



MARATHON OIL CORPORATION DRIVEWAY PERMIT PACKAGE COUNTY ROAD 407

DRIVEWAY PERMIT CHECKLIST:

LEGAL DESCRIPTION: ABS A01311 G W FRAZER SV-4, 104.67 ACRES
ACREAGE: 104.67 ACRES
SURVEY NO: J POITEVENT SURVEY 4
PID: 79374
DRIVEWAY CLASSIFICATION: OILFIELD
OF DRIVEWAYS: (1) DRIVEWAY
DRAWING OF PROPOSED DRIVEWAY: SEE SHEET C2.0

SHEET INDEX

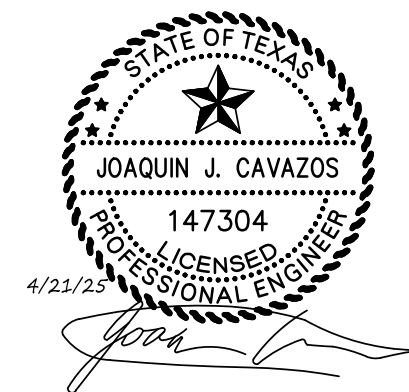
Description	Sheet Number
COVER SHEET	1
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DRAINAGE AREA MAP	3
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PREPARED FOR:

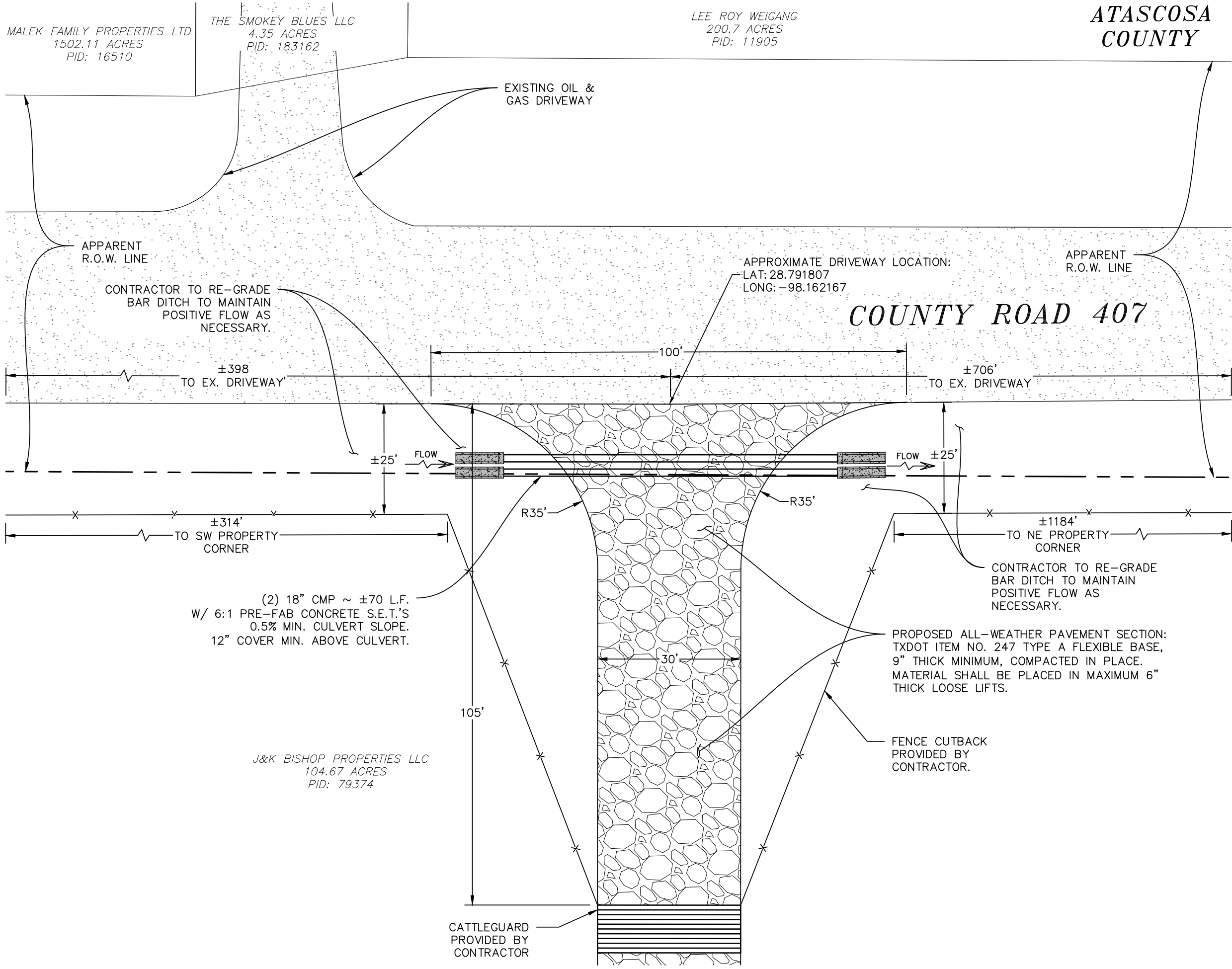
MARATHON OIL CORPORATION
5022 FM 2102
KENEDY, TEXAS 78119



