

LA BOTANA DRAINAGE LETTER

JUNE 2025

Prepared for:

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2307 LONG DR
BRYAN, TX 77802

Submitted to



By



ENGINEERS & CONSTRUCTORS
3204 EARL RUDDER FWY S
COLLEGE STATION, TX 77845
OFFICE (979) 260-6963

City of Bryan
Planning and Development Services
PO Box 1000
Bryan, Texas 77805

June 25, 2025

RE: 1819 San Antonio Road – Drive-Thru Restaurant – Drainage Letter

The purpose of this drainage letter is to present an analysis of the existing and proposed drainage infrastructure associated with the construction of the proposed drive thru restaurant located on Lot 1, Block 1 (0.633 acres) of the Ford Tri-Motor Subdivision in Bryan, TX, at the intersection of East William Joel Bryan Parkway (FM 158) and East Villa Maria Rd. The development of the 0.633-acre subdivision will consist of a drive-thru restaurant and associated parking. An overall site plan for this development can be seen on ***Exhibit 1***. No part of this property lies within a 1% flood hazard area (100 YR FLOODPLAIN) according to the Brazos County Flood Insurance Rate Map (FIRM) PANEL NO. 48041C0215F, REVISED DATE: 04/02/2014.

Existing Conditions

The existing drainage conditions of the site consist of an undeveloped lot. The existing site is comprised of three drainage areas, DA-E1-R3, DA-E2-S, and DA-E3-S1 which can be seen on ***Exhibit 2***. The suffixes of these drainage areas refer to the parent basins of each of these drainage areas, shown in Appendix A (Excerpts of FM158 reconstruction plans, drainage sheets) and ***Exhibit 2***. The three parent basins that included Lot 1 are Drainage Area R3 (DA-R3), Drainage Area S (DA-S) and Drainage Area (S-1).

Proposed Conditions

The proposed drainage conditions of the development will incorporate private underground storm facilities that will pick up the flow from the proposed site. The proposed site is comprised of four drainage areas, DA-P1-R3, DA-P1-S, DA-P2-S, and DA-P3-S1, which can be seen on ***Exhibit 3***.

Adjustment of Parent Basins and Weighted C values

The development of Lot 1 necessitates the adjustment of the acreages and weighted C values for the parent basins DA-R3 and DA-S. The base assumptions and calculations shown in the FM158 rehabilitation project were utilized to determine new weighted C values for these basins. Basin S-1 was not analyzed since there was no change from existing to proposed conditions. The table below shows the existing and proposed drainage areas for Lot 1 with the associated C value for each drainage area.

Exist Drainage Areas	Acre	SQ MILES	IMPERVIOUS	C VALUE
DA-E1-R3	0.276	0.00043	8%	0.49
DA-E2-S	0.308	0.00048	2%	0.46
DA-E3-S1	0.049	0.00008	30%	0.6

Prop Drainage Areas	Acre	SQ MILES	IMPERVIOUS	C VALUE
DA-P1-R3	0.107	0.00017	21%	0.555
DA-P1-S	0.169	0.00026	98%	0.94
DA-P2-S	0.308	0.00048	70%	0.8
DA-P3-S1	0.049	0.00008	30%	0.6

Parent Basin DA-R3

Parent Basin DA-R3 has a total acreage of 1.43 acres and weighted C value of 0.72. Existing drainage area DA-E1-R3 is the portion of Lot 1 within the parent basin. The calculation to establish a new weighted C (C_1) for the remainder of parent Basin DA-R3 without Lot 1 is shown below:

$$(\text{Area}_{\text{DA-R3}}) \times (C_{\text{DA-R3}}) = (\text{Area}_{\text{DA-R3}} - \text{Area}_{\text{DA-E1-R3}}) \times (C_1) + (\text{Area}_{\text{DA-E1-R3}}) \times (C_{\text{DA-E1-R3}})$$

$$(1.43 \text{ ac}) \times (0.72) = (1.43 \text{ ac} - 0.276 \text{ ac}) \times (C_1) + (0.276 \text{ ac}) \times (0.49)$$

Solving for $C_1 = 0.775$ new weighted C value for remainder of parent Basin DA-R3, Area = 1.154 acres.

Using C_1 in the proposed condition, the calculation to establish a new weighted C (C_2) is shown below:

$$(\text{Area}_{\text{DA-R3}} - \text{Area}_{\text{DA-E1-R3}}) \times (C_1) + (\text{Area}_{\text{DA-P1-R3}}) \times (C_{\text{DA-P1-R3}}) = (\text{Area}_{\text{DA-R3}} - \text{Area}_{\text{DA-E1-R3}} + \text{Area}_{\text{DA-P1-R3}}) \times (C_2)$$

$$(1.43 \text{ ac} - 0.276 \text{ ac}) \times (0.775) + (0.107 \text{ ac}) \times (0.555) = (1.43 \text{ ac} - 0.276 \text{ ac} + 0.107 \text{ ac}) \times (C_2)$$

Solving for $C_2 = 0.756$ new weighted C value for adjusted parent Basin DA-R3, **Area = 1.261 acres**. These values are used in the table below to establish new Q values for the revised parent basin DA-R3 including the proposed lot areas.

Parent Basin DA-S

Parent Basin DA-S has a total acreage of 12.03 acres and weighted C value of 0.63. Existing drainage area DA-E2-S is the portion of Lot 1 within the parent basin. The calculation to establish a new weighted C (C_3) for the remainder of parent Basin DA-S without Lot 1 is shown below:

$$(\text{Area}_{\text{DA-S}}) \times (C_S) = (\text{Area}_{\text{DA-S}} - \text{Area}_{\text{DA-E2-S}}) \times (C_3) + (\text{Area}_{\text{DA-E2-S}}) \times (C_{\text{DA-E2-S}})$$

$$(12.03 \text{ ac}) \times (0.63) = (12.03 \text{ ac} - 0.308 \text{ ac}) \times (C_3) + (0.308 \text{ ac}) \times (0.46)$$

Solving for $C_3 = 0.634$ new weighted C value for remainder of parent Basin DA-S, Area = 11.722 acres.

Using C_3 in the proposed condition, the calculation for establish a new weighted C (C_4) is shown below:

$$(\text{Area}_{\text{DA-S}} - \text{Area}_{\text{DA-E2-S}}) \times (C_3) + (\text{Area}_{\text{DA-P1-S}}) \times (C_{\text{DA-P1-S}}) + (\text{Area}_{\text{DA-P2-S}}) \times (C_{\text{DA-P2-S}}) = (\text{Area}_{\text{DA-S}} + \text{Area}_{\text{DA-P1-S}}) \times (C_4)$$

$$(12.03 \text{ ac} - 0.308 \text{ ac}) \times (0.634) + (0.169 \text{ ac}) \times (0.94) + (0.308 \text{ ac}) \times (0.8) = (12.03 \text{ ac} + 0.139 \text{ ac}) \times (C_4)$$

Solving for $C_4 = 0.642$ new weighted C value for adjusted parent Basin DA-S, **Area = 12.199 acres**. These values are used in the table below to establish new Q values for the revised parent basin DA-S including the proposed lot areas.

PROPOSED SYSTEM R&S - POST FM158 CONSTRUCTION													
DRAINAGE AREA	TOTAL AREA	WEIGHTED "C" VALUE	Tc USED	Intensity (I)					FLOW (Q)				
	(acres)		(min)	(in/hr)					(cfs)				
				5 YR	10 YR	25 YR	50 YR	100 YR	5 YR	10 YR	25 YR	50 YR	100 YR
R3	1.43	0.72	16.81	6.01	6.80	7.79	8.83	9.21	6.15	6.96	7.98	9.04	9.43
S	12.03	0.63	20.30	5.43	6.16	7.06	8.02	8.37	40.85	46.34	53.11	60.33	62.96

PROPOSED SYSTEM R&S - POST FM158 CONSTRUCTION WITH FORD TRI-MOTOR LOT INCORPORATED													
DRAINAGE AREA	TOTAL AREA	WEIGHTED "C" VALUE	Tc USED	Intensity (I)					FLOW (Q)				
	(acres)		(min)	(in/hr)					(cfs)				
				5 YR	10 YR	25 YR	50 YR	100 YR	5 YR	10 YR	25 YR	50 YR	100 YR
R3	1.261	0.756	16.81	6.01	6.80	7.79	8.83	9.21	5.73	6.48	7.43	8.42	8.78
S	12.199	0.642	20.30	5.43	6.16	7.06	8.02	8.37	42.53	48.24	55.29	62.81	65.55

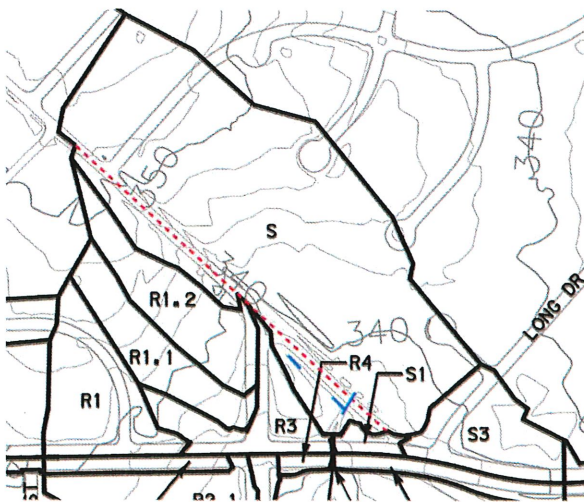
DA-R3 DELTA	-0.42	-0.48	-0.55	-0.62	-0.65
DA-S DELTA	1.68	1.91	2.18	2.48	2.59
TOTAL SYSTEM DELTA	1.26	1.43	1.63	1.86	1.94

The table above shows the comparison between the original parent basins and the revised parent basins with the Lot 1 development incorporated into the basins.

STORM SEWER SYSTEM DESIGN

The onsite storm sewer system for Lot 1 consists of two storm system runs consisting of 15-inch HDPE pipe, 30-inch RCP and 36-inch RCP, shown on **Exhibit 4**. The drainage areas that contribute to the 15-inch storm sewer system are shown on **Exhibit 4**, and are drainage areas DA-IN-01 and DA-IN-02. The Rational Formula method was used to determine flow for each storm event and is shown on **Exhibit 5**.

