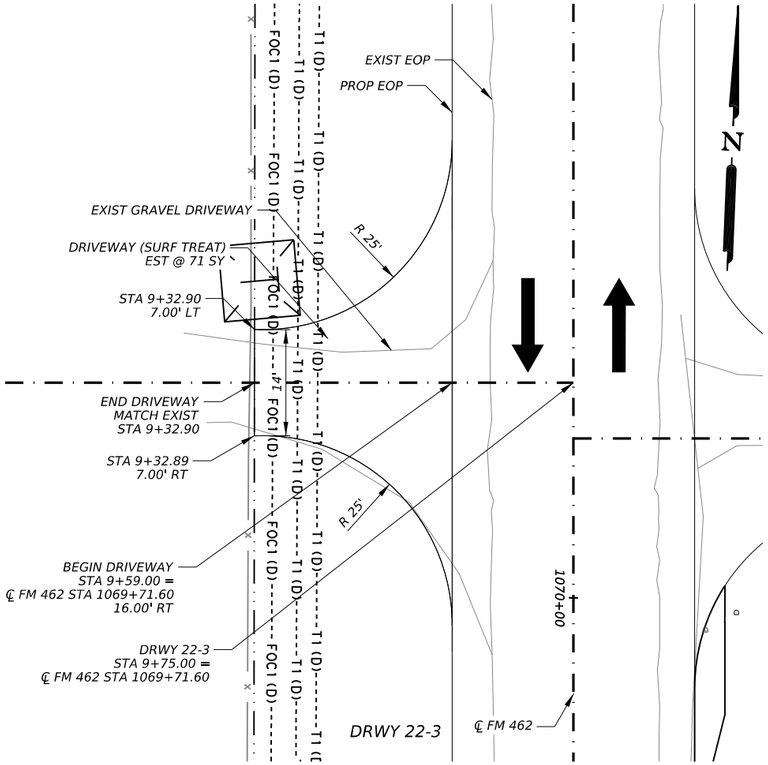
SHEET 14 OF 16

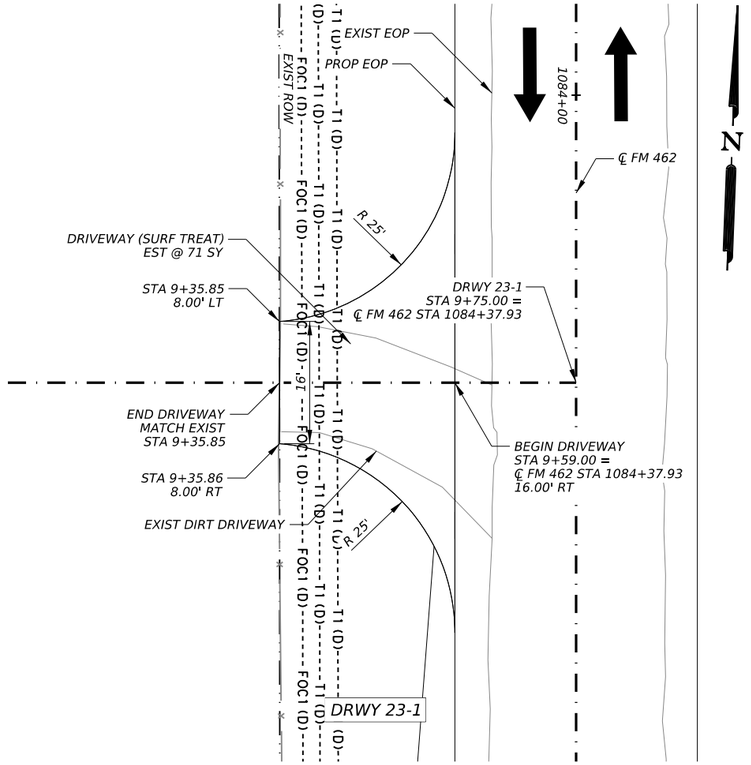
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		142

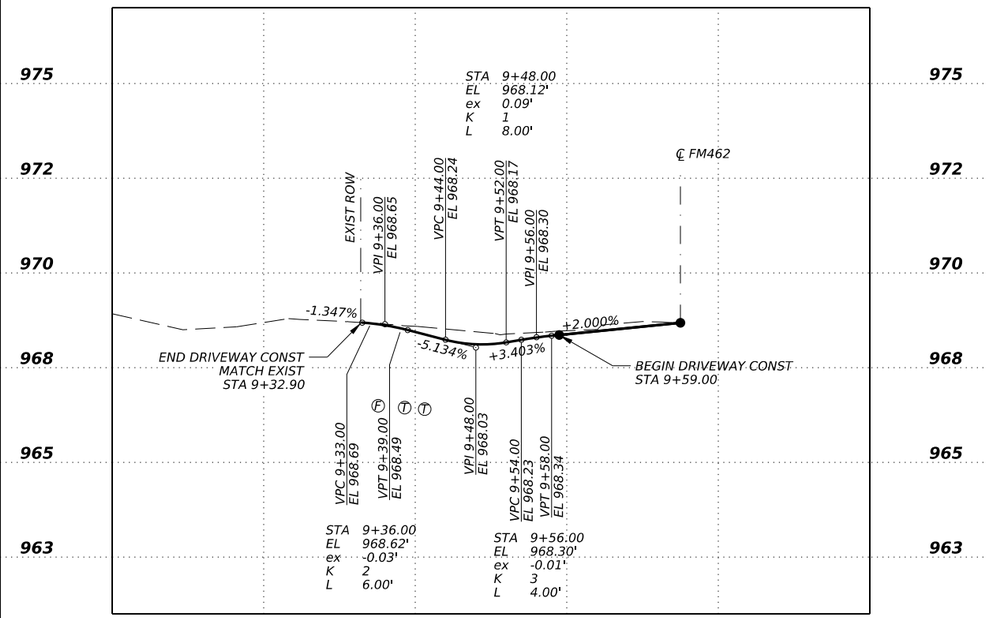
DATE: 1/31/2024 8:57:52 PM
FILE: c:\pw\khl\d0285616\DRWY 14.dgn

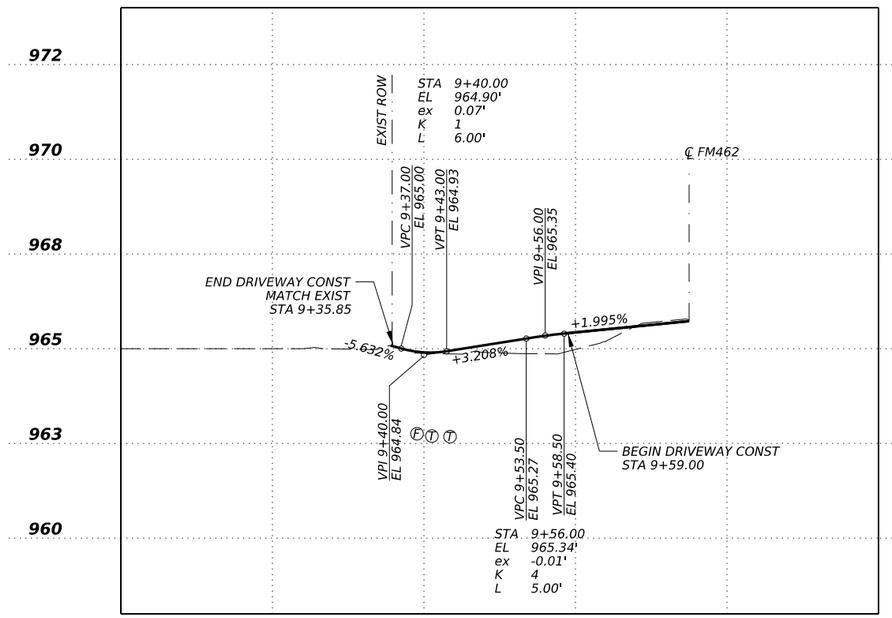
DW: CK: DW: CK:

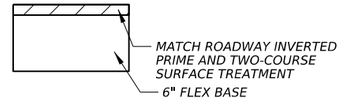
ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	122
0530 6006	DRIVEWAYS (SURF TREAT)	SY	142











PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

EXIST ROW

EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

DRIVEWAY
PLAN AND PROFILE

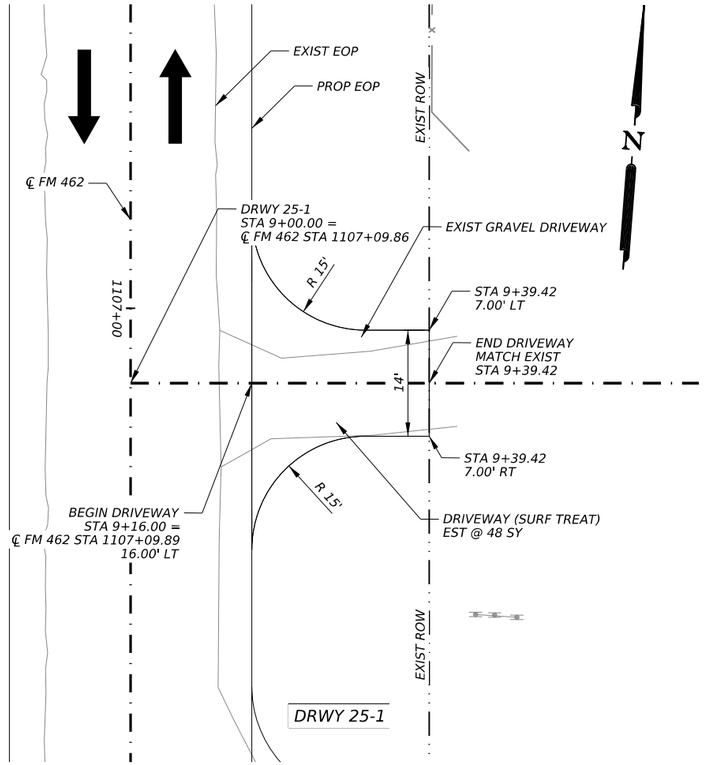
SHEET 15 OF 16

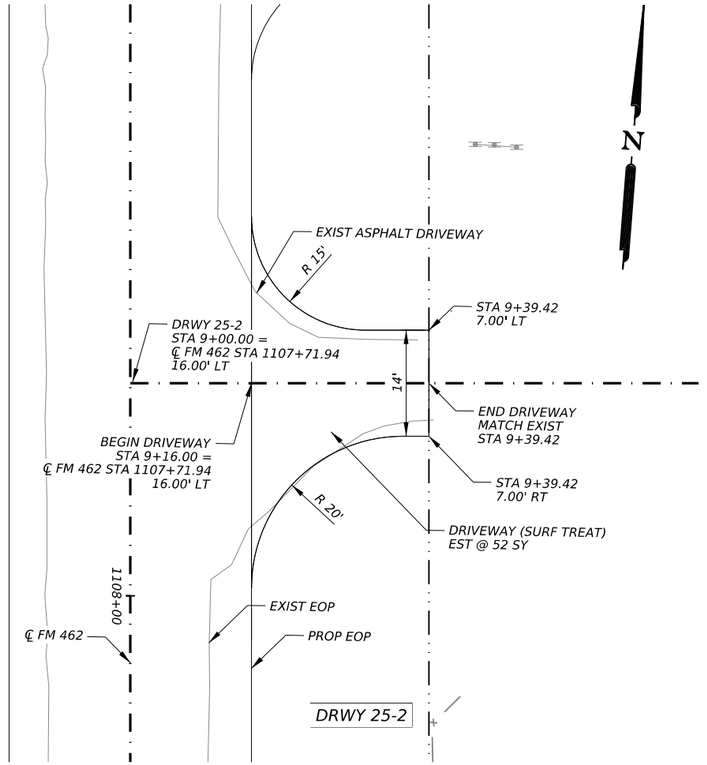
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		143

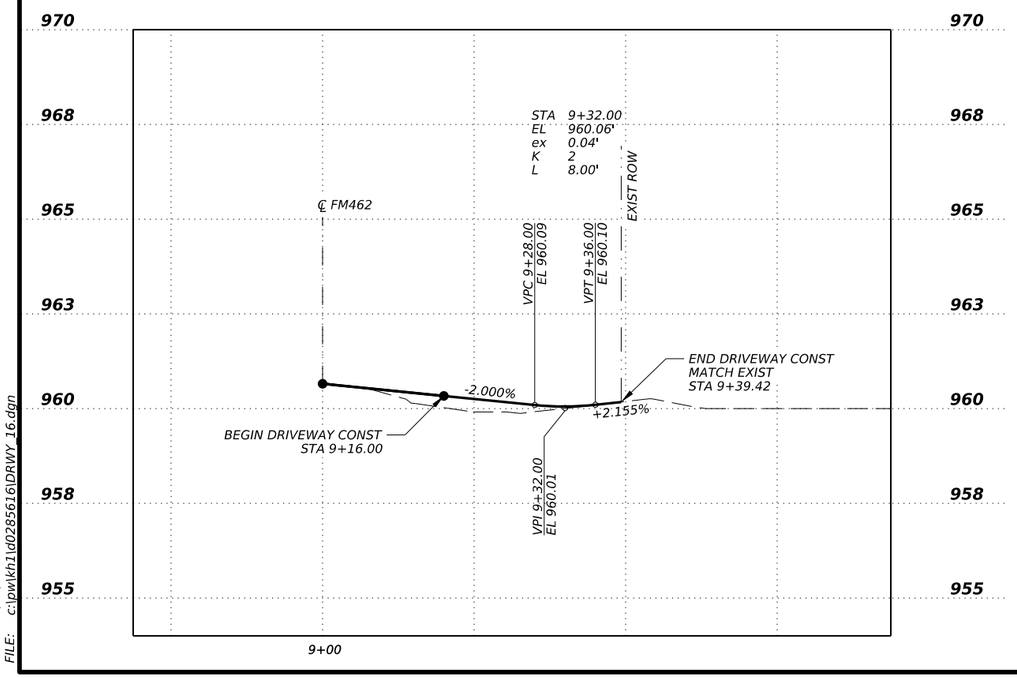
DATE: 1/31/2024 8:58:17 PM
FILE: c:\pw\kh1\d0285616\DRWY 15.dgn

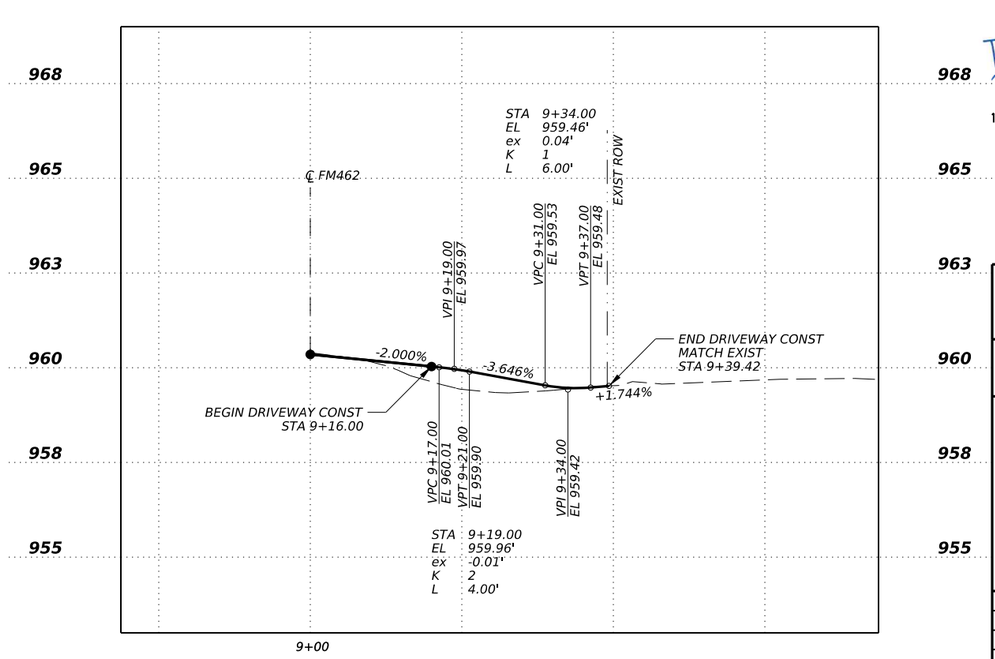
CK:
DW:
CK:
DW:

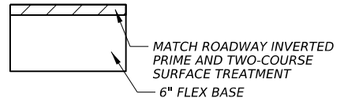
ITEM	DESCRIPTION	UNIT	QTY
0105 6008	REMOVING STAB BASE AND ASPH PAV (6")	SY	103
0530 6006	DRIVEWAYS (SURF TREAT)	SY	100











PAVEMENT DETAIL

*DRIVEWAY PAVEMENT CONSTRUCTION WILL BE PAID FOR AS ITEM 0530 6006.

LEGEND

EXIST ROW

EXIST FENCE

EXIST FEATURES

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCITON.
2. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS NOTED OTHERWISE.

DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

1/31/2024

0' 10' 20'
0' 2' 4'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

DRIVEWAY
PLAN AND PROFILE

SHEET 16 OF 16

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		144

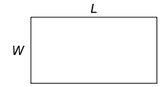
DATE: 1/31/2024 8:58:43 PM
FILE: c:\pw\kh1\d0285616\DRWY 16.dgn

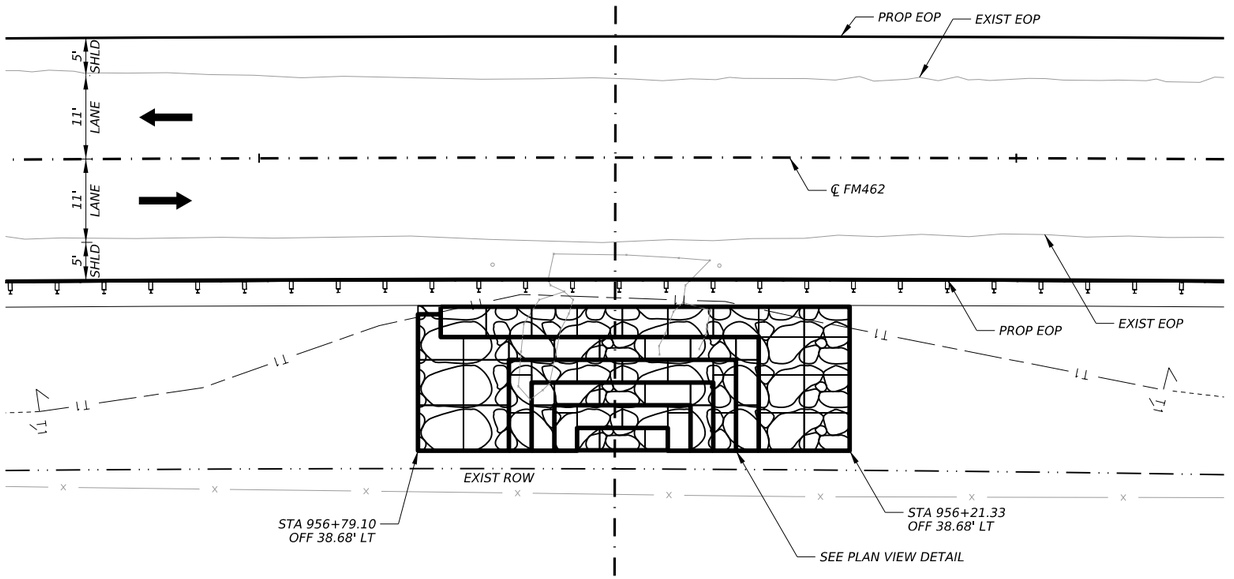
CK:
DW:
CK:
DW:

TYPICAL GABION BASKET SIZE CHART

TYPE - (LENGTH X WIDTH X HEIGHT)

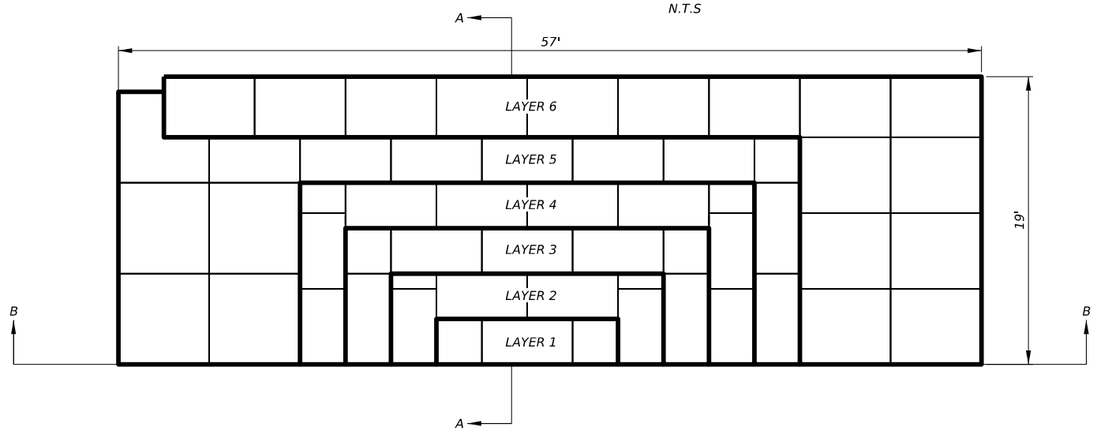
A: GABION - (6' X 6' X 2')
B: GABION - (6' X 5' X 2')
C: GABION - (6' X 4' X 2')



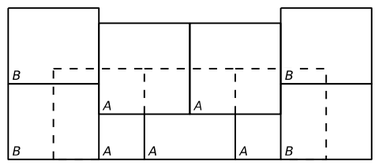


GABION LAYOUT

STA 956+53.00
N.T.S

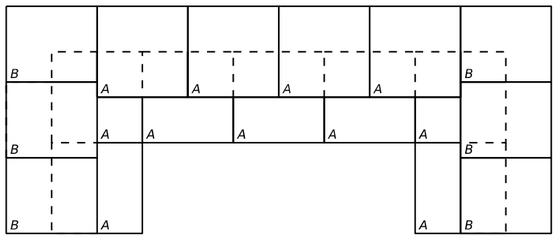


PLAN VIEW DETAIL



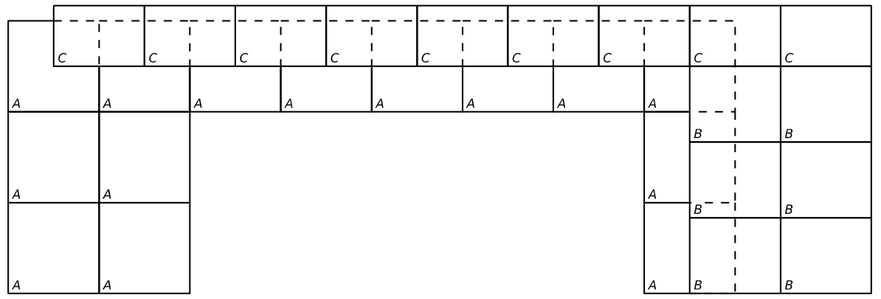
LAYER 1 & 2

N.T.S



LAYER 3 & 4

N.T.S



LAYER 5 & 6

N.T.S

NOTES:

1. ALL WORK WILL BE PERFORMED IN ACCORDANCE WITH ITEM 459 "GABIONS AND GABION MATTRESSES". ALL GABION BASKETS WILL BE GALVANIZED. USE TYPE 2 FILTER FABRIC WHERE GABION BASKETS ARE IN CONTACT WITH THE SOIL. (SUBSIDIARY TO ITEM 459)
2. CONTRACTOR TO CONNECT ALL ADJOINING GABION OR GABION MATTRESS UNITS
3. REFER TO ROADWAY PLAN & PROFILE SHEETS FOR QUANTITIES AND BID ITEMS.

PRELIMINARY
FOR REVIEW ONLY
Not for construction, bidding, or permit purposes.
Kimley»Horn
Engineer DAVID H. GUTIERREZ
P.E. No. 143301 Date 1/31/2024

Kimley»Horn F-928

Texas Department of Transportation

FM 462

GABION DETAILS

SHEET 1 OF 2

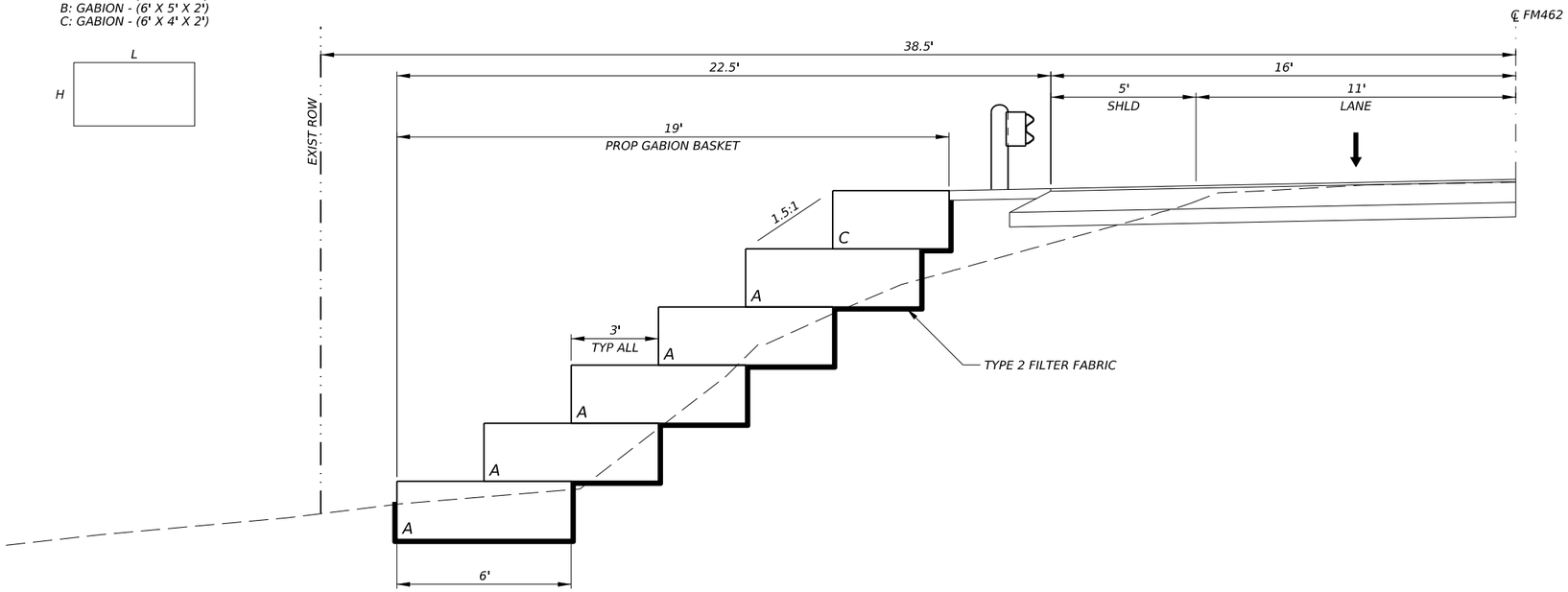
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		145

DATE: 1/31/2024 2:54:10 PM
FILE: c:\pw\kh1\d0285618\FM462_DRG_GAB_DETAIL_02.dgn

TYPICAL GABION BASKET SIZE CHART

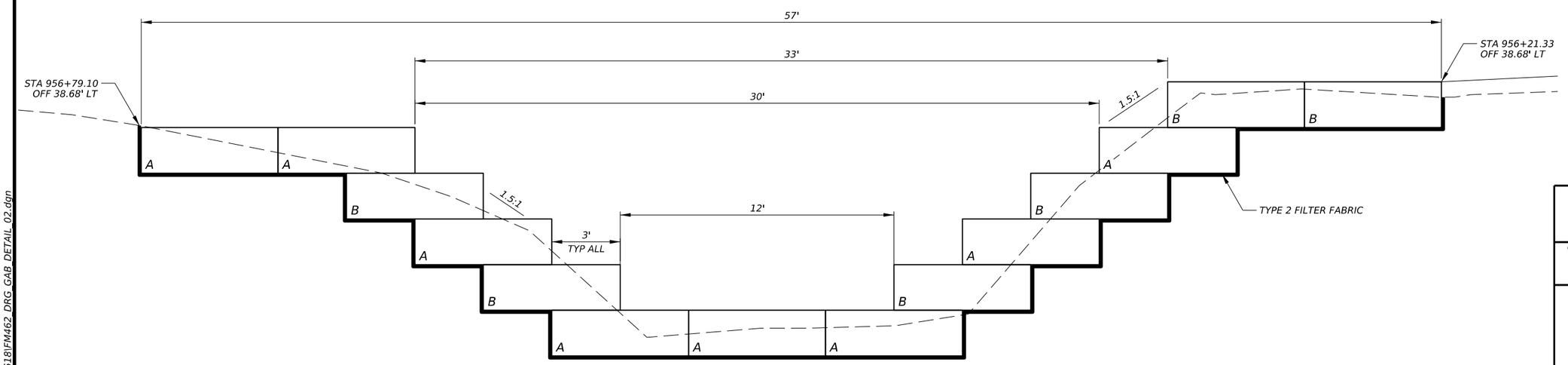
TYPE - (LENGTH X WIDTH X HEIGHT)

A: GABION - (6' X 6' X 2')
B: GABION - (6' X 5' X 2')
C: GABION - (6' X 4' X 2')



SECTION A-A

N.T.S



SECTION B-B

N.T.S

NOTES:

1. ALL WORK WILL BE PERFORMED IN ACCORDANCE WITH ITEM 459 "GABIONS AND GABION MATTRESSES". ALL GABION BASKETS WILL BE GALVANIZED. USE TYPE 2 FILTER FABRIC WHERE GABION BASKETS ARE IN CONTACT WITH THE SOIL. (SUBSIDIARY TO ITEM 459)
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Kimley»Horn
Engineer DAVID H. GUTIERREZ
P.E. No. 143301 Date 1/31/2024

Kimley»Horn F-928

Texas Department of Transportation

FM 462

GABION DETAILS

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		146

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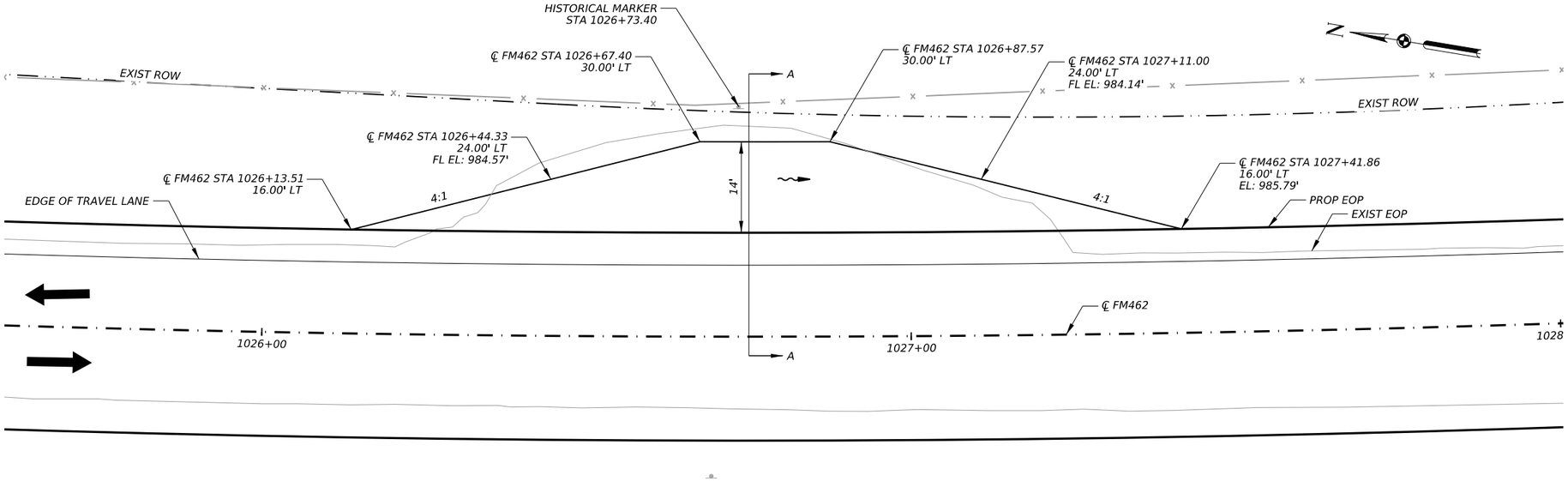
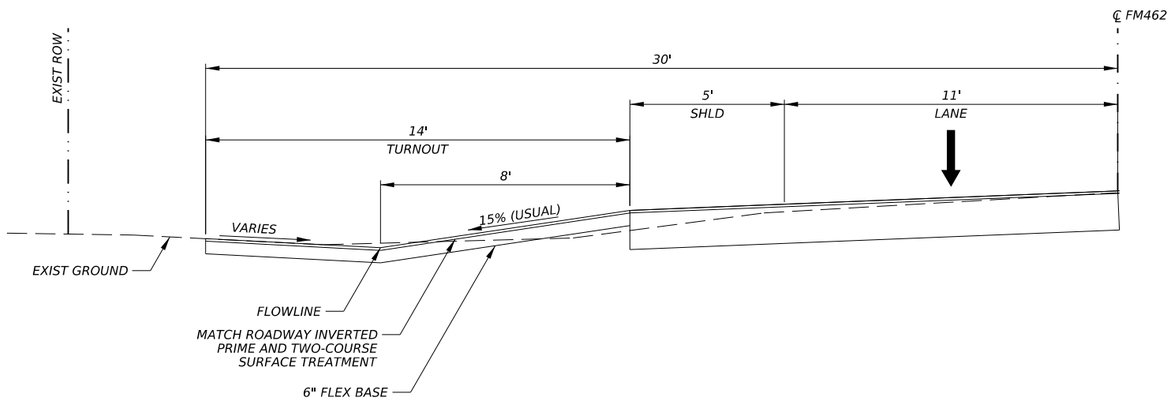


TURNOUT AT HISTORICAL MARKER



SECTION A-A

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

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Texas Department of Transportation

FM 462

HISTORICAL MARKER
TURNOUT DETAILS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		147

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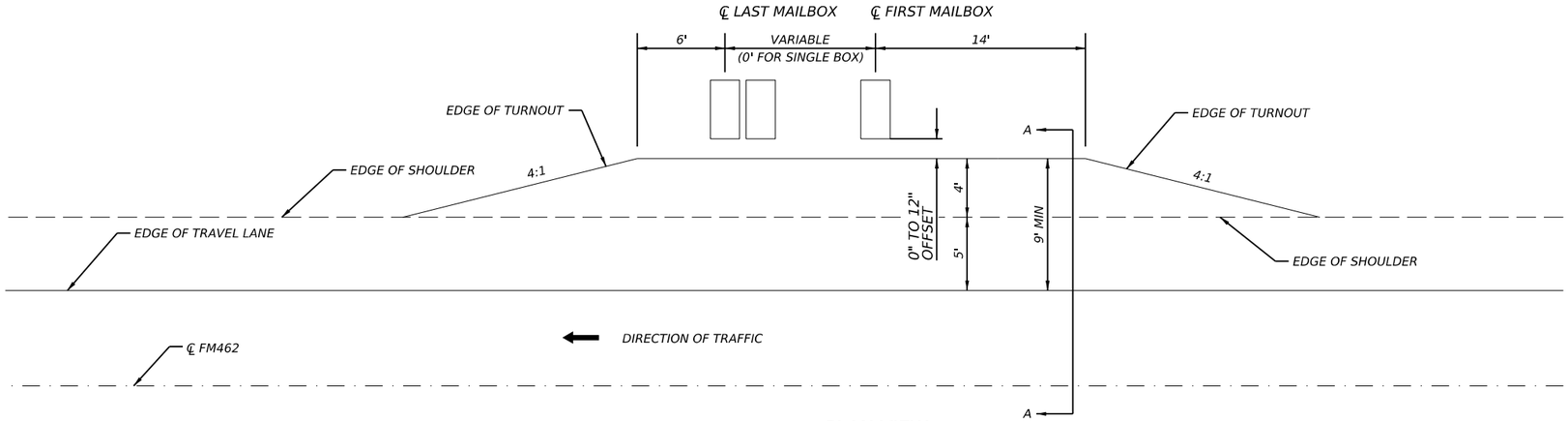
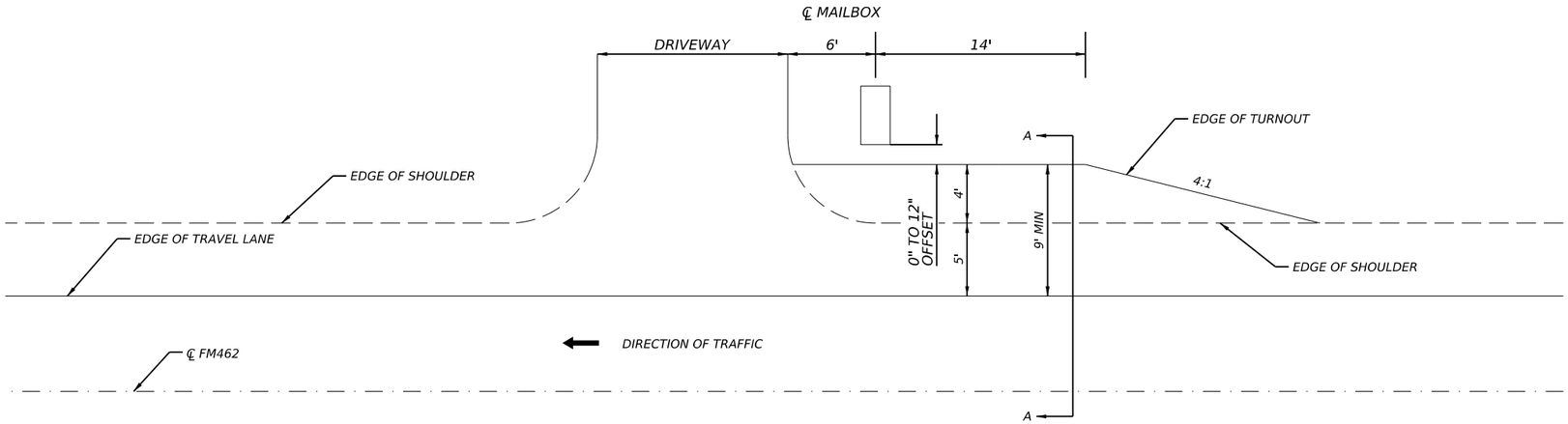


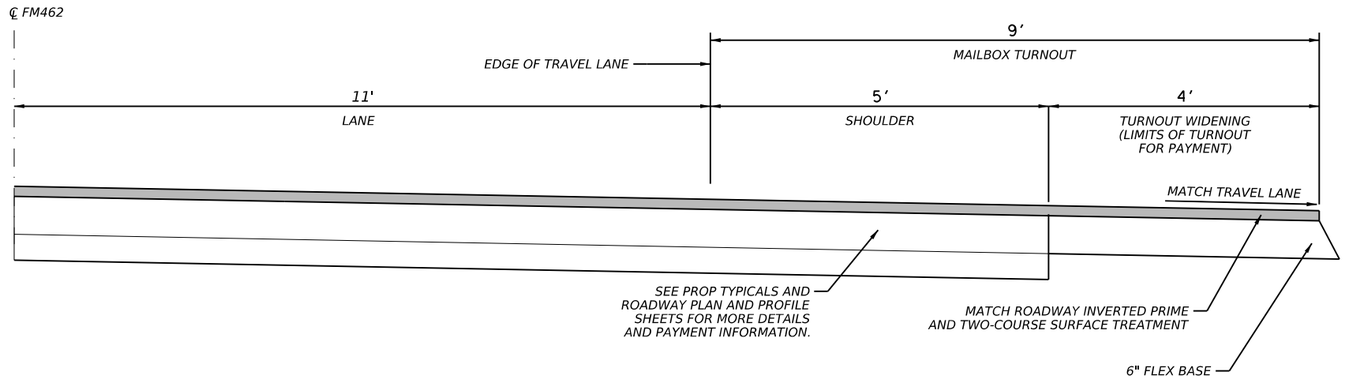
PLAN VIEW

MAILBOX TURNOUT
N.T.S



PLAN VIEW

MAILBOX TURNOUT (AT DRIVEWAY)
N.T.S



SECTION A-A

MAILBOX TURNOUT
N.T.S

NOTES:

1. SEE DRIVEWAY PLAN & PROFILE SHEETS FOR LOCATIONS OF PROPOSED MAILBOX TURNOUTS.
2. SEE DRIVEWAY PLAN & PROFILE SHEETS FOR DRIVEWAY DETAILS.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

FM 462

MAILBOX TURNOUT DETAILS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		148

DATE: 1/31/2024 8:59:37 PM
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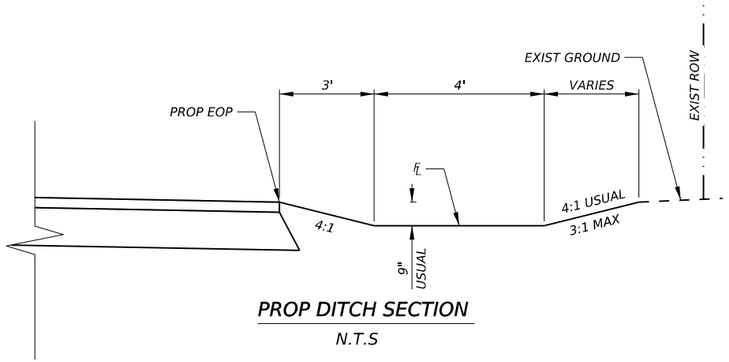
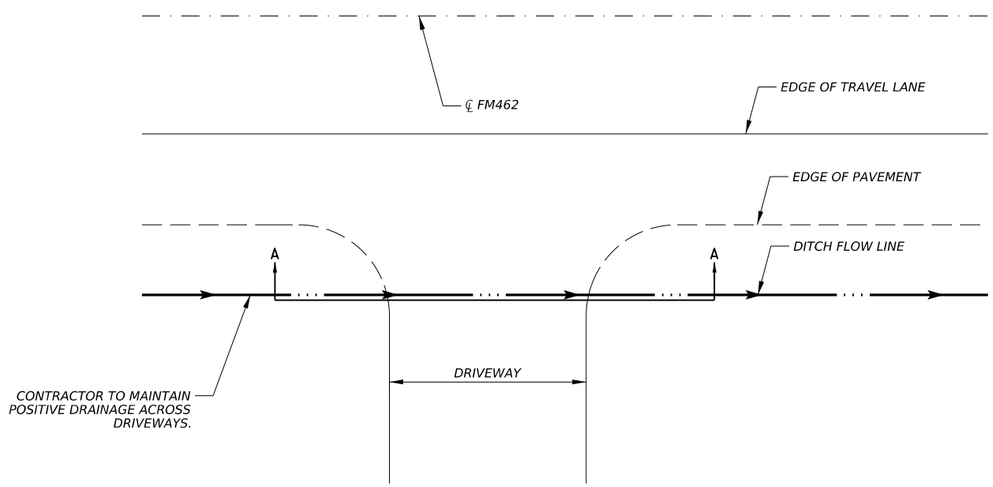


PROP DITCH SECTION

N.T.S



PROP DITCH DRIVEWAY CROSSING DETAIL

PLAN VIEW
N.T.S

DRIVEWAY
2-1
3-2
7-1
9-1
18-1
22-3

NOTES:

1. SEE ROADWAY PLAN AND PROFILE SHEETS FOR DITCH ALIGNMENT INFORMATION.

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
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Kimley»Horn F-928

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FM 462

DITCH DETAILS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		149

DATE: 1/31/2024 2:55:38 PM
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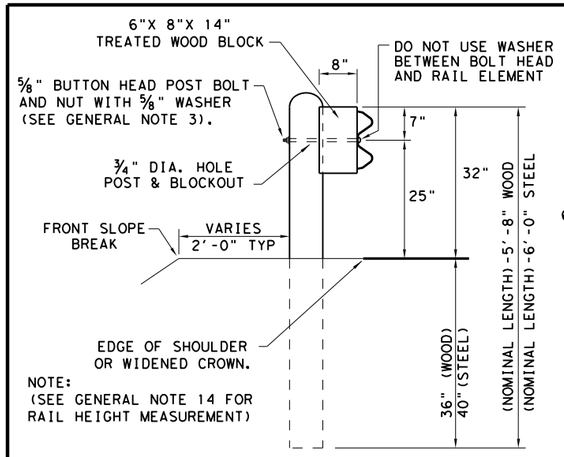
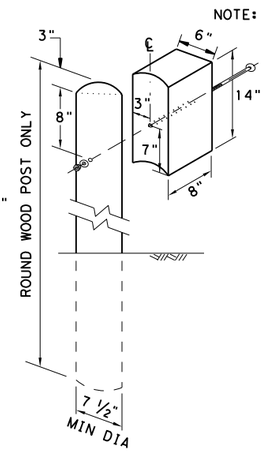
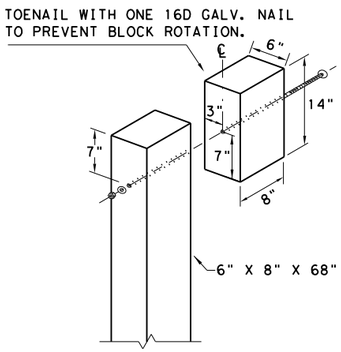


TYPICAL POST PLACEMENT

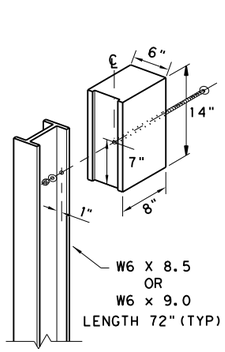


WOOD BLOCK TO ROUND WOOD POST

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

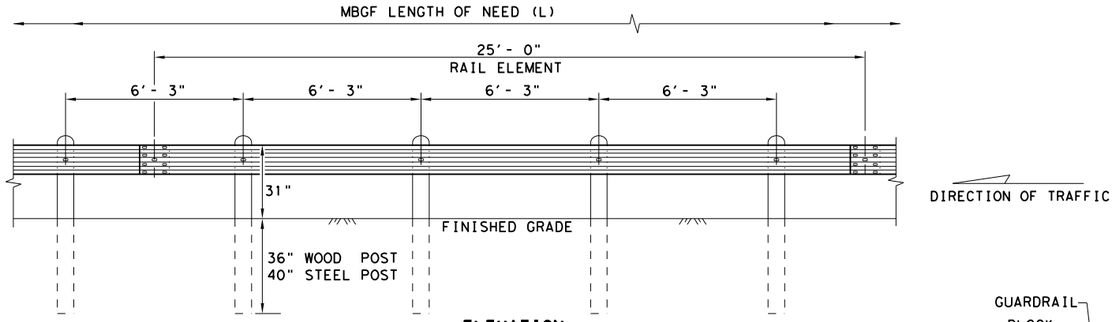


WOOD BLOCK TO RECTANGULAR WOOD POST



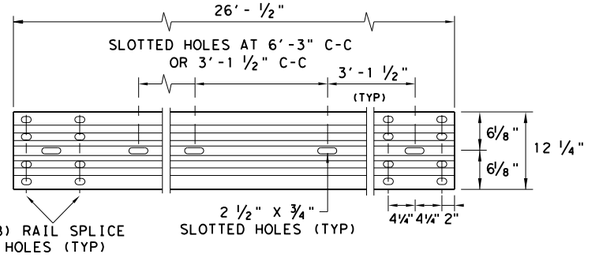
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

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



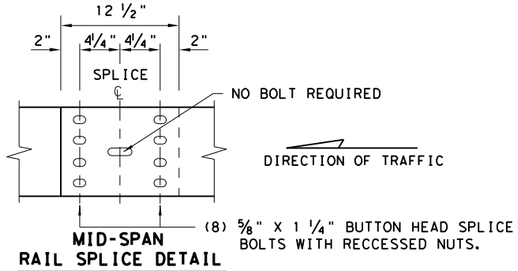
ELEVATION MID-SPAN RAIL SPLICE

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.



MID-SPAN RAIL SPLICE DETAIL

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

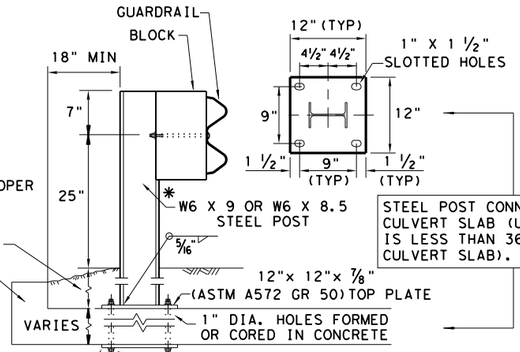
NOTE:
FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECCESSED NUT.

SPLICE BOLT LENGTH — VARIES
FBB01 = 1 ¼"
FBB02 = 2"
⅝"

POST & BLOCK LENGTH
FBB03 = 10"
FBB04 = 18"

BUTTON HEAD BOLT

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



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

FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		150

DATE: 1/31/2024
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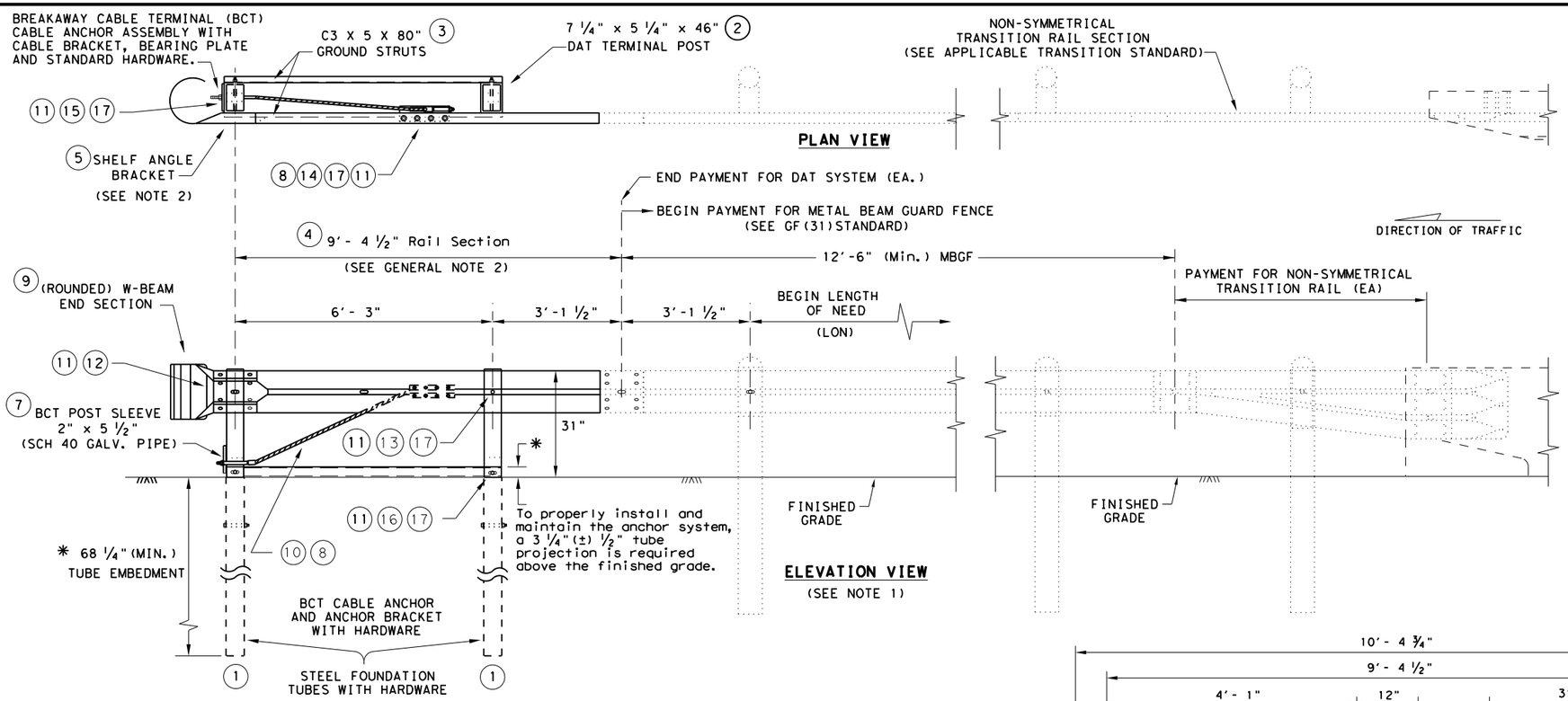


DOWNSTREAM ANCHOR TERMINAL (DAT)

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

GENERAL NOTES

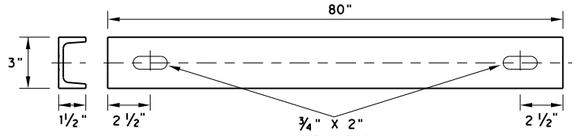
1. THE DETAIL SHOWN IS THE MINIMUM LENGTH OF NEED (LON) FOR A DOWNSTREAM ANCHOR TERMINAL (DAT) CONNECTED TO A CONCRETE RAIL.
2. THE RAIL SECTION AT THE END POST IS SUPPORTED BY THE SHELF ANGLE BRACKET. THE RAIL ELEMENT IS NOT ATTACHED TO THE END POST.
3. THE FOUNDATION TUBES SHALL NOT PROJECT MORE THAN 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

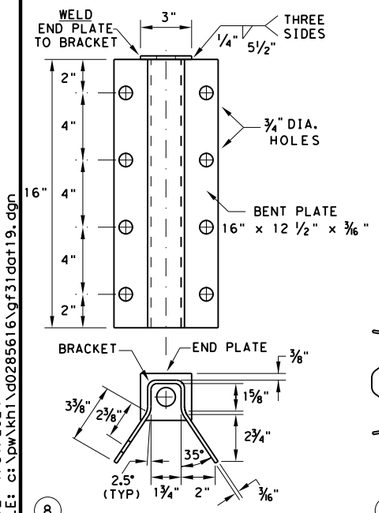
IF A MOW STRIP IS REQUIRED WITH THE DAT INSTALLATION THE LEAVE-OUT AREA AROUND THE STEEL FOUNDATION TUBES AND THE TWO CHANNEL STRUTS MAY BE OMITTED. THIS WILL REQUIRE A FULL POUR AT THE FOUNDATION TUBES.

#	(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

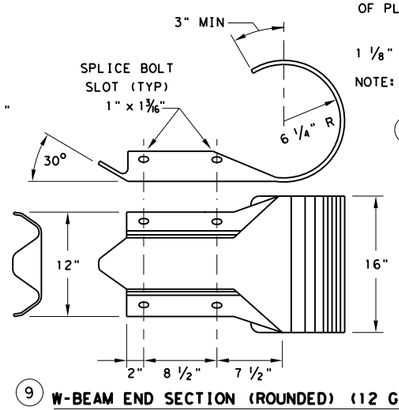
(4) TERMINAL RAIL ELEMENT FOR DAT



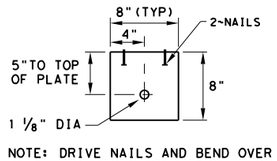
(3) CHANNEL STRUT
C3 X 5 X 80", GRADE A36



(8) GUARDRAIL ANCHOR BRACKET

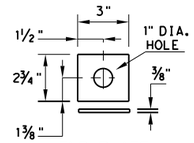


(9) W-BEAM END SECTION (ROUNDED) (12 GA.)

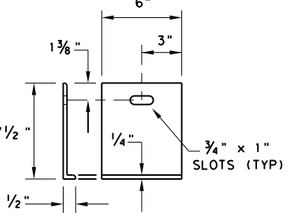


NOTE: DRIVE NAILS AND BEND OVER TO PREVENT PLATE ROTATION

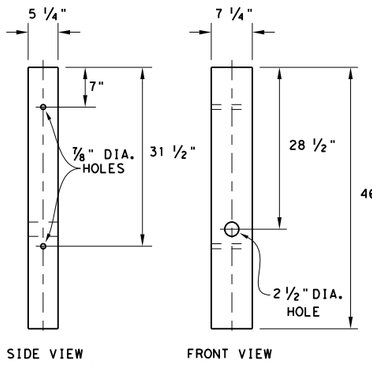
(6) BEARING PLATE
8"x 8"x 5/8" ℄



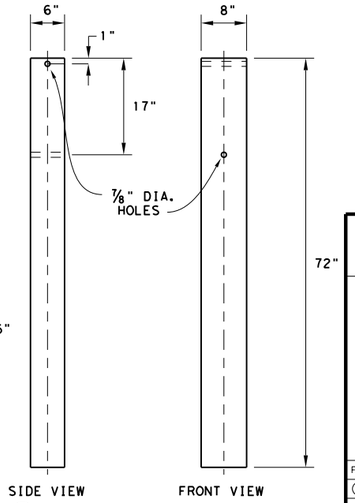
END PLATE



(5) SHELF ANGLE BRACKET



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



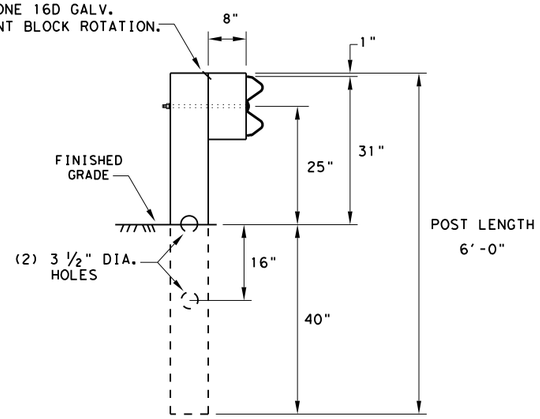
(1) STEEL FOUNDATION TUBE
6"x 8"x 1/8" x 72" STEEL TUBE

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE
(DOWNSTREAM ANCHOR TERMINAL)
TL-3 MASH COMPLIANT

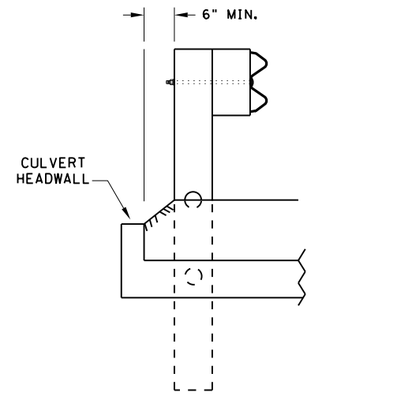
GF(31)DAT-19

FILE: gf31dat19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		151



RECTANGULAR CRT POST (6"X 8" X 6' LONG)

(6) CRT REQUIRED
SEE ELEVATION DETAIL FOR LOCATIONS



LATERAL OFFSET BETWEEN THE GUARDRAIL AND THE CULVERT HEADWALL

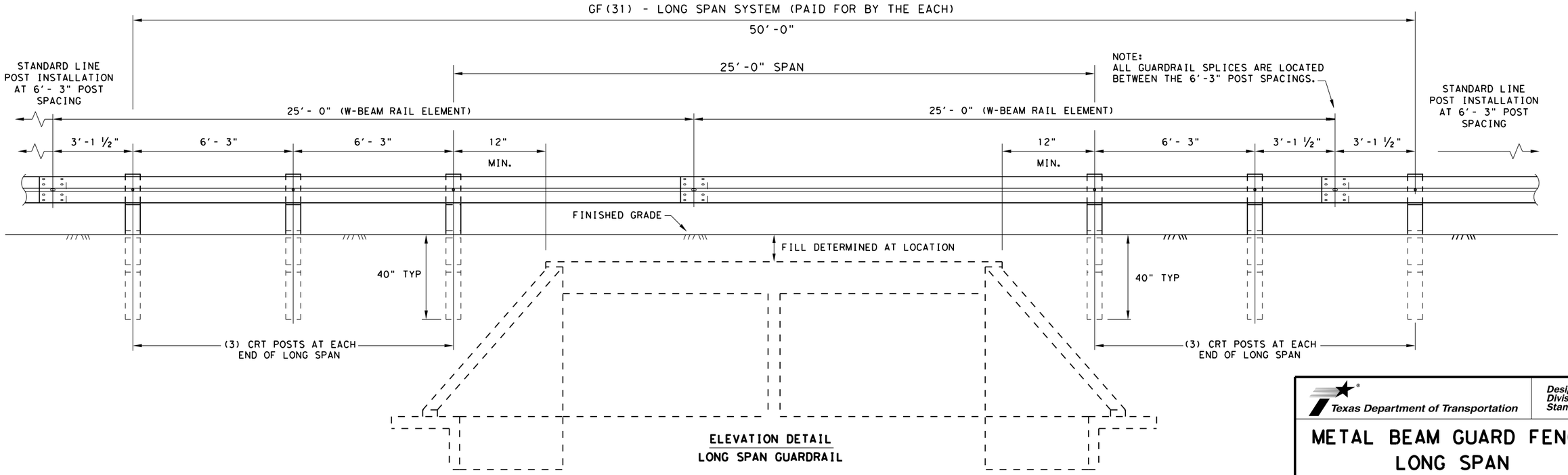
GENERAL NOTES

1. THE TYPE OF LINE POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF THE TRANSITIONS SHALL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENT SHALL MEET ALL REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED ON THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 12'- 6" OR 25'- 0" NOMINAL LENGTHS.
3. RAIL POST HOLES ARE OFFSET 3'- 1 ½" FROM STANDARD GUARDRAIL TO ACCOMMODATE THE MIDSPAN SPLICING.
4. 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 NO MORE THAN 1" BEYOND IT.
5. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. WHERE SOLID ROCK IS ENCOUNTERED, CONTACT THE DESIGN DIVISION FOR ADDITIONAL GUIDANCE. (512) 416-2678
7. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
8. REFER TO GF(31) STANDARD SHEET FOR ADDITIONAL DETAILS.
9. FLAME CUTTING OF HOLES IN GUARDRAIL SHALL NOT BE PERMITTED. IF YOU ENCOUNTER MIS-ALIGNED BOLT HOLES IN GUARDRAIL CONTACT THE DESIGN DIVISION FOR ADDITIONAL INFORMATION & OPTIONS.

NOTE: SEE GF(31) STANDARD FOR STANDARD LINE POSTS.

DIRECTION OF TRAFFIC

GF(31) - LONG SPAN SYSTEM (PAID FOR BY THE EACH)



ELEVATION DETAIL
LONG SPAN GUARDRAIL

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE LONG SPAN TL-3 MASH COMPLIANT

GF(31)LS-19

FILE: gf31ls19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG		
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY		
REVISIONS	0848	04	052	FM 462		
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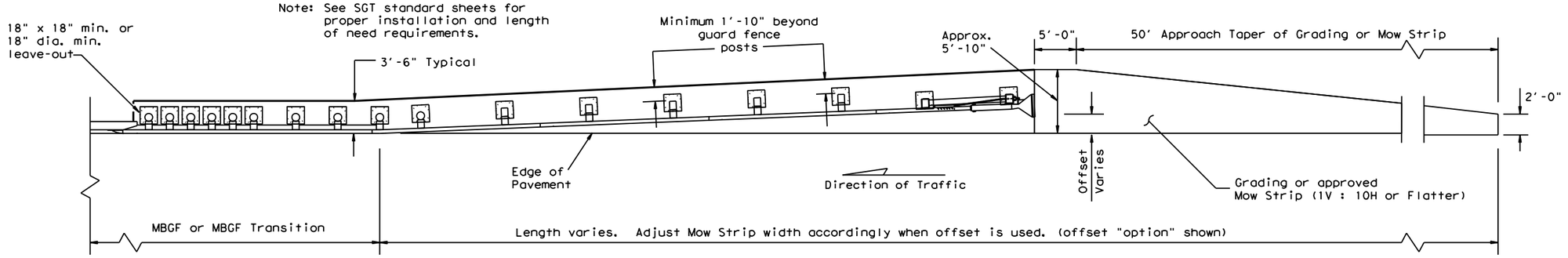
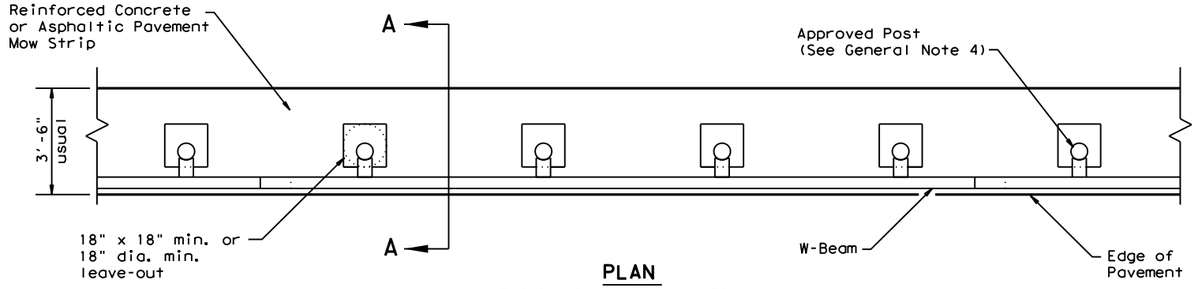
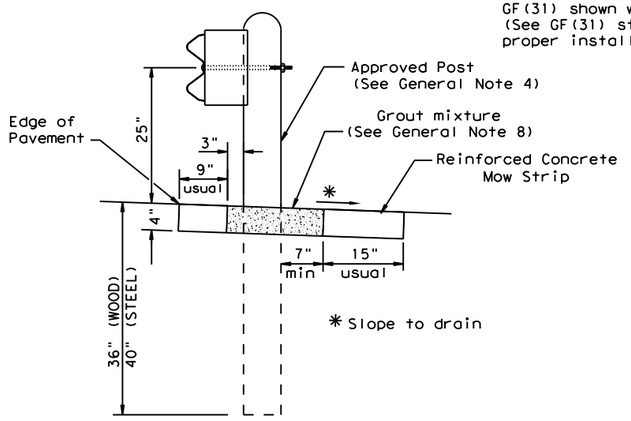


GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS



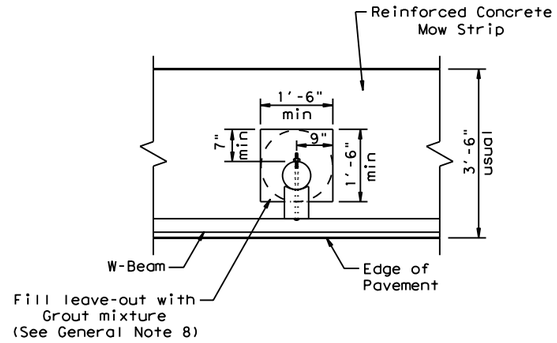
PLAN

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



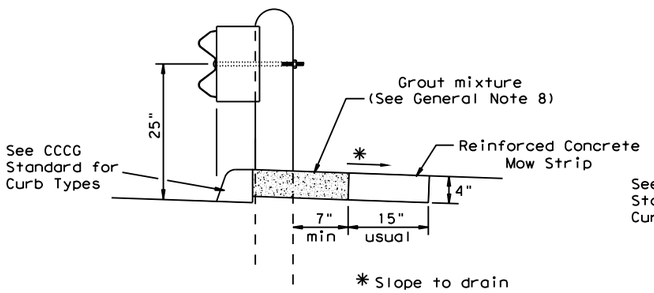
SECTION A-A

Typical



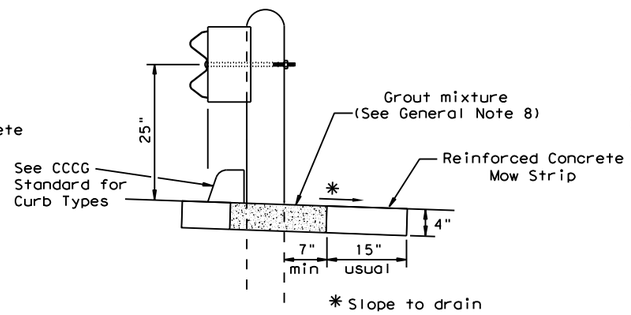
MOW STRIP DETAIL

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



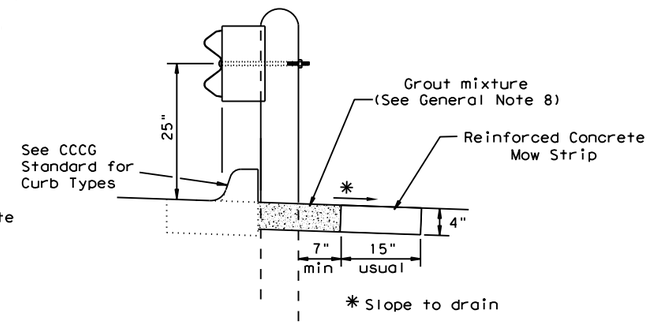
CURB OPTION (1)

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	0848	04	052		FM 462	
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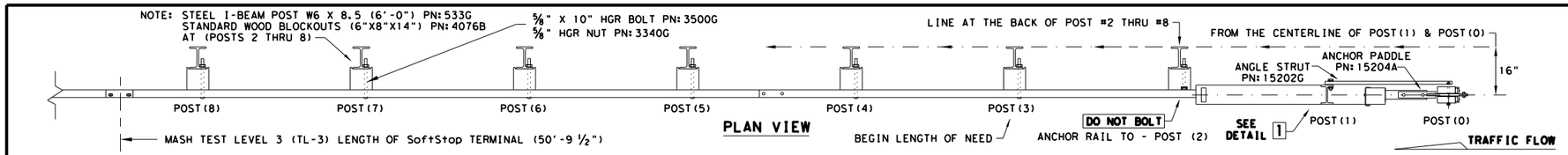
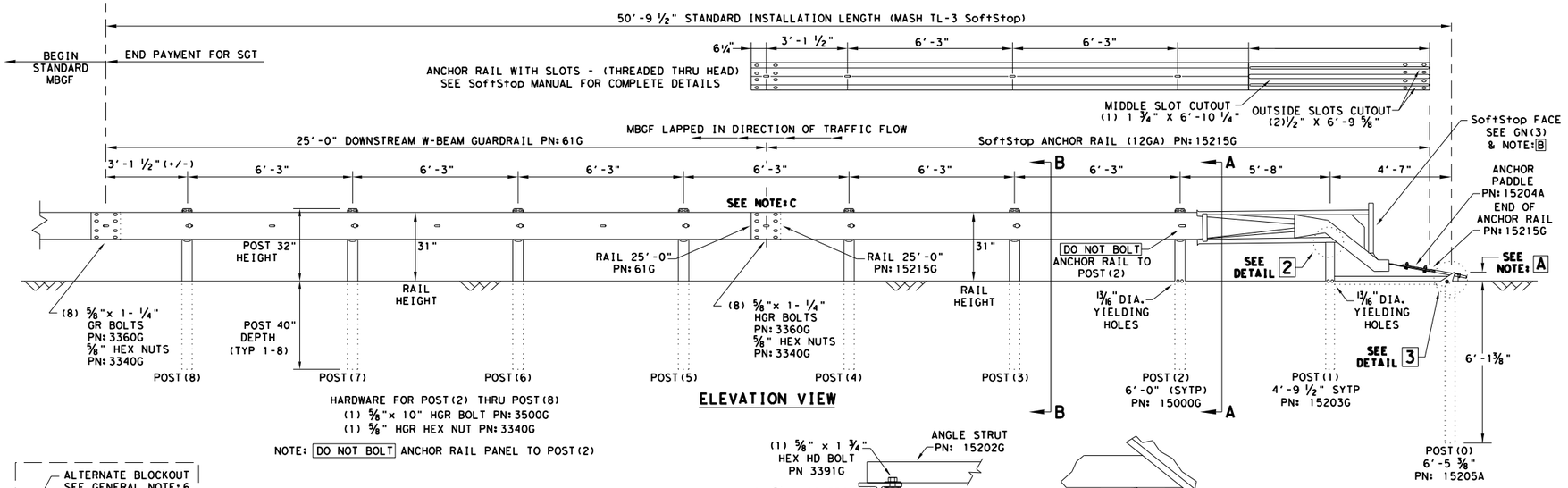
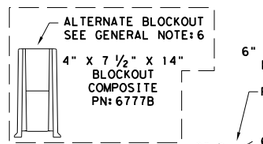


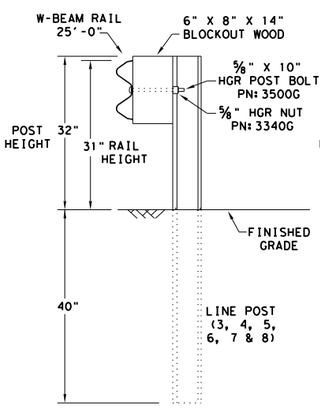




ISOMETRIC VIEW POST(1 & 2)

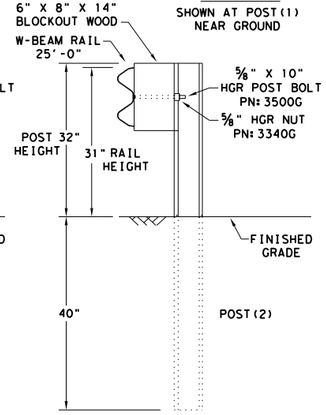
W6 X 8.5 I-BEAM POST SHOWING STANDARD WOOD BLOCKOUT

NOTE: NO BLOCKOUT INSTALLED AT POST(1)



SECTION VIEW B-B

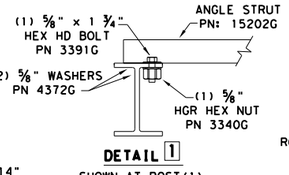
6'-0" (W6 X 8.5)
I-BEAM POST PN: 533G



SECTION VIEW A-A

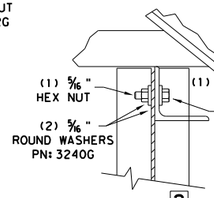
6'-0" (W6 X 8.5)
(SYTP) I-BEAM POST PN: 15000G

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



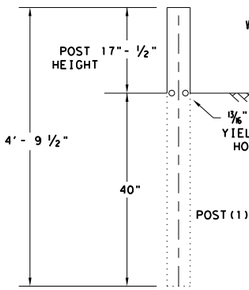
DETAIL 1

SHOWN AT POST(1) NEAR GROUND



DETAIL 2

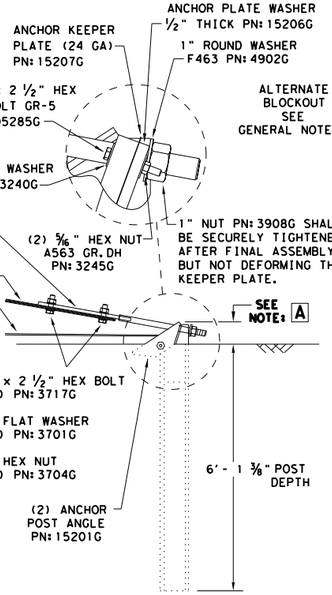
SHOWN AT POST(1)



FRONT VIEW POST(1)

4'-9 ½" (W6 X 8.5)
(SYTP) I-BEAM POST PN: 15203G

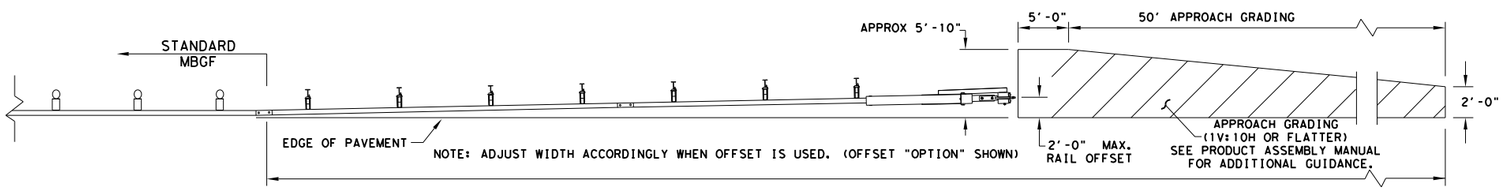
NOTE: NO BLOCKOUT INSTALLED AT POST(1)



DETAIL 3 AT POST(0)

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

TRAFFIC FLOW



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 ⅜")
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	⅝" 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
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
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	SAT	MEDINA		154

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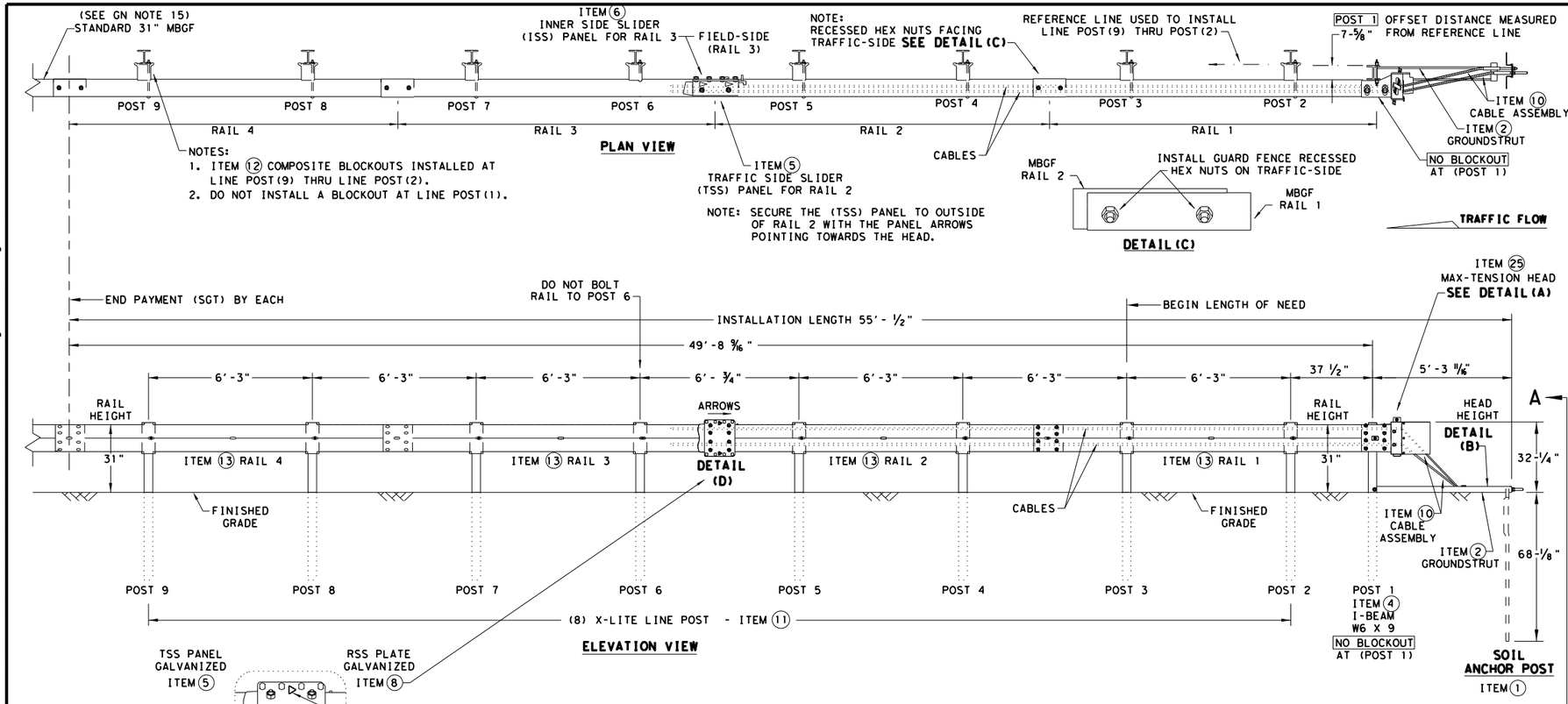

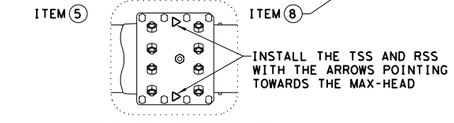

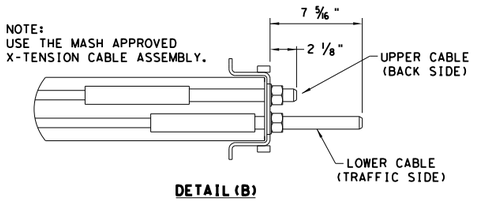

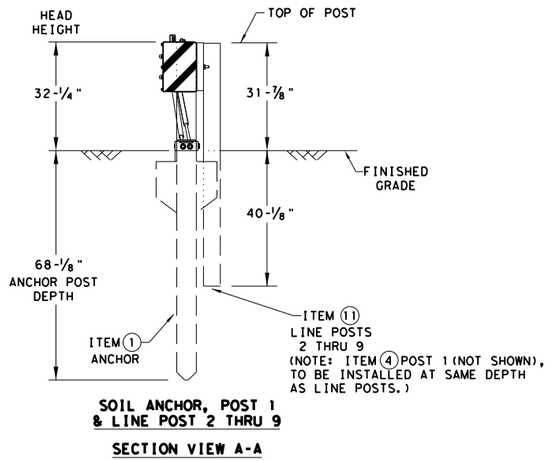

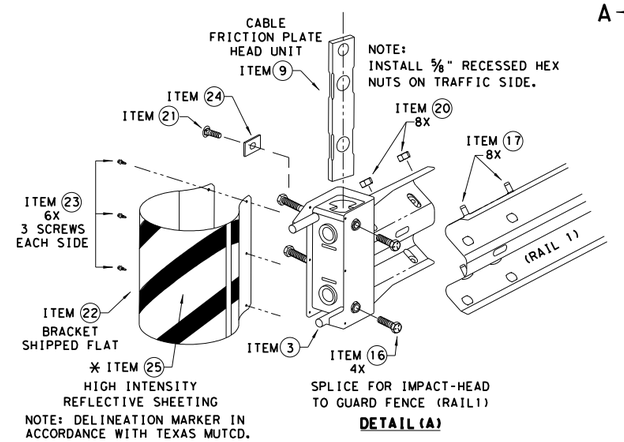

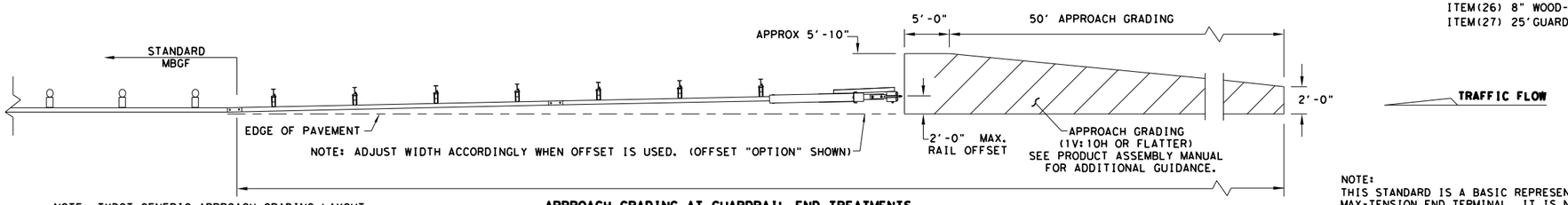

GENERAL NOTES

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
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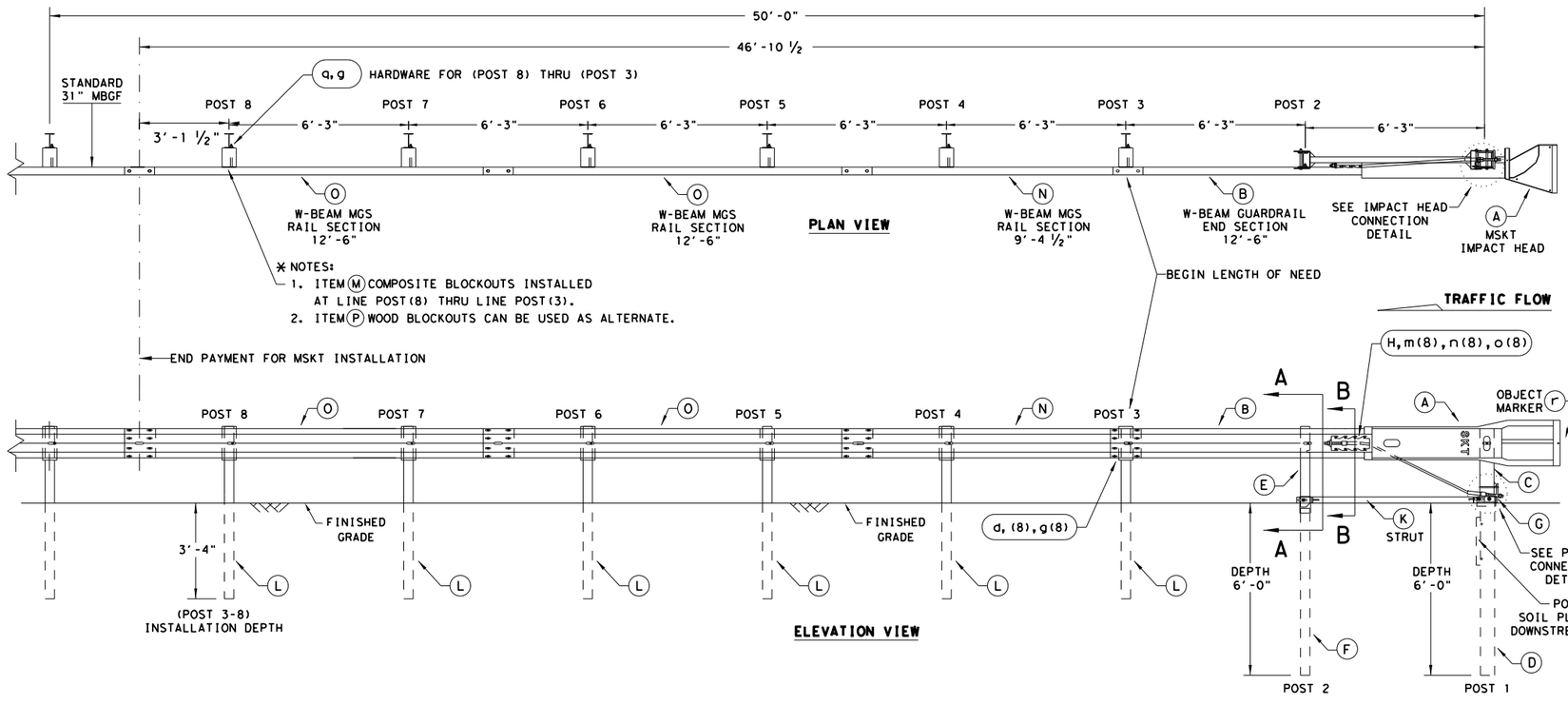
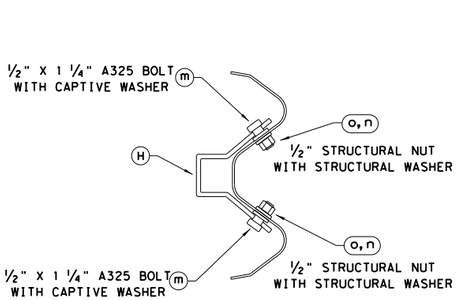
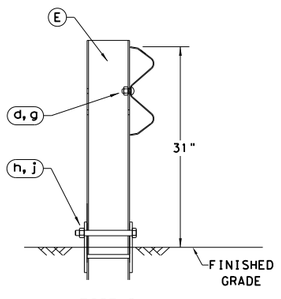
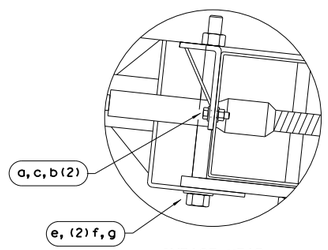
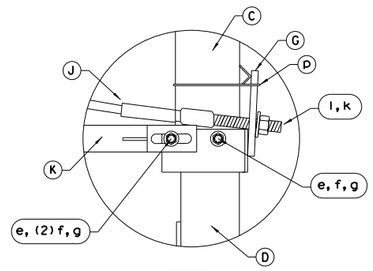


NOTE: SEE (GENERAL NOTE 14) FOR DRIVING CAP INFORMATION.









