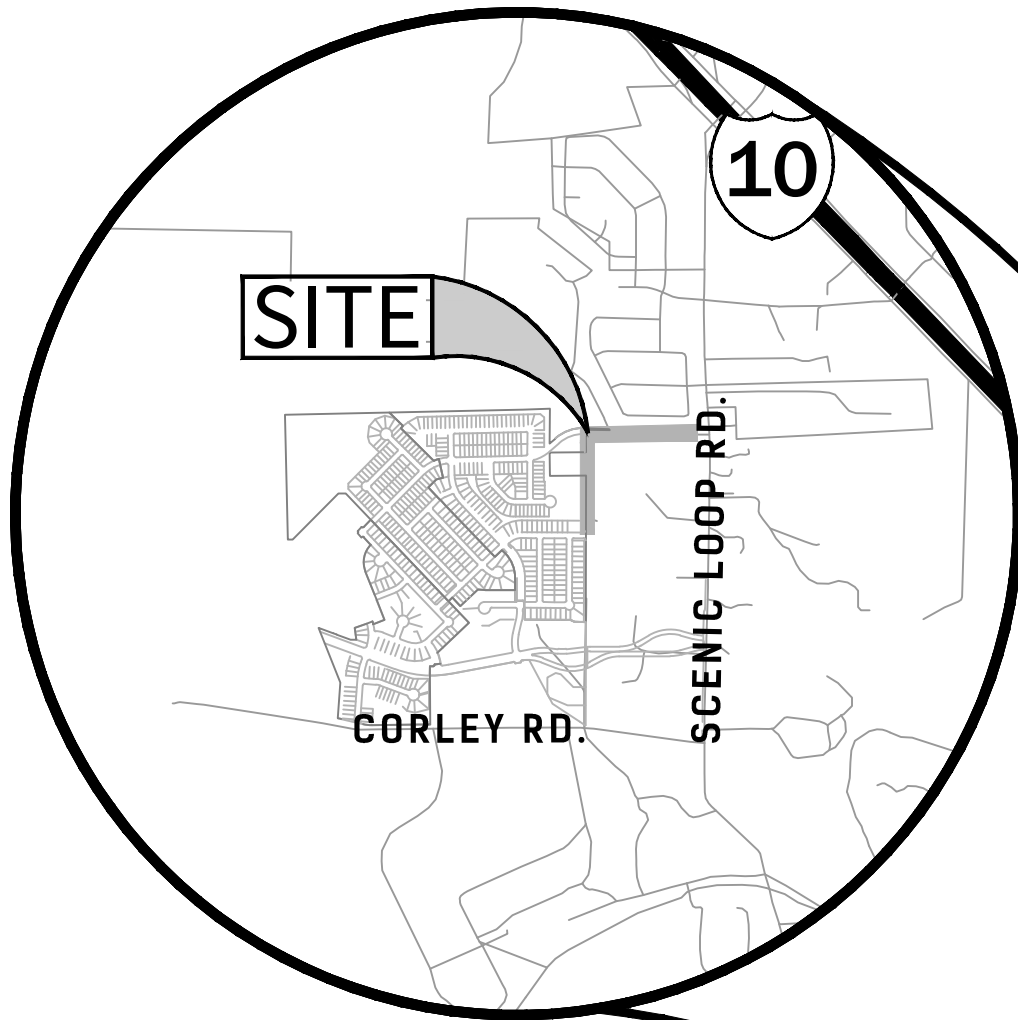
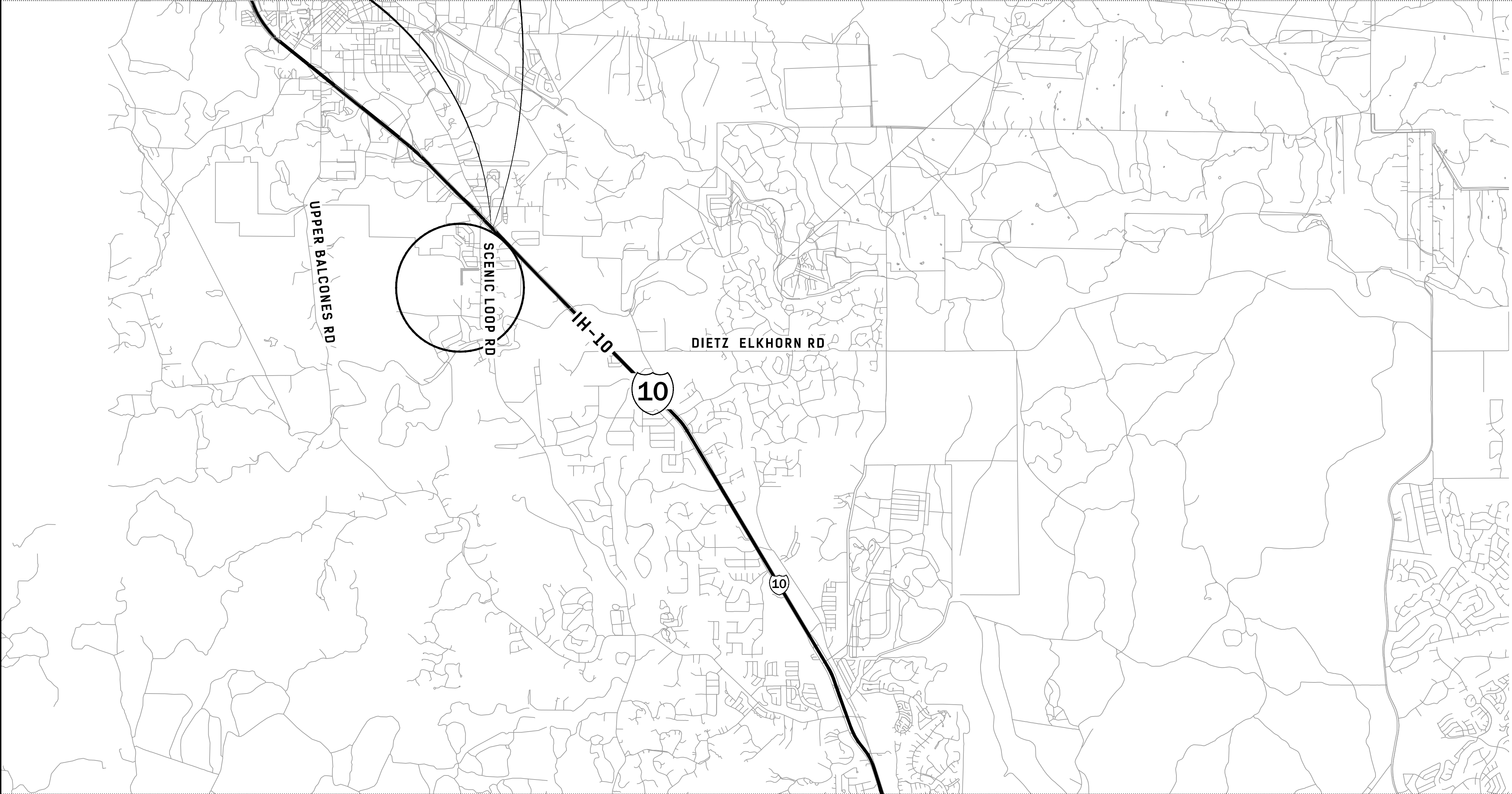


STREET AND DRAINAGE CONSTRUCTION PLANS

- C1 - TYPICAL STREET SECTIONS
- C2 - VALLERIE LANE EXISTING CONDITIONS PLAN
- C3 - VALLERIE LANE EXISTING CONDITIONS PLAN
- C4 - VALLERIE LANE N-S PLAN & PROFILE
- C5 - VALLERIE LANE E-W PLAN & PROFILE
- C6 - TRAFFIC SIGNAGE & STRIPING PLAN
- C7 - STREET DETAILS
- C8 - STANDARD PAVEMENT MARKINGS
- C9 - VALLERIE LANE N-S CULVERT PLAN & PROFILE
- C10 - VALLERIE LANE E-W CULVERT PLAN & PROFILE
- C11 - GRADING & DRAINAGE PLAN
- C12 - GRADING & DRAINAGE PLAN
- C13 - GRADING & DRAINAGE PLAN
- C14 - STORM WATER POLLUTION PREVENTION PLAN
- C15 - DRAINAGE DETAILS
- C16 - DRAINAGE DETAILS
- C17 - DRAINAGE DETAILS
- C18 - CONCRETE HEADWALL DETAIL
- C19 - METAL BEAM GUARD FENCE DETAIL



LOCATION MAP



VICINITY MAP

Reviewed by City of Boerne Development Services:

Approved for Construction	
Approved as Noted	X
Disapproved	
Incomplete - Not Reviewed	
Not Reviewed - Accepted FIO	

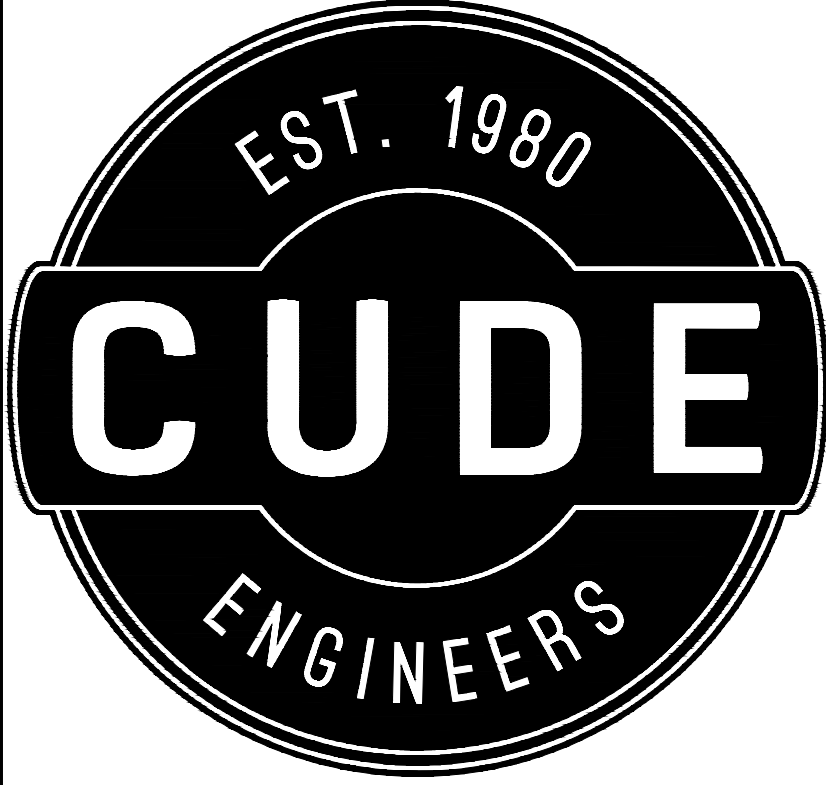
By: Cheryl J. Rogen Date: 6/19/2023

-offsite easements must be obtained prior to application of the construction release permit
-Obtain county approval prior to application of the construction release permit
-DA amendments/MOU must be finalized prior to approval of construction release permit

5th Review

CJR	CJR
JC	—
Maestas	✓

City of Boerne Review Notes:
1) Approval of these documents does not relieve the Engineer or Contractor from full compliance with the City of Boerne Standard Specifications or applicable City Ordinances.
2) Any changes to documents approved by the City of Boerne are required to be re-submitted for review and approval prior to proceeding with construction.



CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS
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 BOERNEBAK, LLC. AND THE CITY OF BOERNE, TEXAS EFFECTIVE NOVEMBER 26, 2019

IMPROVEMENTS SHOWN ON THIS CONSTRUCTION PLAN SET ARE BASED ON EXHIBIT G-4 AND TERMS OF THE DEVELOPMENT AGREEMENT

DEVELOPER:

KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

4122 Pond Hill Road, Suite 101

San Antonio, Texas 78231

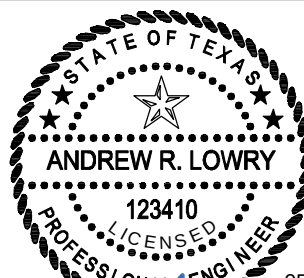
P:(210) 681.2951 F: (210) 523.7112

DRAWN BY
CA/CG/XV

CHECKED BY
XV/JC/DDC

DATE
03/27/2023

PROJECT NO.
03481.003

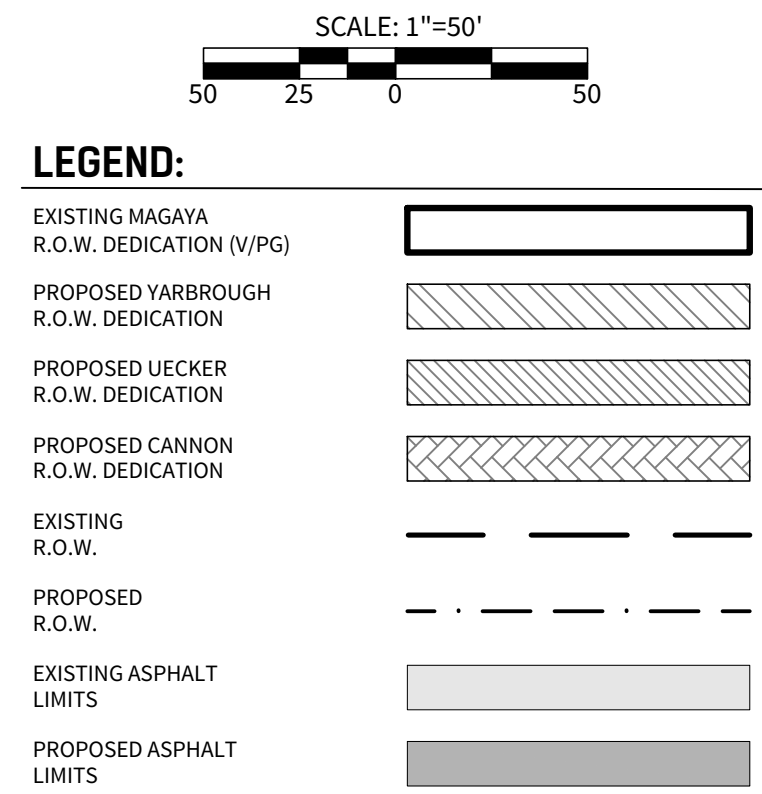
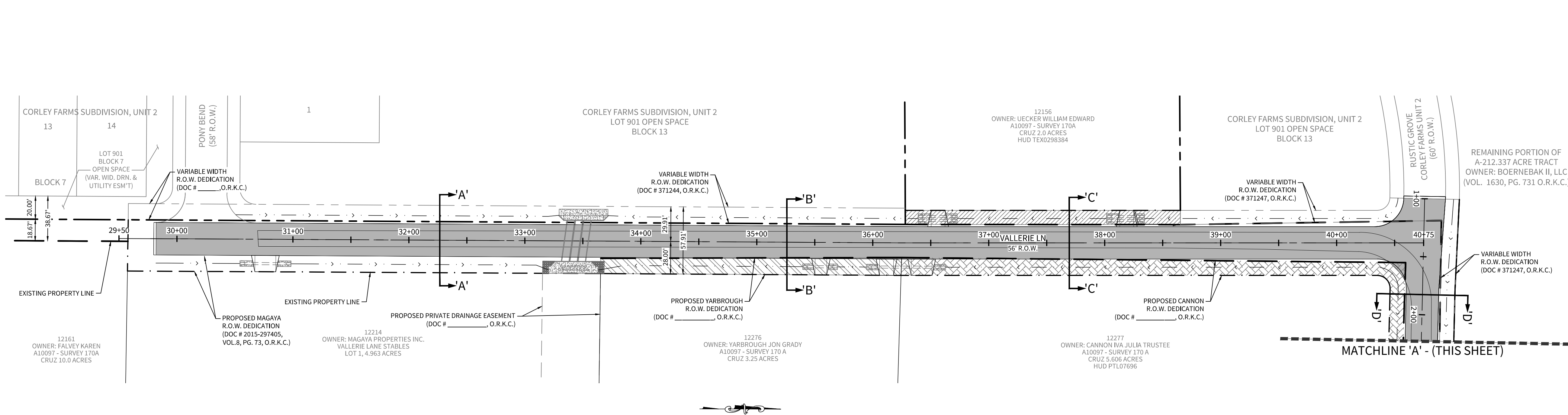


I HAVE REVIEWED THIS PLAN SET FOR QUALITY ASSURANCE AND QUALITY CONTROL PURPOSES.

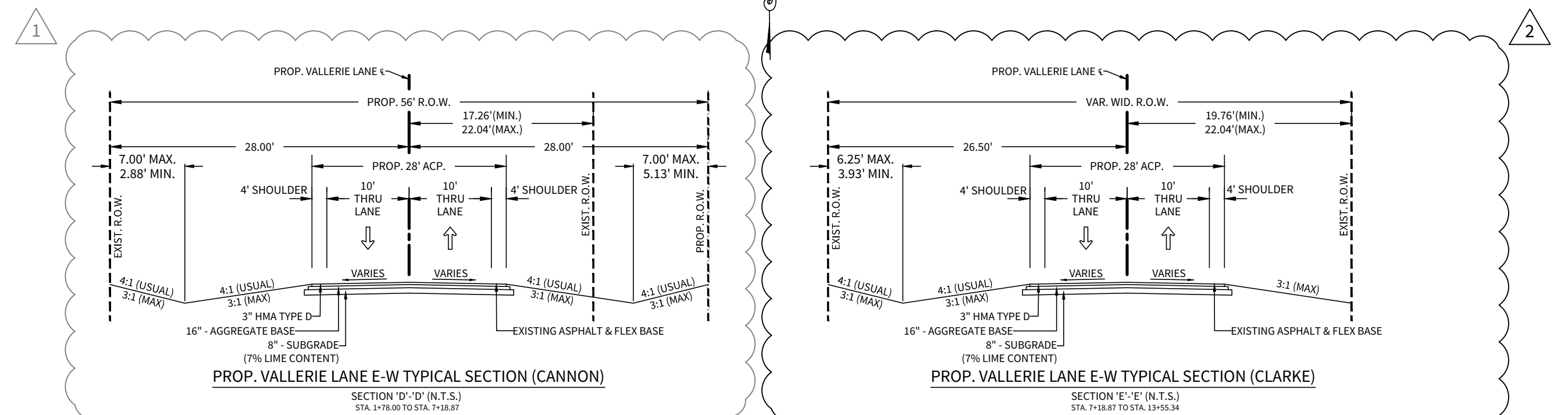
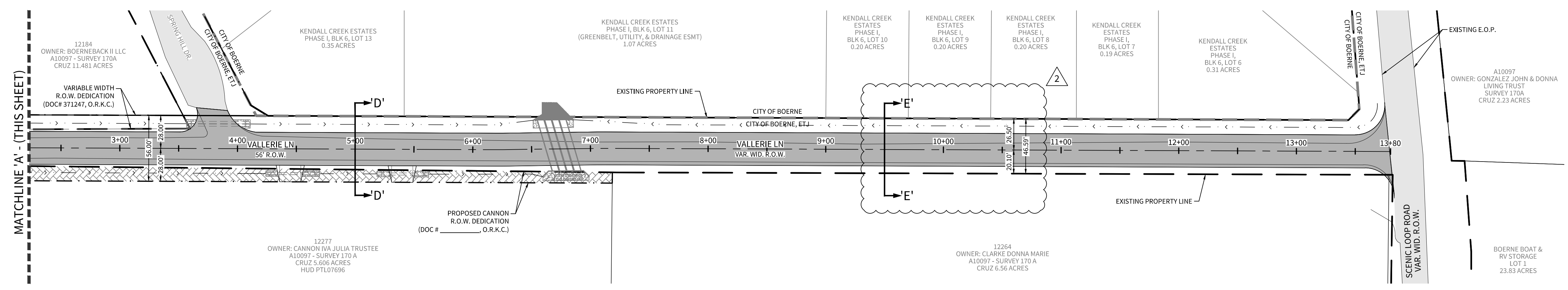
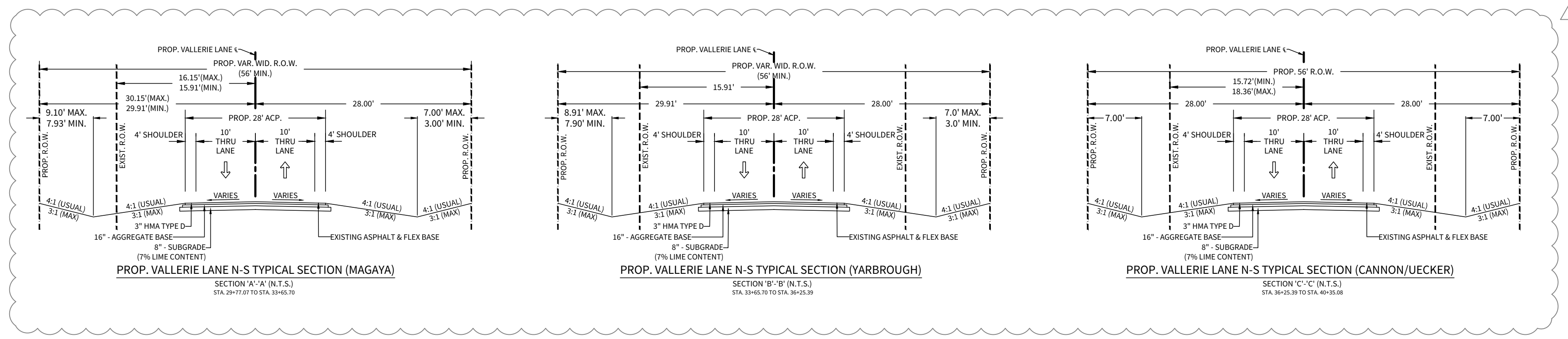


THIS PLAN SET HAS BEEN PREPARED, DESIGNED AND REVIEWED UNDER MY DIRECT SUPERVISION.

© 2022 M.W. CUDE ENGINEERS, LLC - THIS DOCUMENT, ANY PORTION THEREOF, AND ANY ASSOCIATED COPYRIGHTS SHALL REMAIN THE PROPERTY OF M.W. CUDE ENGINEERS, LLC. THIS DOCUMENT MAY NOT BE REPRODUCED, USED, OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS TO ANYONE FOR ANY OTHER ENDORSEMENT WITHOUT THE PRIOR WRITTEN CONSENT OF M.W. CUDE ENGINEERS, LLC. THIS DOCUMENT IS NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR USE OTHER THAN AS ORIGINALLY INTENDED BY M.W. CUDE ENGINEERS, LLC AND ANY UNAUTHORIZED REPRODUCTION, USE OR DISTRIBUTION OF THIS DOCUMENT WILL BE AT THE USER'S SOLE RISK. WITHOUT LIMITATION, NO WARRANTY IS MADE BY M.W. CUDE ENGINEERS, LLC, AND WILL BE USED AGAINST ANY AND ALL PARTIES TO THE FULLEST EXTENT PERMITTED BY LAW.



- CITY OF BOERNE
GENERAL CONSTRUCTION NOTES
- GENERAL NOTES
- CONSTRUCTION OF ALL FACILITIES TO BE DEDICATED TO THE PUBLIC SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
 - ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE INFRASTRUCTURE DRAWINGS REMAIN WITH THE ENGINEER OF RECORD. IN APPROVING THESE INFRASTRUCTURE DRAWINGS, THE CITY OF BOERNE MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.
 - PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE CITY OF BOERNE DEVELOPMENT SERVICES TO SCHEDULE A PRE-CONSTRUCTION MEETING.
 - THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION.
 - THE CONTRACTOR SHALL NOTIFY CITY OF BOERNE DEVELOPMENT SERVICES AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AT (830) 248-1538.
 - THE CONTRACTOR IS REQUIRED TO SCHEDULE ALL NECESSARY INSPECTIONS AT LEAST 24 HOURS IN ADVANCE.
 - THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES THE APPROVED INFRASTRUCTURE DRAWINGS, INCLUDING ALL APPROVED REVISIONS; THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION; ALL NECESSARY PERMITS; NOTICE OF INTENT; EROSION CONTROL PLANS; AND SWPPP. IT IS ENCOURAGED TO KEEP AN EXTRA COPY OF APPROVED SUBMITTALS ON-SITE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PUBLIC UTILITIES DURING CONSTRUCTION OF THE PROJECT.
 - THE CONTRACTOR SHALL DETERMINE THE DEPTH AND LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATING, TRENCHING, OR DRILLING AND SHALL BE REQUIRED TO TAKE ANY PRECAUTIONARY MEASURE TO PROTECT ALL LINES SHOWN AND/OR ANY OTHER UNDERGROUND UTILITIES NOT OF RECORD OR NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL PUBLIC AGENCIES AND FRANCHISE UTILITIES 48 HOURS PRIOR TO CONSTRUCTION (TEXAS 811 1-800-344-8377).
 - THE CONTRACTOR MUST CONTACT CITY OF BOERNE DEVELOPMENT SERVICES IMMEDIATELY IF ANY DAMAGE TO EXISTING UTILITIES OCCURS. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTORS OPERATIONS SHALL BE RESTORED AT THEIR EXPENSE.
 - ANY DISCREPANCIES ON THE INFRASTRUCTURE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER AND CITY OF BOERNE DEVELOPMENT SERVICES BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM THE INFRASTRUCTURE DRAWINGS ARE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE CITY.
 - STORMWATER MANAGEMENT FACILITIES SHALL BE PROVIDED PRIOR TO SITE CONSTRUCTION OR CLEARING AND BE MAINTAINED DURING THE PROGRESS OF CONSTRUCTION.
 - THE CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY. ALL WORK REQUIRED SHALL BE CONDUCTED IN CONFORMANCE WITH CURRENT SAFETY CODES AND STANDARDS WITH JURISDICTION OVER THIS PROJECT.
 - THE CONTRACTOR SHALL PROVIDE THE CITY ACCESS TO CITY PROPERTY, EASEMENTS, UTILITIES, AND FACILITIES AT ALL TIMES DURING CONSTRUCTION.
 - THE CONTRACTOR IS RESPONSIBLE FOR REQUIRED CONSTRUCTION SURVEYING AND STAKING AND SHALL NOTIFY THE CITY OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH ANY WORK.
 - THE CONTRACTOR SHALL VERIFY BENCHMARKS AND DATUMS PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL SURVEY MARKERS INCLUDING IRON RODS, PROPERTY CORNERS, OR SURVEY MONUMENTS WITHIN THE LIMITS OF THE CONSTRUCTION SITE AND OUTSIDE THE RIGHT-OF-WAY DURING CONSTRUCTION. ANY SURVEY MARKERS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AT THEIR OWN COST.
 - ALL CONCRETE SHALL BE PLANT MIXED MEETING CITY SPECIFICATIONS WITH A MINIMUM OF 4,000 PSI AT 28 DAYS COMPRESSIVE STRENGTH UNLESS OTHERWISE SPECIFIED.
 - THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW (MINIMUM ONE WAY TRAFFIC) AND TRAFFIC MOVEMENTS. CONTRACTOR IS RESPONSIBLE FOR PRODUCING A TRAFFIC CONTROL PLAN AS REQUIRED BY THE CITY OF BOERNE AND ALL RIGHT OF WAY PERMITS NEEDED.



CUDEENGINEERS.COM

EST. 1980
CUDE
ENGINEERS

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

**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

PROPOSED TYPICAL STREET SECTIONS
& RIGHT OF WAY DEDICATION MAP

DATE
03/27/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

REVISIONS

1.	2023-02-20 - REVISED TYPICAL STREET CROSS SECTIONS, ADDED C&G GENERAL CONSTRUCTION NOTES.
2.	2023-03-27 - REVISED RIGHT OF WAY ON SECTION E-E.
3.	
4.	
5.	
6.	
7.	
8.	
9.	

