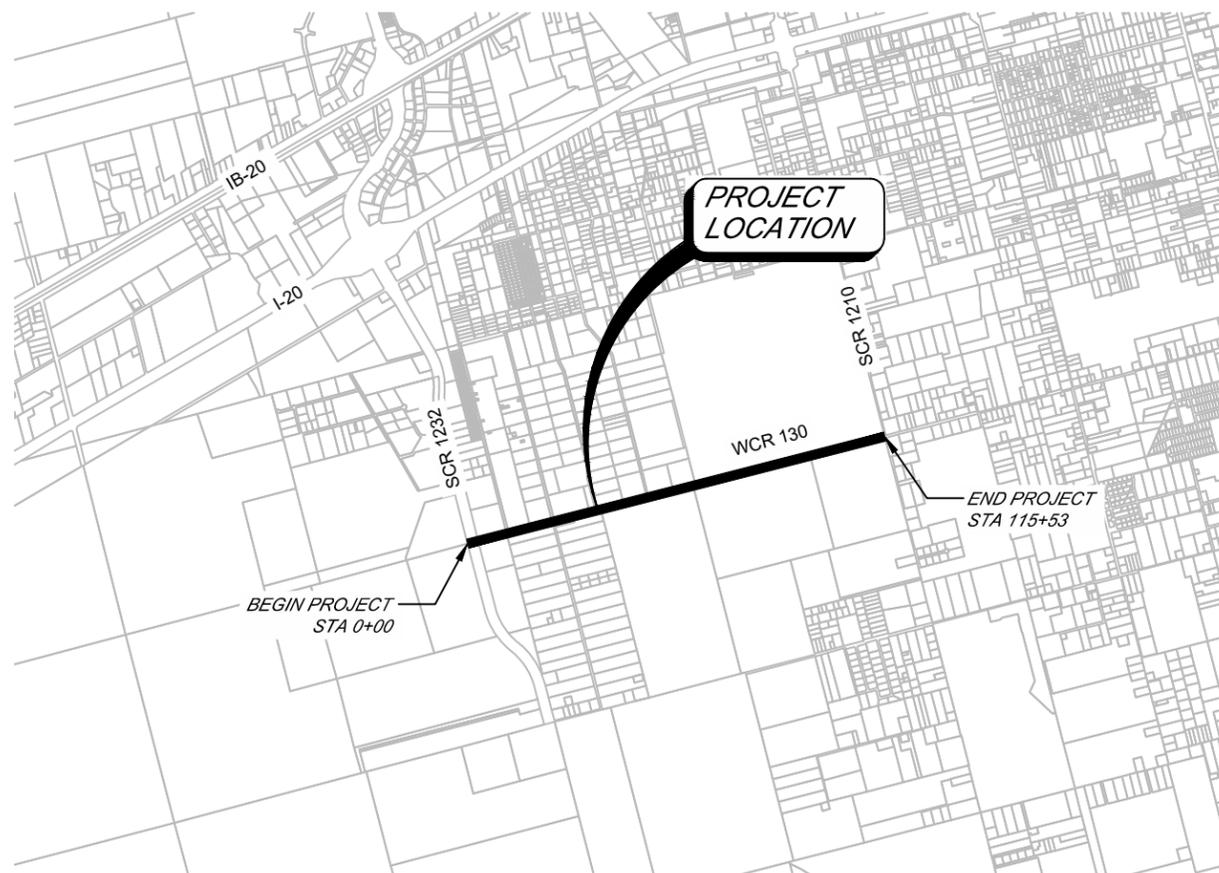


WEST COUNTY ROAD 130 EXTENSION FROM SCR1232 TO SCR1210 PAVING & CONSTRUCTION PLANS MIDLAND COUNTY

OCTOBER 2023



LOCATION MAP
NOT TO SCALE

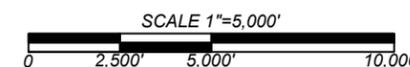


VICINITY MAP

INDEX OF SHEETS		
GENERAL	C-100	COVER SHEET
	C-110	GENERAL NOTES
	C-120	OVERALL PROJECT CONTROL
	C-130 - C-134	EXISTING CONDITIONS
ROADWAY	C-200 - C-209	PLAN AND PROFILE
	C-210	GRADING PLAN
	C-220	HYDRAULIC ANALYSIS
	C-230 - C-231	CULVERT PLAN AND PROFILE
	C-240 - C-244	SIGNAGE AND PAVEMENT MARKING PLAN
TCP	C-300	ROAD CLOSURE PLAN
	C-310 - C-311	TRAFFIC CONTROL PLAN
DETAILS	C-400	TYPICAL ASPHALT SECTION
	C-410	TYPICAL CONCRETE SECTIONS
	C-420	TYPICAL DRIVEWAY SECTIONS
	C-430	EROSION CONTROL
		TXDOT DETAILS

CONTACTS

- OWNER - MIDLAND COUNTY, MIDLAND, TEXAS (432) 742-7371
- CIVIL ENGINEER - MAGRYM CONSULTING, INC (432) 999-2737
- ELECTRIC - ONCOR DELIVERY COMPANY LLC (888) 313-6862
- OIL AND GAS - DCP MIDSTREAM
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R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

MIDLAND COUNTY
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MIDLAND, TX 79701

**WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210**

COVER SHEET	
HORIZONTAL SCALE: 1"=5,000'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-100

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY COORDINATES AND DIMENSIONS.
2. COORDINATE INFORMATION IS BASED ON STATE PLANE TEXAS CENTRAL, NAD 83 AND VERTICAL DATUM NAVGD88.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL EXISTING UTILITIES AND SHOULD NOT RELY SOLELY ON THESE PLANS FOR EXISTING UTILITY LOCATIONS.
4. CALL 811 A MINIMUM OF 72 HOURS BEFORE DIGGING. ALL POTENTIAL UTILITY OWNERS SHALL BE CLEARED BEFORE DIGGING.
5. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS TO THE CONSTRUCTION LIMITS OF THE PROJECT AND IN NO WAY SHALL ENCROACHMENT OCCUR ONTO ADJACENT PROPERTIES UNLESS LEGAL EASEMENTS ARE OBTAINED. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AGREEMENTS NECESSARY OR DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO PUBLIC OR PRIVATE PROPERTY INCLUDING UTILITIES.
6. ALL SUBGRADE, BASE MATERIAL, ASPHALT, CONCRETE, BACKFILL AND FOUNDATIONS REQUIRE CONSTRUCTION MATERIALS TESTING IN ACCORDANCE WITH THE TESTING FREQUENCIES PROVIDED IN THE PROJECT SPECIFICATIONS COMPACTION TESTS.
7. THE CONTRACTOR DURING CONSTRUCTION SHALL MAINTAIN THE PROPER TRAFFIC CONTROL DEVICES IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND AS APPROVED BY THE COUNTY.

SITE, GRADING & DRAINAGE NOTES

1. MOST OF THE PROJECT IS LOCATED IN AN AREA OF MINIMAL FLOOD HAZARD "ZONE X". A SMALL AREA WEST OF THE PROJECT IS LOCATED IN A HIGH RISK AREA WITH 1% ANNUAL CHANCE OF FLOODING "ZONE A" PER FIRM PANEL 48329-C0200F WITH AN EFFECTIVE DATE OF 09-16-2005.
2. SLOPES ON SITE SHALL NOT BE STEEPER THAN 3:1, UNLESS NOTED IN THE PLAN.

EROSION CONTROL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A STORM WATER POLLUTION PREVENTION PLAN (SWPPP), ALL NECESSARY PERMITS AND APPROVAL, AND MAINTAINING COMPLIANCE WITH THE GENERAL PERMIT.
2. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, ROUTINE INSPECTION, AND / OR MAINTENANCE OF EROSION CONTROL DEVICES.
3. ANY ADDITIONAL EROSION CONTROL MEASURES REQUIRED TO COMPLY WITH THE SWPPP OR TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) STORMWATER POLLUTION REGULATIONS SHALL BE IMPLEMENTED BY THE CONTRACTOR, AT HIS EXPENSE.
4. TEMPORARY DUST EROSION CONTROL MEASURES SHALL BE PROVIDED FOR AT ALL TIMES.
5. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EROSION CONTROL MEASURES ONCE FINAL GROUND STABILIZATION IS ACHIEVED AND THE PROJECT IS COMPLETED, UNLESS OTHERWISE NOTED.

BID ITEM NOTES

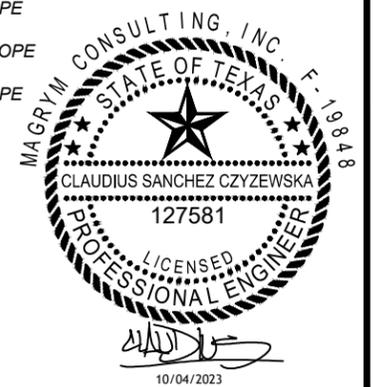
1. PAVEMENT SAW CUTTING SHALL BE INCIDENTAL TO BID ITEM PARING RIGHT-OF-WAY.
2. DEBRIS REMOVAL: ALL DEBRIS SHALL BE CONTAINED IN SUCH A MANNER THAT WILL PREVENT SCATTERING. ALL DEBRIS INCLUDING TREES AND UNDERGROWTH SHALL BE DISPOSED OF PROPERLY AT A LANDFILL.
3. EARTHWORK CUT: CUT QUANTITY DOES NOT INCLUDE TOPSOIL QUANTITY (6" AVERAGE).
4. EARTHWORK FILL: A 20% FILL FACTOR WAS ASSUMED AND APPLIED TO THE FILL QUANTITY. THE CONTRACTOR SHALL FILED VERIFY SHRINKAGE AND SWELLING OF EXISTING SOILS. CUT AND FILL QUANTITIES SHOWN ON THE BID TAB PERTAIN TO THE ENTIRE PROJECT AREA.

LEGEND

- EXISTING ELECTRIC POWER POLE
- ↗ EXISTING FENCE GATE
- EXISTING SIGN
- ◆ EXISTING BENCHMARK
- — — — — EXISTING PROPERTY BOUNDARY
- — — — — EXISTING GRADE CONTOURS (1 FT INTERVAL)
- ▬▬▬▬▬▬ EXISTING DIRT/CALICHE ROAD
- ▬▬▬▬▬▬ EXISTING ASPHALT ROAD
- - - - - EXISTING EASEMENT
- — — — — EXISTING FLOODPLAIN
- X — — — — — EXISTING FENCE
- UGPL — — — — — EXISTING UNDERGROUND PIPELINE
- FO — — — — — EXISTING UNDERGROUND FIBER LINE
- W — — — — — EXISTING PRODUCED WATERLINE
- OHE — — — — — EXISTING OVERHEAD ELECTRIC (OHE)

LEGEND

- PROPOSED RELOCATED ELECTRIC POWER POLE
- PROPOSED SIGN
- OHE — — — — — PROPOSED OHE RELOCATION
- — — — — PROPOSED GRADE CONTOURS (1 FT INTERVAL)
- ▬▬▬▬▬▬ PROPOSED VEGETATION
- ▬▬▬▬▬▬ PROPOSED ASPHALT PAVEMENT
- ▬▬▬▬▬▬ PROPOSED DRIVEWAY
- ▬▬▬▬▬▬ PROPOSED ASPHALT DRIVEWAY
- ▬▬▬▬▬▬ PROPOSED CONCRETE SECTION
- ▬▬▬▬▬▬ PROPOSED RIPRAP
- X — — — — — PROPOSED FENCE
- — — — — PROPOSED ROADWAY ALIGNMENT
- — — — — PROPOSED FLOWLINE
- PI POINT OF INTERSECTION
- PC POINT OF CURVATURE
- PT POINT OF TANGENCY
- PVI POINT OF VERTICAL INTERSECTION
- PVC POINT OF VERTICAL CURVATURE
- PVT POINT OF VERTICAL TANGENCY
- ELEV ELEVATION
- SSD STOPPING SIGHT DISTANCE
- ROW RIGHT OF WAY
- CL CENTERLINE
- RT RIGHT
- LT LEFT
- LFS LEFT FORESLOPE
- LBS LEFT BACKSLOPE
- RFS RIGHT FORESLOPE
- FBS LEFT BACKSLOPE




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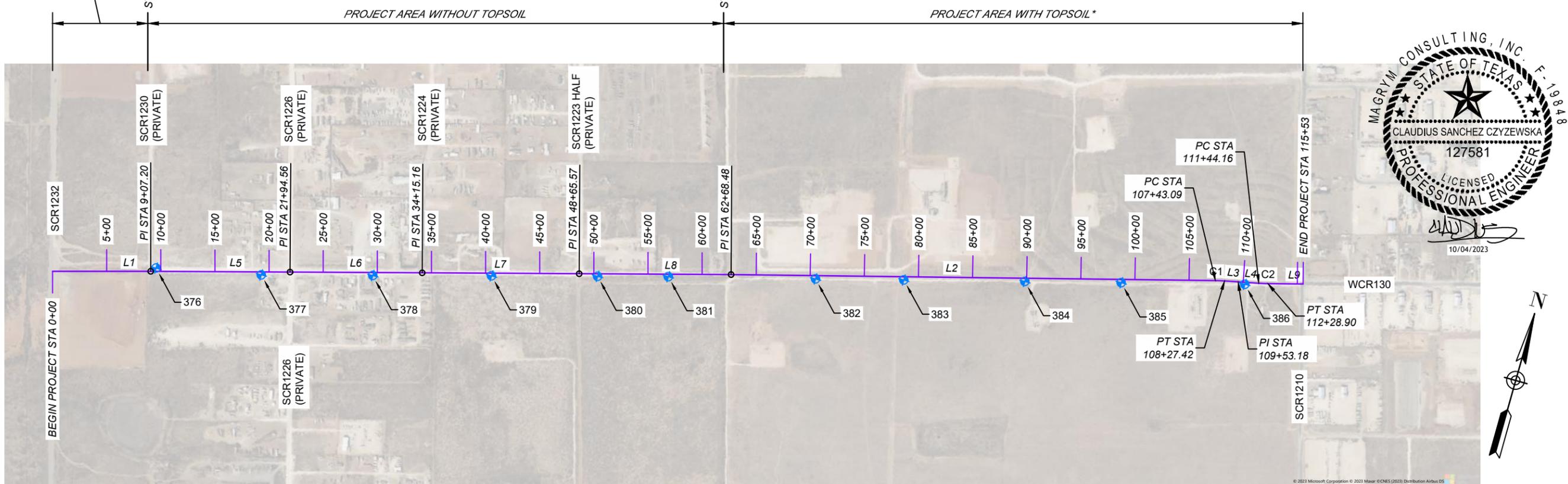
WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210

GENERAL NOTES	
HORIZONTAL SCALE: NTS	VERTICAL SCALE: NTS
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PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-110

PROJECT AREA WITH TOPSOIL*

*NOTE:
ACCEPT OWNERSHIP OF TOPSOIL (6" AVERAGE) AND
DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND
FEDERAL REQUIREMENTS.



W CR130 Extension GEOMETRIC DATA TABLE

Number	PI Station	Delta	Radius	Tangent	Length	Deg. of Curve	Line/Chord Direction	Chord Bearing	Begin Sta	Begin Northing	Begin Easting	End Sta	End Northing	End Easting
L1					907.20'		N75° 12' 08.05"E		0+00.00'	10669146.54'	1738021.17'	9+07.20'	10669378.25'	1738898.27'
L5					1287.36'		N75° 30' 47.05"E		9+07.20'	10669378.25'	1738898.27'	21+94.56'	10669700.29'	1740144.70'
L6					1220.60'		N75° 30' 21.63"E		21+94.56'	10669700.29'	1740144.70'	34+15.16'	10670005.78'	1741326.46'
L7					1450.41'		N75° 30' 21.52"E		34+15.16'	10670005.78'	1741326.46'	48+65.57'	10670368.79'	1742730.71'
L8					1402.91'		N75° 30' 21.52"E		48+65.57'	10670368.79'	1742730.71'	62+68.48'	10670719.91'	1744088.97'
L2					4474.61'		N75° 53' 44.44"E		62+68.48'	10670719.91'	1744088.97'	107+43.09'	10671810.32'	1748428.69'
C1	Sta: 107+85.27'	003°13'16"	1500.0'	42.18	84.33'	3°49'14"	N77° 30' 23.18"E	S14° 06' 14.97"E	107+43.09'	10671810.32'	1748428.69'	108+27.42'	10671828.56'	1748511.01'
L3					125.76'		N79° 07' 01.33"E		108+27.42'	10671828.56'	1748511.01'	109+53.18'	10671852.30'	1748634.50'
L4					190.98'		N79° 07' 01.33"E		109+53.18'	10671852.30'	1748634.50'	111+44.16'	10671888.36'	1748822.05'
C2	Sta: 111+86.54'	003°14'14"	1500.0'	42.38	84.75'	3°49'14"	N77° 29' 54.57"E	N10° 52' 58.67"W	111+44.16'	10671888.36'	1748822.05'	112+28.90'	10671906.70'	1748904.77'
L9					324.38'		N75° 52' 47.81"E		112+28.90'	10671906.70'	1748904.77'	115+53.29'	10671985.84'	1749219.36'

CONTROL POINTS TABLE

Point #	Northing	Easting	Elevation	Raw Description
376	10669419.56'	1738938.94'	2833.5'	BM1-MRK BTM STRAND OF 5" STL POST NW-E
377	10669607.47'	1739894.24'	2831.8'	BM2-MAG NAIL IN PP 10
378	10669864.83'	1740891.14'	2824.9'	BM3-MAG NAIL IN PP 9
379	10670142.52'	1741953.09'	2828.9'	BM4-MAG NAIL IN PP 8
380	10670388.70'	1742900.73'	2831.6'	BM5-MAG NAIL IN PP 7
381	10670552.48'	1743533.58'	2825.7'	BM6-MAG NAIL IN PP 6
382	10670879.69'	1744853.91'	2824.4'	BM7-MAG NAIL IN PP 5
383	10671079.02'	1745644.37'	2818.6'	BM8-MAG NAIL IN PP 4
384	10671351.71'	1746728.72'	2806.2'	BM9-MAG NAIL IN PP 3
385	10671568.25'	1747592.98'	2804.6'	BM10-MAG NAIL IN PP 2
386	10671846.15'	1748699.87'	2807.2'	BM11-MAG NAIL IN PP

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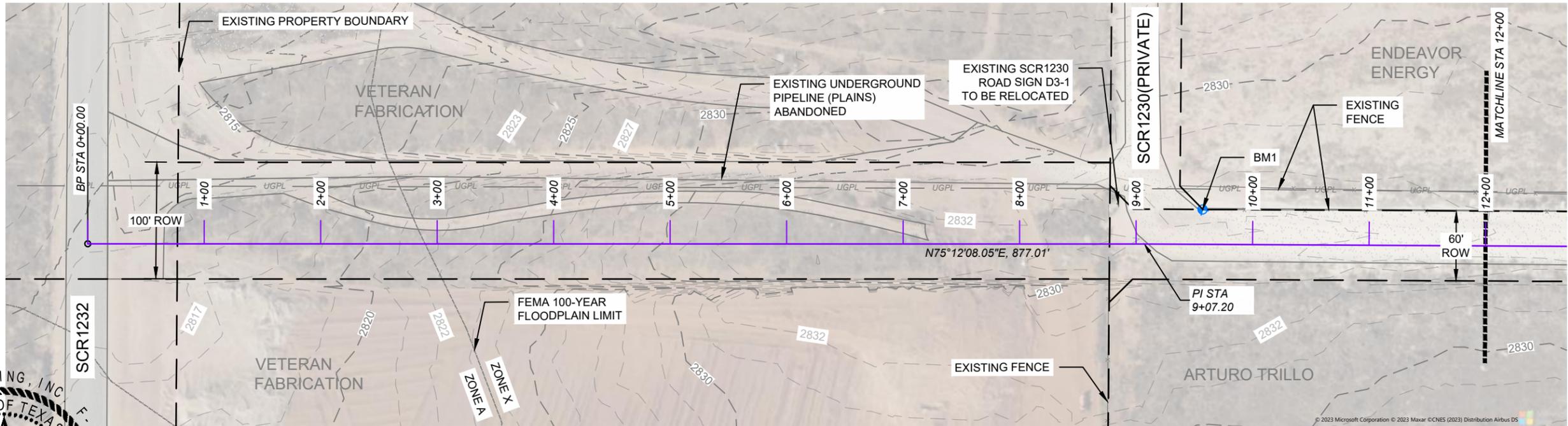
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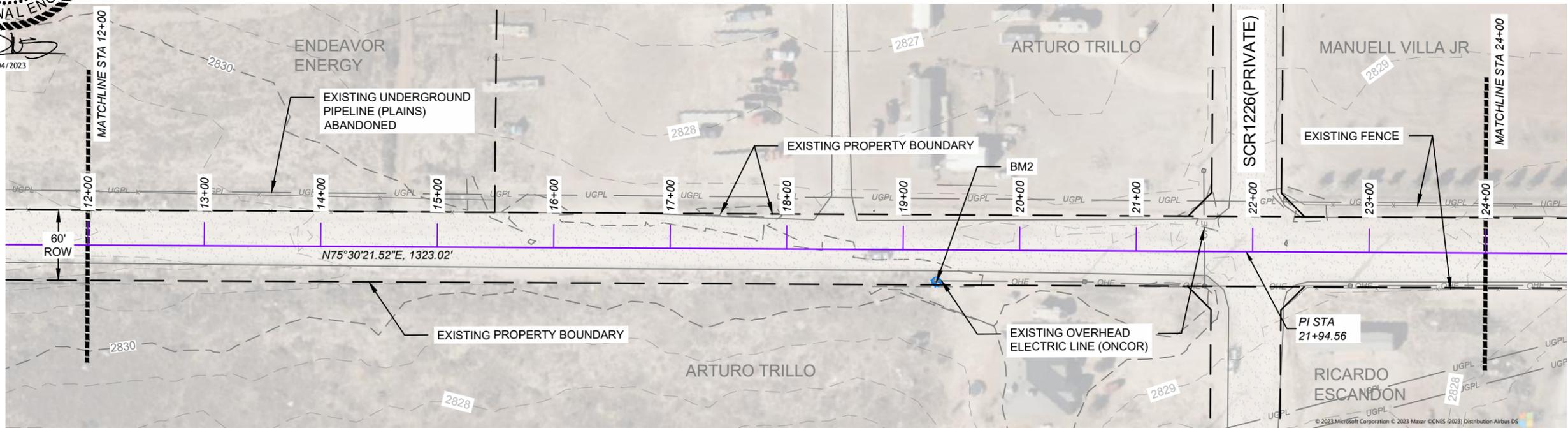
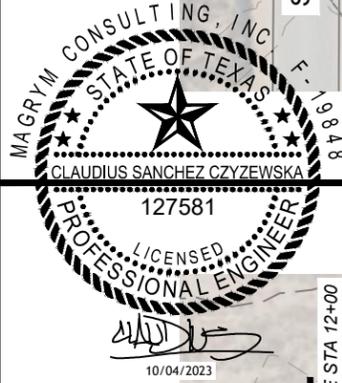
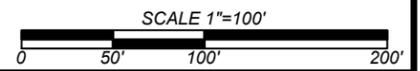
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

OVERALL PROJECT CONTROL	
HORIZONTAL SCALE: 1"=1000'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

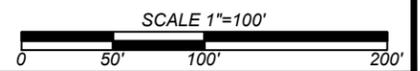
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STA 0+00 - STA 12+00



STA 12+00 - STA 24+00




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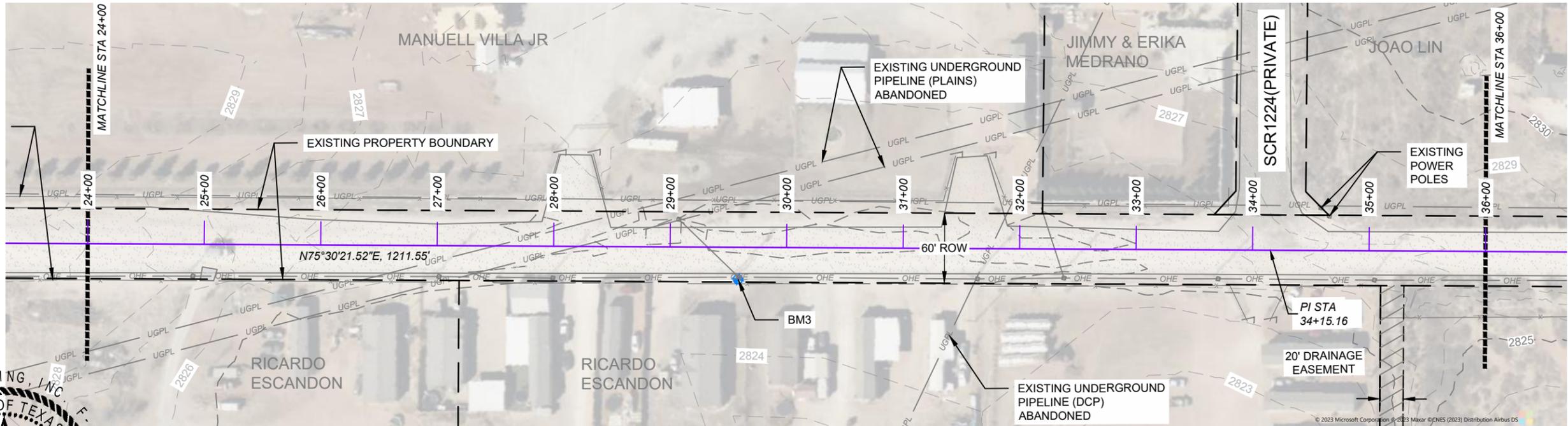
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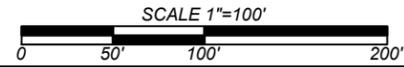
**WEST COUNTY ROAD 130 EXTENSION
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EXISTING CONDITIONS STA 0+00 - STA 24+00	
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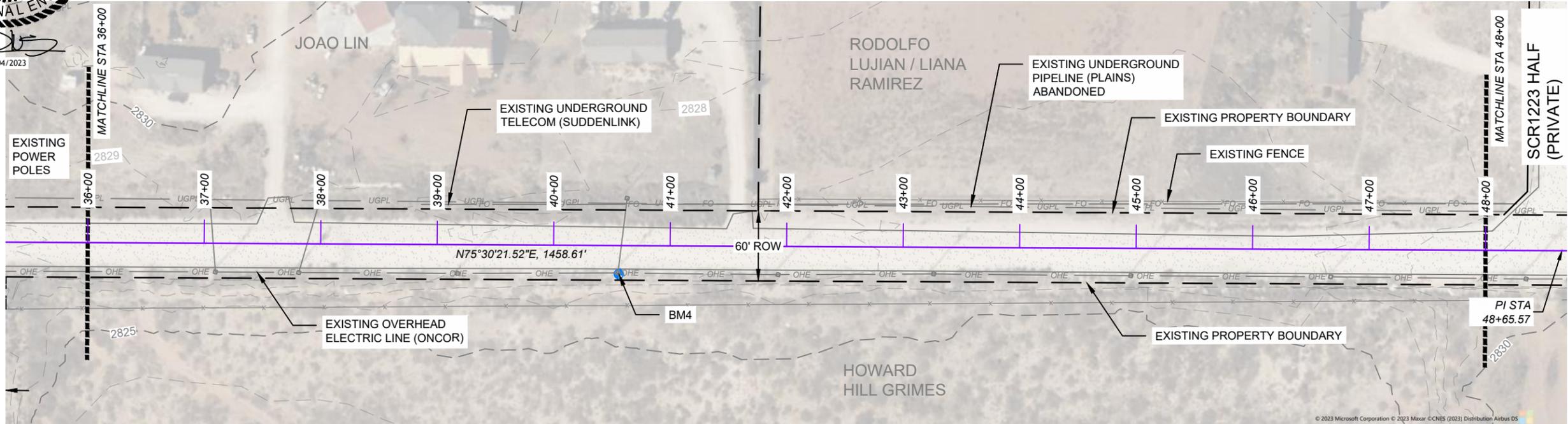
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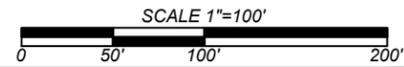
STA 24+00 - STA 36+00



10/04/2023



STA 36+00 - STA 48+00




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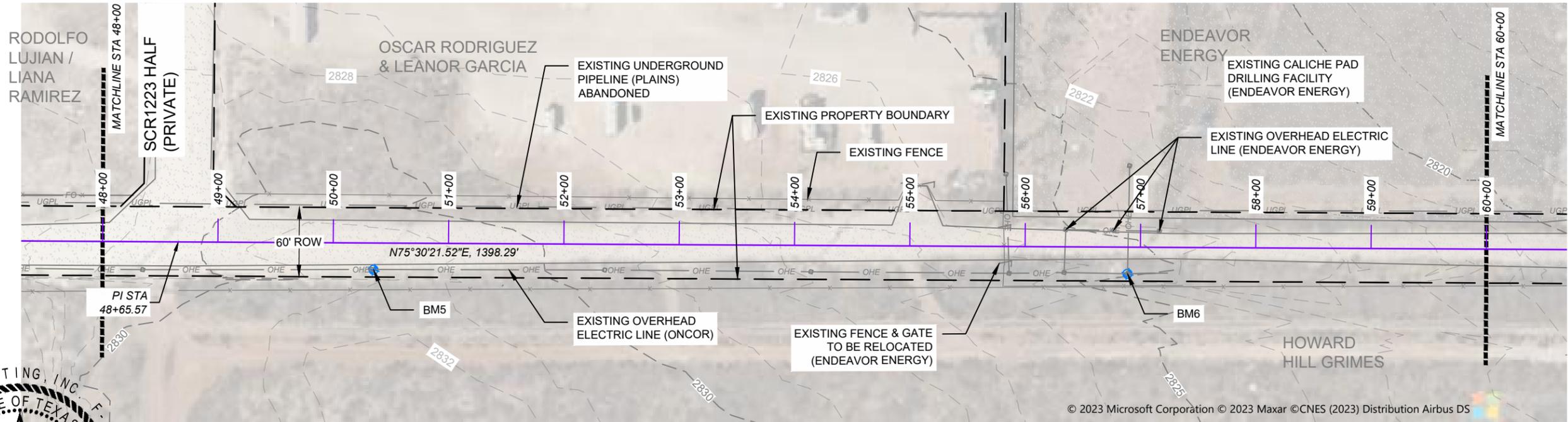
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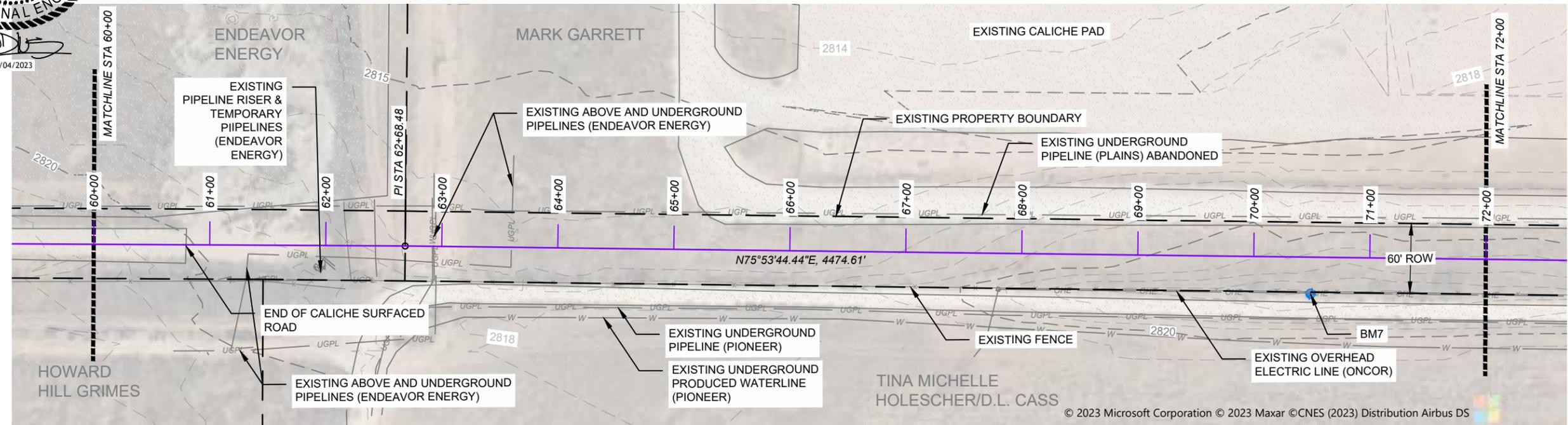
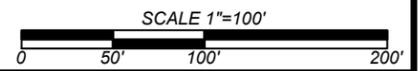
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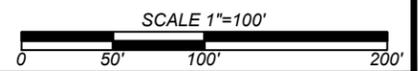
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STA 48+00 - STA 60+00



STA 60+00 - STA 72+00




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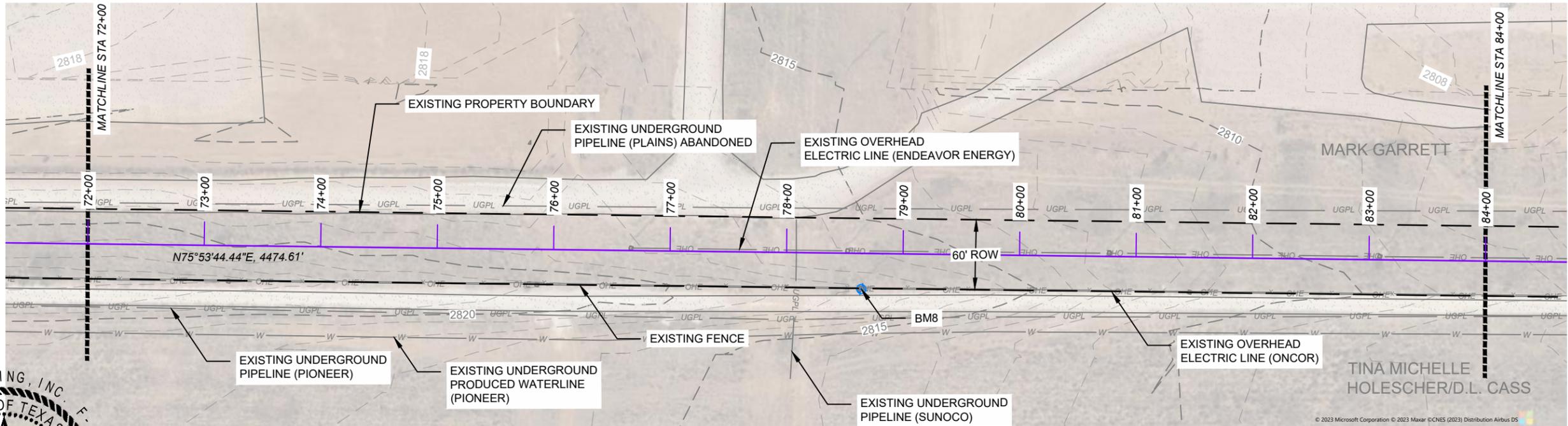
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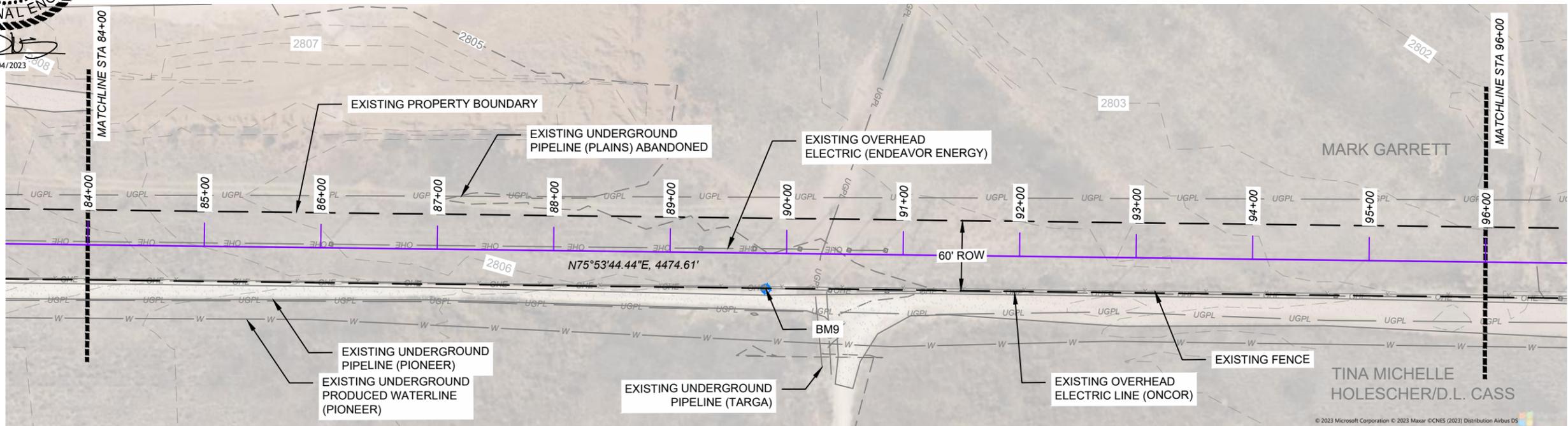
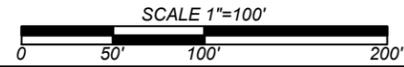
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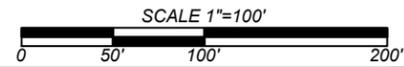
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STA 72+00 - STA 84+00



STA 84+00 - STA 96+00




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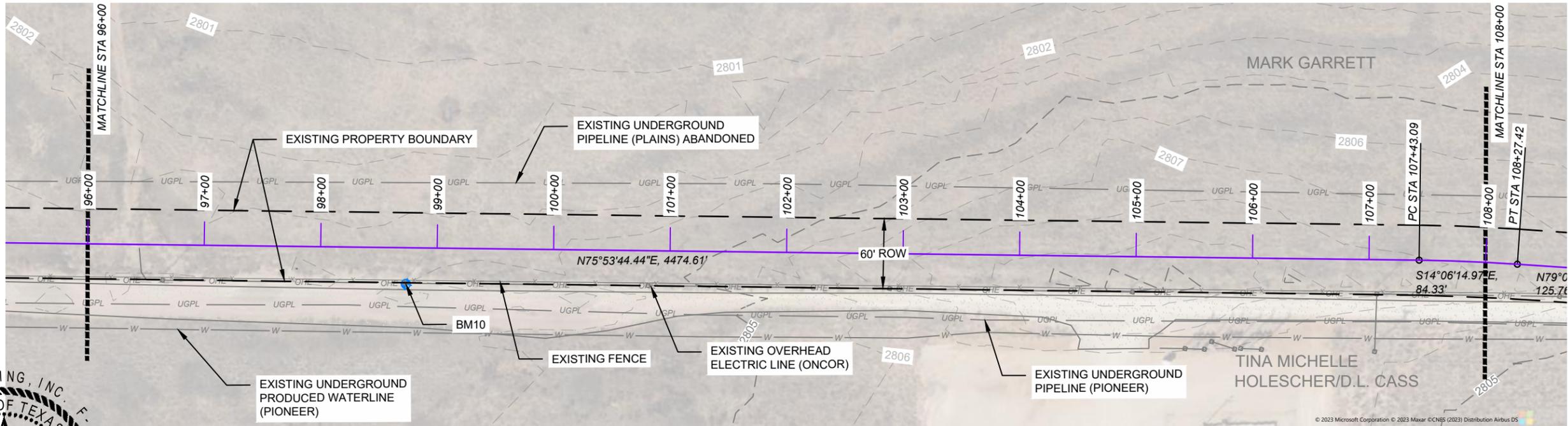
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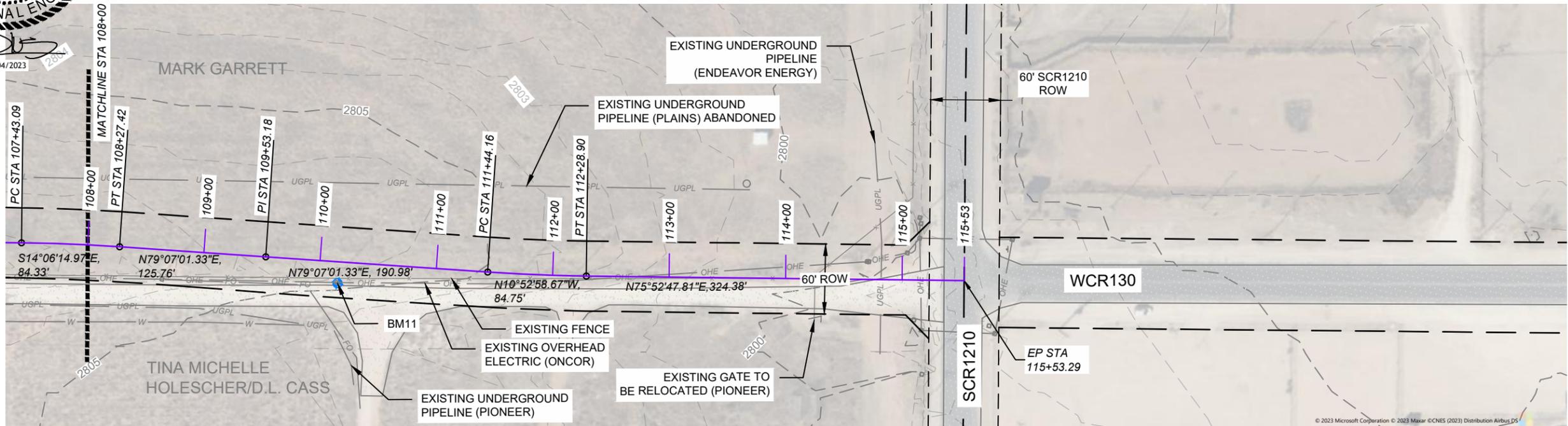
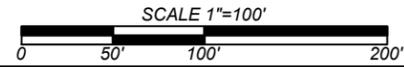
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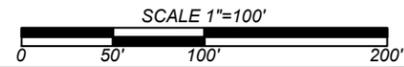
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STA 108+00 - END




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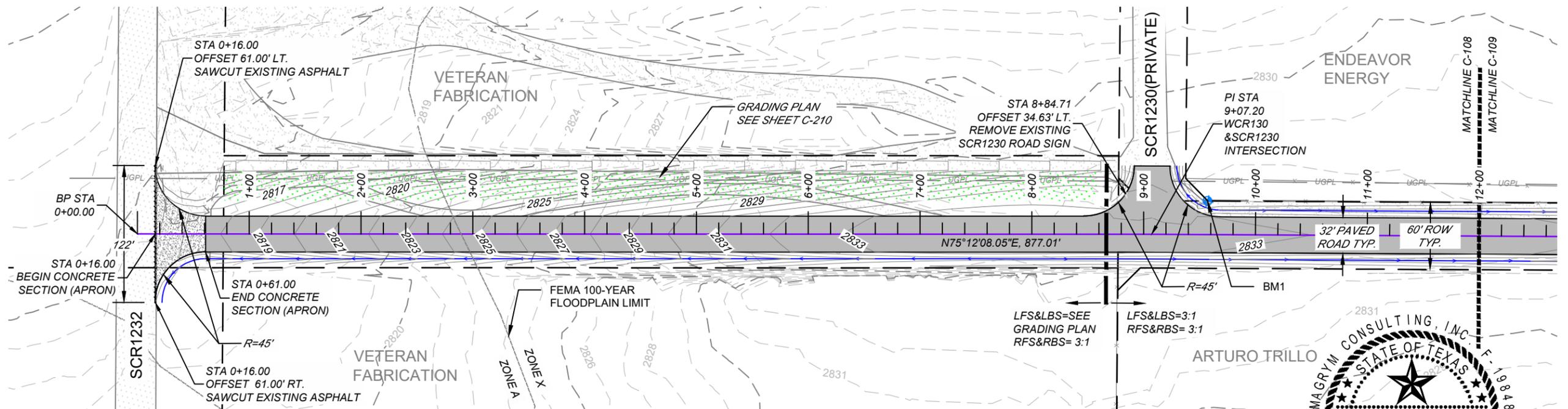


MIDLAND COUNTY
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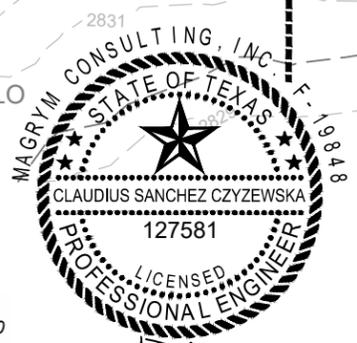
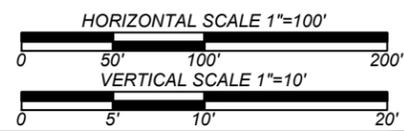
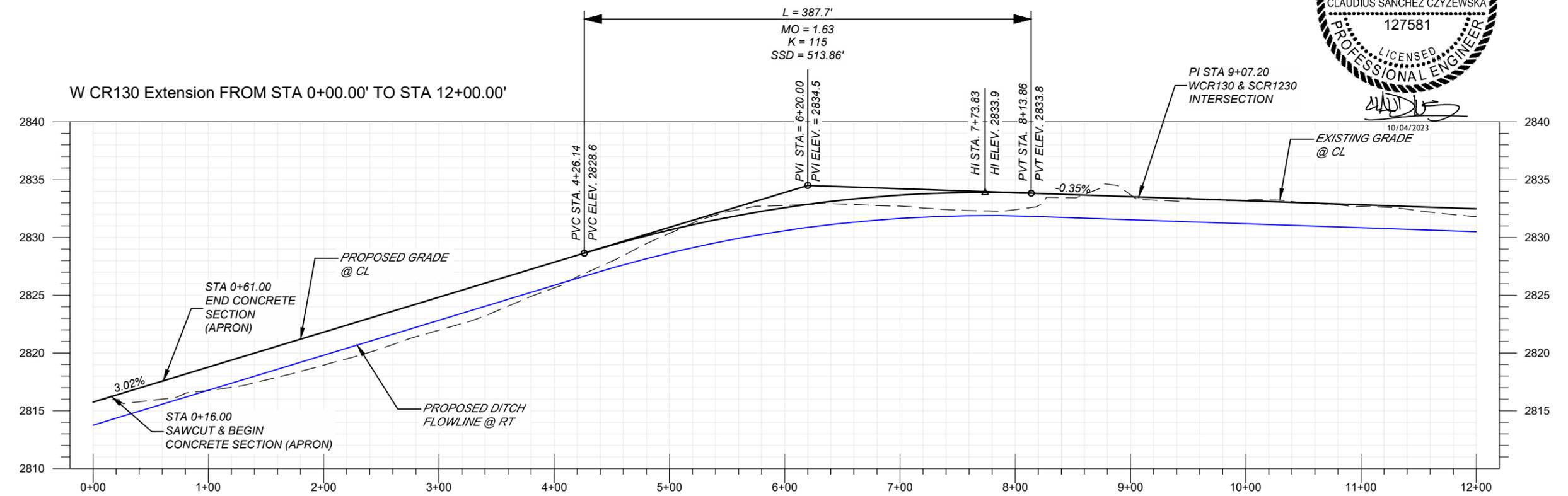
WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210