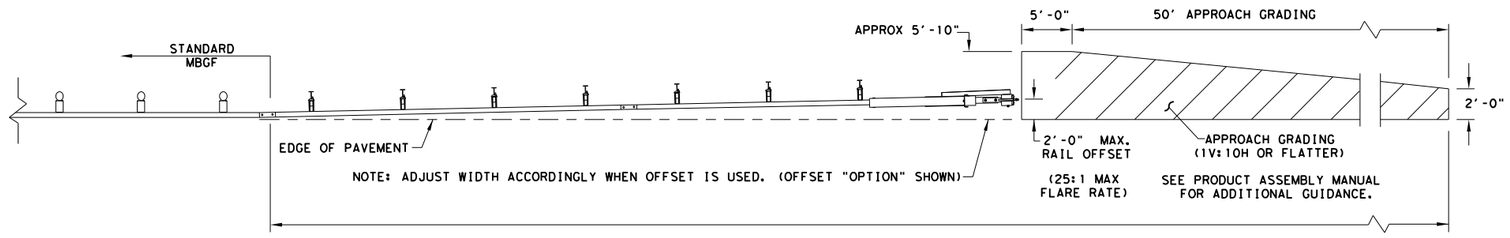
GENERAL NOTES

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	5/16" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	5/16" WASHER	W0516
c	2	5/16" 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 3/16" 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

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

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	SAT	MEDINA		156	

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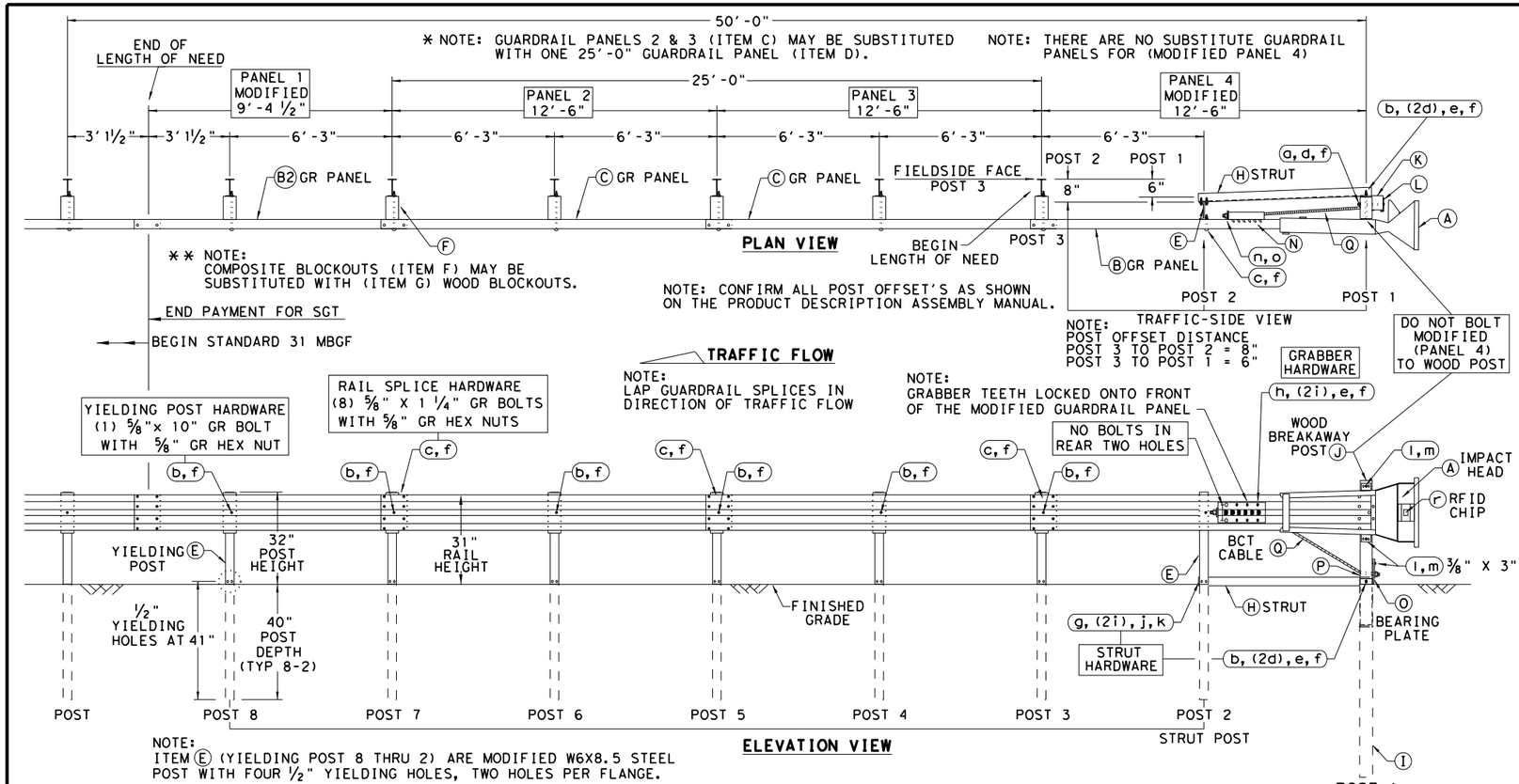
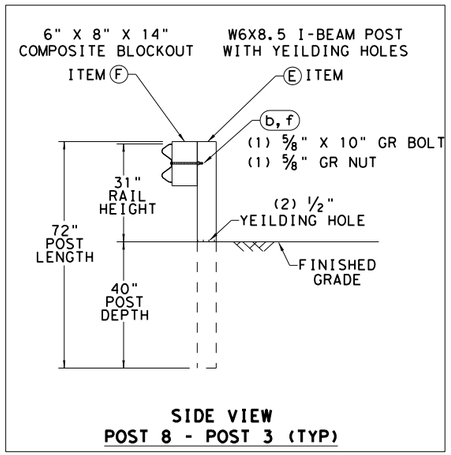


GENERAL NOTES

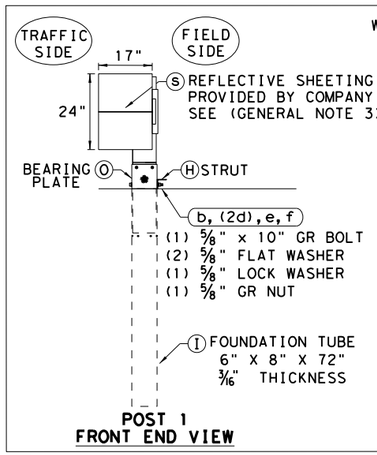
1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: SPIG INDUSTRY, INC. AT 1(267) 644-9510. 14675 INDUSTRIAL PARK RD; BRISTOL, VA 24202
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE MANUFACTURER'S; SGET END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL.
3. MANUFACTURER WILL APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" TO THE FACE PLATE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. THE OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. THE NOMINAL HEIGHT OF THE GUARDRAIL BEAM IS 31 INCHES WITH A TOLERANCE OF +/- ONE INCH.
5. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
6. (POST 2 THROUGH POST 8) ARE MODIFIED STEEL-YIELDING POSTS WITH YIELDING HOLES AT GROUND LEVEL. THERE ARE NO SUBSTITUTE POSTS.
7. POSTS SHALL NOT BE SET IN CONCRETE.
8. IF SOLID ROCK IS ENCOUNTERED FOR ANY OF THE POSTS IN THE SYSTEM, CONTACT THE MANUFACTURER FOR SPECIFIC INSTALLATION GUIDANCE.
9. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
10. A COMPOSITE MATERIAL BLOCKOUT THAT MEETS DMS-7210 REQUIREMENTS MAY BE SUBSTITUTED FOR AN APPROVED WOOD BLOCKOUT. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
11. THE ENTIRE SYSTEM MUST BE INSTALLED IN A STRAIGHT LINE WITHOUT ANY CURVE. HOWEVER, THE SYSTEM CAN BE OFFSET BY TWO FEET AS SHOWN ON THE APPROACH GRADING DETAIL TO HELP OFF-SET THE IMPACT HEAD FROM SHOULDER OF THE ROAD.

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM #
A	1	SGET IMPACT HEAD	SIH1A
B	1	MODIFIED GUARDRAIL PANEL 12'-6" 12GA	126SPZGP
B2	1	MODIFIED GUARDRAIL PANEL 9'-4 1/2" 12GA	GP94
C	2	STANDARD GUARDRAIL PANEL 12'-6" 12GA	GP126
D	1	STANDARD GUARDRAIL PANEL 25'-0" 12GA	GP25
E	7	MODIFIED YIELDING I-BEAM POST W6x8.5	YP6MOD
F	6	COMPOSITE BLOCKOUT 6" X 8" X 14"	CBO8
G	6	WOOD BLOCKOUT 6" X 8" X 14"	WBO8
H	1	STRUT 3" X 3" X 80" x 1/4" A36 ANGLE	STR80
I	1	FOUNDATION TUBE 6" X 8" X 72" x 3/16"	FNDT6
J	1	WOOD BREAKAWAY POST 5 1/2" x 7 1/2" x 50"	WBRK50
K	1	WOOD STRIKE BLOCK	WSBLK14
L	1	STRIKE PLATE 1/4" A36 BENT PLATE	SPLT8
M	1	REINFORCEMENT PLATE 12 GA. GR55	REPLT17
N	1	GUARDRAIL GRABBER 2 1/2" X 2 1/2" X 16 1/2"	GGR17
O	1	BEARING PLATE 8" X 8 5/8" X 5/8" A36	BPLT8
P	1	PIPE SLEEVE 4 1/4" X 2 3/8" O.D. (2 1/8" I.D.)	PSLV4
Q	1	BCT CABLE 3/4" X 81" LENGTH	CBL81
		SMALL HARDWARE	
a	1	5/8" X 12" GUARDRAIL BOLT 307A HDG	12GRBLT
b	7	5/8" X 10" GUARDRAIL BOLT 307A HDG	10GRBLT
c	33	5/8" X 1 1/4" GR SPLICE BOLTS 307A HDG	1GRBLT
d	3	5/8" FLAT WASHER F436 A325 HDG	58FW436
e	1	5/8" LOCK WASHER HDG	58LW
f	39	5/8" GUARDRAIL HEX NUT HDG	58HN563
g	2	1/2" X 2" STRUT BOLT A325 HDG	2BLT
h	6	1/2" X 1 1/4" PLATE BOLT A325 HDG	125BLT
i	16	1/2" FLAT WASHER F436 A325 HDG	12FWF436
j	8	1/2" LOCK WASHER HDG	12LW
k	8	1/2" HEX NUT A563 HDG	12HN563
l	4	3/8" X 3" HEX LAG SCREW GR5 HDG	38LS
m	4	3/8" FLAT WASHER F436 A325 HDG	38FW844
n	2	1" FLAT WASHER F436 A325 HDG	1FWF436
o	2	1" HEX NUT A563DH HDG	1HN563
p	1	18" TO 24" LONG ZIP TIE RATED 175-200LB	ZPT18
q	1	1 1/2" X 4" SCH-40 PVC PIPE	PSPCR4
r	1	RFID CHIP RATED MIL-STD-810F	RFID810F
s	1	IMPACT HEAD REFLECTIVE SHEETING	RS30M

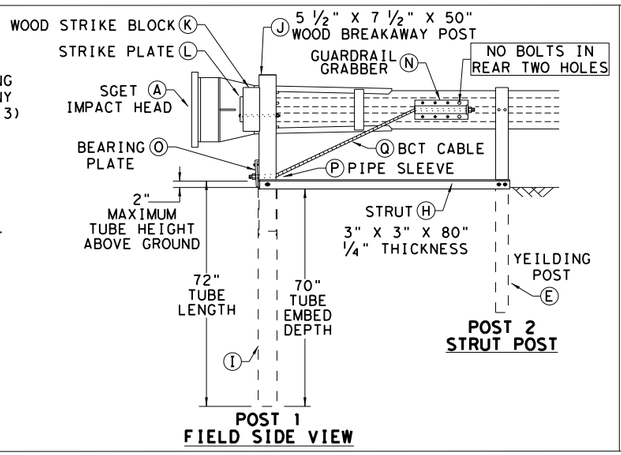
* ALTERNATIVE ITEMS
** NOTE: SEE PLAN VIEW



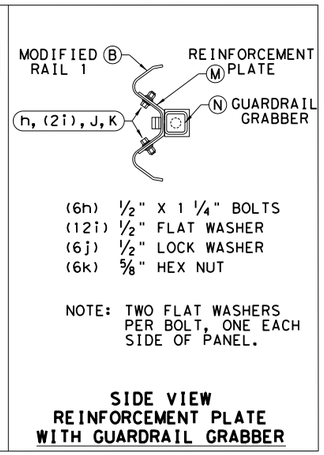
SIDE VIEW
POST 8 - POST 3 (TYP)



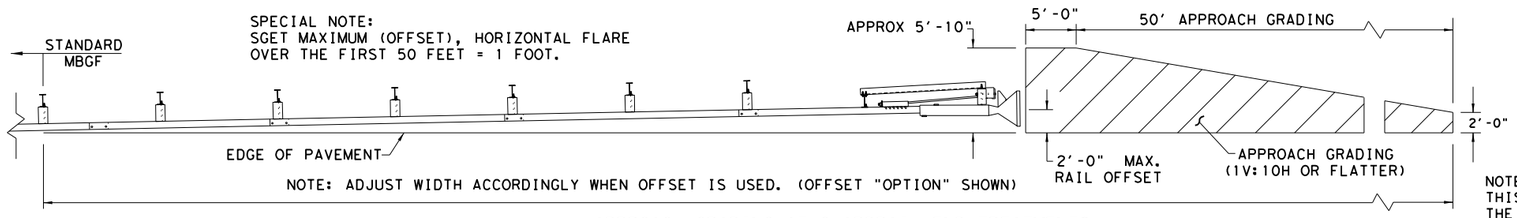
POST 1
FRONT END VIEW



POST 1
FIELD SIDE VIEW
POST 2
STRUT POST



SIDE VIEW
REINFORCEMENT PLATE
WITH GUARDRAIL GRABBER



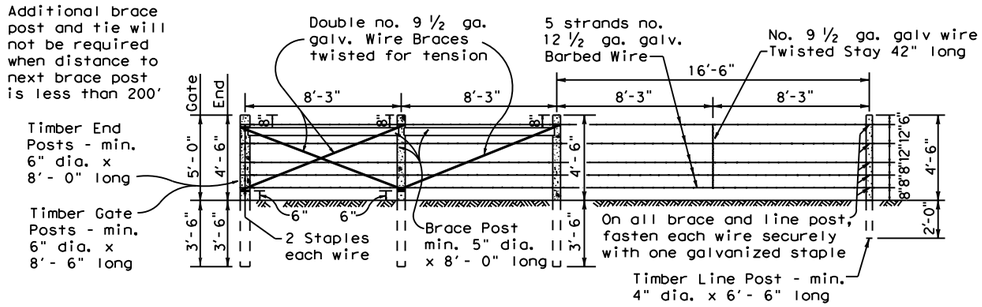
APPROACH GRADING AT GUARDRAIL END TREATMENTS

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE SGET TERMINAL SYSTEM AND IS NOT INTENDED TO REPLACE THE MANUFACTURER'S ASSEMBLY MANUAL.

Texas Department of Transportation — Design Division Standard

SPIG INDUSTRY, LLC
SINGLE GUARDRAIL TERMINAL
SGET - TL-3 - MASH
SGT(15)31-20

FILE: sgt153120.dgn	DN: TxDOT	CK: KM	DW: VP	CK: VP	
©TxDOT: APRIL 2020	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0848	04	052	FM 462	
	DIST	COUNTY		SHEET NO.	
	SAT	MEDINA		157	

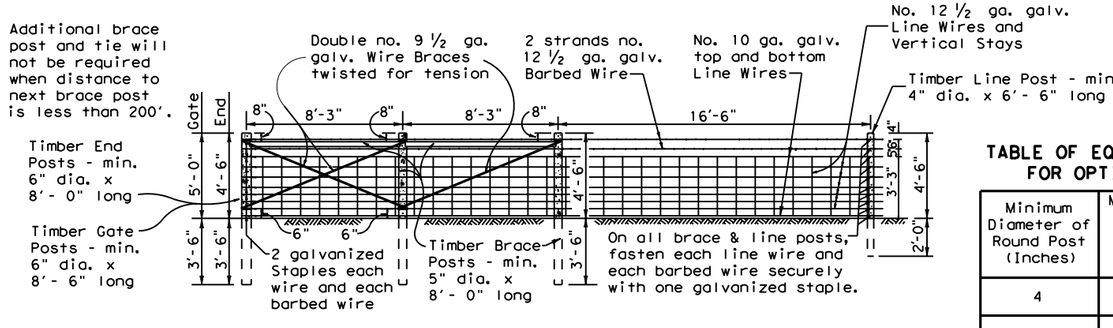


SECTION GALVANIZED BARBED WIRE FENCE WITH WOOD POSTS

Bracing Detail Used at Ends and Gates

TYPE "A" FENCE

(See General Note 6)



SECTION GALVANIZED WOVEN WIRE FENCE WITH WOOD POSTS

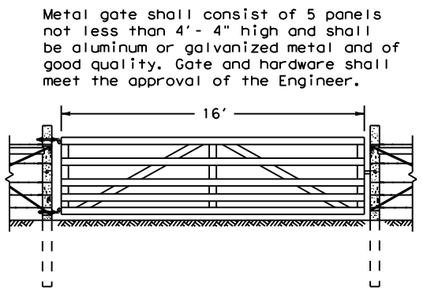
Bracing Detail Used at Ends and Gates

TYPE "B" FENCE

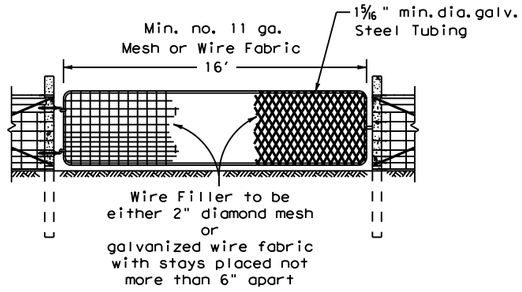
(See General Note 6)

TABLE OF EQUIVALENT SIZES FOR OPTIONAL SHAPE

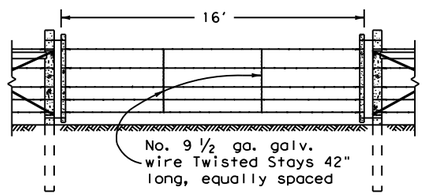
Minimum Diameter of Round Post (Inches)	Minimum Equivalent Dimension for Each Side of Square Post (Inches)
4	3 ½
5	4 ½
6	5 ¼



DETAIL TYPE 1 GATE



DETAIL TYPE 2 GATE

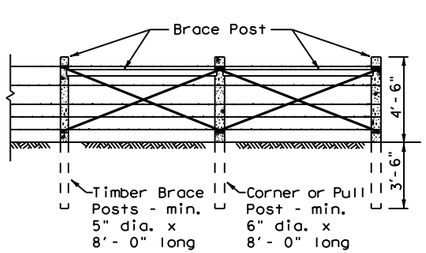


DETAIL TYPE 3 GATE

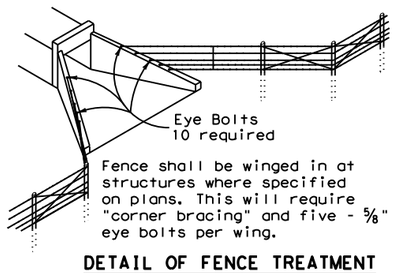
GENERAL NOTES

1. Any high point which interferes with the placing of wire mesh shall be excavated to provide 2" clearance.
2. Latches for Type 1 and Type 2 gates shall be good commercial quality and design latches of the spring, fork or chain type. All latches shall be suitable for the gate and shall be approved by the Engineer.
3. Hinges for Type 2 gates shall be commercial design approved by the Engineer suitable for post and gate.
4. Concrete shall be of the design and consistency approved by the Engineer and shall contain not less than 4 sacks of cement per cubic yard. Concrete footings are to be crowned at the top to shed water.
5. If rock is encountered at a depth less than the embedded depth required, a 15" or larger diameter hole shall be drilled for the post and the post shall be set in concrete. If rock is encountered at a depth of 1'- 6" or more below the ground surface, the hole shall be drilled to the required depth. If rock is encountered at a depth less than 1'- 6" below the ground surface, the holes shall be drilled a minimum of 2'- 0" into the rock or to the depth whichever is the lesser depth.
6. Barbed Wire shall be in accordance with ASTM A 121 (Class 1) Design designation 12-2-4-1 4R or 12-2-5-1 4R, or as approved by the Engineer.

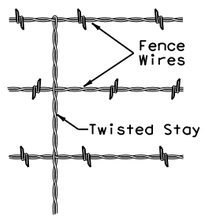
   Woven Wire Fence (Type B) shall be in accordance with ASTM A 116 (Class 1) No. 12-1/2 Grade 60 (See Table 1 ASTM A 116) to the height and design shown on the plans, or as approved by the Engineer.
7. The location of gates and corner posts will be as indicated elsewhere on these plans.
8. Square wood posts may be used in lieu of round posts provided minimum equivalent size requirements, as shown are met. All wood posts shall be in accordance with Item 552, "Wire Fence."



CORNER OR PULL POST ASSEMBLY

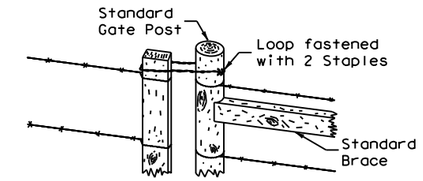


DETAIL OF FENCE TREATMENT AT STRUCTURES

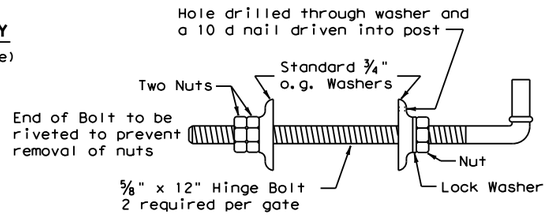


DETAIL OF STAY

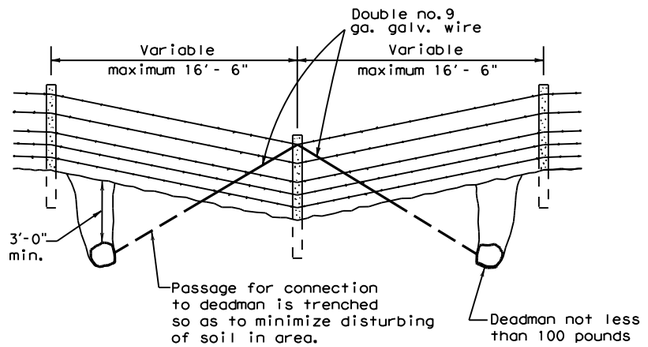
(Barbed wire fence)



DETAIL FASTENER TYPE 3 GATE

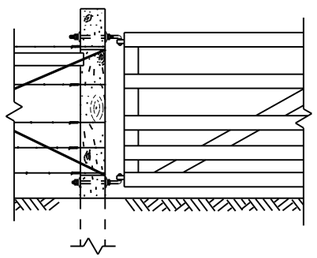


DETAIL OF GATE HINGE BOLT ASSEMBLY

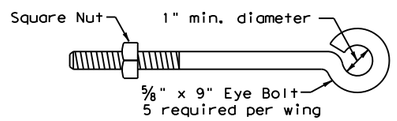


DETAIL OF FENCE SAG

(Single Line Connection)



DETAIL SHOWING INSTALLATION OF HINGES OF TYPE 1 & 2 GATE



DETAIL OF EYE BOLT

Texas Department of Transportation — Design Division Standard

BARBED WIRE AND WOVEN WIRE FENCE

(WOOD POSTS)

WF(1)-10

FILE: wf110.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
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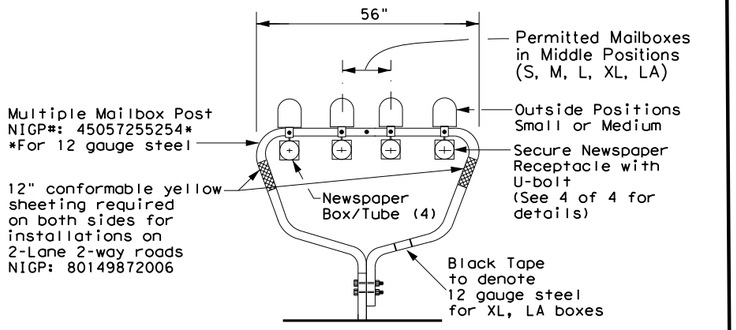
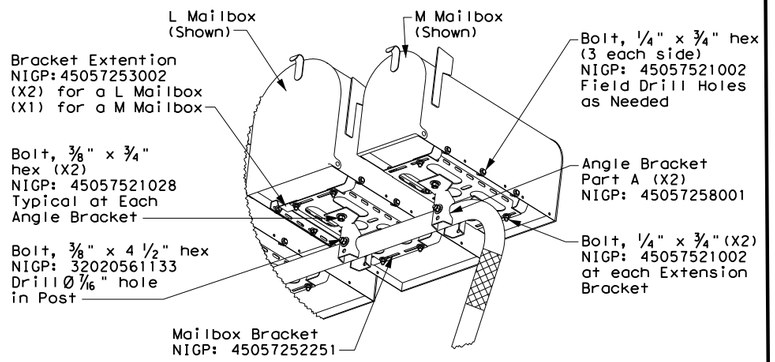
REVISIONS	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		158

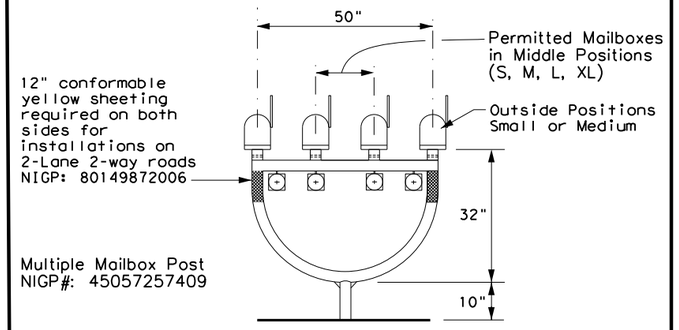
DATE: 1/31/2024
FILE: c:\pw\khl\d0285616\wf110.dgn

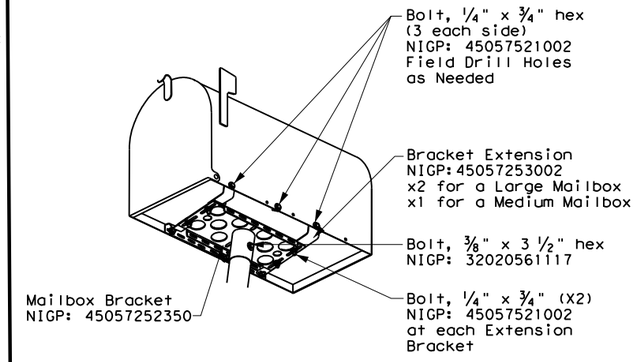
TYPE 1 - MULTIPLE





TYPE 4 - MULTIPLE





MAILBOX SIZES

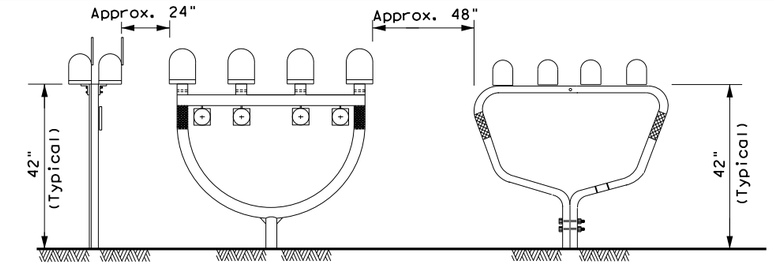
MAILBOX SIZE	TYPICAL DIMENSIONS			MAX **
	LENGTH	WIDTH	HEIGHT	WEIGHT
SMALL	19 1/2"	6"	7"	6 LBS
MEDIUM	22 1/2" *	8" *	11 1/2" *	8 LBS
LARGE	23 1/2"	11 1/2"	13 1/2"	11 LBS
EXTRA LARGE	18"	14"	12"	13 LBS
LOCKABLE	18"	11 1/2"	15"	23 LBS

* See Note 1.
** Excluding Molded Plastic on 4 X 4 Post

GENERAL NOTES:

1. Dimensions shown (length, width, and height) are typical, not maximums. However, anytime a medium size mailbox is mounted on a single/double mount or on the outside position on a multi mount, the dimensions shown are maximums.
2. Mailboxes shall be made of light weight sheet metal or light weight plastic. Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.

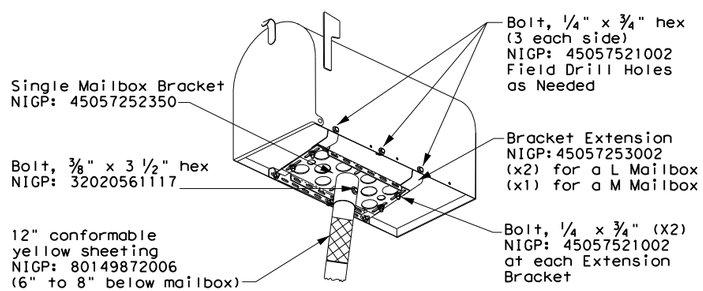
TYPICAL INSTALLATION MEASUREMENTS

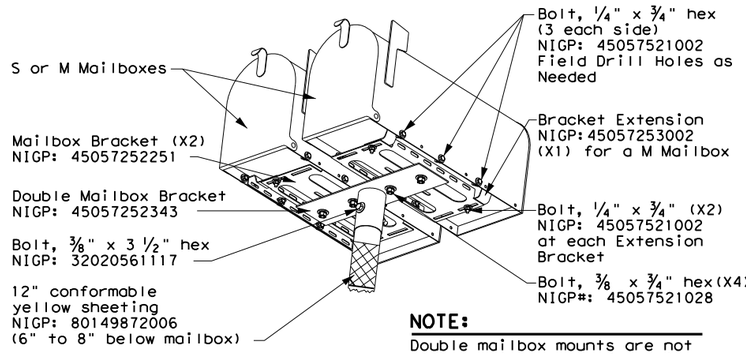


NOTE:

Mailbox installations in sidewalk areas shall be in accordance with the latest TxDOT Design Standard sheets PED-Pedestrian Facilities Curb Ramps.

TYPE 2 and 4 - SINGLE/DOUBLE

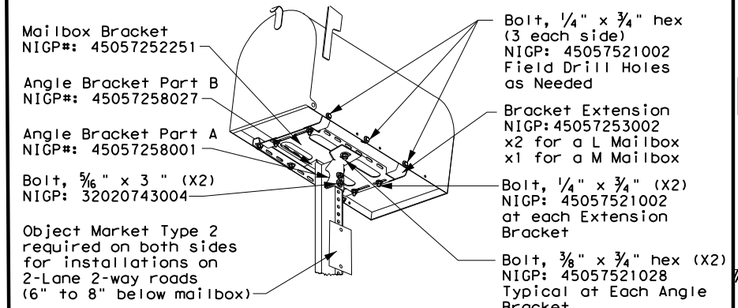


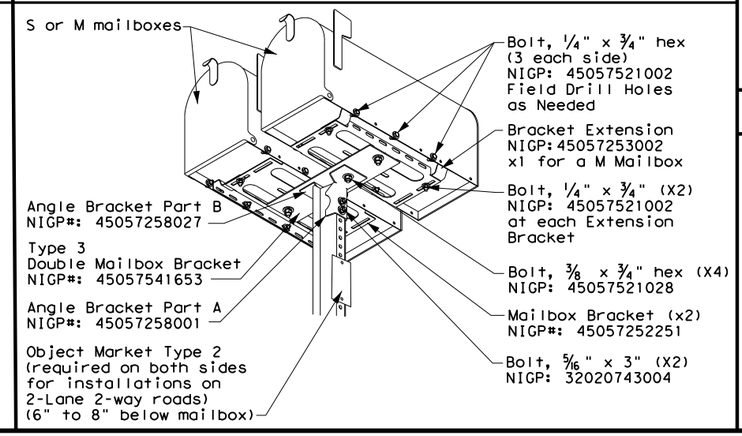


NOTE:

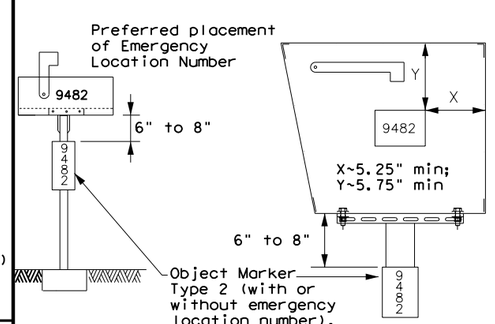
Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

TYPE 3 - SINGLE/DOUBLE





PLACEMENT OF EMERGENCY LOCATION NUMBER

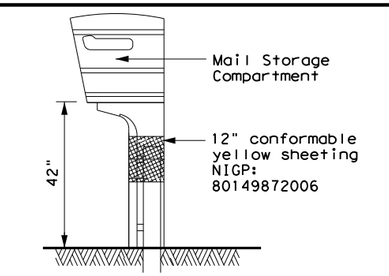


NOTES:

1. Location numbers are provided by homeowner. Minimum size 1" height.
2. Location number is typically placed on the mailbox in a contrasting color.
3. Black numbers may be placed on the Type 2 object marker if the numbers cannot be placed on the mailbox.
4. Alternatively, a green or blue plate with white numbers attached may be mounted below the object marker. Other contrasting color configuration, as approved, may be used.
5. See 3 of 4 for Foundation details.
6. See 4 of 4 for Hardware details.

SHEET 1 OF 4

TYPE 5



Typical Molded Plastic Mailbox

Texas Department of Transportation

Maintenance Division Standard

MAILBOX MOUNTING AND ASSEMBLY

MB(1)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0848	04	052	FM 462
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DATE: 1/31/2024 2:59:39 PM
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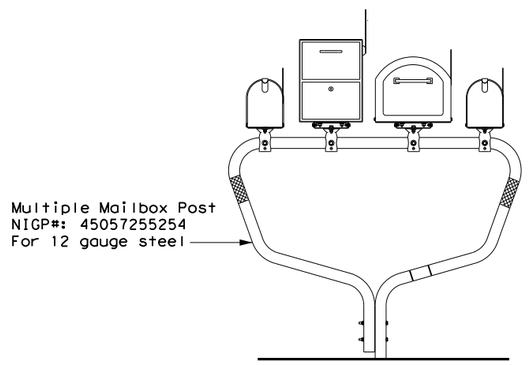
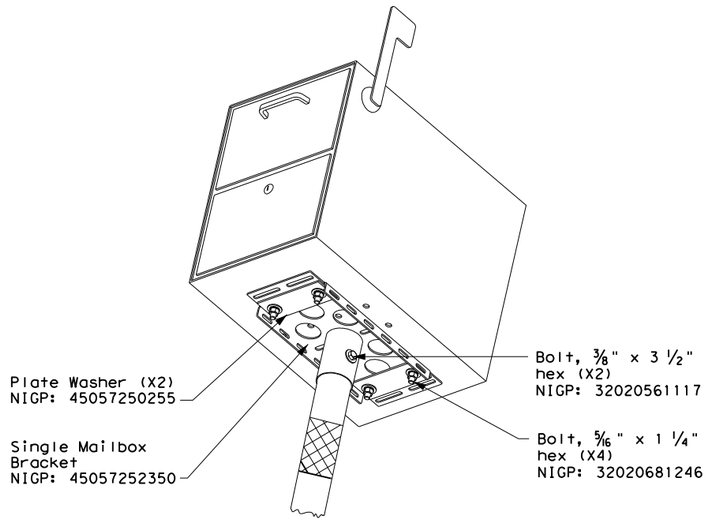
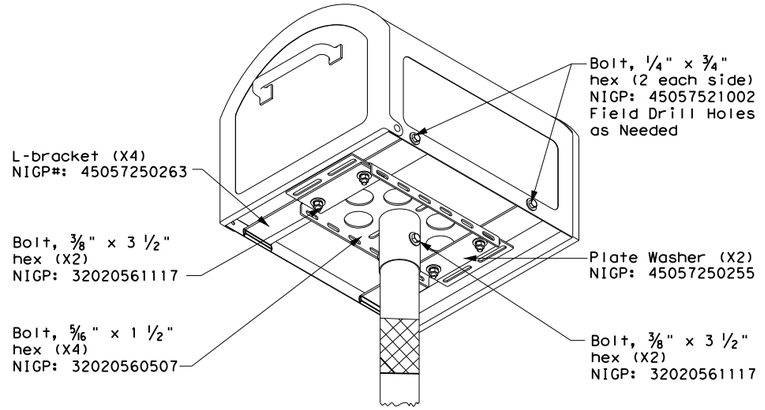
TYPE 1- MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

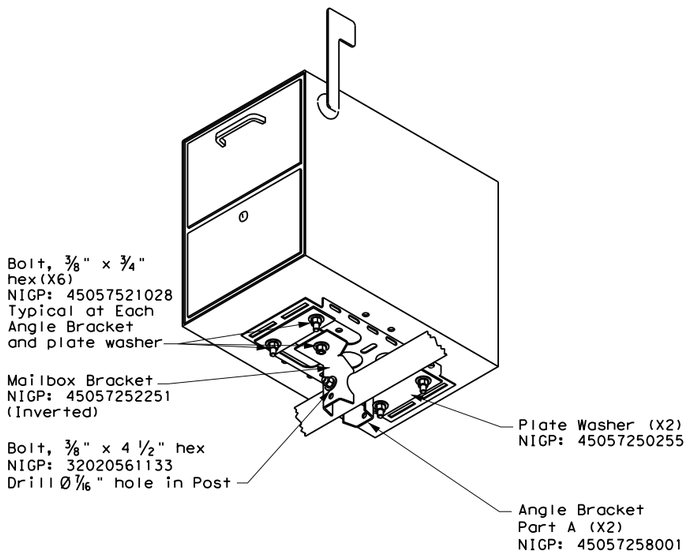


TYPE 2/4 - SINGLE XL MAILBOX

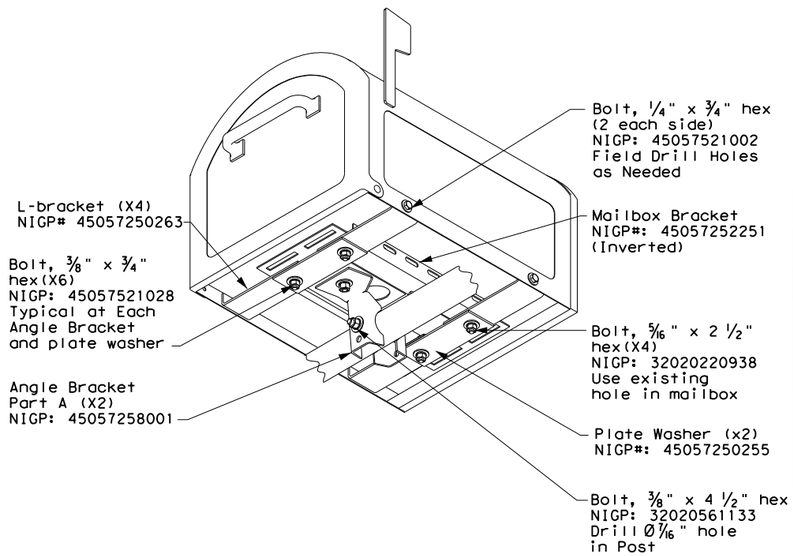


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

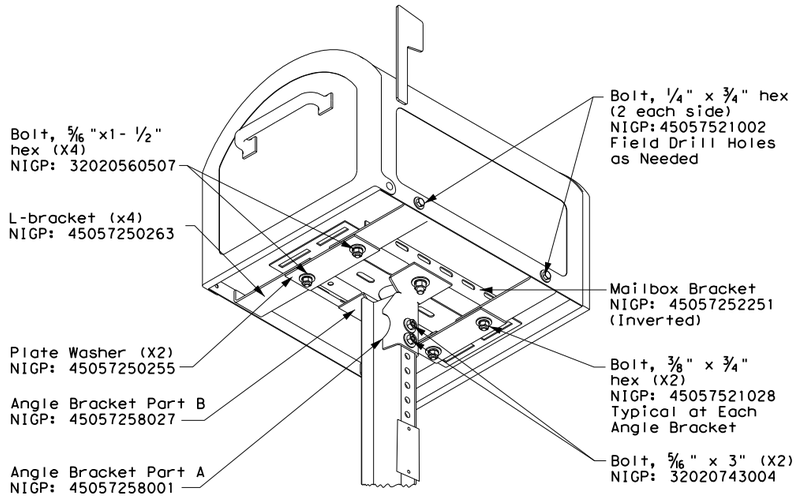
TYPE 1 MULTI – LOCKABLE ARCHITECTURAL (LA)



TYPE 1 MULTI – XL MAILBOX



TYPE 3 - XL MAILBOX MOUNTING



Texas Department of Transportation — Maintenance Division Standard

XL AND LOCKABLE ARCHITECTURAL MAILBOX ASSEMBLY

MB(2)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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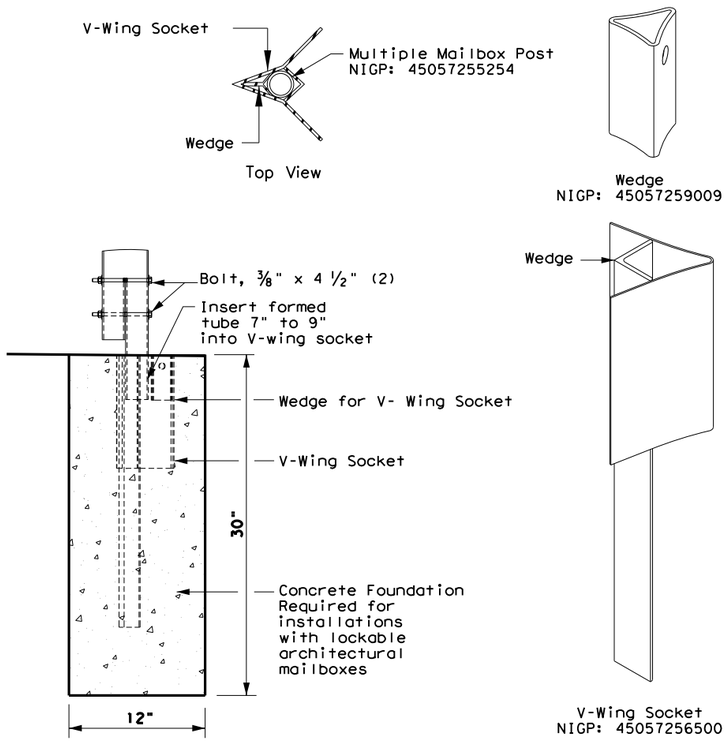
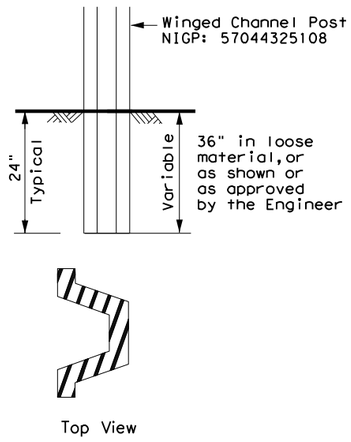
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		160

TYPE 1 - SUPPORT/FOUNDATION

Thin Wall Tube w/ V-LOC Anchorage



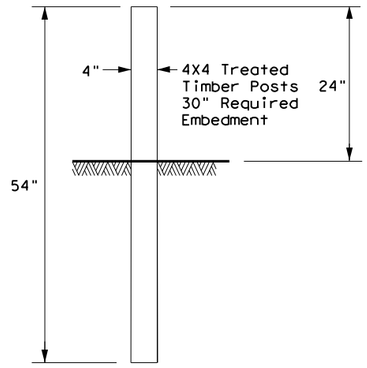
TYPE 3 - SUPPORT/FOUNDATION



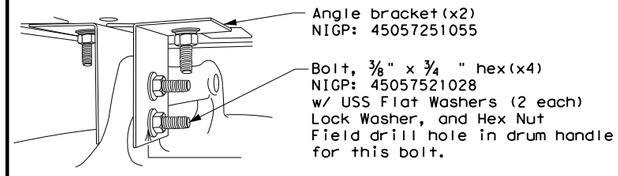
NOTES:

1. Attach Object Marker (OM) facing direction of traffic.
2. OM will also be required on opposite side if installed on a 2-Lane, 2-Way roadway.

TYPE 5 - SUPPORT/FOUNDATION



TYPE 6 - TEMPORARY MAILBOX SUPPORT



Plastic Drum NIGP: 55093383655
Rubber Collar NIGP: 55093387102

NOTES:

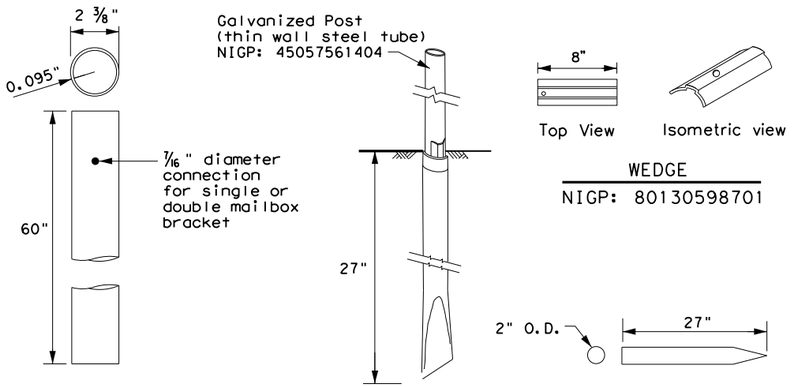
1. Place on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).
2. Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

GENERAL NOTES:

1. Erect post plumb or vertical.
2. When galvanized part is required galvanize in accordance with Item 445.
3. Use a concrete footing as shown or when directed. Concrete footing will be required when soils do not hold the support/foundations in a stable condition, only on Type 1, Type 2, and Type 4

TYPE 2 - SUPPORT/FOUNDATION

Thin Wall Steel Tube w/Wedge Anchor System

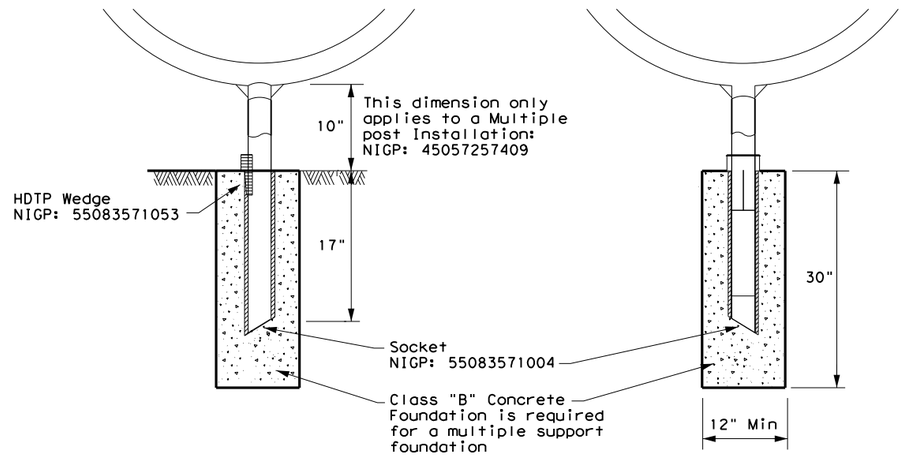


MAILBOX POST

WEDGE ANCHOR
NIGP: 80130238407

TYPE 4 - SUPPORT/FOUNDATION

Whitecoated steel post NIGP: 45057561107
Multiple post NIGP: 45057257409
Recycled Rubber post (RR) NIGP: 45057561057



SHEET 3 OF 4

Texas Department of Transportation

Maintenance Division Standard

MAILBOX SUPPORT AND FOUNDATION

MB(3)-21

FILE: MB-21.dgn	DN:	CK:	DW:	CK:
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REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		161

DATE: 1/31/2024 2:59:39 PM
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DISCLAIMER:
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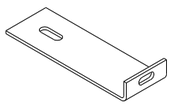
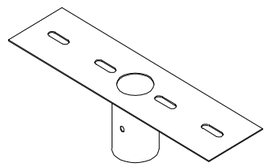
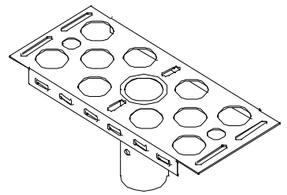
TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4			TYPE 5	TYPE 6
Configuration	Multiple	Single or Double	Single or Double	Single	Double	Multiple	Single	Single
Mailbox Size NIGP #	Outside Position: S or M Inside Position: S, M, L, XL, or LA	Single: S, M, L, XL, or LA Double: SS, SM, MM	Single: S, M, L, or XL Double: SS, SM, MM	S, M, L, XL, or LA	SS, SM, or MM	Outside Position: S or M Inside Position: S, M, L, or XL	Molded Plastic	S, or M
Mailbox Post NIGP #	45057255254 (Galvanized Multiple)	45057561404 (Thin Walled Gavanize)	57044325108 (Wing Channel Post)	45057561107 (Thin walled white powder coated) 45057561057 (Recycled Rubber Post: S or M only)	45057561107 (Thin Walled White Powder Coated)	45057257409 (White Powder Coated Multiple)	4x4 Timber	Construction Barrel
Post and Mailbox Hardware NIGP #	45057259009 (Wedge) 45057256500 (V-Wing Socket) 45057253002 (Bracket Extension) 45057252251 (Mailbox Bracket) 45057258001 (Part A Angle Bracket x2) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	80130598701 (Wedge) 80130238407 (Wedge Anchor) 45057253002 (Bracket Extension) 45057252343 (Double MB Bracket) 45057252350 (S. Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket forXL x4)	45057541653 (Type 3 Double Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057253002 (Bracket Extension) 45057258001 (Part A Angle Bracket) 45057258027 (Part B Angle Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057252350 (Single Mailbox Bracket) 45057253002 (Bracket Extension) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252343 (Double Mount Bracket) 45057252251 (Mailbox Bracket x2)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252350 (Single Mount Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	None	45057251055 Angle Bracket (x2)
Foundation Used	Class B Concrete (Required for LA Mailboxes)	Class B Concrete (Required for LA Mailboxes)	None	Class B Concrete (not used with recycled rubber post, required for LA Mailboxes)	Class B Concrete (not required)	Class B Concrete	None	None



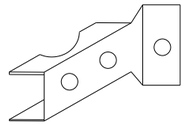
NIGP: 45057250263
L-Bracket x4 for
XL sized mailboxes



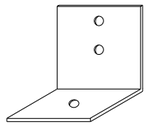
NIGP: 45057252343
Double Mailbox Bracket
For Type 2 and Type 4
double mount



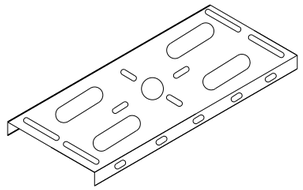
NIGP: 45057252350
Single Mailbox Bracket
For Type 2 single and for
Type 4 single and multi mount



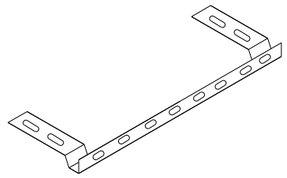
NIGP: 45057258001
Part "A" Angle Bracket
For Type 1 multi (2 per mailbox)
and Type 3 single and double



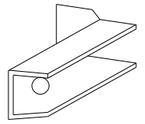
NIGP: 45057251055
Type 6 Angle Bracket
(2 per mailbox)



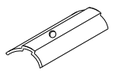
NIGP: 45057252251
Mailbox Bracket
For Type 1 multi and
any double mount (use 2)



NIGP: 45057253002
Bracket Extension
Use 1 for a medium Mailbox
Use 2 for a Large Mailbox



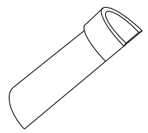
NIGP: 45057258027
Part "B" Angle Bracket
For Type 3 single
and double



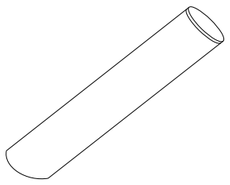
NIGP: 80130598701
Wedge for Type 2

NIGP: 45057250255
Plate Washer for Architecural
and XL Mailboxes

NIGP: 45057541653
Type 3 double mailbox bracket

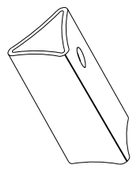


NIGP: 55083571053
Type 4 Mailbox Wedge

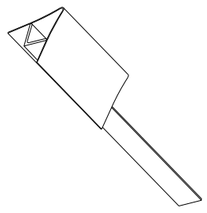


NIGP: 55083571004
Type 4 Mailbox Socket

NIGP: 80130238407
Type 2 Wedge Anchor



NIGP: 45057259009
Wedge for Type 1 V-wing Socket



NIGP: 45057256500
V-wing Socket for
Type 1 Foundation

NIGP #	OBJECT MARKERS AND CONFORMABLE SHEETING
55008311759	Type 2 OM 4"x4" (3 Needed) for Type 3 Wing Channel Post
55008312906	Type 2 OM 6"x12" (1 needed) for Type 3 Wing Channel Post
80149872006	12" Conformable Reflective Yellow Sheeting for Flexible Posts

NOTES:

1. Type 2 object marker in accordance with Traffic Engineering Standard Delineators & Object Markers.
2. A light weight receptacle for newspaper delivery can be attached to mailbox posts if the receptacle does not touch the mailbox, present a hazard to traffic or delivery of the mail, extend beyond the front of the mailbox, or display advertising, except the publication title.

BID CODES FOR CONTRACTS

MB-(X) ASSM TY (XXX) (X)

Type of Mailbox
- S = Single
- D = Double
- M = Multiple
- MP = Molded Plastic

Type of Post
- WC = Winged Channel Post
- RR = Recycled Rubber
- TWW = Thin Walled White Tubing
- TWG = Thin Walled Galvanized Tubing
- TIM = Timber

Type of Foundation
- Ty 1 = V-Loc
- Ty 2 = Wedge Anchor Steel System
- Ty 3 = Winged Channel post
- Ty 4 = Wedge Anchor Plastic System
- Ty 5 = 4 X 4 Post

Texas Department of Transportation — Maintenance Division Standard

NIGP PARTS LIST AND COMPATIBILITY

MB(4)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		162

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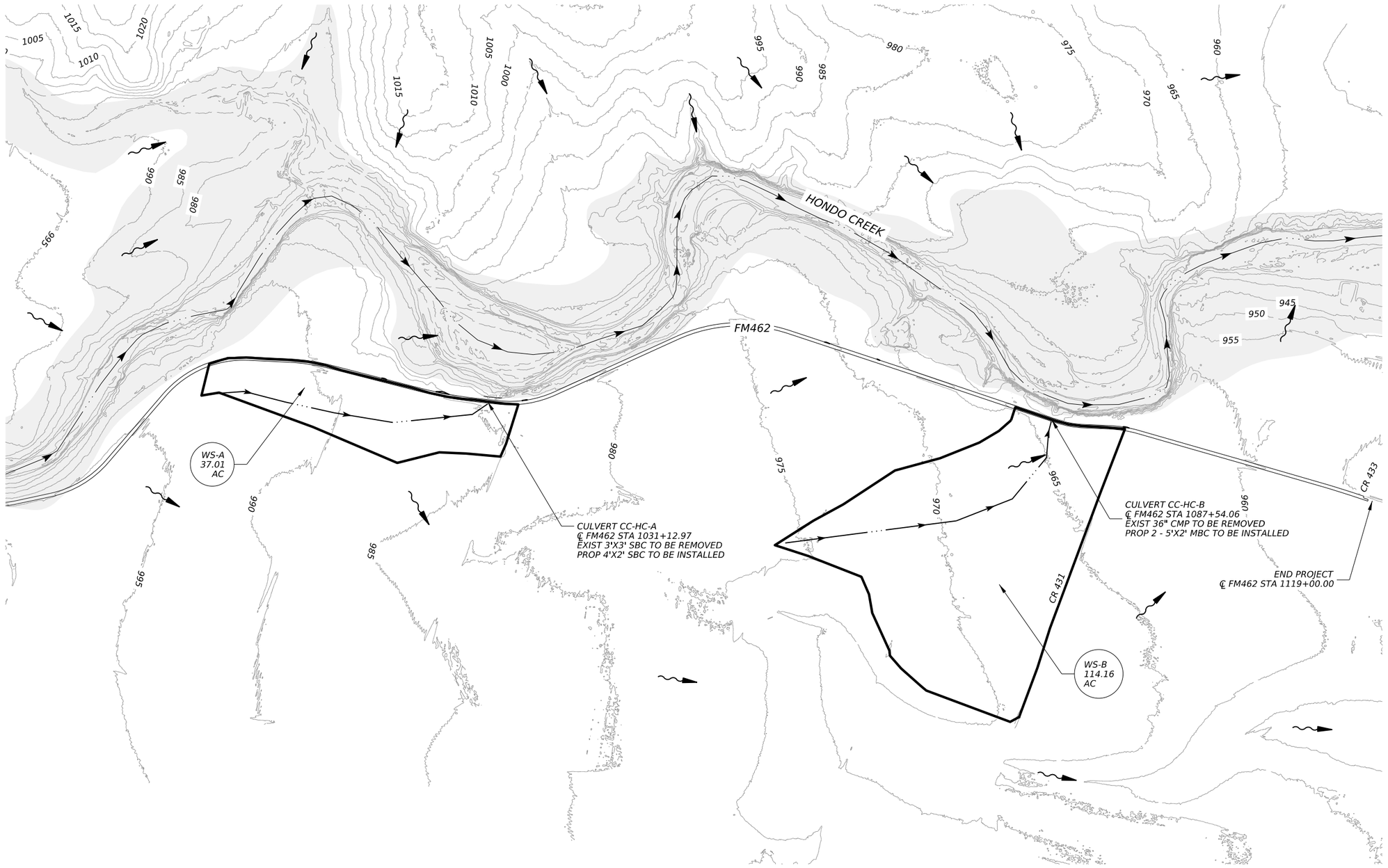

LEGEND

- DRAINAGE AREA
- STREAM CENTERLINE
- 950 — EXIST 5' CONTOURS
- FEMA 100 YR FLOODPLAIN
- xx-x / xx.xx AC — DRAINAGE AREA LABEL
- DRAINAGE FLOW ARROWS

NOTES:

1. PREFIXES
   HC = HONDO CREEK
2. FEMA FLOODPLAIN DATA BASED ON THE MEDINA COUNTY FEMA FIRM PANEL 48325C0325C, EFFECTIVE DATE 04/03/2012
3. H&H FILES WERE SENT TO THE LOCAL FLOODPLAIN ADMINISTRATOR PAT BRAWNER ON 1/10/2024
4. DRAINAGE AREAS DELINEATED ON TNRIS 2018 LIDAR 5 FT CONTOURS
5. RAINFALL DATA OBTAINED FROM TXDOT EBD LOOK UP FOR MEDINA COUNTY ZONE 3 AMS
5. TIME OF CONCENTRATION CALCULATED USING NRCS METHOD N ACCORDANCE WITH TXDOT 2019-1 HDM CHAPTER 4 SECTION 11
6. RUNOFF VALUES CALCULATED USING RATIONAL METHOD IN ACCORDANCE WITH TXDOT 2019-1 HDM CHAPTER 4 SECTION 12

Rational Flows, Q (cfs)

Name	AREA (AC)	C	TC (MIN)	I2-YR (IN/HR)	I5-YR (IN/HR)	I10-YR* (IN/HR)	I25-YR (IN/HR)	I50-YR (IN/HR)	I100-YR (IN/HR)	I500-YR (IN/HR)	2-YR	5-YR	10-YR*	25-YR	50-YR	100-YR	500-YR
WS-A	37.01	0.37	56	1.90	2.58	3.12	3.87	4.48	5.13	6.73	26	35	43	53	61	70	92
WS-B	114.16	0.37	52	2.00	2.71	3.27	4.06	4.69	5.36	7.02	84	114	138	171	198	226	297

* DESIGN YEAR USED FOR PROPOSED CULVERTS

Time of Concentration

Name	TOC Calc Method	Sheet Flow Time	Shallow Concentrated Flow Time	Time of Concentration
		t (min)	t (min)	t (min)
CULV-A-EXIST	NRCS Method	16	40	56
CULV-B-EXIST	NRCS Method	9	43	52

NOTE: DUE TO FLAT TERRAIN, NO CHANNEL FLOW OBSERVED OR CALCUALTED

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

FM 462

DRAINAGE AREA MAP

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		163

DATE: 1/31/2024 4:32:45 PM
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EXISTING CULVERT CC-HC-A

Site Data - CC-HC-A

Site Data Option: Culvert Invert Data

Inlet Station: 100.00 ft
Inlet Elevation: 979.62 ft
Outlet Station: 134.95 ft
Outlet Elevation: 978.93 ft
Number of Barrels: 1

Culvert Data Summary - CC-HC-A

Barrel Shape: Concrete Box
Barrel Span: 3.00 ft
Barrel Rise: 3.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: Square Edge (0º flare) Wingwall
Inlet Depression: None

Tailwater Channel Data - CC-HC-A

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.18
User Defined Channel

Coord No.	Station (ft)	Elevation (ft)	Manning's n
1	0	980.63	0.037
2	5	979.75	0.037
3	10	979.01	0.037
4	10.47	978.65	0.037
5	14.14	978.68	0.037
6	20	979.63	0.037
7	25	980.06	

Roadway Data for Crossing - CC-HC-A

Roadway Profile Shape: Irregular Roadway Shape (coordinates)
Irregular Roadway Cross-Section

Coord No.	Station (ft)	Elevation (ft)
0	103000	983.84
1	103100	983.65
2	103200	983.68
3	103300	984.33

Roadway Surface: Paved
Roadway Top Width: 22.00 ft

Summary of Culvert Flows at Crossing: CC-HC-A

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Box Discharge (cfs)	Roadway Discharge (cfs)	Iterations
981.81	2-year	26	26	0.00	1
982.32	5-year	35	35	0.00	1
982.78	10-year	43	43	0.00	1
983.39	25-year	53	53	0.00	1
983.71	50-year	61	58	3.14	18
983.76	100-year	70	58.50	11.44	7
983.65	Overtopping	56.86	56.86	0.00	Overtopping

Downstream Channel Rating Curve: CC-HC-A

Flow (cfs)	Water Surface Elev (ft)	Velocity (ft/s)	Depth (ft)	Shear (psf)	Froude Number
26	979.32	0.67	6.13	3.23	1.68
35	979.42	0.77	6.58	3.7	1.71
43	979.49	0.84	6.92	4.06	1.73
53	979.57	0.93	7.29	4.45	1.75
61	979.63	0.99	7.53	4.74	1.77
70	979.70	1.05	7.70	5.06	1.78

Culvert Summary Table: CC-HC-A

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	26	981.81	2.19	0.883	1-S2n	0.78	1.33	0.91	0.67	9.57	6.13
5-year	35	35	982.32	2.7	1.375	1-S2n	0.96	1.62	1.14	0.77	10.28	6.58
10-year	43	43	982.78	3.16	1.842	5-S2n	1.11	1.85	1.33	0.84	10.78	6.92
25-year	53	53	983.39	3.77	2.472	5-S2n	1.29	2.13	1.56	0.93	11.32	7.29
50-year	61	58	983.71	4.09	3.161	5-S2n	1.38	2.26	1.67	0.99	11.55	7.53
100-year	70	58.50	983.76	4.14	3.203	5-S2n	1.39	2.28	1.68	1.05	11.59	7.70

PROPOSED CULVERT CC-HC-A

Site Data - CC-HC-A Proposed

Site Data Option: Culvert Invert Data

Inlet Station: 100.00 ft
Inlet Elevation: 979.64 ft
Outlet Station: 146.00 ft
Outlet Elevation: 978.77 ft
Number of Barrels: 1

Culvert Data Summary - CC-HC-A Proposed

Barrel Shape: Concrete Box
Barrel Span: 4.00 ft
Barrel Rise: 2.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: Square Edge (90º) Headwall (Ke=0.5)
Inlet Depression: None

Tailwater Channel Data - CC-HC-A Proposed

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.18
User Defined Channel

Coord No.	Station (ft)	Elevation (ft)	Manning's n
1	0	981.02	0.037
2	6	980.46	0.037
3	12	976.67	0.037
4	18	975.25	0.037
5	24	976.48	0.037
6	30	980.85	0.037
7	36	981.62	0.037
8	42	981.46	

Roadway Data for Crossing - CC-HC-A Proposed

Roadway Profile Shape: Irregular Roadway Shape (coordinates)
Irregular Roadway Cross-Section

Coord No.	Station (ft)	Elevation (ft)
0	103000	984.77
1	103100	984.29
2	103200	984.49
3	103300	984.90

Roadway Surface: Paved
Roadway Top Width: 32.00 ft

Summary of Culvert Flows at Crossing: CC-HC-A Proposed

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Box Discharge (cfs)	Roadway Discharge (cfs)	Iterations
981.47	2	26	26	0	1
981.91	5	35	35	0	1
982.34	10	43	43	0	1
982.95	25	53	53	0	1
983.52	50	61	61	0	1
984.27	100	70	70.00	0	1
984.29	Overtopping	70.22	70.22	0.00	Overtopping

Downstream Channel Rating Curve: CC-HC-A Proposed

Flow (cfs)	Water Surface Elev (ft)	Velocity (ft/s)	Depth (ft)	Shear (psf)	Froude Number
26	976.07	0.82	8.48	7.72	2.33
35	976.16	0.92	9.13	8.63	2.38
43	976.24	0.99	9.61	9.32	2.41
53	976.32	1.07	10.13	10.08	2.44
61	976.38	1.13	10.49	10.63	2.46
70	976.44	1.19	10.86	11.19	2.48

