



COLLIN COUNTY

Office of the Purchasing Agent
2300 Bloomdale Road
Suite 3160
McKinney, Texas 75071
www.collincountytx.gov

ADDENDUM NO. One (1)

IFB 2021-084

INVITATION FOR BID

FOR

CONSTRUCTION, ROAD: COUNTY ROAD 317 (ORR RD) FROM STACY RD TO SOUTH NTMWD DRIVE

Date: December 16, 2020

NOTICE TO ALL PROSPECTIVE BIDDERS:

PLEASE MAKE THE FOLLOWING CHANGES TO THE INVITATION FOR BID:

ADD DOCUMENT: PLANS Part 1
ADD DOCUMENT: PLANS Part 2

CHANGE DOCUMENT NAME :
FROM: Spec Book and Plans
TO: Contract Documents/Specification Book

DELETE: Division I – Technical Specifications
REPLACE WITH: REVISED Division I – Technical Specifications (changes in red)

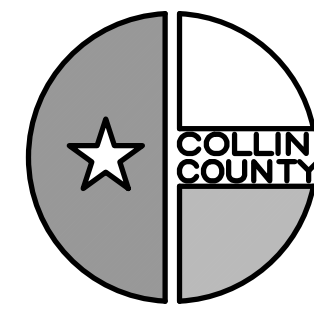
DELETE: Construction Agreement - SAMPLE
REPLACE WITH: REVISED Construction Agreement SAMPLE (changes in red)

ADD ATTRIBUTE: #20 - ADDENDUM 1 ACKNOWLEDGEMENT

PLEASE NOTE ALL OTHER TERMS, CONDITIONS, SPECIFICATIONS, DRAWINGS, ETC. REMAIN UNCHANGED.

SINCERELY,
MICHELLE CHARNOSKI, CPPB
PURCHASING AGENT

CONSTRUCTION PLANS FOR COUNTY ROAD 317 (ORR RD) FROM STACY RD TO SOUTH NTMWD DRIVEWAY COLLIN COUNTY, TEXAS



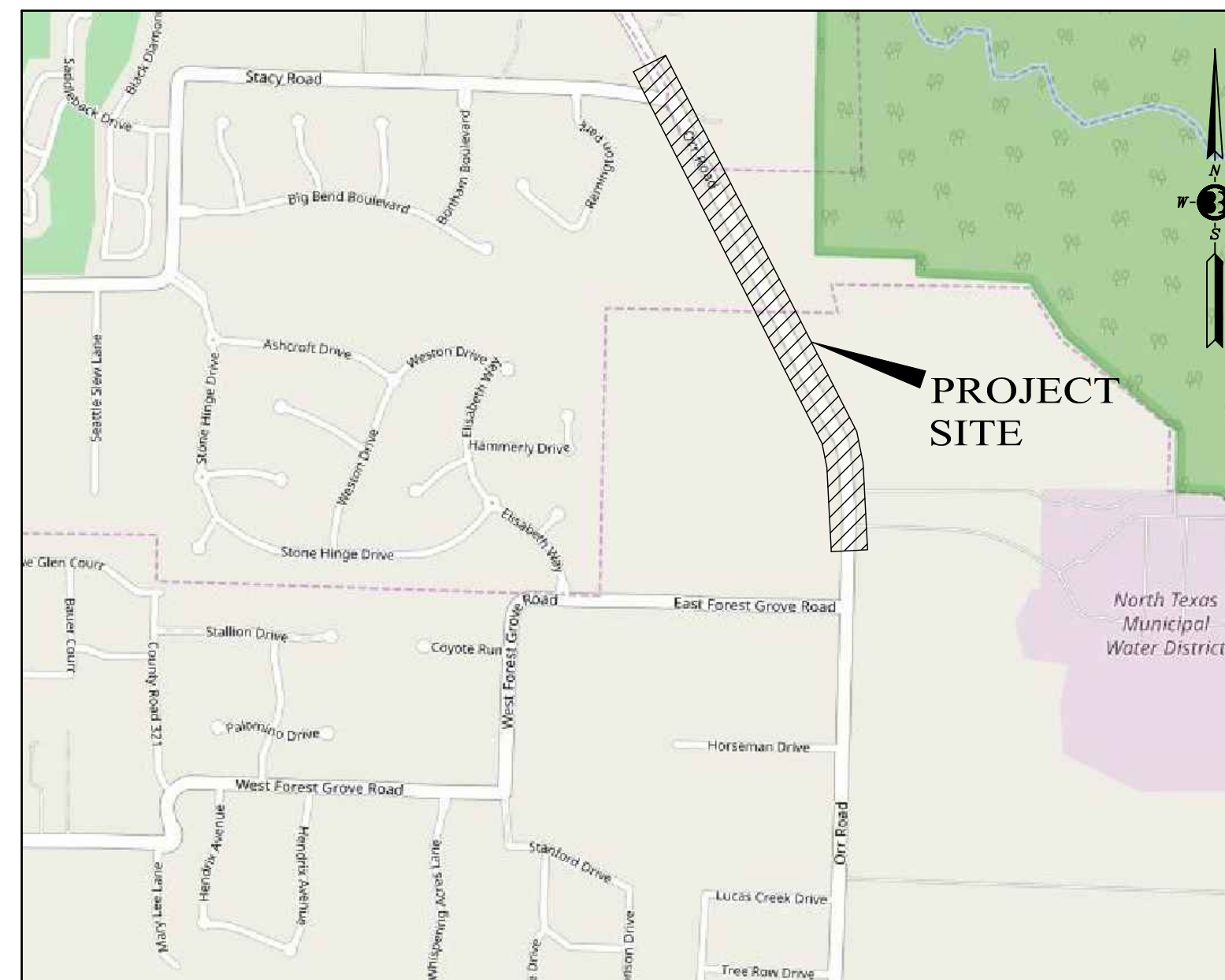
COLLIN COUNTY

COMMISSIONERS COURT

Chris Hill	County Judge
Susan Fletcher	PCT. 1
Cheryl Williams	PCT. 2
Darrell Hale	PCT. 3
Duncan Webb	PCT. 4

DIRECTOR OF PUBLIC WORKS

Jon Kleinheksel, PE



LOCATION MAP

INDEX of SHEETS

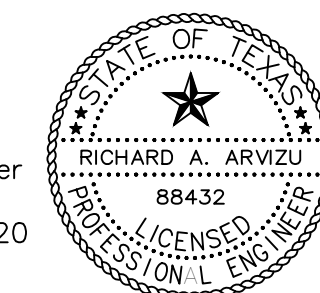
<u>Sheet No.</u>	<u>Title</u>
C1	Cover Sheet
G1	General Construction Notes
SC1	Survey Control Plan
SC2	Survey Control Plan
Q1	Quantities
D1	Overall Drainage Area Map
D2	Drainage Area - Ditch A&F
D3	Drainage Area - Ditch B&E
D4	Drainage Area - Ditch C&D
D5	Drainage Calculations (Ditch)
D6	Drainage Culvert Crossings
D7	Drainage Culvert Crossings
D8	Drop Inlet & Project Sign Detail
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SW1	SWPPP
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SD2	Standard Detail - TXDOT CH-FW-15
SD3	Standard Detail - TXDOT PSET-SP
SD4	Standard Detail - TXDOT GF(31)-19
SD5	Standard Detail - TXDOT SGT(125) 31-18



Binkley & Barfield, Inc. | TxEng F-257
1801 Gateway Blvd, Ste 101, Richardson, TX 75080
972.644.2800 | BinkleyBarfield.com

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Richard A. Arvizu



November 2020

GENERAL NOTES

A. SPECIFICATIONS

1. Controlling specifications for design and construction of this project are:

a. DESIGN SPECIFICATIONS

Standard Specifications for Highway Bridges as adopted by the American Association of State Highway and Transportation Officials, latest edition.

Highway bridge design live load is HS 20.

b. CONSTRUCTION AND MATERIAL SPECIFICATIONS

Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges adopted by the Texas Department of Transportation 2014, as listed or referred to in the specifications.

Paving Standard Details and Specifications for the project apply to those set forth in the most current Public Works Construction Standards published by the North Central Texas Council Governments.

B. EARTHWORK

- Contractor shall be responsible for any clearing and grubbing required for the proposed work in accordance with TxDOT Item 100 unless otherwise noted. This shall include removing any trees that directly conflict with construction. This shall be included as part of the bid item for Preparing Right of Way.
- Creek excavation and grading of slopes shall be in accordance with TxDOT Item 110 unless otherwise noted.
- Excavation for backfilling culvert walls and wingwalls shall be in accordance with TxDOT Item 400 unless otherwise noted.
- Excavation for roadway shall be in accordance with TxDOT Item 110. Backfill for roadway embankments shall be placed in accordance with TxDOT Item 132 unless otherwise noted.
- Borrow material for roadway embankment shall be in accordance with TxDOT Item 132, Type B, class 3 and shall be on-site soils or borrow materials not contaminated by organics and other debris or rock greater than six (6) inches in maximum dimension and shall be suitable for formation of a stable embankment. Suitability of backfill material shall be determined by Collin County.
- Embankment for culvert walls and wingwalls shall be in accordance with TxDOT Item 132, Type A. As a minimum, Type A embankment material shall be used to backfill within the horizontal and vertical limits of what was excavated for the footings and walls of the structure. This shall be incidental to all other bid items.
- All backfill for roadway, culvert walls and wingwalls shall be "Density Controlled" per TxDOT Item 132 unless otherwise noted. Density shall be 95% of the Standard Proctor (ASTM D698) at moisture contents within two (2) percent density of the optimum moisture content.
- Compaction testing shall be nuclear method conforming to ASTM D2922 (Density) and ASTM 3017 (Moisture).
- Compaction shall be obtained mechanically in accordance with TxDOT Item 210. No water jetting allowed.
- Equipment used for compaction shall be equipment specifically designed for the purpose of compacting soil materials. The use of other equipment i.e., dozers, loaders, backhoe is subject to approval of the Collin County Department of Public Works.
- An independent testing laboratory will be required to submit reports that clearly show that compliance with these notes and the project specifications have been met. (Refer also to Note K) Reports to be submitted to Collin County Public Works.
- Limits of ditch grading presented in the plan and profile sheets are for informational purposes, illustrate significant areas of re-grading, and may not represent full limits of grading/disturbance. Contractor shall perform ditch and channel grading within the limits of right-of-way and easements in accordance with the cross sections, spot elevations, and flowlines shown in the plans.

C. REMOVAL OF EXISTING STRUCTURE

- See specifications and plans regarding the removal and disposal existing structures.

D. CONCRETE (Structures)

- All concrete shall be furnished and placed in accordance with TxDOT Item 420 and 421 as amended by the Special Provisions of the technical specifications, and ASTM C94 and in compliance with A.C.I. hot weather or cold weather concreting recommendations unless otherwise noted. The more stringent specification or requirement shall be met.
 - All cast-in-place concrete for footings and wingwalls shall be Class "C" having a minimum compressive strength of 3600 psi at 28 days.
 - All cast-in-place concrete for concrete riprap shall be Class "C" having a minimum compressive strength of 3600 psi at 28 days.
 - Testing (Refer also to Note L).
- a. Mix design confirmation shall be required of each strength and class of concrete, from each different supplier and for each different phase of work. The confirmation shall be performed by an independent testing laboratory and the results shall be submitted to Collin County Public Works Department for approval prior to concrete installation on the project.
- b. The laboratory shall mold sets of 5 cylinders for compressive strength tests. The sets of cylinders are to be tested 2 @ 7 days, 2 @ 28 days and one hold cylinder. A set of

cylinders shall be cast for each mix used each day and for each different phase of work (i.e., piers, beams, slab). The frequency of cylinder sets shall be 1 set per 25 cubic yards of each mix used each day and for each different phase of work. Frequency of cylinder sets for continuous pours in excess of 100 cubic yards of concrete shall have 2 cylinder sets in the first 100 cubic yards and one set in each 100 cubic yards thereafter, for each mix used for each phase of work in each days work. The testing laboratory shall perform testing accordance to ASTM C172 (sampling), ASTM C31, (molding and curing cylinders), ASTM C143 (slump), ASTM C231 or ASTM 173 (air entrainment tests), and ASTM C39 (compressive strength tests).

- See specifications regarding evaluation of concrete strength.
- See specifications regarding removal of forms.
- Contractor is responsible to provide Construction Staking.

E. CONCRETE FINISH (Structures)

- Concrete finish shall be ordinary surface finish per TxDOT Item 420.4.M.

F. REINFORCING STEEL (Structures)

- All reinforcing steel shall be in accordance with TxDOT Item 440 unless otherwise noted and the following:
 - All reinforcing steel shall conform to ASTM A615 grade 60, except as noted in b below.
 - Any reinforcing steel to be welded shall conform to ASTM A706.
 - Unless otherwise shown on the plans, all reinforcing bars shall have a lap splice in accordance with ACI 318-02.

G. UTILITIES

- The information shown on the plans concerning type and location of underground and other utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determinations as to the type and location of underground and other utilities as may be necessary to avoid damages thereto and any relocations required by the owner of the utilities. All utilities damaged by the Contractor shall be repaired or replaced at his expense.

H. PAVING

- All subgrade preparation within the right-of-way shall be compacted to 95% standard proctor density and in conformance with the following report:

Geotechnical Exploration
Pavement Reconstruction
County Road 317 (Orr Rd) from Stacy Road South to NTMWD Driveway ALPHA Report No. G190209

Presented By:
ALPHA Testing
2209 Wisconsin Street
Dallas, Texas 750229

- All costs for labor and materials required for construction joints, expansion joints, doweled pavement joints, headers, and sawcut are incidental to all other bid items.
- All sawcuts shall be full depth.
- Concrete paving shall have a minimum compressive strength of 3600 p.s.i. at 28 days
- Reinforcing shall be new billet steel ASTM A615 grade 60 reinforcing bars which shall be free of rust, loose scale, paint, oil or other foreign substances which shall prevent bonding of the concrete and reinforcing bars.
- Reinforcement for pavement shall consist of #4 bars on 18" centers both ways.
- Expansion joints shall be installed a maximum distance of six hundred (600) feet apart and at intersection radii.
- Extend subgrade 12" past edge of pavement. Shoulder backfill shall be comprised of asphalt millings.
- Sand may not be used for level-up under paving.
- All concrete shall be mechanically vibrated.
- All concrete is to be membrane cured for 72 hours minimum. white curing compound is to be applied, per manufacture's recommendations, to all exposed concrete surfaces (immediately after completion of paving operations, per ASTM C-309, Type 2, NCTCOG Section 2.2.1(b)(1)).
- No vehicle traffic shall be permitted on newly paved Portland cement concrete areas for seven days after pour or until 3,000 p.s.i. is achieved.
- Joint sealer is to be a hot-poured, rubber base compound, ASTM D-3406, per NCTCOG

2.2.10(b)

- No water, rain spots, wash poly covering or surface marking damage of any kind will be accepted. Any concrete placed late in the day must be manned and protected from damage.

I. SUBSURFACE INFORMATION

- Subsurface information is available in the following report:

Geotechnical Exploration
Pavement Reconstruction
County Road 317 (Orr Rd) from Stacy Road South to NTMWD Driveway ALPHA Report No. G190209 Including all addendums

Presented By:
APLHA Testing
2209 Wisconsin Street
Dallas, Texas 750229
Dated: April 2, 2019

Neither Collin County nor Binkley & Barfield, Inc. will accept any responsibility for the accuracy or completeness of said data. The geotechnical reports may be viewed in the Collin County Public Works Department, 700 A Wilmeth Rd McKinney, Texas 75069 and the offices of Binkley & Barfield, Inc., Richardson, Texas.

J. FENCES

- The Contractor shall be responsible for removing and replacing all fences that are designated to be relocated in the Plans, or are disturbed or removed by him during Construction. All such fences shall be constructed in accordance with TxDOT Drawings (Chain-Link Barrier Fences-CLF and Barbed Wire Fence and Woven Wire Fence, Timber Posts-WF) and TxDOT Items 550 and 552 unless otherwise specified in plans. Final location of fence shall be confirmed by the Contractor with the County Inspector. Replace gates with Type 3 gate unless otherwise specified in plans.
- Where fences are removed by the Contractor, temporary fences shall be provided by the Contractor to protect livestock. Such fences are to be constructed immediately upon removal of the existing fence, and shall remain in place for the duration of the construction and until the permanent replacement fence is installed. Temporary fences shall be constructed of suitable equality (equal to, or better than existing) to retain the livestock. Contractor is solely and entirely responsible for the loss of existing livestock present on each property and adjacent at each work site due to missing or inadequate fences removed or installed by him.

K. EROSION CONTROL

- Throughout the contract, the Contractor shall be responsible for erosion control and mitigation of the project area.
- All TCEQ required permits (NOI or Construction Site Notice) must be submitted to the MS4 Operator which is Collin County at Collin County Public Works Department, 700 A Wilmeth McKinney, Texas 75069.
- The contractor is responsible for the implementation of a Storm Water Pollution Prevention Plan (SWPPP) for the project and submitting the plan to the owner for review and approval prior to construction as part of the Temporary Erosion, Sedimentation & Water Pollution Prevention Control bid item. Contractor may use the SWPPP contained in this plan set as the basis for the SWPPP, but shall modify and update as required. It is not necessary to that a registered professional engineer sign or seal the SWPPP. Obtaining the required permits and submission and posting of a construction site notice shall be part of this item.
- All contractors shall comply with the requirements and intent of the N.P.D.E.S. General Permit for Stormwater Discharges.
- Contractor shall take appropriate measures to prevent tracking of mud and/or soils onto existing and/or new pavement. any tracking that occurs shall be removed immediately by the contractor.
- Damage to adjacent property and/or to receiving waters caused by improperly installed or poorly maintained erosion control measures will be the responsibility of the contractor.
- The contractor shall be responsible for the removal and disposal of any siltation caused by the operations and/or failure of the erosion control devices.
- The contractor shall inspect the project every seven days, at a minimum, and after every rainfall if one-half inches or greater to determine the integrity and effectiveness of the erosion control measures. A written inspection report will be filed with the SWPPP. This inspection does not relieve the contractor's responsibility for inspection and maintenance of the erosion control measures or his duty to comply with the intent and conditions of the N.P.D.E.S. General Permit.
- All stockpiled soils will be surrounded by a silt fence, sediment control swale, or equivalent measure to properly control sediment runoff, as approved by the owner.
- Contractor shall stabilize any area where construction activity is to be temporarily or permanently ceased for more than 14 days.

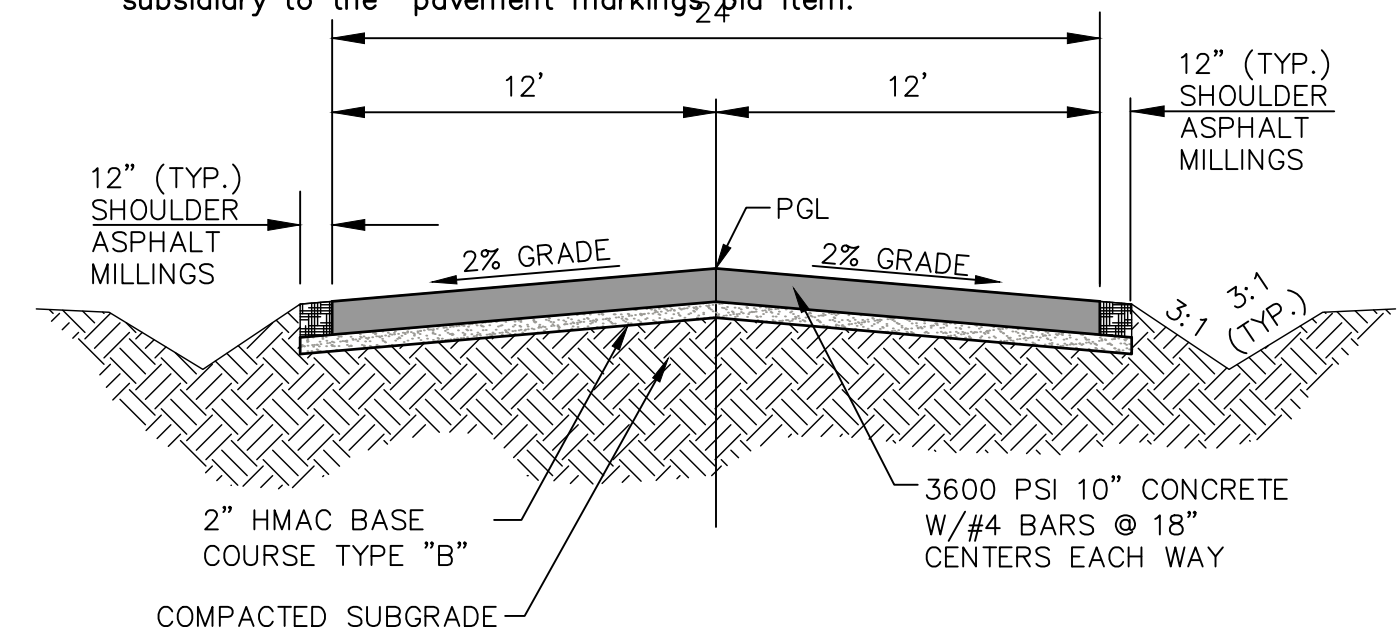
- Apply seeding in all right of way areas, drainage easements, and along all disturbed areas in accordance with TxDOT Item 464. Water as necessary until 70% minimum vegetative cover is established. Vegetative watering shall be considered incidental to all other items.

L. TESTING

- Collin County shall be responsible for hiring an approved testing laboratory. The Contractor shall notify the laboratory and the Collin County Department of Public Works 24 hours in advance of required testing. Additional testing may be required on "questionable" material as directed by Collin County Department of Public Works or upon the request of the Independent Laboratory. The cost of additional testing or evaluations of tests to be borne by the Contractor. The testing laboratory may be requested to review its test reports and provide an evaluation as to the quality of workmanship or materials tested. This may be requested by the Department of Public Works of Collin County. The laboratory may reject questionable materials and workmanship which does not comply with applicable specifications.
- See specific requirements for testing of various materials as indicated on the plans and project specifications. In case of conflict, the notes shown in the plans shall govern.
- Paving shall be tested in accordance with NCTCOG specifications, including but not limited to ASTM C31 and ASTM C172 Standard Practice for Sampling Freshly Mixed Concrete. Four test cylinders shall be taken from a representative portion of the concrete being placed for every 150-cubic yards of concrete pavement placed, but in no case shall less than 2 sets of cylinders be taken from any one day's placement. For smaller placements, the testing frequency may be adjusted at the OWNER'S discretion. After the cylinders have been cast, they shall remain on the job site and then transported, moist cured, and tested by the OWNER in accordance with ASTM C31 and ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens. In each set, one of the cylinders shall be tested at 7-days, two cylinders shall be tested at 28-days, and one cylinder shall be held or tested at 56-days, if necessary
- The County reserves the right to request and the Contractor shall make accessible more frequent testing, as needed.

M. CONSTRUCTION DAMAGE

- The Contractor shall perform work activities within the right of way limits shown on the plans. The Contractor shall be responsible for protecting adjacent properties outside the work area from damage due to his work activities. The Contractor shall be solely liable for any damage due to property trespassed upon by him. In the event of such trespassing and ensuing damage by the Contractor, the Contractor shall obtain, from the affected property owner, a written, signed and notarized "Release of All Claims" indemnifying the County and Binkley & Barfield, Inc. from any and all liability to the property owner for damages. Notarized copies of said documents shall be furnished to the aforementioned parties.
- PAVEMENT MARKINGS Preparation of surfaces for pavement markings shall be considered subsidiary to the pavement markings bid item.



TYPICAL CONCRETE PAVING SECTION

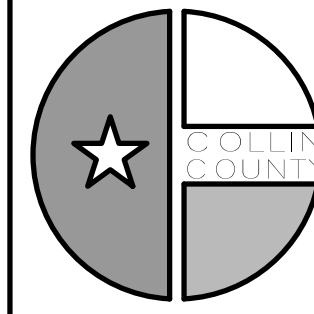
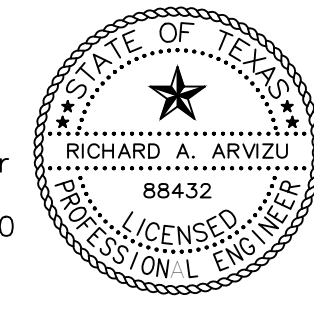
* HMAC BASE SHALL MEET TxDOT STANDARD SPECIFICATION ITEM 341.

- NOTES:
- PRIOR TO CONSTRUCTION OF PAVEMENT SECTION, THE EXPOSED CLAY SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF AT LEAST 6 INCHES AND COMPACTED TO AT LEAST 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698) AND WITHIN THE RANGE OF -1 TO +3 PERCENTAGE POINTS OF THE MATERIAL'S OPTIMUM MOISTURE CONTENT.
 - MAXIMUM TRANSVERSE JOINT SPACING IS 15'.
 - LONGITUDINAL JOINT AT CENTER OF ROAD.
 - ALL SAWN CONTRACTION JOINTS SHALL BE 1/8" TO 3/16" WIDE AND ONE-FOURTH THE DEPTH OF THE PAVEMENT THICKNESS.
 - ALL PAVEMENT JOINTS SHALL BE SELAED W/ HOT POURED RUBBER JOINT SEALING COMPOUND. ASTM D-3406 PER NCTCOG 303.2.14.1 HOT POURED POLYMER.
 - EXPANSION JOINTS SHALL BE SPACED AT 600' MAXIMUM, AT INTERSECTION PC'S & PT'S AND SUCH THAT NO JOINT FALL WITHIN THE LIMITS OF A DRIVEWAY APPROACH.
 - CONTRACTOR SHALL PROVIDE CONCRETE PAVEMENT JOINT LAYOUT TO OWNER FOR APPROVAL PRIOR TO PLACING OF CONCRETE.
 - SUFFICIENT EXISTING ASPHALT PAVEMENT SHALL BE MILLED TO GENERATE CLEAN BACKFILL MATERIAL FOR PAVEMENT SHOULDERS. THE MILLED MATERIAL SHALL BE PULVERIZED TO PASS A 2-INCH SIEVE. THE CONTRACTOR SHALL ENSURE UNDERLYING MATERIALS ARE NOT INCLUDED IN THE MILLINGS. (INCIDENTAL TO ALL OTHER BID ITEMS)

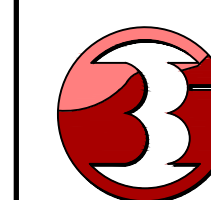
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Existing utilities and underground facilities indicated on these plans have been located from reference information. It shall be the responsibility of the contractor to verify both horizontally and vertically the location of all existing utilities and underground facilities prior to construction, to take the necessary precautions in order to protect all facilities encountered. The contractor shall preserve and protect all existing utilities from damage during construction.

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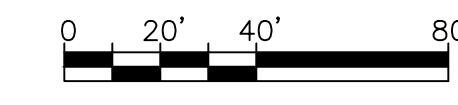
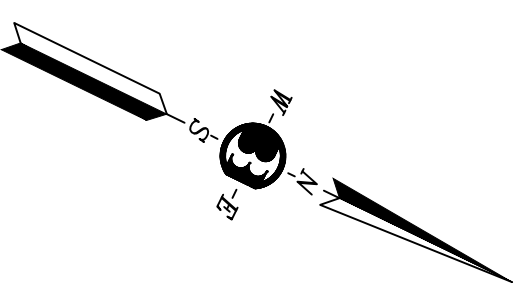
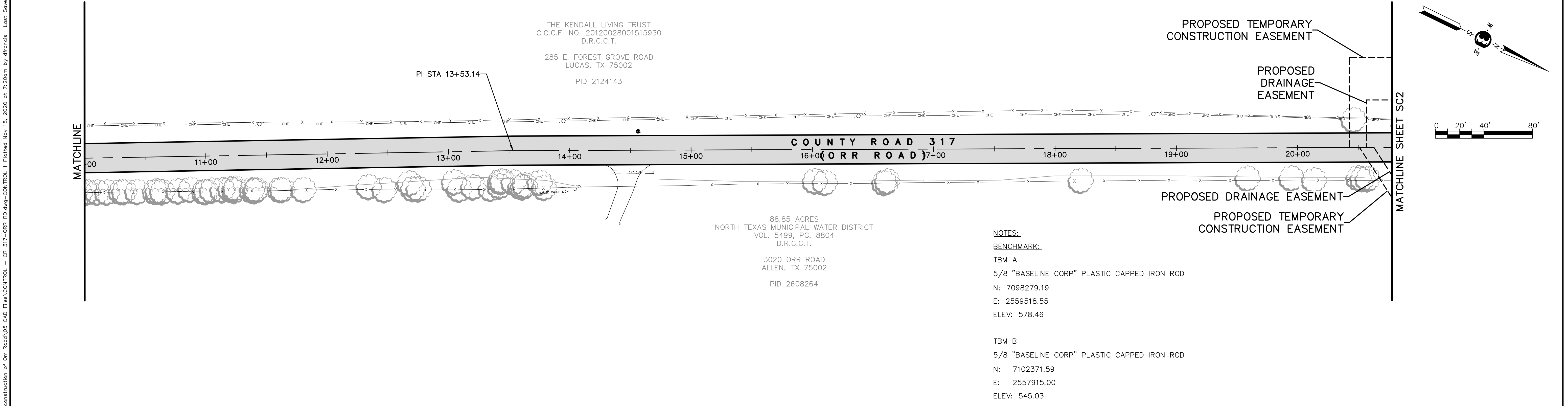
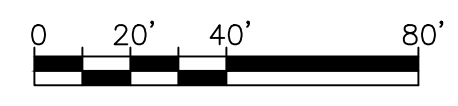
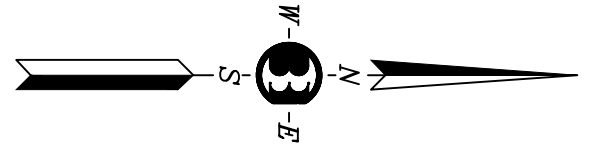
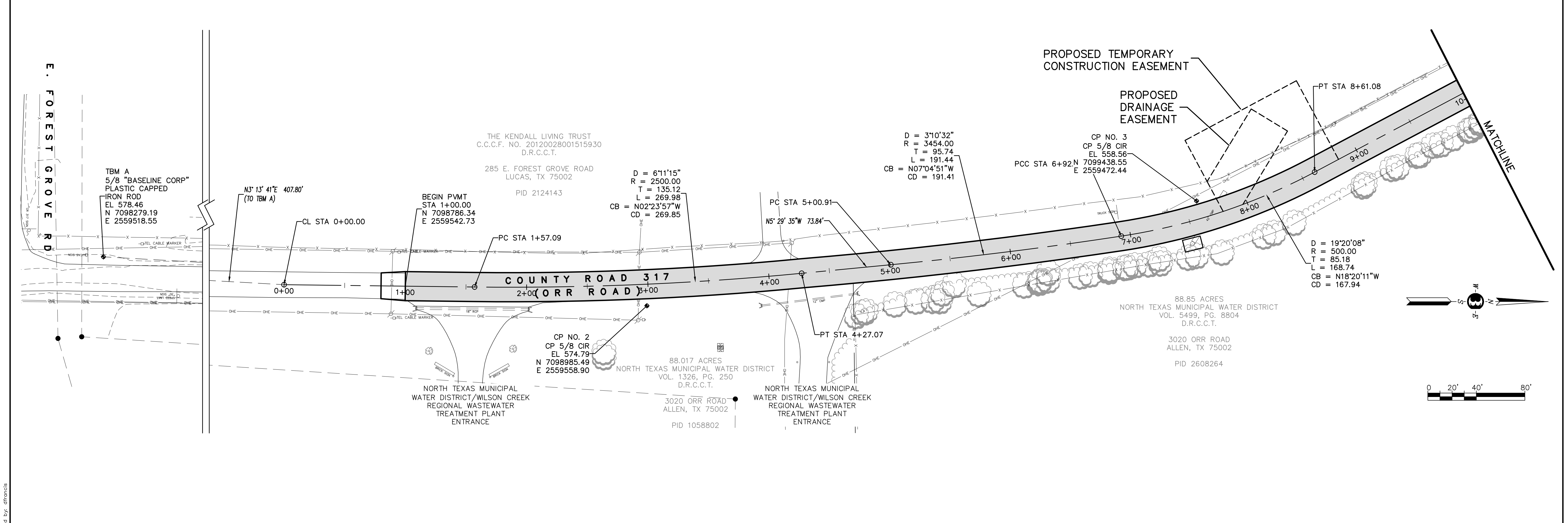
CR 317 (ORR ROAD)
COLLIN COUNTY

GENERAL CONSTRUCTION NOTES

Rev	Description	Date

Scale: NA	Date: Nov 18, 2020	Job No.: BB19006	G1
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NOTES:

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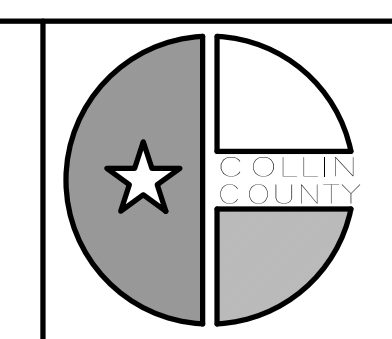
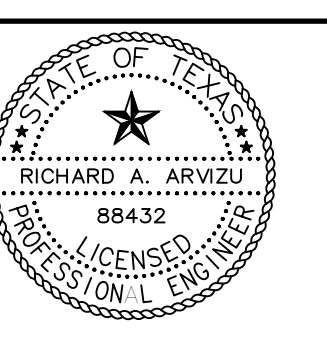
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 ELEV: 545.03

Rev	Description	Date

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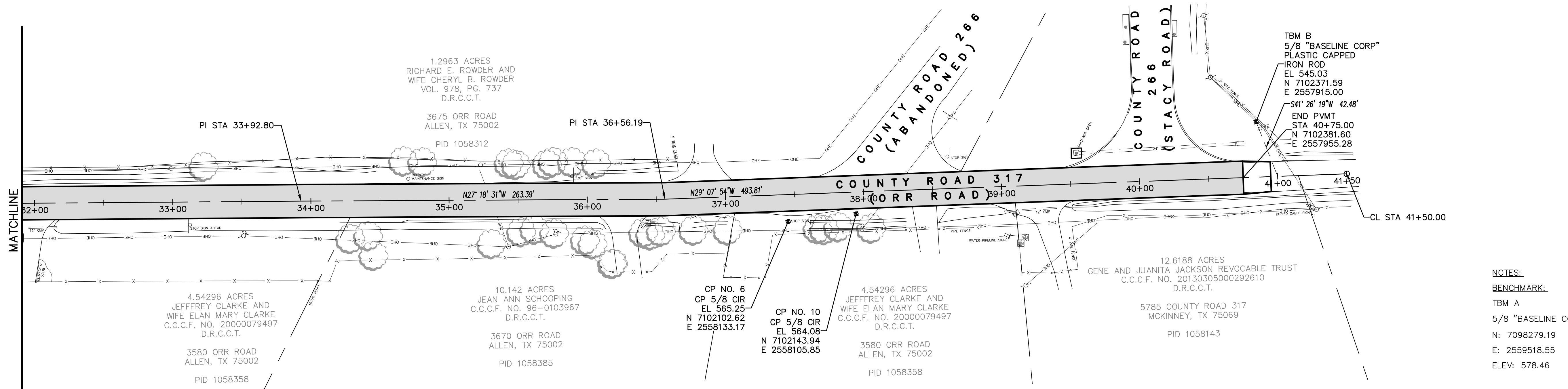
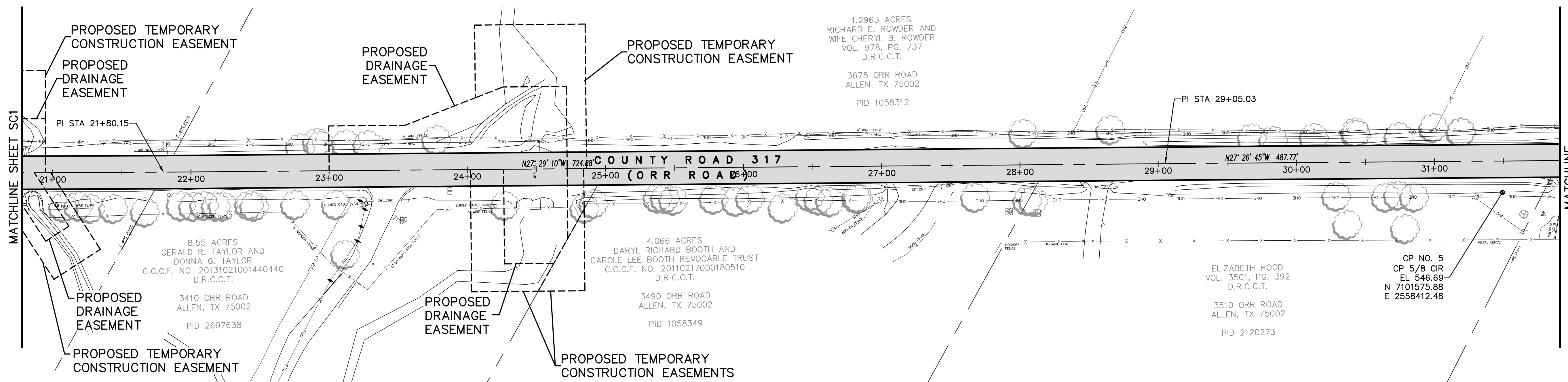
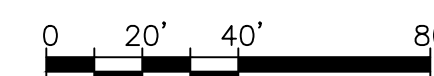
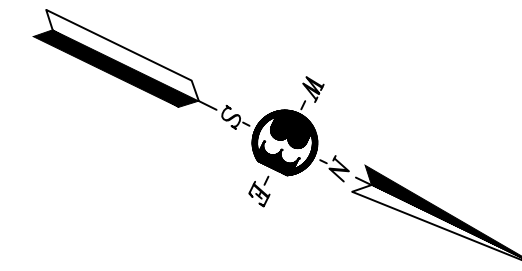


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 www.binkleybarfield.com

CR 317 (ORN ROAD) COLLIN COUNTY			
SURVEY CONTROL PLAN			
Scale: 1"=40' H	Date: Nov 18, 2020	Job No.:	BB19006
			SC1

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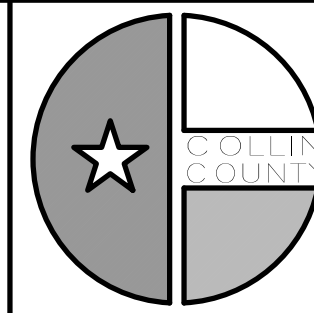
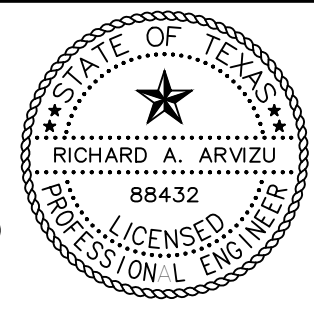
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CR 317 (ORR ROAD) COLLIN COUNTY			
SURVEY CONTROL PLAN			
Scale: 1"=40' H	Date: Nov 18, 2020	Job No.: BB19006	SC2

N: BB19006 (Collin County) Reconstruction of Orr Road 05 CAD Files\CONTROL 2 Plotted Nov 18, 2020 at 7:20am by dfrenchie | Last Saved by: dfrenchie

Rev	Description	Date

QUANTITY TABLE

Item	Spec	Description	Units	Quantity	Sheet P1	Sheet P2	Sheet P3	Sheet P4	Sheet P5	Sheet P6	Sheet P7	Sheet P8	Sheet P9
1	500	MOBILIZATION	LS	1	0	0	0	0	0	0	0	0	0
2	100	ROW PREP	AC	4	0	0	0	0	0	0	1	0	0
3	110	UNCLASSIFIED CHANNEL EXCAVATION	CY	700	0	0	0	0	0	0	0	0	0
4	110	UNCLASSIFIED ROADWAY EXCAVATION	CY	2130	0	0	0	0	0	0	0	0	0
5	560	REMOVE AND REPLACE MAILBOXES	EA	6	0	0	0	0	0	1	2	2	1
6	644	REMOVE AND REPLACE STREET SIGNS	EA	11	0	1	0	1	2	2	0	3	2
7	550 & 552	REMOVE AND REPLACE FENCE	LF	500	0	100	0	0	200	200	0	0	0
8	360	CONCRETE PAVEMENT (10")	SY	10812	1067	1333	1067	1333	933	1467	1333	933	1346
9	360	CONSTR 10" CONCRETE DRIVEWAY	SY	139	139	0	0	0	0	0	0	0	0
10	360	CONSTR 6" CONCRETE DRIVEWAY	SY	389	47	0	0	39	0	81	51	42	129
11	105	REMOVE TREATED AND UNTREATED ASPHALT AND BASE MATERIAL	SY	10204	1103	1254	1033	1194	834	1341	1237	908	1300
12	340	DENSE-GRADED HOT-MIX ASPHALT (SMALL QUANTITY)	SY	102	51	0	0	0	0	0	0	0	51
13	100	REMOVE CONC HEADWALL	EA	2	2	0	0	0	0	0	0	0	0
14	100	REMOVE STRUCTURE, PIPE (84" STEEL)	LF	50	0	0	0	0	0	50	0	0	0
15	100	REMOVE STRUCTURE, PIPE (24" CMP)	LF	72	0	0	0	0	72	0	0	0	0
16	100	REMOVE STRUCTURE, PIPE (42" CMP)	LF	50	0	50	0	0	0	0	0	0	0
17	100	REMOVE DRWY CULVERT (PIPE)	LF	242	81	0	0	35	0	74	52	0	0
18	460	INSTALL 42" CMP (N=2) (GALV STL) (BITUMINOUS COATED)	LF	80	0	80	0	0	0	0	0	0	0
19	460	INSTALL 84" CMP (GALV STL) (BITUMINOUS COATED)	LF	44	0	0	0	0	0	44	0	0	0
20	460	INSTALL 24" CMP (GALV STL) (BITUMINOUS COATED)	LF	96	0	0	0	0	96	0	0	0	0
21	464	INSTALL 18" RCP (CLASS IV) (DRIVEWAY)	LF	252	108	0	0	0	0	44	52	26	22
22	464	INSTALL 24" RCP (CLASS IV) (DRIVEWAY)	LF	65	0	0	0	35	0	30	0	0	0
23	467	18" PSET-SP CONC HEADWALL (TY II) (RCP) (6:1)	EA	16	4	0	0	0	0	2	4	2	4
24	467	24" PSET-SP CONC HEADWALL (TY II) (RCP) (6:1)	EA	4	0	0	0	2	0	2	0	0	0
25	466	42" CONCRETE HEADWALL CH-FW-0 (2:1)	EA	1	0	1	0	0	0	0	0	0	0
26	466	24" CONCRETE HEADWALL CH-FW-15 (3:1)	EA	2	0	0	0	0	2	0	0	0	0
27	466	84" CONCRETE HEADWALL CH-FW-0 (3:1)	EA	2	0	0	0	0	0	2	0	0	0
28	432	CONCRETE RIP RAP (5IN)	SY	25	0	8	0	0	17	0	0	0	0
29	432	STONE RIP RAP (COMMON) (18") (DRY)	SY	212	0	110	0	0	34	68	0	0	0
30	100	REMOVE INLET	EA	1	0	1	0	0	0	0	0	0	0
31	DRAWING	48" CMP DROP INLET	EA	1	0	1	0	0	0	0	0	0	0
32	132	EMBANKMENT (FINAL) (DENS CONT) (TY B)	CY	500	0	0	0	0	0	0	0	0	0
33	341	2" HMAC TYPE "B" BASE COURSE	TON	1287	127	159	127	159	111	175	159	111	158
34	210	SUBGRADE PREPARATION (6" MOISTURE CONDITION & COMPACTION)	SY	11696	1156	1444	1156	1444	1011	1589	1444	1011	1440
35	401	FLOWABLE FILL	CY	70	0	25	0	0	20	25	0	0	0
36	666	REF PAV MRK TY II (Y) 4" (SLD)	LF	8030	840	1000	800	1000	700	1100	1000	700	890
37	666	REF PAVE MRK TY II (W) 4" (SLD)	LF	8030	840	1000	800	1000	700	1100	1000	700	890
38	164	STRAW/HAY MULCH SEEDING (PERM) (URBAN)(CLAY)	SY	19320	2110	2380	1860	2460	1530	1900	3030	2400	1650
39	DRAWING	EROSION CONTROL	LS	1	0	0	0	0	0	0	0	0	0
40	502	BARRICADES, SIGNS & TRAFFIC HANDLING	MO	8	0	0	0	0	0	0	0	0	0
41	540	METAL BEAM GUARD FENCE (MBGF)	LF	100	0	0	0	0	0	100	0	0	0
42	544	SINGLE GUARDRAIL TERMINAL (SGT)	EA	4	0	0	0	0	0	4	0	0	0
43	402	TRENCH EXCAVATION PROTECTION	LF	130	0	80	0	0	0	50	0	0	0
44	DRAWING	PROJECT SIGN	EA	2	0	0	0	0	0	0	0	0	0

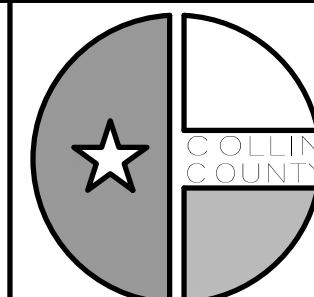
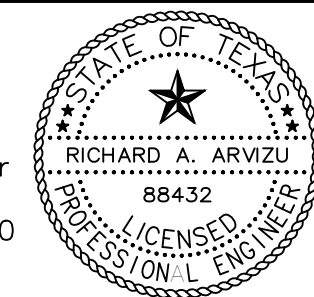
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CAUTION EXISTING UTILITIES !!!

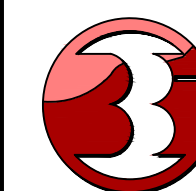
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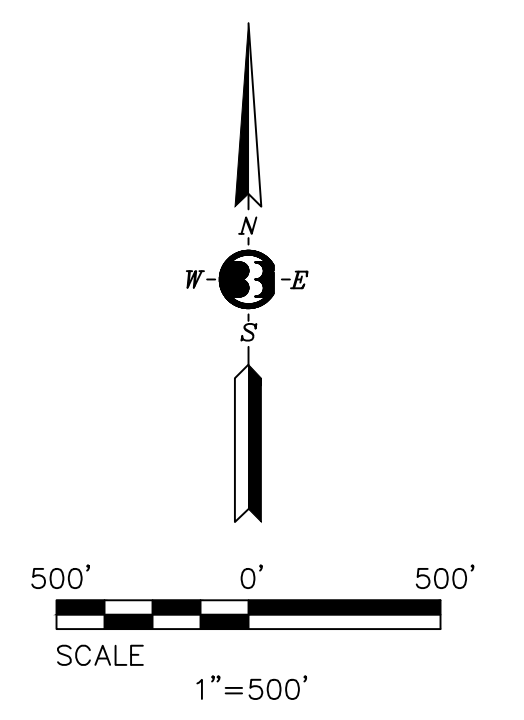
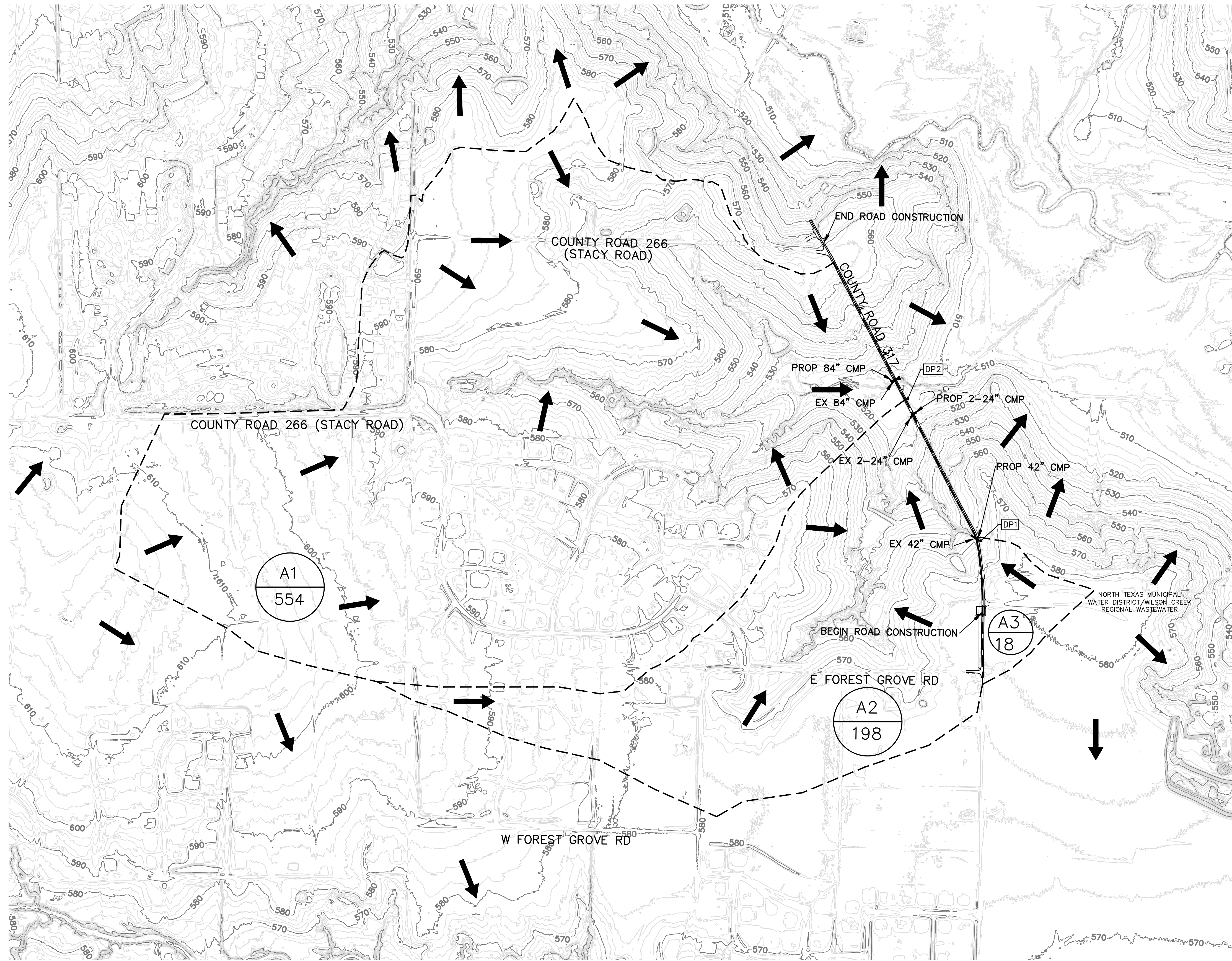
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CR 317 (ORR ROAD)
COLLIN COUNTY

QUANTITIES

Scale: NTS	Date: Nov 18, 2020	Job No.: BB19006	Q1
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- LEGEND**
-  DRAINAGE AREA NUMBER
 -  ACRES
 -  DRAINAGE DIVIDE
 -  FLOW ARROW
 -  DRAINAGE DESIGN POINT NUMBER
 -  2' MAJOR CONTOUR
 -  2' MINOR CONTOUR

TABLE 1 - DRAINAGE AREA DISCHARGE SUMMARY

DRAINAGE AREA	Q1* (cfs)	Q2* (cfs)	Q5* (cfs)	Q10* (cfs)	Q25* (cfs)	Q50* (cfs)	Q100* (cfs)
A1	248	441	702	875	1165	1349	1572
A2	135	239	379	472	627	726	844
A3	22	38	60	74	98	113	132

TABLE 2 - DESIGN POINT DISCHARGE SUMMARY

DESIGN POINT	Q1* (cfs)	Q2* (cfs)	Q5* (cfs)	Q10* (cfs)	Q25* (cfs)	Q50* (cfs)	Q100* (cfs)	EXISTING DESCRIPTION	PROPOSED DESCRIPTION
1	22	38	60	74	98	113	132	42" CMP	1-42" CULVERT
2	348	619	988	1228	1637	1898	2212	84" & (2) 24" CMP'S	2-24" CULVERT & 1-84" CULVERT

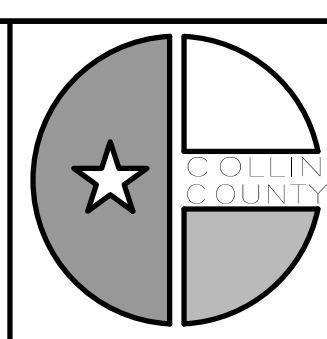
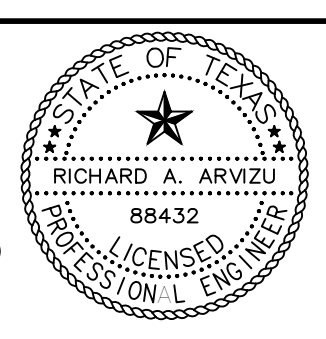
*DRAINAGE FLOWS TAKEN FROM FLOODPLAIN ANALYSIS PERFORMED BY DEH CONSULTING REPORT NO. 1905 DATED FEBRUARY 25, 2020.

