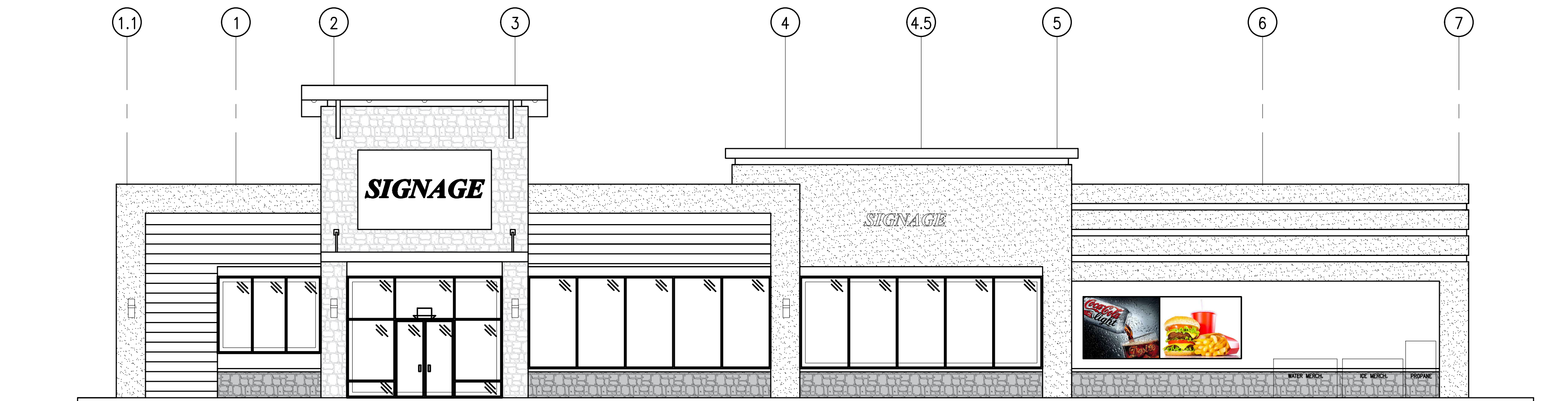


# VILLA MARIA GAS STATION

## 1919 WEST VILLA MARIA ROAD

### BRYAN , TX 77807

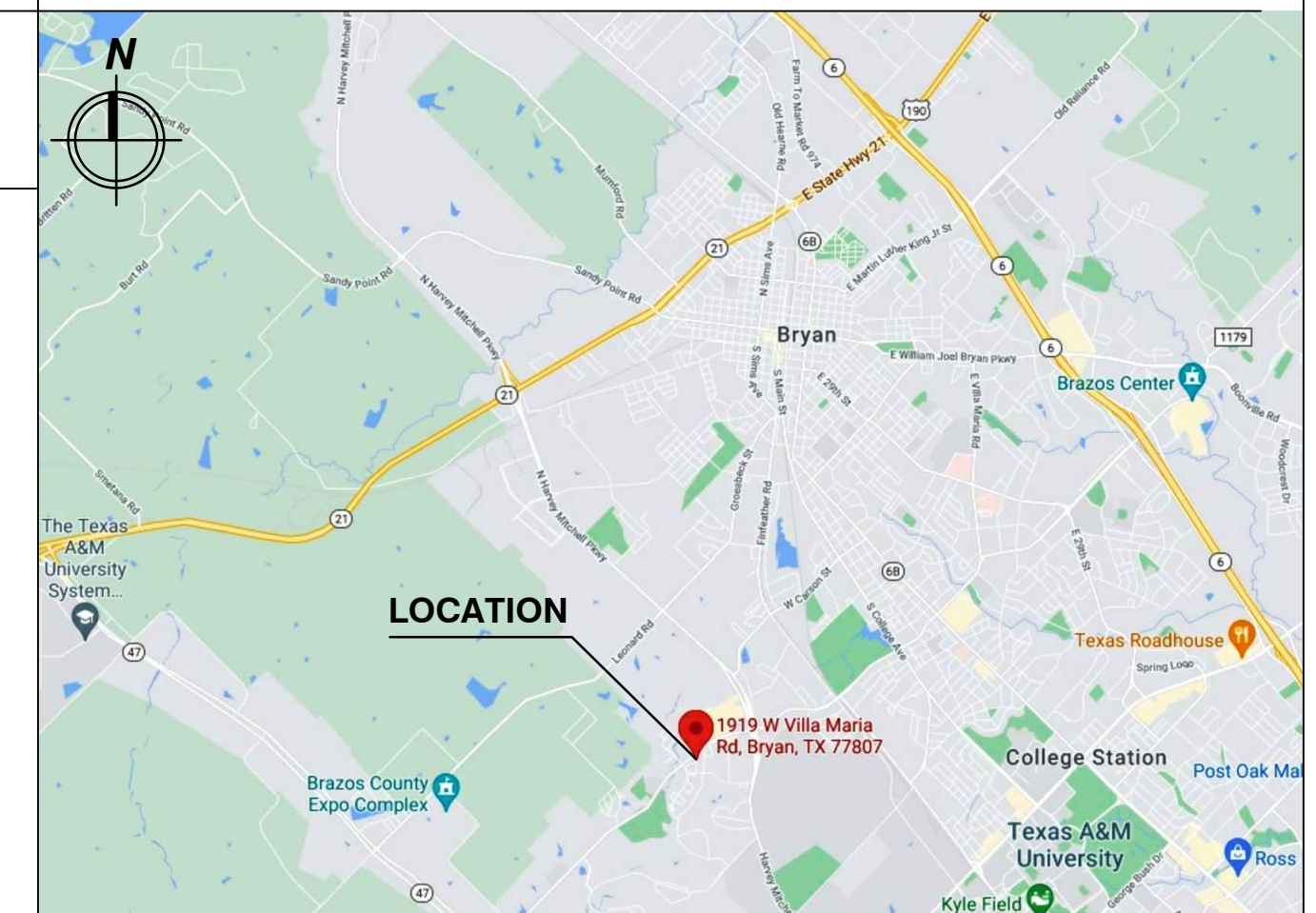


KEY MAP # 48027C 0295E

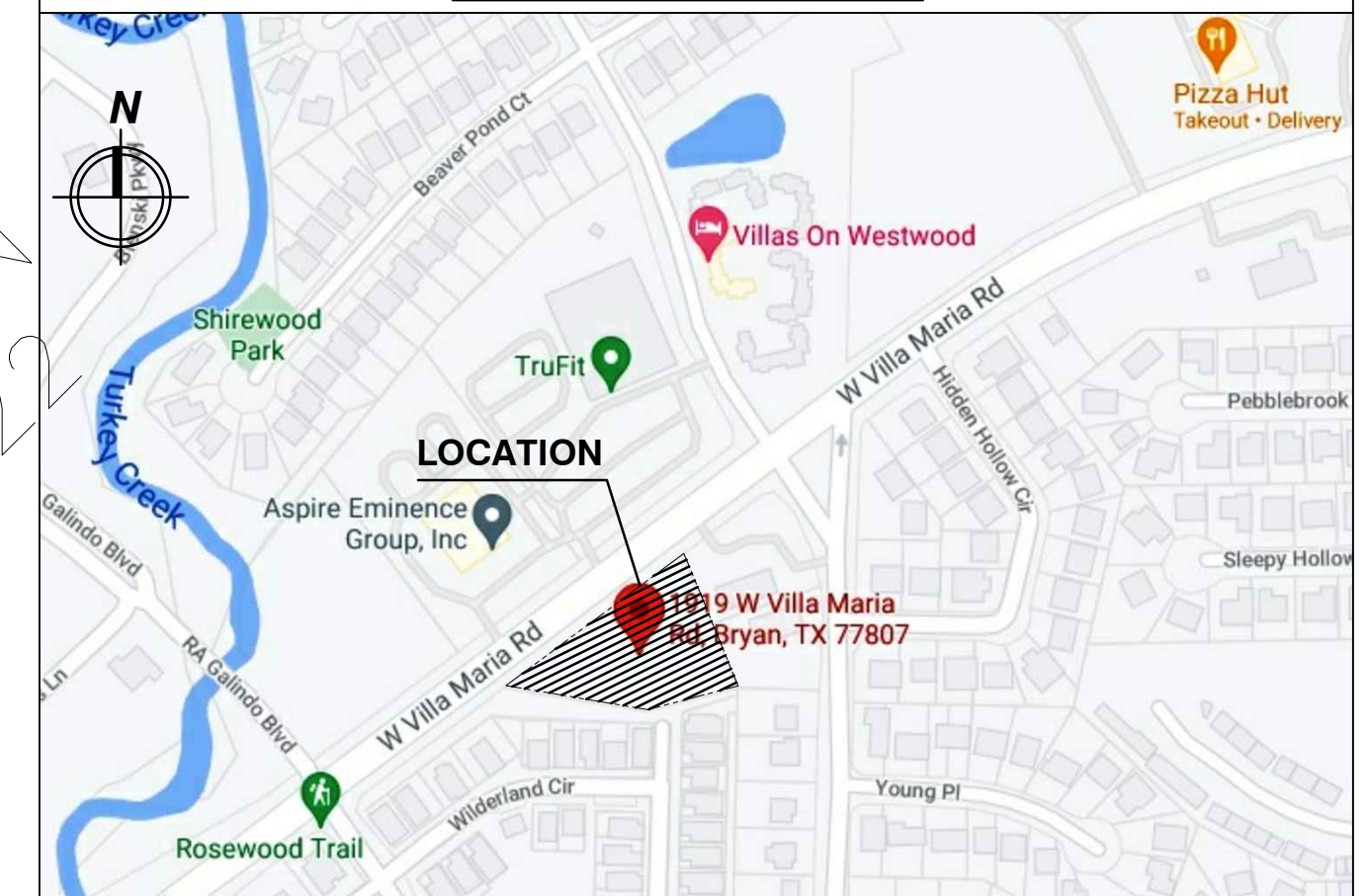
### INDEX TO DRAWINGS

#### CIVIL

- C0.0- COVER SHEET
- C0.1- TOPOGRAPHIC SURVEY
- C1.1- DRIVEWAY TRAFFIC CONTROL PLAN
- C2.0- PAVING & DRAINAGE SITE PLAN
- C2.1- DRAINAGE AREA MAP
- C3.0- STORM WATER POLLUTION PROTECTION PLAN
- C3.1- STORM WATER QUALITY POLLUTION PREVENTION DETAILS
- C4.0- DRAINAGE SECTIONS
- C5.0- SITE DETAILS AND DETENTION CALCULATION
- C6.0- SITE DETAILS



#### VICINITY MAP

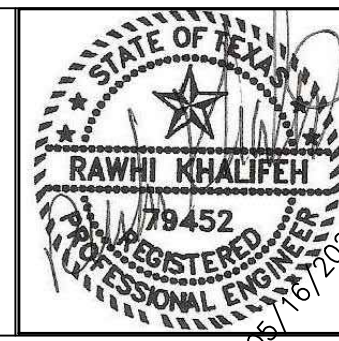


#### LEGAL DESCRIPTION:-

OF 1.262 ACRES IN THE ZENO PHILLIPS LEAGUE SURVEY, ABSTRACT 45, IN BRYAN, BRAZOS COUNTY ,TEXAS, BEING ALL OF LOT 1,BLOCK 14 SHIREWOOD ADDITION, PHASE 2, AS SHOWN ON THE SUBDIVISION PLAT RECORDED IN VOLUME 583,PAGE 181 OF THE DEED RECORDS OF BRAZOS COUNTY TEXAS (DRBCT); SAID LOT 1 BEING THE SAME TRACT OF LAND CONVEYED TO VM RETAIL ,LLC IN VOLUME 17016,PAGE 106 OF THE OFFICIAL PUBLIC RECORDS OF BRAZOS COUNTY,TEXAS (OPRBCT)

NONE

GRAPHIC SCALE



ISSUE HISTORY		REVISIONS	
DATE	ISSUED FOR	DESCRIPTION	
5-16-22	ISSUE FOR PERMITTING	CONSTRUCTION DRAWINGS	
-	-	-	-
-	-	-	-
-	-	-	-



