CONSTRUCTION PLANS

CUDEENGINEERS.COM

STREET AND DRAINAGE CONSTRUCTION PLANS

- C1 – TYPICAL STREET SECTIONS
- C2 – CORLEY ROAD EXISTING CONDITIONS
- C3 – CORLEY ROAD PLAN & PROFILE
- C4 – TRAFFIC SIGNAGE & STRIPING PLAN
- * • C5 – CITY OF BOERNE STANDARD STREET DETAILS
- * • C6 – STREET AND DRAINAGE DETAILS
- * • C7 – TXDOT PAVEMENT MARKING DETAILS
- C8 – CR CULVERT '3' PLAN AND PROFILE
- C9 – GRADING & DRAINAGE PLAN
- C10 – GRADING & DRAINAGE PLAN
- C11 – STORM WATER POLLUTION PREVENTION PLAN
- * • C12 – TXDOT CONCRETE WINGWALL & RIP-RAP DETAILS
- * • C13 – TXDOT CULVERT DETAILS
- * • C14 – DRAINAGE DETAILS
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- C17 – TYPICAL STREET SECTIONS & RIGHT OF WAY DEDICATION
- C18 – BAR DITCH ANALYSIS
- C19 – TRAFFIC CONTROL PLAN
- C20 – TRAFFIC CONTROL PLAN
- C21 – TRAFFIC CONTROL PLAN
- * • C22 – TRAFFIC CONTROL PLAN DETAILS
- * • C23 – TRAFFIC CONTROL PLAN DETAILS

* STANDARD DETAILS ADOPTED FOR THIS CONSTRUCTION SET.



EST. 1980 CUDE ENGINEERS

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

STREET & DRAINAGE CONSTRUCTION PLANS

CORLEY FARMS SUBDIVISION IS VESTED TO THE SUBDIVISION ORDINANCE NO. 2007-56 OF THE CITY OF BOERNE, TEXAS (REVISED 10.08.2019) PER THE DEVELOPMENT AGREEMENT EXECUTED BETWEEN BEORNEBAK, LLC. AND THE CITY OF BOERNE, TEXAS EFFECTIVE NOVEMBER 26, 2019

IMPROVEMENTS SHOWN ON THIS CONSTRUCTION PLAN SET ARE BASED ON EXHIBIT G-5 AND TERMS OF THE DEVELOPMENT AGREEMENT

Pulte Homes

DEVELOPER:
PULTE HOMES OF TEXAS, L.P.
CONTACT PERSON: TREY ROGERS
927 E SONTERRA BLVD, STE 316
SAN ANTONIO, TX 78258
TEL: (210) 496-1985
FAX: (210) 496-0449

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

DRAWN BY	DATE	
HN/AM/JG/RC	07/11/2025	
CHECKED BY	**PROJECT NO.**	
AL/AD	03481.003	

STATE OF TEXAS · ANDREW R. LOWRY · 123410 · LICENSED · PROFESSIONAL ENGINEER

07/11/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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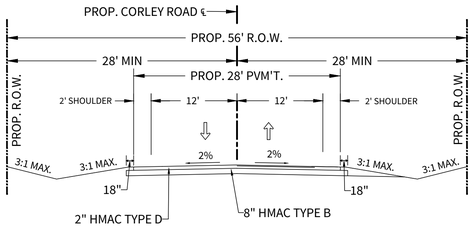
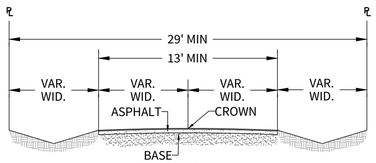
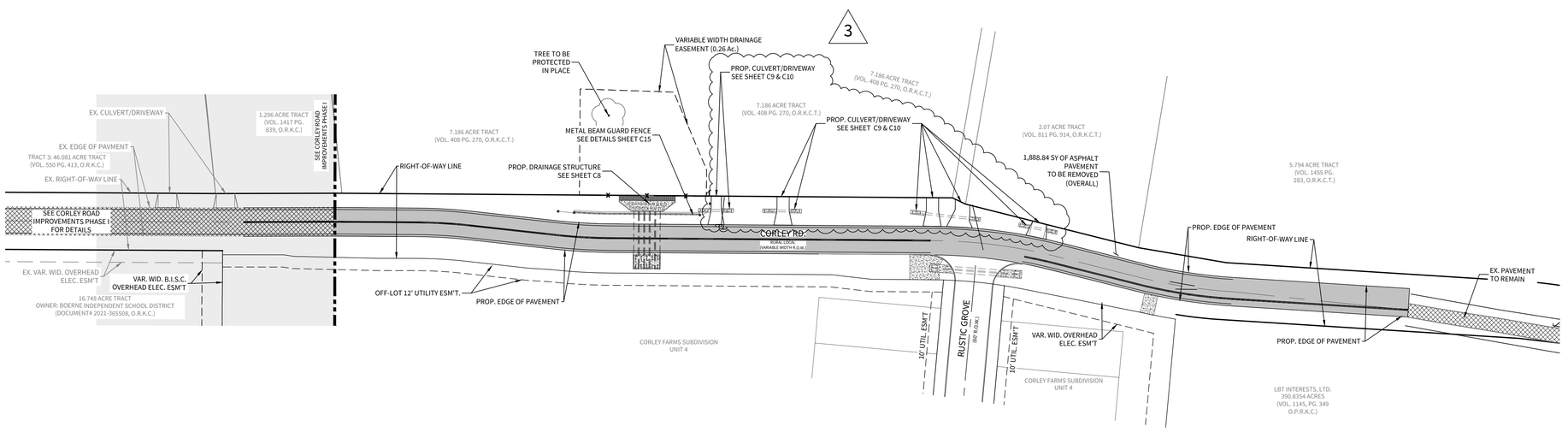
LOCATION MAP
N.T.S.



PROP. CORLEY ROAD BLACK BASE TYPICAL SECTION
SECTION 'B'-'B' (N.T.S.)
STA. 32+75.03 TO STA. 33+53.22



EX. STREET SECTION
(N.T.S.)

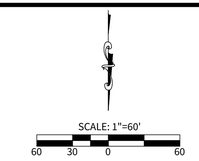


NOTES:

1. TYPICAL SECTIONS SHOWN DEPICT THE MOST COMMON CASES.
2. ALL GRADING SHALL BE WITHIN THE EXISTING RIGHT OF WAY LIMITS.
3. THE SUBGRADE SHALL BE SHAPED, BLADED, ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.
4. IF AREAS BEYOND THE CONSTRUCTION LIMITS ARE DISTURBED OR DAMAGED BY CONSTRACTOR, THE CONTRACTOR SHALL REPAIR OR BRING BACK AS CLOSE AS POSSIBLE TO PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE ENGINEER. THERE WILL BE NO SEPARATE PAY FOR THIS WORK AND / OR MATERIALS.
5. CROSS SLOPE TO MATCH EXISTING CROSS SLOPE OF THE ADJOINING TRAVEL LANE.
6. THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND CABLE INDICATED ON THESE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE, AND ARE NOT GUARANTEED TO BE ACCURATE. THE CONTRACTOR SHOULD CALL FOR LOCATES THROUGH THE "ONE CALL" UTILITY LOCATE SERVICE (1-800-344-8377) 48 HOURS PRIOR TO CONSTRUCTION/EXCAVATION WORK. CONTRACTORS HAVE THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY FACILITIES DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE EXISTING UNDERGROUND CABLE RELOCATION IF A ALIGNMENT CONFLICT ARISES.
7. CONTRACTOR TO REMOVE AND RELOCATE EXISTING SIGNS AND FENCES AS NECESSARY TO EXISTING OR BETTER CONDITION.
8. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW (MINIMUM ONE WAY TRAFFIC) AND TRAFFIC MOVEMENTS. ENGINEER IS RESPONSIBLE FOR PRODUCING A TRAFFIC CONTROL PLAN AS REQUIRED BY THE CITY OF BOERNE AND KENDALL COUNTY. THE CONTRACTOR SHALL OBTAIN ANY AND ALL RIGHT OF WAY PERMITS NEEDED
9. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY OR UTILITY EASEMENTS.
10. CONTRACTOR SHALL GRADE RIGHT OF WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.
11. CONTRACTOR MUST CONSTRUCT THE PROPOSED STREET CROSS SECTION SHOWN IN THIS SHEET IN ALL AREAS WHERE THE PROPOSED PAVEMENT IS SHOWN. CONTRACTOR TO VERIFY ALL AREAS WITHIN THE PROPOSED PAVEMENT RIGHT OF WAY HAVE NO DRAINAGE ISSUES.
12. IF ANY DRAINAGE OR UTILITY CONFLICT ARISE DURING CONSTRUCTION, CONTRACTOR IS TO NOTIFY ENGINEER IMMEDIATELY.
13. CONTRACTOR IS REQUIRED TO COORDINATE DRIVEWAY ACCESS AND REQUIRED IMPROVEMENT WORK TIMES WITH EXISTING PROPERTY OWNERS.
14. THE CONTRACTOR IS REQUIRED TO INSTALL AND MONITOR SWPPP MEASURES EVERY 2 WEEKS OR AFTER EVERY RAIN EVENT.
15. THE CONTRACTOR IS RESPONSIBLE FOR REVEGETATION OF ALL DISTURBED AREAS DURING CONSTRUCTION INCLUDING AREAS OUTSIDE OF THE RIGHT OF WAY. 90% VEGETATION ESTABLISHMENT WILL BE REQUIRED FOR FIELD ACCEPTANCE OF IMPROVEMENTS SHOWN.

KENDALL COUNTY STANDARD CONSTRUCTION NOTES

1. ANY DEVIATIONS FROM THE CONSTRUCTION PLANS, DRAWINGS, OR SPECIFICATIONS FOR ROADS, DRAINAGE, OR OTHER IMPROVEMENTS MUST HAVE PRIOR APPROVAL BY THE KENDALL COUNTY ENGINEER. THE ENGINEER OF RECORD MUST REQUEST APPROVAL OF ANY CHANGE IN WRITING ADDRESSED TO THE COUNTY ENGINEER.
2. NEWLY CONSTRUCTED ROADS IN KENDALL COUNTY SHALL SATISFY THE REQUIREMENTS AND SPECIFICATIONS CONTAINED IN THE KENDALL COUNTY DEVELOPMENT RULES AND REGULATIONS ADOPTED NOV. 14, 2022.
3. CONTRACTOR IS RESPONSIBLE FOR FOLLOWING ALL LOCAL, STATE, AND FEDERAL REGULATIONS FOR STORM WATER POLLUTION PREVENTION DURING CONSTRUCTION ACTIVITIES.
4. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO ALL APPLICABLE KENDALL COUNTY DESIGN CRITERIA (ADOPTED BY COMMISSIONERS COURT), AS WELL AS OTHER SAFETY CODES AND INSPECTION PROVISIONS APPLICABLE TO THE PROJECT AND REQUIREMENTS OF THE KENDALL COUNTY FIRE DEPARTMENT.
5. ANY ROADWAY EXCAVATION NECESSARY TO ATTAIN CONFORMANCE WITH PROPOSED ROAD GRADES AND TYPICAL CROSS SECTIONS SHALL BE DONE IN CONFORMANCE WITH TXDOT SPECIFICATION ITEM 110. COMPLETED CUTS SHALL HAVE SIDE SLOPES NO STEEPER THAN 3:1 UNLESS APPROVED BY THE KENDALL COUNTY ENGINEER.
6. SUBGRADE DENSITY CONTROL SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION ITEM 132. ORDINARY COMPACTION IS ALLOWED WITH PRIOR APPROVAL OF KENDALL COUNTY ENGINEER. PROOF ROLLING, IF ALLOWED, SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION ITEM 216.
7. BASE DENSITY CONTROL SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION ITEM 247. COMPACTION SHALL BE USED TO ATTAIN AT LEAST 100% COMPACTION OF BASE COURSES.
8. ALL ROADWAY COMPACTION TESTS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. EACH LAYER OF MATERIAL SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY UNLESS ORDINARY COMPACTION OR PROOF ROLLING IS APPROVED BY THE KENDALL COUNTY ENGINEER. NUCLEAR TESTING METHODS ACCEPTABLE TO TXDOT ARE ACCEPTABLE TO KENDALL COUNTY.
9. STREET SUBGRADE AND BASE COURSES SHALL BE DENSITY TESTED EVERY 250 FEET WITH A MINIMUM OF 3 TESTS PER STREET SECTION INCLUDING RETESTS.
10. CONCRETE STRUCTURES SHALL BE TESTED IN ACCORDANCE WITH CURRENT TXDOT STANDARD SPECIFICATION ITEM 421. TESTING WILL NOT BE REQUIRED FOR CURBS.
11. HMAC IN-PLACE DENSITY TESTING WILL BE IN ACCORDANCE WITH TXDOT STANDARD SPECIFICATION ITEM 341.
12. KENDALL COUNTY ENGINEERS OFFICE REQUIRES 24 HOURS NOTICE PRIOR TO ALL MATERIAL TESTING. LABORATORY TESTING COMPANIES MUST BE APPROVED BY KENDALL COUNTY. UPON COMPLETION OF TESTING, THE GEOTECHNICAL ENGINEER WILL PROVIDE THE KENDALL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FLEXIBLE BASE, AND FILL MATERIAL, AND SUBGRADE, HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.
13. EXCESS MATERIALS, EQUIPMENT, FILL, OR SPOILS SHALL NOT BE PLACED WITHIN ANY DESIGNATED FLOOD PLAIN.



LEGEND

- OVERALL UNIT BOUNDARY
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY
- E.G.T.CA. EASEMENT
- EXISTING PAVEMENT TO REMAIN
- PROPOSED PAVEMENT
- PHASE I LIMITS OF WORK

ESM'T	EASEMENT
EX	EXISTING
MAX	MAXIMUM
MIN	MINIMUM
PROP	PROPOSED
PVM'T	PAVEMENT
R.O.W.	RIGHT-OF-WAY
VAR	VARIABLE
WID	WIDTH

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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

TYPICAL STREET SECTIONS

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

	DATE	
1.	25/03/19	STREET PAVEMENT SECTION
2.	05/08/25	CITY/COUNTY COMMENTS
3.	25/06/27	COUNTY COMMENTS
4.		
5.		
6.		
7.		
8.		
9.		

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C1

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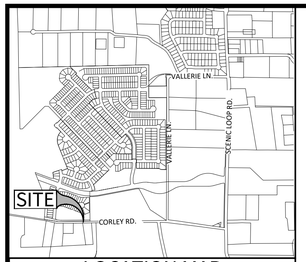
C:\03481003\3-Drawings\CORLEY ROAD\PHASE II\C1 TYPICAL STREET SECTIONS.dwg 2025/07/11 3:50pm jaredcauthon



LOCATION MAP
N.T.S.

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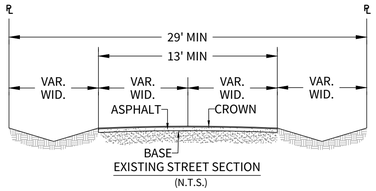
9. THE SOIL RETENTION BLANKET, WHETHER INSTALLED AS SLOPE PROTECTION OR AS FLEXIBLE CHANNEL LINER IN ACCORDANCE WITH THE APPROVED MATERIAL LIST, SHALL BE PLACED WITHIN 24 HOURS AFTER SEEDING OR SODDING OPERATIONS HAVE BEEN COMPLETED, OR AS APPROVED BY THE ENGINEER. PRIOR TO PLACING THE BLANKET, THE AREA TO BE COVERED SHALL BE RELATIVELY FREE OF ALL ROCKS OR CLODS OVER 1-1/2 INCHES IN MAXIMUM DIMENSION AND ALL STICKS OR OTHER FOREIGN MATERIAL WHICH WILL PREVENT THE CLOSE CONTACT OF THE BLANKET WITH THE SOIL. THE AREA SHALL BE SMOOTH AND FREE OF RUTS AND OTHER DEPRESSIONS. IF AS A RESULT OF RAIN, THE PREPARED BED BECOMES CRUSTED OR ERODED OR IF ANY ERODED PLACES, RUTS, OR DEPRESSIONS EXIST FOR ANY REASON, THE CONTRACTOR SHALL BE REQUIRED TO REWORK THE SOIL UNTIL IT IS SMOOTH AND RESEED OR RESOD THE AREA AT THE CONTRACTOR'S EXPENSE.

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!

THE CONTRACTOR SHALL BE AWARE THAT A WATER MAIN, UNDER GROUND ELECTRIC, AND OVERHEAD ELECTRIC LINE EXIST ALONG VALLERIE LANE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.



EXISTING STREET SECTION
(N.T.S.)

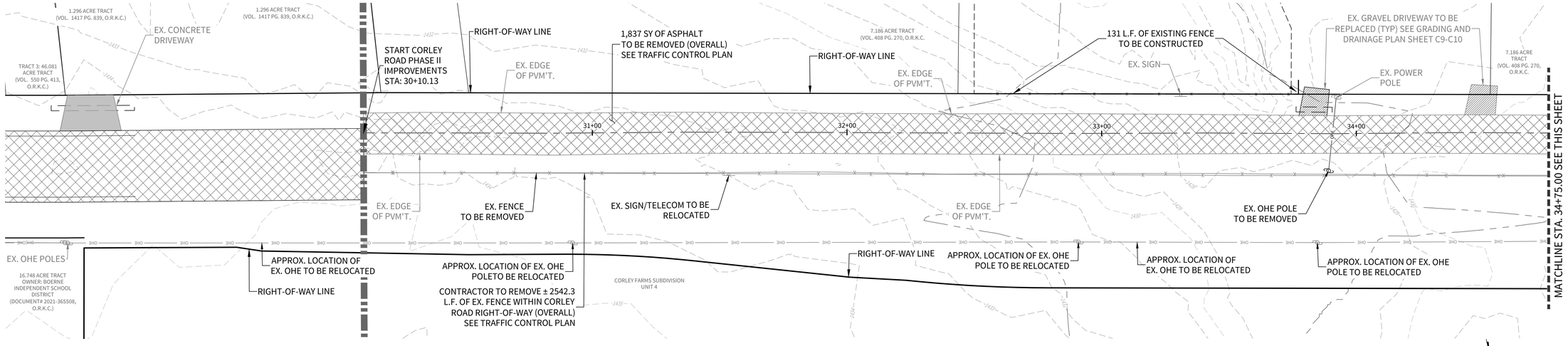
LEGEND

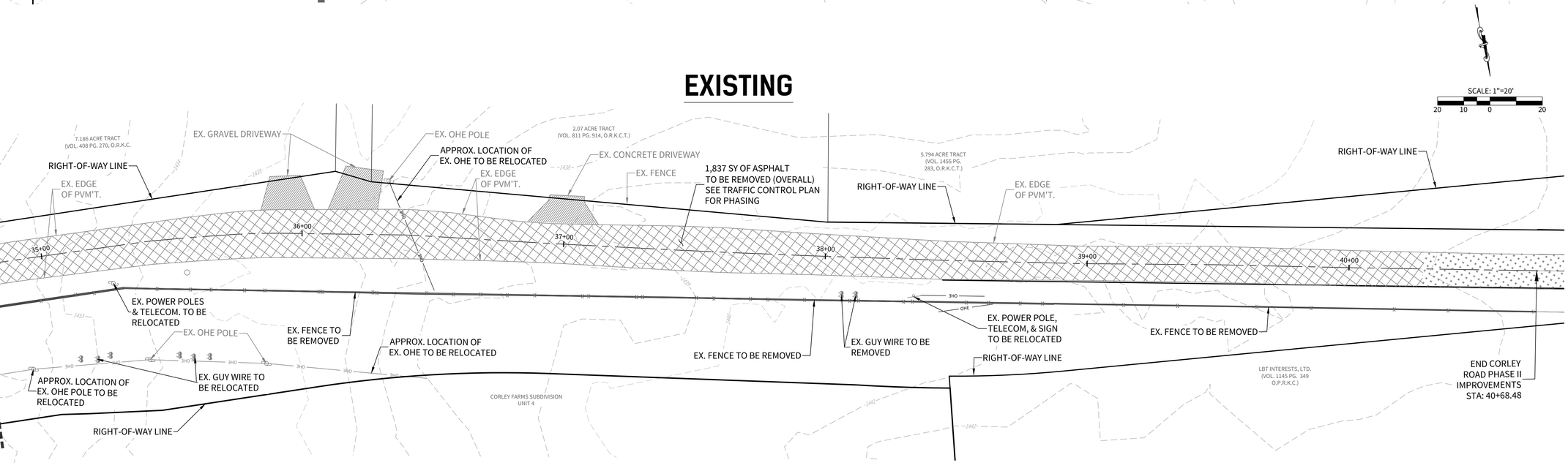
- OVERALL UNIT BOUNDARY
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY
- E.G.T.CA. EASEMENT
- EXISTING 1' CONTOUR (499)
- EXISTING 5' CONTOUR (500)
- EXISTING PAVEMENT TO BE REMOVED
- PHASE I LIMITS OF WORK
- EXISTING PAVEMENT TO REMAIN

ESM'T	EASEMENT
EX	EXISTING
MAX	MAXIMUM
MIN	MINIMUM
PROP	PROPOSED
PVM'T	PAVEMENT
R.O.W.	RIGHT-OF-WAY
VAR	VARIABLE
WID	WIDTH
OHE	OVERHEAD ELECTRIC

SCALE: 1"=20'
20 10 0 20

EXISTING





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CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

CORLEY ROAD EXISTING CONDITIONS

DATE
08/25/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

	DATE	
1	05/08/25	CITY/COUNTY COMMENTS
2	08/25/25	(COUNTY COMMENTS (INCLUDES ROAD CENTERLINE)

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
08/25/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C2

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P:\03481.003\3-Drawings\CORLEY ROAD\PHASE II\C2 CORLEY ROAD EXISTING CONDITIONS.dwg, 2025/10/21 1:46pm, jamilbaichoo

NOTES:

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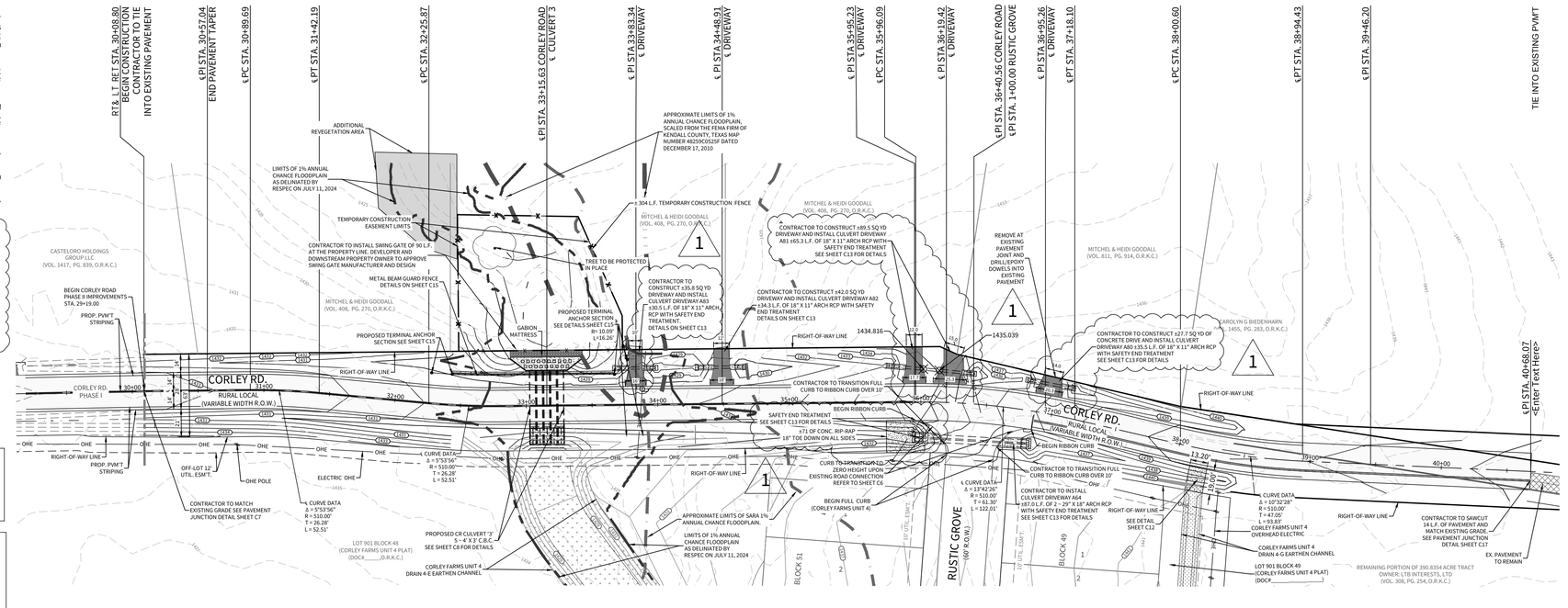
CAUTION!!