NOTE: DUE TO CULVERT ELEV. & TOPOGRAPHY, IN MODERATE TO HIGH FREQUENCY RAINFALL EVENTS, THE 84" AND DOUBLE 24" CULVERTS FUNCTION AS A SINGLE CULVERT (DESIGN POINT 2)

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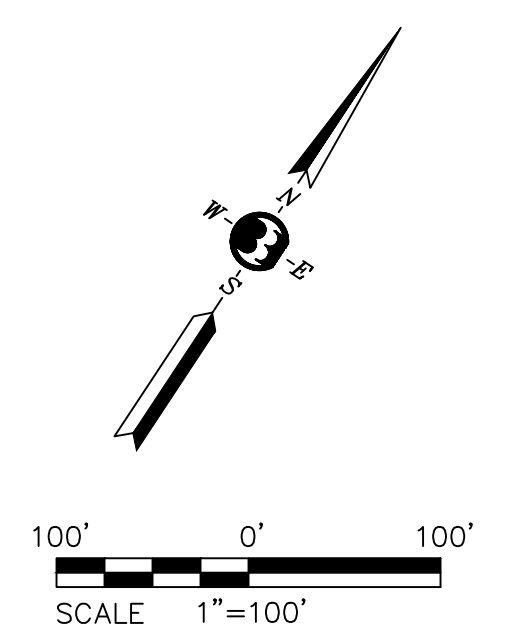


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CR 317 (ORR ROAD) COLLIN COUNTY			
DRAINAGE AREA MAP			
Scale: 1"=500' H	Date: Nov 18, 2020	Job No.:	BB19006
			D1

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Rev	Description	Date



- LEGEND**
- DRAINAGE AREA NUMBER
ACRES
 - DRAINAGE DIVIDE
 - FLOW ARROW
 - DRAINAGE DESIGN POINT NUMBER (DITCHES)
 - 2' MAJOR CONTOUR
 - 2' MINOR CONTOUR

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Rev	Description	Date

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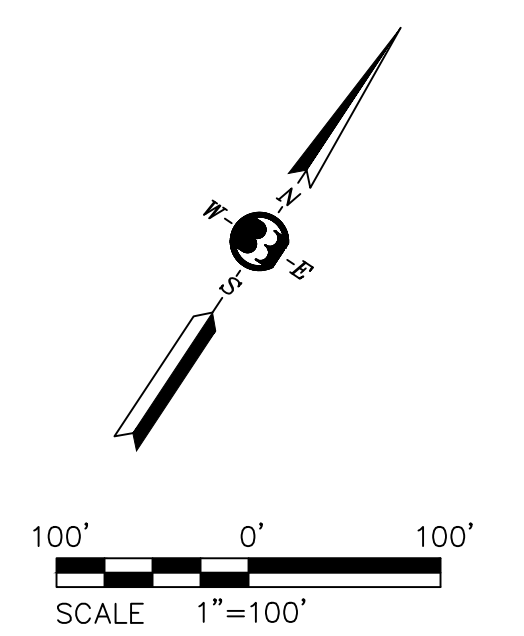
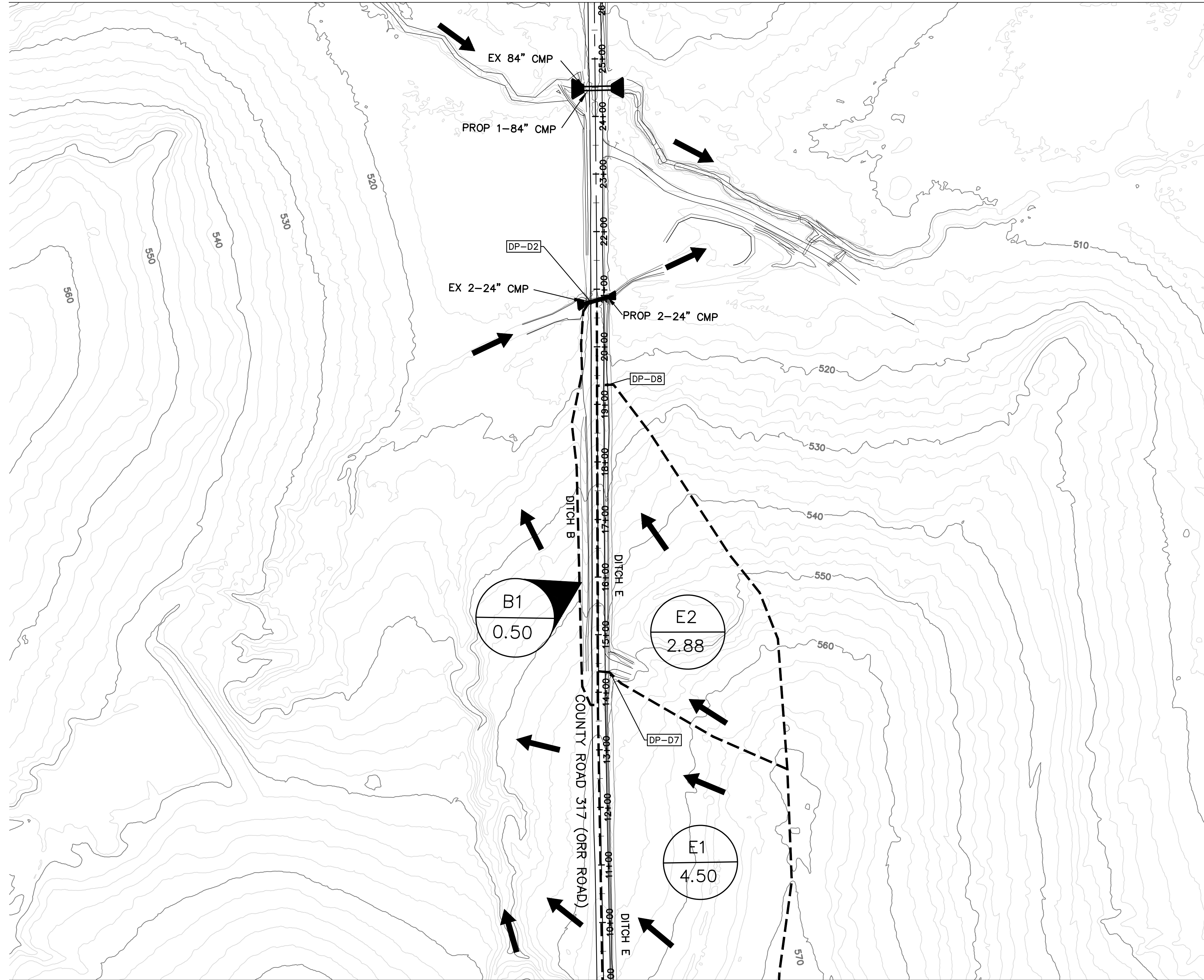
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CR 317 (ORR ROAD) COLLIN COUNTY	
DRAINAGE AREA - DITCH A&F	
Scale: 1"=100' H	Date: Nov 18, 2020
Job No.: BB19006	D2

MATCHLINE SHEET D2



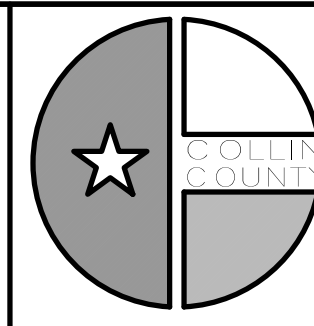
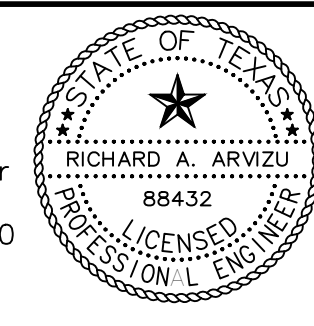
- LEGEND**
- DRAINAGE AREA NUMBER
 - ACRES
 - DRAINAGE DIVIDE
 - FLOW ARROW
 - DRAINAGE DESIGN POINT NUMBER (DITCHES)
 - 2' MAJOR CONTOUR
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MATCHLINE SHEET D4

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CR 317 (ORR ROAD)
COLLIN COUNTY

DRAINAGE AREA - DITCH B&E

Scale: 1"=100' H

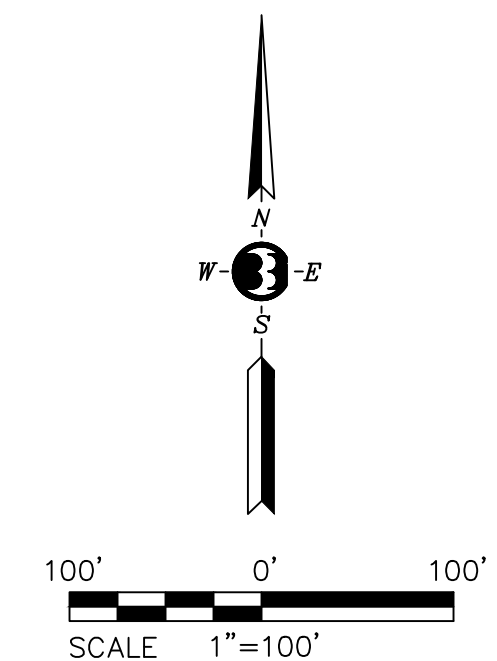
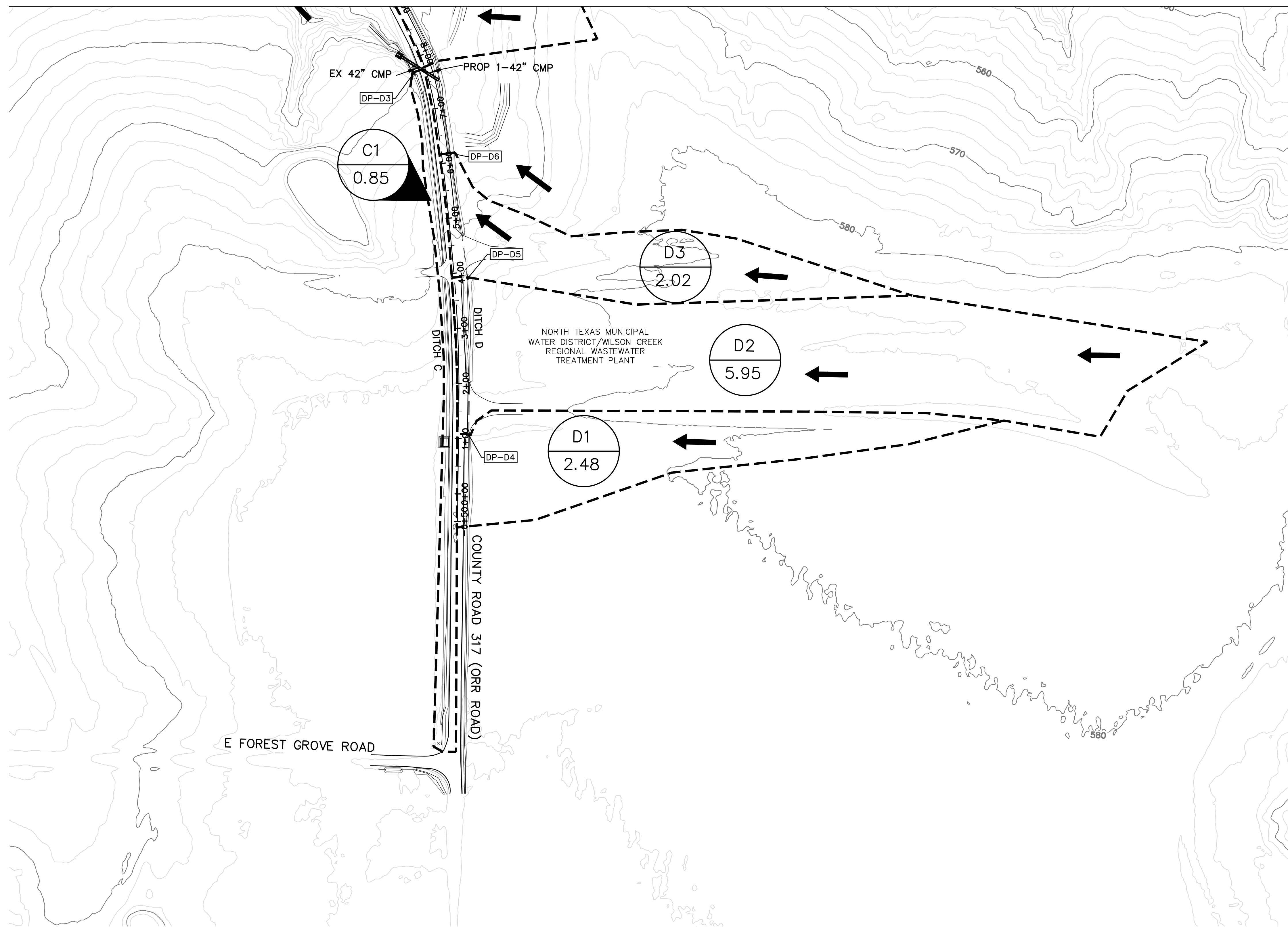
Date: Nov 18, 2020

Job No.: BB19006

D3

Rev	Description	Date

MATCHLINE SHEET D3



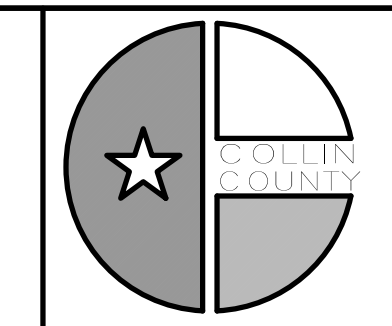
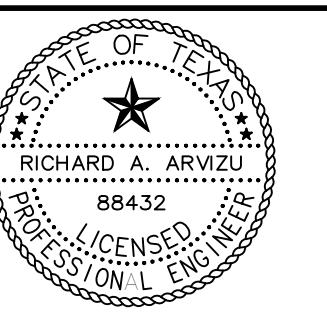
- LEGEND
- DRAINAGE AREA NUMBER
 - ACRES
 - DRAINAGE DIVIDE
 - FLOW ARROW
 - DRAINAGE DESIGN POINT NUMBER (DITCHES)
 - 2' MAJOR CONTOUR
 - 2' MINOR CONTOUR

N: BB19006 (Collin County) Reconstruction of Orr Road 05 CAD Files\Orr Road - Ditch Capacity\dwg-DAM Ditches C & D Plotted Nov 18, 2020 at 7:22am by dfrancis | Last Saved by: dfrancis

Rev	Description	Date

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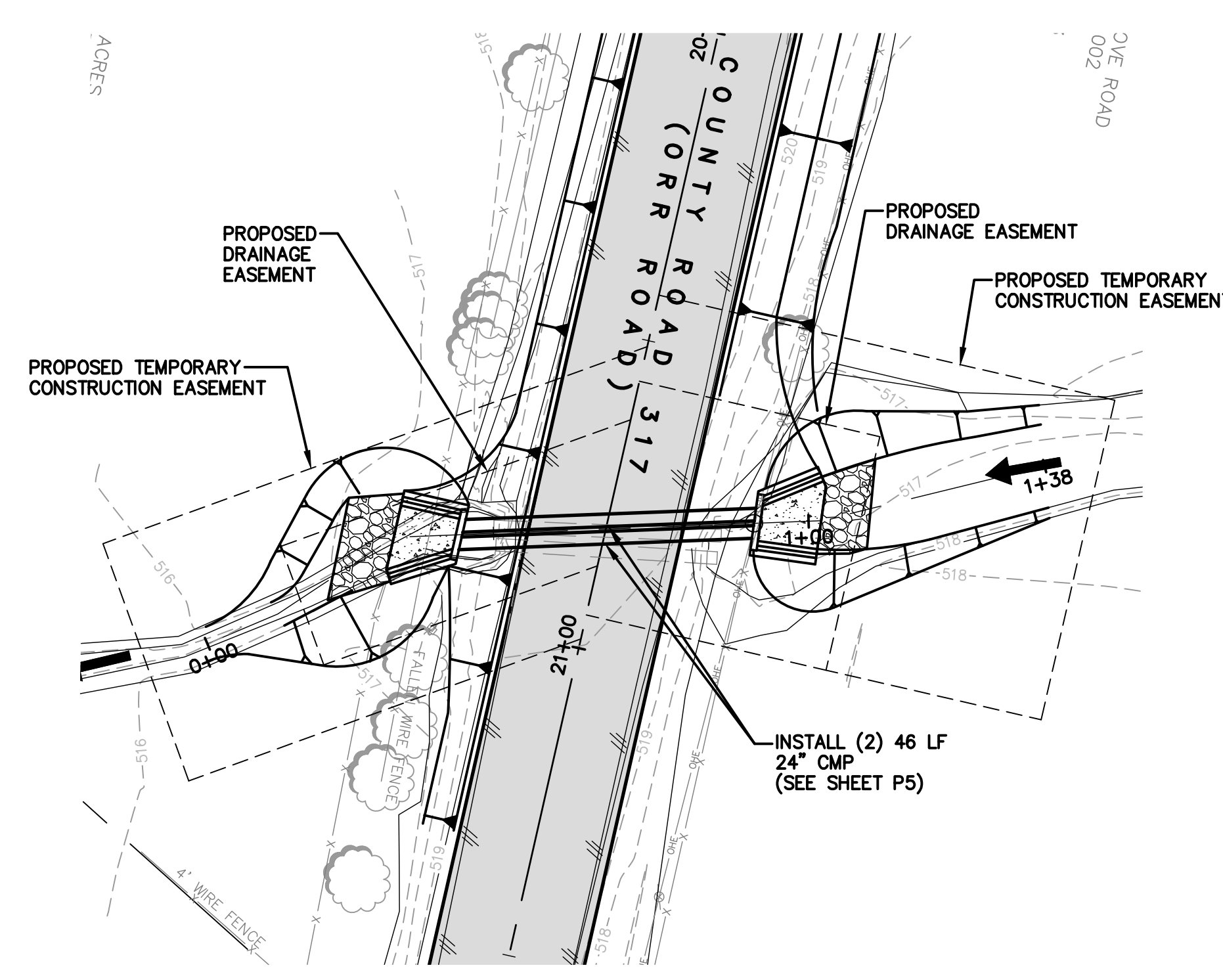
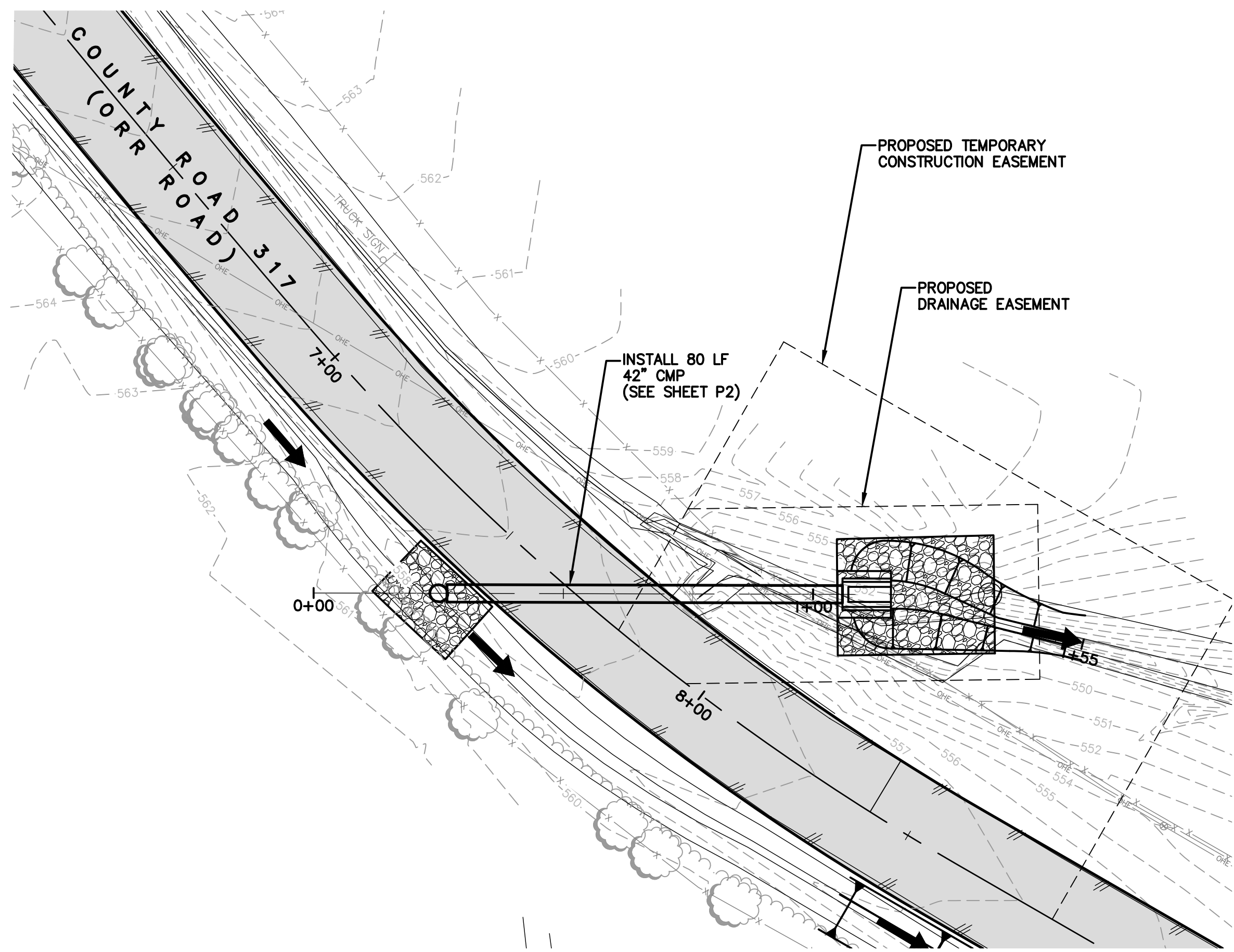
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CR 317 (ORR ROAD) COLLIN COUNTY		
DRAINAGE AREA - DITCH C&D		
Scale: 1" = 100'	Date: Nov 18, 2020	Job No.: BB19006
		D4

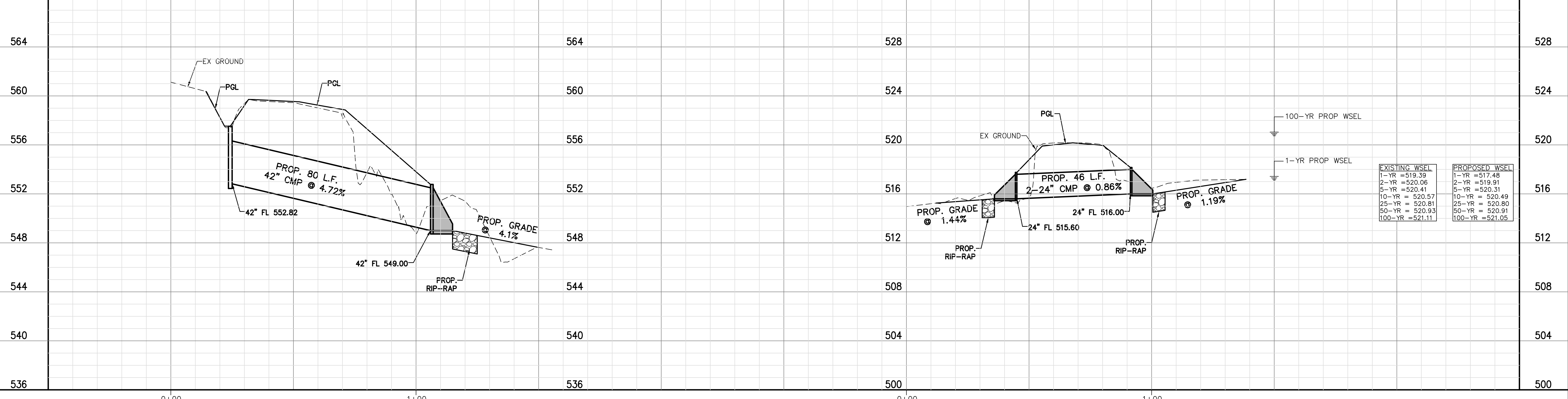


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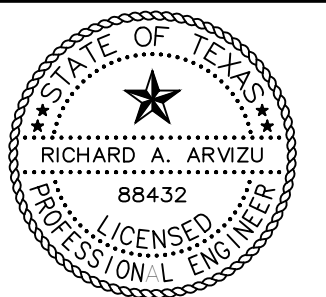
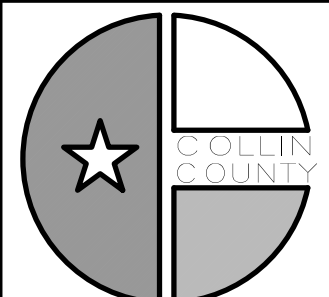

○	SIGN
□	MAIL BOX
⊕	TELEPHONE PEDESTAL
⊙	POWER POLE
⊠	ELECTRICAL BOX
⊕	GUY WIRE
⊕	SPRINKLER CONTROL BOX
⊕	PULL BOX
⊕	SANITARY MANHOLE
⊕	FIBER OPTIC BOX
⊕	WATER VALVE
⊕	FIRE HYDRANT
⊕	WATER METER
⊕	GATECODE ENTRY
○	TREE
—	ASPHALT PAVEMENT
-x-	EX FENCE
-o-o-	EX SANITARY LINE
-o-e-	OVERHEAD ELECTRIC
—	SLOPE
-575-	1' CONTOUR (EX)
→	FLOW ARROW

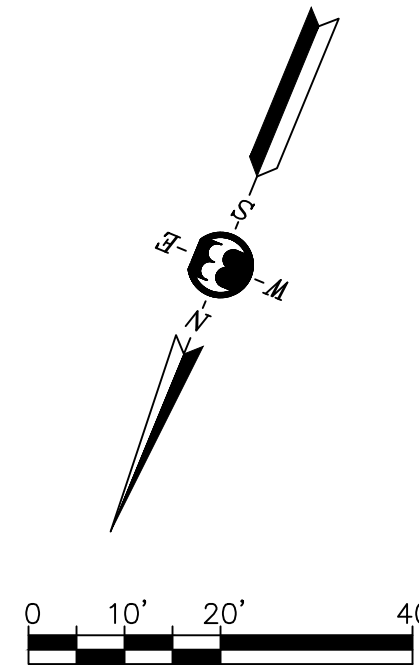
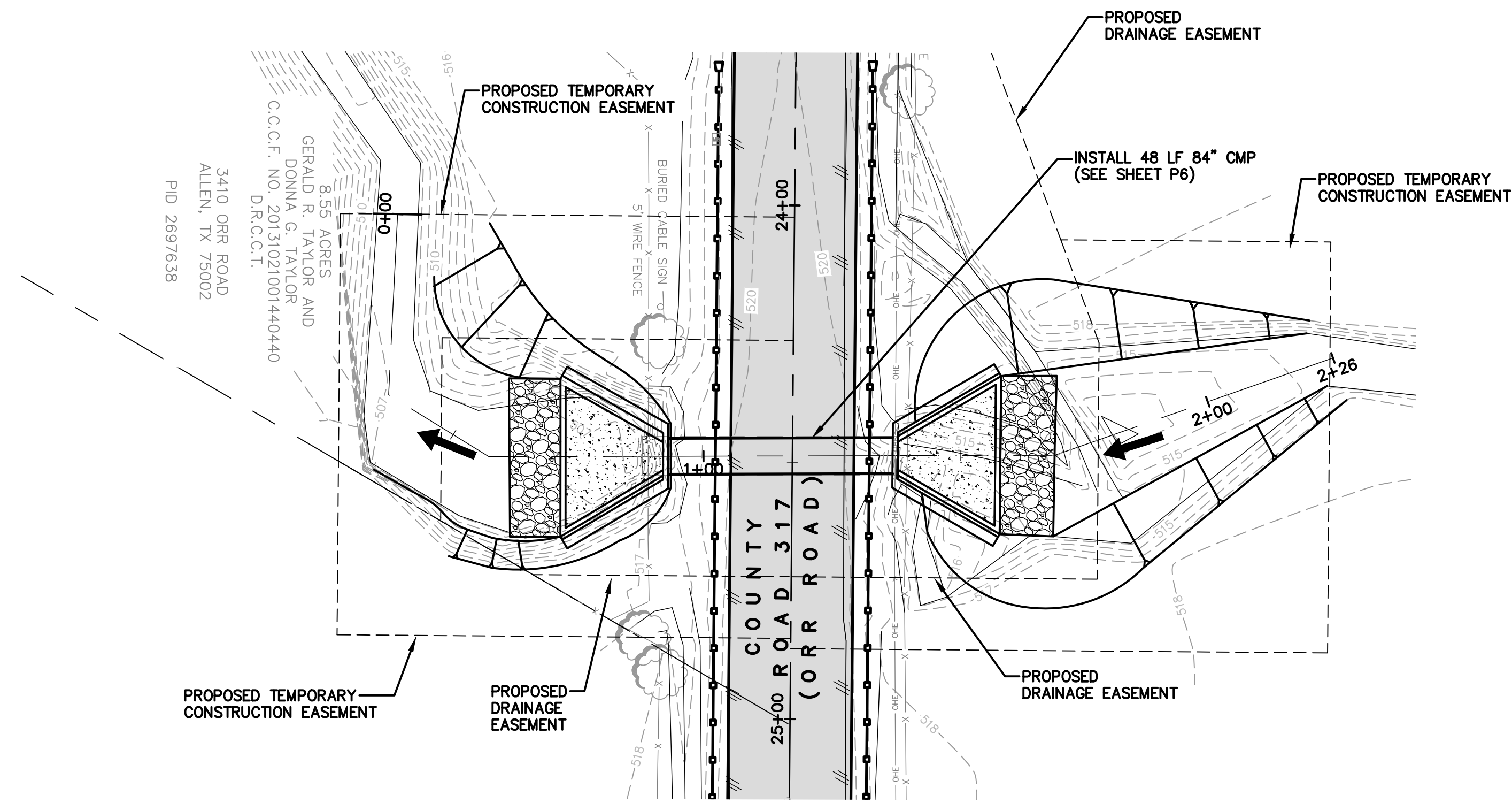
SEE PAVING PLAN & PROFILE SHEETS FOR CULVERT CONSTRUCTION CALLOUTS

DRAINAGE CULVERT CROSSINGS



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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th>Rev</th><th>Description</th><th>Date</th></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	Rev	Description	Date				<p>CAUTION EXISTING UTILITIES !!!</p> <p>Existing utilities and underground facilities indicated on these plans have been located from reference information. It shall be the responsibility of the contractor to verify both horizontally and vertically the location of all existing utilities and underground facilities prior to construction, to take the necessary precautions in order to protect all facilities encountered. The contractor shall preserve and protect all existing utilities from damage during construction.</p>	<p>The seal appearing on this document was authorized by Richard A. Arvizu, P.E. Tx. No. 88432. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act, Nov 18, 2020</p> 	 <p>COLLIN COUNTY PUBLIC WORKS DEPARTMENT MCKINNEY, TEXAS</p>	 <p>Binkley & Barfield, Inc. consulting engineers Texas Registration Number F-257 1801 Gateway Blvd. Suite 101 Richardson, Texas 75080 Phone (972) 644-2800 www.binkleybarfield.com</p>	<p>CR 317 (ORR ROAD) COLLIN COUNTY</p> <p>DRAINAGE CULVERT CROSSINGS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Scale: 1"=20' H 1"=4' V</td> <td>Date: Nov 18, 2020</td> <td>Job No.: BB19006</td> <td style="font-size: 2em; font-weight: bold;">D6</td> </tr> </table>	Scale: 1"=20' H 1"=4' V	Date: Nov 18, 2020	Job No.: BB19006	D6
Rev	Description	Date													
Scale: 1"=20' H 1"=4' V	Date: Nov 18, 2020	Job No.: BB19006	D6												

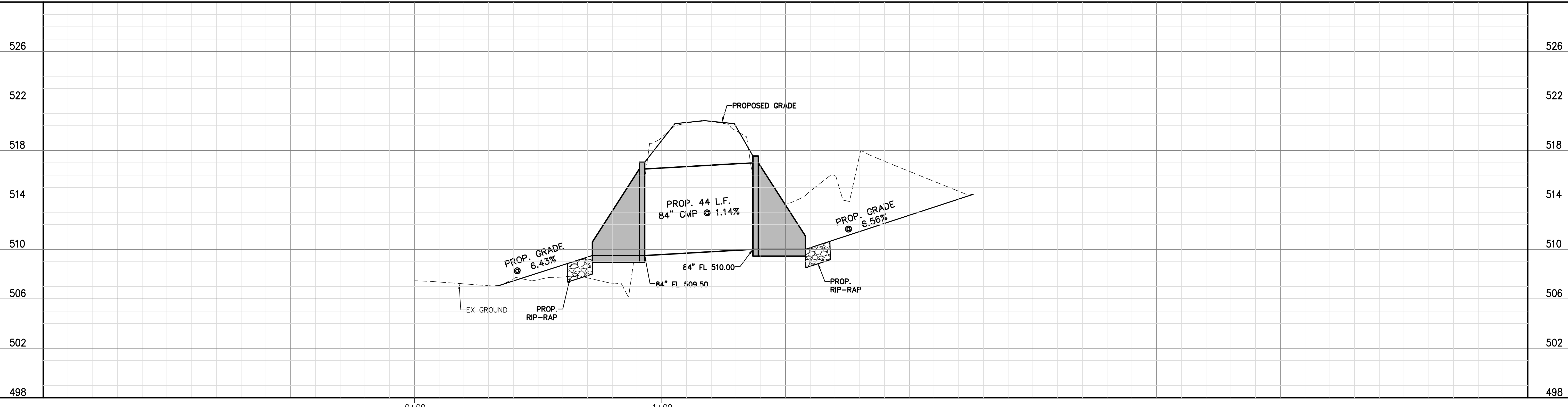


LEGEND

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(Symbol)	MAIL BOX
(Symbol)	TELEPHONE PEDESTAL
(Symbol)	POWER POLE
(Symbol)	ELECTRICAL BOX
(Symbol)	GUY WIRE
(Symbol)	SPRINKLER CONTROL BOX
(Symbol)	PULL BOX
(Symbol)	SANITARY MANHOLE
(Symbol)	FIBER OPTIC BOX
(Symbol)	WATER VALVE
(Symbol)	FIRE HYDRANT
(Symbol)	WATER METER
(Symbol)	GATECODE ENTRY
(Symbol)	TREE
(Symbol)	ASPHALT PAVEMENT
(Symbol)	EX FENCE
(Symbol)	EX SANITARY LINE
(Symbol)	OVERHEAD ELECTRIC
(Symbol)	SLOPE
(Symbol)	1' CONTOUR (EX)
(Symbol)	FLOW ARROW

SEE PAVING PLAN & PROFILE SHEETS FOR CULVERT CONSTRUCTION CALLOUTS

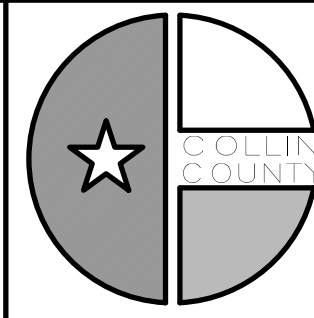
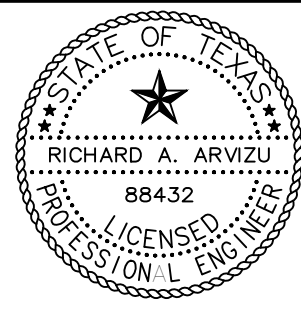
DRAINAGE CULVERT CROSSINGS



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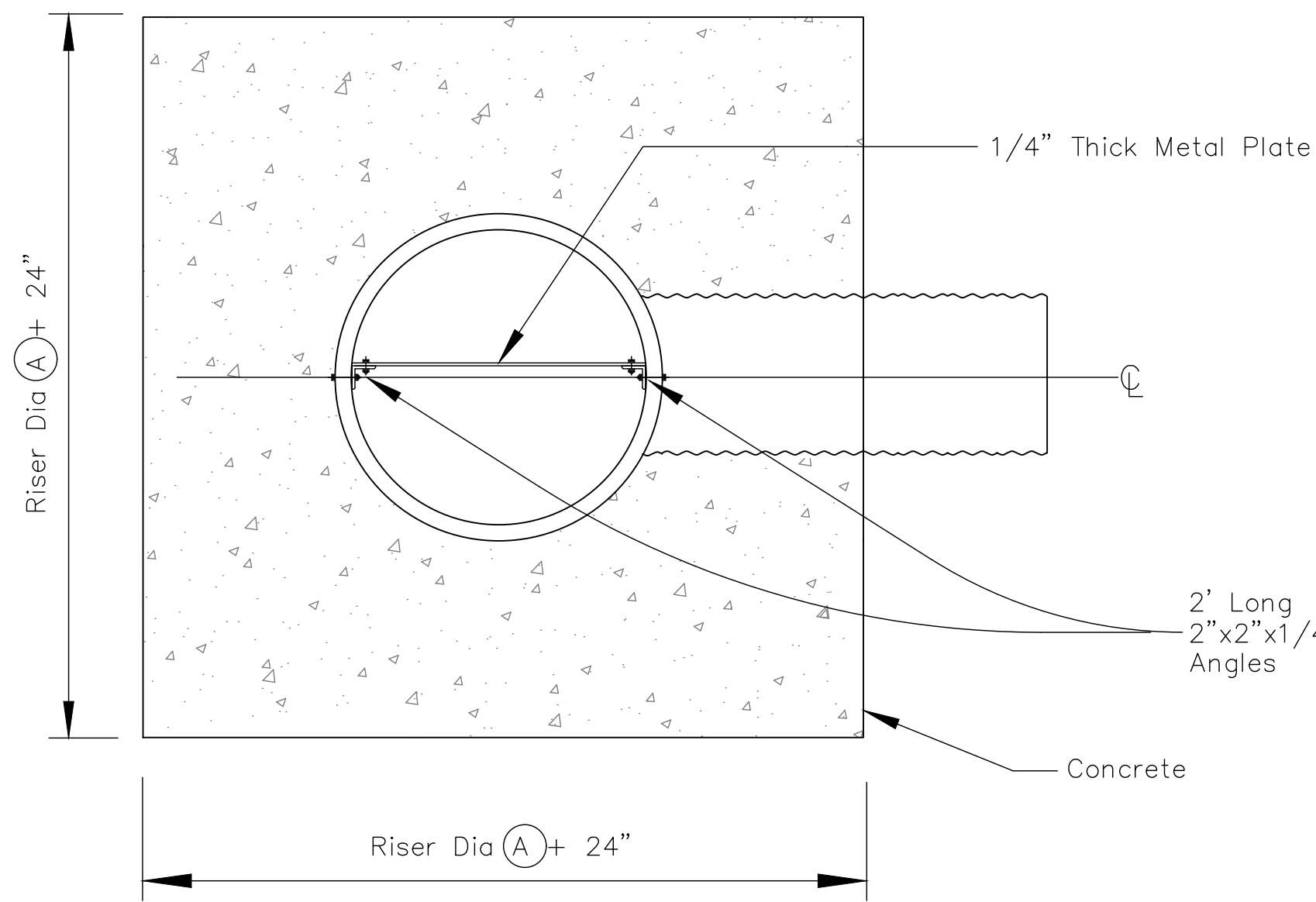
CR 317 (ORR ROAD)
 COLLIN COUNTY
 DRAINAGE CULVERT CROSSINGS

Scale: 1"=20' H 1"=4' V	Date: Nov 18, 2020	Job No.: BB19006	D7
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N:\BBI9006 (Collin County) Reconstruction of Orr Road\05 CAD Files\PAVE - CR 317-ORR Road-CULVERTS 2 Plotted Nov 18, 2020 at 7:23am by dfrancis | Last Saved by: dfrancis

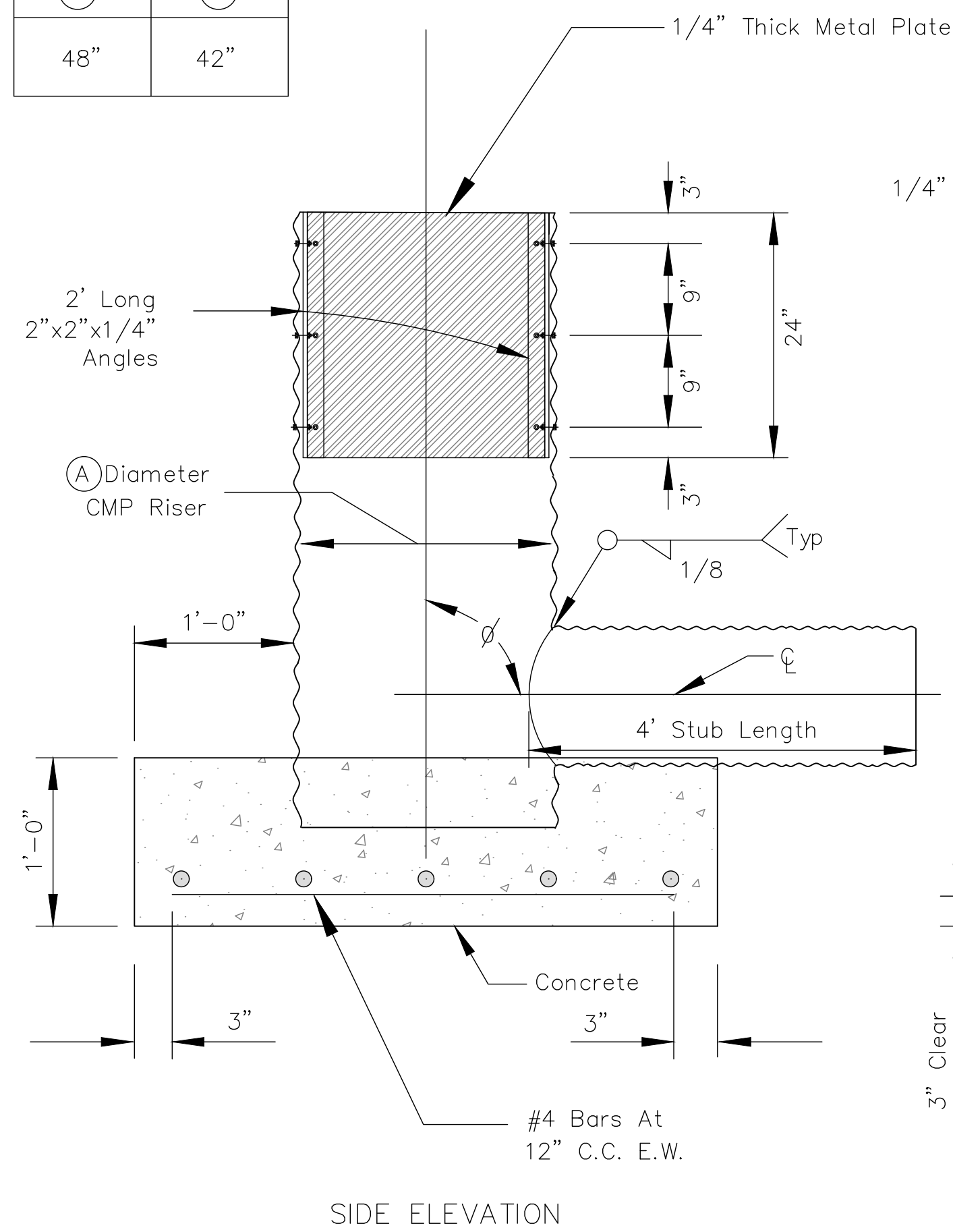
Rev	Description	Date

CMP DROP INLET AND BAFFLE

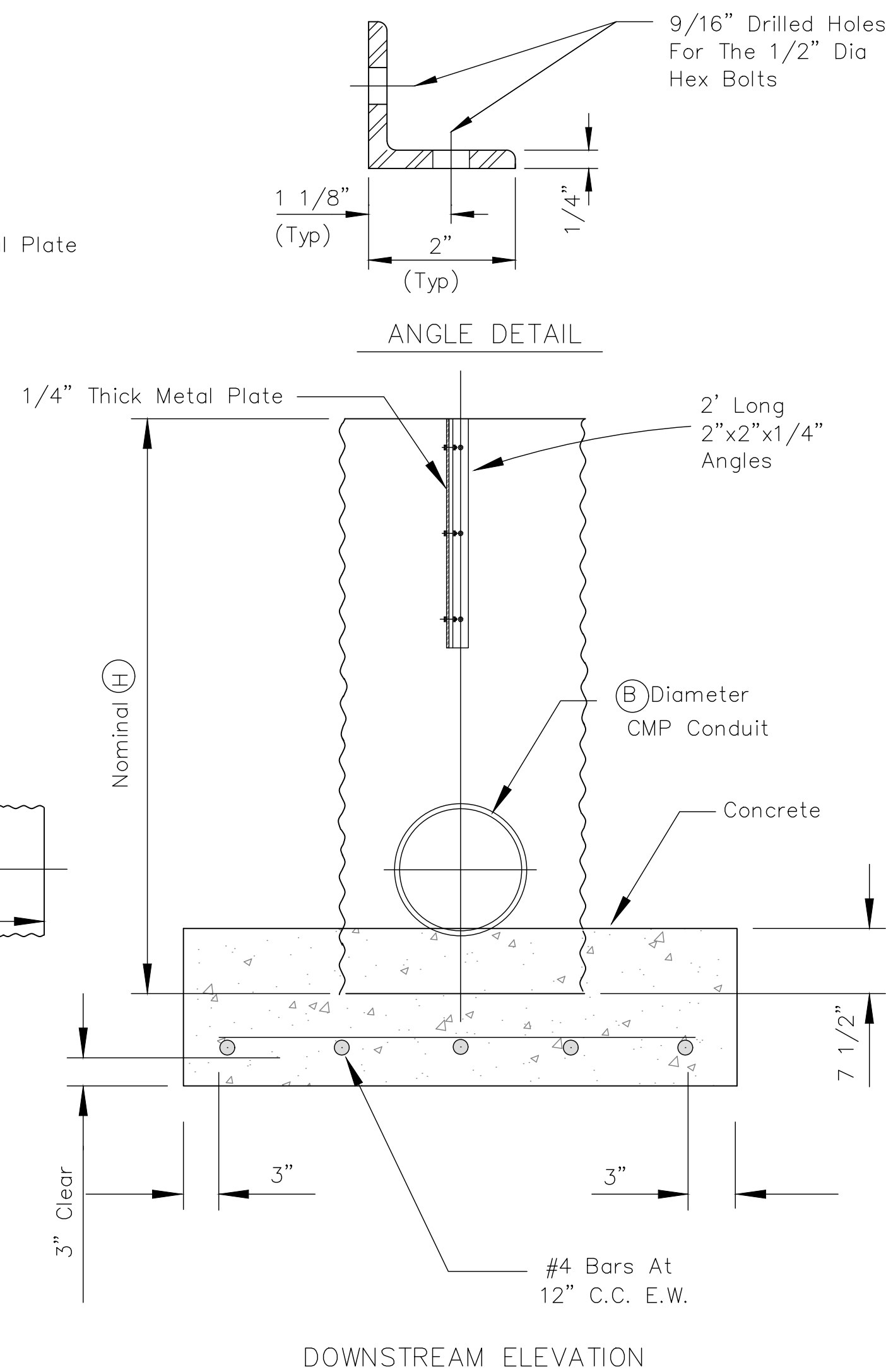


PLAN

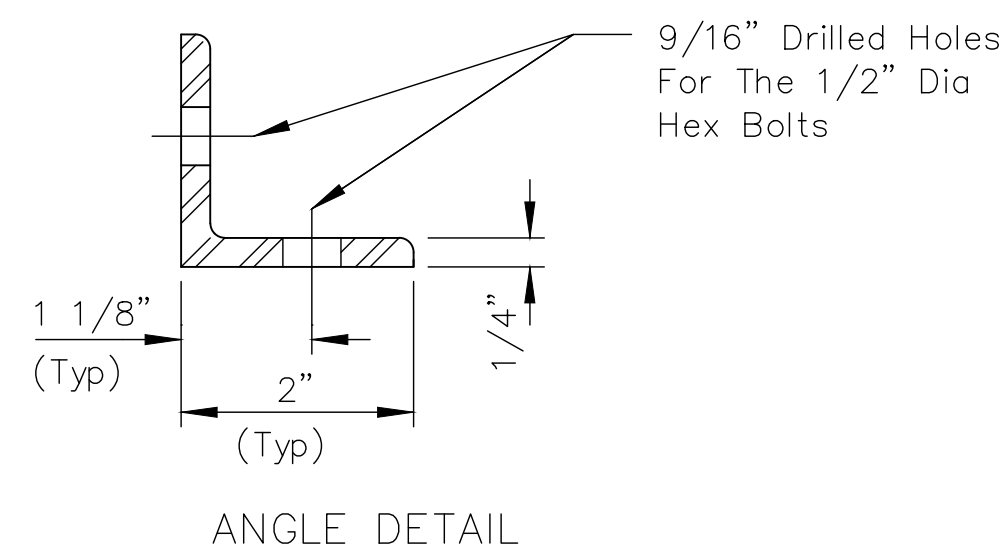
RISER DIA (A)	CONDUIT DIA (B)
48"	42"



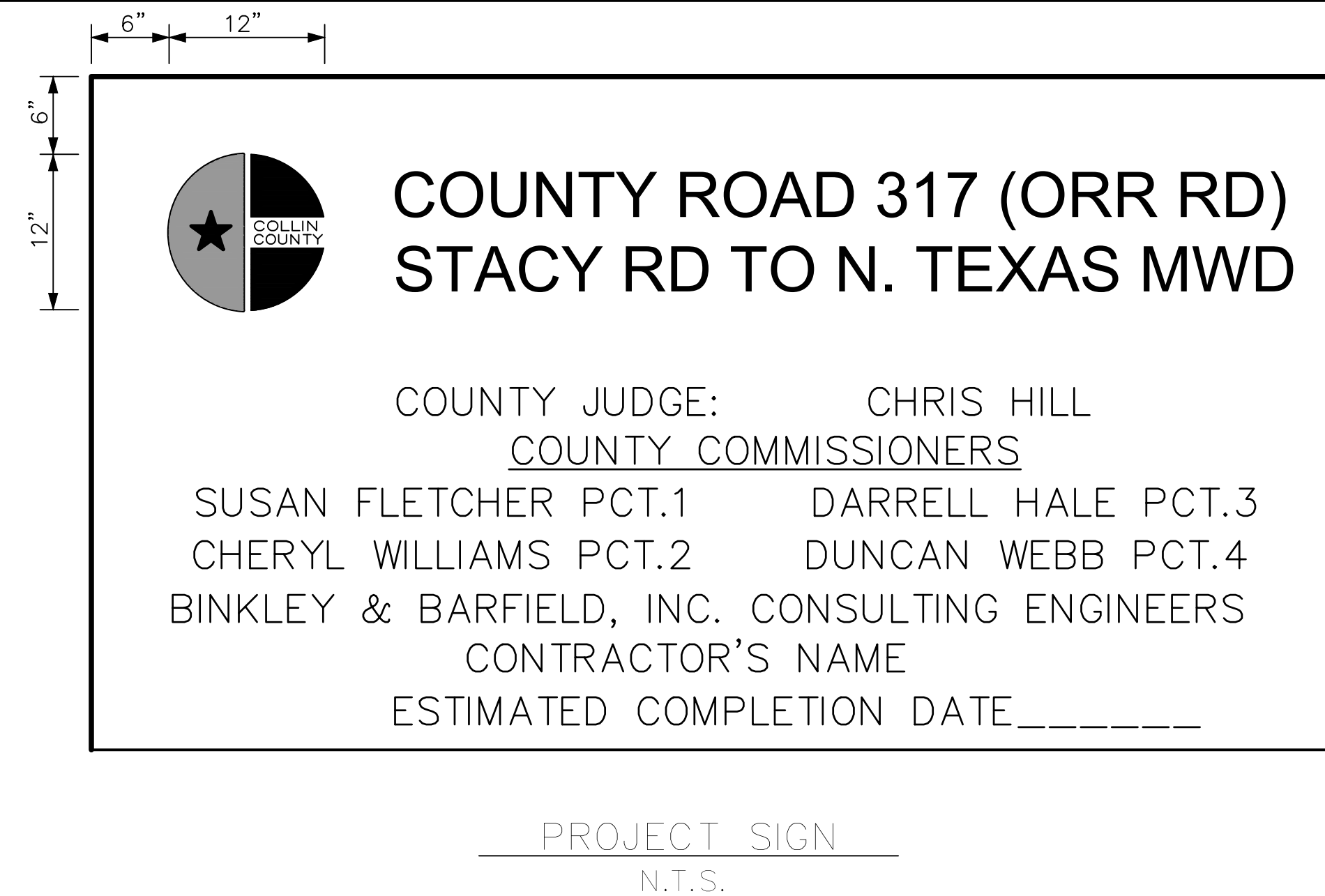
SIDE ELEVATION



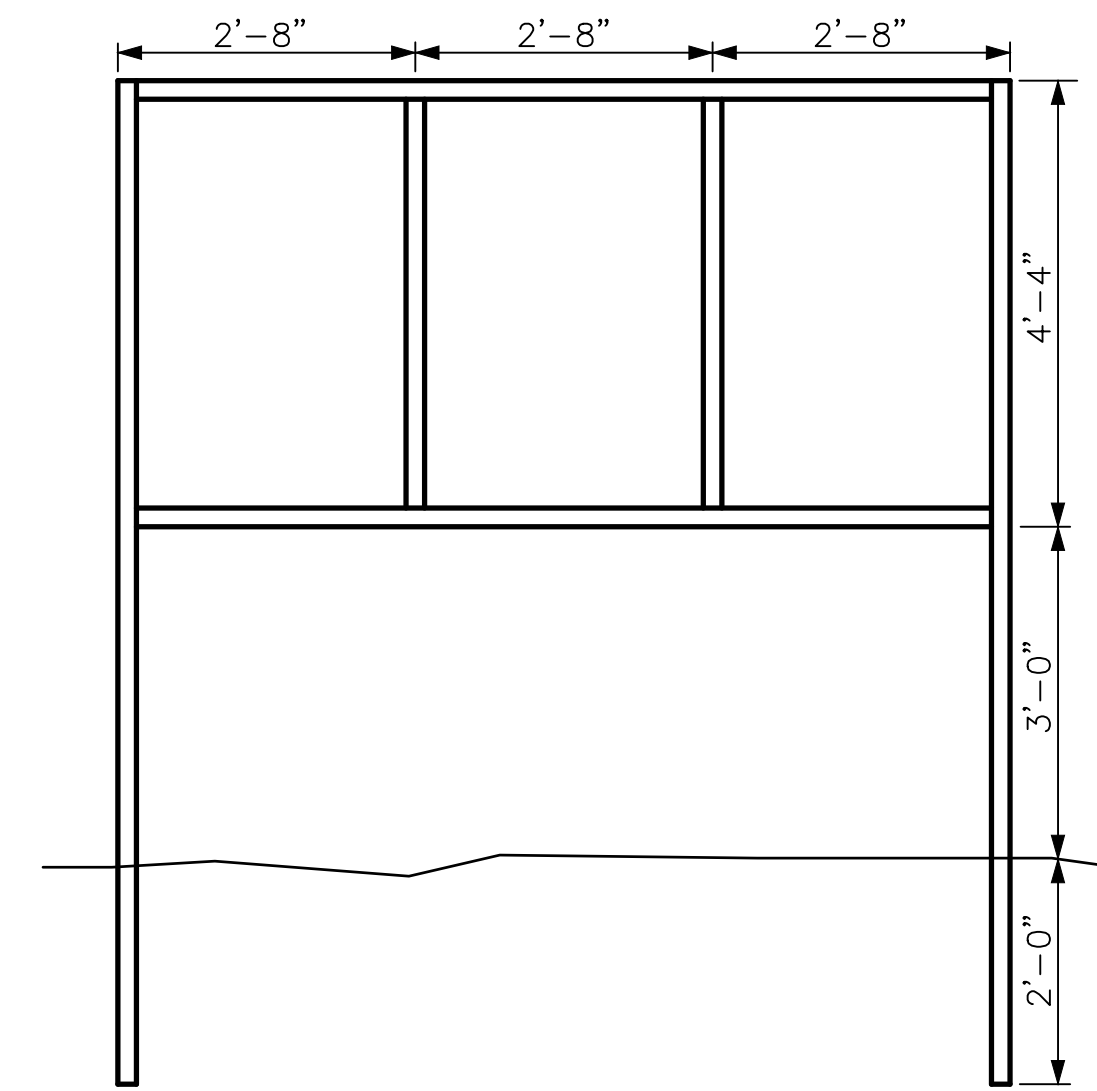
DOWNSTREAM ELEVATION



ANGLE DETAIL



PROJECT SIGN
N.T.S.

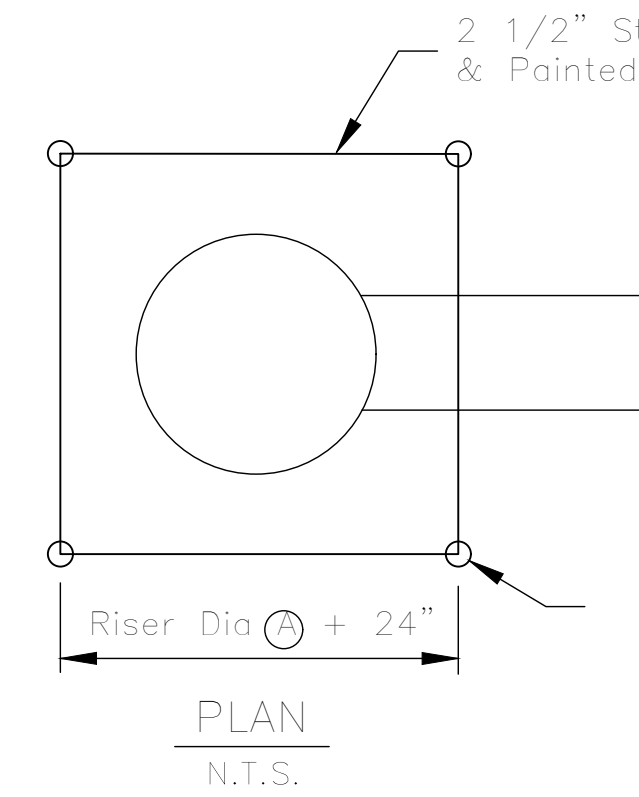


SIGN FRAME DETAIL

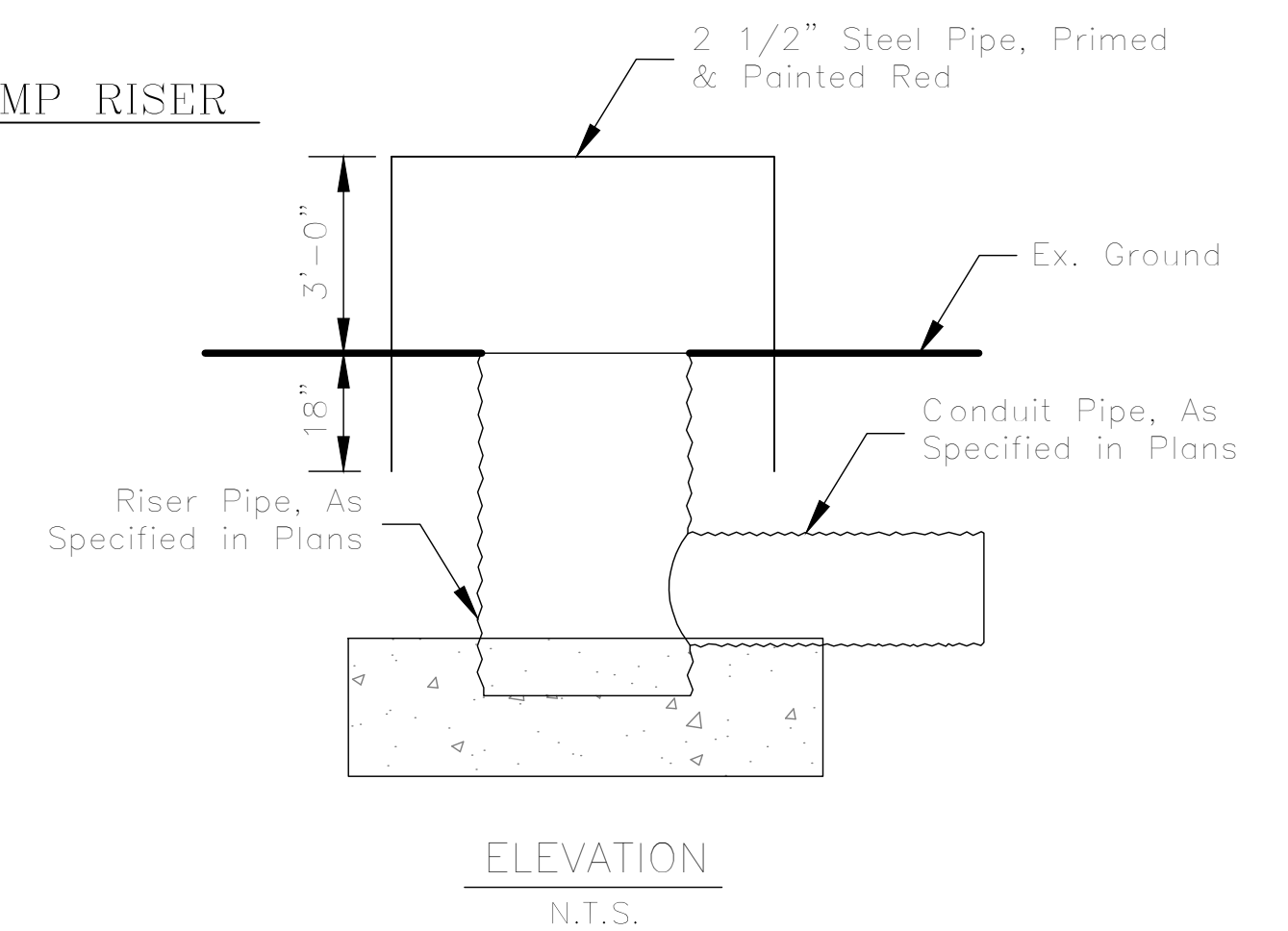
NOTES:

- SIGN PANEL TO BE 3/4" EXTERIOR PLYWOOD.
- FRAME TO BE 2"x4" STOCK.
- FRAME TO BE PAINTED FLAT BLACK
- PAINT BACKGROUND OF SIGN WHITE
- PAINT PROJECT NAME IN BLUE LETTERS.
- "BINKLEY & BARFIELD, INC. CONSULTING ENGINEERS" TO BE PAINTED IN GLOSSY BLUE.
- PAINT COLLIN COUNTY LOGO IN ITS STANDARD COLORS BLUE, RED & WHITE.
- PAINT BALANCE OF MESSAGE IN GLOSSY BLACK
- ALL PAINT TO BE EXTERIOR BASE PAINT.