EXISTING CONDITIONS STA 96+00 - END	
HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-134



W CR130 Extension FROM STA 0+00.00' TO STA 12+00.00'



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Midland, TX 79701
(432) 999-2737
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TX #F-19848 | ND #28610PE | OK #8561PE

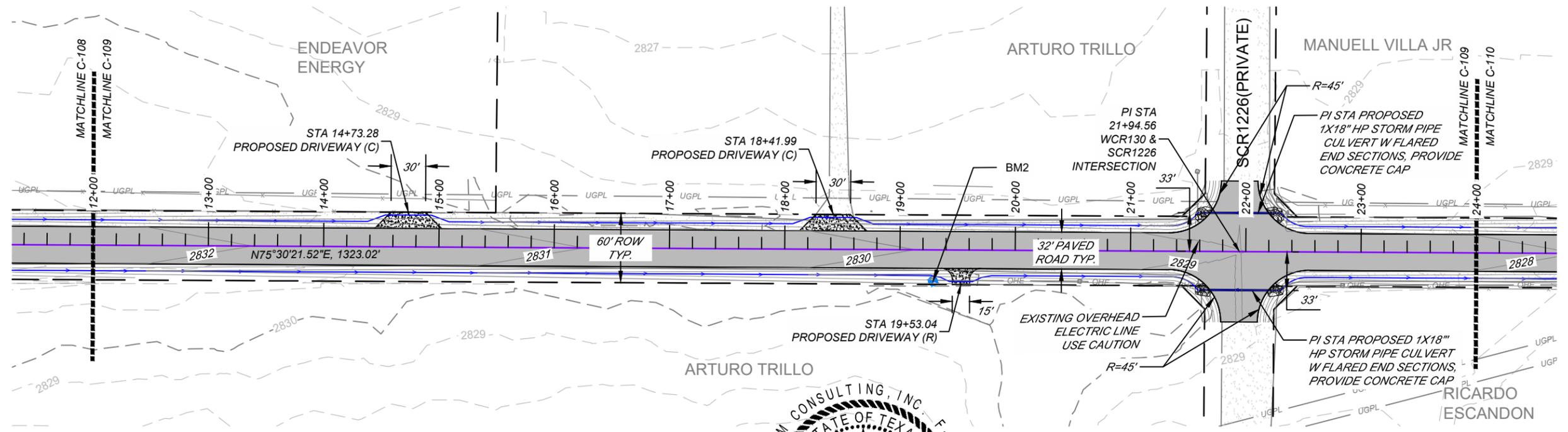
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

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MIDLAND, TX 79701

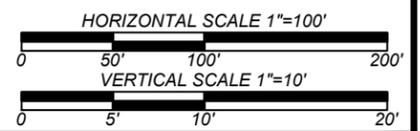
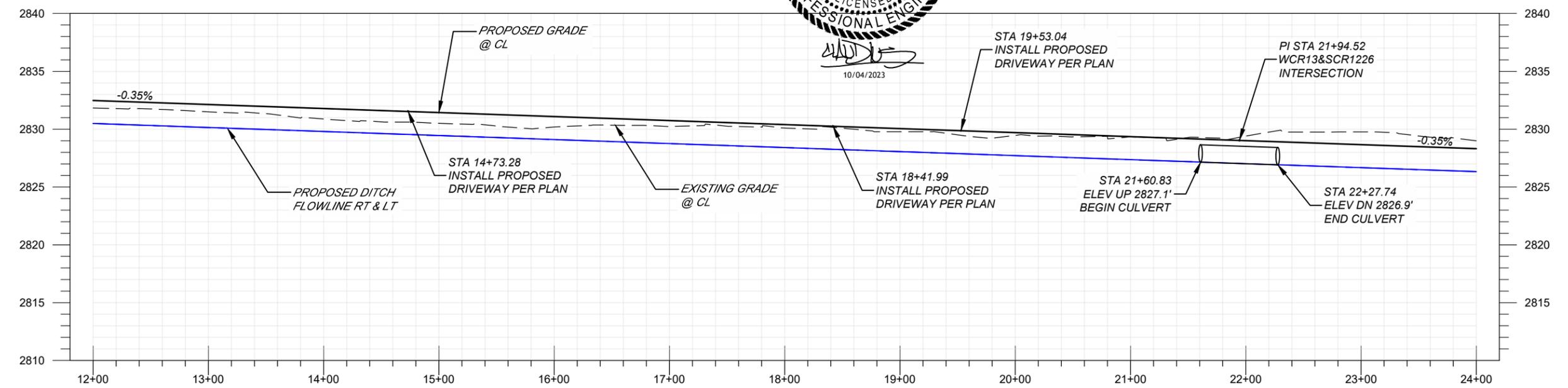
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

PLAN AND PROFILE STA 0+00 - STA 12+00
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023
PROJECT NO.: 23-170
SUBSET: CIVIL
DESIGNED BY: ZZ
CHECKED BY: CSC
APPROVED BY: CSC

SHEET:
C-200



W CR130 Extension FROM STA 12+00.00' TO STA 24+00.00'



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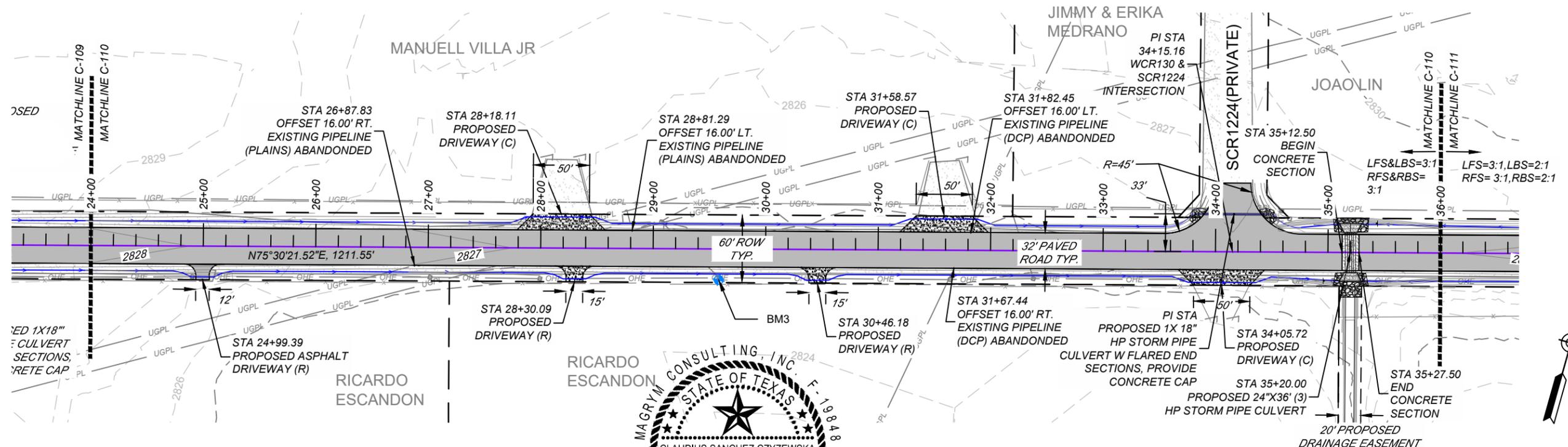
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

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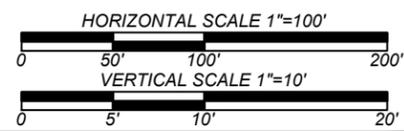
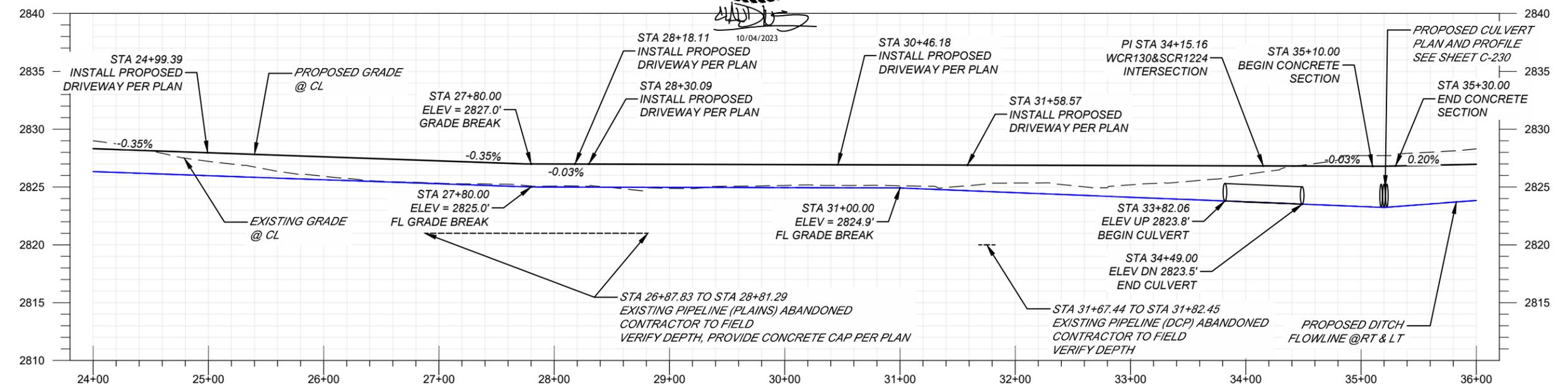
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

PLAN AND PROFILE STA 12+00 - STA 24+00	
HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-201



W CR130 Extension FROM STA 24+00.00' TO STA 36+00.00'



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IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

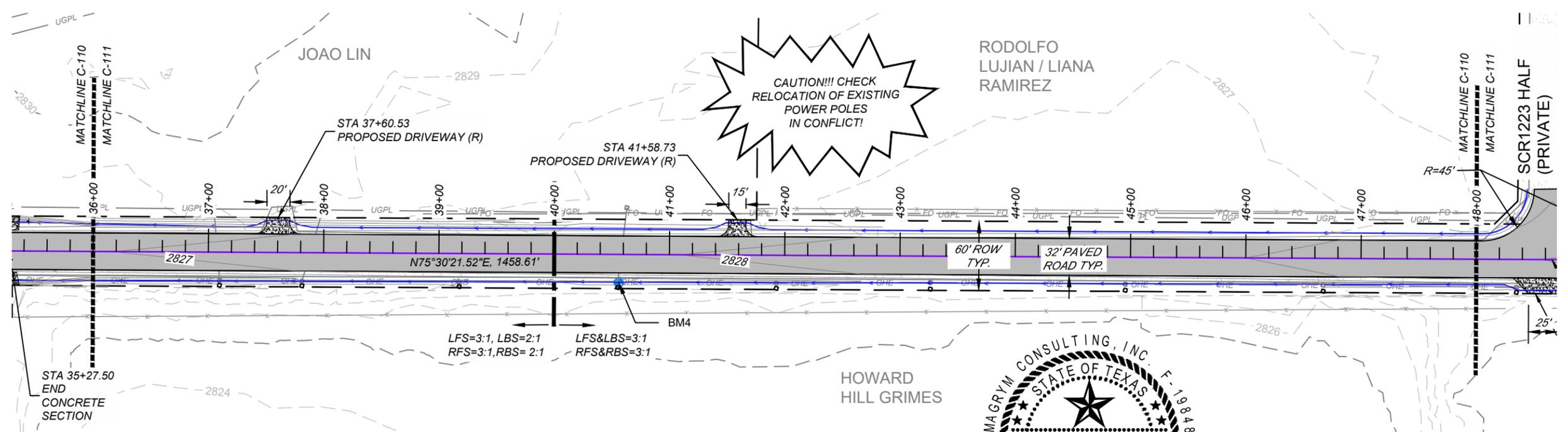
MIDLAND COUNTY
DEPARTMENT OF PUBLIC WORKS
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WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

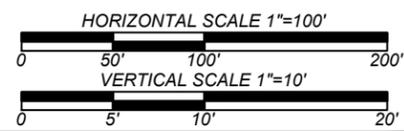
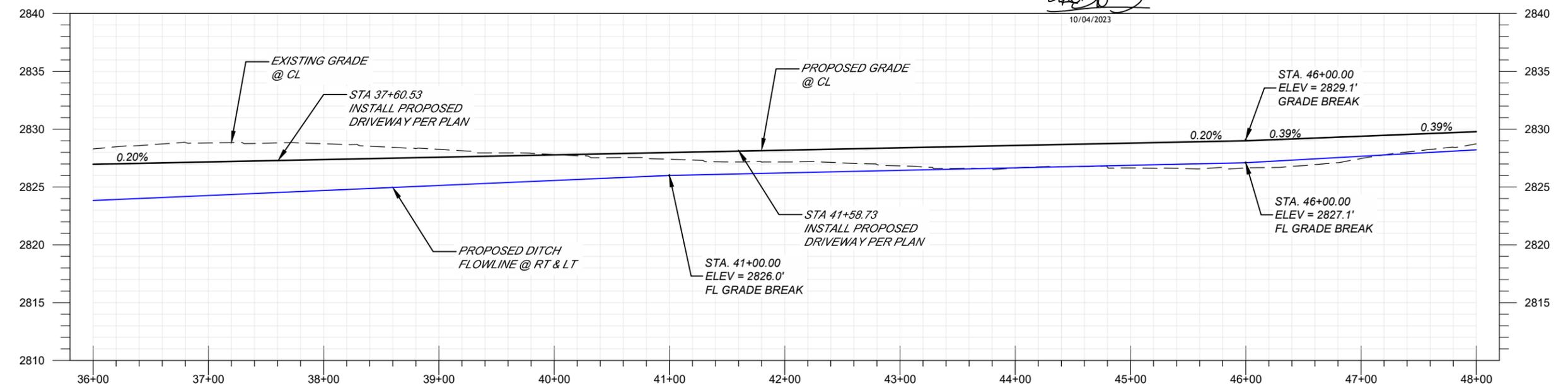
PLAN AND PROFILE STA 24+00 - STA 36+00

HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-202



W CR130 Extension FROM STA 36+00.00' TO STA 48+00.00'



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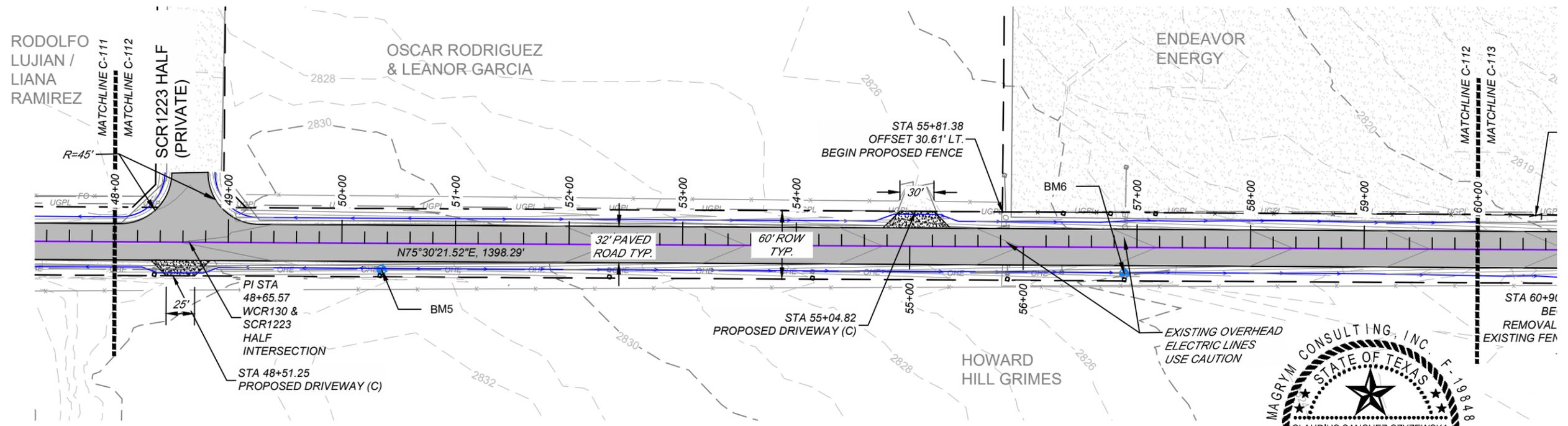
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

MIDLAND COUNTY
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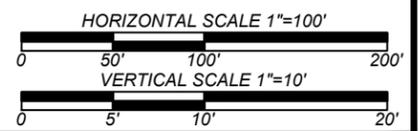
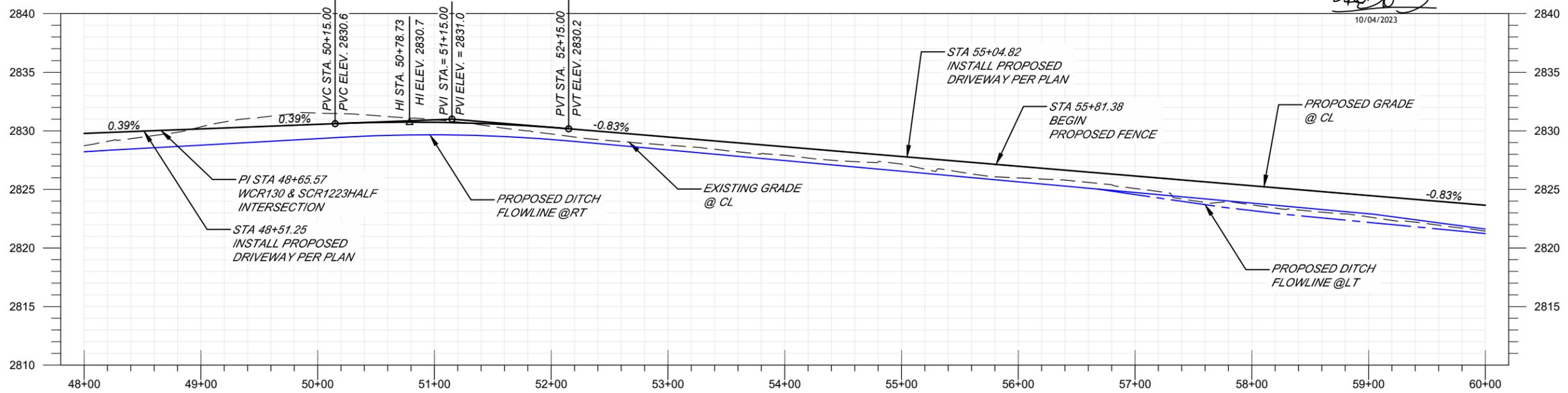
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

PLAN AND PROFILE STA 36+00 - STA 48+00
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023
PROJECT NO.: 23-170
SUBSET: CIVIL
DESIGNED BY: ZZ
CHECKED BY: CSC
APPROVED BY: CSC

SHEET:
C-203



W CR130 Extension FROM STA 48+00.00' TO STA 60+00.00'




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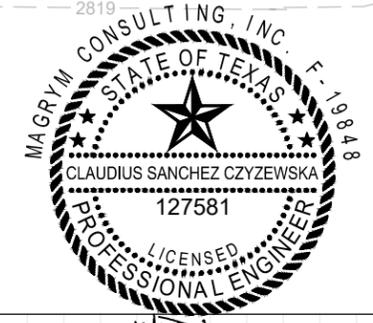
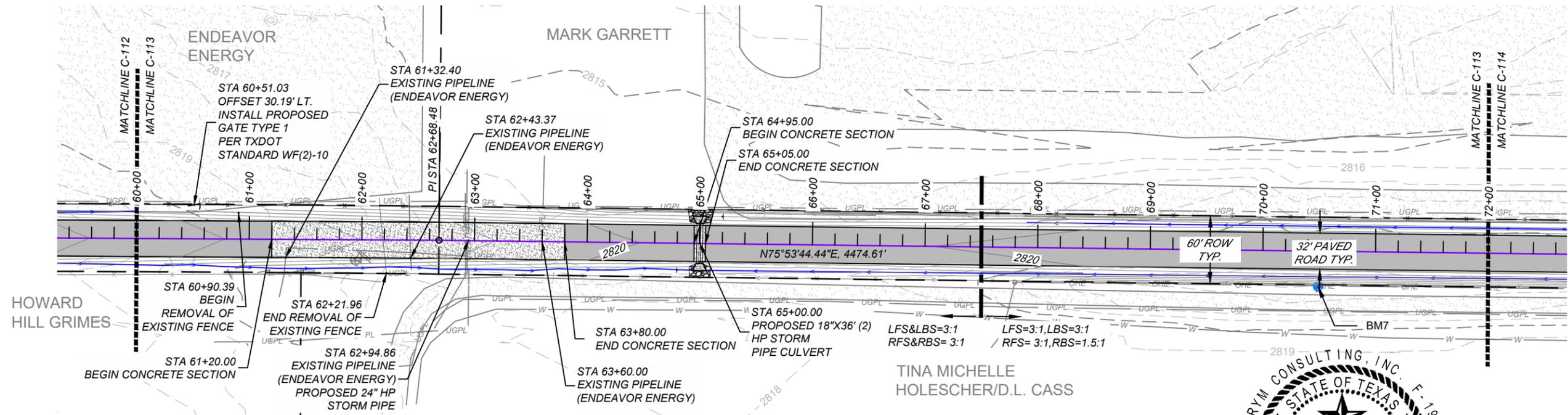
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			


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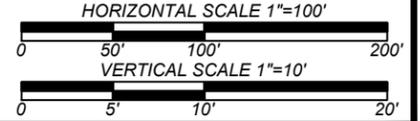
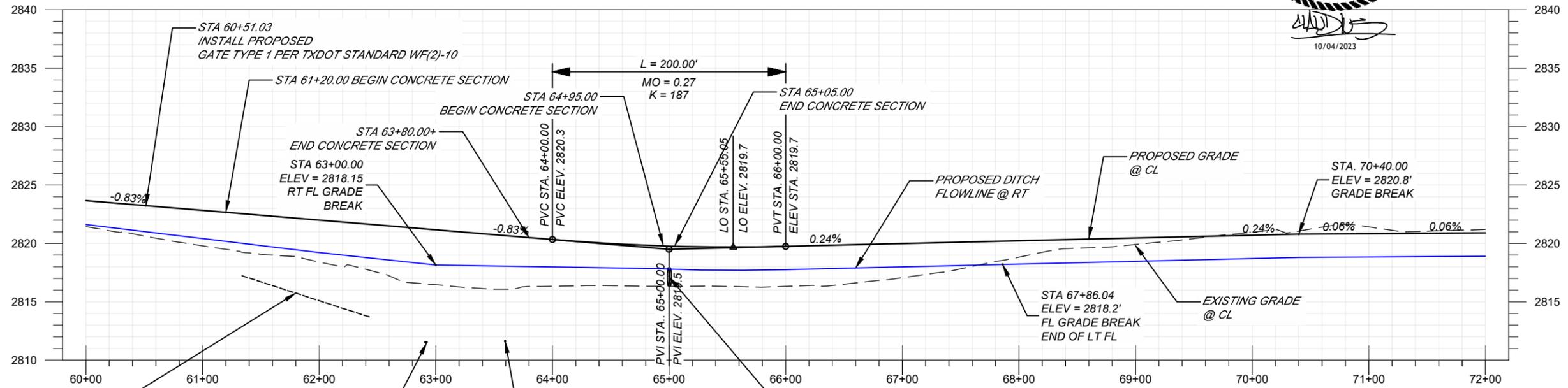
**WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210**

PLAN AND PROFILE STA 48+00 - STA 60+00	
HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-204



W CR130 Extension FROM STA 60+00.00' TO STA 72+00.00'



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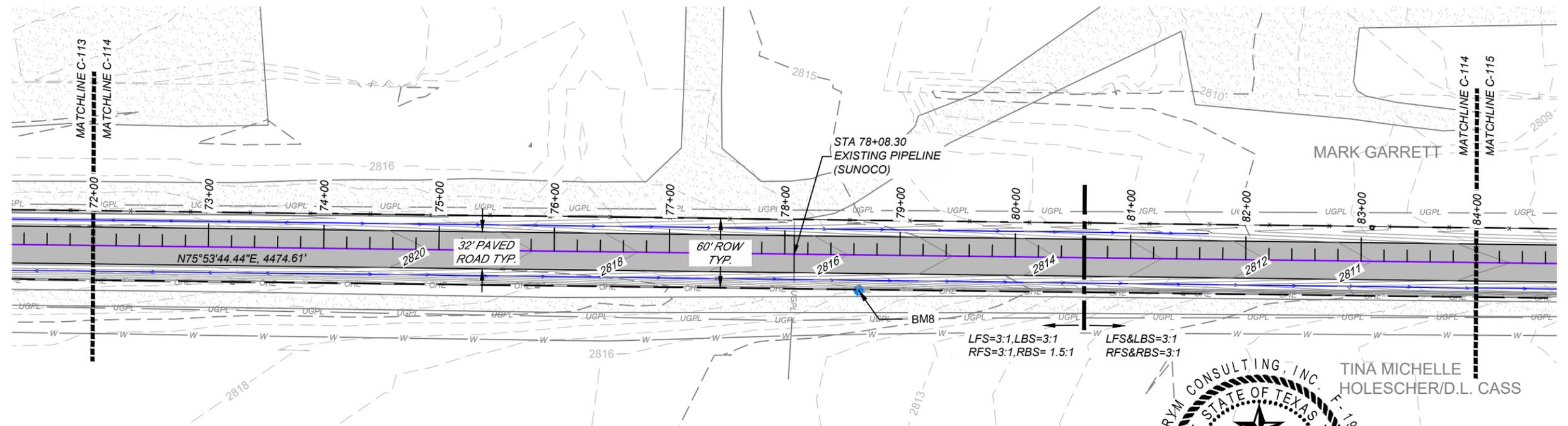
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

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WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

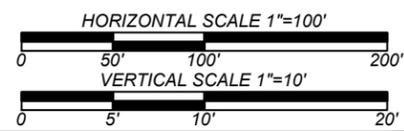
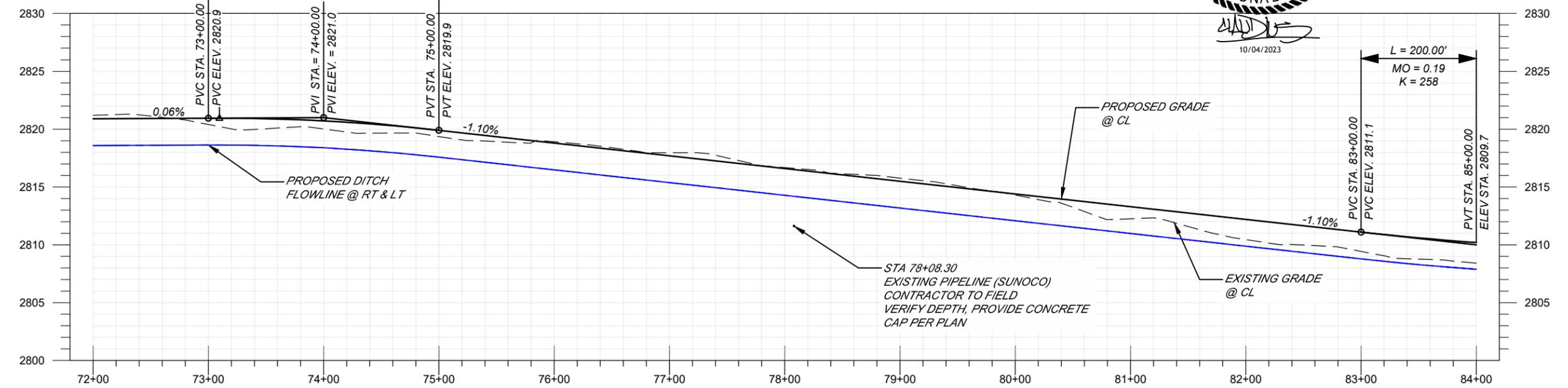
PLAN AND PROFILE STA 60+00 - STA 72+00
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023
PROJECT NO.: 23-170
SUBSET: CIVIL
DESIGNED BY: ZZ
CHECKED BY: CSC
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SHEET:
C-205



TINA MICHELLE HOLESCHER/D.L. CASS

W CR130 Extension FROM STA 72+00.00' TO STA 84+00.00'



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IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

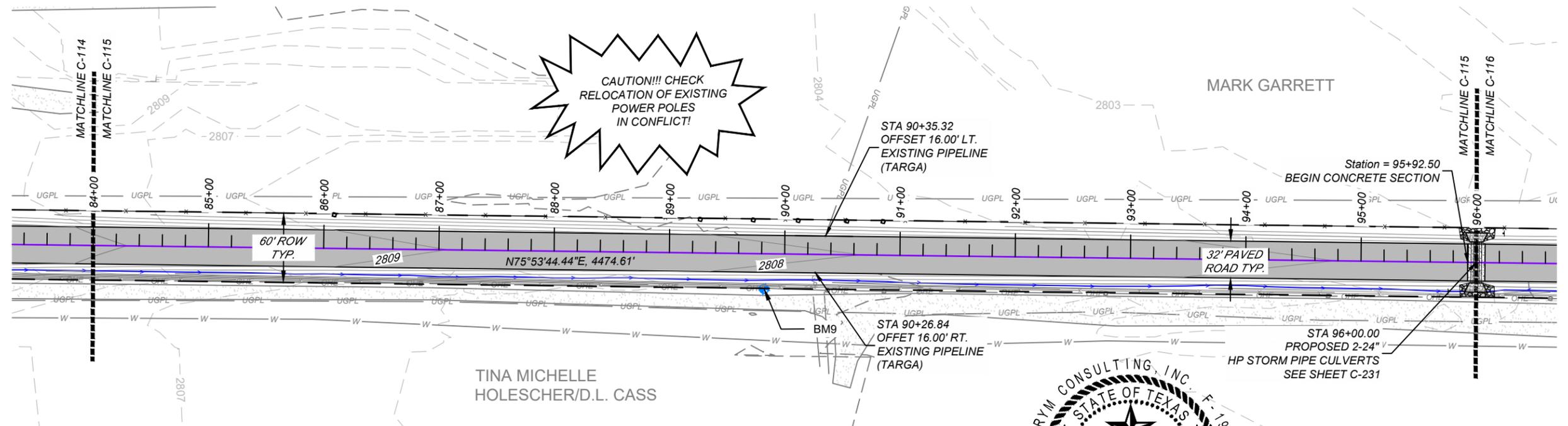
MIDLAND COUNTY
DEPARTMENT OF PUBLIC WORKS
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MIDLAND, TX 79701

WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

PLAN AND PROFILE STA 72+00 - STA 84+00

HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

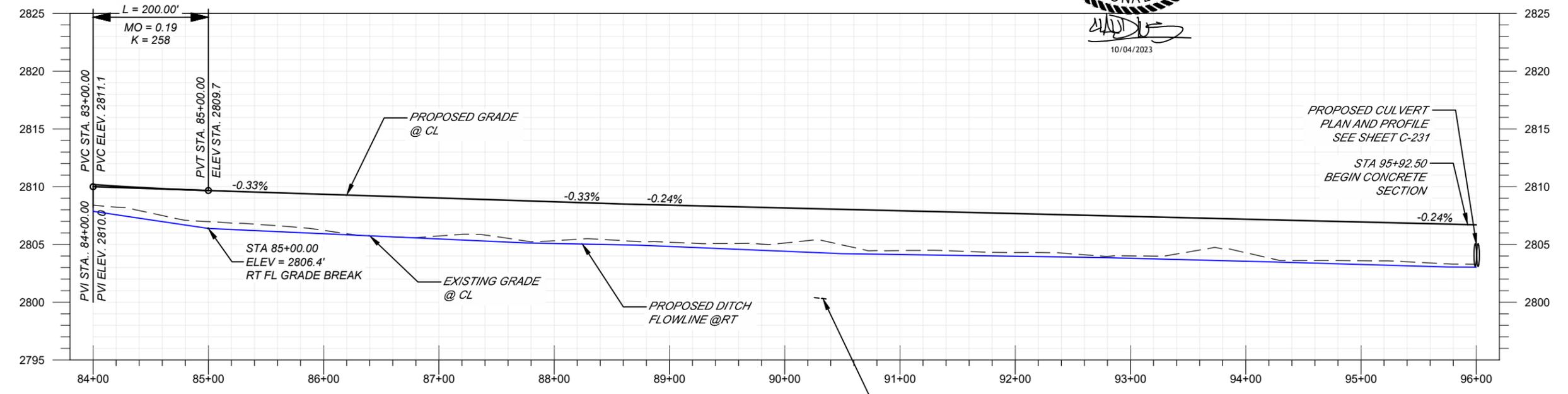
SHEET:
C-206



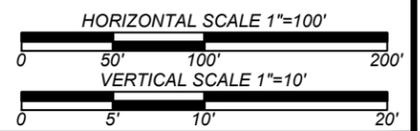
CAUTION!!! CHECK RELOCATION OF EXISTING POWER POLES IN CONFLICT!



W CR130 Extension FROM STA 84+00.00' TO STA 96+00.00'



STA 90+26.84 TO STA 90+35.32
EXISTING PIPELINE (TARGA)
CONTRACTOR TO FIELD
VERIFY DEPTH, PROVIDE CONCRETE CAP PER PLAN



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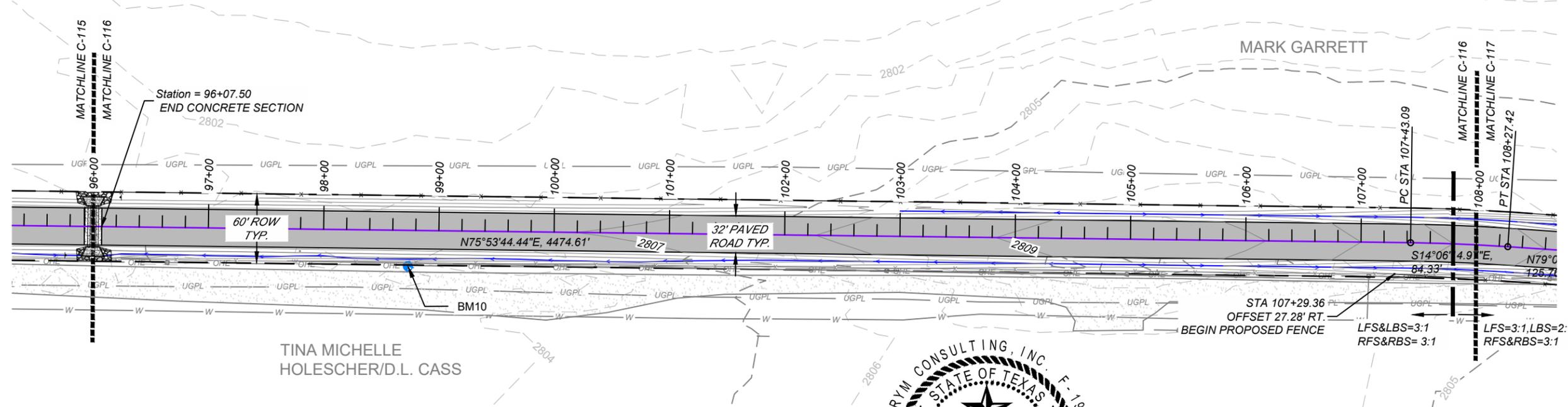
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

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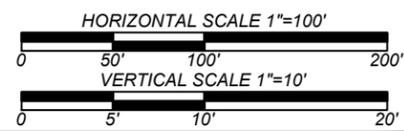
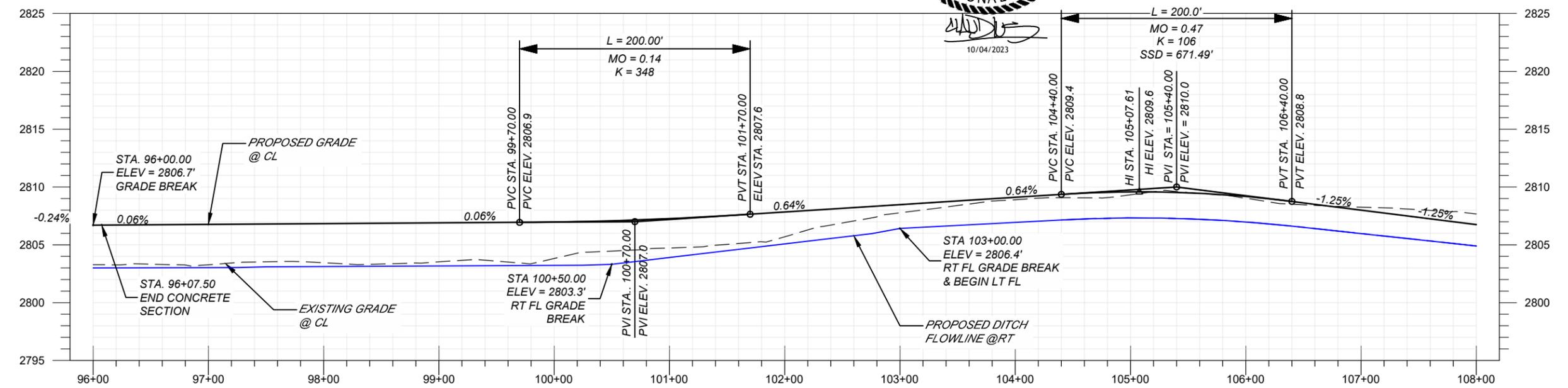
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

PLAN AND PROFILE STA 84+00 - STA 96+00	
HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-207



W CR130 Extension FROM STA 96+00.00' TO STA 108+00.00'



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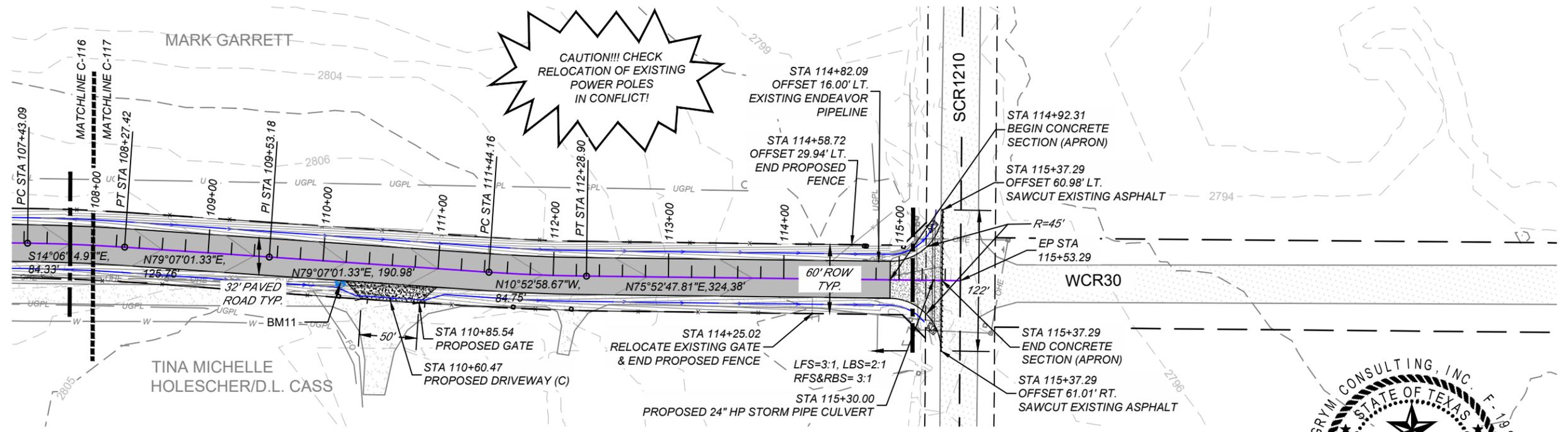
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

MIDLAND COUNTY
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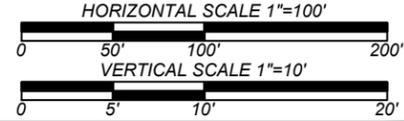
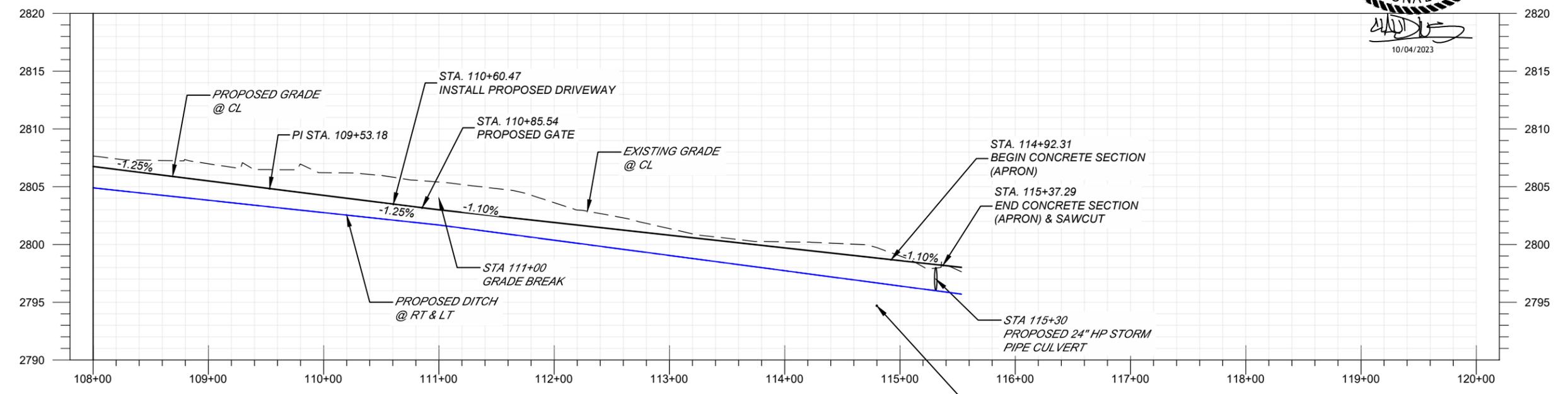
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

PLAN AND PROFILE STA 96+00 - STA 108+00
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023
DESIGNED BY: ZZ
PROJECT NO.: 23-170
CHECKED BY: CSC
SUBSET: CIVIL
APPROVED BY: CSC

SHEET:
C-208



W CR130 Extension FROM STA 108+00.00' TO STA 120+00.00'



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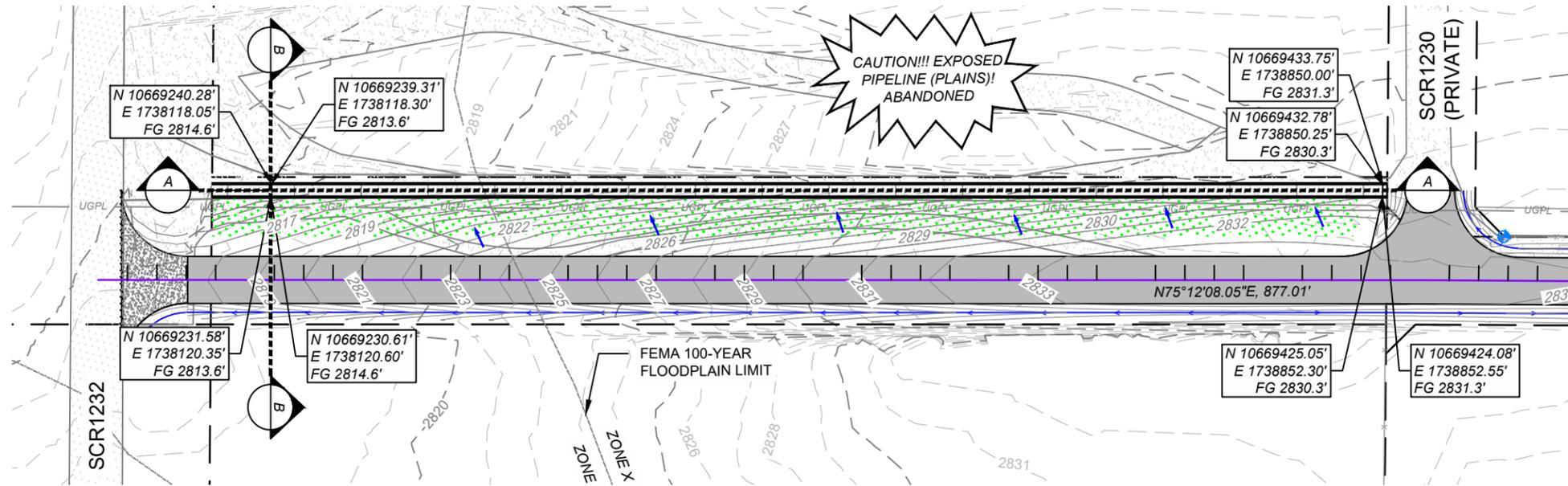
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