THE CONTRACTOR SHALL BE AWARE THAT A UNDER GROUND ELECTRIC AND OVERHEAD ELECTRIC LINE EXIST ALONG CORLEY ROAD. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.



LEGEND

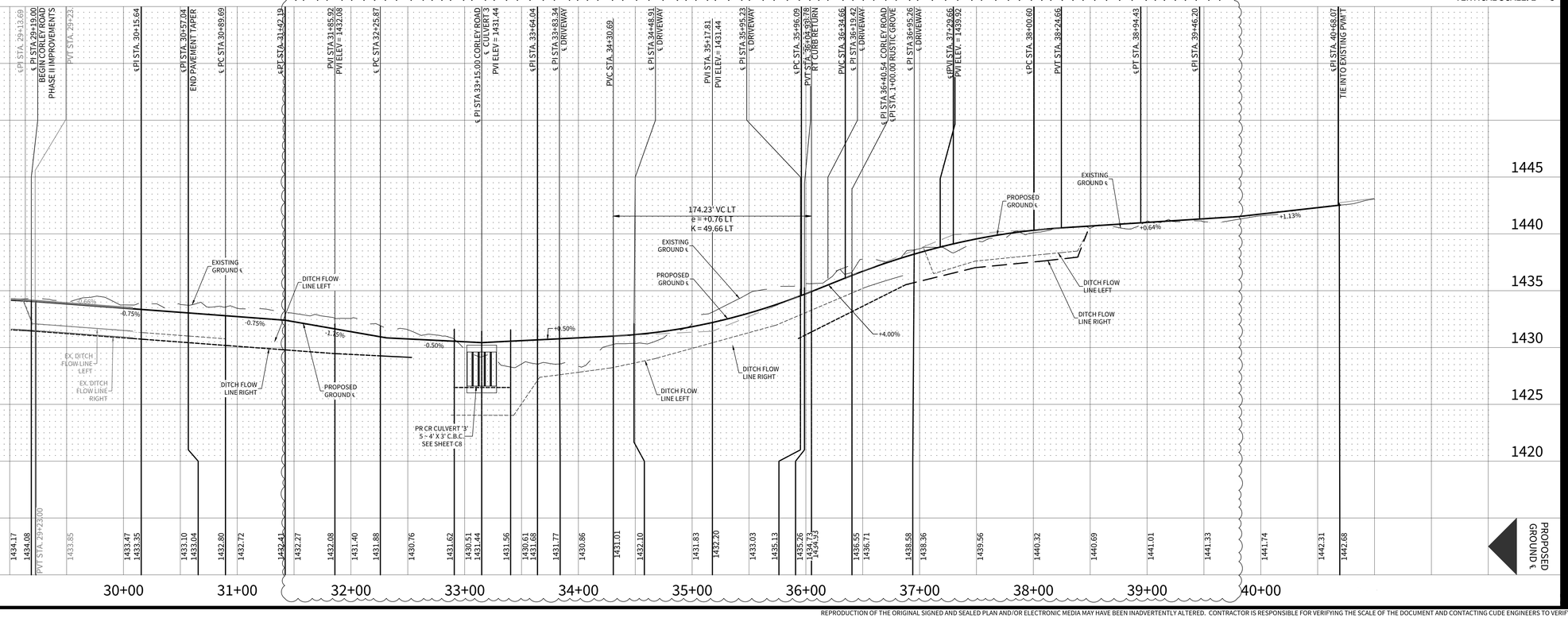
RIGHT OF WAY	
LOT LINE	
UTILITY EASEMENT	
EXISTING 1' CONTOUR	499
EXISTING 5' CONTOUR	500
PROP. CORLEY FARMS UNIT 4 1' CONTOUR	500
PROP.CORLEY FARMS UNIT 4 5' CONTOUR	500
PROP. CORLEY FARMS UNIT 4 DRN HATCH	
EXISTING PAVEMENT	
PROPOSED PAVEMENT	
PROPOSED DRIVEWAY	
PROPOSED 1' CONTOUR	500
PROPOSED 5' CONTOUR	500

e	SUPERELEVATION
ELEV	ELEVATION
K	RATE OF VERTICAL CURVATURE
LT	LEFT
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENT
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVM'T	PAVEMENT
PVT	POINT OF VERTICAL TANGENT
ROW	RIGHT OF WAY
RT	RIGHT
STA	STATION
VC	VERTICAL CURVE

PROPOSED CORLEY ROAD

STA. 29+19.00 TO END

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



CUDEENGINEERS.COM

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

CORLEY ROAD PLAN & PROFILE

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

	DATE	
A	25/07/09	COUNTY COMMENTS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C3

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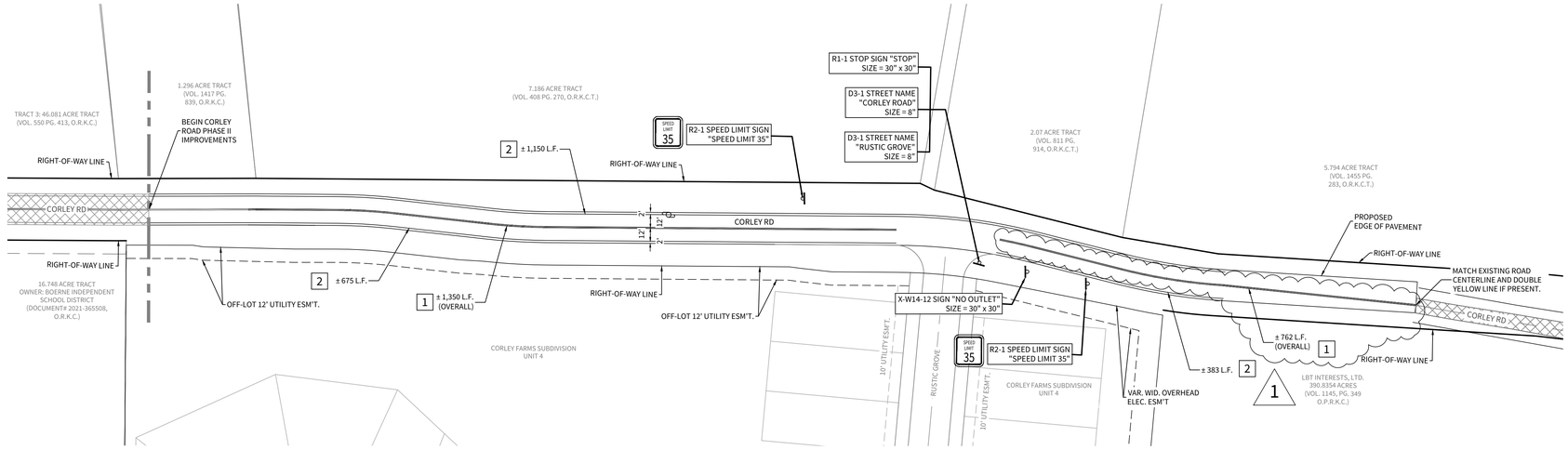
LOCATION MAP
N.T.S.

OWNER/DEVELOPER:

PULTE HOMES OF TEXAS, L.P.
CONTACT PERSON: FELIPE GONZALEZ
1718 DRY CREEK WAY, SUITE 120
SAN ANTONIO,TX 78259
TEL: (210) 496-1985
FAX: (210) 496-0449

CIVIL ENGINEER:

M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: ANDREW R. LOWRY, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112



SCALE: 1"=60'
60 30 0 60

LEGEND

EXISTING PAVEMENT TO REMAIN

PROPOSED PAVEMENT

KEYNOTES

1. 4" DOUBLE SOLID YELLOW LINE THERMOPLASTIC PAVEMENT MARKING & TYPE II - A-A RAISE REFLECTIVE PAVEMENT MARKERS @ 20' O.C.
2. 4" SINGLE WHITE SOLID LINE THERMOPLASTIC PAVEMENT MARKING

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P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

TRAFFIC SIGNAGE & STRIPING PLAN

DATE
08/25/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

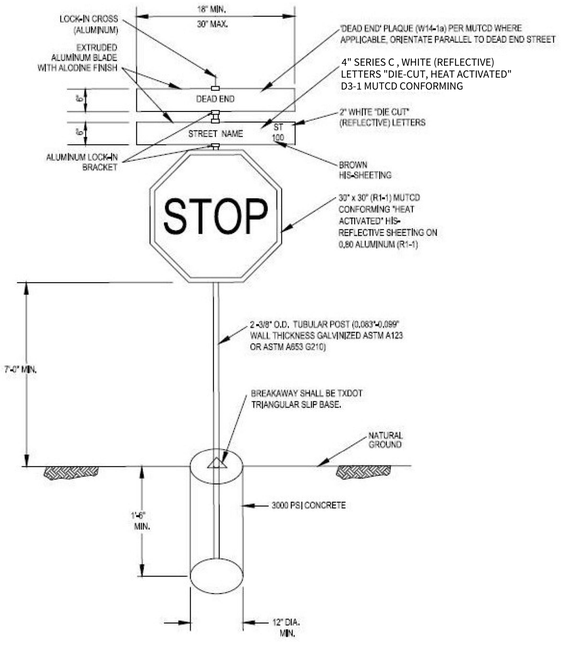
	DATE	
1.	08/25/25	COUNTY COMMENTS (REVISED CENTERLINE / STRIPING)
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
08/25/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4

C:\03481003\3-Drawings\CORLEY ROAD\PHASE II\C4 TRAFFIC SIGNAGE & STRIPING.dwg, Aug 2025/08/25 1:59pm, jakeh.dwg



STOP SIGN DETAIL WITH STREET SIGN

N.T.S.

NOTE:
ALL SIGNAGE SHALL INCORPORATE APPROVED TxDOT BREAKAWAY POSTS.

CUDEENGINEERS.COM

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

CITY OF BOERNE STANDARD STREET DETAILS

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

	DATE
1	
2	
3	
4	
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7	
8	
9	

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025

CUDE ENGINEERS
TBPE No. 455
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P:\03481\003\3 Drawings\CORLEY ROAD\PHASE II\CITY OF BOERNE STANDARD STREET DETAILS.dwg 2025/07/11 5:52pm rjarmbrecht

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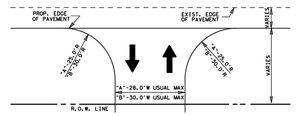
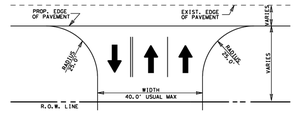
DESIGNS FOR TWO-WAY COMMERCIAL DRIVEWAYS



"A"- ONE ENTRY LANE AND ONE EXIT LANE, FEWER THAN 4 LARGE VEHICLES PER HOUR

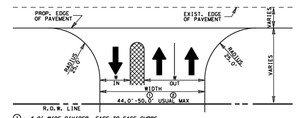
"B"- ONE ENTRY LANE AND ONE EXIT LANE, 4 OR MORE SINGLE UNIT VEHICLES PER HOUR

① - *DRIVEWAY DESIGNS FOR LARGER VEHICLES WILL BE CONSIDERED ON A CASE BY CASE BASIS*



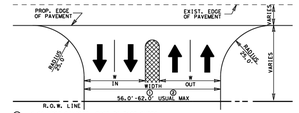
ONE ENTRY LANE AND TWO EXIT LANES (WITHOUT DIVIDERS)

DESIGNS FOR TWO-WAY COMMERCIAL DRIVEWAYS



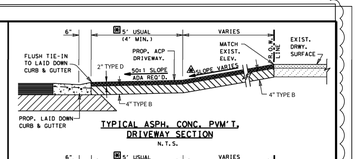
① - *4.0' WIDE DIVIDER, FACE-TO-FACE CURBS*
② - *10.0' WIDE DIVIDER, FACE-TO-FACE-CURBS*

ONE ENTRY LANE AND TWO EXIT LANES (WITH A DIVIDER)

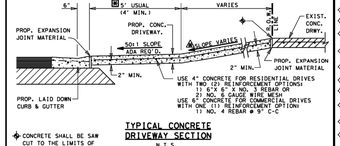


① - *4.0' WIDE DIVIDER, FACE-TO-FACE CURBS*
② - *10.0' WIDE DIVIDER, FACE-TO-FACE-CURBS*

TWO ENTRY LANES AND TWO EXIT LANES (WITH A DIVIDER)



TYPICAL ASPH. CONC. PVM'T, DRIVEWAY SECTION
N.T.S.



USE 4" CONCRETE FOR RESIDENTIAL DRIVES WITH TWO (2) REINFORCEMENT OPTIONS:
1) 6"X 6" X NO. 3 REBAR OR
2) NO. 6 GAUGE WIRE MESH

USE 6" CONCRETE FOR COMMERCIAL DRIVES WITH TWO (2) REINFORCEMENT OPTION:
1) NO. 4 REBAR @ 9" C-C

TYPICAL CONCRETE DRIVEWAY SECTION
N.T.S.

◆ CONCRETE SHALL BE SAW CUT TO THE LIMITS OF REMOVAL WHERE APPLICABLE.

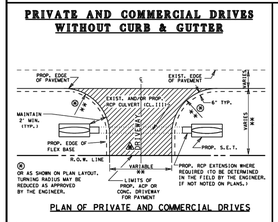
Ⓟ PROP./FUTURE SIDEWALK CROSSING LOCATION UNLESS SHOWN ELSEWHERE ON P&P SHEETS. SEE P&P SHEETS FOR PROP. SIDEWALK LOCATION IF SIDEWALKS ARE INCLUDED AS PART OF PROJECT. REFER TO STATE STANDARDS - PEDESTRIAN FACILITIES - FOR ADDITIONAL REQUIREMENTS.

⚠ ENTRANCE'S BASE AND SURFACING MAY BE EXTENDED BEYOND R.O.W. LINE AS REQUIRED TO MEET EXISTING GRADE IN A SATISFACTORY MANNER OF WHICH NO STEEPER THAN 12:1 FOR COMMERCIAL DRIVEWAY AND 8:1 FOR RESIDENTIAL DRIVEWAY SLOPE WILL BE CONSTRUCTED.

PROP. DWY ALGEBRAIC DIFFERENCE TABLE
COMMERCIAL DRIVEWAYS @ A = 6% MAX.
RESIDENTIAL DRIVEWAYS @ A = 8% MAX.

PROPOSED DRIVEWAY SLOPE TABLE
COMMERCIAL DRIVEWAYS @ 12:1 MAX.
RESIDENTIAL DRIVEWAYS @ 8:1 MAX.

PRIVATE AND COMMERCIAL DRIVES WITHOUT CURB & GUTTER



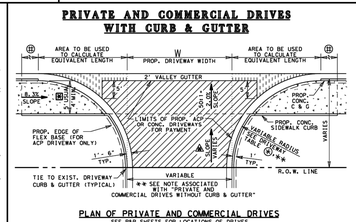
Ⓐ OR AS SHOWN ON PLAN LAYOUT. TURNING RADIUS MAY BE REDUCED AS APPROVED BY THE ENGINEER.

PLAN OF PRIVATE AND COMMERCIAL DRIVES

✱✱ FOR PRIVATE RESIDENTIAL DRIVES, TRY TO MATCH EXISTING WITH A MINIMUM WIDTH OF 12 FT. AND A MAXIMUM WIDTH OF 24 FT. WITH 15 FT. USUAL RADIUS. FOR COMMERCIAL DRIVES, USE ABOVE COMMERCIAL DRIVEWAY DETAILS.

⚠ SEE TYPICAL DRIVEWAY SECTIONS NOTES FOR DRIVEWAY SLOPE CRITERIA.

PRIVATE AND COMMERCIAL DRIVES WITH CURB & GUTTER



✱✱ SEE NOTE ASSOCIATED WITH "PRIVATE AND COMMERCIAL DRIVES WITHOUT CURB & GUTTER"

PLAN OF PRIVATE AND COMMERCIAL DRIVES
SEE P&P SHEETS FOR LOCATIONS OF DRIVES
N.T.S.

Ⓟ PROP./FUTURE CONC. SIDEWALK LOCATION UNLESS SHOWN ELSEWHERE ON P&P SHEETS. REFER TO STATE STANDARD - PEDESTRIAN FACILITIES - FOR ADDITIONAL REQUIREMENTS.

Ⓛ LIMITS OF SLOPE FOR DRIVE OVER CONC. CURB BASED ON 8% SLOPE FOR SIDEWALK.

⚠ SEE TYPICAL DRIVEWAY SECTIONS NOTES FOR DRIVEWAY SLOPE CRITERIA.

LF EQUIVALENT TABLE FOR PAYMENT LIMITS OF 2' VALLEY GUTTER

LF OF VALLEY GUTTER= W + X1 + X2

WHERE X1 AND X2 MAY VARY DEPENDING ON RADIUS

Prop. Driveway Radius	X1 or X2 (Sq Ft Area / 2') Equivalent LF Length
5'	1
6'	2
10'	4
12'	6
15'	9
18'	12
20'	15
22'	18
25'	24
28'	30
30'	34

SEE DRIVEWAY TABLE FOR LIMITS OF LAID DOWN CURB TO BE PAID FOR AS CURB AND GUTTER

DRIVEWAY TYPES

TY PB-1
EXIST. PRIVATE OR COMMERCIAL DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 4" NEW AND/OR SALVAGE FLEX. BASE, PRIMED AND SURFACED WITH 1"HMSY ACP. (HMA-D PG 64-22 SAC B WEETING ITEM 340)

CONCRETE (RESIDENTIAL)
EXIST. PRIVATE DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 4" CONCRETE. TO BE PAID FOR BY THE SQ.YD.

CONCRETE (COMMERCIAL)
EXIST. BUSINESS DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 6" CONCRETE. TO BE PAID FOR BY THE SQ.YD.

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PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

DRIVEWAY DETAILS PRIVATE (RESIDENTIAL-COMMERCIAL)

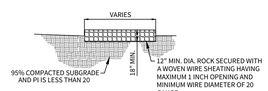
REV. 08/22 — DRIVEWAY2.DGN

DISTRICT	PROJECT NO.	FILE NO.	SH. NO.
6			

STATE	STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21					

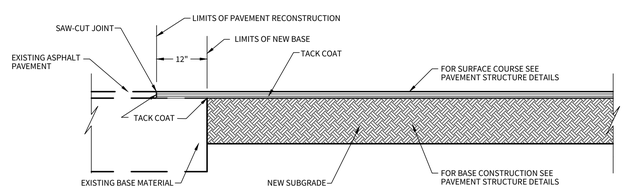
NOTES

1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT. SEE TABLE FOR STRUCTURAL NUMBER CALCULATION. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.
2. ANY AREAS OF CLAY ENCOUNTERED DURING CONSTRUCTION SHALL BE REMOVED DOWN TO THE WEATHERED/FRIABLE MARLSTONE/LIMESTONE AND PROPERLY BACKFILLED WITH MARLSTONE/LIMESTONE MILLINGS HAVING A CBR VALUE EQUAL OR EXCEEDING 6.
3. A GEOTECHNICAL ENGINEERING REPRESENTATIVE SHALL BE RETAINED TO: (1) OBSERVE THE SITE PREPARATION AND SUBGRADE OPERATIONS. (2) EVALUATE THE ACTUAL SUBGRADE MATERIAL CLASSIFICATION; AND (3) VERIFY THAT RECOMMENDATIONS ARE FOLLOWED. THE ACTUAL SUBGRADE CONDITION AT A PARTICULAR LOCATION WILL NEED TO BE EVALUATED DURING CONSTRUCTION ONCE THE SUBGRADE IS CUT/FILLED TO THE PROPER GRADE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.
5. PAVEMENT SECTIONS ARE SUBJECT TO CHANGE DUE TO RETESTING OF SOIL AFTER STREET EXCAVATION HAS BEEN DONE TO TOP OF CURB.
6. CONTRACTOR SHALL CONTACT ENGINEER 48 HRS IN ADVANCE FOR FIELD OBSERVATION DURING STREET CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO CONTACT ENGINEER FOR INSPECTION OF THE SUBGRADE, BASE, ASPHALT, AND CURB.
7. GENERAL FILL MATERIALS SHOULD CONSIST OF ONSITE SOILS OR CLEAN IMPORTED FILL SOILS WITH EQUAL OR BETTER CBR CHARACTERISTICS TO THE ONSITE SOILS. GENERAL FILL MATERIAL SHOULD BE CLEAN AND FREE OF ANY VEGETATION ROOTS, ORGANIC MATERIALS, TRASH OR GARBAGE, CONSTRUCTION DEBRIS, OR OTHER DELETERIOUS MATERIALS AND SHOULD CONTAIN NO LARGER THAT THREE (3) INCHES IN MAXIMUM DIMENSION.



GABION STYLE ROCK EROSION CONTROL MATRESS DETAIL

NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING AT DETENTION POND OUTFALL.
(N.T.S.)



PAVEMENT JUNCTION DETAILS

N.T.S.