SAFETY GUARD FOR CMP RISER



PLAN
N.T.S.



ELEVATION
N.T.S.

Note:
1. All 2 1/2" steel pipe ends must be capped.

DIMENSIONS & MATERIAL (per structure)	
DIMENSIONS	
Nominal Length (H) In Feet	+/- 5.125'
Ø Angle In Degrees	+/- 91.15'
MATERIAL	
2' Long 2"x 2"x 1/4" Angles	2
1/4" Thick Metal Plate	1
1/2"x1" Hex Bolts	12
1/2" Split Lockwashers	12
1/2" Hex Nuts	12

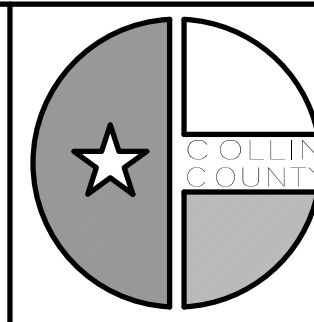
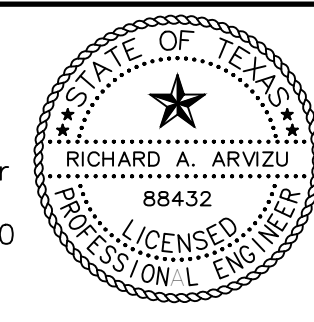
NOTES:

- There are no riser height restrictions as long as the riser is located in compacted earth fill.
- The corrugated metal riser with 4 feet conduit stub shall be fabricated from galvanized steel or aluminum. If fabricated from steel, any zinc coating damaged by welding shall be repaired as follows:
 - All loose and cracked coating shall be removed by wire brushing and all dirt and greasy material by a suitable solvent.
 - The damaged area shall be painted with two coats of Zinc Dust-Zinc Oxide primer, followed by a heavy coat of Fibrated Asphalt Mastic.
- 4-foot conduit stubout shall be included in and as part of the bid item for CMP Drop Inlet. All other pipe shall be called for and paid separately.
- The angles and anti-vortex baffle plate shall be fabricated from the same material as the riser to which they will be attached. If fabricated from steel, the angles and anti-vortex baffle plate shall be galvanized after cutting and drilling.
- All bolts, nuts and washers shall be galvanized steel.
- Corrugated aluminum risers and conduits shall be separated from the reinforced concrete base by at least 2 layers of plastic tape with a total thickness of at least 24 mils or by a heavy coat of Alkali-Resistant Bituminous paint.

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COLLIN COUNTY
PUBLIC WORKS DEPARTMENT
MCKINNEY, TEXAS

Binkley & Barfield, Inc.
consulting engineers
Texas Registration Number F-257
1801 Gateway Blvd. Suite 101 Richardson, Texas 75080 Phone (972) 644-2800
www.binkleybarfield.com

CR 317 (ORR ROAD)
COLLIN COUNTY

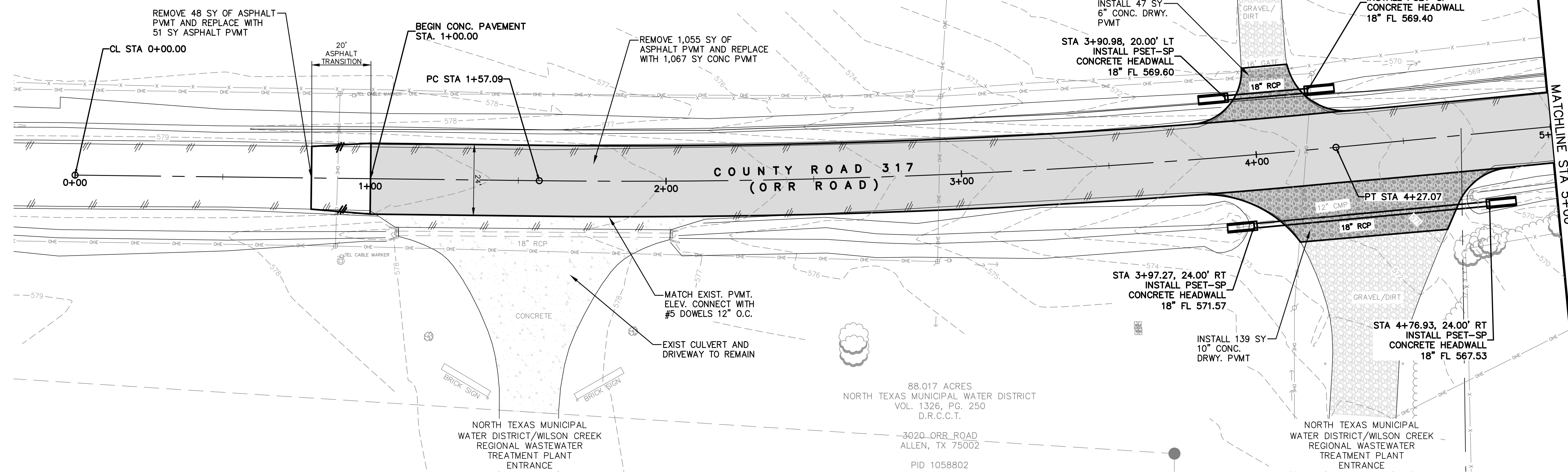
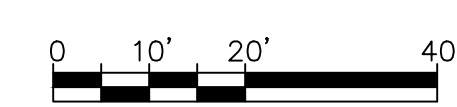
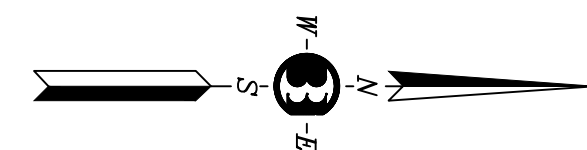
DROP INLET & PROJECT SIGN DETAIL

Scale: NTS	Date: Nov 18, 2020	Job No.: BB19006	D8
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THE KENDALL LIVING TRUST
C.C.C.F. NO. 20120028001515930
D.R.C.C.T.

285 E. FOREST GROVE ROAD
LUCAS, TX 75002

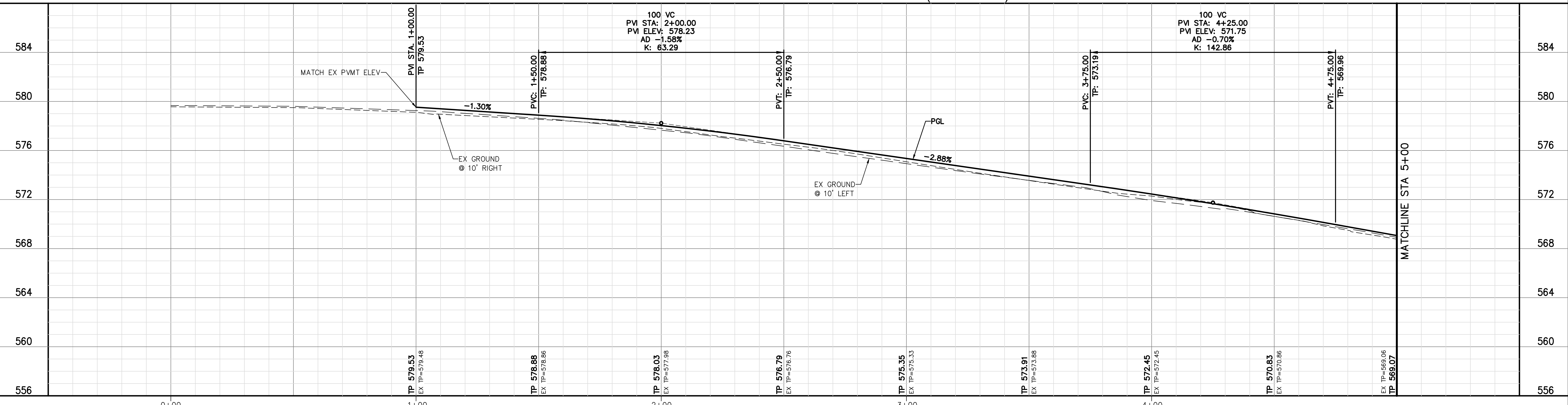
PID 2124143



LEGEND

- SIGN
- MAIL BOX
- TELEPHONE PEDESTAL
- POWER POLE
- ELECTRICAL BOX
- GUY WIRE
- SPRINKLER CONTROL BOX
- PULL BOX
- SANITARY MANHOLE
- FIBER OPTIC BOX
- WATER VALVE
- FIRE HYDRANT
- WATER METER
- GATECODE ENTRY
- TREE
- ASPHALT PAVEMENT
- EX FENCE
- EX SANITARY LINE
- OVERHEAD ELECTRIC
- SLOPE
- 1' CONTOUR (EX)

COUNTY ROAD 317 (ORR ROAD)



N:\BBI9006 (Collin County) Reconstruction of Orr Road\05 CAD Files\PAVE - CR 317-ORR RD.dwg - 0-500 Plotted Nov 18, 2020 at 2:24pm by dfrancis | Last Saved by: dfrancis

Rev	Description	Date

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MCKINNEY, TEXAS

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www.binkleybarfield.com

CR 317 (ORR ROAD)
COLLIN COUNTY
COUNTY ROAD 317 (ORR ROAD)
PLAN & PROFILE
STA 0+00 TO STA 5+00

Scale: 1"=20' H
1"=4' V

Date: Nov 18, 2020 Job No.: BB19006

P1

THE KENDALL LIVING TRUST
C.C.C.F. NO. 20120028001515930
D.R.C.C.T.

285 E. FOREST GROVE ROAD
LUCAS, TX 75002
PID 2124143

STA. 8+11.14, 33.0' LT
INSTALL CONCRETE HEADWALL
CH-FW-0 & 8 SY CONC RIPRAP
(2:1) (FW-0)
FL 42' = 549.00

REMOVE 1,254 SY OF
ASPHALT PVMT AND REPLACE
WITH 1,333 SY CONC PVMT

INSTALL 76 SY STONE
RIPRAP (COMMON)
(18") (DRY) (30'X25')

PROPOSED
DRAINAGE
EASEMENT

PROPOSED
TEMPORARY
CONSTRUCTION
EASEMENT

REMOVE & REPLACE 100 LF FENCE

BEGIN SUPERELEVATION TRANSITION
STA. 8+41.08

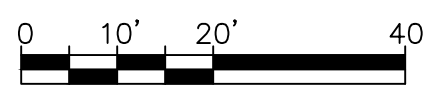
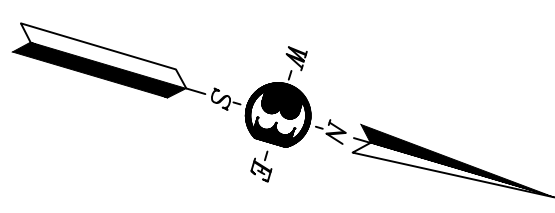
REMOVE 50 LF EXIST 42" CMP
INSTALL 80 LF 42" CMP AND
25 CY FLOWABLE FILL BASE
(SEE SHEET D6 FOR
CULVERT PROFILE)

STA. 7+47.51, 18.5' RT
REMOVE EXIST CMP
DROP INLET AND
INSTALL 48" CMP DROP
INLET
LIP=558.00
INSTALL 34 SY STONE
RIPRAP (COMMON)
(18") (DRY) (20'X15')

88.85 ACRES
NORTH TEXAS MUNICIPAL WATER DISTRICT
VOL. 5499, PG. 8804
D.R.C.C.T.

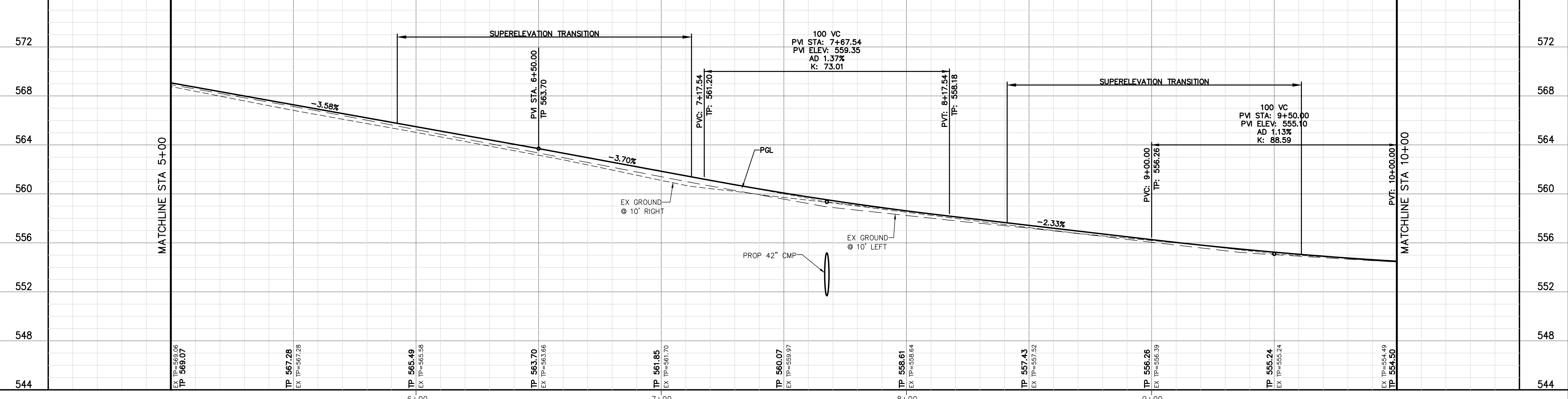
3020 ORR ROAD
ALLEN, TX 75002
PID 2608264

ALL CMP SHALL BE
GALVANIZED STEEL,
BITUMINOUS COATED
WITH FLOWABLE FILL
EMBEDMENT (MIN 12")



- LEGEND**
- SIGN
 - MAIL BOX
 - TELEPHONE PEDESTAL
 - POWER POLE
 - ELECTRICAL BOX
 - GUY WIRE
 - SPRINKLER CONTROL BOX
 - PULL BOX
 - SANITARY MANHOLE
 - WATER VALVE
 - FIRE HYDRANT
 - WATER METER
 - GATECODE ENTRY
 - TREE
 - ASPHALT PAVEMENT
 - EX FENCE
 - EX SANITARY LINE
 - OVERHEAD ELECTRIC
 - SLOPE
 - 1' CONTOUR (EX)
 - FLOW ARROW

COUNTY ROAD 317 (ORR ROAD)



Rev	Description	Date

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CR 317 (ORR ROAD)
COLLIN COUNTY
COUNTY ROAD 317 (ORR ROAD)
PLAN & PROFILE
STA 5+00 TO STA 10+00

Scale: 1"=20' H
1"=4' V

Date: Nov 18, 2020

Job No.: BB19006

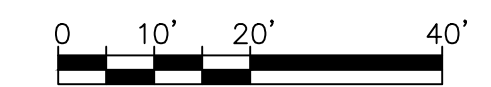
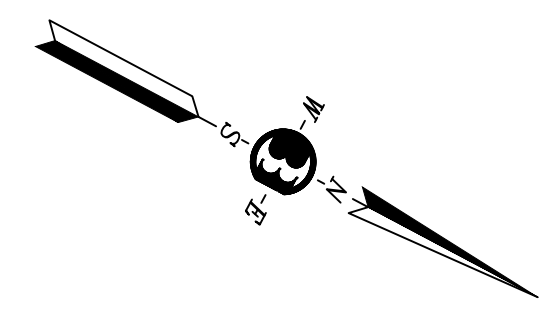
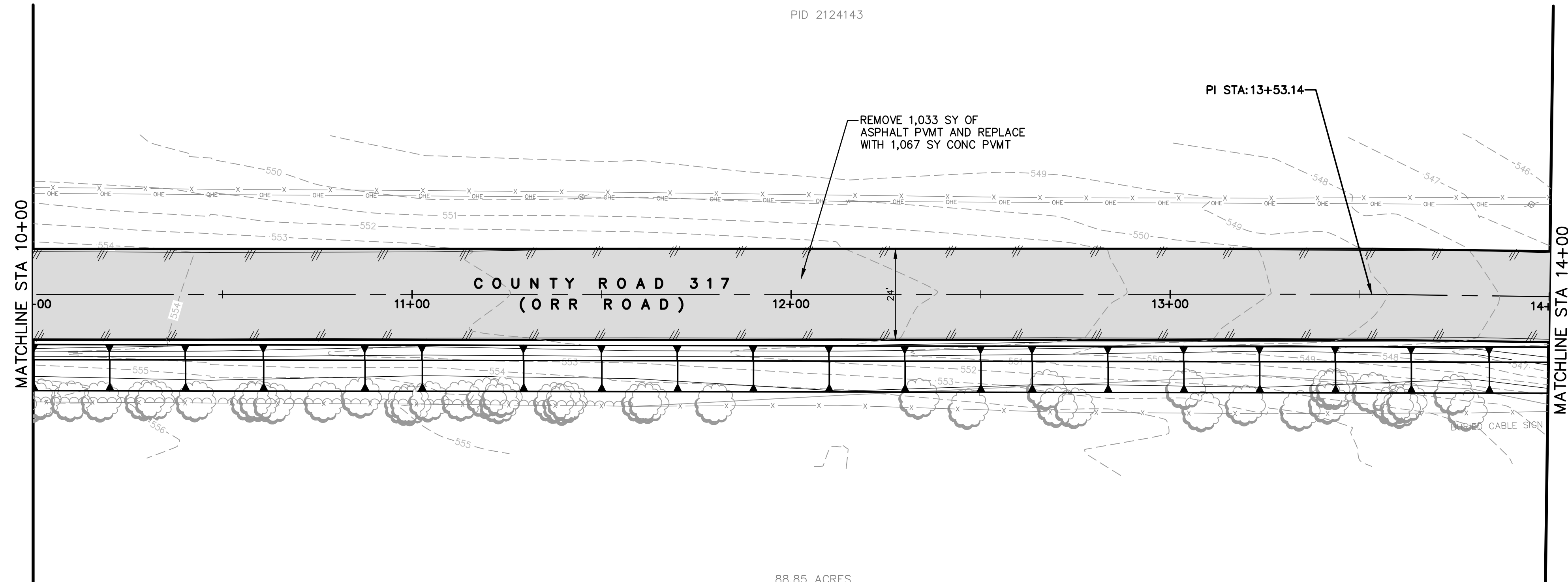
P2

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C.C.C.F. NO. 20120028001515930
D.R.C.C.T.

285 E. FOREST GROVE ROAD
LUCAS, TX 75002

PID 2124143

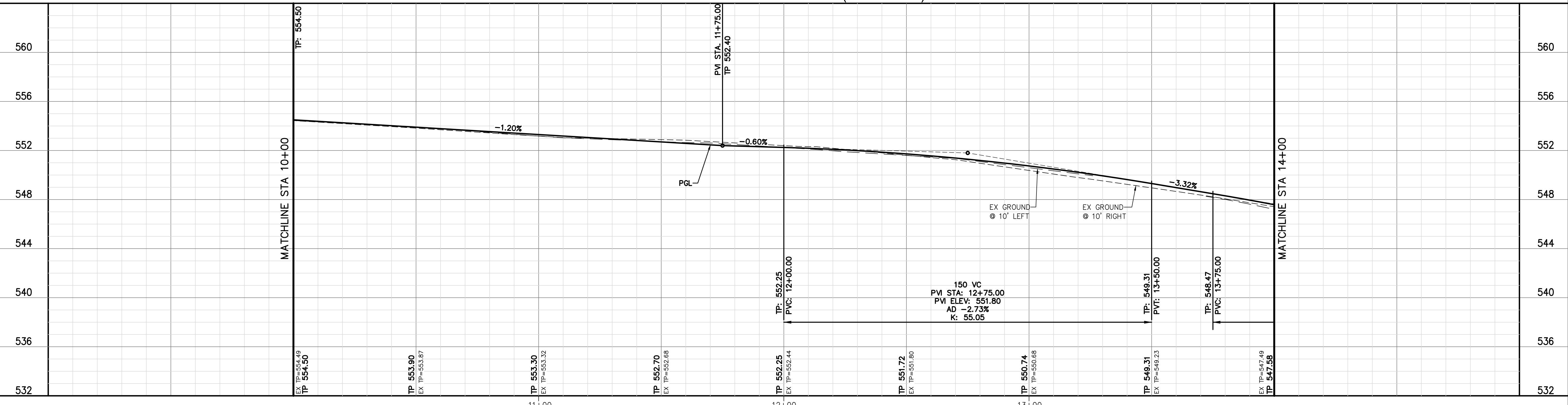


LEGEND

	SIGN
	MAIL BOX
	TELEPHONE PEDESTAL
	POWER POLE
	ELECTRICAL BOX
	GUY WIRE
	SPRINKLER CONTROL BOX
	PULL BOX
	SANITARY MANHOLE
	FIBER OPTIC BOX
	WATER VALVE
	FIRE HYDRANT
	WATER METER
	GATECODE ENTRY
	TREE
	ASPHALT PAVEMENT
	EX FENCE
	EX SANITARY LINE
	OVERHEAD ELECTRIC
	SLOPE
	1' CONTOUR (EX)

88.85 ACRES
NORTH TEXAS MUNICIPAL WATER DISTRICT
VOL. 5499, PG. 8804
D.R.C.C.T.
3020 ORR ROAD
ALLEN, TX 75002
PID 2608264

COUNTY ROAD 317 (ORR ROAD)



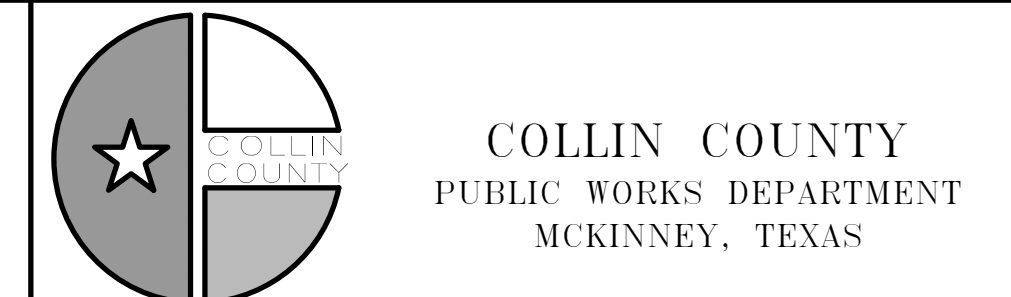
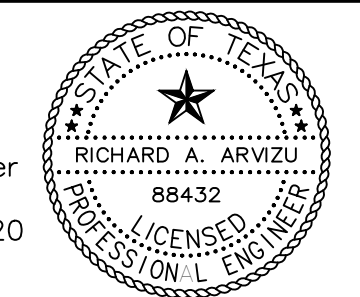
N:\BBI9006 (Collin County) Reconstruction of Orr Road\05 CAD Files\PAVE - CR 317-ORR RD.dwg-1000-1400 Plotted Nov 18, 2020 at 7:24am by dfrancis | Last Saved by: dfrancis

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Richard A. Arvizu



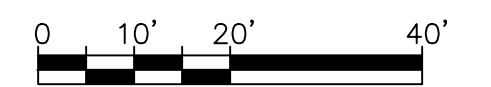
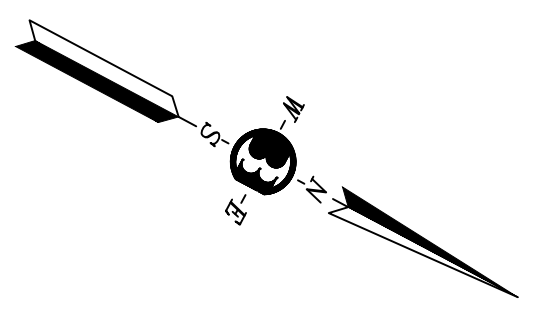
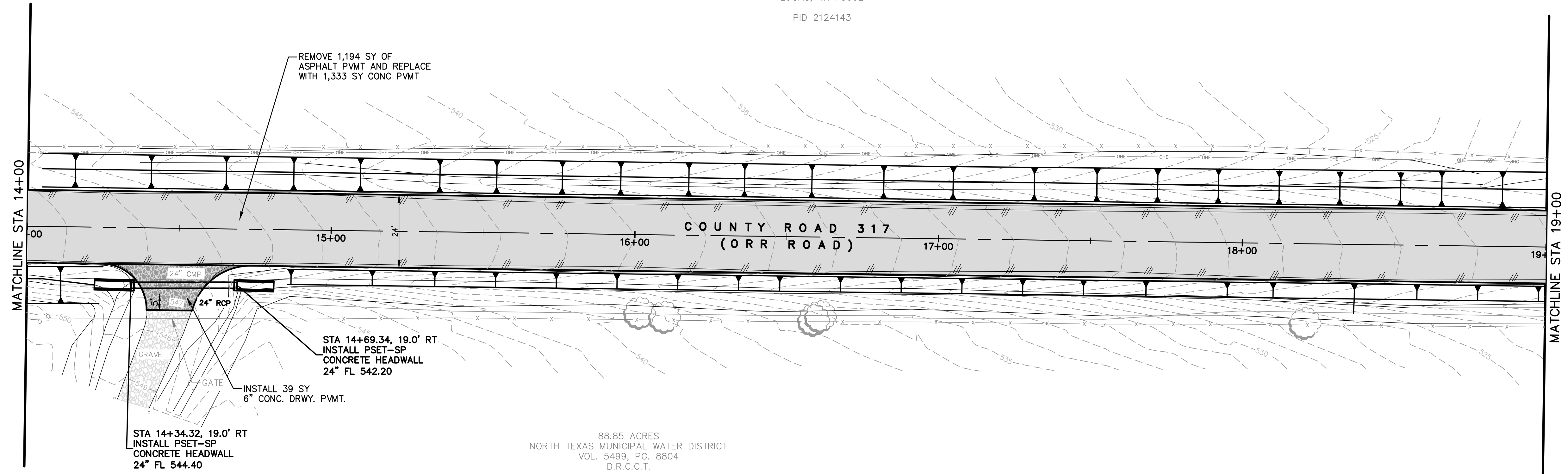
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www.binkleybarfield.com

CR 317 (ORR ROAD) COLLIN COUNTY COUNTY ROAD 317 (ORR ROAD) PLAN & PROFILE STA 10+00 TO STA 14+00		
Scale: 1"=20' H 1"=4' V	Date: Nov 18, 2020	Job No.: BB19006
		P3

THE KENDALL LIVING TRUST
C.C.C.F. NO. 20120028001515930
D.R.C.C.T.

285 E. FOREST GROVE ROAD
LUCAS, TX 75002

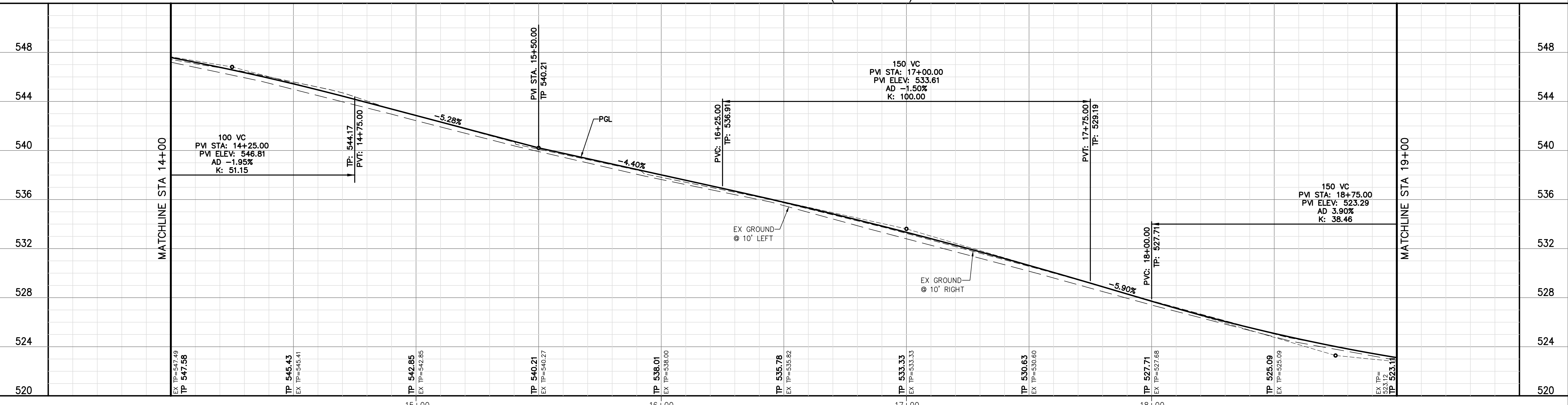
PID 2124143



LEGEND	
	SIGN
	MAIL BOX
	TELEPHONE PEDESTAL
	POWER POLE
	ELECTRICAL BOX
	GUY WIRE
	SPRINKLER CONTROL BOX
	PULL BOX
	SANITARY MANHOLE
	FIBER OPTIC BOX
	WATER VALVE
	FIRE HYDRANT
	WATER METER
	GATECODE ENTRY
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	ASPHALT PAVEMENT
	EX FENCE
	EX SANITARY LINE
	OVERHEAD ELECTRIC
	SLOPE
	1' CONTOUR (EX)

88.85 ACRES
NORTH TEXAS MUNICIPAL WATER DISTRICT
VOL. 5499, PG. 8804
D.R.C.C.T.
3020 ORR ROAD
ALLEN, TX 75002
PID 2608264

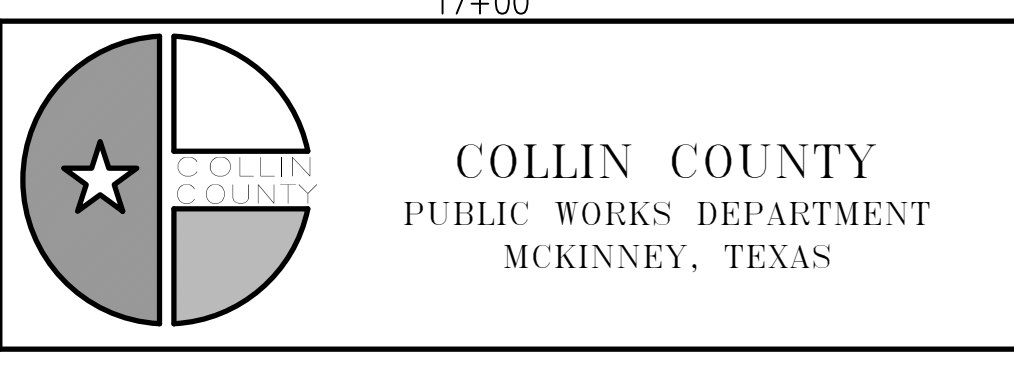
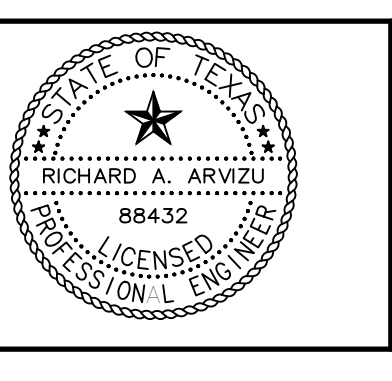
COUNTY ROAD 317 (ORR ROAD)



Rev	Description	Date

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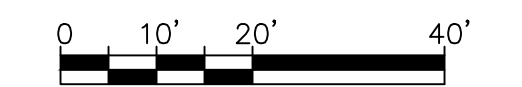
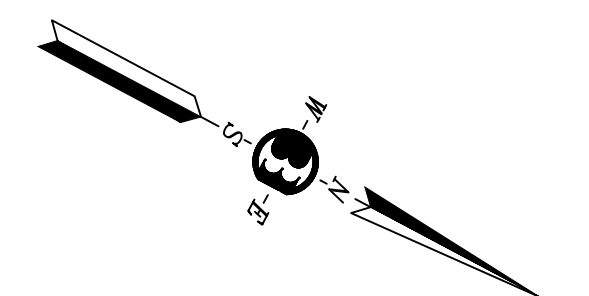
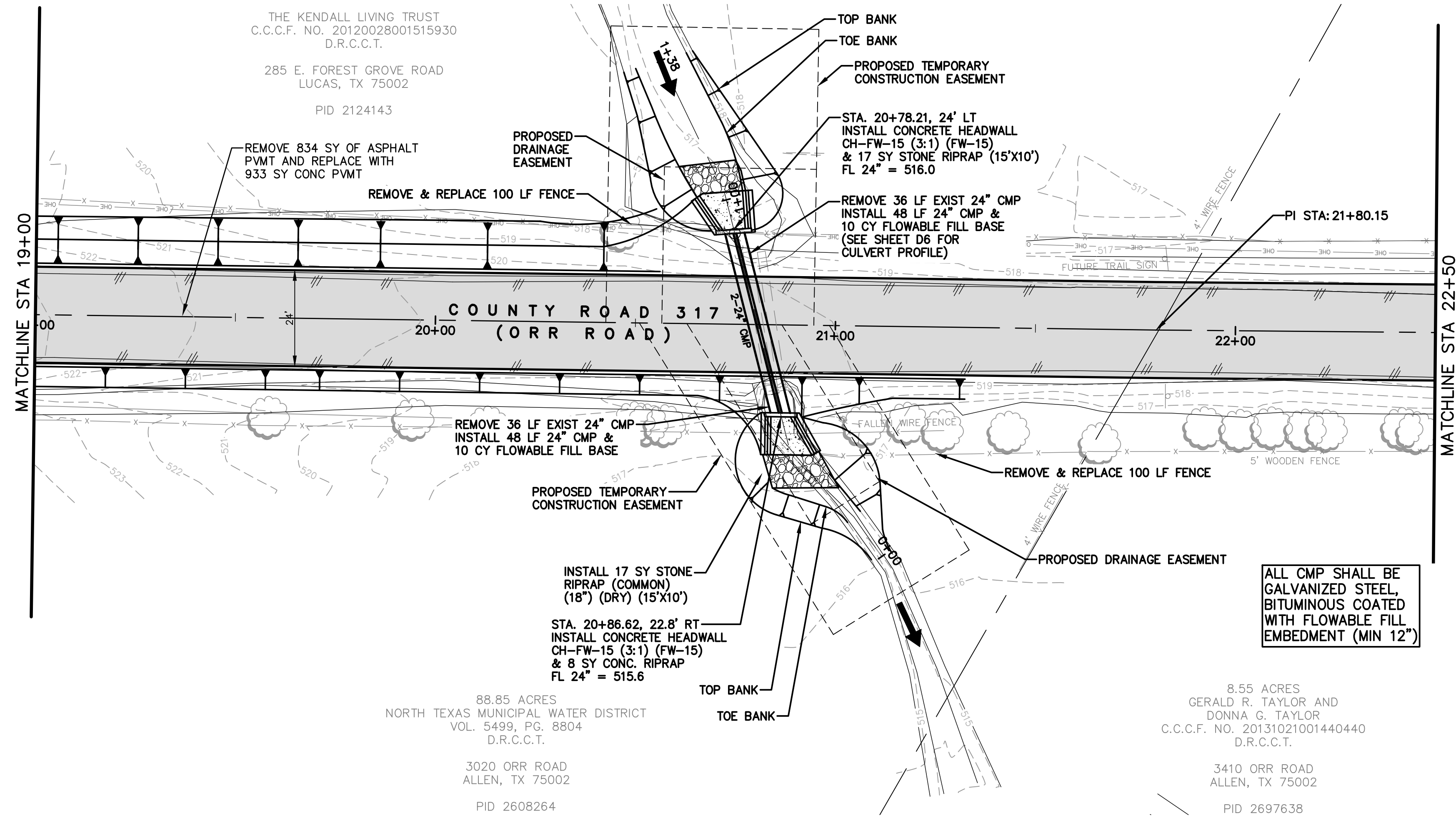
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CR 317 (ORR ROAD) COLLIN COUNTY COUNTY ROAD 317 (ORR ROAD) PLAN & PROFILE STA 14+00 TO STA 19+00		
Scale: 1"=20' H 1"=4' V	Date: Nov 18, 2020	Job No.: BB19006
		P4

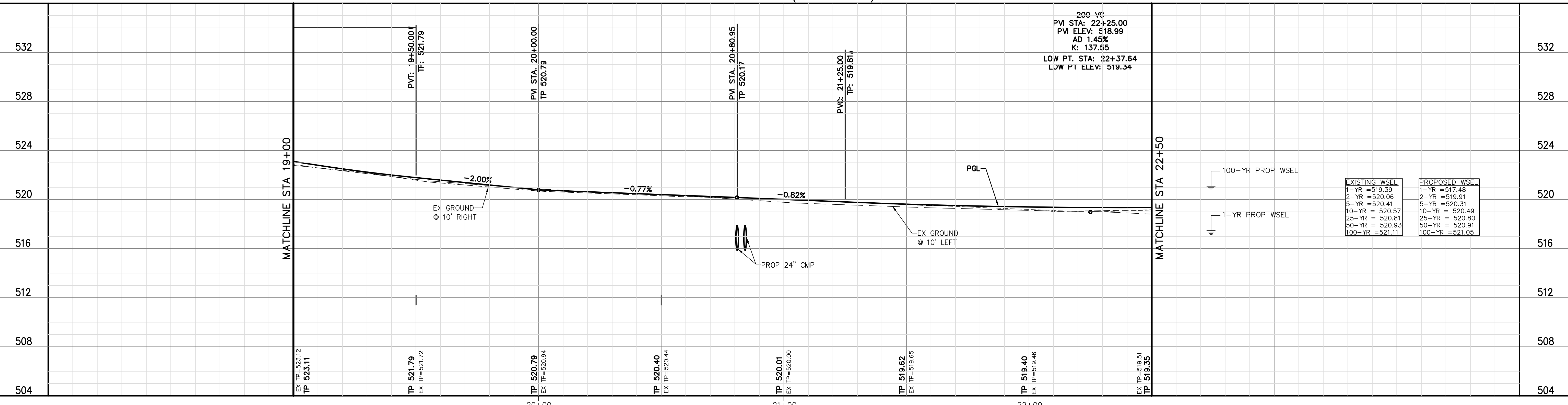
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LEGEND

	SIGN
	MAIL BOX
	TELEPHONE PEDESTAL
	POWER POLE
	ELECTRICAL BOX
	GUY WIRE
	SPRINKLER CONTROL BOX
	PULL BOX
	SANITARY MANHOLE
	FIBER OPTIC BOX
	WATER VALVE
	FIRE HYDRANT
	WATER METER
	GATECODE ENTRY
	TREE
	ASPHALT PAVEMENT
	EX FENCE
	EX SANITARY LINE
	OVERHEAD ELECTRIC
	SLOPE
	1' CONTOUR (EX)

COUNTY ROAD 317 (ORR ROAD)



EXISTING WSEL		PROPOSED WSEL	
1-YR	= 519.39	1-YR	= 517.48
2-YR	= 520.06	2-YR	= 519.91
5-YR	= 520.41	5-YR	= 520.31
10-YR	= 520.57	10-YR	= 520.49
25-YR	= 520.81	25-YR	= 520.80
50-YR	= 520.93	50-YR	= 520.91
100-YR	= 521.11	100-YR	= 521.05

Rev	Description	Date

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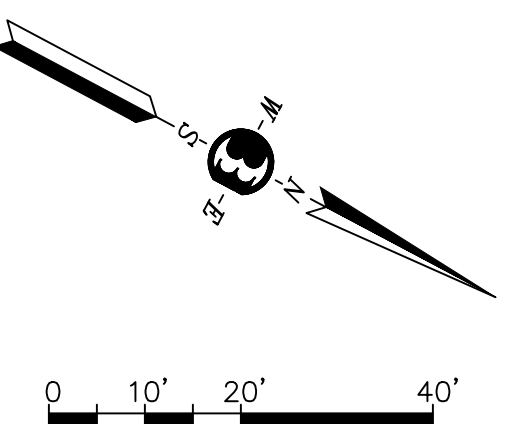
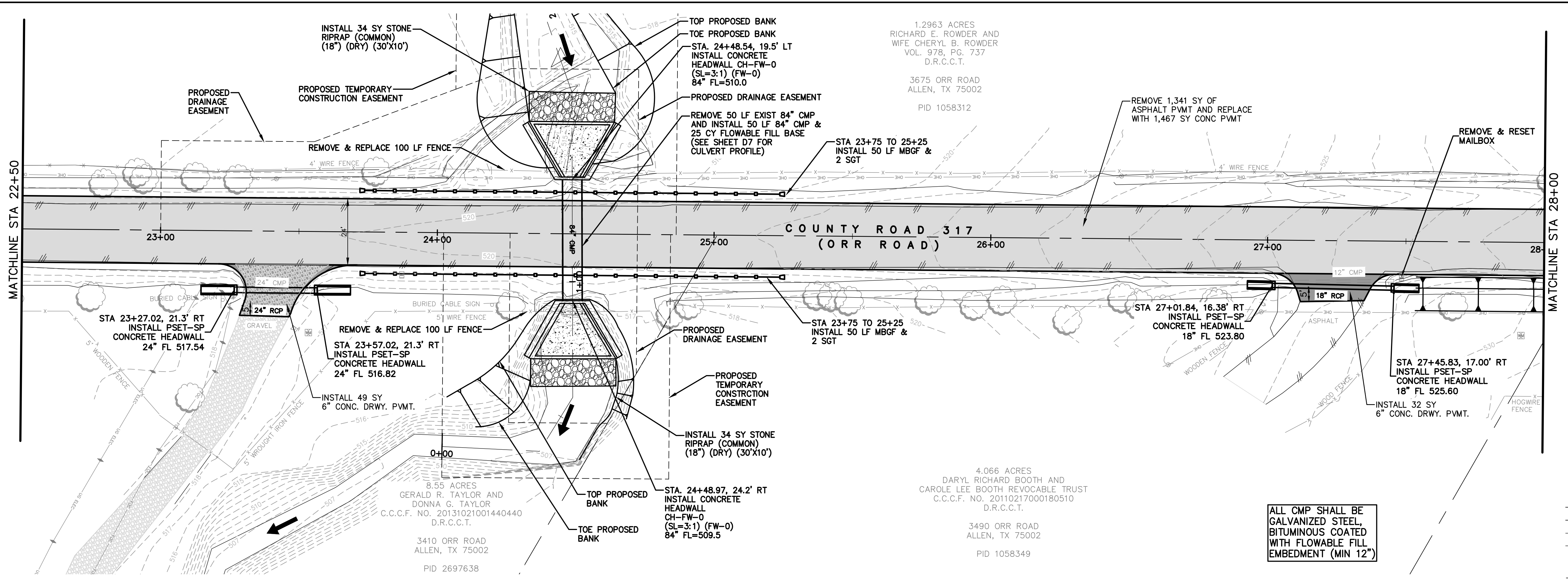
CR 317 (ORR ROAD)
COLLIN COUNTY
COUNTY ROAD 317 (ORR ROAD)
PLAN & PROFILE
STA 19+00 TO STA 22+50

Scale: 1"=20' H
1"=4' V

Date: Nov 18, 2020 Job No.: BB19006

P5

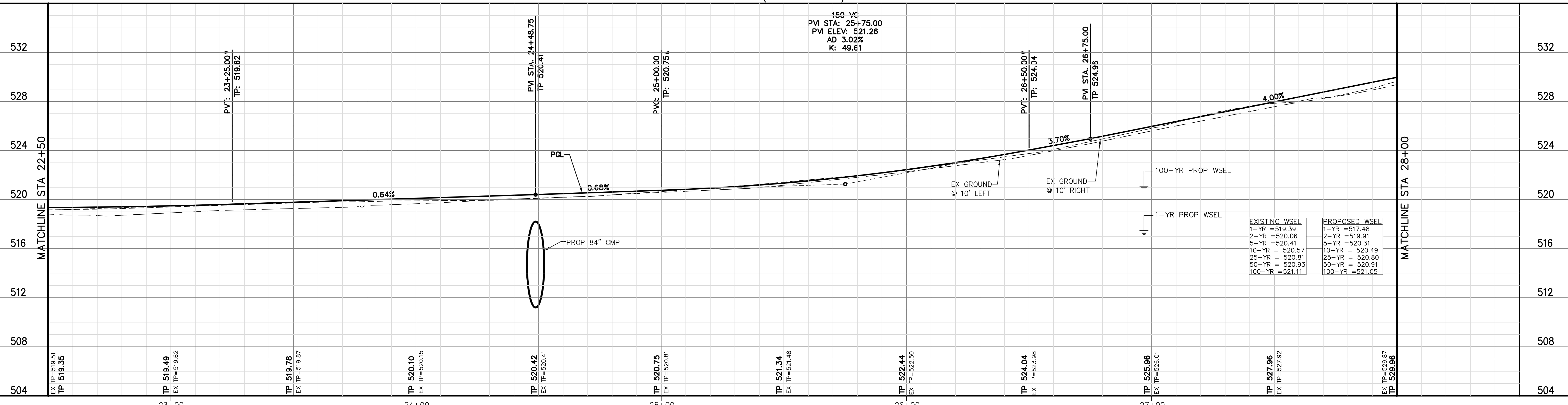
N:\BB19006 (Collin County) Reconstruction of Orr Road\05 CAD Files\PAVE - CR 317-ORR Road.dwg - 1900-2250 Plotted Nov 18, 2020 at 1:37pm by dfrancis | Last Saved by: dfrancis



LEGEND

- SIGN
- MAIL BOX
- ⊕ TELEPHONE PEDESTAL
- ⊕ POWER POLE
- ⊕ ELECTRICAL BOX
- ⊕ GUY WIRE
- ⊕ SPRINKLER CONTROL BOX
- ⊕ PULL BOX
- ⊕ SANITARY MANHOLE
- ⊕ FIBER OPTIC BOX
- ⊕ WATER VALVE
- ⊕ FIRE HYDRANT
- ⊕ WATER METER
- ⊕ GATECODE ENTRY
- TREE
- ASPHALT PAVEMENT
- x- EX FENCE
- o-o- EX SANITARY LINE
- o-e- OVERHEAD ELECTRIC
- ▲ SLOPE
- - -575 - - 1' CONTOUR (EX)

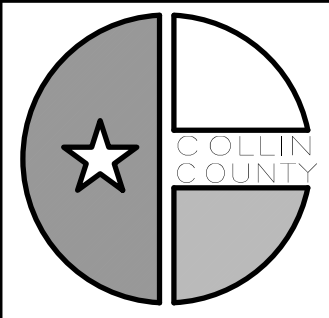
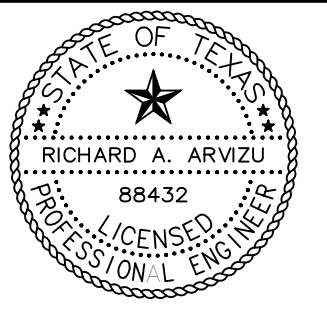
COUNTY ROAD 317 (ORR ROAD)



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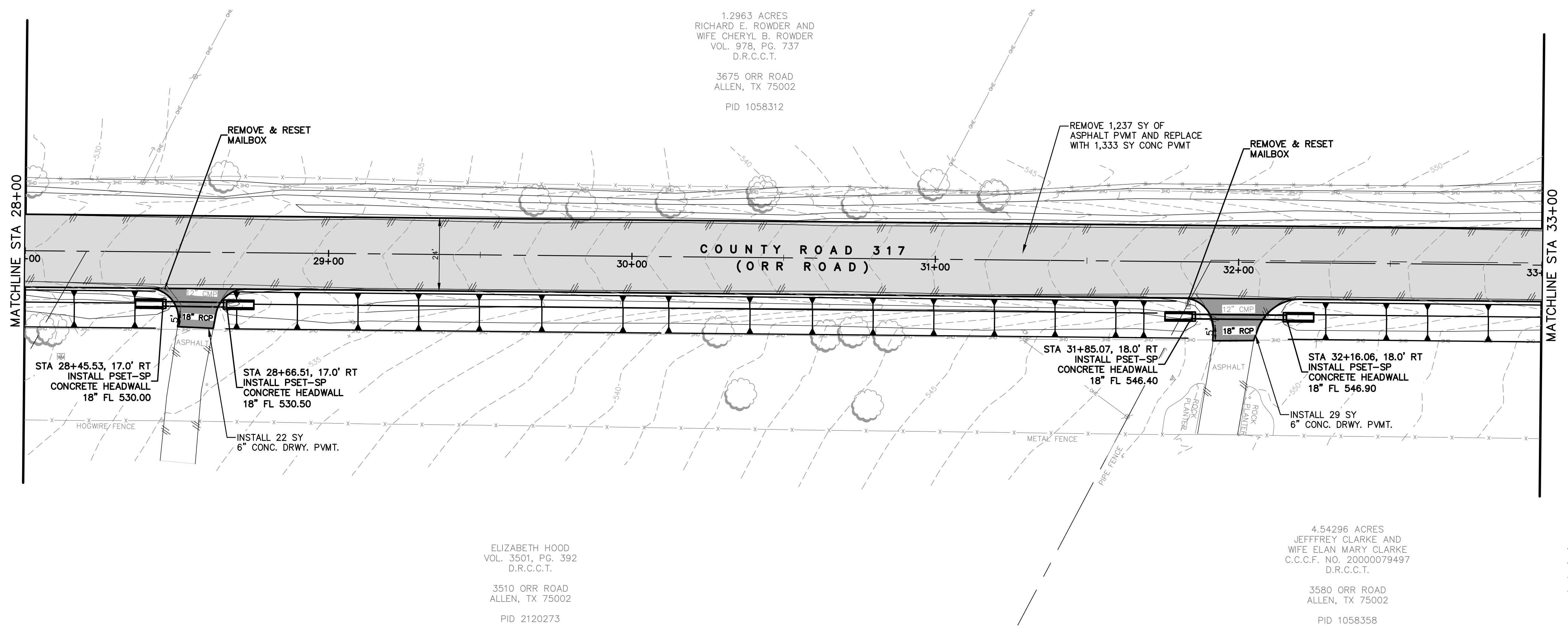


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CR 317 (ORR ROAD) COLLIN COUNTY COUNTY ROAD 317 (ORR ROAD) PLAN & PROFILE STA 22+50 TO STA 28+00		
Scale: 1"=20' H 1"=4' V	Date: Nov 18, 2020	Job No.: BB19006
P6		

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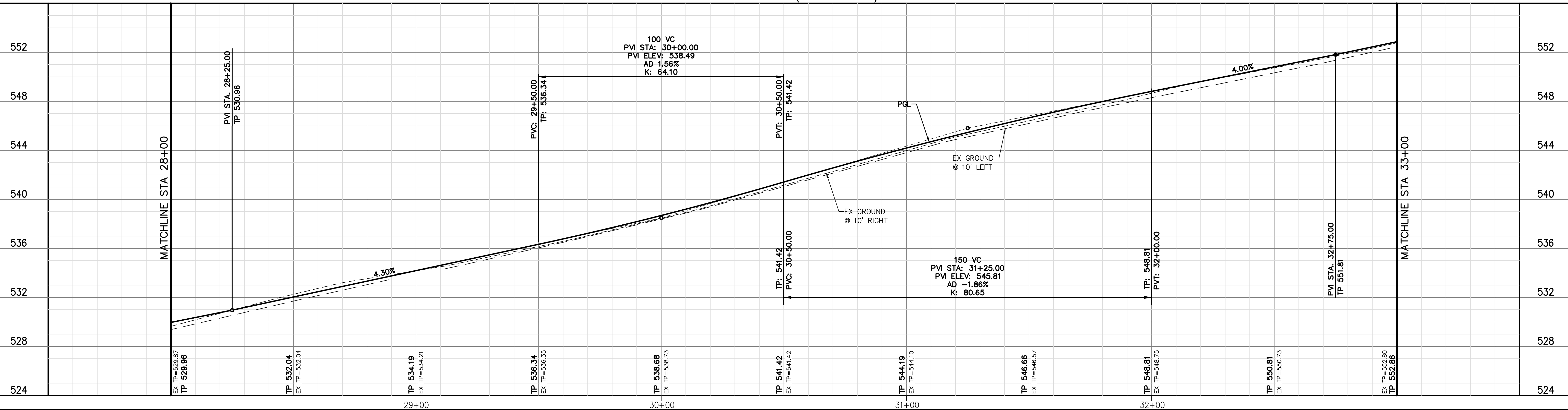


0 10' 20' 40'

LEGEND

- SIGN
- MAIL BOX
- ⊕ TELEPHONE PEDESTAL
- ⊕ POWER POLE
- ⊕ ELECTRICAL BOX
- ⊕ GUY WIRE
- ▲ SPRINKLER CONTROL BOX
- FULL BOX
- SANITARY MANHOLE
- FIBER OPTIC BOX
- ⊕ WATER VALVE
- ⊕ FIRE HYDRANT
- ⊕ WATER METER
- GATECODE ENTRY
- TREE
- /// ASPHALT PAVEMENT
- x- EX FENCE
- - - EX SANITARY LINE
- o-o- OVERHEAD ELECTRIC
- ▲ SLOPE
- - -575- 1' CONTOUR (EX)

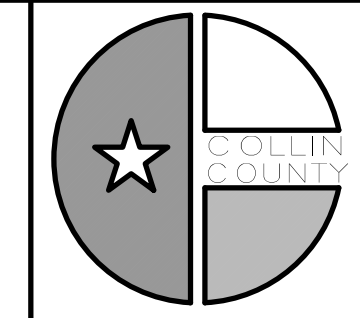
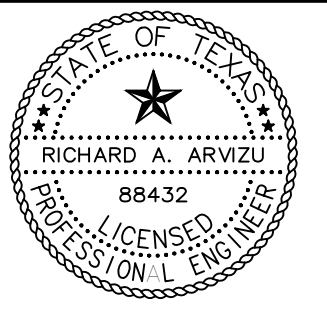
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CR 317 (ORR ROAD)
COLLIN COUNTY
COUNTY ROAD 317 (ORR ROAD)
PLAN & PROFILE
STA 28+00 TO STA 33+00

Scale: 1"=20' H
1"=4' V

Date: Nov 18, 2020

Job No.: BB19006

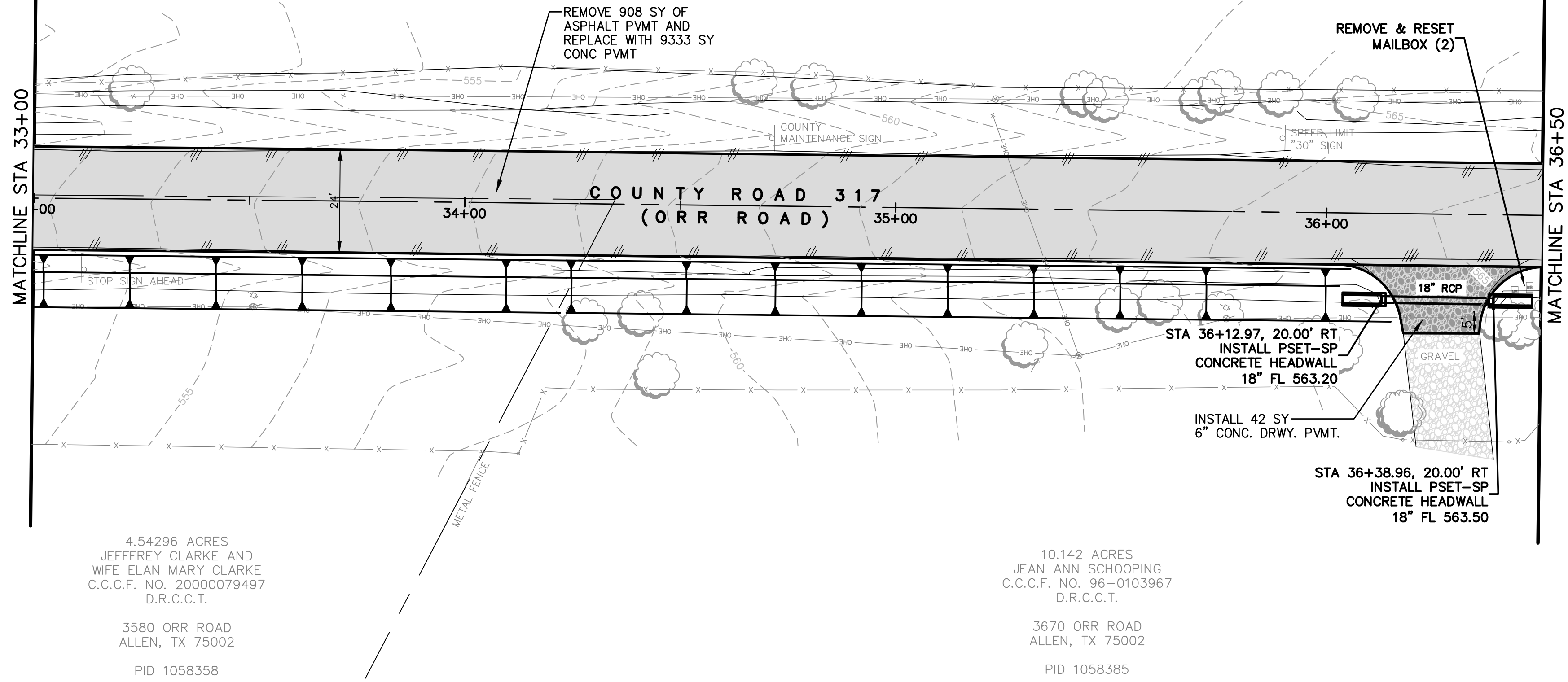
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Rev	Description	Date

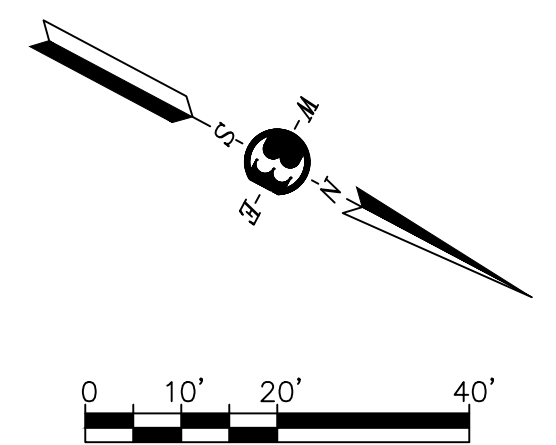
1.2963 ACRES
 RICHARD E. ROWDER AND
 WIFE CHERYL B. ROWDER
 VOL. 978, PG. 737
 D.R.C.C.T.