#### RSK ENGINEERING

ENGINEERS, CONSTRUCTION MANAGERS, PLANNERS

11302 TANNER RD. HOUSTON, TEXAS 77041

FIRM # F-11211

TEL (281) 580-4585  
FAX (281) 580-4399

#### VILLA MARIA GAS STATION

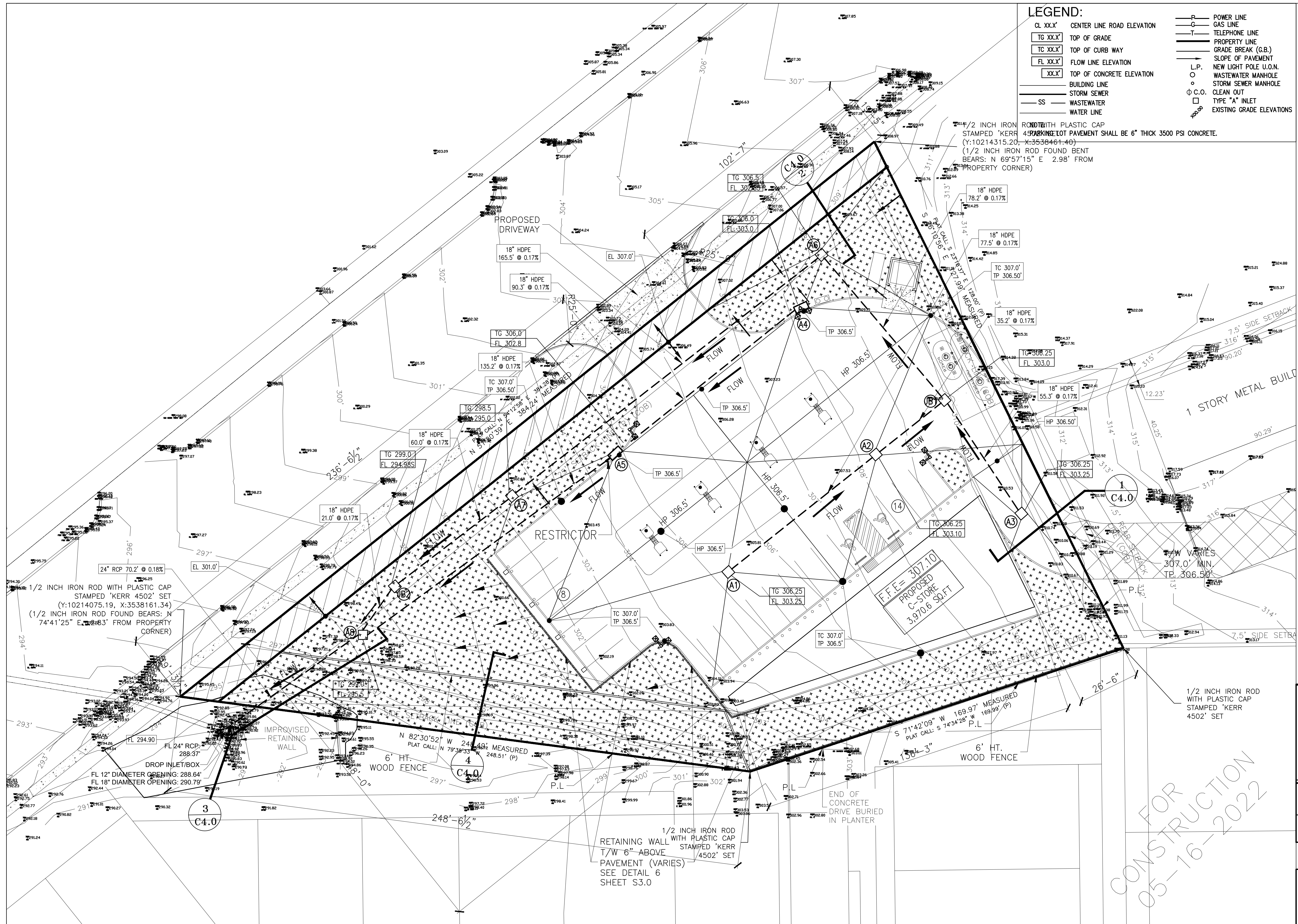
1919 WEST VILLA MARIA ROAD

BRYAN , TX 77807

#### COVER SHEET, INDEX & VICINITY MAPS

DRAWN BY: BM	DATE: 12-6-2021	SHEET: C-00	Rev:0
CHECKED BY: RSK	PROJ. NO.: VR151003.317.4		

FOR CONSTRUCTION  
05-16-2022



**LEGEND:**

CL XX.X'	CENTER LINE ROAD ELEVATION	— P —	POWER LINE
TG XX.X'	TOP OF GRADE	— G —	GAS LINE
TC XX.X'	TOP OF CURB WAY	— T —	TELEPHONE LINE
FL XX.X'	FLOW LINE ELEVATION	— P —	PROPERTY LINE
XX.X'	TOP OF CONCRETE ELEVATION	— G.B. —	GRADE BREAK (G.B.)
—	BUILDING LINE	— S.P. —	SLOPE OF PAVEMENT
— SS —	STORM SEWER	— L.P. —	NEW LIGHT POLE U.O.N.
— W —	WASTEWATER	○	WASTEWATER MANHOLE
— W —	WATER LINE	○	STORM SEWER MANHOLE
		□	CLEAN OUT
		□	TYPE "A" INLET
		○	EXISTING GRADE ELEVATIONS

- GENERAL NOTES:**
- GENERAL**
  - GENERAL CONTRACTOR SHALL COORDINATE SITE UTILITIES WORK WITH PLUMBING DRAWINGS.
  - PERMIT**
  - CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY REGULATION OF CITY OF BRYAN, TEXAS PRIOR TO STARTING CONSTRUCTION.
  - OWNER TO OBTAIN ALL PERMITS REQUIRED BY CITY OF BRYAN, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITY AND/OR CULVERTS WITHIN CITY OF BRYAN ROAD RIGHT OF WAY.
  - CONTRACTOR MAY SUBSTITUTE PVC PIPE FOR HDPE PIPE IN ACCORDANCE WITH CODE REQUIREMENTS.
  - ANY FUTURE DEVELOPMENT WILL REQUIRE APPROVAL.
  - STORM SEWER SYSTEM**
  - STORM SEWER SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BRYAN.
  - STORM SEWER PIPE SHALL BE HDPE, UNLESS SHOWN OTHERWISE. CONTRACTOR MAY SUBSTITUTE PVC SDR 35 PIPE FOR PVC PIPE IN ACCORDANCE WITH CODE REQUIREMENTS.
  - SET STORM SEWER MANHOLE RIMS TO MATCH FINISH GRADE.
  - STORM SEWER INLETS SHALL BE CITY APPROVED INLET.
  - CONCRETE PIPE SHALL BE BEDDED WITH CEMENT STABILIZED SAND IN ACCORDANCE WITH CITY OF BRYAN.
  - PVC PIPE SHALL BE BEDDED WITH A MINIMUM OF ONE FOOT OF CEMENT STABILIZED SAND. CEMENT STABILIZED SAND SHALL BE LAID IN 6" LIFTS COMPOSED TO 95% STD. PROCTOR MAX. DRY DENSITY (ASTM D698).
  - EXISTING PAVEMENTS, CURBS, SIDEWALKS, AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE CITY OF BRYAN STANDARDS.
  - CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY, UPON COMPLETION OF JOB, SHALL BE AS GOOD AS OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK.
  - ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY.

TOTAL PAVEMENT AREA	= 22854 SF
BUILDING AREA	= 3970.6 SF
SIDE WALK AREA	= 1706.1 SF
TOTAL IMPERVIOUS AREA	= 28530.7 SF
LANDSCAPE AREA	= 26442 SF
TOTAL AREA	= 54972.7 SF
INLETS & J.B.	= 10 @ 64 CF = 640 CF
LENGTH OF 18" HDPE PIPES	= 719 FT.
LENGTH OF 24" RCP PIPES	= 34.2 FT.

**PROPERTY DESCRIPTION:**

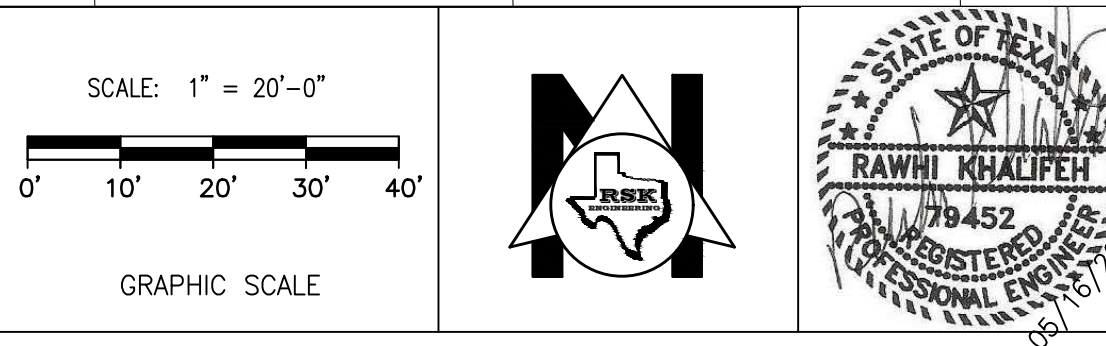
**LAND TITLE SURVEY PLAT OF LOTS 1 & 3, BLOCK 11 SHIREWOOD ADDITION PHASE II VOLUME 583, PAGE 181 (D.R.B.C.T.) ZENO PHILLIPS LEAGUE, A-45 BRYAN, BRAZOS COUNTY, TEXAS**

**CONTROL POINT & BENCHMARK**  
 58 INCH IRON ROD WITH RED PLASTIC CAP STAMPED 'KERR TRAV' Y:10214206.75 X:3538376.60 ELEV:306.49'

**FLOOD PLAIN INFORMATION:**

THIS PLAT IS A TRUE REPRESENTATION OF A CATEGORY 1A (LAND TITLE SURVEY), CONDITION II SURVEY (ACCORDING TO THE TSPS MANUAL OF PRACTICE FOR LAND SURVEYING IN THE STATE OF TEXAS) AS MADE ON THE GROUND UNDER MY SUPERVISION AND THAT THERE ARE NO VISIBLE ENCROACHMENTS ON THIS TRACT EXCEPT AS SHOWN HEREON. THE ENTIRETY OF THESE TRACTS LIES WITHIN FLOOD ZONE 'X' UNSHADED AND DO NOT LIE WITHIN A DESIGNATED 100 YEAR FLOOD PLAIN ACCORDING TO THE F.I.R.M. MAPS, PANEL NO. 4804C0195E, REVISED DATE: 05-16-2012.

**LEGAL DESCRIPTION:**  
 OF 1.262 ACRES IN THE ZENO PHILLIPS LEAGUE SURVEY, ABSTRACT 45, IN BRYAN, BRAZOS COUNTY, TEXAS, BEING ALL OF LOT 1, BLOCK 14 SHIREWOOD ADDITION, PHASE 2, AS SHOWN ON THE SUBDIVISION PLAT RECORDED IN VOLUME 583, PAGE 181 OF THE DEED RECORDS OF BRAZOS COUNTY TEXAS (DRBCT); SAID LOT 1 BEING THE SAME TRACT OF LAND CONVEYED TO VM RETAIL, LLC IN VOLUME 17016, PAGE 106 OF THE OFFICIAL PUBLIC RECORDS OF BRAZOS COUNTY, TEXAS (OPRBT)