1

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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

STREET AND DRAINAGE DETAILS

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

NO.	DATE	DESCRIPTION
1	25/07/09	COUNTY COMMENTS

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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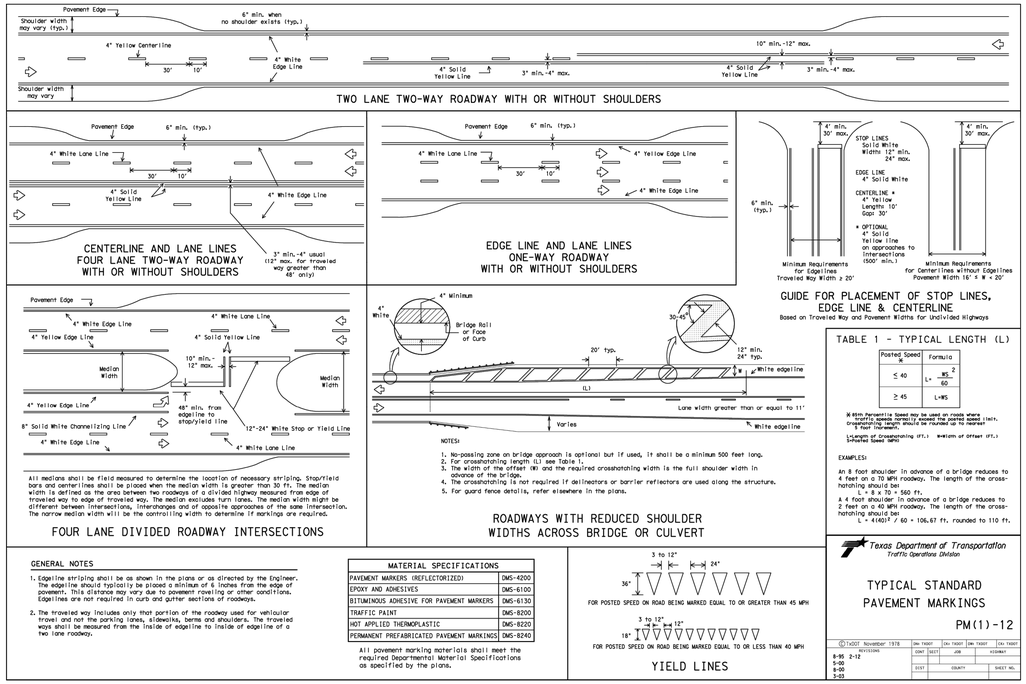
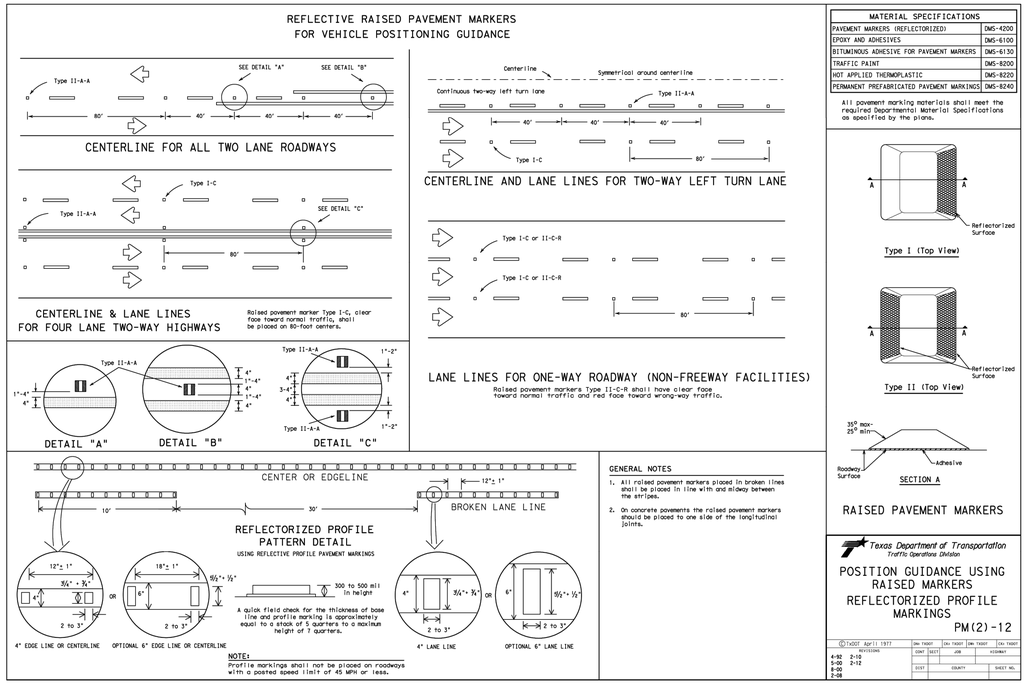
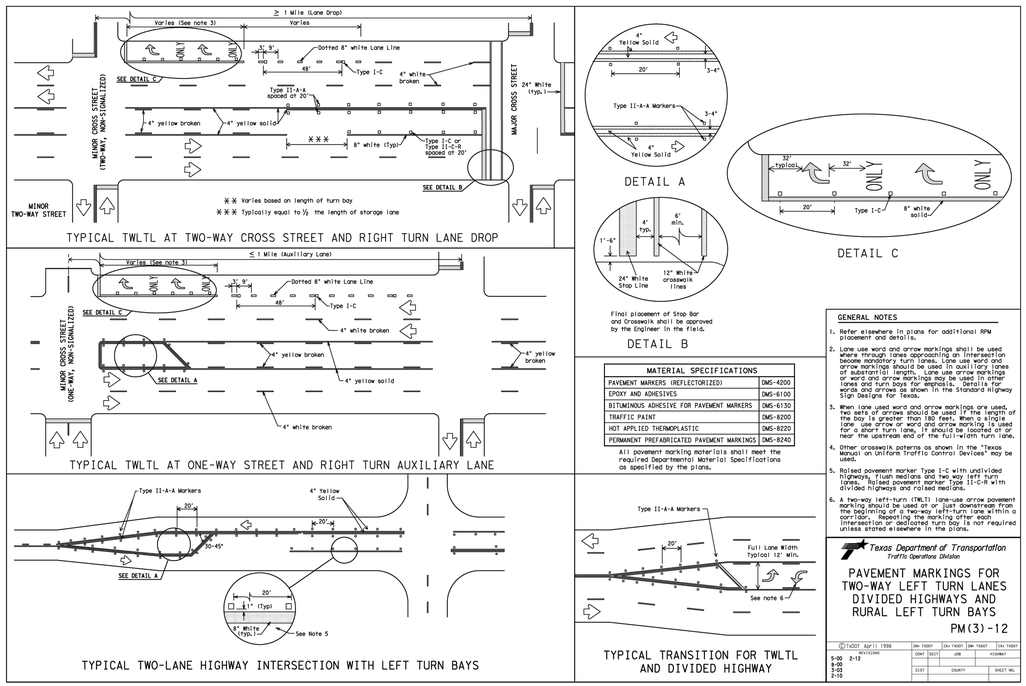
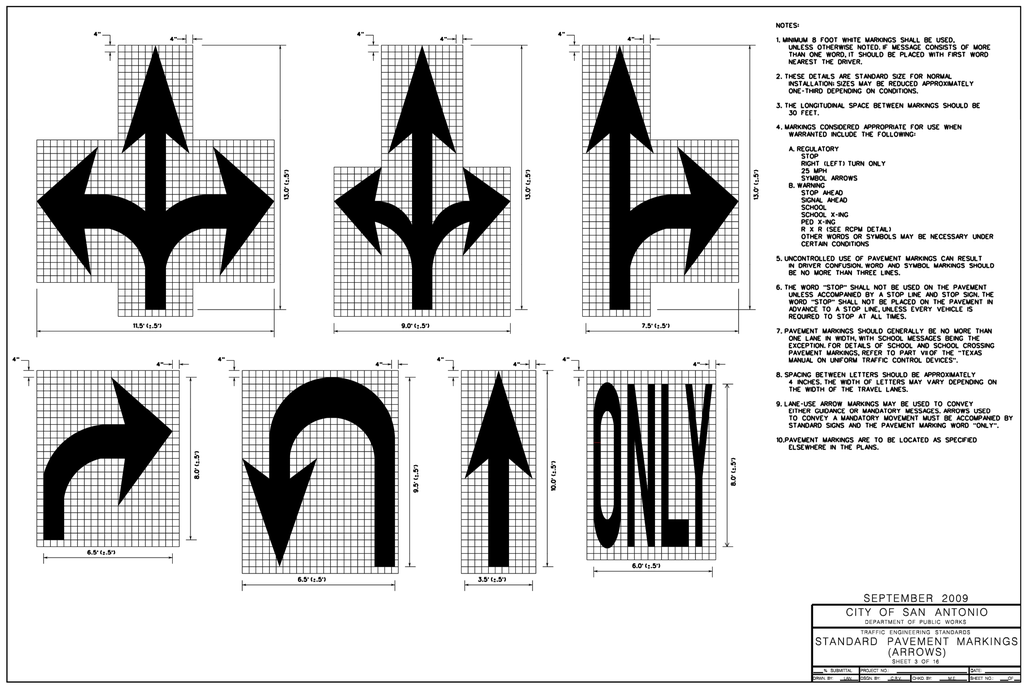
P:\03481.003\3-Drawings\CORLEY ROAD\Plans\C6 STREET AND DRAINAGE DETAILS.dwg, 2025/07/11 1:53pm, jamilsanchez









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CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
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CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II
TxDOT PAVEMENT MARKING DETAILS

DATE
07/11/2025
PROJECT NO.
03481.003
DRAWN BY
CA/RC/XV
CHECKED BY
AL/JC/XV
REVISIONS
DATE
1 2 3 4 5 6 7 8 9

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C7

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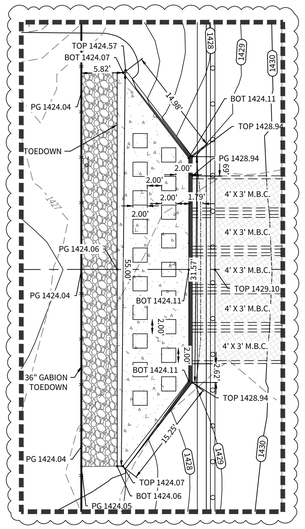
P:\03481\003\3-Drawings\CORLEY ROAD\PHASE II\CE\TxDOT PAVEMENT MARKING DETAILS.dwg 2025/07/11 5:53pm jamesbradford



DETAIL 'A'

SCALE: 1"=10'

CR CULVERT 3 (CONTRA COSTA) BAFFLE BLOCK CALCULATIONS 100 YR

Y_1 = 1.80 FT , V_1 = 10.83 FPS , F_1 = 1.202 , Q_{100} = 769 CFS

$Y_2/Y_1 = \frac{1}{2}(\sqrt{1+8(F1)^2}-1) = 1.271$

Y_2 = 4.045 FT

$L_b = 4.5(Y_2) / (F_1)^{0.76}$ =15.83 FT (USED 16.00 FT)

L_b / 3 = 5.28 FT (USED 5.50 FT)

$H = Y_1(0.168*F_1+0.58)$ = 1.41 FT (USED 1.50 FT)

EXIT VELOCITY = 4.420 FPS

CR CULVERT 3 (CONTRA COSTA) BAFFLE BLOCK CALCULATIONS 10 YR

Y_1 = 1.27 FT , V_1 = 8.99 FPS , F_1 = 0.915 , Q_{10} = 452 CFS

$Y_2/Y_1 = \frac{1}{2}(\sqrt{1+8(F1)^2}-1) = 0.887$

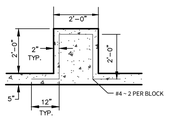
Y_2 = 3.301 FT

$L_b = 4.5(Y_2) / (F_1)^{0.76}$ = 15.89 FT (USED 12.75 FT)

L_b / 3 = 4.23 FT (USED 4.25 FT)

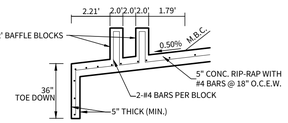
$H = Y_1(0.168*F_1+0.58)$ = 0.93 FT (USED 1.00 FT)

EXIT VELOCITY = 4.606 FPS



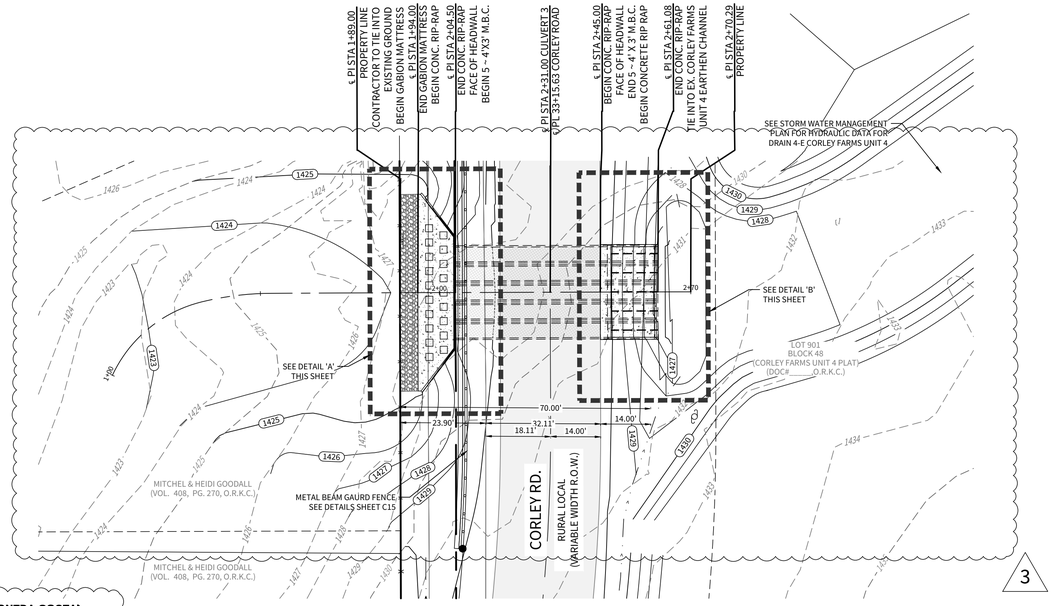
BAFFLE BLOCK REINFORCEMENT

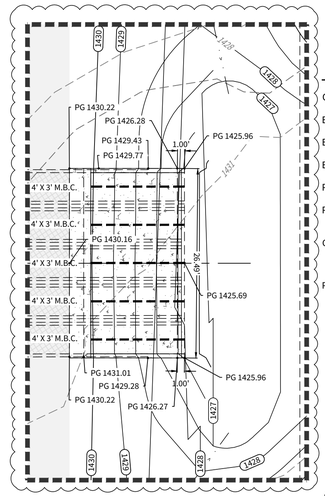
(N.T.S.)



BOX CULVERT BAFFLE BLOCK DETAIL

(N.T.S.)





DETAIL 'B'

SCALE: 1"=10'

SCALE: 1"=20'

20 10 0 20

LEGEND

- OVERALL UNIT BOUNDARY
- E.G.T.CA. EASEMENT
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- CONCRETE RIP RAP
- PROPOSED CULVERT

PROPOSED CR CULVERT '3'

STA. 1+75.00 TO END

CULVERT SUMMARY

Q_{100} = 769.00 c.f.s.
MANNING'S COEFFICIENT = 0.013
CULVERT SHAPE = RECTANGULAR
RISE = 36"
SPAN = 48"
CULVERT SLOPE = 0.50%
OUTFALL V = 10.83 f.p.s.

Q_{10} = 452.00 c.f.s.
MANNING'S COEFFICIENT = 0.013
CULVERT SHAPE = RECTANGULAR
RISE = 36"
SPAN = 48"
CULVERT SLOPE = 0.50%
OUTFALL V = 8.99 f.p.s.

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

CR CULVERT '3' PLAN AND PROFILE

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

DATE	
1.	25/03/13 : CULVERT '3' DESIGN REVISED
2.	25/07/09 : CITY/COUNTY COMMENTS
3.	
4.	
5.	
6.	
7.	
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9.	



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P:\03481\003\2 Drawings\CORLEY ROAD PHASE II\C4 C8 CULVERT 3 PLAN AND PROFILE.dwg 2025/07/11 1:53pm jamilbashaw



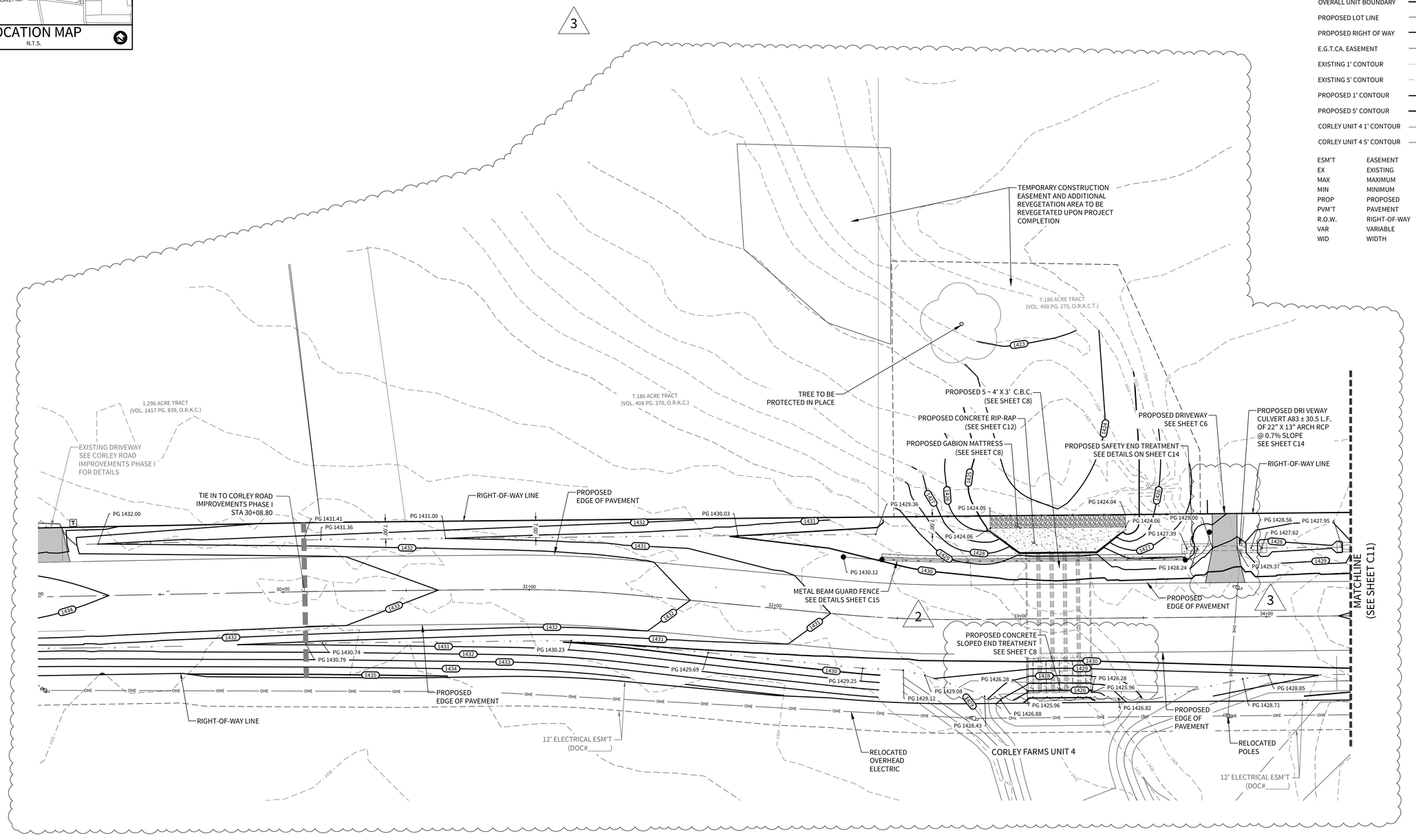
LOCATION MAP
N.T.S.

SCALE: 1"=20'
20 10 0 20

LEGEND

OVERALL UNIT BOUNDARY	
PROPOSED LOT LINE	
PROPOSED RIGHT OF WAY	
E.G.T.CA. EASEMENT	
EXISTING 1' CONTOUR	499
EXISTING 5' CONTOUR	500
PROPOSED 1' CONTOUR	499
PROPOSED 5' CONTOUR	500
CORLEY UNIT 4 1' CONTOUR	499
CORLEY UNIT 4 5' CONTOUR	500

ESM'T	EASEMENT
EX	EXISTING
MAX	MAXIMUM
MIN	MINIMUM
PROP	PROPOSED
PVM'T	PAVEMENT
R.O.W.	RIGHT-OF-WAY
VAR	VARIABLE
WID	WIDTH



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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

GRADING & DRAINAGE PLAN

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

	DATE	
1.	25/03/13	DRIVEWAY GRADES REVISED
2.	25/05/08	CITY/COUNTY COMMENTS
3.	25/07/09	COUNTY COMMENTS
4.		
5.		
6.		
7.		
8.		
9.		

