FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SSW 142 - 9 - 47		1
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	KENDALL	
CONT.	SECT.	JOB	HIGHWAY NO.
0142	09	047	RM 473

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

STATE PROJECT
PROJECT NO. SSW 142 - 9 - 47
CSJ: 0142-09-047

KENDALL COUNTY
RM 473

LIMITS FROM: OLD NO. 9 HWY
TO: RM 1376

NET LENGTH OF ROADWAY = 38,246 FT = 7.244 MI
NET LENGTH OF BRIDGE = 100 FT = 0.019 MI (BLOCK CREEK)
NET LENGTH OF BRIDGE = 120 FT = 0.023 MI (WEST SISTER CREEK)
NET LENGTH OF PROJECT = 38,466 FT = 7.285 MI

FOR WORK CONSISTING OF PROVIDING ADDITIONAL PAVED SURFACE WIDTH TO 28 FT, MILLED EDGELINE MARKINGS, AND MILLED CENTERLINE MARKINGS

DESIGN SPEED = N/A 3R
POSTED SPEED = 60 MPH
AREA OF DISTURBED SOIL = 17.2 AC
ADT PRESENT: 1100 (2024)
ADT PROJECTED: 1500 (2044)
ACCESSIBILITY STANDARDS = PROWAG

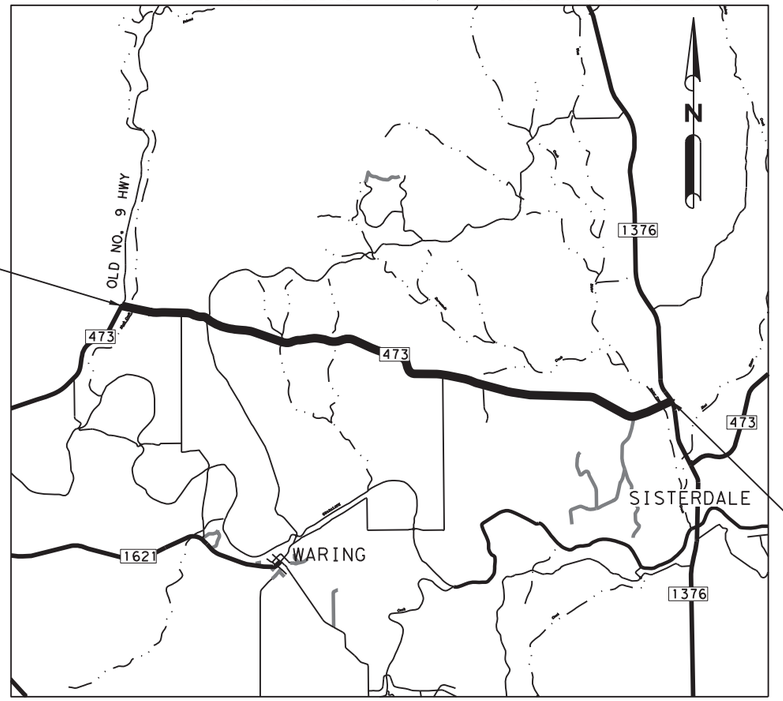
INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

PLANS PREPARED BY

AtkinsRéalis
8200 W I-10 FRONTAGE RD SUITE 850
SAN ANTONIO, TEXAS 78230
TBPE REG. # F-474

BEGIN PROJECT
CSJ: 0142-09-047
STA 268+40.00
REF MRKR: 470+1.20



LOCATION MAP NOT TO SCALE

END PROJECT
CSJ: 0142-09-047
STA 653+06.00
REF MRKR: 478+0.49

EXCEPTIONS: N/A
EQUATIONS: N/A
R.R. CROSSINGS: N/A

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

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 STATE PROJECTS (000--008).

SUBMITTED FOR 5/9/2024
DocuSigned by: Lizette J. Calbat, P.E.
DF7D9915513A45A...
SUPERVISOR

RECOMMENDED FOR 5/13/2024
DocuSigned by:
FA652AB00DA344A...
TRANSPORTATION PLANNING & DEVELOPMENT

REVIEWED FOR 5/9/2024
DocuSigned by: DCRogers, P.E.
F29100BAA508499...
SUPERVISOR

APPROVED FOR 5/14/2024
DocuSigned by: Charles C. Benavidez
3BB8A8580ACF41C...

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

LEVELS DISPLAYED

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

100% SUBMITTAL
DATE: 5/20/2024 TIME: 11:18:46 AM

SHEET	DESCRIPTION
	I. GENERAL
1	TITLE SHEET
2	INDEX OF SHEETS
3 - 5	PROJECT LAYOUT
6	EXISTING TYPICAL SECTIONS
7	PROPOSED TYPICAL SECTIONS
8, 8A - 8D	GENERAL NOTES
9, 9A & 9B	ESTIMATE AND QUANTITY SHEET
10	SUMMARY OF TCP QUANTITIES
11	SUMMARY OF ROADWAY QUANTITIES
12	SUMMARY OF DRIVEWAY QUANTITIES
13A-13C	SUMMARY OF EARTHWORK QUANTITIES
14	SUMMARY OF DRAINAGE QUANTITIES
15	SUMMARY OF SIGNING AND PAVEMENT MARKINGS
16	SUMMARY OF SW3P QUANTITIES
	II. TRAFFIC CONTROL PLAN
17 - 18	TRAFFIC CONTROL NARRATIVE
19	SCHEDULE OF TRAFFIC CONTROL & ADVANCE WARNING DEVICES
20	TRAFFIC CONTROL PLAN - PHASE 1A CULVERT A-1 STEP 1 & 2 TYPICAL SECTION
20A	TRAFFIC CONTROL PLAN - PHASE 1A CULVERT A-1 STEP 3 & 4 TYPICAL SECTION
21	TRAFFIC CONTROL PLAN - PHASE 1A CULVERT A-1 STEP 1 AND STEP 2
21A	TRAFFIC CONTROL PLAN - PHASE 1A CULVERT A-1 STEP 3
21B	TRAFFIC CONTROL PLAN - PHASE 1A CULVERT A-1 STEP 4A AND STEP 4B
22	TRAFFIC CONTROL PLAN - PHASE 1B CULVERT E-1 TYPICAL SECTION
23	TRAFFIC CONTROL PLAN - PHASE 1B CULVERT E-1
24	TRAFFIC CONTROL PLAN - PHASE 1C CULVERT L-1 TYPICAL SECTION
25	TRAFFIC CONTROL PLAN - PHASE 1C CULVERT L-1
26	TRAFFIC CONTROL PLAN - PHASE 1D CULVERT M-1 TYPICAL SECTION
27	TRAFFIC CONTROL PLAN - PHASE 1D CULVERT M-1
28	TRAFFIC CONTROL PLAN - PHASE 2 TYPICAL SECTION
29	TRAFFIC CONTROL PLAN - PHASE 3 TYPICAL SECTION
30 - 47	TRAFFIC CONTROL PLAN - PHASE 2 & 3
48	TRAFFIC CONTROL PLAN - PHASE 2 & 3 DETAILS
49	TRAFFIC CONTROL PLAN - PHASE 1,2 & 3 INTERSECTING STREET LAYOUT
49A	TRAFFIC CONTROL PLAN - MISCELLANEOUS DETAILS
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50 - 61	*BC(1)-21 THRU BC(12)-21
62	*WZ(STPM)-23
63	*WZ(BRK)-13
64	*TCP(2-2)-18
65	*TCP(2-8)-23
66	*TCP(3-1)-13
67	*TCP(3-3)-14
68	*TCP(7-1)-13
69 - 70	*LPCB-13
	III. ROADWAY
71	SURVEY CONTROL LAYOUT SHEET
72 - 74	HORIZONTAL/VERTICAL CONTROL LAYOUT SHEET
75 - 80	HORIZONTAL ALIGNMENT DATA SHEET
81 - 115	ROADWAY PLAN AND PROFILE
116 - 144	DRIVEWAY PLAN AND PROFILE
145	DRIVEWAY DETAILS
	ROADWAY STANDARDS
145A	*GF(31)-19
146	*GF(31)LS-19
147	*GF(31)MS-19
148	*SGT(10S)31-16
149	*SGT(11S)31-18
150	*SGT(12S)31-18
151	*SGT(15)31-20
152	*TE (HMAC)-11
153 - 156	*MB(1)-21 THRU MB(4)-21
156A	*MBTRNOUT
	IV. DRAINAGE
157 - 160	CULVERT LAYOUT
161	DITCH TABLES
162	DRAINAGE DETAILS
	DRAINAGE STANDARDS
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164	**CD-CH-PW0-20
165	**CD-CH-PWS-20
166 - 167	**CD-SETP-CD-20
168 - 170	**CD-SETP-CDA-20

SHEET	DESCRIPTION
	V. UTILITIES
171	S.U.E. PLAN SHEET COVER SHEET
172	S.U.E. PLAN SHEET INDEX LAYOUT
173 - 190	S.U.E. PLAN SHEET
	VI. TRAFFIC ITEMS
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224	***TSR(3)-13
225	***TSR(4)-13
226	***FGA-15
227	***D & OM (1)-20
228	***D & OM (2)-20
229	***D & OM (3)-20
230	***D & OM (4)-20
231	***D & OM (5)-20
232	***D & OM (6)-20
233	***D & OM (VIA)-20
234	***PM(1)-22
235	***PM(2)-22
236	***PM(3)-22
237	***SMD (GEN)-08
238	***SMD (SLIP-1)-08
239	***SMD (SLIP-2)-08
240	***SMD (SLIP-3)-08
241	***SMD (FRP)-08
242	***RS(4)-23
	VII. ENVIRONMENTAL ISSUES
243 - 260	SW3P LAYOUT
261 - 262	STORM WATER POLLUTION PREVENTION PLAN (SW3P)
263	ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC) (SA DISTRICT)
	ENVIRONMENTAL STANDARDS
264	*EC(1)-16
265	*EC(2)-16
266	*EC(3)-16

STATE OF TEXAS
WESLEY YOUNG
72271
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.

Wesley Young, P.E. 5/20/2024
WESLEY YOUNG DATE

STATE OF TEXAS
GREGORIO GARCIA
101077
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.

, P.E. 5/20/2024
GREGORIO GARCIA DATE

STATE OF TEXAS
F. PAUL PURPURA II
87865
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.

, P.E. 5/20/2024
F. PAUL PURPURA II DATE

NOTE:
ALL STANDARDS ARE STATE STANDARDS UNLESS OTHERWISED IDENTIFIED AS A SAN ANTONIO DISTRICT STANDARD.

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

INDEX OF SHEETS

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	2

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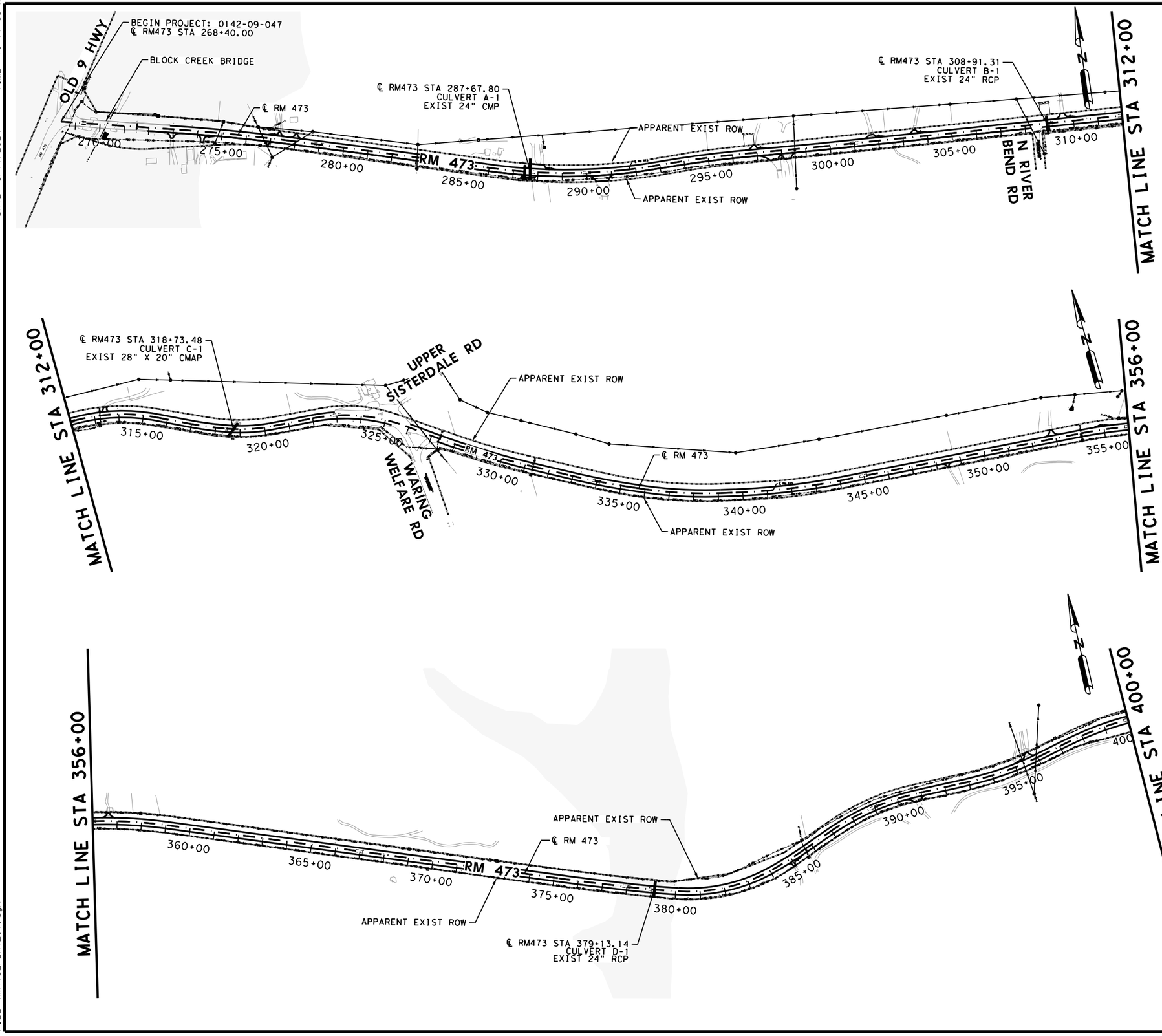

LEGEND

FEMA FLOODPLAIN ZONE A

NOTES:

1. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
2. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0′ 200′ 400′

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

PROJECT LAYOUT

SHEET 1 OF 3

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	3

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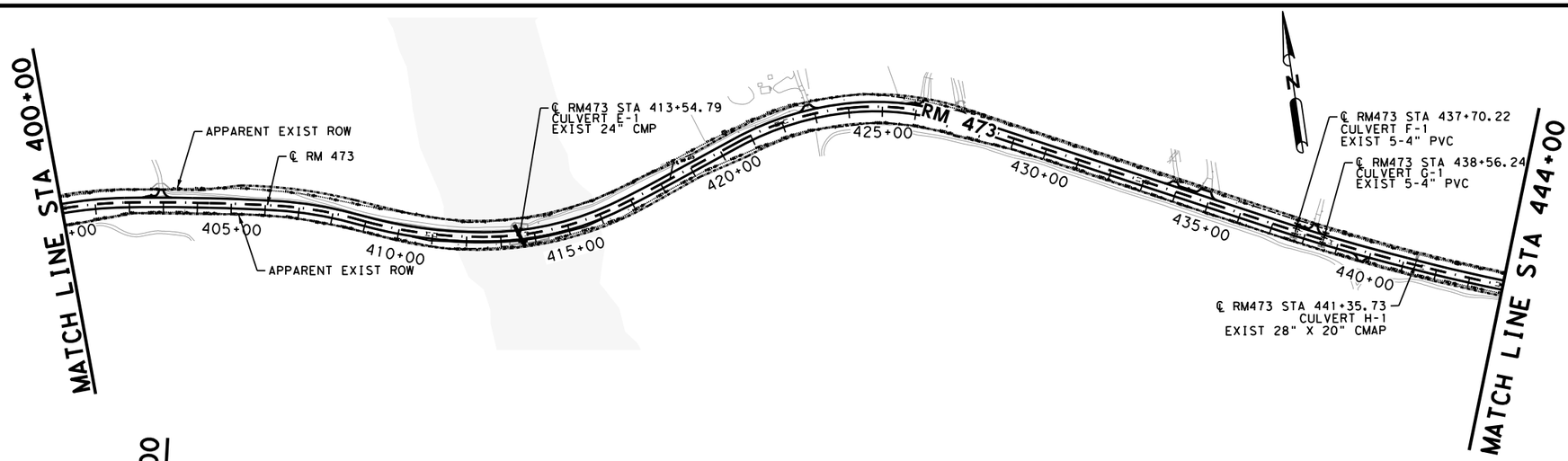

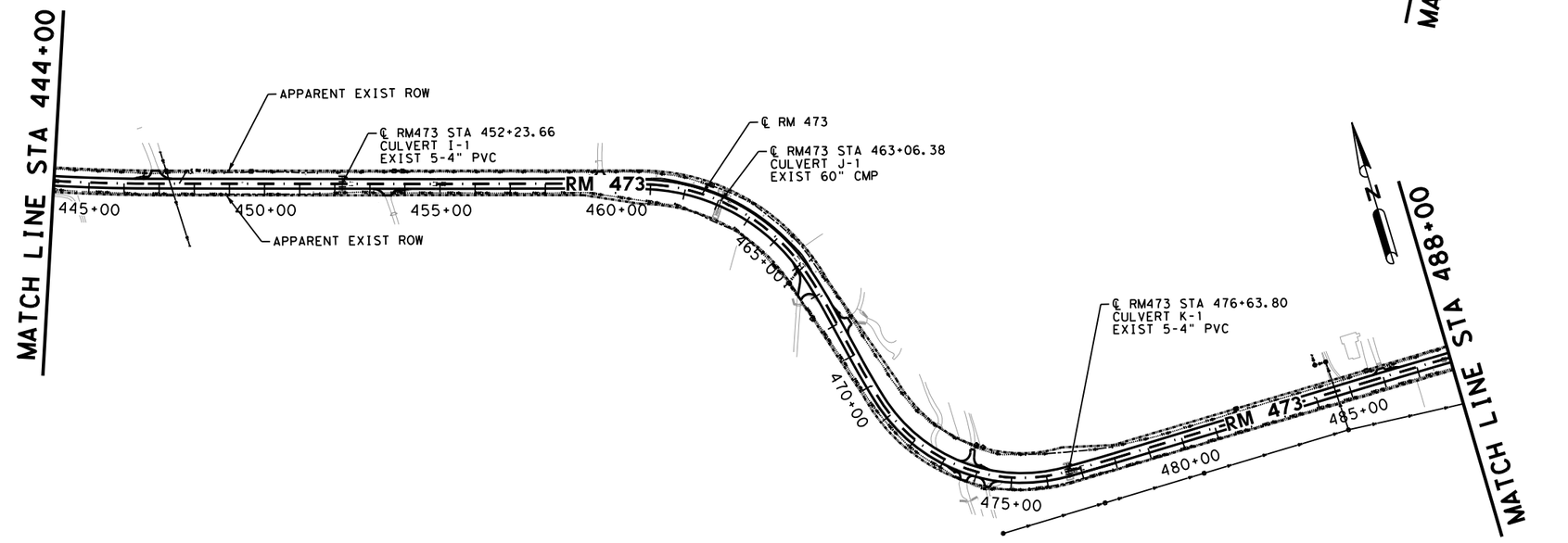

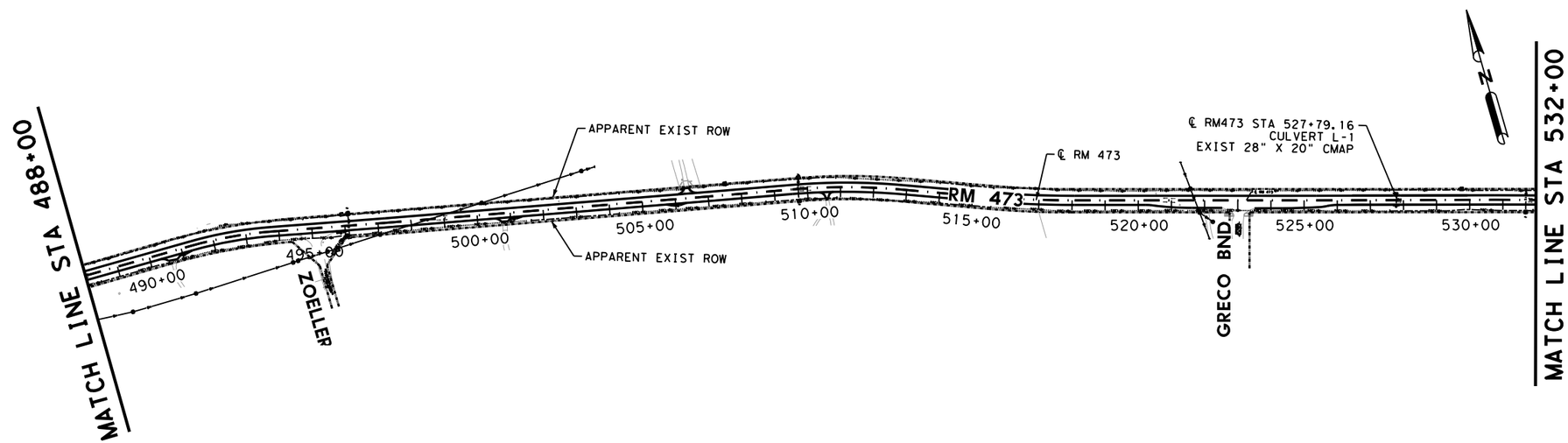

LEGEND

FEMA FLOODPLAIN ZONE A

NOTES:

1. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
2. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0′ 200′ 400′

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

PROJECT LAYOUT

SHEET 2 OF 3

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	4

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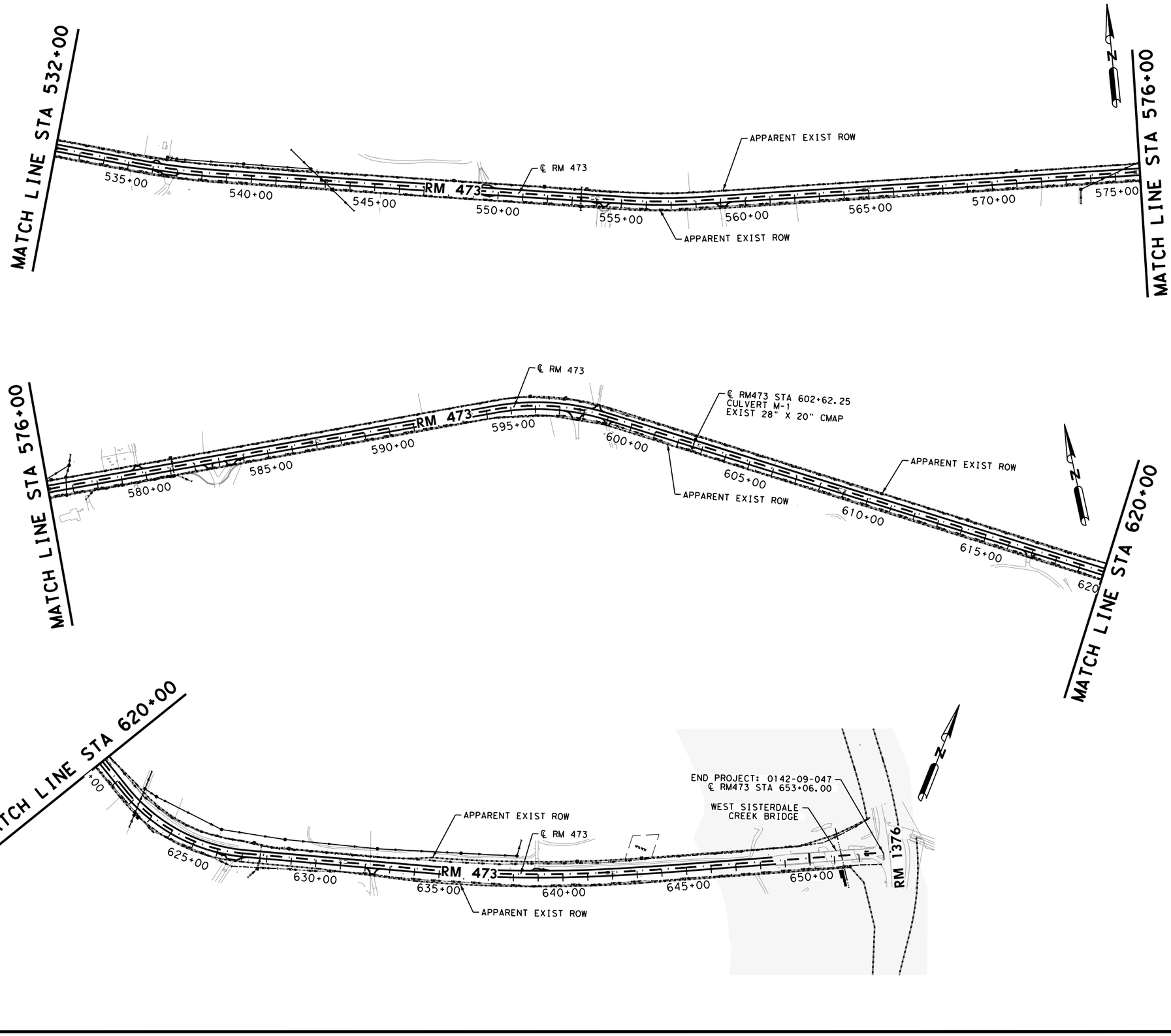

LEGEND

FEMA FLOODPLAIN ZONE A

NOTES:

1. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
2. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0′ 200′ 400′

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

PROJECT LAYOUT

SHEET 3 OF 3

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	5

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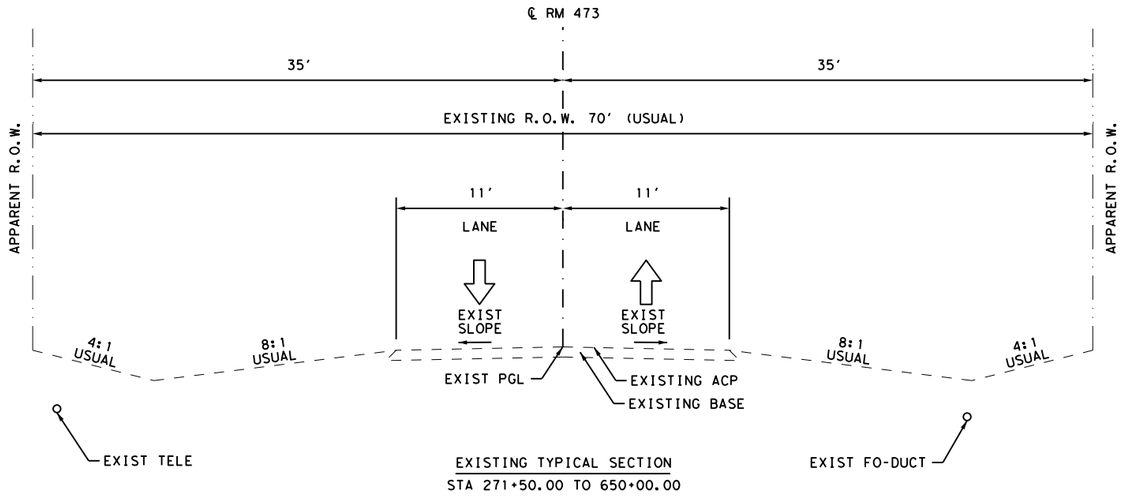

EXISTING TYPICAL SECTION
STA 271+50.00 TO 650+00.00

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

EXISTING TYPICAL SECTIONS

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	6

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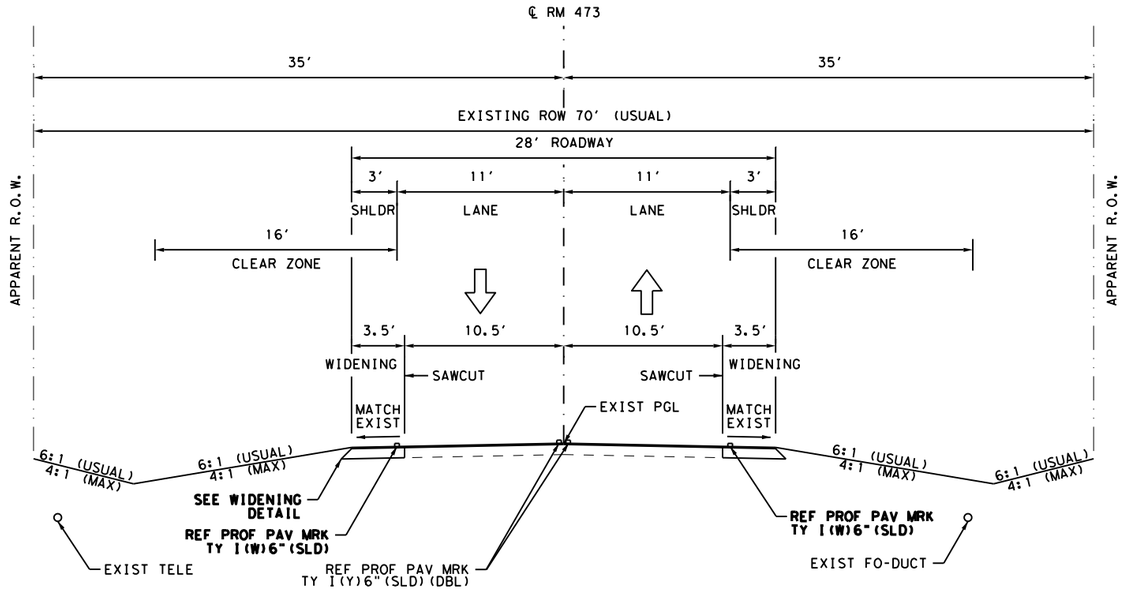
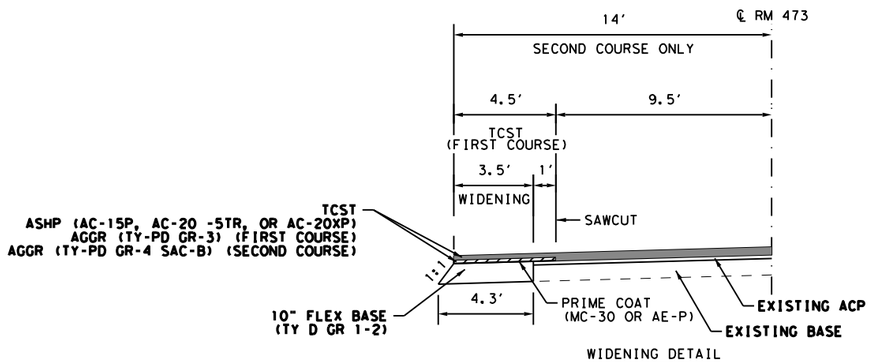


PROP TYPICAL SECTION

EB WIDENING STA 271+92.22 TO 648+62.58
WB WIDENING STA 272+85.30 TO 648+50.03
TCST STA 271+50.00 TO 650+00.00



WIDENING DETAIL

NOTES:

TWO COURSE SURFACE TREATMENT (TCST) CONSISISTS OF 1ST COURSE PLACED ON TOP OF 4.5' WIDENING. SECOND COURSE TO BE PLACED ON THE FULL ROADWAY WIDTH.

RATES:

AGGR (TY-PD GR-4 SAC B)	120 SY/CY
ASPH (AC-15, AC-20-5TR OR AC-20XP)	0.3 GAL/SY

F. PAUL PURPURA II
87865
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

PROPOSED TYPICAL SECTIONS

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	7

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_RD_TYP_02.dgn

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

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

Item	Description	Rate/Area	Quant-Unit
168	Vegetative Watering	15.6 Gal/SY (78,835 SY)	1230 MG
310	Prime Coat (MC-30 or AE-P)	0.2 Gal/SY (29,008 SY)	5802 Gal
316	AGGR (TY-PD GR-3)	120 SY/CY (37,230 SY)	310 CY
316	AGGR (TY-PD GR-4 SAC-B)	120 SY/CY (118,257 SY)	985 CY
316	ASPH (AC-15P, AC-20-5TR or AC-20XP)	0.3 Gal/SY (155,487 SY)	46,646 GAL

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

Description	1st Course	2nd Course
Area	37,230 SY	118,257 SY
Prime Area	29,008 SY	

--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):

Area Engineer: Andres Gonzalez, PE Andres.Gonzalez@txdot.gov
Assistant Area Engineer: Roberto Madrigal, PE Roberto.Madrigal@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.

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 17.2 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.

Law Enforcement patrol vehicles must be marked as "Police".

--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.

--Item 9--
When approved, provide uniformed, off-duty law enforcement officers with marked vehicles during work that requires a lane closure. The officer in marked vehicles shall be located as approved to monitor or direct traffic during the closure. The method used to direct traffic at signalized intersections shall be as approved. Additional officers and vehicles may be provided when approved or directed.

Complete the daily tracking form provided by the department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided.

Show proof of certification by the Texas Commission on Law Enforcement Standards.
All law enforcement personnel used in Work Zone Traffic Control shall be trained for performing duties in work zones and are required to take “Safe and Effective Use of Law Enforcement Personnel in Work Zones” (Course #133119) which can be found online at the following site: www.nhi.fhwa.dot.gov

Certificates of completion should be available to all who finish the course. These should be kept by the officers to substantiate completion when reporting to the work site.

Minimums, scheduling fees, etc. will not be paid; TxDOT will consider paying cancellation fees on a case-by-case basis.

--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 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.

Control: 0142-09-047

County: KENDALL

Highway: RM 473

--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 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 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.

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

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 19-20, 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 1.0 miles.

For Pilot Car Method, additional flaggers other than the 2 required on each approach, when directed by the Engineer, will be measured by the Flagger Control Method. This may involve

stationing additional flaggers at all intersections, public driveways, and commercial driveways as determined by the Engineer.

--Item 512--
120 LF of portable concrete traffic barrier (PCTB) will be furnished by the Contractor.

--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 542--
Salvage all undamaged/acceptable radius guardrail and deliver to the TxDOT maintenance section yard.

--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 6185--
1 shadow vehicles 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.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0142-09-047 **DISTRICT** San Antonio **COUNTY** Kendall
HIGHWAY RM 473

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0142-09-047**			
		PROJECT ID		**A00198275**			
		COUNTY		**Kendall**			
		HIGHWAY		**RM 473**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	100-6002	PREPARING ROW	STA	378.000		378.000	
	104-6009	REMOVING CONC (RIPRAP)	SY	316.000		316.000	
	104-6017	REMOVING CONC (DRIVEWAYS)	SY	554.000		554.000	
	105-6043	REMOVING STAB BASE & ASPH PAV (0-6")	SY	679.000		679.000	
	105-6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	11,538.000		11,538.000	
	110-6001	EXCAVATION (ROADWAY)	CY	11,822.000		11,822.000	
	132-6005	EMBANKMENT (FINAL)(ORD COMP)(TY C)	CY	2,622.000		2,622.000	
	160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	78,835.000		78,835.000	
	164-6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	78,835.000		78,835.000	
	164-6009	BROADCAST SEED (TEMP) (WARM)	SY	39,418.000		39,418.000	
	164-6011	BROADCAST SEED (TEMP) (COOL)	SY	39,418.000		39,418.000	
	168-6001	VEGETATIVE WATERING	MG	1,230.000		1,230.000	
	169-6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	78,835.000		78,835.000	
	216-6001	PROOF ROLLING	HR	105.000		105.000	
	247-6053	FL BS (CMP IN PLC)(TYD GR1-2)(FNAL POS)	CY	8,987.000		8,987.000	
	310-6027	PRIME COAT(MC-30 OR AE-P)	GAL	5,802.000		5,802.000	
	316-6240	AGGR(TY-PD GR-4 SAC-B)	CY	985.000		985.000	
	316-6407	AGGR (TY-PD GR-3 OR TY-PL GR-3)	CY	310.000		310.000	
	316-6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	46,646.000		46,646.000	
	400-6003	STRUCT EXCAV (PIPE)	CY	50.000		50.000	
	400-6006	CUT & RESTORING PAV	SY	45.000		45.000	
	401-6001	FLOWABLE BACKFILL	CY	16.000		16.000	
	402-6001	TRENCH EXCAVATION PROTECTION	LF	64.000		64.000	
	403-6001	TEMPORARY SPL SHORING	SF	628.000		628.000	
	432-6001	RIPRAP (CONC)(4 IN)	CY	4.000		4.000	
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	113.000		113.000	
	460-6003	CMP (GAL STL 24 IN)	LF	17.000		17.000	
	460-6010	CMP AR (GAL STL DES 3)	LF	19.000		19.000	
	464-6005	RC PIPE (CL III)(24 IN)	LF	68.000		68.000	
	466-6062	HEADWALL (CH - FW - A - 0) (DES= 3)	EA	2.000		2.000	
	466-6130	HEADWALL (CH - PW - S) (DIA= 24 IN)	EA	1.000		1.000	
	467-6388	SET (TY II) (24 IN) (RCP) (3: 1) (C)	EA	1.000		1.000	
	467-6390	SET (TY II) (24 IN) (RCP) (4: 1) (C)	EA	1.000		1.000	
	467-6534	SET (TY II) (DES 3) (CMP) (4: 1) (C)	EA	2.000		2.000	
	496-6004	REMOV STR (SET)	EA	3.000		3.000	
	496-6007	REMOV STR (PIPE)	LF	65.000		65.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0142-09-047 **DISTRICT** San Antonio **COUNTY** Kendall
HIGHWAY RM 473

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0142-09-047**			
		PROJECT ID		**A00198275**			
		COUNTY		**Kendall**			
		HIGHWAY		**RM 473**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	18.000		18.000	
	506-6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	124.000		124.000	
	506-6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	1,228.000		1,228.000	
	506-6011	ROCK FILTER DAMS (REMOVE)	LF	1,352.000		1,352.000	
	506-6020	CONSTRUCTION EXITS (INSTALL) (TY 1)	SY	156.000		156.000	
	506-6024	CONSTRUCTION EXITS (REMOVE)	SY	156.000		156.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	25,747.000		25,747.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	25,747.000		25,747.000	
	508-6001	CONSTRUCTING DETOURS	SY	641.000		641.000	
	510-6001	ONE-WAY TRAF CONT (FLAGGER CONT)	HR	6,000.000		6,000.000	
	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	40.000		40.000	
	512-6010	PORT CTB (FUR & INST)(LOW PROF)(TY 2)	LF	80.000		80.000	
	512-6033	PORT CTB (MOVE)(LOW PROF)(TY 1)	LF	60.000		60.000	
	512-6034	PORT CTB (MOVE)(LOW PROF)(TY 2)	LF	120.000		120.000	
	512-6057	PORT CTB (REMOVE)(LOW PROF)(TY 1)	LF	40.000		40.000	
	512-6058	PORT CTB (REMOVE)(LOW PROF)(TY 2)	LF	80.000		80.000	
	530-6004	DRIVEWAYS (CONC)	SY	472.000		472.000	
	530-6006	DRIVEWAYS (SURF TREAT)	SY	3,329.000		3,329.000	
	530-6007	TURNOUTS (CONC)	SY	26.000		26.000	
	530-6009	TURNOUTS (SURF TREAT)	SY	457.000		457.000	
	540-6001	MTL W-BEAM GD FEN (TIM POST)	LF	1,200.000		1,200.000	
	540-6033	MTL BM GD FEN (LONG SPAN SYSTEM)	EA	4.000		4.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	8.000		8.000	
	560-6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	27.000		27.000	
	560-6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	5.000		5.000	
	636-6001	ALUMINUM SIGNS (TY A)	SF	12.000		12.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	40.000		40.000	
	644-6002	IN SM RD SN SUP&AM TY10BWG(1)SA(P-BM)	EA	9.000		9.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	42.000		42.000	
	644-6023	IN SM RD SN SUP&AM TYFRP(1)UA(P)	EA	2.000		2.000	
	644-6030	IN SM RD SN SUP&AM TYS80(1)SA(T)	EA	8.000		8.000	
	644-6031	IN SM RD SN SUP&AM TYS80(1)SA(T-2EXT)	EA	3.000		3.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	104.000		104.000	
	644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	1.000		1.000	
	658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	20.000		20.000	
	658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	21.000		21.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0142-09-047 **DISTRICT** San Antonio **COUNTY** Kendall
HIGHWAY RM 473

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0142-09-047**			
		PROJECT ID		**A00198275**			
		COUNTY		**Kendall**			
		HIGHWAY		**RM 473**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	662-6008	WK ZN PAV MRK NON-REMOV (W)6"(SLD)	LF	75,852.000		75,852.000	
	662-6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1,435.000		1,435.000	
	662-6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	6,138.000		6,138.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	3,742.000		3,742.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	4,014.000		4,014.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	228.000		228.000	
	666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	1.000		1.000	
	666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	1.000		1.000	
	666-6225	PAVEMENT SEALER 6"	LF	140,206.000		140,206.000	
	666-6226	PAVEMENT SEALER 8"	LF	228.000		228.000	
	666-6231	PAVEMENT SEALER (ARROW)	EA	1.000		1.000	
	666-6232	PAVEMENT SEALER (WORD)	EA	1.000		1.000	
	666-6285	REF PROF PAV MRK TY I(W)6"(SLD)(090MIL)	LF	74,574.000		74,574.000	
	666-6289	REF PROF PAV MRK TY I(Y)6"(SLD)(090MIL)	LF	62,682.000		62,682.000	
	666-6293	REF PROF PAV MRK TY I(Y)6"(BRK)(090MIL)	LF	2,950.000		2,950.000	
	672-6007	REFL PAV MRKR TY I-C	EA	12.000		12.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	944.000		944.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	65,327.000		65,327.000	
	760-6001	DITCH CLEANING AND RESHAPING (FOOT)	LF	36,896.000		36,896.000	
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	72.000		72.000	
	6185-6002	TMA (STATIONARY)	DAY	296.000		296.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	71.000		71.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:18:30 AM

SUMMARY OF TCP QUANTITIES

PHASE	DESCRIPTION	0400 6006	0460 6003	0508 6001	0510 6001	0510 6003	0512 6009	0512 6010	0512 6033	0512 6034	0512 6057	0512 6058	0662 6008
		CUT & RESTORE ASPH PAVING	CMP (GAL STL 24 IN)	CONSTRUCTING DETOURS	ONE-WAY TRAF CONT (FLAGGER CONT)	ONE-WAY TRAF CONT (PORT TRAF SIG)	PORT CTB (FUR & INST) (LOW PROFILE) (TY 1)	PORT CTB (FUR & INST) (LOW PROFILE) (TY 2)	PORT CTB (MOVE) (LOW PROFILE) (TY 1)	PORT CTB (MOVE) (LOW PROFILE) (TY 2)	PORT CTB (REMOVE) (LOW PROFILE) (TY 1)	PORT CTB (REMOVE) (LOW PROFILE) (TY 2)	WK ZN PAVE MRK NON-REMOV (W) 6" (SLD)
		SY	LF	SY	HR	MO	LF	LF	LF	LF	LF	LF	LF
PHASE 1	CULVERT A-1 STEP 1 & STEP 2	17	9	641	80	0.5	20	40					617
	CULVERT A-1 STEP 3	10				0.5			20	40			
	CULVERT A-1 STEP 4A & STEP 4B	18			20								
	CULVERT E-1					1.0			20	40			
	CULVERT L-1				80	0.5	20	40					
	CULVERT M-1				80	1.0			20	40	40	80	
PHASE 2	STA 272+85.30 TO STA 648+50.03				2920								37565
PHASE 3	STA 271+92.22 TO STA 648+62.58				2820								37670
PHASE 4	BEGIN TO END												
TOTAL		45	9	641	6000	4	40	80	60	120	40	80	75852

PHASE	DESCRIPTION	0662 6067	0662 6075	0662 6109	0662 6111	0677 6001	6185 6002	6185 6005
		WK ZN PAVE MRK REMOV (W) 6" (SLD)	WK ZN PAVE MRK REMOV (W) 24" (SLD)	WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB) TY Y-2	ELIM EXT PAV MRK & MRKS (4")	TMA (STATIONARY)	TMA (MOBILE OPERATION)
		LF	LF	EA	LF	LF	DAY	DAY
PHASE 1	CULVERT A-1 STEP 1 & STEP 2	474	44				4	
	CULVERT A-1 STEP 3	511	22					
	CULVERT A-1 STEP 4A & STEP 4B		44				1	
	CULVERT E-1	150	22					
	CULVERT L-1	150	44				4	
	CULVERT M-1	150	44				4	
PHASE 2	STA 272+85.30 TO STA 648+50.03		3014				137	14
PHASE 3	STA 271+92.22 TO STA 648+62.58		2904				132	14
PHASE 4	BEGIN TO END			3742	4014	65327	14	43
TOTAL		1435	6138	3742	4014	65327	296	71

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SUMMARY OF TCP QUANITIES

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	10

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_SUM_01.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:18:36 AM

SUMMARY OF ROADWAY QUANTITIES

SHEET NO.	STATION	0100 6002 PREPARING ROW	0104 6009 REMOVING CONC (RIPRAP)	0105 6044 REMOVING STAB BASE AND ASPH PAV (10")	0110 6001 EXCAVATION (ROADWAY) **	0132 6005 EMBANKMENT (FINAL) (ORD COMP) (TY C) **	0216 6001 PROOF ROLLING	0247 6053 FL BS (CMP IN PLC) (TY D GR 1-2) (FNAL POS)	0310 6027 PRIME COAT (MC-30 OR AE-P)	FIRST COURSE 0316 6407 AGGR (TY-PD GR-3)	FIRST COURSE 0316 6419 ASPH (AC-15P, AC-20-5TR OR AC-20XP)	SECOND COURSE 0316 6240 AGGR (TY-PD GR-4 SAC-B)	SECOND COURSE 0316 6419 ASPH (AC-15P, AC-20-5TR OR AC-20XP)	0432 6045 RIPRAP (MOW STRIP) (4 IN)	0530 6009 TURNOUTS (SURF TREAT) *	0560 6011 MAILBOX INSTALL-S (TWW-POST) TY 4 *	0540 6001 MTL W-BEAM GD FEN (TIM POST)	0540 6033 MTL BM GD FEN (LONG SPAN SYSTEM)	0544 6001 GUARDRAIL END TREATMENT (INSTALL)	760 6001 DITCH CLEANING AND RESHAPING (FOOT)
		STA	SY	SY	CY	CY	HR	CY	GAL	CY	GAL	CY	GAL	CY	SY	EA	LF	EA	EA	LF
1 OF 35	BEGIN TO 279+00	8		376	11822	2622	3	159	154	6	198	19	700							
2 OF 35	279+00 TO 290+00	11	27	368			3	265	257	9	330	29	1027							
3 OF 35	290+00 TO 301+00	11		438			3	265	257	9	330	29	1027							
4 OF 35	301+00 TO 312+00	11	9	401			3	261	252	9	324	29	1027	1						
5 OF 35	312+00 TO 323+00	11	5	264			3	264	256	9	329	29	1027	0.4						
6 OF 35	323+00 TO 334+00	11		279			3	203	198	7	255	29	1027							
7 OF 35	334+00 TO 345+00	11		318			3	265	257	9	330	29	1027							
8 OF 35	345+00 TO 356+00	11		318			3	265	257	9	330	29	1027		23	1				
9 OF 35	356+00 TO 367+00	11		297			3	265	257	9	330	29	1027							
10 OF 35	367+00 TO 378+00	11		248			3	265	257	9	330	29	1027							
11 OF 35	378+00 TO 389+00	11	10	429			3	265	257	9	330	29	1027	0.9						
12 OF 35	389+00 TO 400+00	11		559			3	265	257	9	330	29	1027							
13 OF 35	400+00 TO 411+00	11		415			3	265	257	9	330	29	1027	3						
14 OF 35	411+00 TO 422+00	11	217	290			3	265	257	9	330	29	1027	24			300	1	2	
15 OF 35	422+00 TO 433+00	11		367			3	266	257	9	330	29	1027							
16 OF 35	433+00 TO 444+00	11	4	320			3	265	257	9	330	29	1027	0.3						
17 OF 35	444+00 TO 455+00	11		211			3	265	257	9	330	29	1027							
18 OF 35	455+00 TO 466+00	11	32	208			3	265	257	9	330	29	1027	29			300	1	2	
19 OF 35	466+00 TO 477+00	11	12	352			3	265	257	9	330	29	1027	0.9						
20 OF 35	477+00 TO 488+00	11		265			3	265	257	9	330	29	1027							
21 OF 35	488+00 TO 499+00	11		182			3	252	242	9	311	29	1027		17	1				
22 OF 35	499+00 TO 510+00	11		209			3	265	257	9	330	29	1027							
23 OF 35	510+00 TO 521+00	11		432			3	267	259	9	330	29	1035							
24 OF 35	521+00 TO 532+00	11		614			3	267	258	9	315	32	1168	27			300	1	2	
25 OF 35	532+00 TO 543+00	11		190			3	265	257	9	330	29	1027							
26 OF 35	543+00 TO 554+00	11		245			3	265	257	9	330	29	1027							
27 OF 35	554+00 TO 565+00	11		258			3	265	257	9	330	29	1027							
28 OF 35	565+00 TO 576+00	11		229			3	265	257	9	330	29	1027							
29 OF 35	576+00 TO 587+00	11		255			3	265	257	9	330	29	1027							
30 OF 35	587+00 TO 598+00	11		478			3	265	257	9	330	29	1027							
31 OF 35	598+00 TO 609+00	11		344			3	265	257	9	330	29	1027	27			300	1	2	
32 OF 35	609+00 TO 620+00	11		292			3	265	257	9	330	29	1027							
33 OF 35	620+00 TO 631+00	11		388			3	265	257	9	330	29	1027							
34 OF 35	631+00 TO 642+00	11		468			3	265	257	9	330	29	1027							
35 OF 35	642+00 TO END	7		231			3	158	153	5	197	21	747							
TOTAL		378	316	11538	11822	2622	105	8987	8702	310	11169	985	35477	113	40	2	1200	4	8	36896

* REFER TO DRIVEWAY SUMMARY SHEETS FOR ALL OTHER MAILBOX AND TURNOUT QUANTITIES.

** REFER TO EARTHWORK SUMMARY SHEETS FOR ADDITIONAL DETAILS.

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SUMMARY OF ROADWAY QUANITIES

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	11

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_RDWY_SUM_01

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:18:41 AM

SUMMARY OF DRIVEWAY QUANTITIES

SHEET NO.	DRIVEWAY	0104 6017 REMOVING CONC (DRIVEWAYS)	0105 6043 REMOVING STAB BASE & ASPH PAV (0-6")	0530 6004 DRIVEWAYS (CONC)	0530 6006 DRIVEWAYS (SURF TREAT)	0530 6007 TURNOUTS (CONC)	0530 6009 TURNOUTS (SURF TREAT)	0560 6011 MAILBOX INSTALL-S (TWW-POST) TY 4	0560 6013 MAILBOX INSTALL-M (TWW-POST) TY 4
		SY	SY	SY	SY	SY	SY	EA	EA
1 OF 29	DRIVEWAY 1				58				
	DRIVEWAY 2				62		14	1	
2 OF 29	DRIVEWAY 3				24				
	DRIVEWAY 4				30		15	1	
3 OF 29	DRIVEWAY 5				37				
4 OF 29	DRIVEWAY 6				152		14		1
	DRIVEWAY 9		168		180				
5 OF 29	DRIVEWAY 10				48		14		1
	DRIVEWAY 11		155		146				
6 OF 29	DRIVEWAY 12		78		95				
	DRIVEWAY 13				48		14	1	
7 OF 29	DRIVEWAY 14				40		14	1	
	DRIVEWAY 15				66		14	1	
8 OF 29	DRIVEWAY 16				36				
9 OF 29	DRIVEWAY 17				24				
	DRIVEWAY 18				57				
10 OF 29	DRIVEWAY 19				47				
	DRIVEWAY 20				47		14	1	
11 OF 29	DRIVEWAY 21		46		86				
	DRIVEWAY 22		46		73		14	1	
12 OF 29	DRIVEWAY 23				63		14	1	
	DRIVEWAY 24		60		53				
13 OF 29	DRIVEWAY 25				51		14		1
	DRIVEWAY 26	62		59					
14 OF 29	DRIVEWAY 27	47		41			26		1
	DRIVEWAY 28	121		89					
15 OF 29	DRIVEWAY 29		72		63		14	1	
	DRIVEWAY 30				51				
16 OF 29	DRIVEWAY 31				96		14	1	
	DRIVEWAY 32				77		14	1	
17 OF 29	DRIVEWAY 33		54		66		14	1	
	DRIVEWAY 34				187		11	1	
18 OF 29	DRIVEWAY 35	103		86		12		1	
	DRIVEWAY 36	47		61			14	1	
19 OF 29	DRIVEWAY 37				102		13	1	
	DRIVEWAY 38				57				
20 OF 29	DRIVEWAY 39				37		14	1	
	DRIVEWAY 40				61		13	1	
21 OF 29	DRIVEWAY 41				40		14	1	
	DRIVEWAY 42	37		49			23	1	
22 OF 29	DRIVEWAY 43				33				
	DRIVEWAY 44				28				
23 OF 29	DRIVEWAY 45	137		87		14		1	
	DRIVEWAY 46				51		23	1	
24 OF 29	DRIVEWAY 47				54		14		1
	DRIVEWAY 48				72				
25 OF 29	DRIVEWAY 49				49				
	DRIVEWAY 50				54				
26 OF 29	DRIVEWAY 51				83		13	1	
	DRIVEWAY 52				141				
27 OF 29	DRIVEWAY 53				56				
	DRIVEWAY 54				51				
28 OF 29	DRIVEWAY 55				74				
	DRIVEWAY 56				115		14	1	
29 OF 29	DRIVEWAY 57				78				
	DRIVEWAY 58				30		14	1	
TOTAL		554	679	472	3329	26	417	25	5

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SUMMARY OF DRIVEWAY QUANTITIES

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	12

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_DRIVEWAY_SUM_01.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:18:46 AM

SUMMARY OF EARTHWORK QUANTITIES

BASELINE STATION	RM 473 Station Quantities								Mass (CY) Ordinate
	Cut				Fill				
	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	
268+40.00									0.00
269+00.00									0.00
270+00.00									0.00
271+00.00									0.00
272+00.00	1.00	3.61	6.68	6.68					6.68
273+00.00	1.00	7.20	20.01	20.01					26.69
274+00.00	1.00	6.88	26.08	26.08	1.00	0.10	0.18	0.18	52.59
275+00.00	1.00	6.83	25.39	25.39	1.00	0.07	0.30	0.30	77.67
276+00.00	1.00	6.16	24.05	24.05	1.00	2.23	4.26	4.26	97.47
277+00.00	1.00	7.07	24.49	24.49	1.00	0.00	4.13	4.13	117.83
278+00.00	1.00	7.92	27.75	27.75	1.00	0.03	0.06	0.06	145.53
279+00.00	1.00	6.72	27.11	27.11	1.00	0.27	0.55	0.55	172.08
280+00.00	1.00	6.23	23.98	23.98	1.00	0.70	1.80	1.80	194.27
281+00.00	1.00	6.67	23.88	23.88	1.00	0.11	1.50	1.50	216.65
282+00.00	1.00	6.25	23.93	23.93	1.00	0.39	0.92	0.92	239.66
283+00.00	1.00	7.14	24.81	24.81	1.00	0.00	0.72	0.72	263.76
284+00.00	1.00	7.18	26.53	26.53	1.00	0.00	0.00	0.00	290.29
285+00.00	1.00	8.60	29.22	29.22	1.00	0.00	0.00	0.00	319.51
286+00.00	1.00	8.68	31.99	31.99	1.00	0.00	0.00	0.00	351.50
287+00.00	1.00	6.79	28.65	28.65	1.00	0.82	1.51	1.51	378.63
288+00.00	1.00	8.10	27.58	27.58	1.00	1.46	4.22	4.22	401.99
289+00.00	1.00	6.40	26.84	26.84	1.00	1.67	5.80	5.80	423.03
290+00.00	1.00	12.64	35.25	35.25	1.00	1.40	5.67	5.67	452.62
291+00.00	1.00	6.68	35.78	35.78	1.00	0.15	2.87	2.87	485.53
292+00.00	1.00	7.43	26.14	26.14	1.00	0.60	1.39	1.39	510.28
293+00.00	1.00	8.99	30.41	30.41	1.00	0.79	2.57	2.57	538.12
294+00.00	1.00	6.58	28.83	28.83	1.00	0.69	2.74	2.74	564.21
295+00.00	1.00	7.22	25.55	25.55	1.00	1.27	3.64	3.64	586.12
296+00.00	1.00	8.33	28.78	28.78	1.00	0.41	3.11	3.11	611.80
297+00.00	1.00	6.82	28.06	28.06	1.00	0.12	0.97	0.97	638.88
298+00.00	1.00	6.80	25.22	25.22	1.00	0.23	0.65	0.65	663.45
299+00.00	1.00	6.26	24.18	24.18	1.00	3.73	7.33	7.33	680.29
300+00.00	1.00	7.81	26.06	26.06	1.00	3.07	12.58	12.58	693.76
301+00.00	1.00	6.86	27.16	27.16	1.00	0.23	6.11	6.11	714.81
302+00.00	1.00	8.83	29.05	29.05	1.00	0.22	0.85	0.85	743.01
303+00.00	1.00	8.50	32.09	32.09	1.00	0.09	0.58	0.58	774.52
304+00.00	1.00	8.17	30.86	30.86	1.00	0.76	1.57	1.57	803.81
305+00.00	1.00	6.32	26.82	26.82	1.00	0.14	1.65	1.65	828.98
306+00.00	1.00	6.24	23.26	23.26	1.00	0.75	1.64	1.64	850.61
307+00.00	1.00	18.54	45.90	45.90	1.00	3.75	8.32	8.32	888.18
308+00.00	1.00	6.84	47.00	47.00	1.00	0.93	8.65	8.65	926.53
309+00.00	1.00	5.44	22.73	22.73	1.00	17.18	33.53	33.53	915.74
310+00.00	1.00	10.20	28.96	28.96	1.00	0.06	31.93	31.93	912.77
311+00.00	1.00	11.66	40.49	40.49	1.00	0.84	1.67	1.67	951.60
312+00.00	1.00	6.96	34.49	34.49	1.00	3.25	7.57	7.57	978.52
313+00.00	1.00	6.34	24.63	24.63	1.00	2.53	10.71	10.71	992.44
314+00.00	1.00	9.54	29.40	29.40	1.00	1.76	7.94	7.94	1013.90
315+00.00	1.00	6.18	29.12	29.12	1.00	3.25	9.27	9.27	1033.75
316+00.00	1.00	8.05	26.36	26.36	1.00	1.94	9.61	9.61	1050.50
317+00.00	1.00	6.03	26.07	26.07	1.00	0.73	4.95	4.95	1071.62
318+00.00	1.00	6.25	22.74	22.74	1.00	0.23	1.77	1.77	1092.59
319+00.00	1.00	5.66	22.06	22.06	1.00	8.31	15.81	15.81	1098.84
320+00.00	1.00	6.05	21.68	21.68	1.00	1.43	18.04	18.04	1102.48
321+00.00	1.00	8.13	26.24	26.24	1.00	3.84	9.76	9.76	1118.97
322+00.00	1.00	5.45	25.14	25.14	1.00	4.45	15.35	15.35	1128.76
323+00.00	1.00	2.79	15.25	15.25	1.00	2.21	12.32	12.32	1131.68
324+00.00	1.00	3.20	11.09	11.09	1.00	0.15	4.37	4.37	1138.40
325+00.00	1.00	3.25	11.95	11.95	1.00	0.07	0.42	0.42	1149.94
326+00.00	1.00	0.00	6.02	6.02	1.00	0.00	0.14	0.14	1155.82
327+00.00	1.00	16.19	29.99	29.99	1.00	0.00	0.00	0.00	1185.81
328+00.00	1.00	6.70	42.40	42.40	1.00	0.16	0.29	0.29	1227.92
329+00.00	1.00	6.16	23.82	23.82	1.00	0.48	1.19	1.19	1250.55
330+00.00	1.00	16.34	41.66	41.66	1.00	1.14	3.00	3.00	1289.21
331+00.00	1.00	15.59	59.12	59.12	1.00	1.12	4.18	4.18	1344.15
332+00.00	1.00	22.10	69.79	69.79	1.00	3.39	8.35	8.35	1405.58
333+00.00	1.00	34.68	105.15	105.15	1.00	3.81	13.33	13.33	1497.41
334+00.00	1.00	18.93	99.29	99.29	1.00	1.32	9.49	9.49	1587.20
335+00.00	1.00	6.84	47.73	47.73	1.00	0.92	4.14	4.14	1630.79
336+00.00	1.00	6.64	24.95	24.95	1.00	0.56	2.73	2.73	1653.02
337+00.00	1.00	6.65	24.61	24.61	1.00	1.49	3.80	3.80	1673.83
338+00.00	1.00	6.32	24.03	24.03	1.00	0.68	4.03	4.03	1693.83
339+00.00	1.00	24.33	56.76	56.76	1.00	3.59	7.90	7.90	1742.69
340+00.00	1.00	6.13	56.42	56.42	1.00	3.51	13.14	13.14	1785.97
341+00.00	1.00	6.39	23.20	23.20	1.00	0.47	7.38	7.38	1801.78
342+00.00	1.00	5.41	21.86	21.86	1.00	4.78	9.72	9.72	1813.92
343+00.00	1.00	12.51	33.19	33.19	1.00	3.40	15.14	15.14	1831.96

BASELINE STATION	RM 473 Station Quantities								Mass (CY) Ordinate
	Cut				Fill				
	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	
344+00.00	1.00	21.84	63.62	63.62	1.00	3.72	13.18	13.18	1882.40
345+00.00	1.00	14.78	67.83	67.83	1.00	1.48	9.63	9.63	1940.60
346+00.00	1.00	11.74	49.12	49.12	1.00	0.58	3.82	3.82	1985.90
347+00.00	1.00	16.30	51.94	51.94	1.00	0.17	1.38	1.38	2036.46
348+00.00	1.00	13.53	55.25	55.25	1.00	0.38	1.02	1.02	2090.70
349+00.00	1.00	13.01	49.15	49.15	1.00	0.31	1.29	1.29	2138.56
350+00.00	1.00	7.51	38.00	38.00	1.00	0.34	1.22	1.22	2175.34
351+00.00	1.00	10.21	32.82	32.82	1.00	0.79	2.10	2.10	2206.07
352+00.00	1.00	11.88	40.91	40.91	1.00	0.04	1.53	1.53	2245.44
353+00.00	1.00	6.83	34.65	34.65	1.00	1.19	2.28	2.28	2277.81
354+00.00	1.00	7.84	27.16	27.16	1.00	0.45	3.04	3.04	2301.94
355+00.00	1.00	7.10	27.66	27.66	1.00	0.11	1.04	1.04	2328.55
356+00.00	1.00	6.96	26.04	26.04	1.00	0.39	0.93	0.93	2353.66
357+00.00	1.00	7.41	26.62	26.62	1.00	0.00	0.73	0.73	2379.55
358+00.00	1.00	6.87	26.46	26.46	1.00	1.07	1.99	1.99	2404.02
359+00.00	1.00	6.65	25.05	25.05	1.00	0.68	3.26	3.26	2425.81
360+00.00	1.00	6.37	24.11	24.11	1.00	3.18	7.15	7.15	2442.77
361+00.00	1.00	6.19	23.25	23.25	1.00	0.86	7.48	7.48	2458.55
362+00.00	1.00	6.01	22.59	22.59	1.00	1.62	4.60	4.60	2476.54
363+00.00	1.00	6.23	22.66	22.66	1.00	0.30	3.55	3.55	2495.65
364+00.00	1.00	6.14	22.90	22.90	1.00	1.08	2.55	2.55	2516.00
365+00.00	1.00	6.10	22.66	22.66	1.00	2.71	7.03	7.03	2531.64
366+00.00	1.00	9.26	28.44	28.44	1.00	5.48	15.18	15.18	2544.89
367+00.00	1.00	6.05	28.34	28.34	1.00	2.82	15.37	15.37	2557.86
368+00.00	1.00	6.29	22.85	22.85	1.00	6.38	17.04	17.04	2563.68
369+00.00	1.00	12.12	34.10	34.10	1.00	3.61	18.50	18.50	2579.28
370+00.00	1.00	10.61	42.09	42.09	1.00	0.86	8.27	8.27	2613.10
371+00.00	1.00	11.27	40.51	40.51	1.00	0.12	1.81	1.81	2651.81
372+00.00	1.00	9.13	37.79	37.79	1.00	0.25	0.67	0.67	2688.92
373+00.00	1.00	6.71	29.34	29.34	1.00	0.54	1.45	1.45	2716.81
374+00.00	1.00	11.15	33.07	33.07	1.00	2.39	5.42	5.42	2744.46
375+00.00	1.00	6.14	32.02	32.02	1.00	0.32	5.01	5.01	2771.47
376+00.00	1.00	5.15	20.91	20.91	1.00	8.79	16.86	16.86	2775.52
377+00.00	1.00	5.96	20.57	20.57	1.00	1.89	19.77	19.77	2776.31
378+00.00	1.00	5.68	21.55	21.55	1.00	5.24	13.20	13.20	2784.65
379+00.00	1.00	5.34	20.40	20.40	1.00	2.93	15.14	15.14	2789.92
380+00.00	1.00	6.38	21.70	21.70	1.00	1.08	7.43	7.43	2804.19
381+00.00	1.00	5.80	22.55	22.55	1.00	3.79	9.02	9.02	2817.72
382+00.00	1.00	6.43	22.64	22.64	1.00	1.41	9.62	9.62	2830.74
383+00.00	1.00	6.57	24.08	24.08	1.00	0.26	3.09	3.09	2851.72
384+00.00	1.00	30.30	68.27	68.27	1.00	0.02	0.52	0.52	2919.48
385+00.00	1.00	7.31	69.65	69.65	1.00	0.00	0.03	0.03	2989.10
386+00.00	1.00	9.65	31.41	31.41	1.00	0.97	1.80	1.80	3018.71
387+00.00	1.00	7.35	31.49	31.49	1.00	0.30	2.35	2.35	3047.85
388+00.00	1.00	7.07	26.70	26.70	1.00	0.36	1.21	1.21	3073.34
389+00.00	1.00	7.46	26.90	26.90	1.00	0.88	2.29	2.29	3097.95
390+00.00	1.00	9.27	30.99	30.99	1.00	0.56	2.66	2.66	3126.28
391+00.00	1.00	16.74	48.17	48.17	1.00	0.04	1.11	1.11	3173.34
392+00.00	1.00	14.47	57.79	57.79	1.00	0.28	0.59	0.59	3230.54
393+00.00	1.00	12.22	49.42	49.42	1.00	0.20	0.88	0.88	3279.08
394+00.00	1.00	14.37	49.23	49.23	1.00	0.12	0.59	0.59	3327.72
395+00.00	1.00	7.20	39.94	39.94	1.00	0.00	0.23	0.23	3367.43
396+00.00	1.00	16.95	44.72	44.72	1.00	0.00	0.00	0.00	3412.15
397+00.00	1.00	17.23	63.31	63.31	1.00	0.00	0.00	0.00	3475.46
398+00.00	1.00	8.52	47.70	47.70	1.00	0.12	0.22	0.22	3522.94
399+00.00	1.00	6.87	28.50	28.50	1.00	0.90	1.88	1.88	3549.56
400+00.00	1.00	6.40	24.56	24.56	1.00	9.01	18.35	18.35	3555.77
401+00.00	1.00	5.60	22.22	22.22	1.00	7.23	30.07	30.07	3547.92
402+00.00	1.00	5.87	21.24	21.24	1.00	3.79	20.40	20.40	3548.77
403+00.00	1.00	6.09	22.14	22.14	1.00	1.77	10.29	10.29	3560.62
404+00.00	1.00	8.00	26.09	26.09	1.00	0.58	4.35	4.35	3582.36
405+00.00	1.00	7.89	29.43	29.43	1.00	0.37	1.77	1.77	3610.02
406+00.00	1.00	6.16	26.02	26.02	1.00	1.56	3.57	3.57	3632.47
407+00.00	1.00	6.62	23.68	23.68	1.00	0.45	3.71	3.71	3652.44
408+00.00	1.00	6.77	24.80	24.80	1.00	0.05	0.92	0.92	3676.32
409+00.00	1.00	6.22	24.07	24.07	1.00	2.28	4.32	4.32	3696.06
410+00.00	1.00	6.19	22.99	22.99	1.00	0.32	4.83	4.83	3714.22
411+00.00	1.00	8.37	26.97	26.97	1.00	0.34	1.22	1.22	3739.97
412+00.00	1.00	7.67	29.72	29.72	1.00	5.88	11.52	11.52	3758.17
413+00.00	1.00	8.57	30.08	30.08	1.00	0.23	11.33	11.33	3776.92
414+00.00	1.00	6.96	28.75	28.75	1.00	6.22	11.95	11.95	3793.73
415+00.00	1.00	40.18	87.29	87.29	1.00	1.72	14.70	14.70	3866.31
416+00.00	1.00	11.53	95.75	95.75	1.00	1.89	6.67	6.67	3955.39
417+00.00	1.00	18.83	56.21	56.21	1.00	0.73	4.85	4.85	4006.75
418+00.00	1.00	10.43	54.18	54.18	1.00	0.65	2.57	2.57	4058.36
419+00.00	1.00	6.13	30.67	30.67	1.00	2.57	5.97	5.97	4083.06

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SUMMARY OF EARTHWORK QUANTITIES

SHEET 1 OF 3

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	13A

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_EW_SUM_01.dgn

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DATE: 5/17/2024 TIME: 9:18:46 AM

SUMMARY OF EARTHWORK QUANTITIES

BASELINE STATION	RM 473 Station Quantities								Mass (CY) Ordinate
	Cut				Fill				
	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	
420+00.00	1.00	6.06	22.57	22.57	1.00	1.60	7.72	7.72	4097.90
421+00.00	1.00	6.24	22.77	22.77	1.00	2.18	7.00	7.00	4113.68
422+00.00	1.00	6.54	23.66	23.66	1.00	0.20	4.41	4.41	4132.93
423+00.00	1.00	18.07	45.58	45.58	1.00	0.26	0.86	0.86	4177.65
424+00.00	1.00	7.08	46.57	46.57	1.00	0.77	1.91	1.91	4222.31
425+00.00	1.00	7.50	27.00	27.00	1.00	0.38	2.12	2.12	4247.20
426+00.00	1.00	6.35	25.65	25.65	1.00	0.55	1.71	1.71	4271.14
427+00.00	1.00	6.24	23.31	23.31	1.00	0.43	1.82	1.82	4292.63
428+00.00	1.00	8.20	26.73	26.73	1.00	1.67	3.89	3.89	4315.46
429+00.00	1.00	8.08	30.14	30.14	1.00	1.99	6.78	6.78	4338.83
430+00.00	1.00	8.72	31.11	31.11	1.00	1.10	5.71	5.71	4364.22
431+00.00	1.00	11.95	38.28	38.28	1.00	0.00	2.03	2.03	4400.47
432+00.00	1.00	8.68	38.21	38.21	1.00	0.18	0.33	0.33	4438.36
433+00.00	1.00	14.34	42.63	42.63	1.00	0.11	0.53	0.53	4480.46
434+00.00	1.00	7.19	39.87	39.87	1.00	0.00	0.20	0.20	4520.13
435+00.00	1.00	7.13	26.53	26.53	1.00	0.00	0.00	0.00	4546.66
436+00.00	1.00	6.76	25.73	25.73	1.00	0.35	0.65	0.65	4571.73
437+00.00	1.00	10.41	31.80	31.80	1.00	0.00	0.65	0.65	4602.89
438+00.00	1.00	6.91	32.08	32.08	1.00	0.05	0.10	0.10	4634.87
439+00.00	1.00	15.03	40.64	40.64	1.00	1.83	3.49	3.49	4672.02
440+00.00	1.00	7.48	41.69	41.69	1.00	1.11	5.45	5.45	4708.26
441+00.00	1.00	7.41	27.57	27.57	1.00	0.60	3.17	3.17	4732.66
442+00.00	1.00	7.77	28.10	28.10	1.00	0.05	1.20	1.20	4759.56
443+00.00	1.00	7.39	28.08	28.08	1.00	0.88	1.71	1.71	4785.93
444+00.00	1.00	6.71	26.11	26.11	1.00	0.46	2.47	2.47	4809.57
445+00.00	1.00	5.85	23.25	23.25	1.00	2.15	4.82	4.82	4828.00
446+00.00	1.00	11.21	31.59	31.59	1.00	1.24	6.28	6.28	4853.32
447+00.00	1.00	6.51	32.82	32.82	1.00	2.69	7.27	7.27	4878.86
448+00.00	1.00	6.66	24.39	24.39	1.00	1.40	7.57	7.57	4895.69
449+00.00	1.00	6.02	23.47	23.47	1.00	2.57	7.35	7.35	4911.80
450+00.00	1.00	6.30	22.82	22.82	1.00	1.58	7.67	7.67	4926.95
451+00.00	1.00	8.43	27.29	27.29	1.00	1.27	5.27	5.27	4948.97
452+00.00	1.00	6.07	26.85	26.85	1.00	0.97	4.14	4.14	4971.68
453+00.00	1.00	7.60	25.32	25.32	1.00	1.52	4.61	4.61	4992.39
454+00.00	1.00	6.82	26.70	26.70	1.00	0.38	3.52	3.52	5015.57
455+00.00	1.00	7.06	25.70	25.70	1.00	0.65	1.91	1.91	5039.36
456+00.00	1.00	6.98	26.00	26.00	1.00	0.82	2.73	2.73	5062.63
457+00.00	1.00	9.37	30.28	30.28	1.00	1.69	4.64	4.64	5088.28
458+00.00	1.00	7.94	32.06	32.06	1.00	0.74	4.50	4.50	5115.84
459+00.00	1.00	8.63	30.68	30.68	1.00	0.16	1.68	1.68	5144.84
460+00.00	1.00	8.78	32.24	32.24	1.00	0.89	1.95	1.95	5175.14
461+00.00	1.00	7.30	29.79	29.79	1.00	5.60	12.01	12.01	5192.92
462+00.00	1.00	7.04	26.57	26.57	1.00	22.75	52.49	52.49	5166.99
463+00.00	1.00	5.93	24.03	24.03	1.00	88.10	205.28	205.28	4985.74
464+00.00	1.00	6.94	23.84	23.84	1.00	6.57	175.31	175.31	4834.27
465+00.00	1.00	10.47	32.24	32.24	1.00	0.00	12.17	12.17	4854.34
466+00.00	1.00	8.06	34.31	34.31	1.00	1.14	2.12	2.12	4886.53
467+00.00	1.00	6.52	27.01	27.01	1.00	1.35	4.62	4.62	4908.92
468+00.00	1.00	12.13	34.54	34.54	1.00	0.01	2.52	2.52	4940.94
469+00.00	1.00	6.72	34.90	34.90	1.00	0.99	1.85	1.85	4974.00
470+00.00	1.00	6.42	24.34	24.34	1.00	0.79	3.29	3.29	4995.05
471+00.00	1.00	5.83	22.69	22.69	1.00	1.65	4.51	4.51	5013.23
472+00.00	1.00	5.89	21.71	21.71	1.00	2.11	6.97	6.97	5027.97
473+00.00	1.00	5.91	21.85	21.85	1.00	1.19	6.12	6.12	5043.70
474+00.00	1.00	6.33	22.65	22.65	1.00	1.54	5.06	5.06	5061.29
475+00.00	1.00	6.63	24.00	24.00	1.00	1.20	5.07	5.07	5080.22
476+00.00	1.00	6.19	23.75	23.75	1.00	3.76	9.18	9.18	5094.79
477+00.00	1.00	6.78	24.02	24.02	1.00	0.79	8.43	8.43	5110.38
478+00.00	1.00	7.35	26.16	26.16	1.00	2.34	5.80	5.80	5130.74
479+00.00	1.00	6.41	25.49	25.49	1.00	3.71	11.21	11.21	5145.01
480+00.00	1.00	7.27	25.35	25.35	1.00	1.07	8.86	8.86	5161.50
481+00.00	1.00	9.04	30.21	30.21	1.00	0.31	2.55	2.55	5189.16
482+00.00	1.00	12.49	39.86	39.86	1.00	0.09	0.74	0.74	5228.28
483+00.00	1.00	9.20	40.17	40.17	1.00	0.07	0.30	0.30	5268.15
484+00.00	1.00	6.46	29.01	29.01	1.00	1.13	2.22	2.22	5294.94
485+00.00	1.00	9.73	29.99	29.99	1.00	1.78	5.39	5.39	5319.54
486+00.00	1.00	6.79	30.59	30.59	1.00	0.82	4.83	4.83	5345.31
487+00.00	1.00	6.13	23.92	23.92	1.00	3.62	8.22	8.22	5361.01
488+00.00	1.00	8.14	26.42	26.42	1.00	1.91	10.23	10.23	5377.21
489+00.00	1.00	8.79	31.34	31.34	1.00	0.85	5.11	5.11	5403.44
490+00.00	1.00	10.05	34.88	34.88	1.00	1.63	4.60	4.60	5433.73
491+00.00	1.00	6.77	31.14	31.14	1.00	0.02	3.06	3.06	5461.80
492+00.00	1.00	7.14	25.75	25.75	1.00	1.96	3.67	3.67	5483.88
493+00.00	1.00	6.60	25.45	25.45	1.00	0.81	5.12	5.12	5504.21
494+00.00	1.00	6.01	23.35	23.35	1.00	4.37	9.58	9.58	5517.97
495+00.00	1.00	7.61	25.21	25.21	1.00	0.00	8.09	8.09	5535.09

BASELINE STATION	RM 473 Station Quantities								Mass (CY) Ordinate
	Cut				Fill				
	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	
496+00.00	1.00	9.27	31.25	31.25	1.00	0.56	1.04	1.04	5565.31
497+00.00	1.00	6.07	28.41	28.41	1.00	5.03	10.36	10.36	5583.36
498+00.00	1.00	6.90	24.03	24.03	1.00	0.47	10.18	10.18	5597.22
499+00.00	1.00	7.48	26.65	26.65	1.00	0.51	1.80	1.80	5622.07
500+00.00	1.00	8.32	29.26	29.26	1.00	0.06	1.04	1.04	5650.29
501+00.00	1.00	11.49	36.68	36.68	1.00	0.00	0.11	0.11	5686.86
502+00.00	1.00	7.92	35.95	35.95	1.00	0.52	0.96	0.96	5721.85
503+00.00	1.00	7.41	28.39	28.39	1.00	0.72	2.30	2.30	5747.93
504+00.00	1.00	10.15	32.51	32.51	1.00	0.28	1.85	1.85	5778.59
505+00.00	1.00	12.50	41.94	41.94	1.00	0.06	0.62	0.62	5819.92
506+00.00	1.00	14.15	49.35	49.35	1.00	0.18	0.44	0.44	5868.84
507+00.00	1.00	11.09	46.75	46.75	1.00	0.07	0.46	0.46	5915.12
508+00.00	1.00	8.75	36.75	36.75	1.00	0.18	0.46	0.46	5951.41
509+00.00	1.00	9.90	34.54	34.54	1.00	0.00	0.33	0.33	5985.62
510+00.00	1.00	8.21	33.53	33.53	1.00	0.38	0.71	0.71	6018.45
511+00.00	1.00	12.79	38.87	38.87	1.00	2.91	6.09	6.09	6051.23
512+00.00	1.00	16.94	55.05	55.05	1.00	2.74	10.46	10.46	6095.82
513+00.00	1.00	19.48	67.45	67.45	1.00	0.95	6.83	6.83	6156.44
514+00.00	1.00	6.73	48.53	48.53	1.00	1.20	3.98	3.98	6200.99
515+00.00	1.00	6.64	24.75	24.75	1.00	0.19	2.58	2.58	6223.16
516+00.00	1.00	16.08	42.07	42.07	1.00	0.68	1.61	1.61	6263.62
517+00.00	1.00	11.01	50.16	50.16	1.00	0.08	1.41	1.41	6312.36
518+00.00	1.00	13.97	46.25	46.25	1.00	0.00	0.15	0.15	6358.46
519+00.00	1.00	10.20	44.76	44.76	1.00	0.66	1.23	1.23	6401.99
520+00.00	1.00	11.16	39.54	39.54	1.00	1.61	4.22	4.22	6437.31
521+00.00	1.00	6.16	32.07	32.07	1.00	0.77	4.41	4.41	6464.97
522+00.00	1.00	6.56	23.56	23.56	1.00	0.33	2.03	2.03	6486.51
523+00.00	1.00	2.94	17.60	17.60	1.00	0.92	2.31	2.31	6501.80
524+00.00	1.00	5.76	16.10	16.10	1.00	1.75	4.93	4.93	6512.97
525+00.00	1.00	6.49	22.68	22.68	1.00	2.29	7.48	7.48	6528.17
526+00.00	1.00	9.25	29.15	29.15	1.00	9.08	21.05	21.05	6536.28
527+00.00	1.00	8.11	32.15	32.15	1.00	1.28	19.18	19.18	6549.25
528+00.00	1.00	8.08	29.99	29.99	1.00	2.76	7.48	7.48	6571.76
529+00.00	1.00	7.84	29.48	29.48	1.00	1.76	8.36	8.36	6592.88
530+00.00	1.00	7.83	29.02	29.02	1.00	3.56	9.84	9.84	6612.06
531+00.00	1.00	6.12	25.84	25.84	1.00	0.71	7.90	7.90	6630.00
532+00.00	1.00	6.11	22.65	22.65	1.00	2.07	5.14	5.14	6647.51
533+00.00	1.00	7.72	25.61	25.61	1.00	0.34	4.46	4.46	6668.65
534+00.00	1.00	10.74	34.19	34.19	1.00	0.66	1.86	1.86	6700.99
535+00.00	1.00	11.97	42.06	42.06	1.00	0.73	2.58	2.58	6740.47
536+00.00	1.00	8.50	37.90	37.90	1.00	0.12	1.57	1.57	6776.80
537+00.00	1.00	10.37	34.93	34.93	1.00	0.02	0.26	0.26	6811.48
538+00.00	1.00	8.46	34.86	34.86	1.00	0.14	0.29	0.29	6846.05
539+00.00	1.00	7.58	29.71	29.71	1.00	0.22	0.67	0.67	6875.08
540+00.00	1.00	7.09	27.17	27.17	1.00	0.62	1.57	1.57	6900.68
541+00.00	1.00	6.79	25.69	25.69	1.00	0.51	2.09	2.09	6924.28
542+00.00	1.00	9.39	29.97	29.97	1.00	0.29	1.47	1.47	6952.78
543+00.00	1.00	15.77	46.60	46.60	1.00	0.19	0.88	0.88	6998.50
544+00.00	1.00	12.61	52.56	52.56	1.00	0.05	0.45	0.45	7050.61
545+00.00	1.00	9.03	40.08	40.08	1.00	0.62	1.24	1.24	7089.45
546+00.00	1.00	8.18	31.87	31.87	1.00	0.60	2.26	2.26	7119.07
547+00.00	1.00	8.33	30.58	30.58	1.00	0.15	1.39	1.39	7148.26
548+00.00	1.00	7.44	29.22	29.22	1.00	0.38	0.98	0.98	7176.49
549+00.00	1.00	7.26	27.22	27.22	1.00	0.20	1.08	1.08	7202.63
550+00.00	1.00	12.21	36.05	36.05	1.00	0.00	0.38	0.38	7238.31
551+00.00	1.00	9.29	39.81	39.81	1.00	0.07	0.14	0.14	7277.98
552+00.00	1.00	10.80	37.19	37.19	1.00	0.31	0.71	0.71	7314.47
553+00.00	1.00	6.84	32.65	32.65	1.00	1.85	3.99	3.99	7343.12
554+00.00	1.00	6.27	24.26	24.26	1.00	0.73	4.77	4.77	7362.61
555+00.00	1.00	6.68	23.97	23.97	1.00	0.29	1.88	1.88	7384.70
556+00.00	1.00	5.95	23.38	23.38	1.00	1.12	2.60	2.60	7405.48
557+00.00	1.00	6.18	22.47	22.47	1.00	0.11	2.28	2.28	7425.67
558+00.00	1.00	6.60	23.67	23.67	1.00	0.17	0.52	0.52	7448.82
559+00.00	1.00	6.31	23.90	23.90	1.00	0.40	1.04	1.04	7471.68
560+00.00	1.00	6.38	23.50	23.50	1.00	0.24	1.17	1.17	7494.01
561+00.00	1.00	8.41	27.39	27.39	1.00	0.24	0.88	0.88	7520.52
562+00.00	1.00	8.58	31.46	31.46	1.00	1.98	4.12	4.12	7547.86
563+00.00	1.00	8.14	30.95	30.95	1.00	0.25	4.13	4.13	7574.68
564+00.00	1.00	7.79	29.50	29.50	1.00	0.20	0.82	0.82	7603.36
565+00.00	1.00	8.84	30.80	30.80	1.00	0.60	1.48	1.48	7632.68
566+00.00	1.00	9.11	33.23	33.23	1.00	3.04	6.74	6.74	7659.17
567+00.00	1.00	7.85	31.41	31.41	1.00	5.24	15.33	15.33	7675.26
568+00.00	1.00	7.22	27.92	27.92	1.00	3.85	16.84	16.84	7686.34
569+00.00	1.00	7.54	27.33	27.33	1.00	1.22	9.40	9.40	7704.27
570+00.00	1.00	11.17	34.65	34.65	1.00	0.61	3.40	3.40	7735.53
571+00.00	1.00	8.85	37.09	37.09	1.00	0.32	1.73	1.73	7770.89

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TBPE REG. # F-474

Texas Department of Transportation

RM 473

SUMMARY OF EARTHWORK QUANTITIES

SHEET 2 OF 3

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	13B

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_EW_SUM_01.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:18:47 AM

SUMMARY OF EARTHWORK QUANTITIES

BASELINE STATION	RM 473 Station Quantities								Mass (CY) Ordinate
	Cut				Fill				
	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	
572+00.00	1.00	8.49	32.12	32.12	1.00	0.97	2.39	2.39	7800.62
573+00.00	1.00	11.09	36.25	36.25	1.00	0.09	1.95	1.95	7834.91
574+00.00	1.00	9.35	37.84	37.84	1.00	0.09	0.33	0.33	7872.42
575+00.00	1.00	10.13	36.07	36.07	1.00	0.04	0.25	0.25	7908.23
576+00.00	1.00	12.69	42.26	42.26	1.00	0.01	0.09	0.09	7950.40
577+00.00	1.00	11.54	44.86	44.86	1.00	0.07	0.14	0.14	7995.12
578+00.00	1.00	8.26	36.66	36.66	1.00	0.18	0.45	0.45	8031.33
579+00.00	1.00	8.83	31.66	31.66	1.00	0.37	1.01	1.01	8061.98
580+00.00	1.00	6.56	28.50	28.50	1.00	0.97	2.47	2.47	8088.01
581+00.00	1.00	7.33	25.73	25.73	1.00	0.96	3.57	3.57	8110.16
582+00.00	1.00	6.14	24.95	24.95	1.00	1.91	5.30	5.30	8129.81
583+00.00	1.00	7.01	24.35	24.35	1.00	0.45	4.37	4.37	8149.79
584+00.00	1.00	7.25	26.40	26.40	1.00	0.98	2.65	2.65	8173.55
585+00.00	1.00	6.78	25.98	25.98	1.00	1.14	3.92	3.92	8195.61
586+00.00	1.00	6.47	24.53	24.53	1.00	1.72	5.29	5.29	8214.85
587+00.00	1.00	6.75	24.47	24.47	1.00	2.39	7.61	7.61	8231.72
588+00.00	1.00	6.01	23.64	23.64	1.00	2.12	8.35	8.35	8247.00
589+00.00	1.00	6.52	23.20	23.20	1.00	0.99	5.76	5.76	8264.45
590+00.00	1.00	6.37	23.87	23.87	1.00	1.15	3.97	3.97	8284.34
591+00.00	1.00	6.79	24.37	24.37	1.00	1.05	4.08	4.08	8304.63
592+00.00	1.00	6.17	23.98	23.98	1.00	2.36	6.31	6.31	8322.30
593+00.00	1.00	7.08	24.53	24.53	1.00	2.95	9.83	9.83	8337.01
594+00.00	1.00	8.56	28.97	28.97	1.00	1.58	8.38	8.38	8357.59
595+00.00	1.00	7.14	29.07	29.07	1.00	0.62	4.06	4.06	8382.60
596+00.00	1.00	6.72	25.66	25.66	1.00	0.49	2.05	2.05	8406.21
597+00.00	1.00	7.28	25.92	25.92	1.00	0.79	2.38	2.38	8429.75
598+00.00	1.00	7.03	26.49	26.49	1.00	1.78	4.75	4.75	8451.49
599+00.00	1.00	9.00	29.68	29.68	1.00	2.44	7.80	7.80	8473.37
600+00.00	1.00	6.15	28.05	28.05	1.00	1.90	8.03	8.03	8493.39
601+00.00	1.00	7.77	25.78	25.78	1.00	7.34	17.11	17.11	8502.06
602+00.00	1.00	7.86	28.96	28.96	1.00	3.77	20.57	20.57	8510.45
603+00.00	1.00	8.32	29.96	29.96	1.00	0.81	8.47	8.47	8531.94
604+00.00	1.00	8.18	30.54	30.54	1.00	3.35	7.69	7.69	8554.79
605+00.00	1.00	8.37	30.64	30.64	1.00	1.30	8.60	8.60	8576.83
606+00.00	1.00	9.28	32.68	32.68	1.00	0.57	3.45	3.45	8606.06
607+00.00	1.00	9.71	35.16	35.16	1.00	1.37	3.59	3.59	8637.63
608+00.00	1.00	12.52	41.16	41.16	1.00	0.03	2.60	2.60	8676.19
609+00.00	1.00	9.90	41.51	41.51	1.00	0.00	0.06	0.06	8717.64
610+00.00	1.00	7.62	32.43	32.43	1.00	0.23	0.43	0.43	8749.63
611+00.00	1.00	8.39	29.64	29.64	1.00	0.50	1.36	1.36	8777.92
612+00.00	1.00	7.73	29.86	29.86	1.00	1.59	3.86	3.86	8803.91
613+00.00	1.00	8.34	29.77	29.77	1.00	1.13	5.02	5.02	8828.65
614+00.00	1.00	7.23	28.84	28.84	1.00	1.99	5.78	5.78	8851.71
615+00.00	1.00	8.56	29.24	29.24	1.00	0.58	4.76	4.76	8876.19
616+00.00	1.00	6.29	27.49	27.49	1.00	0.37	1.76	1.76	8901.92
617+00.00	1.00	6.66	23.98	23.98	1.00	1.67	3.78	3.78	8922.12
618+00.00	1.00	8.71	28.47	28.47	1.00	2.59	7.89	7.89	8942.70
619+00.00	1.00	6.85	28.82	28.82	1.00	7.34	18.40	18.40	8953.13
620+00.00	1.00	6.30	24.36	24.36	1.00	6.25	25.17	25.17	8952.32
621+00.00	1.00	9.94	30.08	30.08	1.00	0.52	12.55	12.55	8969.85
622+00.00	1.00	8.50	34.15	34.15	1.00	2.10	4.86	4.86	8999.14
623+00.00	1.00	8.27	31.06	31.06	1.00	2.79	9.06	9.06	9021.14
624+00.00	1.00	8.74	31.50	31.50	1.00	1.92	8.72	8.72	9043.92
625+00.00	1.00	6.84	28.84	28.84	1.00	0.01	3.57	3.57	9069.19
626+00.00	1.00	6.90	25.43	25.43	1.00	0.00	0.02	0.02	9094.60
627+00.00	1.00	6.95	25.65	25.65	1.00	0.25	0.46	0.46	9119.78
628+00.00	1.00	7.13	26.08	26.08	1.00	1.71	3.64	3.64	9142.22
629+00.00	1.00	6.92	26.02	26.02	1.00	2.96	8.66	8.66	9159.58
630+00.00	1.00	7.08	25.93	25.93	1.00	2.87	10.81	10.81	9174.69
631+00.00	1.00	5.70	23.66	23.66	1.00	4.94	14.47	14.47	9183.88
632+00.00	1.00	6.26	22.14	22.14	1.00	2.23	13.27	13.27	9192.75
633+00.00	1.00	10.07	30.24	30.24	1.00	4.63	12.70	12.70	9210.29
634+00.00	1.00	6.07	29.89	29.89	1.00	10.23	27.53	27.53	9212.65
635+00.00	1.00	6.26	22.84	22.84	1.00	16.97	50.38	50.38	9185.11
636+00.00	1.00	6.11	22.90	22.90	1.00	5.99	42.51	42.51	9165.49
637+00.00	1.00	5.95	22.34	22.34	1.00	14.08	37.17	37.17	9150.66
638+00.00	1.00	6.21	22.52	22.52	1.00	5.90	37.01	37.01	9136.17
639+00.00	1.00	6.57	23.66	23.66	1.00	3.24	16.93	16.93	9142.91
640+00.00	1.00	6.22	23.69	23.69	1.00	2.43	10.51	10.51	9156.09
641+00.00	1.00	6.12	22.86	22.86	1.00	4.59	13.01	13.01	9165.94
642+00.00	1.00	6.44	23.27	23.27	1.00	1.85	11.94	11.94	9177.27
643+00.00	1.00	6.13	23.29	23.29	1.00	4.51	11.79	11.79	9188.77
644+00.00	1.00	6.09	22.63	22.63	1.00	2.15	12.34	12.34	9199.06
645+00.00	1.00	5.73	21.89	21.89	1.00	7.35	17.59	17.59	9203.35
646+00.00	1.00	5.47	20.73	20.73	1.00	6.30	25.27	25.27	9198.82
647+00.00	1.00	5.54	20.38	20.38	1.00	8.42	27.25	27.25	9191.94

BASELINE STATION	RM 473 Station Quantities								Mass (CY) Ordinate
	Cut				Fill				
	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED (CY)	
648+00.00	1.00	7.24	23.66	23.66	1.00	0.00	15.59	15.59	9200.01
649+00.00	1.00	0.00			1.00	0.00			9200.01
650+00.00	1.00	0.00			1.00	0.00			9200.01
651+00.00	1.00	0.00			1.00	0.00			9200.01
652+00.00	1.00	0.00			1.00	0.00			9200.01
653+00.00	1.00	0.00			1.00	0.00			9200.01
653+49.94	1.00	0.00			1.00	0.00			9200.01
RM473 Earthwork Total:			11821.79	11821.79			2621.78	2621.78	

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TBPE REG. # F-474

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RM 473

SUMMARY OF EARTHWORK QUANTITIES

SHEET 3 OF 3

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	13C

PLOT DRIVER: pdf-bw.pltcfg
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FILE: RM473_EW_SUM_01.dgn

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DATE: 5/17/2024 TIME: 9:18:52 AM

SUMMARY OF DRAINAGE QUANTITIES

SHEET NO.	CULVERT	0400 6003 STRUC EXCAV (PIPE)	0401 6001 FLOWABLE BACKFILL	0402 6001 TRENCH EXCAVATION PROTECTION	0403 6001 TEMPORARY SPL SHORING	0432 6001 RIPRAP (CONC) (4 IN)	0460 6003 CMP (GAL STL 24 IN)	0460 6010 CMP AR (GAL STL DES 3)	0464 6005 RC PIPE (CL III) (24 IN)	0466 6062 HEADWALL (CH-FW-A-O) (DES= 3)	0466 6130 HEADWALL (CH-PW-S) (DIA=24IN)	0467 6388 SET (TY II) (24 IN) (RCP) (3:1) (C)	0467 6390 SET (TY II) (24 IN) (RCP) (4:1) (C)	0467 6534 SET (TY II) (DES 3) (CMP) (4:1) (C)	0496 6004 REMOV STR (SET)	0496 6007 REMOV STR (PIPE)
		CY	CY	LF	SF	CY	LF	LF	LF	EA	EA	EA	EA	EA	EA	LF
1 OF 4	CULVERT A-1	50	16	64		4			68			1	1		2	65
2 OF 4	CULVERT E-1				111		8				1				1	
3 OF 4	CULVERT L-1				232			9		1				1		
4 OF 4	CULVERT M-1				285			10		1				1		
TOTAL		50	16	64	628	4	8	19	68	2	1	1	1	2	3	65

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SUMMARY OF DRAINAGE QUANTITIES

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	14

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_DRN_SUM_01.dgn

100% SUBMITTAL

TIME: 11:49:26 AM
DATE: 5/8/2024

PAVEMENT MARKING SUMMARY

SHEET NO.	STATION LIMITS	0658-6062	0658-6099	0666-6036	0666-6054	0666-6078	0666-6225	0666-6226	0666-6231	0666-6232	0666-6285	0666-6289	0666-6293	0672-6007	0672-6009	6056-6002
		INSTL DEL ASSM (D-SW)SZ 1 (BRF)GF2 (BI)	INSTL OM ASSM (OM-2Z)(WFLX) GND	REFL PAV MRK TY I (W)8"(SLD) (100MIL)	REFL PAV MRK TY I (W)(ARROW) (100MIL)	REFL PAV MRK TY I (W)(WORD) (100MIL)	PAVEMENT SEALER 6"	PAVEMENT SEALER 8"	PAVEMENT SEALER (ARROW)	PAVEMENT SEALER (WORD)	REF PROF PAV MRK TY I (W) 6"(SLD) (090MIL)	REF PROF PAV MRK TY I (Y) 6"(SLD) (090MIL)	REF PROF PAV MRK TY I (Y) 6"(BRK) (090MIL)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	PREFORMED CENTERLINE RUMBLE STRIP
		EA	EA	LF	EA	EA	LF	LF	EA	EA	LF	LF	LF	EA	EA	LF
1 OF 18	BEGIN PROJECT TO STA 290+00		2				7139				3523	3616			46	
2 OF 18	STA 290+00 TO STA 312+00		2				8676				4358	4318			54	
3 OF 18	STA 312+00 TO STA 334+00		2				8330				4070	4260			54	
4 OF 18	STA 334+00 TO STA 356+00						8800				4400	4400			56	
5 OF 18	STA 356+00 TO STA 378+00						8799				4399	4400			56	
6 OF 18	STA 378+00 TO STA 400+00		2				8800				4400	4400			56	
7 OF 18	STA 400+00 TO STA 422+00	5	1				8800				4400	4400			56	
8 OF 18	STA 422+00 TO STA 444+00		6				8391				4400	3861	130		56	
9 OF 18	STA 444+00 TO STA 466+00	5	2				7546				4400	2726	420		56	
10 OF 18	STA 466+00 TO STA 488+00		2				8800				4400	4400			56	
11 OF 18	STA 488+00 TO STA 510+00						7010				4159	2411	440		52	
12 OF 18	STA 510+00 TO STA 532+00	5	1	228	1	1	7928	228	1	1	4372	3266	290	12	56	
13 OF 18	STA 532+00 TO STA 554+00						7235				4398	2307	530		56	
14 OF 18	STA 554+00 TO STA 576+00						7874				4382	3192	300		55	
15 OF 18	STA 576+00 TO STA 598+00						6931				4400	2071	460		50	72
16 OF 18	STA 597+00 TO STA 620+00	5	1				7708				4400	2928	380		56	
17 OF 18	STA 620+00 TO STA 642+00						8800				4400	4400			56	
18 OF 18	STA 642+00 TO END PROJECT						2639				1313	1326			17	
	PROJECT TOTAL	20	21	228	1	1	140206	228	1	1	74574	62682	2950	12	944	72

SIGNING SUMMARY

SHEET NO.	STATION LIMITS	0636-6001	0644-6001	0644-6002	0644-6004	0644-6023	0644-6030	0644-6031	0644-6076	0644-6078
		ALUMINUM SIGNS (TY A)	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM)	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	IN SM RD SN SUP&AM TY FRP (1) UA (P)	IN SM RD SN SUP&AM TY S80 (1) SA (T)	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT)	REMOVE SM RD SN SUP&AM	REMOVE SM RD SN SUP&AM (SIGN ONLY)
		SF	EA	EA	EA	EA	EA	EA	EA	EA
1 OF 18	BEGIN PROJECT TO STA 290+00		2		9	2			13	
2 OF 18	STA 290+00 TO STA 312+00		1	2	2				5	
3 OF 18	STA 312+00 TO STA 334+00		1	3	5		1		10	
4 OF 18	STA 334+00 TO STA 356+00				5		1		6	
5 OF 18	STA 356+00 TO STA 378+00				3				3	
6 OF 18	STA 378+00 TO STA 400+00		4				2		6	
7 OF 18	STA 400+00 TO STA 422+00		7		2			2	11	
8 OF 18	STA 422+00 TO STA 444+00		4		1				5	
9 OF 18	STA 444+00 TO STA 466+00		5		1		2		8	
10 OF 18	STA 466+00 TO STA 488+00		5	1	1				7	
11 OF 18	STA 488+00 TO STA 510+00			2	1				3	
12 OF 18	STA 510+00 TO STA 532+00		1	1					2	
13 OF 18	STA 532+00 TO STA 554+00									
14 OF 18	STA 554+00 TO STA 576+00						1		1	
15 OF 18	STA 576+00 TO STA 598+00				1				1	
16 OF 18	STA 597+00 TO STA 620+00				2				2	
17 OF 18	STA 620+00 TO STA 642+00	12	9		3				12	1
18 OF 18	STA 642+00 TO END PROJECT		1		6		1	1	9	
	PROJECT TOTAL	12	40	9	42	2	8	3	104	1

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SUMMARY OF SIGNING AND PAVEMENT MARKINGS

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	15

PLOT DRIVER: pdf-bw.pltcfg
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100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:19:04 AM

SUMMARY OF SW3P QUANTITIES

SHEET NO.	STATION	0160 6003 FURNISHING AND PLACING TOPSOIL (4")	0164 6003 BROADCAST SEED (PERM) (RURAL) (CLAY)	0164 6009 BROADCAST SEED (TEMP) (WARM)	0164 6011 BROADCAST SEED (TEMP) (COOL)	0169 6001 SOIL RETENTION BLANKETS (CL 1) (TY A)	0168 6001 VEGETATIVE WATERING	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 1)	0506 6024 CONSTRUCTION EXITS (REMOVE)	0506 6038 TEMP SEDMT CONT FENCE (INSTALL)	0506 6039 TEMP SEDMT CONT FENCE (REMOVE)
		SY	SY	SY	SY	SY	MG	LF	LF	LF	SY	SY	LF	LF
1 OF 18	BEGIN TO 290+00	3990	3990	1995	1995	3990	62	6	94	100			1532	1532
2 OF 18	290+00 TO 312+00	4394	4394	2197	2197	4394	69	12	61	73			2142	2142
3 OF 18	312+00 TO 334+00	4301	4301	2151	2151	4301	67	0	68	68			2113	2113
4 OF 18	334+00 TO 356+00	4810	4810	2405	2405	4810	75	20	30	50			2198	2198
5 OF 18	356+00 TO 378+00	4854	4854	2427	2427	4854	76	18	40	58			2161	2161
6 OF 18	378+00 TO 400+00	4719	4719	2360	2360	4719	74	0	83	83			1842	1842
7 OF 18	400+00 TO 422+00	4374	4374	2187	2187	4374	68	0	120	120			1248	1248
8 OF 18	422+00 TO 444+00	4512	4512	2256	2256	4512	70	58	103	161			1874	1874
9 OF 18	444+00 TO 466+00	4448	4448	2224	2224	4448	69	0	86	86			2060	2060
10 OF 18	466+00 TO 488+00	4507	4507	2254	2254	4507	70	0	94	94			1454	1454
11 OF 18	488+00 TO 510+00	4578	4578	2289	2289	4578	71	0	40	40			2173	2173
12 OF 18	510+00 TO 532+00	4525	4525	2263	2263	4525	71	0	68	68			1980	1980
13 OF 18	532+00 TO 554+00	4692	4692	2346	2346	4692	73	0	40	40			2970	2970
14 OF 18	554+00 TO 576+00	4791	4791	2396	2396	4791	75	0	40	40			2595	2595
15 OF 18	576+00 TO 598+00	4650	4650	2325	2325	4650	73	0	60	60			650	650
16 OF 18	598+00 TO 620+00	4530	4530	2265	2265	4530	71	10	65	75			2183	2183
17 OF 18	620+00 TO 642+00	4703	4703	2352	2352	4703	73	0	93	93			1785	1785
18 OF 18	642+00 TO END	1457	1457	729	729	1457	23	0	43	43			795	795
TOTAL		78835	78835	39418	39418	78835	1230	124	1228	1352	156	156	25747	25747

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TBPE REG. # F-474

Texas Department of Transportation

RM 473

SUMMARY OF SW3P QUANTITIES

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	16

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_SW3P_SUM_01.dgn

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DATE: 5/17/2024 TIME: 9:19:10 AM

TRAFFIC CONTROL PLAN SEQUENCE OF WORK

(1) THIS PROJECT WILL BE CONSTRUCTED IN 4 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 OCCURING, 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 STANADARD SPECIFICATIONS, AND TO THE GENERAL NOTES

(5) WORKING HOURS WILL BE LIMITED FROM 8:30 AM TO 4:00 PM UNLESS APPROVED BY THE ENGINEER.

(6) A BRIEF DESCRIPTION OF THESE PHASES ARE AS FOLLOWS:
PHASE 1 - CULVERT WORK
PHASE 2 - WESTBOUND PAVEMENT WIDENING
PHASE 3 - EASTBOUND PAVEMENT WIDENING
PHASE 4 - FINAL SURFACE TREATMENT

PHASE 1

THE INTENT OF THIS PHASE IS TO PERFORM THE PROPOSED CULVERT WORK

(1) THE CONTRACTOR MAY WORK AT UP TO TWO (2) CULVERT LOCATIONS SIMULTANEOUSLY, PROVIDED THAT EACH WORK ZONE IS SEPARATED BY A MINIMUM 0.5 MILE. HOWEVER, THE CONTRACTOR SHALL COMPLETE ALL WORK ASSOCIATED WITH EACH CULVERT REPLACEMENT BEFORE PROCEEDING TO ANY SUBSEQUENT CULVERT REPLACEMENTS.

(2) FOR EACH SEGMENT, INSTALL OR MAINTAIN ADVANCE WARNING SIGNS, SW3P, AND TEMPORARY SIGNS AND BARRICADES AS SHOWN IN THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER.

(3) MAINTAIN A MINIMUM TAPER RATE OF 50:1 TO TRANSITION FROM CONSTRUCTION TO EXISTING PAVEMENT

(4) REMOVE CHANNELIZATION DEVICES, INSTALL SIGNING AND WORK ZONE PAVEMENT MARKINS FOR EACH SEGMENT PRIOR TO PROCEEDING WITH THE NEXT SEGMENT.

PHASE 1A

THE INTENT OF THIS PHASE IS TO REMOVE AND RECONSTRUCT CULVERT A-1

(1) SET UP SW3P ALONG THE WORK AREA OF RM 473. PLACE TEMPORARY EROSION CONTROL DEVICES, INCLUDING SILT FENCE AND ROCK FILTER DAMS, AS SHOWN IN THE PLANS.

(2) PHASE 1A STEP 1A - SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION ALONG THE WESTBOUND SIDE OF RM 473 WITH TRAFFIC SIGNALS. INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS, LPCB, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS. REMOVE EXISTING UPSTREAM SET AND CMP TO LIMITS SHOWN IN THE PLANS. INSTALL CMP EXTENSION WITH COLLAR TO EXISTING CMP.

(3) PHASE 1A STEP 1B - INSTALL TEMPORARY PAVEMENT AS SHOWN ON PLANS.

(4) PHASE 1A STEP 2 - SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION ALONG THE EASTBOUND SIDE OF RM 473 WITH TRAFFIC SIGNALS. INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS, AND BARRICADES, AS SHOWN ON THE PLANS. CONSTRUCT DOWNSTREAM HALF OF NEW CROSS DRAINAGE STRUCTURE WITH CUT AND RESTORE OF EXISTING PAVEMENT (REFER TO CUT AND RESTORE DETAILS), AND END TREATMENT AS SHOWN IN THE PLANS. INSTALL TEMPORARY PAVEMENT AS SHOWN ON PLANS.

(5) TCP PHASE 1A STEP 3 - SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION ALONG THE WESTBOUND SIDE OF RM 473 WITH TRAFFIC SIGNALS. INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS, AND BARRICADES, AS SHOWN ON THE PLANS. CONSTRUCT UPSTREAM HALF ON NEW CROSS DRAINAGE STRUCTURE WITH CUT AND RESTORE OF EXISTING PAVEMENT (REFER TO CUT AND RESTORE DETAILS), AND END TREATMENTS AS SHOWN IN THE PLANS.

(6) TCP PHASE 1A STEP 4A - REMOVE LPCB AND SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION ALONG THE WESTBOUND SIDE OF RM 473 WITH FLAGGERS. INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS, AND BARRICADES, AS SHOWN ON THE PLANS. REMOVE UPSTREAM HALF OF EXISTING CULVERT WITH CUT AND RESTORE OF EXISTING PAVEMENT (REFER TO CUT AND RESTORE DETAILS). CONSTRUCT RIPRAP LINED DITCH AND GRADE TO DRAIN.

(7) TCP PHASE 1A STEP 4B - SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION ALONG THE EASTBOUND SIDE OF RM 473 WITH FLAGGERS. INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS, AND BARRICADES, AS SHOWN ON THE PLANS. REMOVE EXISTING DOWNSTREAM END TREATMENT AND DOWNSTREAM HALF OF EXISTING CULVERT WITH CUT AND RESTORE OF EXISTING PAVEMENT (REFER TO CUT AND RESTORE DETAILS). EXISTING DOWNSTREAM END TREATMENT AND DOWNSTREAM HALF OF EXISTING CULVERT WITH CUT AND RESTORE OF EXISTING PAVEMENT (REFER TO CUT AND RESTORE DETAILS).

PHASE 1A CONTINUED

(1) DURING NON-WORKING HOURS FOR FLAGGER OPERATION, CONSTRUCTION WILL BE LEVEL ACROSS THE SURFACE AND WILL BE SUITABLE FOR TEMPORARY VEHICULAR TRAFFIC.

(2) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING AS SHOWN ON THE PLANS.

PHASE 1B

THE INTENT OF THIS PHASE IS TO CONSTRUCT THE END TREATMENT AND EXTENSION OF CULVERT E-1

(1) SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION OF RM 473 WITH TAFFIC SIGNALS AT STRUCTURE CROSSING. ADVANCE WARNING SIGNS, TEMPORARY SIGNS, LPCB, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS.

(2) SET UP SW3P ALONG THE WORK AREA OF RM 473. PLACE TEMPORARY EROSION CONTROL DEVICES, INCLUDING SILT FENCE AND ROCK FILTER DAMNS, AS SHOWN IN THE PLANS.

(3) REMOVE EXISTING RIPRAP, REMOVE EXISTING CULVERT END TREATMENT, AND INSTALL TEMPORARY SPECIAL SHORING AS SHOWN IN THE PLANS. CONSTRUCT DOWNSTREAM CROSS DRAINAGE STRUCTURE EXTENSION AND END TREATMENT. PLACE NEW FLEXIBLE BASE, APPLY PRIME COAT, AND INSTALL MBGF AS SHOWN IN THE PLANS.

(4) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING AS SHOWN ON THE PLANS.

(5) REMOVE LPCB AND CHANNELIZATION DEVICES, INSTALL SIGNING AND WORK ZONE PAVEMENT MARKINGS FOR EACH PHASE BEFORE PROCEEDING WITH THE NEXT SEGMENT.

PHASE 1C

THE INTENT OF THIS PHASE IS TO CONSTRUCT THE END TREATMENTS AND EXTENSIONS OF CULVERT L-1

PHASE 1C STEP 1

(1) SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION OF RM 473 WITH TAFFIC SIGNALS AT STRUCTURE CROSSING. ADVANCE WARNING SIGNS, TEMPORARY SIGNS, LPCB, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS.

(2) SET UP SW3P ALONG THE WORK AREA OF RM 473. PLACE TEMPORARY EROSION CONTROL DEVICES, INCLUDING SILT FENCE AND ROCK FILTER DAMS, AS SHOWN IN THE PLANS.

(3) INSTALL TEMPORARY SPECIAL SHORING AS SHOWN IN THE PLANS. CONSTRUCT DOWNSTREAM CROSS DRAINAGE STRUCTURE EXTENSION AND WINGWALL. PLACE NEW FLEXIBLE BASE, APPLY PRIME COAT, AND INSTALL MBGF AS SHOWN IN THE PLANS.

(4) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING AS SHOWN ON THE PLANS.

(5) REMOVE LPCB AND CHANNELIZATION DEVICES, INSTALL SIGNING AND WORK ZONE PAVEMENT MARKINGS FOR EACH PHASE BEFORE PROCEEDING WITH THE NEXT SEGMENT.

PHASE 1C STEP 2

(1) SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION OF RM 473 WITH FLAGGERS AT STRUCTURE CROSSING. ADVANCE WARNING SIGNS, TEMPORARY SIGNS, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS.

(2) SET UP SW3P ALONG THE WORK AREA OF RM 473. PLACE TEMPORARY EROSION CONTROL DEVICES, INCLUDING SILT FENCE AND ROCK FILTER DAMS, AS SHOWN IN THE PLANS.

(3) INSTALL TEMPORARY SPECIAL SHORING AS SHOWN IN THE PLANS. CONSTRUCT UPSTREAM CROSS DRAINAGE STRUCTURE EXTENSION AND END TREATMENT.

(4) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING AS SHOWN ON THE PLANS.

(5) REMOVE CHANNELIZATION DEVICES, INSTALL SIGNING AND WORK ZONE PAVEMENT MARKINGS FOR EACH PHASE BEFORE PROCEEDING WITH THE NEXT SEGMENT.

PHASE 1D

THE INTENT OF THIS PHASE IS TO CONSTRUCT THE END TREATMENTS AND EXTENSIONS OF CULVERT M-1

PHASE 1D STEP 1

(1) SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION OF RM 473 WITH FLAGGERS AT STRUCTURE CROSSING. ADVANCE WARNING SIGNS, TEMPORARY SIGNS, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS.

(2) SET UP SW3P ALONG THE WORK AREA OF RM 473. PLACE TEMPORARY EROSION CONTROL DEVICES, INCLUDING SILT FENCE AND ROCK FILTER DAMS, AS SHOWN IN THE PLANS.

(3) INSTALL TEMPORARY SPECIAL SHORING AS SHOWN IN THE PLANS. CONSTRUCT DOWNSTREAM CROSS DRAINAGE STRUCTURE EXTENSION AND END TREATMENT.

(4) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING AS SHOWN ON THE PLANS.

(5) REMOVE CHANNELIZATION DEVICES, INSTALL SIGNING AND WORK ZONE PAVEMENT MARKINGS FOR EACH PHASE BEFORE PROCEEDING WITH THE NEXT SEGMENT.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED PROFESSIONAL ENGINEER

5/17/2024

AtkinsRéalis
TBPE REG. # F-474

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RM 473

TRAFFIC CONTROL NARRATIVE

SHEET 1 OF 2

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET			RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.	
SAT	KENDALL	0142	09	047	17	

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
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PHASE 1D CONTINUED

PHASE 1D STEP 2

(1) SET UP TCP FOR ONE LANE TWO-WAY TRAFFIC OPERATION OF RM 473 WITH FLAGGERS AT STRUCTURE CROSSING. ADVANCE WARNING SIGNS, TEMPORARY SIGNS, LPCB, BARRICADES, AND WORK ZONE PAVEMENT MARKINGS AS SHOWN ON THE PLANS.
(2) SET UP SW3P ALONG THE WORK AREA OF RM 473. PLACE TEMPORARY EROSION CONTROL DEVICES, INCLUDING SILT FENCE AND ROCK FILTER DAMS, AS SHOWN IN THE PLANS.
(3) INSTALL TEMPORARY SPECIAL SHORING AS SHOWN IN THE PLANS. CONSTRUCT UPSTREAM CROSS DRAINAGE STRUCTURE EXTENSION AND WINGWALL. PLACE NEW FLEXIBLE BASE, APPLY PRIME COAT, AND INSTALL MBGF AS SHOWN IN THE PLANS.
(4) PLACE TOPSOIL, RETENTION BLANKETS, AND TEMPORARY SEEDING AS SHOWN ON THE PLANS.
(5) REMOVE LPCB AND CHANNELIZATION DEVICES, INSTALL SIGNING AND WORK ZONE PAVEMENT MARKINGS FOR EACH PHASE BEFORE PROCEEDING WITH THE NEXT SEGMENT

PHASE 2 - WESTBOUND PAVEMENT WIDENING

THE INTENT OF THIS PHASE IS TO CONSTRUCT WESTBOUND PAVEMENT WIDENING

NOTE: THE LENGTH OF THE WORK AREA SHALL BE BASED ON THE CONTRACTOR'S ABILITY, AS DETERMINED BY THE ENGINEER, TO COMPLETE THE WORK AND RETURN TRAFFIC TO TWO-LANE TWO-WAY OPERATION AT THE END OF EACH WORK DAY.

(1) INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS, AND BARRICADES AS SHOWN ON THE PLANS.
(2) PLACE TEMPORARY EROSION CONTROL DEVICES.
(1) CONSTRUCT PROPOSED WESTBOUND PAVEMENT WIDENING AS SHOWN IN THE PLANS. PROPOSED WIDENING SHALL BE LIMITED TO THE LENGTH CONTRACTOR CAN PLACE BASE TO PROTECT DROP OFF. CONSTRUCTED BASE SHALL NOT BE LEFT WITHOUT PRIME COAT FOR LONGER THAN TWO WEEKS. PLACE ONE COURSE SURFACE TREATMENT ON WIDENED PAVEMENT AS SHOWN IN THE PLANS.
(3) RESET TRAFFIC CONTROL DEVICES AT THE END OF EACH DAYS PRODUCTION FOR TWO-WAY TRAFFIC DURING NON-WORKING HOURS.
(4) INSTALL MBGF AS SHOWN IN THE PLANS.

PHASE 3 - EASTBOUND PAVEMENT WIDENING

THE INTENT OF THIS PHASE IS TO CONSTRUCT EASTBOUND PAVEMENT WIDENING

NOTE: THE LENGTH OF THE WORK AREA SHALL BE BASED ON THE CONTRACTOR'S ABILITY, AS DETERMINED BY THE ENGINEER, TO COMPLETE THE WORK AND RETURN TRAFFIC TO TWO-LANE TWO-WAY OPERATION AT THE END OF EACH WORK DAY.

(2) INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS, AND BARRICADES AS SHOWN ON THE PLANS.
(3) PLACE TEMPORARY EROSION CONTROL DEVICES.
(4) CONSTRUCT PROPOSED EASTBOUND PAVEMENT WIDENING AS SHOWN IN THE PLANS. PROPOSED WIDENING SHALL BE LIMITED TO THE LENGTH CONTRACTOR CAN PLACE BASE TO PROTECT DROP OFF. CONSTRUCTED BASE SHALL NOT BE LEFT WITHOUT PRIME COAT FOR LONGER THAN TWO WEEKS. PLACE ONE COURSE SURFACE TREATMENT ON WIDENED PAVEMENT AS SHOWN IN THE PLANS.
(5) RESET TRAFFIC CONTROL DEVICES AT THE END OF EACH DAYS PRODUCTION FOR TWO-WAY TRAFFIC DURING NON-WORKING HOURS
(6) INSTALL MBGF AS SHOWN IN THE PLANS

PHASE 4 - FINAL SURFACE TREATMENT

THE INTENT OF THIS PHASE IS TO CONSTRUCT THE FINAL SURFACE COURSE, SIGNS, AND PAVEMENT MARKINGS

(1) AS APPLICABLE, IMPLEMENT TCP SIGNS AND BARRICADES FOR SURFACING OPERATIONS AND MOBILE OPERATIONS.
(2) PLACE FINAL SURFACE COURSE (OCST) FOR THE ENTIRE PROJECT LIMITS.
(3) INSTALL FINAL SIGNS AND PAVEMENT MARKINGS FOR THE ENTIRE PROJECT LIMITS.
(4) INSTALL PERMANENT EROSION CONTROL DEVICES AS SHOWN IN THE PLANS.
(5) PERFORM FINAL CLEAN-UP.
(6) OPEN ALL LANES TO TRAFFIC AS APPROVED AND/OR DIRECTED BY THE ENGINEER.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER
5/17/2024

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Texas Department of Transportation

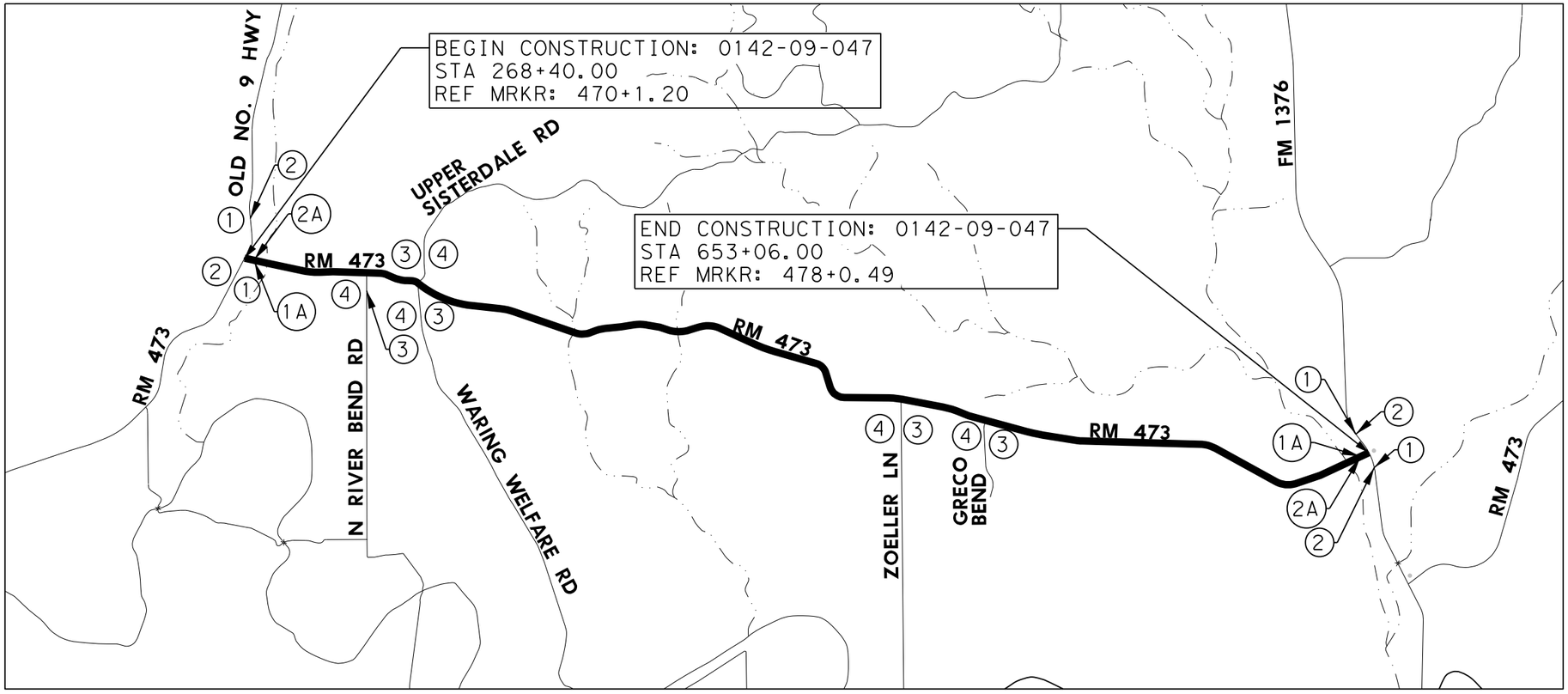
RM 473

TRAFFIC CONTROL NARRATIVE

SHEET 2 OF 2

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	18

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:19:19 AM



NOT TO SCALE

NOTES:

1. CERTAIN SIGNS MUST BE USED IN CONJUNCTION WITH OTHER SIGNS. EXAMPLE: "FLAGGER AHEAD" MUST HAVE A "BE PREPARED TO STOP".
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 REQUIRED IN AREAS OF ACTUAL CONSTRUCTION.
3. SEE TCP STANDARDS FOR ADDITIONAL SIGNING REQUIREMENTS. APPLICABLE TCP STANDARDS FOR THIS PROJECT ARE: TCP (2-2), TCP (3-1), TCP (3-3), TCP (7-1).
4. USE CHANGEABLE MESSAGE BOARDS TO ALERT MOTORISTS OF LANE CLOSURE.
5. UTILIZE EXPERIENCED FLAGGERS AT ALL TIMES.
6. TRUCK MOUNTED ATTENUATORS (TMA) WILL BE REQUIRED FOR THIS PROJECT.

STATE OF TEXAS
F. PAUL PURPURA II
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5/17/2024

SCHEDULE OF TRAFFIC CONTROL DEVICES

LOCATION	USAGE	OBEY WARNING SIGNS STATE LAW	STAY ALERT TALK OR TEXT LATER	BEGIN WORK ZONE	TRAFFIC FINES DOUBLE	WHEN WORKERS ARE PRESENT	SPEED LIMIT XX	ROAD WORK AHEAD	BEGIN ROAD WORK NEXT X MILES	NAME, ADDRESS CITY STATE CONTRACTOR	ROAD WORK <= NEXT X MILES	ROAD WORK NEXT X MILES =>	ROAD WORK <= NEXT X MILES NEXT X MILES =>	END ROAD WORK	END WORK ZONE	ONE LANE ROAD XXX FT	BE PREPARED TO STOP		XXX FEET	ROAD WORK AHEAD	
	TYPE	R20-3T	G20-10T	G20-9TP	R20-5T	R20-5aTP	R2-1	CW20-1D	G20-5T	G20-6T	G20-1bTL	G20-1bTR	G20-1aT	G20-2	G20-2bT	CW20-4	CW3-4	CW20-7	CW16-2P	CW20-1D	CHANNELIZING DEVICES
1	APPROACHES TO PROJECT			X	X	X					X	X			X						
2	DEPARTURES FROM PROJECT														X						
1A	ENTERING PROJECT								X	X											
2A	EXITING PROJECT													X							
3	SIDE STREET APPROACHES	X	X				X	X					X			X	X	X	X	X	X
4	SIDE STREET DEPARTURES													X							
*	AS DIRECTED	X	X				X									X	X	X	X	X	X

SCHEDULE OF TRAFFIC CONTROL DEVICES

LOCATION	USAGE	M			WORK CONVOY	Give Us A BRAKE	LOOSE GRAVEL	NO CENTER LINE	DO NOT PASS	NEXT X MILES	PASS WITH CARE	MAX SPEED 45	STOP HERE ON RED		XX MPH							
	TYPE	P.C.M.B.	ARROW BOARD	TYPE III	CW21-10aT	CW21-1T	CW8-7	CW8-12	R4-1	R20-1TP	R4-2	CW3-5	R10-6L	CW1-4R	CW13-1P	CHANNELIZING DEVICES						
1	APPROACHES TO PROJECT																					
2	DEPARTURES FROM PROJECT																					
1A	ENTERING PROJECT																					
2A	EXITING PROJECT																					
3	SIDE STREET APPROACHES																					
4	SIDE STREET DEPARTURES																					
*	AS DIRECTED	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						

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RM 473

SCHEDULE OF TRAFFIC CONTROL & ADVANCE WARNING DEVICES

SHEET 1 OF 1

FED. RD DIV. NO.	STATE	PROJECT No.			HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET			RM 473	
STATE DISTRICT	COUNTY		CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL		0142	09	047	19

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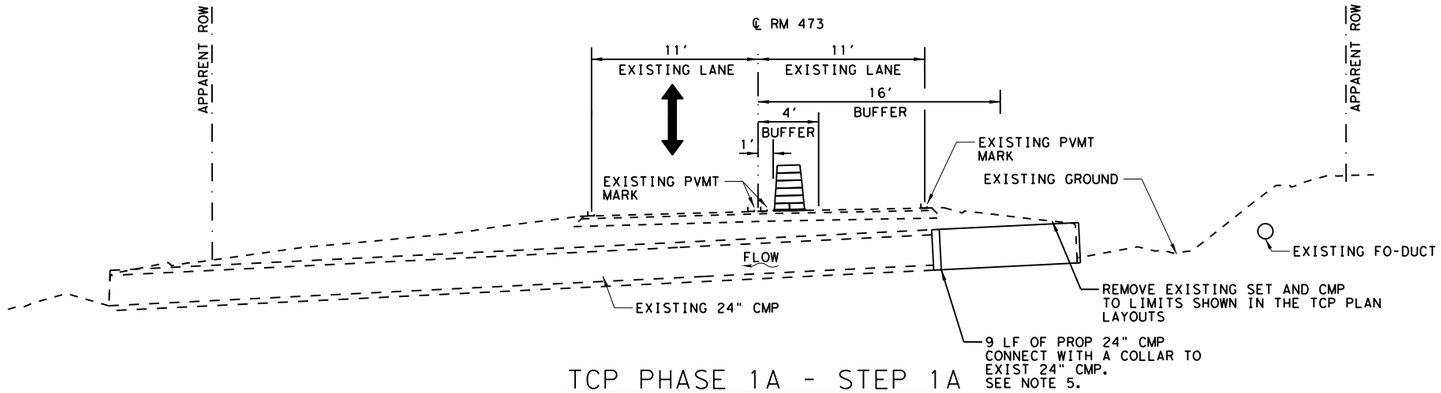
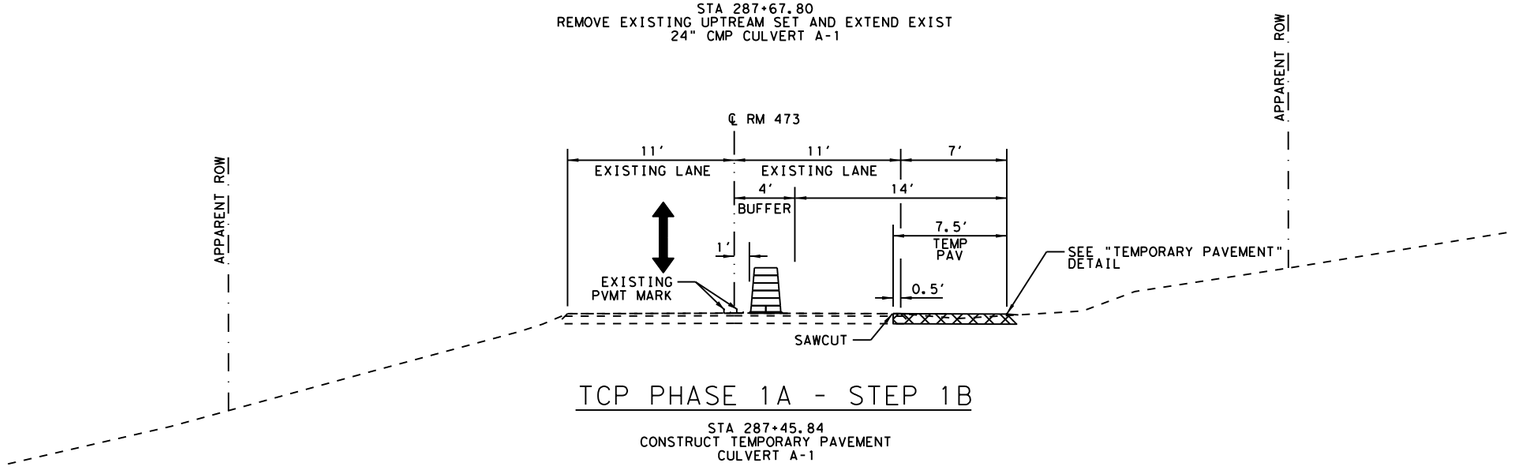


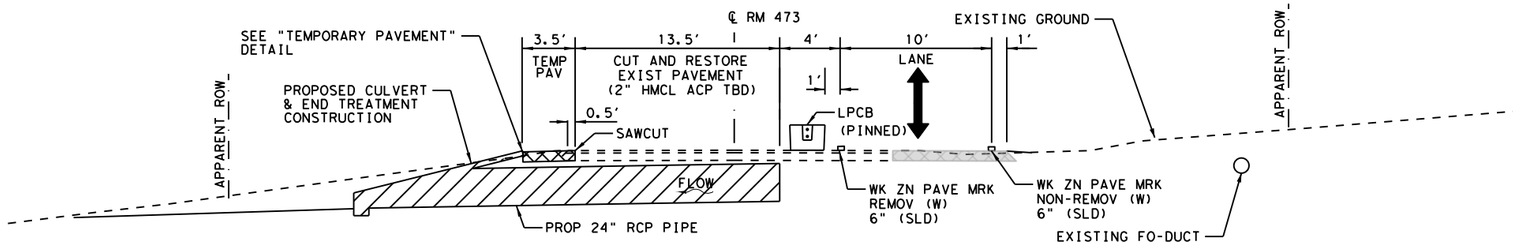
TCP PHASE 1A - STEP 1A

STA 287+67.80
REMOVE EXISTING UPTREAM SET AND EXTEND EXIST 24" CMP CULVERT A-1



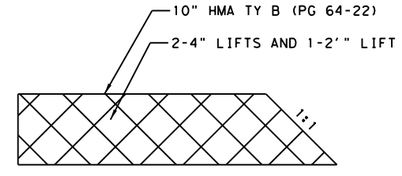
TCP PHASE 1A - STEP 1B

STA 287+45.84
CONSTRUCT TEMPORARY PAVEMENT
CULVERT A-1



TCP PHASE 1A - STEP 2

STA 287+45.84
CONSTRUCT DOWNSTREAM
CULVERT A-1



TEMPORARY PAVEMENT DETAIL "A"

NTS

LEGEND

- CONSTRUCTED THIS PHASE
- CONSTRUCTED PREV PHASE
- TEMPORARY PAVEMENT

NOTES:

1. REFER TO CULVERT SHEETS FOR TEMP SPECIAL SHORING AND TRENCH PROTECTION.
2. REFER TO TCP MISCELLANEOUS DETAILS SHEET FOR CUT AND RESTORE ADDITIONAL INFORMATION.
3. SEE TCP PHASE 1A PLAN LAYOUTS FOR TEMPORARY PAVEMENT LIMITS.
4. CONTRACTOR TO FIELD VERIFY UTILITIES.
5. CMP COLLAR CONNECTION IN STEP 1A, SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO BID ITEM 460-6003 CMP (GAL STL 24 IN).

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER
5/17/2024

REV. No.	DATE	REVISION	BY

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TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN TYPICAL SECTION

PHASE 1A
CULVERT A-1
STEP 1 AND 2
SHEET 1 OF 2

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	20

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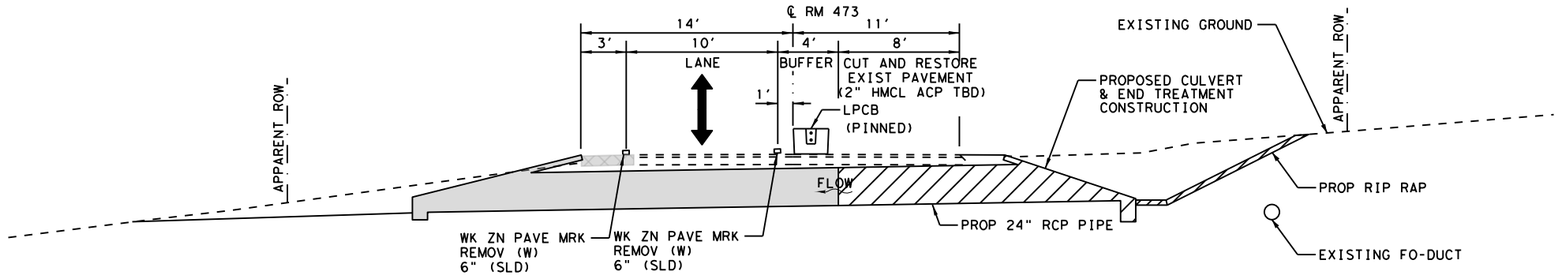
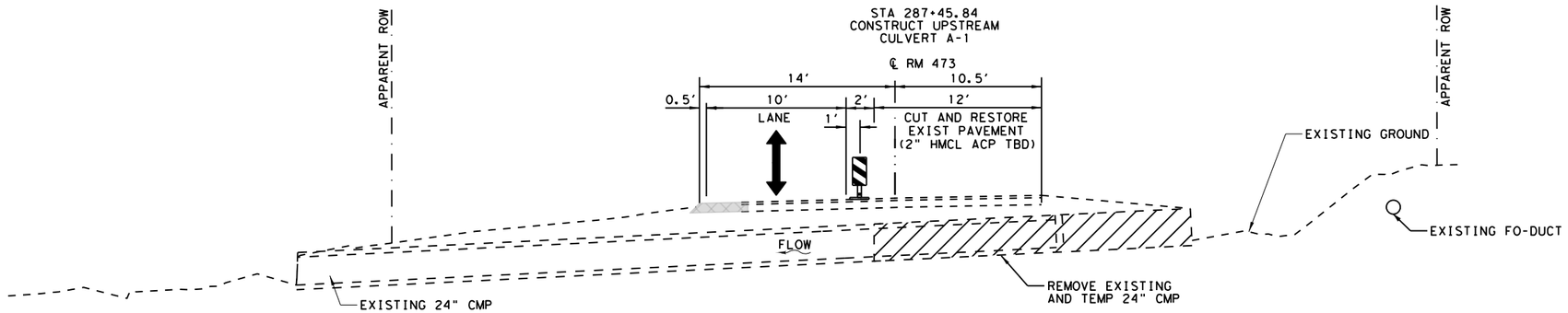
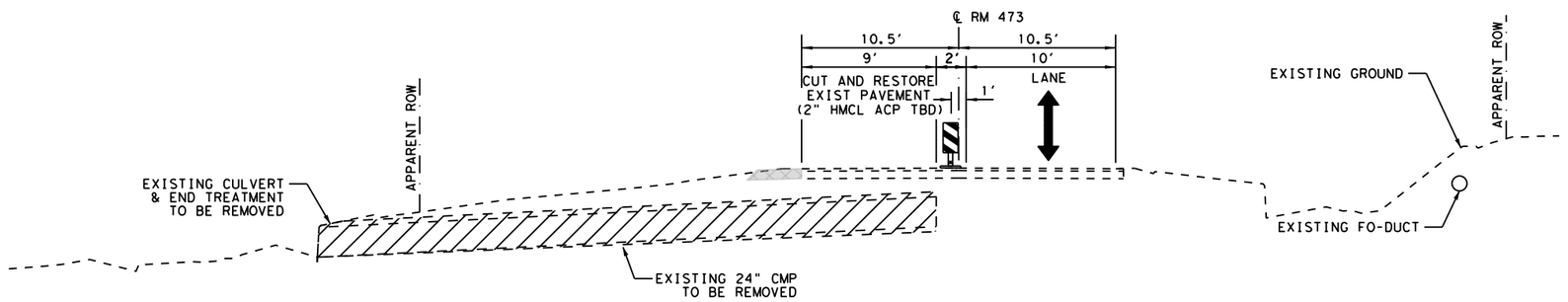


TCP PHASE 1A - STEP 3



TCP PHASE 1A - STEP 4

STA 287+67.80
EXISTING UPSTREAM CULVERT REMOVAL



TCP PHASE 1A - STEP 5

STA 287+67.80
EXISTING DOWNSTREAM CULVERT REMOVAL

LEGEND

- CONSTRUCTED THIS PHASE
- CONSTRUCTED PREV PHASE
- TEMPORARY PAVEMENT

NOTES:

1. REFER TO CULVERT SHEETS FOR TEMP SPECIAL SHORING AND TRENCH PROTECTION
2. CONTRACTOR SHALL COMPLETE EACH STEP 4 SHOWN ON THIS SHEET IN ONE DAYLIGHT PERIOD AND RETURN TRAFFIC TO TWO-LANE TWO-WAY OPERATIONS AT THE END OF EACH WORK DAY.
3. REFER TO TCP MISCELLEANOUS DETAILS SHEET FOR CUT AND RESTORE ADDITIONAL INFORMATION.
4. CONTRACTOR TO FIELD VERIFY UTILITIES.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN TYPICAL SECTION

PHASE 1A
CULVERT A-1
STEP 3 & 4
SHEET 2 OF 2

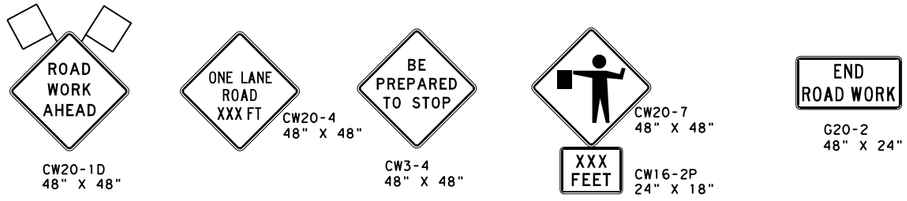
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	20A

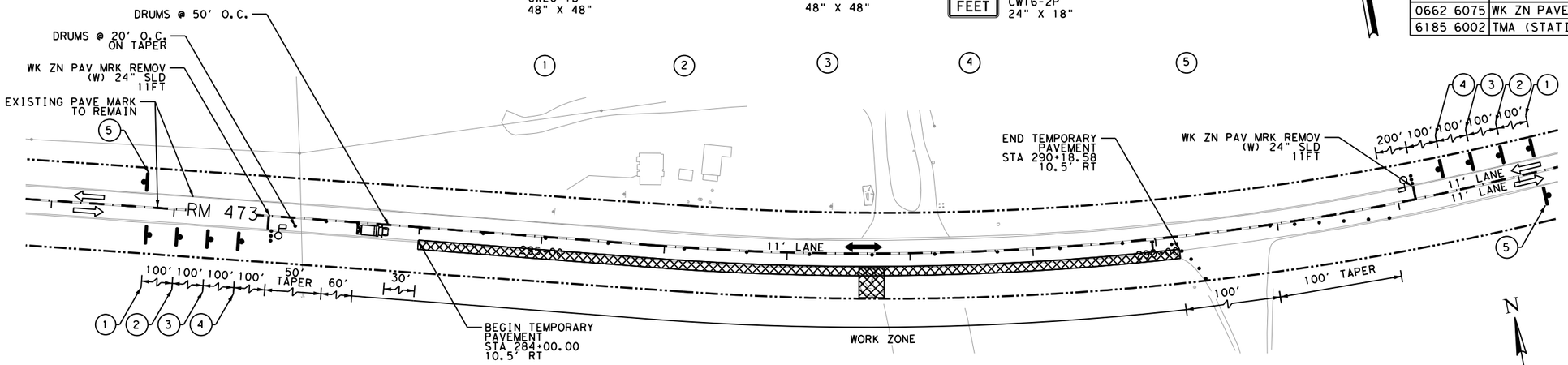
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_TYP_01A.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:19:41 AM

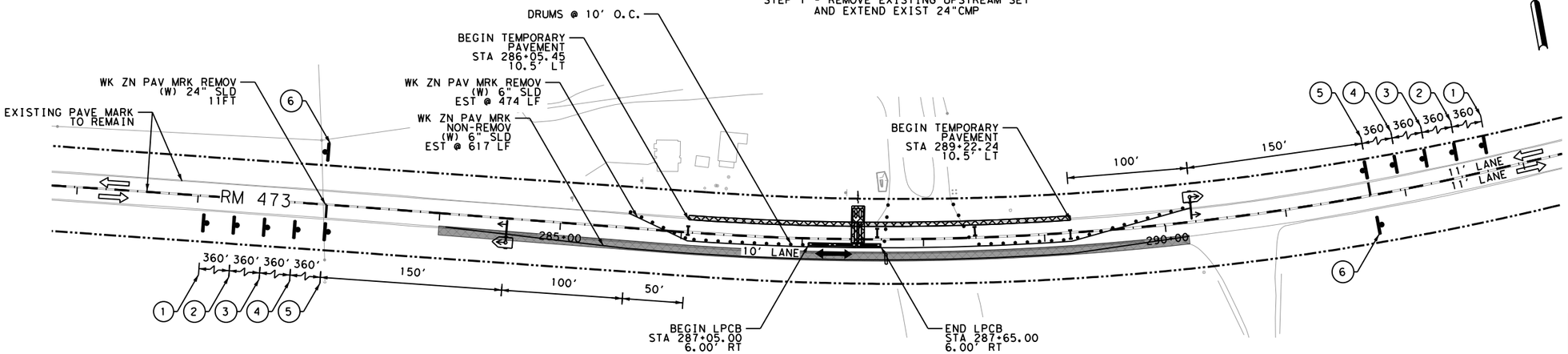
ITEM	DESCRIPTION	UNIT	QTY
0400 6002	CUT & RESTORE PAVING	SY	17
0460 6003	CMP (GAL STL 24 IN)	LF	9
0508 6001	CONSTRUCTING DETOURS	SY	641
0510 6001	ONE-WAY TRAF CONT (FLAGGER CONT)	HR	80
0510 6003	ONE-WAY TRAF CONT (PORT TRAF SIGN)	MO	0.5
0512 6009	PORT CTB(FUR & INST)(LOW PROFILE)(TY 1)	LF	20
0512 6010	PORT CTB(FUR & INST)(LOW PROFILE)(TY 2)	LF	40
0662 6008	WK ZN PAVE MRK NON-REMOV (W) 6" SLD	LF	617
0662 6008	WK ZN PAVE MRK REMOV (W) 6" SLD	LF	474
0662 6075	WK ZN PAVE MRK REMOV (W) 24"	LF	44
6185 6002	TMA (STATIONARY)	DAY	4





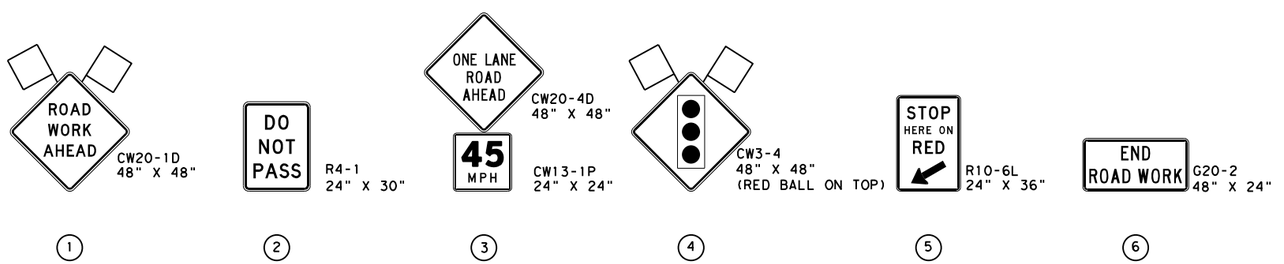
CULVERT A-1 (STA 287+46)

STEP 1 - REMOVE EXISTING UPSTREAM SET AND EXTEND EXIST 24"CMP



CULVERT A-1 (STA 287+46)

STEP 2 - CONSTRUCT DOWNSTREAM & TEMPORARY PAVEMENT



LEGEND

- EXISTING RIGHT OF WAY
- CONSTRUCTION PHASE 1
- CONSTRUCTION PREV PHASE
- PROPOSED PAVEMENT
- CHANNELIZING DEVICES - DRUMS
- TYPE 3 BARRICADE
- TEMPORARY SIGN
- ONE-LANE TWO-WAY TRAFFIC
- EXISTING TRAFFIC FLOW
- FLAGGER
- HEAVY WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR
- LOW PROFILE CONCRETE BARRIER
- 24" STOP BAR
- FEMA FLOODPLAIN ZONE A
- TEMP PORTABLE TRAFFIC SIGNAL

0' 50' 100'

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 1A CULVERT A-1 STEP 1 & STEP 2

SHEET 1 OF 1

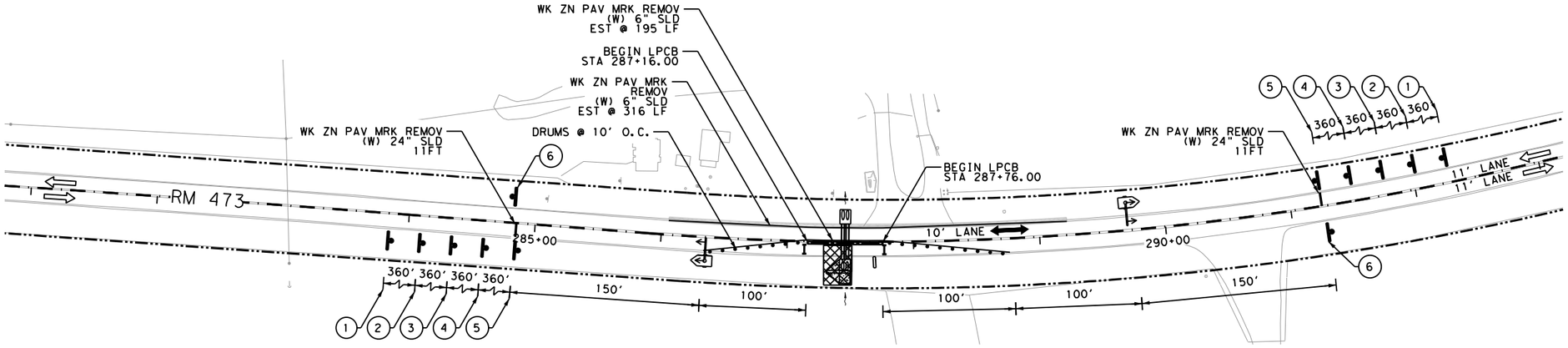
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	21

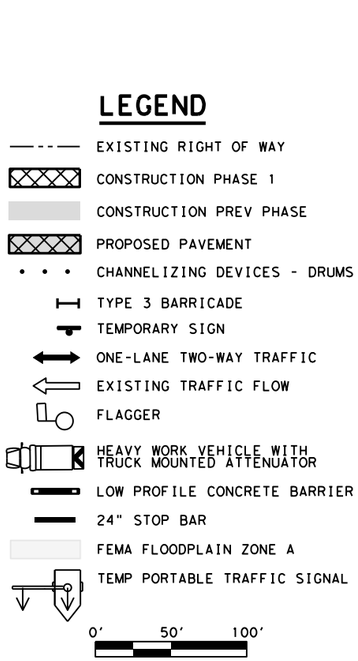
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_PH_1_A1.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:19:46 AM

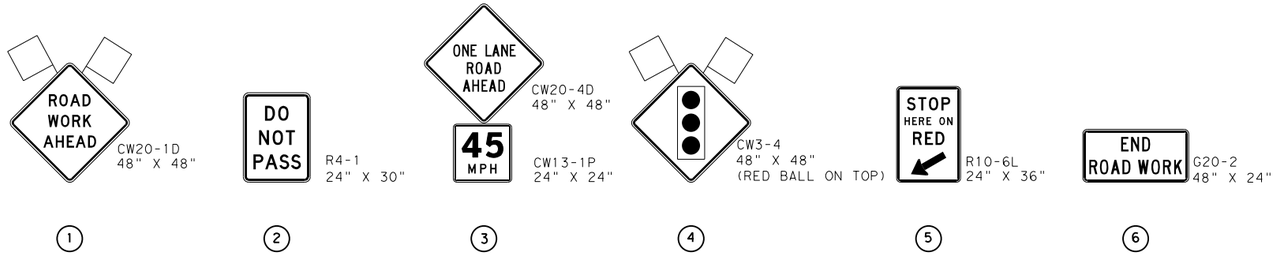
ITEM	DESCRIPTION	UNIT	QTY
0400 6002	CUT & RESTORE PAVING	SY	10
0510 6003	ONE-WAY TRAF CONT (PORT TRAF SIGN)	MO	0.5
0512 6033	PORT CTB(MOVE)(LOW PROFILE)(TY 1)	LF	20
0512 6034	PORT CTB(MOVE)(LOW PROFILE)(TY 2)	LF	40
0662 6067	WK ZN PAVE MRK REMOV (W) 6" SLD	LF	511
0662 6075	WK ZN PAVE MRK REMOV (W) 24"	LF	22





CULVERT A-1 (STA 287+46)

STEP 3 - CONSTRUCT UPSTREAM & RIPRAP



5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN
PHASE 1A
CULVERT A-1
STEP 3

SHEET 1 OF 1

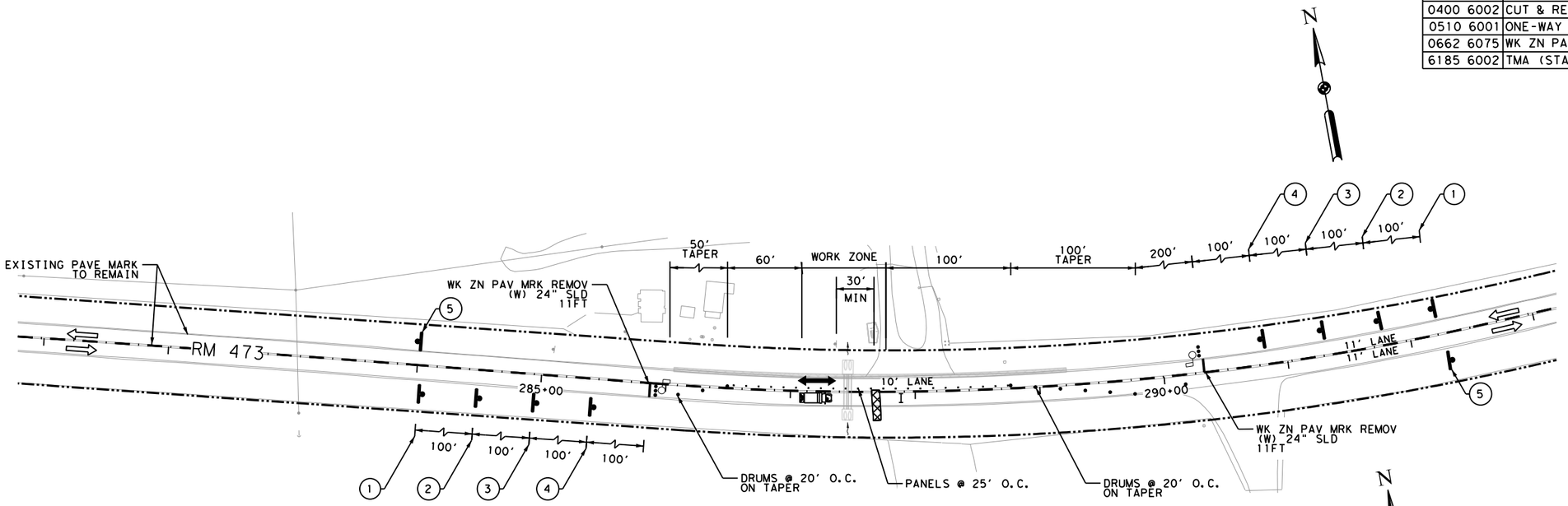
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	21A

PLOT DRIVER: pdf-bw.plt cfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_PH_1_A1_STEP3.dgn

100% SUBMITTAL

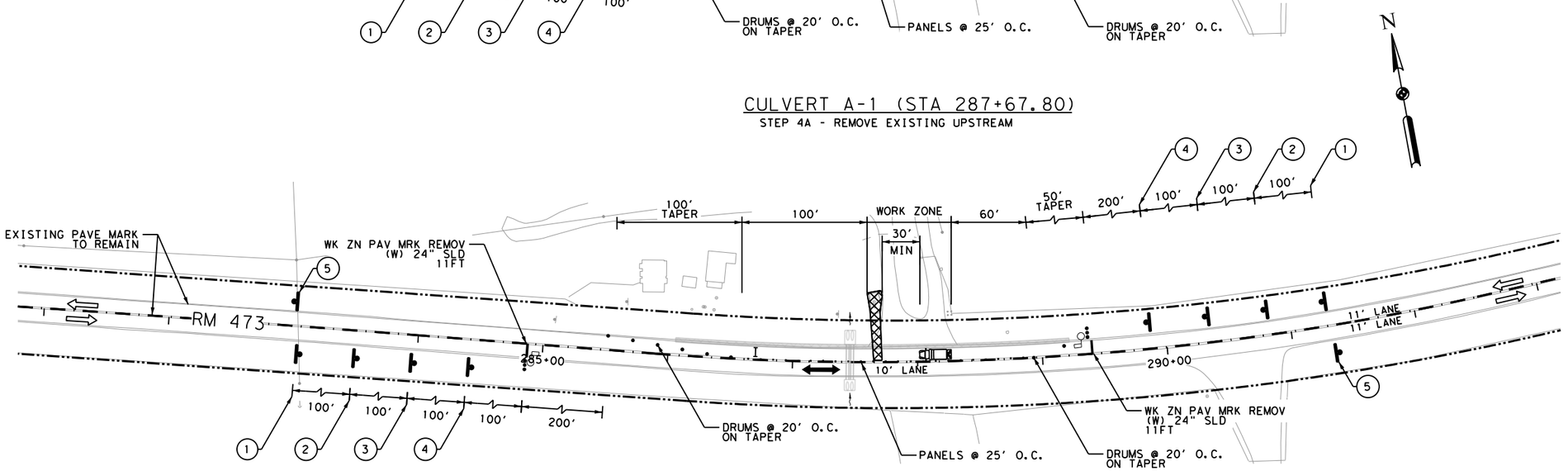
DATE: 5/17/2024 TIME: 9:19:52 AM

ITEM	DESCRIPTION	UNIT	QTY
0400 6002	CUT & RESTORE PAVING	SY	18
0510 6001	ONE-WAY TRAF CONT (FLAGGER CONT)	HR	20
0662 6075	WK ZN PAVE MRK REMOV (W) 24"	LF	44
6185 6002	TMA (STATIONARY)	DAY	1



CULVERT A-1 (STA 287+67.80)

STEP 4A - REMOVE EXISTING UPSTREAM



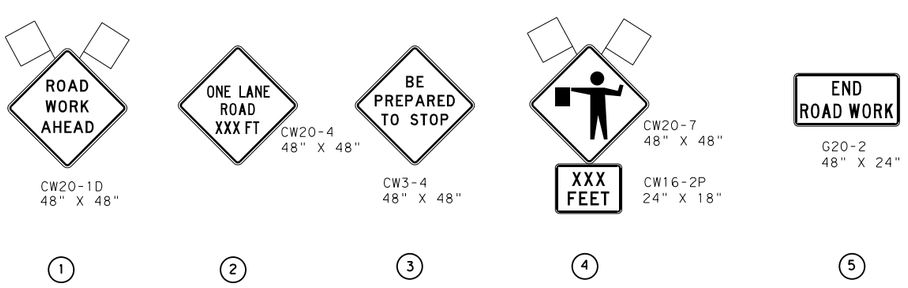
CULVERT A-1 (STA 287+67.80)

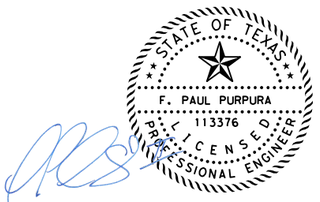
STEP 4B - REMOVE EXISTING DOWNSTREAM

LEGEND

- EXISTING RIGHT OF WAY
- CONSTRUCTION PHASE 1
- CONSTRUCTION PREV PHASE
- PROPOSED PAVEMENT
- CHANNELIZING DEVICES - DRUMS
- TYPE 3 BARRICADE
- TEMPORARY SIGN
- ONE-LANE TWO-WAY TRAFFIC
- EXISTING TRAFFIC FLOW
- FLAGGER
- HEAVY WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR
- LOW PROFILE CONCRETE BARRIER
- 24" STOP BAR
- FEMA FLOODPLAIN ZONE A
- TEMP PORTABLE TRAFFIC SIGNAL

0' 50' 100'





5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

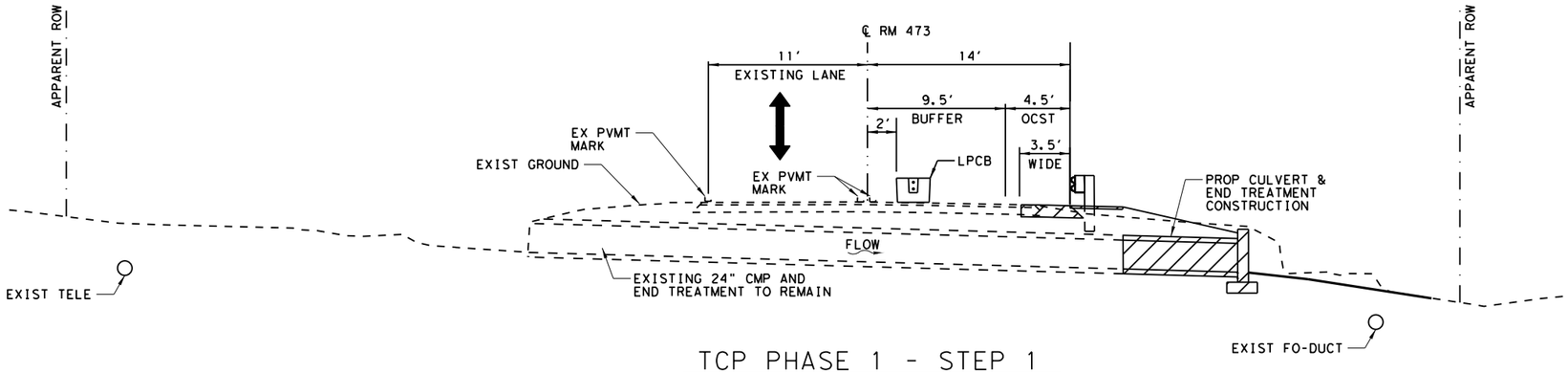
TRAFFIC CONTROL PLAN PHASE 1A CULVERT A-1 STEP 4A & 4B

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	21B

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_PH_1_A1_STEP4.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:19:58 AM



TCP PHASE 1 - STEP 1

STA 413+54.79
CONSTRUCT DOWNSTREAM
CULVERT E-1

LEGEND

- CONSTRUCTED THIS PHASE
- CONSTRUCTED PREV PHASE
- TEMPORARY PAVEMENT

NOTES:

REFER TO CULVERT SHEETS FOR TEMP SPECIAL SHORING AND TRENCH PROTECTION

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN TYPICAL SECTION

PHASE 1B

CULVERT E-1

SHEET 1 OF 1

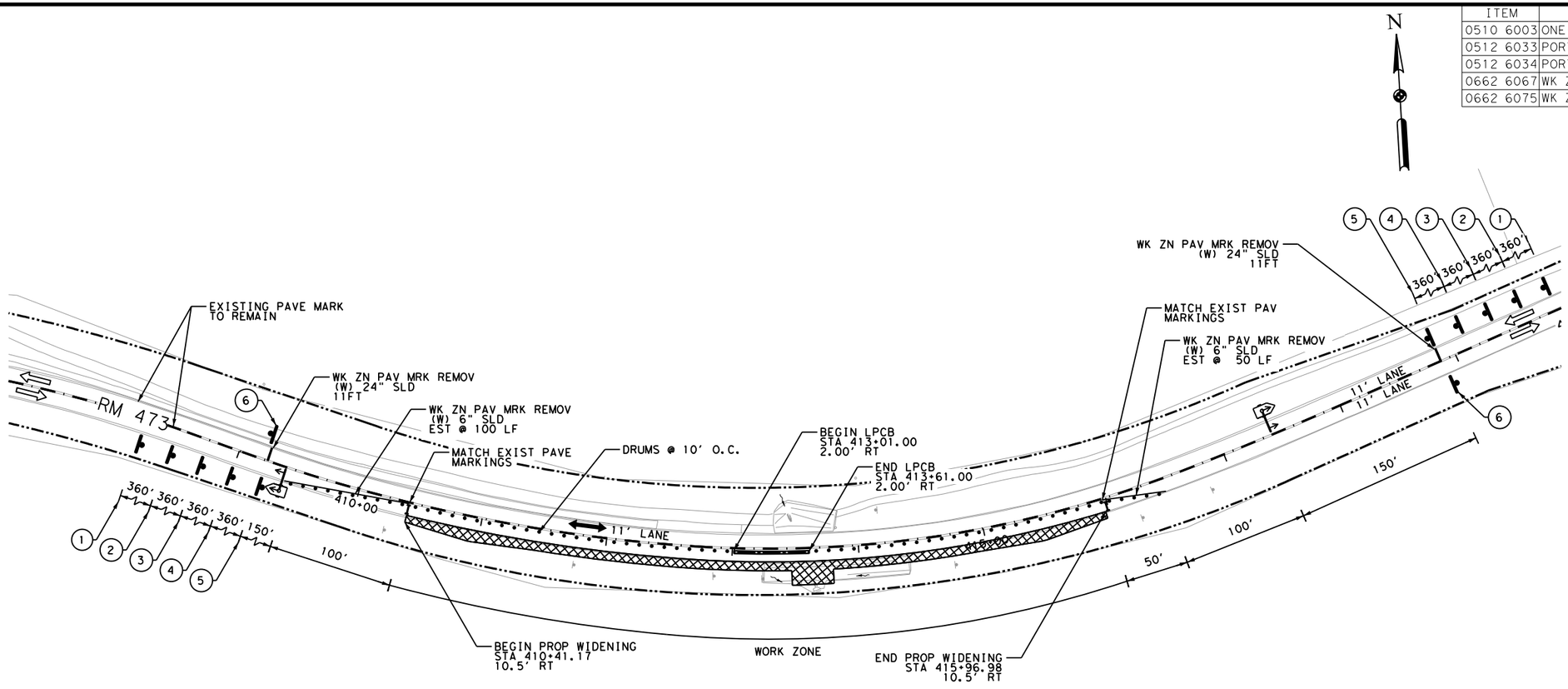
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	22

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_TYP_05.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:20:06 AM

ITEM	DESCRIPTION	UNIT	QTY
0510 6003	ONE-WAY TRAF CONT (PORT TRAF SIGN)	MO	1.0
0512 6033	PORT CTB(MOVE)(LOW PROFILE)(TY 1)	LF	20
0512 6034	PORT CTB(MOVE)(LOW PROFILE)(TY 2)	LF	40
0662 6067	WK ZN PAVE MRK REMOV (W) 6" SLD	LF	150
0662 6075	WK ZN PAVE MRK REMOV (W) 24"	LF	22



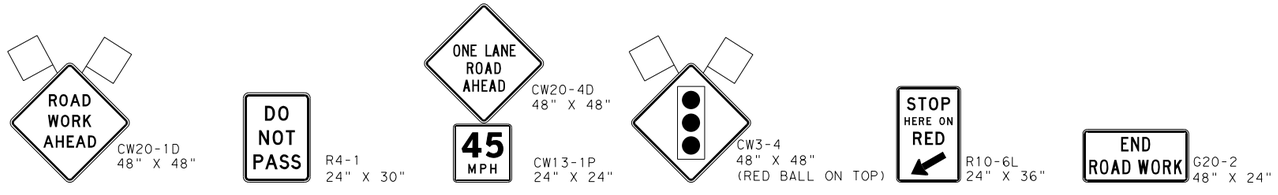
LEGEND

- EXISTING RIGHT OF WAY
- CONSTRUCTION PHASE 1
- CONSTRUCTION PREV PHASE
- PROPOSED PAVEMENT
- CHANNELIZING DEVICES - DRUMS
- TYPE 3 BARRICADE
- TEMPORARY SIGN
- ONE-LANE TWO-WAY TRAFFIC
- EXISTING TRAFFIC FLOW
- FLAGGER
- HEAVY WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR
- LOW PROFILE CONCRETE BARRIER
- 24" STOP BAR
- FEMA FLOODPLAIN ZONE A
- TEMP PORTABLE TRAFFIC SIGNAL

0' 50' 100'

CULVERT E-1 (STA 413+55)

STEP 1 - RIGHT SIDE



F. PAUL PURPURA 113376 LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

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RM 473

TRAFFIC CONTROL PLAN PHASE 1B CULVERT E-1

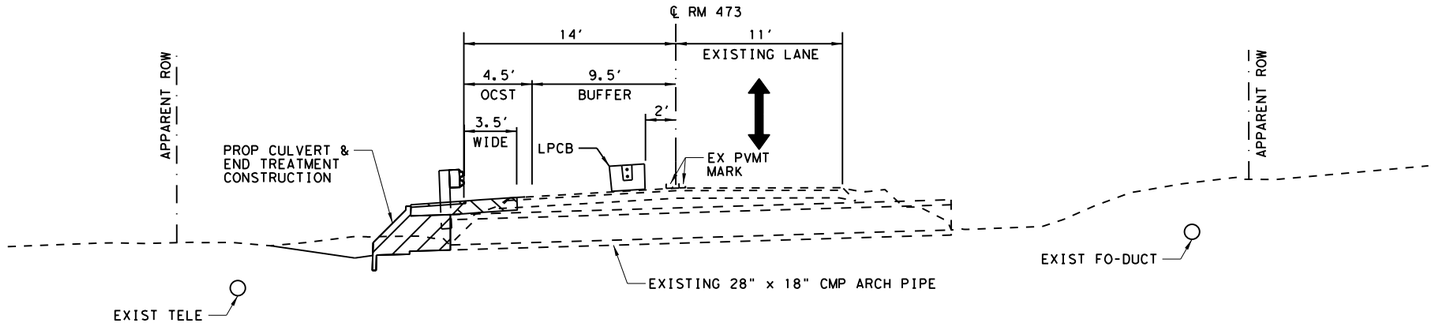
SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	23

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_PH_1_E1.dgn

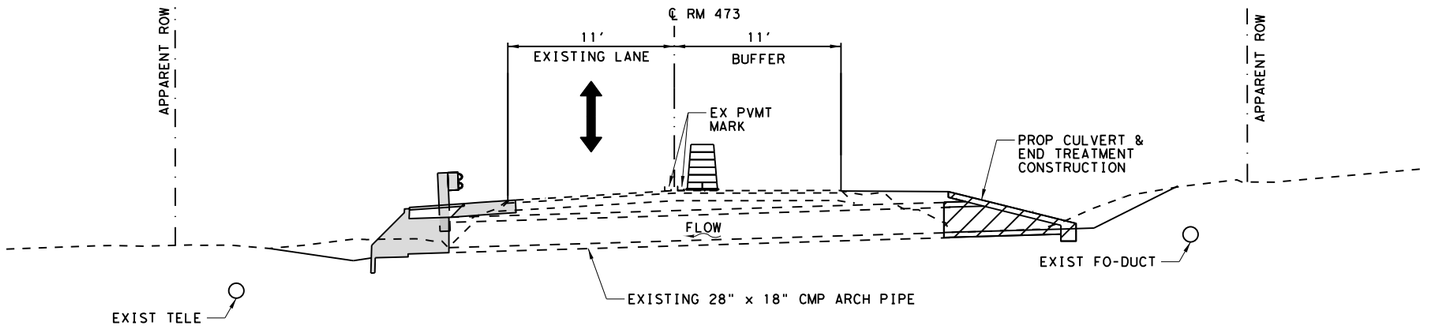
100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:20:12 AM



TCP PHASE 1 - STEP 1

STA 527+79.16
CONSTRUCT DOWNSTREAM
CULVERT L-1



TCP PHASE 1 - STEP 2

STA 527+79.16
CONSTRUCT DOWNSTREAM
CULVERT L-1

LEGEND

- CONSTRUCTED THIS PHASE
- CONSTRUCTED PREV PHASE
- TEMPORARY PAVEMENT

NOTES:

REFER TO CULVERT SHEETS FOR TEMP SPECIAL SHORING AND TRENCH PROTECTION

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN TYPICAL SECTION

PHASE 1C

CULVERT L-1

SHEET 1 OF 1

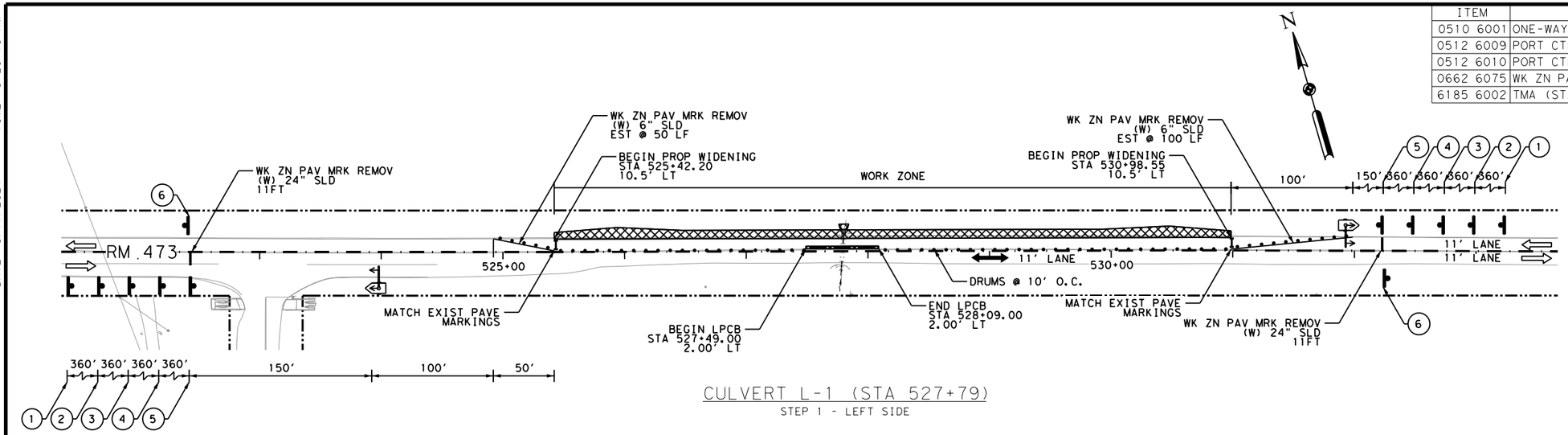
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	24

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_TYP_08.dgn

100% SUBMITTAL

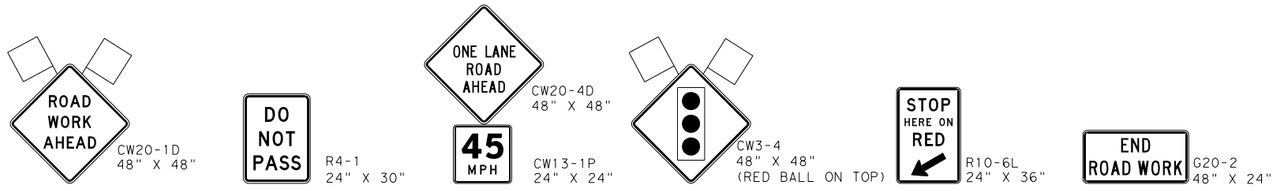
DATE: 5/17/2024 TIME: 9:20:19 AM

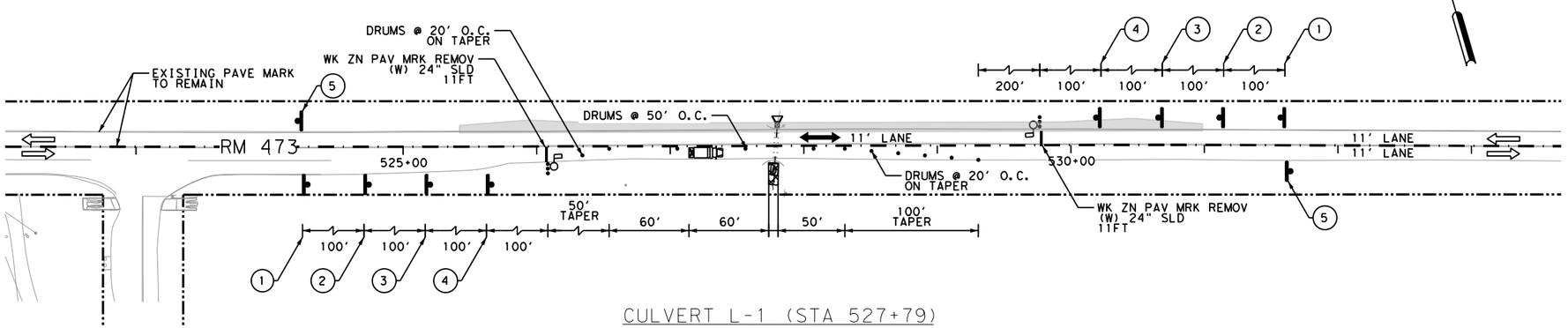
ITEM	DESCRIPTION	UNIT	QTY
0510 6001	ONE-WAY TRAF CONT (FLAGGER CONT)	HR	440
0512 6009	PORT CTB(FUR & INST)(LOW PROFILE)(TY 1)	LF	20
0512 6010	PORT CTB(FUR & INST)(LOW PROFILE)(TY 2)	LF	40
0662 6075	WK ZN PAVE MRK REMOV (W) 24" (SLD)	LF	44
6185 6002	TMA (STATIONARY)	DAY	44



CULVERT L-1 (STA 527+79)

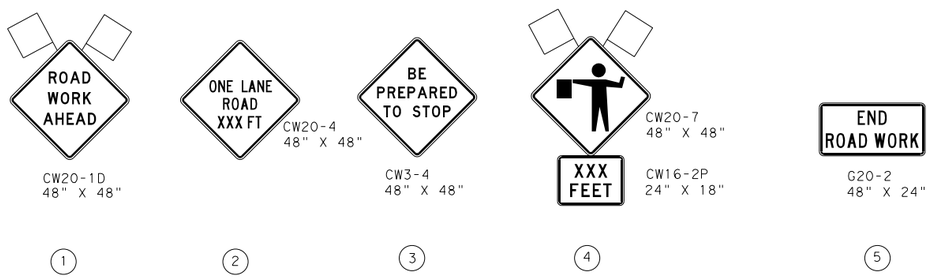
STEP 1 - LEFT SIDE





CULVERT L-1 (STA 527+79)

STEP 2 - RIGHT SIDE



LEGEND

- EXISTING RIGHT OF WAY
- CONSTRUCTION PHASE 1
- CONSTRUCTION PREV PHASE
- PROPOSED PAVEMENT
- CHANNELIZING DEVICES - DRUMS
- TYPE 3 BARRICADE
- TEMPORARY SIGN
- ONE-LANE TWO-WAY TRAFFIC
- EXISTING TRAFFIC FLOW
- FLAGGER
- HEAVY WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR
- LOW PROFILE CONCRETE BARRIER
- 24" STOP BAR
- FEMA FLOODPLAIN ZONE A
- TEMP PORTABLE TRAFFIC SIGNAL

0' 50' 100'

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 1C CULVERT L-1

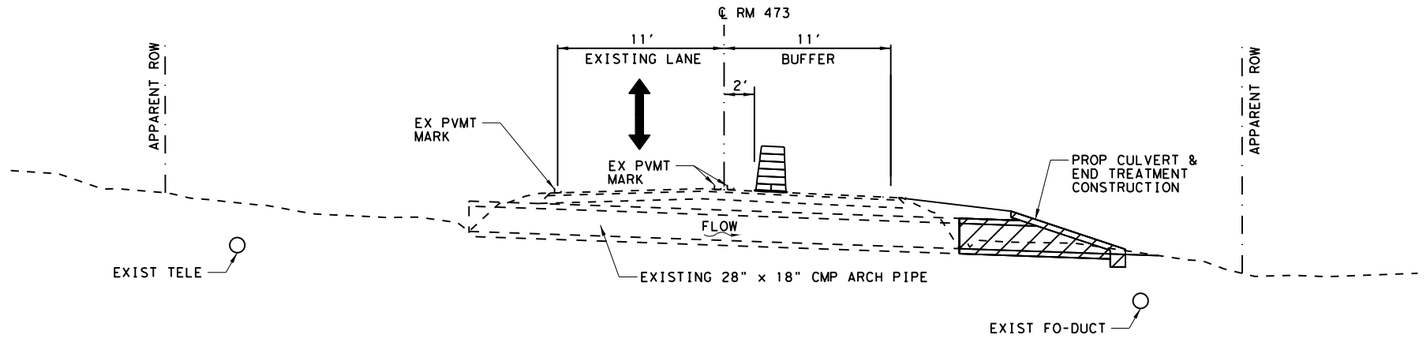
SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	25

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_PH_1_L1.dgn

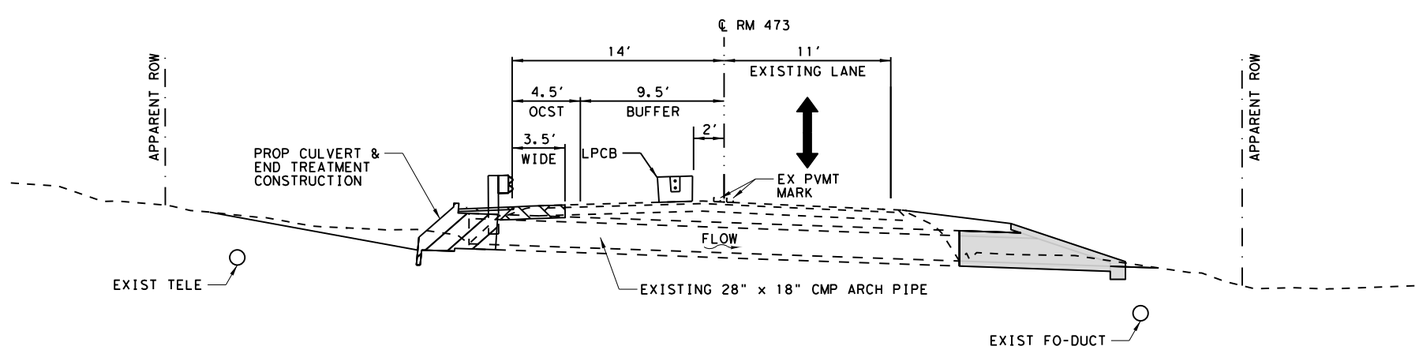
100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:20:25 AM



TCP PHASE 1 - STEP 1

STA 602+62.25
CONSTRUCT DOWNSTREAM
CULVERT M-1



TCP PHASE 1 - STEP 2

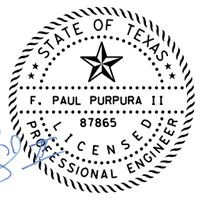
STA 602+62.25
CONSTRUCT UPSTREAM
CULVERT M-1

LEGEND

- CONSTRUCTED THIS PHASE
- CONSTRUCTED PREV PHASE
- TEMPORARY PAVEMENT

NOTES:

REFER TO CULVERT SHEETS FOR TEMP SPECIAL SHORING AND TRENCH PROTECTION



5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN TYPICAL SECTION

PHASE 1D

CULVERT M-1

SHEET 1 OF 1

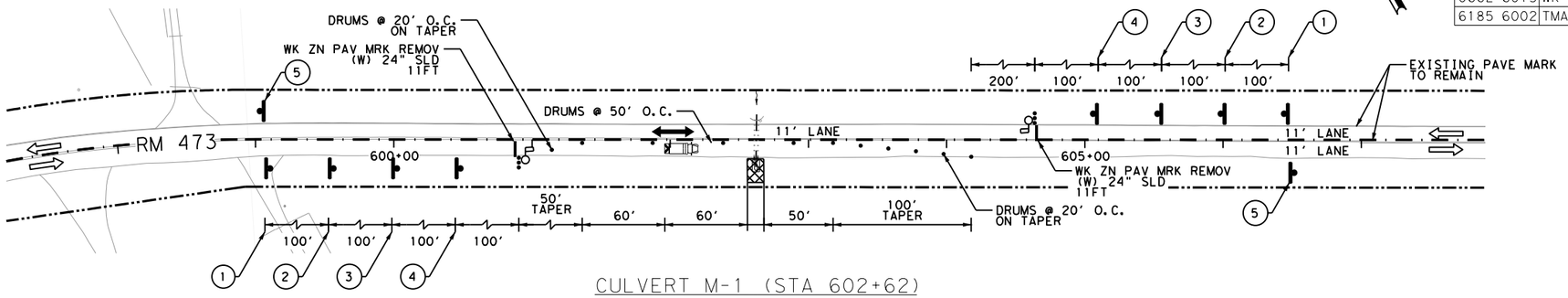
FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	26

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_TYP_09.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:20:33 AM

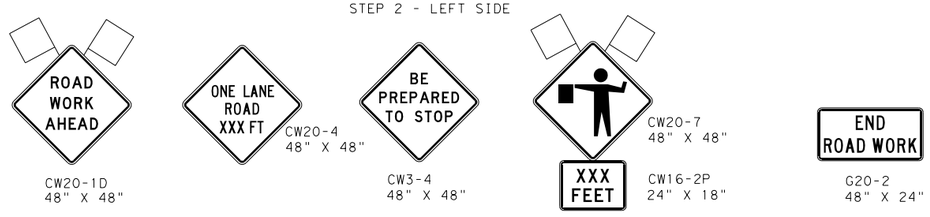
ITEM	DESCRIPTION	UNIT	QTY
0510 6001	ONE-WAY TRAF CONT (FLAGGER CONT)	HR	80
0510 6003	ONE-WAY TRAF CONT (PORT TRAF SIGN)	MO	1.0
0512 6033	PORT CTB(MOVE)(LOW PROFILE)(TY 1)	LF	20
0512 6034	PORT CTB(MOVE)(LOW PROFILE)(TY 2)	LF	40
0512 6057	PORT CTB(REMOVE)(LOW PROFILE)(TY 1)	LF	40
0512 6058	PORT CTB(REMOVE)(LOW PROFILE)(TY 2)	LF	80
0662 6067	WK ZN PAVE MRK REMOV (W) 6" SLD	LF	150
0662 6075	WK ZN PAVE MRK REMOV (W) 24" (SLD)	LF	44
6185 6002	TMA (STATIONARY)	DAY	4

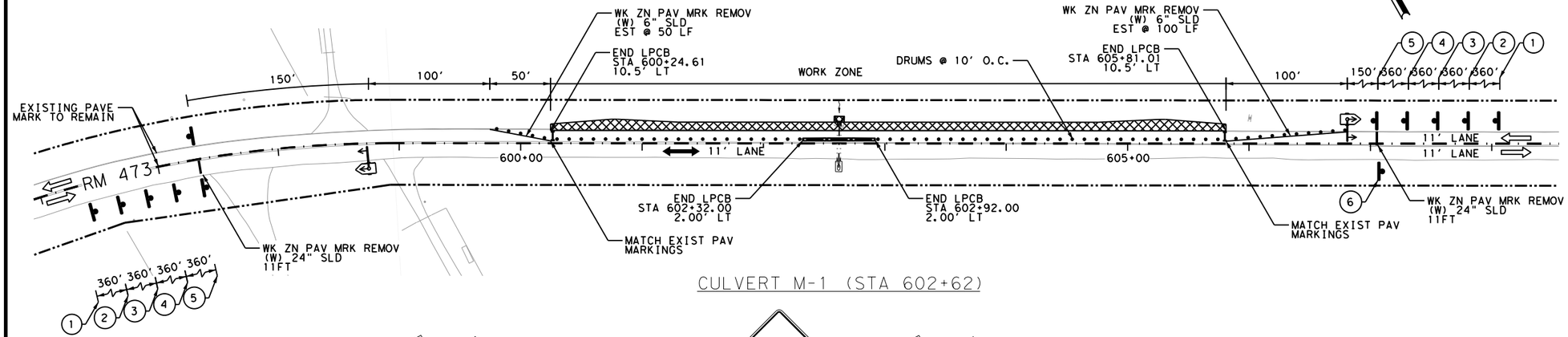


CULVERT M-1 (STA 602+62)

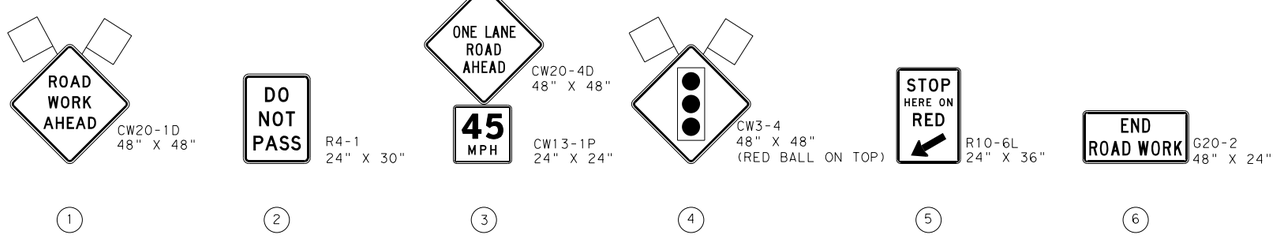
STEP 1 - RIGHT SIDE

STEP 2 - LEFT SIDE





CULVERT M-1 (STA 602+62)



LEGEND

- EXISTING RIGHT OF WAY
- CONSTRUCTION PHASE 1
- CONSTRUCTION PREV PHASE
- PROPOSED PAVEMENT
- CHANNELIZING DEVICES - DRUMS
- TYPE 3 BARRICADE
- TEMPORARY SIGN
- ONE-LANE TWO-WAY TRAFFIC
- EXISTING TRAFFIC FLOW
- FLAGGER
- HEAVY WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR
- LOW PROFILE CONCRETE BARRIER
- 24" STOP BAR
- FEMA FLOODPLAIN ZONE A
- TEMP PORTABLE TRAFFIC SIGNAL

0' 50' 100'

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 1D CULVERT M-1

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	27

PLOT DRIVER: pdf-bw.pltcfg
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100% SUBMITTAL

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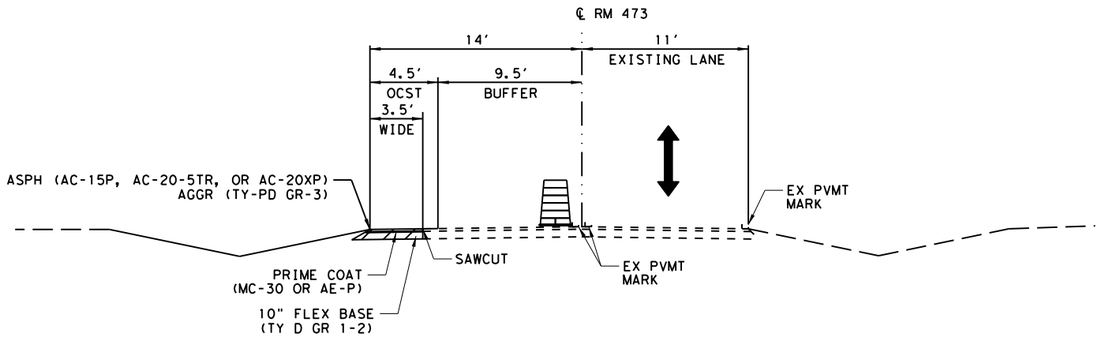
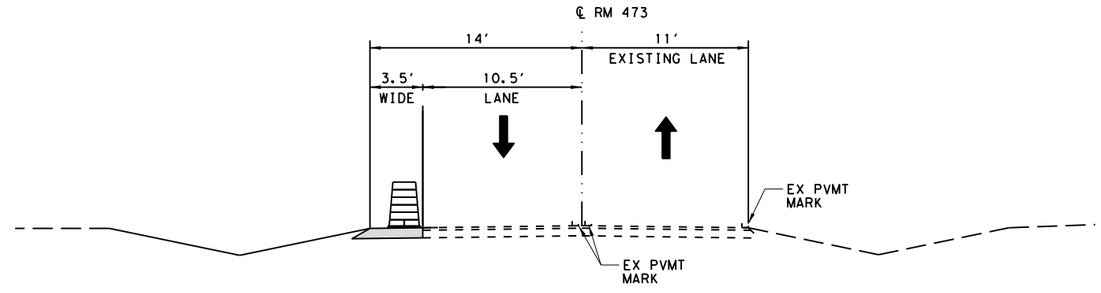


TCP PHASE 2

(DURING WORKING HOURS)



TCP PHASE 2

(NON-WORKING HOURS)

LEGEND

- CONSTRUCTED THIS PHASE
- CONSTRUCTED PREV PHASE
- TEMPORARY PAVEMENT

F. PAUL PURPURA II
87865
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PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

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Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN TYPICAL SECTION PHASE 2

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	28

PLOT DRIVER: pdf-bw.pltcfg
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100% SUBMITTAL

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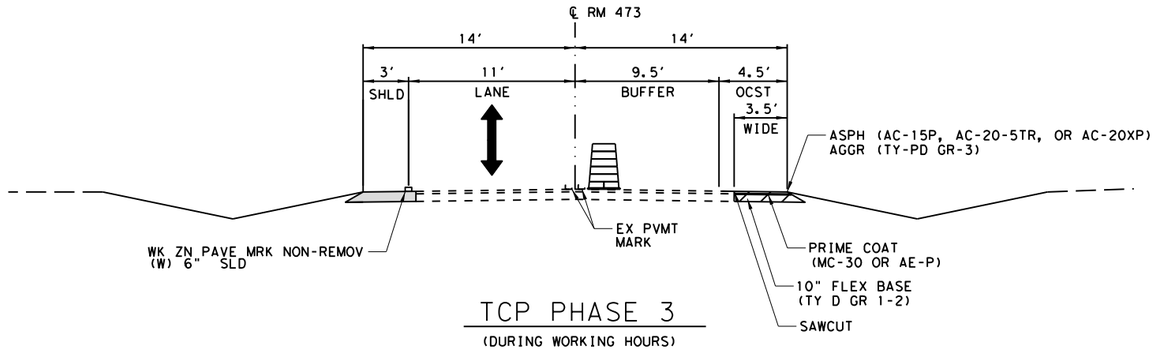
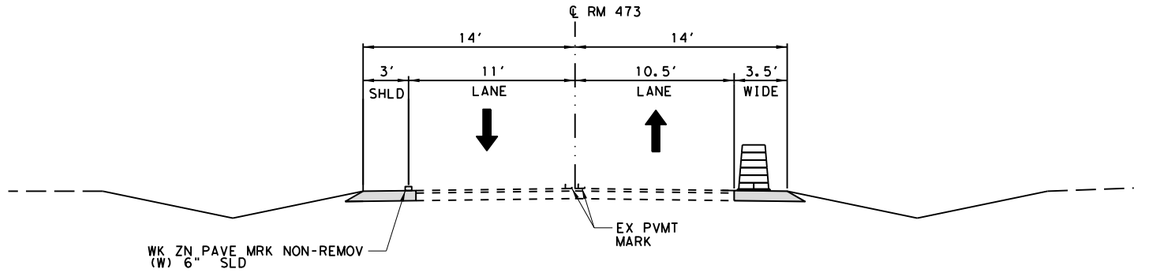


TCP PHASE 3

(DURING WORKING HOURS)



TCP PHASE 3

(NON-WORKING HOURS)

LEGEND

- CONSTRUCTED THIS PHASE
- CONSTRUCTED PREV PHASE
- TEMPORARY PAVEMENT

STATE OF TEXAS
F. PAUL PURPURA II
87865
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5/17/2024

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Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN TYPICAL SECTION

PHASE 3

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	29

PLOT DRIVER: pdf-bw.pltcfg
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100% SUBMITTAL