Culvert Summary Table: CC-HC-A Proposed

Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
2-year	26	26	981.47	1.83	0.524	1-S2n	0.62	1.09	0.70	0.82	9.32	8.48
5-year	35	35	981.91	2.27	1.008	5-S2n	0.76	1.33	0.87	0.92	10.01	9.13
10-year	43	43	982.34	2.7	1.715	5-S2n	0.88	1.53	1.02	0.99	10.52	9.61
25-year	53	53	982.95	3.31	2.256	5-S2n	1.01	1.76	1.20	1.07	11.05	10.13
50-year	61	61	983.52	3.88	2.748	5-S2n	1.12	1.93	1.33	1.13	11.44	10.49
100-year	70	70	984.27	4.63	3.304	5-S2n	1.23	2.00	1.48	1.19	11.81	10.86

1/31/2024

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STATE OF TEXAS

Kimley»Horn F-928

Texas Department of Transportation

FM 462

HYDRAULIC DATA
CULVERT CC-HC-A

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		164

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CK
DW
CK
DW

EXISTING CULVERT CC-HC-B

Site Data - CC-HC-B

Site Data Option: Culvert Invert Data

Inlet Station: 100.00 ft
Inlet Elevation: 958.20 ft
Outlet Station: 131.44 ft
Outlet Elevation: 956.60 ft
Number of Barrels: 1

Culvert Data Summary - CC-HC-B

Barrel Shape: Circular
Barrel Diameter: 3.00 ft
Barrel Material: Corrugated Steel
Embedment: 0.00 in
Barrel Manning's n: 0.0240
Culvert Type: Straight
Inlet Configuration: Mitered to Conform to Slope
Inlet Depression: None

Tailwater Channel Data - CC-HC-B

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.07
User Defined Channel

Coord No.	Station (ft)	Elevation (ft)	Manning's n
1	0	957	0.025
2	8	956.34	0.025
3	16	955.57	0.035
4	24	955.22	0.035
5	32	955.77	0.035
6	40	956.41	0.025
7	48	956.84	0.025
8	56	957.12	

Roadway Data for Crossing - CC-HC-B

Roadway Profile Shape: Irregular Roadway Shape (coordinates)
Irregular Roadway Cross-Section

Coord No.	Station (ft)	Elevation (ft)
0	108700	962.30
1	108750	962.22
2	108800	962.61

Roadway Surface: Paved
Roadway Top Width: 22.00 ft

Summary of Culvert Flows at Crossing: CC-HC-B

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Box Discharge (cfs)	Roadway Discharge (cfs)	Iterations
962.57	2-year	84	49.07	34.85	13
962.69	5-year	114	50.27	63.71	6
962.77	10-year	138	51.06	86.92	5
962.87	25-year	171	52.02	118.98	5
962.95	50-year	198	52.73	145.26	4
963.02	100-year	226	53.41	172.59	4
962.22	Overtopping	45.49	45.49	0.00	Overtopping

Downstream Channel Rating Curve: CC-HC-B

Flow (cfs)	Water Surface Elev (ft)	Velocity (ft/s)	Depth (ft)	Shear (psf)	Froude Number
84	956.04	0.82	7.53	4.03	1.96
114	956.15	0.93	8.21	4.56	2.01
138	956.22	1.00	8.66	4.92	2.04
171	956.31	1.09	9.20	5.37	2.08
198	956.38	1.16	9.57	5.70	2.10
226	956.44	1.22	9.97	5.99	2.14

Culvert Summary Table: CC-HC-B

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	84	49.07	962.57	4.37	2.890	5-S2n	1.68	2.28	1.74	0.82	11.51	7.53
5-year	114	50.27	962.69	4.49	2.995	5-S2n	1.7	2.31	1.77	0.93	11.58	8.21
10-year	138	51.06	962.77	4.57	3.065	5-S2n	1.72	2.32	1.79	1.00	11.62	8.66
25-year	171	52.02	962.87	4.67	3.151	5-S2n	1.74	2.34	1.81	1.09	11.67	9.20
50-year	198	52.73	962.95	4.75	3.215	5-S2n	1.75	2.36	1.83	1.16	11.70	9.57
100-year	226	53.41	963.02	4.82	3.278	5-S2n	1.77	2.37	1.84	1.22	11.74	9.97

PROPOSED CULVERT CC-HC-B

Site Data - CC-HC-B PROPOSED

Site Data Option: Culvert Invert Data

Inlet Station: 100.00 ft
Inlet Elevation: 958.36 ft
Outlet Station: 146.00 ft
Outlet Elevation: 956.21 ft
Number of Barrels: 2

Culvert Data Summary - CC-HC-B PROPOSED

Barrel Shape: Concrete Box
Barrel Span: 5.00 ft
Barrel Rise: 2.00 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: Square Edge (90º) Headwall
Inlet Depression: None

Tailwater Channel Data - CC-HC-B Proposed

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.08
User Defined Channel

Coord No.	Station (ft)	Elevation (ft)	Manning's n
1	0	957	0.025
2	8	956.34	0.025
3	16	955.57	0.035
4	24	955.22	0.035
5	32	955.77	0.035
6	40	956.41	0.25
7	48	956.84	0.25
8	56	957.12	

Roadway Data for Crossing - CC-HC-B Proposed

Roadway Profile Shape: Irregular Roadway Shape (coordinates)
Irregular Roadway Cross-Section

Coord No.	Station (ft)	Elevation (ft)
0	108700	962.23
1	108750	962.62
2	108800	963.22

Roadway Surface: Paved
Roadway Top Width: 32.00 ft

Summary of Culvert Flows at Crossing: CC-HC-B Proposed

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Box Discharge (cfs)	Roadway Discharge (cfs)	Iterations
960.54	2-year	84	84.00	0.00	1
961.18	5-year	114	114.00	0.00	1
961.79	10-year	138	138.00	0.00	1
962.55	25-year	171	163.03	7.93	8
962.75	50-year	198	169.01	28.87	8
962.90	100-year	226	173.13	52.82	7
962.62	Overtopping	152.93	152.93	0.00	Overtopping

Downstream Channel Rating Curve: CC-HC-B Proposed

Flow (cfs)	Water Surface Elev (ft)	Velocity (ft/s)	Depth (ft)	Shear (psf)	Froude Number
84	956.01	0.78	8.13	4.80	2.16
114	956.11	0.89	8.87	5.42	2.22
138	956.18	0.96	9.37	5.85	2.25
171	956.27	1.04	9.95	6.38	2.29
198	956.33	1.11	10.36	6.77	2.32
226	956.39	1.17	10.74	7.14	2.35

Culvert Summary Table: CC-HC-B Proposed

Discharge Names	Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
2-year	84	84.00	960.54	2.18	0.0*	5-S2n	0.54	1.30	0.64	0.78	13.06	8.13
5-year	114	114.00	961.18	2.82	0.550	5-S2n	0.66	1.59	0.82	0.89	13.89	8.87
10-year	138	138.00	961.79	3.43	1.081	5-S2n	0.74	1.81	0.95	0.96	14.45	9.37
25-year	171	163.03	962.55	4.19	1.703	5-S2n	0.83	2.00	1.09	1.04	14.92	9.95
50-year	198	169.01	962.75	4.39	1.842	5-S2n	0.85	2.00	1.13	1.11	15.02	10.36
100-year	226	173.13	962.90	4.54	1.941	5-S2n	0.87	2.00	1.15	1.17	15.11	10.74

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
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Texas Department of Transportation

FM 462

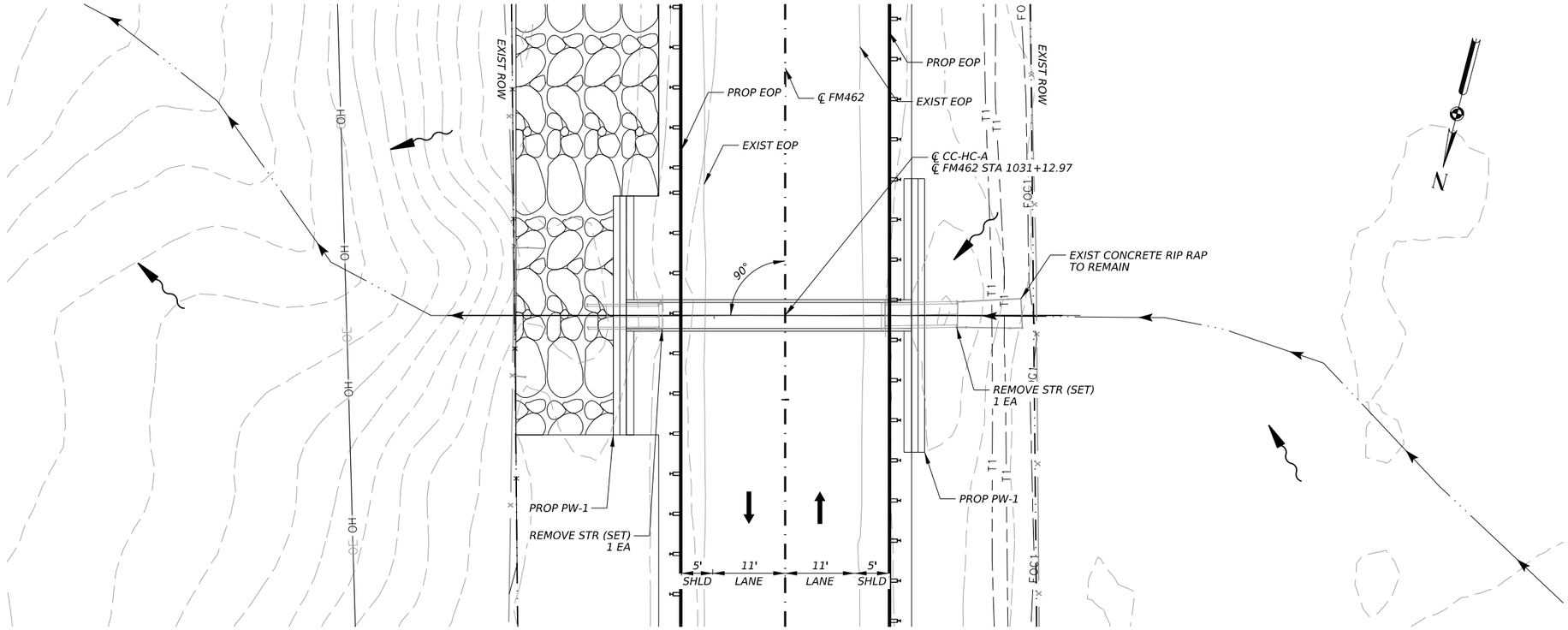
HYDRAULIC DATA
CULVERT CC-HC-B

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		165

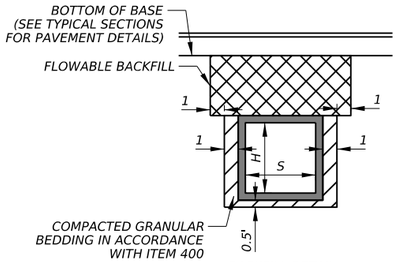
DATE: 1/31/2024 4:33:10 PM
FILE: c:\pwlkh1\d028559\FM462_TEXT_CULV_HYD_DATA.dgn

ITEM	DESCRIPTION	UNIT	QTY
0401 6001	FLOWABLE BACKFILL	CY	15
0462 6003	CONC BOX CULV (4 FT X 2 FT)	LF	46
0466 6179	WINGWALL (PW - 1) (HW=4 FT)	EA	1
0466 6180	WINGWALL (PW - 1) (HW=5 FT)	EA	1
0496 6004	REMOV STR (SET)	EA	2
0496 6008	REMOV STR (BOX CULVERT)	LF	35

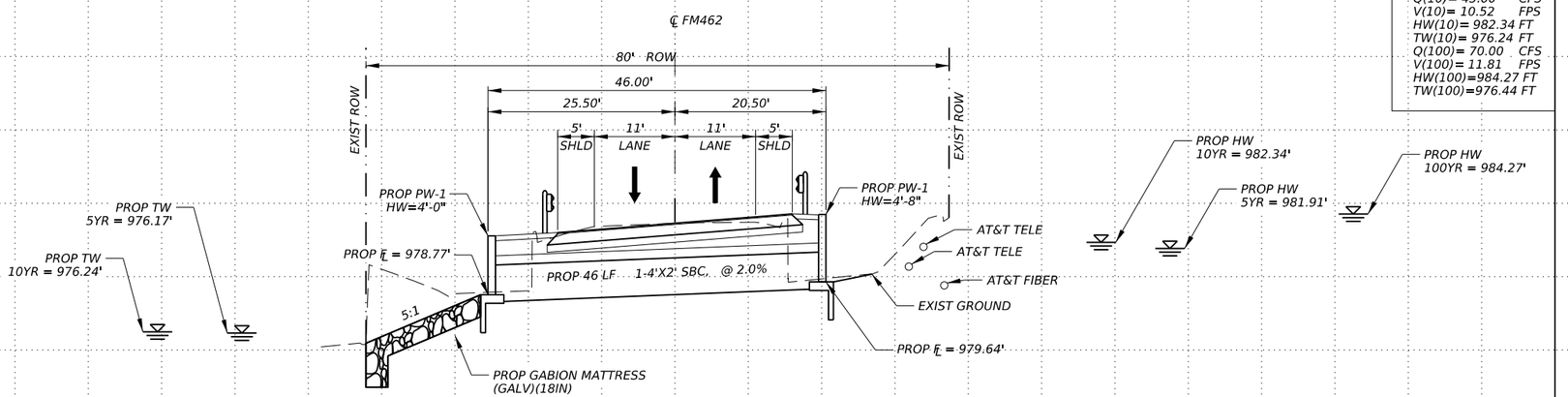


LEGEND

- FLOW LINE
- EXIST 1' CONTOURS
- EXIST ROW
- EXIST FENCE
- EXIST FEATURES



BACKFILL DETAIL
PROPOSED BOX CULVERT



HYDRAULIC DATA

Q(5)= 35.00	CFS
V(5)= 10.01	FPS
HW(5)= 981.91	FT
TW(5)= 976.16	FT
Q(10)= 43.00	CFS
V(10)= 10.52	FPS
HW(10)= 982.34	FT
TW(10)= 976.24	FT
Q(100)= 70.00	CFS
V(100)= 11.81	FPS
HW(100)=984.27	FT
TW(100)=976.44	FT

STA 1031+12.97
CULVERT CC-HC-A

EXIST 1-3'X3' X35' SBC W/ HEADWALL LT AND RT (TO BE REMOVED)
PROP 1-4'X2' X46' SBC W/ PW-1 (HW=4') LT AND PW-1 (HW=5') RT

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STATE OF TEXAS
1/31/2024

0' 10' 20' HORIZ
0' 5' 10' VERT

Kimley»Horn F-928

Texas Department of Transportation

FM 462

CULVERT LAYOUT
CC-HC-A

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		166

DATE: 1/31/2024 4:34:29 PM
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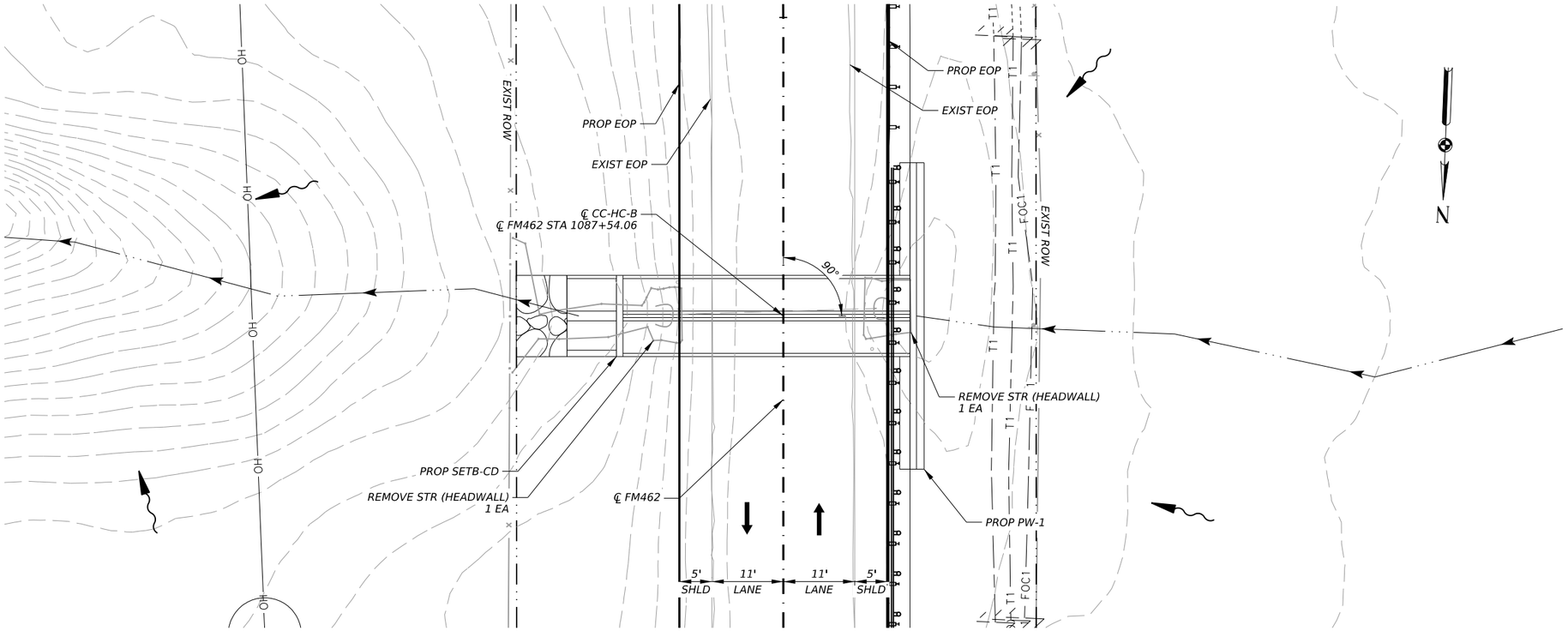
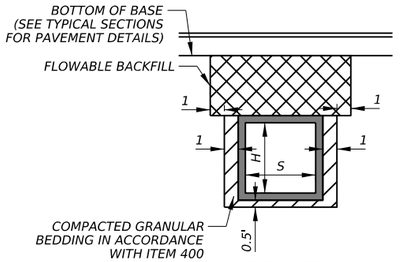
ITEM	DESCRIPTION	UNIT	QTY
0401 6001	FLOWABLE BACKFILL	CY	20
0462 6006	CONC BOX CULV (5 FT X 2 FT)	LF	92
0466 6180	WINGWALL (PW - 1) (HW=5 FT)	EA	1
0467 6171	SET (TY I)(S= 5 FT)(HW= 3 FT)(3:1) (C)	EA	1
0496 6006	REMOV STR (HEADWALL)	EA	2
0496 6007	REMOV STR (PIPE)	LF	32

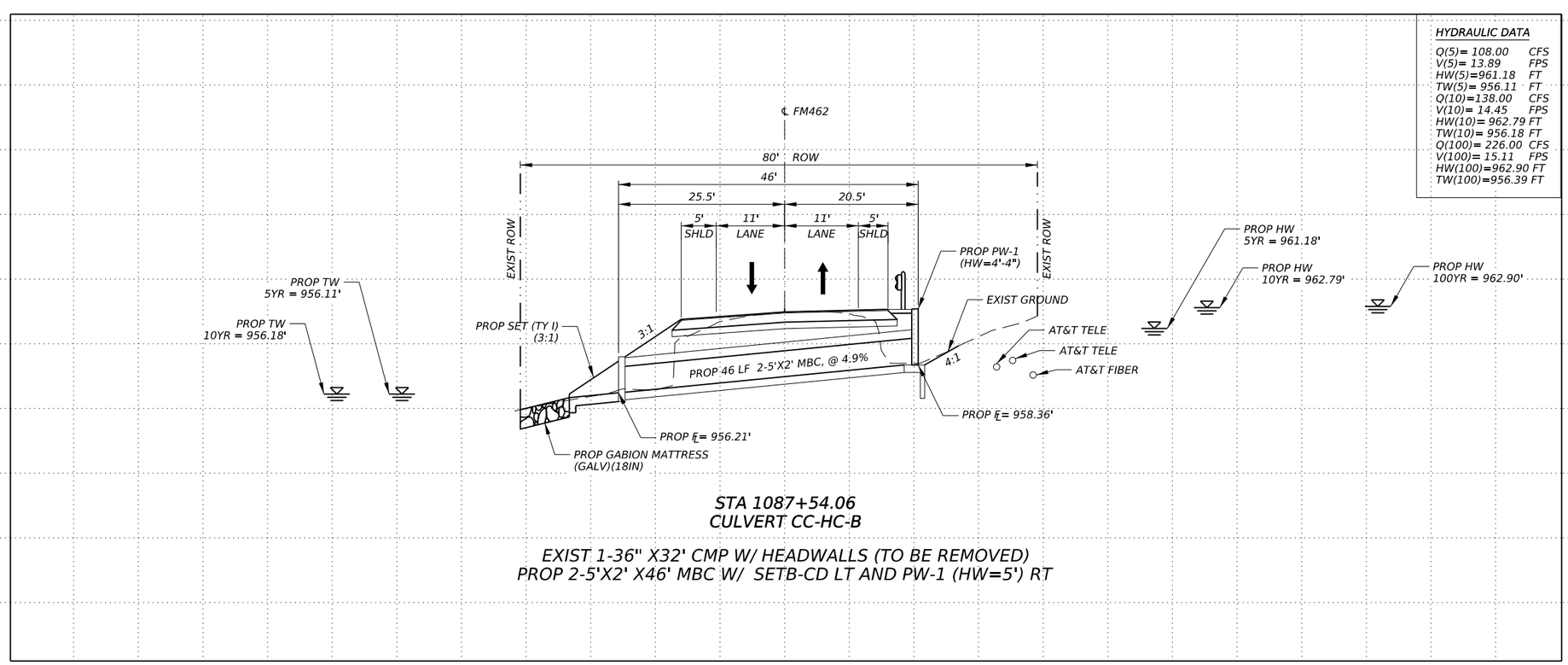


LEGEND

- FLOW LINE
- EXIST 1' CONTOURS
- EXIST ROW
- EXIST FENCE
- EXIST FEATURES



BACKFILL DETAIL
PROPOSED BOX CULVERT



HYDRAULIC DATA

Q(5)=	108.00	CFS
V(5)=	13.89	FPS
HW(5)=	961.18	FT
TW(5)=	956.11	FT
Q(10)=	138.00	CFS
V(10)=	14.45	FPS
HW(10)=	962.79	FT
TW(10)=	956.18	FT
Q(100)=	226.00	CFS
V(100)=	15.11	FPS
HW(100)=	962.90	FT
TW(100)=	956.39	FT

STA 1087+54.06
CULVERT CC-HC-B

EXIST 1-36" X32' CMP W/ HEADWALLS (TO BE REMOVED)
PROP 2-5'X2' X46' MBC W/ SETB-CD LT AND PW-1 (HW=5') RT

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143301
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
1/31/2024

0' 10' 20' HORIZ
0' 5' 10' VERT

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Texas Department of Transportation

FM 462

CULVERT LAYOUT
CC-HC-B

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		167

DATE: 1/31/2024 4:34:56 PM
FILE: C:\Projects\...\CULVERT B NEW.dgn
DW:
CK:
DW:
CK:

DISCLAIMER:
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Culvert Station and/or Creek Name followed by applicable end (Lt, Rt or Both)	Description of Box Culvert No. Spans ~ Span X Height	Max Fill Height (Ft)	Applicable Box Culvert Standard (4)	Applicable Wingwall or End Treatment Standard	Skew Angle (0°,15°, 30° or 45°)	Side Slope or Channel Slope Ratio (SL:1)	T Culvert Top Slab Thickness (In)	U Culvert Wall Thickness (In)	C Estimated Curb Height (Ft)	Hw Height of Wingwall (1) (Ft)	A Curb to End of Wingwall (Ft)	B Offset of End of Wingwall (Ft)	Lw Length of Longest Wingwall (Ft)	Ltw Culvert Toewall Length (Ft)	Atw Anchor Toewall Length (Ft)	Riprap Apron (CY)	Class "C" Conc (Curb) (2) (CY)	Class "C" Conc (Wingwall) (3) (CY)	Total Wingwall Area (SF)
CC-HC-A (Lt)	1 ~ 4'x 2'	0.796'	SCP-4	PW-1	0°	4:1	7.5"	5"	1.375'	4.000'	N/A	N/A	16.000'	4.833'	N/A	0.0	0.2	8.9	128
CC-HC-A (Rt)	1 ~ 4'x 2'	0.796'	SCP-4	PW-1	0°	4:1	7.5"	5"	2.042'	4.667'	N/A	N/A	18.667'	4.833'	N/A	0.0	0.4	12.2	174
CC-HC-B (Rt)	2 ~ 5'x 2'	1.272'	SCP-5	PW-1	0°	4:1	8"	6"	1.667'	4.333'	N/A	N/A	17.333'	12.500'	N/A	0.0	0.8	10.7	150

NOTES:
Skew = 0° on SW-0, FW-0, SETB-CD, SETB-SW-0, and SETB-FW-0 standard sheets;
30° maximum for safety end treatment

SL:1 = Horizontal : 1 Vertical
- Side slope at culvert for flared or straight wingwalls.
- Channel slope for parallel wingwalls.
- Slope must be 3:1 or flatter for safety end treatments.

T = Box culvert top slab thickness. Dimension can be found on the applicable box culvert standard sheet.

U = Box culvert wall thickness. Dimension can be found on the applicable box culvert standard sheet.

C = Curb height

See applicable wing or end treatment standard sheets for calculations of Hw, A, B, Lw, Ltw, Atw, and Total Wingwall Area.

Hw = Height of wingwall

A = Distance from face of curb to end of wingwall (not applicable to parallel or straight wingwalls)

B = Offset of end of wingwall (not applicable to parallel or straight wingwalls)

Lw = Length of longest wingwall.

Ltw = Length of culvert toewall (not applicable when using riprap apron)

Atw = Length of anchor toewall (applicable to safety end treatment only)
Total Wingwall Area = Wingwall area in sq. ft. for two wingwalls (one structure end) if Lt or Rt.
Area for four wingwalls (two structure ends) if Both.

(1) Round the wall heights shown to the nearest foot for bidding purposes.

(2) Concrete volume shown is for box culvert curb only. For curbs using the Box Culvert Rail Mounting Details (RAC) standard sheet quantities shown must be increased by a factor of 2.25. If Class S concrete is required for the top slab of the culvert, also provide Class S concrete for the curb. Curb concrete is considered part of the Box Culvert for payment.

(3) Concrete volume shown is total of wings, footings, culvert toewall (if any), anchor toewalls (if any) and wingwall toewalls. Riprap aprons, culverts, and curb quantities are not included.

(4) Regardless of the type of culvert shown on this sheet, the Contractor has the option of furnishing cast-in-place or precast culverts unless otherwise shown elsewhere on the plans. If the Contractor elects to provide culverts of a different type than those shown on this sheet, it is the Contractor's responsibility to make the necessary adjustments to the dimensions and quantities shown.

SPECIAL NOTE:

This sheet is a supplement to the box culvert standards. It is to be filled out by the culvert specifier and provides dimensions for the construction of the box culvert wingwalls and safety end treatments.

An Excel 2010 spreadsheet to assist in completing this table can be downloaded from the Bridge Standards (English) web page on the TxDOT web site. The completed sheet must be signed, sealed, and dated by a licensed Professional Engineer.

Texas Department of Transportation

Bridge Division Standard

BOX CULVERT SUPPLEMENT
WINGS AND END TREATMENTS

BCS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		168

DATE: 1/31/2024 4:35:19 PM
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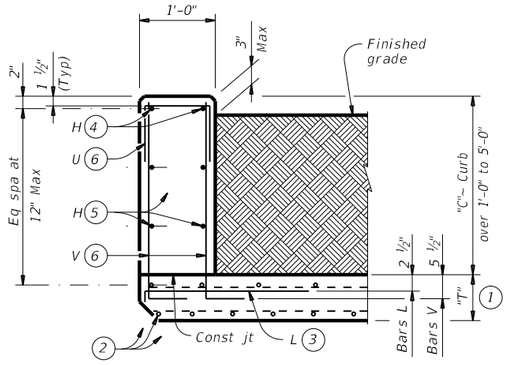
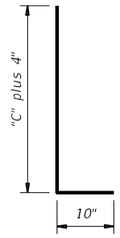
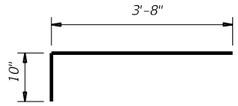


TYPICAL SECTION

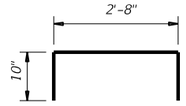
Used for curbs over 1'-0" to 5'-0"



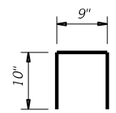
BARS V (#5) (6)
Spaced at 12" Max



BARS L (#5) (3)
Spaced at 12" Max



OPTIONAL BARS L (#5) (3) (7)
Spaced at 12" Max



BARS U (#4) (6)
Spaced at 12" Max

(1) "T" is equal to the culvert top slab thickness. For precast boxes with slabs less than 8" thick, see SCP-MD standard for additional details.

(2) Adjust normal culvert slab bars as necessary to clear obstructions.

(3) Place bars L as shown. Tilt hook as necessary to maintain cover.

(4) Place normal culvert curb bars H(#4) as shown. Adjust as necessary to clear obstructions.

(5) Additional bars H(#4) as required to maintain 12" Max spacing.

(6) Replace normal culvert curb bars K with one bar U and two bars V as shown spaced at 12" Max. Adjust length of bars V as necessary to maintain clear cover.

(7) Optional bars L are to be used only for precast box culverts with 3'-0" closure pour.

(8) Quantities shown are for Contractor's information only. Quantities are per linear foot of curb length. The value in table can be interpolated for intermediate values of curb height, "C". Quantity includes bars K (when applicable).

TABLE OF ESTIMATED CURB QUANTITIES (8)

Curb Height "C"	Conc (CY/LF)	Reinf Steel (Lb/LF)
1'-0"	0.037	10.4
1'-6"	0.056	14.5
2'-0"	0.074	15.6
2'-6"	0.093	18.0
3'-0"	0.111	19.0
3'-6"	0.130	21.3
4'-0"	0.148	22.4
4'-6"	0.167	24.8
5'-0"	0.185	25.9

CONSTRUCTION NOTES:

Adjust reinforcing steel as necessary to provide 1 ¼" cover.
For vehicle safety, top of the curb must not project more than 3" above the finished grade.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Provide Class "C" concrete (f'_c = 3,600 psi) minimum for curbs.
Provide bar laps, where required, as follows:
- Uncoated or galvanized ~ #4 = 1'-8" Min

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
These extended curb details have sufficient strength to allow for future retrofit of Type T631 or T631LS railing. These details are suitable for use with PR11, PR22 and PR3 type rails. These details are not suitable for the mounting of other rail types. For new construction using T631 or T631LS railing, use the T631-CM standard.
This Curb is considered as part of the Box Culvert for payment.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

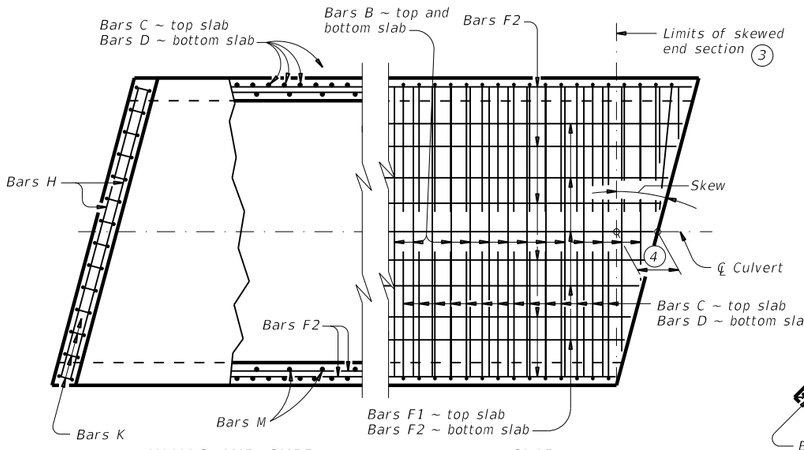
Texas Department of Transportation

Bridge Division Standard

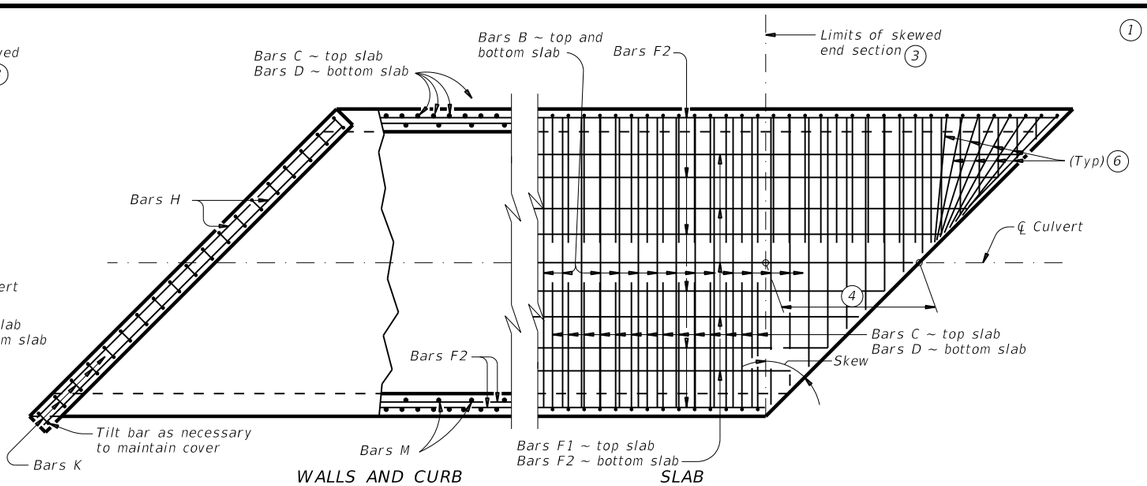
EXTENDED CURB DETAILS
FOR BOX CULVERTS WITH CURBS OVER 1'-0" TO 5'-0" TALL

ECD

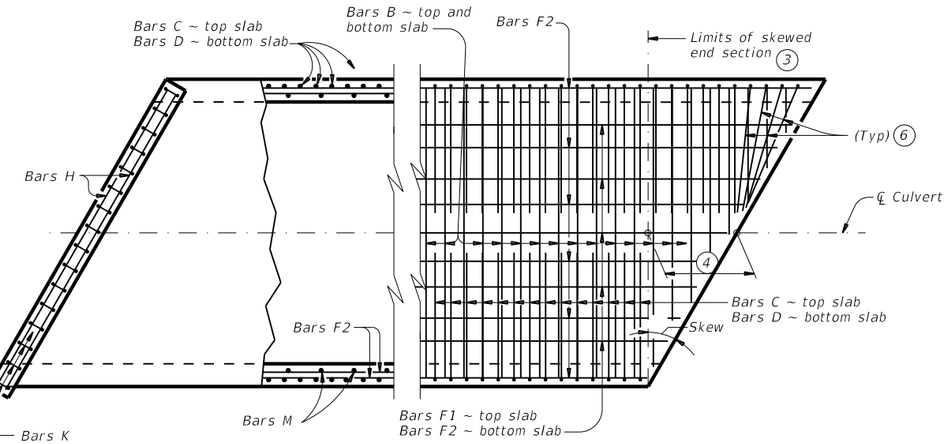
FILE: CD-ECD-20.dgn	DN: GAF	CK: TxDOT	DW: TxDOT	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		169



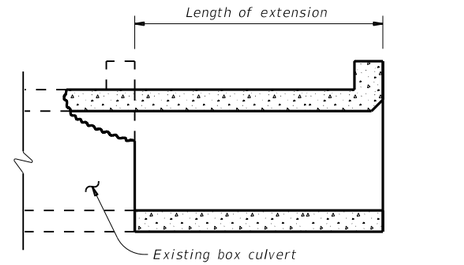
PLAN OF SKEWED ENDS ~ FROM 0° TO 15° (7)



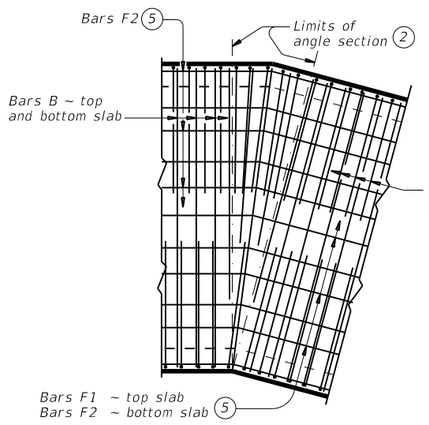
PLAN OF SKEWED ENDS ~ OVER 30° TO 45°



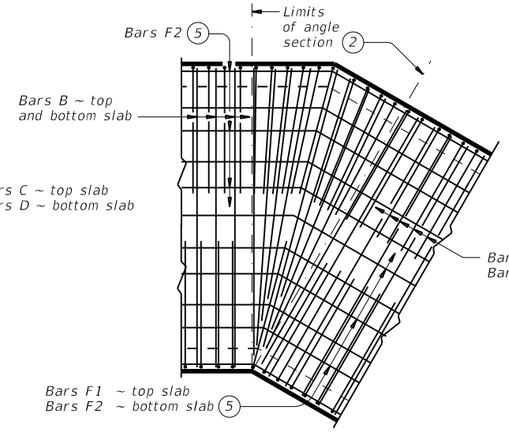
PLAN OF SKEWED ENDS ~ OVER 15° TO 30°



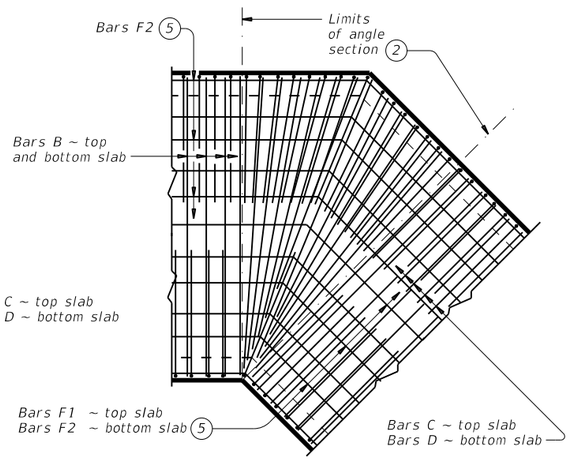
LENGTHENING DETAIL (1)



PLAN OF ANGLE SECTION ~ FROM 0° TO 15°



PLAN OF ANGLE SECTION ~ OVER 15° TO 30°



PLAN OF ANGLE SECTION ~ OVER 30° TO 45°

(1) For skewed box culverts with less than 2'-0" of fill, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension.

For non-skewed box culverts with less than 2'-0" of fill and for skewed or non-skewed culverts with a fill depth of 2'-0" or greater, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension. Alternatively, if the box is non-skewed, embed #6 anchor bars with a Type III, C, D , E, or F anchor adhesive into the existing walls, top and bottom slab at 1'-6" center-to-center spacing. Minimum embedment depth is 8". Anchor adhesive chosen must be able to achieve a basic bond strength in tension, Nba, of 26.4 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing." Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.

Break back wings and apron as necessary to install the extension. Clean and extend the exposed wingwall and apron reinforcing into the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, form horizontal and vertical transitions as directed by the Engineer. Match bottom slabs to maintain an uninterrupted flow line. Field bend existing and new reinforcing into transitions and maintain specified cover requirements. For top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface, adjust the "H" dimension to provide a smooth riding surface.

(2) When the spacing between Bars B becomes less than half of the normal spacing, cut bars to avoid conflict.

(3) The length of Bars B vary in the skewed end sections.

(4) [One half of overall width] x [tangent of the skew angle]

(5) Place Bars F1 and F2 continuously through the angle section. Bend Bars F1 and F2 to remain parallel to the walls of the box culvert.

(6) When necessary to avoid conflict in acute corners, shorten the slab extension leg of Bars C and Bars D to a minimum of 1'-6" for skews of 30° thru 45°.

(7) At the Contractor's option, for skews of 15° or less, place Bars B, C, and D parallel to the skewed end while maintaining spacing along centerline of box. Increase lengths of Bars B shown on the Single Box Culverts Cast-In-Place (SCC) standards sheets to accommodate the skew.

CONSTRUCTION NOTES:

Do not use permanent forms.
When required, lap Bars H 1'-8" for uncoated or galvanized bars.
Provide a minimum of 1 ½" clear cover.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel, if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) with these exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for details of straight sections of culvert.
For skewed sections and angle sections, refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown.
For skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume, and reinforcing steel weight by dividing the values shown on the culvert Single Box Culverts Cast-In-Place (SCC) standard sheets by the cosine of the skew angle.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE MISCELLANEOUS DETAILS

SCC-MD

FILE: CD-SCC-MD-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		170

DATE: 1/31/2024 4:36:09 PM
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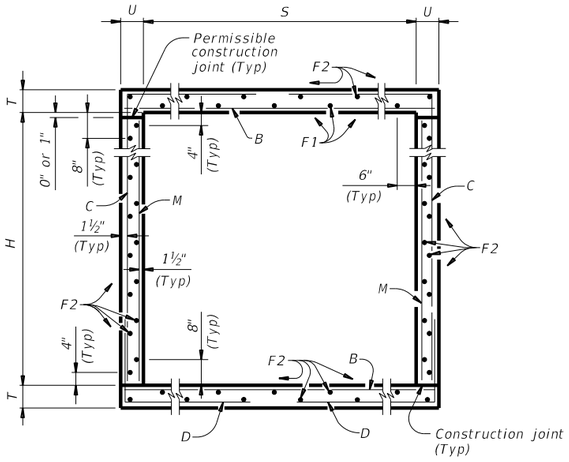
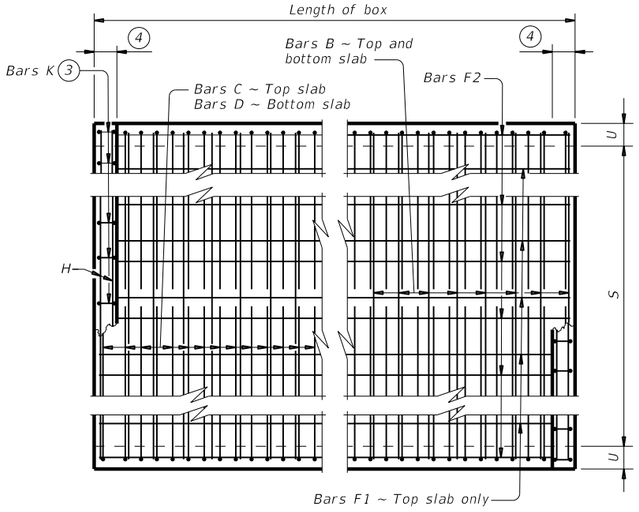
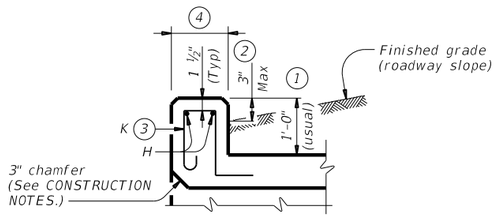


TYPICAL SECTION



PLAN OF REINF STEEL



SECTION THRU CURB

1. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

2. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 3" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.

   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

3. For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

4. 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:

Do not use permanent forms.
Chamfer the bottom edge of the top slab 3" at the entrance.
Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:

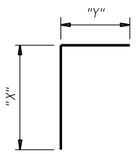
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
- culverts with overlay,
- culverts with 1-to-2 course surface treatment, or
- culverts with the top slab as the final riding surface.

Provide bar laps, where required, as follows:
- Uncoated or galvanized ~ #4 = 1'-8" Min
- Uncoated or galvanized ~ #5 = 2'-1" Min

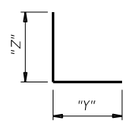
GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

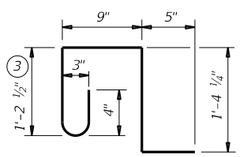
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.



BARS C



BARS D



BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

FILE: CD-SCC34-21.dgn	DN: TBE	CK: BNP	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
04/2021 Updated X values.	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		171

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DATE: 1/31/2024 4:36:33 PM
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SECTION DIMENSIONS				FILL HEIGHT (5)	BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																											QUANTITIES					
					Bars B					Bars C							Bars D							Bars M ~ #4				Bars F1 ~ #4 at 18" Spa			Bars F2 ~ #4 at 18" Spa			Bars H 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	" X "	" Y "	No.	Size	Spa	Length	Weight	" Y "	" Z "	No.	Spa	Length	Weight	No.	Length	Wt	No.	Length	Wt	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
3' – 0"	2' – 0"	8"	7"	30'	108	#5	9"	3' – 11"	441	108	#4	9"	5' – 4"	385	2' – 6"	2' – 10"	108	#4	9"	5' – 1"	367	2' – 10"	2' – 3"	108	9"	2' – 0"	144	3	39' – 9"	80	19	39' – 9"	505	3' – 11"	10	10	28	0.292	48.1	0.3	38	12.0	1,960
3' – 0"	3' – 0"	8"	7"	30'	108	#5	9"	3' – 11"	441	108	#4	9"	6' – 4"	457	3' – 6"	2' – 10"	108	#4	9"	5' – 1"	367	2' – 10"	2' – 3"	108	9"	3' – 0"	216	3	39' – 9"	80	23	39' – 9"	611	3' – 11"	10	10	28	0.335	54.3	0.3	38	13.7	2,210
4' – 0"	2' – 0"	8"	7"	30'	108	#5	9"	4' – 11"	554	162	#4	6"	5' – 8"	613	2' – 6"	3' – 2"	162	#4	6"	5' – 5"	586	3' – 2"	2' – 3"	108	9"	2' – 0"	144	3	39' – 9"	80	21	39' – 9"	558	4' – 11"	13	12	33	0.342	63.4	0.4	46	14.1	2,581
4' – 0"	3' – 0"	8"	7"	30'	108	#5	9"	4' – 11"	554	162	#4	6"	6' – 8"	721	3' – 6"	3' – 2"	162	#4	6"	5' – 5"	586	3' – 2"	2' – 3"	108	9"	3' – 0"	216	3	39' – 9"	80	25	39' – 9"	664	4' – 11"	13	12	33	0.385	70.5	0.4	46	15.8	2,867
4' – 0"	4' – 0"	8"	7"	30'	108	#5	9"	4' – 11"	554	162	#4	6"	7' – 8"	830	4' – 6"	3' – 2"	162	#4	6"	5' – 5"	586	3' – 2"	2' – 3"	108	9"	4' – 0"	289	3	39' – 9"	80	25	39' – 9"	664	4' – 11"	13	12	33	0.428	75.1	0.4	46	17.5	3,049

(5) For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.

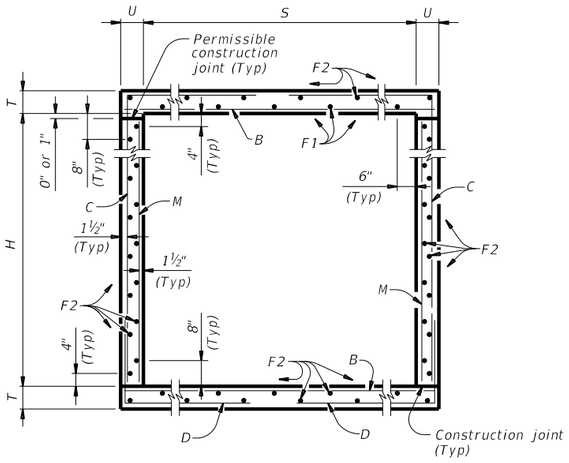
HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

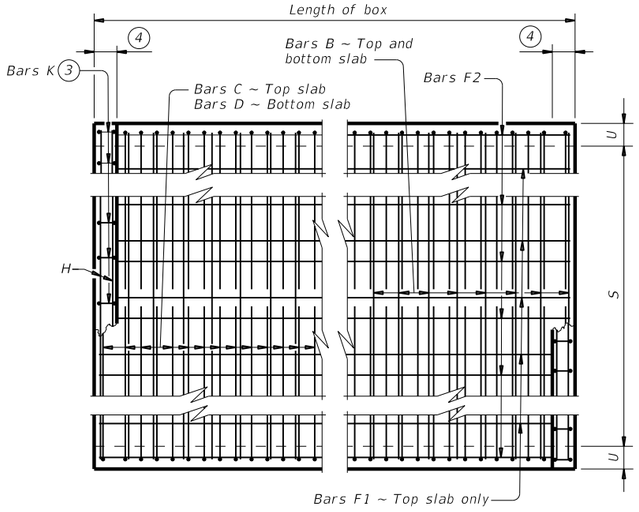
SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

FILE: CD-SCC34-21.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
04/2021 Updated X values.	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		172



TYPICAL SECTION



PLAN OF REINF STEEL

(1) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

(2) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

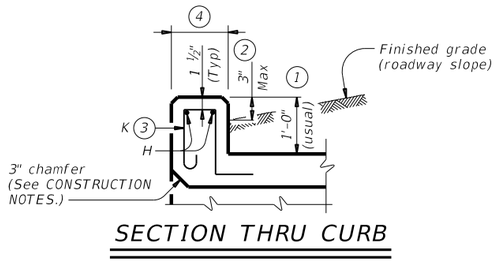
Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(3) For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

(4) 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).



SECTION THRU CURB

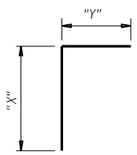
CONSTRUCTION NOTES:
Do not use permanent forms.
Chamfer the bottom edge of the top slab 3" at the entrance.
Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
- culverts with overlay,
- culverts with 1-to-2 course surface treatment, or
- culverts with the top slab as the final riding surface.

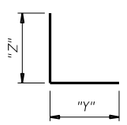
Provide bar laps, where required, as follows:
- Uncoated or galvanized ~ #4 = 1'-8" Min
- Uncoated or galvanized ~ #5 = 2'-1" Min
- Uncoated or galvanized ~ #6 = 2'-6" Min

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

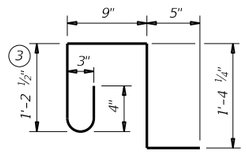
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.



BARS C



BARS D



BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

FILE: CD-SCC56-21.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT
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REVISIONS	0848	04	052	FM 462
04/2021 Updated 'X' values.	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		173

SECTION DIMENSIONS				FILL HEIGHT (5)	BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																											QUANTITIES					
					Bars B					Bars C							Bars D							Bars M ~ #4				Bars F1 ~ #4 at 18" Spa			Bars F2 ~ #4 at 18" Spa			Bars H 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	" X "	" Y "	No.	Size	Spa	Length	Weight	" Y "	" Z "	No.	Spa	Length	Weight	No.	Length	Wt	No.	Length	Weight	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
5' – 0"	2' – 0"	8"	7"	26'	108	#6	9"	5' – 11"	960	108	#5	9"	6' – 3"	704	2' – 6"	3' – 9"	108	#5	9"	6' – 5"	723	3' – 9"	2' – 8"	108	9"	2' – 0"	144	4	39' – 9"	106	22	39' – 9"	584	5' – 11"	16	14	39	0.391	80.5	0.5	55	16.1	3,276
5' – 0"	2' – 0"	9"	7"	30'	108	#6	9"	5' – 11"	960	108	#5	9"	6' – 4"	713	2' – 7"	3' – 9"	108	#5	9"	6' – 6"	732	3' – 9"	2' – 9"	108	9"	2' – 0"	144	4	39' – 9"	106	22	39' – 9"	584	5' – 11"	16	14	39	0.429	81.0	0.5	55	17.6	3,294
5' – 0"	3' – 0"	8"	7"	26'	108	#6	9"	5' – 11"	960	108	#5	9"	7' – 3"	817	3' – 6"	3' – 9"	108	#5	9"	6' – 5"	723	3' – 9"	2' – 8"	108	9"	3' – 0"	216	4	39' – 9"	106	26	39' – 9"	690	5' – 11"	16	14	39	0.434	87.8	0.5	55	17.8	3,567
5' – 0"	3' – 0"	9"	7"	30'	108	#6	9"	5' – 11"	960	108	#5	9"	7' – 4"	826	3' – 7"	3' – 9"	108	#5	9"	6' – 6"	732	3' – 9"	2' – 9"	108	9"	3' – 0"	216	4	39' – 9"	106	26	39' – 9"	690	5' – 11"	16	14	39	0.472	88.3	0.5	55	19.3	3,585
5' – 0"	4' – 0"	8"	7"	26'	108	#6	9"	5' – 11"	960	108	#5	9"	8' – 3"	929	4' – 6"	3' – 9"	108	#5	9"	6' – 5"	723	3' – 9"	2' – 8"	108	9"	4' – 0"	289	4	39' – 9"	106	26	39' – 9"	690	5' – 11"	16	14	39	0.477	92.4	0.5	55	19.5	3,752
5' – 0"	4' – 0"	9"	7"	30'	108	#6	9"	5' – 11"	960	108	#5	9"	8' – 4"	939	4' – 7"	3' – 9"	108	#5	9"	6' – 6"	732	3' – 9"	2' – 9"	108	9"	4' – 0"	289	4	39' – 9"	106	26	39' – 9"	690	5' – 11"	16	14	39	0.515	92.9	0.5	55	21.1	3,771
5' – 0"	5' – 0"	8"	7"	26'	108	#6	9"	5' – 11"	960	108	#5	9"	9' – 3"	1,042	5' – 6"	3' – 9"	108	#5	9"	6' – 5"	723	3' – 9"	2' – 8"	108	9"	5' – 0"	361	4	39' – 9"	106	30	39' – 9"	797	5' – 11"	16	14	39	0.521	99.7	0.5	55	21.3	4,044
5' – 0"	5' – 0"	9"	7"	30'	108	#6	9"	5' – 11"	960	108	#5	9"	9' – 4"	1,051	5' – 7"	3' – 9"	108	#5	9"	6' – 6"	732	3' – 9"	2' – 9"	108	9"	5' – 0"	361	4	39' – 9"	106	30	39' – 9"	797	5' – 11"	16	14	39	0.559	100.2	0.5	55	22.8	4,062
6' – 0"	2' – 0"	8"	7"	20'	108	#6	9"	6' – 11"	1,122	108	#5	9"	6' – 7"	742	2' – 6"	4' – 1"	108	#5	9"	6' – 9"	760	4' – 1"	2' – 8"	108	9"	2' – 0"	144	5	39' – 9"	133	25	39' – 9"	664	6' – 11"	18	16	45	0.440	89.1	0.5	63	18.1	3,628
6' – 0"	2' – 0"	9"	7"	26'	108	#6	9"	6' – 11"	1,122	162	#5	6"	6' – 8"	1,126	2' – 7"	4' – 1"	162	#5	6"	6' – 10"	1,155	4' – 1"	2' – 9"	108	9"	2' – 0"	144	5	39' – 9"	133	25	39' – 9"	664	6' – 11"	18	16	45	0.485	108.6	0.5	63	19.9	4,407
6' – 0"	2' – 0"	10"	8"	30'	108	#6	9"	7' – 1"	1,149	162	#5	6"	6' – 10"	1,155	2' – 8"	4' – 2"	162	#5	6"	7' – 0"	1,183	4' – 2"	2' – 10"	82	12"	2' – 0"	110	5	39' – 9"	133	25	39' – 9"	664	7' – 1"	19	18	50	0.551	109.9	0.5	69	22.6	4,463
6' – 0"	3' – 0"	8"	7"	20'	108	#6	9"	6' – 11"	1,122	108	#5	9"	7' – 7"	854	3' – 6"	4' – 1"	108	#5	9"	6' – 9"	760	4' – 1"	2' – 8"	108	9"	3' – 0"	216	5	39' – 9"	133	29	39' – 9"	770	6' – 11"	18	16	45	0.484	96.4	0.5	63	19.9	3,918
6' – 0"	3' – 0"	9"	7"	26'	108	#6	9"	6' – 11"	1,122	162	#5	6"	7' – 8"	1,295	3' – 7"	4' – 1"	162	#5	6"	6' – 10"	1,155	4' – 1"	2' – 9"	108	9"	3' – 0"	216	5	39' – 9"	133	29	39' – 9"	770	6' – 11"	18	16	45	0.528	117.3	0.5	63	21.6	4,754
6' – 0"	3' – 0"	10"	8"	30'	108	#6	9"	7' – 1"	1,149	162	#5	6"	7' – 10"	1,324	3' – 8"	4' – 2"	162	#5	6"	7' – 0"	1,183	4' – 2"	2' – 10"	82	12"	3' – 0"	164	5	39' – 9"	133	29	39' – 9"	770	7' – 1"	19	18	50	0.601	118.1	0.5	69	24.6	4,792
6' – 0"	4' – 0"	8"	7"	20'	108	#6	9"	6' – 11"	1,122	108	#5	9"	8' – 7"	967	4' – 6"	4' – 1"	108	#5	9"	6' – 9"	760	4' – 1"	2' – 8"	108	9"	4' – 0"	289	5	39' – 9"	133	29	39' – 9"	770	6' – 11"	18	16	45	0.527	101.0	0.5	63	21.6	4,104
6' – 0"	4' – 0"	9"	7"	26'	108	#6	9"	6' – 11"	1,122	162	#5	6"	8' – 8"	1,464	4' – 7"	4' – 1"	162	#5	6"	6' – 10"	1,155	4' – 1"	2' – 9"	108	9"	4' – 0"	289	5	39' – 9"	133	29	39' – 9"	770	6' – 11"	18	16	45	0.571	123.3	0.5	63	23.4	4,996
6' – 0"	4' – 0"	10"	8"	30'	108	#6	9"	7' – 1"	1,149	162	#5	6"	8' – 10"	1,493	4' – 8"	4' – 2"	162	#5	6"	7' – 0"	1,183	4' – 2"	2' – 10"	82	12"	4' – 0"	219	5	39' – 9"	133	29	39' – 9"	770	7' – 1"	19	18	50	0.650	123.7	0.5	69	26.5	5,016
6' – 0"	5' – 0"	8"	7"	20'	108	#6	9"	6' – 11"	1,122	108	#5	9"	9' – 7"	1,080	5' – 6"	4' – 1"	108	#5	9"	6' – 9"	760	4' – 1"	2' – 8"	108	9"	5' – 0"	361	5	39' – 9"	133	33	39' – 9"	876	6' – 11"	18	16	45	0.570	108.3	0.5	63	23.3	4,395
6' – 0"	5' – 0"	9"	7"	26'	108	#6	9"	6' – 11"	1,122	162	#5	6"	9' – 8"	1,633	5' – 7"	4' – 1"	162	#5	6"	6' – 10"	1,155	4' – 1"	2' – 9"	108	9"	5' – 0"	361	5	39' – 9"	133	33	39' – 9"	876	6' – 11"	18	16	45	0.614	132.0	0.5	63	25.1	5,343
6' – 0"	5' – 0"	10"	8"	30'	108	#6	9"	7' – 1"	1,149	162	#5	6"	9' – 10"	1,661	5' – 8"	4' – 2"	162	#5	6"	7' – 0"	1,183	4' – 2"	2' – 10"	82	12"	5' – 0"	274	5	39' – 9"	133	33	39' – 9"	876	7' – 1"	19	18	50	0.700	131.9	0.5	69	28.5	5,345
6' – 0"	6' – 0"	8"	7"	20'	108	#6	9"	6' – 11"	1,122	108	#5	9"	10' – 7"	1,192	6' – 6"	4' – 1"	108	#5	9"	6' – 9"	760	4' – 1"	2' – 8"	108	9"	6' – 0"	433	5	39' – 9"	133	37	39' – 9"	982	6' – 11"	18	16	45	0.613	115.6	0.5	63	25.0	4,685
6' – 0"	6' – 0"	9"	7"	26'	108	#6	9"	6' – 11"	1,122	162	#5	6"	10' – 8"	1,802	6' – 7"	4' – 1"	162	#5	6"	6' – 10"	1,155	4' – 1"	2' – 9"	108	9"	6' – 0"	433	5	39' – 9"	133	37	39' – 9"	982	6' – 11"	18	16	45	0.657	140.7	0.5	63	26.8	5,690
6' – 0"	6' – 0"	10"	8"	30'	108	#6	9"	7' – 1"	1,149	162	#5	6"	10' – 10"	1,830	6' – 8"	4' – 2"	162	#5	6"	7' – 0"	1,183	4' – 2"	2' – 10"	82	12"	6' – 0"	329	5	39' – 9"	133	37	39' – 9"	982	7' – 1"	19	18	50	0.749	140.2	0.5	69	30.5	5,675

(5) For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE

0' TO 30' FILL

SCC-5 & 6

FILE: CD-SCC56-21.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
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04/2021 Updated X values.	DIST	COUNTY		SHEET NO.
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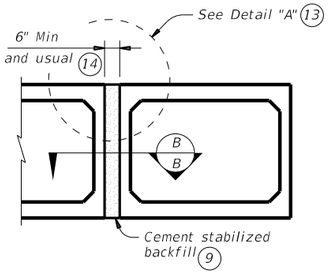
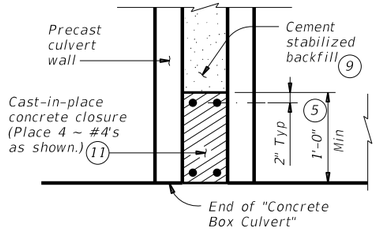
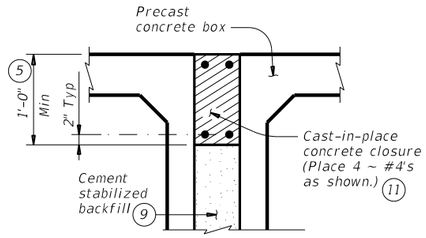


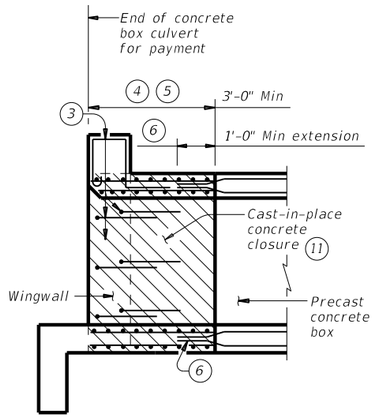
MULTIPLE UNIT PLACEMENT



SECTION B-B

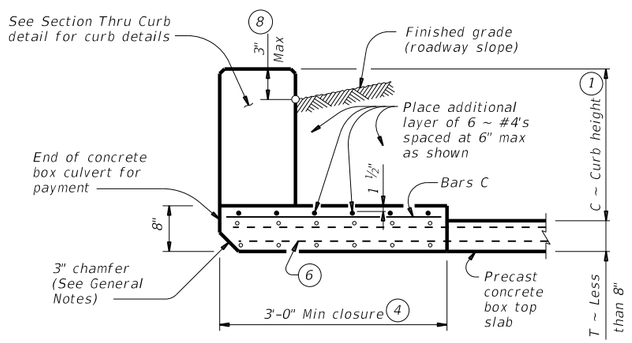


DETAIL "A" (13)

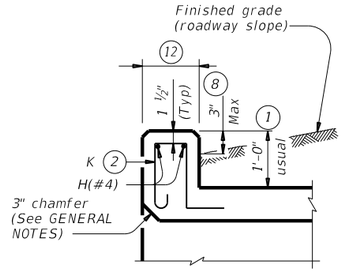


WINGWALL CONNECTION

(Also applies to safety end treatment.)

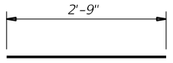


SECTION THRU TOP SLABS LESS THAN 8"



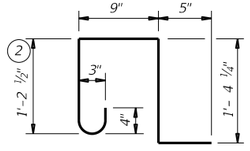
SECTION THRU CURB

QUANTITIES PER FOOT OF CURB (10)	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY



BARS C (#4)

(Spa = 1'-0" Max)



BARS K (#4)

(Spa = 1'-0" Max)
(Length = 4'-2")

1. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
2. For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
3. Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.
4. Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.
5. For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.
6. Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).
7. Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.
8. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 3" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.

   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
9. Cement stabilized backfill between boxes is considered part of the box culvert for payment.
10. All curb concrete and reinforcing is considered part of the box culvert for payment.
11. Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.
12. 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.
13. For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".
14. This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box." No payment will be made for any additional material in the gap between adjacent boxes.

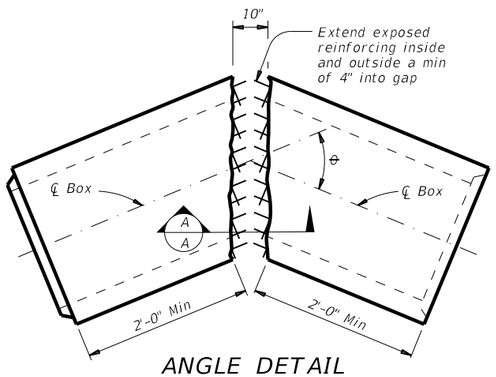
MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f'c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures."
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

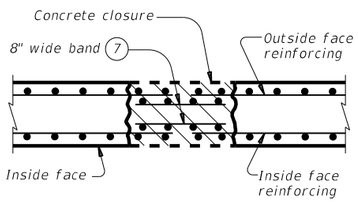
GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

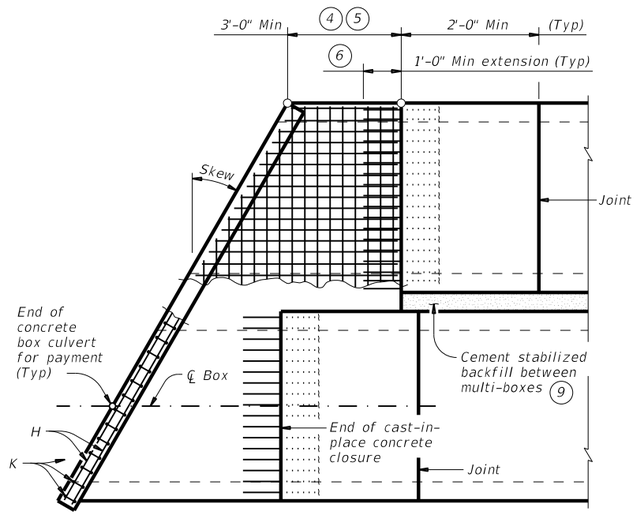
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bars dimensions are out-to-out of bars.



ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED ENDS

(Showing multi-box placement.)

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

FILE: CD-SCP-MD-20.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
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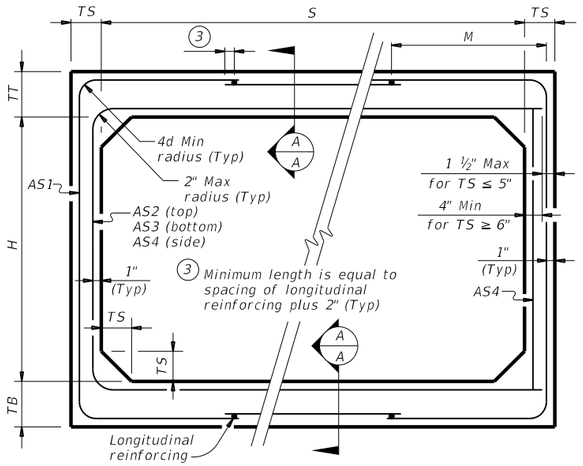
BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) (2)							(1) Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
4	2	7.5	6	5	< 2	–	0.18	0.27	0.15	0.12	0.18	0.18	0.14	4.5
4	2	5	5	5	2 < 3	38	0.18	0.19	0.17	0.12	–	–	–	3.6
4	2	5	5	5	3 – 5	38	0.13	0.13	0.13	0.12	–	–	–	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	–	–	–	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	–	–	–	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	–	–	–	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	–	–	–	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	–	–	–	3.6
4	3	7.5	6	5	< 2	–	0.18	0.31	0.18	0.12	0.18	0.18	0.14	5.0
4	3	5	5	5	2 < 3	38	0.15	0.23	0.20	0.12	–	–	–	4.1
4	3	5	5	5	3 – 5	38	0.12	0.16	0.16	0.12	–	–	–	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	–	–	–	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	–	–	–	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	–	–	–	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	–	–	–	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	–	–	–	4.1
4	4	7.5	6	5	< 2	–	0.18	0.33	0.20	0.12	0.18	0.18	0.14	5.5
4	4	5	5	5	2 < 3	38	0.12	0.26	0.23	0.12	–	–	–	4.6
4	4	5	5	5	3 – 5	38	0.12	0.18	0.18	0.12	–	–	–	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	–	–	–	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	–	–	–	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	–	–	–	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	–	–	–	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	–	–	–	4.6

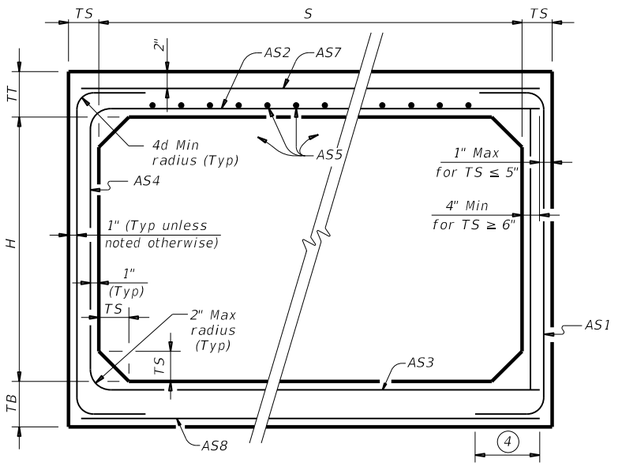
(1) For box length = 8'-0"

(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

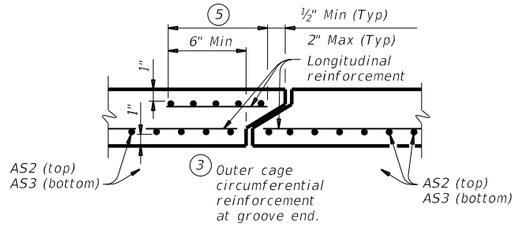
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

(4) Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:

Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.

Provide Class H concrete (f`c = 5,000 psi).

GENERAL NOTES:

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.

See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS PRECAST

4'-0" SPAN

SCP-4

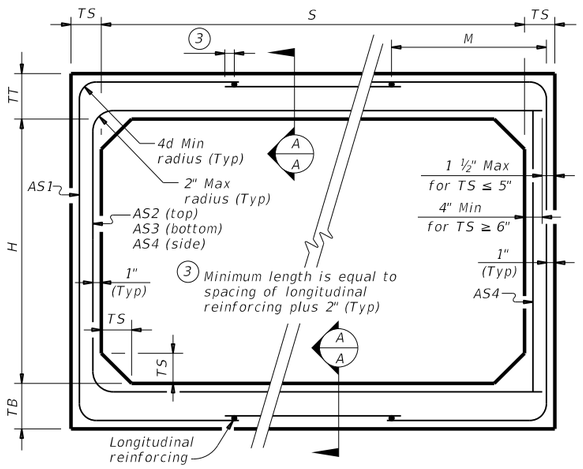
FILE: CD-SCP04-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		176

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) (2)							(1) Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
5	2	8	7	6	< 2	–	0.19	0.27	0.18	0.14	0.19	0.19	0.17	6.0
5	2	6	6	6	2 < 3	44	0.22	0.20	0.16	0.14	–	–	–	5.1
5	2	6	6	6	3 – 5	44	0.16	0.14	0.14	0.14	–	–	–	5.1
5	2	6	6	6	10	36	0.15	0.14	0.14	0.14	–	–	–	5.1
5	2	6	6	6	15	36	0.20	0.18	0.18	0.14	–	–	–	5.1
5	2	6	6	6	20	36	0.26	0.23	0.24	0.14	–	–	–	5.1
5	2	6	6	6	25	36	0.33	0.29	0.29	0.14	–	–	–	5.1
5	2	6	6	6	30	36	0.39	0.34	0.35	0.14	–	–	–	5.1
5	3	8	7	6	< 2	–	0.19	0.31	0.21	0.14	0.19	0.19	0.17	6.6
5	3	6	6	6	2 < 3	45	0.18	0.24	0.19	0.14	–	–	–	5.7
5	3	6	6	6	3 – 5	36	0.14	0.17	0.16	0.14	–	–	–	5.7
5	3	6	6	6	10	36	0.14	0.16	0.17	0.14	–	–	–	5.7
5	3	6	6	6	15	35	0.16	0.21	0.22	0.14	–	–	–	5.7
5	3	6	6	6	20	35	0.21	0.27	0.28	0.14	–	–	–	5.7
5	3	6	6	6	25	35	0.26	0.34	0.34	0.14	–	–	–	5.7
5	3	6	6	6	30	35	0.31	0.41	0.41	0.14	–	–	–	5.7
5	4	8	7	6	< 2	–	0.19	0.33	0.24	0.14	0.19	0.19	0.17	7.2
5	4	6	6	6	2 < 3	45	0.16	0.27	0.22	0.14	–	–	–	6.3
5	4	6	6	6	3 – 5	45	0.14	0.19	0.18	0.14	–	–	–	6.3
5	4	6	6	6	10	36	0.14	0.18	0.18	0.14	–	–	–	6.3
5	4	6	6	6	15	35	0.14	0.23	0.24	0.14	–	–	–	6.3
5	4	6	6	6	20	35	0.17	0.30	0.31	0.14	–	–	–	6.3
5	4	6	6	6	25	35	0.21	0.37	0.38	0.14	–	–	–	6.3
5	4	6	6	6	30	35	0.25	0.44	0.45	0.14	–	–	–	6.3
5	5	8	7	6	< 2	–	0.19	0.35	0.26	0.14	0.19	0.19	0.17	7.8
5	5	6	6	6	2 < 3	45	0.14	0.29	0.24	0.14	–	–	–	6.9
5	5	6	6	6	3 – 5	45	0.14	0.21	0.20	0.14	–	–	–	6.9
5	5	6	6	6	10	45	0.14	0.19	0.20	0.14	–	–	–	6.9
5	5	6	6	6	15	36	0.14	0.24	0.25	0.14	–	–	–	6.9
5	5	6	6	6	20	35	0.15	0.31	0.32	0.14	–	–	–	6.9
5	5	6	6	6	25	35	0.18	0.38	0.39	0.14	–	–	–	6.9
5	5	6	6	6	30	35	0.21	0.46	0.47	0.14	–	–	–	6.9

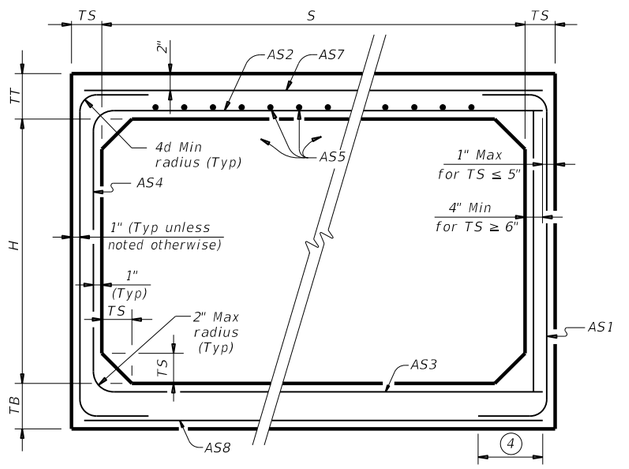
(1) For box length = 8'-0"

(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

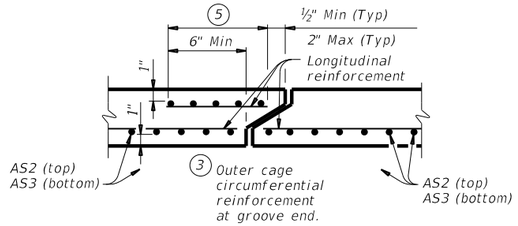
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

(4) Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:

Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.

Provide Class H concrete (f`c = 5,000 psi).

GENERAL NOTES:

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.