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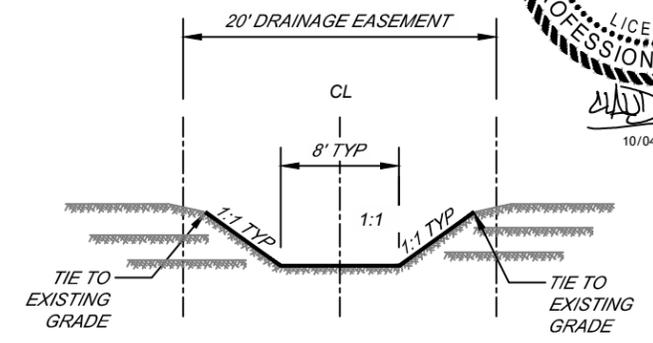
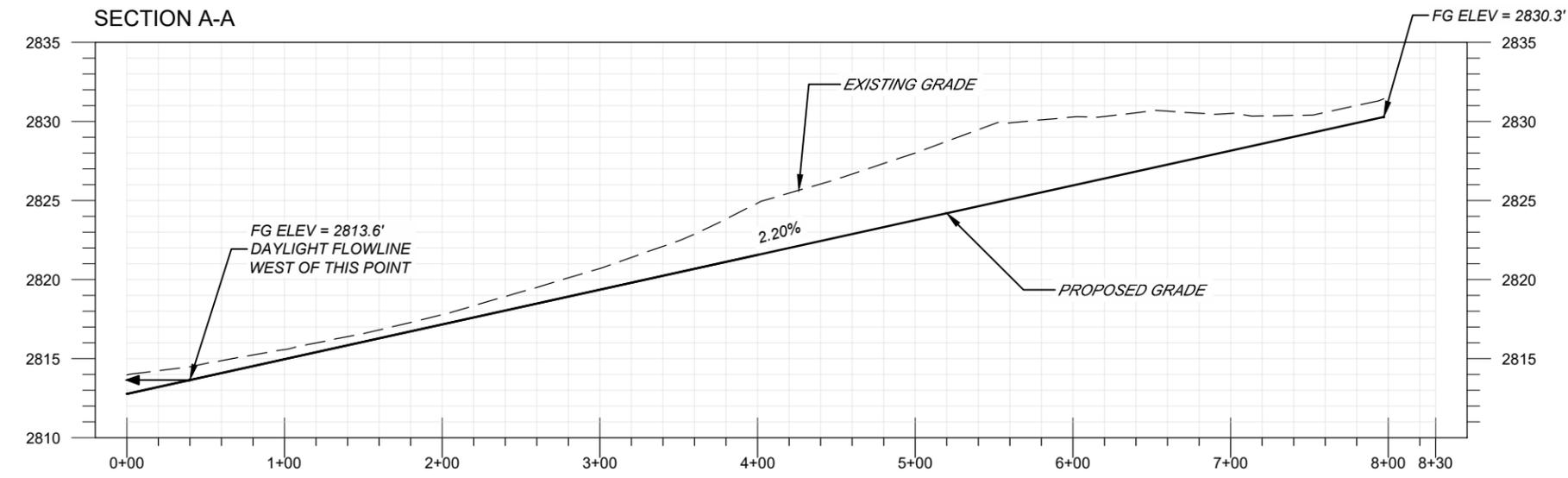
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

PLAN AND PROFILE STA 108+00 - END	
HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: 1"=10'
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

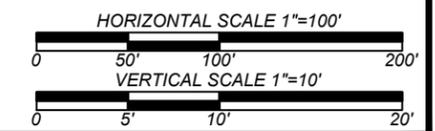
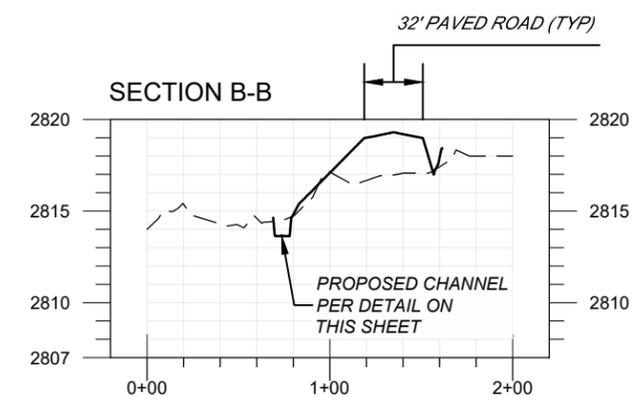
SHEET:
C-209



PROPOSED CONDITIONS	
Rational Method	DA-0
Area (acres)	1.28
Time of concentration (min)	10
C5-yr=	0.43
Rainfall Intensity (in/hr) i5-YR=	4.50
Peak Discharge (cfs) Q5-yr=	2
C100-yr=	0.57
Rainfall Intensity (in/hr) i100-YR=	8.50
Peak Discharge (cfs) Q100-yr=	6
SCS Method	DA-0
Area (acres)	1.28
Time of concentration (min)	10
Curve Number (AMC 1.4)	47
Peak Discharge (cfs) Q100-yr=	3
Volume (cuft) V100-yr=	9156



1 DRAINAGE CHANNEL CROSS SECTION
NOT TO SCALE



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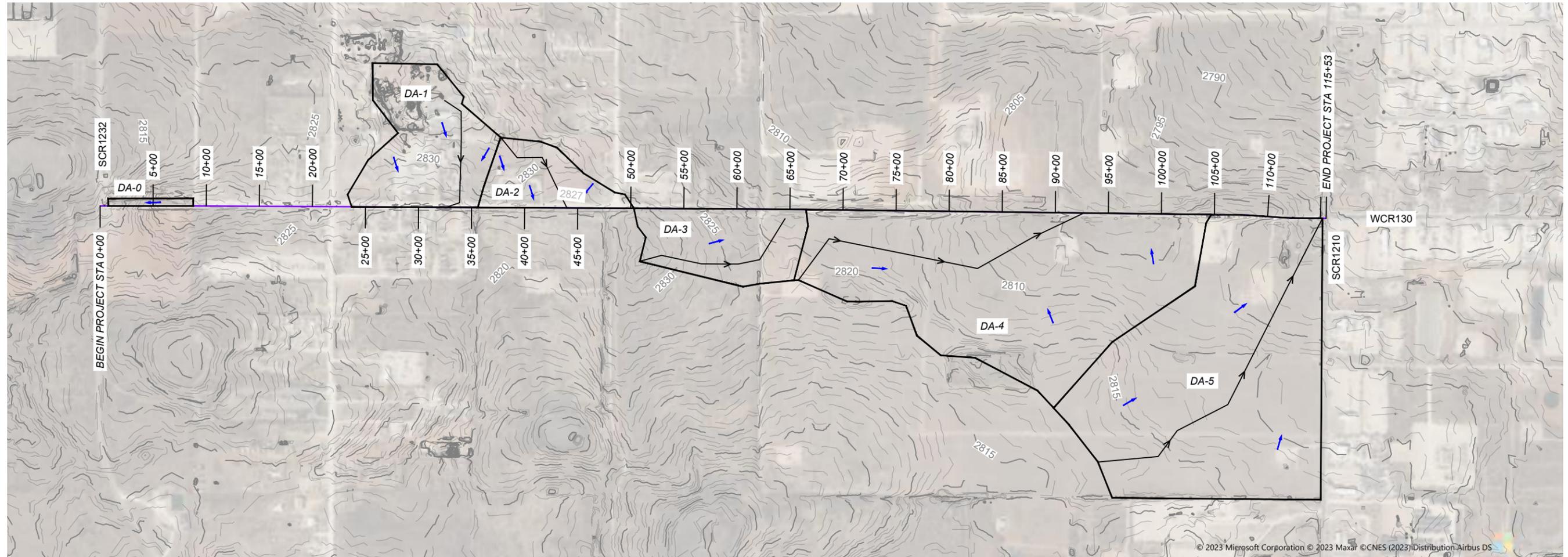
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

MIDLAND COUNTY
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WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

GRADING PLAN	
HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-210



EXISTING CONDITIONS

Rational Method	DA-0	DA-1	DA-2	DA-3	DA-4	DA-5
Area (acres)	1.28	30.58	13.87	22.50	101.30	111.28
Time of concentration (min)	10	17	18	23	67	76
C5-yr=	0.36	0.34	0.28	0.28	0.28	0.28
Rainfall Intensity (in/hr) i5-YR=	4.50	4.20	4.00	3.25	1.60	1.50
Peak Discharge (cfs) Q5-yr=	2	44	16	20	45	47
C100-yr=	0.49	0.47	0.41	0.41	0.41	0.41
Rainfall Intensity (in/hr) i100-YR=	8.50	7.20	7.00	5.70	2.80	2.70
Peak Discharge (cfs) Q100-yr=	6	103	40	53	116	123
SCS Method	DA-0	DA-1	DA-2	DA-3	DA-4	DA-5
Area (acres)	1.28	30.58	13.87	22.50	101.30	111.28
Time of concentration (min)	10	17	18	23	67	76
Curve Number (AMC 1.4)	55	79	78	38	44	37
Peak Discharge (cfs) Q100-yr=	3	192	85	16	65	30
Volume (cuft) V100-yr=	7719	606242	269102	86911	588668	384626



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IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
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R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

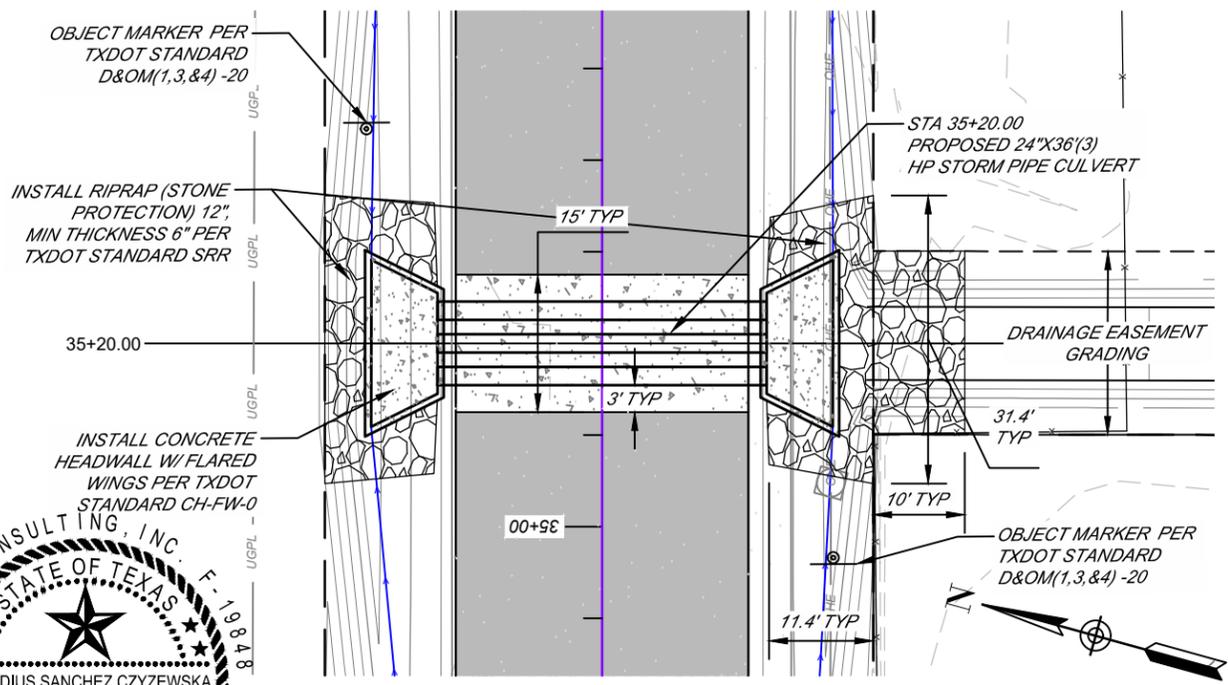


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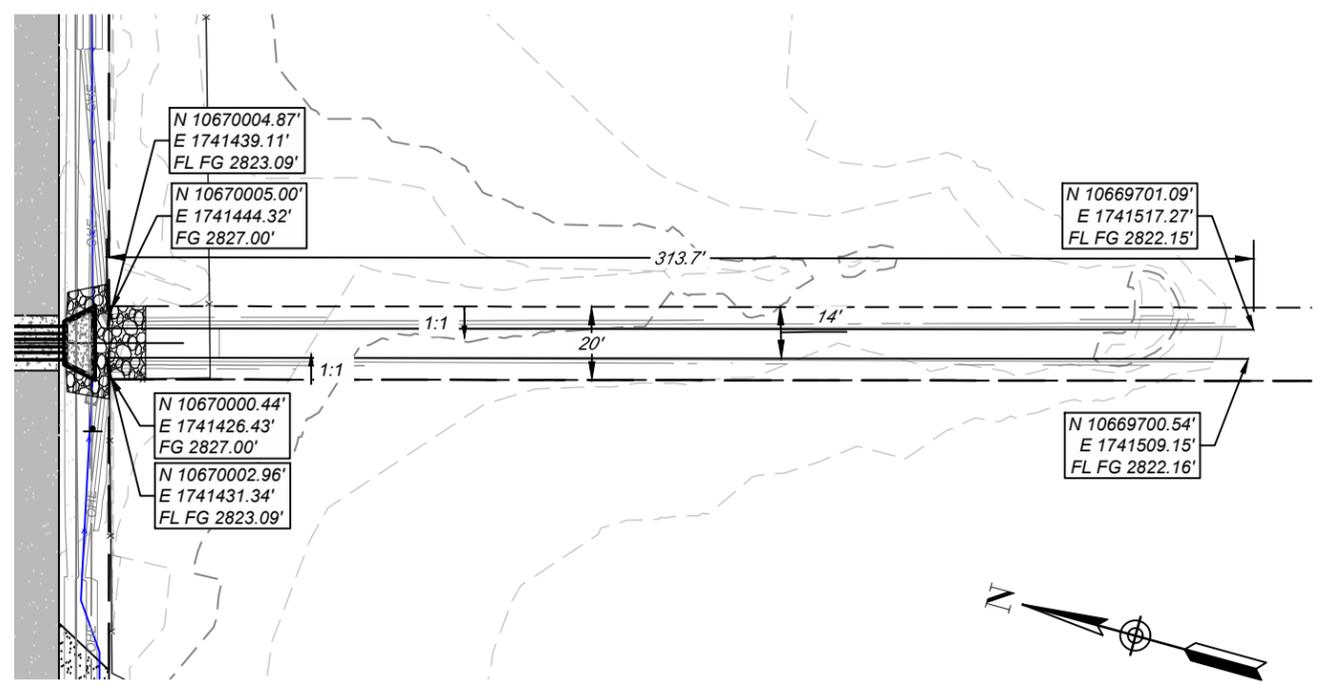
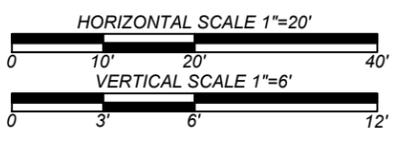
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

HYDRAULIC ANALYSIS	
HORIZONTAL SCALE: 1"=1000'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

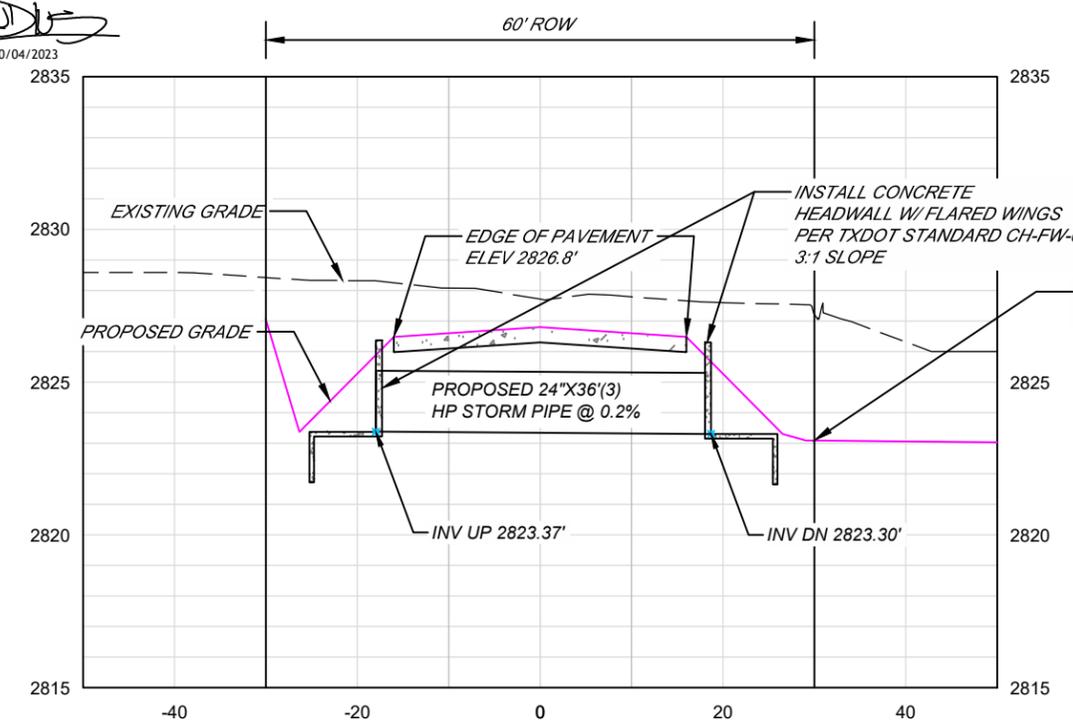
SHEET:
C-220



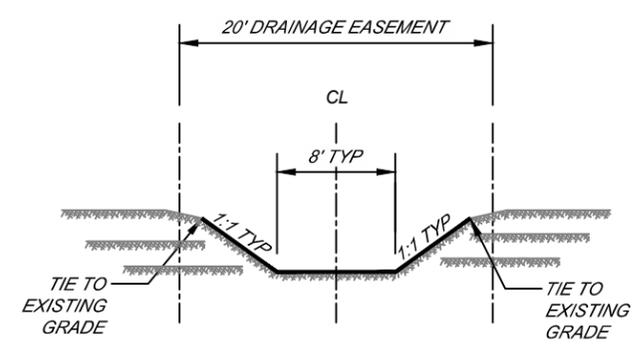
STA 35+20 CULVERTS



DRAINAGE EASEMENT GRADING DETAIL



STA 35+20 CULVERTS SECTION VIEW



1 DRAINAGE EASEMENT CROSS SECTION NOT TO SCALE

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IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

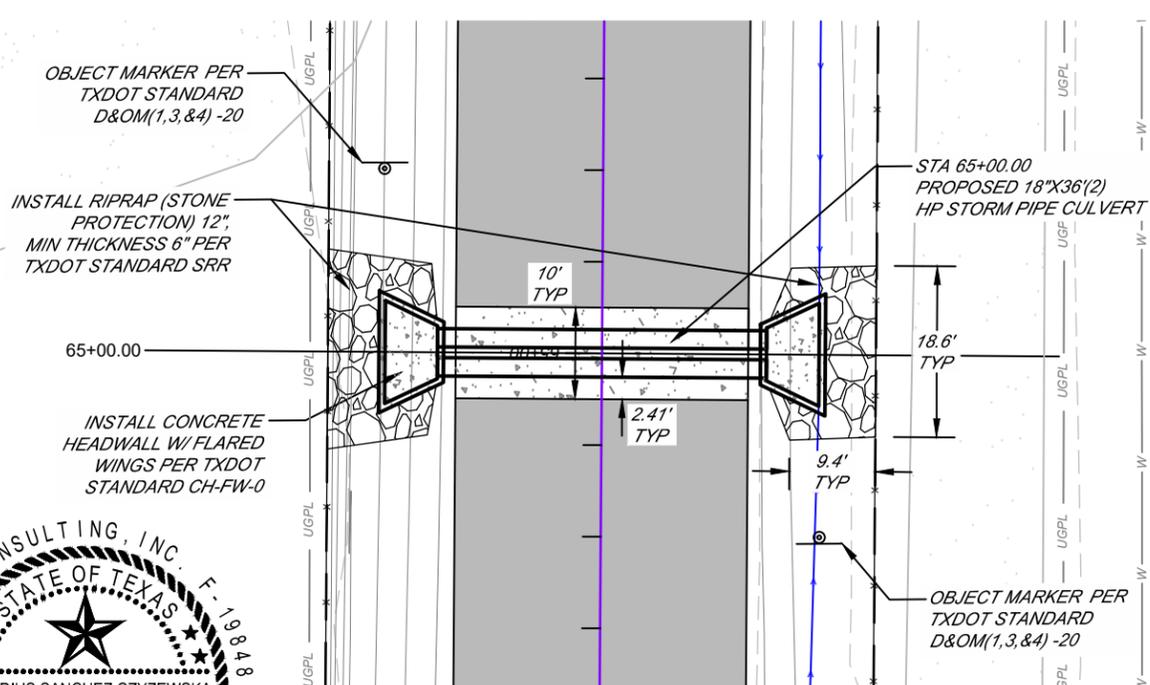


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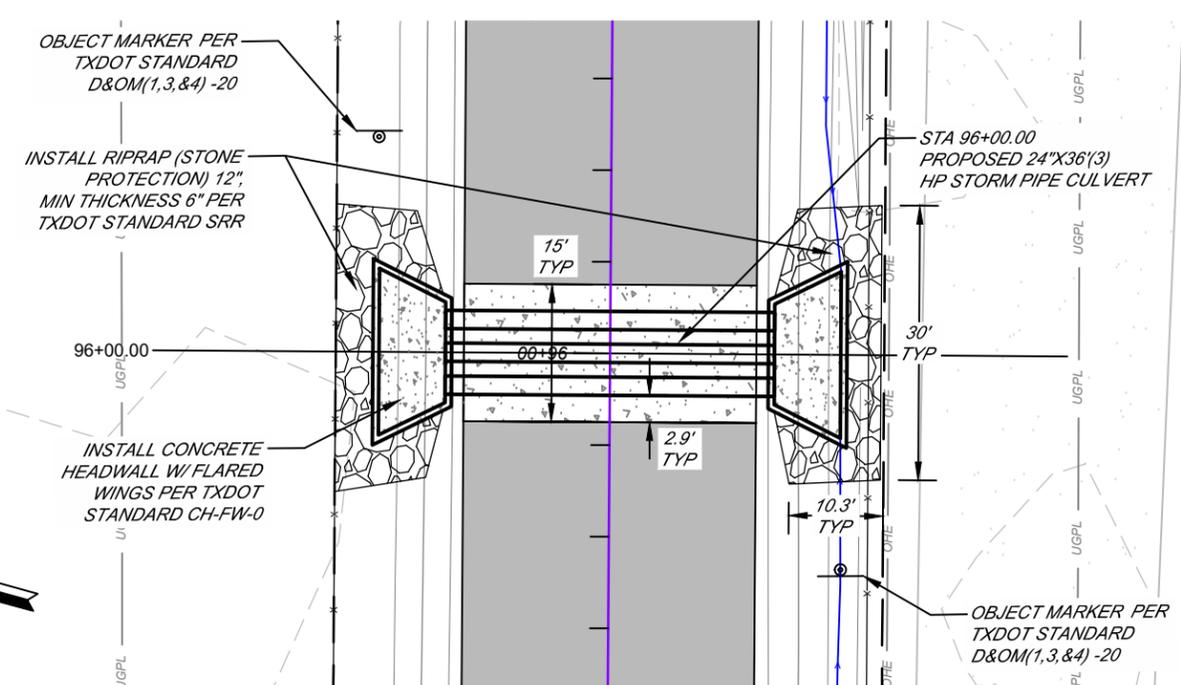
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

CULVERTS PLAN AND PROFILE - 1	
HORIZONTAL SCALE: VARIES	VERTICAL SCALE: 1"=6'
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

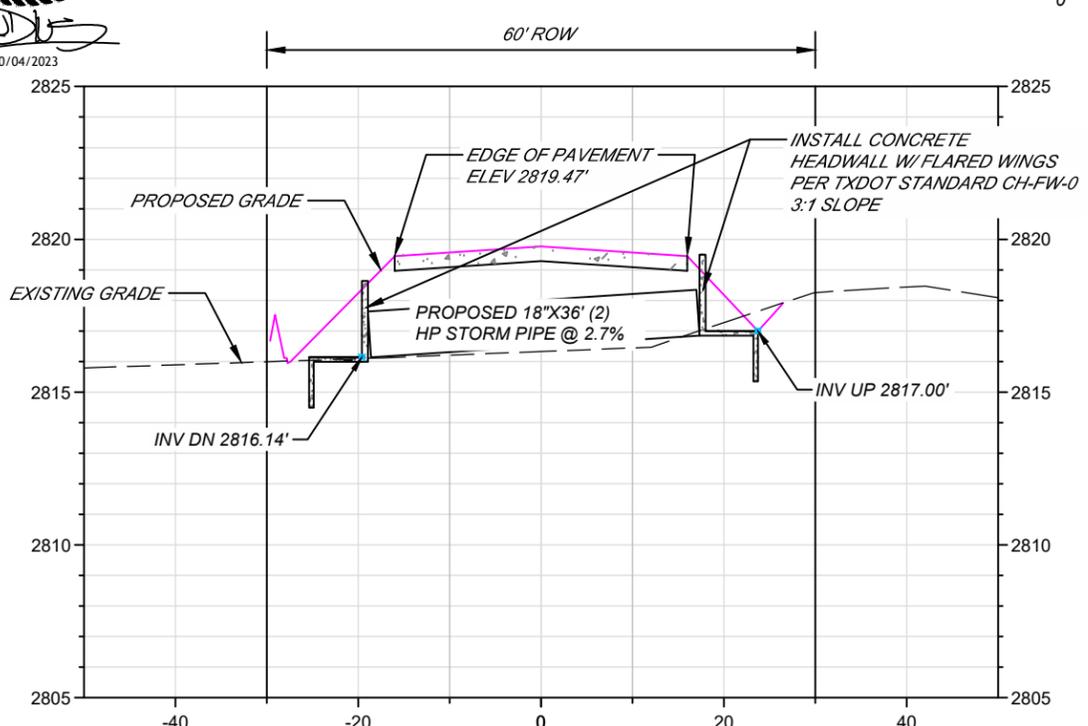
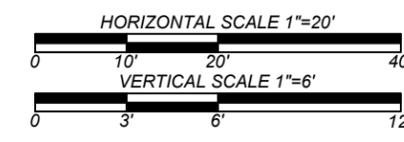
SHEET:
C-230



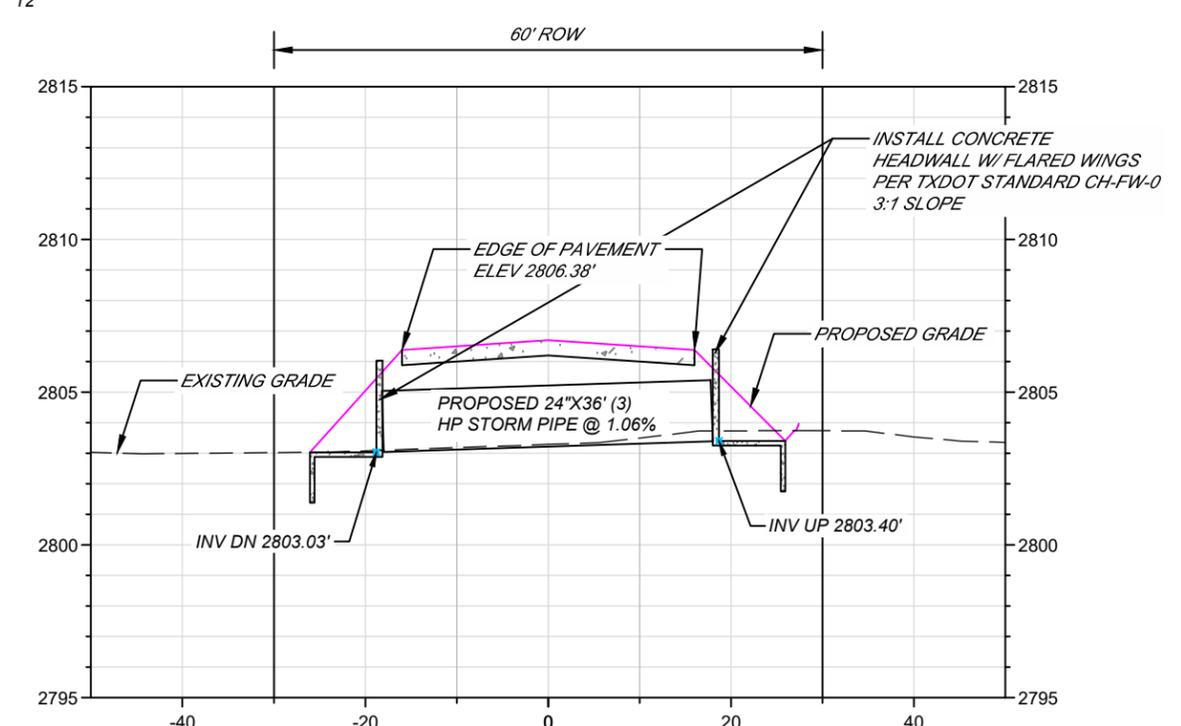
STA 65+00 CULVERTS



STA 96+00 CULVERTS



STA 65+00 CULVERTS SECTION VIEW



STA 96+00 CULVERTS SECTION VIEW

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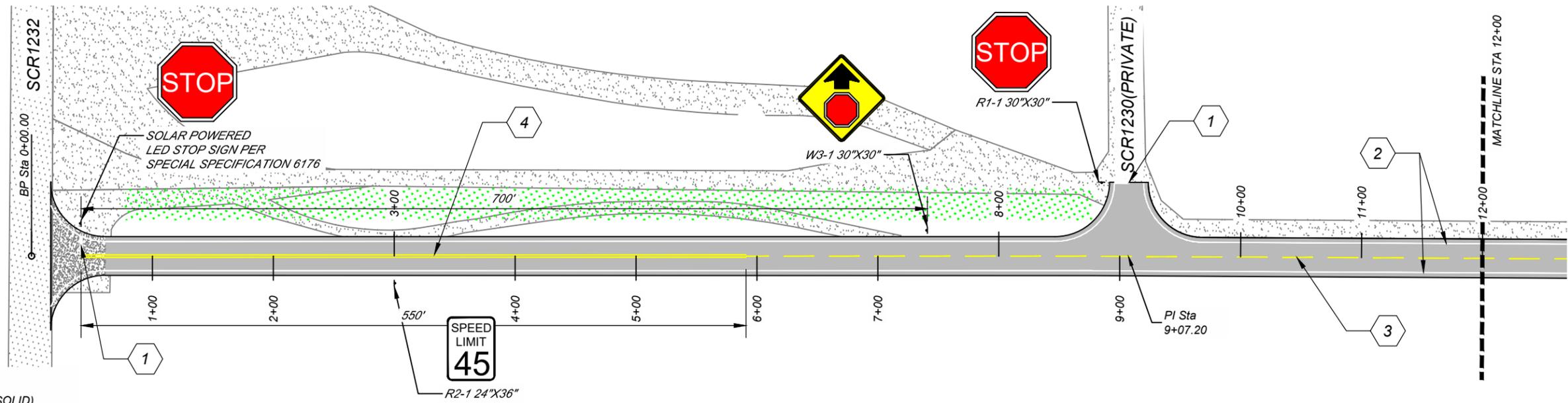
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

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WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

CULVERTS PLAN AND PROFILE - 2	
HORIZONTAL SCALE: 1"=20'	VERTICAL SCALE: 1"=6'
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

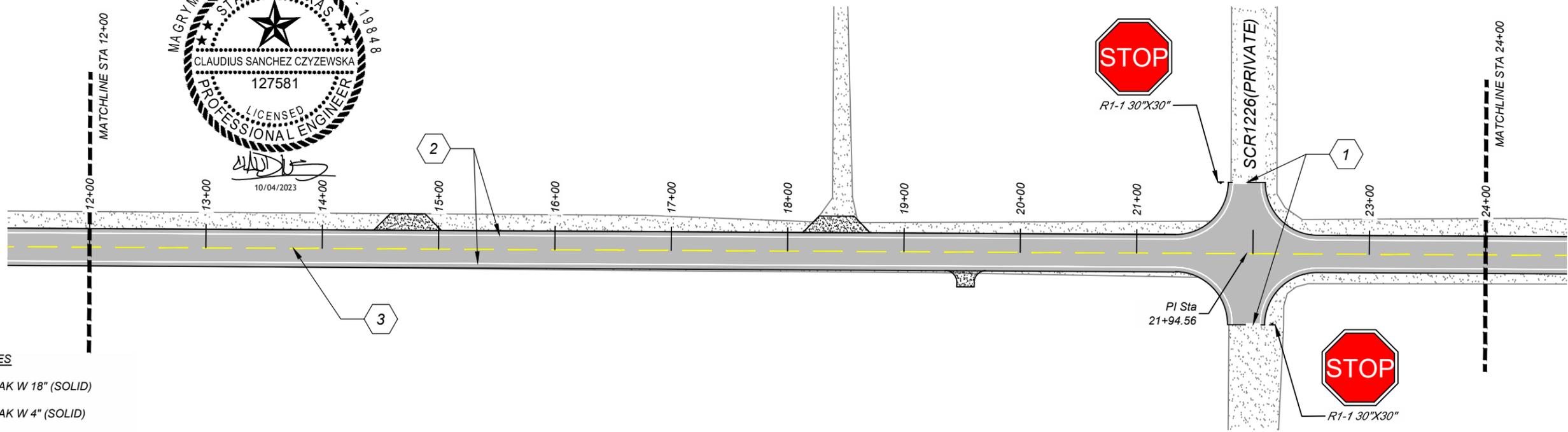
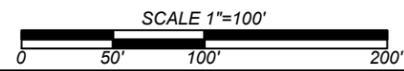
SHEET:
C-231



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

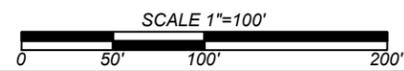
STA 0+00 - STA 12+00



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

STA 12+00 - STA 24+00




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IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

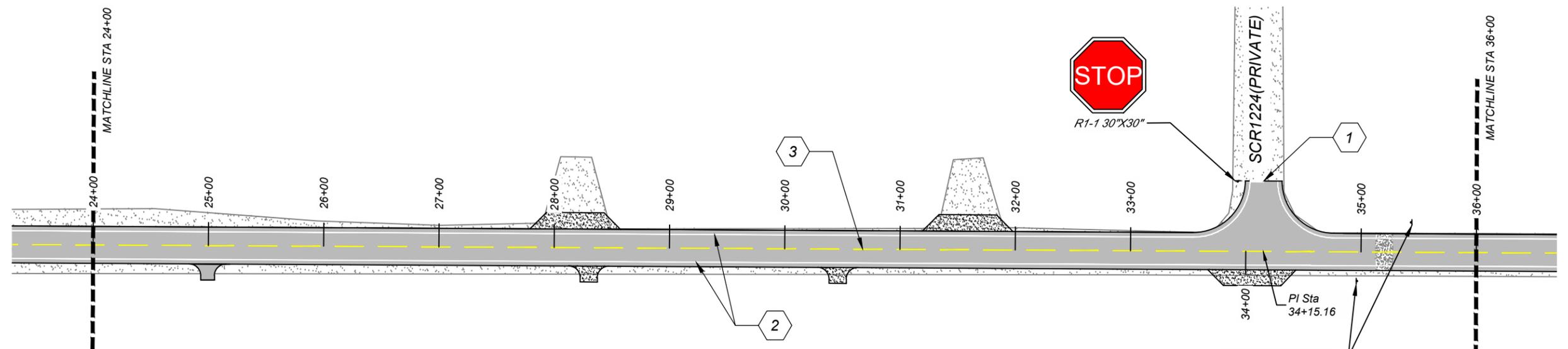


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WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210

SIGNAGE & PAVEMENT MARKING PLAN - 1	
HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

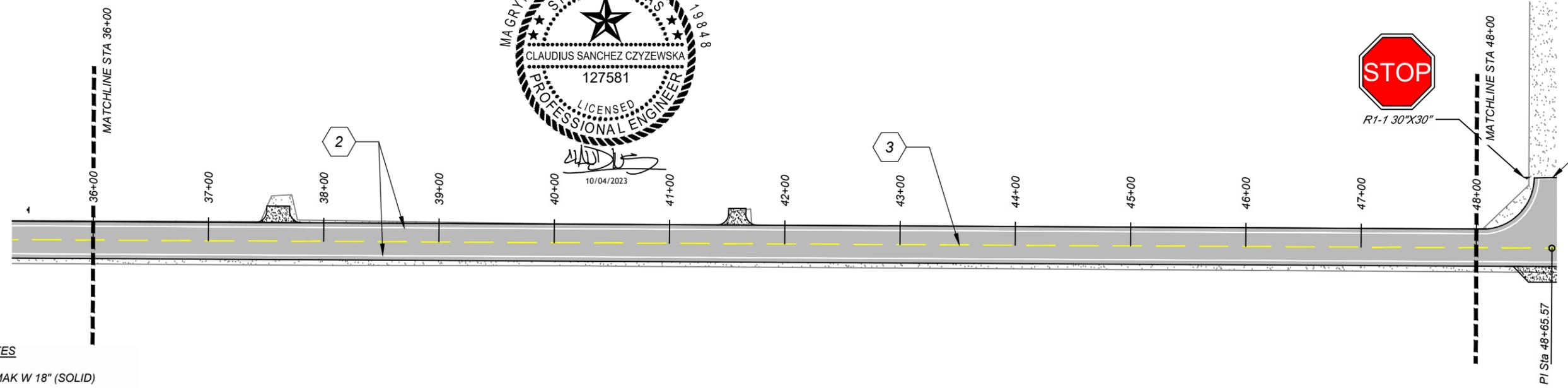
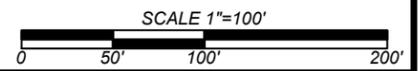
SHEET:
C-240



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

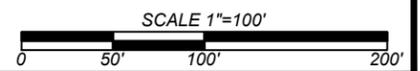
STA 24+00 - STA 36+00



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

STA 36+00 - STA 48+00



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IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

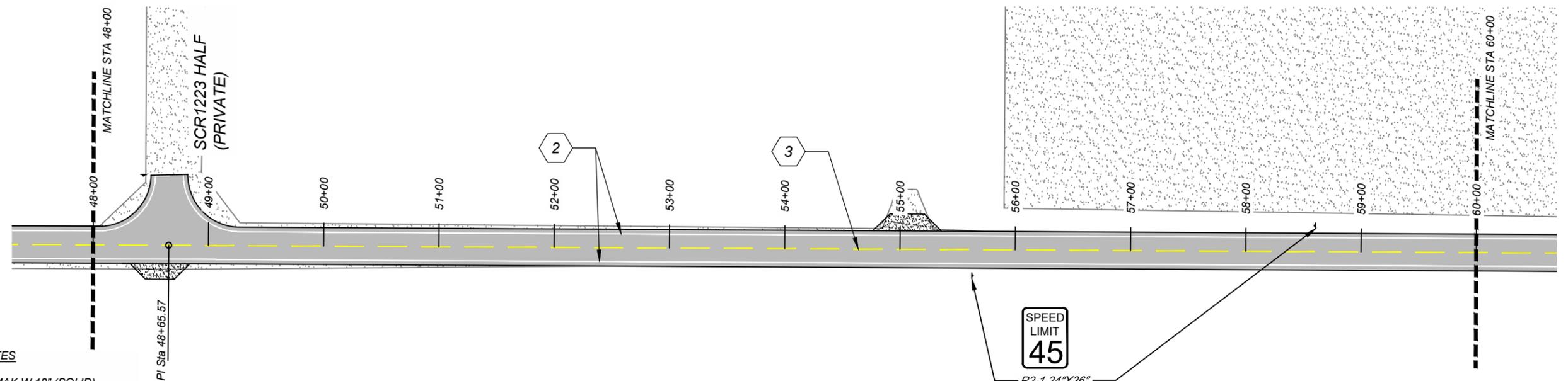
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**WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210**

SIGNAGE & PAVEMENT MARKING PLAN - 2

HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

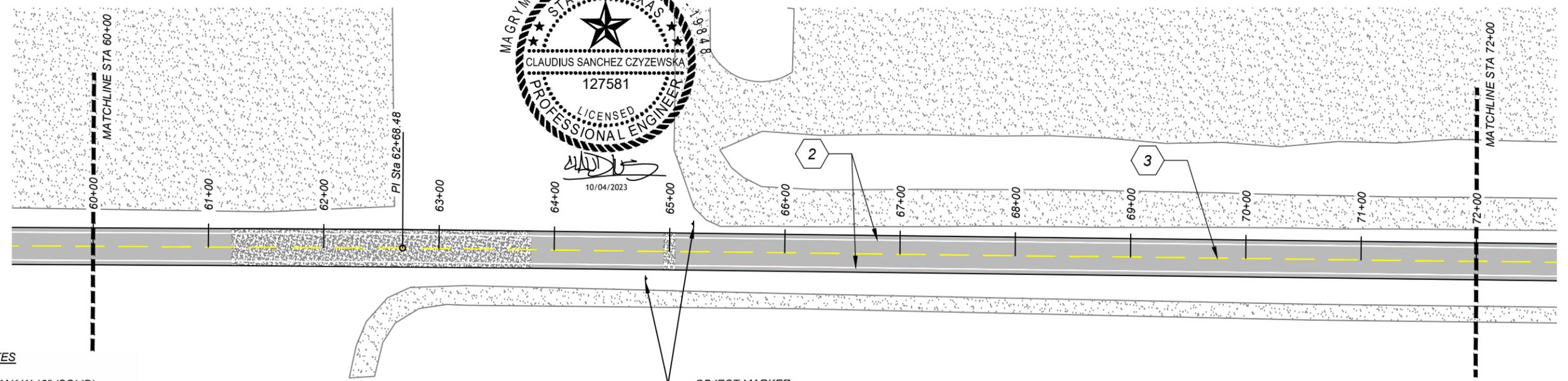
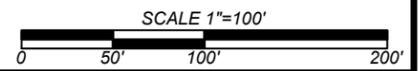
SHEET:
C-241



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

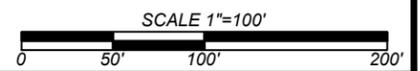
STA 48+00 - STA 60+00



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

STA 60+00 - STA 72+00




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REVISIONS (OR CHANGE NOTICES)	DESCRIPTION	DATE	BY
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY

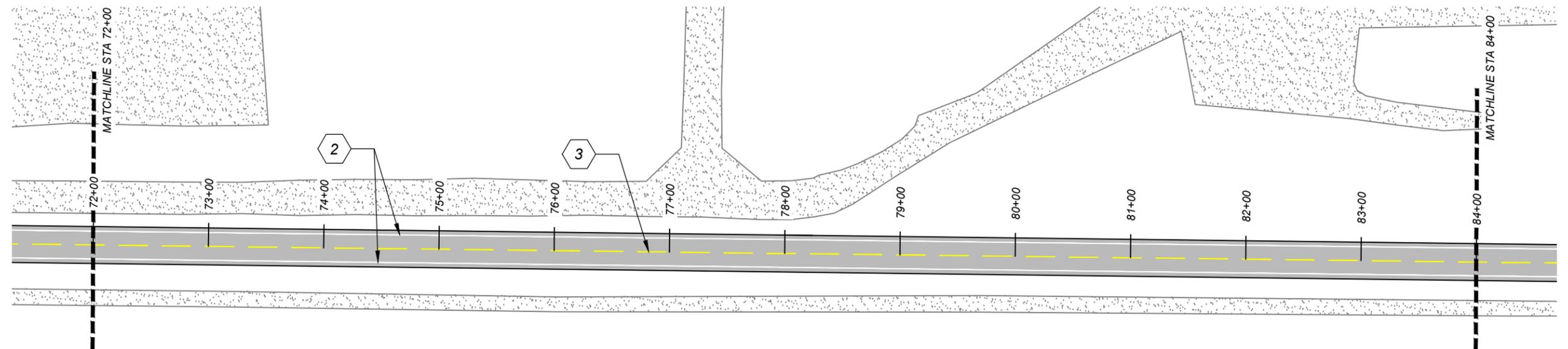

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**WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210**

SIGNAGE & PAVEMENT MARKING PLAN - 3

HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

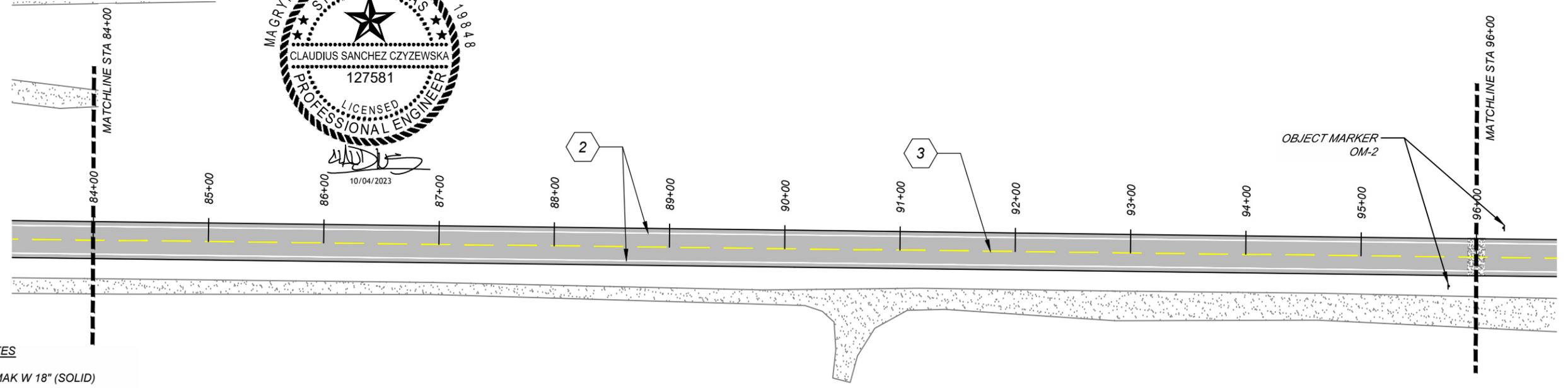
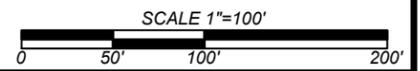
SHEET:
C-242



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

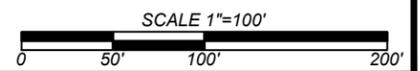
STA 72+00 - STA 84+00



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

STA 84+00 - STA 96+00



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REVISIONS (OR CHANGE NOTICES)	DESCRIPTION	DATE	BY
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY



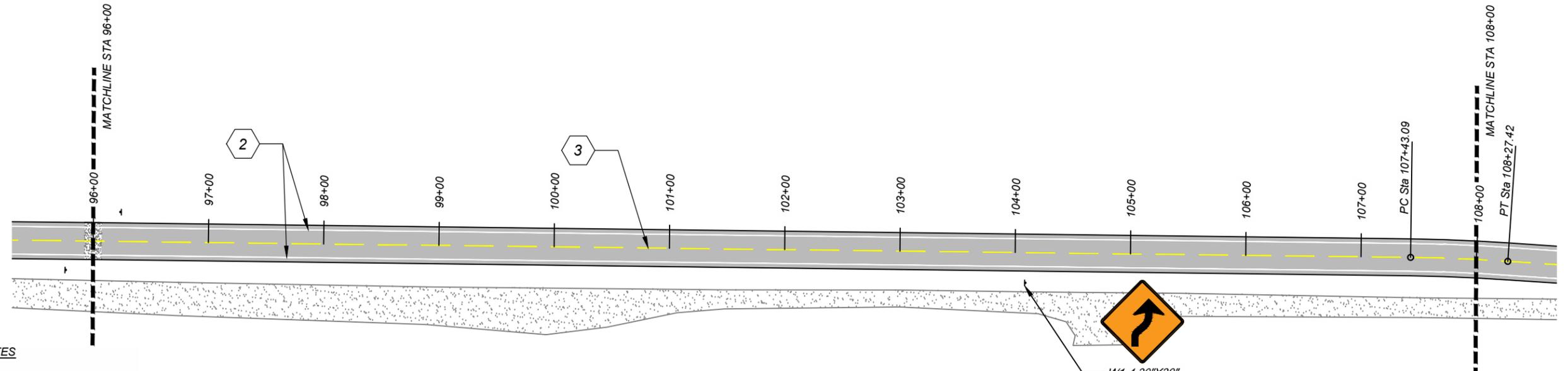
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WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210

SIGNAGE & PAVEMENT MARKING PLAN - 4

HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

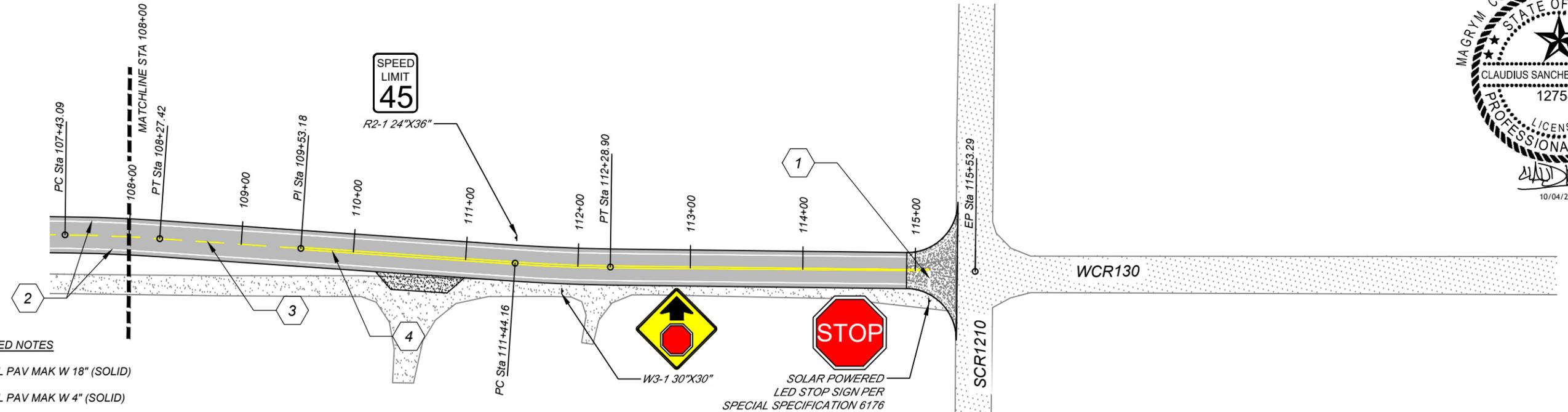
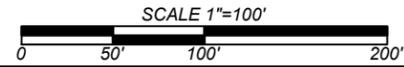
SHEET:
C-243



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

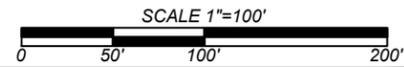
STA 96+00 - STA 108+00



KEYED NOTES

- ① REFL PAV MAK W 18" (SOLID)
- ② REFL PAV MAK W 4" (SOLID)
- ③ REFL PAV MAK Y 4" (BRK)
- ④ REFL PAV MAK Y 4" DOUBLE (SOLID)

STA 108+00 - END



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IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

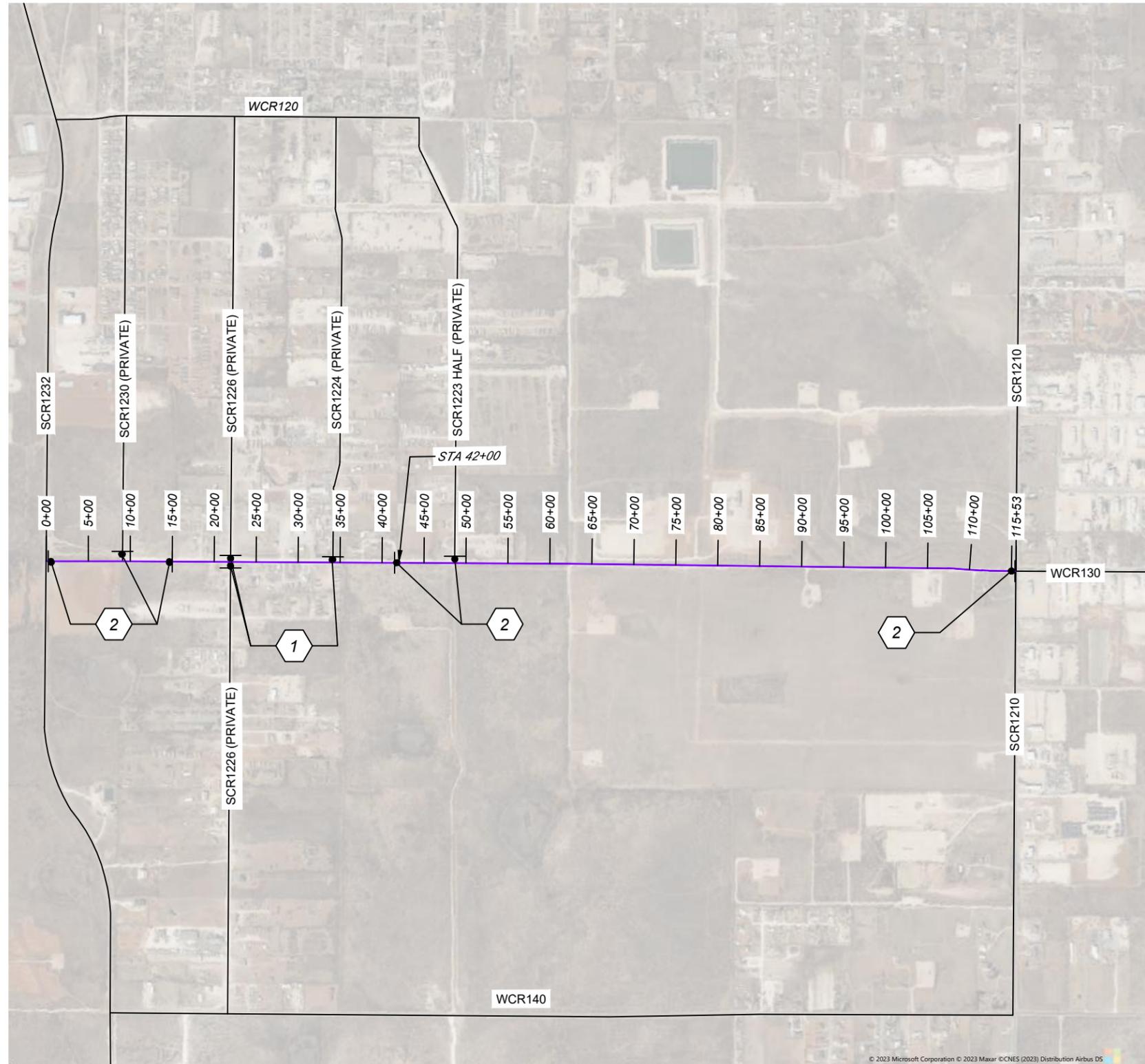
MIDLAND COUNTY
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WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210

SIGNAGE & PAVEMENT MARKING PLAN - 5

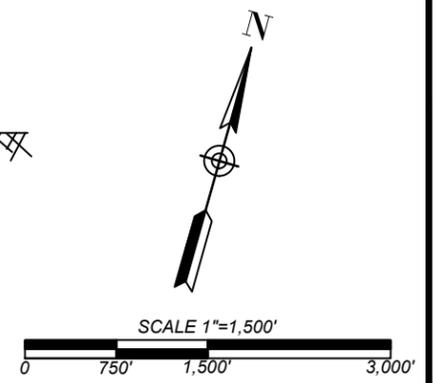
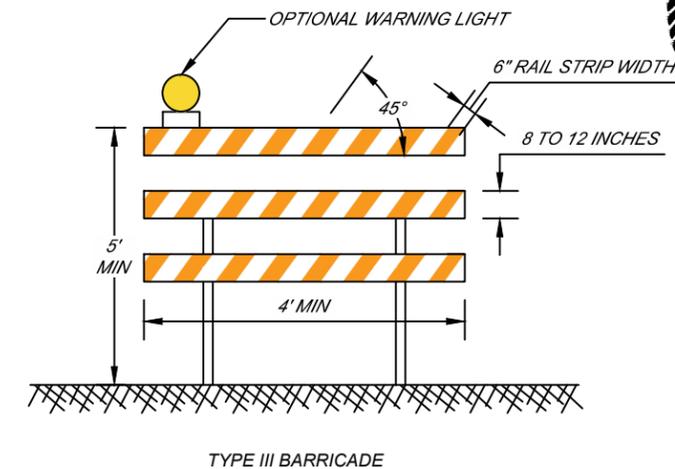
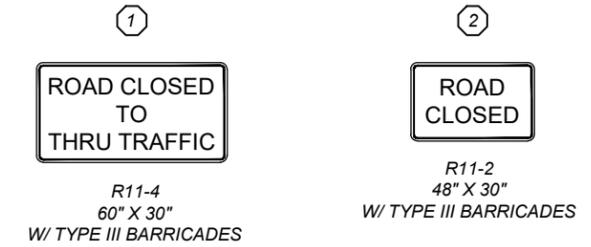
HORIZONTAL SCALE: 1"=100'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-244



NOTES:

1. TEMPORARY TRAFFIC BARRICADES AND SIGNS SHALL BE INSTALLED AND PLACED AT THE APPROPRIATE LOCATIONS AS GOVERNED BY THE CURRENT TEXAS MUTCD.
2. WEST COUNTY ROAD 130, FROM THE INTERSECTION OF SOUTH COUNTY ROAD 1232, TO STATION 15+00 (HALF WAY BETWEEN SOUTH COUNTY ROAD 1230 & SOUTH COUNTY ROAD 1226) WILL BE CLOSED FOR THE DURATION OF THE CONSTRUCTION.
3. WEST COUNTY ROAD 130, BETWEEN STATION 15+00 AND 42+00 (HALF WAY FROM SOUTH COUNTY ROAD 1224 AND SOUTH COUNTY ROAD 1223 HALF) WILL BE CLOSED TO THRU TRAFFIC ONLY FOR THE DURATION OF THE CONSTRUCTION. FOLLOW TRAFFIC CONTROL PLAN FOR ACCESSING.
4. WEST COUNTY ROAD 130, BETWEEN STATION 42+00 TO END WILL BE CLOSED FOR THE DURATION OF THE CONSTRUCTION.
5. TEMPORARY TRAFFIC SIGNS ARE DISPLAYED FOR ILLUSTRATIVE PURPOSES ONLY AND DO NOT REFLECT ACTUAL SIGN PLACEMENT LOCATIONS. FIELD CONDITIONS, STANDARDS, AND TEXAS MUTCD SHALL GOVERN ACTUAL SIGN LOCATIONS.
6. RESIDENTS SHALL HAVE DRIVE ACCESS TO THEIR PROPERTY AT ALL TIMES.
7. IT IS ESTIMATED FOR THE WORK TO BE COMPLETED WITHIN 6-12 MONTHS FROM THE START OF THE CONSTRUCTION.
8. AT THE END OF THE CONSTRUCTION, THE TEMPORARY TRAFFIC BARRICADES AND SIGNS SHALL BE REMOVED AND THE PROPOSED ROADWAY WILL BE OPEN TO TRAFFIC.




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IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY

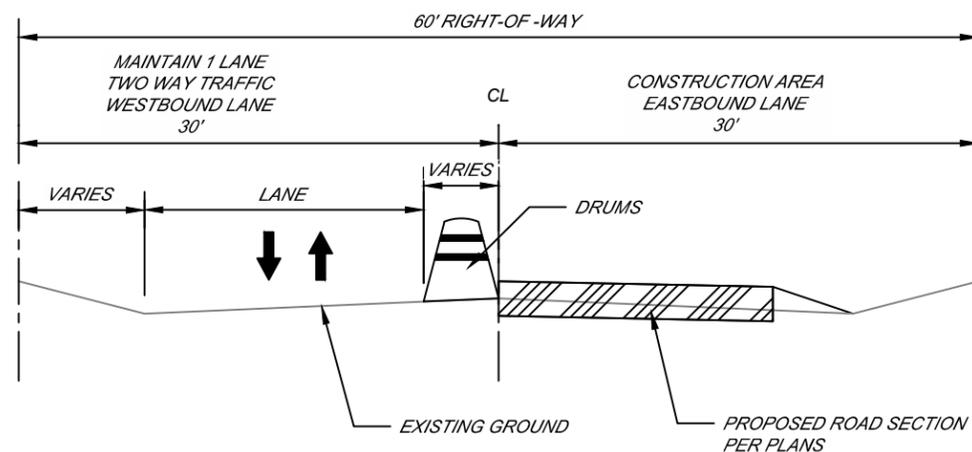

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**WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210**

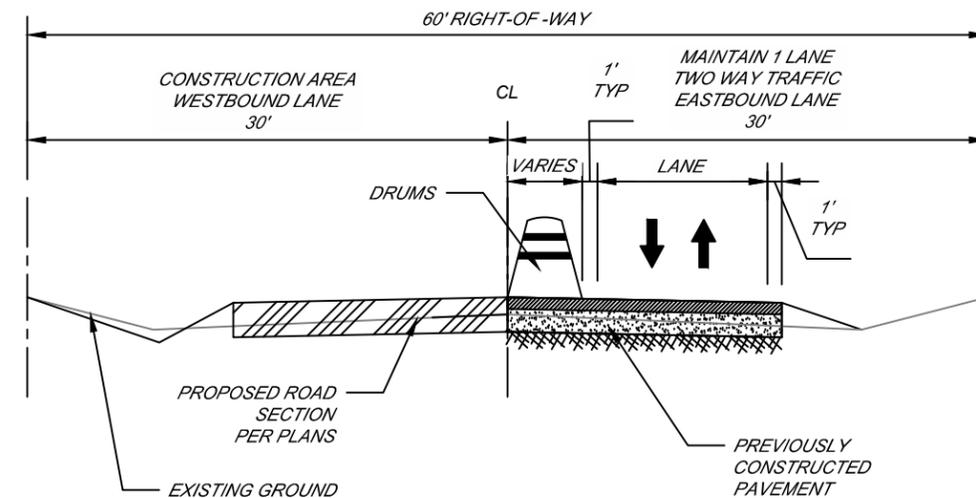
ROAD CLOSURE PLAN	
HORIZONTAL SCALE: 1"=1,500'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-300

SUGGESTED SEQUENCE OF CONSTRUCTION FROM STA 15+00 TO STA 42+00		
	TRAFFIC	CONSTRUCTION
TCP PHASE 1	1. INSTALL ONE LANE, TWO-WAY TRAFFIC CONTROL. SHIFT TRAFFIC LANES TO WESTBOUND SIDE TO ALLOW FOR CONSTRUCTION OPERATIONS ON EASTBOUND SIDE.	1. REMOVE OBSTRUCTIONS AS REQUIRED ON EASTBOUND SIDE. 2. BEGIN CONSTRUCTION OF PROPOSED PAVEMENT ON EASTBOUND SIDE. 3. INSTALL TEMPORARY SIGNS AND PAVEMENT MARKINGS.
TCP PHASE 2	1. REMOVE EXISTING TRAFFIC CONTROL AS REQUIRED. 2. INSTALL ONE LANE, TWO-WAY TRAFFIC CONTROL. SHIFT TRAFFIC LANES TO EASTBOUND SIDE TO ALLOW FOR CONSTRUCTION OPERATIONS ON WESTBOUND SIDE.	1. REMOVE OBSTRUCTIONS AS REQUIRED ON WESTBOUND SIDE. 2. BEGIN CONSTRUCTION OF PROPOSED PAVEMENT ON WESTBOUND SIDE. 3. INSTALL PROPOSED SIGNS AND PAVEMENT MARKINGS. 4. COMPLETE CLEAN UP.



1 **TCP PHASE 1**
NOT TO SCALE

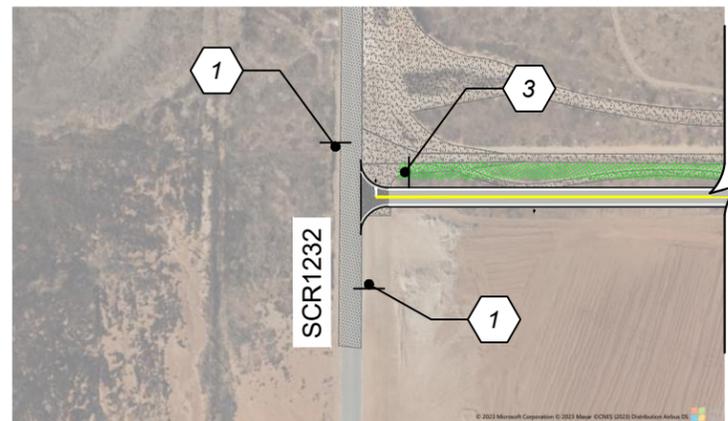


2 **TCP PHASE 2**
NOT TO SCALE

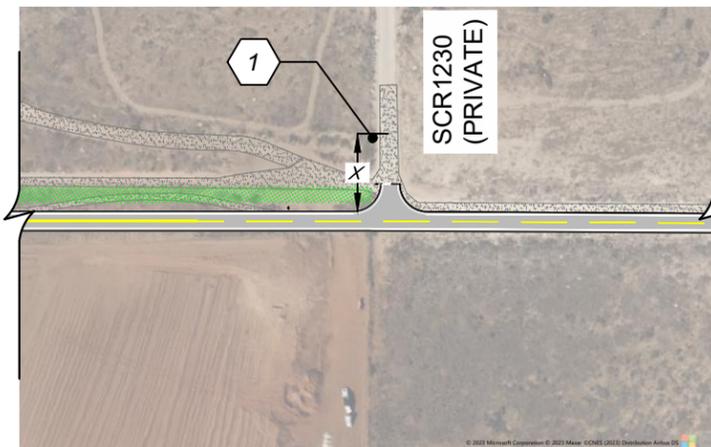
REVISIONS (OR CHANGE NOTICES)	DESCRIPTION	DATE	BY
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X			



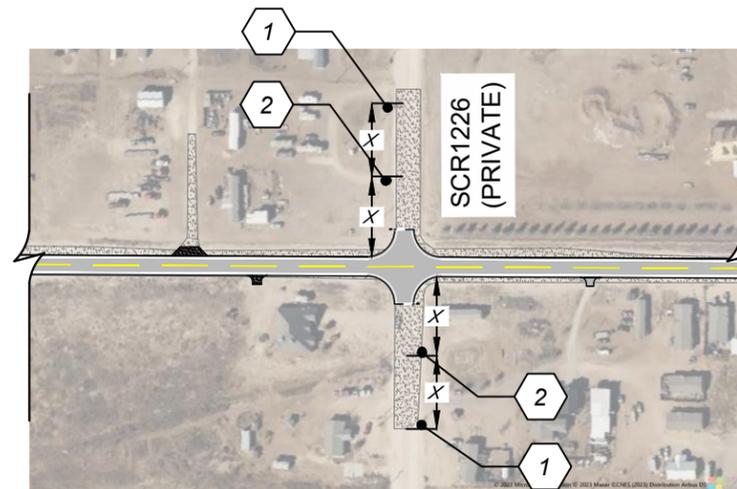
TRAFFIC CONTROL PLAN - 1	
HORIZONTAL SCALE: NTS	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC



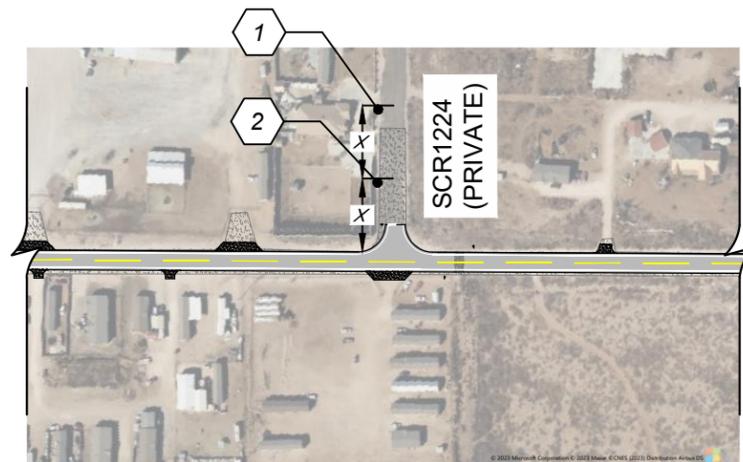
ADVANCED WARNING AT SCR1232 INTERSECTION



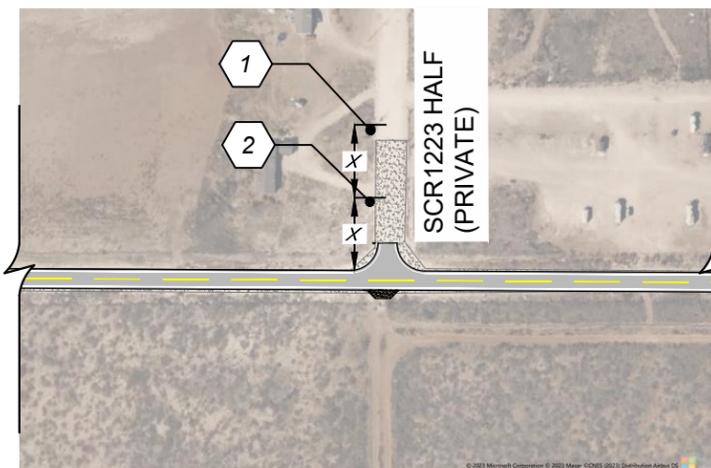
ADVANCED WARNING AT SCR1230 PRIVATE INTERSECTION



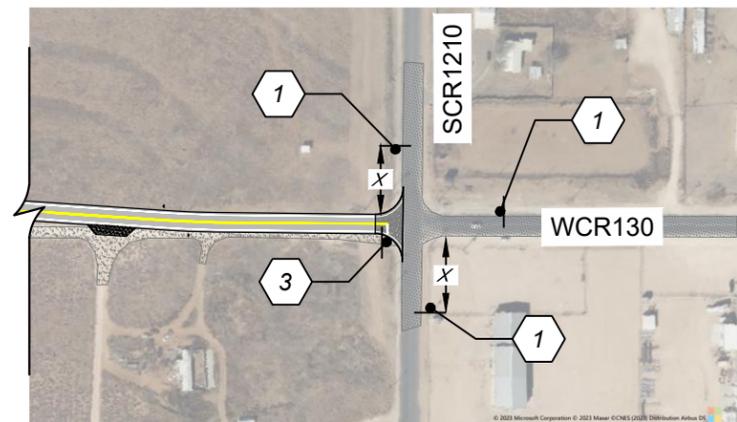
ADVANCED WARNING AT SCR1226 PRIVATE INTERSECTION



ADVANCED WARNING AT SCR1224 PRIVATE INTERSECTION



ADVANCED WARNING AT SCR1223 HALF PRIVATE INTERSECTION



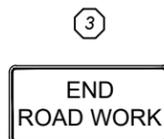
ADVANCED WARNING AT SCR1210 INTERSECTION



CW20-1D
36" X 36"



R2-1
24" X 30"

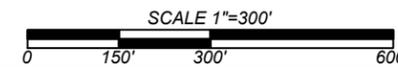


G20-2
48" X 24"



NOTES:

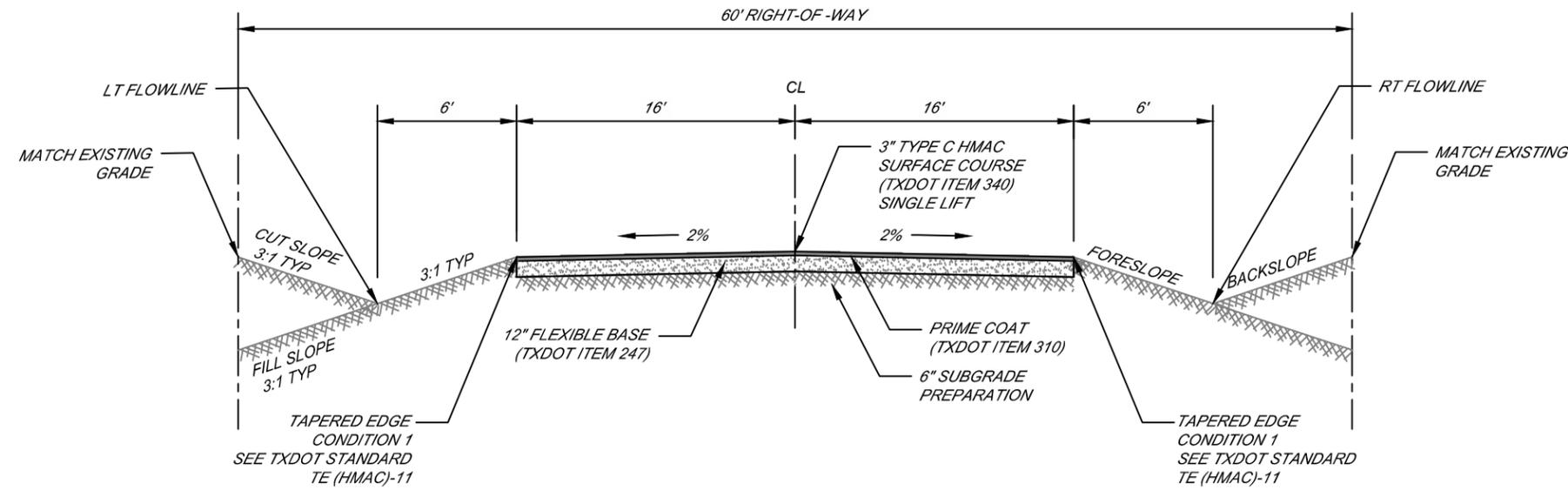
1. THE ADVANCE WARNING SHALL BE LOCATED IN ADVANCE OF THE PHASING TRAFFIC CONTROL SEQUENCING FOR THE ABOVE LOCATIONS.
2. THE ADVANCE WARNING SIGNS SHALL REMAIN IN PLACE FOR THE DURATION OF THE CONTRACT OR AS DIRECTED BY THE ENGINEER.
3. WORK ALONG ROADWAY SHALL BE DURING DAYLIGHT HOURS ACCORDING TO TXDOT STANDARDS TCP(2-3)-23.
4. THE CONTRACTOR SHALL MAINTAIN A MINIMUM 10' CLEAR ZONE MEASURE FROM THE EDGE OF THE ADJACENT TRAFFIC LANE DURING NON-WORK HOURS.
5. "X" SPACING REFERS TO TXDOT STANDARD BC(2)-21.



IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			



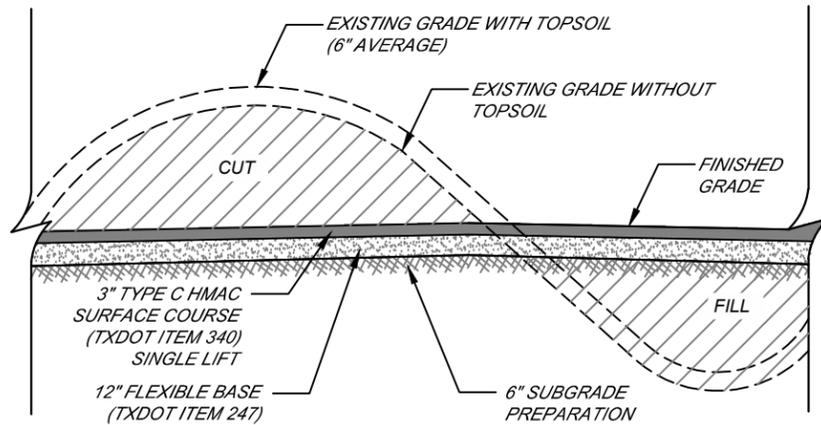
TRAFFIC CONTROL PLAN - 2	
HORIZONTAL SCALE: 1"=300'	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC



1 TYPICAL COUNTY ROAD SECTION
NOT TO SCALE

NOTES:

- NATIVE SOILS AND IMPORTED FILL MAY BE USED TO LEVEL THE PROJECT. GENERAL FILL SHALL POSSESS A PLASTIC INDEX, PI, OF NO MORE THAN 30 AND SHALL HAVE NO LESS THAN 35% PASSING A NO.200 MESH SIEVE. ALL GENERAL FILL SHALL BE PLACED IN 6-INCH MAXIMUM LIFTS AND SHALL BE COMPACTED TO AT LEAST 95% OF ASTM D698 (STANDARD PROCTOR) WITH MOISTURE CONTENT $\pm 2\%$ OF OPTIMUM. TESTING FREQUENCY OF ONE TEST PER 300 LINEAR FEET OF ROADWAY PER LIFT.
- SUBGRADE SOILS BENEATH PAVEMENT SHALL BE COMPACTED THEN PROOF-ROLL TESTED WITH A FULLY LOADED WATER TRUCK OR LOADED DUMP TRUCK. THE PROOF-ROLL TEST IS CONSIDERED PASSING IF SOIL DEFLECTIONS ARE LESS THAN 1/2 - INCH WHEN TESTED USING A LOADED DUMP TRUCK (OR SIMILAR). WHEN USING THE PROOF-ROLLED METHOD 100% COVERAGE OVER THE ROADWAY WITH A MINIMUM OF 2 PASSES PER AREA IS RECOMMENDED. ALTERNATIVELY, SUBGRADE VERIFICATION MAY BE PERFORMED USING A NUCLEAR DENSITY GAUGE, WHERE SUBGRADE DENSITY SHALL BE GREATER THAN 95% OF ASTM D698 (STANDARD PROCTOR) WITH MOISTURE CONTENT $\pm 2\%$ OF OPTIMUM. WHEN USING THE NUCLEAR DENSITY METHOD, TESTING FREQUENCY OF ONE TEST PER 300 LINEAR FEET OF ROADWAY PER LIFT.
- PROPOSED FLEXIBLE BASE MATERIAL SHALL BE CRUSHED ROCK CONFORMING TO TXDOT STANDARD SPECIFICATION ITEM NO.247, GRADE 1-2 OR GRATER. THE FLEXIBLE BASE MATERIAL SHALL BE INSTALL IN FOUR TO SIX (4"-6") INCH COMPACTED LIFTS. ADDITIONALLY THE FLEXIBLE BASE MATERIAL IN EACH LIFT SHALL BE COMPACTED TO A MINIMUM OF 98 PERCENT OF THE MATERIAL'S DRY DENSITY AS PER ASTM D698 (STANDARD PROCTOR) WITH MINIMUM MOISTURE CONTENT $\pm 4\%$. ONE TEST SHALL BE PERFORMED EVERY 300 LINEAR FEET OF ROADWAY, APPROXIMATELY ONE TEST EVERY 10,000 - 12,000 SQUARE FEET OF AREA PER LIFT.
- PRIME COAT SHALL BE PER TXDOT ITEM 310 SPECIFICATIONS.
- PROPOSED ASPHALT IS A TYPE C HMA THAT SHALL MEET TXDOT SPECIFICATIONS ITEM 340.



2 CUT/FILL CONCEPT W/ TOPSOIL
NOT TO SCALE

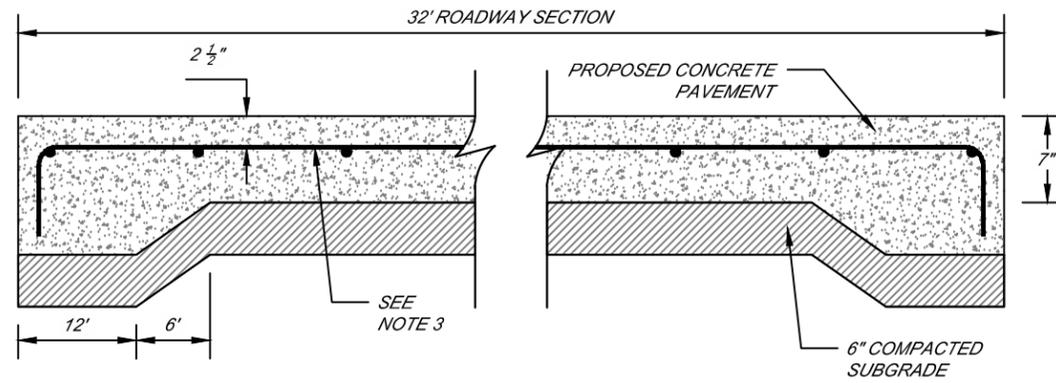


SUMMARY OF SLOPES

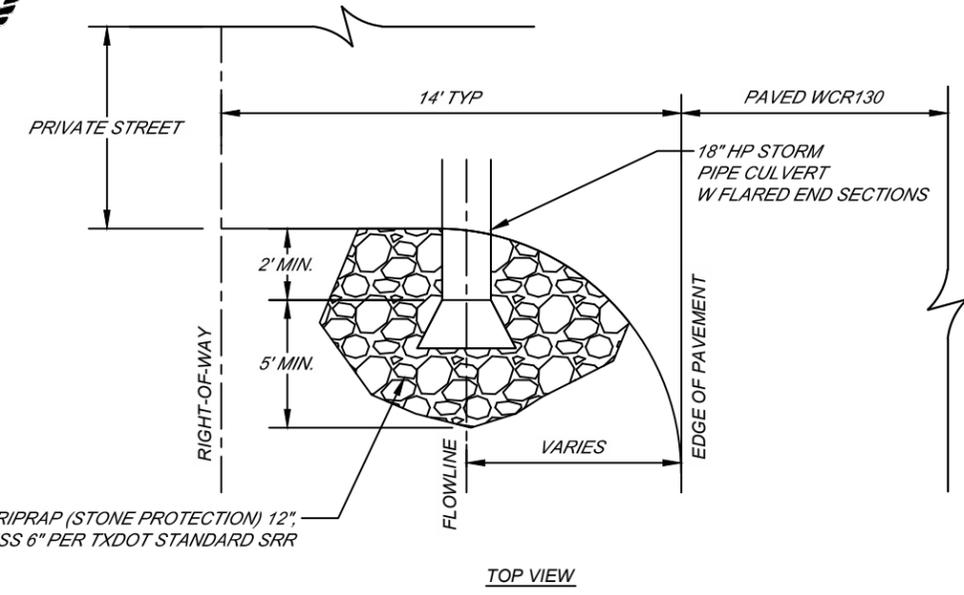
STA	LEFT FORESLOPE	LEFT BACKSLOPE	RIGHT FORESLOPE	RIGHT BACKSLOPE
BEGIN - 8+66.59	SEE GRADING PLAN		3:1	3:1
8+66.59 - 36+00	3:1	3:1	3:1	3:1
36+00 - 40+00	3:1	2:1	3:1	2:1
40+00 - 67+50	3:1	3:1	3:1	3:1
67+50 - 80+60	3:1	3:1	3:1	1 1/2:1
80+60 - 107+80	3:1	3:1	3:1	3:1
107+80 - 115+12	3:1	2:1	3:1	3:1
115+12 - END	3:1	3:1	3:1	3:1

IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

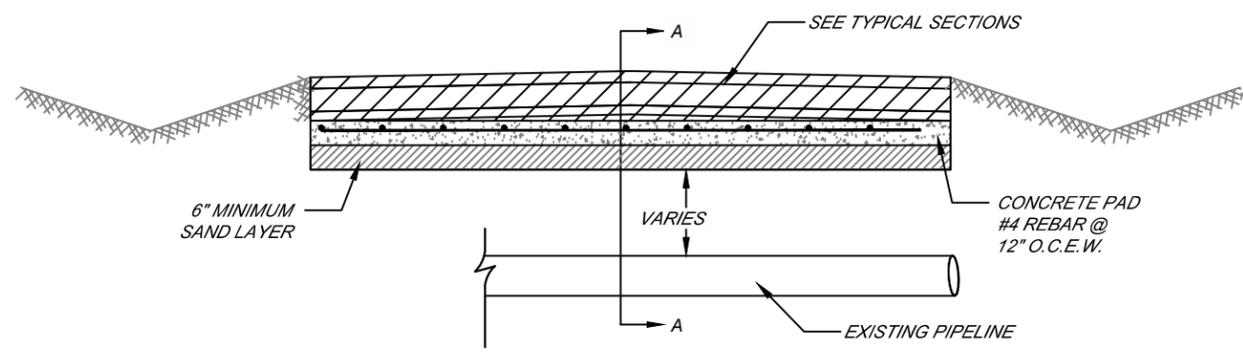
TYPICAL ASPHALT SECTION	
HORIZONTAL SCALE: NTS	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC



1 TYPICAL CONCRETE PAVEMENT SECTION
NOT TO SCALE

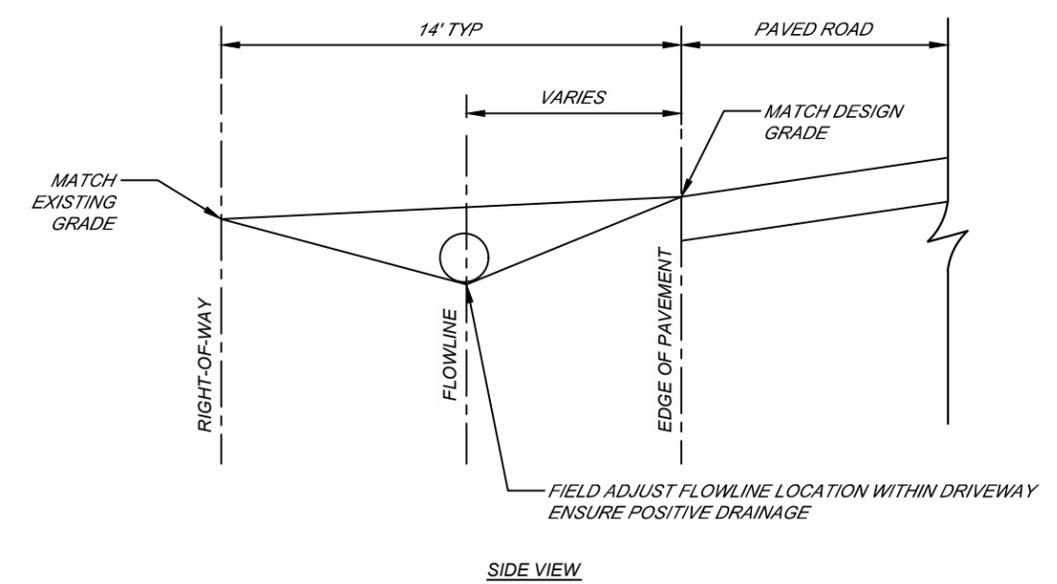


TOP VIEW



SECTION A-A

2 TYPICAL CONCRETE GAP FOR PIPELINE CROSSINGS
NOT TO SCALE



SIDE VIEW

3 TYPICAL STREET CULVERT DETAIL
NOT TO SCALE

- NOTES:
1. CONCRETE SHALL BE CLASS "A" AND SHALL HAVE A MINIMUM OF 5 SACKS OF CEMENT PER CUBIC YARD AND A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3,000 PSI.
 2. CONTRACTOR TO VERIFY BOTH HORIZONTAL AND VERTICAL LOCATIONS OF ALL UNDERGROUND PIPELINES BEFORE CONSTRUCTION IN THIS AREA.
 3. WIDTH AND LOCATION TO BE BASED ON SLAB EXTENDED APPROXIMATELY 2' TO 6L BEYOND OUTSIDE PIPE ON BOTH SIDES.
 4. MINIMUM DEPTH OF COVER IS DETERMINED BY PIPELINE OPERATOR AND MUST BE VERIFIED BY CONTRACTOR.