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025

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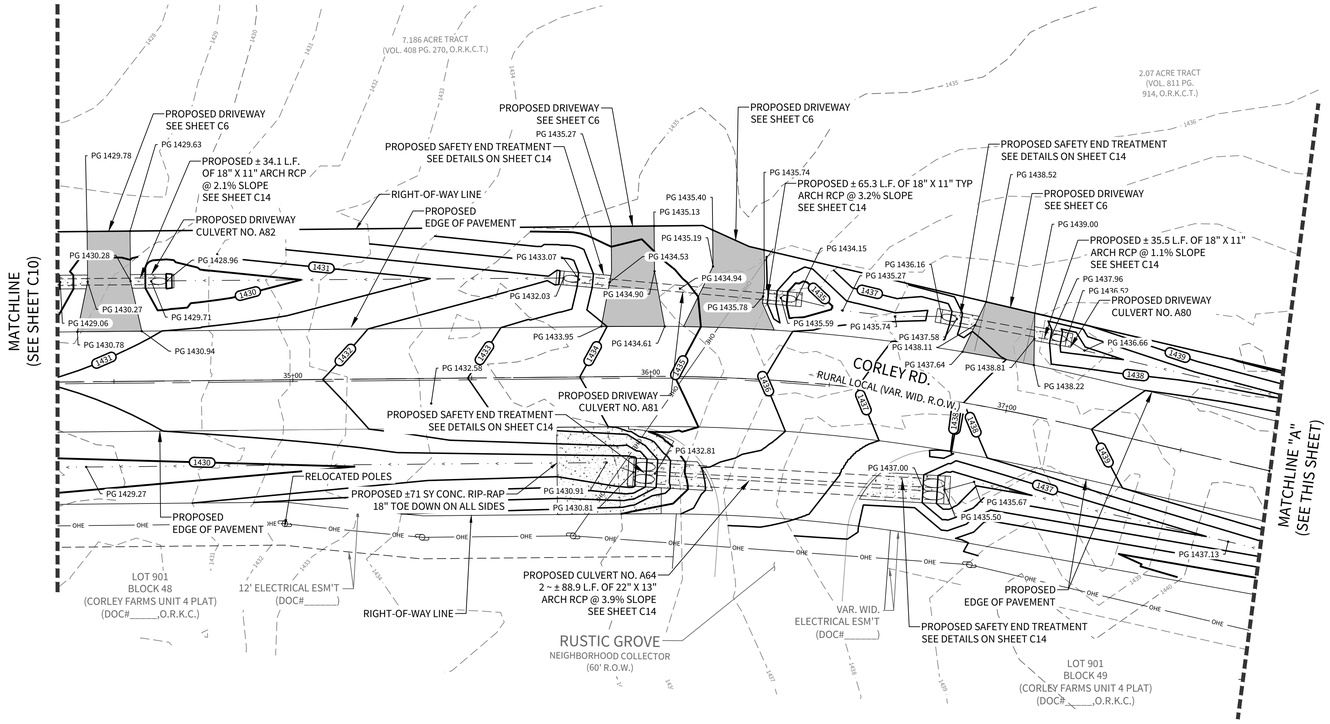

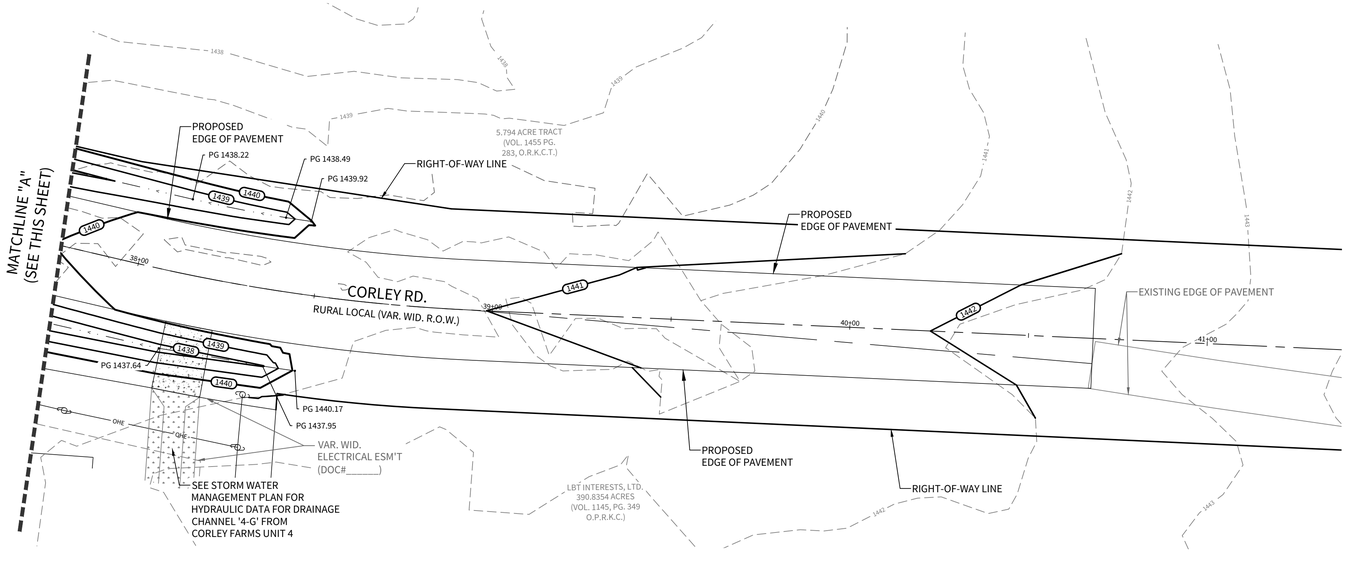

SCALE: 1"=20'
20 10 0 20

LEGEND

- OVERALL UNIT BOUNDARY
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY
- E.G.T.CA. EASEMENT
- EXISTING 1' CONTOUR (499)
- EXISTING 5' CONTOUR (500)
- PROPOSED 1' CONTOUR (499)
- PROPOSED 5' CONTOUR (500)

ESM'T	EASEMENT
EX	EXISTING
MAX	MAXIMUM
MIN	MINIMUM
PROP	PROPOSED
PVM'T	PAVEMENT
R.O.W.	RIGHT-OF-WAY
VAR	VARIABLE
WID	WIDTH

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San Antonio, Texas 78231
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CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

GRADING & DRAINAGE PLAN

DATE
08/25/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

	DATE	
1.	25/07/09	COUNTY COMMENTS
2.	08/25/25	(COUNTY COMMENTS PRIOR CONTRLINE STRIPING)
3.		
4.		
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9.		

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
08/25/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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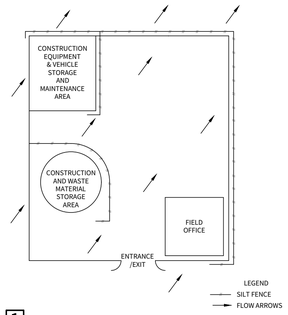
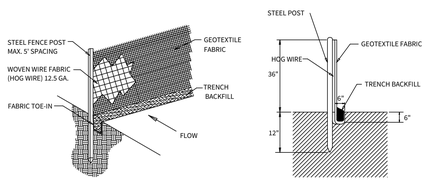
P:\03481.003\2-3\Drawings\CORLEY ROAD\PHASE II\C1 GRADING & DRAINAGE PLAN.dwg 8/25/2025 3:47:03 pm Andrew.Lowry



1 TYP. CONSTRUCTION STAGING AREA
N.T.S.

NOTE:

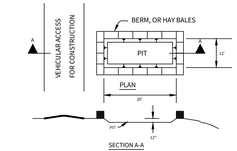
1. ALL SILT FENCES AND/OR ROCK BERMS AND TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE PLACED AT THE MOST DOWN-GRADIENT POINT OF CONSTRUCTION AS SHOWN ON THIS SITE PLAN. CONTRACTOR SHALL TAKE INTO CONSIDERATION ANY PROPOSED CONSTRUCTION THAT MAY TAKE PLACE AT THESE LOCATIONS. ANY RELOCATION OF THE SILT FENCE, ROCK BERMS AND/OR TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE AT THE CONTRACTOR'S EXPENSE.
2. AREA OF SOIL DISTURBANCES INCLUDE STREET RIGHT-OF-WAYS, EASEMENTS AND LOTS.
3. THERE WILL BE NO STORMWATER DISCHARGES INTO THE FEMA FLOOD PLAIN.
4. THE CONTRACTOR IS REQUIRED TO MAINTAIN EROSION CONTROLS THROUGHOUT THE DURATION OF THE PROJECT.
5. THE COUNTY INSPECTOR HAS THE AUTHORITY TO HAVE THE CONTRACTOR MODIFY THE EROSION CONTROLS AT THE DEVELOPER'S EXPENSE. THE DEVELOPER SHALL BE NOTIFIED OF THESE MODIFICATIONS PRIOR TO COMMENCEMENT OF MODIFICATIONS.



SILT FENCE DETAIL

SECTION DETAIL

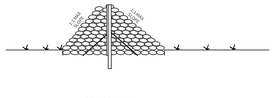
2 STANDARD SILT FENCE
N.T.S.



GENERAL NOTES:

- Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.
- If hay bales are used, they shall be placed in accordance with details shown on Exhibit for hay bales.
- Washout pit shall be located in an area easily accessible to construction traffic.
- Washout pit shall not be located in areas subject to inundation from storm water runoff.
- Washout pit shall be lined with a 10-mil thick polyethylene sheeting free of holes, tears and other defects.

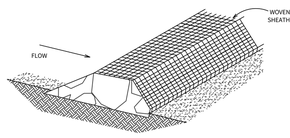
3 CONCRETE TRUCK WASHOUT PIT
N.T.S.



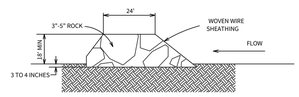
General Notes

1. The rock berm shall be inspected weekly or after each rain and the stone shall be replaced when the structure ceases to function as intended due to silt accumulation, washout, etc.
2. When silt reaches a depth of 12", the silt shall be removed and disposed of at an approved site.

ROCK BERM W/ SILT FENCE DETAIL
N.T.S.

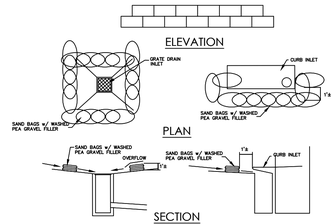


ISOMETRIC PLAN VIEW



SECTION DETAIL

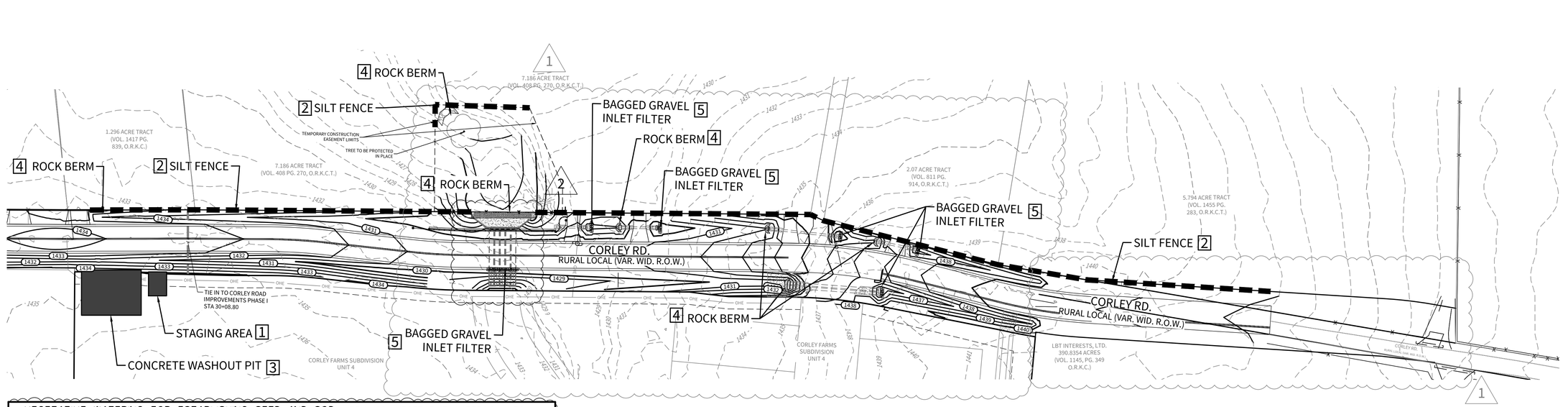
4 ROCK BERM
N.T.S.



BAGGED GRAVEL INLET FILTER NOTES

1. THE GRAVEL BAG MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, POLYAMIDE OR COTTON BURLAP WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OZ/YD 2 , MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT.
2. THE BAG LENGTH SHOULD BE 24 INCHES, WIDTH SHOULD BE 18 INCHES AND THICKNESS SHOULD BE 6 INCHES.
3. THE GRAVEL BAGS SHOULD BE FILLED WITH ¾" GRAVEL .
4. WHEN A GRAVEL BAG IS FILLED WITH GRAVEL, THE OPEN END OF THE GRAVEL BAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CORD.
5. THE GRAVEL BAGS SHOULD BE PLACED AS SHOWN ON THE DETAIL. THE GRAVEL BAGS SHALL BE STACKED TO FORM A CONTINUOUS BARRIER AROUND THE INLETS. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
6. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
7. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
8. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
9. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

5 BAGGED GRAVEL INLET FILTER NOTES
N.T.S.



VEGETATIVE WATERING FOR ESTABLISHING SEED AND SOD ITEM 168• VEGETATIVE WATERING TGL

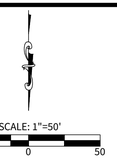
WATERING SCHEDULE

SEASON (Usual Months)	RATE	TIME SCHEDULE	TOTAL WATER ESTIMATE
SPRING & FALL (March, April, May, and October)	7,000 gallons/acre per working day	Vegetative watering for seed shall begin on the day after rainfall described below and continue for 60-consecutive working days. Vegetative watering for sod shall begin on the day sod is placed and continue for a minimum of 15-consecutive working days.	420,000 gallons/acre (60 working days)
SUMMER (June through September)	12,000 gallons/acre per working day		720,000 gallons/acre (60 working days)
WINTER (November through February)	1,000 gallons/acre per working day	Vegetative watering for seed and/or sod shall begin on the day after placement and continue for 15-consecutive working days	15,000 gallons/acre (15 working days)

Notes: Watering rate and frequency may be adjusted, with the approval of the Engineer, to meet site conditions (especially with sod).
For informational purposes only: 1,000-gallons equals 1 TGL

VEGETATIVE WATERING NOTES:

1. Refer to Item 168 of TxDOT 2024 Standard Specifications• for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
2. Use clean water, free of industrial waste and other substances harmful to vegetation growth, per Item 168.2.
3. For seeding, use Vegetative Watering to keep the seed bed moist during germination• not to provide initial watering. [After drill seeding, postpone watering operations until site receives at least 1/2-inch of natural rainfall in a single day. Also delay watering operations for warm season grasses until soil temperature exceeds 70 degrees F.]
4. For sod, water immediately.
5. All water distribution equipment shall be furnished and operated to provide water at a uniform and controllable rate. Use a metering device on all watering equipment.
6. Evenly distribute water over entire area designated for seeding and/or sodding, using even spray patterns that do not disturb seed bed and/or dislodge seed from seed bed.
7. Do not water between the hours of 12:00 p.m. and 6:00 p.m. when daytime temperatures exceed 95 degrees F.
8. After initial establishment period, continue intermittent watering of newly established seed or sod at a rate of approximately 1-inch water/week, during summer months until end of contract.
9. If 1/4-inch or more of rainfall occurs on site on any given working day, no vegetative watering will be needed on that working day. (Note: 1/4-inch of rain equals 7,000 gallons of water per acre.)
10. Should the Contractor fail to apply the specified amount of water within the time allowed, any seed or sod in poor condition shall be replaced, fertilized, and watered at Contractor's expense.



LEGEND

- OVERALL UNIT BOUNDARY
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY
- E.G.T.C.A. EASEMENT
- EXISTING 1' CONTOUR (499)
- EXISTING 5' CONTOUR (500)
- PROPOSED 1' CONTOUR (499)
- PROPOSED 5' CONTOUR (500)
- BMP ITEM NUMBER (1)
- TEMPORARY CONSTRUCTION ENTRANCE/EXIT
- ROCK BERM
- SILT FENCE
- FLOW ARROW
- STAGING AREA
- CONCRETE WASHOUT PIT
- EXISTING PAVEMENT

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CUDE ENGINEERS

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

STORM WATER POLLUTION PREVENTION PLAN

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

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REVISIONS

	DATE	
1.	25/03/13	ROW & SILT FENCE REVISED
2.	25/05/12	CITY/COUNTY COMMENTS
3.		
4.		
5.		
6.		
7.		
8.		
9.		

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED PROFESSIONAL ENGINEER
07/11/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

Maximum Wingwall Height Hw	Dimensions W	X	Y	Z	Variable Reinforcing Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	Estimated Quantities per Wing (2-wings) ② Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-0"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2-wings)

Bar	Size	No.	Spa
D	#3	–	1'-0"
E	#4	–	1'-0"
F	#4	–	1'-0"
G	#6	4	–
M	#4	4	–
P	#4	–	1'-0"
R	#5	6	–
V	#4	–	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	–	1'-6"
Q	#4	1	–
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION FORMULAS:
(All values are in feet.)

Hw = H + T + C – 0.250'
A = (Hw – 0.333') (SL)
B = (A) tangent (30°)
Lw = (A) + cosine (30°)

For cast-in-place culverts:
Ltw = (N) (S) + (N + 1) (U)

For precast culverts:
Ltw = (N) (2U + S) + (N – 1) (0.5')

Total wingwall area (two wings – SF) = (Hw + 0.333') (Lw)

Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans

See applicable box culvert standard sheet for H, S, T, and U values.

BARS D

BARS R

BARS J1

BARS V

BARS L

BARS J2

① Extend Bars P 3'-0" minimum into bottom slab of box culvert.

② Adjust as necessary to maintain 1 1⁄4" clear cover and 4" minimum between bars.

③ Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.

④ Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.

⑤ When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.

⑥ At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.

⑦ 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 3'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

⑧ For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
In riprap concrete synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.
See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the safety end treatments.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

INSIDE ELEVATION
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

PLAN
(Showing dimensions.)

SECTION A-A

WINGWALL

CORNER DETAILS
(Culvert and culvert toewall reinforcing not shown for clarity.)

FOOTING AND TOEWALL

SECTION B-B

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS

FW-0

FILE: CD-FW0-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
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REVISIONS	DIST	COUNTY		SHEET NO.

TABLE OF REINFORCEMENT

THICKNESS OF RIP-RAP	STEEL REINFORCING BARS	OR WELDED WIRE FABRIC
5"	#4 @ 18" O.C.E.W.	6" x 6" W .1ON x W .1ON x 6" MIN. LONGITUDINAL LAP

GRADE 40 STEEL IS PREFERRED. A STEEL MILL BE ALLOWED FOR HIGHER STRENGTH STEEL.

TYPICAL CHANNEL SECTION LOOKING DOWNSTREAM
SCALE: 1" = 4'

CONVERSE CONTRACTION OR CONSTRUCTION JOINT
SCALE: 1" = 1'

"SAW CUT" CONTRACTION JOINT
SCALE: 1" = 1'

REINFORCEMENT DETAIL TOE-DOWN
SCALE: 1" = 2'

TRANSVERSE EXPANSION JOINT
SCALE: 1" = 1'

ALL SECTIONS
SCALE: 1" = 2'

WEEP HOLES DETAILS FOR SIDE SLOPES
SCALE: 1" = 2'

EXPANSION AND CONTRACTION JOINTS FOR CONCRETE CHANNEL LINING
SCALE: 1" = 4'

GENERAL NOTES
1. CONCRETE FOR CHANNEL RIP-RAP SHALL BE CLASS "A" 4000 P.S.I.
2. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS UNLESS OTHERWISE SHOWN.
3. ALL REINFORCEMENT STEEL SHALL MEET ASTM DESIGNATIONS AS CALLED FOR IN THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
4. NEW RIP-RAP SHOULD BE ATTACHED TO EXISTING RIP-RAP BY NO.4 BARS DOWELED 6" INTO EXISTING RIP-RAP. THESE BARS ARE TO BE SPACED 18" O.C. AND HAVE A LENGTH OF 18".

MAY 2009

TYPICAL CONCRETE CHANNEL RIP-RAP STANDARDS

SUBMITTAL PROJECT NO.: DATE:
DRWN. BY: V. VASQUEZ DSGN. BY: CHKD. BY: SHEET NO.: OF

CUDEENGINEERS.COM
CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

TXDOT CONCRETE HEADWALLS
NON-SKEWED DETAIL

TABLE OF WINGWALL REINFORCING
(Wings for one structure end)

Maximum Wingwall Height Hw	Dimensions W	X	Y	Z	Variable Reinforcing Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	Estimated Quantities per Wing (2-wings) ② Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-0"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2-wings)

Bar	Size	No.	Spa
D	#3	–	1'-0"
E	#4	–	1'-0"
F	#4	–	1'-0"
G	#6	4	–
M	#4	4	–
P	#4	–	1'-0"
R	#5	6	–
V	#4	–	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	–	1'-6"
Q	#4	1	–
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION FORMULAS:
(All values are in feet.)

Hw = H + T + C – 0.250'
Lw = (Hw – 0.333') (SL)

For cast-in-place culverts:
Atw = (N) (S) + (N + 1) (U)

For precast culverts:
Atw = (N) (2U + S) + (N – 1) (0.500')

Total Wingwall Area (SF) = (0.5) (Hw + 0.333') (Lw) (N + 1)
Total Concrete Volume (C) = (Lw) (Atw) (0.583') + (Lw) (Atw) (0.583') + (Atw) (1.167') (1.167 – 0.583')] + (2')

PIPE RUNNER DIMENSION CALCULATIONS:
Pipe Runner Length = (Lw) (K1) - (1.917')
Total Reinforcing (Lb) = (1.55) (Lw) (Atw) + (4.43) (Atw) + (K2) (Hw) (N + 1) (Lw)

C = Height of curb above top of top slab (feet)
Hw = Height of wingwall (feet)
K = Constant used for use in formulas
Slope SL:1 K1 K2
2:1 ~ 1.054 ~ 7.45
4:1 ~ 1.031 ~ 8.49
6:1 ~ 1.014 ~ 10.30
Atw = Anchor toewall length (feet)
Lw = Length of wingwall (feet)
N = Number of culvert barrels
SL:1 = Side slope ratio (horizontal : 1 vertical)

See applicable box culvert standard for H, S, T, and U values.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Adjust reinforcing as necessary to provide a minimum clear cover of 1 1⁄2".
Provide Class "C" concrete (f'c = 3,600 psi).
Provide pipe runners, cross pipes, and anchor pipes meeting the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5L|X52.
Provide ASTM A307 bolts.
Galvanize all steel components, except the concrete reinforcing, unless required elsewhere in the plans, after fabrication.
Repair galvanizing damaged during transport or construction in accordance with the Item 445, "Galvanizing."

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
The reinforcing components shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.
The quantities for pipe runners, reinforcing steel, and concrete resulting from the formulas given herein are for Contractor's information only.
See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the safety end treatments.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

TYPICAL WINGWALL ELEVATION
(Pipe runners not shown for clarity.)

ISOMETRIC VIEW OF TYPICAL INSTALLATION

AT TOP OF EXTERIOR WINGWALL
(Cast-in-place culvert)

AT TOP OF INTERIOR WINGWALL
(Cast-in-place culvert)

AT OUTSIDE OF BOTTOM SLAB
(Cast-in-place culvert)

AT INTERIOR WINGWALL
(Precast culvert)

PLAN VIEWS OF CORNER DETAILS

① Recommended values of slope are: 3:1, 4:1, and 6:1. Provide 3:1 or flatter slope.

② 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 3'-0", refer to the Extended Curb Details (ECD) standard sheet.

③ Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.

④ For vehicle safety, reduce curb height, if necessary, to provide a maximum 3" projection. No changes will be made in quantities and no additional compensation will be allowed for this work.

⑤ For culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into wingwall. Wingwall Bars D and R may be omitted. Otherwise, refer to the Wingwall Connection detail on the Box Culvert Precast Miscellaneous Details (SCP-MD) standard sheet.

TABLE OF REINFORCING BAR SIZES AND SPACING

Bar	Size	Spacing
C	#4	10" Max
D	#4	Match F and E
E	#4	1'-0" Max
F	#4	1'-3" Max
G	#6	As shown
J	#4	10" Max
K	#4	1'-0" Max
R	#4	As shown

BARS J (Length = 4'-3")

BARS K

BARS R

SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0") TYPE I ~ CROSS DRAINAGE

SETB-CD

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① Cross pipe is the same size as the pipe runner. Cross pipe stub out is the same size as the anchor pipe.

② Note that actual slope of safety pipe runner may vary slightly from side slope.

③ Take care to ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

④ After installation, inspect the 1⁄2" hole to ensure that the lap of the safety pipe runner with the bottom anchor pipe is adequate.