The other drainage pipes consist of two culvert systems, a 24-inch culvert and a 30-inch/36-inch RCP culvert system that collects the proposed "system S" as discussed above. The flows from the above discussion were utilized to size this storm pipe run, which consists of 65.55 cfs in the 100-yr storm event in the proposed "system S". **Exhibit 8** shows the capacity calculations for different pipe sizes dependent on the slope of the pipe. The 36-inch RCP at 1% slope is shown to have 66.3 cfs of capacity and the 30-inch RCP at 4.41% is shown to have 86.4 cfs of capacity, both of which are greater than the 100-yr storm event of 65.55 cfs of the proposed "system S", shown above.



The 24-inch culvert, however, does not see the full 65.55 cfs of "system S", as shown in the graphic to the left, taken from the appendix:

The red dashed line represents the centerline of the road bed and separates "system S" into a sub drainage area that the proposed 24-inch culvert conveys. This sub area is conservatively about 15% of the total system, which is approximately 10 cfs. The blue lines represent the location of both culvert systems. From **Exhibit 8**, the capacity for a 24-inch culvert at 1.25% slope is 25.4 cfs, which is greater than the estimated 10 cfs it will need to carry.

Exhibit 6 shows the 15-inch pipe size calculated using the runoff from each of these drainage areas for the 100-year storm event. Capacity calculations were performed for the 100-year storm event to size the proposed storm drain infrastructure.

Exhibits 7.1 & 7.2 show the calculations for the grate inlet on the proposed storm system for both the 10 & 100-year storm events. The grate inlet has been sized with an EJIW – V5726-80 grate inlet.

CONCLUSION

In summary, the proposed development is located in an “evaluate detention” area of the Briar Creek watershed. This site qualifies as “Detention Limited” property (Section II, C.,3.,b) and can be exempted from detention requirements with the impacts of the site improvements addressed. The impacts of the development to the existing drainage system have been evaluated above and have shown to be minimum for systems R&S.

Sincerely,

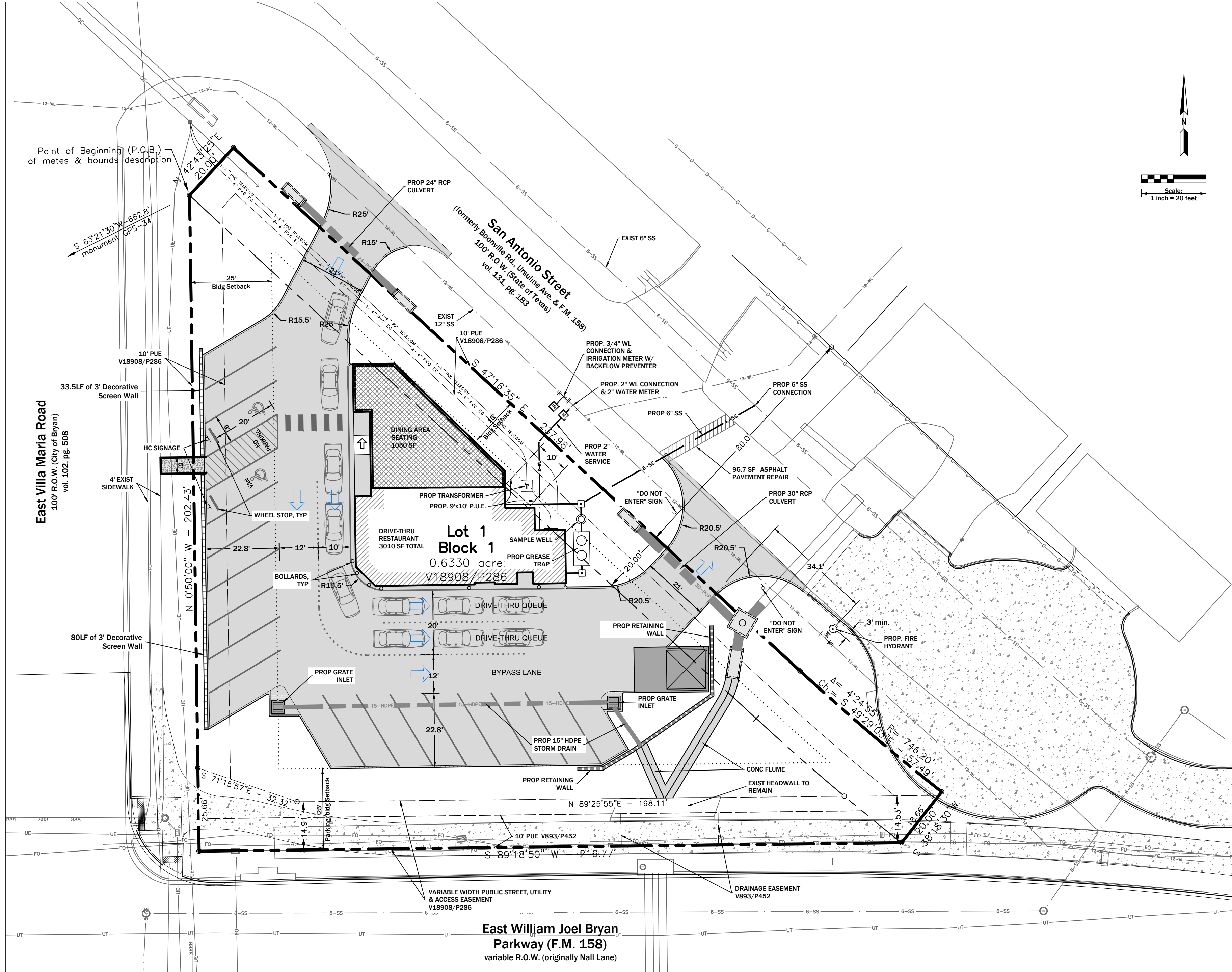


James T. Batenhorst, P.E.

Cc: file



EXHIBIT 1:	Site Plan
EXHIBIT 2:	Existing Drainage Area Map
EXHIBIT 3:	Proposed Drainage Area Map
EXHIBIT 4:	Proposed Site Drainage Area Map
EXHIBIT 5:	Rational Formula Drainage Calculations
EXHIBIT 6	Onsite Pipe Capacity Calculations – 100-year Storm
EXHIBIT 7.1:	Grate Inlet Capacity Calculations – 10-year Storm
EXHIBIT 7.2:	Grate Inlet Capacity Calculations – 100-year Storm
EXHIBIT 8:	Pipe Capacity Calculations
APPENDIX A:	Excerpts of FM158 reconstruction plans (TxDOT PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT FM 158, BRAZOS COUNTY, PROJ # C 212-3-50)



GENERAL CONSTRUCTION NOTES:

- The contractor is responsible for obtaining all applicable permits for work contemplated on these plans.
- It is the responsibility of the contractor to schedule a pre-construction meeting with the engineer of record and the regulatory agency inspector prior to commencing construction.
- It shall be the responsibility of the Contractor to verify the exact location of ALL existing underground utilities. Furthermore, the Contractor shall contact all utility company representatives a minimum of 48 hours in advance of any excavation.
 - Contact Dig Tess @ 1-800-344-8377
 - Contact Nicholas Hopkins @ ATMOS 979-774-2406
 - Contact Dan Augsburger @ Optimum Communications 979-204-8263
 - Contact Brandon Charanza @ BTU 979-821-6770
 - Contact Mac Ortiz @ Frontier 972-365-9198
 - Contact Rachel Morales @ MetroNet: Rachel.morales@metronet.com
 - Contact Jayson Barkmecht @ COB (Water/Wastewater) 979-209-5959
- All construction shall be in accordance with the current City of Bryan Standard Specifications for Street Construction, B/CS Unified Technical Specifications, Water and Sewer and Generals, 2012, and BCS Unified Design Details. All inspection shall be performed by the staff of the City Engineer of Bryan. All construction shall be coordinated with the City of Bryan City Engineer.
- In lieu of using the construction materials indicated in these plans, the Contractor shall obtain written approval from the Engineer & Architect for any substitution prior to construction. Requests for changes should include product information and an engineer's seal where applicable. The contractor shall be financially responsible for the engineer's time spent reviewing changes and redesigning based on contractor's requests.
- Trench Safety Requirements shall be in accordance with O.S.H.A. Standard 29 CFR Part 1926 Subpart P and all federal, state and local regulations.
- TRENCHING AND BACKFILLING: All trenching and backfilling shall conform to the specifications set out herein. Testing shall be provided by a certified laboratory, at the Owner's expense, to verify these standards. Any retesting due to substandard work shall be at the expense of the Contractor. Structural areas shall include all sidewalks and shall extend 5' beyond the curb lines of all streets, alleys and parking areas.
- It is the responsibility of the contractor to comply with all State and Federal Regulations regarding construction activities near energized overhead power lines. Additionally, the contractor shall coordinate all proposed work and procedures with Bryan Texas Utility (BTU).
- All materials & labor not identified as a Separate Bid Item shall be considered subsidiary to the item in which it is used. All materials and equipment shall be both furnished and installed unless otherwise noted.
- The Contractor must provide construction staking from the information provide on these plans.
- All soil exposed by construction shall receive hydromulch or seed in accordance with the landscape plan.
- Trenches may not be left open overnight.
- Adjustment of Water Meters, Valves, Manholes, Irrigation Systems, and any other Public or Private Utility, etc. are not separate pay items. The Price of the adjustment shall be subsidiary to the construction of Sewer Line, Force Main, etc.
- The contractor shall coordinate with Atmos, Sudenlink Communications, BTU, CSU, and Frontier to adjust the location of existing facilities.
- Temporary spoil areas will be identified on site by owner.
- All materials storage and staging shall NOT be within the FEMA Floodplain.
- Contractor shall provide parking lot striping in accordance with the layout shown on this plans.
- All storm sewer, sanitary sewer and waterline being constructed with this site plan will be private.
- All roof and ground mounted mechanical equipment shall be screened from view or isolated so as not to be visible from any public right-of-way or residential district within 150' of the subject.
- All backflow devices must be installed and tested upon installation as per City Ordinance 2394.
- Outdoor lighting shall not exceed 1 lumen at all property lines. Light fixtures in parking lot shall not exceed a maximum height of 24 feet and pedestrian walkway fixtures shall not exceed a maximum height of 12 feet. Outdoor lighting shall also be shielded and provided with cutoff fixtures that are designed to have a cutoff angle of no more than 90 degrees.
- Cross slope and running slope of curb ramps serving the Accessible Parking shall comply with ICC A117.1 - 2009 Accessibility Standards. Maximum cross slope 1:48 (2.08%) and maximum running slope 1:12 (8.33%).
- The subject property is within the FM 158 Corridor Overlay District as defined by Zoning Ordinance Section 130-28.
- Property owner shall have direct responsibility to operate, repair and maintain the private detention facilities. The City of Bryan shall not be responsible for any operation, repair or maintenance of these areas.
- Where electric facilities are installed, BTU has the right to install, operate, relocate, construct, reconstruct, add to, maintain, inspect, patrol, enlarge, repair, remove and replace said facilities upon, over, under, and across the property included in the PUE, and the right to ingress and egress on property adjacent to the PUE to access electric facilities.

