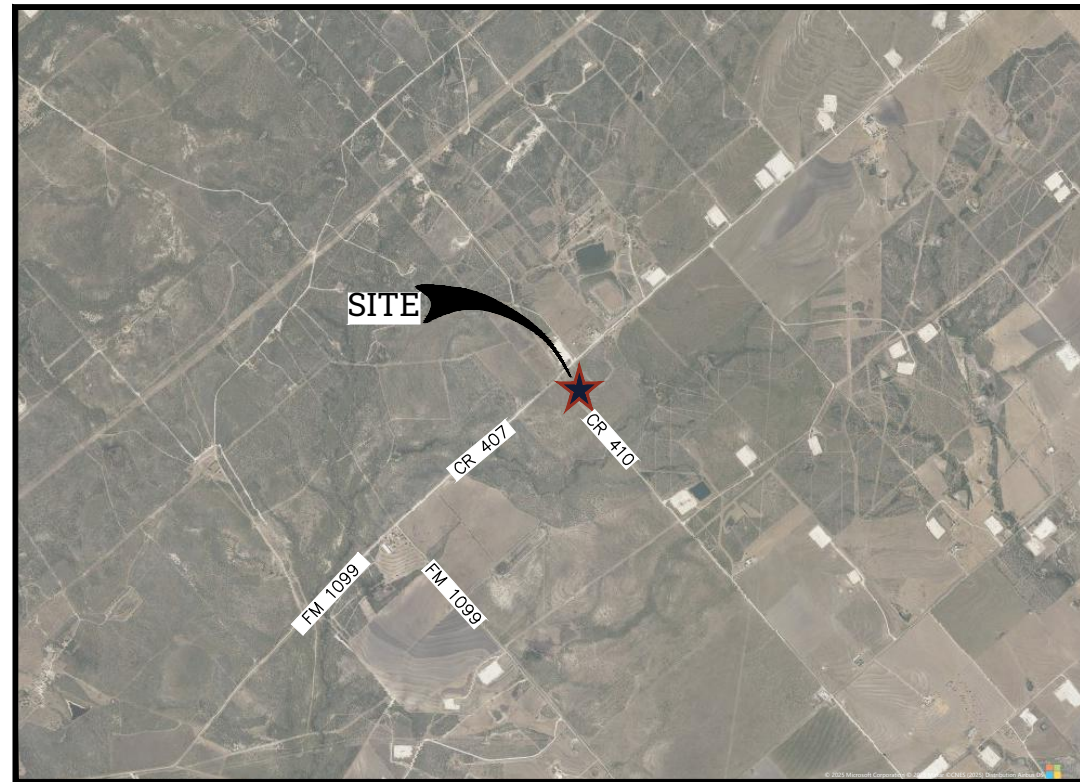




MARATHON OIL CORPORATION DRIVEWAY PERMIT PACKAGE COUNTY ROAD 407

DRIVEWAY PERMIT CHECKLIST:

LEGAL DESCRIPTION: ABS A00122 BS&F SV-5, 653.5 ACRES
ACREAGE: 653.5 ACRES
SURVEY NO: BEATY, SEALE AND FORWOOD (B.S. & F.).
SURVEY NO. 5
PID: 11522
DRIVEWAY CLASSIFICATION: OILFIELD
OF DRIVEWAYS: (1) DRIVEWAY
DRAWING OF PROPOSED DRIVEWAY: SEE SHEET C2.0



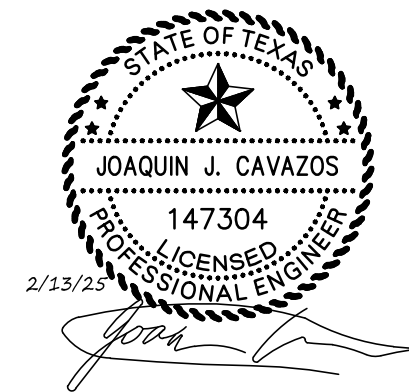
LOCATION MAP
1" = 5000'