3675 ORR ROAD
 ALLEN, TX 75002
 PID 1058312



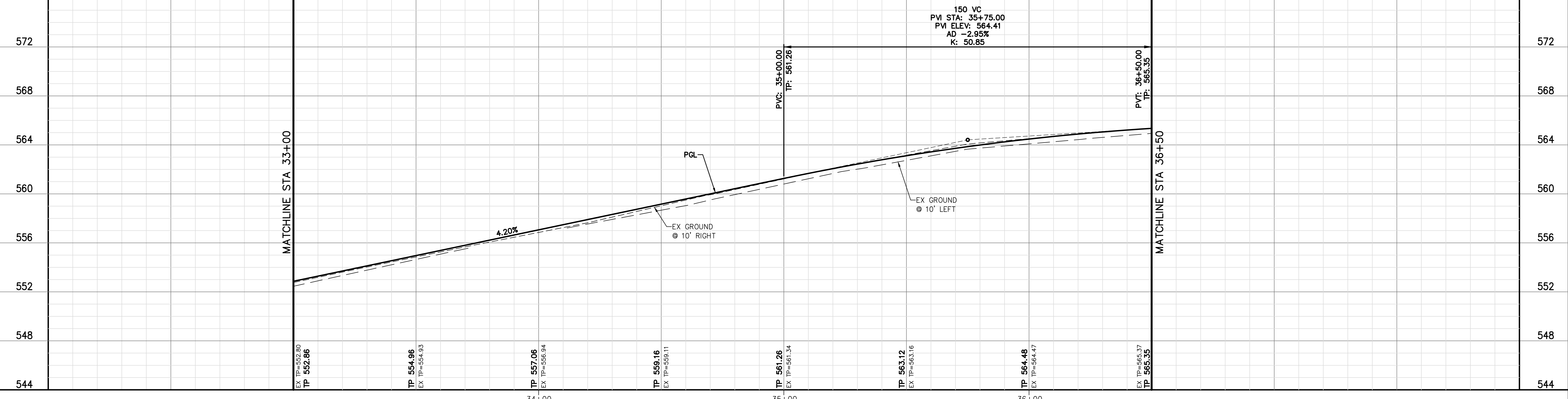
4.54296 ACRES
 JEFFREY CLARKE AND
 WIFE ELAN MARY CLARKE
 C.C.C.F. NO. 20000079497
 D.R.C.C.T.
 3580 ORR ROAD
 ALLEN, TX 75002
 PID 1058358

10.142 ACRES
 JEAN ANN SCHOOPING
 C.C.C.F. NO. 96-0103967
 D.R.C.C.T.
 3670 ORR ROAD
 ALLEN, TX 75002
 PID 1058385



- LEGEND**
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 - POWER POLE
 - ELECTRICAL BOX
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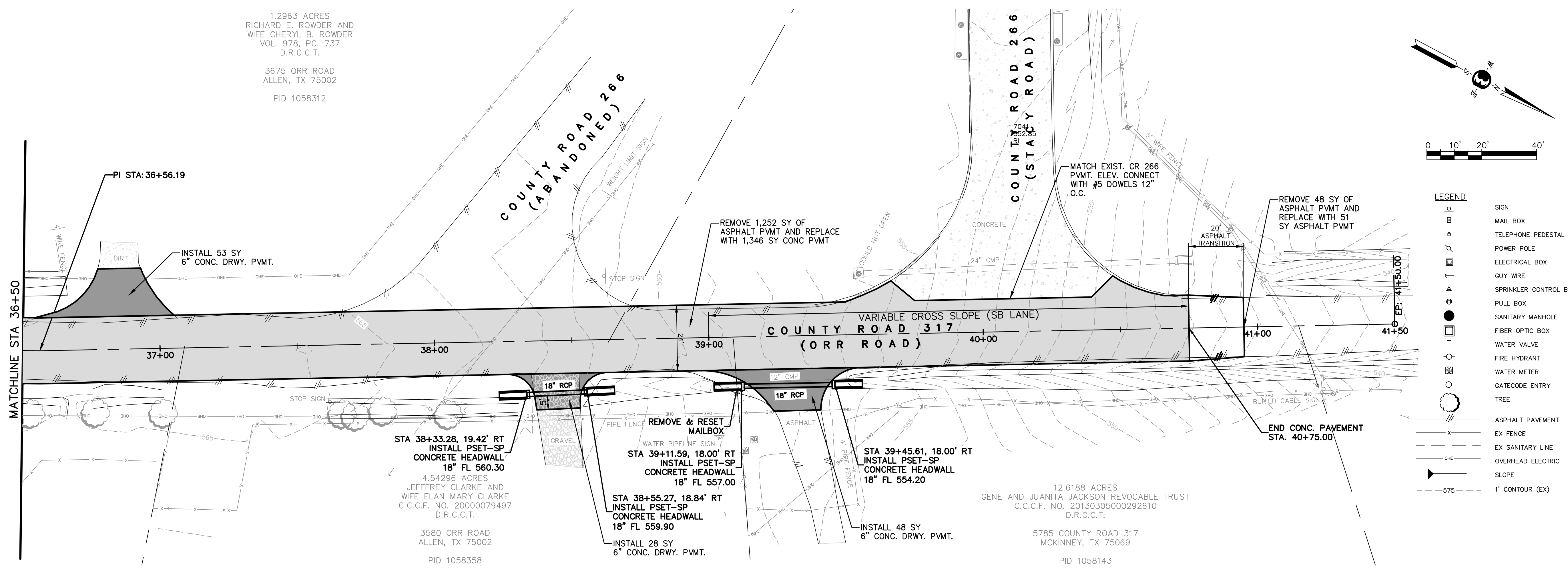
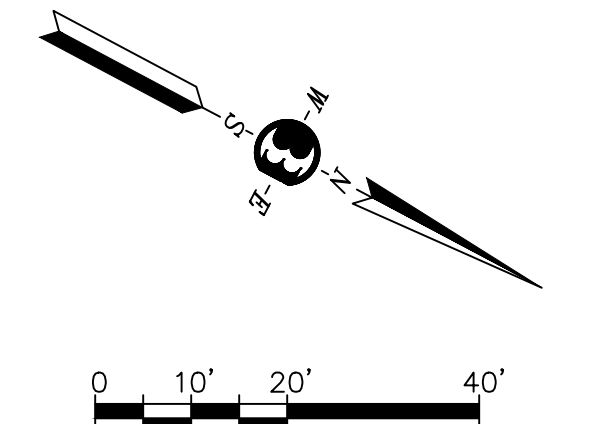
COUNTY ROAD 317 (ORR ROAD)



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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">Rev</th> <th style="width: 85%;">Description</th> <th style="width: 10%;">Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Rev	Description	Date				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Scale: 1"=20' H 1"=4' V</td> <td style="width: 30%;">Date: Nov 18, 2020</td> <td style="width: 40%;">Job No.: BB19006</td> </tr> </table>	Scale: 1"=20' H 1"=4' V	Date: Nov 18, 2020	Job No.: BB19006	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%; text-align: center;">P8</td> </tr> </table>		P8
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Scale: 1"=20' H 1"=4' V	Date: Nov 18, 2020	Job No.: BB19006											
	P8												

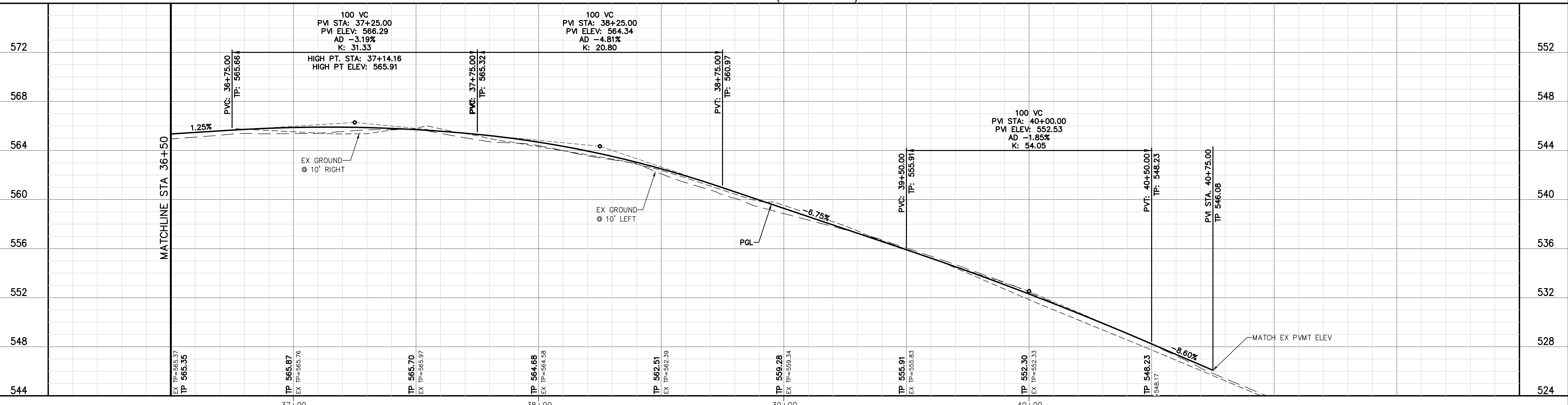
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 D.R.C.C.T.
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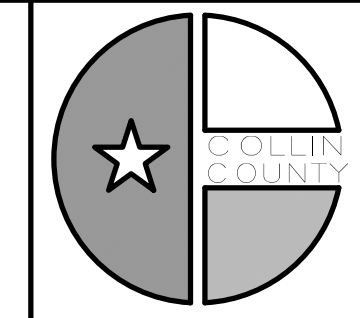
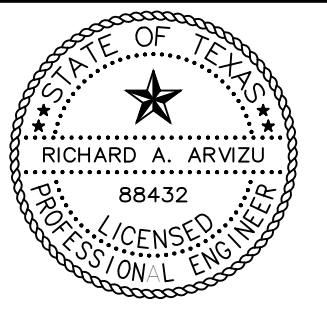
COUNTY ROAD 317 (ORR ROAD)



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CR 317 (ORR ROAD) COLLIN COUNTY COUNTY ROAD 317 (ORR ROAD) PLAN & PROFILE STA 36+50 TO END			
Scale: 1"=20' H 1"=4' V	Date: Nov 18, 2020	Job No.: BB19006	P9

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Rev	Description	Date

I. SITE DESCRIPTION

PROJECT DESCRIPTION: REPLACEMENT OF 22-FOOT ASPHALT ROAD WITH A 24-FOOT CONCRETE ROAD, REPLACEMENT OF DRIVEWAYS AND CULVERTS DITCH GRADING, REPLACEMENT OF 3 CROSS CULVERT STRUCTURES AND HEADWALLS. POTENTIAL POLLUTANTS INCLUDE SOIL SEDIMENT, FUEL, CEMENT, PAINT AND FERTILIZER.

PROJECT LIMITS: CONSTRUCTION WILL OCCUR WITHIN THE RIGHT-OF-WAY AND EASEMENT LIMITS ALONG ORR ROAD BETWEEN STACY ROAD AND THE NTMWD WILSON CREEK TREATMENT PLANT ENTRANCE, 600' NORTH OF E. FOREST GROVE RD.

TOTAL NUMBER OF ACRES DISTURBED: 7.0 ACRES

NATURE AND SEQUENCE OF MAJOR CONSTRUCTION ACTIVITIES: COMPLETION OF THE TOTAL PROJECT SHOULD OCCUR W/180 CALENDAR DAYS. THE FOLLOWING PHASE SEQUENCE WILL BE FOLLOWED FOR LAND DISTURBING ACTIVITY: INSTALL INITIAL EROSION CONTROL, CLEARING & GRUBBING PERFORMED, DRAINAGE STRUCTURES PLACED, GRADING OPERATIONS, PAVING, SITE STABILIZATION AND CLEANUP. ONCE SITE IS APPROVED BY THE OWNER, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES & RESTORE ANY AREAS DISTURBED BY THEIR REMOVAL.

SOILS LIKELY TO BE ENCOUNTERED DURING CONSTRUCTION:
 TINN CLAY
 TRINITY CLAY

ERODIBILITY ("K") FACTORS:
 0.32
 0.32

ESTIMATED RUNOFF COEFFICIENTS ("C") FACTORS BEFORE CONSTRUCTION:
 0.50

AFTER CONSTRUCTION:
 0.50

NAME OF RECEIVING WATERS:

WILSON CREEK

NAME OF ADJACENT WETLANDS OR SURFACE WATERS:

-NONE-

APPROXIMATE LOCATION:
 -NA-

II. EROSION AND SEDIMENT CONTROLS

TEMPORARY SOIL STABILIZATION PRACTICES: THE FOLLOWING INDICATED TEMPORARY SOIL STABILIZATION PRACTICES WILL BE USED ON THE PROJECT SITE.

- SEEDING
- MULCHING
- SODDING
- TREE PROTECTION
- VEGETATIVE BUFFER STRIPS
- EROSION CONTROL MATTING

OTHER PRACTICES: CONTRACTOR SHALL PROVIDE FOR THE PROTECTION OF ADJACENT TREES NOT IN CONFLICT W/ CONSTRUCTION & SHALL LIMIT CONSTRUCTION ACTIVITIES TO KEEP THE DISTURBANCE OF EXISTING VEGETATION TO A MINIMUM.

PERMANENT SOIL STABILIZATION PRACTICES: THE FOLLOWING INDICATED PERMANENT SOIL STABILIZATION PRACTICES WILL BE UNDERTAKEN AS PART OF THE PROJECT.

- SEEDING
- MULCHING OR HYDROMULCHING
- SODDING
- PLACEMENT OF RIPRAP
- USE OF GABIONS
- INSTALLATION OF GEOTEXTILE FABRICS
- USE OF CONCRETE SLOPE PAVING
- CONSTRUCTION OF RETAINING WALL SYSTEMS

OTHER PRACTICES:

STRUCTURAL PRACTICES: THE FOLLOWING INDICATED STRUCTURAL PRACTICES WILL BE EMPLOYED ON THE PROJECT SITE.

- SILT FENCE
- ROCK FILTER DAMS
- PERIMETER FILTER DIKES
- EARTH EMBANKMENTS AND DIVERSION DIKES
- INTERCEPTOR SWALES
- DITCH CHECKS
- STORM SEWER INLET PROTECTION
- PIPE SLOPE DRAINS
- PIPE INLET PROTECTION
- SUMP PITS
- SEDIMENT TRAPS
- SEDIMENT BASINS
- STONE OUTLET PROTECTION
- LEVEL SPREADERS
- CONSTRUCTION ENTRANCE STABILIZATION

OTHER PRACTICES:

III. STORM WATER MANAGEMENT MEASURES

THE FOLLOWING INDICATED PERMANENT STORM WATER MANAGEMENT MEASURES WILL BE CONSTRUCTED AS PART OF THE PROJECT.

- CURBS AND GUTTERS
- STORM SEWERS
- DRAINAGE DITCHES OR CHANNELS
- VELOCITY DISSIPATION DEVICES
- VEGETATIVE SWALES
- PAVED FLUMES
- DITCH OR CHANNEL LINING

OTHER MEASURES:

IV. OTHER SITE CONTROLS

TEMPORARY STOCKPILES: TEMPORARY STOCKPILES SHALL BE BUILT AWAY FROM CRITICAL AREAS SUCH AS STREAMS AND DRAINAGE WAYS. ALL MATERIALS STORED ON SITE WILL BE STORED IN A NEAT, ORDERLY MANNER THAT WILL MINIMIZE AND CONTROL THE AMOUNT OF SEDIMENT THAT MAY ENTER RECEIVING WATERS.

DUST CONTROL: BLOWING DUST WILL BE CONTROLLED AS NECESSARY BY SPRAYING THE DUST SOURCE WITH WATER.

OFF-SITE VEHICLE TRACKING: PAVED ROADWAY ADJACENT TO SITE ENTRANCES WILL BE SWEEPED AND/OR SCRAPED DAILY TO REMOVE EXCESS MUD, DIRT, OR ROCK TRACKED FROM THE SITE.

V. SITE HOUSEKEEPING BEST MANAGEMENT PRACTICES

EQUIPMENT MAINTENANCE AND REPAIR: ALL VEHICLES ON SITE SHALL BE MONITORED FOR LEAKS & RECEIVE REGULAR PREVENTATIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WATER ON THE SITE.

HAZARDOUS AND REGULATED MATERIALS: NO HAZARDOUS WASTE IS EXPECTED TO BE GENERATED OR ENCOUNTERED IN THIS PROJECT. IN THE EVENT HAZARDOUS WASTE IS ENCOUNTERED, ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER.

SOLID WASTE: CONTRACTOR SHALL ENSURE ALL TRASH & CONSTRUCTION DEBRIS FROM THE SITE WILL BE HAULED TO AN APPROVED LANDFILL. NO CONSTRUCTION WASTE MATERIAL WILL BE BURIED ON SITE.

SANITARY WASTE: PORTABLE SANITARY WASTE UNITS WILL BE AVAILABLE TO WORK CREWS. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THESE UNITS IN GOOD CONDITION, INCLUDING REGULAR COLLECTION OR REMOVAL OF WASTE OR THE REGULAR REMOVAL AND REPLACEMENT OF THE UNITS.

VI. MAINTENANCE PROCEDURES

ALL STRUCTURAL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER. IF REPAIR IS NECESSARY, IT WILL BE INITIATED W/1 24 HOURS OF THE INSPECTION REPORT. SEDIMENT WILL BE REMOVED FROM BEHIND SILT FENCES, & CHECK DAMS WHEN IT BECOMES 1/3 THE HEIGHT OF THE FABRIC. SEDIMENT DEPOSITS FROM CONSTRUCTION ACTIVITY WILL BE REMOVED. ANY TEMPORARY CONTROLS WILL BE REMOVED AFTER THE DISTURBED AREAS HAVE BEEN STABILIZED. ANY SEDIMENT IN THE CULVERTS WILL BE REMOVED AS DIRECTED BY THE ENGINEER.

VII. INSPECTION PROCEDURES

VISUAL INSPECTIONS OF ALL CLEARED AND GRADED AREAS OF THE CONSTRUCTION SITE WILL BE PERFORMED DAILY & WITHIN 12 HOURS OF THE END OF A STORM WITH RAINFALL AMOUNTS GREATER THAN 0.5 INCHES. THE INSPECTIONS WILL VERIFY THAT THE STRUCTURAL PRACTICES ARE IN GOOD CONDITION & THAT THE STRUCTURAL PRACTICES & OTHER PRACTICES & PROCEDURES ARE EFFECTIVE IN MAINTAINING EROSION & SEDIMENT & PREVENTING STORM WATER CONTAMINATION.

VIII. NON-STORM WATER DISCHARGES

THE FOLLOWING INDICATED NON-STORM WATER DISCHARGES WILL OCCUR ON THIS PROJECT. CARE WILL BE EXERCISED TO PREVENT SEDIMENT OR OTHER POLLUTANTS FROM BEING RELEASED OFF-SITE AS PART OF THESE DISCHARGES.

FIRE HYDRANT, WATER LINE, OR SPRINKLER SYSTEM FLUSHING
 NOTE: HEAVILY CHLORINATED WATER (3.5 MG/L OR GREATER RESIDUAL CHLORINE LEVEL) FROM HYDRANT AND WATER LINE STERILIZATION WILL BE DISCHARGED TO THE SANITARY SEWER SYSTEM. A SEPARATE SANITARY SEWER DISCHARGE PERMIT WILL BE OBTAINED FROM THE LOCAL MUNICIPALITY OR SYSTEM OPERATOR. IF REQUIRED, PRIOR TO RELEASING THIS WATER FOLLOWING THE MANDATORY CHLORINE RETENTION TIME.

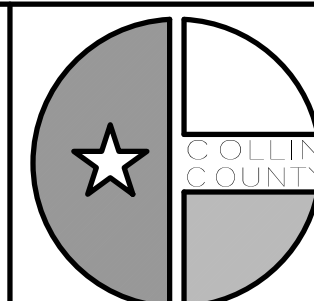
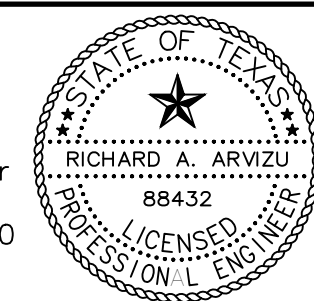
- VEHICLE OR EQUIPMENT WASHWATER FROM SEDIMENT TRACKING PREVENTION
- EXCESS WATER FROM DUST CONTROL ACTIVITIES, INCLUDING WATER USED BY CONSTRUCTION EQUIPMENT PERFORMING PAVEMENT SAWING, CUTTING OR GRINDING
- SPRINKLER OR IRRIGATION SYSTEM DRAINAGE
- PAVEMENT WASHDOWN
- UNCONTAMINATED GROUNDWATER

OTHER NON-STORM WATER DISCHARGES: N/A

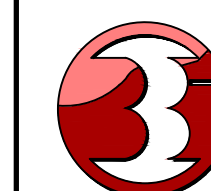
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CR 317 (ORR ROAD)
 COLLIN COUNTY

SWPPP

Scale: 1"=20' H
 1"=2' V

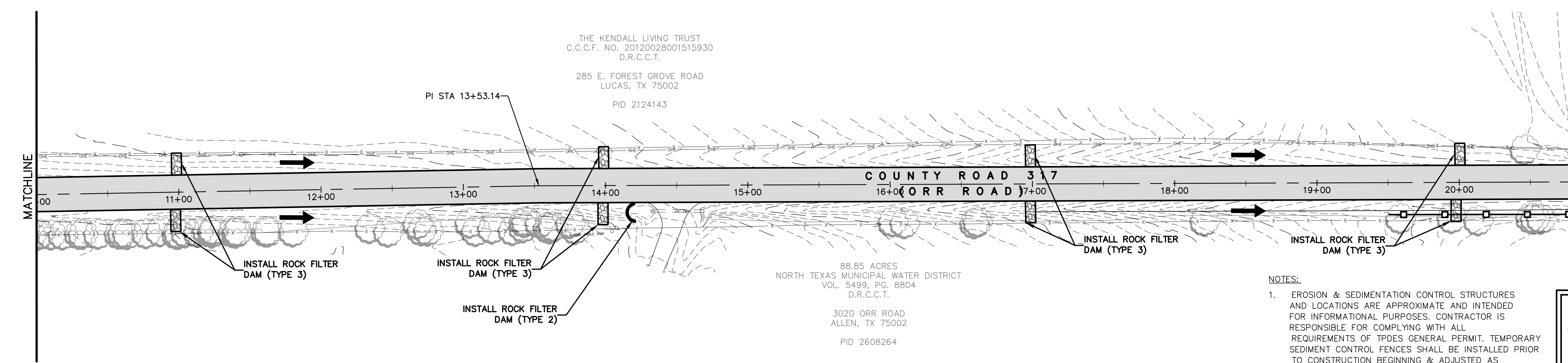
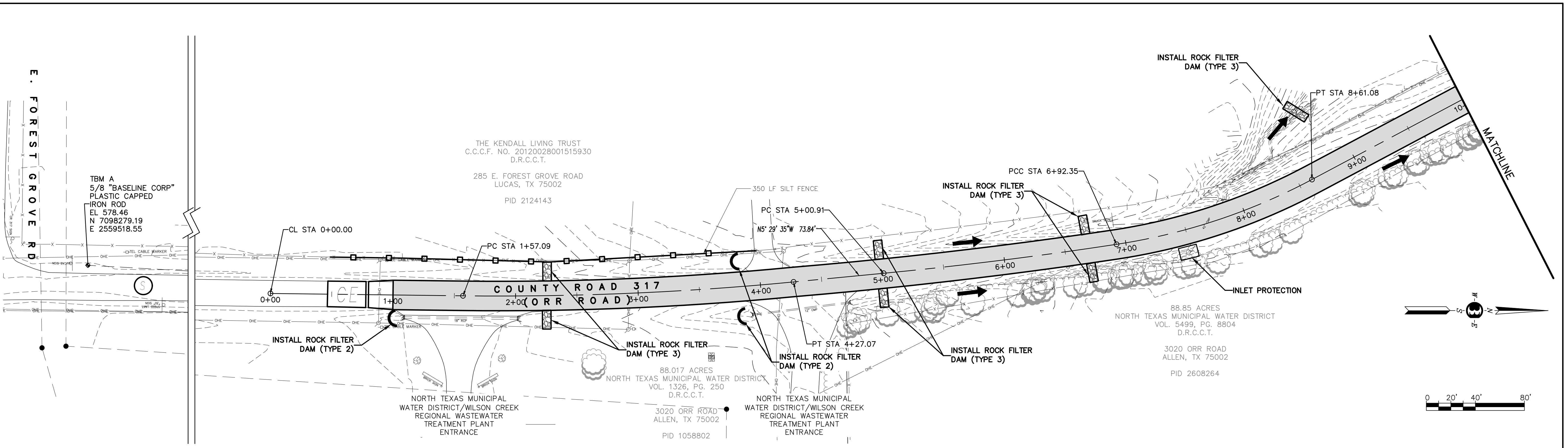
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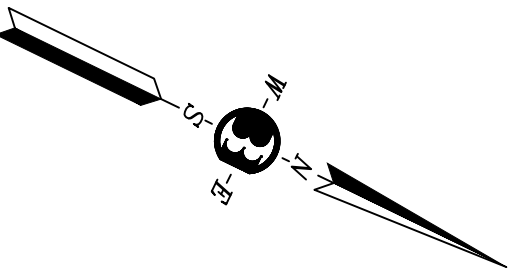
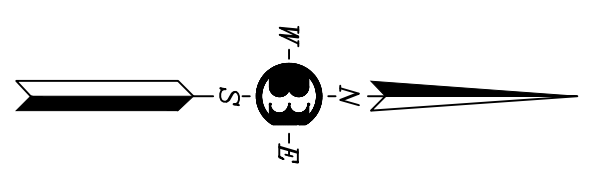
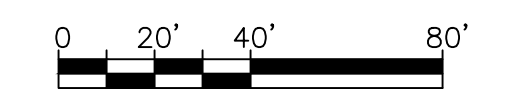
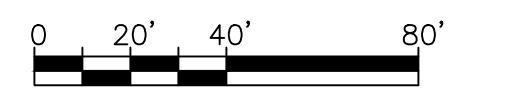
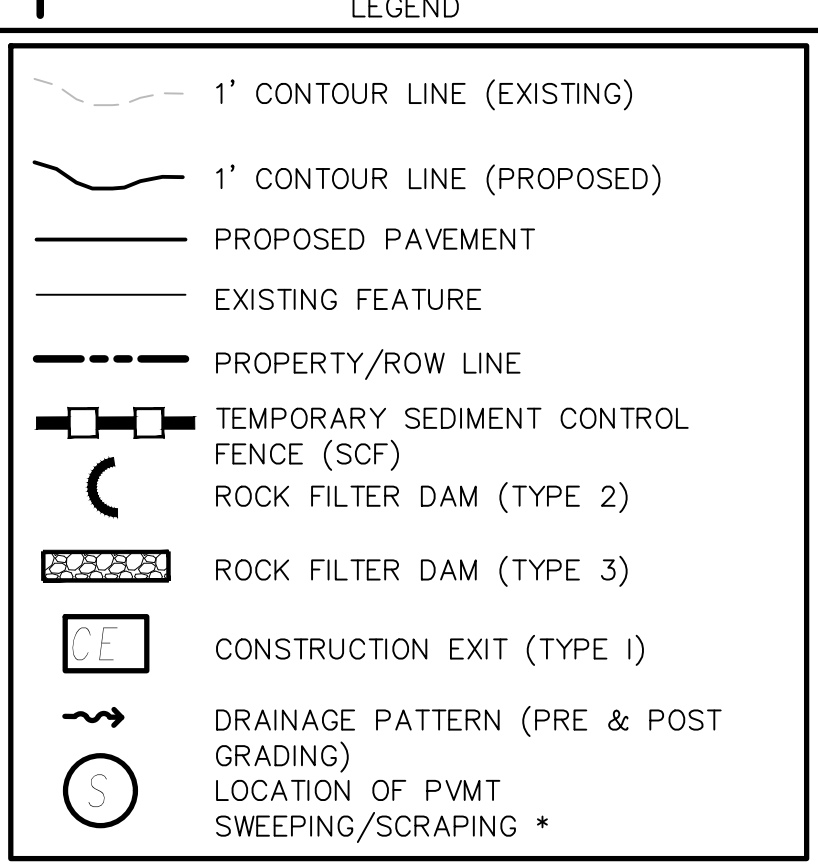
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Rev	Description	Date

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- NOTES:**
1. EROSION & SEDIMENTATION CONTROL STRUCTURES AND LOCATIONS ARE APPROXIMATE AND INTENDED FOR INFORMATIONAL PURPOSES. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL REQUIREMENTS OF TPDES GENERAL PERMIT. TEMPORARY SEDIMENT CONTROL FENCES SHALL BE INSTALLED PRIOR TO CONSTRUCTION BEGINNING & ADJUSTED AS CONSTRUCTION PROGRESSES.
 2. GRASS DAMAGED BY CONSTRUCTION SHALL BE REPLACED BY HYDROMULCHING AND PAID FOR SEPARATELY. PAYMENT SHALL BE PER ACRE AND SHALL BE FULL COMPENSATION FOR ALL LABOR AND MATERIALS, INCLUDING WATER, NECESSARY TO ESTABLISH TURF. APPROX. QUANT. = 4.0 ACRES.
 3. TOTAL DISTURBED AREA IS = 7.0 ACRES BASED ON FENCE LINE TO FENCE LINE AND CROSS CULVERT GRADING
 4. OFF-SITE VEHICLE TRACKING OF SEDIMENTS SHALL BE MINIMIZED. SEDIMENT TRACKED OFF-SITE SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR AT HIS EXPENSE.
 5. CONSTRUCTION ENTRANCE/EXIT LOCATION TO BE DETERMINED BY CONTRACTOR & APPROVED BY OWNER.

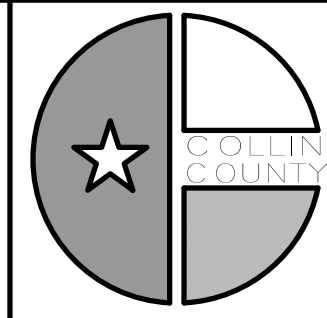
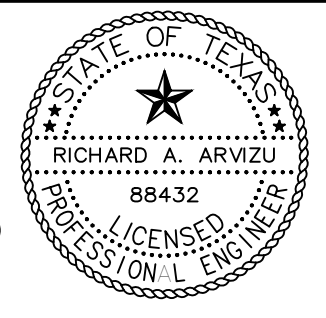


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Richard A. Arvizu

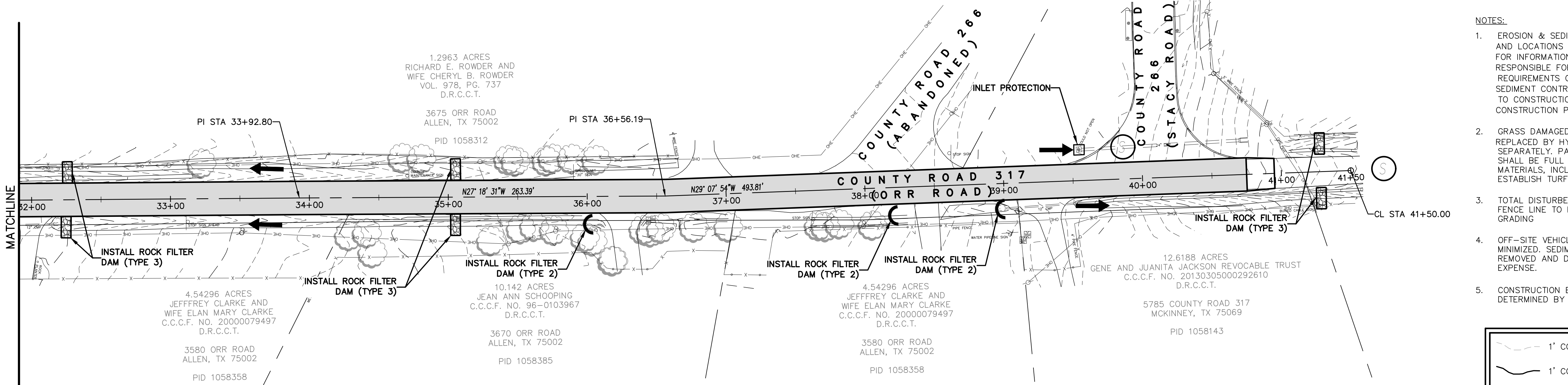
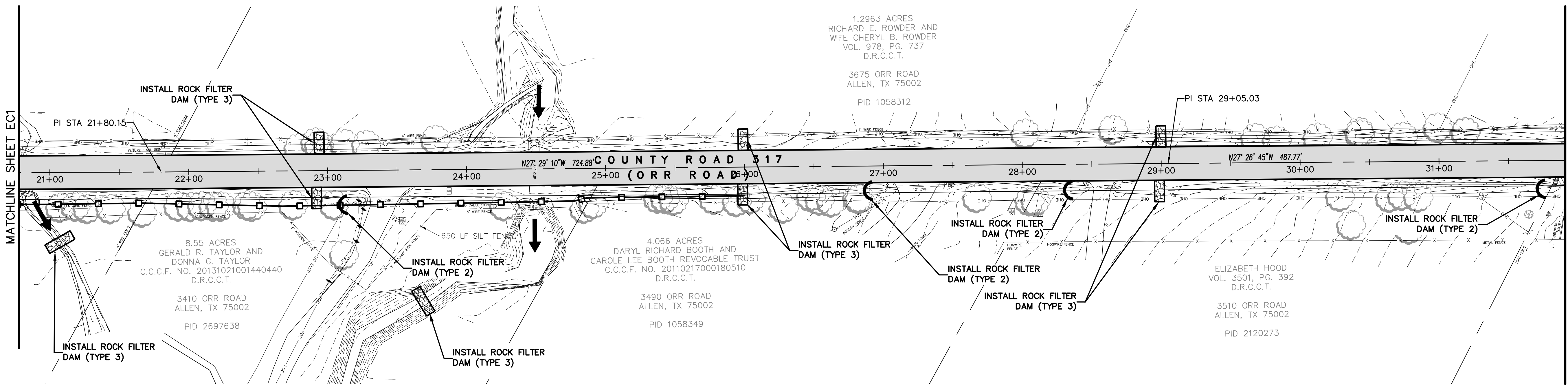
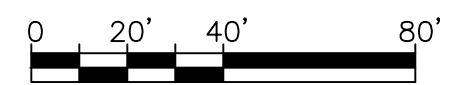
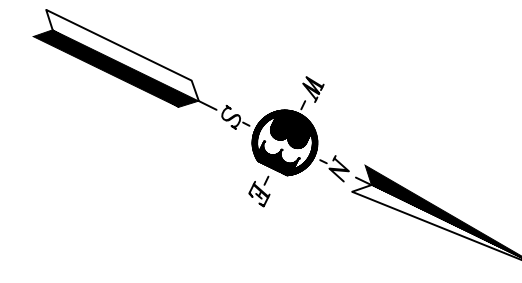


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CR 317 (ORR ROAD) COLLIN COUNTY	
EROSION CONTROL PLAN	
Scale: 1"=20' H	Date: Nov 18, 2020
Job No.: BB19006	EC1

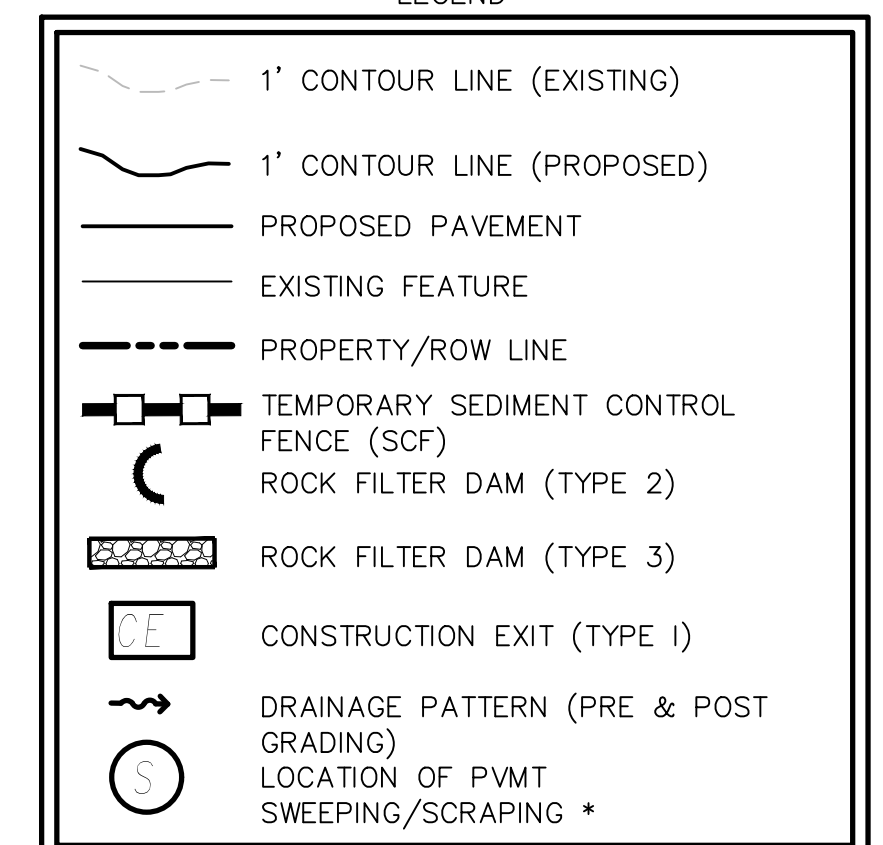
Rev	Description	Date



NOTES:

1. EROSION & SEDIMENTATION CONTROL STRUCTURES AND LOCATIONS ARE APPROXIMATE AND INTENDED FOR INFORMATIONAL PURPOSES. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL REQUIREMENTS OF TPDES GENERAL PERMIT. TEMPORARY SEDIMENT CONTROL FENCES SHALL BE INSTALLED PRIOR TO CONSTRUCTION BEGINNING & ADJUSTED AS CONSTRUCTION PROGRESSES.
2. GRASS DAMAGED BY CONSTRUCTION SHALL BE REPLACED BY HYDROMULCHING AND PAID FOR SEPARATELY. PAYMENT SHALL BE PER ACRE AND SHALL BE FULL COMPENSATION FOR ALL LABOR AND MATERIALS, INCLUDING WATER, NECESSARY TO ESTABLISH TURF. APPROX. QUANT. = 4.0 ACRES.
3. TOTAL DISTURBED AREA IS = 7.0 ACRES BASED ON FENCE LINE TO FENCE LINE AND CROSS CULVERT GRADING
4. OFF-SITE VEHICLE TRACKING OF SEDIMENTS SHALL BE MINIMIZED. SEDIMENT TRACKED OFF-SITE SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR AT HIS EXPENSE.
5. CONSTRUCTION ENTRANCE/EXIT LOCATION TO BE DETERMINED BY CONTRACTOR & APPROVED BY OWNER.

LEGEND

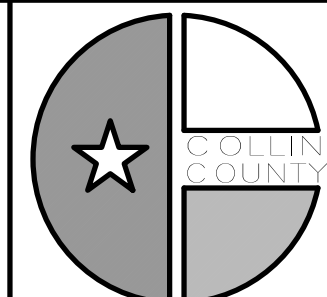
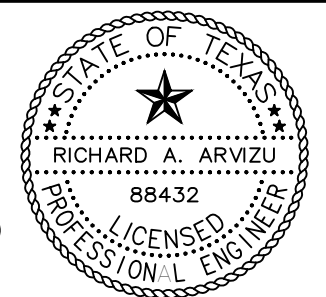


*AS NECESSARY TO REMOVE SOIL DEPOSITS ETC. FROM PAVED AREAS AFFECTED BY CONSTRUCTION ACTIVITIES.

CAUTION EXISTING UTILITIES !!!

Existing utilities and underground facilities indicated on these plans have been located from reference information. It shall be the responsibility of the contractor to verify both horizontally and vertically the location of all existing utilities and underground facilities prior to construction, to take the necessary precautions in order to protect all facilities encountered. The contractor shall preserve and protect all existing utilities from damage during construction.

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CR 317 (ORR ROAD) COLLIN COUNTY			
EROSION CONTROL PLAN			
Scale: 1"=20' H	Date: Nov 18, 2020	Job No.:	BB19006
			EC2

N:\BB19006 (Collin County)\Reconstruction of Orr Road\05 CAD Files\CONTROL - CR 317-ORR RD.dwg-EC2 EROSION CONTROL PLAN Plotted Nov 18, 2020 at 7:26am by dfrederic | Last Saved by: dfrederic

Rev	Description	Date

TRAFFIC CONTROL PLAN NOTES

TRAFFIC CONTROL GENERAL NOTES

1. IN GENERAL, TWO-WAY ONE-LANE TRAFFIC SHALL BE PROVIDED AS A MINIMUM THROUGHOUT THE DURATION OF THIS PROJECT (PER TXDOT STANDARD TRAFFIC CONTROL PLAN TCP(2-2)-18 FOR SHORT AND INTERMEDIATE TERM CLOSURES AND TCP(2-8)-18 FOR LONG TERM CLOSURES), SUBJECT TO APPROVAL BY THE ENGINEER. NO DETOURS WILL BE PERMITTED. THE CONTRACTOR MAY CHOOSE TO SUBMIT AN ALTERNATIVE TRAFFIC CONTROL AND PHASING PLAN FOR APPROVAL BY THE ENGINEER.
2. A SUGGESTED PHASING PLAN IS PROVIDED AS PART OF THE CONSTRUCTION SEQUENCE. PER TCP (2-2)-18 AND TCP (2-8)-18, THE WORK ZONE LENGTH IS TO BE LIMITED TO LESS THAN 400 FT UNDER YIELD CONTROL OPERATIONS. ADEQUATE SIGHT DISTANCE FROM ONE END OF THE WORK ZONE TO THE OTHER IS REQUIRED, AND THE CONTRACTOR SHALL MODIFY THE PHASE LIMITS AS NECESSARY TO ENSURE ADEQUATE SIGHT DISTANCE IS PROVIDED BASED ON THE HORIZONTAL/VERTICAL GEOMETRY OF THE ROADWAY AS WELL AS ROADSIDE OBSTRUCTIONS.
3. LONGER WORK ZONE LENGTHS MAY BE PERMITTED IF THE CONTRACTOR PROVIDES A TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM. IN THIS EVENT, THE CONTRACTOR MUST MAKE ADEQUATE ACCOMMODATIONS FOR DRIVEWAYS WITHIN THE WORK ZONE TO ENSURE EFFICIENT AND SAFE OPERATIONS.
 - a. THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE ENGINEER FOR REVIEW AND APPROVAL:
 - i. TEMPORARY TRAFFIC SIGNAL PLANS FOR EACH PROPOSED PHASE SHOWING THE PROPOSED LOCATION OF THE SIGNALS, SIGNAL HEAD CONFIGURATIONS, PRIMARY AND BACKUP POWER SOURCES, AUXILIARY EQUIPMENT INCLUDING DETECTION AND PREEMPTION DEVICES, ADVANCE SIGNAGE AND PAVEMENT MARKING LAYOUTS PREPARED IN ACCORDANCE WITH TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND TXDOT STANDARDS.
 - ii. SIGNAL TIMING PLAN FOR EACH PHASE.
 - iii. EQUIPMENT SPECIFICATIONS AND CUT SHEETS.
 - iv. OTHER DOCUMENTATION AS SPECIFIED BY THE ENGINEER.
 - b. ONCE INSTALLED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF THE TEMPORARY TRAFFIC SIGNALS FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL DESIGNATE IN WRITING A SUFFICIENTLY SKILLED INDIVIDUAL RESPONSIBLE FOR MAINTENANCE AND OPERATION OF THE TEMPORARY TRAFFIC SIGNALS WHO IS AVAILABLE TO RESPOND WITHIN A REASONABLE TIME, 24-HOURS EACH DAY.
 - c. BACKUP POWER SHALL BE PROVIDED FOR EACH LOCATION AT ALL TIMES.
4. WORK MAY BE PERMITTED TO OCCUR IN MORE THAN ONE PHASE AT A TIME AS LONG AS THERE IS ADEQUATE SPACING BETWEEN TO ALLOW FOR TRAFFIC QUEUEING WITHOUT NEGATIVELY IMPACTING THE TRAFFIC OPERATIONS OF EITHER WORK ZONE.
5. CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A TRAFFIC CONTROL PLAN AT LEAST FIVE (5) WORKING DAYS BEFORE ANY WORK IN A COUNTY STREET. TRAFFIC CONTROL MEASURES SHALL CONFORM TO PART VI OF THE TMUTCD. TRAFFIC CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR FOR ANY WORK ACTIVITY THAT TAKES PLACE ON OR ADJACENT TO ANY COUNTY STREET OR ROADWAY. THE TRAFFIC CONTROL PLAN IS TO BE DESIGNED AND SEALED BY AN ENGINEER LICENSED IN THE STATE OF TEXAS.
6. ALL TRAFFIC CONTROL ITEMS FOR THE GUIDANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS MUST CONFORM TO THE INSTALLATION SHOWN IN THE LATEST EDITION OF THE TMUTCD, TEXAS DEPARTMENT OF TRANSPORTATION AND COLLIN COUNTY WORK ZONE TRAFFIC CONTROL GUIDELINES.
7. TRAFFIC CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR FOR ANY WORK ACTIVITY THAT TAKES PLACE ON OR ADJACENT TO ANY COUNTY STREET OR ROADWAY.
8. TEMPORARY LIGHTING SHALL BE REQUIRED WITHIN THE WORK ZONE FOR LANE CLOSURES THAT EXTEND OVERNIGHT.
9. THE TEMPORARY AND PERMANENT TRAFFIC SIGN LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE APPROVED IN THE FIELD BY THE ENGINEER AND SHALL CONFORM TO THE ADVANCE POSTING DISTANCES, SPACING AND VISIBILITY REQUIREMENTS SHOWN IN THE TMUTCD.
10. VEHICLES BELONGING TO THE CONTRACTOR, SUBCONTRACTOR OR THEIR EMPLOYEES SHALL NOT USE ADJACENT LOCAL STREETS FOR PARKING OR FOR STORING OF EQUIPMENT AND MATERIALS.
11. THE CONTRACTOR SHALL NOT PARK HIS EQUIPMENT OVERNIGHT WHERE IT IS DEEMED BY THE ENGINEER TO BE A SAFETY HAZARD.
12. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PUBLIC AND PRIVATE DRIVEWAYS DURING ALL PHASES OF CONSTRUCTION UNLESS OTHER ARRANGEMENTS ACCEPTABLE TO BOTH THE ENGINEER AND PROPERTY OWNERS/OCCUPANTS ARE MADE PRIOR TO ACCESS RESTRICTION.
13. ACCESS FOR EMERGENCY VEHICLES, SCHOOL BUSES, AND NTMWD VEHICLES SHALL BE MAINTAINED AT ALL TIMES.

14. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A SCHEDULE FOR EACH CONSTRUCTION PHASE. THIS SCHEDULE SHALL INCLUDE THE DATES AND DURATION OF EACH PARTIAL ROADWAY CLOSURE AND MINIMIZE THE LENGTH OF TIME FOR LANE CLOSURES. THE INTENT OF THIS PROJECT IS TO MINIMIZE THE AMOUNT OF TIME THAT LANE CLOSURES ARE USED. CONSTRUCTION SHALL NOT BEGIN UNTIL THIS SCHEDULE IS APPROVED IN WRITING BY THE ENGINEER. ONCE CONSTRUCTION BEGINS, ANY CHANGES REQUESTED BY THE CONTRACTOR TO THIS SCHEDULE SHALL REQUIRE WRITTEN APPROVAL FROM THE ENGINEER.
15. NIGHTTIME WORK ON THIS PROJECT SHALL NOT BE ALLOWED FROM SUNSET TO 7:00 AM UNLESS A NIGHTTIME WORK PLAN IS SUBMITTED IN WRITING BY THE CONTRACTOR AND APPROVED IN WRITING BY THE ENGINEER.
16. THE CONTRACTOR SHALL PROVIDE A LIST OF THE NAMES, ADDRESSES, AND PHONE NUMBERS OF HIS PRINCIPALS AND AUTHORIZED REPRESENTATIVES WHO MAY BE CONTACTED IN CASE OF EMERGENCY. THIS INFORMATION SHALL BE PROVIDED IN WRITING TO THE TOWN OF FAIRVIEW POLICE DEPARTMENT, THE COLLIN COUNTY SHERIFF, NTMWD, AND COLLIN COUNTY PUBLIC WORKS.
17. THE CONTRACTOR SHALL COVER EXISTING TRAFFIC SIGNS WHICH CONFLICT WITH THE TRAFFIC CONTROL SIGNS.
18. EXISTING AND TEMPORARY PAVEMENT MARKINGS IN THE PROJECT AREA AND LANE SHIFTS OUTSIDE THE PROJECT AREA SHALL REMAIN VISIBLE AT ALL TIMES. IF, IN THE OPINION OF THE ENGINEER, THE MARKINGS HAVE LOST THEIR EFFECTIVENESS DUE TO WEAR, THE MARKINGS SHALL BE REAPPLIED AS INSTRUCTED BY THE ENGINEER.
19. CONTRACTOR SHALL PROVIDE AND MAINTAIN SUCH OTHER BARRICADES AND SIGNS AS DIRECTED BY COLLIN COUNTY.
20. ALL BARRICADES, LIGHTS, WARNING SIGNS, TEMPORARY TRAFFIC SIGNAL CONTROLS, TEMPORARY PAVEMENT MARKINGS AND ALL OTHER NECESSARY TRAFFIC CONTROL ITEMS SHALL BE PAID FOR UNDER THE BARRICADES, SIGNS & TRAFFIC HANDLING PAY ITEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL ITEMS THAT ARE ESSENTIAL FOR TRAFFIC CONTROL DURING THE DURATION OF THE PROJECT. THESE ITEMS WILL BE CONSIDERED PART OF THE BARRICADES, SIGNS & TRAFFIC HANDLING PAY ITEM.
21. CONSTRUCTION VEHICLES SHALL FOLLOW THE SIZE AND WEIGHT RESTRICTION FOR THE LOCAL STREET NETWORK ADJACENT TO THE PROJECT AREA.

SUGGESTED CONSTRUCTION SEQUENCE

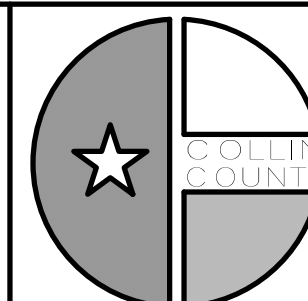
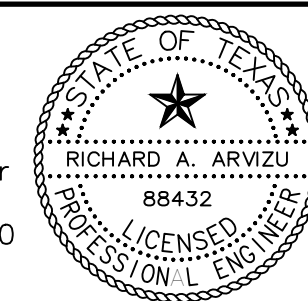
1. MOBILIZE.
2. INSTALL EROSION CONTROLS THROUGHOUT PROJECT AREA.
3. REMOVAL/INSTALL CROSS-STREET 42" CULVERT NEAR STA. 7+50. CULVERT TO BE REPLACED IN HALF-WIDTHS TO MAINTAIN SINGLE LANE FOR TWO-WAY TRAFFIC AT ALL TIMES.
4. REMOVAL/INSTALL CROSS-STREET 24" CULVERT NEAR STA. 20+80. CULVERT TO BE REPLACED IN HALF-WIDTHS TO MAINTAIN SINGLE LANE FOR TWO-WAY TRAFFIC AT ALL TIMES.
5. REMOVAL/INSTALL CROSS-STREET 84" CULVERT NEAR STA. 24+49. CULVERT TO BE REPLACED IN HALF-WIDTHS TO MAINTAIN SINGLE LANE FOR TWO-WAY TRAFFIC AT ALL TIMES.
6. BEGIN ASPHALT PAVEMENT REPLACEMENT AT SOUTH END OF PROJECT NEAR NTMWD PLANT AND WORK NORTH. DRAINAGE DITCH CONSTRUCTION AND OTHER PROPOSED IMPROVEMENTS OUTSIDE THE ROADWAY SHALL BE COORDINATED TO MINIMIZE DUPLICATIVE EFFORTS AND DRIVEWAY/STREET BLOCKAGES.
 - a. IN GENERAL, PAVEMENT IS TO BE REPLACED IN PHASES. EXTENTS OF EACH PHASE ARE SUGGESTED BELOW BUT ARE ULTIMATELY THE DECISION OF THE CONTRACTOR WITH COUNTY APPROVAL. SUGGESTED PHASES ARE BASED ON A MAXIMUM ACTIVE WORK ZONE LENGTH OF 400 FT AS REQUIRED BY TXDOT TCP (2-8)-18. ADEQUATE SIGHT DISTANCE FROM ONE END OF THE WORK ZONE TO THE OTHER IS REQUIRED AND THE CONTRACTOR SHALL MODIFY THE PHASE LIMITS AS NECESSARY TO ENSURE ADEQUATE SIGHT DISTANCE IS PROVIDED BASED ON THE HORIZONTAL/VERTICAL GEOMETRY OF THE ROADWAY AS WELL AS ROADSIDE OBSTRUCTIONS.
 - i. PHASE 1A - STA. 1+00 TO STA. 5+00 - NB LANE
 - ii. PHASE 1B - STA. 1+00 TO STA. 5+00 - SB LANE
 - iii. PHASE 2A - STA. 5+00 TO STA. 9+00 - NB LANE
 - iv. PHASE 2B - STA. 5+00 TO STA. 9+00 - SB LANE
 - v. PHASE 3A - STA. 9+00 TO STA. 13+00 - NB LANE
 - vi. PHASE 3B - STA. 9+00 TO STA. 13+00 - SB LANE
 - vii. PHASE 4A - STA. 13+00 TO STA. 17+00 - NB LANE
 - viii. PHASE 4B - STA. 13+00 TO STA. 17+00 - SB LANE
 - ix. PHASE 5A - STA. 17+00 TO STA. 21+00 - NB LANE
 - x. PHASE 5B - STA. 17+00 TO STA. 21+00 - SB LANE
 - xi. PHASE 6A - STA. 21+00 TO STA. 25+00 - NB LANE
 - xii. PHASE 6B - STA. 21+00 TO STA. 25+00 - SB LANE
 - xiii. PHASE 7A - STA. 25+00 TO STA. 29+00 - NB LANE
 - xiv. PHASE 7B - STA. 25+00 TO STA. 29+00 - SB LANE
 - xv. PHASE 8A - STA. 29+00 TO STA. 33+00 - NB LANE
 - xvi. PHASE 8B - STA. 29+00 TO STA. 33+00 - SB LANE
 - xvii. PHASE 9A - STA. 33+00 TO STA. 37+00 - NB LANE
 - xviii. PHASE 9B - STA. 33+00 TO STA. 37+00 - SB LANE
 - xix. PHASE 10A - STA. 37+00 TO STA. 41+00 - NB LANE
 - xx. PHASE 10B - STA. 37+00 TO STA. 41+00 - SB LANE

- b. TWO-WAY TRAFFIC SHALL BE MAINTAINED WITH ON ORR ROAD AT ALL TIMES, UNLESS OTHERWISE APPROVED IN ADVANCE BY THE ENGINEER AND COUNTY. TEMPORARY PAVEMENT OR STEEL PLATES MAY BE USED AS NECESSARY.
- c. TRAFFIC CONTROL PLANS SHOWING SIGNS, BARRIERS, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE PREPARED, IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE TMUTCD BY THE CONTRACTOR AND SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO IMPLEMENTATION.
- d. RESIDENT ACCESS TO DRIVEWAYS IS A PRIORITY. ANY RESTRICTION OR CLOSURE SHOULD BE MINIMIZED AS MUCH AS POSSIBLE. RESIDENTS SHALL BE NOTIFIED IN WRITING AT LEAST 24 HOURS IN ADVANCE IF THEIR DRIVEWAY IS TO BE INACCESSIBLE. DRIVEWAYS SHALL BE RESTORED USING STONE, STEEL PLATES OR TEMPORARY PAVEMENT AT THE END OF EACH WORKDAY IN A MANNER THAT WILL PROVIDE REASONABLE ACCESS TO THE PROPERTY USING A NORMAL PASSENGER SEDAN.