STATE OF TEXAS
JAVIER CASTELLO
122170
PROFESSIONAL ENGINEER
03/28/2023

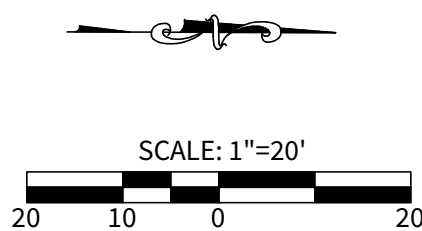
CUDE ENGINEERS
TBPELS No. 10048500

C1



- # NOTES:
1. 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 AND RELOCATE IF A ALIGNMENT CHANGES. CONTRACTOR SHALL COORDINATE EXISTING UNDERGROUND CABLE RELOCATION IF A ALIGNMENT CHANGES. CONTRACTOR SHALL COORDINATE EXISTING UNDERGROUND CABLE RELOCATION IF A ALIGNMENT CHANGES. CONTRACTOR SHALL COORDINATE EXISTING UNDERGROUND CABLE RELOCATION IF A ALIGNMENT CHANGES.
 2. CONTRACTOR TO REMOVE AND RELOCATE EXISTING SIGNS AND FENCES AS NECESSARY TO EXISTING OR BETTER CONDITION.
 3. DOUBLE 4" YELLOW STRIPING LIMITS WILL BE FOR MILLED AND OVERLAID ASPHALT PAVEMENT AREAS AS SHOWN.
 4. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW (MINIMUM ONE WAY TRAFFIC) AND TRAFFIC MOVEMENTS. CONTRACTOR IS RESPONSIBLE FOR PRODUCING A TRAFFIC CONTROL PLAN AS REQUIRED BY THE CITY OF BOZEMAN AND KENNEDY COUNTY. THE CONTRACTOR SHALL OBTAIN ANY AND ALL RIGHT OF WAY PERMITS NEEDED.
 5. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITH IN THE RIGHT OF WAY OR UTILITY EASEMENTS.
 6. CONTRACTOR SHALL GRADE DURING AND WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.
 7. 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.
 8. IF ANY DRAINAGE OR UTILITY CONFLICT ARISE DURING CONSTRUCTION, CONTRACTOR IS TO NOTIFY ENGINEER IMMEDIATELY.
 9. CONTRACTOR IS REQUIRED TO COORDINATE DRIVEWAY ACCESS AND REQUIRED IMPROVEMENT WORK TIMES WITH EXISTING PROPERTY OWNERS.
 10. THE CONTRACTOR IS REQUIRED TO INSTALL AND MONITOR SWPPP MEASURES EVERY 2 WEEKS OR AFTER EVERY RAIN EVENT.
 11. 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.

PROPERTY LINE
EXISTING OVERHEAD ELECTRIC
EXISTING POWERPOLE
EXISTING SIGN
EXISTING FENCE
EXISTING PAVEMENT
EXISTING FORCE MAIN
EXISTING DRIVEWAY
EXISTING TREE
PRESERVED TREE

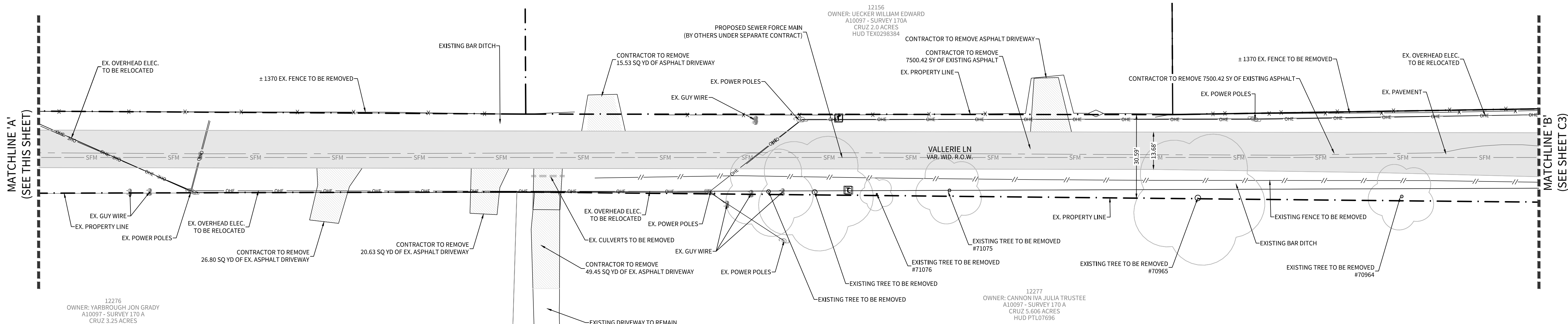


CAUTION!!

THE CONTRACTOR SHALL BE AWARE THAT A 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.

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 PROGRAM 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 CONSULTANT SHALL PRESENT AND DISCUSS THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

The site plan for Lot 901, an open space of 3.25 acres, is bounded by Future Corley Farms Subdivision, Unit 2 to the north and east, and the Falvey Karen Subdivision (Document #: 363812, O.R.K.C.) to the south. The plan shows a proposed sewer force main (by others) and a proposed Magaya R.O.W. dedication (Doc# 202200291405, Vol. 8, Pg. 73, O.R.K.C.) running through the center. A contractor is to remove 48.87 sq yd of ex. asphalt driveway and 7500.42 sq yd of existing asphalt. The plan also shows a proposed private drainage easement (Doc# _____, O.R.K.C.) and a proposed Magaya R.O.W. dedication (Doc# 202200291405, Vol. 8, Pg. 73, O.R.K.C.). Existing features include a power pole/telecom/cable, signage, a bar ditch, and a gate. The plan also shows the removal of a 1370 ex. fence and a 405 l.f. of wire fence. The matchline 'A' is located on the right side of the plan.



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

CORLEY FARMS OFFSITE VALLERIE LANE IMPROVEMENTS

VALLERIE LANE EXISTING CONDITIONS PLAN

DATE
02/20/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

REVISIONS

1.
2.
3.
4.
5.
6.
7.
8.
9.

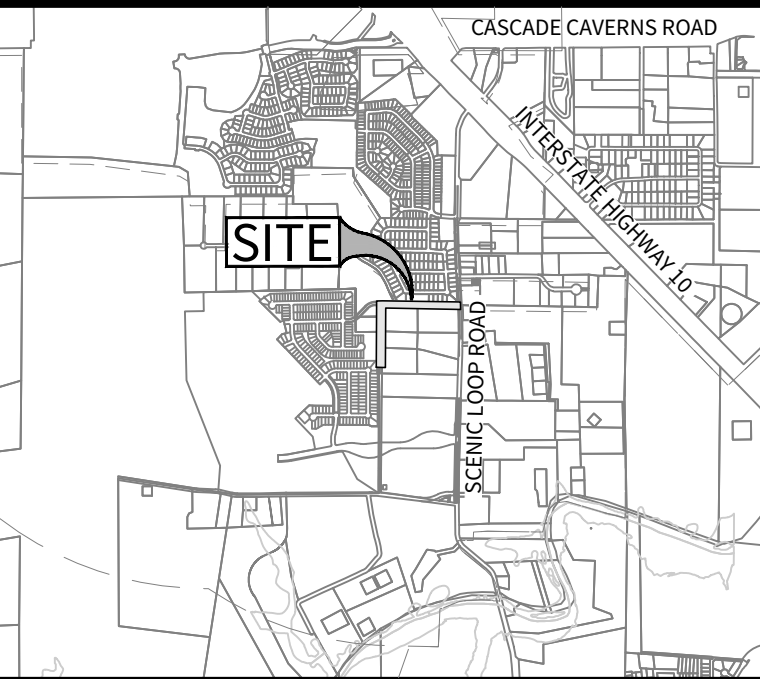


02/21/2023

CUDE ENGINEERS
TBPELS No. 10048500

C2

© 2022 M.W. CUDE ENGINEERS, LLC - THIS DOCUMENT, ANY PORTION THEREOF, AND ANY ASSOCIATED COPYRIGHTS SHALL REMAIN THE PROPERTY OF M.W. CUDE ENGINEERS, LLC. THIS DOCUMENT MAY NOT BE REPRODUCED, USED, OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS TO ANYONE FOR ANY OTHER ENDORSEMENT WITHOUT THE PRIOR WRITTEN CONSENT OF, AND ADAPTATION BY, M.W. CUDE ENGINEERS, LLC. THIS DOCUMENT IS NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR USE OTHER THAN AS ORIGINALLY INTENDED BY M.W. CUDE ENGINEERS, LLC AND ANY UNAUTHORIZED REPRODUCTION, USE, OR DISTRIBUTION OF SAID DOCUMENTS WILL BE AT THE INFRINGING PARTY'S SOLE RISK, WITHOUT ANY LIABILITY TO M.W. CUDE ENGINEERS, LLC, AND WILL BE USED AGAINST ANY AND ALL PARTIES TO THE FULLEST EXTENT PERMITTED BY LAW.



LOCATION MAP
N.T.S.

DEVELOPER
KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

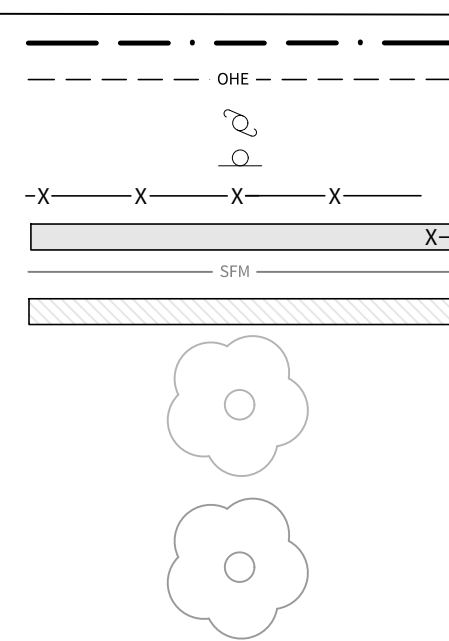
- NOTES:**
1. THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND CABLE INDICATED ON THESE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE, AND ARE NOT GUARANTEED TO BE ACCURATE. THE CONTRACTOR SHOULD CALL FOR LOCATES THROUGH THE "ONE CALL" UTILITY LOCATE SERVICE (1-800-344-8377) 48 HOURS PRIOR TO CONSTRUCTION/EXCAVATION 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.
 2. CONTRACTOR TO REMOVE AND RELOCATE EXISTING SIGNS AND FENCES AS NECESSARY TO EXISTING OR BETTER CONDITION.
 3. DOUBLE 4" YELLOW STRIPING LIMITS WILL BE FOR MILLED AND OVERLAID ASPHALT PAVEMENT AREAS AS SHOWN.
 4. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW (MINIMUM ONE WAY TRAFFIC) AND TRAFFIC MOVEMENTS. CONTRACTOR 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.
 5. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY OR UTILITY EASEMENTS.
 6. CONTRACTOR SHALL GRADE RIGHT OF WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.
 7. CONTRACTOR TO PRESERVE EXISTING DRAINAGE PATTERNS AND CONDITIONS WITHIN MILL AND OVERLAY RIGHT OF WAY.
 8. 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.
 9. IF ANY DRAINAGE OR UTILITY CONFLICT ARISE DURING CONSTRUCTION, CONTRACTOR IS TO NOTIFY ENGINEER IMMEDIATELY.
 10. CONTRACTOR IS REQUIRED TO COORDINATE DRIVEWAY ACCESS AND REQUIRED IMPROVEMENT WORK TIMES WITH EXISTING PROPERTY OWNERS.
 11. THE CONTRACTOR IS REQUIRED TO INSTALL AND MONITOR SWPPP MEASURES EVERY 2 WEEKS OR AFTER EVERY RAIN EVENT.
 12. 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.

LEGEND:

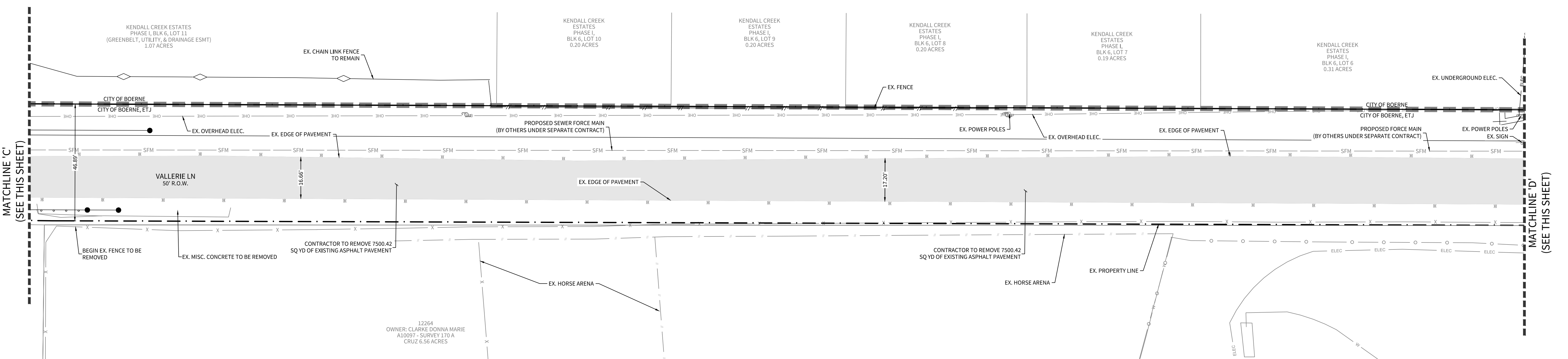
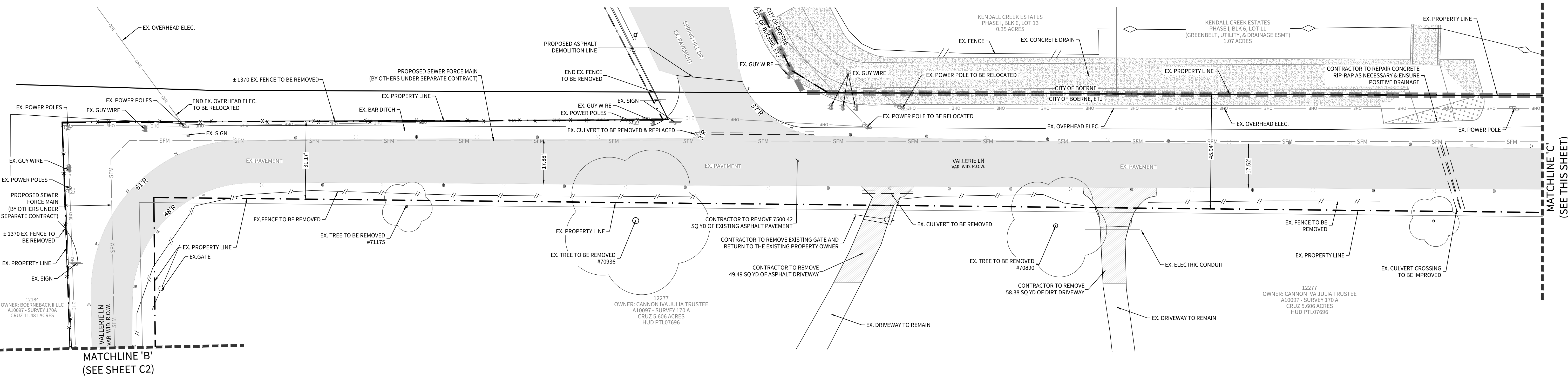
PROPERTY LINE
EXISTING OVERHEAD ELECTRIC
EXISTING POWERPOLE
EXISTING SIGN
EXISTING FENCE
EXISTING PAVEMENT
EXISTING FORCE MAIN
EXISTING DRIVEWAY

EXISTING TREE

PRESERVED TREE

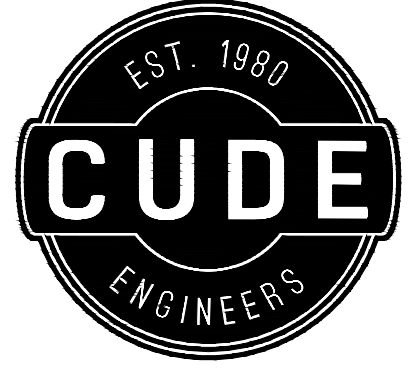


VALLERIE LANE E-W EXISTING CONDITIONS



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.

CUDEENGINEERS.COM



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

CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS
VALLERIE LANE EXISTING CONDITIONS PLAN

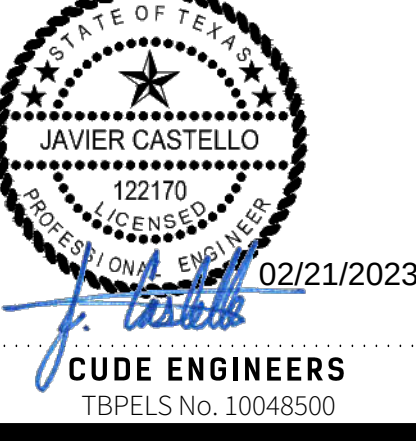
DATE
02/20/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

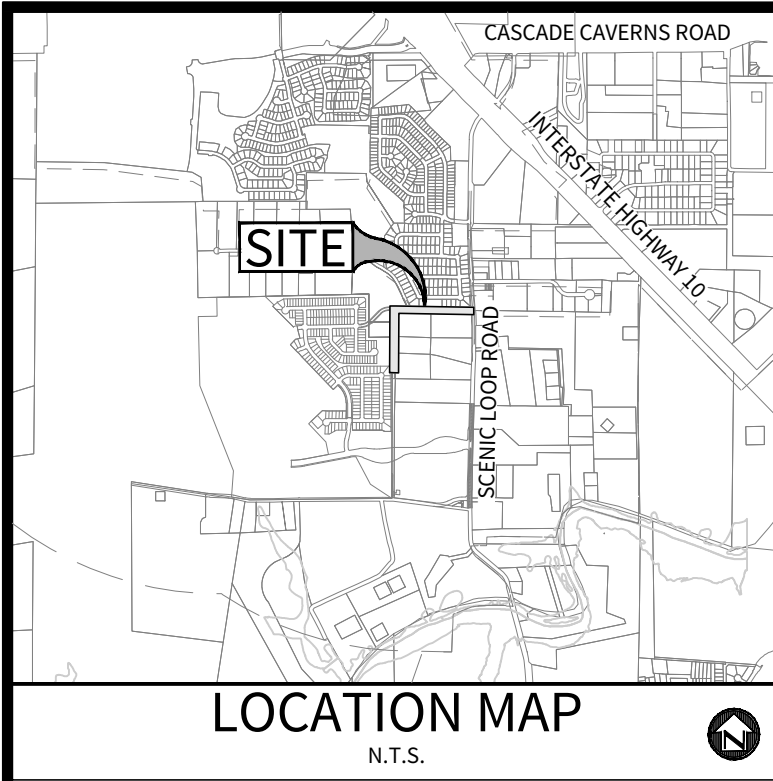
REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.
9.



CUDE ENGINEERS
TBPELS No. 10048500

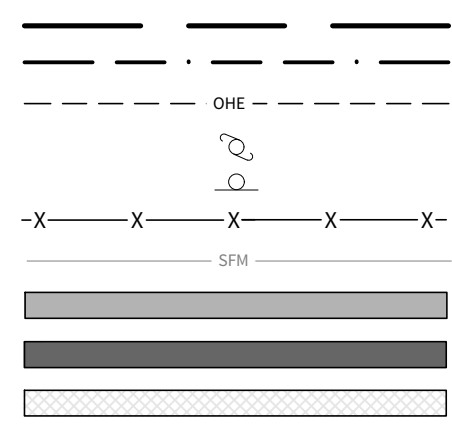
C3

© 2022 M.W. CUDE ENGINEERS, LLC - THIS DOCUMENT, ANY PORTION THEREOF, AND ANY ASSOCIATED COPYRIGHTS SHALL REMAIN THE PROPERTY OF M.W. CUDE ENGINEERS, LLC. THIS DOCUMENT MAY NOT BE REPRODUCED, USED, OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS TO ANYONE FOR ANY OTHER ENDORSEMENT WITHOUT THE PRIOR WRITTEN CONSENT OF, AND ADAPTATION BY, M.W. CUDE ENGINEERS, LLC. THIS DOCUMENT IS NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR USE OTHER THAN AS ORIGINALLY INTENDED BY M.W. CUDE ENGINEERS, LLC AND ANY UNAUTHORIZED REPRODUCTION, USE OR DISTRIBUTION OF THIS DOCUMENT WILL BE AT THE INFRINGING PARTY'S SOLE RISK, WITHOUT ANY LIABILITY TO M.W. CUDE ENGINEERS, LLC, AND WILL BE USED AGAINST ANY AND ALL PARTIES TO THE FULLEST EXTENT PERMITTED BY LAW.



LEGEND:

PROPERTY LINE
R.O.W. DEDICATION LINE
EXISTING OVERHEAD ELECTRIC
EXISTING POWERPOLE
EXISTING SIGN
EXISTING FENCE
EXISTING FORCE MAIN
PROPOSED PAVEMENT
PROPOSED DRIVEWAY
PROPOSED CULVERT

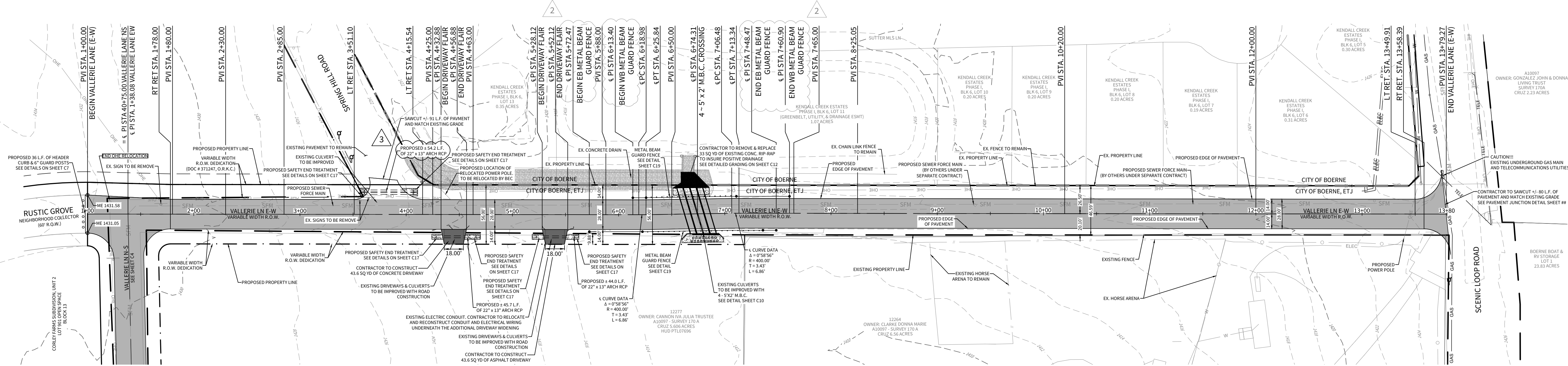
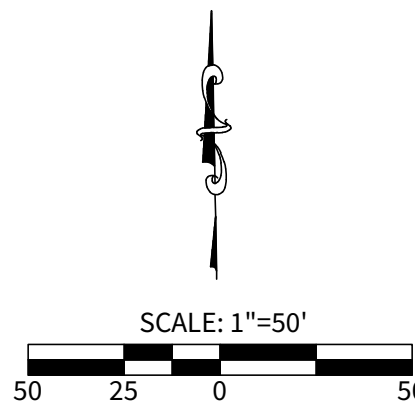


CAUTION!!

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.

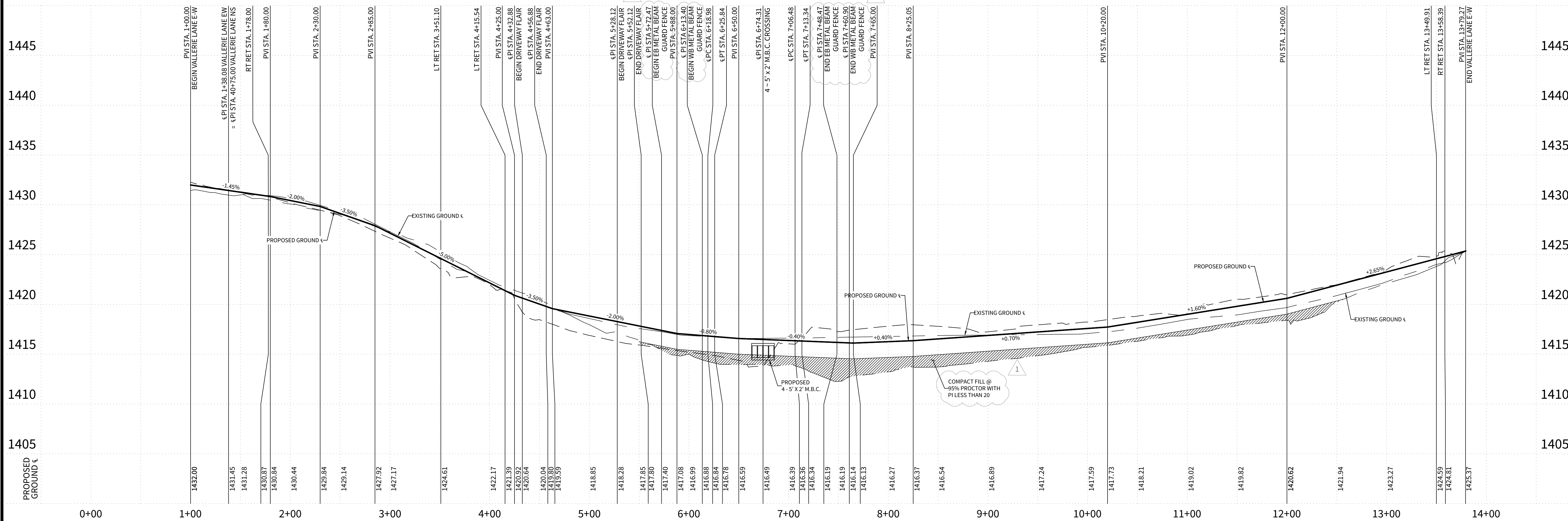
TRENCH EXCAVATION PROTECTION

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 SITES) 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.