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5-16-22	ISSUE FOR PERMITTING	CONSTRUCTION DRAWINGS	
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-	-	-	-
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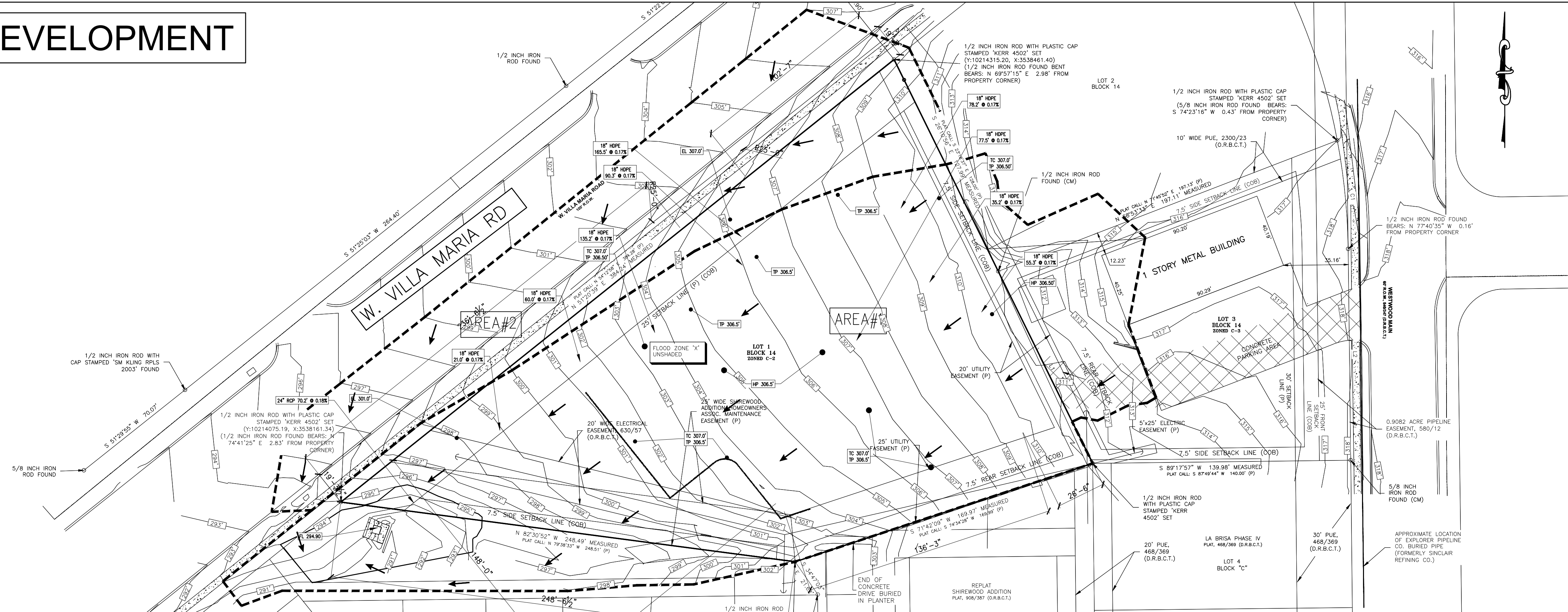
**RSK ENGINEERING**  
 ENGINEERS, CONSTRUCTION MANAGERS, PLANNERS  
 11302 TANNER RD. HOUSTON, TEXAS 77041  
 TEL: (281) 580-4585  
 FAX: (281) 580-4399  
 FIRM # F-11211

**VILLA MARIA GAS STATION**  
 1919 WEST VILLA MARIA ROAD  
 BRYAN, TX 77807  
**PAVING AND DRAINAGE SITE PLAN**

DRAWN BY: BM DATE: 12-6-2021 SHEET: **C2.0** Rev'D  
 CHECKED BY: RSK PROJ. NO.: VR151003.317.4

FOR CONSTRUCTION 05-16-2022

# PRE-DEVELOPMENT



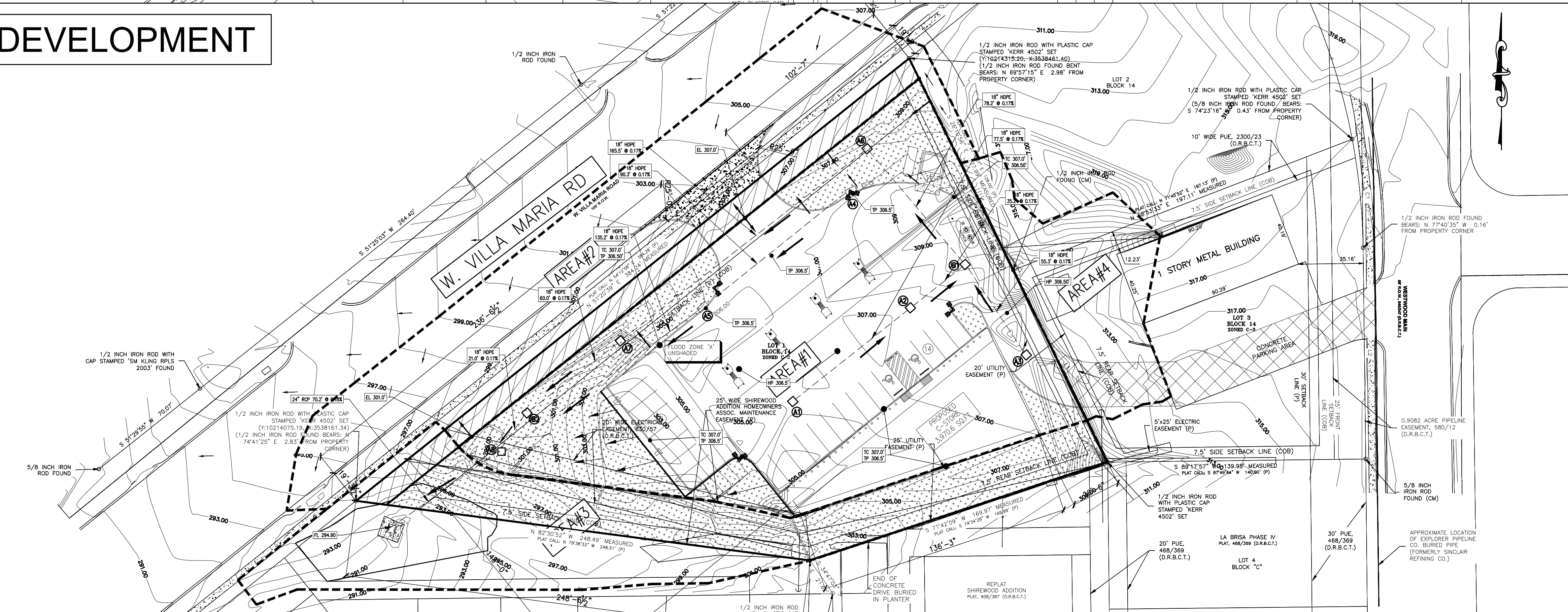
## LEGEND

- DRAINAGE BOUNDARY
- FLOW DIRECTION
- CONTOUR
- INLET
- STORM SEWER LINE
- DRAINAGE AREA I.D.

### PRE DEVELOPMENT DRAINAGE AREA SUMMARY

I.D#	AREA (SF)	AREA (AC)
AREA #1	66,724.6	1.532
AREA #2	25,833.5	0.593
<b>TOTAL AREA (AC)</b>		<b>2.125</b>

# POST-DEVELOPMENT

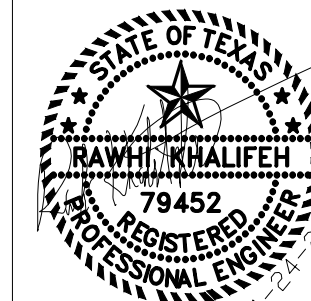
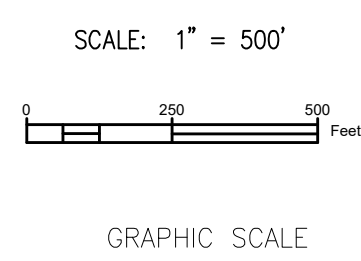


### POST DEVELOPMENT DRAINAGE AREA SUMMARY

I.D#	AREA (SF)	AREA (AC)
AREA #1	40,726.3	0.935
AREA #2	23,947.4	0.550
AREA #3	20,036.5	0.460
AREA #4	7,858.9	0.180
<b>TOTAL AREA (AC)</b>		<b>2.125</b>

OWNER NAME:  
ADDRESS:  
PHONE #:  
EMAIL:

APPLICANT NAME: RSK ENGINEERING  
ADDRESS: 11302 TANNER RD  
HOUSTON, TX 77041  
PHONE #: 281-580-4585  
EMAIL: RSKENGINEERING@GMAIL.COM



ISSUE HISTORY		REVISIONS	
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**VILLA MARIA GAS STATION**  
1919 WEST VILLA MARIA ROAD  
BRYAN, TX 77807


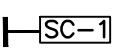



DRAWN BY: BM  
CHECKED BY: RSK

DATE: 04-26-2022  
PROJ. NO.: VR15003.317.4

SHEET:  
Rev.0

**NOTE:**  
FOR DETAILS REFER C3.1

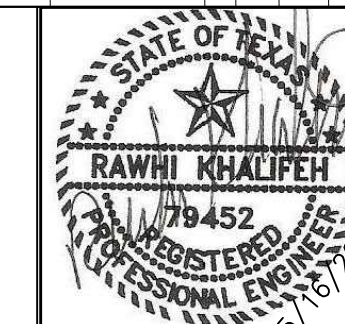
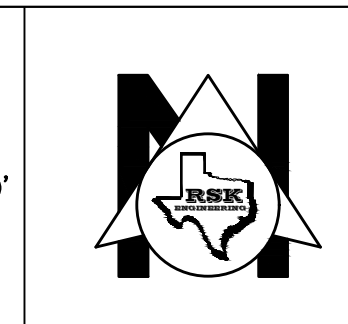
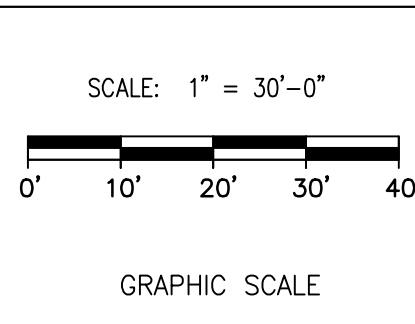
**LEGENDS**

-  FILTER FABRIC FENCE
-  STABILIZED CONSTRUCTION ACCESS
-  STAGE I INLET PROTECTION
-  STAGE II INLET PROTECTION
-  CONCRETE TRUCK WASHOUT AREA



FOR  
CONSTRUCTION  
05-16-2022

**LEGAL DESCRIPTION:-**  
OF 1.262 ACRES IN THE ZENO PHILLIPS LEAGUE SURVEY, ABSTRACT 45, IN BRYAN, BRAZOS COUNTY, TEXAS, BEING ALL OF LOT 1, BLOCK 14 SHIREWOOD ADDITION, PHASE 2, AS SHOWN ON THE SUBDIVISION PLAT RECORDED IN VOLUME 583, PAGE 181 OF THE DEED RECORDS OF BRAZOS COUNTY TEXAS (DRBCT); SAID LOT 1 BEING THE SAME TRACT OF LAND CONVEYED TO VM RETAIL, LLC IN VOLUME 17016, PAGE 106 OF THE OFFICIAL PUBLIC RECORDS OF BRAZOS COUNTY, TEXAS (OPRBT)



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11302 TANNER RD. HOUSTON, TEXAS 77041 FIRM # F-11211