See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS PRECAST

5'-0" SPAN

SCP-5

FILE: CD-SCP05-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		177

DATE: 1/31/2024 4:38:17 PM
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DATE: 1/31/2024 4:38:43 PM
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TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

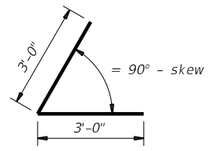
Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing (2~wings) (4)		Estimated Quantities per ft of Toewall (1~toewall)	
					Bars J1		Bars J2					
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf Lb/Ft)	Conc (CY/Ft)	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	48.64	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.31	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.98	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.32	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.98	0.480	6.85	0.071
4'-0"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	55.77	0.532	6.85	0.071
4'-6"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.568	6.85	0.071
5'-0"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	63.45	0.632	6.96	0.075
5'-6"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	67.46	0.668	6.96	0.075
6'-0"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	80.67	0.730	7.07	0.078
6'-6"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	85.05	0.768	7.07	0.078
7'-0"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	92.15	0.864	8.07	0.093
7'-6"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	96.54	0.902	8.07	0.093
8'-0"	5'-6"	2'-8"	1'-10"	8"	#5	6"	#5	6"	139.04	0.962	8.13	0.095
8'-6"	5'-6"	2'-8"	1'-10"	8"	#5	6"	#5	6"	144.47	1.000	8.13	0.095
9'-6"	6'-0"	2'-10"	2'-2"	9"	#5	6"	#5	6"	156.93	1.136	8.41	0.110
10'-6"	6'-5"	3'-0"	2'-5"	9"	#6	6"	#5	6"	196.27	1.234	8.57	0.117
11'-6"	7'-2"	3'-6"	2'-8"	11"	#6	6"	#6	6"	230.13	1.438	9.52	0.140
12'-6"	7'-8"	3'-9"	2'-11"	1'-0"	#7	6"	#6	6"	283.41	1.592	9.74	0.157
13'-6"	8'-2"	4'-0"	3'-2"	1'-2"	#8	6"	#6	6"	348.72	1.804	10.02	0.186
14'-6"	8'-10"	4'-5"	3'-5"	1'-4"	#9	6"	#6	6"	432.94	2.046	10.30	0.218
15'-6"	9'-6"	4'-10"	3'-8"	1'-6"	#9	6"	#7	6"	489.52	2.302	11.24	0.253
16'-0"	9'-11"	5'-0"	3'-11"	1'-7"	#9	6"	#7	6"	505.72	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING
(2~wings)

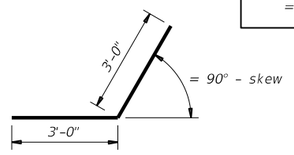
Bar	Size	No.	Spa
D1	#6	~	1'-0"
D2	#6	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	~	8"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

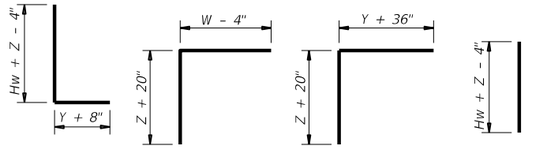
Bar	Size	No.	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"



BARS D1



BARS D2



BARS J1 BARS J2 BARS J3 BARS V

WING DIMENSION FORMULAS:
(All values are in feet.)

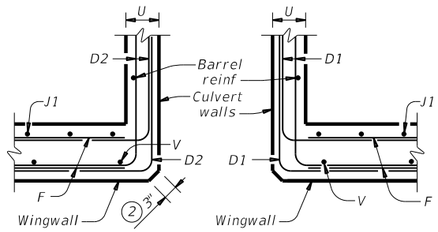
Hw = H + T + C
Lw = (Hw) (SL) ÷ cosine (θ) for Type PW-1
= (Hw - 1') (SL) ÷ cosine (θ) for Type PW-2 and Hw ≥ 4'
= (Hw - 0.5') (SL) ÷ cosine (θ) for Type PW-2 and Hw < 4'

For cast-in-place culverts:
Ltw = [(N) (S) + (N + 1) (U)] ÷ cosine (θ)

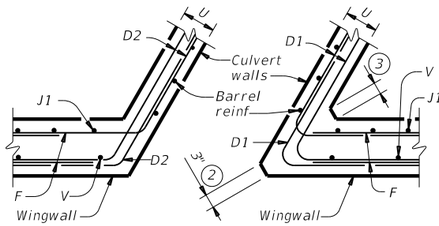
For precast culverts:
Ltw = [(N) (2 U + S) + (N - 1) (0.5')] ÷ cosine (θ)
Total Wingwall Area (two wings ~ SF)
= (2)(Hw)(Lw) for Type PW-1
= (2)(Hw)(Lw) - 6 SF for Type PW-2 and Hw ≥ 4'
= (2)(Hw)(Lw) - 1.5 SF for Type PW-2 and Hw < 4'

Hw = Height of wingwall
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans
SL:1 = Channel slope ratio. (horizontal: 1 vertical, usual value is 2:1)
θ = Culvert skew

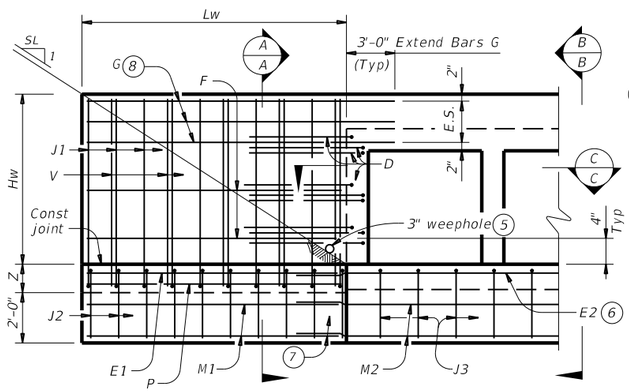
See applicable box culvert standard sheet for S, H, T, and U values.



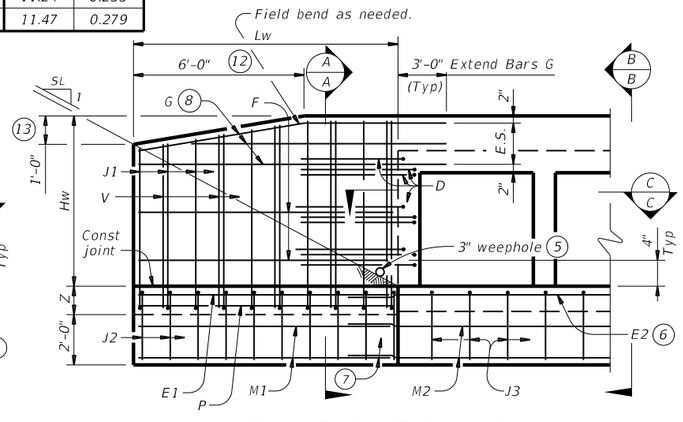
SECTION C-C - PW-1



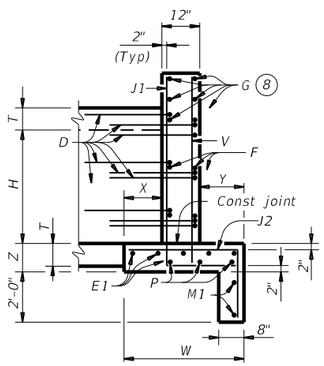
SECTION C-C - PW-2



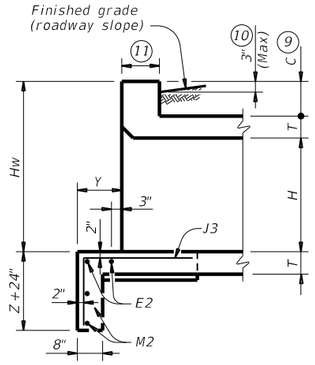
PARTIAL ELEVATION - PW-1



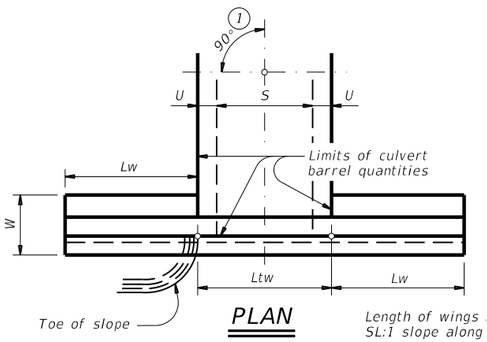
PARTIAL ELEVATION - PW-2



SECTION A-A
(Showing wing reinforcement.)

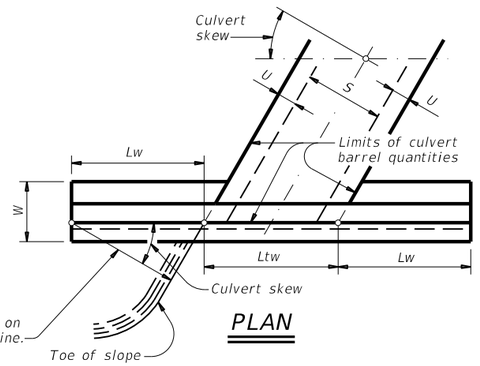


SECTION B-B
(Showing wing reinforcement.)



PLAN

DETAILS FOR NON-SKEWED BOX CULVERTS



PLAN

DETAILS FOR SKEWED BOX CULVERTS
(Showing 30° skew.)

(1) Skew = 0°

(2) At discharge end, chamfer may be ¾" minimum.

(3) For 15° skew ~ 1"
For 30° skew ~ 2"
For 45° skew ~ 3"

(4) Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by Lw. Quantities shown do not include weight of Bars D.

(5) Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.

(6) Extend Bars E2 1'-6" minimum into the wingwall footing.

(7) Lap Bars M1 1'-6" minimum with Bars M2.

(8) Place Bars G as shown, equally spaced at 8" maximum. Provide at least two pairs of Bars G per wing.

(9) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

(10) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(11) 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

(12) 3'-0" for Hw < 4'.

(13) 6" for Hw < 4'.

DESIGNER NOTES:
Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.
Type PW-2 can only be used for applications without a railing mounted to the wingwall.

MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.

GENERAL NOTES:
Designed in accordance with AASHTO LRFD Bridge Design Specifications.
Depth of toewalls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for wingwall type and additional dimensions and information.
Quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

Texas Department of Transportation
Bridge Division Standard

CONCRETE WINGWALLS
WITH PARALLEL WINGS FOR BOX CULVERTS
TYPES PW-1 AND PW-2

PW

FILE: CD-PW-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
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REVISIONS	0848	04	052	FM 462
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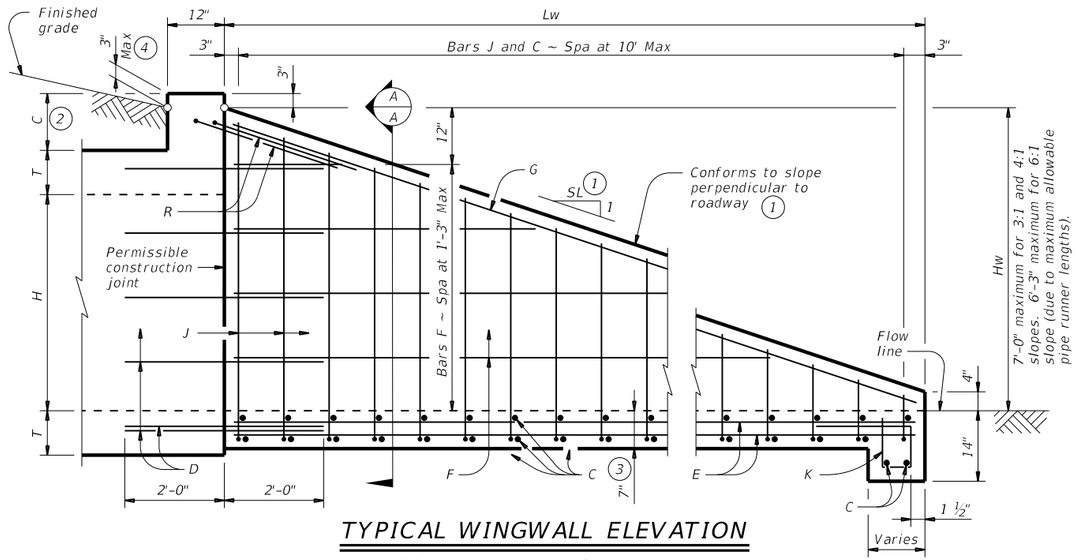
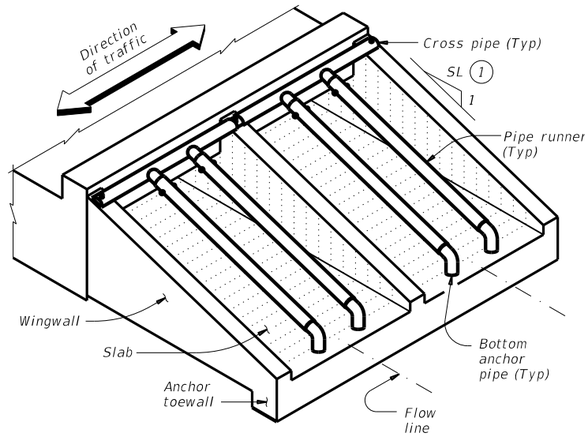


TYPICAL WINGWALL ELEVATION

(Pipe runners not shown for clarity.)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

WING DIMENSION CALCULATIONS:

Hw = H + T + C – 0.250'
Lw = (Hw – 0.333') (SL)

For cast-in-place culverts:
Atw = (N) (S) + (N + 1) (U)
For precast culverts:
Atw = (N) (2U + S) + (N – 1) (0.500')

Total Wingwall Area (SF)
= (0.5) (Hw + 0.333') (Lw) (N + 1)
Total Concrete Volume (CY)
= [(Wingwall Area) (0.583') +
(Lw) (Atw) (0.583') +
(Atw) (1.167') (1.167' – 0.583')] ÷ (27)

PIPE RUNNER DIMENSION CALCULATIONS:

Pipe Runner Length
= (Lw) (K1) – (1.917')
Total Reinforcing (Lb)
= (1.55) (Lw) (Atw) +
(4.43) (Atw) +
(K2) (Hw) (N + 1) (√Lw)

C = Height of curb above top of top slab (feet)
Hw = Height of wingwall (feet)
K = Constant value for use in formulas

Slope SL:1	K1	K2
3:1	~ 1.054 ~	7.45
4:1	~ 1.031 ~	8.49
6:1	~ 1.014 ~	10.30

Atw = Anchor toewall length (feet)
Lw = Length of wingwall (feet)
N = Number of culvert barrels
SL:1 = Side slope ratio (horizontal : 1 vertical)

See applicable box culvert standard for H, S, T, and U values.

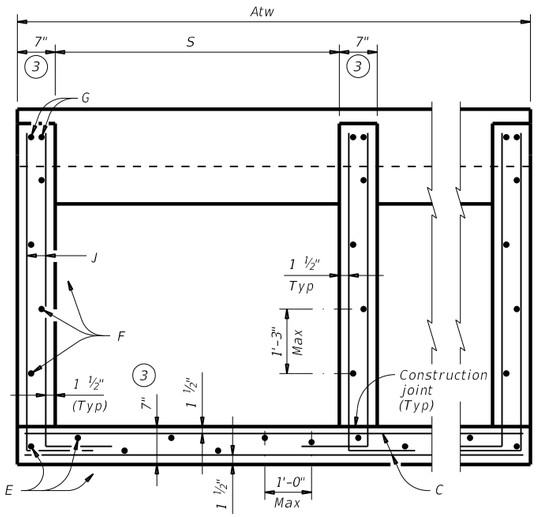
MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Adjust reinforcing as necessary to provide a minimum clear cover of 1 ½".
Provide Class "C" concrete (f`c = 3,600 psi).
Provide pipe runners, cross pipes, and anchor pipes meeting the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.
Provide ASTM A307 bolts.
Galvanize all steel components, except the concrete reinforcing, unless required elsewhere in the plans, after fabrication.
Repair galvanizing damaged during transport or construction in accordance with the Item 445, "Galvanizing."

GENERAL NOTES:

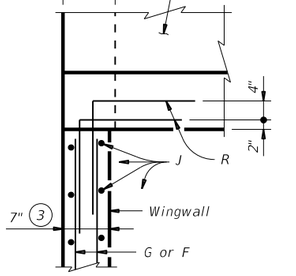
Designed according to AASHTO LRFD Bridge Design Specifications.
The safety end treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
Pipe runners are designed for a traversing 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.
The quantities for pipe runners, reinforcing steel, and concrete resulting from the formulas given herein are for Contractor's information only.
See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the safety end treatments.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.



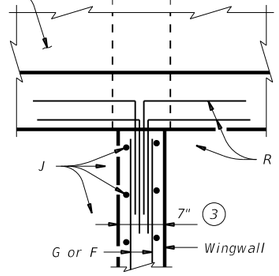
SECTION A-A

(Showing typical wingwall and wing slab reinforcing. Pipe runners not shown for clarity.)



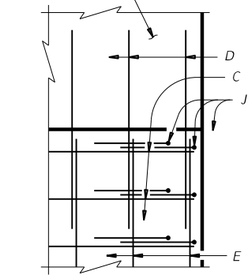
AT TOP OF EXTERIOR WINGWALL

(Cast-in-place culvert)



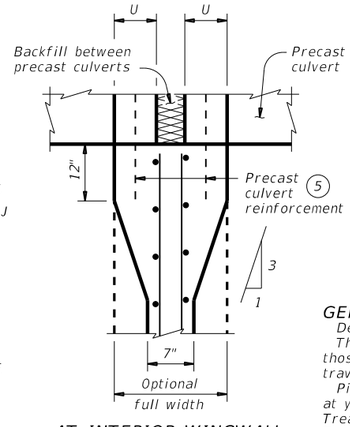
AT TOP OF INTERIOR WINGWALL

(Cast-in-place culvert)



AT OUTSIDE OF BOTTOM SLAB

(Cast-in-place culvert)



AT INTERIOR WINGWALL

(Precast culvert)

PLAN VIEWS OF CORNER DETAILS

(1) *Recommended values of slope are: 3:1, 4:1, and 6:1. Provide 3:1 or flatter slope.*

(2) *0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet.*

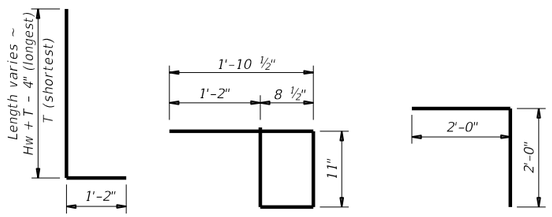
(3) *Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.*

(4) *For vehicle safety, reduce curb height, if necessary, to provide a maximum 3" projection. No changes will be made in quantities and no additional compensation will be allowed for this work.*

(5) *For culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into wingwall. Wingwall Bars D and R may be omitted. Otherwise, refer to the Wingwall Connection detail on the Box Culvert Precast Miscellaneous Details (SCP-MD) standard sheet.*

TABLE OF REINFORCING BAR SIZES AND SPACING

Bar	Size	Spacing
C	#4	10" Max
D	#4	Match F and E
E	#4	1'-0" Max
F	#4	1'-3" Max
G	#6	As shown
J	#4	10" Max
K	#4	1'-0" Max
R	#4	As shown



SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT
FOR 0° SKEW BOX CULVERTS
(MAXIMUM Hw = 7'-0")
TYPE I ~ CROSS DRAINAGE

SETB-CD

FILE: CD-SETBCD-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		179

DATE: 1/31/2024 4:39:11 PM
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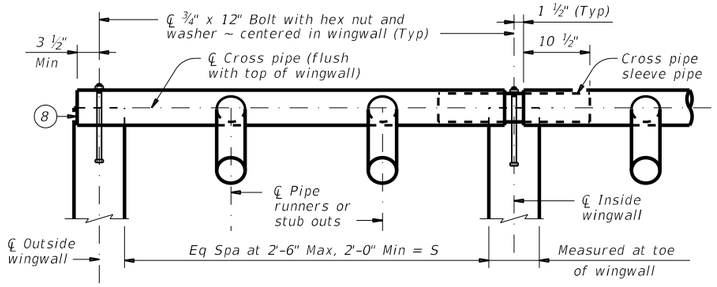
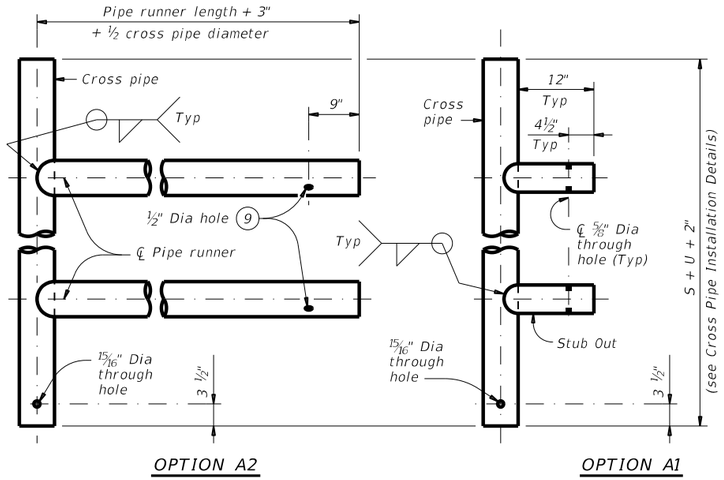


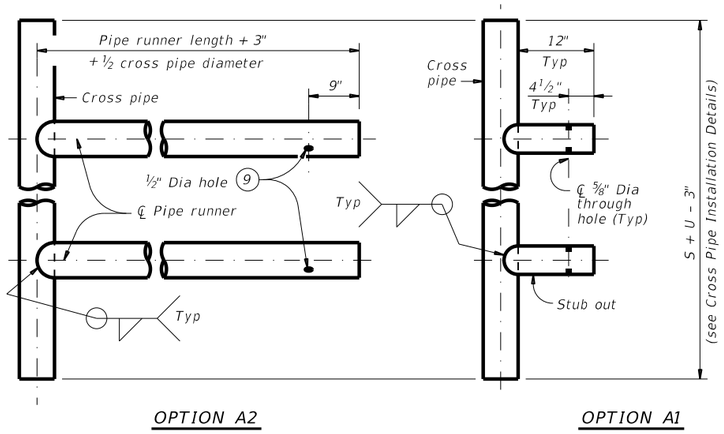
NOTE: At Contractor's option, make the cross pipe continuous across the inside wingwalls. If option is selected, omit the sleeve pipe and make a 15/16" diameter through hole in the cross pipe to accept the anchor bolt at the centerline of each inside wingwall.

CROSS PIPE INSTALLATION DETAILS



OPTION A2 OPTION A1

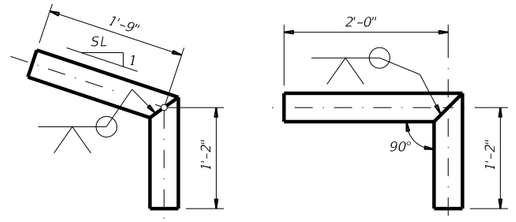
FOR USE IN OUTSIDE CULVERT BAY



OPTION A2 OPTION A1

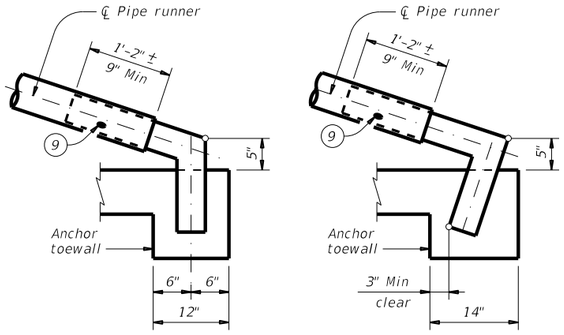
FOR USE IN INSIDE CULVERT BAY

CROSS PIPE AND CONNECTIONS DETAILS



OPTION A OPTION B

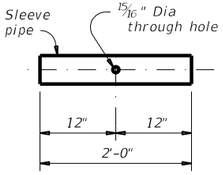
BOTTOM ANCHOR PIPE DETAILS (10)



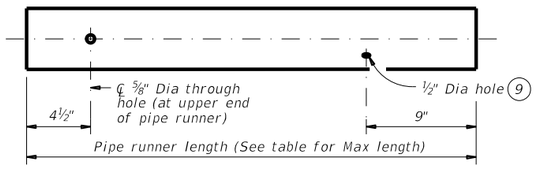
OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS

(Wingwall not shown for clarity.)

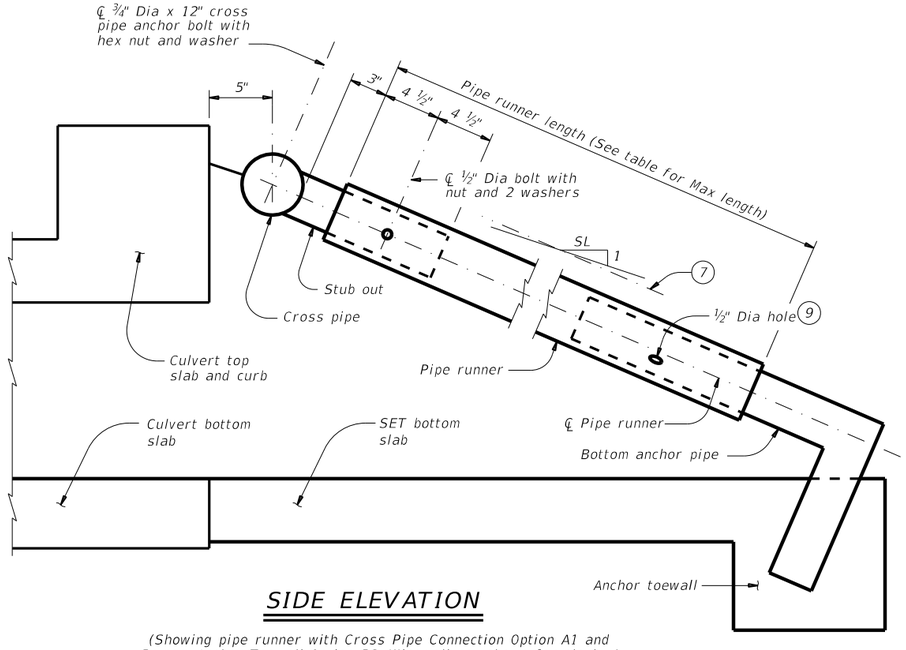


CROSS PIPE SLEEVE PIPE DETAILS



NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS



SIDE ELEVATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Bottom Anchor Toewall Option B2. Wingwall not shown for clarity.)

(6) Cross pipe is the same size as the pipe runner. Cross pipe stub out is the same size as the anchor pipe.

(7) Note that actual slope of safety pipe runner may vary slightly from side slope.

(8) Take care to 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 1#2" hole to ensure that the lap of the safety 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.

MAXIMUM PIPE RUNNER LENGTHS AND (6) REQUIRED PIPE RUNNER AND ANCHOR PIPE SIZES

Maximum Pipe Runner Length	Required Pipe Runner Size			Required Anchor Pipe Size		
	Pipe Size	Pipe O.D.	Pipe I.D.	Pipe Size	Pipe O.D.	Pipe I.D.
10'- 0"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'- 8"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
34'- 2"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT
FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0") TYPE I ~ CROSS DRAINAGE
SETB-CD

FILE: CD-SETBCD-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		180

DATE: 1/31/2024 4:39:12 PM
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SPECIAL NOTES

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

2. EXISTING SUBSURFACE UTILITY INVESTIGATIONS WERE COMPLETED ON 12/20/2023. THE RIOS GROUP, INC. EXPRESSLY DISCLAIMS ANY AND ALL RESPONSIBILITY FOR NEW UTILITY INSTALLATIONS, MODIFICATIONS, AND/OR ADJUSTMENTS TO EXISTING UTILITIES AFTER THE COMPLETION DATE.

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

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

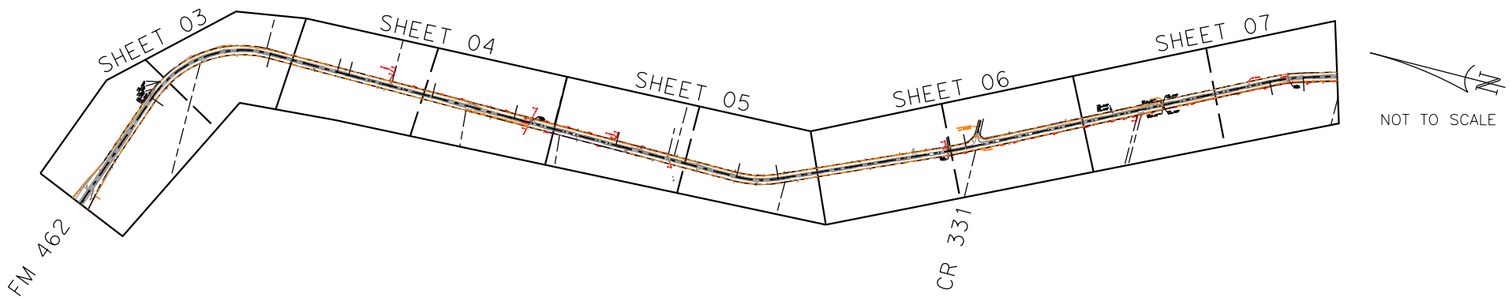
QUALITY LEVELS

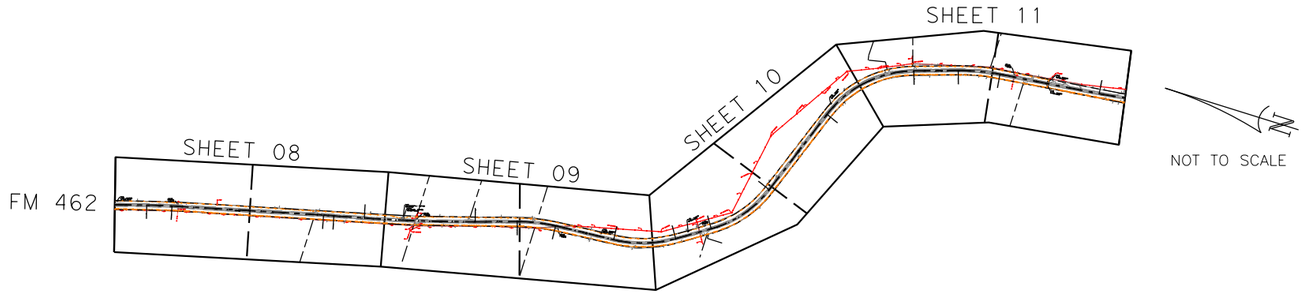
Quality Level "D" - Information derived from existing records and/or oral collection.

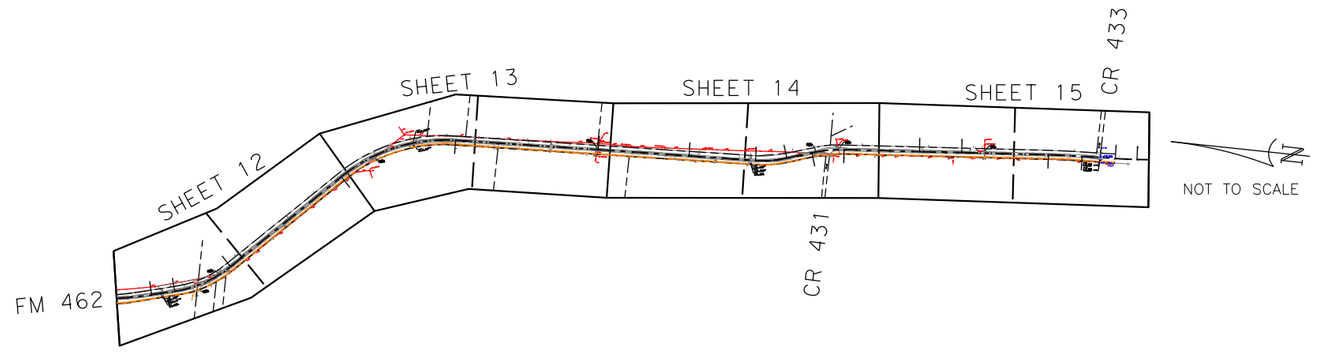
Quality Level "C" - Information obtained by surveying and plotting visible above ground utility features and by using professional judgment in correlating information to Quality Level "D" information.

Quality Level "B" - Designate: Two-dimensional horizontal mapping. This information is obtained through the application and interpretation of appropriate non-destructive surface geophysical methods. Utility indications are referenced to established survey control. Incorporates Quality Levels "C" and "D" information to produce Quality Level "B" information.

Quality Level "A" - Locate: Precise horizontal and vertical location of utilities obtained by the actual exposure and subsequent measurement of subsurface utilities at a specific point. Diameters shown are verified visually and may not be exact.







MATERIAL ABBREVIATIONS

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

Subsurface Utility Engineering (SUE) Certification

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LEGEND OF UTILITY TYPES

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

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

COMMUNICATIONS — QL "B"
- AT&T (TELE) — T1 —
- AT&T (FO/DUCT) — FOC1 —

POTABLE WATER — QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY — QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE — OH —
- OH - 2 AT&T FO

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET (CC)
- CATV HANDHOLE (C)
- CATV PEDESTAL (C)
- FIBER HANDHOLE (F)
- TELEPHONE CABINET (TC)
- TELEPHONE HANDHOLE (VAULT) (T)
- TELEPHONE MANHOLE (T)
- TELEPHONE PEDESTAL (TP)
- TELEPHONE POLE
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE (E)
- ELECTRIC JUNCTION BOX (CABINET) (EC)
- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER) (PP)
- ELECTRIC POLE W/RISER
- LIGHT POLE (LP)
- SIGNAL POLE (SP)
- SIGNAL HANDHOLE/BOX (SB)
- TRANSMISSION POLE
- GAS METER (GM)
- GAS TEST STATION (TS)
- GAS VALVE
- GAS VENT PIPE (GAS RISER)
- WASTE WATER CLEANOUT
- WASTE WATER MANHOLE
- FIRE HYDRANT
- WATER MANHOLE
- WATER METER (WM)
- WATER VALVE
- WATER VAULT (W)

REV	DATE	BY	DESCRIPTION

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

TEXAS DEPARTMENT OF TRANSPORTATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

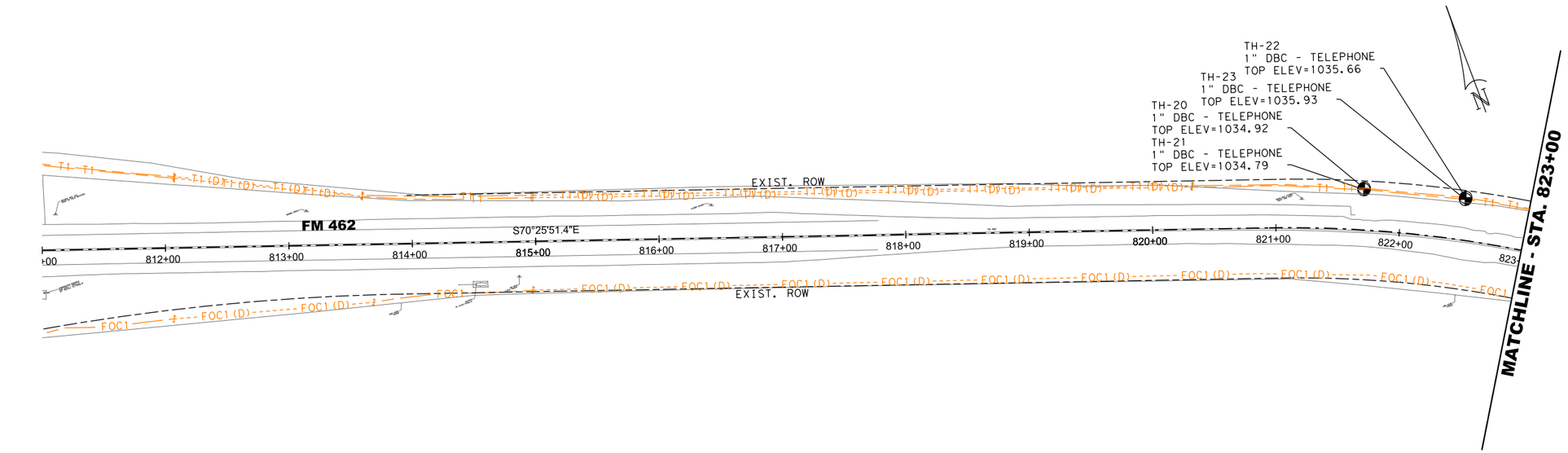
LAYOUT INDEX

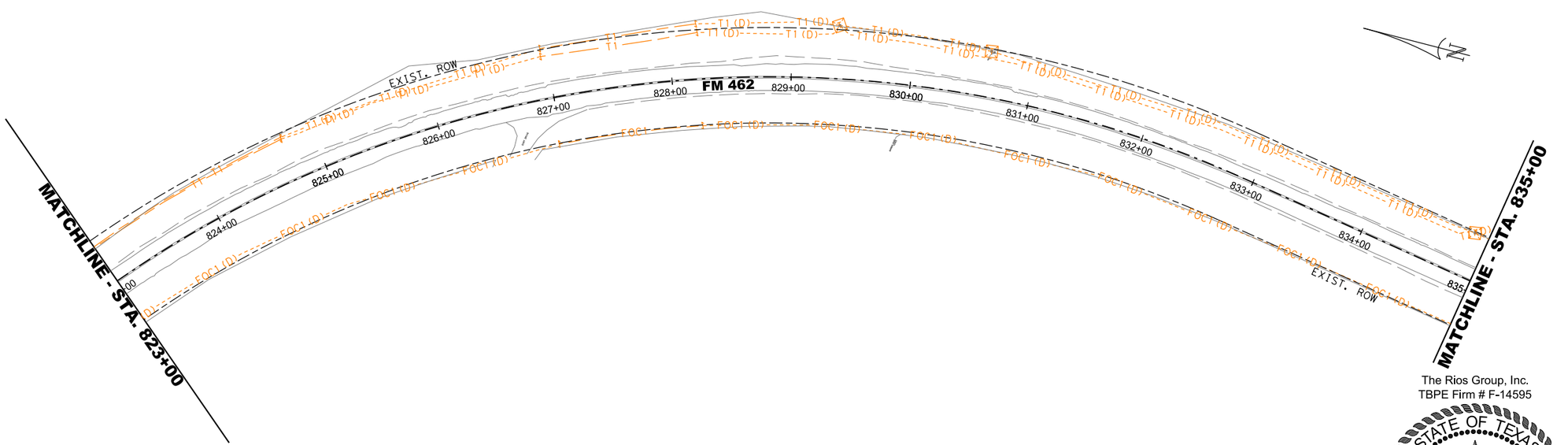
DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	02 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	181

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA





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GRAPHIC SCALE IN FEET
SCALE 1" = 100'

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- GAS TEST STATION
- GAS VALVE
- GAS VENT PIPE (GAS RISER)
- WASTE WATER CLEANOUT
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- FIRE HYDRANT
- WATER MANHOLE
- WATER METER
- WATER VALVE
- WATER VAULT

REV	DATE	BY	DESCRIPTION

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THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

TEXAS DEPARTMENT OF TRANSPORTATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

STA. START TO STA. 835+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
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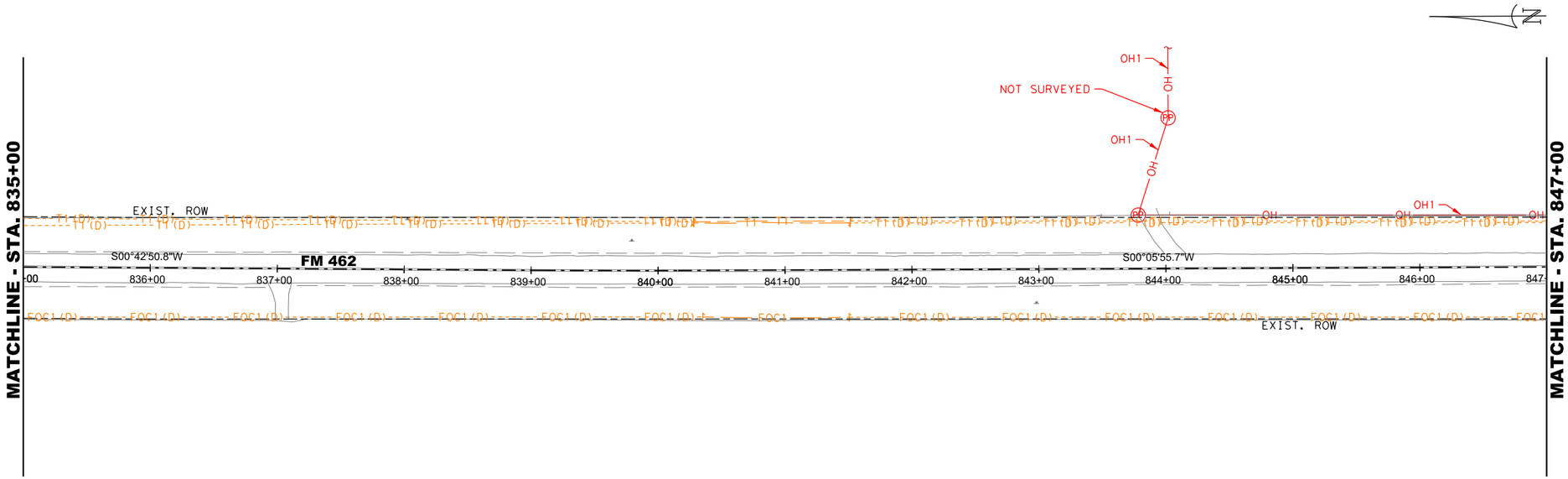
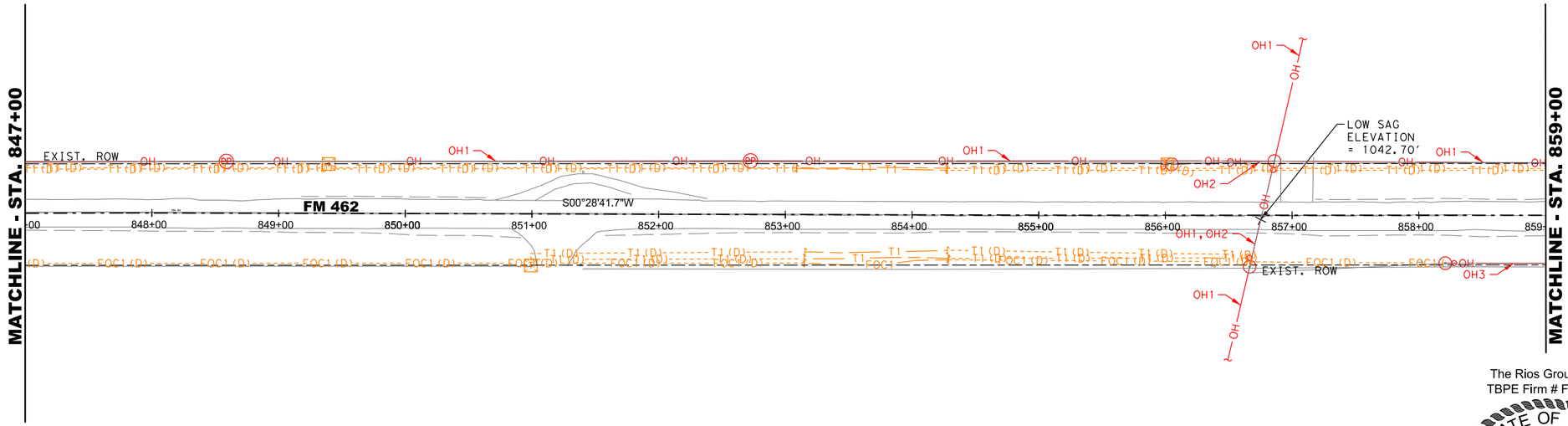
CSJ NUMBER	PLAN SHEET NO.
0848-04-052	182

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA





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GRAPHIC SCALE IN FEET
SCALE 1" = 100'

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- QUALITY LEVEL "C" - - - X#(C) - - -
- QUALITY LEVEL "D" - - - X#(D) - - -
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- PROPOSED UTILITY
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- TELEPHONE PEDESTAL
- TELEPHONE POLE
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE
- ELECTRIC JUNCTION BOX (CABINET)
- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER)
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- GAS VALVE
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- WASTE WATER MANHOLE
- FIRE HYDRANT
- WATER MANHOLE
- WATER METER
- WATER VALVE
- WATER VAULT

REV	DATE	BY	DESCRIPTION

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SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

STA. 835+00 TO STA. 859+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	04 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	183

STATE	DISTRICT	COUNTY
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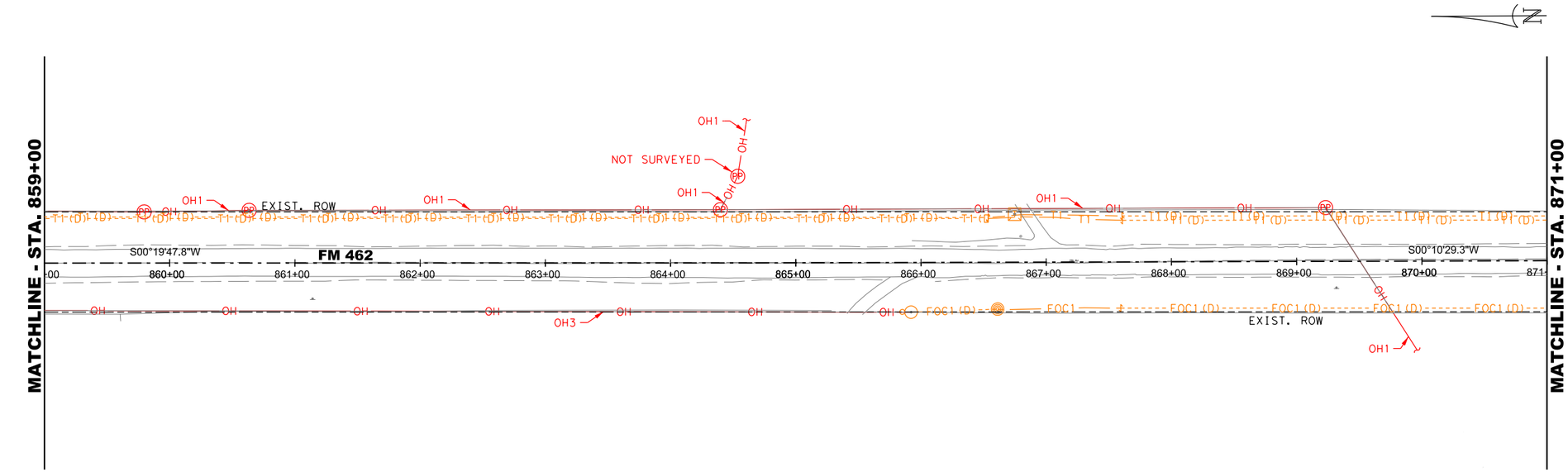
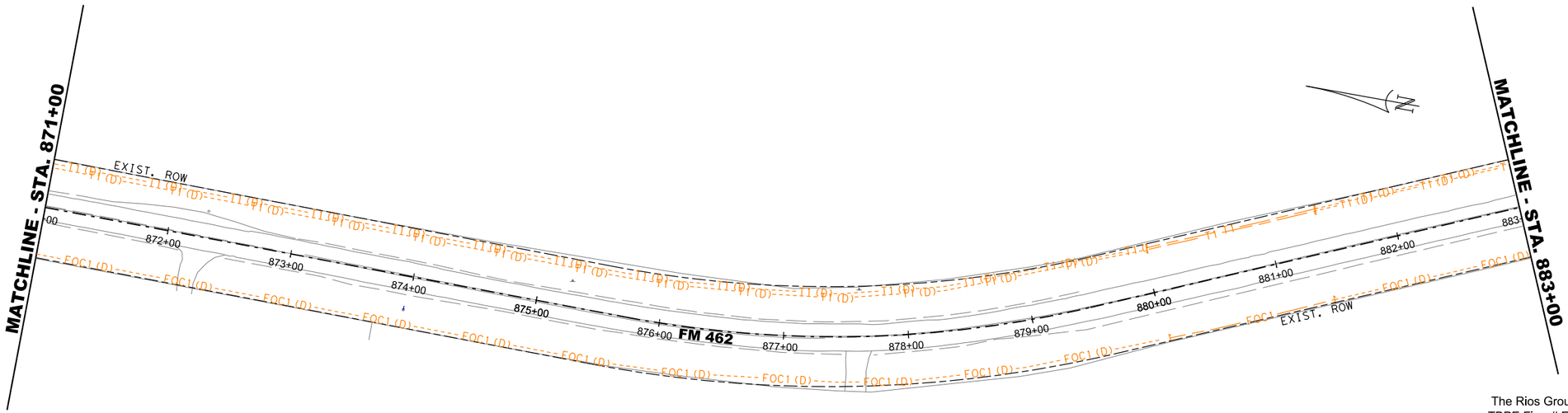
PROFESSIONAL ENGINEER

01-30-2024





0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

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

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

COMMUNICATIONS (QL "B")
- AT&T (TELE) — T1 —
- AT&T (FO/DUCT) — FOC1 —

POTABLE WATER (QL "B")
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY (QL "C"/QL "D")
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE — OH —
- OH - 2 AT&T FO

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET (CC)
- CATV HANDHOLE (C)
- CATV PEDESTAL (C)
- FIBER HANDHOLE (F)
- TELEPHONE CABINET (TC)
- TELEPHONE HANDHOLE (VAULT) (T)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL (T)
- TELEPHONE POLE (TP)
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE (E)
- ELECTRIC JUNCTION BOX (CABINET) (EJ)
- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER) (PP)
- ELECTRIC POLE W/RISER
- LIGHT POLE
- SIGNAL POLE (SP)
- SIGNAL HANDHOLE/BOX (SB)
- TRANSMISSION POLE
- GAS METER (GM)
- GAS TEST STATION (TS)
- GAS VALVE
- GAS VENT PIPE (GAS RISER)
- WASTE WATER CLEANOUT
- WASTE WATER MANHOLE
- FIRE HYDRANT
- WATER MANHOLE
- WATER METER (WM)
- WATER VALVE
- WATER VAULT (W)

REV	DATE	BY	DESCRIPTION

Subsurface Utility Engineering (SUE) Certification

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

TEXAS DEPARTMENT OF TRANSPORTATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

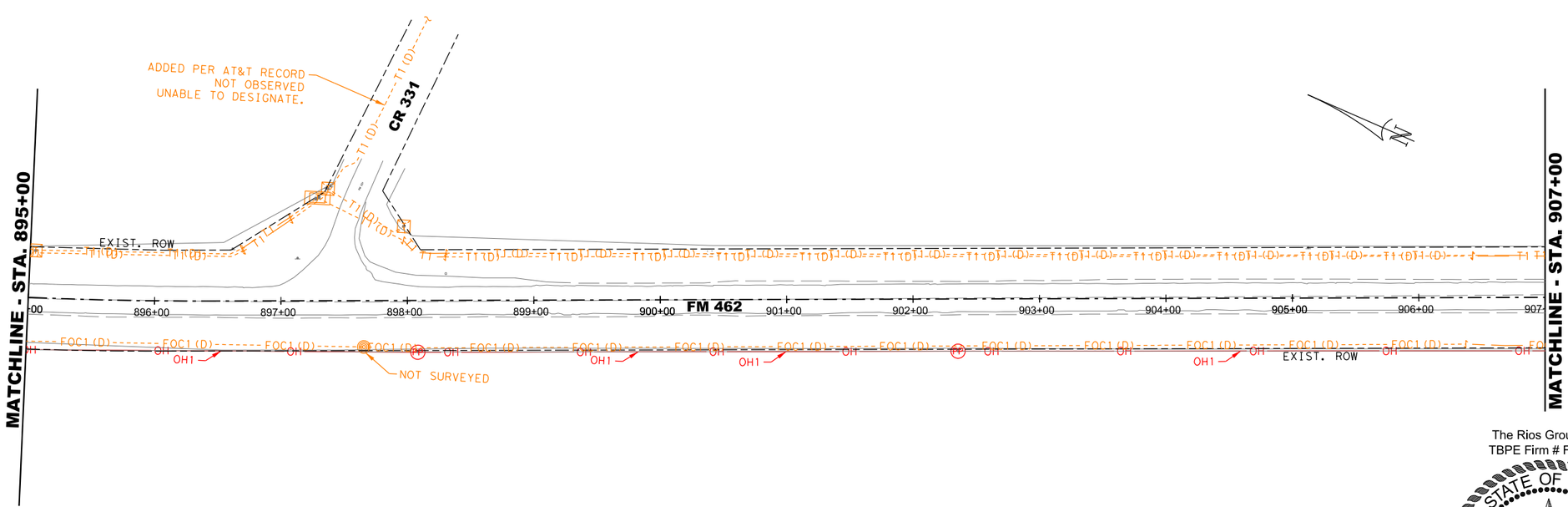
STA. 859+00 TO STA. 883+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	05 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	184

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA



0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
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COMMUNICATIONS — QL "B"
- AT&T (TELE) — T1 —
- AT&T (FO/DUCT) — FOC1 —

POTABLE WATER — QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY — QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE — OH —
- OH - 2 AT&T FO

LEGEND OF UTILITY SYMBOLS

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

REV	DATE	BY	DESCRIPTION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

STA. 883+00 TO STA. 907+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	06 OF 15	01-30-2024
CSJ NUMBER	PLAN SHEET NO.	
0848-04-052	185	
STATE	DISTRICT	COUNTY
TX	SAT	MEDINA

Subsurface Utility Engineering (SUE) Certification

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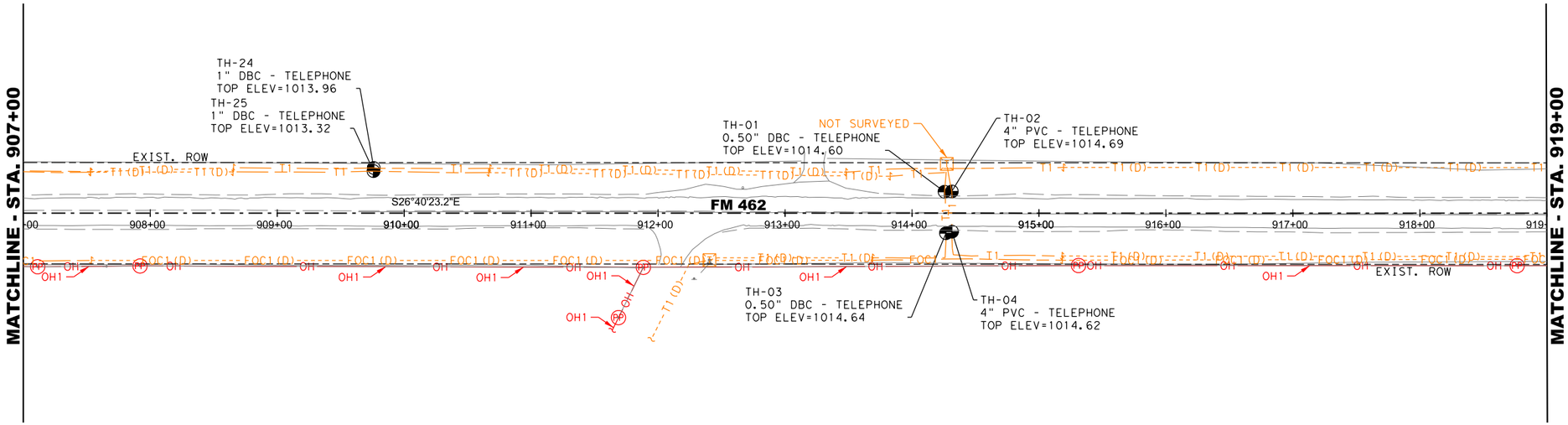
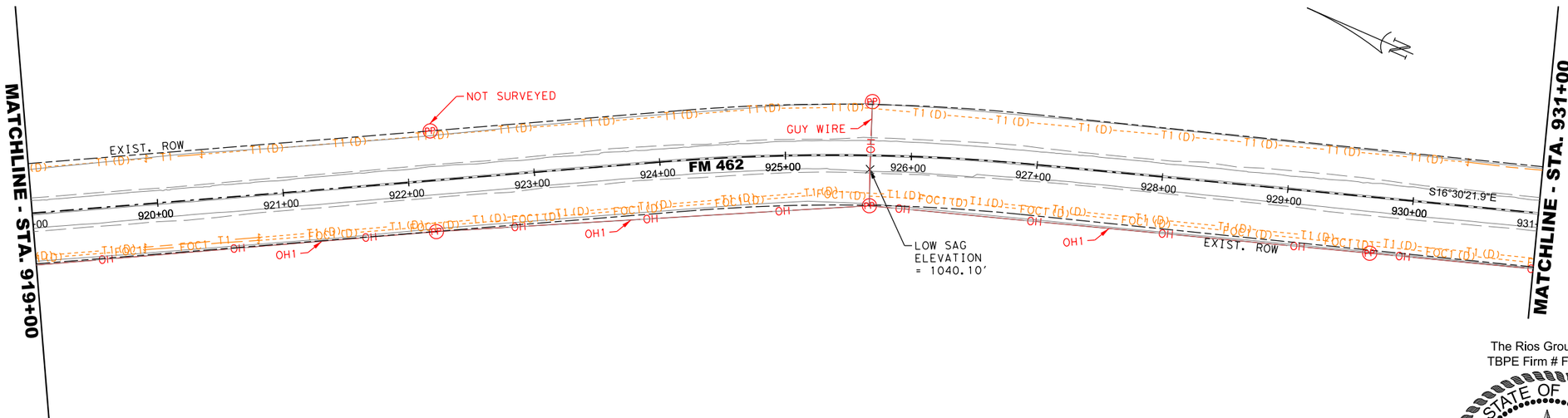
The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024





0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
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ELECTRIC / POWER — QL "B"
- MEDINA ELECTRIC — E1 —

COMMUNICATIONS — QL "B"
- AT&T (TELE) — T1 —
- AT&T (FO/DUCT) — FOC1 —

POTABLE WATER — QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY — QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE
- OH - 2 AT&T FO

— OH —

LEGEND OF UTILITY SYMBOLS

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

REV	DATE	BY	DESCRIPTION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

TEXAS DEPARTMENT OF TRANSPORTATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

STA. 907+00 TO STA. 931+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	07 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	186

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA

Subsurface Utility Engineering (SUE) Certification

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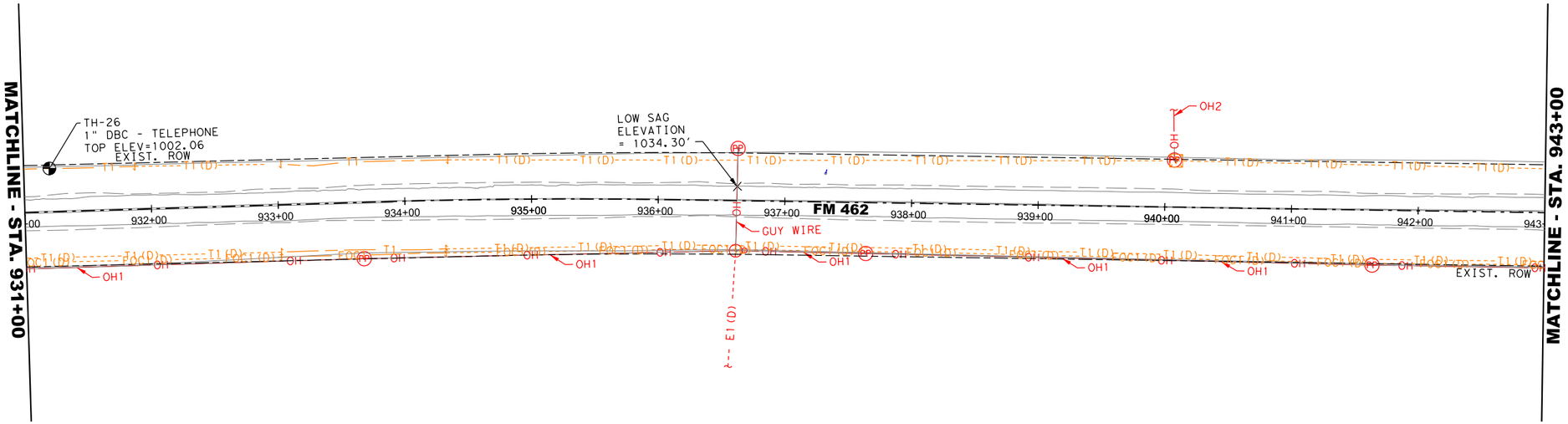
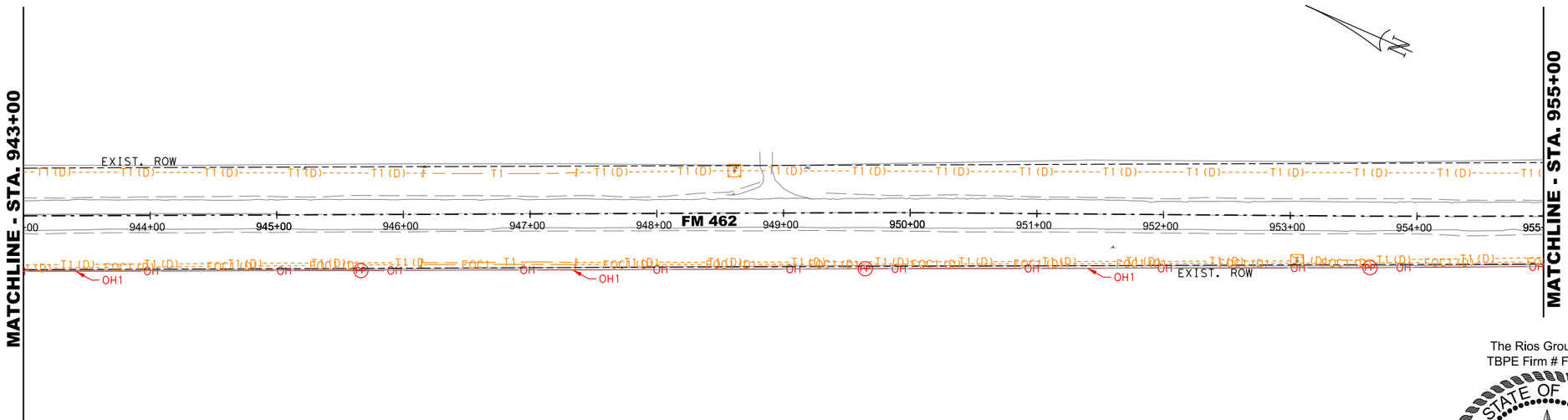
The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024





0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
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COMMUNICATIONS — QL "B"
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POTABLE WATER — QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY — QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE — OH —
- OH - 2 AT&T FO

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET (CC)
- CATV HANDHOLE
- CATV PEDESTAL (C)
- FIBER HANDHOLE
- TELEPHONE CABINET (TC)
- TELEPHONE HANDHOLE (VAULT) (T)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL (T)
- TELEPHONE POLE (TP)
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE (E)
- ELECTRIC JUNCTION BOX (CABINET) (EJ)
- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER) (PP)
- ELECTRIC POLE W/RISER
- LIGHT POLE (LP)
- SIGNAL POLE (SP)
- SIGNAL HANDHOLE/BOX (SB)
- TRANSMISSION POLE
- GAS METER (GM)
- GAS TEST STATION (TS)
- GAS VALVE
- GAS VENT PIPE (GAS RISER)
- WASTE WATER CLEANOUT
- WASTE WATER MANHOLE
- FIRE HYDRANT
- WATER MANHOLE
- WATER METER (WM)
- WATER VALVE
- WATER VAULT (W)

REV	DATE	BY	DESCRIPTION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

TEXAS DEPARTMENT OF TRANSPORTATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

STA. 931+00 TO STA. 955+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	08 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	187

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA

Subsurface Utility Engineering (SUE) Certification

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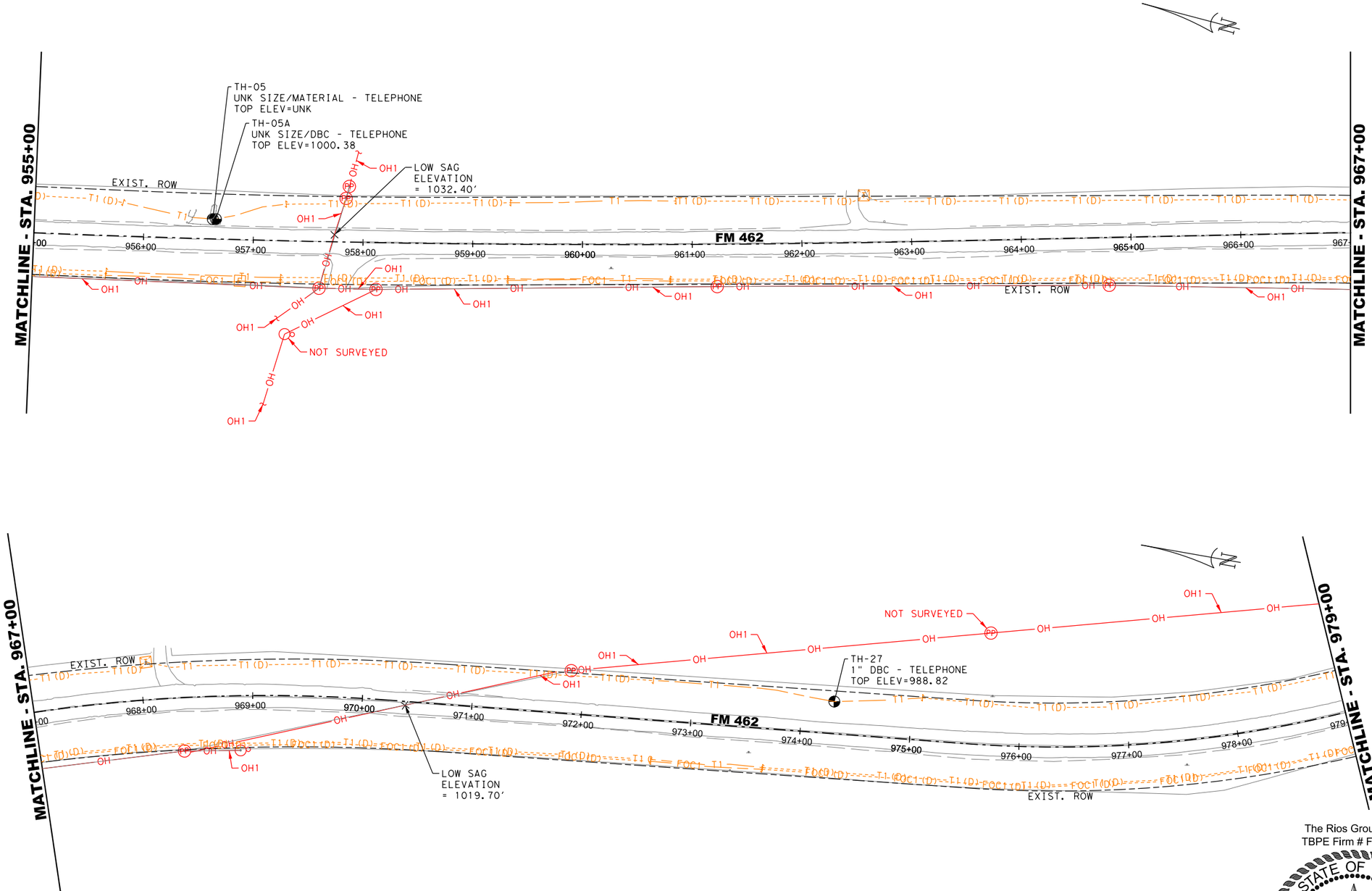
The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024



0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
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ELECTRIC / POWER — QL "B"
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COMMUNICATIONS — QL "B"
- AT&T (TELE) — T1 —
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POTABLE WATER — QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY — QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE
- OH - 2 AT&T FO — OH —

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET
- CATV HANDHOLE
- CATV PEDESTAL
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- TELEPHONE HANDHOLE (VAULT)
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE POLE
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE
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- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER)
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- FIRE HYDRANT
- WATER MANHOLE
- WATER METER
- WATER VALVE
- WATER VAULT

REV	DATE	BY	DESCRIPTION

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

TEXAS DEPARTMENT OF TRANSPORTATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

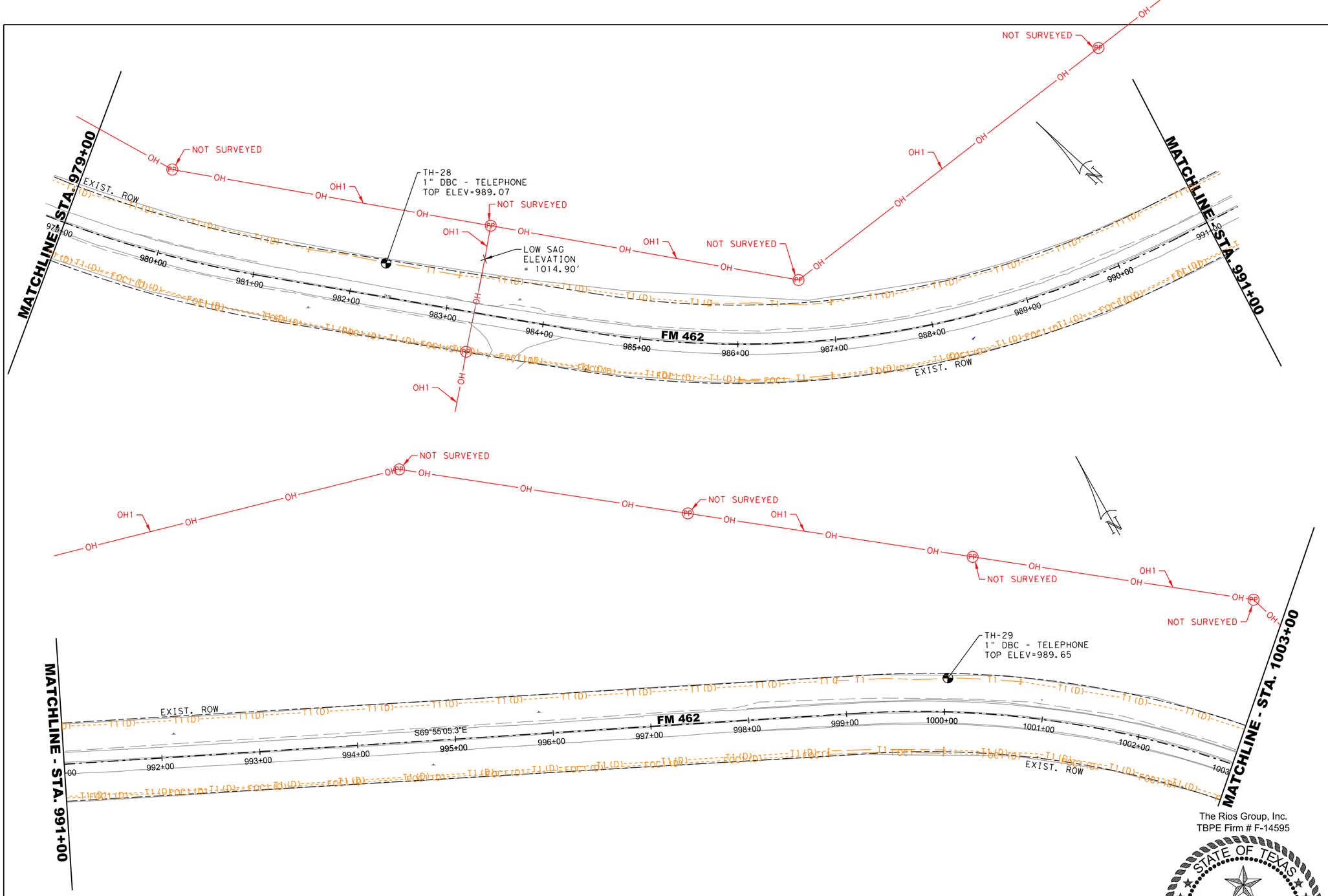
STA. 955+00 TO STA. 979+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	09 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	188

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA



0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
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COMMUNICATIONS QL "B"
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POTABLE WATER QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE — OH —
- OH - 2 AT&T FO

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
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- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
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- WATER MANHOLE
- WATER METER
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REV	DATE	BY	DESCRIPTION

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

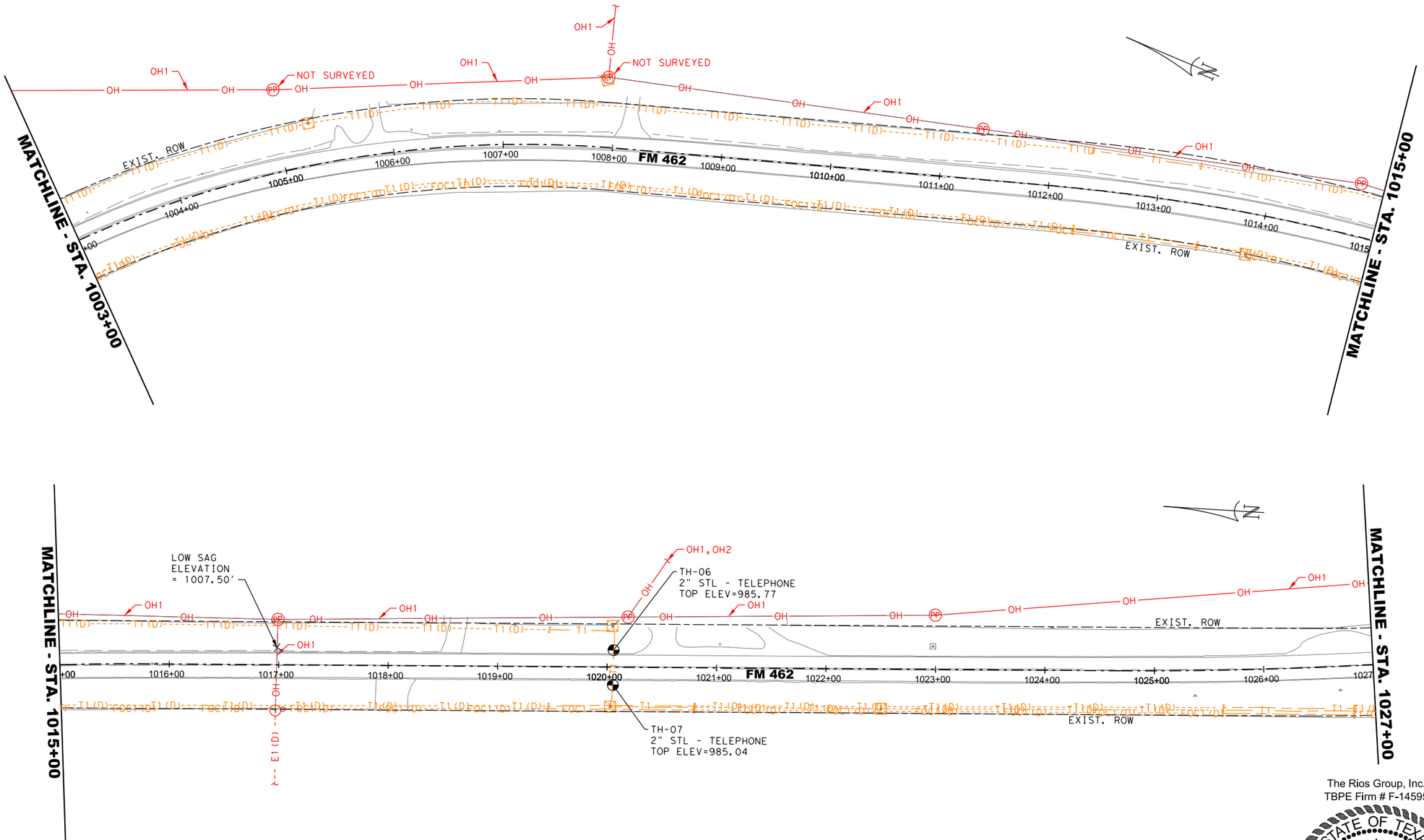
STA. 979+00 TO STA. 1003+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	10 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	189

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA



0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
- QUALITY LEVEL "C" ------ X#(C) ------
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ELECTRIC / POWER QL "B"
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- AT&T (TELE) — T1 —
- AT&T (FO/DUCT) — FOC1 —

POTABLE WATER QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE — OH —
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LEGEND OF UTILITY SYMBOLS

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

REV	DATE	BY	DESCRIPTION

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TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