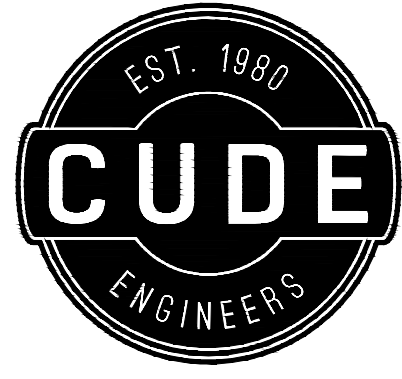


PROPOSED VALLERIE LANE E-W

STA. 1+00.00 TO END



CUDEENGINEERS.COM



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

CORLEY FARMS OFFSITE VALLERIE LANE IMPROVEMENTS

VALLERIE LANE E-W PLAN & PROFILE

DATE
05/03/2023
PROJECT NO.
03481.003

DRAWN BY
CA/CG
CHECKED BY
XV/AL

REVISIONS

- 2023-02-20 - ADDED COMPACT FILL CALL OUT
- 2023-03-27 - ADDED MREG BEGINNING AND END
- 2023-04-19 - REVISED CULVERT LENGTH.
-
-
-
-
-
-
-

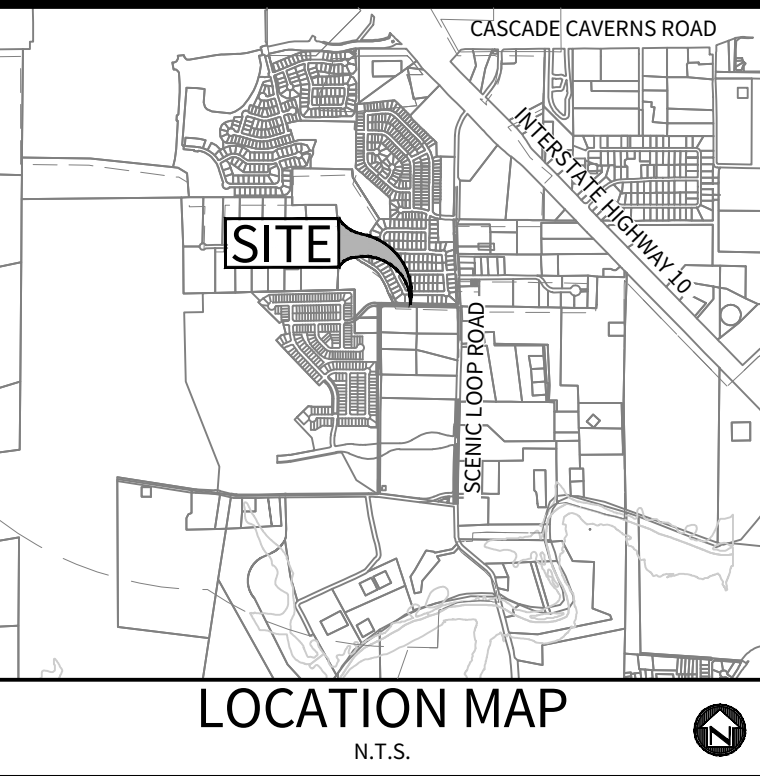


CUDE ENGINEERS

TBPELS No. 10048500

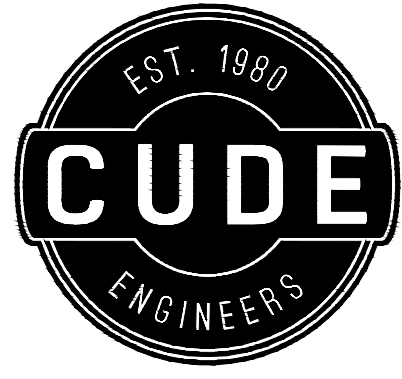
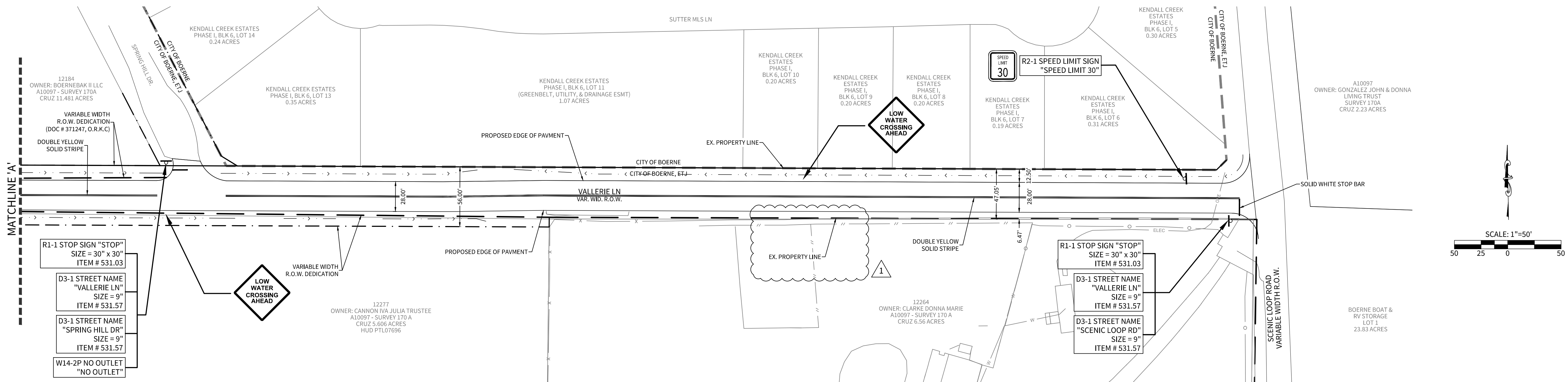
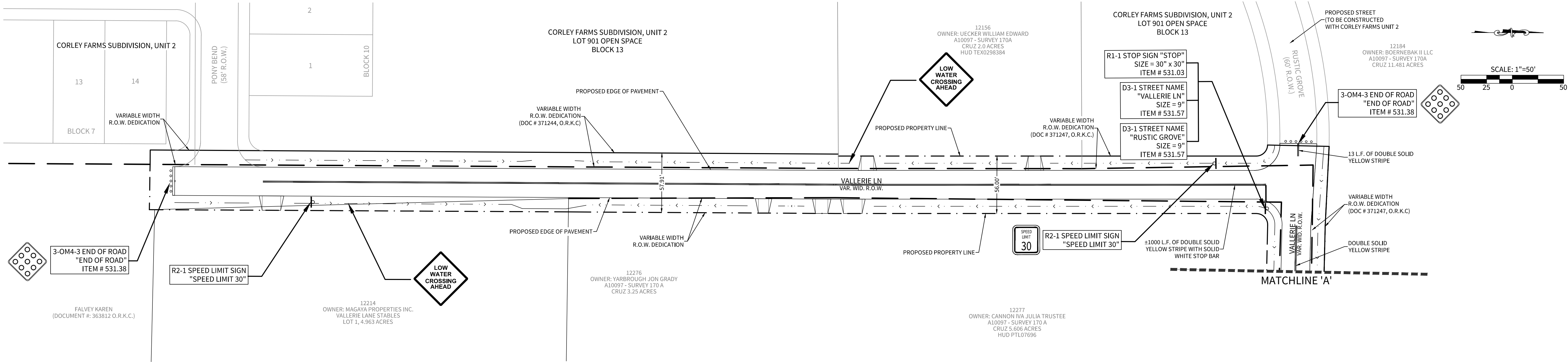
C5

© 2023 M.W. CUDE ENGINEERS, L.L.C. - THIS DOCUMENT, ANY PORTION THEREOF, AND ANY ASSOCIATED COPYRIGHTS SHALL REMAIN THE PROPERTY OF M.W. CUDE ENGINEERS, L.L.C. THIS DOCUMENT MAY NOT BE REPRODUCED, USED, OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS TO ANYONE FOR ANY OTHER ENDORSEMENT WITHOUT THE PRIOR WRITTEN CONSENT OF, AND ADAPTATION BY, M.W. CUDE ENGINEERS, L.L.C. THIS DOCUMENT IS NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR USE OTHER THAN AS ORIGINALLY INTENDED BY M.W. CUDE ENGINEERS, L.L.C. AND ANY UNAUTHORIZED REPRODUCTION, USE, OR DISTRIBUTION OF SAID DOCUMENTS WILL BE AT THE INFRINGING PARTY'S SOLE RISK, WITHOUT ANY LIABILITY TO M.W. CUDE ENGINEERS, L.L.C., AND WILL BE USED AGAINST ANY AND ALL PARTIES TO THE GREATEST EXTENT PERMITTED BY LAW.



DEVELOPER
KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112



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

**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

TRAFFIC SIGNAGE & STRIPING PLAN

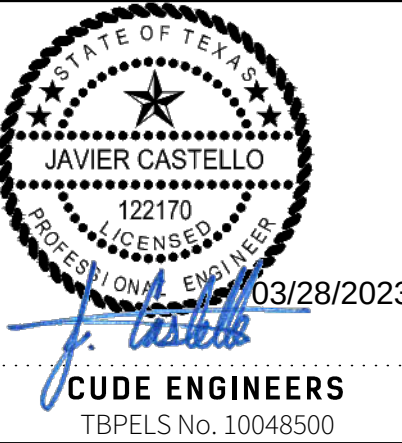
DATE
03/27/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

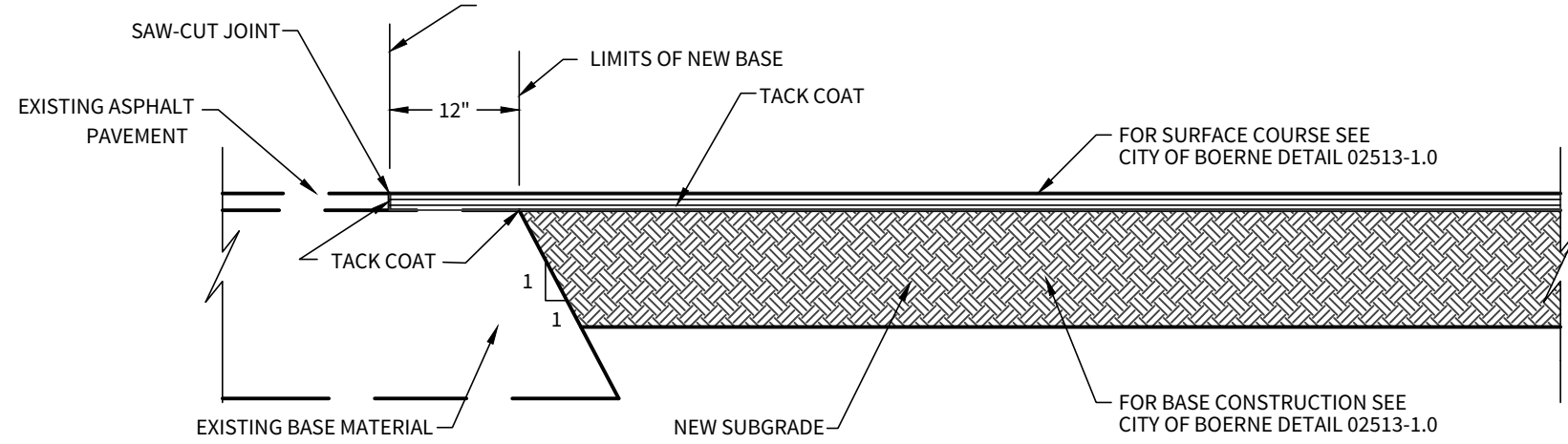
REVISIONS	
1.	2023-03-27 - REVISED RIGHT OF WAY.
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	



TBPELS No. 10048500

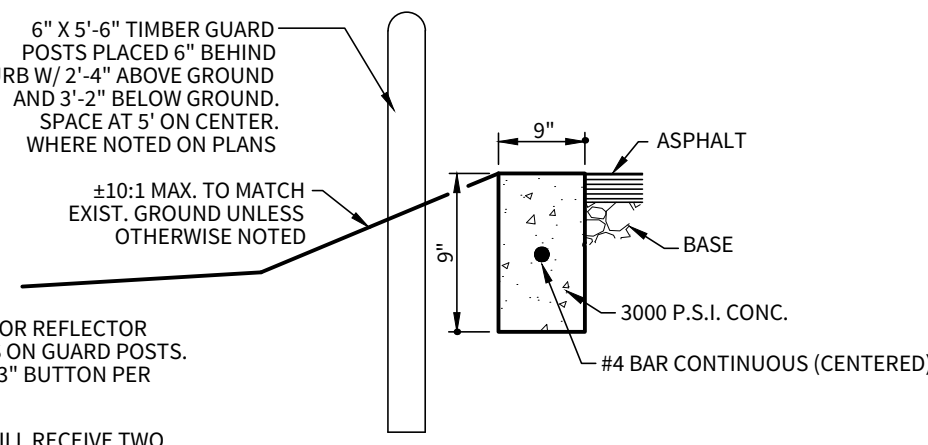
C6

2022 A.W. CUDE ENGINEERS, LLC - THIS DOCUMENT, ANY PORTION THEREOF, AND ANY ASSOCIATED COPYRIGHTS SHALL REMAIN THE PROPERTY OF A.W. CUDE ENGINEERS, LLC. THIS DOCUMENT MAY NOT BE REPRODUCED, USED, OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS TO ANYONE FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF, AND ADAPTATION BY, A.W. CUDE ENGINEERS, LLC. THIS DOCUMENT IS NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR USE OTHER THAN AS ORIGINALLY INTENDED BY A.W. CUDE ENGINEERS, LLC AND ANY UNAUTHORIZED REPRODUCTION, USE, OR DISTRIBUTION OF SAID DOCUMENTS WILL BE AT THE INFRINGING PARTY'S SOLE RISK, WITHOUT ANY LIABILITY TO A.W. CUDE ENGINEERS, LLC, AND WILL BE USED AGAINST ANY AND ALL PARTIES TO THE FULLEST EXTENT PERMITTED BY LAW.



PAVEMENT JUNCTION DETAILS

N.T.S.

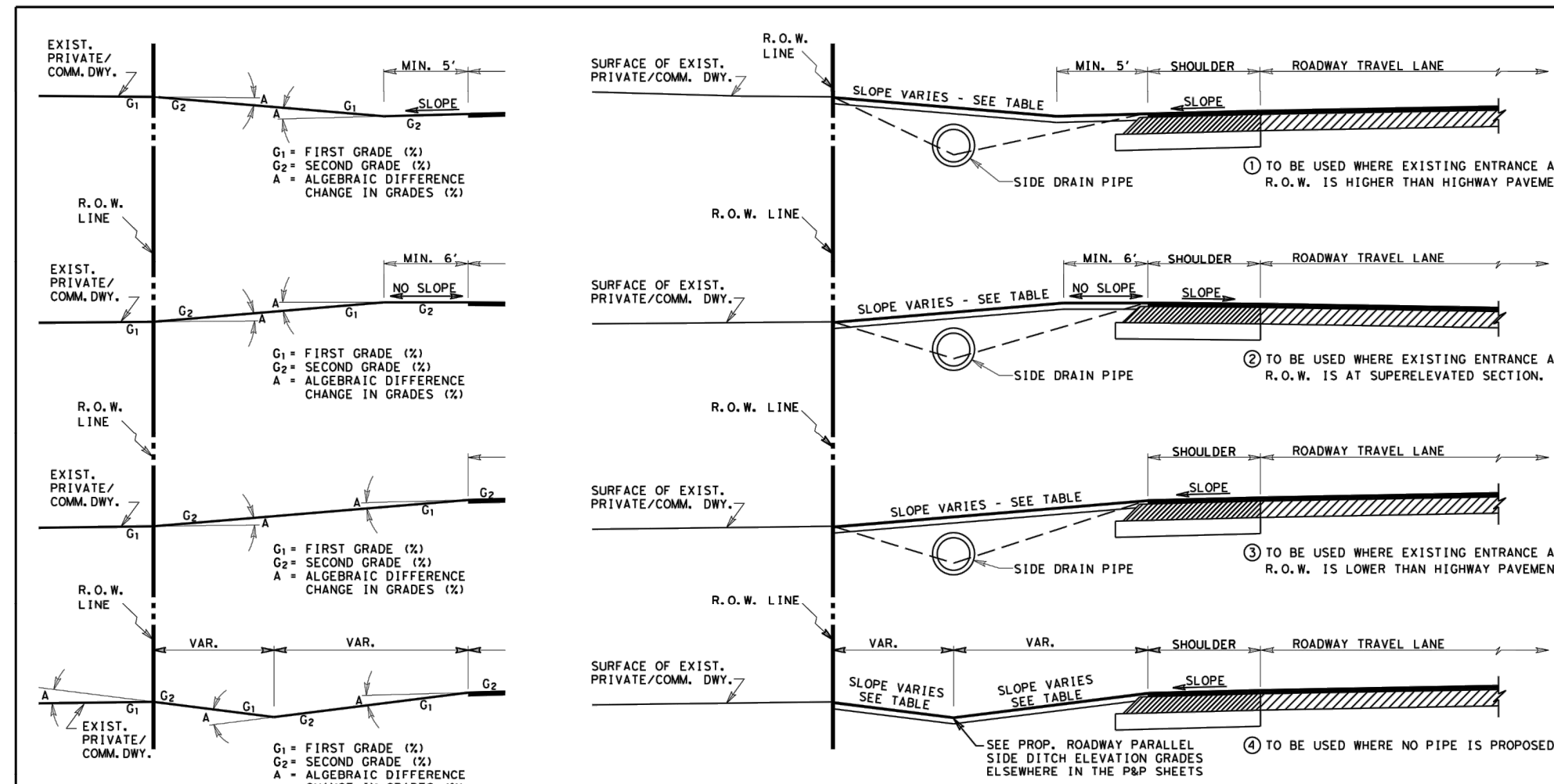


HEADER CURB & GUARD POST DETAIL

N.T.S.

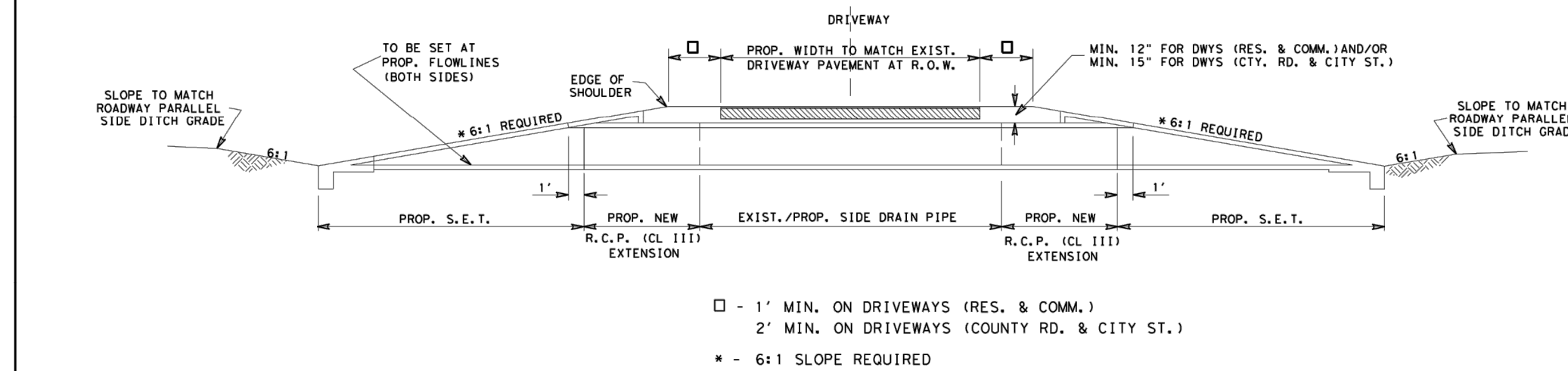
NOTES

- 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.
- 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.
- 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.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.
- PAVEMENT SECTIONS ARE SUBJECT TO CHANGE DUE TO RETESTING OF SOIL AFTER STREET EXCAVATION HAS BEEN DONE TO TOP OF CURB.
- 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.
- 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 THAN THREE (3) INCHES IN MAXIMUM DIMENSION.

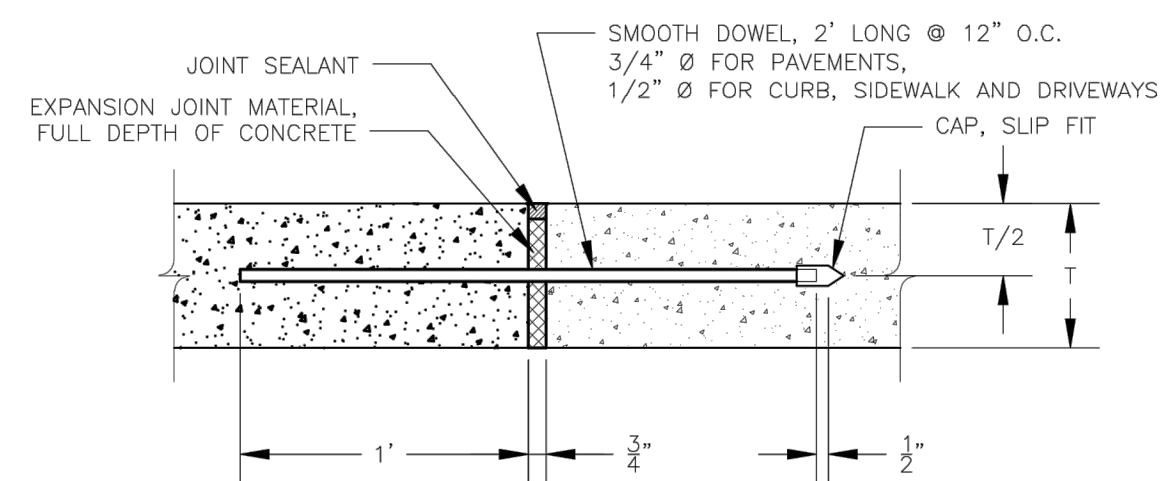


TYPICAL ENTRANCE PROFILE FOR DRIVEWAYS W/OUT C&G

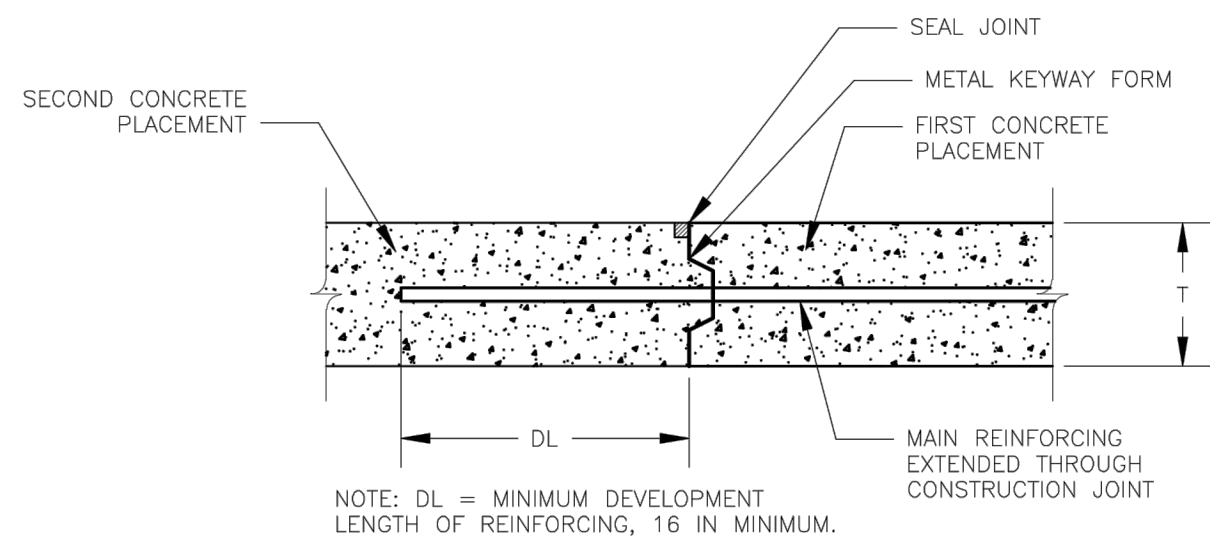
PROPOSED DRIVEWAY SLOPE TABLE	PROP. DWY ALGEBRAIC DIFFERENCE TABLE
COMMERCIAL DRIVEWAYS # 12:1 MAX. RESIDENTIAL DRIVEWAYS # 6:1 MAX.	COMMERCIAL DRIVEWAYS # A = 6% MAX. RESIDENTIAL DRIVEWAYS # A = 6% MAX.



REV. 1/17		DRIVEWAY.DGN	
DATE	STATE AID PROJECT NO.	FILE NO.	1001
STATE	COUNTY	CONC.	SECT.
TEXAS	21		

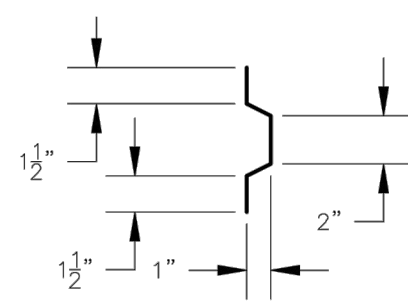


EXPANSION JOINT



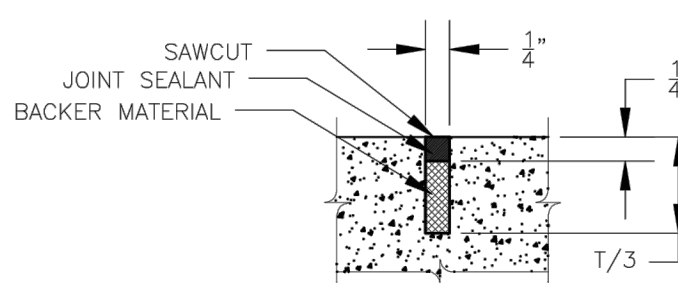
CONSTRUCTION JOINT

NOTE: USE KEYED JOINTS WITH METAL KEYWAY FORM FOR CONSTRUCTION JOINTS. FOR SIDEWALKS, DRIVEWAYS AND CURBS ONLY; AS AN ALTERNATE TO THE METAL KEYWAY FORM, ROUGHEN CONCRETE OF ADJOINING FIRST POUR AND APPLY AN ADHESIVE BONDING AGENT TO ROUGHENED CONCRETE.