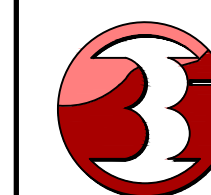
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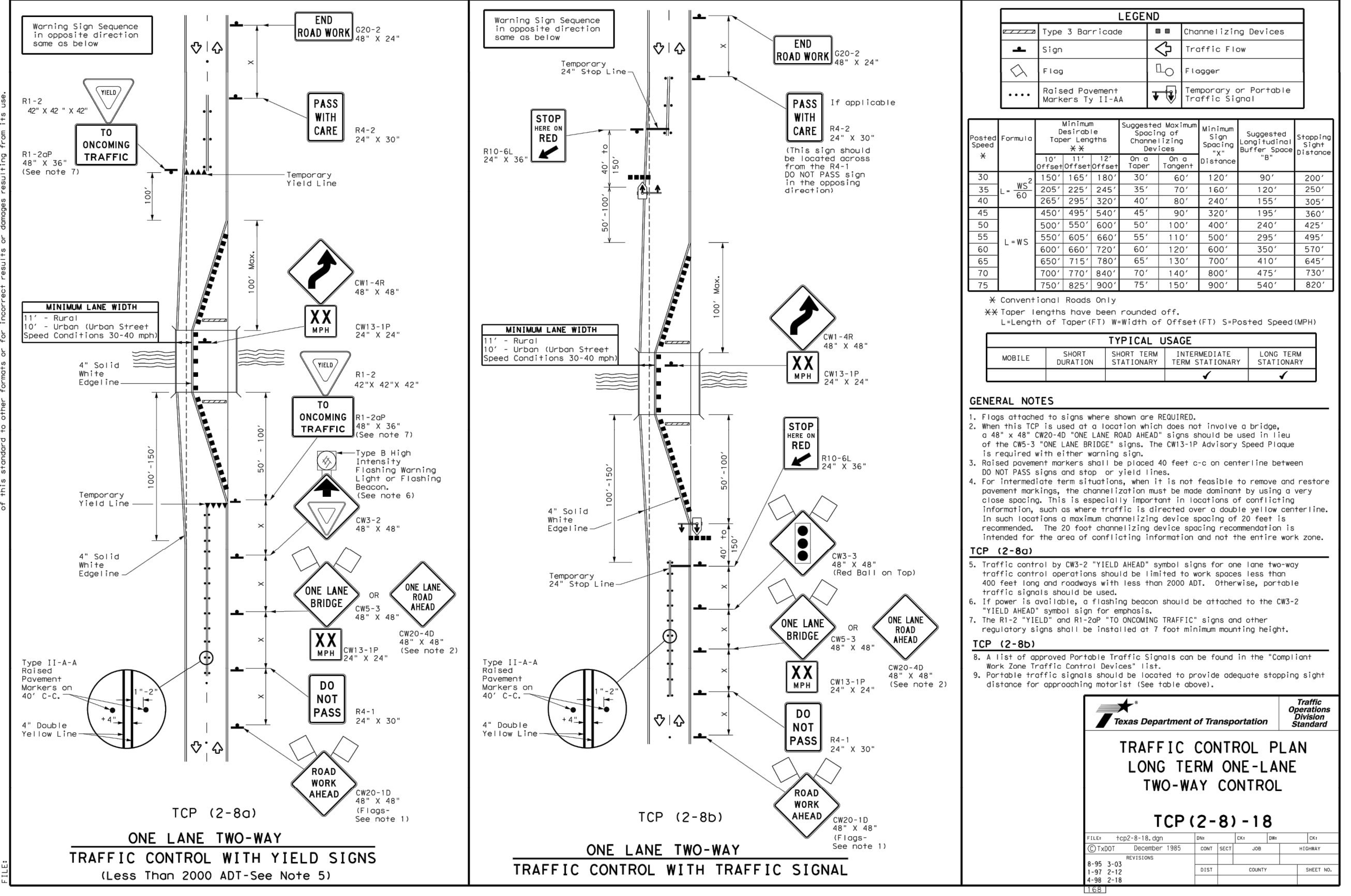
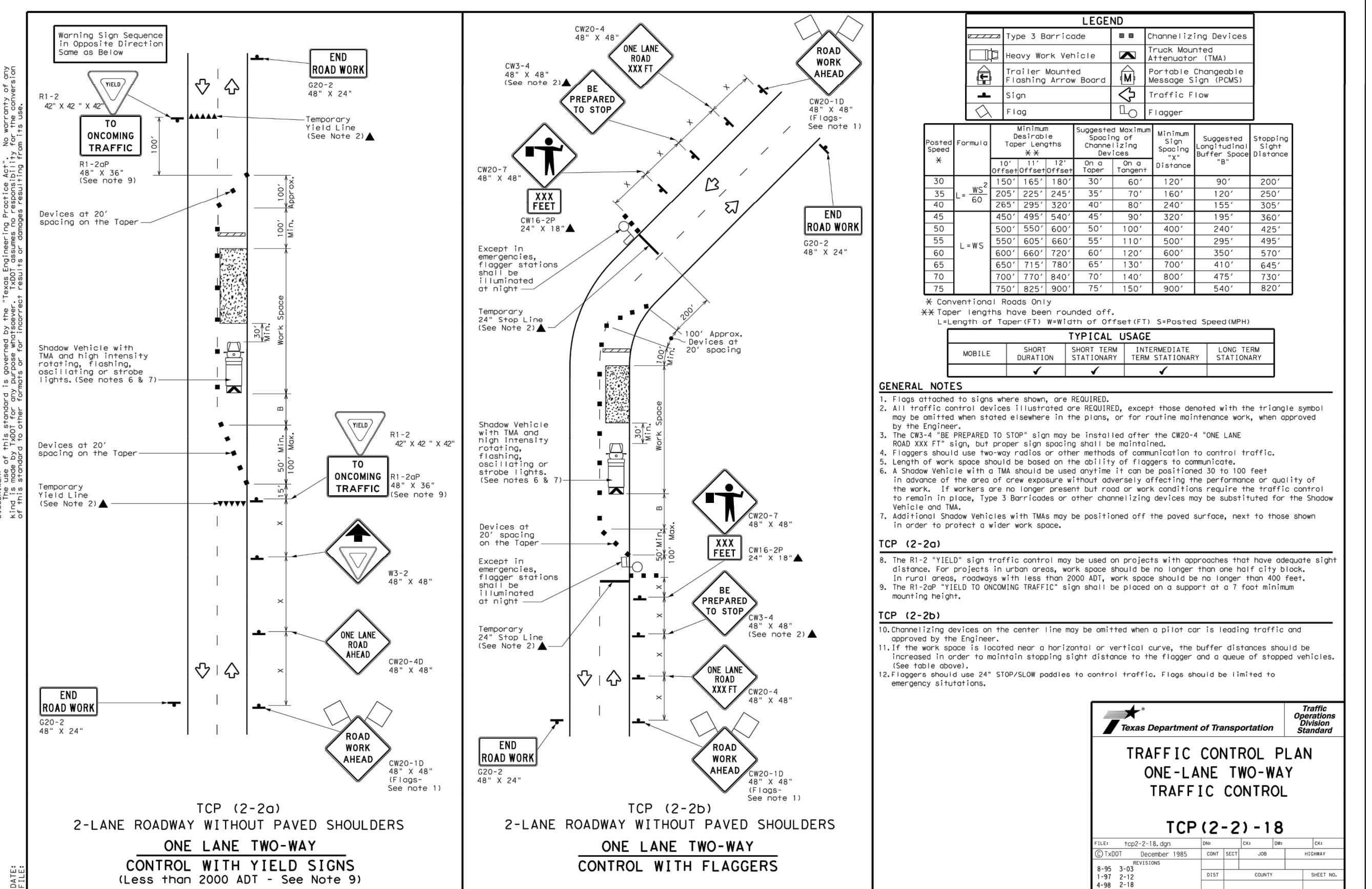
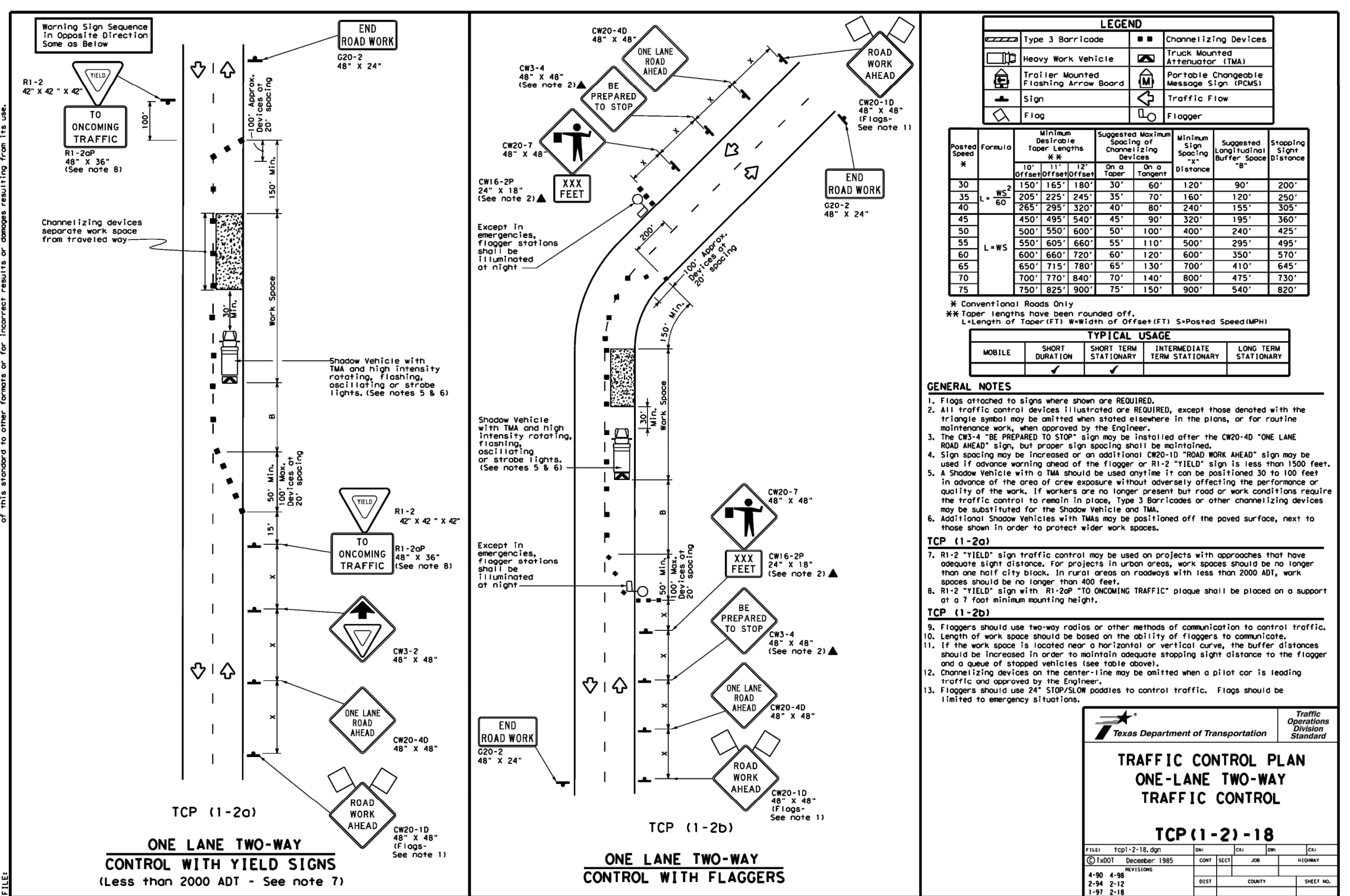
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CR 317 (ORR ROAD)
COLLIN COUNTY

TRAFFIC CONTROL PLAN NOTES

Scale: 1"=20'	Date: Nov 18, 2020	Job No.: BB19006	TCP1
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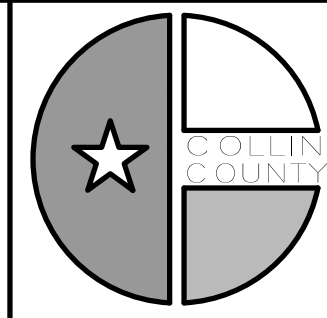
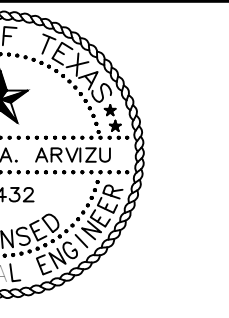


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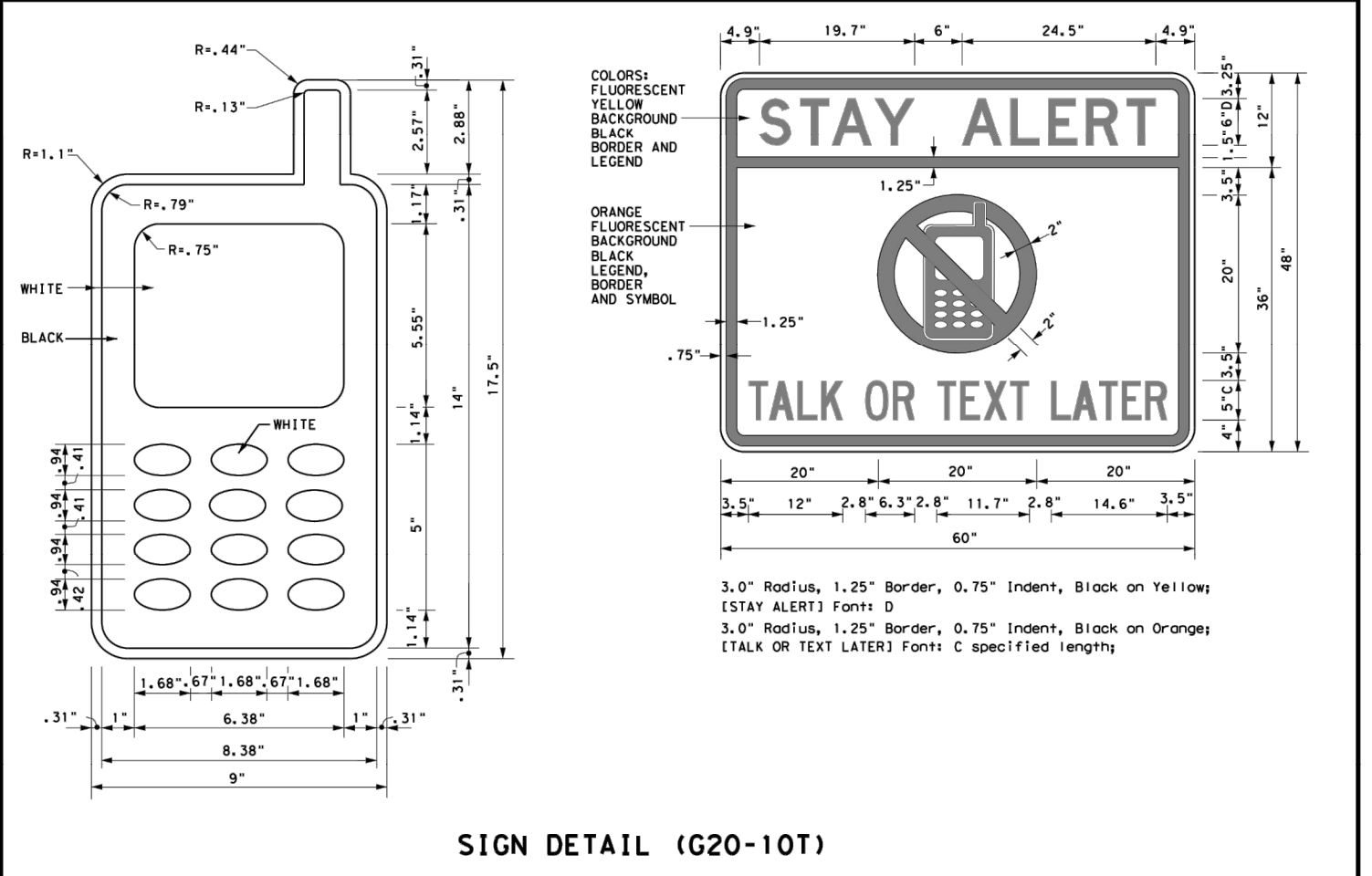
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CR 317 (ORR ROAD) COLLIN COUNTY	
TRAFFIC CONTROL DETAILS	
Scale: 1"=20'	Date: Nov 18, 2020
Job No.:	BB19006
TCP2	

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BARRICADE AND CONSTRUCTION (BC) STANDARDS GENERAL NOTES:

- The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets must not be construed to exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
- The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
- The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
- Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
- When projects start, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
- The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
- All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
- The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
- Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.
- The Engineer has the final decision on the location of all traffic control devices.
- Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.



Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

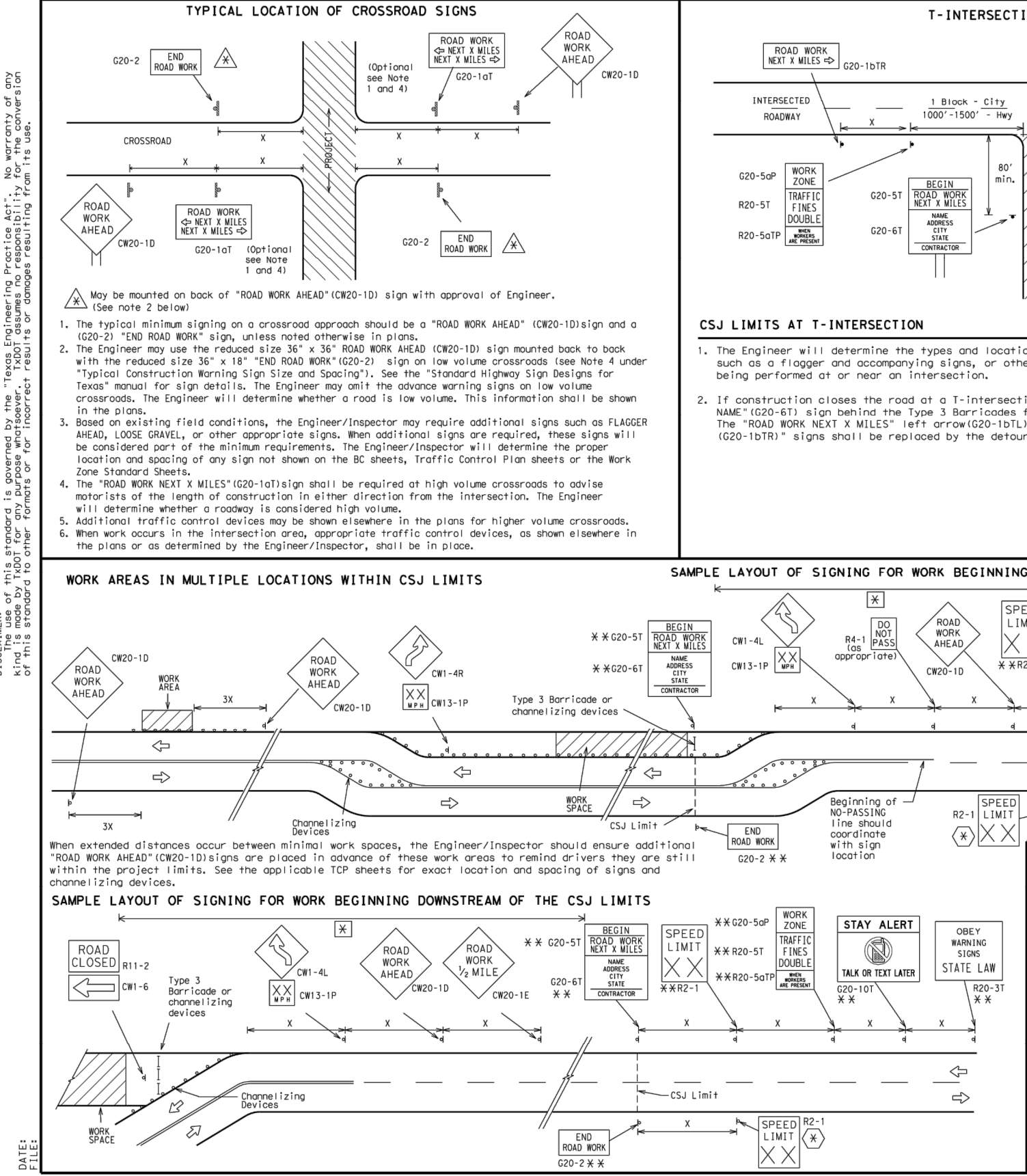
Texas Department of Transportation
Traffic Operations Division - TE
Phone (512) 416-3118

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT
<http://www.txdot.gov>

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)	TRAFFIC ENGINEERING STANDARD SHEETS
MATERIAL PRODUCER LIST (MPL)	
ROADWAY DESIGN MANUAL - SEE "MANUALS (ON-LINE MANUALS)"	
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)	
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)	

BC (1) - 14

FILED	NOV 14 2020	BY	TJH	COUNTY	COLLIN	SHEET NO.	14
DATE	NOVEMBER 2020	DATE	NOV 14 2020	BY	TJH	COUNTY	COLLIN
8-07	8-14	8-07	8-14	8-07	8-14		



TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

Sign Number or Series	Conventional Road	Expressway/Freeway	Posted Speed	Sign Spacing
CW20*			30	120
CW21			35	160
CW22	48' x 48'	48' x 48'	40	240
CW23			45	320
CW1, CW2, CW4, CW9, CW11, CW19	36' x 36'	48' x 48'	50	400
			55	500*
			60	600*
			65	700*
			70	800*
CW3, CW4, CW5, CW6	48' x 48'	48' x 48'	75	900*
CW8-3, CW10, CW12			80	1000*

GENERAL NOTES:

- Section or corner site signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" ROAD WORK AHEAD (CW20-10) signs may be used on low volume crossroads at the discretion of the Engineer. See Note 2 under "Typical Location of Crossroad Signs".
- Only diamond shaped warning signs are indicated.
- See sign size listing in TMUTCD, sign appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

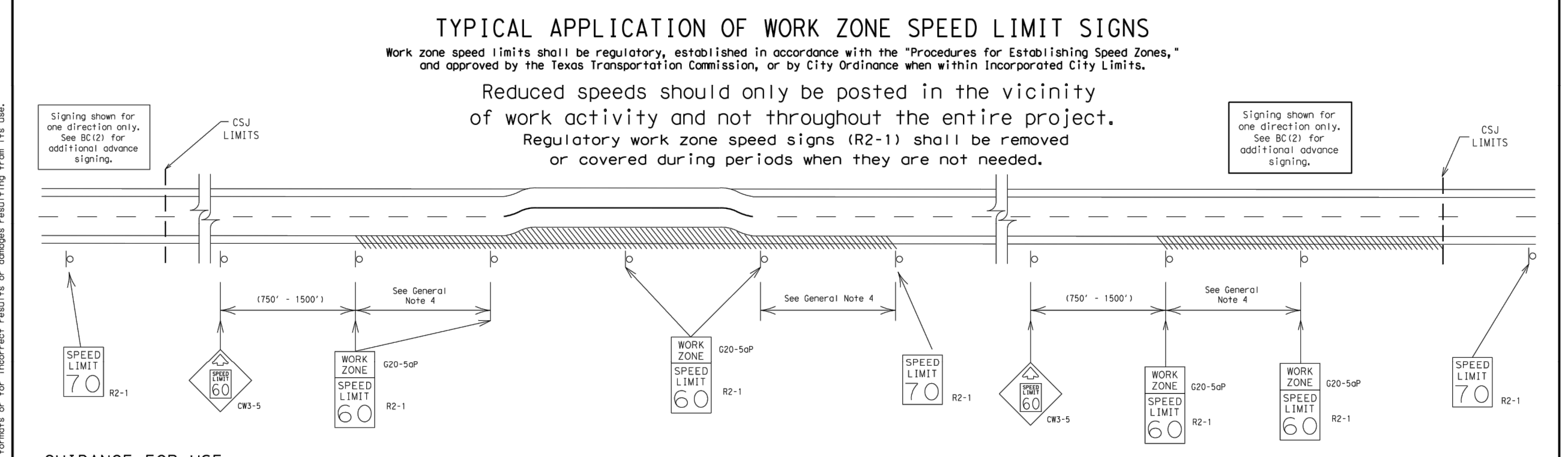
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---	Type 3 Barricade
○ ○ ○	Channelizing Devices
▲	Sign

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC (2) - 14

FILED	NOV 14 2020	BY	TJH	COUNTY	COLLIN	SHEET NO.	14
DATE	NOVEMBER 2020	DATE	NOV 14 2020	BY	TJH	COUNTY	COLLIN
8-07	8-14	8-07	8-14	8-07	8-14		



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

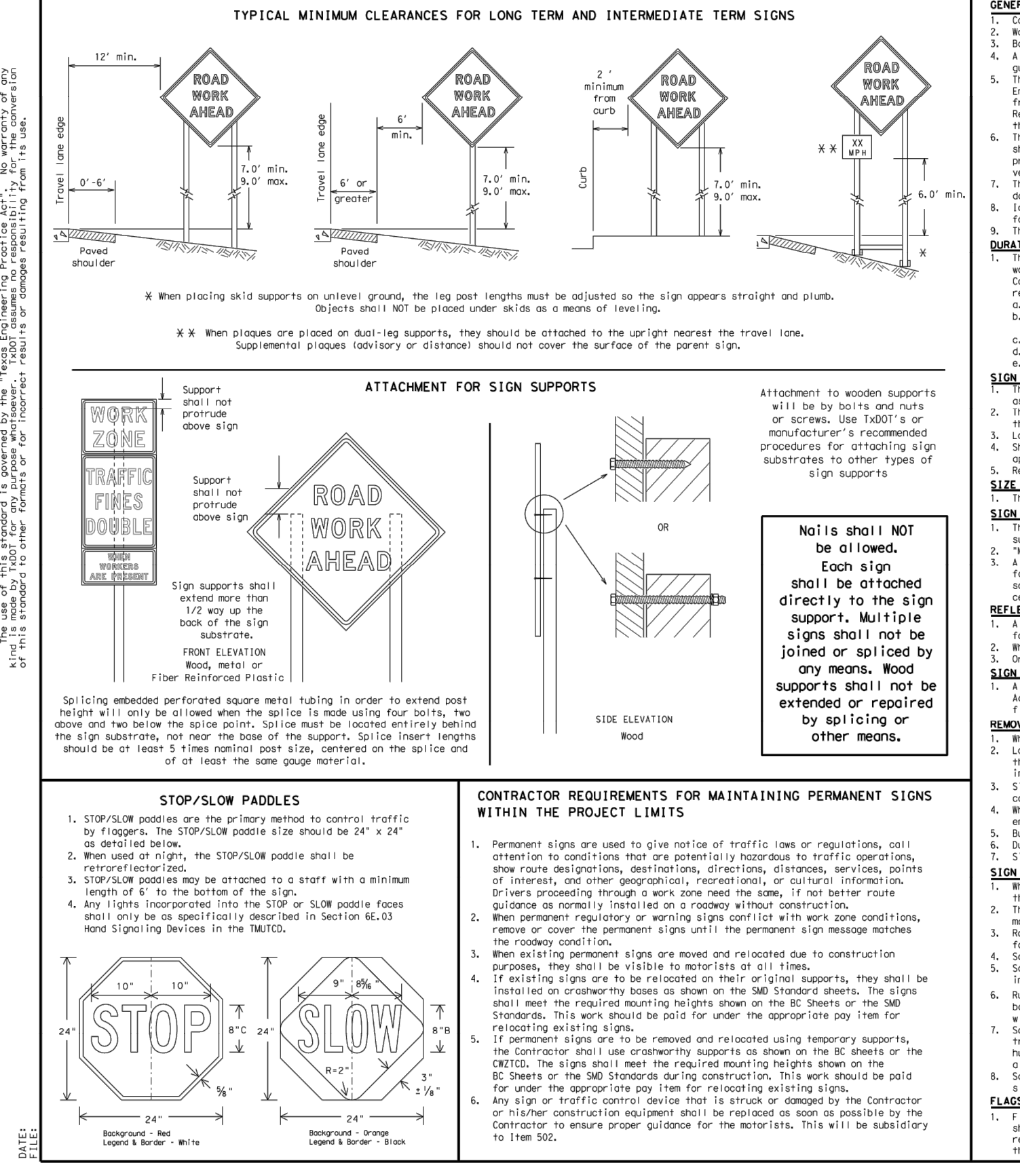
This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barriers, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered.

(See Removing or Covering on BC(4)).

GENERAL NOTES:

- Regulatory work zone speed limit signs should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- Frequency of work zone speed limit signs should be 40 mph and greater 0.2 to 2 miles 35 mph and less 0.2 to 1 mile
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- Fabrication, erection and maintenance of the ADVANCE SPEED LIMIT (CW3-51) sign, WORK ZONE (G20-5P) plaque and the SPEED LIMIT (R2-1) sign shall not be paid for directly, but shall be considered subsidiary to item 502.
- Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
- Techniques that may help reduce traffic speeds include but are not limited to:
A. Low enforcement.
B. Particle changed message sign (PMS).
C. Flip-over (drone) radar transmitter.
D. Speed monitor trailers or signs.
- Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be installed as approved for each project.
- For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT Form #204 in the fXDOT e-Form system.



GENERAL NOTES FOR WORK ZONE SIGNS:

- Contractor shall furnish and install signs in a straight and plumb condition and/or as directed by the Engineer.
- Wooden sign posts shall be painted white.
- Barricade signs shall not be used as supports.
- All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and advise motorists.
- The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer shall determine if the sign design shown in the plans may have been modified. The Contractor shall be responsible for the design of the sign. The Contractor shall be responsible for the design of the sign. The Contractor shall be responsible for the design of the sign.
- Signs shall be installed in accordance with the plans or as directed by the Engineer.
- Signs shall be installed in accordance with the plans or as directed by the Engineer.
- Signs shall be installed in accordance with the plans or as directed by the Engineer.

ATTACHMENT TO SIGN SUPPORTS:

Attachment to wooden supports shall be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports.

Nois shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

STOP/SLOW PADDLES:

- STOP/SLOW paddles are the primary means to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24" as detailed below.
- When used at night, the STOP/SLOW paddle shall be reflective.
- STOP/SLOW paddles may be attached to a support with a minimum length of 6" to the bottom of the sign.
- Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 66.03 and Signaling Devices in the TMUTCD.

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS:

- Permanent signs are to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, or cultural information. Drivers proceeding through a work zone need the same. If not better route guidance is normally installed on a roadway without construction.
- When permanent regulatory or warning signs conflict with work zone conditions, then the permanent signs until the permanent sign message notices the roadway condition.
- When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
- If existing signs are to be relocated on their original supports, they shall be installed on Crosbyway bases as shown on the 340 Standard sheets. The signs shall be installed on Crosbyway bases as shown on the 340 Standard sheets. The signs shall be installed on Crosbyway bases as shown on the 340 Standard sheets.
- If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use Crosbyway supports as shown on the BC sheets or the 340 Standard sheets. The signs shall be installed on Crosbyway bases as shown on the 340 Standard sheets.
- Any sign or traffic control device that is struck or damaged by the Contractor or higher construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to item 502.

CAUTION EXISTING UTILITIES !!!

Existing utilities and underground facilities indicated on these plans have been located from reference information. It shall be the responsibility of the contractor to verify both horizontally and vertically the location of all existing utilities and underground facilities prior to construction, to take the necessary precautions in order to protect all facilities encountered. The contractor shall preserve and protect all existing utilities from damage during construction.

The seal appearing on this document was authorized by Richard A. Arvizu, P.E. Tx. No. 88432. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act, Nov 18, 2020

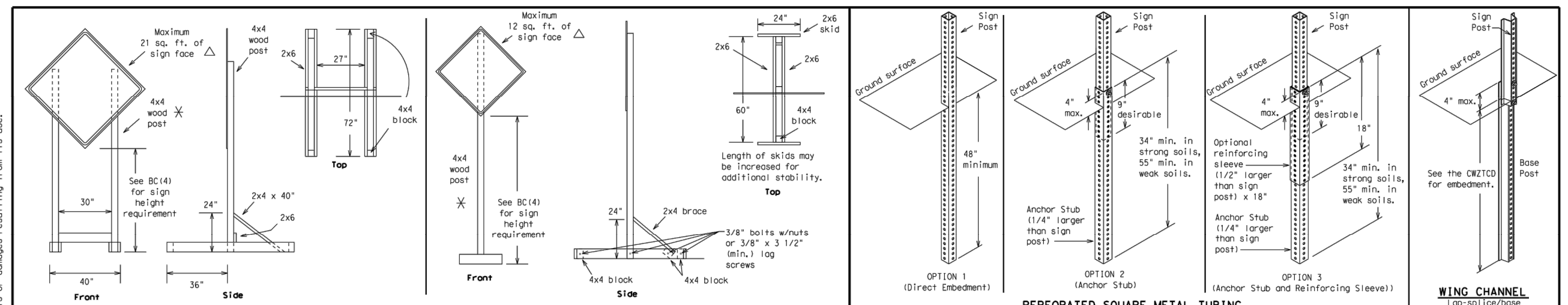
Binkley & Barfield, Inc.
consulting engineers
Texas Registration Number F-2972
1801 Gateway Blvd. Suite 101 Richardson, Texas 75080 Phone (972) 644-2800
www.binkleybarfield.com

COLLIN COUNTY
PUBLIC WORKS DEPARTMENT
MCKINNEY, TEXAS

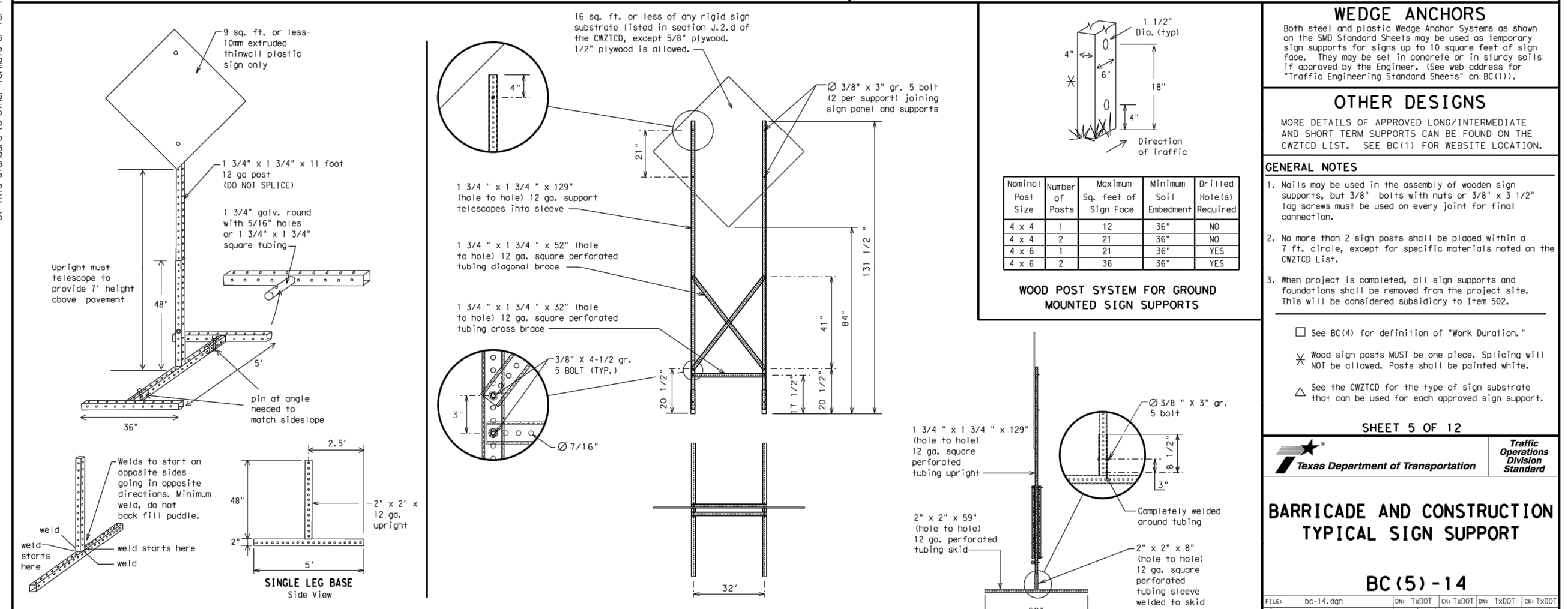
CR 317 (ORR ROAD)
COLLIN COUNTY

TRAFFIC CONTROL DETAILS

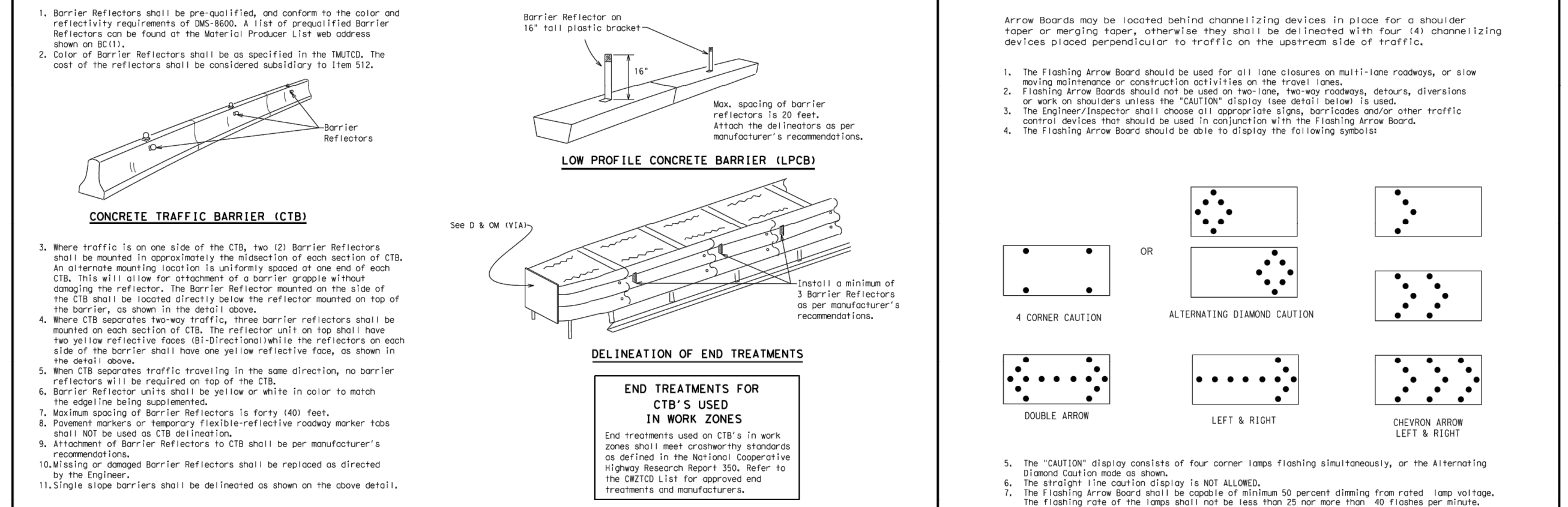
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Date: Nov 18, 2020
Job No.: BB19006
TCP3



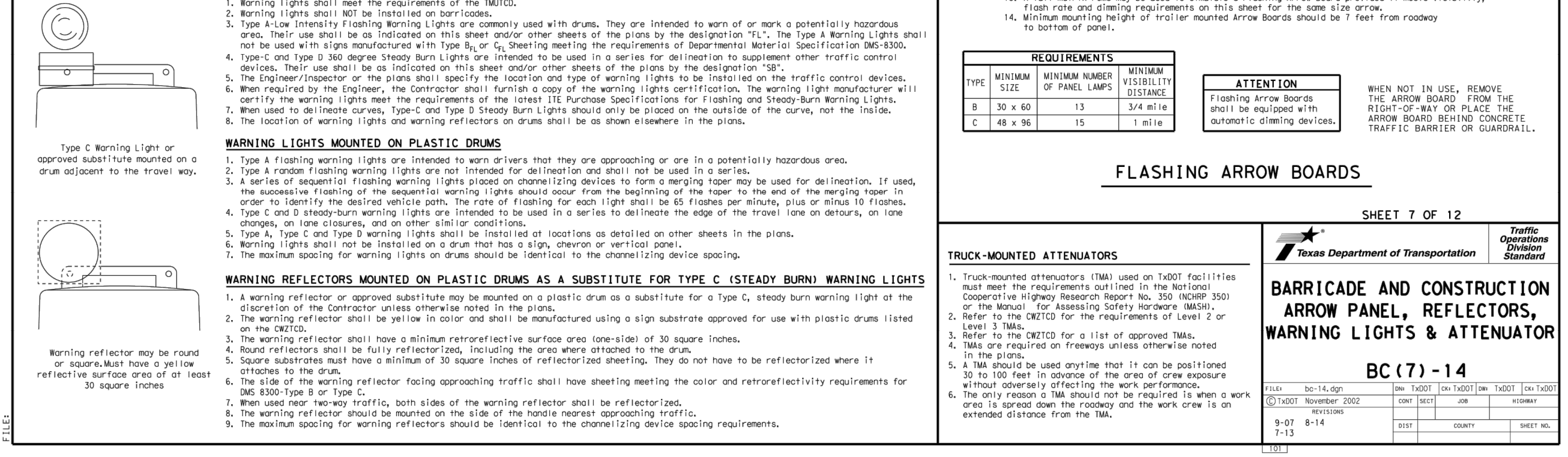
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



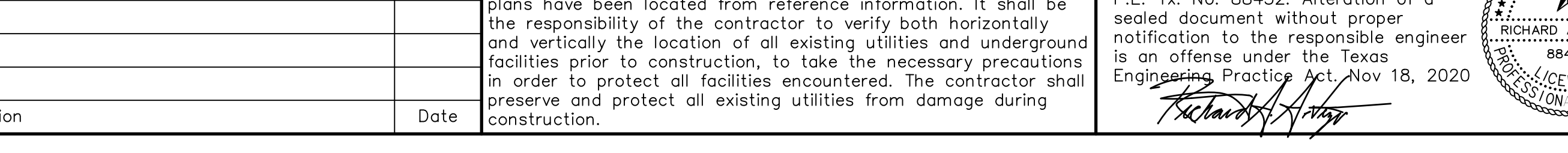
SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS



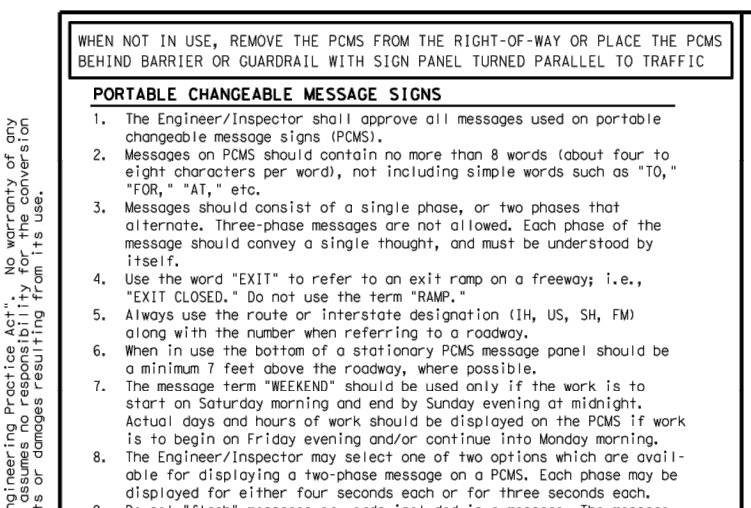
BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



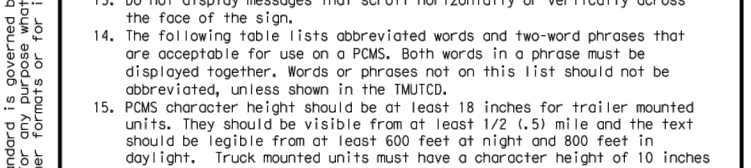
WARNING LIGHTS and FLASHING ARROW BOARDS



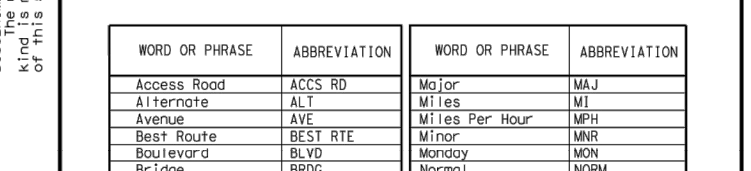
CAUTION EXISTING UTILITIES



GROUND MOUNTED SIGN SUPPORTS



WEDGE ANCHORS



WOOD SIGN SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

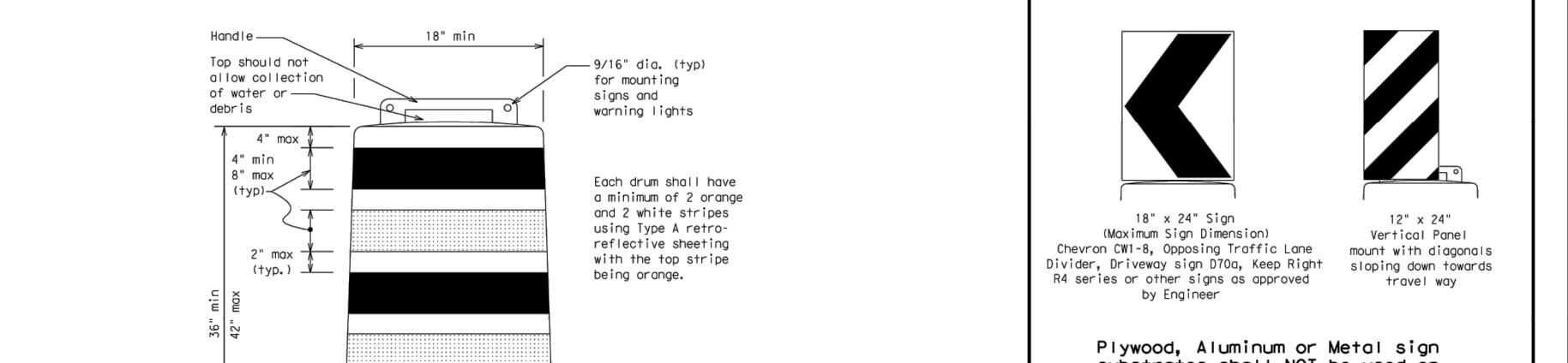
RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

PHASE 1: Condition Lists

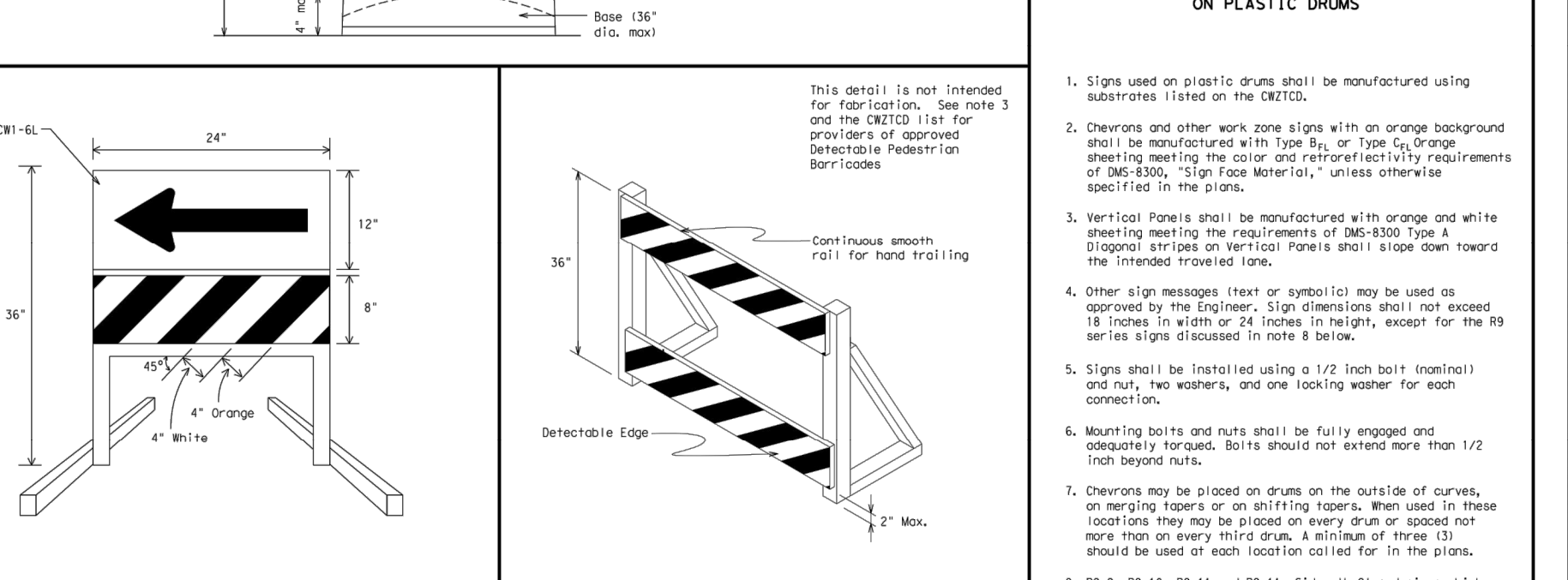
Road/Lane/Ramp Closure List	Other Condition List
FREWAY CLOSED X MILE	ROADWORK XXX FT
FRONTAGE ROAD CLOSED	LANE NARROW XXXX FT
SHOULDER CLOSED AT SH XXX	LANE NARROW XXXX FT
RIGHT LN CLOSED XXX FT	TWO-WAY TRAFFIC XXX MILE
RIGHT X LANES CLOSED	MERGING TRAFFIC XXXX FT
RIGHT X LANES OPEN	CONST TRAFFIC XXX FT
CENTER LANE CLOSED	LOOSE GRAVEL XXXX FT
NIGHT LANE CLOSURES	UNEVEN LANE XXXX FT
VARIABLE LANES CLOSED	ROADWORK NEXT FRI-SUN
EXIT CLOSED	BUMP XXXX FT
MALL DRIVEWAY CLOSED TUE - FRI	US XXX EXIT X MILES
XXXXXXX BLVD CLOSED	TRAFFIC SIGNAL XXXX FT
	LANES SHIF TUE - FRI

PHASE 2: Possible Component Lists

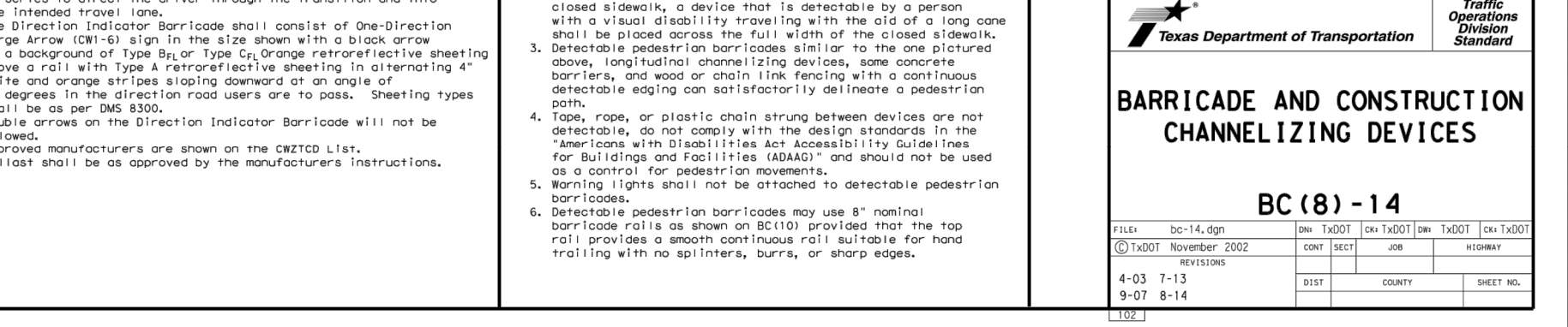
Action to Take/Effect on Travel	Location List	Warning List	Advance Notice List
MERGE RIGHT	FORM X LINES RIGHT	SPEED LIMIT XX MPH	TUE-FRI XX AM - XX PM
DETOUR	USE XXXXX XM EXIT	MAXIMUM SPEED XX MPH	APR XX - XX PM - XX AM
USE EXIT XXX	USE EXIT J-XX NORTH	MINIMUM SPEED XX MPH	BEGINS MONDAY
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N	ADVISORY SPEED XX MPH	BEGINS MAY XX
TRUCKS USE US XXX N	WATCH FOR TRUCKS	RIGHT LANE EXIT	MAY X-X XX PM - XX AM
WATCH FOR TRUCKS	EXPECT DELAYS	USE CAUTION	NEXT FRI-SUN XX AM
PREPARE TO STOP	DRIVE SAFELY	DRIVE SAFELY	XX AM TO XX AM
USE OTHER ROUTES	WATCH FOR WORKERS	DRIVE WITH CARE	NEXT TUE-XX XX AM
STAY IN LANE			TONIGHT FOR XX AM



BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

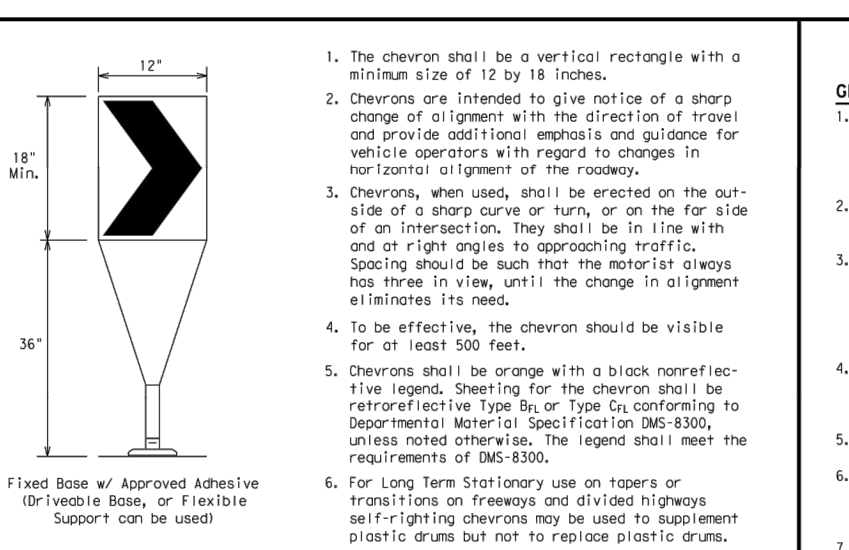
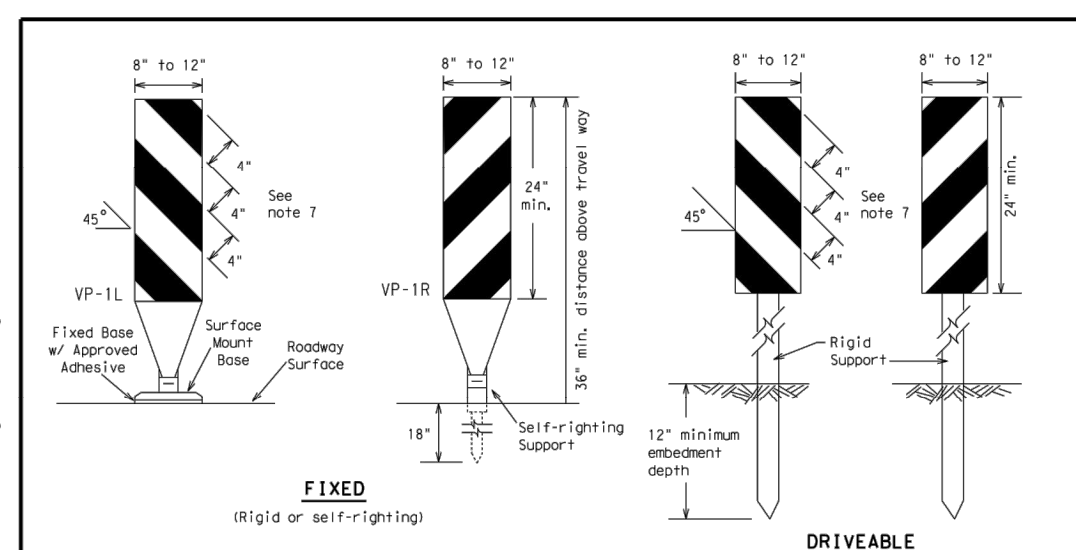


BARRICADE AND CONSTRUCTION DETECTABLE PEDESTRIAN BARRICADES

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 consulting engineers
 Texas Registration Number F-257
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 www.binkleybarfield.com

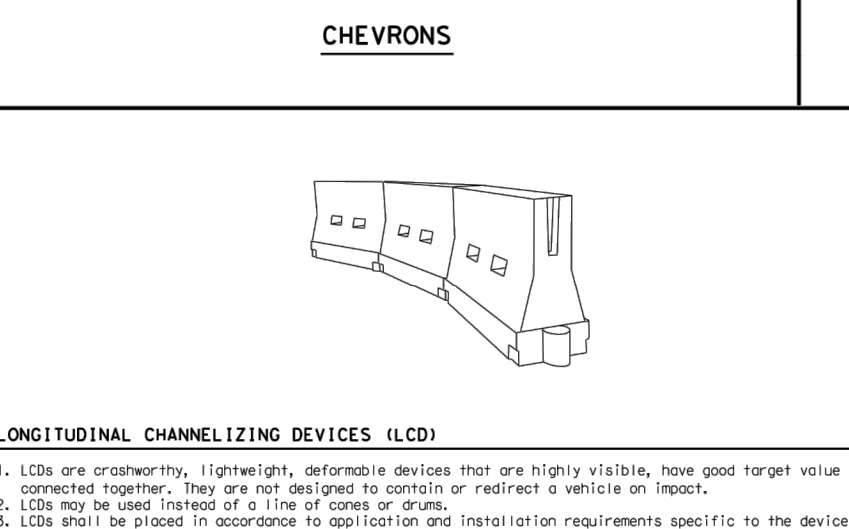
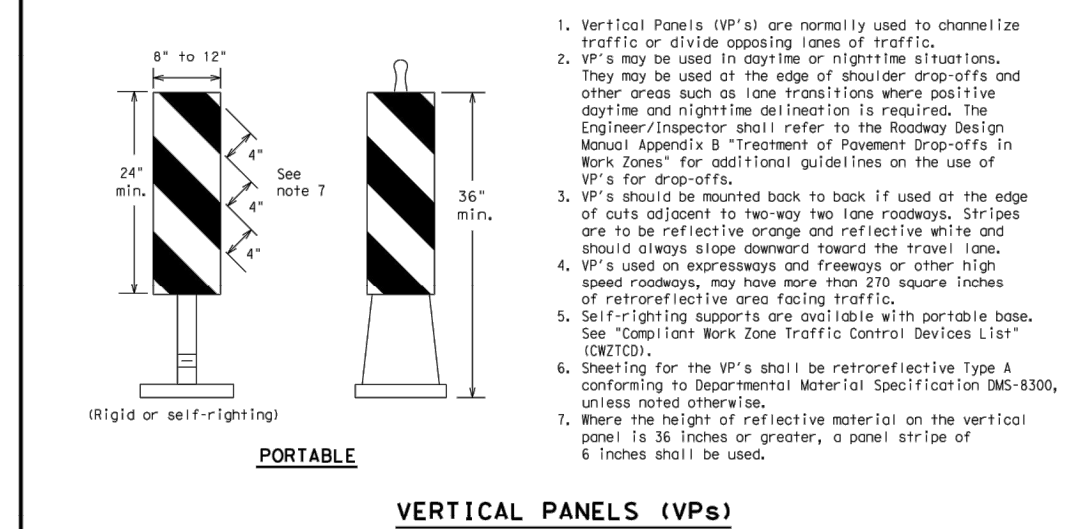
CR 317 (ORR ROAD)
 COLLIN COUNTY
 TRAFFIC CONTROL DETAILS
 Scale: 1"=20'
 Date: Nov 18, 2020
 Job No.: BB19006
TCP4

N: BB19006 (Collin County) Reconstruction of Orr Road 05 CAD Files (GEN) - TCP4 - TRAFFIC CONTROL DETAILS (Rev) Nov 18, 2020 at 7:26pm by: dfrancis



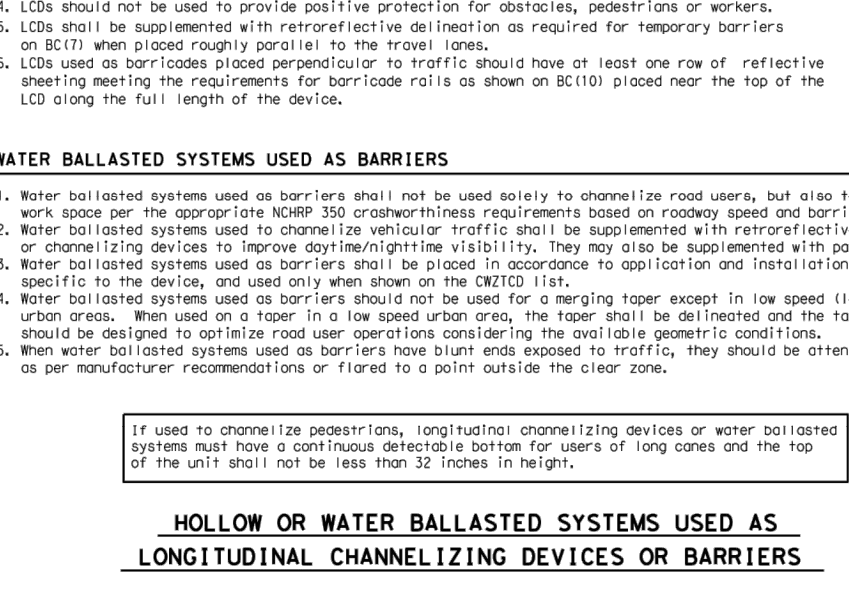
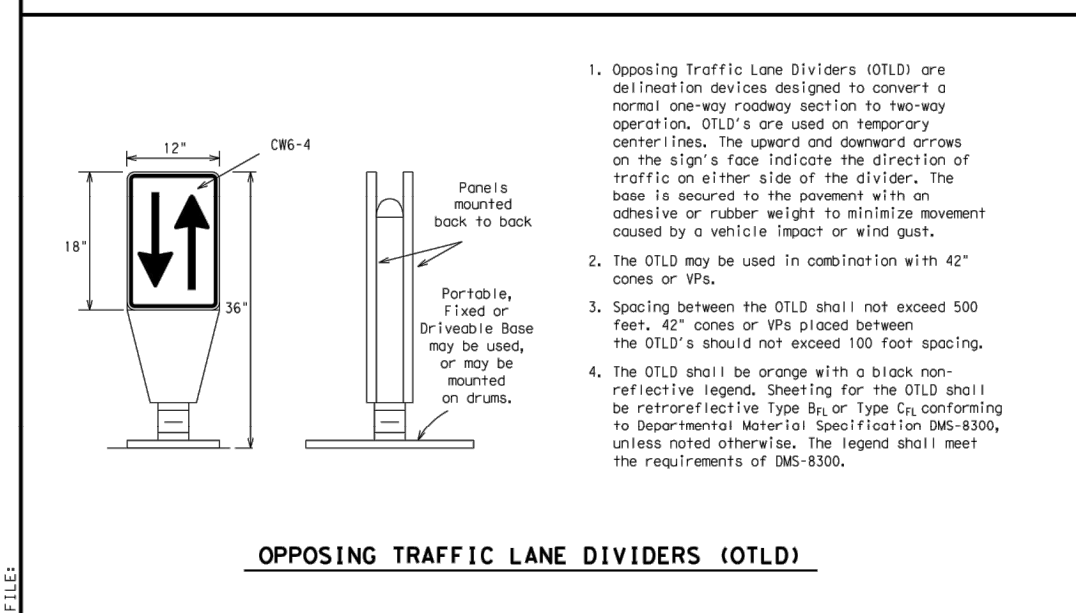
GENERAL NOTES

- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- Chevron signs shall be placed in the direction of travel and provide additional warning to drivers of a change in vehicle operators with regard to changes in the location of the roadway.
- Chevron signs, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and not right angles to approaching traffic. Spacing shall be such that the material extends through three views, until the change in alignment is well ahead.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevron signs shall be orange with a black non-reflective legend. Sheeting for the chevron shall be retroreflective Type B or C conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
- For long term stationary use on topes or transitions on freeways and divided highways, self-lighting chevrons may be used to supplement plastic drums but not to replace plastic drums.