SHEET INDEX

Description	Sheet Number
COVER SHEET	1
DRIVEWAY LAYOUT	2
DRAINAGE AREA MAP	3
DRAINAGE CALCULATIONS	4
TRAFFIC CONTROL NOTES	5

PREPARED FOR:

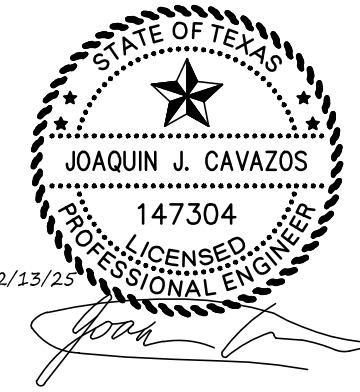
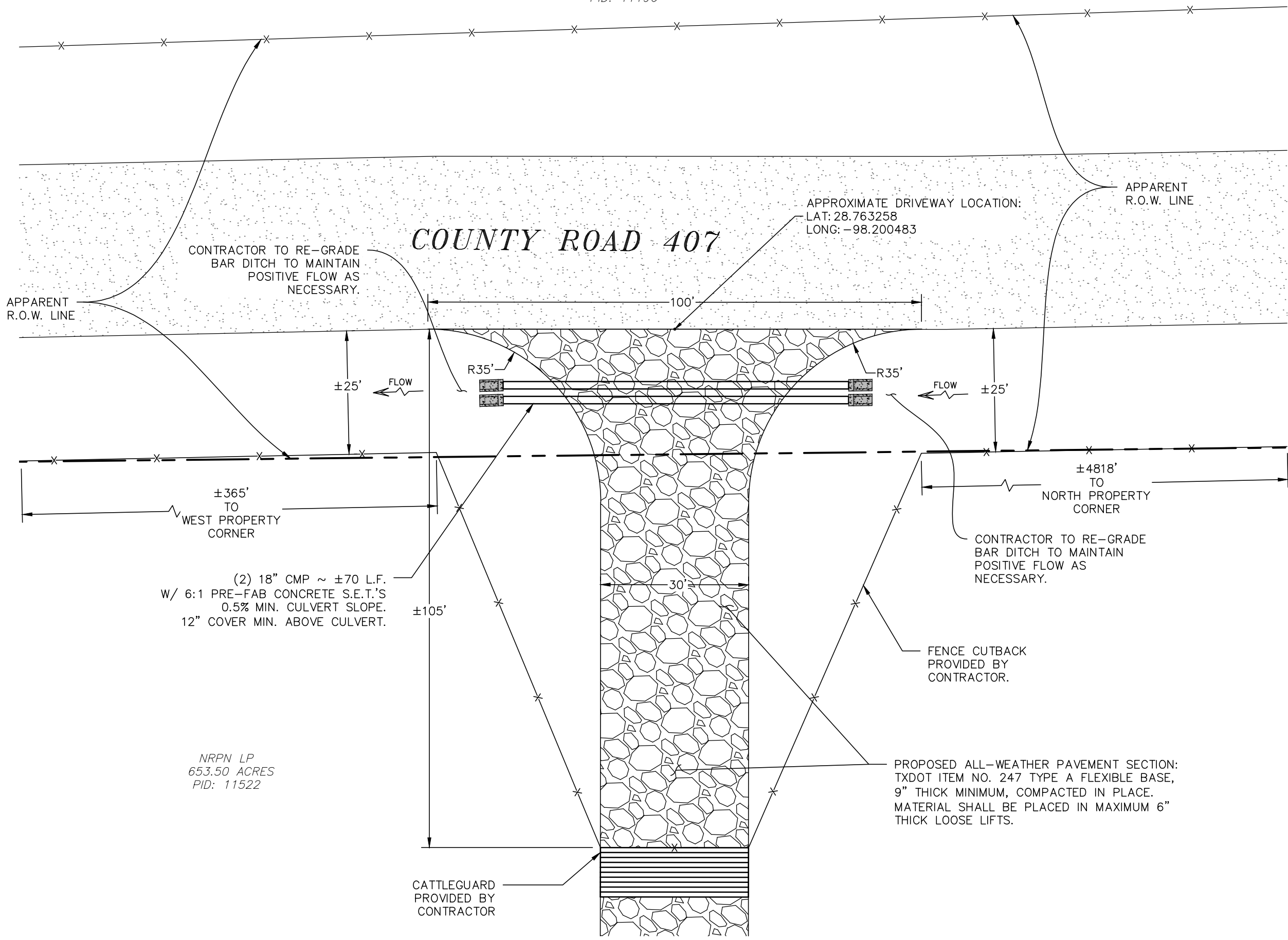
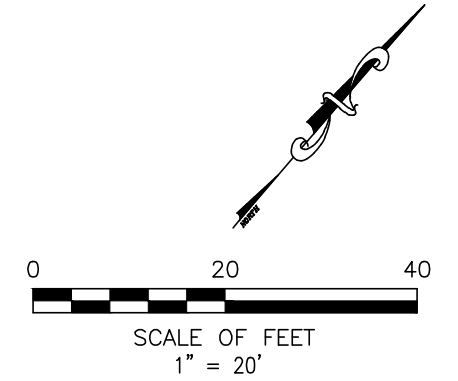
MARATHON OIL CORPORATION
5022 FM 2102
KENEDY, TEXAS 78119