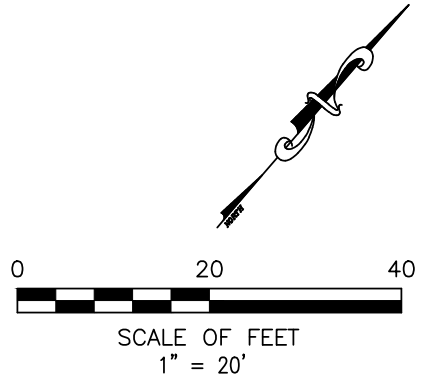
LOCATION MAP
1" = 5000'



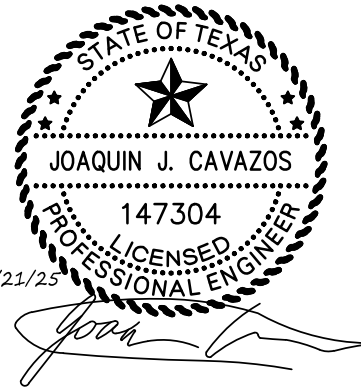
830-281-4060
Texas Registered Engineering Firm F-9155
Texas Registered Surveying Firm 101812-00



ATASCOSA COUNTY



Date: Apr 21, 2025, 5:10pm User ID: ENG1-2023
File: N:\Projects\2025\25-3606 Marathon Oil Corp - CR 407 Driveway\Civil\25-3606 DRIVEWAY LAYOUT.dwg



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Engineering & Surveying

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MARATHON OIL CORPORATION
COUNTY ROAD 407, ATASCOSA COUNTY, TX

DRIVEWAY PERMIT PACKAGE
DRIVEWAY LAYOUT

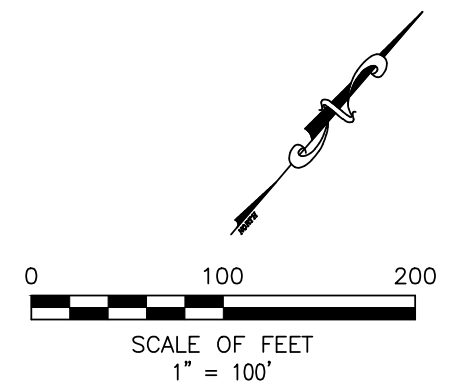
100% SUBMITTAL	PROJECT NO.: 25-3606	DATE: APR. 2025
DRWN. BY: JJC	DSGN. BY: JJC	CHKD. BY: BAK
SHEET NO. 2		OF 5