CHEVRONS

- Vertical Panels (VPs) are normally used to channelize traffic or divide opposing lanes of traffic.
- VPs may be used in oblique or alternate situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual Appendix B Treatment of Pavement Drop-offs in Work Zones for additional guidelines on the use of VP's for drop-offs.
- VPs should be mounted back to back if used at the edge of cuts adjacent to two-way two-lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
- VPs are used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-lighting supports are available with portable bases of reflective Type B or C conforming to Departmental Material Specification DMS-8300 (IMTCO).
- Sheeting for the VP's shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

- LCDs are cylindrical, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
- LCDs may be used instead of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the DMS-8300.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on O&T when placed parallel to the travel lanes.
- LCDs used as barriers placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for reflective rolls as shown on BC(10) placed near the top of the LCD along the full length of the device.

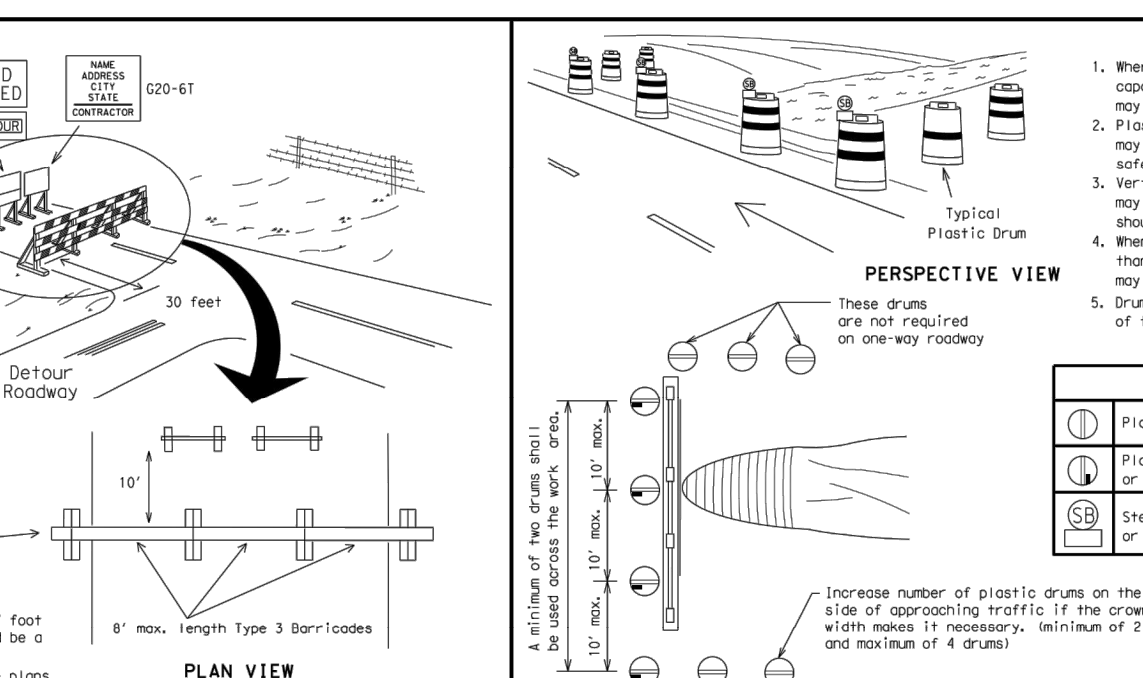
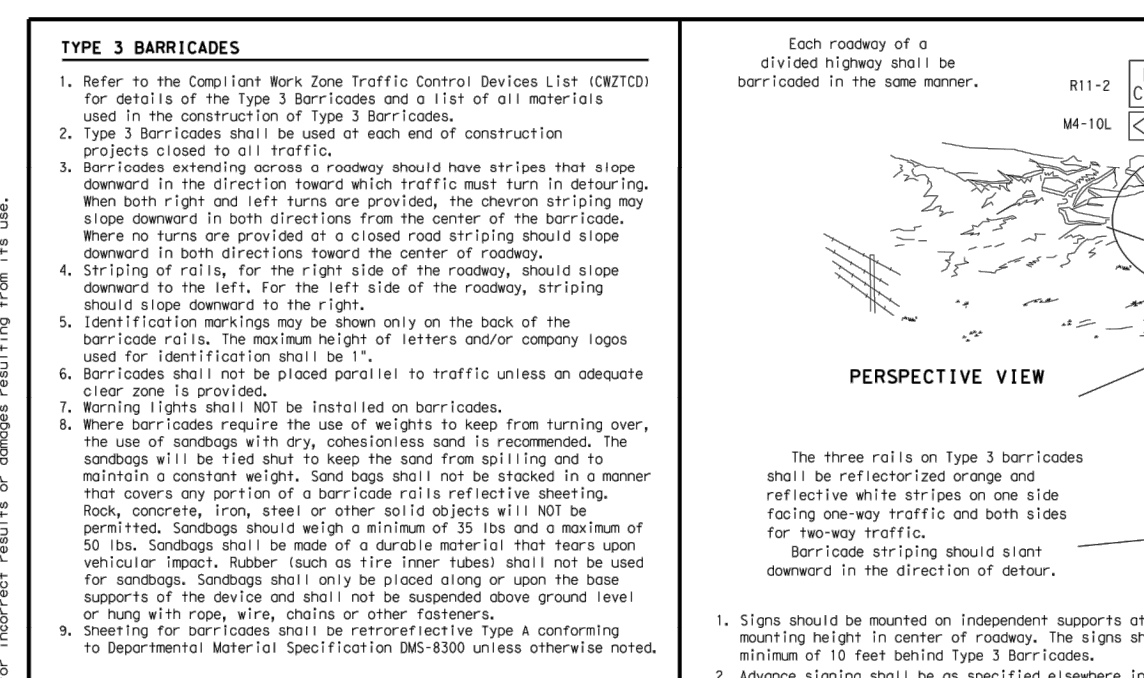
WATER BALLASTED SYSTEMS USED AS BARRIERS

- Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to prevent the work area from the approach (the HOV 3+ or other traffic) based on roadway layout and barrier application.
- Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve sightlines to the work area. They may also be supplemented with pavement markings.
- Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the DMS-8300.
- Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 mph) urban areas. When used as a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
- When water ballasted systems used as barriers have a sign, the sign should be placed as directed by the Engineer or as per manufacturer recommendations or fixed to a point outside the clear zone.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

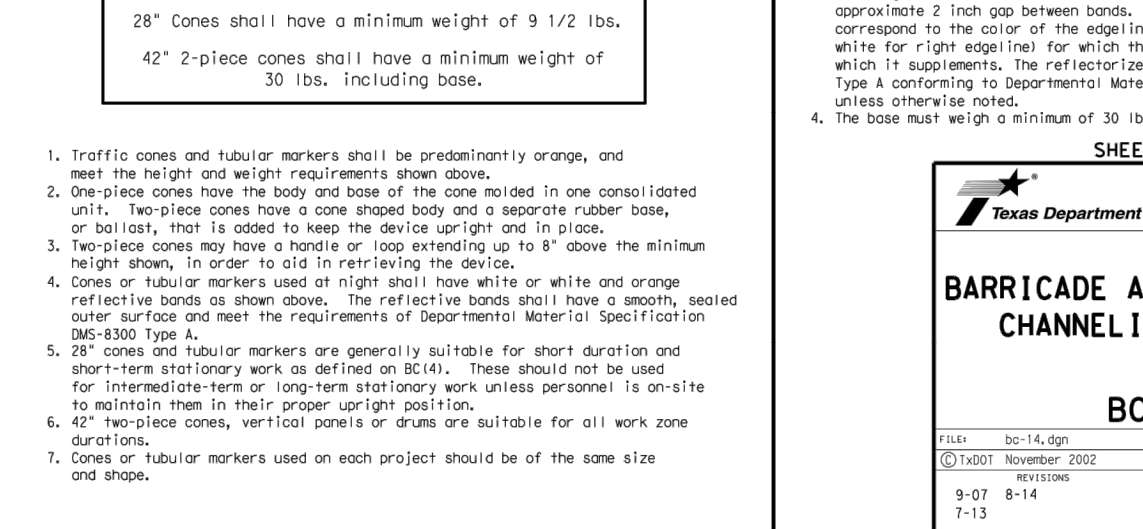
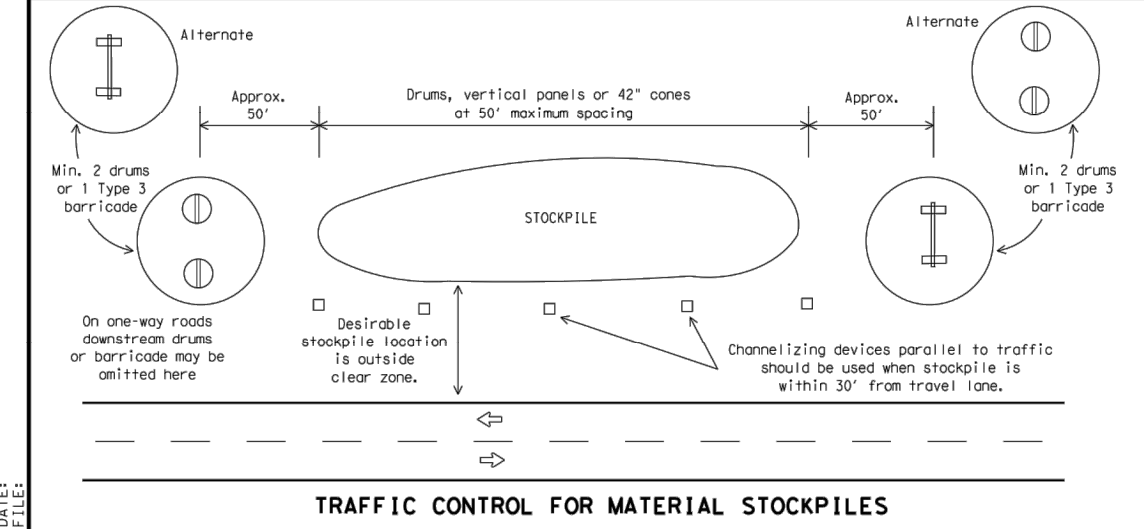
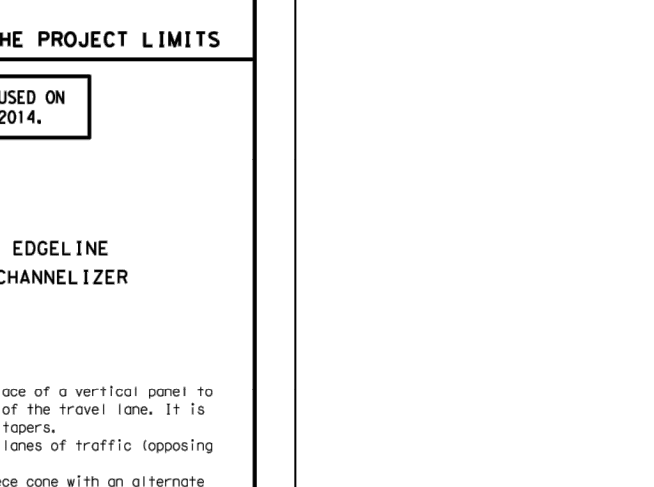
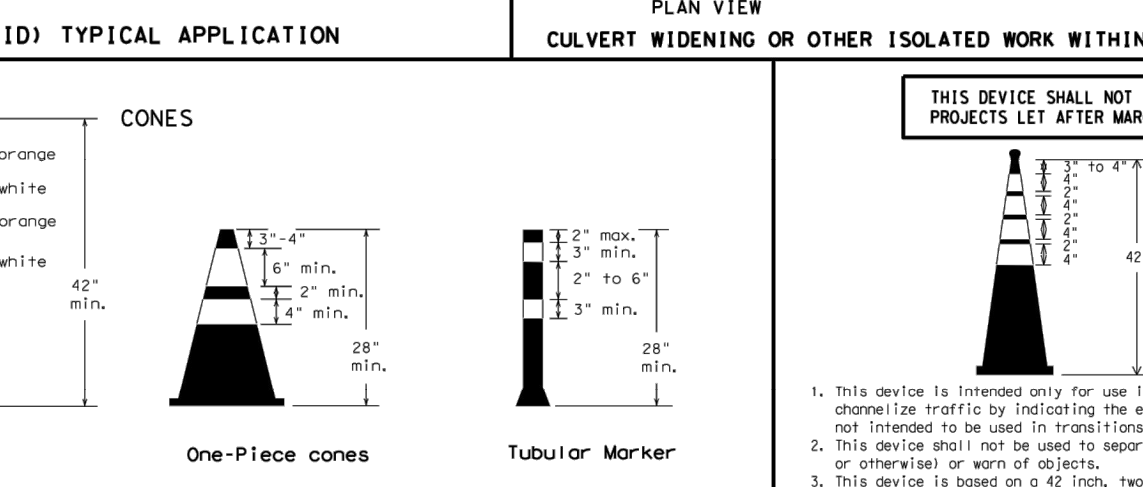
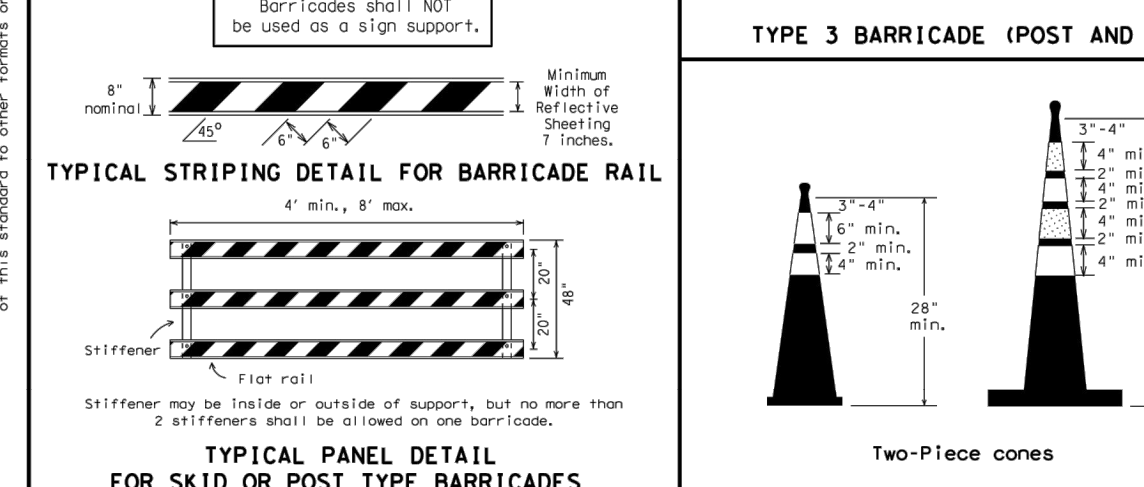
HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES



TYPE 3 BARRICADES

- Refer to the Compliant Work Zone Traffic Control Devices List (CMTCO) for details of the Type 3 Barricade and a list of all materials used in the construction of Type 3 Barricades.
- Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
- Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade.
- Striping of rolls, for the right side of the roadway, should slope downward to the left, for the left side of the roadway, striping should slope downward to the right.
- Identification markings may be shown only on the back of the barricade rolls. The maximum height of letters and company logos used for identification shall be 1 1/2 inches.
- Warning lights shall not be placed parallel to traffic unless an adequate clear zone is provided.
- Warning lights shall not be installed on barricades.
- Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, clean, washed sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade roll's reflective sheeting. Rubber, concrete, or other heavy materials shall not be used for weights. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of durable material that tear upon vehicular impact. Rubber (such as fire truck tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung from wires, chains or other fasteners.
- Sheeting for barricades shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300 unless otherwise noted.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

- Each roadway of a divided highway shall be barricaded in the same manner.
- The three rolls of Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slope downward in the direction of detour.
- Signs should be mounted on independent supports at a 7 foot mounting height to center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
- Advance signing shall be as specified elsewhere in the plans.

WORK ZONE PAVEMENT MARKINGS

GENERAL

- The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CU limits unless otherwise stated in the plans.
- Color, pattern and dimensions shall be in accordance with the Texas Manual on Uniform Traffic Control Devices (TMUCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUCD and as shown on the plans.
- When start term markings are required on the plans, start term markings shall conform with the TMUCD, the plans and details as shown on the Standard Plan Sheet #2159P.
- When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where spacing is prohibited and PASS WITH CARE signs at the beginning of sections where spacing is permitted.
- Over-sighting of the markings SHALL NOT be permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- Removal of existing pavement markings and markers will be paid for directly in accordance with Item 672, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
- Look-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

RAISED PAVEMENT MARKERS

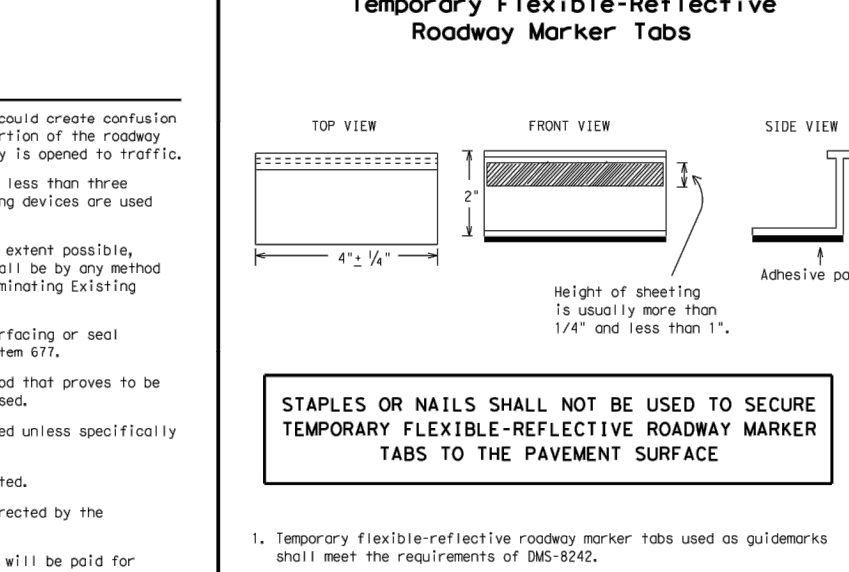
- Raised pavement markers shall be placed according to the patterns on BC(12).
- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS," and Departmental Material Specification DMS-8240.

PREFABRICATED PAVEMENT MARKINGS

- Non-removable prefabricated pavement markings (flat back) shall meet the requirements of DMS-8240.

MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 598.
- The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automatic low-beam headlights at night, unless sight distance is restricted by roadway geometry.
- Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor on per Specification Item 624.



DEPARTMENTAL MATERIAL SPECIFICATIONS

PAVEMENT MARKERS (REFLECTORIZED) DMS-8200

TRAFFIC BUTTONS DMS-8300

ETIKY AND ADHESIVES DMS-6100

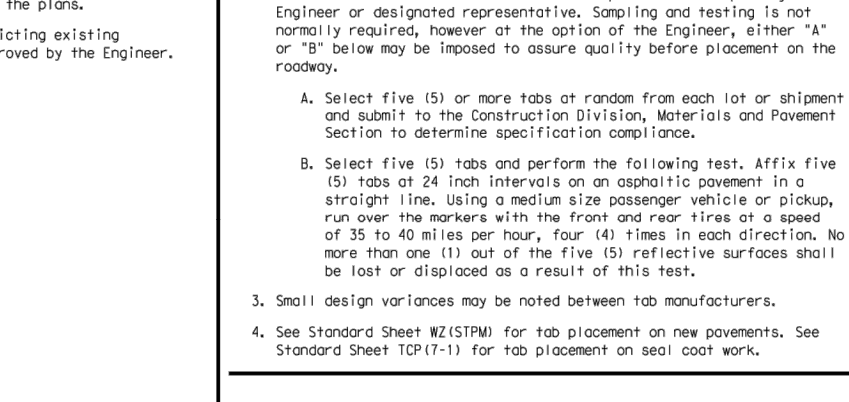
BILUMINOUS ADHESIVE FOR PAVEMENT MARKERS DMS-6130

PERMANENT PREFABRICATED PAVEMENT MARKINGS DMS-8240

PAVEMENT MARKINGS DMS-8241

TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons and other pavement markings can be found on the Departmental Material Specification list web address shown on BC(11).



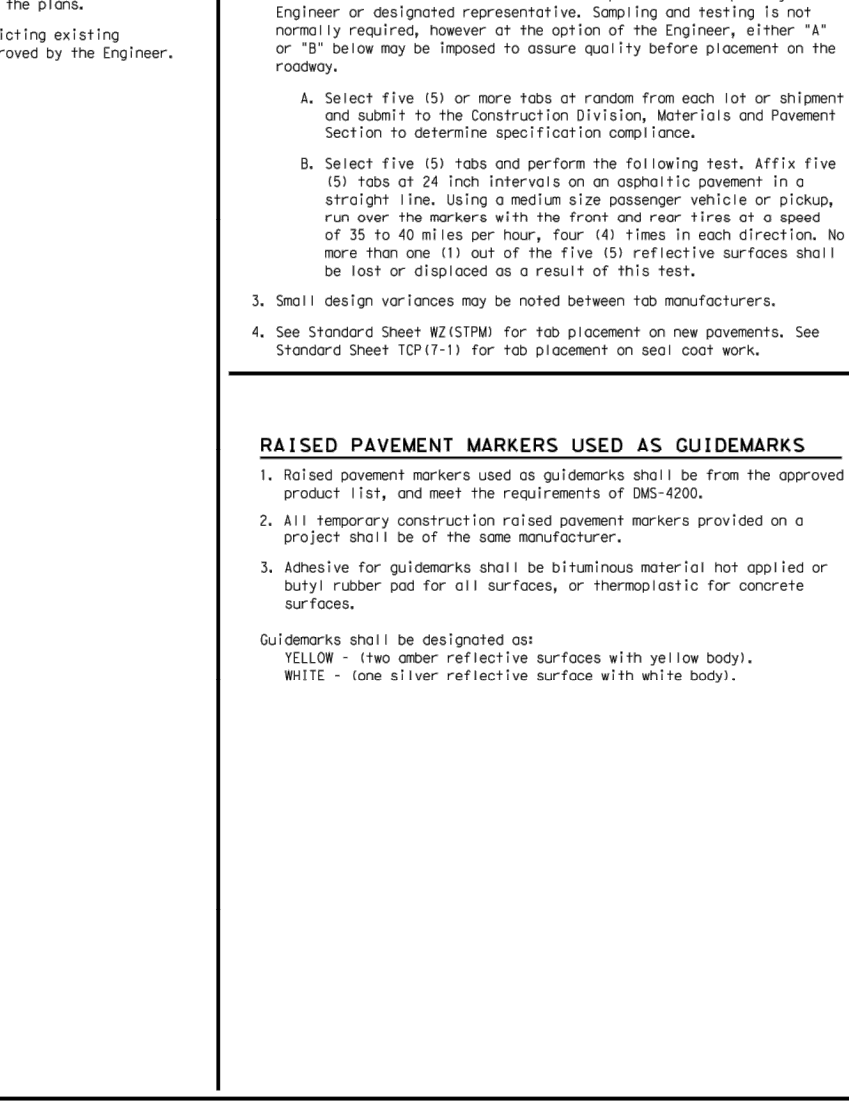
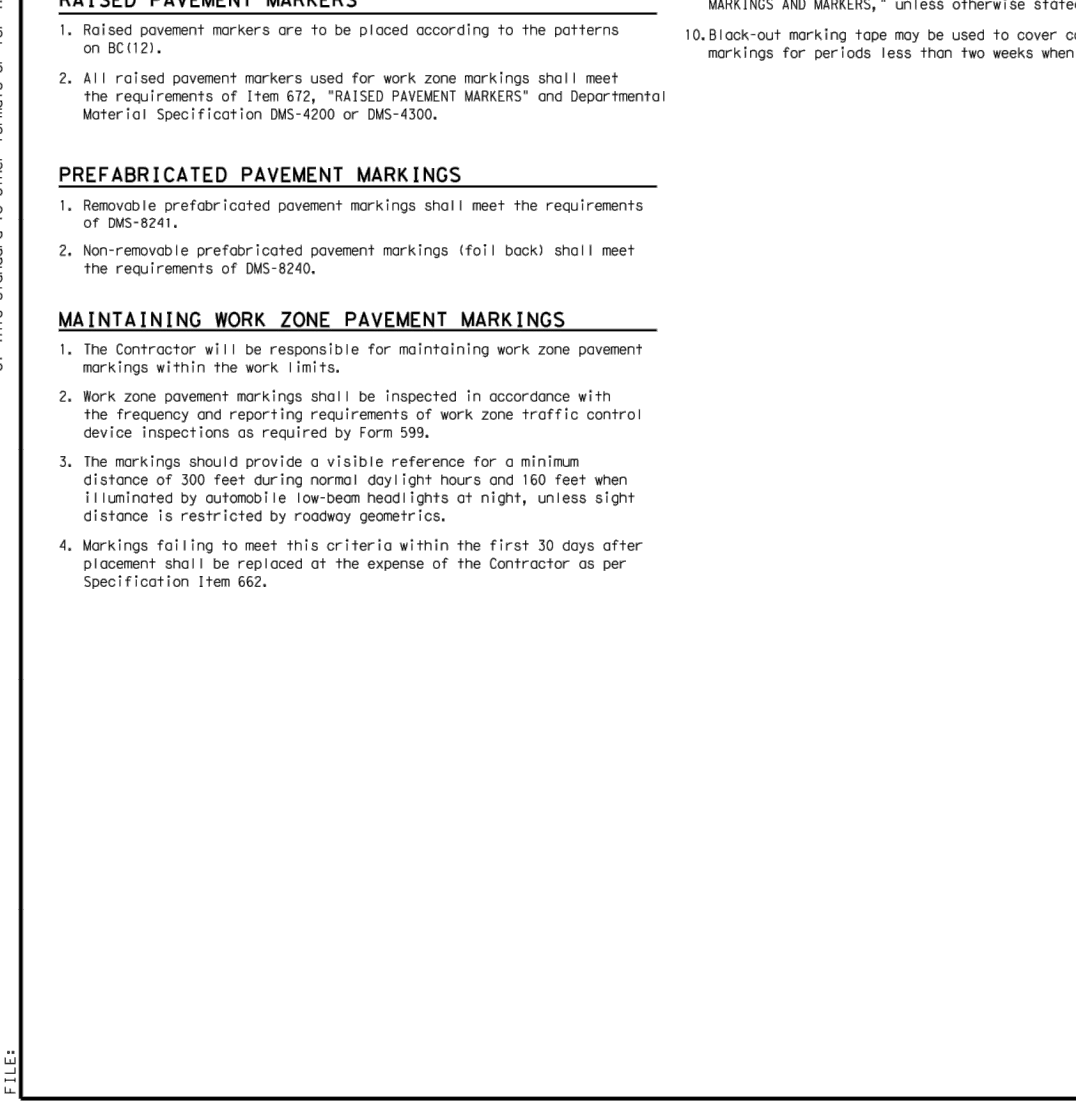
STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
- Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
- Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphalt pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of five (5) reflective surfaces shall be lost or displaced as a result of this test.
- Small design variances may be noted based on manufacturer's.
- See Standard Spec #2159P for top placement on new pavements. See Standard Spec 12611-13 for top placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-8200.
- All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- Adhesive for guidemarks shall be bituminous material not applied or buried under seal coat for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
 YELLOW - (one silver reflective surface with yellow body).
 WHITE - (one silver reflective surface with white body).



PAVEMENT MARKING PATTERNS

REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

RAISED PAVEMENT MARKERS - PATTERN A

REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

RAISED PAVEMENT MARKERS - PATTERN B

CENTER LINE & NO-PASSING BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS

REFLECTORIZED PAVEMENT MARKINGS

RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY

REFLECTORIZED PAVEMENT MARKINGS

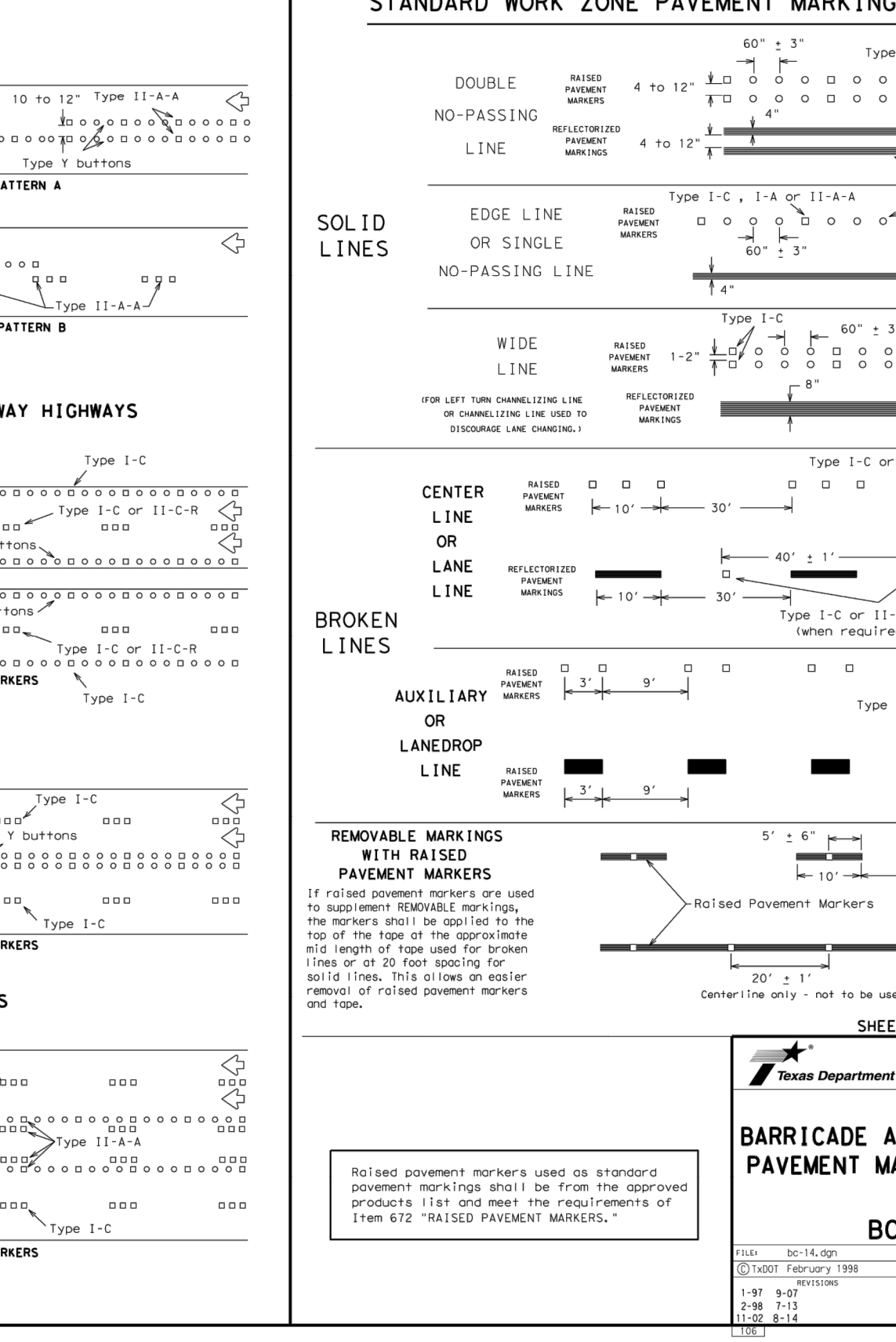
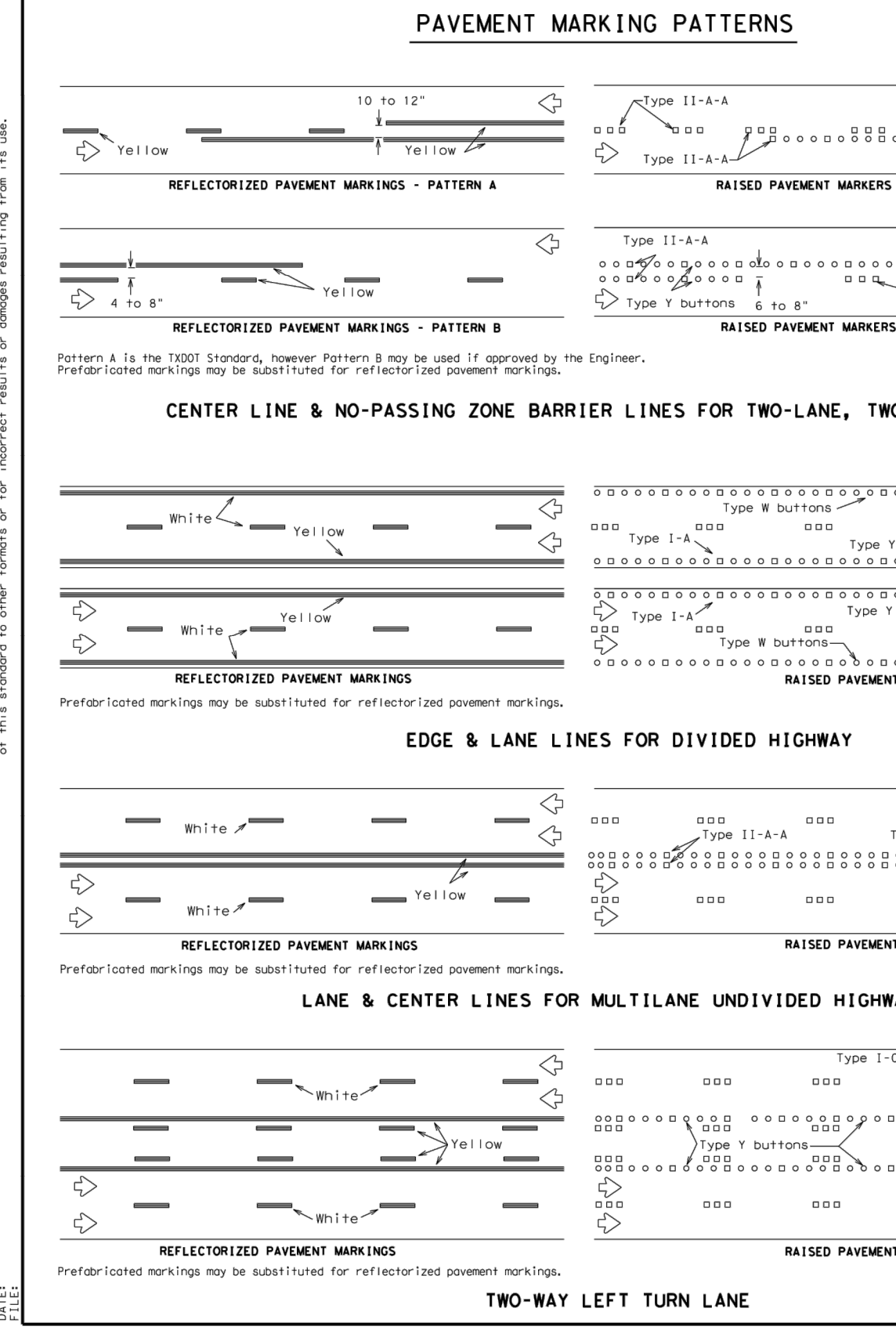
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS

REFLECTORIZED PAVEMENT MARKINGS

RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE



STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

DOUBLE NO-PASSING LINE

SOLID LINES

BROKEN LINES

AUXILIARY OR LANEDROP LINE

REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement removable markings, the markers shall be applied to the top of the top of the appropriate height of type used for broken lines or on 20 foot spacing for solid lines. This will allow an easier removal of raised pavement markers and tape.

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Rev	Description	Date

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BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC (9) - 12

Texas Department of Transportation

Traffic Operations Division Standard

9-07 8-14

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 14

Texas Department of Transportation

Traffic Operations Division Standard

9-07 8-14

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC (11) - 14

Texas Department of Transportation

Traffic Operations Division Standard

9-07 8-14

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC (12) - 14

Texas Department of Transportation

Traffic Operations Division Standard

9-07 8-14

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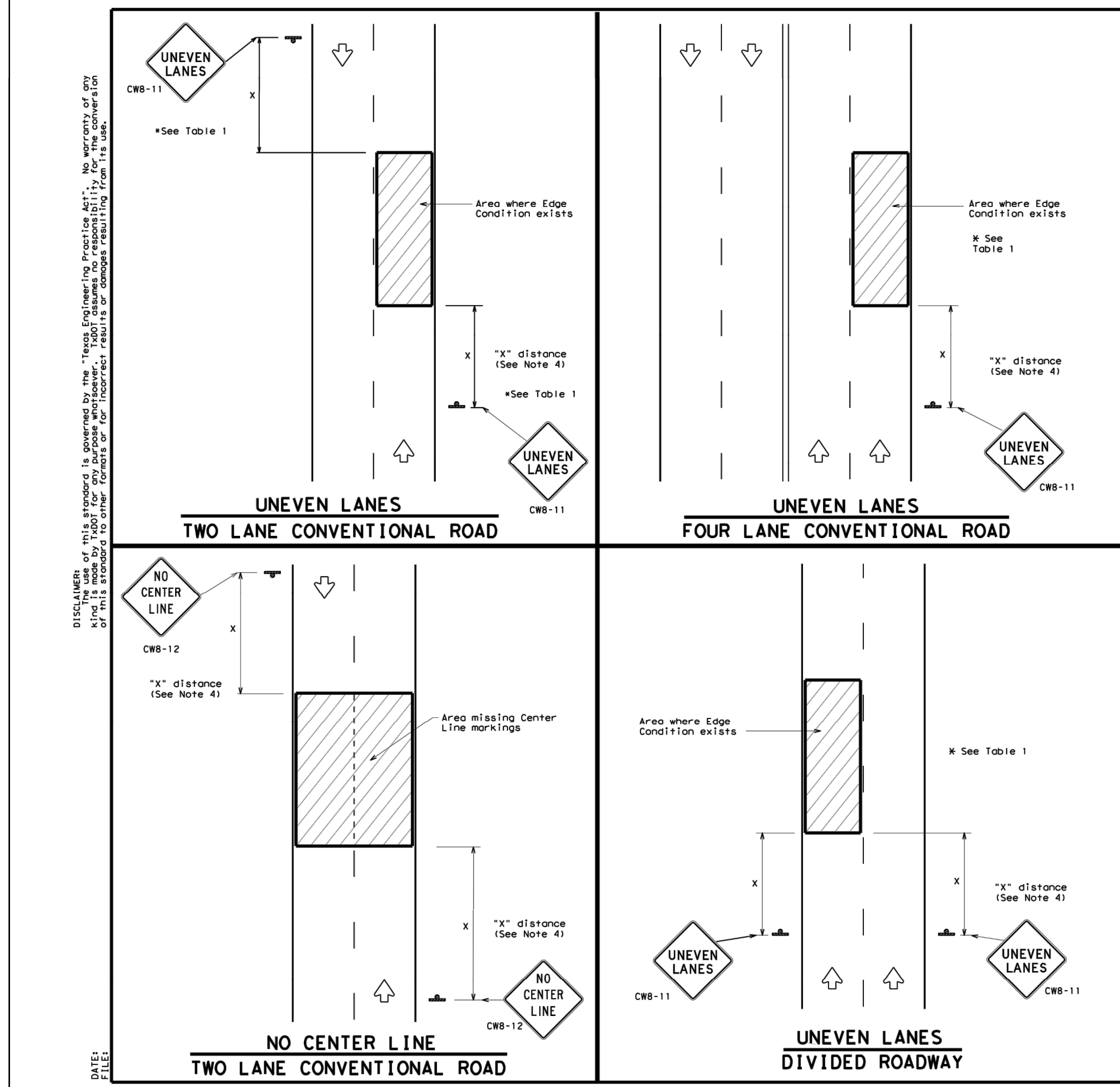
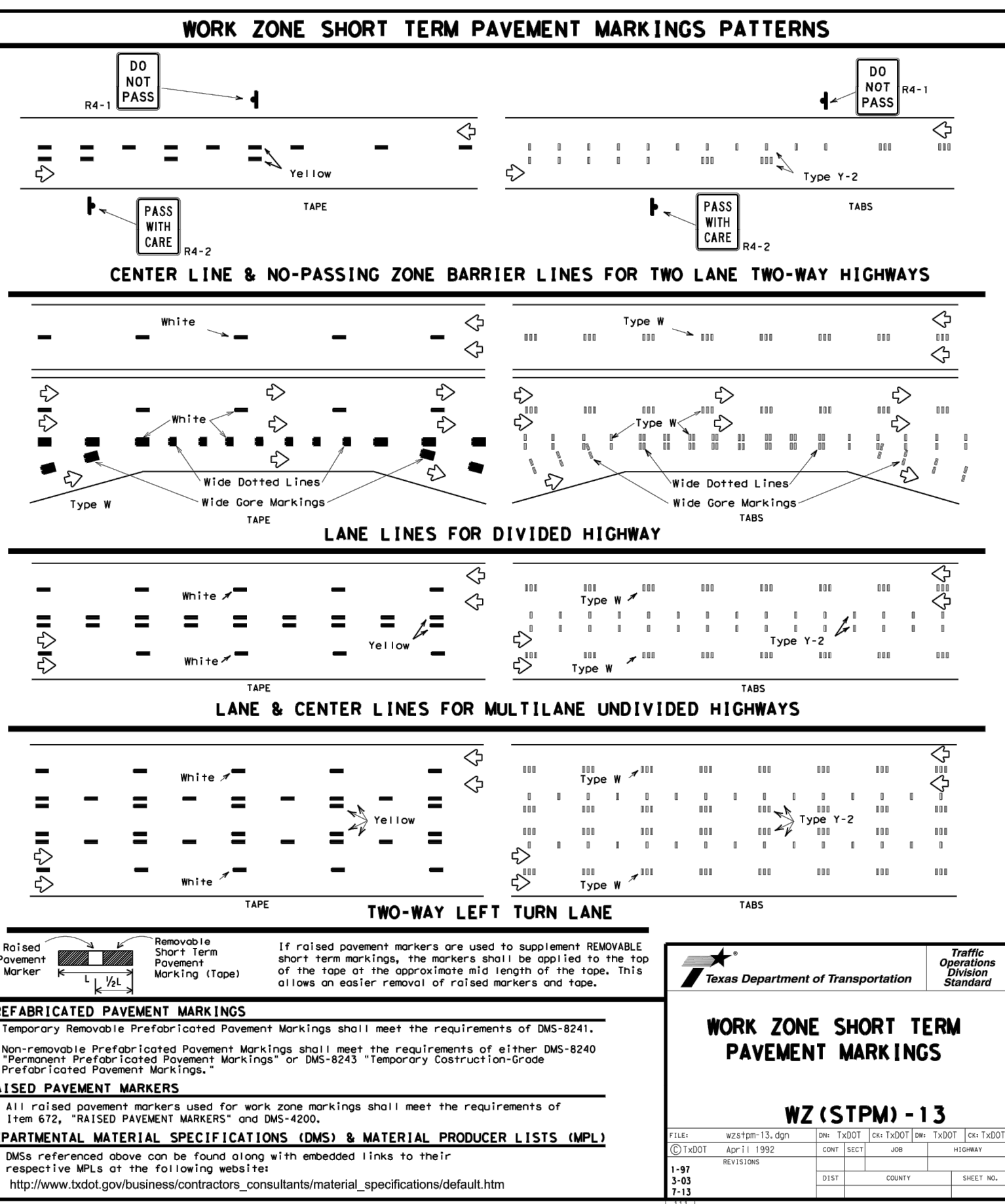
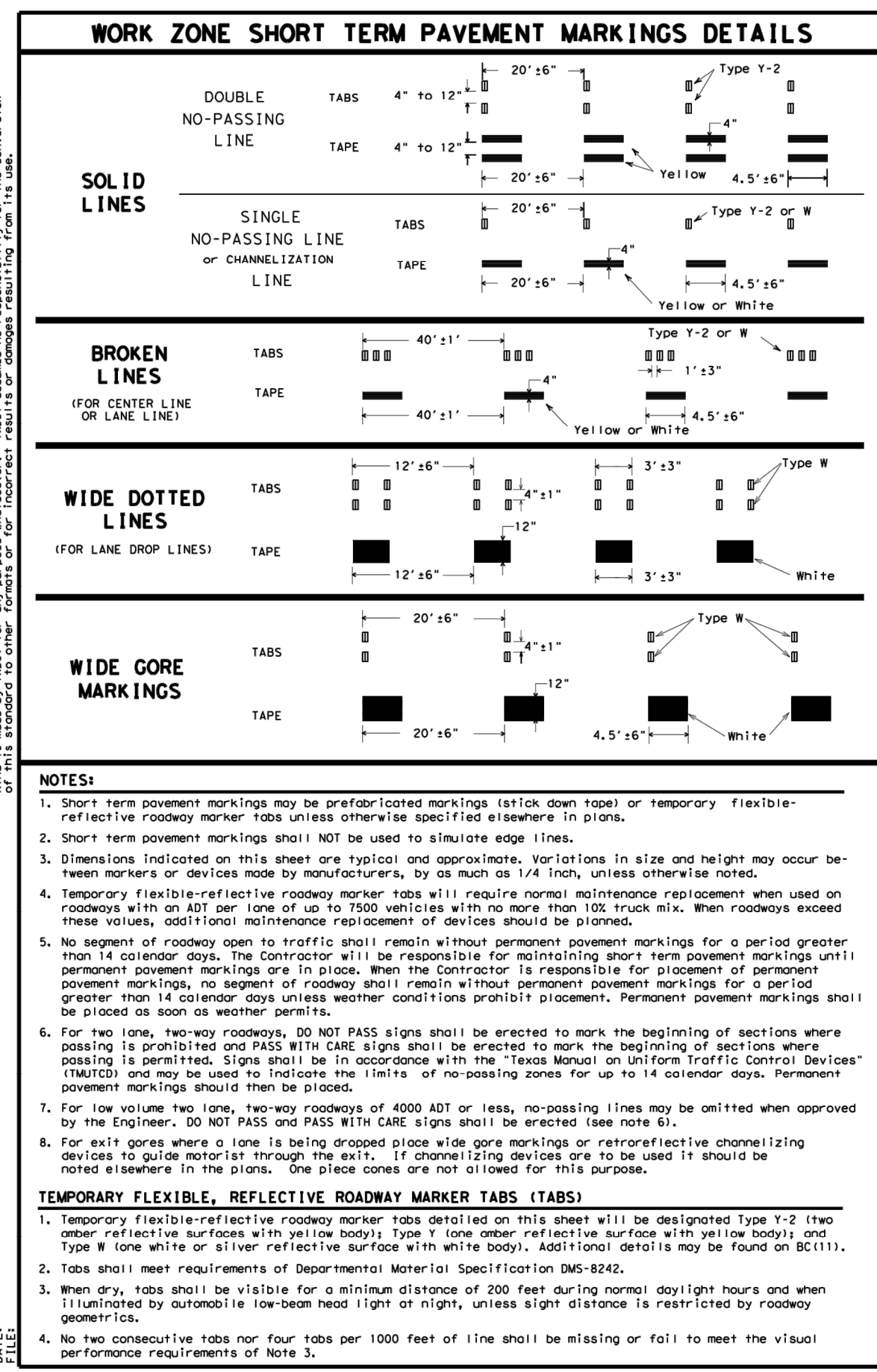
COLLIN COUNTY
 PUBLIC WORKS DEPARTMENT
 MCKINNEY, TEXAS

CR 317 (ORR ROAD)
 COLLIN COUNTY

TRAFFIC CONTROL DETAILS

Scale: 1"=20'
 Date: Nov 18, 2020
 Job No.: BB19006
 TCP5

N:\BB19006 (Collin County) Reconstruction of Orr Road\05 CAD Files\GEN.dwg - TCP6 TRAFFIC CONTROL DETAILS Plotted Nov 18, 2020 at 7:26am by arancis | Last Saved by: arancis



DEPARTMENTAL MATERIAL SPECIFICATIONS		
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240	
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241	
SIGN FACE MATERIALS	DMS-8300	
COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B _{PL} OR TYPE C _{PL} SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

GENERAL NOTES

- If spalling or holes occur, ROUGH ROAD (CB-8) signs should be placed in advance of the condition and be repeated every two miles where the condition persists.
- UNEVEN LANES (CB-11) signs shall be installed in advance of the condition and repeated every mile. Signs installed along the uneven lane condition may be supplemented with the NEXT 20 MILES (CB-130) plaque or Advisory Speed (CB-13-IP) plaque.
- NO CENTER LINE (CB-12) signs and temporary pavement markings as per the MUTCD standard shall be installed if yellow centerlines separating two way traffic are obscured or obliterated. Repeat NO CENTER LINE signs every two miles where the center line markings are not in place. The signs and markings shall remain in place until permanent pavement markings are installed.
- Signs shall be spaced at the distances recommended as per BC standards.
- Additional signs may be required as directed by the Engineer. Signs shall remain in place until final surface is applied. Signs shall be considered subsidiary to Item 502 "BARRICADES, SIGNS AND TRAFFIC HANDLING."
- Signs shall be fabricated and mounted as shown on the BC standards and/or listed on the "Compliant Work Zone Traffic Control Devices" list.
- Short term markings shall not be used to simulate edge lines.
- All signs shall be constructed in accordance with the details found in the Standard Highway Sign Designs for Texas, latest edition.

Edge Condition	Edge Height (ft)	# Warning Devices
①	Less than or equal to 1/2" (maximum planting) 1/2" (typical over lay)	Signs CB-11
②	Less than or equal to 3"	Signs CB-11
③	Distance "D" may be a maximum of 1 1/4" for planting operations and 2" for overlay operations if uneven lanes with edge condition 1 are open to traffic after work operations cease.	
	Distance "D" may be a maximum of 3" if uneven lanes with edge condition 2 or 3 are open to traffic after work operations cease. Uneven lanes should not be open to traffic when "D" is greater than 3".	

TRAFFIC CONTROL DURING PAVING, OVERLAY AND LEVELING OPERATIONS ARE SHOWN ELSEWHERE IN THE PLANS.