TEXAS DEPARTMENT OF TRANSPORTATION

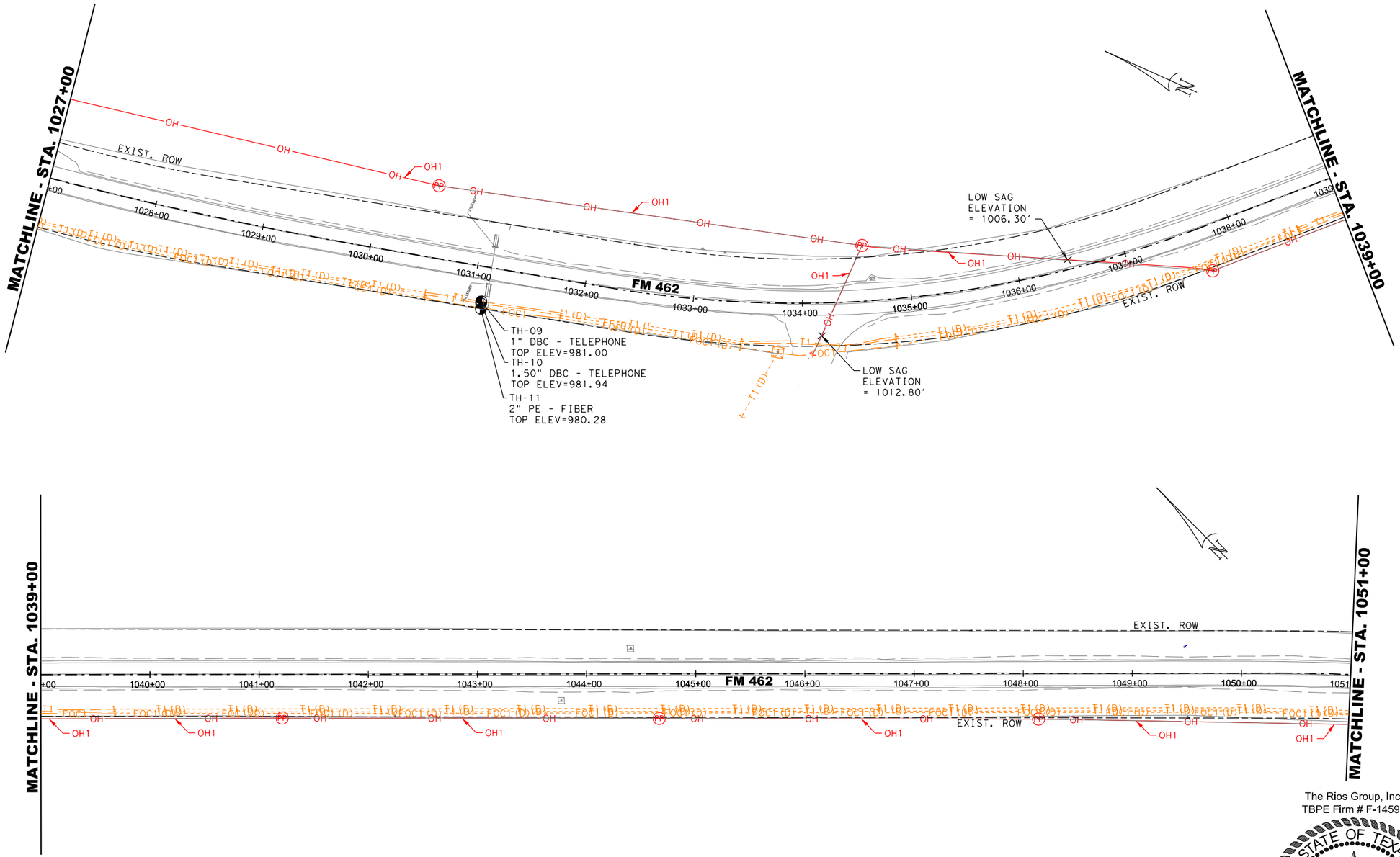
FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

STA. 1003+00 TO STA. 1027+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	11 OF 15	01-30-2024
CSJ NUMBER	PLAN SHEET NO.	
0848-04-052	190	
STATE / DISTRICT	COUNTY	
TX / SAT	MEDINA	



0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

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

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

COMMUNICATIONS — QL "B"
- AT&T (TELE) — T1 —
- AT&T (FO/DUCT) — FOC1 —

POTABLE WATER — QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY — QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE — OH —
- OH - 2 AT&T FO

LEGEND OF UTILITY SYMBOLS

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

REV	DATE	BY	DESCRIPTION

Subsurface Utility Engineering (SUE) Certification

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

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

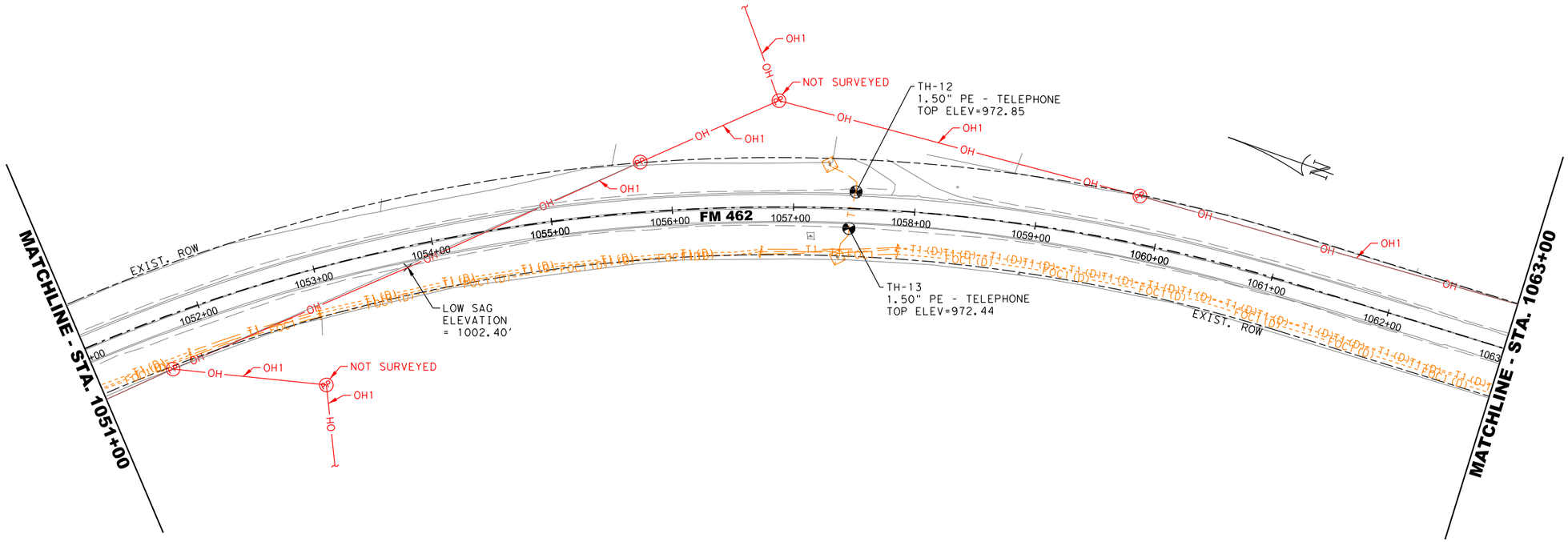
STA. 1027+00 TO STA. 1051+00

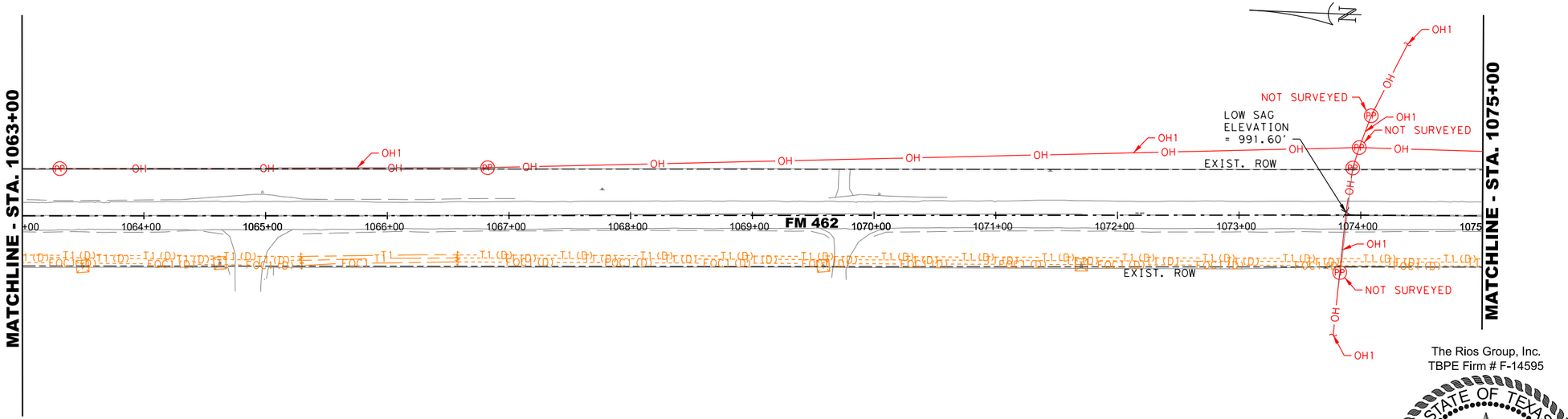
DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

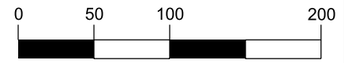
TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	12 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	191

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA







GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

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

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

COMMUNICATIONS — QL "B"
- AT&T (TELE) — T1 —
- AT&T (FO/DUCT) — FOC1 —

POTABLE WATER — QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY — QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE
- OH - 2 AT&T FO — OH —

LEGEND OF UTILITY SYMBOLS

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

REV	DATE	BY	DESCRIPTION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

TEXAS DEPARTMENT OF TRANSPORTATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

STA. 1051+00 TO STA. 1075+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	13 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	192

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA

Subsurface Utility Engineering (SUE) Certification

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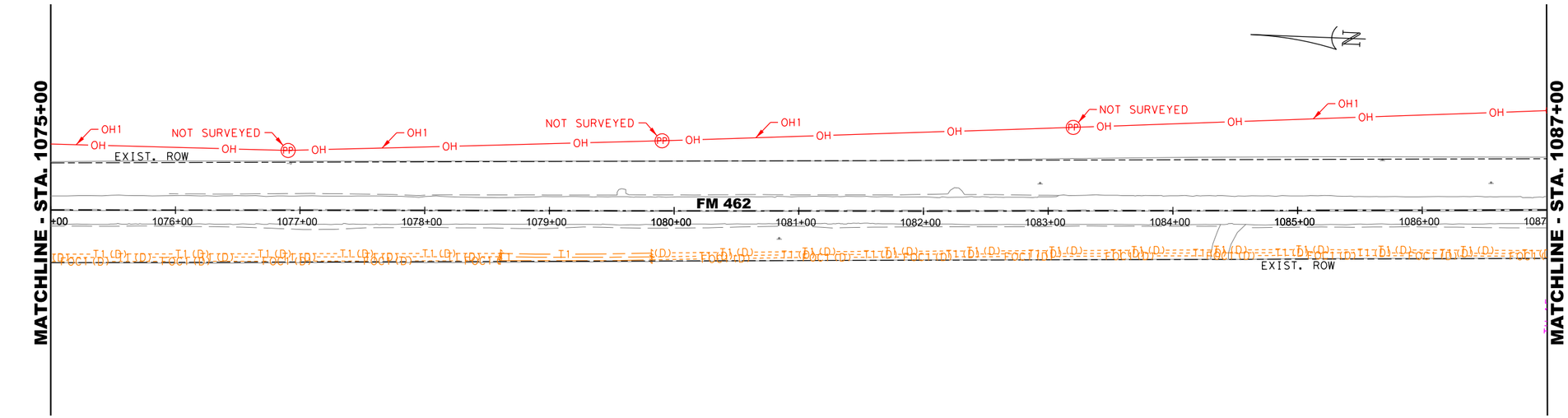
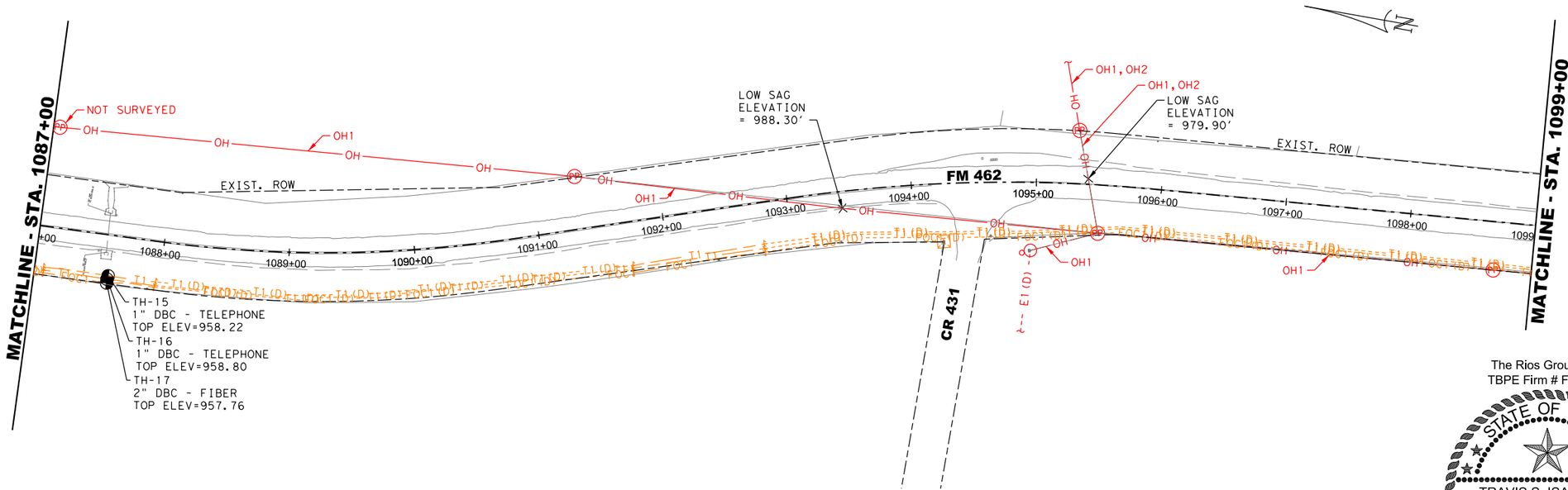
The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024





0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

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

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

COMMUNICATIONS — QL "B"
- AT&T (TELE) — T1 —
- AT&T (FO/DUCT) — FOC1 —

POTABLE WATER — QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY — QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE
- OH - 2 AT&T FO — OH —

LEGEND OF UTILITY SYMBOLS

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

REV	DATE	BY	DESCRIPTION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

STA. 1075+00 TO STA. 1099+00

DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	14 OF 15	01-30-2024
CSJ NUMBER	PLAN SHEET NO.	
0848-04-052	193	
STATE / DISTRICT	COUNTY	
TX / SAT	MEDINA	

Subsurface Utility Engineering (SUE) Certification

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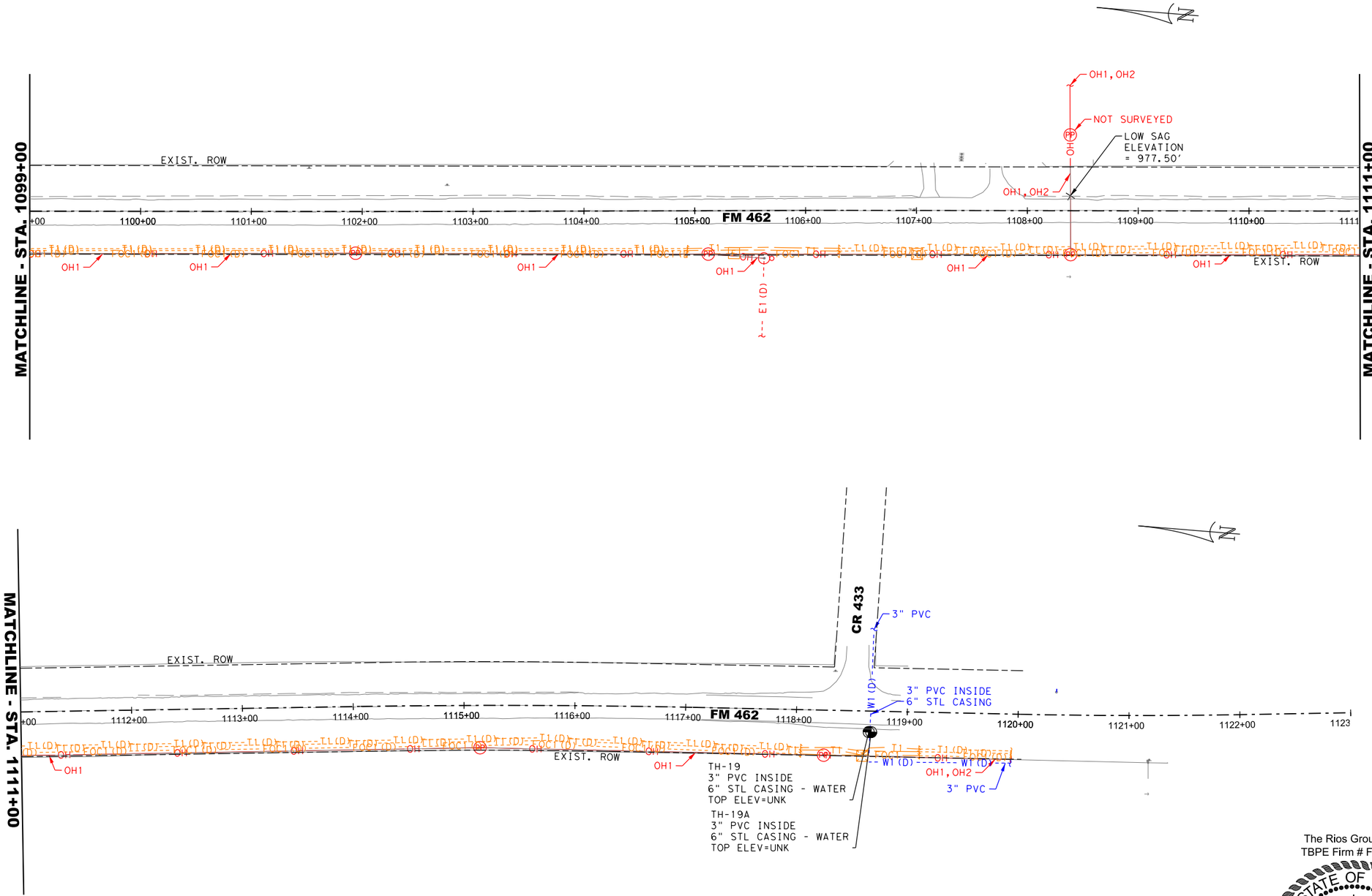
The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024



0 50 100 200

GRAPHIC SCALE IN FEET
SCALE 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS
- QUALITY LEVEL "B" — X# —
- QUALITY LEVEL "C" - - - X#(C) - - -
- QUALITY LEVEL "D" - - - X#(D) - - -
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- MEDINA ELECTRIC — E1 —

COMMUNICATIONS — QL "B"
- AT&T (TELE) — T1 —
- AT&T (FO/DUCT) — FOC1 —

POTABLE WATER — QL "B"
- WEST MEDINA WSC — W1 —

OVERHEAD UTILITY — QL "C"/QL "D"
- OH - 1 MEDINA ELECTRIC
- OH - 2 AT&T TELE
- OH - 2 AT&T FO

— OH —

LEGEND OF UTILITY SYMBOLS

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

REV	DATE	BY	DESCRIPTION

Subsurface Utility Engineering (SUE) Certification

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

01-30-2024

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

TEXAS DEPARTMENT OF TRANSPORTATION

FM 462
FM 433
to
S EMBANKMENT OF HONDO CREEK

S.U.E. PLAN SHEET

STA. 1099+00 TO END

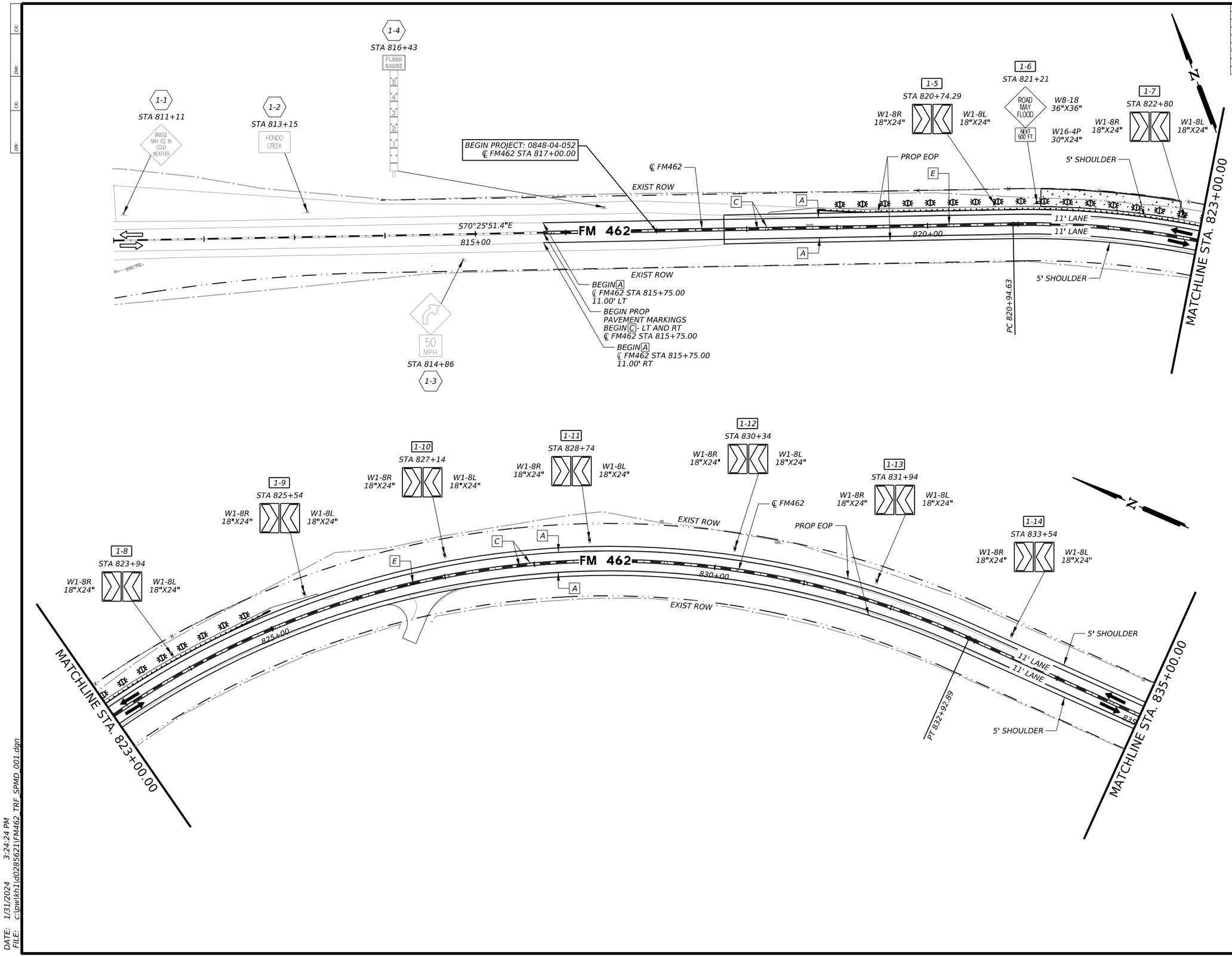
DESIGNED BY: SJ	CHECKED BY: TI	DATE: 01-30-2024
APPROVED BY:	CHECKED BY:	DATE:

TRG PROJECT NUMBER	SUE SHEET NO.	DATE
KHA_2320.01	15 OF 15	01-30-2024

CSJ NUMBER	PLAN SHEET NO.
0848-04-052	194

STATE	DISTRICT	COUNTY
TX	SAT	MEDINA

	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	10
	0644 6076	REMOVE SM RD SN SUP&AM	EA	1
	0658 6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	24
	0666 6225	PAVEMENT SEALER 6"	LF	7700
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	3850
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	3850
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	49
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	7700



LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
- PROP OBJECT MARKER

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 1 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		195

DATE: 1/31/2024 3:24:24 PM
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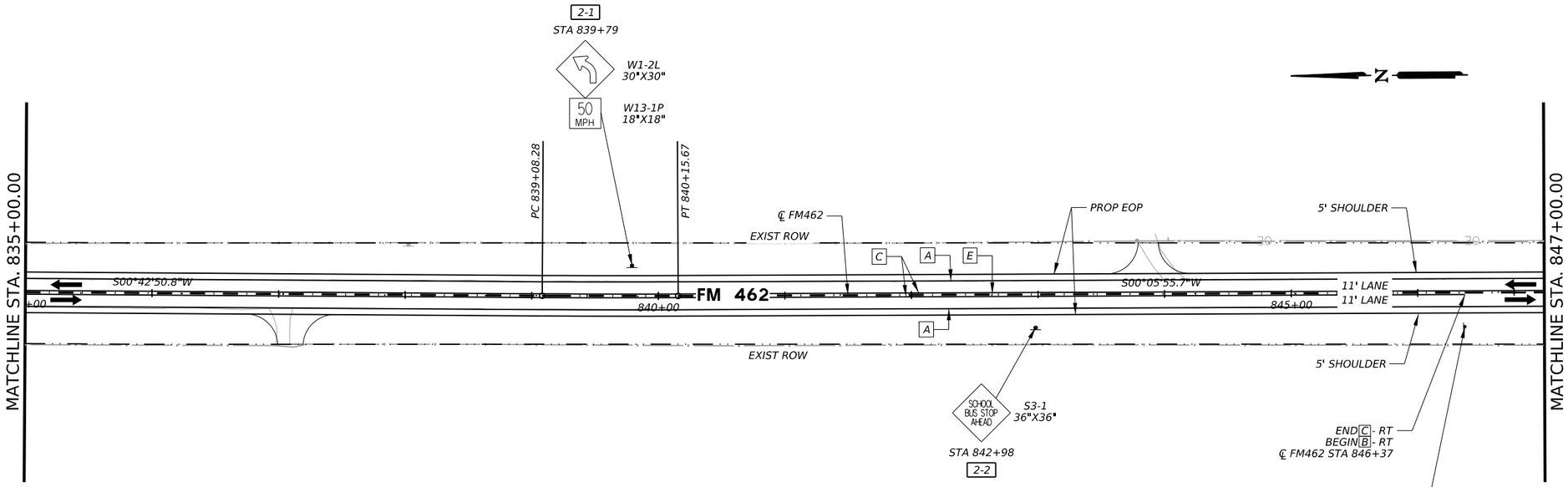
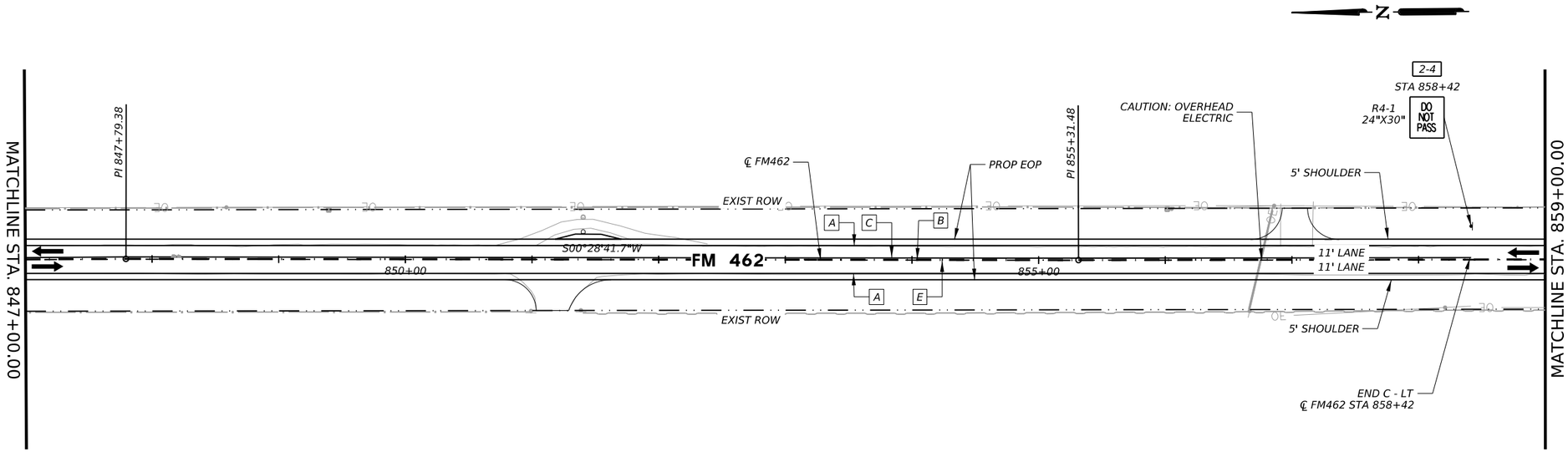
	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BW(1)SA(P)	EA	4
	0644 6076	REMOVE SM RD SN SUP&AM	EA	2
	0666 6225	PAVEMENT SEALER 6"	LF	8599
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4800
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	320
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	3472
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	8599





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
- PROP OBJECT MARKER

1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

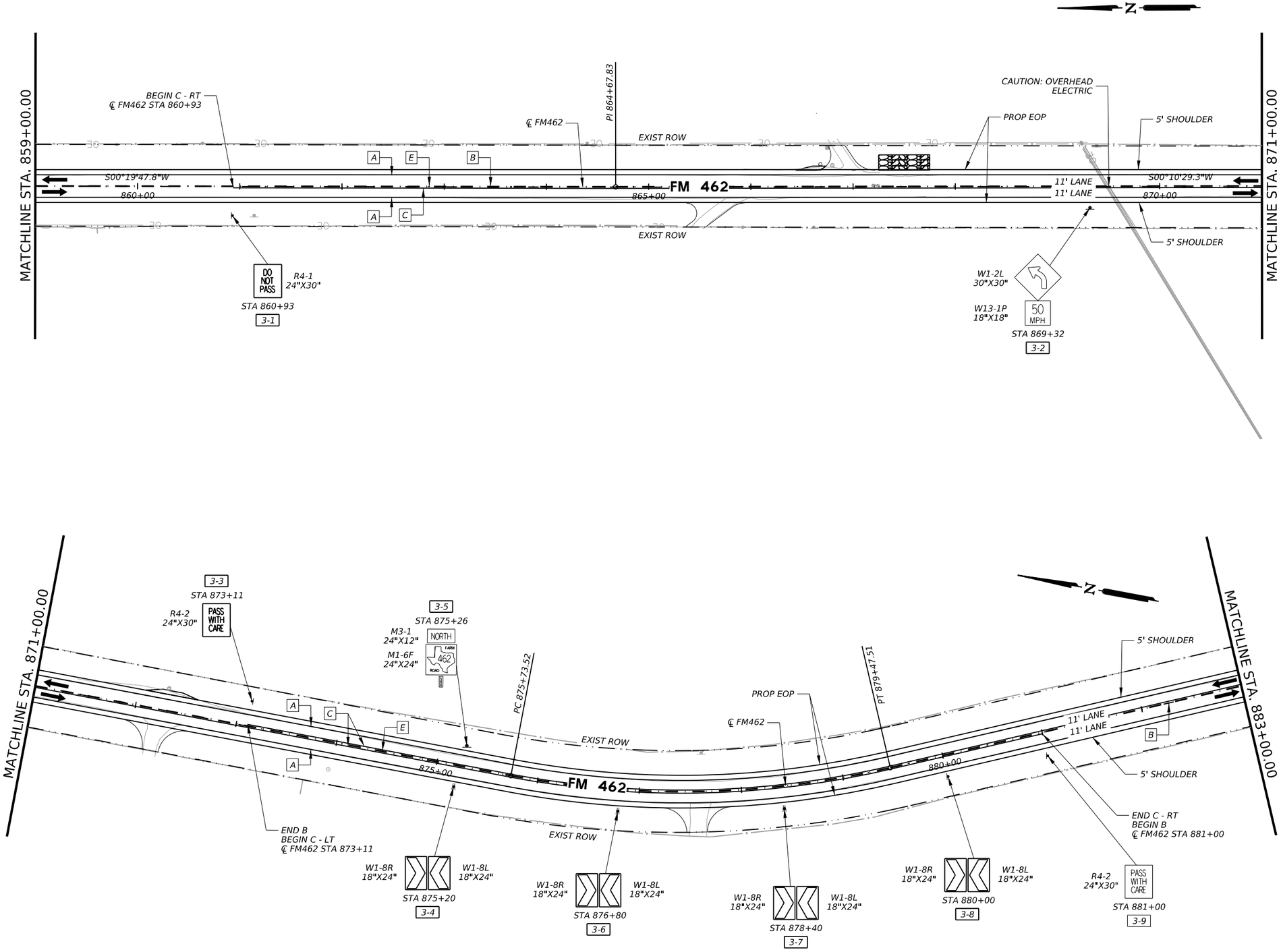
SIGN AND PAVEMENT MARKING LAYOUT

SHEET 2 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		196

DATE: 1/31/2024 3:24:54 PM
FILE: c:\pw\kh1\d0285621\FM462_TRF_SPMD_002.dgn

	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	9
	0644 6076	REMOVE SM RD SN SUP&AM	EA	2
	0666 6225	PAVEMENT SEALER 6"	LF	8206
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4800
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	410
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	2998
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	8206



LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
- PROP OBJECT MARKER

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 3 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		197

DATE: 1/31/2024 3:25:26 PM
FILE: c:\pw\kh1\d028562\t\FM462_TRF_SPMD_003.dgn

CK:
DW:
CK:
DW:

	ITEM	DESCRIPTION	UNIT	QTY
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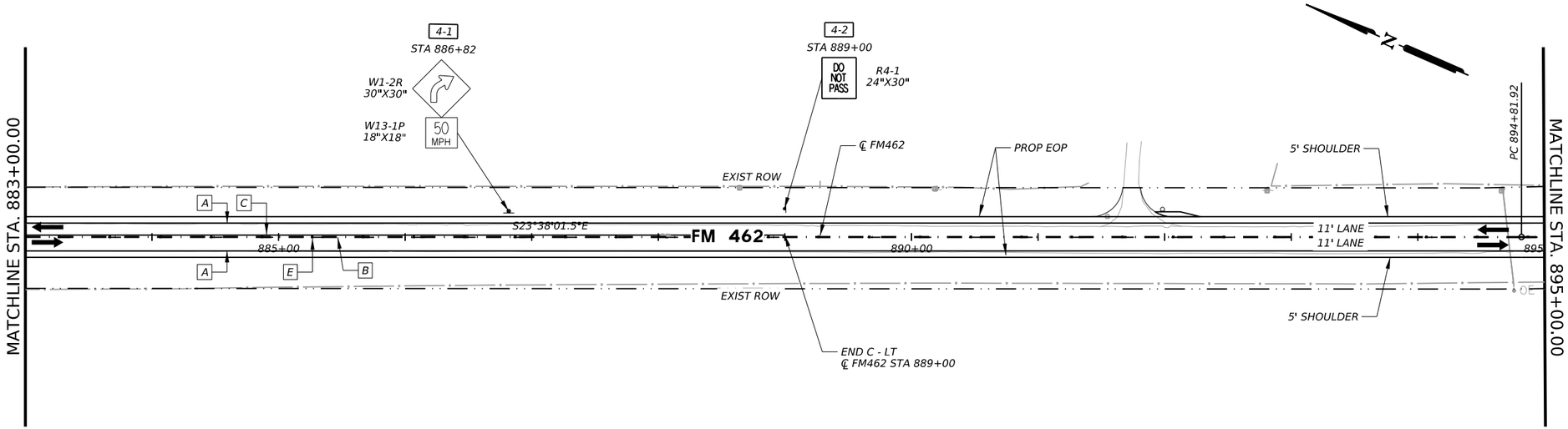
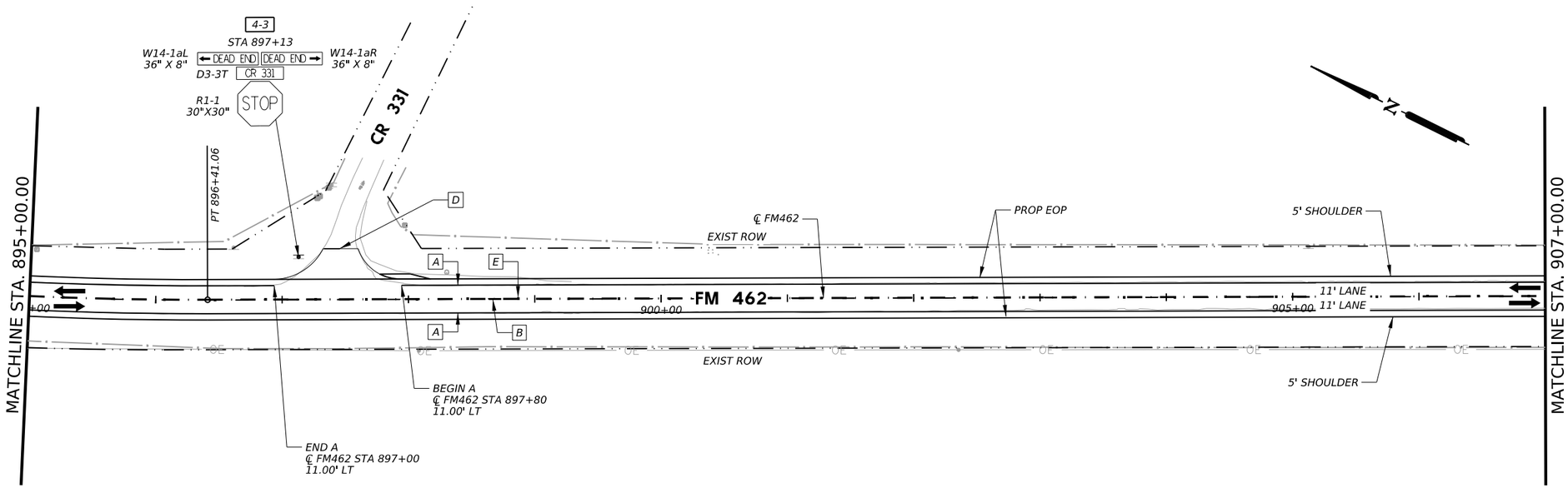
	0644 6076	REMOVE SM RD SN SUP&AM	EA	2
D	0666 6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	12
	0666 6225	PAVEMENT SEALER 6"	LF	5900
	0666 6230	PAVEMENT SEALER 24"	LF	12
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4700
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	600
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	600
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	5900
	0678 6008	PAV SURF PREP FOR MRK (24")	LF	12





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
- PROP OBJECT MARKER

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 4 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		198

DATE: 1/31/2024 3:25:55 PM
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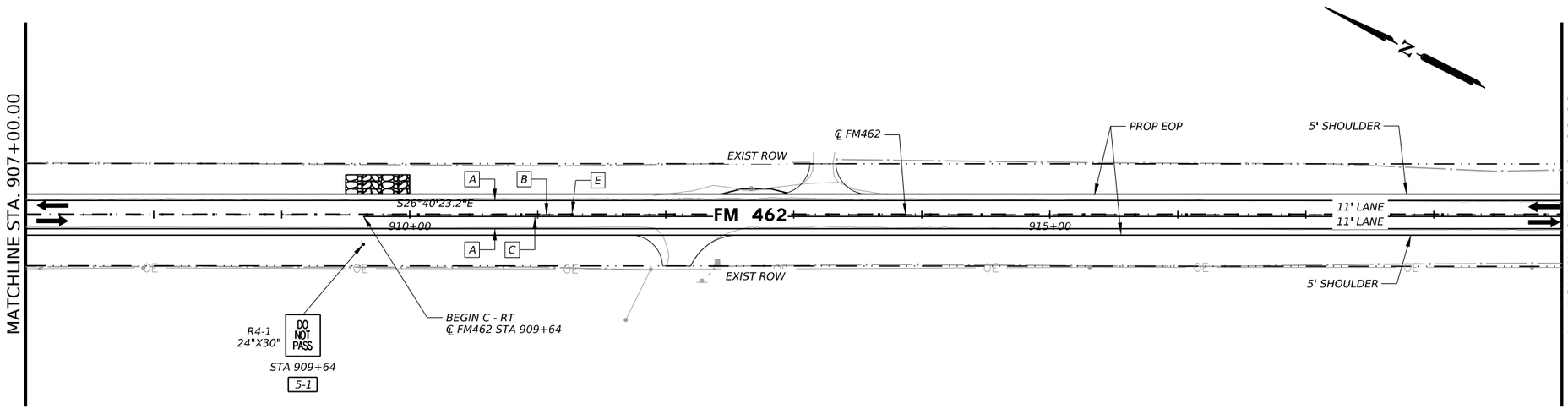
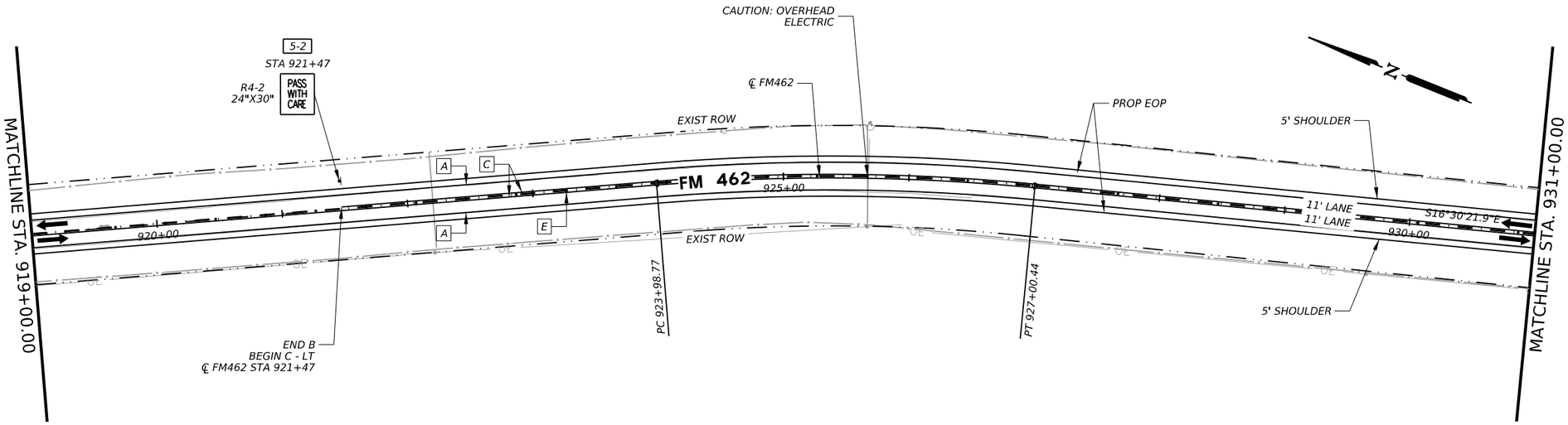
DW:
CK:
DW:

	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BW(1)SA(P)	EA	2
	0666 6225	PAVEMENT SEALER 6"	LF	8259
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4800
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	370
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	3089
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	8252





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
- PROP OBJECT MARKER

DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

1/31/2024

0' 50' 100'

Kimley»Horn
F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 5 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		199

DATE: 1/31/2024 3:26:23 PM
FILE: c:\pw\kh1\d0285621\FM462_TRF_SPMD_005.dgn

CK:
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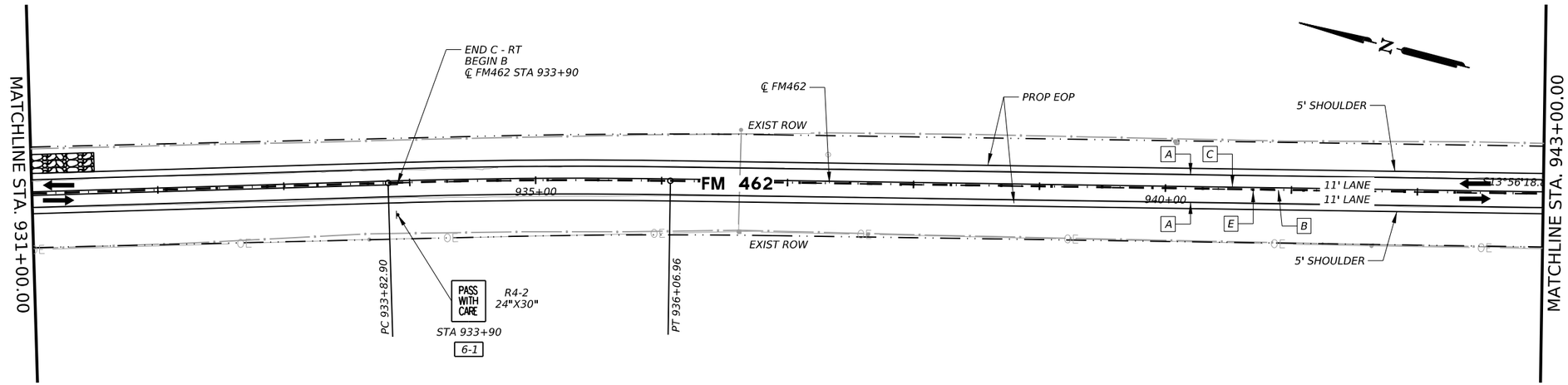
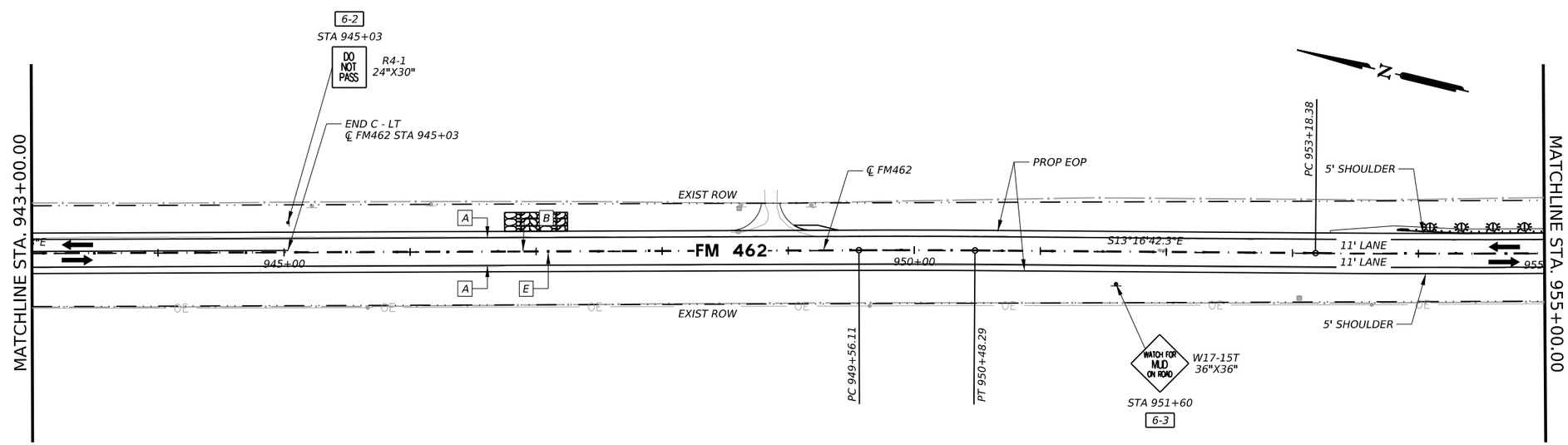
	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	3
	0644 6076	REMOVE SM RD SN SUP&AM	EA	1
	0658 6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	4
	0666 6225	PAVEMENT SEALER 6"	LF	7024
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4800
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	530
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	1694
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	7024





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
- PROP OBJECT MARKER

1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 6 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		200

DATE: 1/31/2024 3:26:52 PM
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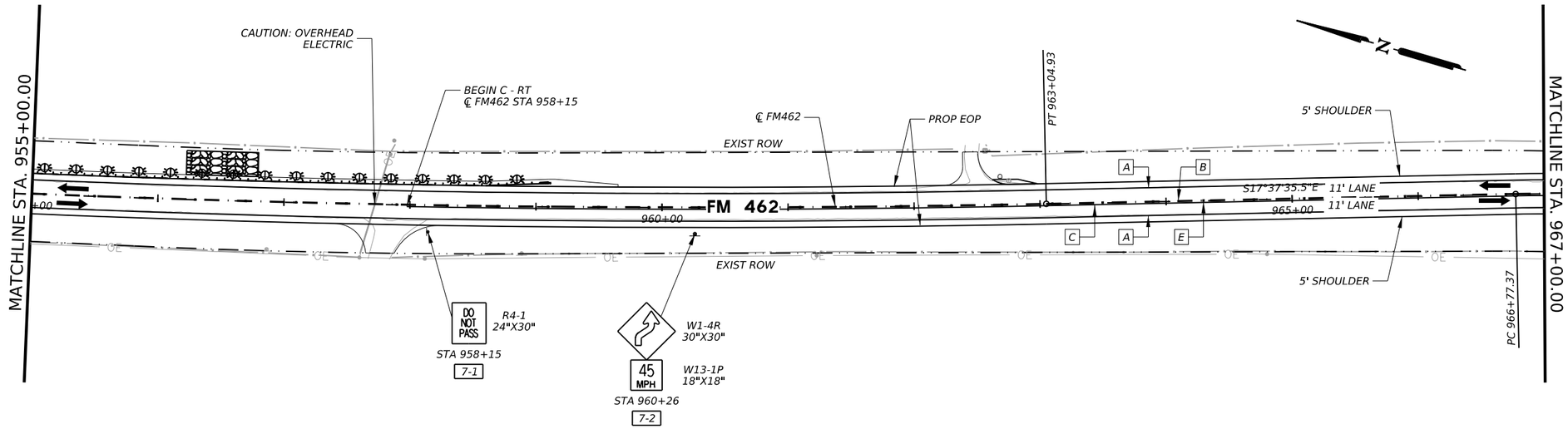
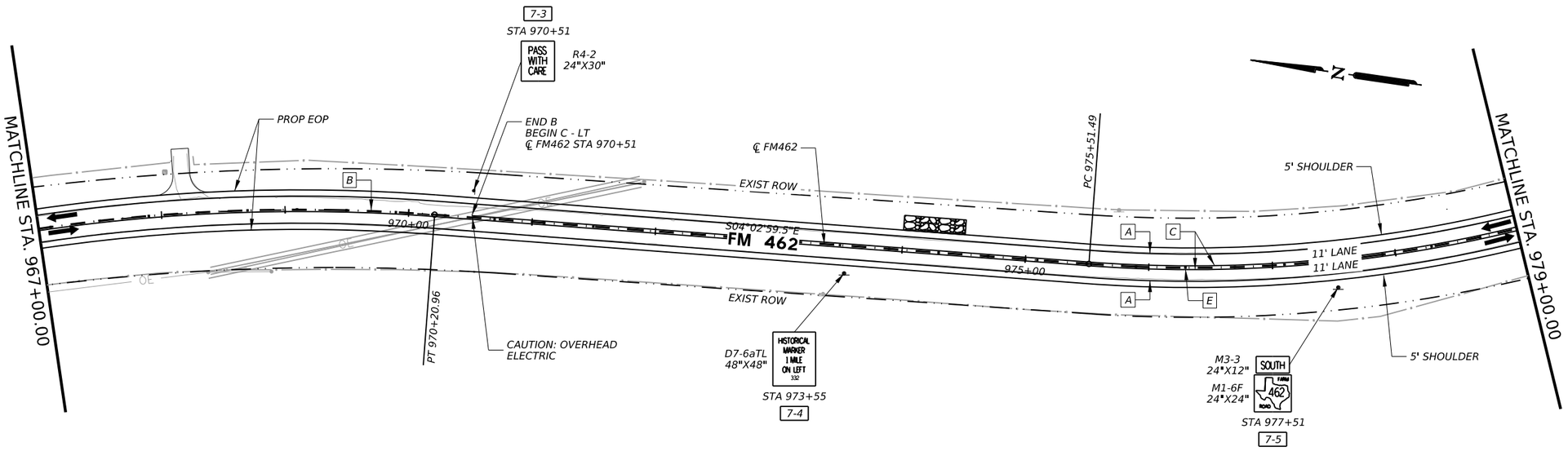
DW: CK: DW: CK:

	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BW(G(1)SA(P)	EA	4
	0644 6004	IN SM RD SN SUP&AM TY10BW(G(1)SA(T)	EA	1
	0644 6076	REMOVE SM RD SN SUP&AM	EA	3
	0658 6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	16
	0666 6225	PAVEMENT SEALER 6"	LF	8147
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4800
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	390
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	2957
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	8147





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
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1/31/2024

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Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

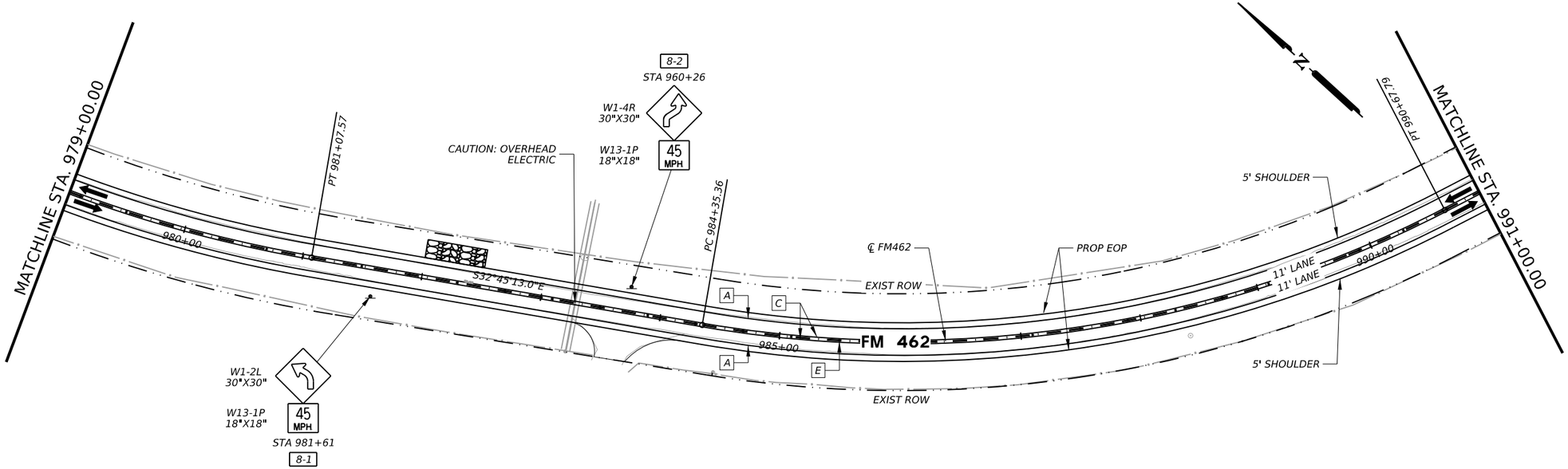
SHEET 7 OF 13

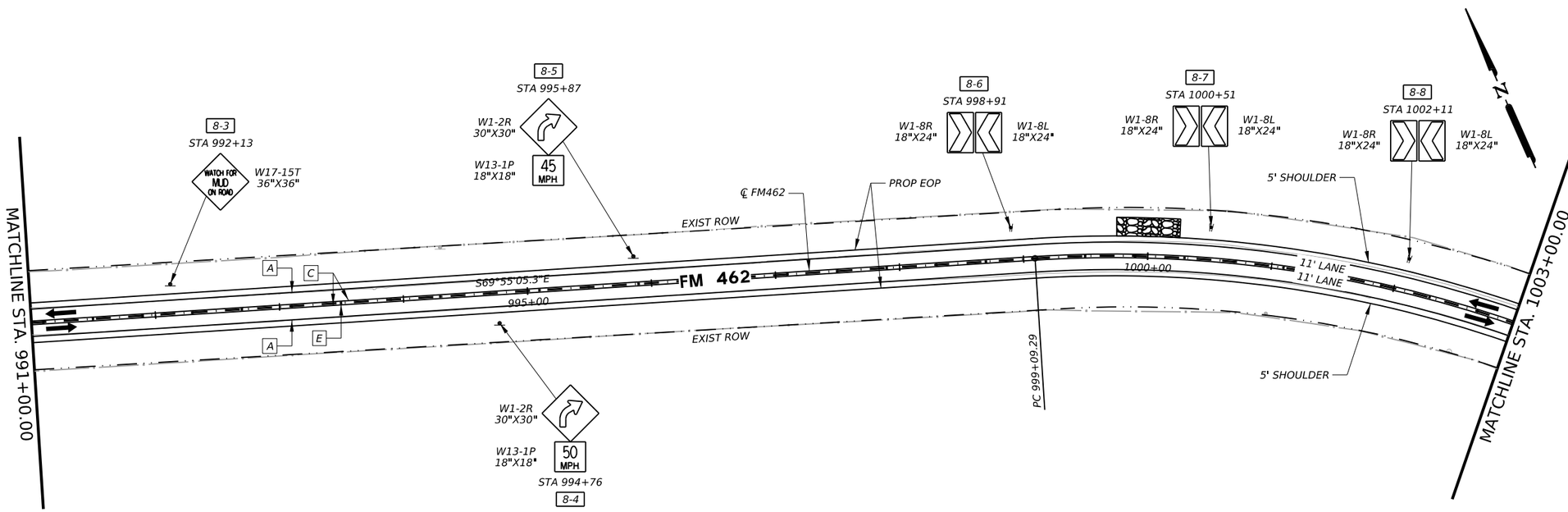
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		201

DATE: 1/31/2024 3:27:22 PM
FILE: c:\pw\kh1\d0285621\FM462_TRF_SPMD_007.dgn

DW: CK: DW: CK:

	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BW(G(1)SA(P)	EA	8
	0644 6076	REMOVE SM RD SN SUP&AM	EA	5
	0666 6225	PAVEMENT SEALER 6"	LF	9600
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4800
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	4800
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	9600





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
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1/31/2024

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Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 8 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		202

DATE: 1/31/2024 3:28:16 PM
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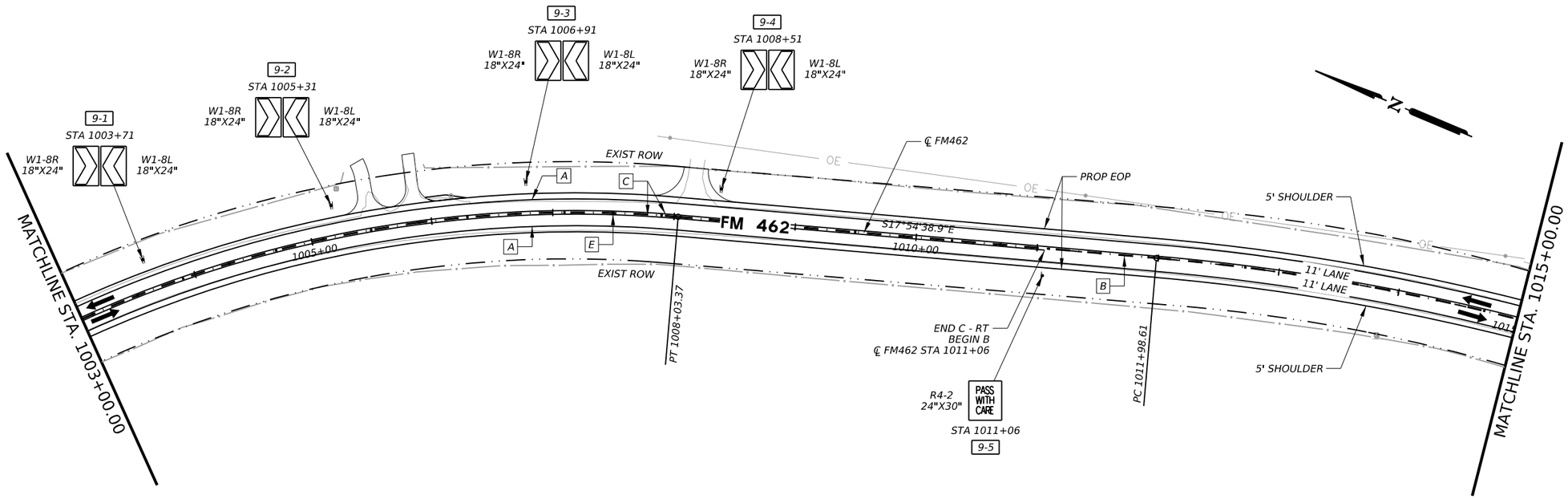
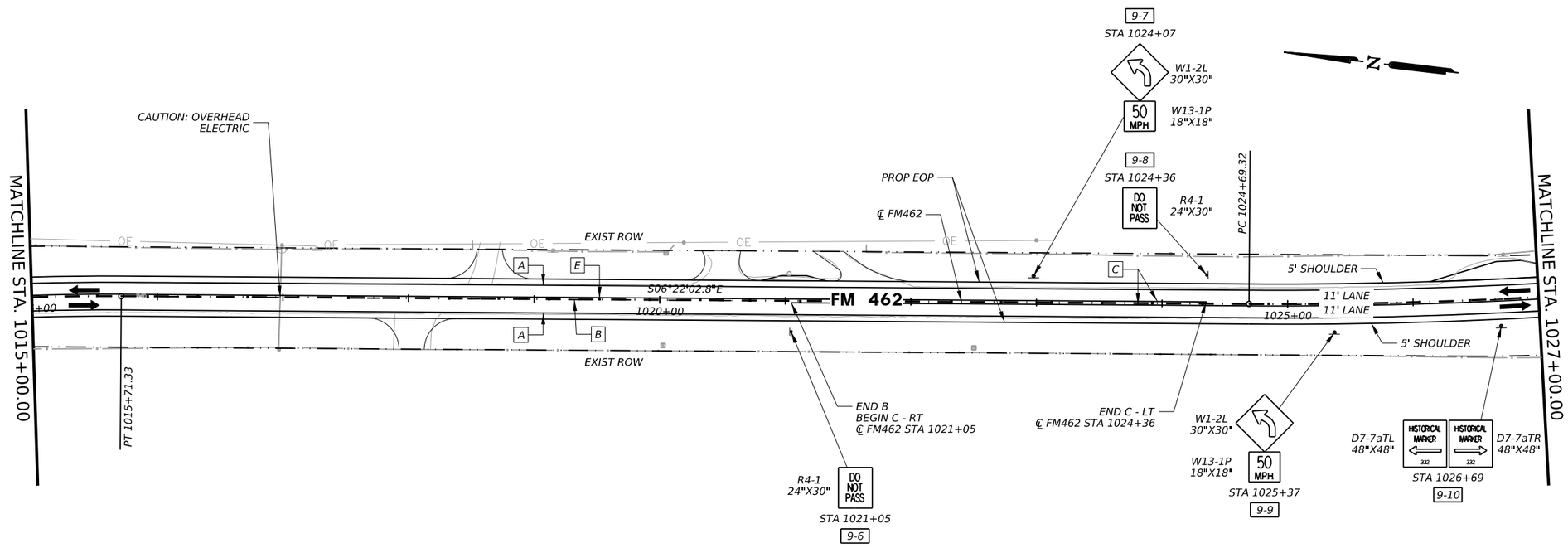
	0644 6004	IN SM RD SN SUP&AM TY10BW(G(1)SA(T)	EA	1
	0644 6076	REMOVE SM RD SN SUP&AM	EA	3
	0666 6225	PAVEMENT SEALER 6"	LF	8648
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4800
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	310
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	3538
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	8648





LEGEND

- EXIST FENCE
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- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
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1/31/2024

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Kimley»Horn F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 9 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		203

DATE: 1/31/2024 3:28:44 PM
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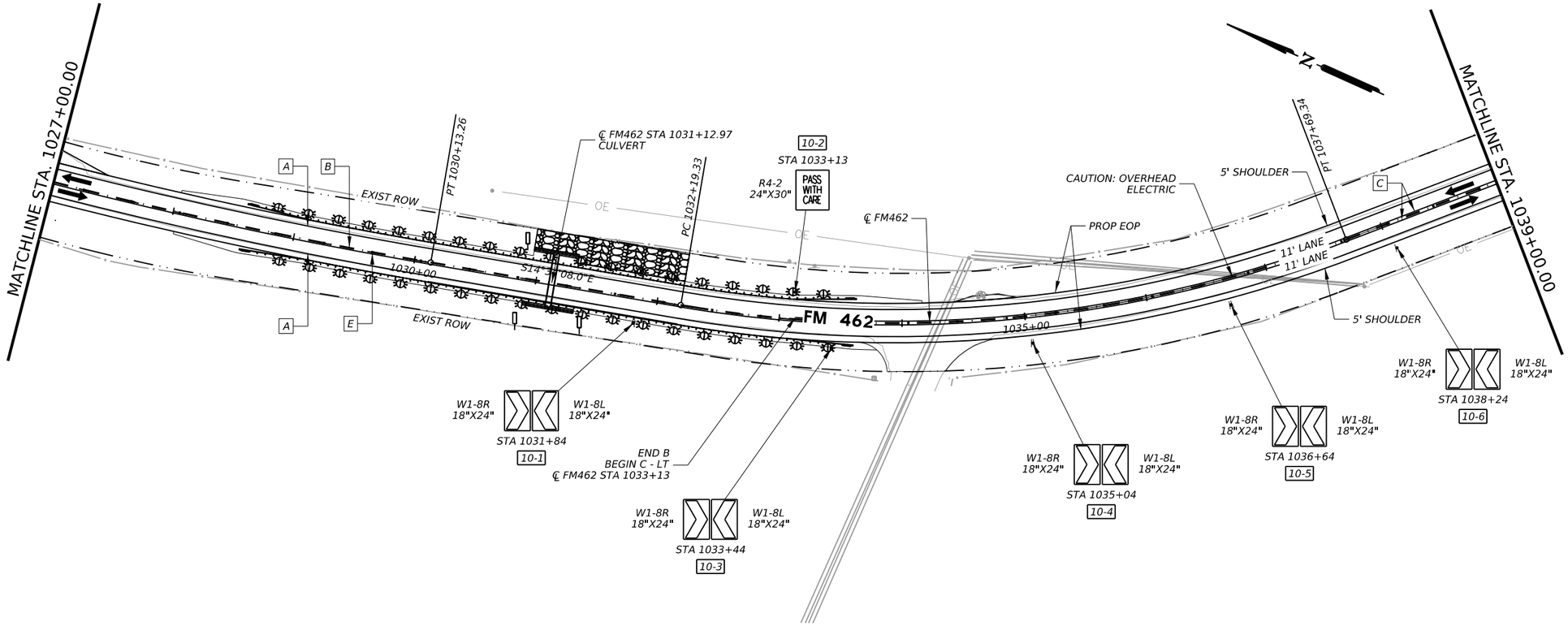
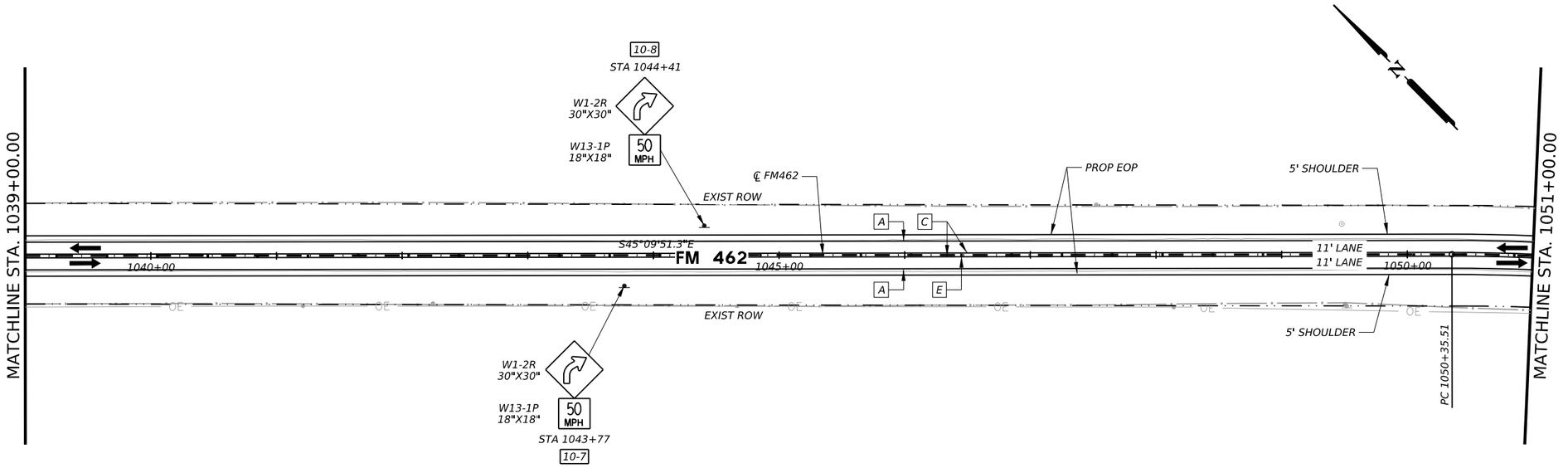
	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	8
	0644 6076	REMOVE SM RD SN SUP&AM	EA	2
	0658 6046	INSTL OM ASSM (OM-2X)(WC)GND	EA	3
	0658 6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	38
	0666 6225	PAVEMENT SEALER 6"	LF	9148
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4800
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	160
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	4188
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	9148





LEGEND

- EXIST FENCE
- EXIST FEATURES
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- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
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1/31/2024

STATE OF TEXAS
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Kimley»Horn F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 10 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		204

DATE: 1/31/2024 3:29:13 PM
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CK:
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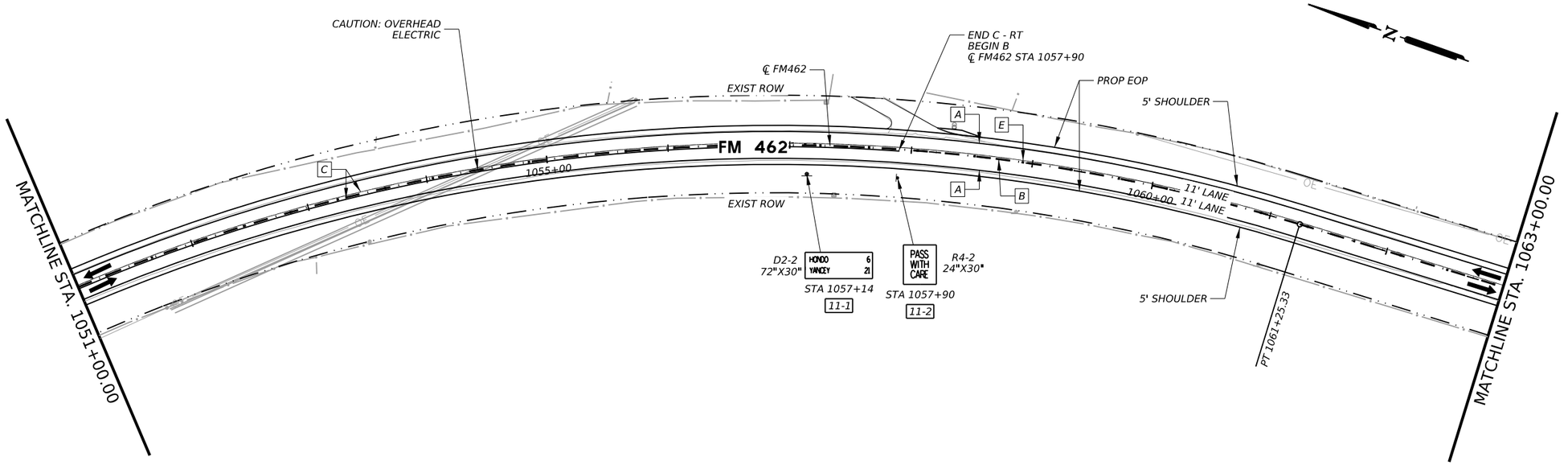
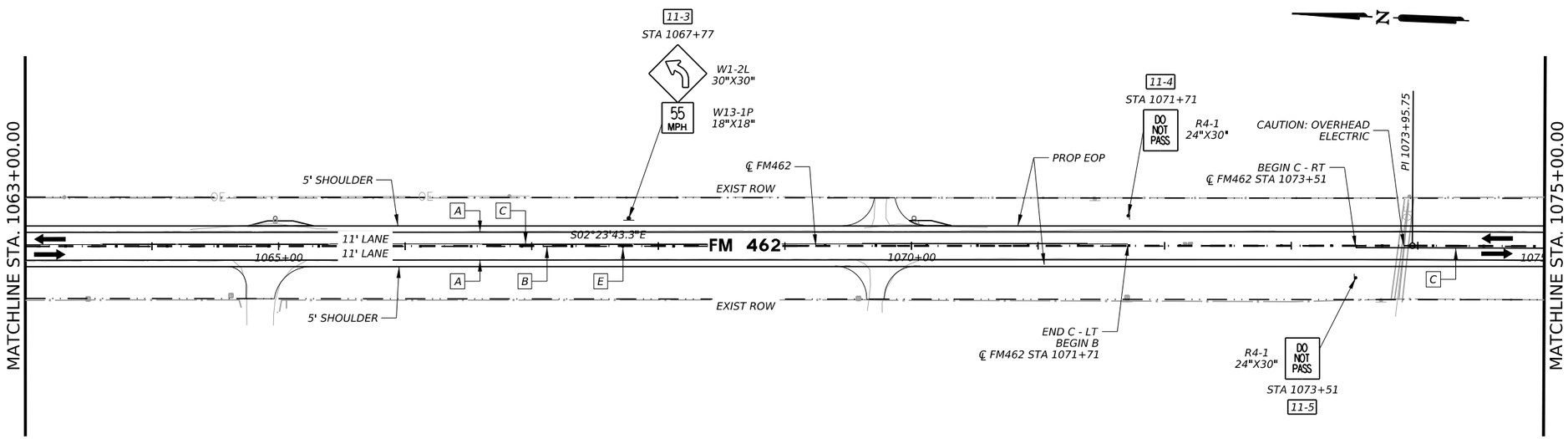
	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BW(G(1)SA(P)	EA	4
	0644 6004	IN SM RD SN SUP&AM TY10BW(G(1)SA(T)	EA	1
	0644 6076	REMOVE SM RD SN SUP&AM	EA	2
	0666 6225	PAVEMENT SEALER 6"	LF	8147
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4800
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	430
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	2917
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	8147





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
- PROP OBJECT MARKER

1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 11 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		205

DATE: 1/31/2024 3:29:51 PM
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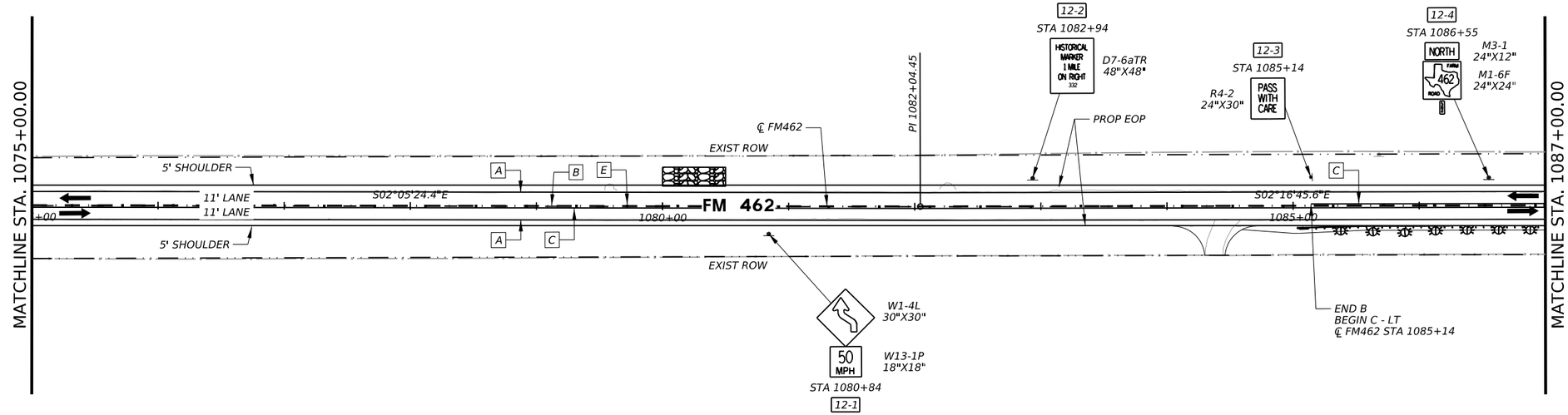
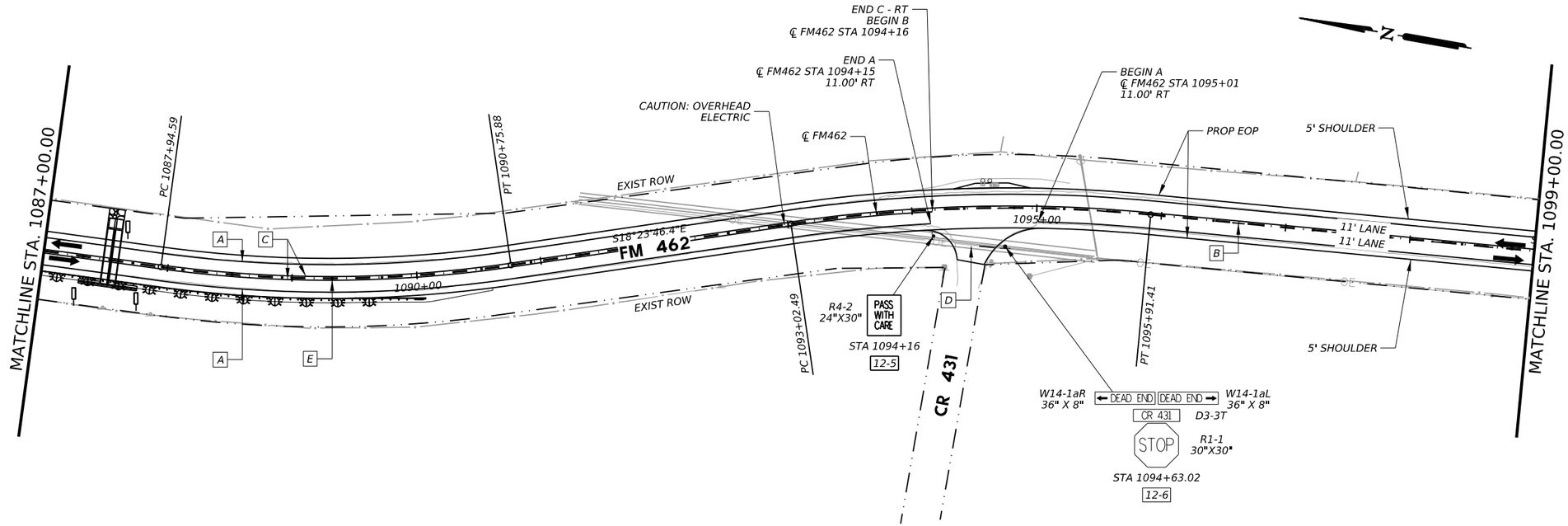
	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BW(G(1)SA(P)	EA	5
	0644 6004	IN SM RD SN SUP&AM TY10BW(G(1)SA(T)	EA	1
	0644 6076	REMOVE SM RD SN SUP&AM	EA	4
	0658 6046	INSTL OM ASSM (OM-2X)(WC)GND	EA	3
	0658 6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	18
D	0666 6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	12
	0666 6225	PAVEMENT SEALER 6"	LF	8388
	0666 6230	PAVEMENT SEALER 24"	LF	12
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4715
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	370
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	3303
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	60
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	8388
	0678 6008	PAV SURF PREP FOR MRK (24")	LF	12