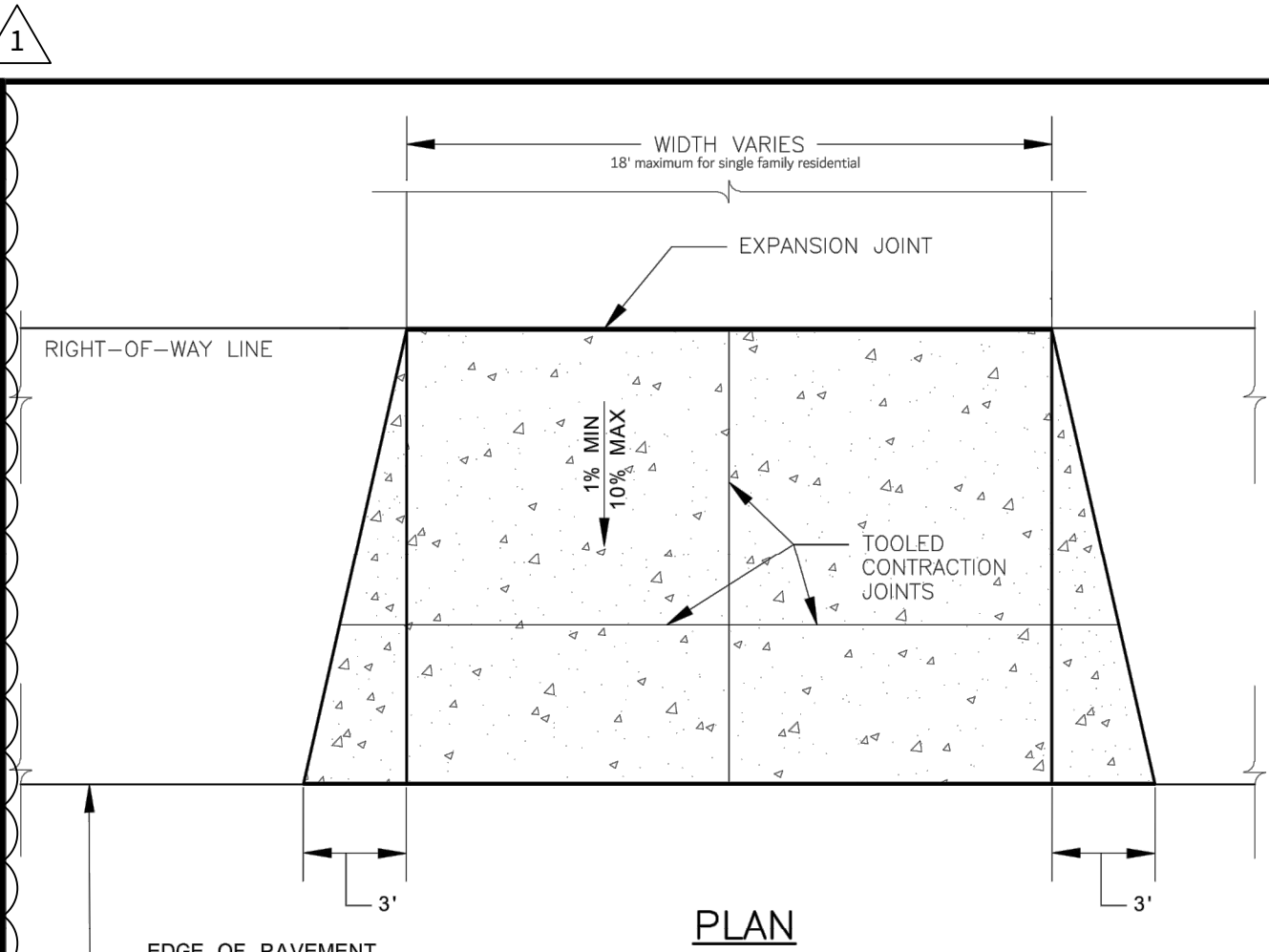
NOTE: DIMENSIONS ARE NOMINAL, ±1/8\"/>

METAL KEYWAY FORM SECTION

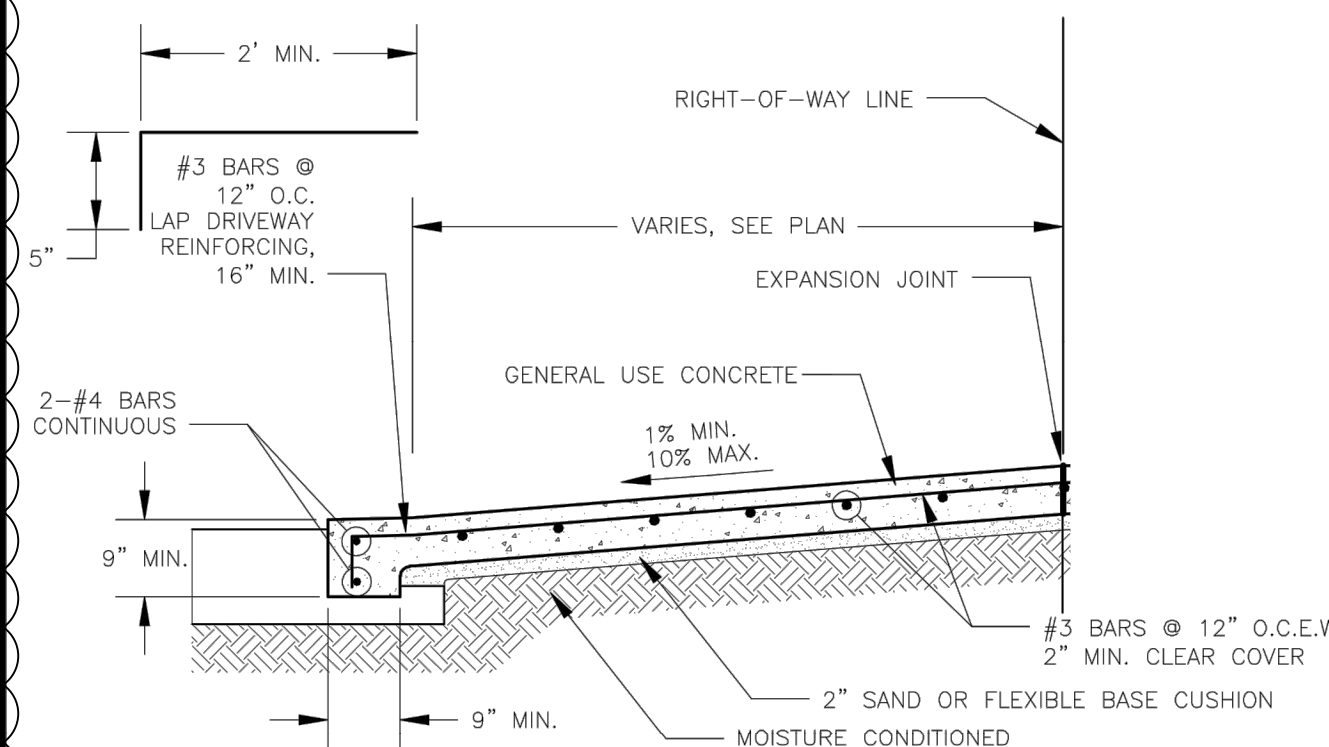


SAWED CONTRACTION JOINT

CITY OF BOERNE			
CONCRETE JOINTS			
SCALE:	N.T.S.	DRAWING No.	02502-1.2
DATE:	JULY 2015		



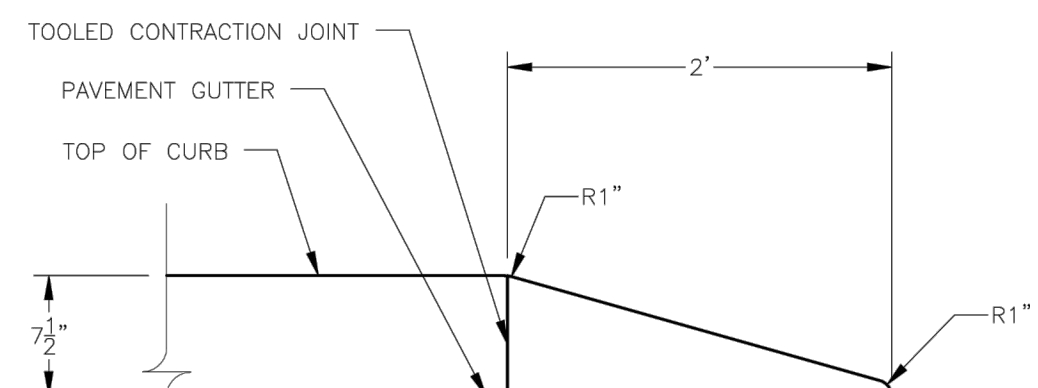
PLAN



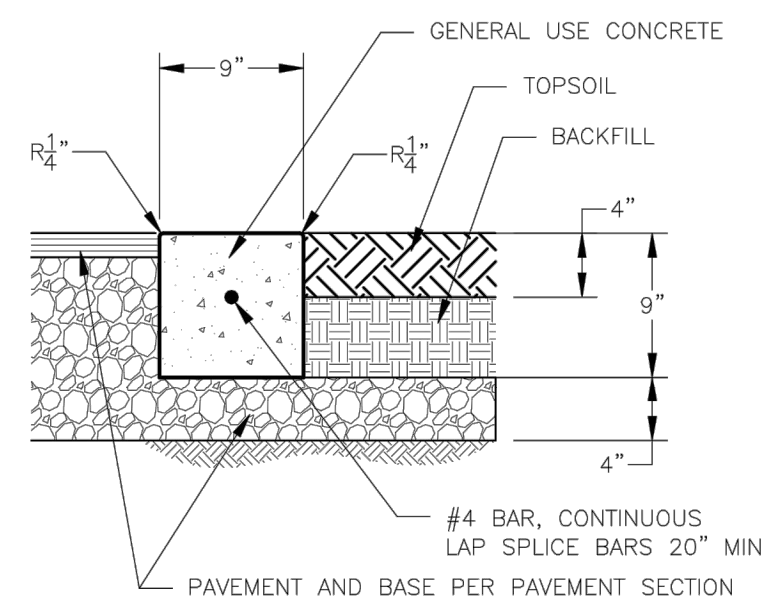
SECTION

NOTE: THE HEADER CURB CONSTRUCTION MAY BE DELETED WHEN CONSTRUCTING DRIVEWAY ADJACENT TO AN EXISTING HEADER CURB THAT IS A MINIMUM OF 9\"/>

CITY OF BOERNE			
CONCRETE DRIVEWAY APPROACH			
SCALE:	N.T.S.	DRAWING No.	02502-3.1
DATE:	JULY 2015		

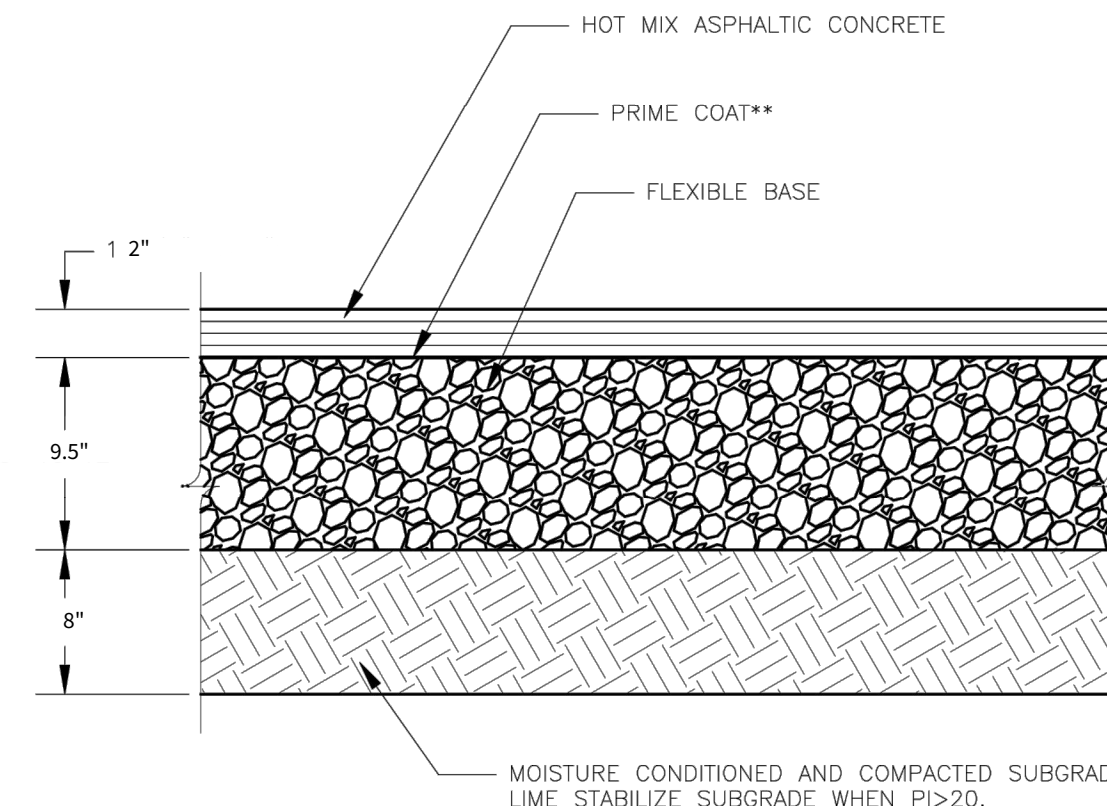


CURB TERMINATION ELEVATION



HEADER CURB SECTION

CITY OF BOERNE			
CONCRETE CURB TERMINATION AND HEADER CURB			
SCALE:	N.T.S.	DRAWING No.	02502-2.1
DATE:	JULY 2015		

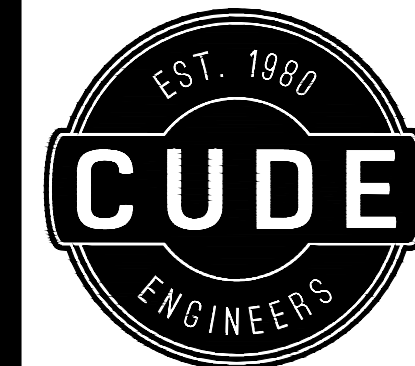


*THICKNESS VARIES DEPENDING UPON PAVEMENT DESIGN. REFER TO PLAN X-SECTIONS AND DETAILS FOR SPECIFIED PAVEMENT DESIGN.

**PROVIDE TACK COAT IN ADDITION TO PRIME COAT IMMEDIATELY PRIOR TO PLACING ASPHALTIC CONCRETE AS NEEDED TO SEAL AND ENSURE ADHERENCE.

CITY OF BOERNE			
ASPHALTIC CONCRETE PAVEMENT SECTION			
SCALE:	N.T.S.	DRAWING No.	02513-1.0
DATE:	JULY 2015		

CUDEENGINEERS.COM



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

CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS

STREET DETAILS

DATE
02/20/2023
PROJECT NO.
03481.003
DRAWN BY
CA/CG
CHECKED BY
XV/AL

REVISIONS
1. 2023-02-20 - ADDED CONCRETE JOINT DETAIL
2.
3.
4.
5.
6.
7.
8.
9.



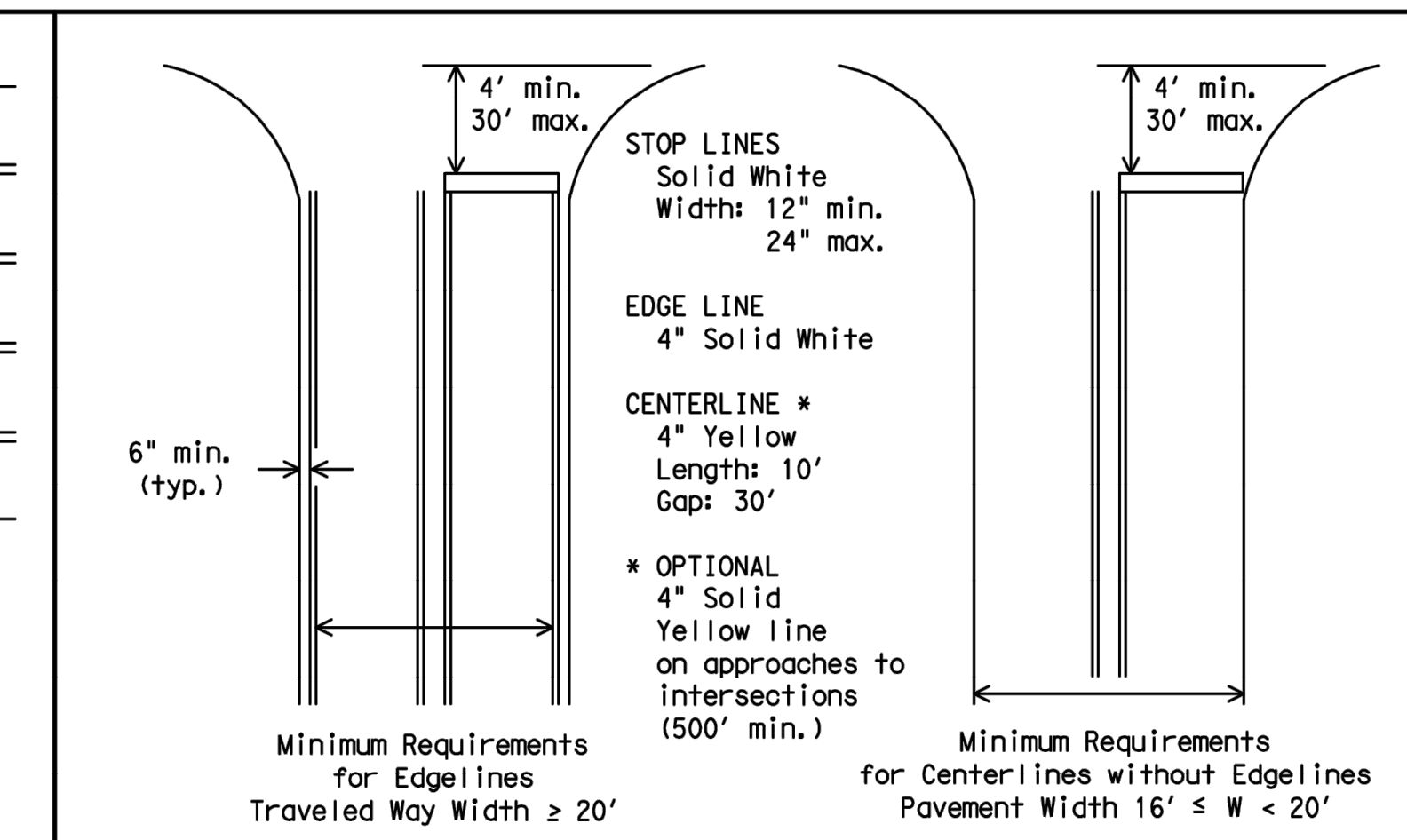
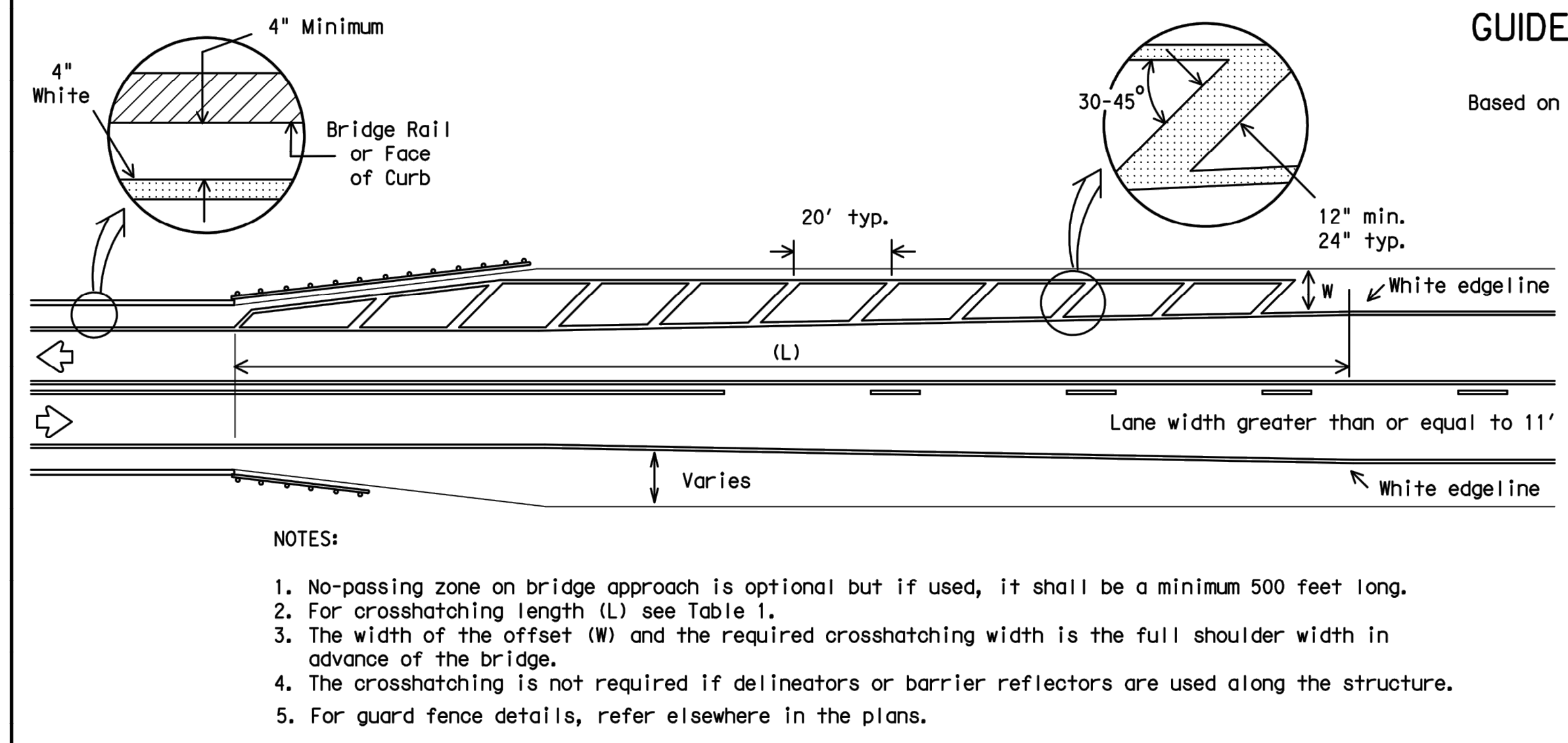
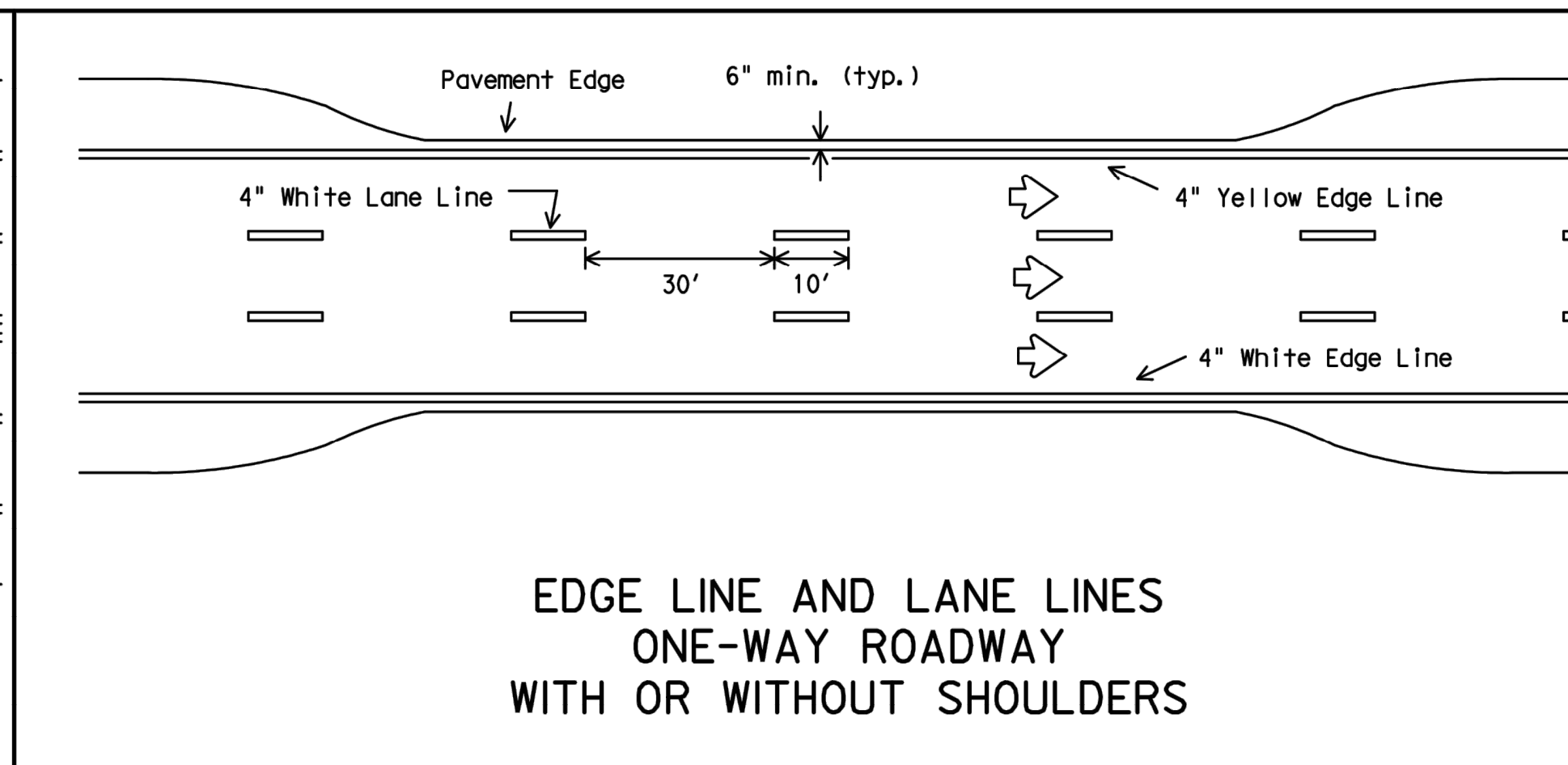
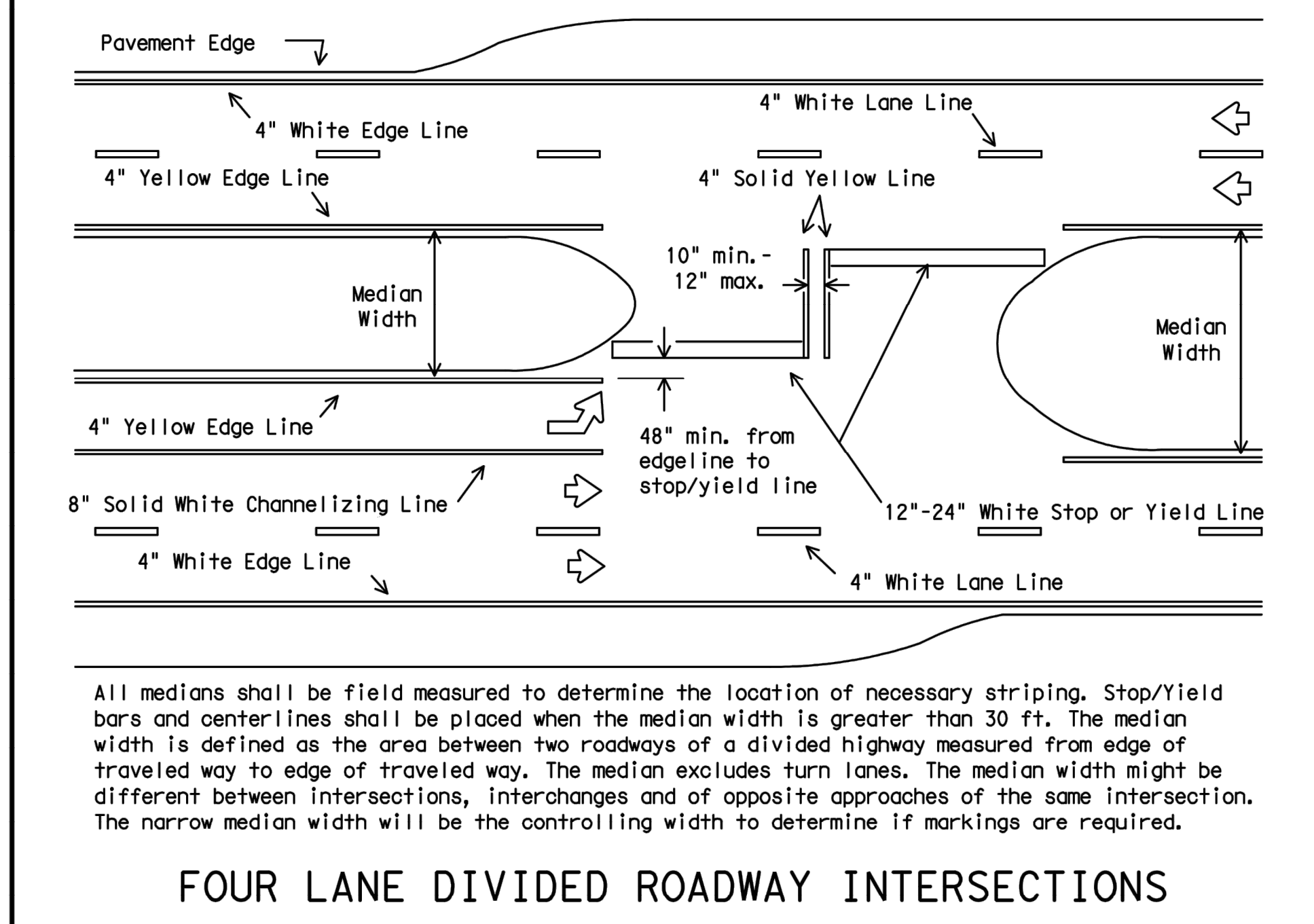
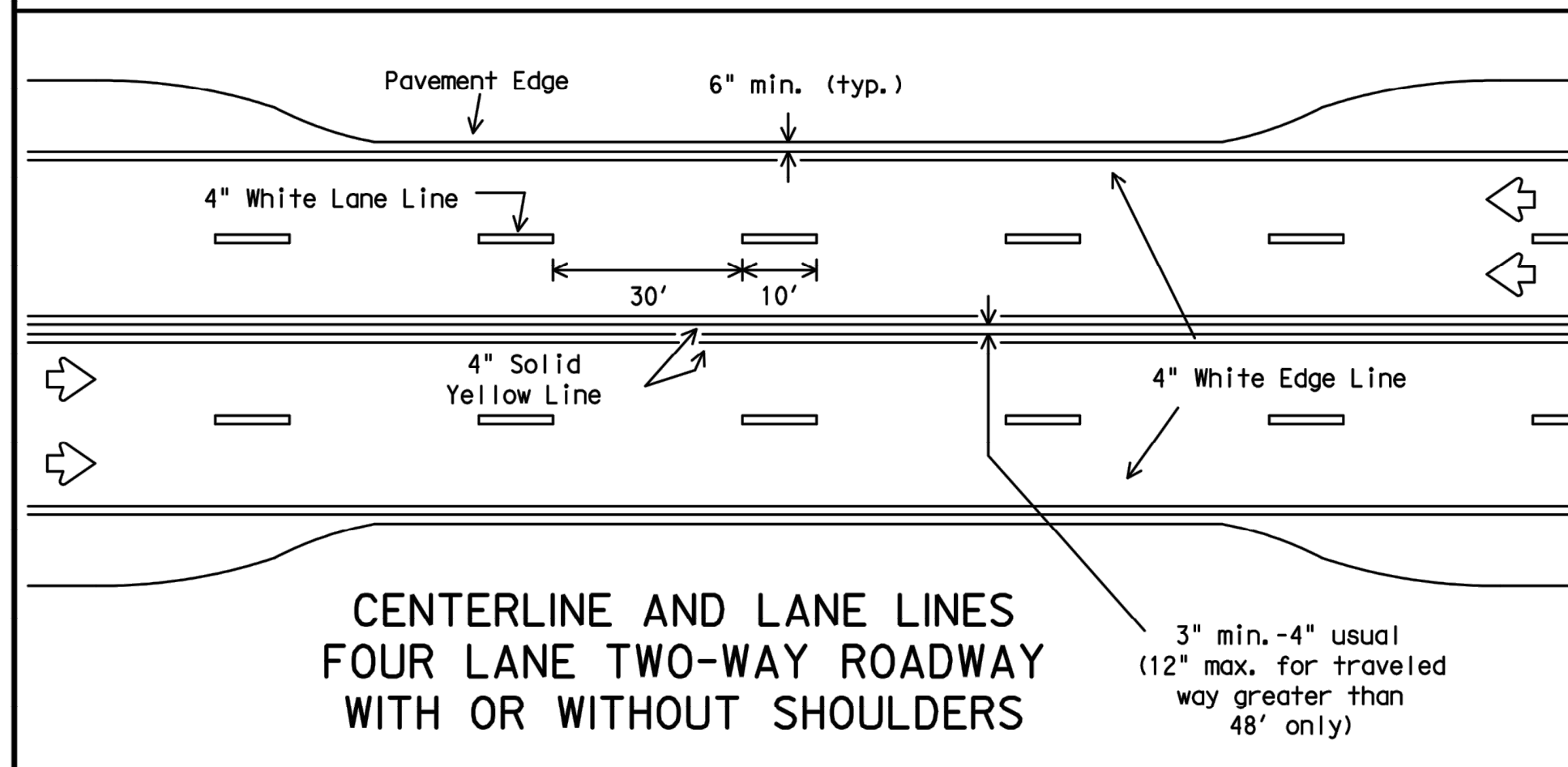
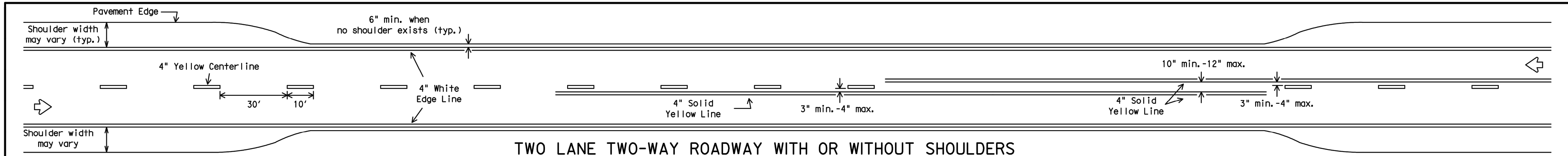
CUDE ENGINEERS
TBPELS No. 10048500

C7

© 2022 A.W. CUDE ENGINEERS, LLC. THIS DOCUMENT, ANY PORTION THEREOF, AND ANY ASSOCIATED COPYRIGHTS SHALL REMAIN THE PROPERTY OF A.W. CUDE ENGINEERS, LLC. THIS DOCUMENT MAY NOT BE REPRODUCED, USED, OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS TO ANYONE FOR ANY OTHER ENDORSEMENT WITHOUT THE PRIOR WRITTEN CONSENT OF, AND ADAPTATION BY, A.W. CUDE ENGINEERS, LLC. THIS DOCUMENT IS NOT INTENDED FOR USE OTHER THAN AS ORIGINALLY INTENDED BY A.W. CUDE ENGINEERS, LLC AND ANY UNAUTHORIZED REPRODUCTION, USE OR DISTRIBUTION OF SAID DOCUMENTS WILL BE AT THE INFRINGING PARTY'S SOLE RISK, WITHOUT ANY LIABILITY TO A.W. CUDE ENGINEERS, LLC, AND WILL BE USED AGAINST ANY AND ALL PARTIES TO THE FULLEST EXTENT PERMITTED BY LAW.