SITE PLAN NOTES:

- Name of Project: La Botana Drive Thru
- Legal: Lot 1, Block 1 of the FORD TRI-MOTOR SUBDIVISION
- Address: 1819 San Antonio Street, Bryan, Texas 77802
- Owner: Jorge Luis & Martha M. Diaz, 2307 Long Dr, Bryan, Texas 77802
- Engineer: Mitchell & Morgan, L.L.P., 3204 Earl Rudder Fwy, S. College Station, Texas 77845 (979) 260-6963
- Zoning: Commercial District (C-3)
- Existing Use: Undeveloped-Vacant
- Proposed Use: Drive-thru Restaurant
- Setbacks: Per City of Bryan Ordinances
- Overall Site Area: 0.63 Acres
- Water Demands: Min. = xx gpm, Avg. = xx gpm, Peak = xxx gpm, Avg. = xxxxx GPD, MAX. = xxxxxxxx GPD
- Sanitary Demands: Min. = xx gpm, Avg. = xxxxx GPD, MAX. = xxxxxxxx GPD
- All pavement shall have a 6 inch curb unless otherwise noted.
- No part of this property lies within a 1% flood hazard area (100 YEAR FLOOD PLAIN), according to the Brazos County Flood Insurance Rate Map (FIRM) PANEL NO. 48041C0215F, REVISED DATE: 04-02-2014.
- Signage shall be permitted separately.
- Building will not be greater than 30' at eave height.
- Contours associated with construction plans are shown on the grading plan sheet.
- Contractor must contact City of Bryan Solid Waste @ 979-209-5900 prior to construction of dumpster enclosure. If any modifications to the dumpster enclosure are made during construction, the contractor shall notify the Solid Waste Department. All-weather access route must be maintained and repaired at the business owner's expense.

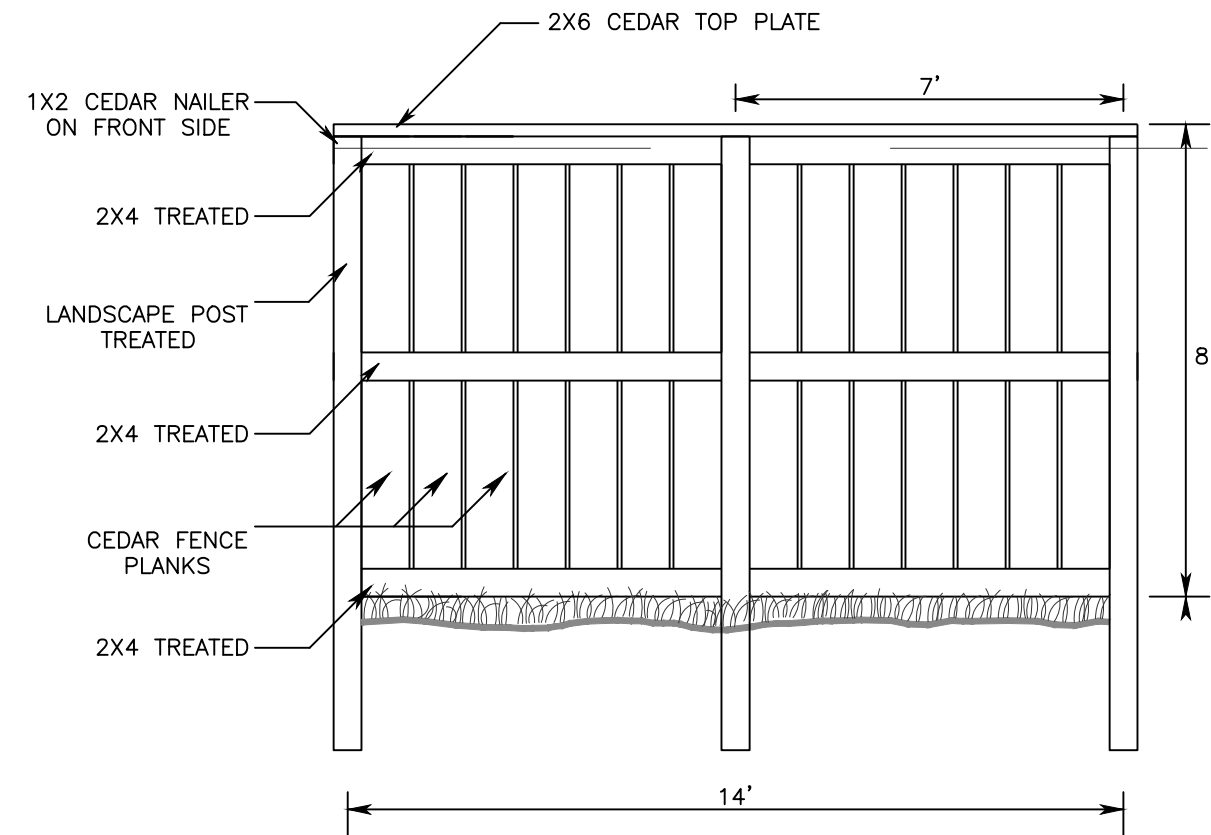
PARKING LEGEND:

PROPOSED PARKING:
PROPOSED BUILDING S.F. = 2810 S.F.
DINING AREA S.F. = 1050

PARKING REQD:

8 PARKS MIN + 1 SPACE PER 50 S.F. of DINING AREA
1050 S.F. / 50 S.F. = 21

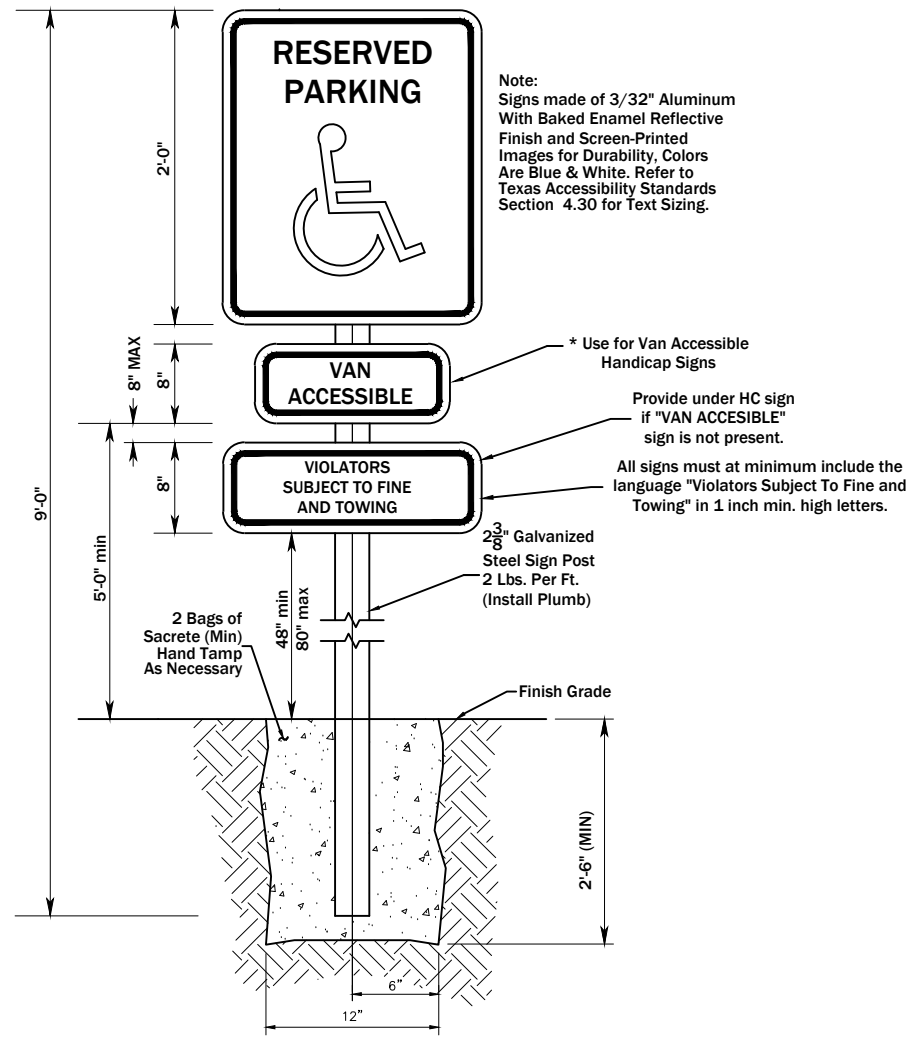
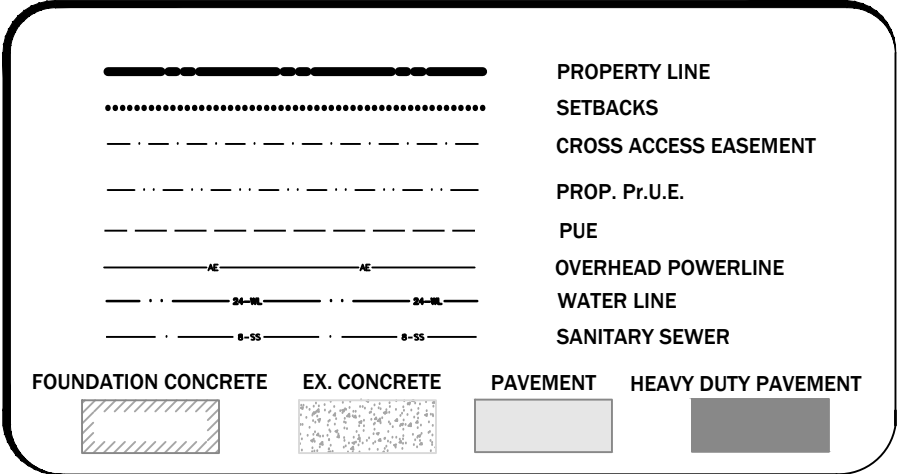
PARKING SPACES REQUIRED = 29
PARKING SPACES PROVIDED = 30
(INCLUDING 2 ADA & 11 QUEUE SPACES)