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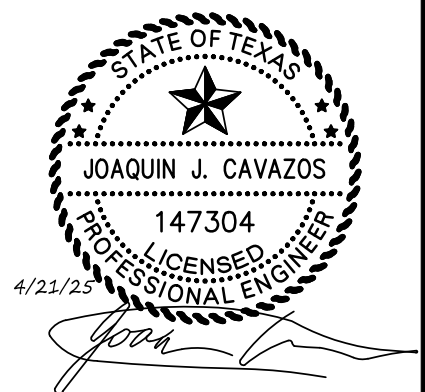
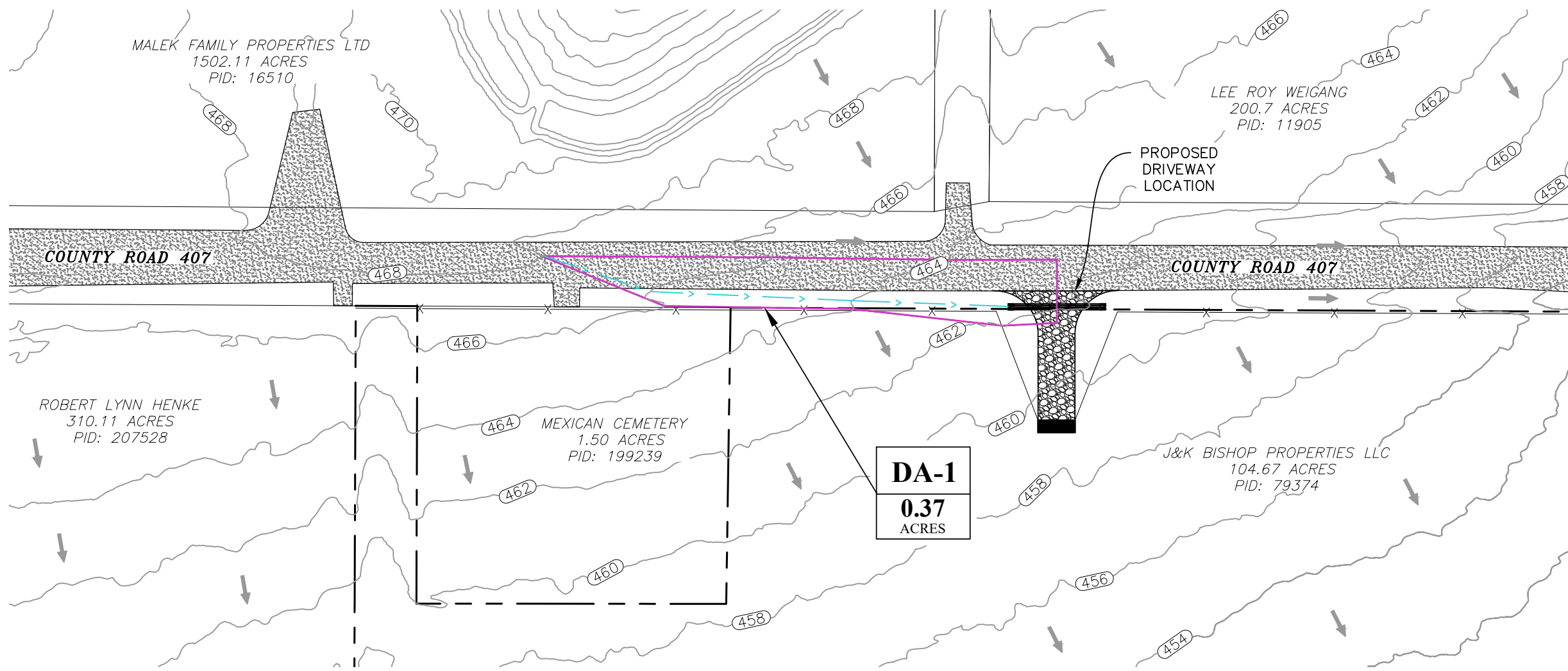
TIME OF CONCENTRATION SUMMARY			
DRAINAGE AREA	SHEET FLOW (LF @ SLOPE)	SHALLOW CONCENTRATED (LF @ SLOPE)	T _c (MIN)
DA-1	100 LF @ 2%	286 LF @ 0.6% UNPAVED	10 MIN*

- 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.
 - 4) * DENOTES A TIME OF CONCENTRATION CALCULATED LESS THAN 10 MINUTES. TXDOT RECOMMENDED MINIMUM TIME OF CONCENTRATION OF 10 MINUTES USED FOR CALCULATIONS.

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	0.61	7.181	0.37	1.621 CFS



- LEGEND**
- — — — — PROPERTY BOUNDARY
 - x — — — — — EXISTING FENCELINE
 - (956) — — — — — 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.: 25-3606	DATE: APR 2025
DRWN. BY: JJC	DSGN. BY: JJC	CHKD. BY: BAK
SHEET NO. 3		OF 5

Date: Apr 21, 2025, 5:10pm User ID: ENG1-2023
File: N:\Projects\2025\25-3606 Marathon Oil Corp - CR 407 Driveway\Civil\25-3606 DRAINAGE.dwg

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 File: N:\Projects\2025\25-3606 Marathon Oil Corp - CR 407 Driveway\Civil\25-3606 DRAINAGE.dwg