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by the State of Texas or by A.W. CUDE ENGINEERS, LLC for any results or damages resulting from its use.

DATE: FILE:



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

TABLE 1 - TYPICAL LENGTH (L)

Posted Speed	Formula
≤ 40	$L = \frac{WS^2}{60}$
≥ 45	$L = WS$

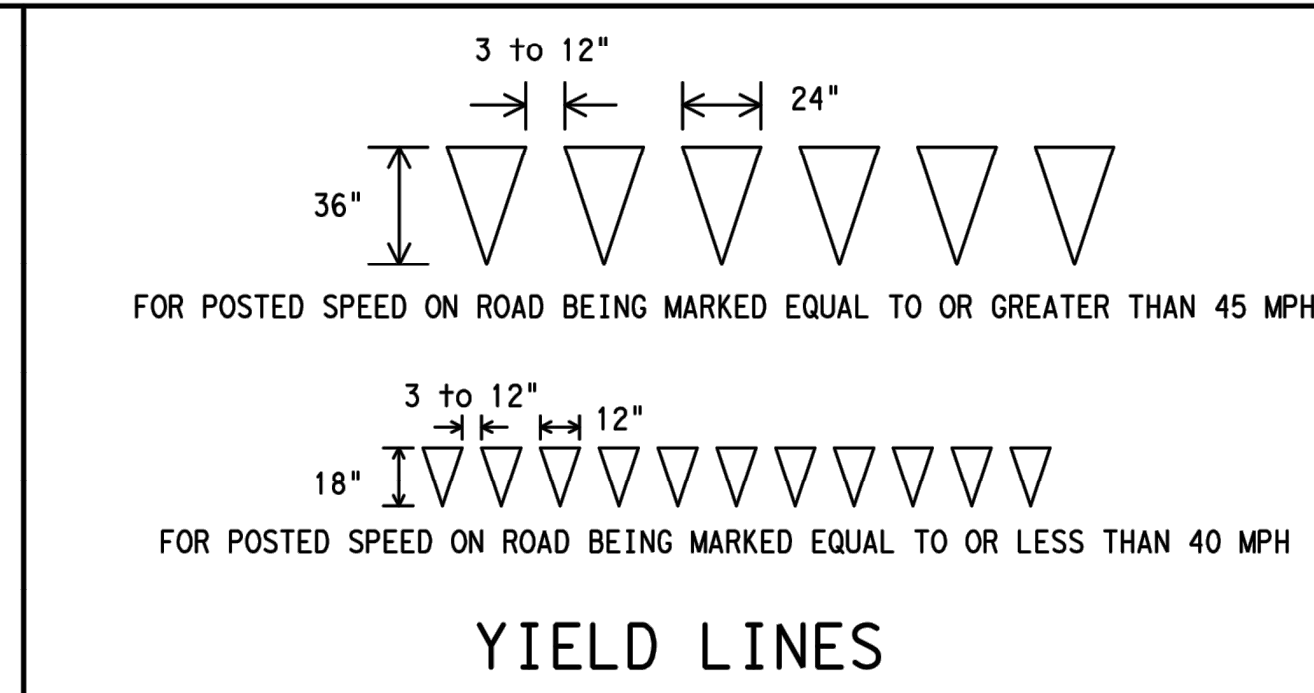
* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit. Crosshatching length should be rounded up to nearest 5 foot increment.
L=Length of Crosshatching (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

EXAMPLES:
An 8 foot shoulder in advance of a bridge reduces to 4 feet on a 70 MPH roadway. The length of the crosshatching should be:
 $L = 8 \times 70 = 560$ ft.
A 4 foot shoulder in advance of a bridge reduces to 2 feet on a 40 MPH roadway. The length of the crosshatching should be:
 $L = 4(40)^2 / 60 = 106.67$ ft. rounded to 110 ft.

- #### GENERAL NOTES
- Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should typically be placed a minimum of 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.
 - The traveled way includes only that portion of the roadway used for vehicular travel and not the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to inside of edgeline of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-12

© TxDOT November 1978	DN: TxDOT	CK: TxDOT	DM: TxDOT	CK: TxDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
8-95 2-12				
5-00				
8-00				
3-03				
22A				

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

CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS

STANDARD PAVEMENT MARKINGS

DATE
02/20/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

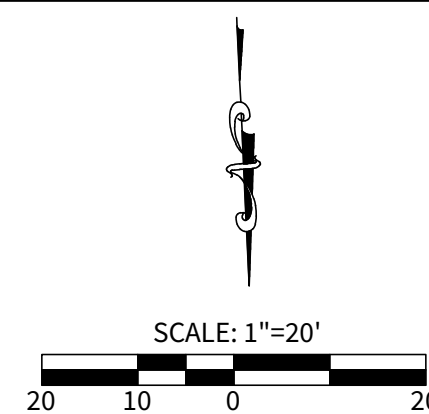
REVISIONS

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

02/21/2023

CUDE ENGINEERS
TBPELS No. 10048500

C8



OVERALL UNIT BOUNDARY _____

PROPOSED LOT LINE _____

PROPOSED RIGHT OF WAY _____

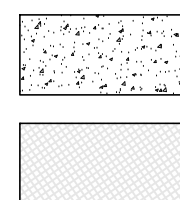
E.G.T.C.A. EASEMENT _____

EXISTING 1' CONTOUR _____ 499

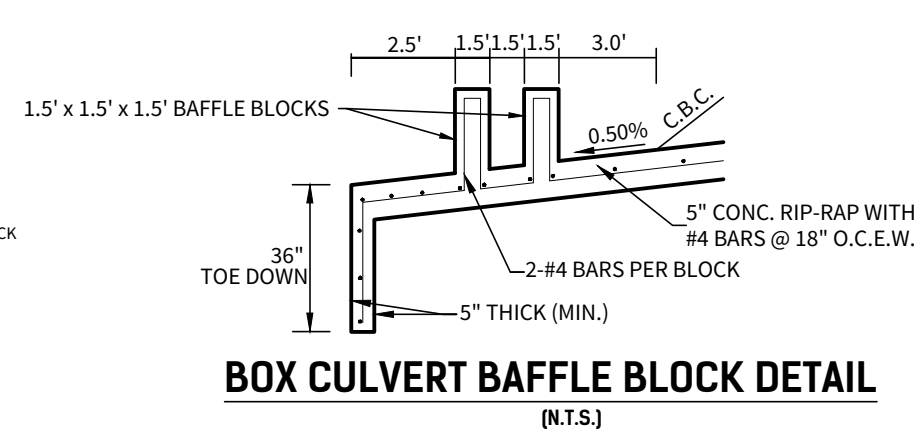
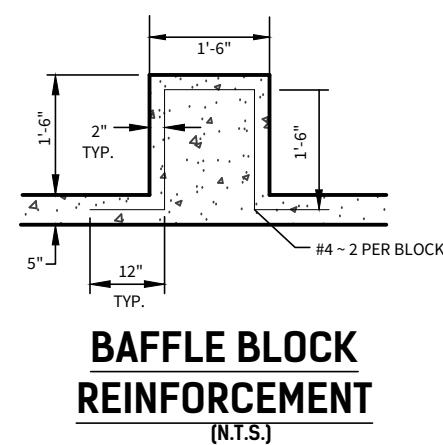
EXISTING 5' CONTOUR _____ 500

PROPOSED 1' CONTOUR _____ 499

PROPOSED 5' CONTOUR _____ 500

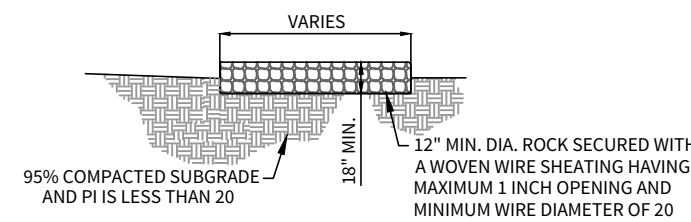


$V_1 = 1.44 \text{ FT}$ $V_1 = 7.72 \text{ FPS}$ $F_1 = 1.13$
 $V_2 = 5.96 \text{ FPS}$
 $Y_2/Y_1 = \frac{1}{2} (\sqrt{1+8(F_1)^2} - 1) = 1.18$
 $Y_2 = 1.70 \text{ FT}$
 $l_b = 4.5(Y_2) / (F_1)^{0.76} = 6.95 \text{ FT (USED 7.00 FT)}$
 $l_b / 3 = 2.32 \text{ FT (USED 3.00 FT)}$
 $H = Y_1(0.168^*F_1+0.58) = 1.11 \text{ FT (USED 1.50 FT)}$
EXIT VELOCITY = 5.96 FPS



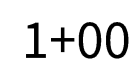
STA. 1+18.18 TO END

Q₁₀ = 199.40 c.f.s.
MANNING'S COEFFICIENT = 0.013
CULVERT SHAPE = RECTANGULAR
RISE = 24"
SPAN = 72"
PIPE SLOPE = 0.50%
OUTFALL V = 7.72 f.p.s.



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

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



DATE
03/28/2023

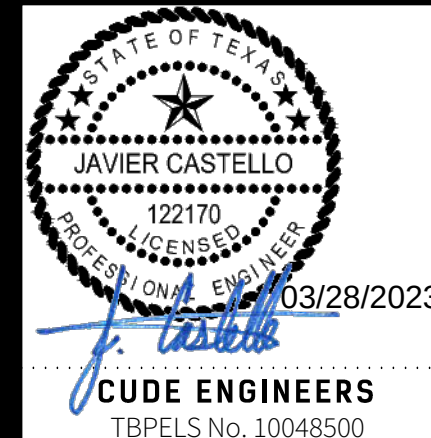
PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

REVISIONS

1.	2023-02-20 - ADDED MBGF CALL OUT, ADDED SLOPE OF PROPOSED WING WALLS.
2.	2023-03-27 - ADDED 100 YR HEADWATER, ADDED CROWN ELEVATION.
3.	
4.	
5.	
6.	
7.	
8.	
9.	



PROPERTY BOUNDARY

PROPOSED LOT LINE

PROPOSED RIGHT OF WAY

E.G.T.CA. EASEMENT

EXISTING 1' CONTOUR

EXISTING 5' CONTOUR

PROPOSED 1' CONTOUR

PROPOSED 5' CONTOUR

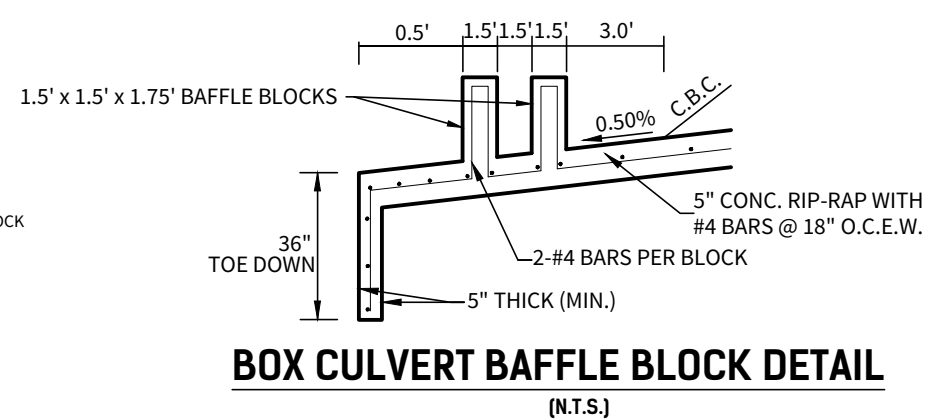
CONCRETE RIP RAP

PROPOSED CULVERT

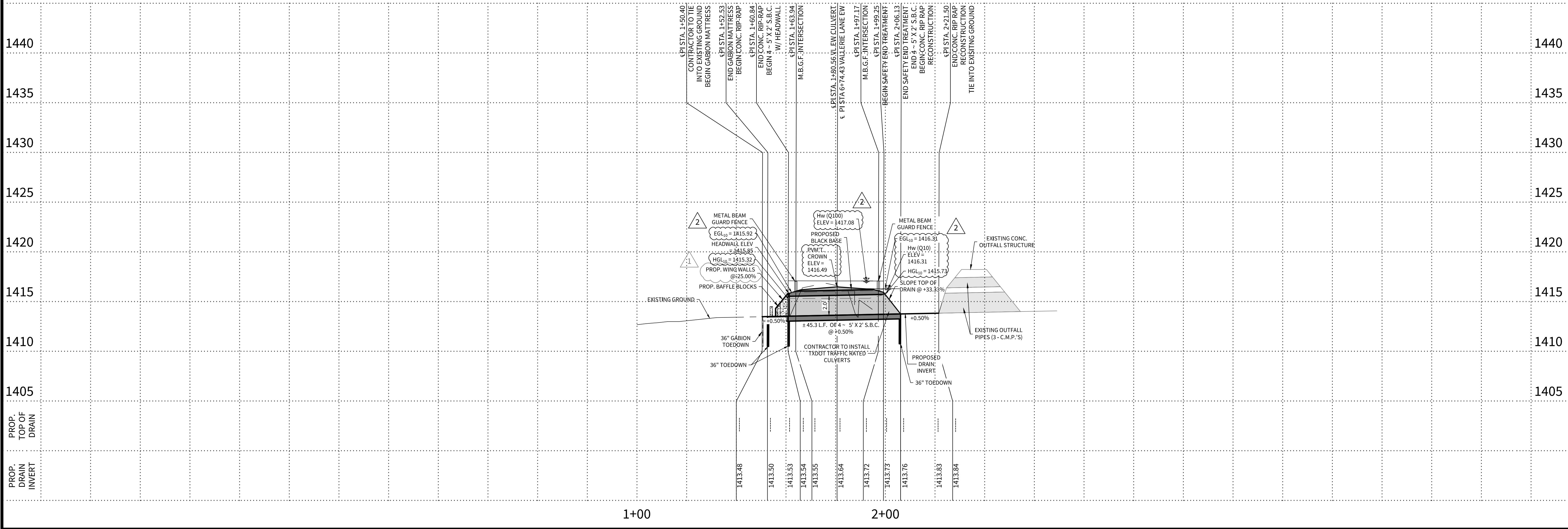
NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE
FABRIC LINING AT DETENTION POND OUTFALL.
(N.T.S.)

VERTICAL SCALE: 1" = 5'

$V_1 = 1.68 \text{ FT}$ $V_1 = 8.01 \text{ FPS}$ $F_1 = 1.09$
 $V_2 = 5.89 \text{ FPS}$
 $Y_2/Y_1 = \frac{1}{2} (1 + 8(F_1)^2)^{-1} = 1.12$
 $Y_2 = 1.88 \text{ FT}$
 $L_b = 4.5(Y_2) / (F_1)^{0.76} = 7.93 \text{ FT (USED 8.00 FT)}$
 $L_b / 3 = 2.64 \text{ FT (USED 3.00 FT)}$
 $H = Y_1(0.168^*F_1 + 0.58) = 1.28 \text{ FT (USED 1.50 FT)}$
 EXIT VELOCITY = 5.89 FPS



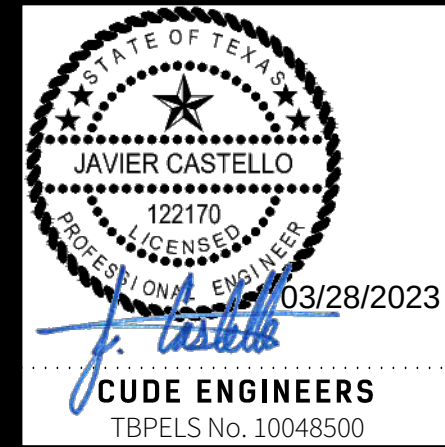
$Q_{100} = 418.58 \text{ c.f.s.}$
 MANNING'S COEFFICIENT = 0.013
 CULVERT SHAPE = RECTANGULAR
 RISE = 24"
 SPAN = 60"
 PIPE SLOPE = 0.50%
 OUTFALL V = 8.01 f.p.s.



PROJECT NO.
03481.003

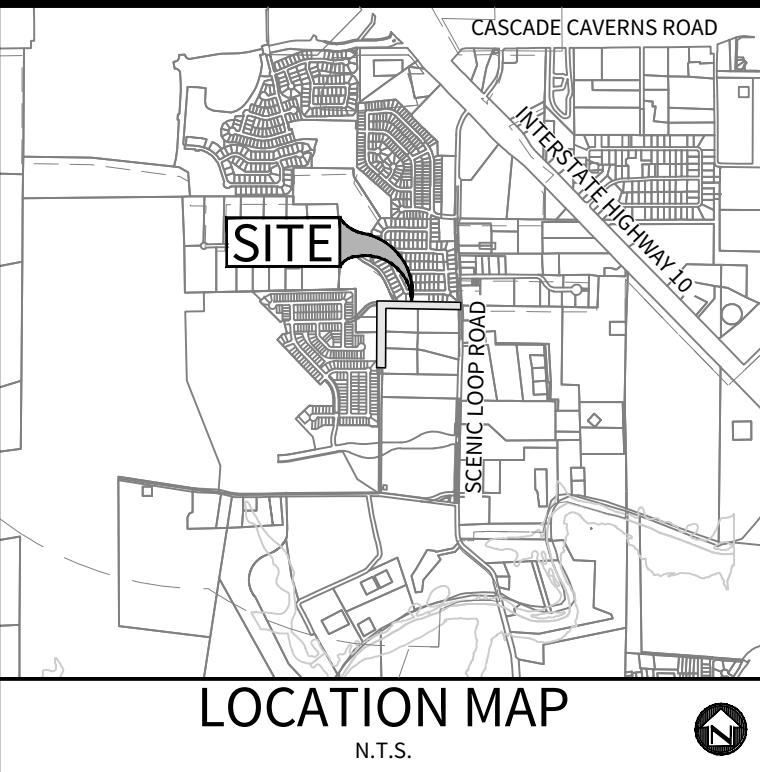
CHECKED BY
XV/AL

1. 2023-02-20 - ADDED MBGF CALL OUT, ADDED SLOPE OF PROPOSED WING WALLS, REVISED DESIGN FLOW.
2. 2023-03-27 - ADDED 100 YR & 10YR HEADWATER, ADDED CROWN ELEVATION.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.



C10

© 2022 M.W. CUDE ENGINEERS, L.L.C. - THIS DOCUMENT, ANY PORTION THEREOF, AND ANY ASSOCIATED COPYRIGHTS SHALL REMAIN THE PROPERTY OF M.W. CUDE ENGINEERS, L.L.C. THIS DOCUMENT MAY NOT BE REPRODUCED, USED, OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS TO ANYONE FOR ANY OTHER ENDORSEMENT WITHOUT THE PRIOR WRITTEN CONSENT OF, AND ADAPTATION BY, M.W. CUDE ENGINEERS, L.L.C. THIS DOCUMENT IS NOT INTENDED TO BE SUITABLE FOR USE OTHER THAN AS ORIGINALLY INTENDED BY M.W. CUDE ENGINEERS, L.L.C. AND ANY UNAUTHORIZED REPRODUCTION, USE, OR DISTRIBUTION OF THIS DOCUMENT WILL BE AT THE USER'S SOLE RISK, WITHOUT ANY LIABILITY TO M.W. CUDE ENGINEERS, L.L.C. AND WILL BE USED AGAINST ANY AND ALL PARTIES TO THE FULLEST EXTENT PERMITTED BY LAW.



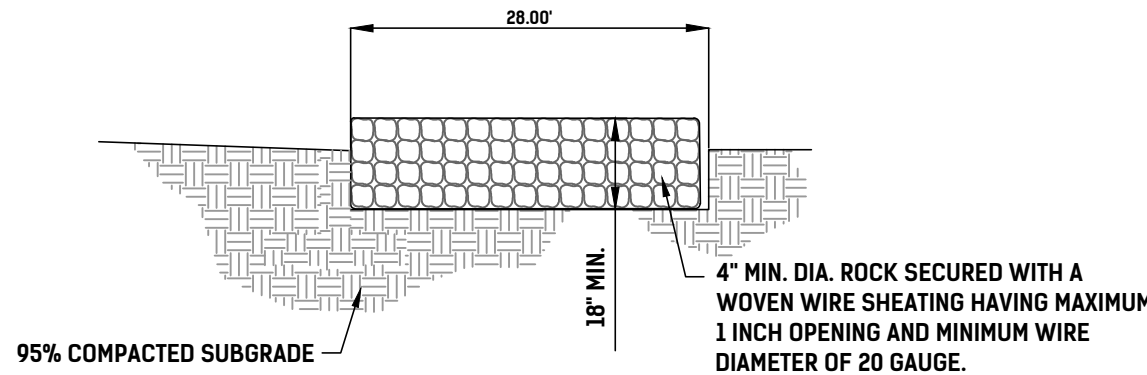
DEVELOPER
KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

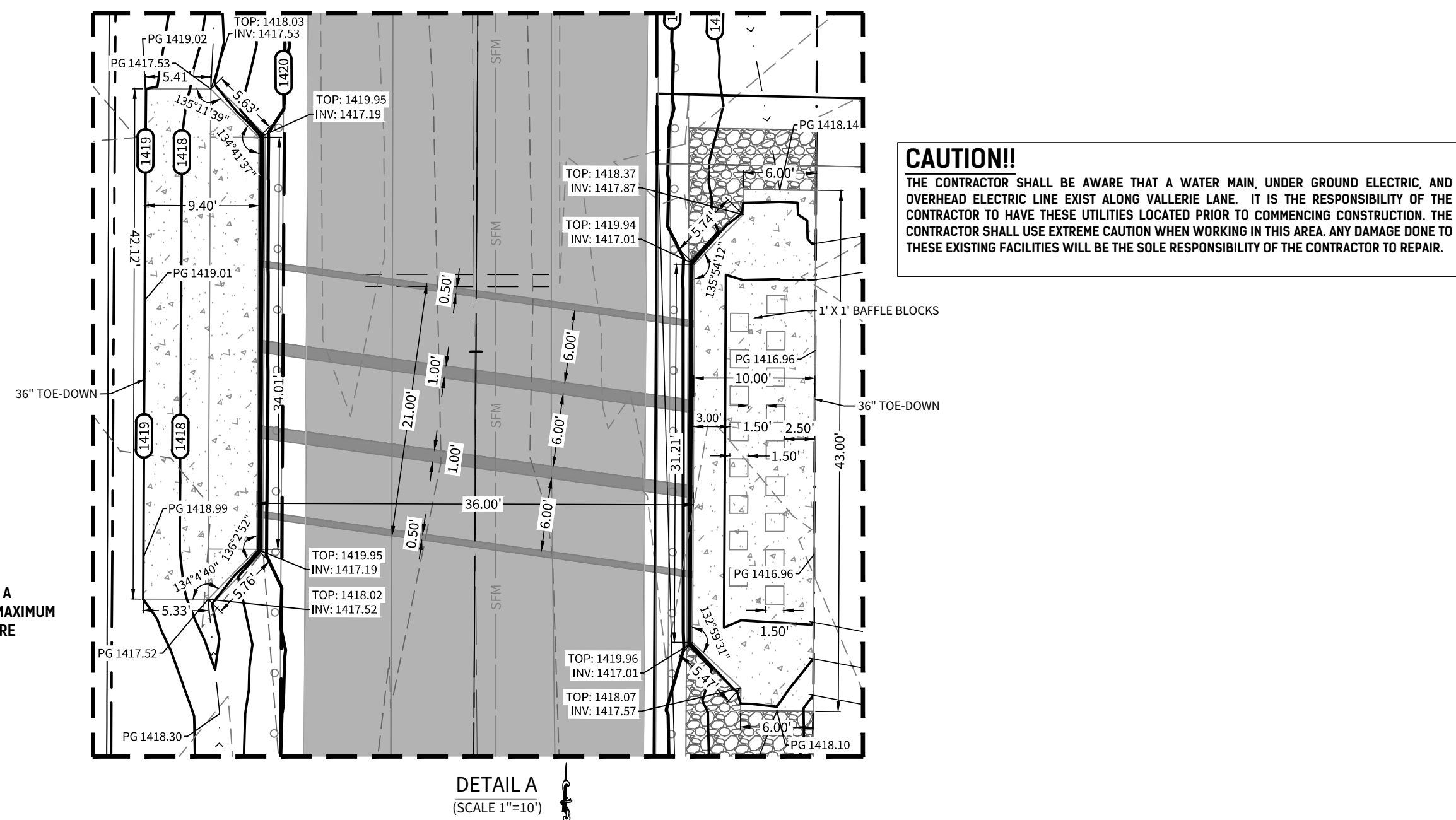
- NOTES:**
1. THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND CABLE INDICATED ON THESE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE, AND ARE NOT GUARANTEED TO BE ACCURATE. THE CONTRACTOR SHOULD CALL FOR LOCATES THROUGH THE "ONE CALL" UTILITY LOCATE SERVICE (1-800-344-8377) 48 HOURS PRIOR TO CONSTRUCTION/EXCAVATION 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.
 2. CONTRACTOR TO REMOVE AND RELOCATE EXISTING SIGNS AND FENCES AS NECESSARY TO EXISTING OR BETTER CONDITION.
 3. DOUBLE 4" YELLOW STRIPING LIMITS WILL BE FOR MILLED AND OVERLAID ASPHALT PAVEMENT AREAS AS SHOWN.
 4. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW AND TRAFFIC MOVEMENTS. CONTRACTOR IS RESPONSIBLE FOR PRODUCING A TRAFFIC CONTROL PLAN AS REQUIRED BY THE CITY OF BOERNE.
 5. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITH IN THE RIGHT OF WAY OR UTILITY EASEMENTS.
 6. CONTRACTOR SHALL GRADE RIGHT OF WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.