DUMPSTER FENCE ELEVATION

NTS

LEGEND

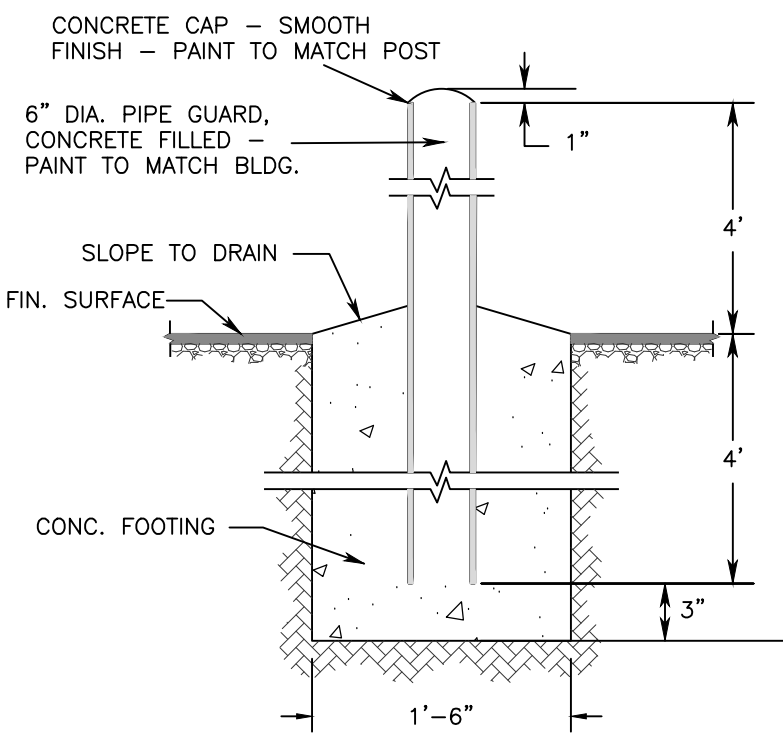


NOTE: INSTALL ONE SIGN PER LOCAL ORDINANCE. *UNAUTHORIZED VEHICLES PARK IN DESIGNATED ACCESSIBLE SPACES NOT DISPLAYING DISTINGUISHED PLACARDS OR LICENSE PLATES ISSUED FOR PERSONS WITH DISABILITIES WILL BE FINED.

- SIGN INSTALLATION NOTES:
- All signs shall maintain heights specified but shall be mounted to the building in lieu of the sign post.
 - The signs shall be installed so that the bottom of each sign shall be at least four (4) feet above the ground at the base of the signpost or above an adjacent travelway. All signposts shall be installed 24 inches from the travelway.
 - The hardware used to attach the signs to the signposts shall be the same as that currently used by the city.
 - Signs shall be positioned facing perpendicular to the parking stall.

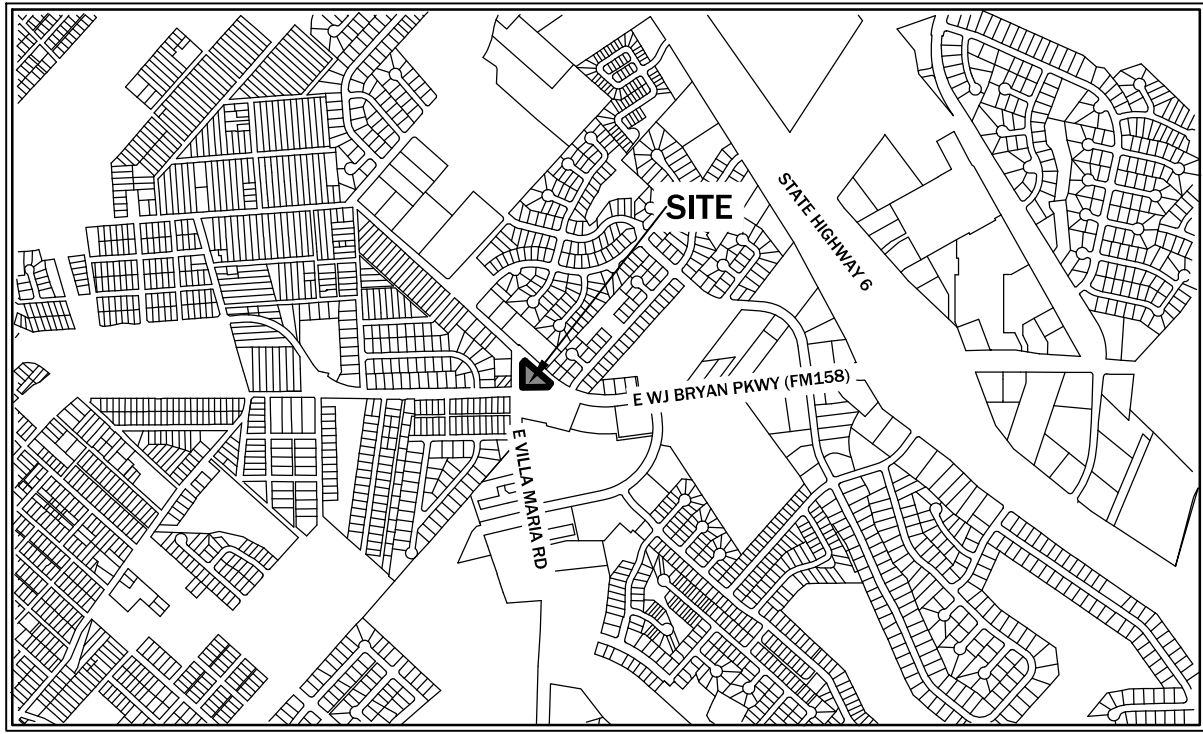
VAN ACCESSIBLE HANDICAP SIGN INSTALLATION DETAIL

6" DIA. PIPE GUARD, CONCRETE FILLED - PAINT TO MATCH BLDG.



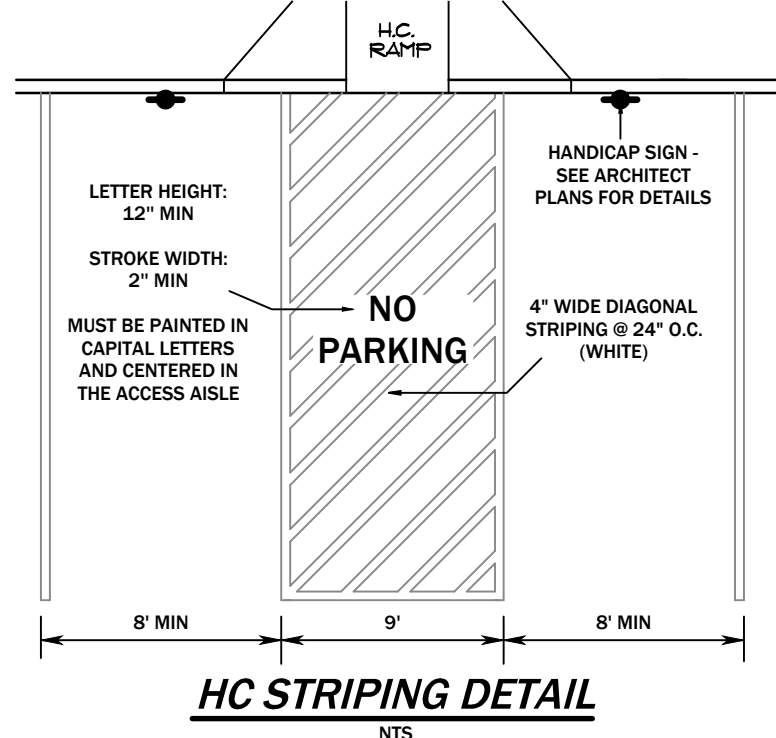
TYPICAL BOLLARD

NOT TO SCALE



VICINITY MAP

N.T.S.



HC STRIPING DETAIL

NTS

FIRE LANE

DESIGNATED

PARKING

ONLY

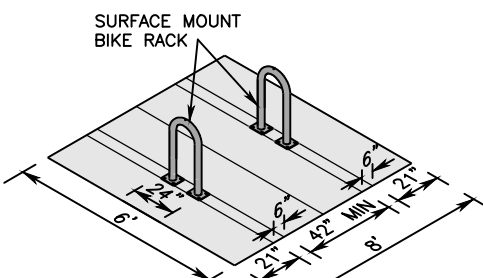
All curbs and curb ends designated as firelanes on plans shall be painted red with four inch (4") white lettering stating "FIRE LANE - NO PARKING - TOW AWAY ZONE". Wording may not be spaced for than fifteen feet (15') apart.

From the point the fire lane begins to the point the fire lane ends, including behind all adjacent parking spaces, the fire lane shall be marked with one continuous eight inch (8") red stripe painted on the drive surface behind the parking spaces. All curbing adjoining a fire lane must be painted red. Red stripes and curbs will contain the wording "FIRE LANE - NO PARKING - TOW AWAY ZONE", painted in four inch (4") white letters.