TEL. (281) 580-4585 FAX (281) 580-4399

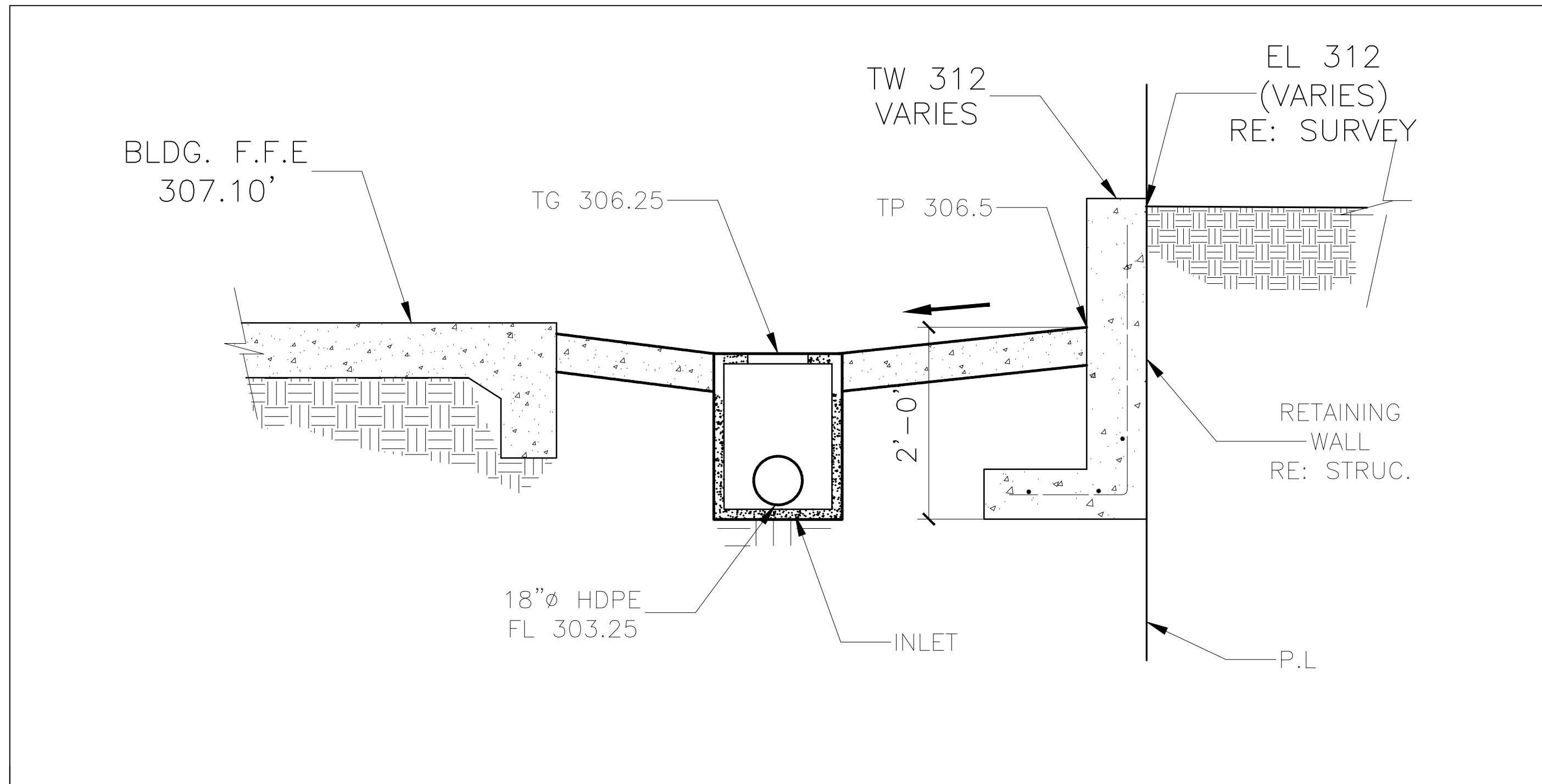
**VILLA MARIA GAS STATION**  
1919 WEST VILLA MARIA ROAD  
BRYAN, TX 77807

**STORM WATER POLLUTION PROTECTION PLAN**

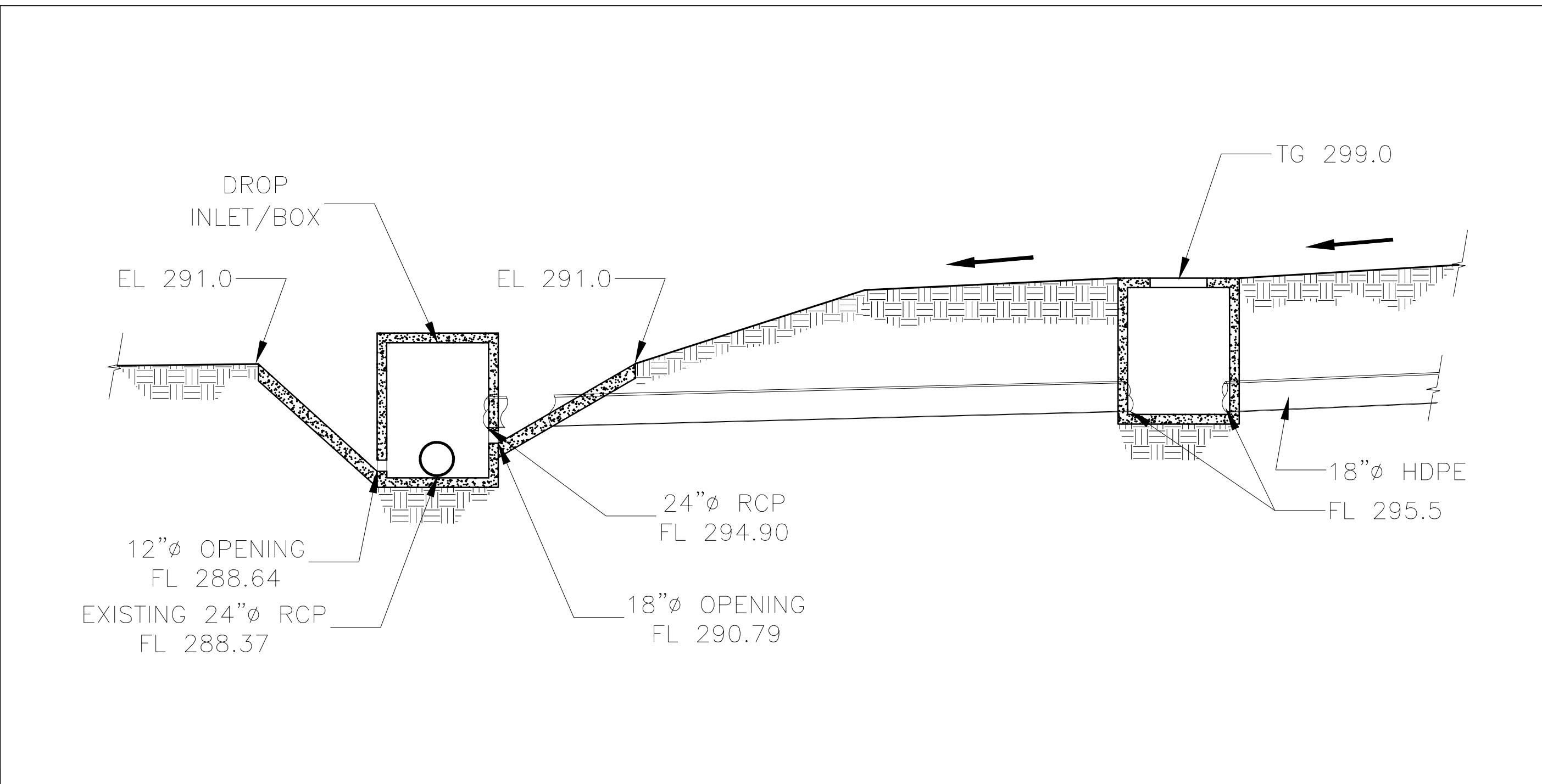
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CHECKED BY: RSK PROJ. NO.: VR151003.317.4