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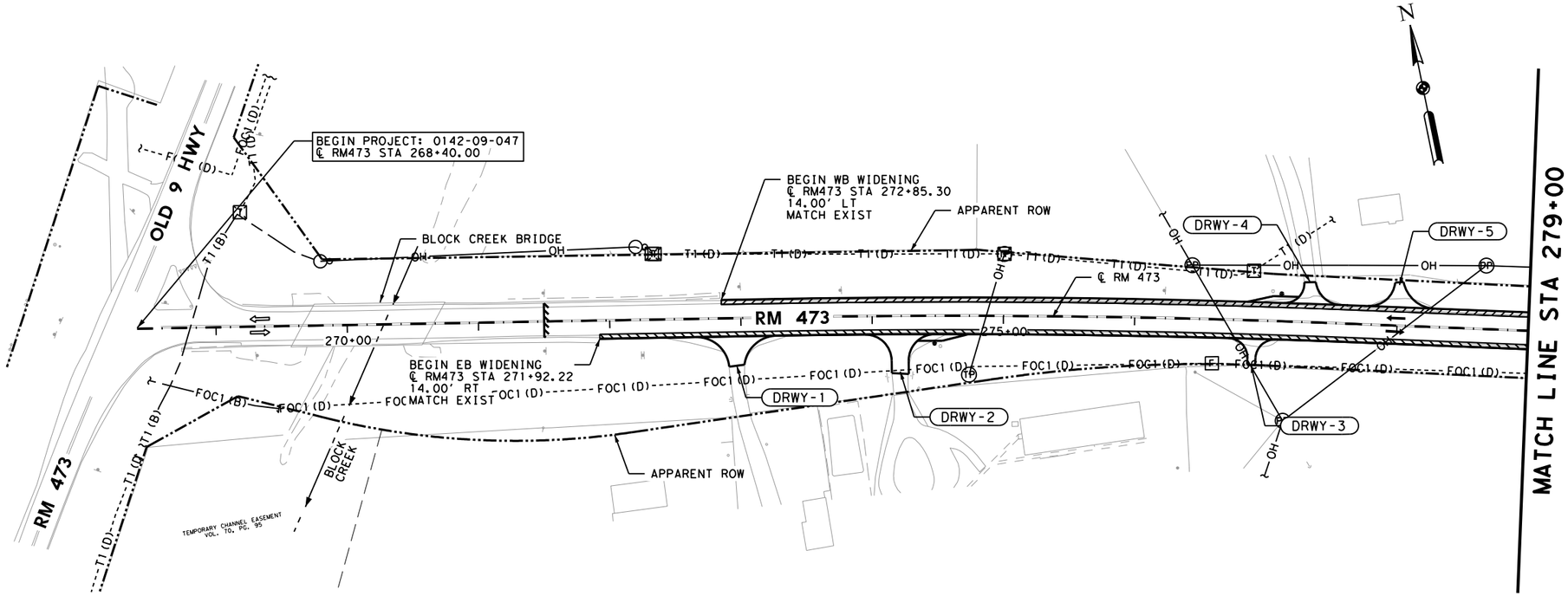

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

0' 50' 100'

STATE OF TEXAS
F. PAUL PURPURA
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RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

BEGIN PROJECT TO
℄ RM 473 STA 290+00

SHEET 1 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	30

PLOT DRIVER: pdf-bw.pltcfg
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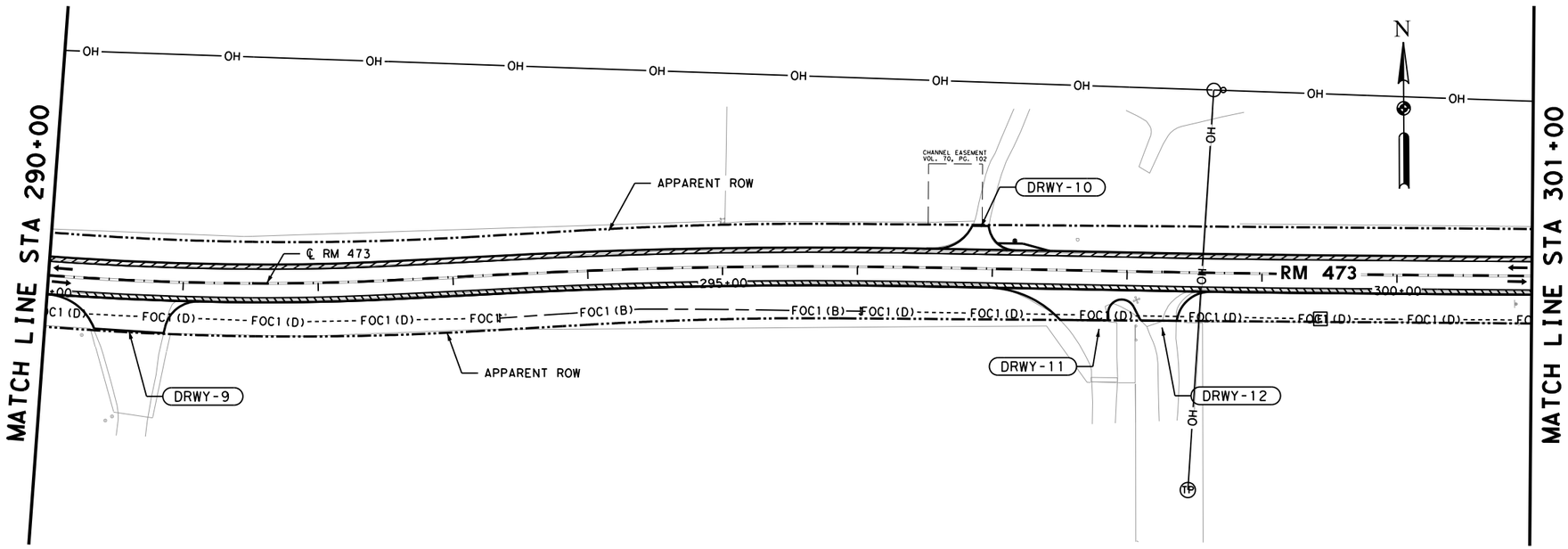

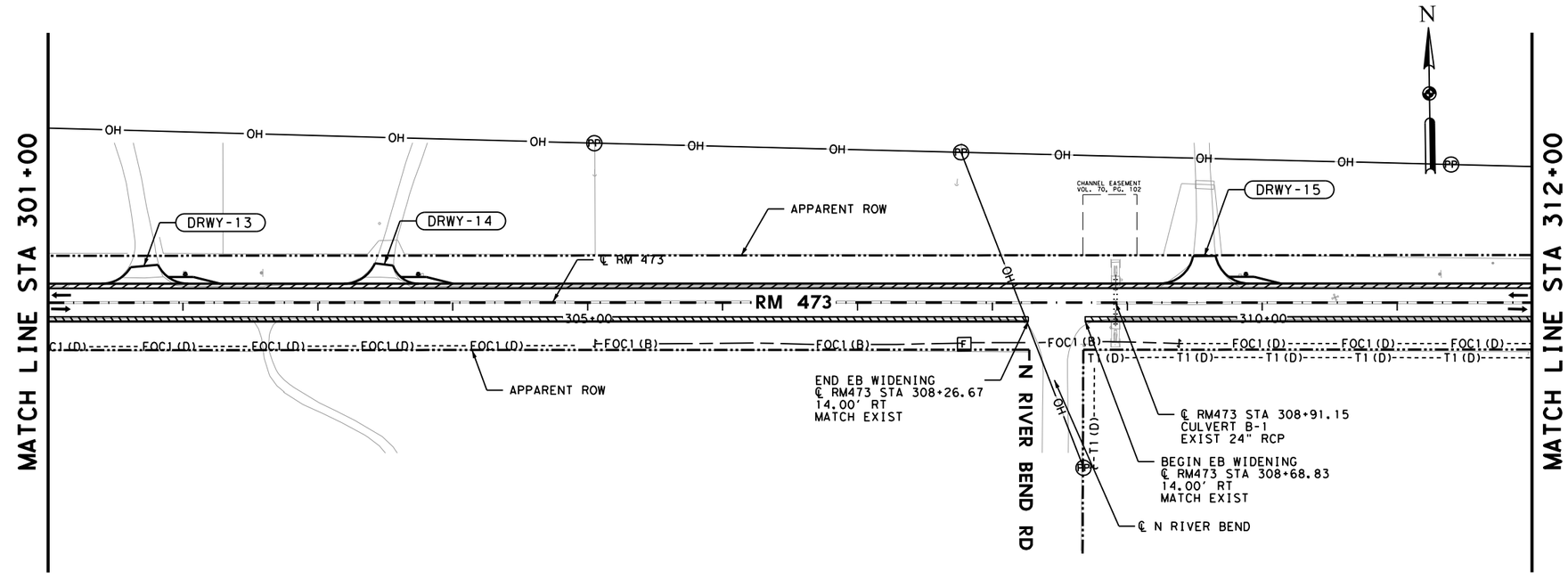

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
113376
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5/17/2024

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Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 290+00 TO
℄ RM 473 STA 312+00

SHEET 2 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	31

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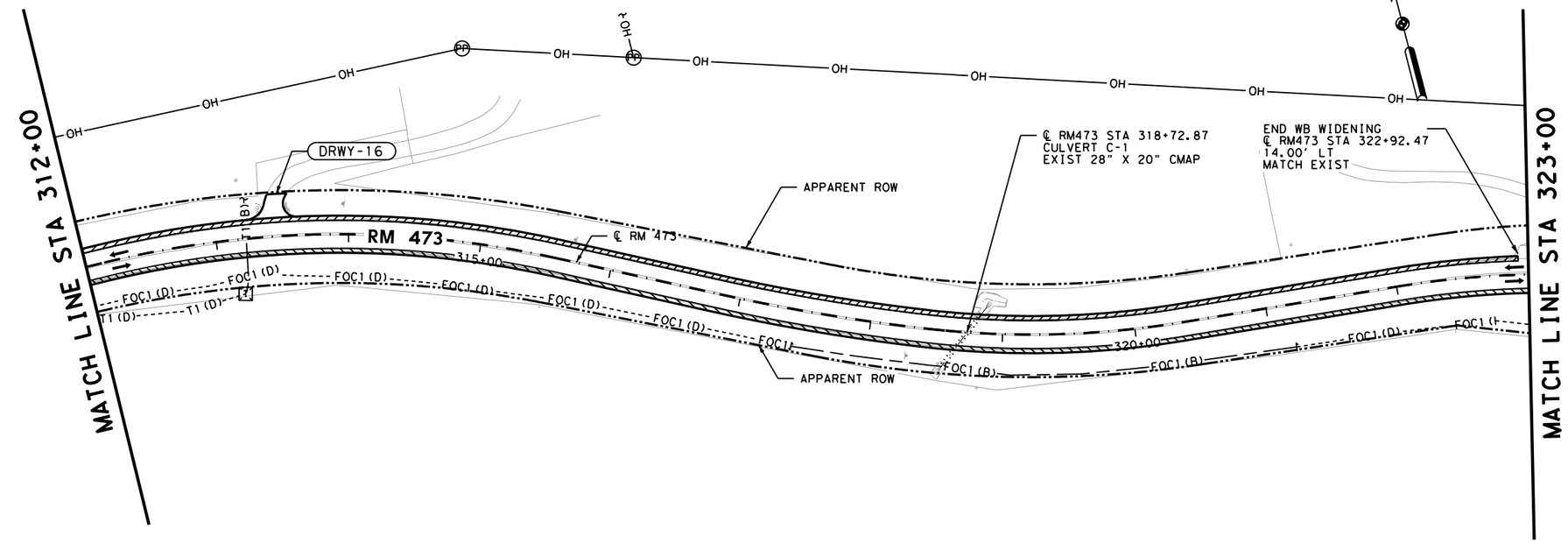

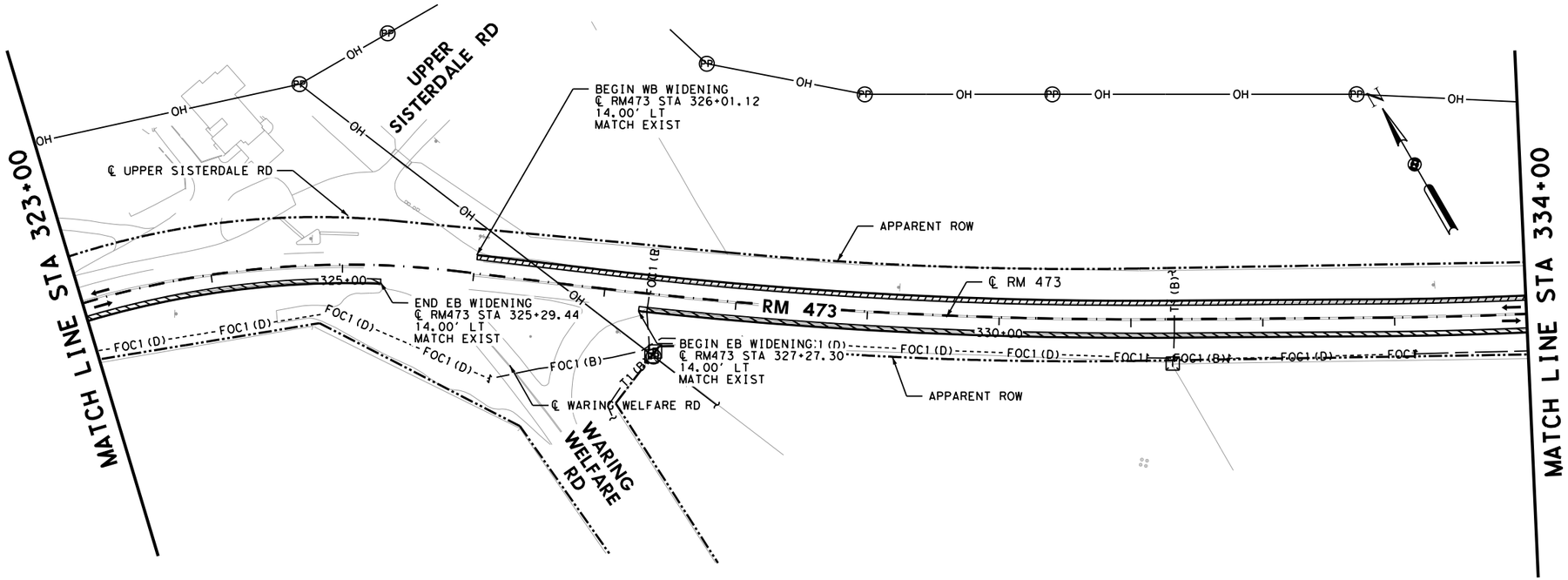

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

0' 50' 100'

STATE OF TEXAS
F. PAUL PURPURA
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REV. No.	DATE	REVISION	BY

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Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 312+00 TO
℄ RM 473 STA 334+00

SHEET 3 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	32

PLOT DRIVER: pdf-bw.pltcfg
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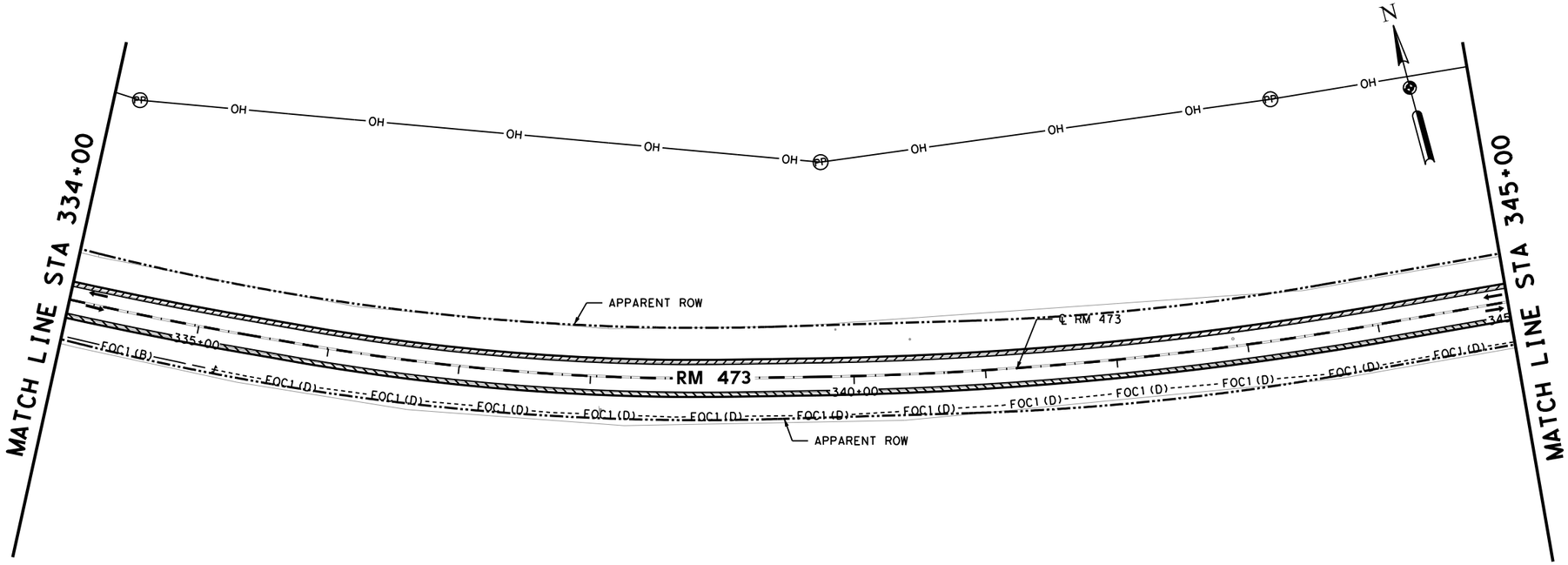

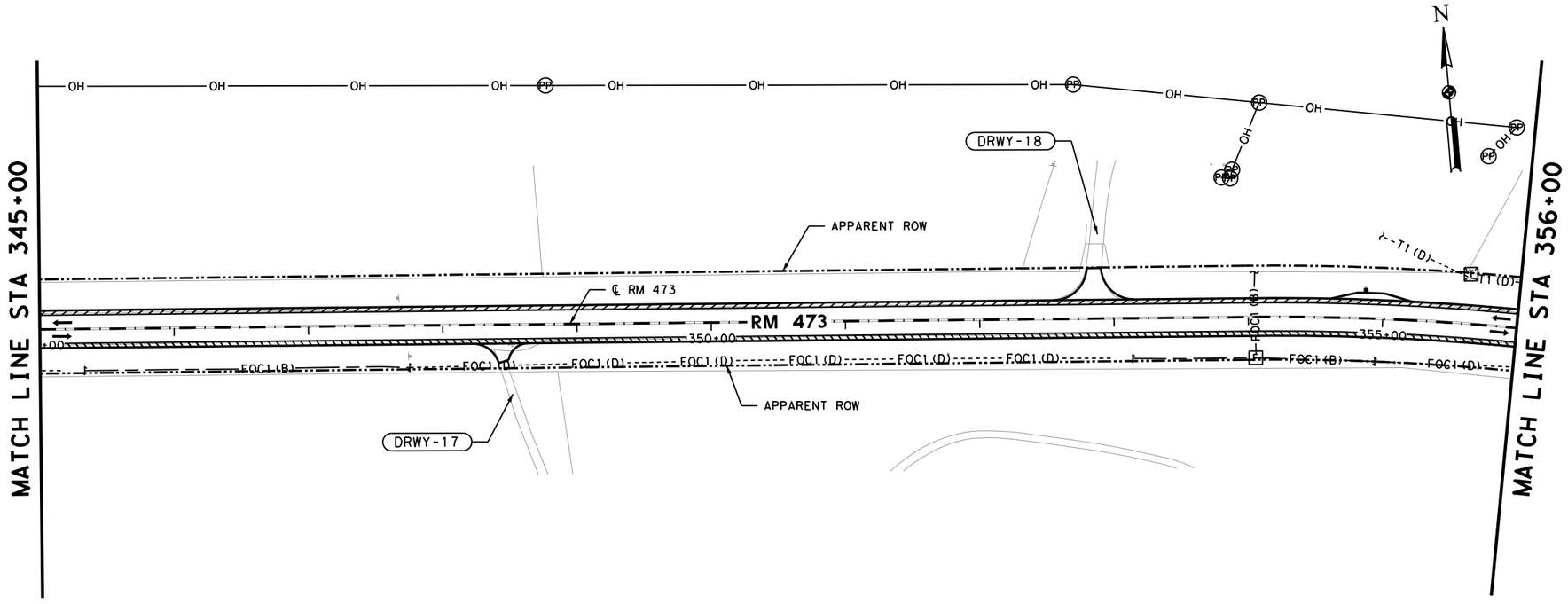

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
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5/17/2024

REV. No.	DATE	REVISION	BY

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TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 334+00 TO
℄ RM 473 STA 356+00

SHEET 4 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	33

PLOT DRIVER: pdf-bw.pltcfg
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100% SUBMITTAL

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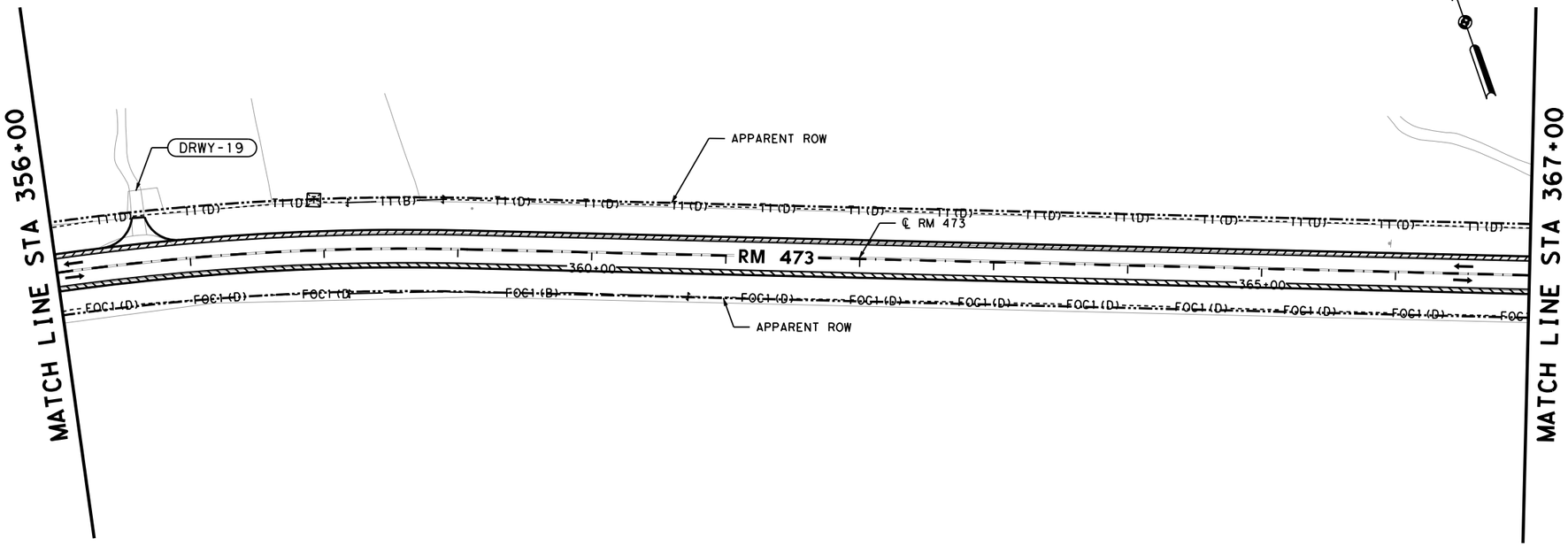

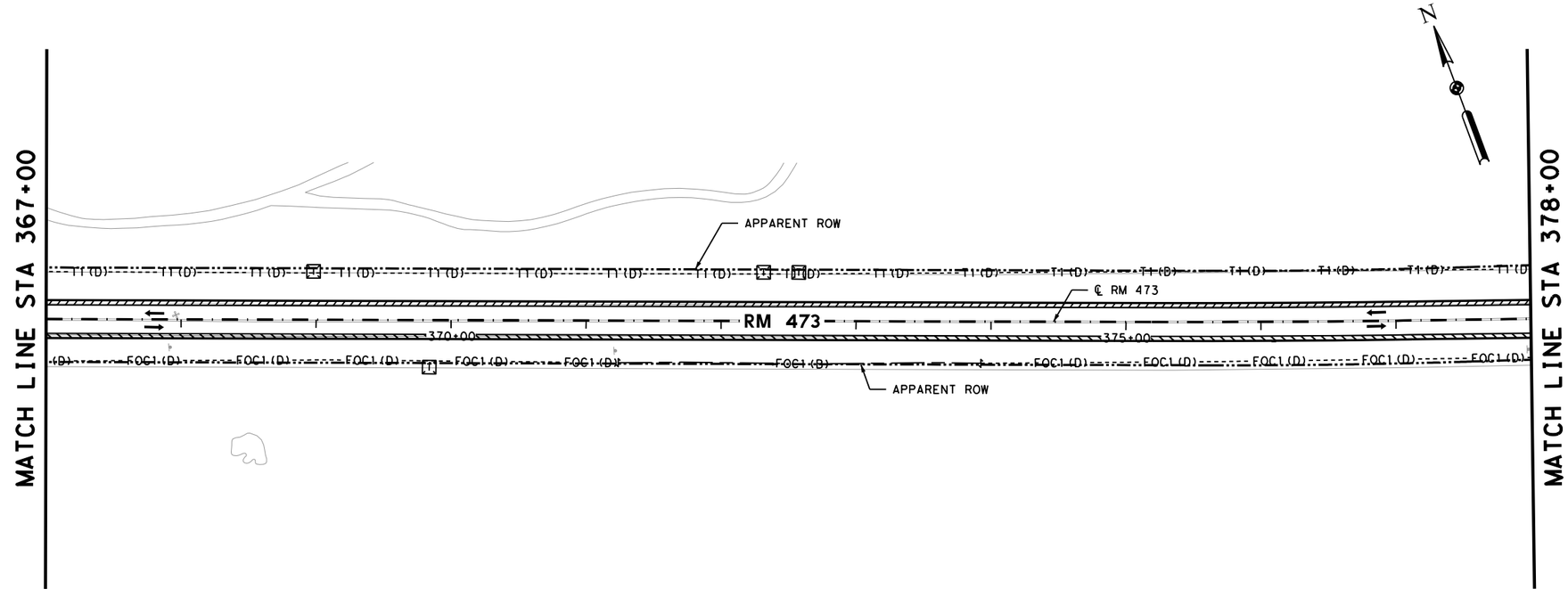

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

0′ 50′ 100′

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PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

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RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 356+00 TO
℄ RM 473 STA 378+00

SHEET 5 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	34

PLOT DRIVER: pdf-bw.pltcfg
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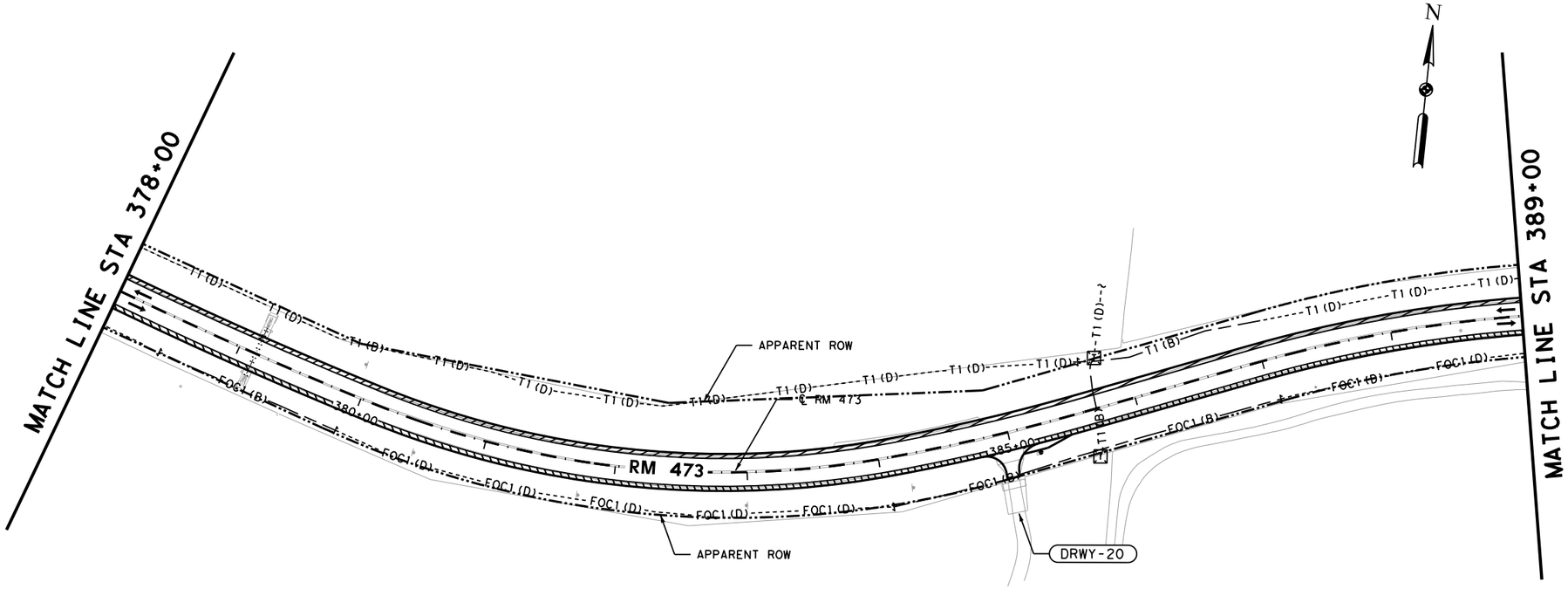

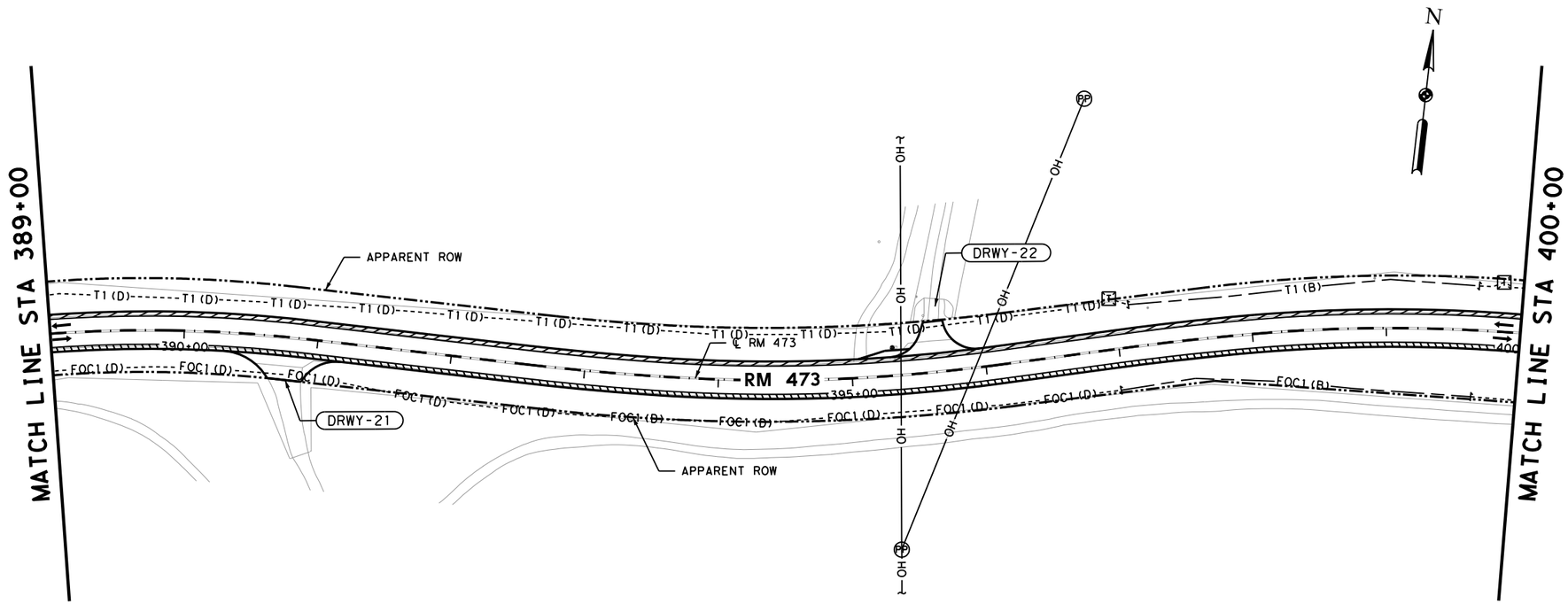

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
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LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

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RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 378+00 TO
℄ RM 473 STA 400+00

SHEET 6 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	35

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_PLAN_06.dgn

100% SUBMITTAL
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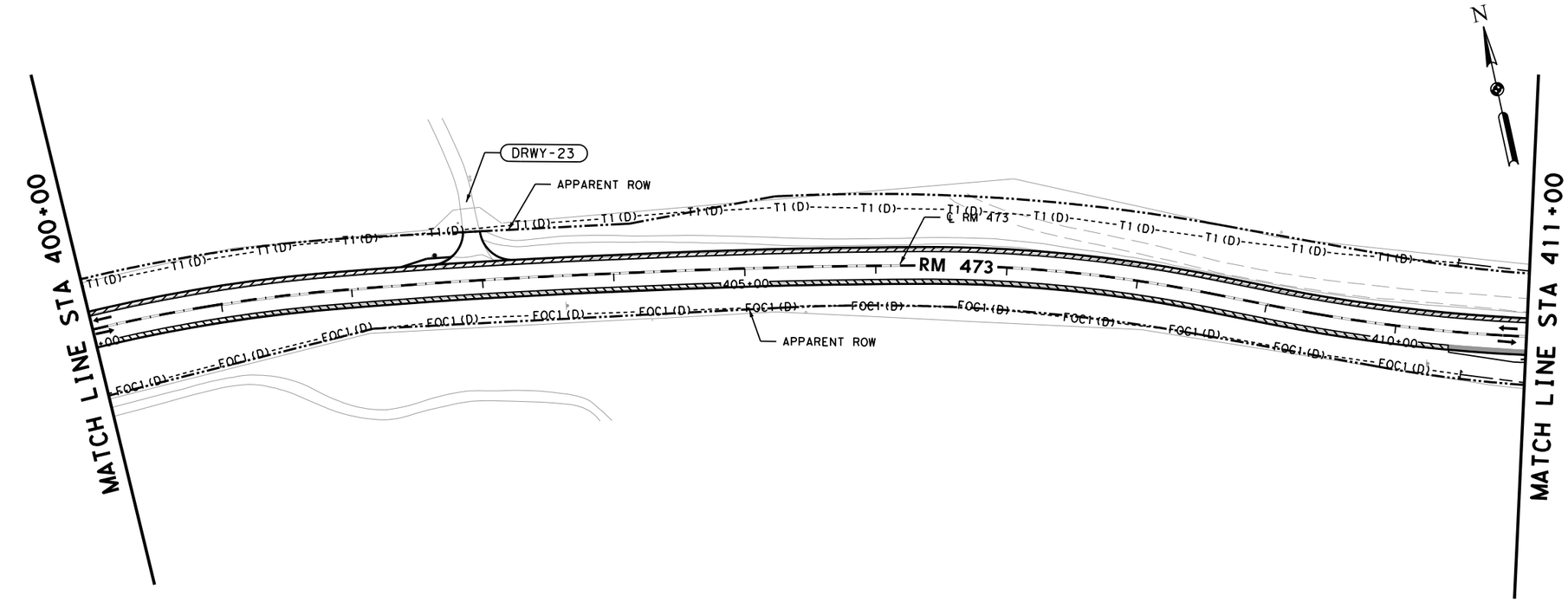

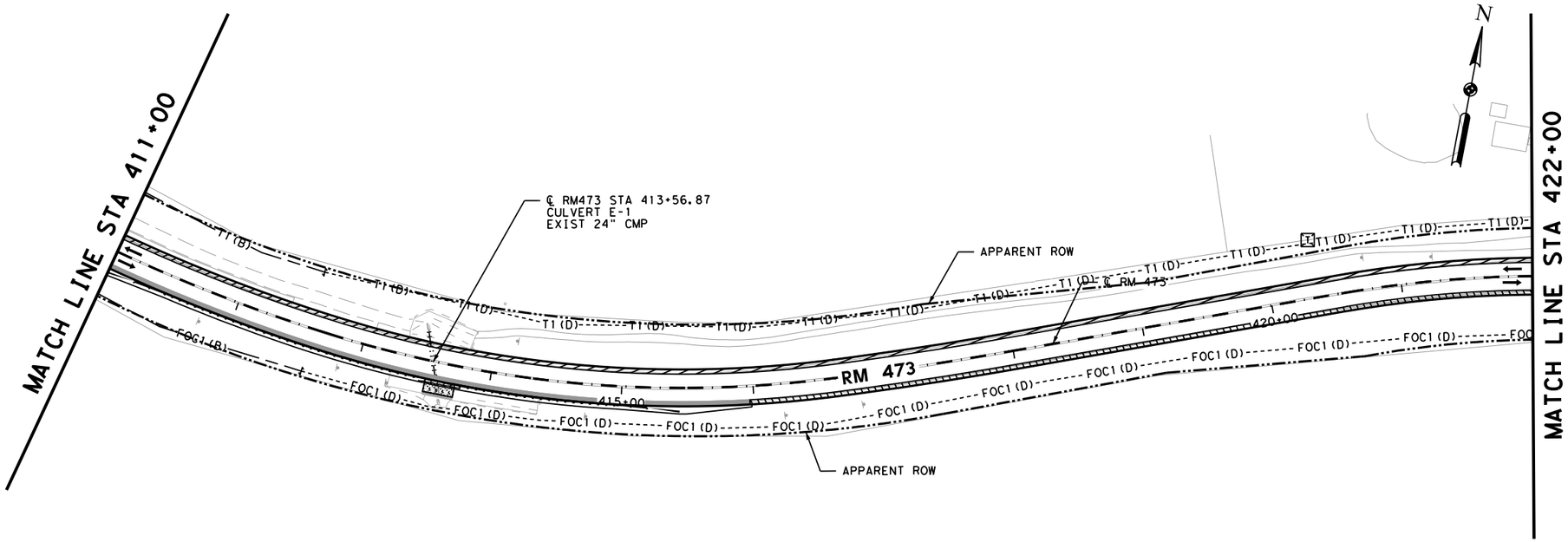

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

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STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
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5/17/2024

REV. No.	DATE	REVISION	BY

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Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 400+00 TO
℄ RM 473 STA 422+00

SHEET 7 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	36

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_PLAN_07.dgn

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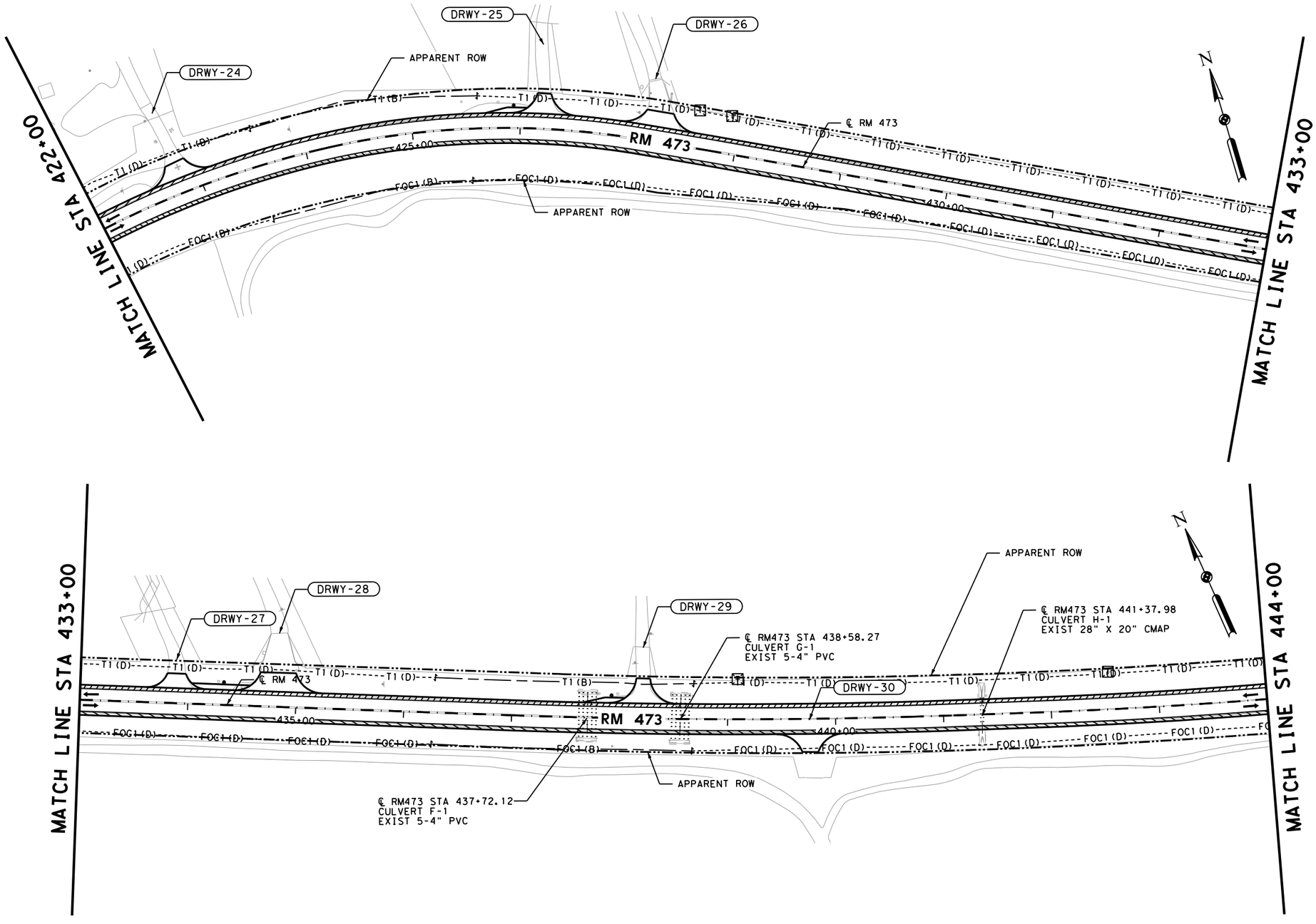

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

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STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 422+00 TO
℄ RM 473 STA 444+00

SHEET 8 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	37

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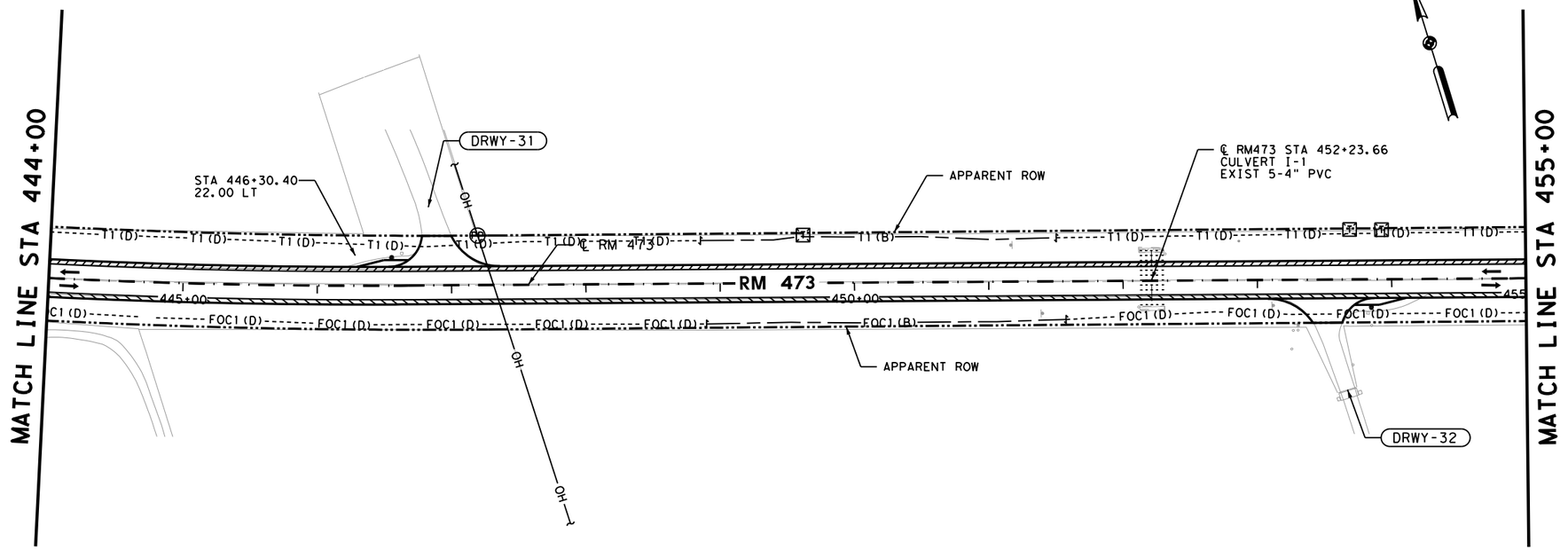

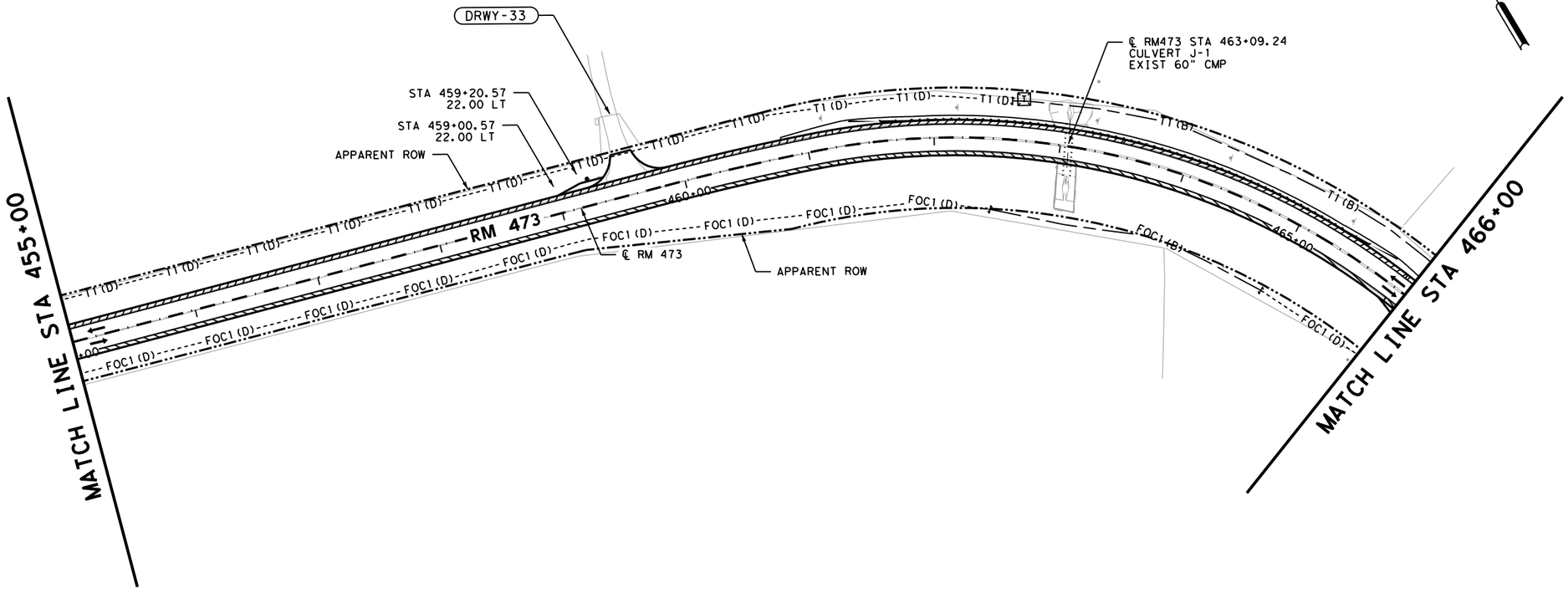

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

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STATE OF TEXAS
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113376
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PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 444+00 TO
℄ RM 473 STA 466+00

SHEET 9 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	38

PLOT DRIVER: pdf-bw.pltcfg
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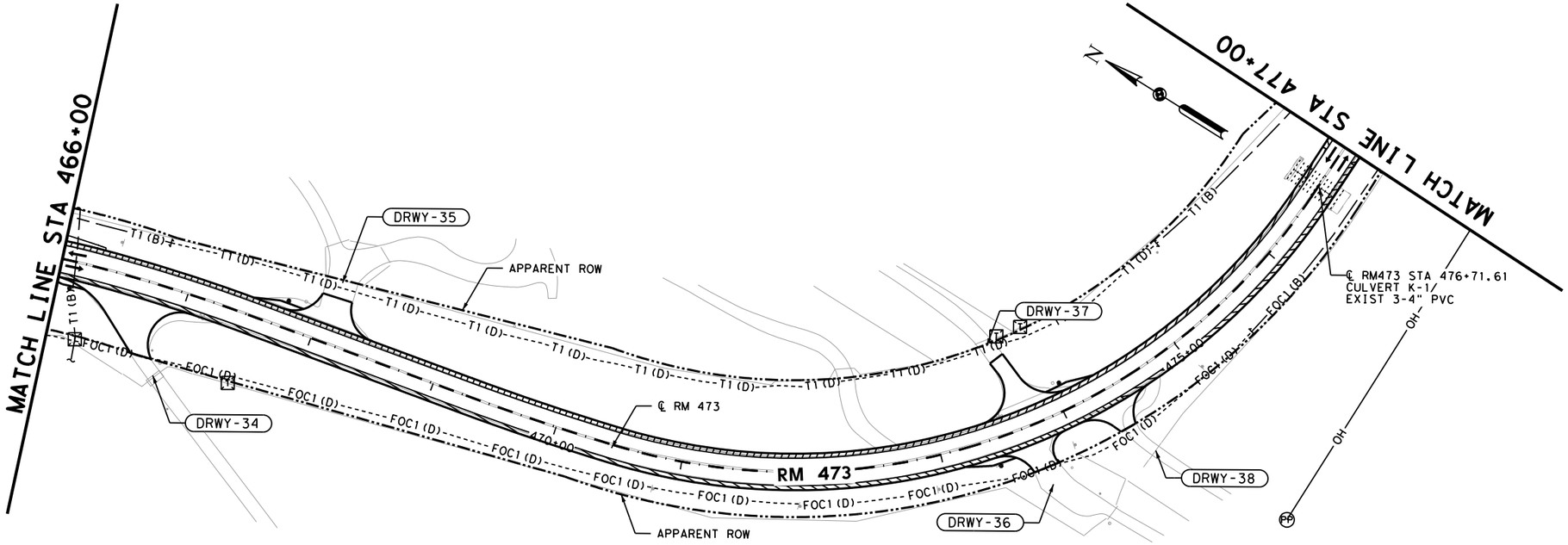

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
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STATE OF TEXAS
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5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 466+00 TO
℄ RM 473 STA 488+00

SHEET 10 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	39

PLOT DRIVER: pdf-bw.pltcfg
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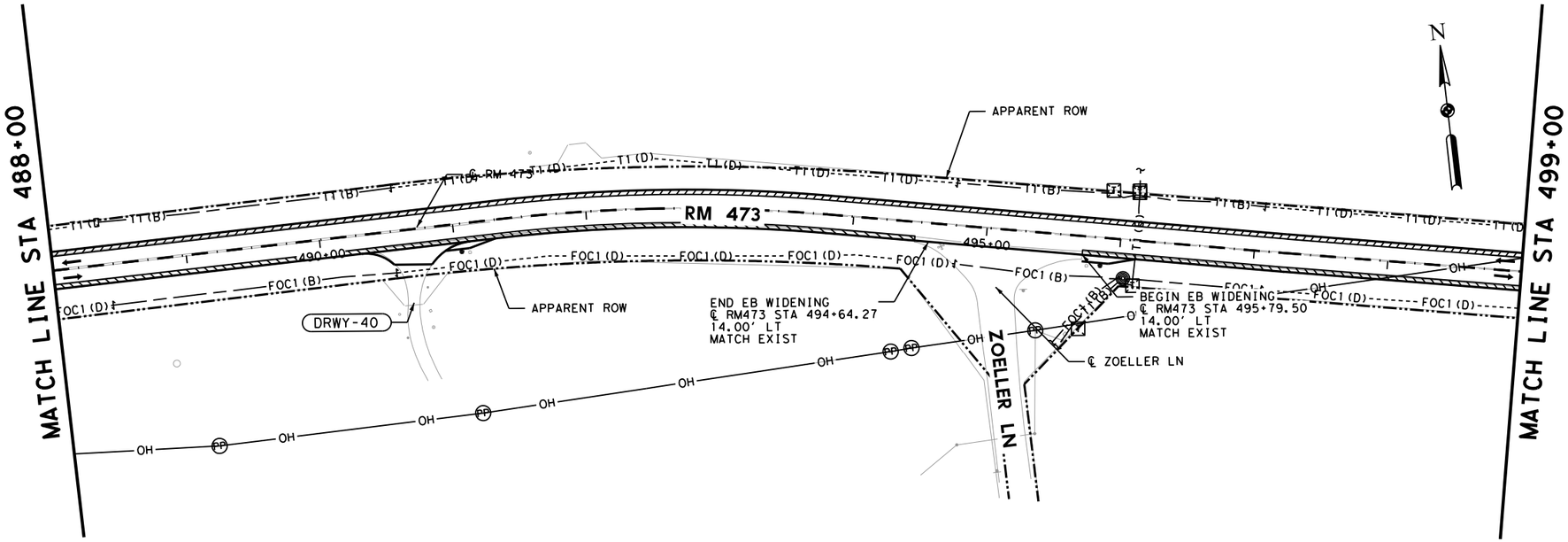
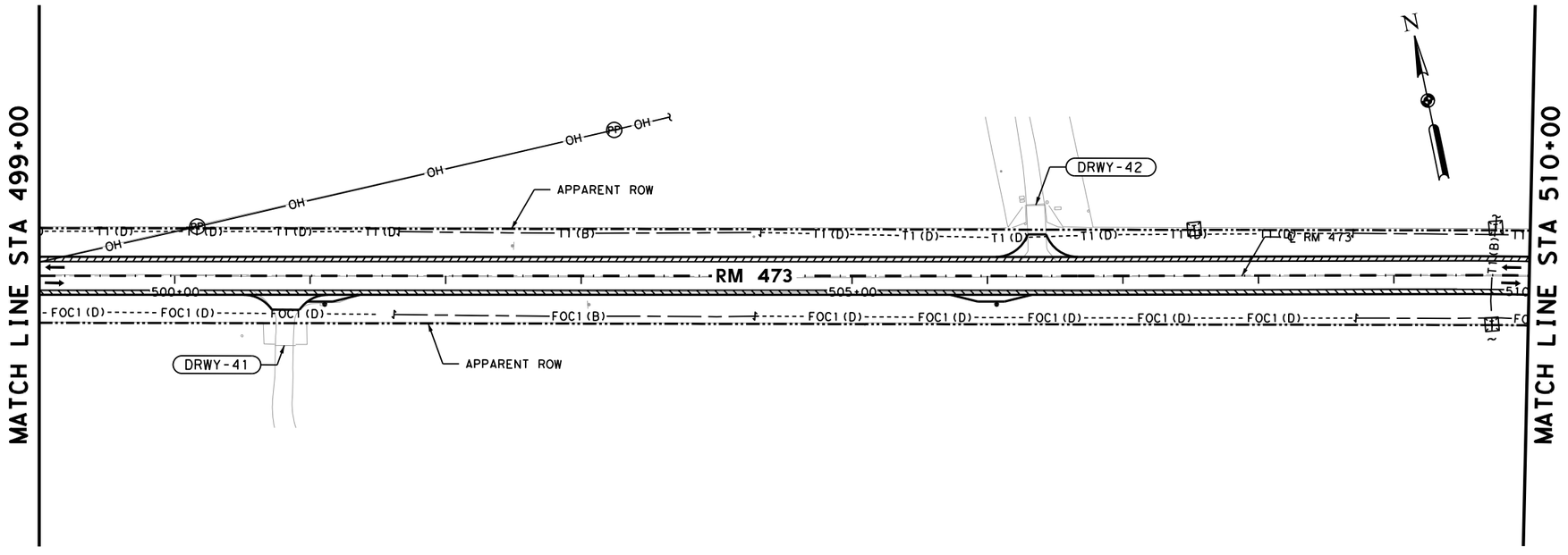
FILE: RM473_TCP_PLAN_10.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:22:24 AM





LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
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STATE OF TEXAS
F. PAUL PURPURA
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5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 488+00 TO
℄ RM 473 STA 510+00

SHEET 11 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	40

PLOT DRIVER: pdf-bw.pltcfg
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100% SUBMITTAL

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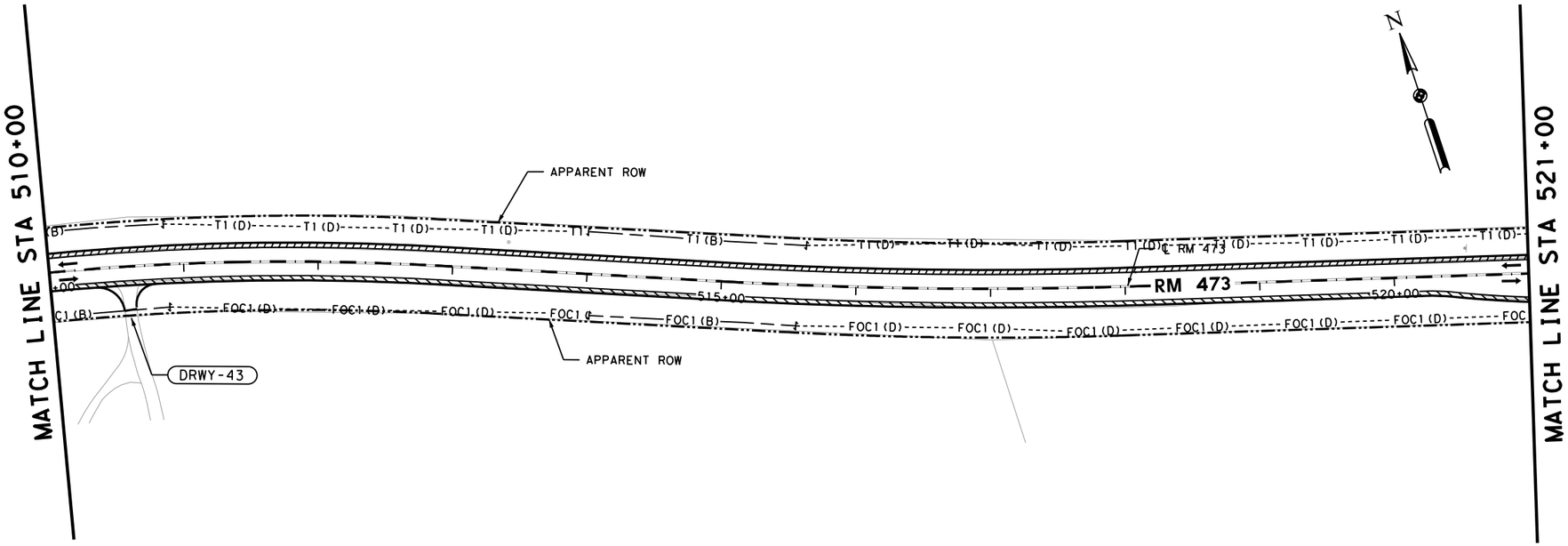

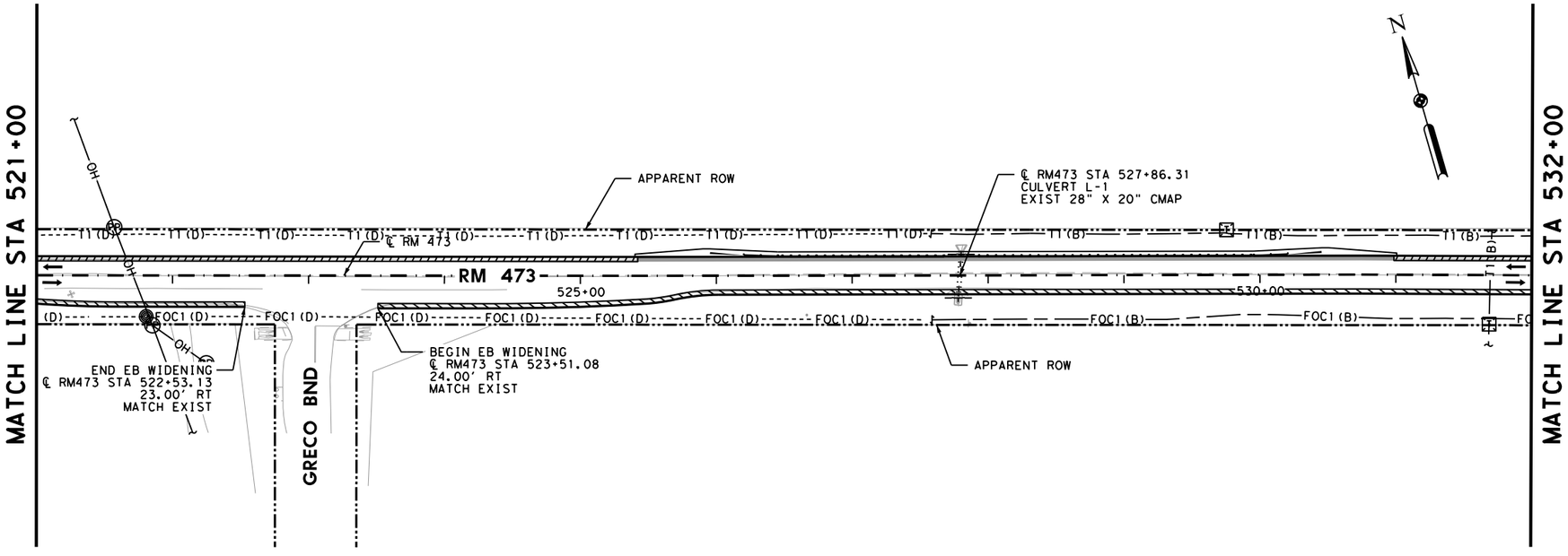

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
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STATE OF TEXAS
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REV. No.	DATE	REVISION	BY

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Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 510+00 TO
℄ RM 473 STA 532+00

SHEET 12 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	41

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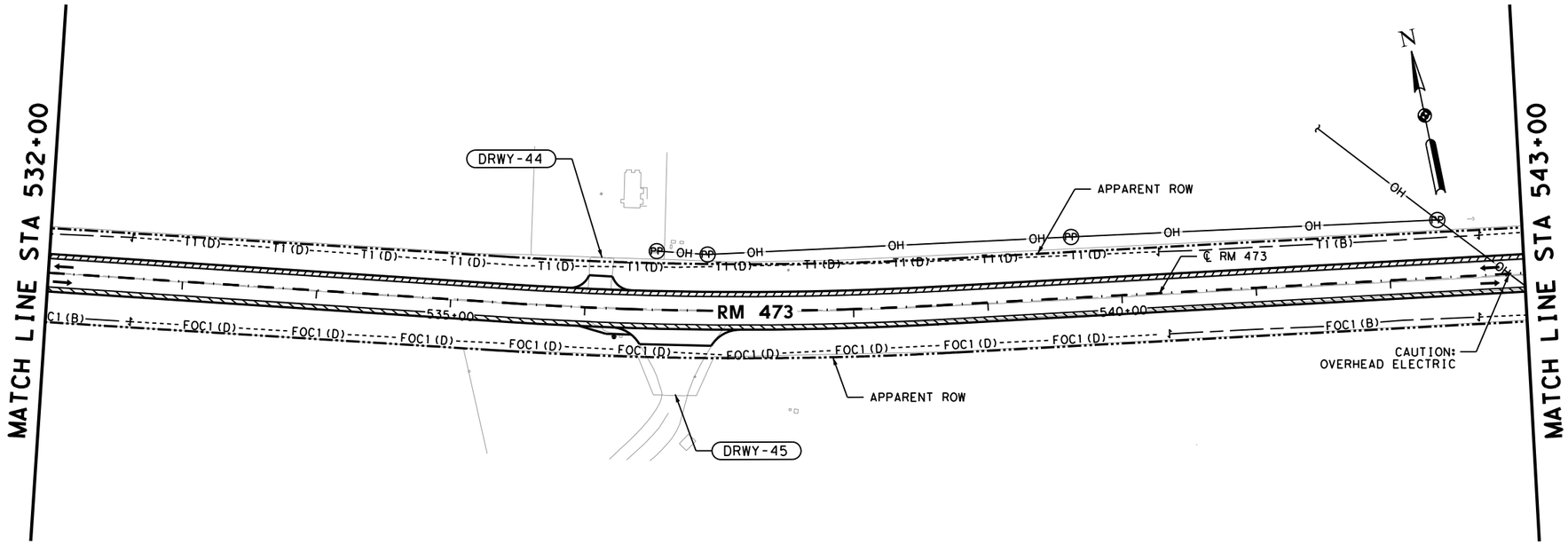

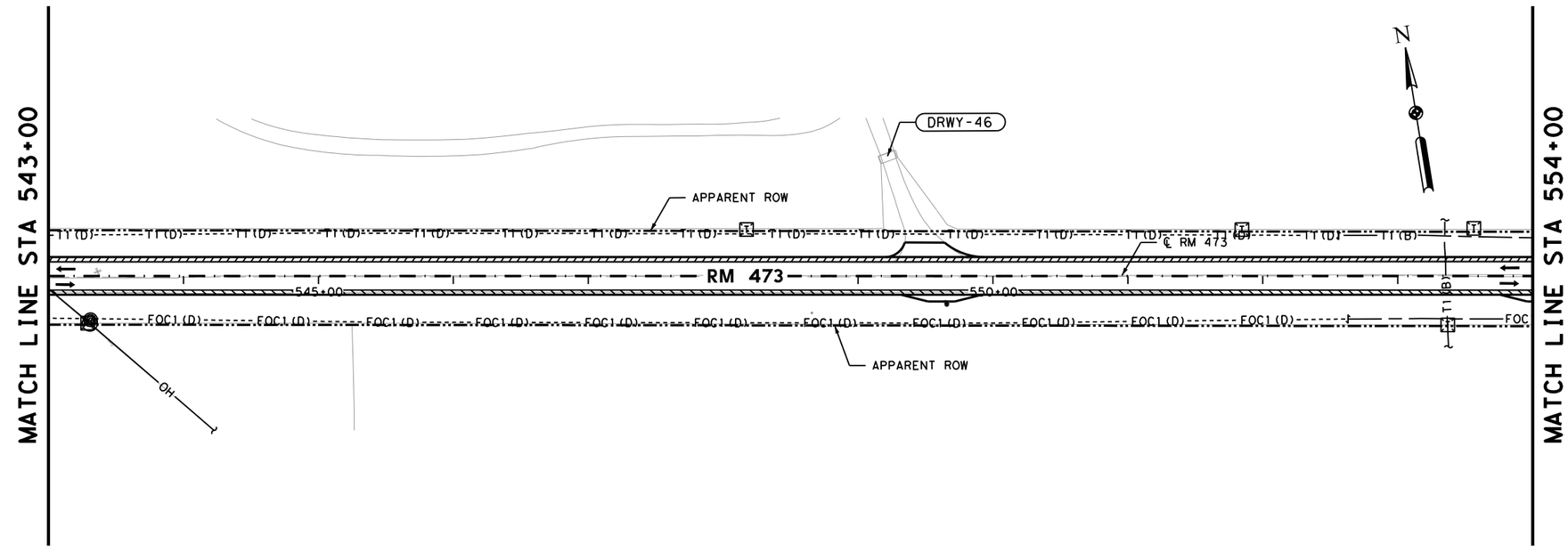

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
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4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
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7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

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STATE OF TEXAS
F. PAUL PURPURA
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RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 532+00 TO
℄ RM 473 STA 554+00

SHEET 13 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	42

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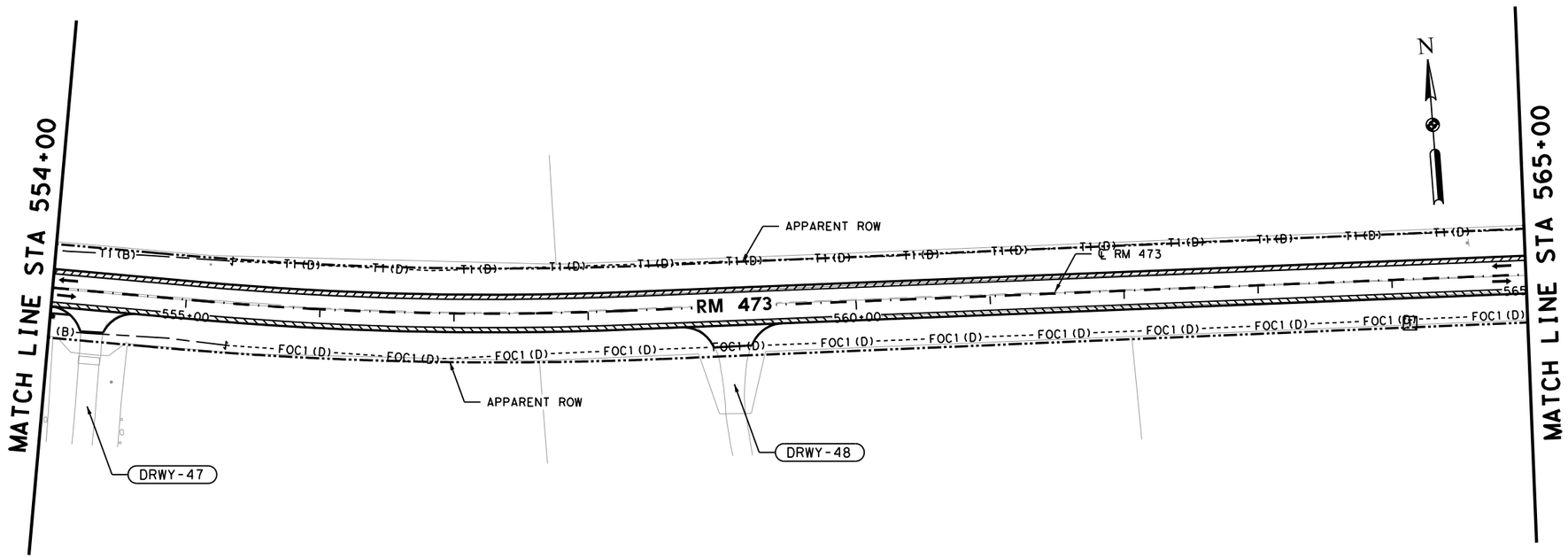

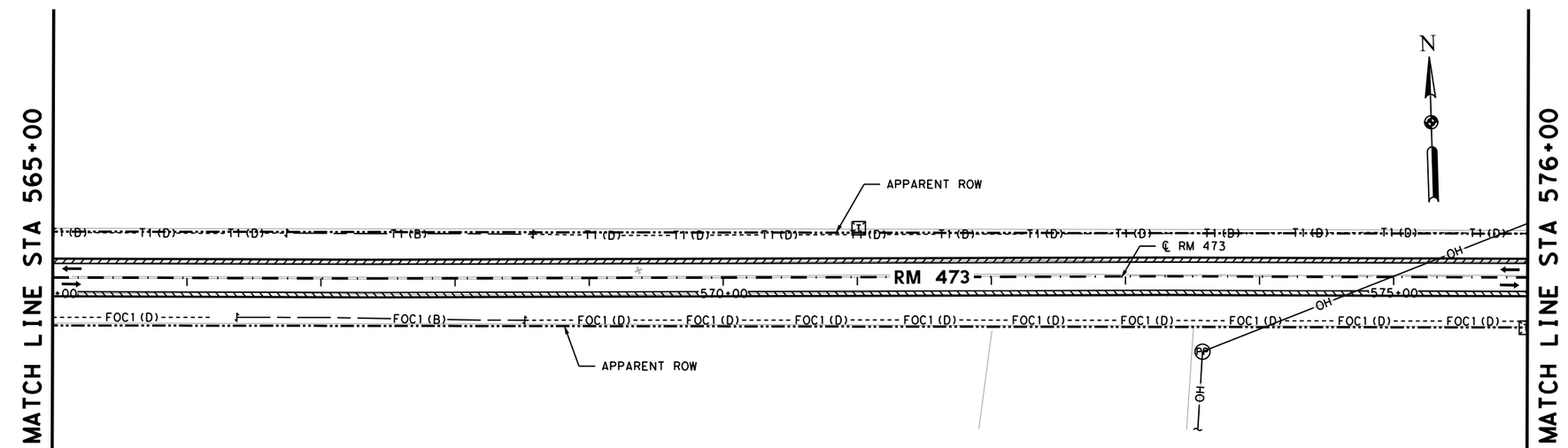

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
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4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
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7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

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STATE OF TEXAS
F. PAUL PURPURA
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5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 554+00 TO
℄ RM 473 STA 576+00

SHEET 14 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	43

PLOT DRIVER: pdf-bw.pltcfg
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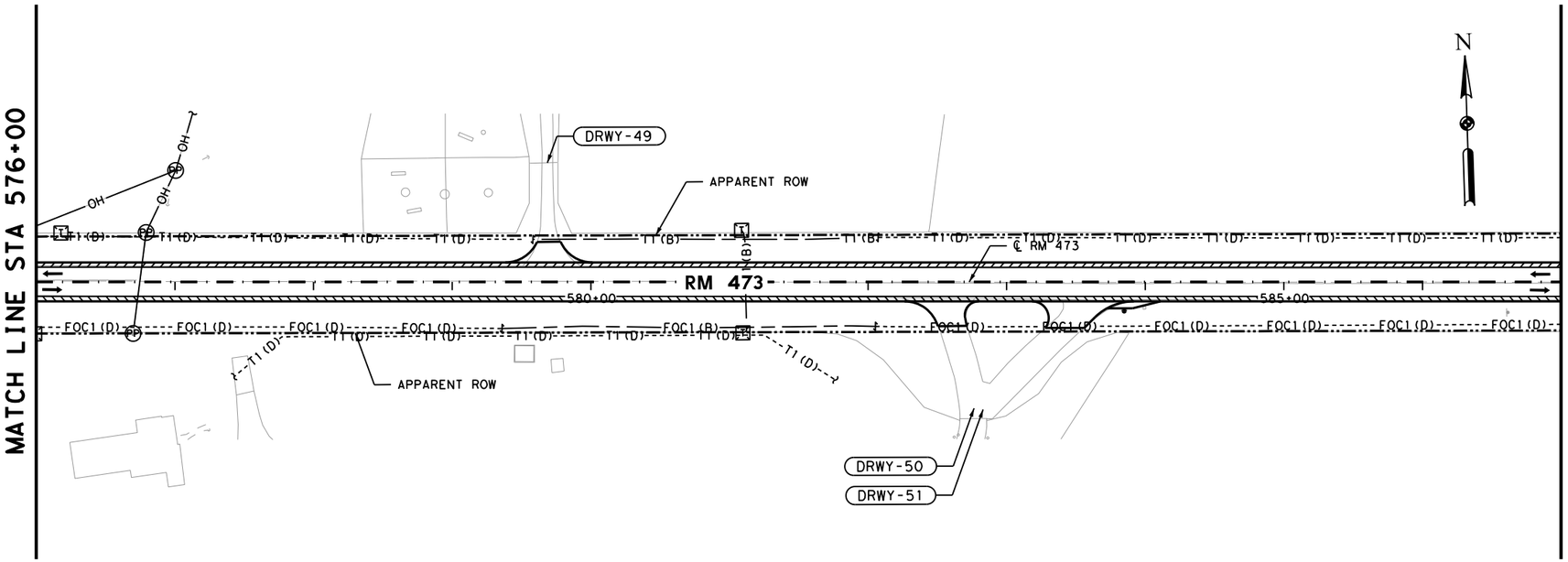

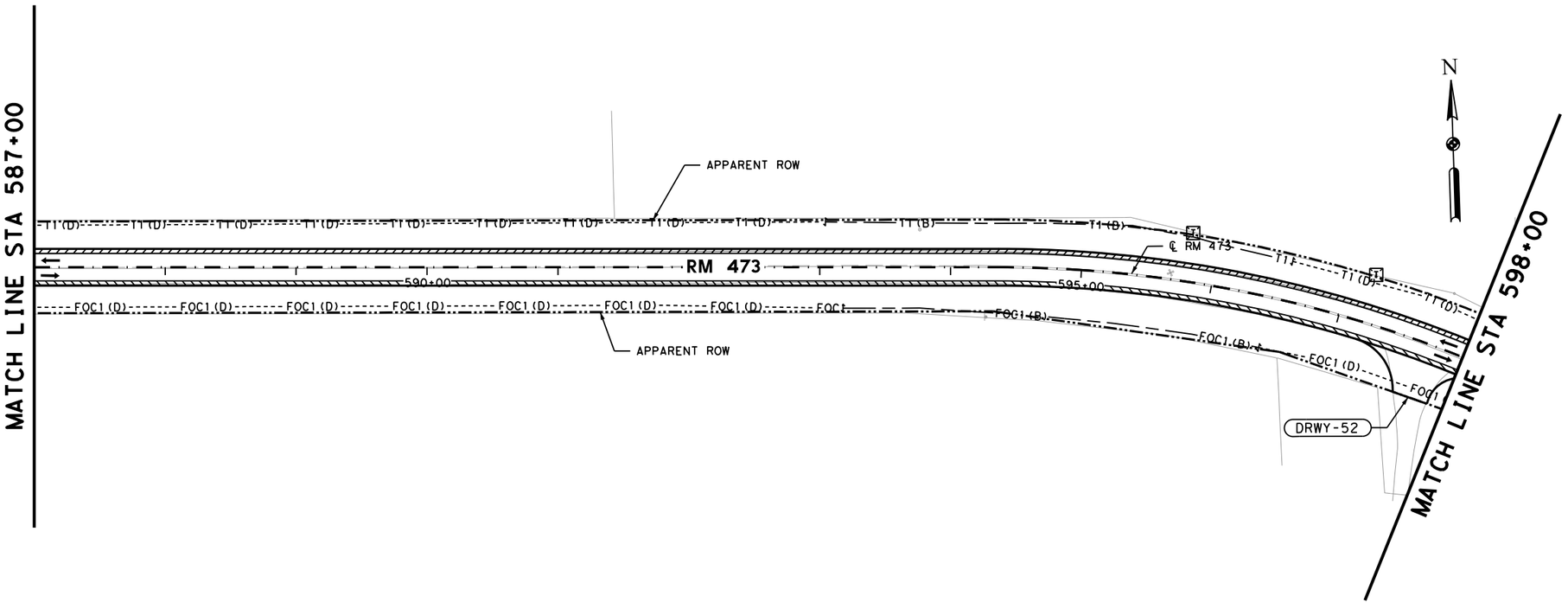

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
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STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

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TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 576+00 TO
℄ RM 473 STA 598+00

SHEET 15 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	44

PLOT DRIVER: pdf-bw.pltcfg
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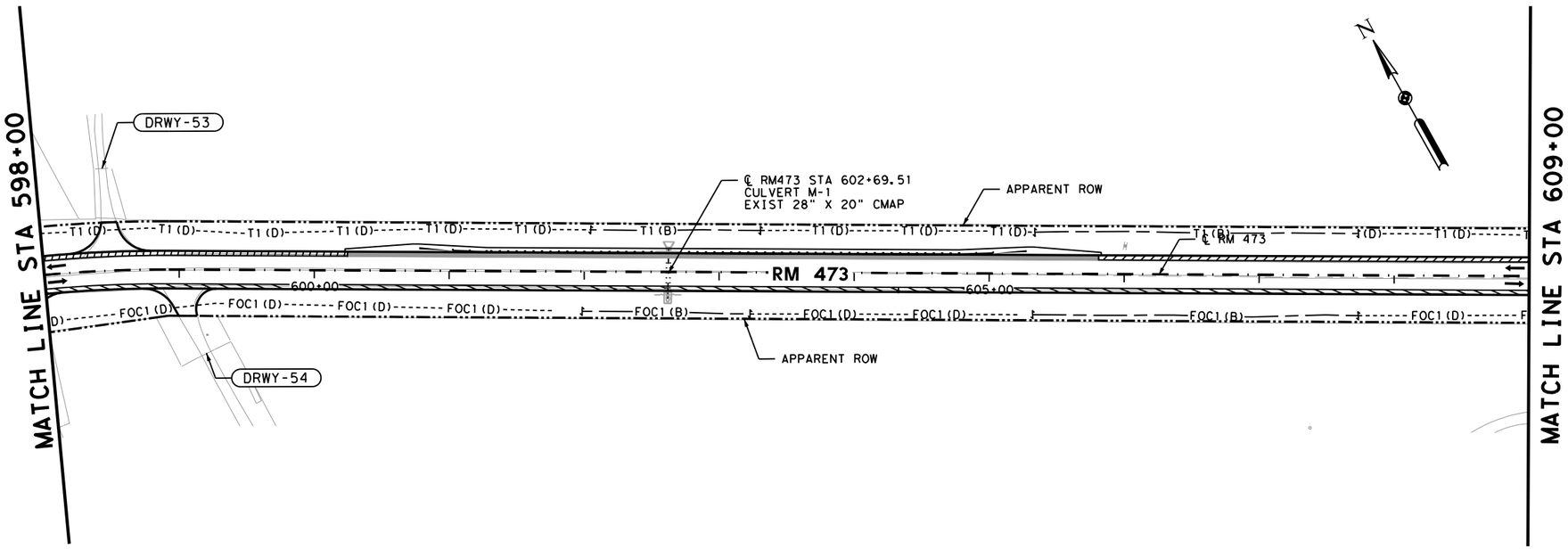

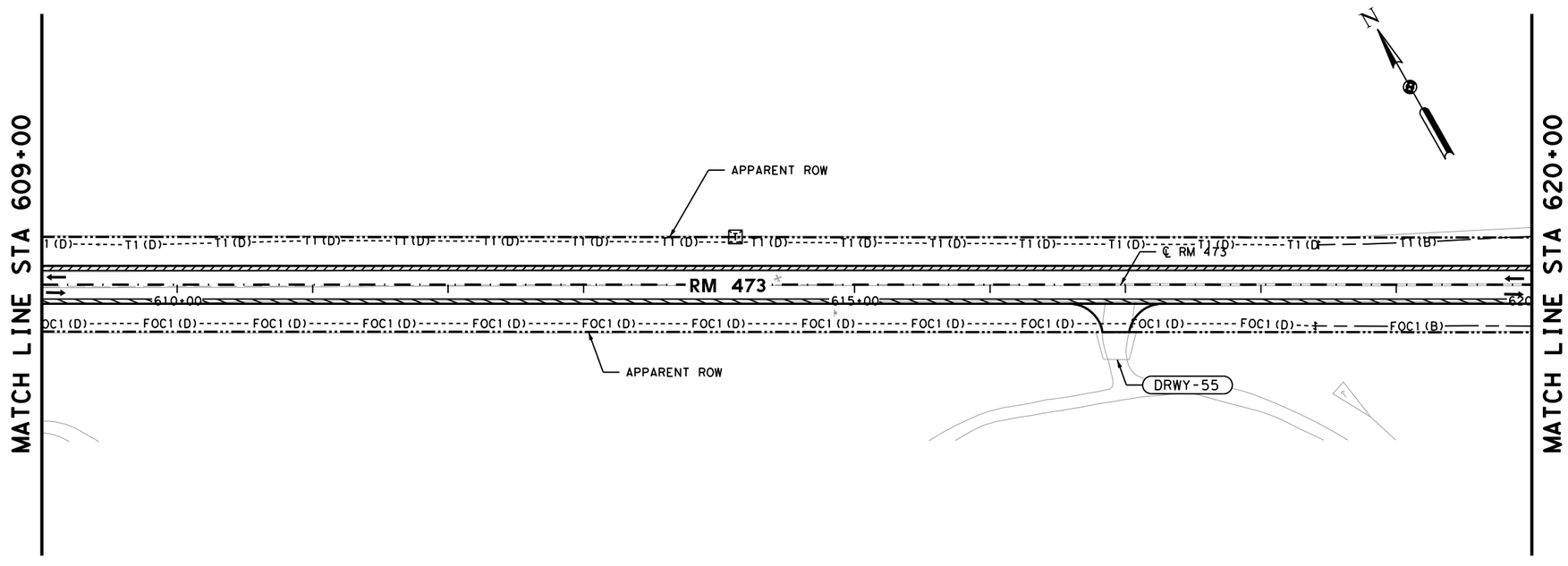

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
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STATE OF TEXAS
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REV. No.	DATE	REVISION	BY

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TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 598+00 TO
℄ RM 473 STA 620+00

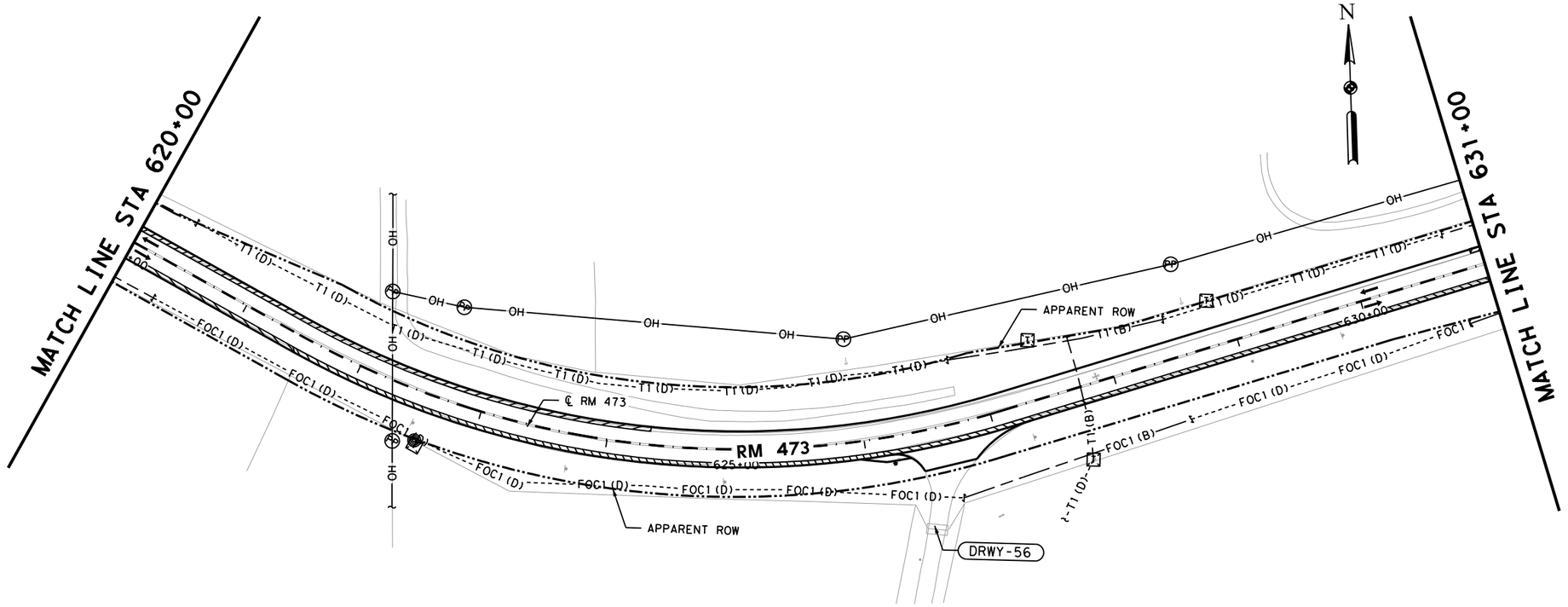
SHEET 16 OF 18

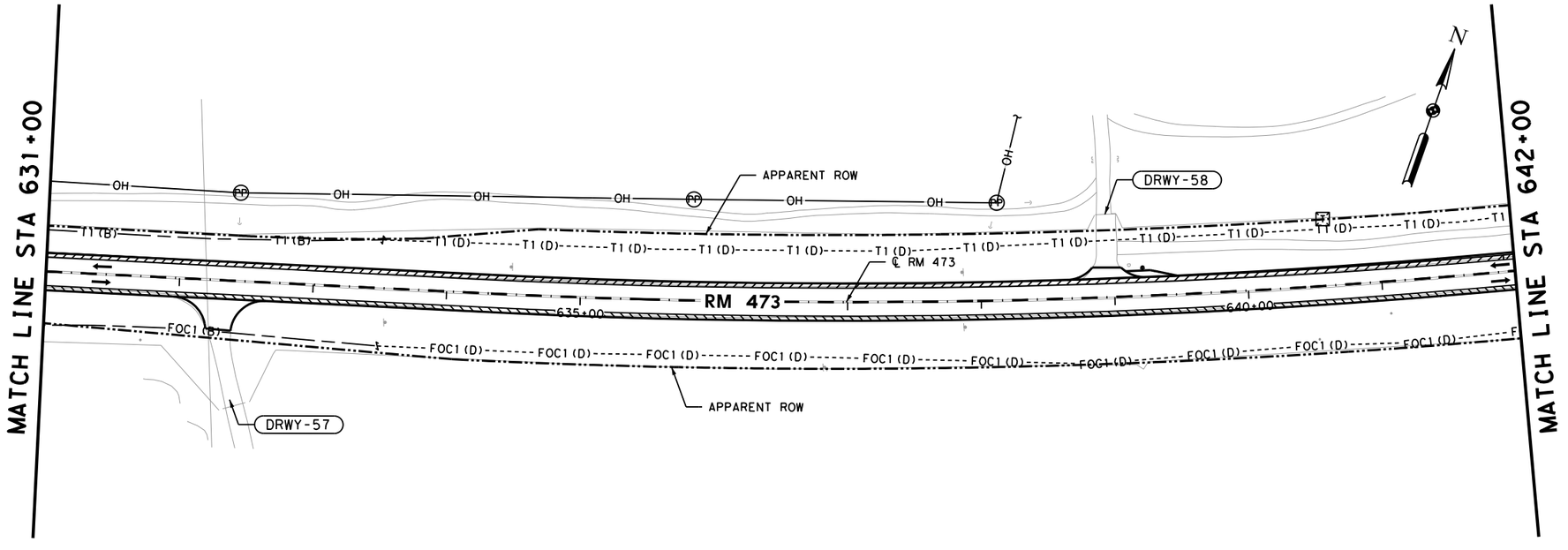
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	45

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_TCP_PLAN_16.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:23:21 AM





LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 620+00 TO
℄ RM 473 STA 642+00

SHEET 17 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	46

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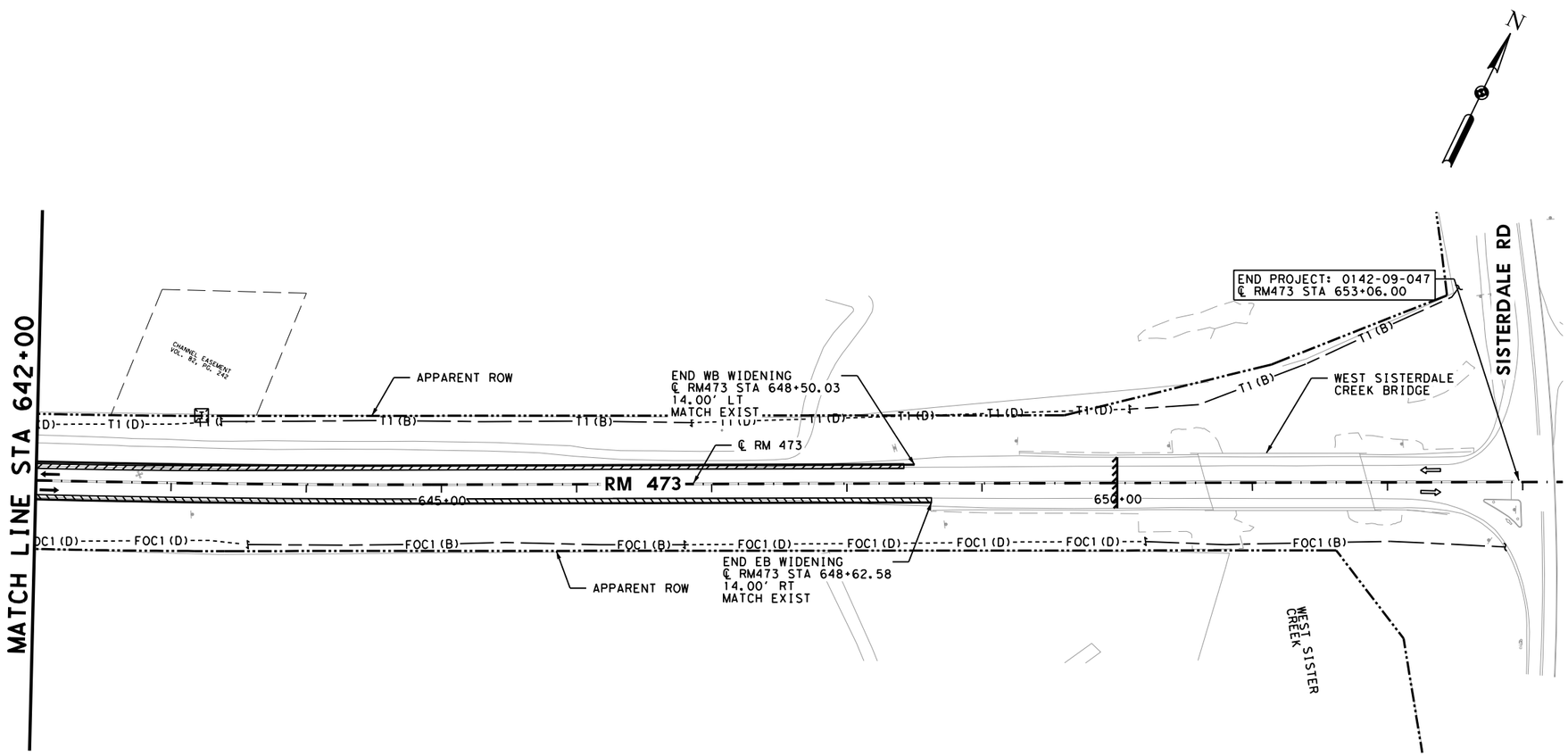

LEGEND

- CONSTRUCTION PREV PHASE
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3

NOTES:

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED THROUGH THE DURATION OF ROADWAY WIDENING.
2. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS PRIOR TO DRIVEWAY RECONSTRUCTION. DRIVEWAYS SHALL BE COMPLETED AND OPENED AS QUICKLY AS POSSIBLE.
3. ALL SIGNS AND BARRICADES WILL BE PLACED IN LOCATIONS THAT DO NOT OBSTRUCT VIEW AT INTERSECTIONS AND DRIVEWAYS.
4. CONTRACTOR SHALL ADHERE TO TxDOT'S SIGHT DISTANCE REQUIREMENTS FOR ANY RM 473 LANE CLOSURES AT DRIVEWAYS AND INTERSECTIONS.
5. PLEASE REFER TO TRAFFIC CONTROL PHASE 2 & 3 DETAILS AND PHASE 1,2 & 3 INTERSECTING STREET LAYOUT FOR MORE INFORMATION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES, GATES, AND GATE CONTROL MECHANISMS. DAMAGES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. PGL SHOWN FOR DESIGN PURPOSES ONLY. CONTRACTOR TO SET PGL ALONG THE EXISTING PGL AND CROSS SLOPE. SEE PROPOSED TYPICAL SECTION FOR DETAILS.

0' 50' 100'

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

TRAFFIC CONTROL PLAN PHASE 2 & 3

℄ RM 473 STA 642+00 TO END OF PROJECT

SHEET 18 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	47

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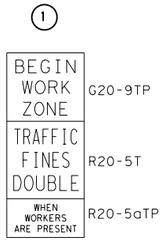
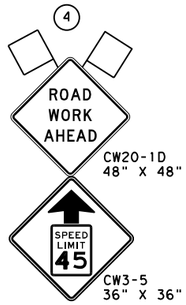
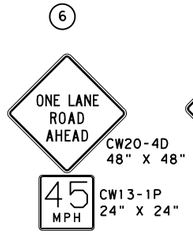
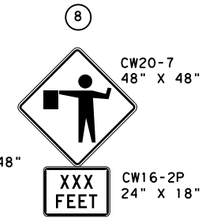


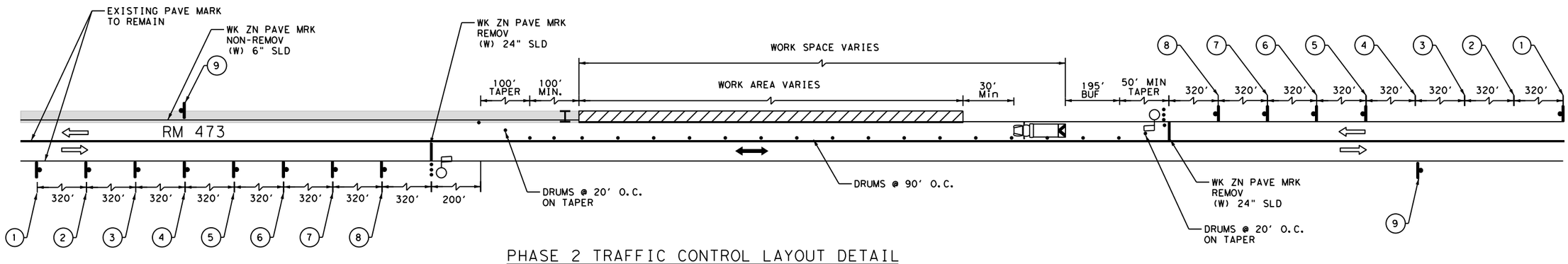






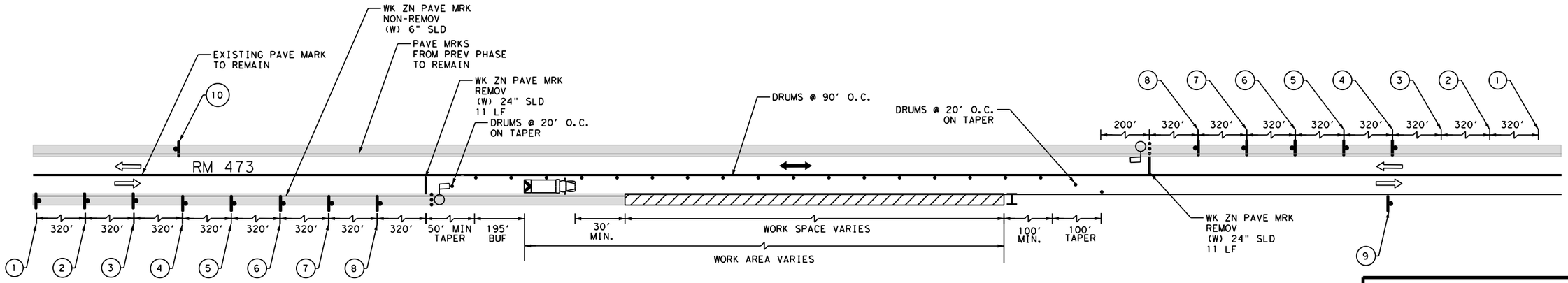
LEGEND

- PROPOSED WIDEN THIS PHASE
- PROPOSED WIDEN PREV PHASE/STEP
- CHANNELIZING DEVICES - DRUMS
- TYPE 3 BARRICADE
- TEMPORARY SIGN
- ONE-LANE TWO-WAY TRAFFIC
- EXISTING TRAFFIC FLOW
- HEAVY WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR
- FLAGGER



PHASE 2 TRAFFIC CONTROL LAYOUT DETAIL

NOT TO SCALE



PHASE 3 TRAFFIC CONTROL LAYOUT DETAIL

NOT TO SCALE

NOTES:

1. WORK AREA LENGTHS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD. WORK LENGTHS SHALL BE BASED ON THE LENGTH THAT CAN BE CONSTRUCTED WITHIN A WORK DAY OR AS DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR SHALL SPACE BARRICADES, SIGNS, AND CHANNELIZING DEVICES ACCORDING TO THE POSTED LIMIT AND WIDTH OF OFFSET.
3. REFER TO LATEST TXDOT TCP (2-2)-18 AND BC-STANDARDS FOR ALL SIGN SPACING AND CHANNELIZING DEVICE SPACING AND TAPER LENGTH.
4. ALL SIGNS AND BARRICADES WILL BE PLACED IN A POSITION THAT WILL NOT OBSTRUCT VIEWS AT INTERSECTIONS AND DRIVEWAYS.
5. THE CONTRACTOR SHALL REFER TO THE "TCP SEQUENCE OF CONSTRUCTION" FOR ADDITIONAL INFORMATION.
6. REFER TO TCP PHASE 2 AND 3 LAYOUTS FOR ADDITIONAL INFORMATION.
7. FOR LANE DIMENSIONS REFER TO TCP TYPICAL SECTIONS.
8. ACCESS TO ALL PROPERTIES WILL BE MAINTAINED AT ALL TIMES.

5/17/2024

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PHASE 2 & 3 DETAILS

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	48

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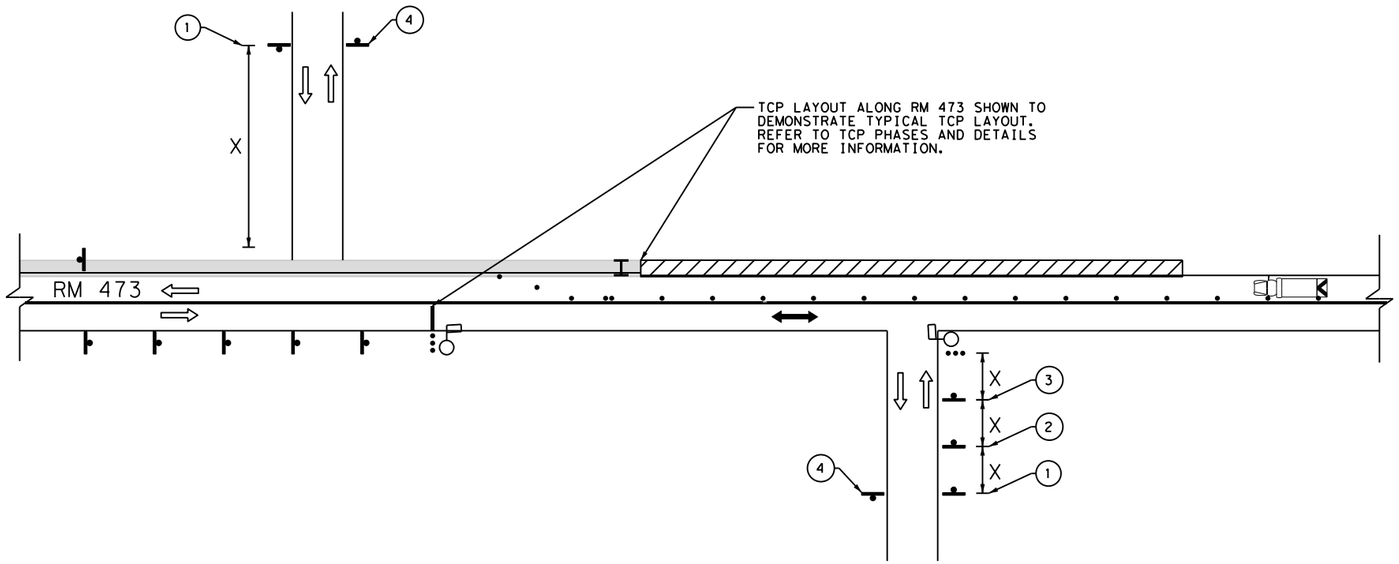


LEGEND

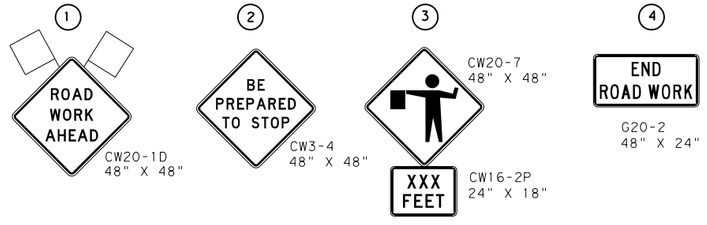
- PROPOSED WIDEN THIS PHASE
- PROPOSED WIDEN PREV PHASE/STEP
- CHANNELIZING DEVICES - DRUMS
- TYPE 3 BARRICADE
- TEMPORARY SIGN
- ONE-LANE TWO-WAY TRAFFIC
- EXISTING TRAFFIC FLOW
- HEAVY WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR
- FLAGGER

PHASE 1, 2 & 3 TRAFFIC CONTROL FOR INTERSECTING STREETS
TYPICAL LAYOUT

RM 473/OLD NO. 9 HWY
N RIVER BEND RD
UPPER SISTERDALE RD
WARING WELFARE RD
ZOELLER LN
GRECCO BEND
FM 1376

NOTES:

1. SEE PHASE 1, 2 AND 3 LAYOUTS AND DETAILS FOR ADDITIONAL INFORMATION.
2. SEE "SCHEDULE OF TRAFFIC CONTROL & ADVANCE WARNING DEVICES" SHEET FOR ADDITIONAL ADVANCED WARNING SIGNAGE NEEDED AT PROJECT APPROACHES AND DEPARTURES.
3. THE CONTRACTOR SHALL SPACE BARRICADES, SIGNS, AND CHANNELIZING DEVICES ACCORDING TO THE POSTED LIMIT AND WIDTH OF OFFSET.
4. REFER TO LATEST TXDOT TCP AND BC-STANDARDS FOR ALL SIGN SPACING AND CHANNELIZING DEVICE SPACING AND TAPER LENGTH.
5. ALL SIGNS AND BARRICADES WILL BE PLACED IN A POSITION THAT WILL NOT OBSTRUCT VIEWS AT INTERSECTIONS AND DRIVEWAYS.
6. THE CONTRACTOR SHALL REFER TO THE "TCP SEQUENCE OF CONSTRUCTION" FOR ADDITIONAL INFORMATION.
7. ACCESS TO ALL PROPERTIES WILL BE MAINTAINED AT ALL TIMES.



5/17/2024

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Texas Department of Transportation

RM 473

TRAFFIC CONTROL PHASE 1, 2 & 3 INTERSECTING STREET LAYOUT

NOT TO SCALE SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	49

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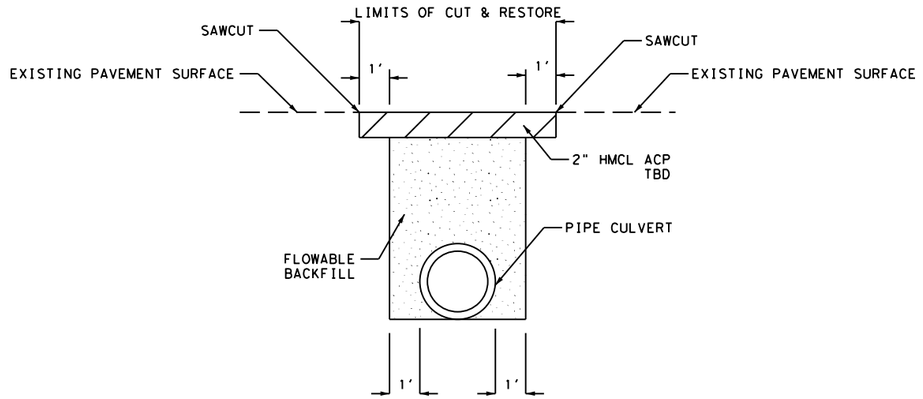

CUT AND RESTORE DETAIL

NTS

NOTES:

1. SAWCUT OF EXISTING PAVEMENT SHALL BE CONSIDEDERED SUBSIDIARY TO ITEM 400.
2. HMCL ACP TBD 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. APPLY TACK COAT TO EXPOSED EDGES OF EXISTING ASPHALT OR FLEXIBLE BASE. THIS WILL BE CONSIDERED SUBSIDIARY TO ITEM 400.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

TRAFFIC CONTROL PLAN MISCELLANEOUS DETAILS

SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	49A

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	0142	09	047	RM 473
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	SAT	KENDALL		50
5-10 5-21				

DATE: 5/17/2024 9:23:56 AM
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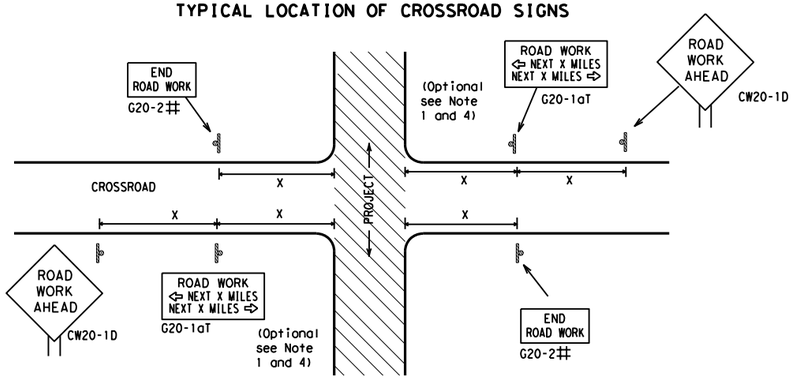
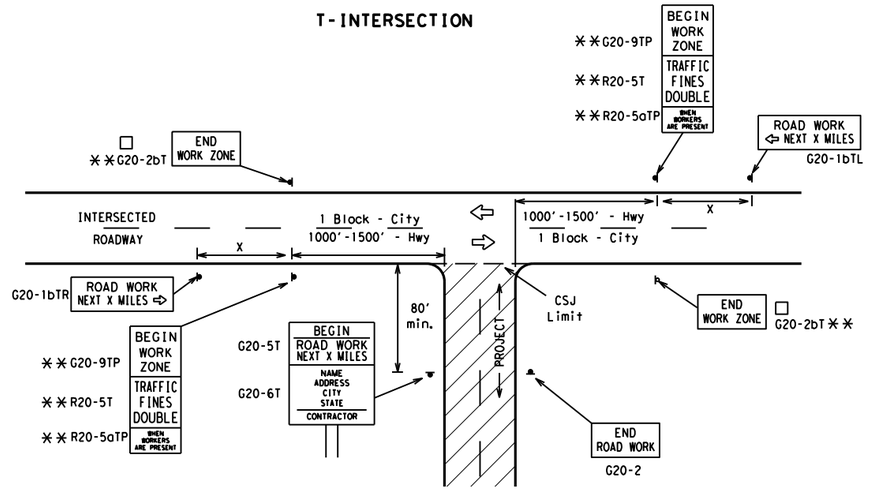
TYPICAL LOCATION OF CROSSROAD SIGNS



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]

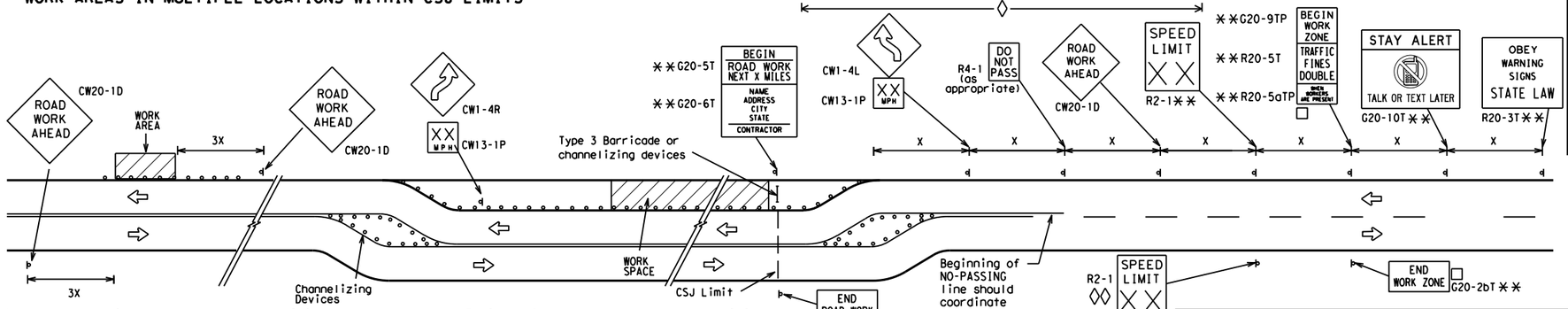
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

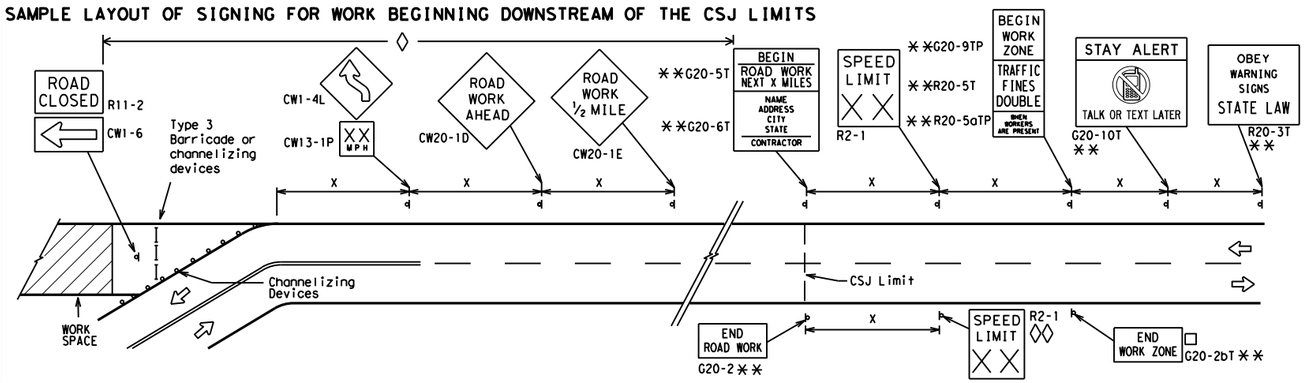
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT 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	0142	09	047	RM 473
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	KENDALL		51

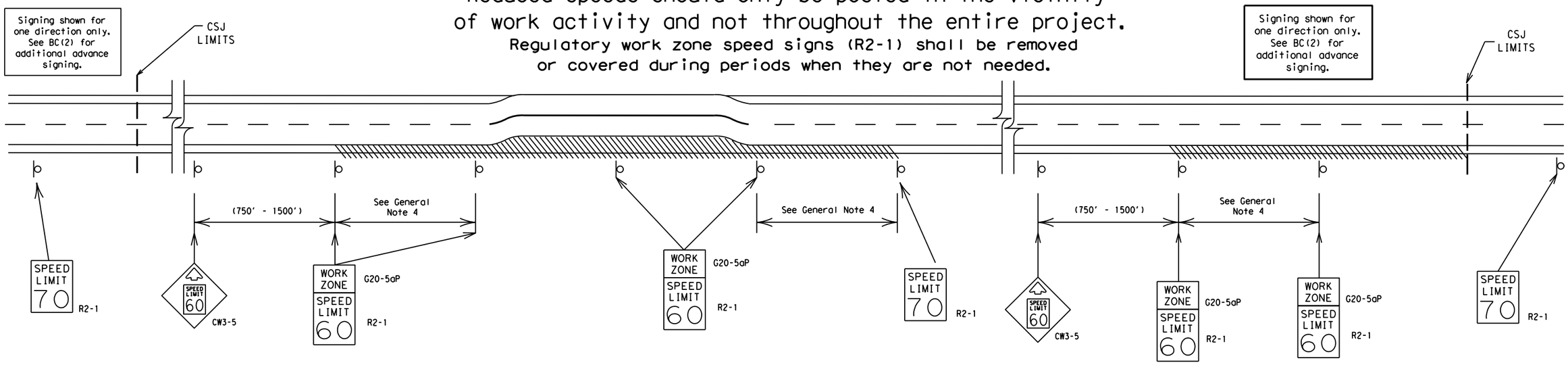
DATE: 5/17/2024 9:23:56 AM
FILE: bc-21.dgn

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		52

DATE: 5/17/2024 9:23:56 AM
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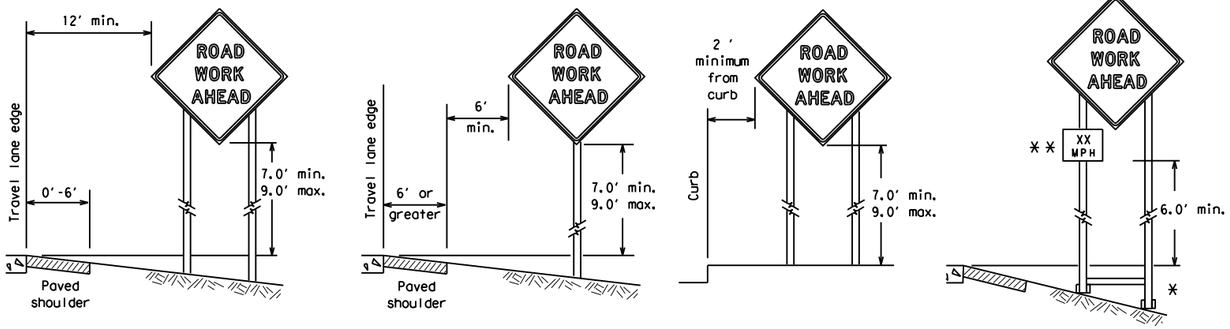
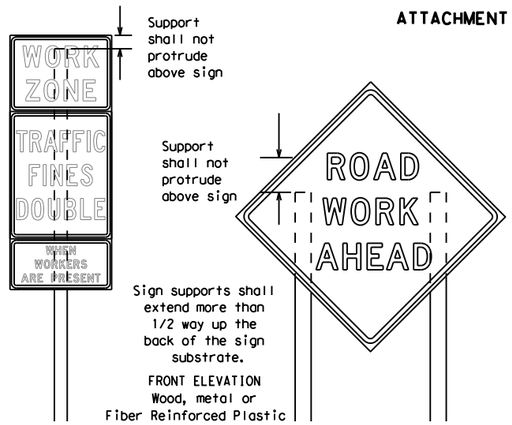
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

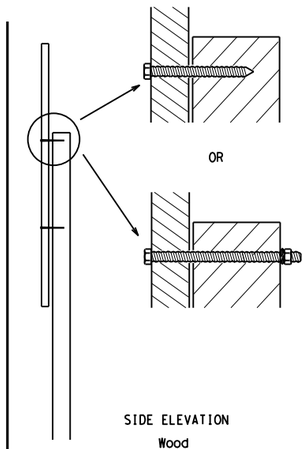


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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





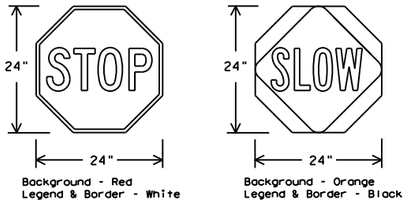
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	KENDALL		53

DATE: 5/17/2024 9:23:57 AM
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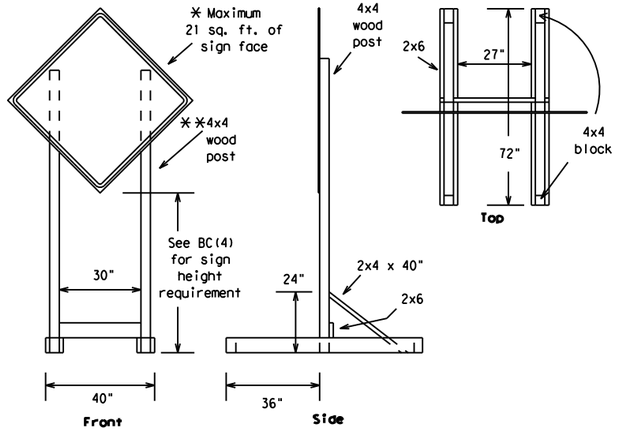
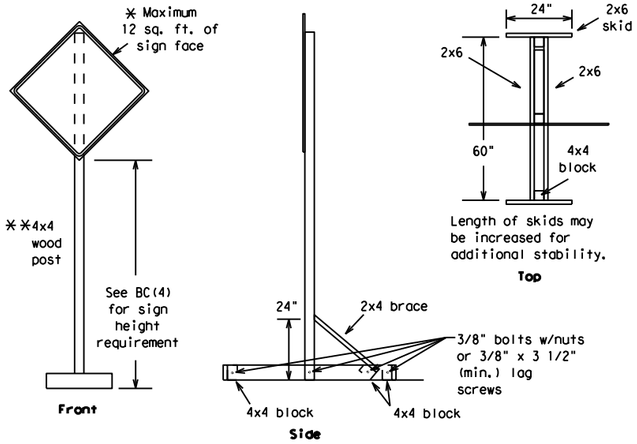
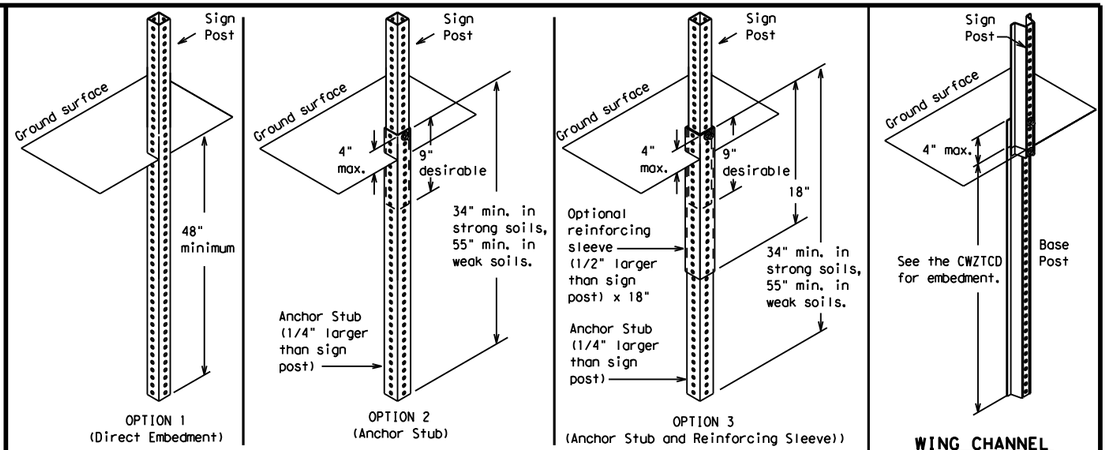




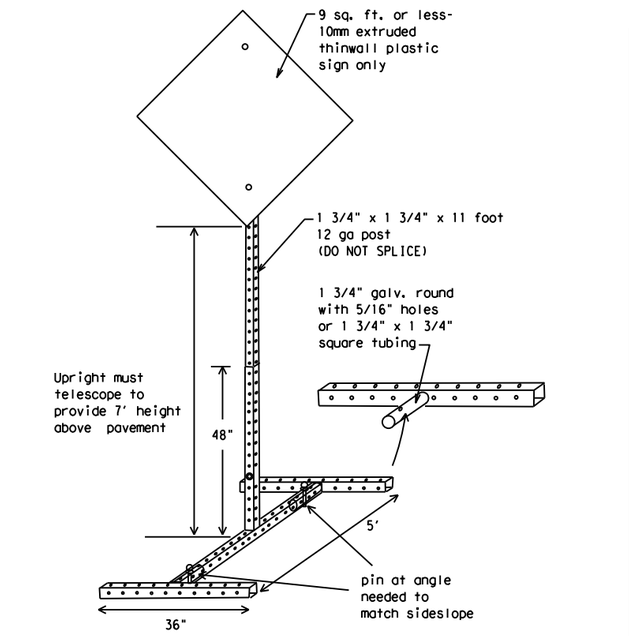
SKID MOUNTED WOOD SIGN SUPPORTS

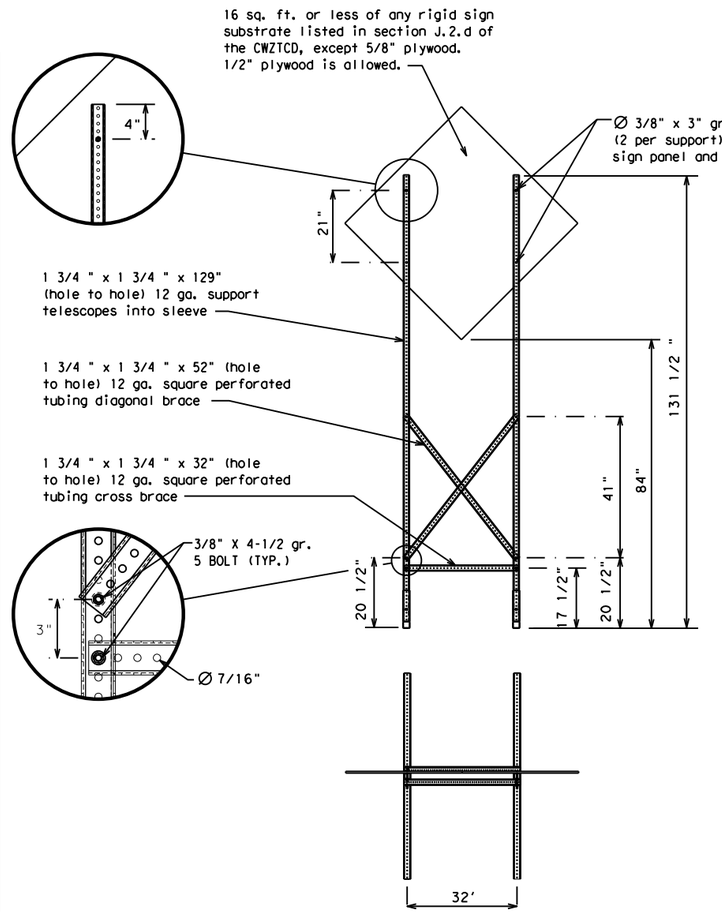
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

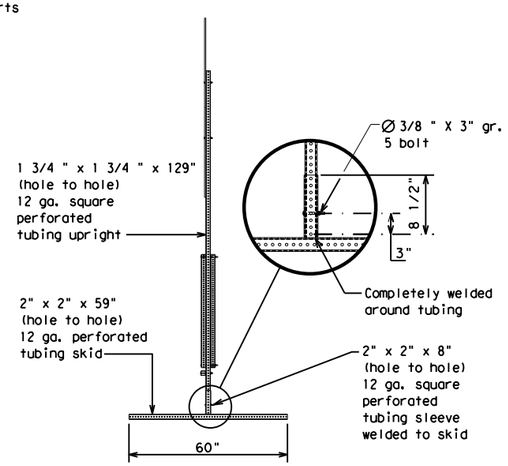


GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

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BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

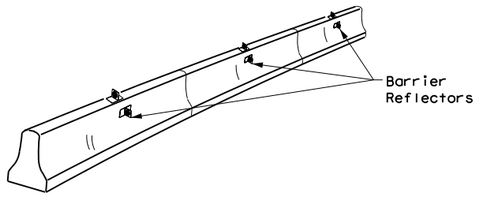
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

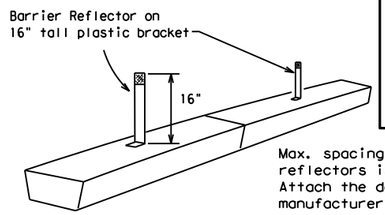
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	KENDALL		55

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.

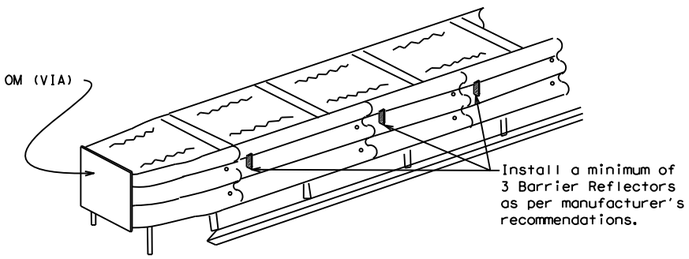


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

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)

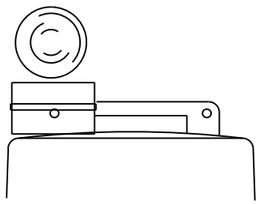


DELINEATION OF END TREATMENTS

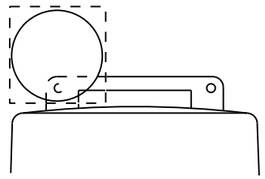
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

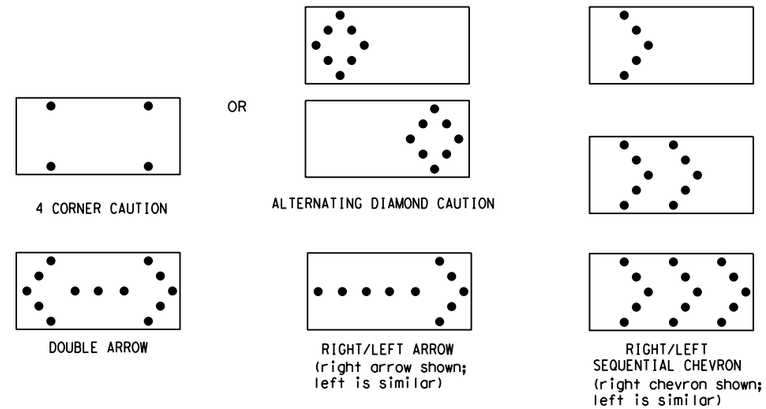
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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:



4 CORNER CAUTION

ALTERNATING DIAMOND CAUTION

DOUBLE ARROW

RIGHT/LEFT ARROW
(right arrow shown;
left is similar)

RIGHT/LEFT
SEQUENTIAL CHEVRON
(right chevron shown;
left is similar)

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	0142	09	047	RM 473
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	KENDALL		56

101

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

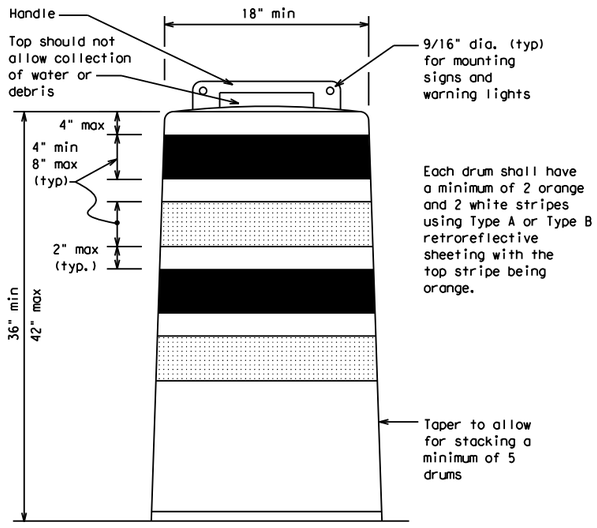
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

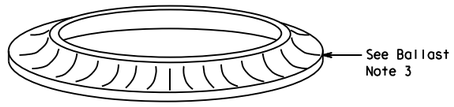
RETROREFLECTIVE SHEETING

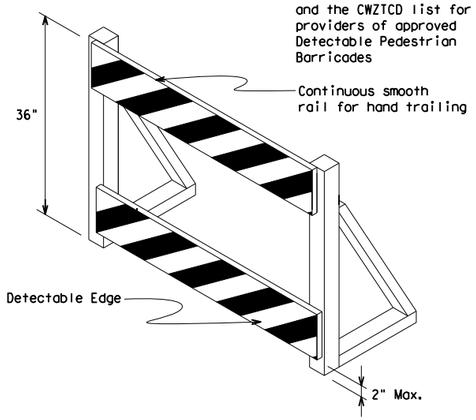
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

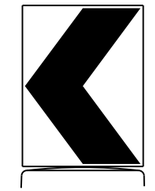




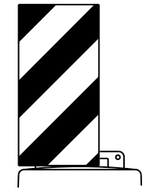


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	SAT	KENDALL		57
7-13				

102

DATE: 5/17/2024 9:23:59 AM
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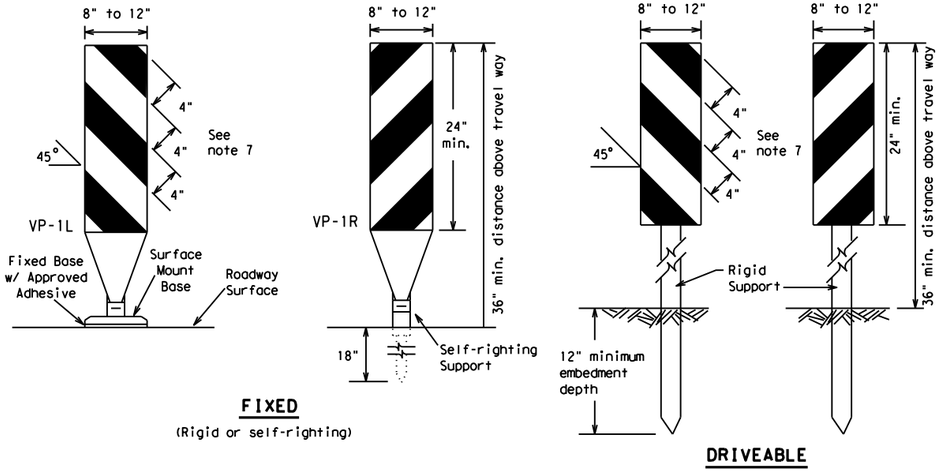
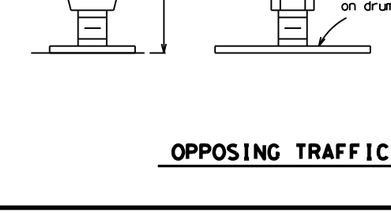


FIXED
(Rigid or self-righting)

DRIVEABLE

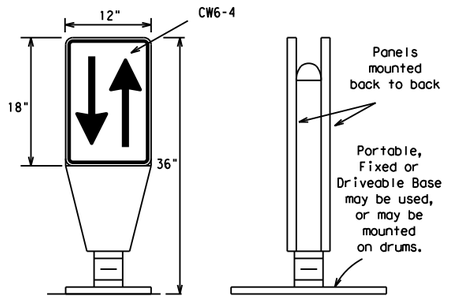


(Rigid or self-righting)

PORTABLE

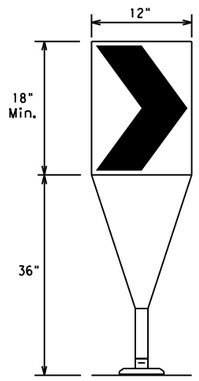
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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



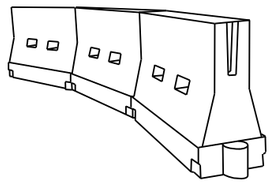
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

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Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	SAT	KENDALL		58

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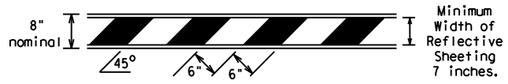
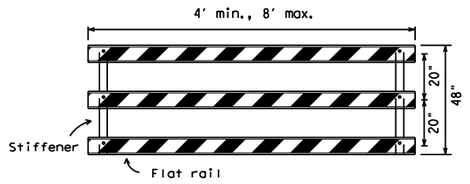
TYPE 3 BARRICADES

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.



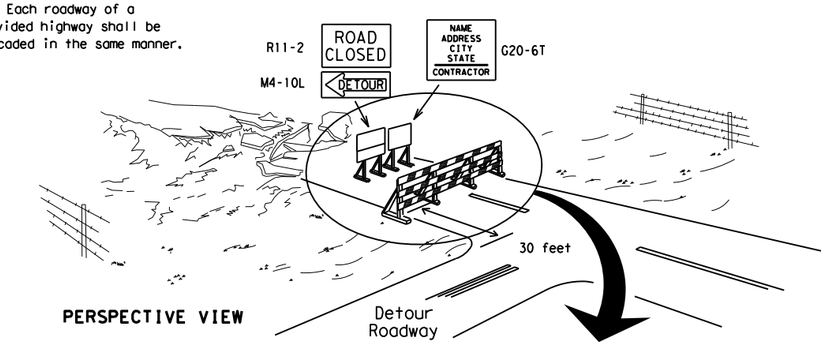
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

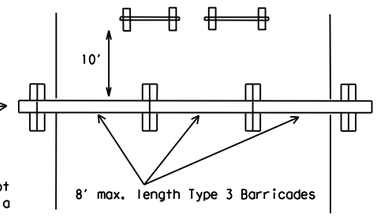
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

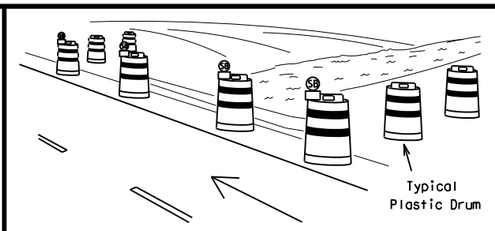
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

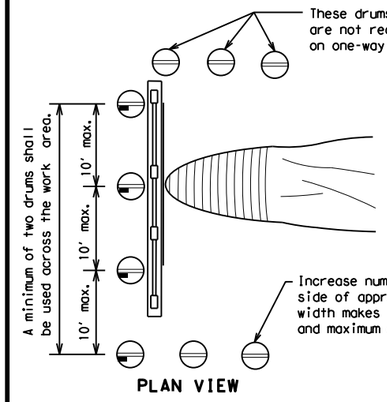
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

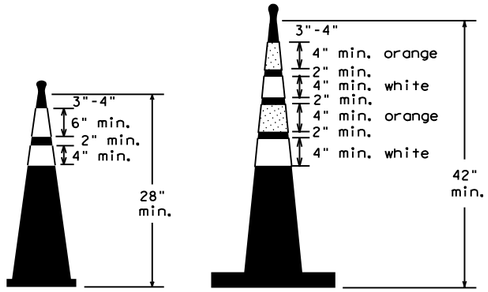
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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

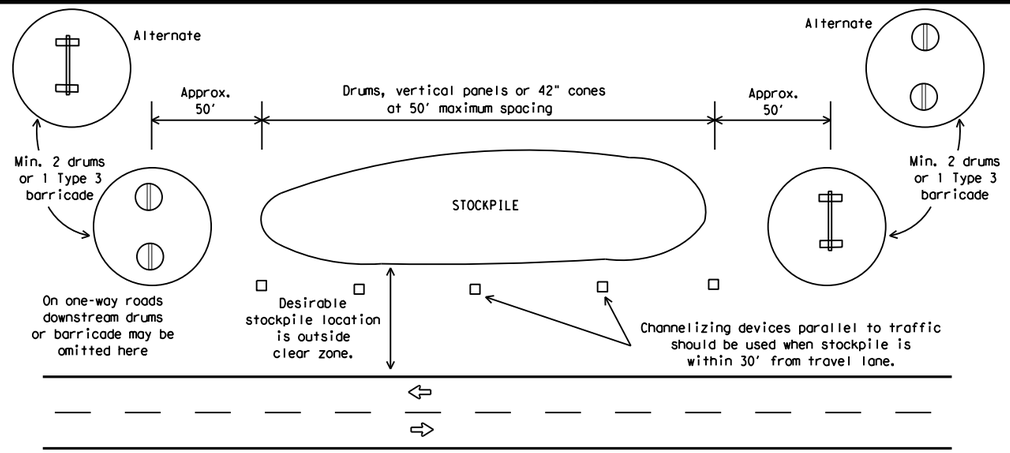
PLAN VIEW

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
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REVISIONS	0142	09	047	RM 473
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7-13 5-21	SAT	KENDALL		59

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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.

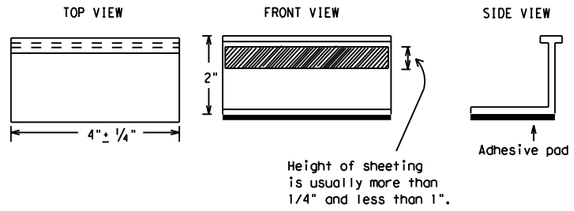
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		60

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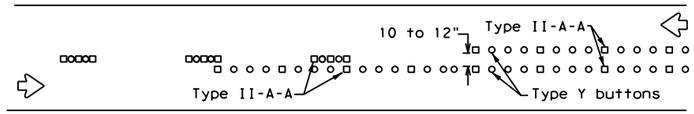
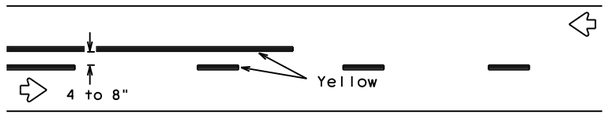
PAVEMENT MARKING PATTERNS

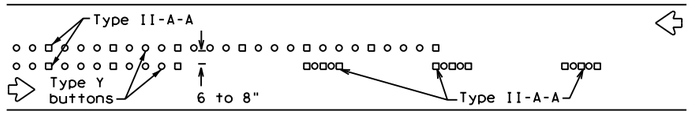
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



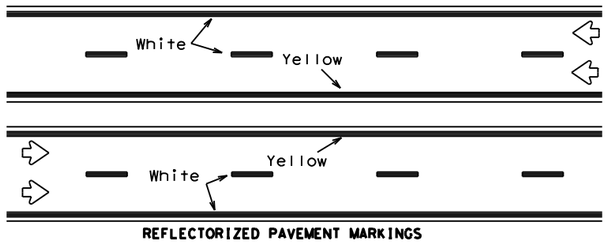
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



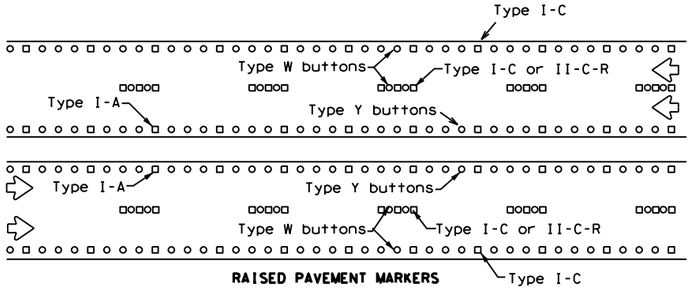
RAISED PAVEMENT MARKERS - PATTERN B

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

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



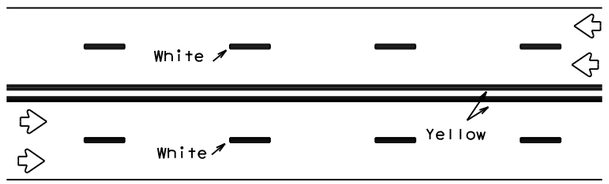
REFLECTORIZED PAVEMENT MARKINGS



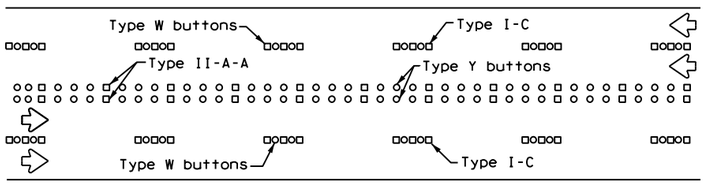
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



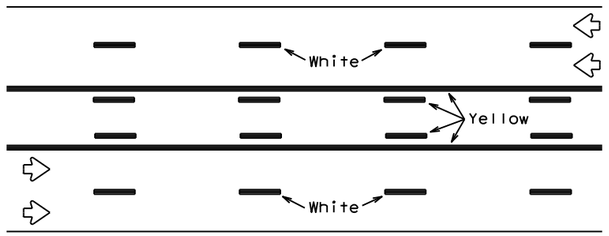
REFLECTORIZED PAVEMENT MARKINGS



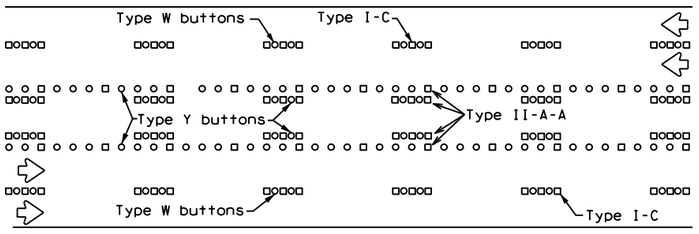
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

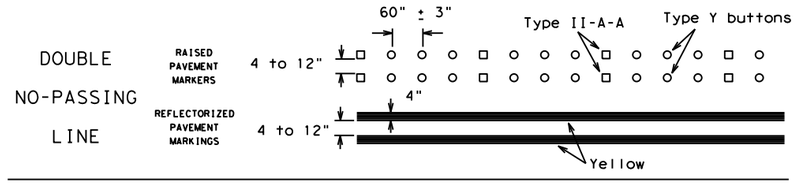
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

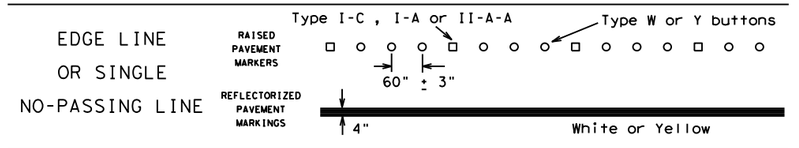
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

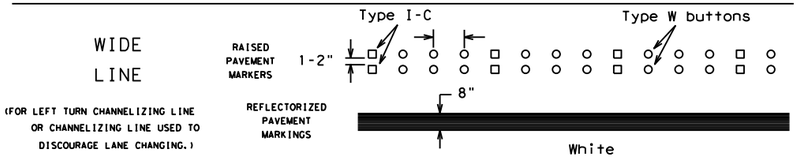


EDGE LINE OR SINGLE NO-PASSING LINE



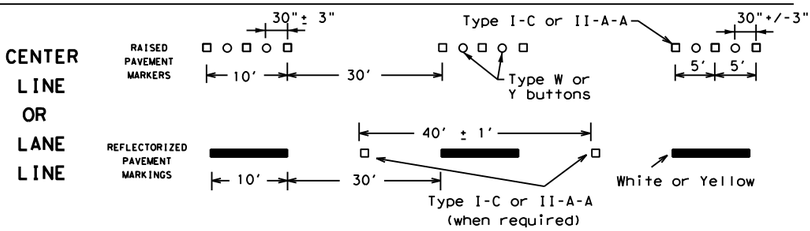
WIDE LINE

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

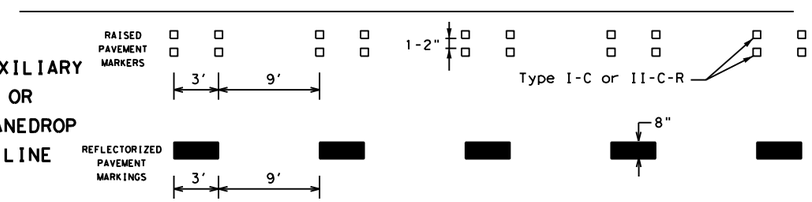


BROKEN LINES

CENTER LINE OR LANE LINE

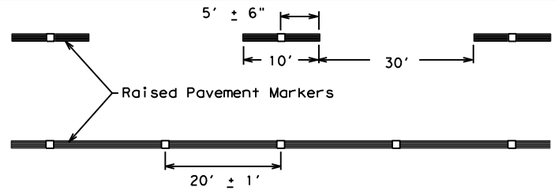


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

Traffic Safety Division Standard

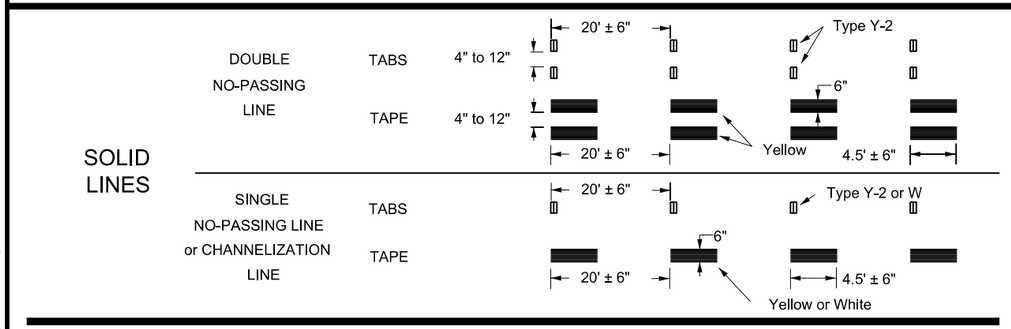
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		61

DATE: 5/17/2024 9:24:00 AM
FILE: bc-21.dgn

WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



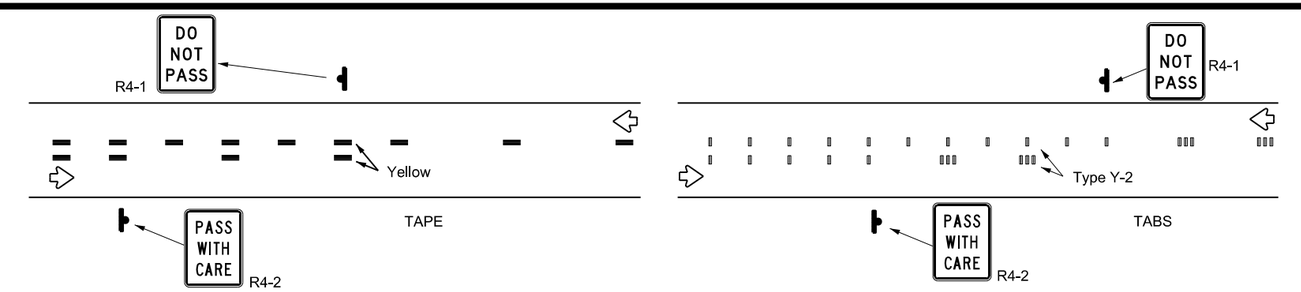
NOTES:

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.

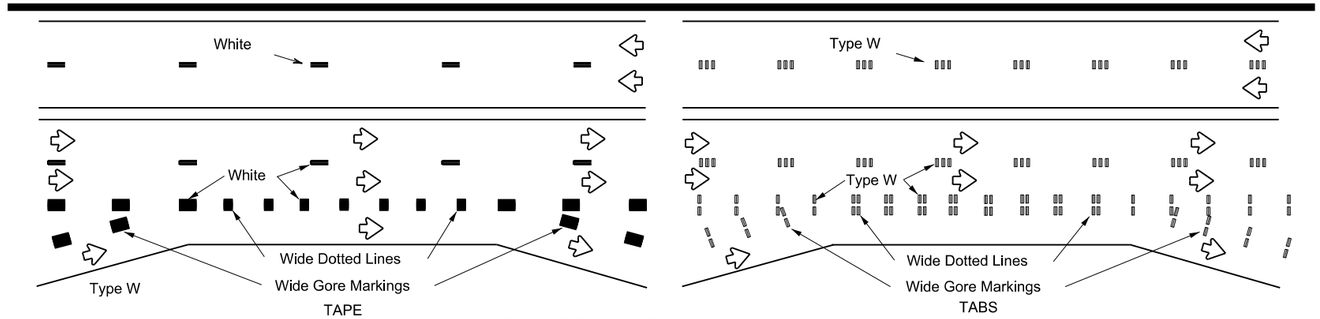
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

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.

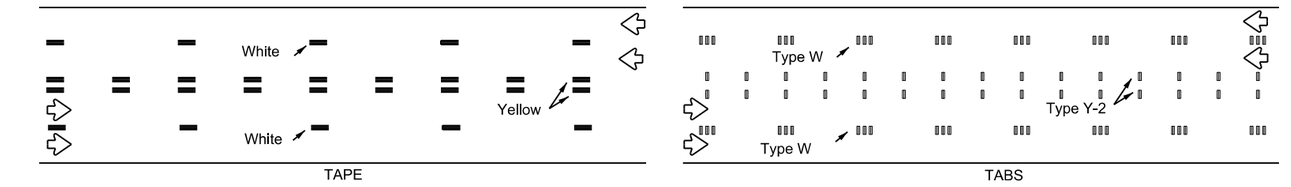
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



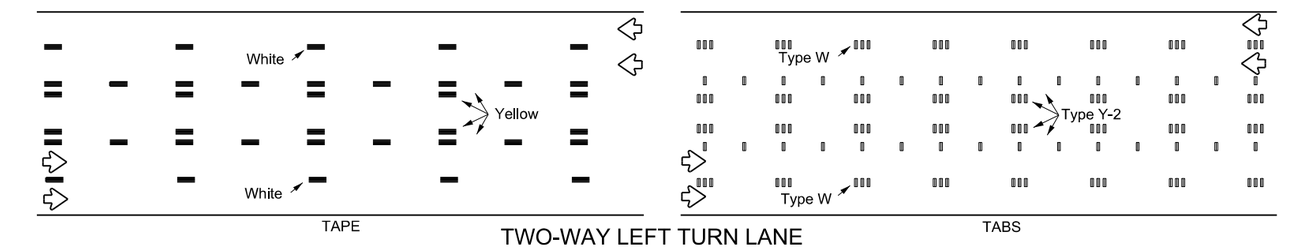
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



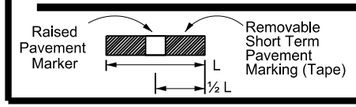
LANE LINES FOR DIVIDED HIGHWAY



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

FILE: wzstpm-23.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 7-13 1-97 2-23 3-03	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		62

DATE: 5/17/2024 9:24:05 AM
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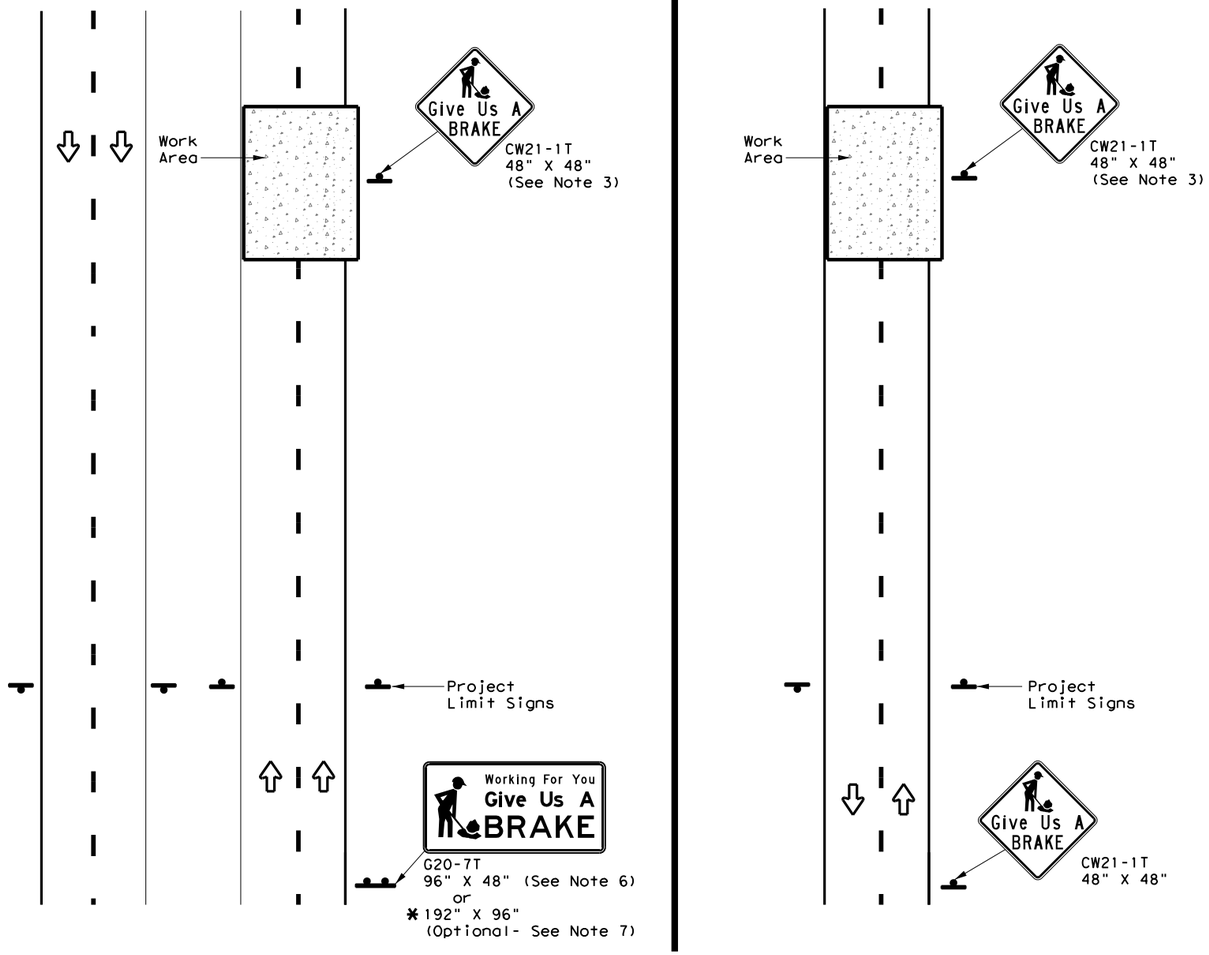

DIVIDED HIGHWAY

UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL}
BLACK	LEGEND & BORDERS	NON-REFLECTIVE ACRYLIC FILM

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
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.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
6-96 5-98 7-13	DIST	COUNTY		SHEET NO.
8-96 3-03	SAT	KENDALL		63

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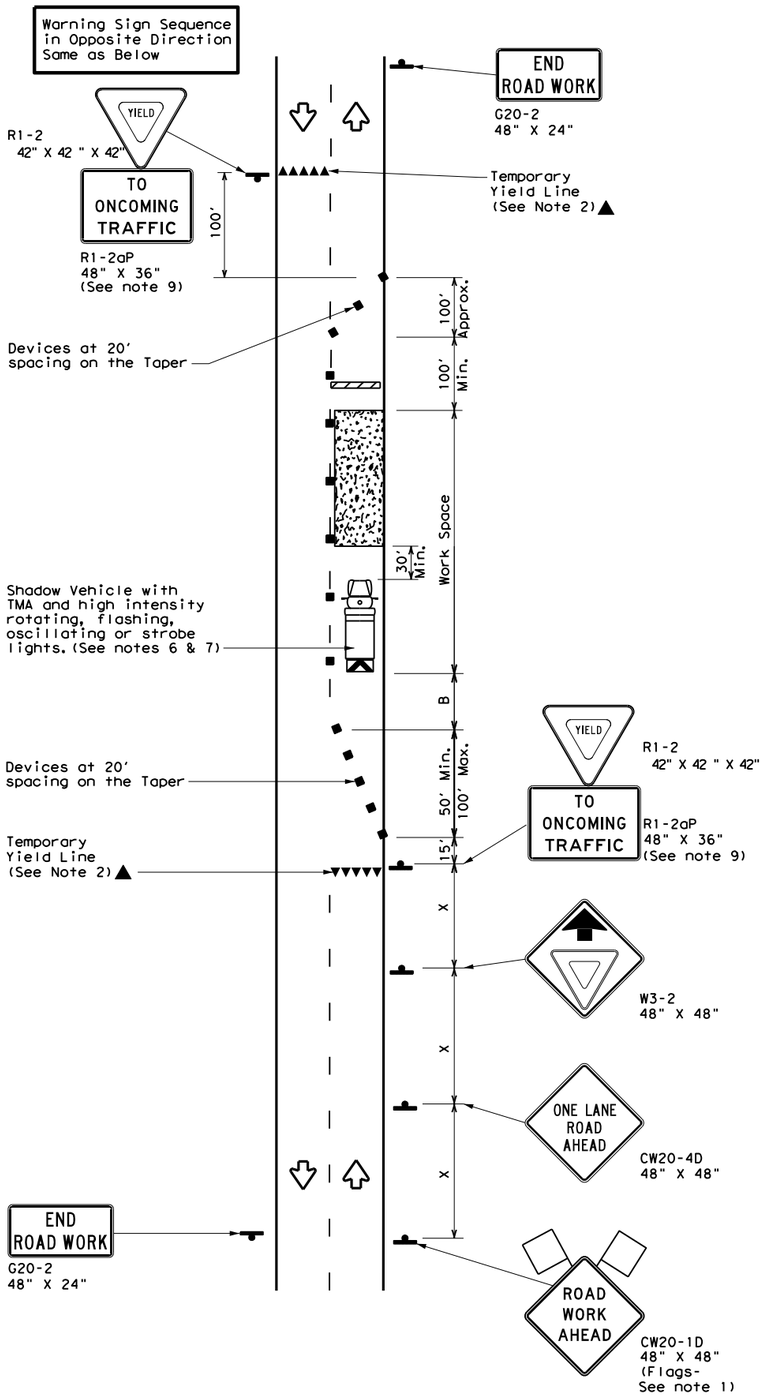
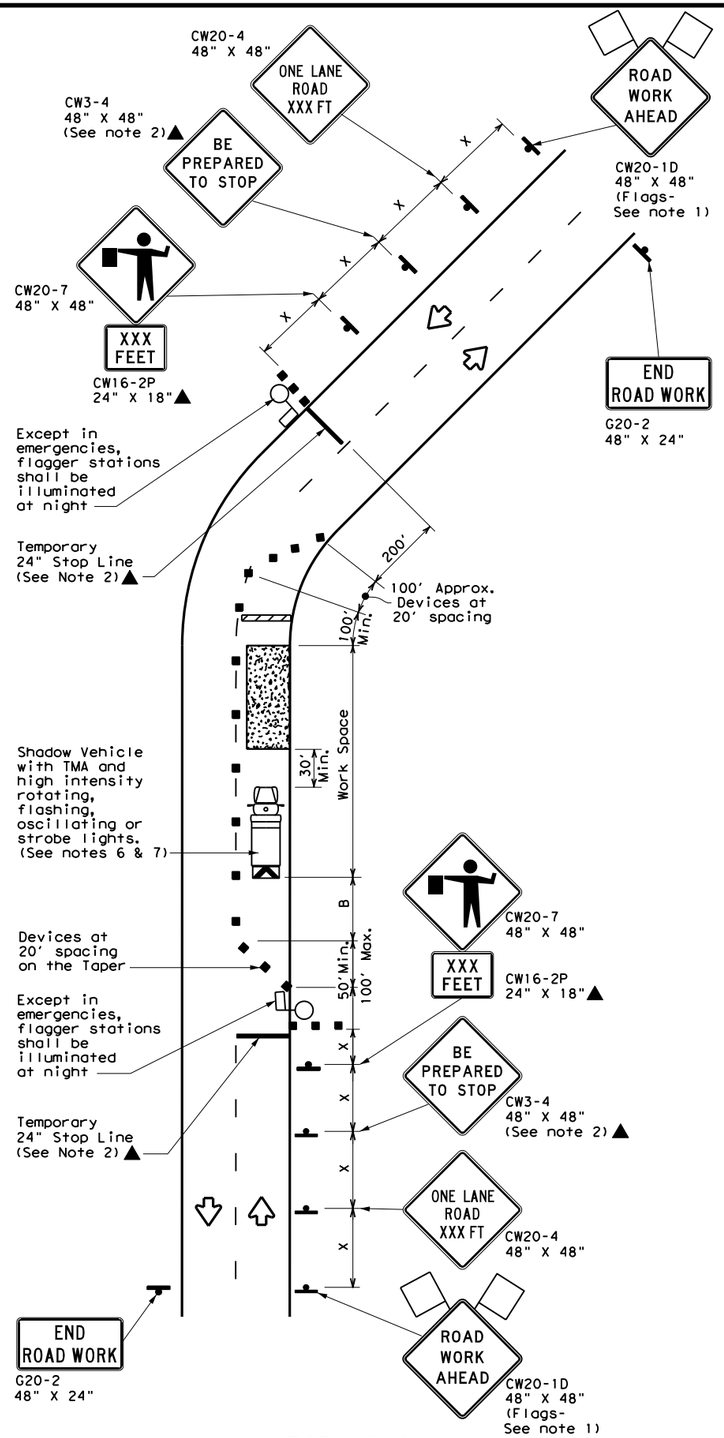


TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



TCP (2-2b)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

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

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

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication to control traffic.
5. Length of work space should be based on the ability of flaggers to communicate.
6. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-2a)

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

TCP (2-2b)

10. Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
12. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situtations.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP(2-2)-18

FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18	0142	09	047	RM 473
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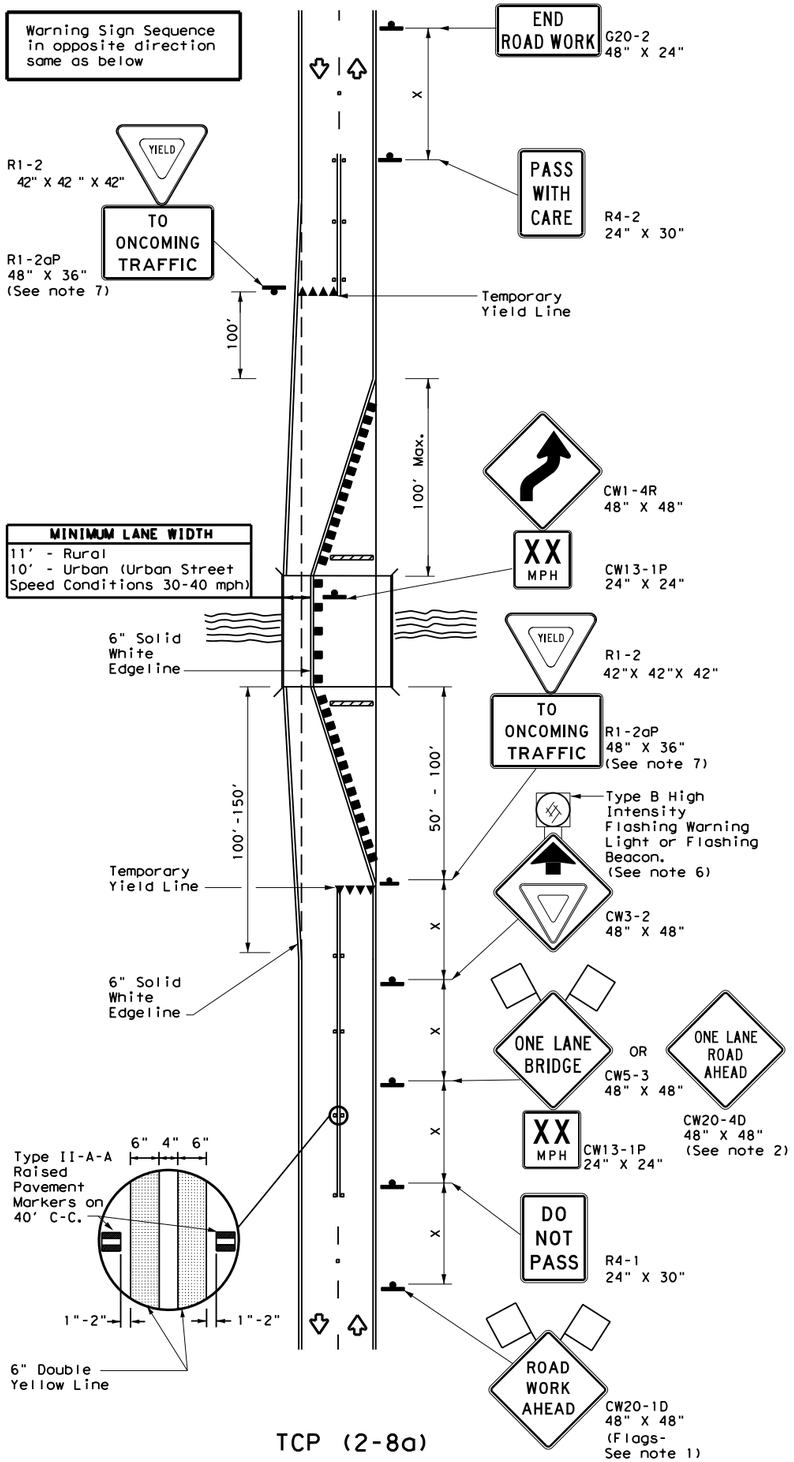
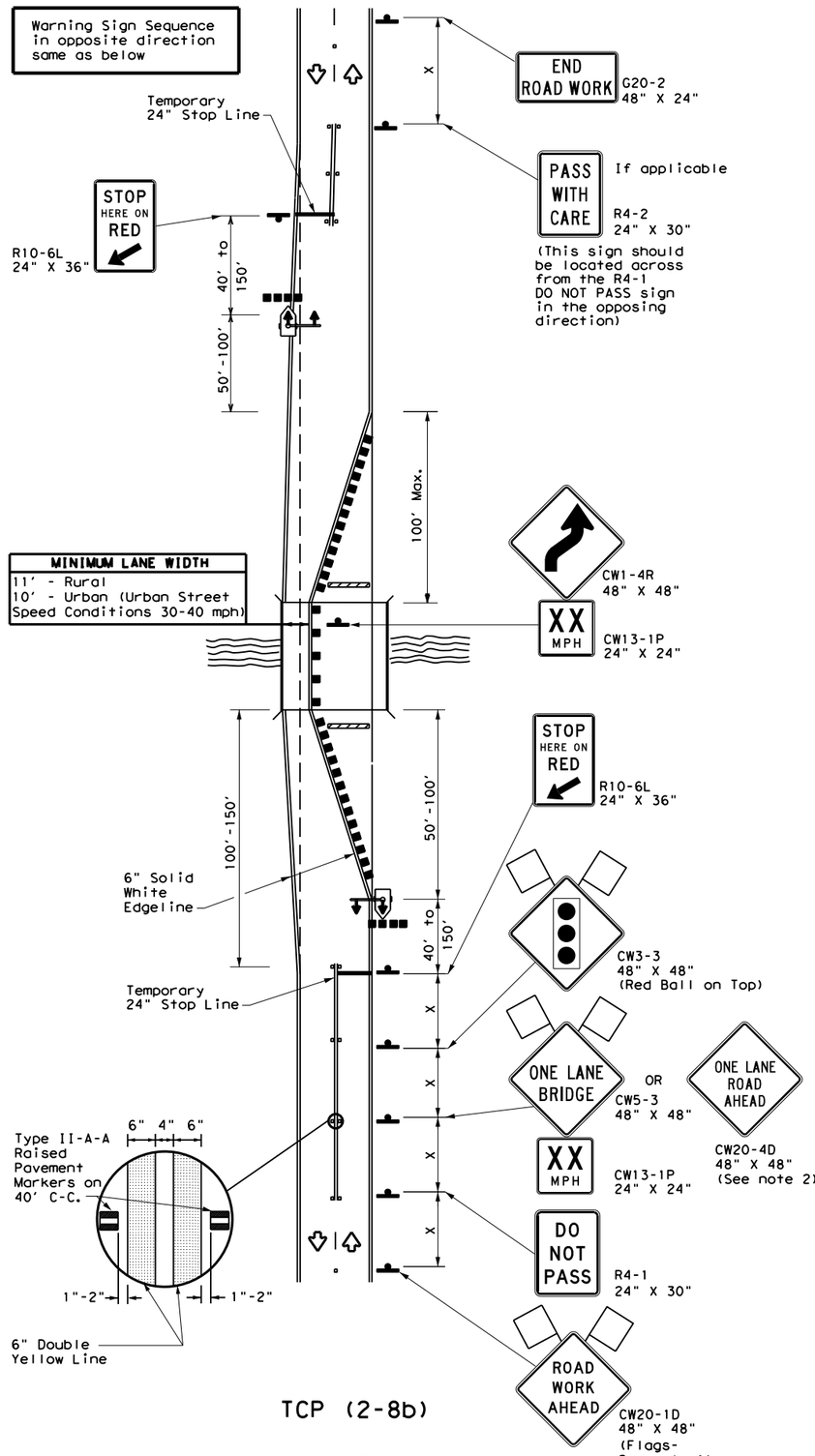


TCP (2-8a)

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

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© TxDOT April 2023	CONT	SECT	JOB	HIGHWAY
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12-85 4-98 2-18	DIST	COUNTY		SHEET NO.
8-95 3-03 4-23	SAT	KENDALL		65
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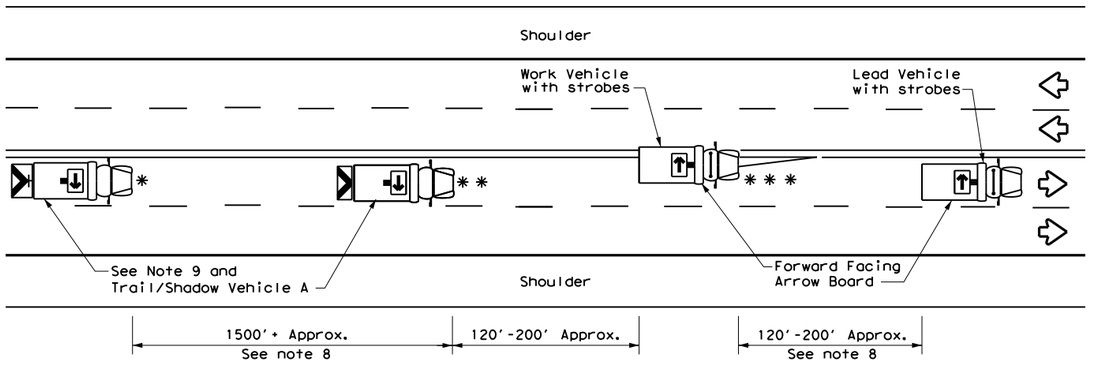
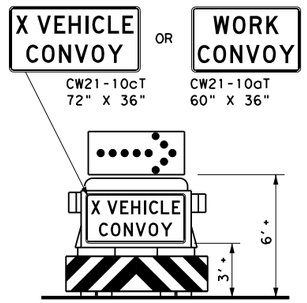


TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

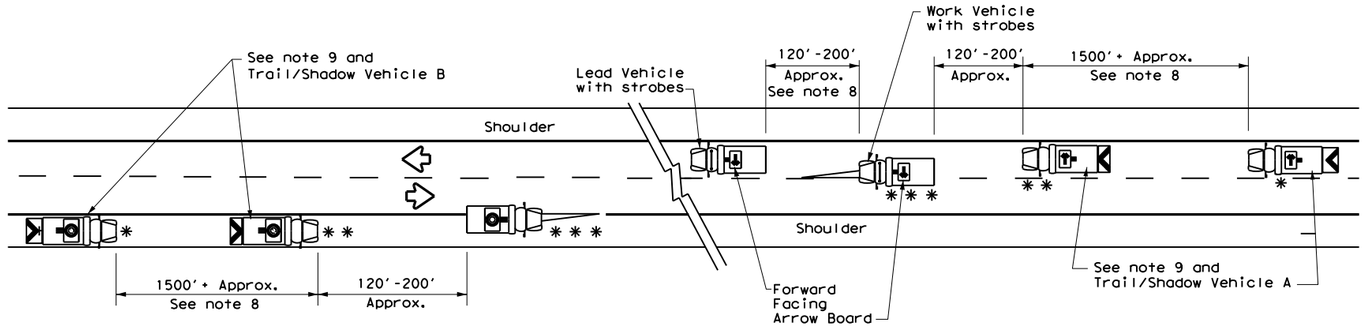
with RIGHT Directional display Flashing Arrow Board

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.

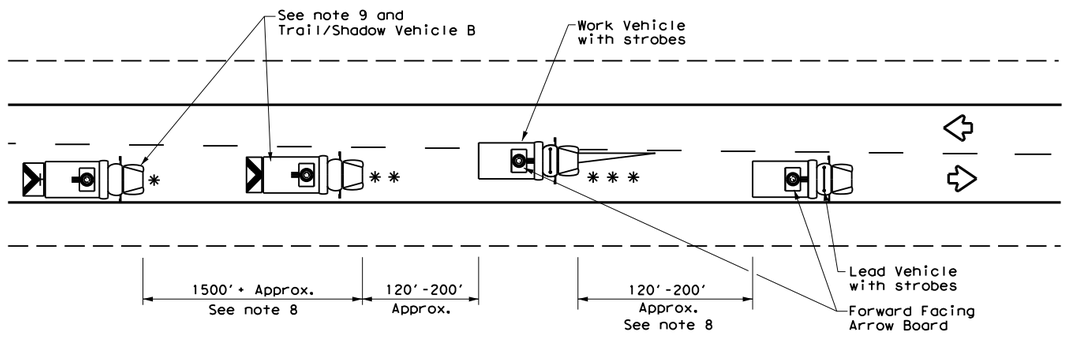


WORK ON SHOULDER

WORK ON TRAVEL LANE

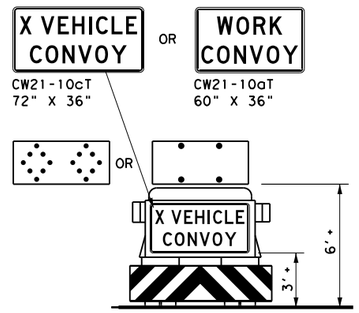
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



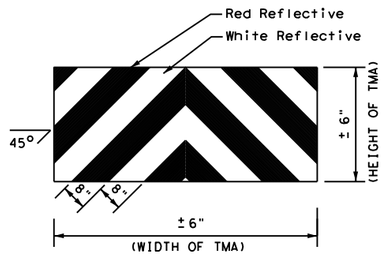
TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in CAUTION display



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		66

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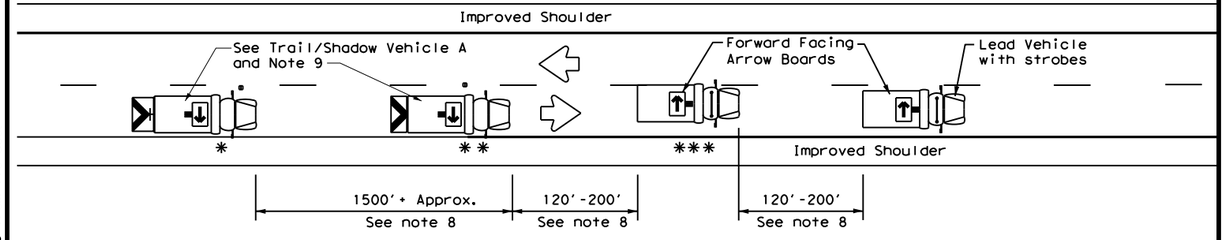
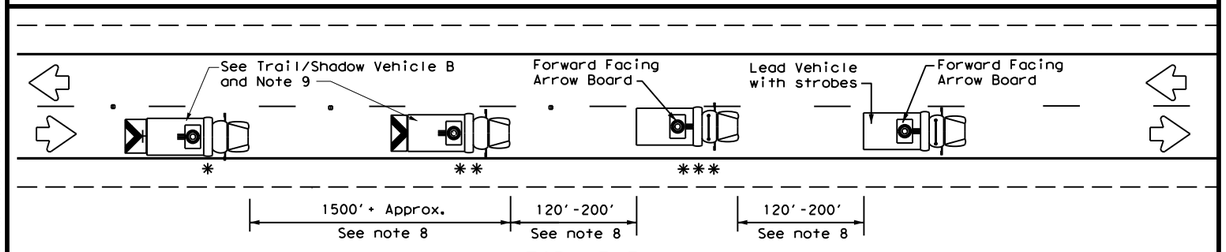


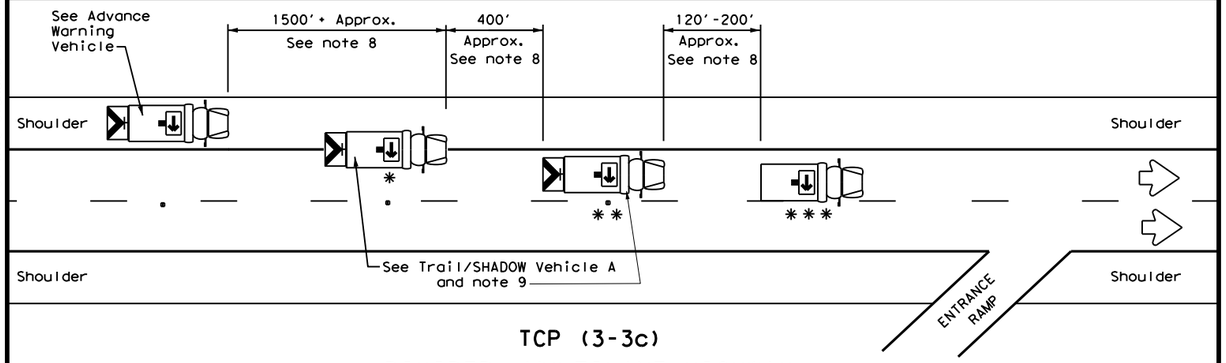
TCP (3-3a)

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



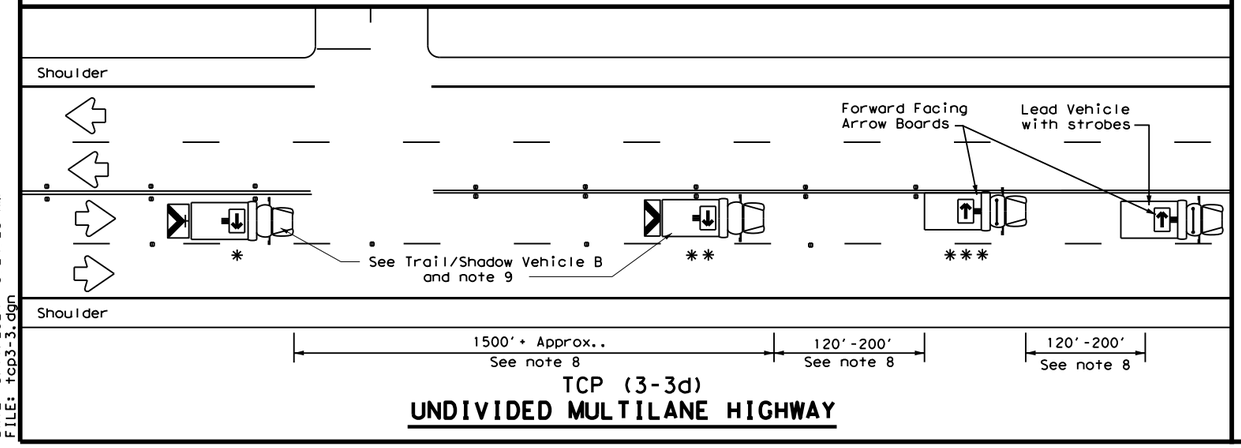
TCP (3-3b)

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



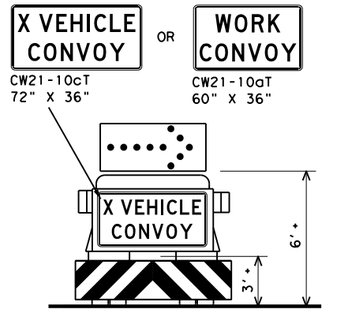
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



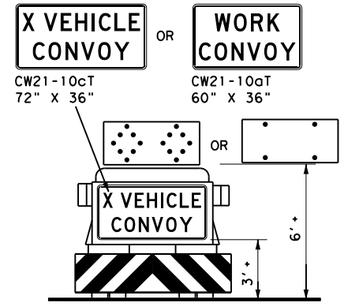
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



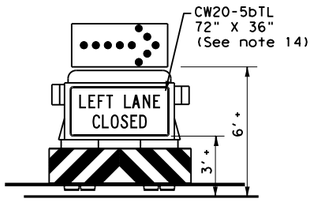
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

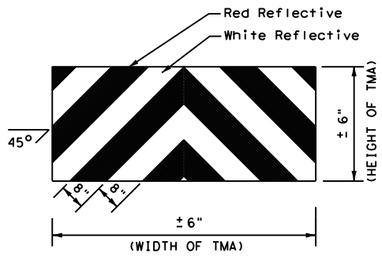


TRAIL/SHADOW VEHICLE B

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

FILE: tcp3-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13	SAT	KENDALL		67
1-97 7-14				

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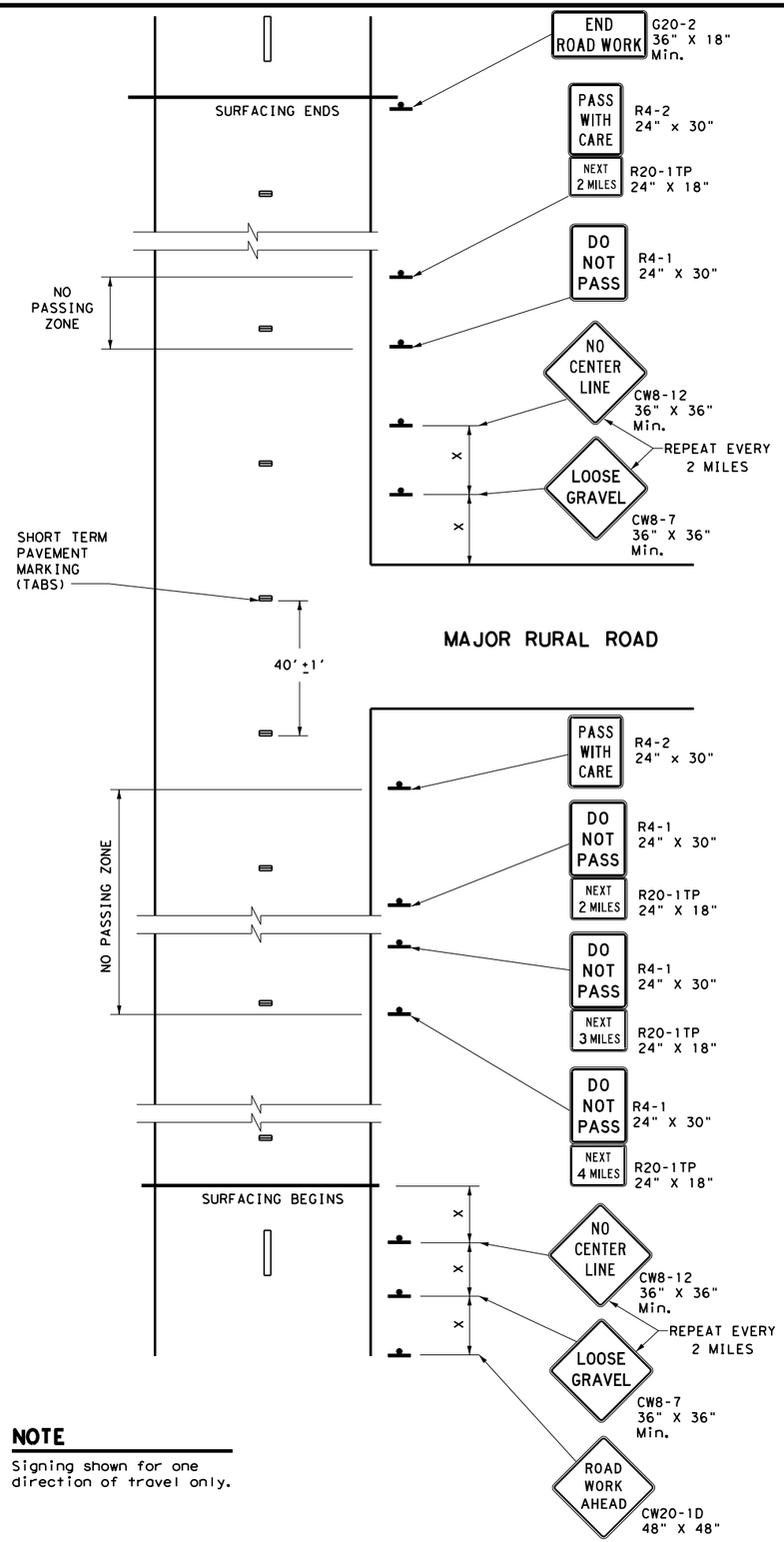
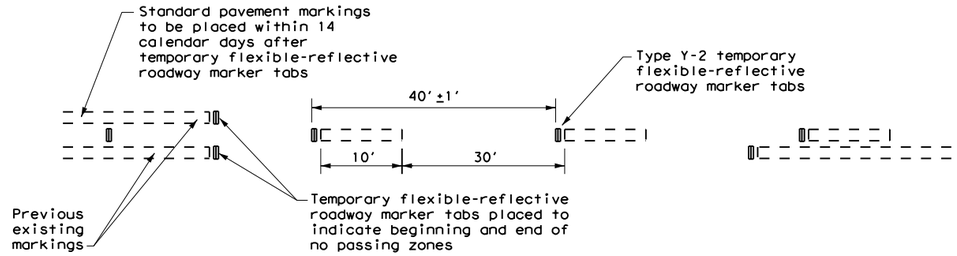


NOTE

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	KENDALL		68

210

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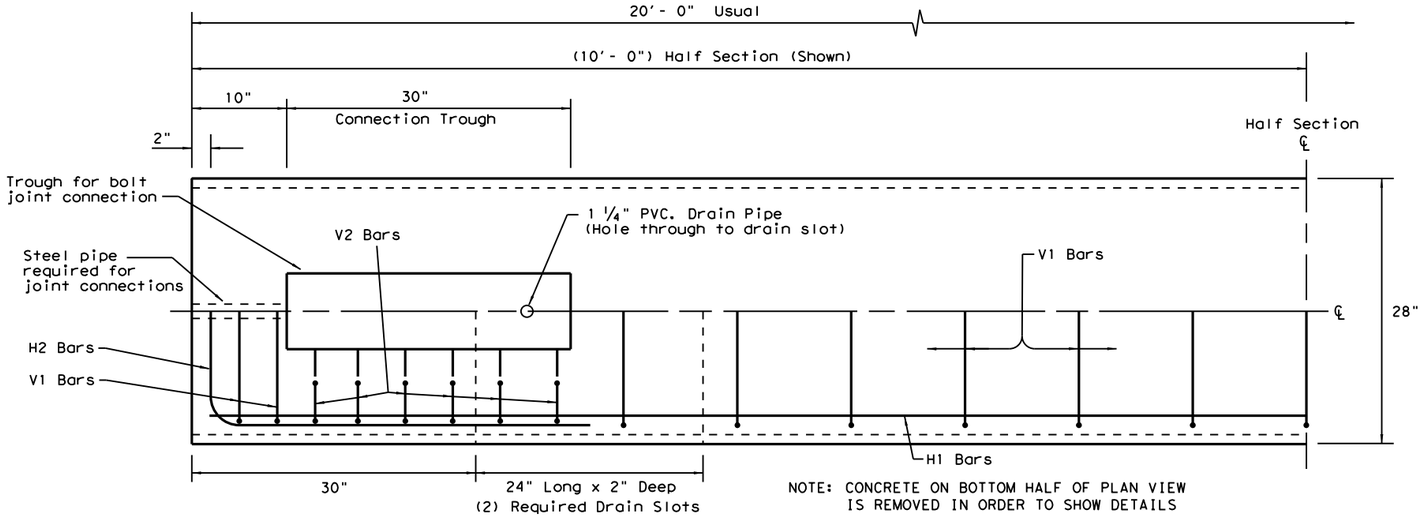
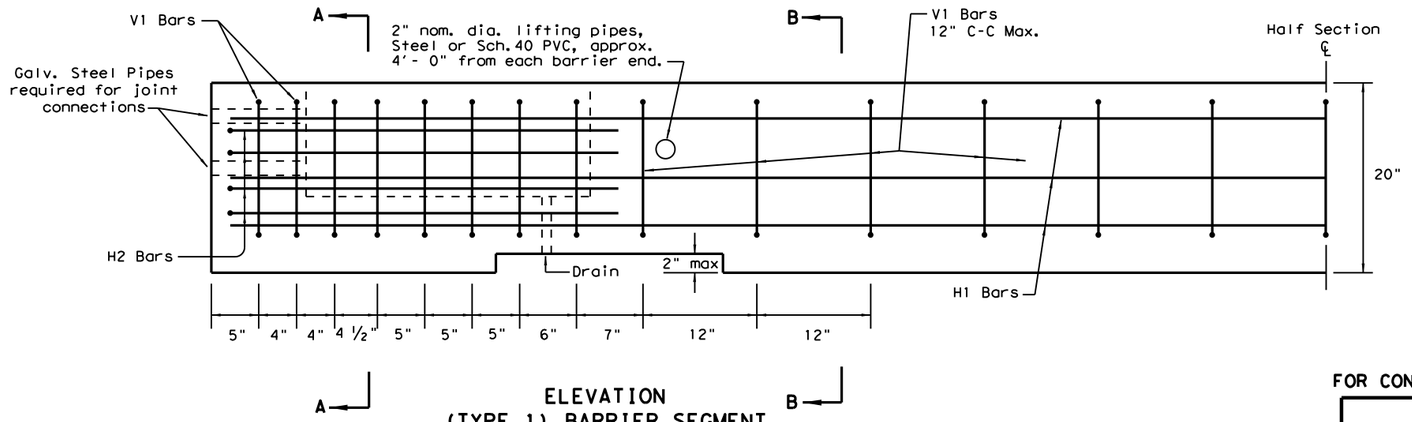
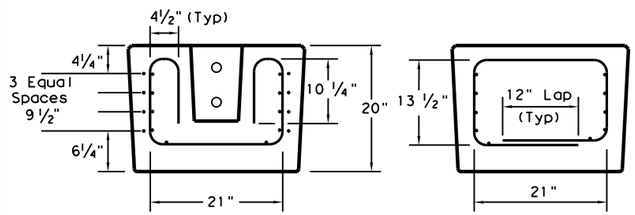


PLAN
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



ELEVATION
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



SECTION A-A　　SECTION B-B

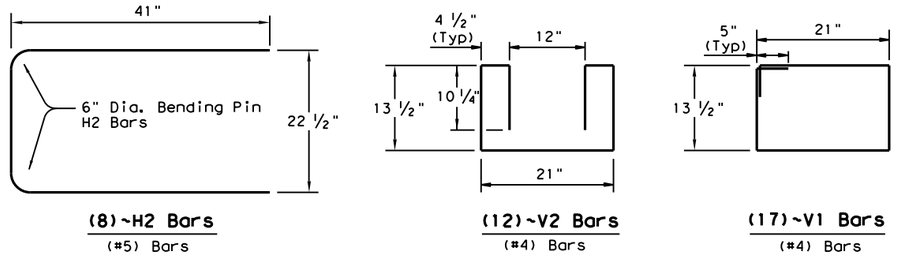
(WWR) GENERAL NOTES

1. Deformed Welded Wire Reinforcement shall conform to ASTM A497.
2. Welded wire cage may be cut or bent, if necessary, but must be approved by the Engineer.
3. Combinations of reinforcing steel and WWR are permitted, as directed by the Engineer. The dimensions from the end of the barrier section to the first wire shall not exceed 3".

REQUIRED (WWR) WIRE DESIGN

8 ~ (D31) Horizontal Wires (Equally spaced)
10 ~ (D20) Horizontal Wires (Equally spaced)
29 ~ (D20) Vertical Wires (Spaced as shown in Elevation View)

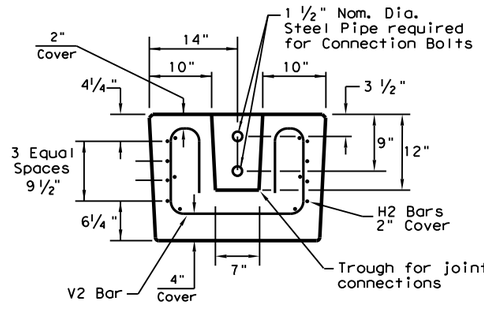
WELDED WIRE REINFORCEMENT (WWR)- OPTIONAL REINFORCING



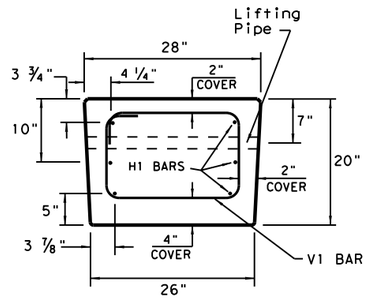
(8)~H2 Bars (#5) Bars　　(12)~V2 Bars (#4) Bars　　(17)~V1 Bars (#4) Bars

REINFORCING STEEL DETAILS
TYPE 1 - BARRIER SEGMENT

Note: Use 2" Dia. Bending Pin, unless otherwise shown



SECTION A-A



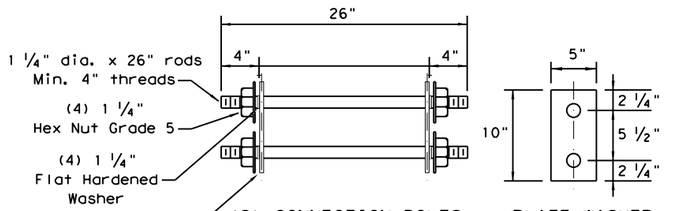
SECTION B-B

GENERAL NOTES

1. Low Profile Concrete Barrier (LPCB), is approved for use in temporary work zone locations, where the posted speed is 45 mph, or less.
2. Concrete shall be Class H for precast barrier with a minimum compressive strength of 3,600 psi.
3. Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
4. Precast LPCB barrier length shall be 20 ft.
5. All barrier edges shall have ¾" chamfer or a tooled radius.
6. Joint connection hardware shall be in accordance with Item 449, "Anchor Bolts." and is considered subsidiary.
7. Steel pipe required for joint connection bolts shall be galvanized in accordance with Item 445,"Galvanizing."
8. Welded wire reinforcement (WWR) may be used in lieu of conventional reinforcement for Type 1 barrier, and shall meet the requirements shown.