Hydrograph Report

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

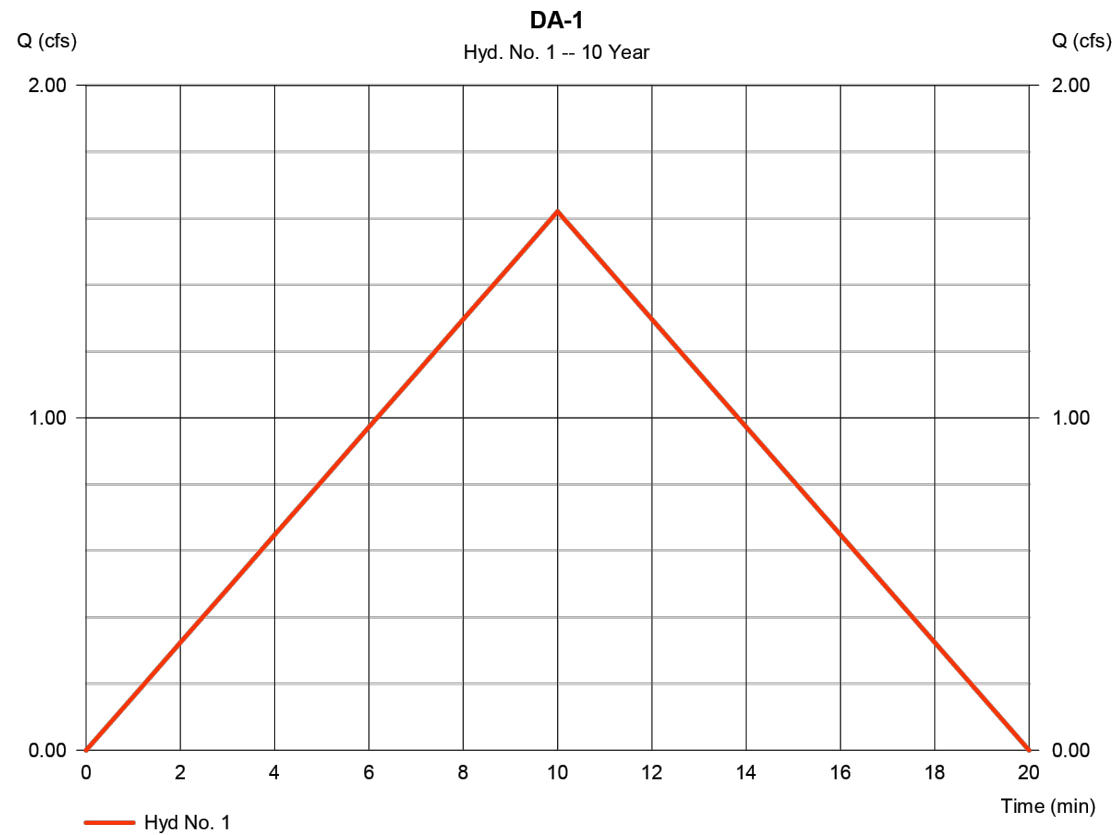
Monday, 04 / 21 / 2025

Hyd. No. 1

DA-1

Hydrograph type	= Rational	Peak discharge	= 1.621 cfs
Storm frequency	= 10 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 972 cuft
Drainage area	= 0.370 ac	Runoff coeff.	= 0.61*
Intensity	= 7.181 in/hr	Tc by User	= 10.00 min
IDF Curve	= Atlas 14 Atascosa County Tx	ASC limb fact	= 1/1