⑤ At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MAXIMUM PIPE RUNNER LENGTHS AND ② REQUIRED PIPE RUNNER AND ANCHOR PIPE SIZES

Maximum Pipe Runner Length	Required Pipe Runner Size: Pipe Size	Pipe O.D.	Pipe I.D.	Required Anchor Pipe Size: Pipe Size	Pipe O.D.	Pipe I.D.
10'- 0"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'- 0"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
34'- 2"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

CROSS PIPE INSTALLATION DETAILS

OPTION A OPTION B

BOTTOM ANCHOR PIPE DETAILS ⑩

OPTION A2 OPTION A1

FOR USE IN OUTSIDE CULVERT BAY

OPTION A2 OPTION A1

FOR USE IN INSIDE CULVERT BAY

CROSS PIPE AND CONNECTIONS DETAILS

OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS
(Wingwall not shown for clarity.)

CROSS PIPE SLEEVE PIPE DETAILS

NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS

SIDE ELEVATION
(Showing pipe runner with Cross Pipe Connection Option A1 and Bottom Anchor Toewall Option B2. Wingwall not shown for clarity.)

SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0") TYPE I ~ CROSS DRAINAGE

SETB-CD

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REVISIONS

DATE	DESCRIPTION
25/05/08	SLOPED AND TREATMENT DETAILS

STATE OF TEXAS — ANDREW R. LOWRY — 123410 — LICENSED PROFESSIONAL ENGINEER — 07/11/2025

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BOX DATA

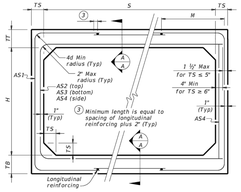
SECTION DIMENSIONS S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	Fill Height (ft.)	M (in.)	REINFORCING (sq. in. / ft.) AS1	AS2	AS3	AS4	AS5	AS7	AS8	Lift Weight (tons)
4	2	7.5	6	5	< 2	–	0.18	0.27	0.15	0.12	0.18	0.18	0.14	4.5
4	2	5	5	5	2 < 3	38	0.18	0.19	0.17	0.12	–	–	–	3.6
4	2	5	5	5	3 – 5	38	0.13	0.13	0.12	–	–	–	–	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	–	–	–	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	–	–	–	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	–	–	–	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	–	–	–	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	–	–	–	3.6
4	3	7.5	6	5	< 2	–	0.18	0.31	0.18	0.12	0.18	0.18	0.14	5.0
4	3	5	5	5	2 < 3	38	0.15	0.23	0.20	0.12	–	–	–	4.1
4	3	5	5	5	3 – 5	38	0.12	0.16	0.16	0.12	–	–	–	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	–	–	–	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	–	–	–	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	–	–	–	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	–	–	–	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	–	–	–	4.1
4	4	7.5	6	5	< 2	–	0.18	0.33	0.20	0.12	0.18	0.18	0.14	5.5
4	4	5	5	5	2 < 3	38	0.12	0.26	0.23	0.12	–	–	–	4.6
4	4	5	5	5	3 – 5	38	0.12	0.18	0.18	0.12	–	–	–	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	–	–	–	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	–	–	–	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	–	–	–	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	–	–	–	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	–	–	–	4.6

(1) For box length = 8'-0"

(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

DISCLAIMER: The use of this standard is limited by the Texas Engineering Practice Act. No liability of any kind is made by TxDOT for any design subsequently developed by the user in connection with the use of this standard.

DATE: 7/21



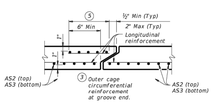
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER

CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

(4) Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Single Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

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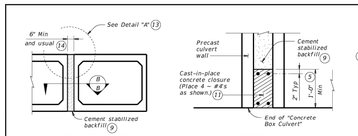
SINGLE BOX CULVERTS PRECAST 4'-0" SPAN

SCP-4

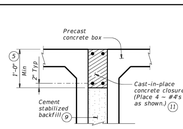
FILE: CD-SCP04-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

1

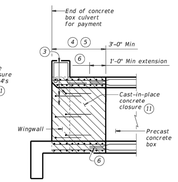


MULTIPLE UNIT PLACEMENT

SECTION B-B

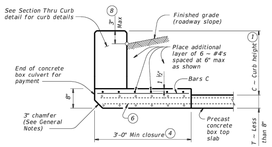


DETAIL "A" (13)

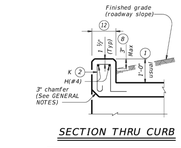


WINGWALL CONNECTION

(Also applies to safety end treatment.)

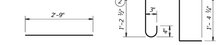


SECTION THRU TOP SLABS LESS THAN 8"



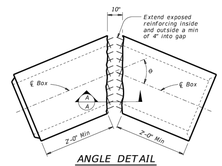
SECTION THRU CURB

QUANTITIES PER FOOT OF CURB (10)	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY

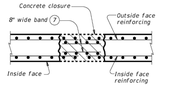


BARS C (#4) (Spa = 1'-0" Max)

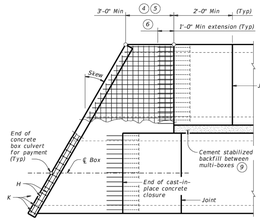
BARS K (#4) (Spa = 1'-0" Max) (Length = 4'-2")



ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED ENDS

(Showing multi-box placement.)

(1) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

(2) For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

(3) Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.

(4) Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.

(5) For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.

(6) Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).

(7) Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.

(8) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(9) Cement stabilized backfill between boxes is considered part of the box culvert for payment.

(10) All curb concrete and reinforcing is considered part of the box culvert for payment.

(11) Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.

(12) 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

(13) For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".

(14) This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box." No payment will be made for any additional material in the gap between adjacent boxes.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f'c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures."
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bars dimensions are out-to-out of bars.

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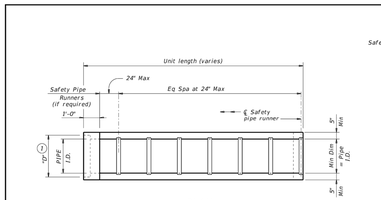
BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

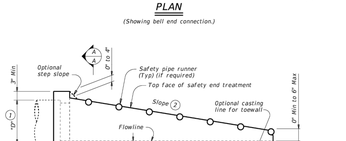
SCP-MD

FILE: CD-SCP-MD-20.dgn	DN: GAF	CK: LMB	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.



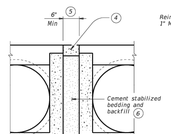
PLAN

(Showing bell end connection.)



LONGITUDINAL ELEVATION

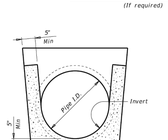
(Showing bell end connection.)



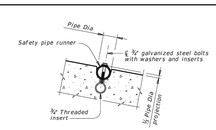
MULTIPLE PIPE INSTALLATION

OPTION WITH SQUARE BOTTOM

SECTION A-A

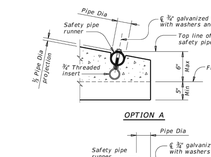


OPTION WITH INVERT BOTTOM

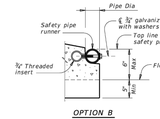


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



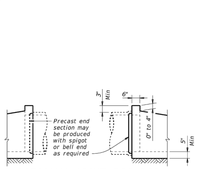
OPTION A



OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)



OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment.)

REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (7)	"D" (1)	Slope	Min Length	Pipe Runners Required: Single Pipe	Pipe Runners Required: Multiple Pipe	Required Pipe Runner Size: Nominal Dia.	O.D.	I.D.
12"	2"	1.15"	17.00"	6:1	4' – 9"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
15"	2 3/8"	1.30"	20.50"	6:1	6' – 5"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
18"	2 ½"	1.60"	24.00"	6:1	8' – 0"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
24"	3"	1.95"	31.00"	6:1	11' – 3"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
30"	3 ½"	2.65"	38.50"	6:1	14' – 8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	2.75"	45.50"	6:1	17' – 11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 ½"	2.7"	52.50"	6:1	21' – 2"	Yes	Yes	4" STD	4.500"	4.026"

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top of 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment."

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures." Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment." When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(7) Thermoplastic pipe wall thickness may vary; Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:
Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II treatment as specified in Item 467, "Safety End Treatment."
Precast or precast safety end treatment may be used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below:
A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" – D12 x D12 or 5"x5" – D10 x D10 welded wire reinforcement (WWR).
B. For ASTM A760 (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).
At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.
Pipe runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.
Provide pipe runners meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.
Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.
Provide grouting for the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe". Connect TP by grouting. See Pipe and Box Grouted Connections (PBGC) standard for grouted connections with TP and precast safety end treatment.

Texas Department of Transportation | Bridge Division Standard

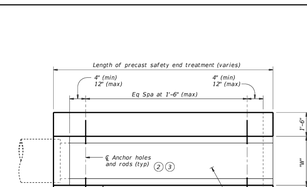
PRECAST SAFETY END TREATMENT TYPE II ~ PARALLEL DRAINAGE

PSET-SP

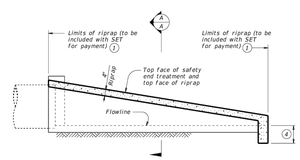
FILE: CD-PSET-SP-21.dgn	DN: RLR	CK: ELR	DW: JTR	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-21: MINOR REVISIONS	DIST	COUNTY		SHEET NO.

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

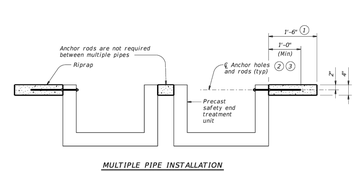
Nominal Culvert (Pipe) I.D.	PSET-SC and PSET-SP Standards: Unit Width "W"	Side Slope 3:1	4:1	6:1	PSET-RC and PSET-RP Standards: Unit Width "W"	Side Slope 3:1	4:1	6:1
12"	23.0"	0.1	0.2	0.2	16.0"	0.1	0.1	0.2
15"	26.5"	0.2	0.2	0.3	19.5"	0.1	0.2	0.2
18"	30.0"	0.2	0.2	0.3	23.0"	0.2	0.2	0.3
24"	37.0"	0.3	0.3	0.5	30.0"	0.2	0.3	0.4
30"	44.5"	0.3	0.4	0.6	37.0"	0.3	0.3	0.5
36"	51.5"	0.4	0.5	0.7	44.0"	0.3	0.4	0.6
42"	58.5"	0.5	0.6	0.8	51.0"	0.4	0.5	0.7



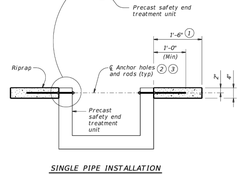
PLAN



LONGITUDINAL ELEVATION



MULTIPLE PIPE INSTALLATION



SINGLE PIPE INSTALLATION

SECTION A-A

(1) Riprap placed beyond the limits shown will be paid as concrete riprap in accordance with Item 432, "Riprap." When riprap is cast integrally with the precast safety end treatment, this dimension is 1'-0" minimum.

(2) 1#2" Dia ASTM A307 Gr A threaded anchor rod with 2 nuts and 2 washers. Galvanize all components in accordance with Item 445, "Galvanizing." Repair galvanizing that is damaged during transport or construction in accordance with the specifications.

(3) 1#4" through holes in walls of safety end treatment for riprap anchor rods may be drilled with rotary (coring or masonry) type drilling equipment or may be formed. Do not use percussive (star) type drilling equipment. If holes are drilled, patch spalls in the inside face of the wall exceeding 1#2" from the holes.

(4) Provide riprap toe wall when dimension is shown elsewhere in the plans or when field conditions require a toe wall.

(5) Quantities shown are for one end of one reinforced concrete pipe culvert. For multiple pipe culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only. Quantities are based on the minimum unit lengths shown on the Precast Safety End Treatment (SET) standard sheets.

MATERIAL NOTES:
Provide Class "B" riprap in accordance with Item 432, "Riprap."
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise. The anchor rods shown are always required.

GENERAL NOTES:
Precast safety end treatment for reinforced concrete pipe may be used for TYPE II end treatment as specified in Item 467, "Safety End Treatment."
Refer to PSET-SC or PSET-SP standard sheets for details of square safety end treatments not shown. Refer to PSET-RC or PSET-RP standard sheets for details of round safety end treatments not shown.
For precast units with integrally cast riprap, substitute reinforcing steel in the amount on 0.26 in.²/ft. minimum for the threaded anchor rods shown. When requested, submit sealed engineering drawings for approval prior to construction. Shop drawings are not required. Note that a proprietary precast unit with integral riprap is available from Lon Precast Concrete Works, Inc. (956) 583-6292 or www.lprecast.com. Payment for riprap and toewalls is included in the price bid for each safety end treatment.

These riprap details are only applicable when notes that require placement of riprap with precast safety end treatments are shown elsewhere in the plans.

Precast units with integrally cast riprap are permitted unless noted otherwise on the plans.

Texas Department of Transportation | Bridge Division Standard

PRECAST SAFETY END TREATMENT TYPE II RIPRAP DETAILS

PSET-RR

FILE: CD-PSET-RR-20.dgn	DN: GAF	CK: TxDOT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

CUDEENGINEERS.COM

CUDE ENGINEERS

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

TXDOT CULVERT DETAILS

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

△	DATE	DESCRIPTION
1	25/03/18	CULVERT SINGLE BOX DETAIL UPDATED

1 2 3 4 5 6 7 8 9

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C13

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P:\03481\003\3-Drawings\CORLEY ROAD\PSET-RR\SE DRAINAGE & MISC DRAINAGE\STANDARDS\DETAILS.dwg 2025/07/11 5:54pm jandrewsChief

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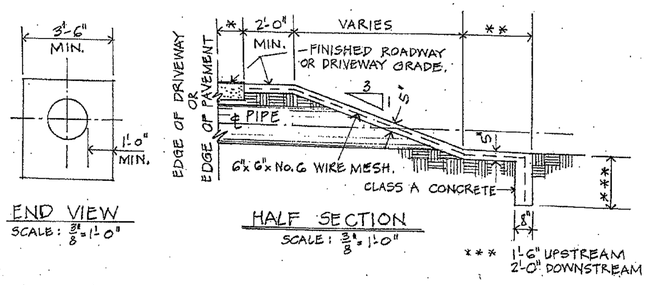
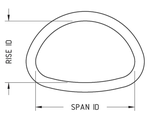
Figure 630

HEADWALLS FOR CULVERTS



NOTES;

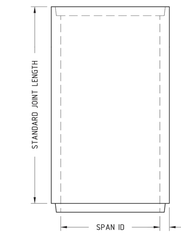
1. Where there are three or more pipes in a culvert #3 bars @ 18" each way may be substituted for wire mesh.
2. In cases where a culvert with its headwalls would extend outside the right-of-way, the subdivider shall dedicate such additional drainage easement or right-of-way as required to provide normal access and egress.



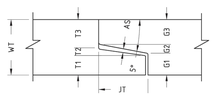
END VIEW

Joint Dimensions									
Size (in.)	Wall (in.)	Jt. (in.)	G1 (in.)	G2 (in.)	G3 (in.)	T1 (in.)	T2 (in.)	T3 (in.)	AS (in.)
18 x 11	3	2 ½	1.281	0.197	1.522	1.000	0.197	1.803	0.28
22 x 13	3 ½	2 ½	1.406	0.197	1.522	1.125	0.197	1.803	0.28
29 x 18	3 ½	2 ½	1.516	0.234	1.750	1.250	0.234	2.016	0.27
36 x 23	3 ½	3	1.594	0.262	1.644	1.313	0.262	1.925	0.28
44 x 27	4	3 ½	1.719	0.306	1.975	1.438	0.306	2.256	0.28
51 x 31	4 ½	3 ½	1.906	0.306	2.288	1.625	0.306	2.569	0.28
58 x 36	5	3 ½	2.281	0.306	2.413	2.000	0.306	2.694	0.28
65 x 40	5 ½	5	2.625	0.437	2.438	2.313	0.437	2.750	0.31
73 x 45	6	5	2.938	0.437	2.625	2.375	0.437	3.188	0.56
88 x 54	7	6	3.188	0.525	3.287	2.625	0.525	3.850	0.56

Pipe Data							
Span (in.)	Rise (in.)	Rd. Equiv Pipe Size (in.)	Metric Equiv. Rise (mm)	Metric Equiv. Span (mm)	Opening Sq. Ft. (in.)	Weight (lb./ft.)	Mid-Point A (in.)
18	11	15	460	280	1.1	188	4 11/16
22	13	18	560	345	1.6	233	6
29	18	24	725	460	2.9	325	5 29/32
36	23	30	920	570	4.4	392	7 11/16
44	27	36	1,110	675	6.5	537	8 9/16
51	31	42	1,300	795	8.7	696	10 1/16
58	36	48	1,485	915	11.4	885	11 19/32
65	40	54	1,650	1,015	14.3	1,079	13
73	45	60	1,855	1,145	17.7	1,333	14 11/16
88	54	72	2,235	1,370	25.6	1,856	17



PLAN VIEW





NOTE:

AVAILABLE IN CLASS III, IV
CONFORMS TO CURRENT ASTM C-506 SPECIFICATIONS FOR REINFORCED CONCRETE ARCH CULVERT.

FORTERRA

DATE	SECT.PAGE
2018	12.1.5

REINFORCED CONCRETE ARCH PIPE
TONGUE & GROOVE - STRAIGHT WALL

CUDEENGINEERS.COM

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

DRAINAGE DETAILS

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

DATE	1	2	3	4	5	6	7	8	9

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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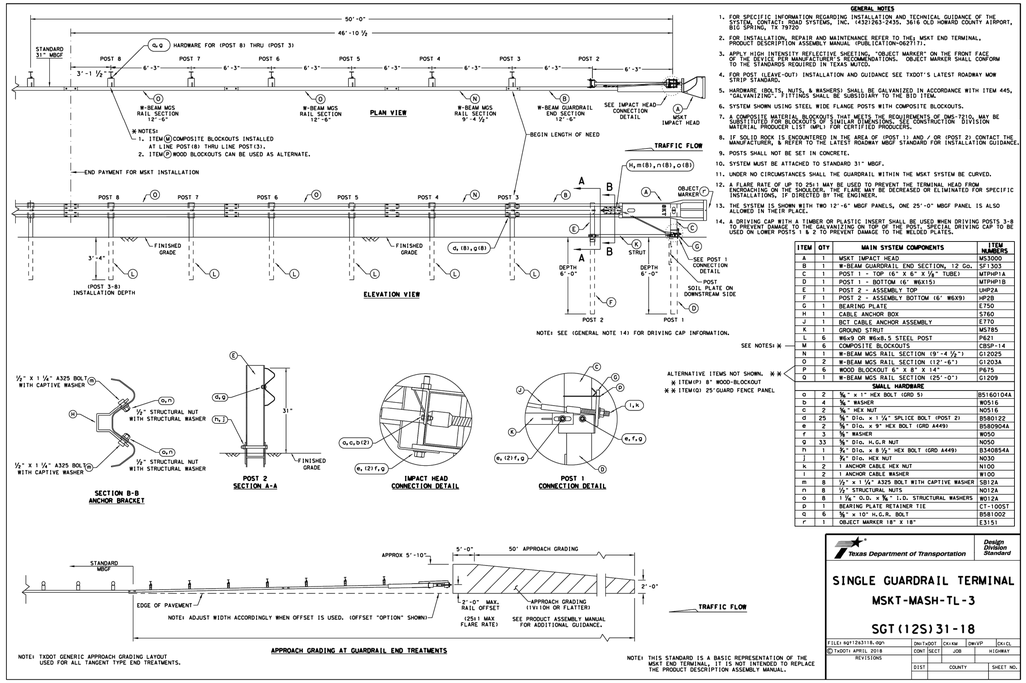
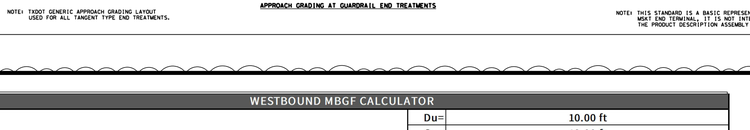
P:\03481\003\3 Drawings\CORLEY ROAD\PHASE II\CIS SWPPP\SE RETAIL.dwg, 2025/07/11 5:54pm, ajohnson





GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT ROAD SYSTEMS, INC. (432)263-2435, 3616 OLD HOWARD COUNTY AIRPORT, BIG SPRING, TX 79720
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE↓ MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION-062777).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POSTS WITH COMPOSITE BLOCKOUTS.
7. A COMPOSITE MATERIAL BLOCKOUTS THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
8. IF 50 MIN INCH ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, & REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
9. POSTS SHALL NOT BE SET IN CONCRETE.
10. SYSTEM MUST BE ATTACHED TO STANDARD 31" MBGF.
11. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
12. A FLARE RATE OF UP TO 25↓1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM BECOMING A HAZARD. THE FLARE RATE MAY ALSO BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
13. THE SYSTEM IS SHOWN WITH TWO 12'-6" MBGF PANELS, ONE 25'-0" MBGF PANEL IS ALSO ALLOWED IN THEIR PLACE.
14. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POSTS 3-8 TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST. SPECIAL DRIVING CAP TO BE USED ON LOWER POSTS 1 & 2 TO PREVENT DAMAGE TO THE WELDED PLATES.