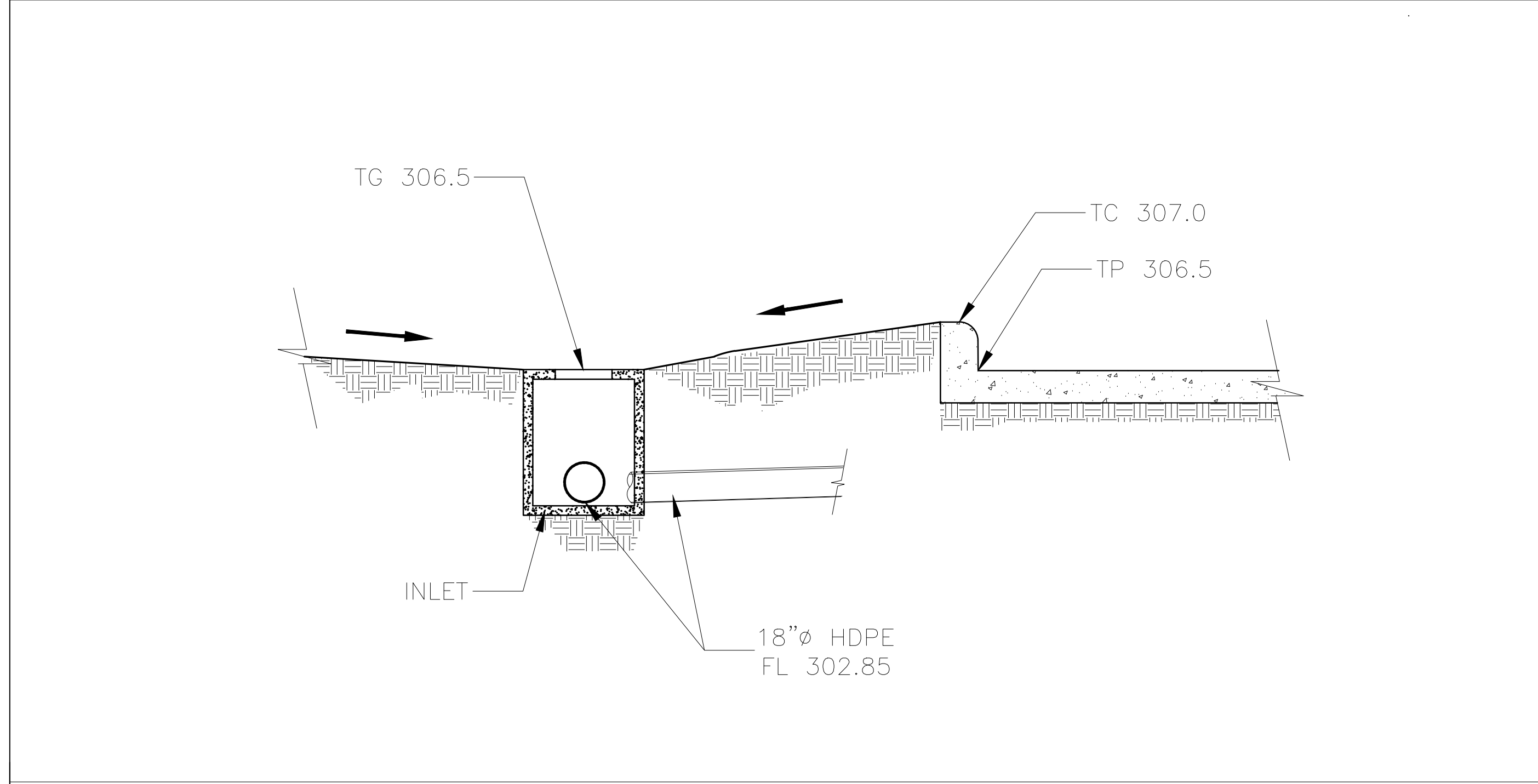




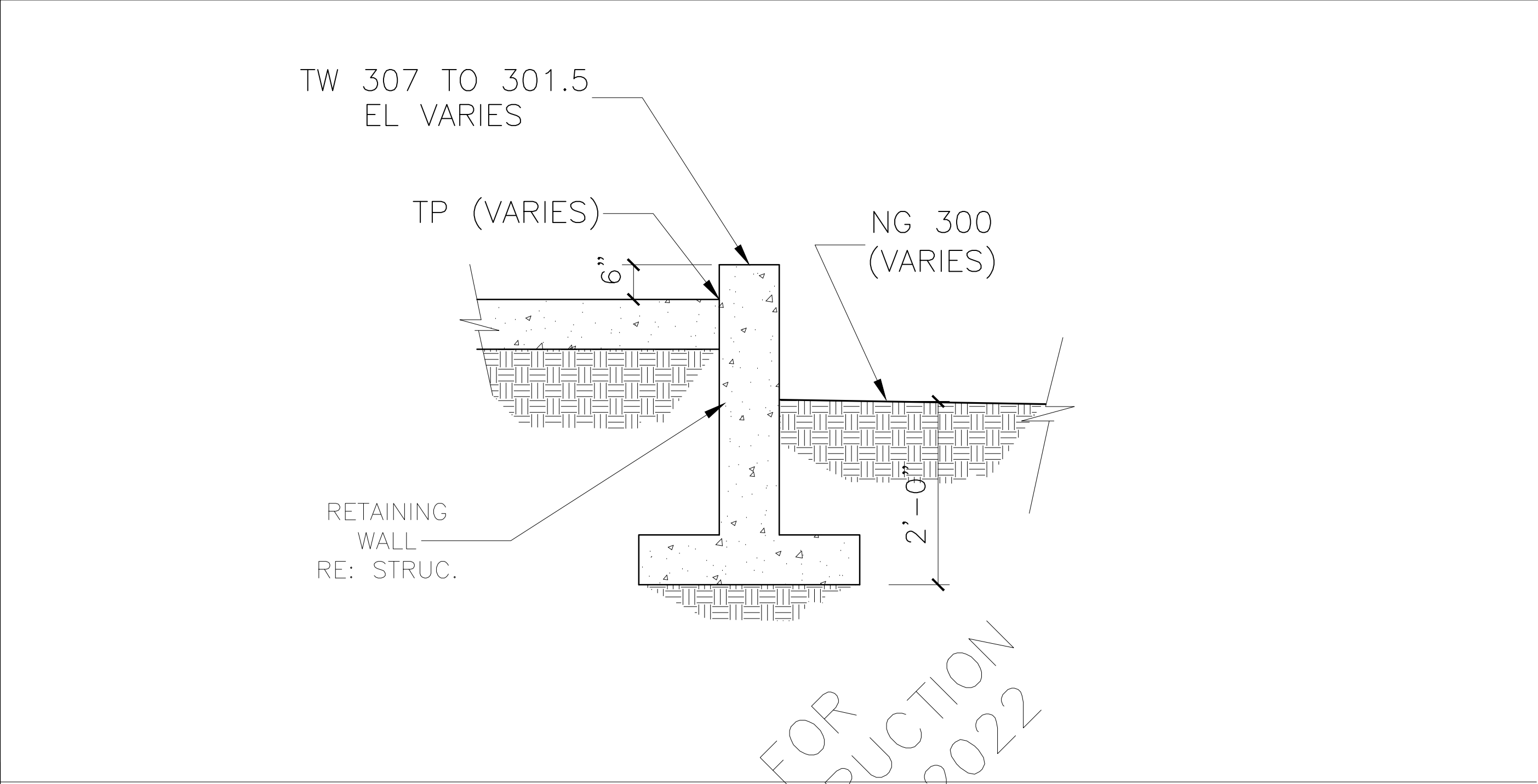
**SECTION 1**  
SCALE: NTS



**SECTION 3**  
SCALE: NTS



**SECTION 2**  
SCALE: NTS

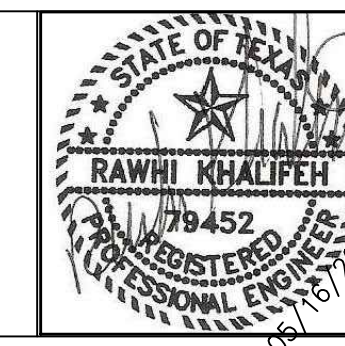
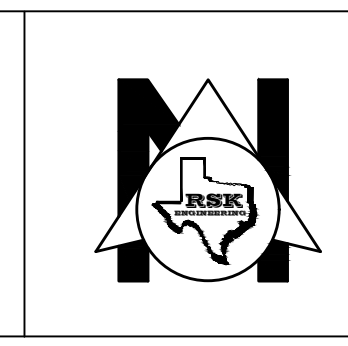


**SECTION 4**  
SCALE: NTS

FOR CONSTRUCTION 05-16-2022

LEGAL DESCRIPTION:-  
OF 1.262 ACRES IN THE ZENO PHILLIPS LEAGUE SURVEY, ABSTRACT 45, IN BRYAN, BRAZOS COUNTY, TEXAS, BEING ALL OF LOT 1, BLOCK 14 SHIREWOOD ADDITION, PHASE 2, AS SHOWN ON THE SUBDIVISION PLAT RECORDED IN VOLUME 583, PAGE 181 OF THE DEED RECORDS OF BRAZOS COUNTY TEXAS (DRBCT); SAID LOT 1 BEING THE SAME TRACT OF LAND CONVEYED TO VM RETAIL, LLC IN VOLUME 17016, PAGE 106 OF THE OFFICIAL PUBLIC RECORDS OF BRAZOS COUNTY, TEXAS (OPRBCT)

NONE  
GRAPHIC SCALE



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TEL. (281) 580-4585 FAX (281) 580-4399

**VILLA MARIA GAS STATION**  
1919 WEST VILLA MARIA ROAD  
BRYAN, TX 77807  
**DRAINAGE SECTIONS**

DRAWN BY: BM	DATE: 12-6-2021	SHEET: <b>C4.0</b> Rev. 0
CHECKED BY: RSK	PROJ. NO.: VR151003.317.4	

VILLA MARIA STORE  
DRAINAGE AREA RUNOFF COMPUTATIONS  
CITY OF BRYAN/COLLEGE STATION - RATIONAL METHOD

Frequency (Yr) 100

SYSTEM	DA	RUNOFF COEFFICIENTS, C (Table C-2 & C-3)								C	Area (A)	T <sub>c</sub>	Intensity (I)	Discharge (Q)	
		Developed Area				Developed Area - Grass			Unimproved						
		Asphalt	Concrete	Roof Areas	Detention Pond	<50% Cover	50-75% Cover	>75% Cover							
OUTFALL	I.D.	0.90	0.92	0.92	0.85	0.32	0.25	0.21	0.25	Wtd.	Acres	mins	in./hr	cfs	
<b>Existing Conditions</b>															
Exist Drop Inlet	AREA #1			0.15						1.26	0.32	1.53	13.90	7.28	3.57
VM Curb Inlet	AREA #2	0.40				0.19				0.70	0.59	10.75	5.88	2.45	

<b>Proposed Conditions</b>															
INLET A8	AREA #1 + AREA#4		0.70	0.10			0.18	0.14			0.72	1.12	11.72	9.84	7.91
Exist Drop Inlet	AREA #3					0.46				0.25	0.46	10.00	9.84	1.13	
VM Curb Inlet	AREA #2	0.55								0.92	0.55	10.75	9.84	4.98	

Frequency (Yr) 25

SYSTEM	DA	RUNOFF COEFFICIENTS, C (Table C-2 & C-3)								C	Area (A)	T <sub>c</sub>	Intensity (I)	Discharge (Q)	
		Developed Area				Developed Area - Grass			Unimproved						
		Asphalt	Concrete	Roof Areas	Detention Pond	<50% Cover	50-75% Cover	>75% Cover							
OUTFALL	I.D.	0.90	0.92	0.92	0.85	0.32	0.25	0.21	0.25	Wtd.	Acres	mins	in./hr	cfs	
<b>Existing Conditions</b>															
Exist Drop Inlet	AREA #1			0.15						1.26	0.32	1.53	13.90	6.64	3.25
VM Curb Inlet	AREA #2	0.40				0.19				0.70	0.59	10.75	6.64	2.76	

<b>Proposed Conditions</b>															
INLET A8	AREA #1 + AREA#4		0.70	0.10			0.18	0.14			0.81	1.12	11.72	9.00	8.14
Exist Drop Inlet	AREA #3					0.46				0.25	0.46	10.00	9.00	1.04	
VM Curb Inlet	AREA #2	0.55								0.92	1.12	10.75	9.00	9.23	

Frequency (Yr) 10

SYSTEM	DA	RUNOFF COEFFICIENTS, C (Table C-2 & C-3)								C	Area (A)	T <sub>c</sub>	Intensity (I)	Discharge (Q)
		Developed Area				Developed Area - Grass			Unimproved					
		Asphalt	Concrete	Roof Areas	Detention Pond	<50% Cover	50-75% Cover	>75% Cover						
OUTFALL	I.D.	0.90	0.92	0.92	0.85	0.32	0.25	0.21	0.25	Wtd.	Acres	mins	in./hr	cfs
<b>Existing Conditions</b>														
Exist Drop Inlet	AREA #1			0.15						0.32	1.53	13.90	5.84	2.86
VM Curb Inlet	AREA #2	0.40				0.19				0.70	0.59	10.75	5.84	2.43

<b>Proposed Conditions</b>															
INLET A8	AREA #1 + AREA#4		0.70	0.10			0.18	0.14			0.81	1.12	11.72	7.92	7.17
Exist Drop Inlet	AREA #3					0.46				0.25	0.46	10.00	9.00	1.04	
VM Curb Inlet	AREA #2	0.55								0.92	1.12	10.75	7.92	8.12	

Frequency (Yr) 2

SYSTEM	DA	RUNOFF COEFFICIENTS, C (Table C-2 & C-3)								C	Area (A)	T <sub>c</sub>	Intensity (I)	Discharge (Q)
		Developed Area				Developed Area - Grass			Unimproved					
		Asphalt	Concrete	Roof Areas	Detention Pond	<50% Cover	50-75% Cover	>75% Cover						
OUTFALL	I.D.	0.90	0.92	0.92	0.85	0.32	0.25	0.21	0.25	Wtd.	Acres	mins	in./hr	cfs
<b>Existing Conditions</b>														
Exist Drop Inlet	AREA #1			0.15						0.32	1.53	13.90	4.60	2.25
VM Curb Inlet	AREA #2	0.40				0.19				0.70	0.59	10.75	4.60	1.91

<b>Proposed Conditions</b>															
INLET A8	AREA #1 + AREA#4		0.70	0.10			0.18	0.14			0.81	1.12	11.72	6.36	5.75
Exist Drop Inlet	AREA #3					0.46				0.25	0.46	10.00	9.00	1.04	
VM Curb Inlet	AREA #2	0.55								0.92	1.12	10.75	6.36	6.52	

Note(s): Table C-2, Unified Stormwater Design Guidelines, City of Bryan/City of College Station 2020

TIME OF CONCENTRATION (T<sub>c</sub>)

Bryan-College Station - TIME OF CONCENTRATION CALCULATION (T <sub>c</sub> )				
OVERLAND SHEET FLOW				
	EXISTING CONDITIONS	PROPOSED CONDITIONS		
Overland Flow Distance (<=300ft)	L	ft	300	70
2-year, 24-hour Rainfall depth (Table C-6)	P <sub>2</sub>	inches	4.50	4.50
Slope of land (ft/ft)	s	ft/ft	0.065	0.0103
Mannings Roughness Coeff.	n		0.150	0.011
Travel Time	$T_t = \frac{0.007(nL)^{0.88}}{(P_2)^{0.5}S^{0.4}}$	T <sub>t</sub>	hrs	0.21

SHALLOW CONCENTRATED FLOW				
	EXISTING CONDITIONS	PROPOSED CONDITIONS		
Flow Distance	D	ft	180	
Overland Slope	S <sub>up</sub>	ft/ft	0.072	
Runoff Velocity (Table C-4)	V	ft/s	2.00	
Travel Flow Time	T = D/60V	T	mins	1.50

CHANNEL FLOW												
Channel Shape	Channel Slope S <sub>o</sub> (ft/ft)	Bottom Width (ft)	Water Depth (ft)	Side Slope (H:1)	Diameter (ft)	X-Section Area (ft <sup>2</sup> )	Top Width (ft)	Wetted Perimeter (ft)	Existing Length of Channel (ft)	Proposed Length of Channel (ft)	EXISTING CONDITIONS	PROPOSED CONDITIONS
Trapezoidal Channel						0.00	0.00	0.00				
Triangular Channel						0.00	0.00	0.00				
Circular Channel	0.0017				1.50	1.77	1.34	258.00		450	0.00	10.71
Travel Flow Time, T (mins)											0.00	10.71

TOTAL TIME OF CONCENTRATION	mins	13.90	11.72
TIME OF CONCENTRATION USED	mins	13.90	11.72

DETENTION CALCULATIONS FOR 100-YR STORM EVENT

PEAK INFLOW RATE	I	7.91	CFS
PEAK DISCHARGE RATE	O	3.57	CFS
TOTAL AREA OF DEVELOPMENT	A	1.26	AC-FT
100-YR, 24-HR RAINFALL DEPTH	P <sub>100</sub>	11.00	IN

INITIAL INFILTRATION

LAND USE DESCRIPTION (TR-55 Table 2-2a)	Commercial & Business Areas		
HYDROLOGIC SOIL GROUP	HSG	C	
SCS CURVE No. (TR-55 Table 2-2a)	CN	94	
RETENTION AFTER RUNOFF (S = (1000/CN)-10)	S	0.64	IN
INITIAL ABSTRACTION (I <sub>a</sub> = 0.2*S)	I <sub>a</sub>	0.128	IN

TOTAL BASIN INFLOW VOLUME	V <sub>R</sub>	1.16	AC-FT
$B = \frac{43560V_R}{0.5I}$	B	12773	SECONDS
$S = \frac{0.5B(I-O)}{43560}$	S	27713	CF
REQUIRED DETENTION		0.64	AC-FT

RESTRICTOR CALCULATION

ALLOWABLE DISCHARGE (100-YR EVENT)	Q <sub>allow</sub>	3.57	CFS
CONTRACTION COEFFICIENT	C <sub>d</sub>	0.82	
GRAVITATIONAL CONSTANT	g	32.2	FT/S <sup>2</sup>
HEAD (ASSUMED)	H	3.00	FT
RESTRICTOR DIAMETER $D = \frac{\sqrt{Q}}{2.25H^{0.25}}$	D	0.64	FT
		7.7	IN.