MINIMUM WARNING SIGN SIZE

Conventional roads	36" x 36"
Freeways/expressways, divided roadways	48" x 48"

WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ (STPM) - 13

DATE:	11-18-2020	TIME:	10:00 AM
FILE:	BB19006	PROJECT:	RECONSTRUCTION OF ORR ROAD

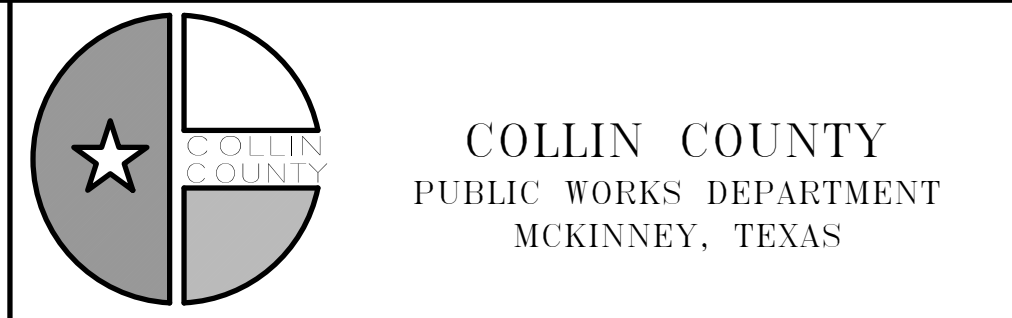
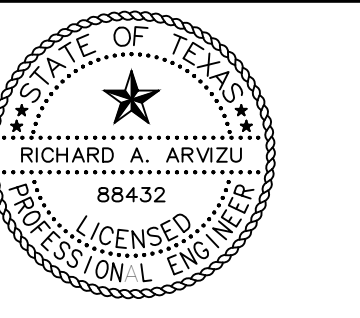
Rev	Description	Date

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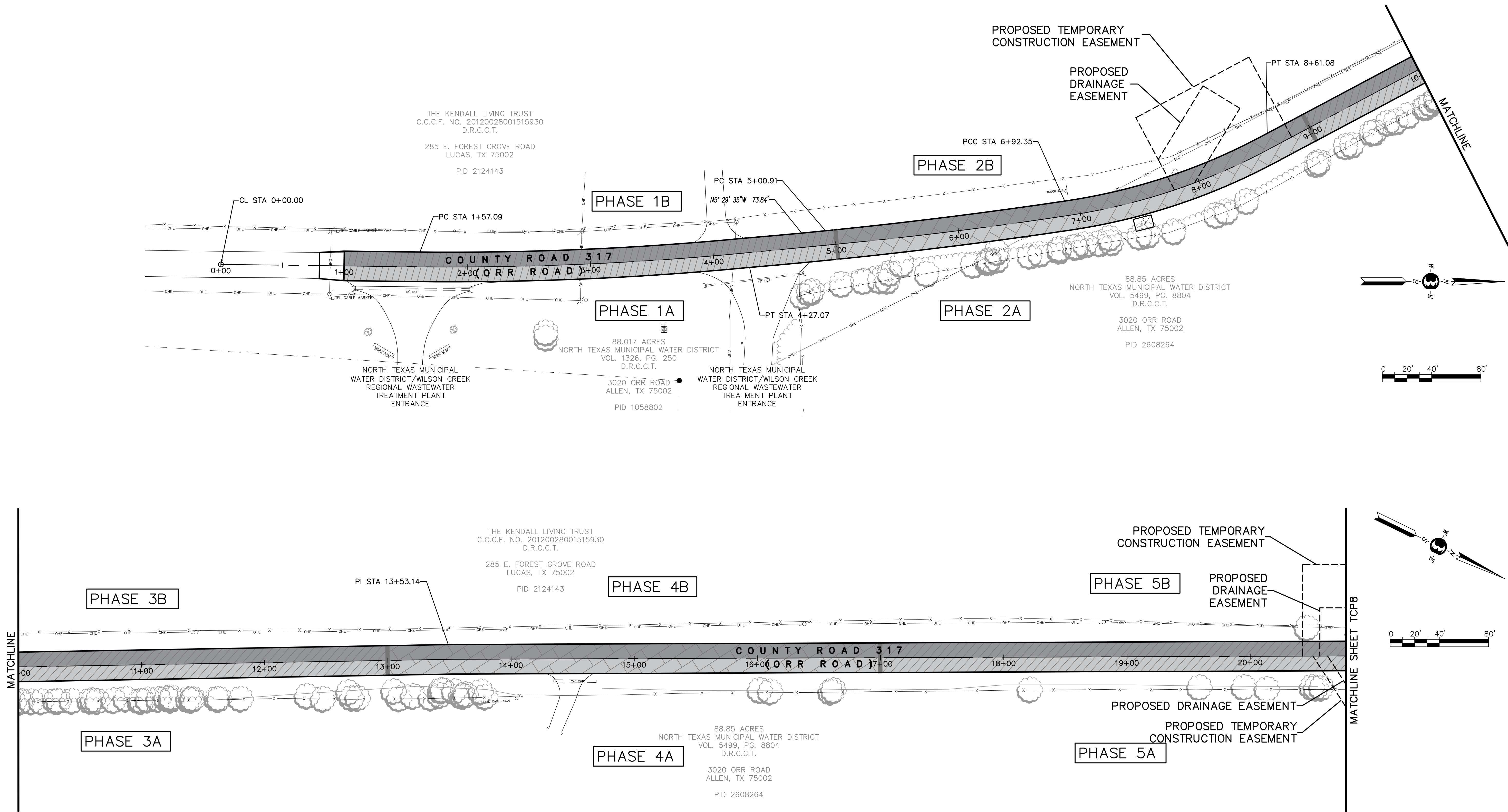
Richard A. Arvizu



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CR 317 (ORR ROAD) COLLIN COUNTY			
TRAFFIC CONTROL DETAILS			
Scale:	Date:	Job No.:	TCP6
1"=20'	Nov 18, 2020	BB19006	

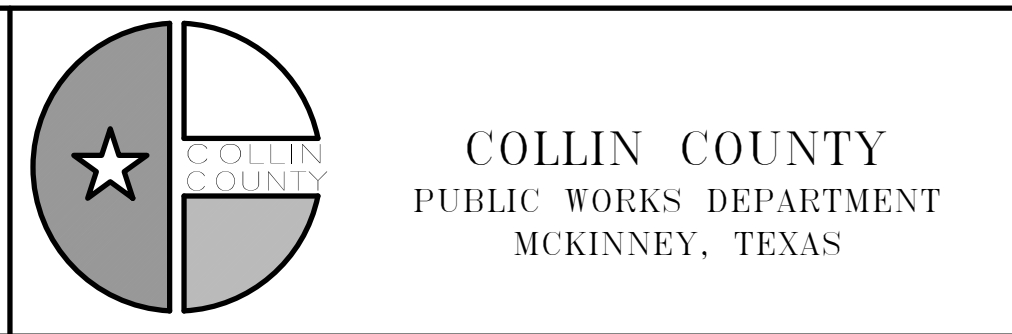
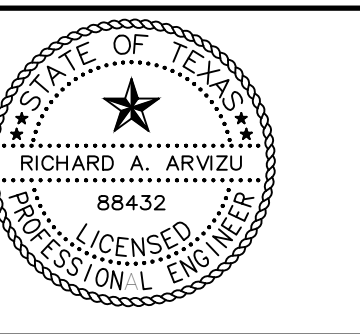
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Rev	Description	Date

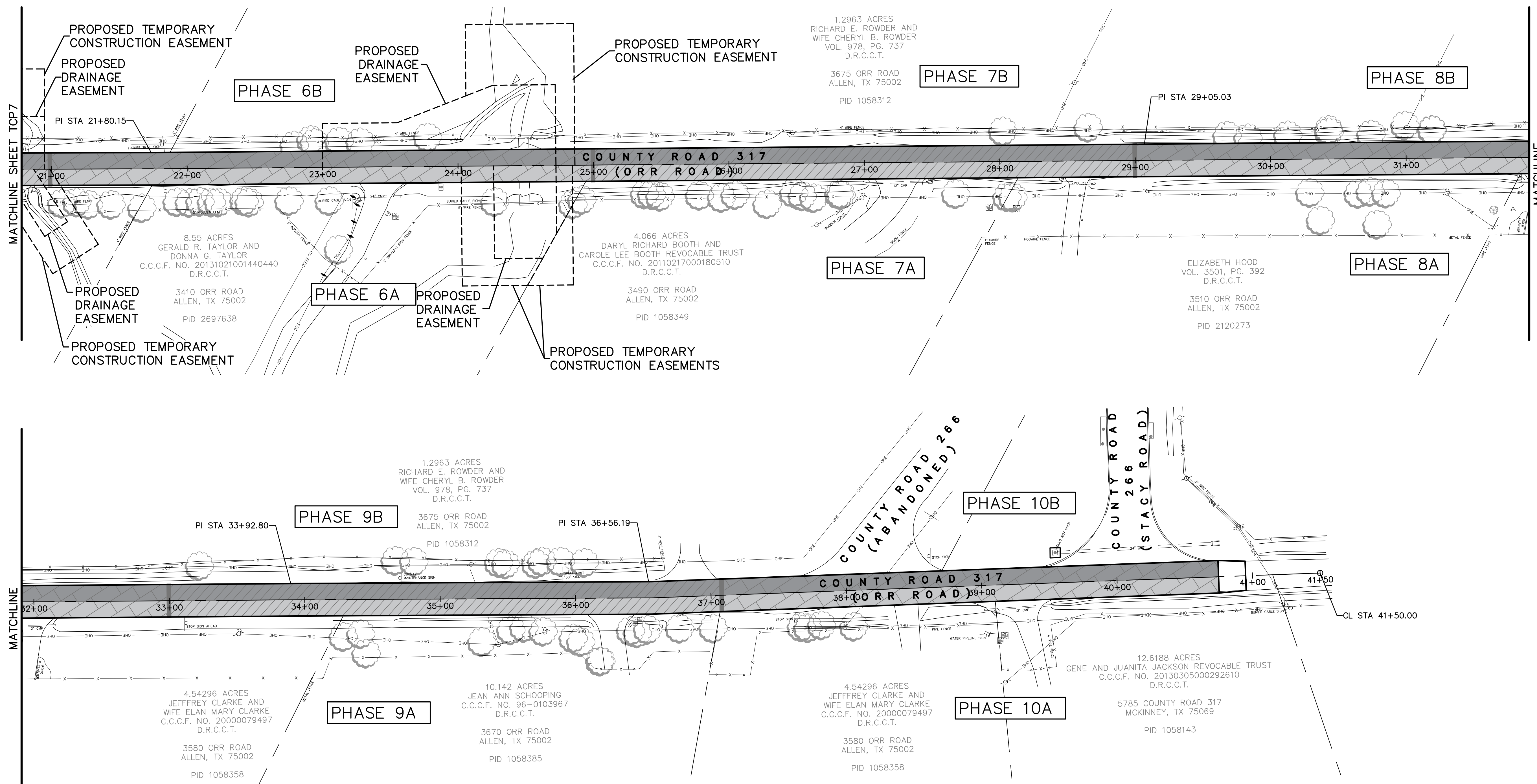
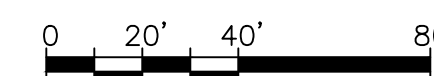
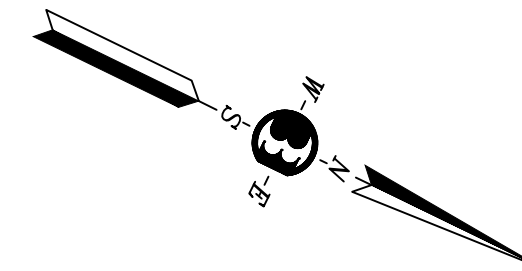
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CR 317 (ORR ROAD) COLLIN COUNTY			
CONSTRUCTION PHASING PLAN			
Scale: 1"=20' H	Date: Nov 18, 2020	Job No.:	TCP7
		BB19006	



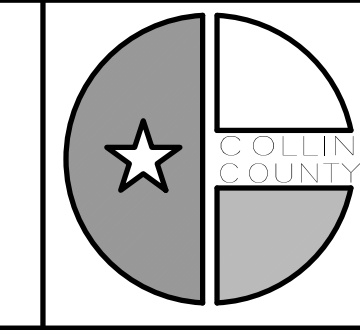
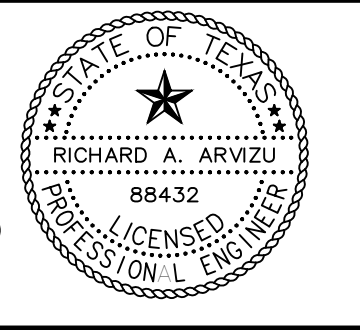
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Rev	Description	Date

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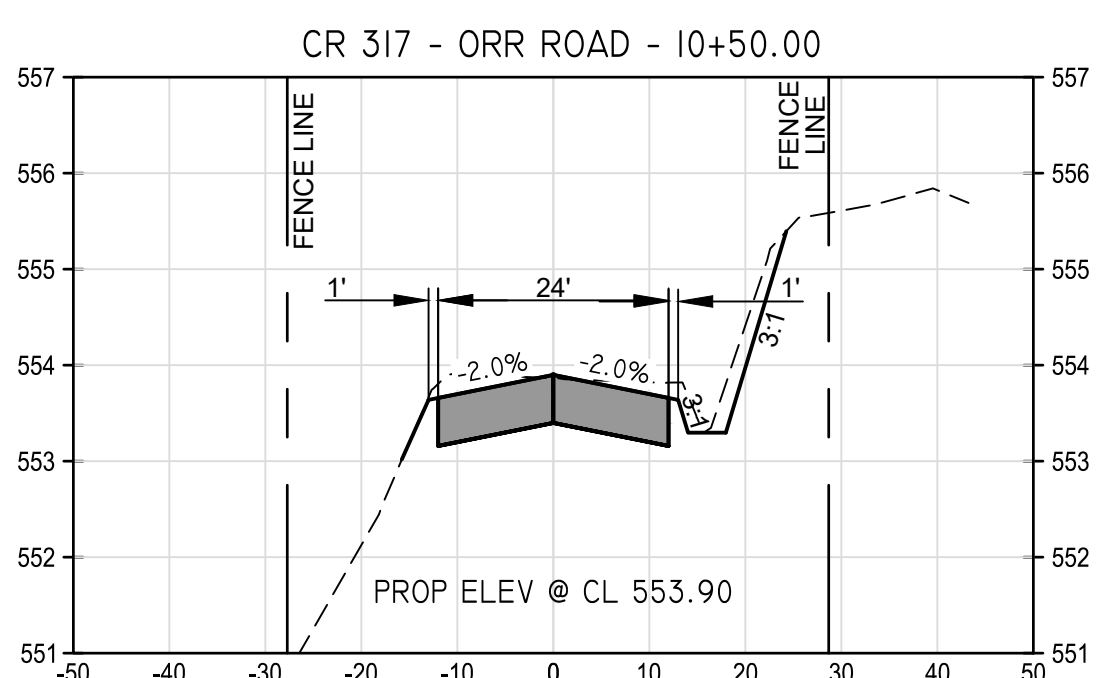
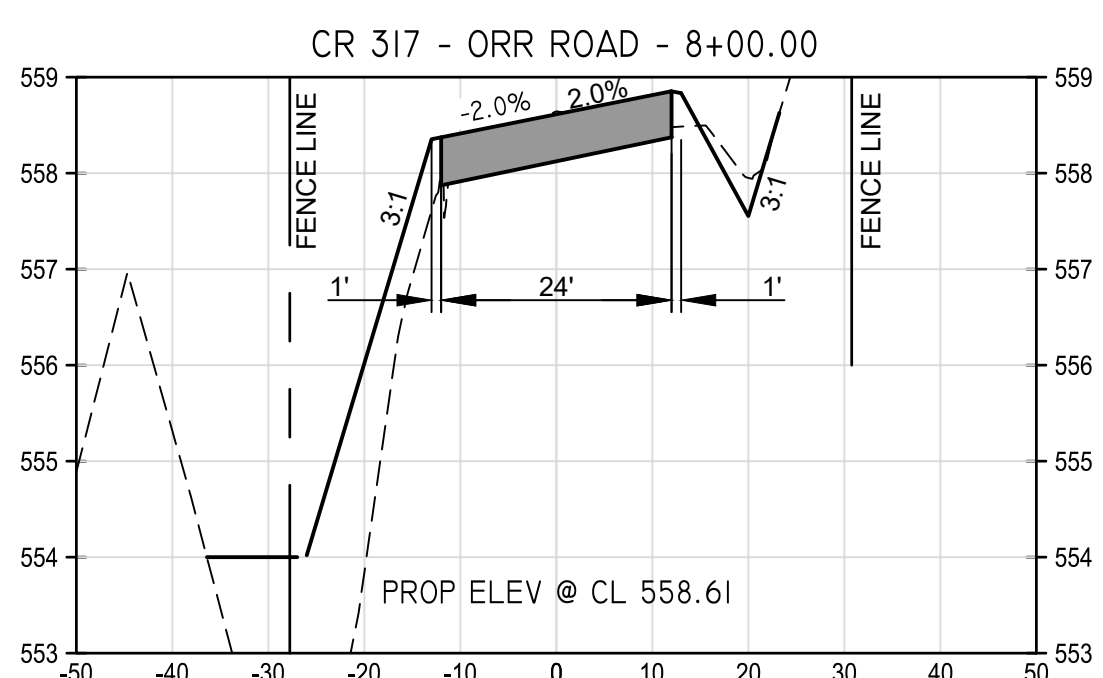
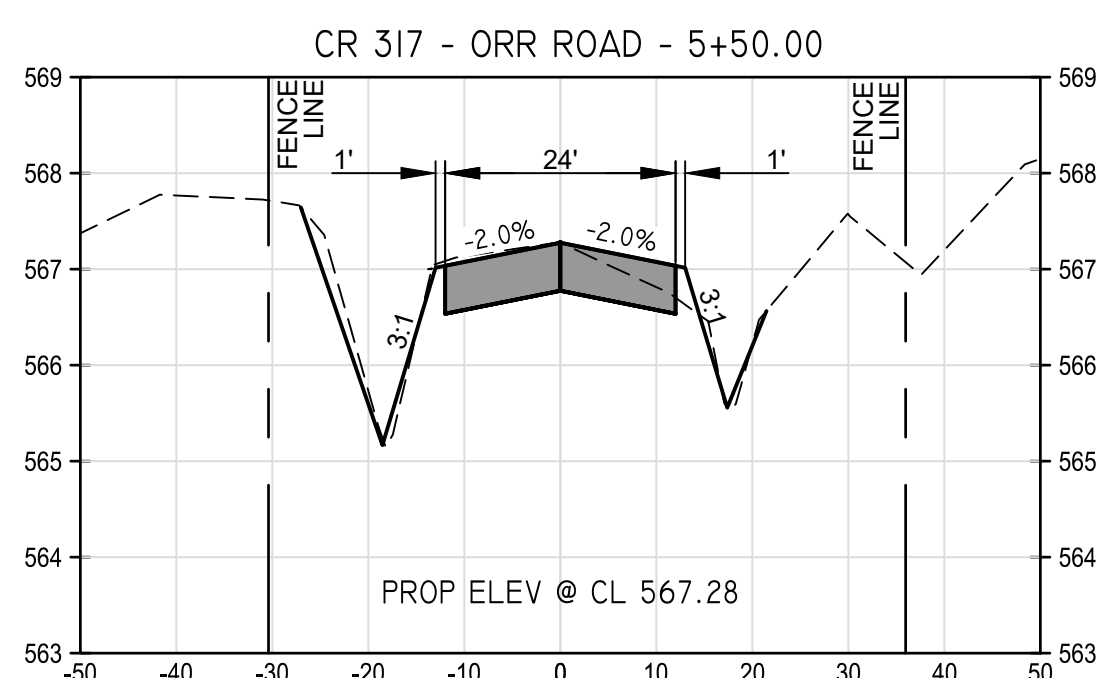
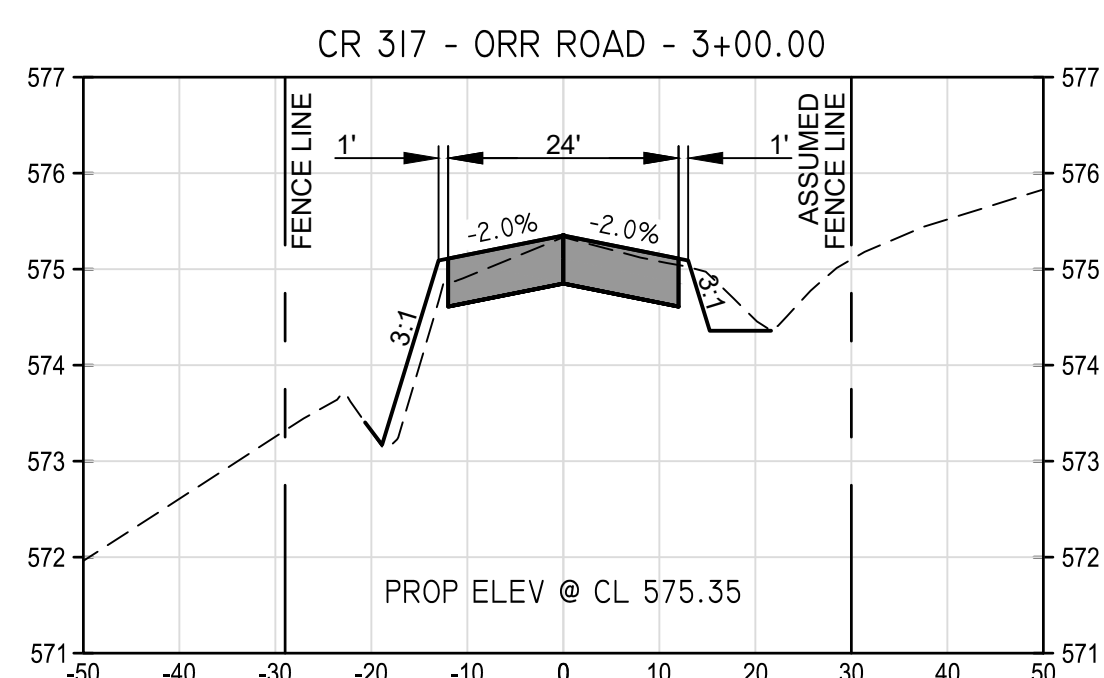
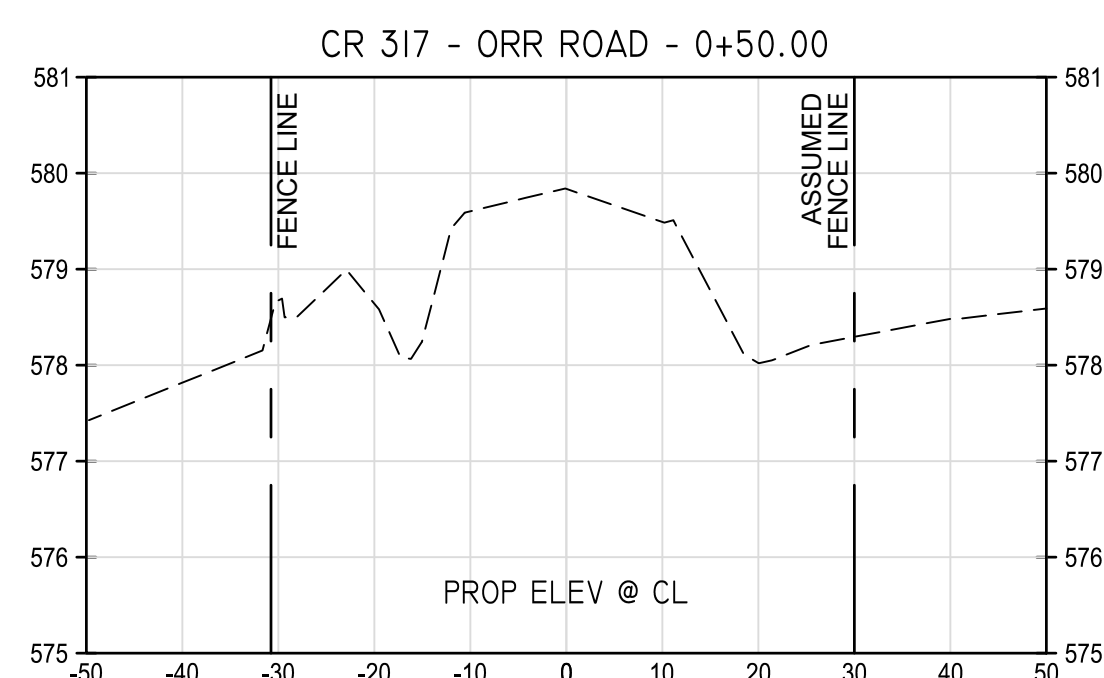
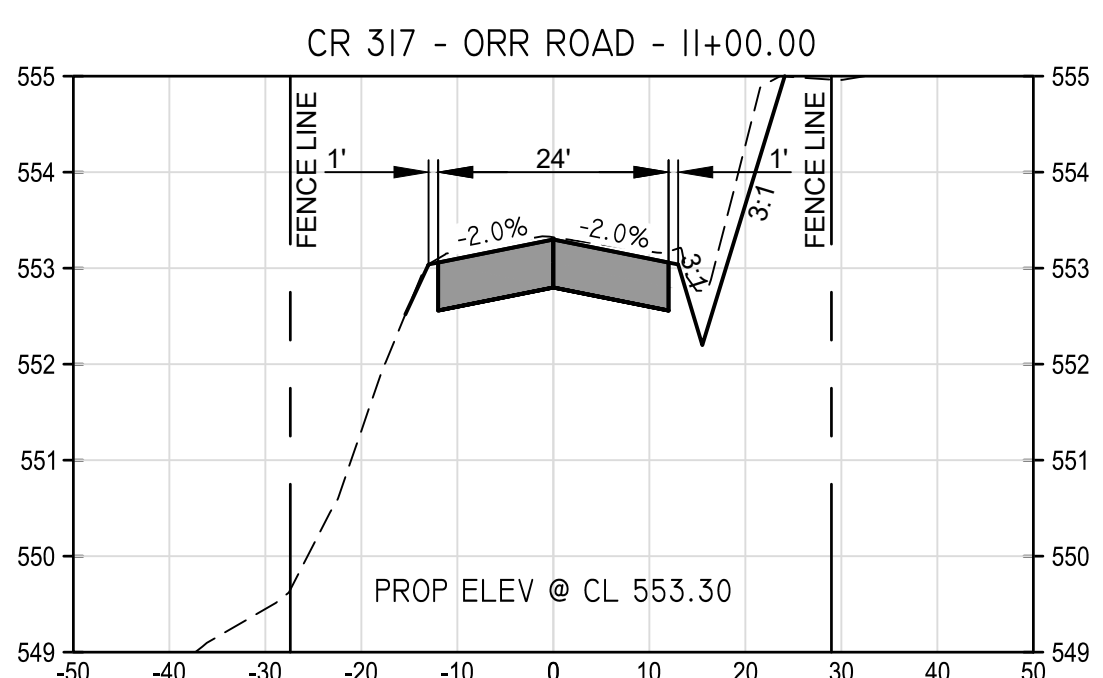
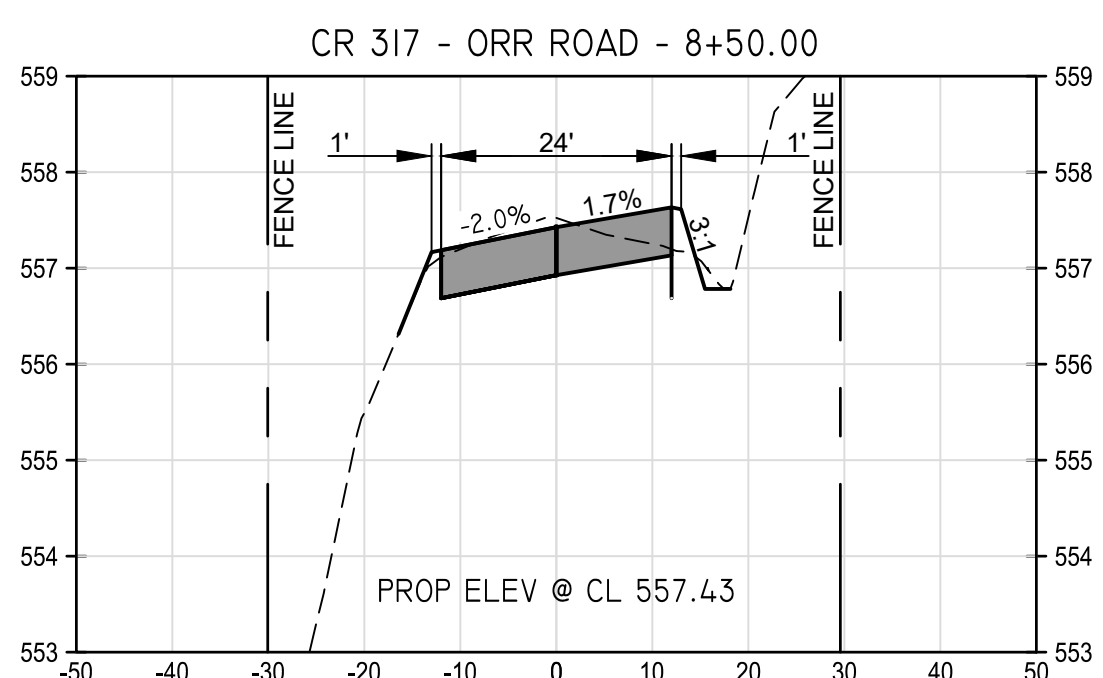
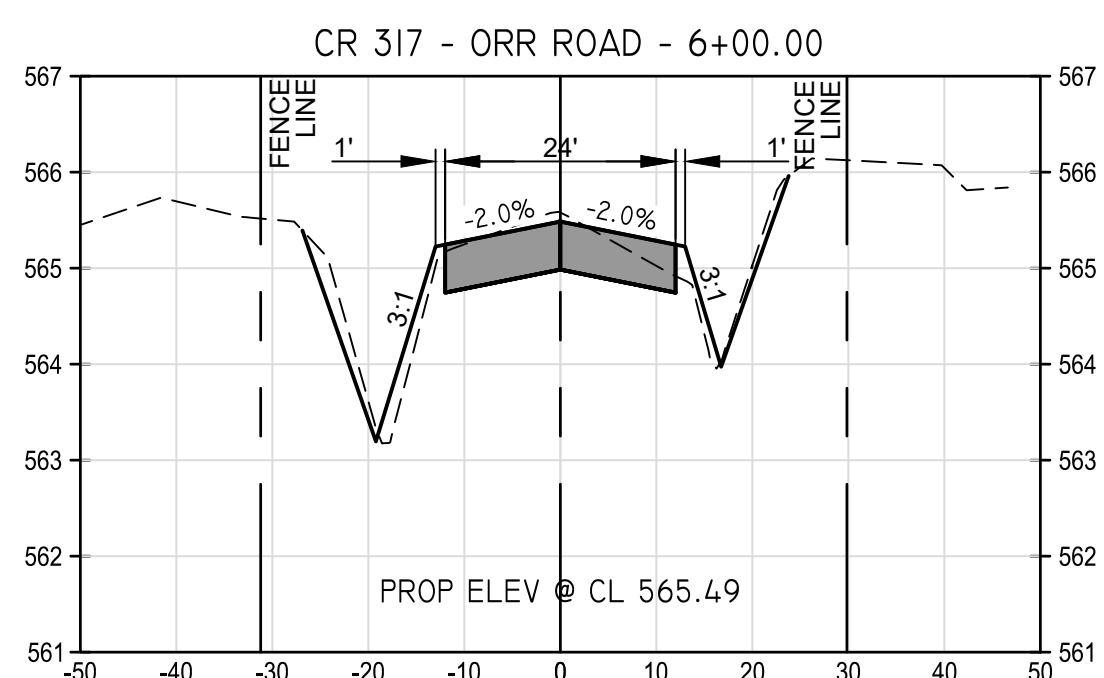
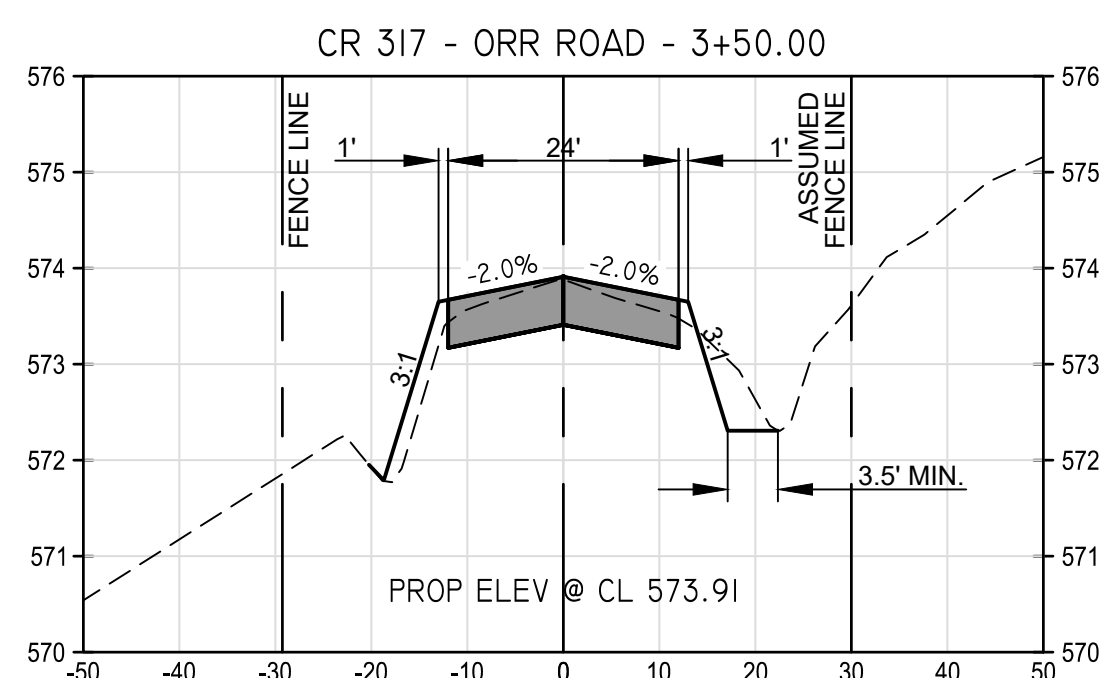
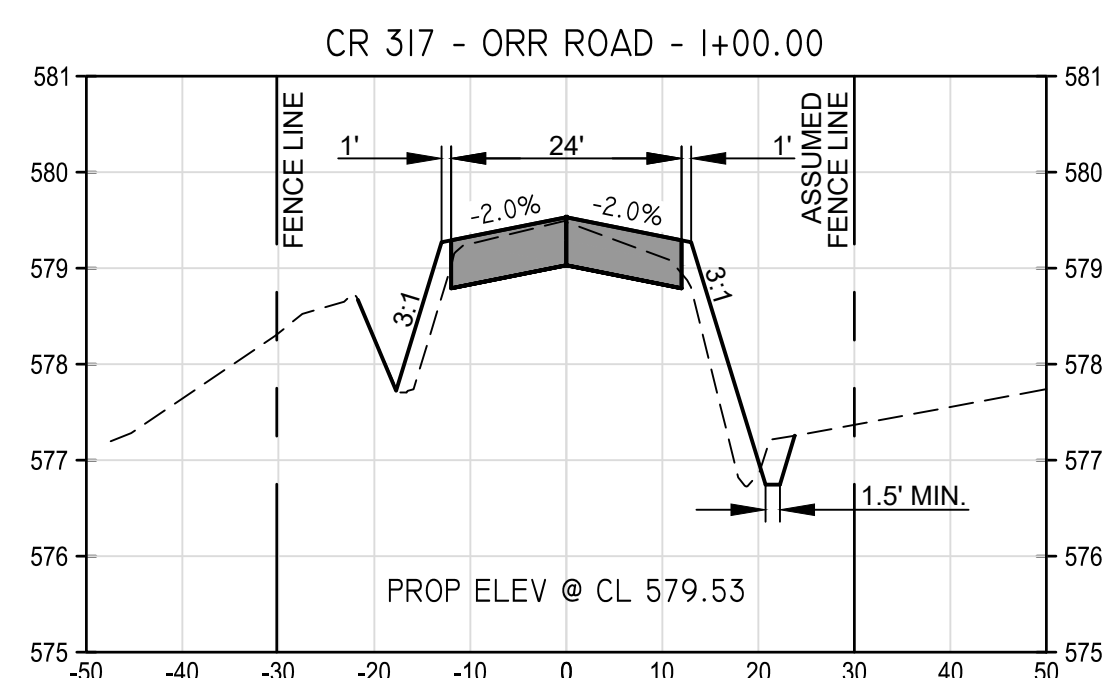
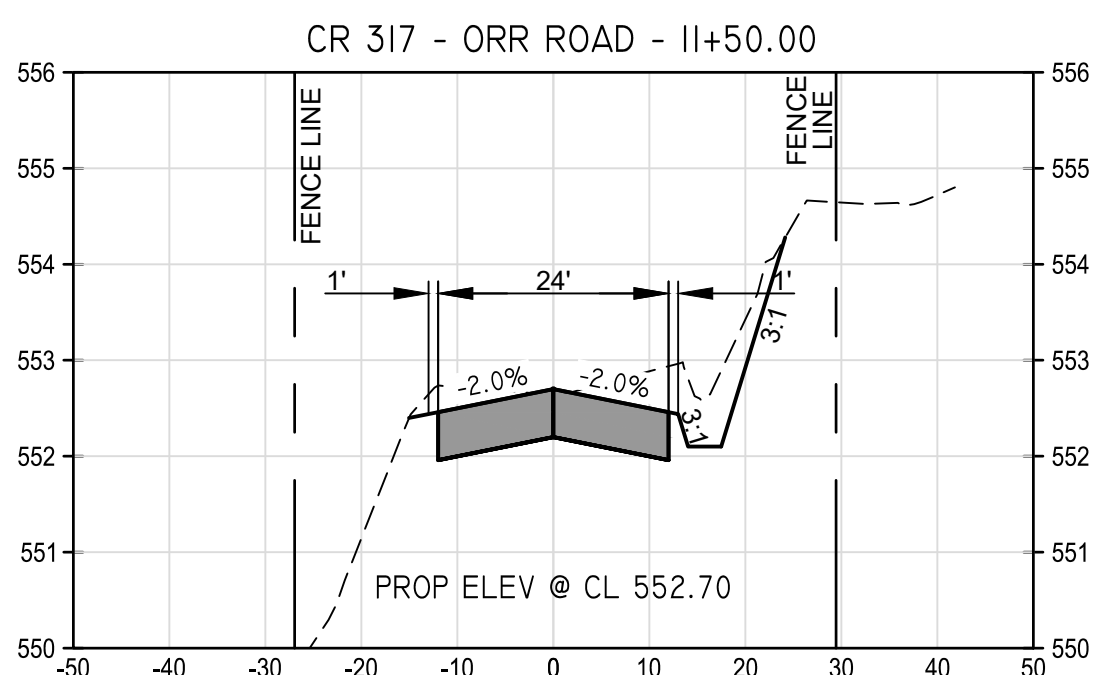
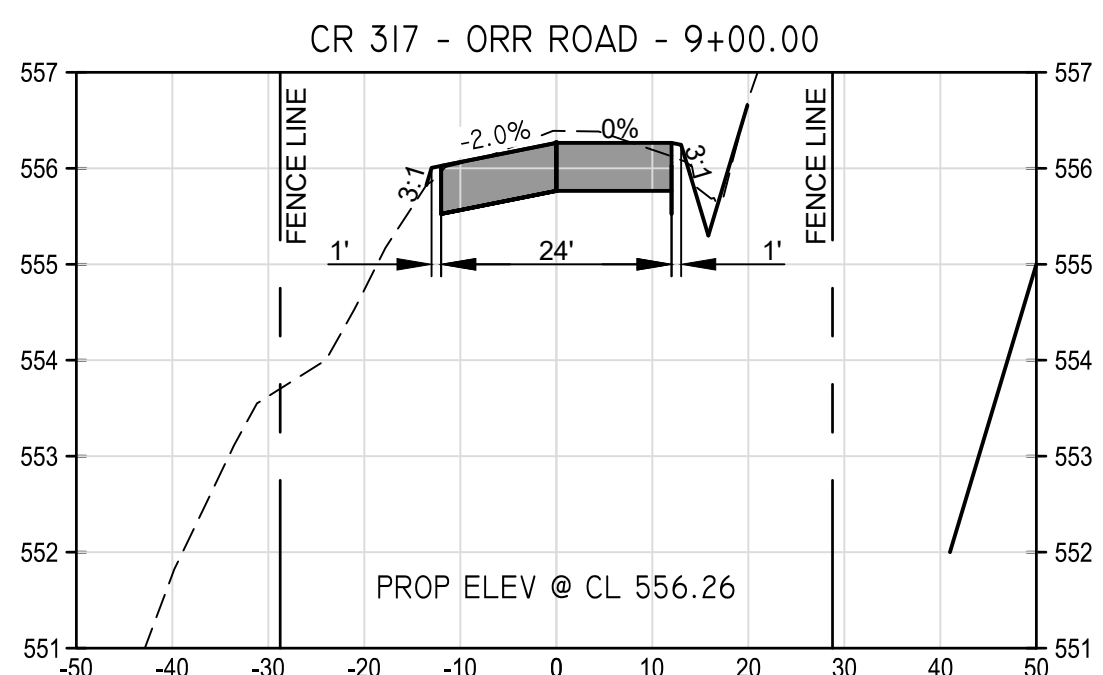
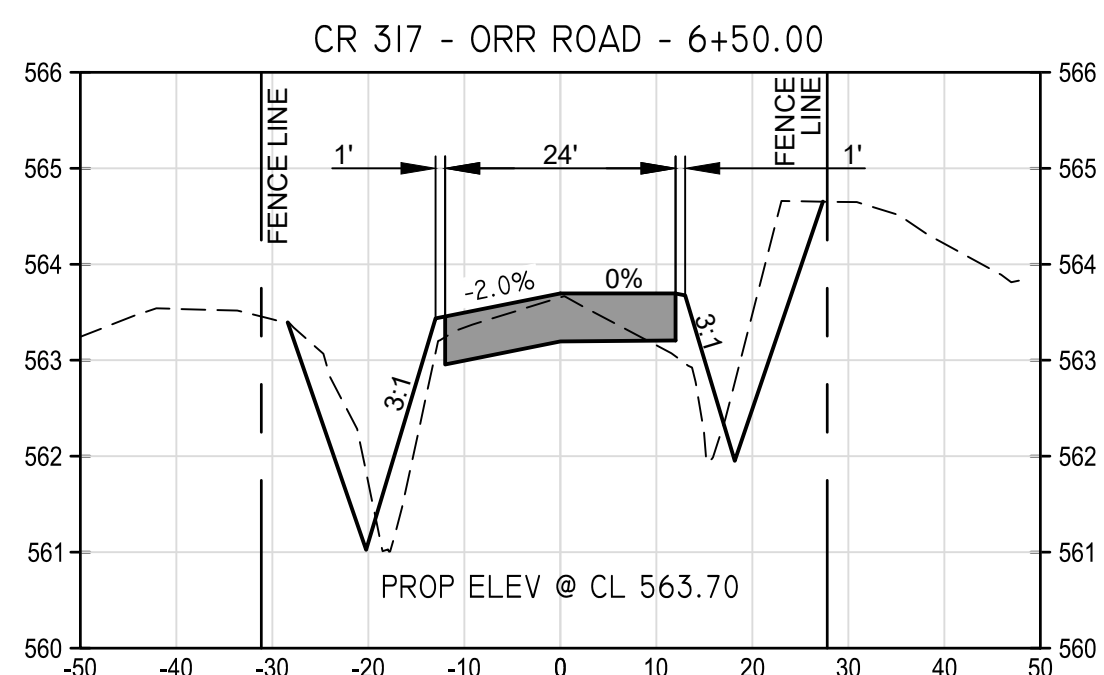
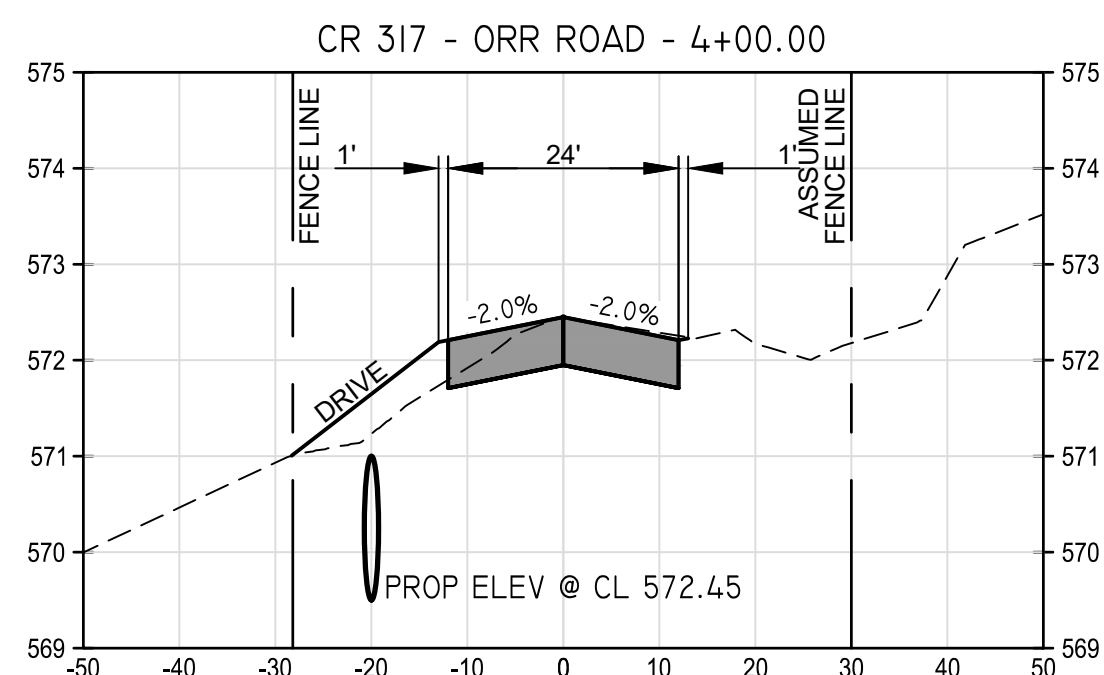
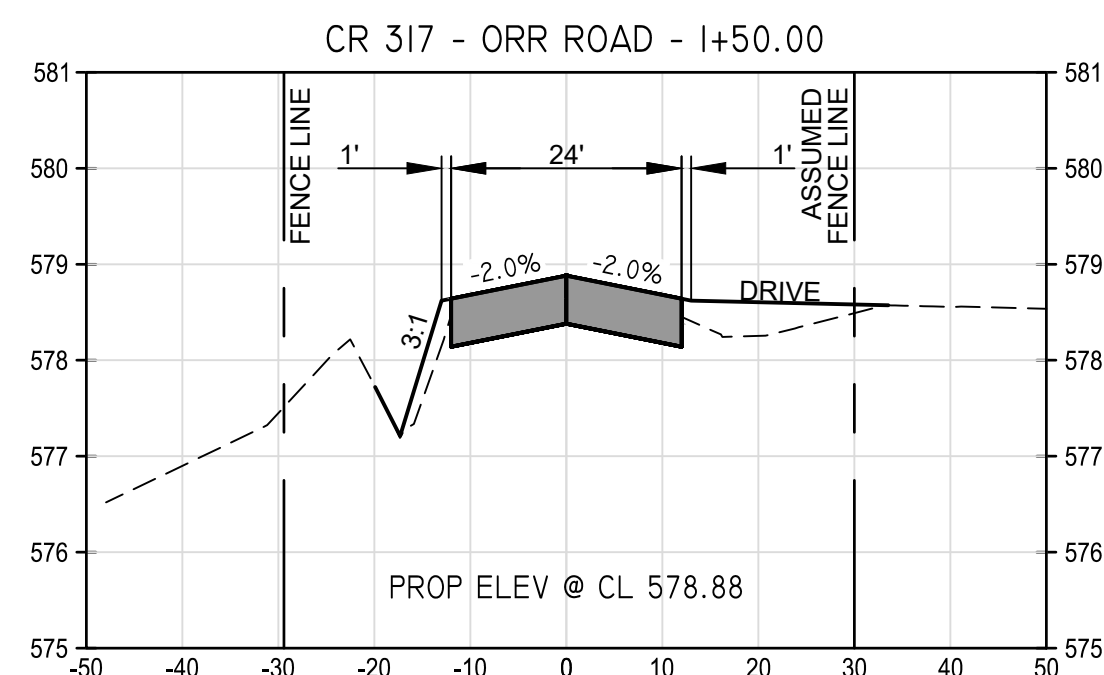
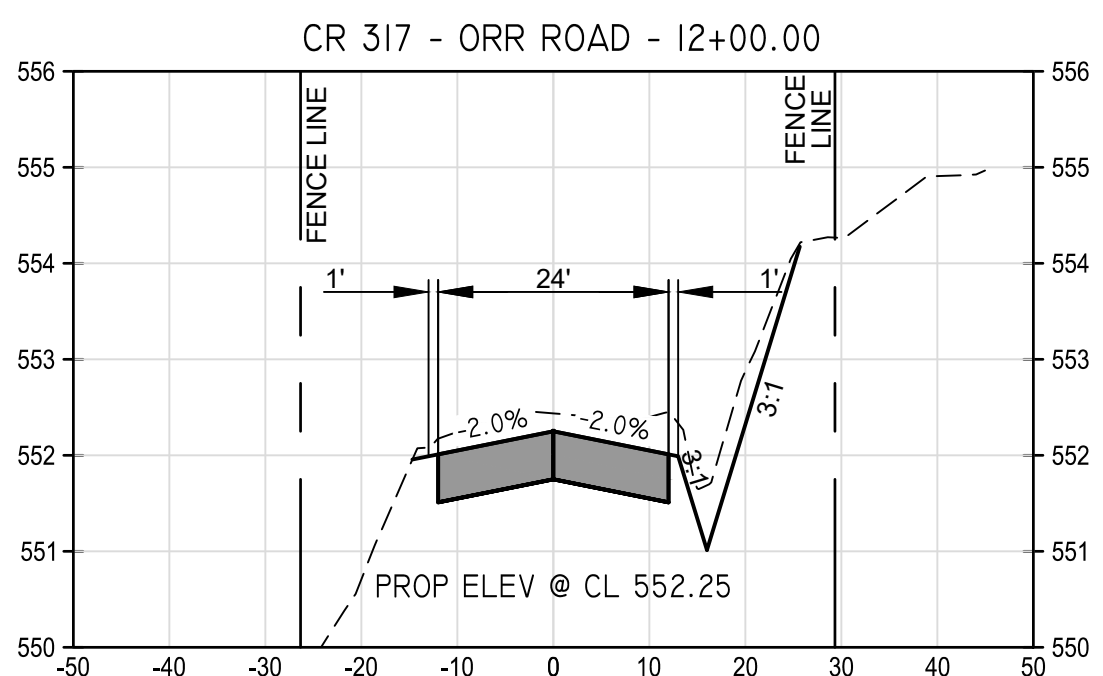
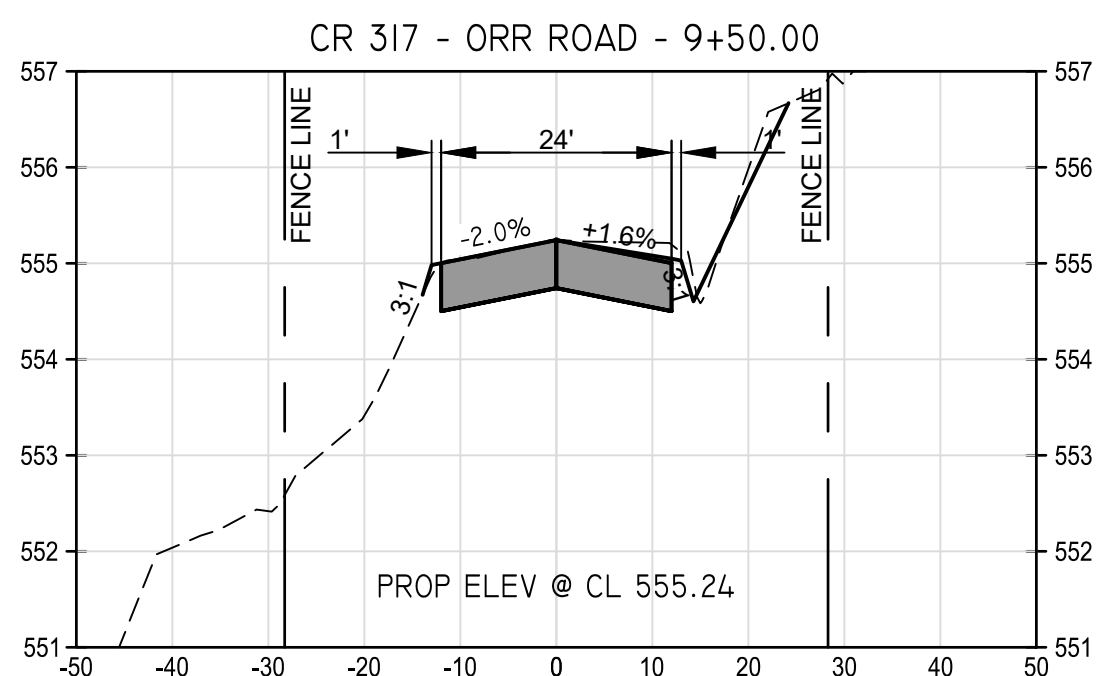
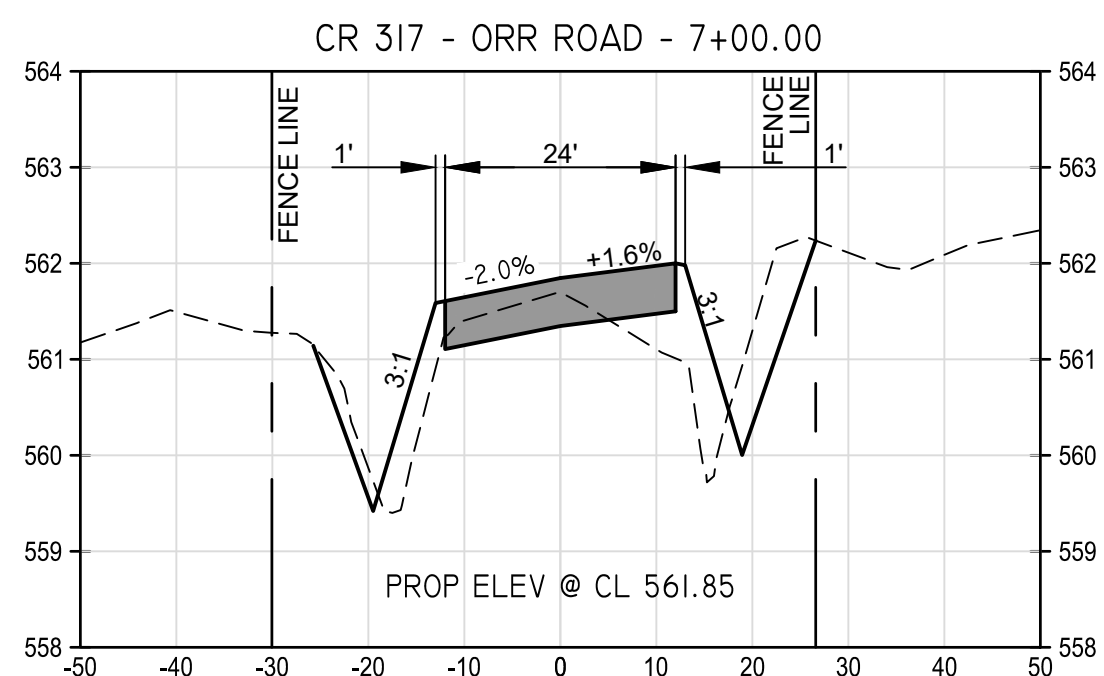
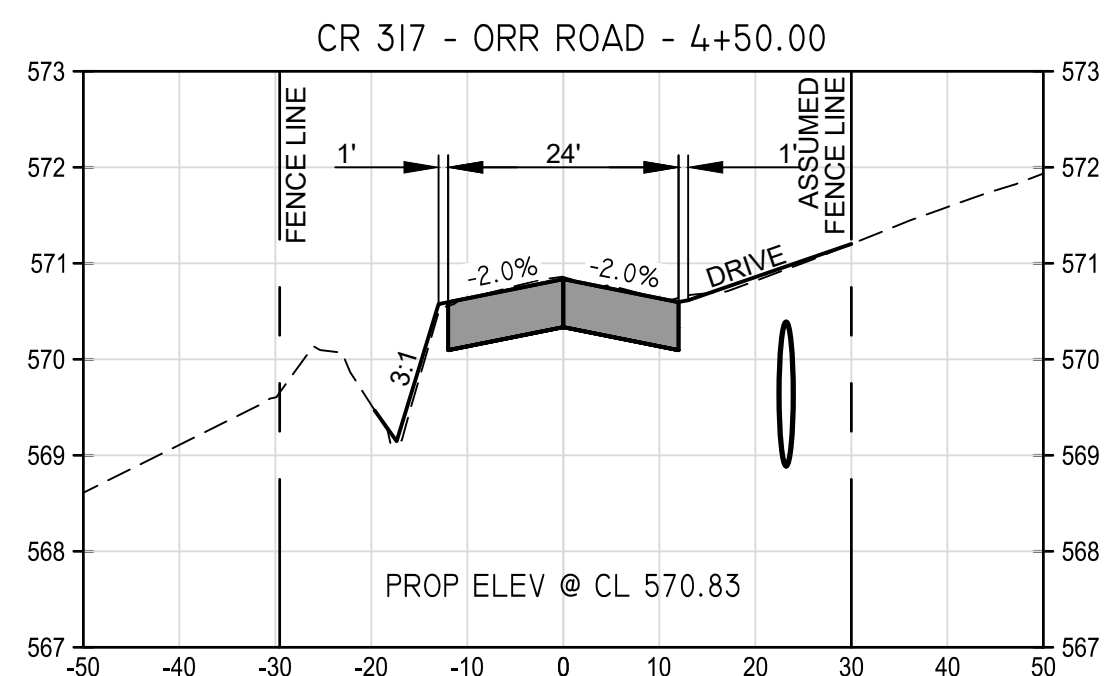
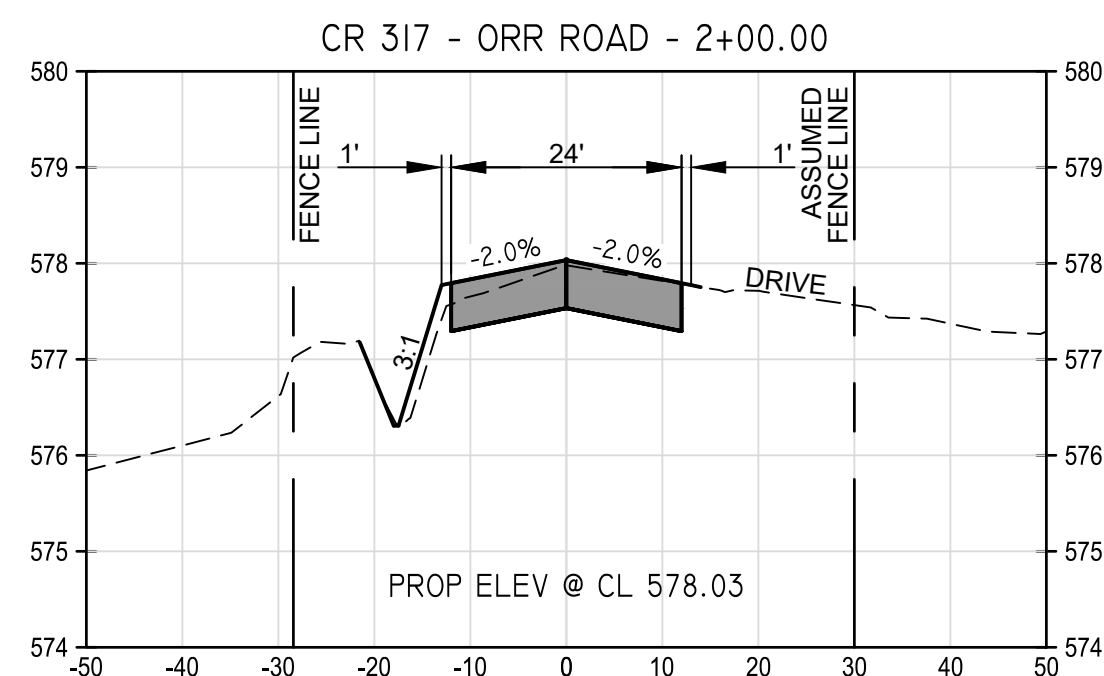
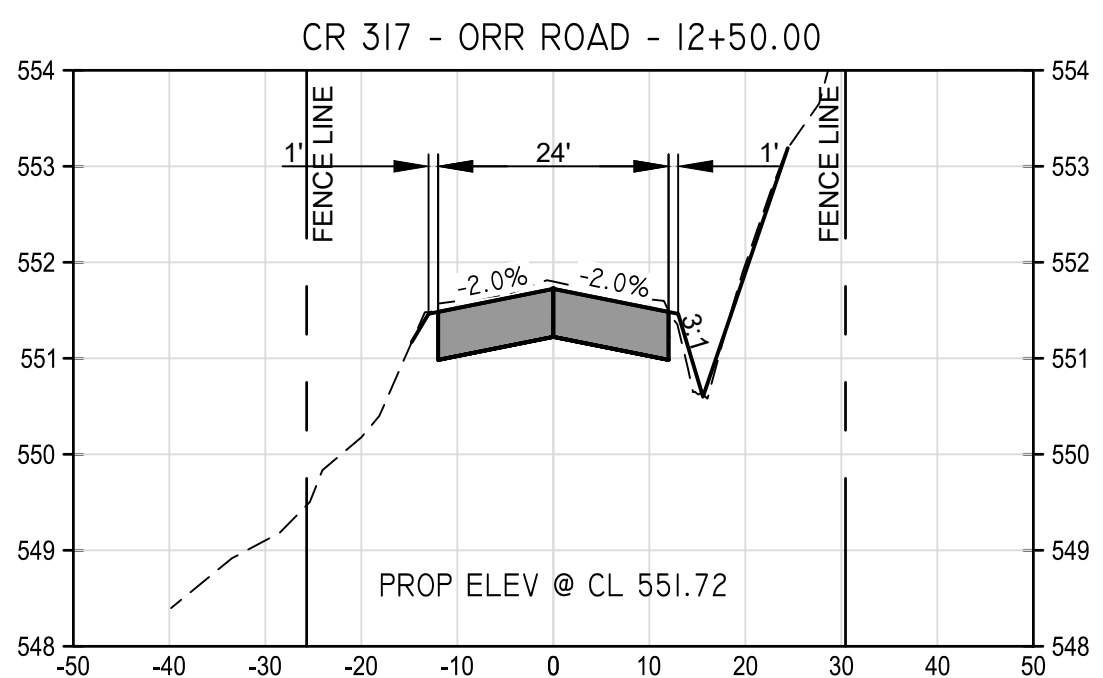
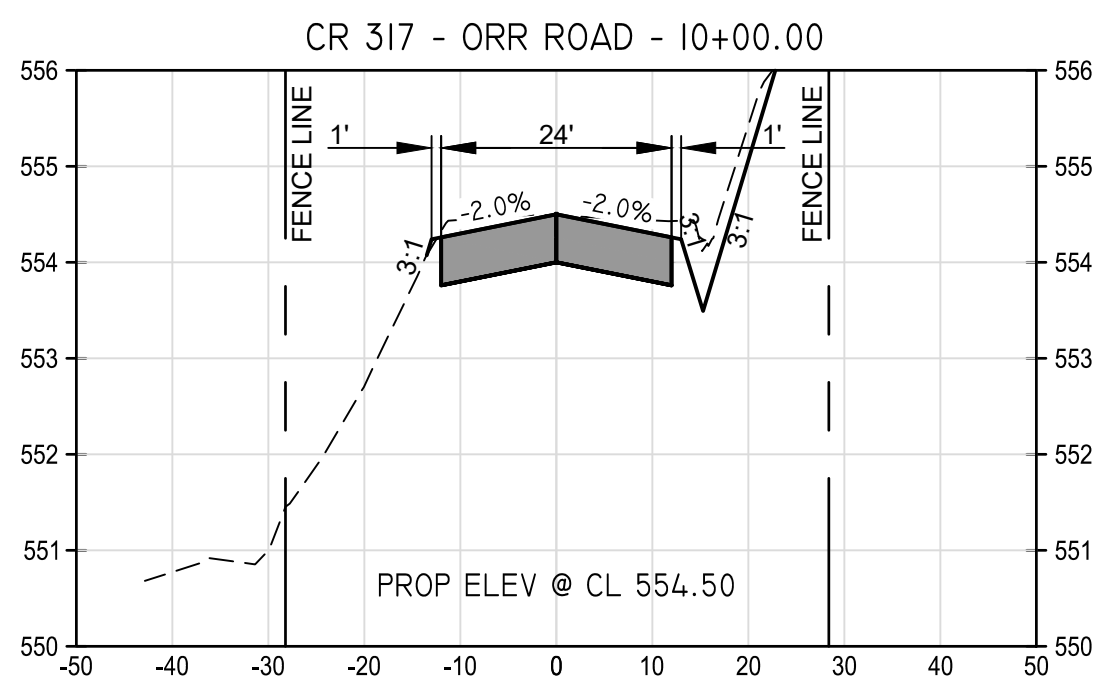
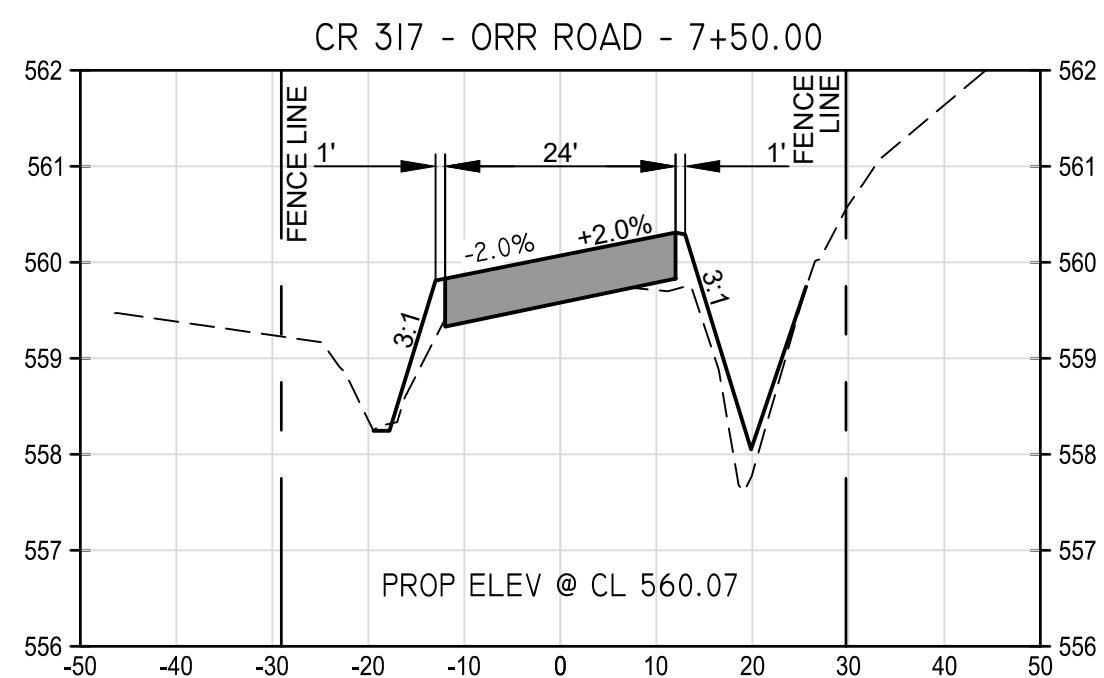
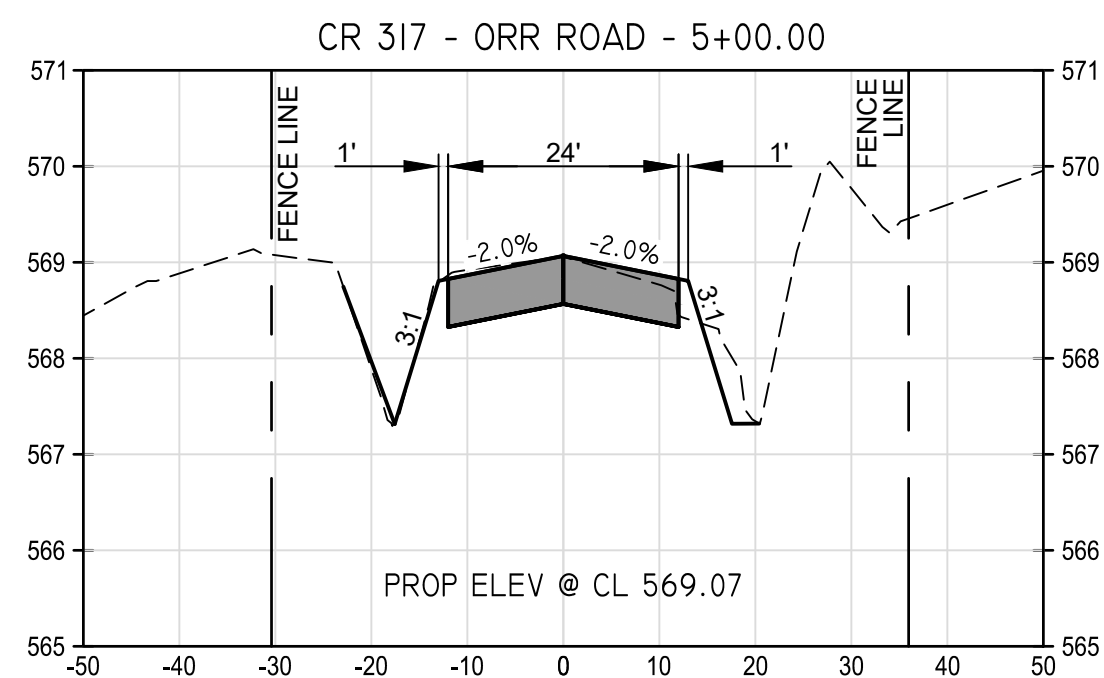
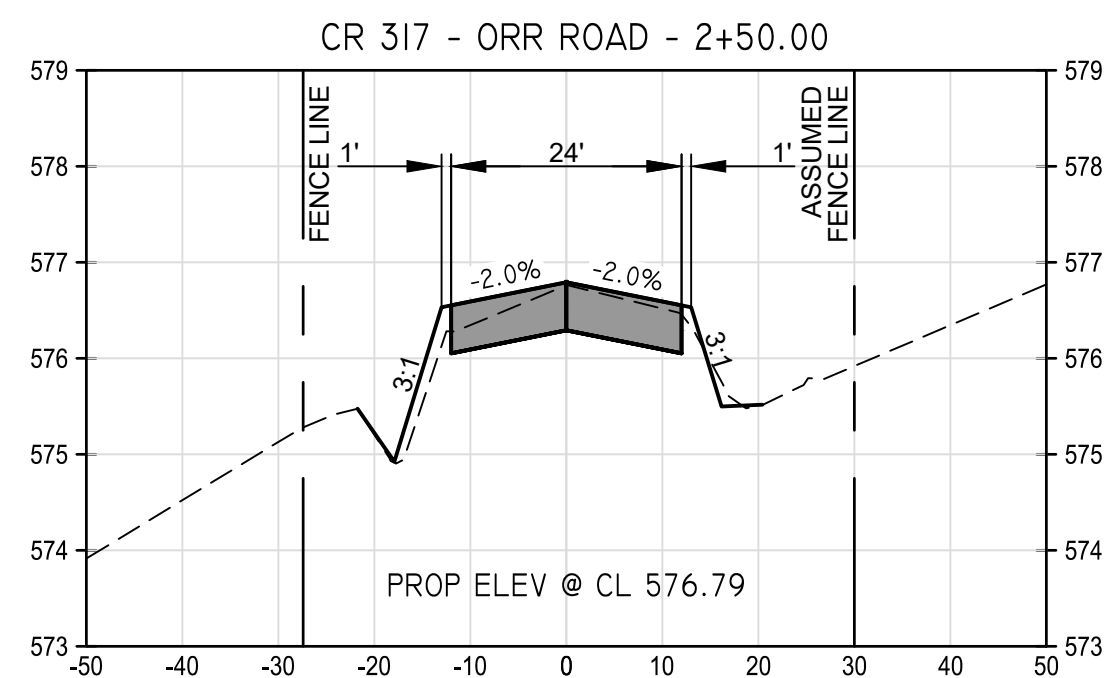