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM NUMBERS
A	1	MSKT IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	POST 1 - TOP (6'- X 6" X ½"- TUBE)	MTP6P1A
D	1	POST 1 - BOTTOM (6' W8X15)	MTP6P1B
E	1	POST 2 - ASSEMBLY TOP	LHP24
F	1	POST 2 - ASSEMBLY BOTTOM (6' W8X9)	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	GROUND STRUT	MS785
L	6	W6x9 OR W6x8.5 STEEL POST	P621
M	6	COMPOSITE BLOCKOUTS	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 ½")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G12034
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G12091
SMALL HARDWARE			
a	2	⅝" x 1" HEX BOLT (GRD 5)	B516010A4
b	4	⅝" WASHER	M956
c	2	⅝" HEX NUT	N0516
d	29	⅝" Dia. x 1 ¼" SPLICE BOLT (POST 2)	B580122
e	2	⅝" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	⅝" WASHER	W050
g	33	⅝" Dia. H.G.R NUT	N050
h	1	⅞" Dia. x 8 ½" HEX BOLT (GRD A449)	B340854A
j	1	⅞" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	½" x 1 ¼" A325 BOLT WITH CAPTIVE WASHER	S812A
n	8	½" STRUCTURAL NUTS	N012A
o	8	1 ¼" O.D. x ⅝" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	C7-10057
q	6	⅝" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151

Texas Department of Transportation — Design Division Standard

SINGLE GUARDRAIL TERMINAL

MSKT-MASH-TL-3

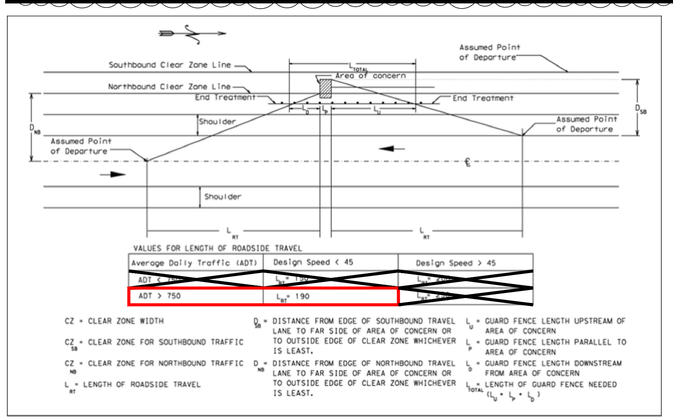
SGT(12S)31-18

FILE: sgt12s3118.dgn	DN:TxDOT	CK:KM	DW:VP	CK:LG
©TxDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

WESTBOUND MBGF CALCULATOR		
ADT <=750	Du=	10.00 ft
	Gu=	12.00 ft
	Lu=	0.00 ft
	Dd=	10.00 ft
	Gd=	23.34 ft
	Ld=	0.00 ft
	Lp=	26.20 ft
(MBGF TOTAL LENGTH) Ltotal=		26.20 ft
UPSTREAM - SINGLE GUARD TERMINAL SGT(12S)31-18		50.00 ft
DOWNSTREAM ANCHOR TERMINAL (GF (31) DAT-19) =		12.50 ft
(MBGF TOTAL LENGTH INCLUDING UPSTREAM AND DOWNSTREAM TREATMENTS) Ltotal=		88.70 ft
TOTAL LENGTH TO THE NEAREST 25' INTERVAL =		100.00 ft

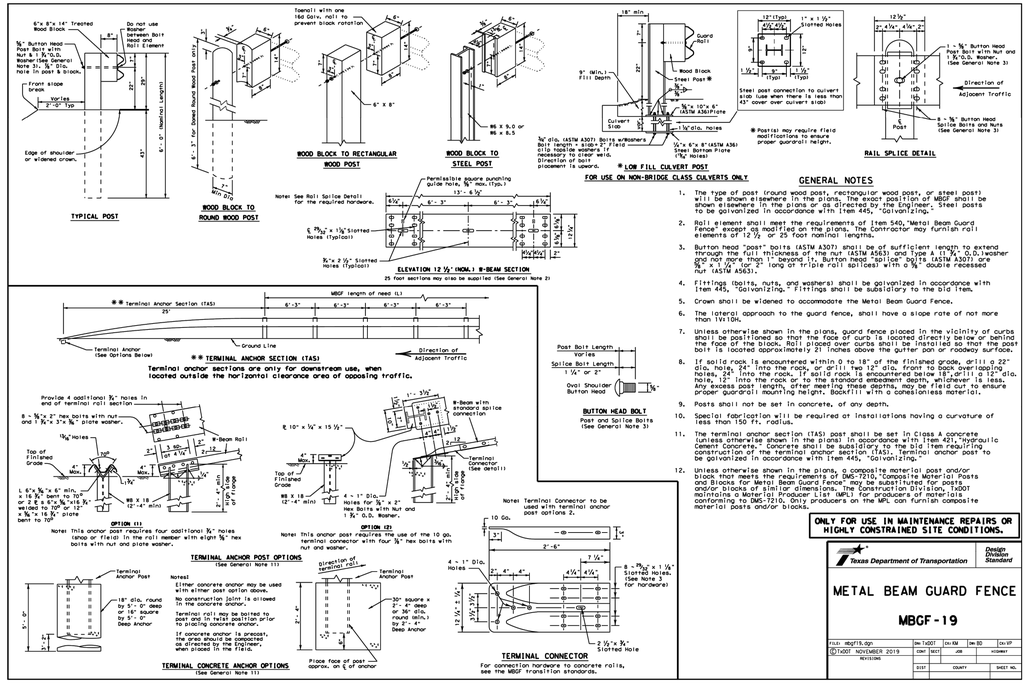
CORLEY ROAD
METAL BEAM GUARD FENCE
CALCULATIONS

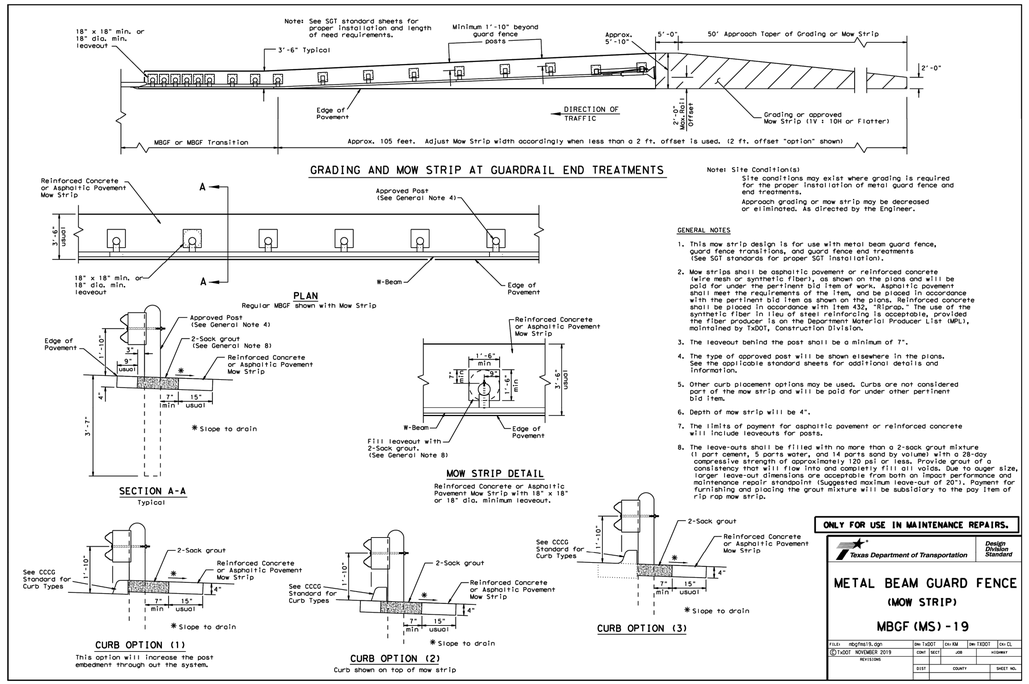
1



Where:

- L_u = Length of guard fence needed (upstream of area of concern), ft
- L_d = Length of guard fence needed (downstream of area of concern), ft
- D_u = Distance from edge of travel lane to far side of area of concern or to outside edge of clear zone, whichever is least, ft (for upstream direction of traffic)
- D_d = Distance from edge of travel lane to far side of area of concern or to outside edge of clear zone, whichever is least, ft (for opposing direction of traffic)
- G_u = Guard fence offset from edge of travel lane adjacent to proposed guard fence, ft
- G_d = Guard fence offset from edge of opposing direction of travel lane (centerline)





Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE

(MOW STRIP)

MBGF(MS)-19

FILE: mbgfms19.dgn	DN:TxDOT	CK:KM	DW:TXDOT	CK:CL
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

METAL BEAM GUARD FENCE DETAILS

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

DATE	
25/03/13	MBGF CALCS REVISED

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025
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TBPE No. 455
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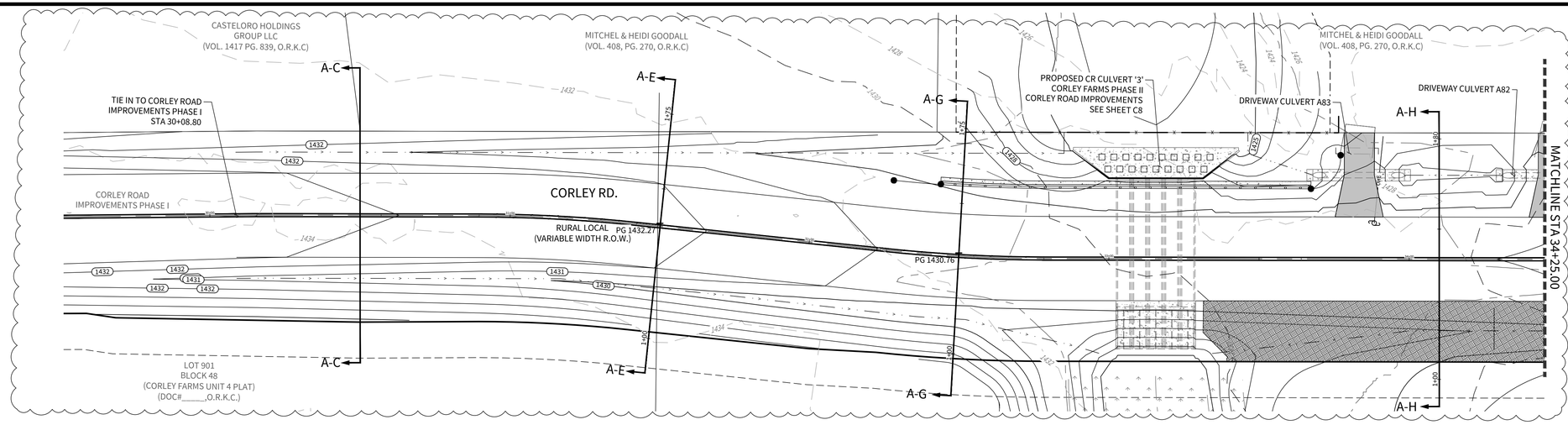
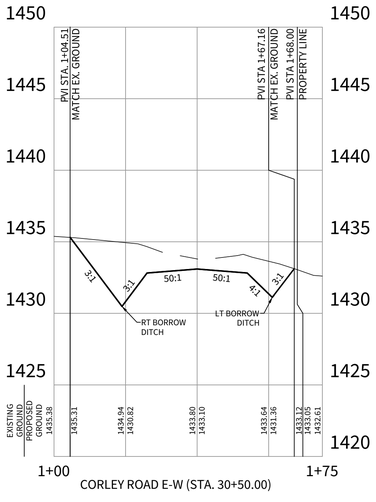


2

PROPOSED CORLEY ROAD
E-W STREET CROSS SECTIONS

STA. 29+50.00 TO STA. 34+25.00

A-C
STA: 1+00.00 TO STA: 1+75.00



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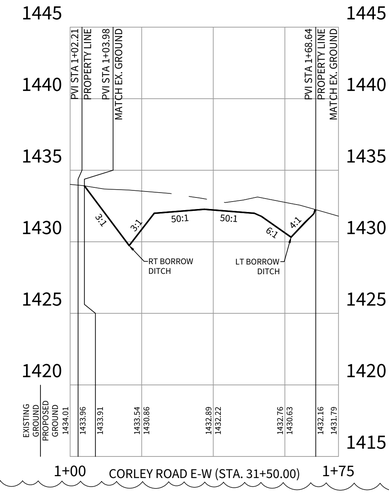

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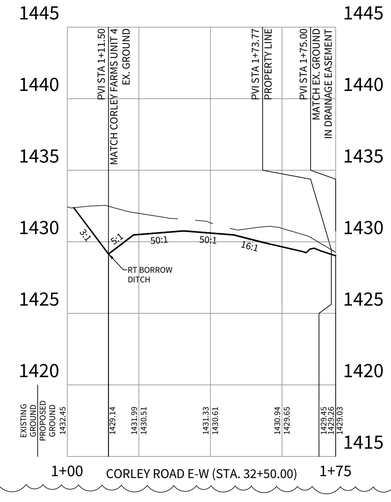
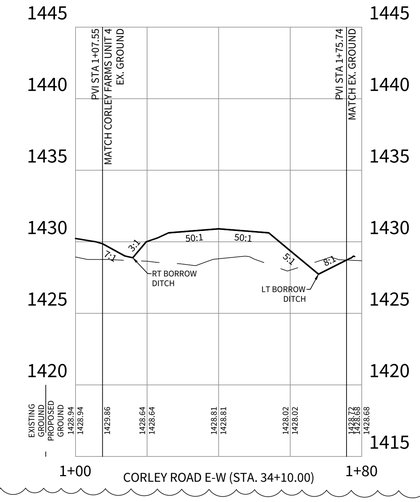


A-H
STA: 1+00.00 TO STA: 1+80.00



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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

PROPOSED TYPICAL STREET SECTIONS & RIGHT OF WAY DEDICATION MAP

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

	DATE	
1.	03/12/25	A-C SECTION ADDED AND REVISED ALL SECTIONS AS NOTED
2.	25/07/09	COUNTY COMMENTS
3.		
4.		
5.		
6.		
7.		
8.		
9.		

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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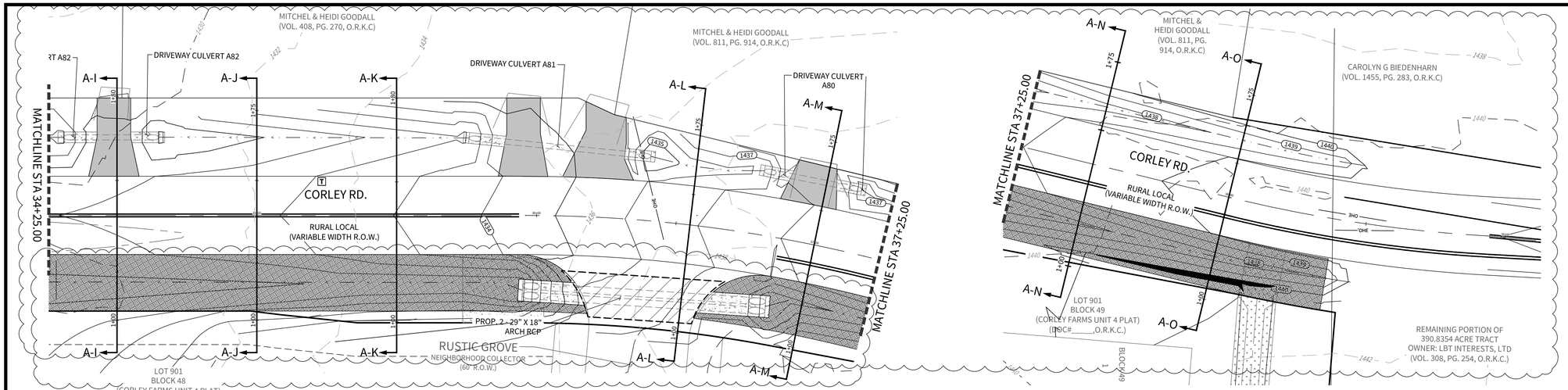
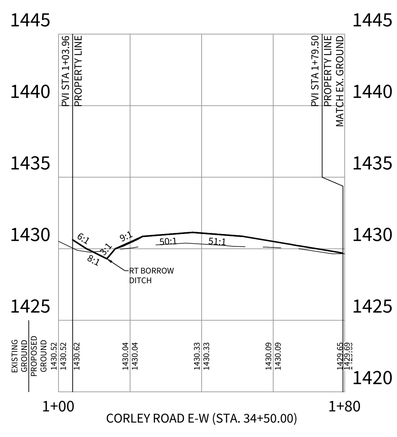
P:\03481\003\3-Drawings\CORLEY ROAD\PHASE II\STREET SECTIONS\SHEET 1 - CORLEY ROAD PHASE II PLAN & PROFILE.dwg 2025/07/11 8:56am jcardoncha



PROPOSED CORLEY ROAD
E-W STREET CROSS SECTIONS

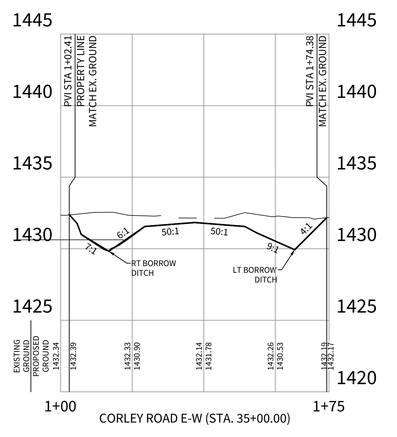
STA. 34+25.00 TO END

A-I
STA: 1+00.00 TO STA: 1+79.99



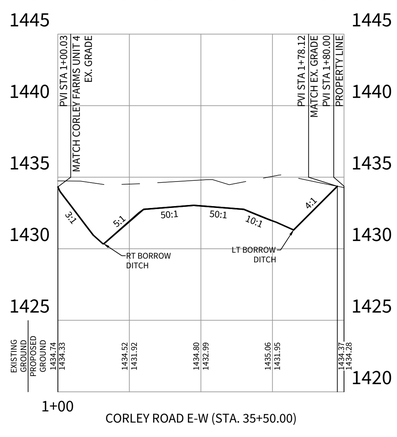
CORLEY ROAD E-W (STA. 34+50.00)

A-J
STA: 1+00.00 TO STA: 1+75.00



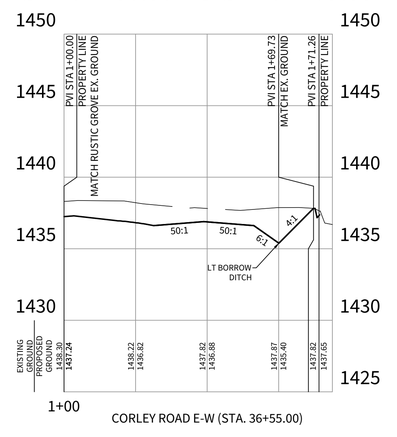
CORLEY ROAD E-W (STA. 35+00.00)

A-K
STA: 1+00.00 TO STA: 1+80.00



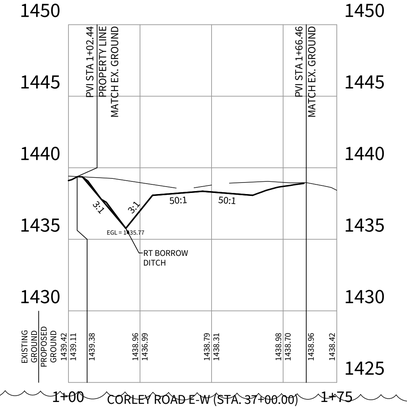
CORLEY ROAD E-W (STA. 35+50.00)

A-L
STA: 1+00.00 TO STA: 1+75.00



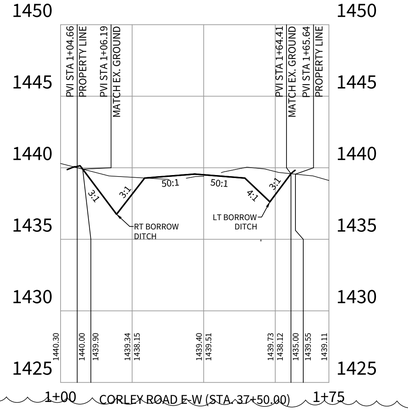
CORLEY ROAD E-W (STA. 36+55.00)

A-M
STA: 1+00.00 TO STA: 1+75.00



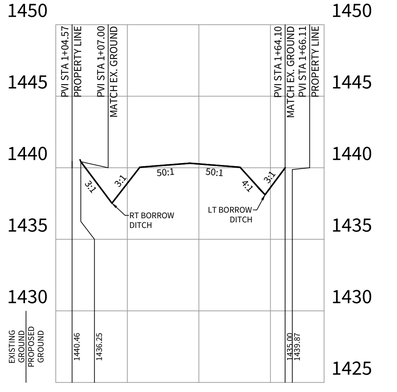
CORLEY ROAD E-W (STA. 37+00.00)

A-N
STA: 1+00.00 TO STA: 1+75.00



CORLEY ROAD E-W (STA. 37+50.00)

A-O
STA: 1+00.00 TO STA: 1+75.00



CORLEY ROAD E-W (STA. 38+00.00)

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CUDEENGINEERS.COM
CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

PROPOSED TYPICAL STREET SECTIONS
& RIGHT OF WAY DEDICATION MAP

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

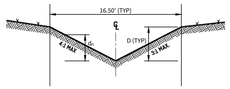
	DATE	
1.	03/12/25	PROPOSED SOD REVISED
2.	25/07/09	COUNTY COMMENTS
3.		
4.		
5.		
6.		
7.		
8.		
9.		

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C17

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

P:\03481.003\3-Drawings\CORLEY ROAD\PHASE II\STREET SECTIONS\A01 - CORLEY ROAD PHASE II PLAN & PROFILE.dwg, 2025/07/11 8:56am, jonbohanec



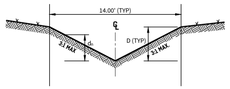
CORLEY ROAD "A-C" SECTION (N.T.S.)

"A-C" STA. 1+00.00 TO 1+75.00

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	1.40
B_w (ft)	0.00'
z (ft)	4' & 3'
n	0.035
D (ft)	2.50
S (%)	0.69
d_5 (ft)	0.54'
V (fps)	1.37
Fr	0.329

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	3.14
B_w (ft)	0.00'
z (ft)	4' & 3'
n	0.035
D (ft)	2.50
S (%)	0.69
d_5 (ft)	0.72
V (fps)	1.73
Fr	0.359

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



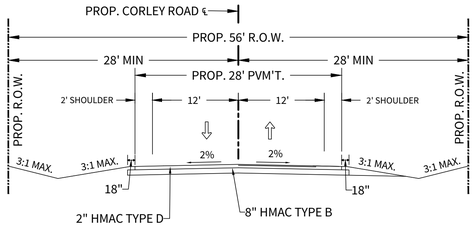
CORLEY ROAD "A-C" SECTION (N.T.S.)

"A-C" STA. 1+00.00 TO 1+75.00

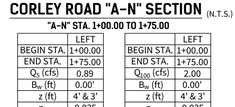
	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	4.09
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.40'
S (%)	0.69
d_5 (ft)	0.85'
V (fps)	1.89
Fr	0.361

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	9.08
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.40'
S (%)	0.69
d_5 (ft)	1.14'
V (fps)	2.33
Fr	0.385

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



PROP. CORLEY ROAD BLACK BASE TYPICAL SECTION



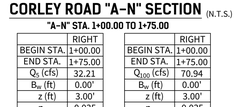
CORLEY ROAD "A-E" SECTION (N.T.S.)

"A-E" STA. 1+00.00 TO 1+75.00

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	1.40
B_w (ft)	0.00'
z (ft)	6' & 4'
n	0.035
D (ft)	1.70'
S (%)	1.70
d_5 (ft)	0.40'
V (fps)	1.75
Fr	0.488

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	3.14
B_w (ft)	0.00'
z (ft)	6' & 4'
n	0.035
D (ft)	1.70
S (%)	1.70
d_5 (ft)	0.53'
V (fps)	2.24
Fr	0.542

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



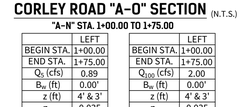
CORLEY ROAD "A-E" SECTION (N.T.S.)

"A-E" STA. 1+00.00 TO 1+75.00

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	4.09
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.26
S (%)	0.60
d_5 (ft)	0.87'
V (fps)	1.80
Fr	0.340

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	9.08
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.26'
S (%)	0.60
d_5 (ft)	1.17'
V (fps)	2.21
Fr	0.408

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



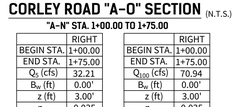
CORLEY ROAD "A-G" SECTION (N.T.S.)