FOR CONTRACTORS INFORMATION ONLY

(TYPE 1) APPROX. QUANTITIES 20 FT. SECTION		
CONCRETE	CY	2.6
REINFORCING STEEL	LBS	330
TOTAL BARRIER WT.	LBS	11000



(2) CONNECTION BOLTS
ASTM A36

PLATE WASHER
5" x 10" x ⅜"

Note: Rods, Hex nuts and Washers shall be Galvanized.

SHEET 1 OF 2

Texas Department of Transportation　　Design Division Standard

LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER (TYPE 1)
LPCB-13

FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
©TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
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	SAT	KENDALL		69

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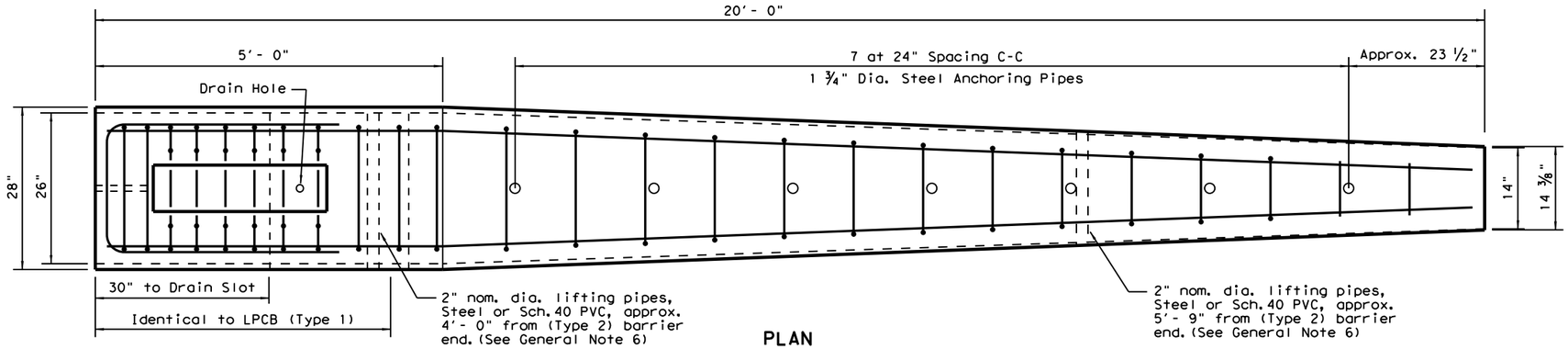
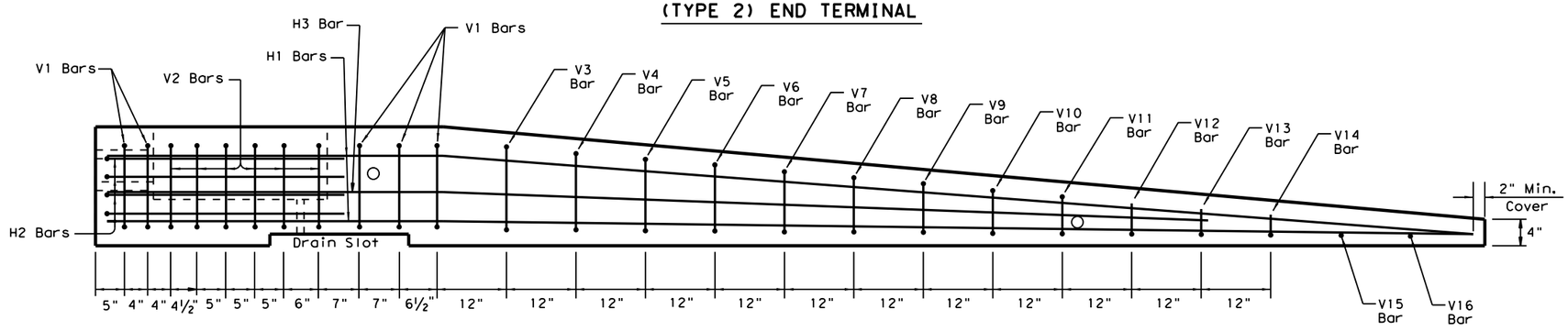
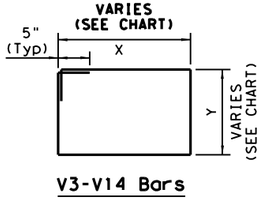


PLAN
(TYPE 2) END TERMINAL

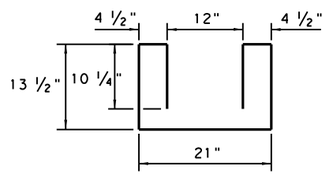


ELEVATION
(TYPE 2) END TERMINAL

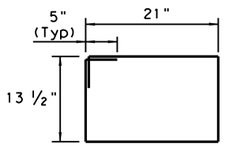
Note:
Anchoring pipes not shown in Elevation View



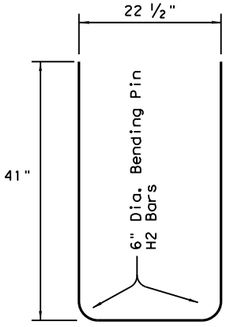
V3-V14 Bars



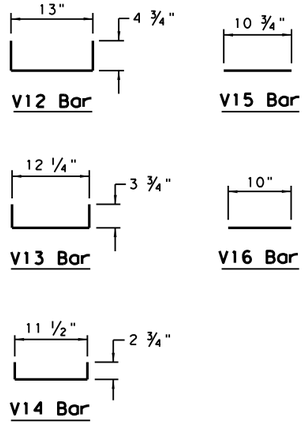
(6)~V2 Bars



(5)~V1 Bars



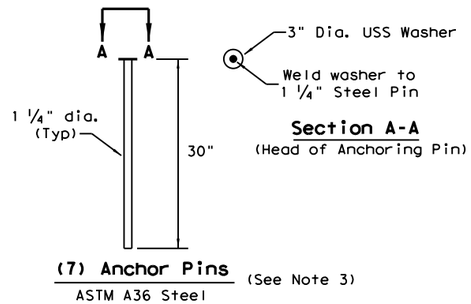
(4)~H2 Bars
(#5) Bars



Note: All V Bars are (#4)

BAR (#4)	X (IN.)	Y (IN.)
V3 BAR	20 ¼	14 ½
V4 BAR	19 ½	13 ½
V5 BAR	18 ½	12 ¼
V6 BAR	17 ½	11 ¼
V7 BAR	17	10 ¼
V8 BAR	16 ¼	9
V9 BAR	15 ½	8
V10 BAR	14 ½	7
V11 BAR	13 ¾	6

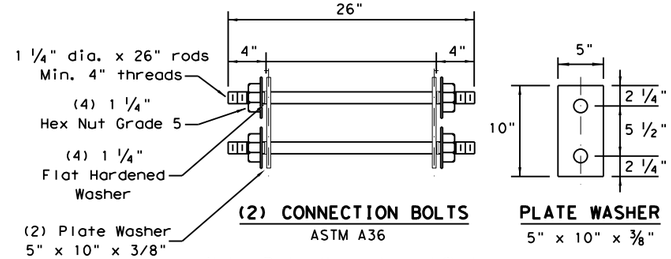
REINFORCING STEEL DETAILS
TYPE 2 - END TERMINAL



(7) Anchor Pins
ASTM A36 Steel

Section A-A
(Head of Anchoring Pin)

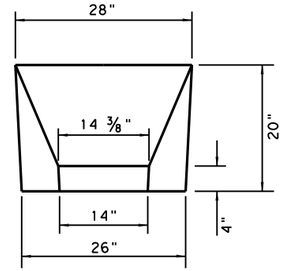
(See Note 3)



(2) CONNECTION BOLTS
ASTM A36

PLATE WASHER
5" x 10" x ⅜"

Note: Rods, Hex nuts and Washers shall be Galvanized.

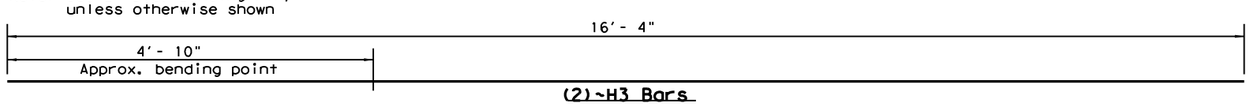


APPROACH VIEW

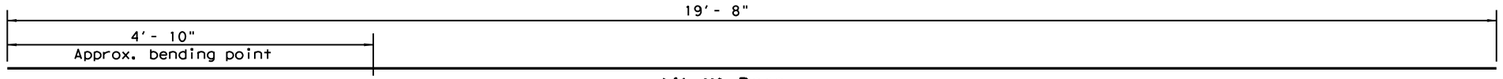
TYPE 2 - NOTES

1. Welded wire reinforcment (WWR) is "not" an option for Type 2 Barrier.
2. Type 2 Barrier shall be used as an end treatment for the Type 1 barrier segments, when applicable.
3. The end treatment can be used without the anchor pins in locations that can accommodate approximately 4 ft. of lateral displacement of the end treatment. The use of non-pinned end treatment does not affect the performance or the deflection of the Low-Profile barrier system.
4. The anchor pins are all the same length and are to be driven flush with the top of the (Type 2) barrier surface.
5. The bends in the H3 and H1 bars are slight, no formal bend is necessary.
6. The Type 2 barrier segment must be lifted from the rear first, to prevent cracking of sloped section.
7. See LPCB sheet 1 for additional information.

Note: Use 2" Dia. Bending Pin, unless otherwise shown



(2)~H3 Bars
(#5) Bar



(4)~H1 Bars
(#5) Bar

Note: Bends on H1 and H3 bars are slight and do not require formal bends.

FOR CONTRACTORS INFORMATION ONLY

(TYPE 2) APPROX. QUANTITIES 20 FT. SECTION		
CONCRETE	CY	1.65
REINFORCING STEEL	LBS	240
TOTAL BARRIER WT.	LBS	7000

SHEET 2 OF 2

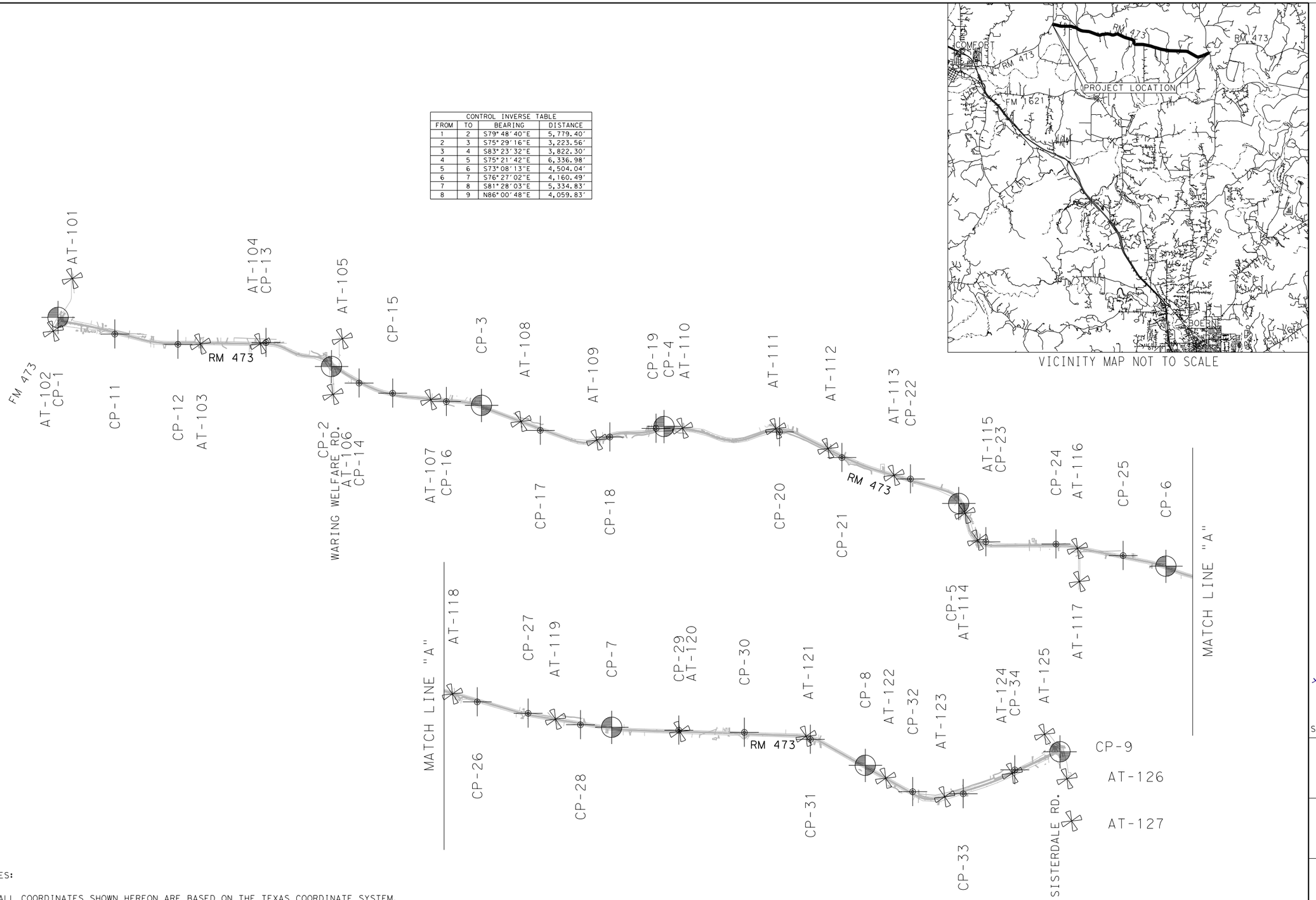
Texas Department of Transportation | Design Division Standard

LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER (TYPE 2)
LPCB-13

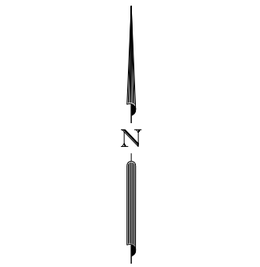
FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
© TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		70

DATE: 5/17/2024
FILE: lpcb13.dgn

CONTROL INVERSE TABLE			
FROM	TO	BEARING	DISTANCE
1	2	S79°48'40"E	5,779.40'
2	3	S75°29'16"E	3,223.56'
3	4	S83°23'32"E	3,822.30'
4	5	S75°21'42"E	6,336.98'
5	6	S73°08'13"E	4,504.04'
6	7	S76°27'02"E	4,160.49'
7	8	S81°28'03"E	5,334.83'
8	9	N86°00'48"E	4,059.83'



VICINITY MAP NOT TO SCALE



1" = 2000' (17"X11")
1" = 1000' (34"X22")
KENDALL COUNTY, TEXAS

NOTES:

1. ALL COORDINATES SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NAD 83, 2011 ADJUSTMENT (EPOCH 2010.00) / NAVD 88, GEOID 18. ALL COORDINATES SHOWN HEREON ARE SURFACE AND MAY BE CONVERTED TO GRID BY DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00013. UNITS: U.S. SURVEY FEET

2. CONTROL WAS ESTABLISHED USING STATIC AND GPS OBSERVATIONS PROCESSED TO CORS STATIONS TXBO, TXFR, TXJC AND TXKR.

3. A CALIBRATION SHOULD BE PERFORMED WHEN USING THE CONTROL SHOWN HEREON.

STATE OF TEXAS
REGISTERED
STEPHEN E. ANDERSON
6953
PROFESSIONAL
LAND SURVEYOR

Stephen E. Anderson 5/8/2024

Survey Date: October, 2023

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4801 Southwest Parkway
Building Two, Suite 100
Austin, Texas 78735
(512) 447-0575
Fax: (512) 326-3029
Texas Firm Registration No. 10064300

Texas Department of Transportation

SUVEY CONTROL LAYOUT SHEET

(SHEET 1 OF 4)

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		71
STATE	DISTRICT	COUNTY	
TEXAS	15	KENDALL	
CONTROL	SECTION	JOB	HIGHWAY NO.
0142	09	047	RM 473

FILE:J:\0230814004A\100\Survey\02Base\Control Sheets\814004_Control Layout ORD.dgn

PRIMARY HORIZONTAL / VERTICAL CONTROL - SURFACE COORDINATES				
PNT	NORTHING	EASTING	ELEV.	DESCRIPTION
1	13,912,399.39	2,020,314.80	1,375.97'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU15701861"
2	13,911,377.06	2,026,003.06	1,559.34'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU17441830"
3	13,910,569.28	2,029,123.76	1,551.55'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU18391805"
4	13,910,129.45	2,032,920.68	1,513.73'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU19541792"
5	13,908,527.98	2,039,051.96	1,487.73'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU21411743"
6	13,907,221.41	2,043,362.33	1,487.30'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU22721703"
7	13,906,246.66	2,047,407.03	1,442.89'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU23961673"
8	13,905,455.14	2,052,682.81	1,405.99'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU25561649"
9	13,905,737.39	2,056,732.81	1,287.27'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU26801658"

SECONDARY HORIZONTAL / VERTICAL CONTROL - SURFACE COORDINATES				
PNT	NORTHING	EASTING	ELEV.	DESCRIPTION
11	13,912,051.43	2,021,495.26	1,422.56'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
12	13,911,837.51	2,022,808.06	1,452.40'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
13	13,911,876.08	2,024,640.49	1,495.64'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
14	13,911,032.13	2,026,576.92	1,580.89'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
15	13,910,821.40	2,027,274.72	1,585.70'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
16	13,910,647.14	2,028,392.09	1,552.46'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
17	13,910,046.94	2,030,347.21	1,491.87'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
18	13,909,909.08	2,031,794.25	1,492.26'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
19	13,910,088.90	2,032,754.95	1,514.14'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
20	13,910,015.05	2,035,324.76	1,477.53'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
21	13,909,481.25	2,036,621.94	1,509.98'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
22	13,909,036.81	2,038,047.48	1,502.62'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
23	13,907,728.85	2,039,617.06	1,462.31'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
24	13,907,681.52	2,041,075.79	1,492.59'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
25	13,907,442.21	2,042,472.59	1,487.96'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
26	13,906,775.03	2,044,609.63	1,462.58'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
27	13,906,537.90	2,045,668.40	1,482.56'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
28	13,906,297.92	2,046,756.52	1,466.75'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
29	13,906,185.66	2,048,803.46	1,457.50'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
30	13,906,140.61	2,050,167.25	1,437.11'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
31	13,905,994.58	2,051,539.87	1,426.87'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
32	13,904,906.06	2,053,669.00	1,410.45'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
33	13,904,861.76	2,054,719.62	1,382.50'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
34	13,905,359.61	2,055,793.44	1,314.17'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"

AERIAL TARGETS HORIZONTAL / VERTICAL CONTROL - SURFACE COORDINATES				
PNT	NORTHING	EASTING	ELEV.	DESCRIPTION
101	13,913,208.39	2,020,611.77	1,381.56'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
102	13,912,113.21	2,020,214.62	1,372.42'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
103	13,911,845.67	2,023,275.84	1,459.45'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
104	13,911,852.23	2,024,523.21	1,490.16'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
105	13,911,955.04	2,026,228.35	1,592.62'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
106	13,910,796.40	2,026,033.73	1,536.96'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
107	13,910,686.81	2,028,069.06	1,569.30'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
108	13,910,234.64	2,029,945.01	1,506.83'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
109	13,909,847.74	2,031,522.28	1,475.55'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
110	13,910,093.26	2,033,306.25	1,492.81'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
111	13,910,082.78	2,035,246.10	1,471.65'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
112	13,909,670.92	2,036,331.88	1,502.43'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
113	13,909,112.94	2,037,705.32	1,504.90'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
114	13,908,320.88	2,039,182.66	1,486.24'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
115	13,907,763.82	2,039,446.02	1,466.85'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
116	13,907,590.04	2,041,522.10	1,491.22'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
117	13,906,901.53	2,041,562.57	1,451.52'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
118	13,906,939.71	2,044,093.76	1,476.58'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
119	13,906,414.25	2,046,239.10	1,482.23'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
120	13,906,157.66	2,048,821.52	1,458.49'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
121	13,906,059.66	2,051,451.26	1,429.98'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
122	13,905,186.92	2,053,107.42	1,411.68'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
123	13,904,800.99	2,054,334.64	1,399.00'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
124	13,905,289.80	2,055,739.06	1,319.02'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
125	13,906,100.96	2,056,413.82	1,288.54'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
126	13,905,174.81	2,056,879.74	1,290.65'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
127	13,904,296.12	2,056,974.99	1,286.35'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON

PRIMARY HORIZONTAL / VERTICAL CONTROL - GRID COORDINATES				
PNT	NORTHING	EASTING	ELEV.	DESCRIPTION
1	13,910,591.01	2,020,052.19	1,375.97'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU15701861"
2	13,909,568.82	2,025,739.71	1,559.34'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU17441830"
3	13,908,761.15	2,028,860.01	1,551.55'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU18391805"
4	13,908,321.37	2,032,656.43	1,513.73'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU19541792"
5	13,906,720.10	2,038,786.92	1,487.73'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU21411743"
6	13,905,413.71	2,043,096.73	1,487.30'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU22721703"
7	13,904,439.09	2,047,140.90	1,442.89'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU23961673"
8	13,903,647.66	2,052,415.99	1,405.99'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU25561649"
9	13,903,929.88	2,056,465.47	1,287.27'	1/2"IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU26801658"

SECONDARY HORIZONTAL / VERTICAL CONTROL - GRID COORDINATES				
PNT	NORTHING	EASTING	ELEV.	DESCRIPTION
11	13,910,243.10	2,021,232.50	1,422.56'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
12	13,910,029.21	2,022,545.13	1,452.40'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
13	13,910,067.77	2,024,377.32	1,495.64'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
14	13,909,223.93	2,026,313.50	1,580.89'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
15	13,909,013.23	2,027,011.21	1,585.70'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
16	13,908,838.99	2,028,128.43	1,552.46'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
17	13,908,238.87	2,030,083.30	1,491.87'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
18	13,908,101.03	2,031,530.15	1,492.26'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
19	13,908,280.82	2,032,490.73	1,514.14'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
20	13,908,206.98	2,035,060.20	1,477.53'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
21	13,907,673.25	2,036,357.21	1,509.98'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
22	13,907,228.87	2,037,782.57	1,502.62'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
23	13,905,921.08	2,039,351.95	1,462.31'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
24	13,905,873.75	2,040,810.48	1,492.59'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
25	13,905,634.47	2,042,207.10	1,487.96'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
26	13,904,967.39	2,044,343.87	1,462.58'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
27	13,904,730.28	2,045,402.49	1,482.56'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
28	13,904,490.34	2,046,490.48	1,466.75'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
29	13,904,378.10	2,048,537.15	1,457.50'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
30	13,904,333.05	2,049,900.76	1,437.11'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
31	13,904,187.04	2,051,273.20	1,426.87'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
32	13,903,098.65	2,053,402.06	1,410.45'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
33	13,903,054.36	2,054,452.54	1,382.50'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"
34	13,903,552.15	2,055,526.22	1,314.17'	5/8"IRON ROD SET W/ALUMINUM CAP STAMPED "SAM LLC"

AERIAL TARGETS HORIZONTAL / VERTICAL CONTROL - GRID COORDINATES				
PNT	NORTHING	EASTING	ELEV.	DESCRIPTION
101	13,911,399.91	2,020,349.13	1,381.56'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
102	13,910,304.87	2,019,952.02	1,372.42'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
103	13,910,037.36	2,023,012.85	1,459.45'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
104	13,910,043.93	2,024,260.06	1,490.16'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
105	13,910,146.72	2,025,964.98	1,592.62'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
106	13,908,988.23	2,025,770.38	1,536.96'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
107	13,908,878.66	2,027,805.45	1,569.30'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
108	13,908,426.55	2,029,681.15	1,506.83'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
109	13,908,039.70	2,031,258.21	1,475.55'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
110	13,908,285.18	2,033,041.95	1,492.81'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
111	13,908,274.70	2,034,981.56	1,471.65'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
112	13,907,862.90	2,036,067.19	1,502.43'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
113	13,907,304.99	2,037,440.45	1,504.90'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
114	13,906,513.03	2,038,917.60	1,486.24'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
115	13,905,956.04	2,039,180.93	1,466.85'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
116	13,905,782.29	2,041,256.74	1,491.22'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
117	13,905,093.87	2,041,297.20	1,451.52'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
118	13,905,132.05	2,043,828.06	1,476.58'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
119	13,904,606.65	2,045,973.12	1,482.23'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
120	13,904,350.10	2,048,555.21	1,458.49'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
121	13,904,252.11	2,051,184.60	1,429.98'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
122	13,903,379.48	2,052,840.55	1,411.68'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
123	13,902,993.60	2,054,067.61	1,399.00'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
124	13,903,482.35	2,055,471.85	1,319.02'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
125	13,904,293.40	2,056,146.51	1,288.54'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
126	13,903,367.37	2,056,612.38	1,290.65'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON
127	13,902,488.79	2,056,707.62	1,286.35'	AERIAL TARGET SET W/MAG NAIL IN CHEVRON

NOTES:

1. ALL COORDINATES SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NAD 83, 2011 ADJUSTMENT (EPOCH 2010.00) / NAVD 88, GEOID 18. ALL COORDINATES SHOWN HEREON ARE SURFACE AND MAY BE CONVERTED TO GRID BY DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00013. UNITS: U.S. SURVEY FEET

2. CONTROL WAS ESTABLISHED USING STATIC AND GPS OBSERVATIONS PROCESSED TO CORS STATIONS TXBO, TXFR, TXJC AND TXKR.

3. A CALIBRATION SHOULD BE PERFORMED WHEN USING THE CONTROL SHOWN HEREON.

STATE OF TEXAS
REGISTERED
STEPHEN E. ANDERSON
6953
PROFESSIONAL
LAND SURVEYOR

Stephen E. Anderson 5/8/2024

Survey Date: October, 2023

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Fax: (512) 326-3029
Texas Firm Registration No. 10064300

Texas Department of Transportation

HORIZONTAL / VERTICAL CONTROL LAYOUT SHEET

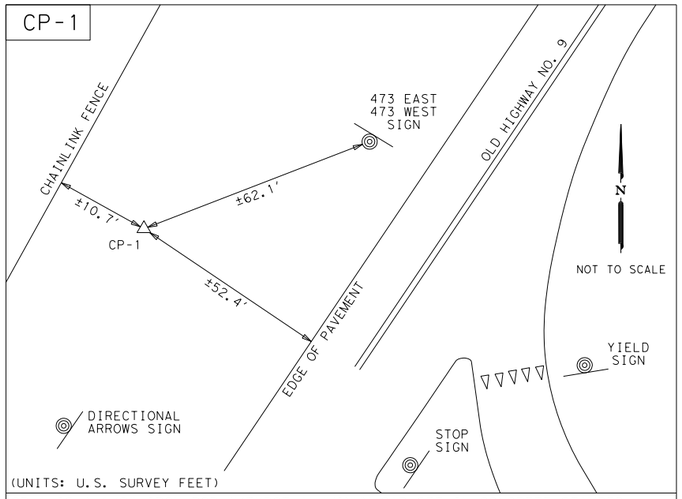
(SHEET 2 OF 4)

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.	SHEET NO.
	SEE TITLE SHEET	72

STATE	DISTRICT	COUNTY	
TEXAS	15	KENDALL	
CONTROL	SECTION	JOB	HIGHWAY NO.
0142	09	047	RM 473

FILE:J:\102308140A\100\Survey\02Base\Control Sheets\81400A_Control Layout ORD.dgn

CP-1

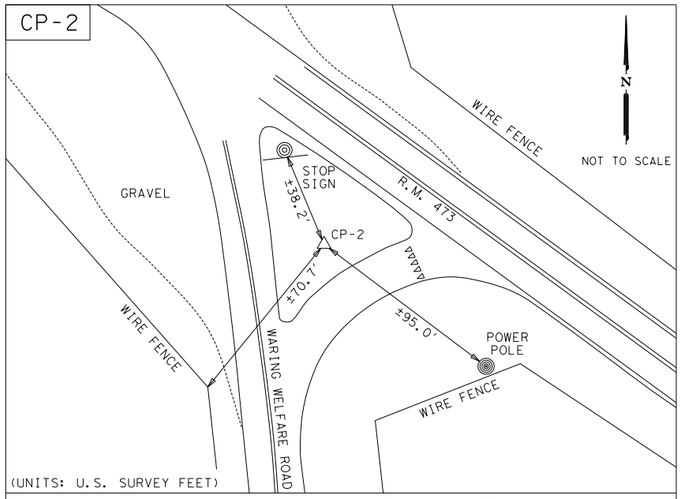


(UNITS: U.S. SURVEY FEET)

CP-1 IS A 1/2" IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU15701861" ON THE WEST SIDE OF OLD HIGHWAY NO. 9, APPROXIMATELY 83 FEET NORTHWEST OF THE INTERSECTION OF OLD HIGHWAY NO. 9 AND R.M. 473, 10.7 FEET SOUTHEAST OF A CHAINLINK FENCE, 52.4 FEET NORTHWEST FROM THE EDGE OF PAVEMENT OF OLD HIGHWAY NO. 9, AND 62.1 FEET SOUTHWEST OF THE 473 EAST/473 WEST SIGN.

SURFACE COORDINATES	GRID COORDINATES
N = 13,912,399.39	N = 13,910,591.01
E = 2,020,314.80	E = 2,020,052.19
ELEV. = 1,375.97'	ELEV. = 1,375.97'

CP-2

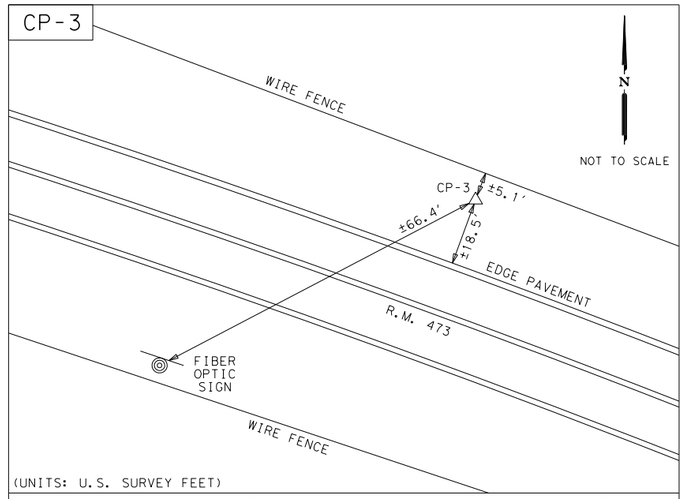


(UNITS: U.S. SURVEY FEET)

CP-2 IS A 1/2" IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU17441830" ON THE ISLAND BETWEEN NORTHBOUND AND SOUTHBOUND LANES OF WARING WELFARE ROAD, AT THE INTERSECTION OF R.M. 473 AND WARING WELFARE ROAD, 95.0 FEET NORTHWEST OF A POWER POLE, 70.7 FEET NORTHEAST OF A WIRE FENCE CORNER, AND 38.2 FEET SOUTHEAST OF A STOP SIGN.

SURFACE COORDINATES	GRID COORDINATES
N = 13,911,377.06	N = 13,909,568.82
E = 2,026,003.06	E = 2,025,739.71
ELEV. = 1,559.34'	ELEV. = 1,559.34'

CP-3

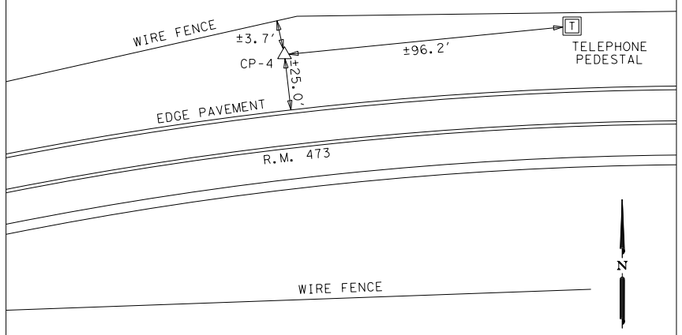


(UNITS: U.S. SURVEY FEET)

CP-3 IS A 1/2" IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU18391805" ON THE NORTH SIDE OF R.M. 473, APPROXIMATELY 0.61 MILES EAST OF THE INTERSECTION OF R.M. 473 AND WARING WELFARE ROAD, 66.4 FEET NORTHEAST OF A FIBER OPTIC SIGN ON THE SOUTH SIDE OF R.M. 473, 18.5 FEET NORTHEAST OF THE EDGE OF PAVEMENT OF R.M. 473, AND 5.1 FEET SOUTHWEST OF A WIRE FENCE.

SURFACE COORDINATES	GRID COORDINATES
N = 13,910,569.28	N = 13,908,761.15
E = 2,029,123.76	E = 2,028,860.01
ELEV. = 1,551.55'	ELEV. = 1,551.55'

CP-4

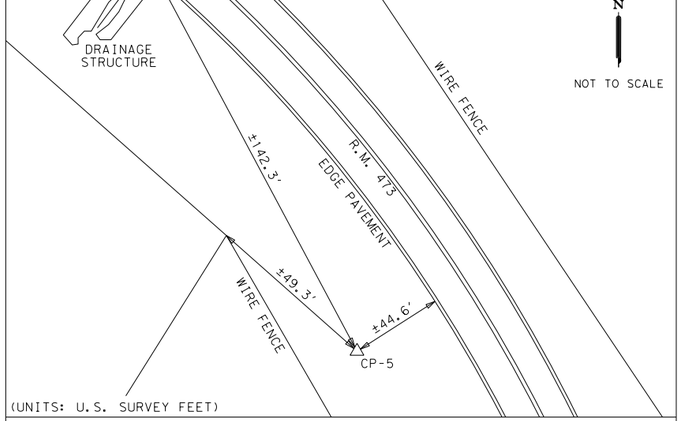


(UNITS: U.S. SURVEY FEET)

CP-4 IS A 1/2" IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU19541792" ON THE NORTH SIDE OF R.M. 473, APPROXIMATELY 1.37 MILES EAST OF THE INTERSECTION OF R.M. 473 AND WARING WELFARE ROAD, 96.2 FEET WEST OF A TELEPHONE PEDESTAL, 25.0 FEET NORTH OF THE EDGE OF PAVEMENT OF R.M. 473, AND 3.7 FEET SOUTH OF A WIRE FENCE.

SURFACE COORDINATES	GRID COORDINATES
N = 13,910,129.45	N = 13,908,321.37
E = 2,032,920.68	E = 2,032,656.43
ELEV. = 1,513.73'	ELEV. = 1,513.73'

CP-5

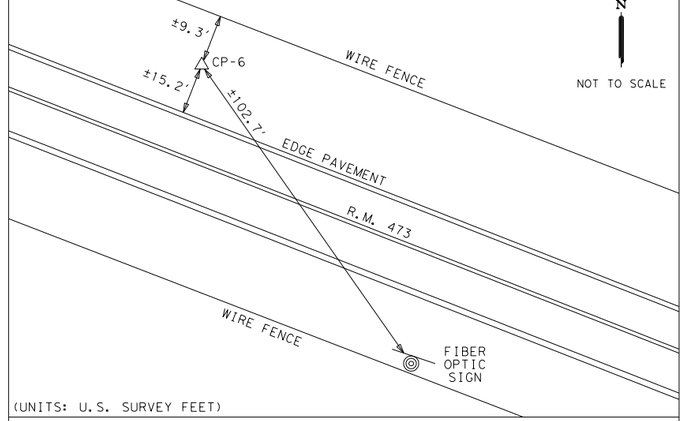


(UNITS: U.S. SURVEY FEET)

CP-5 IS A 1/2" IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU21411743" ON THE SOUTH SIDE OF R.M. 473, APPROXIMATELY 2.60 MILES EAST OF THE INTERSECTION OF R.M. 473 AND WARING WELFARE ROAD, 142.3 FEET SOUTHEAST OF A DRAINAGE STRUCTURE, 49.3 FEET SOUTHEAST OF A WIRE FENCE CORNER, AND 44.6 FEET SOUTHWEST OF THE EDGE OF PAVEMENT OF R.M. 473.

SURFACE COORDINATES	GRID COORDINATES
N = 13,908,527.98	N = 13,906,720.10
E = 2,039,051.96	E = 2,038,786.92
ELEV. = 1,487.73'	ELEV. = 1,487.73'

CP-6



(UNITS: U.S. SURVEY FEET)

CP-6 IS A 1/2" IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU22721703" ON THE NORTH SIDE OF R.M. 473, APPROXIMATELY 2.64 MILES WEST OF THE INTERSECTION OF R.M. 473 AND R.M. 1376, 102.7 FEET NORTHWEST OF A FIBER OPTIC SIGN ON THE SOUTH SIDE OF R.M. 473, 15.2 FEET NORTHEAST OF THE EDGE OF PAVEMENT OF R.M. 473, AND 9.3 FEET SOUTHWEST OF A WIRE FENCE.

SURFACE COORDINATES	GRID COORDINATES
N = 13,907,221.41	N = 13,905,413.71
E = 2,043,362.33	E = 2,043,096.73
ELEV. = 1,487.30'	ELEV. = 1,487.30'

NOTES:

1. ALL COORDINATES SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NAD 83, 2011 ADJUSTMENT (EPOCH 2010.00) / NAVD 88, GEOID 18. ALL COORDINATES SHOWN HEREON ARE SURFACE AND MAY BE CONVERTED TO GRID BY DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00013. UNITS: U.S. SURVEY FEET

2. CONTROL WAS ESTABLISHED USING STATIC AND GPS OBSERVATIONS PROCESSED TO CORS STATIONS TXBO, TXFR, TXJC AND TXKR.

3. A CALIBRATION SHOULD BE PERFORMED WHEN USING THE CONTROL SHOWN HEREON.

STATE OF TEXAS
REGISTERED
STEPHEN E. ANDERSON
6953
PROFESSIONAL
LAND SURVEYOR

Stephen E. Anderson 5/8/2024

Survey Date: October, 2023

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Texas Firm Registration No. 10064300

Texas Department of Transportation

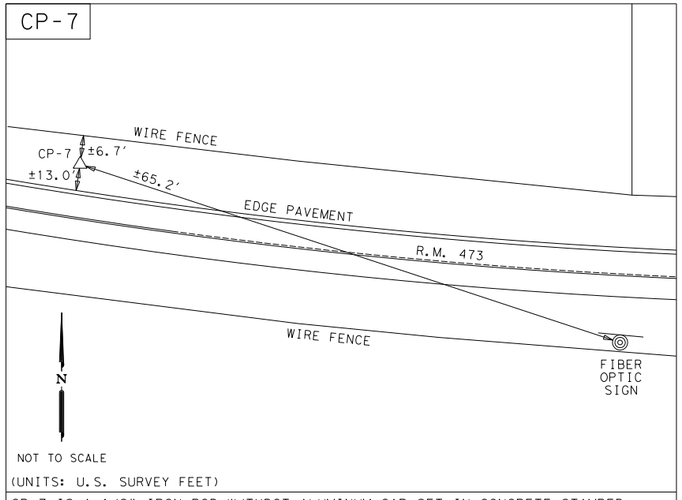
HORIZONTAL / VERTICAL CONTROL LAYOUT SHEET

(SHEET 3 OF 4)

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.	SHEET NO.
	SEE TITLE SHEET	73

STATE	DISTRICT	COUNTY	
TEXAS	15	KENDALL	
CONTROL	SECTION	JOB	HIGHWAY NO.
0142	09	047	RM 473

CP-7

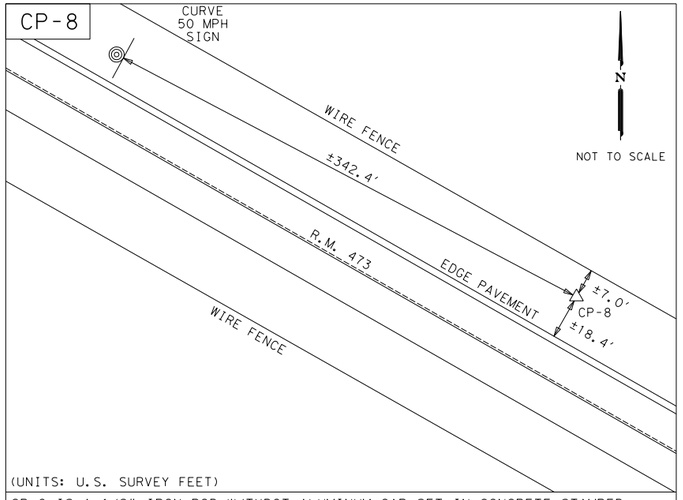


(UNITS: U.S. SURVEY FEET)

CP-7 IS A 1/2" IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU23961673" ON THE NORTH SIDE OF R.M. 473, APPROXIMATELY 1.85 MILES WEST OF THE INTERSECTION OF R.M. 473 AND R.M. 1376, 65.2 FEET NORTHWEST OF A FIBER OPTIC SIGN ON THE SOUTH SIDE OF R.M. 473, 13.0′ NORTH OF THE EDGE OF PAVEMENT OF R.M. 473, AND 6.7 FEET SOUTH OF A WIRE FENCE.

SURFACE COORDINATES	GRID COORDINATES
N = 13,906,246.66	N = 13,904,439.09
E = 2,047,407.03	E = 2,047,140.90
ELEV. = 1,442.89′	ELEV. = 1,442.89′

CP-8

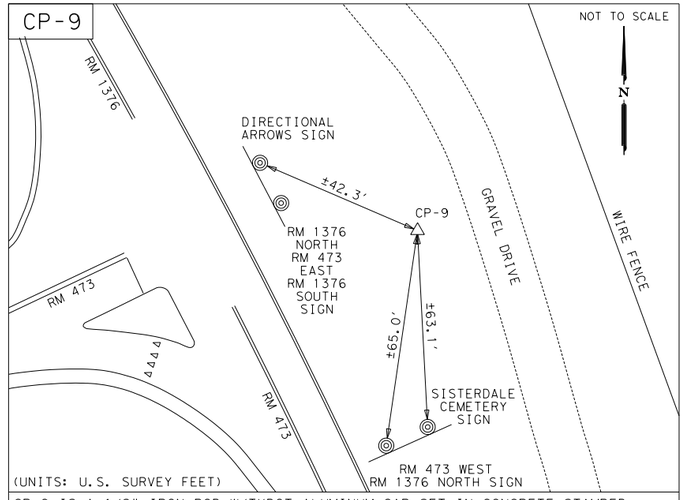


(UNITS: U.S. SURVEY FEET)

CP-8 IS A 1/2" IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU25561649" ON THE NORTH SIDE OF R.M. 473, APPROXIMATELY 0.82 MILES WEST OF THE INTERSECTION OF R.M. 473 AND R.M. 1376, 342.4 FEET SOUTHEAST OF A CURVE 50 MPH SIGN, 18.4 FEET NORTHEAST OF THE EDGE OF PAVEMENT OF R.M. 473, AND 7.0 FEET SOUTHWEST OF A WIRE FENCE.

SURFACE COORDINATES	GRID COORDINATES
N = 13,905,455.14	N = 13,903,647.66
E = 2,052,682.81	E = 2,052,415.99
ELEV. = 1,405.99′	ELEV. = 1,405.99′

CP-9



(UNITS: U.S. SURVEY FEET)

CP-9 IS A 1/2" IRON ROD W/TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED "NU26801658" ON THE EAST SIDE OF R.M. 473, AT THE INTERSECTION OF R.M. 473 AND R.M. 1376, APPROXIMATELY 65.0 FEET NORTHEAST OF A R.M. 473 WEST/R.M. 1376 NORTH SIGN, 63.1 FEET NORTHEAST OF A SISTERDALE CEMETERY SIGN, AND 42.3 FEET SOUTHEAST OF A DIRECTIONAL ARROWS SIGN.

SURFACE COORDINATES	GRID COORDINATES
N = 13,905,737.39	N = 13,903,929.88
E = 2,056,732.81	E = 2,056,465.47
ELEV. = 1,287.27′	ELEV. = 1,287.27′

NOTES:

1. ALL COORDINATES SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NAD 83, 2011 ADJUSTMENT (EPOCH 2010.00) / NAVD 88, GEOID 18. ALL COORDINATES SHOWN HEREON ARE SURFACE AND MAY BE CONVERTED TO GRID BY DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00013. UNITS: U.S. SURVEY FEET

2. CONTROL WAS ESTABLISHED USING STATIC AND GPS OBSERVATIONS PROCESSED TO CORS STATIONS TXBO, TXFR, TXJC AND TXKR.

3. A CALIBRATION SHOULD BE PERFORMED WHEN USING THE CONTROL SHOWN HEREON.

STATE OF TEXAS
REGISTERED
STEPHEN E. ANDERSON
6953
PROFESSIONAL
LAND SURVEYOR

Stephen E. Anderson 5/8/2024

Survey Date: October, 2023

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Texas Firm Registration No. 10064300

Texas Department of Transportation

HORIZONTAL / VERTICAL CONTROL LAYOUT SHEET

(SHEET 4 OF 4)

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		74
STATE	DISTRICT	COUNTY	
TEXAS	15	KENDALL	
CONTROL	SECTION	JOB	HIGHWAY NO.
0142	09	047	RM 473

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:24:46 AM

℄ RM473

Beginning chain RM_473 description
Feature: Road_Centerline

Point 61 N 13,910,517.6614 E 2,020,097.2714 Sta 268+40.00

Course from 61 to PC RM_473_3 S 79° 21′ 17.73" E Dist 485.0998

Curve Data

Curve RM_473_3					
P.I. Station	275+43.28	N	13,910,387.7485	E	2,020,788.4466
Delta =	3° 17′ 19.53" (RT)				
Degree =	0° 45′ 14.01"				
Tangent =	218.1786				
Length =	436.2375				
Radius =	7,600.0000				
External =	3.1311				
Long Chord =	436.1776				
Mid. Ord. =	3.1298				
P.C. Station	273+25.10	N	13,910,428.0515	E	2,020,574.0228
P.T. Station	277+61.34	N	13,910,335.2108	E	2,021,000.2052
C.C.		N	13,902,958.8450	E	2,019,170.1158
Back = S	79° 21′ 17.73" E				
Ahead = S	76° 03′ 58.19" E				
Chord Bear = S	77° 42′ 37.96" E				

Course from PT RM_473_3 to PC RM_473_6 S 76° 03′ 58.20" E Dist 206.4162

Curve Data

Curve RM_473_6					
P.I. Station	281+82.46	N	13,910,233.8044	E	2,021,408.9344
Delta =	0° 54′ 40.38" (RT)				
Degree =	0° 12′ 43.94"				
Tangent =	214.7047				
Length =	429.4003				
Radius =	27,000.0000				
External =	0.8537				
Long Chord =	429.3958				
Mid. Ord. =	0.8536				
P.C. Station	279+67.75	N	13,910,285.5056	E	2,021,200.5475
P.T. Station	283+97.15	N	13,910,178.7958	E	2,021,616.4727
C.C.		N	13,884,079.9954	E	2,014,698.9141
Back = S	76° 03′ 58.19" E				
Ahead = S	75° 09′ 17.82" E				
Chord Bear = S	75° 36′ 38.01" E				

Course from PT RM_473_6 to PC RM_473_9 S 75° 09′ 17.82" E Dist 193.0247

Curve Data

Curve RM_473_9					
P.I. Station	288+72.19	N	13,910,057.0897	E	2,022,075.6497
Delta =	14° 07′ 57.44" (LT)				
Degree =	2° 31′ 06.58"				
Tangent =	282.0079				
Length =	561.1533				
Radius =	2,275.0000				
External =	17.4121				
Long Chord =	559.7318				
Mid. Ord. =	17.2799				
P.C. Station	285+90.18	N	13,910,129.3418	E	2,021,803.0546
P.T. Station	291+51.33	N	13,910,053.5832	E	2,022,357.6359
C.C.		N	13,912,328.4074	E	2,022,385.9230
Back = S	75° 09′ 17.82" E				
Ahead = S	89° 17′ 15.26" E				
Chord Bear = S	82° 13′ 16.54" E				

Curve Data

Curve RM_473_10					
P.I. Station	292+01.35	N	13,910,052.9614	E	2,022,407.6456
Delta =	3° 16′ 26.56" (LT)				
Degree =	3° 16′ 26.56"				
Tangent =	50.0136				
Length =	100.0000				
Radius =	1,750.0000				
External =	0.7145				
Long Chord =	99.9864				
Mid. Ord. =	0.7142				
P.C. Station	291+51.33	N	13,910,053.5832	E	2,022,357.6359
P.T. Station	292+51.33	N	13,910,055.1967	E	2,022,457.6092
C.C.		N	13,911,803.4479	E	2,022,379.3952
Back = S	89° 17′ 15.26" E				
Ahead = N	87° 26′ 18.18" E				
Chord Bear = N	89° 04′ 31.46" E				

Course from PT RM_473_10 to PC RM_473_13 N 87° 26′ 18.18" E Dist 92.3621

Curve Data

Curve RM_473_13					
P.I. Station	294+97.25	N	13,910,066.1878	E	2,022,703.2856
Delta =	3° 59′ 51.45" (RT)				
Degree =	1° 18′ 07.84"				
Tangent =	153.5601				
Length =	306.9955				
Radius =	4,400.0000				
External =	2.6788				
Long Chord =	306.9332				
Mid. Ord. =	2.6772				
P.C. Station	293+43.69	N	13,910,059.3247	E	2,022,549.8790
P.T. Station	296+50.69	N	13,910,062.3396	E	2,022,856.7974
C.C.		N	13,905,663.7214	E	2,022,746.5314
Back = N	87° 26′ 18.18" E				
Ahead = S	88° 33′ 50.37" E				
Chord Bear = N	89° 26′ 13.91" E				

Course from PT RM_473_13 to PC RM_473_16 S 88° 33′ 50.37" E Dist 176.4151

Curve Data

Curve RM_473_16					
P.I. Station	298+89.55	N	13,910,056.3535	E	2,023,095.5863
Delta =	0° 38′ 40.87" (LT)				
Degree =	0° 30′ 58.24"				
Tangent =	62.4488				
Length =	124.8962				
Radius =	11,100.0000				
External =	0.1757				
Long Chord =	124.8956				
Mid. Ord. =	0.1757				
P.C. Station	298+27.10	N	13,910,057.9185	E	2,023,033.1572
P.T. Station	299+52.00	N	13,910,055.4911	E	2,023,158.0291
C.C.		N	13,921,154.4324	E	2,023,311.3282
Back = S	88° 33′ 50.37" E				
Ahead = S	89° 12′ 31.24" E				
Chord Bear = S	88° 53′ 10.81" E				

Course from PT RM_473_16 to PC RM_473_19 S 89° 12′ 31.24" E Dist 1,262.0683

Curve Data

Curve RM_473_19					
P.I. Station	313+88.52	N	13,910,035.6517	E	2,024,594.4086
Delta =	26° 11′ 17.06" (RT)				
Degree =	7° 38′ 21.97"				
Tangent =	174.4482				
Length =	342.8011				
Radius =	750.0000				
External =	20.0209				
Long Chord =	339.8249				
Mid. Ord. =	19.5003				
P.C. Station	312+14.07	N	13,910,038.0610	E	2,024,419.9771
P.T. Station	315+56.87	N	13,909,956.5098	E	2,024,749.8716
C.C.		N	13,909,288.1325	E	2,024,409.6190
Back = S	89° 12′ 31.24" E				
Ahead = S	63° 01′ 14.18" E				
Chord Bear = S	76° 06′ 52.71" E				

Course from PT RM_473_19 to PC RM_473_22 S 63° 01′ 14.18" E Dist 127.3651

Curve Data

Curve RM_473_22					
P.I. Station	317+64.31	N	13,909,862.4000	E	2,024,934.7367
Delta =	6° 06′ 41.58" (LT)				
Degree =	3° 49′ 10.99"				
Tangent =	80.0759				
Length =	160.0000				
Radius =	1,500.0000				
External =	2.1359				
Long Chord =	159.9242				
Mid. Ord. =	2.1328				
P.C. Station	316+84.24	N	13,909,898.7281	E	2,024,863.3755
P.T. Station	318+44.24	N	13,909,833.8759	E	2,025,009.5600
C.C.		N	13,911,235.4827	E	2,025,543.8805
Back = S	63° 01′ 14.18" E				
Ahead = S	69° 07′ 55.76" E				
Chord Bear = S	66° 04′ 34.97" E				

Curve Data

Curve RM_473_23					
P.I. Station	319+41.18	N	13,909,799.3423	E	2,025,100.1471
Delta =	15° 46′ 12.02" (LT)				
Degree =	8° 11′ 06.40"				
Tangent =	96.9463				
Length =	192.6670				
Radius =	700.0000				
External =	6.6814				
Long Chord =	192.0594				
Mid. Ord. =	6.6182				
P.C. Station	318+44.24	N	13,909,833.8759	E	2,025,009.5600
P.T. Station	320+36.90	N	13,909,790.7280	E	2,025,196.7099
C.C.		N	13,910,487.9591	E	2,025,258.9096
Back = S	69° 07′ 55.76" E				
Ahead = S	84° 54′ 07.79" E				
Chord Bear = S	77° 01′ 01.77" E				

Course from PT RM_473_23 to PC RM_473_26 S 84° 54′ 07.79" E Dist 162.9503

Curve Data

Curve RM_473_26					
P.I. Station	323+97.86	N	13,909,758.6545	E	2,025,556.2393
Delta =	31° 35′ 20.07" (RT)				
Degree =	8° 11′ 06.40"				
Tangent =	198.0069				
Length =	385.9313				
Radius =	700.0000				
External =	27.4660				
Long Chord =	381.0620				
Mid. Ord. =	26.4290				
P.C. Station	321+99.85	N	13,909,776.2488	E	2,025,359.0157
P.T. Station	325+85.78	N	13,909,640.3574	E	2,025,715.0238
C.C.		N	13,909,079.0177	E	2,025,296.8160
Back = S	84° 54′ 07.79" E				
Ahead = S	53° 18′ 47.72" E				
Chord Bear = S	69° 06′ 27.75" E				

Course from PT RM_473_26 to PC RM_473_29 S 53° 18′ 47.72" E Dist 105.6211

NOTES:

1. HORIZONTAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

HORIZONTAL ALIGNMENT DATA SHEET

SHEET 1 OF 6

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	75

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-HAD.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:24:47 AM

℄ RM473

Curve Data

Curve RM_473_29					
P.I. Station	329+09.60	N	13,909,446.8962	E	2,025,974.6972
Delta =	7° 08′ 04.56"	(LT)			
Degree =	1° 38′ 13.28"				
Tangent =	218.1960				
Length =	435.8280				
Radius =	3,500.0000				
External =	6.7948				
Long Chord =	435.5465				
Mid. Ord. =	6.7816				
P.C. Station	326+91.40	N	13,909,577.2552	E	2,025,799.7228
P.T. Station	331+27.23	N	13,909,339.2786	E	2,026,164.5075
C.C.		N	13,912,383.9537	E	2,027,890.7615
Back = S	53° 18′ 47.72" E				
Ahead = S	60° 26′ 52.28" E				
Chord Bear = S	56° 52′ 50.00" E				

Course from PT RM_473_29 to PC RM_473_32 S 60° 26′ 52.28" E Dist 159.7325

Curve Data

Curve RM_473_32					
P.I. Station	334+11.48	N	13,909,199.0837	E	2,026,411.7756
Delta =	4° 45′ 12.10"	(LT)			
Degree =	1° 54′ 35.49"				
Tangent =	124.5141				
Length =	248.8854				
Radius =	3,000.0000				
External =	2.5828				
Long Chord =	248.8140				
Mid. Ord. =	2.5806				
P.C. Station	332+86.97	N	13,909,260.4960	E	2,026,303.4599
P.T. Station	335+35.85	N	13,909,146.8584	E	2,026,524.8078
C.C.		N	13,911,870.2176	E	2,027,783.1062
Back = S	60° 26′ 52.28" E				
Ahead = S	65° 12′ 04.38" E				
Chord Bear = S	62° 49′ 28.33" E				

Course from PT RM_473_32 to PC RM_473_35 S 65° 12′ 04.38" E Dist 44.2763

Curve Data

Curve RM_473_35					
P.I. Station	337+45.18	N	13,909,059.0607	E	2,026,714.8302
Delta =	10° 46′ 32.38"	(LT)			
Degree =	3° 16′ 26.56"				
Tangent =	165.0487				
Length =	329.1239				
Radius =	1,750.0000				
External =	7.7659				
Long Chord =	328.6390				
Mid. Ord. =	7.7316				
P.C. Station	335+80.13	N	13,909,128.2875	E	2,026,565.0012
P.T. Station	339+09.25	N	13,909,019.0672	E	2,026,874.9601
C.C.		N	13,910,716.9137	E	2,027,299.0086
Back = S	65° 12′ 04.38" E				
Ahead = S	75° 58′ 36.77" E				
Chord Bear = S	70° 35′ 20.57" E				

Course from PT RM_473_35 to PC RM_473_38 S 75° 58′ 36.77" E Dist 62.1690

Curve Data

Curve RM_473_38					
P.I. Station	341+88.96	N	13,908,951.2910	E	2,027,146.3290
Delta =	8° 57′ 52.69"	(LT)			
Degree =	2° 03′ 52.97"				
Tangent =	217.5355				
Length =	434.1832				
Radius =	2,775.0000				
External =	8.5134				
Long Chord =	433.7404				
Mid. Ord. =	8.4873				
P.C. Station	339+71.42	N	13,909,004.0028	E	2,026,935.2764
P.T. Station	344+05.60	N	13,908,932.1103	E	2,027,363.0173
C.C.		N	13,911,696.3023	E	2,027,607.6961
Back = S	75° 58′ 36.77" E				
Ahead = S	84° 56′ 29.45" E				
Chord Bear = S	80° 27′ 33.11" E				

Course from PT RM_473_38 to PC RM_473_41 S 84° 56′ 29.45" E Dist 998.6865

Curve Data

Curve RM_473_41					
P.I. Station	356+56.96	N	13,908,821.7750	E	2,028,609.5004
Delta =	15° 20′ 58.58"	(RT)			
Degree =	3° 03′ 20.79"				
Tangent =	252.6703				
Length =	502.3147				
Radius =	1,875.0000				
External =	16.9480				
Long Chord =	500.8139				
Mid. Ord. =	16.7962				
P.C. Station	354+04.29	N	13,908,844.0536	E	2,028,357.8141
P.T. Station	359+06.60	N	13,908,733.6677	E	2,028,846.3113
C.C.		N	13,906,976.3563	E	2,028,192.4906
Back = S	84° 56′ 29.45" E				
Ahead = S	69° 35′ 30.87" E				
Chord Bear = S	77° 16′ 00.16" E				

Course from PT RM_473_41 to PC RM_473_44 S 69° 35′ 30.87" E Dist 1,612.6631

Curve Data

Curve RM_473_44					
P.I. Station	376+09.39	N	13,908,139.9002	E	2,030,442.2143
Delta =	0° 55′ 49.18"	(LT)			
Degree =	0° 30′ 58.24"				
Tangent =	90.1188				
Length =	180.2337				
Radius =	11,100.0000				
External =	0.3658				
Long Chord =	180.2317				
Mid. Ord. =	0.3658				
P.C. Station	375+19.27	N	13,908,171.3250	E	2,030,357.7520
P.T. Station	376+99.50	N	13,908,109.8509	E	2,030,527.1757
C.C.		N	13,918,574.6086	E	2,034,228.3707
Back = S	69° 35′ 30.87" E				
Ahead = S	70° 31′ 20.05" E				
Chord Bear = S	70° 03′ 25.46" E				

Course from PT RM_473_44 to PC RM_473_47 S 70° 31′ 20.05" E Dist 101.3414

Curve Data

Curve RM_473_47					
P.I. Station	379+05.87	N	13,908,041.0377	E	2,030,721.7381
Delta =	3° 26′ 15.89"	(LT)			
Degree =	1° 38′ 13.28"				
Tangent =	105.0315				
Length =	210.0000				
Radius =	3,500.0000				
External =	1.5756				
Long Chord =	209.9685				
Mid. Ord. =	1.5749				
P.C. Station	378+00.84	N	13,908,076.0595	E	2,030,622.7175
P.T. Station	380+10.84	N	13,908,012.0165	E	2,030,822.6807
C.C.		N	13,911,375.7579	E	2,031,789.7610
Back = S	70° 31′ 20.05" E				
Ahead = S	73° 57′ 35.94" E				
Chord Bear = S	72° 14′ 28.00" E				

Curve Data

Curve RM_473_48					
P.I. Station	382+16.13	N	13,907,955.2950	E	2,031,019.9719
Delta =	32° 41′ 19.61"	(LT)			
Degree =	8° 11′ 06.40"				
Tangent =	205.2832				
Length =	399.3688				
Radius =	700.0000				
External =	29.4801				
Long Chord =	393.9743				
Mid. Ord. =	28.2887				
P.C. Station	380+10.84	N	13,908,012.0165	E	2,030,822.6807
P.T. Station	384+10.21	N	13,908,014.1094	E	2,031,216.6494
C.C.		N	13,908,684.7648	E	2,031,016.0967
Back = S	73° 57′ 35.94" E				
Ahead = N	73° 21′ 04.45" E				
Chord Bear = N	89° 41′ 44.25" E				

Curve Data

Curve RM_473_49					
P.I. Station	384+85.27	N	13,908,035.6130	E	2,031,288.5581
Delta =	5° 22′ 17.33"	(LT)			
Degree =	3° 34′ 51.55"				
Tangent =	75.0550				
Length =	150.0000				
Radius =	1,600.0000				
External =	1.7594				
Long Chord =	149.9451				
Mid. Ord. =	1.7575				
P.C. Station	384+10.21	N	13,908,014.1094	E	2,031,216.6494
P.T. Station	385+60.21	N	13,908,063.7537	E	2,031,358.1379
C.C.		N	13,909,547.0360	E	2,030,758.2432
Back = N	73° 21′ 04.45" E				
Ahead = N	67° 58′ 47.12" E				
Chord Bear = N	70° 39′ 55.78" E				

Course from PT RM_473_49 to PC RM_473_52 N 67° 58′ 47.12" E Dist 131.7353

Curve Data

Curve RM_473_52					
P.I. Station	388+94.24	N	13,908,188.9910	E	2,031,667.7960
Delta =	22° 13′ 21.58"	(RT)			
Degree =	5° 33′ 45.71"				
Tangent =	202.2895				
Length =	399.4944				
Radius =	1,030.0000				
External =	19.6766				
Long Chord =	396.9950				
Mid. Ord. =	19.3078				
P.C. Station	386+91.95	N	13,908,113.1457	E	2,031,480.2633
P.T. Station	390+91.44	N	13,908,188.2763	E	2,031,870.0843
C.C.		N	13,907,158.2827	E	2,031,866.4455
Back = N	67° 58′ 47.12" E				
Ahead = S	89° 47′ 51.30" E				
Chord Bear = N	79° 05′ 27.91" E				

Course from PT RM_473_52 to PC RM_473_55 S 89° 47′ 51.30" E Dist 167.8122

NOTES:

1. HORIZONTAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

HORIZONTAL ALIGNMENT DATA SHEET

SHEET 2 OF 6

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	76

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-HAD.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:25:11 AM

℄ RM473

Curve Data

Curve RM_473_55					
P.I. Station	393+09.26	N	13,908,187.5068	E	2,032,087.9056
Delta =	2° 51′ 53.24"	(LT)			
Degree =	2° 51′ 53.24"				
Tangent =	50.0104				
Length =	100.0000				
Radius =	2,000.0000				
External =	0.6252				
Long Chord =	99.9896				
Mid. Ord. =	0.6250				
P.C. Station	392+59.25	N	13,908,187.6835	E	2,032,037.8954
P.T. Station	393+59.25	N	13,908,189.8298	E	2,032,137.8620
C.C.		N	13,910,187.6710	E	2,032,044.9611
Back = S	89° 47′ 51.30" E				
Ahead = N	87° 20′ 15.46" E				
Chord Bear = N	88° 46′ 12.08" E				

Curve Data

Curve RM_473_56					
P.I. Station	394+83.32	N	13,908,195.5928	E	2,032,261.7955
Delta =	11° 20′ 11.53"	(LT)			
Degree =	4° 35′ 01.18"				
Tangent =	124.0674				
Length =	247.3248				
Radius =	1,250.0000				
External =	6.1420				
Long Chord =	246.9216				
Mid. Ord. =	6.1120				
P.C. Station	393+59.25	N	13,908,189.8298	E	2,032,137.8620
P.T. Station	396+06.58	N	13,908,225.6051	E	2,032,382.1782
C.C.		N	13,909,438.4805	E	2,032,079.7989
Back = N	87° 20′ 15.46" E				
Ahead = N	76° 00′ 03.93" E				
Chord Bear = N	81° 40′ 09.70" E				

Course from PT RM_473_56 to PC RM_473_59 N 76° 00′ 03.93" E Dist 96.2569

Curve Data

Curve RM_473_59					
P.I. Station	397+52.85	N	13,908,260.9877	E	2,032,524.1014
Delta =	2° 51′ 53.24"	(RT)			
Degree =	2° 51′ 53.24"				
Tangent =	50.0104				
Length =	100.0000				
Radius =	2,000.0000				
External =	0.6252				
Long Chord =	99.9896				
Mid. Ord. =	0.6250				
P.C. Station	397+02.83	N	13,908,248.8900	E	2,032,475.5763
P.T. Station	398+02.83	N	13,908,270.6450	E	2,032,573.1705
C.C.		N	13,906,308.2893	E	2,032,959.3831
Back = N	76° 00′ 03.93" E				
Ahead = N	78° 51′ 57.17" E				
Chord Bear = N	77° 26′ 00.55" E				

Curve Data

Curve RM_473_60					
P.I. Station	399+95.89	N	13,908,307.9255	E	2,032,762.5936
Delta =	18° 16′ 44.19"	(RT)			
Degree =	4° 46′ 28.73"				
Tangent =	193.0568				
Length =	382.8333				
Radius =	1,200.0000				
External =	15.4304				
Long Chord =	381.2118				
Mid. Ord. =	15.2345				
P.C. Station	398+02.83	N	13,908,270.6450	E	2,032,573.1705
P.T. Station	401+85.67	N	13,908,283.9135	E	2,032,954.1514
C.C.		N	13,907,093.2316	E	2,032,804.8981
Back = N	78° 51′ 57.17" E				
Ahead = S	82° 51′ 18.64" E				
Chord Bear = N	88° 00′ 19.27" E				

Curve Data

Curve RM_473_61					
P.I. Station	402+85.68	N	13,908,271.4741	E	2,033,053.3881
Delta =	2° 17′ 30.59"	(RT)			
Degree =	1° 08′ 45.39"				
Tangent =	100.0133				
Length =	200.0000				
Radius =	5,000.0000				
External =	1.0002				
Long Chord =	199.9867				
Mid. Ord. =	1.0000				
P.C. Station	401+85.67	N	13,908,283.9135	E	2,032,954.1514
P.T. Station	403+85.67	N	13,908,255.0762	E	2,033,152.0480
C.C.		N	13,903,322.7388	E	2,032,332.2626
Back = S	82° 51′ 18.64" E				
Ahead = S	80° 33′ 48.04" E				
Chord Bear = S	81° 42′ 33.34" E				

Course from PT RM_473_61 to PC RM_473_64 S 80° 33′ 48.05" E Dist 50.3218

Curve Data

Curve RM_473_64					
P.I. Station	405+36.00	N	13,908,230.4277	E	2,033,300.3487
Delta =	2° 17′ 30.59"	(RT)			
Degree =	1° 08′ 45.30"				
Tangent =	100.0133				
Length =	200.0000				
Radius =	5,000.0000				
External =	1.0002				
Long Chord =	199.9867				
Mid. Ord. =	1.0000				
P.C. Station	404+35.99	N	13,908,246.8256	E	2,033,201.6888
P.T. Station	406+35.99	N	13,908,210.0976	E	2,033,398.2739
C.C.		N	13,903,314.4882	E	2,032,381.9034
Back = S	80° 33′ 48.04" E				
Ahead = S	78° 16′ 17.45" E				
Chord Bear = S	79° 25′ 02.75" E				

Curve Data

Curve RM_473_65					
P.I. Station	407+46.37	N	13,908,187.6597	E	2,033,506.3517
Delta =	11° 27′ 38.24"	(RT)			
Degree =	5° 12′ 31.35"				
Tangent =	110.3823				
Length =	220.0281				
Radius =	1,100.0000				
External =	5.5244				
Long Chord =	219.6615				
Mid. Ord. =	5.4968				
P.C. Station	406+35.99	N	13,908,210.0976	E	2,033,398.2739
P.T. Station	408+56.02	N	13,908,144.1948	E	2,033,607.8163
C.C.		N	13,907,133.0635	E	2,033,174.6724
Back = S	78° 16′ 17.45" E				
Ahead = S	66° 48′ 39.22" E				
Chord Bear = S	72° 32′ 28.33" E				

Course from PT RM_473_65 to PC RM_473_68 S 66° 48′ 39.22" E Dist 46.2031

Curve Data

Curve RM_473_68					
P.I. Station	410+88.46	N	13,908,052.6664	E	2,033,821.4801
Delta =	16° 10′ 58.00"	(LT)			
Degree =	4° 22′ 25.41"				
Tangent =	186.2397				
Length =	370.0000				
Radius =	1,310.0000				
External =	13.1724				
Long Chord =	368.7714				
Mid. Ord. =	13.0413				
P.C. Station	409+02.22	N	13,908,126.0015	E	2,033,650.2867
P.T. Station	412+72.22	N	13,908,029.9491	E	2,034,006.3292
C.C.		N	13,909,330.1669	E	2,034,166.1216
Back = S	66° 48′ 39.22" E				
Ahead = S	82° 59′ 37.21" E				
Chord Bear = S	74° 54′ 08.22" E				

Curve Data

Curve RM_473_69					
P.I. Station	414+70.68	N	13,908,005.7416	E	2,034,203.3028
Delta =	24° 52′ 12.56"	(LT)			
Degree =	6° 21′ 58.31"				
Tangent =	198.4556				
Length =	390.6595				
Radius =	900.0000				
External =	21.6206				
Long Chord =	387.5998				
Mid. Ord. =	21.1134				
P.C. Station	412+72.22	N	13,908,029.9491	E	2,034,006.3292
P.T. Station	416+62.88	N	13,908,066.6190	E	2,034,392.1904
C.C.		N	13,908,923.2285	E	2,034,116.1102
Back = S	82° 59′ 37.21" E				
Ahead = N	72° 08′ 10.22" E				
Chord Bear = N	84° 34′ 16.50" E				

Curve Data

Curve RM_473_70					
P.I. Station	417+30.39	N	13,908,087.3283	E	2,034,456.4463
Delta =	2° 29′ 42.50"	(LT)			
Degree =	1° 50′ 53.70"				
Tangent =	67.5107				
Length =	135.0000				
Radius =	3,100.0000				
External =	0.7350				
Long Chord =	134.9893				
Mid. Ord. =	0.7348				
P.C. Station	416+62.88	N	13,908,066.6190	E	2,034,392.1904
P.T. Station	417+97.88	N	13,908,110.8153	E	2,034,519.7397
C.C.		N	13,911,017.1626	E	2,033,441.2475
Back = N	72° 08′ 10.22" E				
Ahead = N	69° 38′ 27.72" E				
Chord Bear = N	70° 53′ 18.97" E				

Course from PT RM_473_70 to PC RM_473_73 N 69° 38′ 27.72" E Dist 255.8060

NOTES:

1. HORIZONTAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED PROFESSIONAL ENGINEER
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

HORIZONTAL ALIGNMENT DATA SHEET

SHEET 3 OF 6

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	77

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PEN TABLE: $PENTAB$
FILE: RM473-RD-HAD.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:25:12 AM

℄ RM473

Curve Data

Curve RM_473_73					
P.I. Station	422+35.39	N	13,908,263.0263	E	2,034,929.9214
Delta =	23° 27′ 47.28"	(RT)			
Degree =	6° 32′ 53.12"				
Tangent =	181.7066				
Length =	358.3203				
Radius =	875.0000				
External =	18.6679				
Long Chord =	355.8218				
Mid. Ord. =	18.2779				
P.C. Station	420+53.69	N	13,908,199.8104	E	2,034,759.5658
P.T. Station	424+12.01	N	13,908,253.1866	E	2,035,111.3614
C.C.		N	13,907,379.4704	E	2,035,063.9789
Back = N	69° 38′ 27.72" E				
Ahead = S	86° 53′ 45.00" E				
Chord Bear = N	81° 22′ 21.36" E				

Curve Data

Curve RM_473_74					
P.I. Station	425+64.04	N	13,908,244.9538	E	2,035,263.1709
Delta =	22° 55′ 05.92"	(RT)			
Degree =	7° 38′ 21.97"				
Tangent =	152.0325				
Length =	300.0000				
Radius =	750.0000				
External =	15.2541				
Long Chord =	298.0040				
Mid. Ord. =	14.9501				
P.C. Station	424+12.01	N	13,908,253.1866	E	2,035,111.3614
P.T. Station	427+12.01	N	13,908,178.2535	E	2,035,399.7906
C.C.		N	13,907,504.2870	E	2,035,070.7478
Back = S	86° 53′ 45.00" E				
Ahead = S	63° 58′ 39.08" E				
Chord Bear = S	75° 26′ 12.04" E				

Course from PT RM_473_74 to 62 S 63° 58′ 39.07" E Dist 63.9107

Point 62 N 13,908,150.2144 E 2,035,457.2222 Sta 427+75.92

Course from 62 to PC RM_473_79 S 63° 30′ 10.87" E Dist 923.7505

Curve Data

Curve RM_473_79					
P.I. Station	439+04.72	N	13,907,646.5999	E	2,036,467.4498
Delta =	4° 05′ 04.84"	(LT)			
Degree =	0° 59′ 47.21"				
Tangent =	205.0486				
Length =	409.9236				
Radius =	5,750.0000				
External =	3.6549				
Long Chord =	409.8368				
Mid. Ord. =	3.6526				
P.C. Station	436+99.67	N	13,907,738.0825	E	2,036,283.9400
P.T. Station	441+09.59	N	13,907,568.4212	E	2,036,657.0100
C.C.		N	13,912,884.0902	E	2,038,849.3063
Back = S	63° 30′ 10.87" E				
Ahead = S	67° 35′ 15.70" E				
Chord Bear = S	65° 32′ 43.29" E				

Course from PT RM_473_79 to PC RM_473_82 S 67° 35′ 15.70" E Dist 71.4907

Curve Data

Curve RM_473_82					
P.I. Station	444+24.62	N	13,907,448.3097	E	2,036,948.2449
Delta =	5° 44′ 57.58"	(LT)			
Degree =	1° 10′ 52.88"				
Tangent =	243.5403				
Length =	486.6719				
Radius =	4,850.0000				
External =	6.1108				
Long Chord =	486.4677				
Mid. Ord. =	6.1031				
P.C. Station	441+81.08	N	13,907,541.1641	E	2,036,723.1006
P.T. Station	446+67.75	N	13,907,378.4766	E	2,037,181.5584
C.C.		N	13,912,024.8153	E	2,038,572.2548
Back = S	67° 35′ 15.70" E				
Ahead = S	73° 20′ 13.29" E				
Chord Bear = S	70° 27′ 44.49" E				

Course from PT RM_473_82 to 63 S 73° 20′ 13.29" E Dist 820.1199

Point 63 N 13,907,143.3142 E 2,037,967.2398 Sta 454+87.87

Course from 63 to PC RM_473_87 S 73° 34′ 55.77" E Dist 495.6094

Curve Data

Curve RM_473_87					
P.I. Station	460+43.50	N	13,906,986.2715	E	2,038,500.2121
Delta =	3° 26′ 15.89"	(RT)			
Degree =	2° 51′ 53.24"				
Tangent =	60.0180				
Length =	120.0000				
Radius =	2,000.0000				
External =	0.9003				
Long Chord =	119.9820				
Mid. Ord. =	0.8999				
P.C. Station	459+83.48	N	13,907,003.2350	E	2,038,442.6413
P.T. Station	461+03.48	N	13,906,965.8864	E	2,038,556.6621
C.C.		N	13,905,084.7830	E	2,037,877.3609
Back = S	73° 34′ 55.77" E				
Ahead = S	70° 08′ 39.88" E				
Chord Bear = S	71° 51′ 47.82" E				

Curve Data

Curve RM_473_88					
P.I. Station	463+83.37	N	13,906,870.8240	E	2,038,819.9064
Delta =	52° 18′ 14.96"	(RT)			
Degree =	10° 03′ 06.81"				
Tangent =	279.8828				
Length =	520.3414				
Radius =	570.0000				
External =	65.0074				
Long Chord =	502.4610				
Mid. Ord. =	58.3524				
P.C. Station	461+03.48	N	13,906,965.8864	E	2,038,556.6621
P.T. Station	466+23.82	N	13,906,604.3995	E	2,038,905.6525
C.C.		N	13,906,429.7719	E	2,038,363.0613
Back = S	70° 08′ 39.88" E				
Ahead = S	17° 50′ 24.92" E				
Chord Bear = S	43° 59′ 32.40" E				

Curve Data

Curve RM_473_89					
P.I. Station	466+86.38	N	13,906,544.8552	E	2,038,924.8162
Delta =	5° 43′ 46.48"	(RT)			
Degree =	4° 35′ 01.18"				
Tangent =	62.5521				
Length =	125.0000				
Radius =	1,250.0000				
External =	1.5641				
Long Chord =	124.9479				
Mid. Ord. =	1.5622				
P.C. Station	466+23.82	N	13,906,604.3995	E	2,038,905.6525
P.T. Station	467+48.82	N	13,906,483.6952	E	2,038,937.9397
C.C.		N	13,906,221.4443	E	2,037,715.7595
Back = S	17° 50′ 24.92" E				
Ahead = S	12° 06′ 38.44" E				
Chord Bear = S	14° 58′ 31.68" E				

Course from PT RM_473_89 to PC RM_473_92 S 12° 06′ 38.44" E Dist 177.9293

Curve Data

Curve RM_473_92					
P.I. Station	469+86.77	N	13,906,251.0437	E	2,038,987.8612
Delta =	3° 26′ 15.89"	(LT)			
Degree =	2° 51′ 53.24"				
Tangent =	60.0180				
Length =	120.0000				
Radius =	2,000.0000				
External =	0.9003				
Long Chord =	119.9820				
Mid. Ord. =	0.8999				
P.C. Station	469+26.75	N	13,906,309.7259	E	2,038,975.2694
P.T. Station	470+46.75	N	13,906,193.2221	E	2,039,003.9492
C.C.		N	13,906,729.3275	E	2,040,930.7577
Back = S	12° 06′ 38.44" E				
Ahead = S	15° 32′ 54.33" E				
Chord Bear = S	13° 49′ 46.38" E				

Curve Data

Curve RM_473_93					
P.I. Station	473+99.69	N	13,905,853.2062	E	2,039,098.5535
Delta =	72° 59′ 43.34"	(LT)			
Degree =	12° 00′ 42.10"				
Tangent =	352.9316				
Length =	607.7026				
Radius =	477.0000				
External =	116.3715				
Long Chord =	567.4300				
Mid. Ord. =	93.5488				
P.C. Station	470+46.75	N	13,906,193.2221	E	2,039,003.9492
P.T. Station	476+54.46	N	13,905,844.2373	E	2,039,451.3711
C.C.		N	13,906,321.0832	E	2,039,463.4930
Back = S	15° 32′ 54.33" E				
Ahead = S	88° 32′ 37.66" E				
Chord Bear = S	52° 02′ 46.00" E				

Curve Data

Curve RM_473_94					
P.I. Station	477+26.96	N	13,905,842.3947	E	2,039,523.8528
Delta =	1° 39′ 41.68"	(LT)			
Degree =	1° 08′ 45.30"				
Tangent =	72.5051				
Length =	145.0000				
Radius =	5,000.0000				
External =	0.5257				
Long Chord =	144.9949				
Mid. Ord. =	0.5256				
P.C. Station	476+54.46	N	13,905,844.2373	E	2,039,451.3711
P.T. Station	477+99.46	N	13,905,842.6546	E	2,039,596.3574
C.C.		N	13,910,842.6225	E	2,039,578.4352
Back = S	88° 32′ 37.66" E				
Ahead = N	89° 47′ 40.66" E				
Chord Bear = S	89° 22′ 28.50" E				

Course from PT RM_473_94 to PC RM_473_97 N 89° 47′ 40.66" E Dist 745.1912

NOTES:

1. HORIZONTAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

HORIZONTAL ALIGNMENT DATA SHEET

SHEET 4 OF 6

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	78

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-HAD.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:25:13 AM

℄ RM473

Curve Data

Curve RM_473_97						
P.I. Station		486+45.92	N	13,905,845.6887	E	2,040,442.8103
Delta	=	0° 34′ 48.77"	(RT)			
Degree	=	0° 17′ 11.32"				
Tangent	=	101.2672				
Length	=	202.5326				
Radius	=	20,000.0000				
External	=	0.2564				
Long Chord	=	202.5318				
Mid. Ord.	=	0.2564				
P.C. Station		485+44.65	N	13,905,845.3257	E	2,040,341.5438
P.T. Station		487+47.18	N	13,905,845.0262	E	2,040,544.0753
C.C.			N	13,885,845.4542	E	2,040,413.2325
Back	= N	89° 47′ 40.66" E				
Ahead	= S	89° 37′ 30.58" E				
Chord Bear	= S	89° 54′ 54.96" E				

Course from PT RM_473_97 to PC RM_473_100 S 89° 37′ 30.58" E Dist 385.5495

Curve Data

Curve RM_473_100						
P.I. Station		492+56.76	N	13,905,841.6924	E	2,041,053.6432
Delta	=	11° 25′ 25.88"	(RT)			
Degree	=	4° 37′ 14.26"				
Tangent	=	124.0292				
Length	=	247.2360				
Radius	=	1,240.0000				
External	=	6.1875				
Long Chord	=	246.8267				
Mid. Ord.	=	6.1568				
P.C. Station		491+32.73	N	13,905,842.5038	E	2,040,929.6166
P.T. Station		493+79.97	N	13,905,816.3317	E	2,041,175.0518
C.C.			N	13,904,602.5304	E	2,040,921.5044
Back	= S	89° 37′ 30.58" E				
Ahead	= S	78° 12′ 04.70" E				
Chord Bear	= S	83° 54′ 47.64" E				

Course from PT RM_473_100 to 64 S 78° 12′ 04.70" E Dist 343.1891

Point 64 N 13,905,746.1585 E 2,041,510.9900 Sta 497+23.16

Course from 64 to 65 S 78° 32′ 09.52" E Dist 943.6607

Point 65 N 13,905,558.6035 E 2,042,435.8244 Sta 506+66.82

Course from 65 to PC RM_473_107 S 78° 39′ 13.70" E Dist 287.0571

Curve Data

Curve RM_473_107						
P.I. Station		511+21.18	N	13,905,469.2133	E	2,042,881.3094
Delta	=	9° 48′ 28.10"	(RT)			
Degree	=	2° 56′ 17.68"				
Tangent	=	167.3078				
Length	=	333.7981				
Radius	=	1,950.0000				
External	=	7.1642				
Long Chord	=	333.3907				
Mid. Ord.	=	7.1380				
P.C. Station		509+53.87	N	13,905,502.1289	E	2,042,717.2714
P.T. Station		512+87.67	N	13,905,408.8359	E	2,043,037.3429
C.C.			N	13,903,590.2390	E	2,042,333.6348
Back	= S	78° 39′ 13.70" E				
Ahead	= S	68° 50′ 45.59" E				
Chord Bear	= S	73° 44′ 59.64" E				

Course from PT RM_473_107 to PC RM_473_110 S 68° 50′ 45.59" E Dist 216.5554

Curve Data

Curve RM_473_110						
P.I. Station		516+56.23	N	13,905,275.8324	E	2,043,381.0647
Delta	=	5° 00′ 59.16"	(LT)			
Degree	=	1° 39′ 04.23"				
Tangent	=	152.0020				
Length	=	303.8099				
Radius	=	3,470.0000				
External	=	3.3276				
Long Chord	=	303.7128				
Mid. Ord.	=	3.3244				
P.C. Station		515+04.23	N	13,905,330.6863	E	2,043,239.3055
P.T. Station		518+08.04	N	13,905,233.5842	E	2,043,527.0775
C.C.			N	13,908,566.8562	E	2,044,491.5452
Back	= S	68° 50′ 45.59" E				
Ahead	= S	73° 51′ 44.75" E				
Chord Bear	= S	71° 21′ 15.17" E				

Course from PT RM_473_110 to 66 S 73° 51′ 44.75" E Dist 729.6499

Point 66 N 13,905,030.7820 E 2,044,227.9771 Sta 525+37.69

Course from 66 to 67 S 74° 01′ 27.35" E Dist 536.9422

Point 67 N 13,904,882.9992 E 2,044,744.1817 Sta 530+74.63

Course from 67 to PC RM_473_117 S 73° 41′ 53.23" E Dist 470.1986

Curve Data

Curve RM_473_117						
P.I. Station		537+03.55	N	13,904,706.4627	E	2,045,347.8160
Delta	=	6° 56′ 48.33"	(LT)			
Degree	=	2° 11′ 27.76"				
Tangent	=	158.7208				
Length	=	317.0525				
Radius	=	2,615.0000				
External	=	4.8125				
Long Chord	=	316.8584				
Mid. Ord.	=	4.8036				
P.C. Station		535+44.83	N	13,904,751.0154	E	2,045,195.4764
P.T. Station		538+61.88	N	13,904,680.6622	E	2,045,504.4257
C.C.			N	13,907,260.8821	E	2,045,929.5022
Back	= S	73° 41′ 53.23" E				
Ahead	= S	80° 38′ 41.56" E				
Chord Bear	= S	77° 10′ 17.40" E				

Course from PT RM_473_117 to PC RM_473_120 S 80° 38′ 41.56" E Dist 1,647.2424

Curve Data

Curve RM_473_120						
P.I. Station		556+67.15	N	13,904,387.2103	E	2,047,285.6822
Delta	=	7° 22′ 51.28"	(LT)			
Degree	=	2° 20′ 18.97"				
Tangent	=	158.0246				
Length	=	315.6119				
Radius	=	2,450.0000				
External	=	5.0910				
Long Chord	=	315.3937				
Mid. Ord.	=	5.0804				
P.C. Station		555+09.12	N	13,904,412.8977	E	2,047,129.7594
P.T. Station		558+24.73	N	13,904,381.7664	E	2,047,443.6130
C.C.			N	13,906,830.3122	E	2,047,528.0147
Back	= S	80° 38′ 41.56" E				
Ahead	= S	88° 01′ 32.84" E				
Chord Bear	= S	84° 20′ 07.20" E				

Course from PT RM_473_120 to 68 S 88° 01′ 32.84" E Dist 913.4621

Point 68 N 13,904,350.2979 E 2,048,356.5329 Sta 567+38.20

Course from 68 to 69 S 88° 22′ 47.06" E Dist 592.9965

Point 69 N 13,904,333.5309 E 2,048,949.2922 Sta 573+31.19

Course from 69 to PC RM_473_127 S 88° 01′ 17.83" E Dist 2,105.2259

Curve Data

Curve RM_473_127						
P.I. Station		596+68.84	N	13,904,252.8297	E	2,051,285.5449
Delta	=	27° 29′ 42.25"	(RT)			
Degree	=	6° 01′ 52.08"				
Tangent	=	232.4202				
Length	=	455.8855				
Radius	=	950.0000				
External	=	28.0180				
Long Chord	=	451.5238				
Mid. Ord.	=	27.2153				
P.C. Station		594+36.42	N	13,904,260.8534	E	2,051,053.2633
P.T. Station		598+92.30	N	13,904,138.4743	E	2,051,487.8862
C.C.			N	13,903,311.4197	E	2,051,020.4670
Back	= S	88° 01′ 17.83" E				
Ahead	= S	60° 31′ 35.57" E				
Chord Bear	= S	74° 16′ 26.70" E				

Course from PT RM_473_127 to PC RM_473_130 S 60° 31′ 35.57" E Dist 2,254.7102

Curve Data

Curve RM_473_130						
P.I. Station		624+44.73	N	13,902,882.6310	E	2,053,709.9833
Delta	=	46° 04′ 49.21"	(LT)			
Degree	=	8° 11′ 06.40"				
Tangent	=	297.7117				
Length	=	562.9775				
Radius	=	700.0000				
External	=	60.6788				
Long Chord	=	547.9269				
Mid. Ord.	=	55.8385				
P.C. Station		621+47.01	N	13,903,029.1112	E	2,053,450.8003
P.T. Station		627+09.99	N	13,902,967.7181	E	2,053,995.2769
C.C.			N	13,903,638.5199	E	2,053,795.2144
Back	= S	60° 31′ 35.57" E				
Ahead	= N	73° 23′ 35.21" E				
Chord Bear	= S	83° 34′ 00.18" E				

Course from PT RM_473_130 to PC RM_473_133 N 73° 23′ 35.21" E Dist 723.2292

NOTES:

1. HORIZONTAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

HORIZONTAL ALIGNMENT DATA SHEET

SHEET 5 OF 6

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	79

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-HAD.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:25:14 AM

℄ RM473

Curve Data

Curve RM_473_133

P.I. Station	637+88.44	N	13,903,275.9411	E	2,055,028.7368
Delta =	7° 35′ 49.85" (LT)				
Degree =	1° 04′ 15.42"				
Tangent =	355.2144				
Length =	709.3877				
Radius =	5,350.0000				
External =	11.7793				
Long Chord =	708.8681				
Mid. Ord. =	11.7534				
P.C. Station	634+33.22	N	13,903,174.4196	E	2,054,688.3390
P.T. Station	641+42.61	N	13,903,421.5747	E	2,055,352.7246
C.C.		N	13,908,301.2616	E	2,053,159.2901

Back = N 73° 23′ 35.21" E
Ahead = N 65° 47′ 45.36" E
Chord Bear = N 69° 35′ 40.29" E

Curve Data

Curve RM_473_134

P.I. Station	643+17.62	N	13,903,493.3285	E	2,055,512.3538
Delta =	1° 48′ 23.85" (LT)				
Degree =	0° 30′ 58.24"				
Tangent =	175.0145				
Length =	350.0000				
Radius =	11,100.0000				
External =	1.3796				
Long Chord =	349.9855				
Mid. Ord. =	1.3795				
P.C. Station	641+42.61	N	13,903,421.5747	E	2,055,352.7246
P.T. Station	644+92.61	N	13,903,570.0791	E	2,055,669.6415
C.C.		N	13,913,545.7850	E	2,050,801.8604

Back = N 65° 47′ 45.36" E
Ahead = N 63° 59′ 21.52" E
Chord Bear = N 64° 53′ 33.44" E

Course from PT RM_473_134 to 70 N 63° 59′ 21.52" E Dist 857.3276

Point 70 N 13,903,946.0506 E 2,056,440.1323 Sta 653+49.94

==========
Ending chain RM_473 description

NOTES:

1. HORIZONTAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.

STATE OF TEXAS
F. PAUL PURPURA II
87865
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

HORIZONTAL ALIGNMENT DATA SHEET

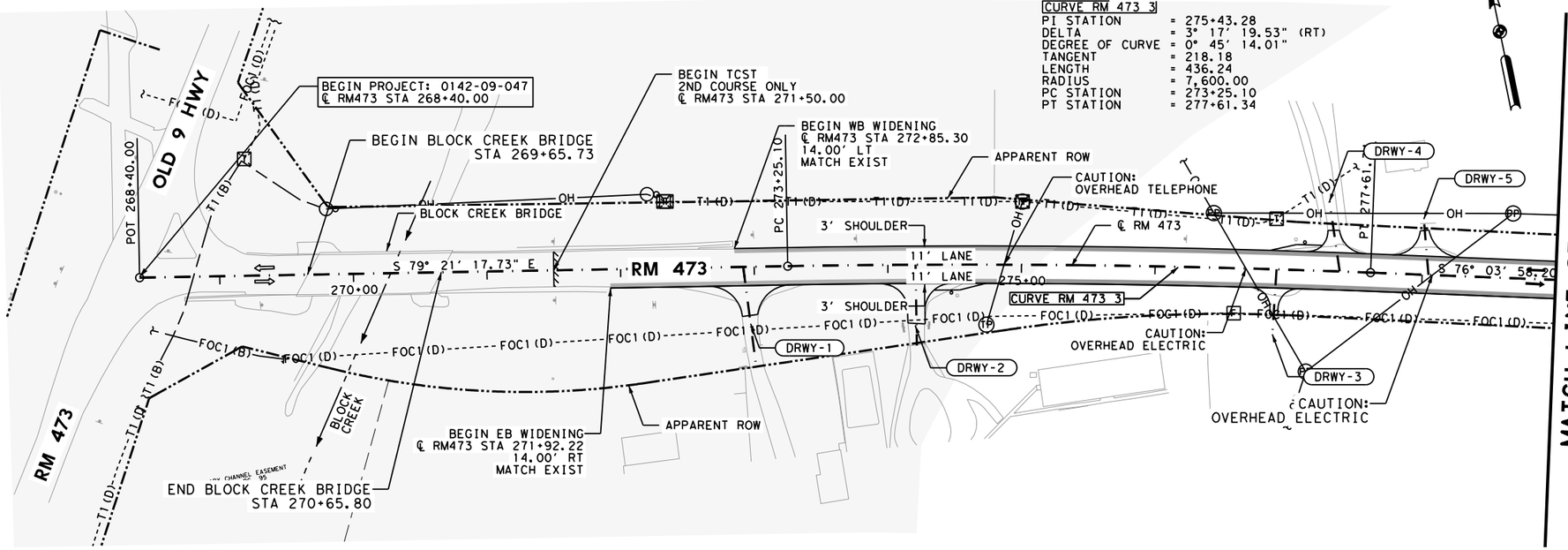
SHEET 6 OF 6

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	80

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-HAD.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:25:26 AM



ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	8.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	376
0110 6001	EXCAVATION (ROADWAY)	CY	11822
0132 6005	EMBANKMENT (FINAL) (ORD COMP) (TY C)	CY	2622
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	159
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	154
0316 6407	AGGR (TY-PD GR-3)	CY	6
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	198
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	19
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	700

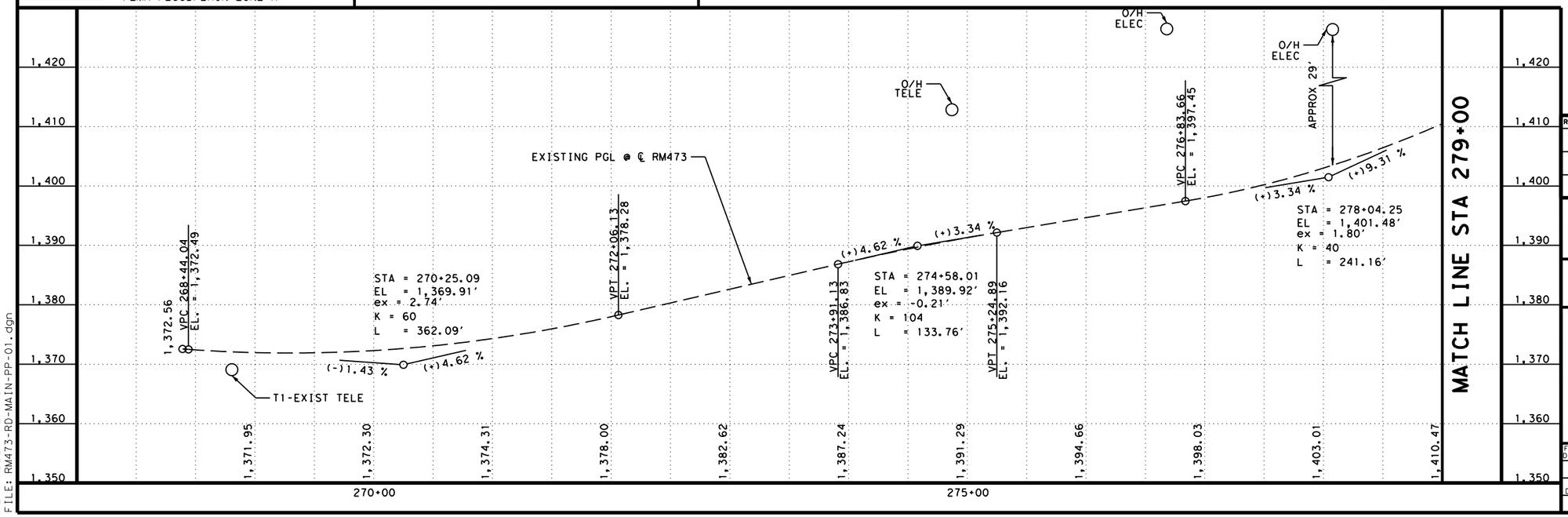
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

BEGIN PROJECT TO
℄ RM 473 STA 279+00

SHEET 1 OF 35

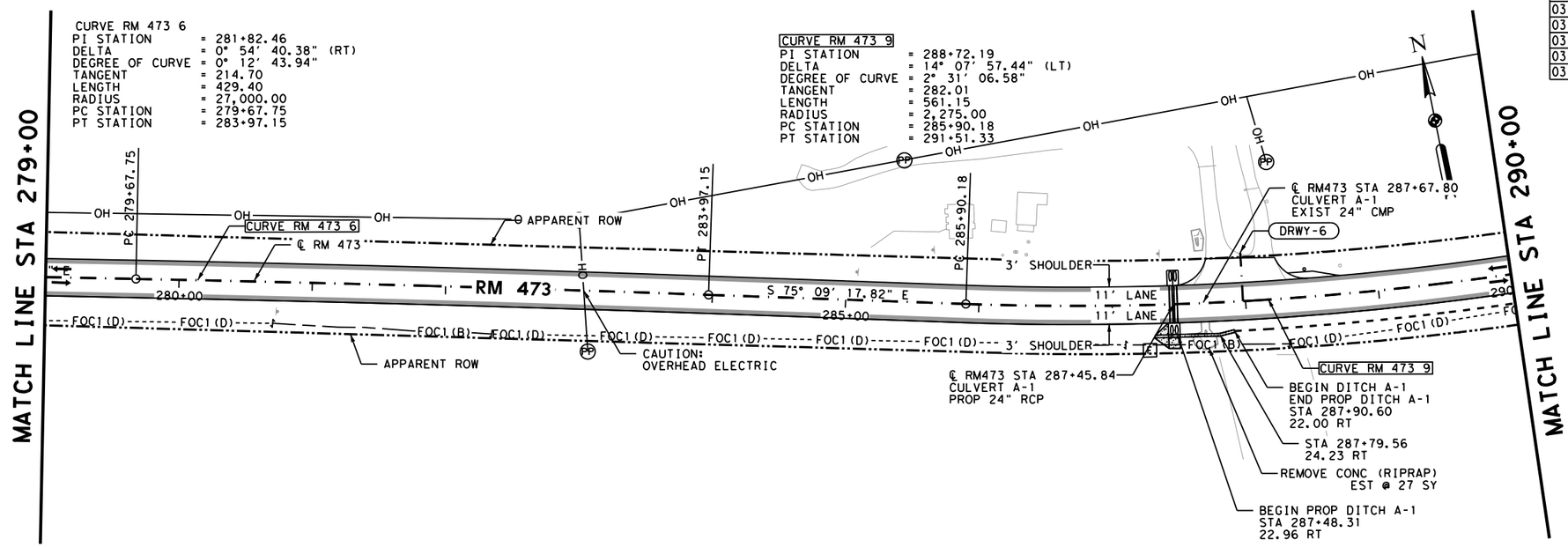
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	81

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-01.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:25:37 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0104 6009	REMOVING CONC (RIPRAP)	SY	27
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	368
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



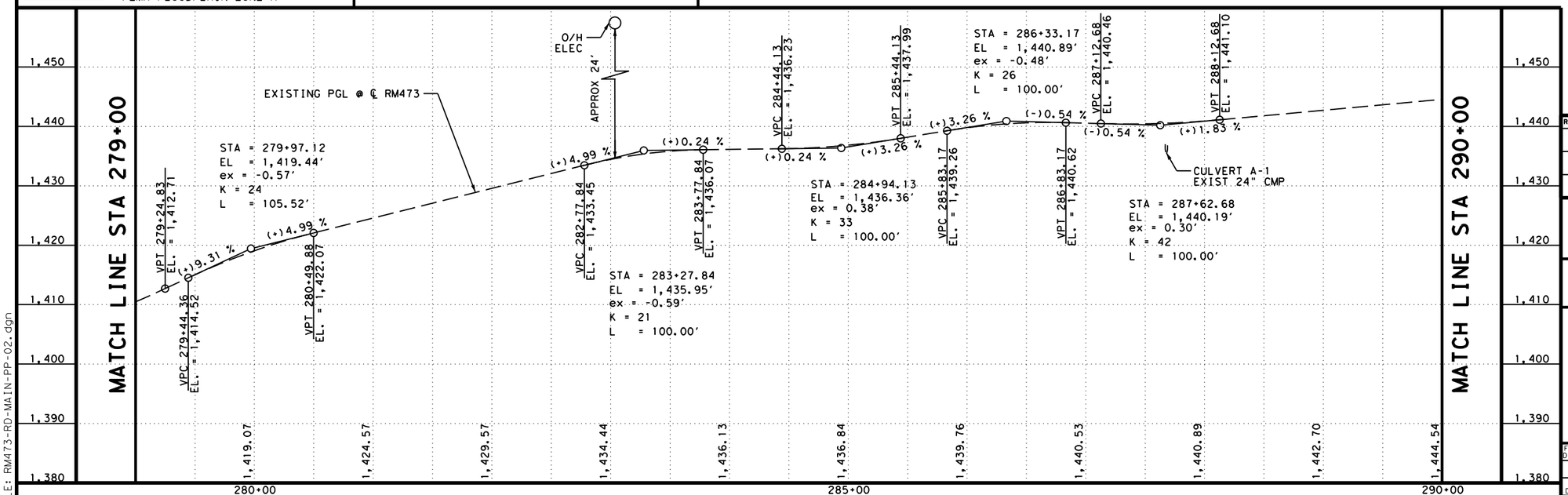
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-02.dgn

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 279+00 TO
℄ RM 473 STA 290+00

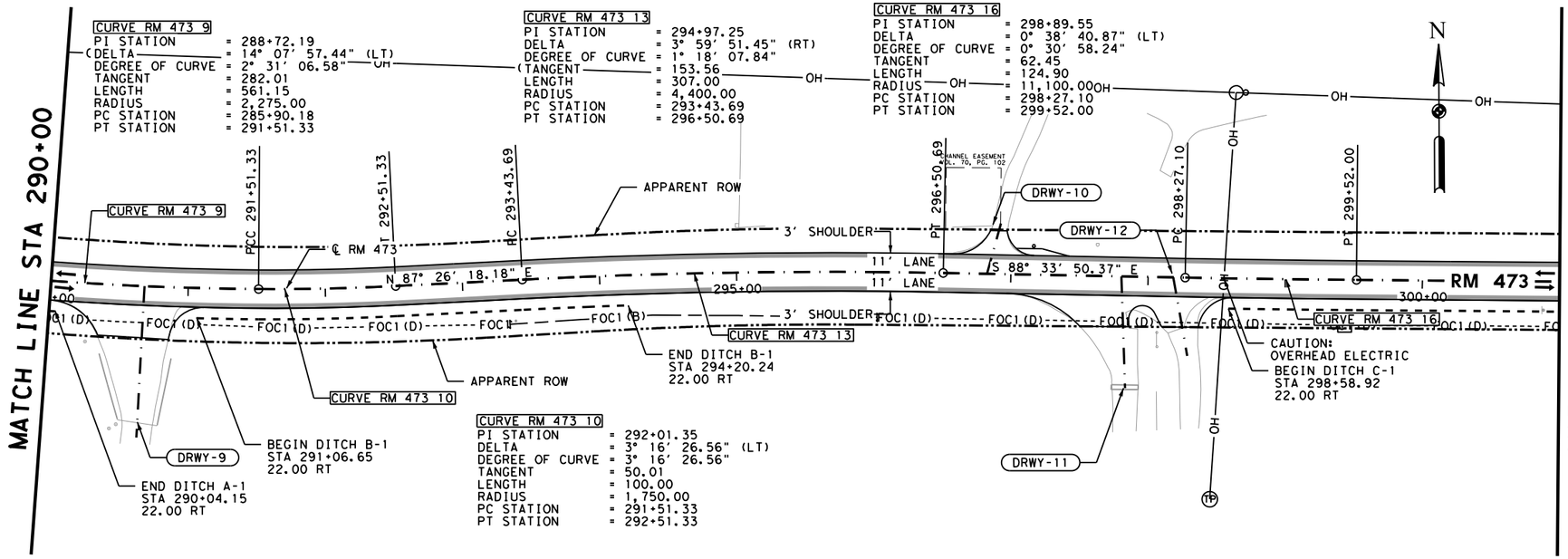
SHEET 2 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	82

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:25:48 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	438
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



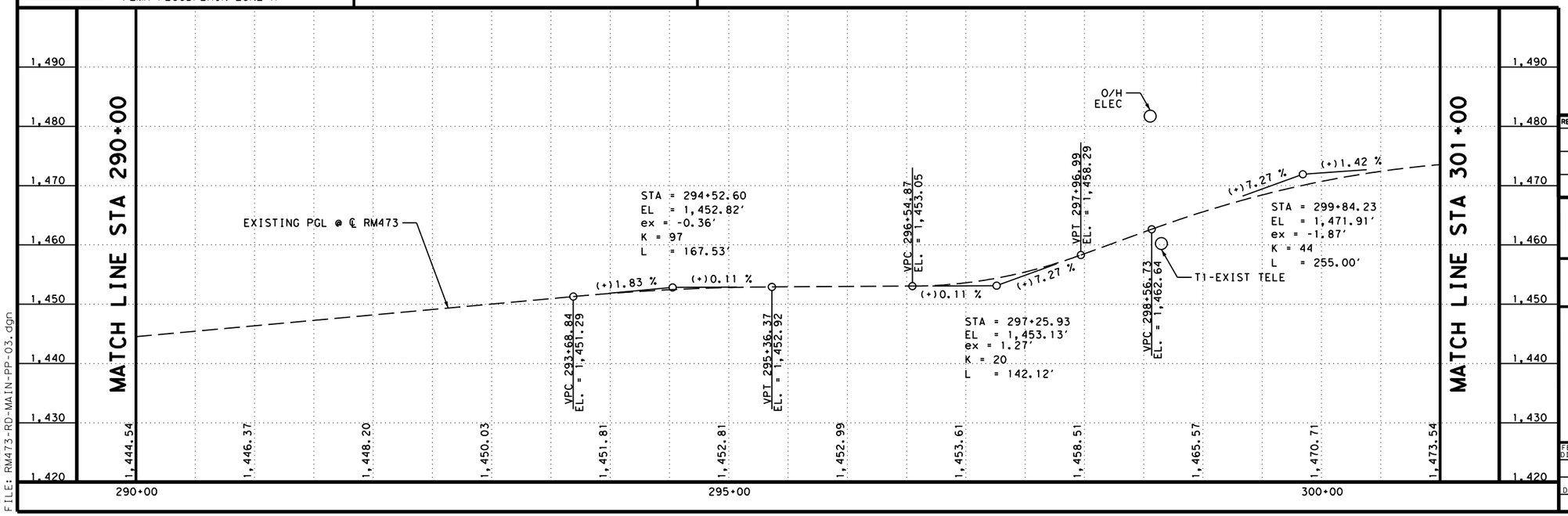
NOTES:

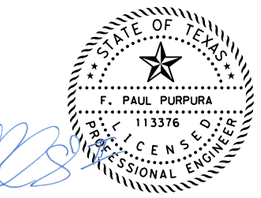
1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE





REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

©2024 Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 290+00 TO
℄ RM 473 STA 301+00

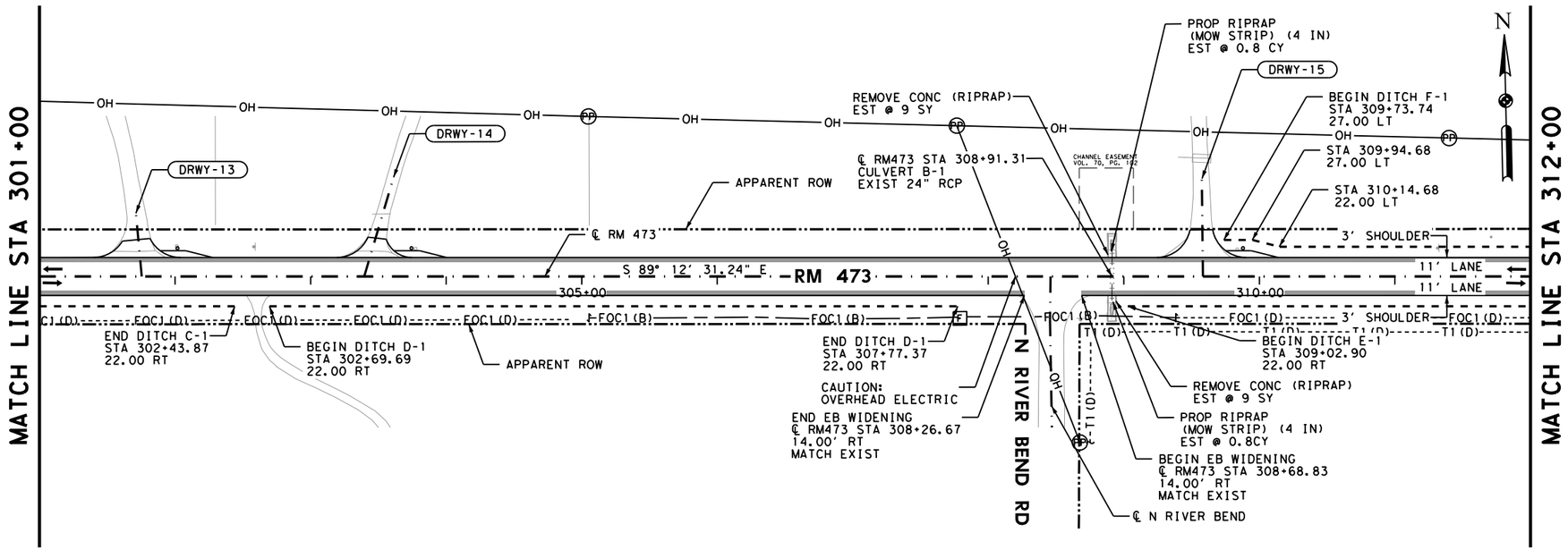
SHEET 3 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	83

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-03.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:25:58 AM



ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0104 6009	REMOVING CONC (RIPRAP)	SY	9
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	401
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	261
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	251.7
0316 6407	AGGR (TY-PD GR-3)	CY	8.991
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	324
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	0.8

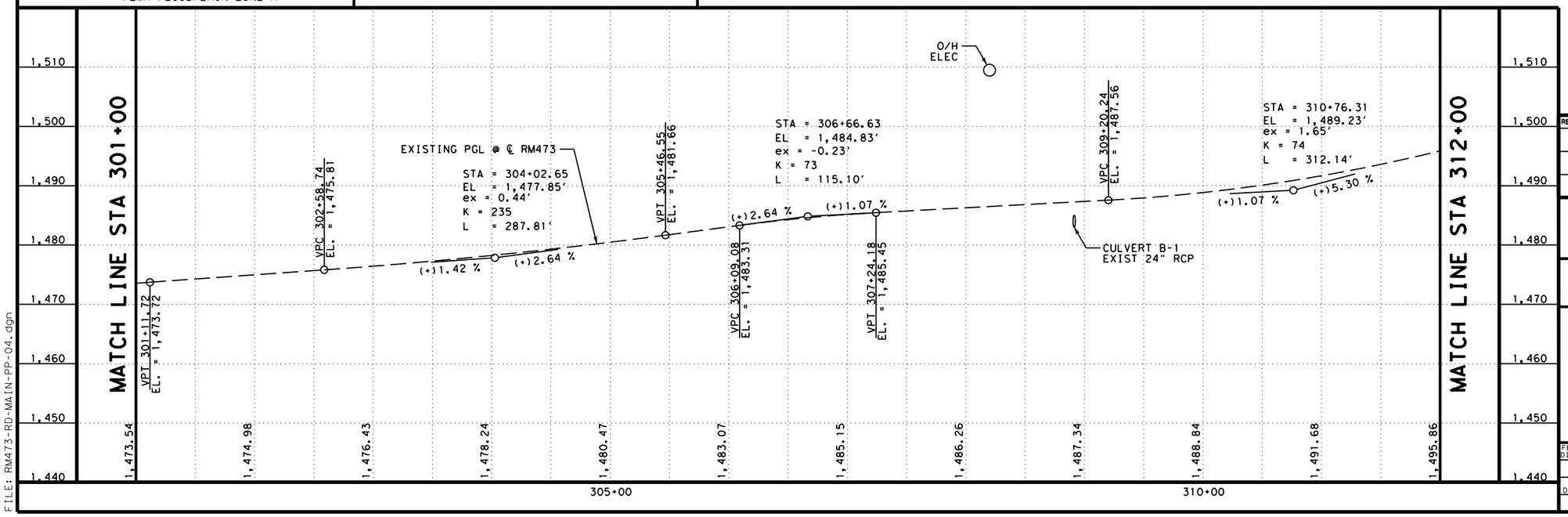
NOTES:

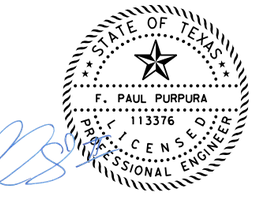
1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×—×—×	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE





REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

©2024 Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 301+00 TO
℄ RM 473 STA 312+00

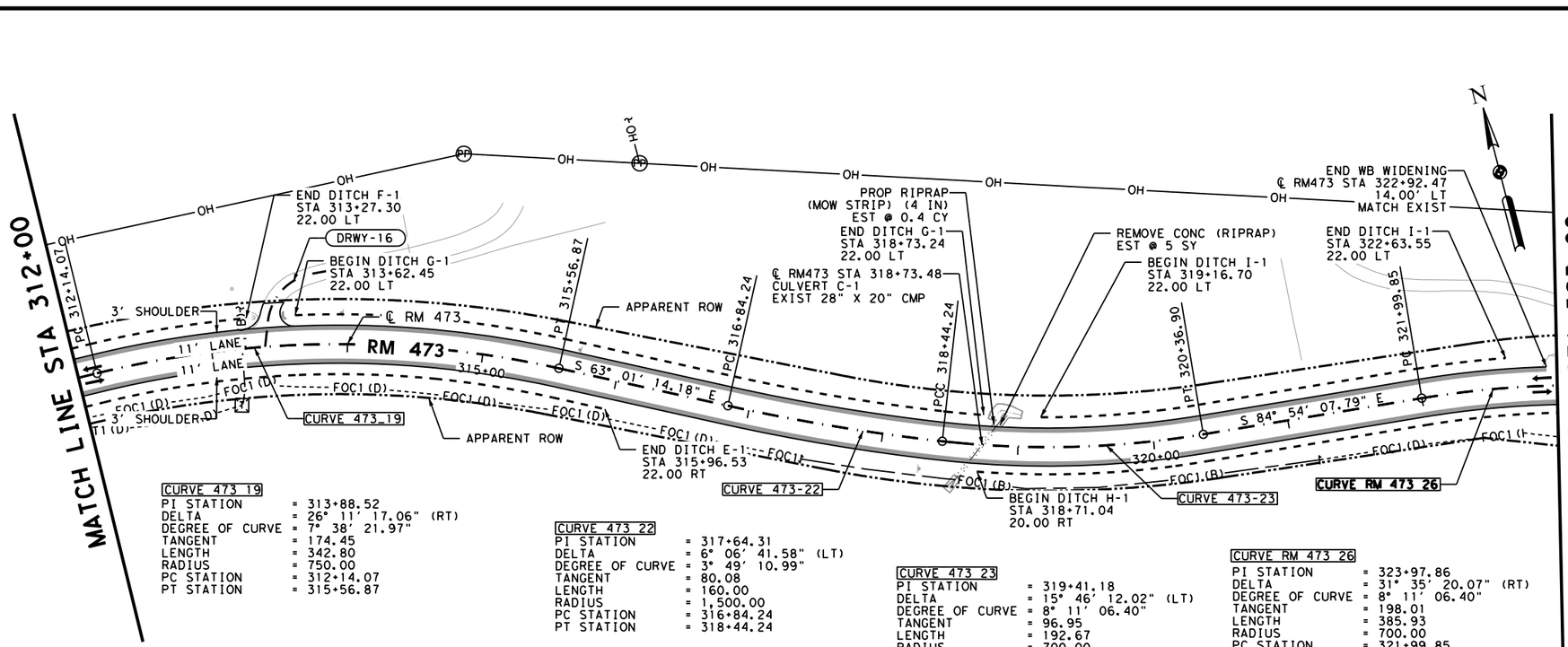
SHEET 4 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	84

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-04.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:26:08 AM



CURVE 473 19	
PI STATION	= 313+88.52
DELTA	= 26° 11' 17.06" (RT)
DEGREE OF CURVE	= 7° 38' 21.97"
TANGENT	= 174.45
LENGTH	= 342.80
RADIUS	= 750.00
PC STATION	= 312+14.07
PT STATION	= 315+56.87

CURVE 473 22	
PI STATION	= 317+64.31
DELTA	= 6° 06' 41.58" (LT)
DEGREE OF CURVE	= 3° 49' 10.99"
TANGENT	= 80.08
LENGTH	= 160.00
RADIUS	= 1,500.00
PC STATION	= 316+84.24
PT STATION	= 318+44.24

CURVE 473 23	
PI STATION	= 319+41.18
DELTA	= 15° 46' 12.02" (LT)
DEGREE OF CURVE	= 8° 11' 06.40"
TANGENT	= 96.95
LENGTH	= 192.67
RADIUS	= 700.00
PC STATION	= 318+44.24
PT STATION	= 320+36.90

CURVE RM 473 26	
PI STATION	= 323+97.86
DELTA	= 31° 35' 20.07" (RT)
DEGREE OF CURVE	= 8° 11' 06.40"
TANGENT	= 198.01
LENGTH	= 385.93
RADIUS	= 700.00
PC STATION	= 321+99.85
PT STATION	= 325+85.78

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0104 6009	REMOVING CONC (RIPRAP)	SY	5
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	264
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	264
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	256
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	329
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	0.4

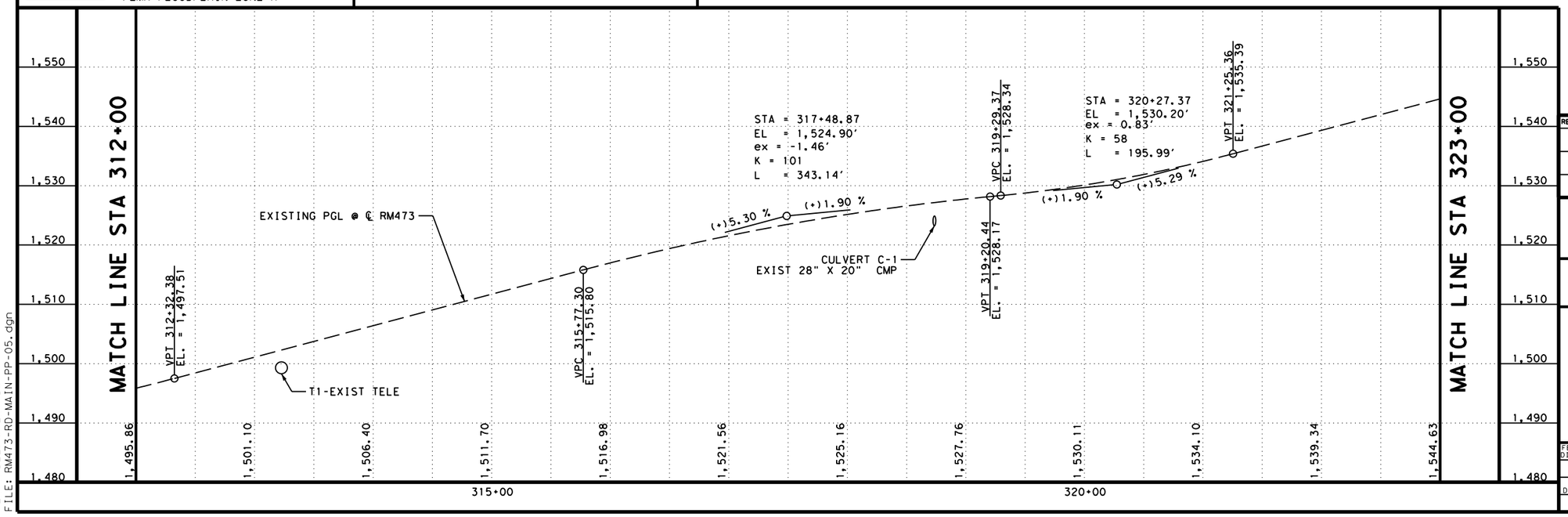
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×—×—×	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
——OH——	OH1 - CENTRAL TEXAS ELECTRIC COOP
——OH——	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 312+00 TO
℄ RM 473 STA 323+00

SHEET 5 OF 35

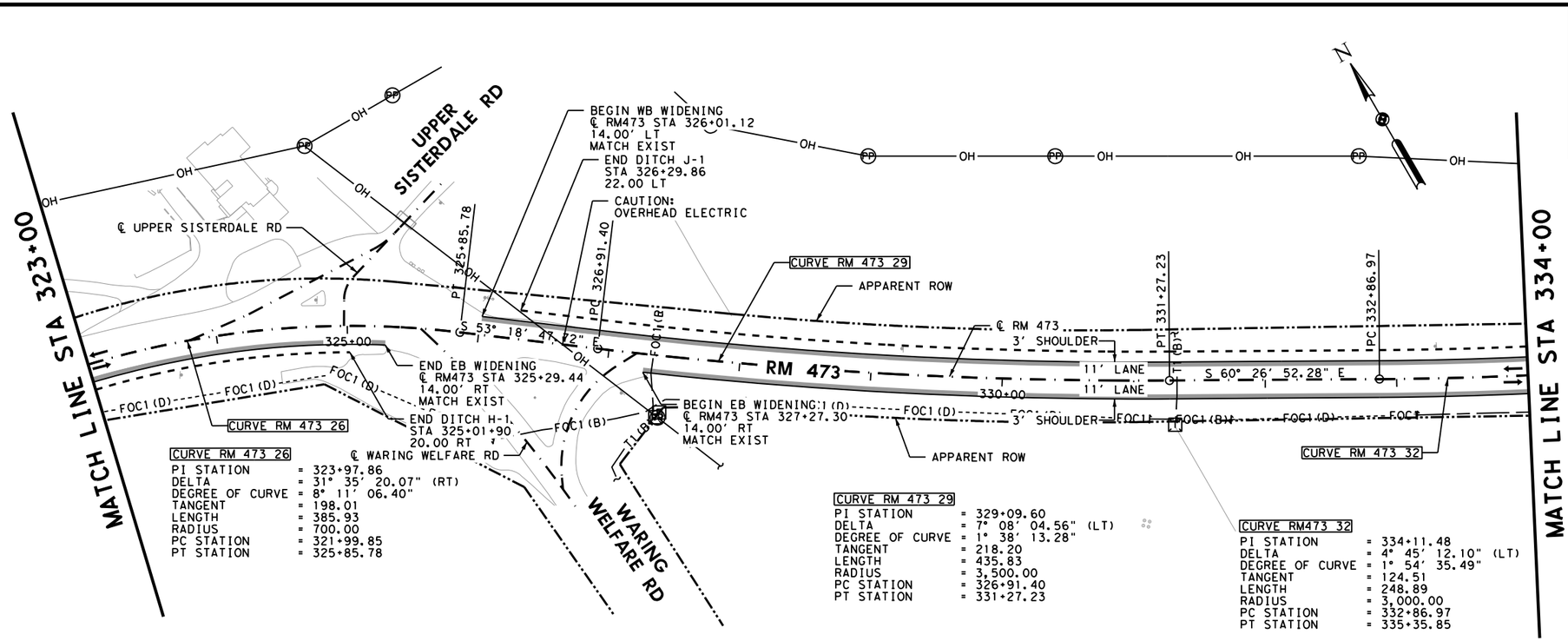
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	85

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-05.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:26:17 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	279
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	203
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	198
0316 6407	AGGR (TY-PD GR-3)	CY	7
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	255
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM 473 26

PI STATION	= 323+97.86
DELTA	= 31° 35' 20.07" (RT)
DEGREE OF CURVE	= 8° 11' 06.40"
TANGENT	= 198.01
LENGTH	= 385.93
RADIUS	= 700.00
PC STATION	= 321+99.85
PT STATION	= 325+85.78

CURVE RM 473 29

PI STATION	= 329+09.60
DELTA	= 7° 08' 04.56" (LT)
DEGREE OF CURVE	= 1° 38' 13.28"
TANGENT	= 218.20
LENGTH	= 435.83
RADIUS	= 3,500.00
PC STATION	= 326+91.40
PT STATION	= 331+27.23

CURVE RM473 32

PI STATION	= 334+11.48
DELTA	= 4° 45' 12.10" (LT)
DEGREE OF CURVE	= 1° 54' 35.49"
TANGENT	= 124.51
LENGTH	= 248.89
RADIUS	= 3,000.00
PC STATION	= 332+86.97
PT STATION	= 335+35.85

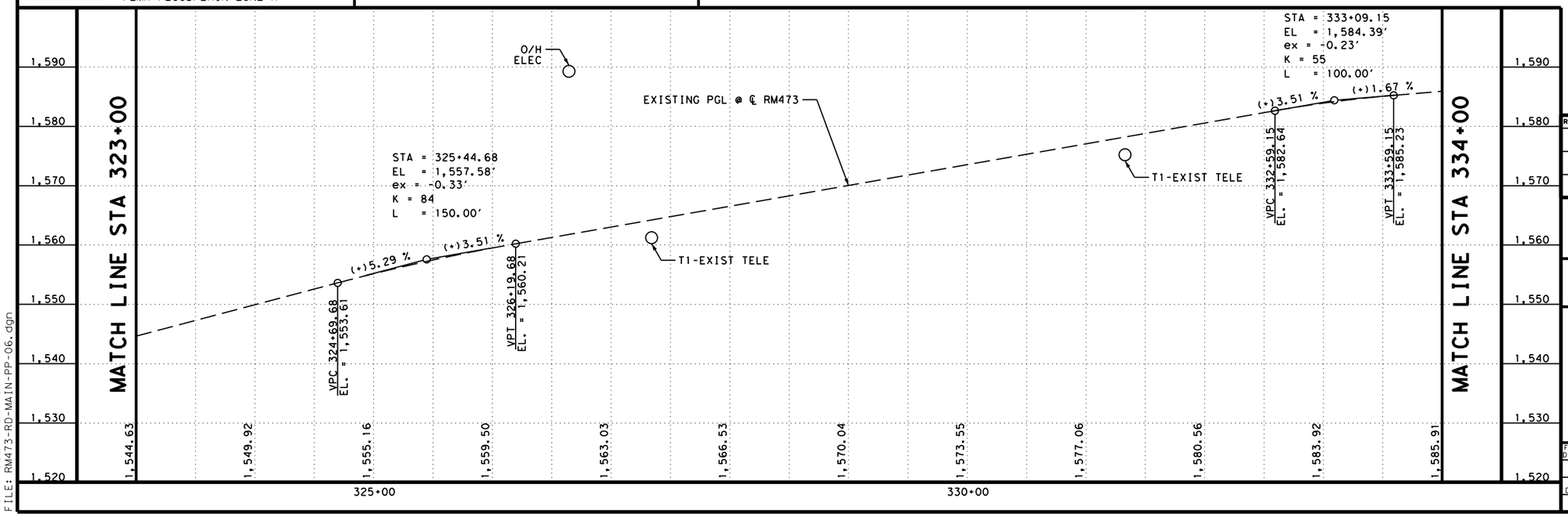
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
OH	OH1 - CENTRAL TEXAS ELECTRIC COOP
OH	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 323+00 TO ℄ RM 473 STA 334+00

SHEET 6 OF 35

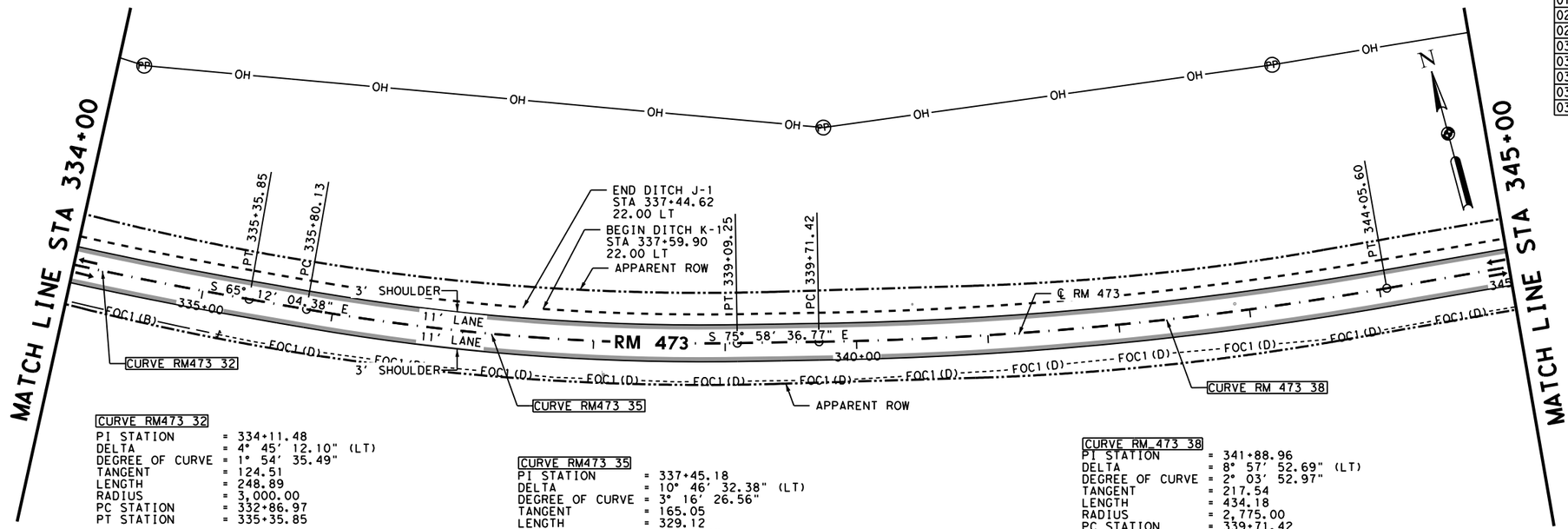
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	86

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-06.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:26:27 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	318
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM473 32

PI STATION	= 334+11.48
DELTA	= 4° 45' 12.10" (LT)
DEGREE OF CURVE	= 1° 54' 35.49"
TANGENT	= 124.51
LENGTH	= 248.89
RADIUS	= 3,000.00
PC STATION	= 332+86.97
PT STATION	= 335+35.85

CURVE RM473 35

PI STATION	= 337+45.18
DELTA	= 10° 46' 32.38" (LT)
DEGREE OF CURVE	= 3° 16' 26.56"
TANGENT	= 165.05
LENGTH	= 329.12
RADIUS	= 1,750.00
PC STATION	= 335+80.13
PT STATION	= 339+09.25

CURVE RM_473 38

PI STATION	= 341+88.96
DELTA	= 8° 57' 52.69" (LT)
DEGREE OF CURVE	= 2° 03' 52.97"
TANGENT	= 217.54
LENGTH	= 434.18
RADIUS	= 2,775.00
PC STATION	= 339+71.42
PT STATION	= 344+05.60

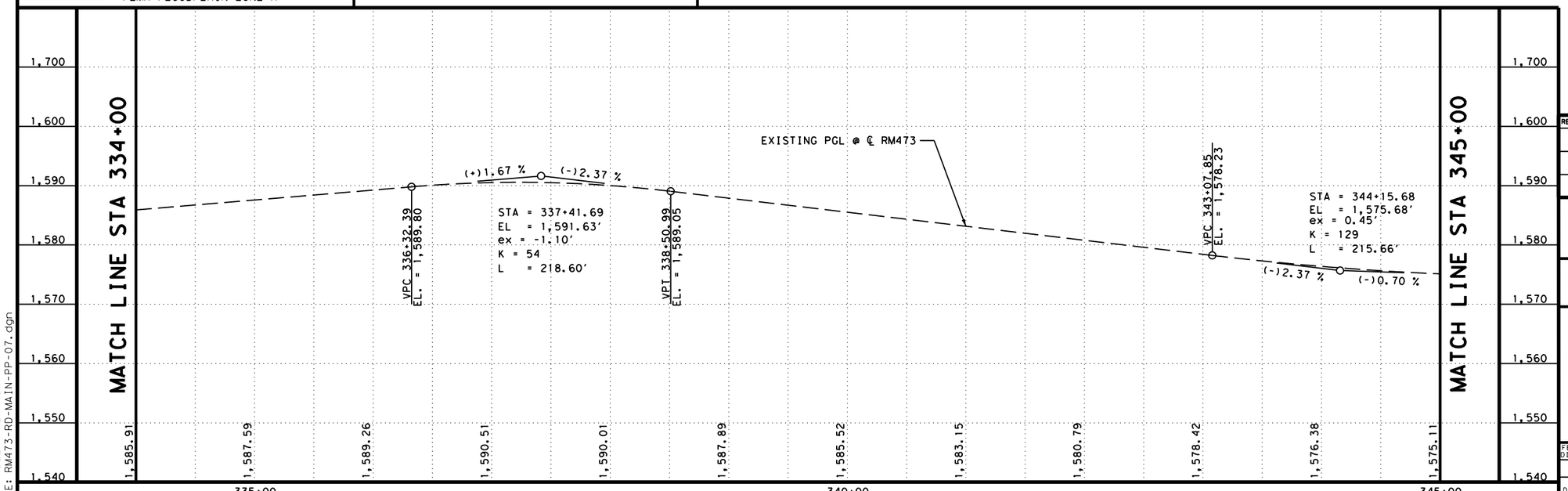
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 334+00 TO
℄ RM 473 STA 345+00

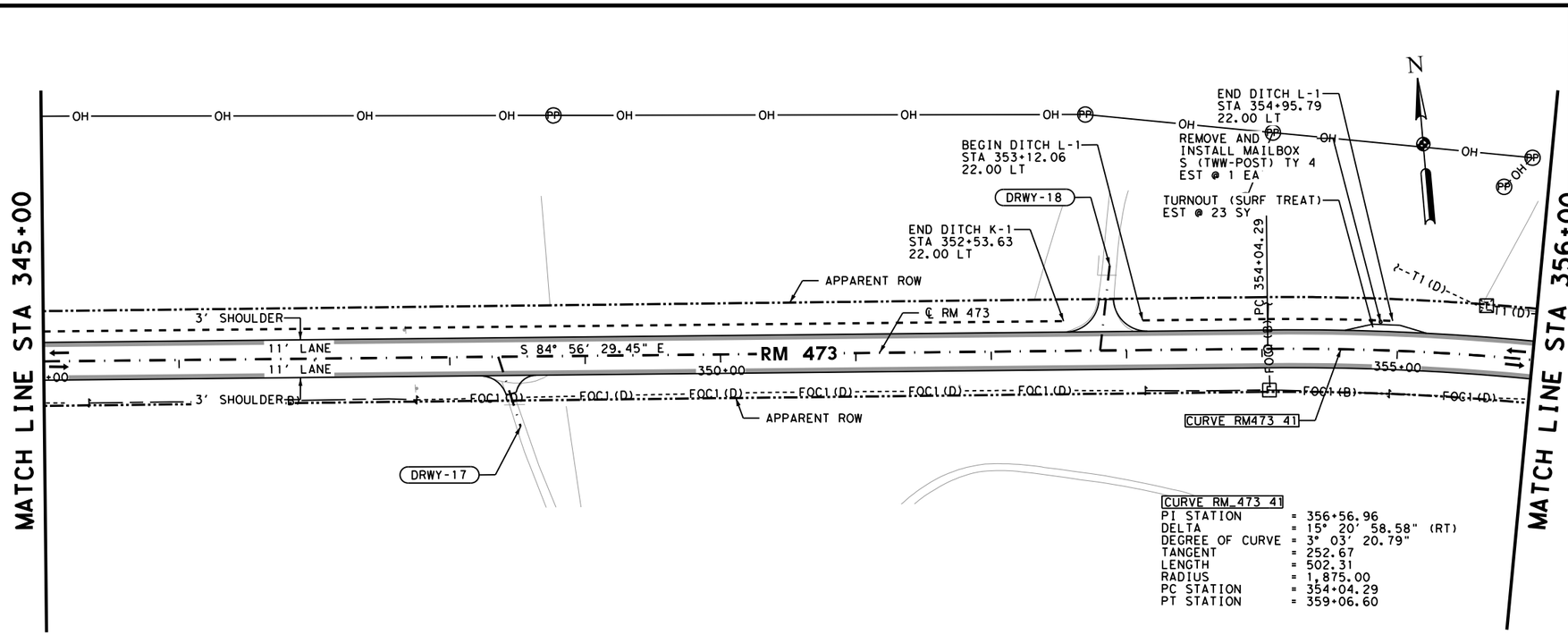
SHEET 7 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	87

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-07.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:26:37 AM



ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	318
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0530 6009	TURNOUTS (SURF TREAT)	SY	23
0560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

CURVE RM_473 41

PI STATION	= 356+56.96
DELTA	= 15° 20' 58.58" (RT)
DEGREE OF CURVE	= 3° 03' 20.79"
TANGENT	= 252.67
LENGTH	= 502.31
RADIUS	= 1,875.00
PC STATION	= 354+04.29
PT STATION	= 359+06.60

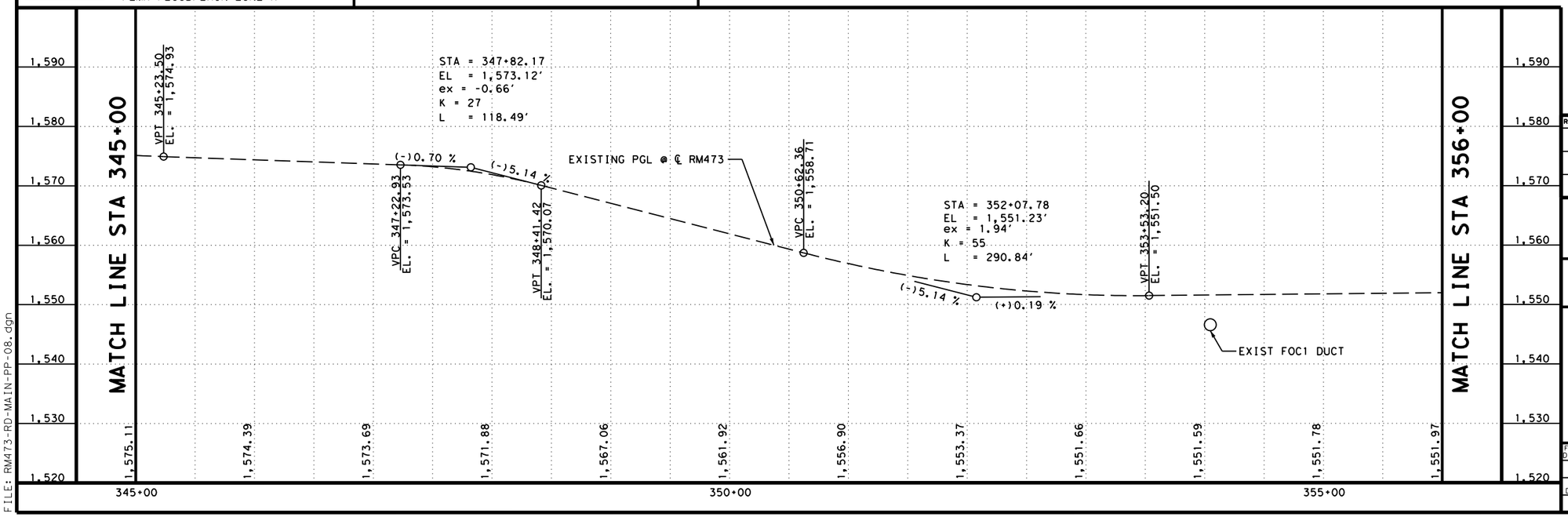
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×—×—×	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 345+00 TO
℄ RM 473 STA 356+00

SHEET 8 OF 35

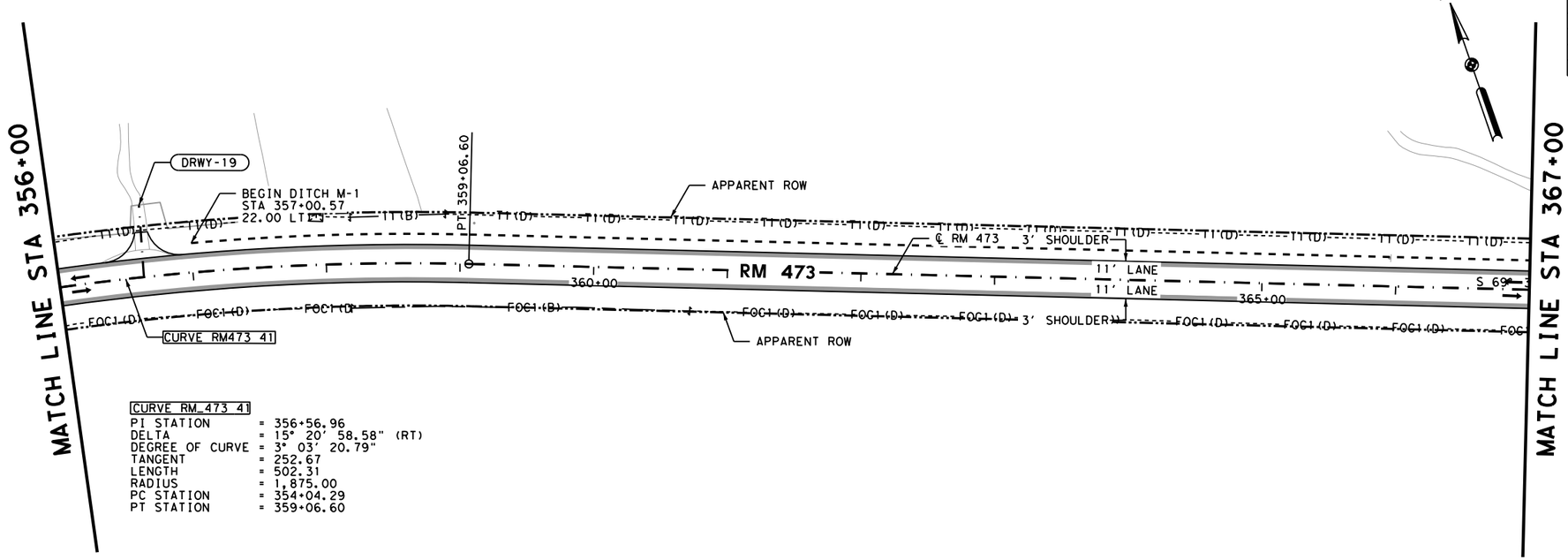
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	88

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-08.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:26:48 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	297
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM_473 41

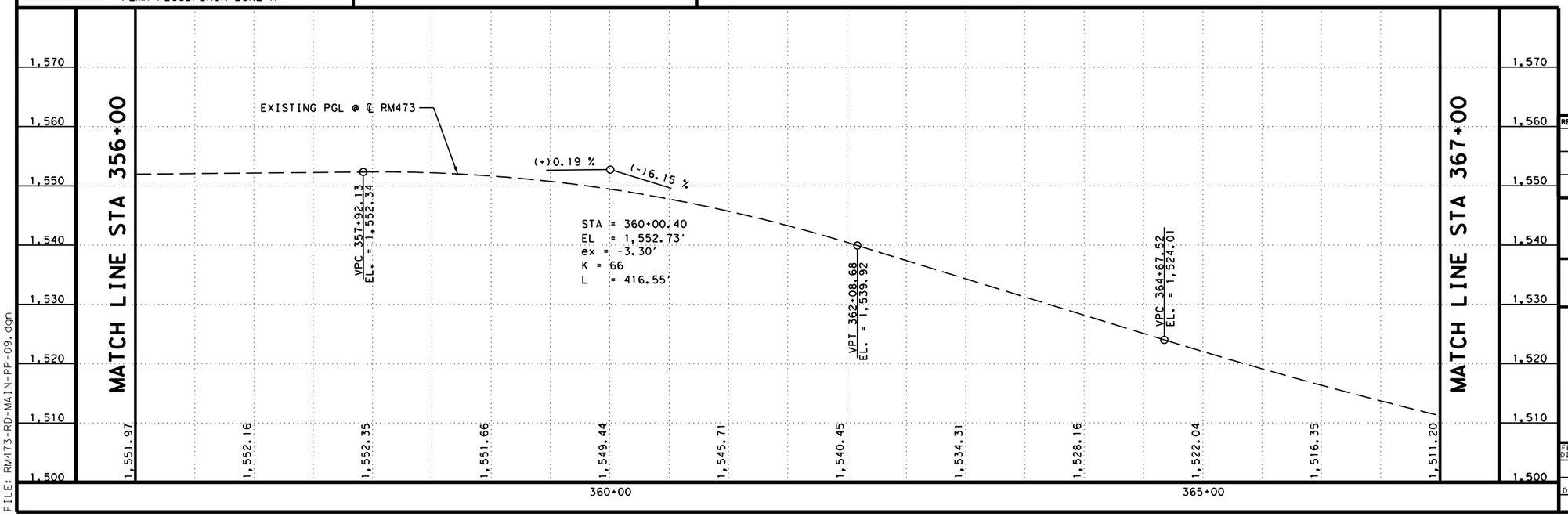
PI STATION	= 356+56.96
DELTA	= 15° 20' 58.58" (RT)
DEGREE OF CURVE	= 3° 03' 20.79"
TANGENT	= 252.67
LENGTH	= 502.31
RADIUS	= 1,875.00
PC STATION	= 354+04.29
PT STATION	= 359+06.60

NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



0' 50' 100'

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 356+00 TO
℄ RM 473 STA 367+00

SHEET 9 OF 35

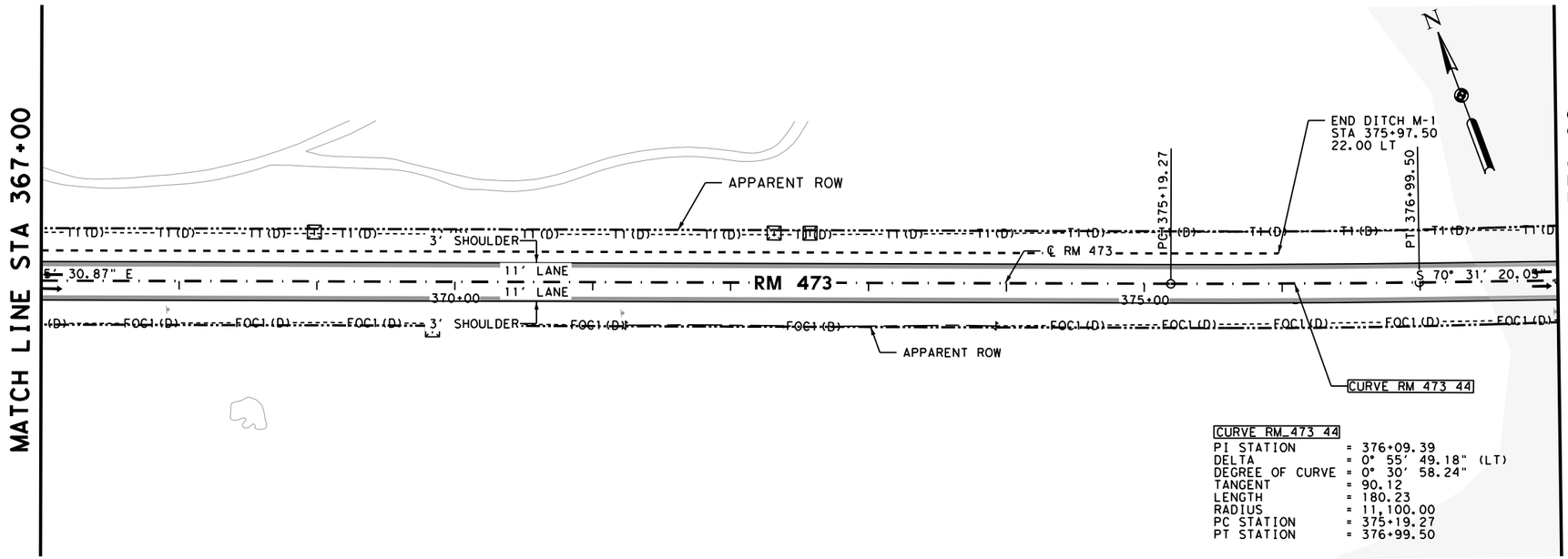
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	89

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-09.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:26:58 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	248
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM_473 44

PI STATION	= 376+09.39
DELTA	= 0° 55' 49.18" (LT)
DEGREE OF CURVE	= 0° 30' 58.24"
TANGENT	= 90.12
LENGTH	= 180.23
RADIUS	= 11,100.00
PC STATION	= 375+19.27
PT STATION	= 376+99.50

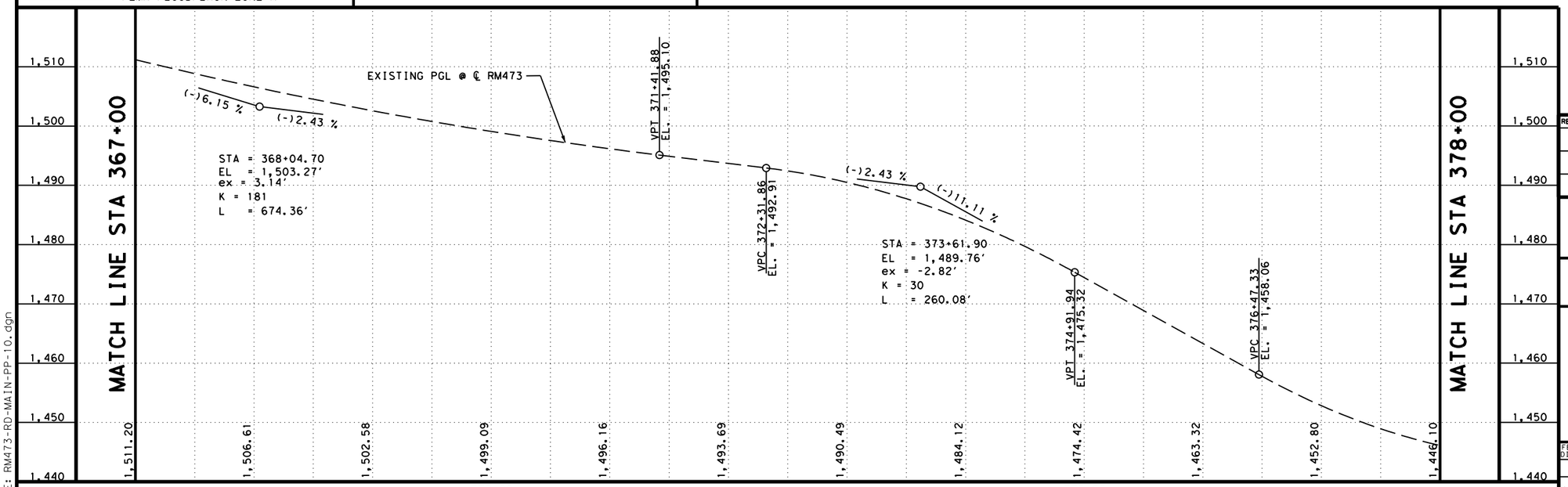
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 367+00 TO
℄ RM 473 STA 378+00

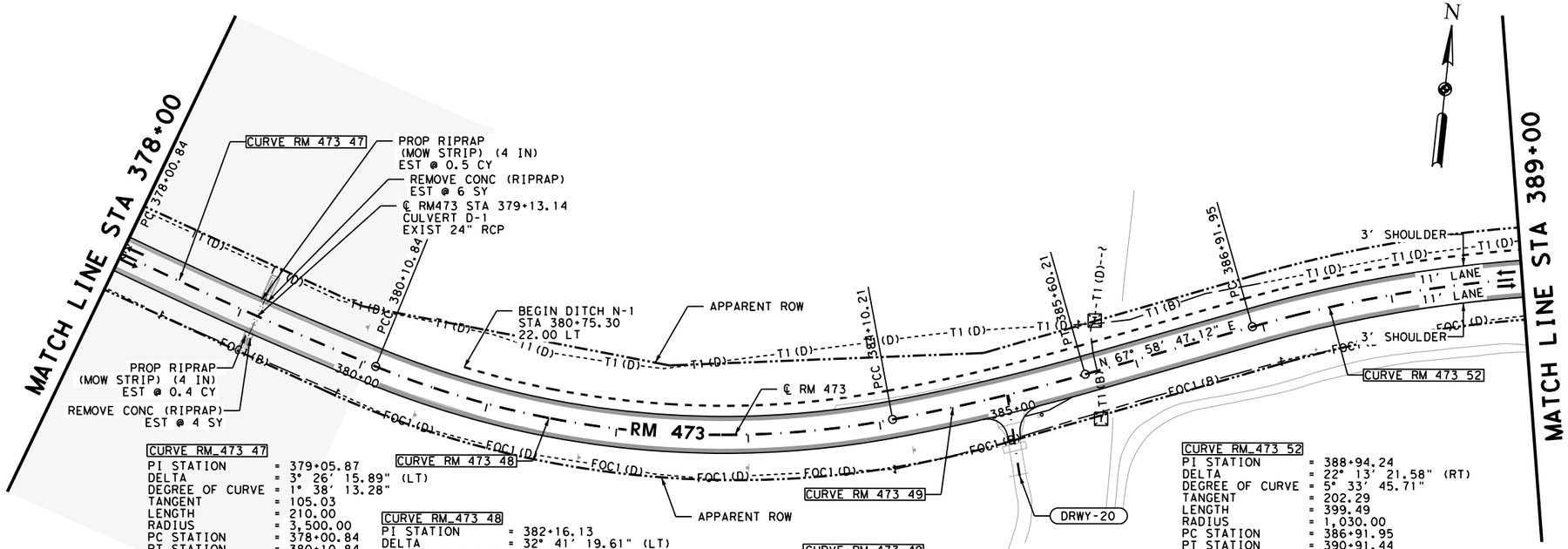
SHEET 10 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	90

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-10.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:27:08 AM



CURVE RM_473 47	
PI STATION	= 379+05.87
DELTA	= 3° 26' 15.89" (LT)
DEGREE OF CURVE	= 1° 38' 13.28"
TANGENT	= 105.03
LENGTH	= 210.00
RADIUS	= 3,500.00
PC STATION	= 378+00.84
PT STATION	= 380+10.84

CURVE RM_473 48	
PI STATION	= 382+16.13
DELTA	= 32° 41' 19.61" (LT)
DEGREE OF CURVE	= 8° 11' 06.40"
TANGENT	= 205.28
LENGTH	= 399.37
RADIUS	= 700.00
PC STATION	= 380+10.84
PT STATION	= 384+10.21

CURVE RM_473 49	
PI STATION	= 384+85.27
DELTA	= 5° 22' 17.33" (LT)
DEGREE OF CURVE	= 3° 34' 51.55"
TANGENT	= 75.05
LENGTH	= 150.00
RADIUS	= 1,600.00
PC STATION	= 384+10.21
PT STATION	= 385+60.21

CURVE RM_473 52	
PI STATION	= 388+94.24
DELTA	= 22° 13' 21.58" (RT)
DEGREE OF CURVE	= 5° 33' 45.71"
TANGENT	= 202.29
LENGTH	= 399.49
RADIUS	= 1,030.00
PC STATION	= 386+91.95
PT STATION	= 390+91.44

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0104 6009	REMOVING CONC (RIPRAP)	SY	10
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	429
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	0.9

NOTES:

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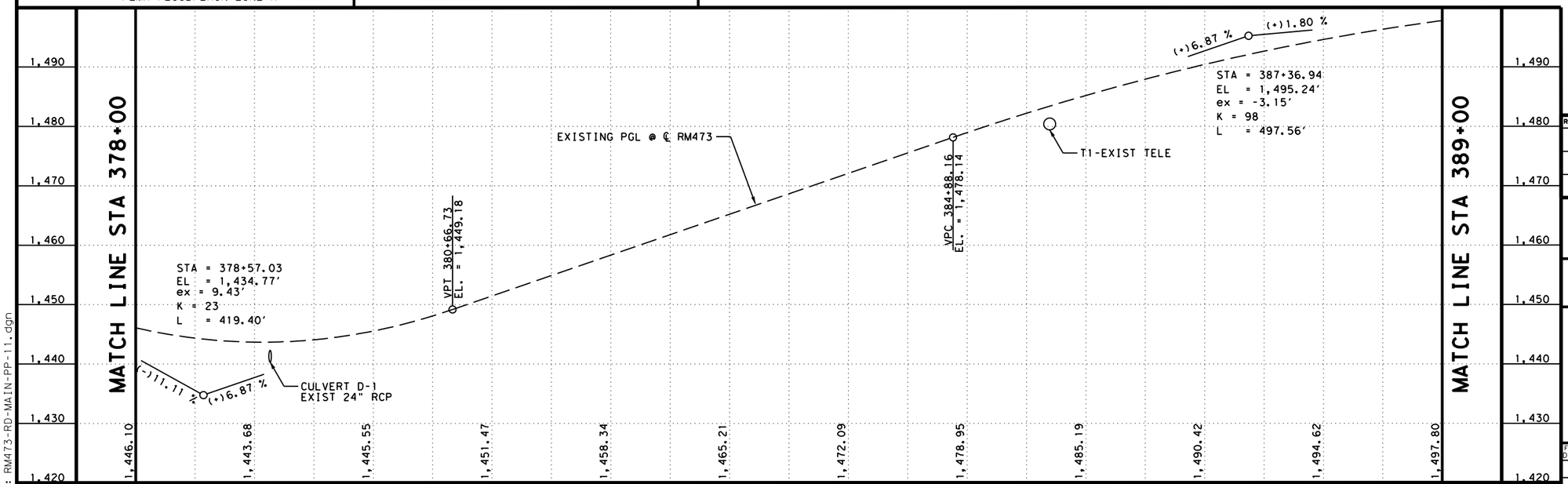
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 378+00 TO
℄ RM 473 STA 389+00

SHEET 11 OF 35

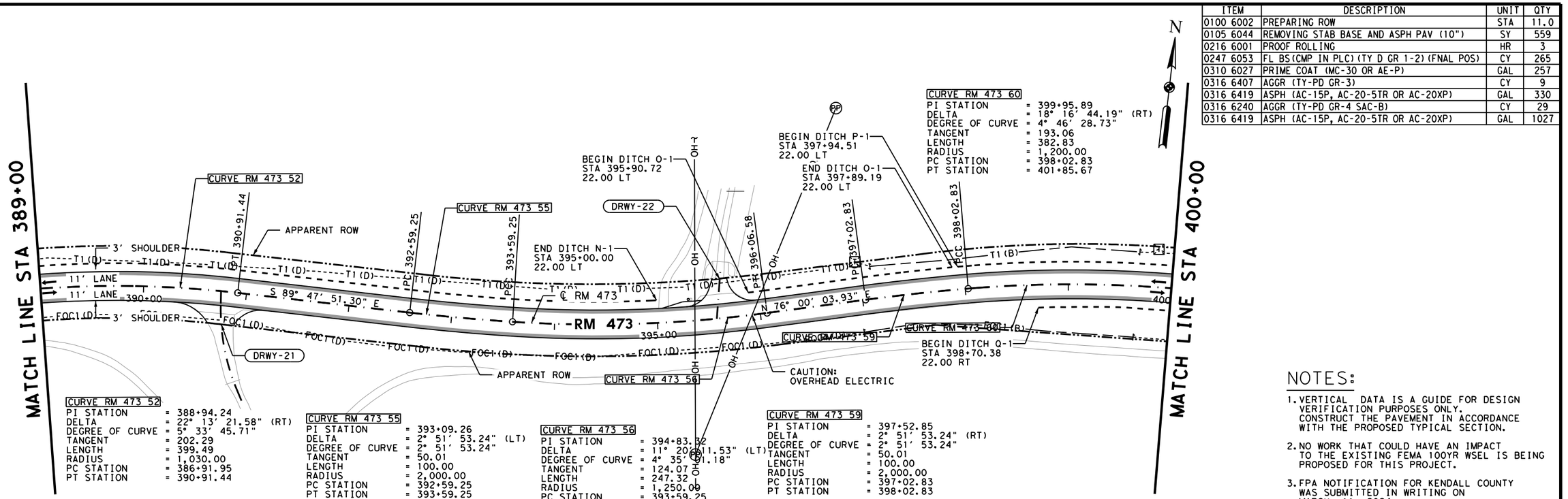
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	91

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-11.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:27:19 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	559
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM 473 52
PI STATION = 388+94.24
DELTA = 22° 13' 21.58" (RT)
DEGREE OF CURVE = 5° 33' 45.71"
TANGENT = 202.29
LENGTH = 399.49
RADIUS = 1,030.00
PC STATION = 386+91.95
PT STATION = 390+91.44

CURVE RM 473 55
PI STATION = 393+09.26
DELTA = 2° 51' 53.24" (LT)
DEGREE OF CURVE = 2° 51' 53.24"
TANGENT = 50.01
LENGTH = 100.00
RADIUS = 2,000.00
PC STATION = 392+59.25
PT STATION = 393+59.25

CURVE RM 473 56
PI STATION = 394+83.32
DELTA = 11° 20' 11.53" (LT)
DEGREE OF CURVE = 4° 35' 01.18"
TANGENT = 124.07
LENGTH = 247.32
RADIUS = 1,250.00
PC STATION = 393+59.25
PT STATION = 396+06.58

CURVE RM 473 59
PI STATION = 397+52.85
DELTA = 2° 51' 53.24" (RT)
DEGREE OF CURVE = 2° 51' 53.24"
TANGENT = 50.01
LENGTH = 100.00
RADIUS = 2,000.00
PC STATION = 397+02.83
PT STATION = 398+02.83

CURVE RM 473 60
PI STATION = 399+95.89
DELTA = 18° 16' 44.19" (RT)
DEGREE OF CURVE = 4° 46' 28.73"
TANGENT = 193.06
LENGTH = 382.83
RADIUS = 1,200.00
PC STATION = 398+02.83
PT STATION = 401+85.67

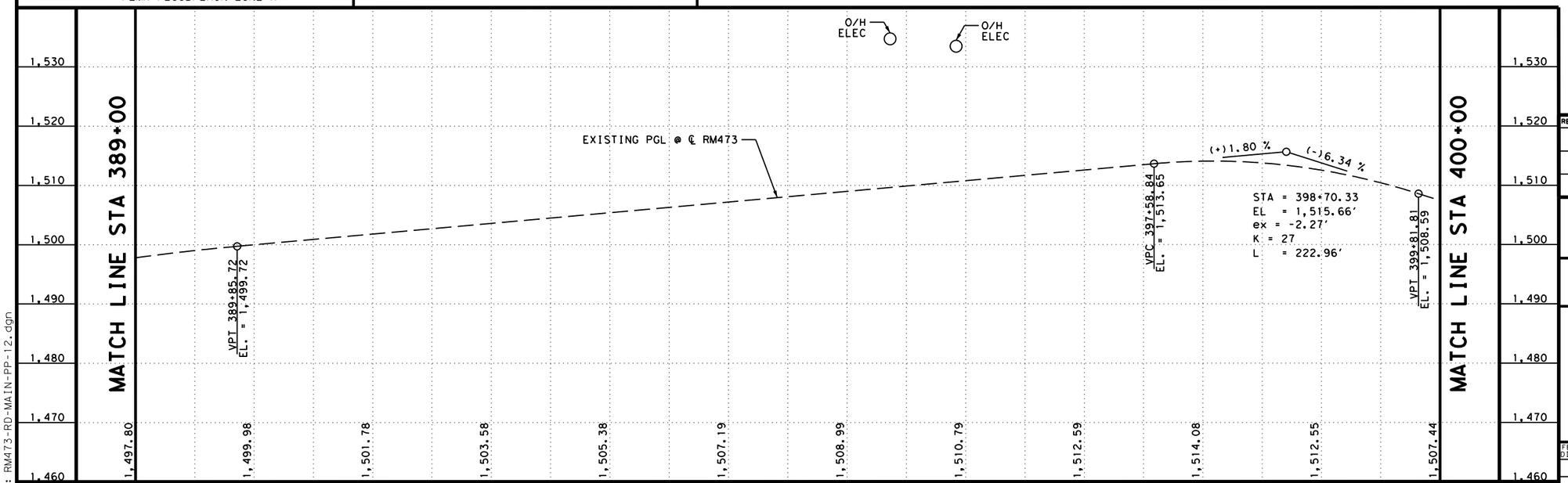
NOTES:

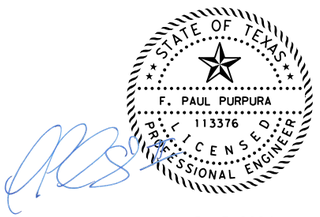
1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE





5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 389+00 TO
℄ RM 473 STA 400+00

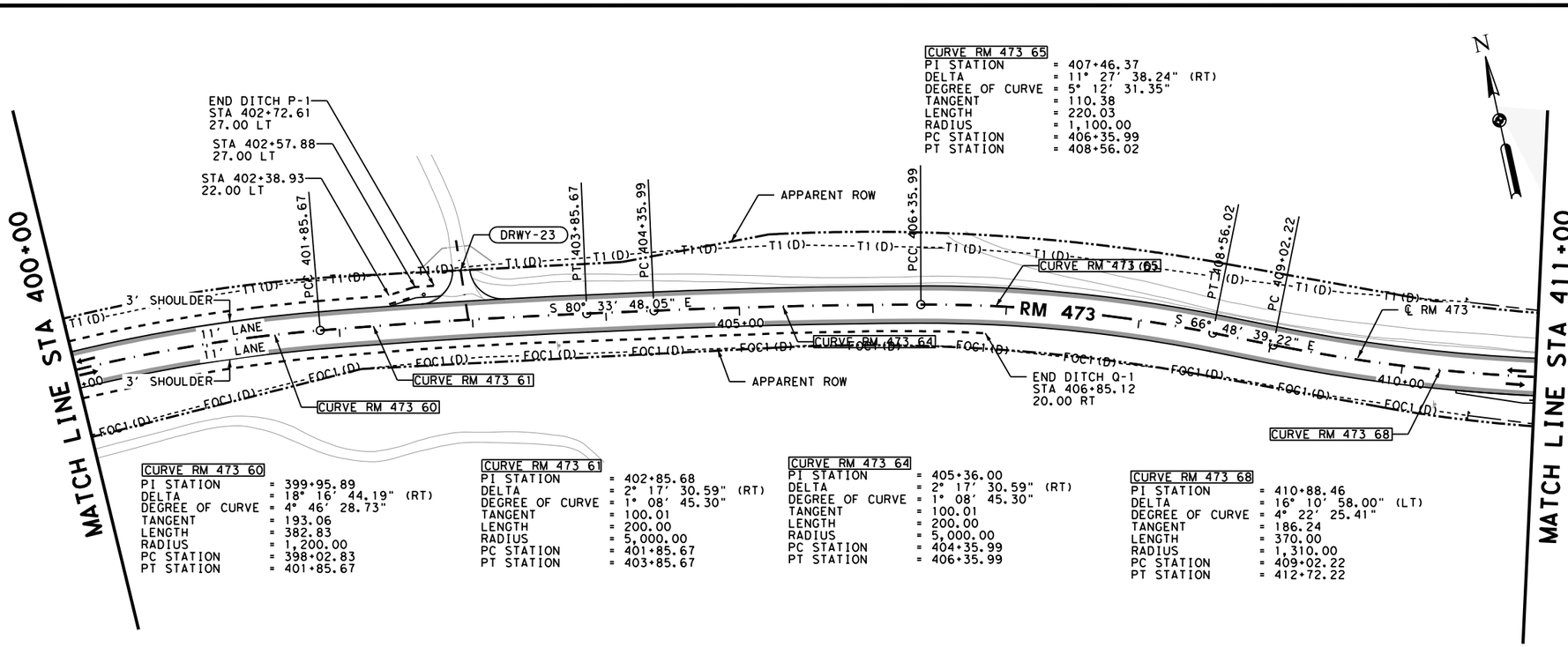
SHEET 12 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	92

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-12.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:27:29 AM



CURVE RM 473 65
PI STATION = 407+46.37
DELTA = 11° 27' 38.24" (RT)
DEGREE OF CURVE = 5° 12' 31.35"
TANGENT = 110.38
LENGTH = 220.03
RADIUS = 1,100.00
PC STATION = 406+35.99
PT STATION = 408+56.02

CURVE RM 473 60
PI STATION = 399+95.89
DELTA = 18° 16' 44.19" (RT)
DEGREE OF CURVE = 4° 46' 28.73"
TANGENT = 193.06
LENGTH = 382.83
RADIUS = 1,200.00
PC STATION = 398+02.83
PT STATION = 401+85.67

CURVE RM 473 61
PI STATION = 402+85.68
DELTA = 2° 17' 30.59" (RT)
DEGREE OF CURVE = 1° 08' 45.30"
TANGENT = 100.01
LENGTH = 200.00
RADIUS = 5,000.00
PC STATION = 401+85.67
PT STATION = 403+85.67

CURVE RM 473 64
PI STATION = 405+36.00
DELTA = 2° 17' 30.59" (RT)
DEGREE OF CURVE = 1° 08' 45.30"
TANGENT = 100.01
LENGTH = 200.00
RADIUS = 5,000.00
PC STATION = 404+35.99
PT STATION = 406+35.99

CURVE RM 473 68
PI STATION = 410+88.46
DELTA = 16° 10' 58.00" (LT)
DEGREE OF CURVE = 4° 22' 25.41"
TANGENT = 186.24
LENGTH = 370.00
RADIUS = 1,310.00
PC STATION = 409+02.22
PT STATION = 412+72.22

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	415
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	3

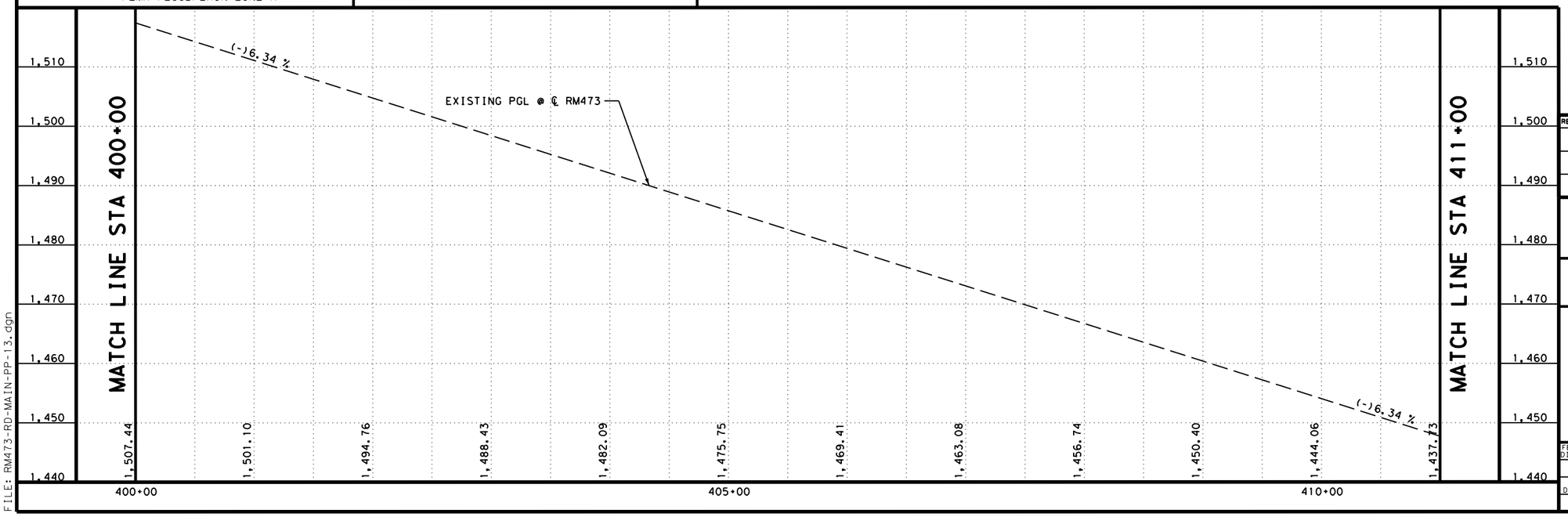
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
——OH——	OH1 - CENTRAL TEXAS ELECTRIC COOP
——OH——	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 400+00 TO
℄ RM 473 STA 411+00

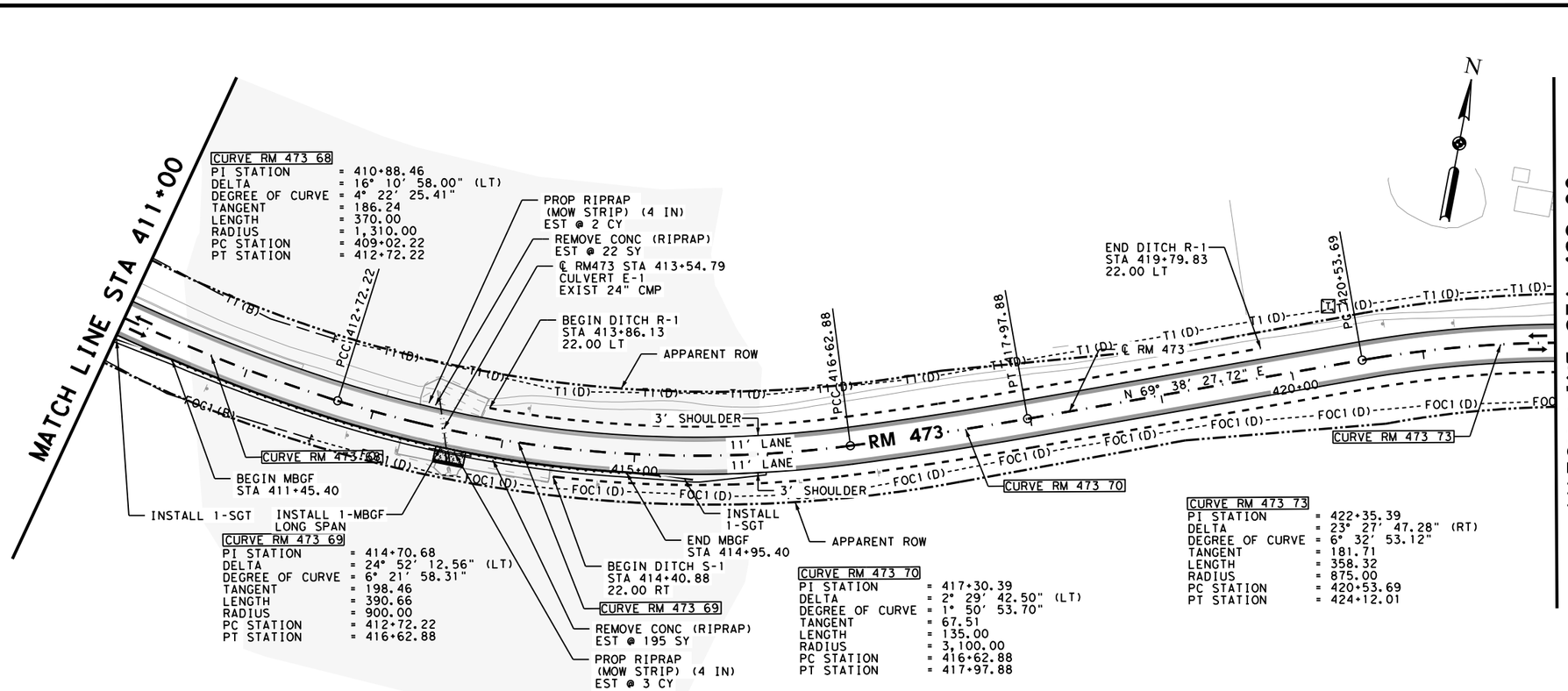
SHEET 13 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	93

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-13.dgn

100% SUBMITTAL

DATE: 5/20/2024 TIME: 1:18:09 PM



ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0104 6009	REMOVING CONC (RIPRAP)	SY	217
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	290
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	24
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	300
0540 6033	MTL BM GD FEN (LONG SPAN SYSTEM)	EA	1
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	2

NOTES:

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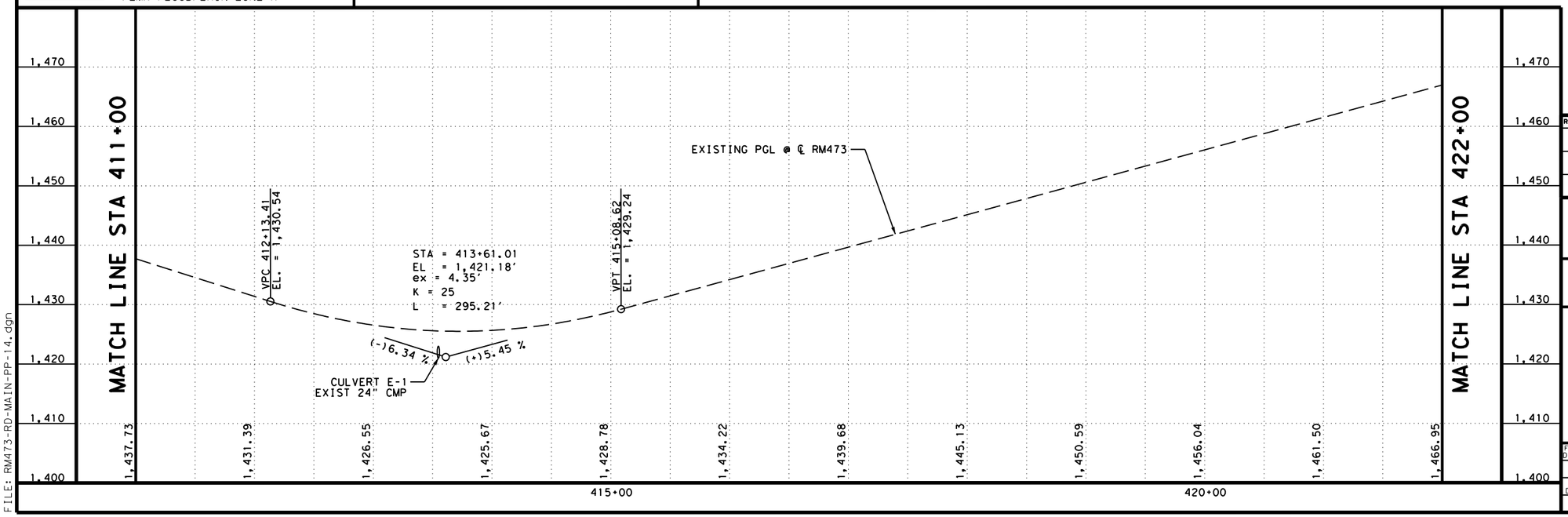
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
——OH——	OH1 - CENTRAL TEXAS ELECTRIC COOP
——OH——	OH2 - HILL COUNTRY TELEPHONE



F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/20/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 411+00 TO
℄ RM 473 STA 422+00

SHEET 14 OF 35

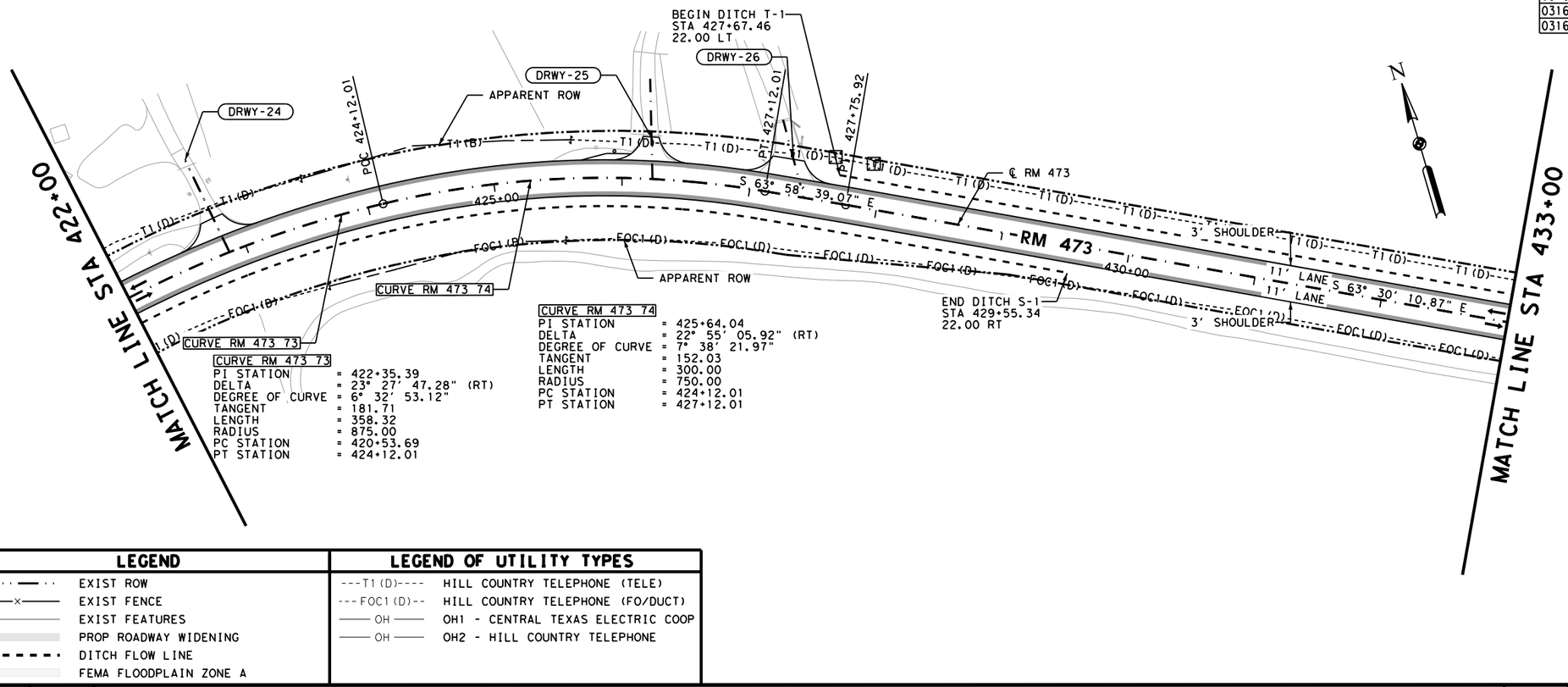
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	94

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-14.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:27:47 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	367
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	266
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM 473 73

PI STATION	= 422+35.39
DELTA	= 23° 27' 47.28" (RT)
DEGREE OF CURVE	= 6° 32' 53.12"
TANGENT	= 181.71
LENGTH	= 358.32
RADIUS	= 875.00
PC STATION	= 420+53.69
PT STATION	= 424+12.01

CURVE RM 473 74

PI STATION	= 425+64.04
DELTA	= 22° 55' 05.92" (RT)
DEGREE OF CURVE	= 7° 38' 21.97"
TANGENT	= 152.03
LENGTH	= 300.00
RADIUS	= 750.00
PC STATION	= 424+12.01
PT STATION	= 427+12.01

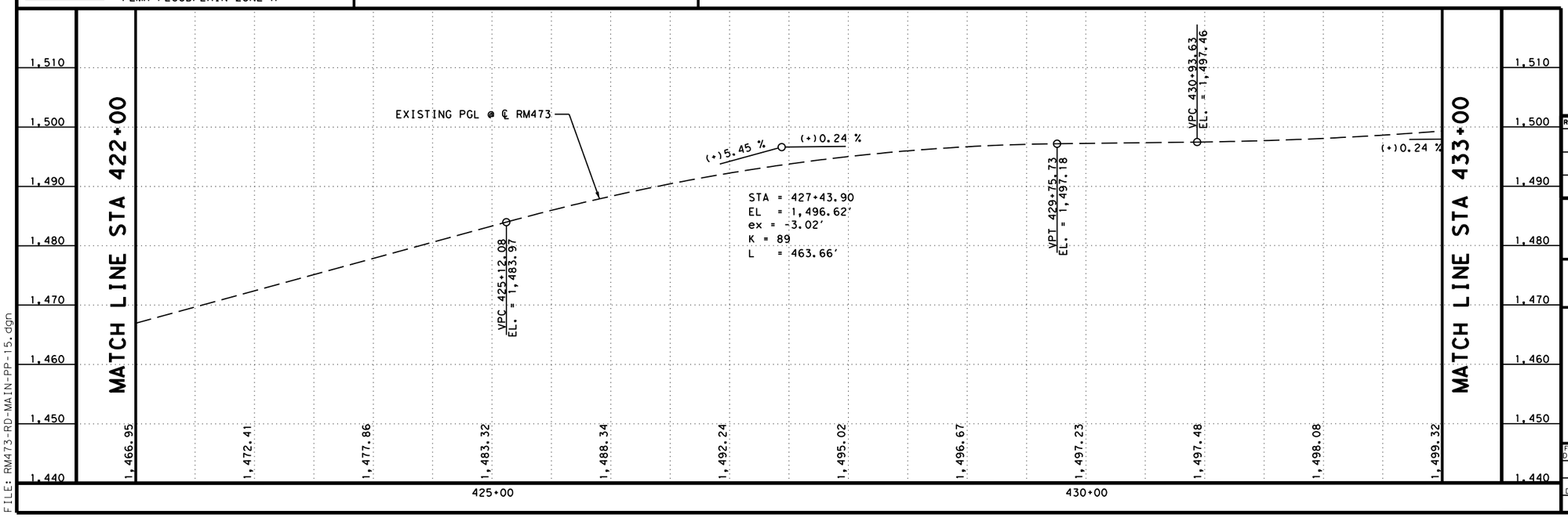
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 422+00 TO
℄ RM 473 STA 433+00

SHEET 15 OF 35

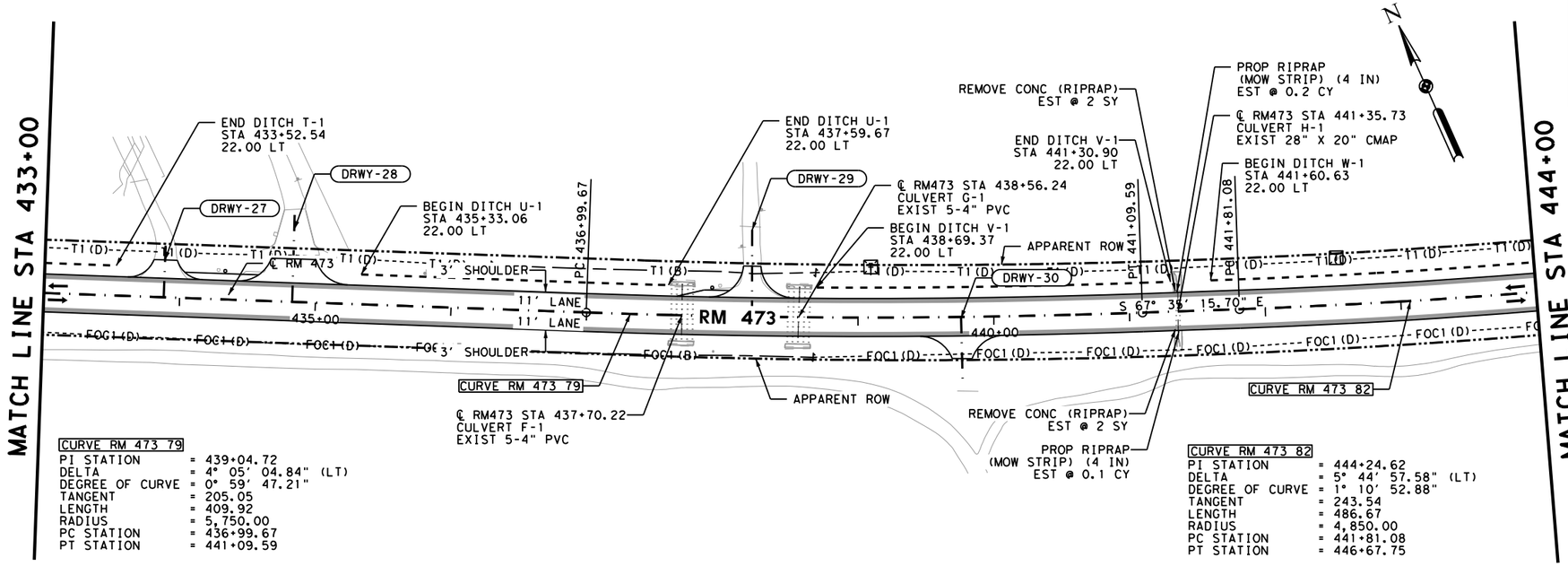
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	95

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-15.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:27:58 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0104 6009	REMOVING CONC (RIPRAP)	SY	4
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	320
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	0.3



CURVE RM 473 79

PI STATION	= 439+04.72
DELTA	= 4° 05' 04.84" (LT)
DEGREE OF CURVE	= 0° 59' 47.21"
TANGENT	= 205.05
LENGTH	= 409.92
RADIUS	= 5,750.00
PC STATION	= 436+99.67
PT STATION	= 441+09.59

CURVE RM 473 82

PI STATION	= 444+24.62
DELTA	= 5° 44' 57.58" (LT)
DEGREE OF CURVE	= 1° 10' 52.88"
TANGENT	= 243.54
LENGTH	= 486.67
RADIUS	= 4,850.00
PC STATION	= 441+81.08
PT STATION	= 446+67.75

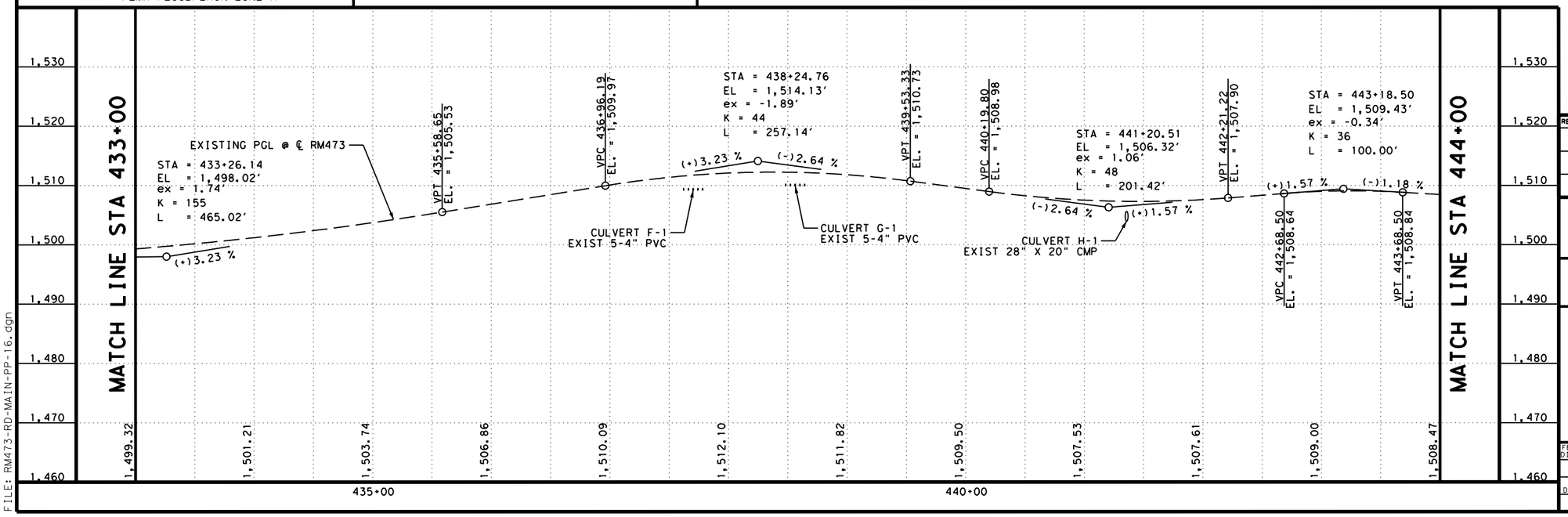
NOTES:

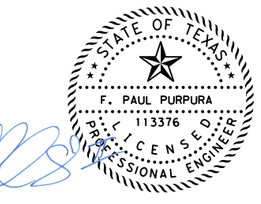
1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×—×—×	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE





5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 433+00 TO
℄ RM 473 STA 444+00

SHEET 16 OF 35

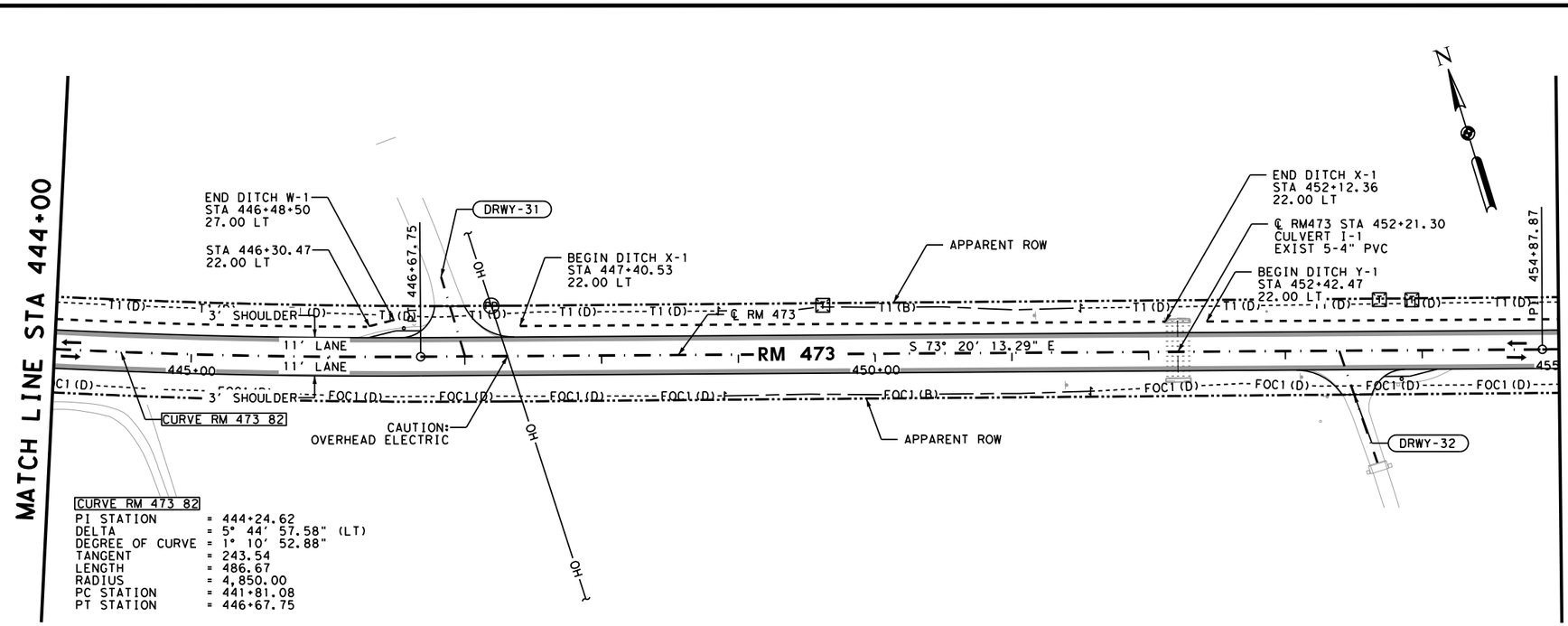
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	96