RESTRICTOR SIZE TO USE

HEAD (ACTUAL)	H <sub>actual</sub>	2.25	FT
ACTUAL DISCHARGE $Q = C_d A_0 \sqrt{2gH}$	Q <sub>actual</sub>	3.45	CFS

D <sub>actual</sub>	8.0	IN.
A	0.35	SF
H <sub>actual</sub>	2.25	FT
Q <sub>actual</sub>	3.45	CFS

DETENTION CALCULATIONS FOR 25-YR STORM EVENT

PEAK INFLOW RATE	I	8.14	CFS
PEAK DISCHARGE RATE	O	3.25	CFS
TOTAL AREA OF DEVELOPMENT	A	1.26	AC-FT
25-YR, 24-HR RAINFALL DEPTH	P <sub>25</sub>	8.40	IN

INITIAL INFILTRATION

LAND USE DESCRIPTION (DD11 DCM Tbl 6-5)	Commercial & Business Areas		
HYDROLOGIC SOIL GROUP	HSG	C	
SCS CURVE No. (DD11 DCM TBL 6-5)	CN	94	
RETENTION AFTER RUNOFF (S = (1000/CN)-10)	S	0.64	IN
INITIAL ABSTRACTION (I <sub>a</sub> = 0.2*S)	I <sub>a</sub>	0.128	IN

TOTAL BASIN INFLOW VOLUME	V <sub>R</sub>	0.88	AC-FT
$B = \frac{43560V_R}{0.5I}$	B	9470	SECONDS
$S = \frac{0.5B(I-O)}{43560}$	S	23154	CF
REQUIRED DETENTION		0.53	AC-FT

RESTRICTOR CALCULATION

ALLOWABLE DISCHARGE (25-YR EVENT)	Q <sub>allow</sub>	3.25	CFS
CONTRACTION COEFFICIENT	C <sub>d</sub>	0.82	
GRAVITATIONAL CONSTANT	g	32.2	FT/S <sup>2</sup>
HEAD (ASSUMED)	H	3.00	FT
RESTRICTOR DIAMETER $D = \frac{\sqrt{Q}}{2.25H^{0.25}}$	D	0.61	FT
		7.3	IN.

RESTRICTOR SIZE TO USE

HEAD (ACTUAL)	H <sub>actual</sub>	2.25	FT
ACTUAL DISCHARGE $Q = C_d A_0 \sqrt{2gH}$	Q <sub>actual</sub>	3.45	CFS

D <sub>actual</sub>	8.0	IN.
A	0.35	SF
H <sub>actual</sub>	2.25	FT
Q <sub>actual</sub>	3.45	CFS

DETENTION VOLUME PROVIDED

	# OF UNITS	LENGTH (FT)	DEPTH (FT)	WIDTH (FT)	AREA (SF)	VOLUME (CF)	VOLUME (AC-FT)
PARKING LOT			0.58		4,871	2,840	0.065
PIPES (18" HDPE)		90.3	1.50		1.77	160	0.004
INLETS						0.00	0.000
DETENTION POND						43,337	0.995
TOTAL VOLUME PROVIDED						46,336	1.06

OWNER NAME:  
ADDRESS:  
PHONE #:  
EMAIL:

APPLICANT NAME: RSK ENGINEERING  
ADDRESS: 11302 TANNER RD  
HOUSTON, TX 77041  
PHONE #: 281-580-4585  
EMAIL: RSKENGINEERING@GMAIL.COM

GRAPHIC SCALE



ISSUE HISTORY		REVISIONS	
DATE	ISSUED FOR	DESCRIPTION	
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

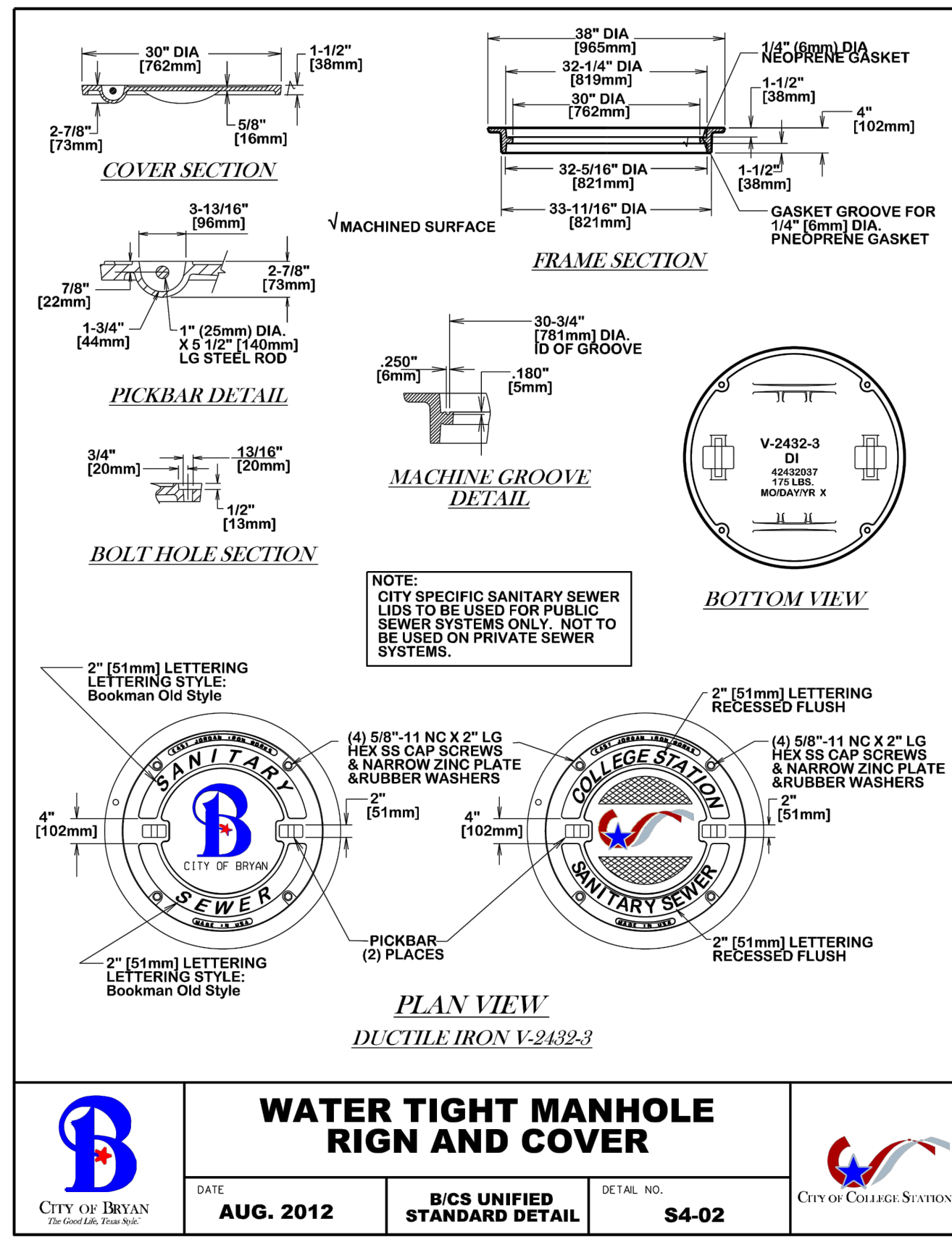


**RSK ENGINEERING**  
ENGINEERS, CONSTRUCTION MANAGERS, PLANNERS  
11302 TANNER RD  
HOUSTON, TEXAS 77041  
FIRM # F-11211  
TEL (281) 580-4585  
FAX (281) 580-4399