LEGEND:

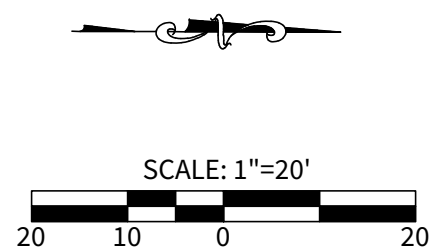
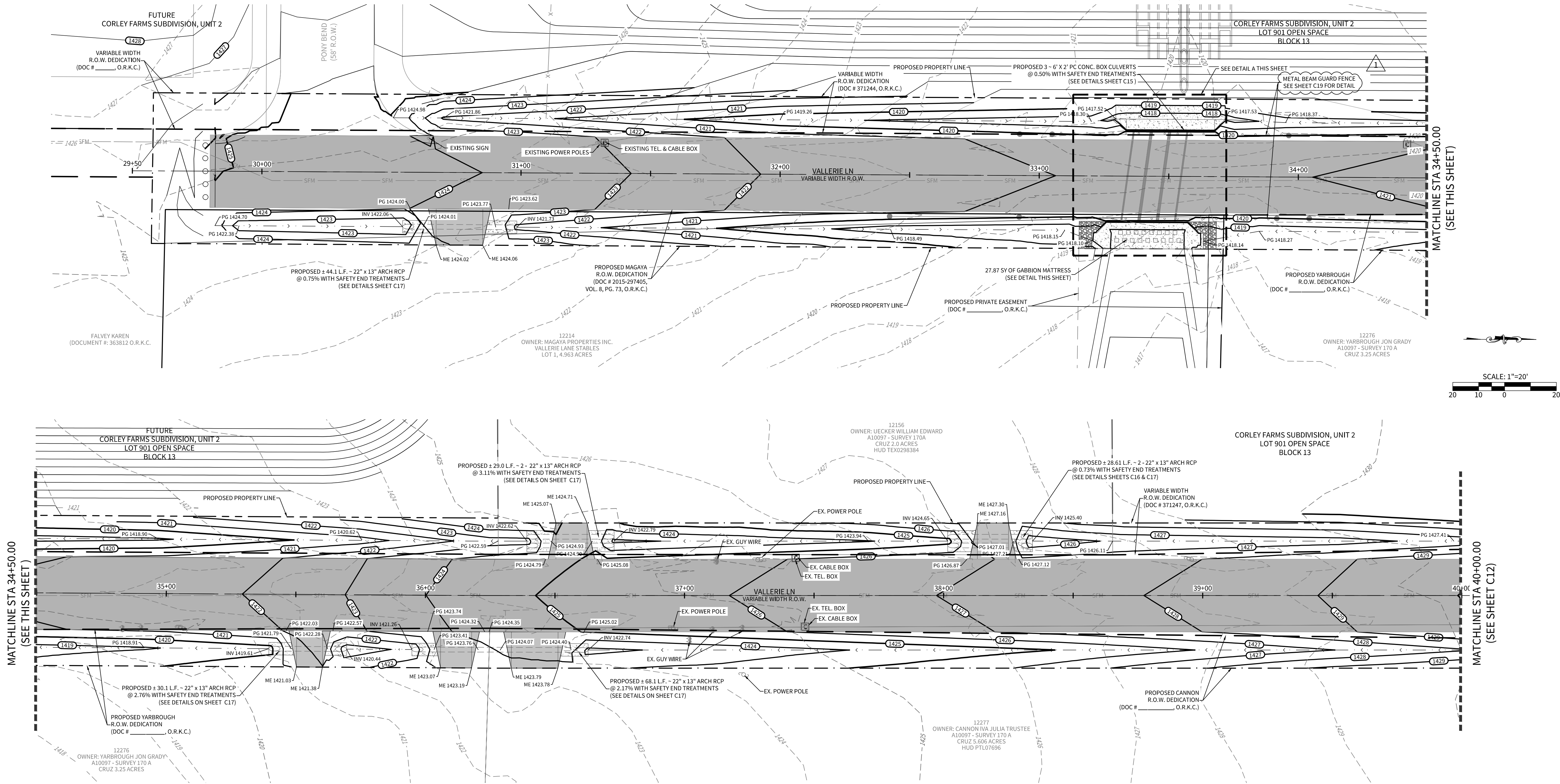
PROPERTY LINE
R.O.W. DEDICATION LINE
EXISTING OVERHEAD ELECTRIC
EXISTING POWERPOLE
EXISTING SIGN
PROPOSED PAVEMENT



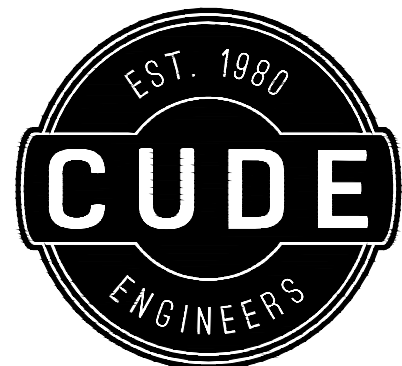
NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING.
GABION MATTRESS DETAIL
(N.T.S.)



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.



CUDEENGINEERS.COM



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

**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

GRADING & DRAINAGE PLAN

DATE

03/27/2023

PROJECT NO.

03481.003

DRAWN BY

CA/CG

CHECKED BY

XV/AL

REVISIONS

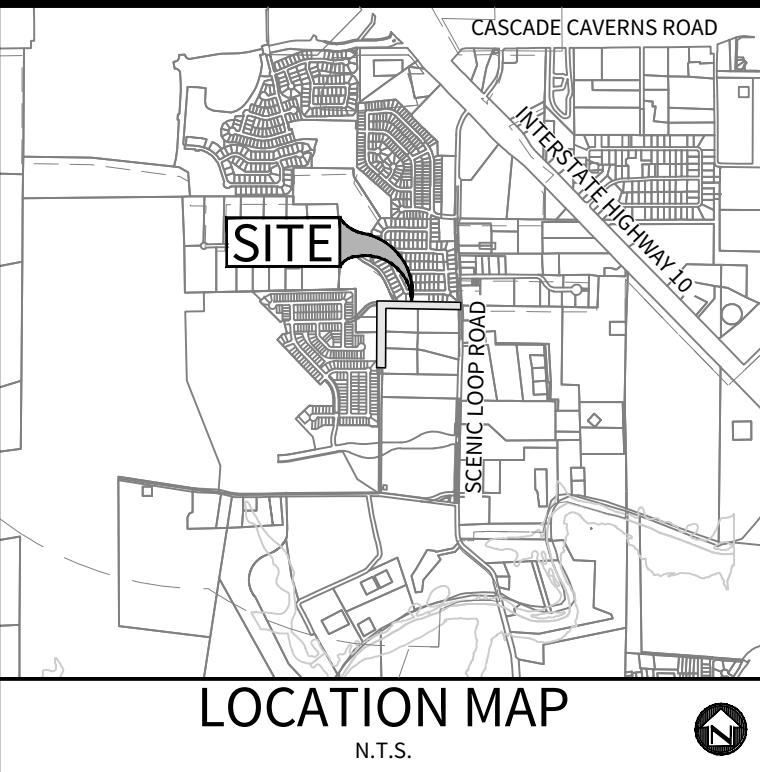
1. 2023-02-26 - ADDED MBGF CALL OUT.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.



03/28/2023
CUDE ENGINEERS
TBPELS No. 10048500

C11

© 2022 M.W. CUDE ENGINEERS, L.L.C. - THIS DOCUMENT, ANY PORTION THEREOF, AND ANY ASSOCIATED COPYRIGHTS SHALL REMAIN THE PROPERTY OF M.W. CUDE ENGINEERS, L.L.C. THIS DOCUMENT MAY NOT BE REPRODUCED, USED, OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS TO ANYONE FOR ANY OTHER ENDORSEMENT, WITHOUT THE PRIOR WRITTEN CONSENT OF, AND ADAPTATION BY, M.W. CUDE ENGINEERS, L.L.C. THIS DOCUMENT IS NOT INTENDED FOR USE OTHER THAN AS ORIGINALLY INTENDED BY M.W. CUDE ENGINEERS, L.L.C. AND WILL BE USED AGAINST ANY AND ALL PARTIES TO THE FULLEST EXTENT PERMITTED BY LAW. ANY UNAUTHORIZED REPRODUCTION, USE, OR DISTRIBUTION OF THIS DOCUMENT WILL BE AT THE USER'S SOLE RISK, WITHOUT ANY LIABILITY TO M.W. CUDE ENGINEERS, L.L.C.

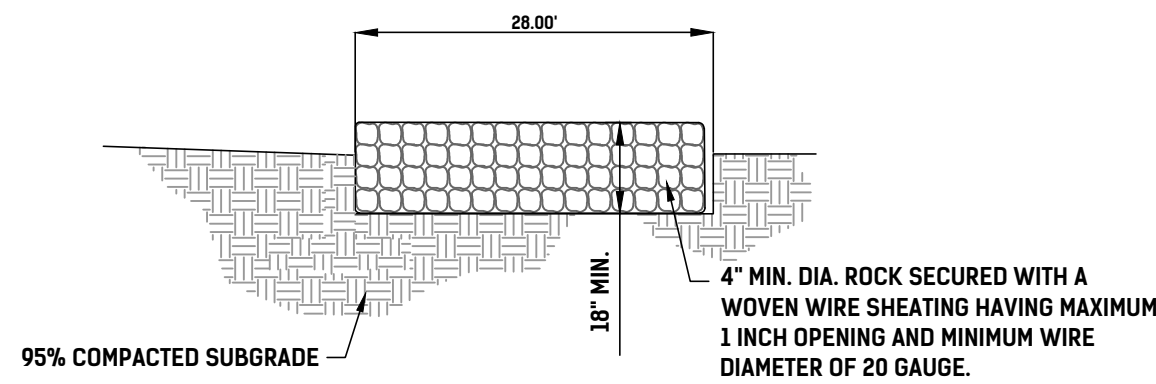


DEVELOPER
KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

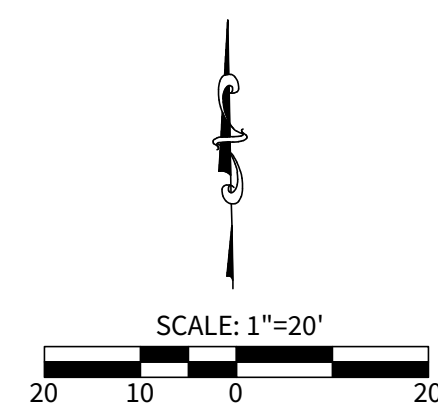
CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

- NOTES:**
1. 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.
 2. CONTRACTOR TO REMOVE AND RELOCATE EXISTING SIGNS AND FENCES AS NECESSARY TO EXISTING OR BETTER CONDITION.
 3. DOUBLE 4" YELLOW STRIPING LIMITS WILL BE FOR MILLED AND OVERLAID ASPHALT PAVEMENT AREAS AS SHOWN.
 4. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW AND TRAFFIC MOVEMENTS. CONTRACTOR IS RESPONSIBLE FOR PRODUCING A TRAFFIC CONTROL PLAN AS REQUIRED BY THE CITY OF BOERNE.
 5. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITH IN THE RIGHT OF WAY OR UTILITY EASEMENTS.
 6. CONTRACTOR SHALL GRADE RIGHT OF WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.

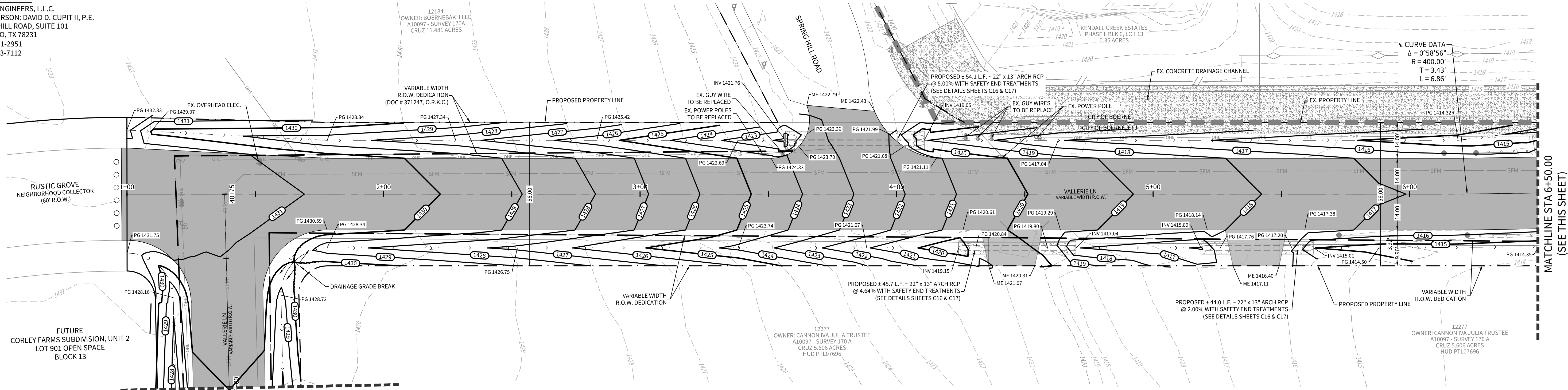
LEGEND:

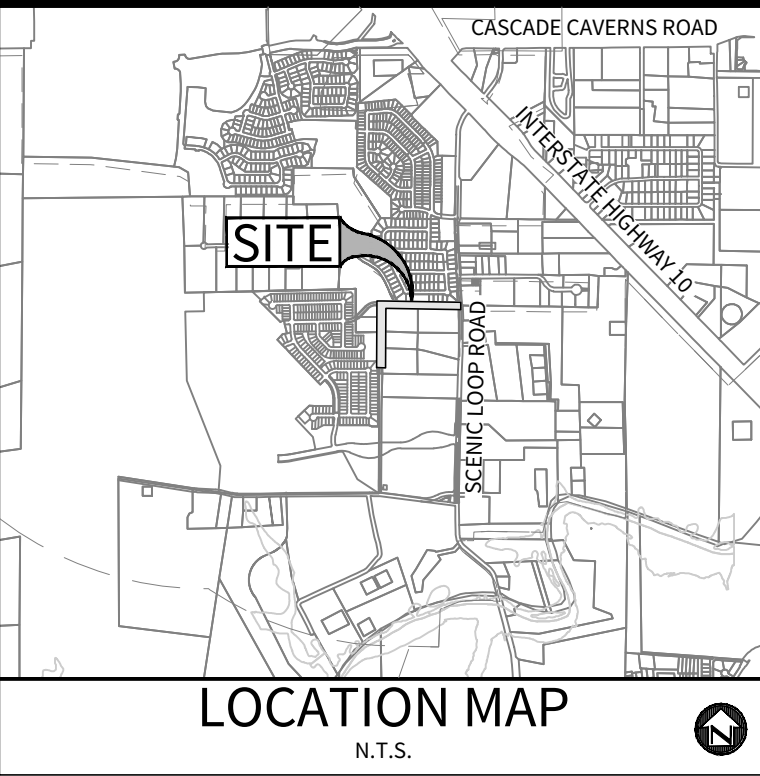


NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LININGS.
GABION MATTRESS DETAIL (N.T.S.)



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.





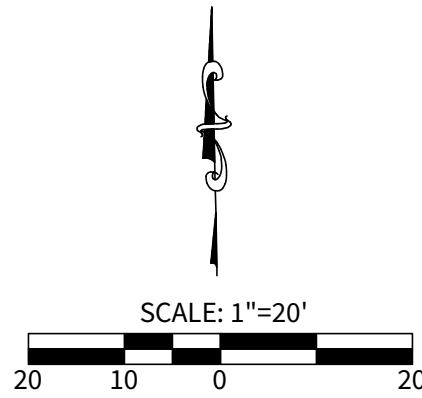
DEVELOPER
KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

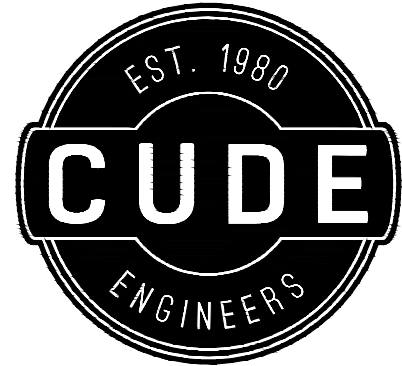
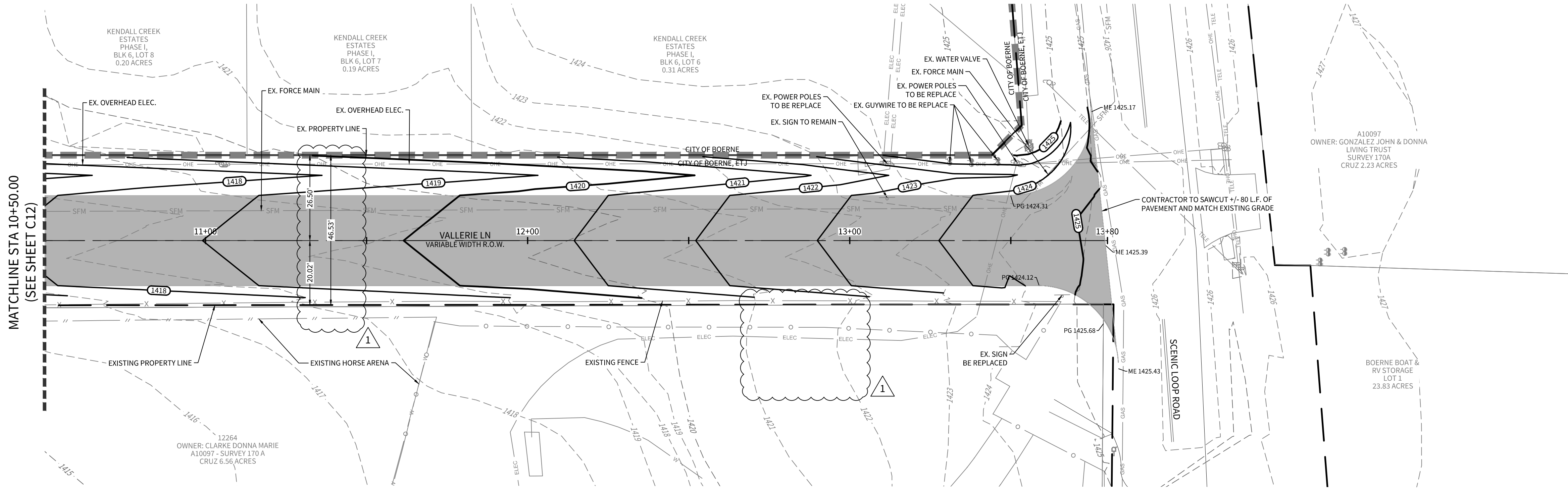
- NOTES:**
1. THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND CABLE INDICATED ON THESE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE, AND ARE NOT GUARANTEED TO BE ACCURATE. THE CONTRACTOR SHOULD CALL FOR LOCATES THROUGH THE "ONE CALL" UTILITY LOCATE SERVICE (1-800-344-8377) 48 HOURS PRIOR TO CONSTRUCTION/EXCAVATION 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.
 2. CONTRACTOR TO REMOVE AND RELOCATE EXISTING SIGNS AND FENCES AS NECESSARY TO EXISTING OR BETTER CONDITION.
 3. DOUBLE 4" YELLOW STRIPING LIMITS WILL BE FOR MILLED AND OVERLAID ASPHALT PAVEMENT AREAS AS SHOWN.
 4. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW AND TRAFFIC MOVEMENTS. CONTRACTOR IS RESPONSIBLE FOR PRODUCING A TRAFFIC CONTROL PLAN AS REQUIRED BY THE CITY OF BOERNE.
 5. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITH IN THE RIGHT OF WAY OR UTILITY EASEMENTS.
 6. CONTRACTOR SHALL GRADE RIGHT OF WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.

LEGEND:

PROPERTY LINE
R.O.W. DEDICATION LINE
EXISTING OVERHEAD ELECTRIC
EXISTING POWERPOLE
EXISTING SIGN
PROPOSED PAVEMENT



CAUTION!!
THE CONTRACTOR SHALL BE AWARE THAT A WATER MAIN, UNDER GROUND ELECTRIC, AND OVERHEAD ELECTRIC LINE EXIST ALONG SCENIC LOOP 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.



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

**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

GRADING & DRAINAGE PLAN

DATE

03/27/2023

PROJECT NO.

03481.003

DRAWN BY

CA/CG

CHECKED BY

XV/AL

REVISIONS

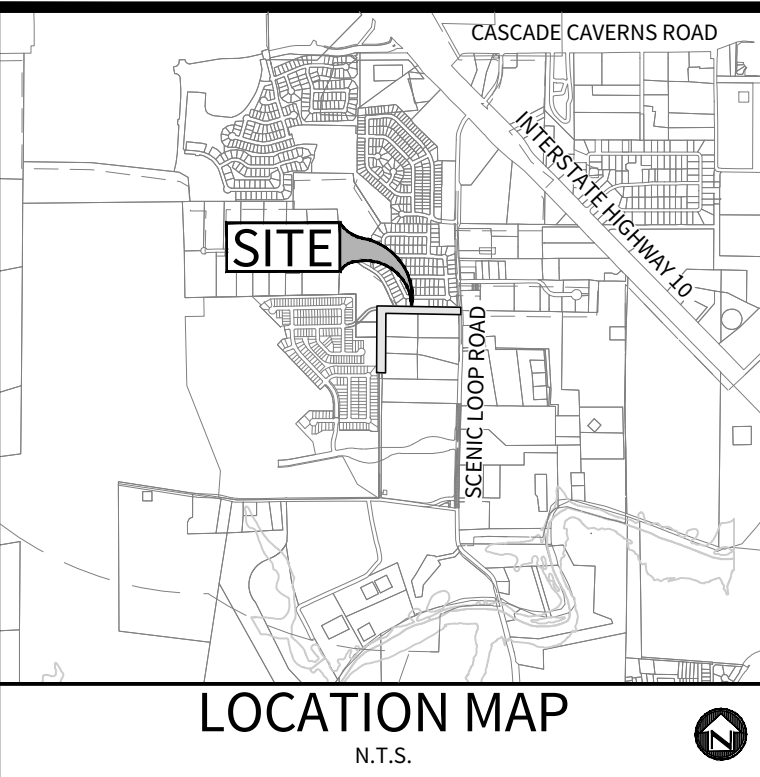
1. 2023-03-27 - REVISED RIGHT OF WAY, REMOVED ALL CALLOUTS REGARDING CLARE ROW DEDICATION.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.



CUDE ENGINEERS
TBPELS No. 10048500

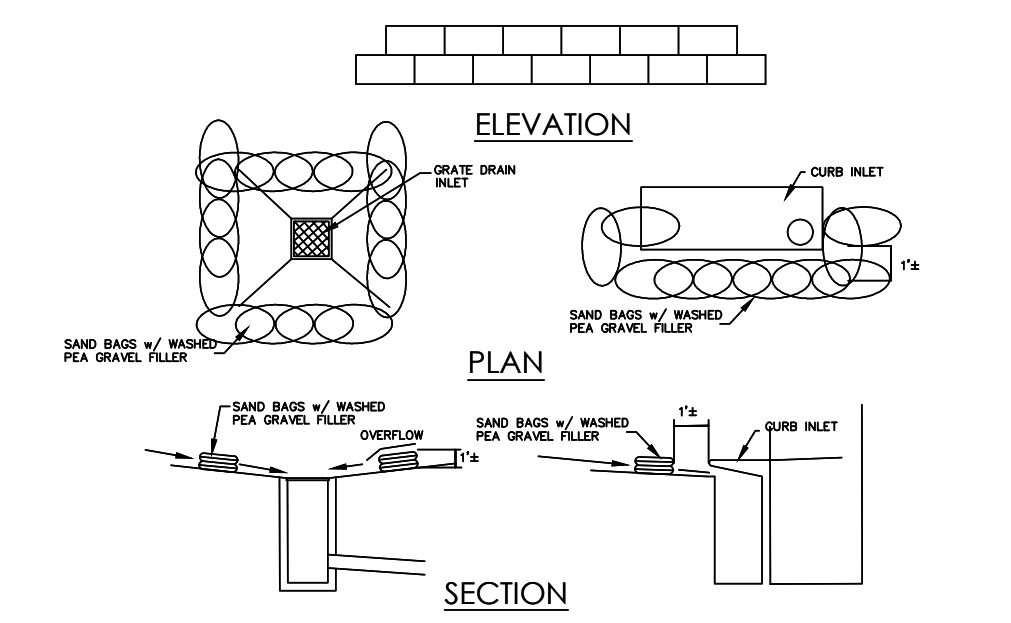
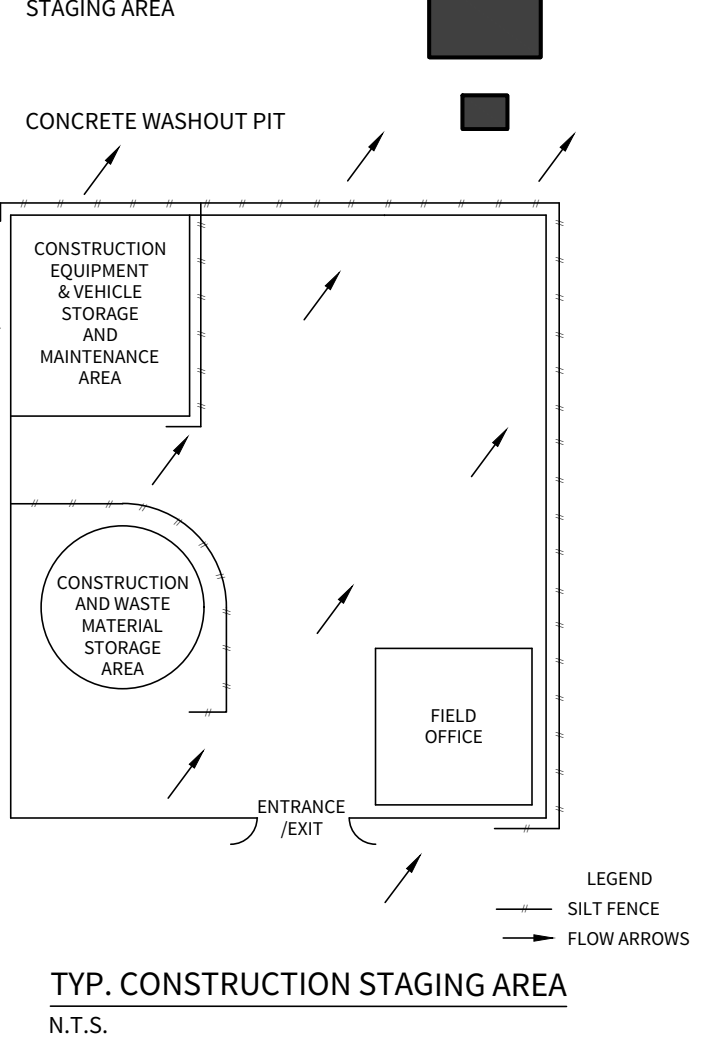
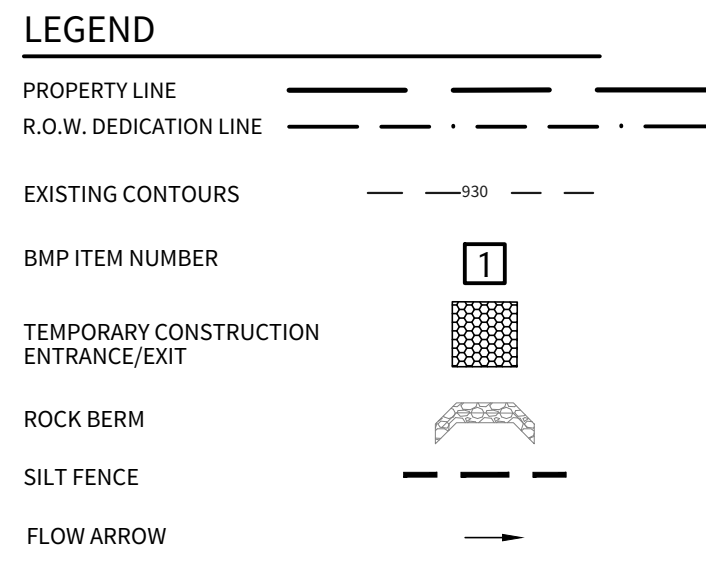
C13

© 2022 M.W. CUDE ENGINEERS, LLC. THIS DOCUMENT, ANY PORTION THEREOF, AND ANY ASSOCIATED COPYRIGHTS SHALL REMAIN THE PROPERTY OF M.W. CUDE ENGINEERS, LLC. THIS DOCUMENT MAY NOT BE REPRODUCED, USED, OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS TO ANYONE FOR ANY OTHER ENDORSEMENT WITHOUT THE PRIOR WRITTEN CONSENT OF M.W. CUDE ENGINEERS, LLC. THIS DOCUMENT IS NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR USE OTHER THAN AS ORIGINALLY INTENDED BY M.W. CUDE ENGINEERS, LLC AND ANY UNAUTHORIZED REPRODUCTION, USE, OR DISTRIBUTION OF THIS DOCUMENT WILL BE AT THE USER'S SOLE RISK, WITHOUT ANY LIABILITY TO M.W. CUDE ENGINEERS, LLC, AND WILL BE USED AGAINST ANY AND ALL PARTIES TO THE FULLEST EXTENT PERMITTED BY LAW.