15" x 12" See Ordinance for additional information

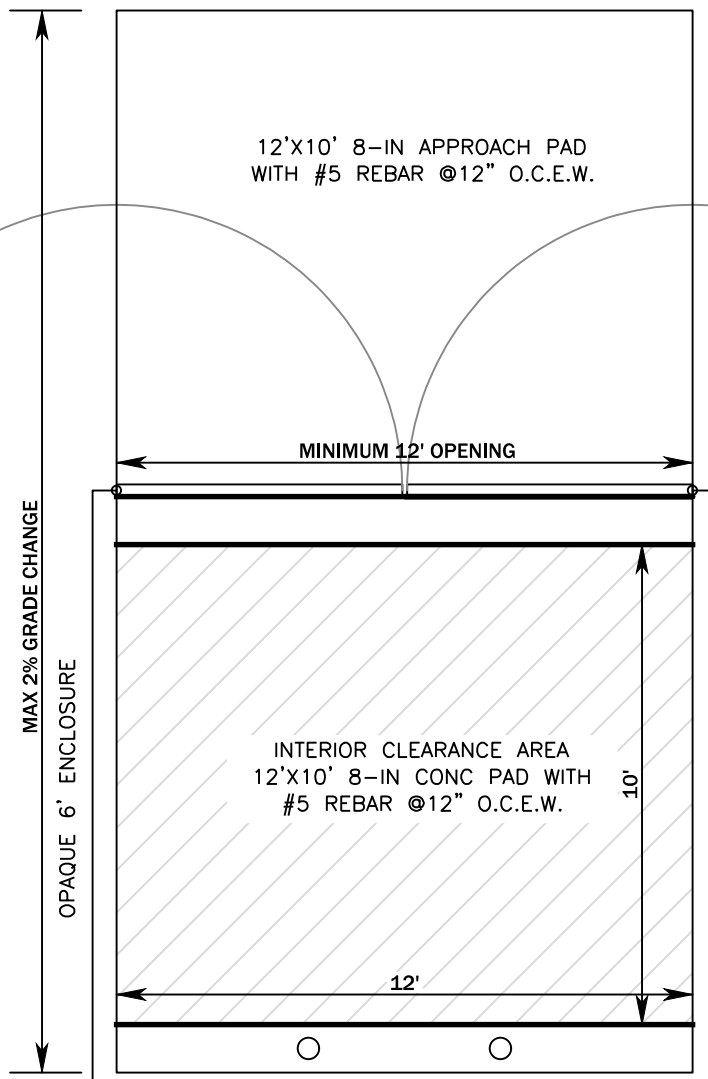


FIRE LANE MARKINGS



BIKE RACK DETAIL

NTS



DUMPSTER ENCLOSURE DETAIL

MITCHELL
MORGAN

T.979.260.6963

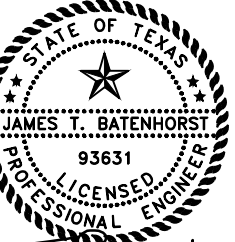
TX. FIRM # F-1443

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COLLEGE STATION, TX 77845

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6/13/2025



James T. Bateman, P.E.

JUNE 2025

Drawn By: JB, TF, SB
Checked By: JB

Prepared For:

JORGE LUIS & MARTHA M DIAZ
2307 LONG DR
BRYAN, TX 77802

Revisions

SITE PLAN
LA BOTANA DRIVE THRU
EAST WJ BRYAN PKWY (FM 158)

01

FIRM # F-1443

& DESIGN SPECIALISTS IN
ENGINEERING * HYDRAULICS
LOGY * UTILITIES * STREETS
PLANS * SUBDIVISIONS

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For information only
These documents are not
intended for construction,
bidding, or permit purposes.
Prepared by:
James T. Batenhorst
No. 93631

awn By: JB, TF, S

Checked By: VJBM

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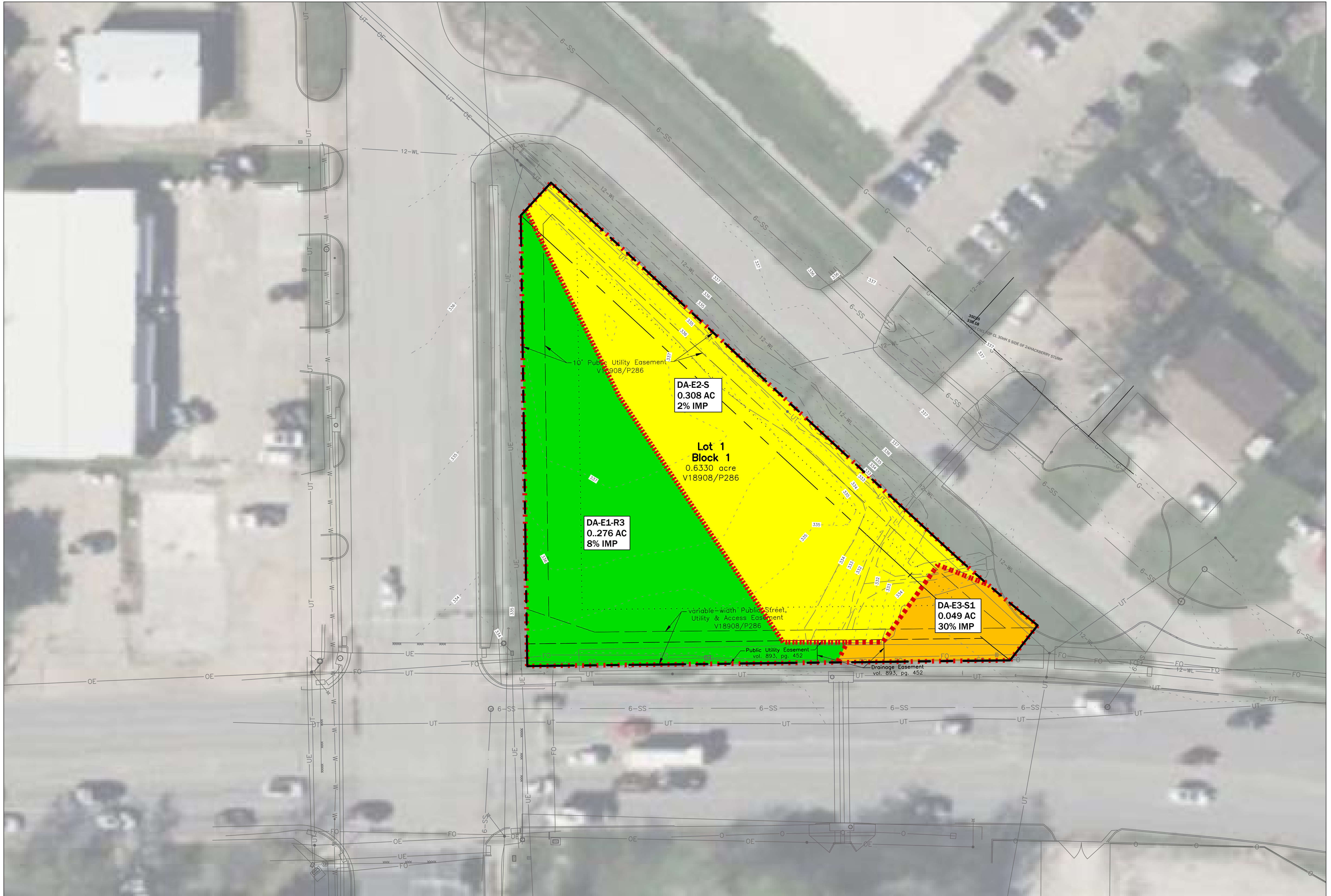
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## EXISTING DRAINAGE AREA MAP

LA BOIANA DRIVE THRU  
EAST WJ BRYAN PKWY (FM 158)

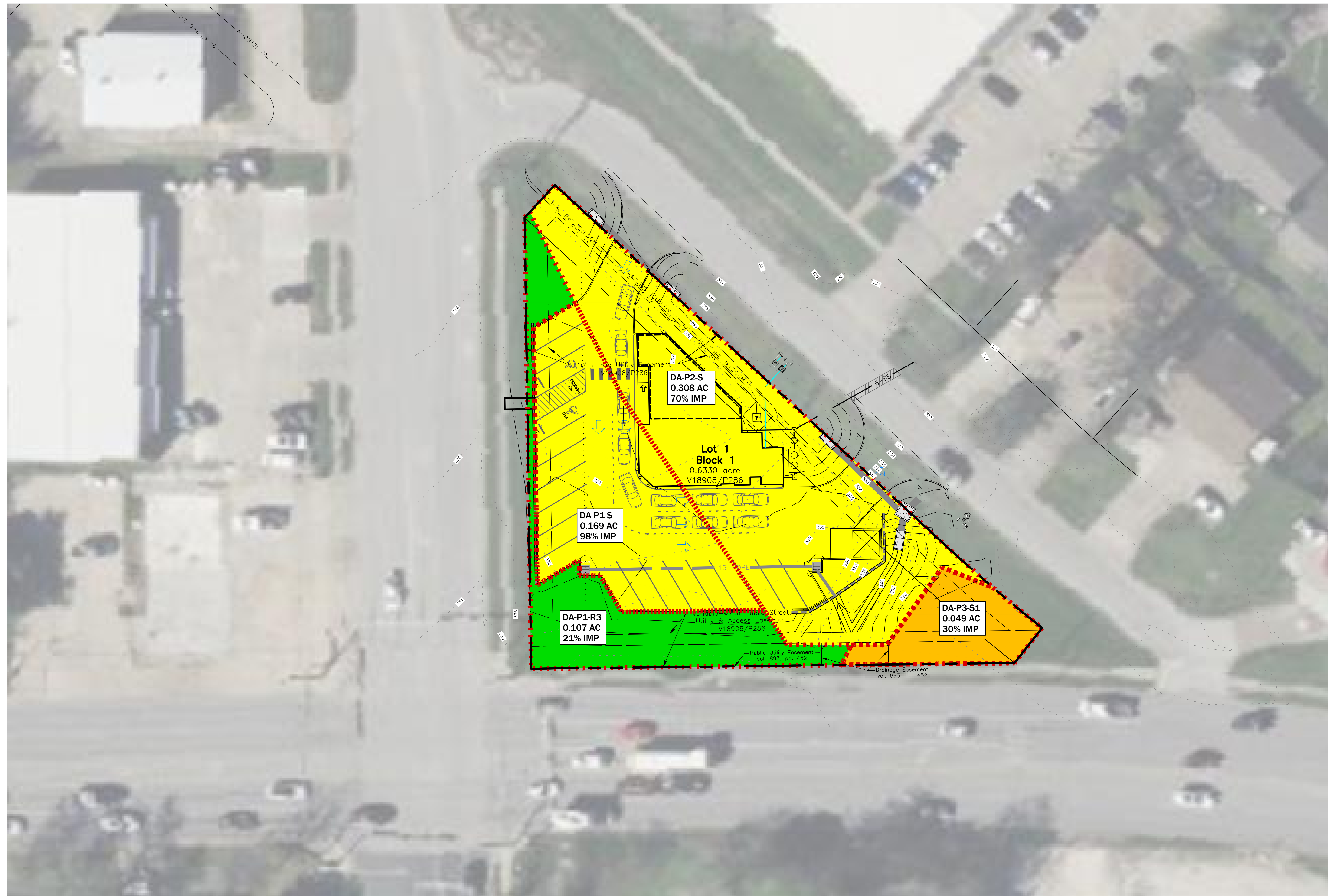
## EX 02



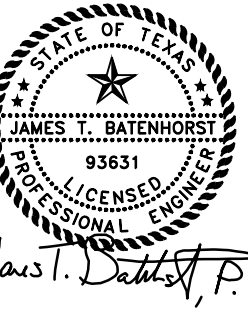


| Revisions |
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**PROPOSED DRAINAGE AREA MAP**  
*LA BOTANA DRIVE THRU  
EAST WJ BRYAN PKWY (FM 158)*