830-281-4060
Texas Registered Engineering Firm F-9155
Texas Registered Surveying Firm 101812-00

ATASCOSA COUNTY

VIOLA GUENTHER HENKE
101.98 ACRES
PID: 11196



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DATE	NO.	DESCRIPTION

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COUNTY ROAD 407, ATASCOSA COUNTY, TX

DRIVEWAY PERMIT PACKAGE
DRIVEWAY LAYOUT

100% SUBMITTAL	PROJECT NO.: 25-3548	DATE: FEB. 2025
DRWN. BY: AMH	DSGN. BY: JJC	CHKD. BY: BAK

SHEET NO. 2 OF 5

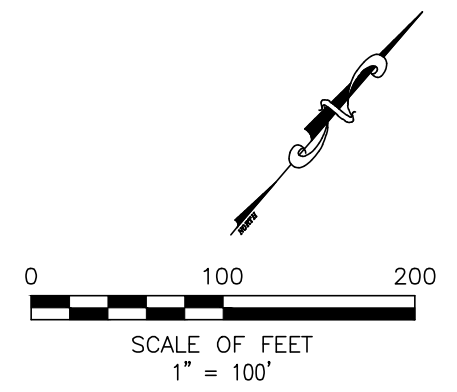
Date: Feb 13, 2025, 8:57am User ID: Amy
File: N:\Projects\2025\25-3548 Marathon Oil - Driveway\Civil\25-3548 DRIVEWAY LAYOUT.dwg

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TIME OF CONCENTRATION SUMMARY					
DRAINAGE AREA	SHEET FLOW (LF @ SLOPE)	SHALLOW CONCENTRATED (LF @ SLOPE)	SHALLOW CONCENTRATED (LF @ SLOPE)	SHALLOW CONCENTRATED (LF @ SLOPE)	T _c (MIN)
DA-1	100 LF @ 1.0%	35 LF @ 1.5% PAVED	661 LF @ 1.0% UNPAVED	207 LF @ 1.5% PAVED	19 MIN