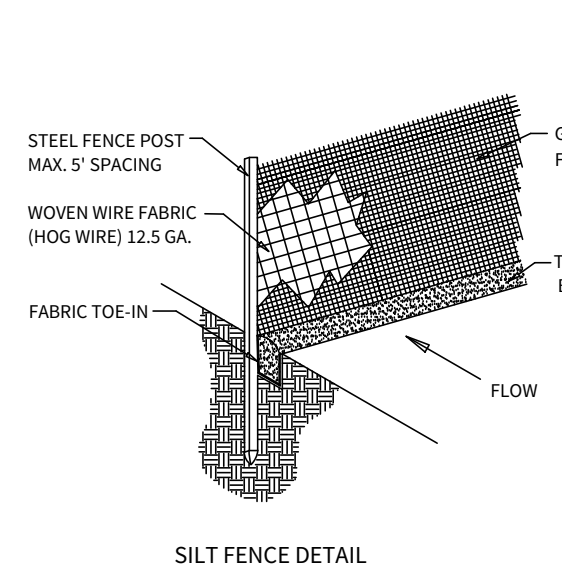
DEVELOPER
KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

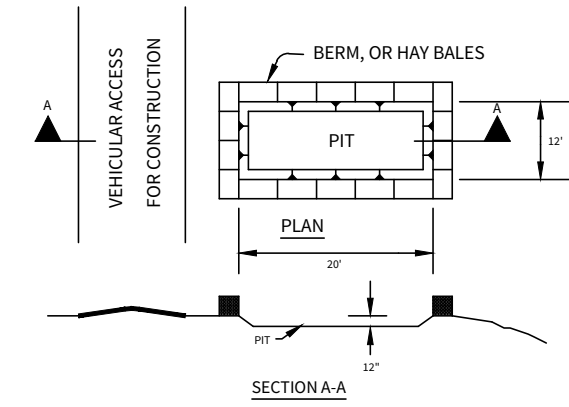
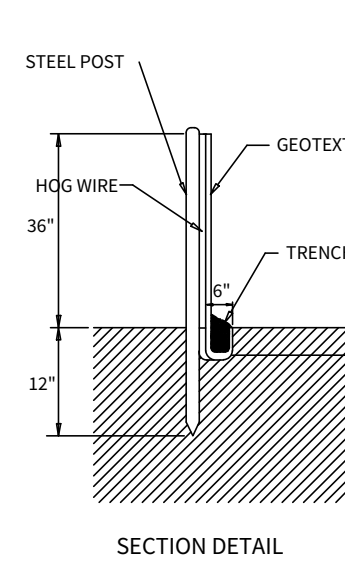


- BAGGED GRAVEL INLET FILTER NOTES**
1. THE GRAVEL BAG MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, POLYAMIDE OR COTTON BURLAP WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OZ/YD 2, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT.
 2. THE BAG LENGTH SHOULD BE 24 INCHES, WIDTH SHOULD BE 18 INCHES AND THICKNESS SHOULD BE 6 INCHES.
 3. THE GRAVEL BAGS SHOULD BE FILLED WITH 3/4" 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.



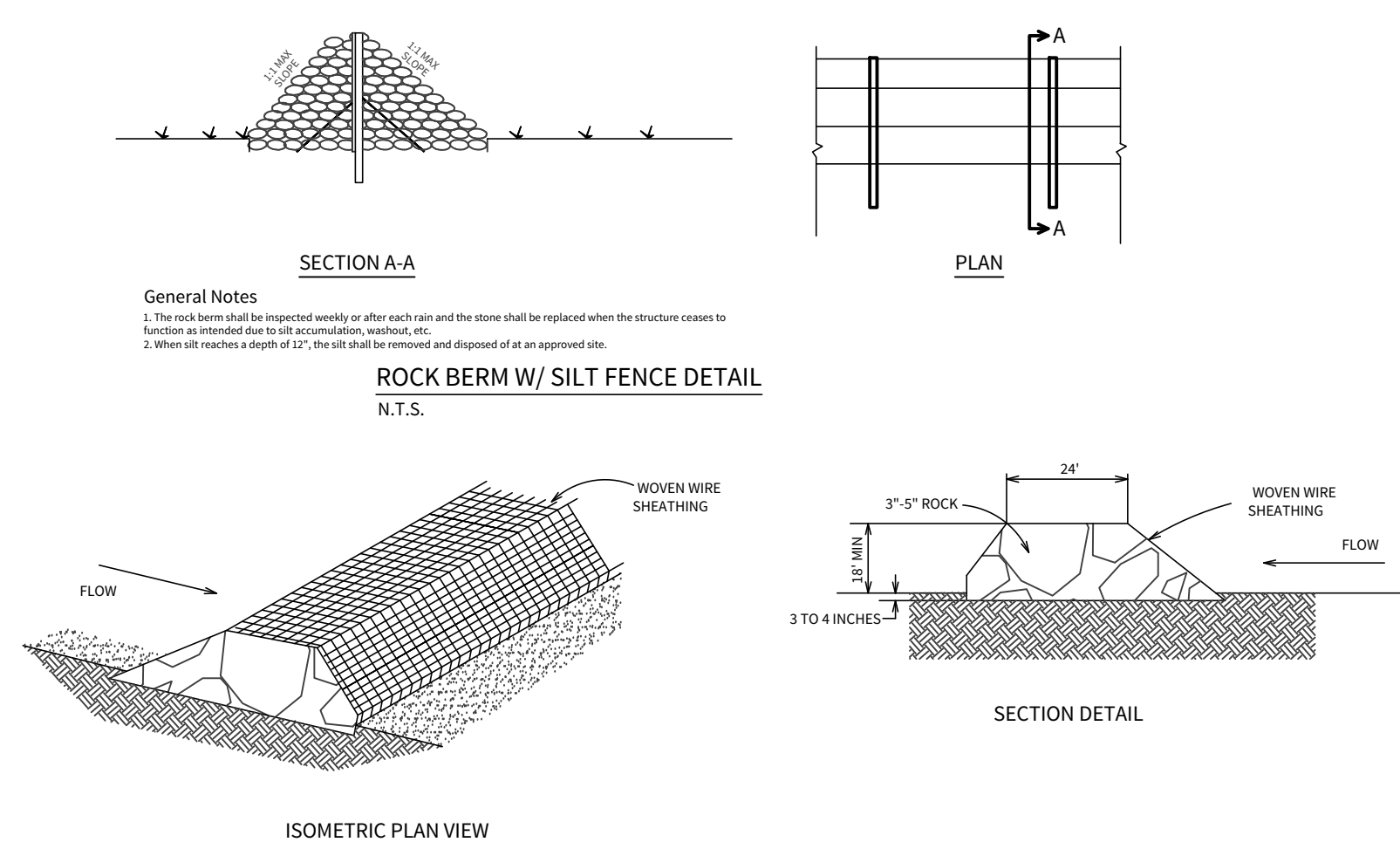
2 STANDARD SILT FENCE
N.T.S.



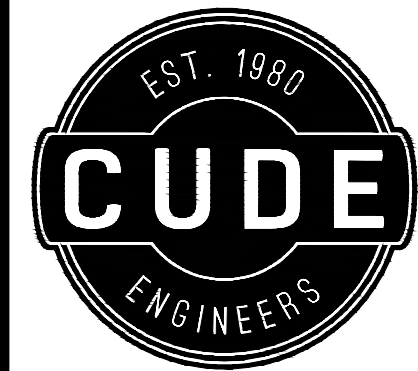
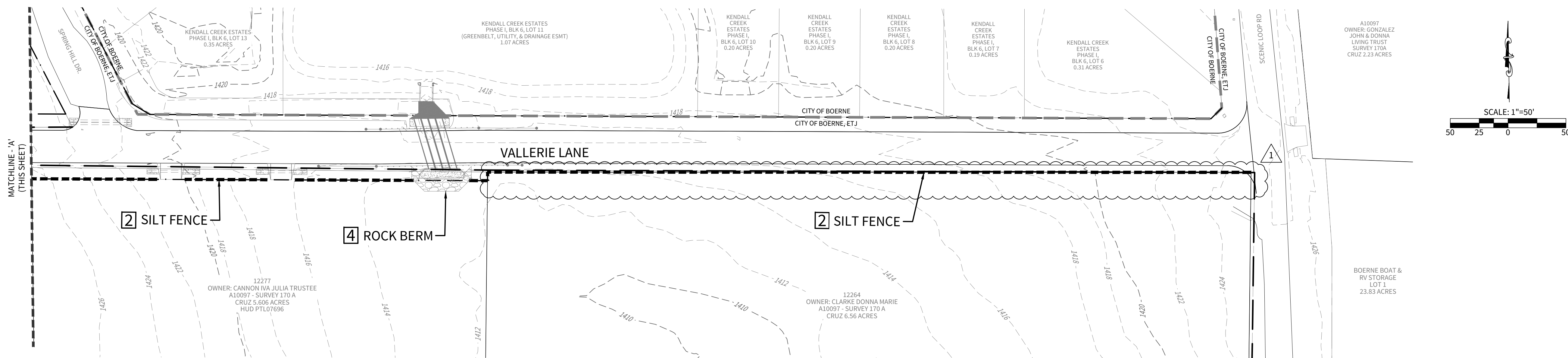
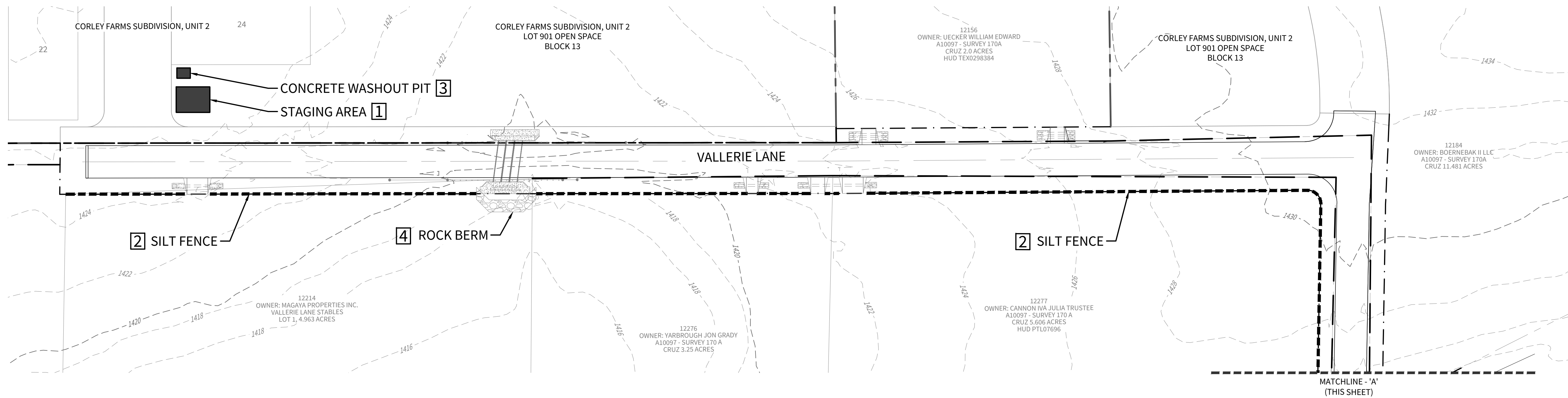
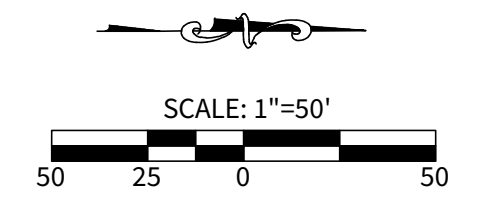
- GENERAL NOTES:**
- Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.
 - If hay bales are used, they shall be placed in accordance with details shown on Exhibit for hay bales.
 - Washout pit shall be located in an area easily accessible 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.

- 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.



4 ROCK BERM
N.T.S.



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

**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

STORM WATER POLLUTION PREVENTION PLAN

DATE
03/27/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

REVISIONS

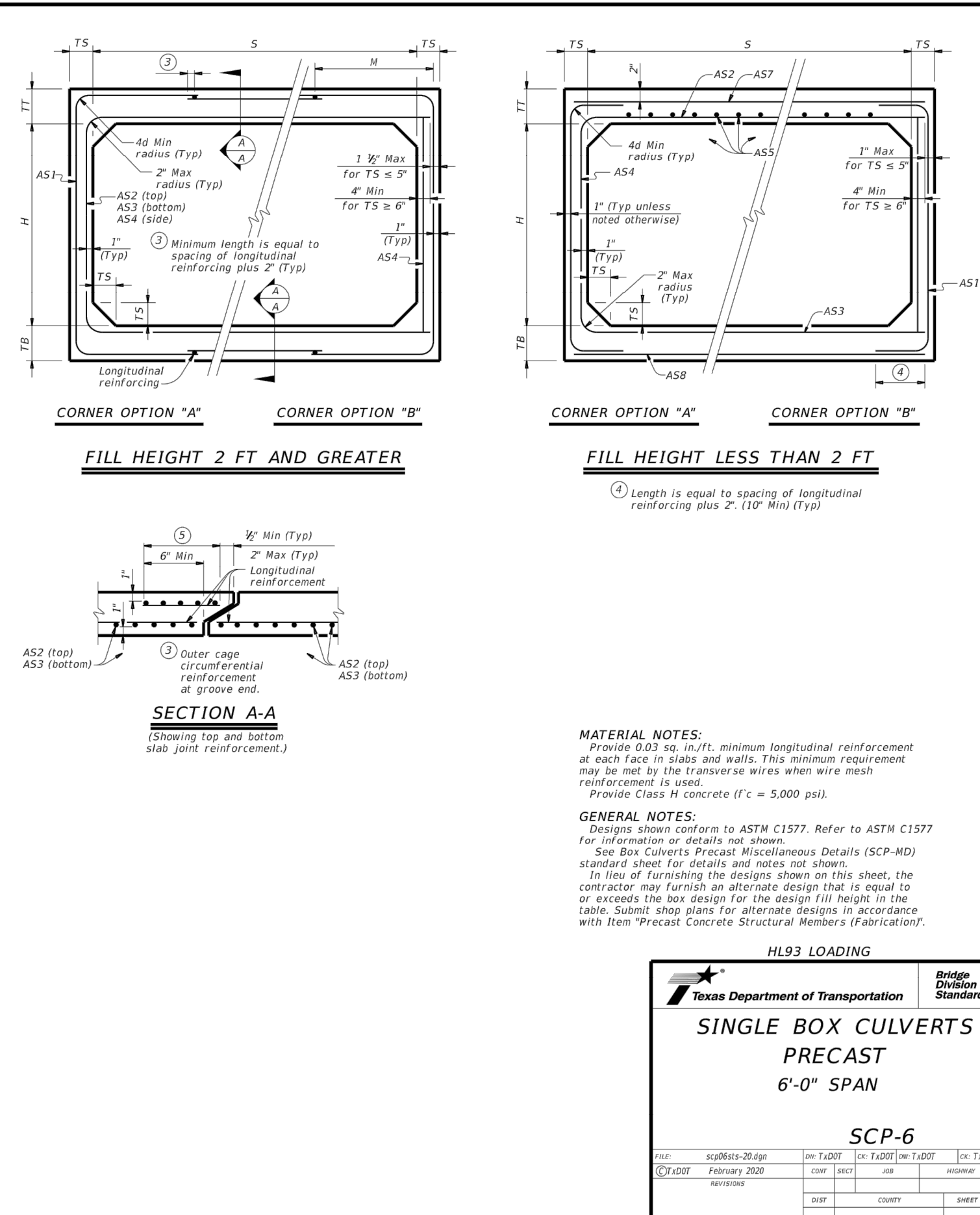
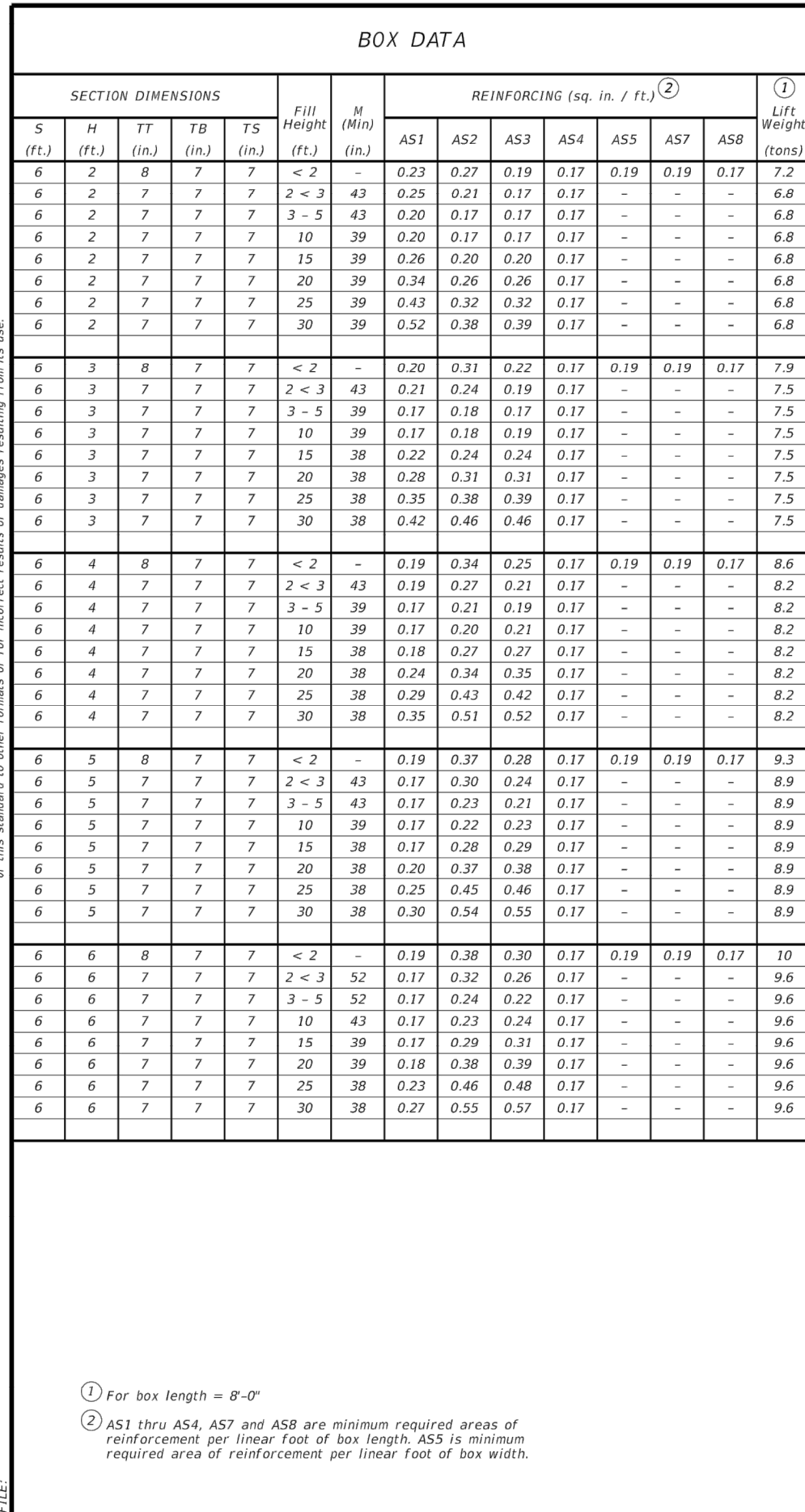
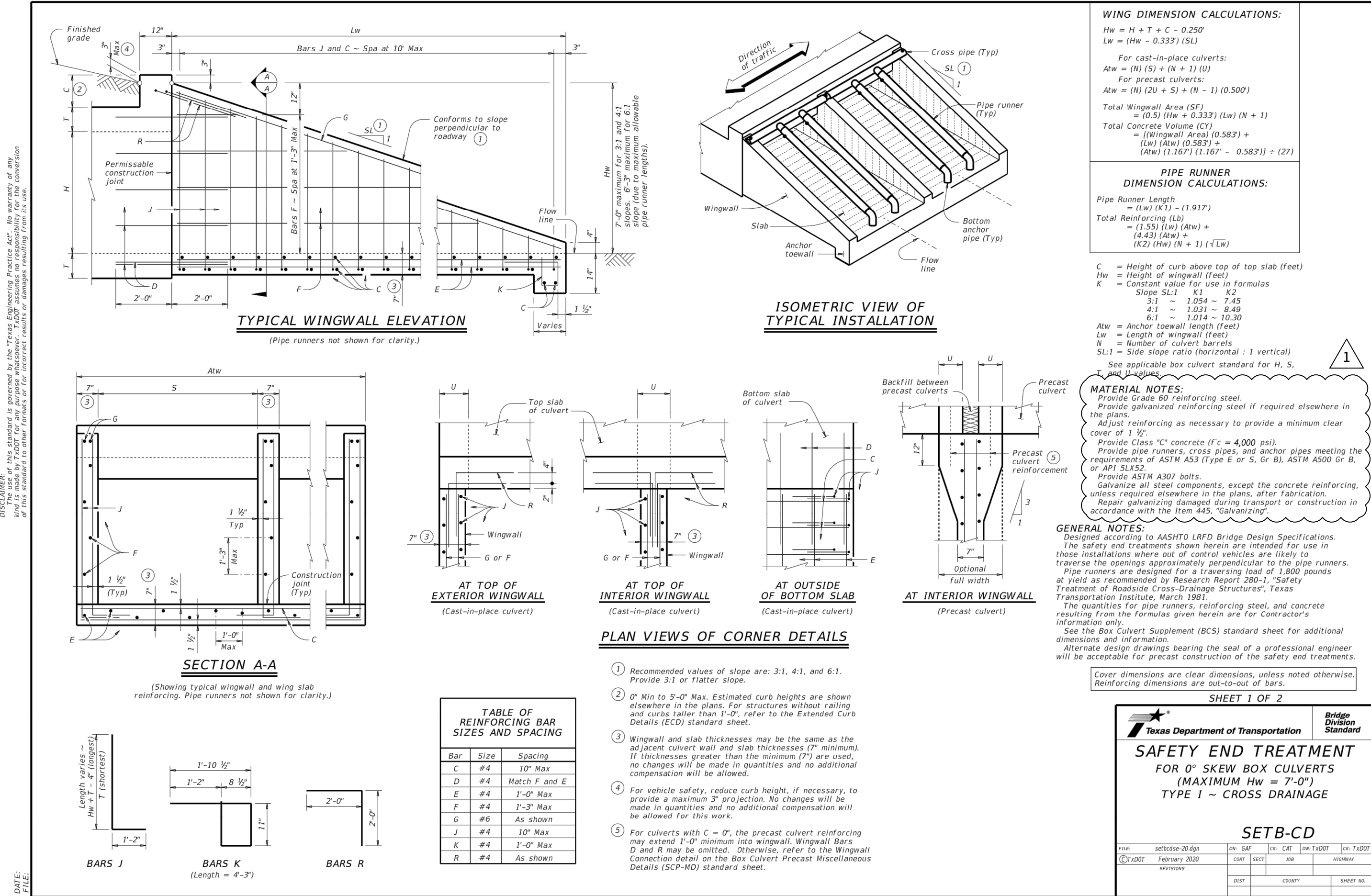
1.	2023-03-27 - REVISED RIGHT OF WAY.
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

STATE OF TEXAS
JAVIER CASTELLO
122170
PROFESSIONAL ENGINEER
03/28/2023
CUDE ENGINEERS
TBPELS No. 10048500

C14

DISCLAIMER: This standard is prepared by the Texas Engineering Practice Act. No warranty of any kind is made by the Texas Engineering Practice Act, its members, or its officers, for the accuracy, reliability, or completeness of the information contained herein. The user of this standard is advised to consult with a qualified professional engineer or architect for the proper application of this standard to their specific project.

DATE: 02/21/2023



DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for inaccuracies or damages resulting from its use.

DATE: FILE:

TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure end)										
Dimensions					Variable Reinforcing				Estimated Quantities per ft. of wing length (2-wings) (3)	
Maximum Wingwall Height Hw	W	X	Y	Z	Bars J1		Bars J2			
					Size	Spa	Size	Spa		
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'-6"	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	#5	~	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.)

$$Hw = H + T + C - 0.250'$$

$$A = (Hw - 0.333') (SL)$$

$$B = (A) \tan(30^\circ)$$

$$Lw = (A) \div \cos(30^\circ)$$

For cast-in-place culverts:

$$Ltw = (N) (S) + (N + 1) (U)$$

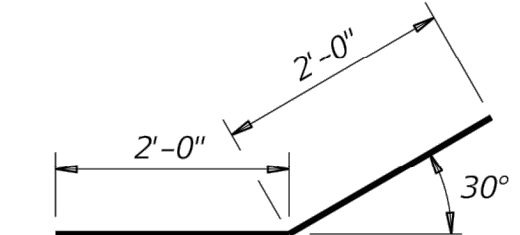
For precast culverts:

$$Ltw = (N) (2U + S) + (N - 1) (0.5')$$

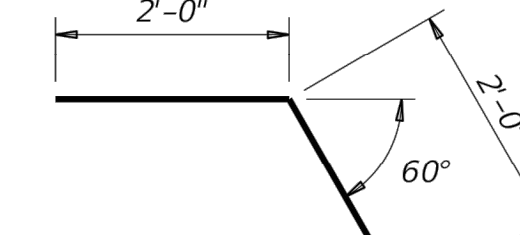
$$\text{Total wingwall area (two wings ~ SF)} = (Hw + 0.333') (Lw)$$

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

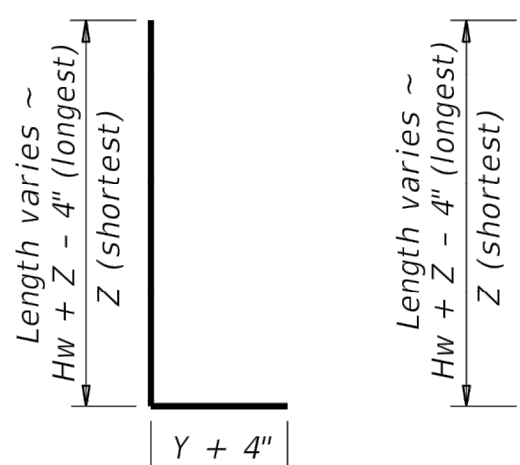
See applicable box culvert standard sheet for H, S, T, and U values.