"A-G" STA. 1+00.00 TO 1+75.00

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	1.40
B_w (ft)	0.00'
z (ft)	34.00'
n	0.035
D (ft)	1.75'
S (%)	1.70
d_5 (ft)	0.31
V (fps)	1.53
Fr	0.484

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	3.14
B_w (ft)	0.00'
z (ft)	34.00'
n	0.035
D (ft)	1.75'
S (%)	1.70
d_5 (ft)	0.42
V (fps)	1.87
Fr	0.509

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



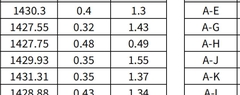
CORLEY ROAD "A-G" SECTION (N.T.S.)

"A-G" STA. 1+00.00 TO 1+75.00

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	4.09
B_w (ft)	0.00'
z (ft)	3' & 5'
n	0.035
D (ft)	1.33
S (%)	0.60
d_5 (ft)	0.78'
V (fps)	1.68
Fr	0.335

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	9.08
B_w (ft)	0.00'
z (ft)	3' & 5'
n	0.035
D (ft)	1.33'
S (%)	0.60
d_5 (ft)	1.05'
V (fps)	2.06
Fr	0.354

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



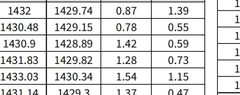
CORLEY ROAD "A-H" SECTION (N.T.S.)

"A-E" STA. 1+00.00 TO 1+80.00

	LEFT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_5 (cfs)	1.93
B_w (ft)	0.00'
z (ft)	5' & 8'
n	0.035
D (ft)	0.97
S (%)	1.70
d_5 (ft)	0.42
V (fps)	1.68
Fr	0.457

	LEFT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_{100} (cfs)	4.35
B_w (ft)	0.00'
z (ft)	5' & 8'
n	0.035
D (ft)	0.97
S (%)	1.70
d_5 (ft)	0.57'
V (fps)	2.06
Fr	0.481

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



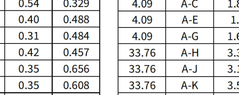
CORLEY ROAD "A-H" SECTION (N.T.S.)

"A-E" STA. 1+00.00 TO 1+80.00

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_5 (cfs)	33.76
B_w (ft)	0.00'
z (ft)	7' & 3'
n	0.035
D (ft)	2.01
S (%)	1.04
d_5 (ft)	1.42
V (fps)	3.35
Fr	0.496

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_{100} (cfs)	74.14
B_w (ft)	0.00'
z (ft)	7' & 3'
n	0.035
D (ft)	2.01
S (%)	1.04
d_5 (ft)	1.90'
V (fps)	4.11
Fr	0.526

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



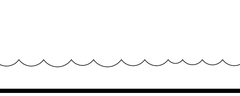
CORLEY ROAD "A-I" SECTION (N.T.S.)

"A-I" STA. 1+00.00 TO 1+80.00

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_5 (cfs)	33.76
B_w (ft)	0.00'
z (ft)	8' & 3'
n	0.035
D (ft)	1.84
S (%)	1.04
d_5 (ft)	1.37'
V (fps)	3.27
Fr	0.493

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_{100} (cfs)	74.14
B_w (ft)	0.00'
z (ft)	8' & 3'
n	0.035
D (ft)	1.84
S (%)	1.04
d_5 (ft)	1.83'
V (fps)	4.03
Fr	0.525

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



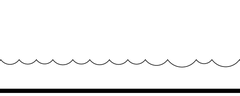
CORLEY ROAD "A-J" SECTION (N.T.S.)

"A-J" STA. 1+00.00 TO 1+75.00

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	1.75
B_w (ft)	0.00'
z (ft)	9' & 4'
n	0.035
D (ft)	1.90'
S (%)	2.80
d_5 (ft)	0.35'
V (fps)	2.20
Fr	0.656

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	3.93
B_w (ft)	0.00'
z (ft)	9' & 4'
n	0.035
D (ft)	1.90'
S (%)	2.80
d_5 (ft)	0.48'
V (fps)	2.62
Fr	0.667

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



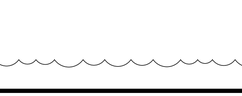
CORLEY ROAD "A-J" SECTION (N.T.S.)

"A-J" STA. 1+00.00 TO 1+75.00

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	33.76
B_w (ft)	0.00'
z (ft)	7' & 6'
n	0.035
D (ft)	2.01'
S (%)	1.04
d_5 (ft)	1.28
V (fps)	3.17
Fr	0.494

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	74.14
B_w (ft)	0.00'
z (ft)	7' & 6'
n	0.035
D (ft)	2.01'
S (%)	1.04
d_5 (ft)	1.72
V (fps)	3.86
Fr	0.579

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



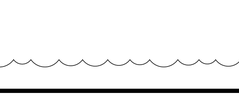
CORLEY ROAD "A-K" SECTION (N.T.S.)

"A-K" STA. 1+00.00 TO 1+80.00

	LEFT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_5 (cfs)	1.75
B_w (ft)	0.00'
z (ft)	10' & 4'
n	0.035
D (ft)	1.72'
S (%)	2.80
d_5 (ft)	0.35'
V (fps)	2.04
Fr	0.608

	LEFT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_{100} (cfs)	3.93
B_w (ft)	0.00'
z (ft)	10' & 4'
n	0.035
D (ft)	1.72'
S (%)	2.80
d_5 (ft)	0.47'
V (fps)	2.54
Fr	0.653

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



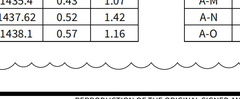
CORLEY ROAD "A-K" SECTION (N.T.S.)

"A-K" STA. 1+00.00 TO 1+80.00

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_5 (cfs)	33.76
B_w (ft)	0.00'
z (ft)	3' & 5'
n	0.035
D (ft)	2.69'
S (%)	1.04
d_5 (ft)	1.54'
V (fps)	3.56
Fr	0.506

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+80.00
Q_{100} (cfs)	74.14
B_w (ft)	0.00'
z (ft)	3' & 5'
n	0.035
D (ft)	2.69'
S (%)	1.04
d_5 (ft)	2.07'
V (fps)	4.33
Fr	0.531

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



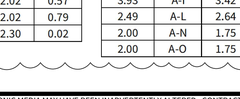
CORLEY ROAD "A-L" SECTION (N.T.S.)

"A-L" STA. 1+00.00 TO 1+75.00

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	1.11
B_w (ft)	0.00'
z (ft)	6' & 4'
n	0.035
D (ft)	1.50'
S (%)	3.40
d_5 (ft)	0.32'
V (fps)	2.17
Fr	0.676

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	2.49
B_w (ft)	0.00'
z (ft)	6' & 4'
n	0.035
D (ft)	1.50'
S (%)	3.40
d_5 (ft)	0.43'
V (fps)	2.69
Fr	0.710

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS



CORLEY ROAD "A-M" SECTION (N.T.S.)

"A-M" STA. 1+00.00 TO 1+75.00

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	32.21
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.59'
S (%)	2.00
d_5 (ft)	1.50
V (fps)	4.77
Fr	0.687

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	70.94
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.59'
S (%)	2.00
d_5 (ft)	2.02'
V (fps)	5.80
Fr	0.719

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS

CORLEY ROAD "A-N" SECTION (N.T.S.)

"A-N" STA. 1+00.00 TO 1+75.00

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	0.89
B_w (ft)	0.00'
z (ft)	4' & 3'
n	0.035
D (ft)	1.94'
S (%)	1.60
d_5 (ft)	0.39'
V (fps)	1.67
Fr	0.306

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	2.00
B_w (ft)	0.00'
z (ft)	4' & 3'
n	0.035
D (ft)	1.94'
S (%)	1.60
d_5 (ft)	0.52'
V (fps)	2.11
Fr	0.428

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS

CORLEY ROAD "A-N" SECTION (N.T.S.)

"A-N" STA. 1+00.00 TO 1+75.00

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	32.21
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.81'
S (%)	2.00
d_5 (ft)	1.50
V (fps)	4.77
Fr	0.687

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	70.94
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.81'
S (%)	2.00
d_5 (ft)	2.02'
V (fps)	5.80
Fr	0.719

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS

CORLEY ROAD "A-O" SECTION (N.T.S.)

"A-N" STA. 1+00.00 TO 1+75.00

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	0.89
B_w (ft)	0.00
z (ft)	4' & 3'
n	0.035
D (ft)	2.20'
S (%)	1.00
d_5 (ft)	0.42
V (fps)	1.44
Fr	0.392

	LEFT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	2.00
B_w (ft)	0.00'
z (ft)	4' & 3'
n	0.035
D (ft)	2.20'
S (%)	1.00
d_5 (ft)	0.57'
V (fps)	1.76
Fr	0.409

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS

CORLEY ROAD "A-O" SECTION (N.T.S.)

"A-N" STA. 1+00.00 TO 1+75.00

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_5 (cfs)	32.21
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.79'
S (%)	1.00
d_5 (ft)	1.71'
V (fps)	3.67
Fr	0.495

	RIGHT
BEGIN STA.	1+00.00
END STA.	1+75.00
Q_{100} (cfs)	70.94
B_w (ft)	0.00'
z (ft)	3.00'
n	0.035
D (ft)	2.79'
S (%)	1.00
d_5 (ft)	2.30'
V (fps)	4.47
Fr	0.520

NOTE:
EARTHEN CHANNELS TO
BE SOD LINED WHEN
VELOCITIES ARE 3 - 6 FPS

FREEBOARD CALCULATIONS

Left Side

Cross Section	Elevation	Invert Elevation	Depth (5-YR)	Freeboard
A-E	1432	1430.3	0.4	1.3
A-G	1429.3	1427.55	0.32	1.43
A-H	1428.72	1427.75	0.48	0.49
A-J	1431.83	1429.93	0.35	1.55
A-K	1433.03	1431.31	0.35	1.37
A-I	1430.65	1428.88	0.43	1.34
A-L	1436.9	1435.4	0.32	1.18
A-N	1439.56	1437.62	0.39	1.55
A-O	1439.83	1438.1	0.42	1.31

Right Side

Cross Section	Elevation	Invert Elevation	Depth (5-YR)	Freeboard
A-E	1432	1429.74	0.87	1.39
A-G	1430.48	1429.15	0.78	0.55
A-H	1430.9	1428.89	1.42	0.59
A-J	1431.83	1429.82	1.28	0.73
A-K	1433.03	1430.34	1.54	1.15
A-I	1431.14	1429.3	1.37	0.47
A-M	1438.36	1435.77	1.5	1.09
A-N	1439.56	1436.75	1.5	1.31
A-O	1439.83	1437.51	1.71	0.61

Left Side

Cross Section	Elevation	Invert Elevation	Depth (100-YR)	Freeboard
A-E	1432	1430.3	0.72	0.98
A-G	1429.3	1427.55	0.44	1.31
A-H	1428.72	1427.75	0.57	0.4
A-J	1431.83	1429.93	0.48	1.42
A-K	1433.03	1431.31	0.47	1.25
A-I	1430.65	1428.88	0.58	1.19
A-L	1436.9	1435.4	0.43	1.07
A-N	1439.56	1437.62	0.52	1.42
A-O	1439.83	1438.1	0.57	1.16

Right Side

Cross Section	Elevation	Invert Elevation	Depth (100-YR)	Freeboard
A-E	1432	1429.74	1.17	1.09
A-G	1430.48	1429.15	1.05	0.28
A-H	1430.9	1428.89	1.9	0.11
A-J	1431.83	1429.82	1.72	0.29
A-K	1433.03	1430.34	2.07	0.62
A-I	1431.14	1429.3	1.83	0.01
A-M	1438.36	1435.77	2.02	0.57
A-N	1439.56	1436.75	2.02	0.79
A-O	1439.83	1437.51	2.30	0.02

FROUDE NUMBER CALCULATIONS

Left side

Q_5	Cross Section	Velocity	Hydraulic Depth	Froude Number
1.40	A-C	1.37	0.54	0.329
1.40	A-E	1.75	0.40	0.488
1.40	A-G	1.53	0.31	0.484
1.93	A-H	1.68	0.42	0.457
1.93	A-J	2.2	0.35	0.656
1.75	A-K	2.04	0.35	0.608
1.75	A-I	2.77	0.43	0.745
1.11	A-L	2.17	0.32	0.676
0.89	A-N	1.44	0.69	0.306
0.89	A-O	1.44	0.42	0.392

Right side

Q_5	Cross Section	Velocity	Hydraulic Depth	Froude Number
4.09	A-C	1.89	0.85	0.361
4.09	A-E	1.8	0.87	0.340
4.09	A-G	1.68	0.78	0.335
33.76	A-H	3.35	1.42	0.496
33.76	A-J	3.17	1.28	0.494
33.76	A-K	3.56	1.54	0.506
33.76	A-I	3.27	1.37	0.493
32.21	A-M	4.77	1.50	0.687
32.21	A-N	4.77	1.50	0.687
32.21	A-O	3.67	1.71	0.495

Left side

Q_{100}	Cross Section	Velocity	Hydraulic Depth	Froude Number
3.14	A-C	1.73	0.72	0.359
3.14	A-E	2.24	0.53	0.542
3.14	A-G	1.87	0.42	0.509
4.35	A-H	2.06	0.57	0.481
4.35	A-J	2.62	0.48	0.667
3.93	A-K	2.54	0.47	0.653
3.93	A-I	3.42	0.58	0.792
2.49	A-L	2.64	0.43	0.710
2.00	A-N	1.75	0.52	0.428
2.00	A-O	1.75	0.57	0.409

Right side

Q_{100}	Cross Section	Velocity	Hydraulic Depth	Froude Number
9.08	A-C	2.33	1.14	0.385
9.08	A-E	2.21	0.91	0.408
9.08	A-G	2.06	1.05	0.354
74.14	A-H	4.11	1.90	0.526
74.14	A-J	3.86	1.72	0.519
74.14	A-K	4.33	2.07	0.531
74.14	A-I	4.03	1.83	0.525
70.94	A-M	5.8	2.02	0.719
70.94	A-N	5.8	2.02	0.719
70.94	A-O	4.47	2.30	0.520

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

CORLEY ROAD BAR DITCH ANALYSIS

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

DATE	
03/12/25	1. A-C SECTION ADDED AND REVISED PER CITY/COUNTY COMMENTS
07/09/25	2.
	3.
	4.
	5.
	6.
	7.
	8.
	9.

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED PROFESSIONAL ENGINEER
07/11/2025
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C18

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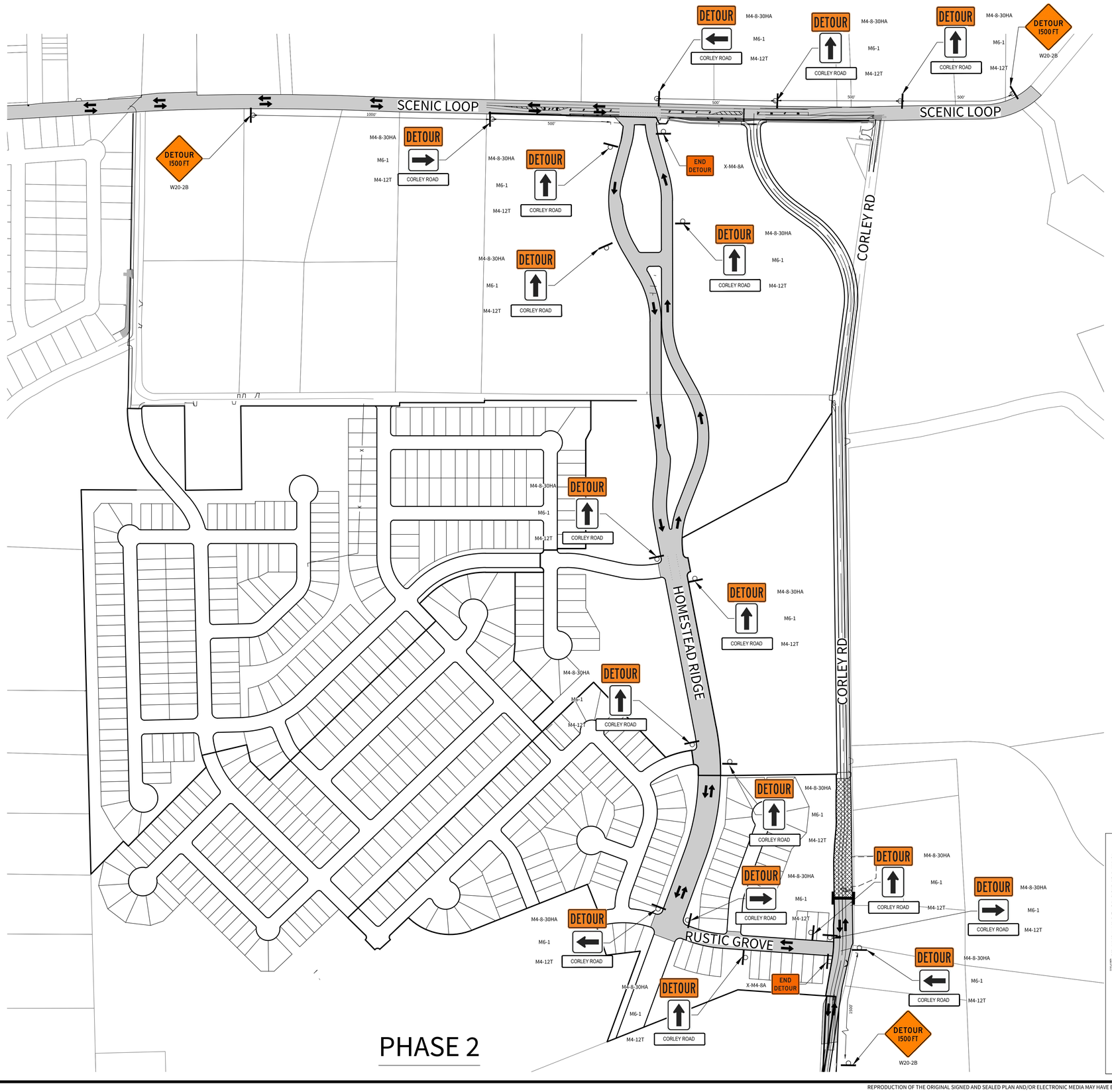
C:\03481\003\3 Drawings\CORLEY ROAD\PHASE II\STREET SECTIONS\SHEET 1 - CORLEY ROAD PHASE II PLAN & PROFILE.dwg 2025/07/11 5:50pm jalmaraz

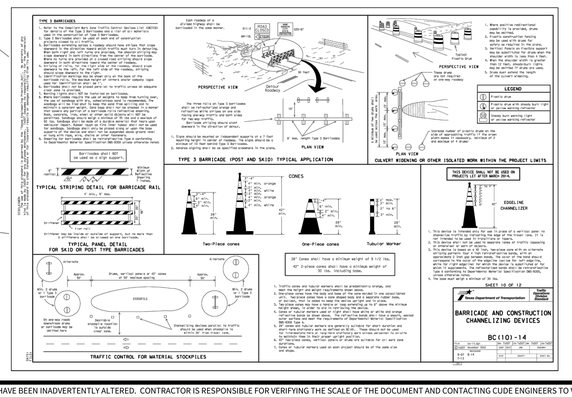


LEGEND

- WORK ZONE
- DETOUR ROUTE
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE
- TRAFFIC FLOW ARROWS

NOTES:

1. SEE TXDOT STANDARD DETAIL WZ (RCD) - 14 FOR ROAD CLOSURE SIGN PLACEMENT DETAILS.



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CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

TRAFFIC CONTROL PLAN

DATE
07/08/2025

PROJECT NO.
03481.004

DRAWN BY
RC

CHECKED BY
JC/AL

REVISIONS
1.
2.
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6.
7.
8.
9.

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
07/11/2025

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C19

OF

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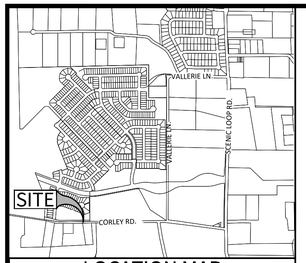
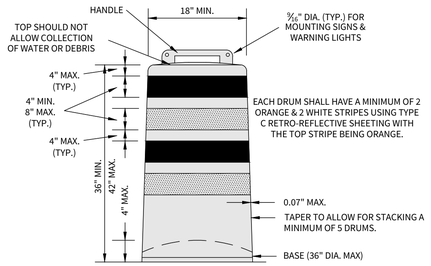


LOCATION MAP
N.T.S.

T.C.P. LEGEND

- PLASTIC DRUM W/ CHANNELING DEVICE
- TYPE III BARRICADE
- TRAFFIC FLOW ARROWS INDICATING DIRECTION
- EXISTING PVM'T TO BE REMOVED
- PROPOSED BLACK BASE PVM'T/ WORKZONE
- EX. PVM'T TO REMAIN
- TEMPORARY BLACK BASE PAVEMENT
- TRAFFIC CONTROL SIGN
- TEMPORARY TRAFFIC CONTROL SIGNAL
- CONCRETE BARRIER

TRAFFIC BARRIER DRUM



NOTE: PLACE 1 DRUM EVERY 30 L.F. ALONG OUTER EDGE OF TRAFFIC CONTROL PATH

LANE CLOSURE NOTES:

1.) HOURS OF OPERATION WILL BE FROM 7:00 A.M. TO 5:30 P.M. MONDAY THROUGH FRIDAY EXCEPT WITH APPROVAL OF ENGINEER

2.) TOTAL ANTICIPATED DAYS OF LANE CLOSURE = 120 DAYS FOR PHASE I

3.) TOTAL ANTICIPATED DAYS OF ROAD CLOSURE = 120 DAYS

4.) CONTRACTOR IS REQUIRED TO PROVIDE ACCESS TO ALL ADJACENT HOMEOWNERS AND DRIVEWAYS AT ALL TIMES.

5.) CONTRACTOR TO PROVIDE 48-72 HOUR NOTICE TO RESIDENTS ON DAYS OF CLOSURE.

6.) CONTRACTOR TO NOTIFY ALL PUBLIC ENTITIES SUCH AS EMS, SHERIFF, POSTAL OFFICE, ETC. ABOUT ALTERNATIVE ACCESS THAT WOULD PREVENT THEM TO REACH ANY OF THE PROPERTIES ON DAYS OF LANE CLOSURE.

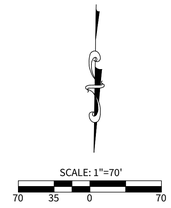
7.) CONTRACTOR TO SEQUENCE STREET CROSSING REPAIR IN TWO SEPARATE PHASE WHICH THE CONTRACTOR MUST MAINTAIN 10' MIN LANE AT ALL TIMES.