VILLA MARIA GAS STATION  
1919 WEST VILLA MARIA ROAD  
BRYAN, TX 77807

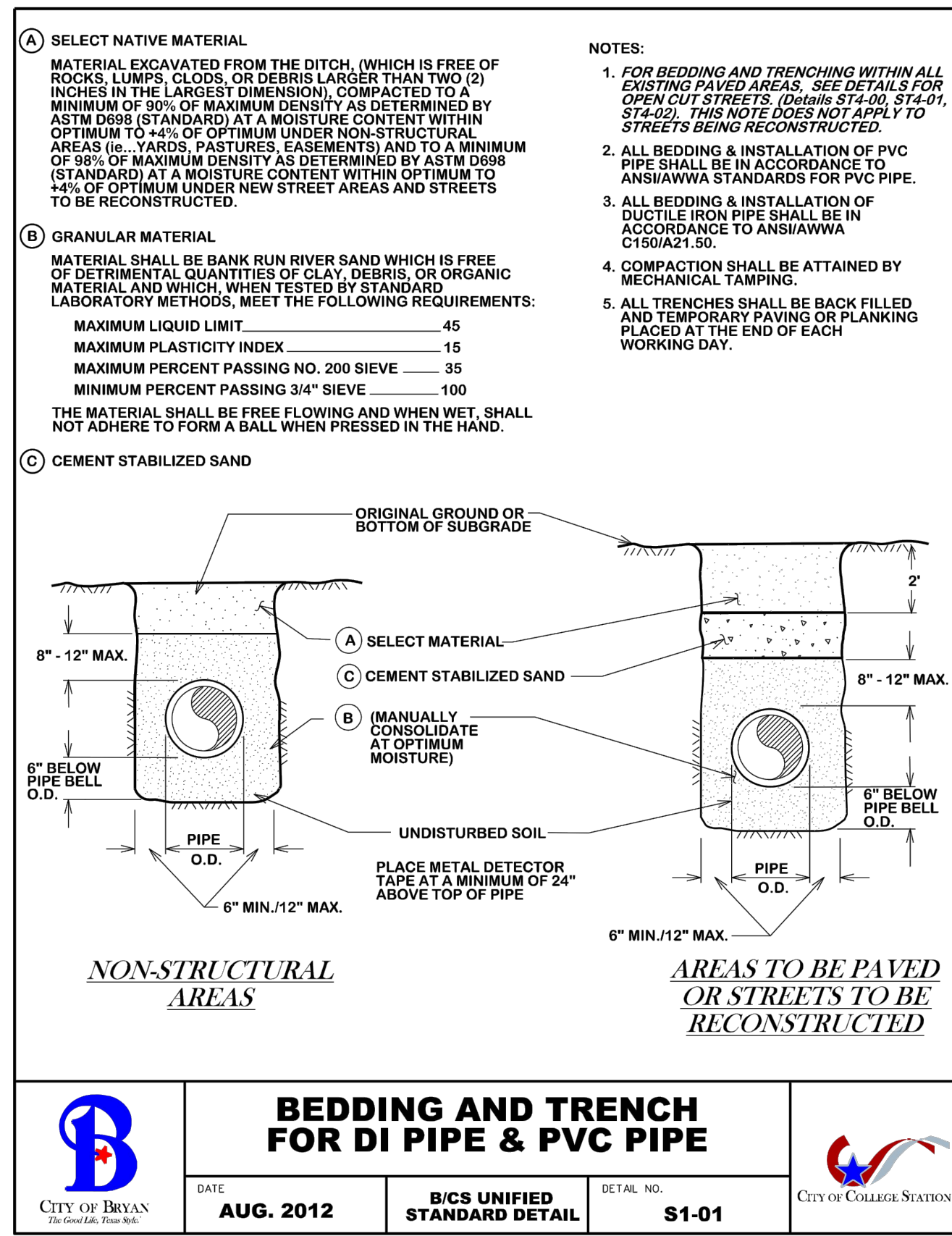
SITE DETAILS & DETENTION CALCULATION

DRAWN BY: BM	DATE: 04-27-2022	SHEET: C5.0
CHECKED BY: RSK	PROJ. NO.: VR15003.317.4	Rev: 0



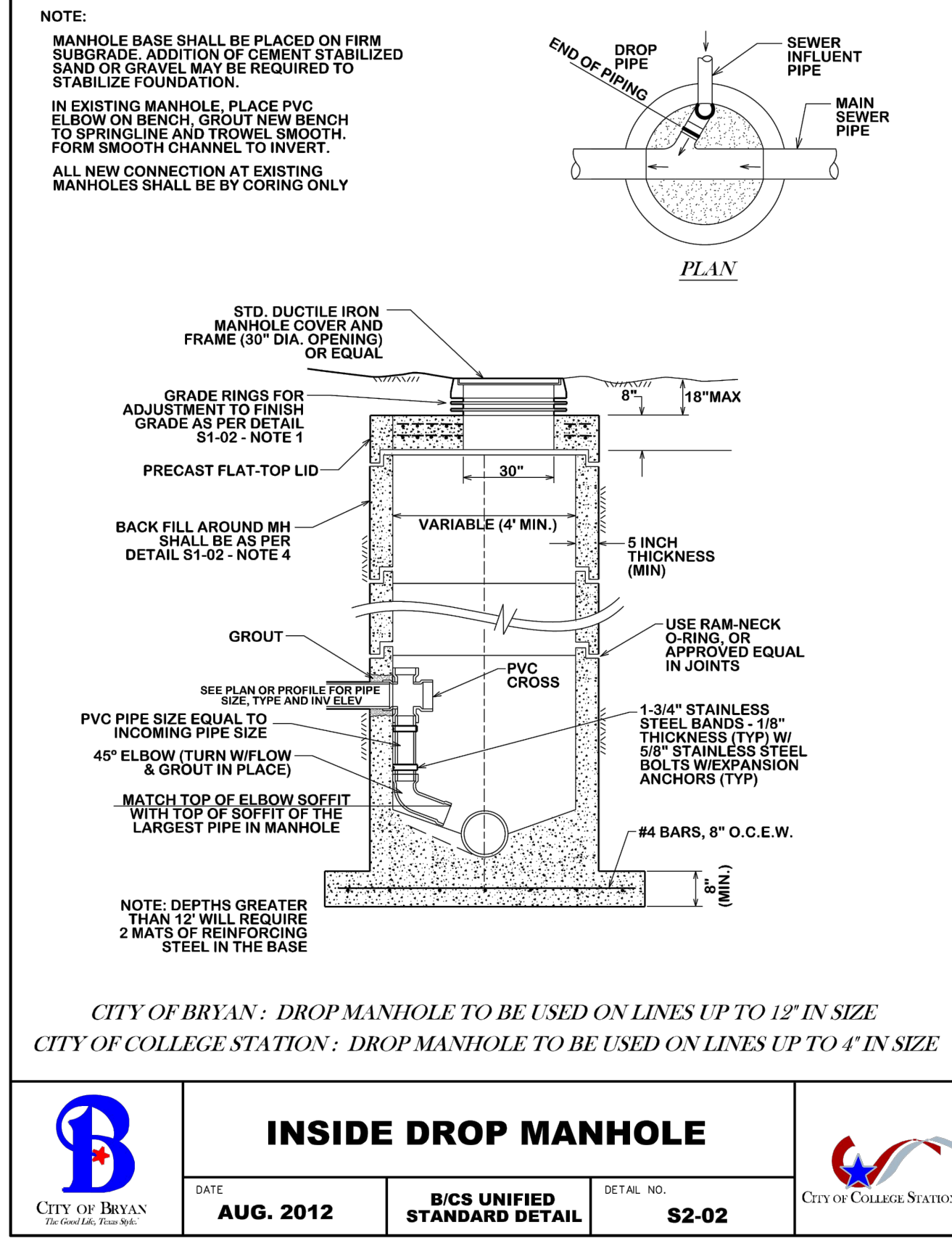
**WATER TIGHT MANHOLE RIGN AND COVER**

DATE: **AUG. 2012** B/C'S UNIFIED STANDARD DETAIL: **S4-02**



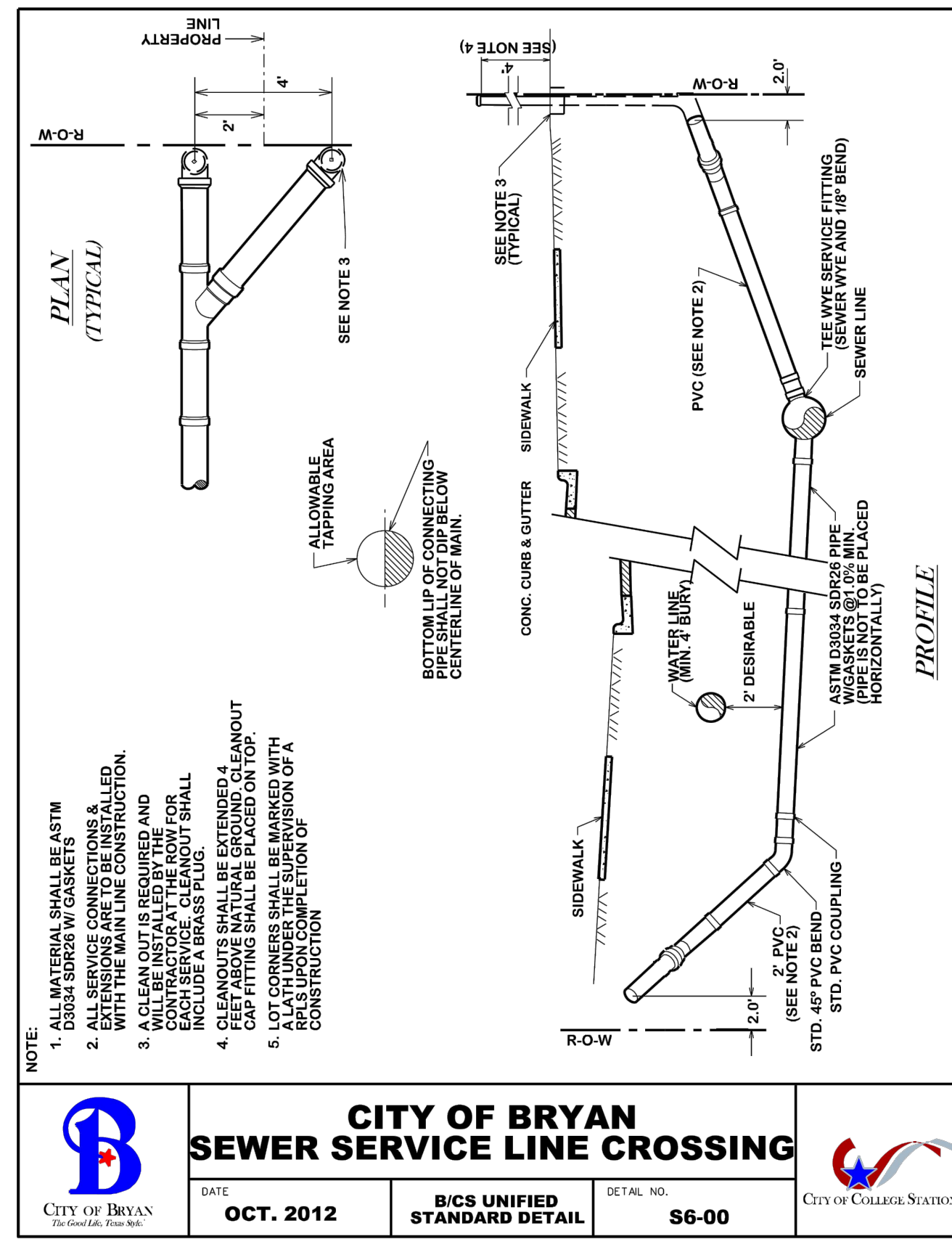
**BEDDING AND TRENCH FOR DI PIPE & PVC PIPE**

DATE: **AUG. 2012** B/C'S UNIFIED STANDARD DETAIL: **S1-01**



**INSIDE DROP MANHOLE**

DATE: **AUG. 2012** B/C'S UNIFIED STANDARD DETAIL: **S2-02**



**CITY OF BRYAN SEWER SERVICE LINE CROSSING**

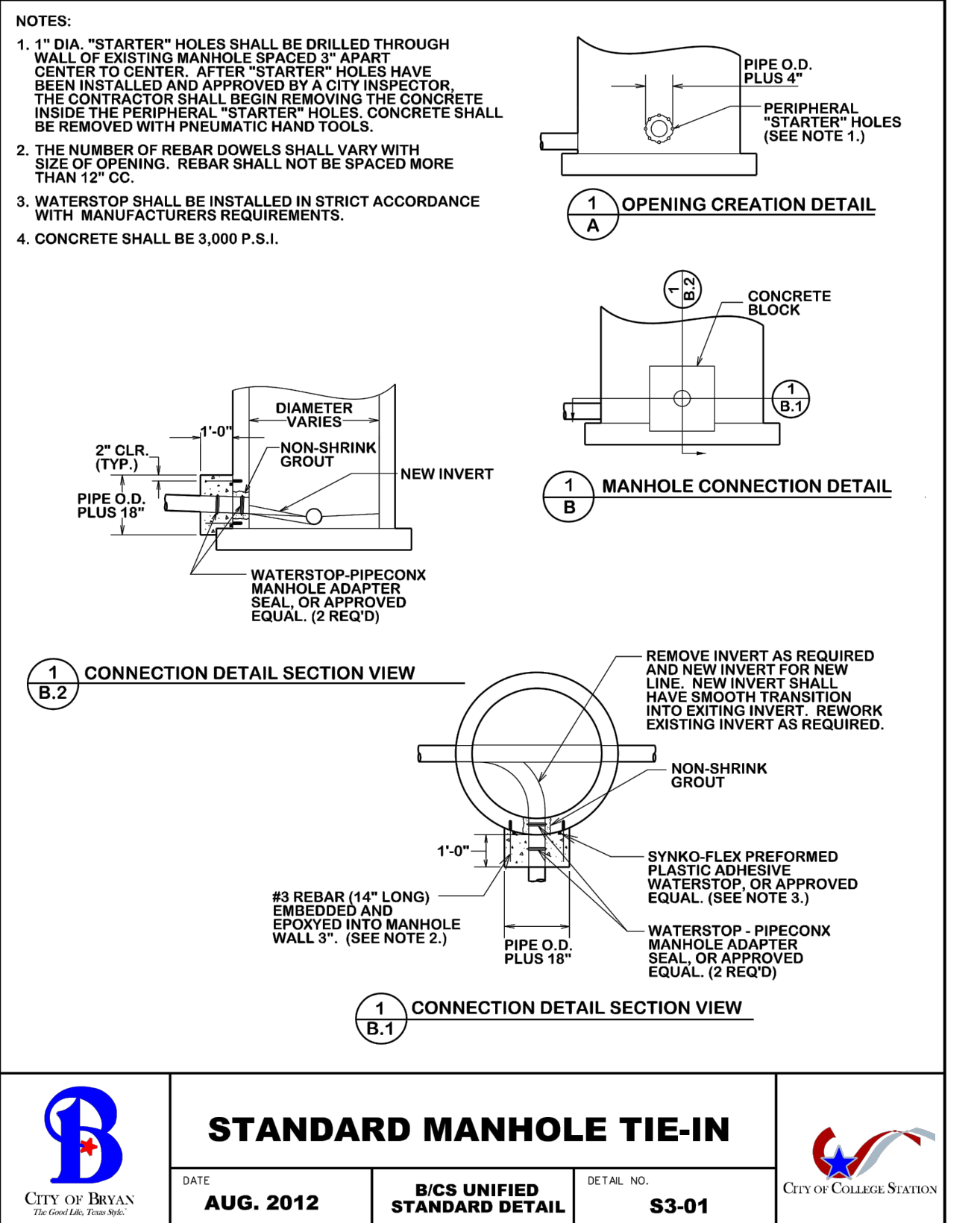
DATE: **OCT. 2012** B/C'S UNIFIED STANDARD DETAIL: **S6-00**