BARS D

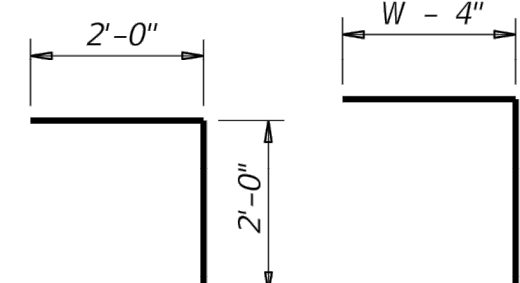


BARS R



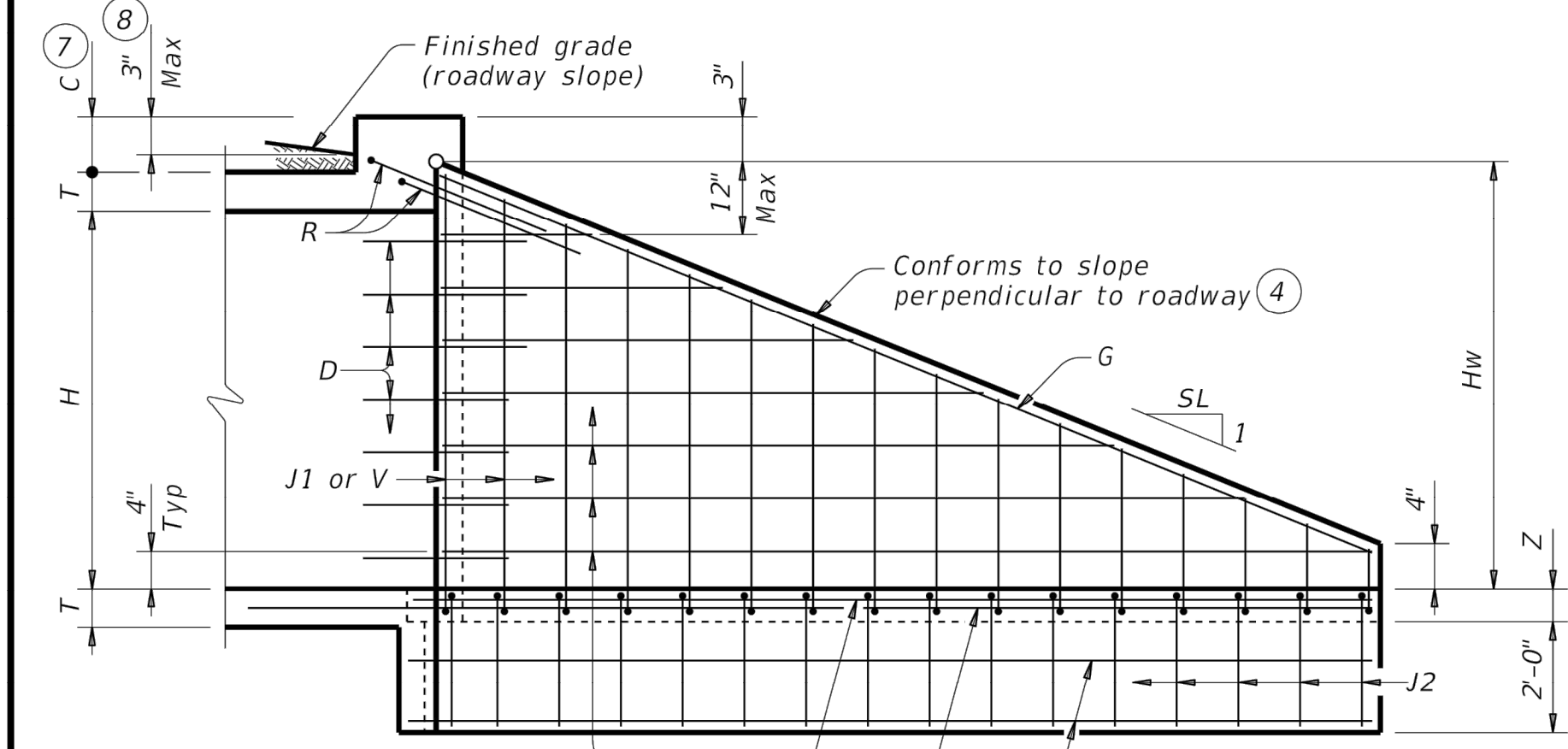
BARS J1

BARS V



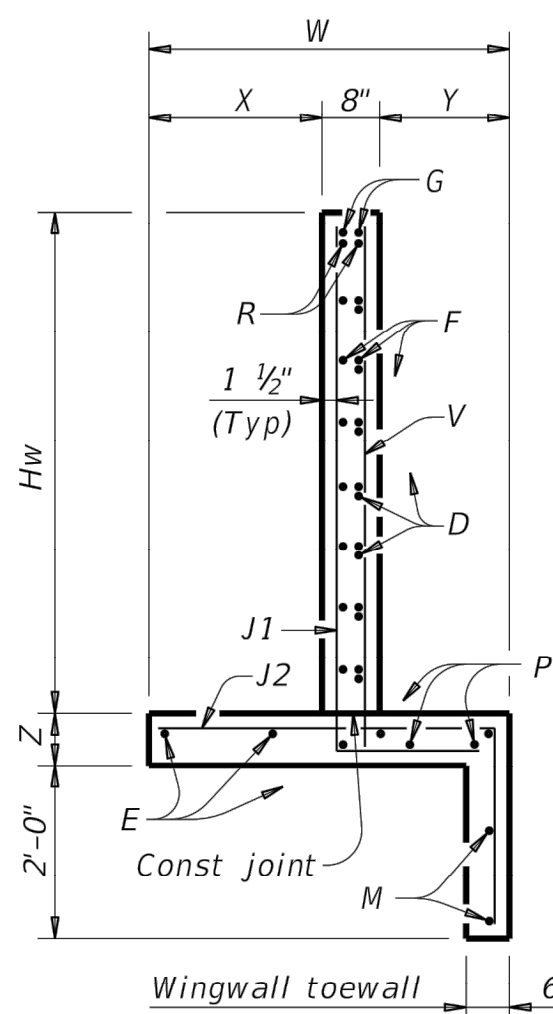
BARS L

BARS J2

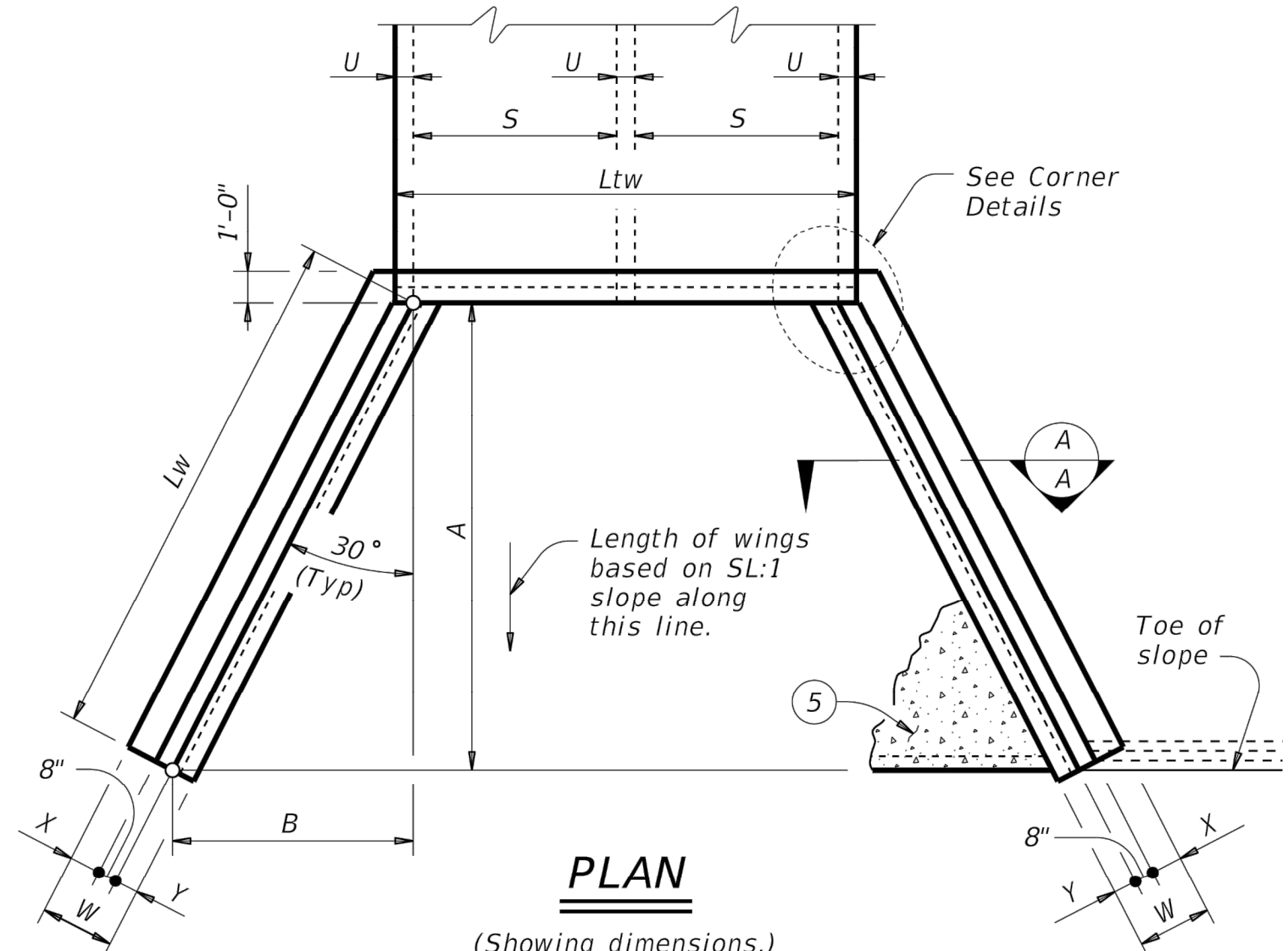


INSIDE ELEVATION

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

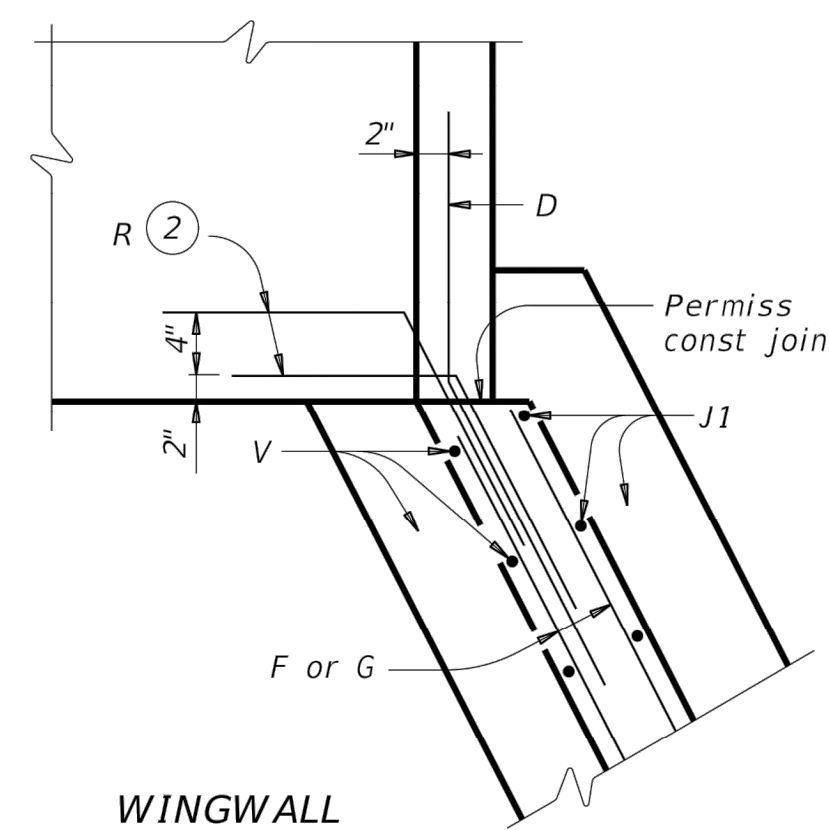


SECTION A-A



PLAN

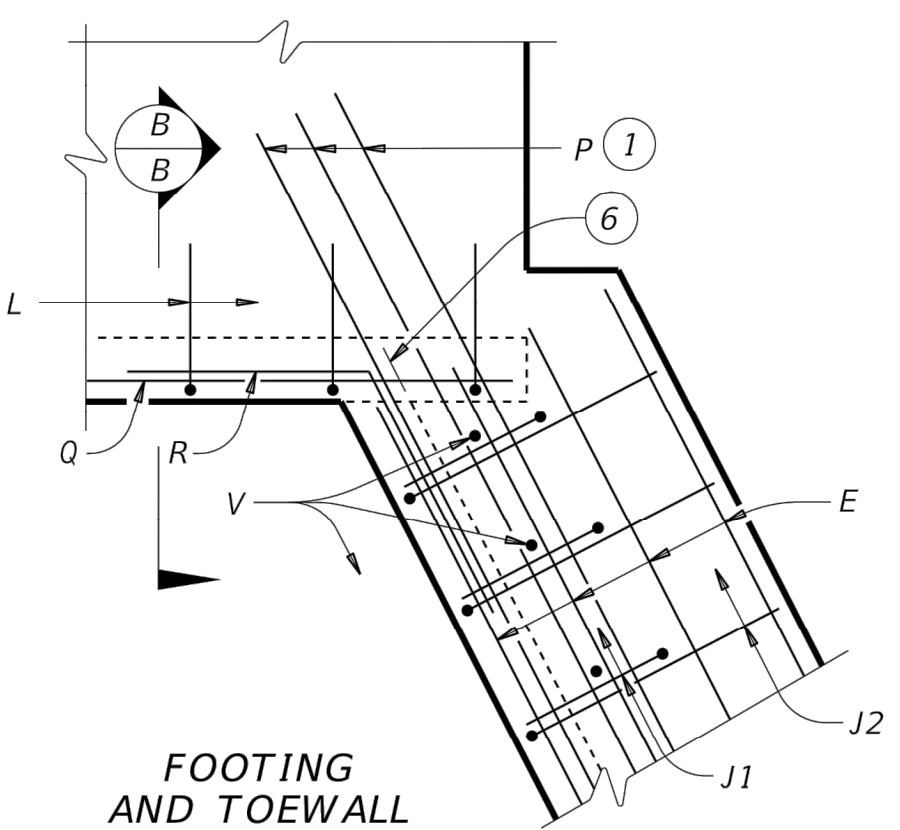
(Showing dimensions.)



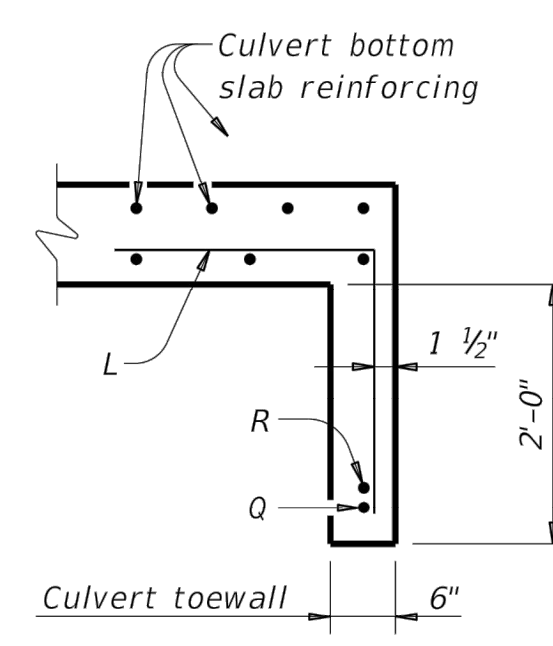
WINGWALL

CORNER DETAILS

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



FOOTING AND TOEWALL



SECTION B-B

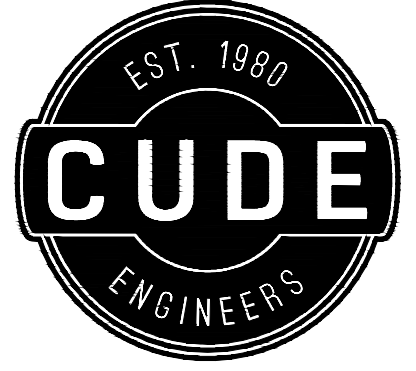
- Extend Bars P 3'-0" minimum into bottom slab of box culvert.
- Adjust as necessary to maintain 1 1/2" clear cover and 4" minimum between bars.
- Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.
- Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.
- 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.
- At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.
- 0' Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Existing 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.
- 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=4,000 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.

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

		Bridge Division Standard	
CONCRETE WINGWALLS WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS			
FW-0			
FILE: fw-0std-20.dgn	DN: GAF	CK: CAT	DW: TxDOT
©TxDOT February 2020	CONT SECT	JOB	HIGHWAY
REVISIONS			
DIST	COUNTY	SHEET NO.	

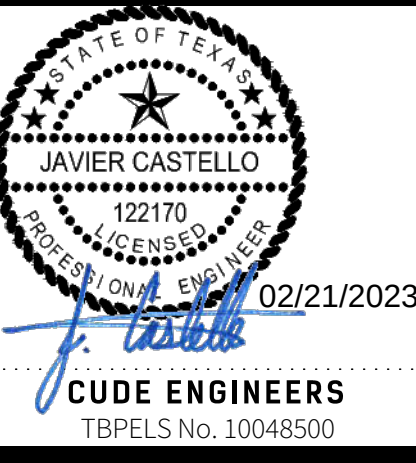


4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F:(210) 523.7112

CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS
CONCRETE HEADWALL DETAIL

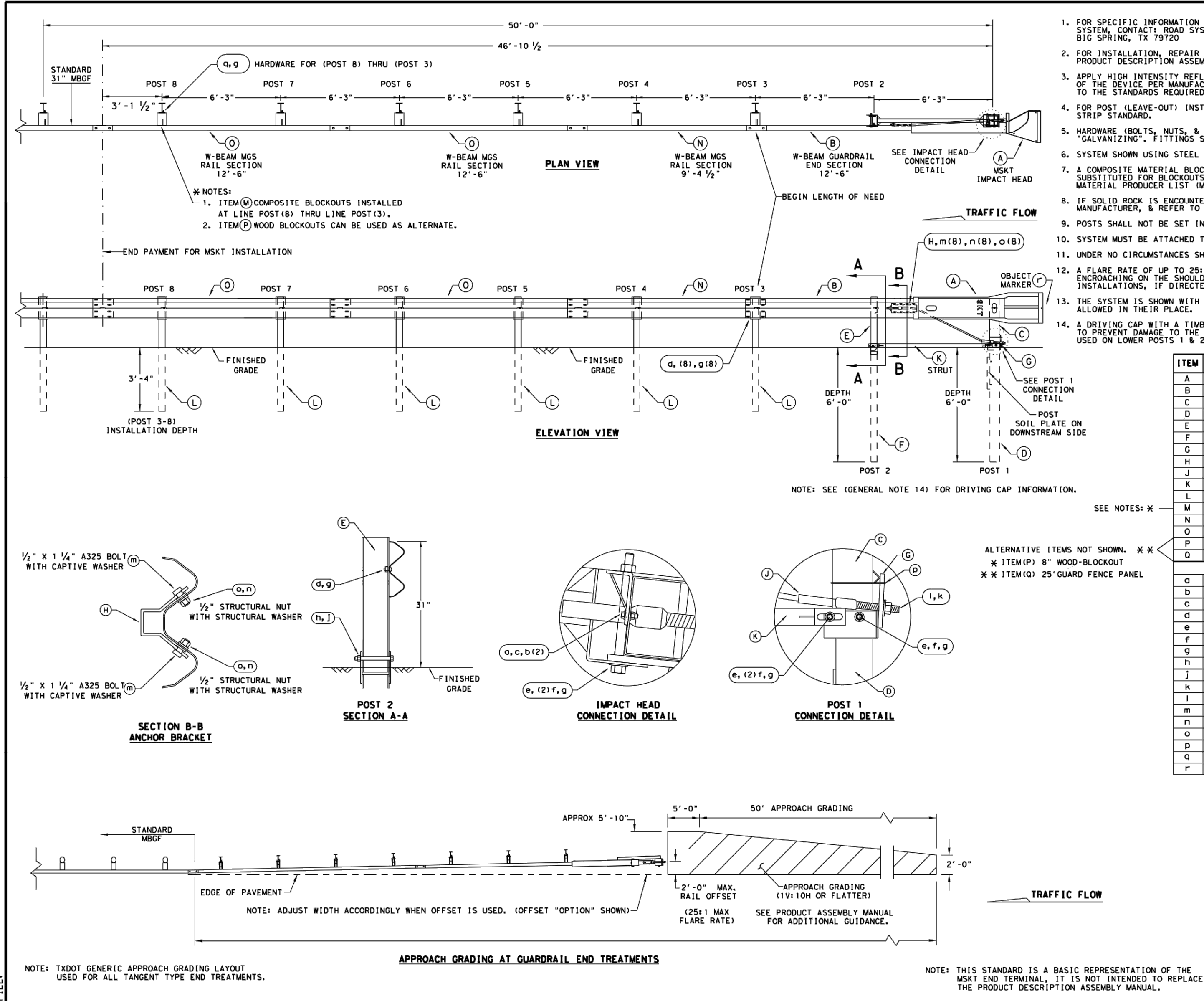
DATE
02/20/2023
PROJECT NO.
03481.003
DRAWN BY
CA/CG
CHECKED BY
XV/AL

REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.
9.



CUDE ENGINEERS
TBPELS No. 10048500

DISCLAIMER: THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TXDOT FOR ANY PURPOSE WHATSOEVER. TXDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR ANY DAMAGES RESULTING FROM ITS USE.



- GENERAL NOTES**
- 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
 - FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION-062717).
 - 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.
 - FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
 - HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
 - SYSTEM SHOWN USING STEEL WIDE FLANGE POSTS WITH COMPOSITE BLOCKOUTS.
 - 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 PRODUCTS.
 - IF SOLID 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.
 - POSTS SHALL NOT BE SET IN CONCRETE.
 - SYSTEM MUST BE ATTACHED TO STANDARD 31" MBGF.
 - UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
 - A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCRUSCHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
 - THE SYSTEM IS SHOWN WITH TWO 12'-6" MBGF PANELS, ONE 25'-0" MBGF PANEL IS ALSO ALLOWED IN THEIR PLACE.
 - 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 GO.	SF1303
C	1	POST 1 - TOP (6" X 6" X 1/2" TUBE)	MTPHPIA
D	1	POST 1 - BOTTOM (6" Wx15)	MTPHPIB
E	1	POST 2 - ASSEMBLY TOP	UHP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6" Wx9)	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 MCS RAIL SECTION (9'-4 1/2")	G12025
O	2	W-BEAM MCS RAIL SECTION (12'-6")	G1203A
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MCS RAIL SECTION (25'-0")	G1209
SMALL HARDWARE			
a	2	3/4" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	3/4" WASHER	N0516
c	2	3/4" HEX NUT	N0516
d	25	3/4" Dia. x 1 1/2" SPLICE BOLT (POST 2)	B580122
e	2	3/4" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	3/4" WASHER	W050
g	33	3/4" Dia. H.G.R. NUT	N050
h	1	3/4" Dia. x 8 1/2" HEX BOLT (GRD A449)	B340854A
j	1	3/4" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2" x 1 1/4" A325 BOLT WITH CAPTIVE WASHER	SB12A
n	8	1/2" STRUCTURAL NUTS	NO12A
o	8	1 1/4" O.D. x 3/4" I.D. STRUCTURAL WASHERS	WO12A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	3/4" 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	DATE: TXDOT	CHK: KM	DATE: 08/01/18
© TXDOT: APRIL 2018	CONT: SECT	JOB: HWY	
REVISIONS		DIST:	COUNTY:
			SHEET NO.:

NORTHBOUND MBGF CALCULATOR	
ADT > 750	
Du=	7.50 ft
Gu=	6.00 ft
Lu=	50.00 ft
Dd=	10.00 ft
Gd=	16.00 ft
Ld=	0.00 ft
Lp=	40.00 ft
(MBGF TOTAL LENGTH) Ltotal=	
UPSTREAM - SINGLE GUARD TERMINAL SGT(12S)31-18	
DOWNSTREAM ANCHOR TERMINAL (GF (31) DAT-19) =	
(MBGF TOTAL LENGTH INCLUDING UPSTREAM AND DOWNSTREAM TREATMENTS) Ltotal=	
TOTAL LENGTH TO THE NEAREST 25' INTERVAL =	

SOUTHBOUND MBGF CALCULATOR	
ADT > 750	
Du=	7.50 ft
Gu=	6.00 ft
Lu=	50.00 ft
Dd=	10.00 ft
Gd=	16.00 ft
Ld=	0.00 ft
Lp=	42.00 ft
(MBGF TOTAL LENGTH) Ltotal=	
UPSTREAM - SINGLE GUARD TERMINAL SGT(12S)31-18	
DOWNSTREAM ANCHOR TERMINAL (GF (31) DAT-19) =	
(MBGF TOTAL LENGTH INCLUDING UPSTREAM AND DOWNSTREAM TREATMENTS) Ltotal=	
TOTAL LENGTH TO THE NEAREST 25' INTERVAL =	

**VALLERIE LANE NS
METAL BEAM GUARD FENCE
CALCULATIONS**

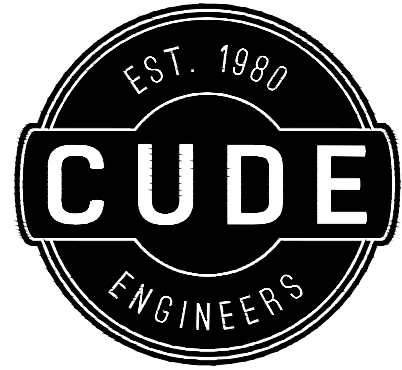
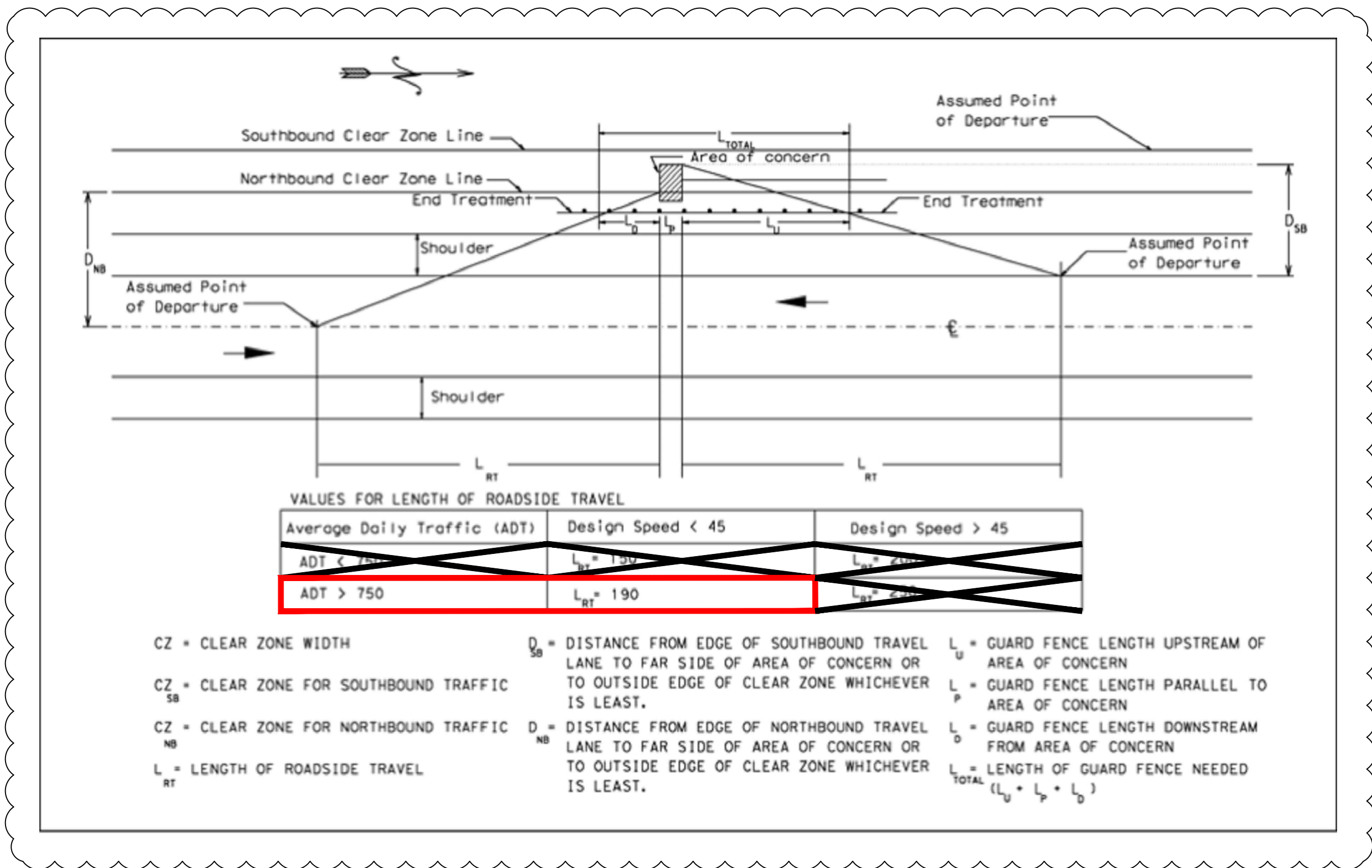
NORTHBOUND MBGF CALCULATOR	
ADT > 750	
Du=	7.50 ft
Gu=	6.00 ft
Lu=	50.00 ft
Dd=	10.00 ft
Gd=	16.00 ft
Ld=	0.00 ft
Lp=	40.00 ft
(MBGF TOTAL LENGTH) Ltotal=	
UPSTREAM - SINGLE GUARD TERMINAL SGT(12S)31-18	
DOWNSTREAM ANCHOR TERMINAL (GF (31) DAT-19) =	
(MBGF TOTAL LENGTH INCLUDING UPSTREAM AND DOWNSTREAM TREATMENTS) Ltotal=	
TOTAL LENGTH TO THE NEAREST 25' INTERVAL =	

SOUTHBOUND MBGF CALCULATOR	
ADT > 750	
Du=	7.50 ft
Gu=	6.00 ft
Lu=	50.00 ft
Dd=	10.00 ft
Gd=	10.00 ft
Ld=	0.00 ft
Lp=	35.00 ft
(MBGF TOTAL LENGTH) Ltotal=	
UPSTREAM - SINGLE GUARD TERMINAL SGT(12S)31-18	
DOWNSTREAM ANCHOR TERMINAL (GF (31) DAT-19) =	
(MBGF TOTAL LENGTH INCLUDING UPSTREAM AND DOWNSTREAM TREATMENTS) Ltotal=	
TOTAL LENGTH TO THE NEAREST 25' INTERVAL =	

**VALLERIE LANE EW
METAL BEAM GUARD FENCE
CALCULATIONS**

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)



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

**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS
METAL BEAM GUARD FENCE DETAIL**

DATE
02/20/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

REVISIONS

1.	2023 02 20 - HIGHLIGHTED PROPOSED LENGTHS.
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

STATE OF TEXAS
JAVIER CASTELLO
122170
PROFESSIONAL ENGINEER
CUDE ENGINEERS
TBPELS No. 10048500
02/21/2023