* Composite (Area/C) = [(0.240 x 0.80) + (0.130 x 0.25)] / 0.370



Culvert Report

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

Monday, Apr 21 2025

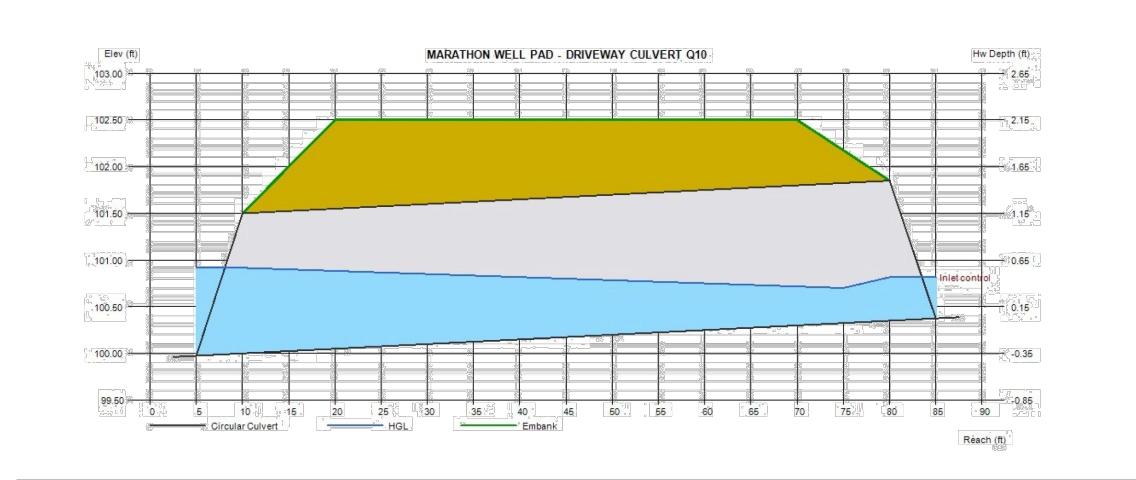
MARATHON WELL PAD - DRIVEWAY CULVERT Q10

Invert Elev Dn (ft)	= 100.00
Pipe Length (ft)	= 70.00
Slope (%)	= 0.50
Invert Elev Up (ft)	= 100.35
Rise (in)	= 18.0
Shape	= Circular
Span (in)	= 18.0
No. Barrels	= 2
n-Value	= 0.024
Culvert Type	= Circular Corrugate Metal Pipe
Culvert Entrance	= Mitered to slope (C)
Coeff. K,M,c,Y,k	= 0.021, 1.33, 0.0463, 0.75, 0.7

Embankment	
Top Elevation (ft)	= 102.50
Top Width (ft)	= 50.00
Crest Width (ft)	= 25.00

Calculations	
Qmin (cfs)	= 1.62
Qmax (cfs)	= 1.62
Tailwater Elev (ft)	= (dc+D)/2

Highlighted	
Qtotl (cfs)	= 1.62
Qpipe (cfs)	= 1.62
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 0.72
Veloc Up (ft/s)	= 2.76
HGL Dn (ft)	= 100.92
HGL Up (ft)	= 100.68
Hw Elev (ft)	= 100.82
Hw/D (ft)	= 0.31
Flow Regime	= Inlet Control