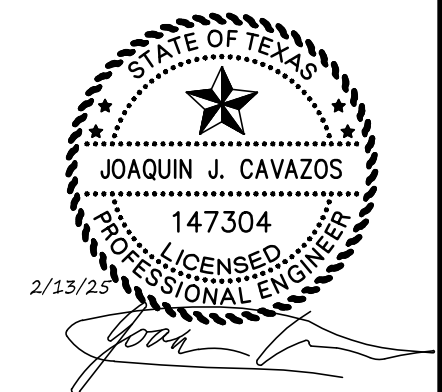
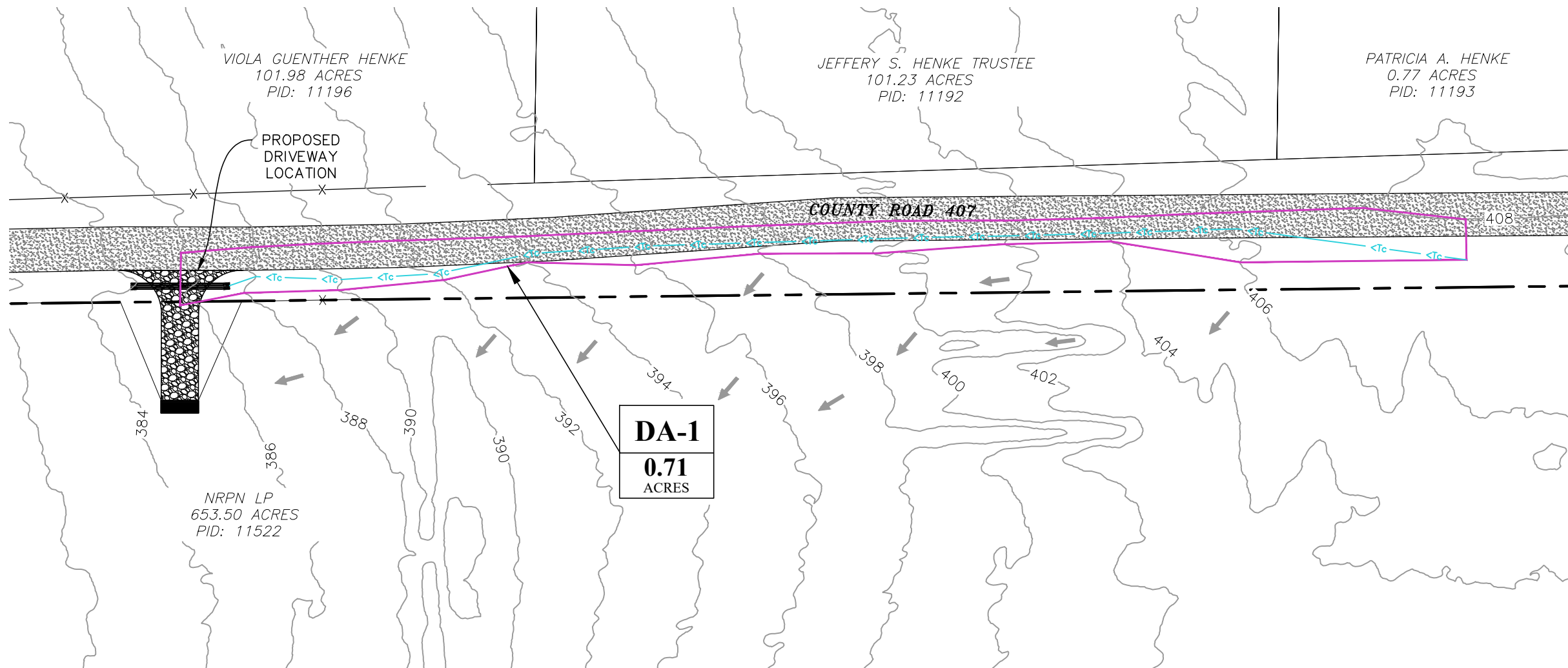
NOTES:
 1) TIME OF CONCENTRATION (T_c) CALCULATED USING TR-55 METHOD.
 2) RAINFALL INTENSITIES DERIVED FROM NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES FOR TEXAS.
 3) RUNOFF COEFFICIENTS TAKEN FROM TXDOT HYDRAULIC DESIGN MANUAL, TABLE 4-10.