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-16.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:28:07 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	211
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM 473 82

PI STATION	= 444+24.62
DELTA	= 5° 44' 57.58" (LT)
DEGREE OF CURVE	= 1° 10' 52.88"
TANGENT	= 243.54
LENGTH	= 486.67
RADIUS	= 4,850.00
PC STATION	= 441+81.08
PT STATION	= 446+67.75

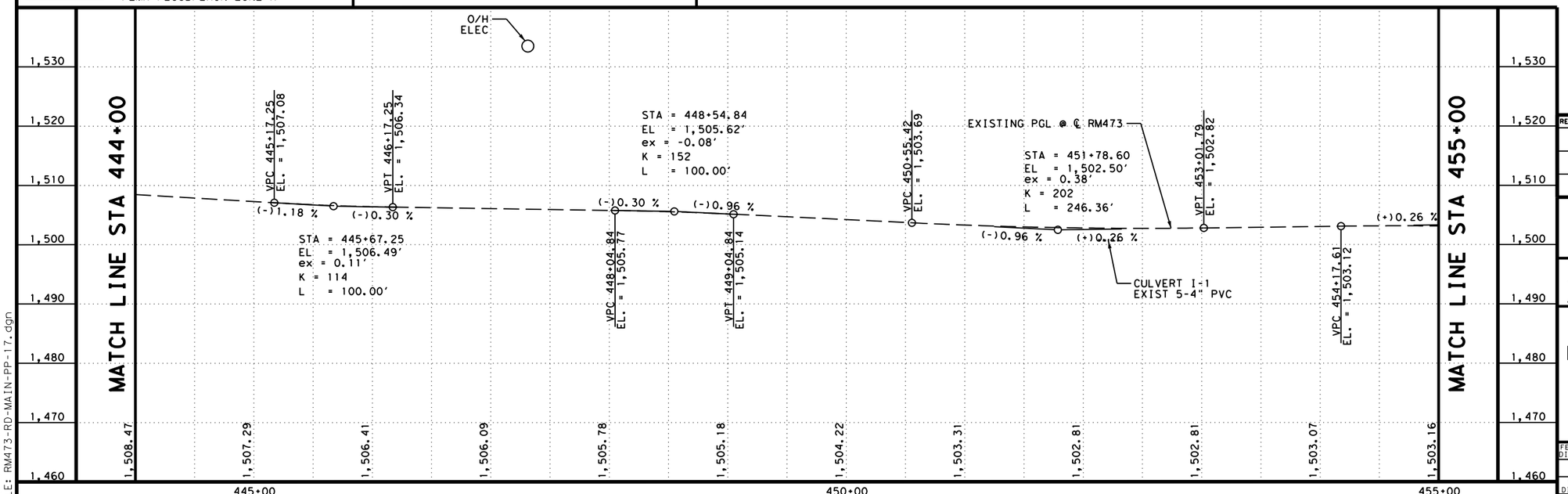
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×—×—×	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 444+00 TO
℄ RM 473 STA 455+00

SHEET 17 OF 35

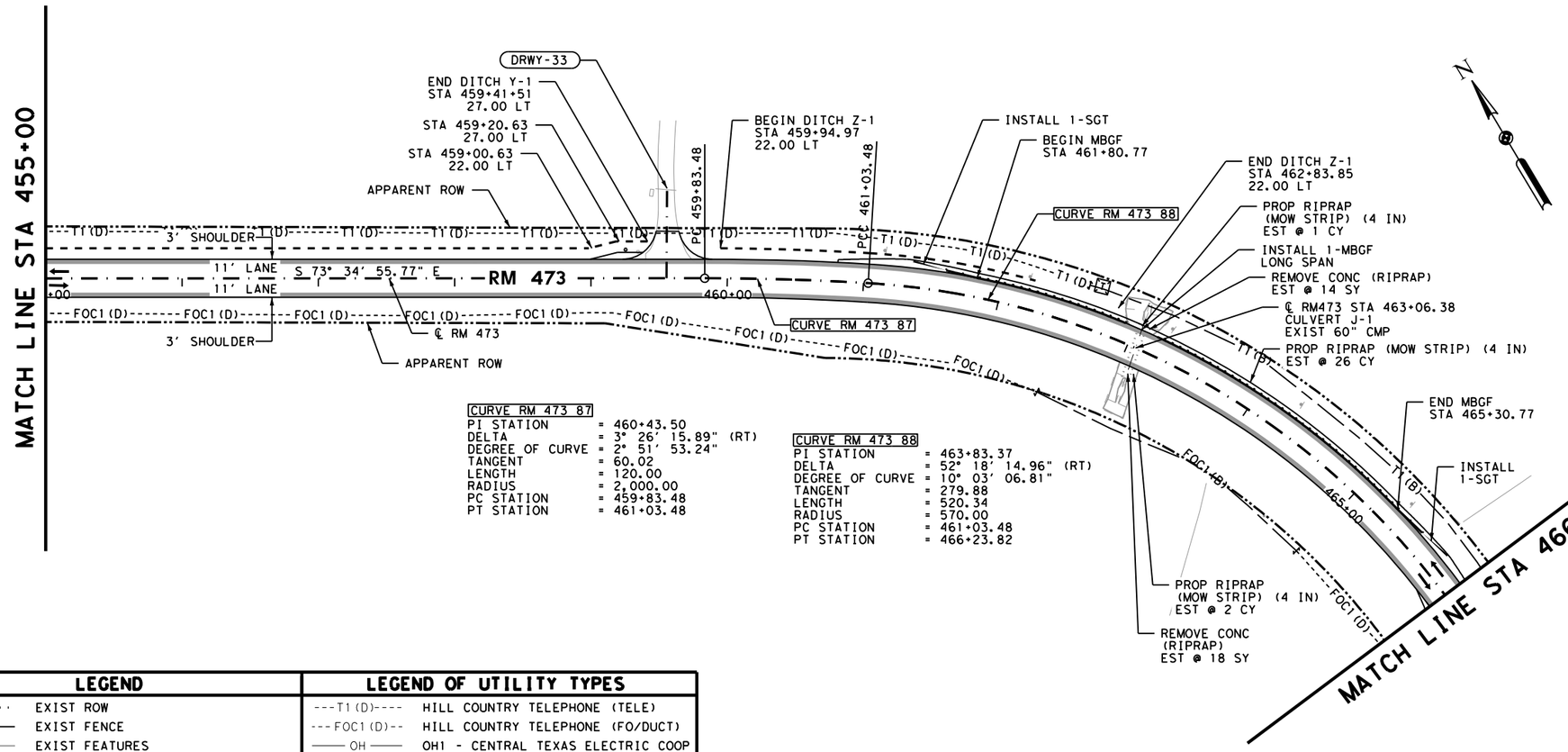
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	97

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-17.dgn

100% SUBMITTAL

DATE: 5/20/2024 TIME: 1:18:20 PM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0104 6009	REMOVING CONC (RIPRAP)	SY	32
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	208
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	29
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	300
0540 6033	MTL BM GD FEN (LONG SPAN SYSTEM)	EA	1
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	2



CURVE RM 473 87

PI STATION	= 460+43.50
DELTA	= 3° 26' 15.89" (RT)
DEGREE OF CURVE	= 2° 51' 53.24"
TANGENT	= 60.02
LENGTH	= 120.00
RADIUS	= 2,000.00
PC STATION	= 459+83.48
PT STATION	= 461+03.48

CURVE RM 473 88

PI STATION	= 463+83.37
DELTA	= 52° 18' 14.96" (RT)
DEGREE OF CURVE	= 10° 03' 06.81"
TANGENT	= 279.88
LENGTH	= 520.34
RADIUS	= 570.00
PC STATION	= 461+03.48
PT STATION	= 466+23.82

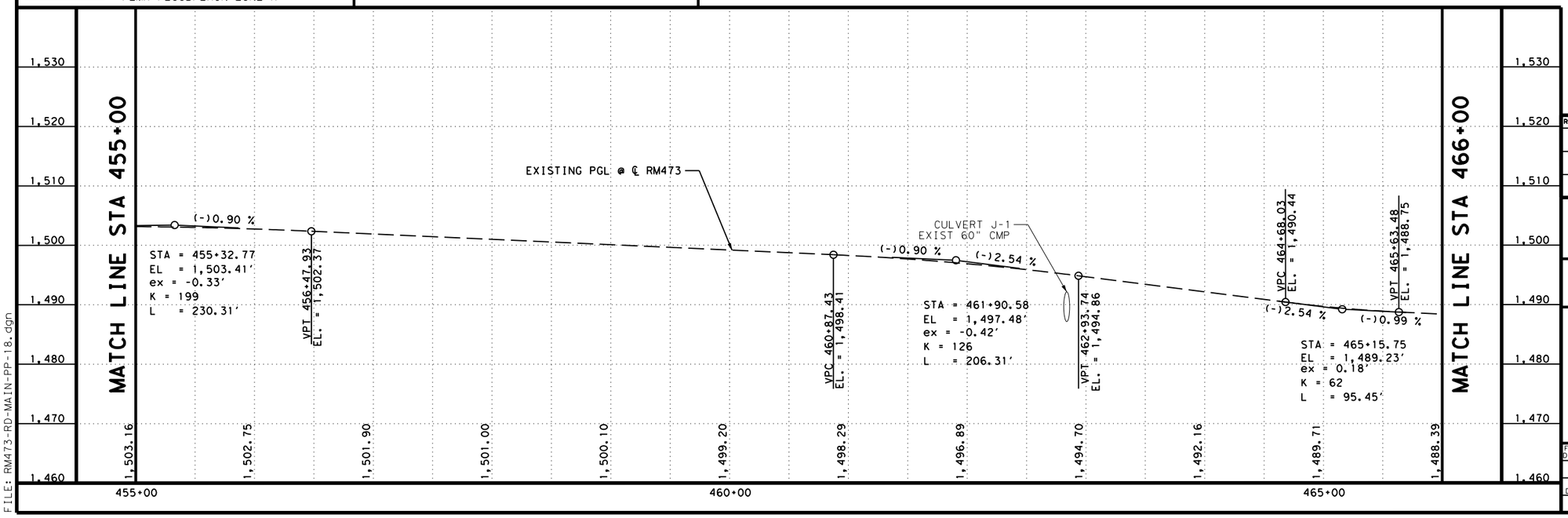
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
——OH——	OH1 - CENTRAL TEXAS ELECTRIC COOP
——OH——	OH2 - HILL COUNTRY TELEPHONE



5/20/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 455+00 TO
℄ RM 473 STA 466+00

SHEET 18 OF 35

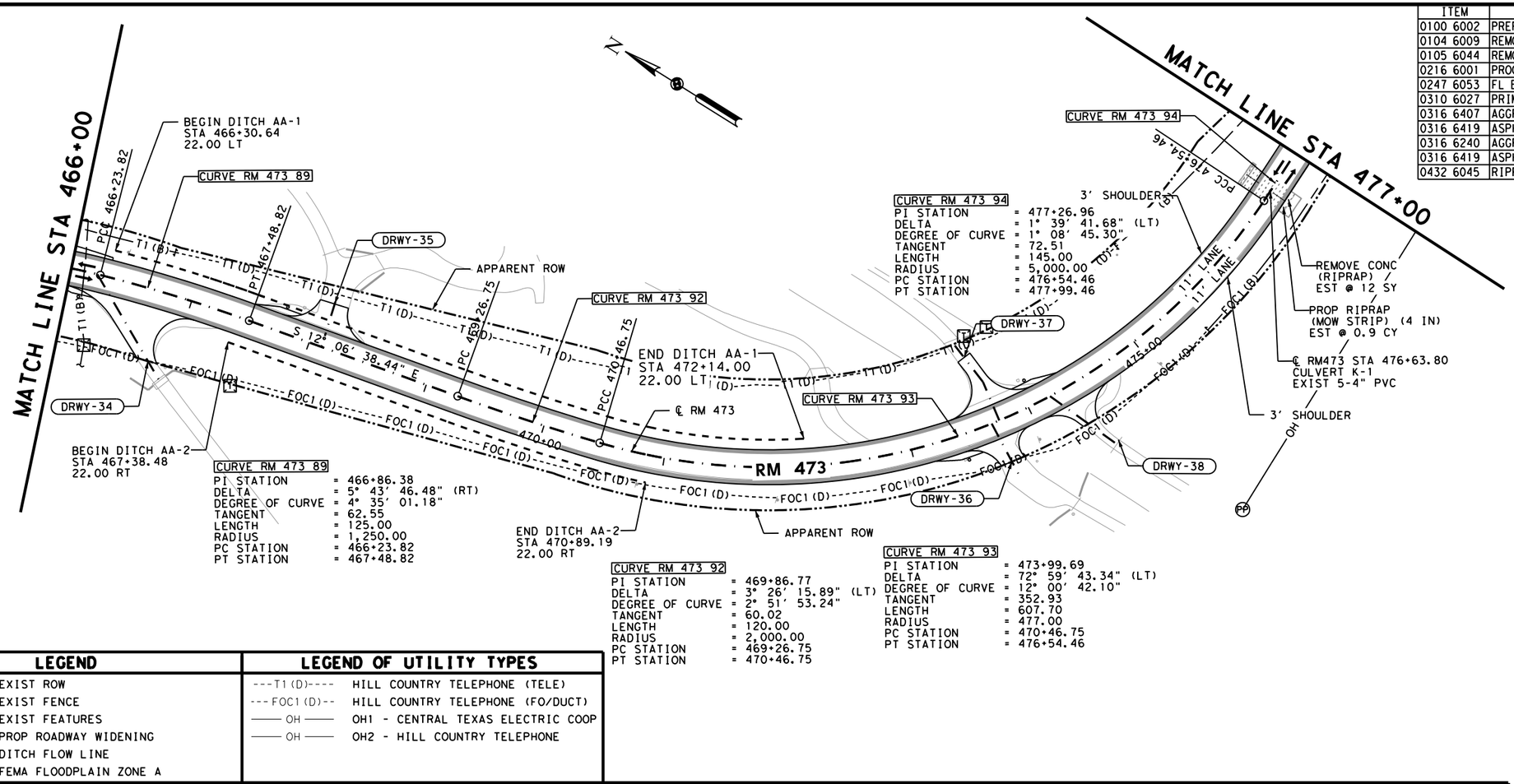
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.
6	TEXAS	SEE TITLE SHEET		RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	98

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-18.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:28:26 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0104 6009	REMOVING CONC (RIPRAP)	SY	12
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	352
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	0.9



CURVE RM 473 89

PI STATION	= 466+86.38
DELTA	= 5° 43' 46.48" (RT)
DEGREE OF CURVE	= 4° 35' 01.18"
TANGENT	= 62.55
LENGTH	= 125.00
RADIUS	= 1,250.00
PC STATION	= 466+23.82
PT STATION	= 467+48.82

CURVE RM 473 92

PI STATION	= 469+86.77
DELTA	= 3° 26' 15.89" (LT)
DEGREE OF CURVE	= 2° 51' 53.24"
TANGENT	= 60.02
LENGTH	= 120.00
RADIUS	= 2,000.00
PC STATION	= 469+26.75
PT STATION	= 470+46.75

CURVE RM 473 93

PI STATION	= 473+99.69
DELTA	= 72° 59' 43.34" (LT)
DEGREE OF CURVE	= 12° 00' 42.10"
TANGENT	= 352.93
LENGTH	= 607.70
RADIUS	= 477.00
PC STATION	= 470+46.75
PT STATION	= 476+54.46

CURVE RM 473 94

PI STATION	= 477+26.96
DELTA	= 1° 39' 41.68" (LT)
DEGREE OF CURVE	= 1° 08' 45.30"
TANGENT	= 72.51
LENGTH	= 145.00
RADIUS	= 5,000.00
PC STATION	= 476+54.46
PT STATION	= 477+99.46

NOTES:

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2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

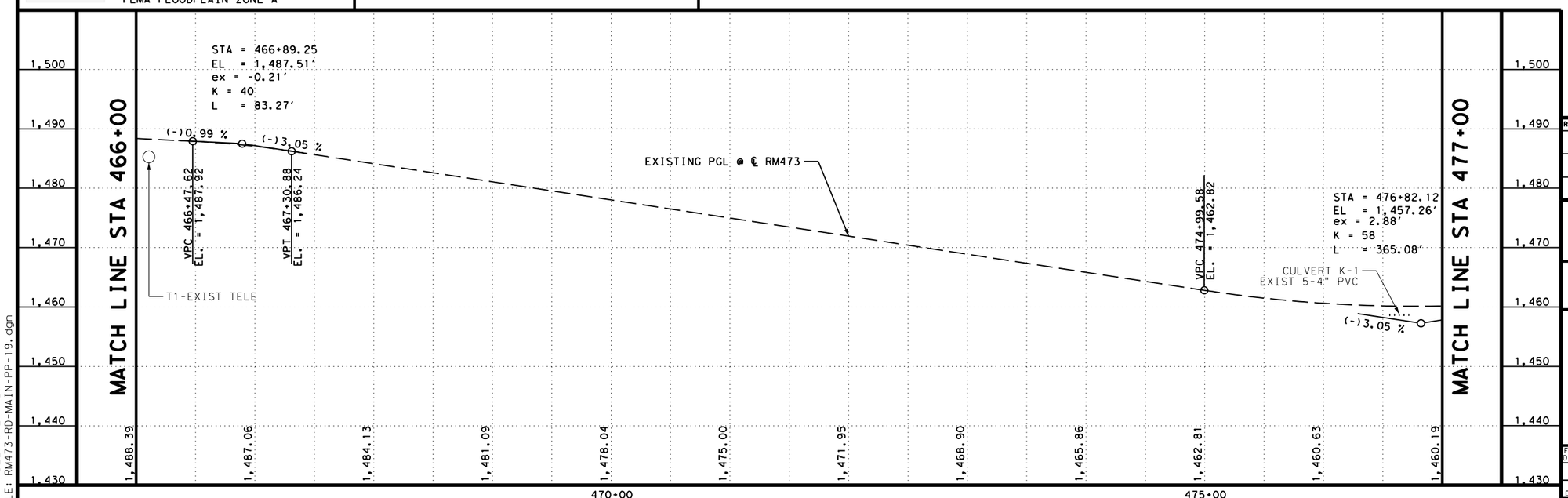
0' 50' 100'

LEGEND

- EXIST ROW
- EXIST FENCE
- EXIST FEATURES
- PROP ROADWAY WIDENING
- DITCH FLOW LINE
- FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES

- ---T1(D)---- HILL COUNTRY TELEPHONE (TELE)
- ---FOC1(D)-- HILL COUNTRY TELEPHONE (FO/DUCT)
- —— OH —— OH1 - CENTRAL TEXAS ELECTRIC COOP
- —— OH —— OH2 - HILL COUNTRY TELEPHONE



F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 466+00 TO
℄ RM 473 STA 477+00

SHEET 19 OF 35

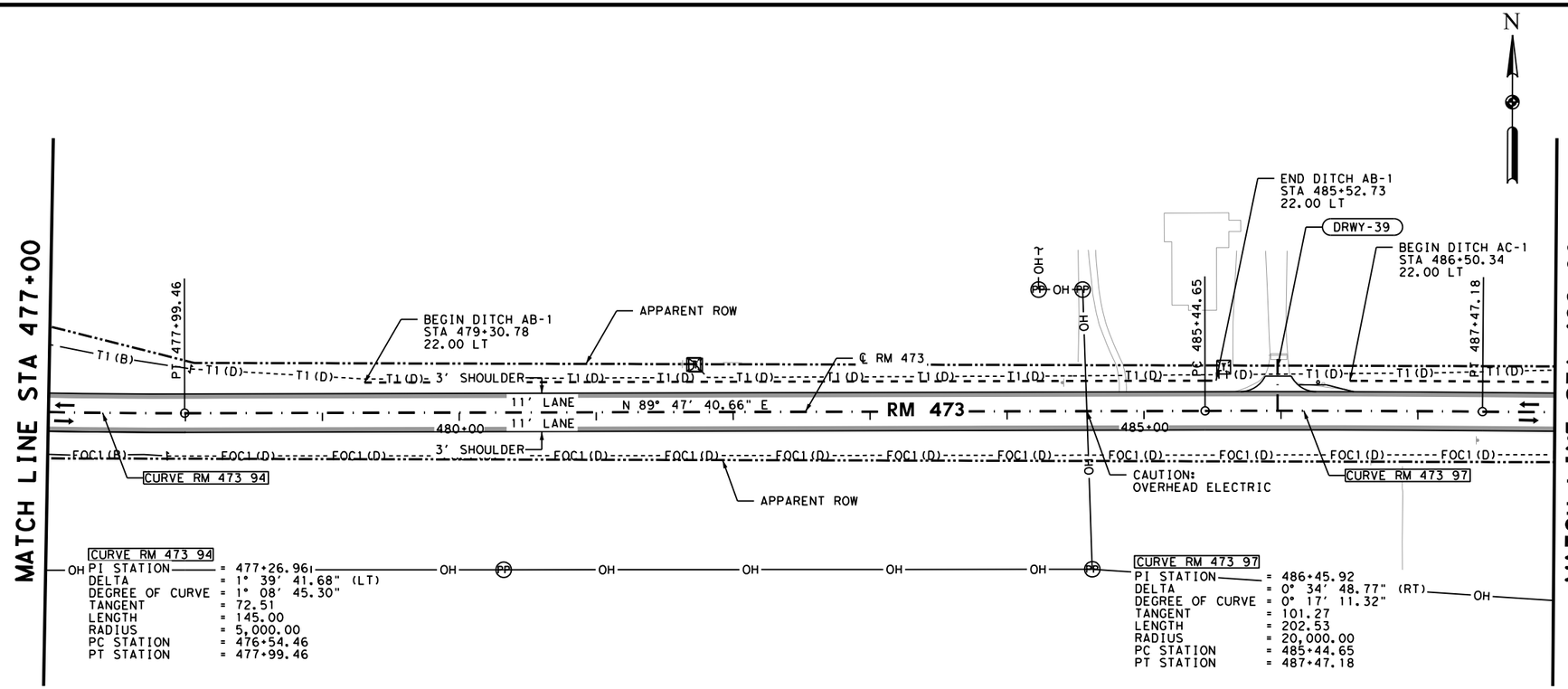
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	99

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-19.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:28:39 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	265
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



NOTES:

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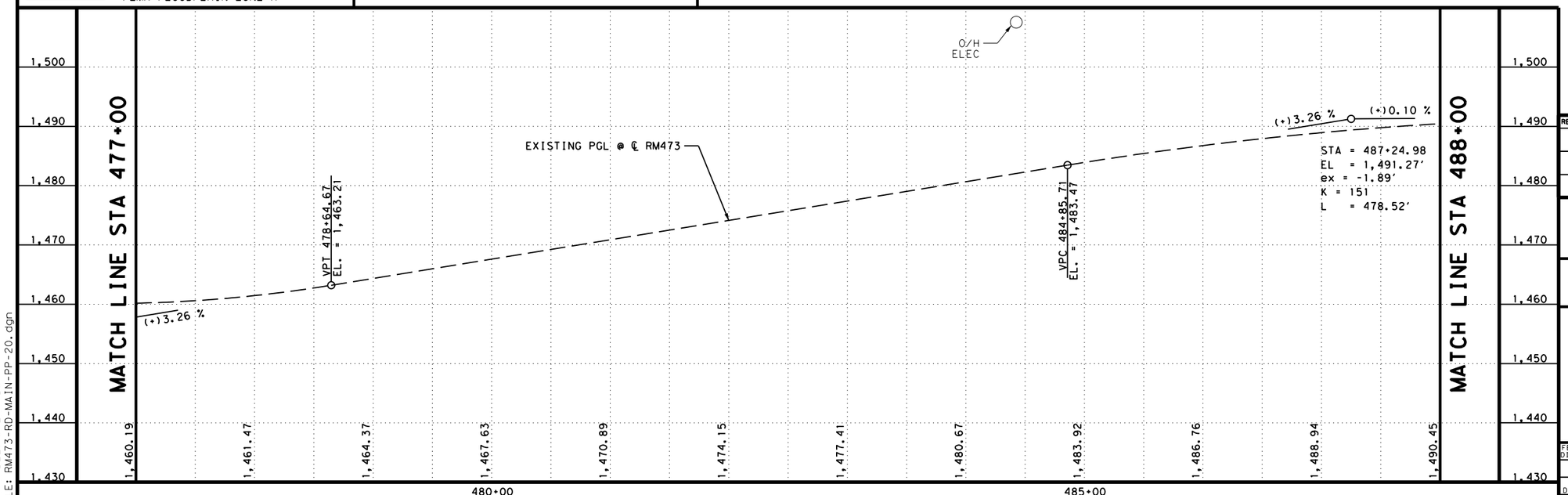
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 477+00 TO
℄ RM 473 STA 488+00

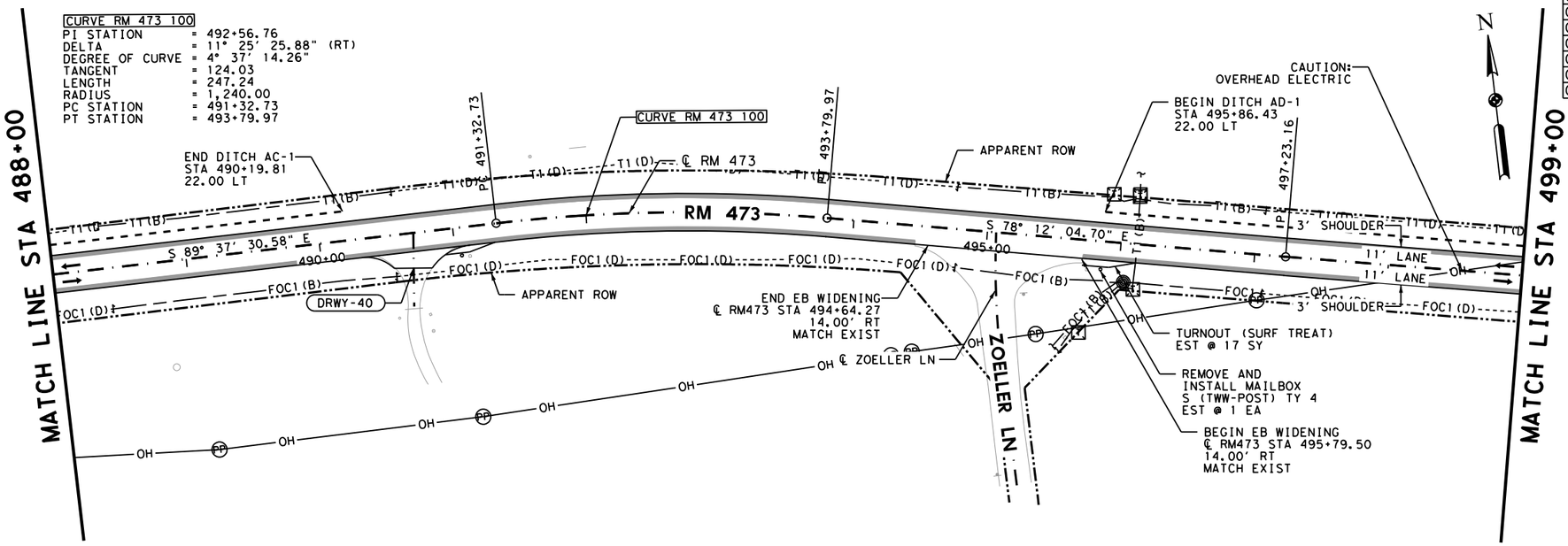
SHEET 20 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	100

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-20.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:28:50 AM



ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	182
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	252
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	242
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	311
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0530 6009	TURNOUTS (SURF TREAT)	SY	17
0560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

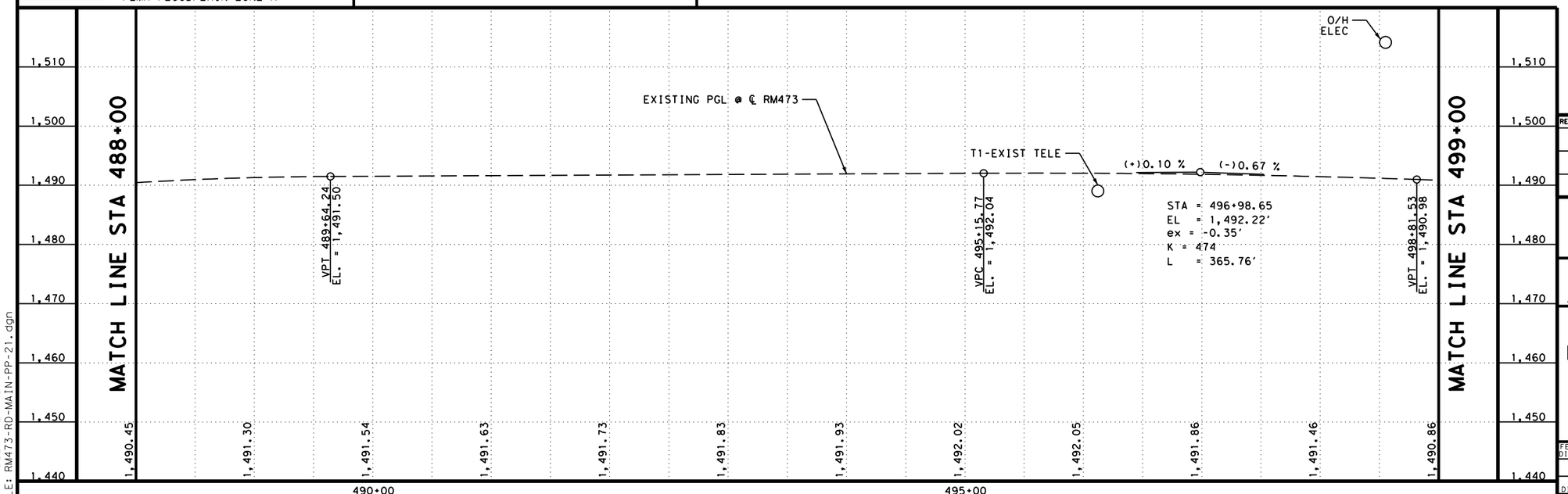
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 488+00 TO
℄ RM 473 STA 499+00

SHEET 21 OF 35

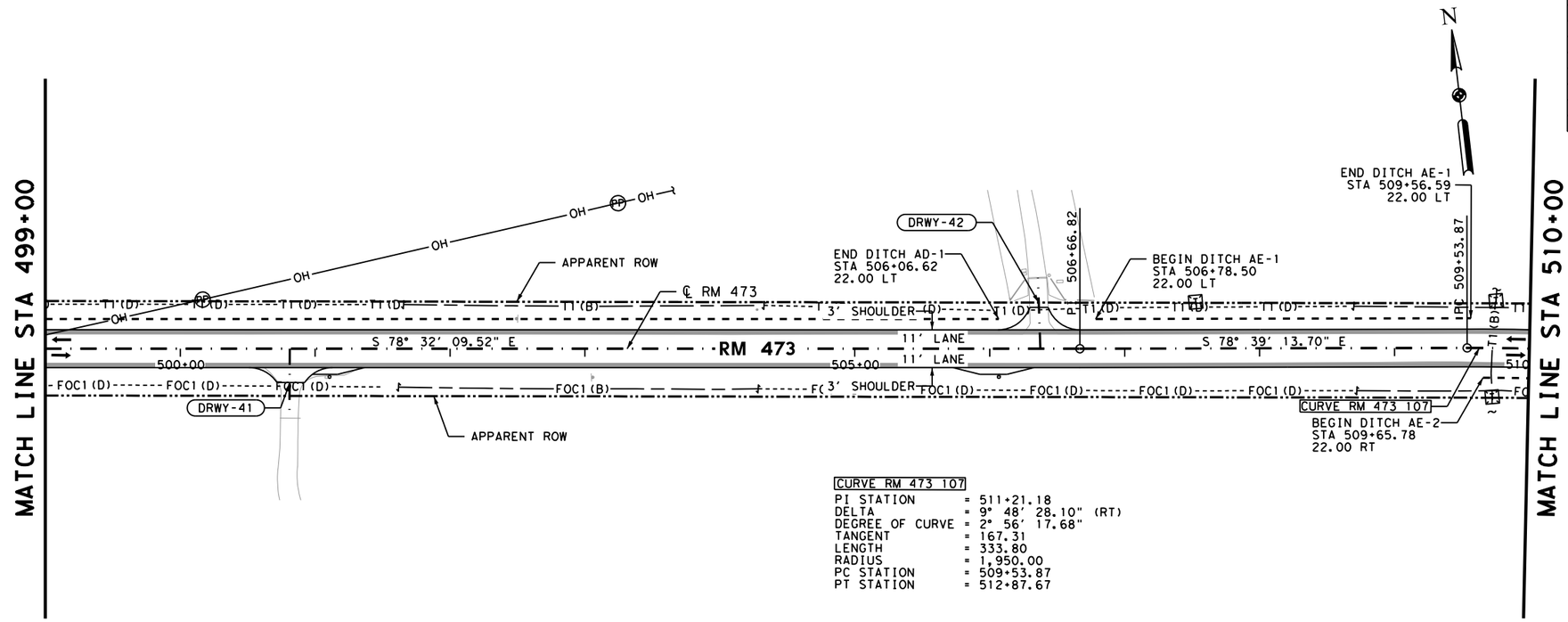
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	101

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-21.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:29:02 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	209
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM 473 107

PI STATION	= 511+21.18
DELTA	= 9° 48' 28.10" (RT)
DEGREE OF CURVE	= 2° 56' 17.68"
TANGENT	= 167.31
LENGTH	= 333.80
RADIUS	= 1,950.00
PC STATION	= 509+53.87
PT STATION	= 512+87.67

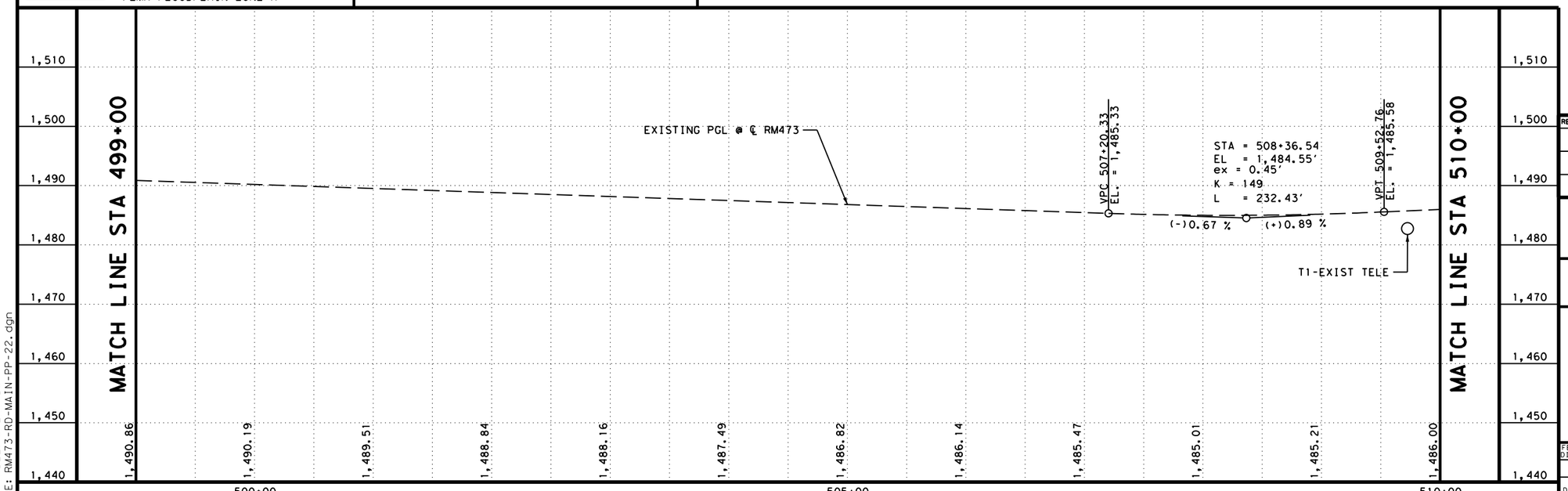
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
OH	OH1 - CENTRAL TEXAS ELECTRIC COOP
OH	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 499+00 TO
℄ RM 473 STA 510+00

SHEET 22 OF 35

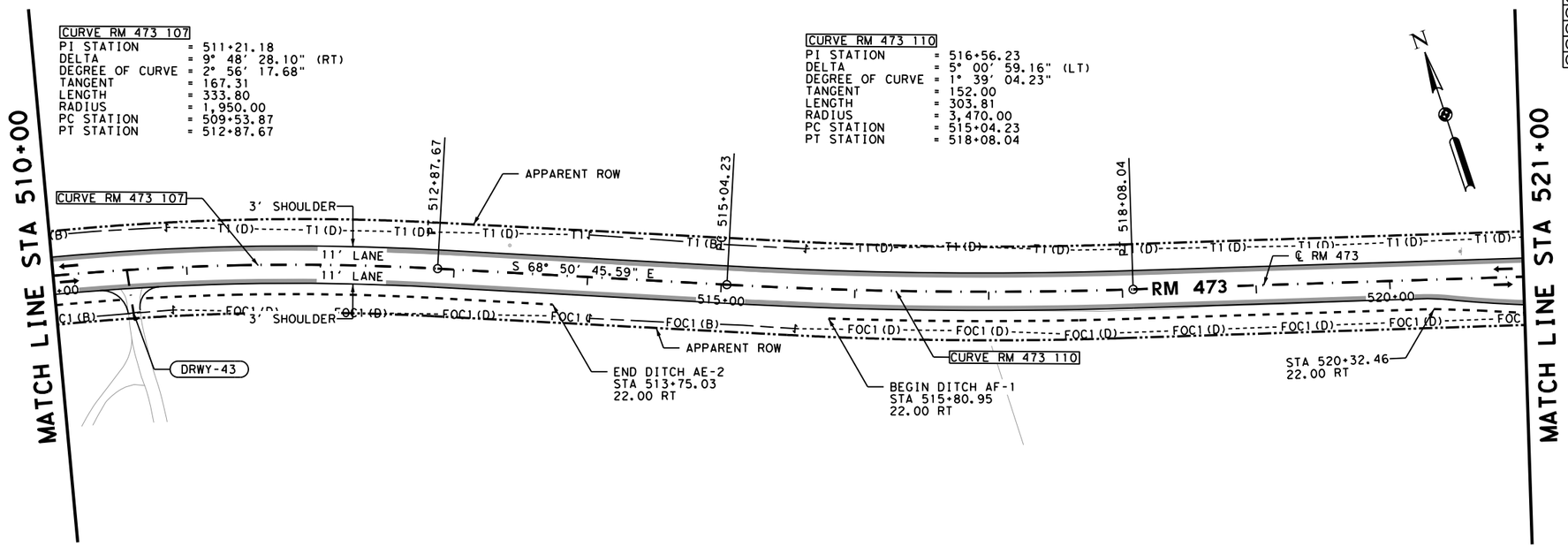
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	102

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-22.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:29:13 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	432
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	267
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	259
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1035



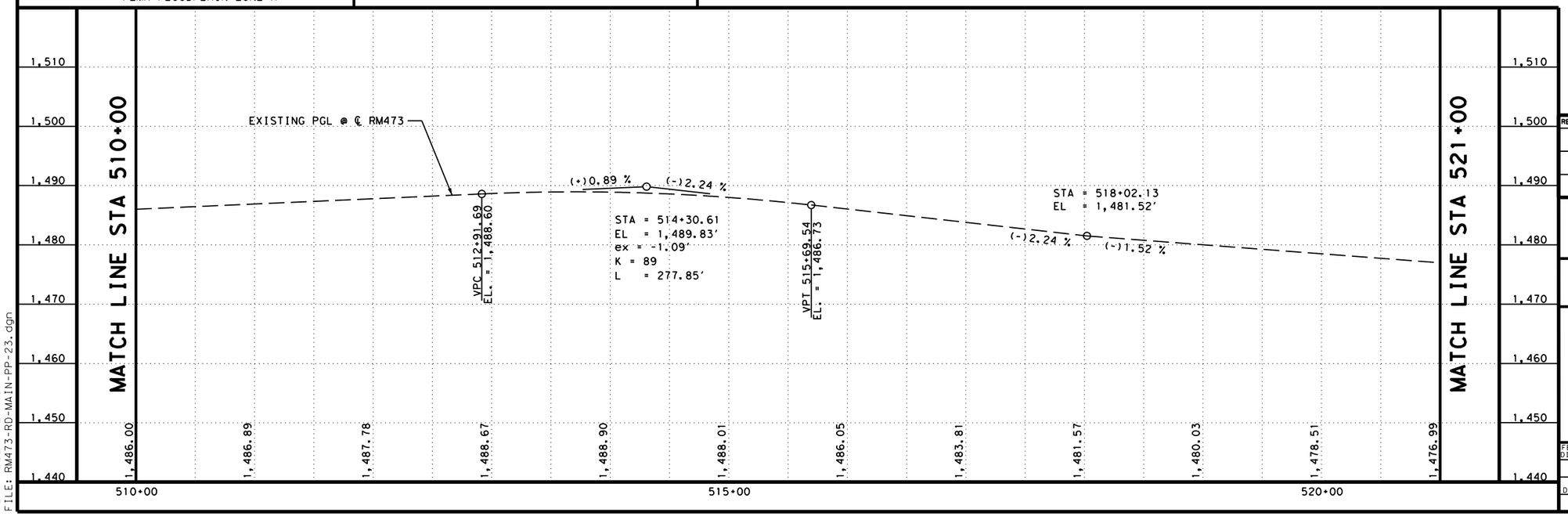
NOTES:

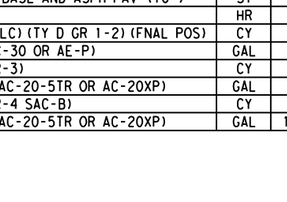
1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×—	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE





5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 510+00 TO
℄ RM 473 STA 521+00

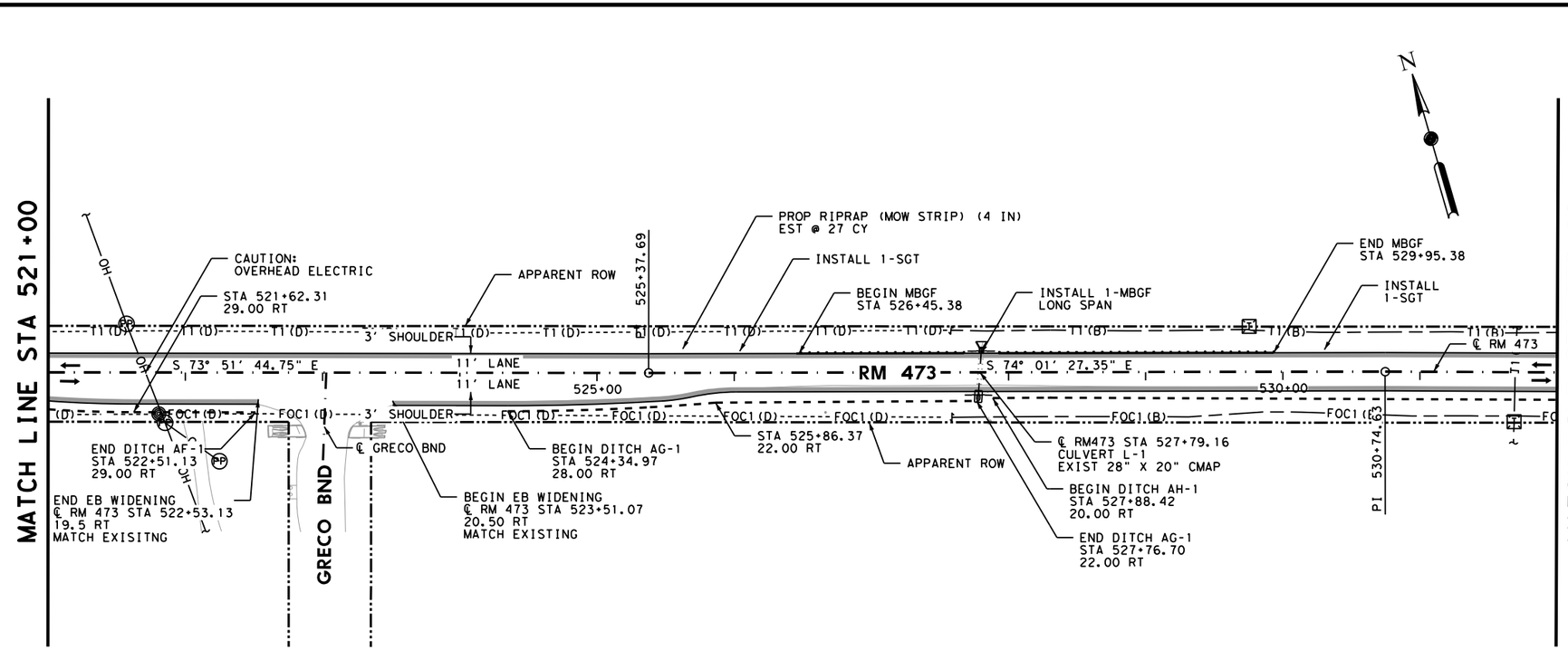
SHEET 23 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	103

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-23.dgn

100% SUBMITTAL

DATE: 5/20/2024 TIME: 1:18:31 PM



ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	614
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	267
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	258
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	315
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	32
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1168
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	27
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	300
0540 6033	MTL BM GD FEN (LONG SPAN SYSTEM)	EA	1
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	2

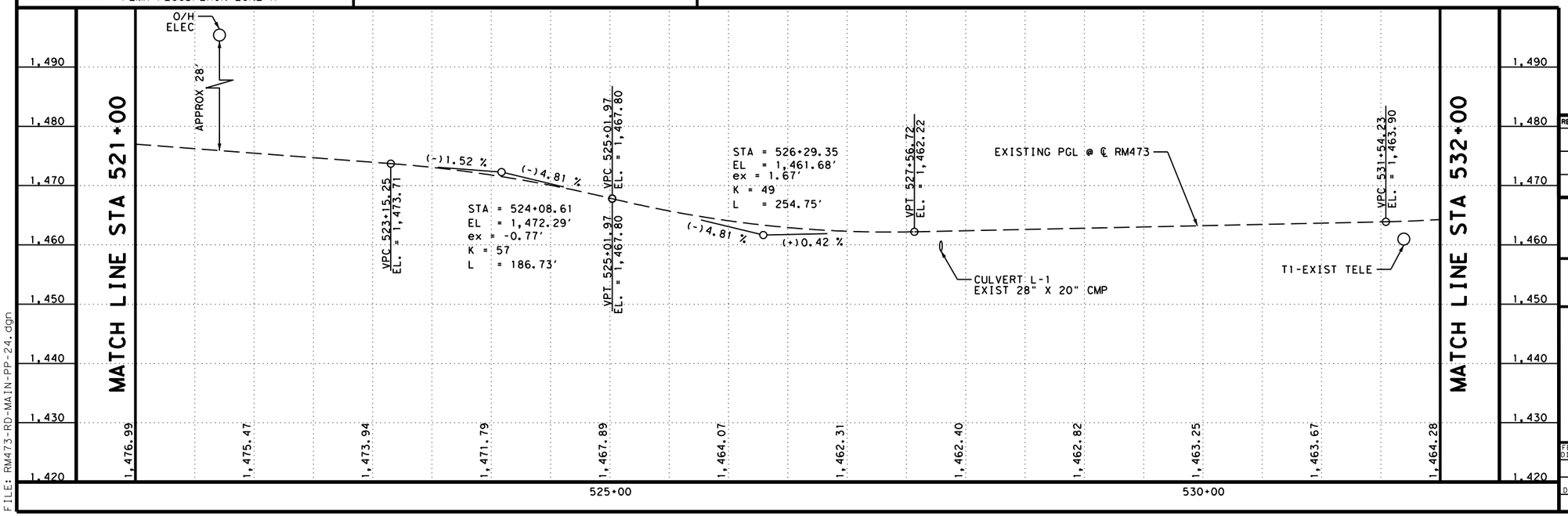
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×—×—×	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
——OH——	OH1 - CENTRAL TEXAS ELECTRIC COOP
——OH——	OH2 - HILL COUNTRY TELEPHONE



5/20/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 521+00 TO
℄ RM 473 STA 532+00

SHEET 24 OF 35

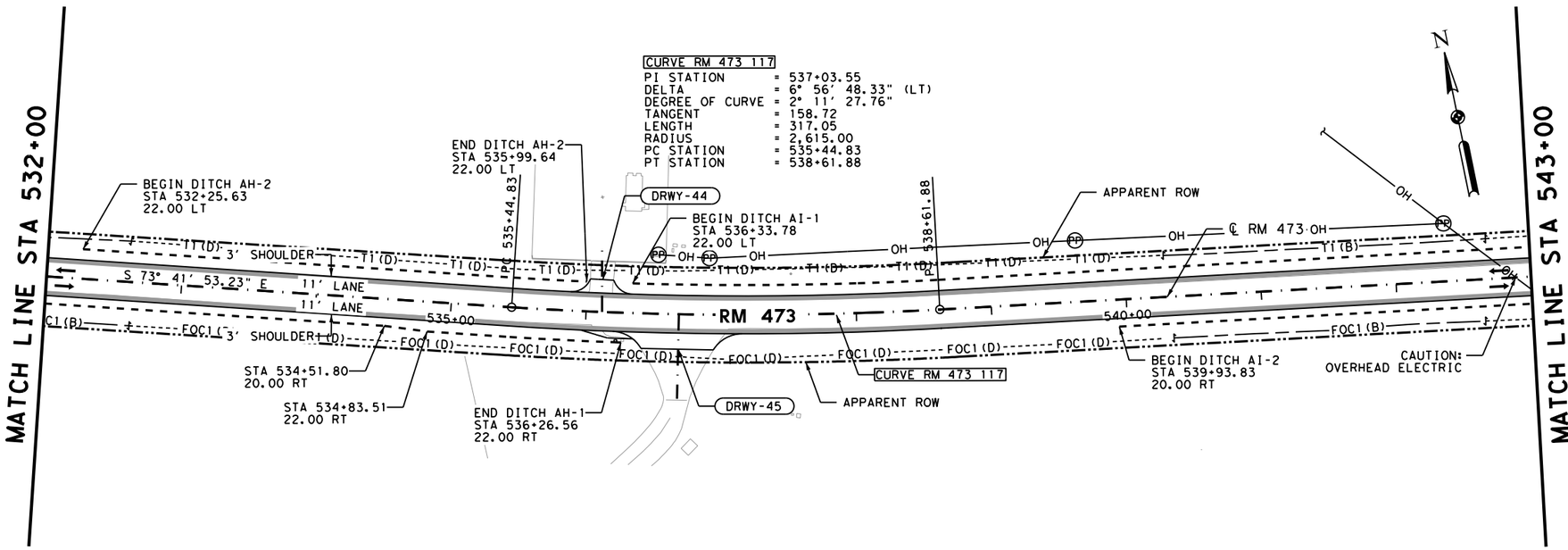
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	104

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-24.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:29:35 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	190
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



LEGEND

- EXIST ROW
- EXIST FENCE
- EXIST FEATURES
- PROP ROADWAY WIDENING
- DITCH FLOW LINE
- FEMA FLOODPLAIN ZONE A

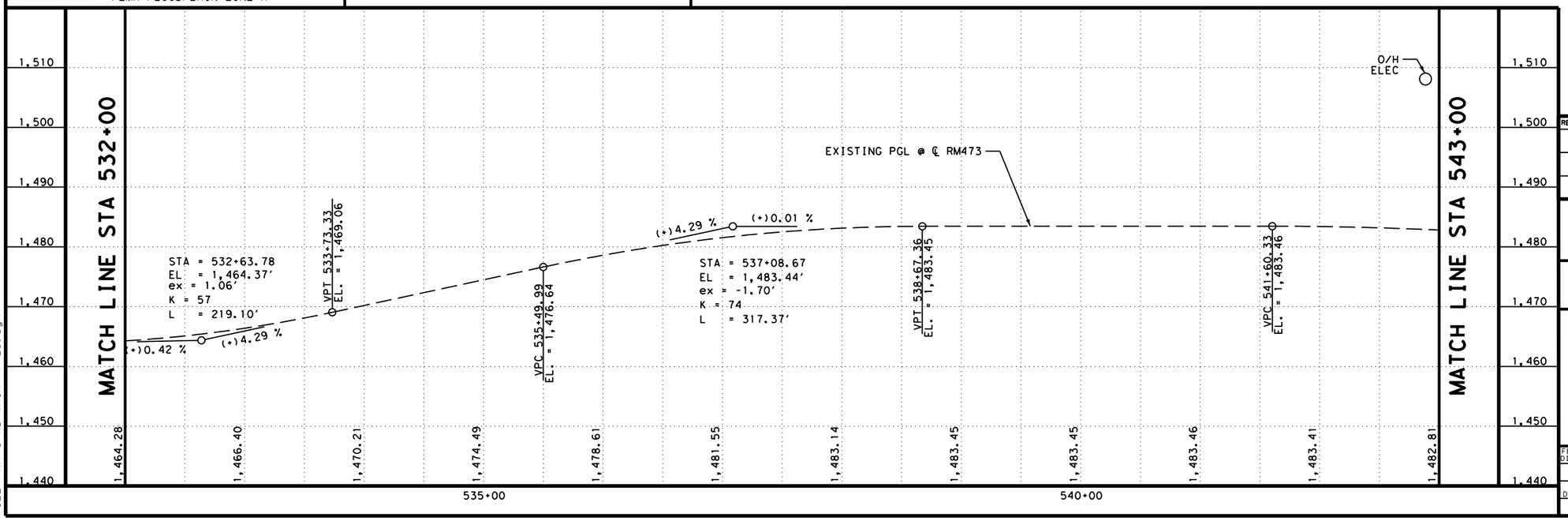
LEGEND OF UTILITY TYPES

- ---T1(D)--- HILL COUNTRY TELEPHONE (TELE)
- ---FOC1(D)-- HILL COUNTRY TELEPHONE (FO/DUCT)
- —— OH —— OH1 - CENTRAL TEXAS ELECTRIC COOP
- —— OH —— OH2 - HILL COUNTRY TELEPHONE

NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 532+00 TO
℄ RM 473 STA 543+00

SHEET 25 OF 35

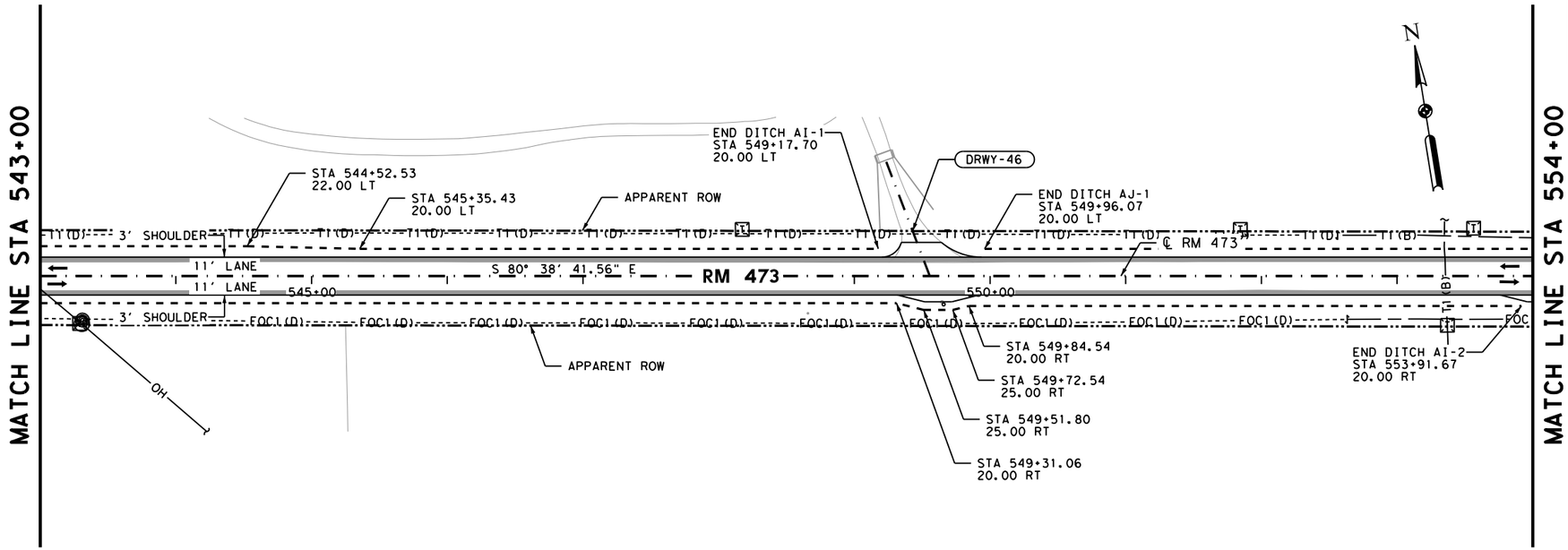
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	105

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-25.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:29:44 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	245
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



NOTES:

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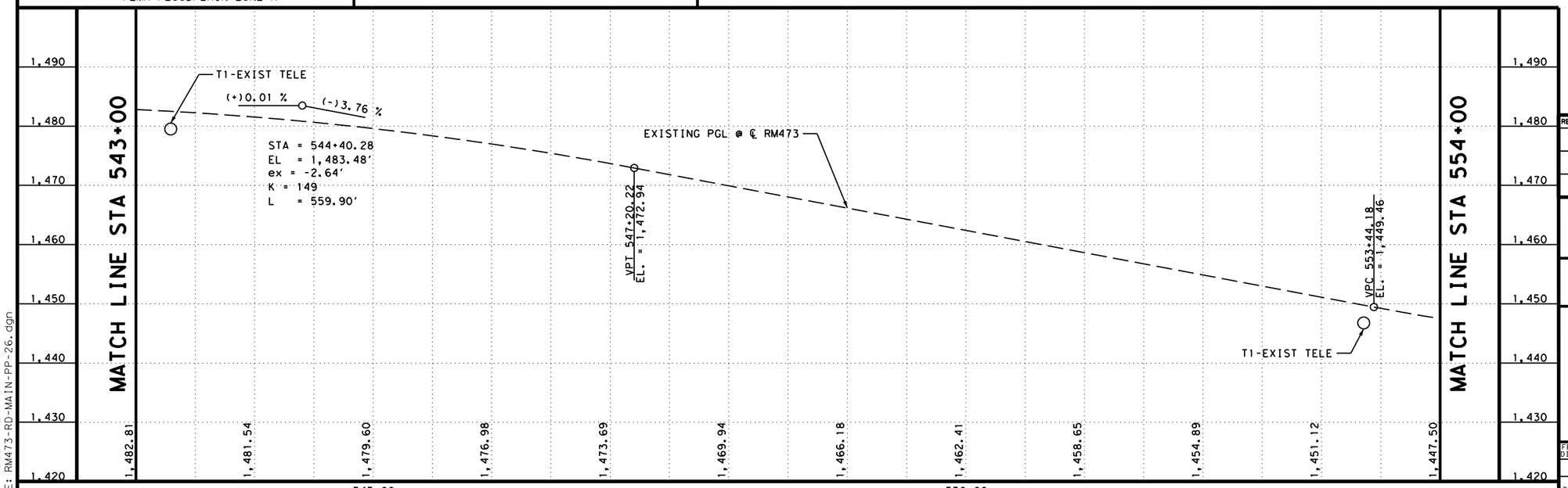
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 543+00 TO
℄ RM 473 STA 554+00

SHEET 26 OF 35

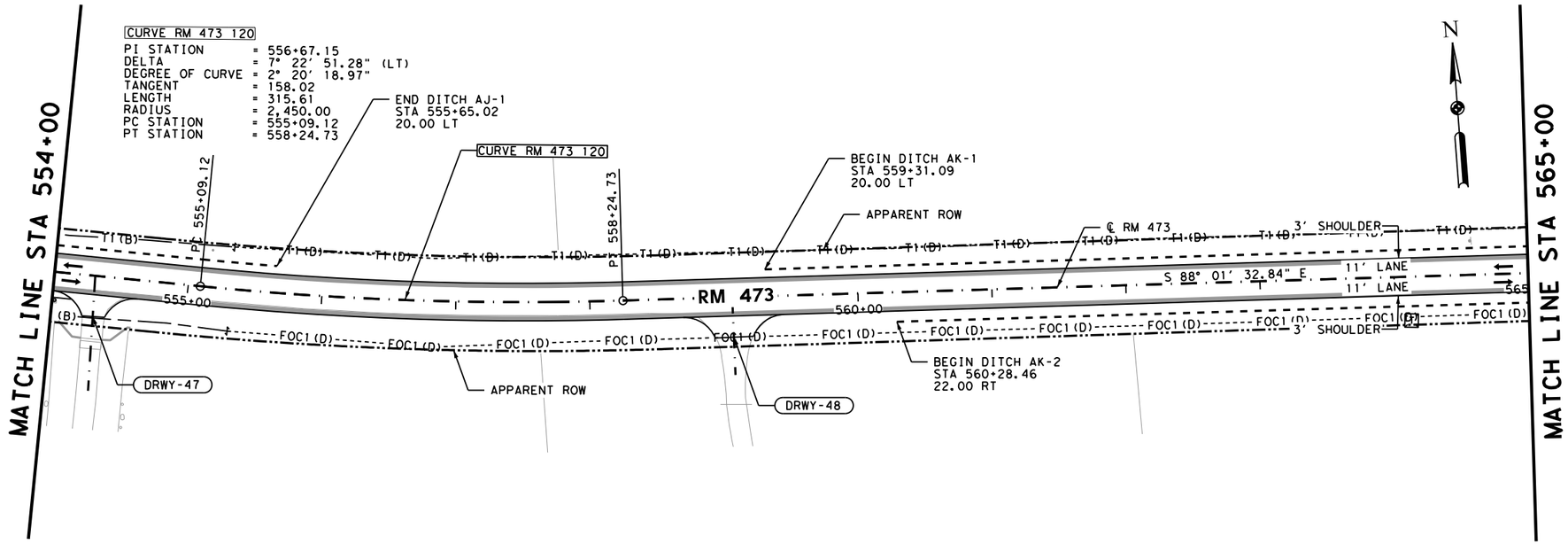
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	106

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-26.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:29:55 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	258
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



NOTES:

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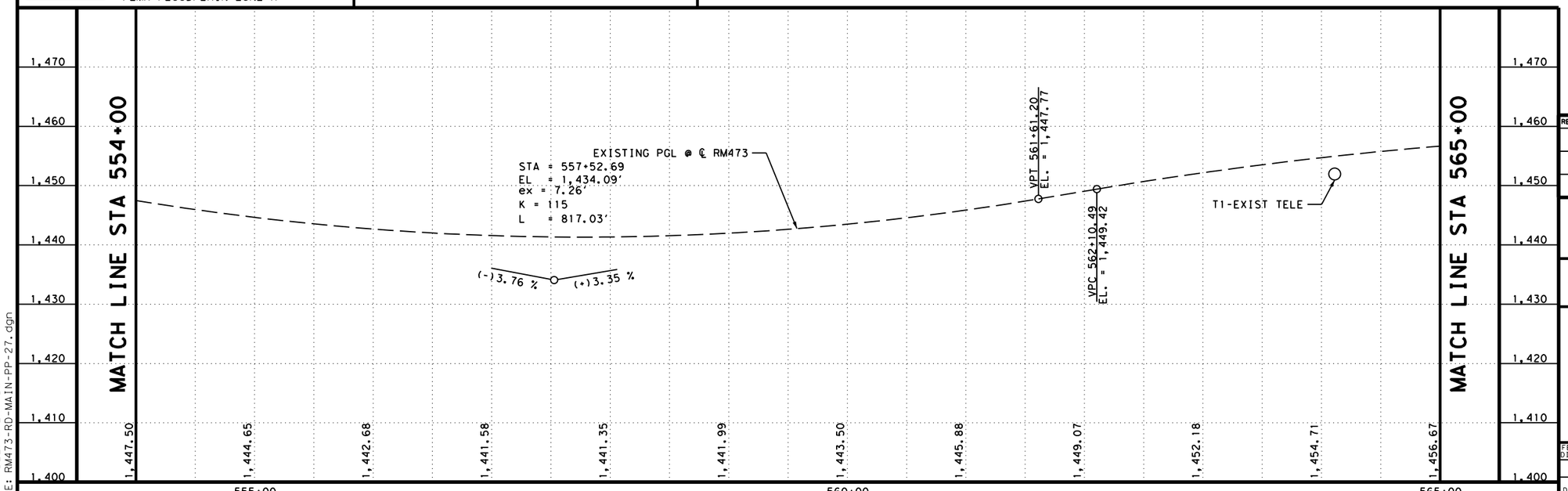
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 554+00 TO
℄ RM 473 STA 565+00

SHEET 27 OF 35

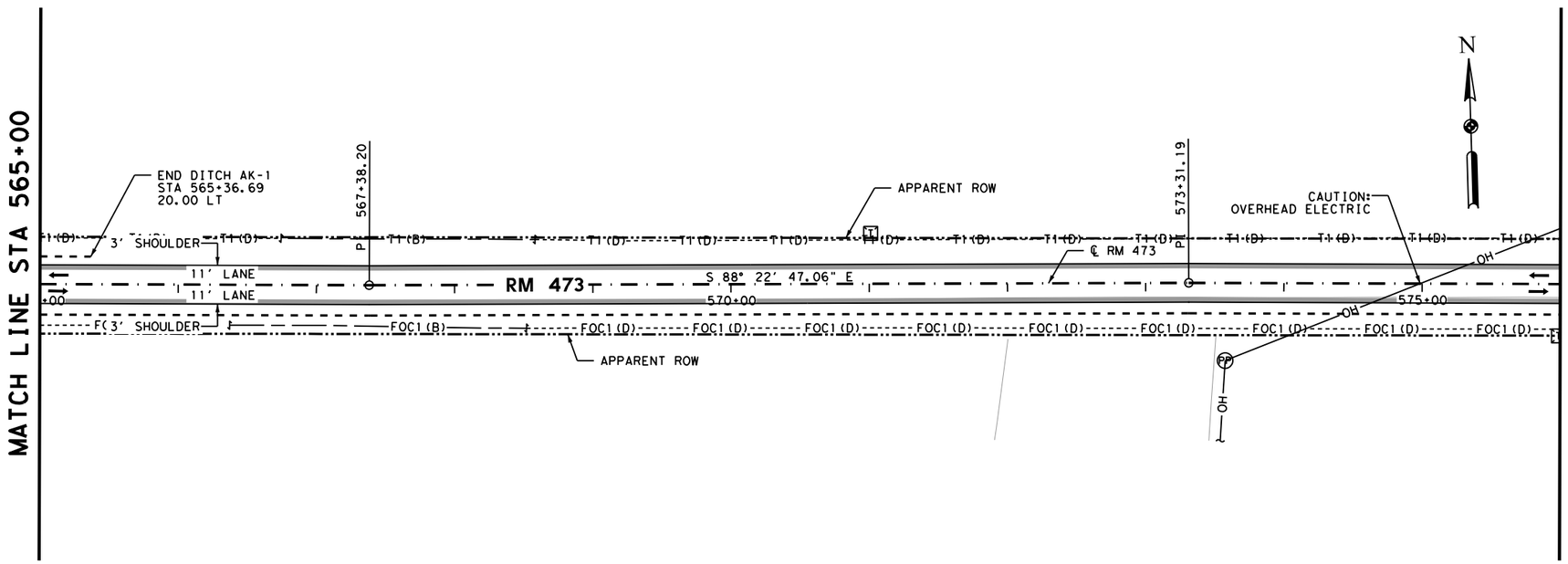
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	107

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-27.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:30:06 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	229
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



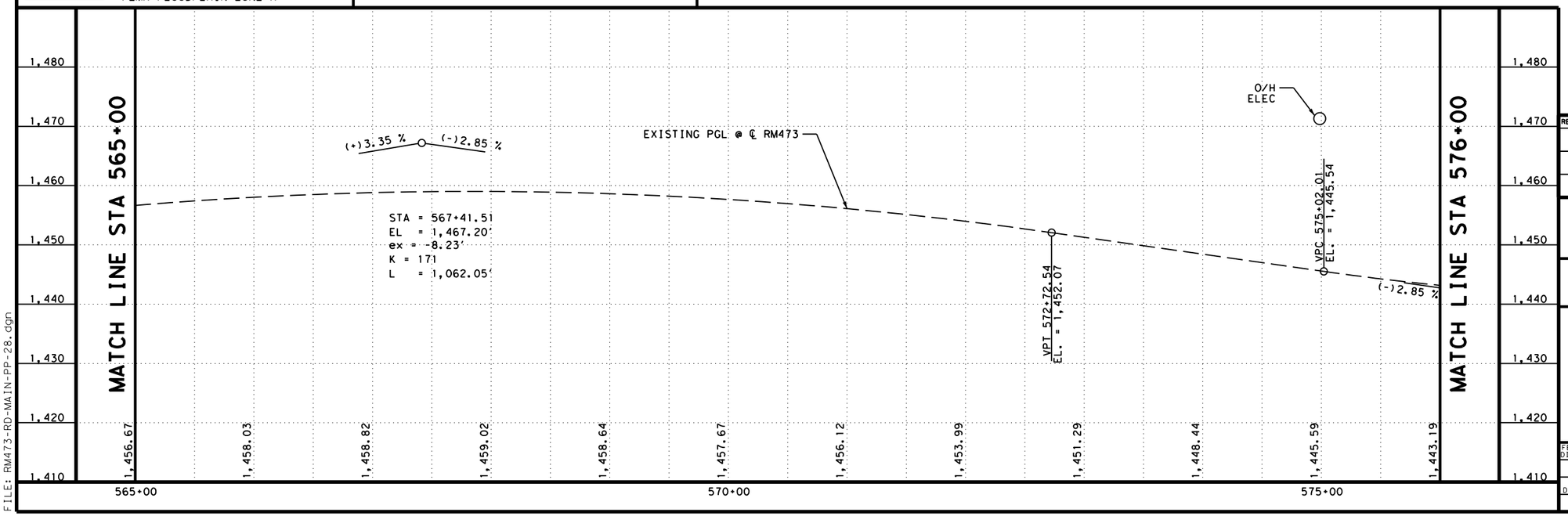
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×——	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 565+00 TO
℄ RM 473 STA 576+00

SHEET 28 OF 35

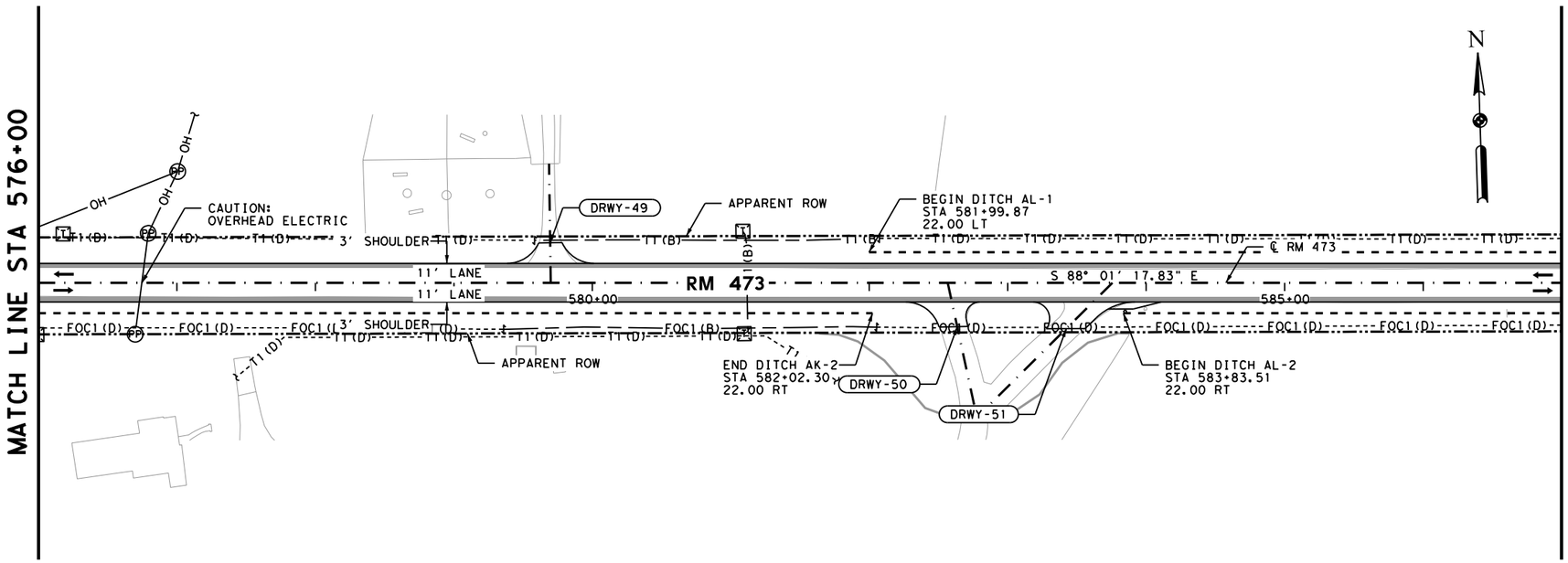
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	108

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-28.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:30:16 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	255
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



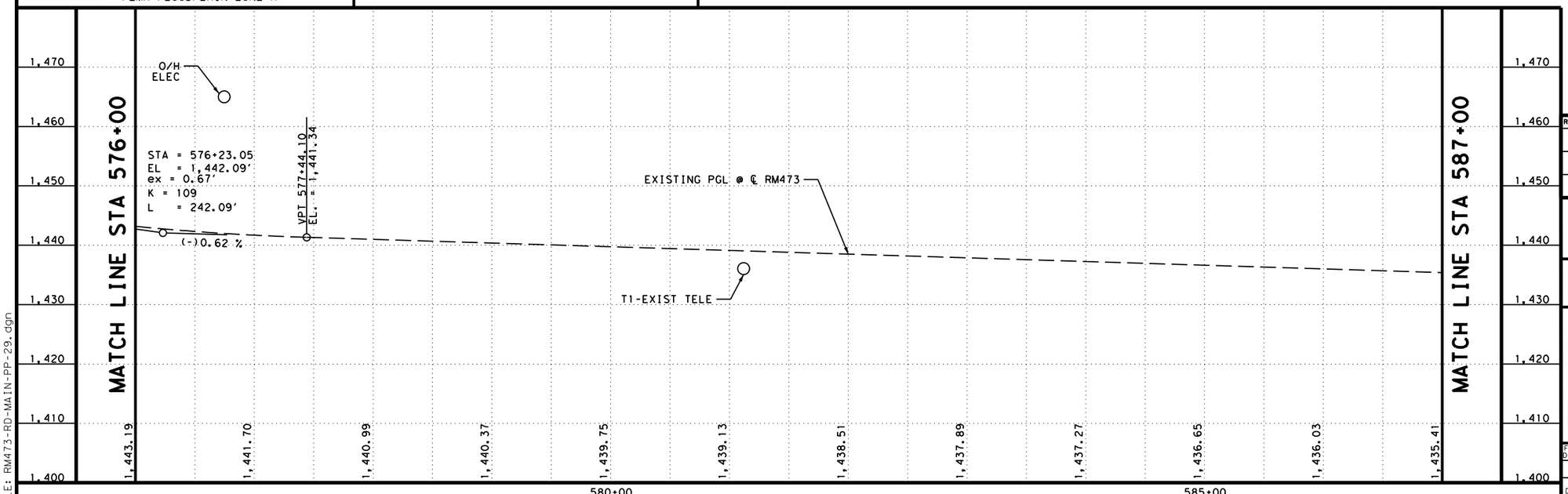
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×—×—×	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 576+00 TO
℄ RM 473 STA 587+00

SHEET 29 OF 35

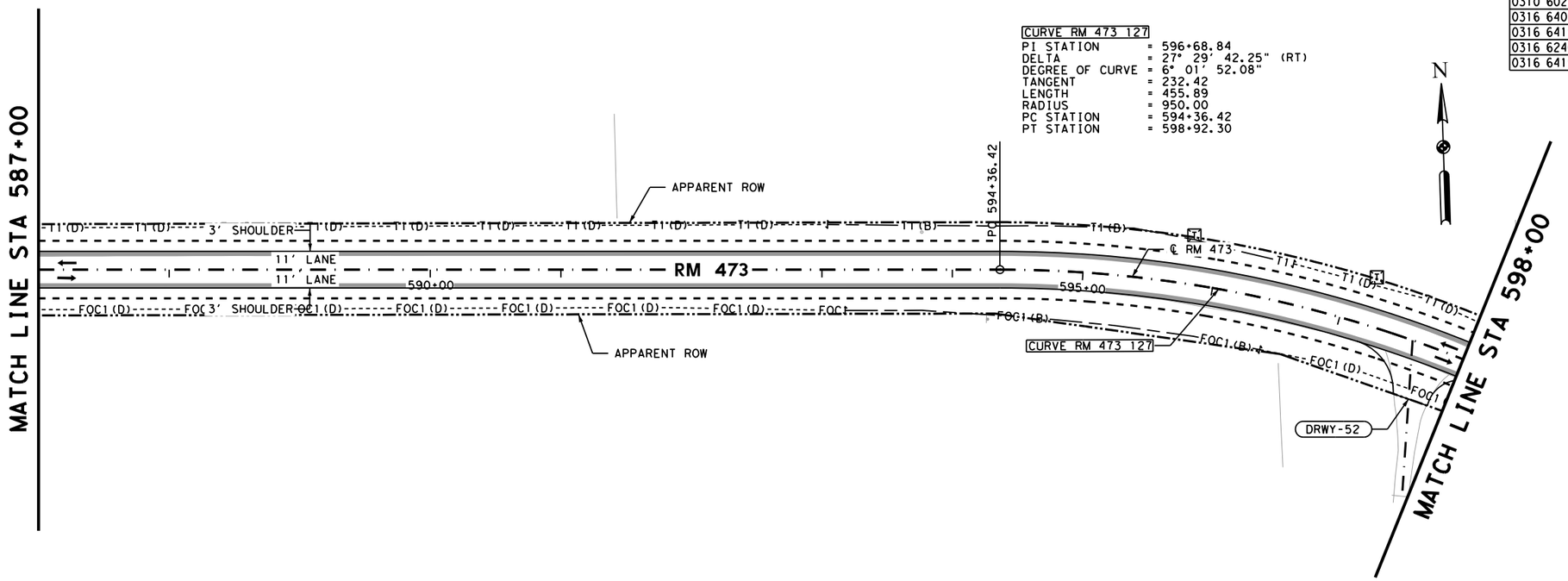
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	109

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-29.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:30:25 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	478
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



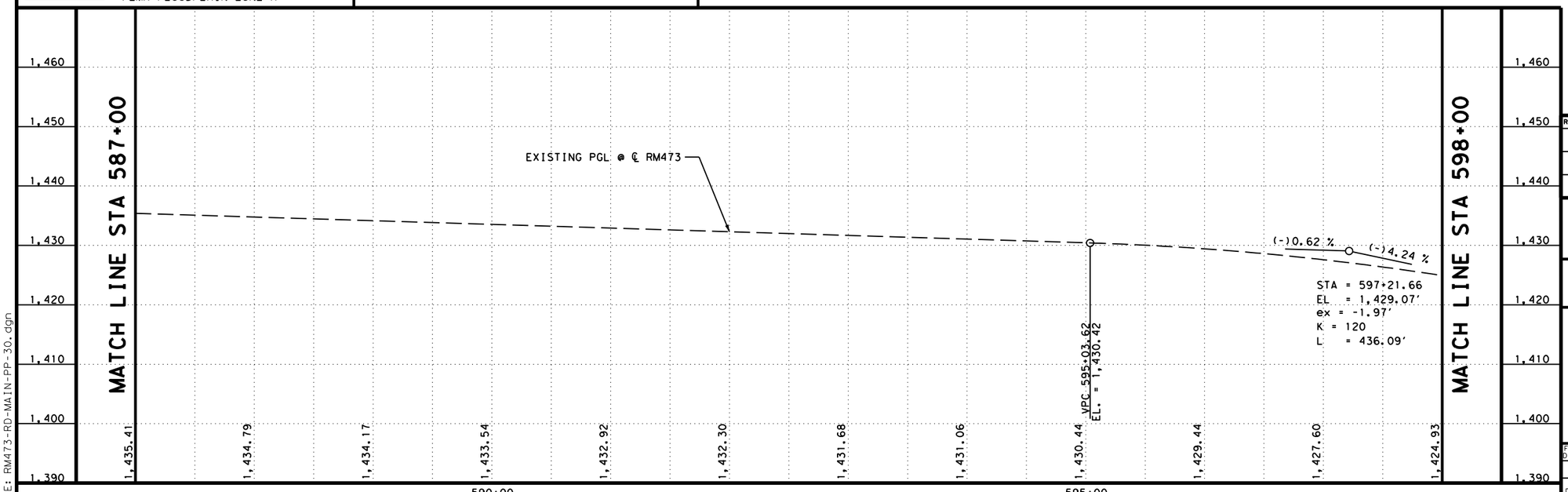
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
——OH——	OH1 - CENTRAL TEXAS ELECTRIC COOP
——OH——	OH2 - HILL COUNTRY TELEPHONE



F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 587+00 TO
℄ RM 473 STA 598+00

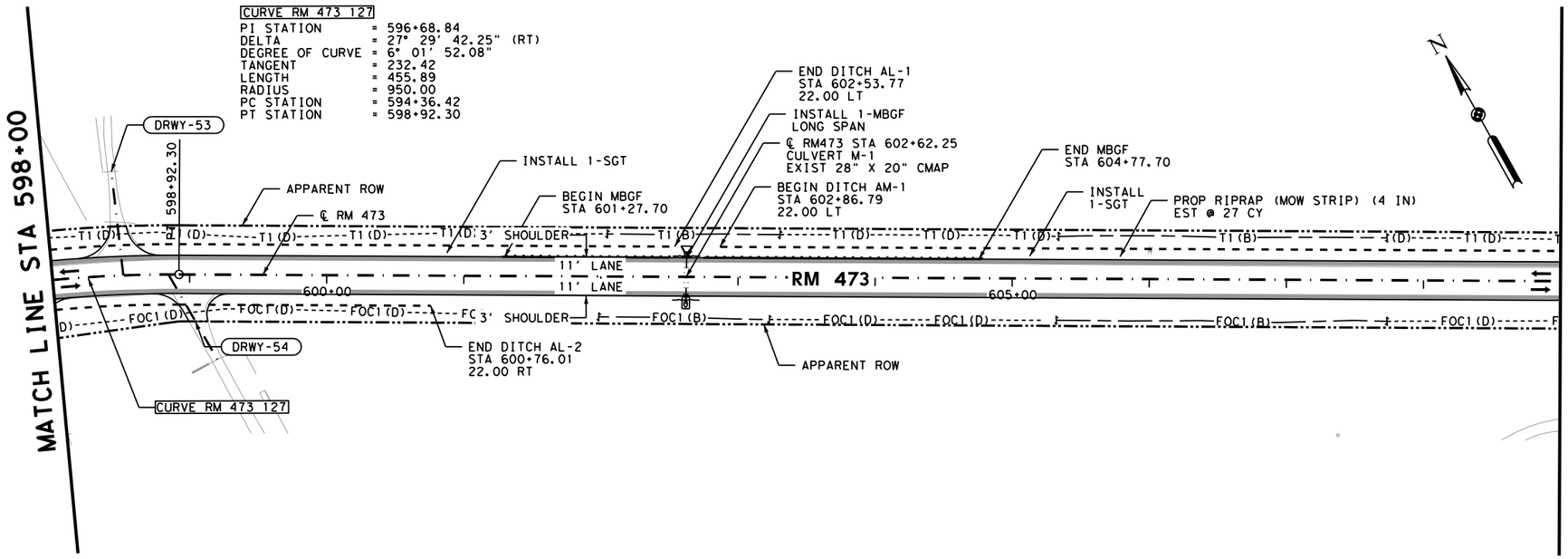
SHEET 30 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	110

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-30.dgn

100% SUBMITTAL

DATE: 5/20/2024 TIME: 1:18:42 PM



ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	344
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027
0432 6045	RIPRAP (MOW STRIP) (4IN)	CY	27
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	300
0540 6033	MTL BM GD FEN (LONG SPAN SYSTEM)	EA	1
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	2

NOTES:

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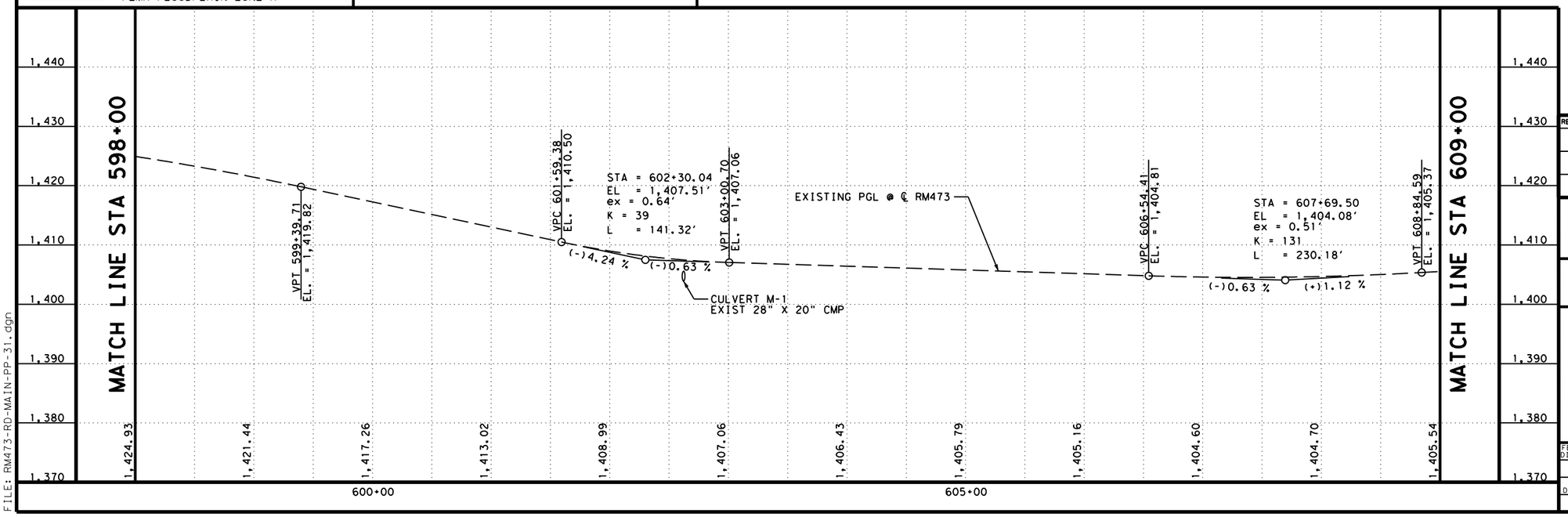
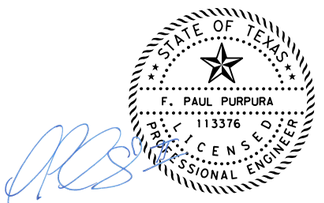
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
	EXIST ROW
×——	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE





5/20/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 598+00 TO ℄ RM 473 STA 609+00

SHEET 31 OF 35

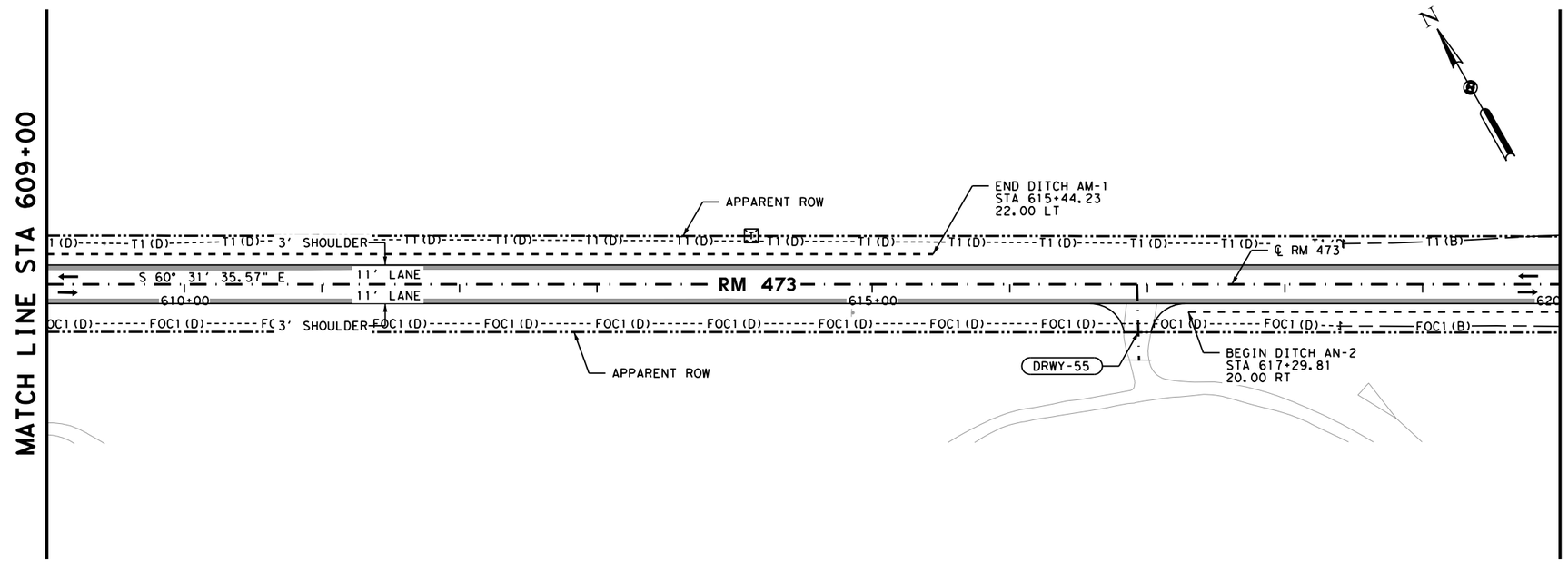
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	111

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-31.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:30:43 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	292
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



N

NOTES:

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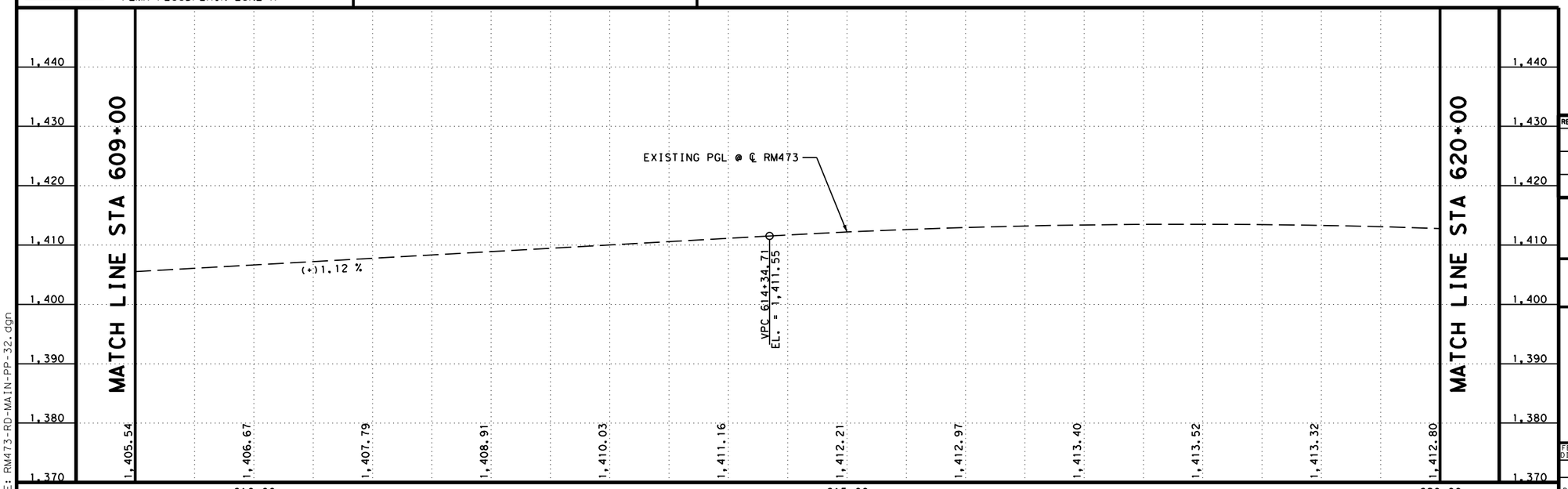
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 609+00 TO
℄ RM 473 STA 620+00

SHEET 32 OF 35

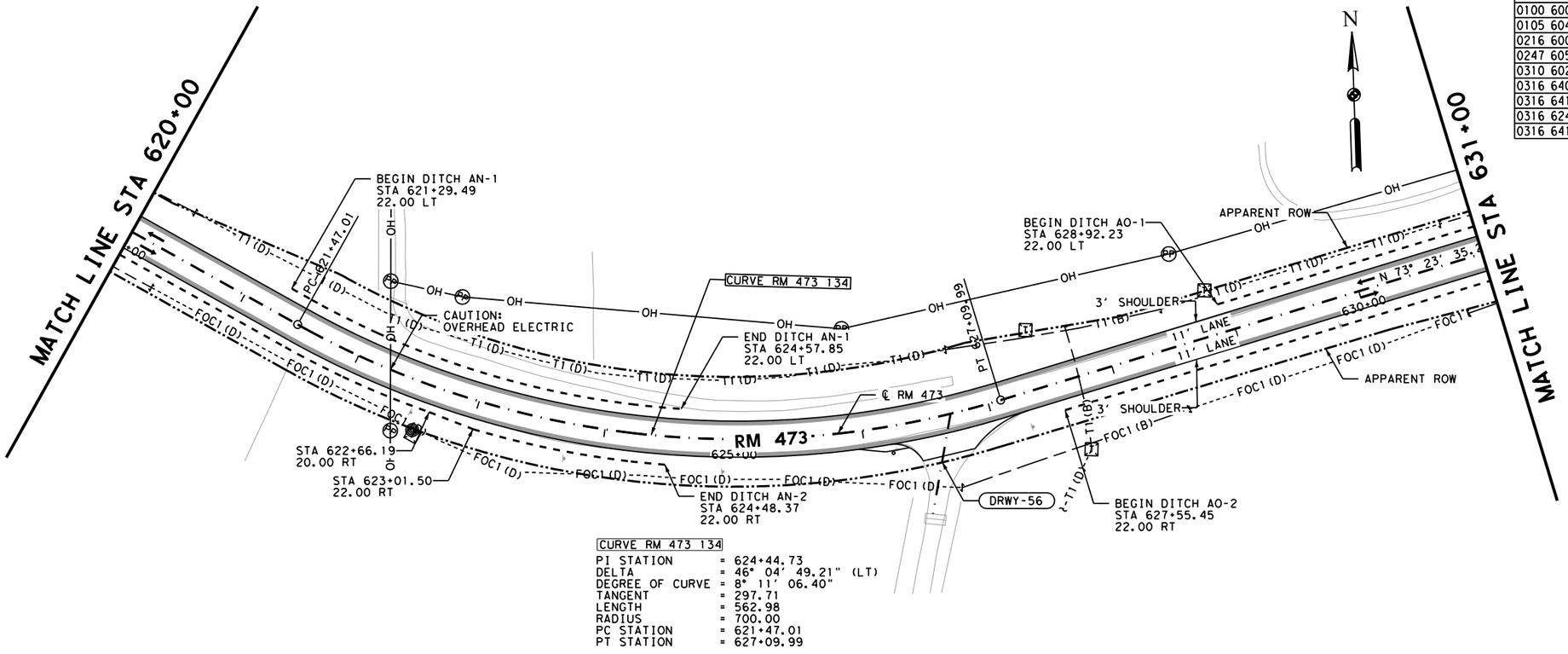
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	112

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-32.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:30:51 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	388
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM 473 134

PI STATION	= 624+44.73
DELTA	= 46° 04' 49.21" (LT)
DEGREE OF CURVE	= 8° 11' 06.40"
TANGENT	= 297.71
LENGTH	= 562.98
RADIUS	= 700.00
PC STATION	= 621+47.01
PT STATION	= 627+09.99

LEGEND	
	EXIST ROW
×—×—×	EXIST FENCE
	EXIST FEATURES
	PROP ROADWAY WIDENING
- - - - - -	DITCH FLOW LINE
	FEMA FLOODPLAIN ZONE A

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
——OH——	OH1 - CENTRAL TEXAS ELECTRIC COOP
——OH——	OH2 - HILL COUNTRY TELEPHONE

NOTES:

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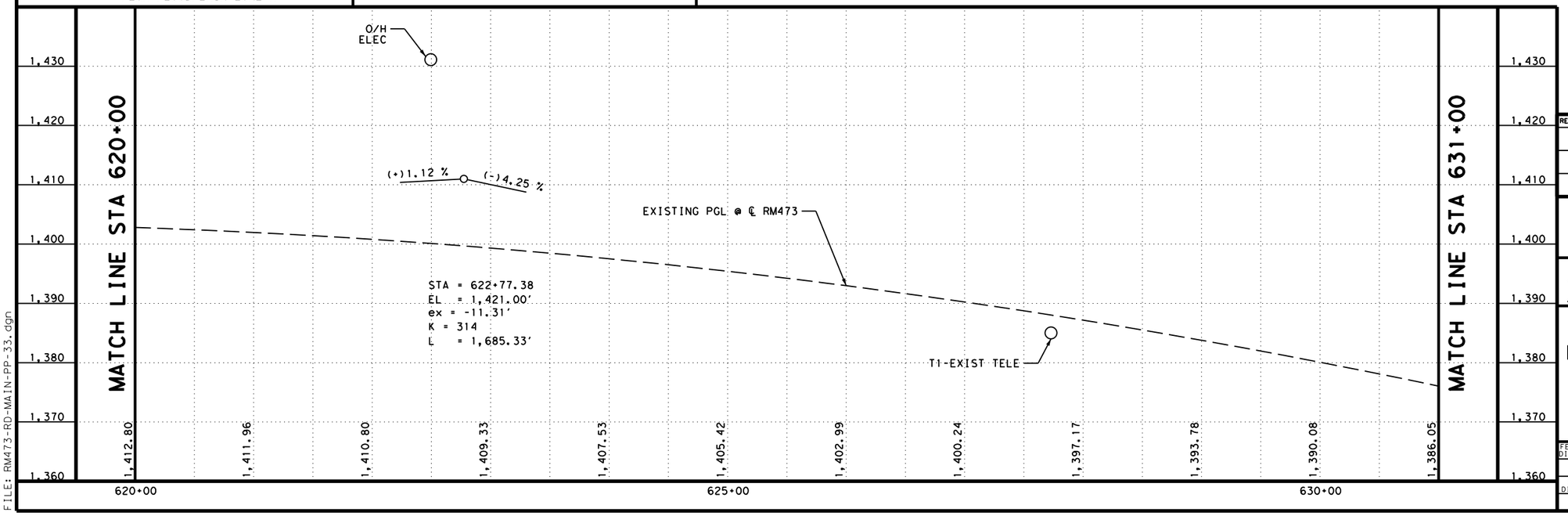
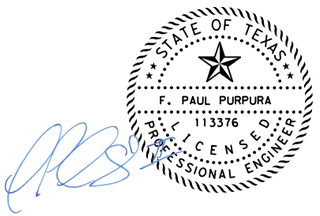
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'





5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 620+00 TO
℄ RM 473 STA 631+00

SHEET 33 OF 35

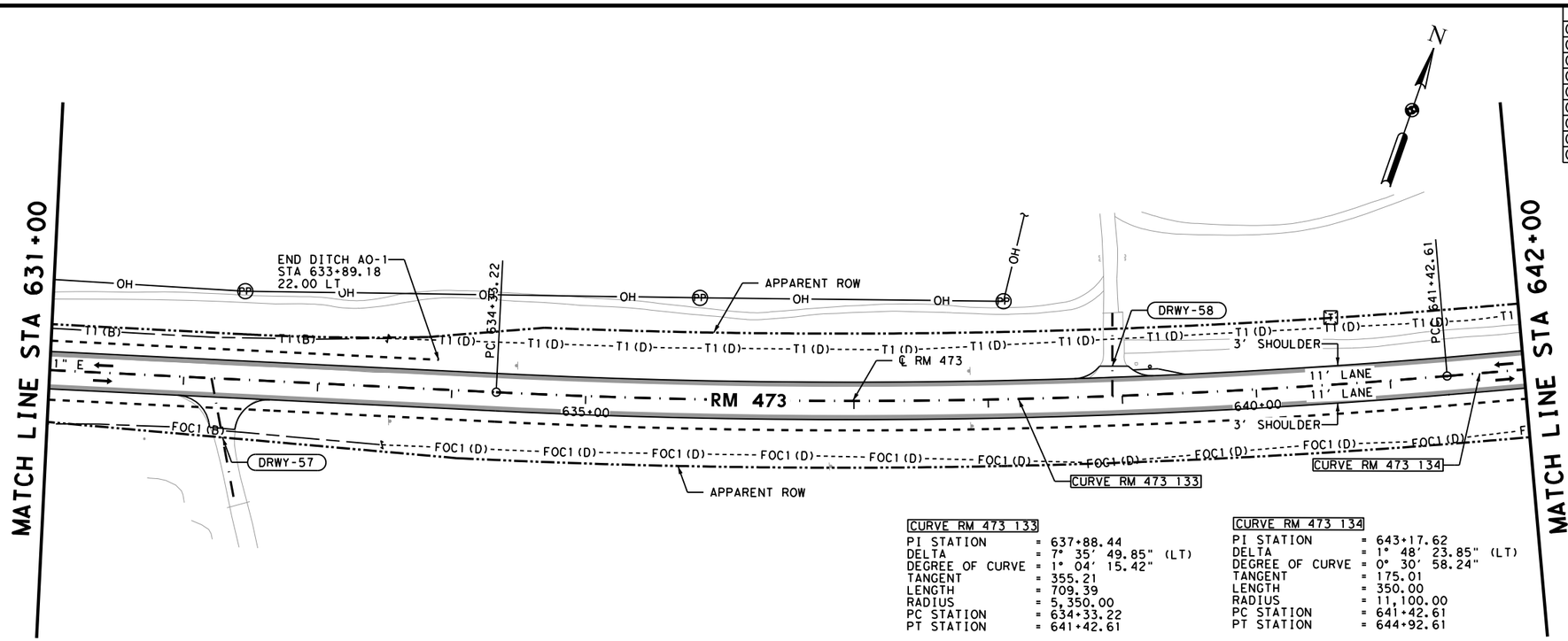
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	113

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-33.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:30:59 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	11.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	468
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	265
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	257
0316 6407	AGGR (TY-PD GR-3)	CY	9
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	330
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	29
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	1027



CURVE RM 473 133

PI STATION	= 637+88.44
DELTA	= 7° 35' 49.85" (LT)
DEGREE OF CURVE	= 1° 04' 15.42"
TANGENT	= 355.21
LENGTH	= 709.39
RADIUS	= 5,350.00
PC STATION	= 634+33.22
PT STATION	= 641+42.61

CURVE RM 473 134

PI STATION	= 643+17.62
DELTA	= 1° 48' 23.85" (LT)
DEGREE OF CURVE	= 0° 30' 58.24"
TANGENT	= 175.01
LENGTH	= 350.00
RADIUS	= 11,100.00
PC STATION	= 641+42.61
PT STATION	= 644+92.61

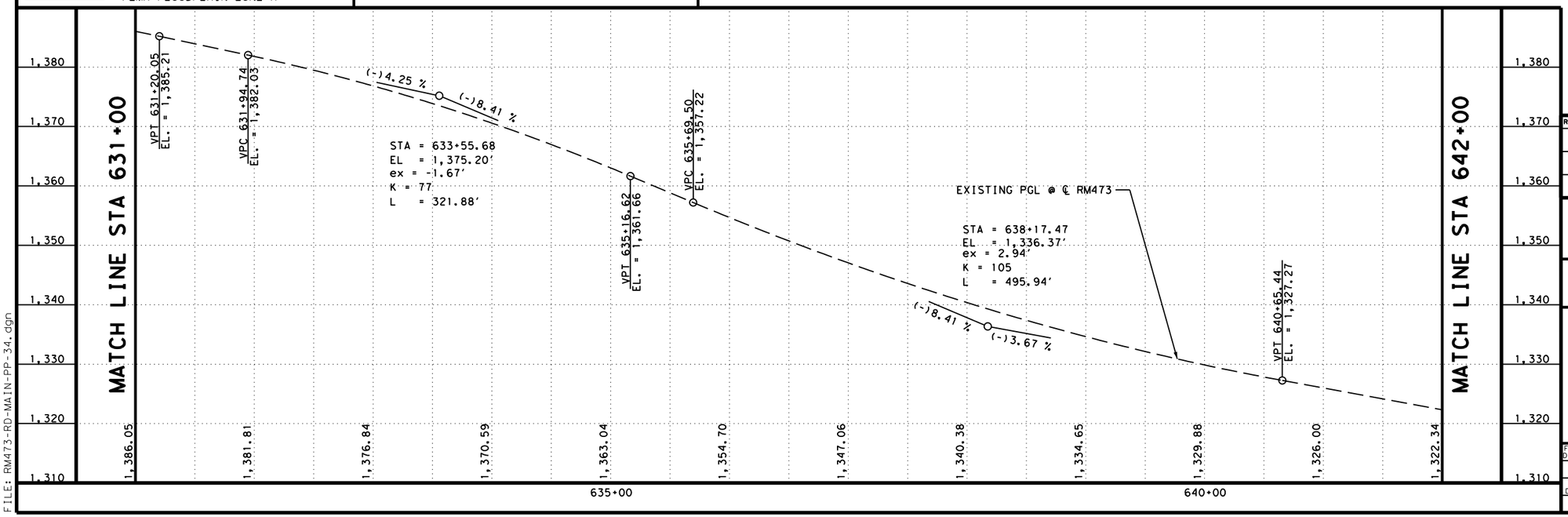
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)---	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

℄ RM 473 STA 631+00 TO
℄ RM 473 STA 642+00

SHEET 34 OF 35

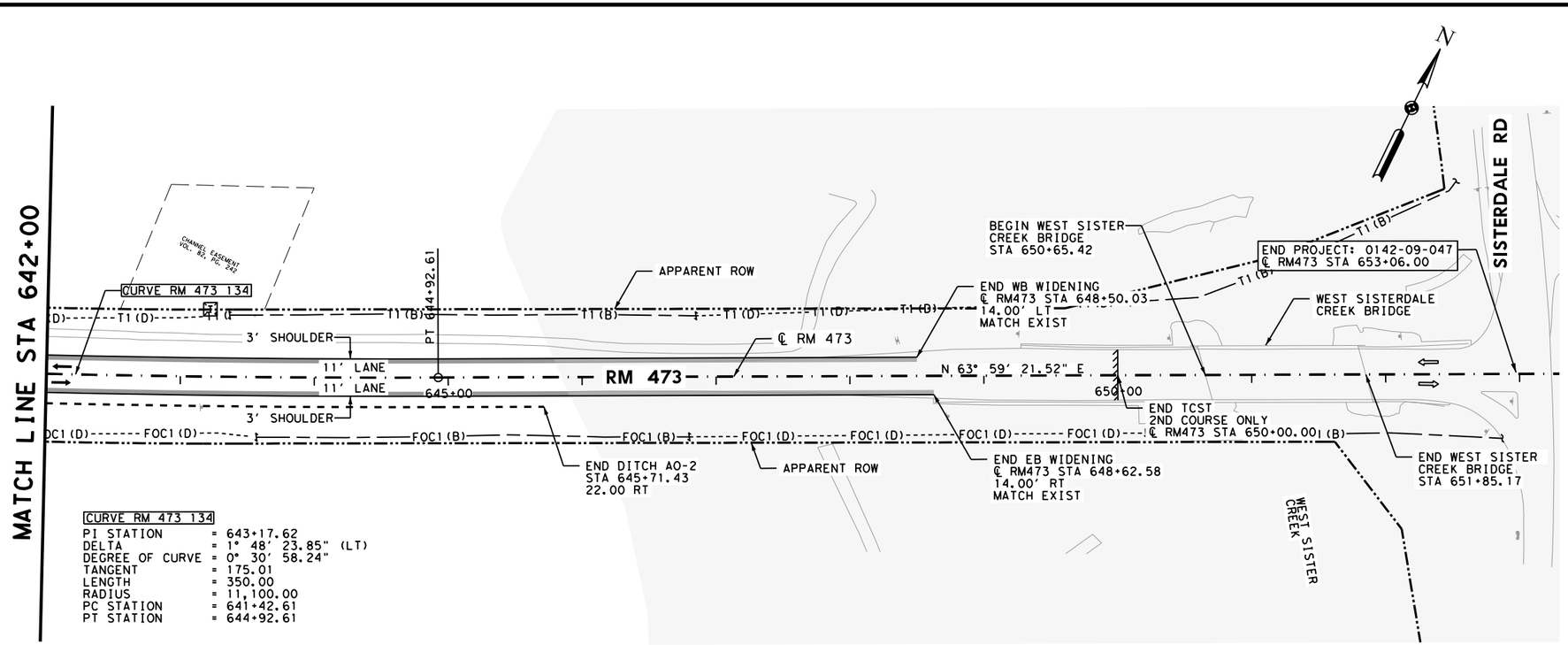
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	114

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-34.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:31:09 AM

ITEM	DESCRIPTION	UNIT	QTY
0100 6002	PREPARING ROW	STA	7.0
0105 6044	REMOVING STAB BASE AND ASPH PAV (10")	SY	231
0216 6001	PROOF ROLLING	HR	3
0247 6053	FL BS(CMP IN PLC)(TY D GR 1-2)(FNAL POS)	CY	158
0310 6027	PRIME COAT (MC-30 OR AE-P)	GAL	153
0316 6407	AGGR (TY-PD GR-3)	CY	5
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	197
0316 6240	AGGR (TY-PD GR-4 SAC-B)	CY	21
0316 6419	ASPH (AC-15P, AC-20-5TR OR AC-20XP)	GAL	747



CURVE RM 473 134

PI STATION	= 643+17.62
DELTA	= 1° 48' 23.85" (LT)
DEGREE OF CURVE	= 0° 30' 58.24"
TANGENT	= 175.01
LENGTH	= 350.00
RADIUS	= 11,100.00
PC STATION	= 641+42.61
PT STATION	= 644+92.61

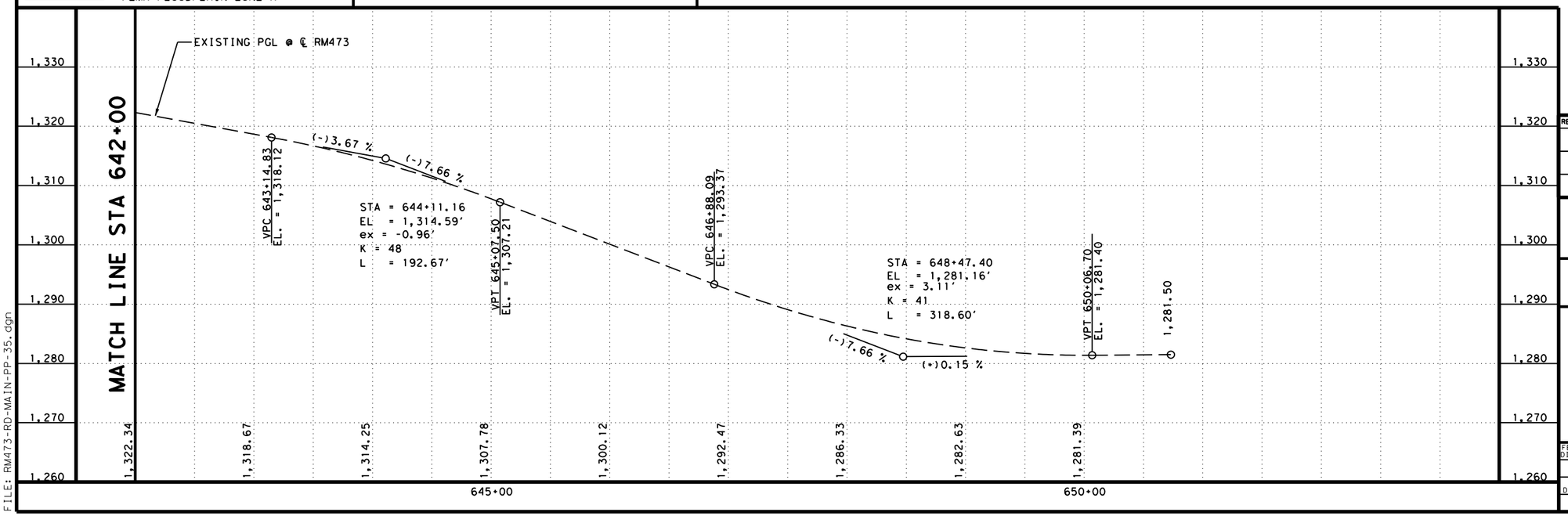
NOTES:

1. VERTICAL DATA IS A GUIDE FOR DESIGN VERIFICATION PURPOSES ONLY. CONSTRUCT THE PAVEMENT IN ACCORDANCE WITH THE PROPOSED TYPICAL SECTION.
2. NO WORK THAT COULD HAVE AN IMPACT TO THE EXISTING FEMA 100YR WSEL IS BEING PROPOSED FOR THIS PROJECT.
3. FPA NOTIFICATION FOR KENDALL COUNTY WAS SUBMITTED IN WRITING ON MARCH, 11, 2024.

0' 50' 100'

LEGEND	
EXIST ROW	
EXIST FENCE	
EXIST FEATURES	
PROP ROADWAY WIDENING	
DITCH FLOW LINE	
FEMA FLOODPLAIN ZONE A	

LEGEND OF UTILITY TYPES	
---T1(D)----	HILL COUNTRY TELEPHONE (TELE)
---FOC1(D)--	HILL COUNTRY TELEPHONE (FO/DUCT)
—— OH ——	OH1 - CENTRAL TEXAS ELECTRIC COOP
—— OH ——	OH2 - HILL COUNTRY TELEPHONE



PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-MAIN-PP-35.dgn

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

ROADWAY PLAN & PROFILE

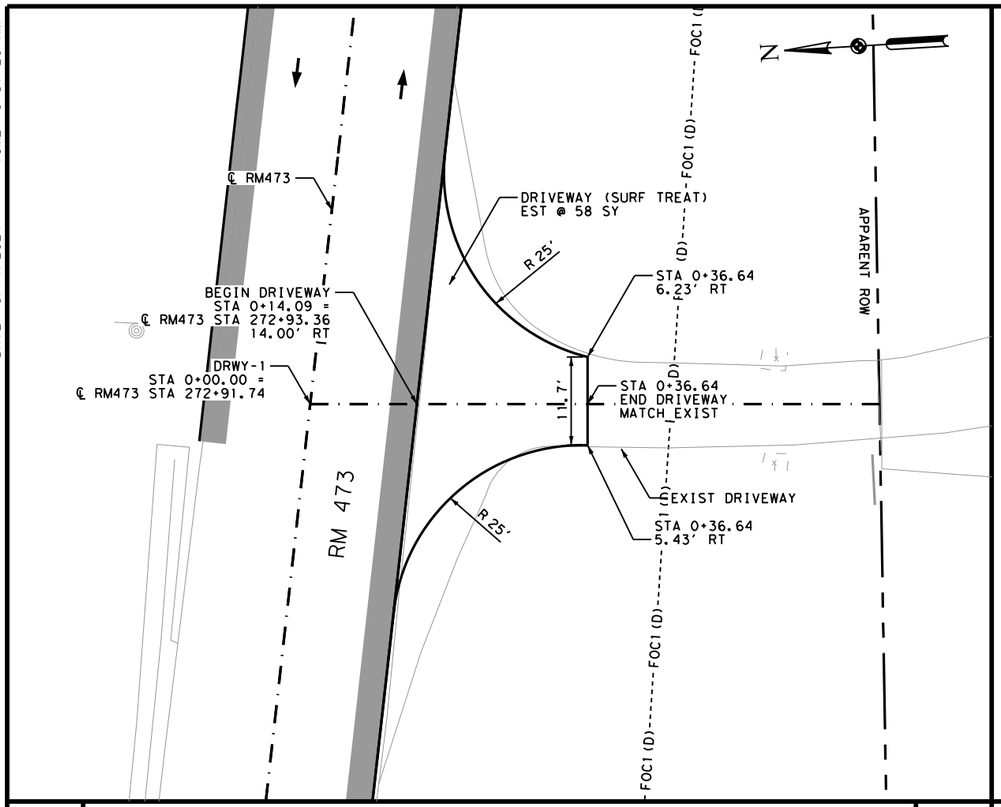
℄ RM 473 STA 642+00 TO END OF PROJECT

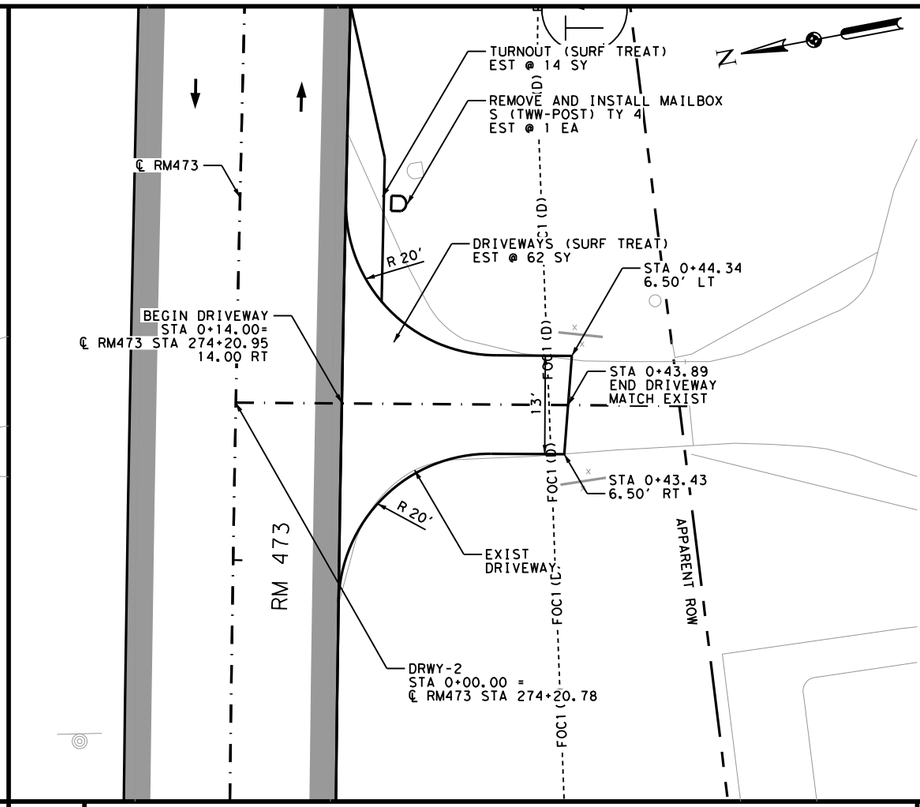
SHEET 35 OF 35

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	115

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:31:20 AM



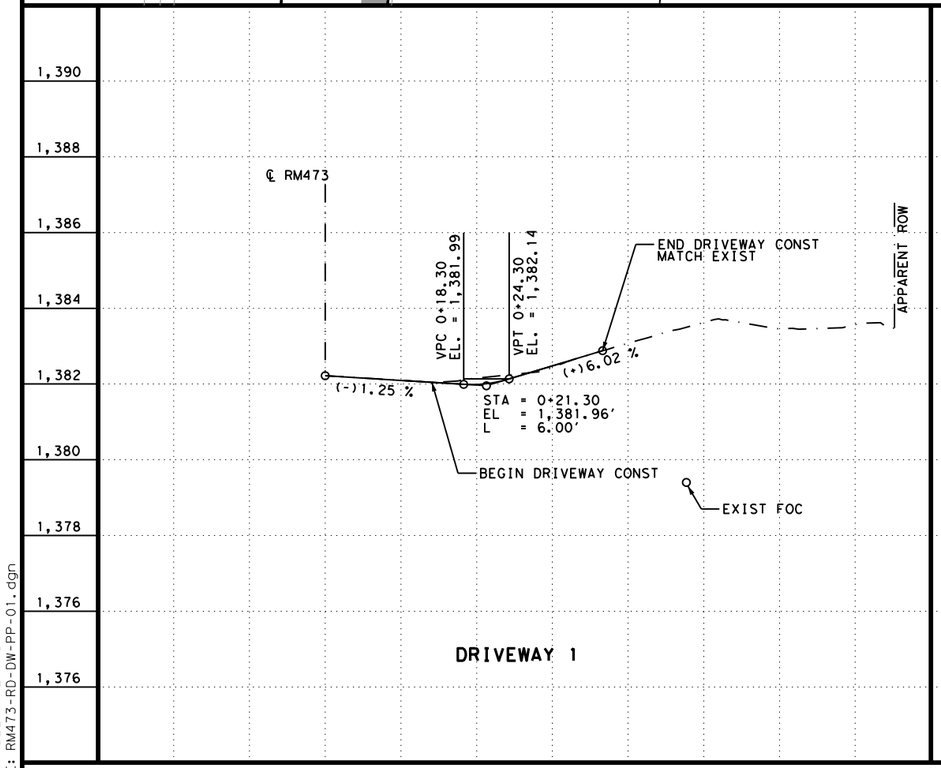


ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	120
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

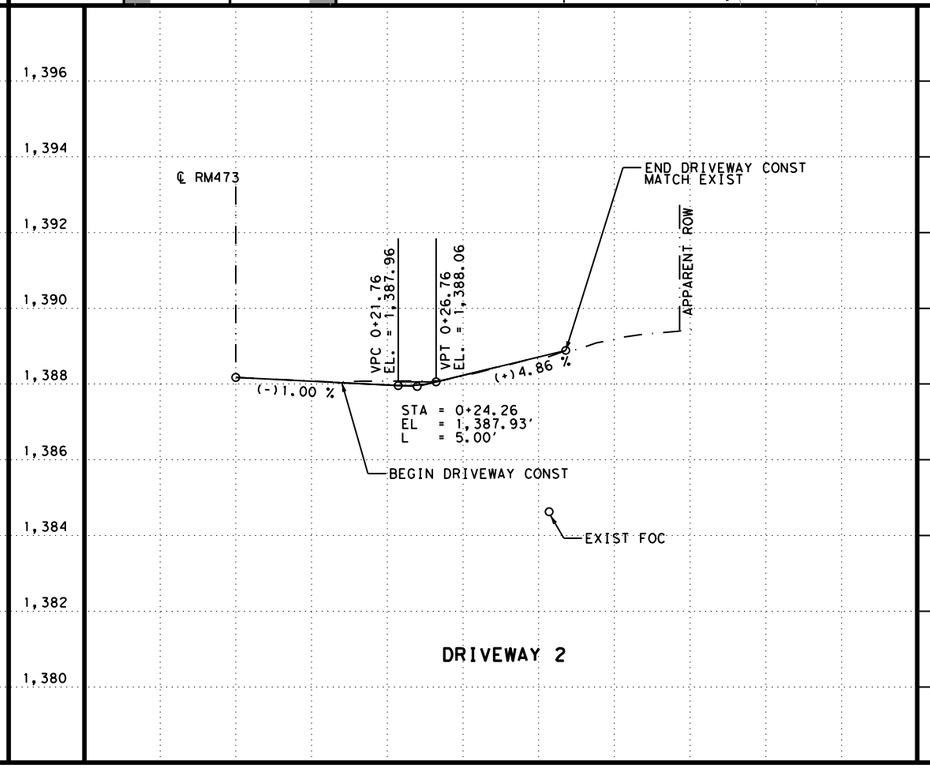
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 1



DRIVEWAY 2

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

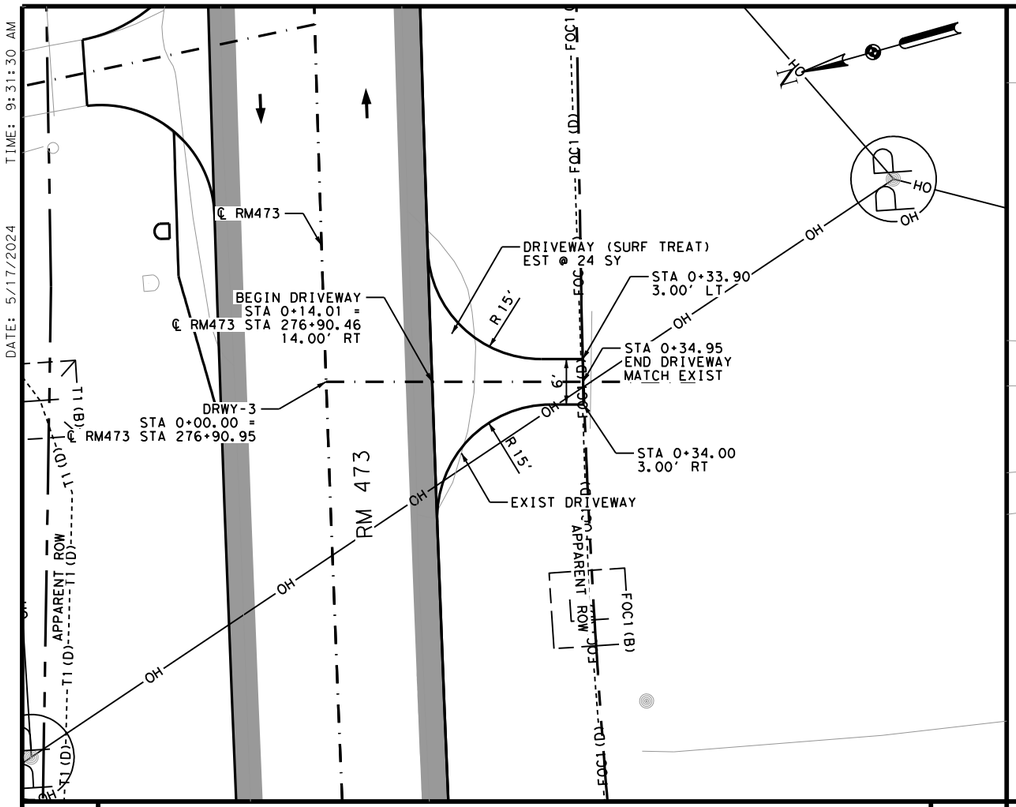
DRIVEWAY 1 & 2

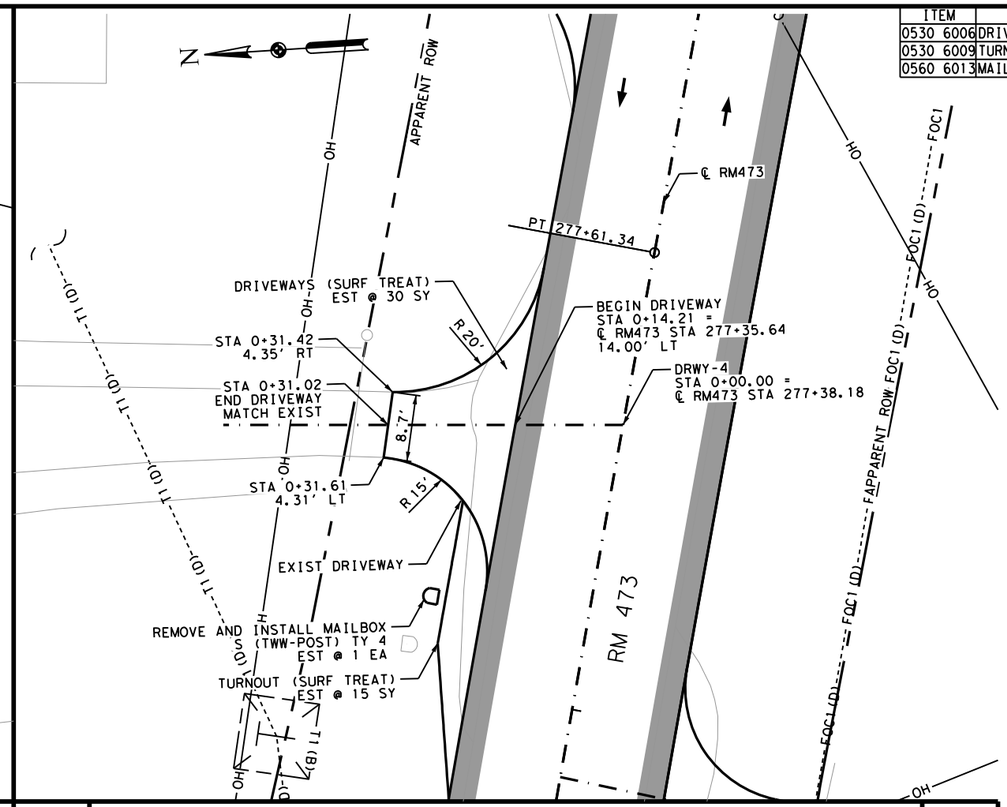
SHEET 1 OF 29

FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	116

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-01.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:31:30 AM



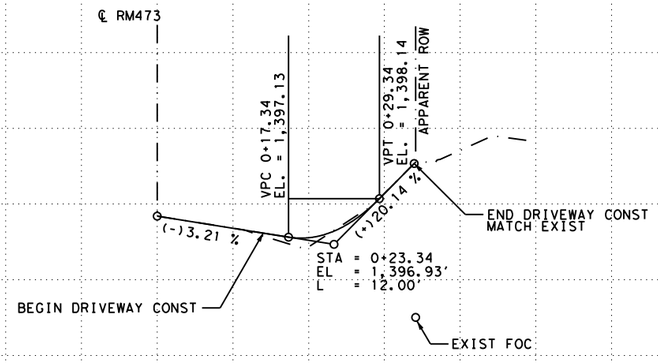


ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	54
0530 6009	TURNOUTS (SURF TREAT)	SY	15
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

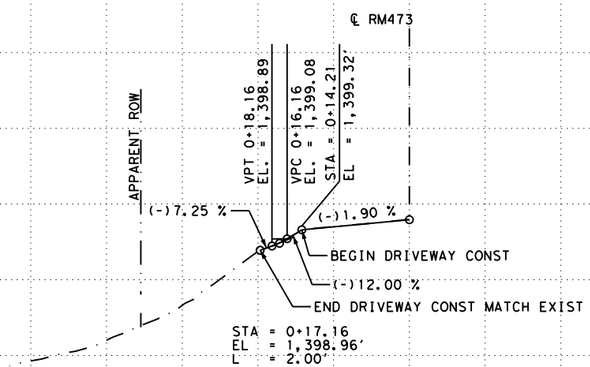
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 3



DRIVEWAY 4

F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 3 & 4

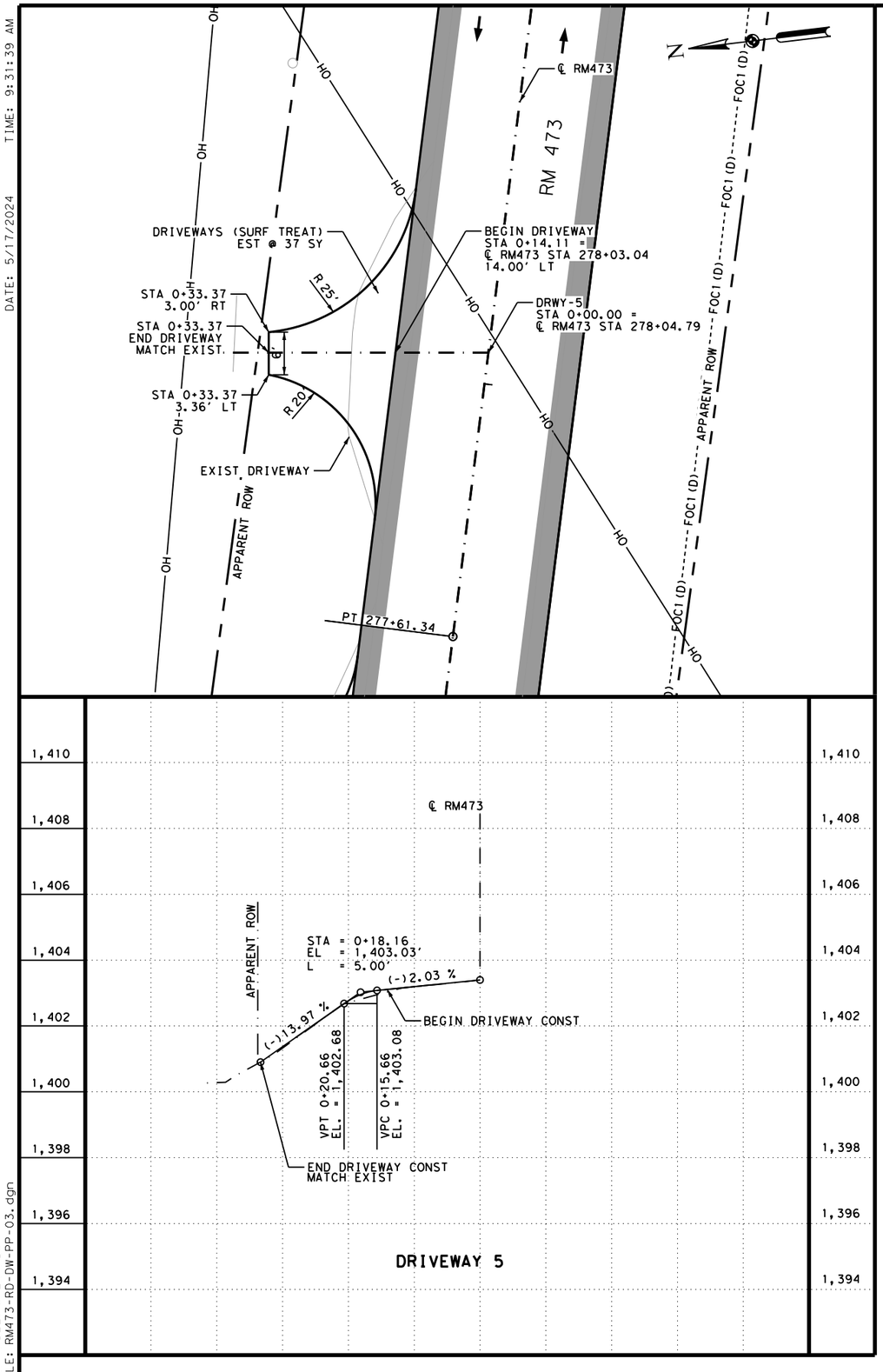
SHEET 2 OF 29

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	117

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-02.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:31:39 AM



DRIVEWAY 5

ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	37

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 5

SHEET 3 OF 29

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	118

PLOT DRIVER: pdf-bw.pltcfg
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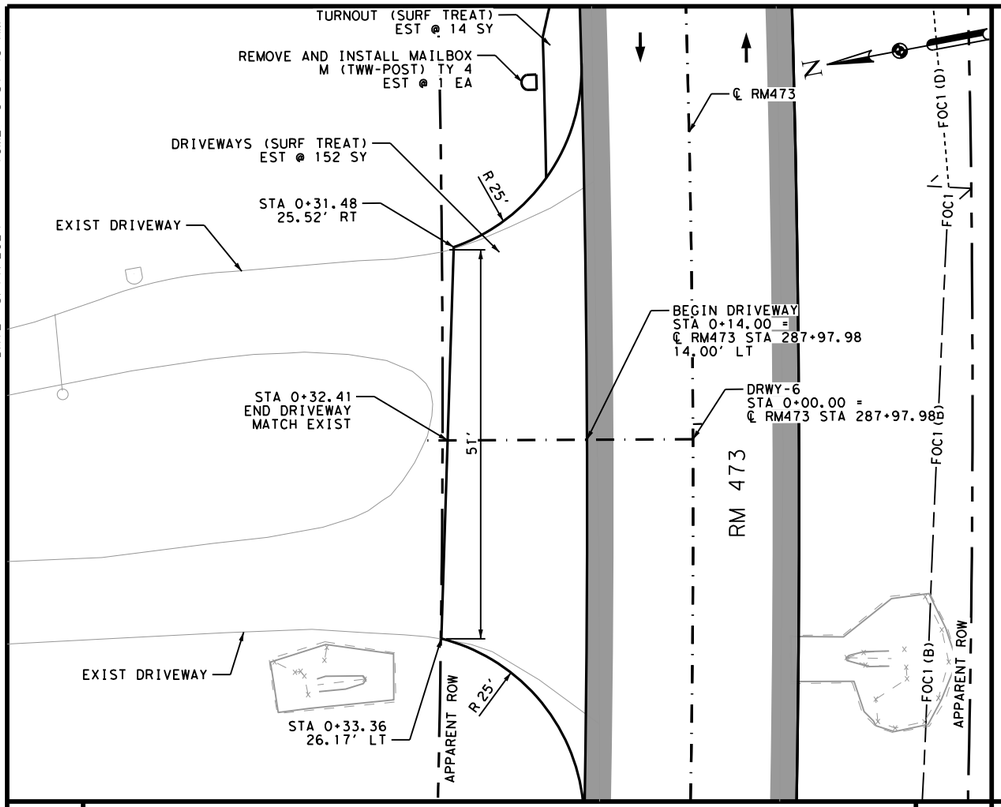
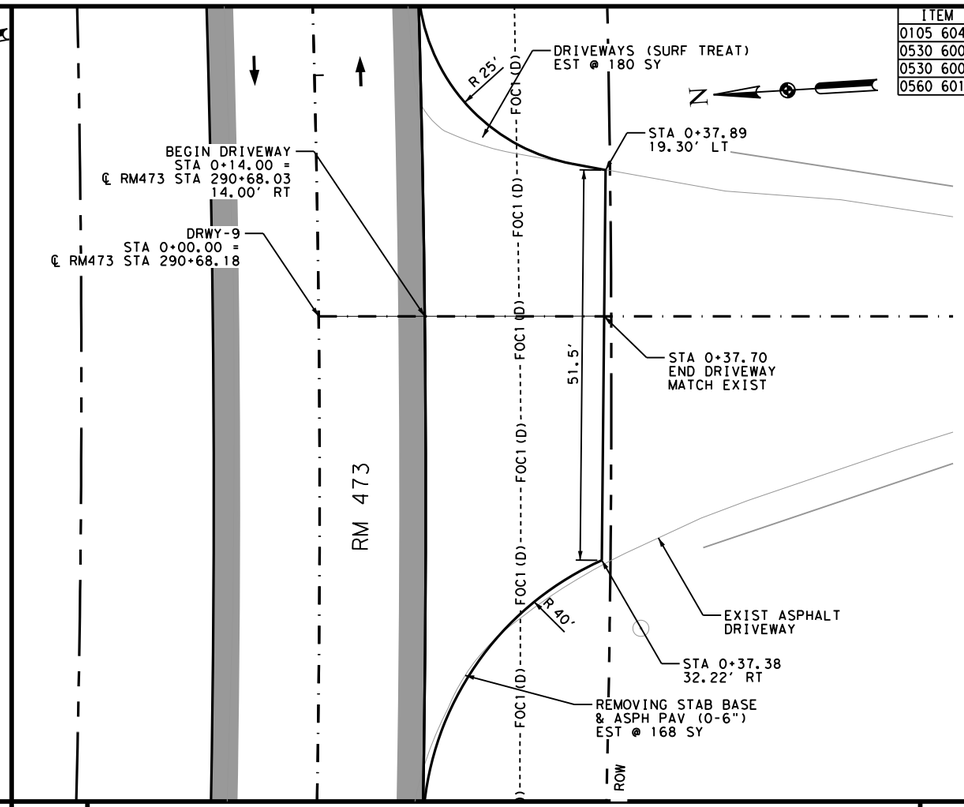
100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:31:48 AM





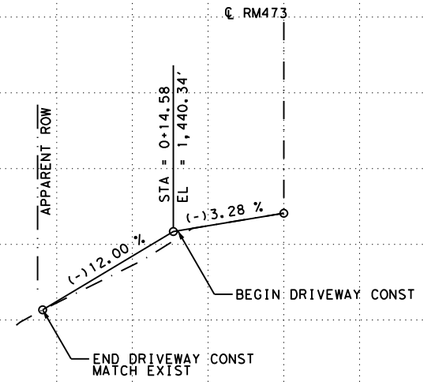
ITEM	DESCRIPTION	UNIT	QTY
0105 6043	REMOVING STAB BASE & ASPH PAV (0-6")	SY	168
0530 6006	DRIVEWAYS (SURF TREAT)	SY	332
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	1

NOTES:

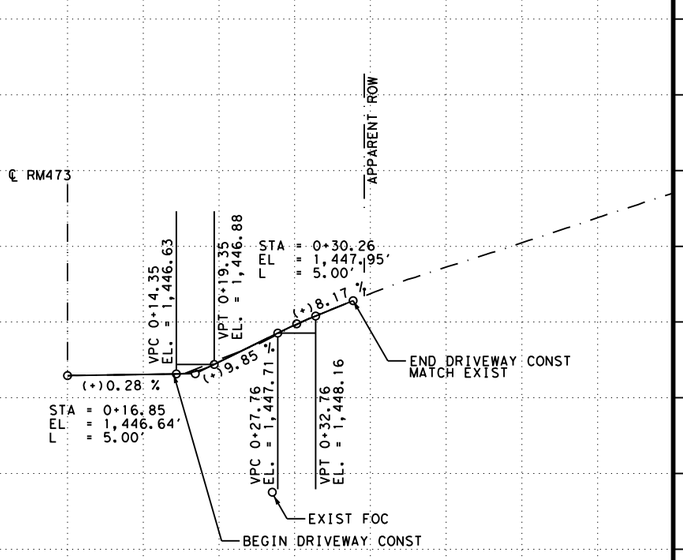
1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

4. DRIVEWAYS 7 & 8 OMITTED

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 6



DRIVEWAY 9

F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 6 & 9

SHEET 4 OF 29

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	119

PLOT DRIVER: pdf-bw.pltcfg
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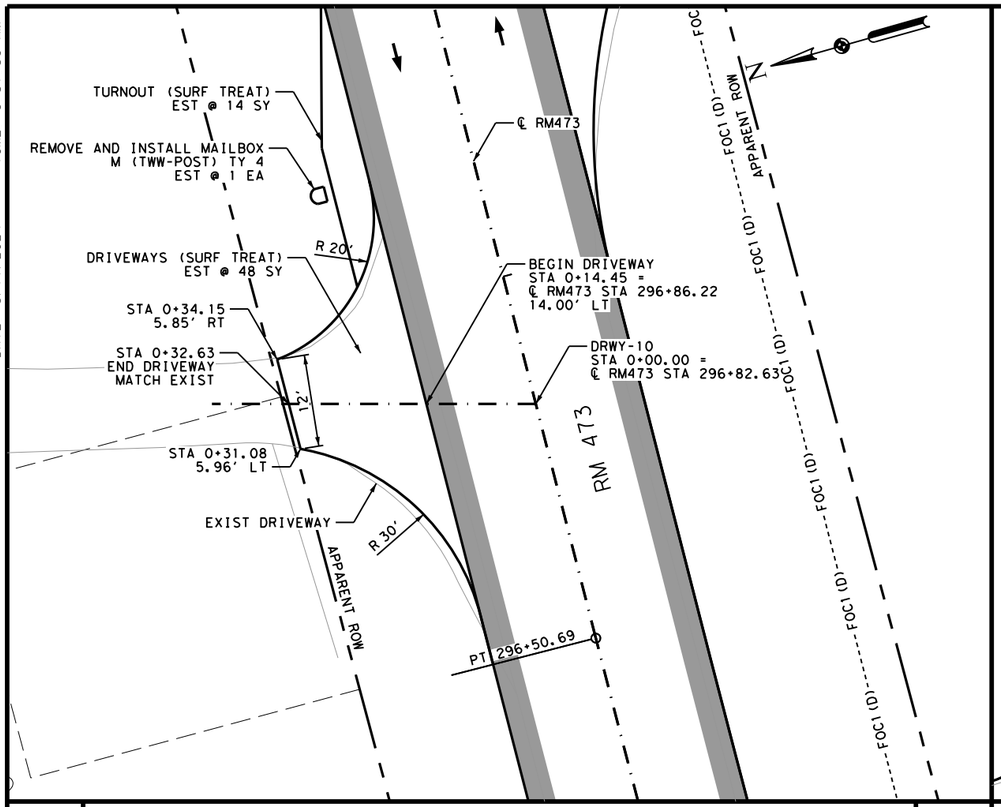
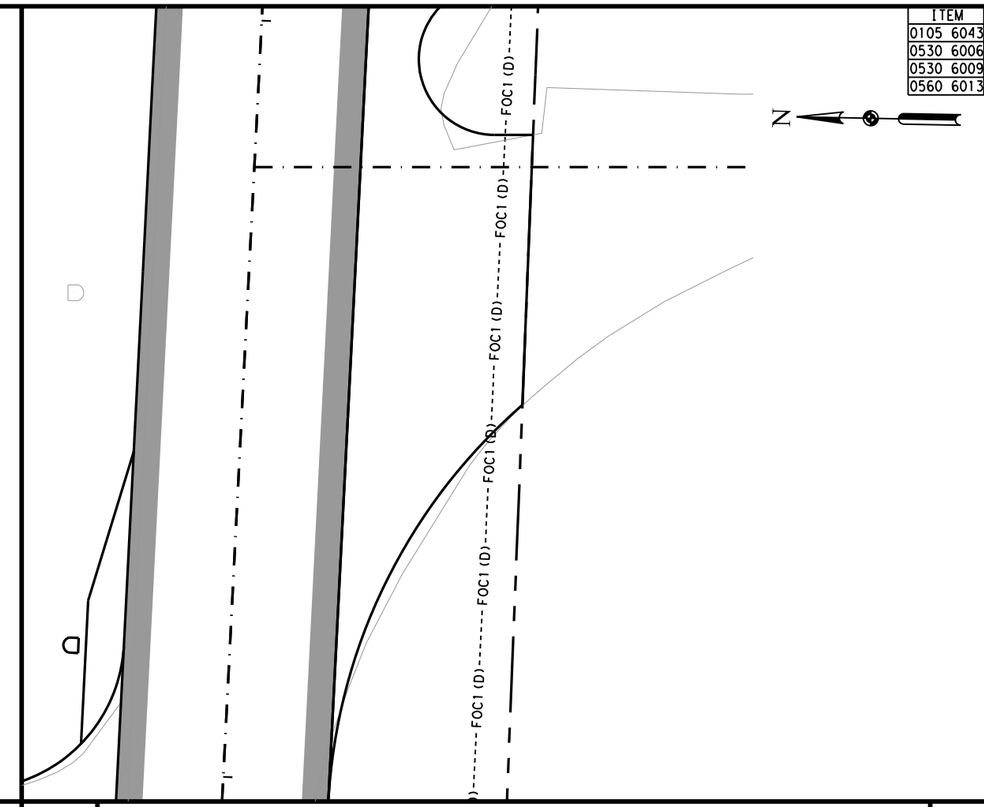
DATE: 5/17/2024 TIME: 9:31:58 AM



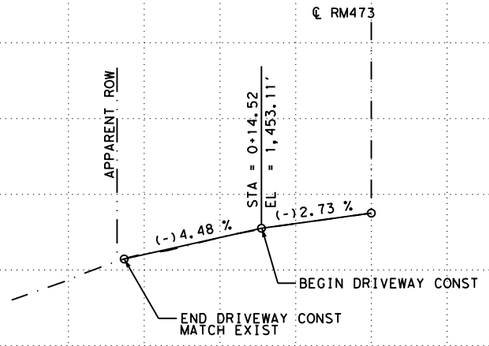


ITEM	DESCRIPTION	UNIT	QTY
0105 6043	REMOVING STAB BASE & ASPH PAV (0-6")	SY	155
0530 6006	DRIVEWAYS (SURF TREAT)	SY	194
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	1

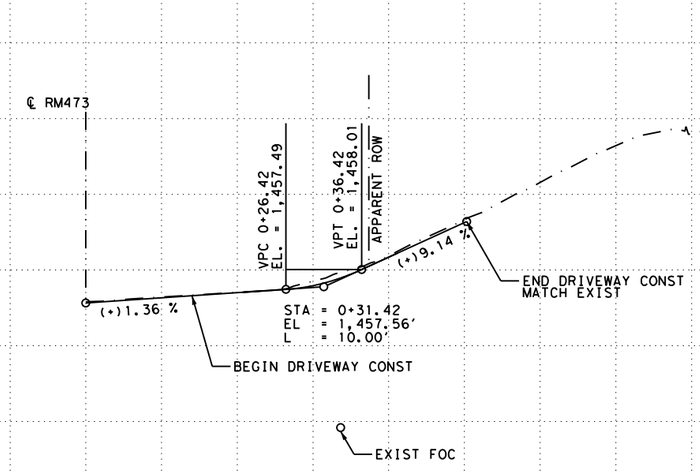
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 10



DRIVEWAY 11

F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 10 & 11

SHEET 5 OF 29

FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	120

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100% SUBMITTAL
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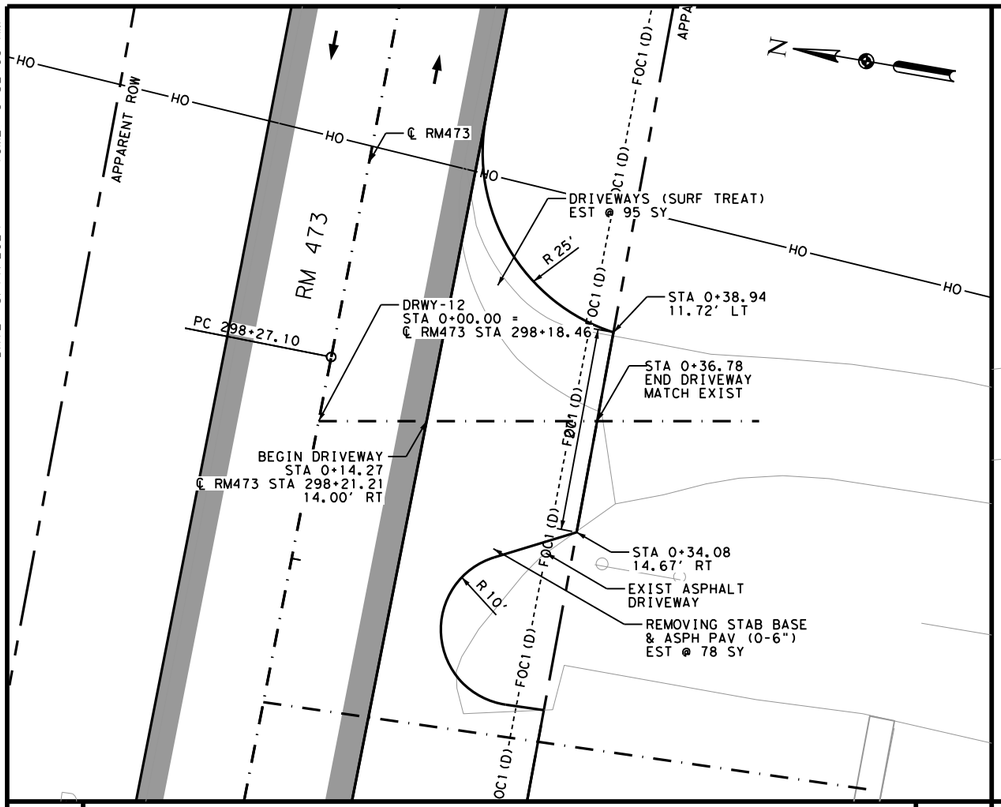
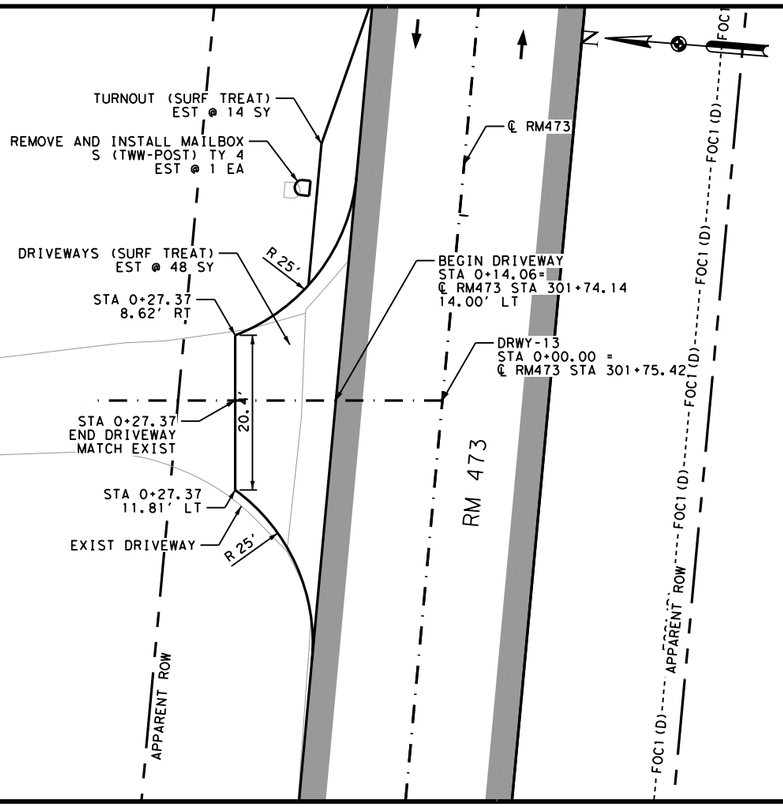


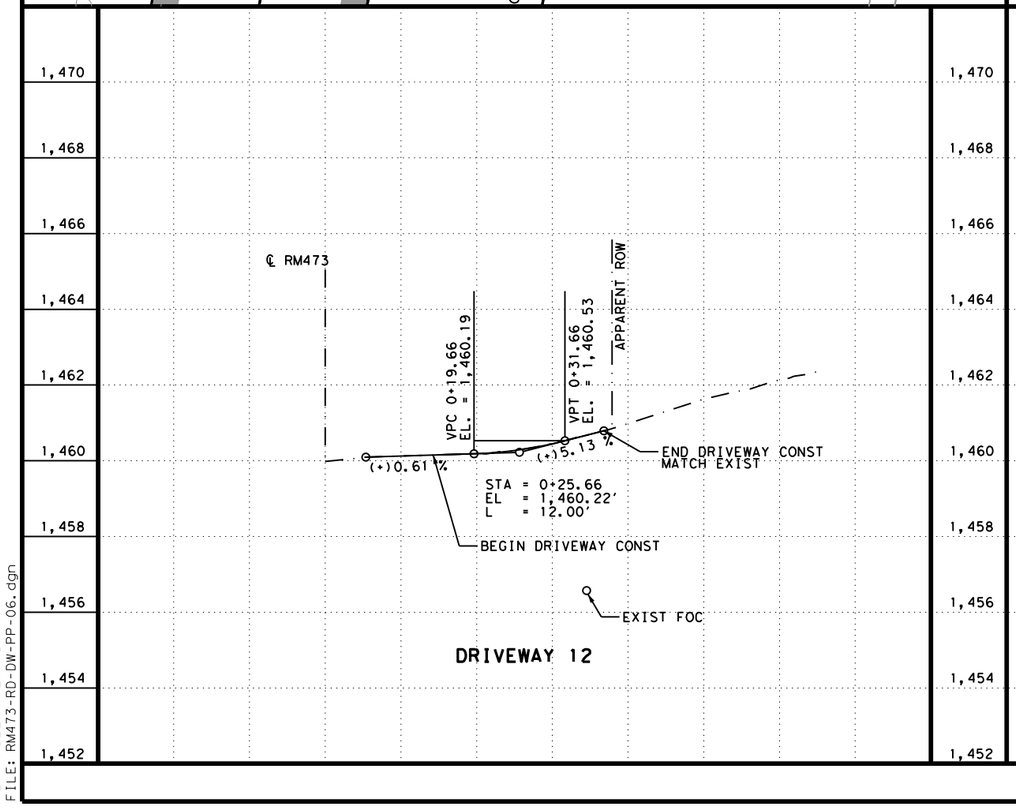


ITEM	DESCRIPTION	UNIT	QTY
0105 6043	REMOVING STAB BASE & ASPH PAV (0-6")	SY	78
0530 6006	DRIVEWAYS (SURF TREAT)	SY	143
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

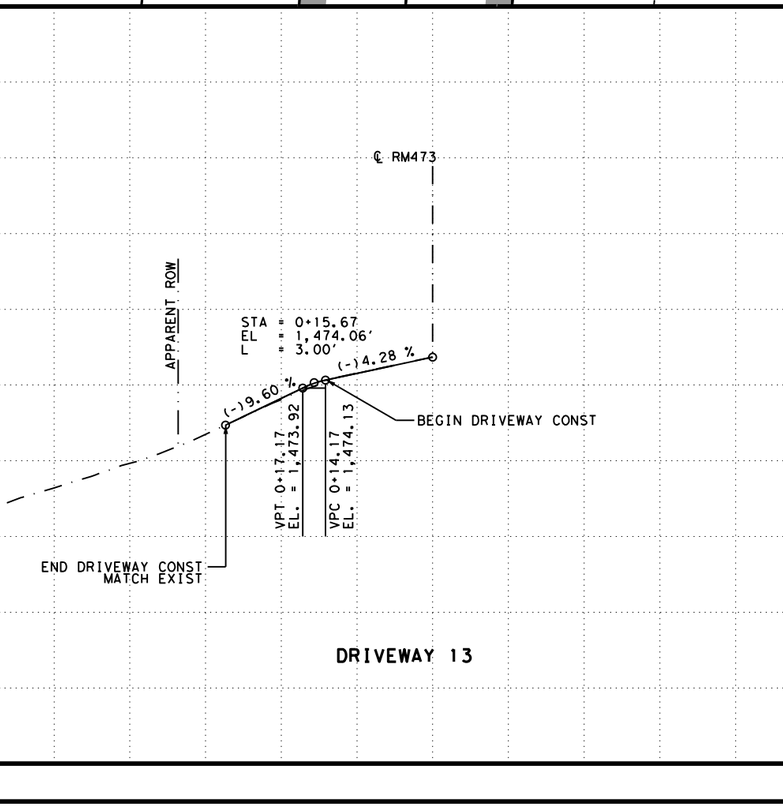
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

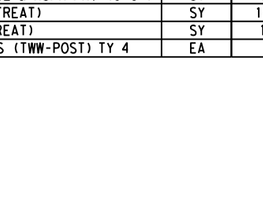
0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 12



DRIVEWAY 13



5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 12 & 13

SHEET 6 OF 29

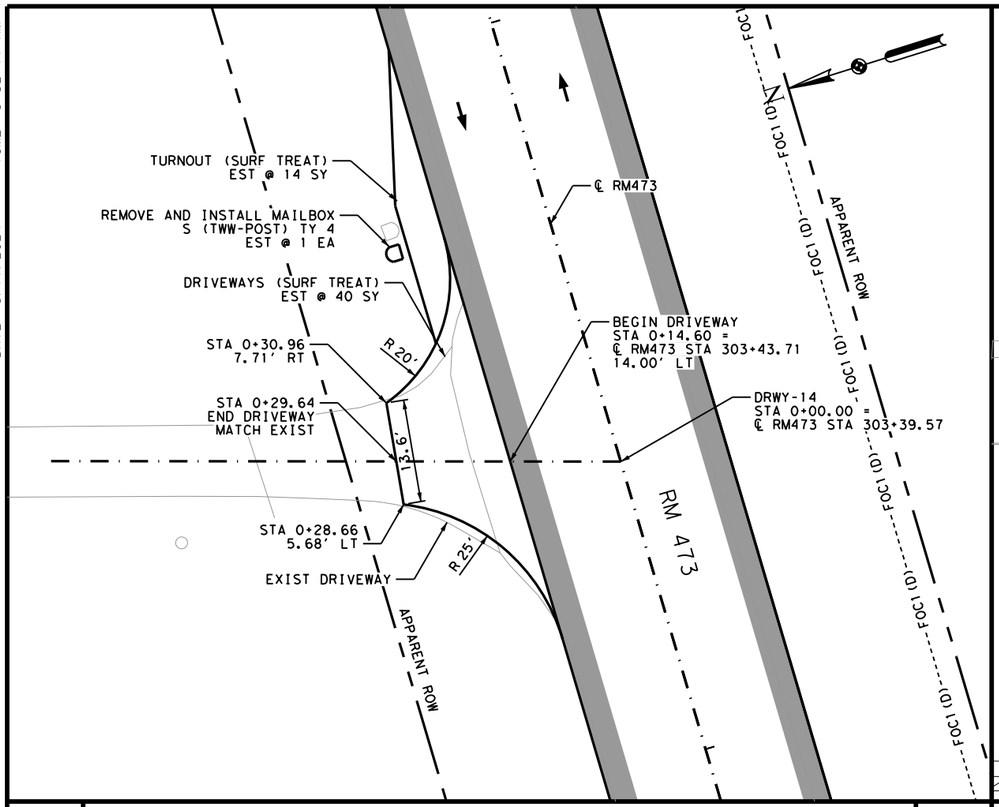
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	121

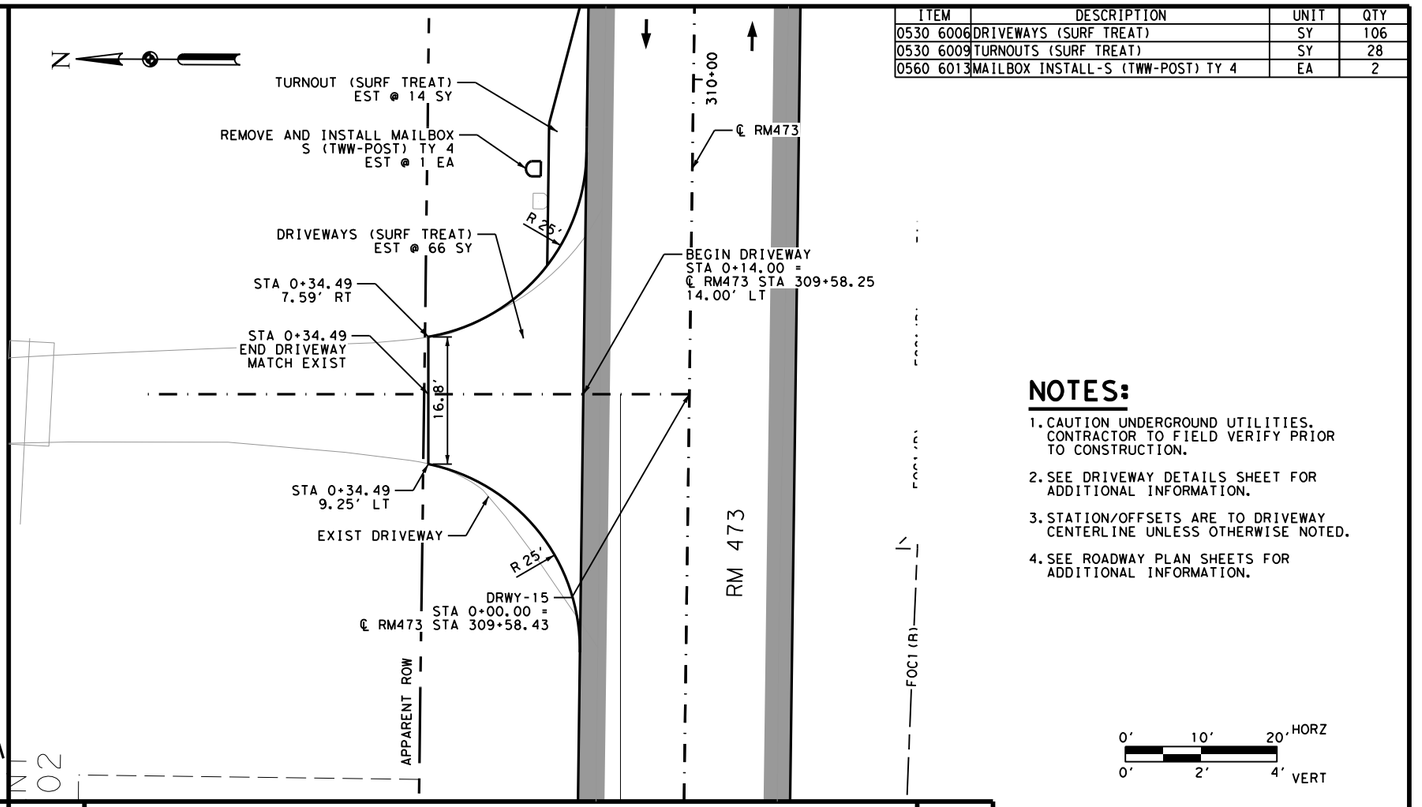
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-06.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:32:17 AM

ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	106
0530 6009	TURNOUTS (SURF TREAT)	SY	28
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2

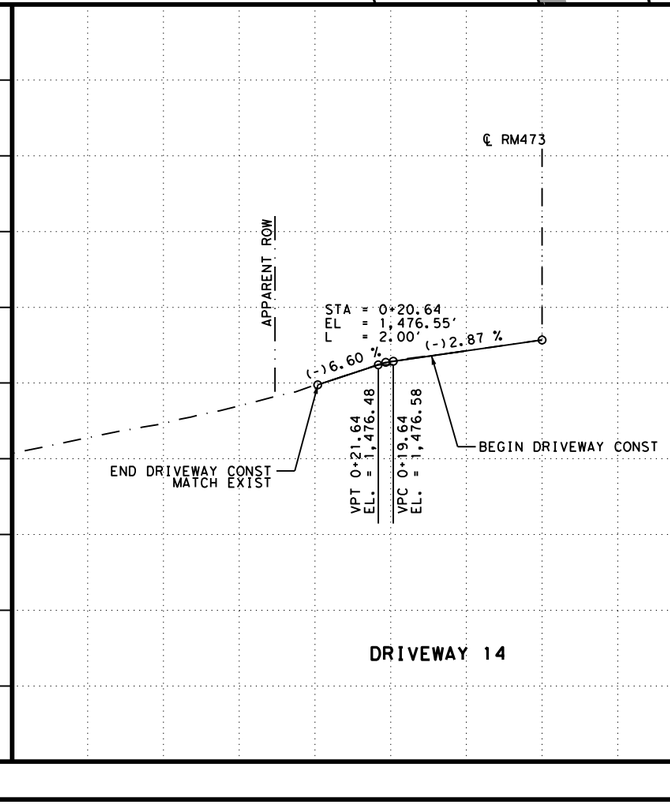


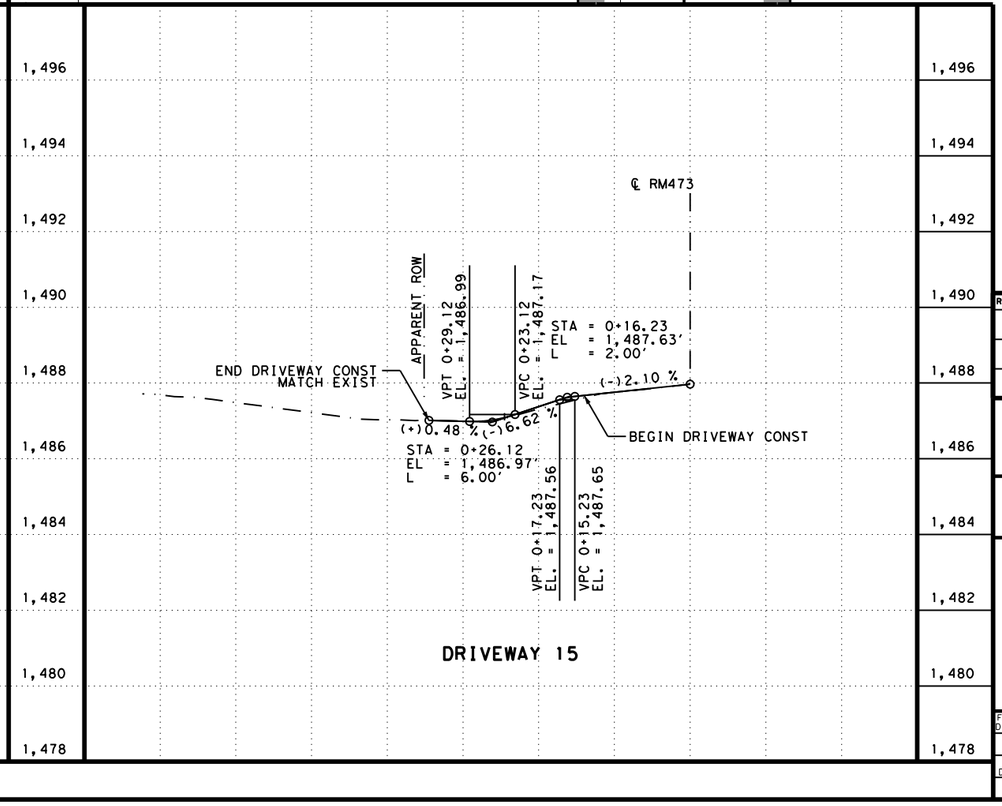


NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT





STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 14 & 15

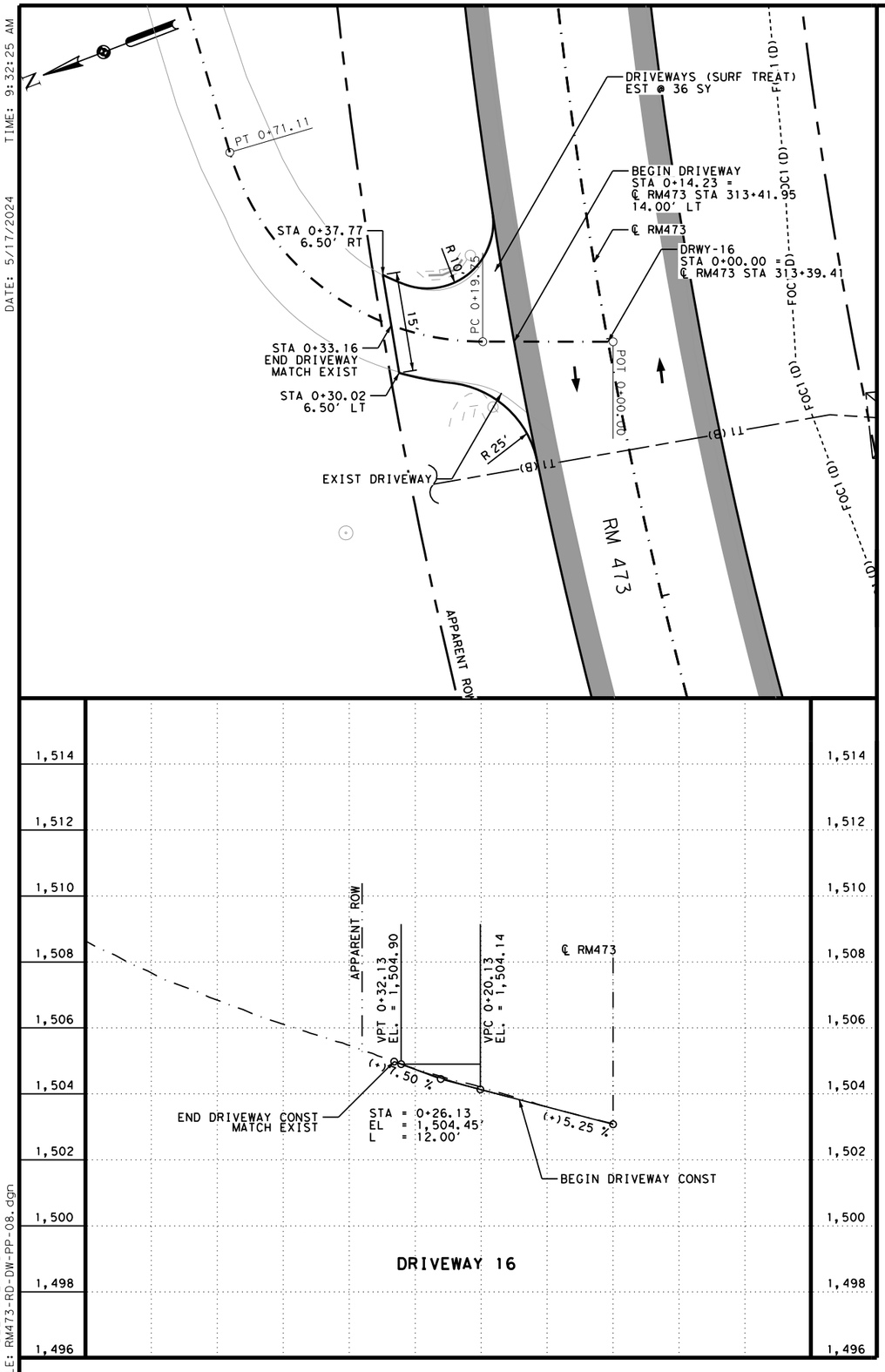
SHEET 7 OF 29

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	122

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-07.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:32:25 AM



DRIVEWAY 16

ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	36

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 16

SHEET 8 OF 29

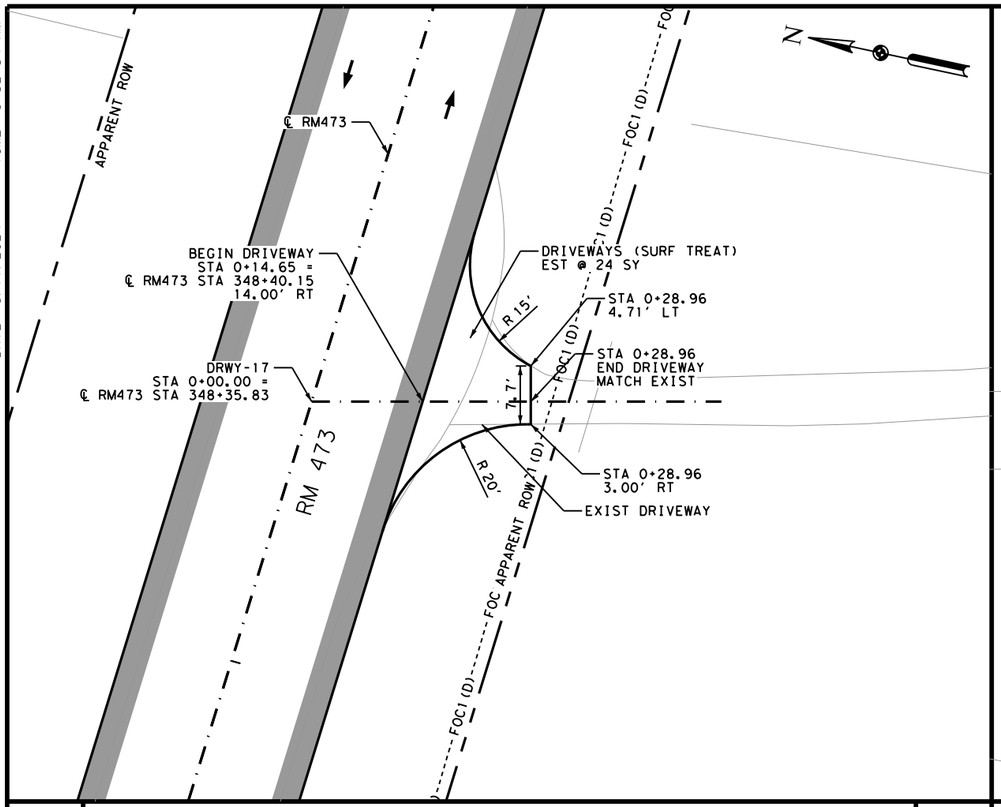
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	123

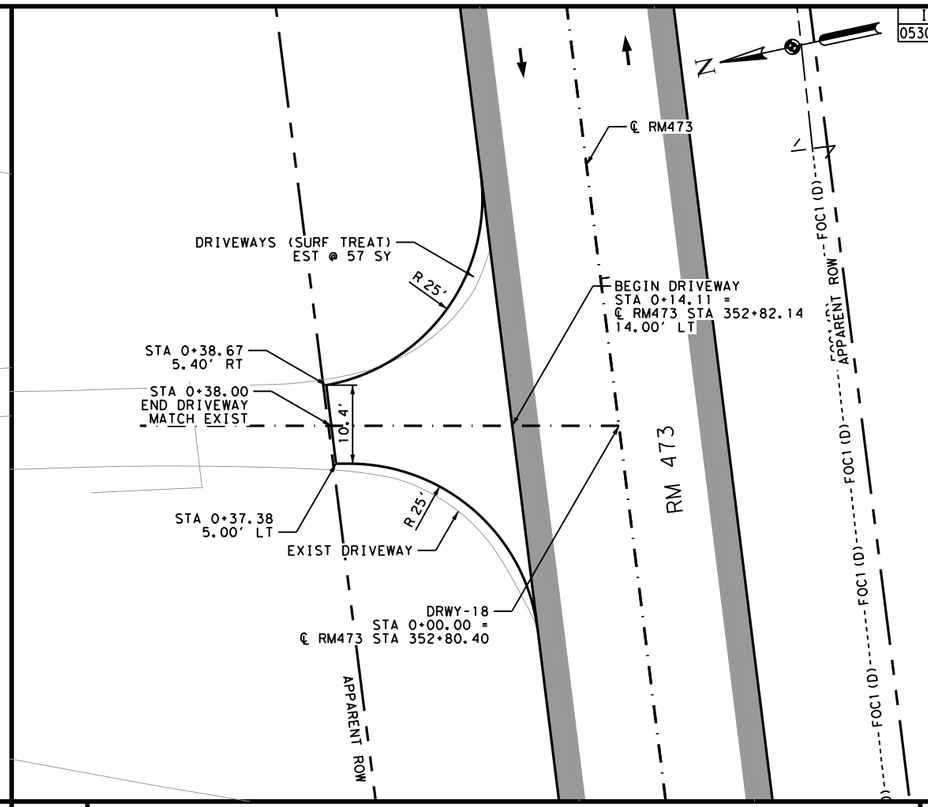
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-08.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:32:34 AM

ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	81

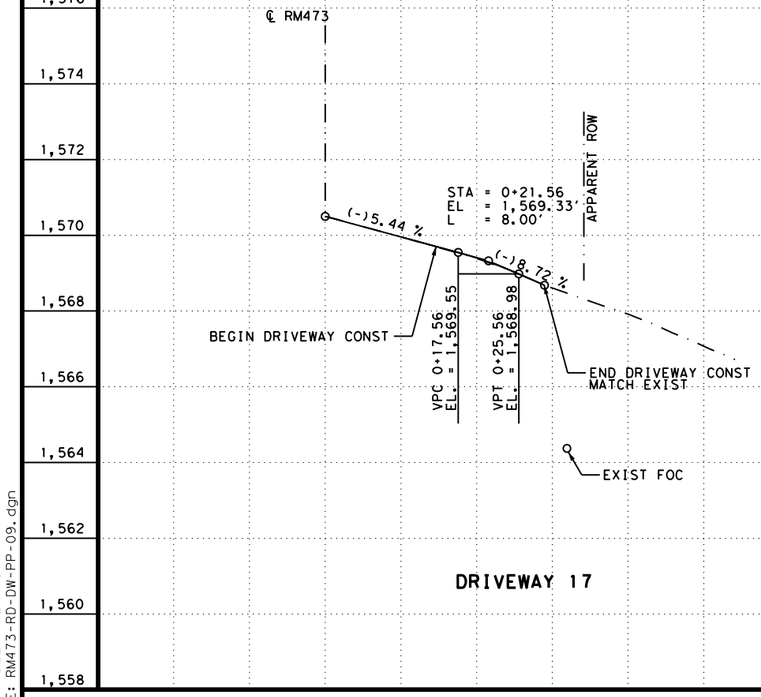




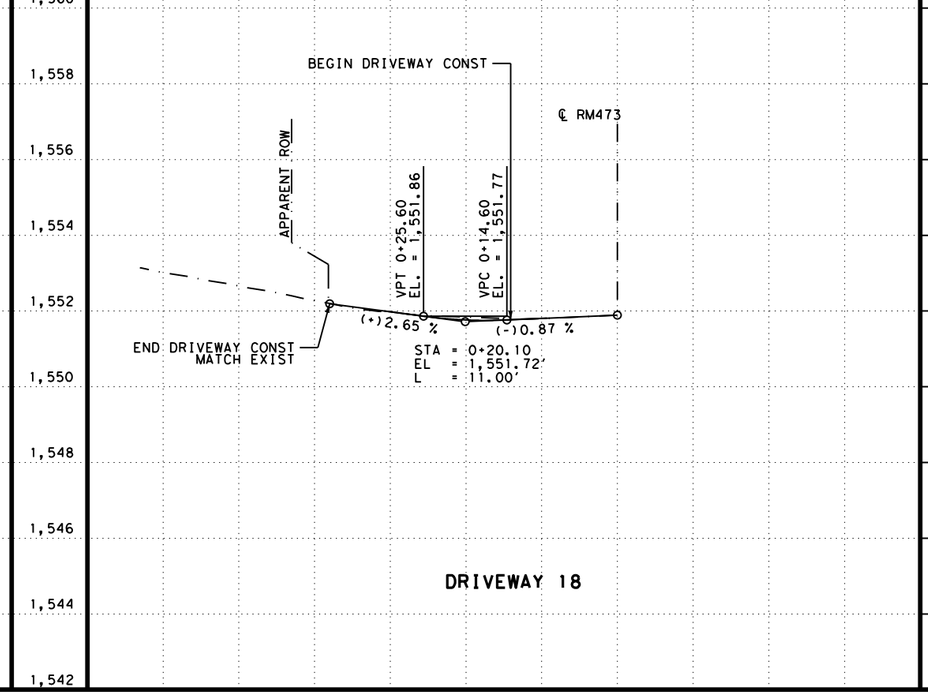
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 17



DRIVEWAY 18

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 17 & 18

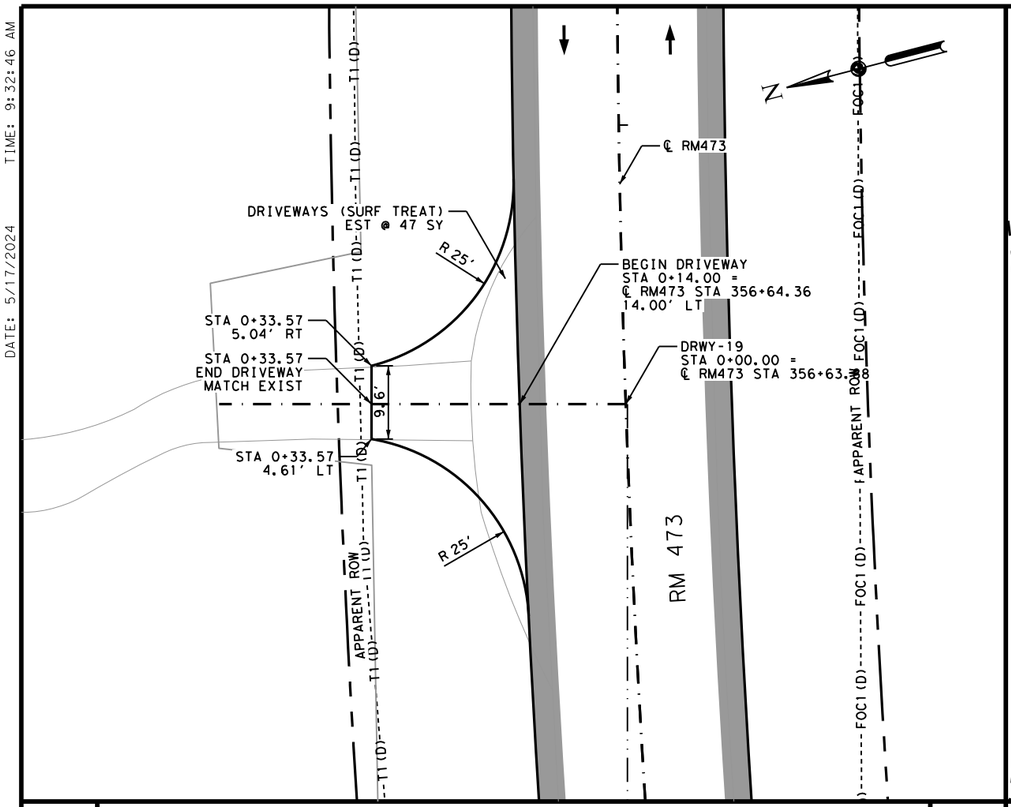
SHEET 9 OF 29

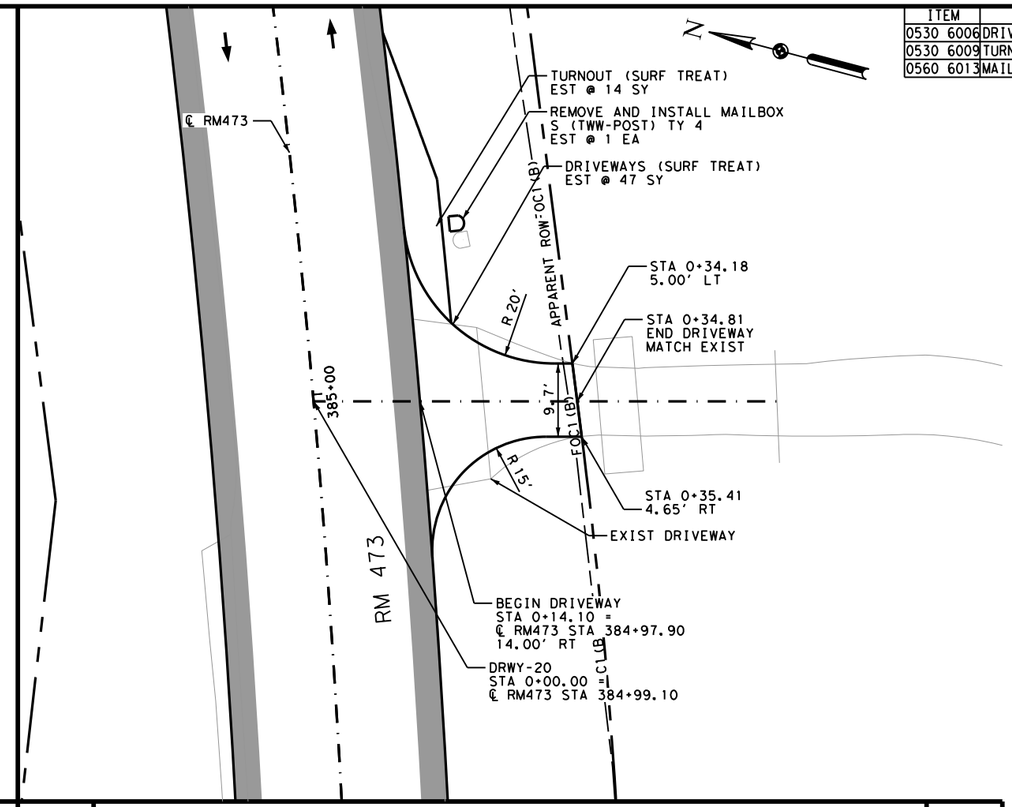
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	124

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-09.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:32:46 AM



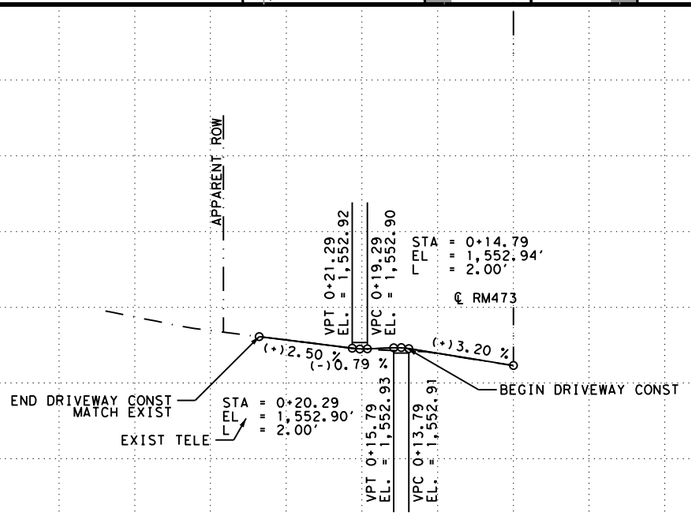


ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	94
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

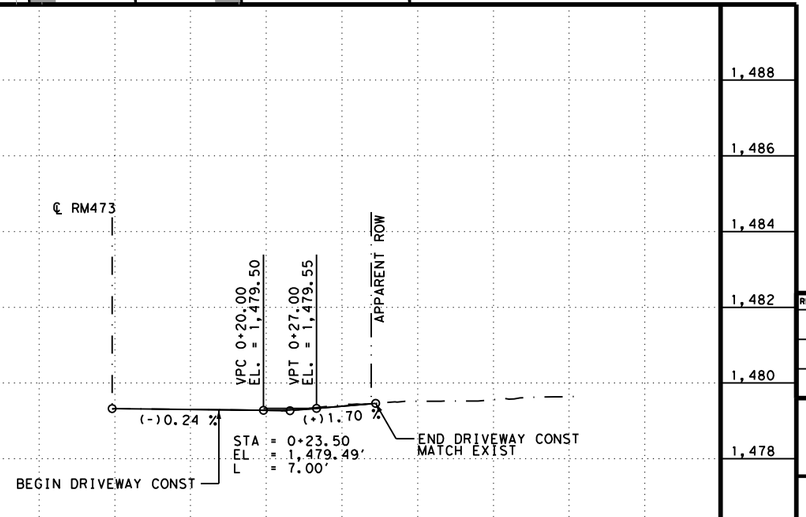
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 19



DRIVEWAY 20

F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 19 & 20

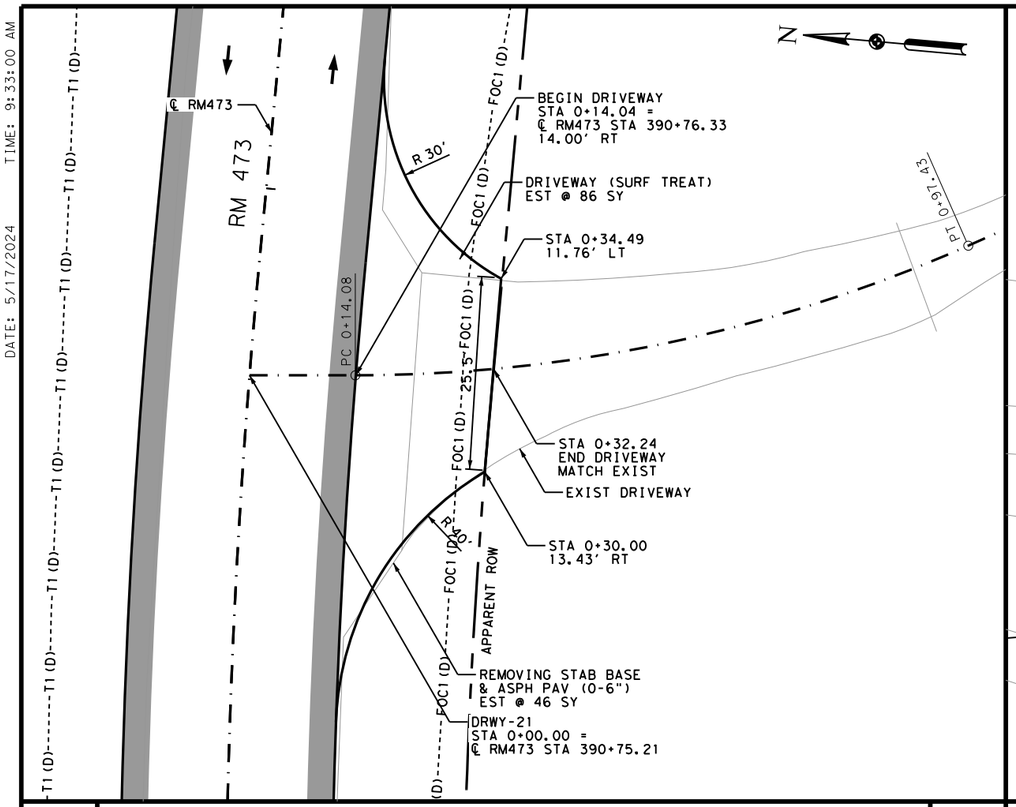
SHEET 10 OF 29

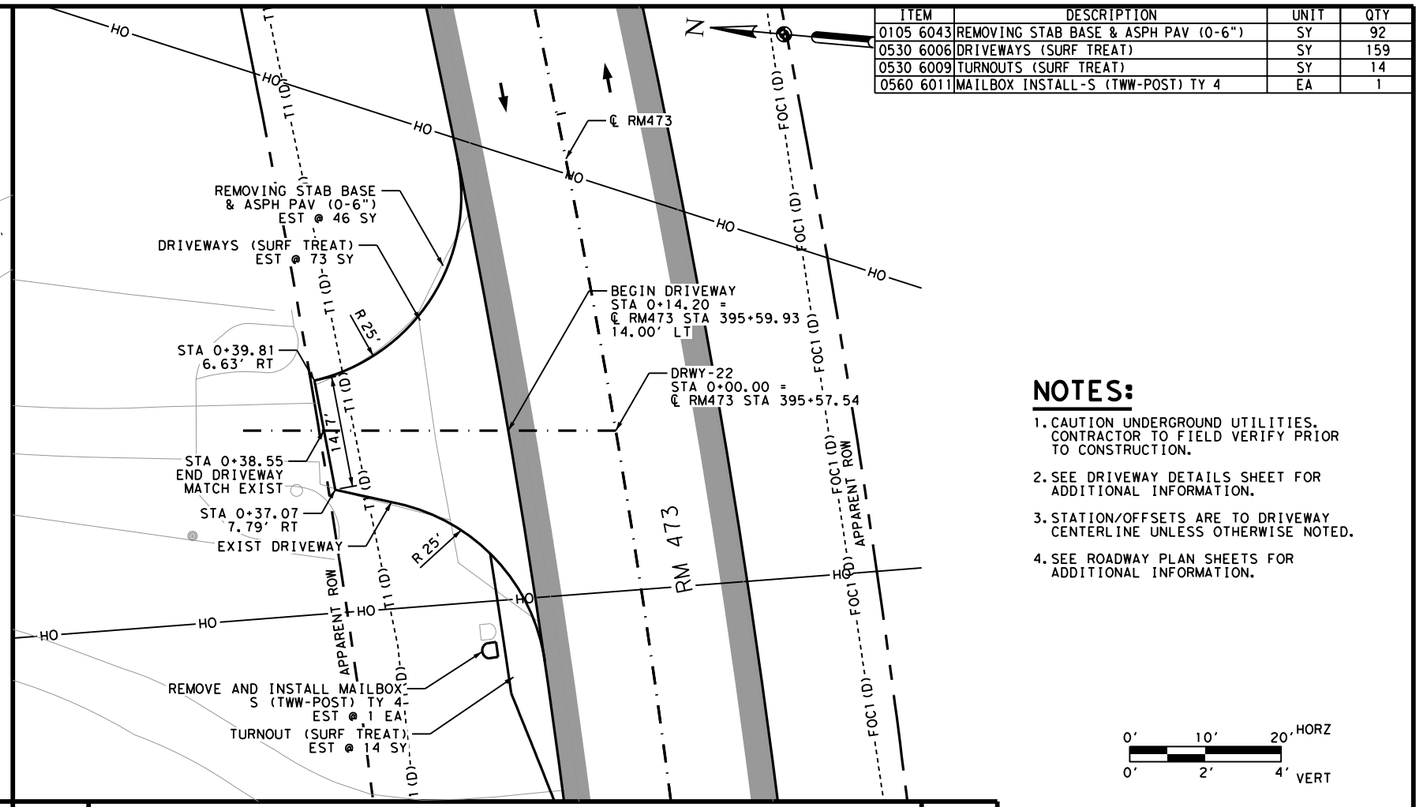
FED. RD DIV. NO.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	125