LEGEND

- EXIST FENCE
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- PROP SIGN
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STATE OF TEXAS

1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 12 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		206

DATE: 1/31/2024 3:30:28 PM
FILE: c:\pw\kh1\d0285621\FM462_TRF_SPMD_012.dgn

CK:
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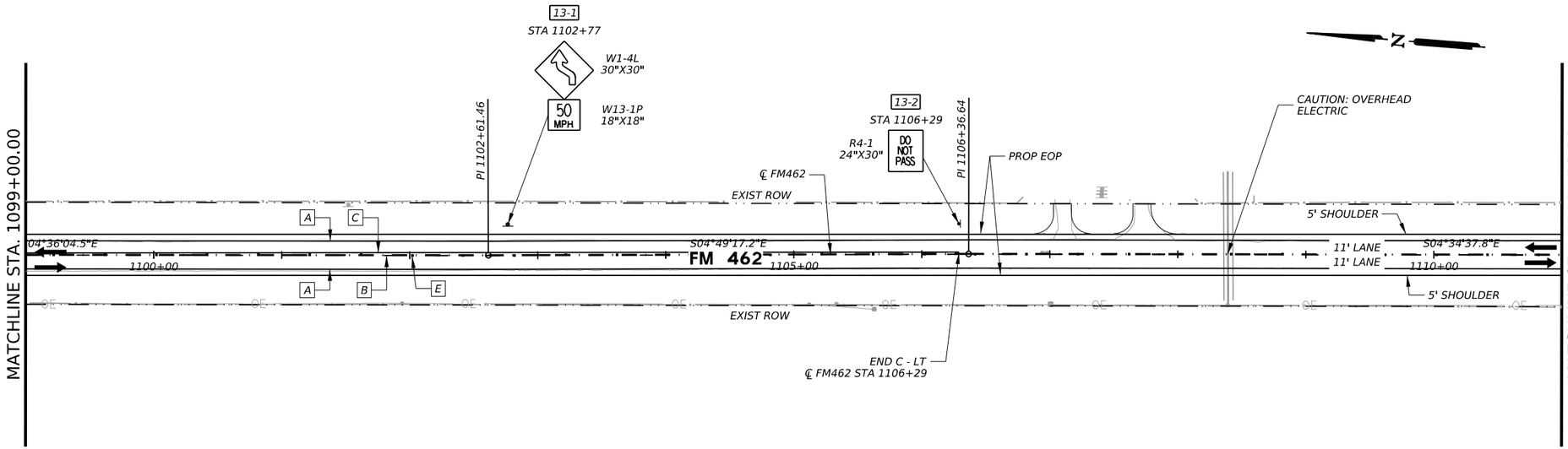
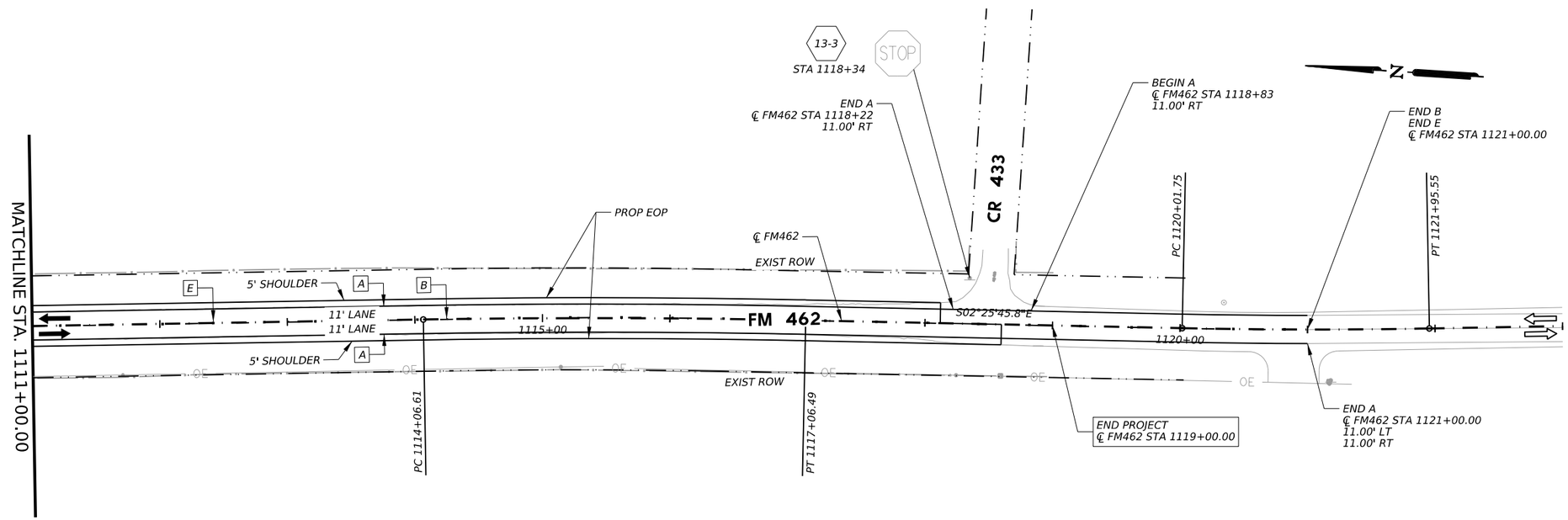
	ITEM	DESCRIPTION	UNIT	QTY
	0644 6001	IN SM RD SN SUP&AM TY10BW(1)SA(P)	EA	2
	0644 6076	REMOVE SM RD SN SUP&AM	EA	1
	0666 6225	PAVEMENT SEALER 6"	LF	5680
A	0666 6343	REFL PROF PAV MRK TY I (W) 6"(SLD)(100MIL)	LF	4400
B	0666 6346	REFL PROF PAV MRK TY I (Y) 6"(BRK)(100MIL)	LF	550
C	0666 6347	REFL PROF PAV MRK TY I (Y) 6"(SLD)(100MIL)	LF	730
E	0672 6009	REFL PAV MRKR TY II-A-A	EA	55
	0678 6002	PAV SURF PREP FOR MRK (6")	LF	5680





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- DIRECTION OF TRAVEL
- PROP SIGN
- #-# PROP SIGN
- #-# EXIST SIGN TO REMAIN
- PROP DELINEATOR
- PROP OBJECT MARKER

1/31/2024

STATE OF TEXAS · DAVID H. GUTIERREZ · 143301 · LICENSED PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SIGN AND PAVEMENT MARKING LAYOUT

SHEET 13 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		207

DATE: 1/31/2024 3:31:01 PM
FILE: c:\pw\kh1\d0285621\FM462_TRF_SPMD_013.dgn

CK:
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CK:
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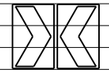
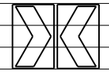
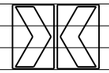
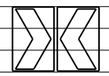
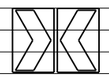
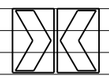
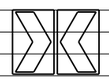
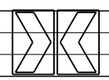
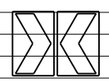
SUMMARY OF SMALL SIGNS

SMA RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN DESIGNATION	SIGN CONTENT	SIGN DIMENSIONS (See above Note)	ALUMINUM TYPE A	ALUMINUM TYPE G	Post Type: FRP = Fiberglass, TWT = Thin-wall, 10BWG = 10 BWG, S80 = Sched 80	Posts (1 or 2)	Anchor Type: UA = Univer-Conc, UB = Univer-Bolt, SA = Slip-Conc, SB = Slip-Bolt, WS = Wedge Steel, WP = Wedge Plstic	Mounting Designation: P = Prefb. "Plain", T = Prefab. "T", U = Prefab. "U"	1EXT or 2EXT = # of Ext., BM = Extruded Beam, WC = 1.12 #/ft Wing Chan., EXAL = Extruded Alum. Signs	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2): TY N = Type N, TY S = Type S
1	5	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
1	6	W8-18		36 x 36			10BWG	1	SA	P		
		W16-4P		30 x 24								
1	7	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
1	8	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
1	9	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
1	10	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
1	11	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
1	12	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
1	13	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
1	14	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								

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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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.
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Texas Department of Transportation — Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS — SHEET 1 OF 8

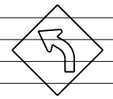
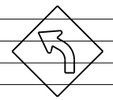
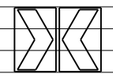
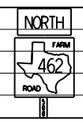
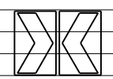
FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0848	04	052	FM 462
4-16		DIST	COUNTY		SHEET NO.
8-16		SAT	MEDINA		208

18

DATE: 1/31/2024 3:31:38 PM
FILE: c:\pw\khi\d028599\FM462_TEXT_SOSS.dgn

SUMMARY OF SMALL SIGNS

SMA RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN DESIGNATION	SIGN CONTENT	SIGN DIMENSIONS (See above Note)	ALUMINUM TYPE A	ALUMINUM TYPE G	Post Type: FRP = Fiberglass, TWT = Thin-wall, 10BWG = 10 BWG, S80 = Sched 80	Posts (1 or 2)	Anchor Type: UA = Univer-Conc, UB = Univer-Bolt, SA = Slip-Conc, SB = Slip-Bolt, WS = Wedge Steel, WP = Wedge Plstic	Mounting Designation: P = Prefb. "Plain", T = Prefab. "T", U = Prefab. "U"	Mounting Designation: 1EXT or 2EXT = # of Ext., BM = Extruded Beam, WC = 1.12 #/ft Wing Chan., EXAL = Extruded Alum. Signs	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2): TY N = Type N, TY S = Type S
2	1	W1-2L		30 x 30			10BWG	1	SA	P		
		W13-1P		18 x 18								
2	2	S3-1		36 x 36			10BWG	1	SA	P		
2	3	R4-2		24 x 30			10BWG	1	SA	P		
2	4	R4-1		24 x 30			10BWG	1	SA	P		
3	1	R4-1		24 x 30			10BWG	1	SA	P		
3	2	W1-2L		30 x 30			10BWG	1	SA	P		
		W13-1P		18 x 18								
3	3	R4-2		24 x 30			10BWG	1	SA	P		
3	4	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
3	5	M3-1		24 x 12			10BWG	1	SA	P		
		M1-6F		24 x 24								
3	6	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								

ALUMINUM SIGN BLANKS THICKNESS	
SQUARE FEET	Minimum Thickness
Less than 7.5	0.080"
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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.
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Texas Department of Transportation — Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS — SHEET 2 OF 8

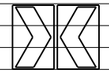
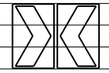
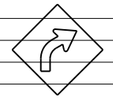
FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
4-16	DIST	COUNTY		SHEET NO.
8-16	SAT	MEDINA		209

TB

SUMMARY OF SMALL SIGNS

SMA RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

- Post Type: FRP = Fiberglass; TWT = Thin-wall 10BWG = 10 BWG; S80 = Sched 80
- Posts (1 or 2)
- Anchor Type: UA = Univer-Conc; UB = Univer-Bolt; SA = Slip-Conc; SB = Slip-Bolt; WS = Wedge Steel; WP = Wedge Plstic
- Mounting Designation: P = Prefb. "Plain"; T = Prefab. "T"; U = Prefab. "U"
- 1EXT or 2EXT = # of Ext.; BM = Extruded Beam; WC = 1.12 #/ft Wing Chan.; EXAL = Extruded Alum. Signs
- BRIDGE MOUNT CLEARANCE SIGNS (See Note 2): TY N = Type N; TY S = Type S

PLAN SHEET NO.	SIGN NO.	SIGN DESIGNATION	SIGN CONTENT	SIGN DIMENSIONS (See above Note)	ALUMINUM TYPE A	ALUMINUM TYPE G	Post Type	Posts (1 or 2)	Anchor Type	Mounting Designation		BRIDGE MOUNT CLEARANCE SIGNS (See Note 2)
3	7	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
3	8	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
3	9	R4-2		24 x 30			10BWG	1	SA	P		
4	1	W1-2R		30 x 30			10BWG	1	SA	P		
		W13-1P		18 x 18								
4	2	R4-1		24 x 30			10BWG	1	SA	P		
		W14-1aL		36 x 8								
			← DEAD END | DEAD END →									
		W14-1aR		36 x 8								
4	3						10BWG	1	SA	P		
		D3-3T	CR 331	30 x 8								
		R1-1		30 x 30								
5	1	R4-1		24 x 30			10BWG	1	SA	P		
5	2	R4-2		24 x 30			10BWG	1	SA	P		
6	1	R4-2		24 x 30			10BWG	1	SA	P		
6	2	R4-1		24 x 30			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"

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NOTE:

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Texas Department of Transportation — Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS — SHEET 3 OF 8

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0848	04	052	FM 462
4-16		DIST	COUNTY		SHEET NO.
8-16		SAT	MEDINA		210

T8

DATE: 1/31/2024 3:31:38 PM
FILE: c:\pw\kh1\d028559\FM462_TEXT_SOSS.dgn

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN DESIGNATION	SIGN CONTENT	SIGN DIMENSIONS (See above Note)	ALUMINUM TYPE A	ALUMINUM TYPE G	SMA RD SGN ASSM TY XXXXX (X) XX (X-XXXX) Post Type: FRP = Fiberglass, TWT = Thin-wall, 10BWG = 10 BWG, S80 = Sched 80	Posts (1 or 2)	Anchor Type: UA = Univer-Conc, UB = Univer-Bolt, SA = Slip-Conc, SB = Slip-Bolt, WS = Wedge Steel, WP = Wedge Plstic	Mounting Designation: P = Prefab. "Plain", T = Prefab. "T", U = Prefab. "U"	1EXT or 2EXT = # of Ext. BM = Extruded Beam, WC = 1.12 #/ft Wing Chan., EXAL = Extruded Alum. Signs	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2): TY N = Type N, TY S = Type S
6	3	W17-15T	WATCH FOR MUD ON ROAD	36 x 36			10BWG	1	SA	P		
7	1	R4-1	DO NOT PASS	24 x 30			10BWG	1	SA	P		
7	2	W1-4R		30 x 30			10BWG	1	SA	P		
		W13-1P	45 MPH	18 x 18								
7	3	R4-2	PASS WITH CARE	24 x 30			10BWG	1	SA	P		
7	4	D7-6aTL	HISTORICAL MARKER 1 MILE ON LEFT 332	48 x 48			10BWG	1	SA	T		
7	5	M3-3	SOUTH	24 x 12			10BWG	1	SA	P		
		M1-6F	FARM 462 ROAD	24 x 24								
8	1	W1-2L		30 x 30			10BWG	1	SA	P		
		W13-1P	45 MPH	18 x 18								
8	2	W1-4R		30 x 30			10BWG	1	SA	P		
		W13-1P	45 MPH	18 x 18								
8	3	W17-15T	WATCH FOR MUD ON ROAD	36 x 36			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"

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Texas Department of Transportation — Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS — SHEET 4 OF 8

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
4-16	DIST	COUNTY		SHEET NO.
8-16	SAT	MEDINA		211

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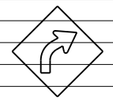
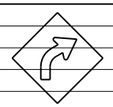
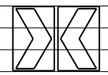
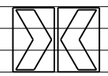
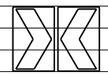
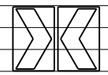
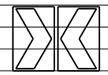
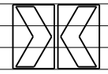
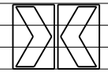
SUMMARY OF SMALL SIGNS

SMA RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN DESIGNATION	SIGN CONTENT	SIGN DIMENSIONS (See above Note)	ALUMINUM TYPE A	ALUMINUM TYPE G	Post Type: FRP = Fiberglass, TWT = Thin-wall, 10BWG = 10 BWG, S80 = Sched 80	Posts (1 or 2)	Anchor Type: UA = Univer-Conc, UB = Univer-Bolt, SA = Slip-Conc, SB = Slip-Bolt, WS = Wedge Steel, WP = Wedge Plstic	Mounting Designation: P = Prefab. "Plain", T = Prefab. "T", U = Prefab. "U"	Mounting Designation: 1EXT or 2EXT = # of Ext., BM = Extruded Beam, WC = 1.12 #/ft Wing Chan., EXAL = Extruded Alum. Signs	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2): TY N = Type N, TY S = Type S
8	4	W1-2R		30 x 30			10BWG	1	SA	P		
		W13-1P		18 x 18								
8	5	W1-2R		30 x 30			10BWG	1	SA	P		
		W13-1P		18 x 18								
8	6	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
8	7	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
8	8	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
9	1	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
9	2	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
9	3	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
9	4	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
9	5	R4-2		24 x 30			10BWG	1	SA	P		

ALUMINUM SIGN BLANKS THICKNESS	
SQUARE FEET	Minimum Thickness
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7.5 to 15	0.100"
Greater than 15	0.125"

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Texas Department of Transportation — Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS — SHEET 5 OF 8

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0848	04	052	FM 462
4-16		DIST	COUNTY		SHEET NO.
8-16		SAT	MEDINA		212

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DATE: 1/31/2024 3:31:39 PM
FILE: c:\pw\kfi\d028599\FM462_TEXT_SOSS.dgn

SUMMARY OF SMALL SIGNS

SMA RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

- Post Type: FRP = Fiberglass; TWT = Thin-wall; 10BWG = 10 BWG; S80 = Sched 80
- Posts (1 or 2)
- Anchor Type: UA = Univer-Conc; UB = Univer-Bolt; SA = Slip-Conc; SB = Slip-Bolt; WS = Wedge Steel; WP = Wedge Plstic
- Mounting Designation: P = Prefb. "Plain"; T = Prefab. "T"; U = Prefab. "U"
- 1EXT or 2EXT = # of Ext. BM = Extruded Beam; WC = 1.12 #/ft Wing Chan.; EXAL = Extruded Alum. Signs

PLAN SHEET NO.	SIGN NO.	SIGN DESIGNATION	SIGN CONTENT	SIGN DIMENSIONS (See above Note)	ALUMINUM TYPE A	ALUMINUM TYPE G	Post Type	Posts (1 or 2)	Anchor Type	Mounting Designation		BRIDGE MOUNT CLEARANCE SIGNS (See Note 2)
												TY N = Type N; TY S = Type S
9	6	R4-1	DO NOT PASS	24 x 30			10BWG	1	SA	P		
9	7	W1-2L		30 x 30			10BWG	1	SA	P		
		W13-1P	50 MPH	18 x 18								
9	8	R4-1	DO NOT PASS	24 x 30			10BWG	1	SA	P		
9	9	W1-2L		30 x 30			10BWG	1	SA	P		
		W13-1P	50 MPH	18 x 18								
9	10	D7-7aTL	HISTORICAL MARKER 332	48 x 48			10BWG	1	SA	T		
		D7-7aTR	HISTORICAL MARKER 332									
10	1	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
10	2	R4-2	PASS WITH CARE	24 x 30			10BWG	1	SA	P		
10	3	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
10	4	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
10	5	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								

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).

DATE: 1/31/2024 3:31:39 PM
FILE: c:\pw\kfh\d028559\FM462_TEXT_SOSS.dgn

Texas Department of Transportation — Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS — SHEET 6 OF 8

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0848	04	052	FM 462
4-16		DIST	COUNTY		SHEET NO.
8-16		SAT	MEDINA		213

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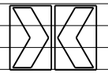
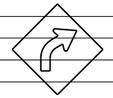
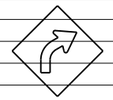
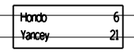
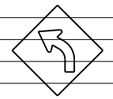
SUMMARY OF SMALL SIGNS

SMA RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN DESIGNATION	SIGN CONTENT	SIGN DIMENSIONS (See above Note)	ALUMINUM TYPE A	ALUMINUM TYPE G	Post Type: FRP = Fiberglass, TWT = Thin-wall, 10BWG = 10 BWG, S80 = Sched 80	Posts (1 or 2)	Anchor Type: UA = Univer-Conc, UB = Univer-Bolt, SA = Slip-Conc, SB = Slip-Bolt, WS = Wedge Steel, WP = Wedge Plstic	Mounting Designation: P = Prefb. "Plain", T = Prefab. "T", U = Prefab. "U"	1EXT or 2EXT = # of Ext. BM = Extruded Beam, WC = 1.12 #/ft Wing Chan., EXAL = Extruded Alum. Signs	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2): TY N = Type N, TY S = Type S
10	6	W1-8R		18 x 24			10BWG	1	SA	P		
		W1-8L		18 x 24								
10	7	W1-2R		30 x 30			10BWG	1	SA	P		
		W13-1P		18 x 18								
10	8	W1-2R		30 x 30			10BWG	1	SA	P		
		W13-1P		18 x 18								
11	1	D2-2		72 x 30			10BWG	1	SA	T		
11	2	R4-2		24 x 30			10BWG	1	SA	P		
11	3	W1-2L		30 x 30			10BWG	1	SA	P		
		W13-1P		18 x 18								
11	4	R4-1		24 x 30			10BWG	1	SA	P		
11	5	R4-1		24 x 30			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 — SHEET 7 OF 8

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
4-16	DIST	COUNTY		SHEET NO.
8-16	SAT	MEDINA		214

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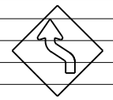
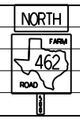
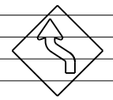
DATE: 1/31/2024 3:31:39 PM
FILE: c:\pw\khi\d028559\FM462_TEXT_SOSS.dgn

SUMMARY OF SMALL SIGNS

SMA RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

- Post Type: FRP = Fiberglass; TWT = Thin-wall 10BWG = 10 BWG; S80 = Sched 80
- Posts (1 or 2)
- Anchor Type: UA = Univer-Conc; UB = Univer-Bolt; SA = Slip-Conc; SB = Slip-Bolt; WS = Wedge Steel; WP = Wedge Plstic
- Mounting Designation: P = Prefb. "Plain"; T = Prefab. "T"; U = Prefab. "U"; 1EXT or 2EXT = # of Ext.; BM = Extruded Beam; WC = 1.12 #/ft Wing Chan.; EXAL = Extruded Alum. Signs
- BRIDGE MOUNT CLEARANCE SIGNS (See Note 2): TY N = Type N; TY S = Type S

PLAN SHEET NO.	SIGN NO.	SIGN DESIGNATION	SIGN CONTENT	SIGN DIMENSIONS (See above Note)	ALUMINUM TYPE A	ALUMINUM TYPE G	Post Type	Posts (1 or 2)	Anchor Type	Mounting Designation		BRIDGE MOUNT CLEARANCE SIGNS (See Note 2)
		W1-4L		30 x 30								
12	1						10BWG	1	SA	P		
		W13-1P		18 x 18								
12	2	D7-6aTR		48 x 48			10BWG	1	SA	T		
12	3	R4-2		24 x 30			10BWG	1	SA	P		
		M3-1		24 x 12								
12	4						10BWG	1	SA	P		
		M1-6F		24 x 24								
12	5	R4-2		24 x 30			10BWG	1	SA	P		
		W14-1aL		36 x 8								
		W14-1aR		36 x 8								
12	6						10BWG	1	SA	P		
		D3-3T		30 x 8								
		R1-1		30 x 30								
		W1-4L		30 x 30								
13	1						10BWG	1	SA	P		
		W13-1P		18 x 18								
13	2	R4-1		24 x 30			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 — SHEET 8 OF 8

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0848	04	052	FM 462
4-16		DIST	COUNTY		SHEET NO.
8-16		SAT	MEDINA		215

18

DATE: 1/31/2024 3:31:39 PM
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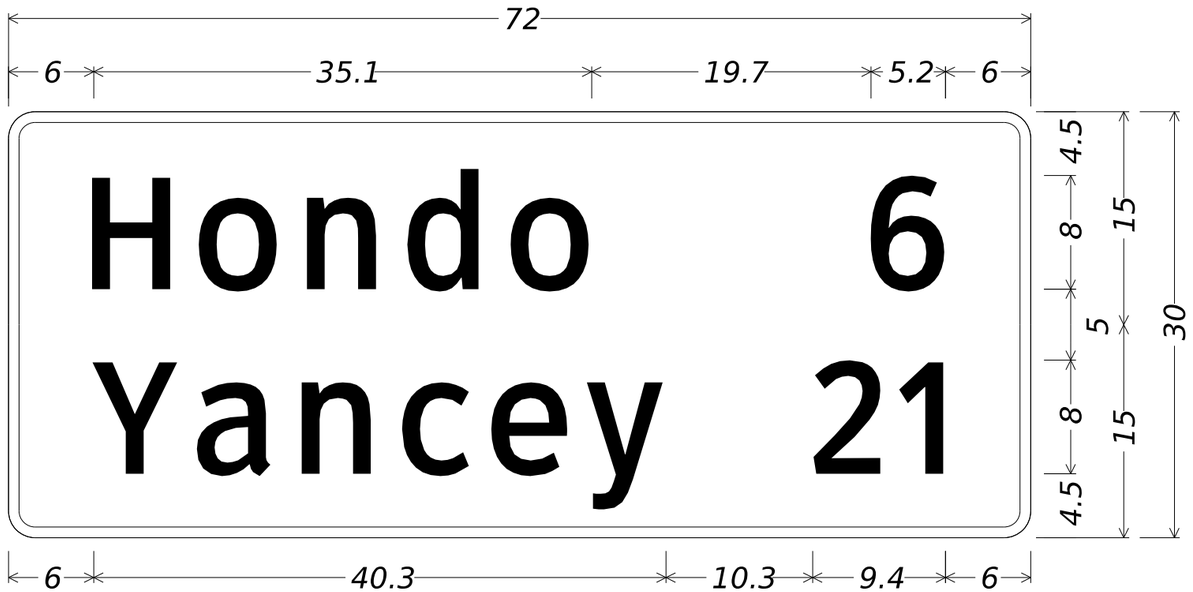
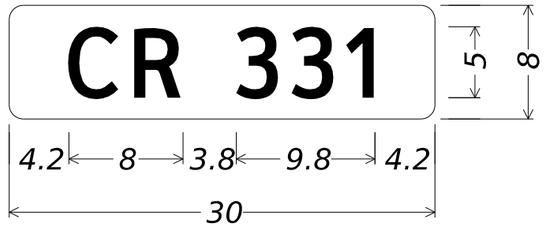


D2-2 8in;

1.875" Radius, 0.75" Border, White on Green;
"Hondo", ClearviewHwy-3-W; "6", ClearviewHwy-3-W;

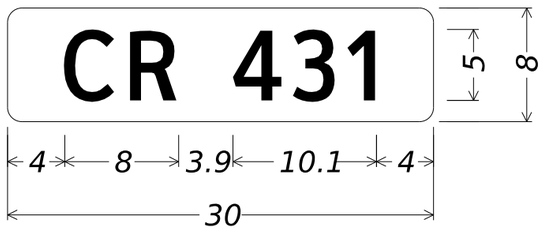
1.875" Radius, 0.75" Border, White on Green;
"Yancey", ClearviewHwy-3-W; "21", ClearviewHwy-3-W;

11-1



D3-3T;
1.0" Radius, No border, Green;
"CR 331" White, ClearviewHwy-3-W specified length;

4-3



D3-3T;
1.0" Radius, No border, Green;
"CR 431" White, ClearviewHwy-3-W specified length;

12-6

1/30/2024

STATE OF TEXAS
MATTHEW A. GAAL
140753
LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn
F-928

Texas Department of Transportation

FM 462

SIGN DETAILS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		216

DATE: 1/30/2024 8:23:15 PM
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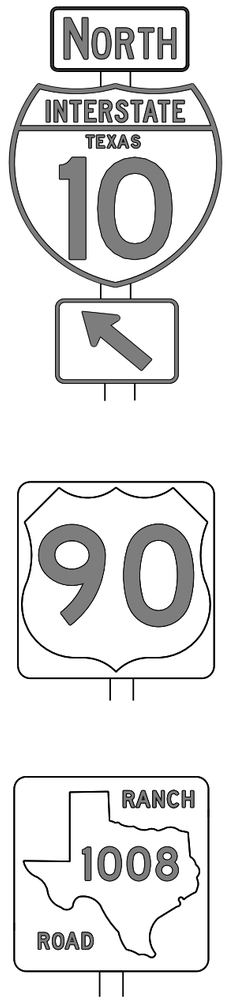
DATE: 1/31/2024 3:32:43 PM
FILE: c:\pw\khn1\d028562\tsr3-13.dgn

REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

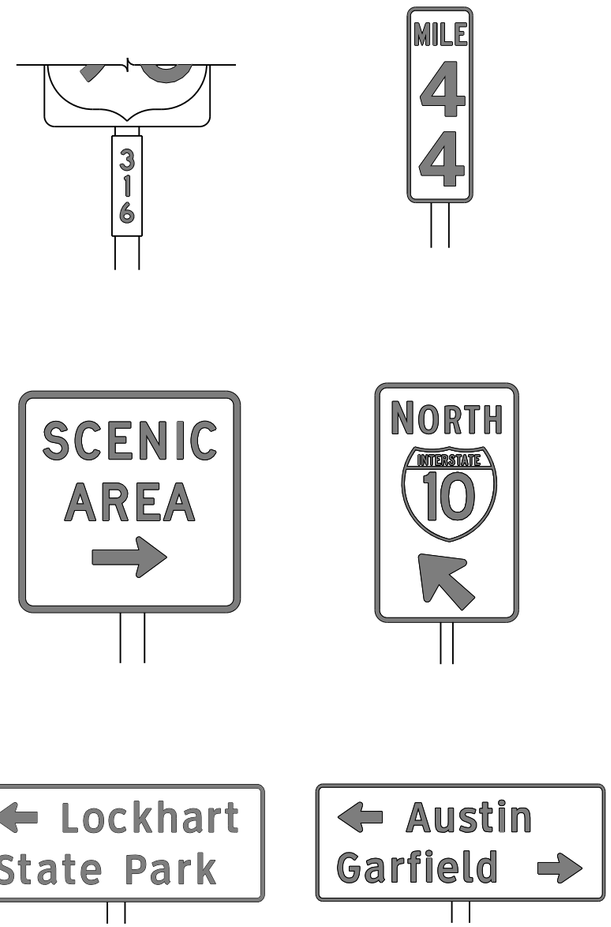
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE A SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING



TYPICAL EXAMPLES

REQUIREMENTS FOR BLUE, BROWN & GREEN D AND I SERIES GUIDE SIGNS

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	ALL	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE D SHEETING
LEGEND, SYMBOLS & BORDERS	ALL OTHERS	TYPE B OR C SHEETING



TYPICAL EXAMPLES

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. White legend shall use the Clearview Alphabet. The following Clearview fonts shall be used to replace the existing white Federal Highway Administration (FHWA) Standard Highway Alphabets, when not specified in the SHSD, or in the plans.

B	CV-1W
C	CV-2W
D	CV-3W
E	CV-4W
Emod	CV-5WR
F	CV-6W

3. Route sign legend (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets B, C, D, E, Emod or F).

4. 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.

5. Independent mounted route sign with white or colored legend and borders shall be applied by screening process with transparent color ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof. White legend, symbols and borders on all other signs shall be cut-out white sheeting applied to colored background sheeting.

6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius should be trimmed or rounded.

7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.

8. Mounting details of roadside signs are shown in the "SMD series" Standard Plan Sheets.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

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/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

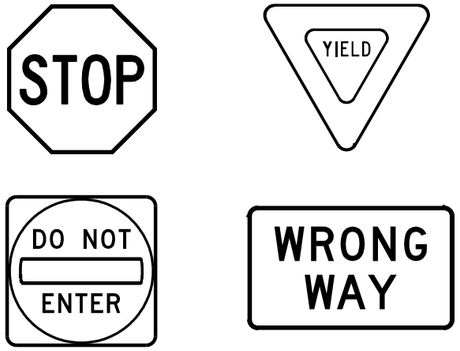
TSR(3)-13

FILE: tsr3-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	SAT	MEDINA		217

DATE: 1/31/2024 3:33:11 PM
FILE: c:\pw\kn1\d0285621\tsr4-13.dgn

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

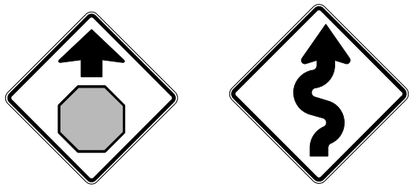
REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(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

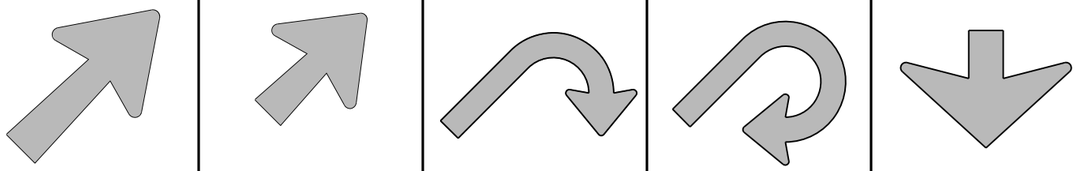
FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
12-03 7-13 9-08	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		218

4

DATE: 1/31/2024 3:33:37 PM
FILE: c:\pw\khl\d0285621\tsr5-13.dgn

ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs



TYPE	LETTER SIZE	USE
A-1	10.67" U/L and 10" Caps	Single Lane Exits
A-2	13.33" U/L and 12" Caps	
A-3	16" & 20" U/L	
B-1	10.67" U/L and 10" Caps	Multiple Lane Exits
B-2	13.33" U/L and 12" Caps	
B-3	16" & 20" U/L	

CODE	USED ON SIGN NO.
E-3	E5-1aT
E-4	E5-1bT

NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

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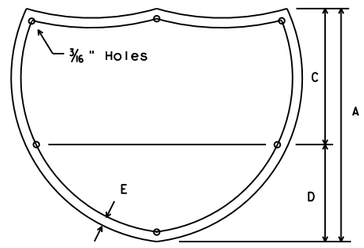
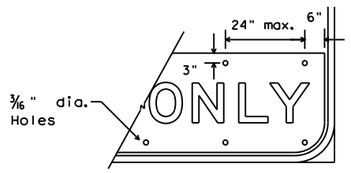
SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)

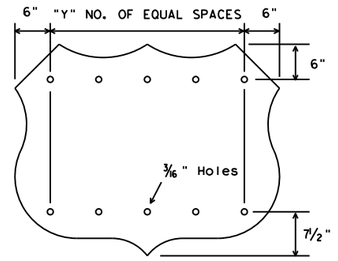


INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4

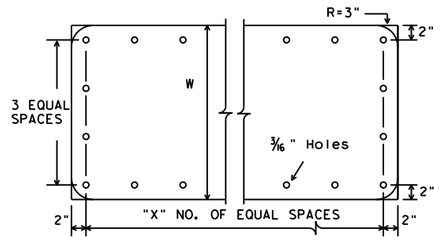


EXIT ONLY PANEL



U.S. ROUTE MARKERS

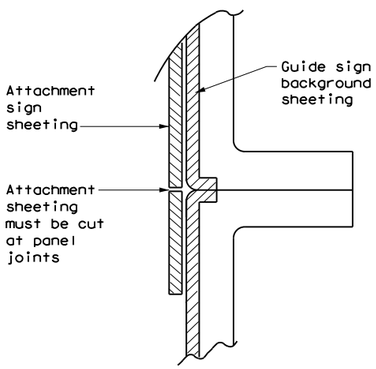
Sign Size	"Y"
24x24	2
30x24	3
36x36	3
45x36	4
48x48	4
60x48	5



STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

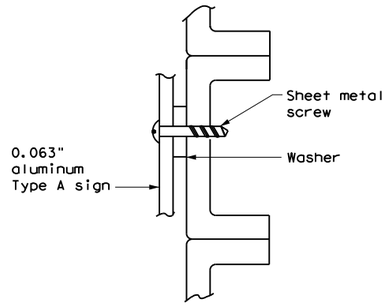
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



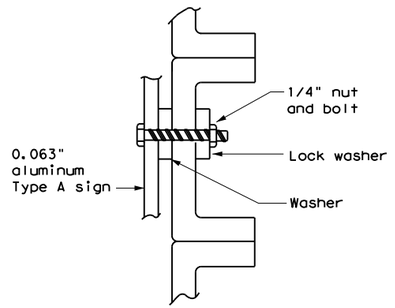
DIRECT APPLIED ATTACHMENT

NOTE:

1. Sheeting for legend, symbols, and borders must be cut at panel joints.
2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".



SCREW ATTACHMENT



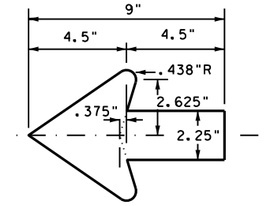
NUT/BOLT ATTACHMENT

NOTE:

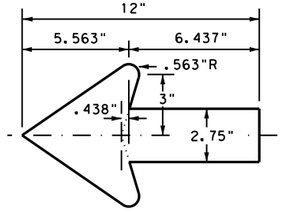
Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

ARROW DETAILS

for Destination Signs (Type D)



Standard arrow to be used with 6 inch letters.



Standard arrow to be used with 8 inch letters.

Texas Department of Transportation

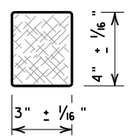
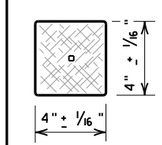
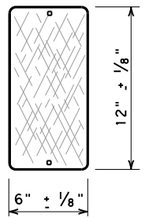
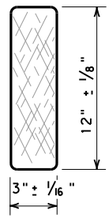
Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

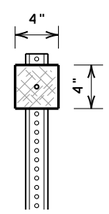
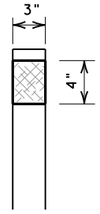
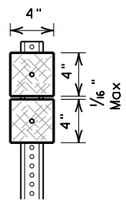
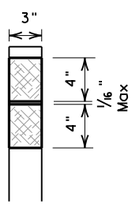
TSR(5)-13

FILE: tsr5-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	SAT	MEDINA		219

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS

	SINGLE		DOUBLE	
DEVICE				
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX(XX)

NUMBER OF REFLECTORS
S = Single
D = Double

COLOR OF REFLECTORS
W = White
Y = Yellow
R = Red

REFLECTOR UNIT SIZE
1 or 2

TYPE OF POST OR DELINEATOR
WC = Wing Channel Post
YFLX = Yellow Flexible Post
WFLX = White Flexible Post
BRF = Barrier Reflector

TYPE OF MOUNT
GND = Embedded (drivable or set in concrete)
CTB = Concrete Barrier Mount
GF1 or GF2 = Guard Fence Attachment
SRF = Surface Mount

DIRECTION
If Required
BI = Bi-Directional
BR = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXXX)XXX(XX)

TYPE OF OBJECT MARKER
1, 2, 3, or 4

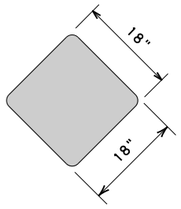
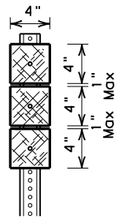
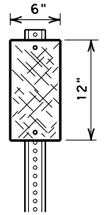
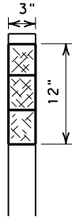
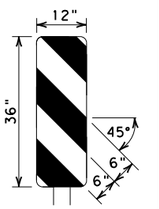
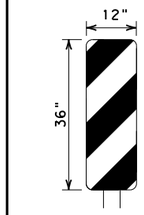
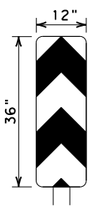
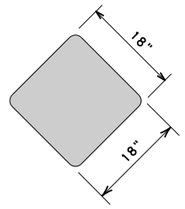
NUMBER OF REFLECTORS OR DIRECTION
X = 3-Size 2 reflector units (Type 2 only)
Y = 1-Size 3 reflector unit (Type 2 only)
Z = 3-Size 1 or 1-Size 4 reflector unit(s) (Type 2 only)
L = Left Side (Type 3 Object Marker only)
R = Right Side (Type 3 Object Marker only)
C = Center (Type 3 Object Marker only)

TYPE OF POST
WC = Wing Channel Post
WFLX = White Flexible Post
TWT = Thin Walled Tubing

TYPE OF MOUNT
GND = Embedded (drivable)
SRF = Surface Mount
WAS = Wedge Anchor Steel
WAP = Wedge Anchor Plastic

DIRECTION
If Required
BI = Bi-Directional

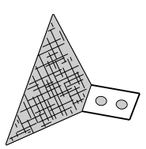
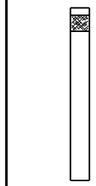
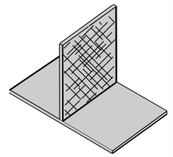
OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

DEPARTMENTAL MATERIAL SPECIFICATIONS

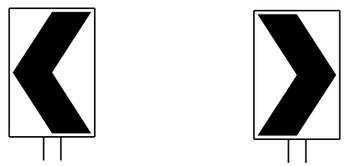
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.		

CHEVRONS

DEVICE



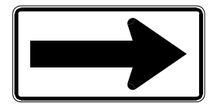
W1-8

SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

NOTE
1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).
2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).

ONE DIRECTION LARGE ARROW

DEVICE



W1-6

SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE:

Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

FILE: dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	SAT	MEDINA		220

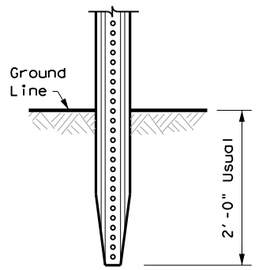
20A

DATE: 1/31/2024 3:34:06 PM
FILE: c:\pw\kni\d0285621\dom1-20.dgn

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

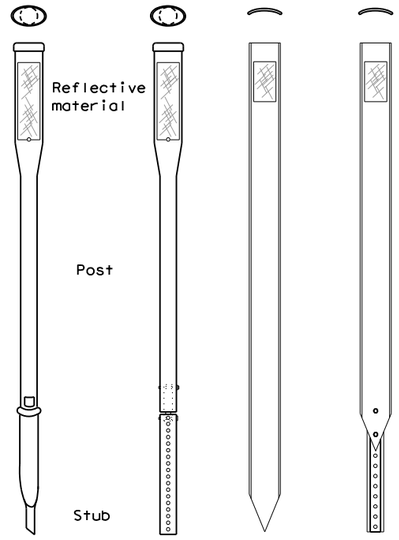


NOTES

1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only.
2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.

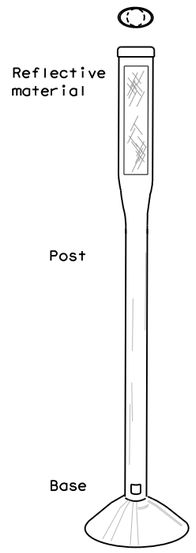
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



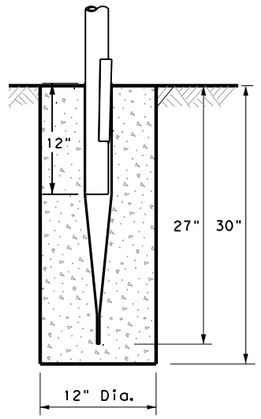
SURFACE MOUNT

NOTES

1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.
4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.

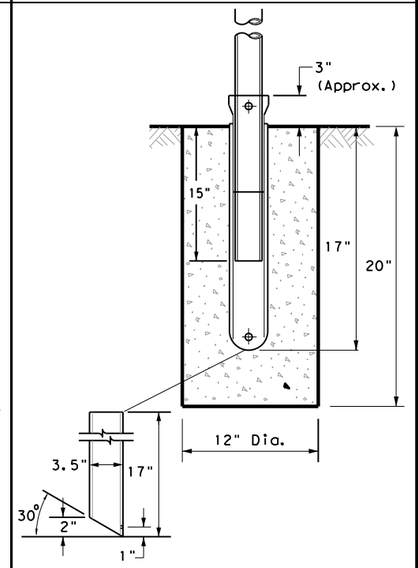
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

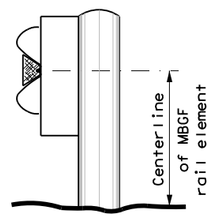
NOTE

1. Install per manufacturer's recommendations.

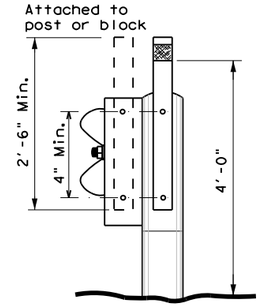
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

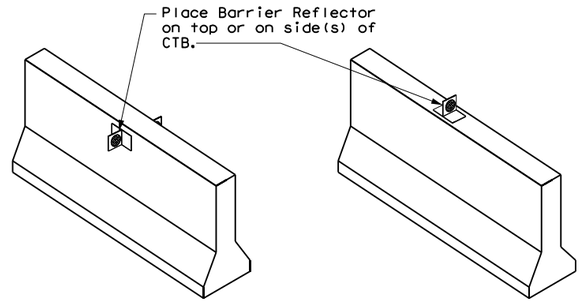
GF1



GF2



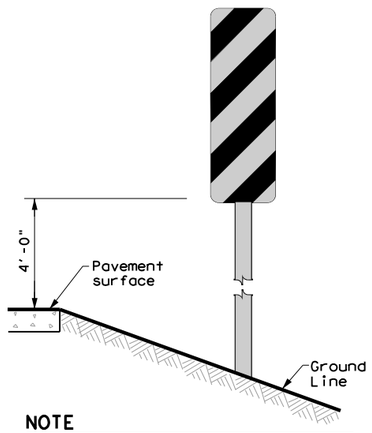
CONCRETE TRAFFIC BARRIER (CTB)



GENERAL NOTES

1. Place delineators on a section of roadway at a consistent distance from the edge of pavement.
2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible.
4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation.
5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface.
6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.

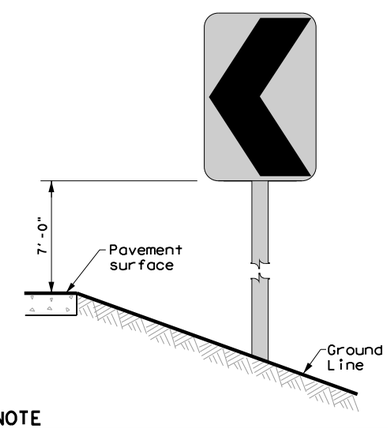
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



NOTE

Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)

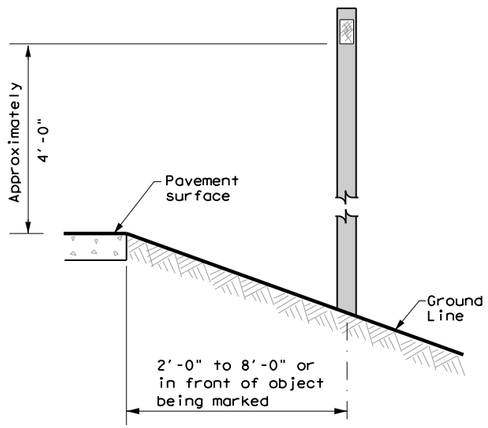
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



NOTE

Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.

DELINEATORS AND TYPE 2 OBJECT MARKERS



See general notes 1, 2 and 3.

Texas Department of Transportation — Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

FILE: dom2-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	SAT	MEDINA		221

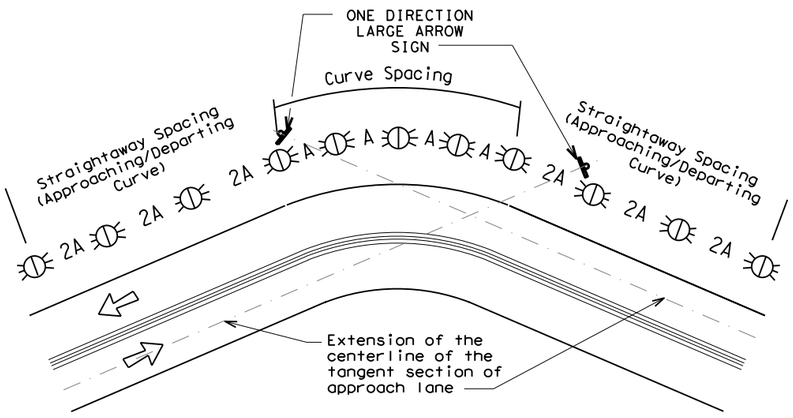
20B

DATE: 1/31/2024 3:34:38 PM
FILE: c:\pw\kh1\d0285621\dom2-20.dgn

MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

Amount by which Advisory Speed is less than Posted Speed	Curve Advisory Speed	
	Turn (30 MPH or less)	Curve (35 MPH or more)
5 MPH & 10 MPH	• RPMs	• RPMs
15 MPH & 20 MPH	• RPMs and One Direction Large Arrow sign	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons.
25 MPH & more	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons	• RPMs and Chevrons

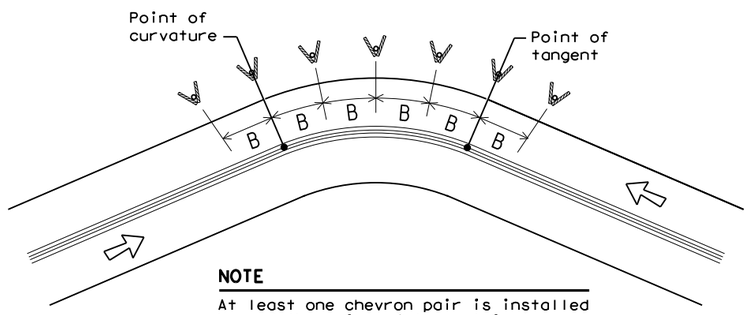
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



NOTE

At least one chevron pair is installed beyond the point of tangent in tangent section.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS KNOWN

Degree of Curve	FEET			
	Radius of Curve	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
		A	2A	B
1	5730	225	450	—
2	2865	160	320	—
3	1910	130	260	200
4	1433	110	220	160
5	1146	100	200	160
6	955	90	180	160
7	819	85	170	160
8	716	75	150	160
9	637	75	150	120
10	573	70	140	120
11	521	65	130	120
12	478	60	120	120
13	441	60	120	120
14	409	55	110	80
15	382	55	110	80
16	358	55	110	80
19	302	50	100	80
23	249	40	80	80
29	198	35	70	40
38	151	30	60	40
57	101	20	40	40

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN

Advisory Speed (MPH)	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
	A	2xA	B
65	130	260	200
60	110	220	160
55	100	200	160
50	85	170	160
45	75	150	120
40	70	140	120
35	60	120	120
30	55	110	80
25	50	100	80
20	40	80	80
15	35	70	40

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

DELINEATOR AND OBJECT MARKER APPLICATION AND SPACING

CONDITION	REQUIRED TREATMENT	MINIMUM SPACING
Frwy./Exp. Tangent	RPMs	See PM-series and FPM-series standard sheets
Frwy./Exp. Curve	Single delineators on right side	See delineator spacing table
Frwy/Exp.Ramp	Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 3 on D&OM(4))	100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves)
Acceleration/Deceleration Lane	Double delineators (see Detail 3 on D&OM(4))	100 feet (See Detail 3 on D & OM (4))
Truck Escape Ramp	Single red delineators on both sides	50 feet
Bridge Rail (steel or concrete)and Metal Beam Guard Fence	Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction	Equal spacing (100'max) but not less than 3 delineators
Concrete Traffic Barrier (CTB) or Steel Traffic Barrier	Barrier reflectors matching the color of the edge line	Equal spacing 100' max
Cable Barrier	Reflectors matching the color of the edge line	Every 5th cable barrier post (up to 100'max)
Guard Rail Terminus/Impact Head	Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) and D & OM (6)
Bridges with no Approach Rail	Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail	See D & OM(5)
Reduced Width Approaches to Bridge Rail	Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5)
Culverts without MBGF	Type 2 Object Markers	See Detail 2 on D & OM(4)
Crossovers	Double yellow delineators and RPMs	See Detail 1 on D & OM (4)
Pavement Narrowing (lane merge) on Freeways/Expressway	Single delineators adjacent to affected lane for full length of transition	100 feet

NOTES

1. Unless indicated otherwise, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
2. Barrier reflectors may be used to replace required delineators.
3. Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

LEGEND

	Bi-directional Delineator
	Delineator
	Sign

Texas Department of Transportation

Traffic Safety Division Standard

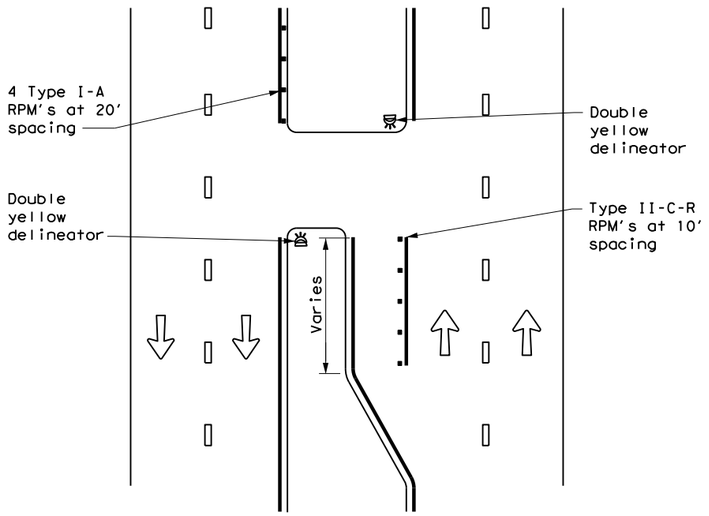
DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(3)-20

FILE: dom3-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
3-15 8-15	DIST	COUNTY		SHEET NO.
8-15 7-20	SAT	MEDINA		222

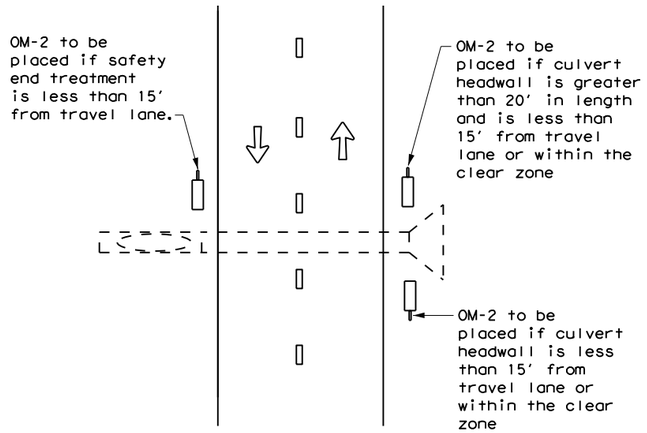
20C

CROSSOVERS



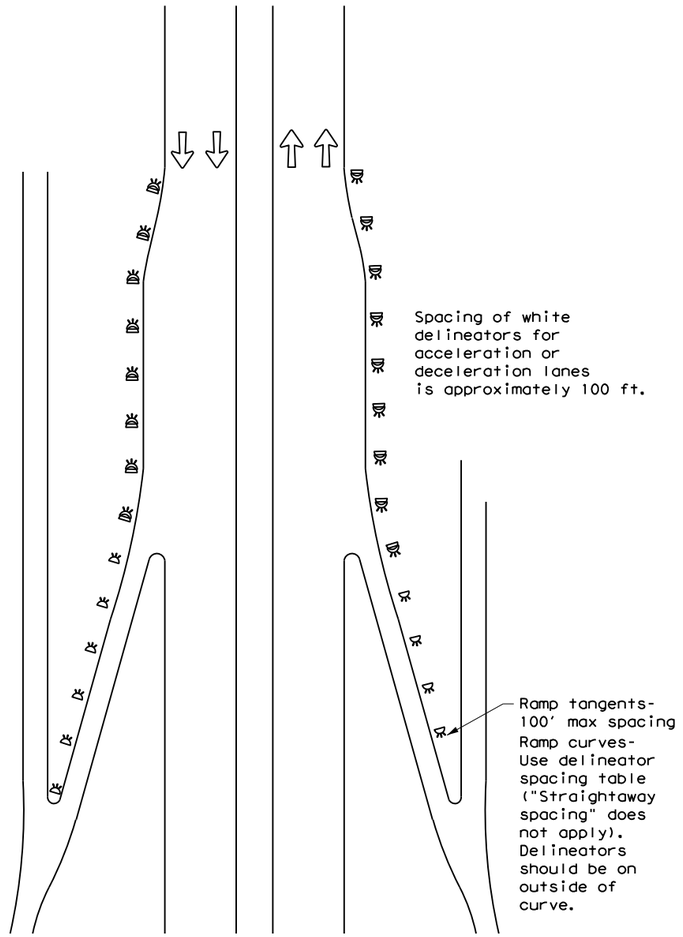
DETAIL 1

FOR CULVERTS WITHOUT MBGF



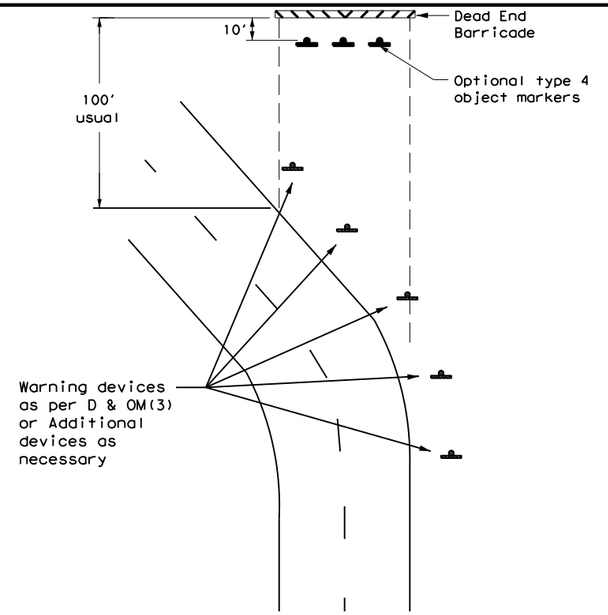
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



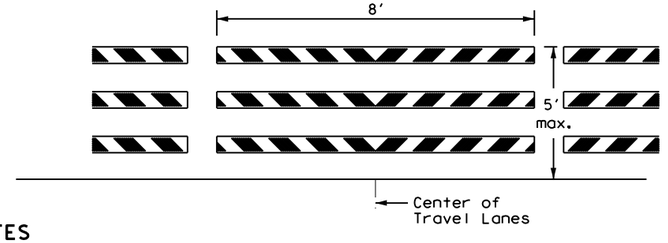
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

1. Barricade striping shall be red and white reflective sheeting for all permanent road closures.
2. Barricade striping is red and white sloping toward the center of the roadway.
3. Type 3 Barricade Supports should be anchored to soil or pavement as described in compliant Work Zone Traffic Control Devices List, section D.2.f and D.2.g.

DETAIL 5

LEGEND	
	Bidirectional Delineator
	Delineator
	OM-3
	Barricade
	Sign
	OM-2
	Double Delineator

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

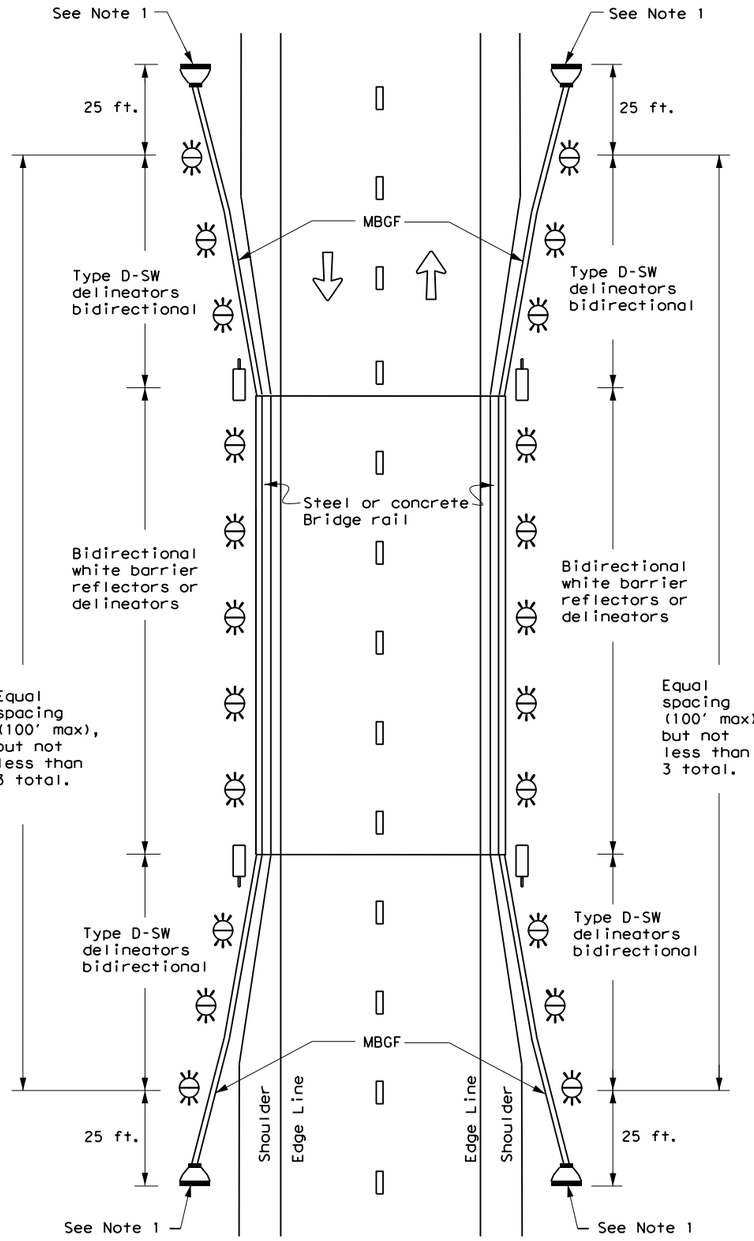
D & OM(4)-20

FILE: dgm4-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
3-15 7-20	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		223

20D

DATE: 1/31/2024 3:35:45 PM
FILE: c:\pw\khl\d0285621\dom4-20.dgn

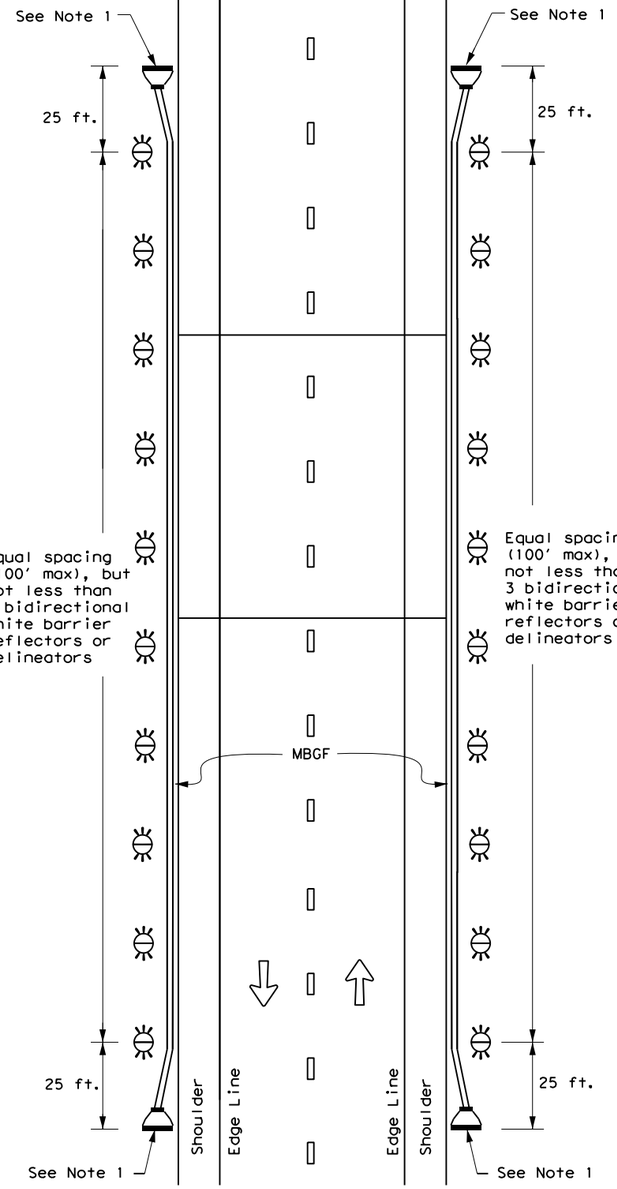
TWO-WAY, TWO LANE ROADWAY WITH REDUCED WIDTH APPROACH RAIL



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

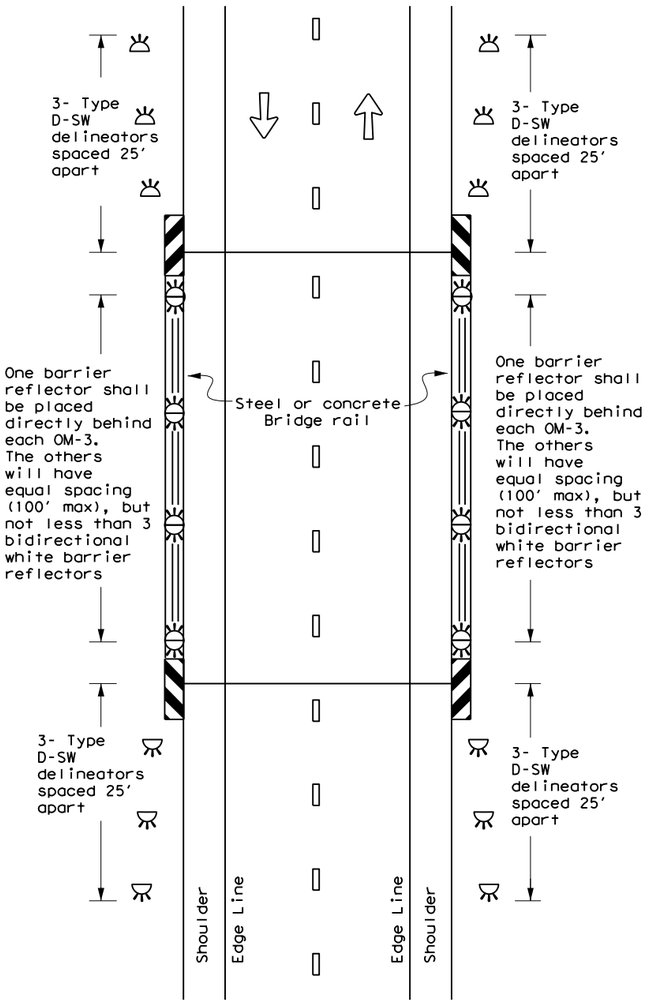
TWO-WAY, TWO LANE ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

TWO-WAY, TWO LANE ROADWAY BRIDGE WITH NO APPROACH RAIL



LEGEND

	Bidirectional Delineator
	Delineator
	OM-3
	OM-2
	Terminal End
	Traffic Flow

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(5)-20

FILE: dom5-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
7-20	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		224

20E

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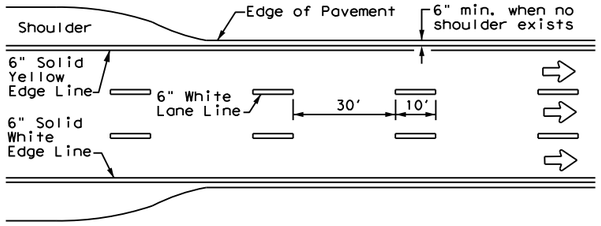
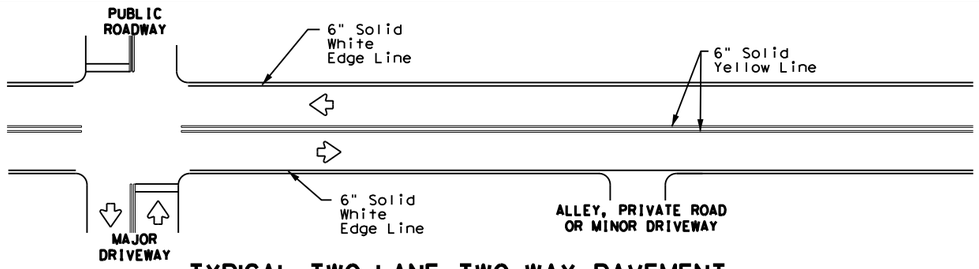
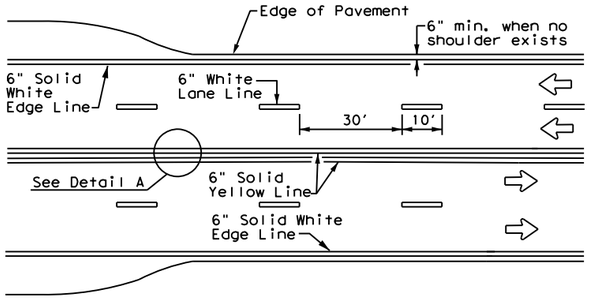
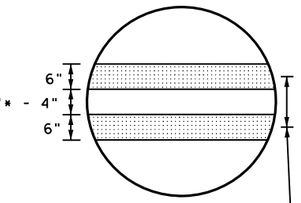


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS





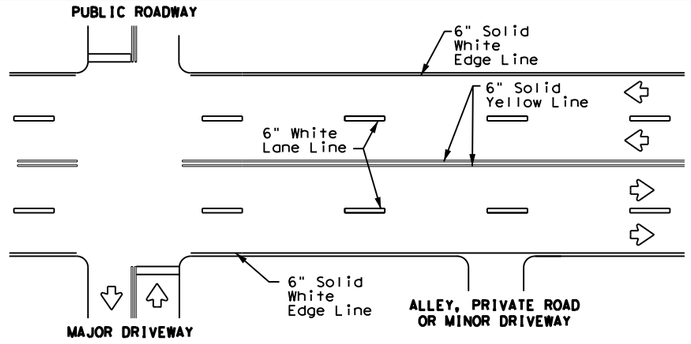
DETAIL "A"

9"** min. - 10" typ.
(18" max. for traveled way greater than 48' only)

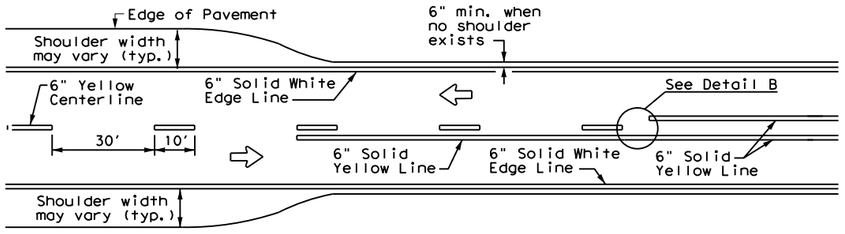
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

* 2" minimum for restripe projects when approved by the Engineer.

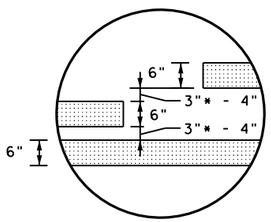
** 8" minimum for restripe projects when approved by the Engineer.



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

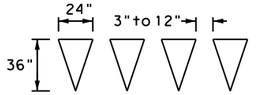


TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



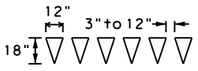
DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.

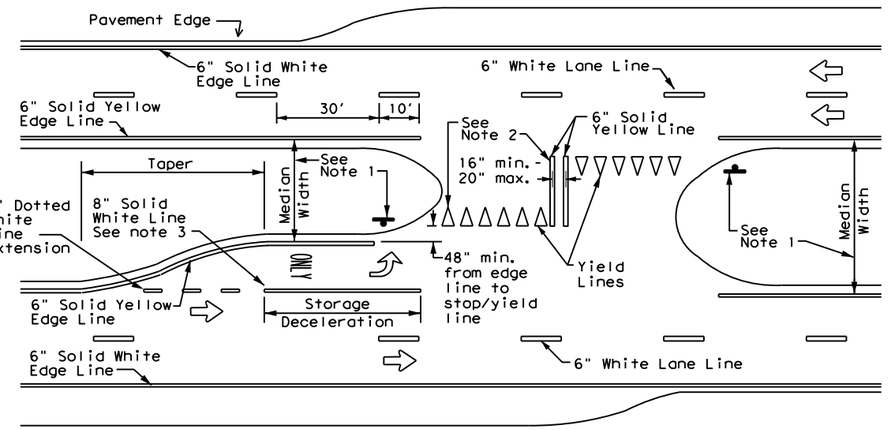


For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



For posted speed on road being marked equal to or less than 40 MPH.



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

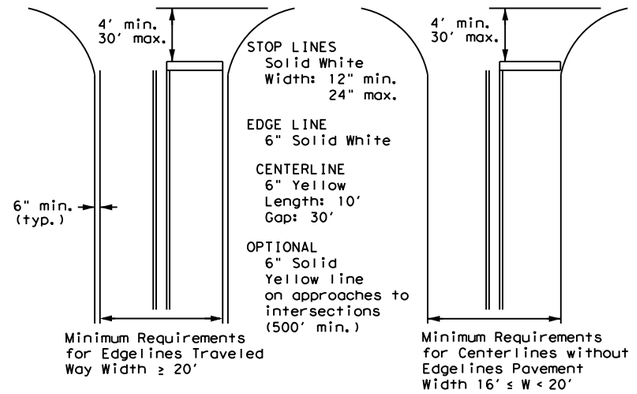
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections.
   Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling 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 Departmental 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	0848	04	052	FM 462
8-95 3-03 12-22	DIST	COUNTY		SHEET NO.
5-00 2-12	SAT	MEDINA		225

22A

DATE: 1/31/2024 3:36:36 PM
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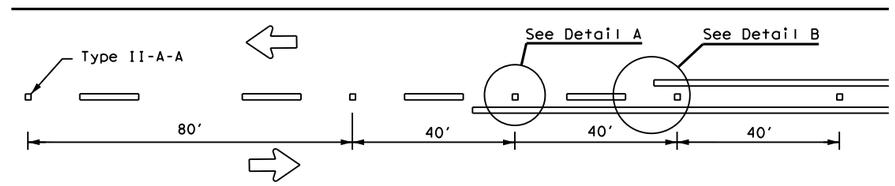
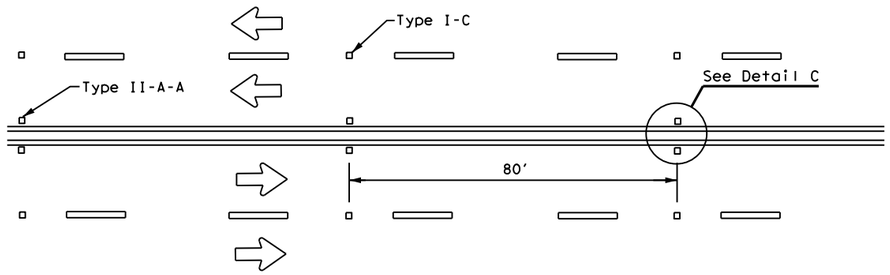
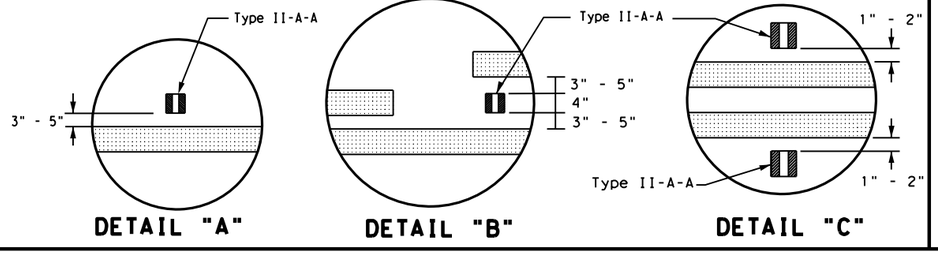
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

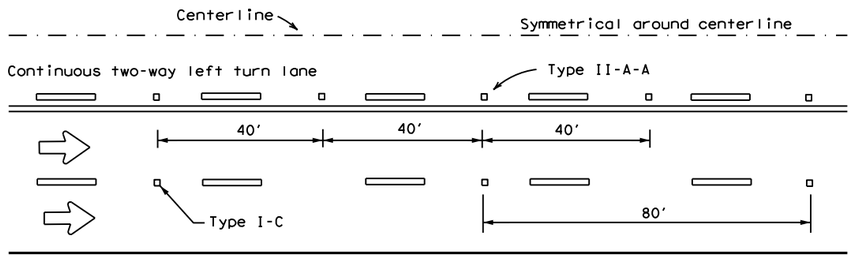


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

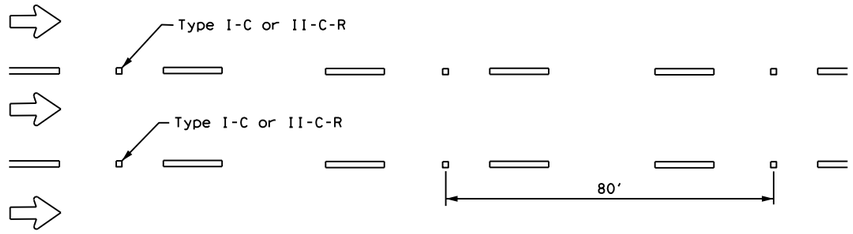


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



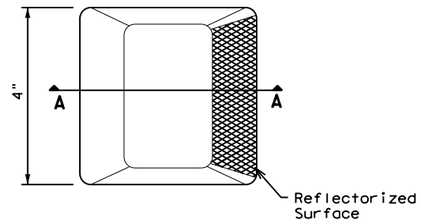
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

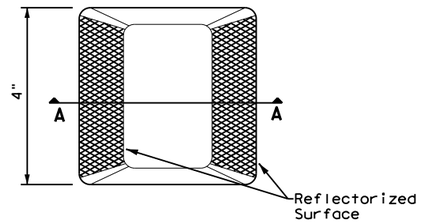
See Note 3.