RATIONAL METHOD DRAINAGE CALCULATIONS				
DRAINAGE AREA	RUNOFF COEFFICIENT	10-YEAR RAINFALL INTENSITY	AREA	10-YEAR PEAK FLOW
	C	I ₁₀ (IN./HR)	(ACRES)	Q ₁₀
DA-1	0.26	5.521	0.71	1.019 CFS



LEGEND

	PROPERTY BOUNDARY
	EXISTING FENCELINE
	EXISTING 2' CONTOUR
	EDGE OF PAVEMENT
	DRAINAGE BOUNDARY
	TC PATH



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MARATHON OIL CORPORATION
 COUNTY ROAD 407, ATASCOSA COUNTY, TX

DRIVEWAY PERMIT PACKAGE
 DRAINAGE AREA MAP

100% SUBMITTAL	PROJECT NO.: 25-3548	DATE: FEB, 2025
DRWN. BY: AMH	DSGN. BY: JJC	CHKD. BY: BAK

SHEET NO. 3 OF 5

Date: Feb 13, 2025, 8:52am User ID: Amy
 File: N:\Projects\2025\25-3548 Marathon Oil - Driveway\Civil\25-3548 DRAINAGE.dwg

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Hydrograph Report

1

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

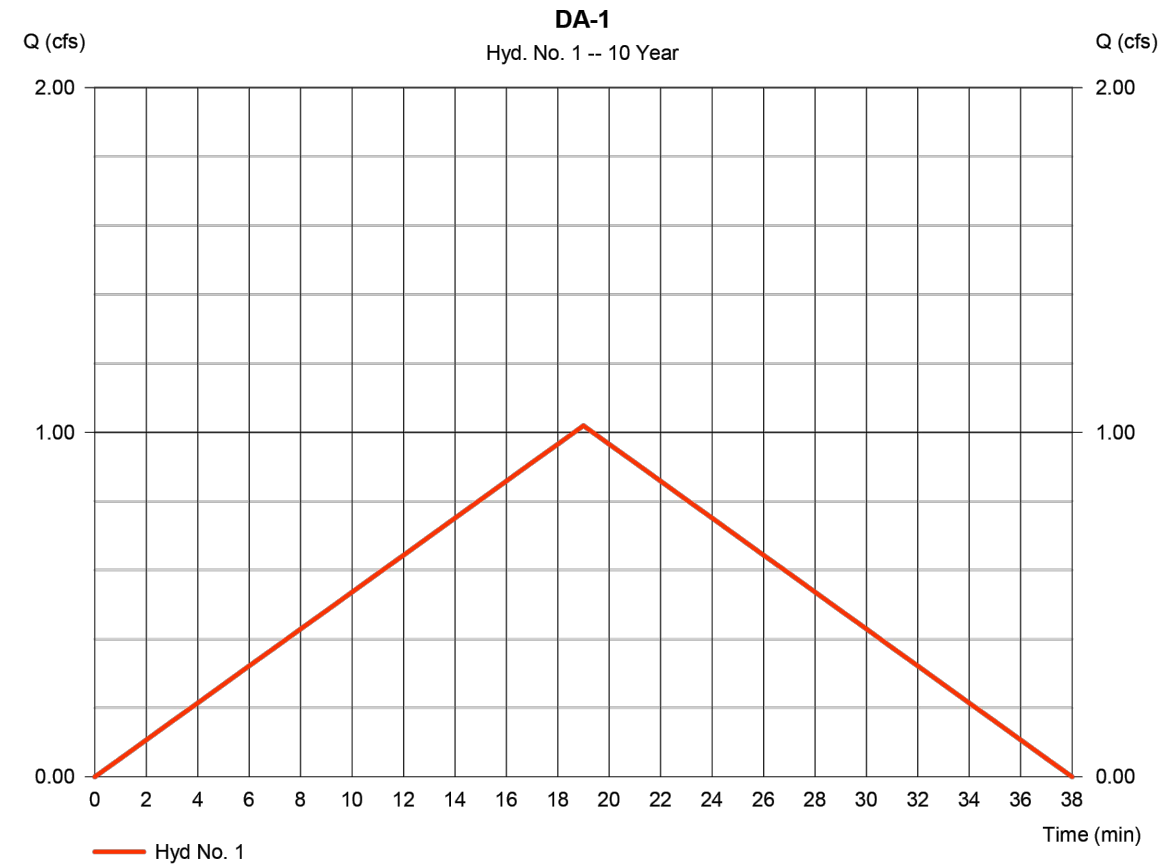
Thursday, 02 / 13 / 2025

Hyd. No. 1

DA-1

Hydrograph type	= Rational	Peak discharge	= 1.019 cfs
Storm frequency	= 10 yrs	Time to peak	= 19 min
Time interval	= 1 min	Hyd. volume	= 1,162 cuft
Drainage area	= 0.710 ac	Runoff coeff.	= 0.26*
Intensity	= 5.521 in/hr	Tc by TR55	= 19.00 min
IDF Curve	= Atlas 14 Atascosa County Tx	OSCEC limb fact	= 1/1

* Composite (Area/C) = [(1.630 x 0.20) + (0.140 x 0.95)] / 0.710



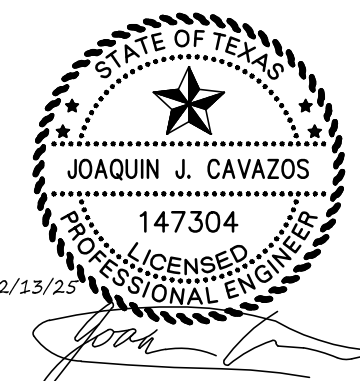
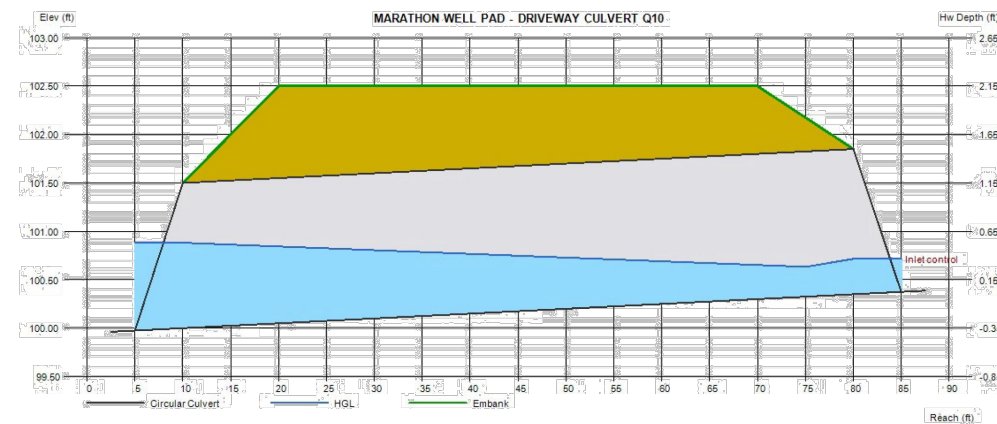
Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Thursday, Feb 13 2025