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-10.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:33:00 AM



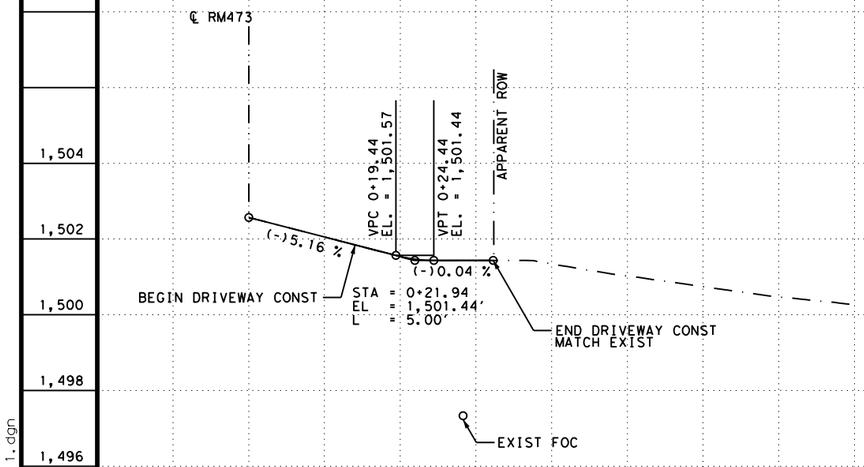


ITEM	DESCRIPTION	UNIT	QTY
0105 6043	REMOVING STAB BASE & ASPH PAV (0-6")	SY	92
0530 6006	DRIVEWAYS (SURF TREAT)	SY	159
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

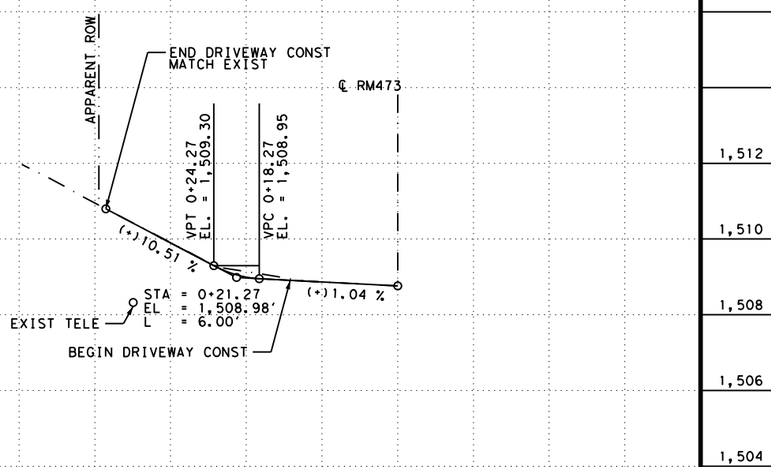
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 21



DRIVEWAY 22

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 21 & 22

SHEET 11 OF 29

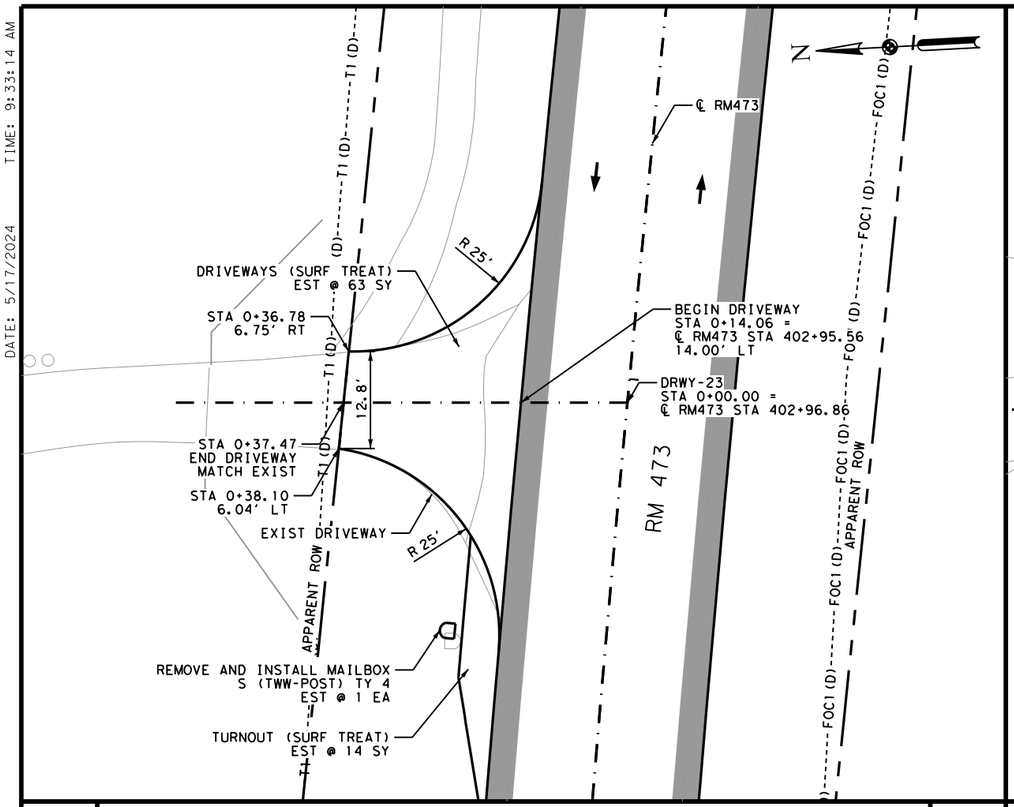
FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	126

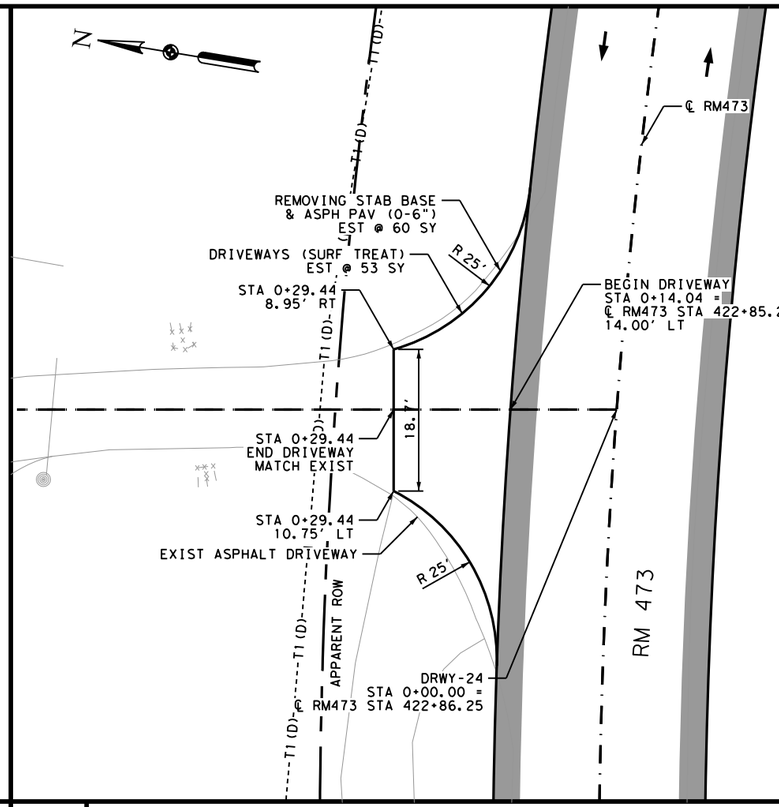
PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-11.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:33:14 AM

ITEM	DESCRIPTION	UNIT	QTY
0105 6043	REMOVING STAB BASE & ASPH PAV (0-6")	SY	60
0530 6006	DRIVEWAYS (SURF TREAT)	SY	116
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

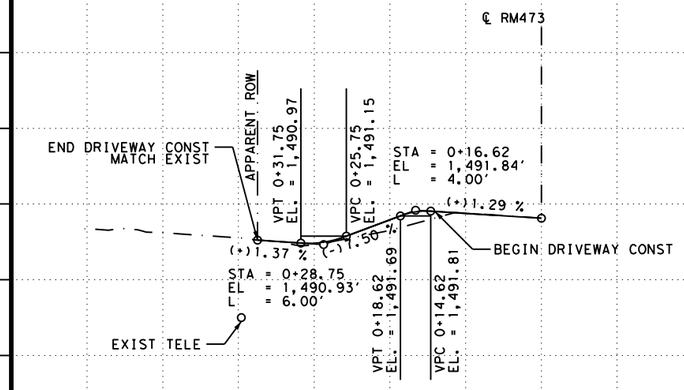




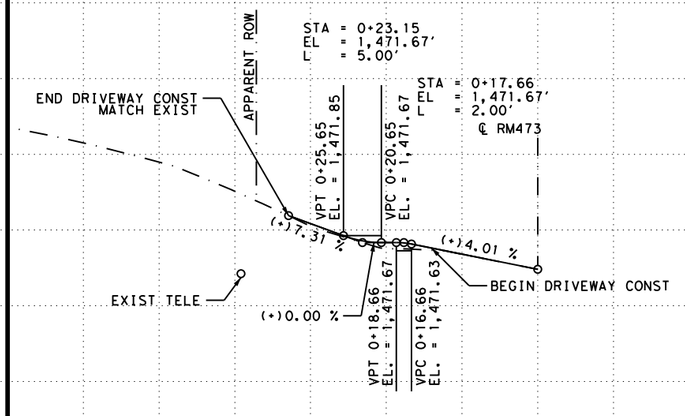
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 23



DRIVEWAY 24

F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 23 & 24

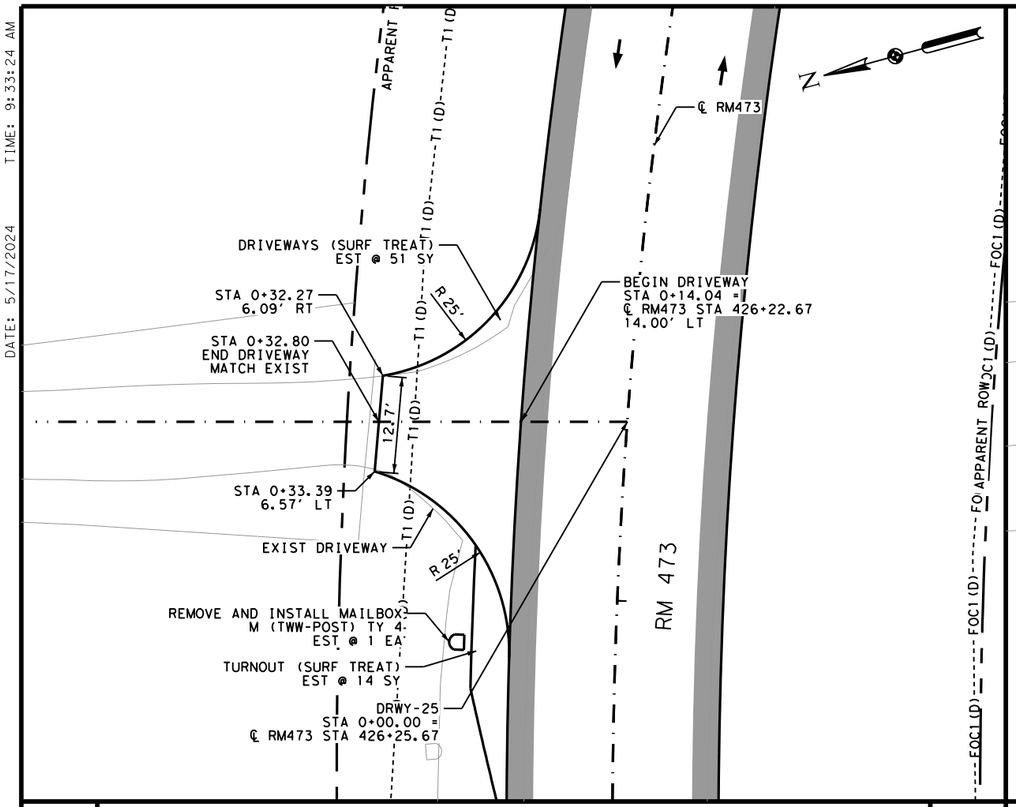
SHEET 12 OF 29

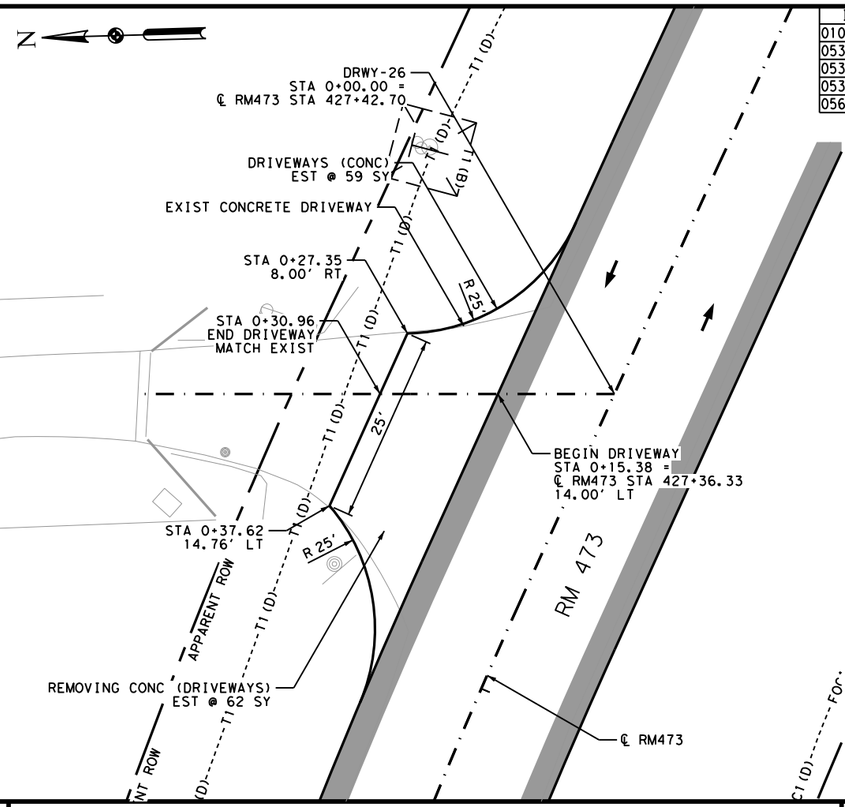
FED. RD DIV. NO.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	127

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-12.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:33:24 AM



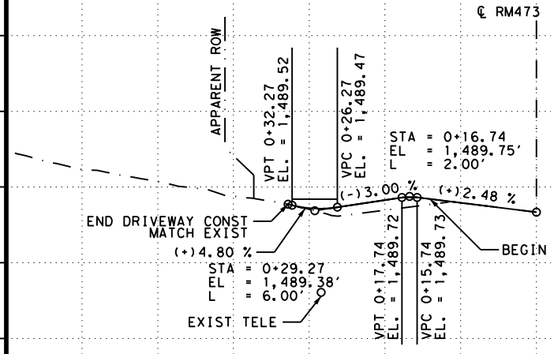


ITEM	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	62
0530 6004	DRIVEWAYS (CONC)	SY	59
0530 6006	DRIVEWAYS (SURF TREAT)	SY	51
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	1

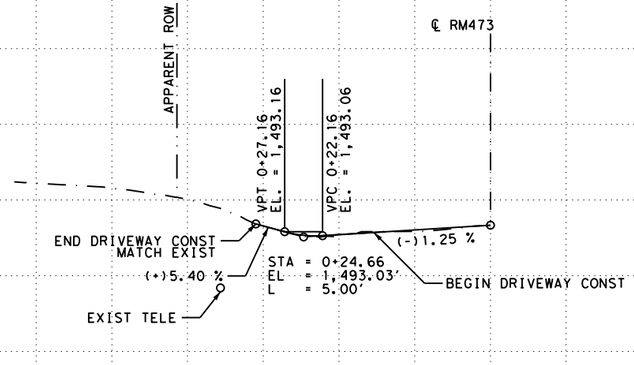
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 25



DRIVEWAY 26

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 25 & 26

SHEET 13 OF 29

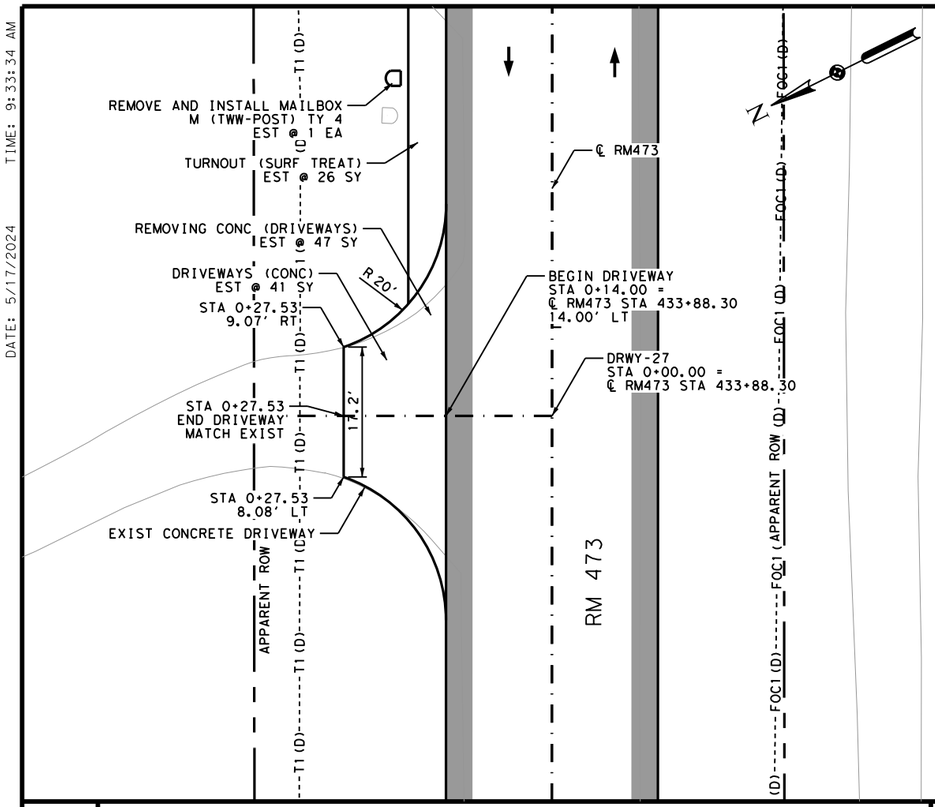
FED. RD DIV. NO.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	128

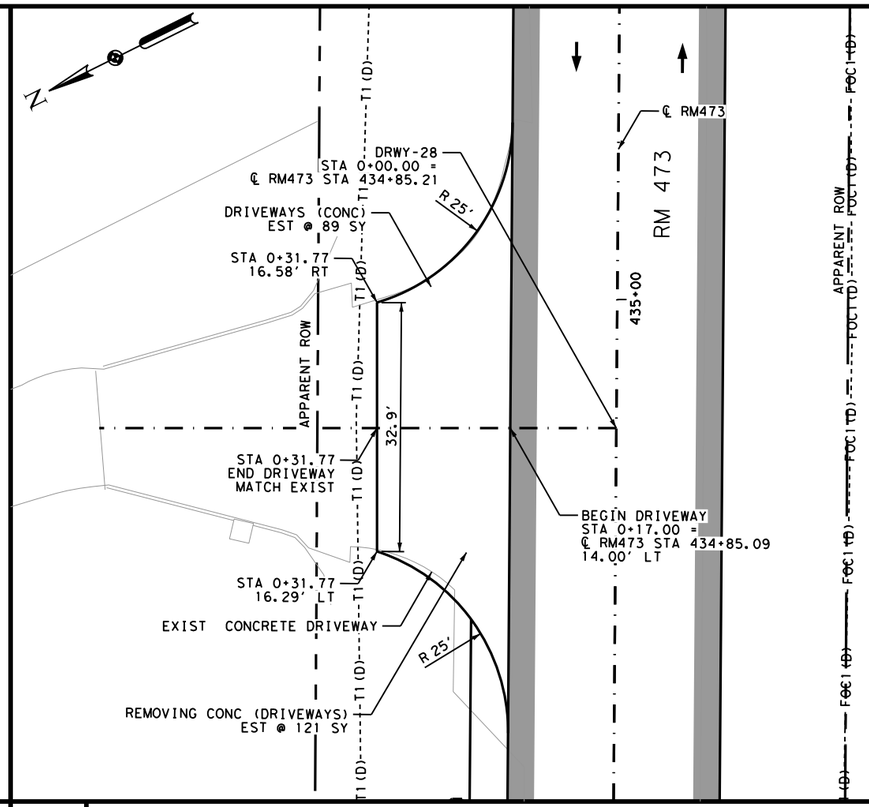
PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-13.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:33:34 AM

ITEM	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	168
0530 6004	DRIVEWAYS (CONC)	SY	130
0530 6009	TURNOUTS (SURF TREAT)	SY	26
0560 6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	1

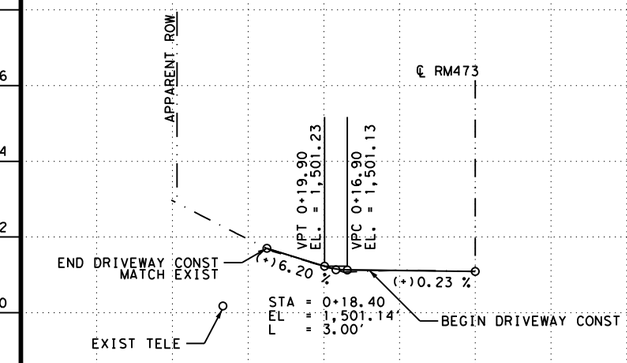




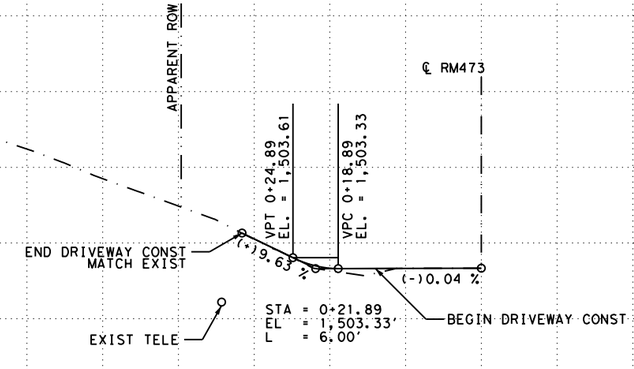
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 27



DRIVEWAY 28

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 27 & 28

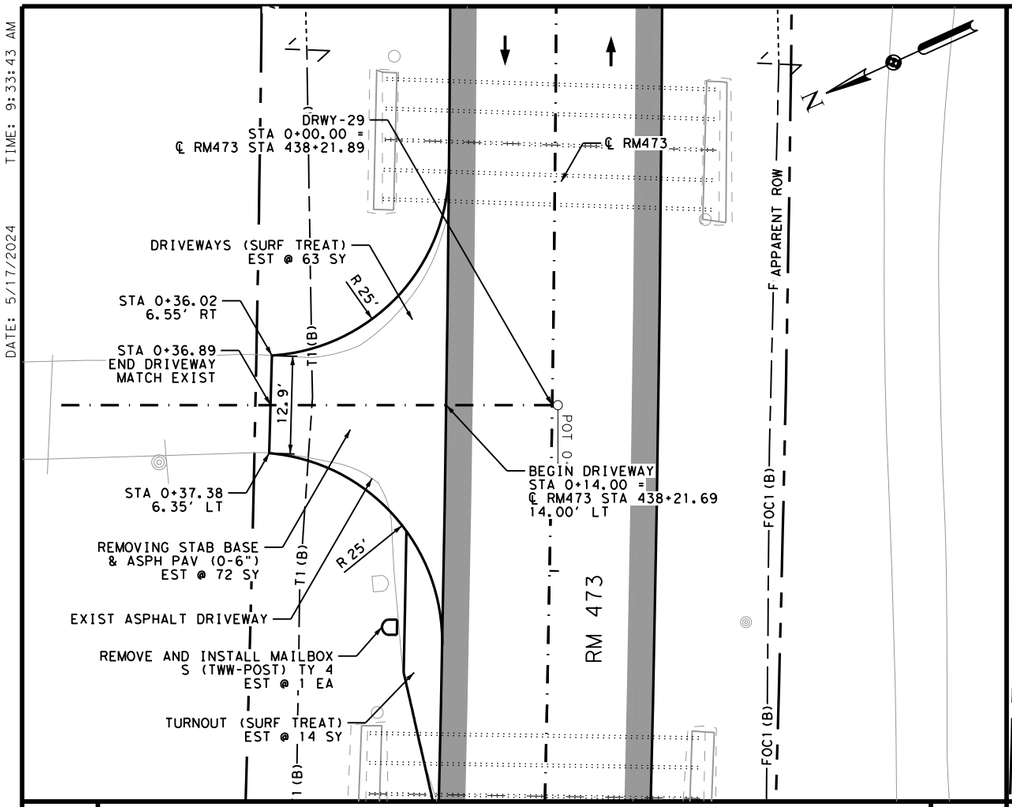
SHEET 14 OF 29

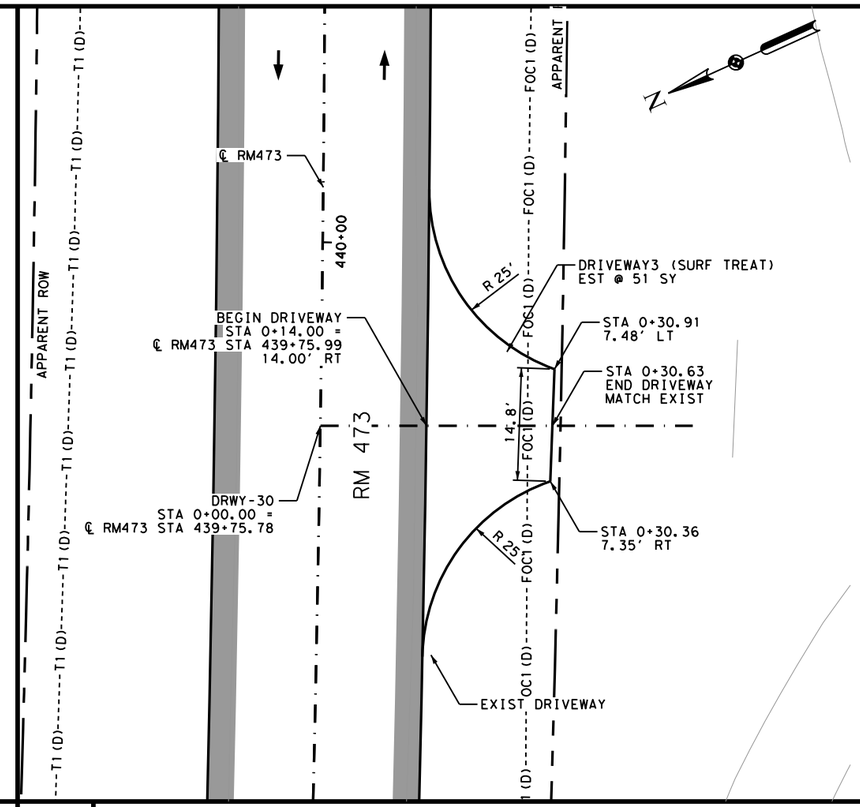
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	129

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-14.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:33:43 AM



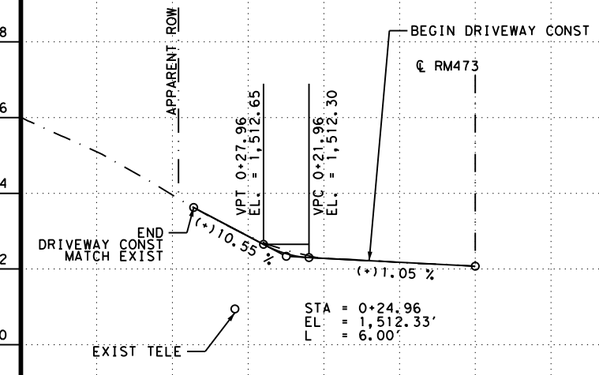


ITEM	DESCRIPTION	UNIT	QTY
0105 6043	REMOVING STAB BASE & ASPH PAV (0-6")	SY	72
0530 6006	DRIVEWAYS (SURF TREAT)	SY	114
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

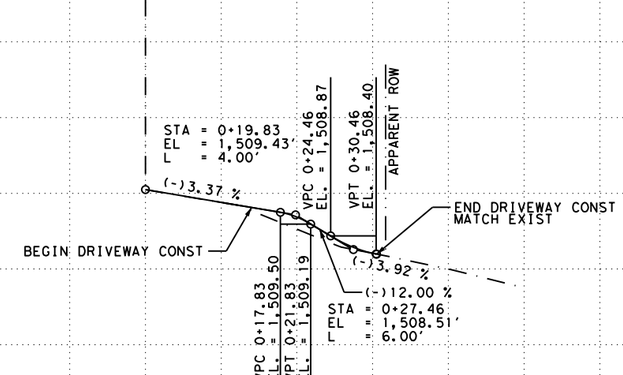
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 29



DRIVEWAY 30

F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 29 & 30

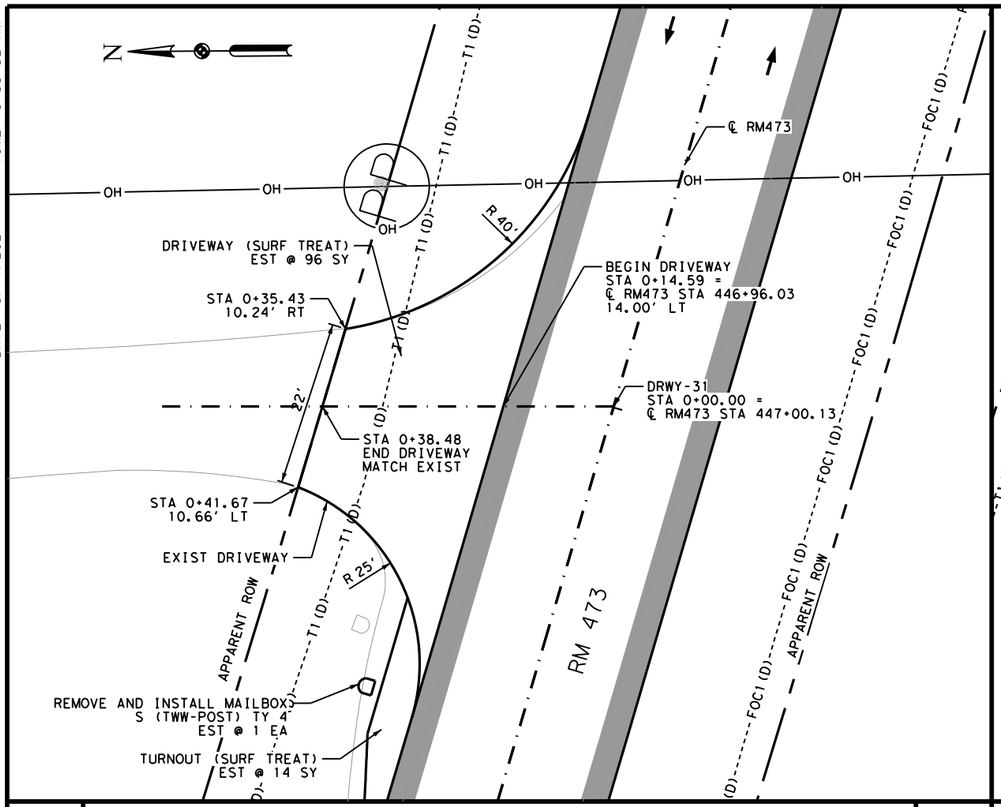
SHEET 15 OF 29

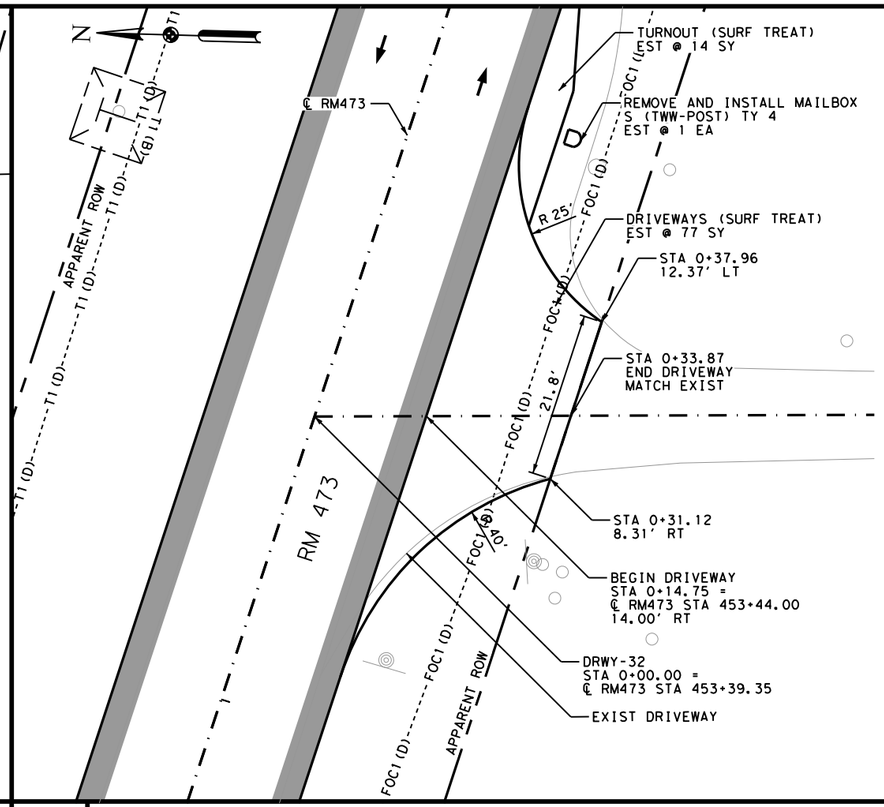
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	130

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-15.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:33:52 AM



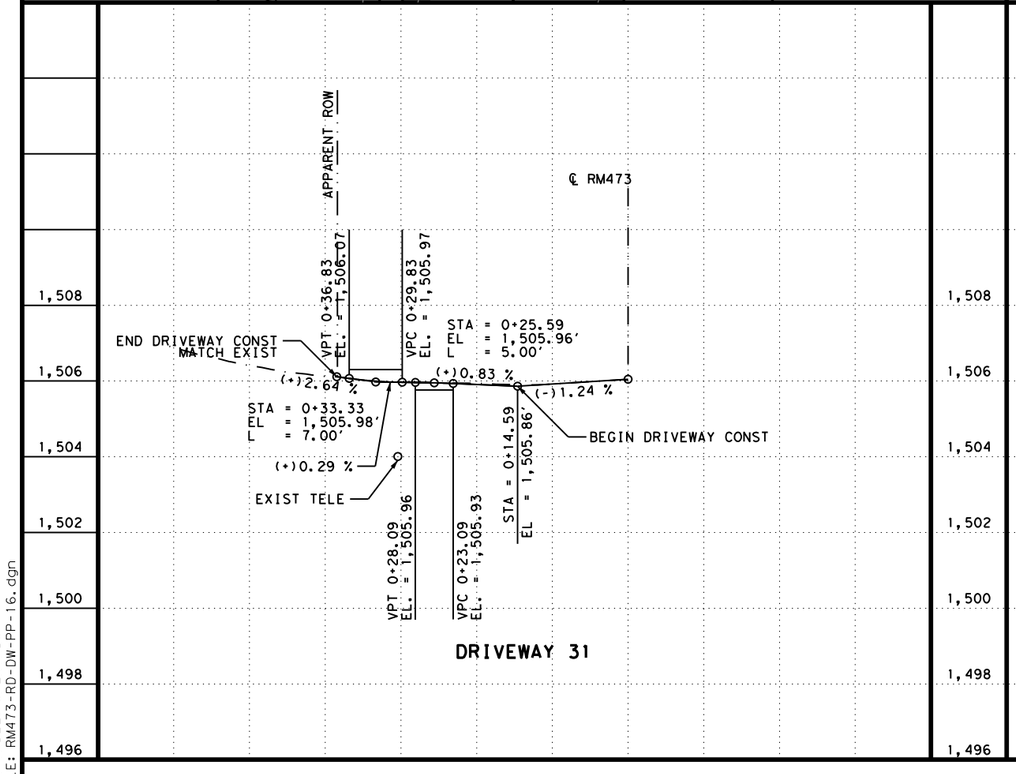


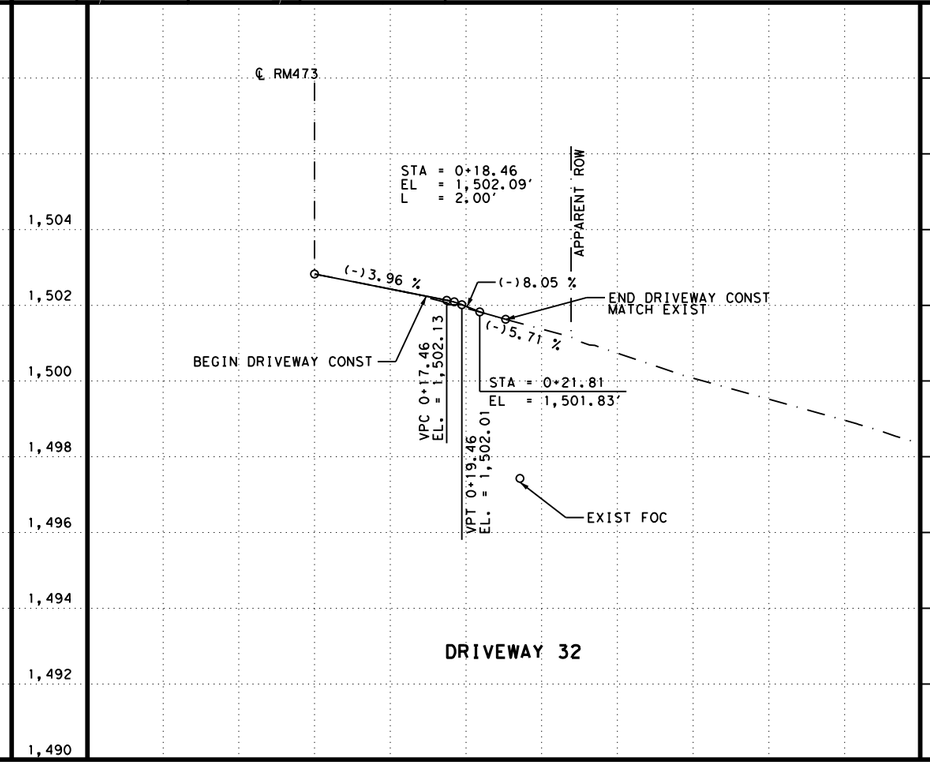
ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	173
0530 6009	TURNOUTS (SURF TREAT)	SY	28
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2

NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT





F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 31 & 32

SHEET 16 OF 29

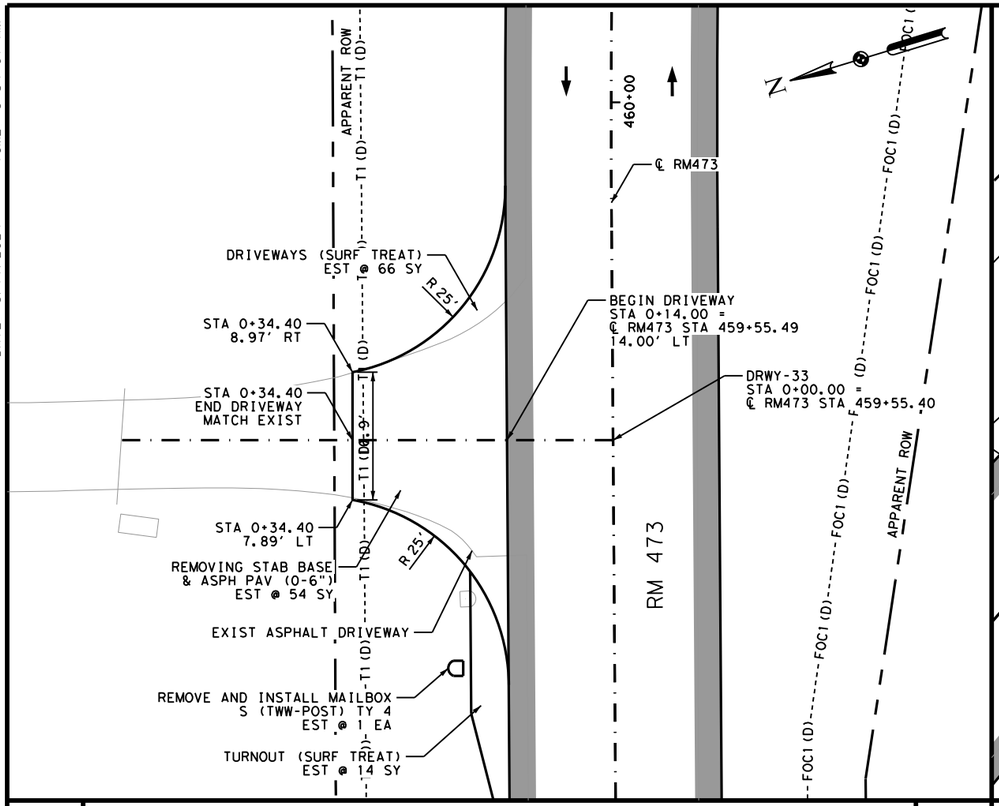
FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	131

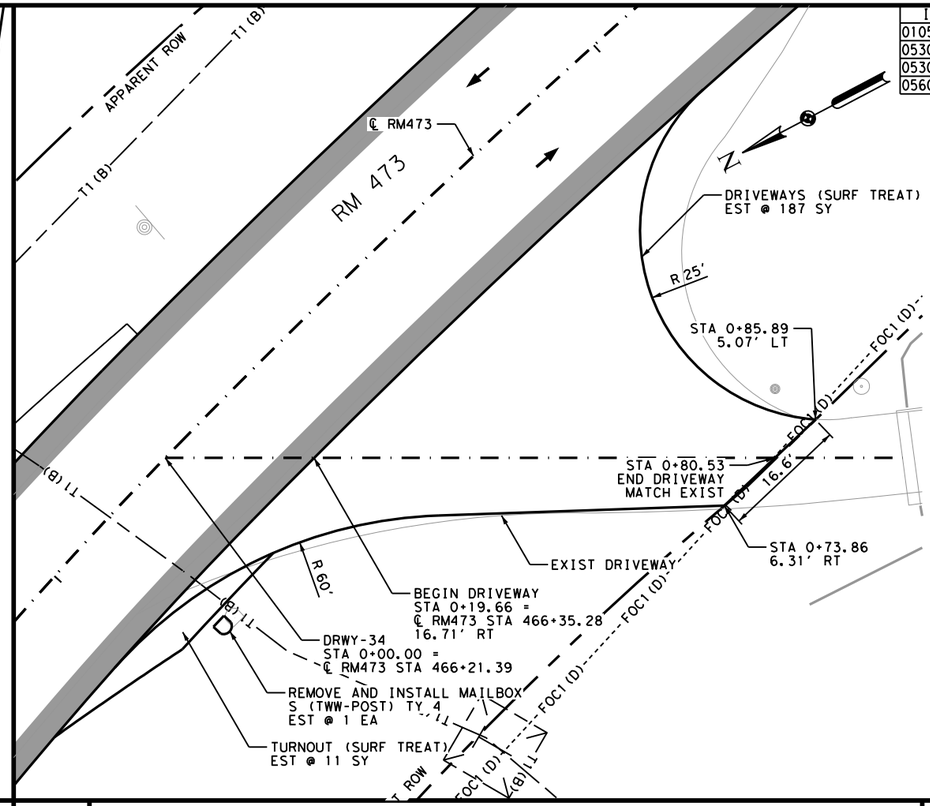
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-16.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:34:01 AM

ITEM	DESCRIPTION	UNIT	QTY
0105 6043	REMOVING STAB BASE & ASPH PAV (0-6")	SY	54
0530 6006	DRIVEWAYS (SURF TREAT)	SY	253
0530 6009	TURNOUTS (SURF TREAT)	SY	25
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2

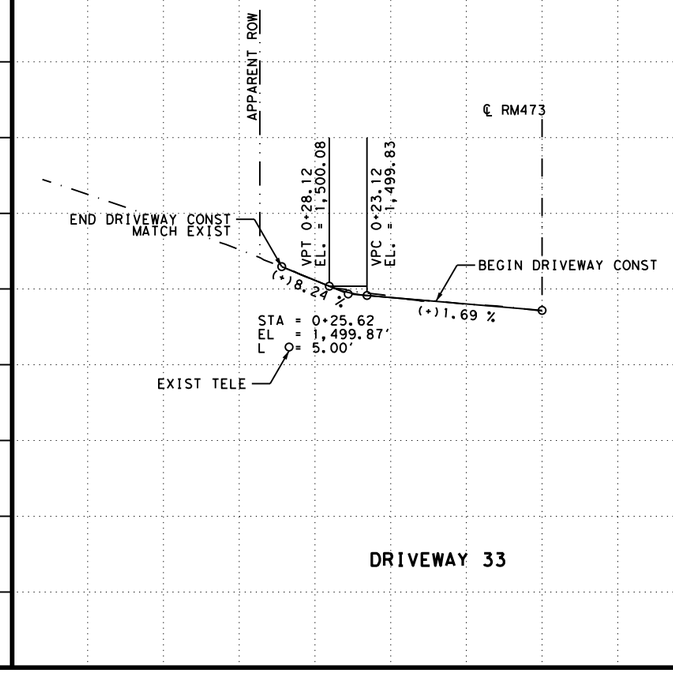




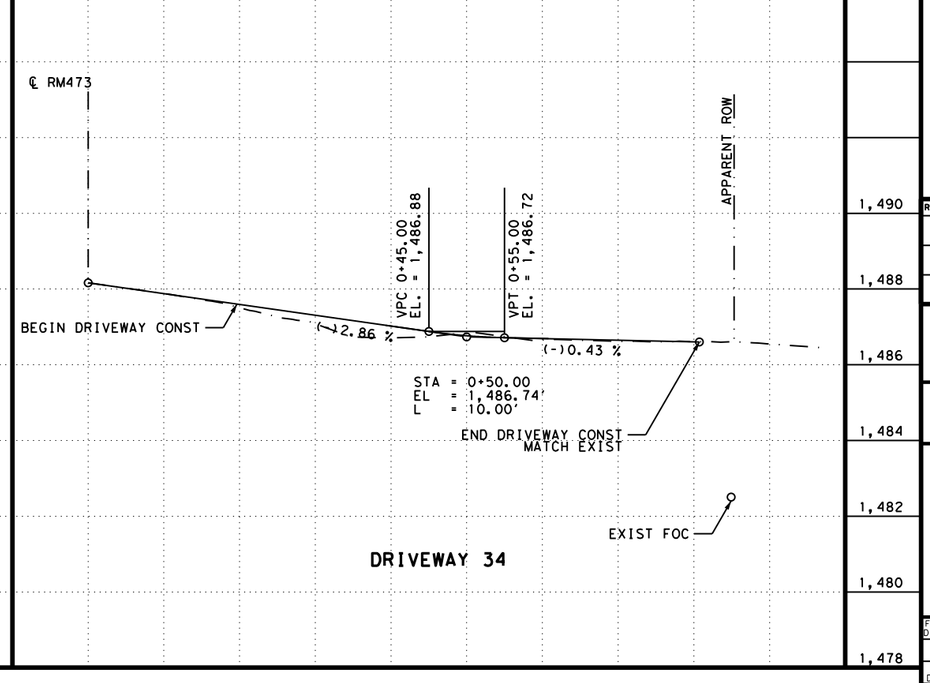
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 33



DRIVEWAY 34

F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 33 & 34

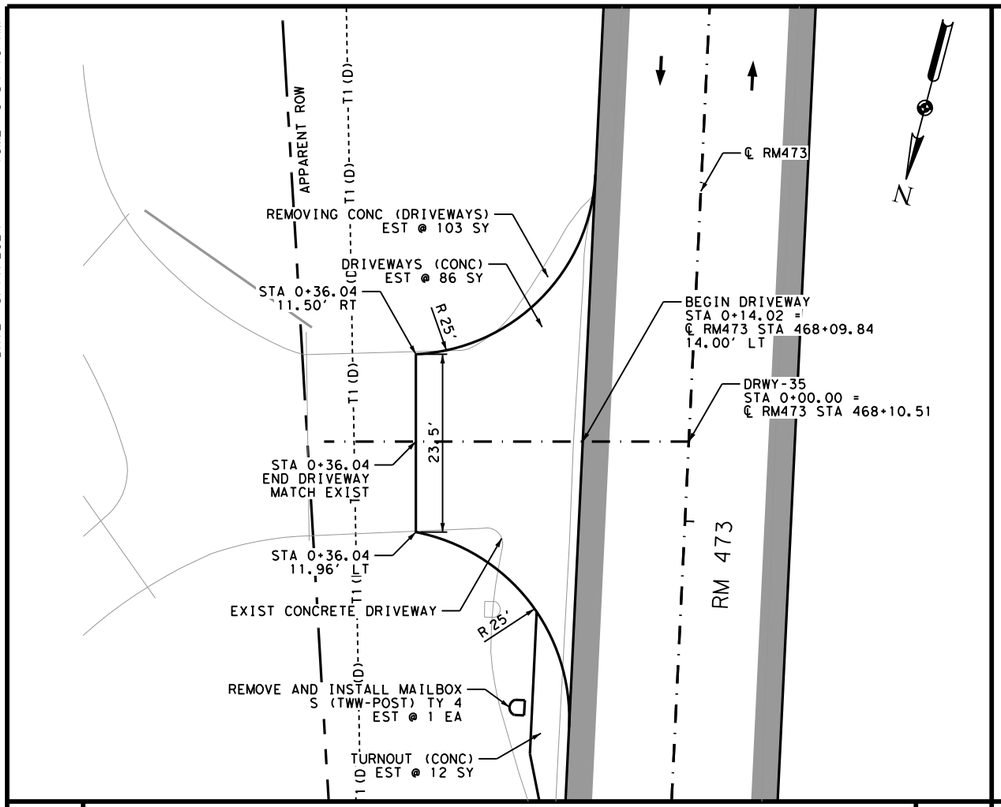
SHEET 17 OF 29

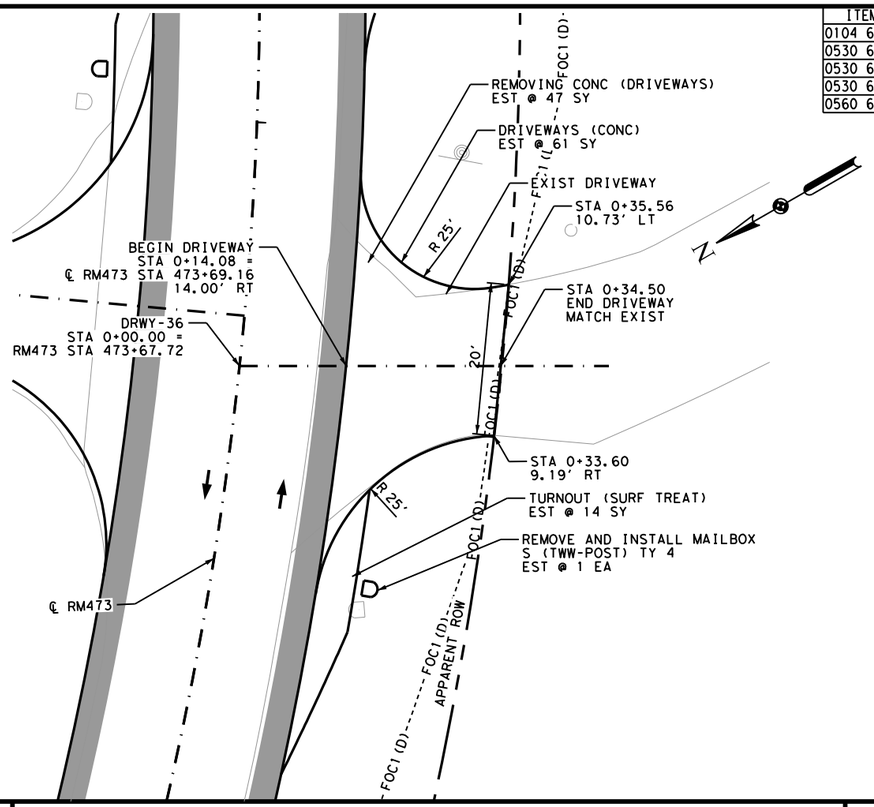
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	132

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-17.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:34:10 AM



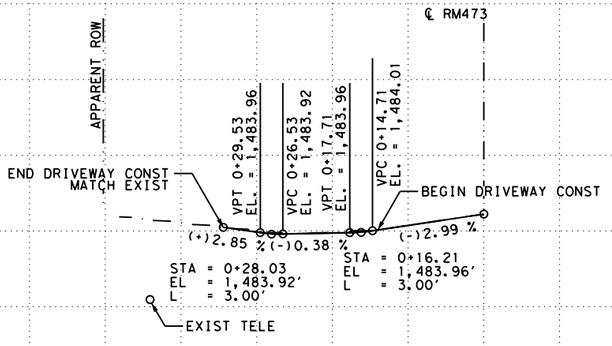


ITEM	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	150
0530 6004	DRIVEWAYS (CONC)	SY	147
0530 6007	TURNOUTS (CONC)	SY	14
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2

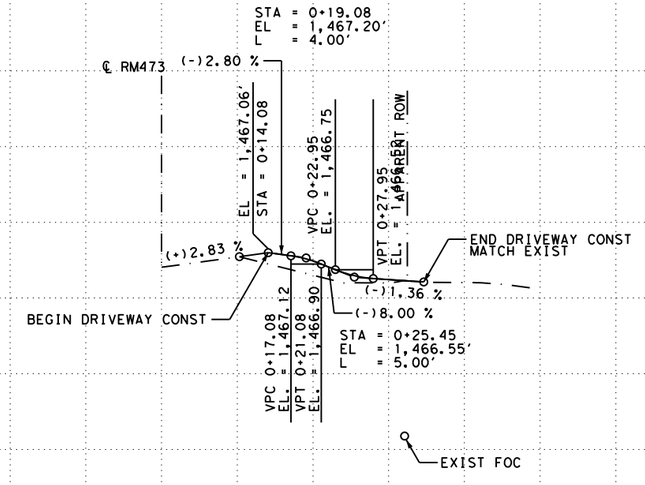
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 35



DRIVEWAY 36

F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 35 & 36

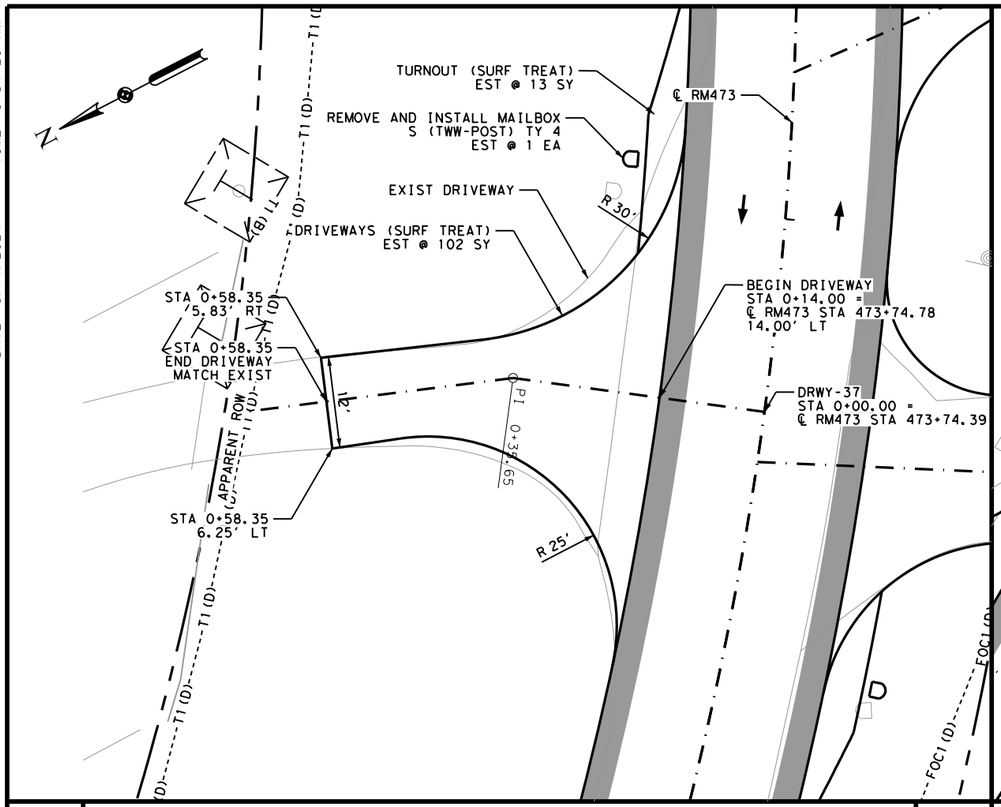
SHEET 18 OF 29

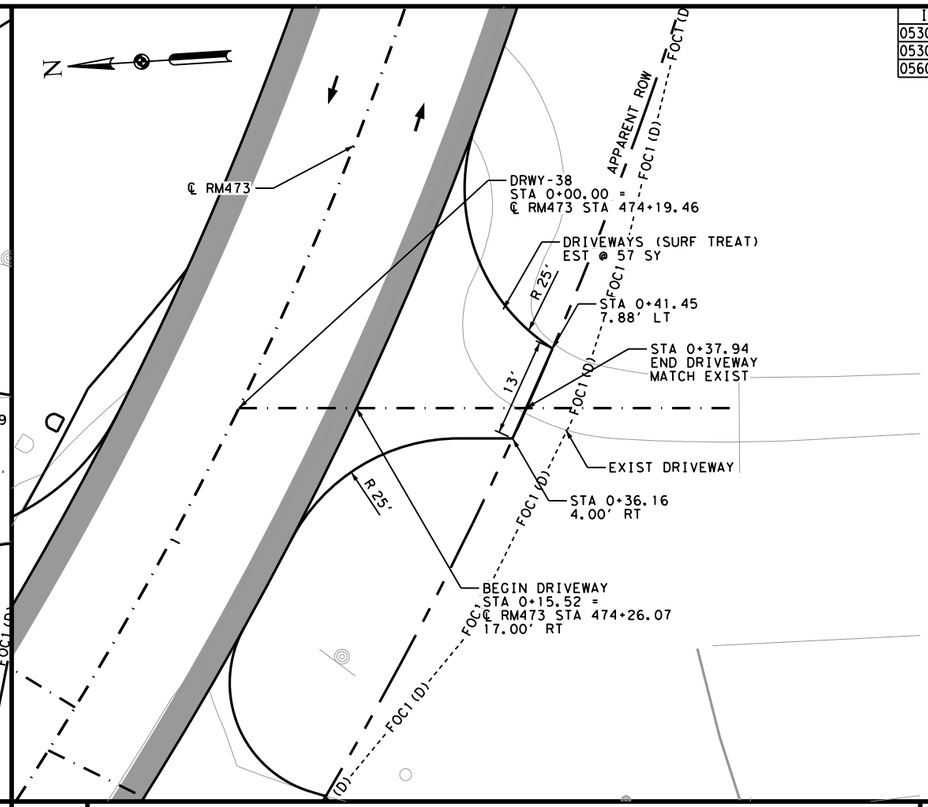
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	133

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-18.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:34:20 AM



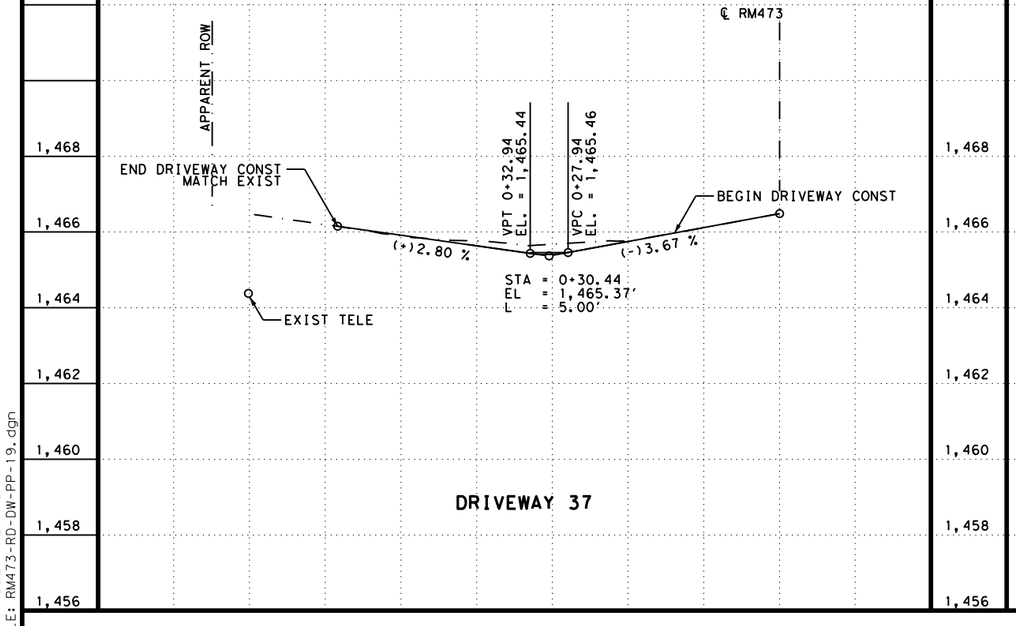


ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	159
0530 6009	TURNOUTS (SURF TREAT)	SY	13
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

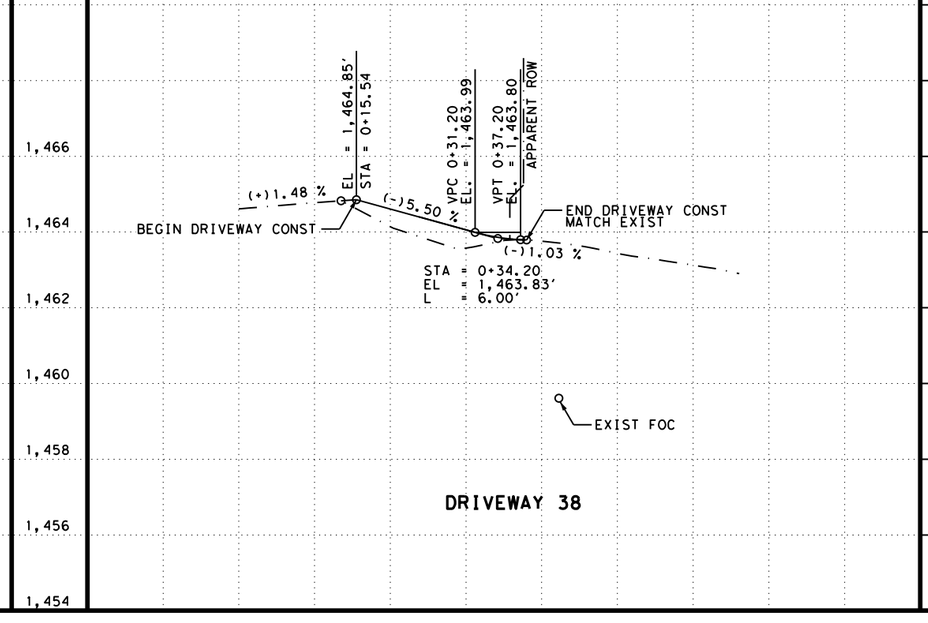
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 37



DRIVEWAY 38

F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 37 & 38

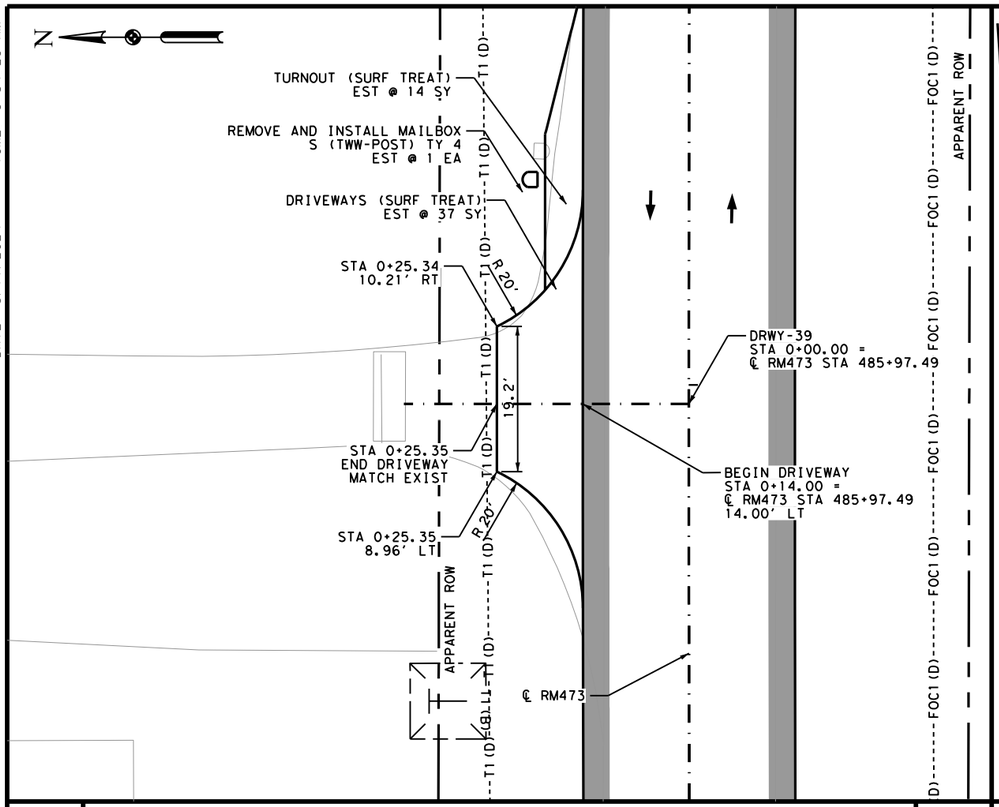
SHEET 19 OF 29

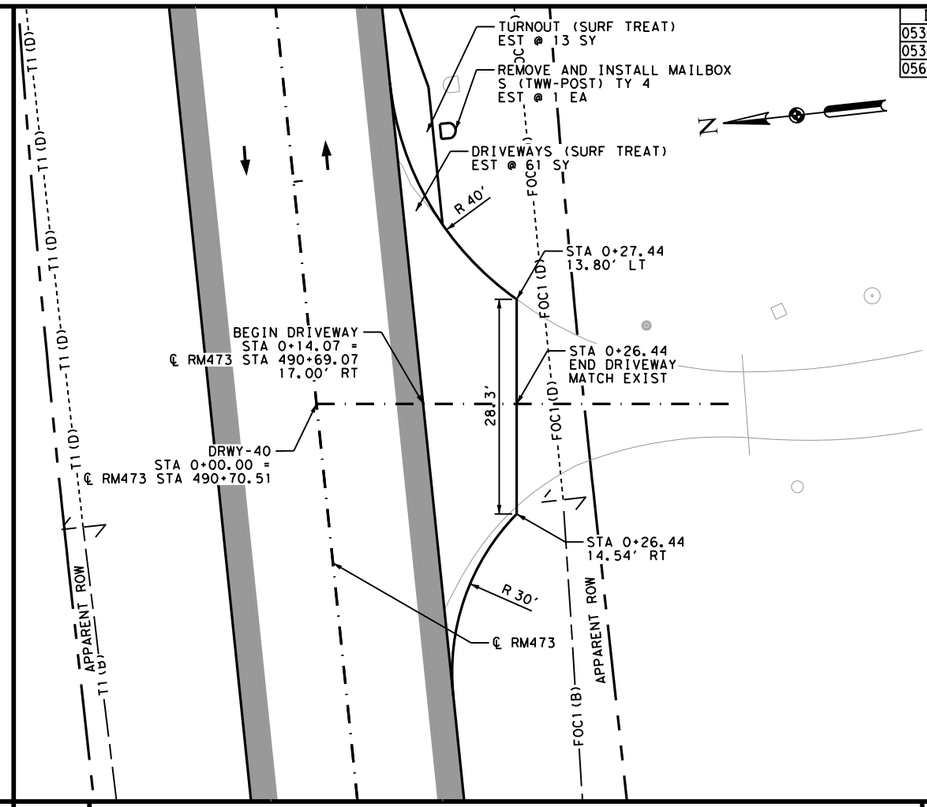
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	134

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-19.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:34:29 AM



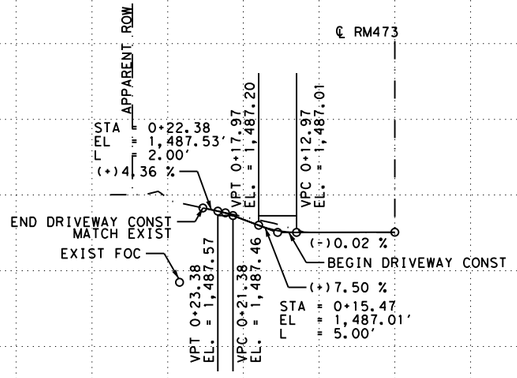


ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	98
0530 6009	TURNOUTS (SURF TREAT)	SY	27
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2

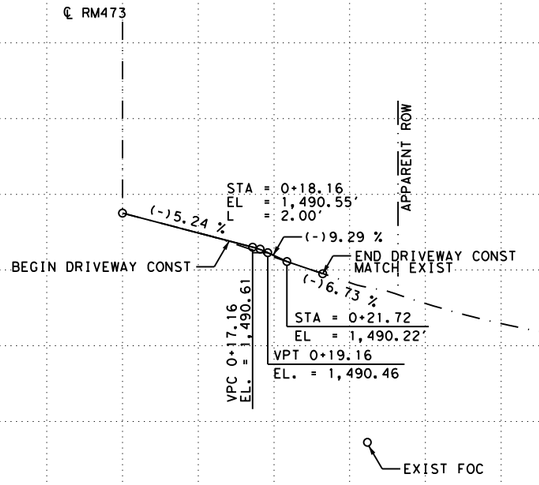
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 39



DRIVEWAY 40

F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 39 & 40

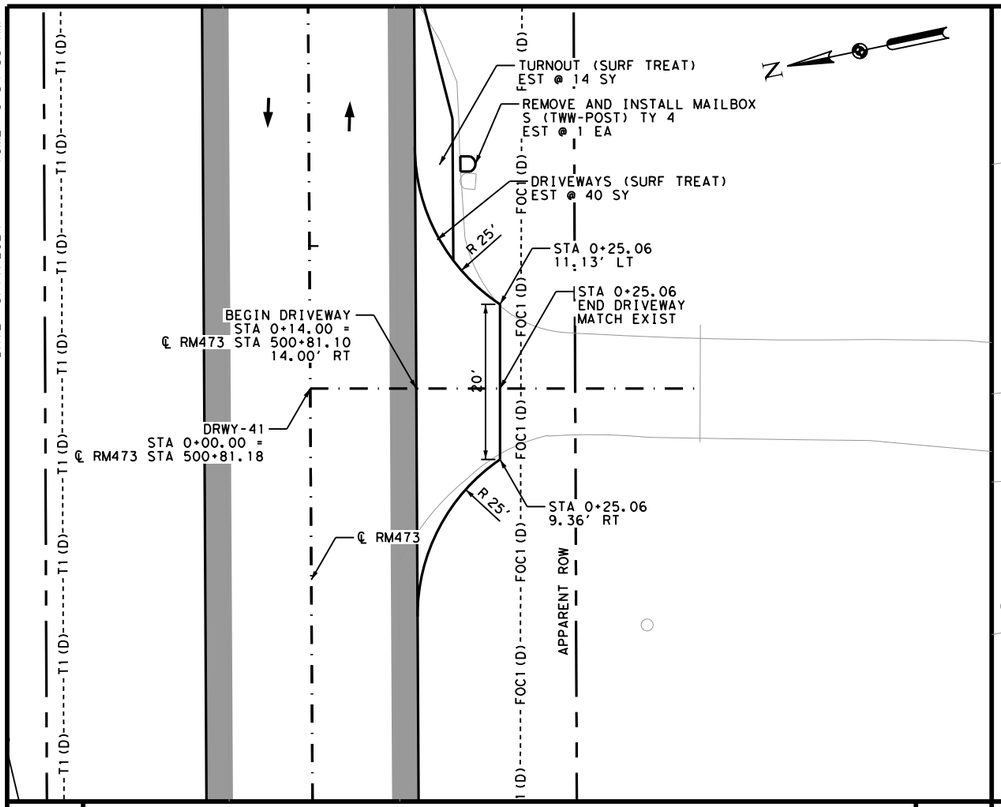
SHEET 20 OF 29

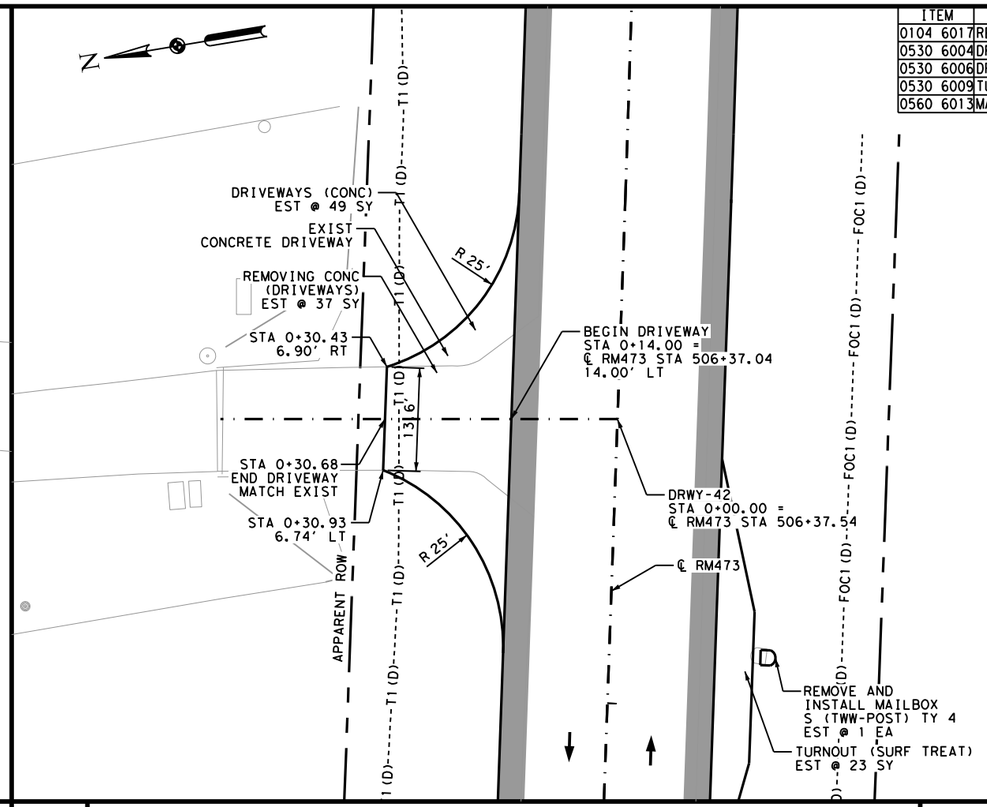
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	135

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-20.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:34:38 AM



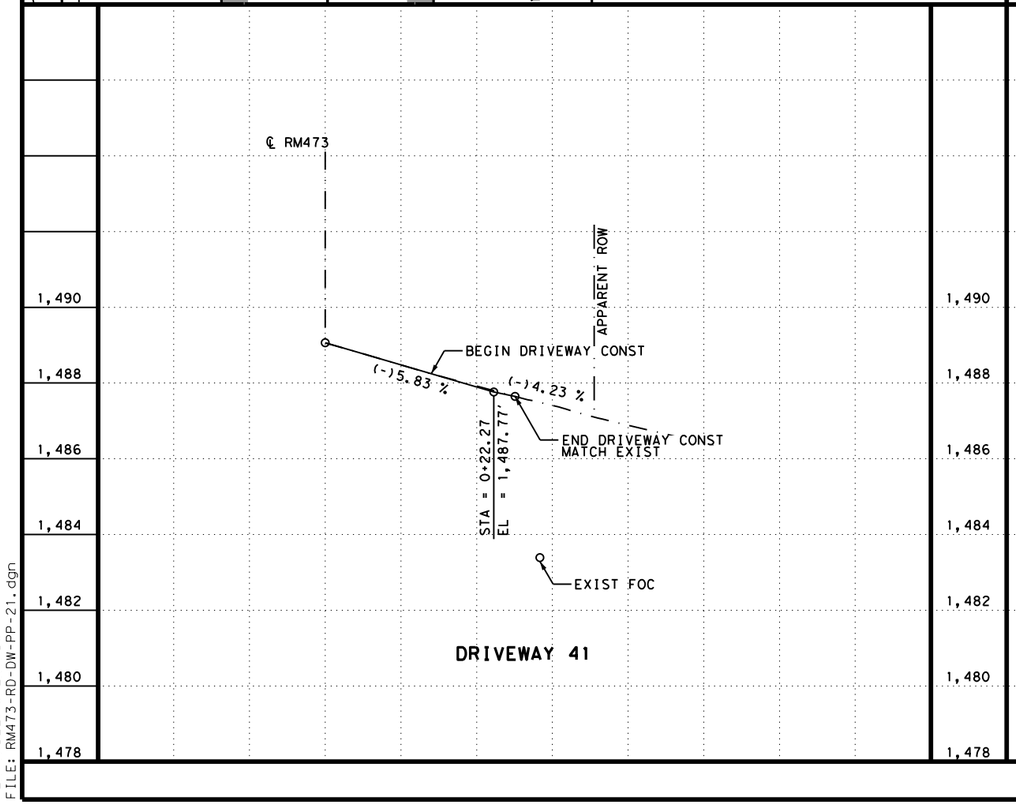


ITEM	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	37
0530 6004	DRIVEWAYS (CONC)	SY	49
0530 6006	DRIVEWAYS (SURF TREAT)	SY	40
0530 6009	TURNOUTS (SURF TREAT)	SY	37
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2

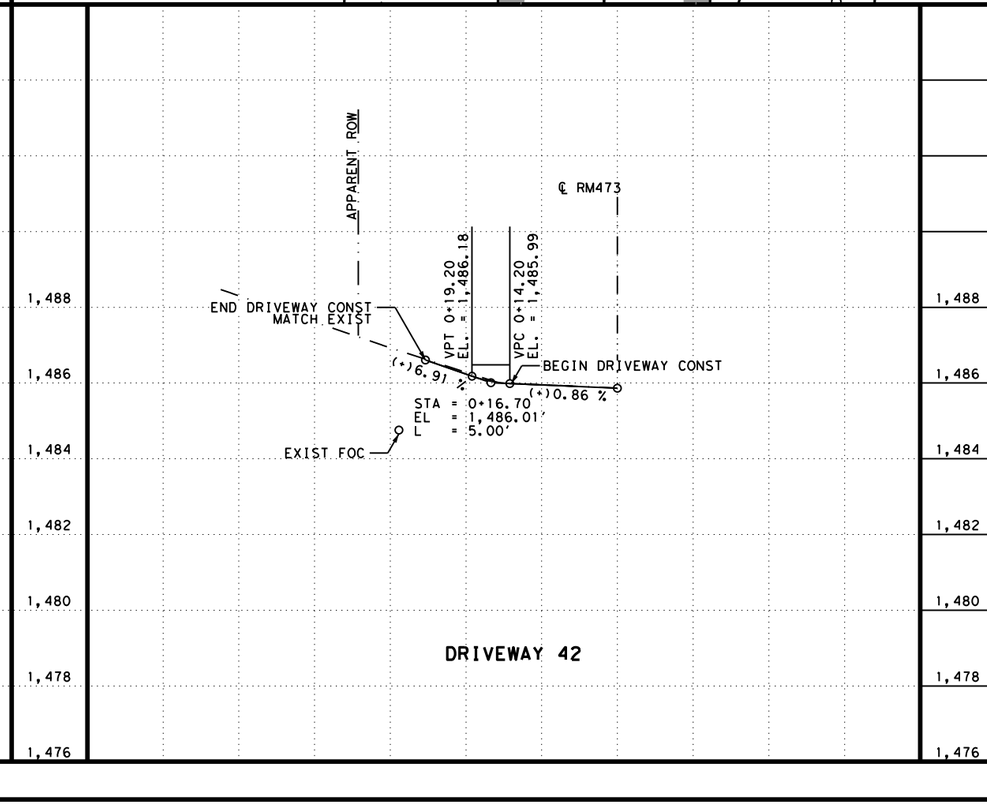
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 41



DRIVEWAY 42

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 41 & 42

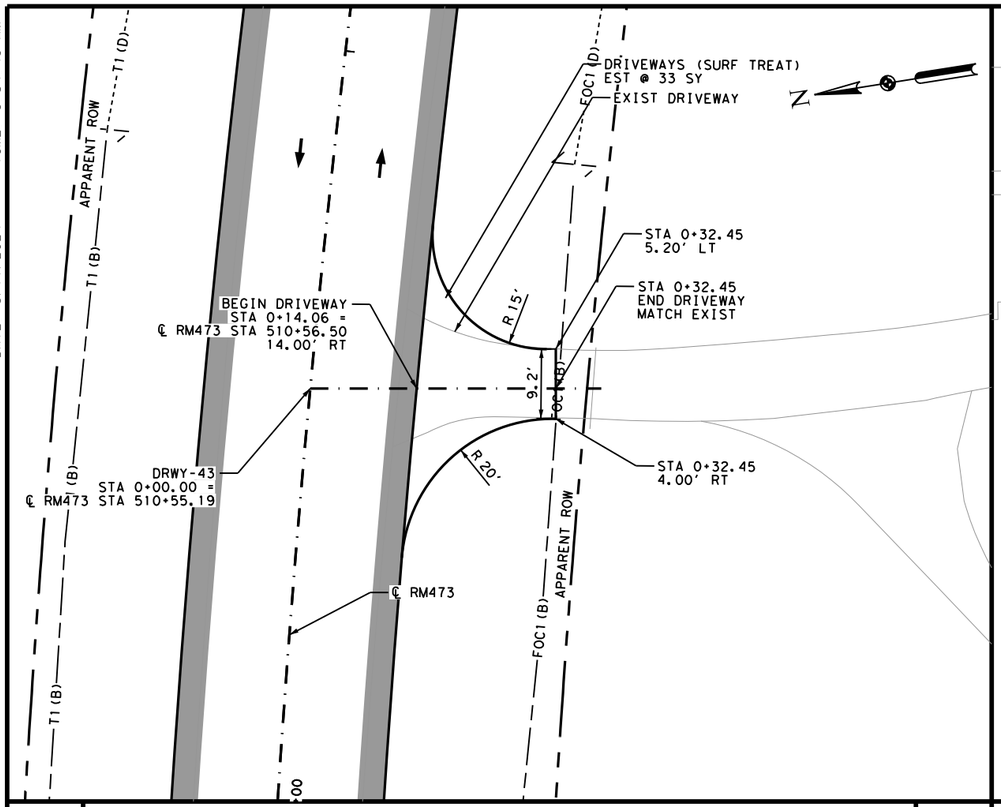
SHEET 21 OF 29

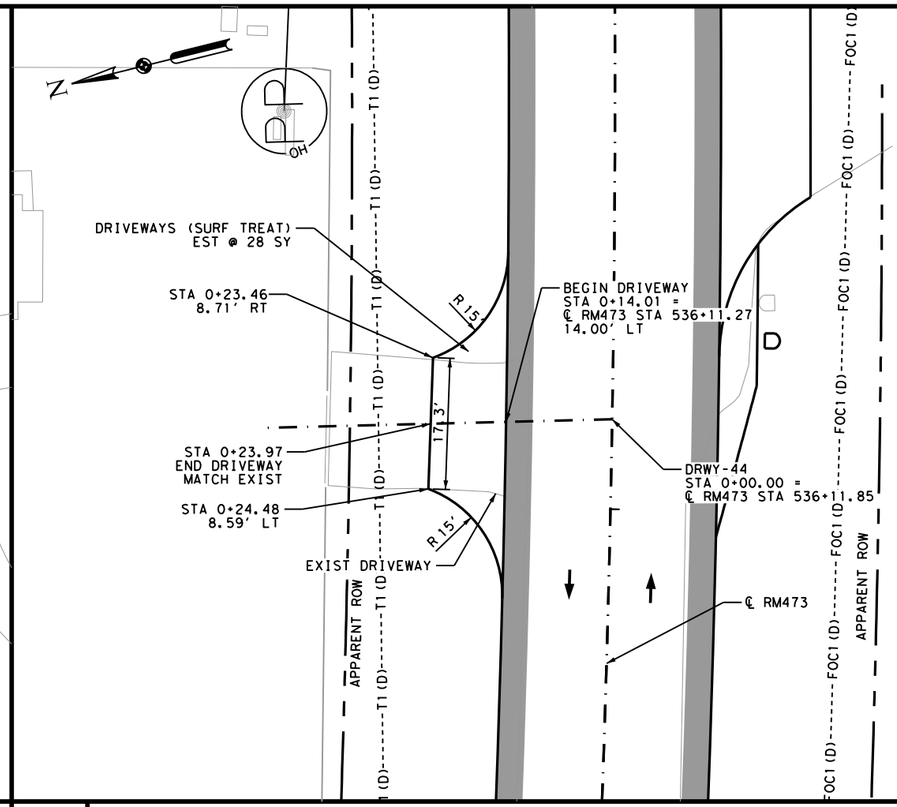
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	136

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-21.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:34:48 AM



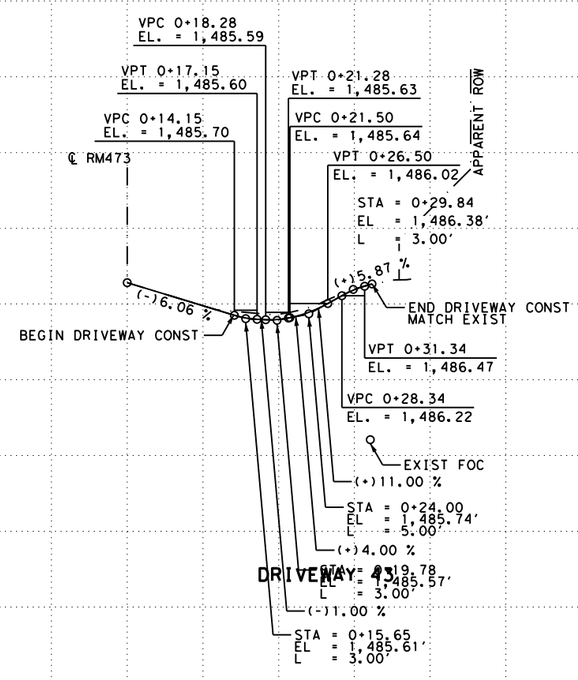


ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	61

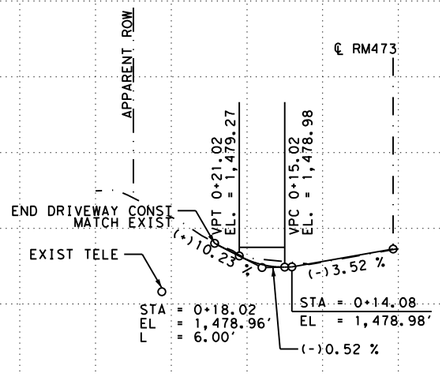
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 43



DRIVEWAY 44

F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 43 & 44

SHEET 22 OF 29

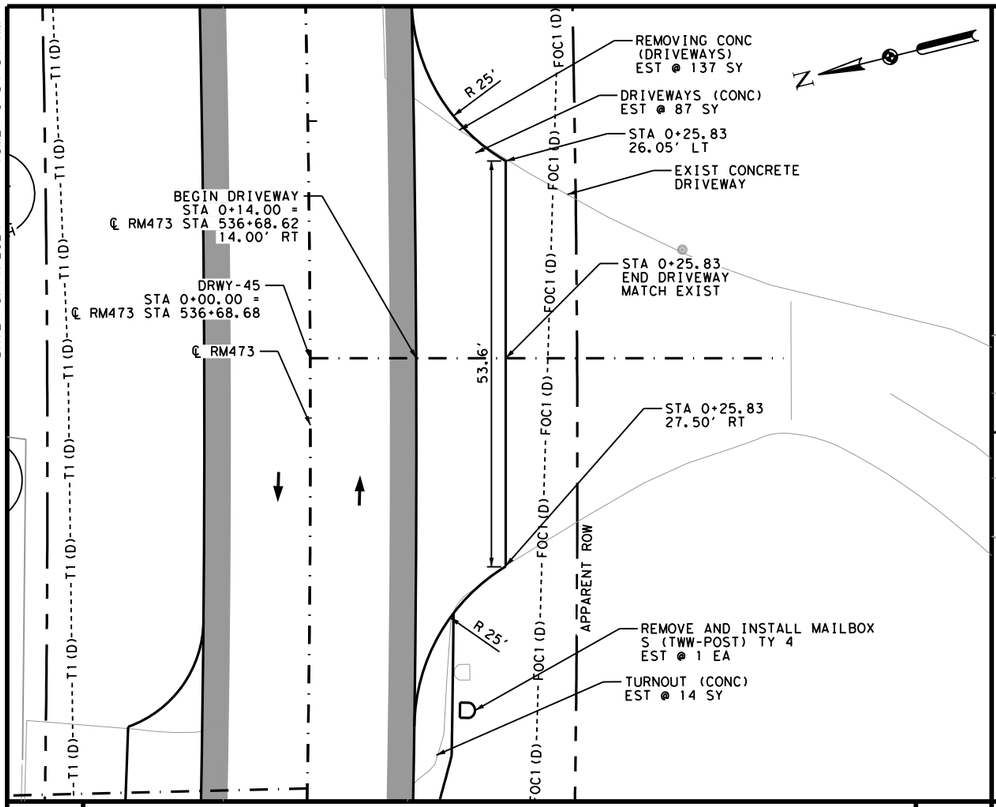
FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	137

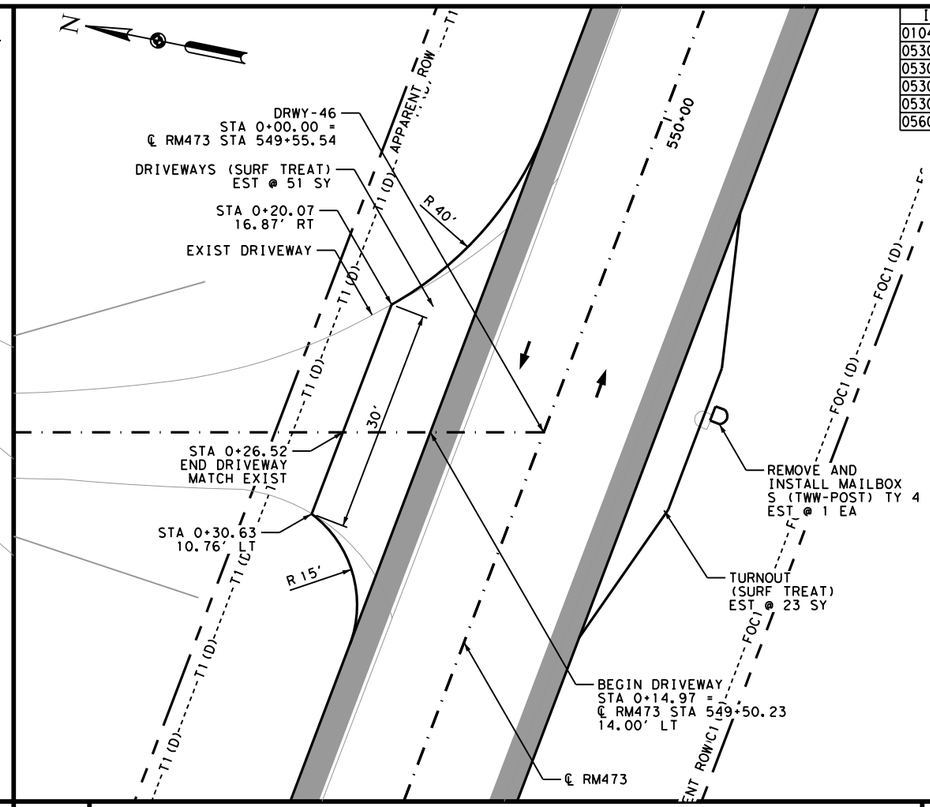
PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-22.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:34:57 AM

ITEM	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	137
0530 6004	DRIVEWAYS (CONC)	SY	87
0530 6006	DRIVEWAYS (SURF TREAT)	SY	51
0530 6007	TURNOUTS (CONC)	SY	14
0530 6009	TURNOUTS (SURF TREAT)	SY	23
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2

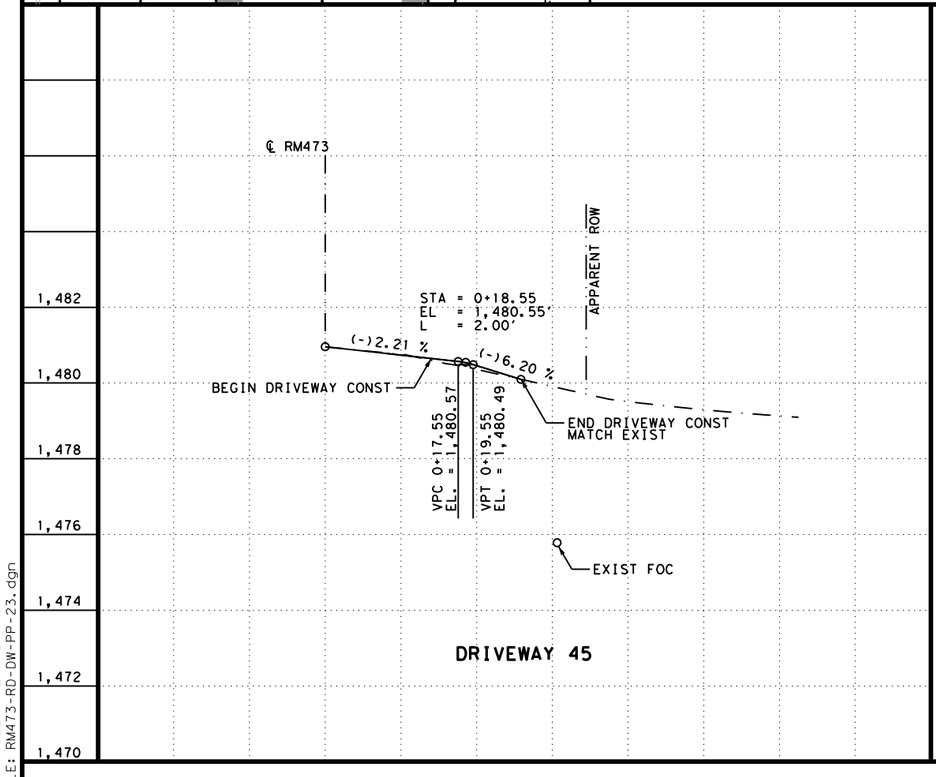




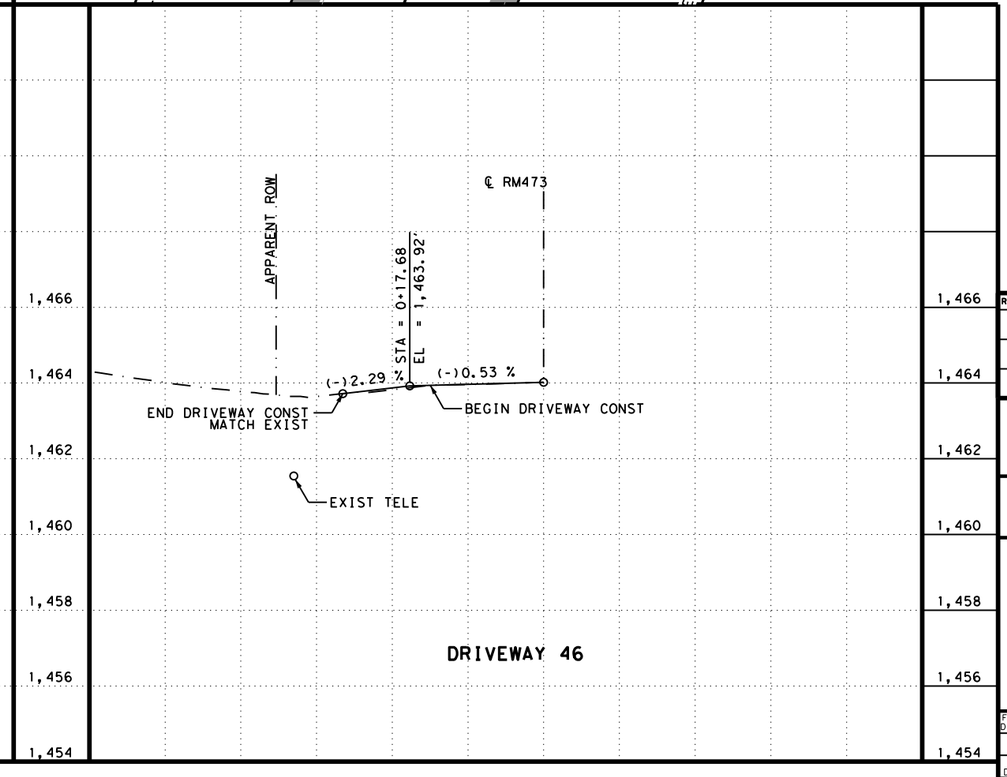
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 45



DRIVEWAY 46

F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 45 & 46

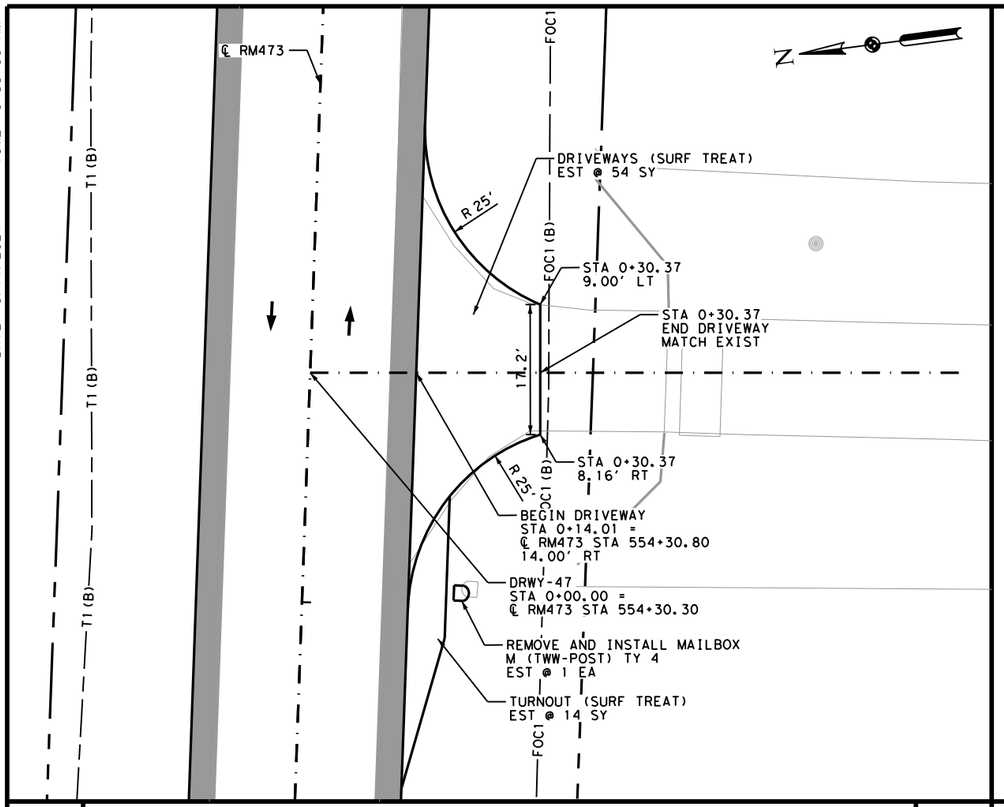
SHEET 23 OF 29

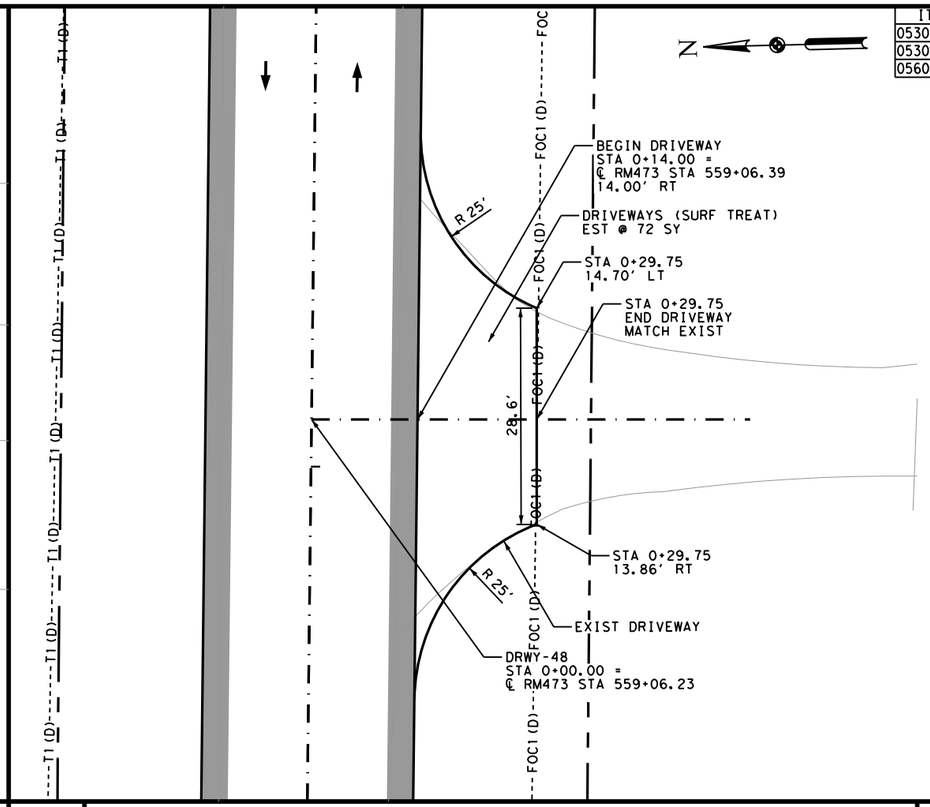
FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	138

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-23.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:35:06 AM



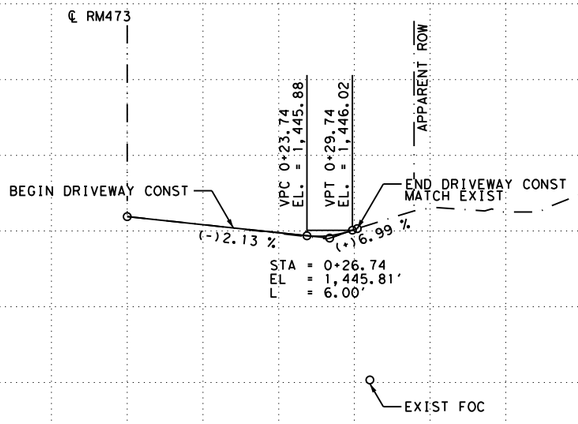


ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	126
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	1

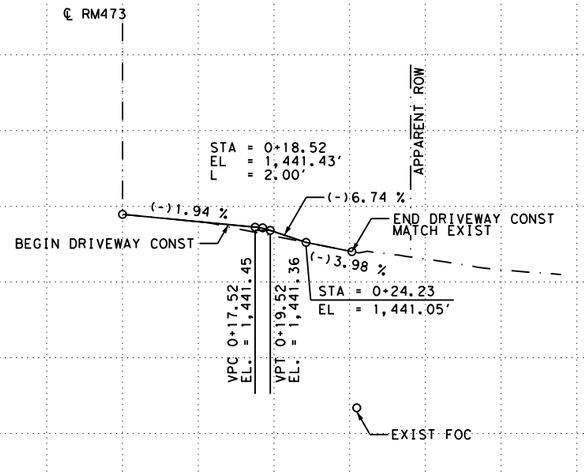
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 47



DRIVEWAY 48

F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 47 & 48

SHEET 24 OF 29

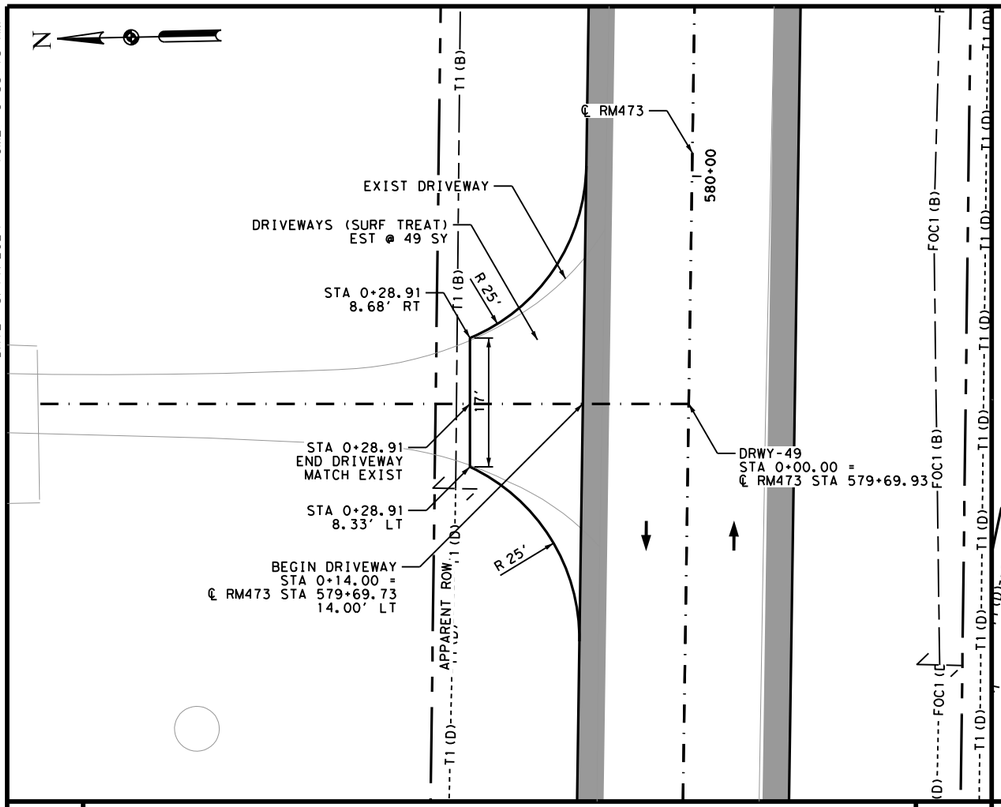
FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	139

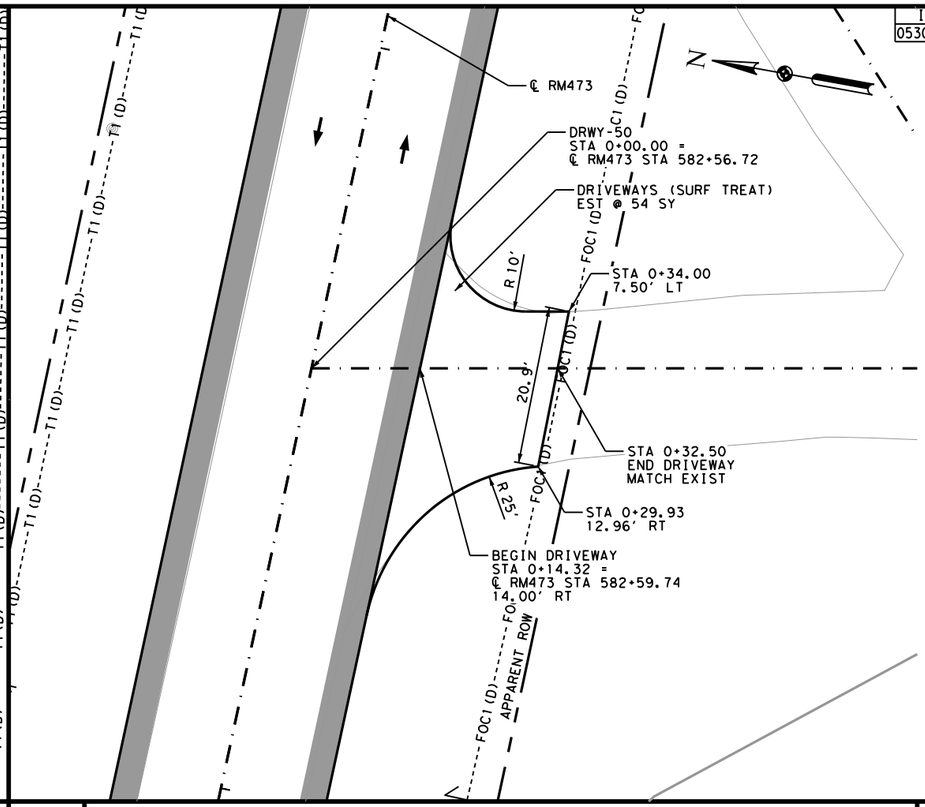
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-24.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:35:15 AM

ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	103

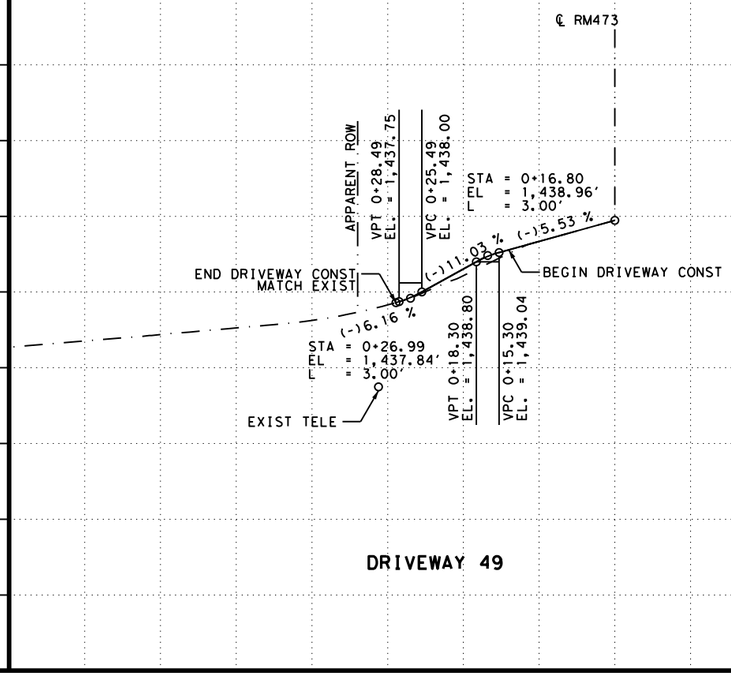




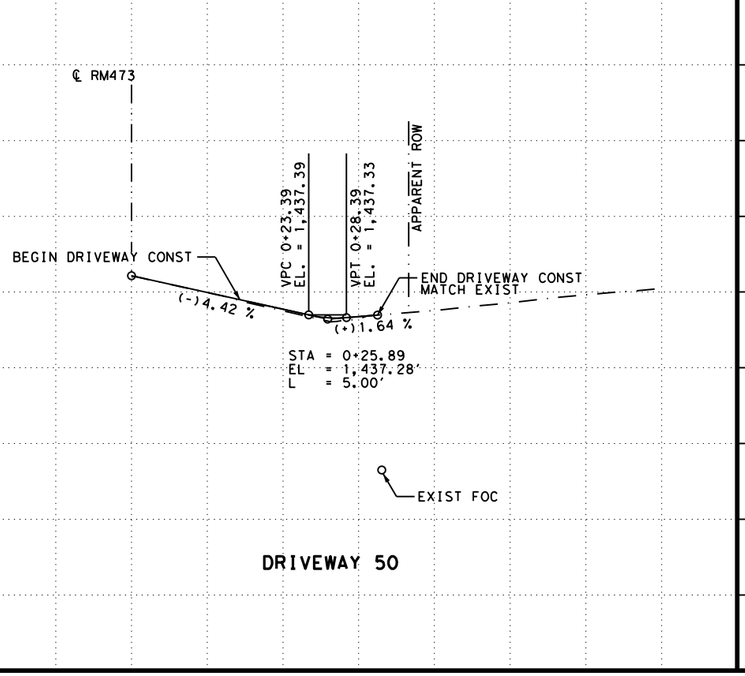
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 49



DRIVEWAY 50

5/17/2024

REV. No.	DATE	REVISION	BY

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Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 49 & 50

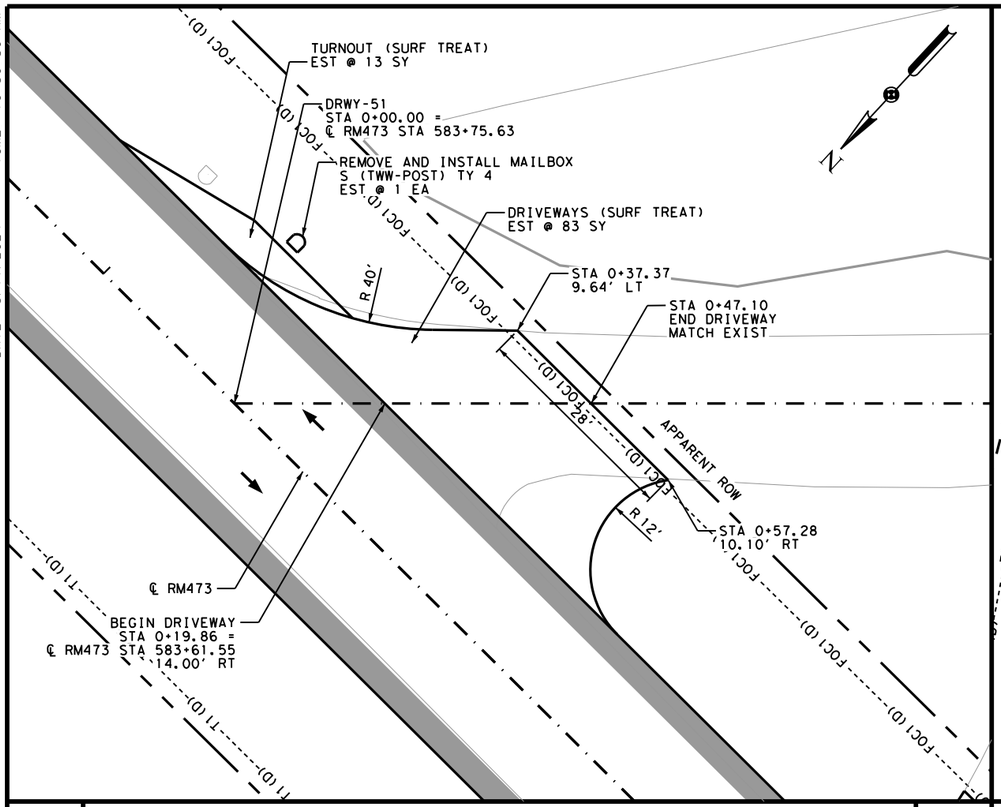
SHEET 25 OF 29

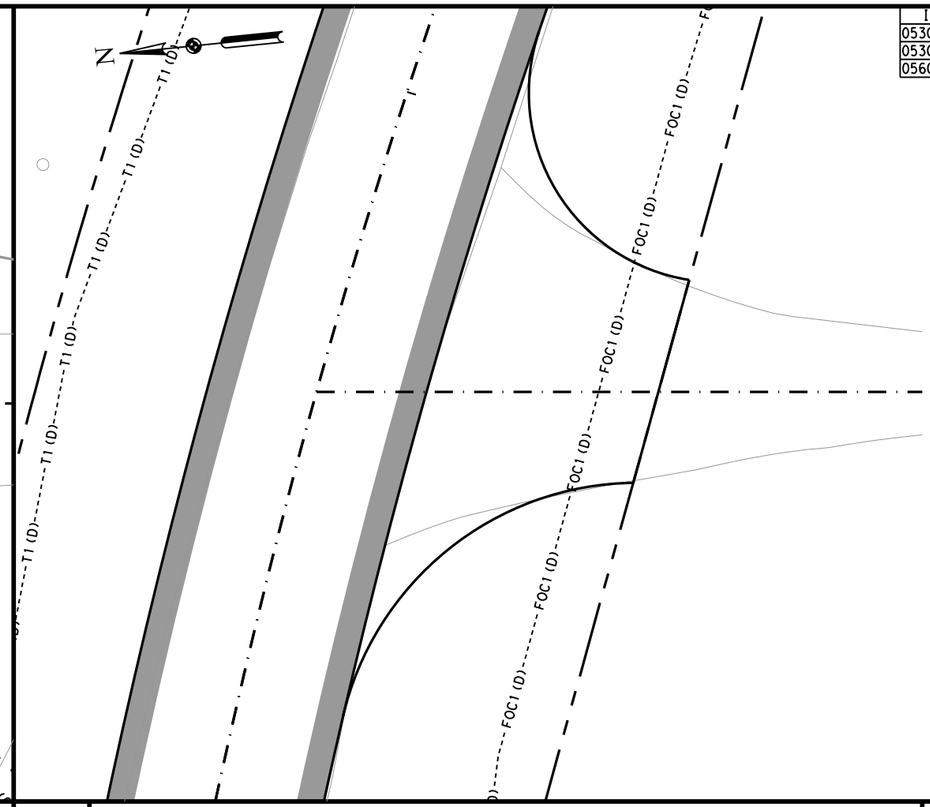
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	140

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-25.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 10:30:30 AM



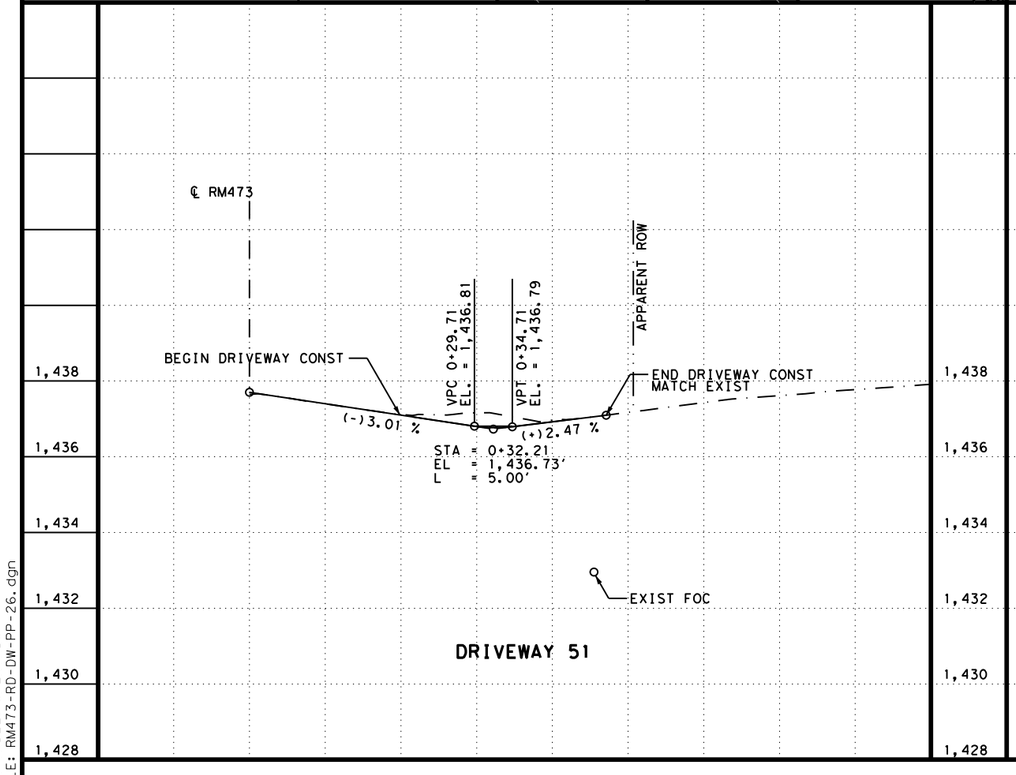


ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	224
0530 6009	TURNOUTS (SURF TREAT)	SY	13
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

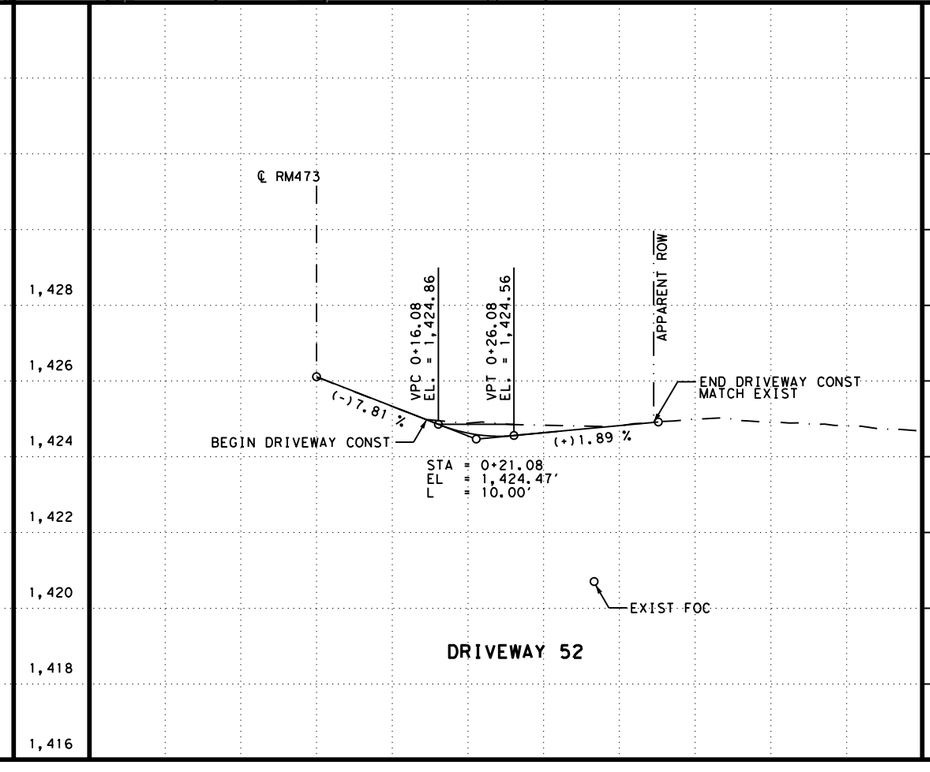
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 51



DRIVEWAY 52

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LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

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Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 51 & 52

SHEET 26 OF 29

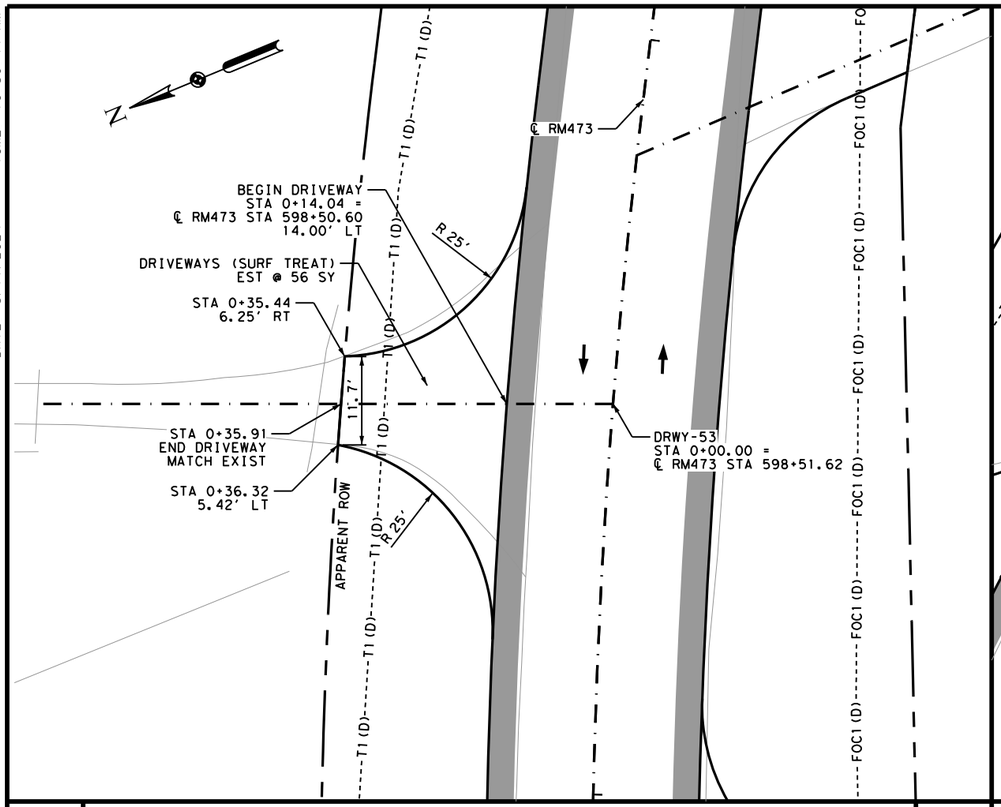
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	141

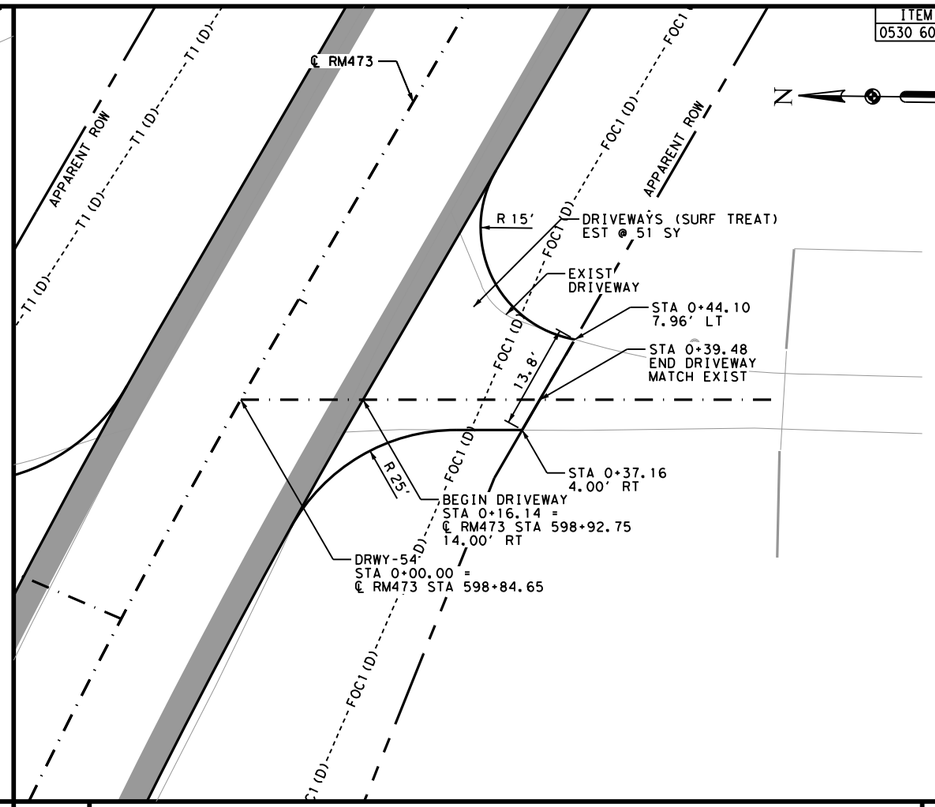
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-26.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 10:30:44 AM

ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	107

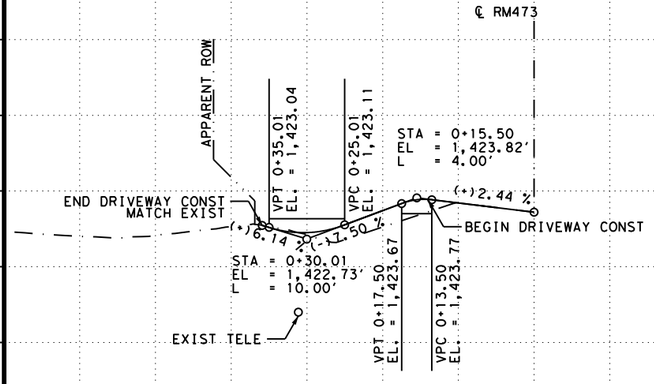




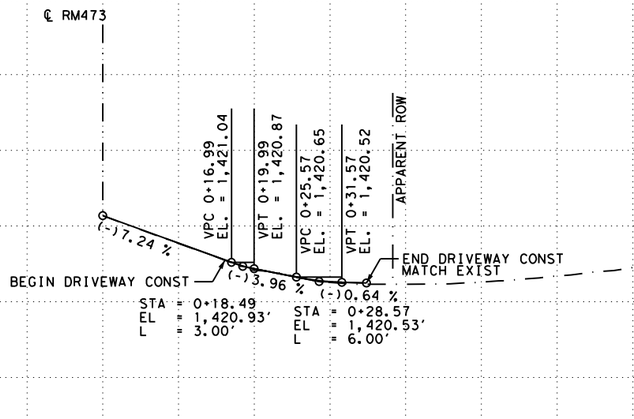
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 53



DRIVEWAY 54

F. PAUL PURPURA
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STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

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RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 53 & 54

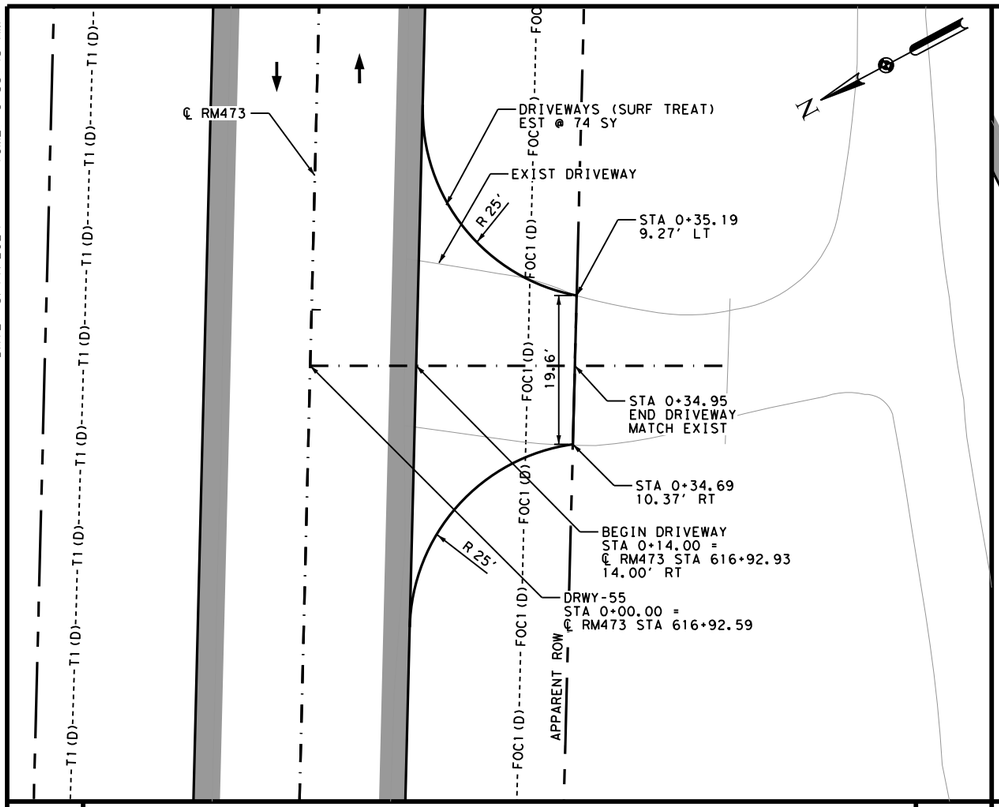
SHEET 27 OF 29

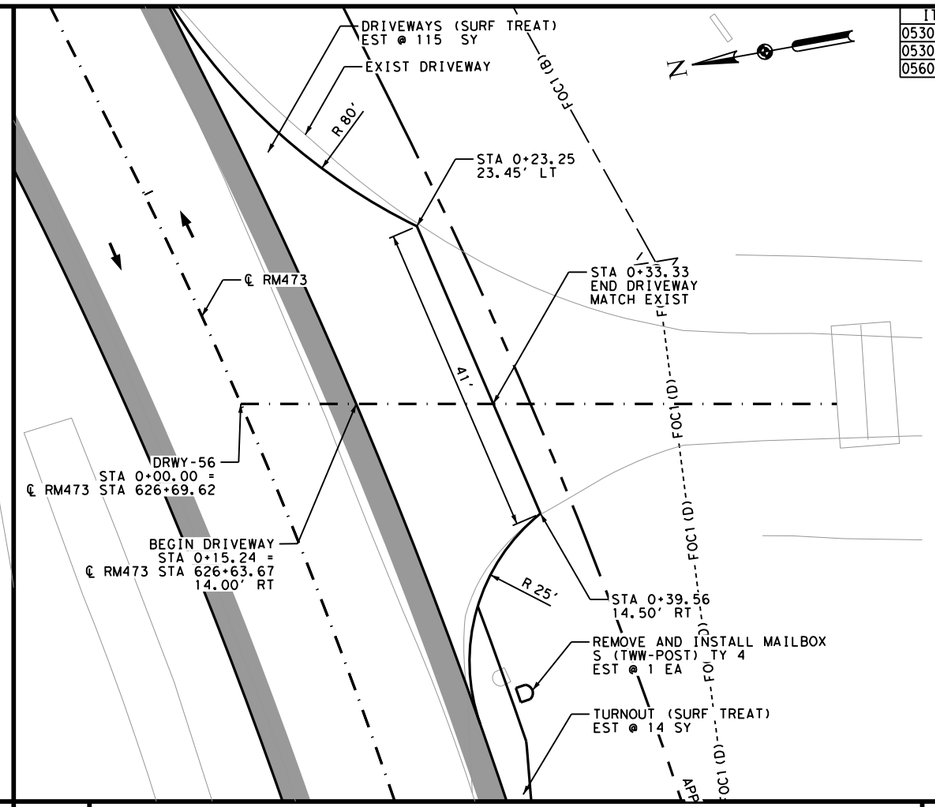
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	142

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-27.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:35:43 AM



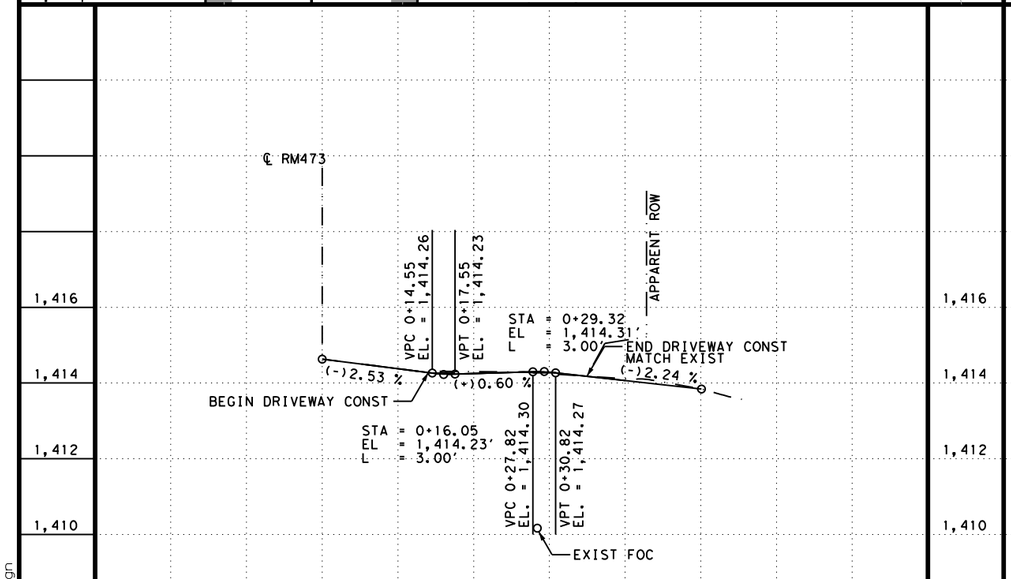


ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	189
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

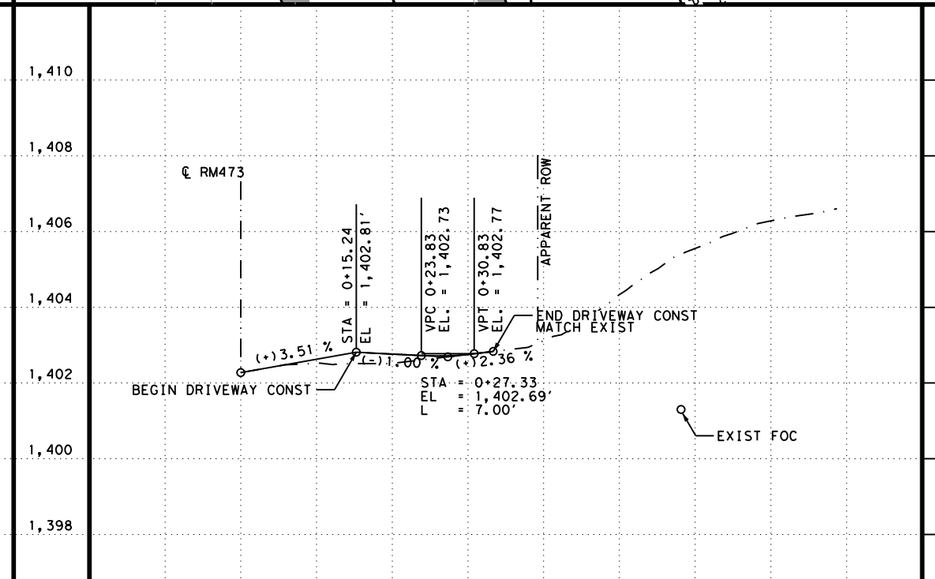
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 55



DRIVEWAY 56

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STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

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Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 55 & 56

SHEET 28 OF 29

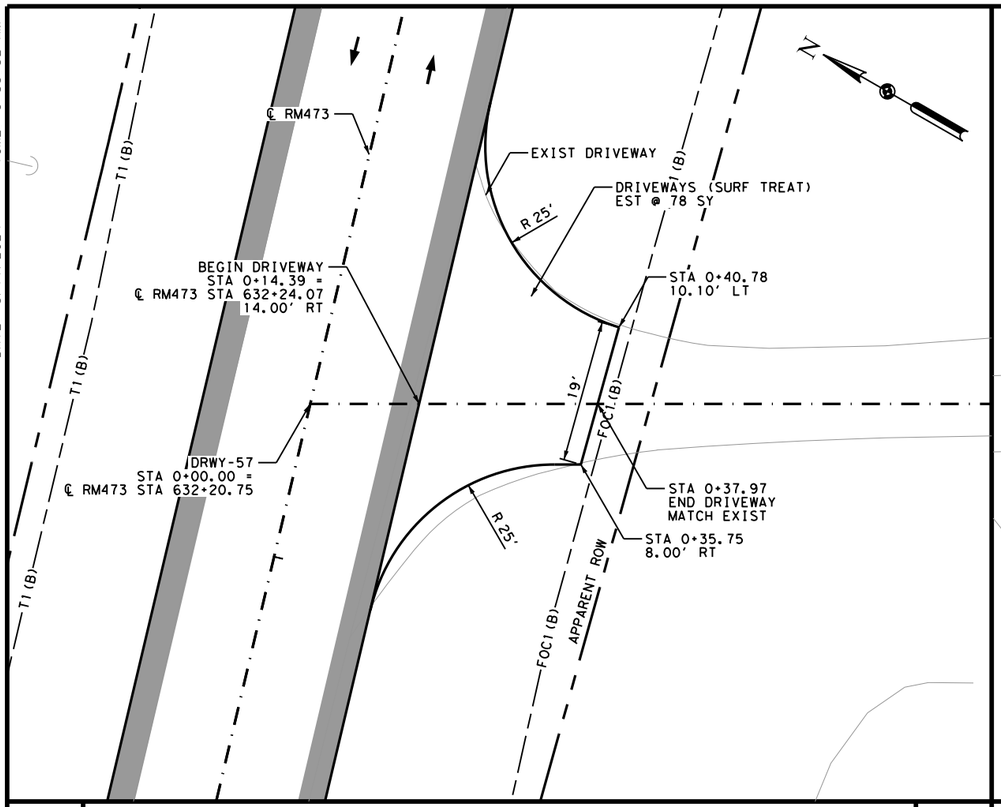
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	143

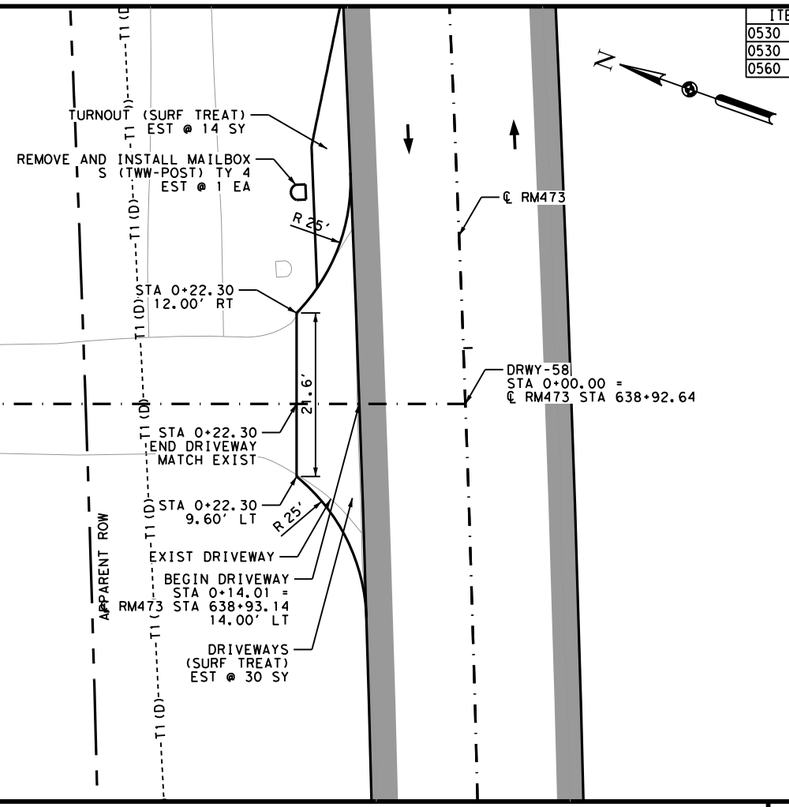
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-28.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:35:52 AM

ITEM	DESCRIPTION	UNIT	QTY
0530 6006	DRIVEWAYS (SURF TREAT)	SY	108
0530 6009	TURNOUTS (SURF TREAT)	SY	14
0560 6013	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1

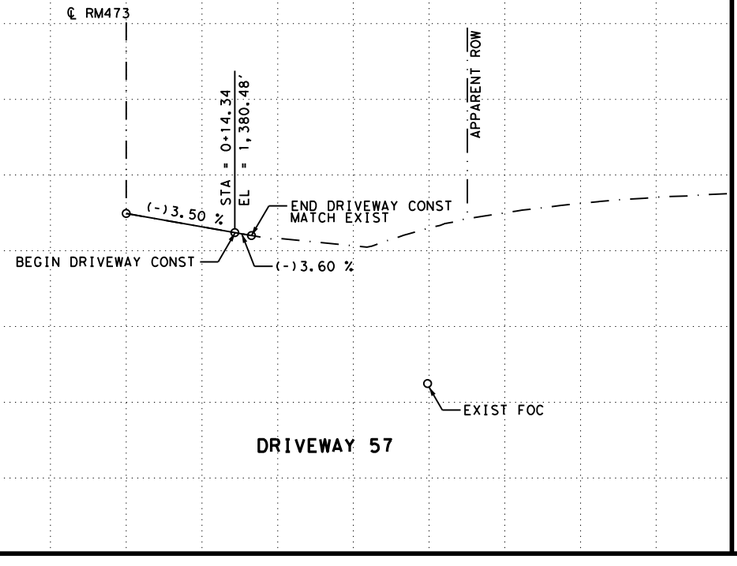




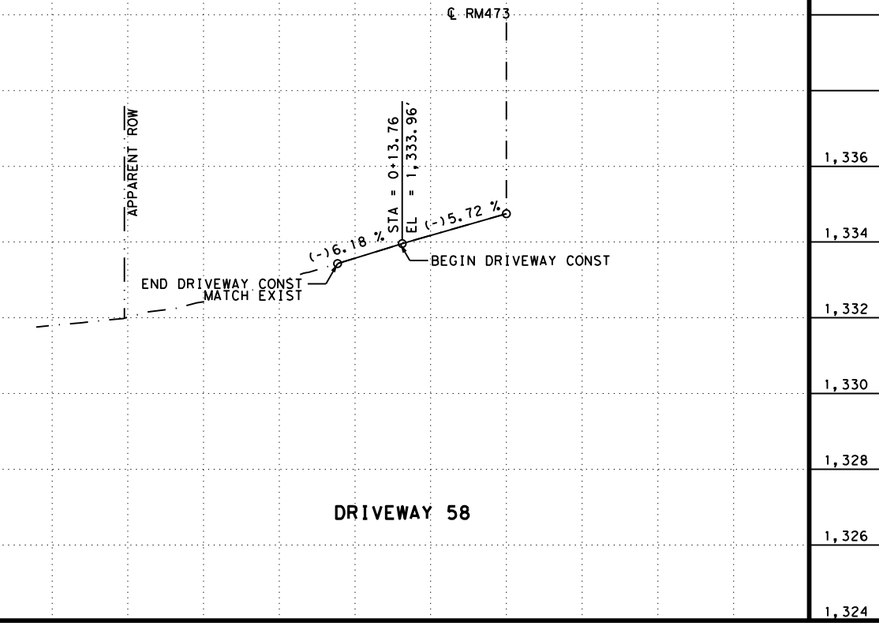
NOTES:

1. CAUTION UNDERGROUND UTILITIES. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE DRIVEWAY DETAILS SHEET FOR ADDITIONAL INFORMATION.
3. STATION/OFFSETS ARE TO DRIVEWAY CENTERLINE UNLESS OTHERWISE NOTED.
4. SEE ROADWAY PLAN SHEETS FOR ADDITIONAL INFORMATION.

0' 10' 20' HORZ
0' 2' 4' VERT



DRIVEWAY 57



DRIVEWAY 58

F. PAUL PURPURA
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LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

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Texas Department of Transportation

RM 473

DRIVEWAY PLAN & PROFILE

DRIVEWAY 57 & 58

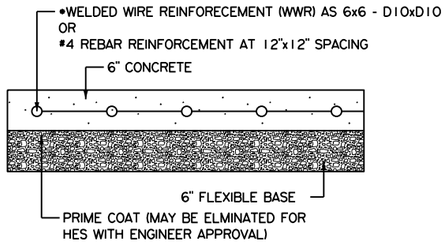
SHEET 29 OF 29

FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	144

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-PP-29.dgn

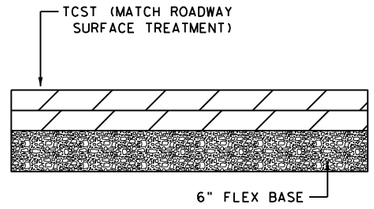
100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:35:59 AM



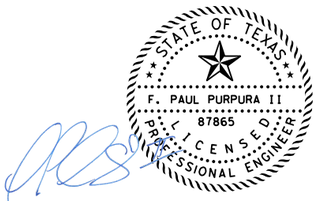
TYPICAL CONCRETE DRIVEWAY

*USE CLASS A CONCRETE UNLESS OTHERWISE NOTED.
PROVIDE EXPANSION JOINT 20 FT C-C FOR WIDTH OR
LENGHT OVER 25 FT.
STEEL SHALL BE CENTERED VERTICALLY IN CONCRETE.
FIBER REINFORCEMENT IS NOT ALLOWED.
DRIVEWAY CONSTRUCTION TO BE PAID AS ITEM
0530-6004 'DRIVEWAYS (CONC)'



TYPICAL OVERLAY DRIVEWAY

*DRIVEWAY CONSTRUCTION WILL BE PAID FOR AS
ITEM 0530 6006 'DRIVEWAYS (SURF TREAT)



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REV. No.	DATE	REVISION	BY

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TBPE REG. # F-474

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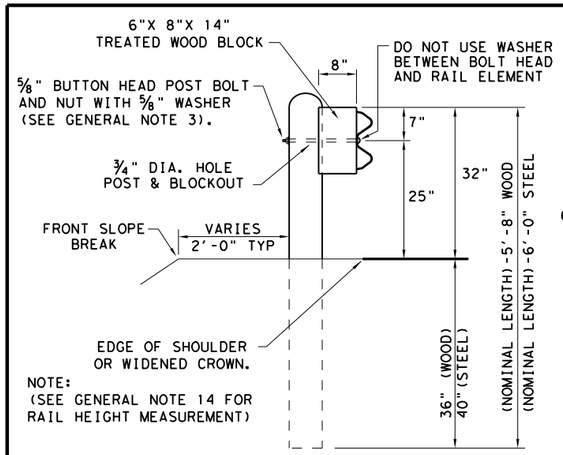
RM 473

DRIVEWAY DETAILS

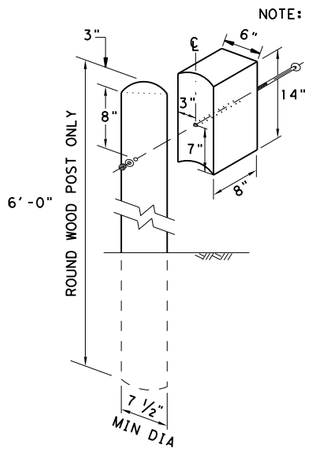
SHEET 1 OF 1

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	145

PLOT DRIVER: pdf-dw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473-RD-DW-DETAILS.dgn

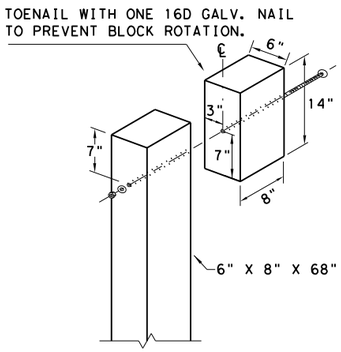


TYPICAL POST PLACEMENT

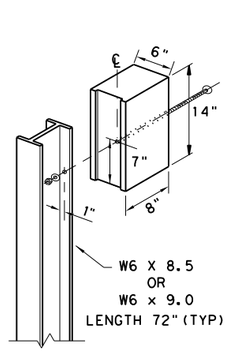


WOOD BLOCK TO ROUND WOOD POST

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

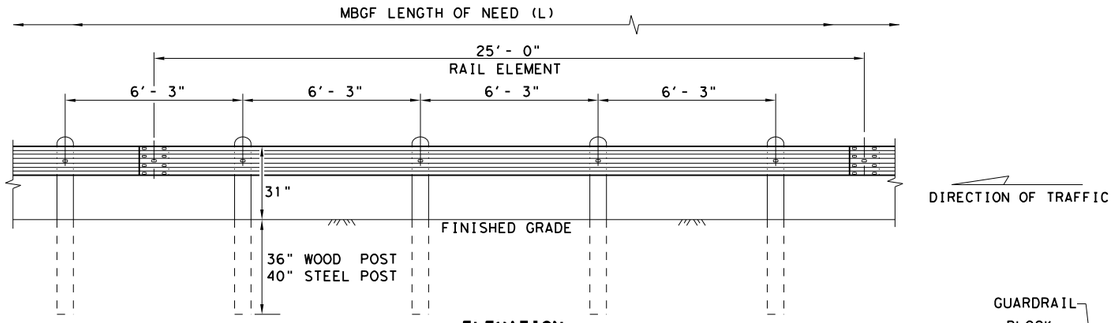


WOOD BLOCK TO RECTANGULAR WOOD POST



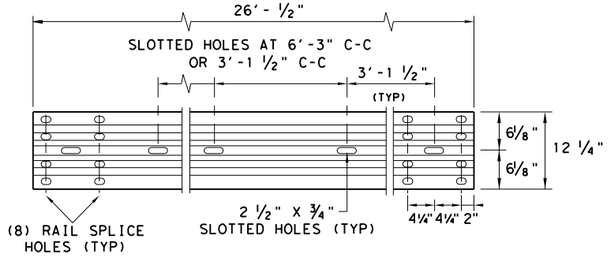
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

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



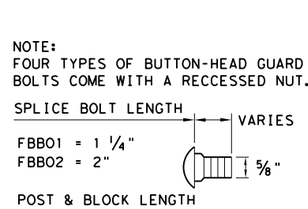
ELEVATION
MID-SPAN RAIL SPLICE

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



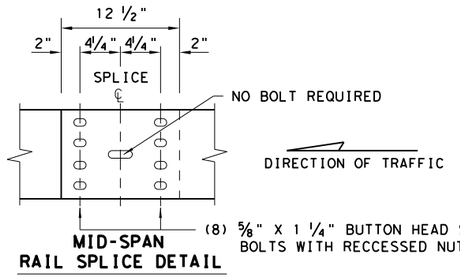
ELEVATION 25'- 0" (NOM.) W-BEAM SECTION

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



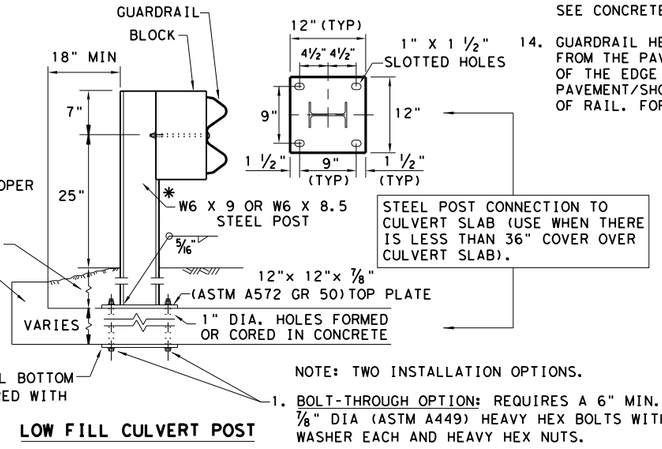
BUTTON HEAD BOLT

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



MID-SPAN RAIL SPLICE DETAIL

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



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

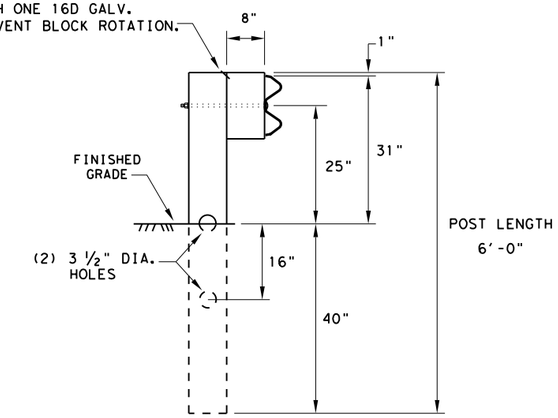
Design Division Standard

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	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		145A

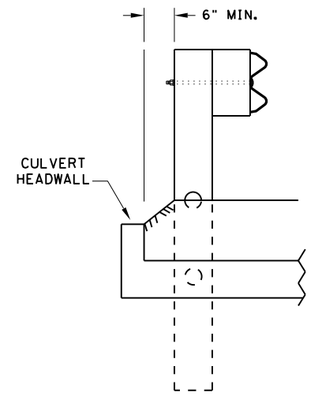
DATE: 5/17/2024
FILE: gf3119.dgn

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



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

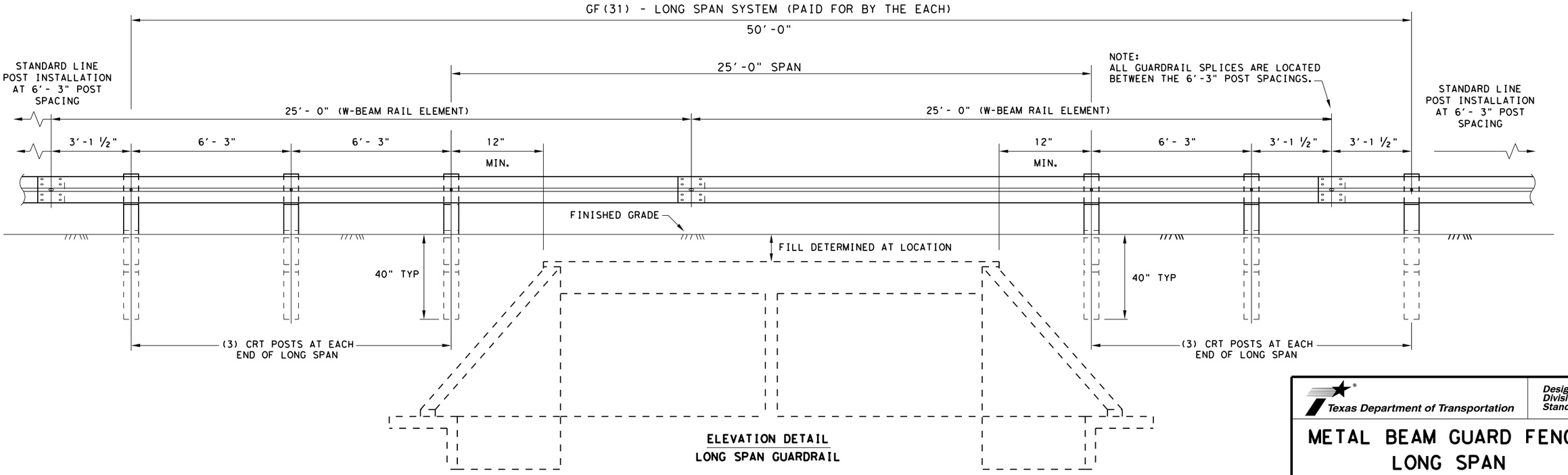
GENERAL NOTES

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

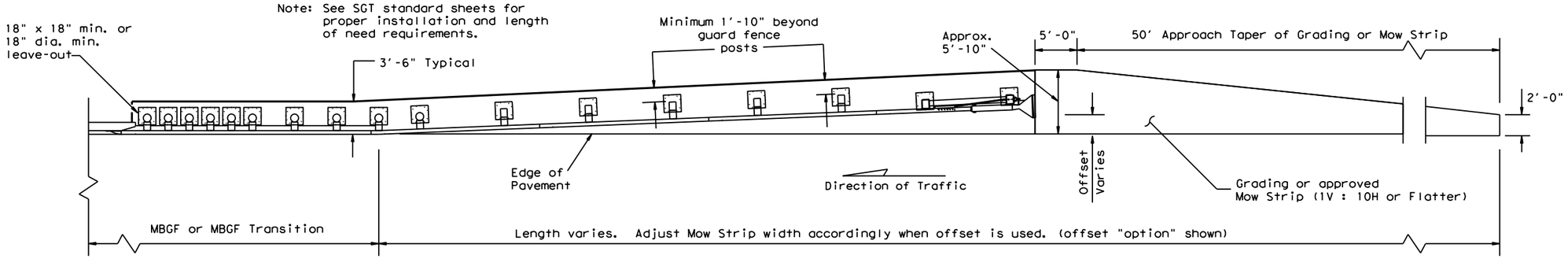
Design Division Standard

METAL BEAM GUARD FENCE LONG SPAN TL-3 MASH COMPLIANT

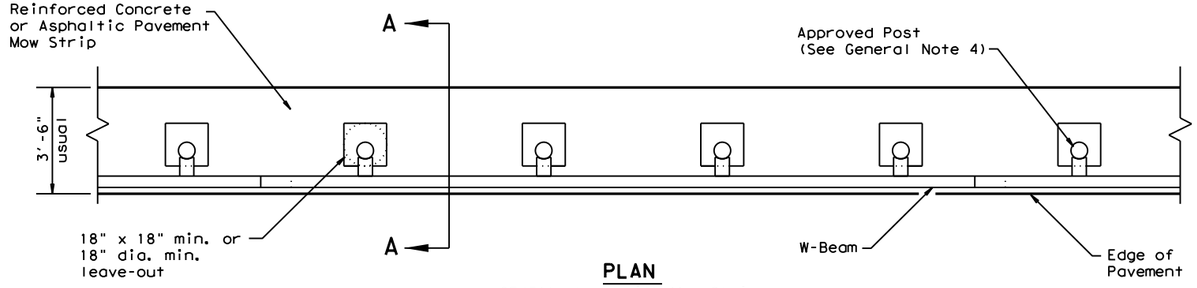
GF(31)LS-19

FILE: gf31ls19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG	
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0142	09	047	RM 473	
	DIST	COUNTY		SHEET NO.	
	SAT	KENDALL		146	

DATE: 5/17/2024
FILE: gf31ls19.dgn

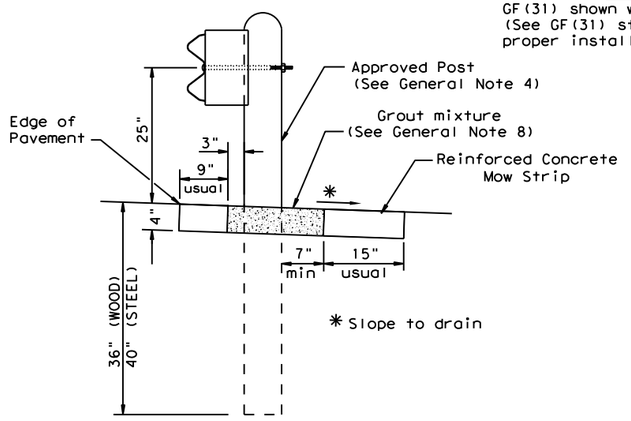


GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS



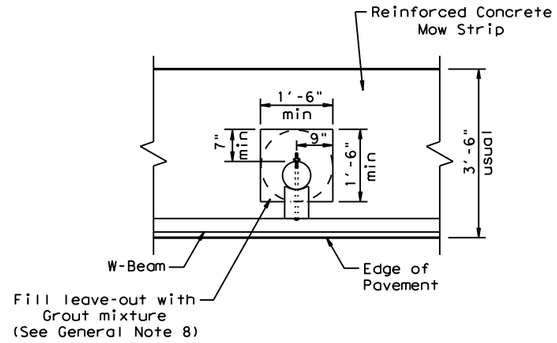
PLAN

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



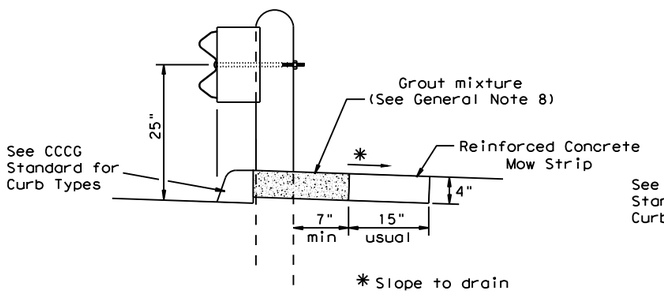
SECTION A-A

Typical



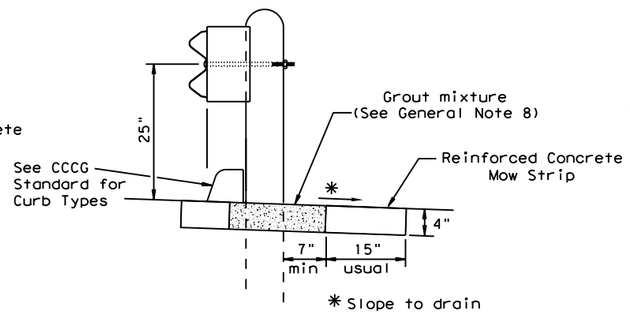
MOW STRIP DETAIL

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



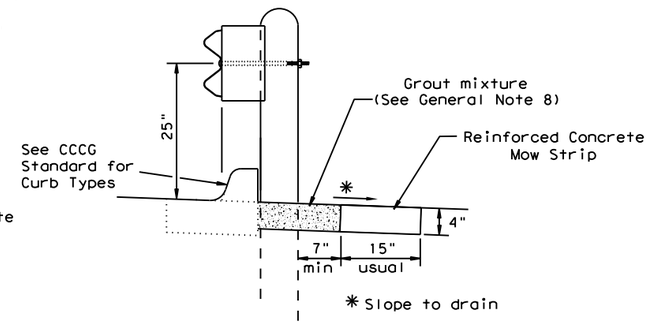
CURB OPTION (1)

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

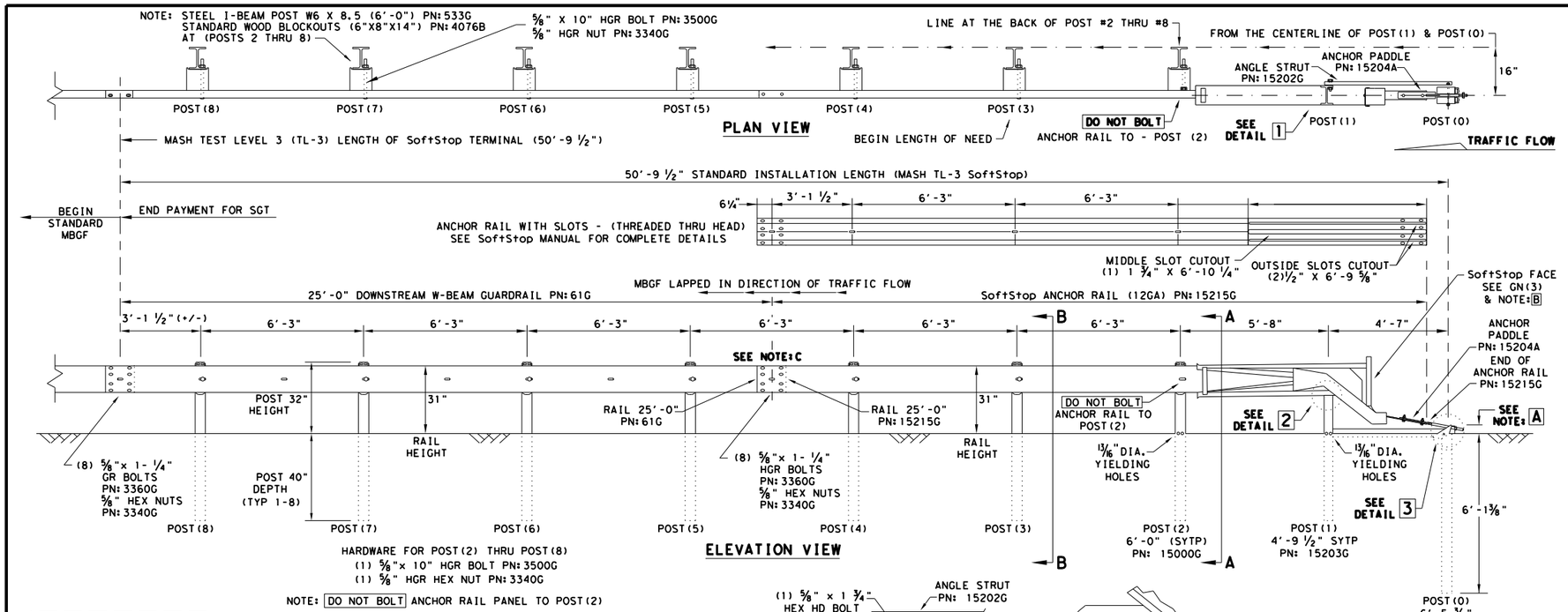
Design Division Standard

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	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		147

DATE: 5/17/2024
FILE: gf31ms19.dgn



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 3-3/4" 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 3/8")
15203G	1	POST #1 - (SYTP) (4'- 9 1/2")
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 1/2" x 14")
15204A	1	ANCHOR PADDLE
15207G	1	ANCHOR KEEPER PLATE (24 GA)
15206G	1	ANCHOR PLATE WASHER (1/2" 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	3/4" x 2 1/2" HEX BOLT A325
3701G	4	3/4" ROUND WASHER F436
3704G	2	3/4" HEAVY HEX NUT A563 GR.DH
3360G	16	5/8" x 1 1/4" W-BEAM RAIL SPLICE BOLTS HGR
3340G	25	5/8" W-BEAM RAIL SPLICE NUTS HGR
3500G	7	5/8" x 10" HGR POST BOLT A307
3391G	1	5/8" x 1 3/4" HEX HD BOLT A325
4489G	1	5/8" x 9" HEX HD BOLT A325
4372G	4	5/8" WASHER F436
105285G	2	5/8" x 2 1/2" HEX HD BOLT GR-5
105286G	1	5/8" x 1 1/2" HEX HD BOLT GR-5
3240G	6	5/8" ROUND WASHER (WIDE)
3245G	3	5/8" 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	
REVISIONS	0142	09	047		RM 473	
	DIST	COUNTY			SHEET NO.	
	SAT	KENDALL			148	

DATE: 5/17/2024
FILE: sgt10s3116.dgn

(SEE GN NOTE 15)
STANDARD 31" MBGF

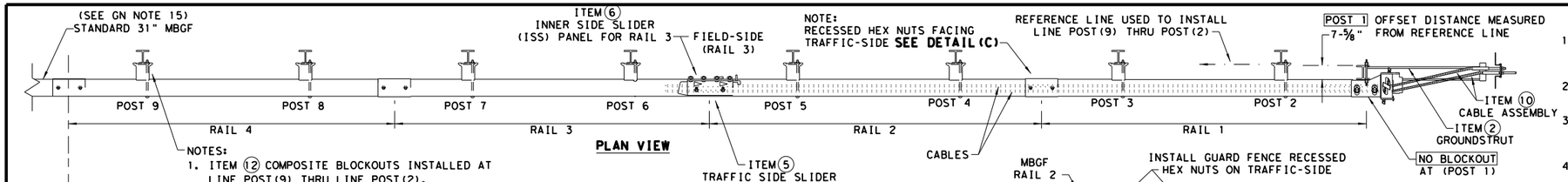
ITEM (6)
INNER SIDE SLIDER
(ISS) PANEL FOR RAIL 3

FIELD-SIDE
(RAIL 3)

NOTE:
RECESSED HEX NUTS FACING
TRAFFIC-SIDE **SEE DETAIL (C)**

REFERENCE LINE USED TO INSTALL
LINE POST(9) THRU POST(2)

POST 1 OFFSET DISTANCE MEASURED
7-⅝" FROM REFERENCE LINE



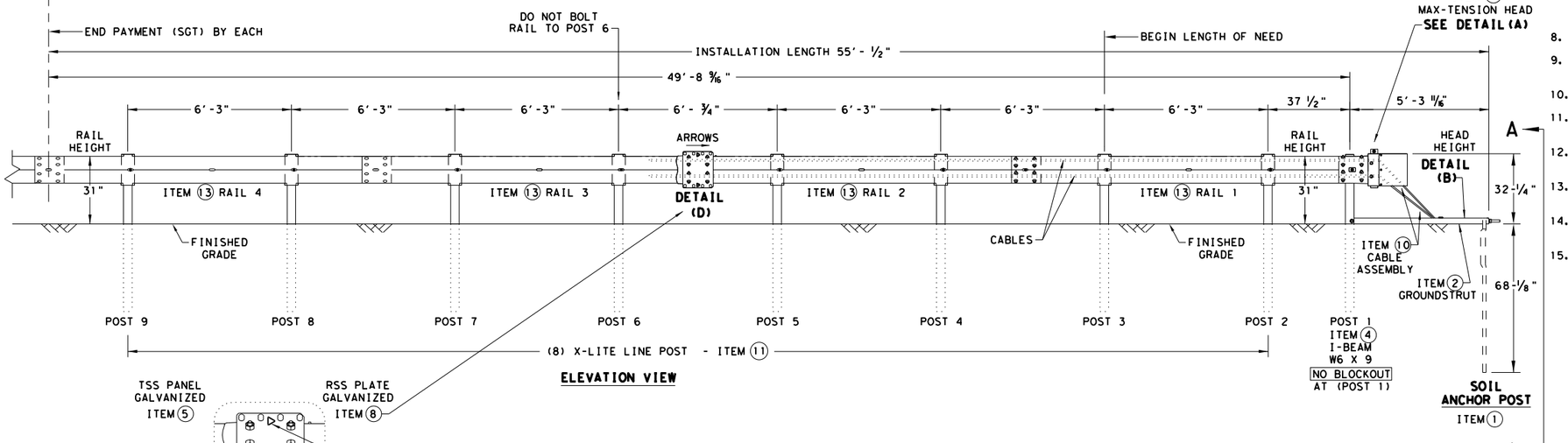
NOTES:
1. ITEM (12) COMPOSITE BLOCKOUTS INSTALLED AT LINE POST(9) THRU LINE POST(2).
2. DO NOT INSTALL A BLOCKOUT AT LINE POST(1).

PLAN VIEW

NOTE: SECURE THE (TSS) PANEL TO OUTSIDE OF RAIL 2 WITH THE PANEL ARROWS POINTING TOWARDS THE HEAD.

DETAIL (C)

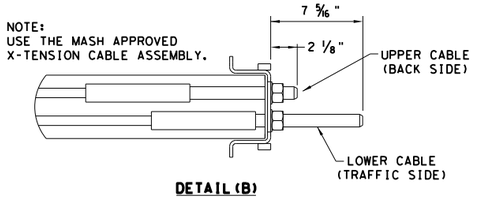
TRAFFIC FLOW



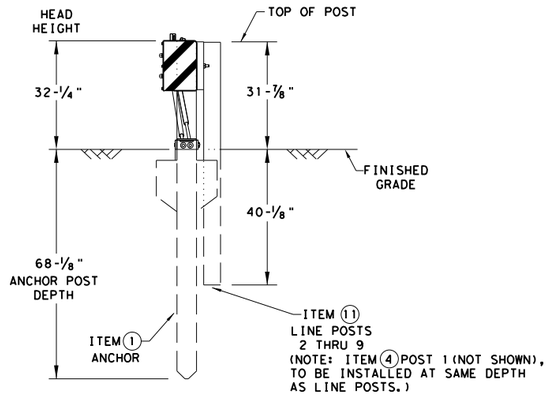
ELEVATION VIEW

TSS PANEL AND RSS PLATE

DETAIL (D)

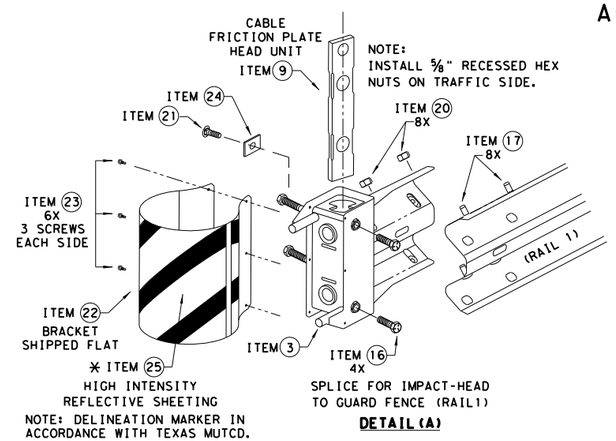


DETAIL (B)



SOIL ANCHOR, POST 1 & LINE POST 2 THRU 9

SECTION VIEW A-A



DETAIL (A)

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	⅝" X 7" THREAD BOLT HH (GR.5)GEOMET	1
16	BSI-2001885	¾" X 3" ALL-THREAD BOLT HH (GR.5)GEOMET	4
17	4001115	⅝" X 1 ¼" GUARD FENCE BOLTS (GR.2)MGAL	48
18	2001840	⅝" X 10" GUARD FENCE BOLTS MGAL	8
19	2001636	⅝" WASHER F436 STRUCTURAL MGAL	2
20	4001116	⅝" RECESSED GUARD FENCE NUT (GR.2)MGAL	59
21	BSI-2001888	⅝" X 2" ALL THREAD BOLT (GR.5)GEOMET	1
22	BSI-1701063-00	DELINEATION MOUNTING (BRACKET)	1
23	BSI-2001887	¼" X ¾" 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: TXDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

APPROACH GRADING AT GUARDRAIL END TREATMENTS

TRAFFIC FLOW

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE MAX-TENSION END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

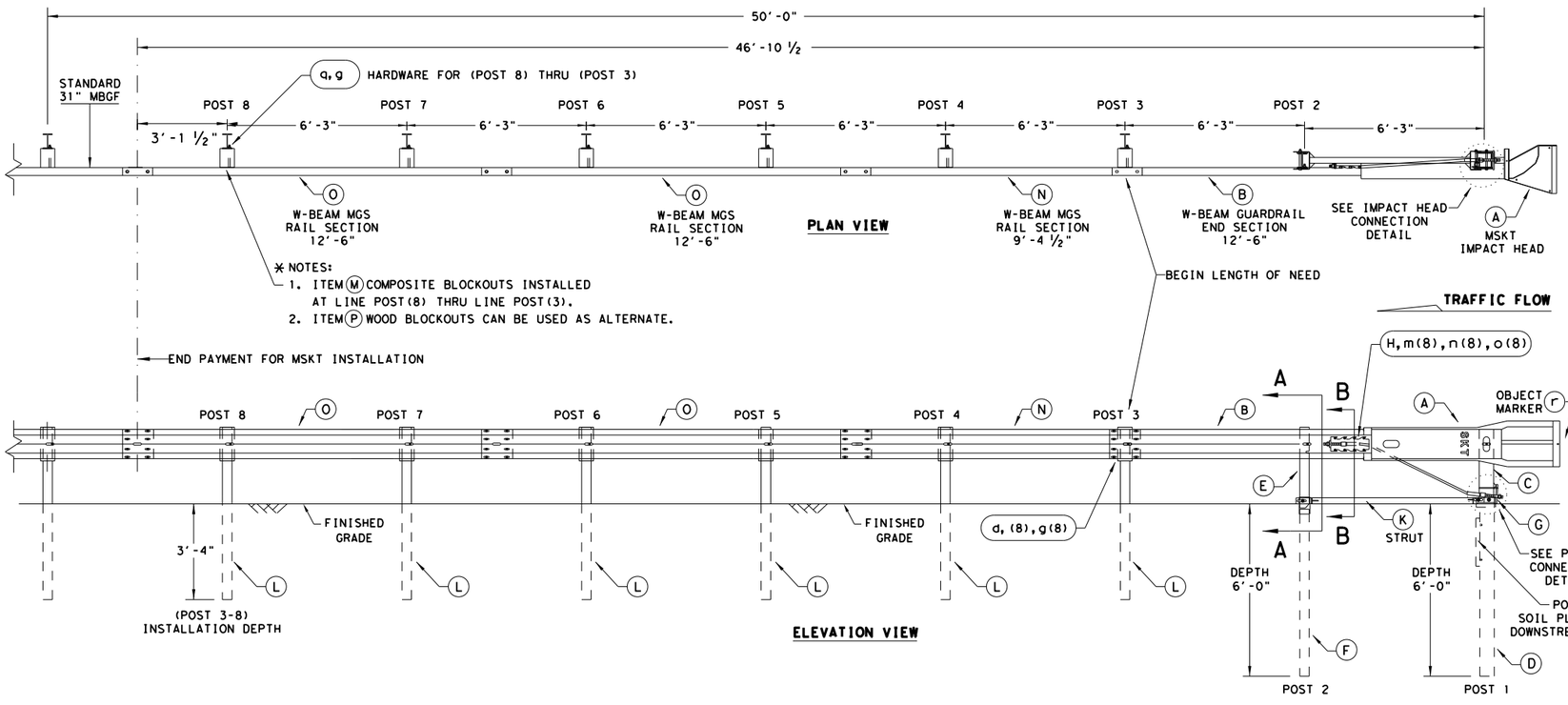
Texas Department of Transportation

Design Division Standard

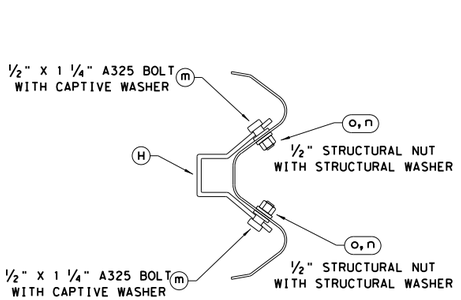
MAX-TENSION END TERMINAL
MASH - TL-3
SGT(11S)31-18

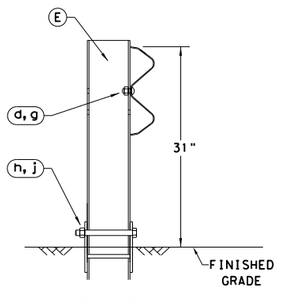
FILE: sgt11s3118.dgn	DN: TxDOT	CK: KM	DW: TxDOT	CK: CL
© TxDOT: FEBRUARY 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		149

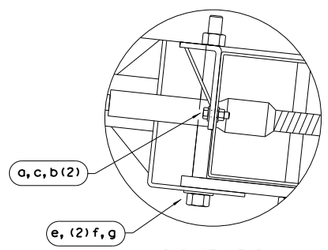
DATE: 5/17/2024
FILE: sgt11s3118.dgn

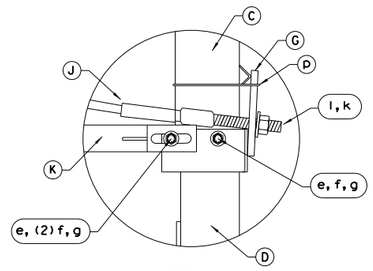


NOTE: SEE (GENERAL NOTE 14) FOR DRIVING CAP INFORMATION.









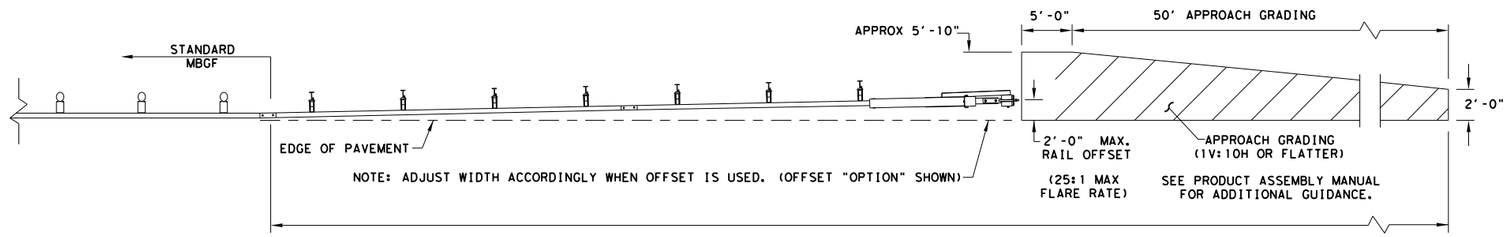
GENERAL NOTES

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.

SEE NOTES: *

ALTERNATIVE ITEMS NOT SHOWN. **
* ITEM(P) 8" WOOD-BLOCKOUT
** ITEM(Q) 25'GUARD FENCE PANEL

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 ⅛" 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 ½")	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	⅝" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	⅝" WASHER	W0516
c	2	⅝" HEX NUT	N0516
d	25	⅝" Dia. x 1 ¼" SPLICE BOLT (POST 2)	B580122
e	2	⅝" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	⅝" WASHER	W050
g	33	⅝" Dia. H.G.R NUT	N050
h	1	¾" Dia. x 8 ½" HEX BOLT (GRD A449)	B340854A
j	1	¾" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	½" x 1 ¼" A325 BOLT WITH CAPTIVE WASHER	SB12A
n	8	½" STRUCTURAL NUTS	N012A
o	8	1 1/16" O.D. x 9/16" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	⅝" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151



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

FILE: sgt12s3118.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CL	
© TxDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0142	09	047	RM 473	
	DIST	COUNTY		SHEET NO.	
	SAT	KENDALL		150	

DATE: 5/17/2024
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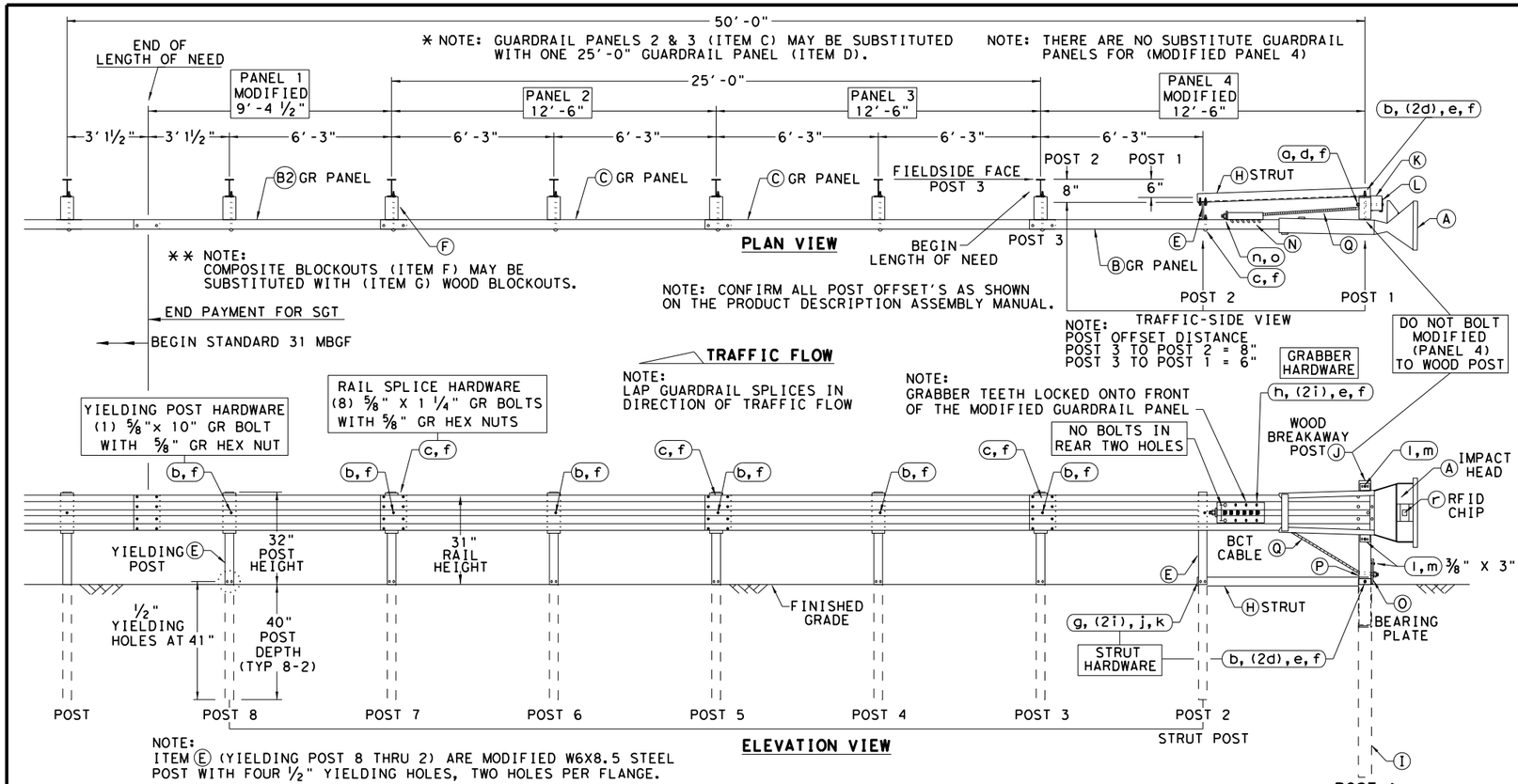
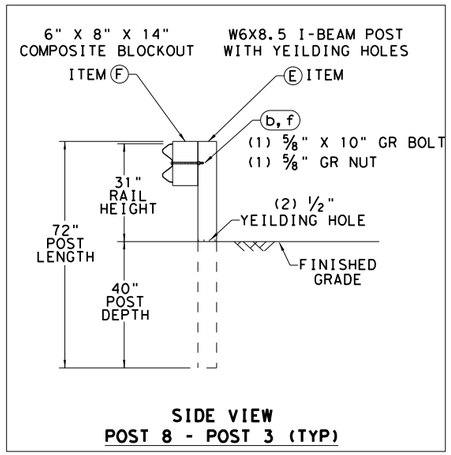


GENERAL NOTES

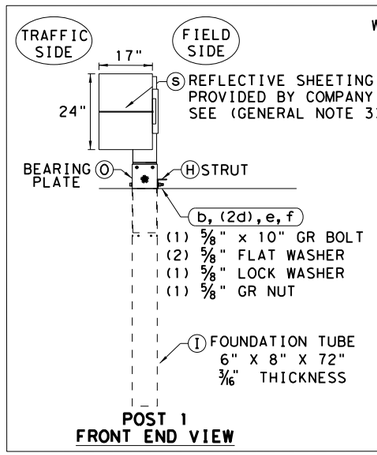
1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: SPIG INDUSTRY, INC. AT 1(267) 644-9510. 14675 INDUSTRIAL PARK RD; BRISTOL, VA 24202
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE MANUFACTURER'S; SGET END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY 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

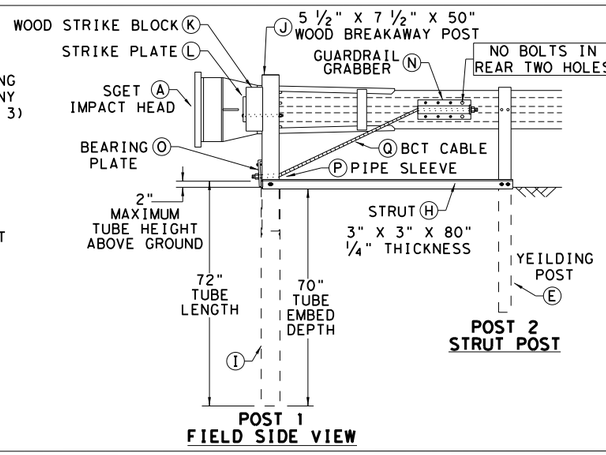
ALTERNATIVE ITEMS * D E
NOTE: SEE PLAN VIEW ** F G



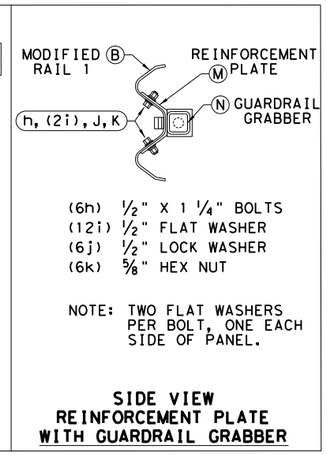
SIDE VIEW
POST 8 - POST 3 (TYP)



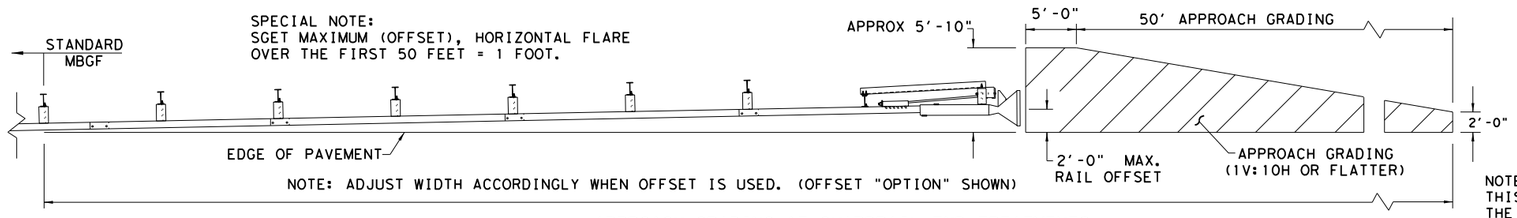
POST 1
FRONT END VIEW



POST 1
FIELD SIDE VIEW



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	0142	09	047	RM 473		
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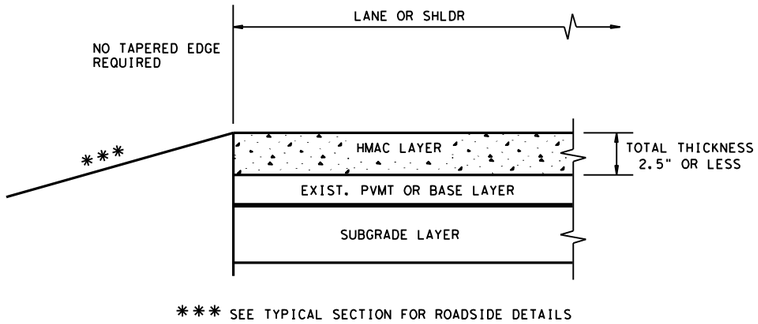
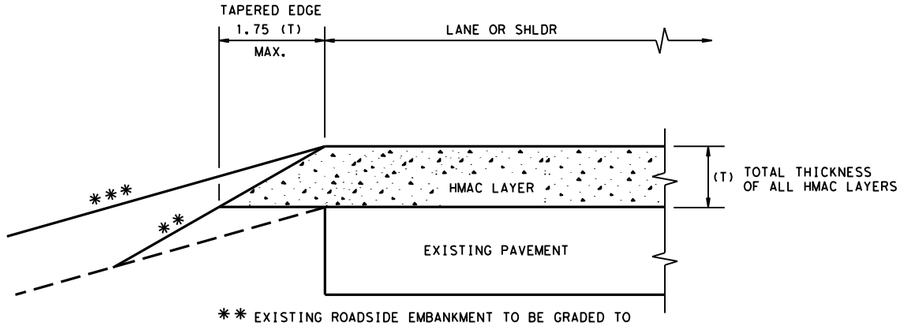


*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

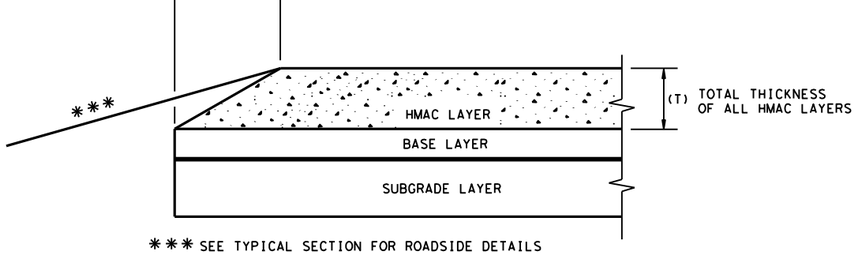
CONDITION - 1
THIN HMAC SURFACES OR HMAC OVERLAY WITH THICKNESS OF 2.5" OR LESS



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

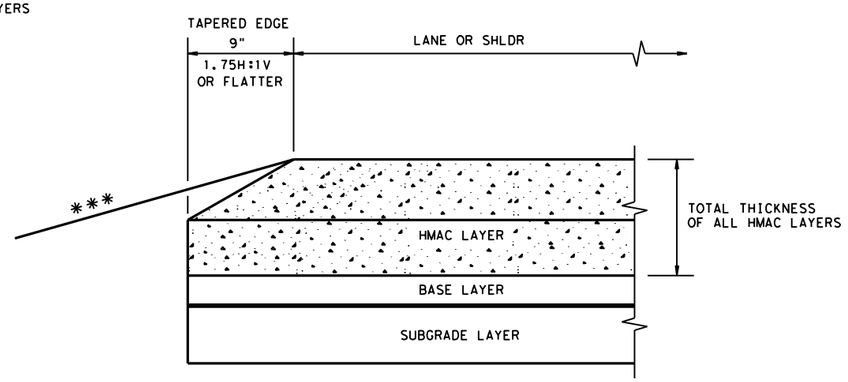
*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

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



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

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



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

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

(NOT TO SCALE)

GENERAL NOTES

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

Texas Department of Transportation

Design Division Standard

TAPERED EDGE DETAILS HMAC PAVEMENT

TE(HMAC)-11

FILE: tehmac11.dgn	DN: TxDOT	CK: RL	DW: KB	CK:
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REVISIONS	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		152

DATE: 5/17/2024
FILE: tehmac11.dgn

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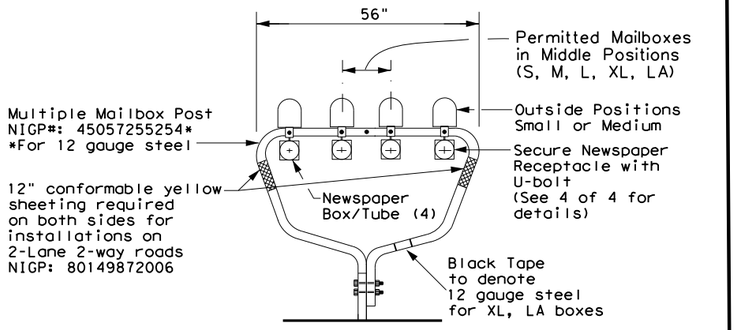

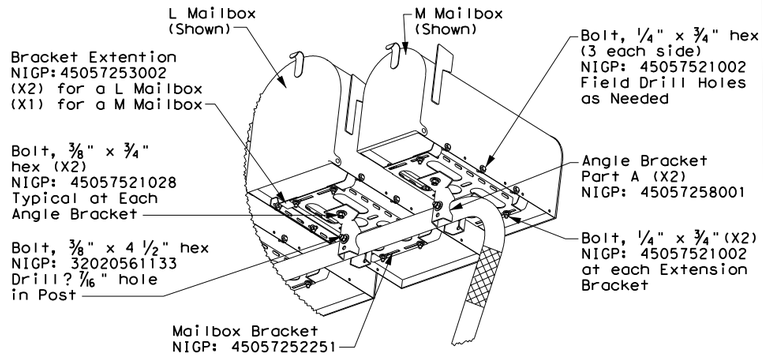

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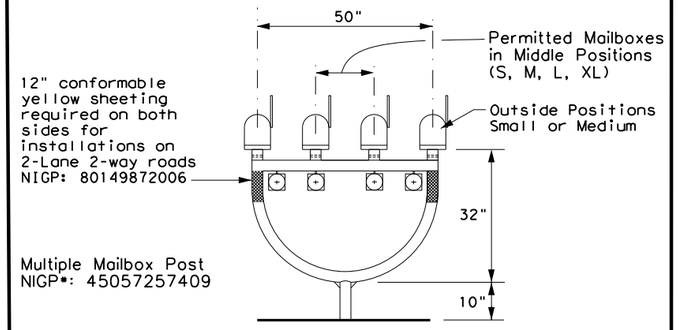
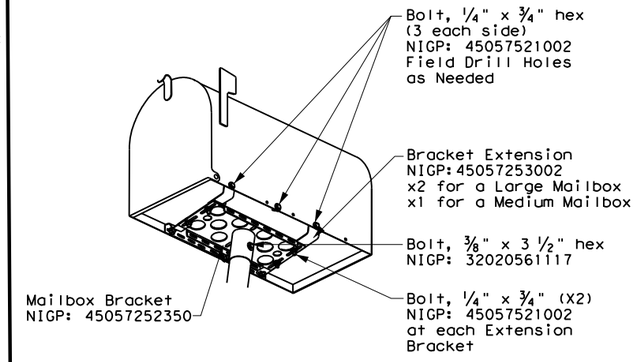




MAILBOX SIZES

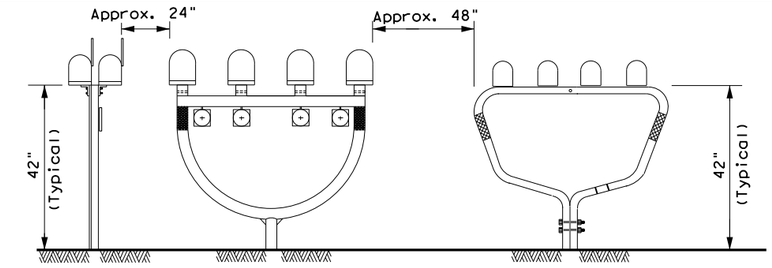
MAILBOX SIZE	TYPICAL DIMENSIONS			MAX **
	LENGTH	WIDTH	HEIGHT	WEIGHT
SMALL	19 1/2"	6"	7"	6 LBS
MEDIUM	22 1/2" *	8" *	11 1/2" *	8 LBS
LARGE	23 1/2"	11 1/2"	13 1/2"	11 LBS
EXTRA LARGE	18"	14"	12"	13 LBS
LOCKABLE	18"	11 1/2"	15"	23 LBS

* 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.