JUNE 2025  
Drawn By: JB, JT, SB  
Checked By: JB

Prepared For:  
JORGE LUIS & MARTHA M DIAZ  
2307 LONG DR  
BRYAN, TX 77802

Revisions

**PROPOSED SITE DRAINAGE AREA MAP**  
LA BOTANA DRIVE THRU  
EAST WJ BRYAN PKWY (FM 158)





**EXHIBIT 5**  
**Rational Formula Drainage Area Calculations**  
**FORD TRI-MOTOR LOT**

[illegible]

FORD TRI-MOTOR LOT

[illegible]



| SUMP GRATE (10 year storm)                                                                                                |       |         |                 |        |                                     |                      |                                       |                   |
|---------------------------------------------------------------------------------------------------------------------------|-------|---------|-----------------|--------|-------------------------------------|----------------------|---------------------------------------|-------------------|
| Drainage Area                                                                                                             | Inlet | Q (cfs) | Q clogged (25%) | h (ft) | Open Area Needed (ft <sup>2</sup> ) | Grate Inlet Selected | Open Area Selected (ft <sup>2</sup> ) | Calculated h (ft) |
| DA-IN-01                                                                                                                  | IN-01 | 1.84    | 2.31            | 0.5    | 0.68                                | V5726-80             | 1.35                                  | 0.13              |
| DA-IN02                                                                                                                   | IN-02 | 0.70    | 0.87            | 0.5    | 0.26                                | V5726-80             | 1.35                                  | 0.02              |
|                                                                                                                           |       |         |                 |        |                                     |                      |                                       |                   |
| <p><i>SUMP GRATE:</i><br/> <math>Q = 4.82 \cdot A \cdot h^{0.5}</math><br/> <math>A = Q / (4.82 \cdot h^{0.5})</math></p> |       |         |                 |        |                                     |                      |                                       |                   |

EXHIBIT 7.2  
FORD TRI-MOTOR LOT  
INLET CAPACITY  
100-YEAR STORM WSE

| SUMP GRATE (Recessed)(100 year storm) |       |         |                 |                                                                                          |                                       |                   |
|---------------------------------------|-------|---------|-----------------|------------------------------------------------------------------------------------------|---------------------------------------|-------------------|
| Drainage Area                         | Inlet | Q (cfs) | Q clogged (25%) | Grate Inlet Selected                                                                     | Open Area Selected (ft <sup>2</sup> ) | Calculated h (ft) |
| DA-IN-01                              | IN-01 | 2.68    | 3.35            | V5726-80                                                                                 | 1.35                                  | 0.26              |
| DA-IN02                               | IN-02 | 1.01    | 1.26            | V5726-80                                                                                 | 1.35                                  | 0.04              |
|                                       |       |         |                 |                                                                                          |                                       |                   |
| * East Jordan Inlet Catalog #         |       |         |                 | <i>SUMP GRATE:</i><br>$Q = 4.82 \cdot A \cdot h^{0.5}$<br>$A = Q / (4.82 \cdot h^{0.5})$ |                                       |                   |



EXHIBIT 8  
Pipe Capacity Calculation

Pipe Size (inches) with N=0.013

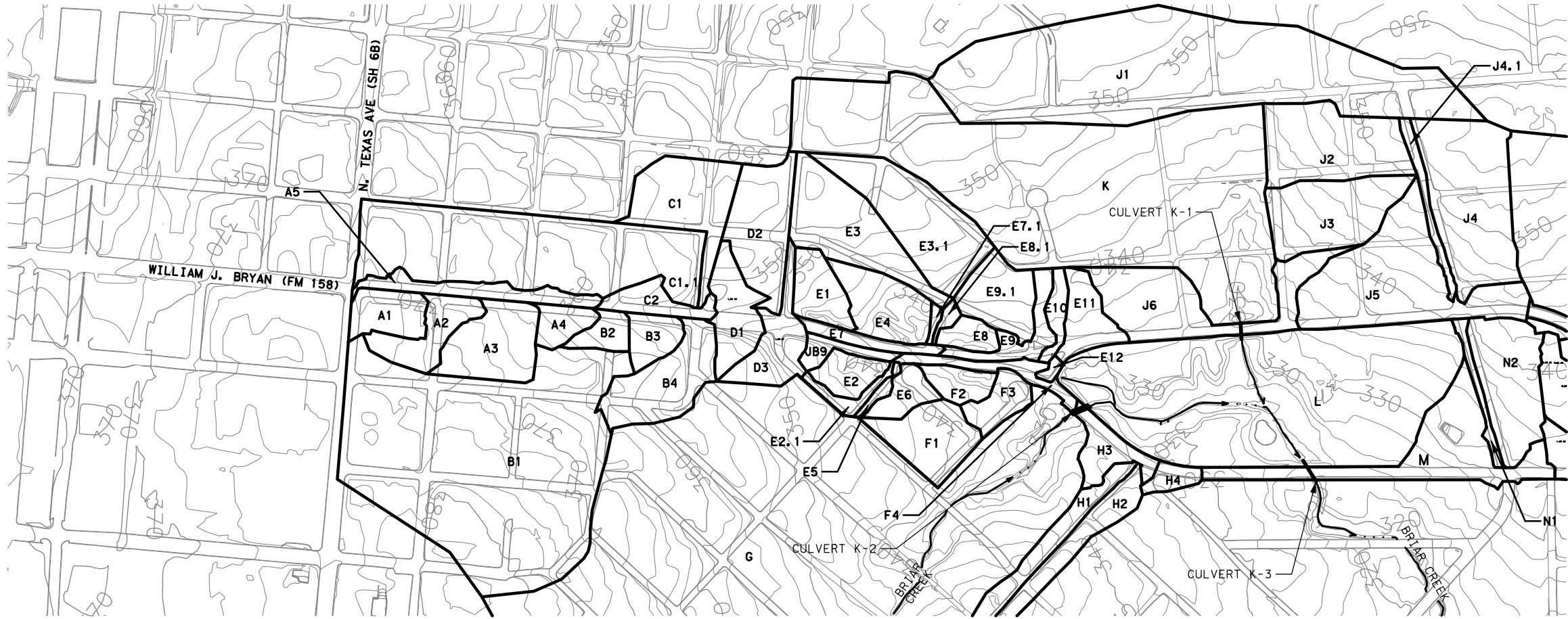
| Slope | 8   | 12  | 15   | 18   | 21   | 24   | 30   | 36    | 42    | 48    |
|-------|-----|-----|------|------|------|------|------|-------|-------|-------|
| 0.10% | 0.4 | 1.1 | 2.0  | 3.3  | 5.0  | 7.2  | 13.0 | 21.1  | 31.9  | 45.5  |
| 0.20% | 0.5 | 1.6 | 2.9  | 4.7  | 7.1  | 10.1 | 18.4 | 29.9  | 45.1  | 64.4  |
| 0.40% | 0.8 | 2.3 | 4.1  | 6.7  | 10.0 | 14.3 | 26.0 | 42.3  | 63.8  | 91.1  |
| 0.60% | 0.9 | 2.8 | 5.0  | 8.2  | 12.3 | 17.6 | 31.9 | 51.8  | 78.1  | 111.6 |
| 0.80% | 1.1 | 3.2 | 5.8  | 9.4  | 14.2 | 20.3 | 36.8 | 59.8  | 90.2  | 128.8 |
| 1.00% | 1.2 | 3.6 | 6.5  | 10.5 | 15.9 | 22.7 | 41.1 | 66.9  | 100.9 | 144.0 |
| 1.25% | 1.4 | 4.0 | 7.2  | 11.8 | 17.8 | 25.4 | 46.0 | 74.8  | 112.8 | 161.0 |
| 4.41% | 2.5 | 7.5 | 13.6 | 22.1 | 33.4 | 47.6 | 86.4 | 140.4 | 211.8 | 302.5 |

# APPENDIX A









**LEGEND:**

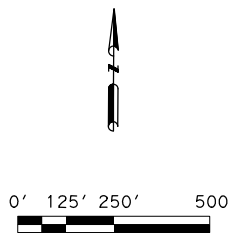
A DRAINAGE AREA I.D.

CULVERT XX CULVERT NO.

— DRAINAGE AREA BOUNDARY

→ CREEK FLOWLINE

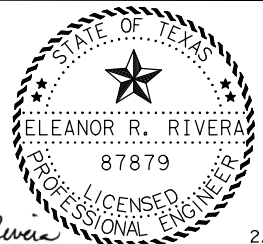
1. DISCHARGES CALCULATED USING THE RATIONAL METHOD.
2. DISCHARGES REFLECT USE OF CURRENT e, b, d COEFFICIENTS FOR BRAZOS COUNTY.
3. DISCHARGES ALSO EVALUATED USING INTENSITIES DETERMINED BY LINEAR INTERPOLATION OF POINT VALUES PROVIDED IN NOAA ATLAS 14 PER TXDOT HYDRAULIC DESIGN MANUAL. e, b, d COEFFICIENTS PRODUCE MORE CONSERVATIVE RESULTS THAN THE UPDATED NOAA ATLAS 14 INTENSITIES IN THE PROJECT AREA.