MARATHON WELL PAD - DRIVEWAY CULVERT Q10

Invert Elev Dn (ft)	= 100.00	Calculations	
Pipe Length (ft)	= 70.00	Qmin (cfs)	= 1.02
Slope (%)	= 0.50	Qmax (cfs)	= 1.02
Invert Elev Up (ft)	= 100.35	Tailwater Elev (ft)	= (dc+D)/2
Rise (in)	= 18.0		
Shape	= Circular	Highlighted	
Span (in)	= 18.0	Qtotal (cfs)	= 1.02
No. Barrels	= 2	Qpipe (cfs)	= 1.02
n-Value	= 0.024	Qovertop (cfs)	= 0.00
Culvert Type	= Circular Corrugate Metal Pipe	Veloc Dn (ft/s)	= 0.47
Culvert Entrance	= Mitered to slope (C)	Veloc Up (ft/s)	= 2.43
Coeff. K,M,c,Y,k	= 0.021, 1.33, 0.0463, 0.75, 0.7	HGL Dn (ft)	= 100.88
		HGL Up (ft)	= 100.61
		Hw Elev (ft)	= 100.72
		Hw/D (ft)	= 0.24
		Flow Regime	= Inlet Control
Embankment			
Top Elevation (ft)	= 102.50		
Top Width (ft)	= 50.00		
Crest Width (ft)	= 25.00		