Magrym Consulting, Inc.
110 W. Louisiana Ave. Ste 314
Midland, TX 79701
(432) 999-2737
www.magrym.com
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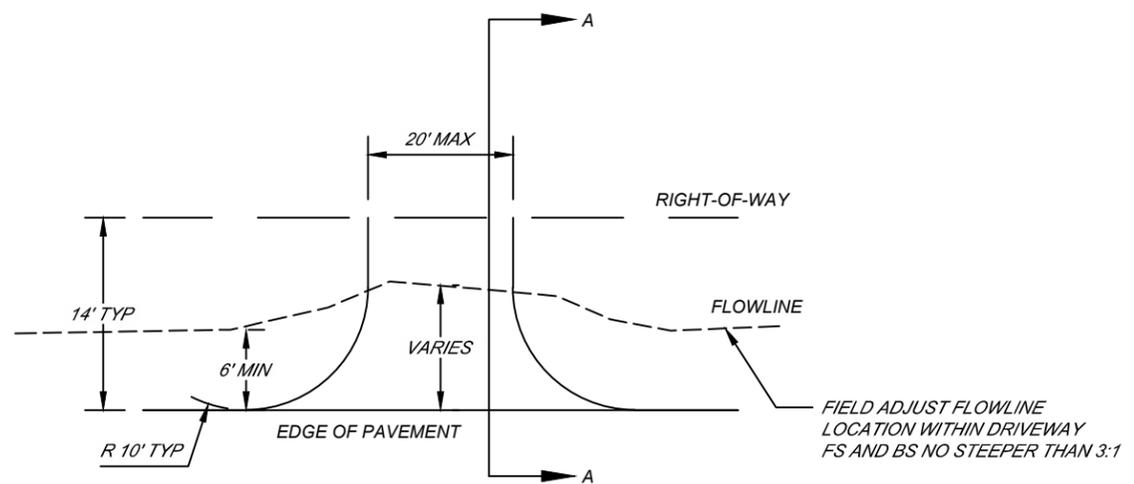
IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			

MIDLAND COUNTY
DEPARTMENT OF PUBLIC WORKS
500 N. LORAIN STREET
MIDLAND, TX 79701

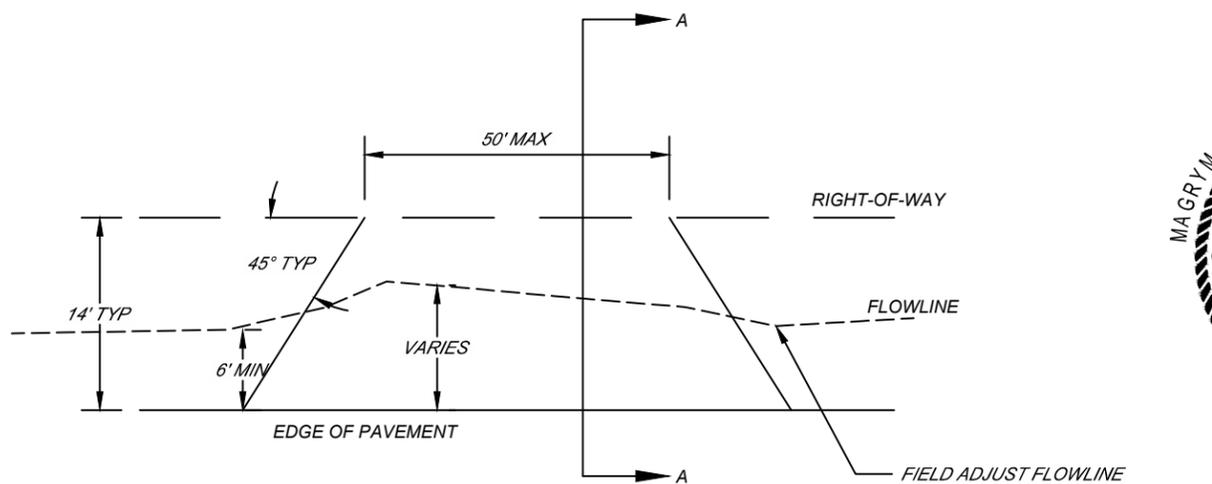
WEST COUNTY ROAD 130 EXTENSION
FROM SOUTH COUNTY ROAD 1232
TO SOUTH COUNTY ROAD 1210

TYPICAL CONCRETE SECTIONS	
HORIZONTAL SCALE: NTS	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

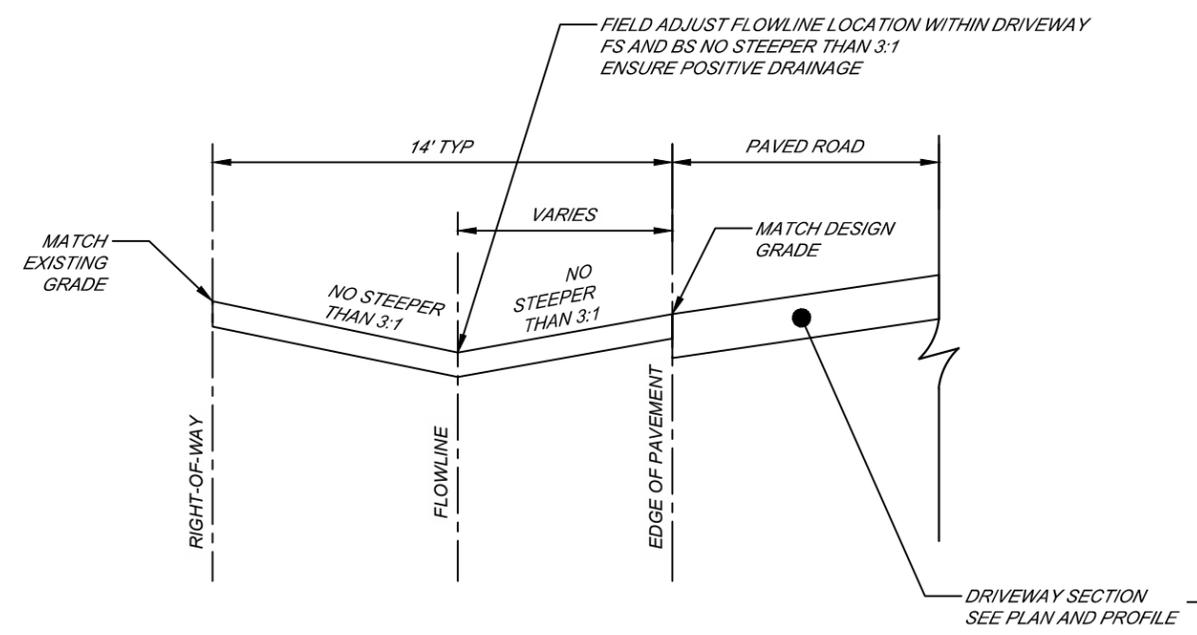
SHEET:
C-410



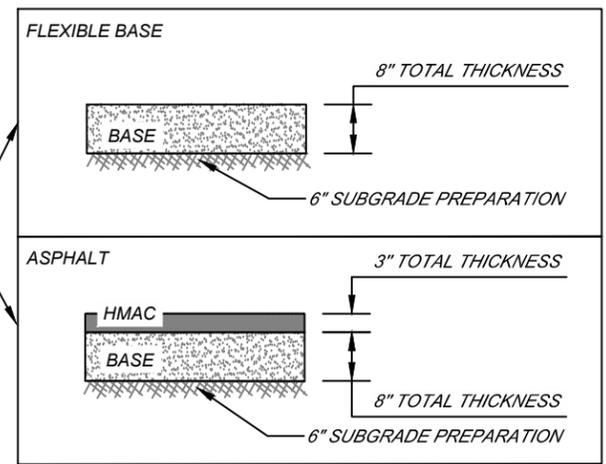
1 TYPICAL RESIDENTIAL DRIVEWAYS
NOT TO SCALE



2 TYPICAL COMMERCIAL DRIVEWAYS
NOT TO SCALE



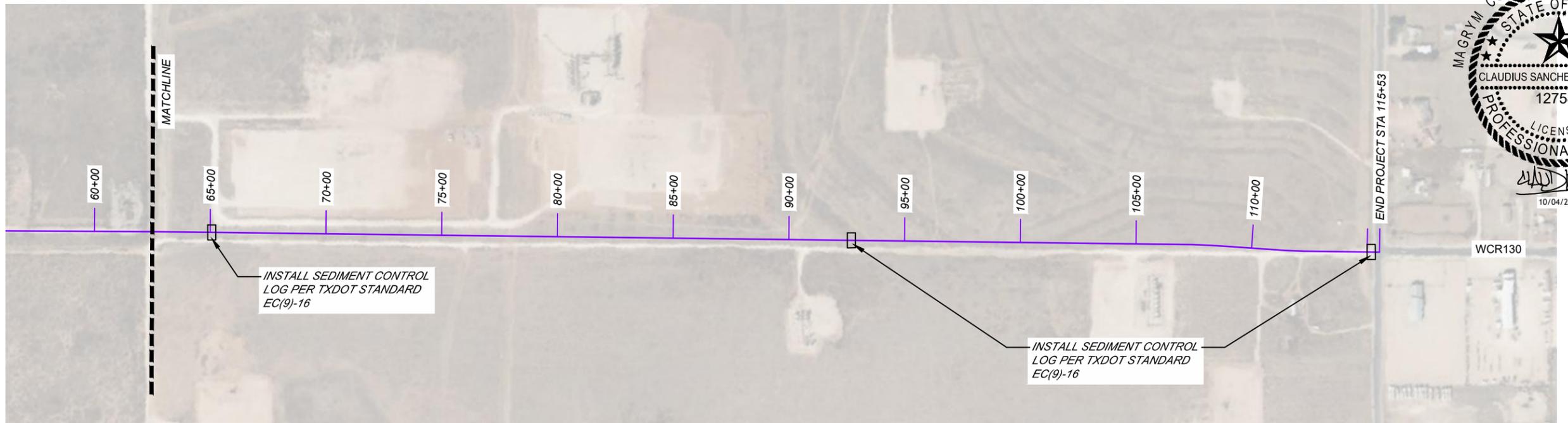
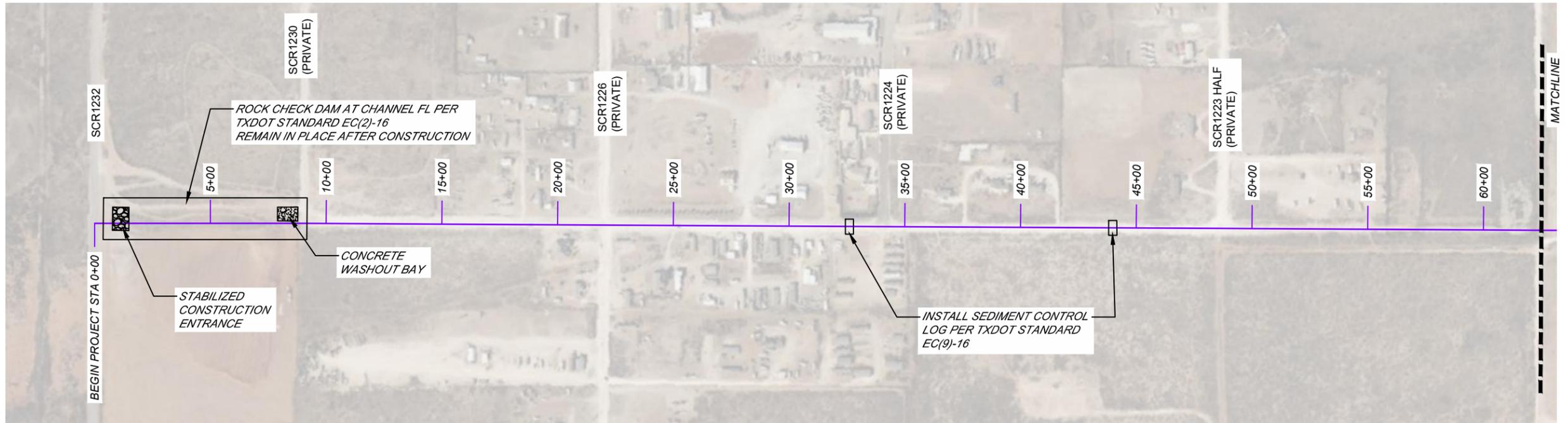
3 SECTION A-A
NOT TO SCALE



DRIVEWAY SUMMARY		
STA	TYPE	MATERIAL
14+73.28	COMMERCIAL	FELXIBLE BASE
18+41.99	COMMERCIAL	FELXIBLE BASE
19+53.04	RESIDENTIAL	FELXIBLE BASE
24+99.39	RESIDENTIAL	ASPHALT
28+18.11	COMMERCIAL	FELXIBLE BASE
28+30.09	RESIDENTIAL	FELXIBLE BASE
30+46.18	RESIDENTIAL	FELXIBLE BASE
31+58.57	COMMERCIAL	FELXIBLE BASE
34+05.72	COMMERCIAL	FELXIBLE BASE
37+60.53	RESIDENTIAL	FELXIBLE BASE
41+58.73	RESIDENTIAL	FELXIBLE BASE
48+51.25	COMMERCIAL	FELXIBLE BASE
55+04.82	COMMERCIAL	FELXIBLE BASE
110+60.47	COMMERCIAL	FELXIBLE BASE

REVISIONS (OR CHANGE NOTICES)	DATE	BY
IFC ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR ISSUED FOR REVIEW	9-1-23	CSC
R-X DESCRIPTION		

TYPICAL DRIVEWAY SECTIONS	
HORIZONTAL SCALE: NTS	VERTICAL SCALE: NTS
PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC




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 TX #F-19848 | ND #28610PE | OK #8561PE

IFC	ISSUED FOR CONSTRUCTION	10-4-23	CSC
IFR	ISSUED FOR REVIEW	9-1-23	CSC
R-X	DESCRIPTION	DATE	BY
REVISIONS (OR CHANGE NOTICES)			


 MIDLAND COUNTY
 DEPARTMENT OF PUBLIC WORKS
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 MIDLAND, TX 79701

**WEST COUNTY ROAD 130 EXTENSION
 FROM SOUTH COUNTY ROAD 1232
 TO SOUTH COUNTY ROAD 1210**

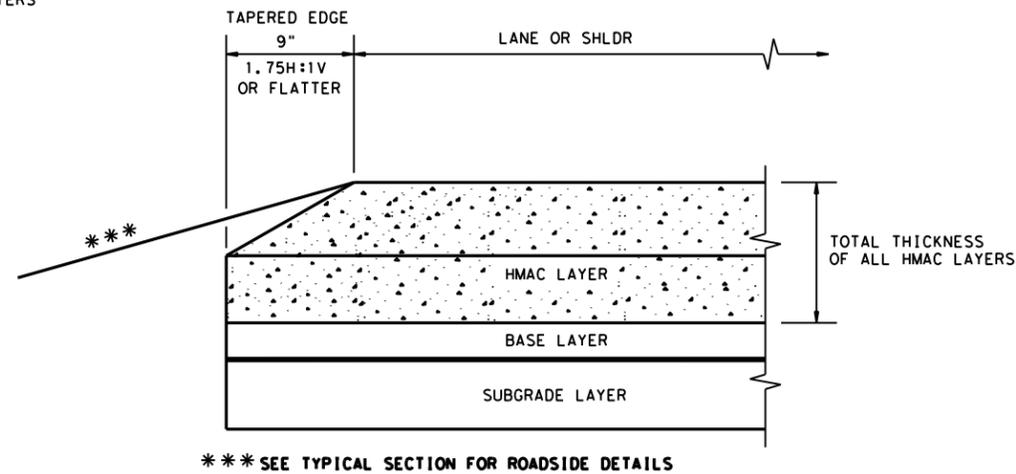
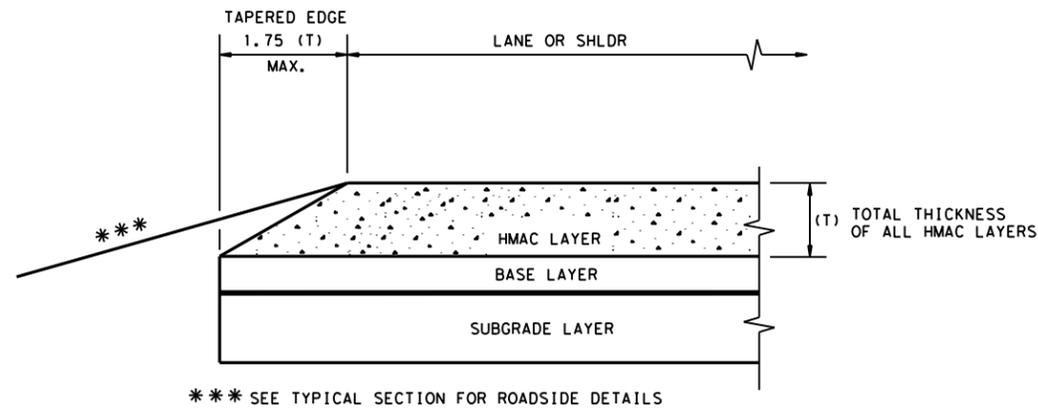
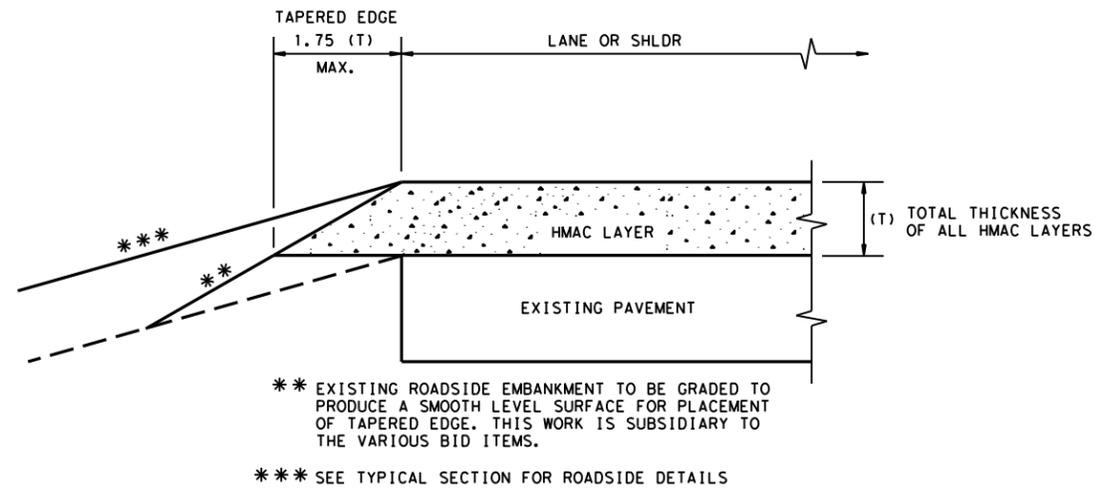
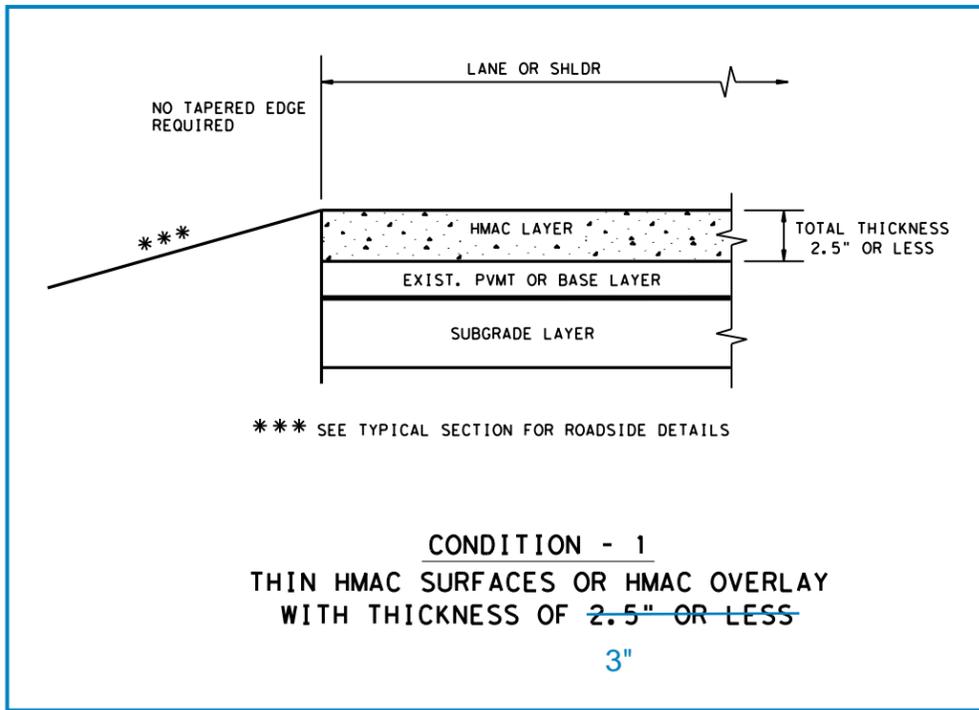
EROSION CONTROL	
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PRINT DATE: 10/4/2023	DESIGNED BY: ZZ
PROJECT NO.: 23-170	CHECKED BY: CSC
SUBSET: CIVIL	APPROVED BY: CSC

SHEET:
C-430

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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.



(NOT TO SCALE)

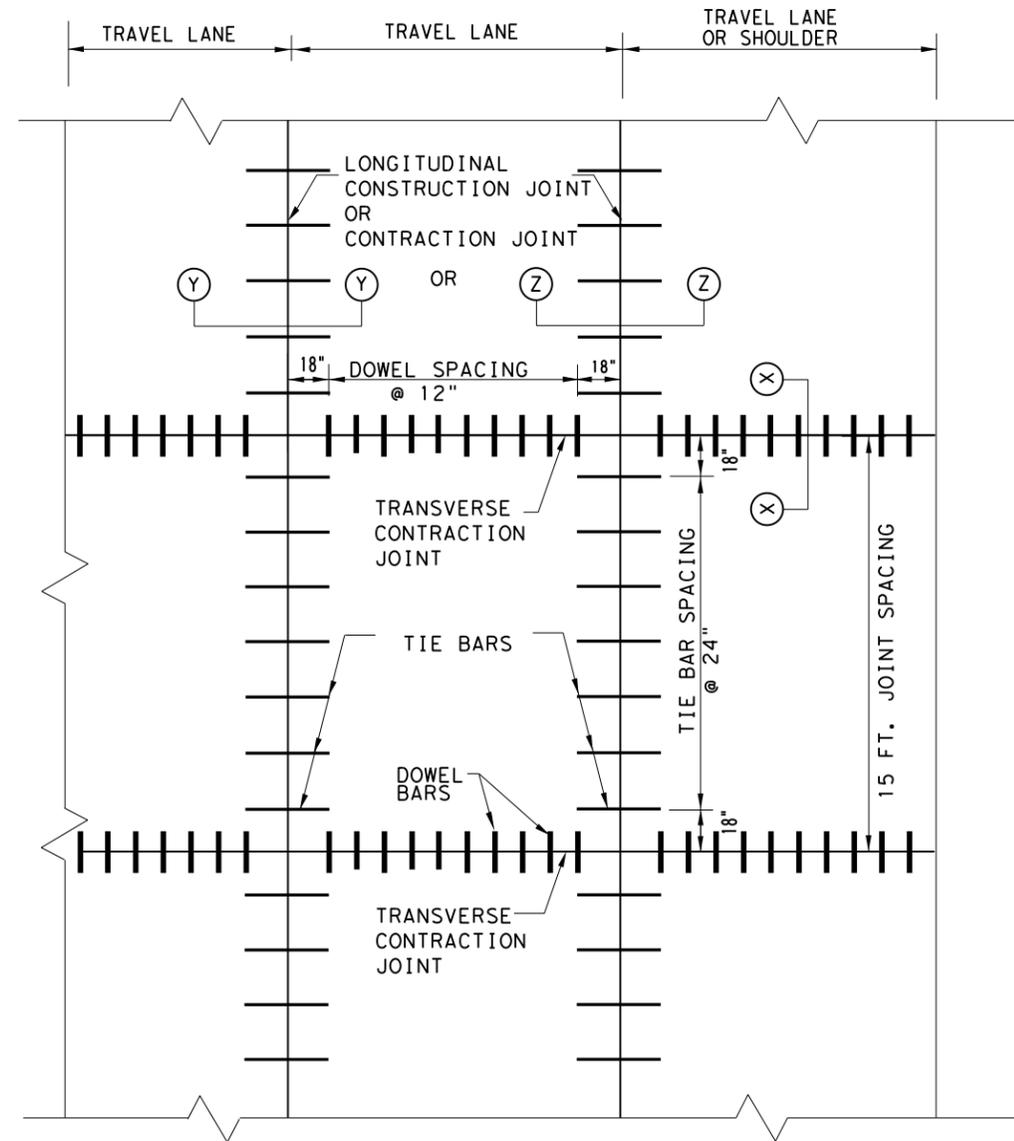
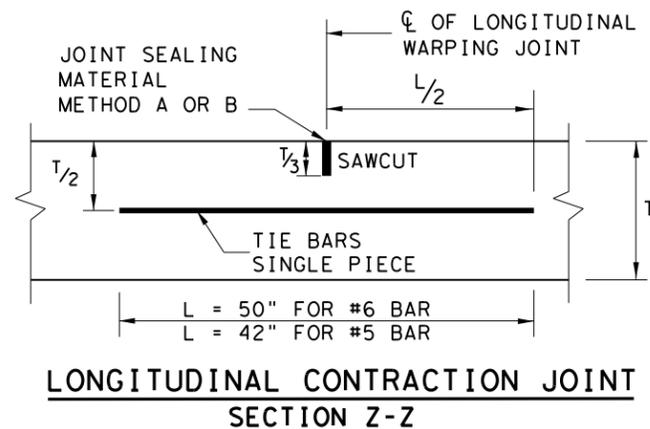
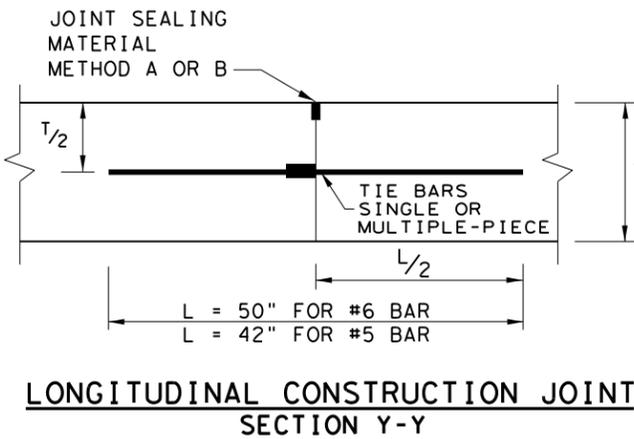
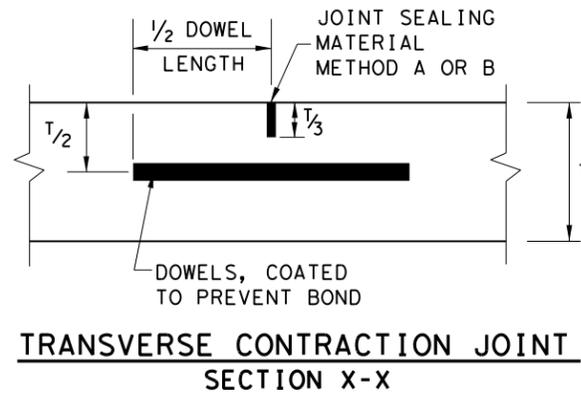
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TAPERED EDGE DETAILS HMAC PAVEMENT TE (HMAC) - 11					
FILE: tehmac11.dgn	DN: TxDOT	CK: RL	DW: KB	CK:	
© TxDOT January 2011	CONT	SECT	JOB	HIGHWAY	
REVISIONS		DIST	COUNTY	SHEET NO.	

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GENERAL NOTES

1. DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS AND THE CROWN CROSS-SLOPE SHALL BE SHOWN ELSEWHERE IN THE PLANS. PAVEMENTS WIDER THAN 100 FT. WITHOUT A FREE LONGITUDINAL JOINT ARE NOT COVERED BY THIS STANDARD.
2. FOR FURTHER INFORMATION REGARDING THE PLACEMENT OF CONCRETE AND LOAD TRANSFER DEVICES REFER TO THE GOVERNING SPECIFICATION FOR "CONCRETE PAVEMENT".
3. THE SPACING BETWEEN TRANSVERSE CONTRACTION JOINTS SHALL BE 15 FT. UNLESS OTHERWISE SHOWN IN THE PLANS.
4. TRANSVERSE CONSTRUCTION JOINTS MAY BE FORMED BY USE OF METAL OR WOOD FORMS EQUAL IN DEPTH TO THE DEPTH OF PAVEMENT, OR BY METHODS APPROVED BY THE ENGINEER.
5. USE HAND-OPERATED IMMERSION VIBRATORS TO CONSOLIDATE THE CONCRETE ADJACENT TO ALL THE FORMED JOINTS.
6. PAVEMENT WIDTHS OF MORE THAN 15 FT. SHALL HAVE A LONGITUDINAL JOINT (SECTION Z-Z OR SECTION Y-Y). THESE JOINTS SHALL BE LOCATED WITHIN 6 IN. OF THE LANE LINE UNLESS THE JOINT LOCATION IS SHOWN ELSEWHERE ON THE PLANS.
7. THE JOINT BETWEEN OUTSIDE LANE AND SHOULDER SHALL BE A LONGITUDINAL CONTRACTION JOINT (SECTION Z-Z) UNLESS OTHERWISE SHOWN IN THE PLANS. THE SAW CUT DEPTH FOR THE LONGITUDINAL CONTRACTION JOINT (SECTION Z-Z) SHALL BE ONE THIRD OF THE SLAB THICKNESS (T/3).
8. WHEN TYING CONCRETE GUTTER AT A LONGITUDINAL JOINT, THE TIE BAR LENGTH OR POSITION MAY BE ADJUSTED. PROVIDE 3 IN. OF CONCRETE COVER FROM THE BACK OF GUTTER TO THE END OF TIE BAR.
9. REPLACE MISSING OR DAMAGED TIE BARS WITHOUT ADDITIONAL COMPENSATION BY DRILLING MIN. 10 IN. DEEP AND GROUTING TIE BARS WITH TYPE III, CLASS C EPOXY. MEET THE PULL-OUT TEST REQUIREMENTS IN ITEM 361.
10. WHEN AN MONOLITHIC CURB IS SPECIFIED, THE JOINT IN THE CURB SHALL COINCIDE WITH PAVEMENT JOINTS AND MAY BE FORMED BY ANY MEANS APPROVED BY THE ENGINEER.
11. DOWEL BAR PLACEMENT TOLERANCE SHALL BE +/- 1/4 IN. HORIZONTALLY AND VERTICALLY UNLESS OTHERWISE SPECIFIED. WHERE DOWEL BAR BASKETS ARE USED, REMOVE THE SHIPPING WIRES.
12. THE DETAIL FOR JOINT SEALANT AND RESERVOIR IS SHOWN ON STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."



TYPICAL PAVEMENT LAYOUT
PLAN VIEW (NOT TO SCALE)

SLAB THICKNESS T (IN.)	BAR DIA. AND LENGTH	AVERAGE SPACING (IN.)
6 to 7.5	1" X 18"	12
8 to 10	1 1/4" X 18"	12
>= 10.5	1 1/2" X 18"	12

SLAB THICKNESS T (IN.)	BAR SIZE	AVERAGE SPACING (IN.)
6 to 7.5	#5	24
>= 8	#6	24

SHEET 1 OF 2



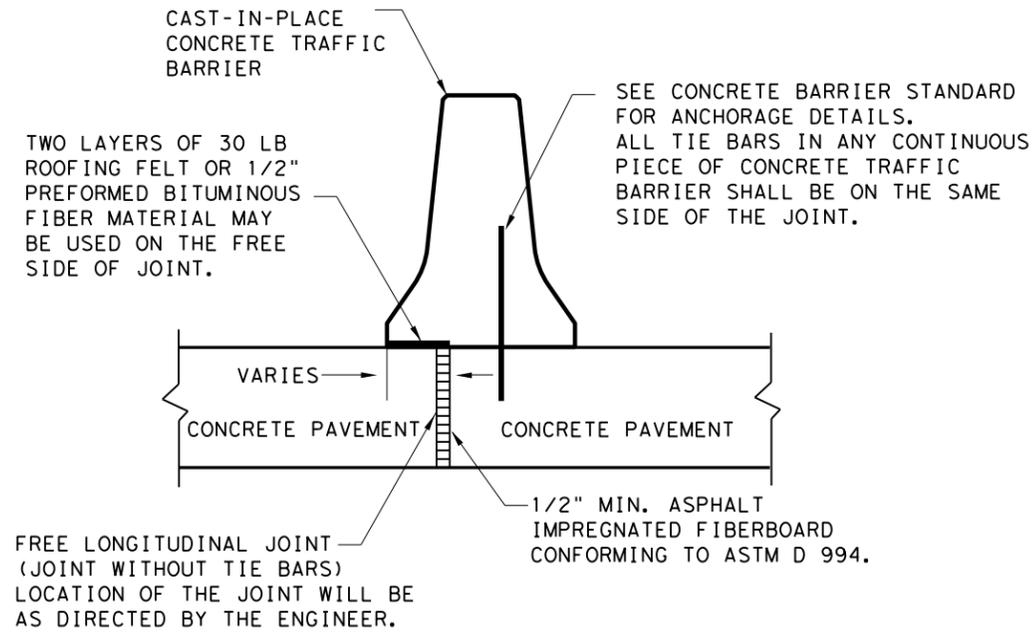
CONCRETE PAVEMENT DETAILS
CONTRACTION DESIGN
T-6 to 12 INCHES

CPCD-14

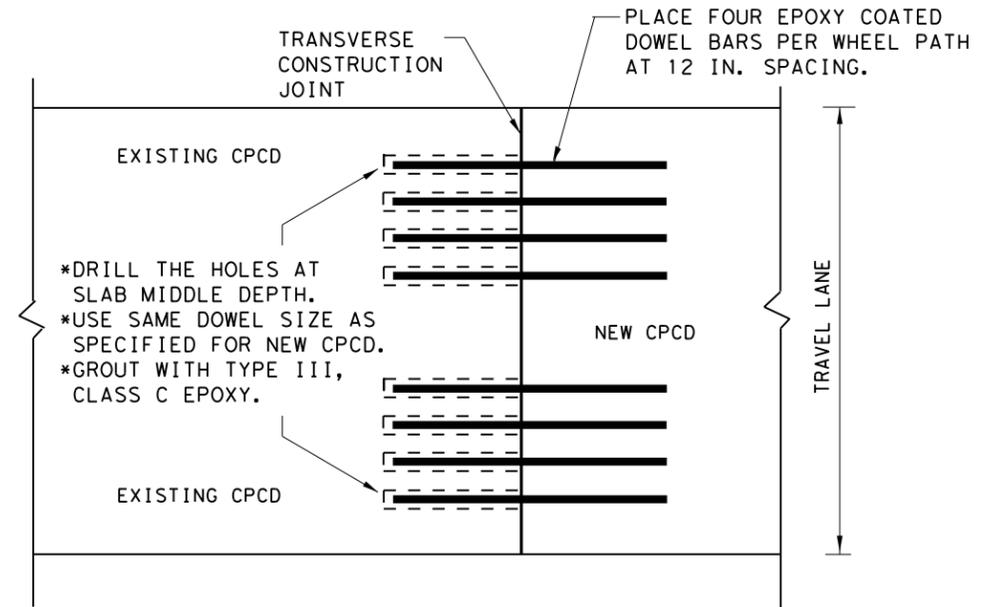
FILE: cpcd14.dgn	DN: TxDOT	DN: HC	DN: HC	CK: AN
© TxDOT: DECEMBER 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY	SHEET NO.	

DATE:
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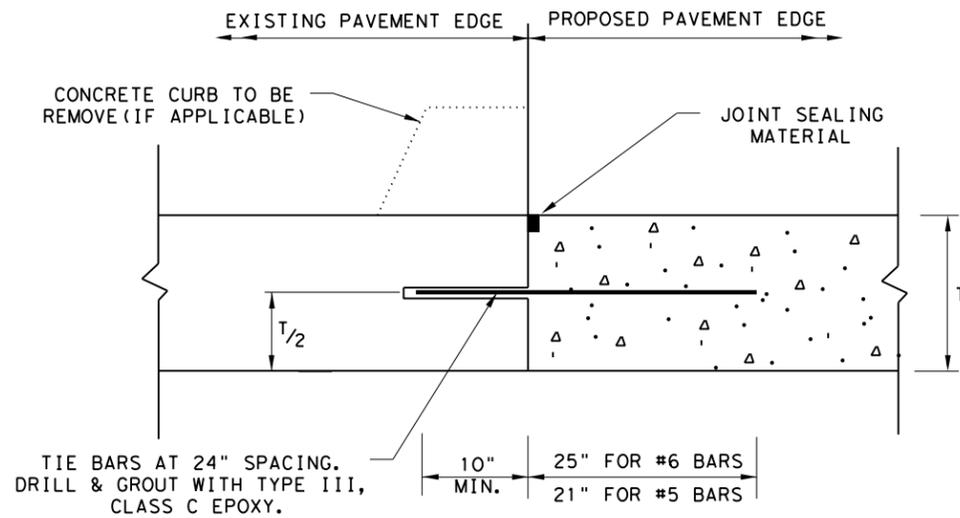
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FREE LONGITUDINAL JOINT DETAIL

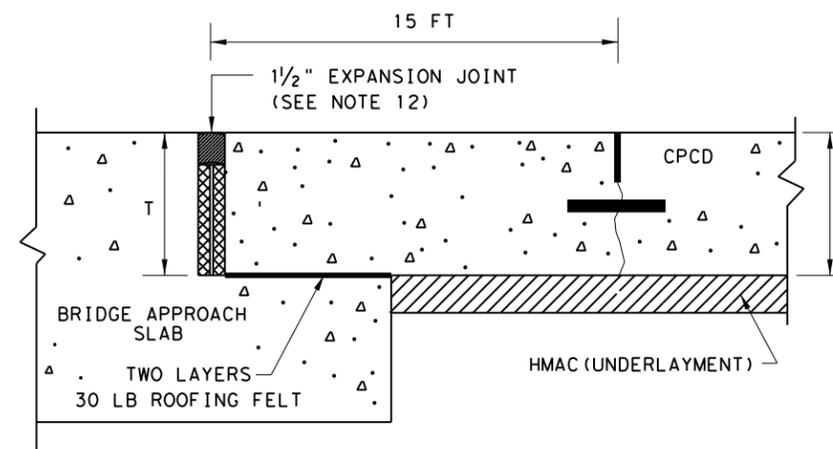


**TRANSVERSE JOINT DETAIL
EXISTING CPCD TO NEW CPCD
PLAN VIEW (NOT TO SCALE)**



1. BEFORE WIDENING WORK, DEMONSTRATE THAT THE BOND STRENGTH OF THE EPOXY-GROUTED TIE BARS MEETS THE REQUIREMENTS OF PULL-OUT TEST SPECIFIED IN ITEM 361.
2. SPACE TIE BARS AT 24" SPACING. USE #6 BARS FOR 8" AND THICKER SLABS, USE #5 BARS FOR LESS THAN 8" THICK SLABS.
3. THE TRANSVERSE JOINTS OF PROPOSED PAVEMENT SHALL COINCIDE WITH EXISTING PAVEMENT JOINTS UNLESS OTHERWISE SHOWN ON THE PLANS.

LONGITUDINAL WIDENING JOINT DETAIL



**TRANSVERSE EXPANSION JOINT DETAIL
AT BRIDGE APPROACH**

SHEET 2 OF 2



**CONCRETE PAVEMENT DETAILS
CONTRACTION DESIGN
T-6 to 12 INCHES**

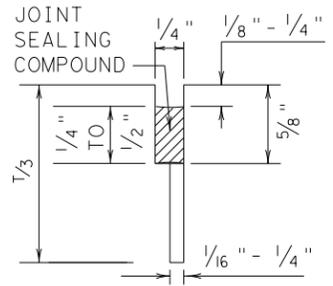
CPCD-14

FILE: cpcd14.dgn	DN: TxDOT	DN: HC	DW: HC	CK: AN
© TxDOT: DECEMBER 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

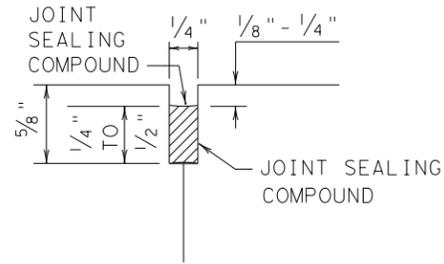
DATE:
FILE:

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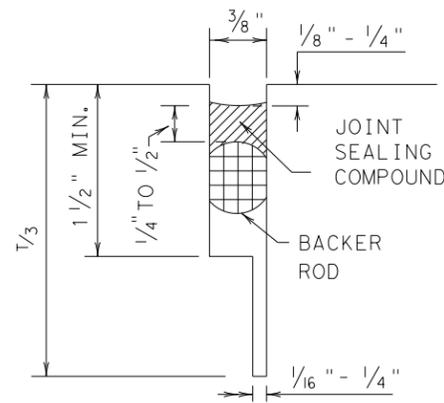
METHOD B: JOINT SEALING COMPOUND



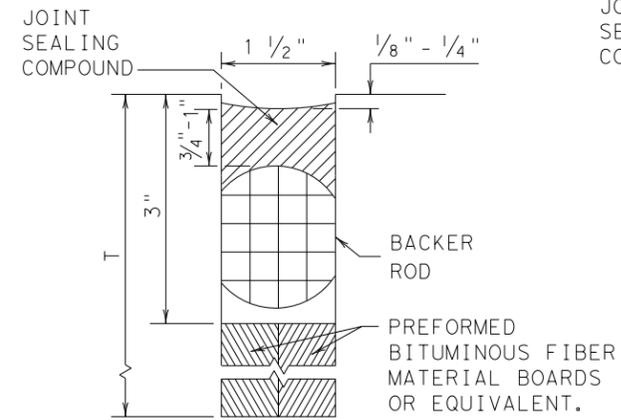
LONGITUDINAL SAWED CONTRACTION JOINT



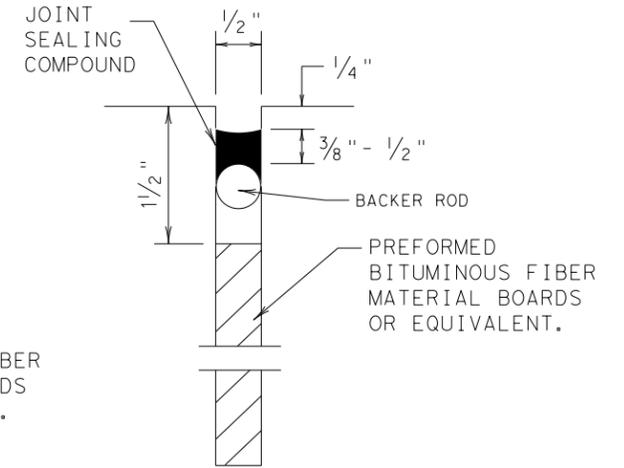
LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT

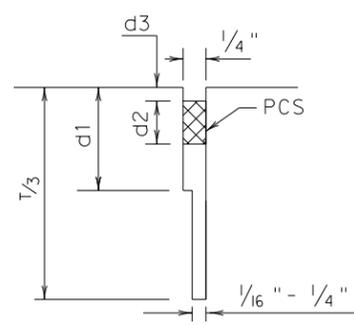


TRANSVERSE FORMED EXPANSION JOINT

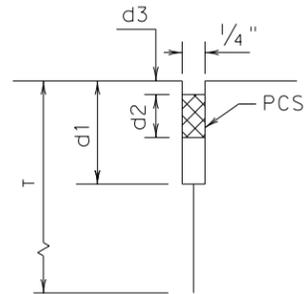


FORMED ISOLATION JOINT

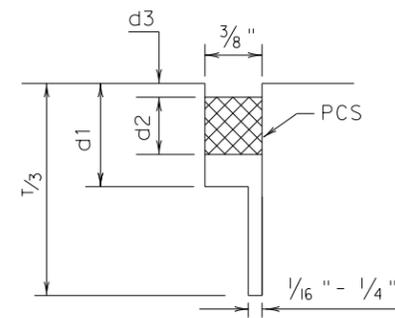
METHOD A: PREFORMED COMPRESSION SEALS (PCS) (DMS-6310 CLASS 6)



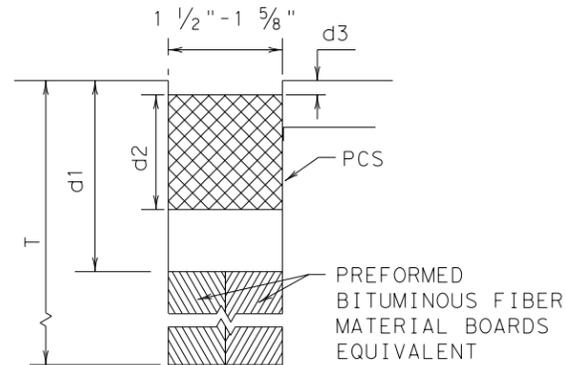
LONGITUDINAL SAWED CONTRACTION JOINT



LONGITUDINAL CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT



TRANSVERSE FORMED EXPANSION JOINT

GENERAL NOTES

- UNLESS OTHERWISE SHOWN IN THE PLANS, EITHER METHOD "A" OR METHOD "B" MAY BE USED.
- THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
- THE JOINT RESERVOIR FOR SEALANT OR PCS SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS AND THE SAWED JOINTS.
- DIMENSIONS d1, d2, AND d3 SHOWN IN METHOD A SHALL BE IN ACCORDANCE WITH THE PREFORMED COMPRESSION SEAL MANUFACTURER'S RECOMMENDATION.
- REFER TO DMS-6310 "JOINT SEALANTS AND FILLERS" FOR THE CLASSIFICATIONS.
- FOR SAWED LONGITUDINAL JOINT, LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT, USE JOINT SEALANT CLASS 5 OR 8 UNLESS OTHERWISE SHOWN ON THE PLAN OR APPROVED.
- FOR TRANSVERSE SAWED CONTRACTION, TRANSVERSE FORMED EXPANSION JOINT, AND ISOLATION JOINT USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4,5,7,OR 8 FOR MAINTAINING EXISTING JOINTS.
- THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 "CLEANING AND SEALING JOINTS" OR ITEM 713 "CLEANING AND SEALING JOINTS AND CRACKS (CONCRETE PAVEMENT)".
- ISOLATION JOINTS ACCOMMODATE HORIZONTAL AND VERTICAL MOVEMENTS THAT OCCUR BETWEEN A PAVEMENT AND A STRUCTURE. ISOLATION JOINTS MAY BE USED FOR BRIDGE ABUTMENTS, INTERSECTIONS, CURB AND GUTTER, OLD AND NEW PAVEMENTS, OR AROUND DRAINAGE INLETS, MANHOLES, FOOTINGS AND LIGHTING STRUCTURES.

DATE:
FILE:

		Design Division Standard	
CONCRETE PAVING DETAILS JOINT SEALS JS-14			
FILE: js14.dgn	DN: TxDOT	DN: HC	CK: AN
© TxDOT: DECEMBER 2014	CONT	SECT	HIGHWAY
REVISIONS			
DIST	COUNTY	SHEET NO.	