PROPOSED DRAINAGE HYDROLOGIC CALCULATIONS

| Drainage Area # | Total Area | W'ted C value | Tc Used | Intensity (I) |       |       |       |        | Flow (Q) |       |       |       |        |
|-----------------|------------|---------------|---------|---------------|-------|-------|-------|--------|----------|-------|-------|-------|--------|
|                 |            |               |         | (in/hr)       |       |       |       |        | (CFS)    |       |       |       |        |
|                 |            |               |         | 5 Yr          | 10 Yr | 25 Yr | 50 Yr | 100 Yr | 5 Yr     | 10 Yr | 25 Yr | 50 Yr | 100 Yr |
| A1              | 1.17       | 0.80          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 7.22     | 8.11  | 9.26  | 10.47 | 10.93  |
| A2              | 1.38       | 0.68          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 7.25     | 8.14  | 9.29  | 10.51 | 10.97  |
| A3              | 2.21       | 0.48          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 8.14     | 9.14  | 10.44 | 11.80 | 12.32  |
| A4              | 0.70       | 0.80          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 4.29     | 4.82  | 5.50  | 6.22  | 6.49   |
| A5              | 1.19       | 0.86          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 7.85     | 8.81  | 10.06 | 11.37 | 11.87  |
| B1              | 16.99      | 0.71          | 44.00   | 3.39          | 3.90  | 4.49  | 5.13  | 5.37   | 40.77    | 46.82 | 53.98 | 61.59 | 64.48  |
| B2              | 0.61       | 0.78          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.66     | 4.11  | 4.69  | 5.30  | 5.53   |
| B3              | 0.81       | 0.49          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.07     | 3.45  | 3.93  | 4.45  | 4.64   |
| B4              | 2.37       | 0.68          | 15.00   | 6.38          | 7.19  | 8.23  | 9.33  | 9.73   | 10.22    | 11.54 | 13.20 | 14.96 | 15.61  |
| C1              | 2.65       | 0.59          | 17.00   | 5.98          | 6.76  | 7.74  | 8.78  | 9.16   | 9.35     | 10.57 | 12.10 | 13.72 | 14.32  |
| C1.1            | 8.38       | 0.38          | 33.00   | 4.08          | 4.66  | 5.36  | 6.11  | 6.38   | 12.99    | 14.84 | 17.08 | 19.44 | 20.32  |
| C2              | 0.87       | 0.74          | 30.00   | 4.33          | 4.94  | 5.67  | 6.46  | 6.75   | 2.78     | 3.17  | 3.64  | 4.15  | 4.33   |
| D1              | 1.54       | 0.58          | 12.00   | 7.10          | 7.98  | 9.13  | 10.33 | 10.78  | 6.39     | 7.19  | 8.21  | 9.29  | 9.70   |
| D2              | 2.55       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 11.77    | 13.21 | 15.09 | 17.06 | 17.81  |
| D3              | 1.54       | 0.68          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 8.04     | 9.02  | 10.31 | 11.65 | 12.16  |
| E1              | 1.18       | 0.39          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.53     | 3.96  | 4.52  | 5.11  | 5.34   |
| E2              | 0.81       | 0.50          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.12     | 3.50  | 3.99  | 4.51  | 4.71   |
| E2.1            | 0.37       | 0.50          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 1.42     | 1.60  | 1.82  | 2.06  | 2.15   |
| E3              | 3.12       | 0.60          | 17.00   | 5.98          | 6.76  | 7.74  | 8.78  | 9.16   | 11.19    | 12.65 | 14.49 | 16.43 | 17.14  |
| E3.1            | 3.49       | 0.60          | 17.00   | 5.98          | 6.76  | 7.74  | 8.78  | 9.16   | 12.52    | 14.15 | 16.21 | 18.38 | 19.18  |
| E4              | 1.81       | 0.50          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 7.02     | 7.88  | 9.00  | 10.18 | 10.63  |
| E5              | 0.18       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 0.83     | 0.93  | 1.07  | 1.20  | 1.26   |
| E6              | 0.73       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.37     | 3.78  | 4.32  | 4.88  | 5.10   |
| JB9             | 0.49       | 0.75          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 2.82     | 3.17  | 3.62  | 4.09  | 4.27   |
| E7              | 0.56       | 0.90          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.88     | 4.35  | 4.97  | 5.62  | 5.87   |
| E7.1            | 0.11       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 0.51     | 0.57  | 0.65  | 0.74  | 0.77   |
| E8              | 0.55       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 2.54     | 2.85  | 3.25  | 3.68  | 3.84   |
| E8.1            | 0.16       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 0.74     | 0.83  | 0.95  | 1.07  | 1.12   |
| E9              | 0.94       | 0.68          | 28.00   | 4.51          | 5.14  | 5.91  | 6.72  | 7.02   | 2.90     | 3.30  | 3.79  | 4.31  | 4.51   |
| E9.1            | 1.61       | 0.51          | 27.00   | 4.61          | 5.25  | 6.03  | 6.86  | 7.16   | 3.80     | 4.33  | 4.97  | 5.65  | 5.90   |
| E10             | 0.48       | 0.65          | 23.00   | 5.07          | 5.75  | 6.60  | 7.50  | 7.83   | 1.58     | 1.79  | 2.06  | 2.34  | 2.44   |
| E11             | 1.16       | 0.66          | 23.00   | 5.07          | 5.75  | 6.60  | 7.50  | 7.83   | 3.85     | 4.37  | 5.02  | 5.70  | 5.95   |
| E12             | 0.12       | 0.63          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 0.58     | 0.65  | 0.74  | 0.84  | 0.87   |

| Drainage Area # | Total Area | W'ted C value | Tc Used | Intensity (I) |       |       |       |        | Flow (Q) |        |        |        |        |
|-----------------|------------|---------------|---------|---------------|-------|-------|-------|--------|----------|--------|--------|--------|--------|
|                 |            |               |         | (in/hr)       |       |       |       |        | (CFS)    |        |        |        |        |
|                 |            |               |         | 5 Yr          | 10 Yr | 25 Yr | 50 Yr | 100 Yr | 5 Yr     | 10 Yr  | 25 Yr  | 50 Yr  | 100 Yr |
| F1              | 1.85       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 8.54     | 9.58   | 10.95  | 12.37  | 12.92  |
| F2              | 0.71       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.28     | 3.68   | 4.20   | 4.75   | 4.96   |
| F3              | 0.84       | 0.62          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.99     | 4.48   | 5.12   | 5.79   | 6.04   |
| F4              | 0.75       | 0.77          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 4.43     | 4.97   | 5.68   | 6.42   | 6.70   |
| G               | 69.70      | 0.62          | 41.19   | 3.54          | 4.06  | 4.68  | 5.34  | 5.59   | 153.59   | 176.18 | 203.02 | 231.55 | 242.29 |
| H1              | 1.55       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 7.15     | 8.03   | 9.17   | 10.37  | 10.82  |
| H2              | 1.67       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 7.71     | 8.65   | 9.88   | 11.17  | 11.66  |
| H3              | 1.02       | 0.70          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 5.49     | 6.17   | 7.04   | 7.96   | 8.31   |
| H4              | 0.43       | 0.71          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 2.35     | 2.64   | 3.02   | 3.41   | 3.56   |
| J1              | 14.67      | 0.50          | 23.00   | 5.07          | 5.75  | 6.60  | 7.50  | 7.83   | 36.92    | 41.93  | 48.12  | 54.65  | 57.04  |
| J2              | 3.39       | 0.60          | 17.00   | 5.98          | 6.76  | 7.74  | 8.78  | 9.16   | 12.16    | 13.75  | 15.75  | 17.85  | 18.63  |
| J3              | 2.89       | 0.60          | 14.00   | 6.60          | 7.44  | 8.51  | 9.63  | 10.05  | 11.44    | 12.90  | 14.75  | 16.71  | 17.43  |
| J4              | 4.56       | 0.50          | 26.00   | 4.72          | 5.37  | 6.16  | 7.01  | 7.32   | 10.75    | 12.24  | 14.05  | 15.98  | 16.68  |
| J4.1            | 0.55       | 0.90          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.81     | 4.27   | 4.88   | 5.52   | 5.76   |
| J5              | 5.24       | 0.58          | 26.00   | 4.72          | 5.37  | 6.16  | 7.01  | 7.32   | 14.32    | 16.29  | 18.71  | 21.27  | 22.21  |
| J6              | 3.45       | 0.66          | 37.00   | 3.80          | 4.35  | 5.00  | 5.70  | 5.96   | 8.63     | 9.88   | 11.38  | 12.97  | 13.56  |
| K               | 21.42      | 0.56          | 25.00   | 4.83          | 5.49  | 6.30  | 7.16  | 7.48   | 57.43    | 65.31  | 74.99  | 85.22  | 88.97  |
| L               | 15.59      | 0.35          | 15.00   | 6.38          | 7.19  | 8.23  | 9.33  | 9.73   | 34.79    | 39.25  | 44.93  | 50.90  | 53.10  |
| M               | 3.61       | 0.55          | 16.00   | 6.17          | 6.97  | 7.98  | 9.04  | 9.43   | 12.35    | 13.94  | 15.97  | 18.09  | 18.88  |
| N1              | 0.41       | 0.70          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 2.20     | 2.47   | 2.83   | 3.19   | 3.33   |
| N2              | 2.76       | 0.63          | 24.88   | 4.84          | 5.50  | 6.32  | 7.18  | 7.50   | 8.35     | 9.49   | 10.90  | 12.39  | 12.93  |



Eleanor R. Rivera 2/18/22

| NO. | DATE    | REVISION             | APPROVED |
|-----|---------|----------------------|----------|
| 1   | 12/8/22 | REMOVED DUPLICATE E9 | ERR      |
|     |         |                      |          |
|     |         |                      |          |