REVISIONS		
DATE	NO.	DESCRIPTION

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MARATHON OIL CORPORATION
COUNTY ROAD 407, ATASCOSA COUNTY, TX

DRIVEWAY PERMIT PACKAGE
DRAINAGE CALCULATIONS

100% SUBMITTAL	PROJECT NO. 25-3548	DATE: FEB, 2025
DRWN. BY: AMH	DSGN. BY: JJC	CHKD. BY: BAK

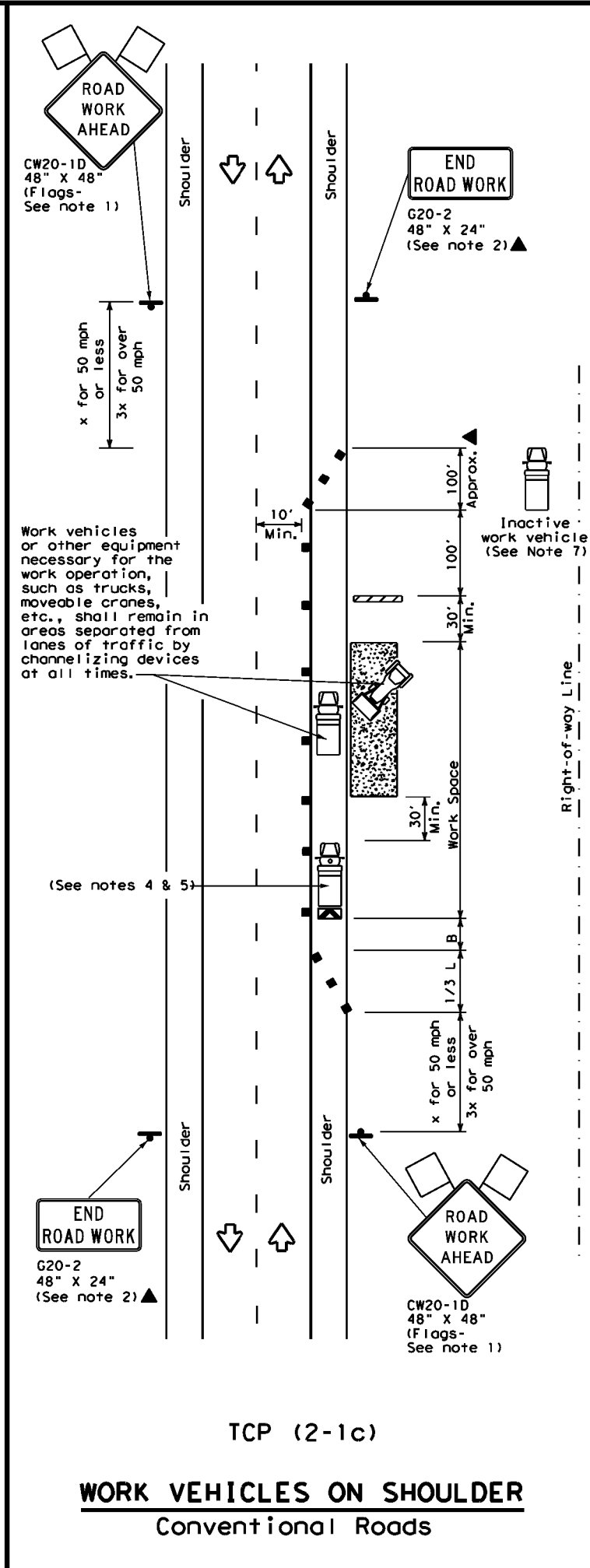
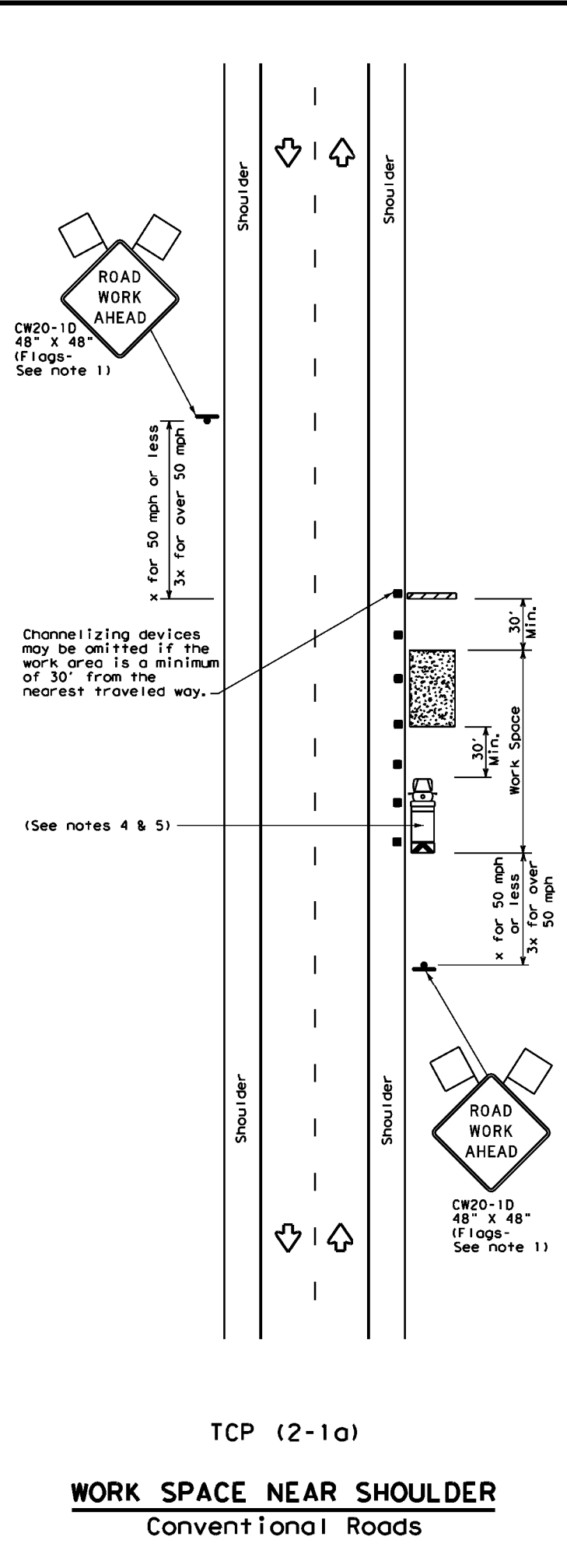
SHEET NO. 4 OF 5

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File: N:\Projects\2025\25-3548 Marathon Oil - Driveway\Civil\25-3548 DRAINAGE.dwg

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DATE: FILE:



LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	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	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

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

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

- 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 in the plans, or for routine maintenance work, when approved by the Engineer.
 - Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
 - Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
 - See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (2-1) - 18

FILE: tcp2-1-18.dgn	DN:	CKI:	DW:	CKI:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS				
2-94 4-98				
8-95 2-12				
1-97 2-18				
DIST			COUNTY	SHEET NO.