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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 Add'l Pipe			
		W	X	Y	L	Reinf (Lbs)	Conc (CY)	X and W	Reinf (Lbs)	Conc (CY)
2:1	12"	4'-7 1/2"	2'-6"	2'-10"	3'-3 1/4"	88	0.6	1'-9"	20	0.2
	15"	5'-5 3/4"	2'-9 1/2"	3'-4"	3'-10 1/4"	103	0.7	2'-2"	24	0.3
	18"	6'-4 1/4"	3'-1"	3'-10"	4'-5"	124	0.9	2'-8"	32	0.3
	21"	7'-2 3/4"	3'-4 1/2"	4'-4"	5'-0"	143	1.1	3'-1"	43	0.4
	24"	8'-2 1/2"	3'-9 1/2"	4'-10"	5'-7"	164	1.3	3'-7"	50	0.5
	27"	9'-1"	4'-1"	5'-4"	6'-2"	179	1.5	3'-11"	56	0.6
	30"	9'-11 1/2"	4'-4 1/2"	5'-10"	6'-8 3/4"	203	1.7	4'-4"	65	0.8
	33"	10'-10"	4'-8"	6'-4"	7'-3 3/4"	224	2.0	4'-8"	71	0.9
	36"	11'-8 1/4"	4'-11 1/2"	6'-10"	7'-10 3/4"	249	2.2	5'-1"	81	1.0
	42"	13'-5 1/4"	5'-6 1/2"	7'-10"	9'-0 1/2"	298	2.8	5'-10"	97	1.3
	48"	15'-9"	6'-1 1/2"	9'-4"	10'-9 1/4"	360	3.8	6'-7"	117	1.7
	54"	17'-5 3/4"	6'-8 1/2"	10'-4"	11'-11 1/4"	427	4.5	7'-6"	151	2.1
60"	19'-2 3/4"	7'-3 1/2"	11'-4"	13'-1"	481	5.3	8'-3"	174	2.5	
66"	20'-11 1/2"	7'-10 1/2"	12'-4"	14'-3"	544	6.2	8'-9"	194	2.9	
72"	22'-8 1/2"	8'-5 1/2"	13'-4"	15'-4 3/4"	601	7.1	9'-4"	213	3.3	
3:1	12"	6'-3"	2'-6"	4'-3"	4'-11"	118	0.8	1'-9"	22	0.2
	15"	7'-5"	2'-9 1/2"	5'-0"	5'-9 1/4"	137	1.1	2'-2"	28	0.3
	18"	8'-6 3/4"	3'-1"	5'-9"	6'-7 3/4"	170	1.3	2'-8"	37	0.5
	21"	9'-8 3/4"	3'-4 1/2"	6'-6"	7'-6"	195	1.6	3'-1"	48	0.6
	24"	11'-0"	3'-9 1/2"	7'-3"	8'-4 1/2"	227	2.0	3'-7"	58	0.7
	27"	12'-2"	4'-1"	8'-0"	9'-2 3/4"	251	2.3	3'-11"	67	0.8
	30"	13'-4"	4'-4 1/2"	8'-9"	10'-1 1/4"	293	2.7	4'-4"	77	1.0
	33"	14'-5 3/4"	4'-8"	9'-6"	10'-11 3/4"	318	3.1	4'-8"	84	1.2
	36"	15'-7 3/4"	4'-11 1/2"	10'-3"	11'-10"	351	3.5	5'-1"	96	1.4
	42"	17'-11 1/2"	5'-6 1/2"	11'-9"	13'-6 3/4"	432	4.5	5'-10"	119	1.7
	48"	21'-1 3/4"	6'-1 1/2"	14'-0"	16'-2"	537	6.1	6'-7"	146	2.3
	54"	23'-5 1/2"	6'-8 1/2"	15'-6"	17'-10 3/4"	630	7.3	7'-6"	186	2.9
60"	25'-9 1/4"	7'-3 1/2"	17'-0"	19'-7 1/2"	719	8.7	8'-3"	219	3.4	
66"	28'-1"	7'-10 1/2"	18'-6"	21'-4 1/4"	811	10.1	8'-9"	242	3.9	
72"	30'-4 3/4"	8'-5 1/2"	20'-0"	23'-1 1/4"	924	11.7	9'-4"	272	4.4	
4:1	12"	7'-10 3/4"	2'-6"	5'-8"	6'-6 1/2"	148	1.1	1'-9"	24	0.3
	15"	9'-4"	2'-9 1/2"	6'-8"	7'-8 1/2"	181	1.5	2'-2"	32	0.4
	18"	10'-9 1/2"	3'-1"	7'-8"	8'-10 1/4"	221	1.9	2'-8"	42	0.5
	21"	12'-2 3/4"	3'-4 1/2"	8'-8"	10'-0"	260	2.3	3'-1"	57	0.7
	24"	13'-9 1/2"	3'-9 1/2"	9'-8"	11'-2"	301	2.8	3'-7"	67	0.9
	27"	15'-3"	4'-1"	10'-8"	12'-3 3/4"	334	3.3	3'-11"	77	1.0
	30"	16'-8 1/4"	4'-4 1/2"	11'-8"	13'-5 3/4"	385	3.8	4'-4"	89	1.3
	33"	18'-1 3/4"	4'-8"	12'-8"	14'-7 1/2"	425	4.5	4'-8"	101	1.4
	36"	19'-7"	4'-11 1/2"	13'-8"	15'-9 1/4"	472	5.1	5'-1"	115	1.7
	42"	22'-5 3/4"	5'-6 1/2"	15'-8"	18'-1"	583	6.5	5'-10"	141	2.1
	48"	26'-6 1/4"	6'-1 1/2"	18'-8"	21'-6 3/4"	730	8.9	6'-7"	175	2.8
	54"	29'-5"	6'-8 1/2"	20'-8"	23'-10 1/4"	875	10.7	7'-6"	226	3.6
60"	32'-3 3/4"	7'-3 1/2"	22'-8"	26'-2"	996	12.7	8'-3"	264	4.3	
66"	35'-2 1/2"	7'-10 1/2"	24'-8"	28'-5 3/4"	1,140	14.9	8'-9"	300	4.9	
72"	38'-1 1/4"	8'-5 1/2"	26'-8"	30'-9 1/2"	1,297	17.3	9'-4"	334	5.6	
6:1	12"	11'-2"	2'-6"	8'-6"	9'-9 3/4"	224	1.9	1'-9"	28	0.4
	15"	13'-2 1/4"	2'-9 1/2"	10'-0"	11'-6 1/2"	268	2.5	2'-2"	37	0.5
	18"	15'-2 1/2"	3'-1"	11'-6"	13'-3 1/4"	330	3.2	2'-8"	50	0.7
	21"	17'-2 3/4"	3'-4 1/2"	13'-0"	15'-0 1/4"	387	3.9	3'-1"	69	0.9
	24"	19'-4 1/2"	3'-9 1/2"	14'-6"	16'-9"	453	4.8	3'-7"	80	1.2
	27"	21'-4 3/4"	4'-1"	16'-0"	18'-5 3/4"	512	5.7	3'-11"	96	1.4
	30"	23'-5 1/4"	4'-4 1/2"	17'-6"	20'-2 1/2"	593	6.7	4'-4"	110	1.7
	33"	25'-5 1/2"	4'-8"	19'-0"	21'-11 1/4"	675	7.8	4'-8"	127	2.0
	36"	27'-5 3/4"	4'-11 1/2"	20'-6"	23'-8"	735	9.0	5'-1"	144	2.3
	42"	31'-6 1/4"	5'-6 1/2"	23'-6"	27'-1 1/2"	922	11.5	5'-10"	179	3.0
	48"	37'-3 1/2"	6'-1 1/2"	28'-0"	32'-4"	1,191	15.9	6'-7"	231	4.0
	54"	41'-4 1/4"	6'-8 1/2"	31'-0"	35'-9 1/2"	1,424	19.2	7'-6"	300	5.0
60"	45'-4 3/4"	7'-3 1/2"	34'-0"	39'-3"	1,631	22.9	8'-3"	353	6.0	

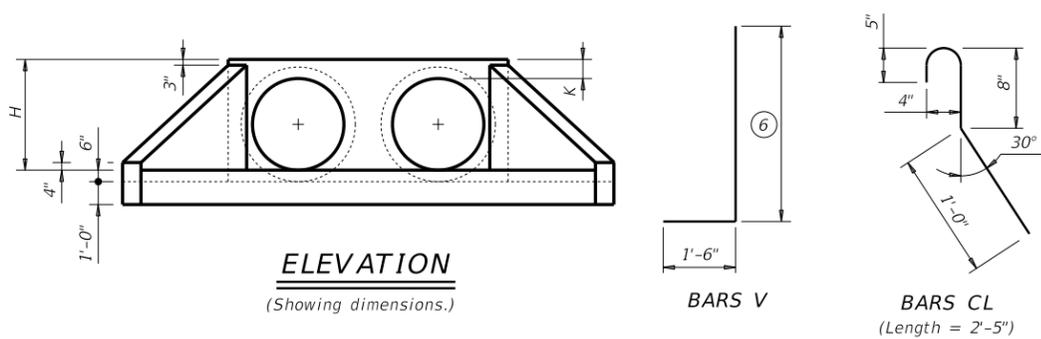
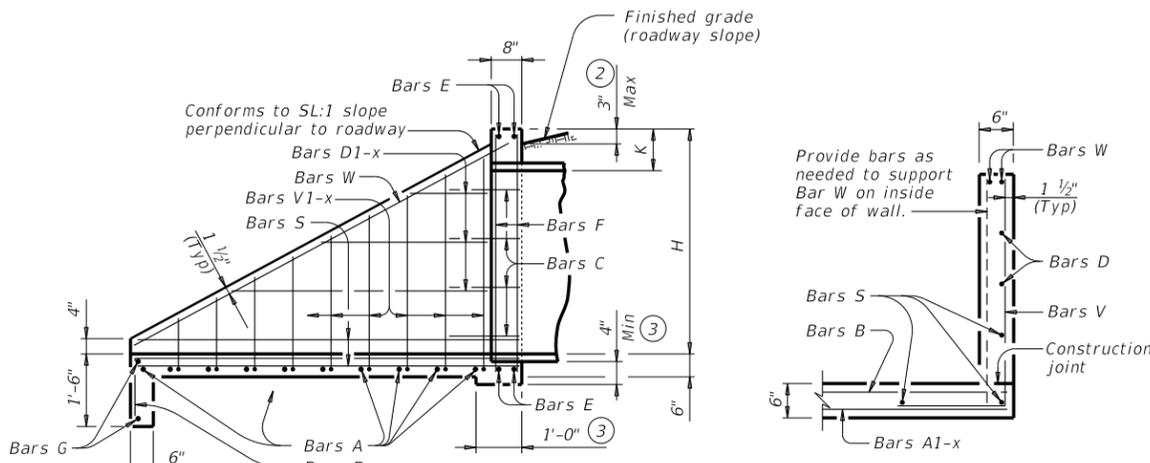
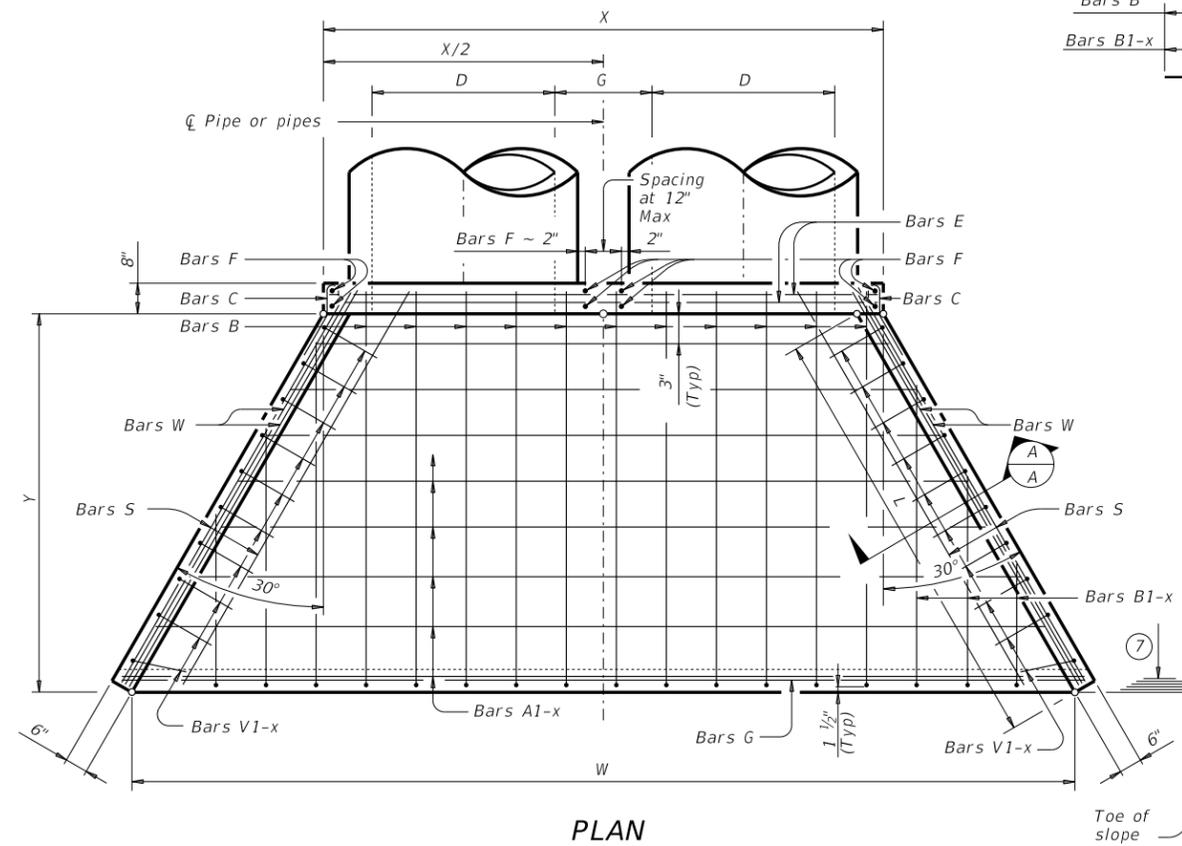
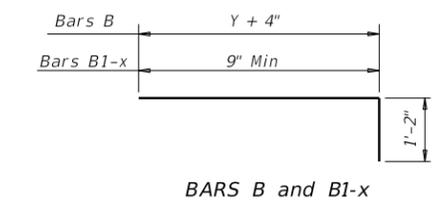


TABLE OF REINFORCING STEEL

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

Dia of Pipe (D)	G	K (4)	H
12"	0' - 9"	1' - 0"	2' - 0"
15"	0' - 11"	1' - 0"	2' - 3"
18"	1' - 2"	1' - 0"	2' - 6"
21"	1' - 4"	1' - 0"	2' - 9"
24"	1' - 7"	1' - 0"	3' - 0"
27"	1' - 8"	1' - 0"	3' - 3"
30"	1' - 10"	1' - 0"	3' - 6"
33"	1' - 11"	1' - 0"	3' - 9"
36"	2' - 1"	1' - 0"	4' - 0"
42"	2' - 4"	1' - 0"	4' - 6"
48"	2' - 7"	1' - 3"	5' - 3"
54"	3' - 0"	1' - 3"	5' - 9"
60"	3' - 3"	1' - 3"	6' - 3"
66"	3' - 3"	1' - 3"	6' - 9"
72"	3' - 4"	1' - 3"	7' - 3"



- Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
 - 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.
 - Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.
 - Dimensions shown are usual and maximum.
 - Quantities shown are for one structure end only (one headwall).
 - Min Length = $6" + 3" \times \left(\frac{12 \times H - 7}{12 \times L} \right)$
Max Length = $12 \times H - 3" \times \left(\frac{12 \times H - 7}{12 \times L} \right) - 1"$
 - 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

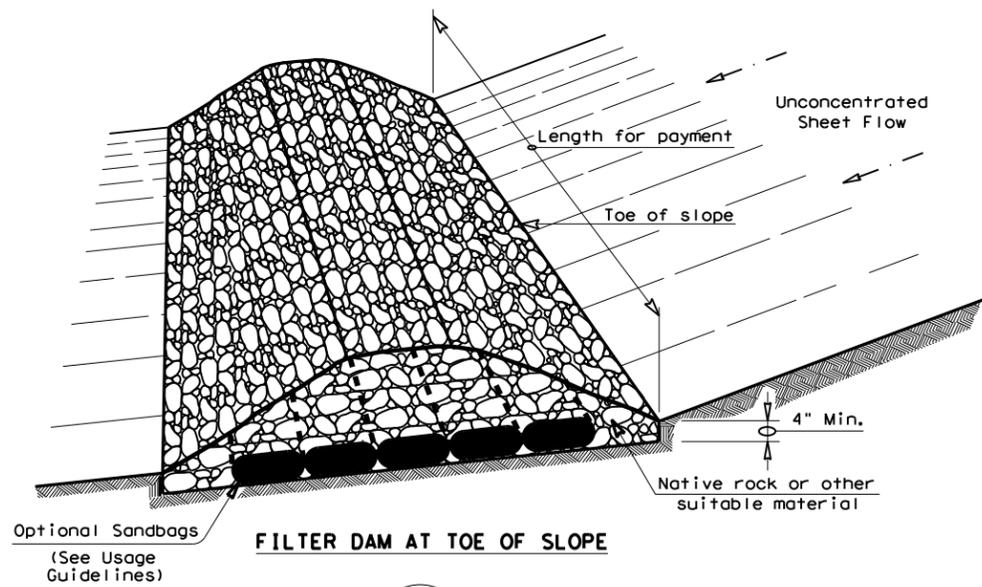
CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

CH-FW-0

FILE: CD-CH-FW-0-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

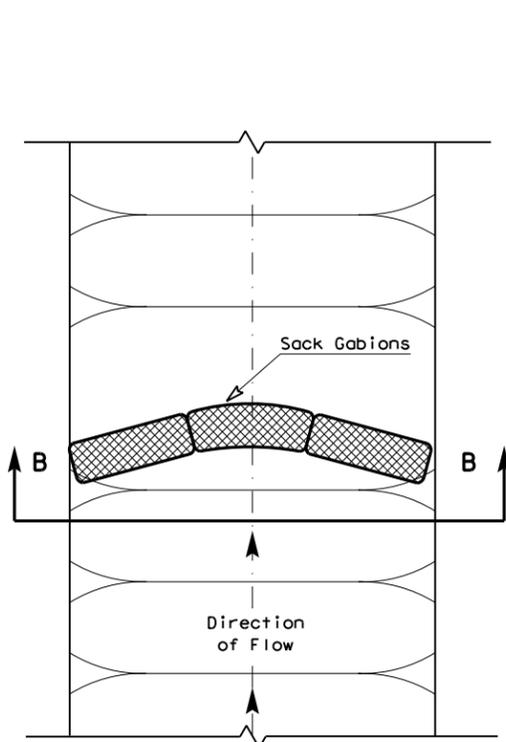
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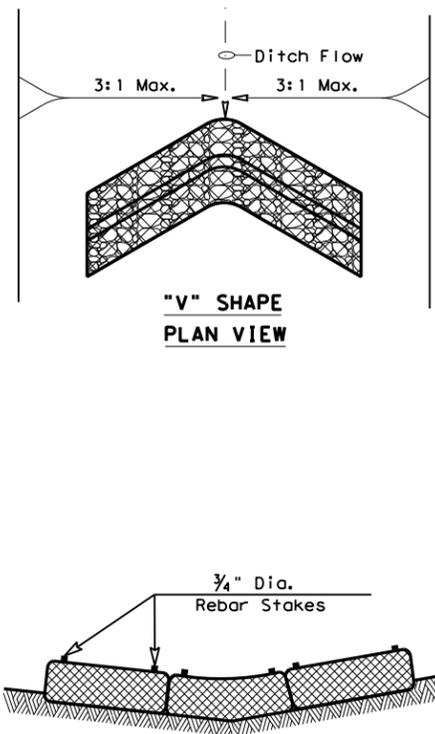


FILTER DAM AT TOE OF SLOPE

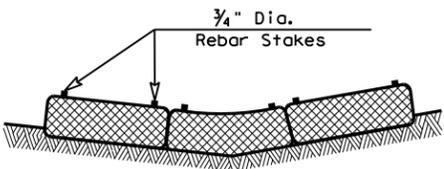
(RFD1)



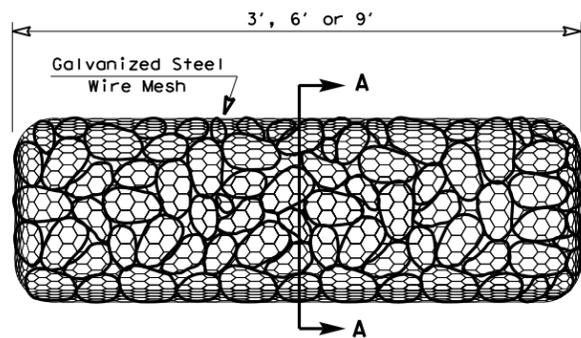
PLAN VIEW



"V" SHAPE PLAN VIEW

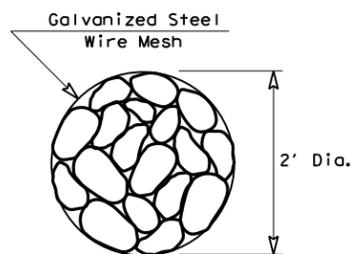


SECTION B-B

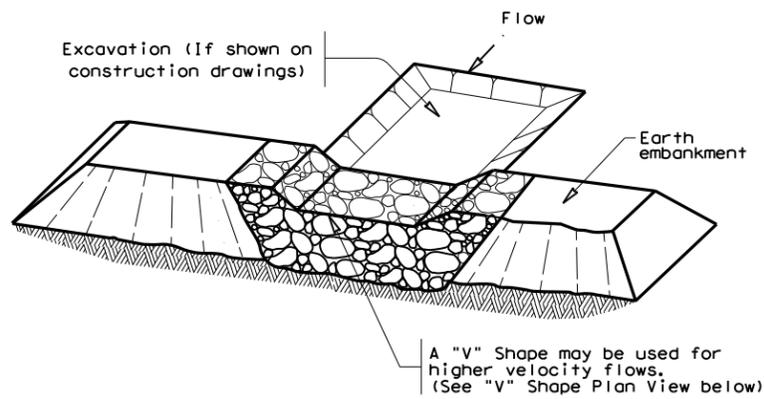


TYPE 4 (SACK GABIONS)

(RFD4)

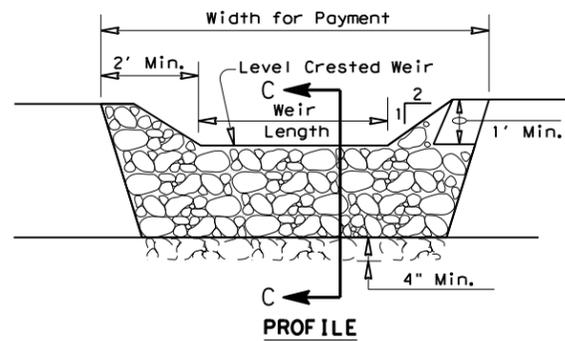


SECTION A-A

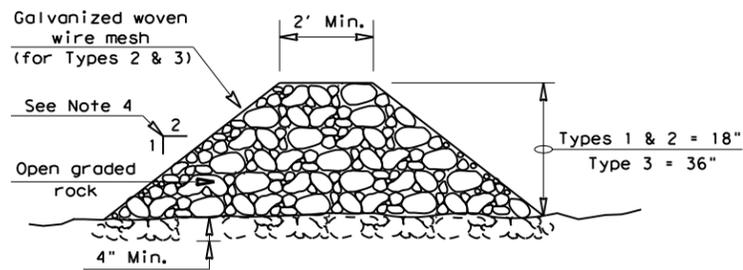


FILTER DAM AT SEDIMENT TRAP

(RFD2) OR (RFD1)



PROFILE



SECTION C-C

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/FT² of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

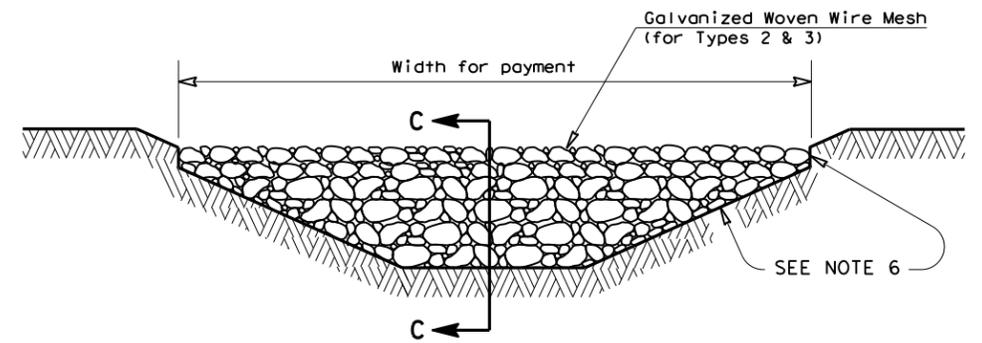
Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximately 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.



FILTER DAM AT CHANNEL SECTIONS

(RFD3) OR (RFD2) OR (RFD1)

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 3/4" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 1/2" x 3 1/4".
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

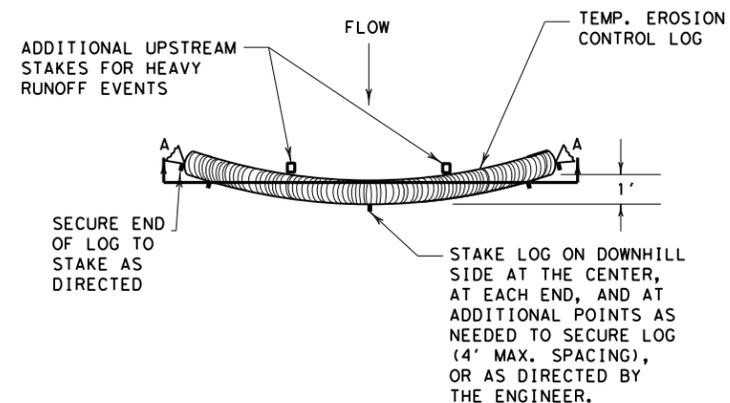
PLAN SHEET LEGEND

- Type 1 Rock Filter Dam (RFD1)
- Type 2 Rock Filter Dam (RFD2)
- Type 3 Rock Filter Dam (RFD3)
- Type 4 Rock Filter Dam (RFD4)

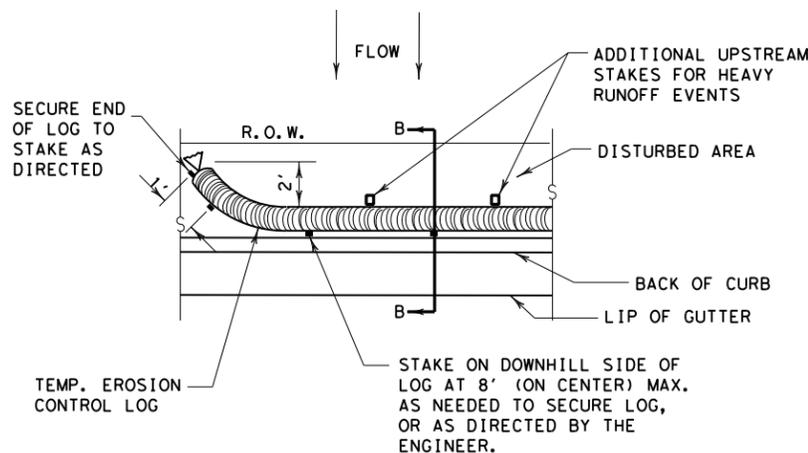
		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES			
ROCK FILTER DAMS			
EC(2) - 16			
FILE: ec216	DN: TxDOT	CK: KM	DW: VP
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS			HIGHWAY
	DIST	COUNTY	SHEET NO.

DATE: FILE:

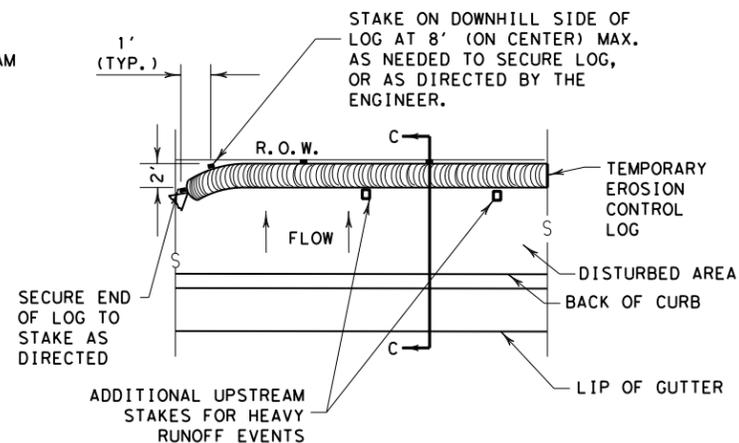
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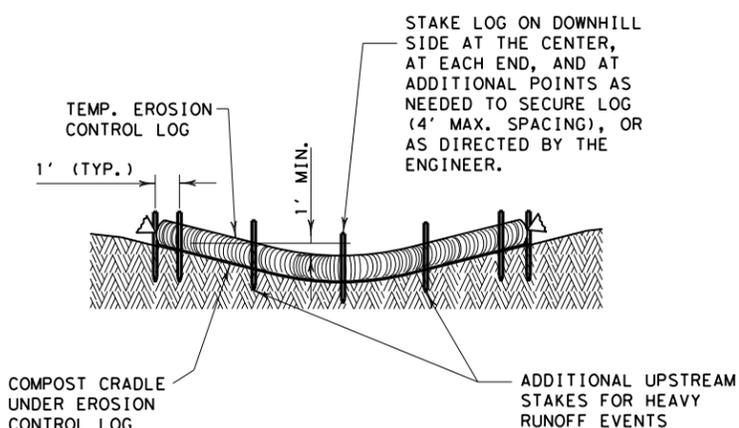
PLAN VIEW



PLAN VIEW



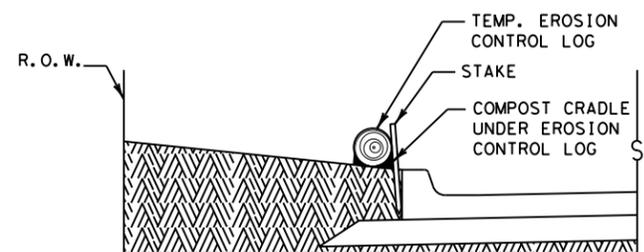
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

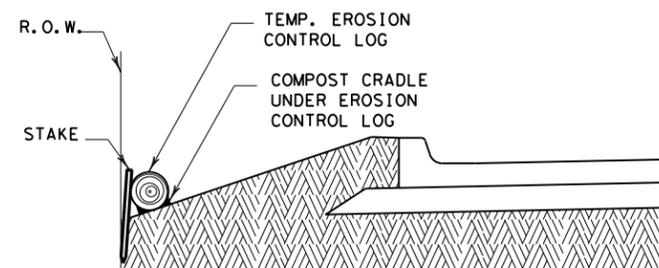
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

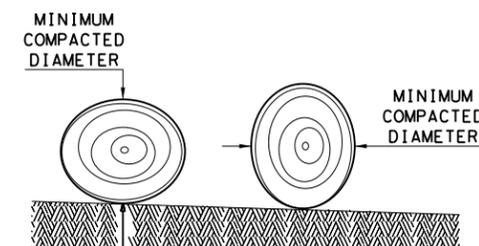
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

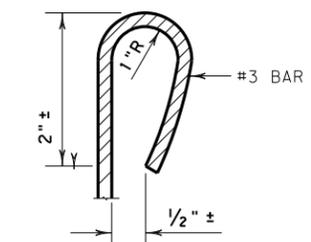
CL-ROW



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SHEET 1 OF 3

- LEGEND**
- CL-D EROSION CONTROL LOG DAM
 - CL-BOC EROSION CONTROL LOG AT BACK OF CURB
 - CL-ROW EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
 - CL-SST EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
 - CL-SSL EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
 - CL-DI EROSION CONTROL LOG AT DROP INLET
 - CL-CI EROSION CONTROL LOG AT CURB INLET
 - CL-GI EROSION CONTROL LOG AT CURB & GRATE INLET



REBAR STAKE DETAIL

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

GENERAL NOTES:

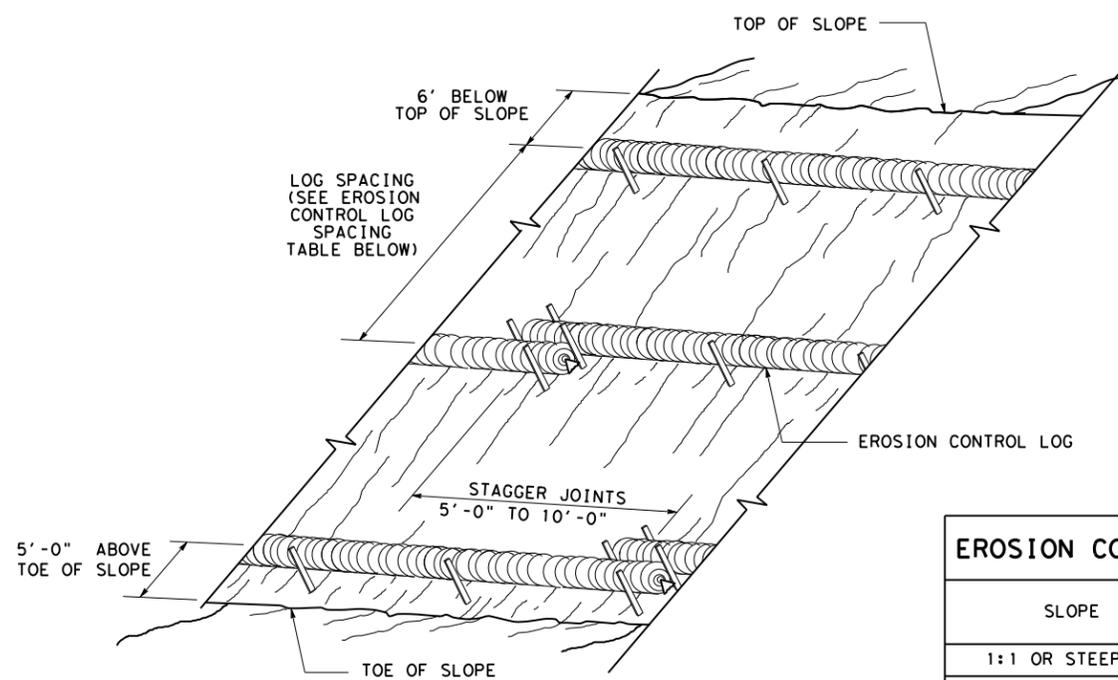
1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES			
EROSION CONTROL LOG			
EC (9) - 16			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS			HIGHWAY
	DIST	COUNTY	SHEET NO.

DATE: FILE:

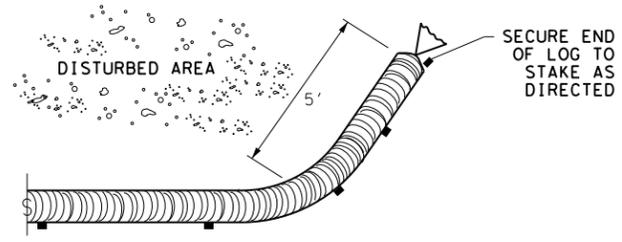
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**EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING**

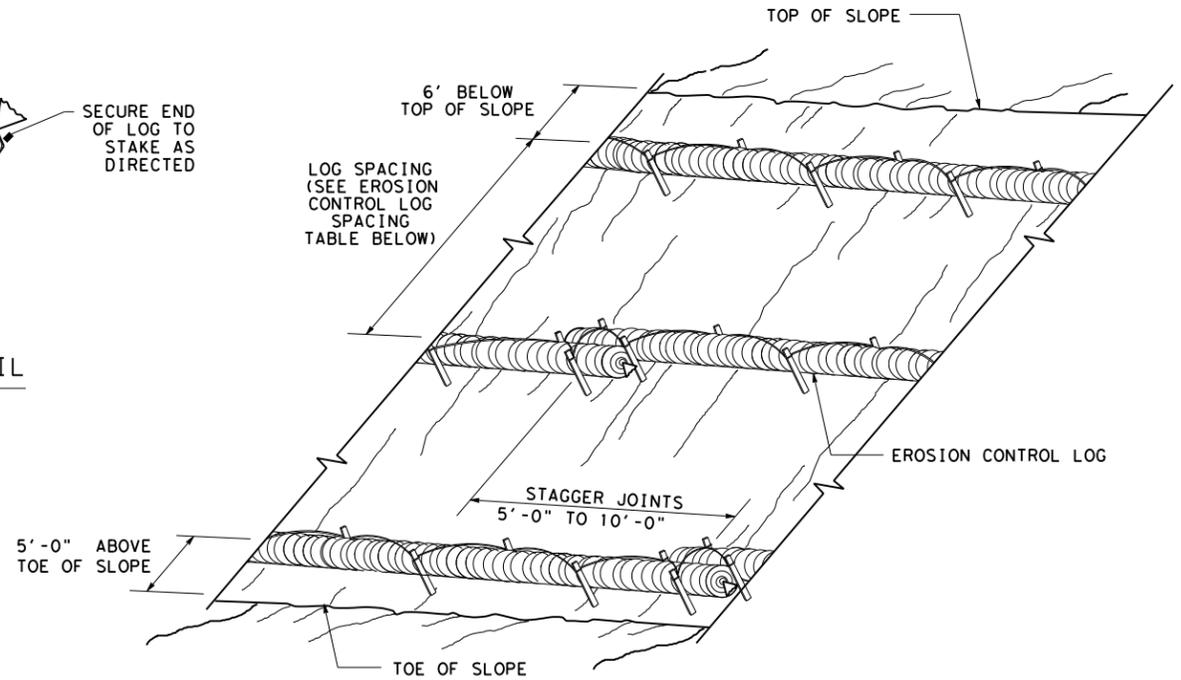
CL-SST



END SECTION RAP DETAIL

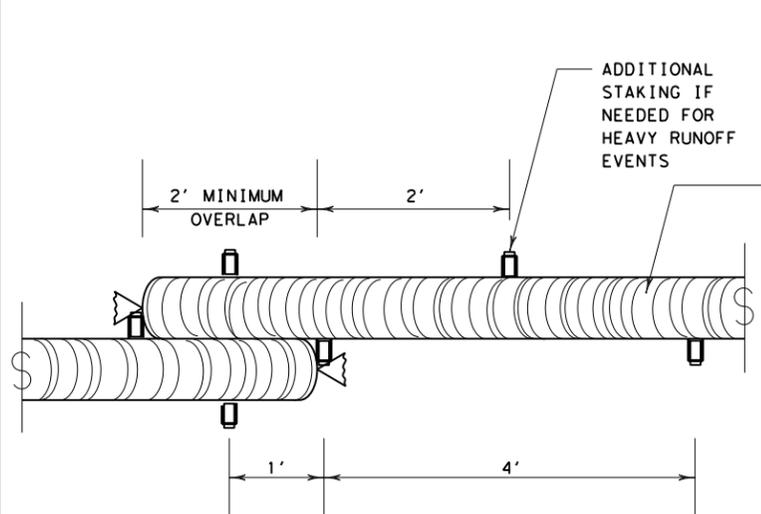
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



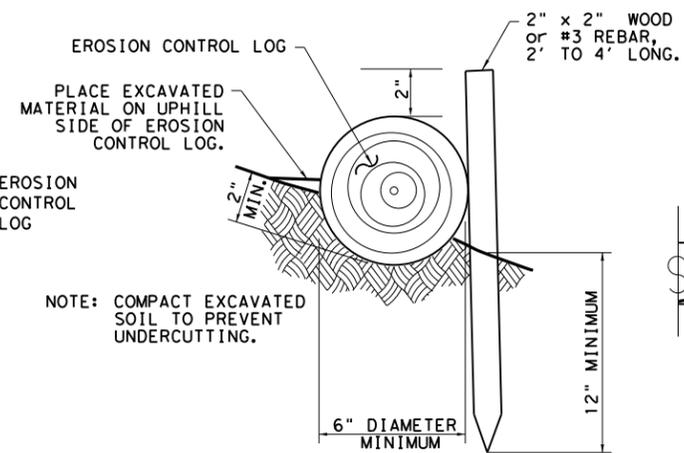
**EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING**

CL-SSL

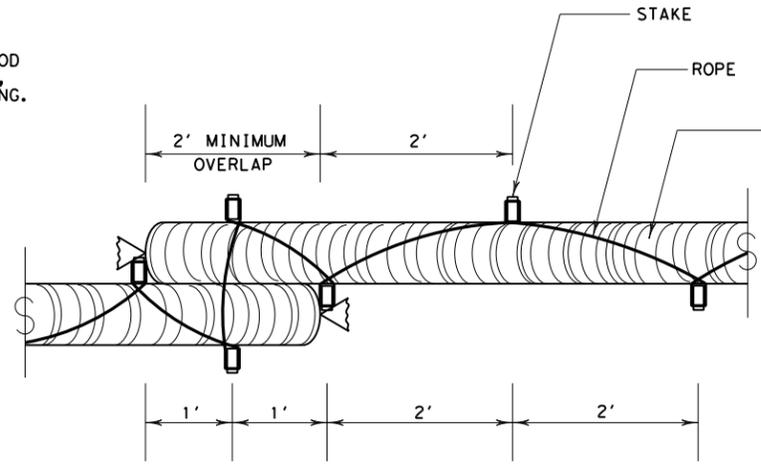


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST



NOTE: COMPACT EXCAVATED SOIL TO PREVENT UNDERCUTTING.

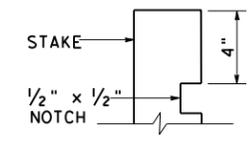


STAKE AND LASHING ANCHORING DETAIL

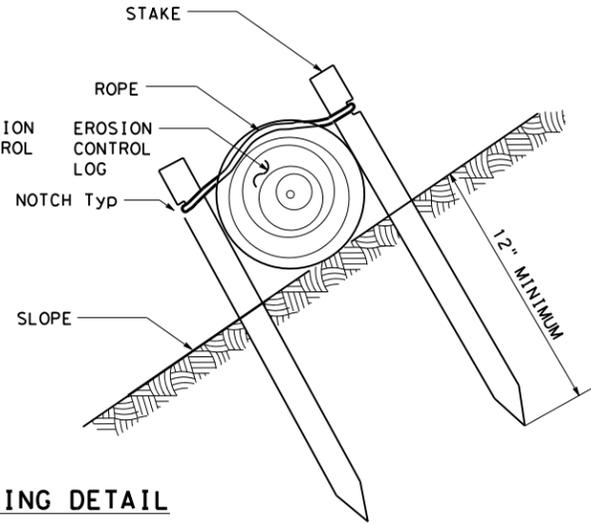
CL-SSL

LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"

TRENCH DEPTH TABLE



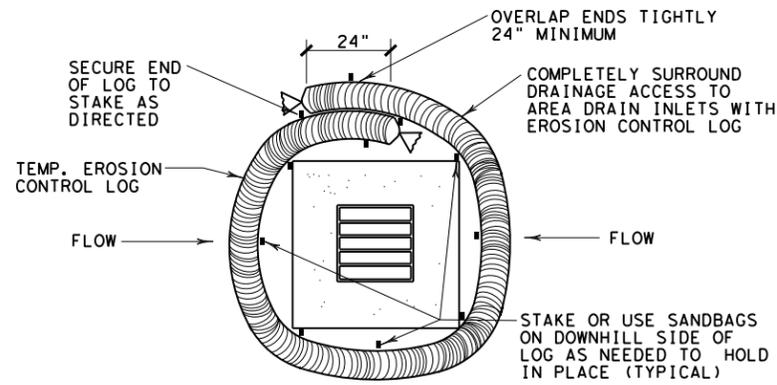
STAKE NOTCH DETAIL



SHEET 2 OF 3

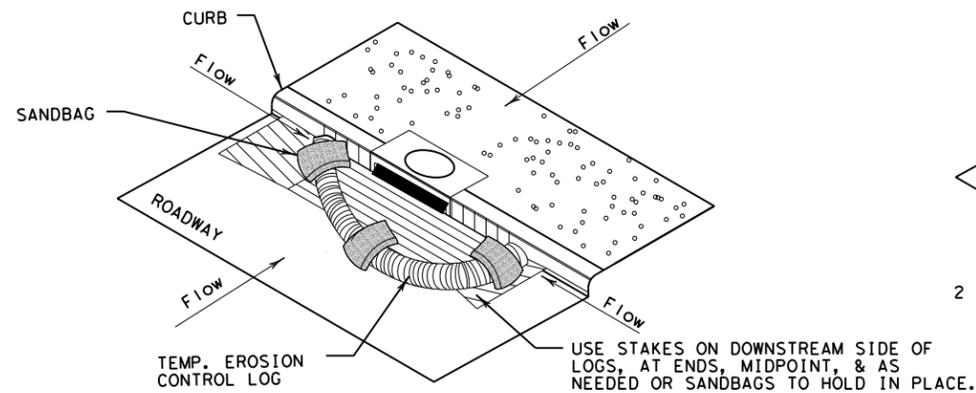
		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS		HIGHWAY	
DIST		COUNTY	SHEET NO.

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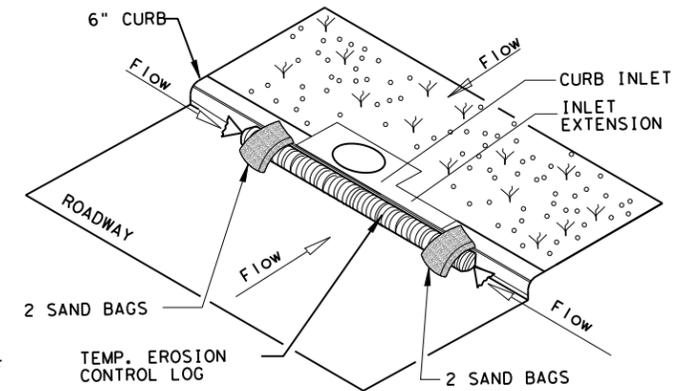
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

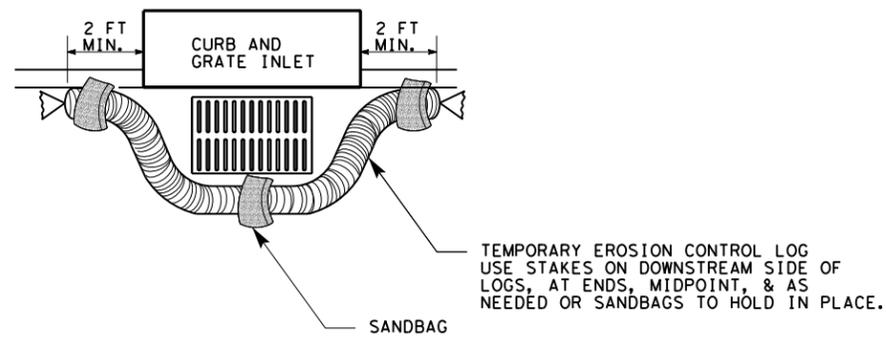
CL-CI



EROSION CONTROL LOG AT CURB INLET

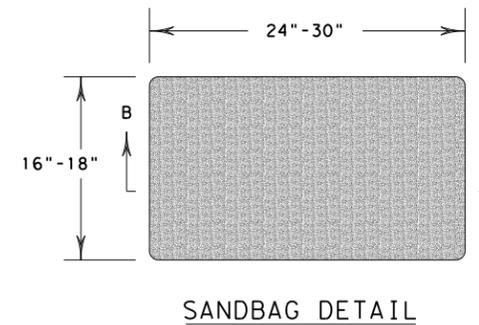
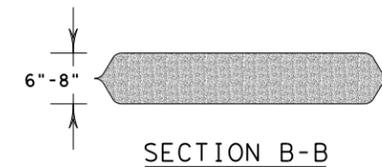
CL-CI

NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SHEET 3 OF 3

		<i>Design Division Standard</i>	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT	SECT	JOB
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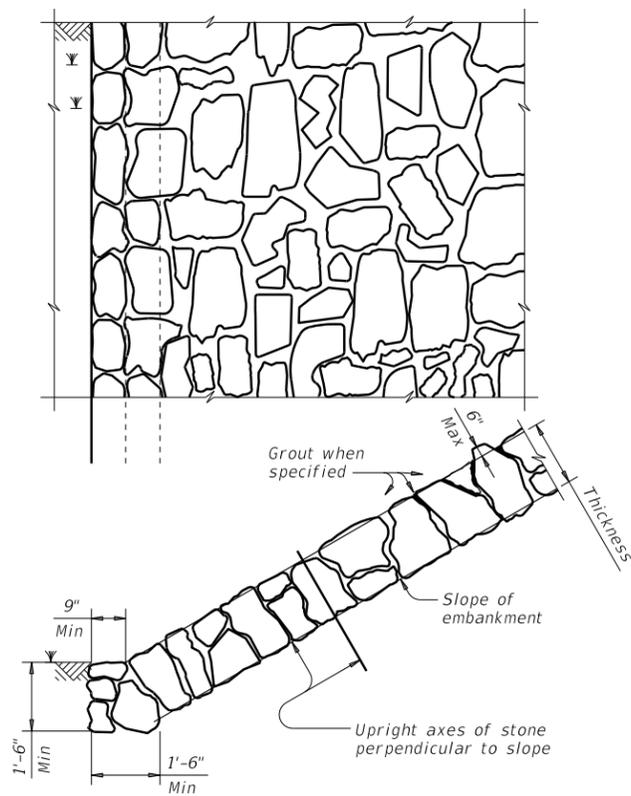


FIGURE 1 ~ TYPE R STONE RIPRAP
dry or grouted

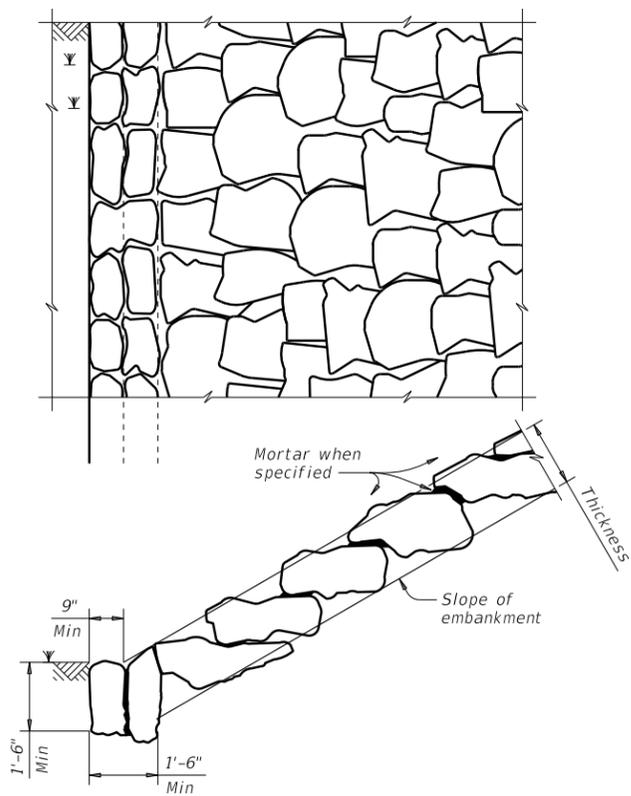


FIGURE 2 ~ TYPE F STONE RIPRAP
dry or mortared

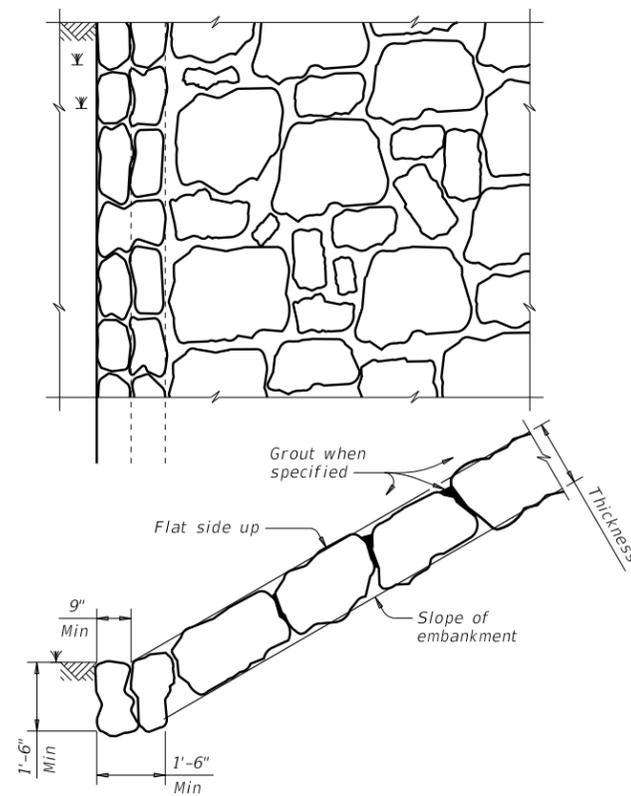


FIGURE 3 ~ TYPE F STONE RIPRAP
grouted

- ② Provide bedding material instead of filter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.
- ③ Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.
- ④ "Y" and Height need to be defined. See layout or detail sheet for values if this option is used.
- ⑤ List Stone Protection as size (XX inch) and thickness (YY inch) on the layout.
Example: Riprap (Stone Protection) XX inch, Thickness = YY inch.