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

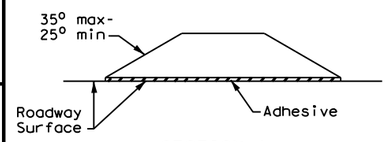
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

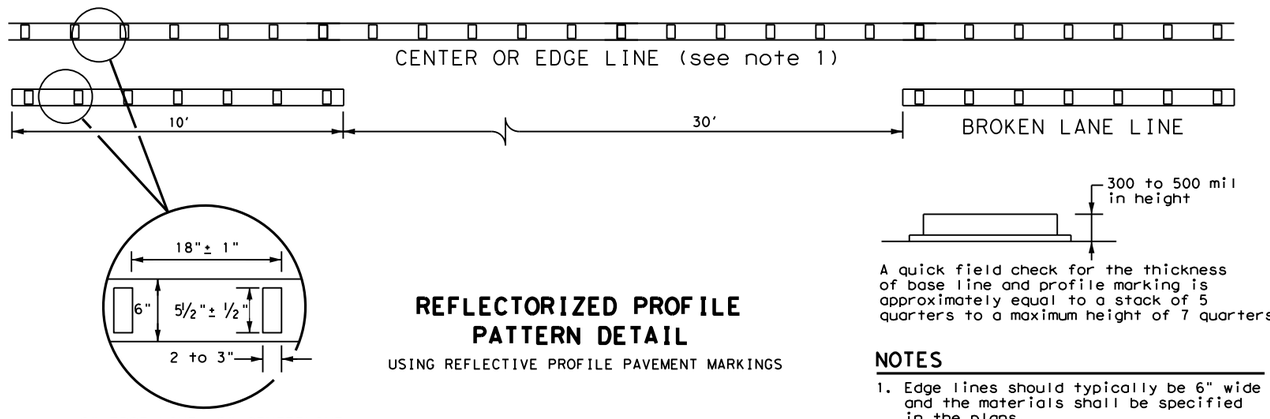


Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



6" EDGE LINE, 6" CENTERLINE OR 6" LANE LINE

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
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4-77 8-00 6-20	DIST	COUNTY		SHEET NO.
4-92 2-10 12-22	SAT	MEDINA		226
5-00 2-12				

22B

DATE: 1/31/2024 3:37:04 PM
FILE: c:\pw\khl\d0285621\pm2-22.dgn

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)

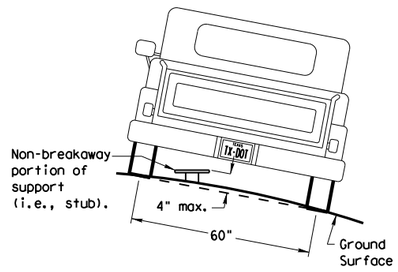
Anchor Type

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))

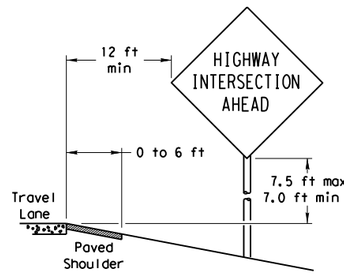
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage 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).

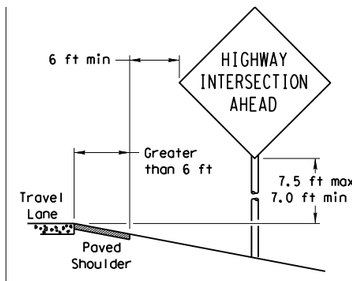
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

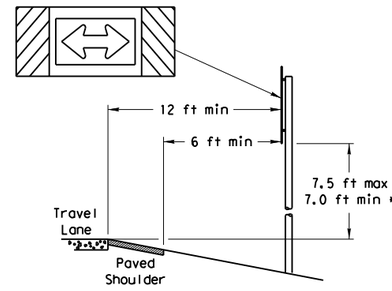
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



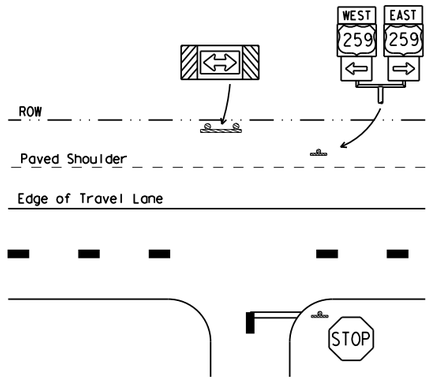
GREATER THAN 6 FT. WIDE

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.

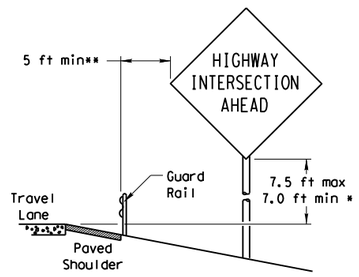
T-INTERSECTION



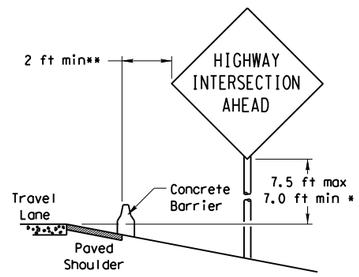
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



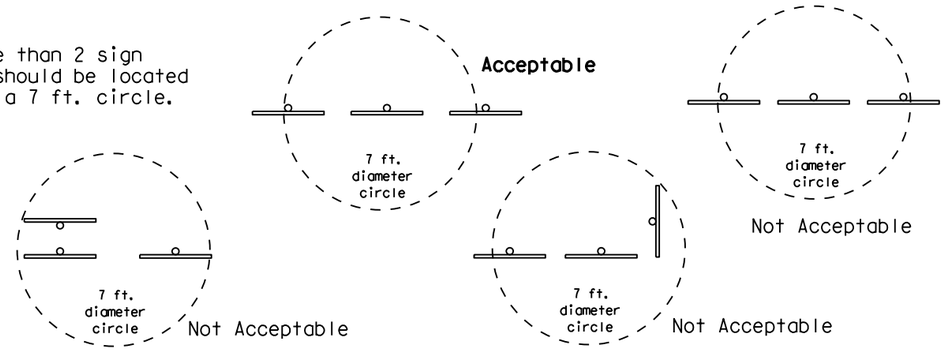
BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

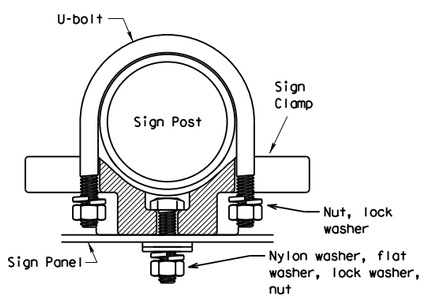
**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

No more than 2 sign posts should be located within a 7 ft. circle.



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

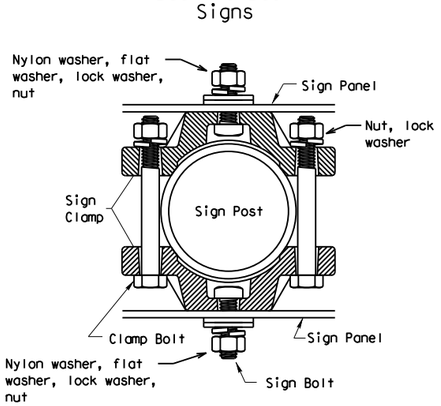


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

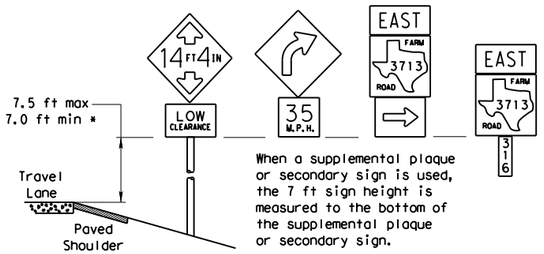
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



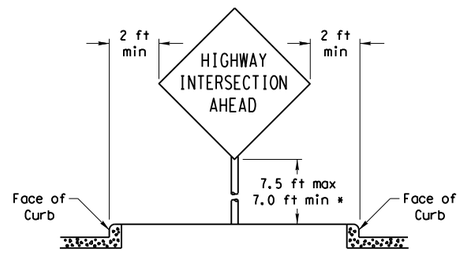
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



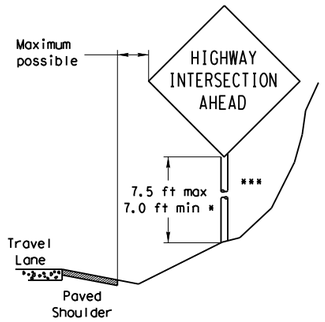
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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.

* 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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		227

DATE: 1/31/2024 3:37:35 PM
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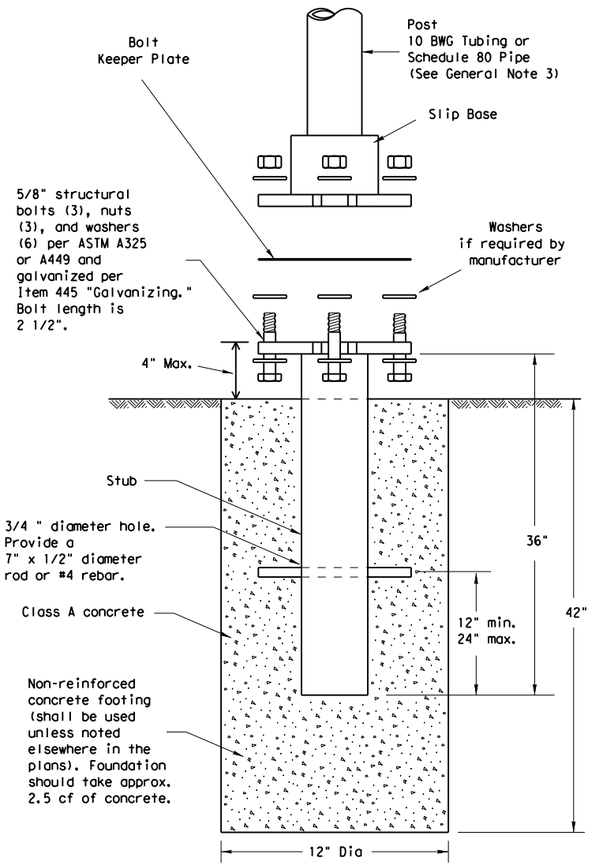
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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.

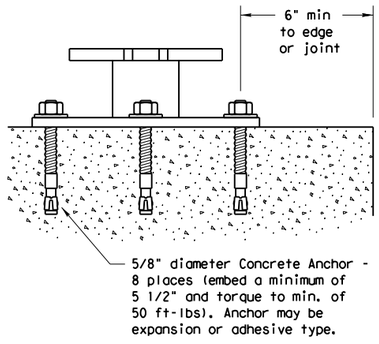
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum 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

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS 9-08

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462

DIST	COUNTY	SHEET NO.
SAT	MEDINA	228

DATE: 1/31/2024 3:38:00 PM
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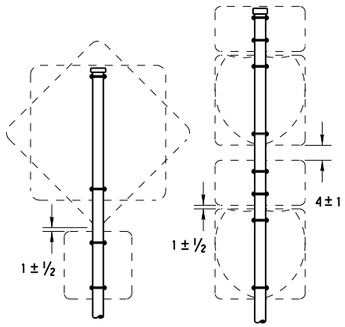
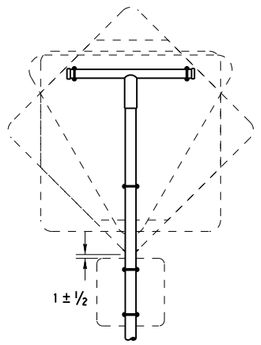


SM RD SGN ASSM TY XXXXX(1)XX(P)



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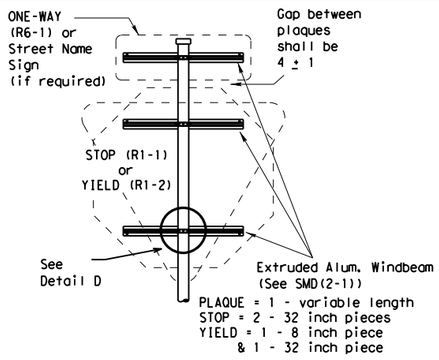
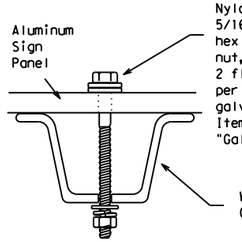
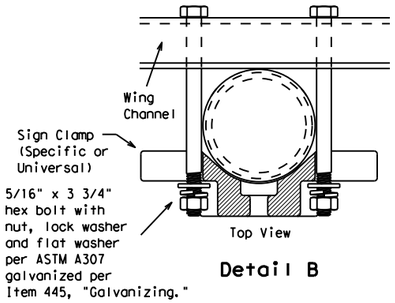


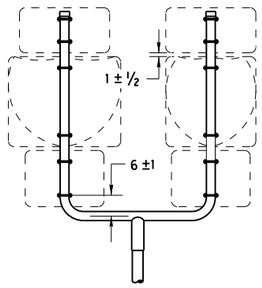
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



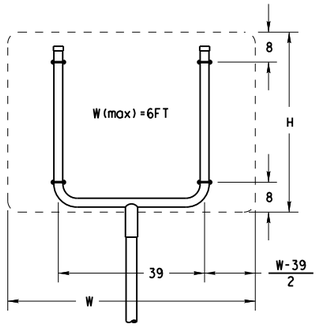
Detail A



Detail B



SM RD SGN ASSM TY XXXXX(1)XX(U)



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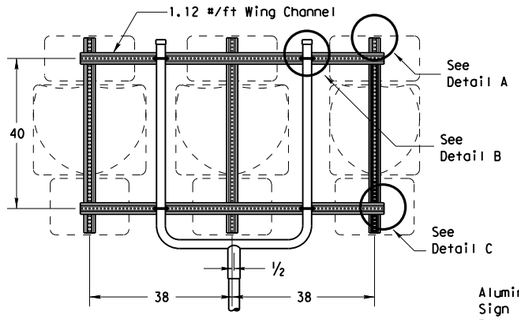
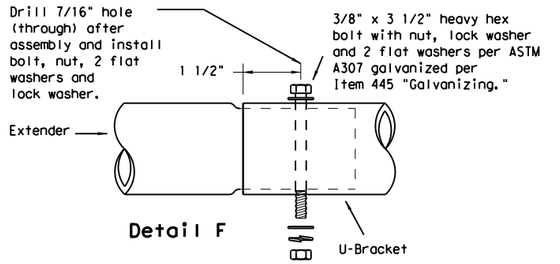
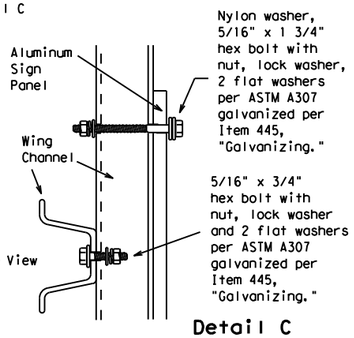


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

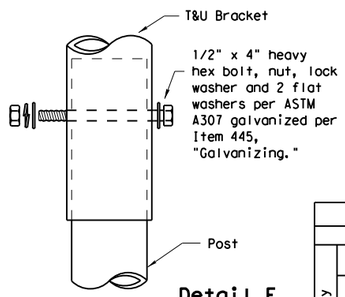


Detail F

Splices shall only be allowed behind the sign substrate.



Detail C



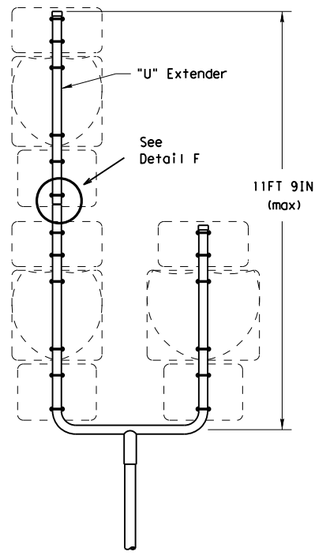
Detail E

GENERAL NOTES:

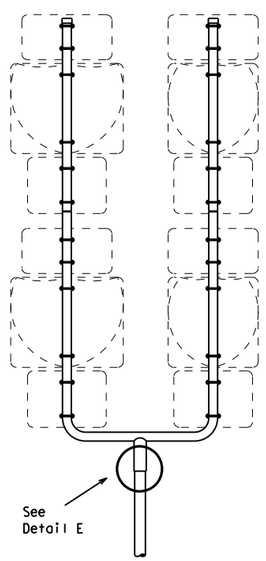
1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.



SM RD SGN ASSM TY S80(1)XX(U-1EXT)



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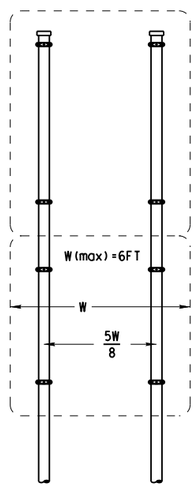
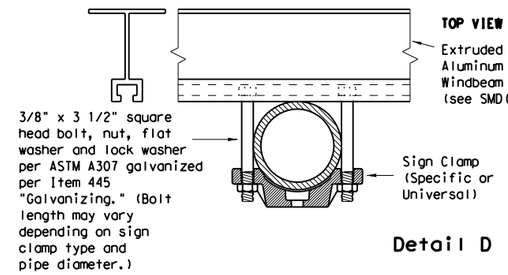
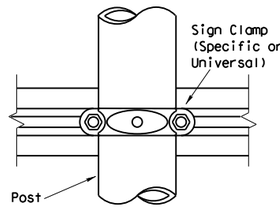


SM RD SGN ASSYM TY XXXXX(2)XX(P)

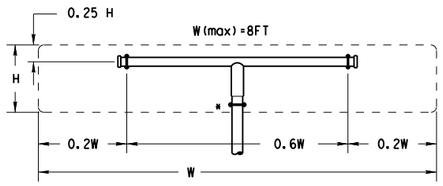
SIDE VIEW



Detail D



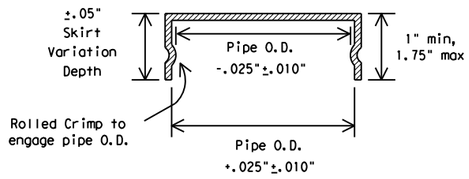
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



All dimensions are in english unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		229

9-08 REVISIONS

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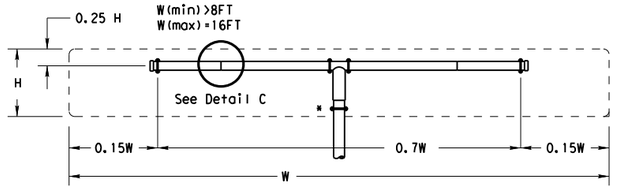
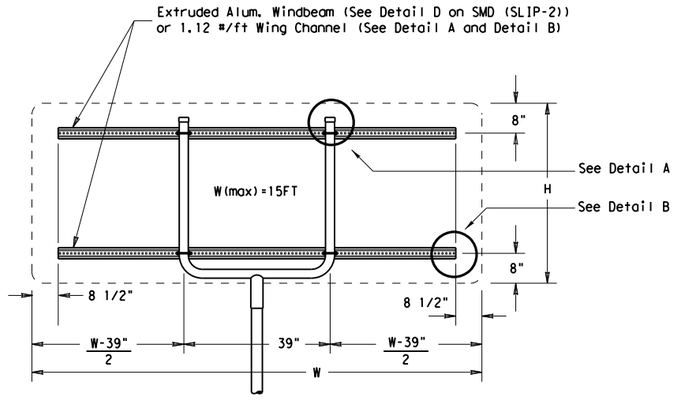
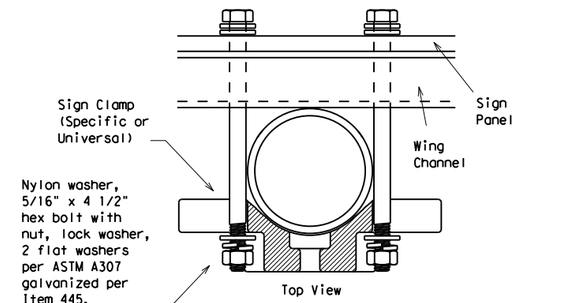


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

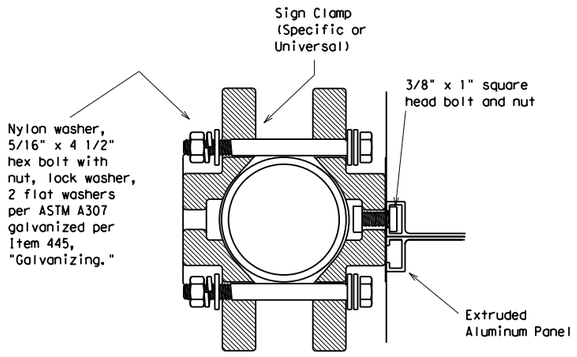
(* - See Note 12)



SM RD SGN ASSM TY XXXXX(1)XX(U-XX)

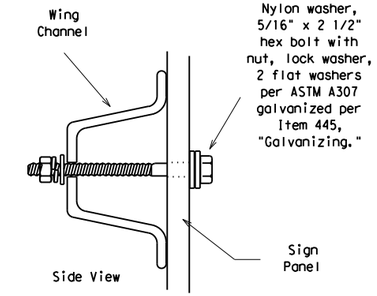


Detail A

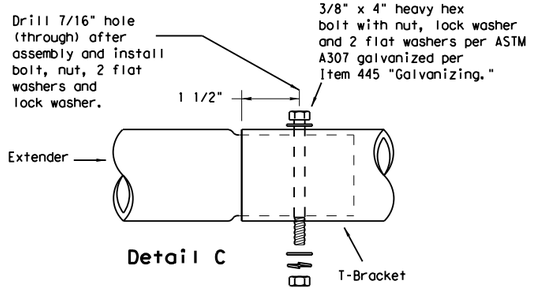


Detail D

EXTRUDED ALUMINUM SIGN WITH T BRACKET

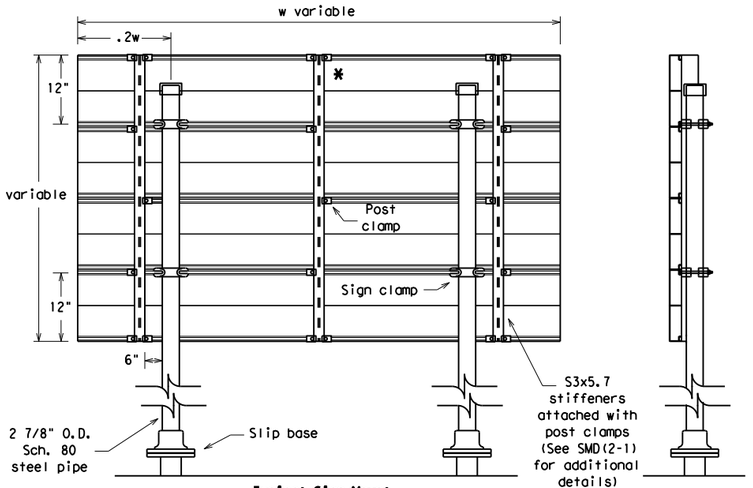


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

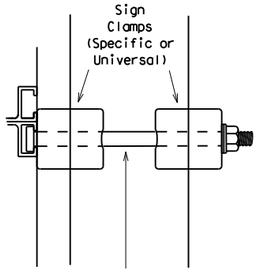


Typical Sign Mount

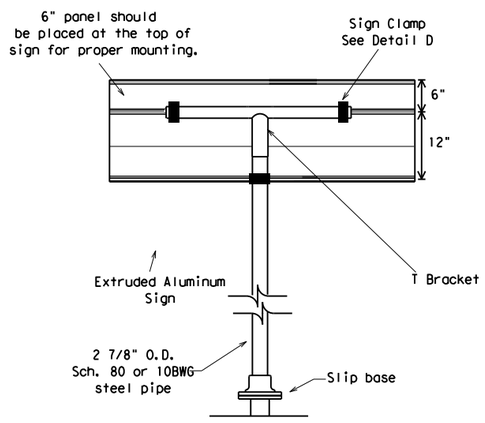
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

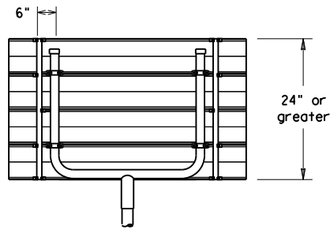
See Detail E
for clamp installation



Detail E



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
11. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

REVISIONS

9-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462

DIST	COUNTY	SHEET NO.
SAT	MEDINA	230

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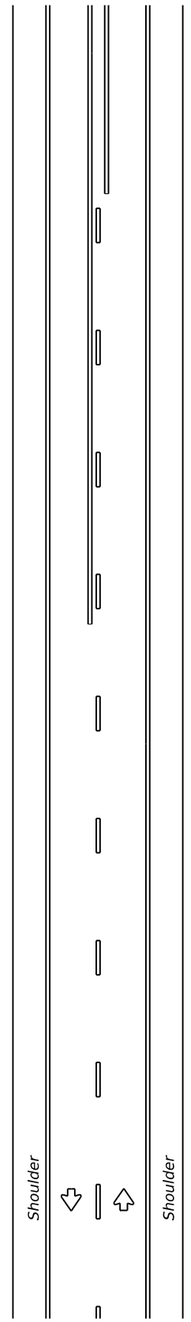
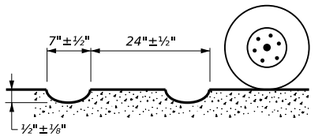
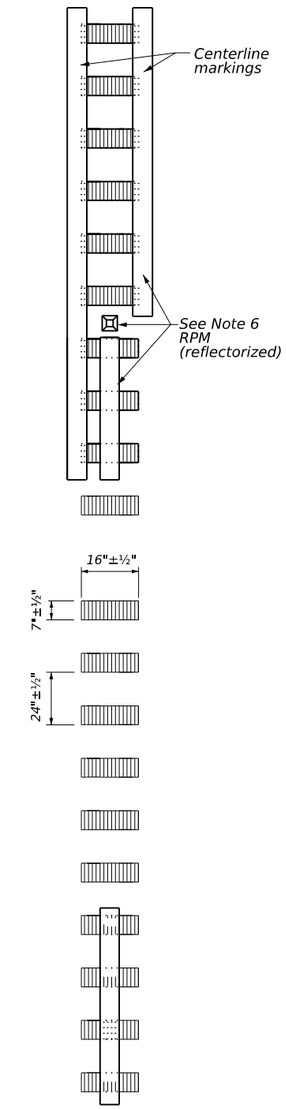
CENTERLINE RUMBLE STRIPS



TWO LANE TWO-WAY HIGHWAYS

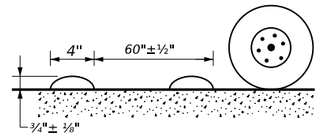


PROFILE VIEW

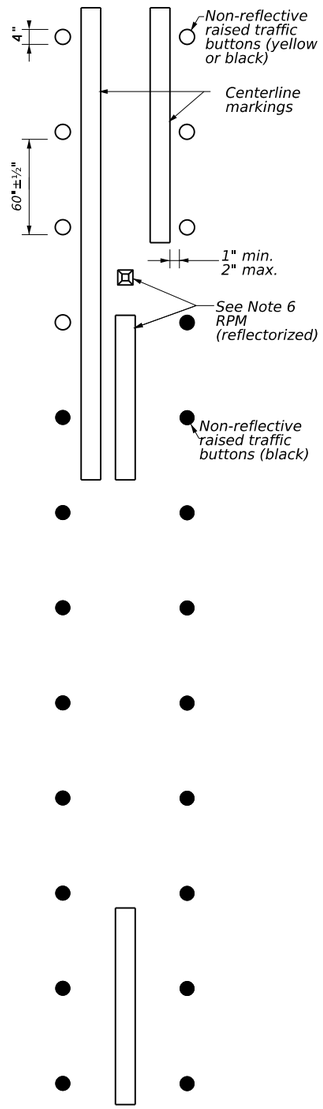


PLAN VIEW
OPTION 1

MILLED CENTERLINE RUMBLE STRIPS

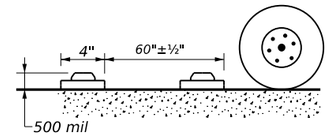


PROFILE VIEW

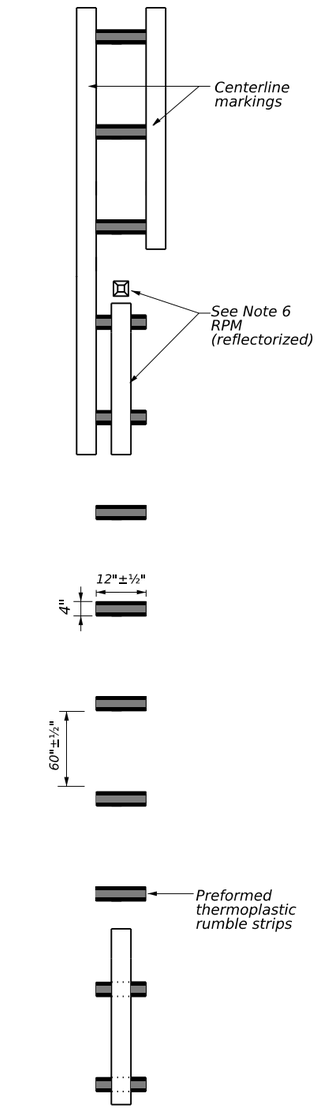


PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS

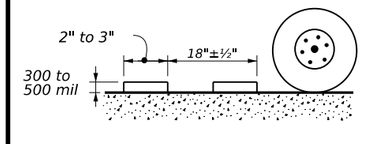


PROFILE VIEW

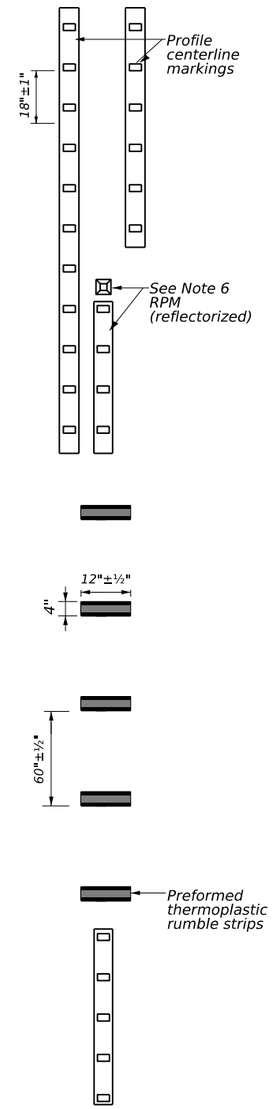


PLAN VIEW
OPTION 3

PREFORMED THERMOPLASTIC RUMBLE STRIPS



PROFILE VIEW



PLAN VIEW
OPTION 4

PROFILE CENTERLINE MARKINGS AND PREFORMED THERMOPLASTIC RUMBLE STRIPS

GENERAL NOTES

1. This standard sheet provides guidelines for installing centerline rumble strips on two-lane highways with or without shoulders.
2. Centerline and edge line rumble strips or profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
3. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
4. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
5. Breaks in milled centerline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections or driveways with high usage of large trucks.
6. Use standard sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings and profile markings.
7. Consideration should be given to noise levels when centerline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Pavement markings must be applied over milled centerline rumble strips.

WHEN INSTALLING CENTERLINE RUMBLE STRIPS:

9. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per manufacturer's recommendations.
10. When using non-reflective raised traffic buttons as a centerline rumble strip, the button shall be placed adjacent to the pavement marking delineating the centerline. The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
11. The color of the button should be yellow for a continuous no passing roadway. Black buttons should be used in areas where passing is allowed.
12. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING EDGE LINE RUMBLE STRIPS WITH OR WITHOUT CENTERLINE RUMBLE STRIPS ON UNDIVIDED HIGHWAYS:

13. See standard sheet RS(2).

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Texas Department of Transportation

Traffic Safety Division Standard

CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS RS(4)-23

FILE: rs(4)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
10-13	DIST	COUNTY		SHEET NO.
1-23	SAT	MEDINA		231

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with soil disturbing activity and for projects that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
_0848-04-052_____

1.2 PROJECT LIMITS:

From: 1.5 mi North of CR 331

To: CR 433

1.3 PROJECT COORDINATES:

BEGIN: (Lat) W99°12'03.9",(Long) N29°28'18.7"

END: (Lat) W99°10'22" ,(Long) N29°23'49.1"

1.4 TOTAL PROJECT AREA (Acres): 55.55 Acres

1.5 TOTAL AREA TO BE DISTURBED (Acres): 38.61 Acres

1.6 NATURE OF CONSTRUCTION ACTIVITY:
WORK CONSISTING OF GRADING, BASE, AND SURFACE TREATMENT FOR PAVEMENT REHABILITATION AND WIDENING

1.7 MAJOR SOIL TYPES:

Soil Type	Description
Atco loam, 0 to 1 percent slopes	90% Atco, well drained, no runoff
Knippa clay, 0 to 1 percent slopes	92% Knippa, well drained, low runoff
Sabenyo clay loam, 1 to 5 percent slopes	85% Sabenyo, well drained, low runoff
Orif soils, 0 to 3 percent slopes, frequently flooded	70% Orif, well drained, very low runoff
Castroville clay loam, 0 to 1 percent slopes	85% Castroville, well drained, no runoff
Knippa clay 1 to 3 percent slopes	95% Knippa, well drained, medium runoff
Castroville clay loam, 1 to 3 percent slopes	85% Castroville, well drained, low runoff

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):
PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

☐ PSLs determined during preconstruction meeting
☐ PSLs determined during construction
☐ No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:
(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

☒ Mobilization
☒ Install sediment and erosion controls
☐ Blade existing topsoil into windrows, prep ROW, clear and grub
☐ Remove existing pavement
☒ Grading operations, excavation, and embankment
☒ Excavate and prepare subgrade for proposed pavement widening
☒ Remove existing culverts, safety end treatments (SETs)
☐ Remove existing metal beam guard fence (MBGF), bridge rail
☒ Install proposed pavement per plans
☒ Install culverts, culvert extensions, SETs
☒ Install mow strip, MBGF, bridge rail
☒ Place flex base
☒ Rework slopes, grade ditches
☐ Blade windrowed material back across slopes
☒ Revegetation of unpaved areas
☒ Achieve site stabilization and remove sediment and erosion control measures
☐ Other: _____
_____
☐ Other: _____
_____
☐ Other: _____
_____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

☒ Sediment laden stormwater from stormwater conveyance over disturbed area
☒ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
☒ Solvents, paints, adhesives, etc. from various construction activities
☒ Transported soils from offsite vehicle tracking
☒ Construction debris and waste from various construction activities
☒ Contaminated water from excavation or dewatering pump-out water
☒ Sanitary waste from onsite restroom facilities
☒ Trash from various construction activities/receptacles
☒ Long-term stockpiles of material and waste
☒ Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities.
☐ Other: _____
_____
☐ Other: _____
_____
☐ Other: _____
_____

1.11 RECEIVING WATERS:
Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

X Development of plans and specifications
X Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
X Post Construction Site Notice
X Submit NOI/CSN to local MS4
X Perform SWP3 inspections
X Maintain SWP3 records and update to reflect daily operations
X Complete and submit Notice of Termination to TCEQ
X Maintain SWP3 records for 3 years
☐ Other: _____
_____
☐ Other: _____
_____
☐ Other: _____
_____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

X Day To Day Operational Control
X Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
X Post Construction Site Notice
X Submit NOI/CSN to local MS4
X Maintain schedule of major construction activities
X Install, maintain and modify BMPs
X Complete and submit Notice of Termination to TCEQ
X Maintain SWP3 records for 3 years
☐ Other: _____
_____
☐ Other: _____
_____
☐ Other: _____
_____

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity
NO MS4s RECIEVE STROMWATER DISCHARGE FROM THE SITE

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			232
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	MEDINA	
CONT.	SECT.	JOB	HIGHWAY NO.
0848	04	052	FM 462

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ☐ ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☒ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☒ ☐ Temporary Seeding
- ☐ ☒ Permanent Planting, Sodding or Seeding
- ☒ ☐ Biodegradable Erosion Control Logs
- ☒ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☐ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ☒ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ☐ ☐ Inlet Protection
- ☒ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Sandbag Berms
- ☒ ☐ Sediment Control Fence
- ☒ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☒ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- ☐ ☐ Sedimentation Basin
  - ☒ Not required (<10 acres disturbed)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - ☐ Required (>10 acres), but not feasible due to:
    - ☐ Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☐ Public safety
    - ☐ Other: _____

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- ☐ Excess dirt/mud on road removed daily
- ☐ Haul roads dampened for dust control
- ☐ Loaded haul trucks to be covered with tarpaulin
- ☒ Stabilized construction exit
- ☐ Daily street sweeping
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- ☐ Chemical Management
- ☐ Concrete and Materials Waste Management
- ☐ Debris and Trash Management
- ☐ Dust Control
- ☐ Sanitary Facilities
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- ☐ Fire hydrant flushings
- ☒ Irrigation drainage
- ☒ Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- ☒ Potable water sources
- ☒ Springs
- ☒ Uncontaminated groundwater
- ☒ Water used to wash vehicles or control dust
- ☒ Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

When dewatering activities are present, a daily inspection will be conducted once per day during those activities and documented in accordance with CGP and TxDOT requirements.

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 2 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			233
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	MEDINA	
CONT.	SECT.	JOB	HIGHWAY NO.
0848	04	052	FM 462

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit (CGP) required for projects with 1 or more acres distrubed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000.
2. Comply with the Storm Water Pollution Prevention Plan (SW3P) and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and Texas Commission on Environmental Quality (TCEQ), Environmental Protection Agency (EPA) or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, Contractor shall submit Notice of Intent (NOI) to TCEQ and the Engineer.
5. NOI required: ☐Yes ☐No

Note: If amount of soil disturbance changes, permit requirements may change.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

US Army Corps of Engineers (USACE) Permit required for filling, dredging, excavating or other work in any potential USACE jurisdictional water, such as, rivers, creeks, streams, or wetlands.

The Contractor shall adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required

☐ Nationwide Permit (NWP) 14 - Pre-construction Notice (PCN) not Required

☐ Nationwide Permit 14 - PCN Required

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices (BMPs) planned to control erosion, sedimentation and post-project total suspended solids (TSS).

1.

2.

3.

4.

401 Best Management Practices: (Not applicable if no USACE permit)

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Sedimentation Chambers
		☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☒ No Action Required ☐ Required Action

Action No.

1.

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3.

4.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162,164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☐ No Action Required ☐ Required Action

Action No.

1.

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3.

4.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☐ No Action Required ☒ Required Action

Action No.

1. MIGRATORY BIRD NESTS: Schedule construction activities as needed to meet the following requirements:

   A. Do not remove or destroy any active migratory bird nests (nests containing eggs and/or flightless birds) at any time of year. If there are any active nests, they shall not be removed until the nests become inactive.

   B. On/in structures, if there are any active nests, they shall not be removed until all nests become inactive. After inactive nests are removed and/or before nest activity begins, deterrent materials may be applied to the structures to prevent future nest building.

2. See Item 5 in General Notes.

3.

4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediated area, and contact the Engineer immediately.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the follwing are detected:
* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

Does the project involve the demolition of a span bridge?

☐ Yes ☒ No (No further action required)

If "Yes", a pre- demolition notification must be submitted to the Texas Department of State Health Services. The contractor shall contact TxDOT's Project Engineer 25 calendar days prior to the demolition of the bridges(s) on the project to assist with the notification.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

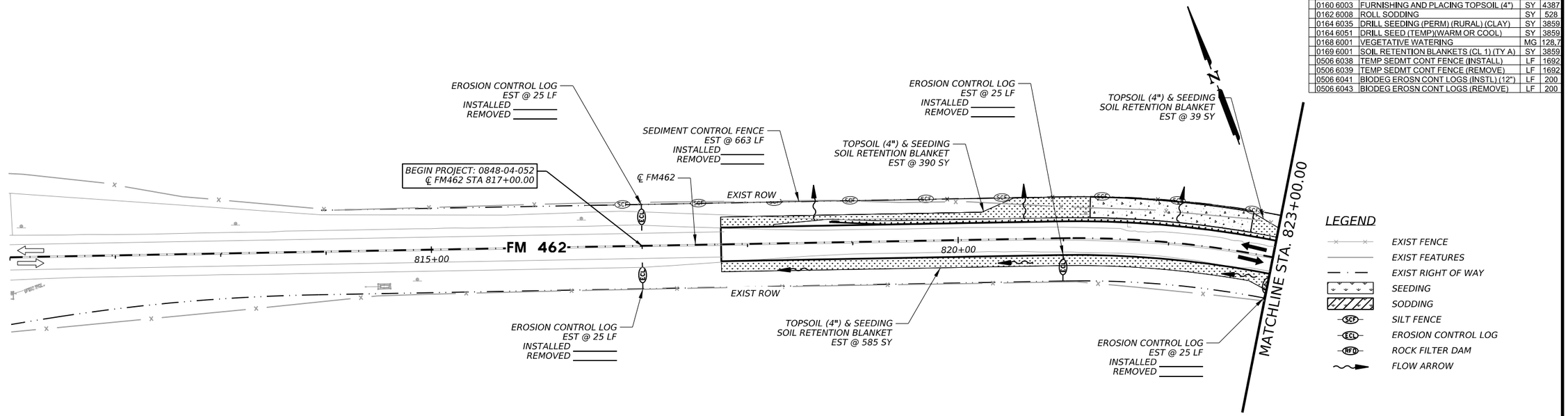
Texas Department of Transportation
San Antonio District Standard

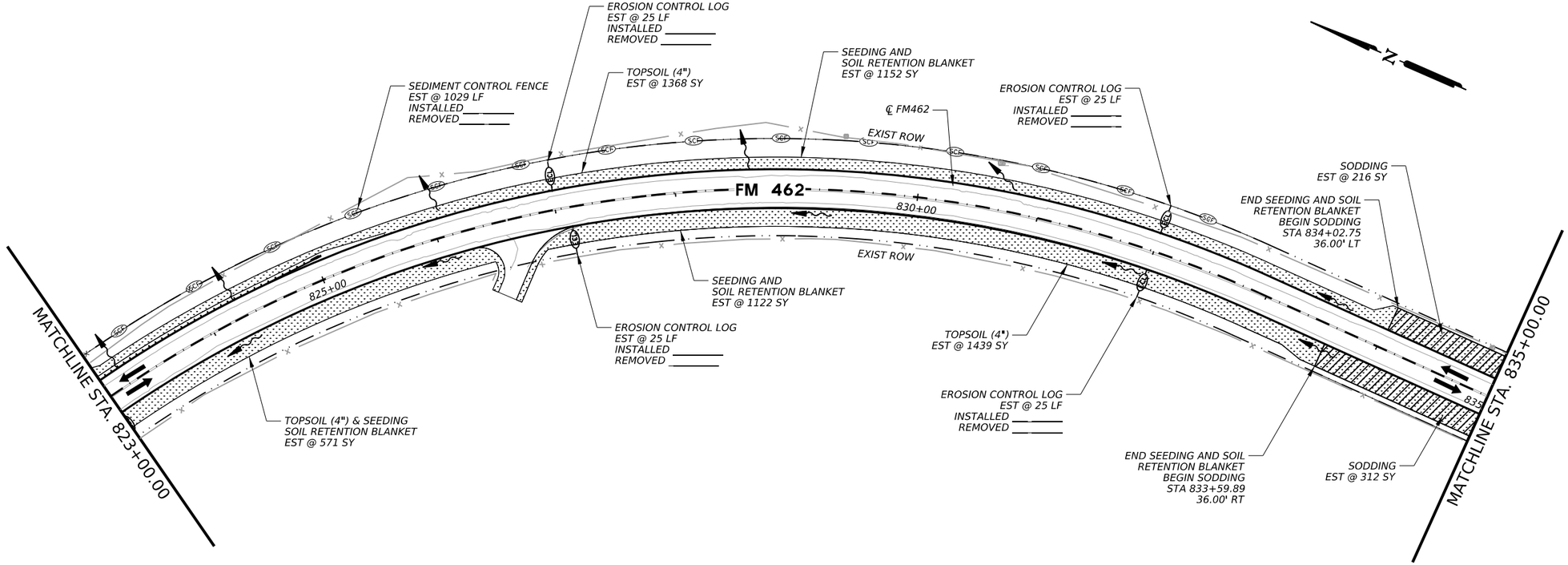
ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic_2015-10-09_SAT.dgn	DN: TxDOT	CK: TxDOT	DW: BW	CK: GAG
©TxDOT OCTOBER 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		234

SHEET #			1
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4387
0162 6008	ROLL SODDING	SY	528
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	3859
0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	3859
0168 6001	VEGETATIVE WATERING	MG	128.7
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	3859
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1692
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1692
0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	200
0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	200





1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SW3P LAYOUT

SHEET 1 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		235

DATE: 1/31/2024 6:01:54 PM
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CK:
DW:
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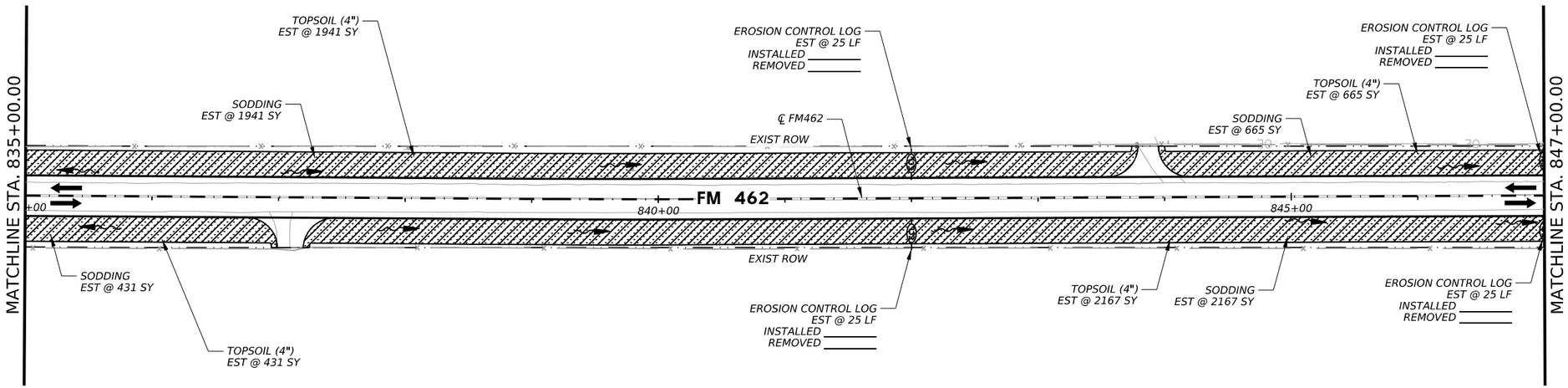
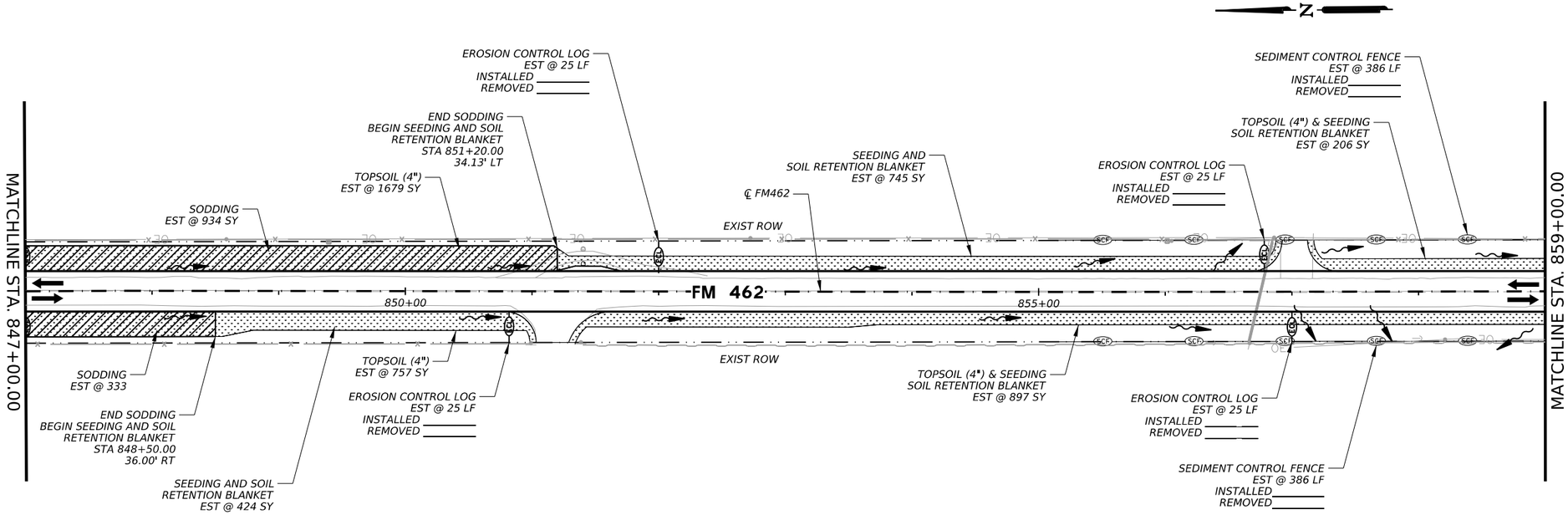
	SHEET #			2
	ITEM	DESCRIPTION	UNIT	QTY
	0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	8743
	0162 6008	ROLL SODDING	SY	6471
	0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	2272
	0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	2272
	0168 6001	VEGETATIVE WATERING	MG	171.5
	0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	2272
	0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	771
	0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	771
	0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	200
	0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	200





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- SEEDING
- SODDING
- SILT FENCE
- EROSION CONTROL LOG
- ROCK FILTER DAM
- FLOW ARROW

1/31/2024

STATE OF TEXAS · DAVID H. GUTIERREZ · 143301 · LICENSED · PROFESSIONAL ENGINEER

0' 50' 100'

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FM 462

SW3P LAYOUT

SHEET 2 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		236

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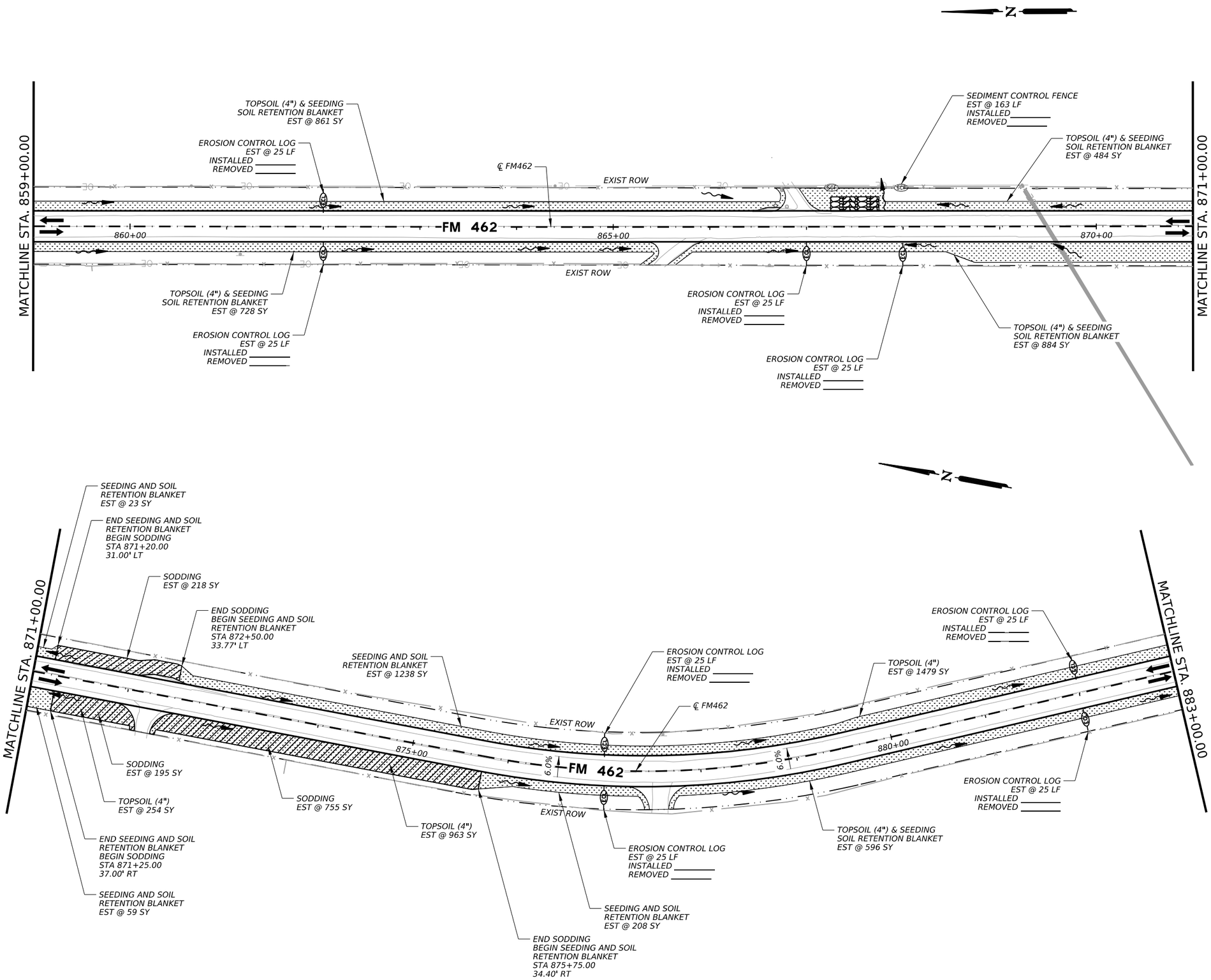
CK:
DW:
CK:
DW:

SHEET #			3
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	6249
0162 6008	ROLL SODDING	SY	1168
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	5081
0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	5081
0168 6001	VEGETATIVE WATERING	MG	176.8
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	5081
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	163
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	163
0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	200
0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	200



1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
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0' 50' 100'

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FM 462

SW3P LAYOUT

SHEET 3 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		237

DATE: 1/31/2024 6:01:56 PM
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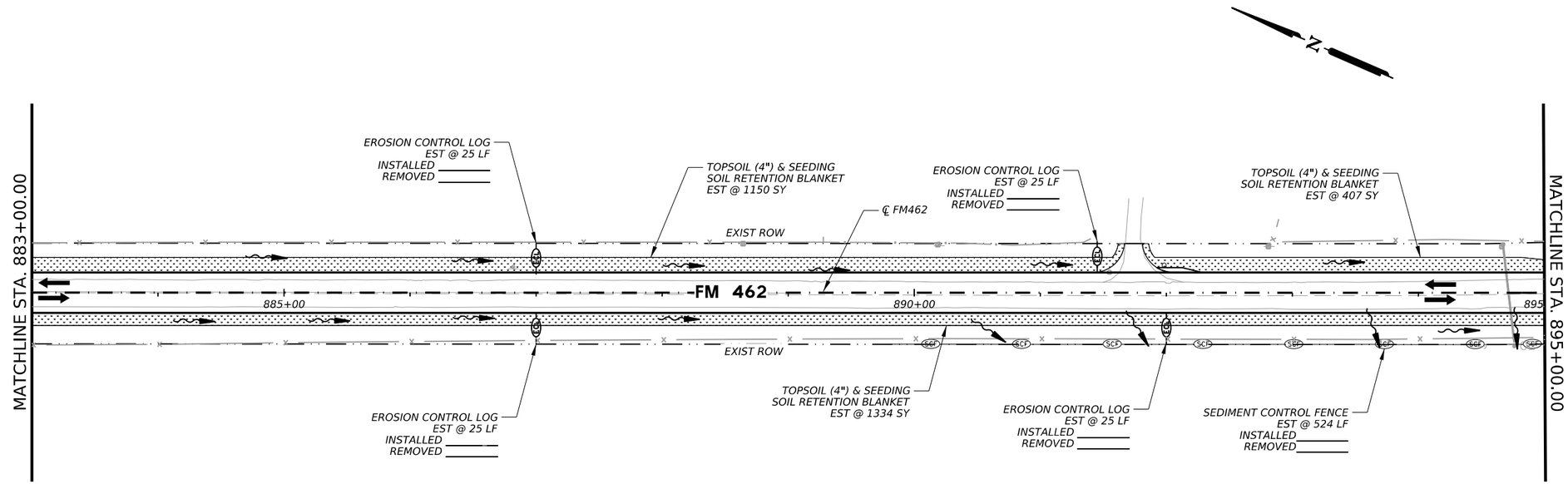
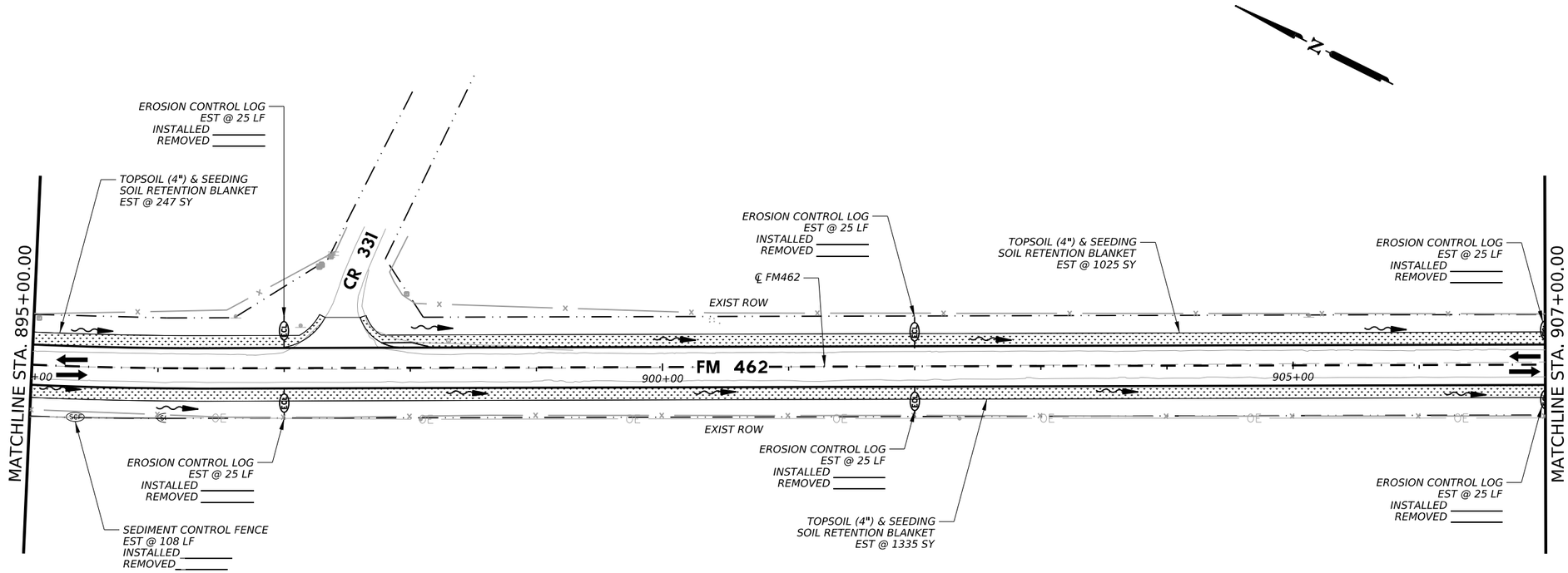
CK: DW: CK: DW:

SHEET #			4
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	5498
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	5498
0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	5498
0168 6001	VEGETATIVE WATERING	MG	171.6
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	5498
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	632
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	632
0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	250
0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	250





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- SEEDING
- SODDING
- SILT FENCE
- EROSION CONTROL LOG
- ROCK FILTER DAM
- FLOW ARROW

1/31/2024

0' 50' 100'

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FM 462

SW3P LAYOUT

SHEET 4 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		238

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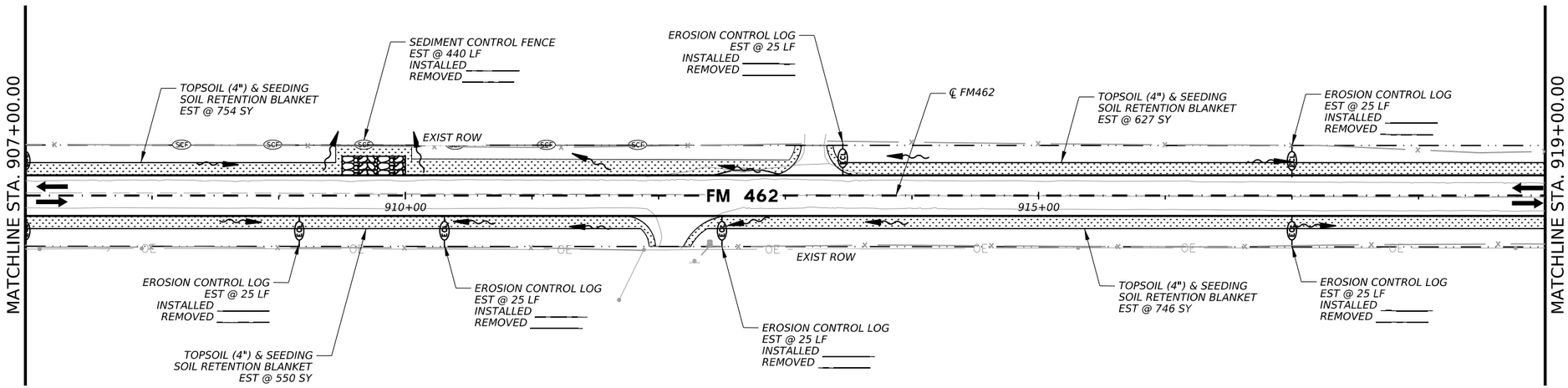
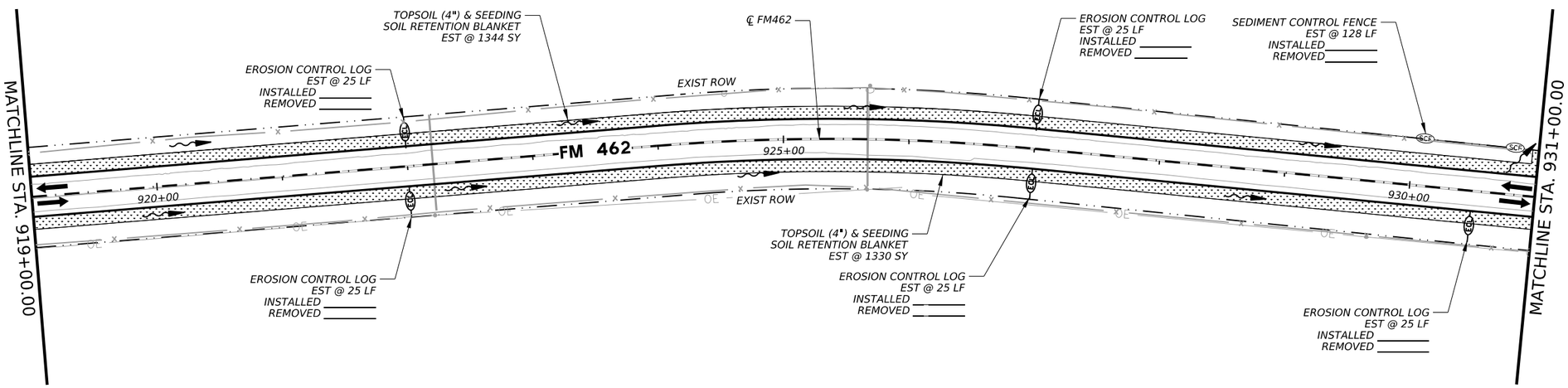
	0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	5351
	0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	5351
	0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	5351
	0168 6001	VEGETATIVE WATERING	MG	167.0
	0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	5351
	0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	568
	0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	568
	0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	275
	0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	275





LEGEND

- EXIST FENCE
- EXIST FEATURES
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- SODDING
- SILT FENCE
- EROSION CONTROL LOG
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1/31/2024

STATE OF TEXAS
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FM 462

SW3P LAYOUT

SHEET 5 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		239

DATE: 1/31/2024 6:01:58 PM
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CK: DW: CK: DW:

SHEET #			6
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	5201
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	5201
0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	5201
0168 6001	VEGETATIVE WATERING	MG	162.3
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	5201
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	559
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	559
0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	225
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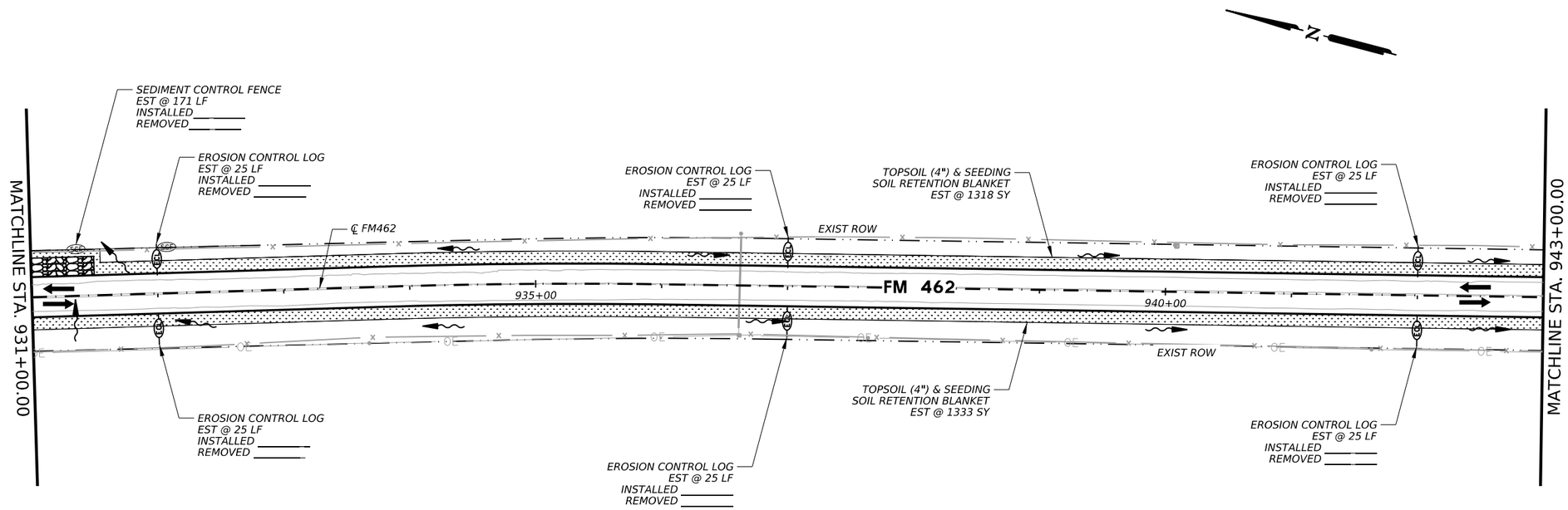

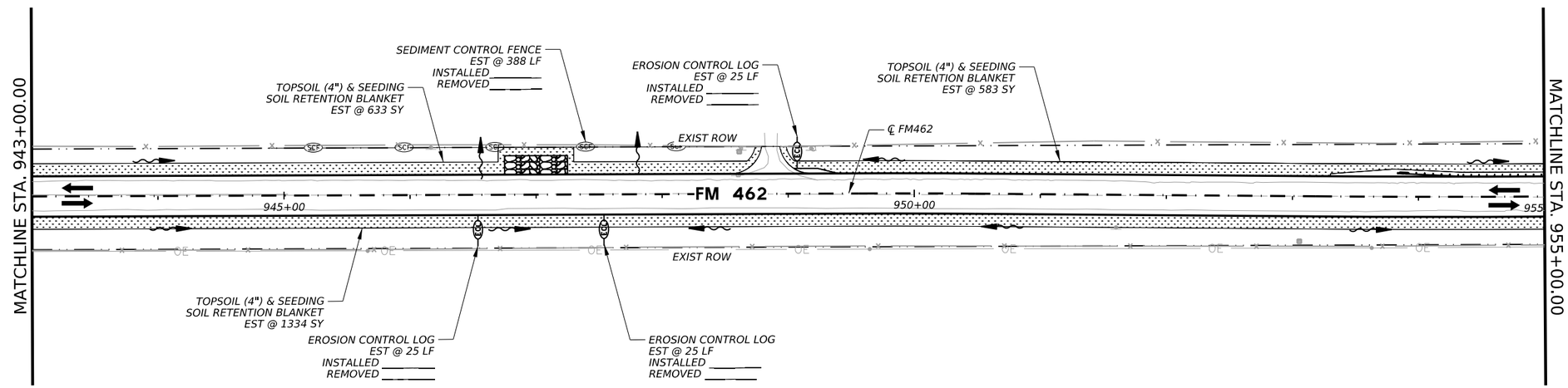

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- SEEDING
- SODDING
- SILT FENCE
- EROSION CONTROL LOG
- ROCK FILTER DAM
- FLOW ARROW

1/31/2024

0' 50' 100'

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Texas Department of Transportation

FM 462

SW3P LAYOUT

SHEET 6 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		240

DATE: 1/31/2024 6:01:59 PM
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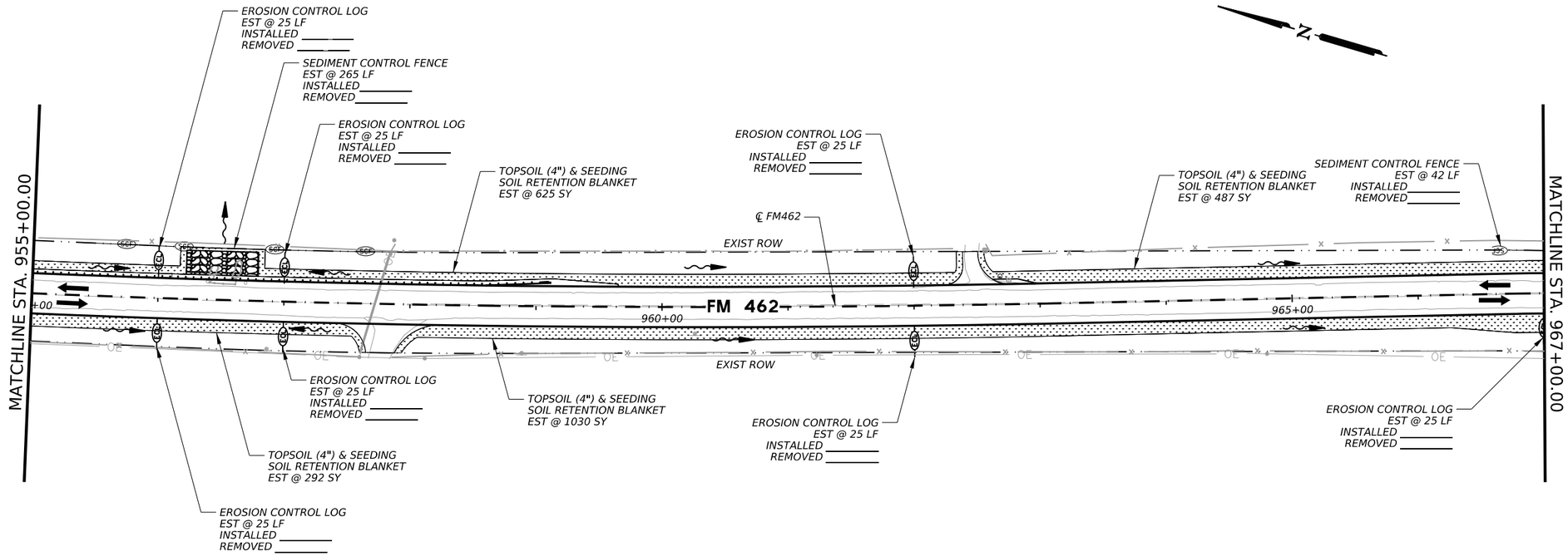
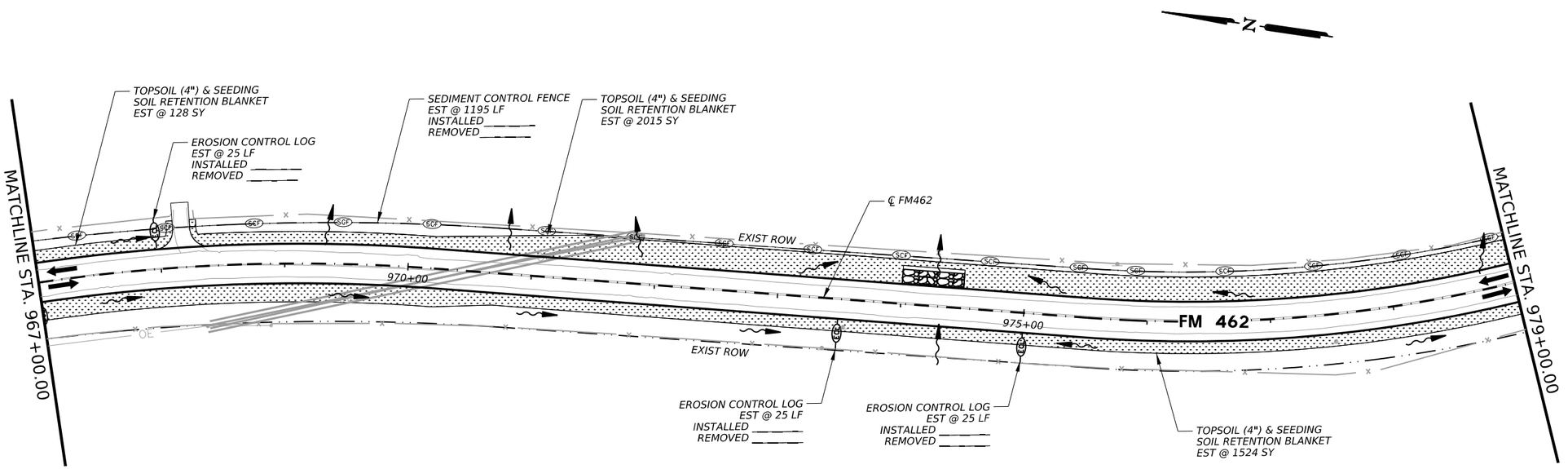
SHEET #			7
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	6101
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	6101
0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	6101
0168 6001	VEGETATIVE WATERING	MG	190.4
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	6101
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1501
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1501
0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	250
0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	250