**Binkley & Barfield**  
consulting engineers

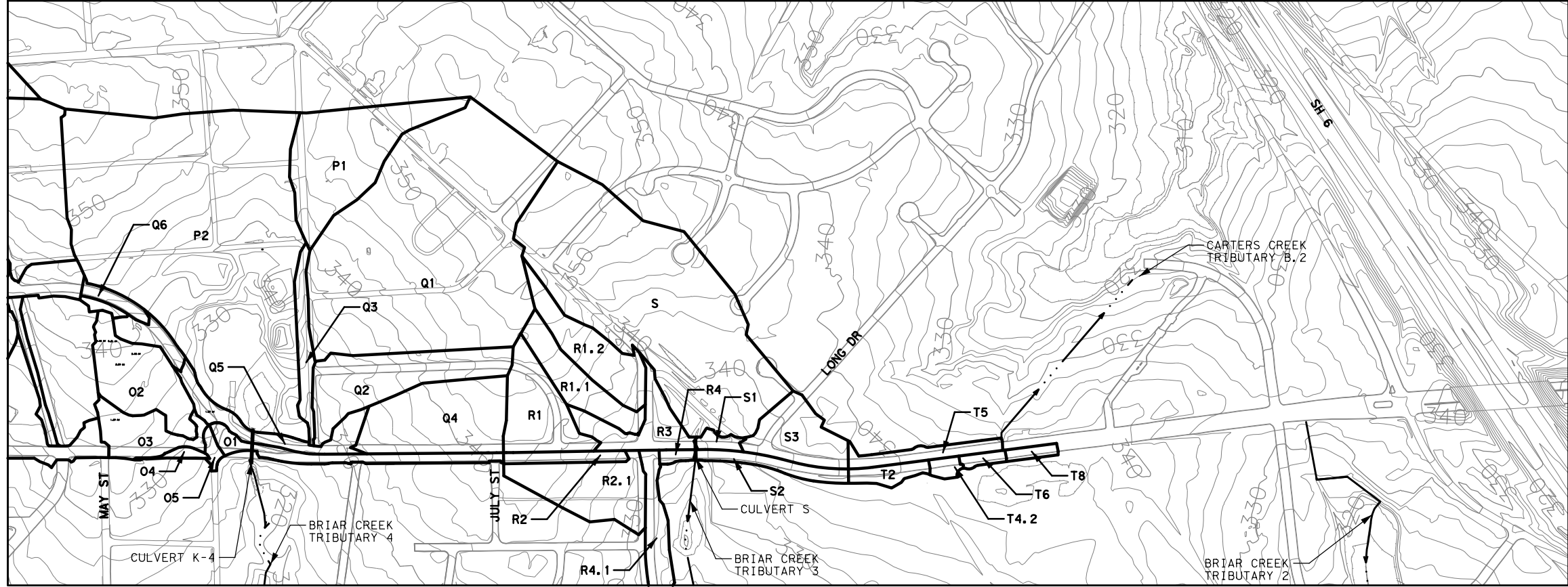
Binkley & Barfield, Inc.  
TxEng F-257  
1701 Southwest Pkwy, Ste 111  
College Station, TX 77840  
979.703.1809  
BinkleyBarfield.com

**Texas Department of Transportation**  
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| WJB PARKWAY (FM 158) PS&E  |                |                |           |
|----------------------------|----------------|----------------|-----------|
| PROPOSED DRAINAGE AREA MAP |                |                |           |
| SHEET 1 OF 2               |                |                |           |
| FED. RD. DIV. NO.          | PROJECT NUMBER | HIGHWAY NUMBER |           |
| 6                          | C 212-3-50     | FM 158         |           |
| STATE                      | DISTRICT       | COUNTY         |           |
| TEXAS                      | BRYAN          | BRAZOS         |           |
| CONTROL                    | SECTION        | JOB            | SHEET NO. |
| 0212                       | 03             | 050            | 270 R1    |

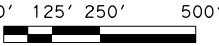




**LEGEND:**

- A DRAINAGE AREA I. D.
- CULVERT XX CULVERT NO.
- DRAINAGE AREA BOUNDARY
- · · CREEK FLOWLINE

1. DISCHARGES CALCULATED USING THE RATIONAL METHOD.
2. DISCHARGES REFLECT USE OF CURRENT e, b, d COEFFICIENTS FOR BRAZOS COUNTY.
3. DISCHARGES ALSO EVALUATED USING INTENSITIES DETERMINED BY LINEAR INTERPOLATION OF POINT VALUES PROVIDED IN NOAA ATLAS 14 PER TXDOT HYDRAULIC DESIGN MANUAL. e, b, d COEFFICIENTS PRODUCE MORE CONSERVATIVE RESULTS THAN THE UPDATED NOAA ATLAS 14 INTENSITIES IN THE PROJECT AREA.



**PROPOSED DRAINAGE HYDROLOGIC CALCULATIONS**

| Drainage Area # | Total Area | W'ted C value | Tc Used | Intensity (I) |       |       |       |        | Flow (Q) |       |        |        |        |
|-----------------|------------|---------------|---------|---------------|-------|-------|-------|--------|----------|-------|--------|--------|--------|
|                 |            |               |         | (in/hr)       |       |       |       |        | (CFS)    |       |        |        |        |
|                 |            |               |         | 5 Yr          | 10 Yr | 25 Yr | 50 Yr | 100 Yr | 5 Yr     | 10 Yr | 25 Yr  | 50 Yr  | 100 Yr |
| O1              | 1.10       | 0.78          | 10.20   | 7.63          | 8.56  | 9.78  | 11.06 | 11.55  | 6.50     | 7.30  | 8.34   | 9.43   | 9.84   |
| O2              | 2.29       | 0.39          | 27.84   | 4.53          | 5.16  | 5.93  | 6.74  | 7.04   | 4.06     | 4.63  | 5.32   | 6.05   | 6.32   |
| O3              | 1.29       | 0.58          | 25.79   | 4.74          | 5.39  | 6.19  | 7.04  | 7.35   | 3.53     | 4.02  | 4.61   | 5.24   | 5.48   |
| O4              | 0.14       | 0.51          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 0.55     | 0.61  | 0.70   | 0.79   | 0.83   |
| O5              | 0.16       | 0.73          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 0.90     | 1.01  | 1.15   | 1.30   | 1.36   |
| P1              | 3.85       | 0.56          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 16.58    | 18.61 | 21.25  | 24.02  | 25.08  |
| P2              | 19.13      | 0.73          | 18.40   | 5.73          | 6.49  | 7.44  | 8.43  | 8.80   | 80.07    | 90.62 | 103.85 | 117.79 | 122.90 |
| Q1              | 15.05      | 0.60          | 22.00   | 5.20          | 5.90  | 6.76  | 7.68  | 8.02   | 46.92    | 53.24 | 61.08  | 69.36  | 72.39  |
| Q2              | 2.96       | 0.60          | 29.65   | 4.36          | 4.97  | 5.71  | 6.50  | 6.79   | 7.74     | 8.83  | 10.15  | 11.55  | 12.06  |
| Q3              | 0.81       | 0.60          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.74     | 4.20  | 4.79   | 5.42   | 5.66   |
| Q4              | 3.26       | 0.64          | 28.64   | 4.45          | 5.07  | 5.83  | 6.63  | 6.93   | 9.27     | 10.56 | 12.14  | 13.81  | 14.42  |
| Q5              | 1.24       | 0.78          | 15.07   | 6.36          | 7.18  | 8.21  | 9.31  | 9.71   | 6.12     | 6.91  | 7.91   | 8.96   | 9.35   |
| Q6              | 0.56       | 0.82          | 15.80   | 6.21          | 7.01  | 8.03  | 9.10  | 9.49   | 2.84     | 3.21  | 3.67   | 4.16   | 4.34   |
| Q6.1            | 0.33       | 0.77          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 1.95     | 2.18  | 2.49   | 2.82   | 2.94   |
| Q6.2            | 0.15       | 0.75          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 0.87     | 0.97  | 1.11   | 1.25   | 1.31   |
| R1              | 2.03       | 0.65          | 15.65   | 6.24          | 7.04  | 8.07  | 9.14  | 9.53   | 8.27     | 9.34  | 10.69  | 12.12  | 12.64  |
| R1.1            | 1.48       | 0.64          | 28.83   | 4.43          | 5.05  | 5.81  | 6.61  | 6.90   | 4.21     | 4.80  | 5.51   | 6.27   | 6.55   |
| R1.2            | 1.83       | 0.73          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 10.27    | 11.53 | 13.17  | 14.88  | 15.54  |
| R2              | 0.47       | 0.88          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 3.17     | 3.56  | 4.06   | 4.59   | 4.80   |
| R2.1            | 2.28       | 0.60          | 27.02   | 4.61          | 5.25  | 6.03  | 6.86  | 7.16   | 6.31     | 7.18  | 8.25   | 9.38   | 9.80   |
| R3              | 1.43       | 0.72          | 16.81   | 6.01          | 6.80  | 7.79  | 8.83  | 9.21   | 6.16     | 6.96  | 7.97   | 9.03   | 9.43   |
| R4              | 0.15       | 0.83          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 0.95     | 1.07  | 1.22   | 1.38   | 1.44   |
| R4.1            | 1.02       | 0.81          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 6.35     | 7.12  | 8.14   | 9.20   | 9.60   |
| S               | 12.04      | 0.63          | 20.30   | 5.43          | 6.16  | 7.06  | 8.02  | 8.37   | 40.91    | 46.36 | 53.16  | 60.34  | 62.96  |
| S1              | 0.24       | 0.74          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 1.37     | 1.53  | 1.75   | 1.98   | 2.07   |
| S2              | 0.65       | 0.90          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 4.50     | 5.05  | 5.77   | 6.52   | 6.81   |
| S3              | 1.63       | 0.70          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 8.72     | 9.78  | 11.17  | 12.63  | 13.19  |
| T2              | 0.45       | 0.72          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 2.48     | 2.78  | 3.18   | 3.60   | 3.75   |
| T4.2            | 0.20       | 0.85          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 1.30     | 1.46  | 1.67   | 1.88   | 1.97   |
| T5              | 0.70       | 0.83          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 4.47     | 5.01  | 5.72   | 6.47   | 6.76   |
| T6              | 0.20       | 0.90          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 1.38     | 1.55  | 1.78   | 2.01   | 2.10   |
| T8              | 0.20       | 0.82          | 10.00   | 7.69          | 8.63  | 9.86  | 11.15 | 11.64  | 1.26     | 1.41  | 1.61   | 1.82   | 1.90   |



Eleanor R. Rivera 2/18/22

| NO. | DATE | REVISION | APPROVED |
|-----|------|----------|----------|
|     |      |          |          |
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|     |      |          |          |

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WJB PARKWAY (FM 158) PS&E

PROPOSED DRAINAGE  
AREA MAP

SHEET 2 OF 2

| FED. RD. DIV. NO. | PROJECT NUMBER | HIGHWAY NUMBER |           |
|-------------------|----------------|----------------|-----------|
| 6                 | C 212-3-50     | FM 158         |           |
| STATE             | DISTRICT       | COUNTY         |           |
| TEXAS             | BRYAN          | BRAZOS         |           |
| CONTROL           | SECTION        | JOB            | SHEET NO. |
| 0212              | 03             | 050            | 271       |