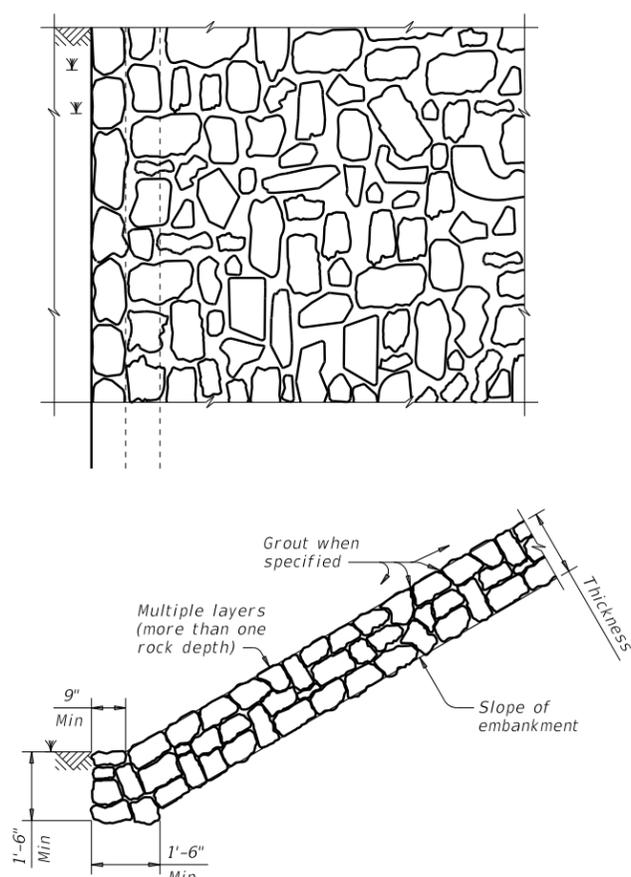


FIGURE 4 ~ COMMON STONE RIPRAP
dry or grouted

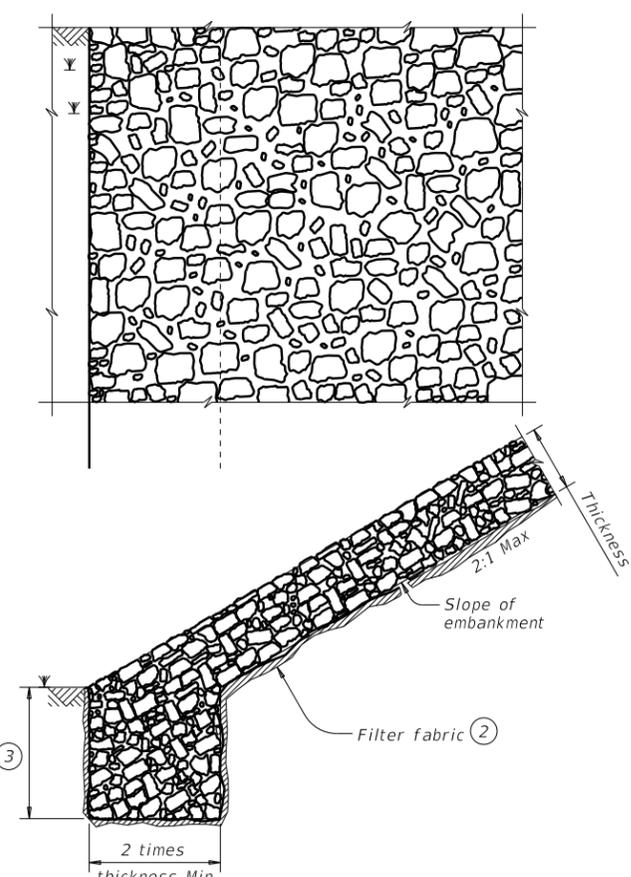
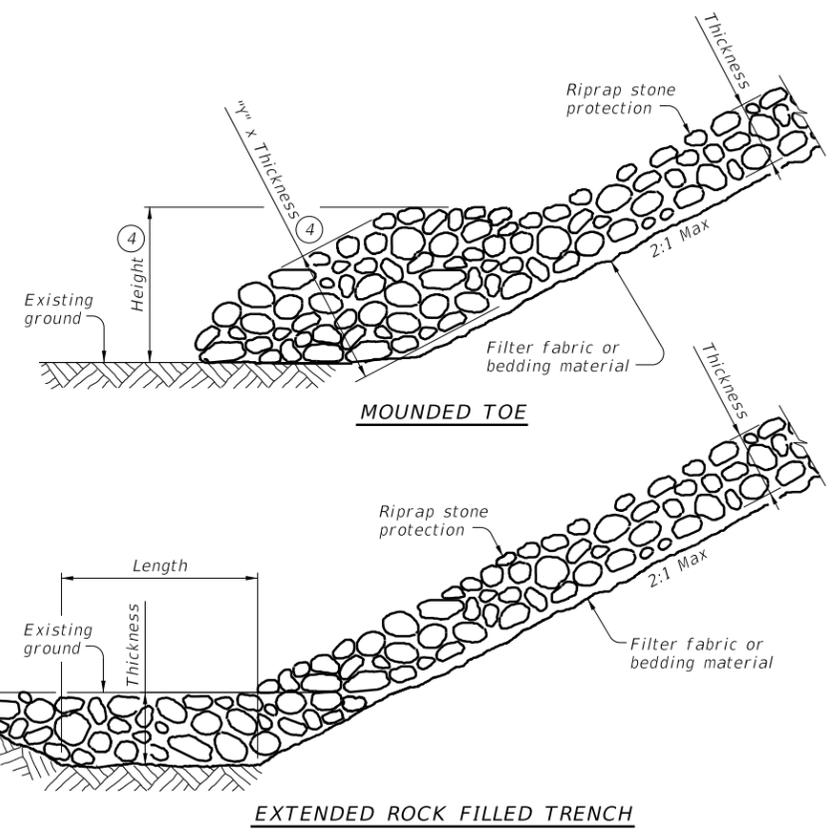


FIGURE 5 ~ PROTECTION STONE RIPRAP ⑤



PROTECTION STONE RIPRAP TOE OPTIONS ⑤

SHEET 2 OF 2

Texas Department of Transportation
Bridge Division Standard

STONE RIPRAP

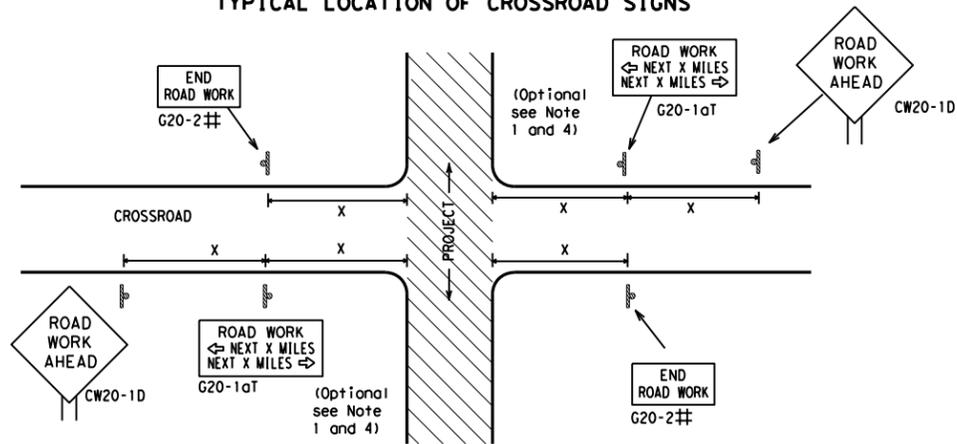
SRR

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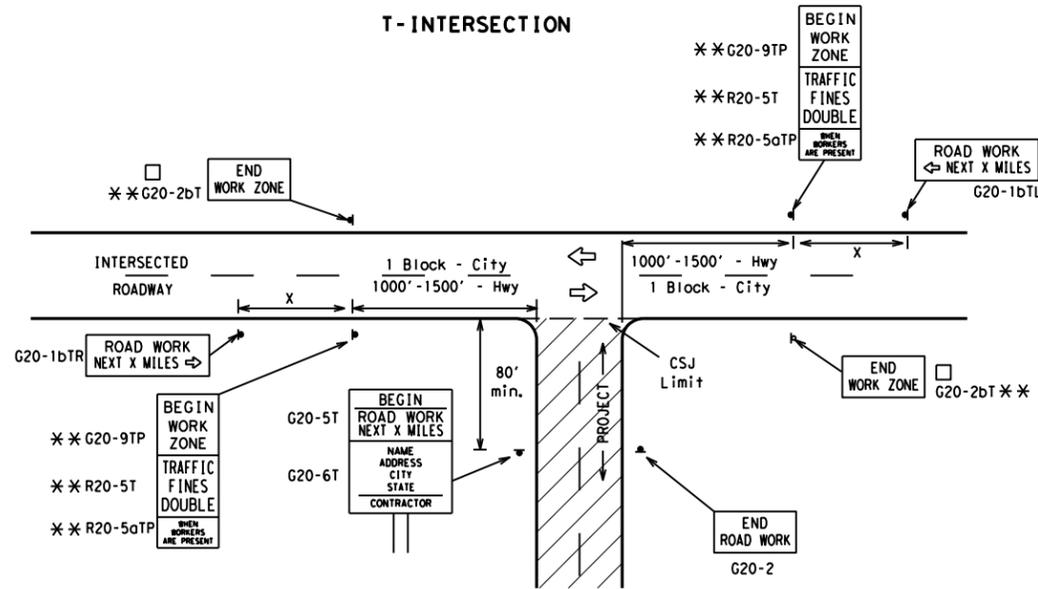
TYPICAL LOCATION OF CROSSROAD SIGNS



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

- 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.
- 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.
- 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.
- 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.
- Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
- 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

- 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.
- 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}

Sign Number or Series	SIZE		SPACING	
	Conventional Road	Expressway/Freeway	Posted Speed MPH	Sign Δ Spacing "x" Feet (Apprx.)
CW20 ⁴	48" x 48"	48" x 48"	30	120
CW21			35	160
CW22			40	240
CW23			45	320
CW25			50	400
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	55	500 ²
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	60	600 ²
			65	700 ²
			70	800 ²
			75	900 ²
			80	1000 ²
			*	* ³

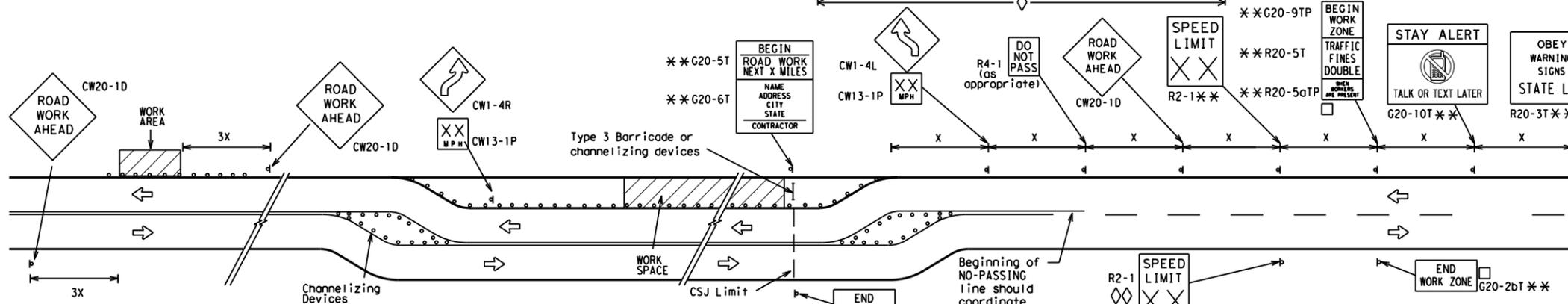
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

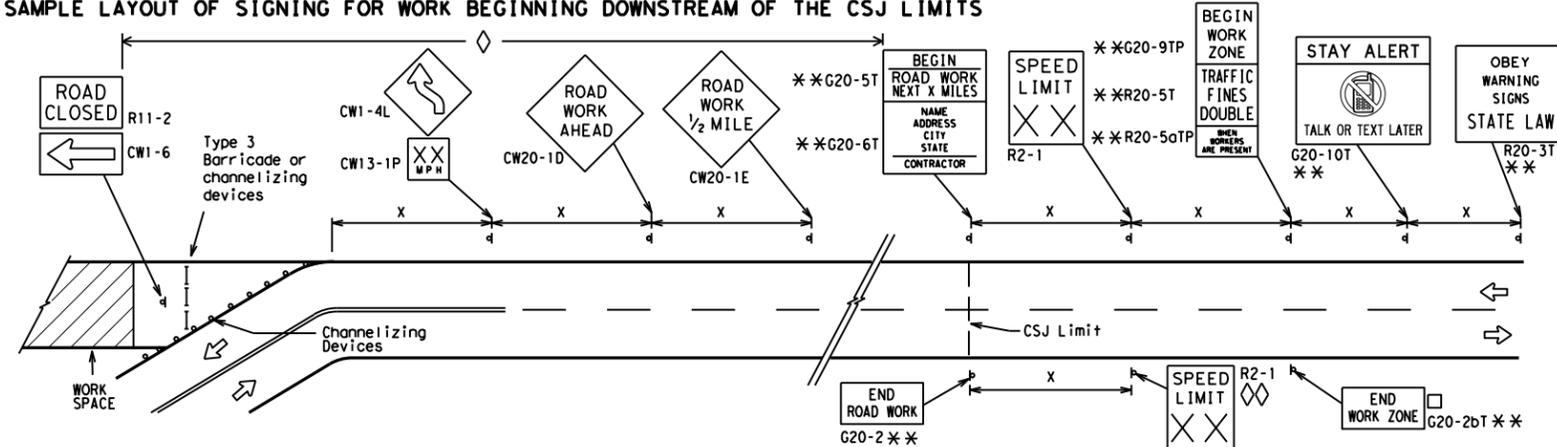
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be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



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
	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

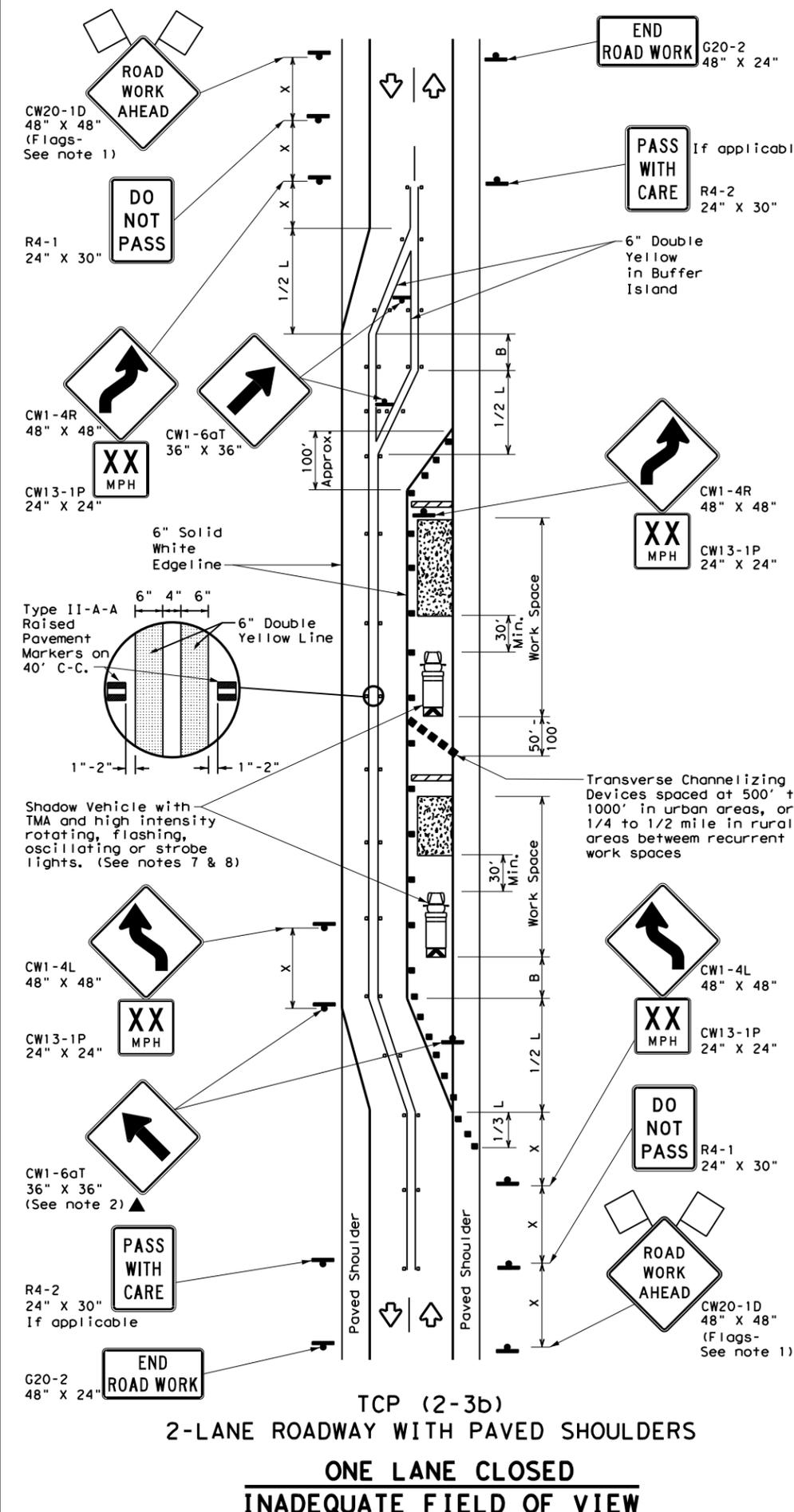
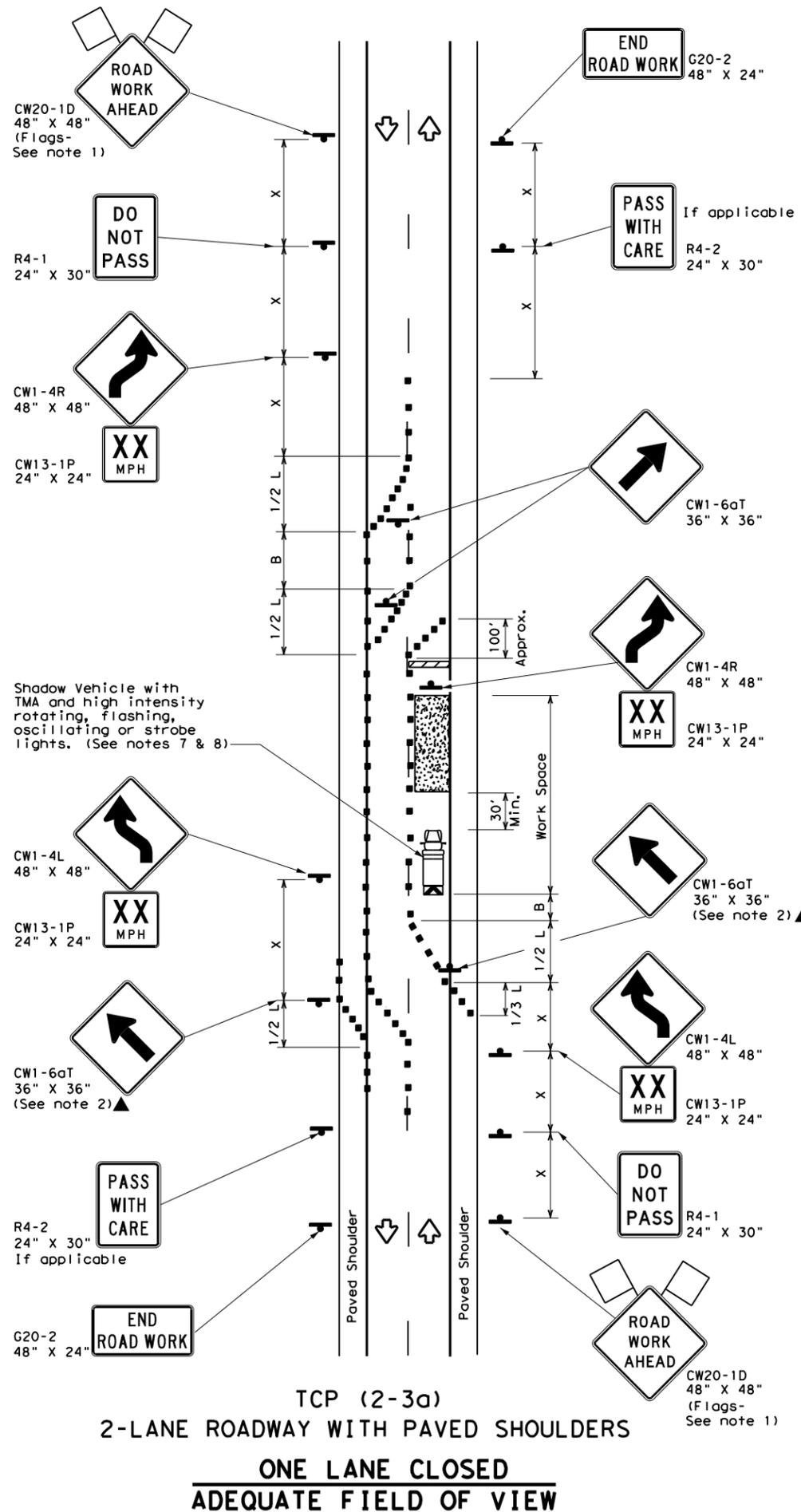
BC (2) - 21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Raised Pavement Markers Ty II-AA
	Sign		Traffic Flow
	Flag		Flagger

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

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

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

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - 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.
 - When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
 - Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
 - The R4-1 "DO NOT PASS," R4-2 "PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
 - Conflicting pavement marking shall be removed for long term projects.
 - 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.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-3a)**
- Conflicting pavement markings shall be removed for long-term projects. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter device spacing is intended for the area of the conflicting markings, not the entire work zone.

Traffic Safety Division Standard

TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON
TWO-LANE ROADS

TCP (2-3) - 23

FILE: tcp(2-3)-23.dgn	DW: CK:	CK: DW: CK:
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1-97 2-12		
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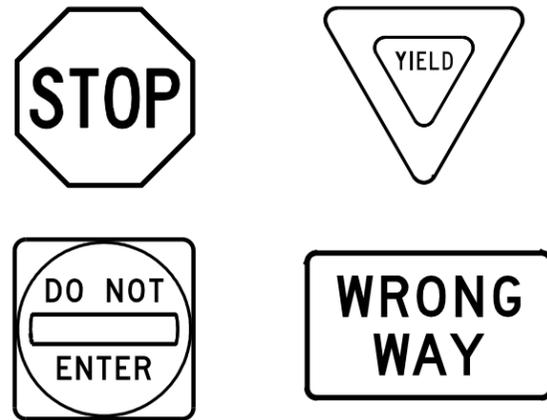
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REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

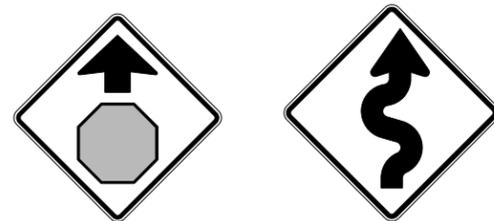
(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND, BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B _{FL} OR C _{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B _{FL} OR C _{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

- 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).
- Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
- 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.
- Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
- 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.
- 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.
- Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
- 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/>

		<i>Traffic Operations Division Standard</i>	
<h2>TYPICAL SIGN REQUIREMENTS</h2>			
<h3>TSR(4) - 13</h3>			
FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT October 2003	CONT	SECT	JOB
REVISIONS			HIGHWAY
12-03 7-13	DIST	COUNTY	SHEET NO.
9-08			

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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)

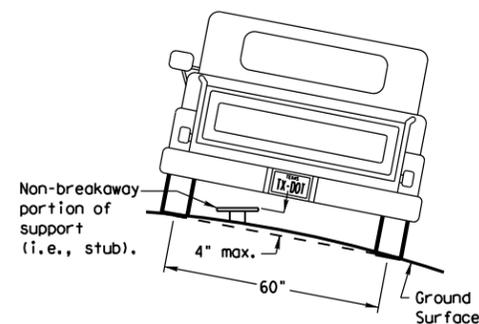
Anchor Type

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-3))

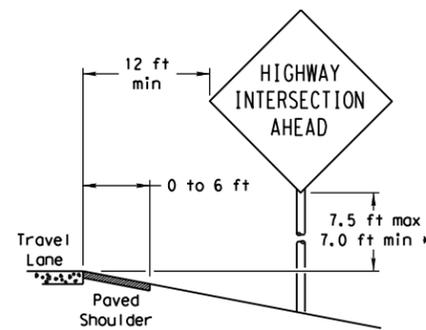
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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).

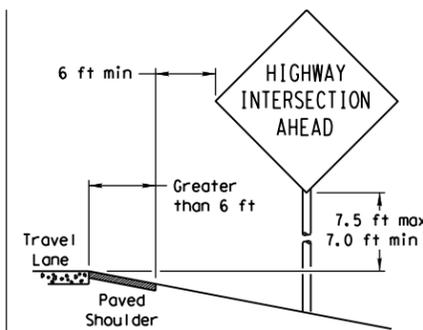
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

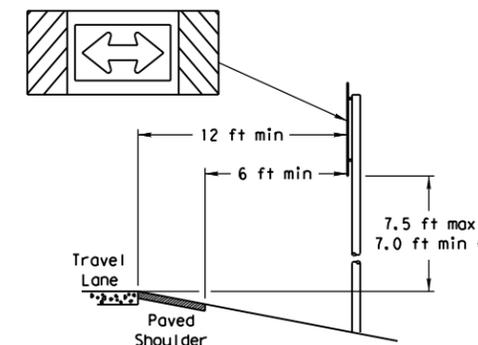
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



GREATER THAN 6 FT. WIDE

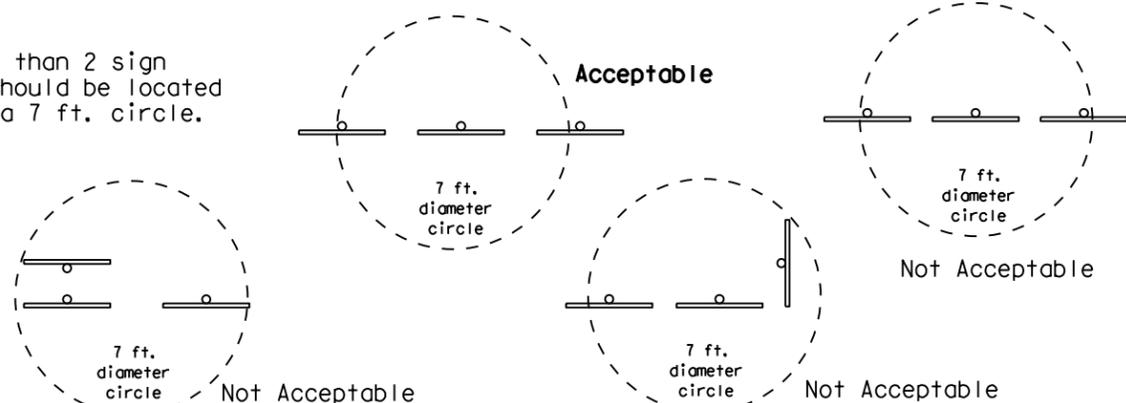
When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

T-INTERSECTION

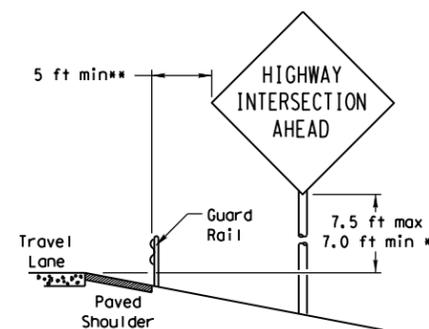


When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.

No more than 2 sign posts should be located within a 7 ft. circle.

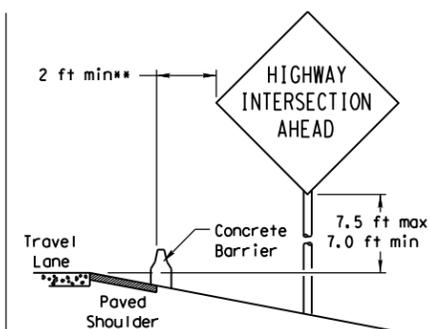


BEHIND BARRIER

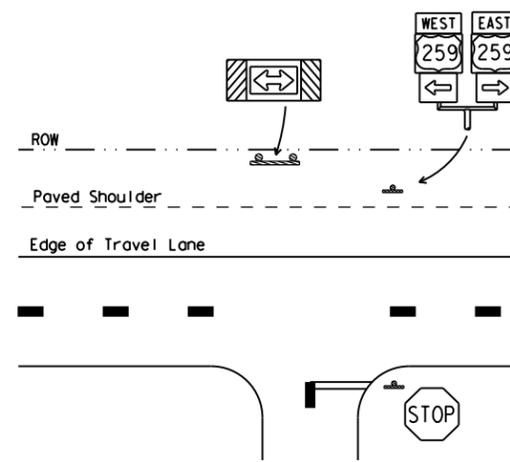


BEHIND GUARDRAIL

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.



BEHIND CONCRETE BARRIER



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

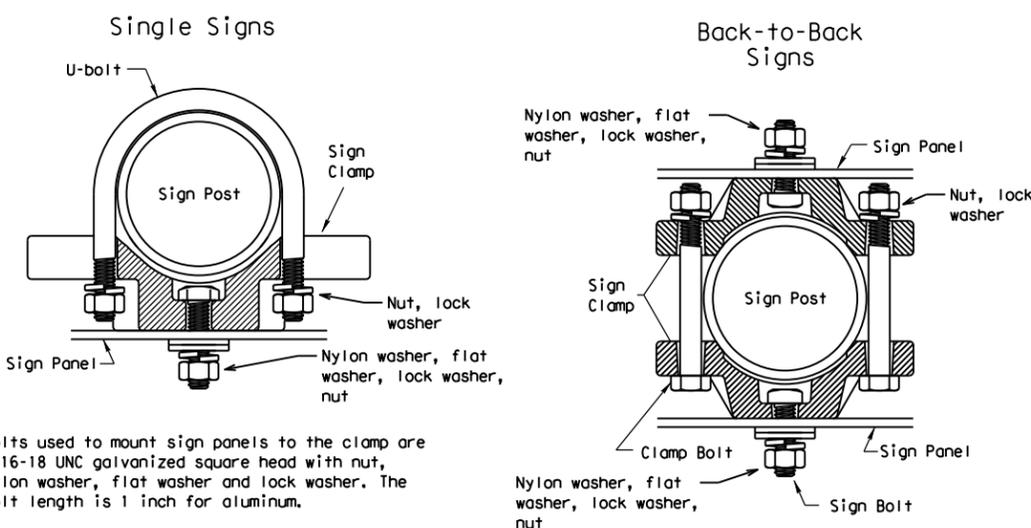
- (1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or
- (2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
<http://www.txdot.gov/publications/traffic.htm>

TYPICAL SIGN ATTACHMENT DETAIL



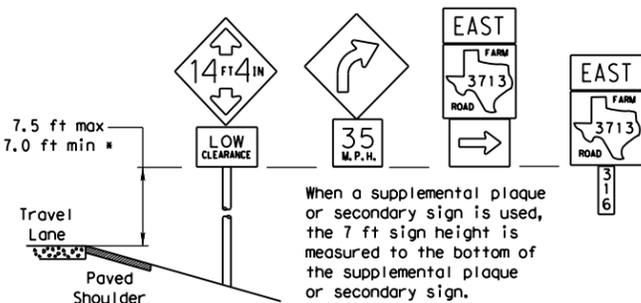
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

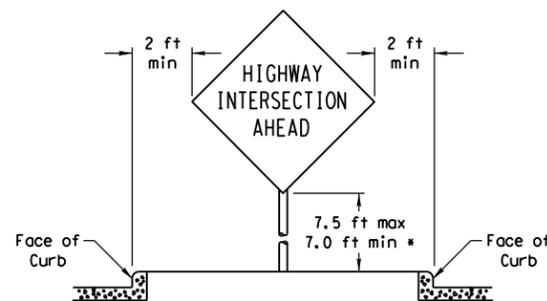
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES

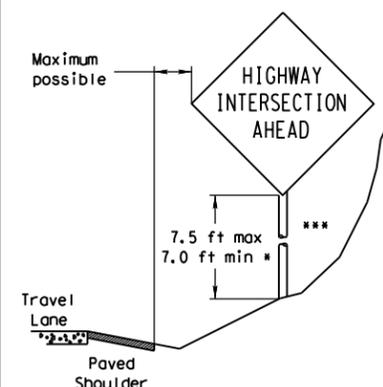


When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY (When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

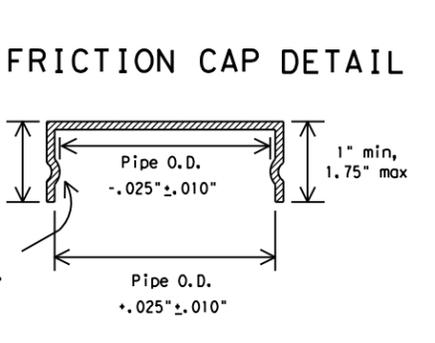
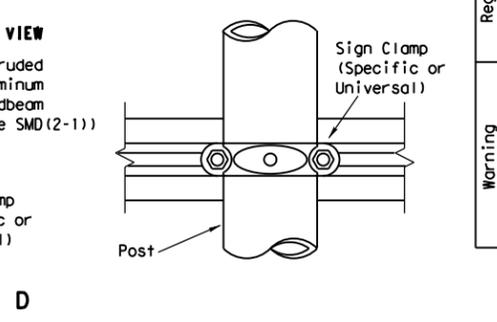
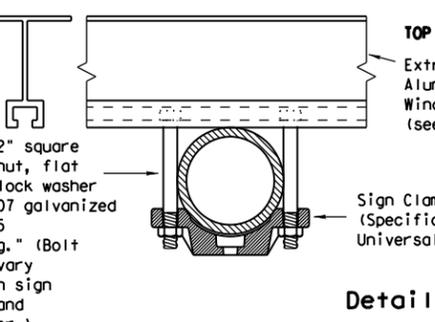
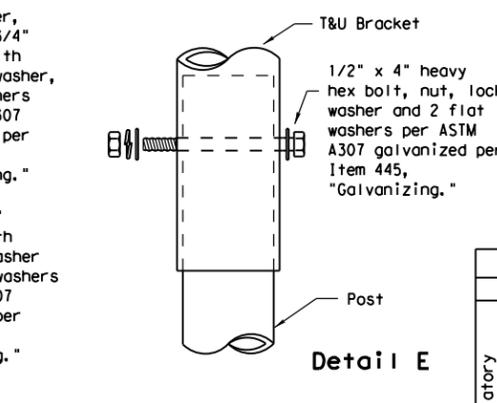
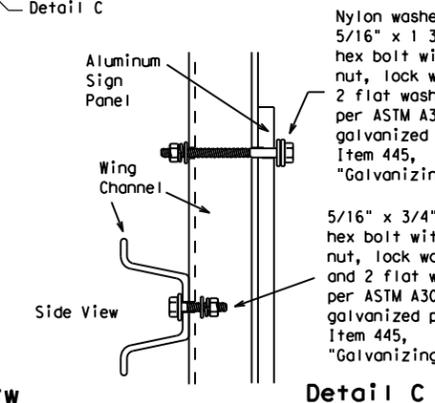
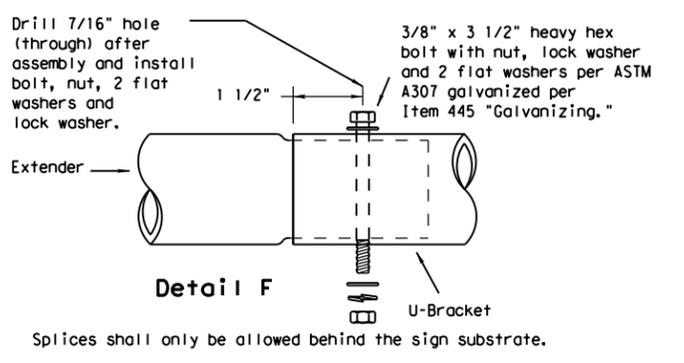
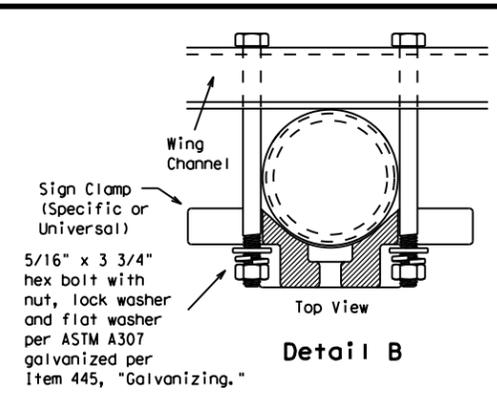
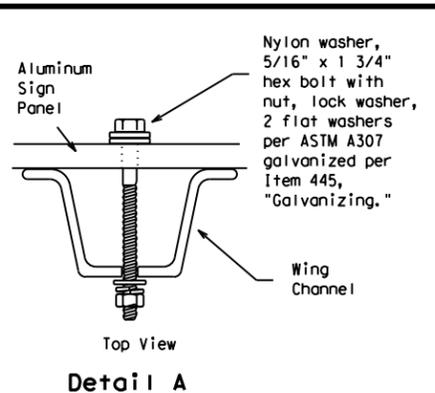
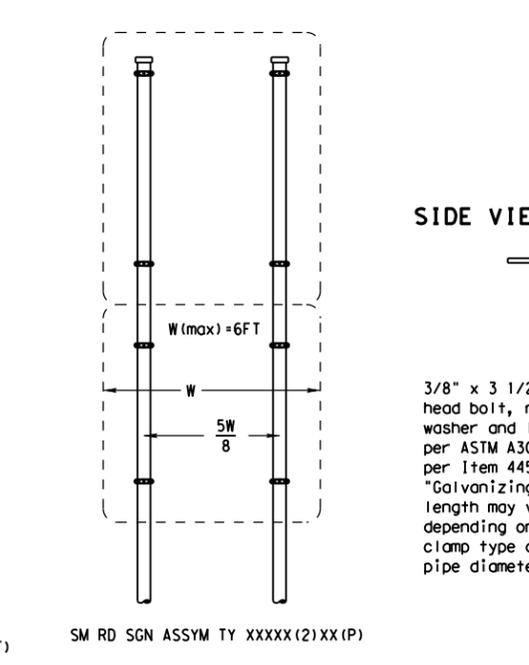
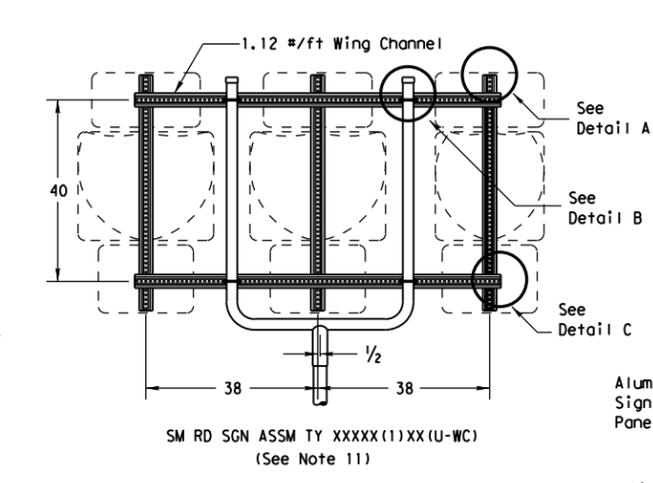
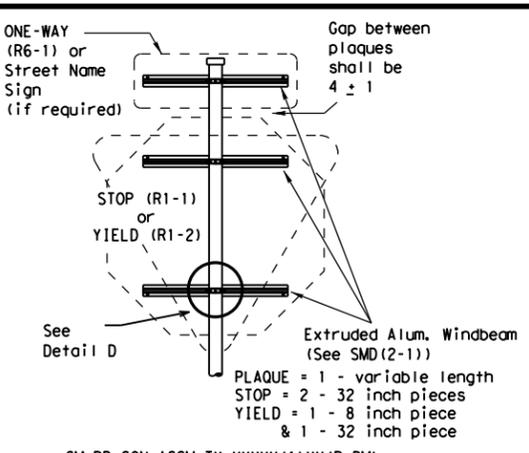
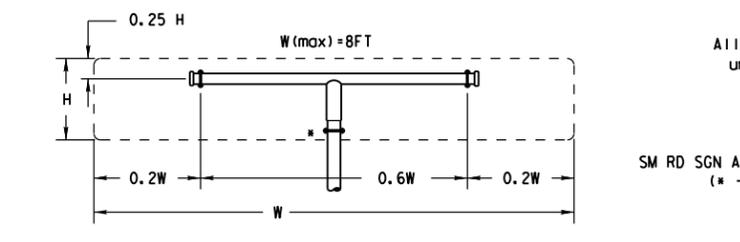
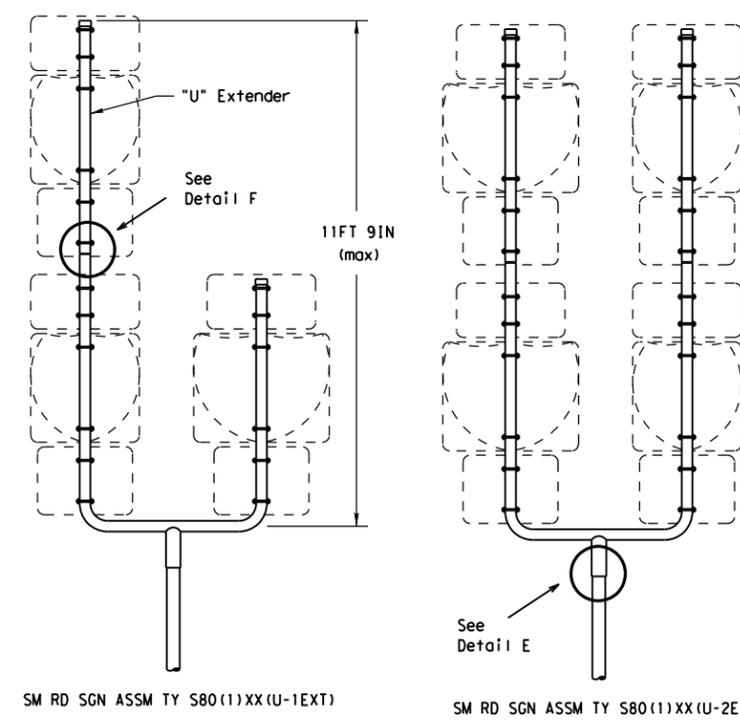
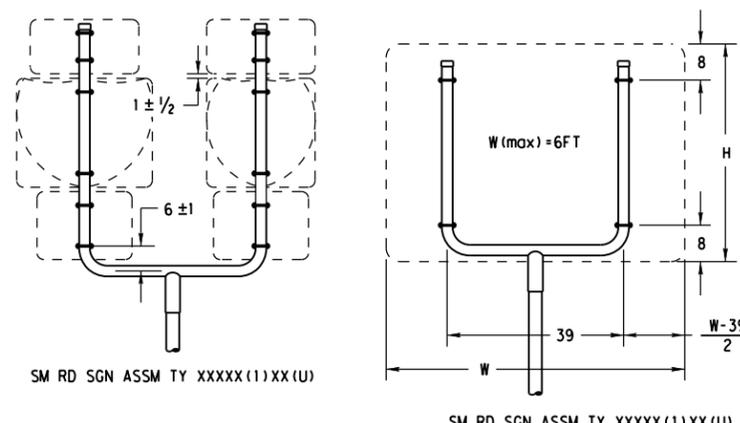
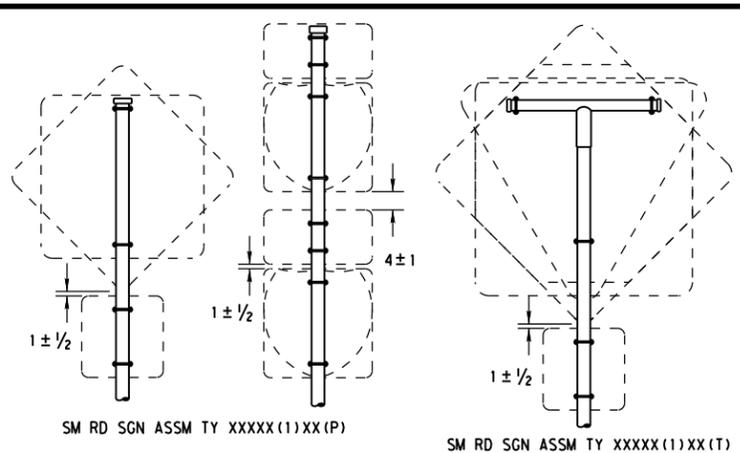
Texas Department of Transportation
 Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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				HIGHWAY
				SHEET NO.