8.) CONTRACTOR TO BORE UNDER EXISTING DRIVEWAYS UNLESS AUTHORIZED BY PROPERTY OWNER

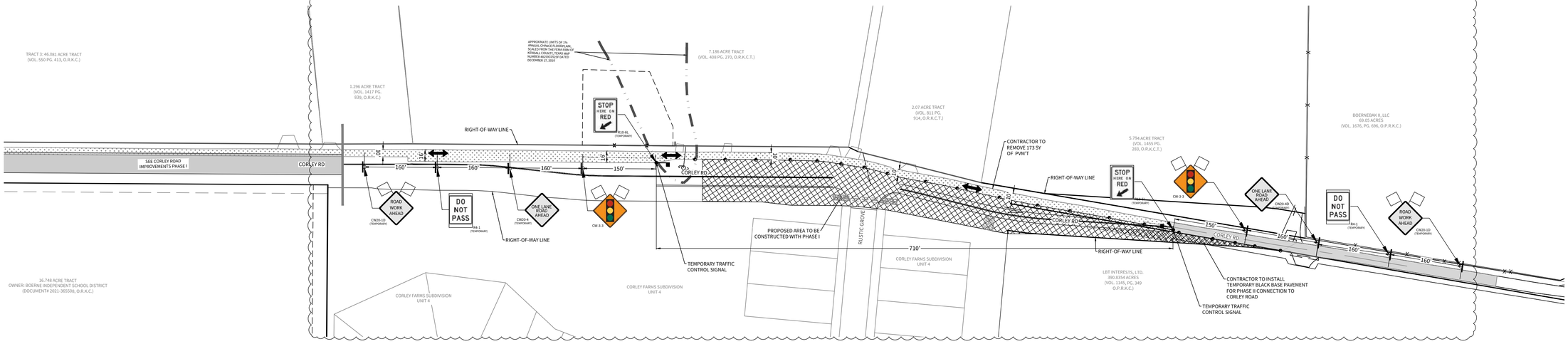
9.) SHORT TERM LOADING/UNLOADING AND STREET SHUT DOWN TO BE INSIDE OF 9:00AM TO 4:00PM.

LANE CLOSURE NOTES:

1.) CONTRACTOR TO INSTALL TEMPORARY STRIPING NEW PAVEMENT IN ACCORDANCE WITH THE TRAFFIC PHASING PLAN. PERMANENT STRIPING TO BE INSTALLED AT THE COMPLETION OF THE PROJECT.



PHASE I



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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

TRAFFIC CONTROL PLAN

DATE
07/14/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

	DATE	
1	05/08/25	CITY/COUNTY COMMENTS
2	25/07/09	COUNTY COMMENTS

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED
PROFESSIONAL ENGINEER
7/11/25

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C20

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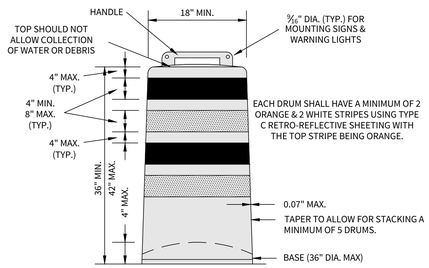
LOCATION MAP
N.T.S.

T.C.P. LEGEND

- PLASTIC DRUM W/ CHANNELING DEVICE
- TYPE III BARRICADE
- TRAFFIC FLOW ARROWS INDICATING DIRECTION
- EXISTING PVM'T TO BE REMOVED
- PROPOSED BLACK BASE PVM'T/ WORKZONE
- EX. PVM'T TO REMAIN
- TEMPORARY BLACK BASE PAVEMENT
- TRAFFIC CONTROL SIGN
- TEMPORARY TRAFFIC CONTROL PLAN
- CONCRETE BARRIER

TRAFFIC BARRIER DRUM



NOTE: PLACE 1 DRUM EVERY 30 L.F. ALONG OUTER EDGE OF TRAFFIC CONTROL PATH

LANE CLOSURE NOTES:

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3.) TOTAL ANTICIPATED DAYS OF ROAD CLOSURE = 120 DAYS

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5.) CONTRACTOR TO PROVIDE 48-72 HOUR NOTICE TO RESIDENTS ON DAYS OF CLOSURE.

6.) CONTRACTOR TO NOTIFY ALL PUBLIC ENTITIES SUCH AS EMS, SHERIFF, POSTAL OFFICE, ETC. ABOUT ALTERNATIVE ACCESS THAT WOULD PREVENT THEM TO REACH ANY OF THE PROPERTIES ON DAYS OF LANE CLOSURE.

7.) CONTRACTOR TO SEQUENCE STREET CROSSING REPAIR IN TWO SEPARATE PHASE WHICH THE CONTRACTOR MUST MAINTAIN 10' MIN LANE AT ALL TIMES.

8.) CONTRACTOR TO BORE UNDER EXISTING DRIVEWAYS UNLESS AUTHORIZED BY PROPERTY OWNER

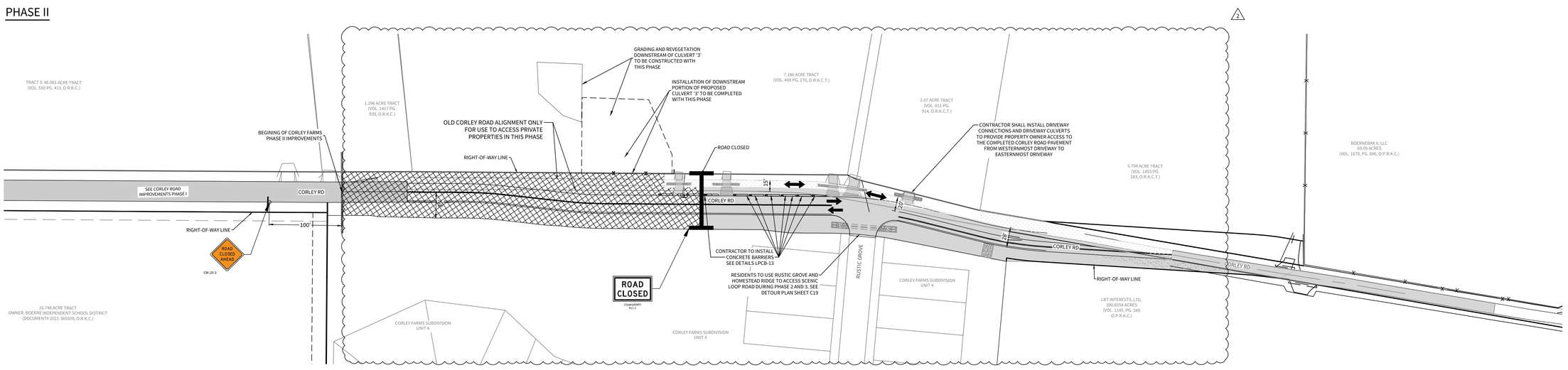
9.) SHORT TERM LOADING/UNLOADING AND STREET SHUT DOWN TO BE INSIDE OF 9:00AM TO 4:00PM.

LANE CLOSURE NOTES:

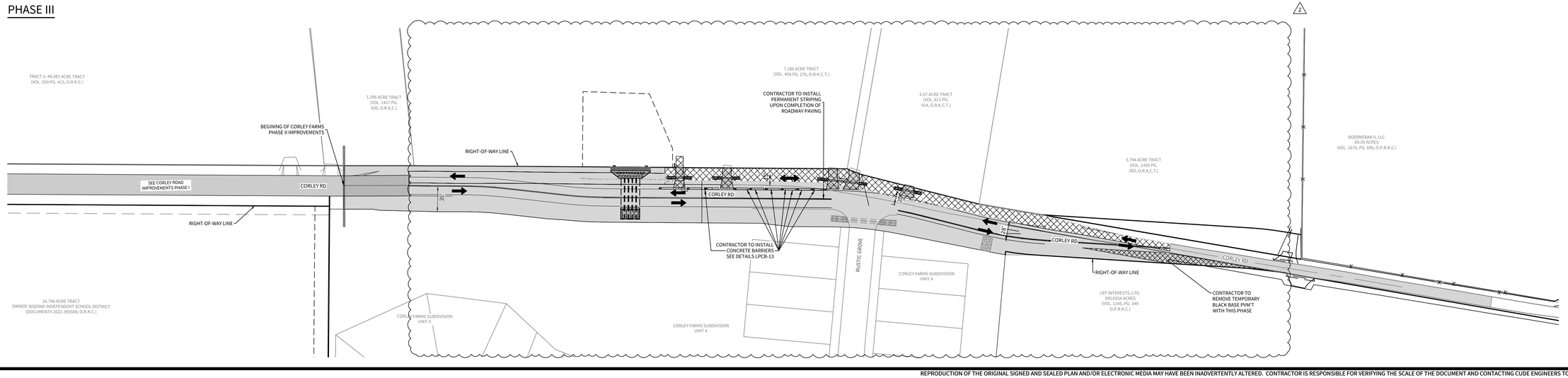
1.) CONTRACTOR TO INSTALL TEMPORARY STRIPING NEW PAVEMENT IN ACCORDANCE WITH THE TRAFFIC PHASING PLAN. PERMANENT STRIPING TO BE INSTALLED AT THE COMPLETION OF THE PROJECT.

SCALE: 1"=70'
70 35 0 70

PHASE II



PHASE III



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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

TRAFFIC CONTROL PLAN

DATE
07/14/2025

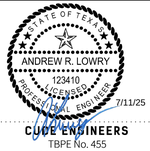
PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS

DATE	
05/08/25	CITY/COUNTY COMMENTS
25/07/09	COUNTY COMMENTS



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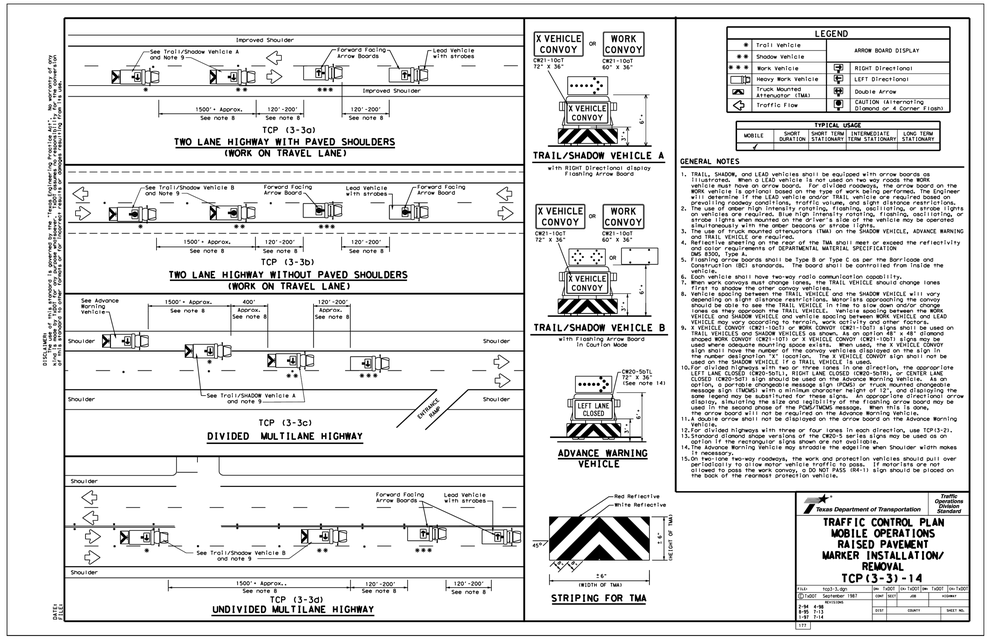

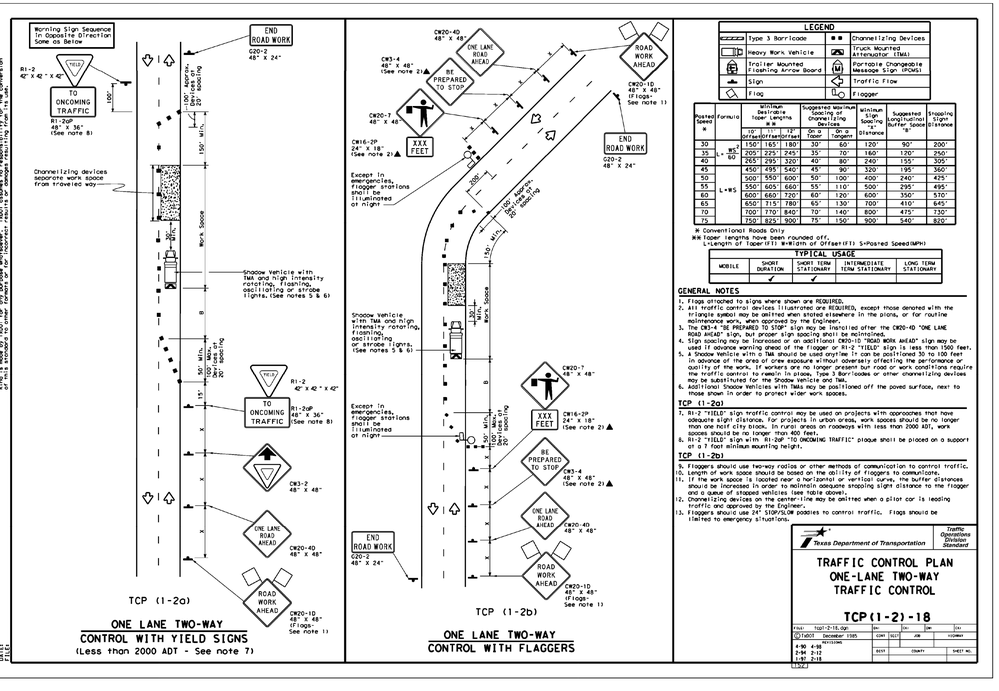

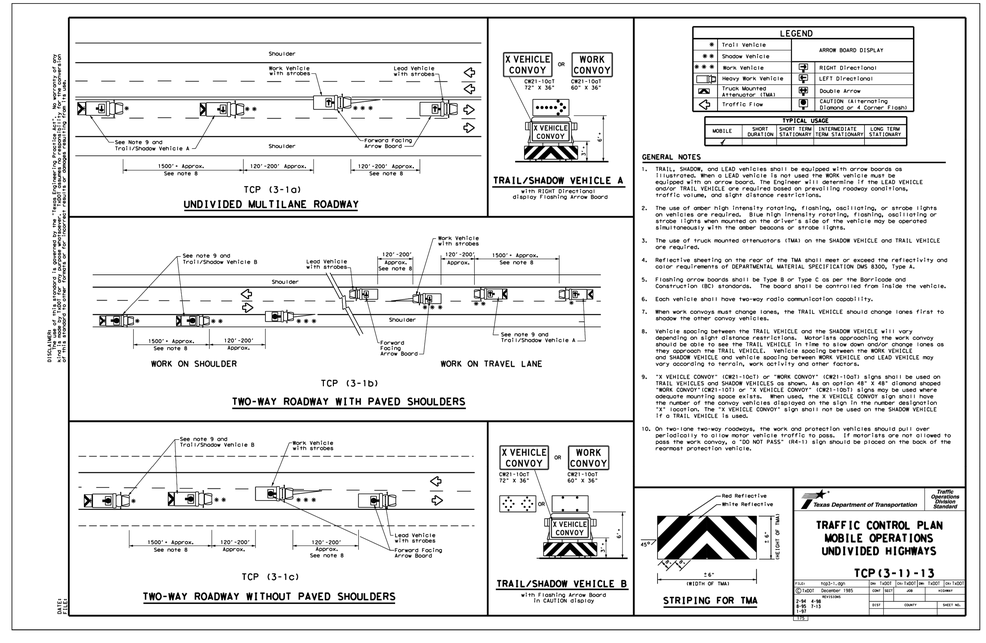

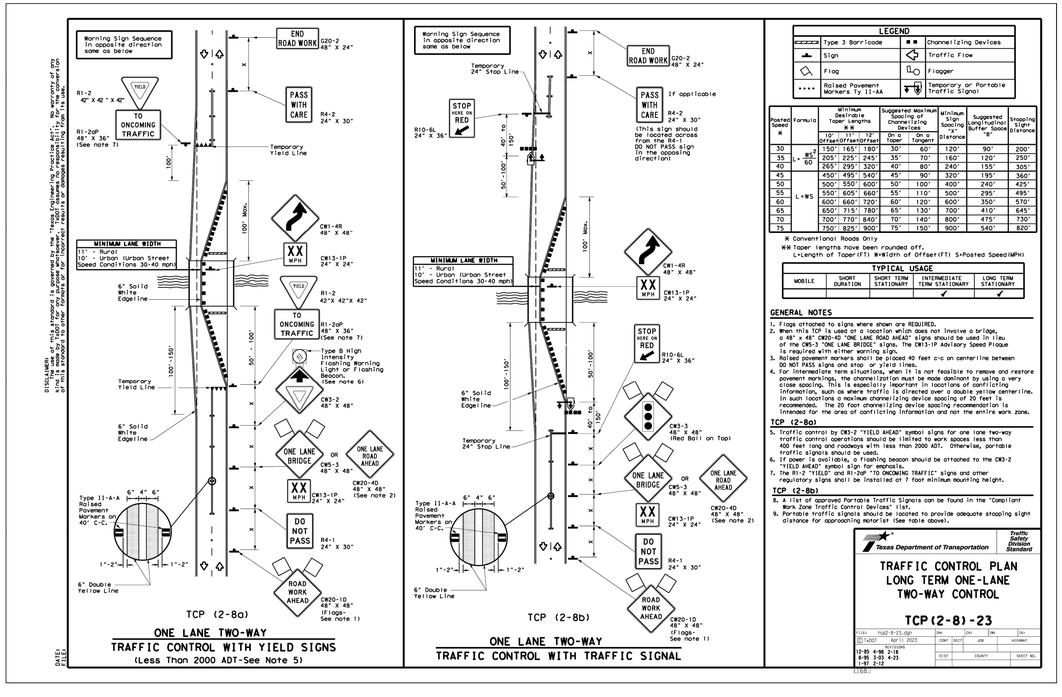

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CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE II

TRAFFIC CONTROL PLAN DETAILS

DATE
07/11/2025

PROJECT NO.
03481.003

DRAWN BY
CA/RC/XV

CHECKED BY
AL/JC/XV

REVISIONS
DATE
1 2 3 4 5 6 7 8 9

STATE OF TEXAS
ANDREW R. LOWRY
124370
LICENSED
PROFESSIONAL ENGINEER
07/11/2025
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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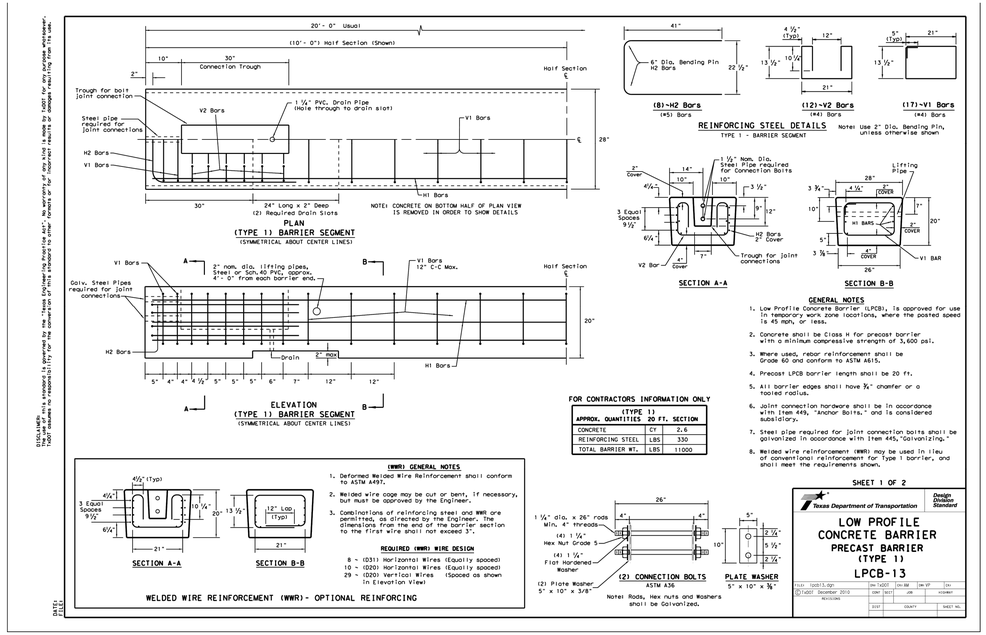

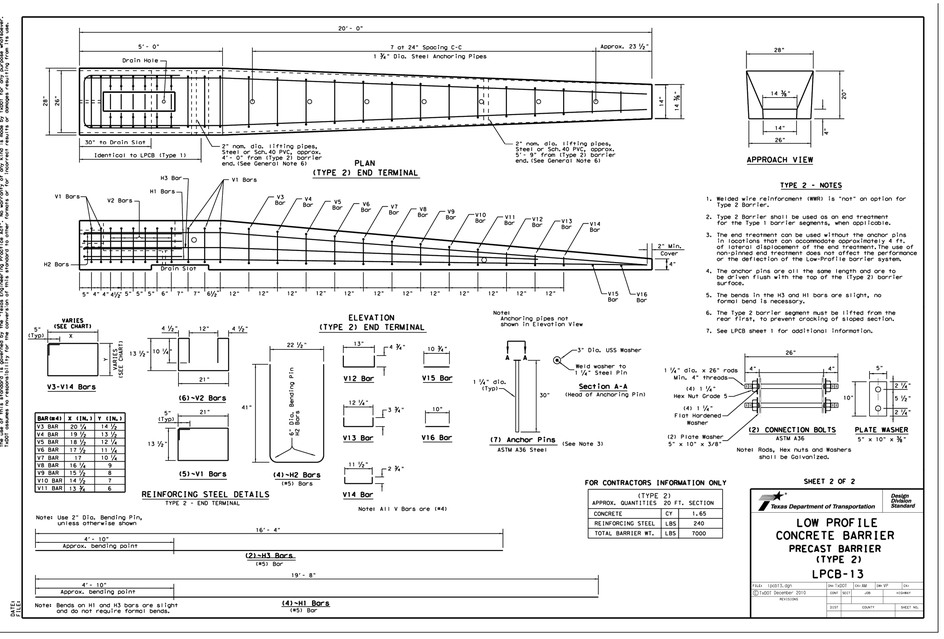

TYPE 2 - NOTES

1. Welded wire reinforcement (WWR) is "not" an option for Type 2 Barrier.
2. Type 2 Barrier shall be used as an end treatment for the Type 1 barrier segments, when applicable.
3. The end treatment can be used without the anchor pins in locations that can accommodate approximately 4'ft. of deflection. Installation of the end treatment without the use of anchored end treatment does not affect the performance or the deflection of the Low-Profile barrier system.
4. The anchor pins are all the same length and are to be driven flush with the top of the (Type 2) barrier surface.
5. The bends in the H3 and H1 bars are slight, no formal bend is necessary.
6. The Type 2 barrier segment must be lifted from the rear first, to prevent cracking of sloped section.
7. See LPCB sheet 1 for additional information.

FOR CONTRACTORS INFORMATION ONLY
(TYPE 2) APPROX. QUANTITIES 20 FT. SECTION
CONCRETE CY 1.65
REINFORCING STEEL LBS 240
TOTAL BARRIER WT. LBS 7000

SHEET 2 OF 2
Texas Department of Transportation
Design Division Standard
LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER (TYPE 2)
LPCB-13
FILE: lpcb13.dgn
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DATE FILED:

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P:(210) 681.2951 F: (210) 523.7112

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STATE OF TEXAS
ANDREW R. LOWRY
123410
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