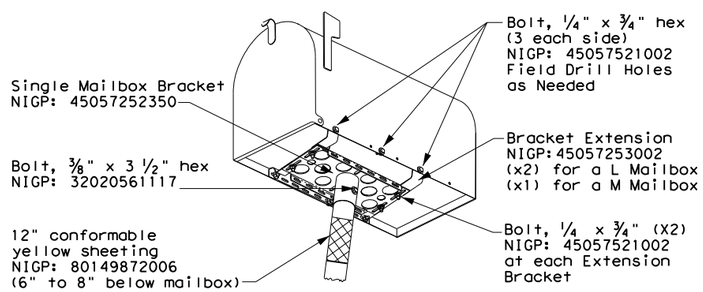
TYPICAL INSTALLATION MEASUREMENTS

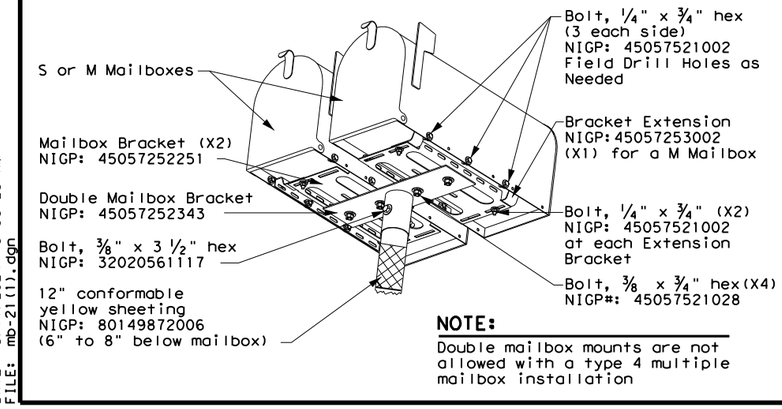


NOTE:

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

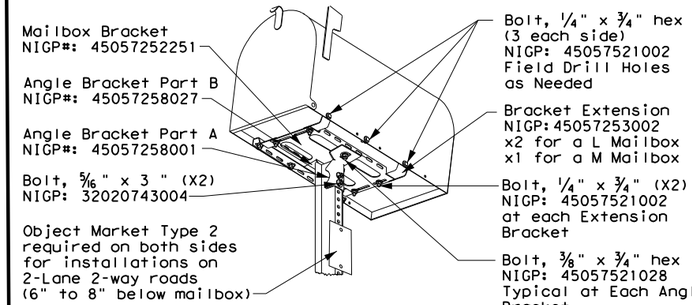


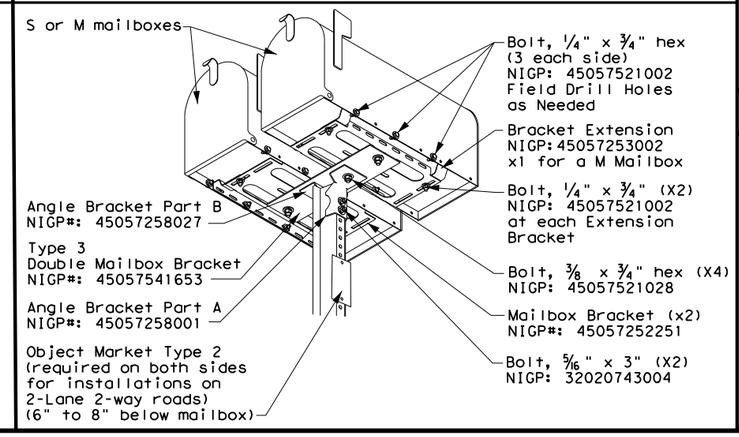


NOTE:

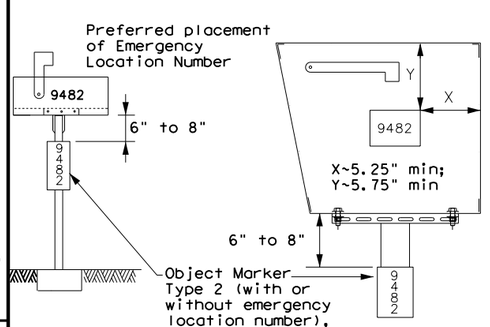
Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

TYPE 3 - SINGLE/DOUBLE





PLACEMENT OF EMERGENCY LOCATION NUMBER

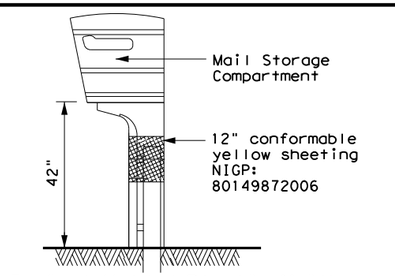


NOTES:

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

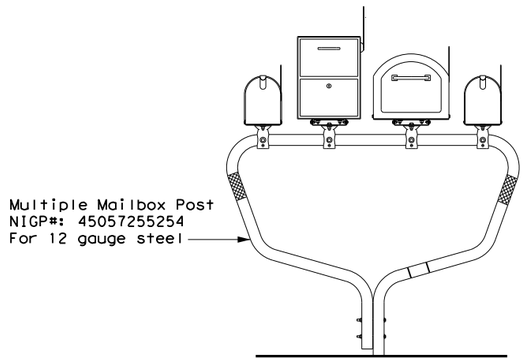
MB(1)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		153

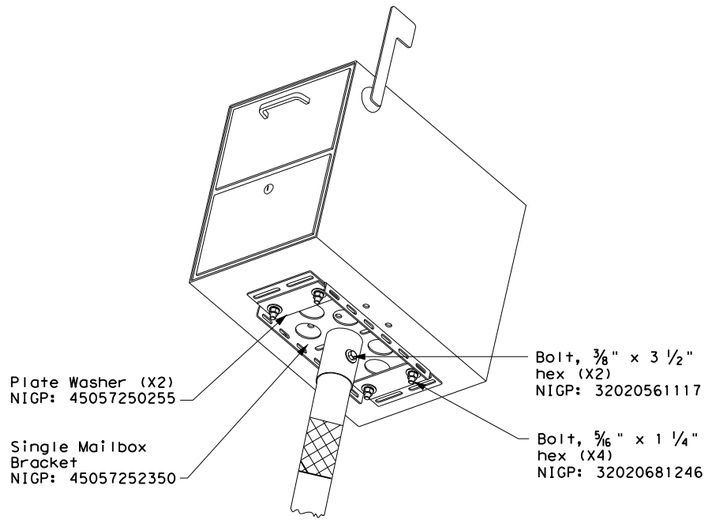
DATE: 5/17/2024 9:36:25 AM
FILE: mb-21(1).dgn

DATE: 5/17/2024 9:36:26 AM
FILE: mb-21(1).dgn

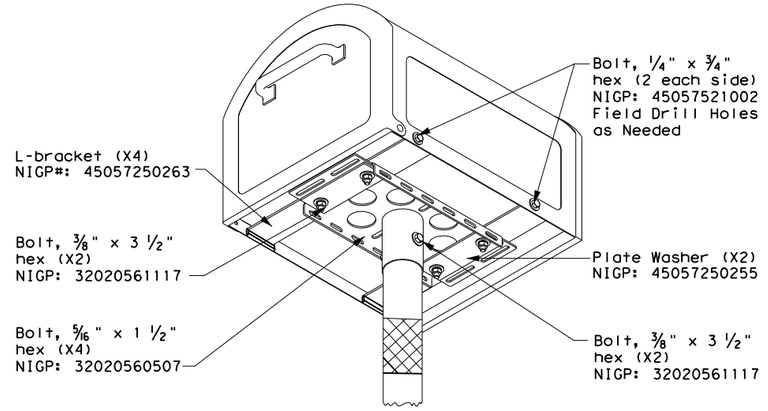
TYPE 1- MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

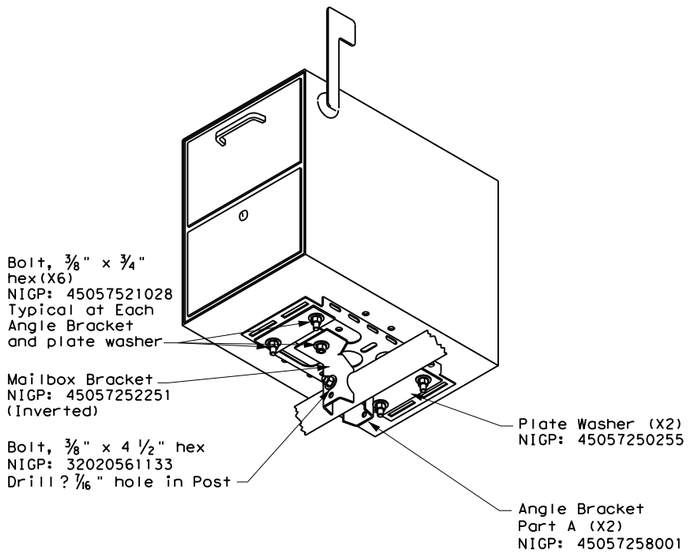


TYPE 2/4 - SINGLE XL MAILBOX

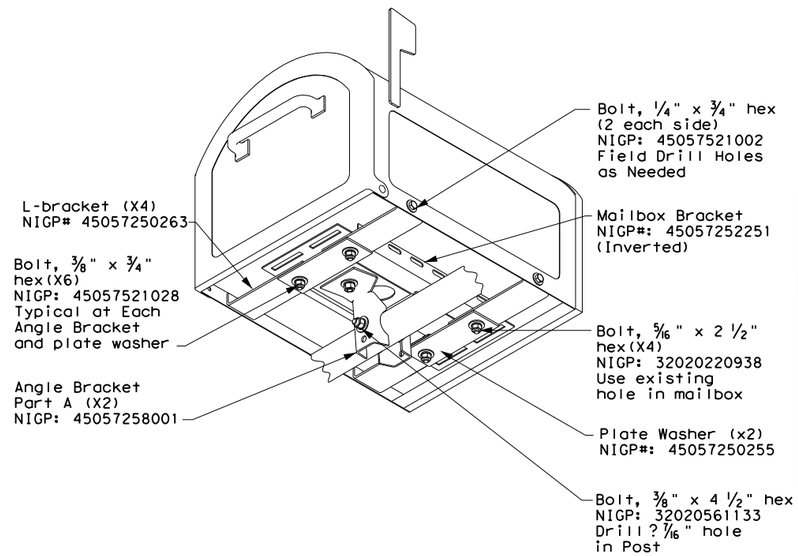


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

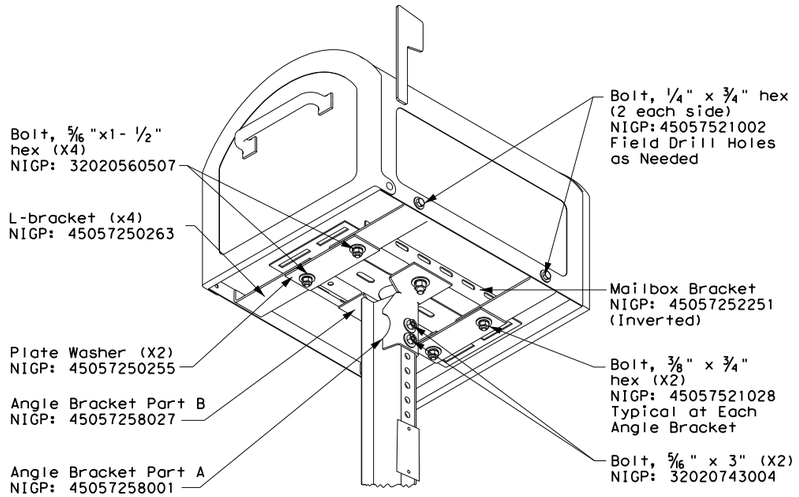
TYPE 1 MULTI - LOCKABLE ARCHITECTURAL (LA)



TYPE 1 MULTI - XL MAILBOX



TYPE 3 - XL MAILBOX MOUNTING



Texas Department of Transportation

Maintenance Division Standard

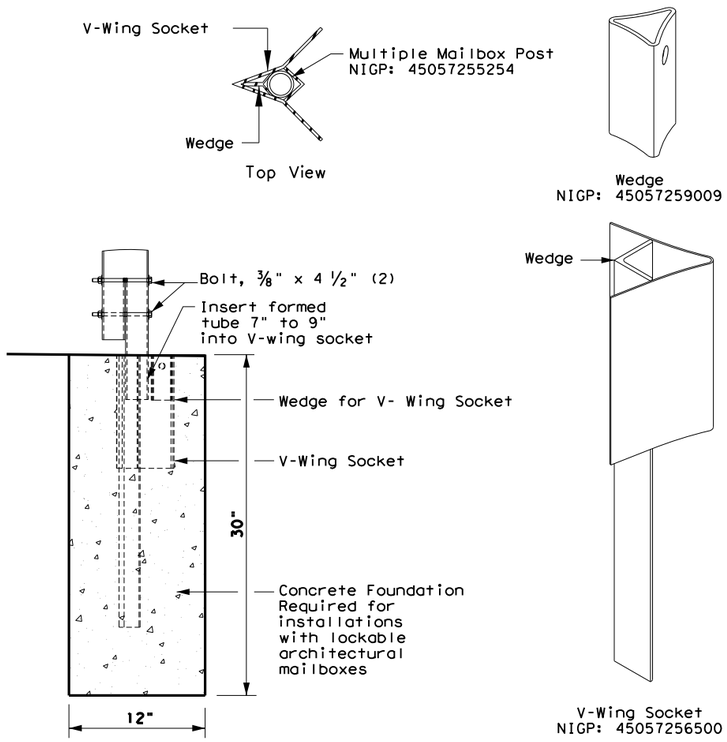
XL AND LOCKABLE ARCHITECTURAL MAILBOX ASSEMBLY

MB(2)-21

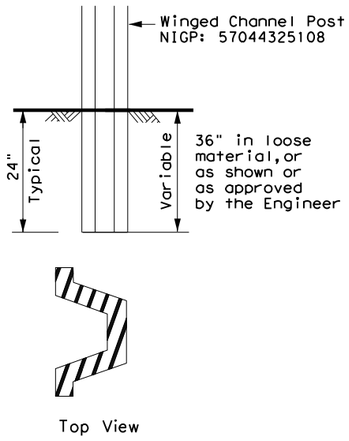
FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		154

TYPE 1 - SUPPORT/FOUNDATION

Thin Wall Tube w/ V-LOC Anchorage



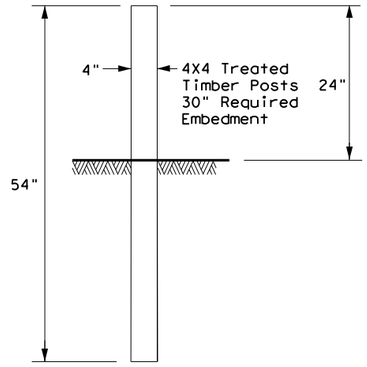
TYPE 3 - SUPPORT/FOUNDATION



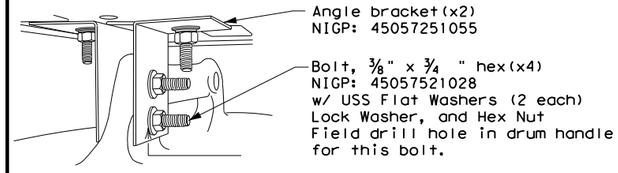
NOTES:

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:

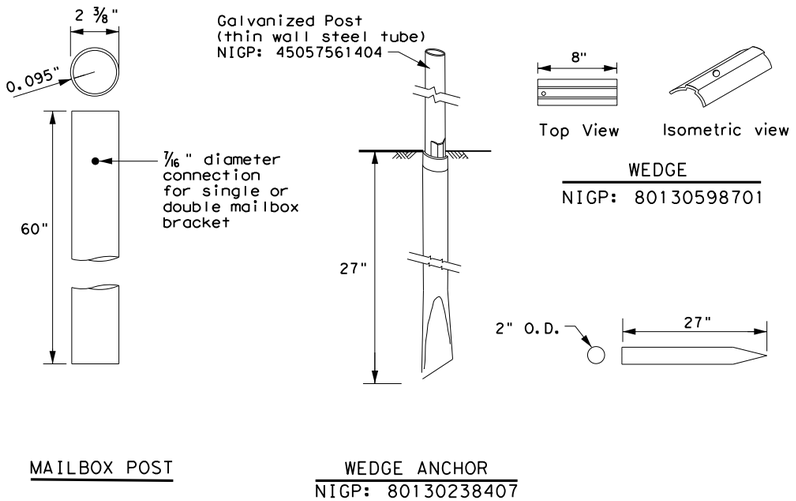
1. Place on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).
2. Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

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

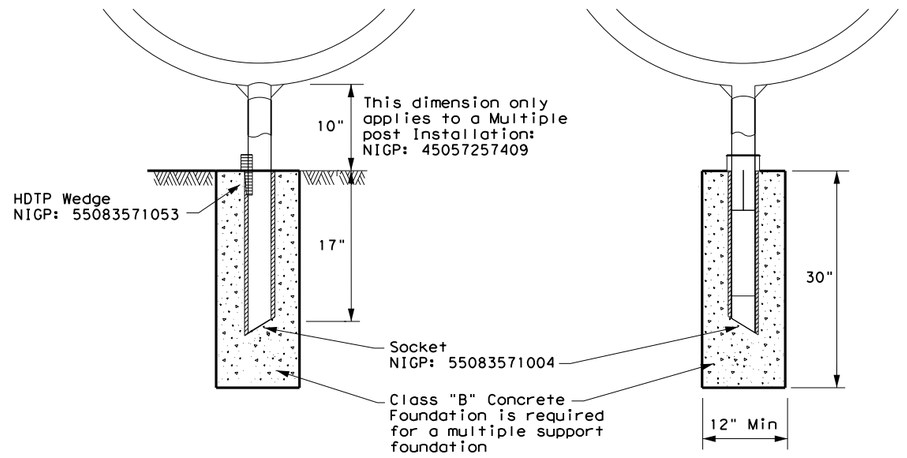


MAILBOX POST

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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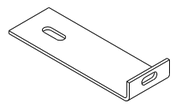
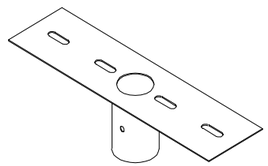
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		155

DATE: 5/17/2024 9:36:26 AM
FILE: mb-21(1).dgn

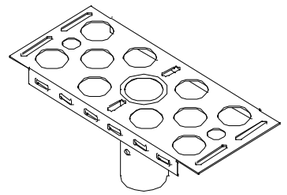
TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4			TYPE 5	TYPE 6
Configuration	Multiple	Single or Double	Single or Double	Single	Double	Multiple	Single	Single
Mailbox Size NIGP •	Outside Position: S or M Inside Position: S, M, L, XL, or LA	Single: S, M, L, XL, or LA Double: SS, SM, MM	Single: S, M, L, or XL Double: 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



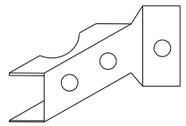
NIGP: 45057250263
L-Bracket x4 for
XL sized mailboxes



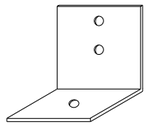
NIGP: 45057252343
Double Mailbox Bracket
For Type 2 and Type 4
double mount



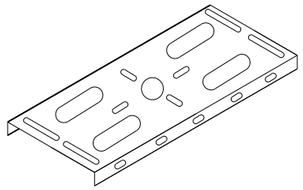
NIGP: 45057252350
Single Mailbox Bracket
For Type 2 single and for
Type 4 single and multi mount



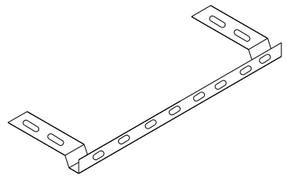
NIGP: 45057258001
Part "A" Angle Bracket
For Type 1 multi (2 per mailbox)
and Type 3 single and double



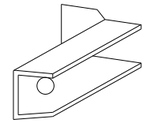
NIGP: 45057251055
Type 6 Angle Bracket
(2 per mailbox)



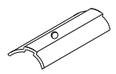
NIGP: 45057252251
Mailbox Bracket
For Type 1 multi and
any double mount (use 2)



NIGP: 45057253002
Bracket Extension
Use 1 for a medium Mailbox
Use 2 for a Large Mailbox



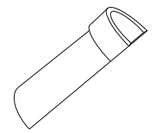
NIGP: 45057258027
Part "B" Angle Bracket
For Type 3 single
and double



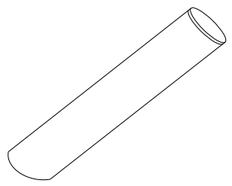
NIGP: 80130598701
Wedge for Type 2

NIGP: 45057250255
Plate Washer for Architecural
and XL Mailboxes

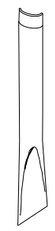
NIGP: 45057541653
Type 3 double mailbox bracket



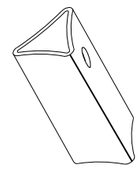
NIGP: 55083571053
Type 4 Mailbox Wedge



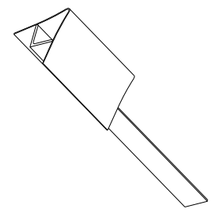
NIGP: 55083571004
Type 4 Mailbox Socket



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

DATE: 5/17/2024 9:36:27 AM
FILE: mb-21(1).dgn

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
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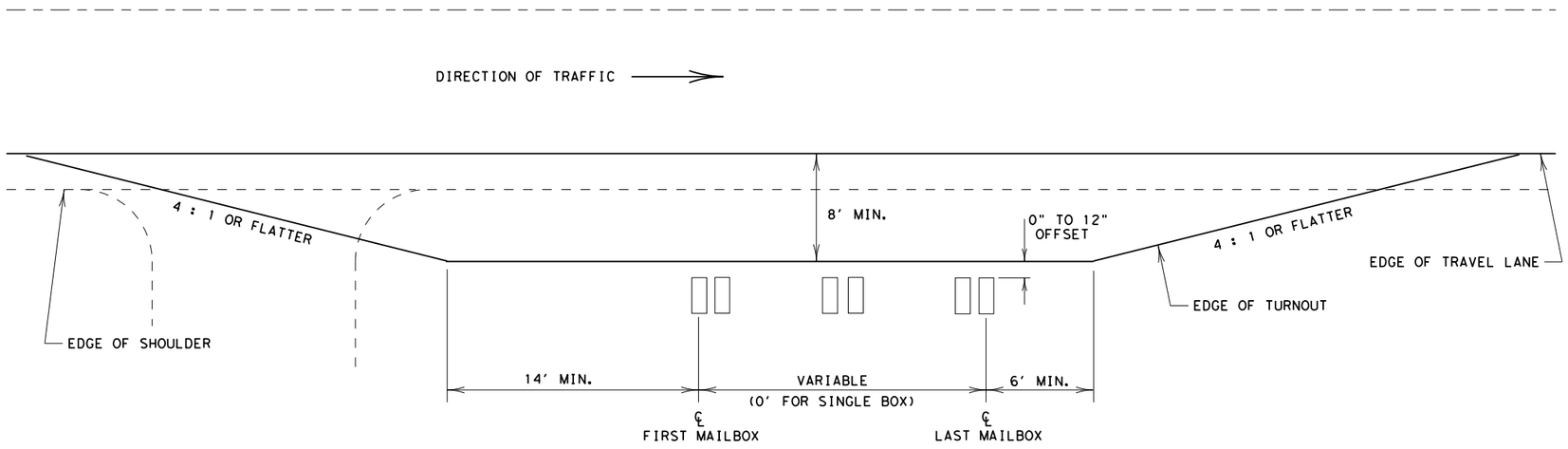
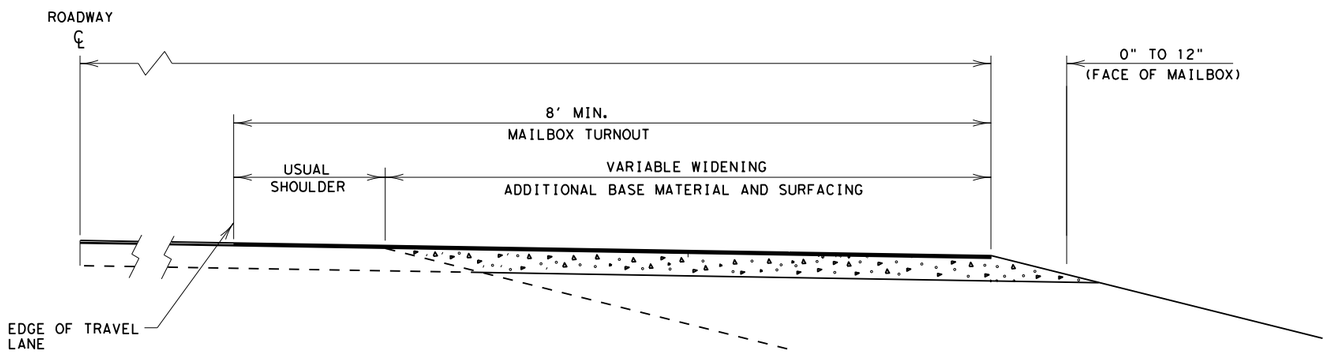
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		156



PLAN



TYPICAL SECTION

SUMMARY OF MAILBOX TURNOUTS

LOCATION (STATION)	FLEX BASE	PRIMECOAT	SURFACE TREATMENT	ASPHALTIC CONCRET PAVEMENT
	CY	GAL	SY	SY
274+21	4	3	14	0
277+38	5	3	15	0
287+98	4	3	14	0
296+86	4	3	14	0
301+75	4	3	14	0
303+40	4	3	14	0
309+58	4	3	14	0
355+00	7	5	23	0
384+99	4	3	14	0
395+58	4	3	14	0
495+80	5	4	17	0
402+97	4	3	14	0
426+23	4	3	14	0
433+88	8	6	26	0
438+22	4	3	14	0
447+00	4	3	14	0
453+39	4	3	14	0
459+55	4	3	14	0
466+21	4	3	11	0
468+11	4	3	12	0
473+68	4	3	14	0
473+74	4	3	13	0
485+97	4	3	14	0
490+69	4	3	13	0
500+81	4	3	14	0
506+38	7	5	23	0
536+69	4	3	14	0
549+56	7	5	23	0
554+30	4	3	14	0
583+76	4	3	13	0
626+70	4	3	14	0
638+93	4	3	14	0
TOTAL	143	106	483	0

STATE OF TEXAS
F. PAUL PURPURA
87865
LICENSED
PROFESSIONAL ENGINEER

DESIGN DETAILS FOR TYPICAL MAILBOX TURNOUTS

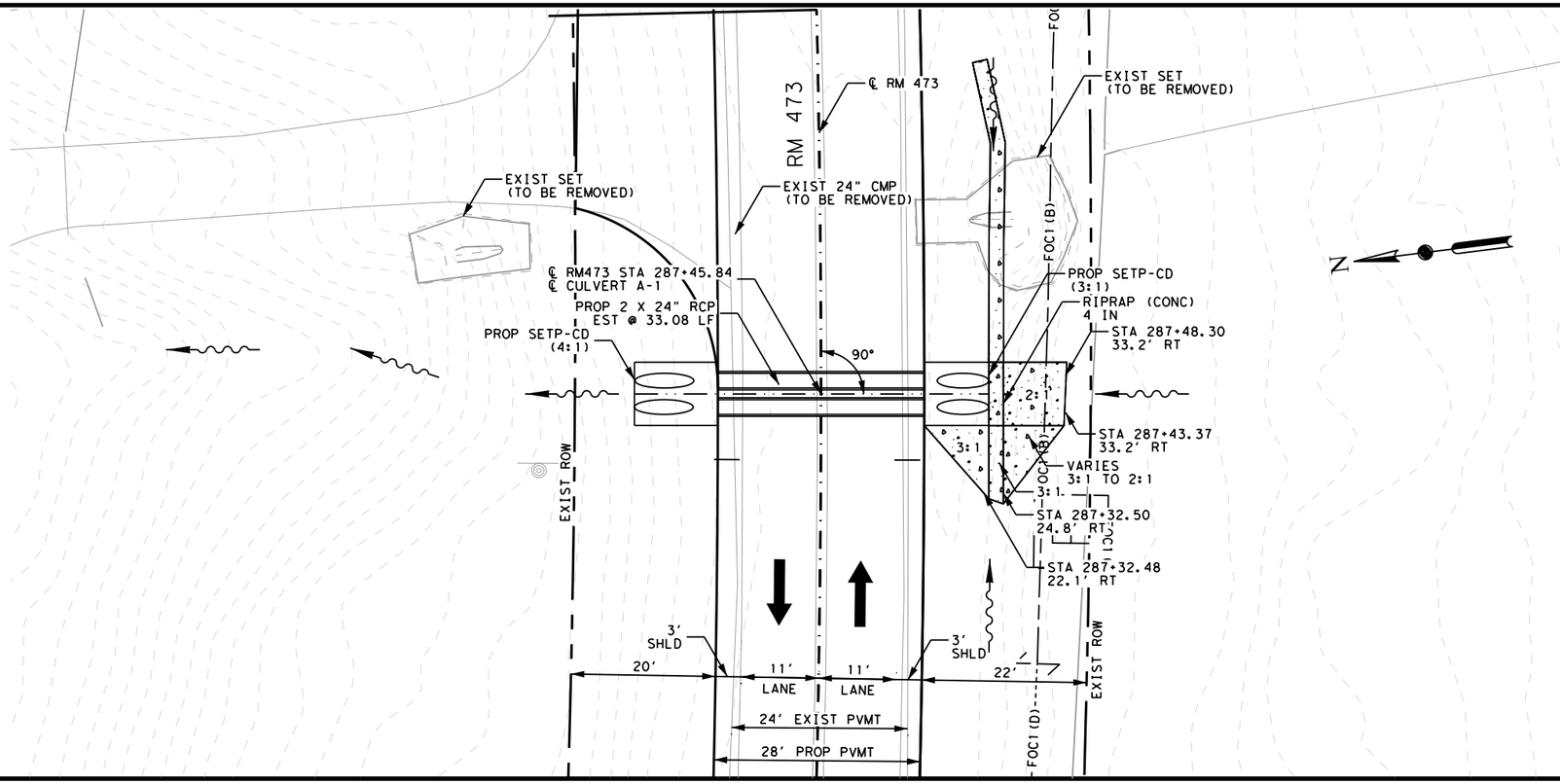
MBTRNOUT

FILE: mbtrnout.dgn		DN: TxDOT	CK:	DW:		CK:
© TxDOT 1989		CONT	SECT	JOB		HIGHWAY
REVISIONS		0142	09	047		RM 473
		DIST	COUNTY			SHEET NO.
		SAT	KENDALL			156A

DATE: 5/17/2024
FILE: mbtrnout.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 10:47:42 AM



ITEM	DESCRIPTION	UNIT	QTY
0400 6003	STRUC EXCAV (PIPE)	CY	50
0401 6001	FLOWABLE BACKFILL	CY	16
0402 6001	TRENCH EXCAVATION PROTECTION	LF	64
0432 6001	RIPRAP (CONC)(4 IN)	CY	4
0464 6005	RC PIPE (CL III)(24 IN)	LF	68
0467 6388	SET (TY II) (24 IN) (RCP) (3: 1) (C)	EA	1
0467 6390	SET (TY II) (24 IN) (RCP) (4: 1) (C)	EA	1
0496 6004	REMOV STR (SET)	EA	2
0496 6007	REMOV STR (PIPE)	LF	65

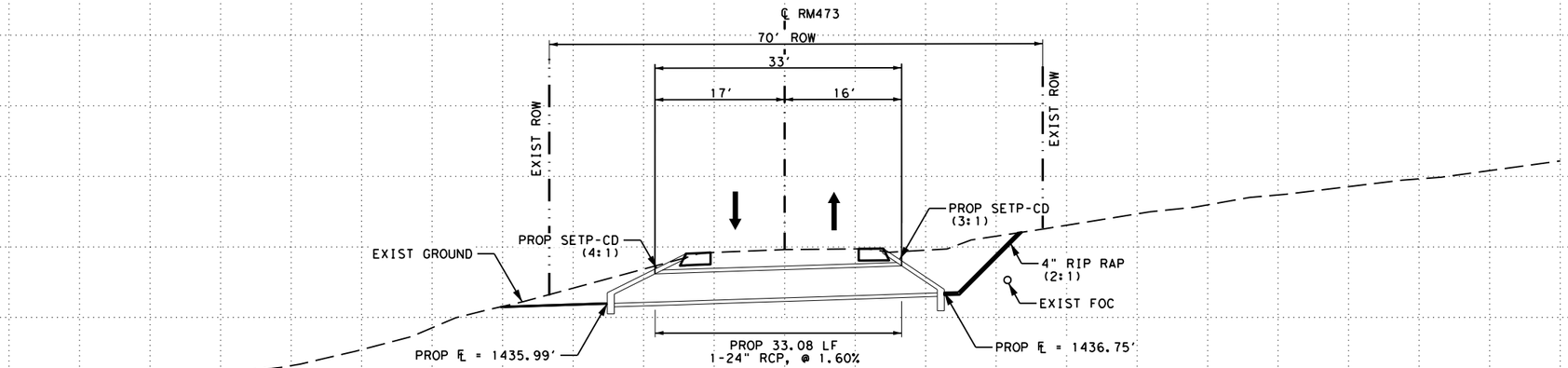
LEGEND

- EXISTING 1' CONTOURS
- FLOW ARROWS
- FLOW LINES
- EXIST ROW
- PROP EDGE OF PAVMENT

NOTES:

1. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE.
2. LOCATION OF EXISTING UTILITES ARE APROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
3. NO STOCKPILING WITHIN FLOODPLAIN.
4. CONTRACTOR SHALL ENSURE NO SIGNIFCANT ADVERSE IMPACT TO ADJACENT PROPERTIES.
5. CONTRACTOR TO USE COUPLING BAND TO JOIN CMP EXTENSION TO EXISTING CMP WHICH SHALL BE SUBSIDIARY TO ITEM 480.

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



CULVERT A-1

℄ RM473 STA 287+46
PROP 1-24" X 33.08' RCP W/ PROP SETP-CD (4:1) LT & SETP-CD (3:1) RT

℄ RM473 STA 287+68
EXIST 1-24" X 65' CMP W/SET LT & RT TO BE REMOVED

STATE OF TEXAS
WESLEY YOUNG
72271
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

CULVERT LAYOUT CL-A1

SHEET 1 OF 4

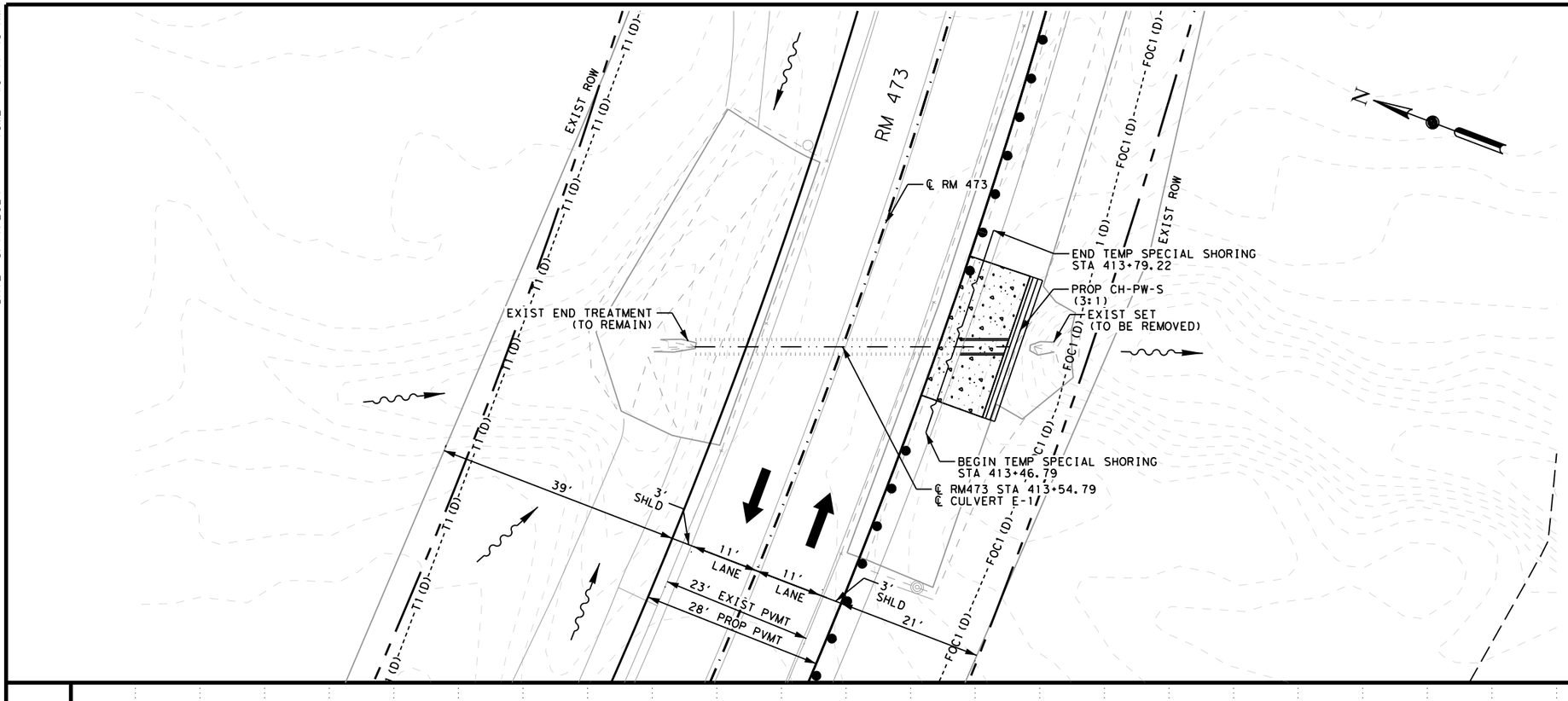
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	157

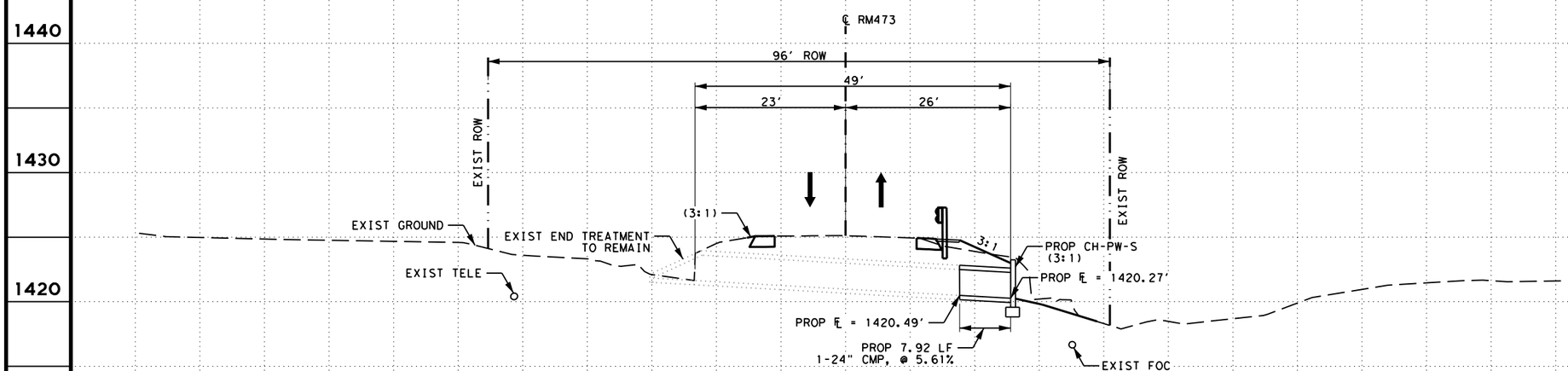
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_DRN_CL_A1.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 10:47:48 AM

ITEM	DESCRIPTION	UNIT	QTY
0403 6001	TEMPORARY SPL SHORING	SF	111
0460 6003	CMP (GAL STL 24 IN)	LF	8
0466 6130	HEADWALL (CH-PW-S)(DIA=24IN)	EA	1
0496 6004	REMOV STR (SET)	EA	1





CULVERT E-1

℄ RM473 STA 413+55
EXIST 1-24" X 39.9' CMP TO BE EXTENDED 7.92' RT
PROP CH-PW-S (3:1) RT

LEGEND

- EXISTING 1' CONTOURS
- FLOW ARROWS
- FLOW LINES
- EXIST ROW
- PROP EDGE OF PAVMENT

NOTES:

1. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE.
2. LOCATION OF EXISTING UTILITES ARE APROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
3. NO STOCKPILING WITHIN FLOODPLAIN.
4. CONTRACTOR SHALL ENSURE NO SIGNIFCANT ADVERSE IMPACT TO ADJACENT PROPERTIES.
5. CONTRACTOR TO USE COUPLING BAND TO JOIN CMP EXTENSION TO EXISTING CMP WHICH SHALL BE SUBSIDIARY TO ITEM 480.

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

STATE OF TEXAS
WESLEY YOUNG
72271
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

CULVERT LAYOUT
CL-E1

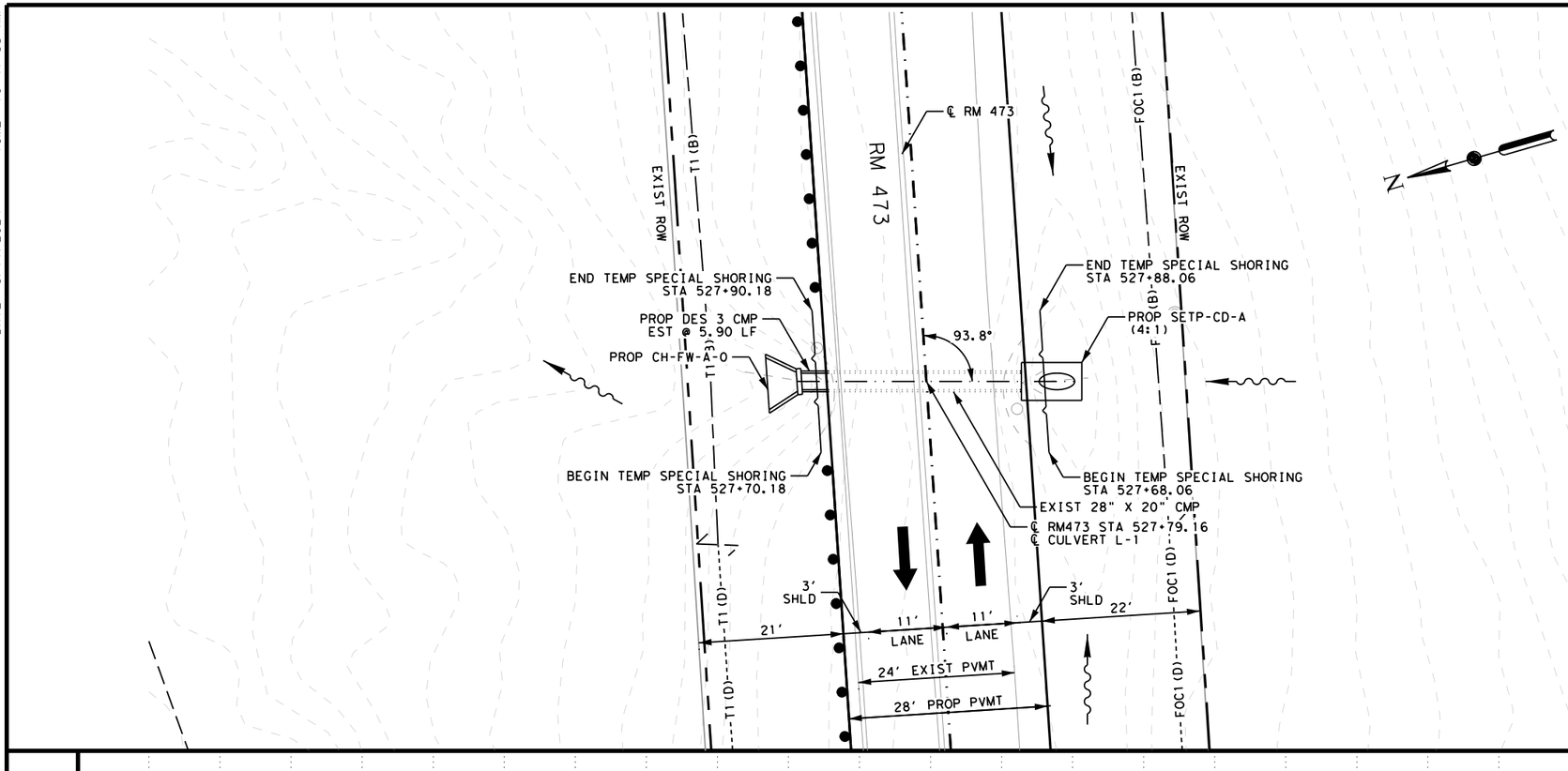
SHEET 2 OF 4

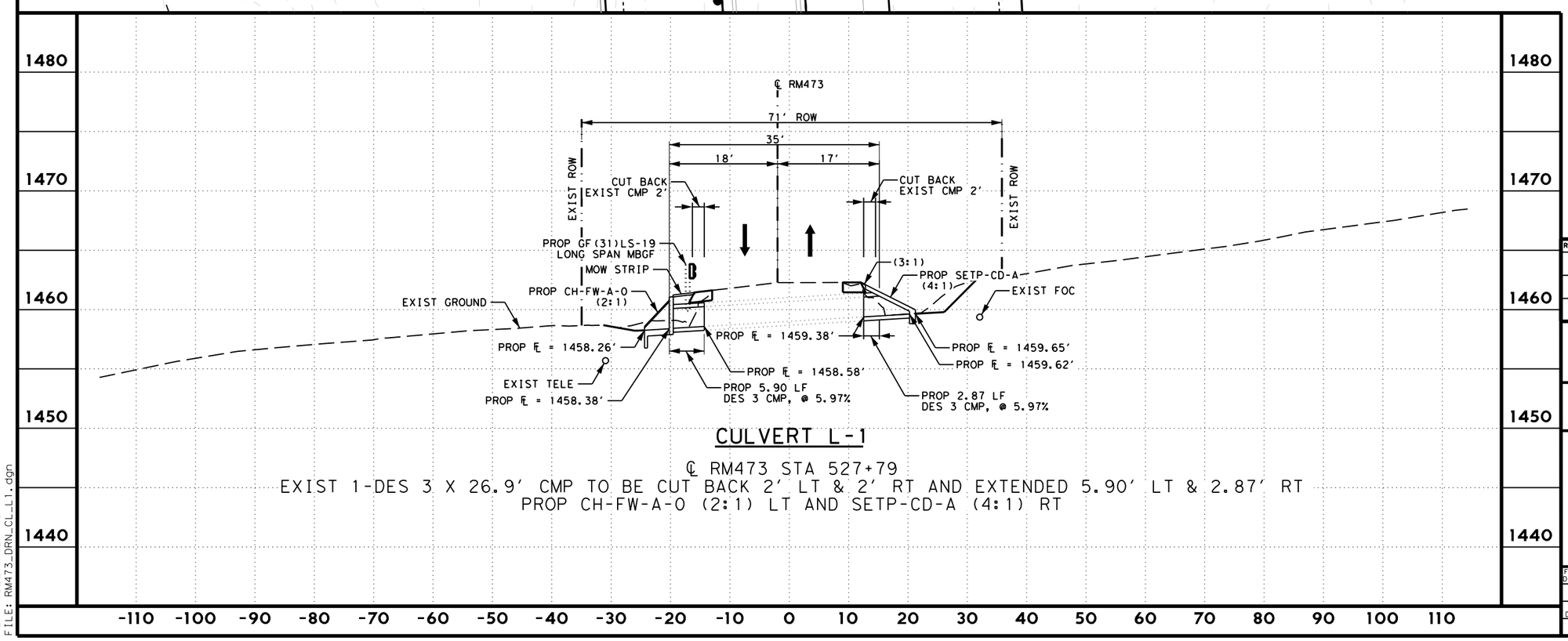
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	158

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_DRN_CL_E1.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 10:47:53 AM

ITEM	DESCRIPTION	UNIT	QTY
0403 6001	TEMPORARY SPL SHORING	SF	232
0460 6010	CMP AR (GAL STL DES 3)	LF	9
0466 6062	HEADWALL (CH-FW-A-O) (DES= 3)	EA	1
0467 6534	SET (TY II) (DES 3) (CMP) (4:1) (C)	EA	1





CULVERT L-1

℄ RM473 STA 527+79
EXIST 1-DES 3 X 26.9' CMP TO BE CUT BACK 2' LT & 2' RT AND EXTENDED 5.90' LT & 2.87' RT
PROP CH-FW-A-O (2:1) LT AND SETP-CD-A (4:1) RT

LEGEND

- EXISTING 1' CONTOURS
- FLOW ARROWS
- FLOW LINES
- EXIST ROW
- PROP EDGE OF PAVMENT

NOTES:

1. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE.
2. LOCATION OF EXISTING UTILITES ARE APROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
3. NO STOCKPILING WITHIN FLOODPLAIN.
4. CONTRACTOR SHALL ENSURE NO SIGNIFCANT ADVERSE IMPACT TO ADJACENT PROPERTIES.
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0' 10' 20' HORZ
0' 5' 10' VERT

STATE OF TEXAS
WESLEY YOUNG
72271
LICENSED
PROFESSIONAL ENGINEER
5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

CULVERT LAYOUT CL-L1

SHEET 3 OF 4

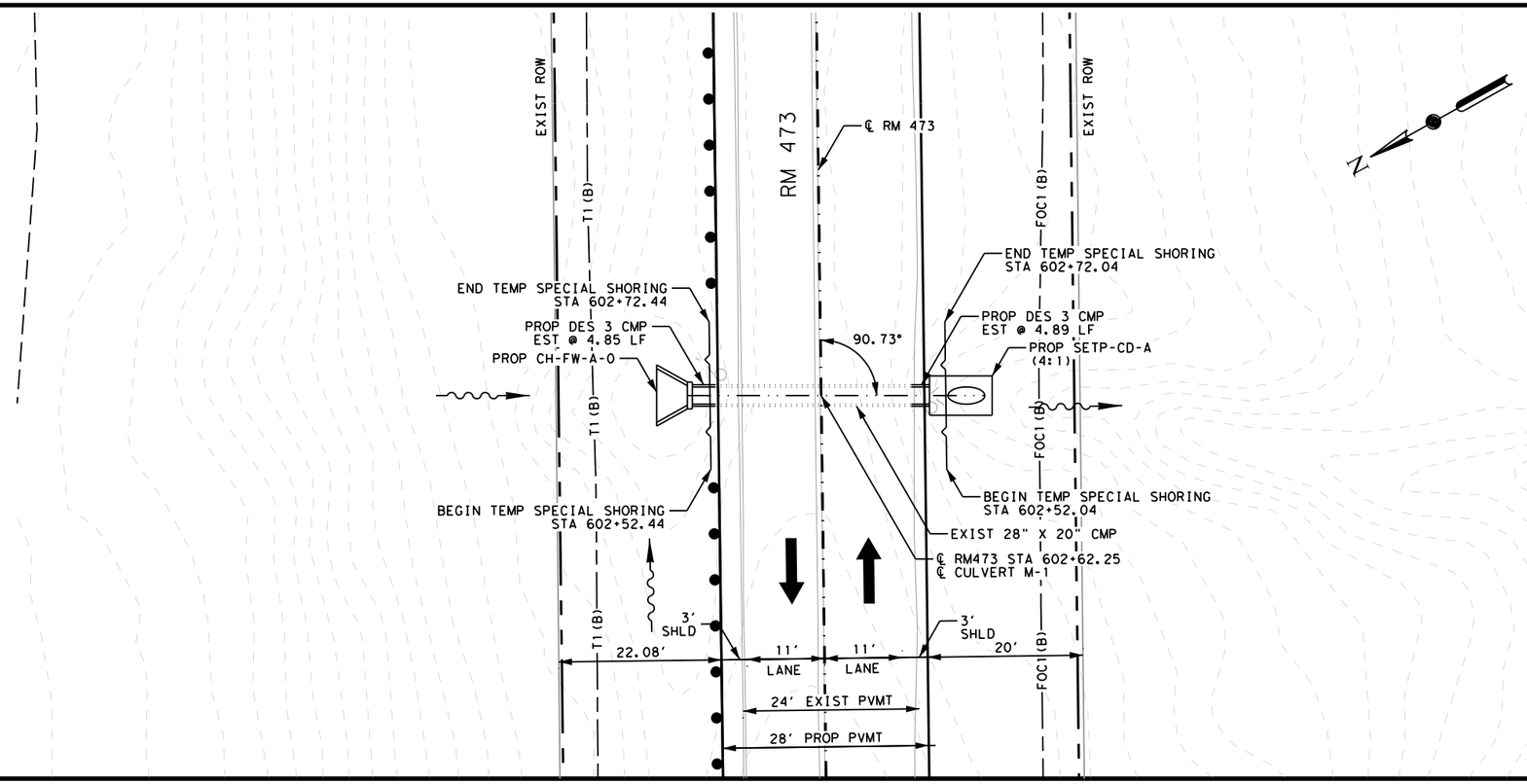
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	159

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_DRN_CL_L1.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 10:47:59 AM

ITEM	DESCRIPTION	UNIT	QTY
0403 6001	TEMPORARY SPL SHORING	SF	285
0460 6010	CMP AR (GAL STL DES 3)	LF	10
0466 6062	HEADWALL (CH-FW-A-O) (DES= 3)	EA	1
0467 6534	SET (TY II) (DES 3) (CMP) (4: 1) (C)	EA	1



LEGEND

- EXISTING 1' CONTOURS
- FLOW ARROWS
- FLOW LINES
- EXIST ROW
- PROP EDGE OF PAVMENT

NOTES:

1. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE.
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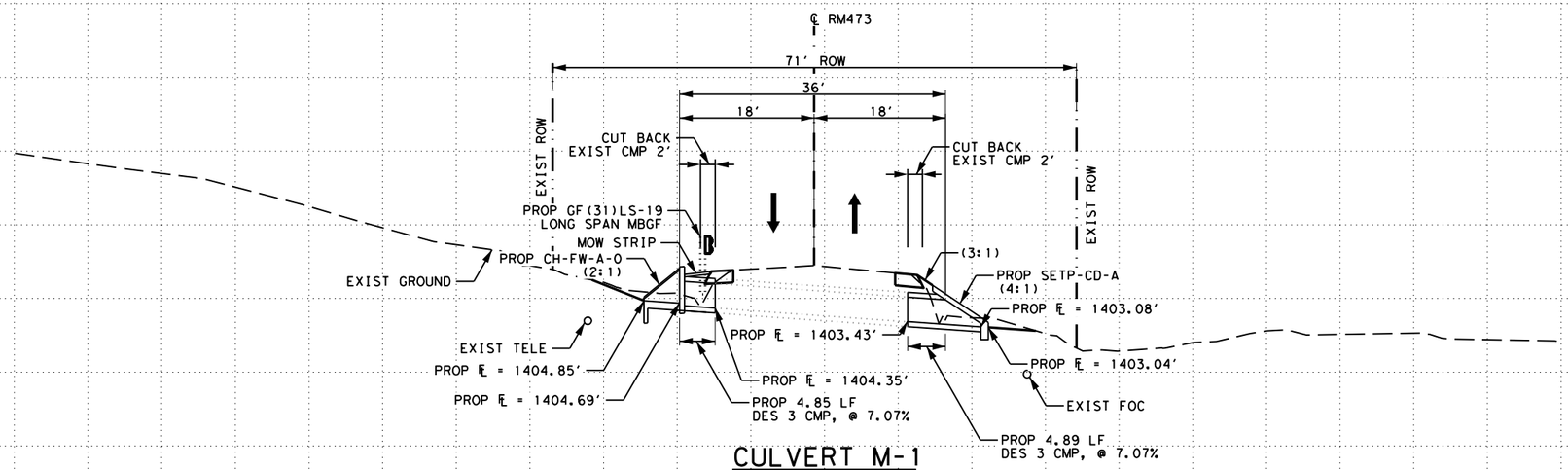
0' 10' 20' HORZ
0' 5' 10' VERT



CULVERT M-1

℄ RM473 STA 602+62

EXIST 1-DES 3 X 26.6' CMP TO BE CUT BACK 2' LT & 2FT RT AND EXTENDED 4.85' LT & 4.89' RT
PROP CH-FW-A-O (2:1) LT & SETP-CD-A (4:1) RT

STATE OF TEXAS
WESLEY YOUNG
72271
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

CULVERT LAYOUT CL-M1

SHEET 4 OF 4

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	160

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_DRN_CL_M1.dgn

100% SUBMITTAL
DATE: 5/17/2024 TIME: 10:48:02 AM

DITCH A-1		
STA	O/S	ELEV
287+86.28	22.0' RT	1439.87
290+04.15	22.0' RT	1445.93

DITCH B-1		
STA	O/S	ELEV
291+06.65	22.0' RT	1447.40
294+20.24	22.0' RT	1452.72

DITCH C-1		
STA	O/S	ELEV
298+58.92	22.0' RT	1462.37
302+43.87	22.0' RT	1475.78

DITCH D-1		
STA	O/S	ELEV
302+69.69	22.0' RT	1475.92
307+77.37	22.0' RT	1486.13

DITCH E-1		
STA	O/S	ELEV
309+02.90	22.0' RT	1486.18
315+96.53	22.0' RT	1515.53

DITCH F-1		
STA	O/S	ELEV
309+73.74	27.0' LT	1487.22
313+27.30	22.0' LT	1501.77

DITCH G-1		
STA	O/S	ELEV
313+62.45	22.0' LT	1503.35
318+73.24	22.0' LT	1527.67

DITCH H-1		
STA	O/S	ELEV
318+71.04	20.0' RT	1526.69
325+01.90	20.0' RT	1554.27

DITCH I-1		
STA	O/S	ELEV
319+16.70	22.0' LT	1527.68
322+63.55	22.0' LT	1542.67

DITCH J-1		
STA	O/S	ELEV
326+29.86	22.0' LT	1560.02
337+44.62	22.0' LT	1591.65

DITCH K-1		
STA	O/S	ELEV
337+59.90	22.0' LT	1591.87
352+53.63	22.0' LT	1552.13

DITCH L-1		
STA	O/S	ELEV
353+12.06	22.0' LT	1551.65
354+95.79	22.0' LT	1551.89

DITCH M-1		
STA	O/S	ELEV
357+00.57	22.0' LT	1552.74
375+97.50	22.0' LT	1462.54

DITCH N-1		
STA	O/S	ELEV
380+75.30	22.0' LT	1449.25
395+00.00	22.0' LT	1507.98

DITCH O-1		
STA	O/S	ELEV
395+90.72	22.0' LT	1509.92
397+89.19	22.0' LT	1514.43

DITCH P-1		
STA	O/S	ELEV
397+94.51	22.0' LT	1514.41
402+72.61	27.0' LT	1492.21

DITCH Q-1		
STA	O/S	ELEV
398+70.38	22.0' RT	1511.73
406+85.12	20.0' RT	1459.09

DITCH R-1		
STA	O/S	ELEV
413+86.13	22.0' LT	1424.19
419+79.83	22.0' LT	1452.96

DITCH S-1		
STA	O/S	ELEV
414+40.88	22.0' RT	1425.94
429+55.34	22.0' RT	1495.75

DITCH T-1		
STA	O/S	ELEV
427+67.46	22.0' LT	1493.86
433+52.54	22.0' LT	1501.08

DITCH U-1		
STA	O/S	ELEV
435+33.06	22.0' LT	1504.56
437+59.67	22.0' LT	1510.37

DITCH V-1		
STA	O/S	ELEV
438+69.37	22.0' LT	1511.69
441+30.90	22.0' LT	1506.40

DITCH W-1		
STA	O/S	ELEV
441+60.63	22.0' LT	1506.67
446+48.50	27.0' LT	1506.64

DITCH X-1		
STA	O/S	ELEV
447+40.53	22.0' LT	1505.41
452+12.36	22.0' LT	1501.46

DITCH Y-1		
STA	O/S	ELEV
452+42.47	22.0' LT	1501.58
459+41.51	27.0' LT	1500.11

DITCH Z-1		
STA	O/S	ELEV
459+94.97	22.0' LT	1499.32
462+83.85	22.0' LT	1495.57

DITCH AA-1		
STA	O/S	ELEV
466+30.64	22.0' LT	1487.52
472+14.00	22.0' LT	1471.12

DITCH AA-2		
STA	O/S	ELEV
467+38.48	22.0' RT	1485.08
470+89.19	22.0' RT	1476.14

DITCH AB-1		
STA	O/S	ELEV
479+30.78	22.0' LT	1465.36
485+52.73	22.0' LT	1485.59

DITCH AC-1		
STA	O/S	ELEV
486+50.34	22.0' LT	1488.28
490+19.81	22.0' LT	1491.82

DITCH AD-1		
STA	O/S	ELEV
495+86.43	22.0' LT	1492.18
506+06.62	22.0' LT	1486.51

DITCH AE-1		
STA	O/S	ELEV
506+78.50	22.0' LT	1485.49
509+56.59	22.0' LT	1484.63

DITCH AE-2		
STA	O/S	ELEV
509+65.78	22.0' RT	1484.76
513+75.03	22.0' RT	1489.27

DITCH AF-1		
STA	O/S	ELEV
515+80.95	22.0' RT	1486.72
522+51.13	29.0' RT	1474.55

DITCH AG-1		
STA	O/S	ELEV
524+34.97	28.0' RT	1469.78
527+76.70	22.0' RT	1461.12

DITCH AH-1		
STA	O/S	ELEV
527+88.42	20.0' RT	1461.50
536+26.56	22.0' RT	1479.02

DITCH AH-2		
STA	O/S	ELEV
532+25.63	22.0' LT	1463.08
535+99.64	22.0' LT	1479.08

DITCH AI-1		
STA	O/S	ELEV
536+33.78	22.0' LT	1480.55
549+17.70	20.0' LT	1464.94

DITCH AI-2		
STA	O/S	ELEV
539+93.83	20.0' RT	1482.27
553+91.67	22.0' RT	1446.91

DITCH AJ-1		
STA	O/S	ELEV
549+96.07	20.0' LT	1462.30
555+65.02	20.0' LT	1442.08

DITCH AK-1		
STA	O/S	ELEV
559+31.09	20.0' LT	1440.61
565+36.69	20.0' LT	1456.59

DITCH AK-2		
STA	O/S	ELEV
560+28.46	22.0' RT	1442.92
582+02.30	22.0' RT	1437.52

DITCH AL-1		
STA	O/S	ELEV
581+99.87	22.0' LT	1437.07
602+53.77	22.0' LT	1406.31

DITCH AL-2		
STA	O/S	ELEV
583+83.51	22.0' RT	1436.53
600+76.01	22.0' RT	1411.96

DITCH AM-1		
STA	O/S	ELEV
602+86.79	22.0' LT	1406.28
615+44.23	22.0' LT	1412.43

DITCH AN-1		
STA	O/S	ELEV
621+29.49	22.0' LT	1410.55
624+57.85	22.0' LT	1400.23

DITCH AN-2		
STA	O/S	ELEV
617+29.81	20.0' RT	1414.05
624+48.37	22.0' RT	1402.54

DITCH AO-1		
STA	O/S	ELEV
628+92.23	22.0' LT	1392.40
633+89.18	22.0' LT	1370.11

DITCH AO-2		
STA	O/S	ELEV
627+55.45	22.0' RT	1400.14
645+71.43	22.0' RT	1300.45

NOTES:

1. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE DURING CONSTRUCTION AND FOR FINAL CONDITIONS.
2. ALL STATIONS AND OFFSETS BASED ON ℄ RM 473 UNLESS OTHERWISE NOTED.

STATE OF TEXAS
WESLEY YOUNG
72271
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

DITCH TABLES

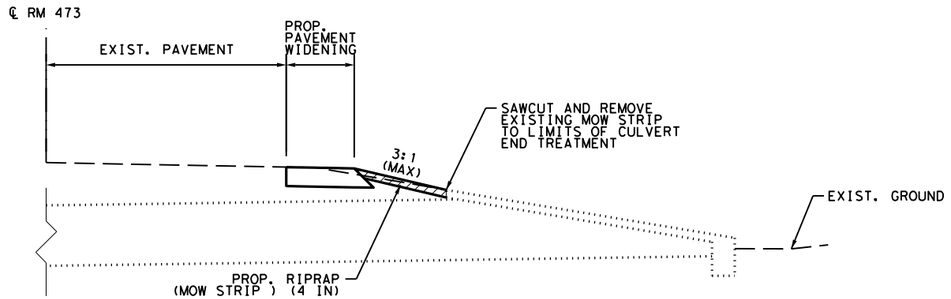
SHEET 1 OF 1

FED. RD. DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	161

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_Ditch_Tables.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 10:48:06 AM



PAVEMENT WIDENING AT EXISTING CULVERTS
TYPICAL DETAIL

STATE OF TEXAS
WESLEY YOUNG
72271
LICENSED PROFESSIONAL ENGINEER

Wesley Young

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

DRAINAGE DETAILS

SHEET 1 OF 1

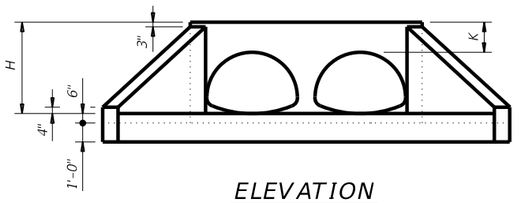
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	162

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_DRN_DTLS.dgn

DATE: 07/03/2023 9:00:30 AM
FILE: DOCUMENTNAME.dgn

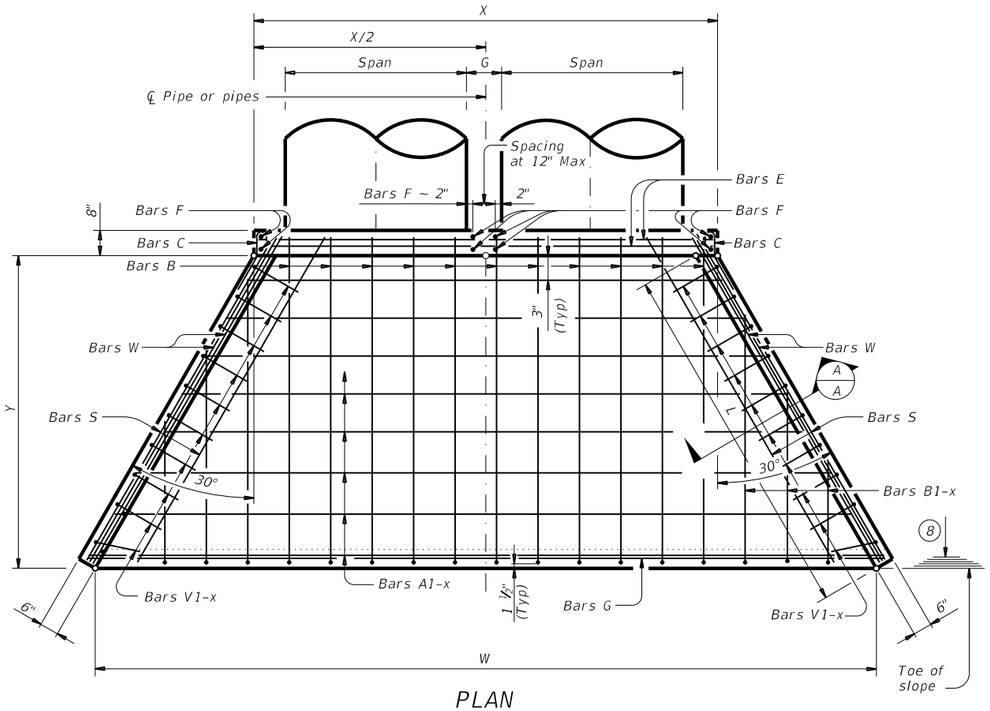
TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (6)

Slope	Design	Size of Pipe Arch Span	Size of Pipe Arch Rise	Values for One Pipe W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	Values to be Added for Each Addt'l Pipe X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	1	17"	13"	5' – 0 ½"	2' – 8 ¾"	3' – 0"	3' – 5 ½"	95	0.6	2' – 5"	35	0.3
	2	21"	15"	5' – 9 ¼"	3' – 0 ¾"	3' – 4"	3' – 10 ¼"	111	0.8	2' – 11"	42	0.4
	3	28"	20"	7' – 3 ¾"	3' – 7 ¾"	4' – 2"	4' – 9 ¾"	152	1.1	3' – 9"	57	0.6
	4	35"	24"	8' – 8"	4' – 2 ¾"	4' – 10"	5' – 7"	180	1.4	4' – 7"	73	0.8
	5	42"	29"	10' – 2 ½"	4' – 9 ¾"	5' – 8"	6' – 6 ½"	210	1.8	5' – 5"	98	1.0
	6	49"	33"	11' – 6 ¾"	5' – 4 ¾"	6' – 4"	7' – 3 ¾"	249	2.2	6' – 3"	113	1.3
	7	57"	38"	13' – 2 ¼"	6' – 0 ¾"	7' – 2"	8' – 3 ¼"	287	2.7	7' – 2"	134	1.6
	8	64"	43"	14' – 8 ¾"	6' – 7 ¾"	8' – 0"	9' – 2 ¾"	335	3.2	8' – 2"	168	2.0
	9	71"	47"	16' – 1"	7' – 2 ¾"	8' – 8"	10' – 0"	381	3.7	9' – 1"	192	2.4
3:1	1	17"	13"	6' – 9 ¼"	2' – 8 ¾"	4' – 6"	5' – 2 ¼"	131	0.9	2' – 5"	38	0.4
	2	21"	15"	7' – 8 ¼"	3' – 0 ¾"	5' – 0"	5' – 9 ¼"	146	1.1	2' – 11"	48	0.5
	3	28"	20"	9' – 8 ½"	3' – 7 ¾"	6' – 3"	7' – 2 ½"	205	1.6	3' – 9"	64	0.7
	4	35"	24"	11' – 5 ½"	4' – 2 ¾"	7' – 3"	8' – 4 ½"	243	2.1	4' – 7"	83	1.0
	5	42"	29"	13' – 5 ¾"	4' – 9 ¾"	8' – 8"	9' – 9 ¾"	301	2.7	5' – 5"	113	1.3
	6	49"	33"	15' – 2 ¾"	5' – 4 ¾"	9' – 6"	10' – 11 ¾"	345	3.3	6' – 3"	130	1.7
	7	57"	38"	17' – 4"	6' – 0 ¾"	10' – 9"	12' – 5"	402	4.2	7' – 2"	159	2.1
	8	64"	43"	19' – 4 ¼"	6' – 7 ¾"	12' – 0"	13' – 10 ¼"	479	5.1	8' – 2"	199	2.6
	9	71"	47"	21' – 1 ¼"	7' – 2 ¾"	13' – 0"	15' – 0 ¼"	533	5.9	9' – 1"	226	3.1
4:1	1	17"	13"	8' – 6 ¼"	2' – 8 ¾"	6' – 0"	6' – 11"	169	1.3	2' – 5"	42	0.4
	2	21"	15"	9' – 7 ¼"	3' – 0 ¾"	6' – 8"	7' – 8 ½"	189	1.6	2' – 11"	53	0.6
	3	28"	20"	12' – 1 ½"	3' – 7 ¾"	8' – 4"	9' – 7 ½"	257	2.3	3' – 9"	72	0.9
	4	35"	24"	14' – 3"	4' – 2 ¾"	9' – 8"	11' – 2"	317	2.9	4' – 7"	94	1.2
	5	42"	29"	16' – 9"	4' – 9 ¾"	11' – 4"	13' – 1"	381	3.9	5' – 5"	125	1.6
	6	49"	33"	18' – 10 ½"	5' – 4 ¾"	12' – 8"	14' – 7 ½"	455	4.7	6' – 3"	152	2.0
	7	57"	38"	21' – 5 ½"	6' – 0 ¾"	14' – 4"	16' – 6 ¾"	534	5.9	7' – 2"	180	2.6
	8	64"	43"	23' – 11 ¾"	6' – 7 ¾"	16' – 0"	18' – 5 ¾"	633	7.2	8' – 2"	229	3.2
	9	71"	47"	26' – 1 ¼"	7' – 2 ¾"	17' – 4"	20' – 0 ¼"	708	8.4	9' – 1"	261	3.9
6:1	1	17"	13"	11' – 11 ¾"	2' – 8 ¾"	9' – 6"	10' – 4 ¾"	243	2.1	2' – 5"	49	0.6
	2	21"	15"	13' – 5 ½"	3' – 0 ¾"	10' – 0"	11' – 6 ½"	276	2.6	2' – 11"	61	0.8
	3	28"	20"	16' – 11 ¼"	3' – 7 ¾"	12' – 6"	14' – 5 ¼"	392	3.8	3' – 9"	87	1.2
	4	35"	24"	19' – 10"	4' – 2 ¾"	14' – 0"	16' – 9"	470	5.0	4' – 7"	112	1.6
	5	42"	29"	23' – 3 ½"	4' – 9 ¾"	17' – 6"	19' – 7 ½"	587	6.6	5' – 5"	154	2.2
	6	49"	33"	26' – 2 ¼"	5' – 4 ¾"	19' – 0"	21' – 11 ¼"	711	8.2	6' – 3"	187	2.8
	7	57"	38"	29' – 9"	6' – 0 ¾"	21' – 6"	24' – 10"	854	10.3	7' – 2"	233	3.5
	8	64"	43"	33' – 2 ½"	6' – 7 ¾"	24' – 0"	27' – 8 ½"	998	12.6	8' – 2"	289	4.4
	9	71"	47"	36' – 1 ¼"	7' – 2 ¾"	26' – 0"	30' – 0 ¼"	1,129	14.7	9' – 1"	336	5.3

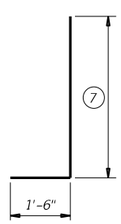


ELEVATION

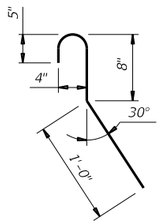
(Showing dimensions.)



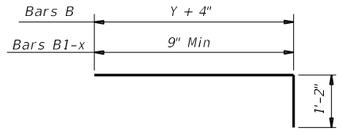
PLAN



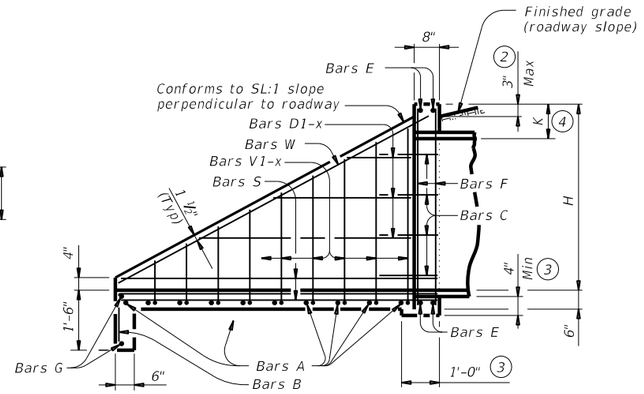
BARS V



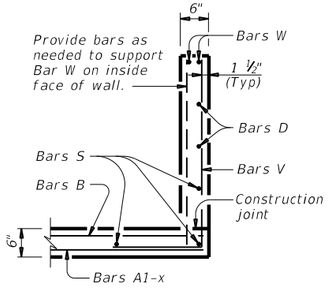
BARS C
(Length = 2'-5")



BARS B and B1-x



TYPICAL WING ELEVATION



SECTION A-A

TABLE OF (6) REINFORCING STEEL

Bar	Size	Spa	No.
A	#4	1' – 0"	~
B	#3	1' – 6"	~
C	#4	1' – 0"	~
D	#3	1' – 0"	~
E	#5	~	4
F	#5	~	~
G	#3	~	2
S	#4	~	6
V	#4	1' – 0"	~
W	#5	~	4

TABLE OF CONSTANT DIMENSIONS

Design	Size of Pipe Arch Span	Size of Pipe Arch Rise	G	K (5)	H
1	17"	13"	1' – 0"	1' – 0"	2' – 1"
2	21"	15"	1' – 2"	1' – 0"	2' – 3"
3	28"	20"	1' – 5"	1' – 0"	2' – 8"
4	35"	24"	1' – 8"	1' – 0"	3' – 0"
5	42"	29"	1' – 11"	1' – 0"	3' – 5"
6	49"	33"	2' – 2"	1' – 0"	3' – 9"
7	57"	38"	2' – 5"	1' – 0"	4' – 2"
8	64"	43"	2' – 10"	1' – 0"	4' – 7"
9	71"	47"	3' – 2"	1' – 0"	4' – 11"

(1) Quantities shown are for metal pipe and will increase slightly for concrete pipe installations.

(2) For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(3) Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.

(4) K is measured from top of curb to inside face of pipe.

(5) Dimensions shown are usual and maximum.

(6) Quantities shown are for one structure end only (one headwall).

(7) Min Length = $6" + 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right)$

Max Length = $12 \times H - 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right) - 1"$

(8) Lengths of wings based on SL:1 slope along this line.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing dimensions are out-to-out of bars.

Texas Department of Transportation

Bridge Division Standard

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW ARCH PIPE CULVERTS

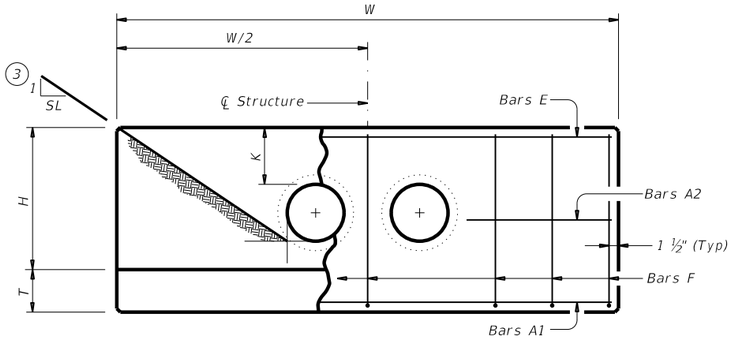
CH-FW-A-0

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		163

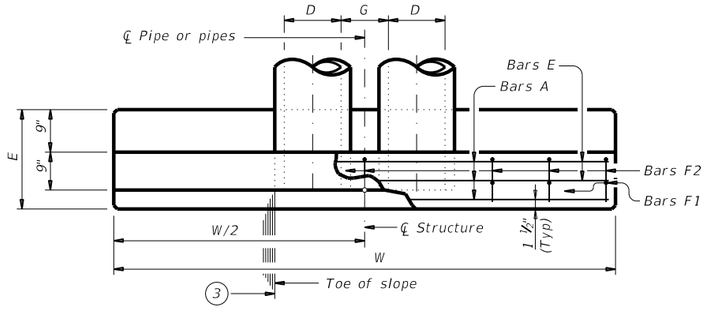
DATE: 5/17/2024 9:40:13 AM
FILE: CD-CH-PW0-20.dgn

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (5)

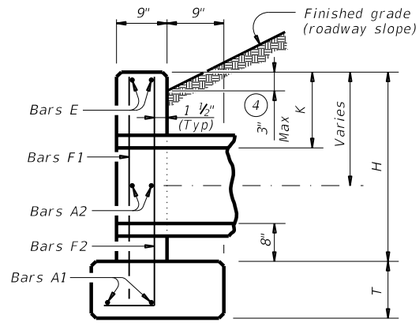
Slope	Dia of Pipe (D)	Values for One Pipe			Values To Be Added for Each Addt'l Pipe		
		W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)
2:1	12"	9' – 0"	122	1.1	1' – 9"	15	0.2
	15"	10' – 3"	136	1.3	2' – 2"	16	0.2
	18"	11' – 6"	163	1.5	2' – 8"	19	0.3
	21"	12' – 9"	200	1.8	3' – 1"	31	0.4
	24"	14' – 0"	217	2.1	3' – 7"	34	0.4
	27"	15' – 3"	254	2.4	3' – 11"	37	0.5
	30"	16' – 6"	272	2.7	4' – 4"	40	0.6
	33"	17' – 9"	314	3.1	4' – 8"	43	0.6
	36"	19' – 0"	371	3.9	5' – 1"	46	0.8
	42"	21' – 6"	442	4.9	5' – 10"	52	1.0
	48"	25' – 0"	569	6.4	6' – 7"	59	1.3
	54"	27' – 6"	701	7.5	7' – 6"	82	1.6
	60"	30' – 0"	794	8.8	8' – 3"	90	1.8
	66"	32' – 6"	894	10.2	8' – 9"	96	2.0
	72"	35' – 0"	1,055	11.7	9' – 4"	103	2.3
3:1	12"	13' – 0"	175	1.6	1' – 9"	14	0.2
	15"	14' – 9"	193	1.9	2' – 2"	17	0.2
	18"	16' – 6"	228	2.2	2' – 8"	19	0.3
	21"	18' – 3"	299	2.6	3' – 1"	31	0.4
	24"	20' – 0"	323	3.0	3' – 7"	33	0.4
	27"	21' – 9"	371	3.5	3' – 11"	37	0.5
	30"	23' – 6"	415	4.0	4' – 4"	40	0.5
	33"	25' – 3"	469	4.6	4' – 8"	43	0.6
	36"	27' – 0"	556	5.7	5' – 1"	46	0.8
	42"	30' – 6"	675	7.1	5' – 10"	52	1.0
	48"	35' – 6"	837	9.2	6' – 7"	59	1.3
	54"	39' – 0"	1,015	11.0	7' – 6"	84	1.6
	60"	42' – 6"	1,171	12.9	8' – 3"	91	1.8
	66"	46' – 0"	1,298	14.9	8' – 9"	98	2.0
	72"	49' – 6"	1,561	17.1	9' – 4"	103	2.3
4:1	12"	17' – 0"	229	2.0	1' – 9"	15	0.2
	15"	19' – 3"	266	2.4	2' – 2"	17	0.2
	18"	21' – 6"	308	2.9	2' – 8"	19	0.3
	21"	23' – 9"	382	3.5	3' – 1"	31	0.3
	24"	26' – 0"	430	3.9	3' – 7"	34	0.4
	27"	28' – 3"	486	4.7	3' – 11"	37	0.5
	30"	30' – 6"	539	5.2	4' – 4"	40	0.6
	33"	32' – 9"	603	6.0	4' – 8"	42	0.6
	36"	35' – 0"	738	7.5	5' – 1"	47	0.8
	42"	39' – 6"	881	9.3	5' – 10"	52	1.0
	48"	46' – 0"	1,102	12.1	6' – 7"	61	1.3
	54"	50' – 6"	1,364	14.4	7' – 6"	84	1.6
	60"	55' – 0"	1,547	16.9	8' – 3"	91	1.8
	66"	59' – 6"	1,741	19.5	8' – 9"	98	2.0
	72"	64' – 0"	2,077	22.4	9' – 4"	102	2.3
6:1	12"	25' – 0"	336	3.0	1' – 9"	14	0.2
	15"	28' – 3"	384	3.6	2' – 2"	17	0.2
	18"	31' – 6"	452	4.2	2' – 8"	19	0.3
	21"	34' – 9"	581	5.1	3' – 1"	31	0.4
	24"	38' – 0"	644	5.8	3' – 7"	34	0.4
	27"	41' – 3"	737	6.9	3' – 11"	37	0.5
	30"	44' – 6"	807	7.7	4' – 4"	39	0.6
	33"	47' – 9"	912	8.9	4' – 8"	44	0.6
	36"	51' – 0"	1,108	11.0	5' – 1"	48	0.8
	42"	57' – 6"	1,318	13.7	5' – 10"	54	1.0
	48"	67' – 0"	1,682	17.9	6' – 7"	59	1.3
	54"	73' – 6"	2,072	21.3	7' – 6"	83	1.6
	60"	80' – 0"	2,351	24.9	8' – 3"	89	1.8
	66"	86' – 6"	2,643	28.9	8' – 9"	96	2.0
	72"	93' – 0"	3,121	33.1	9' – 4"	101	2.3



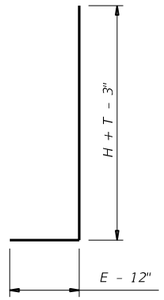
ELEVATION



PLAN OF NON-SKEWED PIPES



SECTION AT CENTER OF PIPE



BARS F2

(1) Total quantities include one 3'-1" lap for bars over 60' in length.

(2) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(3) Indicated slope is perpendicular to centerline pipe or pipes.

(4) For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(5) Dimensions shown are usual and maximum.

(6) Quantities shown are for one structure end only (one headwall).

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (5)	H	T	E
12"	0' – 9"	1' – 0"	2' – 8"	0' – 9"	1' – 9"
15"	0' – 11"	1' – 0"	2' – 11"	0' – 9"	1' – 9"
18"	1' – 2"	1' – 0"	3' – 2"	0' – 9"	1' – 9"
21"	1' – 4"	1' – 0"	3' – 5"	0' – 9"	2' – 0"
24"	1' – 7"	1' – 0"	3' – 8"	0' – 9"	2' – 0"
27"	1' – 8"	1' – 0"	3' – 11"	0' – 9"	2' – 3"
30"	1' – 10"	1' – 0"	4' – 2"	0' – 9"	2' – 3"
33"	1' – 11"	1' – 0"	4' – 5"	0' – 9"	2' – 6"
36"	2' – 1"	1' – 0"	4' – 8"	1' – 0"	2' – 6"
42"	2' – 4"	1' – 0"	5' – 2"	1' – 0"	2' – 9"
48"	2' – 7"	1' – 3"	5' – 11"	1' – 0"	3' – 0"
54"	3' – 0"	1' – 3"	6' – 5"	1' – 0"	3' – 3"
60"	3' – 3"	1' – 3"	6' – 11"	1' – 0"	3' – 6"
66"	3' – 3"	1' – 3"	7' – 5"	1' – 0"	3' – 9"
72"	3' – 4"	1' – 3"	7' – 11"	1' – 0"	4' – 0"

TABLE OF REINFORCING STEEL (6)

Bar	Size	Spa	No.
A1	#5	~	2
A2	#5	1' – 6"	~
E	#5	~	2
F	#5	1' – 0"	~

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing dimensions are out-to-out of bars.

Texas Department of Transportation

Bridge Division Standard

CONCRETE HEADWALLS
WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS

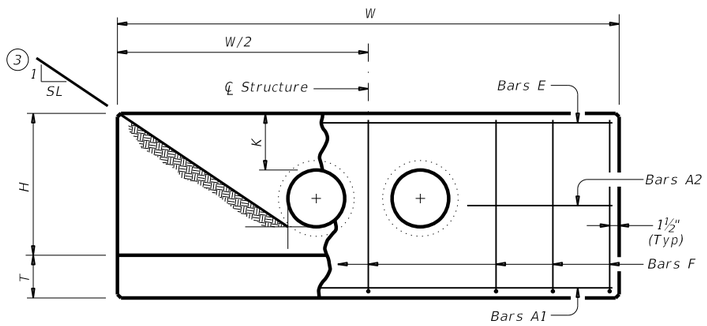
CH-PW-0

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		164

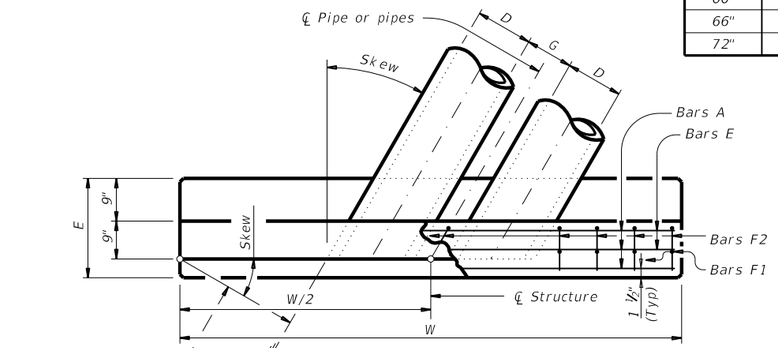
DATE: 07/03/2023 9:00:39 AM
DOCUMENT NAME: ch_pw_s.dgn

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (5)

Slope	Dia of Pipe (D)	15° Skew						30° Skew						45° Skew					
		Values for One Pipe			Values To Be Added for Each Addt'l Pipe			Values for One Pipe			Values To Be Added for Each Addt'l Pipe			Values for One Pipe			Values To Be Added for Each Addt'l Pipe		
		W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)
2:1	12"	9' – 4"	124	1.1	1' – 9 3/4"	15	0.2	10' – 5"	130	1.2	2' – 0"	16	0.2	12' – 9"	159	1.5	2' – 5 3/4"	17	0.3
	15"	10' – 7"	136	1.3	2' – 3"	17	0.2	11' – 10"	159	1.5	2' – 6"	18	0.2	14' – 6"	191	1.8	3' – 0 3/4"	20	0.3
	18"	11' – 11"	165	1.5	2' – 9"	19	0.3	13' – 3"	174	1.7	3' – 1"	29	0.3	16' – 3"	207	2.1	3' – 9 1/4"	33	0.4
	21"	13' – 2"	203	1.9	3' – 2 1/4"	31	0.4	14' – 9"	233	2.1	3' – 6 3/4"	33	0.4	18' – 0"	276	2.6	4' – 4 1/4"	36	0.5
	24"	14' – 6"	240	2.1	3' – 8 1/4"	34	0.4	16' – 2"	251	2.4	4' – 1 3/4"	36	0.5	19' – 10"	318	2.9	5' – 0 3/4"	39	0.6
	27"	15' – 9"	258	2.5	4' – 0 3/4"	38	0.5	17' – 7"	292	2.8	4' – 6 1/4"	39	0.6	21' – 7"	342	3.4	5' – 6 1/4"	44	0.7
	30"	17' – 1"	297	2.8	4' – 5 3/4"	40	0.6	19' – 1"	311	3.1	5' – 0"	42	0.6	23' – 4"	388	3.8	6' – 1 3/4"	47	0.8
	33"	18' – 5"	320	3.3	4' – 9 3/4"	43	0.6	20' – 6"	358	3.6	5' – 4 3/4"	46	0.7	25' – 1"	439	4.4	6' – 7 1/4"	51	0.9
	36"	19' – 8"	401	4.0	5' – 3"	47	0.9	21' – 11"	422	4.5	5' – 10 3/4"	50	0.9	26' – 10"	517	5.5	7' – 2 1/4"	55	1.2
	42"	22' – 3"	476	5.0	6' – 0 3/4"	53	1.1	24' – 10"	528	5.6	6' – 8 3/4"	56	1.2	30' – 5"	634	6.9	8' – 3"	76	1.4
	48"	25' – 11"	577	6.6	6' – 9 3/4"	60	1.3	28' – 10"	637	7.3	7' – 7 1/4"	79	1.5	35' – 4"	791	9.0	9' – 3 3/4"	88	1.8
	54"	28' – 6"	711	7.8	7' – 9"	83	1.6	31' – 9"	781	8.7	8' – 8"	81	1.8	38' – 11"	958	10.7	10' – 7 1/4"	97	2.2
	60"	31' – 1"	805	9.2	8' – 6 1/4"	91	1.9	34' – 8"	881	10.2	9' – 6 1/4"	97	2.1	42' – 5"	1,113	12.5	11' – 8"	124	2.6
	66"	33' – 8"	907	10.6	9' – 0 3/4"	98	2.1	37' – 6"	1,028	11.8	10' – 1 1/4"	102	2.4	46' – 0"	1,235	14.5	12' – 4 1/4"	132	2.9
	72"	36' – 3"	1,071	12.1	9' – 8"	105	2.4	40' – 5"	1,207	13.5	10' – 9 1/4"	110	2.6	49' – 6"	1,446	16.6	13' – 2 1/4"	141	3.2
3:1	12"	13' – 6"	178	1.6	1' – 9 3/4"	15	0.2	15' – 0"	189	1.8	2' – 0"	15	0.2	18' – 5"	237	2.2	2' – 5 3/4"	17	0.2
	15"	15' – 3"	212	1.9	2' – 3"	17	0.2	17' – 0"	223	2.1	2' – 6"	17	0.3	20' – 10"	276	2.6	3' – 0 3/4"	20	0.3
	18"	17' – 1"	231	2.3	2' – 9"	19	0.3	19' – 1"	259	2.5	3' – 1"	29	0.3	23' – 4"	318	3.1	3' – 9 1/4"	32	0.4
	21"	18' – 11"	306	2.7	3' – 2 1/4"	31	0.4	21' – 1"	339	3.0	3' – 6 3/4"	33	0.4	25' – 10"	413	3.7	4' – 4 1/4"	36	0.5
	24"	20' – 8"	345	3.1	3' – 8 3/4"	35	0.4	23' – 1"	384	3.5	4' – 1 3/4"	36	0.5	28' – 3"	462	4.2	5' – 0 3/4"	40	0.6
	27"	22' – 6"	376	3.7	4' – 0 3/4"	38	0.5	25' – 1"	438	4.1	4' – 6 1/4"	39	0.6	30' – 9"	522	5.0	5' – 6 1/4"	44	0.7
	30"	24' – 4"	422	4.1	4' – 5 3/4"	40	0.6	27' – 2"	466	4.6	5' – 0"	42	0.6	33' – 3"	578	5.6	6' – 1 3/4"	47	0.8
	33"	26' – 2"	476	4.8	4' – 10"	43	0.6	29' – 2"	522	5.3	5' – 4 3/4"	46	0.7	35' – 9"	644	6.5	6' – 7 1/4"	51	0.9
	36"	27' – 11"	590	5.9	5' – 3"	47	0.8	31' – 2"	645	6.6	5' – 10 3/4"	50	0.9	38' – 2"	787	8.0	7' – 2 1/4"	56	1.2
	42"	31' – 7"	684	7.3	6' – 0 1/4"	53	1.1	35' – 3"	776	8.2	6' – 8 3/4"	56	1.2	43' – 2"	933	10.0	8' – 3"	79	1.4
	48"	36' – 9"	880	9.6	6' – 9 3/4"	61	1.3	41' – 0"	953	10.7	7' – 7 1/4"	81	1.5	50' – 2"	1,166	13.1	9' – 3 3/4"	88	1.8
	54"	40' – 5"	1,065	11.4	7' – 9"	85	1.6	45' – 0"	1,185	12.7	8' – 8"	89	1.8	55' – 2"	1,435	15.5	10' – 7 1/4"	97	2.2
	60"	44' – 0"	1,224	13.3	8' – 6 1/4"	93	1.9	49' – 1"	1,356	14.8	9' – 6 1/4"	96	2.1	60' – 1"	1,635	18.2	11' – 8"	124	2.6
	66"	47' – 7"	1,357	15.4	9' – 1"	98	2.1	53' – 1"	1,497	17.2	10' – 1 1/4"	103	2.3	65' – 1"	1,892	21.1	12' – 4 1/4"	130	2.9
	72"	51' – 3"	1,624	17.7	9' – 8"	105	2.3	57' – 2"	1,787	19.7	10' – 9 1/4"	109	2.6	70' – 0"	2,218	24.1	13' – 2 1/4"	139	3.2
4:1	12"	17' – 7"	232	2.1	1' – 9 3/4"	15	0.2	19' – 8"	259	2.4	2' – 0"	16	0.2	24' – 0"	314	2.9	2' – 5 3/4"	18	0.2
	15"	19' – 11"	272	2.5	2' – 3"	17	0.2	22' – 3"	301	2.8	2' – 6"	18	0.3	27' – 3"	361	3.5	3' – 0 3/4"	21	0.3
	18"	22' – 3"	313	3.0	2' – 9"	19	0.3	24' – 10"	344	3.3	3' – 1"	29	0.3	30' – 5"	427	4.0	3' – 9 1/4"	32	0.4
	21"	24' – 7"	407	3.6	3' – 2 1/4"	31	0.4	27' – 5"	446	4.0	3' – 6 3/4"	33	0.4	33' – 7"	549	4.9	4' – 4 1/4"	36	0.5
	24"	26' – 11"	455	4.1	3' – 8 3/4"	35	0.4	30' – 0"	499	4.5	4' – 1 3/4"	36	0.5	36' – 9"	609	5.6	5' – 0 3/4"	40	0.6
	27"	29' – 3"	514	4.8	4' – 0 3/4"	38	0.5	32' – 7"	562	5.4	4' – 6 1/4"	40	0.6	39' – 11"	703	6.6	5' – 6 1/4"	43	0.7
	30"	31' – 7"	568	5.4	4' – 5 3/4"	40	0.6	35' – 3"	620	6.0	5' – 0"	42	0.6	43' – 2"	768	7.4	6' – 1 3/4"	49	0.8
	33"	33' – 11"	634	6.2	4' – 10"	43	0.7	37' – 10"	710	7.0	5' – 4 3/4"	46	0.7	46' – 4"	848	8.5	6' – 7 1/4"	52	0.9
	36"	36' – 3"	776	7.7	5' – 3"	48	0.9	40' – 5"	868	8.6	5' – 10 3/4"	49	0.9	49' – 6"	1,058	10.6	7' – 2 1/4"	56	1.1
	42"	40' – 11"	921	9.6	6' – 0 1/4"	53	1.0	45' – 7"	1,022	10.7	6' – 8 3/4"	57	1.2	55' – 10"	1,262	13.1	8' – 3"	78	1.4
	48"	47' – 7"	1,152	12.6	6' – 10"	61	1.3	53' – 1"	1,268	14.0	7' – 7 1/4"	80	1.5	65' – 1"	1,587	17.2	9' – 3 3/4"	86	1.8
	54"	52' – 3"	1,416	14.9	7' – 9 1/4"	86	1.6	58' – 4"	1,589	16.6	8' – 8"	89	1.8	71' – 5"	1,924	20.4	10' – 7 1/4"	95	2.2
	60"	56' – 11"	1,606	17.5	8' – 6 3/4"	92	1.9	63' – 6"	1,806	19.5	9' – 6 1/4"	95	2.1	77' – 9"	2,192	23.9	11' – 8"	122	2.6
	66"	61' – 7"	1,819	20.2	9' – 0 3/4"	97	2.1	68' – 8"	2,019	22.5	10' – 1 1/4"	101	2.4	84' – 2"	2,472	27.6	12' – 4 1/4"	131	2.9
	72"	66' – 3"	2,150	23.2	9' – 8"	104	2.4	73' – 11"	2,379	25.9	10' – 9 1/4"	108	2.6	90' – 6"	2,937	31.7	13' – 2 1/4"	138	3.2
6:1	12"	25' – 11"	342	3.1	1' – 9 3/4"	15	0.2	28' – 10"	374	3.5	2' – 0"	16	0.2	35' – 4"	456	4.3	2' – 5 3/4"	17	0.2
	15"	29' – 3"	390	3.7	2' – 3"	17	0.2	32' – 7"	442	4.2	2' – 6"	18	0.2	39' – 11"	549	5.1	3' – 0 3/4"	20	0.3
	18"	32' – 7"	459	4.4	2' – 9"	20	0.3	36' – 4"	515	4.9	3' – 1"	29	0.3	44' – 7"	629	6.0	3' – 9 1/4"	33	0.4
	21"	36' – 0"	608	5.3	3' – 2 1/4"	31	0.4	40' – 2"	660	5.9	3' – 6 3/4"	33	0.4	49' – 2"	823	7.2	4' – 4 1/4"	38	0.5
	24"	39' – 4"	672	6.0	3' – 8 3/4"	35	0.4	43' – 11"	748	6.7	4' – 1 3/4"	36	0.5	53' – 9"	920	8.2	5' – 0 3/4"	42	0.6
	27"	42' – 8"	770	7.1	4' – 0 3/4"	38	0.5	47' – 8"	852	8.0	4' – 6 1/4"	41	0.5	58' – 4"	1,039	9.7	5' – 6 1/4"	45	0.7
	30"	46' – 1"	839	8.0	4' – 5 3/4"	40	0.6	51' – 5"	949	8.9	5' – 0"	44	0.6	62' – 11"	1,162	10.9	6' – 1 3/4"	48	0.8
	33"	49' – 5"	947	9.2	4' – 10"	45	0.7	55' – 2"	1,040	10.3	5' – 4 3/4"	48	0.7	67' – 6"	1,292	12.6	6' – 7 1/4"	50	0.9
	36"	52' – 10"	1,151	11.4	5' – 3"	49	0.8	58' – 11"	1,287	12.7	5' – 10 3/4"	51	1.0	72' – 1"	1,583	15.6	7' – 2 1/4"	55	1.1
	42"	59' – 6"	1,365	14.2	6' – 0 1/4"	55	1.0	66' – 5"	1,530	15.8	6' – 8 3/4"	57	1.2	81' – 4"	1,875	19.4	8' – 3"	76	1.4
	48"	69' – 4"	1,737	18.5	6' – 10"	59	1.3	77' – 4"	1,942	20.7	7' – 7 1/4"	79	1.5	94' – 9"	2,368	25.3	9' – 3 3/4"	86	1.8
	54"	76' – 1"	2,138	22.0	7' – 9 1/4"	83	1.6	84' – 10"	2,378	24.6	8' – 8"	87	1.8	103' – 11"	2,912	30.1	10' – 7 1/4"	95	2.2
	60"	82' – 10"	2,426	25.8	8' – 6 3/4"	90	1.9	92' – 5"	2,681	28.8	9' – 6 1/4"	94	2.1	113' – 2"	3,294	35.3	11' – 8"	122	2.6
	66"	89' – 7"	2,730	29.9	9' – 0 3/4"	96	2.1	99' – 11"	3,038	33.3	10' – 1 1/4"	101	2.4	122' – 4"	3,697	40.8	12' – 4 1/4"	130	2.9
	72"	96' – 3"	3,218	34.2	9' – 8"	102	2.4	107' – 5"	3,580	38.2	10' – 9 1/4"	108	2.6	131' – 6"	4,372	46.8	13' – 2 1/4"	139	3.2

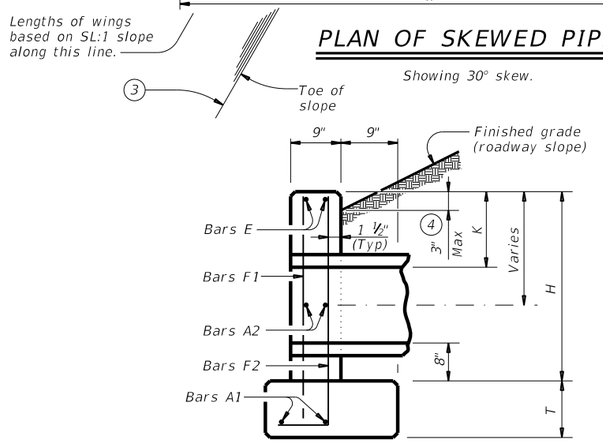


ELEVATION

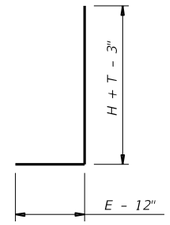


PLAN OF SKEWED PIPES

Showing 30° skew.



SECTION AT CENTER OF PIPE



BARS F2

(1) Total quantities include one 3'–1" lap for bars over 60' in length.

(2) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(3) Indicated slope is perpendicular to centerline pipe or pipes.

(4) For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(5) Dimensions shown are usual and maximum.

(6) Quantities shown are for one structure end only (one headwall).

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (5)	H	T	E
12"	0' – 9"	1' – 0"	2' – 8"	0' – 9"	1' – 9"
15"	0' – 11"	1' – 0"	2' – 11"	0' – 9"	1' – 9"
18"	1' – 2"	1' – 0"	3' – 2"	0' – 9"	1' – 9"
21"	1' – 4"	1' – 0"	3' – 5"	0' – 9"	2' – 0"
24"	1' – 7"	1' – 0"	3' – 8"	0' – 9"	2' – 0"
27"	1' – 8"	1' – 0"	3' – 11"	0' – 9"	2' – 3"
30"	1' – 10"	1' – 0"	4' – 2"	0' – 9"	2' – 3"
33"	1' – 11"	1' – 0"	4' – 5"	0' – 9"	2' – 6"
36"	2' – 1"	1' – 0"	4' – 8"	1' – 0"	2' – 6"
42"	2' – 4"	1' – 0"	5' – 2"	1' – 0"	2' – 9"
48"	2' – 7"	1' – 3"	5' – 11"	1' – 0"	3' – 0"
54"	3' – 0"	1' – 3"	6' – 5"	1' – 0"	3' – 3"
60"	3' – 3"	1' – 3"	6' – 11"	1' – 0"	3' – 6"
66"	3' – 3"	1' – 3"	7' – 5"	1' – 0"	3' – 9"
72"	3' – 4"	1' – 3"	7' – 11"	1' – 0"	4' – 0"

TABLE OF (6) REINFORCING STEEL

Bar	Size	Spa	No.
A1	#5	~	2
A2	#5	1' – 6"	~
E	#5	~	2
F	#5	1' – 0"	~

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

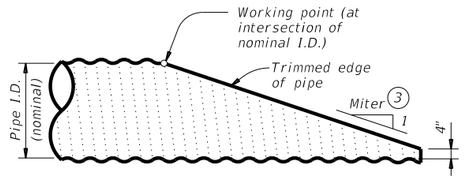
Texas Department of Transportation

Bridge Division Standard

CONCRETE HEADWALLS
WITH PARALLEL WINGS FOR SKEWED PIPE CULVERTS

CH-PW-S

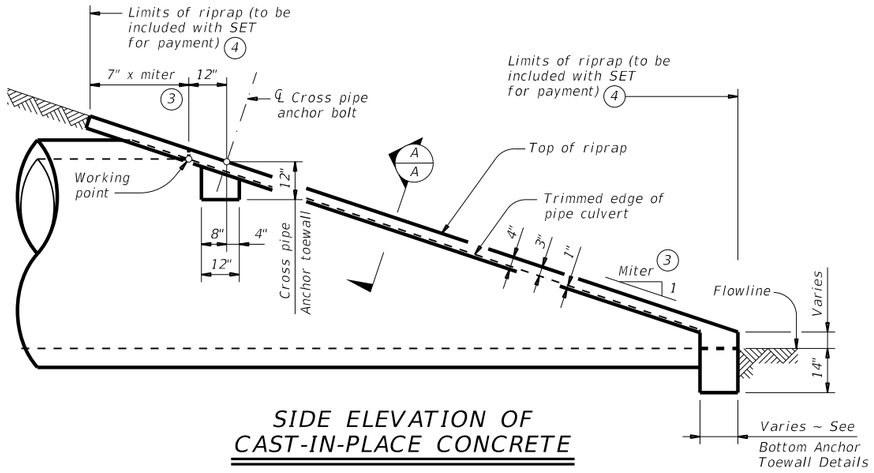
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		165



NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

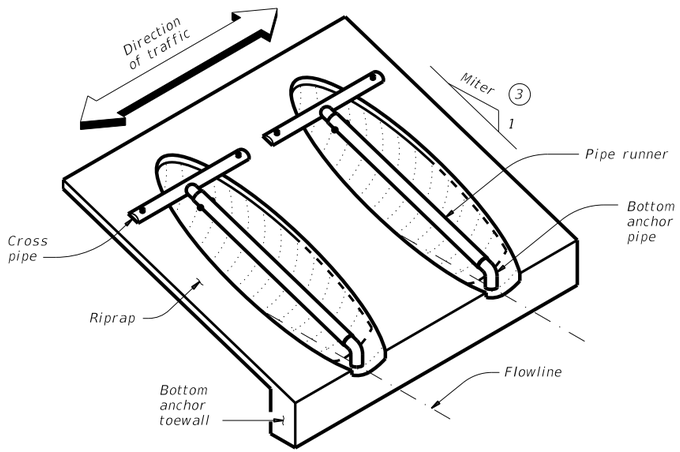
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert.
Details of reinforced concrete pipe (RCP) culvert are similar.)



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert.
Details of corrugated metal pipe (CMP) culvert
are similar. Pipe runners not shown for clarity)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS (1) (2)

Nominal Culvert I.D.	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
			3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
			0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
24"	1' – 7"	3' – 5"	N/A	N/A	N/A	5' – 10"	N/A	N/A	N/A	8' – 1"	N/A	N/A	N/A	12' – 9"
27"	1' – 8"	3' – 8"	N/A	N/A	5' – 5"	6' – 11"	N/A	N/A	7' – 7"	9' – 7"	N/A	N/A	11' – 11"	14' – 11"
30"	1' – 10"	3' – 11"	N/A	N/A	6' – 4"	8' – 0"	N/A	N/A	8' – 9"	11' – 0"	N/A	N/A	13' – 8"	17' – 0"
33"	1' – 11"	4' – 2"	6' – 2"	6' – 5"	7' – 3"	9' – 1"	8' – 6"	8' – 10"	10' – 0"	12' – 5"	13' – 3"	13' – 9"	15' – 5"	19' – 2"
36"	2' – 1"	4' – 5"	6' – 11"	7' – 3"	8' – 2"	10' – 2"	9' – 6"	9' – 11"	11' – 2"	13' – 10"	14' – 9"	15' – 3"	17' – 2"	21' – 3"
42"	2' – 4"	4' – 11"	8' – 6"	8' – 10"	9' – 11"	12' – 4"	11' – 7"	12' – 0"	13' – 6"	16' – 8"	17' – 9"	18' – 5"	20' – 8"	25' – 7"
48"	2' – 7"	5' – 5"	10' – 1"	10' – 5"	11' – 9"	N/A	13' – 7"	14' – 2"	15' – 10"	N/A	20' – 9"	21' – 6"	24' – 2"	N/A
54"	3' – 0"	5' – 11"	11' – 8"	12' – 1"	N/A	N/A	15' – 8"	16' – 3"	N/A	N/A	23' – 10"	24' – 8"	N/A	N/A
60"	3' – 3"	6' – 5"	13' – 3"	N/A	N/A	N/A	17' – 9"	N/A	N/A	N/A	26' – 10"	N/A	N/A	N/A

TYPICAL PIPE CULVERT MITERS (3)

Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED (2)

Nominal Culvert I.D.	Single Pipe Culvert	Multiple Pipe Culverts
12" thru 21"	Skews thru 45°	Skews thru 45°
24"	Skews thru 45°	Skews thru 30°
27"	Skews thru 30°	Skews thru 15°
30"	Skews thru 15°	Skews thru 15°
33"	Skews thru 15°	Always required
36"	Normal (no skew)	Always required
42" thru 60"	Always required	Always required

STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS (1)

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10' – 0"
4" STD	4.500"	4.026"	19' – 8"
5" STD	5.563"	5.047"	34' – 2"

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

Nominal Culvert I.D.	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
12"	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8
15"	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
18"	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0
21"	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.2
24"	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1	1.3
27"	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.2	1.4
30"	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.6
33"	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.7
36"	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.4	1.4	1.5	1.6	1.8
42"	1.0	1.0	1.1	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.8	2.1
48"	1.1	1.1	1.2	N/A	1.4	1.4	1.5	N/A	1.9	1.9	2.1	N/A
54"	1.3	1.3	N/A	N/A	1.6	1.6	N/A	N/A	2.1	2.1	N/A	N/A
60"	1.4	N/A	N/A	N/A	1.7	N/A	N/A	N/A	2.3	N/A	N/A	N/A

(1) Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe stub out and bottom anchor pipe of the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runner Lengths table.

(2) This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.
For 54" culvert pipes, the skew must not exceed 15°.
For 48" culvert pipes, the skew must not exceed 30°.
For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT Roadway Design Manual.

(3) Miter = slope of mitered end of pipe culvert.

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap."

(5) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT
FOR 12" DIA TO 60" DIA PIPE CULVERTS TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE:	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		166

DATE: 5/17/2024 9:40:20 AM
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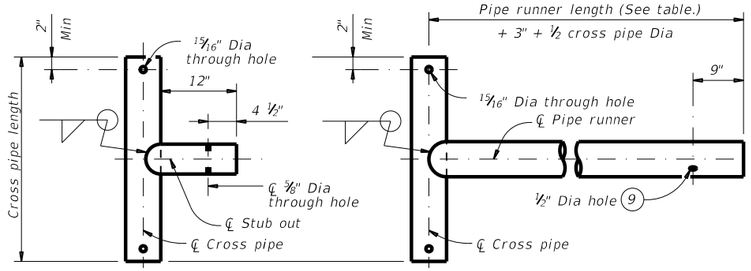
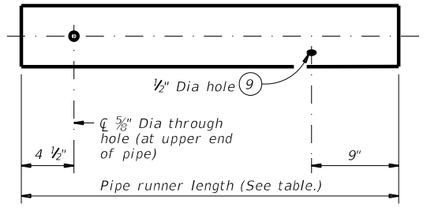


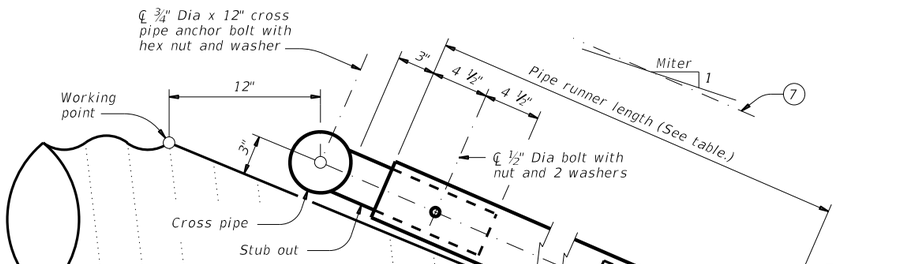
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



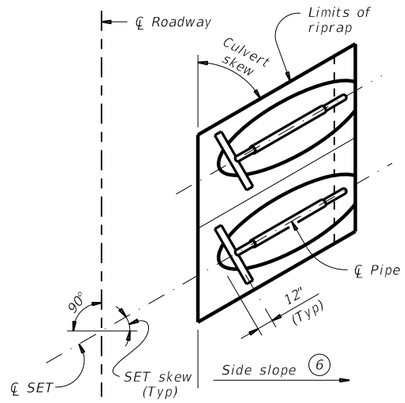
NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS

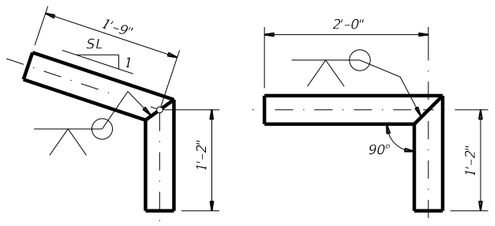


SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Anchor Pipe Option B2 on corrugated metal pipe (CMP) culvert. Reinforced concrete pipe culvert (RCP) details are similar. Riprap not shown for clarity)

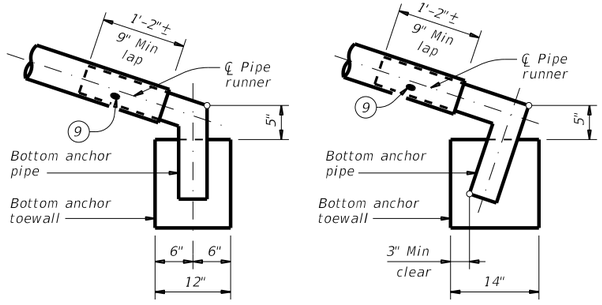


PLAN OF SKEWED INSTALLATION



OPTION B1 OPTION B2

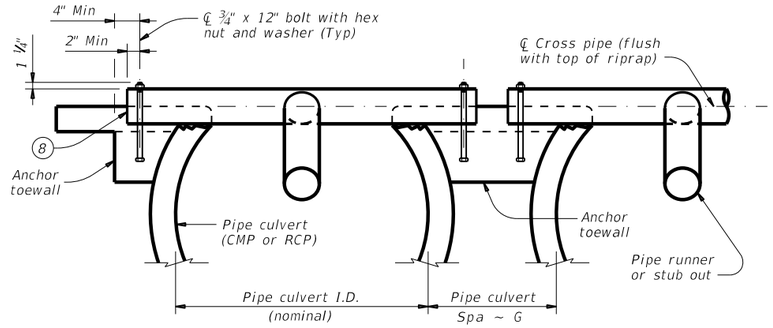
BOTTOM ANCHOR PIPE DETAILS (10)



OPTION B1 OPTION B2

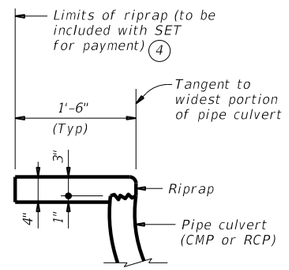
BOTTOM ANCHOR TOEWALL DETAILS

(Culvert and riprap not shown for clarity.)



SHOWING CROSS PIPE AND ANCHOR TOEWALL

SECTION A-A



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap."

(6) Recommended values of side slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

(7) Note that actual slope of pipe runner may vary slightly from side slope of riprap and trimmed culvert pipe edge.

(8) Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(9) After installation, inspect the 1/2" hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.

(10) At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide pipe runners, cross pipes, and anchor pipes conforming to the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication.

Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.

Payment for riprap and toewall is included in the price bid for each safety end treatment.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap."

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Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT
FOR 12" DIA TO 60" DIA PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE:	DN: GAF	CK: CAT	DW: JRP	CK: GAF
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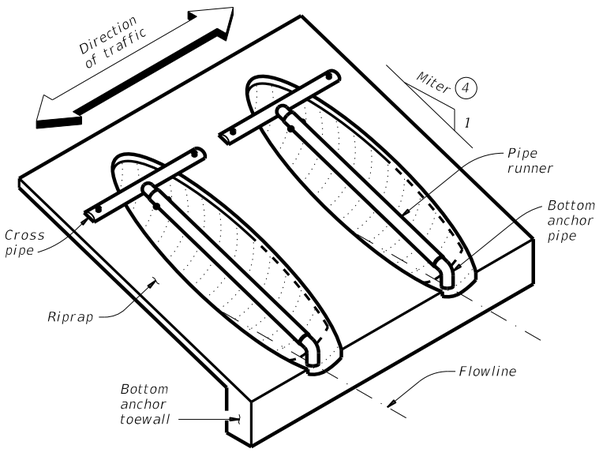
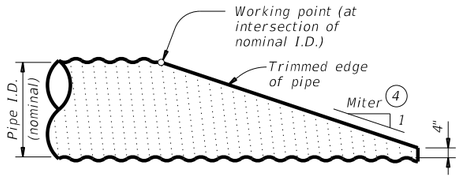
REVISIONS	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		167



ISOMETRIC VIEW OF TYPICAL INSTALLATION

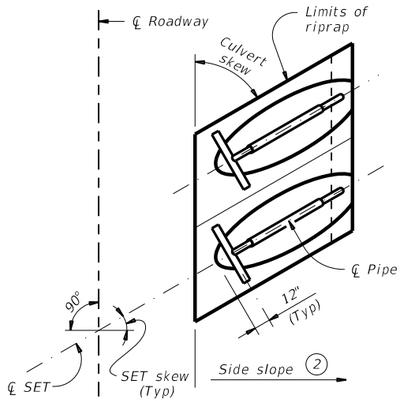
(Showing installation with no skew.)



NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert. Details of reinforced concrete pipe (CMP) culvert are similar.)



PLAN OF SKEWED INSTALLATION

CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS (1) (3)

Corrugated Metal Pipe (CMP) Culverts

Design	Pipe Culvert Span	Pipe Culvert Rise	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
					3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
					0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
1	17"	13"	1' – 0"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	21"	15"	1' – 2"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	28"	20"	1' – 5"	3' – 9"	N/A	N/A	3' – 5"	4' – 7"	N/A	N/A	4' – 11"	6' – 5"	N/A	N/A	7' – 11"	10' – 2"
4	35"	24"	1' – 8"	4' – 4"	3' – 10"	4' – 0"	4' – 7"	6' – 0"	5' – 5"	5' – 8"	6' – 6"	8' – 4"	8' – 8"	9' – 1"	10' – 3"	12' – 11"
5	42"	29"	1' – 11"	4' – 11"	5' – 1"	5' – 4"	6' – 1"	7' – 10"	7' – 2"	7' – 5"	8' – 6"	10' – 9"	11' – 2"	11' – 8"	13' – 2"	16' – 6"
6	49"	33"	2' – 2"	5' – 6"	6' – 2"	6' – 5"	7' – 4"	N/A	8' – 6"	8' – 10"	10' – 0"	N/A	13' – 3"	13' – 9"	15' – 6"	N/A
7	57"	38"	2' – 5"	6' – 2"	7' – 6"	7' – 9"	N/A	N/A	10' – 2"	10' – 7"	N/A	N/A	15' – 9"	16' – 4"	N/A	N/A

Reinforced Concrete Pipe (RCP) Culverts

Design	Pipe Culvert Span	Pipe Culvert Rise	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
					3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
					0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
1	22"	13 ½"	1' – 0"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	26"	15 ½"	1' – 2"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	28 ½"	18"	1' – 5"	3' – 9 ½"	N/A	N/A	2' – 10"	3' – 10"	N/A	N/A	4' – 2"	5' – 5"	N/A	N/A	6' – 9"	8' – 9"
4	36 ¼"	22 ½"	1' – 8"	4' – 5 ¼"	3' – 5"	3' – 7"	4' – 2"	5' – 6"	4' – 11"	5' – 1"	5' – 11"	7' – 7"	7' – 11"	8' – 3"	9' – 5"	11' – 11"
5	43 ¾"	26 ⅝"	1' – 11"	4' – 0 ¾"	4' – 6"	4' – 8"	5' – 5"	6' – 11"	6' – 4"	6' – 7"	7' – 6"	9' – 7"	10' – 0"	10' – 5"	11' – 9"	14' – 10"
6	51 ⅛"	31 5/16"	2' – 2"	5' – 8"	5' – 9"	6' – 0"	6' – 10"	N/A	7' – 11"	8' – 3"	9' – 4"	N/A	12' – 4"	12' – 10"	14' – 6"	N/A
7	58 ½"	36"	2' – 5"	6' – 3 ½"	6' – 11"	7' – 3"	N/A	N/A	9' – 6"	9' – 11"	N/A	N/A	14' – 9"	15' – 4"	N/A	N/A

TYPICAL PIPE CULVERT MITERS (4)

Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS (1)

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10' – 0"
4" STD	4.500"	4.026"	19' – 8"
5" STD	5.563"	5.047"	34' – 2"

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED (3)

Design	Single Pipe Culvert	Multiple Pipe Culverts
1 and 2	Skews thru 45°	Skews thru 45°
3	Skews thru 35°	Skews thru 10°
4	Normal (no skew)	Always required
5 thru 7	Always required	Always required

(1) Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe stub out and bottom anchor pipe of the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runners Lengths table.

(2) Recommended values of slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

(3) This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For Design 1 through 5 culvert pipe sizes, the skew must not exceed 45°.
For Design 6 culvert pipes, the skew must not exceed 30°.
For Design 7 culvert pipes, the skew must not exceed 15°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT "Roadway Design Manual."

(4) Miter = slope of mitered end of pipe culvert.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide pipe runners, cross pipes, and anchor pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280–1, "Safety Treatment of Roadside Cross–Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Pipe Runners.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap."

Payment for riprap and toewall is included in the price bid for each safety end treatment.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT
FOR DESIGN 1 TO 7 ARCH PIPE CULVERTS TYPE II ~ CROSS DRAINAGE

SETP-CD-A

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	SAT	KENDALL		168

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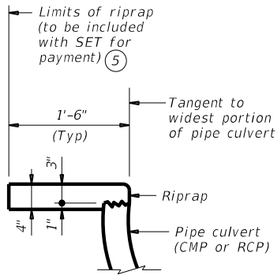
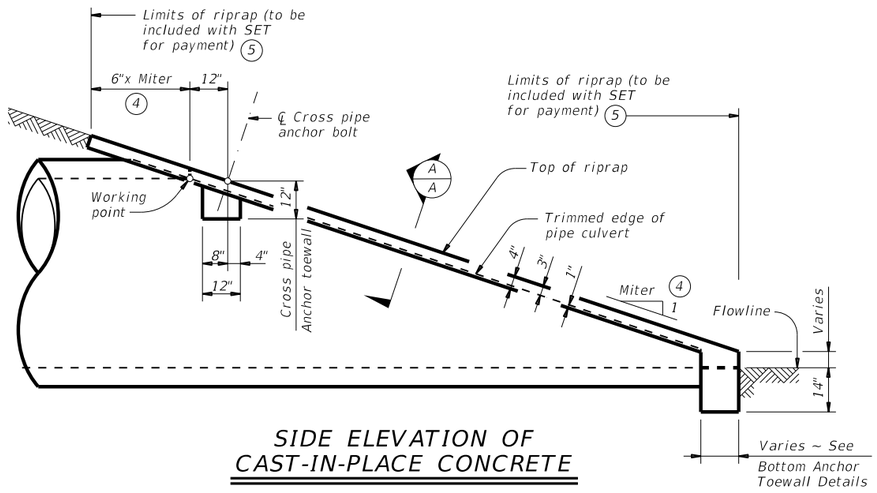


SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SECTION A-A



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details of corrugated metal pipe (CMP) culvert are similar. Pipe runners not shown for clarity.)

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (6)

FOR BOTH CORRUGATED METAL PIPE CULVERTS AND CONCRETE PIPE CULVERTS

Design	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
1	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
2	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	1.0
3	0.6	0.6	0.7	0.8	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.2
4	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.0	1.1	1.1	1.2	1.4
5	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.2	1.3	1.3	1.4	1.7
6	0.9	1.0	1.0	N/A	1.1	1.1	1.2	N/A	1.4	1.5	1.6	N/A
7	1.0	1.1	N/A	N/A	1.3	1.3	N/A	N/A	1.7	1.7	N/A	N/A

(4) Miter = slope of mitered end of pipe culvert.

(5) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap."

(6) Quantities shown are for one end of one pipe culvert. For multiple pipe culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT
FOR DESIGN 1 TO 7
ARCH PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD-A

FILE:	DN: GAF	CK: CAT	DW: JRP	CK: GAF
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REVISIONS	0142	09	047	RM 473
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	SAT	KENDALL		169

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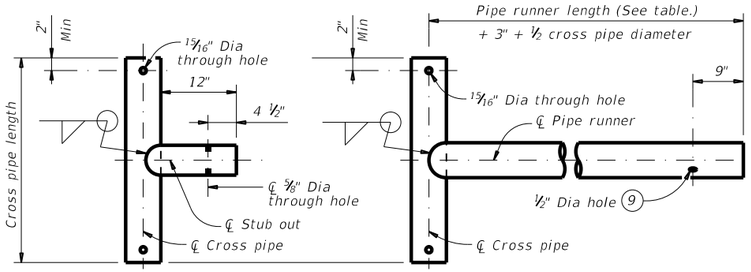
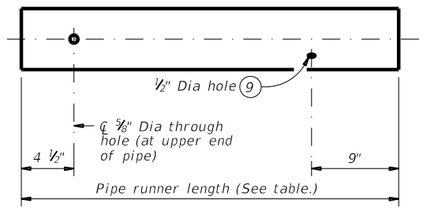


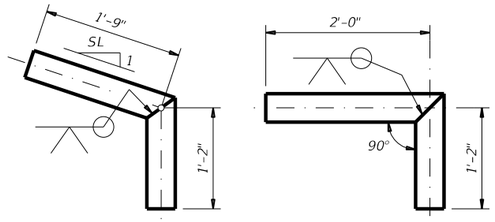
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



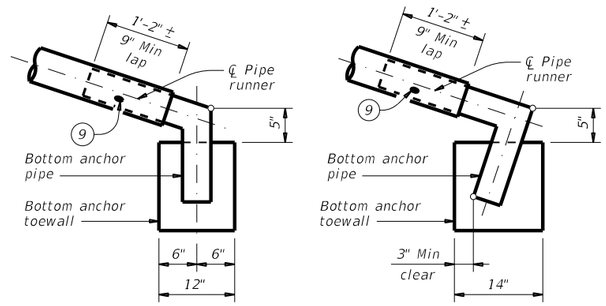
NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS



OPTION B1 OPTION B2

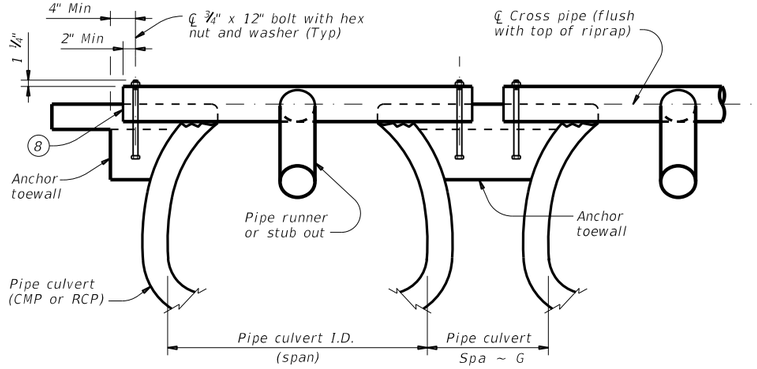
BOTTOM ANCHOR PIPE DETAILS (10)



OPTION B1 OPTION B2

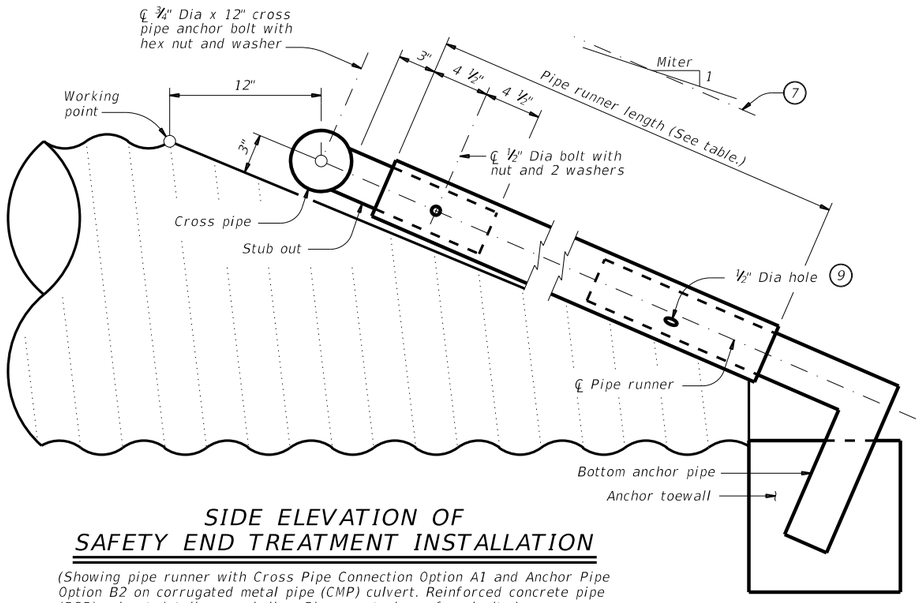
BOTTOM ANCHOR TOEWALL DETAILS

(Culvert and riprap not shown for clarity.)



SHOWING CROSS PIPE AND ANCHOR TOEWALL

SECTION A-A



SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Anchor Pipe Option B2 on corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Riprap not shown for clarity.)

(7) Note that actual slope of pipe runner may vary slightly from side slope of riprap and trimmed culvert pipe edge.

(8) Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(9) After installation, inspect the 1#2" hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.

(10) At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT
FOR DESIGN 1 TO 7
ARCH PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD-A

FILE:	DN: GAF	CK: CAT	DW: JRP	CK: GAF
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	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		170

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DATE: 05/08/2024 TIME: 4:40 PM

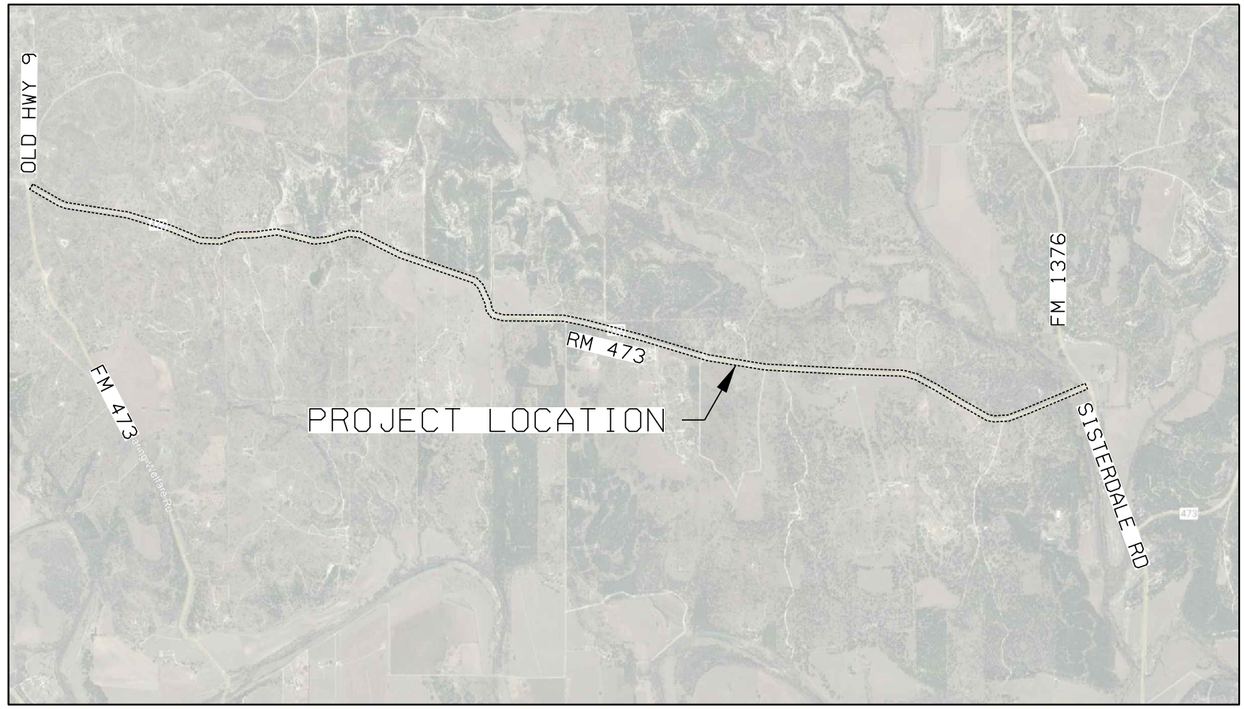
TEXAS DEPARTMENT OF TRANSPORTATION
SUBSURFACE UTILITY ENGINEERING PLANS
ATKINS

RM 473
CSJ: 0142-09-047

FROM OLD HWY NO. 9 TO FM 1376

COMFORT, TEXAS
KENDALL COUNTY
TXDOT SAN ANTONIO DISTRICT

INDEX OF SHEETS



PROJECT LOCATION
SCALE: NTS

N

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

05-08-2024

REV. NO.	DATE	REVISION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
1740 Universal City Blvd
Suite 200
Universal City, Texas 78148

AtkinsRéalis
TBPE REG. • F-474

Texas Department of Transportation

RM 473

S.U.E. PLAN SHEET COVER SHEET

SHEET 1 OF 20

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	171

Subsurface Utility Engineering (SUE) Certification

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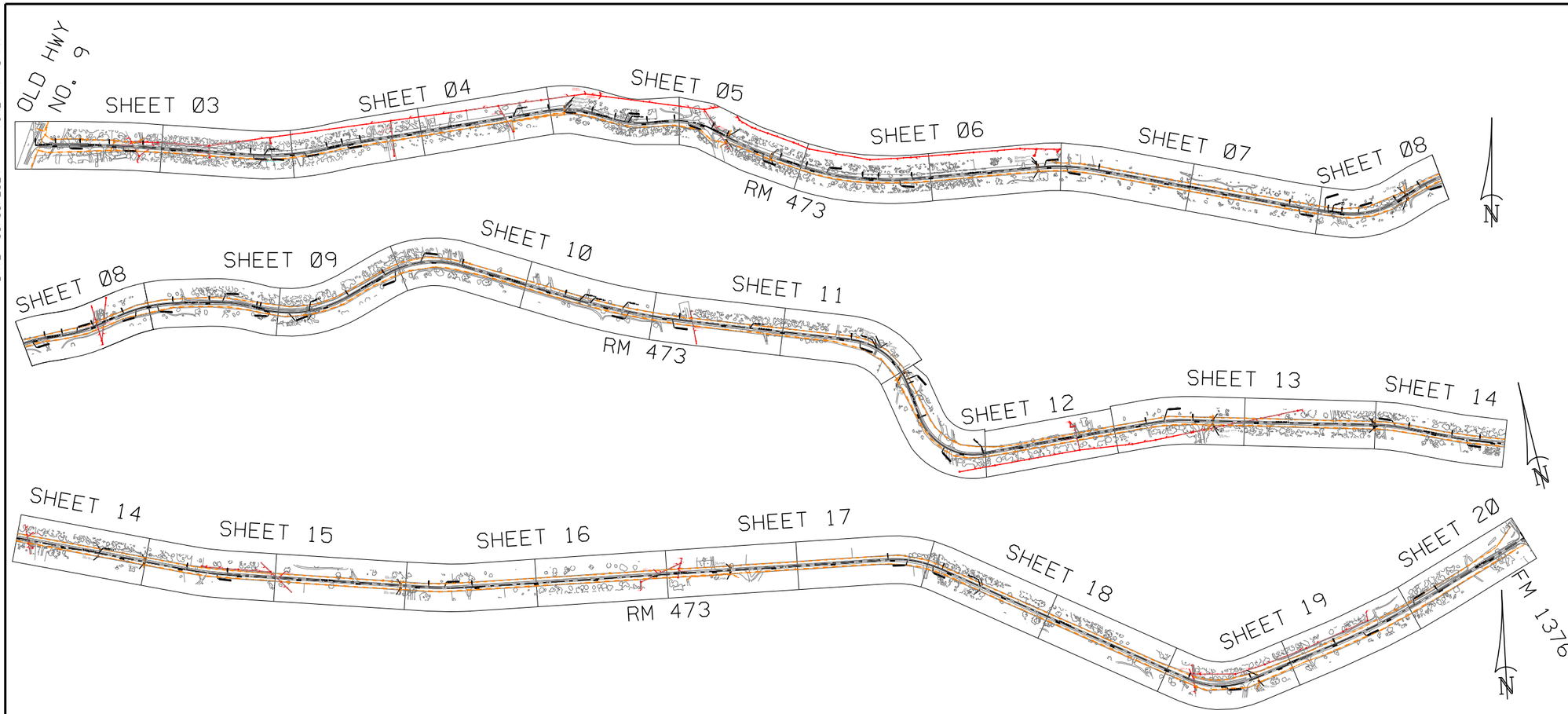

NOT TO SCALE

LEGEND OF UTILITY TYPES

QUALITY LEVELS

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

COMMUNICATIONS QL "B"

- HILL COUNTRY TELEPHONE (TELE) —— T1(B) ——
- HILL COUNTRY TELEPHONE (FO/DUCT) —— FOC1(B) ——

OVERHEAD UTILITY QL "C"/QL "D"

- OH1 - CENTRAL TEXAS ELECTRIC COOP —— OH ——
- OH2 - HILL COUNTRY TELEPHONE FIBER
- OH3 - HILL COUNTRY TELEPHONE COPPER

LEGEND OF UTILITY SYMBOLS

- END CAP
- QUALITY LEVEL CHANGE
- TEST HOLE
- UTILITY CONTINUATION
- CATV CABINET
- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
- TELEPHONE CABINET
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- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER)
- ELECTRIC POLE W/RISER
- LIGHT POLE
- SIGNAL POLE
- SIGNAL HANDHOLE/BOX
- TRANSMISSION POLE

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 04/05/2024. THE RIOS GROUP, INC. EXPRESSLY DISCLAIMS ANY AND ALL RESPONSIBILITY FOR NEW UTILITY INSTALLATIONS, MODIFICATIONS, AND/OR ADJUSTMENTS TO EXISTING UTILITIES AFTER THE COMPLETION DATE.

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

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

QUALITY LEVELS

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

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

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

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

MATERIAL ABBREVIATIONS

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

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED PROFESSIONAL ENGINEER

05-08-2024

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REV. NO.	DATE	REVISION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
1740 Universal City Blvd
Suite 200
Universal City, Texas 78148

AtkinsRéalis
TBPE REG. • F-474

Texas Department of Transportation

RM 473

S.U.E. PLAN SHEET INDEX LAYOUT

SHEET 2 OF 20

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	172

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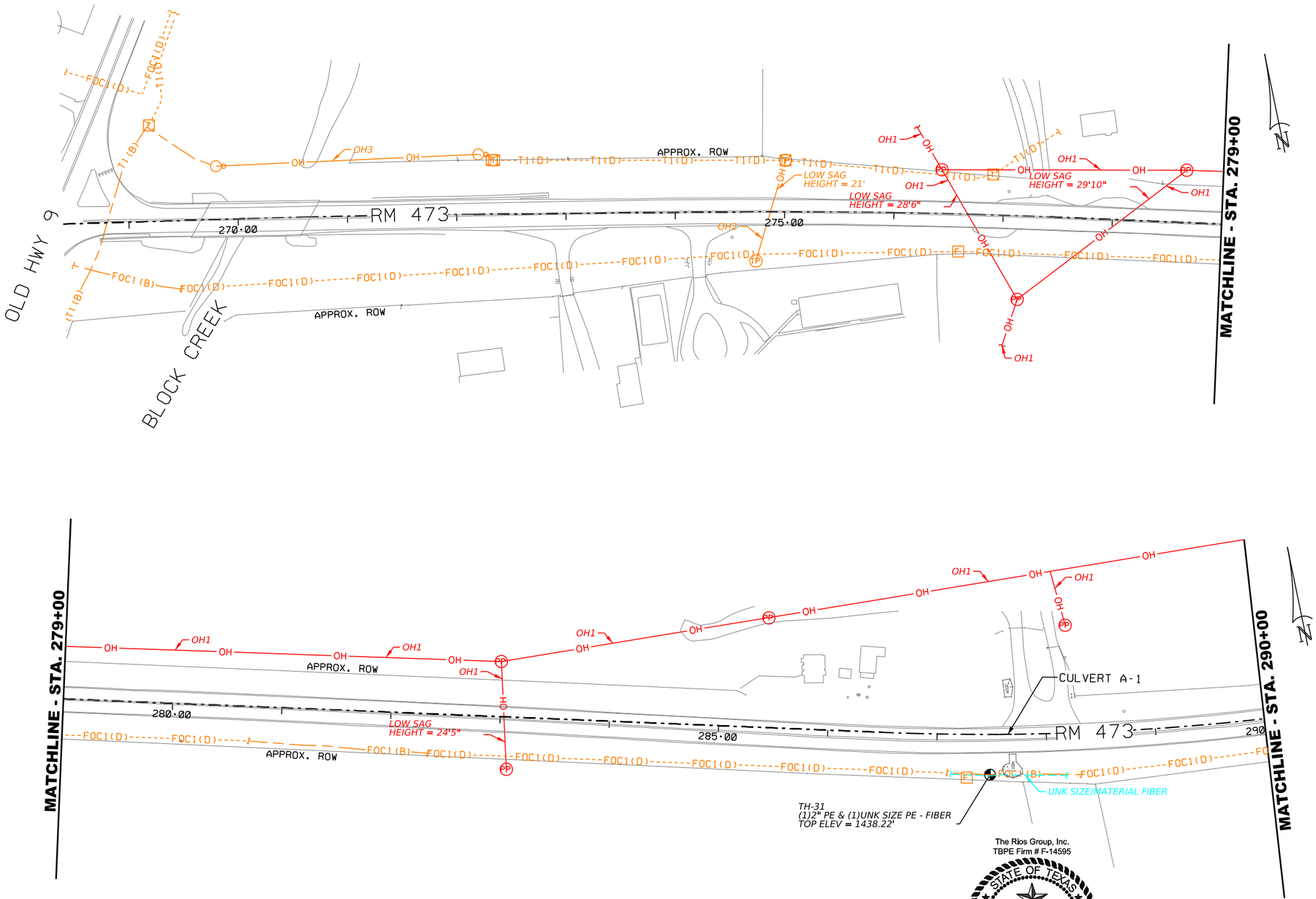

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LEGEND OF UTILITY TYPES

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RM 473

S.U.E. PLAN SHEET

BEGIN PROJECT TO
℄ RM 473 STA 290+00

SHEET 3 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	173

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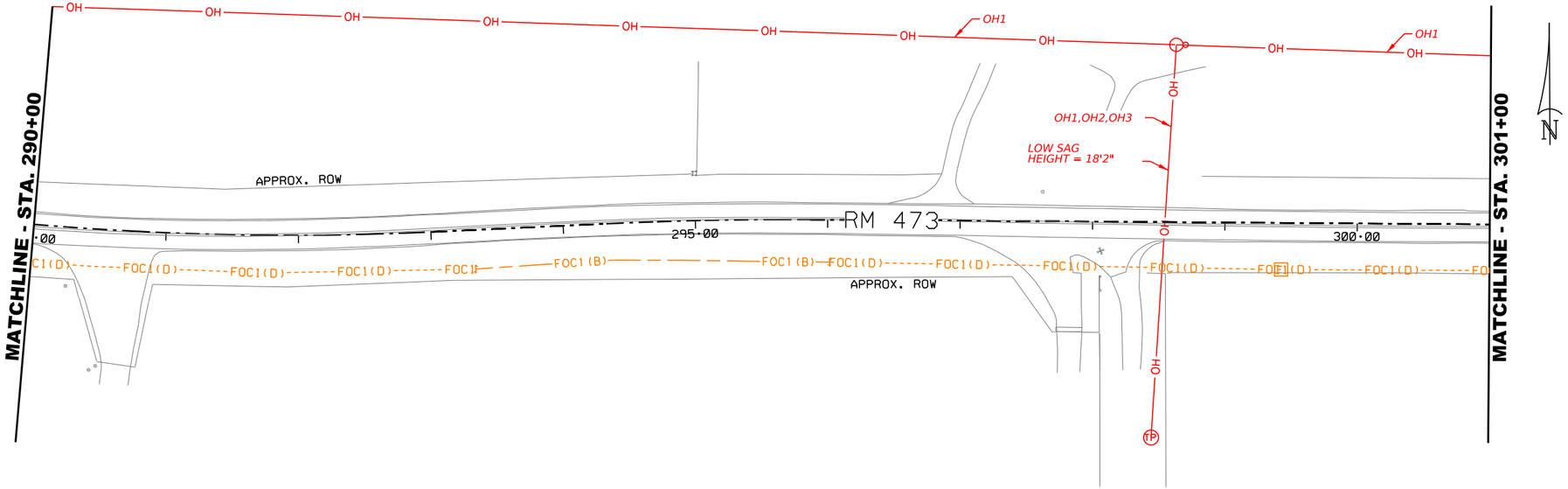

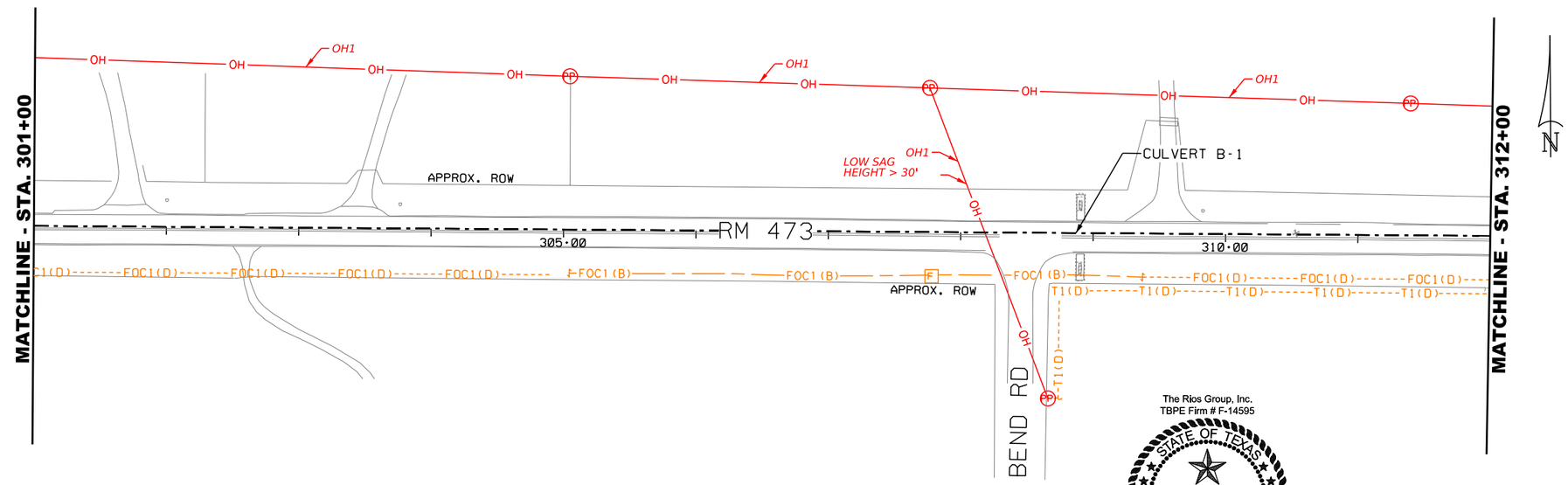

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Texas Department of Transportation

RM 473

S.U.E. PLAN SHEET

STA 290+00 TO
℄ RM 473 STA 312+00

SHEET 4 OF 20

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	174

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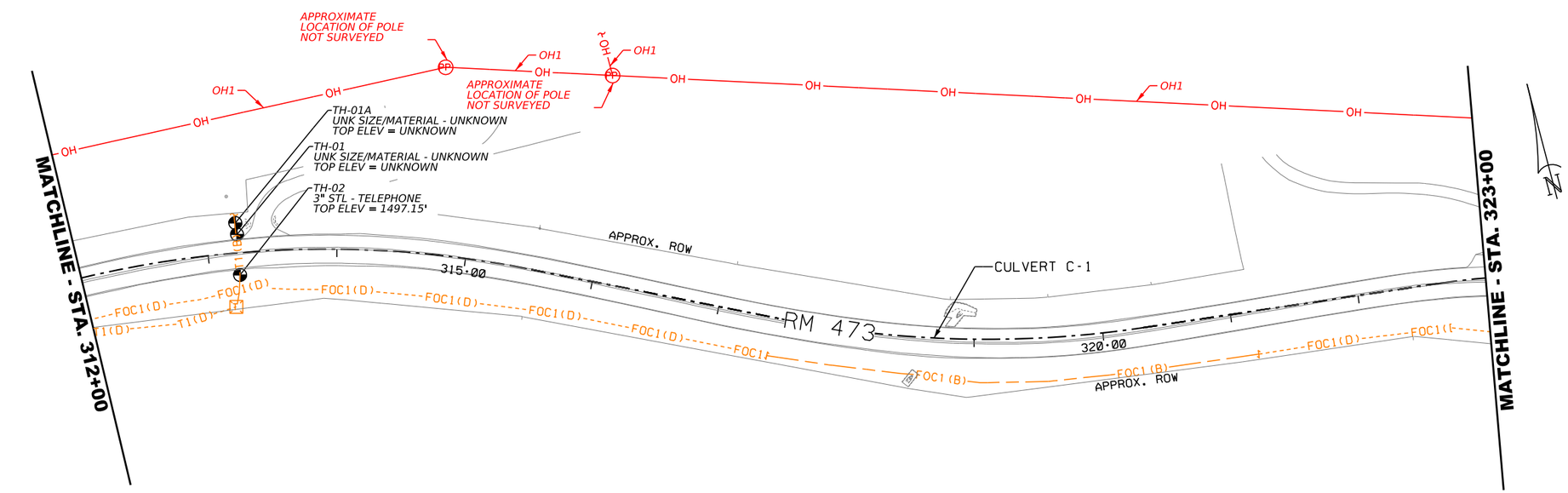

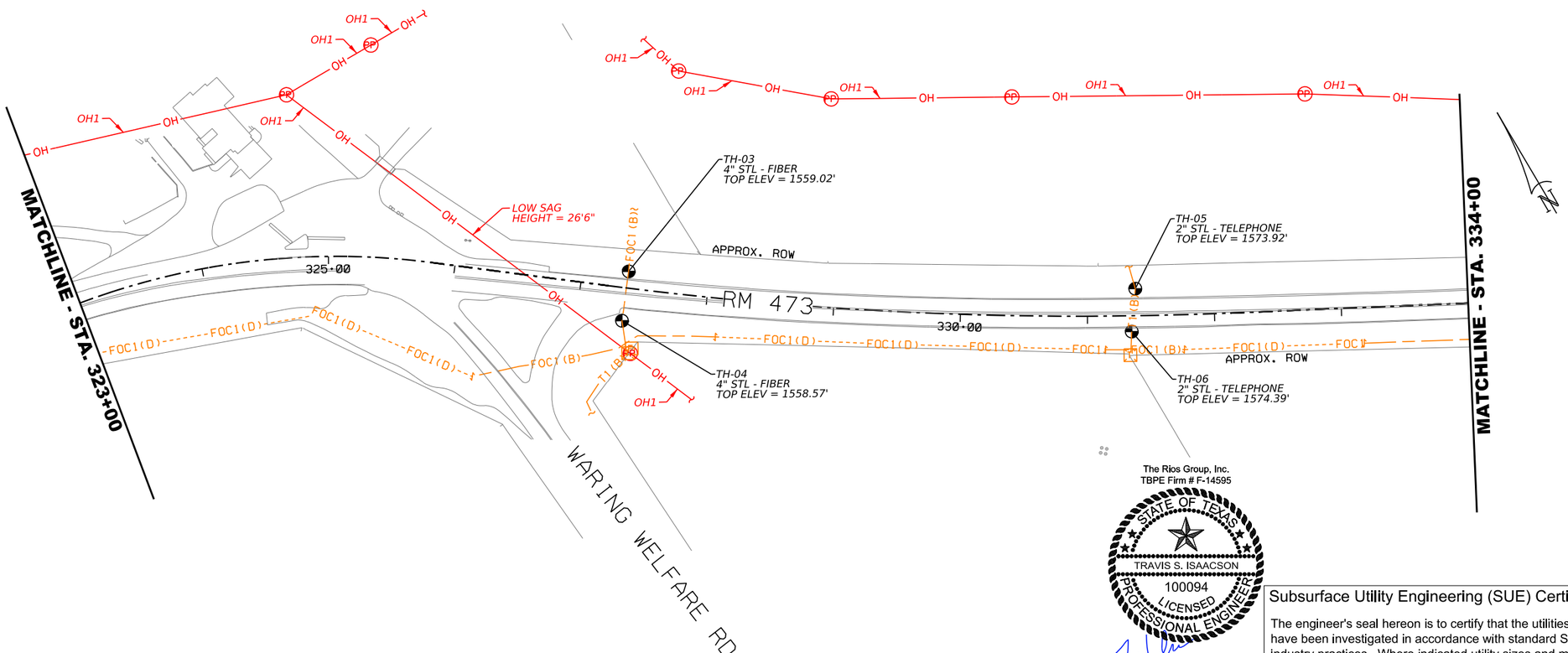

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Texas Department of Transportation

RM 473

S.U.E. PLAN SHEET

STA 312+00 TO
℄ RM 473 STA 334+00

SHEET 5 OF 20

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	175

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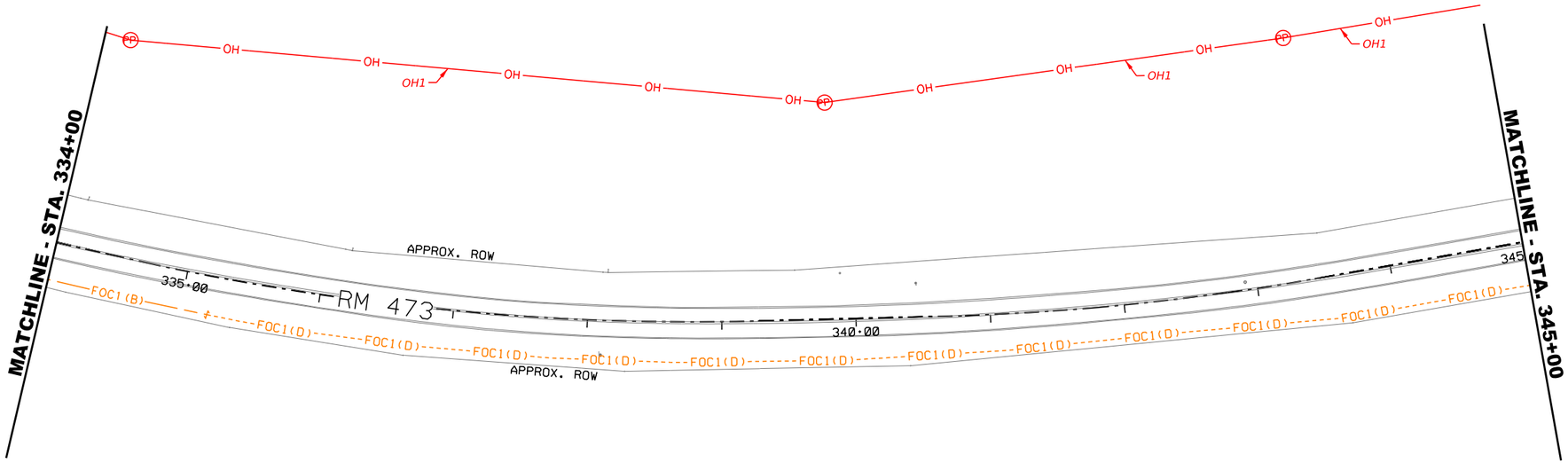

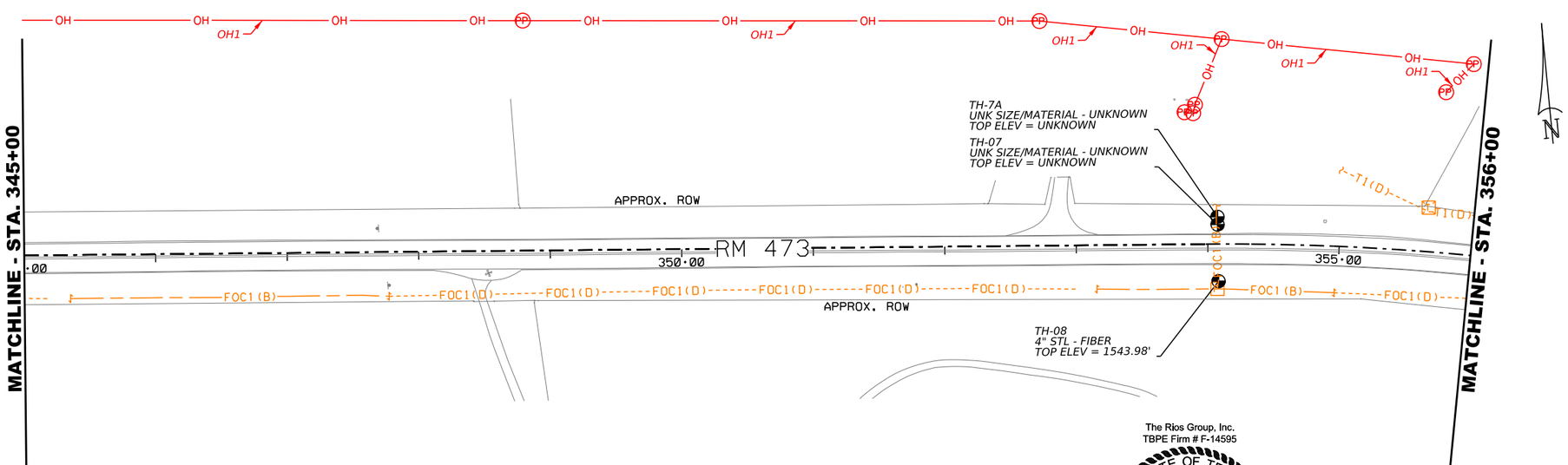

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LEGEND OF UTILITY TYPES

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RM 473

S.U.E. PLAN SHEET

STA 334+00 TO
℄ RM 473 STA 356+00

SHEET 6 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	176

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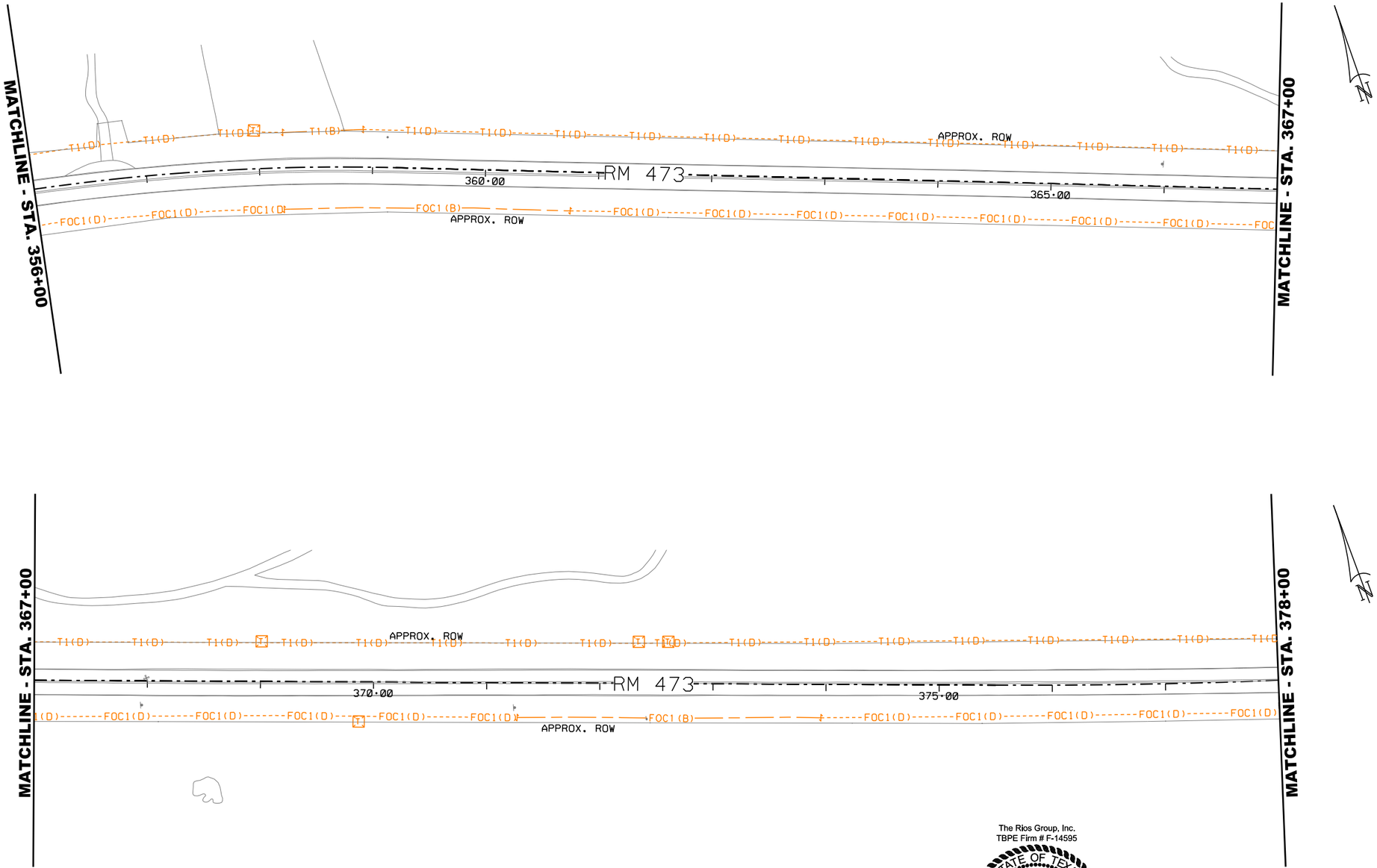

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RM 473

S.U.E. PLAN SHEET

STA 356+00 TO
℄ RM 473 STA 378+00

SHEET 7 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
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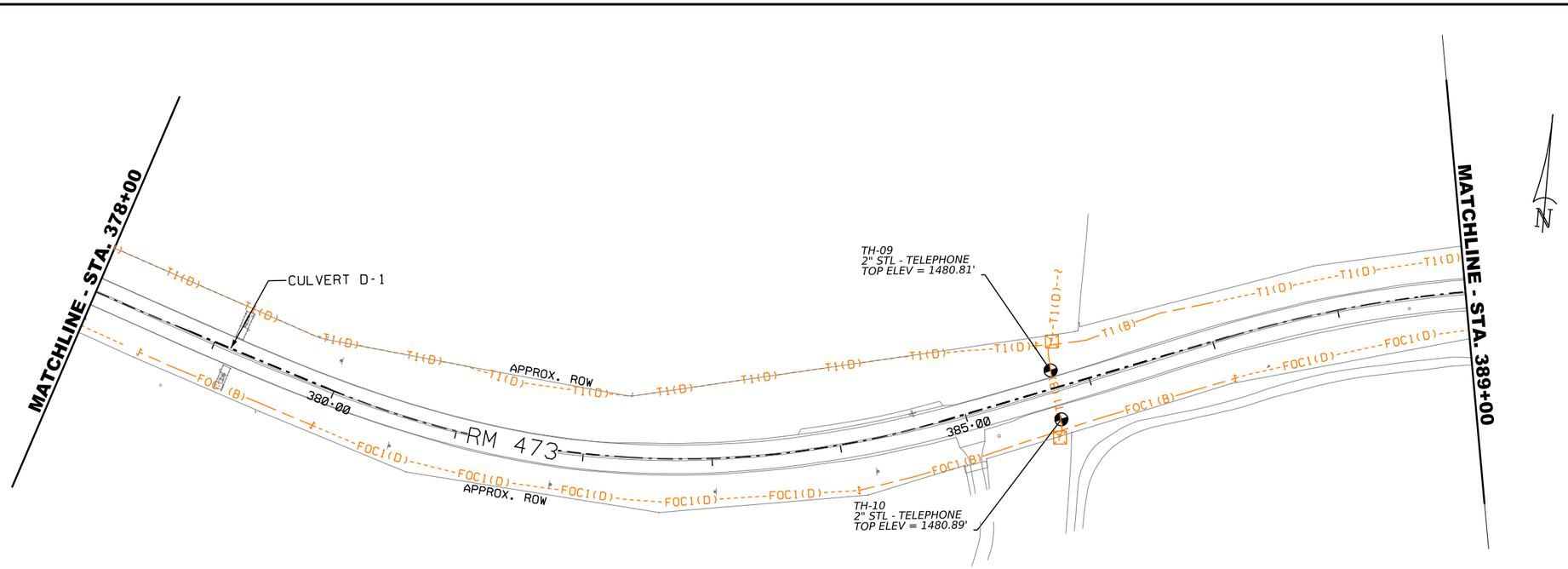

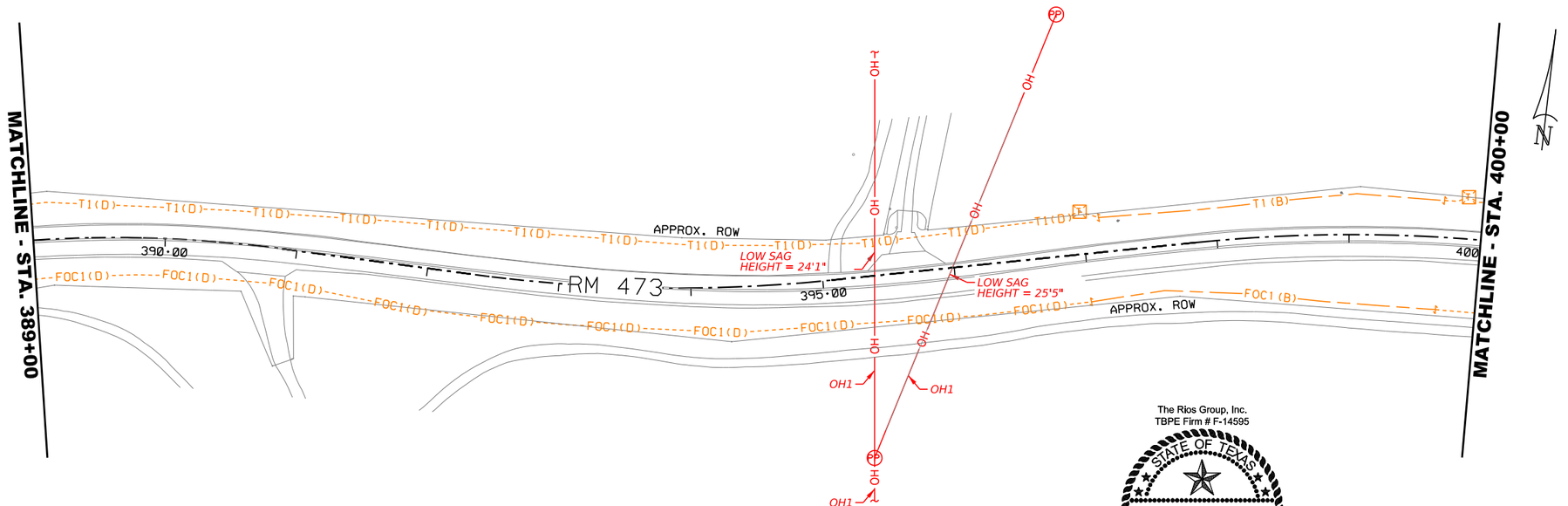

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Universal City, Texas 78148

AtkinsRéalis
TBPE REG. • F-474

Texas Department of Transportation

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER
05-08-2024

Subsurface Utility Engineering (SUE) Certification

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

RM 473

S.U.E. PLAN SHEET

STA 378+00 TO
℄ RM 473 STA 400+00

SHEET 8 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	178

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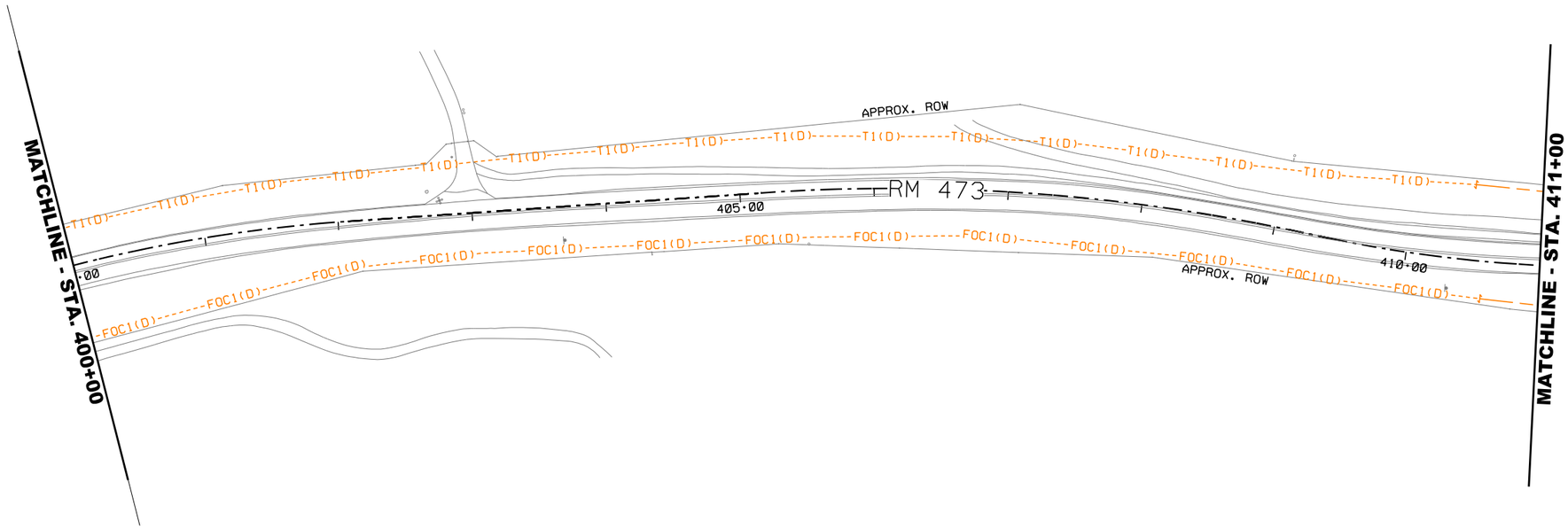

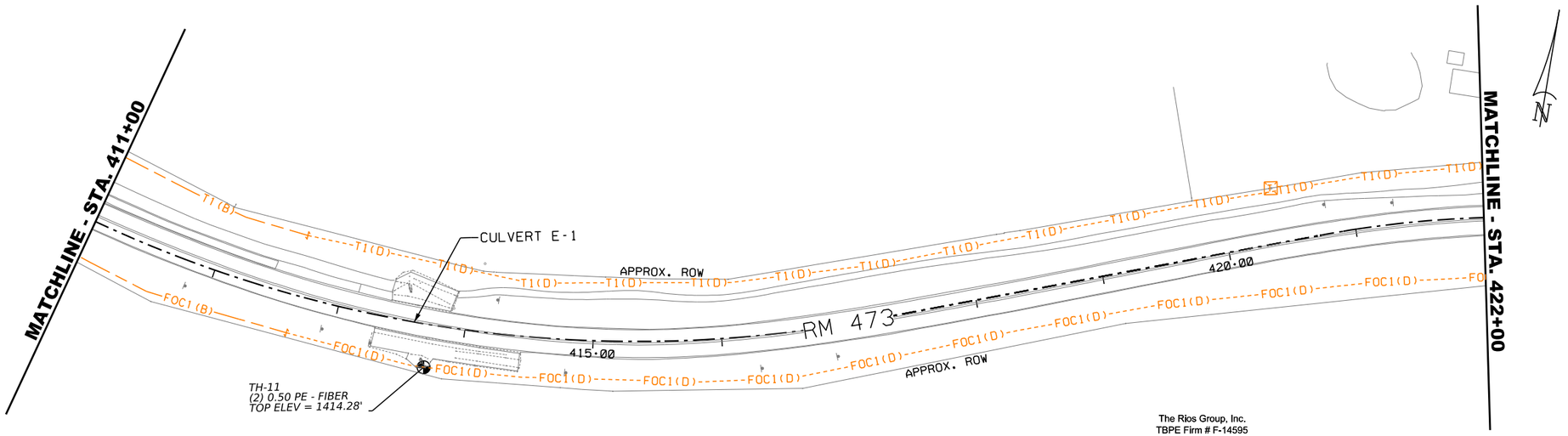

0′ 50′ 100′

SCALE: 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS

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

COMMUNICATIONS QL "B"

- HILL COUNTRY TELEPHONE (TELE) — T1(B) —
- HILL COUNTRY TELEPHONE (FO/DUCT) — FOC1(B) —

OVERHEAD UTILITY QL "C"/QL "D"

- OH1 - CENTRAL TEXAS ELECTRIC COOP — OH —
- OH2 - HILL COUNTRY TELEPHONE FIBER
- OH3 - HILL COUNTRY TELEPHONE COPPER

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

REV. NO.	DATE	REVISION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
1740 Universal City Blvd
Suite 200
Universal City, Texas 78148

AtkinsRéalis
TBPE REG. • F-474

Texas Department of Transportation

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

STATE OF TEXAS
TRAVIS S. ISAACSON
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05-08-2024

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RM 473

S.U.E. PLAN SHEET

STA 400+00 TO
℄ RM 473 STA 422+00

SHEET 9 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	179

PLOT DRIVER: pdf-bw.pltcfg
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100% SUBMITTAL

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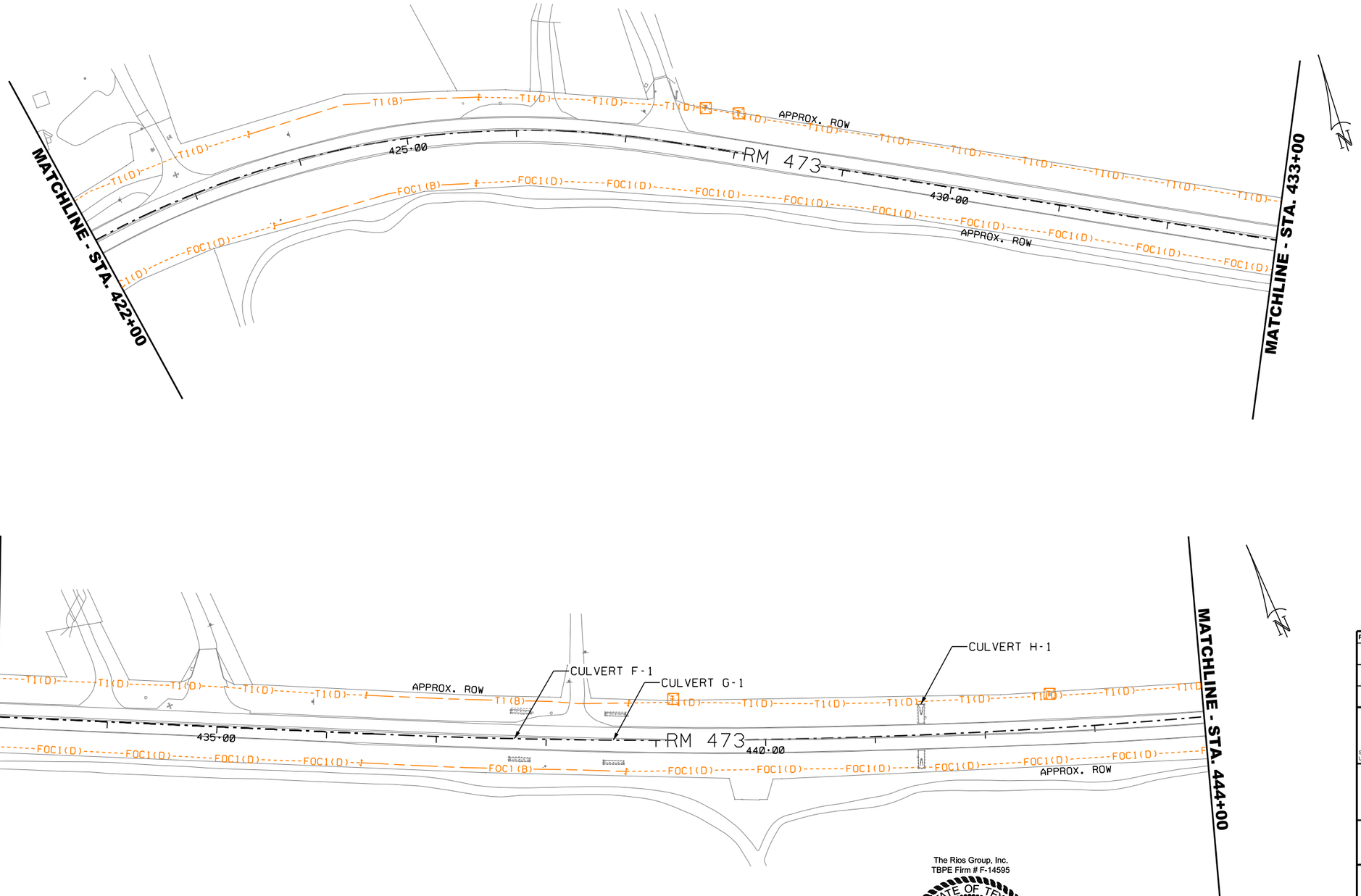

0' 50' 100'

SCALE: 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS

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

COMMUNICATIONS

QL "B"

- HILL COUNTRY TELEPHONE (TELE) — T1(B) —
- HILL COUNTRY TELEPHONE (FO/DUCT) — FOC1(B) —

OVERHEAD UTILITY QL "C"/QL "D"

- OH1 - CENTRAL TEXAS ELECTRIC COOP
- OH2 - HILL COUNTRY TELEPHONE FIBER — OH —
- OH3 - HILL COUNTRY TELEPHONE COPPER

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

REV.NO.	DATE	REVISION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
1740 Universal City Blvd
Suite 200
Universal City, Texas 78148

AtkinsRéalis
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Texas Department of Transportation

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

05-08-2024

Subsurface Utility Engineering (SUE) Certification

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RM 473

S.U.E. PLAN SHEET

STA 422+00 TO
℄ RM 473 STA 444+00

SHEET 10 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	180

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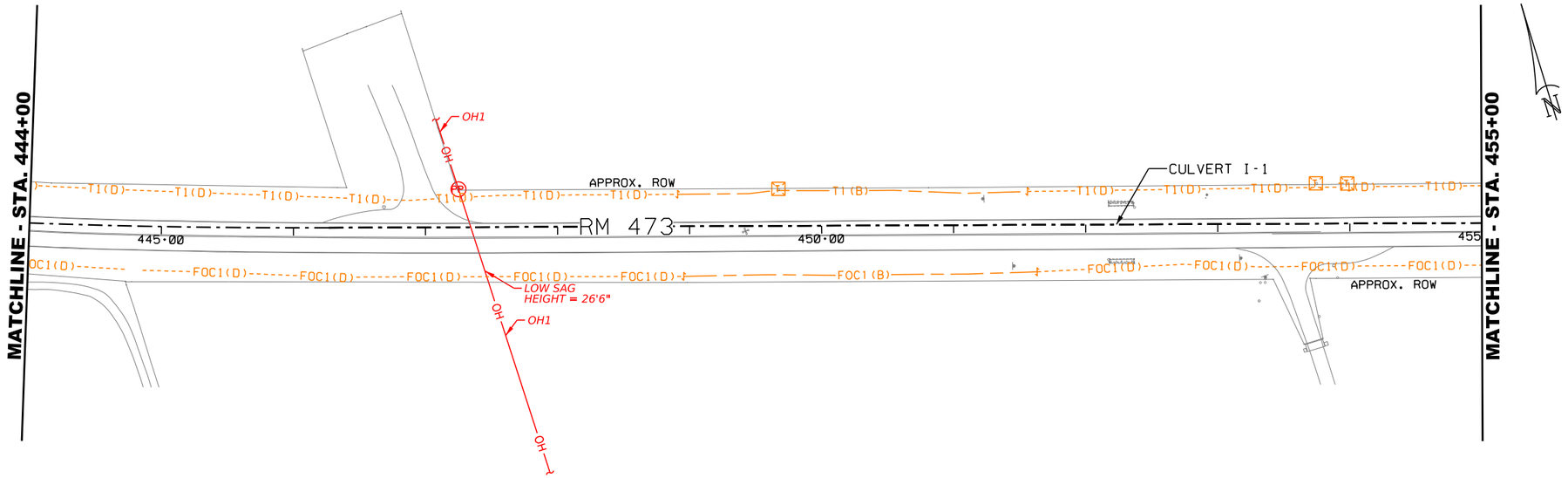

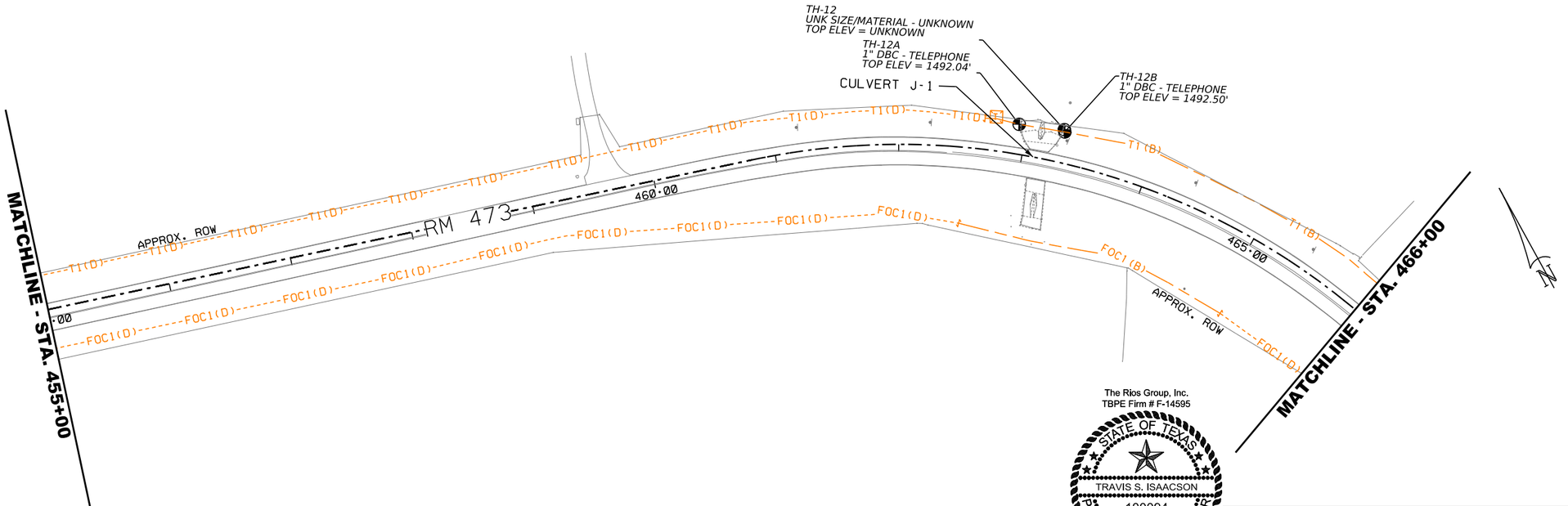

0' 50' 100'

SCALE: 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS

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

COMMUNICATIONS QL "B"

- HILL COUNTRY TELEPHONE (TELE) — T1(B)
- HILL COUNTRY TELEPHONE (FO/DUCT) — FOC1(B)

OVERHEAD UTILITY QL "C"/QL "D"

- OH1 - CENTRAL TEXAS ELECTRIC COOP — OH
- OH2 - HILL COUNTRY TELEPHONE FIBER
- OH3 - HILL COUNTRY TELEPHONE COPPER

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

REV. NO.	DATE	REVISION

THE RIOS GROUP

SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

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RM 473

S.U.E. PLAN SHEET

STA 444+00 TO
℄ RM 473 STA 466+00

SHEET 11 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	181

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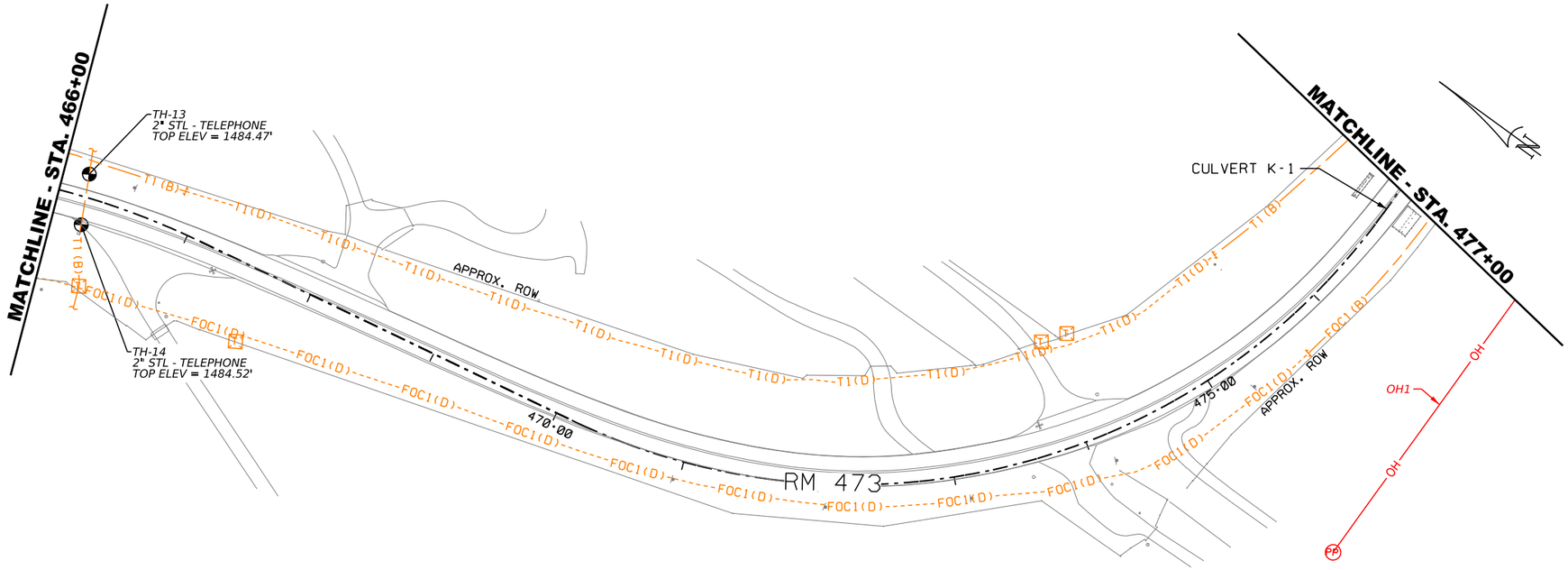

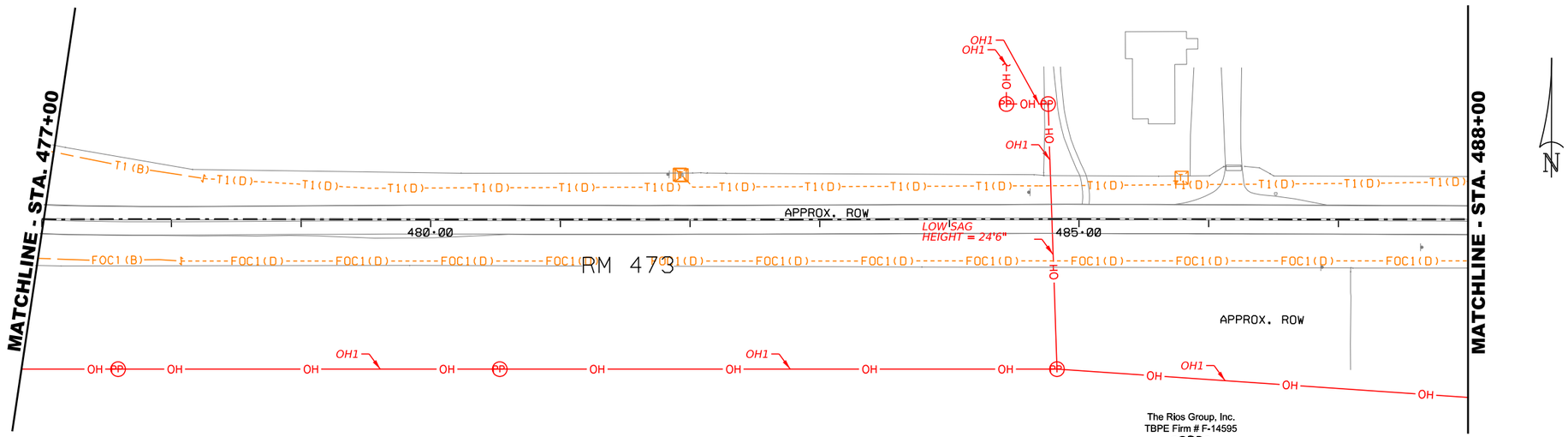

0' 50' 100'

SCALE: 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS

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

COMMUNICATIONS

QL "B"

- HILL COUNTRY TELEPHONE (TELE) — T1(B) —
- HILL COUNTRY TELEPHONE (FO/DUCT) — FOC1(B) —

OVERHEAD UTILITY QL "C"/QL "D"

- OH1 - CENTRAL TEXAS ELECTRIC COOP — OH —
- OH2 - HILL COUNTRY TELEPHONE FIBER
- OH3 - HILL COUNTRY TELEPHONE COPPER

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

REV. NO.	DATE	REVISION

THE RIOS GROUP

SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

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Texas Department of Transportation

The Rios Group, Inc.
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05-08-2024