LEGEND

- EXIST FENCE
- EXIST FEATURES
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- SODDING
- SILT FENCE
- EROSION CONTROL LOG
- ROCK FILTER DAM
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1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SW3P LAYOUT

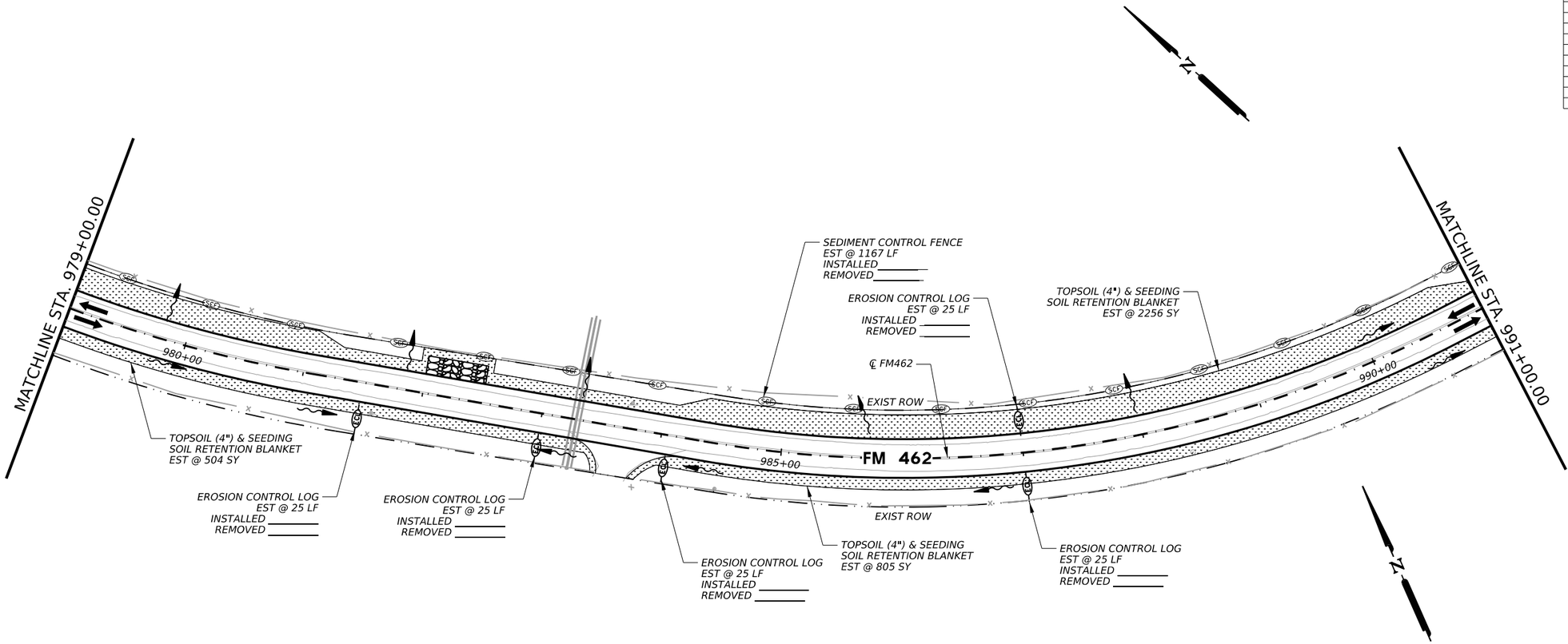
SHEET 7 OF 13

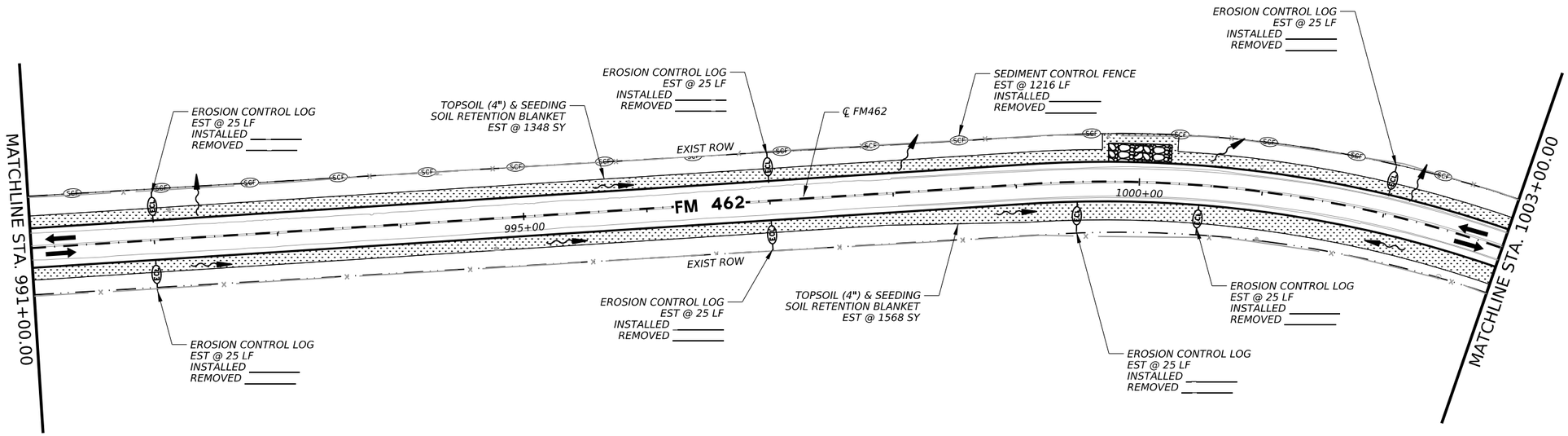
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		241

DATE: 1/31/2024 6:02:00 PM
FILE: c:\pwikh1\d0285622\FM462_ENV_SW3P.dgn

CK:
DW:
CK:
DW:

	SHEET #			8
	ITEM	DESCRIPTION	UNIT	QTY
0160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	6481
0164	6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	6481
0164	6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	6481
0168	6001	VEGETATIVE WATERING	MG	202.3
0169	6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	6481
0506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2383
0506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2383
0506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	300
0506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	300





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- SEEDING
- SODDING
- SILT FENCE
- EROSION CONTROL LOG
- ROCK FILTER DAM
- FLOW ARROW

1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

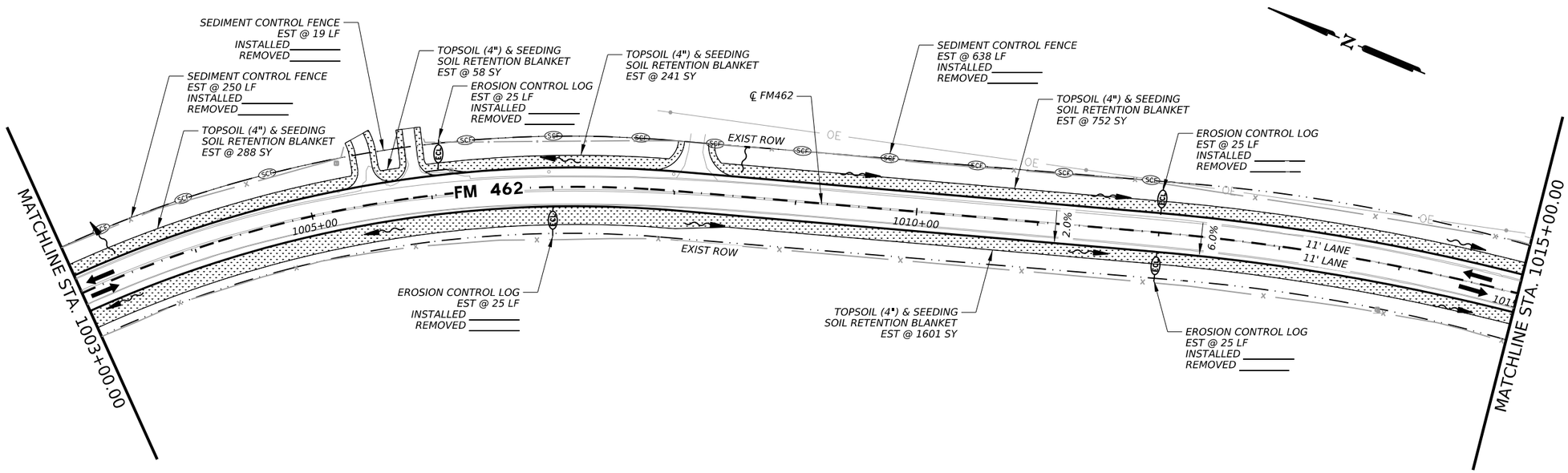
SW3P LAYOUT

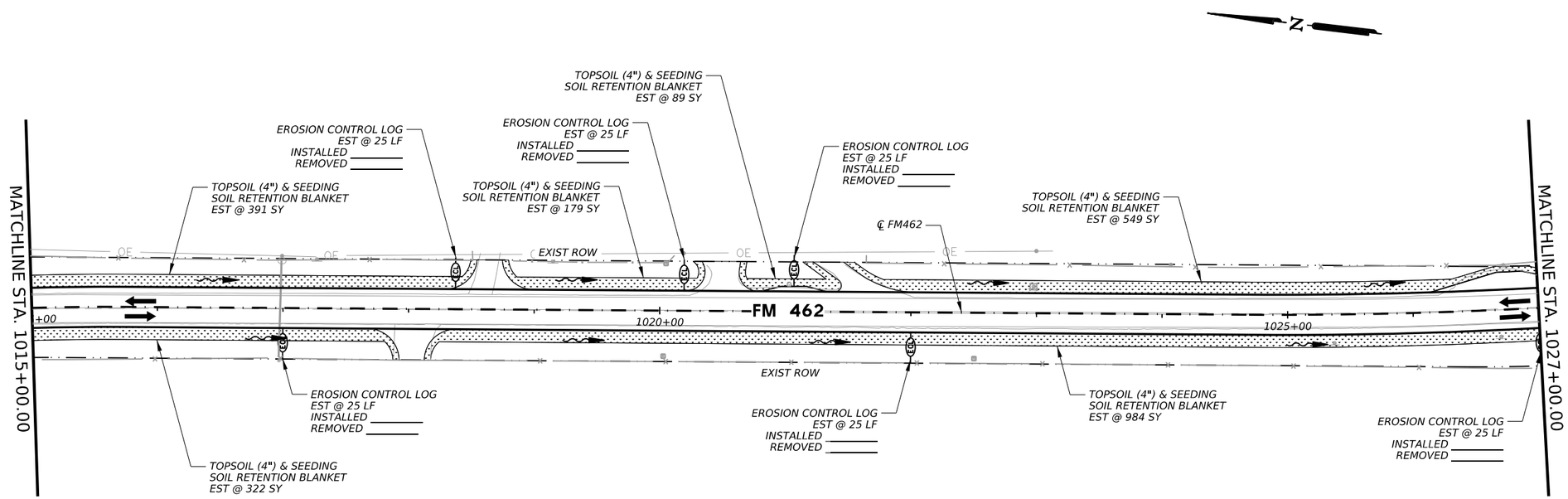
SHEET 8 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		242

DATE: 1/31/2024 6:02:02 PM
FILE: c:\pw\kh1\d0285622\FM462_ENV_SW3P.dgn

	SHEET #			9
	ITEM	DESCRIPTION	UNIT	QTY
	0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	5454
	0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	5454
	0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	5454
	0168 6001	VEGETATIVE WATERING	MG	170.2
	0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	5454
	0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	907
	0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	907
	0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	250
	0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	250





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- SEEDING
- SODDING
- SILT FENCE
- EROSION CONTROL LOG
- ROCK FILTER DAM
- FLOW ARROW

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

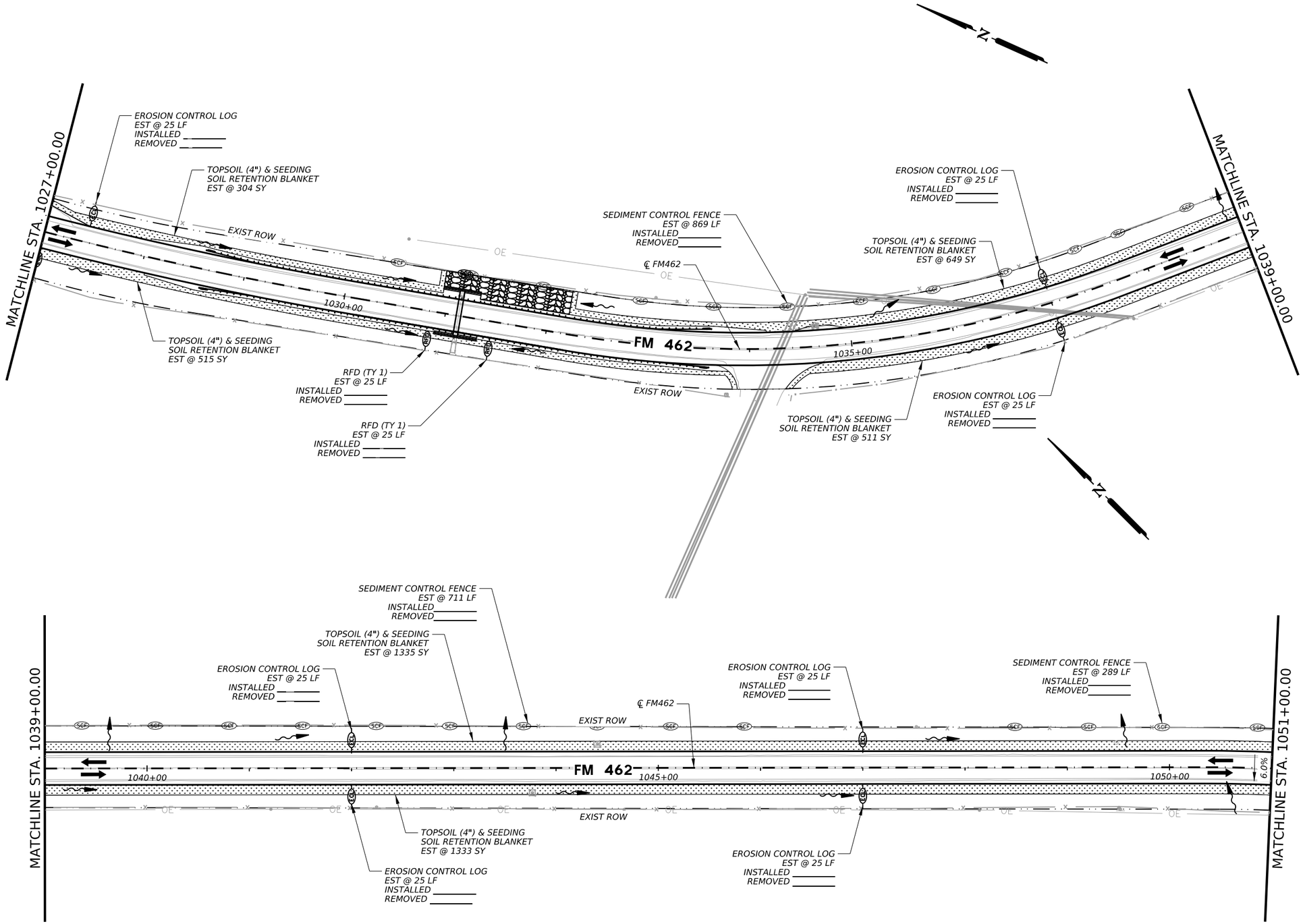
SW3P LAYOUT

SHEET 9 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		243

DATE: 1/31/2024 6:02:03 PM
FILE: c:\pw\kh1\d0285622\FM462_ENV_SW3P.dgn

SHEET #			10
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4647
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	4647
0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	4647
0168 6001	VEGETATIVE WATERING	MG	145.0
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4647
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	50
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	60
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	110
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1868
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1868
0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	175
0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	175



LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- SEEDING
- SODDING
- SILT FENCE
- EROSION CONTROL LOG
- ROCK FILTER DAM
- FLOW ARROW

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SW3P LAYOUT

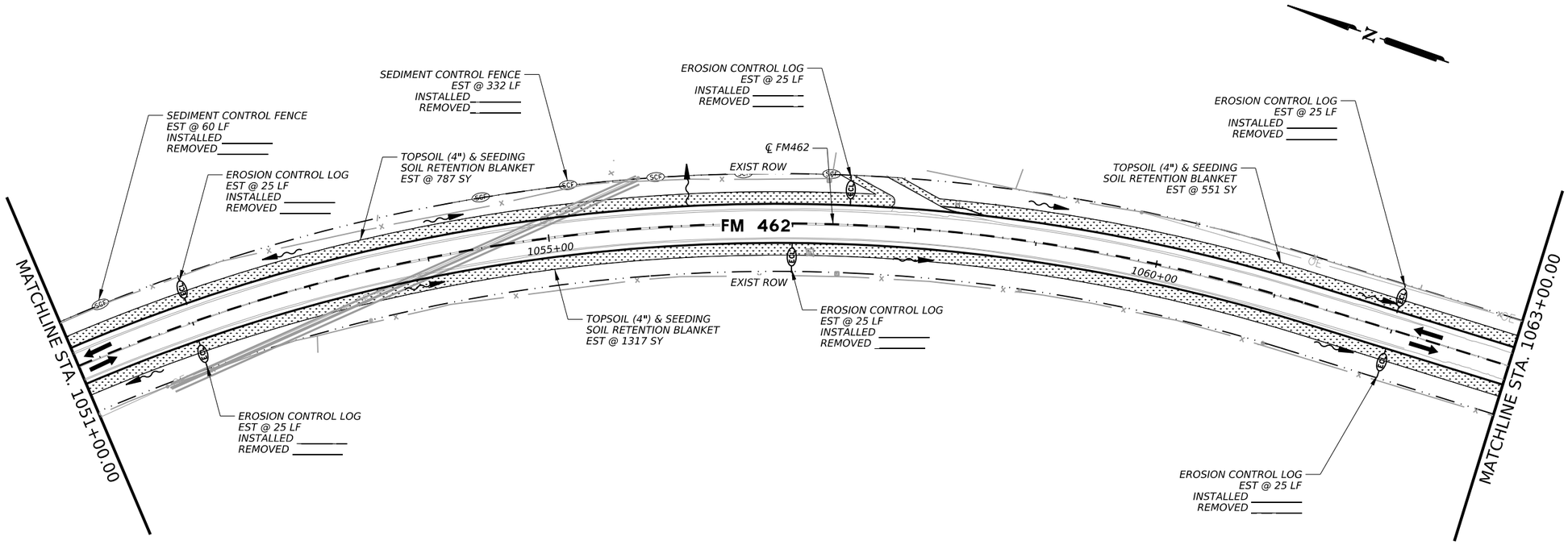
SHEET 10 OF 13

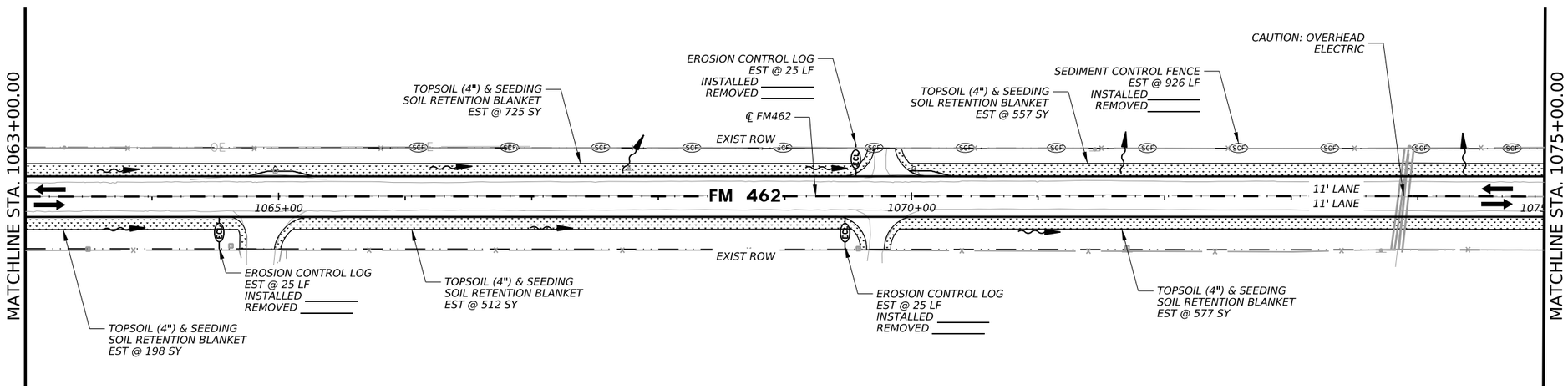
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		244

DATE: 1/31/2024 6:02:05 PM
FILE: c:\pw\kh1\d0285622\FM462_ENV_SW3P.dgn

CK: DW: CK: DW:

	SHEET #			11
	ITEM	DESCRIPTION	UNIT	QTY
	0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	5224
	0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	5224
	0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	5224
	0168 6001	VEGETATIVE WATERING	MG	163.0
	0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	5224
	0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1318
	0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1318
	0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	225
	0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	225





1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SW3P LAYOUT

SHEET 11 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		245

DATE: 1/31/2024 6:02:06 PM
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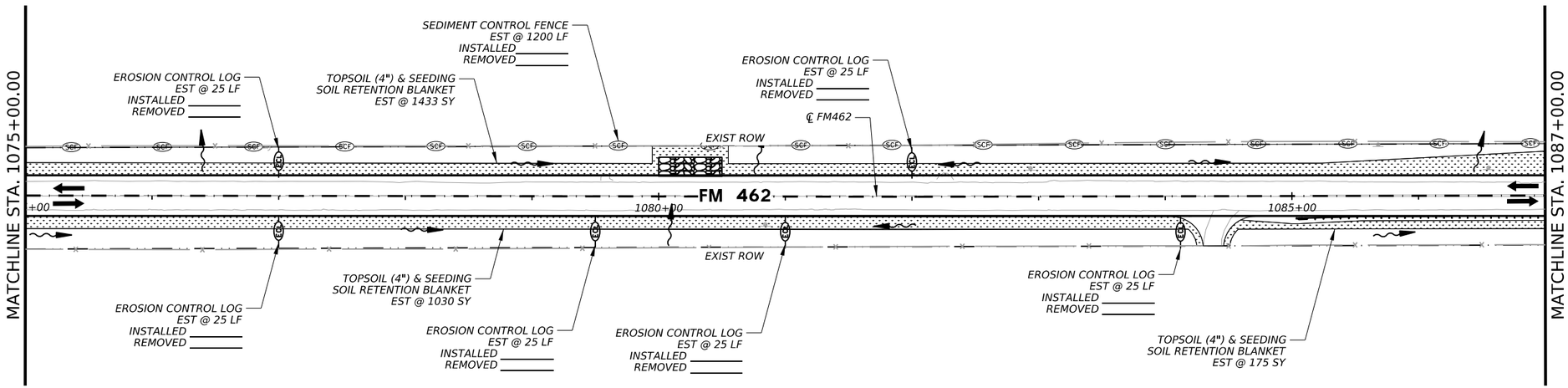
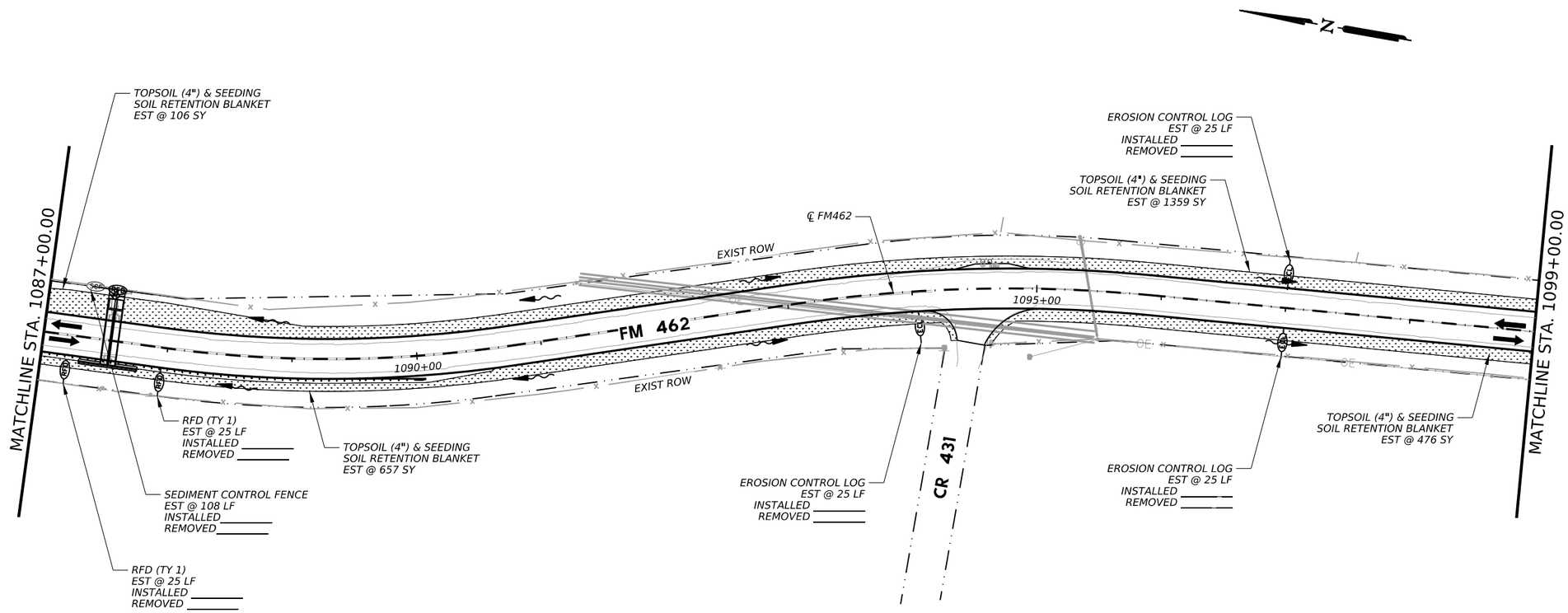
SHEET #			12
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	5236
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	5236
0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	5236
0168 6001	VEGETATIVE WATERING	MG	163.4
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	5236
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	50
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	60
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	110
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1308
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1308
0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	225
0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	225





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- SEEDING
- SODDING
- SILT FENCE
- EROSION CONTROL LOG
- ROCK FILTER DAM
- FLOW ARROW

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
PROFESSIONAL ENGINEER

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SW3P LAYOUT

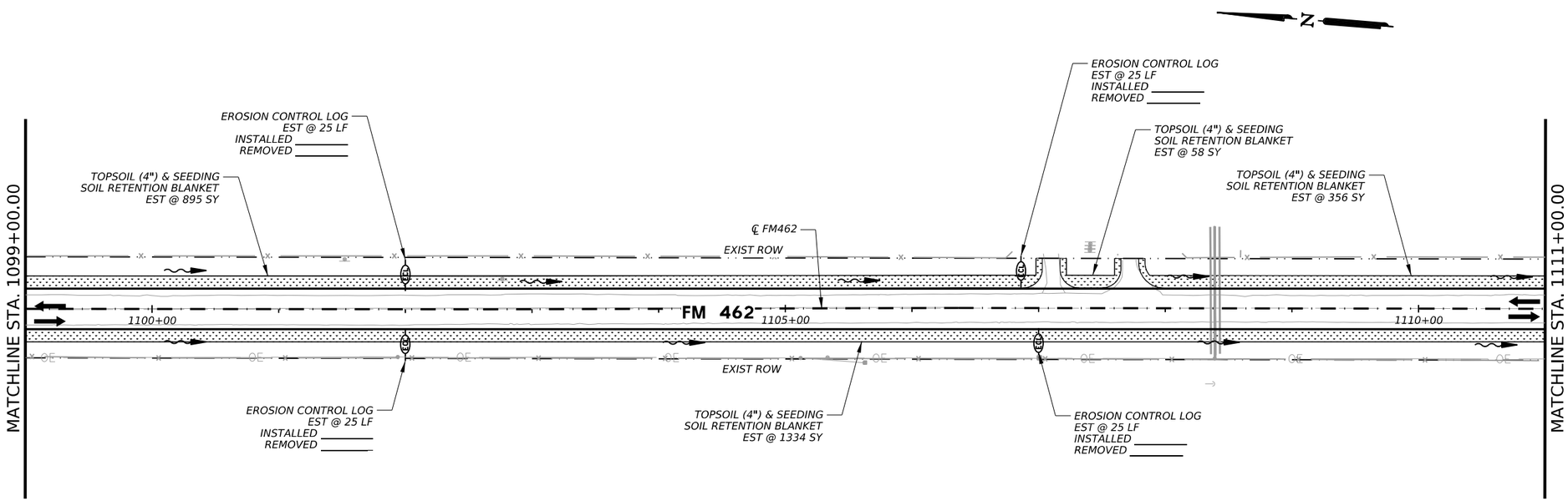
SHEET 12 OF 13

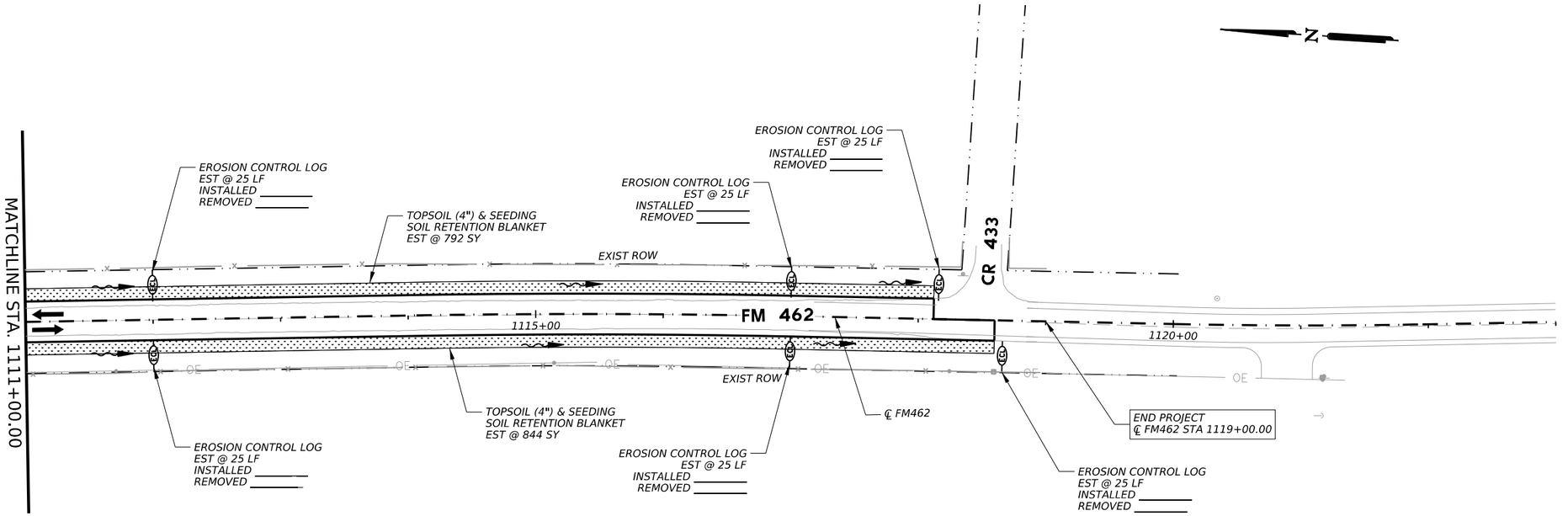
CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		246

DATE: 1/31/2024 6:02:07 PM
FILE: c:\pwikh1\d0285622\FM462_ENV_SW3P.dgn

CK:
DW:
CK:
DW:

SHEET #			13
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4279
0164 6035	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	4279
0164 6051	DRILL SEED (TEMP)(WARM OR COOL)	SY	4279
0168 6001	VEGETATIVE WATERING	MG	133.6
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4279
0506 6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	250
0506 6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	250





LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- SEEDING
- SODDING
- SILT FENCE
- EROSION CONTROL LOG
- ROCK FILTER DAM
- FLOW ARROW

1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

SW3P LAYOUT

SHEET 13 OF 13

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		247

DATE: 1/31/2024 6:02:09 PM
FILE: c:\pwikh1\d0285622\FM462_ENV_SW3P.dgn

Texas Commission on Environmental Quality Water Pollution Abatement Plan
General Construction Notes

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

2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.

3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.

5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.

7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN
TCEQ-0592 (REV. JULY 15, 2015) PAGE 2 OF 2
WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.

9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.

10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE 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.

12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

TOTAL PROJECT SUMMARY				
SITE AREA	EXISTING IMPERVIOUS AREA	PROPOSED IMPERVIOUS AREA	REQUIRED ANNUAL TSS LOAD REMOVAL	PROVIDED ANNUAL TSS LOAD REMOVAL
AC	AC	AC	LBS	LBS
8.23	3.13	4.49	1036	1103

PROVIDED LOAD REMOVAL / VEGETATIVE FILTER STRIP SUMMARY						
VFS ID	DRAINAGE AREA	BEGIN STA	END STA	OFFSET	REMOVAL EFFICIENCY	PROVIDED TSS REMOVAL
	AC			RT/LT		LBS
NB-1	0.11	834+17.57	836+63.8	LT	85	90
NB-2	0.24	836+63.83	843+54.3	LT	85	198
NB-3	0.26	844+20.28	851+20.0	LT	85	214
NB-4	0.05	871+20.00	872+50.0	LT	85	42
NORTHBOUND LOAD REMOVAL =						544
SB-1	0.11	833+59.89	836+74.6	RT	85	90
SB-2	0.42	837+44.69	848+50.0	RT	85	346
SB-3	0.03	871+25.00	871+88.8	RT	85	24
SB-4	0.12	872+55.00	875+75.0	RT	85	99
SOUTHBOUND LOAD REMOVAL =						559
TOTAL PROVIDED LOAD REMOVAL =						1103

NOTES:

1. *SEE FM 462 WATER QUALITY REPORT (STANTEC) FOR DETAILED DISCUSSION ON WATER QUALITY CALCULATION METHODOLOGY.*
2. *TOTAL REQUIRED LOAD REMOVALS ONLY COMPUTED WITHIN THE LIMITS OF THE ROADWAY WIDENING AS FOLLOWS:*
   NORTHBOUND: BEGIN STA 817+00.00 END STA 875+96.08
   SOUTHBOUND: BEGIN STA 817+00.00 END STA 875+96.08

1/31/2024

STATE OF TEXAS
DAVID H. GUTIERREZ
143301
LICENSED
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Kimley»Horn F-928

Texas Department of Transportation

FM 462

WATER QUALITY CALCULATIONS AND TCEQ GENERAL NOTES

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		248

DATE: 1/31/2024 6:02:32 PM
FILE: c:\pw\khh1\d0285622\FM462_ENV_CALCS.dgn

CK:
DW:
CK:
DW:

BEGIN PROJECT: 0848-04-052
℄ FM462 STA 817+00.00

℄ FM462

EXIST ROW

S70°25'51.4"E

FM 462

815+00

820+00

EXIST ROW

PC 820+94.63

MATCHLINE STA. 823+00.00

FEMA
100-YEAR FLOODPLAIN

N

EXIST GROUND

15'
VFS

VARIES

EXIST ROW

℄

20:1 (USUAL)
15:1 (MAX)

4:1

PROP EOP

PROP VFS DITCH SECTION
N.T.S

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- LIMITS OF EDWARDS AQUIFER RECHARGE ZONE
- DIRECTION OF TRAVEL
- VEGETATIVE FILTER STRIPS
- FEMA 100-YEAR FLOODPLAIN

℄ FM462

EXIST ROW

825+00

830+00

EXIST ROW

MATCHLINE STA. 823+00.00

N

NB-1
0.11 AC

PROP DITCH 2-2
DITCH DETAIL B
SEE NOTE 3

BEGIN VFS NB-1
STA 834+17.57

BEGIN PROP DITCH 2-2
STA 834+00.00
31.00' LT

PT 822+92.69

BEGIN PROP DITCH 2-3
STA 833+50.00
21.00' RT

BEGIN VFS SB-1
STA 833+59.89

SB-1
0.11 AC

STA 834+50.00
31.00' RT

835

MATCHLINE STA. 835+00.00

FEMA
100-YEAR FLOODPLAIN

1/31/2024

0' 50' 100'

STATE OF TEXAS
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LICENSED
PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

FM 462

WATER POLLUTION ABATEMENT PLAN

SHEET 1 OF 3

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		249

DATE: 1/31/2024 6:02:59 PM
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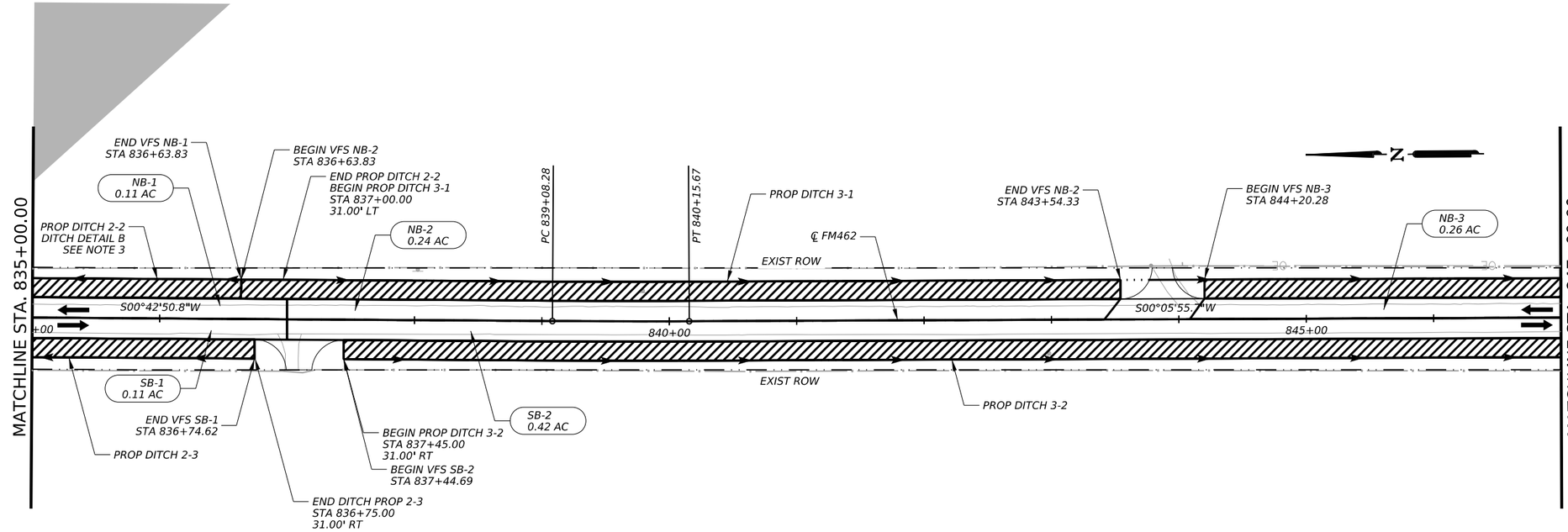
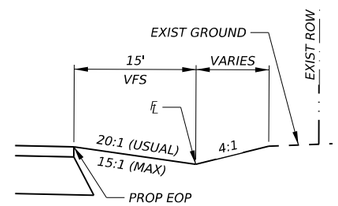
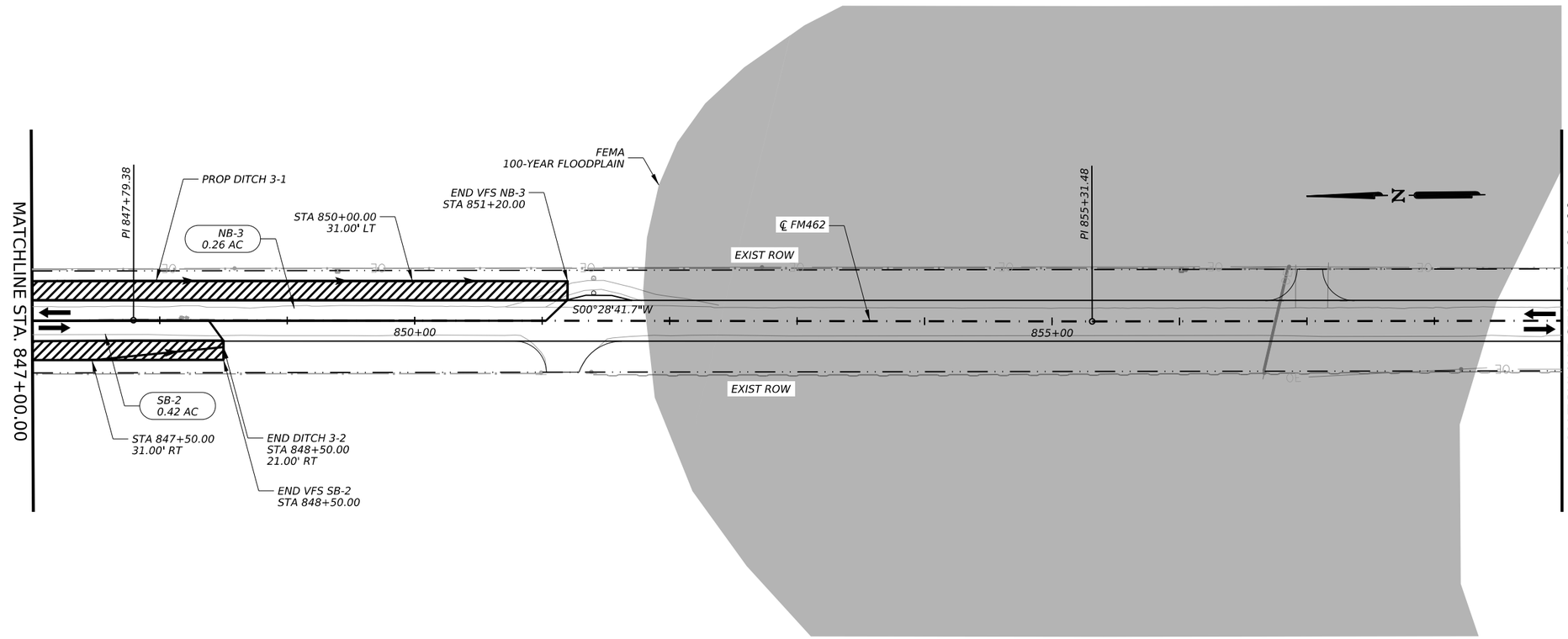




PROP VFS DITCH SECTION
N.T.S

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- LIMITS OF EDWARDS AQUIFER RECHARGE ZONE
- DIRECTION OF TRAVEL
- VEGETATIVE FILTER STRIPS
- FEMA 100-YEAR FLOODPLAIN



1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

WATER POLLUTION ABATEMENT PLAN

SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		250

DATE: 1/31/2024 6:03:00 PM
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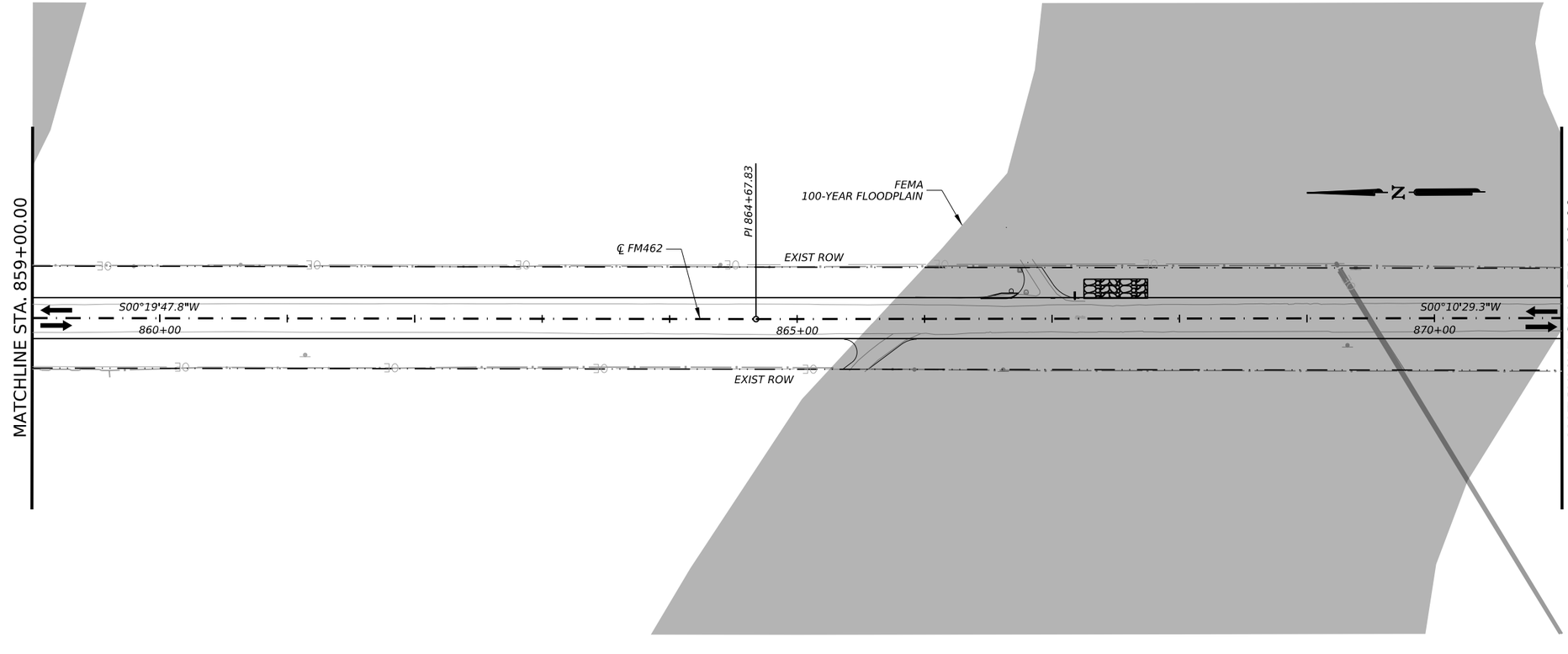
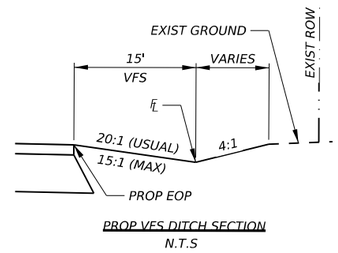
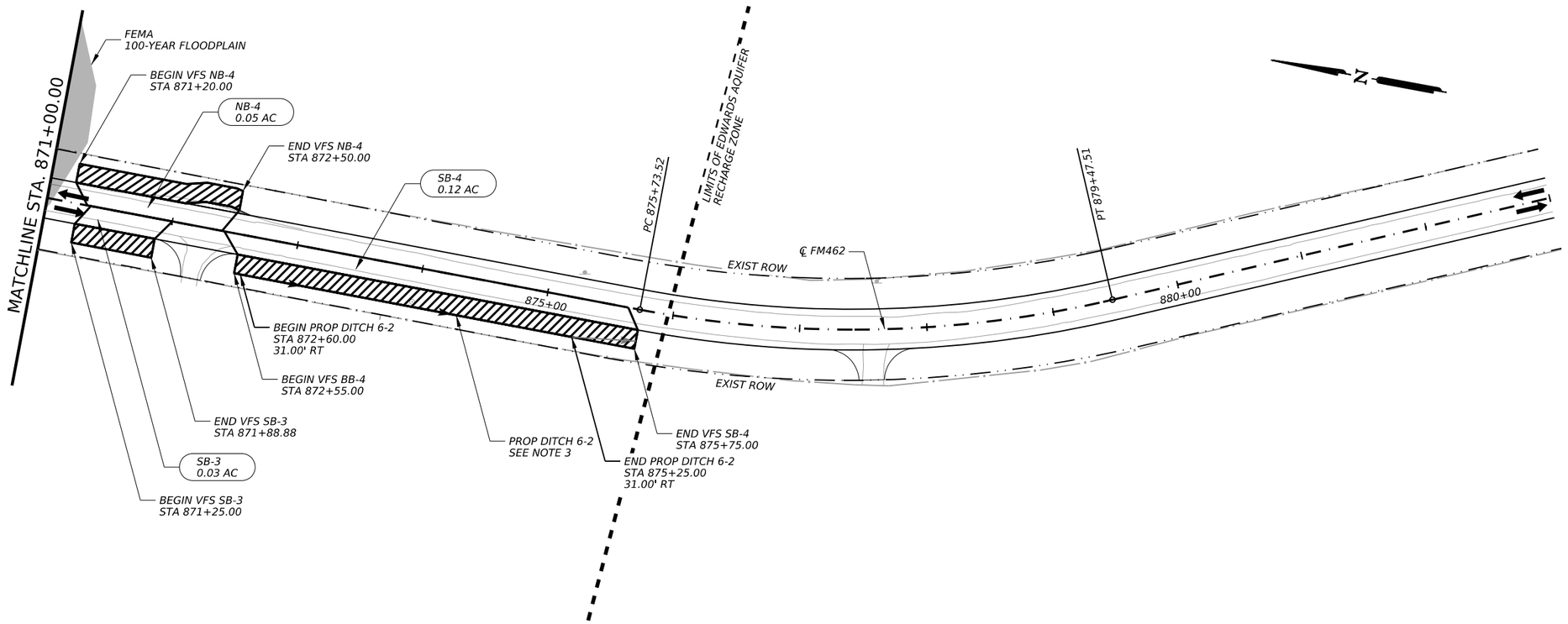




PROP VFS DITCH SECTION
N.T.S

LEGEND

- EXIST FENCE
- EXIST FEATURES
- EXIST RIGHT OF WAY
- LIMITS OF EDWARDS AQUIFER RECHARGE ZONE
- DIRECTION OF TRAVEL
- VEGETATIVE FILTER STRIPS
- FEMA 100-YEAR FLOODPLAIN



1/31/2024

0' 50' 100'

Kimley»Horn F-928

Texas Department of Transportation

FM 462

WATER POLLUTION ABATEMENT PLAN

SHEET 3 OF 3

CONT	SECT	JOB	HIGHWAY
0848	04	052	FM 462
DIST	COUNTY		SHEET NO.
SAT	MEDINA		251

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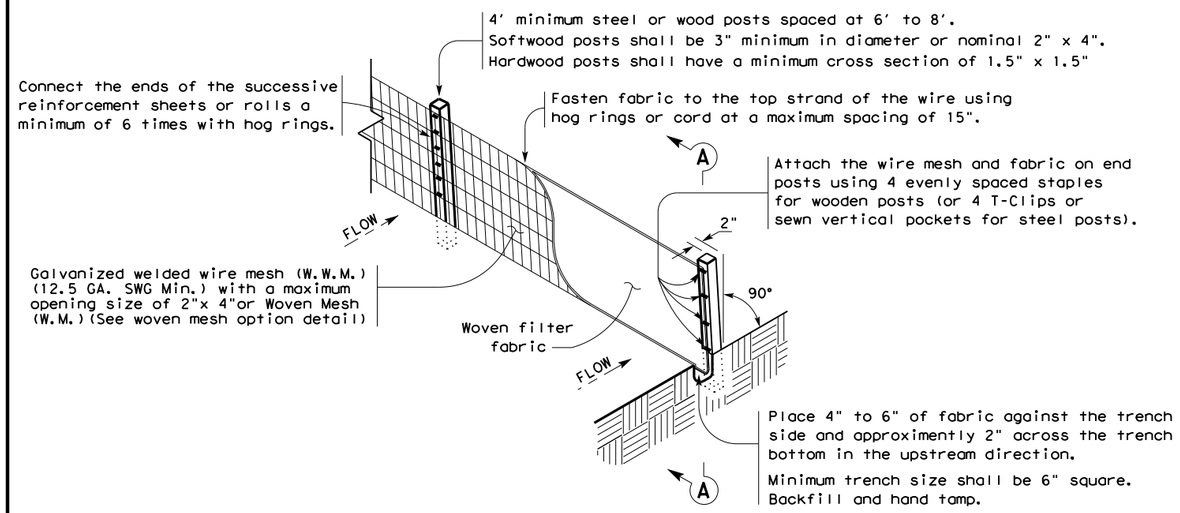
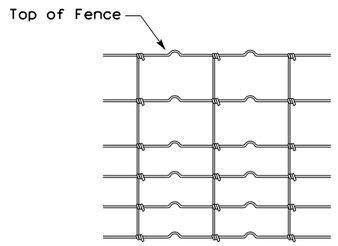
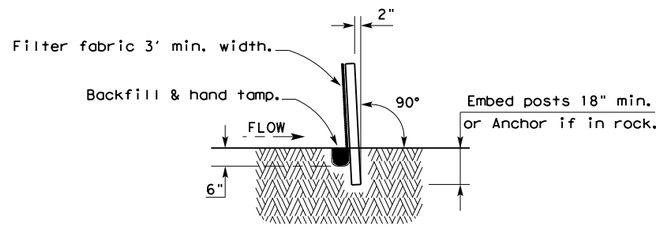


TEMPORARY SEDIMENT CONTROL FENCE

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.

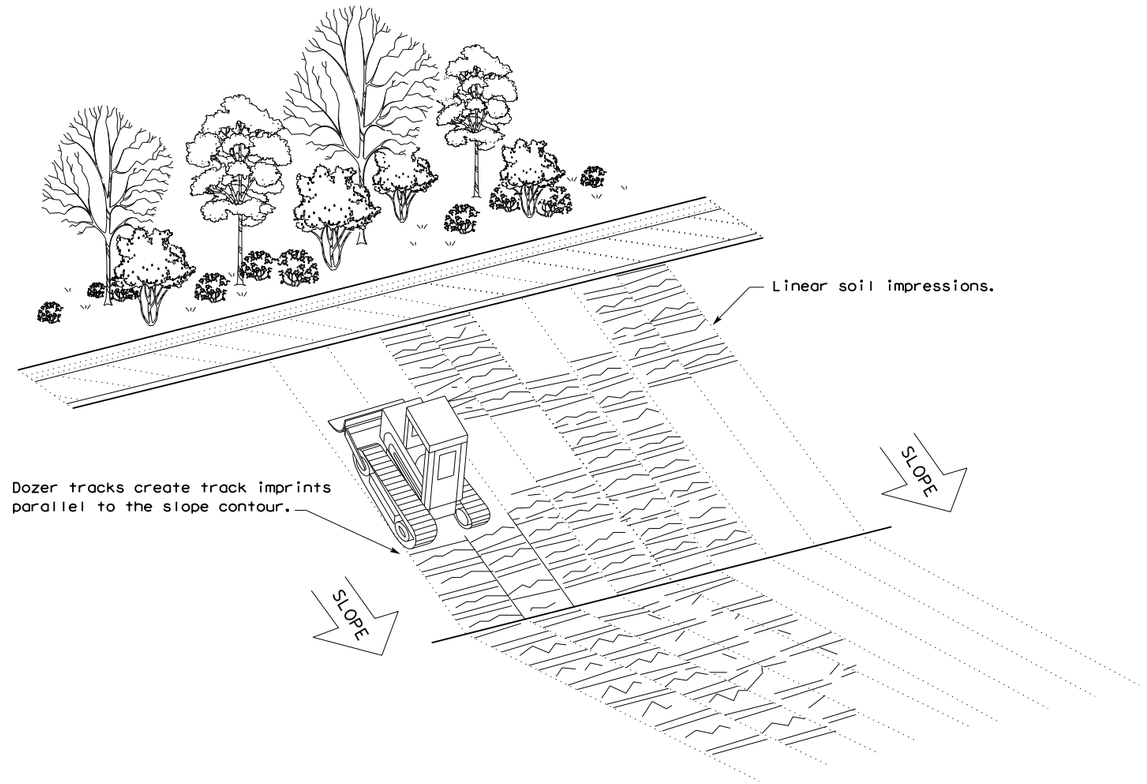
LEGEND

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	0848	04	052	FM 462	
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	SAT	MEDINA		252	

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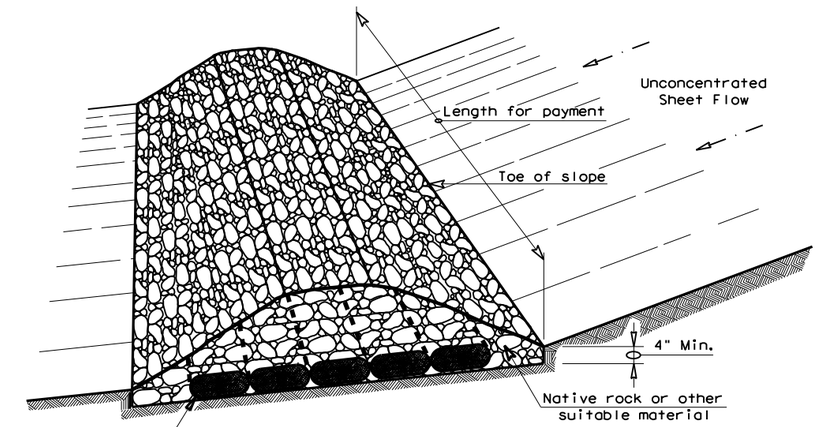
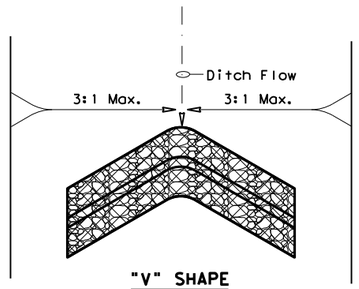
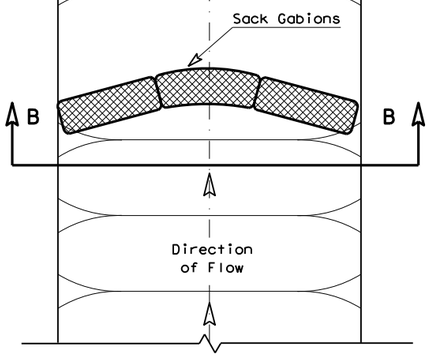


FILTER DAM AT TOE OF SLOPE

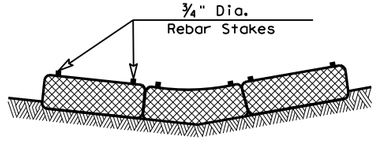
RFD1



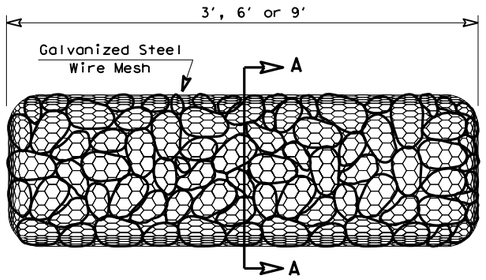
"V" SHAPE PLAN VIEW



PLAN VIEW

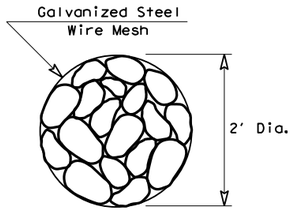


SECTION B-B

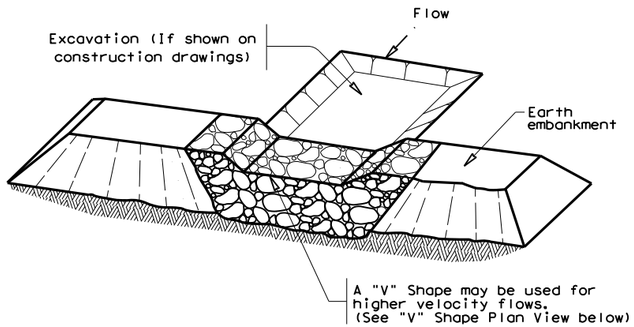


TYPE 4 (SACK GABIONS)

RFD4

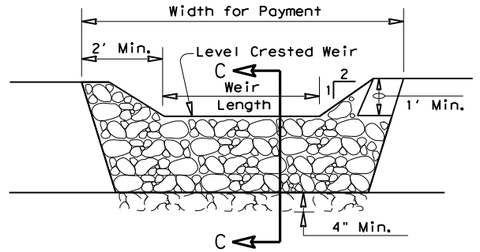


SECTION A-A

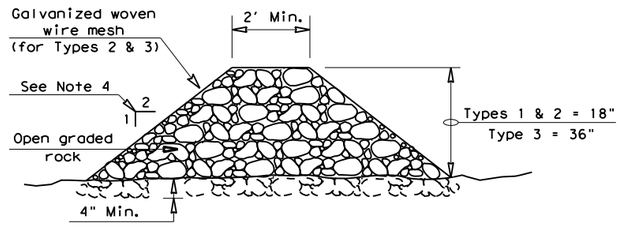


FILTER DAM AT SEDIMENT TRAP

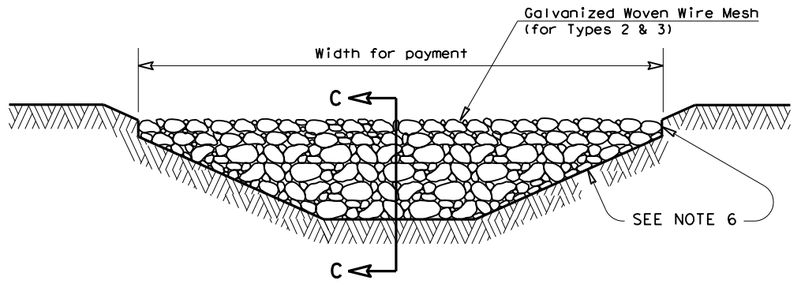
RFD1 — OR — RFD2



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	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		253

DATE: 1/31/2024
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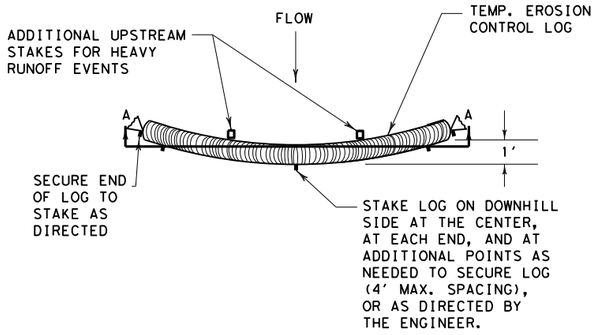
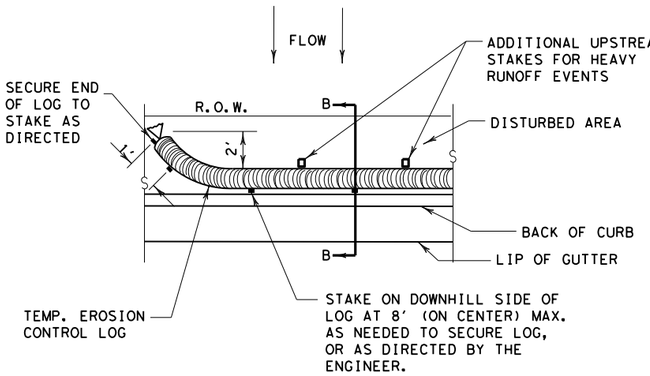


PLAN VIEW



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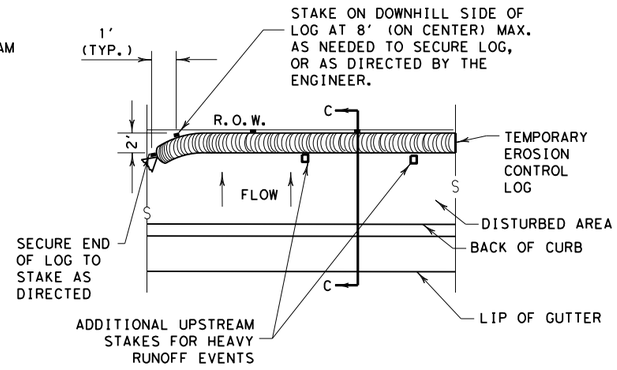
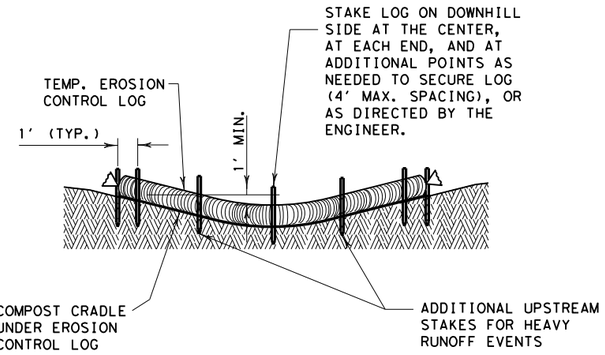


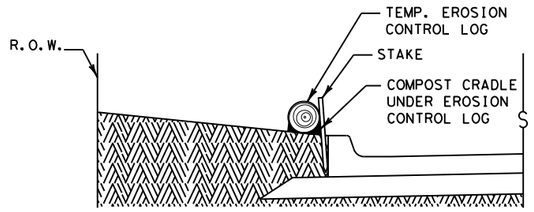
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

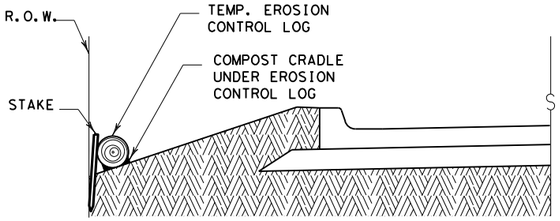
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

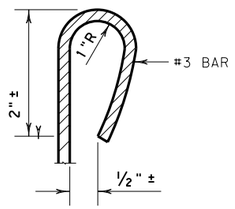
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

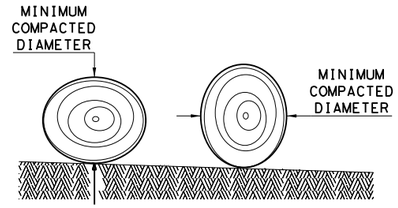
Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SHEET 1 OF 3

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
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	SAT	MEDINA		254

DATE: 1/31/2024
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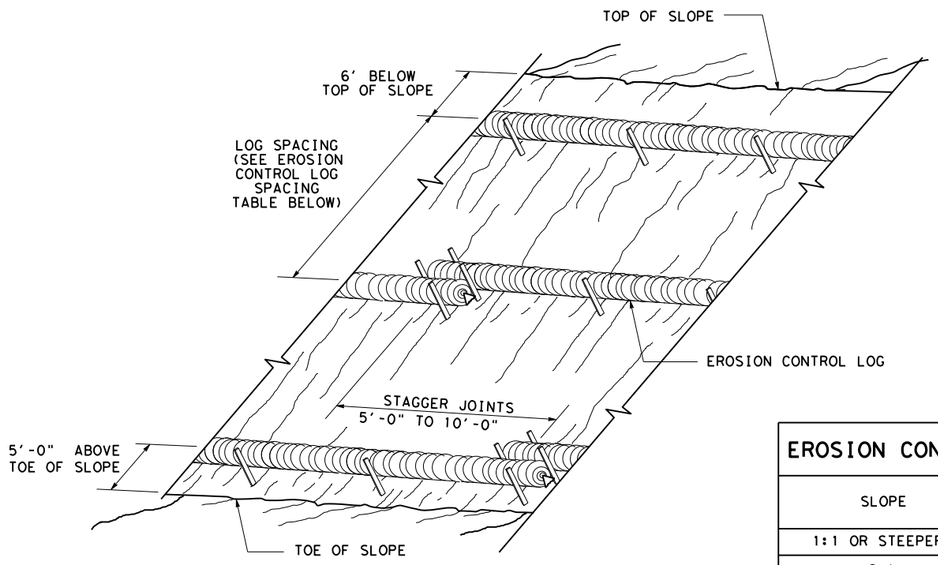
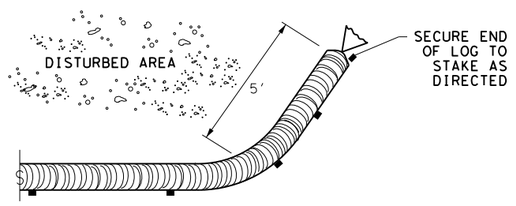


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

CL-SST

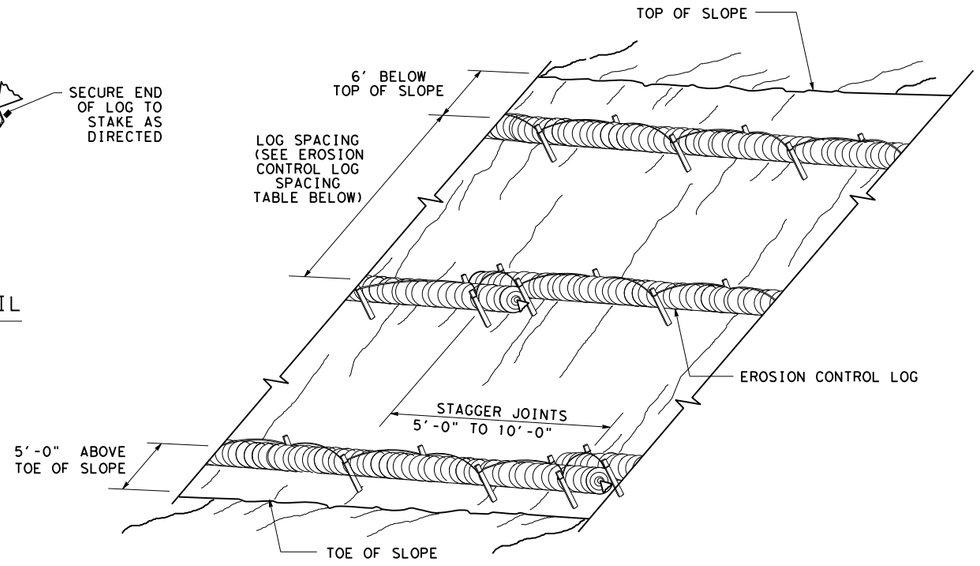


END SECTION RAP DETAIL

EROSION CONTROL LOG SPACING TABLE

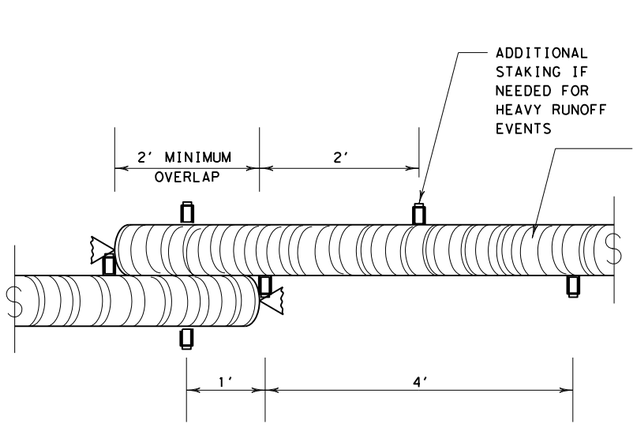
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

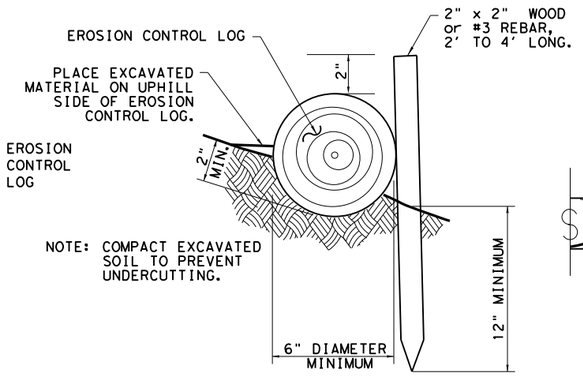
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL



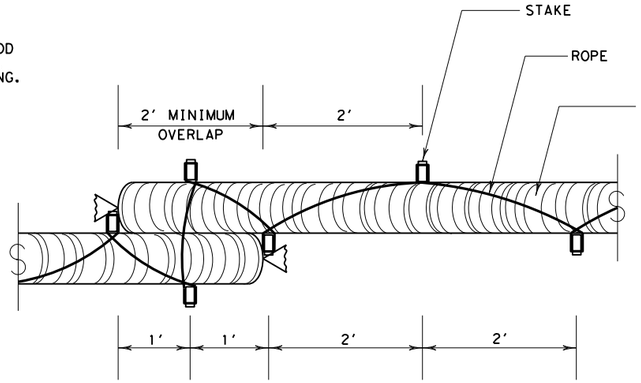


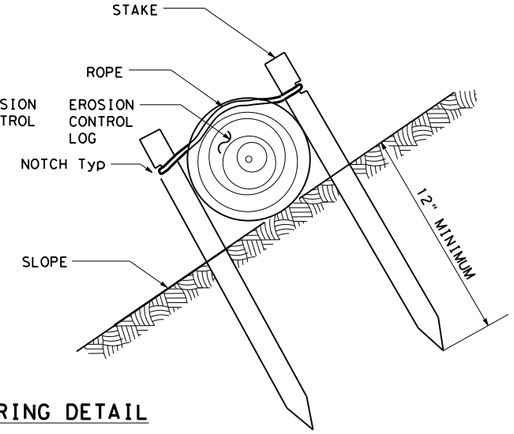
STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

TRENCH DEPTH TABLE

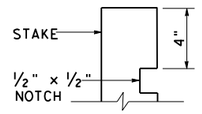
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
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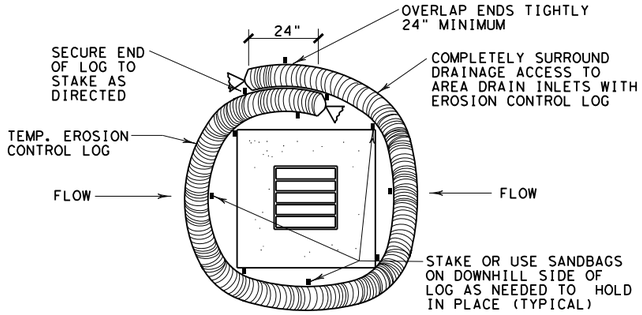
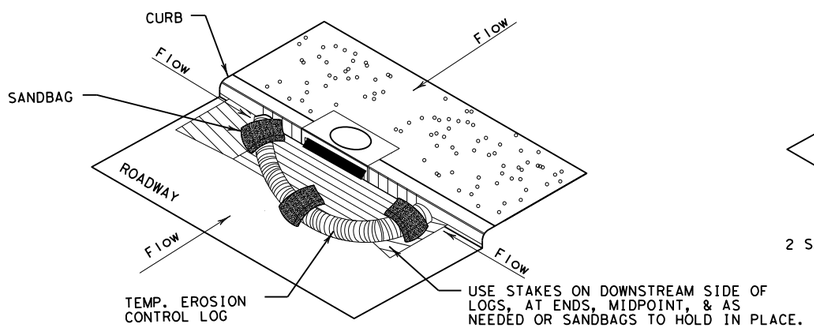


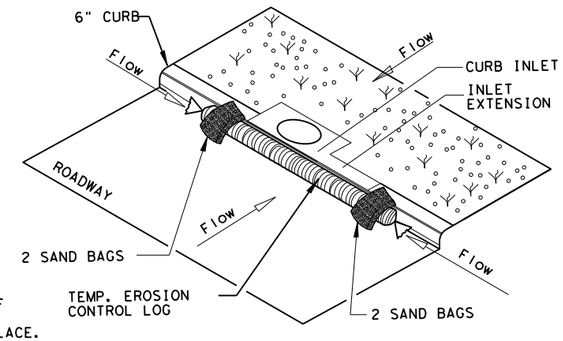
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

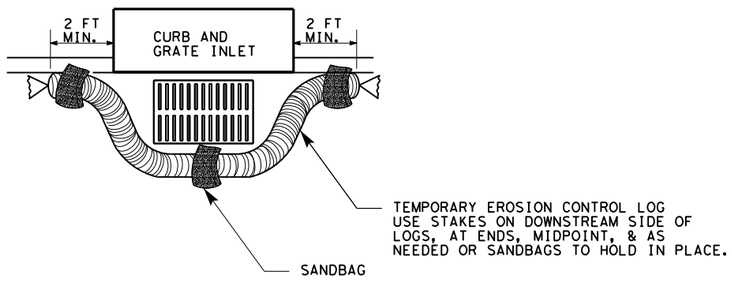
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

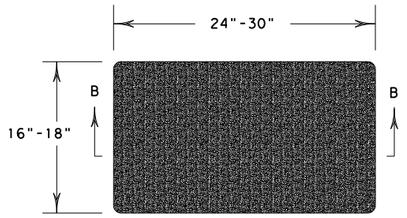
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0848	04	052	FM 462
	DIST	COUNTY		SHEET NO.
	SAT	MEDINA		256

DATE: 1/31/2024
FILE: c:\pw\khi\d0285622\ec916.dgn