1 DETAIL WATER TIGHT MANHOLE RIGN AND COVER SCALE: NTS

2 DETAIL BEDDING AND TRENCH FOR DI PIPE & PVC PIPE SCALE: NTS

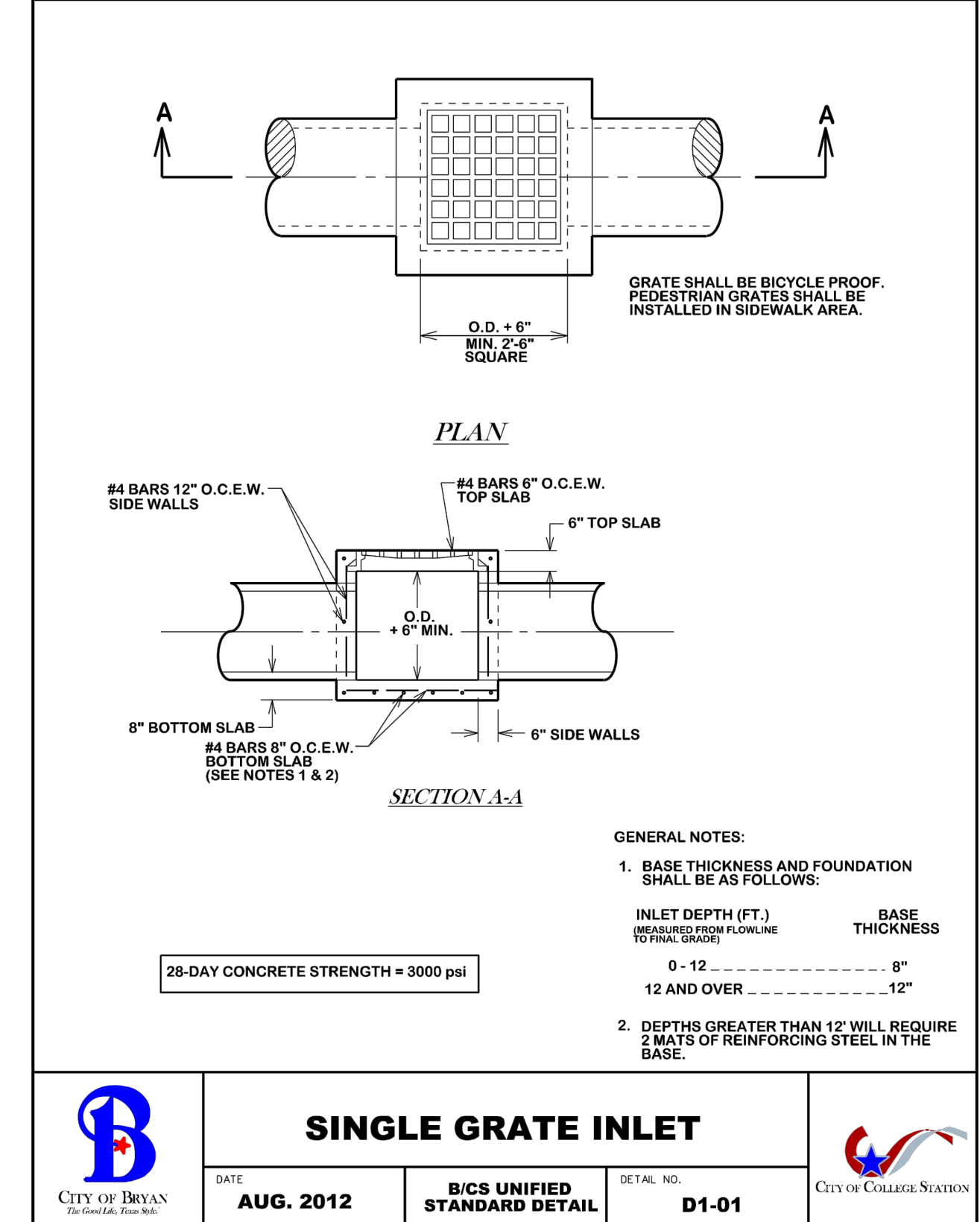
3 DETAIL INSIDE DROP MANHOLE SCALE: NTS

4 DETAIL CITY OF BRYAN SEWER SERVICE LINE CROSSING SCALE: NTS



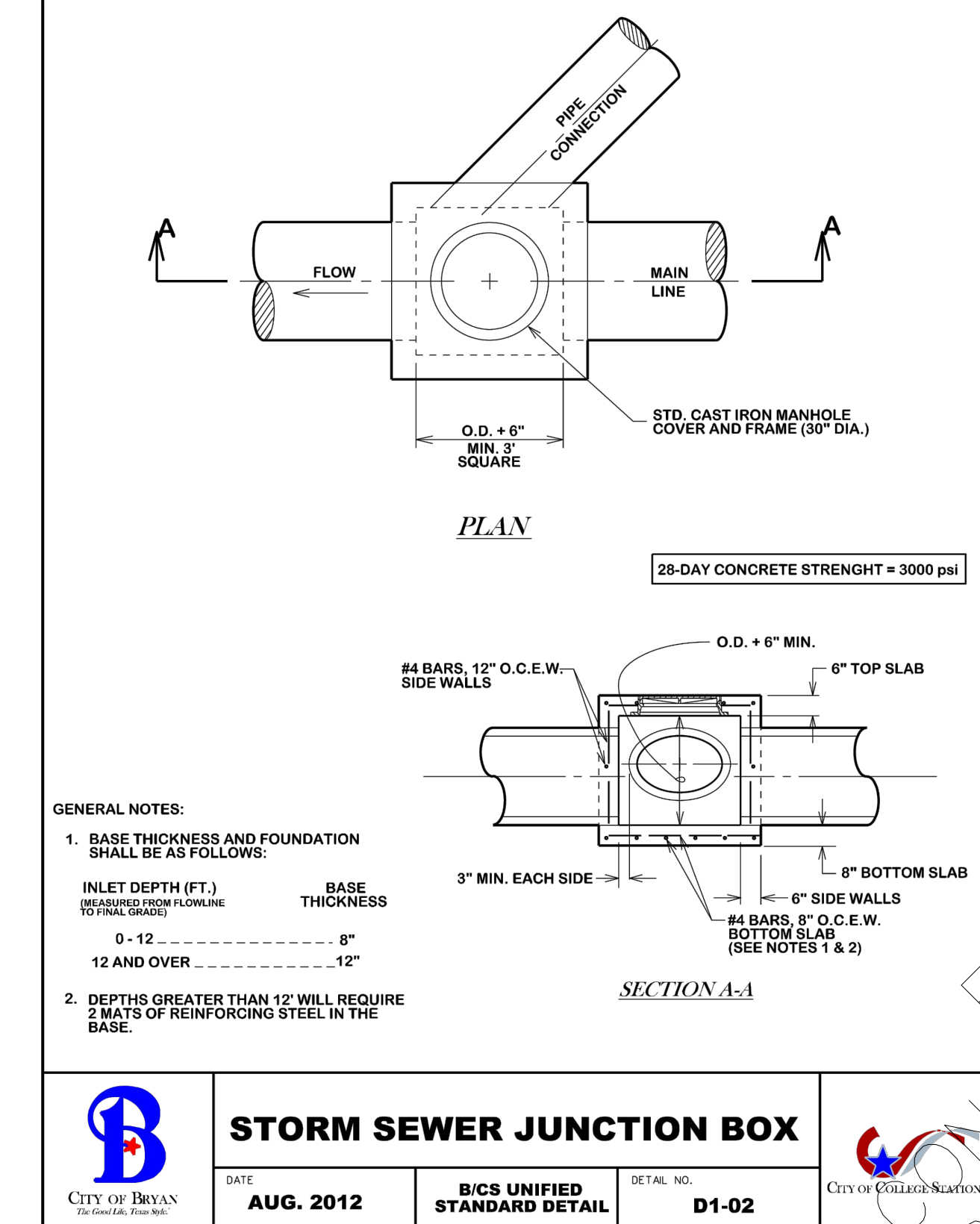
**STANDARD MANHOLE TIE-IN**

DATE: **AUG. 2012** B/C'S UNIFIED STANDARD DETAIL: **S3-01**



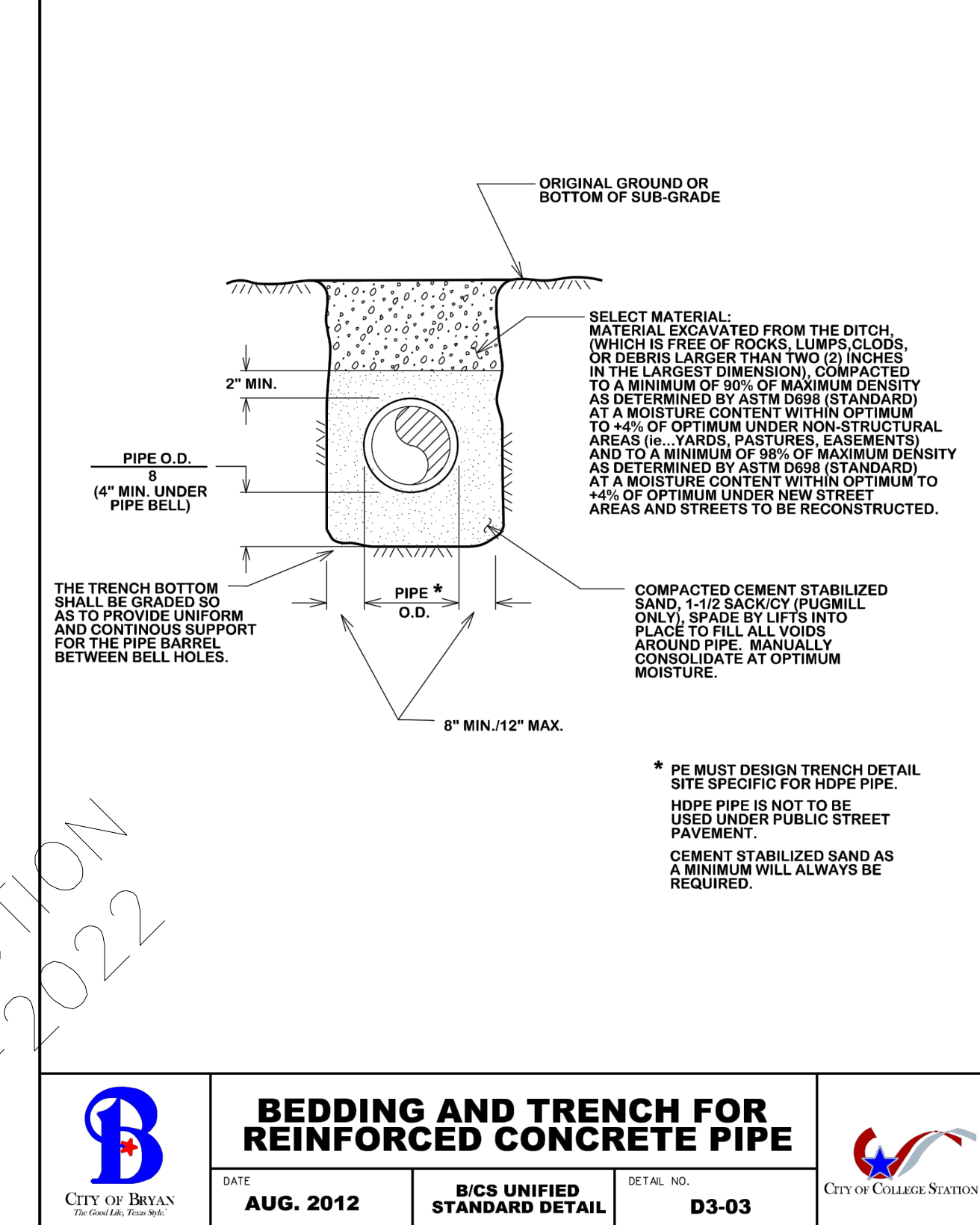
**SINGLE GRATE INLET**

DATE: **AUG. 2012** B/C'S UNIFIED STANDARD DETAIL: **D1-01**



**STORM SEWER JUNCTION BOX**

DATE: **AUG. 2012** B/C'S UNIFIED STANDARD DETAIL: **D1-02**



**BEDDING AND TRENCH FOR REINFORCED CONCRETE PIPE**

DATE: **AUG. 2012** B/C'S UNIFIED STANDARD DETAIL: **D3-03**

5 DETAIL STANDARD MANHOLE TIE-IN SCALE: NTS

6 DETAIL SINGLE GRATE INLET SCALE: NTS

7 DETAIL STORM SEWER JUNCTION BOX SCALE: NTS

8 DETAIL BEDDING AND TRENCH FOR REINFORCED CONCRETE PIPE SCALE: NTS

LEGAL DESCRIPTION:--  
OF 1.262 ACRES IN THE ZENO PHILLIPS LEAGUE SURVEY, ABSTRACT 45, IN BRYAN, BRAZOS COUNTY, TEXAS, BEING ALL OF LOT 1, BLOCK 14 SHIREWOOD ADDITION, PHASE 2, AS SHOWN ON THE SUBDIVISION PLAT RECORDED IN VOLUME 583, PAGE 181 OF THE DEED RECORDS OF BRAZOS COUNTY TEXAS (DRBCT); SAID LOT 1 BEING THE SAME TRACT OF LAND CONVEYED TO VM RETAIL, LLC IN VOLUME 17016, PAGE 106 OF THE OFFICIAL PUBLIC RECORDS OF BRAZOS COUNTY, TEXAS (OPRBC)

N.T.S.

GRAPHIC SCALE

ISSUE HISTORY		REVISIONS	
DATE	ISSUED FOR	DESCRIPTION	
5-16-22	ISSUE FOR PERMITTING	CONSTRUCTION DRAWINGS	
-	-	-	-
-	-	-	-
-	-	-	-

**RSK ENGINEERING**  
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HOUSTON, TEXAS 77041  
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FAX: (281) 580-4399

**VILLA MARIA GAS STATION**  
1919 WEST VILLA MARIA ROAD  
BRYAN, TX 77807

**SITE DETAILS**

DRAWN BY: BM DATE: 12-6-2021 SHEET: **C6.0** Rev 00  
CHECKED BY: RSK PROJ. NO.: VR151003.317.4