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RM 473

S.U.E. PLAN SHEET

STA 466+00 TO
℄ RM 473 STA 488+00

SHEET 12 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	182

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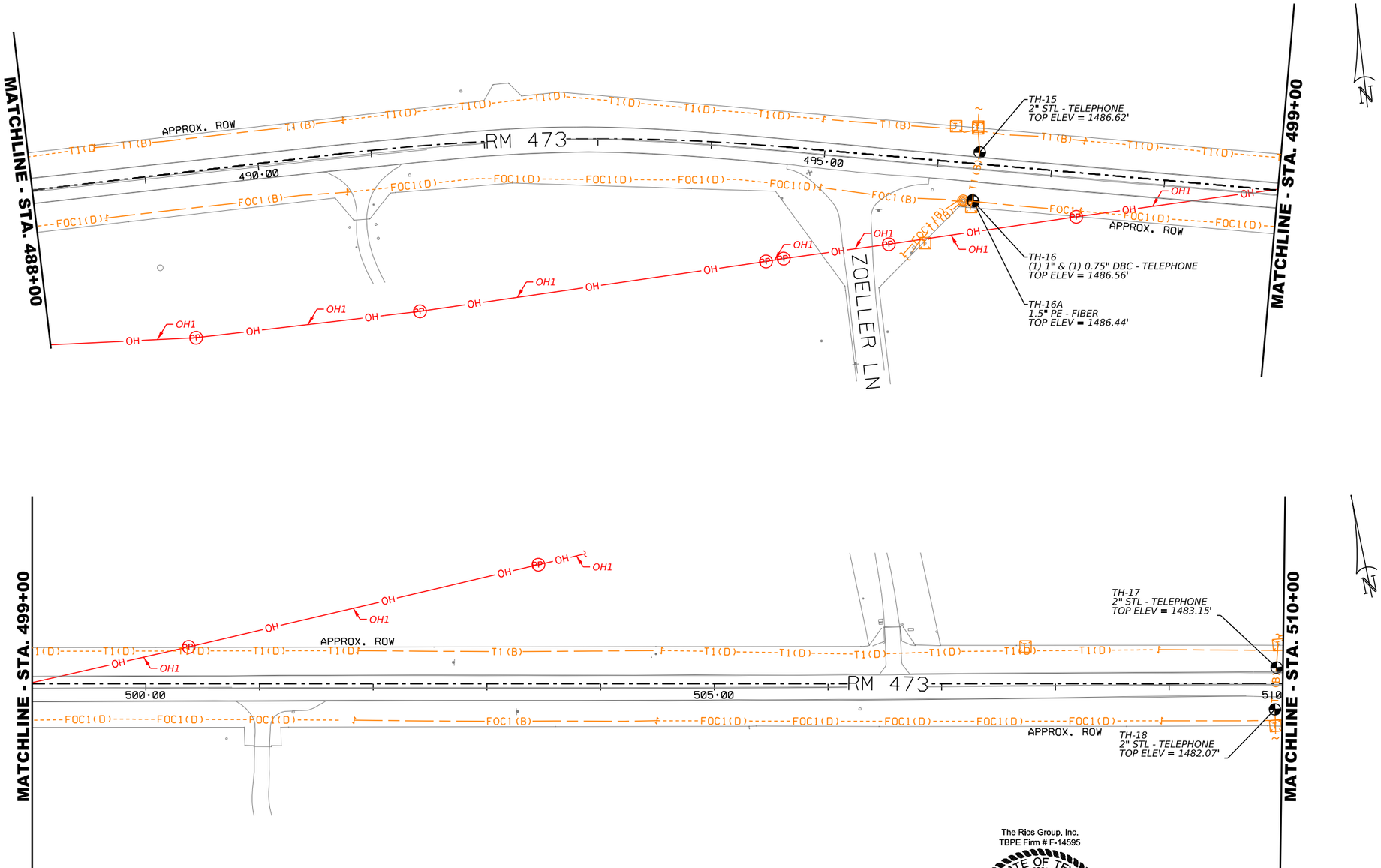

0′ 50′ 100′

SCALE: 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS

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

COMMUNICATIONS QL "B"

- HILL COUNTRY TELEPHONE (TELE) — T1(B) —
- HILL COUNTRY TELEPHONE (FO/DUCT) — FOC1(B) —

OVERHEAD UTILITY QL "C"/QL "D"

- OH1 - CENTRAL TEXAS ELECTRIC COOP — OH —
- OH2 - HILL COUNTRY TELEPHONE FIBER
- OH3 - HILL COUNTRY TELEPHONE COPPER

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

REV.NO.	DATE	REVISION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
1740 Universal City Blvd
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Texas Department of Transportation

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

STATE OF TEXAS
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PROFESSIONAL ENGINEER

05-08-2024

Subsurface Utility Engineering (SUE) Certification

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RM 473

S.U.E. PLAN SHEET

STA 488+00 TO
℄ RM 473 STA 510+00

SHEET 13 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	183

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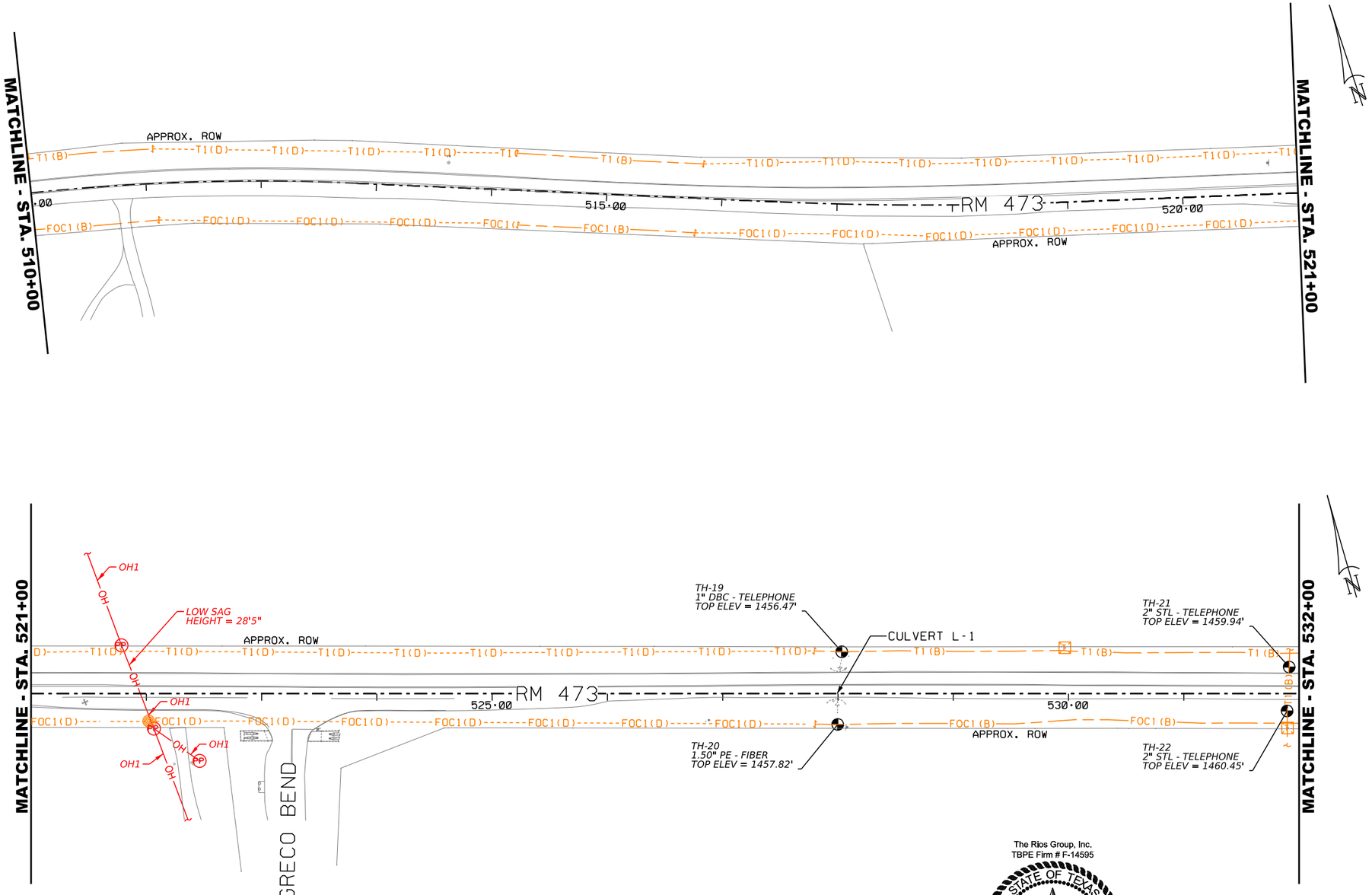

0' 50' 100'

SCALE: 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS

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

COMMUNICATIONS QL "B"

- HILL COUNTRY TELEPHONE (TELE) — T1(B)
- HILL COUNTRY TELEPHONE (FO/DUCT) — FOC1(B)

OVERHEAD UTILITY QL "C"/QL "D"

- OH1 - CENTRAL TEXAS ELECTRIC COOP — OH
- OH2 - HILL COUNTRY TELEPHONE FIBER
- OH3 - HILL COUNTRY TELEPHONE COPPER

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

REV.NO.	DATE	REVISION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
1740 Universal City Blvd
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Universal City, Texas 78148

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TBPE REG. • F-474

Texas Department of Transportation

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

STATE OF TEXAS
TRAVIS S. ISAACSON
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LICENSED
PROFESSIONAL ENGINEER

05-08-2024

Subsurface Utility Engineering (SUE) Certification

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RM 473

S.U.E. PLAN SHEET

STA 510+00 TO
℄ RM 473 STA 532+00

SHEET 14 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	184

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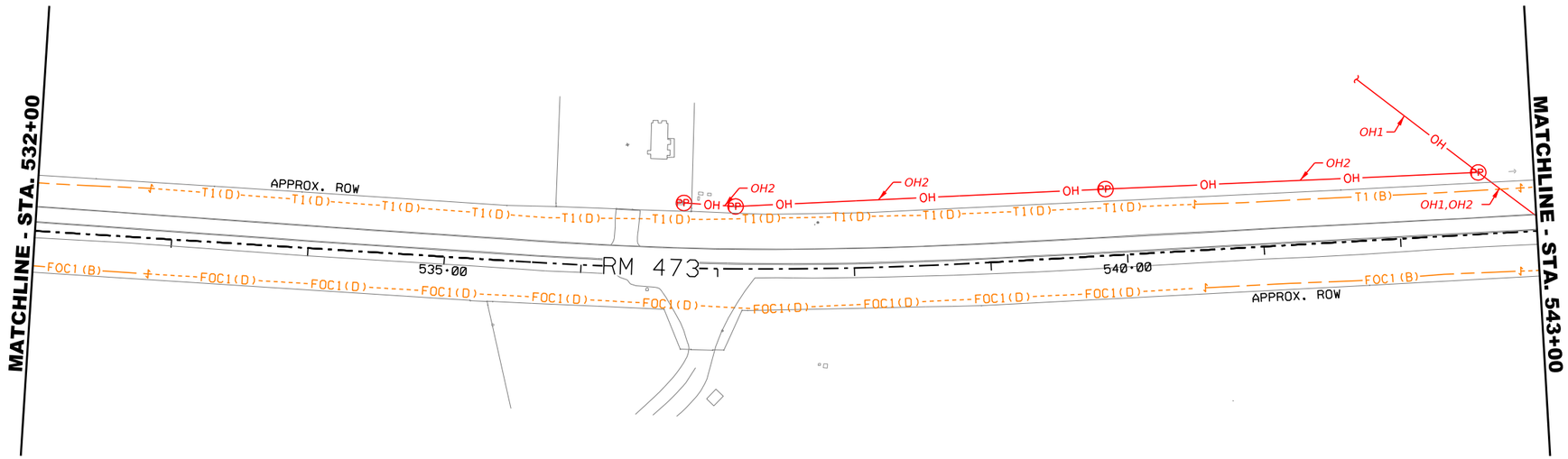

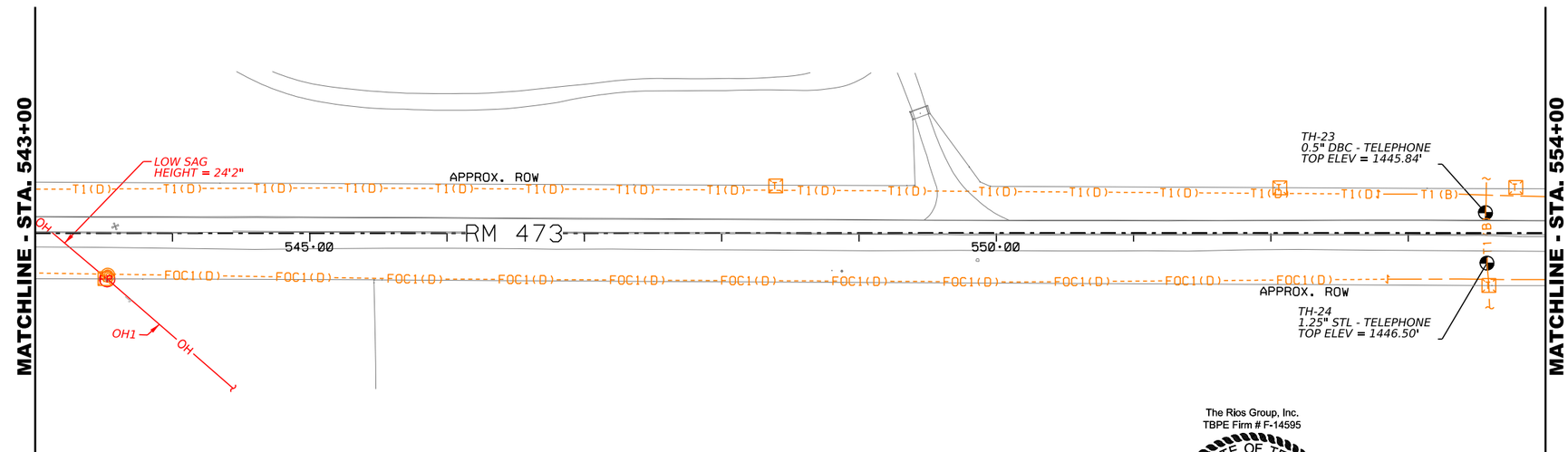

0' 50' 100'

SCALE: 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS

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

COMMUNICATIONS

QL "B"

- HILL COUNTRY TELEPHONE (TELE) — T1(B) —
- HILL COUNTRY TELEPHONE (FO/DUCT) — FOC1(B) —

OVERHEAD UTILITY QL "C"/QL "D"

- OH1 - CENTRAL TEXAS ELECTRIC COOP — OH —
- OH2 - HILL COUNTRY TELEPHONE FIBER
- OH3 - HILL COUNTRY TELEPHONE COPPER

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

REV.NO.	DATE	REVISION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
1740 Universal City Blvd
Suite 200
Universal City, Texas 78148

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TBPE REG. • F-474

Texas Department of Transportation

The Rios Group, Inc.
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STATE OF TEXAS
TRAVIS S. ISAACSON
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05-08-2024

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RM 473

S.U.E. PLAN SHEET

STA 532+00 TO
℄ RM 473 STA 554+00

SHEET 15 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	185

PLOT DRIVER: pdf-bw.pltcfg
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100% SUBMITTAL

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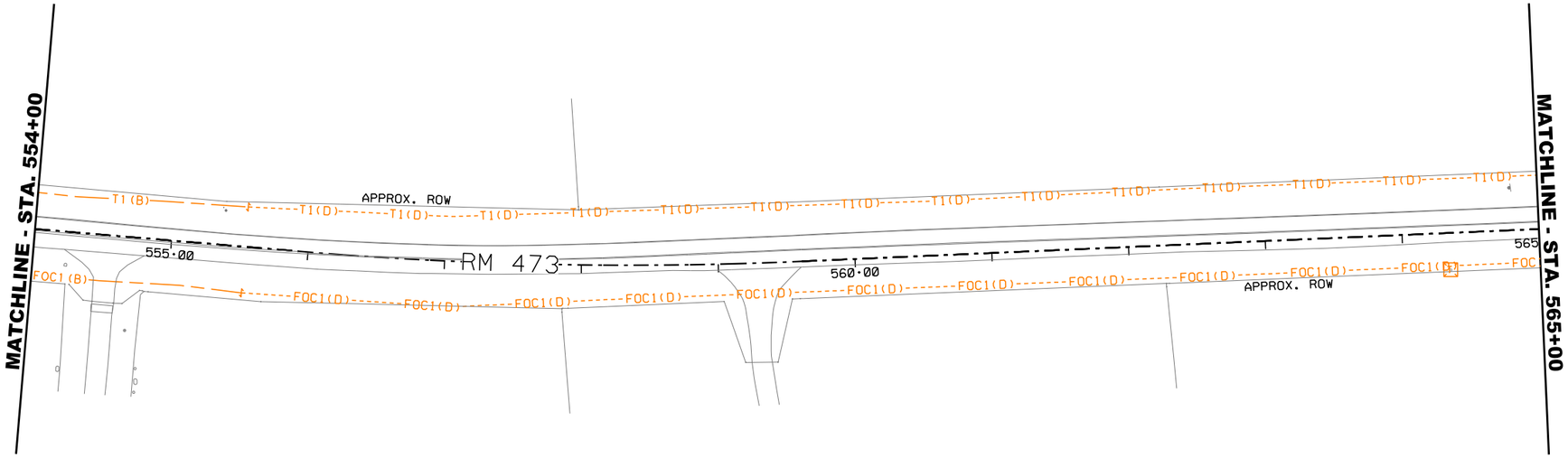

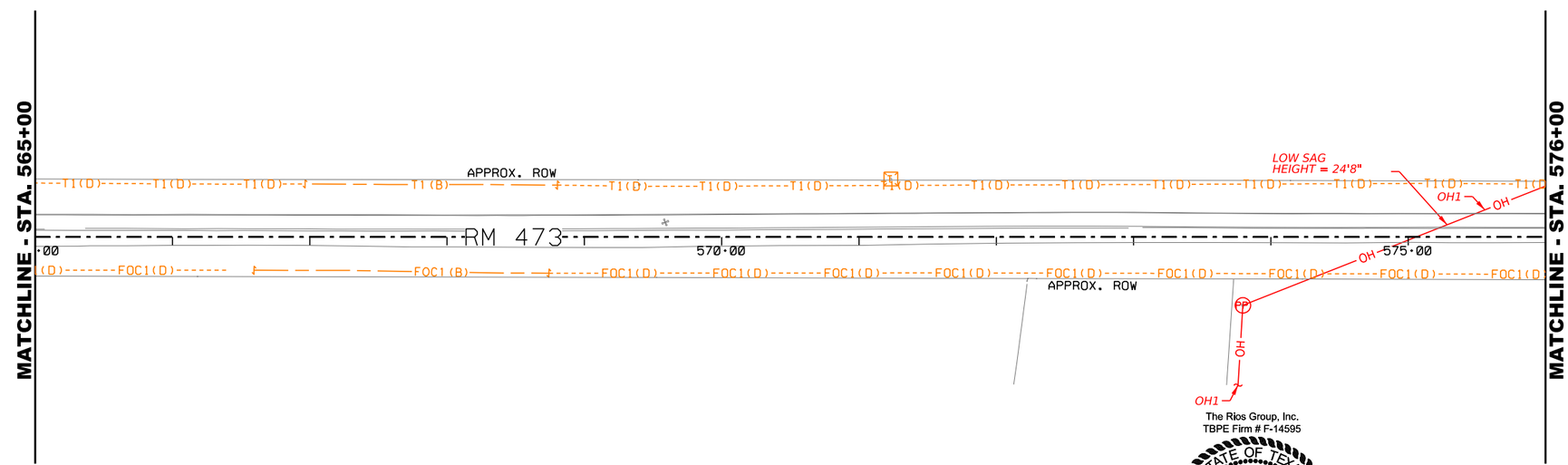

0' 50' 100'

SCALE: 1" = 100'

LEGEND OF UTILITY TYPES

QUALITY LEVELS

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

COMMUNICATIONS QL "B"

- HILL COUNTRY TELEPHONE (TELE) — T1(B) —
- HILL COUNTRY TELEPHONE (FO/DUCT) — FOC1(B) —

OVERHEAD UTILITY QL "C"/QL "D"

- OH1 - CENTRAL TEXAS ELECTRIC COOP — OH —
- OH2 - HILL COUNTRY TELEPHONE FIBER
- OH3 - HILL COUNTRY TELEPHONE COPPER

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

REV.NO.	DATE	REVISION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
1740 Universal City Blvd
Suite 200
Universal City, Texas 78148

AtkinsRéalis
TBPE REG. • F-474

Texas Department of Transportation

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

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

05-08-2024

Subsurface Utility Engineering (SUE) Certification

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RM 473

S.U.E. PLAN SHEET

STA 554+00 TO
℄ RM 473 STA 576+00

SHEET 16 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	186

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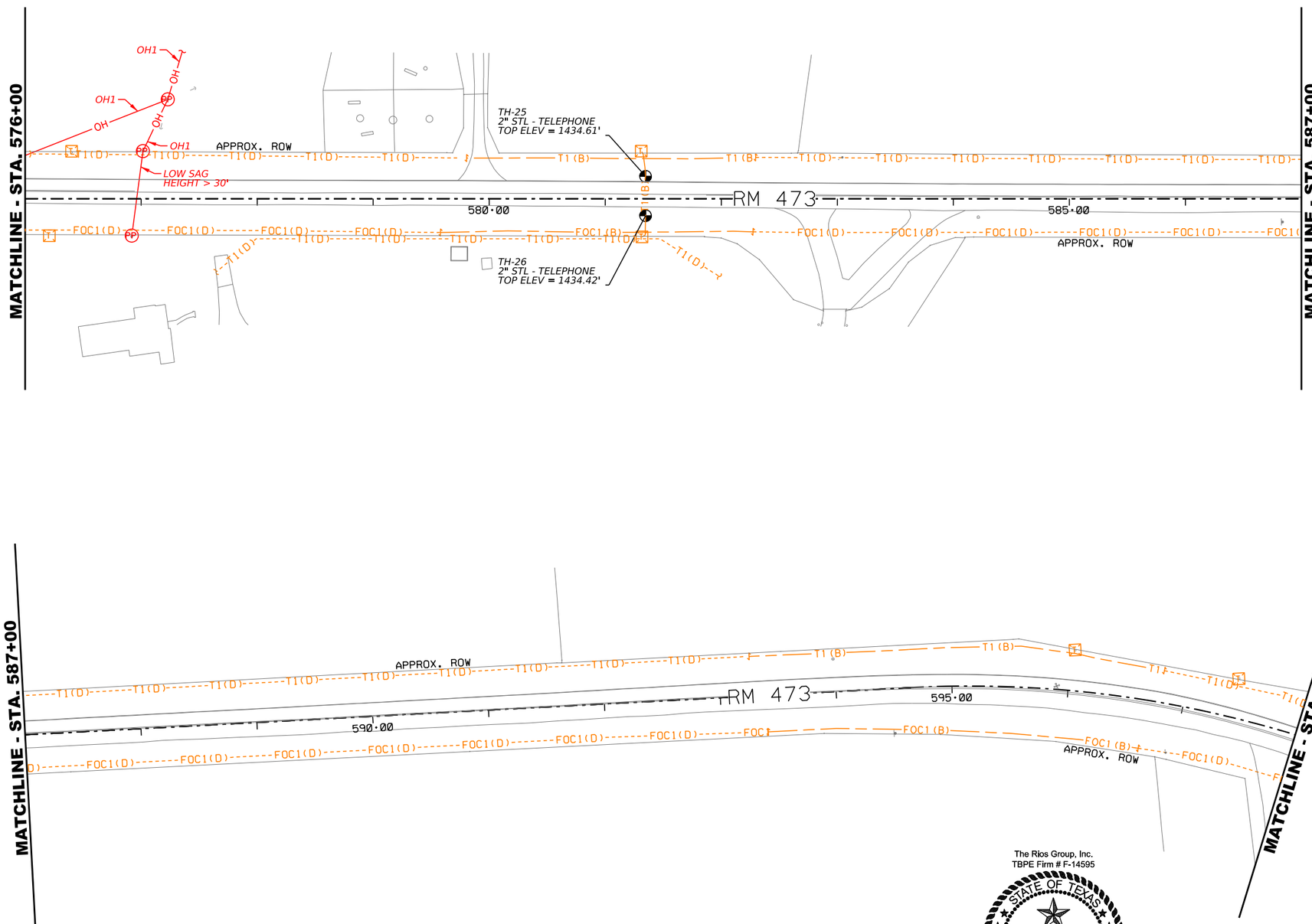

0' 50' 100'

SCALE: 1" = 100'

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- TRANSMISSION POLE

REV.NO.	DATE	REVISION

THE RIOS GROUP

SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION

1740 Universal City Blvd
Suite 200
Universal City, Texas 78148

AtkinsRéalis
TBPE REG. • F-474

Texas Department of Transportation

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05-08-2024

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RM 473

S.U.E. PLAN SHEET

STA 576+00 TO
℄ RM 473 STA 598+00

SHEET 17 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	187

PLOT DRIVER: pdf-bw.pltcfg
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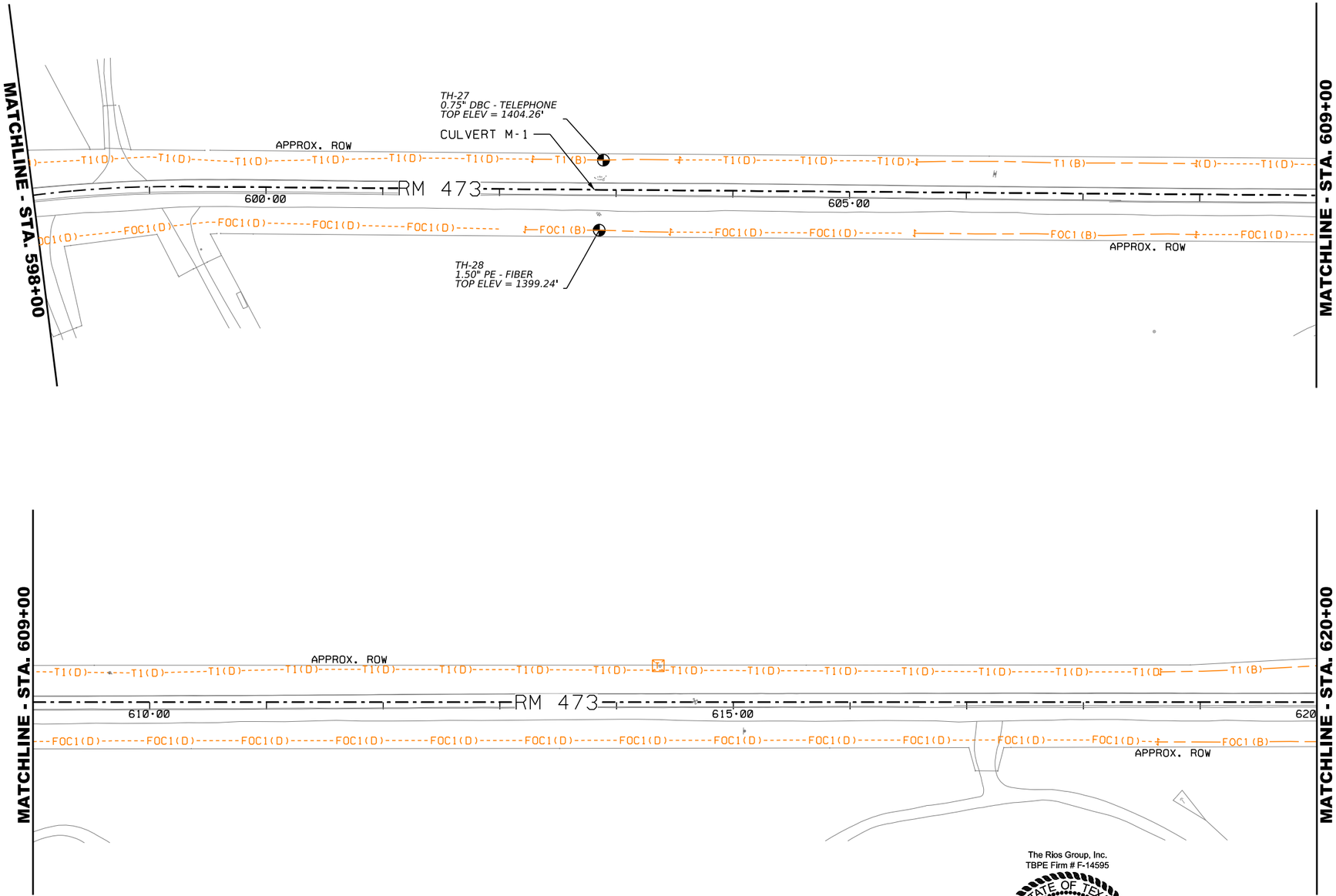

0′ 50′ 100′

SCALE: 1" = 100'

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REV. NO.	DATE	REVISION

THE RIOS GROUP
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1740 Universal City Blvd
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RM 473

S.U.E. PLAN SHEET

STA 598+00 TO
℄ RM 473 STA 620+00

SHEET 18 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	188

PLOT DRIVER: pdf-bw.pltcfg
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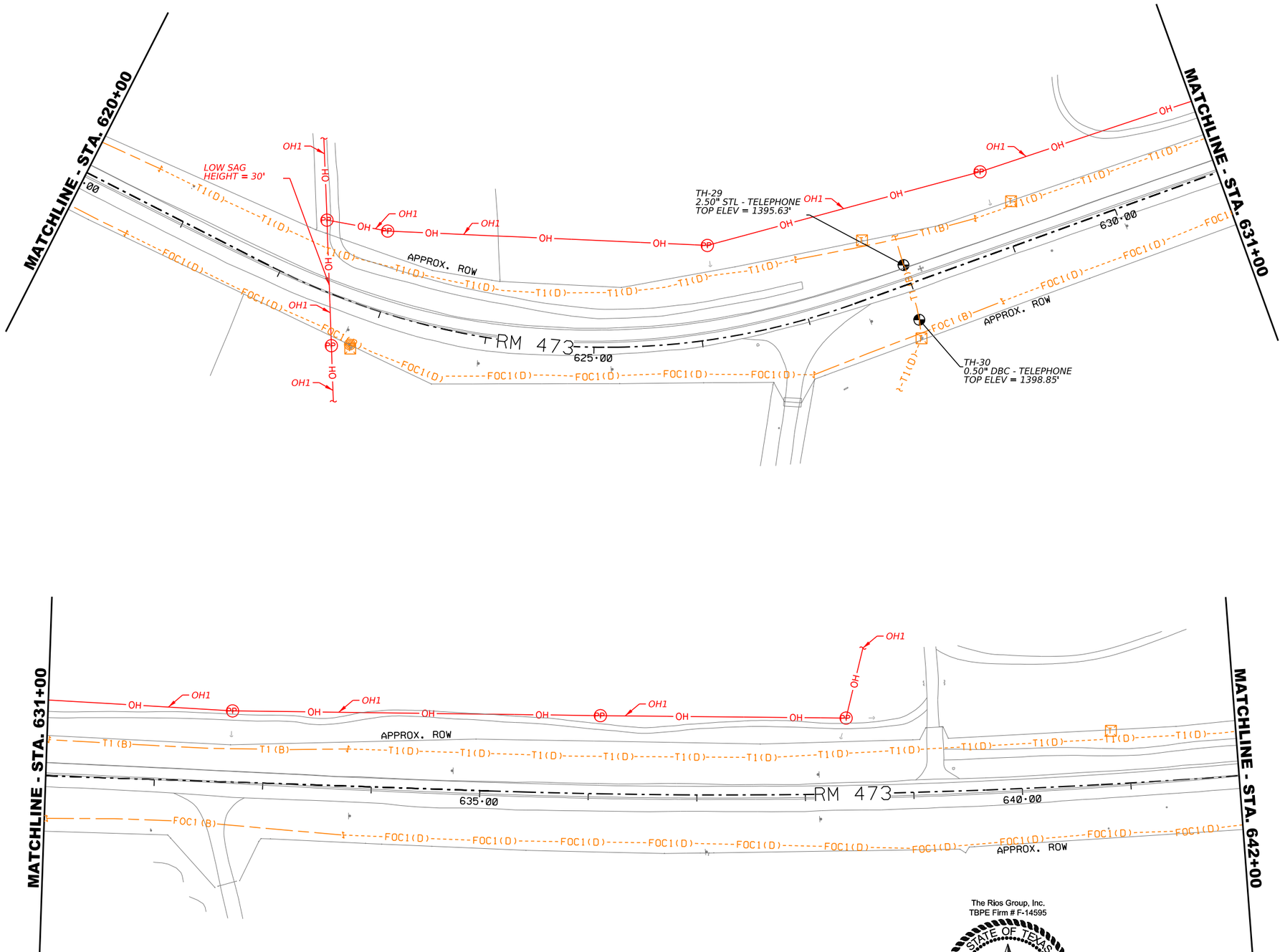

0' 50' 100'

SCALE: 1" = 100'

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REV. NO.	DATE	REVISION

THE RIOS GROUP
SUBSURFACE UTILITY ENGINEERING
UTILITY COORDINATION
1740 Universal City Blvd
Suite 200
Universal City, Texas 78148

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TBPE REG. • F-474

Texas Department of Transportation

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

STATE OF TEXAS
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RM 473

S.U.E. PLAN SHEET

STA 620+00 TO
℄ RM 473 STA 642+00

SHEET 19 OF 20

FED. RD DIV. No.	STATE	PROJECT No.	HIGHWAY No.
6	TEXAS	SEE TITLE SHEET	RM 473

STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	189

PLOT DRIVER: pdf-bw.pltcfg
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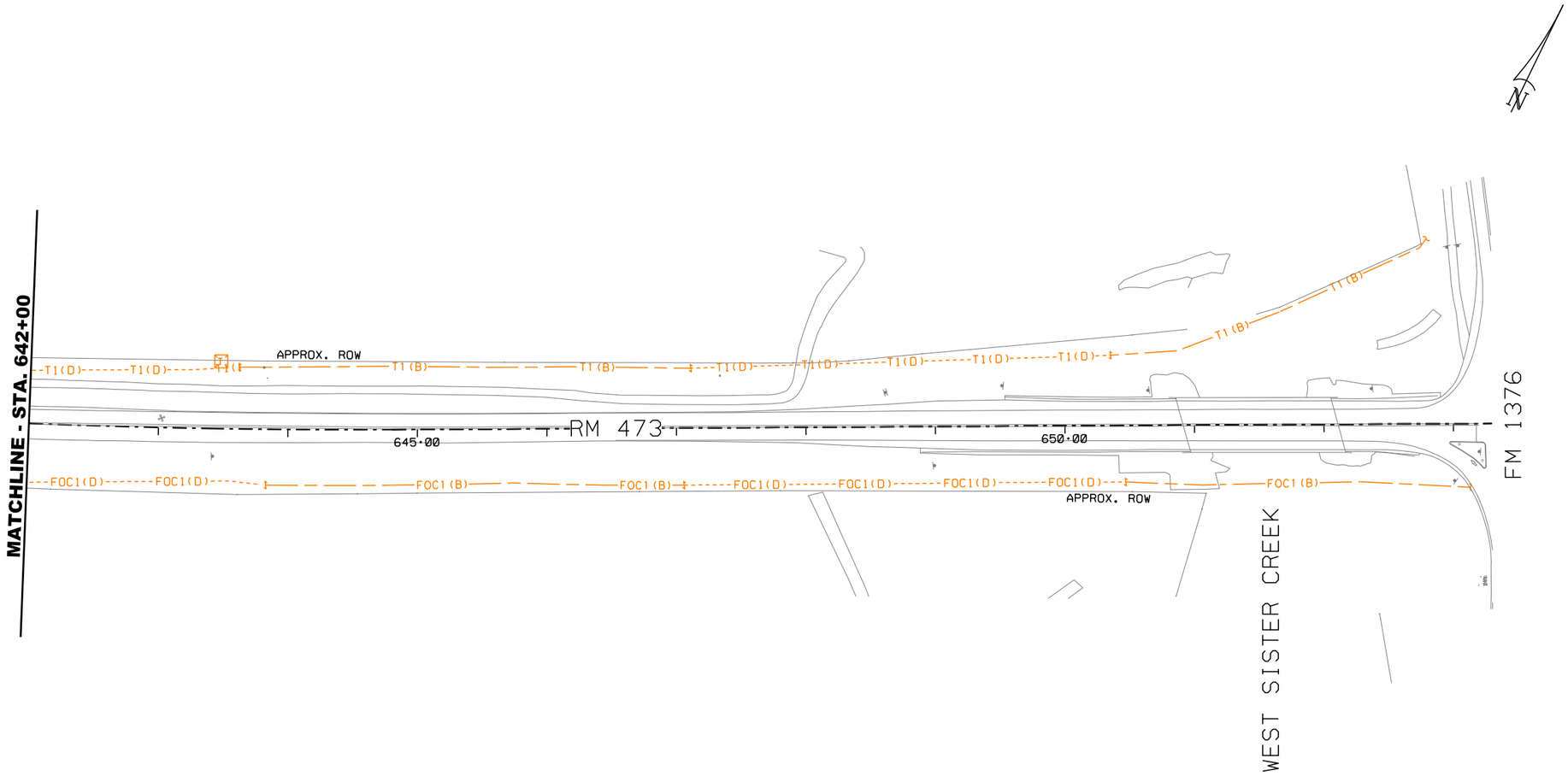

0' 50' 100'

SCALE: 1" = 100'

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- CATV HANDHOLE
- CATV PEDESTAL
- FIBER HANDHOLE
- TELEPHONE CABINET
- TELEPHONE HANDHOLE (VAULT)
- TELEPHONE MANHOLE
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- TELEPHONE POLE
- TELEPHONE POLE W/RISER
- ELECTRIC HANDHOLE
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- ELECTRIC MANHOLE
- ELECTRIC POLE (POWER)
- ELECTRIC POLE W/RISER
- LIGHT POLE
- SIGNAL POLE
- SIGNAL HANDHOLE/BOX
- TRANSMISSION POLE

REV. NO.	DATE	REVISION

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1740 Universal City Blvd
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Universal City, Texas 78148

AtkinsRéalis
TBPE REG. • F-474

Texas Department of Transportation

RM 473

S.U.E. PLAN SHEET

STA 642+00 TO
℄ RM 473 END PROJECT

SHEET 20 OF 20

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	190

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

STATE OF TEXAS
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PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: $FILE$

SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
1	1	R1-1		36" x 36"	x		10BWG	1	SA	T		
	2	R1-2		48" x 48" x 48"	x		10BWG	1	SA	T		
	3	I-3		48" x 30"	x		10BWG	1	SA	T		
	4	W8-19aTP		18" x 12"	x		FRP	1	UA	P		
		W8-19		12" x 72"								
	5	W8-19aTP		18" x 12"	x		FRP	1	UA	P		
		W8-19		12" x 72"								
	6	I-3		48" x 30"	x		10BWG	1	SA	T		
	7	R2-1		30" x 36"	x		10BWG	1	SA	P		
	8	D2-1		78" x 18"	x		10BWG	1	SA	T		
	9	D7-1TR		72" x 24"	x		10BWG	1	SA	T		
	10	M1-6R		24" x 24"	x		10BWG	1	SA	P		
		M5-1L		21" x 15"								

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).

SHEET 1 OF 11

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
4-16	DIST	COUNTY		SHEET NO.
8-16	SAT	KENDALL		191

TB

DATE:
FILE:

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DATE:
FILE:

SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	11	W3-1		36" x 36"	x		10BWG	1	SA	T		
	12	W1-4L		36" x 36"	x		10BWG	1	SA	T		
	13	W8-18		36" x 36"	x		10BWG	1	SA	T		
2	1	W2-2R W16-8P		36" x 36" 48" x 8"	x		10BWG	1	SA	P	BM	
	2	W1-4L		36" x 36"	x		10BWG	1	SA	T		
	3	W1-5R W13-1P		36" x 36" 18" x 18"	x		10BWG	1	SA	T		
	4	D3-1G R1-1		54" x 8" 36" x 36"	x		10BWG	1	SA	P	BM	
	5	M3-4 M1-6R D10-7aT D10-7aT		24" x 12" 24" x 24" 3" x 10" 3" x 10"	x		10BWG	1	SA	P (BACK TO BACK)		
3	1	W2-2L W16-8P		36" x 36" 48" x 8"	x		10BWG	1	SA	P	BM	
	2	W2-2R		36" x 36"	x		10BWG	1	SA	T		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0142	09	047	RM 473
4-16		DIST	COUNTY		SHEET NO.
8-16		SAT	KENDALL		192

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	3	D1-1	Waring →	72" x 18"	x		10BWG	1	SA	T		
	4	D3-1G	Upper Sisterdale Rd	60" x 8"	x		10BWG	1	SA	P	BM	
		R1-1	STOP	36" x 36"								
	5	M1-6R	RANCH 473 ROAD	24" x 24"	x		10BWG	1	SA	P		
		M6-4		21" x 15"								
	6	D1-2	← Comfort Sisterdale →	90" x 30"	x		S80	1	SA	T		
	7	D3-1G	Upper Sisterdale Rd	60" x 8"	x		10BWG	1	SA	P	BM	
		R1-1	STOP	36" x 36"								
	8	R1-2	YIELD	48" x 48" x 48"	x		10BWG	1	SA	T		
	9	D1-1	← Waring	72" x 18"	x		10BWG	1	SA	T		
	10	W2-2L		36" x 36"	x		10BWG	1	SA	T		
4	1	D14-4T	ADOPT A HIGHWAY NEXT 2 MILES THIS SECTION AVAILABLE FOR ADOPTION (830) 816-2430	48" x 48"	x		S80	1	SA	T		
	2	W1-2aR	50	36" x 36"	x		10BWG	1	SA	T		

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
4-16	DIST	COUNTY		SHEET NO.
8-16	SAT	KENDALL		193

DATE:
FILE:

SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	3	W1-2aR		36" x 36"	x		10BWG	1	SA	T		
5	1	W1-2aL		36" x 36"	x		10BWG	1	SA	T		
	2	W1-5L		36" x 36"	x		10BWG	1	SA	T		
		W13-1P		18" x 18"								
	3	W8-18		36" x 36"	x		10BWG	1	SA	T		
6	1	I-3		84" x 30"	x		S80	1	SA	T		
	2	I-3		84" x 30"	x		S80	1	SA	T		
	3	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	4	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	5	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					

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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SUMMARY OF SMALL SIGNS

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8-16		SAT	KENDALL		194

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SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)					BRIDGE MOUNT CLEARANCE SIGNS (See Note 2)
							POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	TY = TYPE TY N TY S
	6	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
7	1	W1-5R		36" x 36"	x		10BWG	1	SA	T		
		W13-1P		18" x 18"								
	2	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	3	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	4	I-3	Second Coffee Hollow	108" x 30"	x		S80	1	SA	T	2EXT	
	5	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"								
	6	I-3	Second Coffee Hollow	108" x 30"	x		S80	1	SA	T	2EXT	
	7	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	8	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	9	M3-2		24" x 12"	x		10BWG	1	SA	P		
		M1-6R		24" x 24"			(BACK TO BACK)					
		D10-7aT		3" x 10"								
		D10-7aT		3" x 10"								

ALUMINUM SIGN BLANKS THICKNESS	
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SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	10	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	11	W8-18		36" x 36"	x		10BWG	1	SA	T		
8	1	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	2	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	3	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	4	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	5	W1-5L		36" x 36"	x		10BWG	1	SA	T		
		W13-1P		18" x 18"								
9	1	D14-4T		48" x 48"	x		S80	1	SA	T		
	2	D14-4T		48" x 48"	x		S80	1	SA	T		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
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Texas Department of Transportation

Traffic Operations Division Standard

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8-16		SAT	KENDALL		196

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SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	3	W1-4R		36" x 36"	x		10BWG	1	SA	T		
		W13-1P		18" x 18"								
	4	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	5	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	6	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	7	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	8	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
10	1	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	2	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	3	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	4	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	5	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
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SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	6	W1-4R		36" x 36"	x		10BWG	1	SA	T		
		W13-1P		18" x 18"								
	7	W2-2R		36" x 36"	x		10BWG	1	SA	P	BM	
		W16-8P		30" x 8"								
11	1	D3-1G		36" x 8"	x		10BWG	1	SA	P	BM	
		D3-1G		24" x 8"								
		R1-1		36" x 36"								
	2	W2-2L		36" x 36"	x		10BWG	1	SA	P	BM	
		W16-8P		30" x 8"								
	3	W1-4R		36" x 36"	x		10BWG	1	SA	T		
12	1	M3-4		24" x 12"	x		10BWG	1	SA	P		
		M1-6R		24" x 24"			(BACK TO BACK)					
		D10-7aT		3" x 10"								
		D10-7aT		3" x 10"								
	2	D3-1G		36" x 8"	x		10BWG	1	SA	P	BM	
		D3-1G		24" x 8"								
		R1-1		36" x 36"								

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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SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
14	1	D14-4T		48" x 48"	x		S80		SA	T		
15	1	W1-2aR		36" x 36"	x		10BWG	1	SA	T		
16	1	W1-2aL		36" x 36"	x		10BWG	1	SA	T		
	2	W1-2aL		36" x 36"	x		10BWG	1	SA	T		
17	1	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"					(BACK TO BACK)			
	2	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"					(BACK TO BACK)			
	3	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"					(BACK TO BACK)			
	4	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"					(BACK TO BACK)			

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
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SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	5	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	6	W1-8L		18" x 24"	x		10BWG	1	SA	P		
		W1-8R		18" x 24"			(BACK TO BACK)					
	7	M3-2		24" x 12"	x		10BWG	1	SA	P		
		M1-6R		24" x 24"			(BACK TO BACK)					
		D10-7aT		3" x 10"								
		D10-7aT		3" x 10"								
	8	W3-5		36" x 36"	x		10BWG	1	SA	T		
	9	W2-1aT		48" x 48"	x		10BWG	1	SA	T		
	10	W1-2aR		36" x 36"	x		10BWG	1	SA	T		
	11	R2-1		30" x 36"	x		10BWG	1	SA	P		
	12	R2-1		30" x 36"	x		10BWG	1	SA	P		
	13	W8-18		36" x 36"	x		TO BE MOUNTED ON ROADSIDE FLASHING BEACON ASSEMBLY					
		W16-13P		24" x 18"								

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
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8-16	SAT	KENDALL		200

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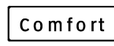
18	1	W3-1		36" x 36"	x		10BWG	1	SA	T		
	2	W8-18		36" x 36"	x		10BWG	1	SA	T		
	3	D1-2		102" x 30"	x		S80	1	SA	T	2EXT	
	4	D2-1		72" x 18"	x		10BWG	1	SA	T		
	5	I-3		84" x 30"	x		S80	1	SA	T		
	6	M3-4		24" x 12"	x		10BWG	1	SA	P		
		M1-6R		24" x 24"								
	7	I-3		84" x 30"	x		S80	1	SA	T		
	8	R1-2		48" x 48" x 48"	x		10BWG	1	SA	T		
	9	R1-1		36" x 36"	x		10BWG	1	SA	T		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

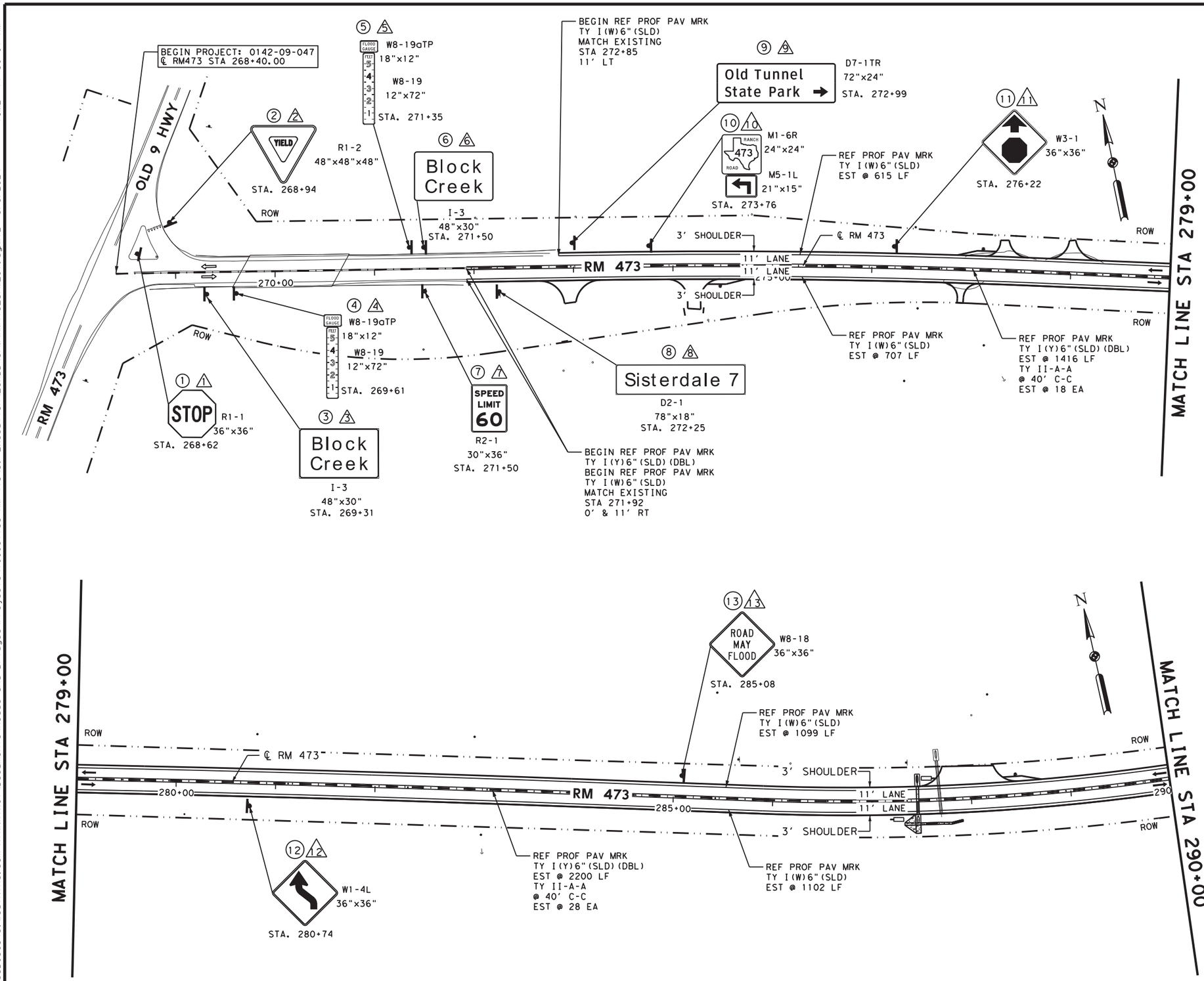
SOSS

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0142	09	047	RM 473
4-16		DIST	COUNTY		SHEET NO.
8-16		SAT	KENDALL		201

18

100% SUBMITTAL

DATE: 5/8/2024 TIME: 11:50:07 AM



SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	2
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	9
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	2
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	13
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	2
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	3523
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	3616
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	46
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

BEGIN PROJECT TO
℄ RM 473 STA 290+00

SHEET 1 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	202

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100% SUBMITTAL

TIME: 11:50:43 AM
DATE: 5/8/2024

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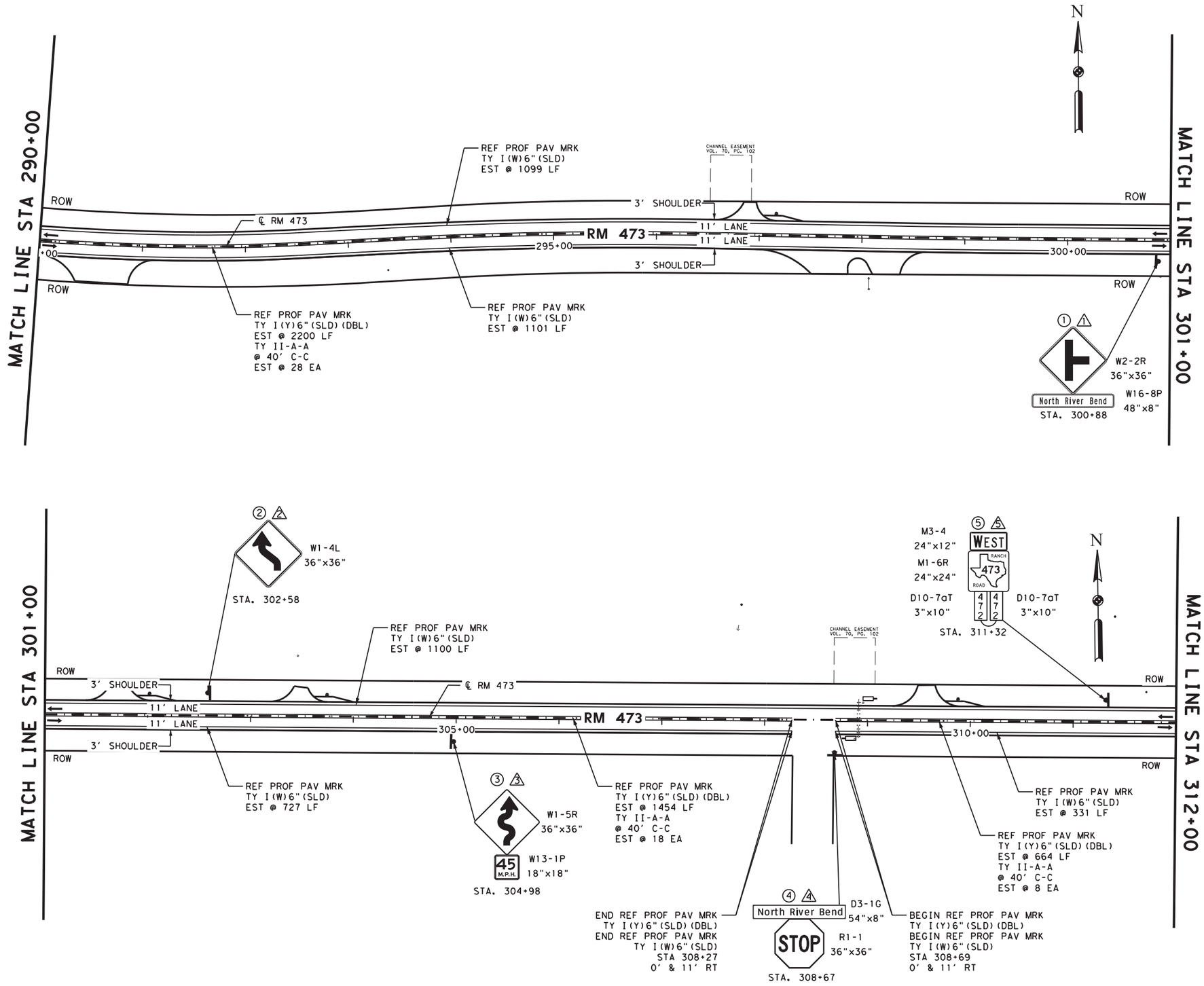


SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	1
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	2
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	2
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	5
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	2
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4358
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	4318
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	54
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- PROPOSED SMALL SIGN
- EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 290+00 TO
℄ RM 473 STA 312+00

SHEET 2 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	203

100% SUBMITTAL

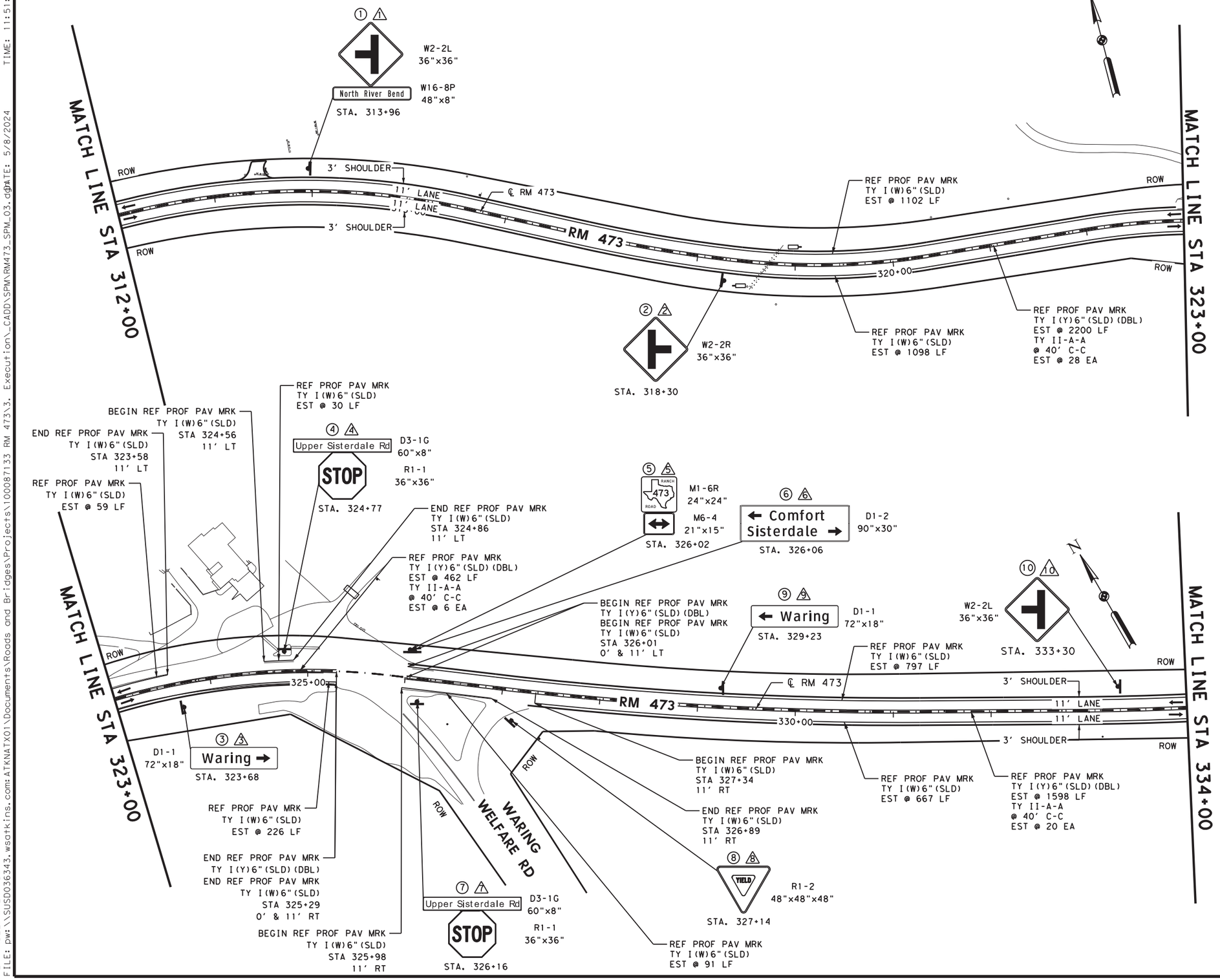
TIME: 11:51:12 AM
DATE: 5/8/2024

SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	1
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	3
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	5
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	1
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	10
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	2
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4070
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	4260
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	54
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0′ 50′ 100′



STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 312+00 TO
℄ RM 473 STA 334+00

SHEET 3 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	204

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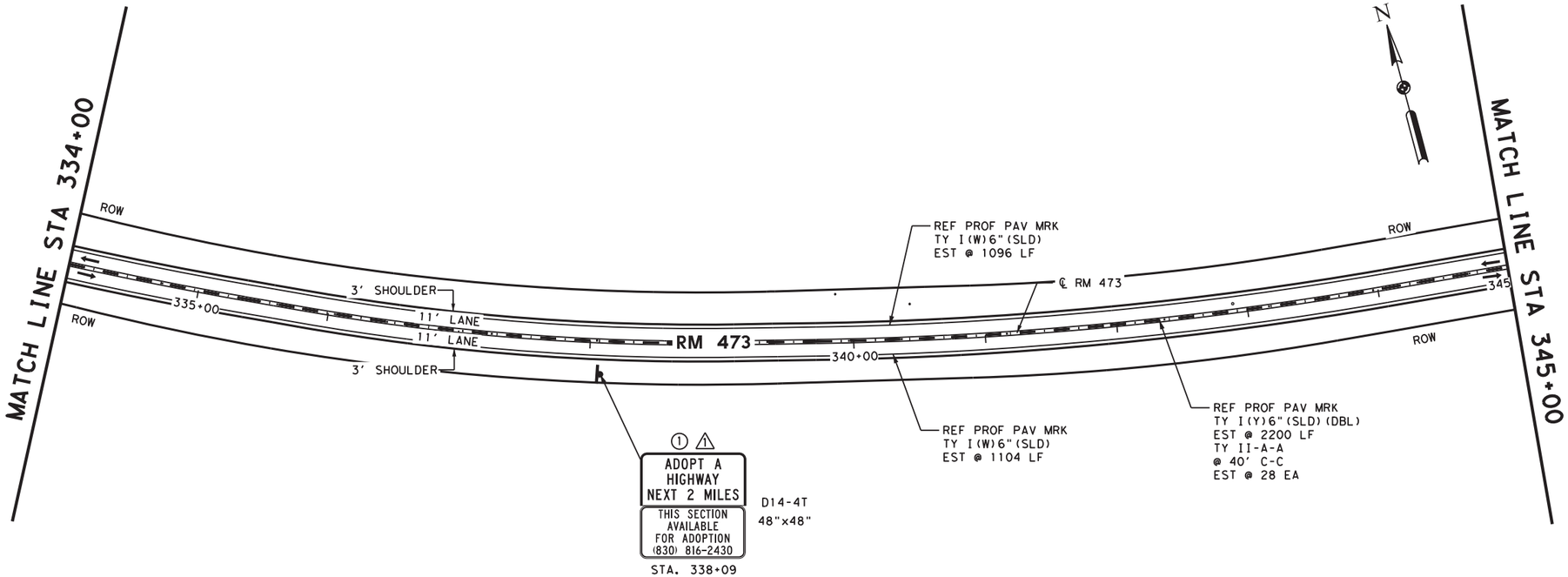
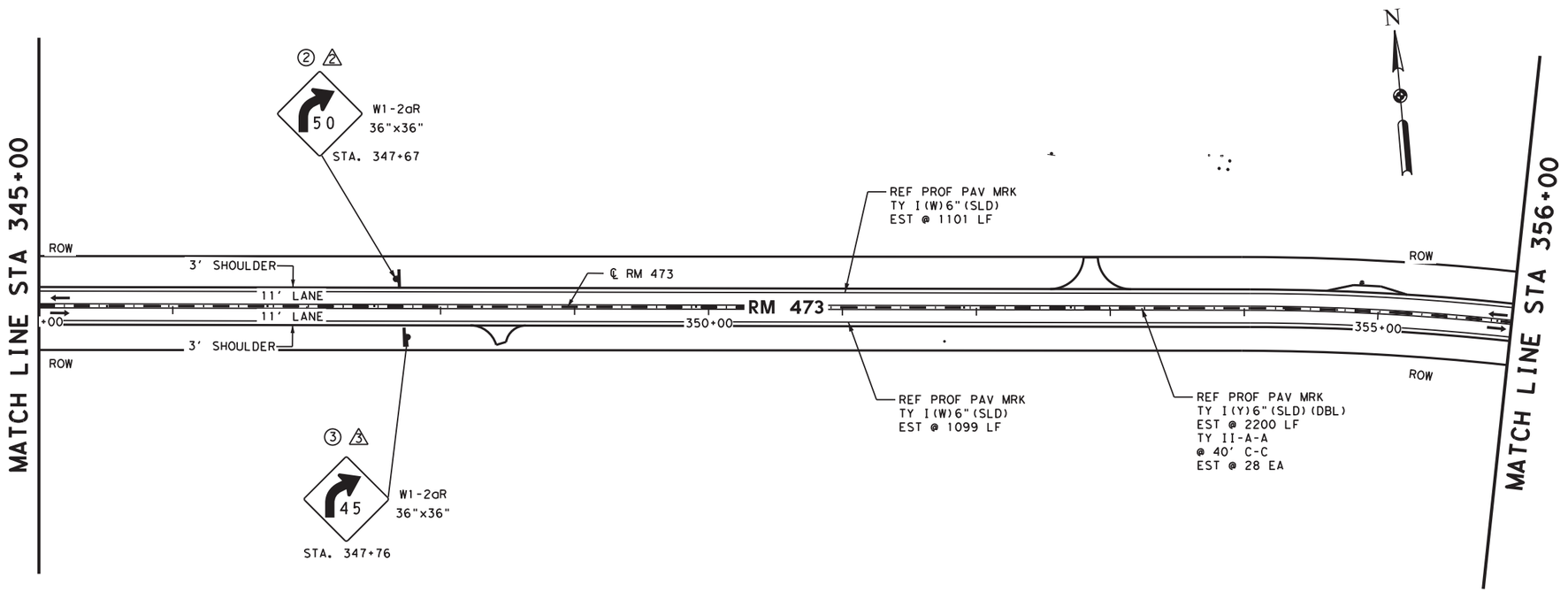
DATE: 5/8/2024





SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	5
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	1
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	6
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4400
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	4400
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 334+00 TO
℄ RM 473 STA 356+00

SHEET 4 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	205

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100% SUBMITTAL

TIME: 11:52:05 AM

DATE: 5/8/2024

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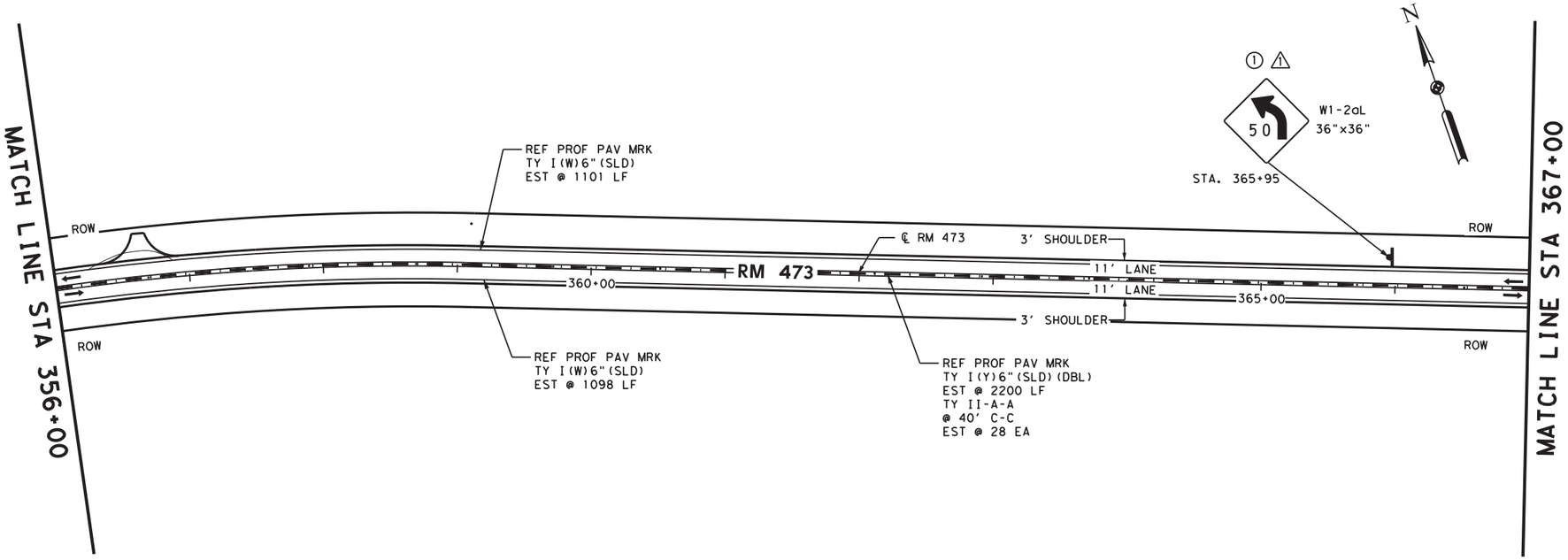

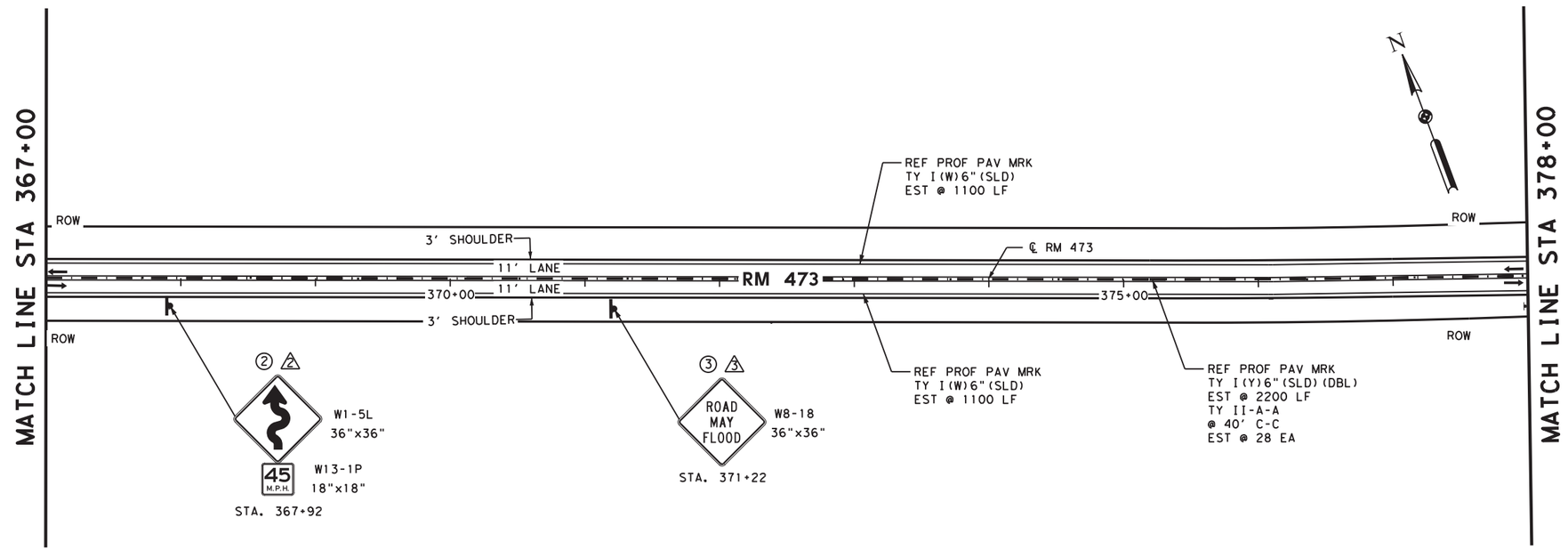

SHEET SUMMARY OF ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	3
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	3
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4399
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	4400
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

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TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 356+00 TO
℄ RM 473 STA 378+00

SHEET 5 OF 18

FED. RD DIV. NO.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	206

100% SUBMITTAL

TIME: 11:52:31 AM
DATE: 5/8/2024

SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
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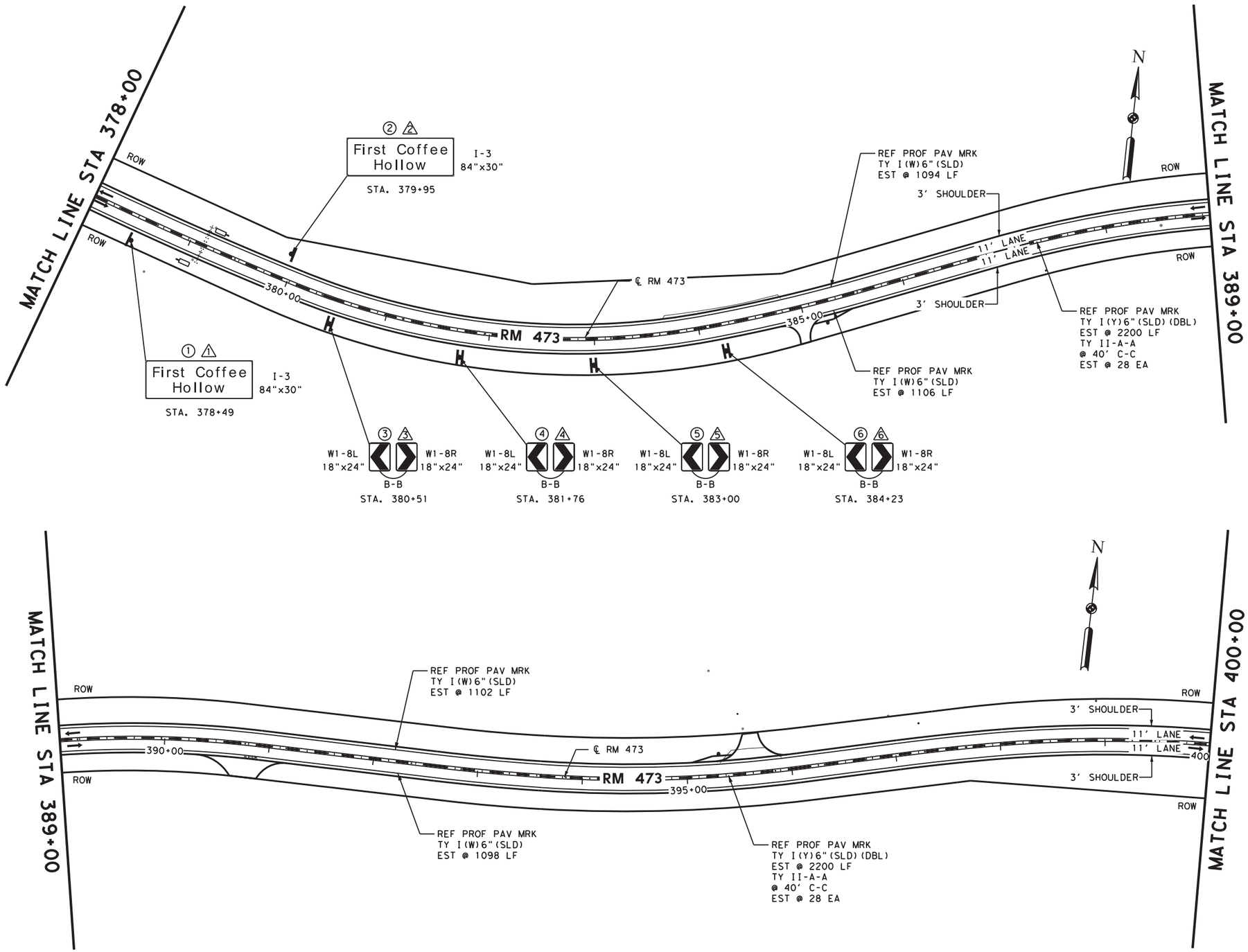
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	4
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	2
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	6
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	2
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4400
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	4400
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- PROPOSED SMALL SIGN
- EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

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REV. No.	DATE	REVISION	BY

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TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 378+00 TO
℄ RM 473 STA 400+00

SHEET 6 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	207

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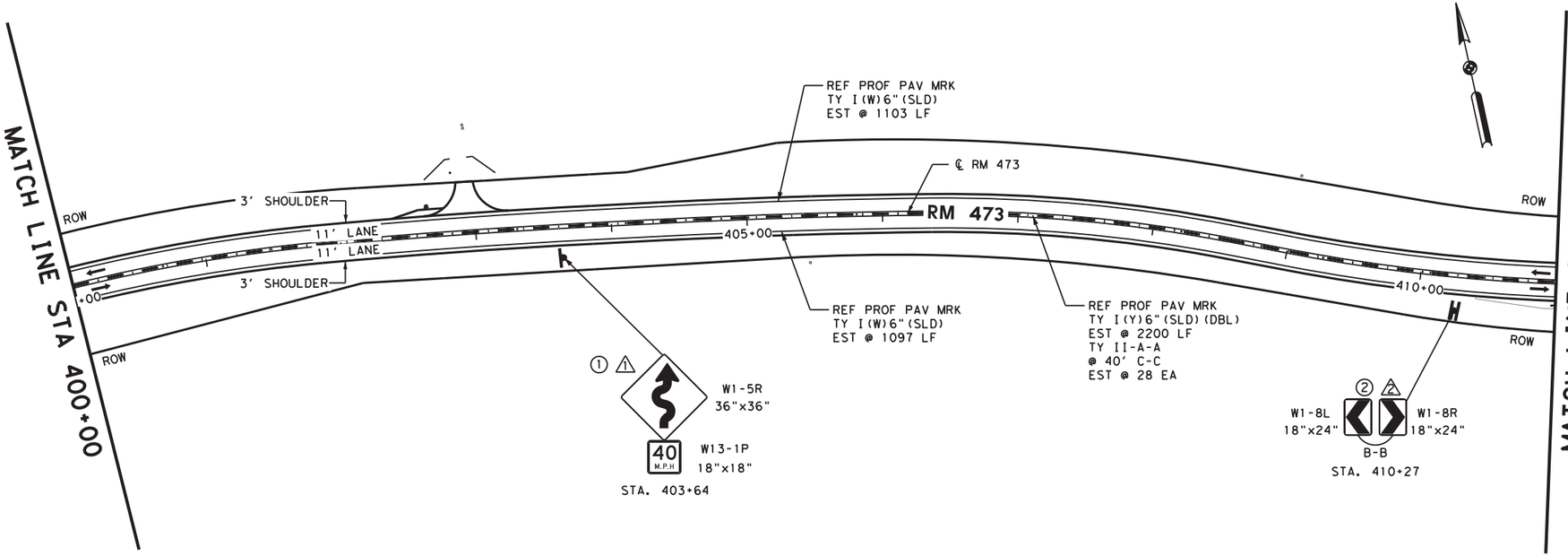
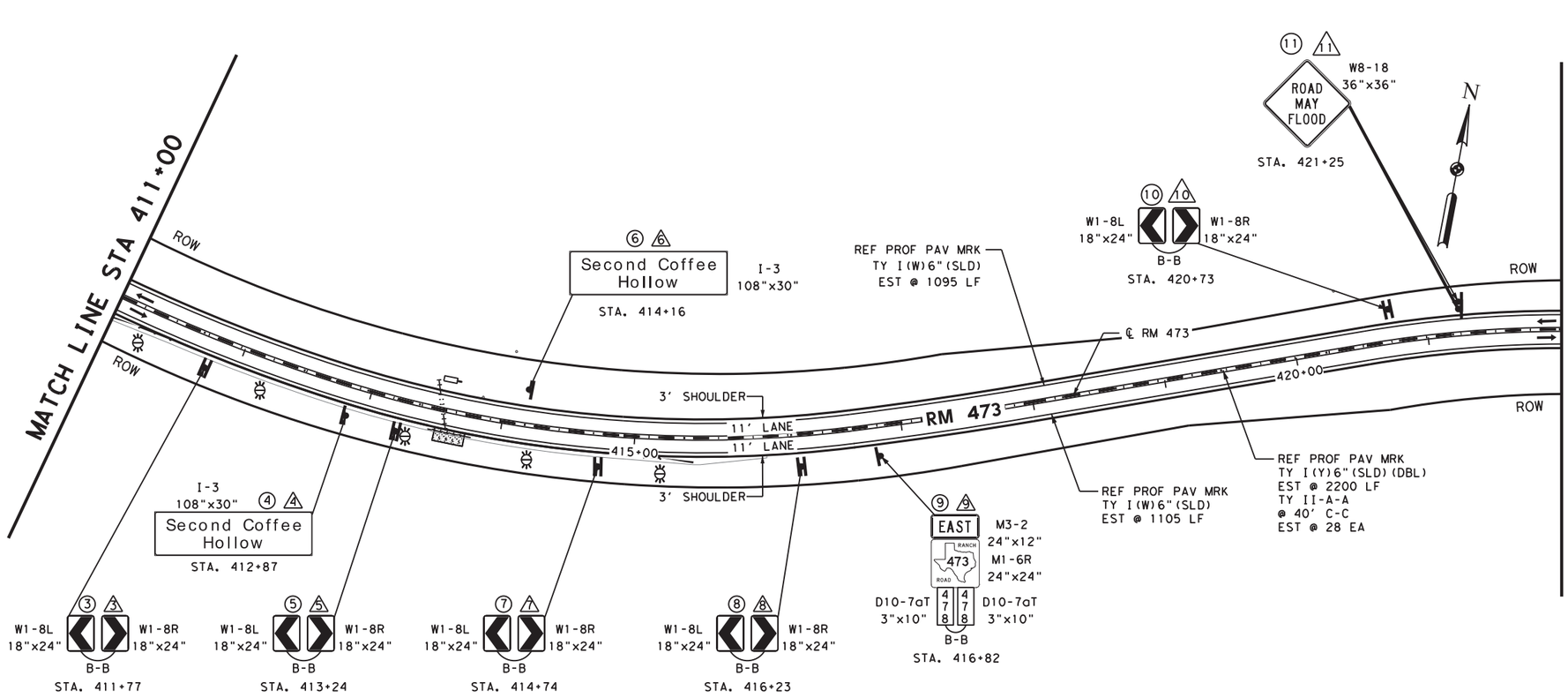
100% SUBMITTAL

TIME: 11:52:58 AM
DATE: 5/8/2024





SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	7
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	2
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	2
0644-6076	REMOVE SM RD SN SUP&AM	EA	11
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	5
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	1
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4400
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	4400
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 400+00 TO
℄ RM 473 STA 422+00

SHEET 7 OF 18

FED. RD. DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	208

PLOT DRIVER: pdf-bw.pltcfg
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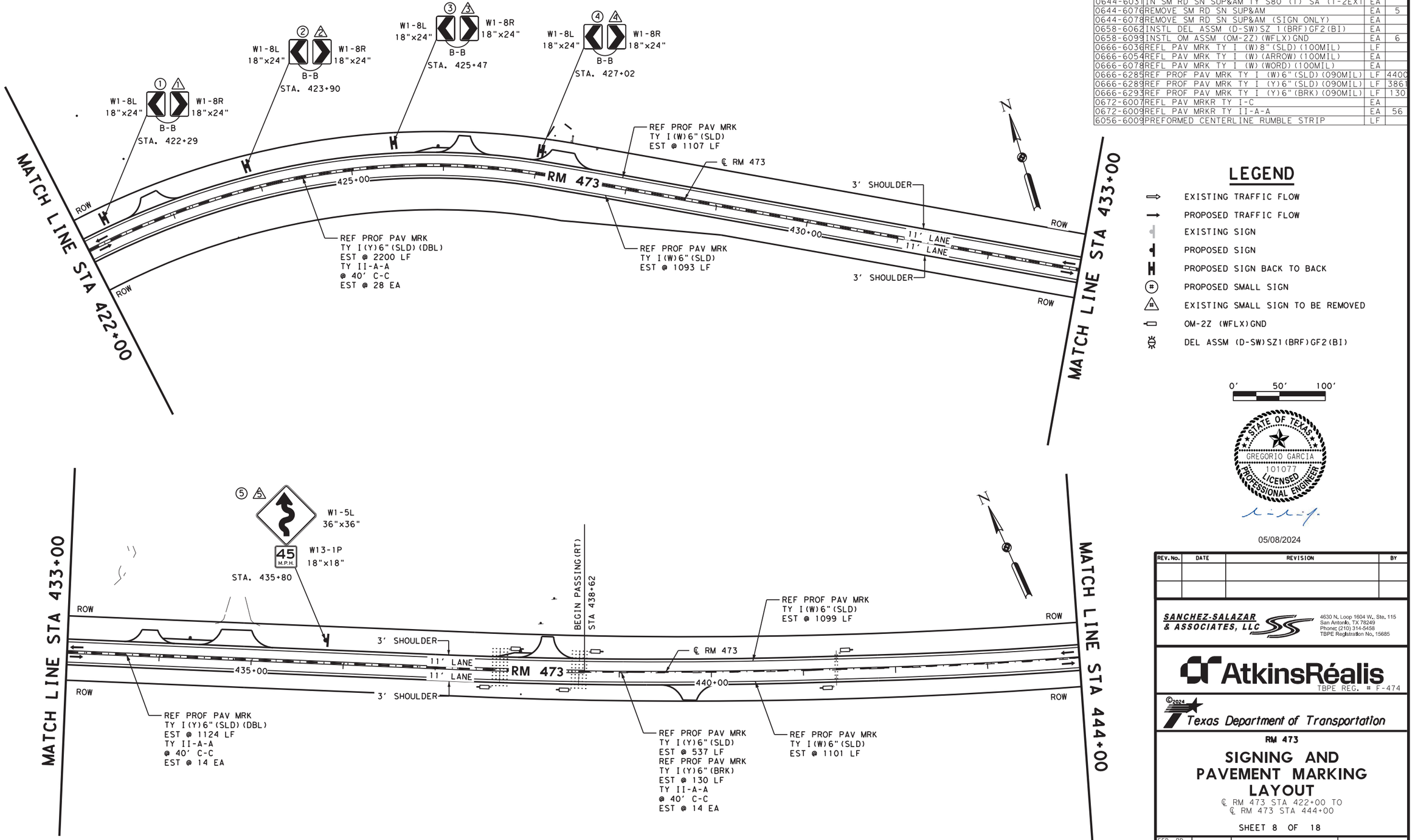
100% SUBMITTAL

DATE: 5/8/2024 TIME: 2:49:28 PM



SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	4
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	1
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	5
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	6
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4400
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	3861
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	130
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 422+00 TO
℄ RM 473 STA 444+00

SHEET 8 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	209

PLOT DRIVER: pdf-bw.pltcfg
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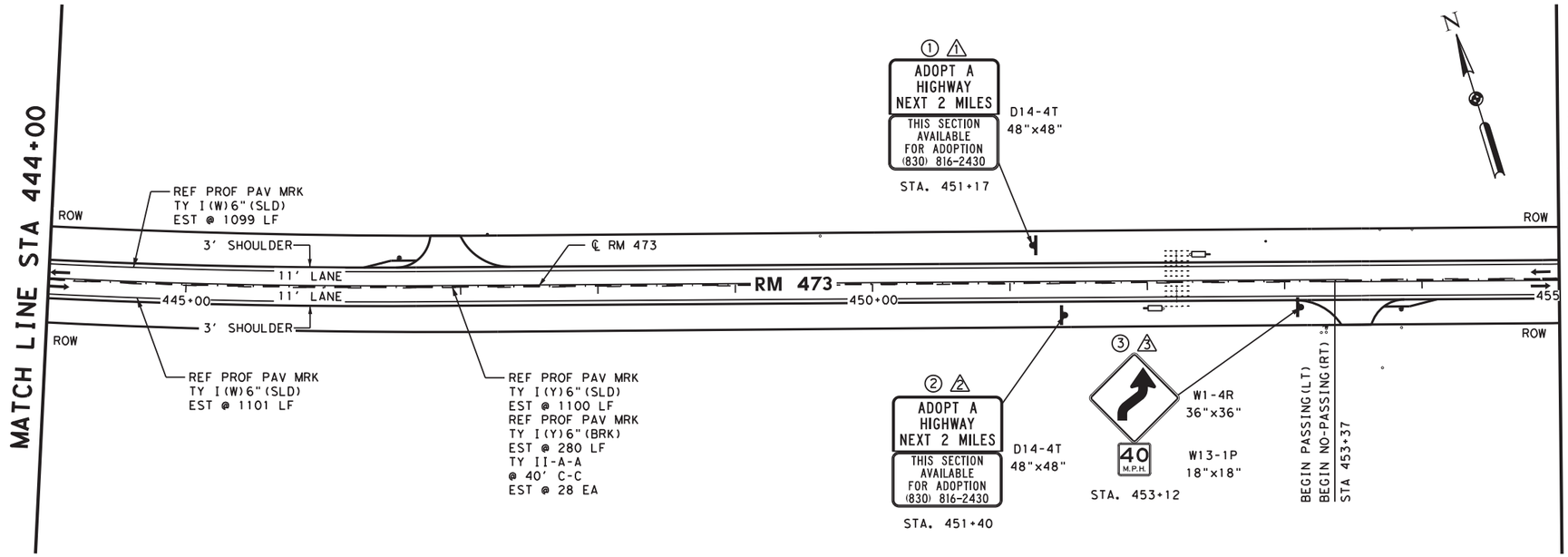
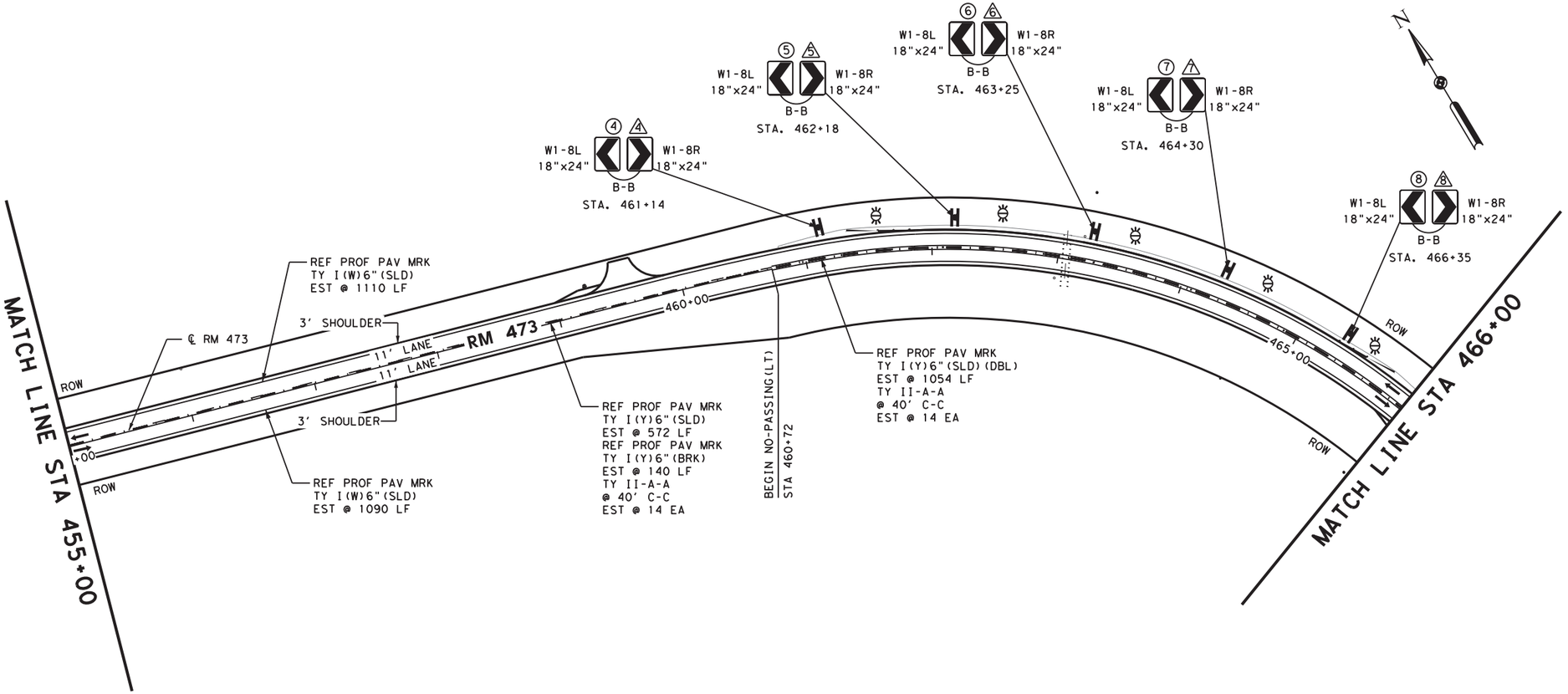
100% SUBMITTAL

DATE: 5/8/2024 TIME: 11:53:50 AM

SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	5
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	1
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	2
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	8
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	5
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	2
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4400
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	2726
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	420
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	





LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 444+00 TO
℄ RM 473 STA 466+00

SHEET 9 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	210

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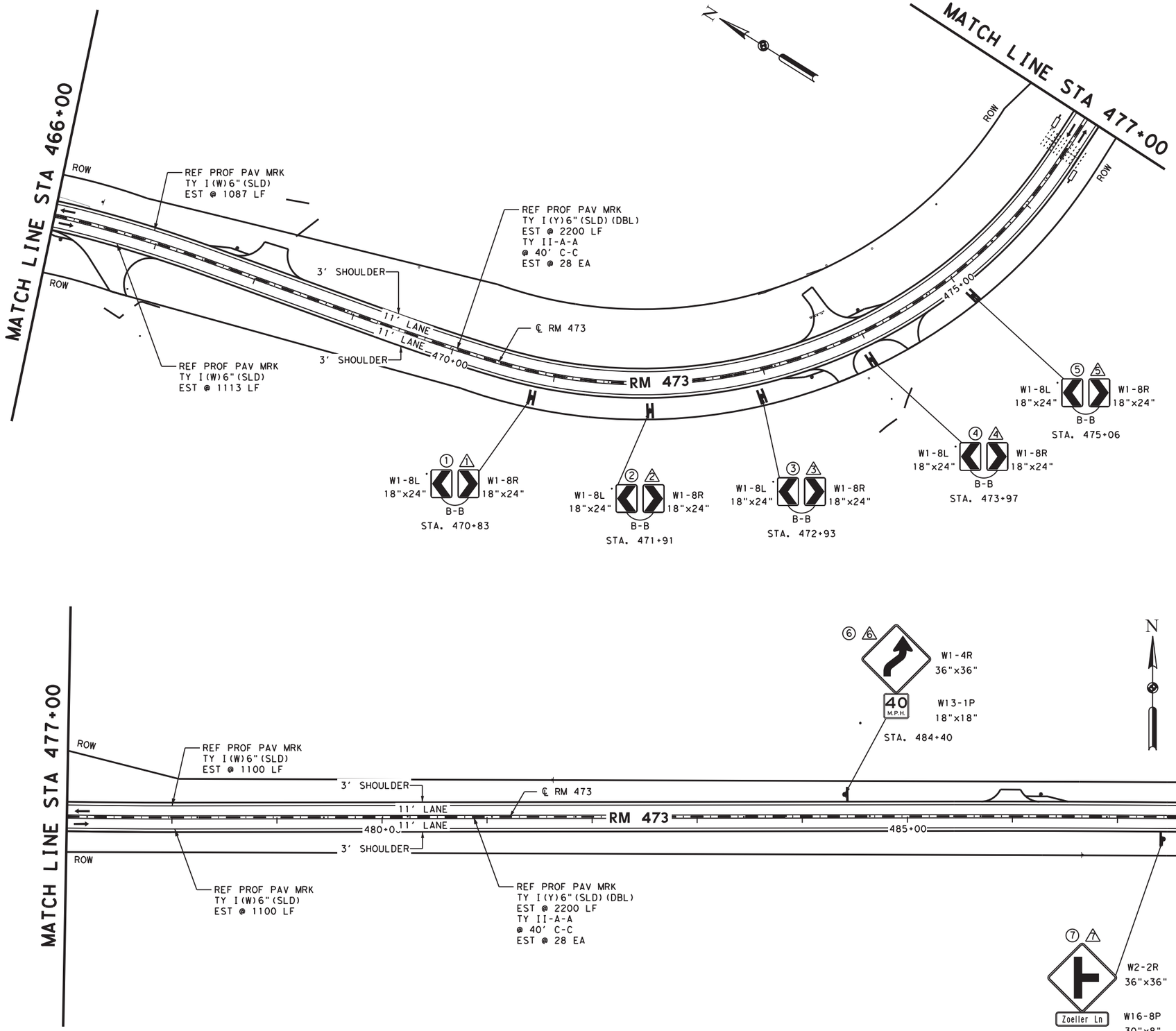
100% SUBMITTAL

TIME: 11:54:17 AM DATE: 5/8/2024



SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	5
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	1
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	1
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	7
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	2
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4400
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	4400
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 466+00 TO
℄ RM 473 STA 488+00

SHEET 10 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	211

PLOT DRIVER: pdf-bw.pltcfg
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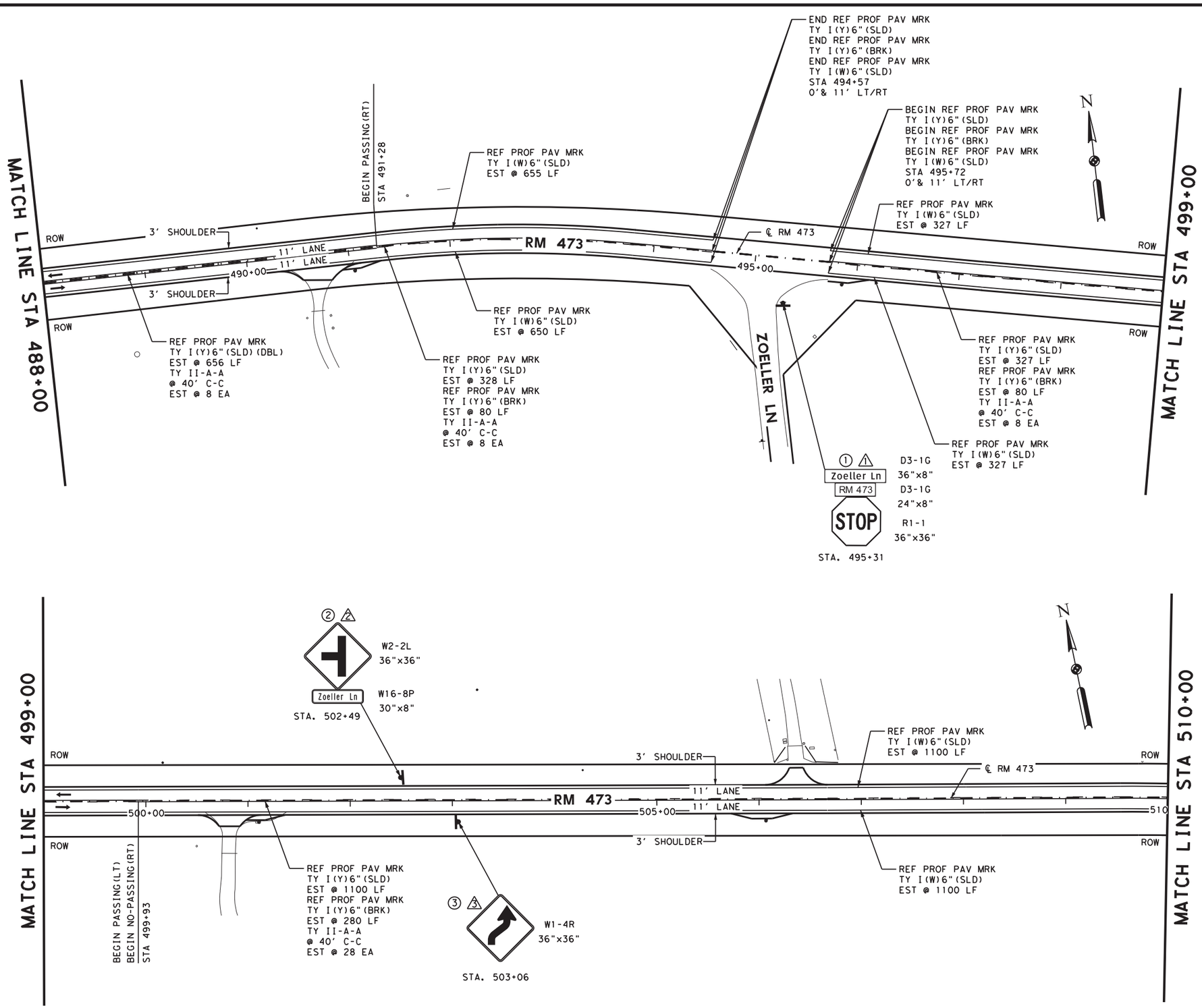
100% SUBMITTAL



SHEET SUMMARY OF ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	2
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	1
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	3
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4159
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	2411
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	440
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	52
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- PROPOSED SMALL SIGN
- EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 488+00 TO
℄ RM 473 STA 510+00

SHEET 11 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET			RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.	
SAT	KENDALL	0142	09	047	212	

PLOT DRIVER: pdf-bw.pltcfg
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TIME: 11:54:44 AM

100% SUBMITTAL

DATE: 5/8/2024 TIME: 2:55:03 PM

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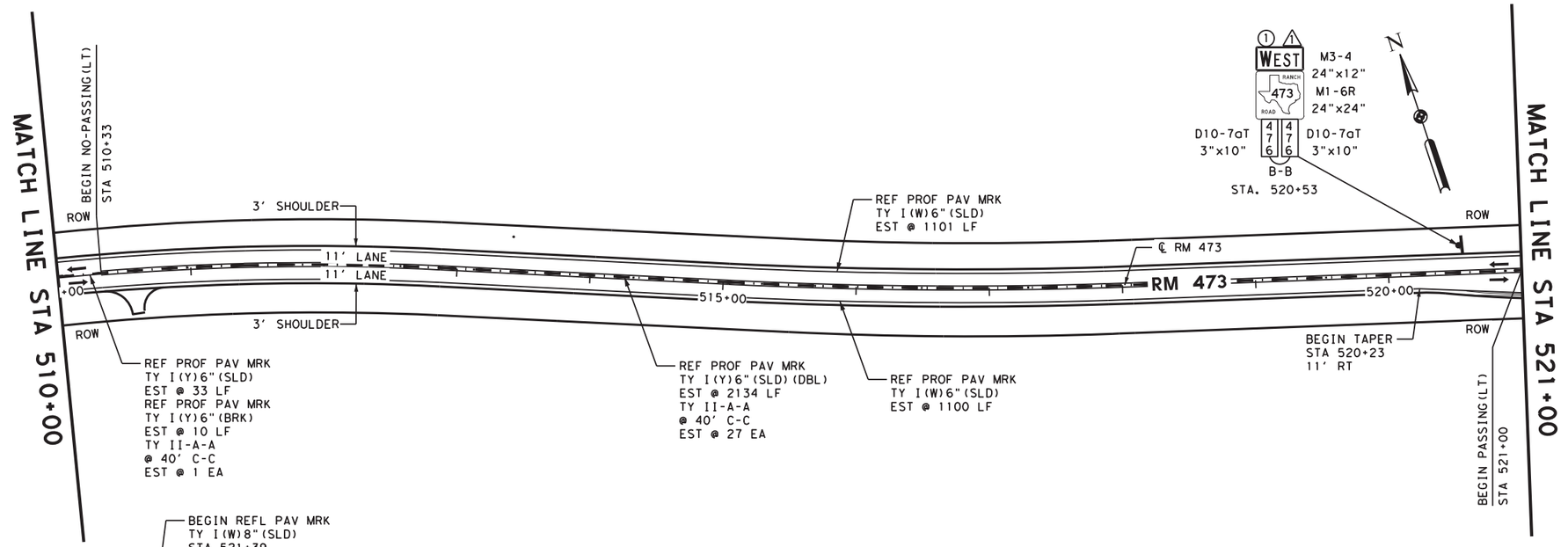
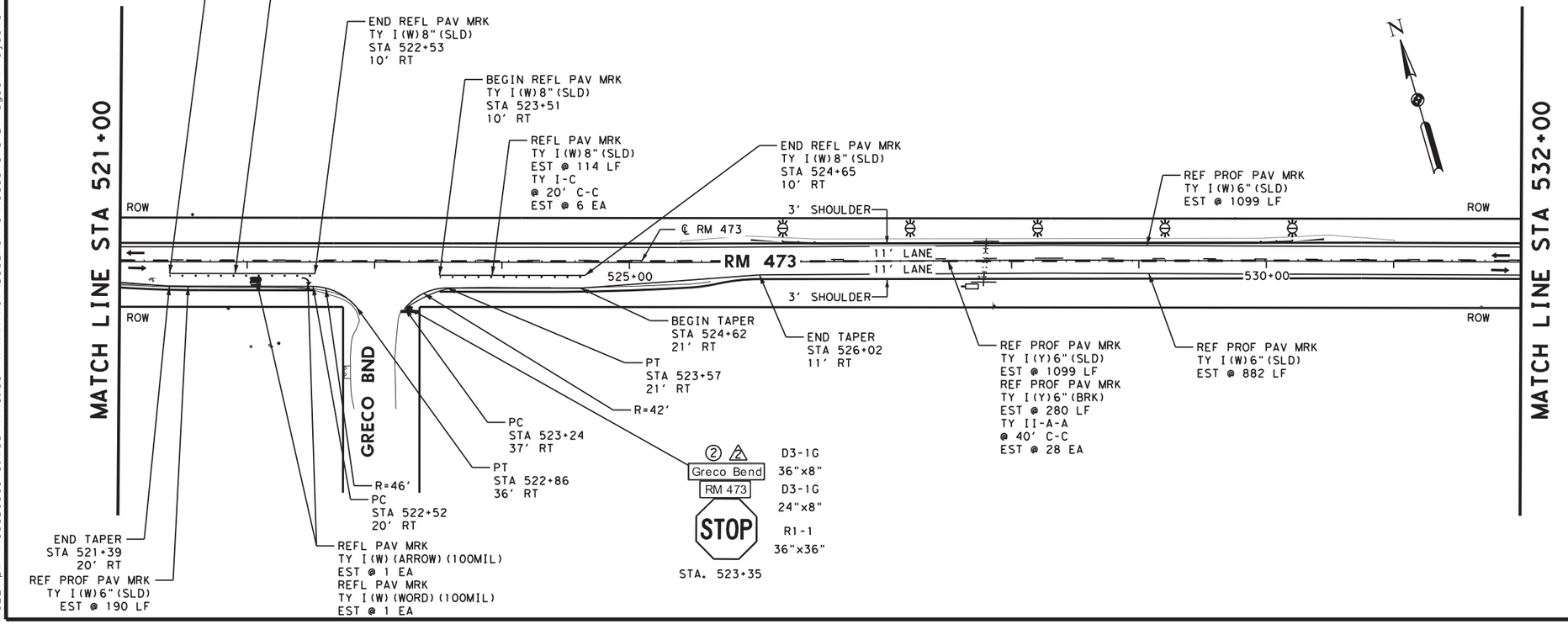




SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	1
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	1
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	2
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	5
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	1
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	228
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	1
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	1
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4372
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	3266
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	290
0672-6007	REFL PAV MRKR TY I-C	EA	12
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- PROPOSED SMALL SIGN
- EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

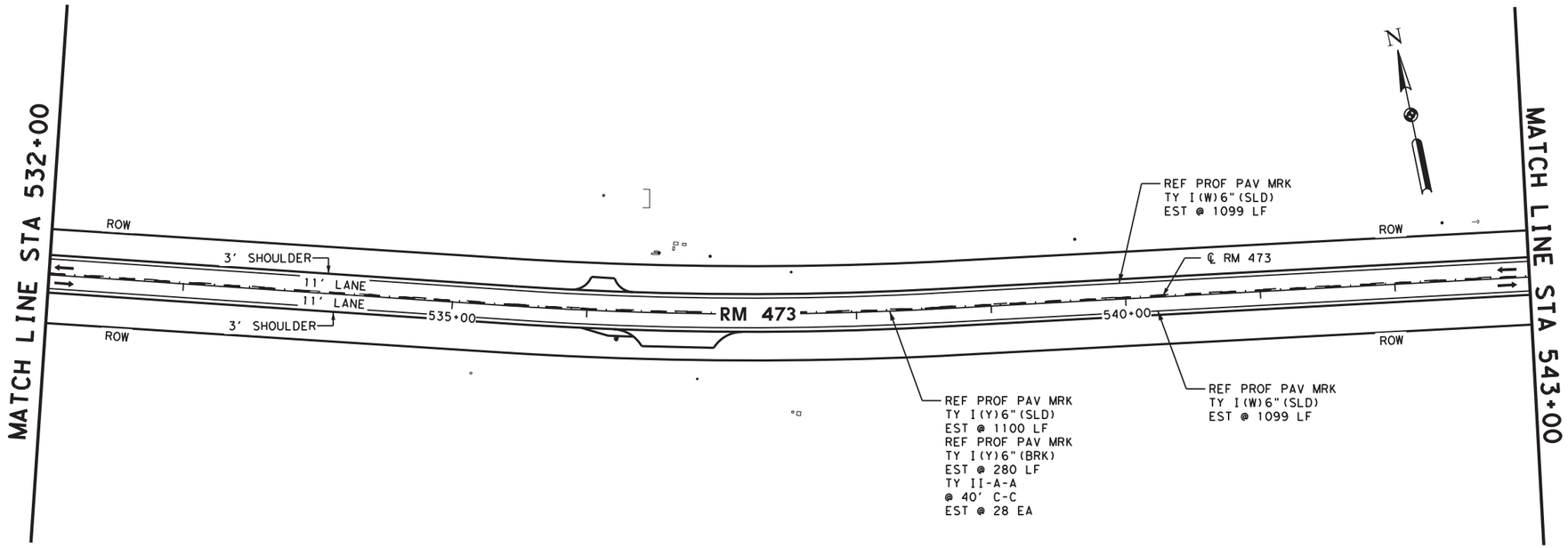
℄ RM 473 STA 510+00 TO
℄ RM 473 STA 532+00

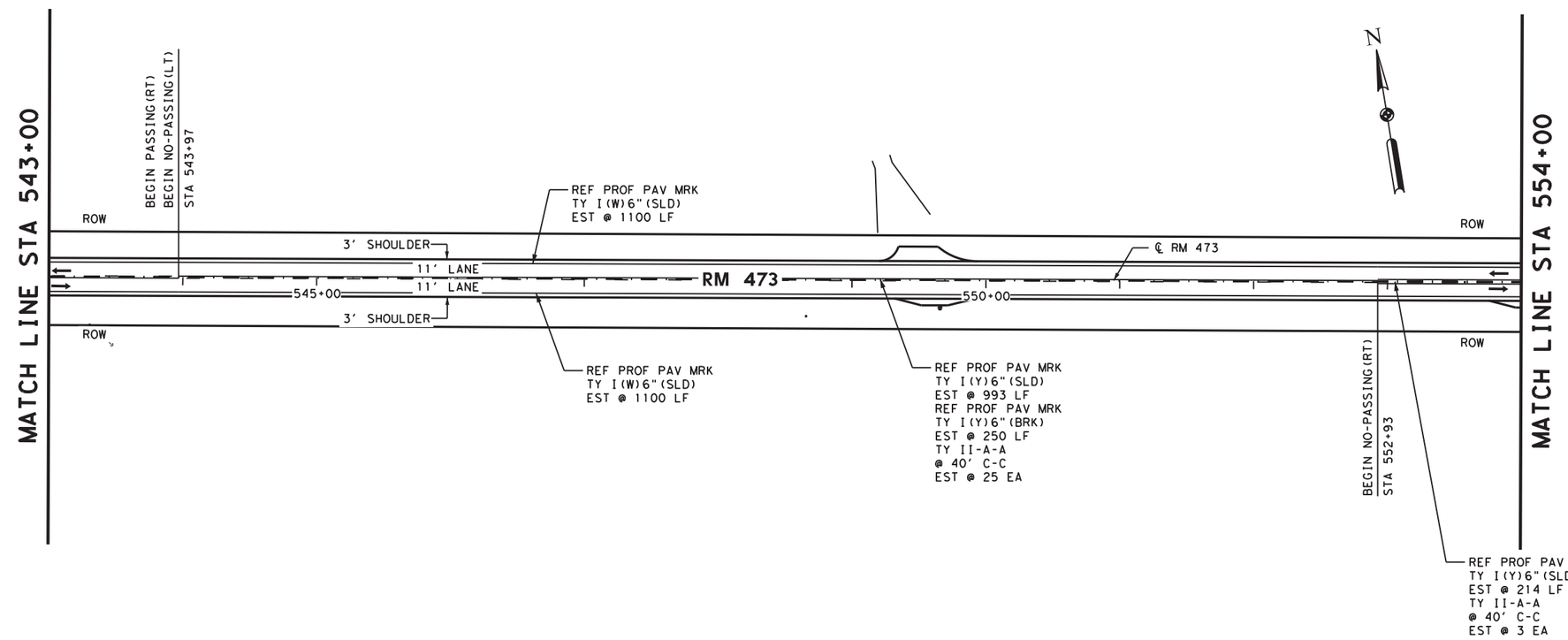
SHEET 12 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	213

100% SUBMITTAL

DATE: 5/8/2024 TIME: 11:55:13 AM





SHEET SUMMARY OF ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4398
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	2307
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	530
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- PROPOSED SMALL SIGN
- EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 532+00 TO
℄ RM 473 STA 554+00

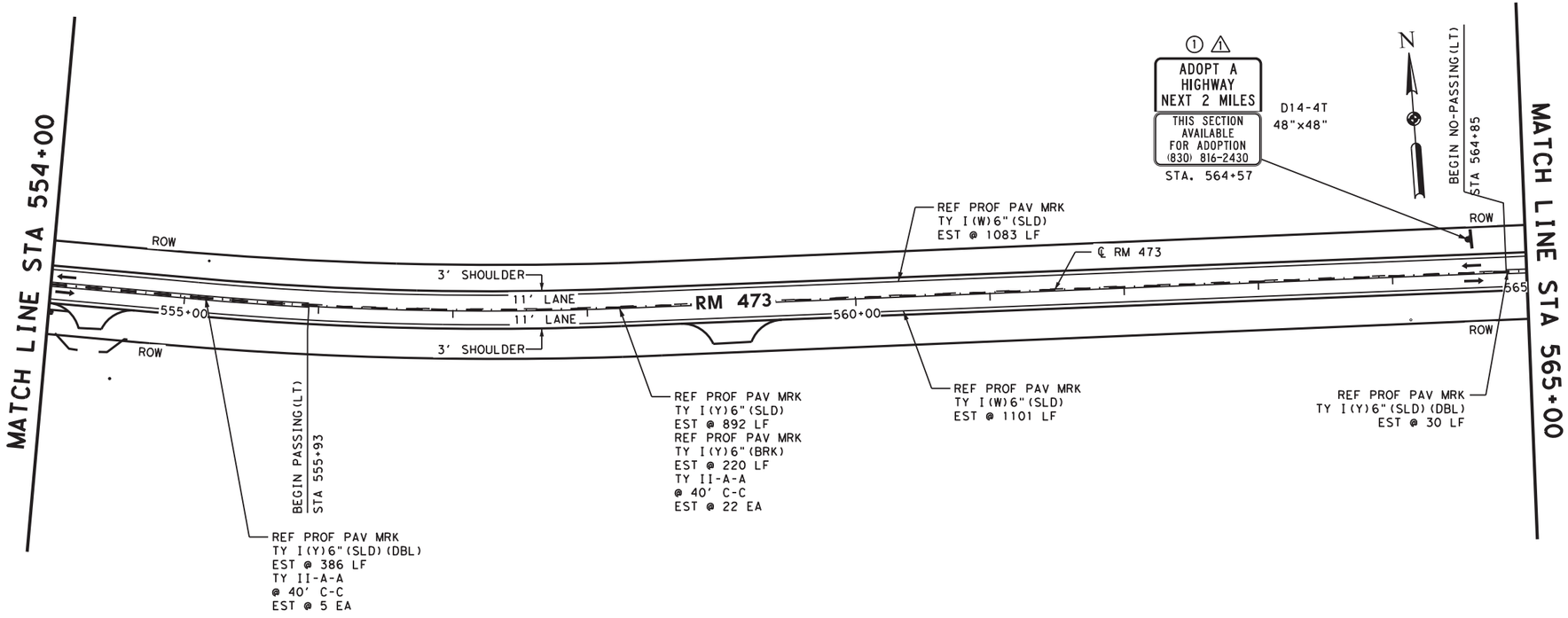
SHEET 13 OF 18

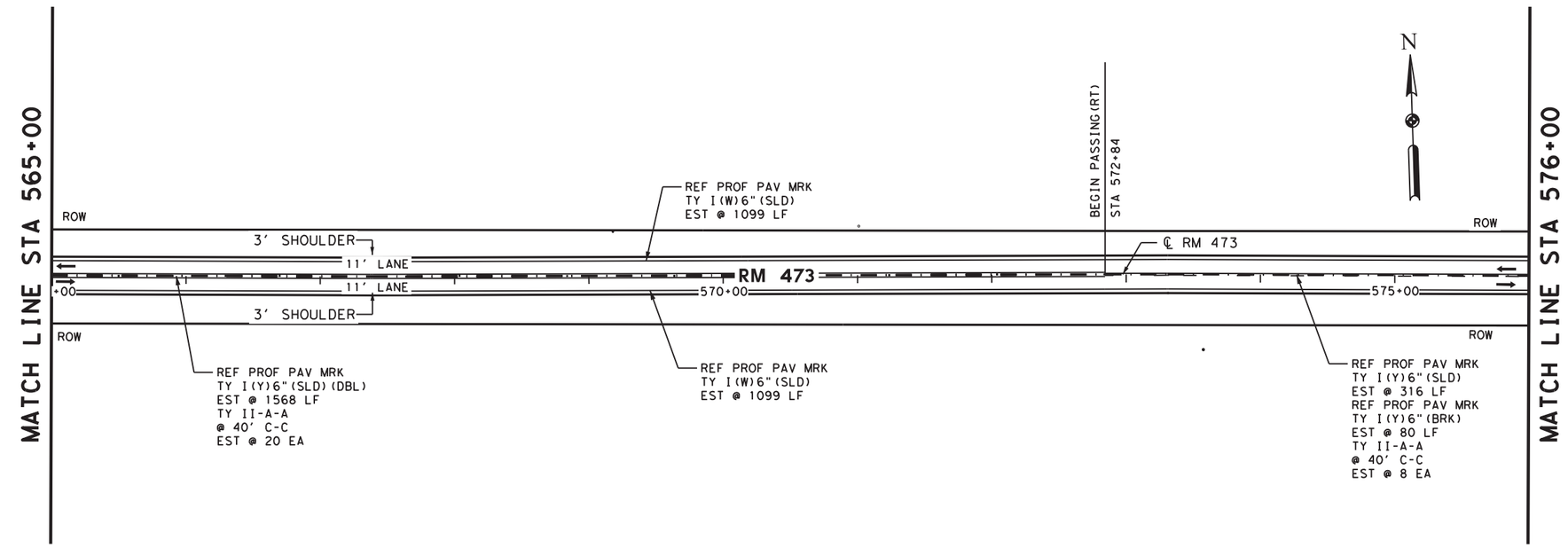
FED. RD DIV. NO.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	214

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: pw:\SUSD06343.wsatkins.com:ATKNATX01\Documents\Roads and Bridges\Projects\1000871133 RM 473\3. Execution_CADD\SPM\RM473_SPM_13.dgn

100% SUBMITTAL

DATE: 5/8/2024 TIME: 11:55:29 AM





SHEET SUMMARY OF ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	1
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	1
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4382
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	3192
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	300
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	55
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- PROPOSED SMALL SIGN
- EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 554+00 TO
℄ RM 473 STA 576+00

SHEET 14 OF 18

FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	215

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
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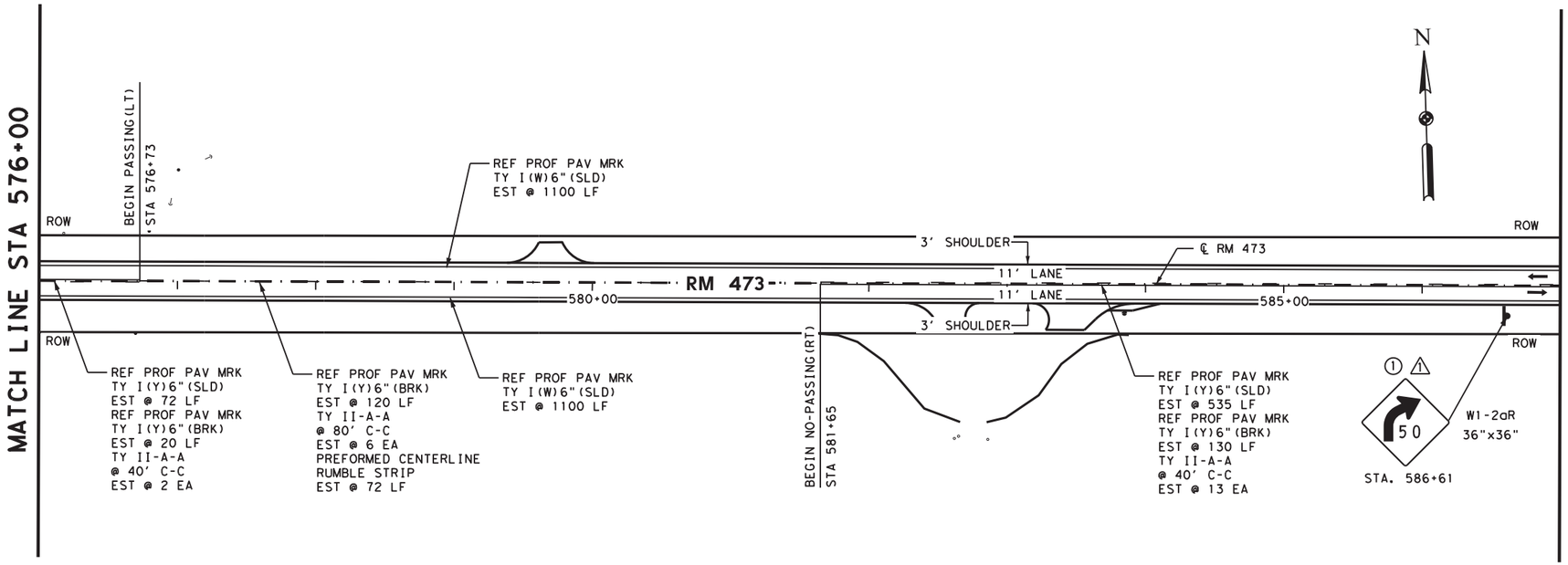
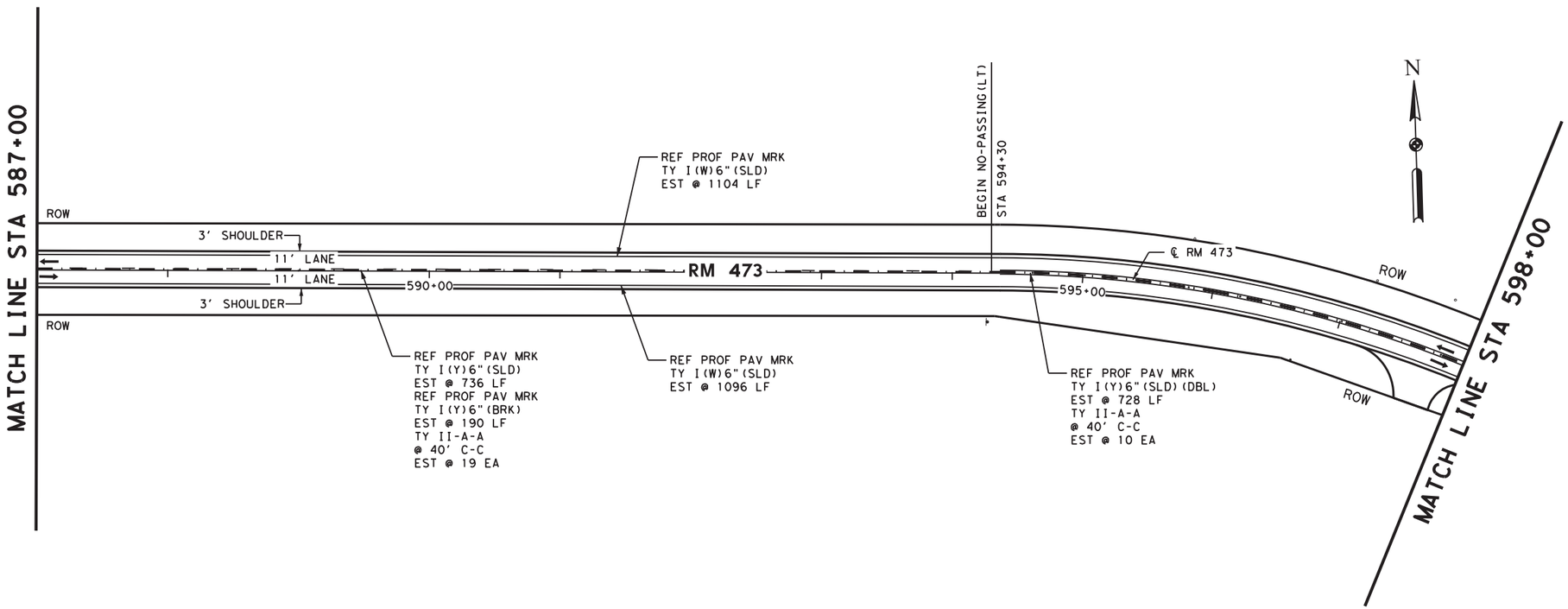
100% SUBMITTAL

TIME: 11:55:46 AM
DATE: 5/8/2024





SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	1
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	1
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4400
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	2071
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	460
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	50
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	72

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 576+00 TO
℄ RM 473 STA 598+00

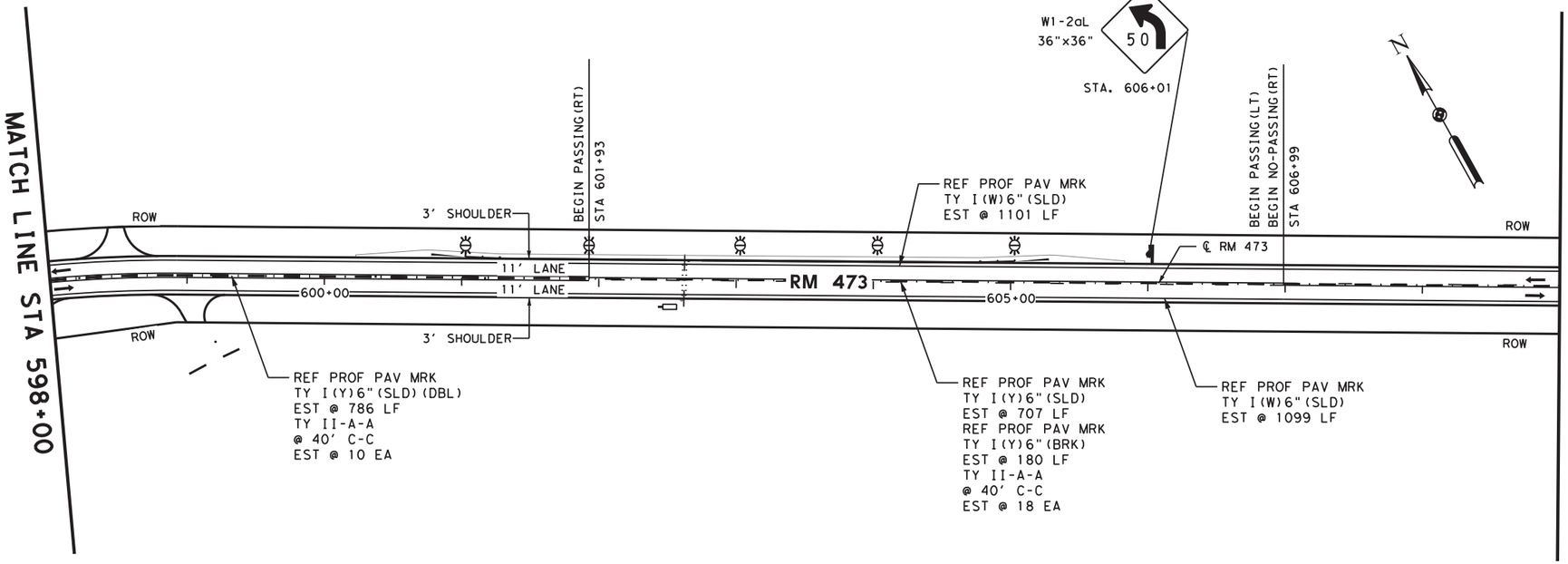
SHEET 15 OF 18

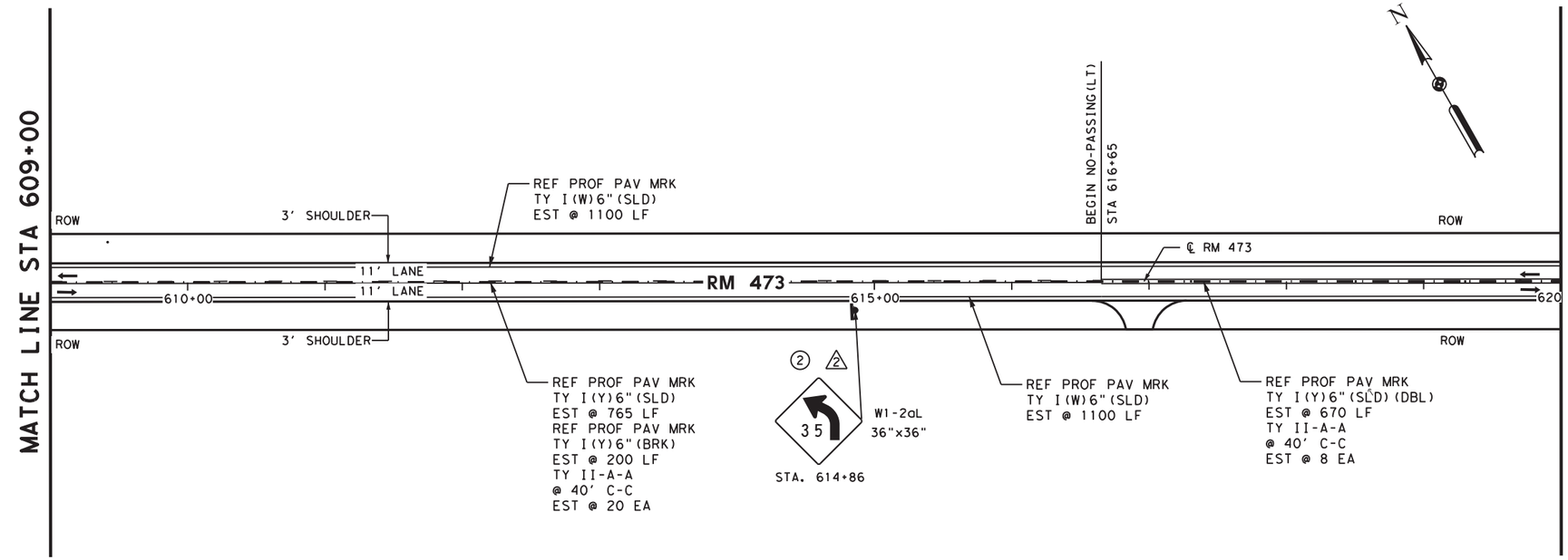
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	216

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: pw:\\SUS0036343.wsatkins.com:ATKNATX01\Documents\Roads and Bridges\Projects\100087133 RM 473\3. Execution_CADD\SPM\RM473_SPM_15.dgn

100% SUBMITTAL

DATE: 5/8/2024 TIME: 3:09:50 PM





SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	2
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	2
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	5
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	1
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4400
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	2928
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	380
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- PROPOSED SMALL SIGN
- EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 598+00 TO
℄ RM 473 STA 620+00

SHEET 16 OF 18

FED. RD. DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	217

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
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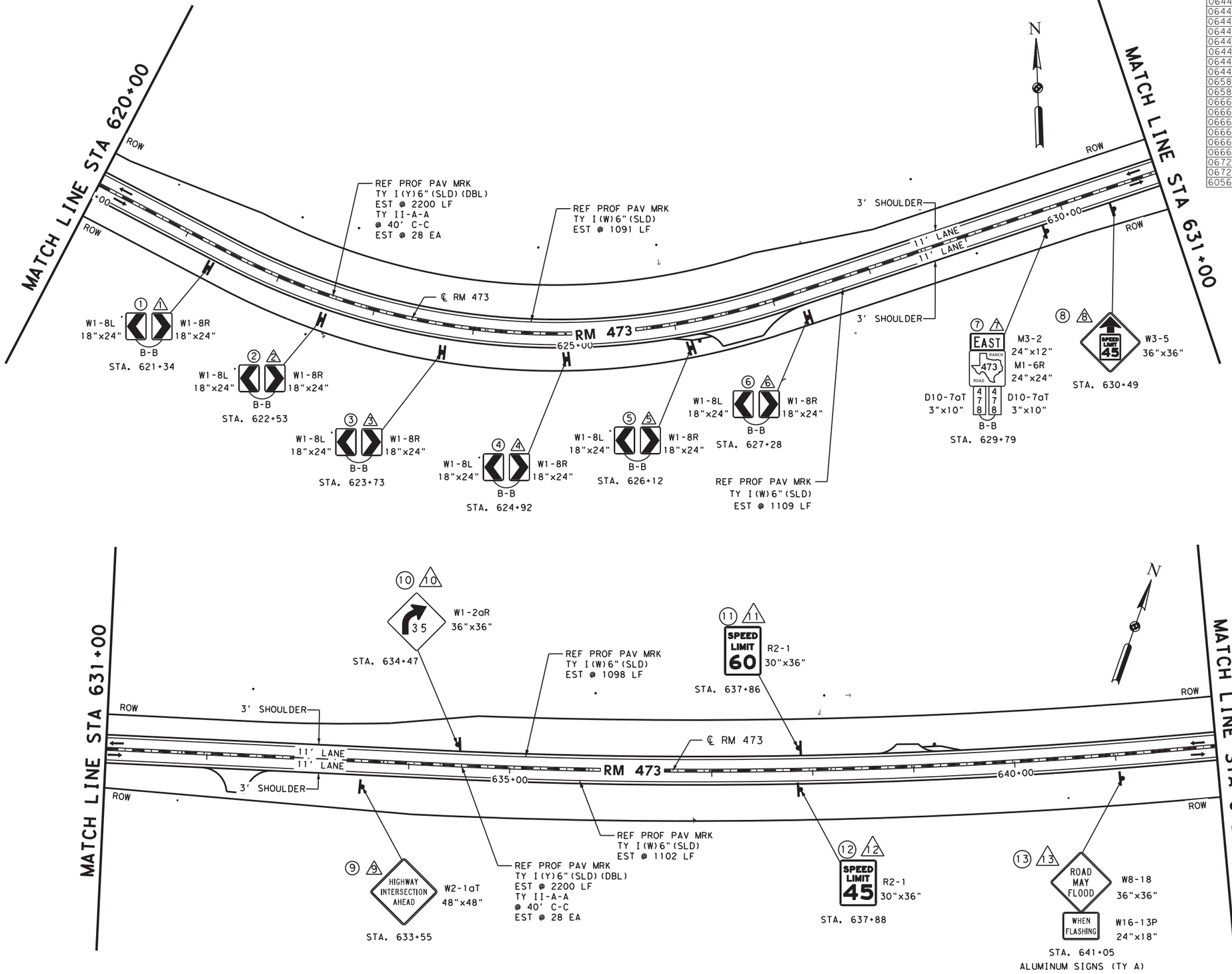
100% SUBMITTAL

DATE: 5/8/2024 TIME: 3:12:10 PM

SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	12
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	9
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	3
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	
0644-6076	REMOVE SM RD SN SUP&AM	EA	12
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	1
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	4400
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	4400
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	56
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

0' 50' 100'

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 620+00 TO
℄ RM 473 STA 642+00

SHEET 17 OF 18

FED. RD. DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	218

PLOT DRIVER: pdf-bw.pltcfg
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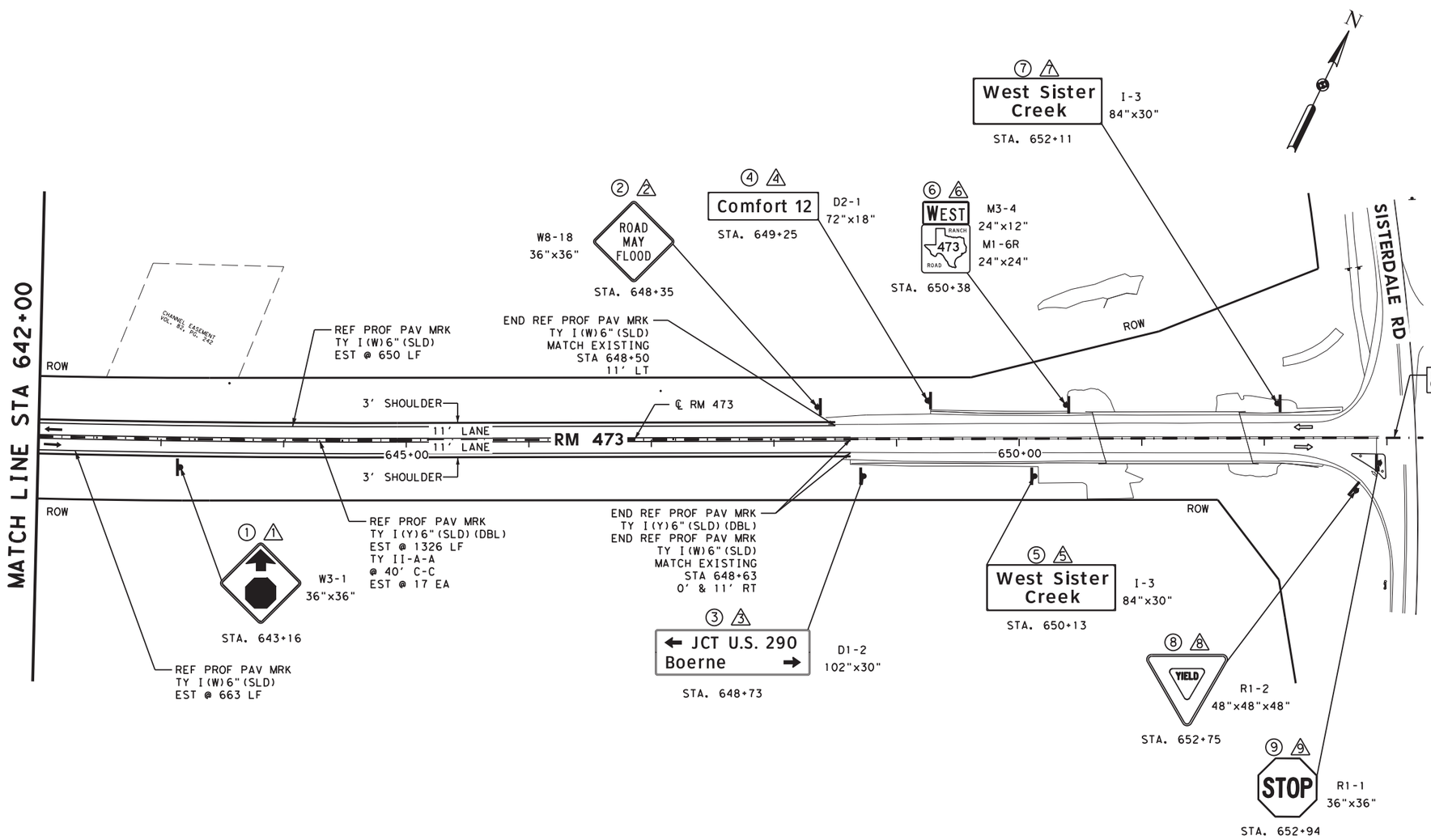
100% SUBMITTAL

DATE: 5/8/2024 TIME: 11:56:31 AM

SHEET SUMMARY OF ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY
0636-6001	ALUMINUM SIGNS (TY A)	SF	
0644-6001	IN SM RD SN SUP&AM TY 10BWG (1) SA (P)	EA	1
0644-6002	IN SM RD SN SUP&AM TY 10BWG (1) SA (P-BM	EA	
0644-6004	IN SM RD SN SUP&AM TY 10BWG (1) SA (T)	EA	6
0644-6023	IN SM RD SN SUP&AM TY FRP (1) UA (P)	EA	
0644-6030	IN SM RD SN SUP&AM TY S80 (1) SA (T)	EA	1
0644-6031	IN SM RD SN SUP&AM TY S80 (1) SA (T-2EXT	EA	1
0644-6076	REMOVE SM RD SN SUP&AM	EA	9
0644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)	EA	
0658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	
0658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	
0666-6285	REF PROF PAV MRK TY I (W)6"(SLD)(090MIL)	LF	1313
0666-6289	REF PROF PAV MRK TY I (Y)6"(SLD)(090MIL)	LF	1326
0666-6293	REF PROF PAV MRK TY I (Y)6"(BRK)(090MIL)	LF	
0672-6007	REFL PAV MRKR TY I-C	EA	
0672-6009	REFL PAV MRKR TY II-A-A	EA	17
6056-6009	PREFORMED CENTERLINE RUMBLE STRIP	LF	



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW
- EXISTING SIGN
- PROPOSED SIGN
- PROPOSED SIGN BACK TO BACK
- (#) PROPOSED SMALL SIGN
- (#) EXISTING SMALL SIGN TO BE REMOVED
- OM-2Z (WFLX)GND
- DEL ASSM (D-SW)SZ1(BRF)GF2(BI)

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SIGNING AND PAVEMENT MARKING LAYOUT

℄ RM 473 STA 642+00 TO END OF PROJECT

SHEET 18 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	219

PLOT DRIVER: pdf-bw.pltcfg
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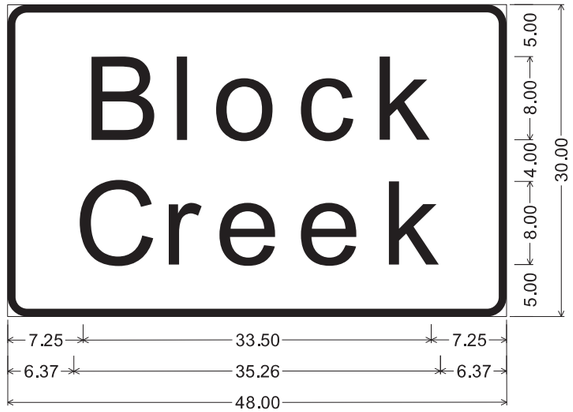
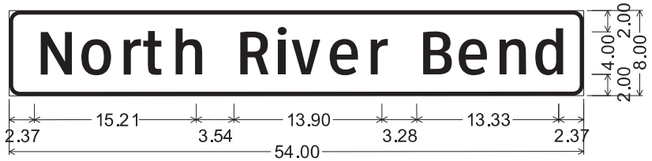


1.88" Radius, 0.75" Border, White on Green;
"Block", ClearviewHwy-5-W-R;
"Creek", ClearviewHwy-5-W-R;

SHEET 1 OF 18 SIGN NO. 3 & 6

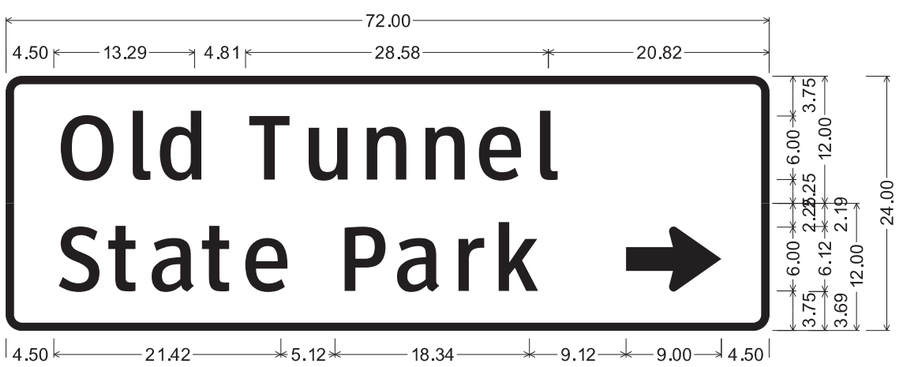
D2-1 8in;
1.50" Radius, 0.50" Border, White on Green;
"Sisterdale", ClearviewHwy-3-W; "7", ClearviewHwy-3-W;

SHEET 1 OF 18 SIGN NO. 8



D3-1G(1) 4in;
1.00" Radius, 0.38" Border, White on Green;
"North River Bend", ClearviewHwy-3-W;

SHEET 2 OF 18 SIGN NO. 4



D7-1T(R)VARx24;

1.50" Radius, 0.75" Border, White on Brown;
"Old Tunnel", ClearviewHwy-3-W;

1.50" Radius, 0.75" Border, White on Brown;
"State Park", ClearviewHwy-3-W; Standard Arrow 9.00" X 6.13" 0°;

SHEET 1 OF 18 SIGN NO. 9

D1-1TR_VARx18;
1.50" Radius, 0.50" Border, White on Green;
"Waring", ClearviewHwy-3-W; Standard Arrow 2.625 11.50" X 7.00" 0°;

SHEET 3 OF 18 SIGN NO. 3

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

RM 473

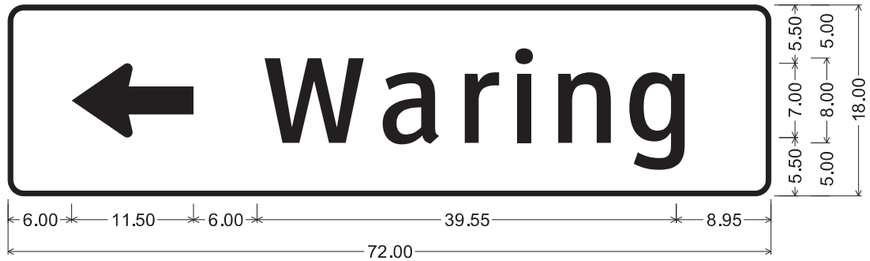
SMALL SIGN DETAILS

SHEET 1 OF 4

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET			RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.	
SAT	KENDALL	0142	09	047	220	

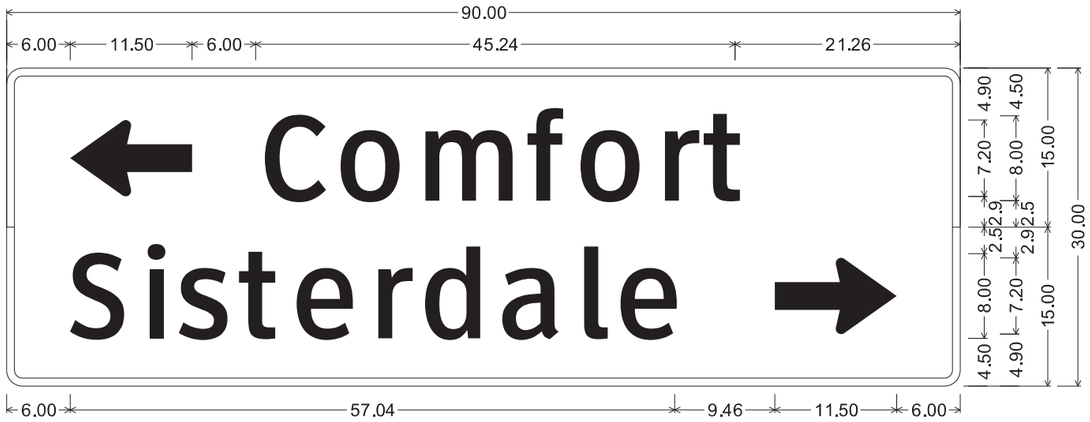
D3-1G(1) 4in;
1.00" Radius, 0.38" Border, White on Green;
"Upper Sisterdale Rd", ClearviewHwy-3-W;

SHEET 3 OF 18 SIGN NO. 4 & 7



D1-1TL_VARx18;
1.50" Radius, 0.50" Border, White on Green;
Standard Arrow 2.625 11.50" X 7.00" 180°; "Waring", ClearviewHwy-3-W;

SHEET 3 OF 18 SIGN NO. 9

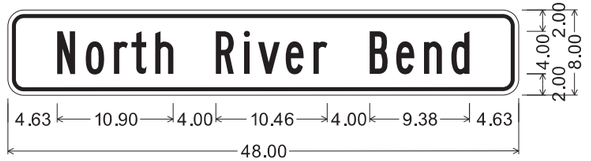


D1-2T(L,R)_VARx30;

1.50" Radius, 0.75" Border, White on Green;
Standard Arrow Custom 11.50" X 7.20" 180°; "Comfort", ClearviewHwy-3-W;

1.50" Radius, 0.75" Border, White on Green;
"Sisterdale", ClearviewHwy-3-W; Standard Arrow Custom 11.50" X 7.20" 0°;

SHEET 3 OF 18 SIGN NO. 6



W16-8P;
1.50" Radius, 0.38" Border, 0.38" Indent, Black on Yellow;
"North River Bend", B;

SHEET 2 OF 18 SIGN NO. 1
SHEET 3 OF 18 SIGN NO. 1

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

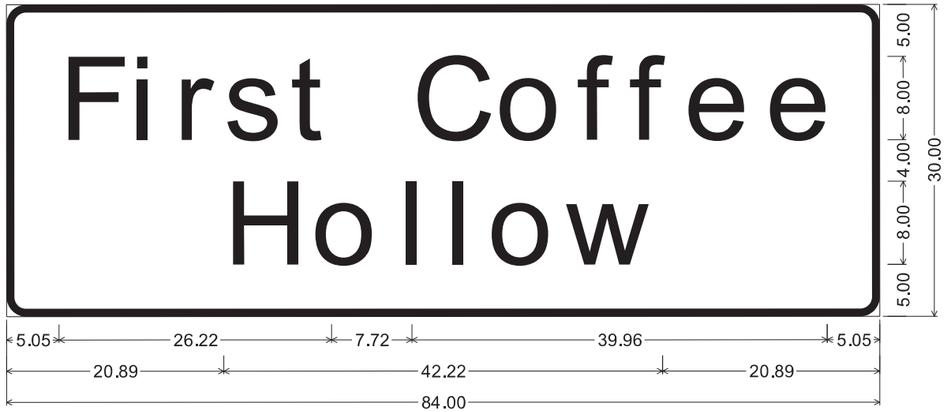
Texas Department of Transportation

RM 473

SMALL SIGN DETAILS

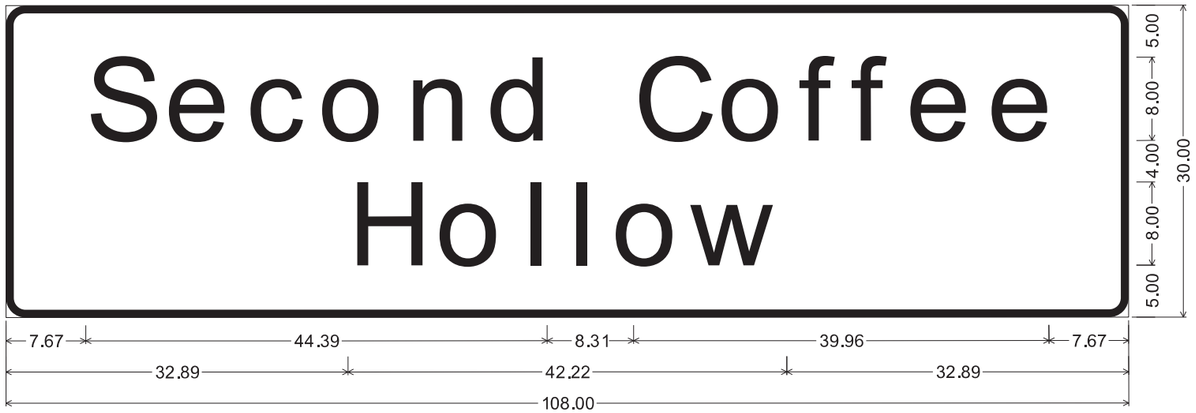
SHEET 2 OF 4

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	221



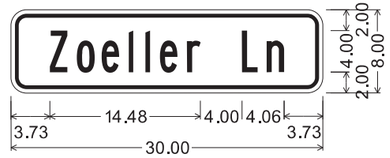
1.88" Radius, 0.75" Border, White on Green;
"First Coffee", ClearviewHwy-5-W-R; "Hollow", ClearviewHwy-5-W-R;

SHEET 6 OF 18 SIGN NO. 1 & 2



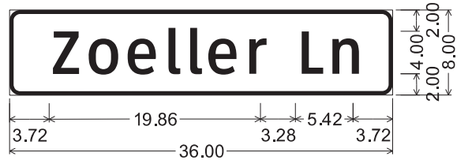
1.88" Radius, 0.75" Border, White on Green;
"Second Coffee", ClearviewHwy-5-W-R; "Hollow", ClearviewHwy-5-W-R;

SHEET 7 OF 18 SIGN NO. 4 & 6



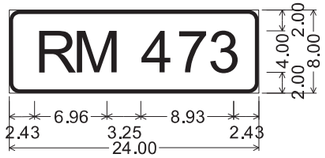
1.50" Radius, 0.38" Border, 0.38" Indent, Black on Yellow;
"Zoeller Ln", B;

SHEET 10 OF 18 SIGN NO. 7
SHEET 11 OF 18 SIGN NO. 2



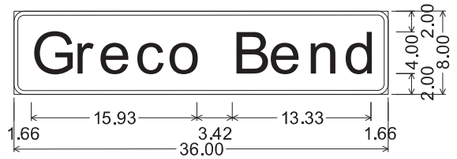
D3-1G(1) 4in;
1.00" Radius, 0.38" Border, White on Green;
"Zoeller Ln", ClearviewHwy-3-W;

SHEET 11 OF 18 SIGN NO. 1



D3-1G(1) 4in;
1.00" Radius, 0.38" Border, White on Green;
"RM 473", ClearviewHwy-3-W;

SHEET 11 OF 18 SIGN NO. 1
SHEET 12 OF 18 SIGN NO. 2



D3-1G(1) 4in;
1.00" Radius, 0.38" Border, White on Green;
"Greco Bend", ClearviewHwy-3-W;

SHEET 12 OF 18 SIGN NO. 2

05/08/2024

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San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

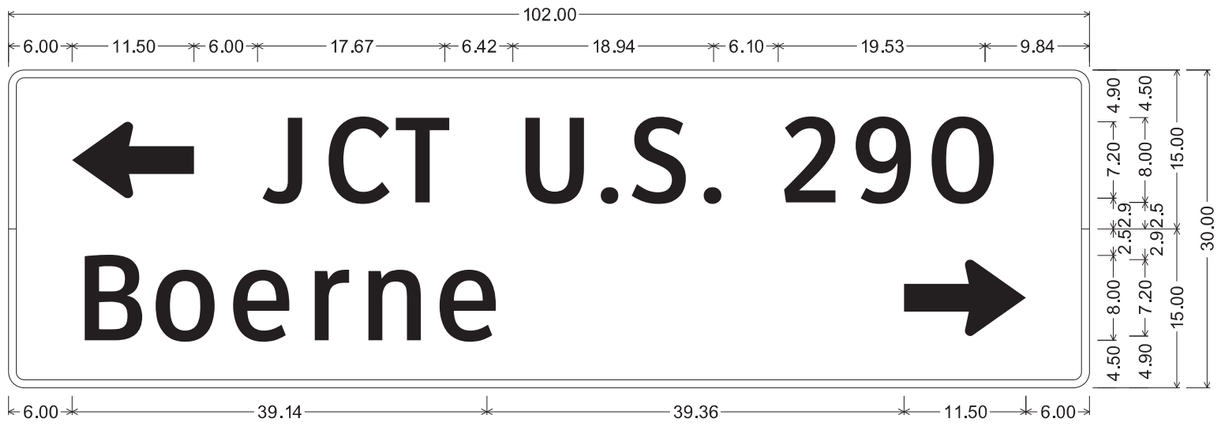
RM 473

SMALL SIGN DETAILS

SHEET 3 OF 4

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	222

100% SUBMITTAL



D1-2T(L,R)_VARx30;

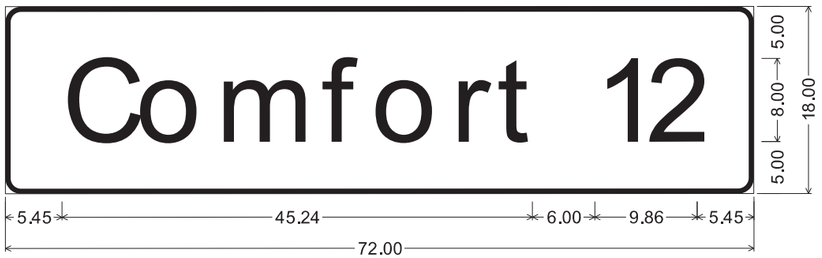
1.50" Radius, 0.75" Border, White on Green;
Standard Arrow Custom 11.50" X 7.20" 180°; "JCT U.S. 290", ClearviewHwy-3-W;

1.50" Radius, 0.75" Border, White on Green;
"Boerne", ClearviewHwy-3-W; Standard Arrow Custom 11.50" X 7.20" 0°;

SHEET 18 OF 18 SIGN NO. 3

1.88" Radius, 0.75" Border, White on Green;
"West Sister", ClearviewHwy-5-W-R; "Creek", ClearviewHwy-5-W-R;

SHEET 18 OF 18 SIGN NO. 5 & 7



D2-1 8in;
1.50" Radius, 0.50" Border, White on Green;
"Comfort", ClearviewHwy-3-W; "12", ClearviewHwy-3-W;

SHEET 18 OF 18 SIGN NO. 4

STATE OF TEXAS
GREGORIO GARCIA
101077
LICENSED
PROFESSIONAL ENGINEER

05/08/2024

REV. No.	DATE	REVISION	BY

SANCHEZ-SALAZAR & ASSOCIATES, LLC
4630 N. Loop 1604 W., Ste. 115
San Antonio, TX 78249
Phone: (210) 314-5458
TBPE Registration No. 15685

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SMALL SIGN DETAILS

SHEET 4 OF 4

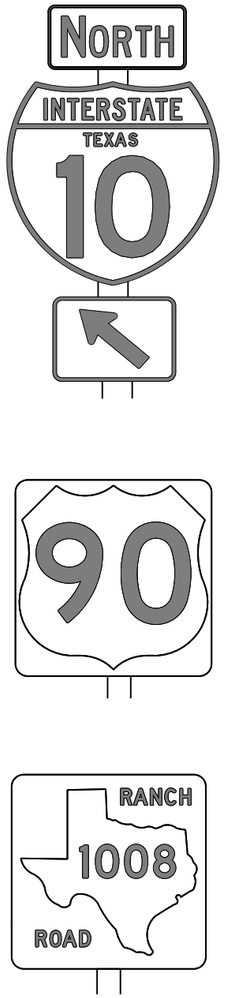
FED. RD DIV. NO.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	223

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: pw:\\SUS003343.wsatkins.com:ATKNATX01\Documents\Roads and Bridges\Projects\100087133 RM 473\3. Execution_CADD\SPM\RM473_SPM_SS_DETAILS.dgn 5/8/2024 TIME: 11:56:47 AM

DATE:
FILE:

REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

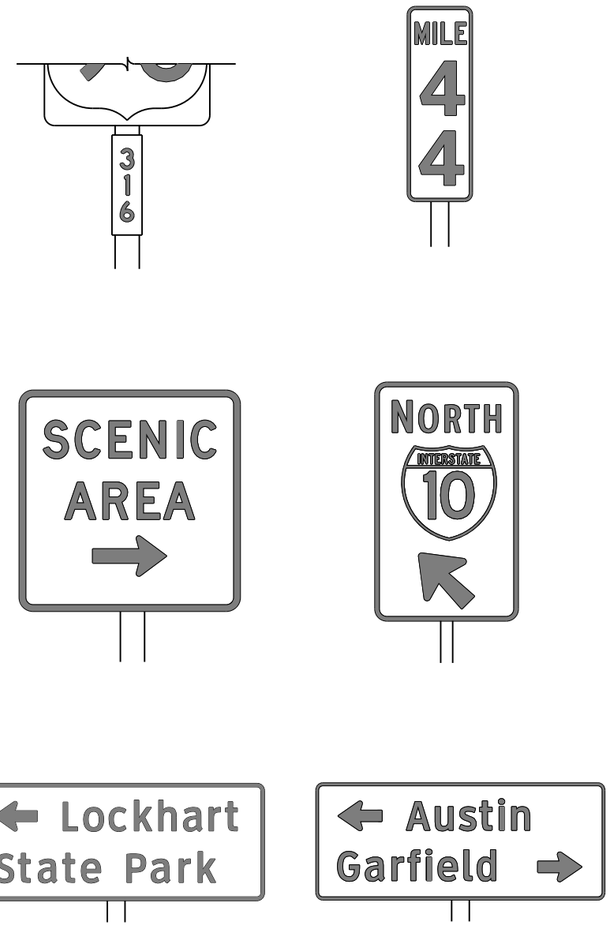
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE A SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING



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

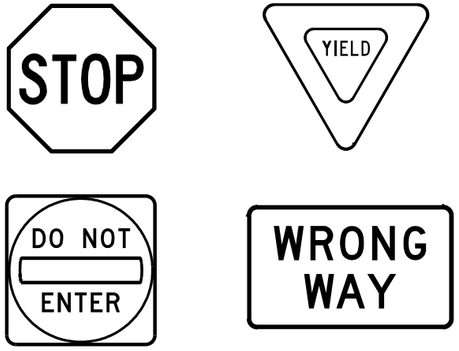
TSR(3)-13

FILE:	tsr3-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS		0142	09	047	RM 473
12-03 7-13		DIST	COUNTY		SHEET NO.
9-08		SAT	KENDALL		224

DATE:
FILE:

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

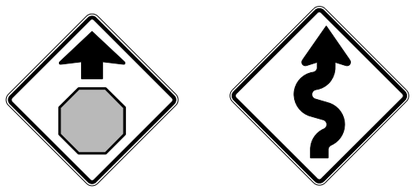
REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(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

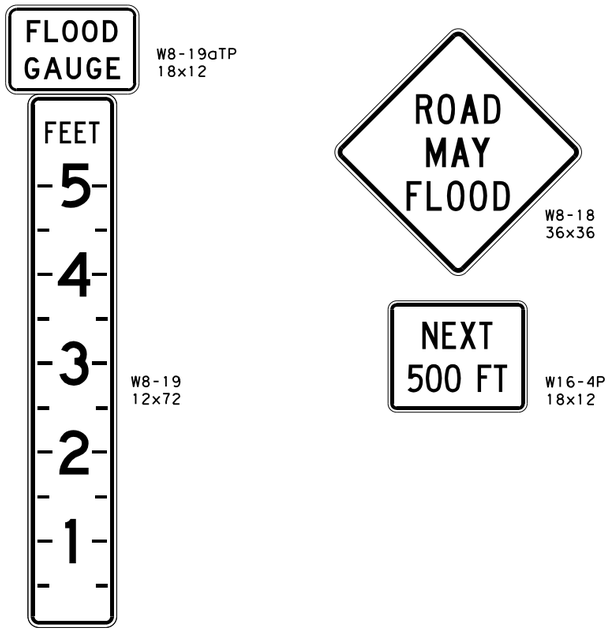
Traffic Operations Division Standard

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	0142	09	047	RM 473
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	SAT	KENDALL		225

DATE:
FILE:



W8-19aTP
18x12

W8-19
12x72

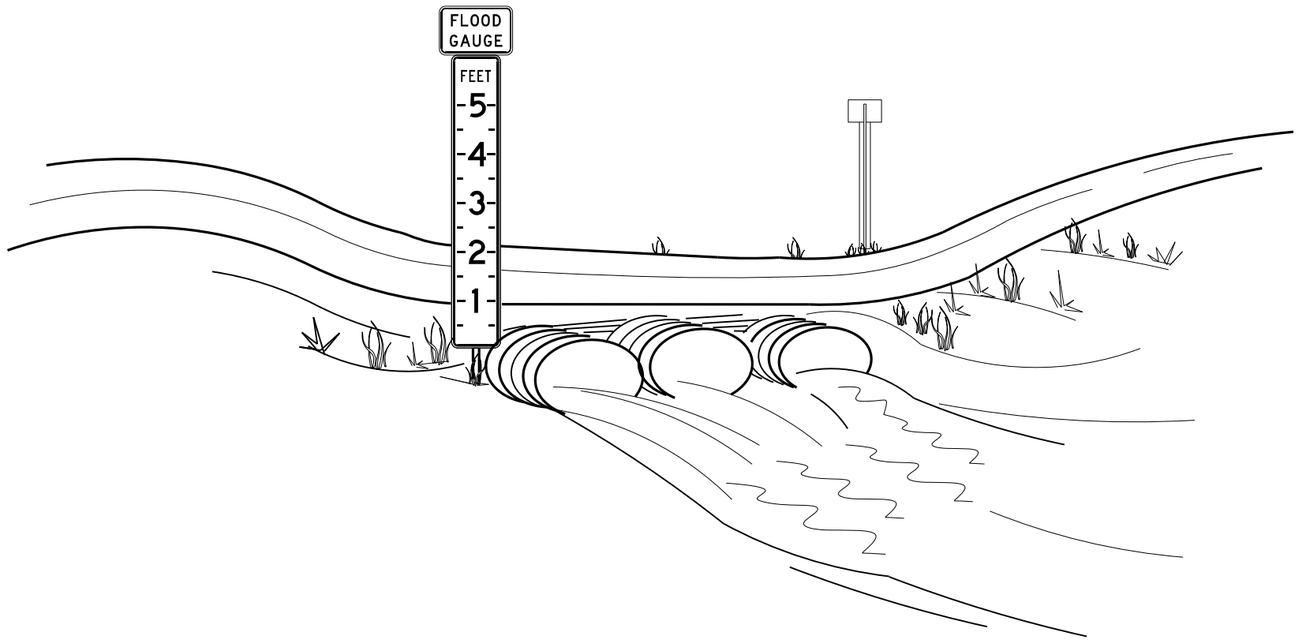
W8-18
36x36

W16-4P
18x12

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

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLUORESCENT YELLOW	TYPE B_{FL} & C_{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM



GENERAL NOTES

1. Each flood gauge assembly shall consist of the FLOOD GAUGE sign (W8-19aTP) and DEPTH MARKER (W8-19). Two assemblies should be erected, one along each approach, at the low water crossing location on the right side of the roadway.

2. The flood gauge assembly should be of sufficient height to register depth of water to a minimum of five (5) Feet above the lowest travel lane pavement surface. Actual height of depth marker required for each location is shown elsewhere in the plans, but should not be in excess of ten (10) feet.

3. The flood gauge assembly should be located not more than ten (10) feet from the pavement edge. Consideration should be given to placement with regard to the following factors:

   a) Accurate register of depth of water over roadway.

   b) Daytime and nighttime visibility of the flood gauge assembly along roadway approaches.

   c) Outside the main flow of water during both normal and flood conditions.

4. In areas where flood conditions would likely obscure the flood gauge assembly, a second pair of gauges, one on each approach, registering depths greater than shown on the first flood gauge assembly, is recommended.

5. The Engineer will approve all flood gauge assembly locations before installation.

6. The alphabets and lateral spacing between letters and numerals shall conform with the Texas "Manual on Uniform Traffic Control Devices for Streets and Highways", latest edition, and any approved changes thereto. Lateral Spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications.

7. FLOOD GAUGE signs and depth marker shall be mounted in accordance with Standard SMD (series). The recommended mounting is three (3) inch fiberglass reinforced pipe (FRP) pipe as shown on Standard SMD(GEN) and SMD(FRP). ROAD MAY FLOOD sign (W8-18) along the approach roadway may be required in areas where rainfall causes frequent roadway flooding.

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

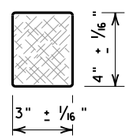
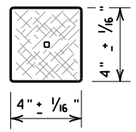
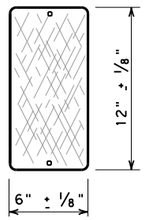
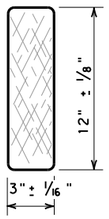
FLOOD GAUGE ASSEMBLY

FGA-15

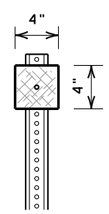
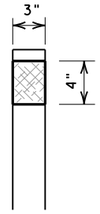
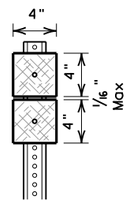
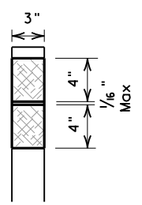
FILE: fga-15.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT January 1997	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
3-15	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		226

10F

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

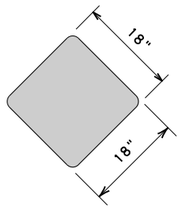
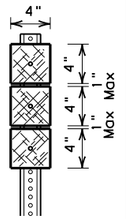
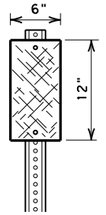
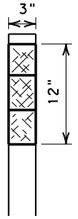
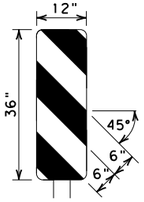
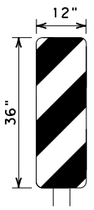
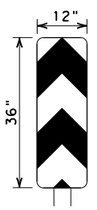
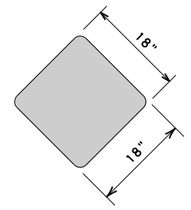
NUMBER OF REFLECTORS OR DIRECTION
X = 3-Size 2 reflector units (Type 2 only)
Y = 1-Size 3 reflector unit (Type 2 only)
Z = 3-Size 1 or 1-Size 4 reflector unit(s) (Type 2 only)
L = Left Side (Type 3 Object Marker only)
R = Right Side (Type 3 Object Marker only)
C = Center (Type 3 Object Marker only)

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

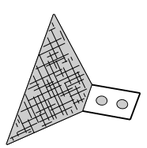
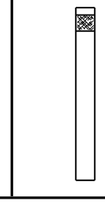
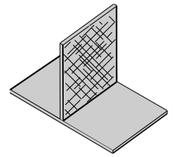
OBJECT MARKERS

	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

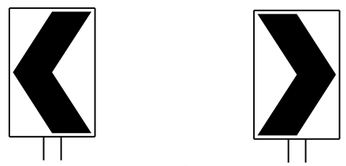
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

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



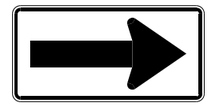
W1-8

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	0142	09	047	RM 473
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	SAT	KENDALL		227

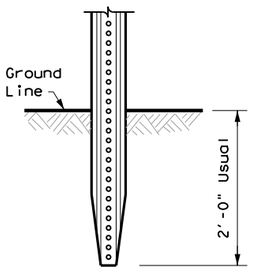
20A

DATE:
FILE:

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

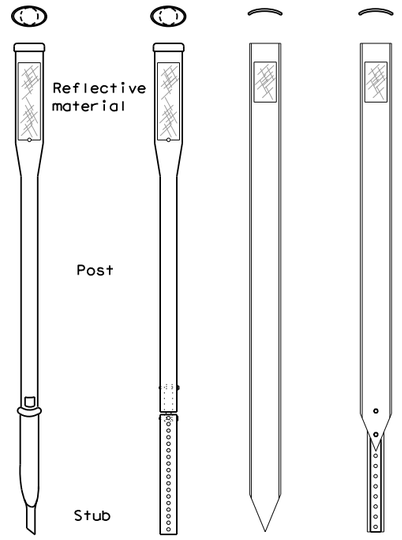


NOTES

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.

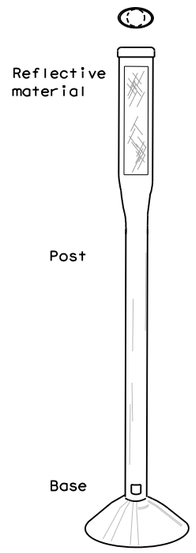
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



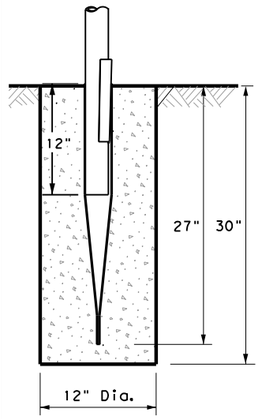
SURFACE MOUNT

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.

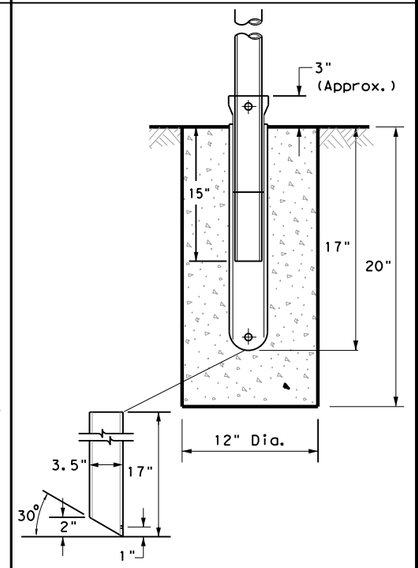
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

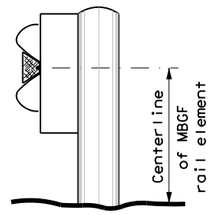
NOTE

1. Install per manufacturer's recommendations.

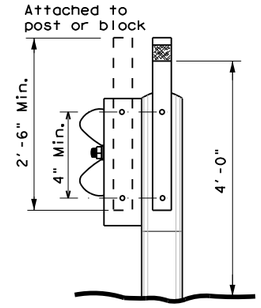
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

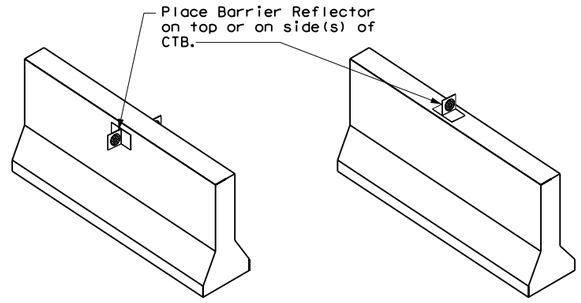
GF1



GF2



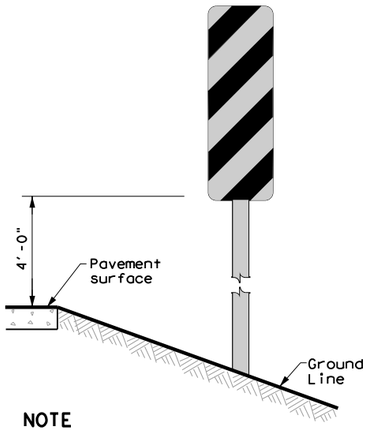
CONCRETE TRAFFIC BARRIER (CTB)



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.

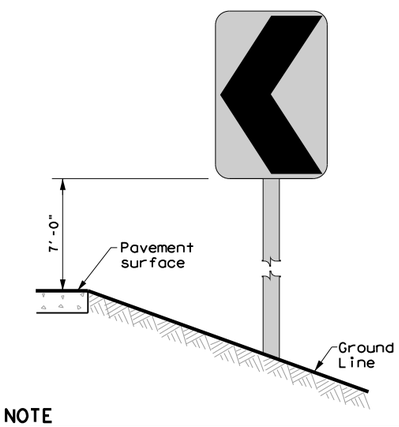
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



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)

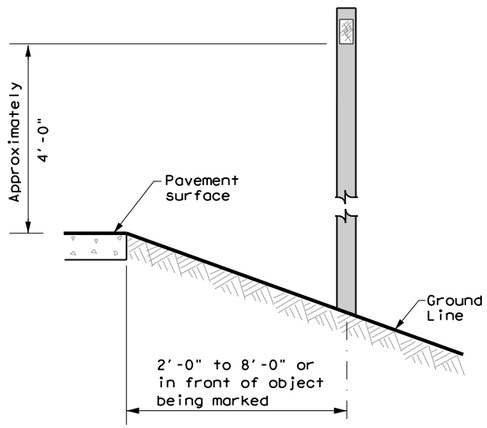
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



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	0142	09	047	RM 473
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	SAT	KENDALL		228

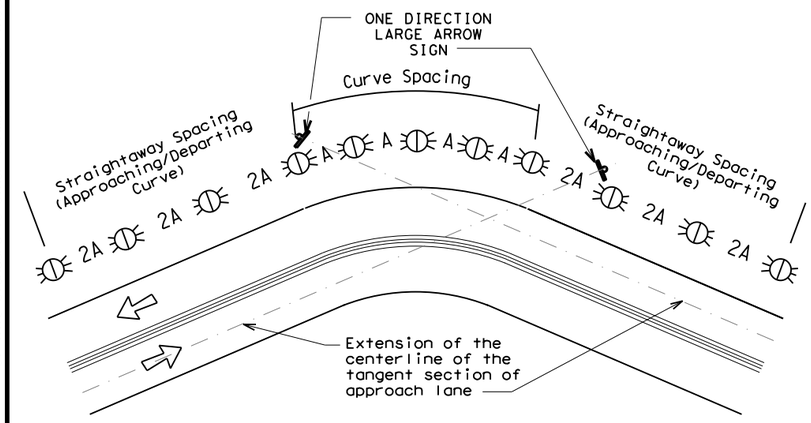
20B

DATE:
FILE:

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

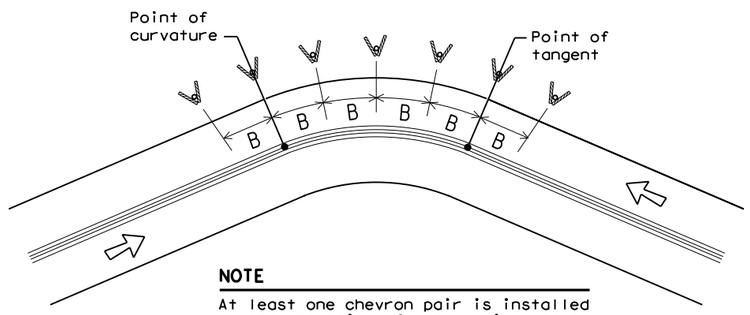
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



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

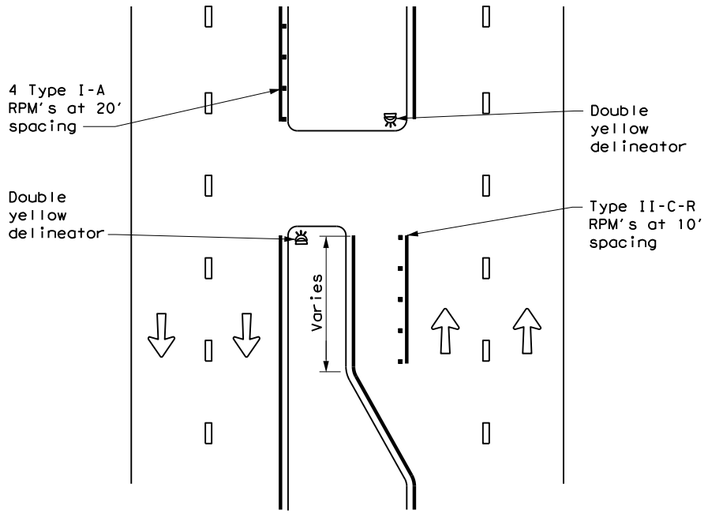
D & OM(3)-20

FILE: dom3-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
3-15 8-15	DIST	COUNTY		SHEET NO.
8-15 7-20	SAT	KENDALL		229

DATE:
FILE:

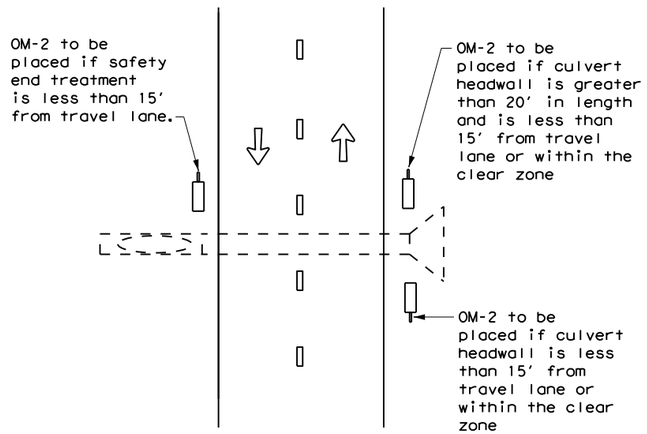
20C

CROSSOVERS



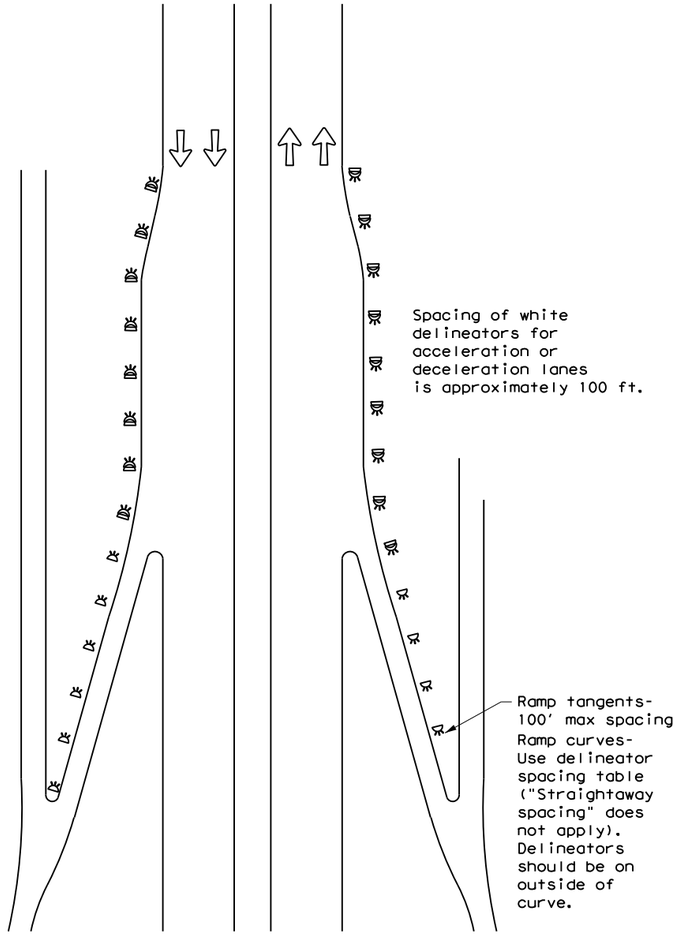
DETAIL 1

FOR CULVERTS WITHOUT MBGF



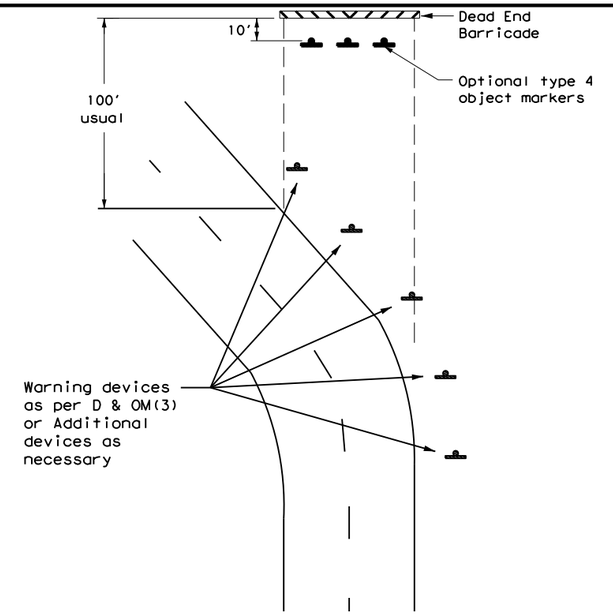
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



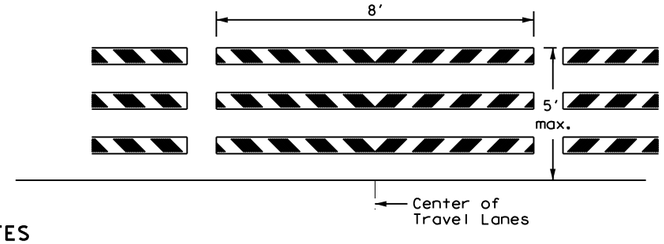
DETAIL 3

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

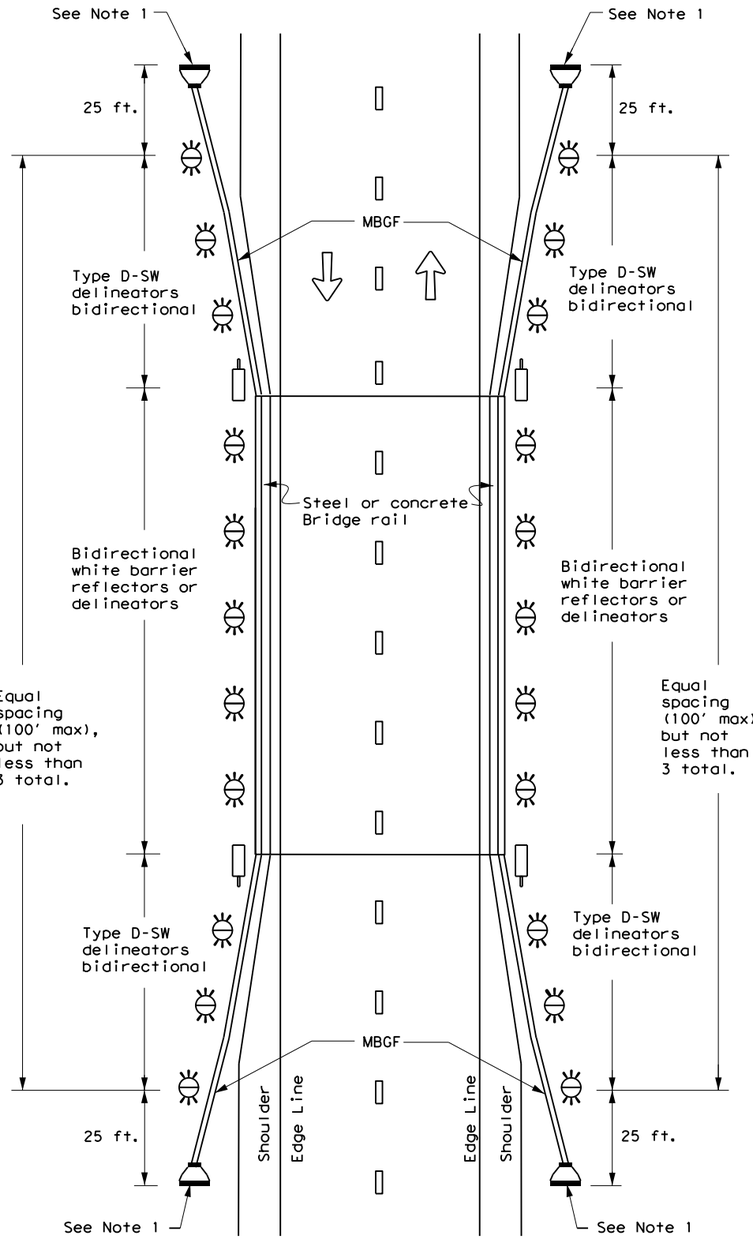
D & OM(4)-20

FILE: dom4-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
3-15	DIST	COUNTY		SHEET NO.
7-20	SAT	KENDALL		230

DATE:
FILE:

DATE:
FILE:

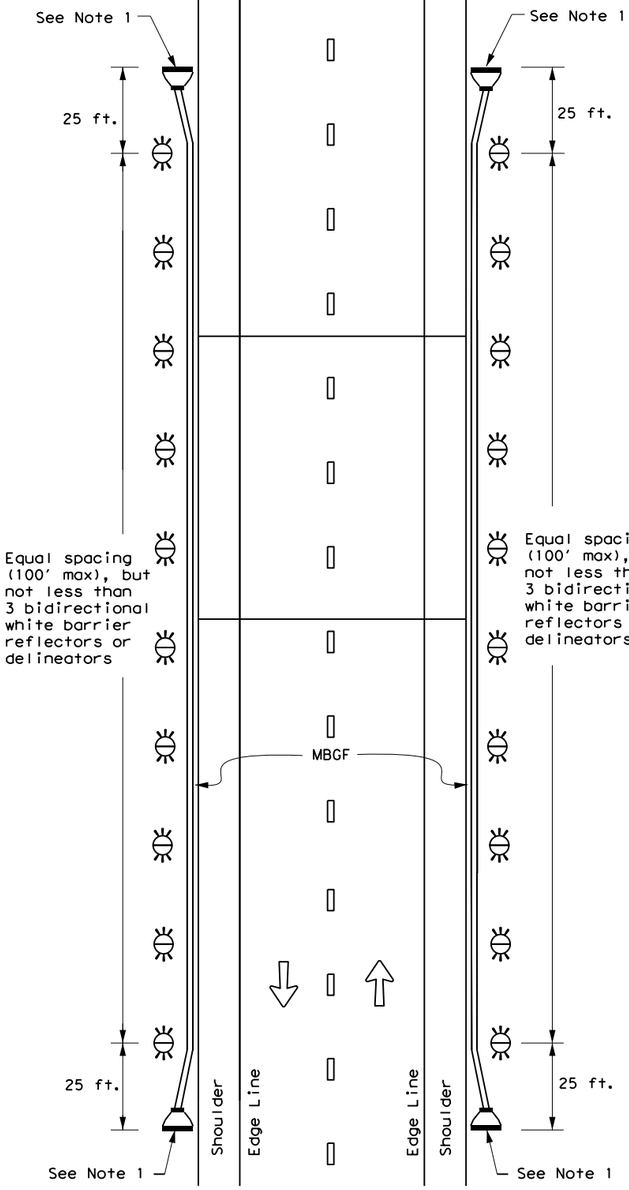
TWO-WAY, TWO LANE ROADWAY WITH REDUCED WIDTH APPROACH RAIL



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.

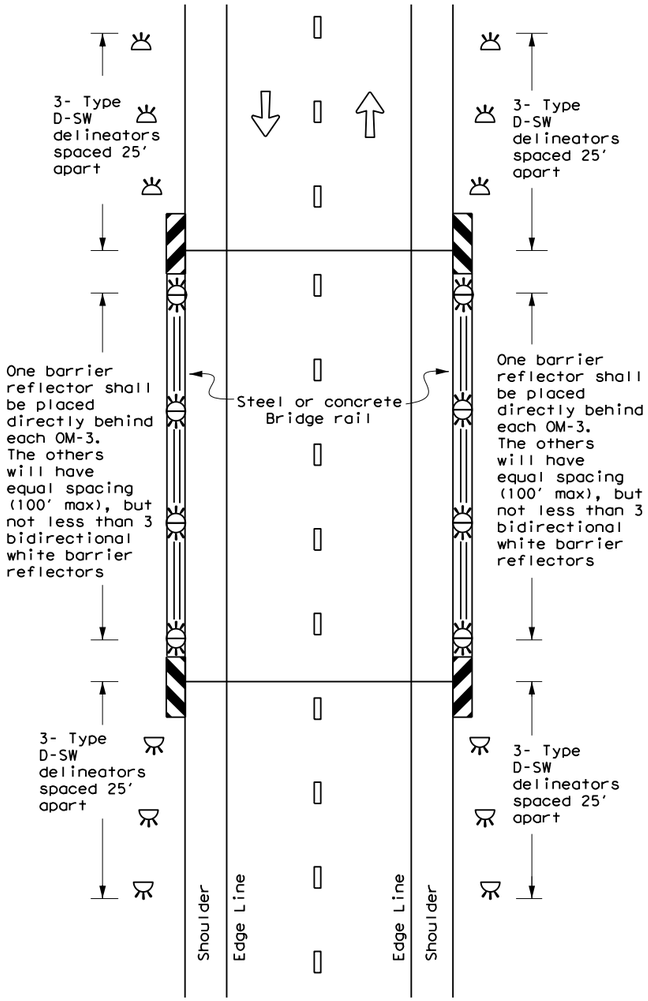
TWO-WAY, TWO LANE ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



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

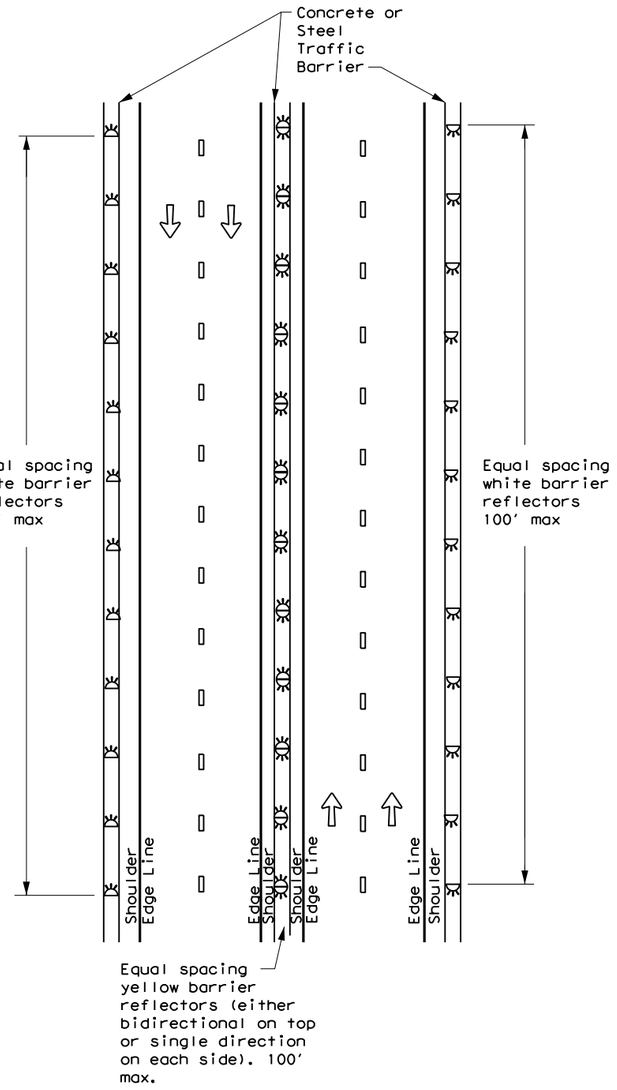
D & OM(5)-20

FILE: dom5-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
7-20	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		231

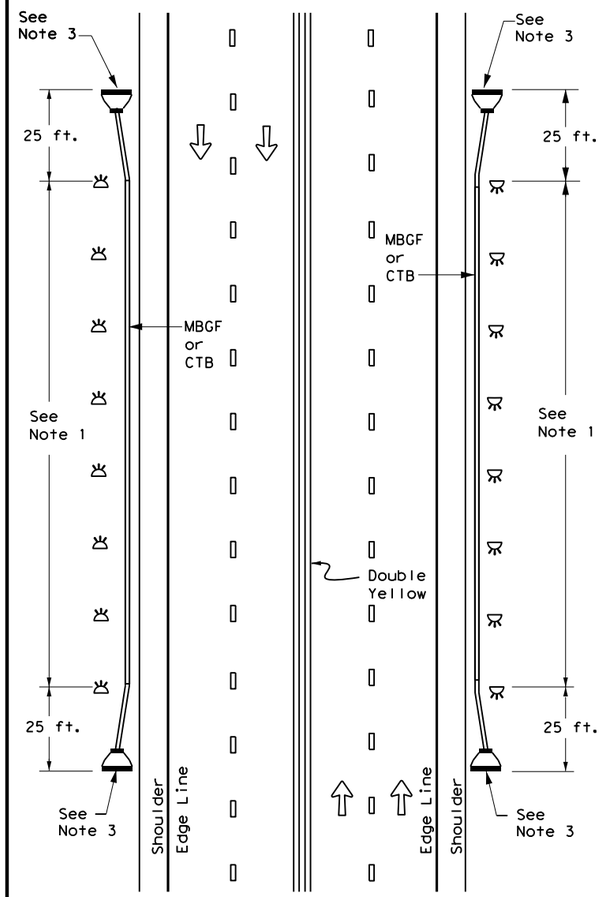
20E

DATE:
FILE:

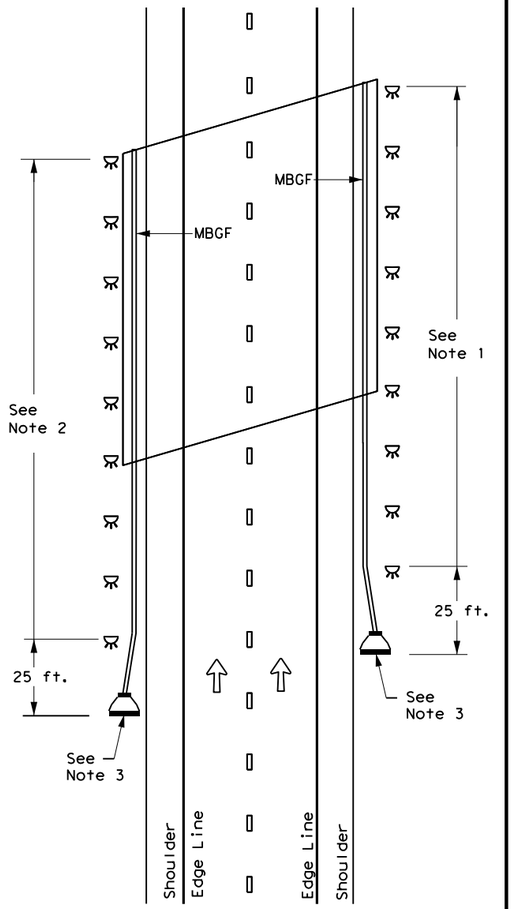
CONTINUOUS CONCRETE OR STEEL BARRIER



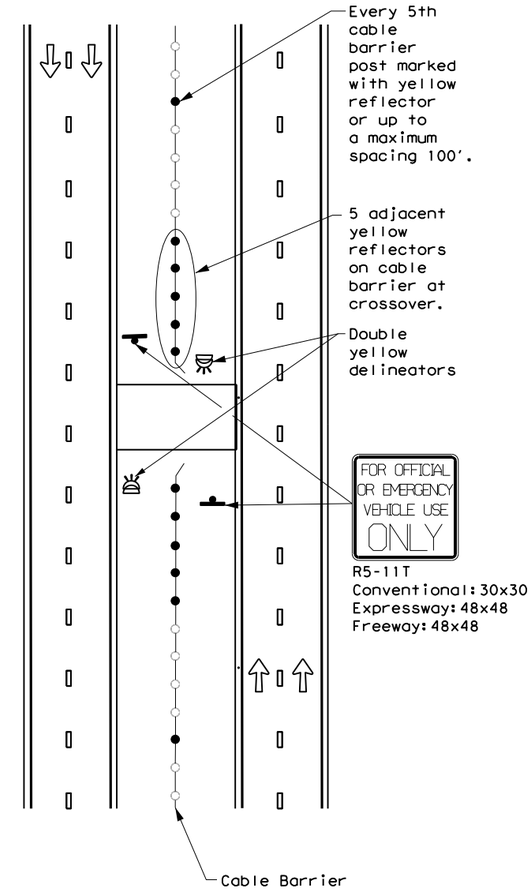
MULTI-LANE UNDIVIDED, TWO-WAY ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



DIVIDED ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



EMERGENCY CROSSOVER



NOTES

1. Equal spacing (100' max), but not less than 3 single directional white barrier reflectors or delineators. On Continuos Barrier, equal spacing (100' max.)
2. Equal spacing (100' max), but not less than 3 single directional yellow barrier reflectors or delineators.
3. 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.