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DATE	NO.	DESCRIPTION

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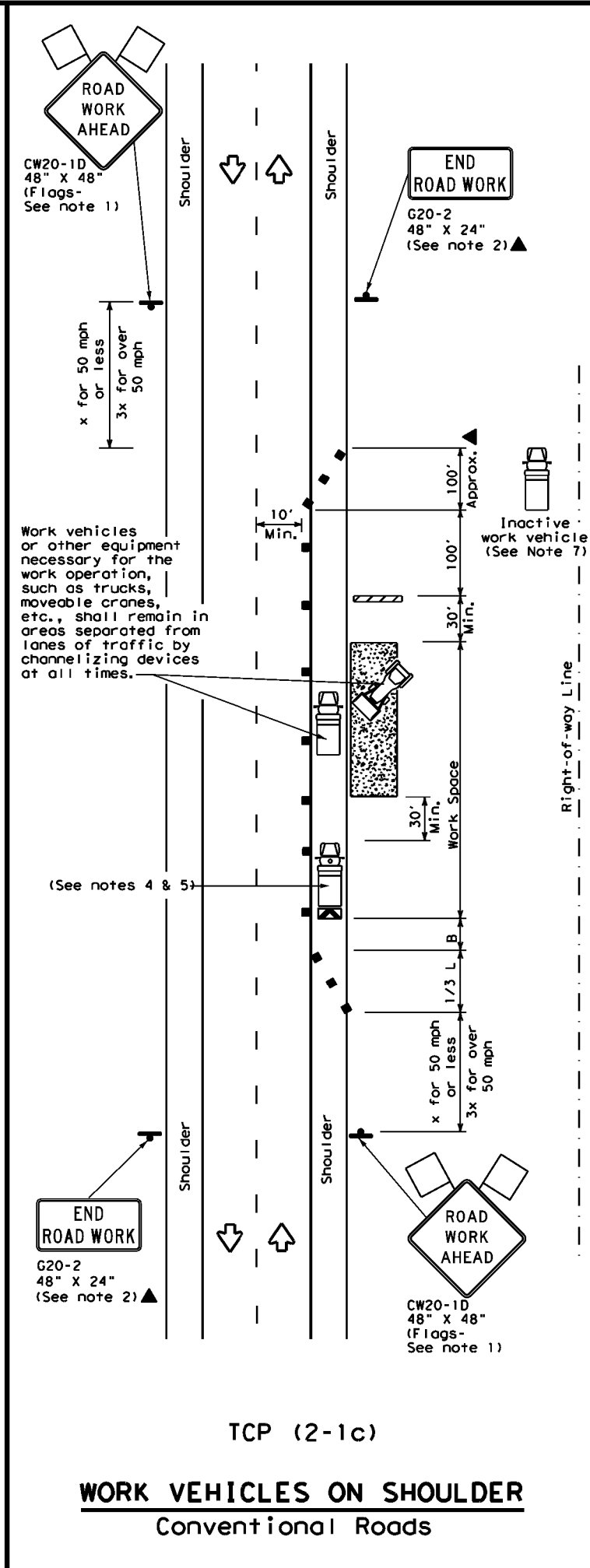
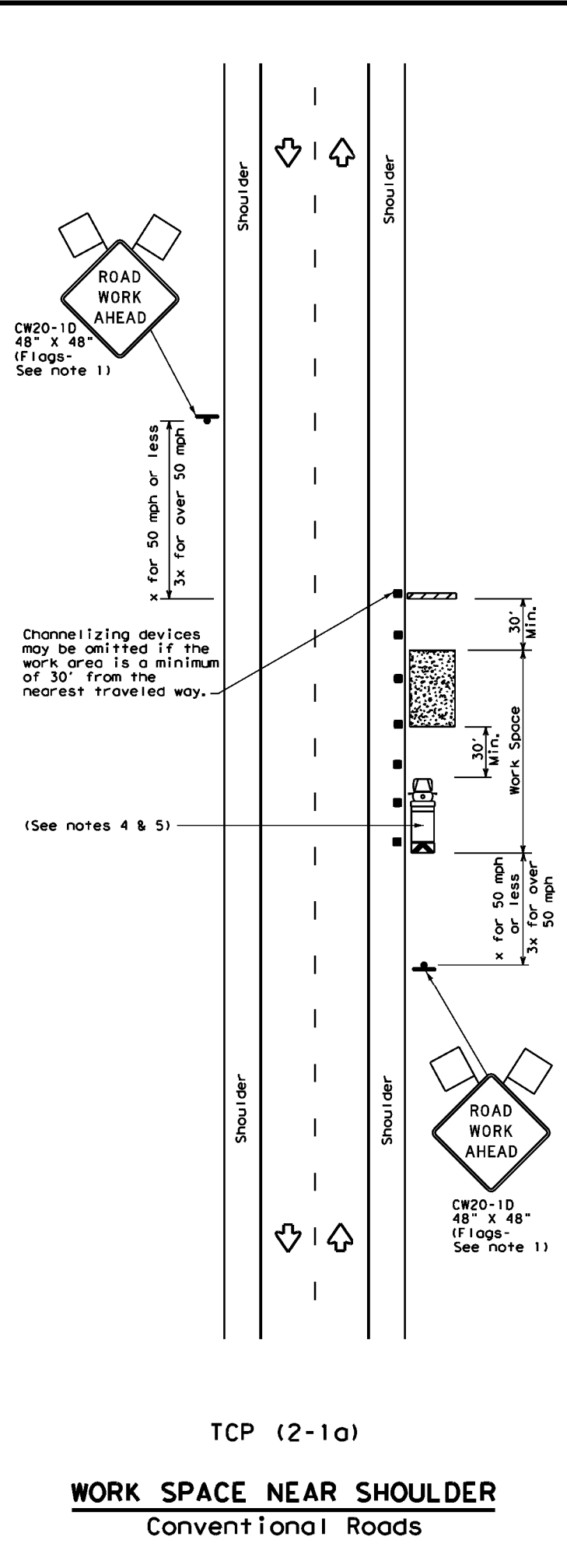
MARATHON OIL CORPORATION
COUNTY ROAD 407, ATASCOSA COUNTY, TX

DRIVEWAY PERMIT PACKAGE
DRAINAGE CALCULATIONS

100% SUBMITTAL	PROJECT NO.: 25-3606	DATE: APR 2025
DRWN. BY: JJC	DSGN. BY: JJC	CHKD. BY: BAK
SHEET NO. 4		OF 5

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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:
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REVISIONS				
2-94 4-98				
8-95 2-12				
1-97 2-18				
DIST			COUNTY	SHEET NO.