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All dimensions are in english unless detailed otherwise.

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.

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 |
- 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.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 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.
- Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 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.
- 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.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- 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."
- Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
- 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.
- Post open ends shall be fitted with Friction Caps.
- 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)
Warning	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	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)	

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Traffic Operations Division

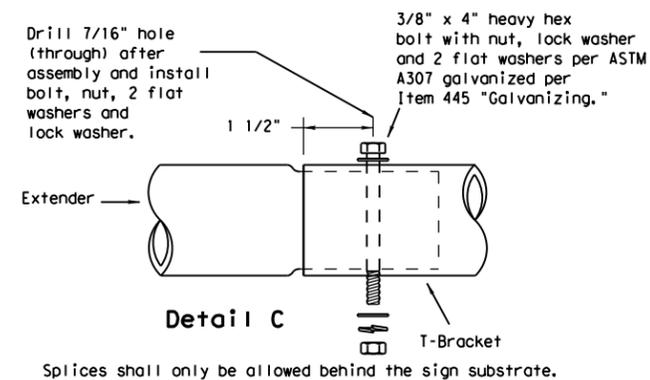
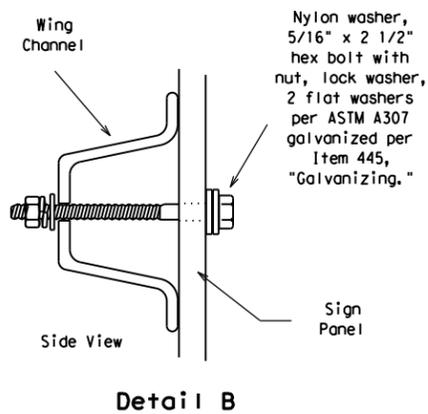
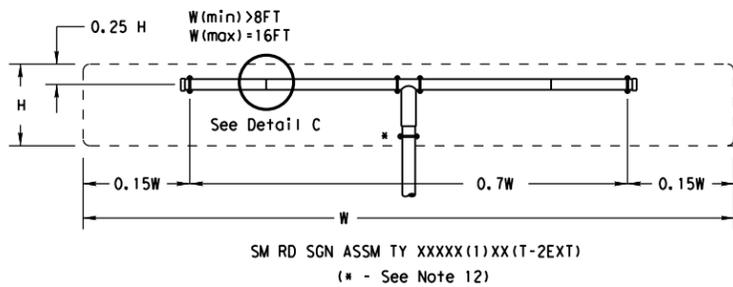
SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM
SMD(SLIP-2)-08

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		DIST: T	COUNTY: T	SHEET NO.:

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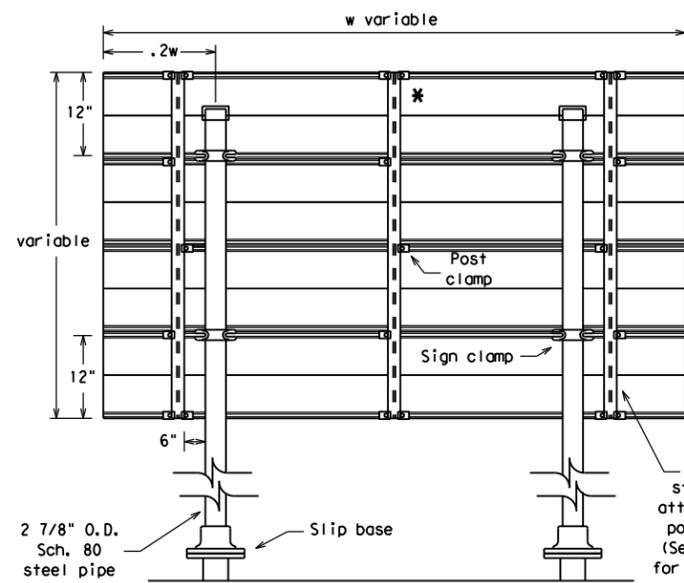
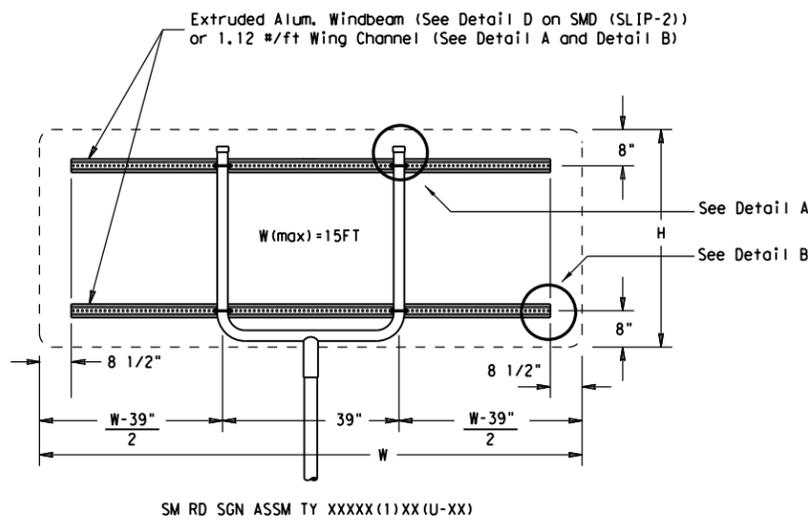
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FILE:

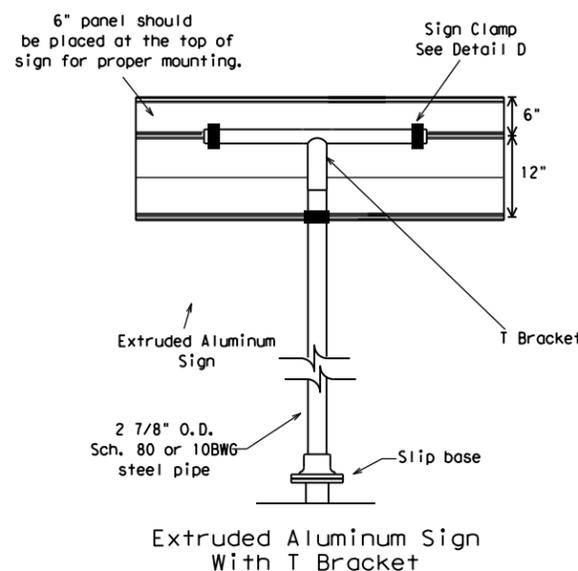
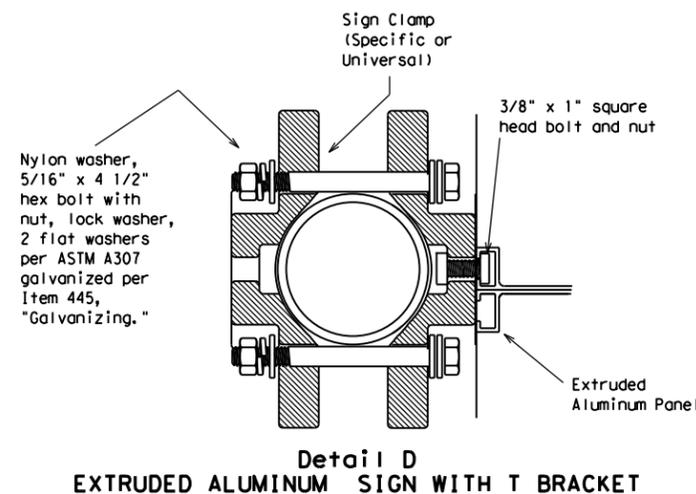
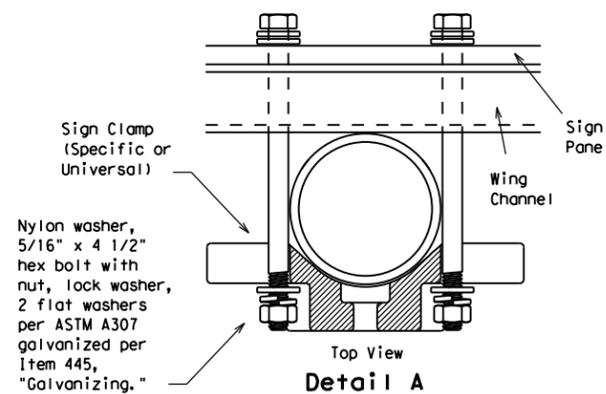
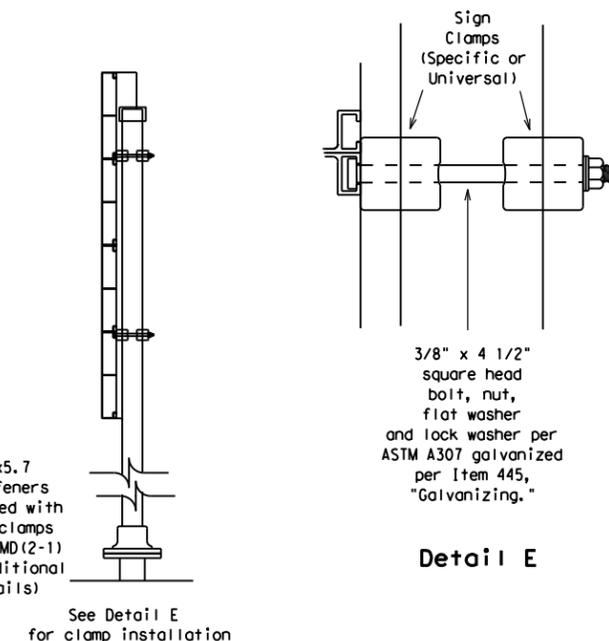


GENERAL NOTES:

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- 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.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- 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."
- Sign blanks shall be the sizes and shapes shown on the plans.
- 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.
- Post open ends shall be fitted with Friction Caps.



* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.



Use Extruded Alum. Windbeam as stiffeners See SMD (2-1) for additional details
See Detail E for clamp installation

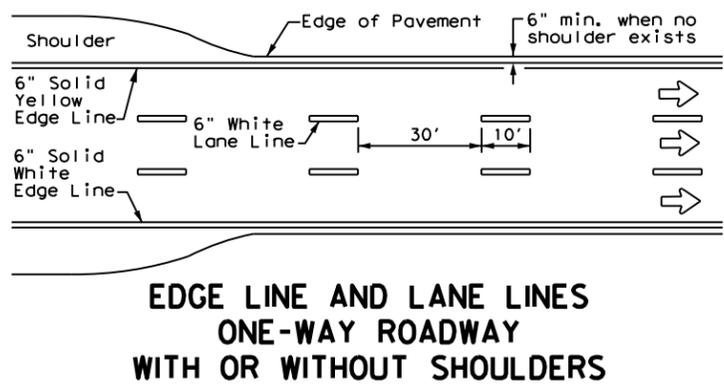
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	SIGN DESCRIPTION	SUPPORT
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	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

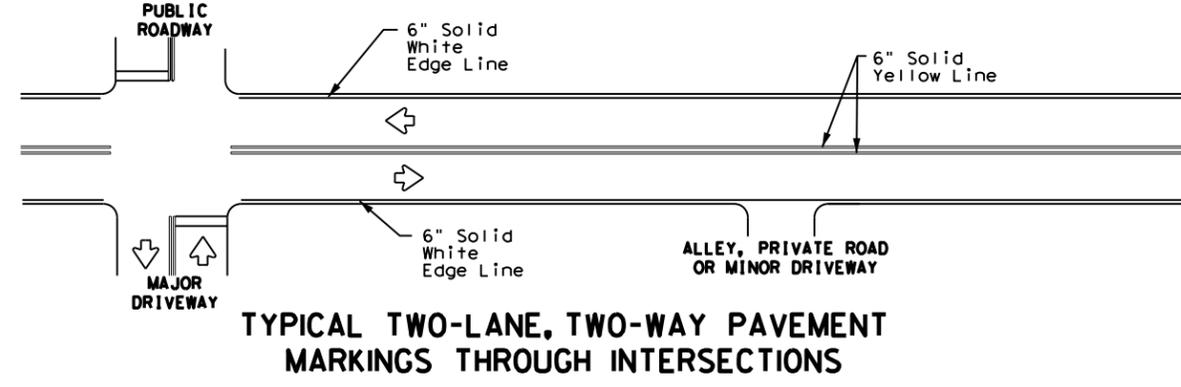
SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM
SMD(SLIP-3)-08

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9-08	REVISIONS	CONT	SECT	JOB	HIGHWAY
		DIST	COUNTY		SHEET NO.

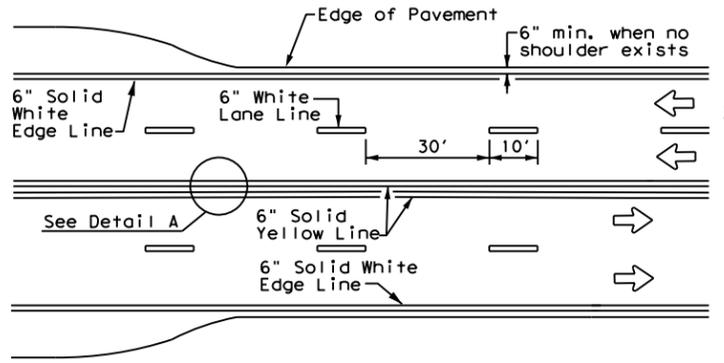
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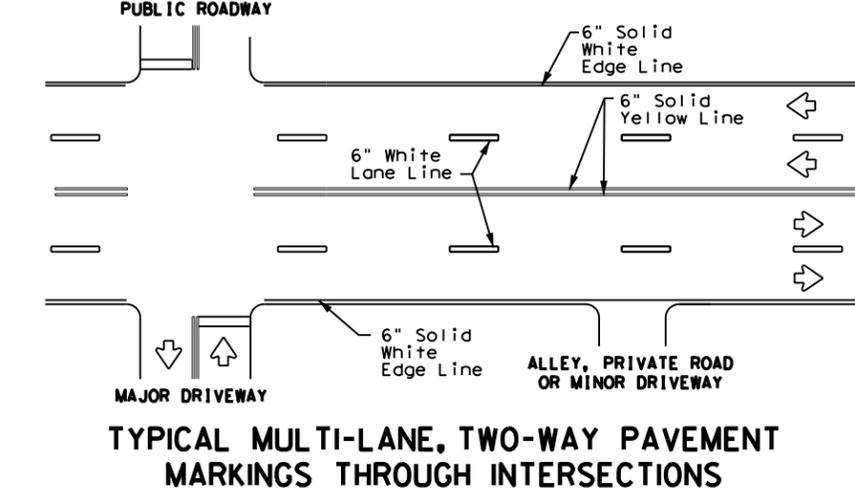
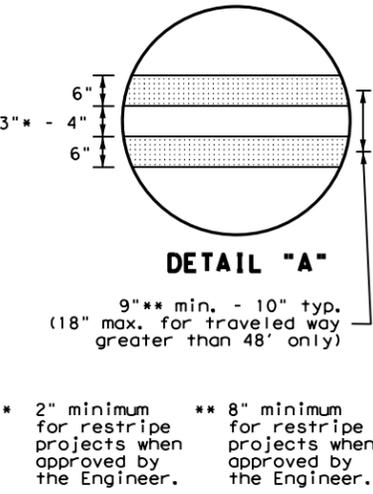
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



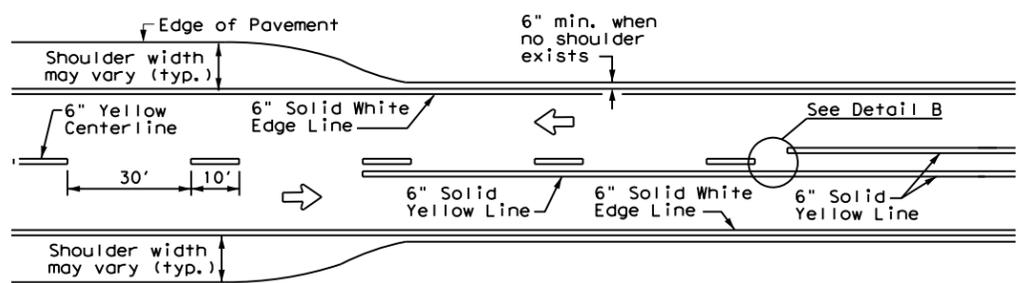
**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



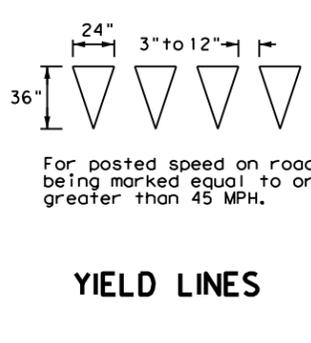
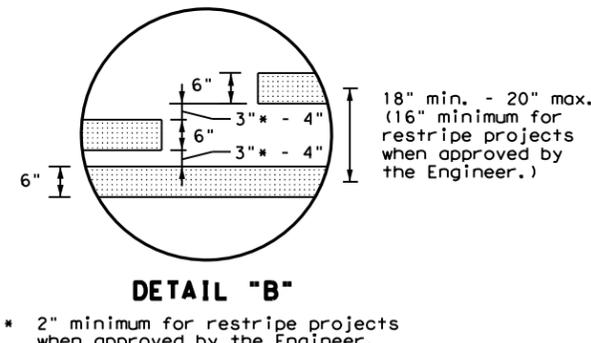
**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



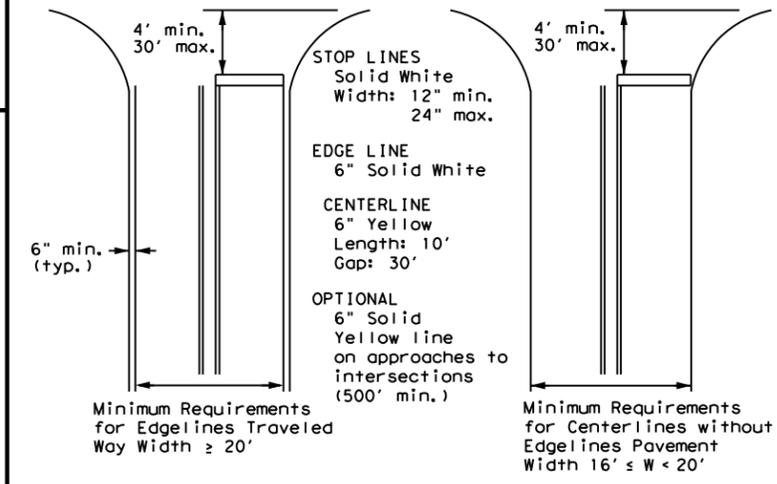
**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



**TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

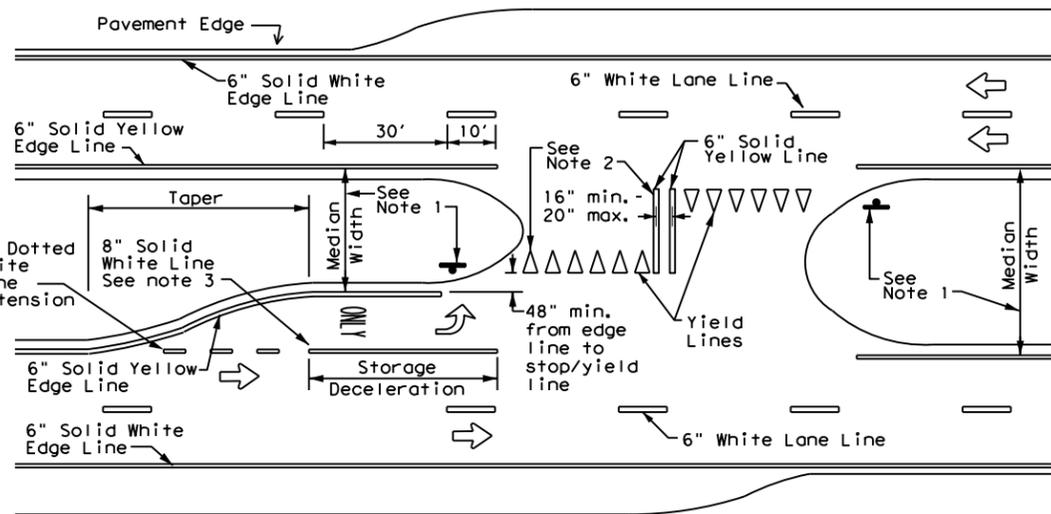


YIELD LINES



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



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

- 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.
- 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.
- 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

- 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.
- 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.



**TYPICAL STANDARD
PAVEMENT MARKINGS**

PM(1) - 22

FILE:	pm1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT	December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS					
11-78	8-00	6-20			
8-95	3-03	12-22			
5-00	2-12				
DIST			COUNTY	SHEET NO.	

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REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS				DELINEATORS				D & OM DESCRIPTIVE CODES	
DEVICE	SIZE 1	SIZE 2	SIZE 3	SIZE 4	DEVICE	SINGLE	DOUBLE	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 BRFL = 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	
SHEETING	Yellow, White or Red Type B or C reflective sheeting				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 (fix). 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.				POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
					MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

OBJECT MARKERS									
DEVICE	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	
SHEETING	Yellow-Type B _{FL} or C _{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroreflective 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)			CHEVRONS				ONE DIRECTION LARGE ARROW		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.		
DEVICE	GF1	GF2	CTB	W1-8				W1-6			
SHEETING	Yellow, White, Red			SIZE (W x L)	18" x 24" (Conventional)	24" x 30" (Conventional Oversize)	30" x 36" (Expressway)	36" x 48" (Freeway)	SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
NOTE	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.			MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	MOUNTING HEIGHT	7'-0"		
				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).						



DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

FILE: dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CR: TXDOT
© TXDOT August 2004	CONT	SECT	JOB	HIGHWAY
10-09 3-15				
4-10 7-20	DIST	COUNTY		SHEET NO.

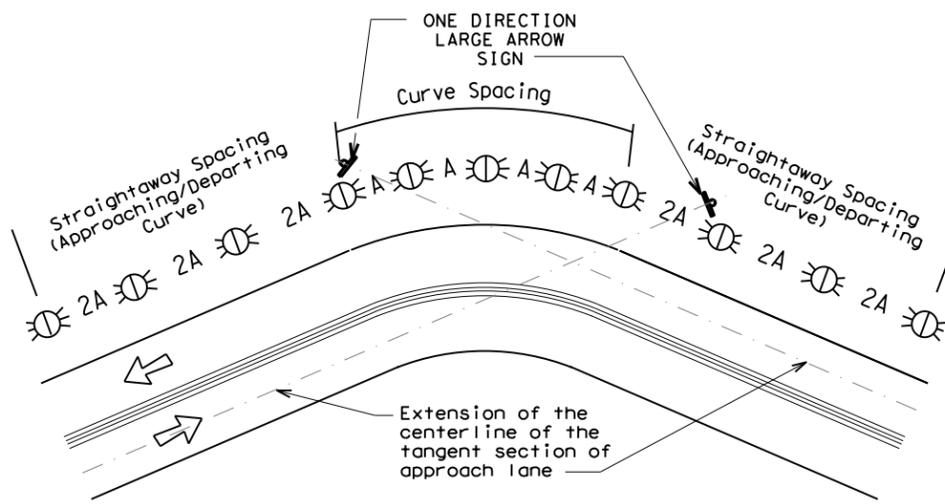
DATE:
FILE:

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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

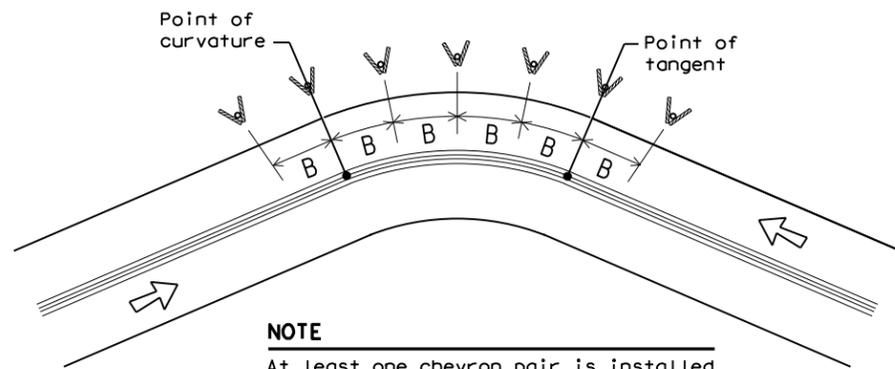
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



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

- 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.
- Barrier reflectors may be used to replace required delineators.
- 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

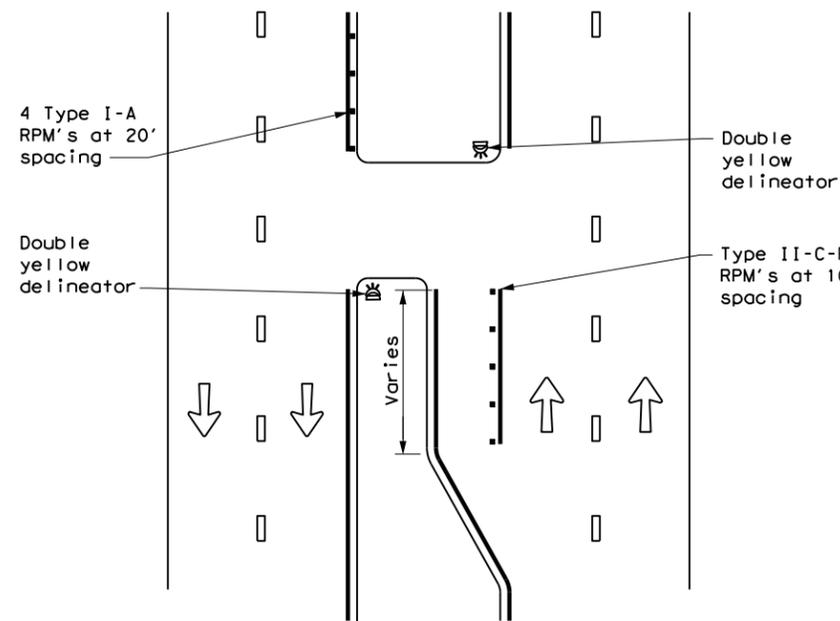
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© TXDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS				
3-15 8-15				
8-15 7-20				
	DIST	COUNTY	SHEET NO.	

DATE:
FILE:

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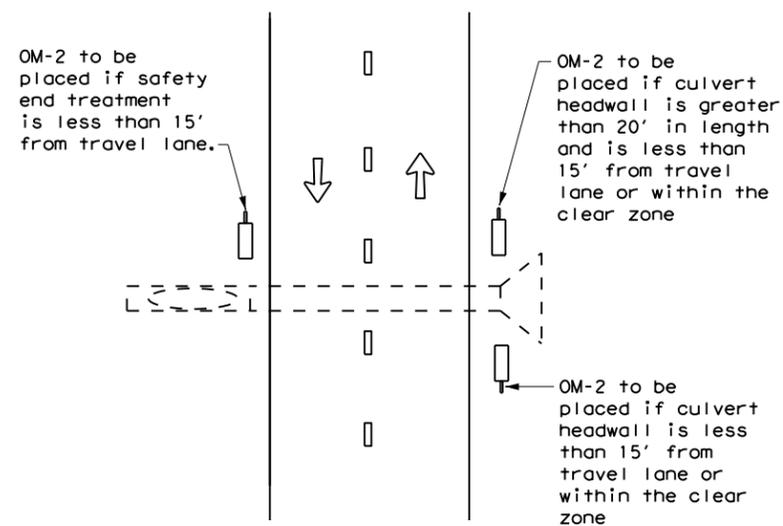
DATE:
FILE:

CROSSOVERS



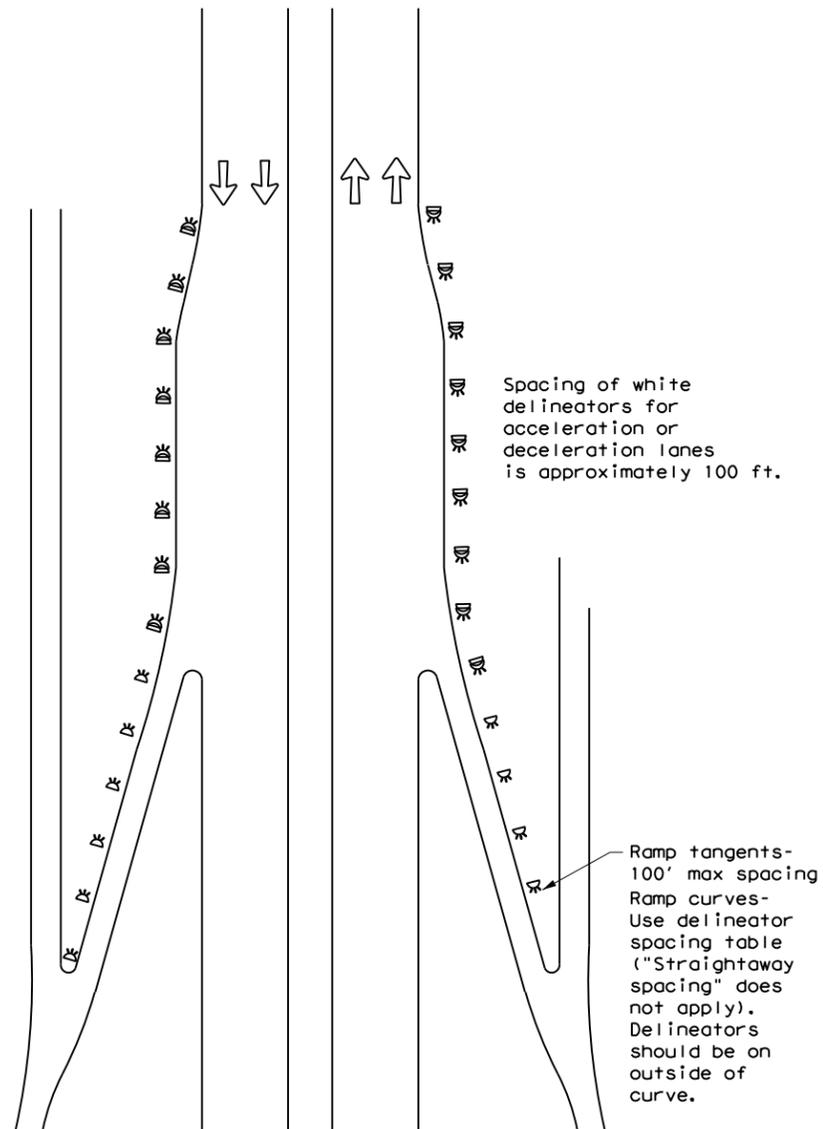
DETAIL 1

FOR CULVERTS WITHOUT MBGF



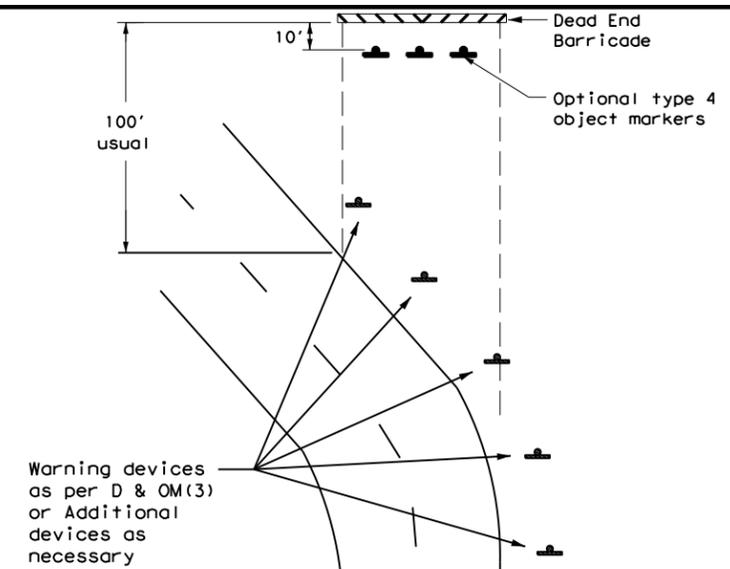
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



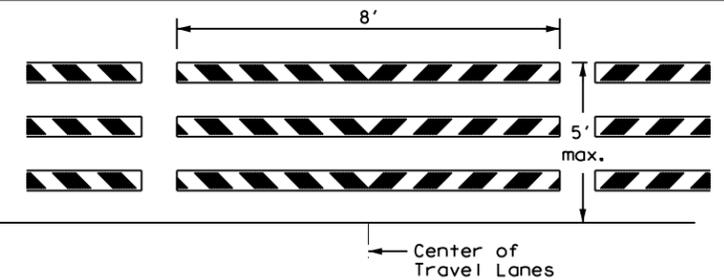
DETAIL 3

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



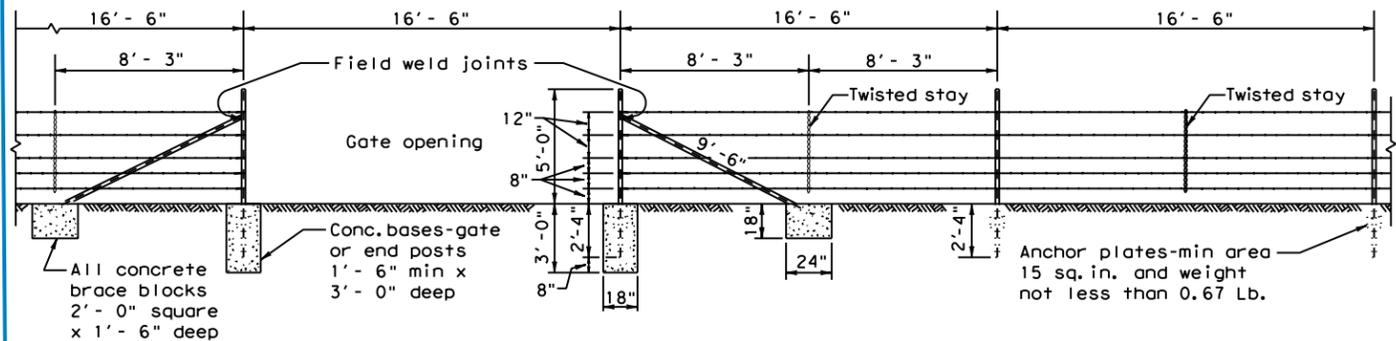
DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4) -20

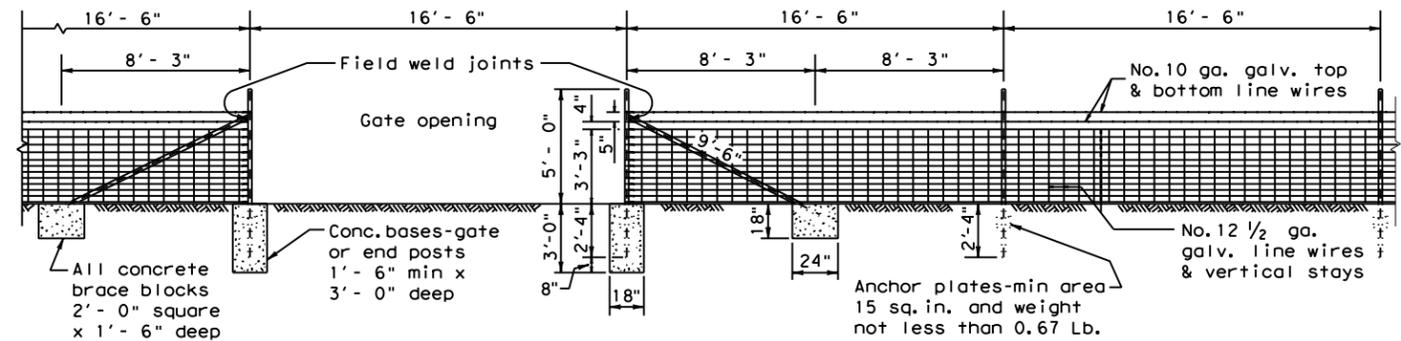
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© TXDOT August 2004	CONT	SECT	JOB	HIGHWAY
3-15 7-20	REVISIONS		DIST	COUNTY
			SHEET NO.	

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DATE:
FILE:



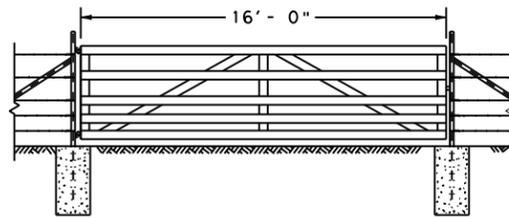
SECTION GALVANIZED BARBED WIRE FENCE WITH METAL POSTS
BRACING DETAIL USED AT ENDS AND GATES
TYPE "C" FENCE
(See General Note 8)



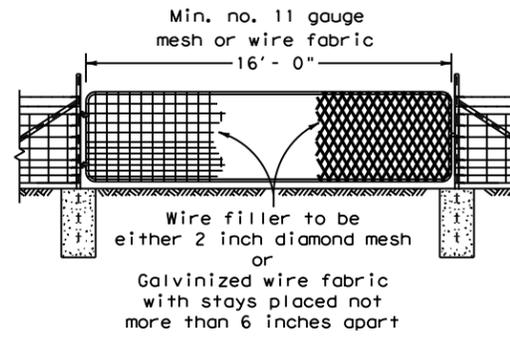
SECTION GALVANIZED WOVEN WIRE FENCE WITH METAL POSTS
BRACING DETAIL USED AT ENDS AND GATES
TYPE "D" FENCE
(See General Note 8)

Note:
For Steel pipe and
T-Post requirements.
(See General Notes 6 & 7)

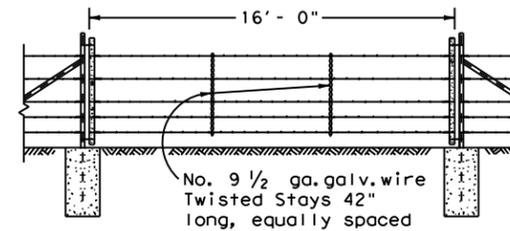
Metal gate shall consist of 5 panels not less than 4'-4" high and shall be aluminum or galvanized metal and of good quality. Gate and hardware shall meet the approval of the engineer.



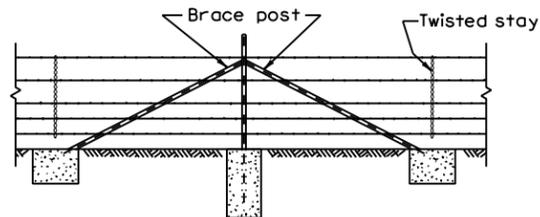
DETAIL TYPE 1 GATE



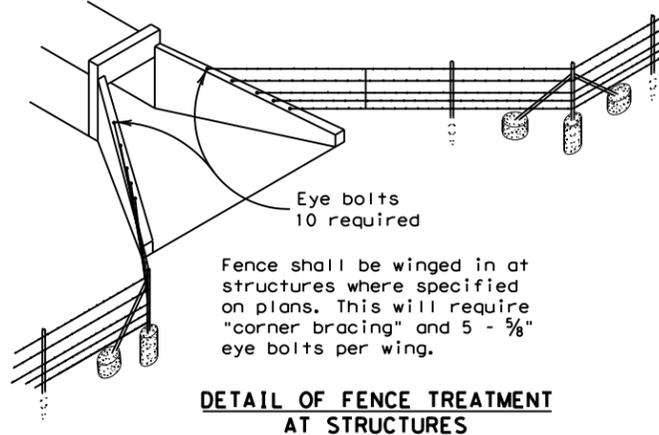
DETAIL TYPE 2 GATE



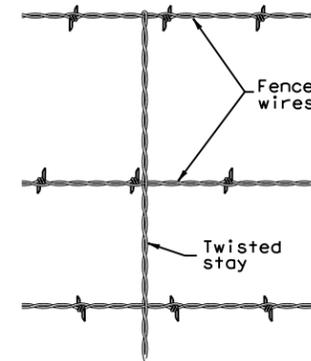
DETAIL TYPE 3 GATE



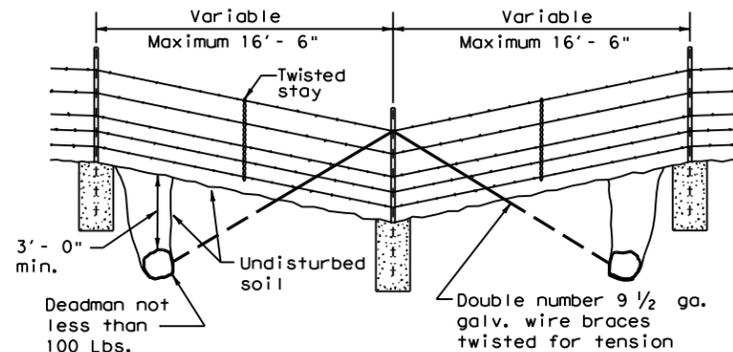
CORNER OR PULL POST ASSEMBLY



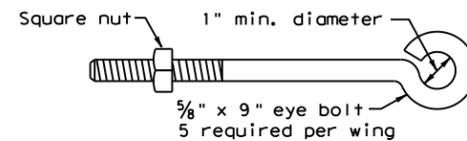
DETAIL OF FENCE TREATMENT AT STRUCTURES



DETAIL OF STAY
(Barbed Wire Fence)



DETAIL OF FENCE SAG



DETAIL OF EYE BOLT

GENERAL NOTES

- Any high point which interferes with the placing of wire mesh shall be excavated to provide a 2 inch clearance.
 - Latches for Type 1 and Type 2 gates shall be good commercial quality and design latch of the spring, fork or chain type. All latches shall be suitable to the gate and shall be approved by the Engineer.
 - Hinges for Type 2 gates shall be a commercial design approved by the Engineer suitable for post and gate.
 - Concrete shall be of the design and consistency approved by the Engineer and shall contain not less than 4 sacks of cement per cubic yard. Concrete footings are to be crowned at the top to shed water.
 - Steel anchor plates shall be of a design and thickness sufficient to prevent turning of the post in firm soil.
 - Steel pipe end posts, corner and pull posts shall be a minimum of 2" Std. pipe (2.375" O.D., 0.154" wall thickness) with a 1/4" Std. pipe brace (1.660" O.D., 0.140" wall thickness), with a 2"x2"x1/4" angle, or other as approved by the Engineer. Fasteners for securing barbed wire or woven wire fence to metal posts shall be a minimum of 11 gauge galvanized steel wire. Tubular posts shall be fitted with water malleable iron caps.
 - If Steel pipe is used for posts and braces, use standard pipe in accordance with ASTM A 53, Class B or A 501. For T-Posts use steel that meets ASTM A 702. Metal line posts shall be not less than 6'-6" in length and shall weigh not less than (1.33 lbs./lin. ft.). These items shall be in accordance with Item 552, "Wire Fence."
 - Barbed Wire shall be in accordance with ASTM A 121, Class 1 Design designation 12-2-4-1 4R or 12-2-5-1 4R, or as approved by the Engineer.
- Woven Wire Fence (Type D) shall be in accordance with ASTM A 116, Class 1 No. 12-1/2 Grade 60 (See Table 1 ASTM A 116) to the height and design shown on the plans, or as approved by the Engineer.
- The location of gates and corner posts will be as indicated elsewhere in these plans.

		Design Division Standard	
BARBED WIRE AND WOVEN WIRE FENCE (STEEL POSTS)			
WF (2) - 10			
FILE: wf210.dgn	DN: TxDOT	CK: AM	DW: VP
© TxDOT 1996	CONT	SECT	JOB
REVISIONS		HIGHWAY	
DIST	COUNTY	SHEET NO.	