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(6)-20

FILE: dom6-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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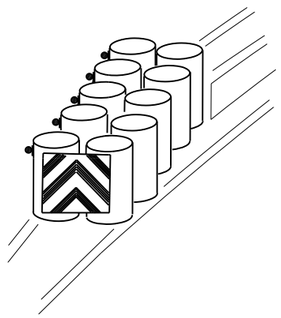
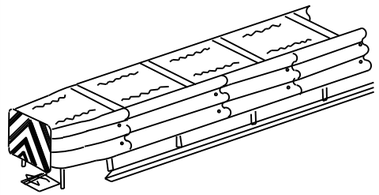
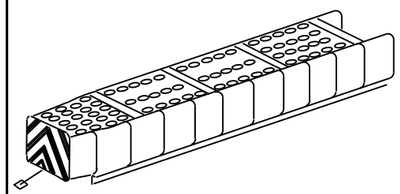
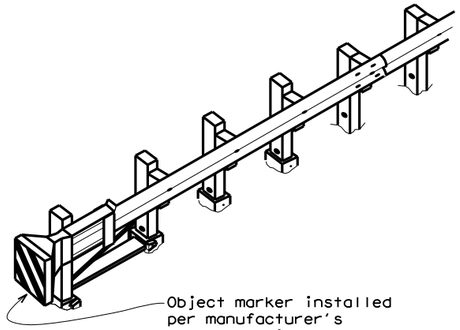
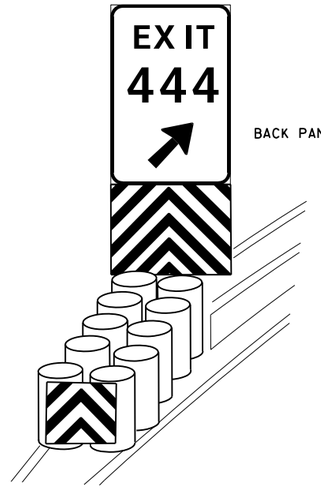
REVISIONS	0142	09	047	RM 473
7-20	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		232

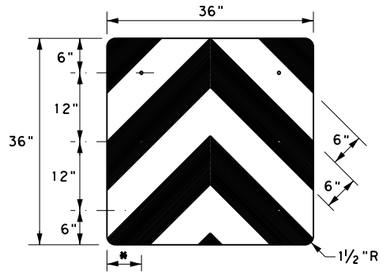


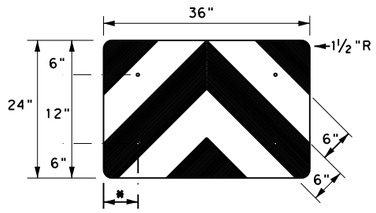




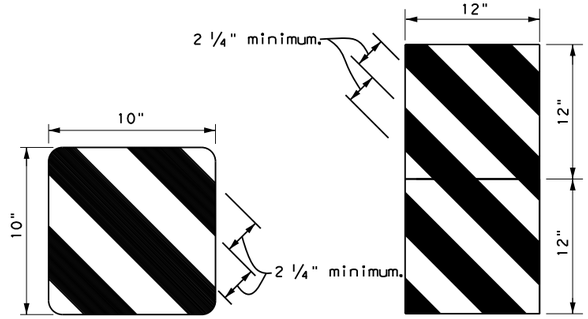




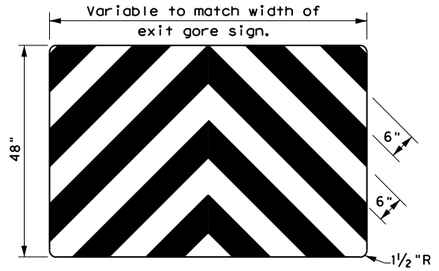


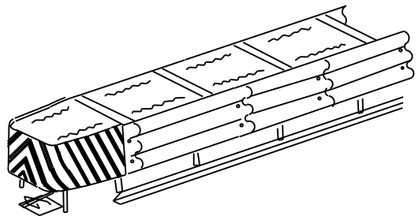


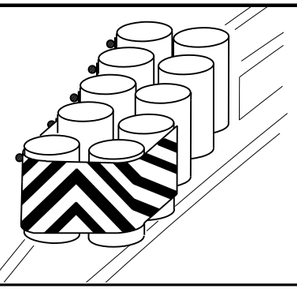
* Adjust to fit attenuator per manufacturer's recommendation, or as directed by the Engineer

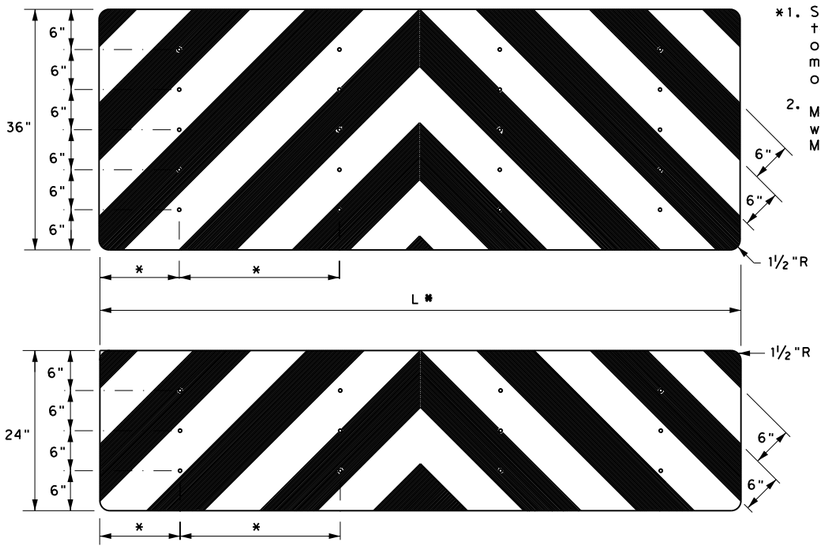


OBJECT MARKERS SMALLER THAN 3 FT^2









NOTES

*1. Spacing should be adjusted to attach through centerline of drum, per attenuator manufacturers recommendation, or as directed by the Engineer.

2. Mounting should be flush with top of attenuator. Minimum size 96" x 24".

NOTES

1. Object Markers shall conform to the Texas MUTCD and meet the color and reflectivity requirement of Department Material Specification DMS 8300. Background shall be yellow reflective sheeting (Type B or C) and Chevron shall be black.

2. Object Markers may be fabricated from adhesive backed reflective sheeting applied directly to guardrail end treatment, or applied directly to an "end cap" as per the manufacturer's recommendation. Direct applied sheeting shall provide a smooth surface and have no wrinkles, air bubbles, cuts or tears. A radius at the corners is not required for direct applied sheeting.

3. Object Marker size may be reduced to fit smaller devices. Width of alternating black and yellow stripes are typically 6". Object Markers smaller than 3ft may have reduced width stripes of a minimum of 2 ¼".

4. Pop rivets, screws, or nuts and bolts may be used to attach object markers and reflectors. Holes, slots or other openings may be cut or drilled through object markers to allow cable or other attachments.

5. Object Marker at nose of attenuator is subsidiary to the attenuator.

6. See D & OM (1-4) for required barrier reflectors.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER FOR VEHICLE IMPACT ATTENUATORS

D & OM(VIA)-20

FILE: domvia20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT December 1989	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
4-92 8-04	DIST	COUNTY		SHEET NO.
8-95 3-15	SAT	KENDALL		233
4-98 7-20				

20G

DATE:
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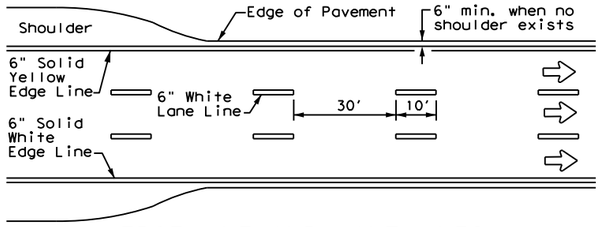
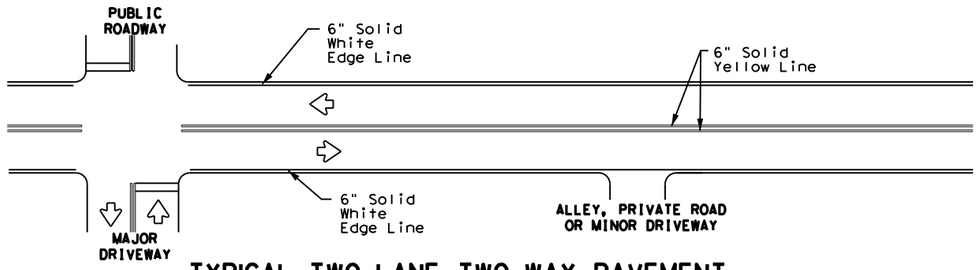
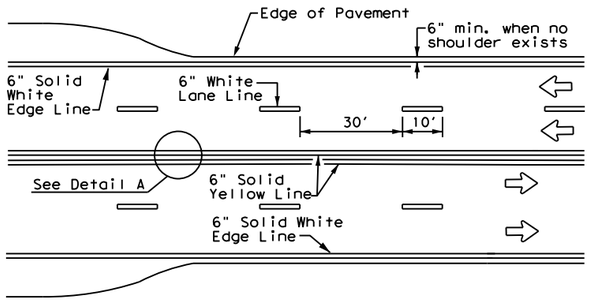
DATE:
FILE:

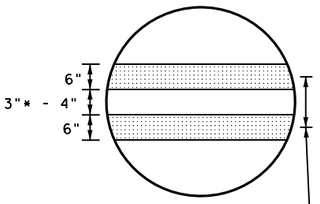


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS





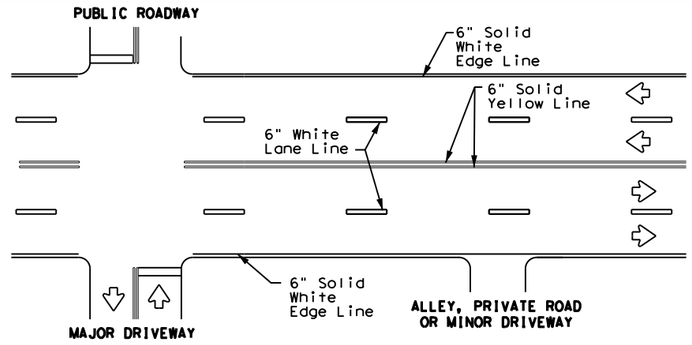
DETAIL "A"

9"** min. - 10" typ.
(18" max. for traveled way greater than 48' only)

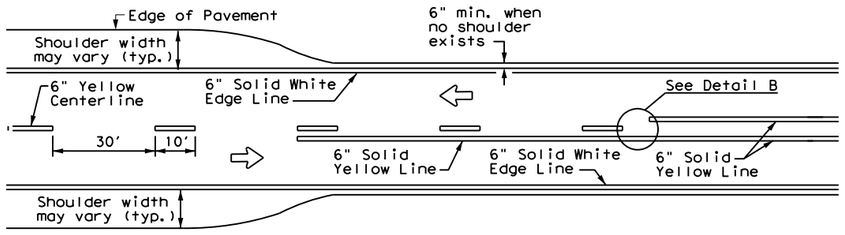
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

* 2" minimum for restripe projects when approved by the Engineer.

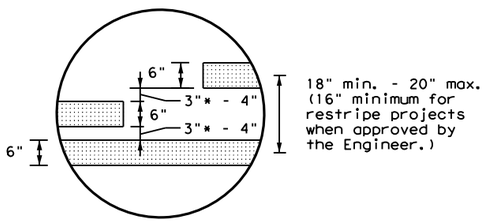
** 8" minimum for restripe projects when approved by the Engineer.



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

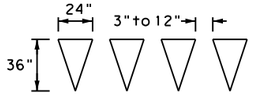


TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



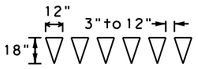
DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.

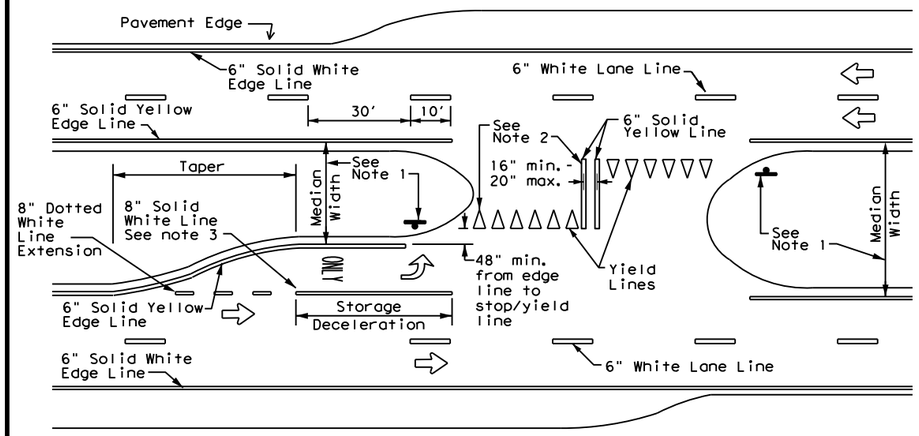


For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



For posted speed on road being marked equal to or less than 40 MPH.



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

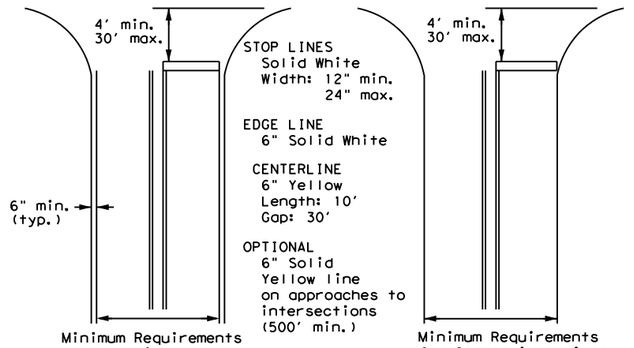
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections.
   Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling 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

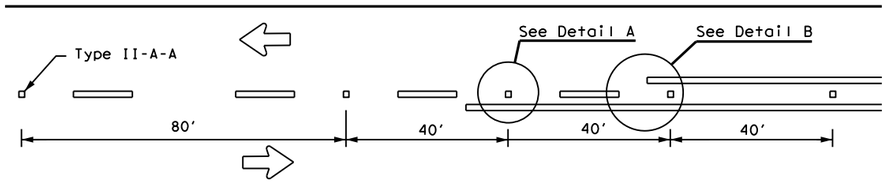
TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

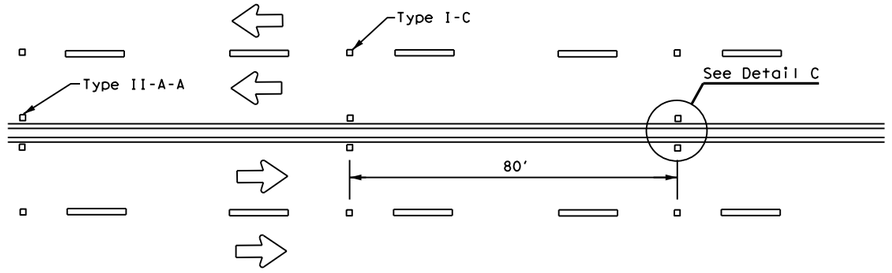
FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
11-78 8-00 6-20	DIST	COUNTY		SHEET NO.
8-95 3-03 12-22	SAT	KENDALL		234
5-00 2-12				

22A

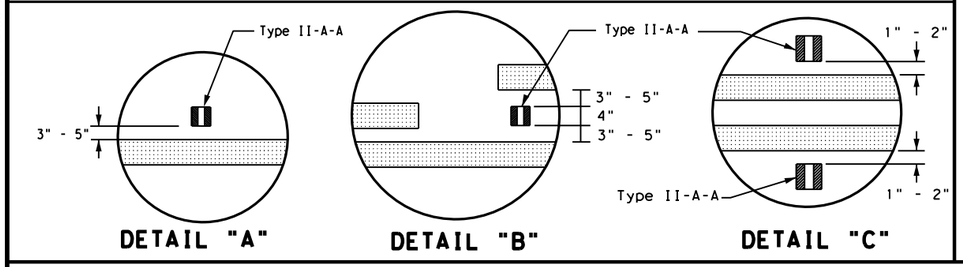
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

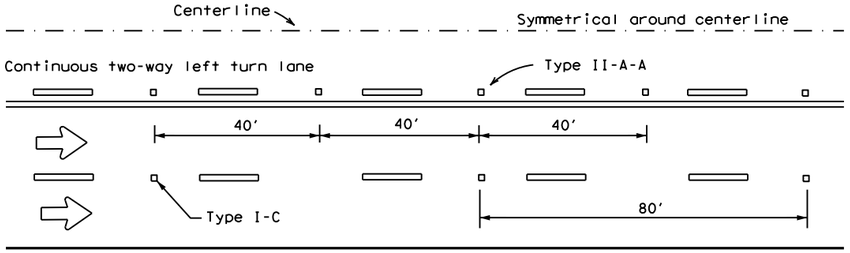


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

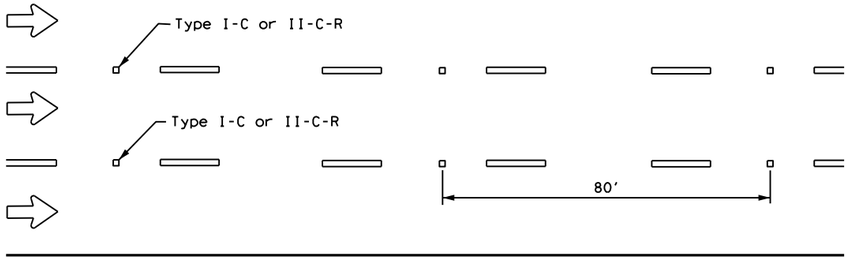


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



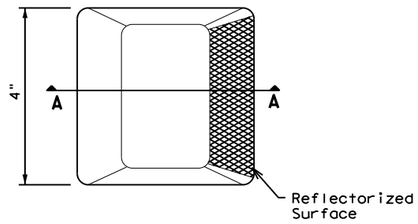
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

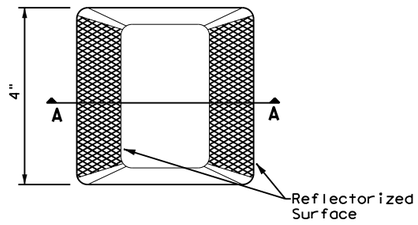
See Note 3.

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

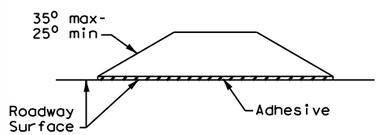
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

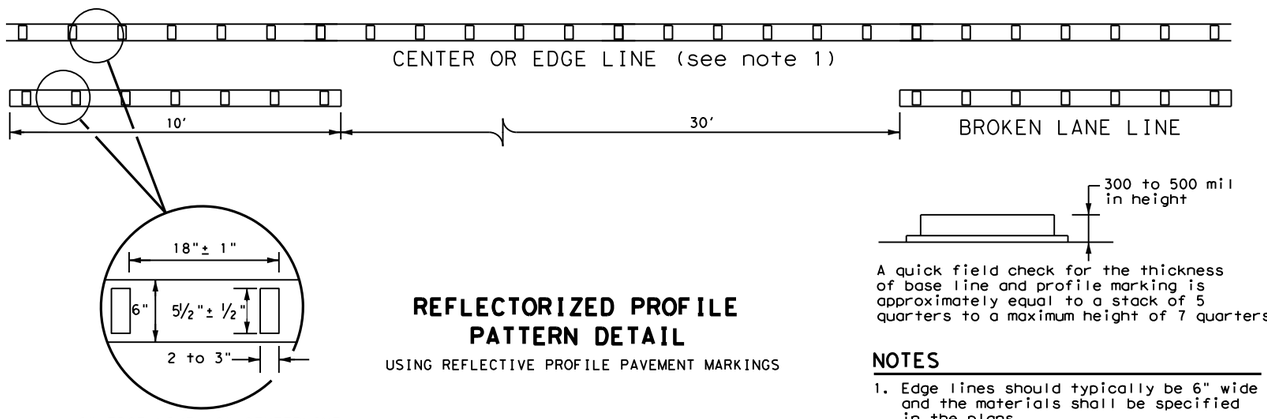


Type II (Top View)



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

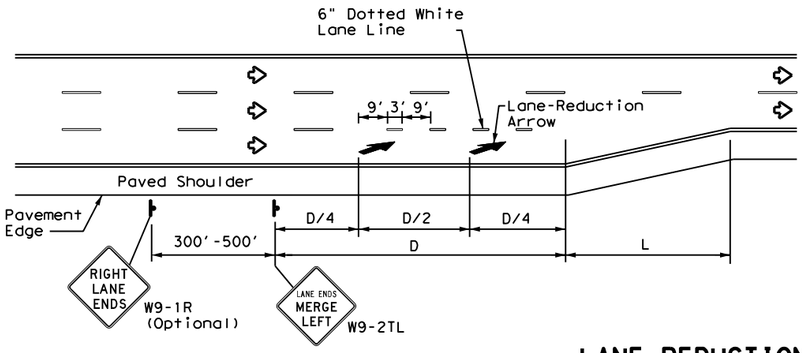
Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2)-22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-77 8-00 6-20 4-92 2-10 12-22 5-00 2-12	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		235

22B

DATE:
FILE:



LANE REDUCTION

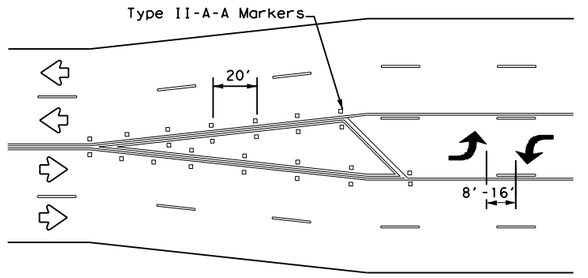
NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

GENERAL NOTES

1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

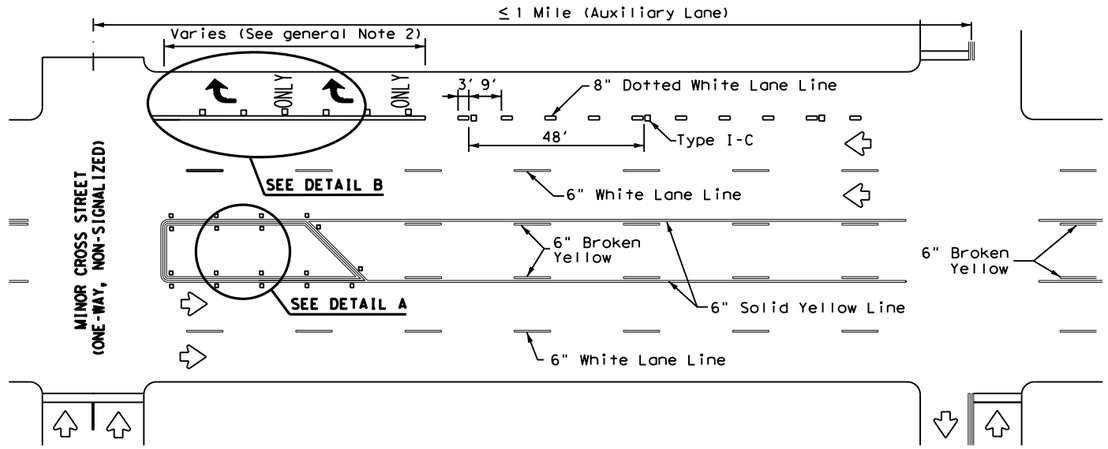


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

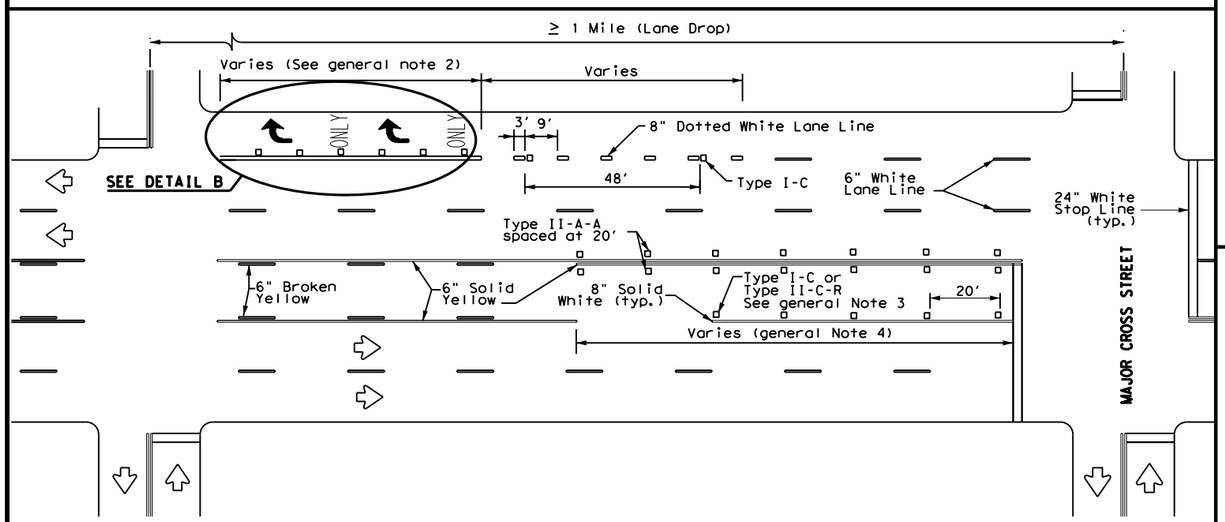
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

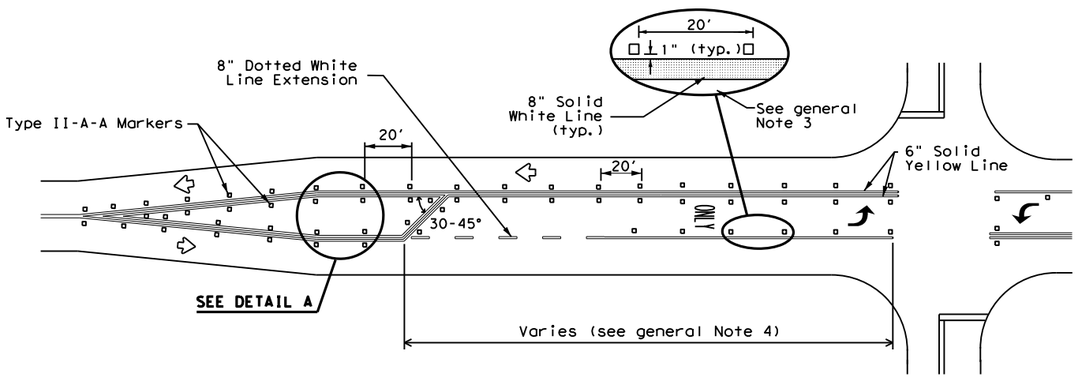
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



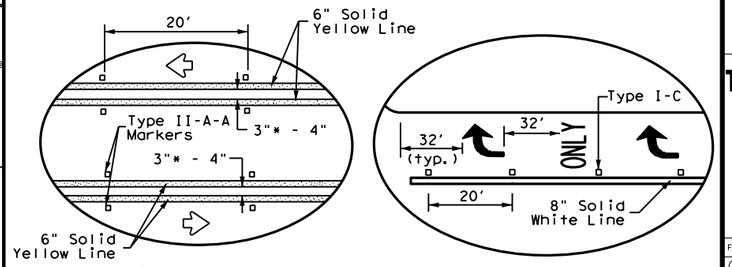
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		236

220

DATE:
FILE:

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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)

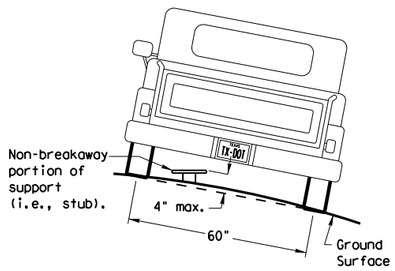
Anchor Type

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))

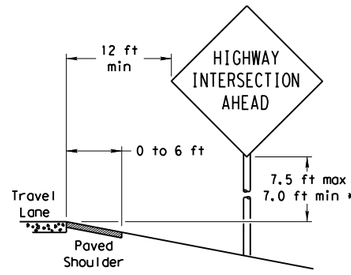
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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).

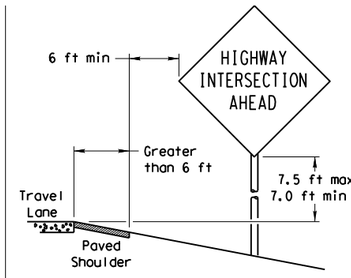
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

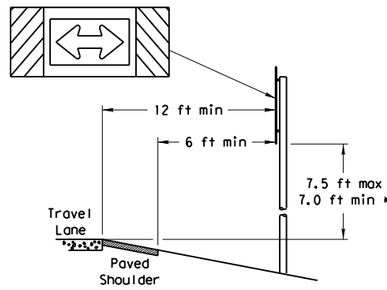
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



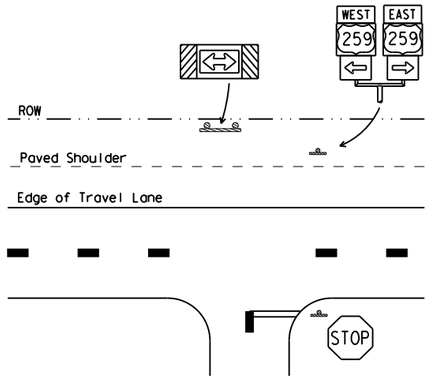
GREATER THAN 6 FT. WIDE

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.

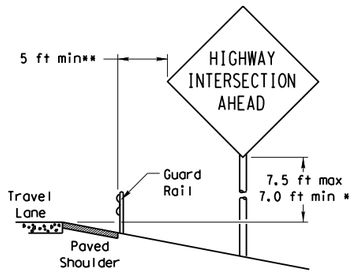
T-INTERSECTION



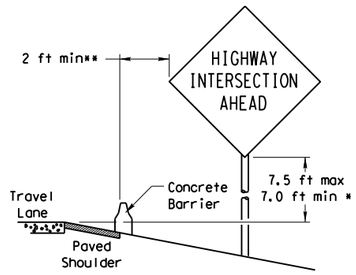
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



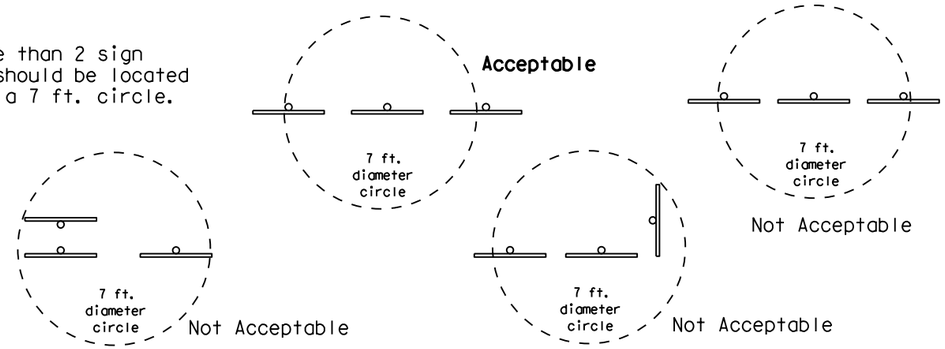
BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

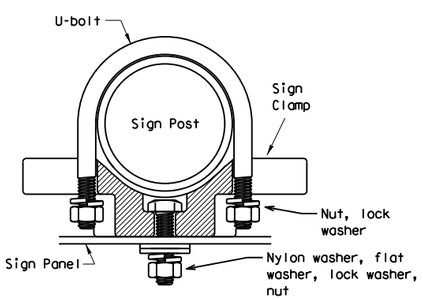
**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

No more than 2 sign posts should be located within a 7 ft. circle.



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

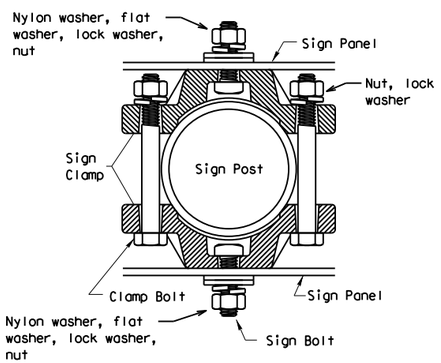


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

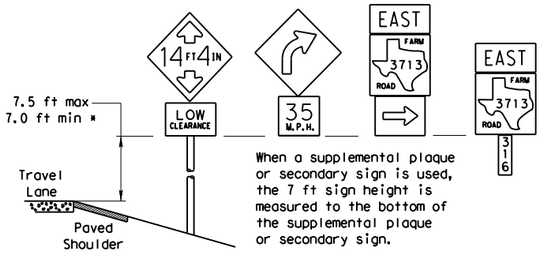
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



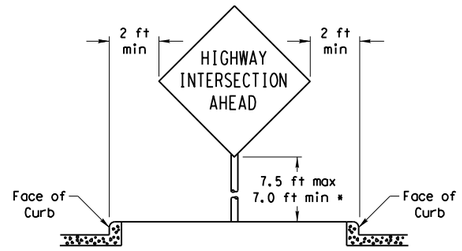
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



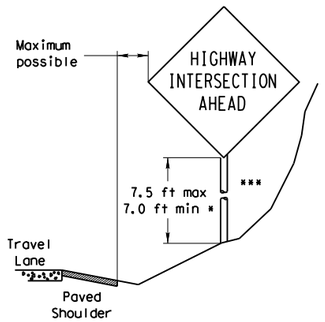
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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
9-08

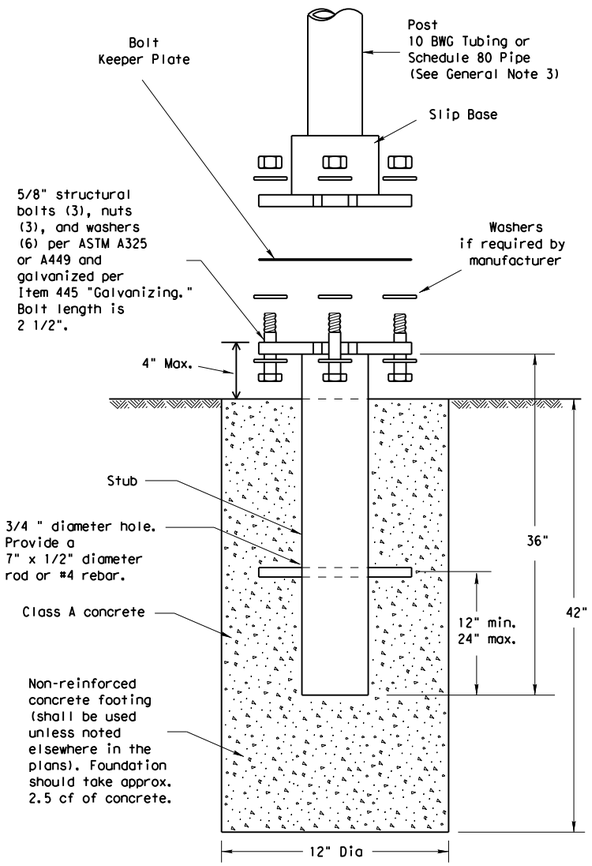
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0142	09	047	RM 473

DIST	COUNTY	SHEET NO.
SAT	KENDALL	237

DATE:
FILE:

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.

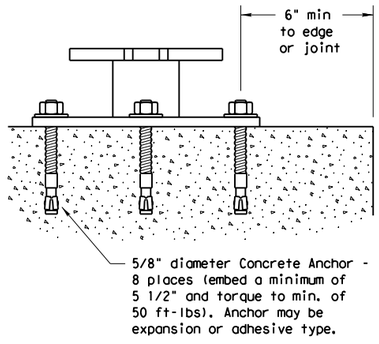
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum 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

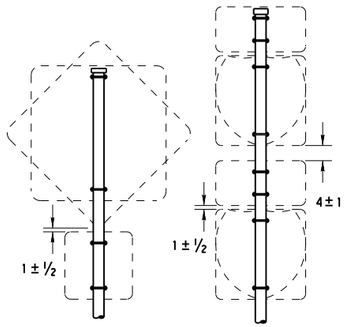
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
9-08

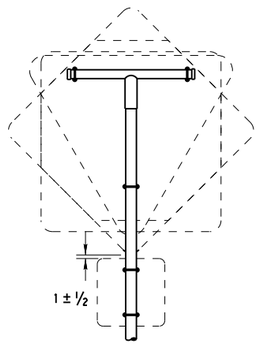
CONT	SECT	JOB	HIGHWAY
0142	09	047	RM 473

DIST	COUNTY	SHEET NO.
SAT	KENDALL	238

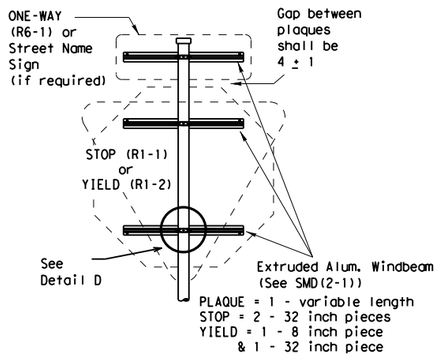
DATE:
FILE:



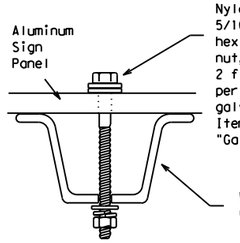
SM RD SGN ASSM TY XXXXX(1)XX(P)



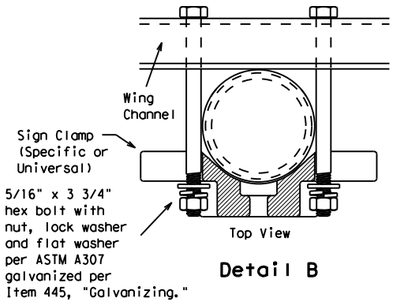
SM RD SGN ASSM TY XXXXX(1)XX(T)



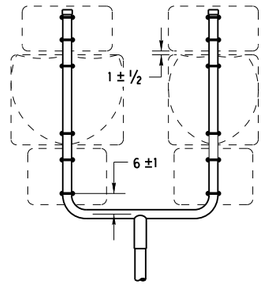
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



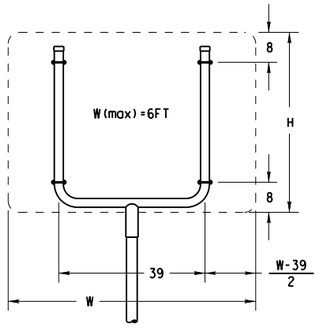
Detail A



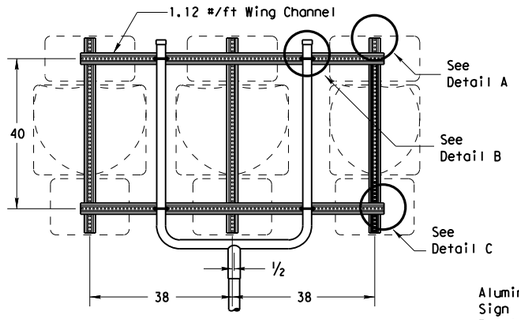
Detail B



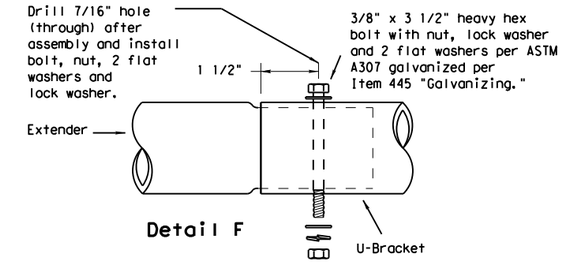
SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U)

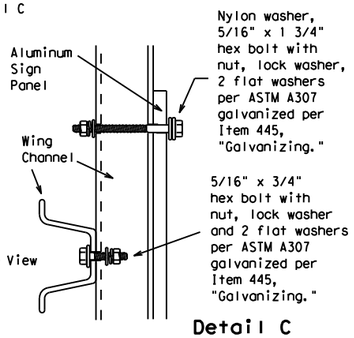


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

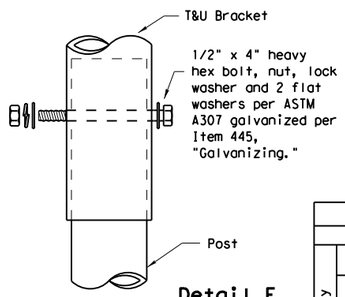


Detail F

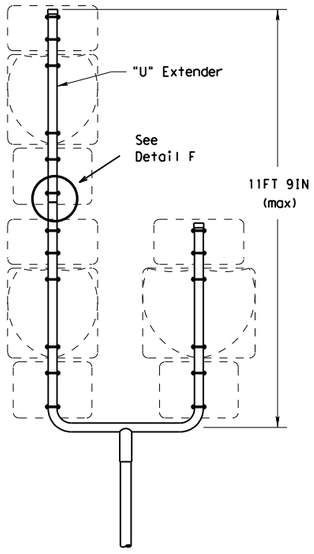
Splices shall only be allowed behind the sign substrate.



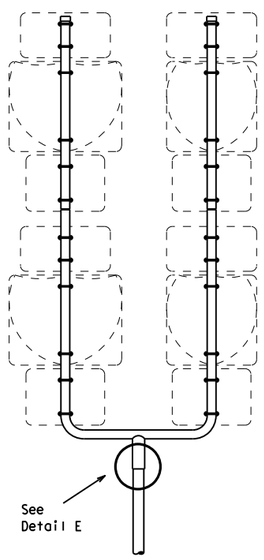
Detail C



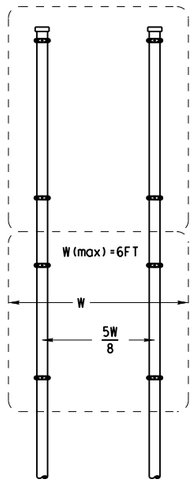
Detail E



SM RD SGN ASSM TY S80(1)XX(U-1EXT)

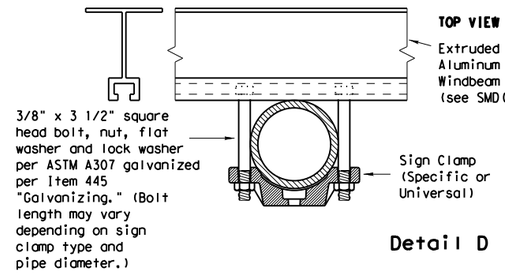


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

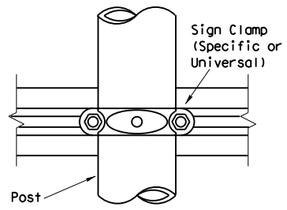


SM RD SGN ASSYM TY XXXXX(2)XX(P)

SIDE VIEW



Detail D



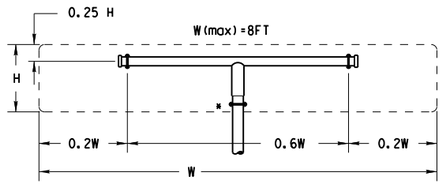
GENERAL NOTES:

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.

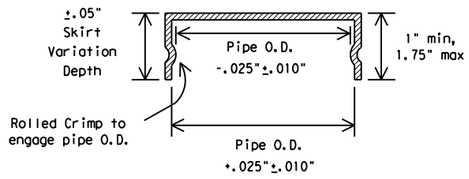
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	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

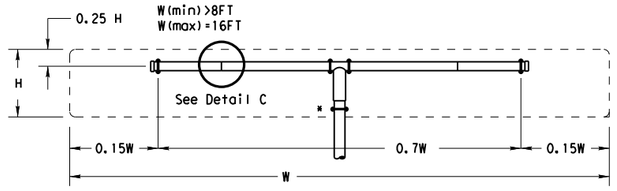
CONT	SECT	JOB	HIGHWAY
0142	09	047	RM 473

DIST	COUNTY	SHEET NO.
SAT	KENDALL	239

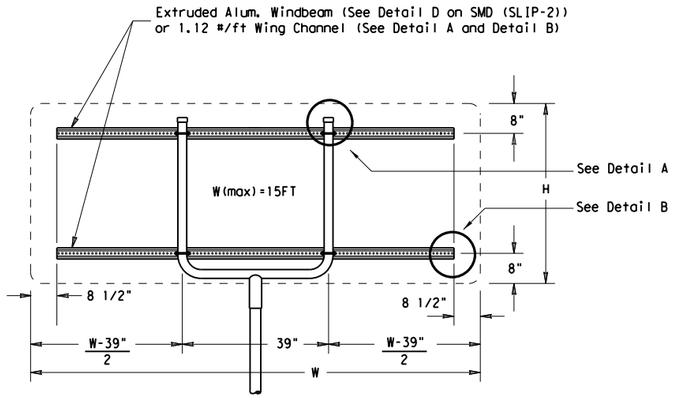
9-08 REVISIONS

DATE:
FILE:

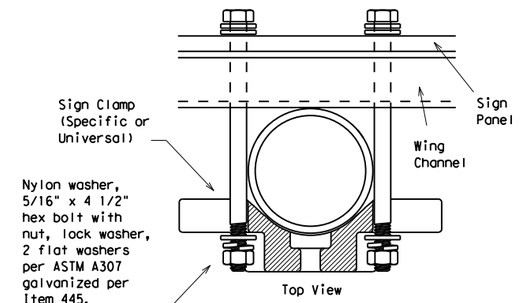
DATE:
FILE:



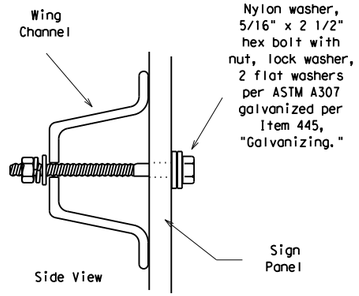
SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



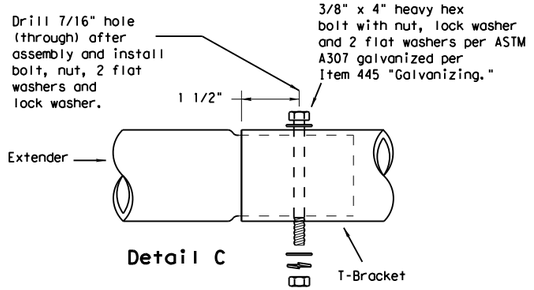
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



Detail A

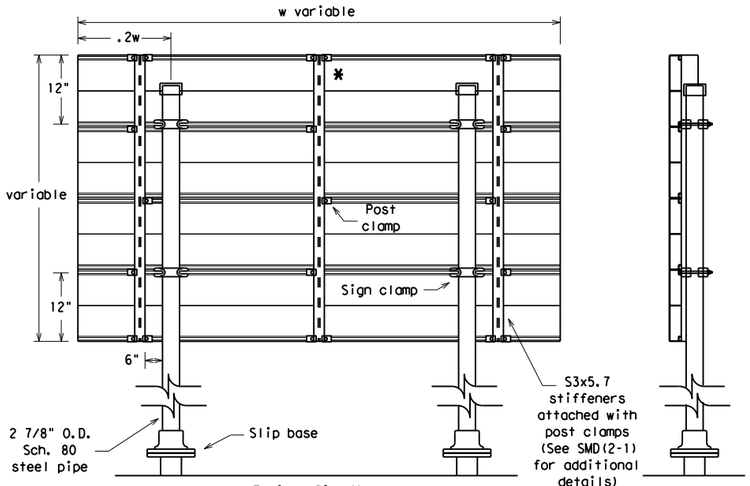


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

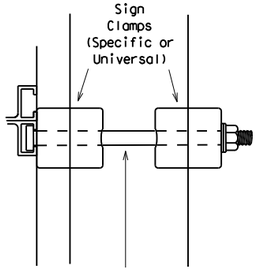


Typical Sign Mount

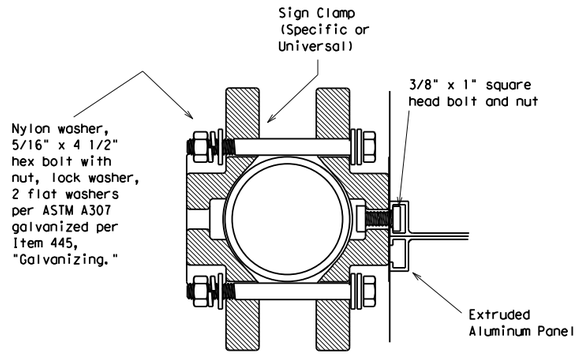
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

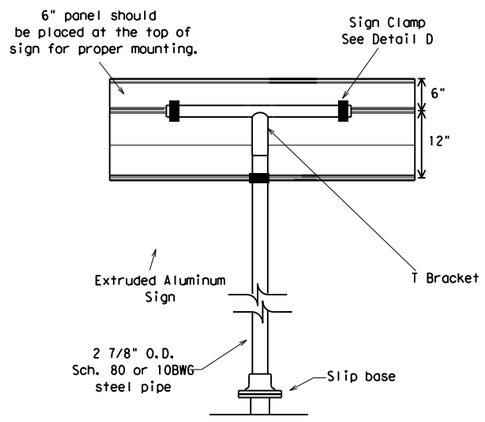
See Detail E
for clamp installation



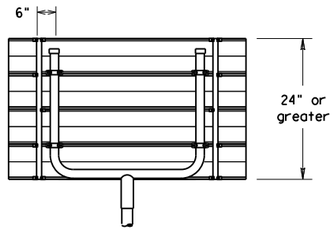
Detail E



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



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

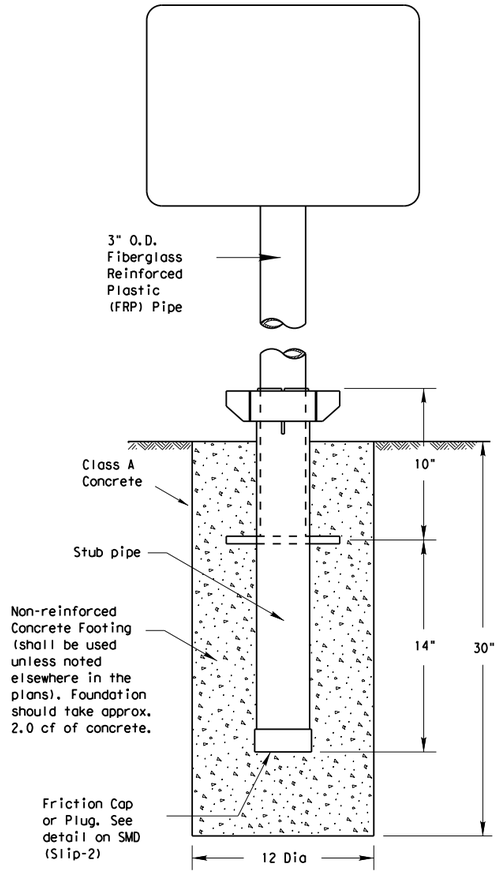
REVISIONS
9-08

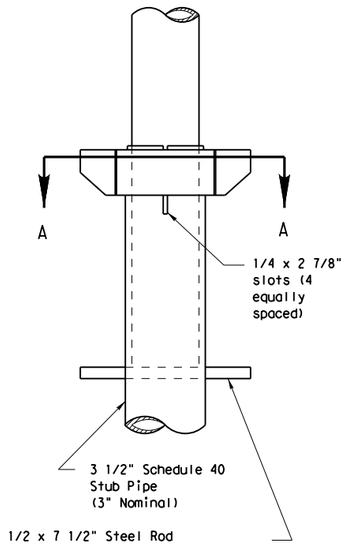
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

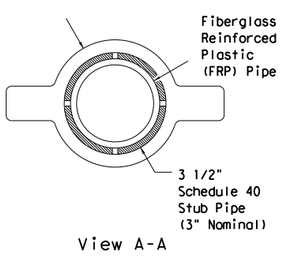
CONT	SECT	JOB	HIGHWAY
0142	09	047	RM 473

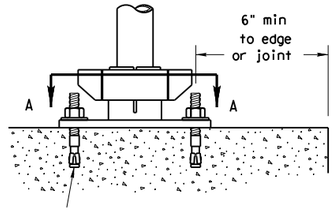
DIST	COUNTY	SHEET NO.
SAT	KENDALL	240

Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post



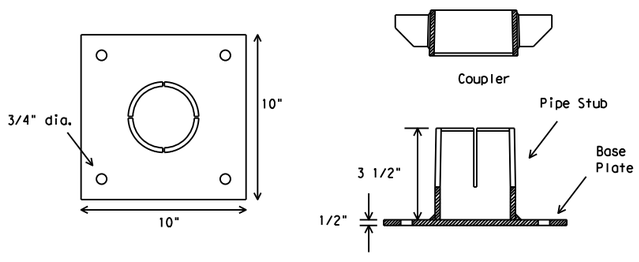






Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. 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.

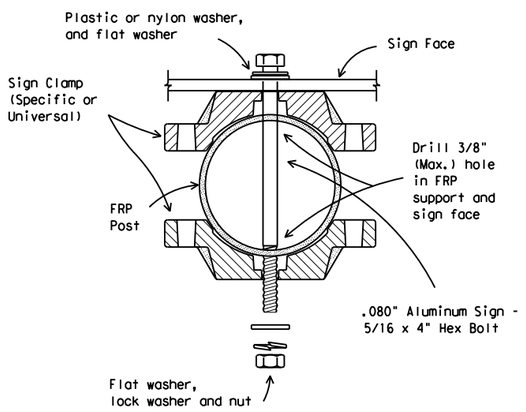
BOLT-DOWN DETAILS



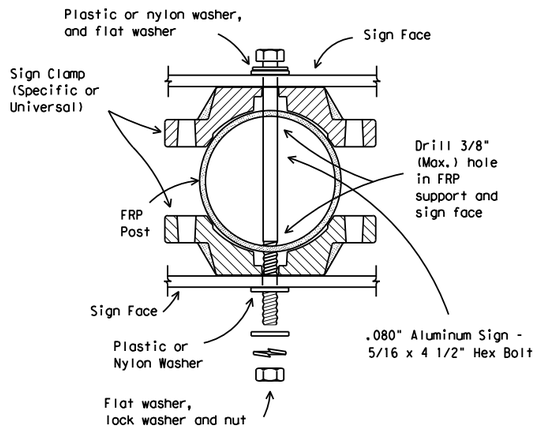
SM RD SGN ASSM TY FRP(X)UA(P)

SM RD SGN ASSM TY FRP(X)UB(P)

Typical Sign Mounting Detail for FRP Support with Single Sign



Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs



GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:
   Texas Department of Transportation
   Traffic Operations Division
   125 East 11th Street
   Austin, Texas 78701-2483

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
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. Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

BOLT DOWN SIGN SUPPORT

1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. Insert bottom of sign post into pipe stub.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST

SMD(FRP)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS

9-08

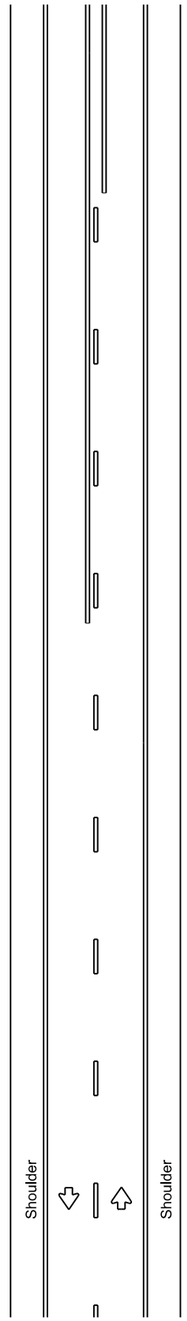
CONT	SECT	JOB	HIGHWAY
0142	09	047	RM 473

DIST	COUNTY	SHEET NO.
SAT	KENDALL	241

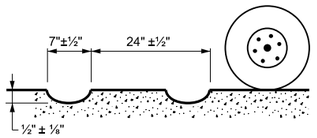
DATE:
FILE:

DATE:
FILE:

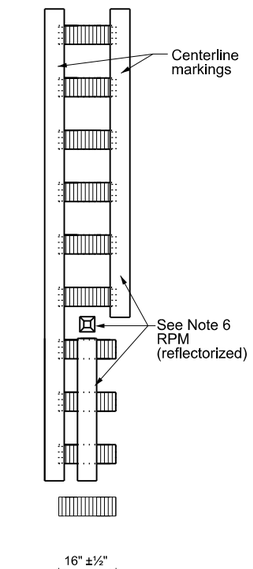
CENTERLINE RUMBLE STRIPS

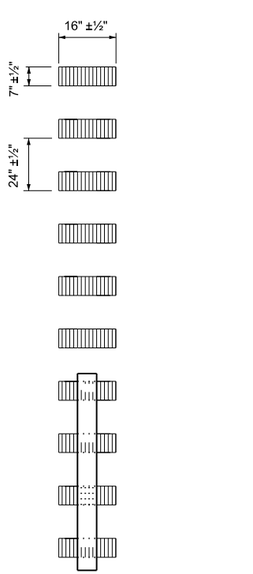


TWO LANE TWO-WAY HIGHWAYS



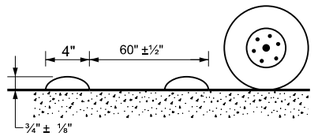
PROFILE VIEW



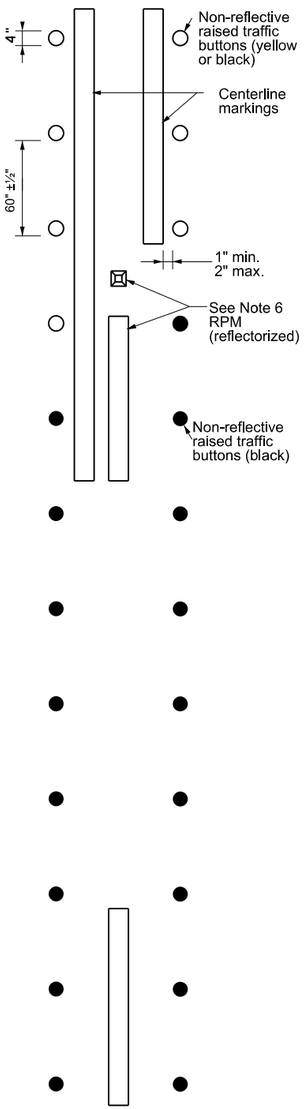


PLAN VIEW
OPTION 1

MILLED CENTERLINE RUMBLE STRIPS

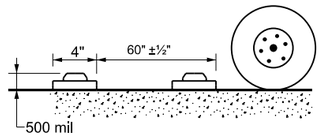


PROFILE VIEW

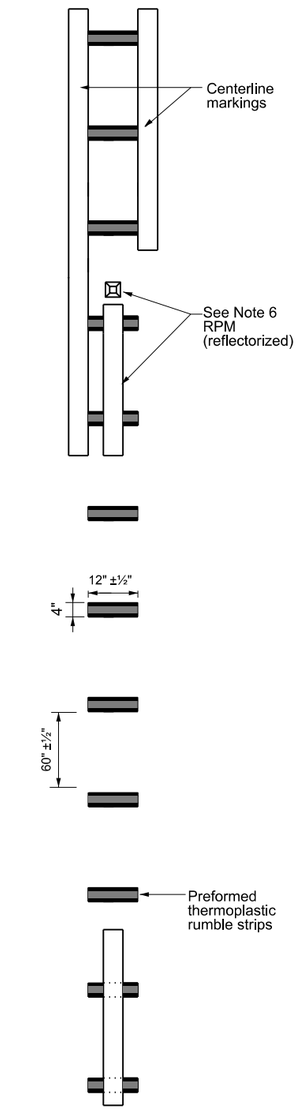


PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS

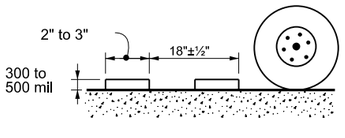


PROFILE VIEW

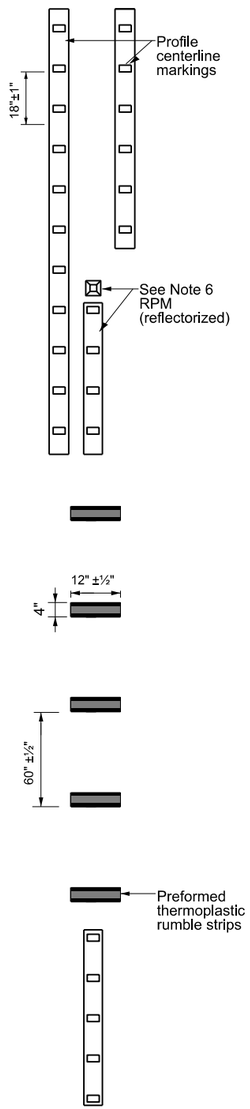


PLAN VIEW
OPTION 3

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).

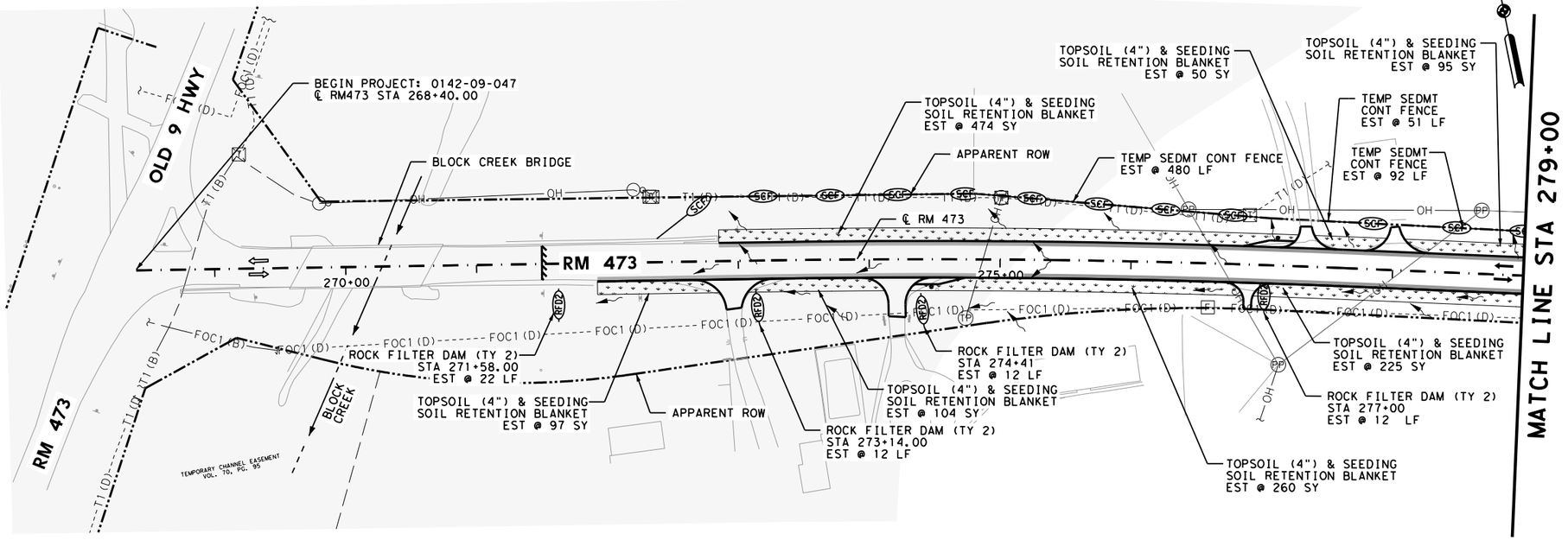
Texas Department of Transportation

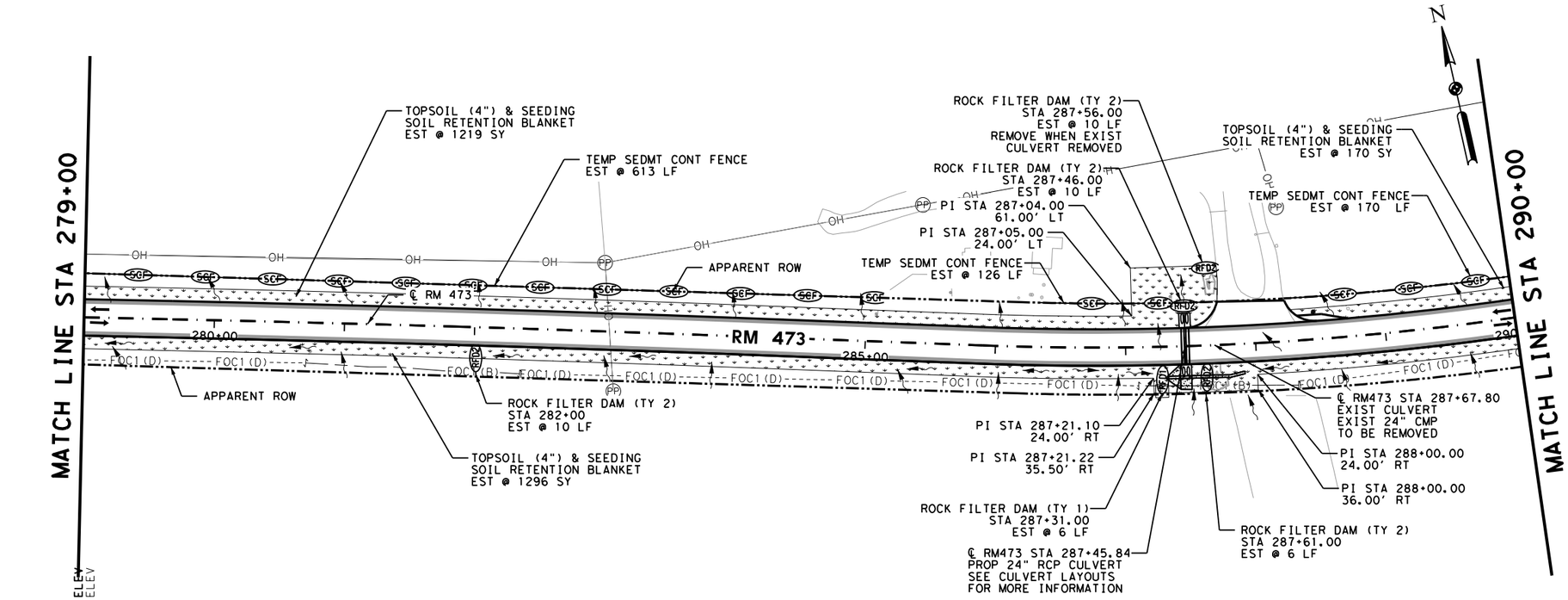
Traffic Safety Division Standard

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	0142	09	047	RM 473
10-13	DIST	COUNTY		SHEET NO.
1-23	SAT	KENDALL		242

100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:41:11 AM





ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	3990
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	3990
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	1995
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	1995
0168 6001	VEGETATIVE WATERING	MG	62
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	6
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	94
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	100
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1532
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1532
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	3990

LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

BEGIN PROJECT TO
℄ RM 473 STA 290+00

SHEET 1 OF 18

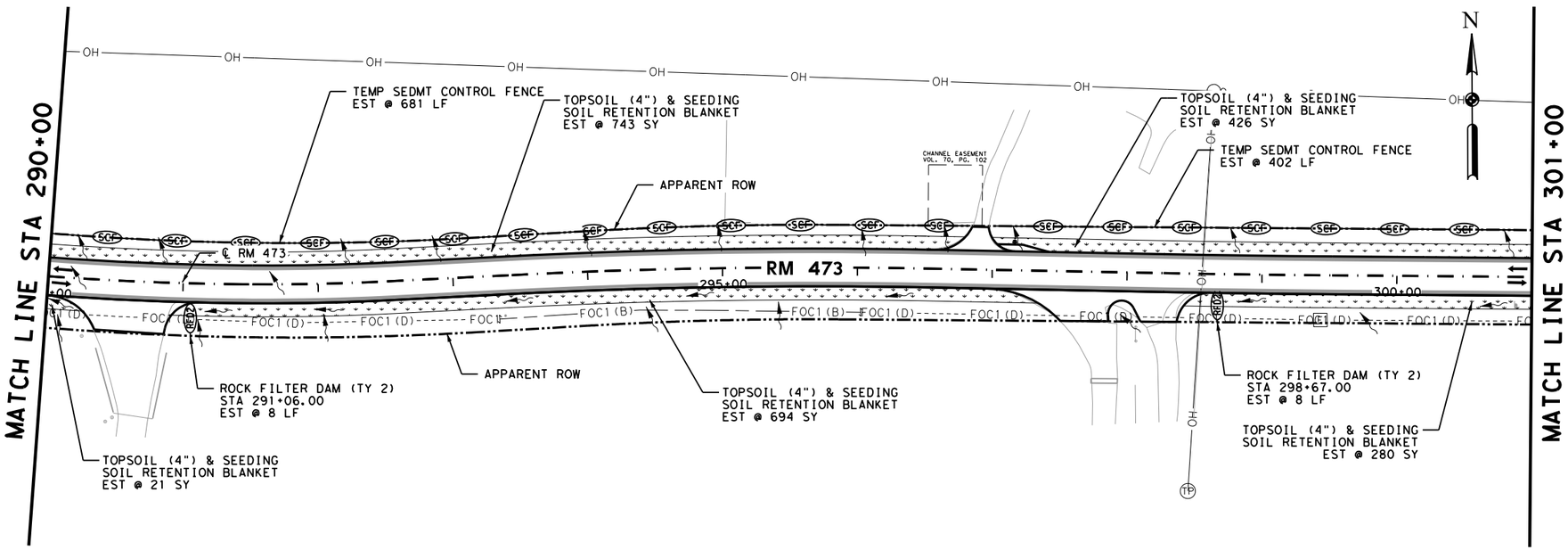
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	243

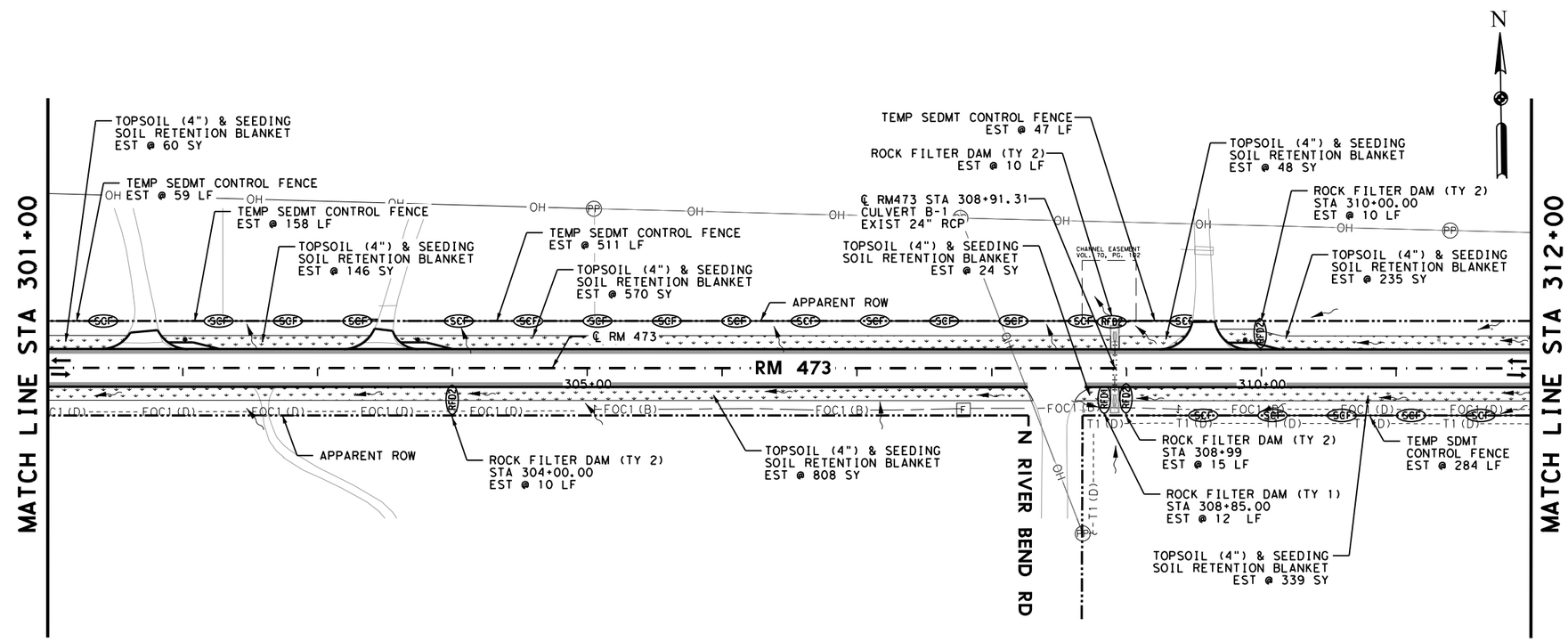
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_01.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:41:22 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4394
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4394
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2197
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2197
0168 6001	VEGETATIVE WATERING	MG	69
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	12
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	61
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	73
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2142
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2142
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4394





LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

℄ RM 473 STA 290+00 TO
℄ RM 473 STA 312+00

SHEET 2 OF 18

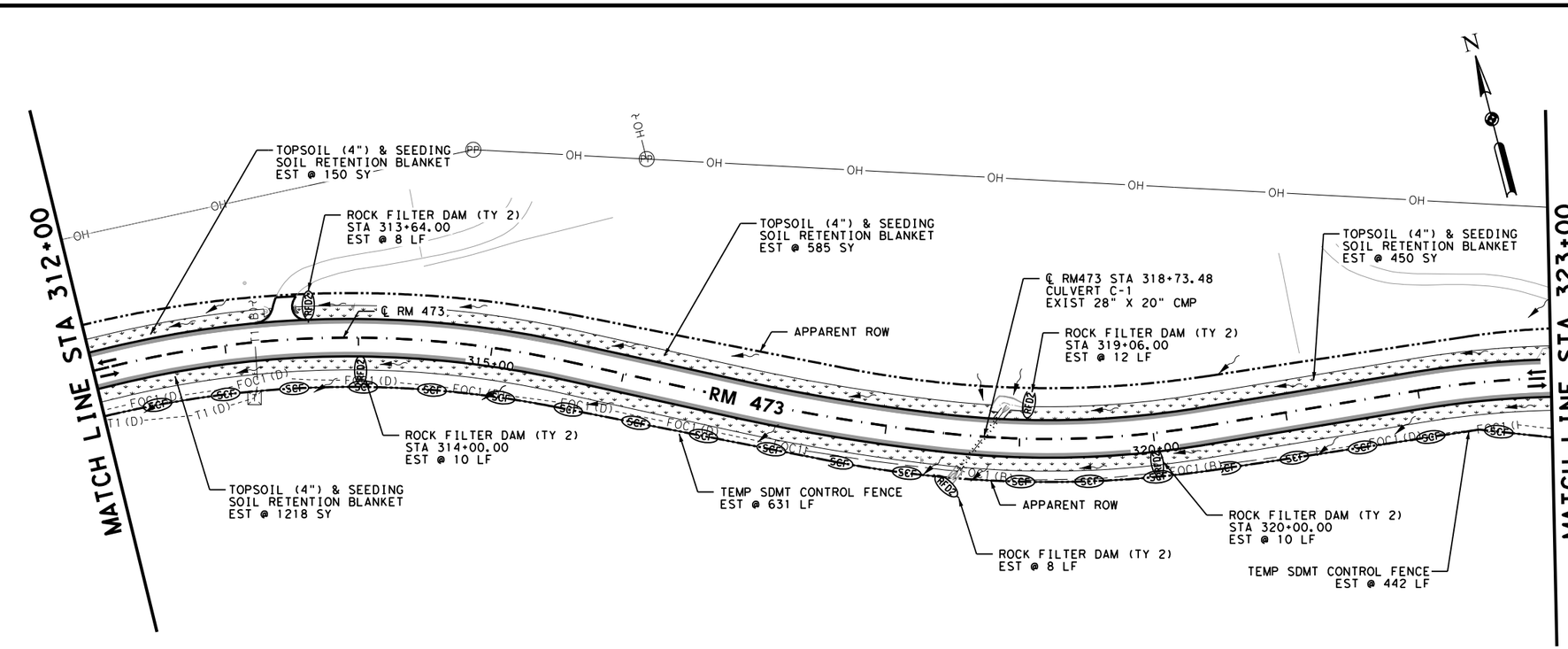
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	244

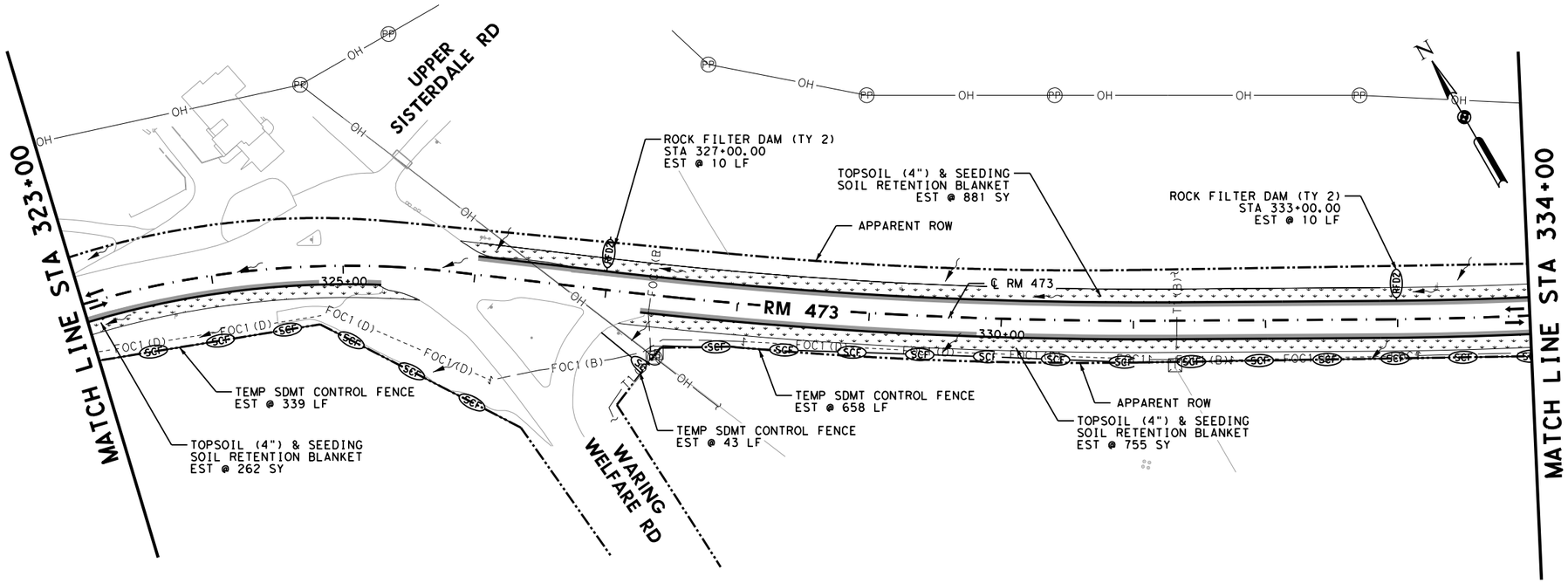
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_02.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:41:32 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4301
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4301
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2151
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2151
0168 6001	VEGETATIVE WATERING	MG	67
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	68
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	68
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2113
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2113
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4301





LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

℄ RM 473 STA 312+00 TO
℄ RM 473 STA 334+00

SHEET 3 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	245

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100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:41:43 AM

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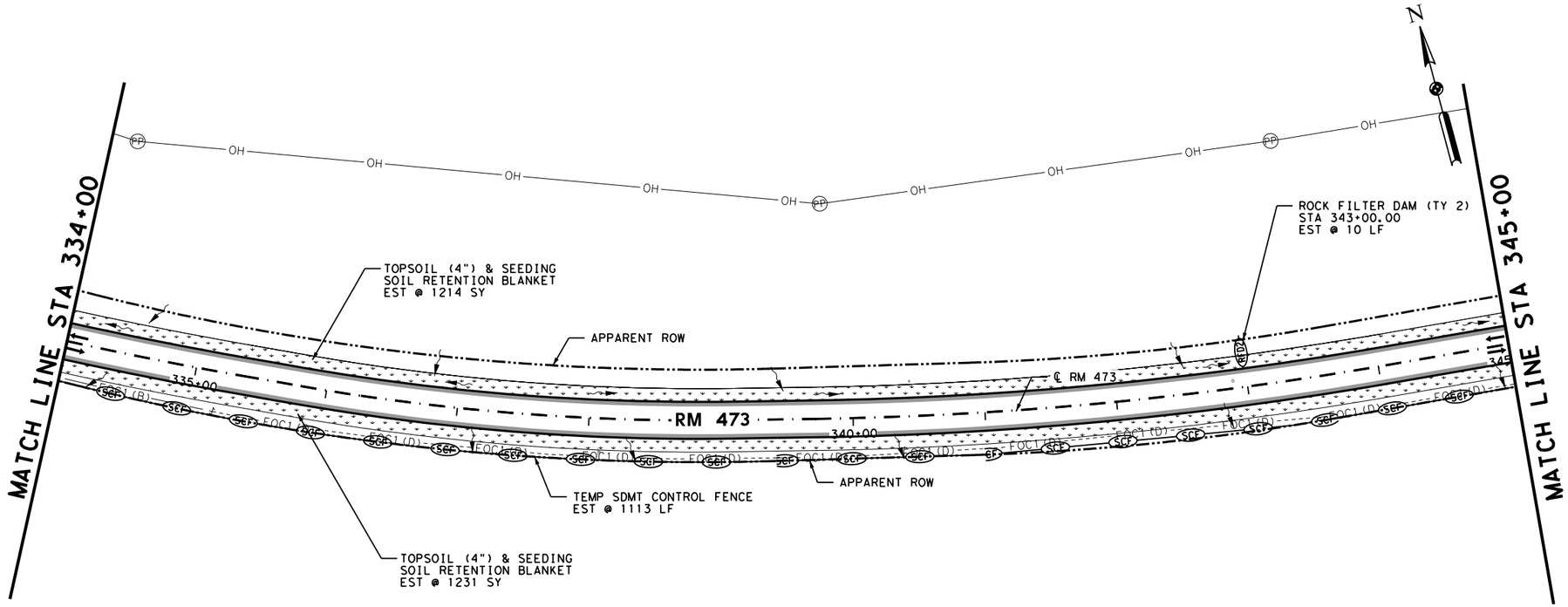
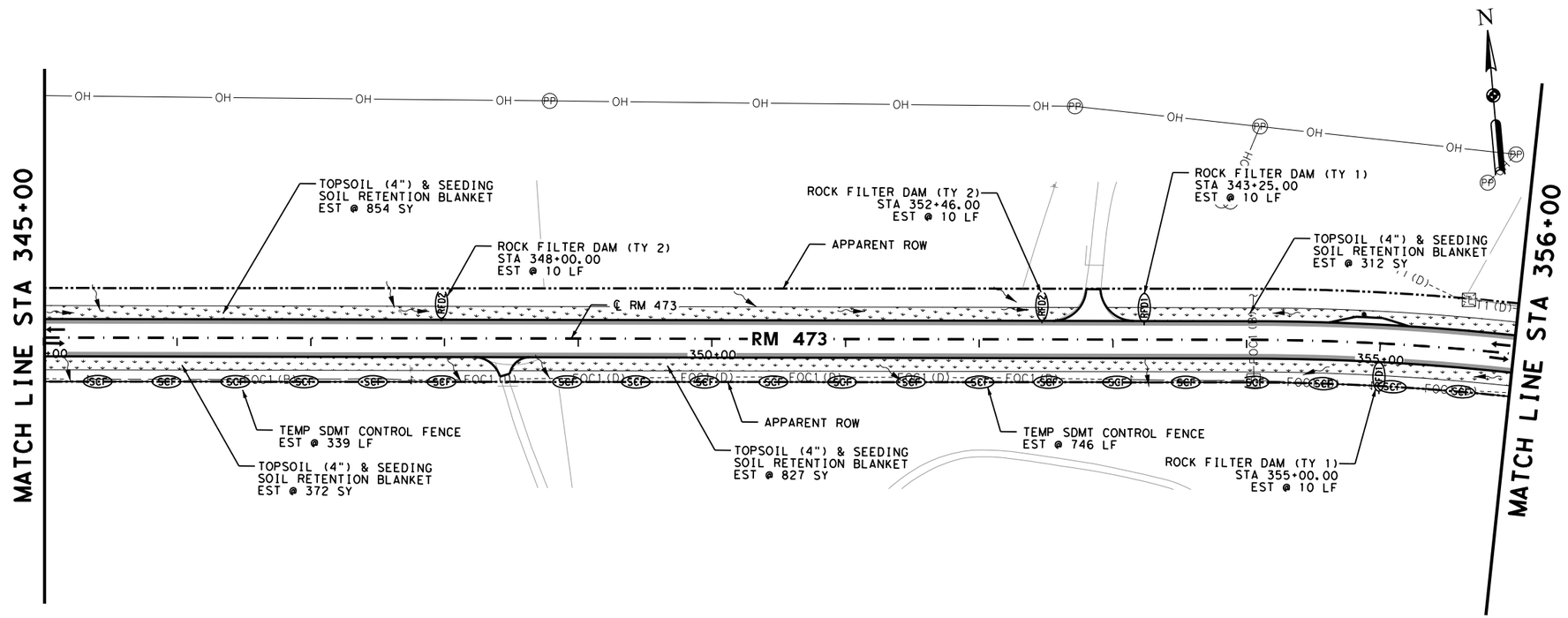
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4810
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4810
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2405
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2405
0168 6001	VEGETATIVE WATERING	MG	75
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	20
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	30
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	50
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2198
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2198
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4810



LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A



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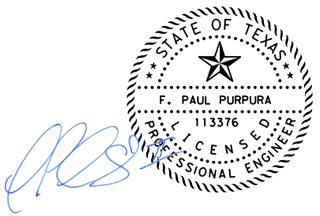

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

℄ RM 473 STA 334+00 TO
℄ RM 473 STA 356+00

SHEET 4 OF 18

FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	246

PLOT DRIVER: pdf-bw.pltcfg
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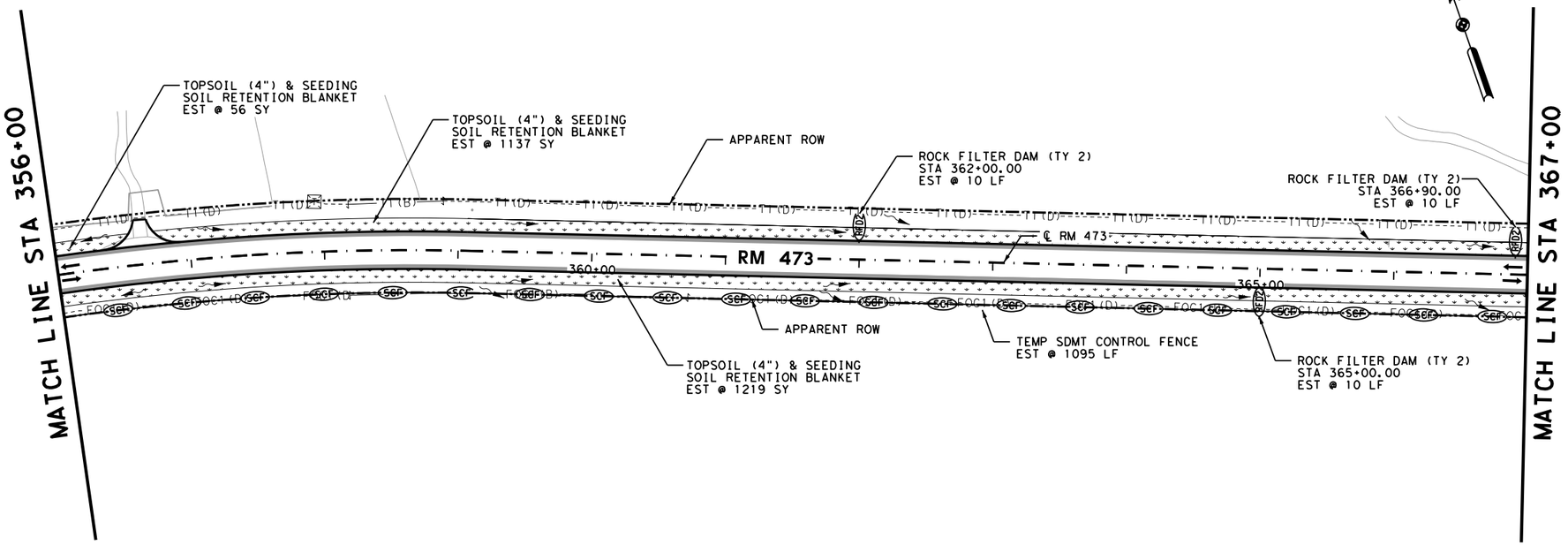
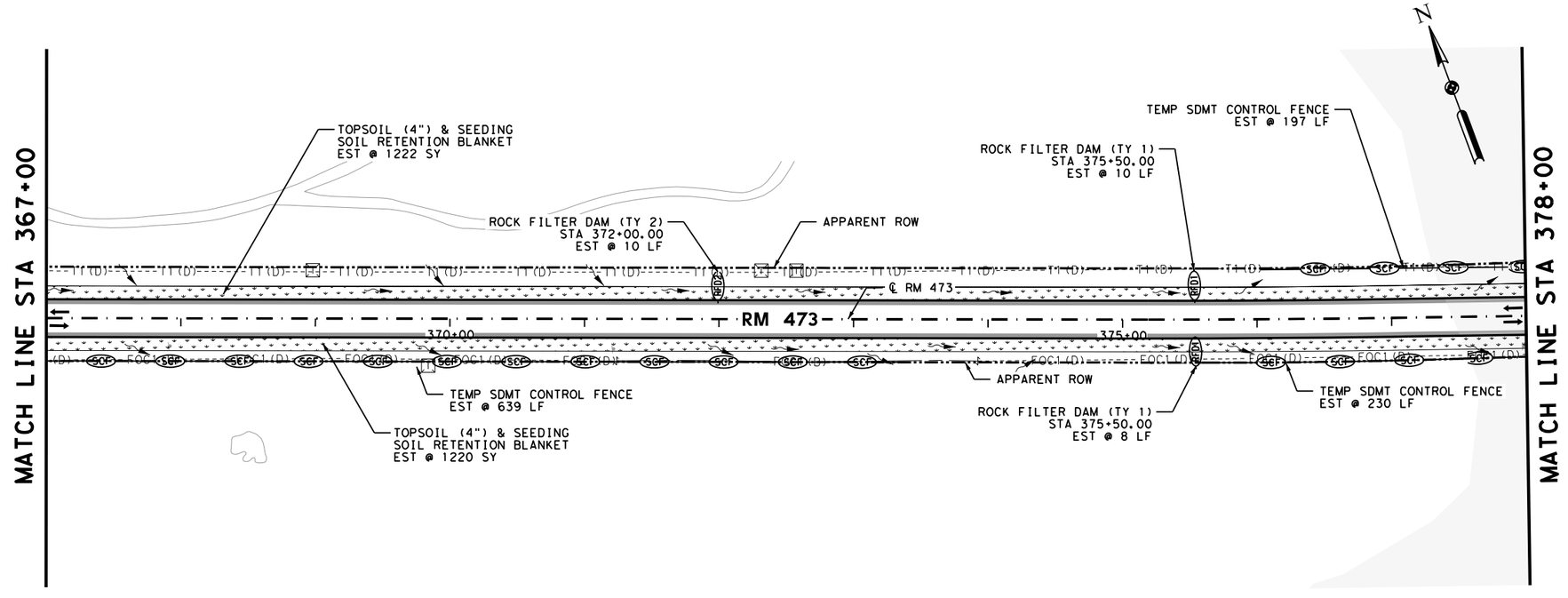
100% SUBMITTAL
DATE: 5/17/2024 TIME: 9:41:52 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4854
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4854
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2427
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2427
0168 6001	VEGETATIVE WATERING	MG	76
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	18
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	40
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	58
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2161
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2161
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4854



LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A



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F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

℄ RM 473 STA 356+00 TO
℄ RM 473 STA 378+00

SHEET 5 OF 18

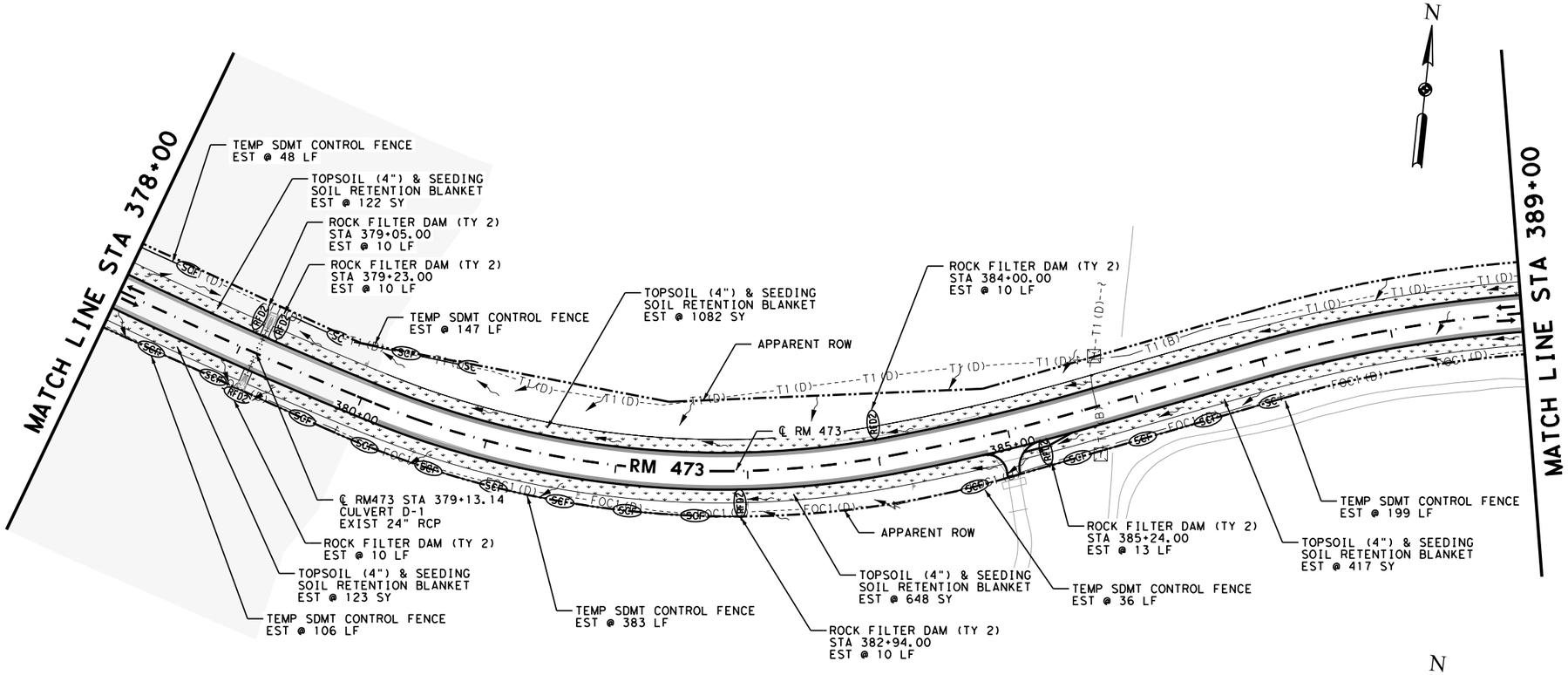
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	247

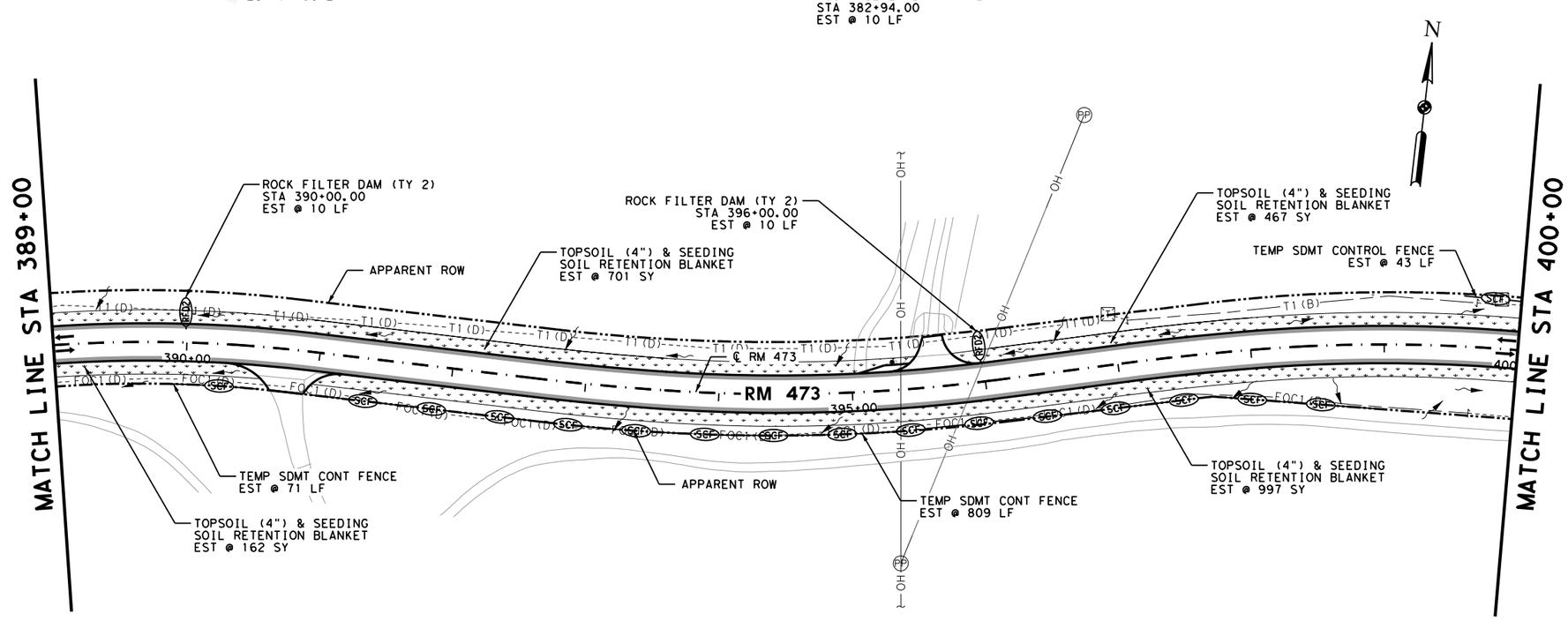
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_05.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:42:02 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4719
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4719
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2360
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2360
0168 6001	VEGETATIVE WATERING	MG	74
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	83
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	83
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1842
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1842
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4719





LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

SW3P LAYOUT

℄ RM 473 STA 378+00 TO
℄ RM 473 STA 400+00

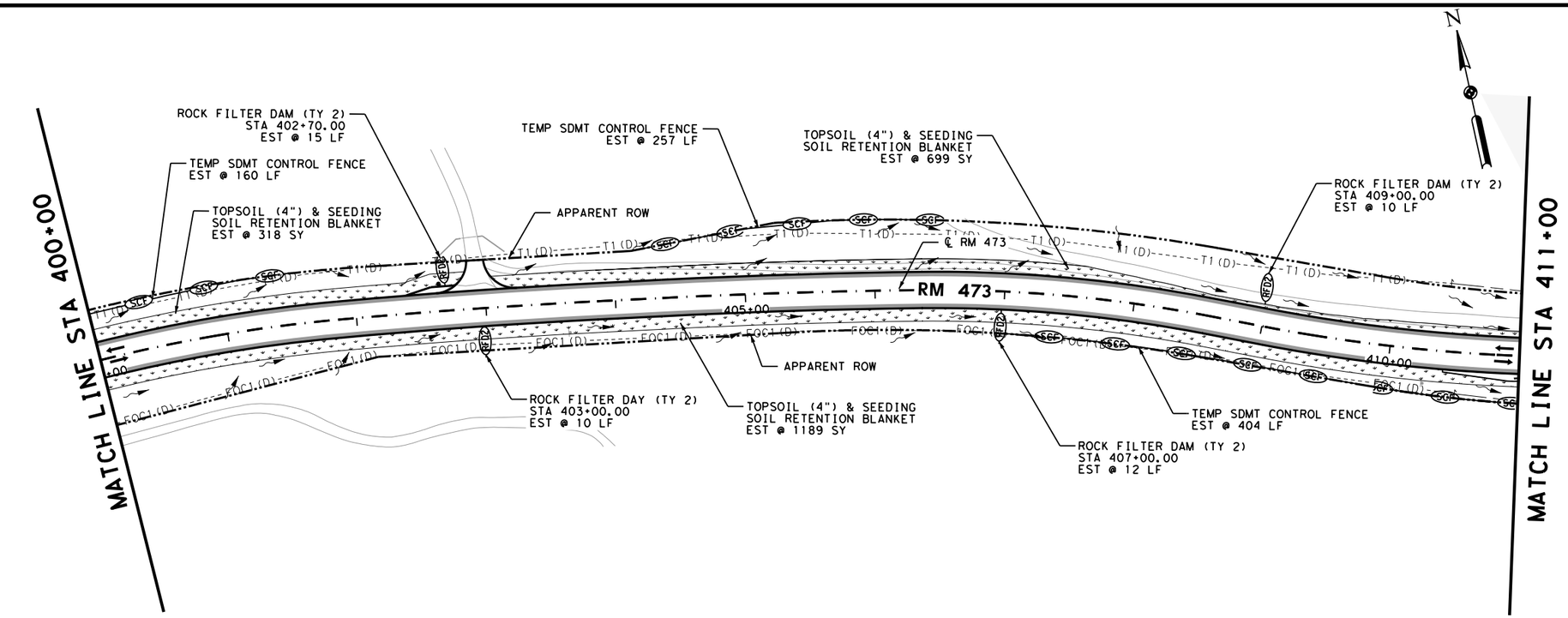
SHEET 6 OF 18

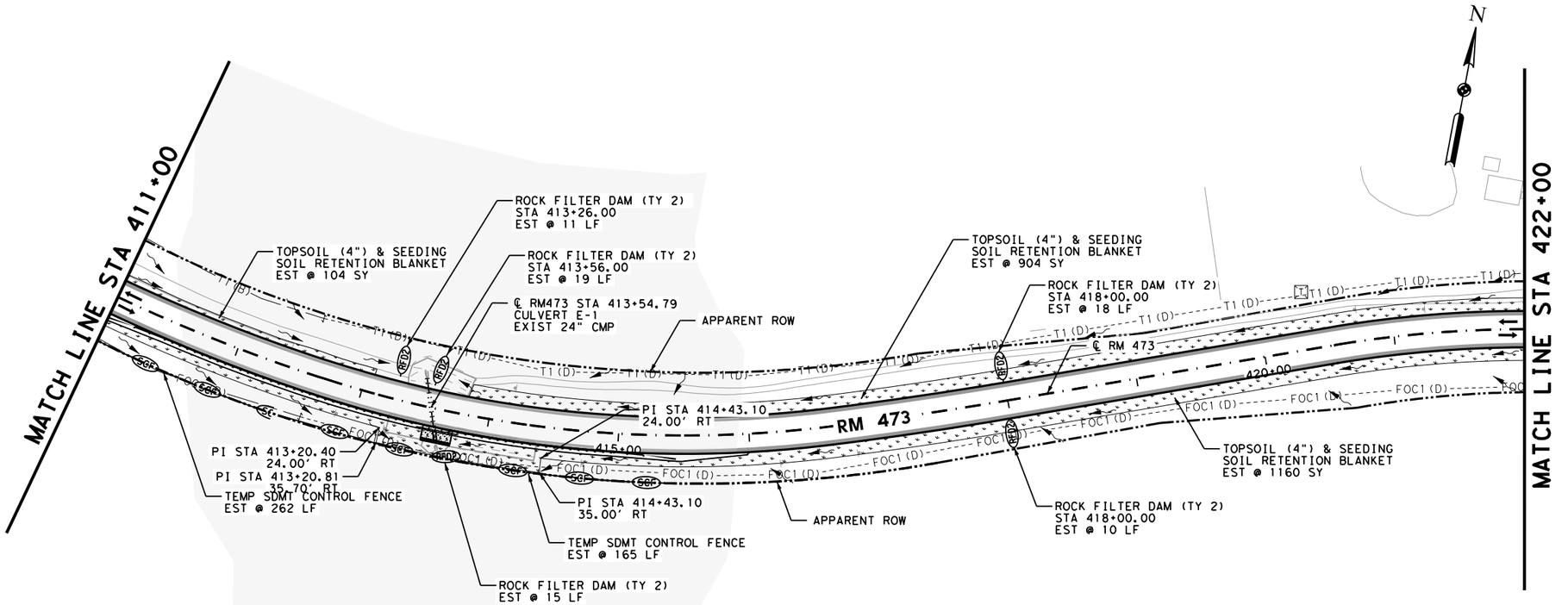
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	248

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_06.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:42:12 AM





ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4374
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4374
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2187
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2187
0168 6001	VEGETATIVE WATERING	MG	68
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	120
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	120
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1248
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1248
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4374

LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0' 50' 100'

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

℄ RM 473 STA 400+00 TO
℄ RM 473 STA 422+00

SHEET 7 OF 18

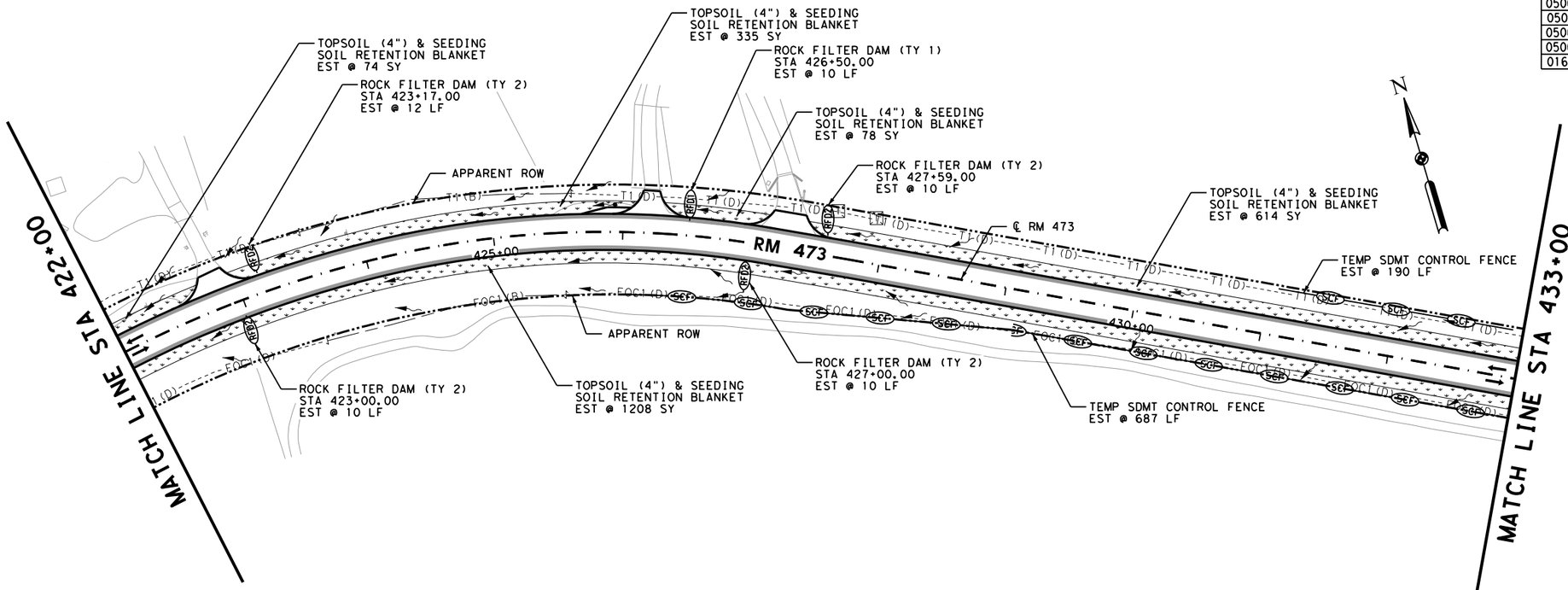
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	249

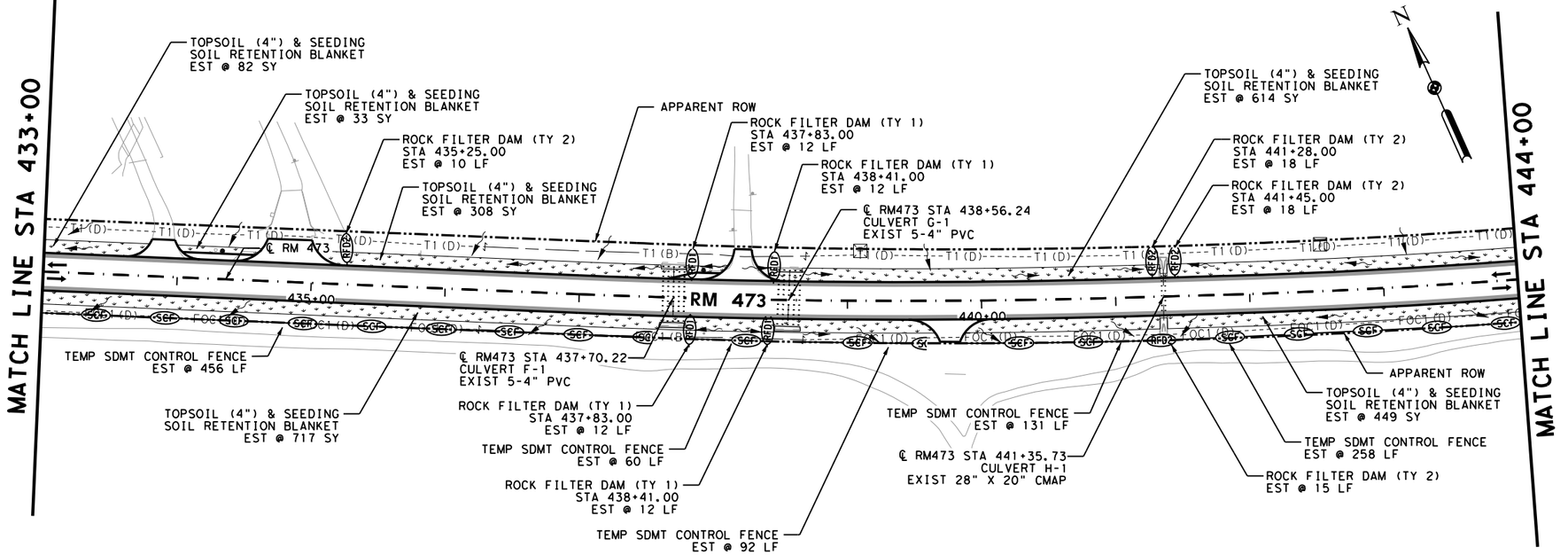
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_07.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:42:22 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4512
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4512
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2256
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2256
0168 6001	VEGETATIVE WATERING	MG	70
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	58
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	103
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	161
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1874
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1874
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4512





LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

SW3P LAYOUT

℄ RM 473 STA 422+00 TO
℄ RM 473 STA 444+00

SHEET 8 OF 18

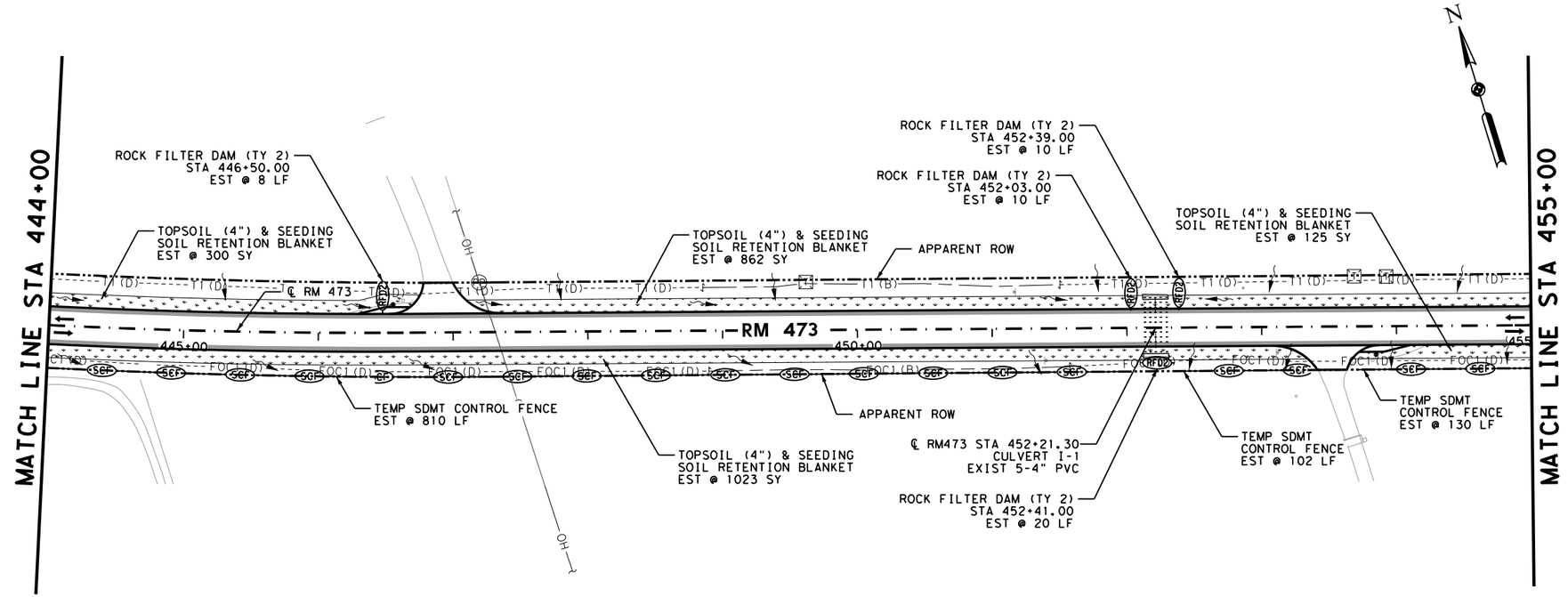
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	250

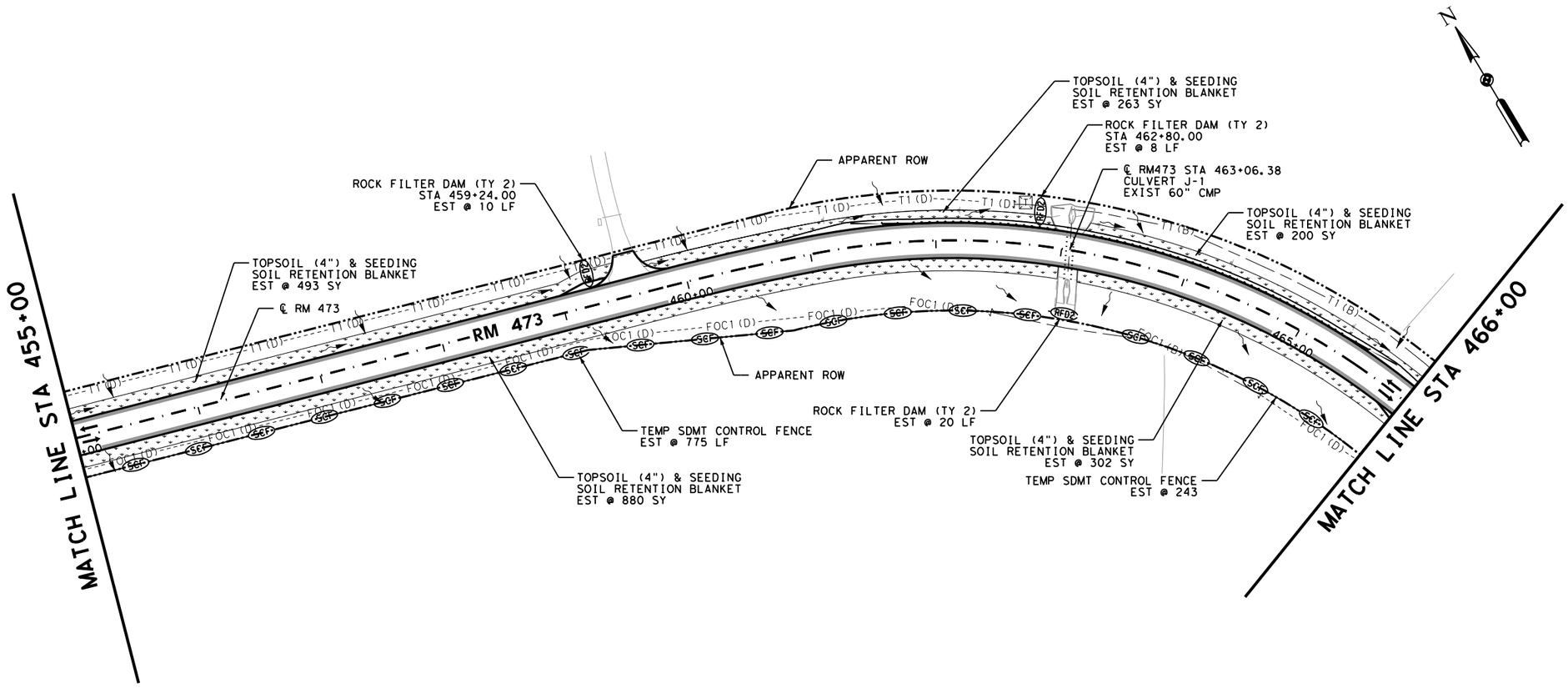
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_08.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:42:32 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4448
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4448
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2224
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2224
0168 6001	VEGETATIVE WATERING	MG	69
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	86
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	86
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2060
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2060
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4448





LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0' 50' 100'

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED
PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

℄ RM 473 STA 444+00 TO
℄ RM 473 STA 466+00

SHEET 9 OF 18

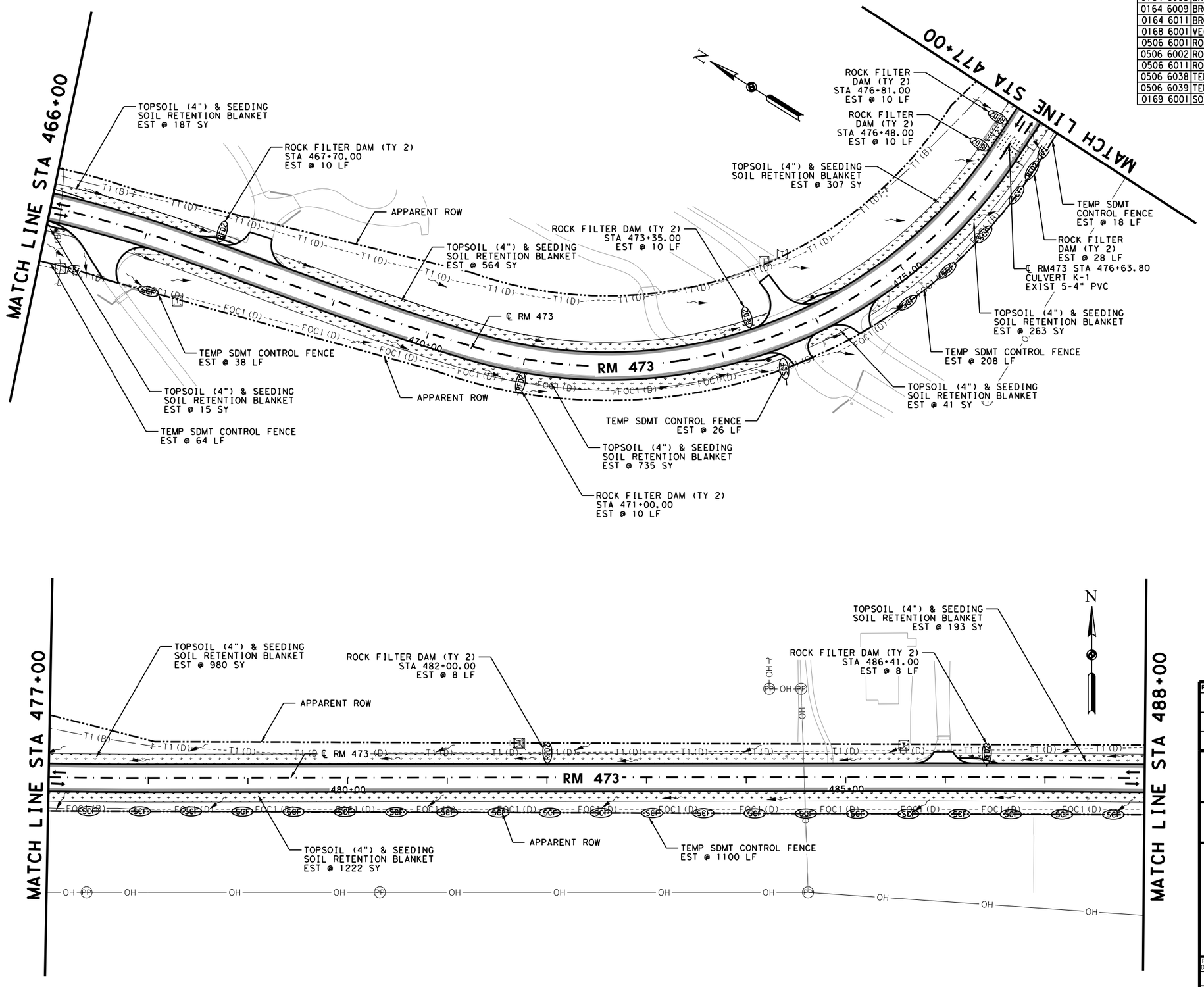
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	251

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_09.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:42:44 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4507
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4507
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2254
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2254
0168 6001	VEGETATIVE WATERING	MG	70
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	94
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	94
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1454
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1454
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4507



LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

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RM 473

SW3P LAYOUT

℄ RM 473 STA 466+00 TO
℄ RM 473 STA 488+00

SHEET 10 OF 18

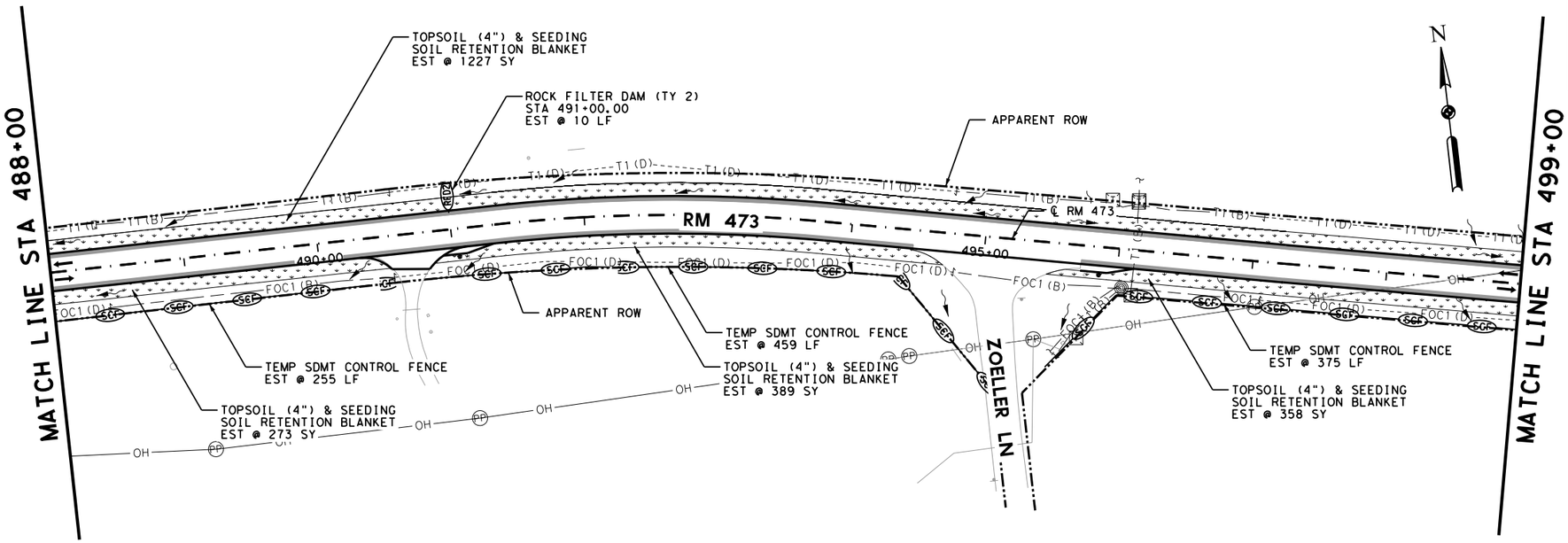
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	252

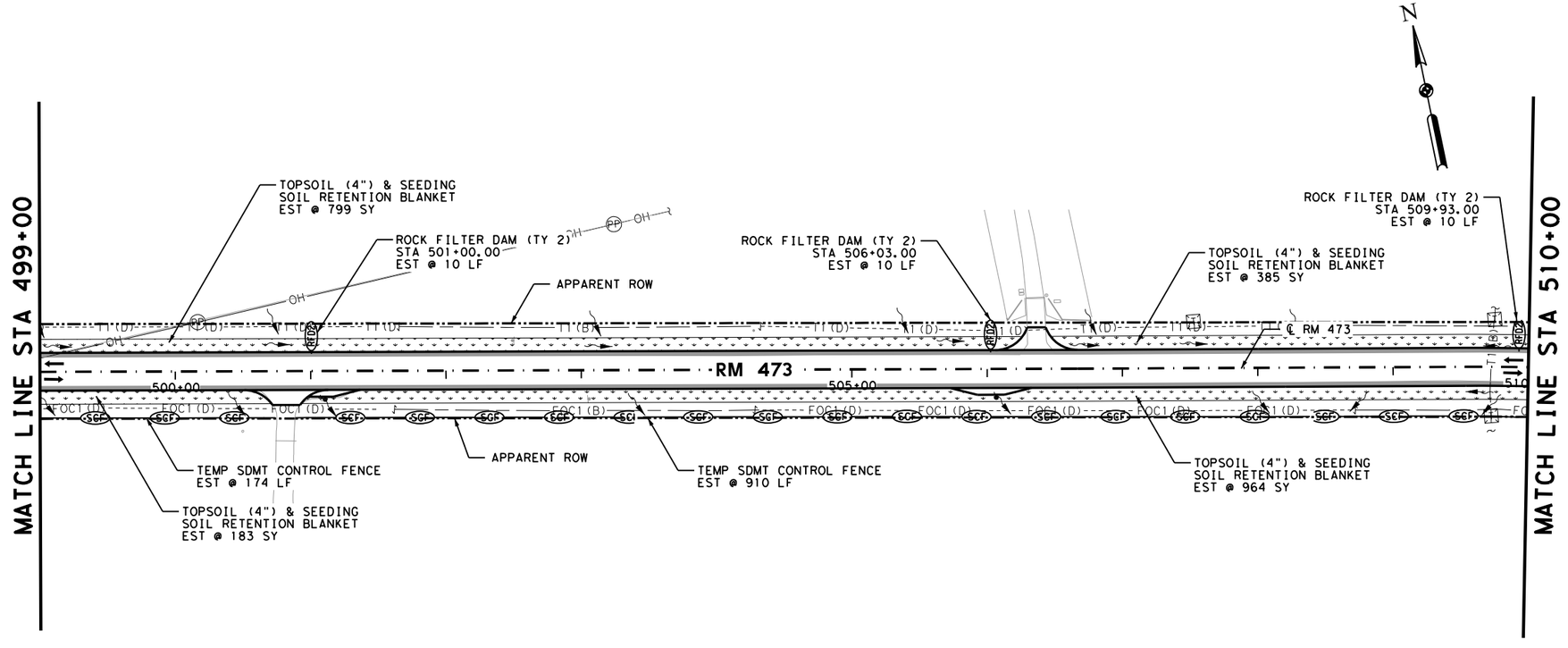
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_10.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:42:53 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4578
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4578
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2289
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2289
0168 6001	VEGETATIVE WATERING	MG	71
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	40
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	40
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2173
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2173
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4578





LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

SW3P LAYOUT

℄ RM 473 STA 488+00 TO
℄ RM 473 STA 510+00

SHEET 11 OF 18

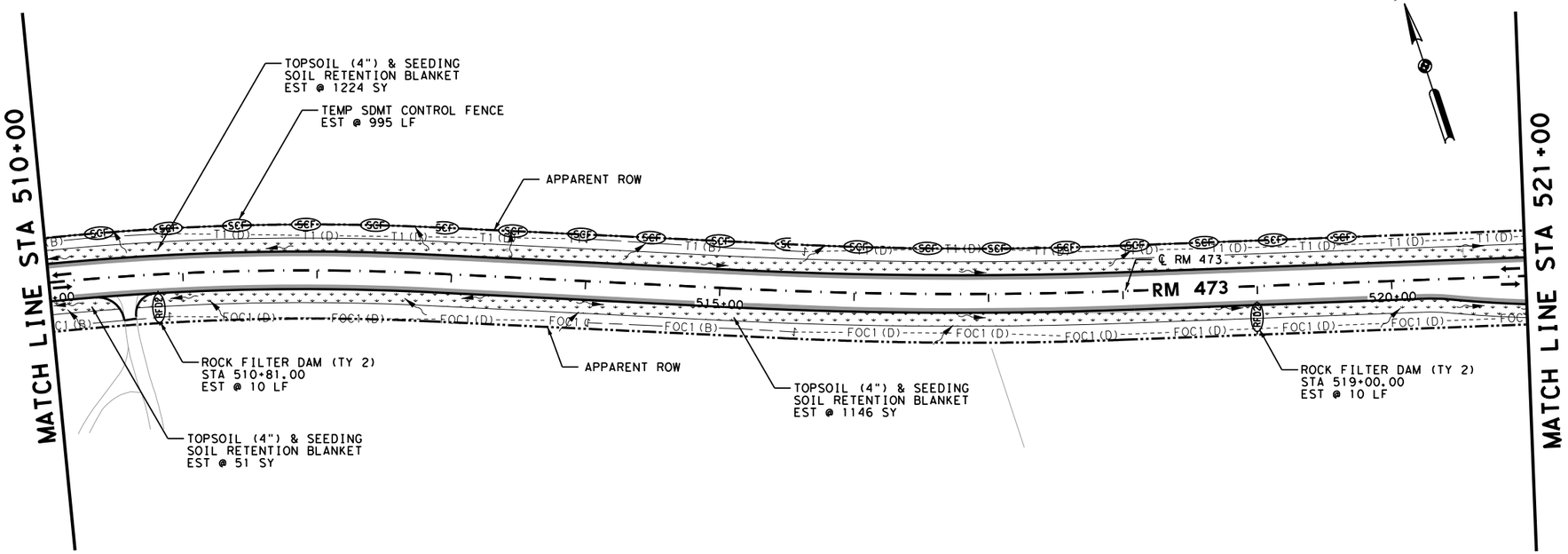
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	253

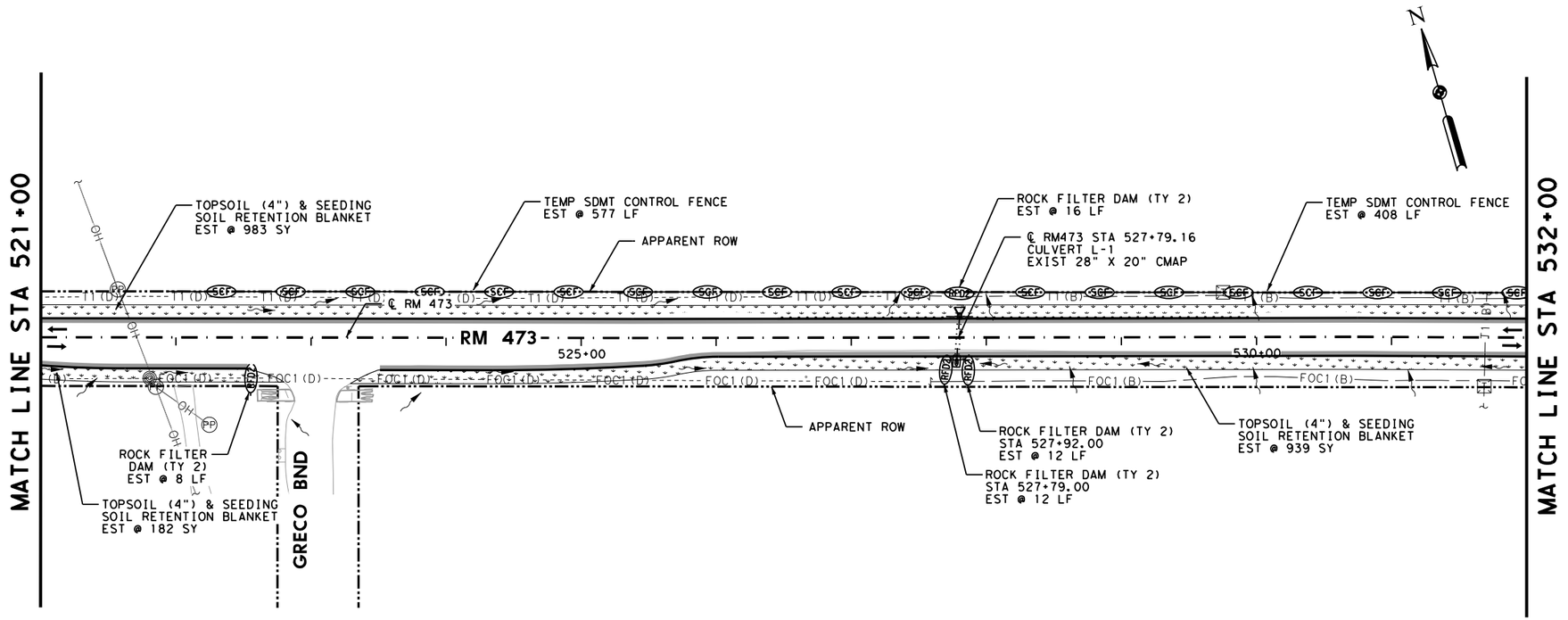
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_11.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:43:02 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4525
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4525
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2263
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2263
0168 6001	VEGETATIVE WATERING	MG	71
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	68
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	68
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1980
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1980
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4525





LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

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RM 473

SW3P LAYOUT

℄ RM 473 STA 510+00 TO
℄ RM 473 STA 532+00

SHEET 12 OF 18

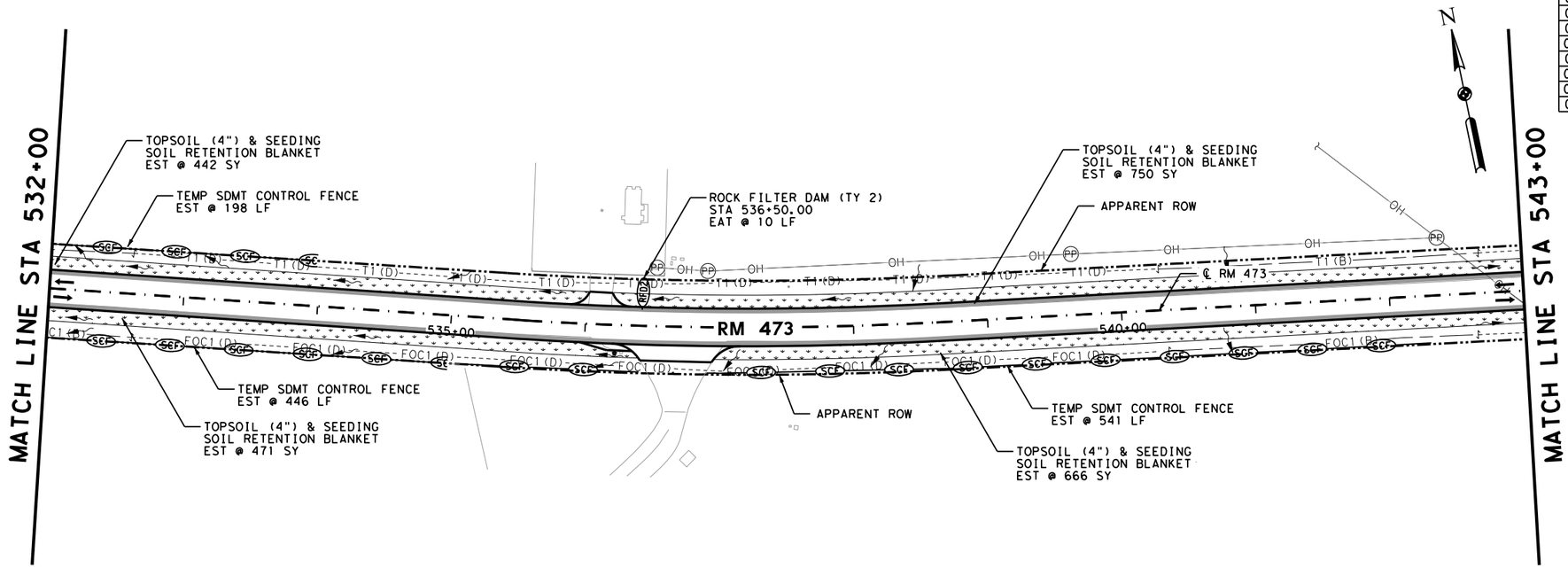
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	254

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_12.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:43:12 AM

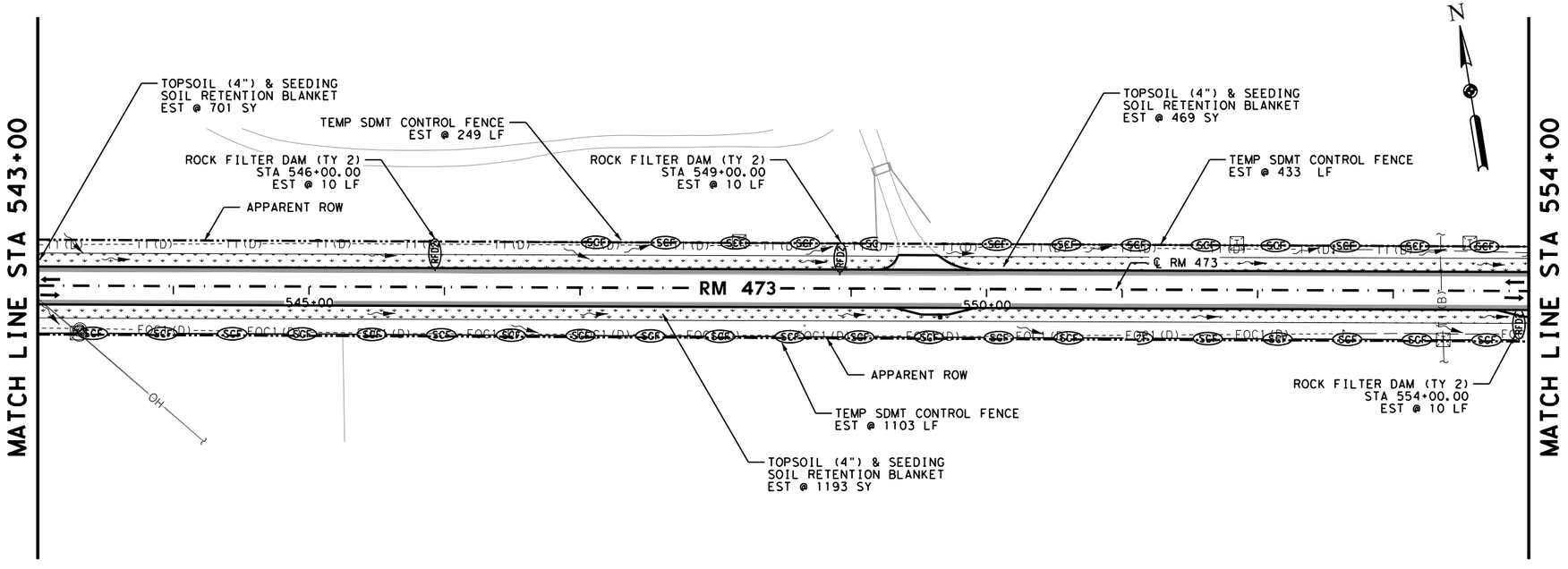
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4692
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4692
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2346
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2346
0168 6001	VEGETATIVE WATERING	MG	73
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	40
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	40
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2970
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2970
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4692



LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′



F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

℄ RM 473 STA 532+00 TO
℄ RM 473 STA 554+00

SHEET 13 OF 18

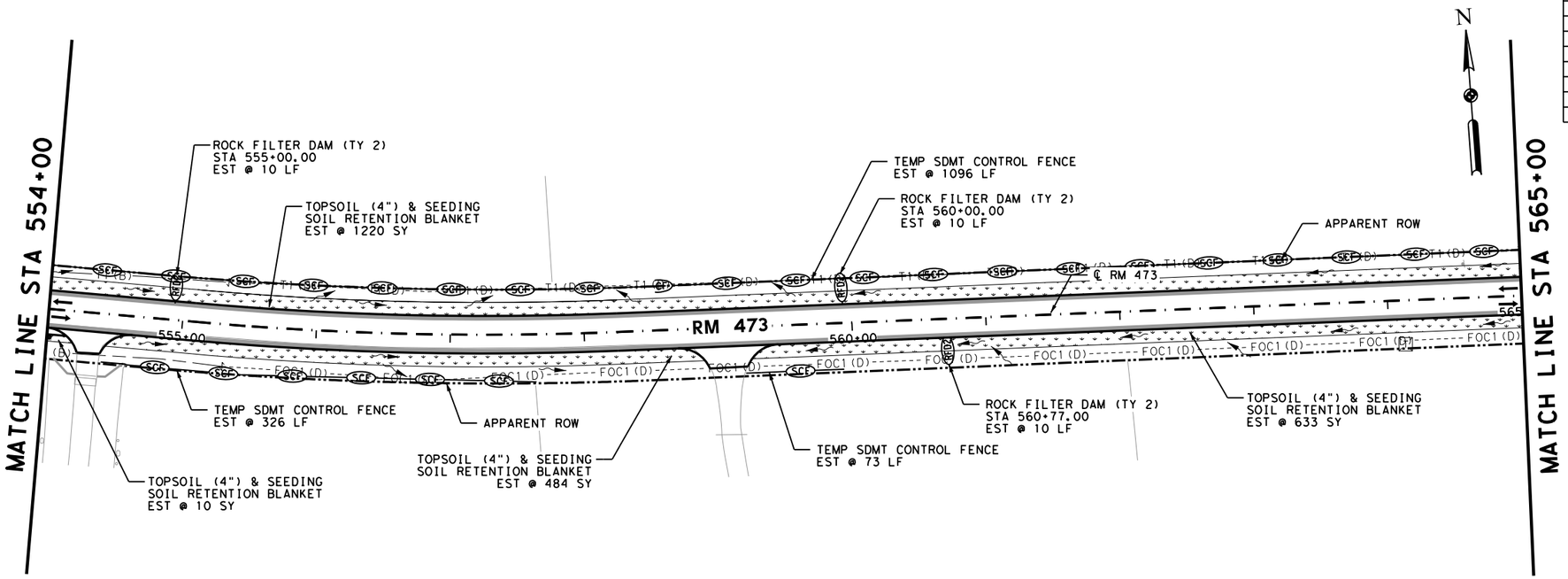
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	255

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_13.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:43:21 AM

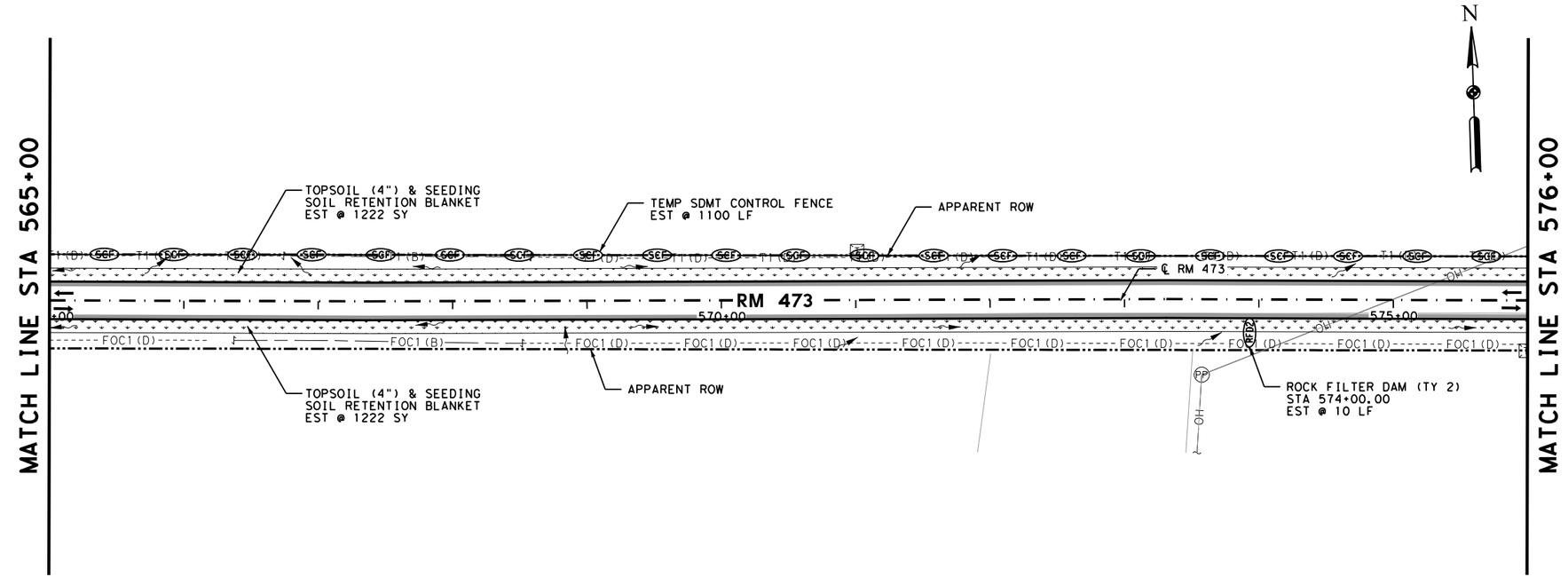
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4791
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4791
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2396
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2396
0168 6001	VEGETATIVE WATERING	MG	75
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	40
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	40
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2595
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2595
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4791



LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′



5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

℄ RM 473 STA 554+00 TO
℄ RM 473 STA 576+00

SHEET 14 OF 18

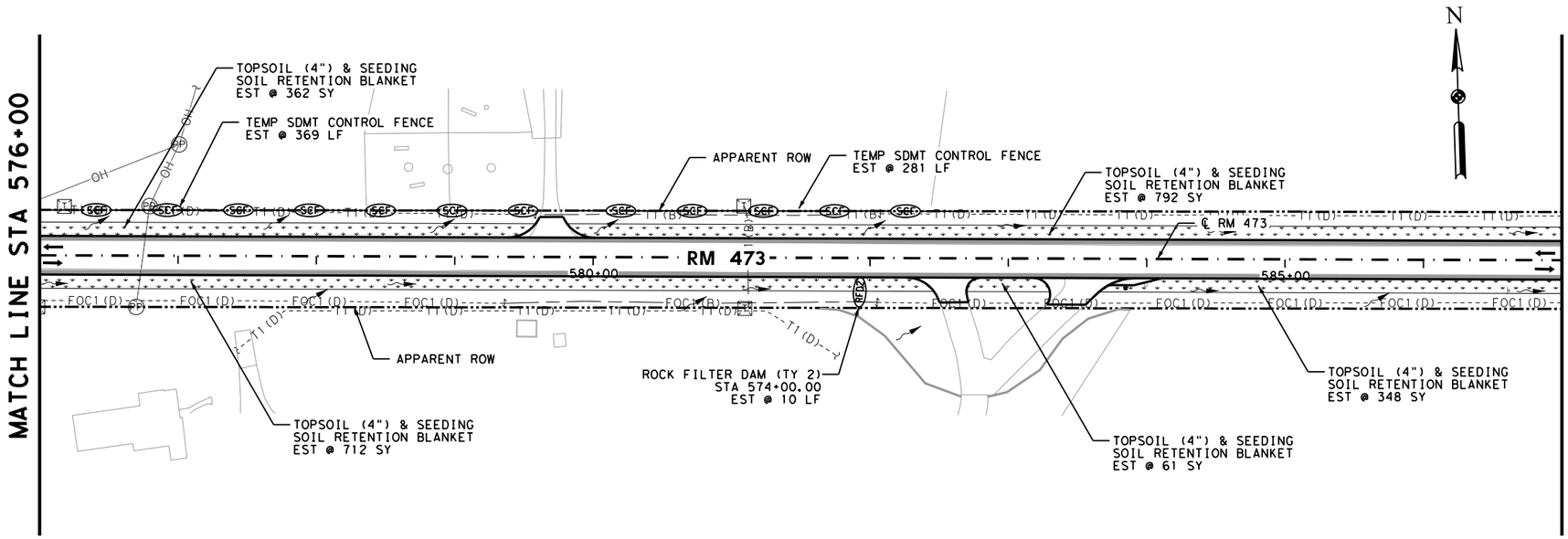
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	256

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_14.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:43:31 AM

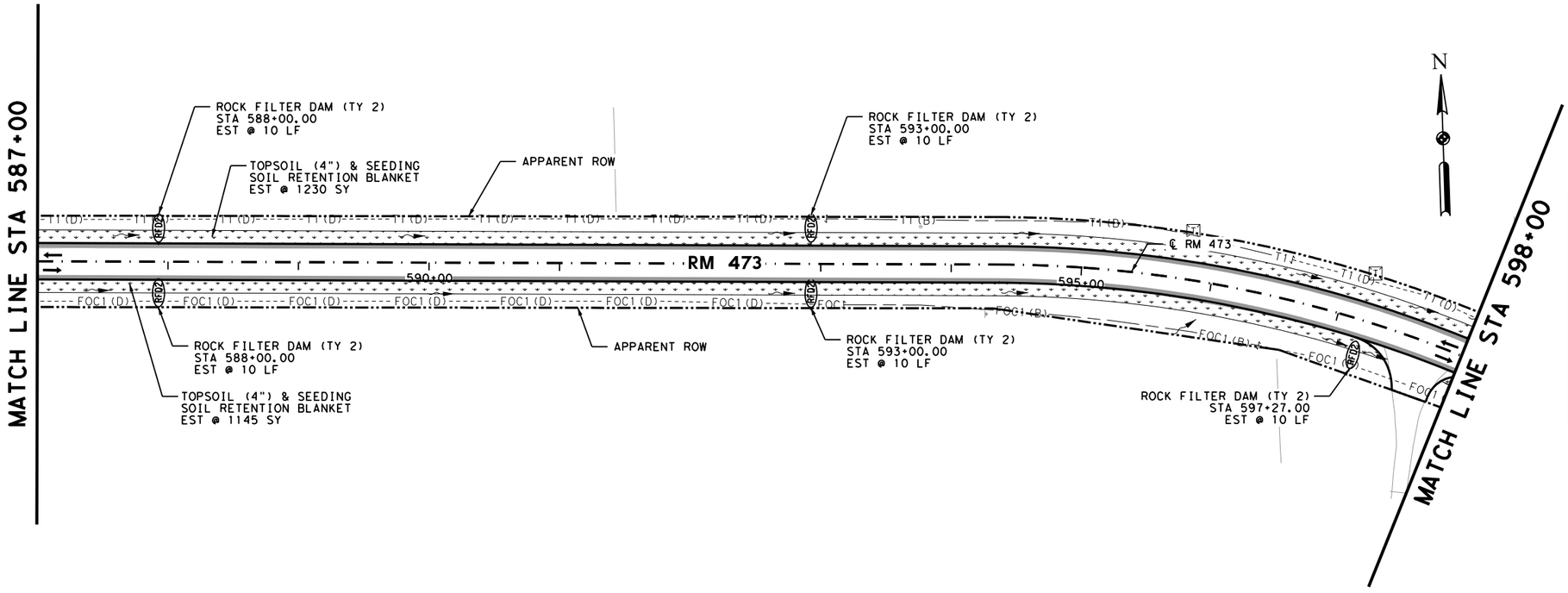
ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4650
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4650
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2325
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2325
0168 6001	VEGETATIVE WATERING	MG	73
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	60
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	60
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	650
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	650
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4650



LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′



STATE OF TEXAS
F. PAUL PURPURA
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PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

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RM 473

SW3P LAYOUT

℄ RM 473 STA 576+00 TO
℄ RM 473 STA 598+00

SHEET 15 OF 18

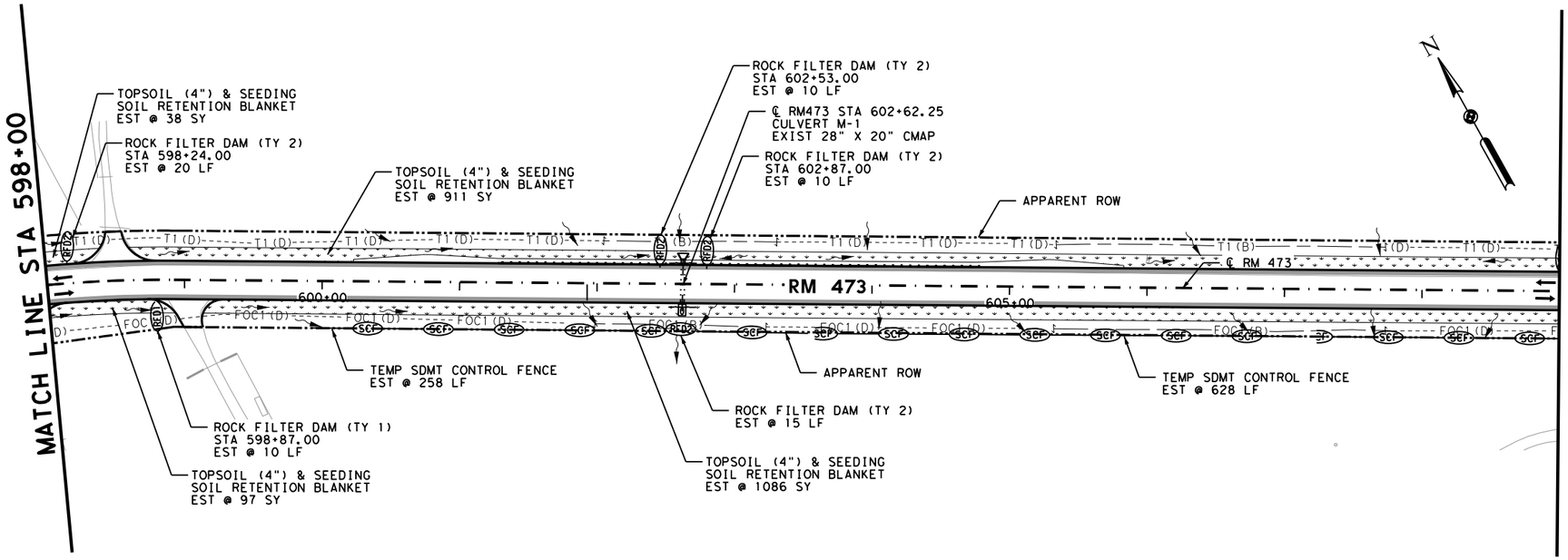
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	257

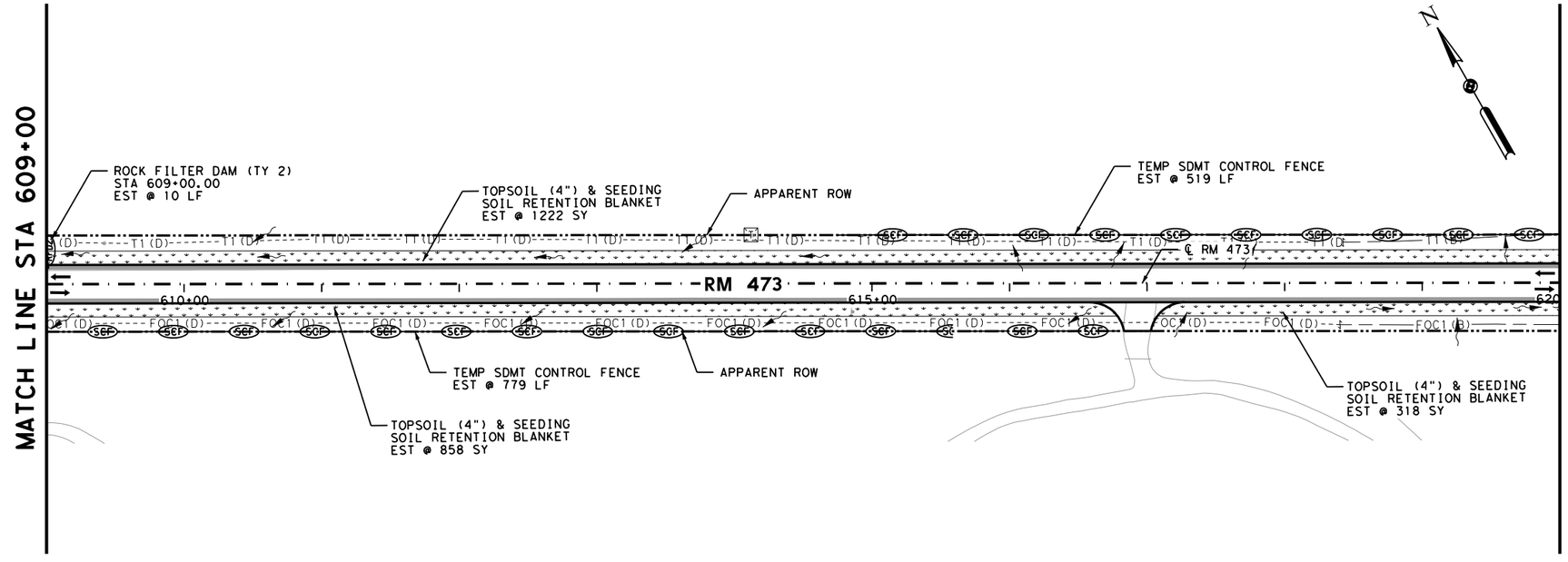
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_15.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:43:41 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4530
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4530
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2265
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2265
0168 6001	VEGETATIVE WATERING	MG	71
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	10
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	65
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	75
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	2183
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	2183
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4530





LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
113376
LICENSED PROFESSIONAL ENGINEER

5/17/2024

REV. No.	DATE	REVISION	BY

AtkinsRéalis
TBPE REG. # F-474

Texas Department of Transportation

RM 473

SW3P LAYOUT

℄ RM 473 STA 598+00 TO
℄ RM 473 STA 620+00

SHEET 16 OF 18

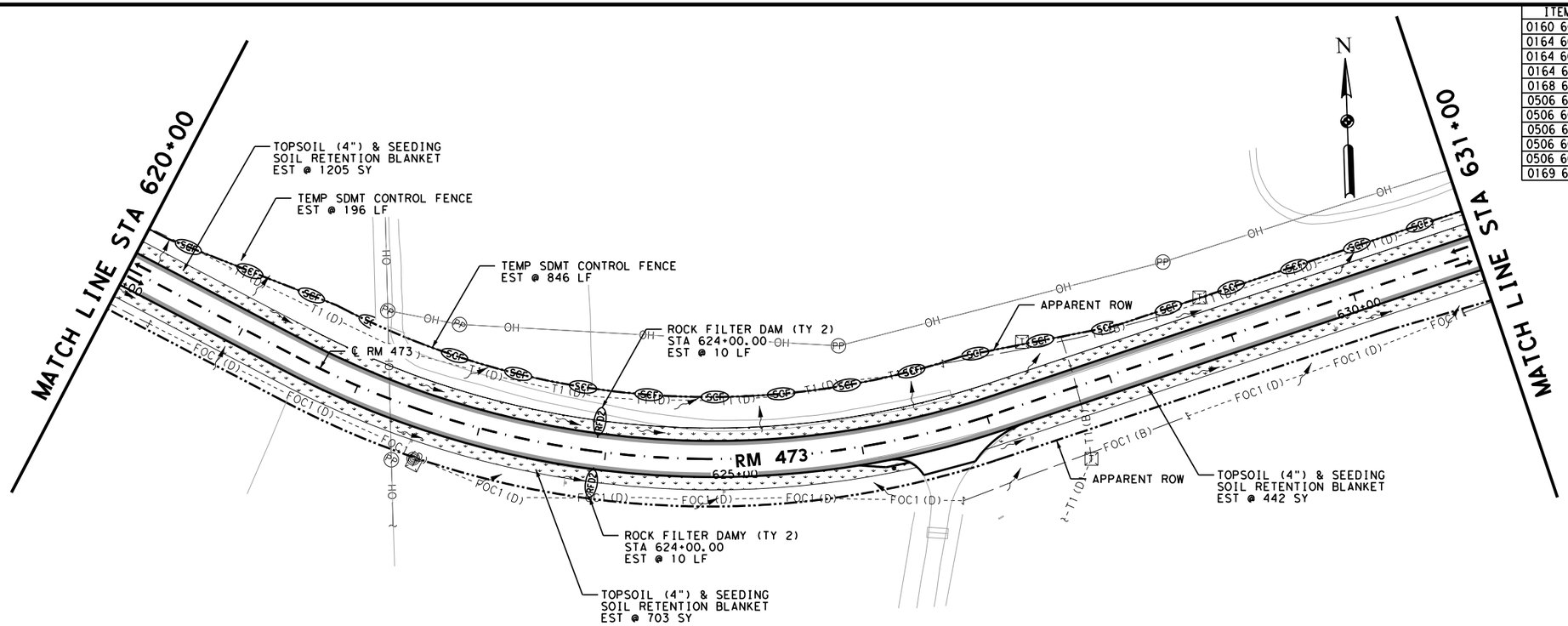
FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	258

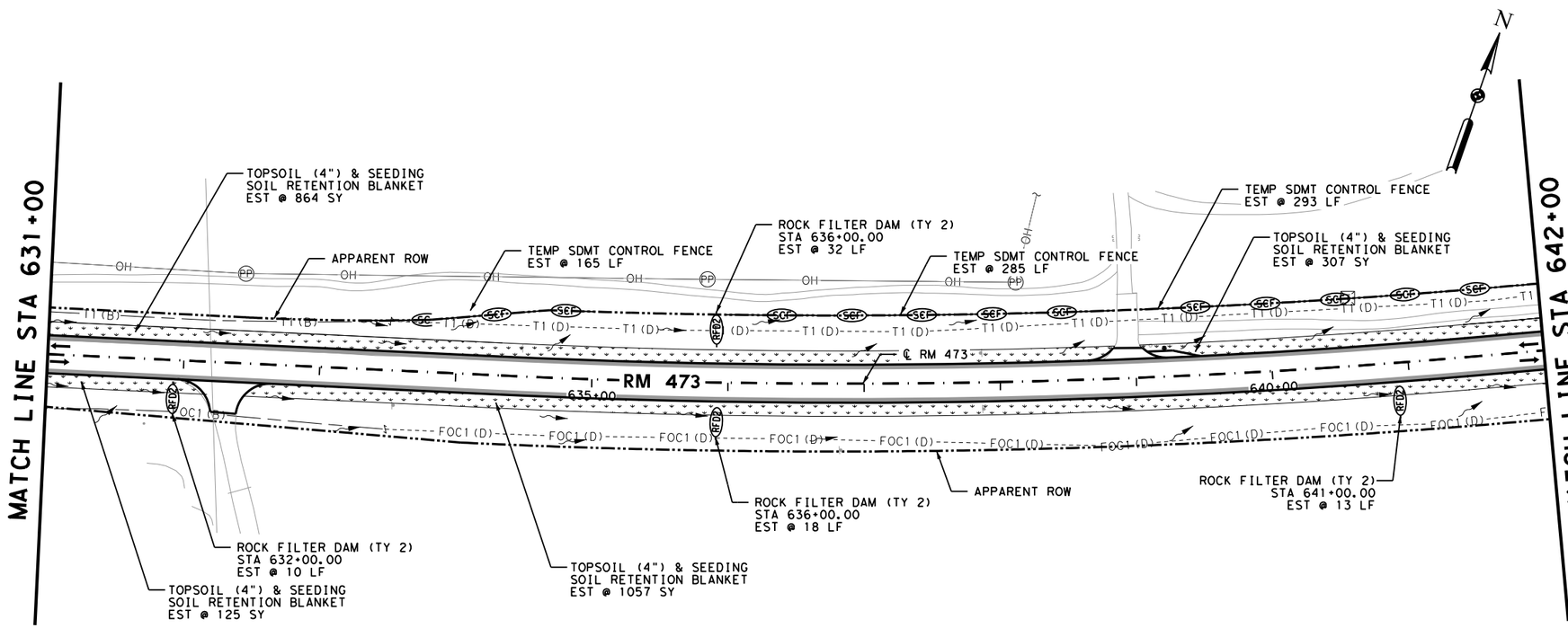
PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_16.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:43:51 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4703
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	4703
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	2352
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	2352
0168 6001	VEGETATIVE WATERING	MG	73
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	93
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	93
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1785
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1785
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	4703





LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

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5/17/2024

REV. No.	DATE	REVISION	BY

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RM 473

SW3P LAYOUT

℄ RM 473 STA 620+00 TO
℄ RM 473 STA 642+00

SHEET 17 OF 18

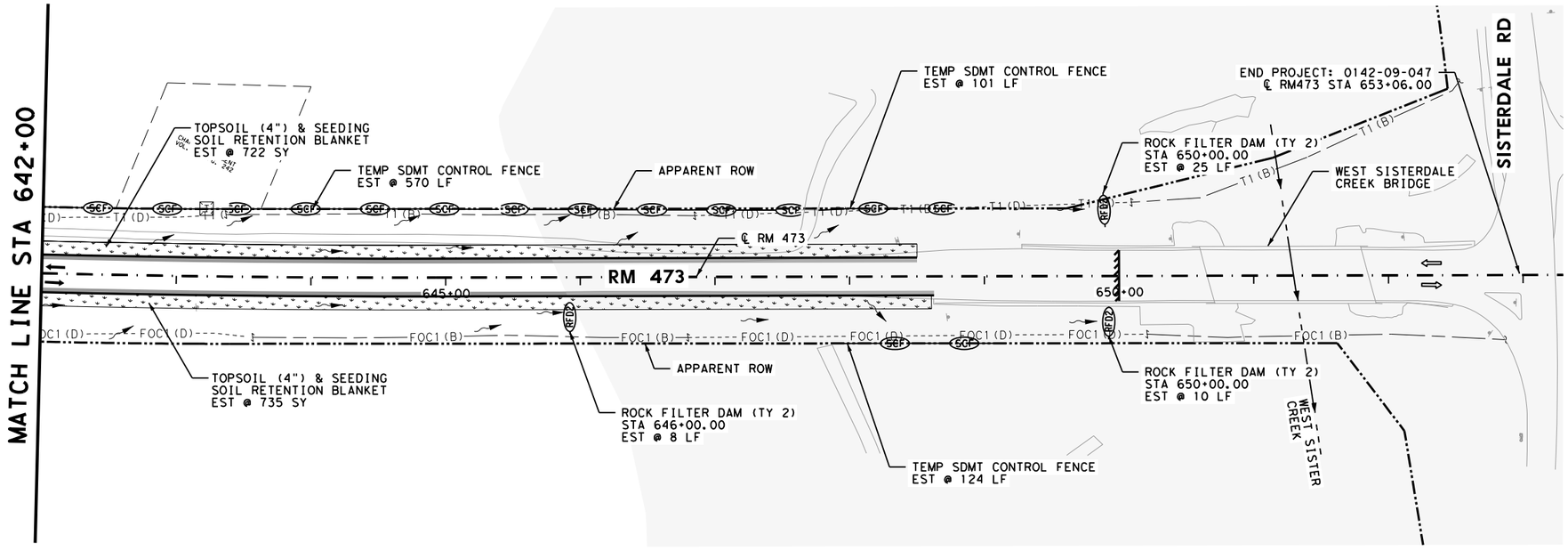
FED. RD DIV. No.	STATE	PROJECT No.			HIGHWAY No.
6	TEXAS	SEE TITLE SHEET			RM 473
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	259

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_17.dgn

100% SUBMITTAL

DATE: 5/17/2024 TIME: 9:44:00 AM

ITEM	DESCRIPTION	UNIT	QTY
0160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1457
0164 6003	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	1457
0164 6009	BROADCAST SEED (TEMP) (WARM)	SY	729
0164 6011	BROADCAST SEED (TEMP) (COOL)	SY	729
0168 6001	VEGETATIVE WATERING	MG	23
0506 6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	0
0506 6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	43
0506 6011	ROCK FILTER DAMS (REMOVE)	LF	43
0506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	795
0506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	795
0169 6001	SOIL RETENTION BLANKETS (CL 1) (TY A)	SY	1457



LEGEND

- PROPOSED PAVEMENT
- PROPOSED TRAFFIC
- DRAINAGE FLOW ARROWS
- SCF — TEMP SDMT CONTROL FENCE
- RFD1 — ROCK FILTER DAM (TY 1)
- RFD2 — ROCK FILTER DAM (TY 2)
- TOPSOIL, SEEDING AND SOIL RETENTION BLANKET
- FEMA FLOODPLAIN ZONE A

0′ 50′ 100′

STATE OF TEXAS
F. PAUL PURPURA
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5/17/2024

REV. No.	DATE	REVISION	BY

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RM 473

SW3P LAYOUT

℄ RM 473 STA 642+00 TO
END OF PROJECT

SHEET 18 OF 18

FED. RD DIV. No.	STATE	PROJECT No.		HIGHWAY No.	
6	TEXAS	SEE TITLE SHEET		RM 473	
STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
SAT	KENDALL	0142	09	047	260

PLOT DRIVER: pdf-bw.pltcfg
PEN TABLE: $PENTAB$
FILE: RM473_ENV_SW3P_18.dgn

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):
0142-09-047

1.2 PROJECT LIMITS:
From: OLD NO. 9 HWY

To: RM 1376

1.3 PROJECT COORDINATES:
BEGIN: (Lat) 29.9981602 ,(Long) -98.8370280

END: (Lat) 29.979809 ,(Long) -98.722367

1.4 TOTAL PROJECT AREA (Acres): 61.9

1.5 TOTAL AREA TO BE DISTURBED (Acres): 17.2

1.6 NATURE OF CONSTRUCTION ACTIVITY:
WORK CONSISTING OF GRADING, BASE, SURFACE, AND PAVEMENT MARKINGS FOR THE WIDENING OF LANES AND CONSTRUCTION OF SHOULDERS

1.7 MAJOR SOIL TYPES:

Soil Type	Description
OAKALLA SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	STA 271+33 TO 276+57 STA 647+46 TO STA 652+94 90% OAKALLA, WELL DRAINED, LOW RUNOFF, MODERATLEY HIGH TO HIGH
DOSS-BRACKETT ASSOCIATION, 1 TO 8 PERCENT SLOPES	STA 276+57 TO STA 330+87;STA 360+29 TO STA 376+20 STA 380+28 TO STA 384+36;STA 406+94 TO STA 439+84 STA 444+53 TO STA 457+16;STA 517+50 TO STA 579+93 STA 622+55 TO STA 633+60 48% DOSS, 28% BRACKETT, WELL DRAINED, MEDIUM RUNOFF, MODERATELY LOW TO MODERATLEY HIGH
BRACKETT-REAL ASSOCIATION, 10 TO 30 PERCENT SLOPES	STA 330+87 TO STA 360+29 58% BRACKETT, 30% REAL, WELL DRAINED, HIGH RUNOFF, MODERATELY LOW TO HIGH
KRUM SILTY CLAY, 3 TO 5 PERCENT SLOPES	STA 376+20 TO 380+28 95% KRUM, WELL DRAINED, HIGH RUNOFF, MODERATLEY LOW TO MODERATLEY HIGH
DENTON SILTY CLAY, 1 TO 3 PERCENT SLOPES	STA 384+36 TO STA 387+62; STA 405+92 TO STA 406+94 STA 457+16 TO STA 477+23;STA 507+84 TO STA 510+68 88% DENTON, WELL DRAINED, HIGH RUNOFF, MODERATLEY LOW TO MODERATELY HIGH
DOSS SILTY CLAY, 1 TO 5 PERCENT SLOPES	STA 387+62 TO STA 396+96;STA 399+88 TO STA 405+92 STA 439+84 TO STA 444+53;STA 477+23 TO STA 489+19 STA 579+93 TO STA 600+58 85% DOSS, WELL DRAINED, MEDIUM RUNOFF, MODERATELY LOW TO MODERATELY HIGH
BRACKETT ASSOCIATION, 1 TO 8 PERCENT SLOPES	STA 387+62 TO STA 396+96; STA 399+98 TO STA 405+92 STA 439+84 TO STA 444+53; STA 477+23 TO STA 489+19 STA 579+93 TO STA 600+58 87% BRACKETT, WELL DRAINED, MEDIUM RUNOFF, MODERATLEY LOW TO HIGH

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
☒
☐ 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
GUADALUPE RIVER ABOVE CANYON LAKE	CLASSIFIED, FRESHWATER STREAM (1806)

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

☒ Development of plans and specifications
☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
☒ Post Construction Site Notice
☒ Submit NOI/CSN to local MS4
☒ Perform SWP3 inspections
☒ Maintain SWP3 records and update to reflect daily operations
☒ Complete and submit Notice of Termination to TCEQ
☒ Maintain SWP3 records for 3 years
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

☒ Day To Day Operational Control
☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
☒ Post Construction Site Notice
☒ Submit NOI/CSN to local MS4
☒ Maintain schedule of major construction activities
☒ Install, maintain and modify BMPs
☒ Complete and submit Notice of Termination to TCEQ
☒ Maintain SWP3 records for 3 years
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity
NO MS4s RECEIVE STORMWATER DISCHARGE FROM THIS SITE

STATE OF TEXAS
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PROFESSIONAL ENGINEER

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			261
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	KENDALL	
CONT.	SECT.	JOB	HIGHWAY NO.
0142	09	047	RM 473

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

- [x] [ ] Protection of Existing Vegetation
- [ ] [ ] Vegetated Buffer Zones
- [ ] [ ] Soil Retention Blankets
- [ ] [ ] Geotextiles
- [ ] [ ] Mulching/ Hydromulching
- [ ] [ ] Soil Surface Treatments
- [x] [ ] Temporary Seeding
- [ ] [x] Permanent Planting, Sodding or Seeding
- [ ] [ ] Biodegradable Erosion Control Logs
- [x] [ ] Rock Filter Dams/ Rock Check Dams
- [ ] [ ] Vertical Tracking
- [ ] [ ] Interceptor Swale
- [ ] [x] 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
- [x] [ ] Rock Filter Dams/ Rock Check Dams
- [ ] [ ] Sandbag Berms
- [x] [ ] Sediment Control Fence
- [x] [ ] 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:
    - [x] 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:

- [x] Excess dirt/mud on road removed daily
- [ ] Haul roads dampened for dust control
- [ ] Loaded haul trucks to be covered with tarpaulin
- [x] Stabilized construction exit
- [ ] Daily street sweeping
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- [ ] Chemical Management
- [x] Concrete and Materials Waste Management
- [x] Debris and Trash Management
- [ ] Dust Control
- [x] 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:

- [x] Fire hydrant flushings
- [x] Irrigation drainage
- [x] Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- [x] Potable water sources
- [x] Springs
- [x] Uncontaminated groundwater
- [x] Water used to wash vehicles or control dust
- [x] 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.

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STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 2 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			262
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	KENDALL	
CONT.	SECT.	JOB	HIGHWAY NO.
0142	09	047	RM 473

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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.

2.

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.

2.

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. Golden-Cheeked Warbler (GCW) habitat was identified in land/properties adjacent to project area. The following voluntary conservation measures (VCM) will be implemented.

   A. Avoid placing PSL's in areas adjacent to potential habitat for rare, threatened, and endangered species.

   B. Do not disturb, destroy, or remove active nests during the nesting season.

   C. Retain existing vegetation whenever possible.

   D. Projects that would involve clearing or trimming of individual trees or shrubs (within 300 ft of) potential habitat would be phased so that any clearing activities would occur outside the breeding season (between September 1st and February 28th) to minimize impacts to GCW.

   E. TxDOT personnel and project contractors, as appropriate, will be informed of these Programmatic Consultation requirements.

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.

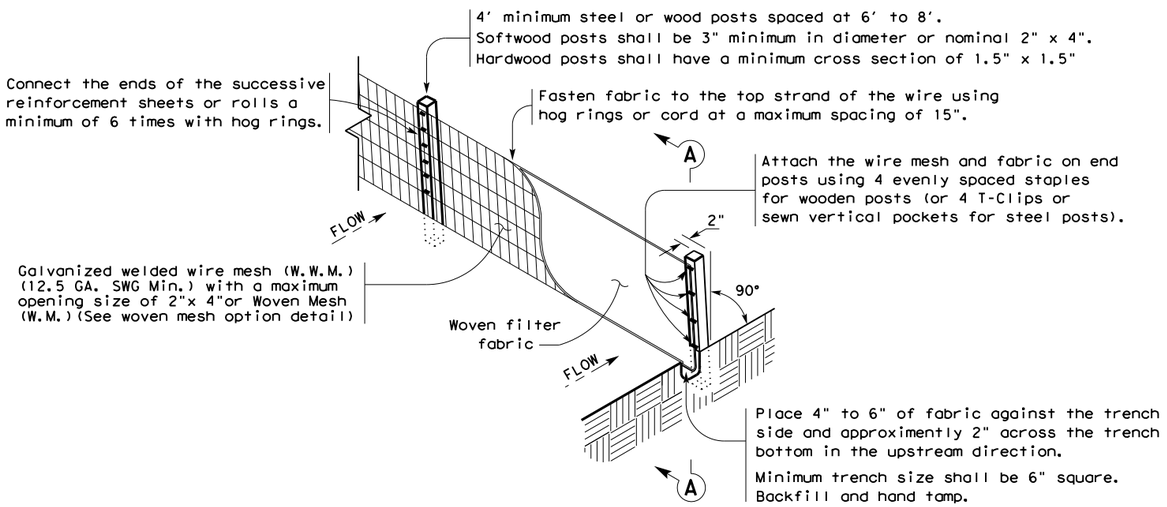
Texas Department of Transportation
San Antonio District Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

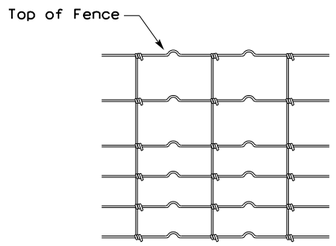
FILE: epic_2015-10-09_SAT.dgn	DN: TxDOT	CK: TxDOT	DW: BW	CK: GAG
©TxDOT OCTOBER 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		263

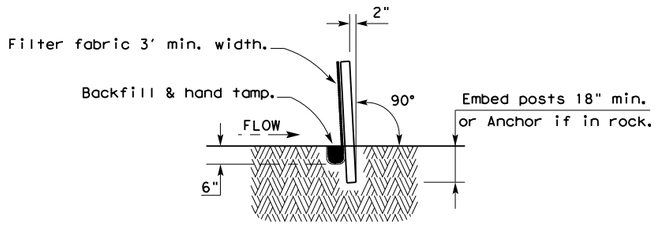
5/17/2024 9:44:10 AM
RM473_EPIC.dgn



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.

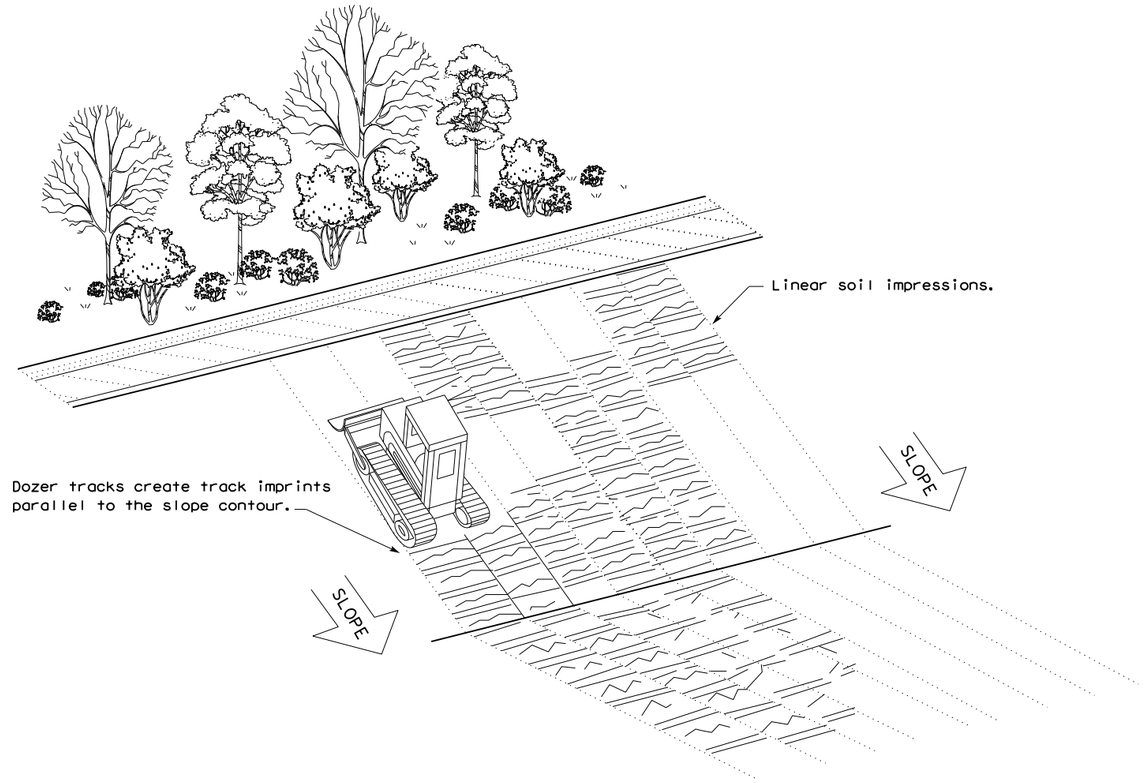
LEGEND

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	
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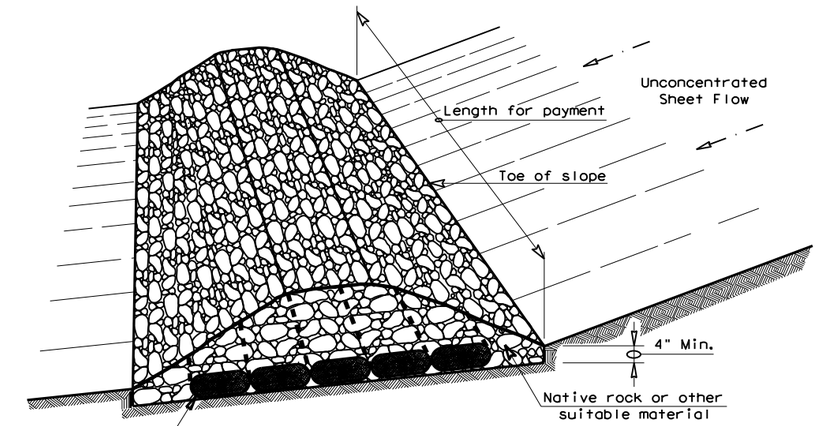
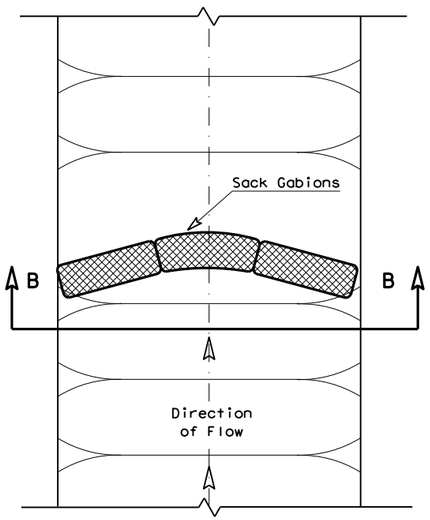
	SAT	KENDALL			264	

5/31/2024
ec116.dgn

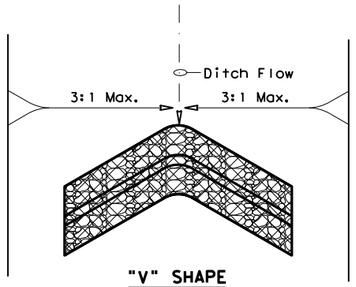


FILTER DAM AT TOE OF SLOPE

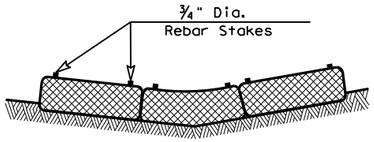
RFD1



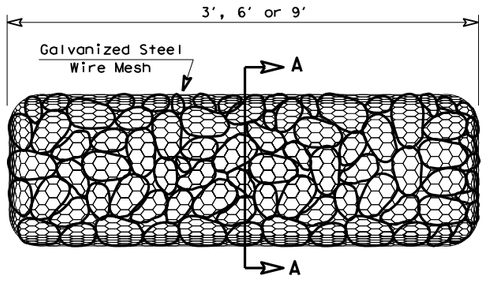
PLAN VIEW



"V" SHAPE
PLAN VIEW

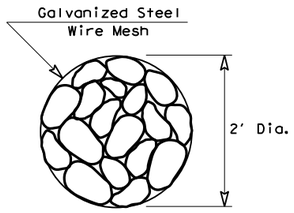


SECTION B-B

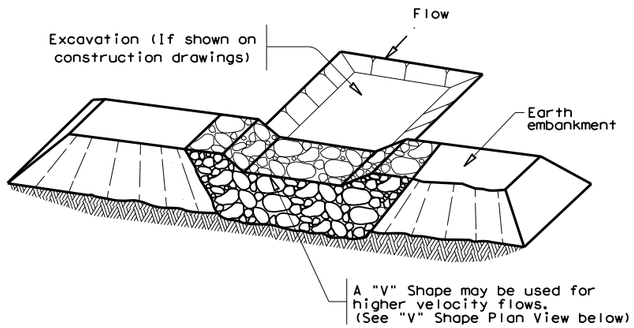


TYPE 4 (SACK GABIONS)

RFD4

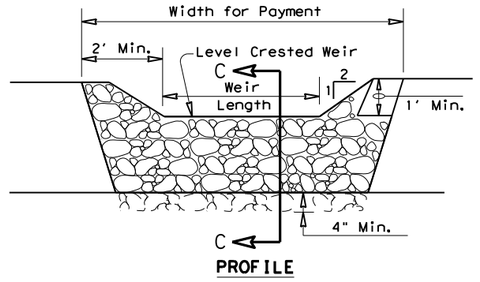


SECTION A-A

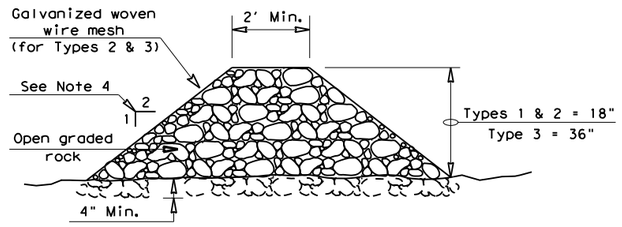


FILTER DAM AT SEDIMENT TRAP

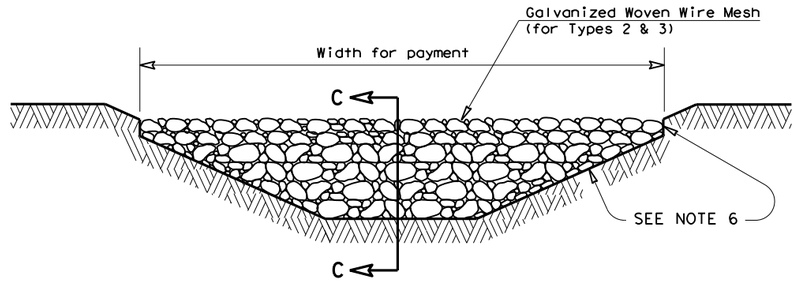
RFD1 — OR — RFD2



PROFILE



SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 — OR — RFD2 — OR — RFD3

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.

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.

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	0142	09	047	RM 473	
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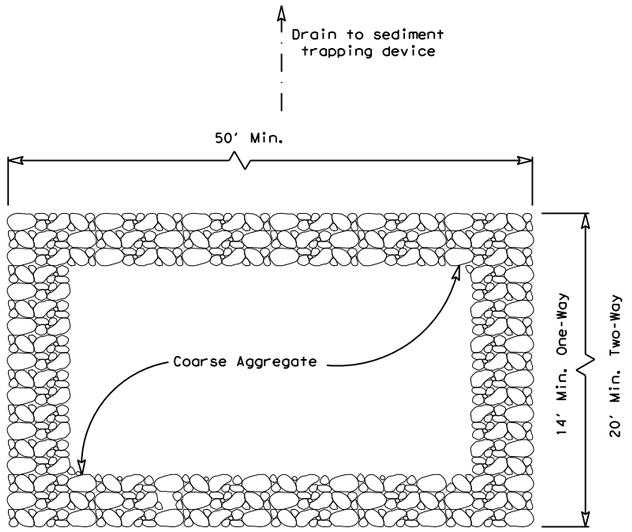
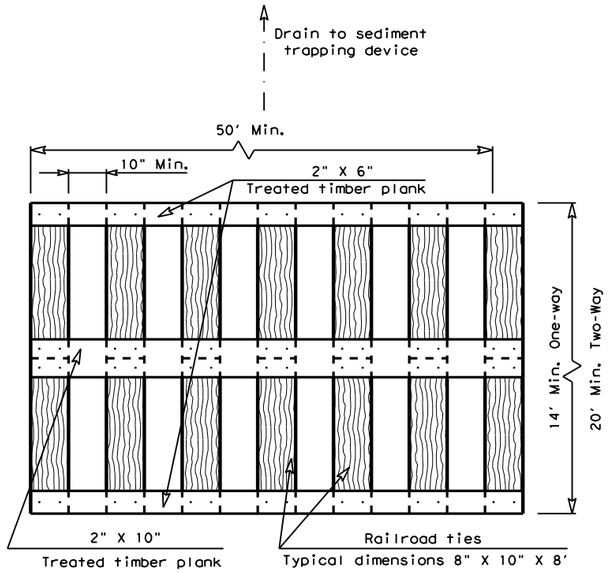
	SAT	KENDALL		265	

DATE: 5/17/2024
FILE: ec216.dgn



PLAN VIEW



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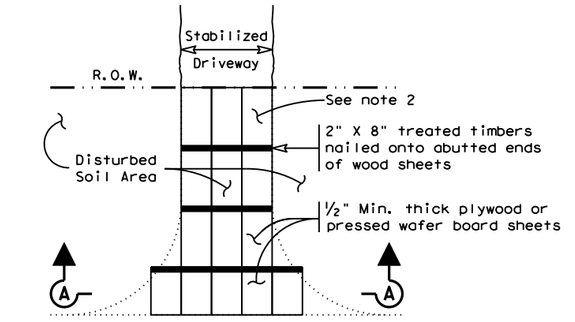

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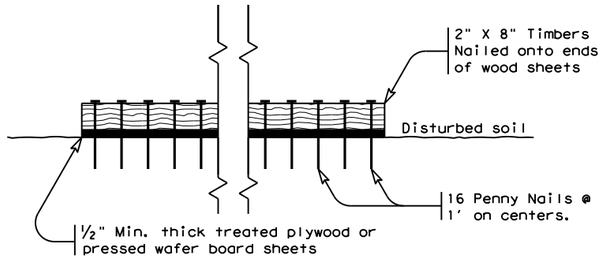
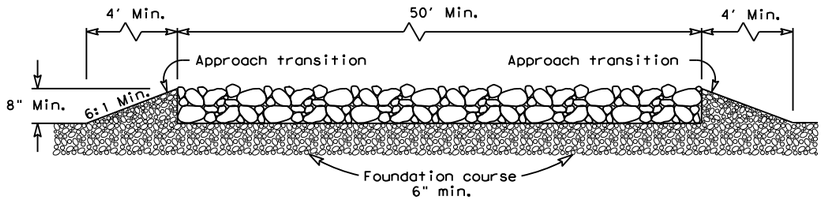


SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

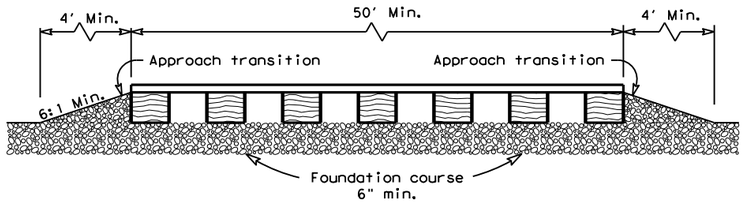
SHORT TERM



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-16

FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0142	09	047	RM 473
	DIST	COUNTY		SHEET NO.
	SAT	KENDALL		266

DATE: 5/17/2024
FILE: ec316.dgn