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CR 317 (ORR ROAD) COLLIN COUNTY			
CONSTRUCTION PHASING PLAN			
Scale: 1"=20' H	Date: Nov 18, 2020	Job No.:	TCP8
		BB19006	

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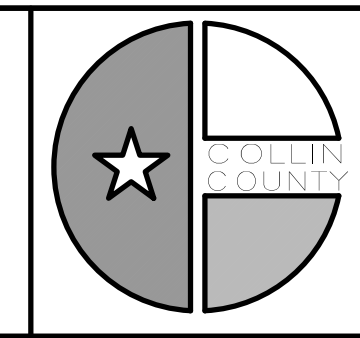
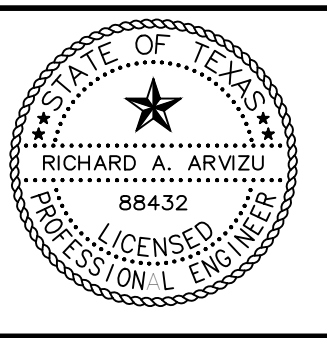
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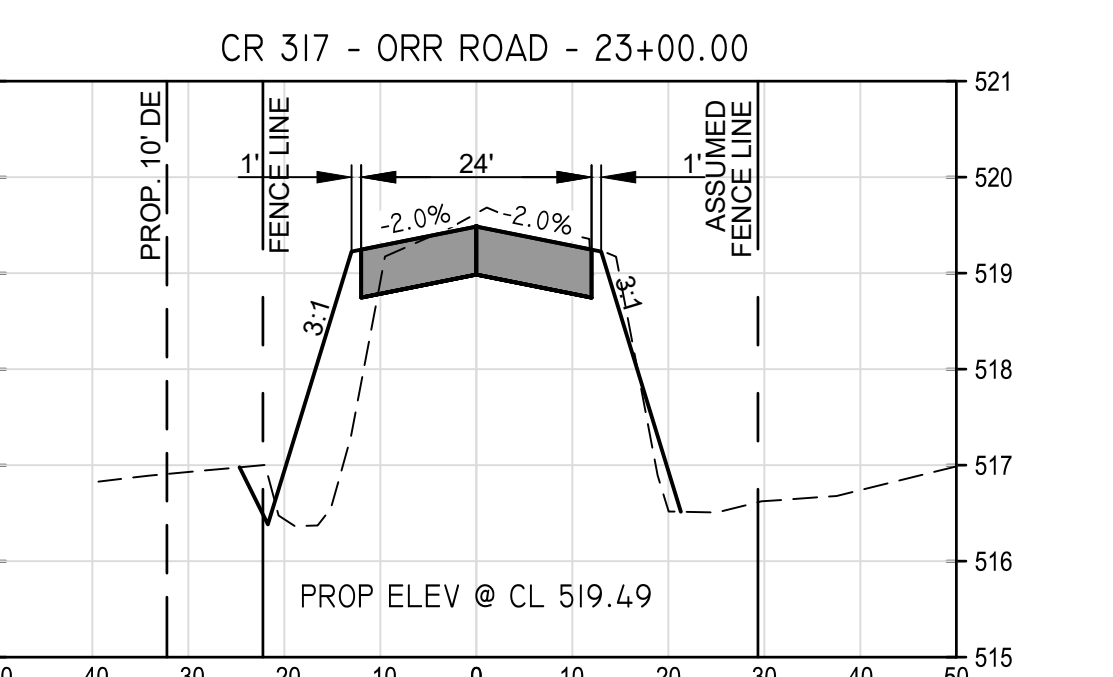
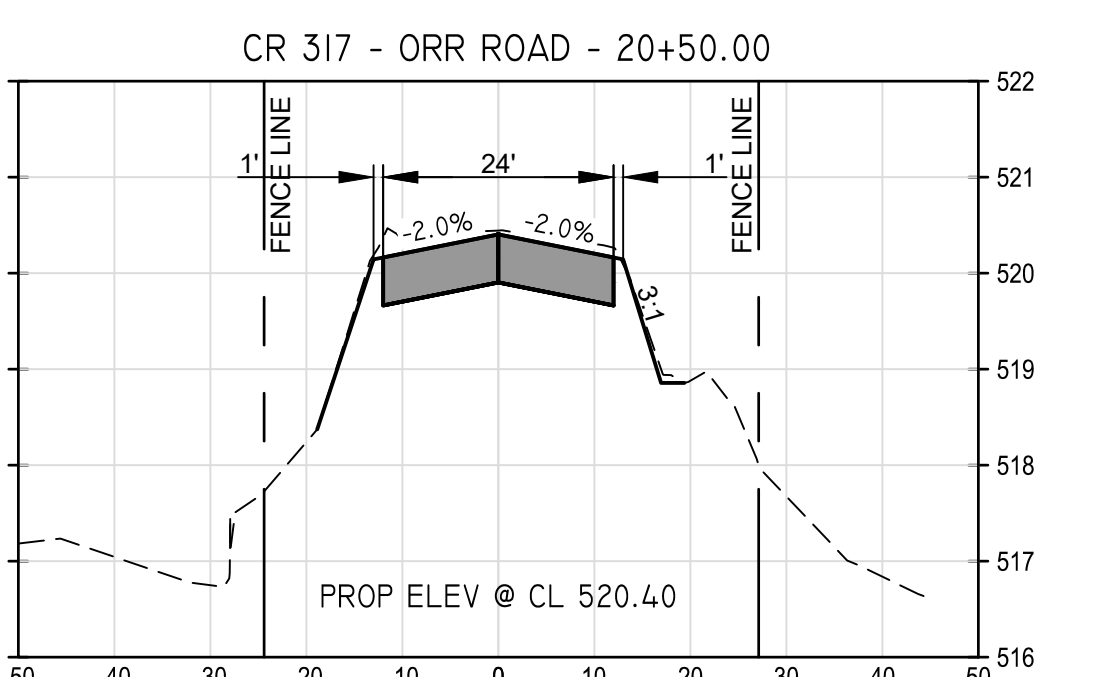
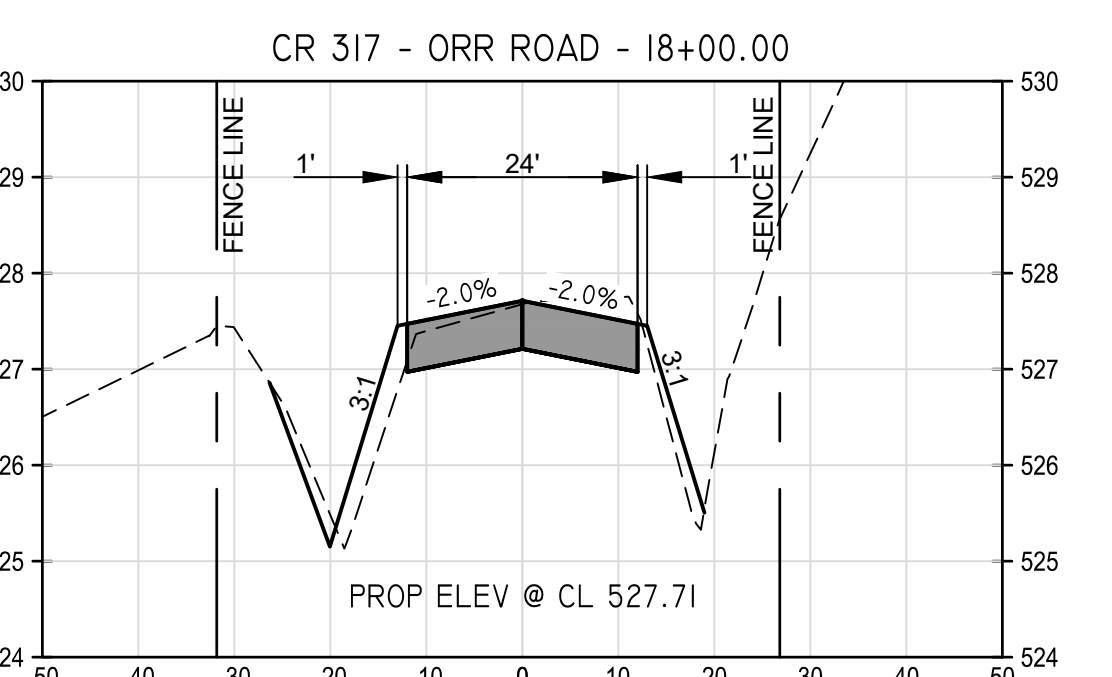
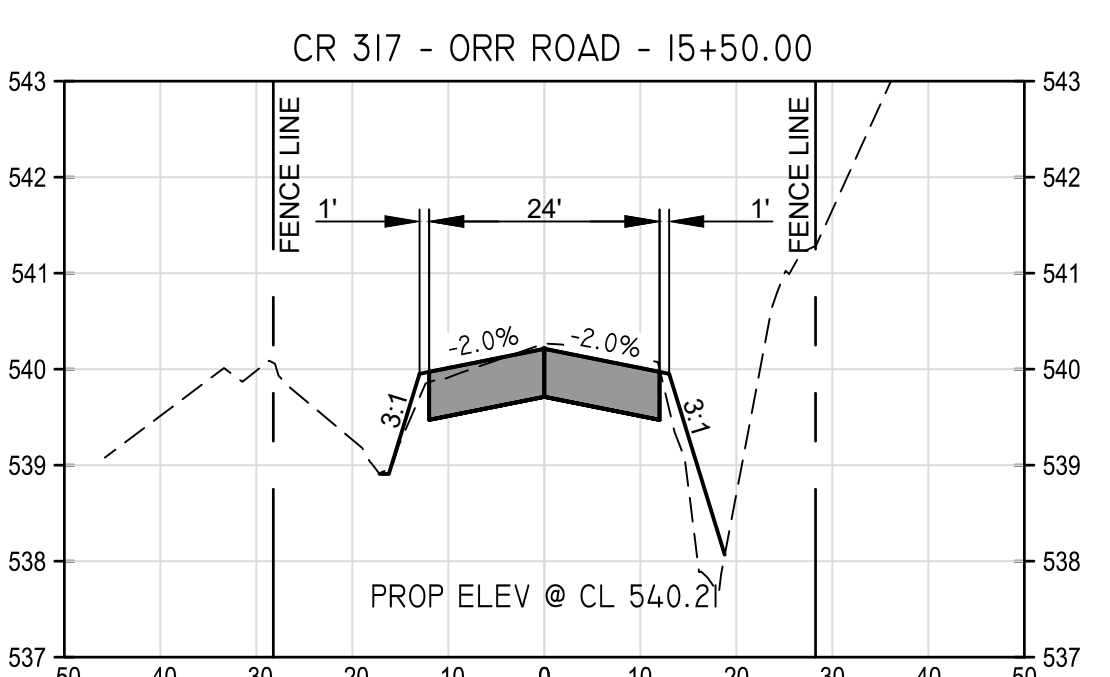
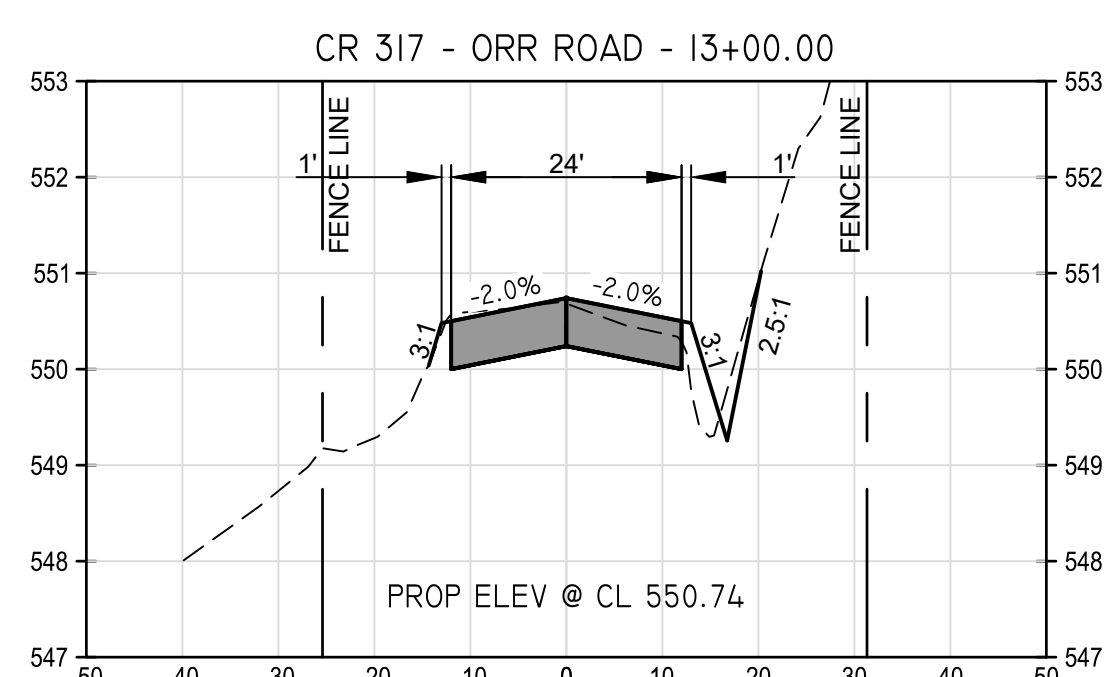
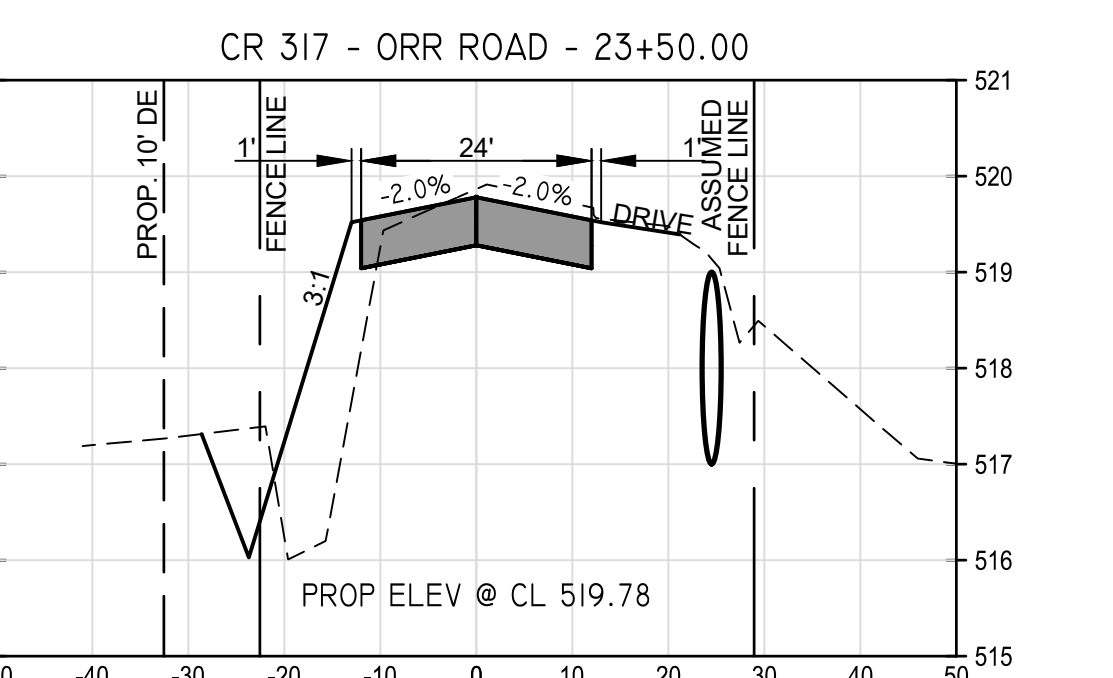
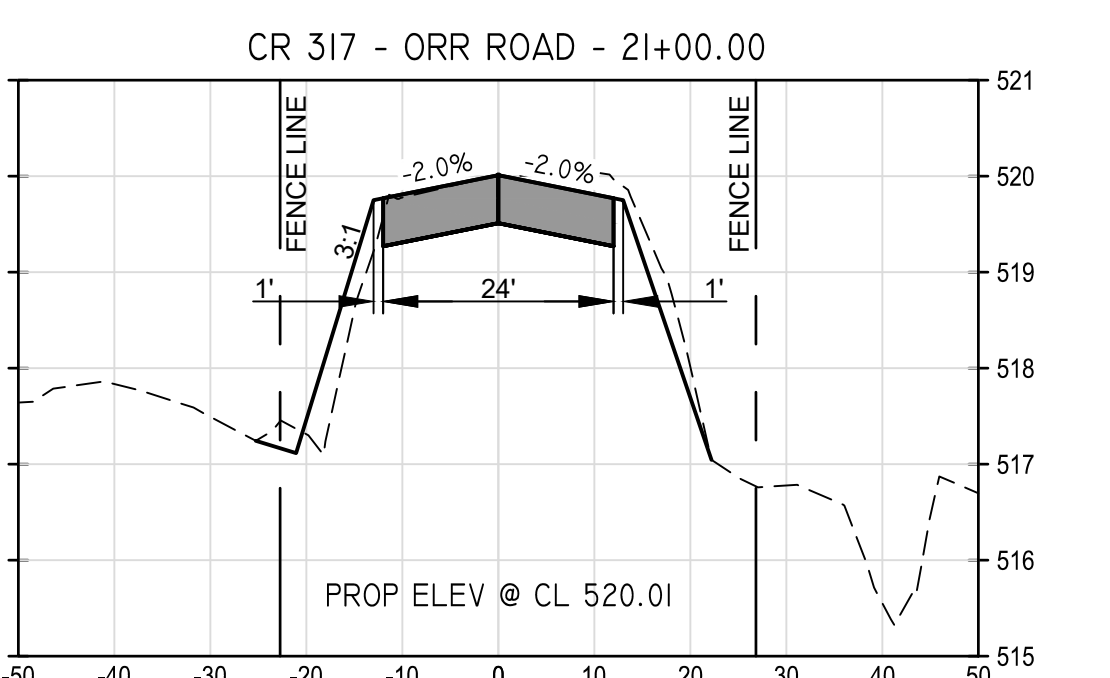
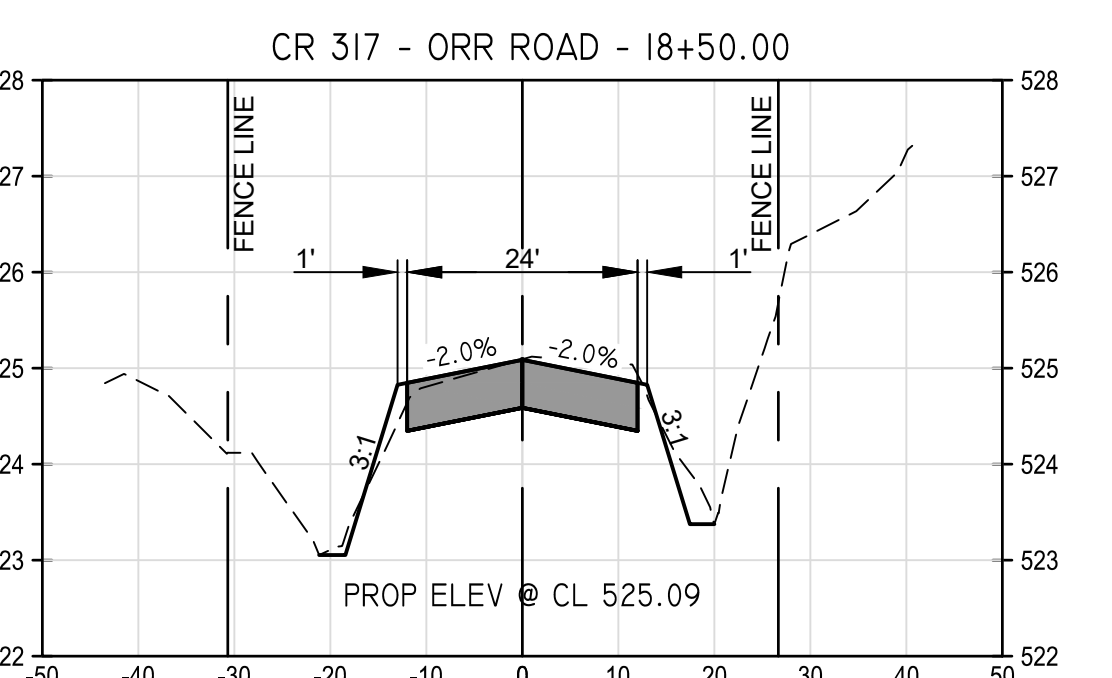
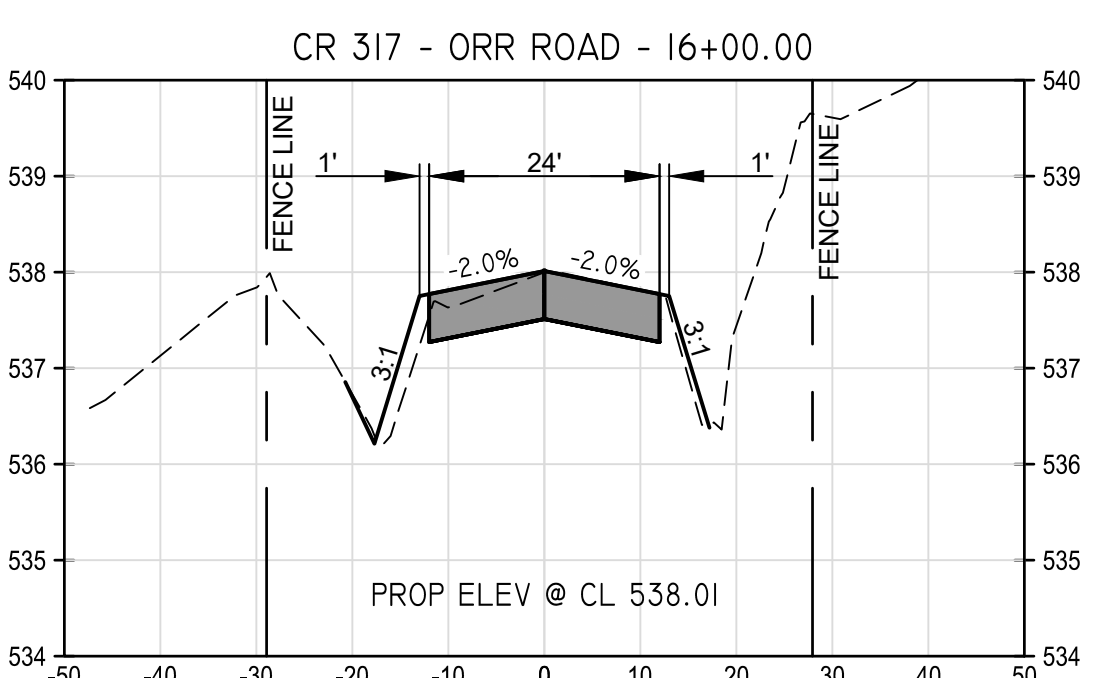
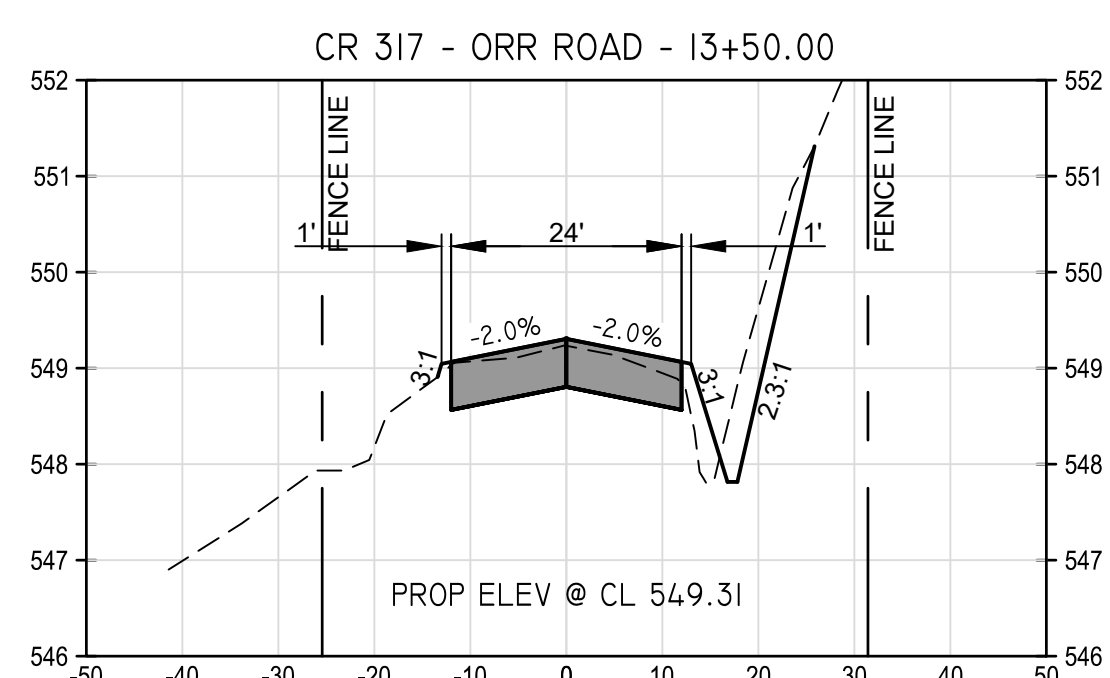
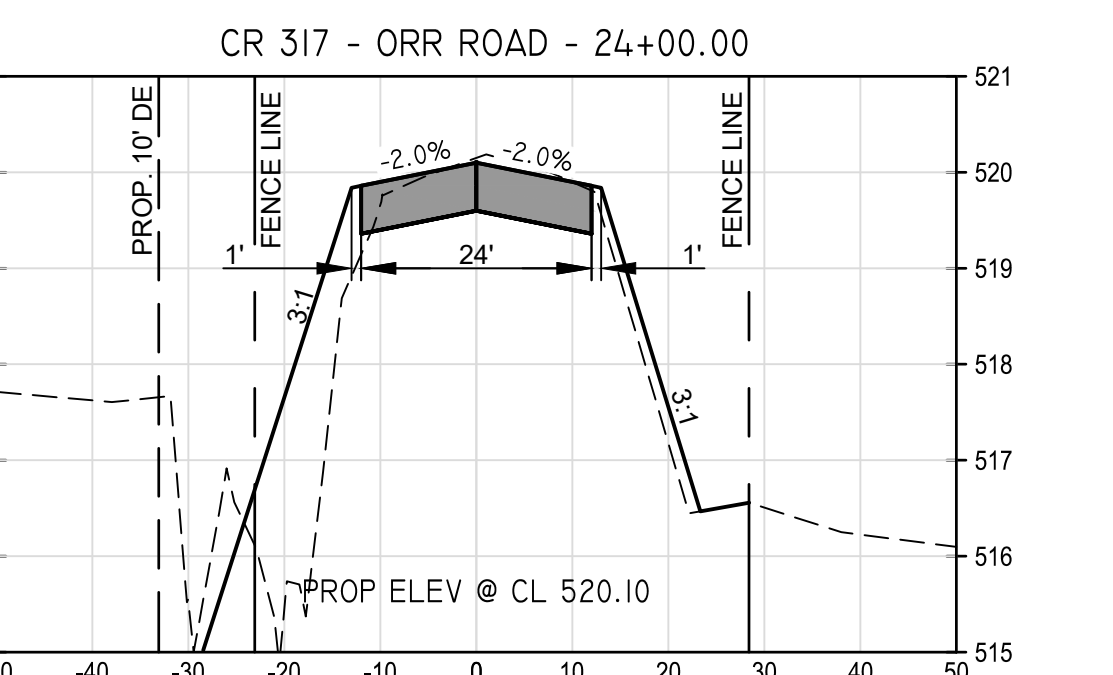
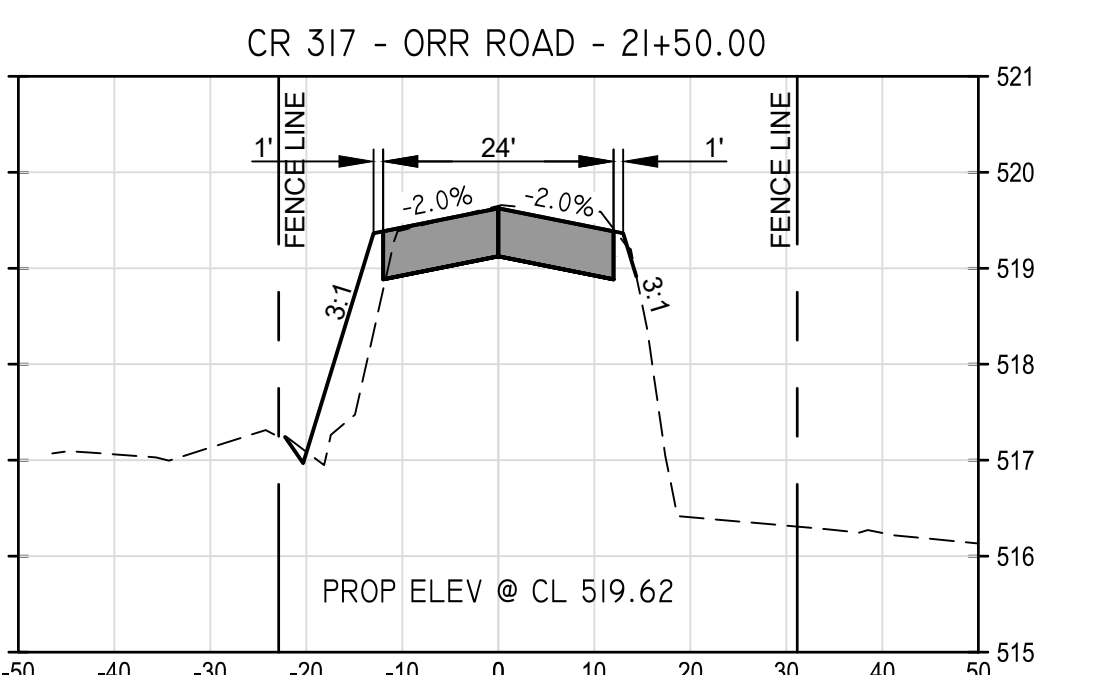
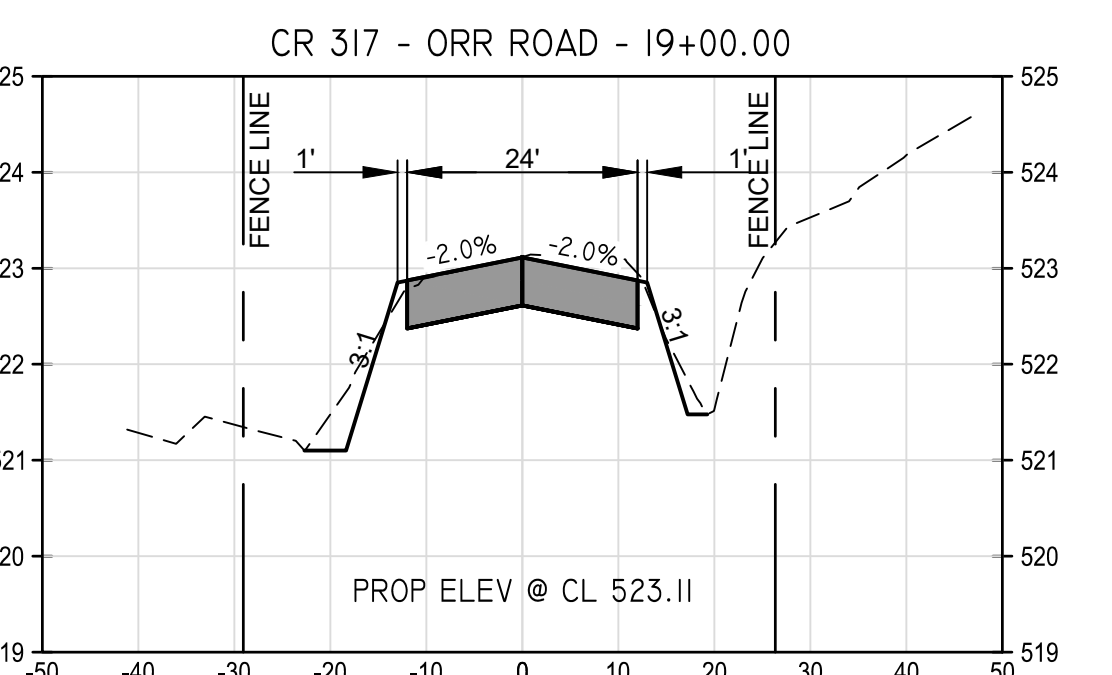
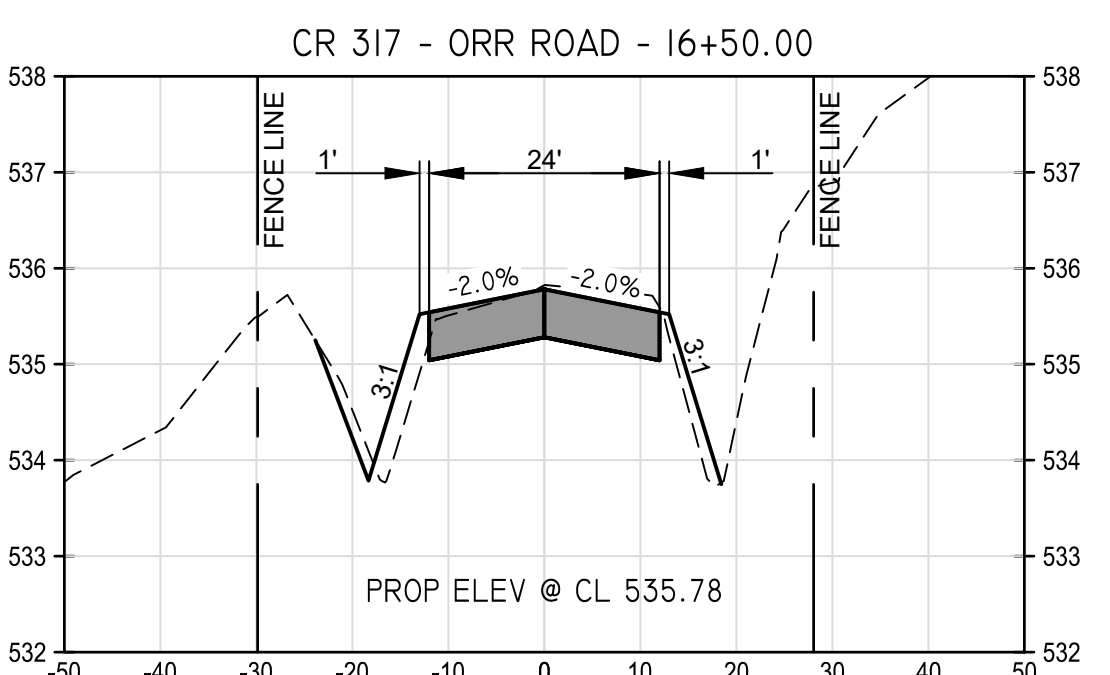
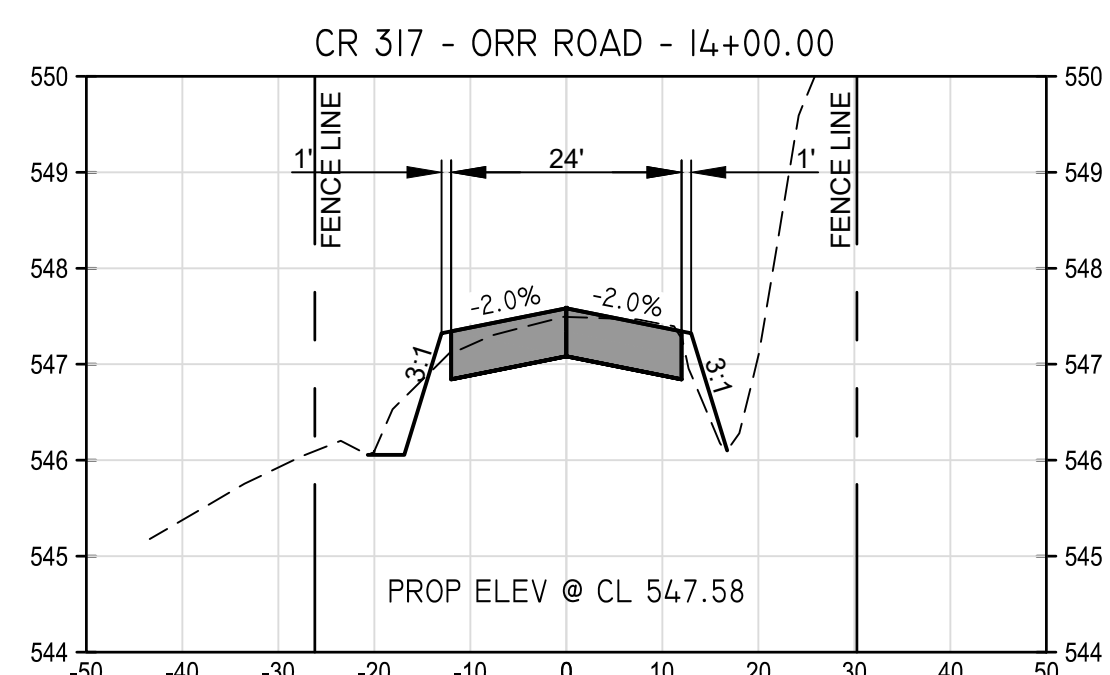
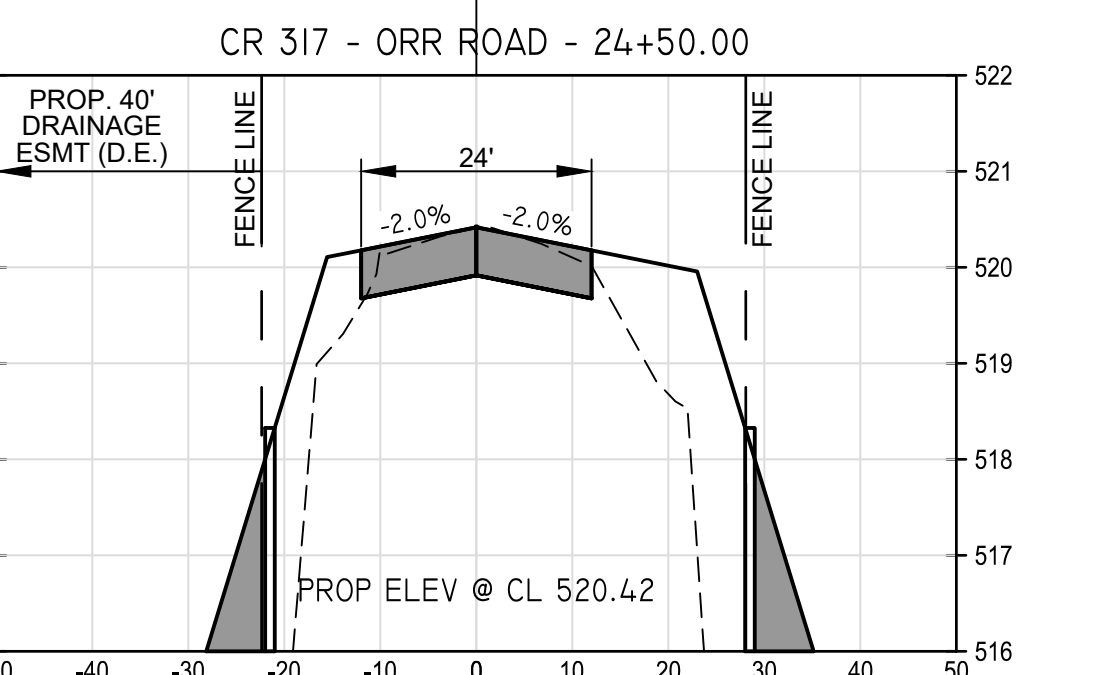
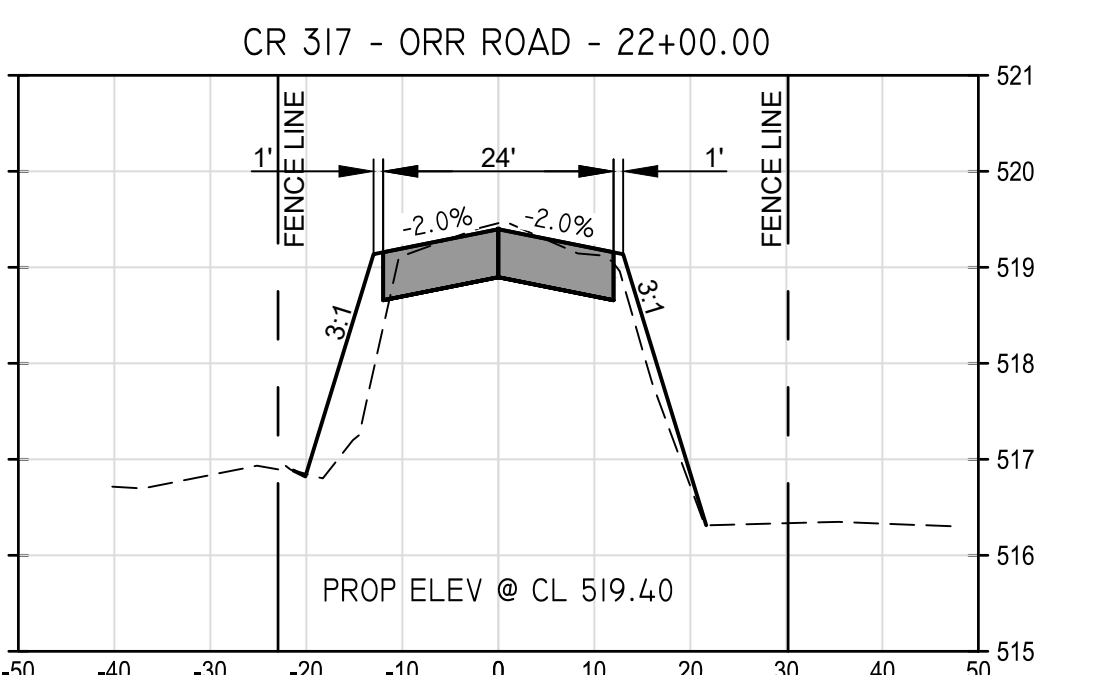
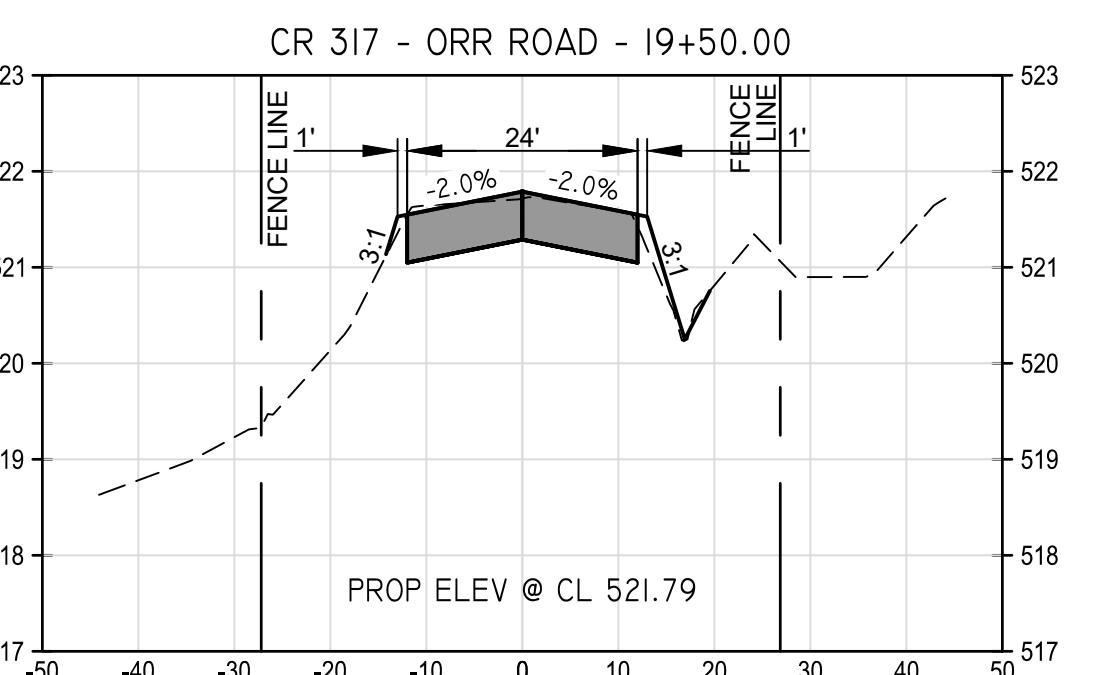
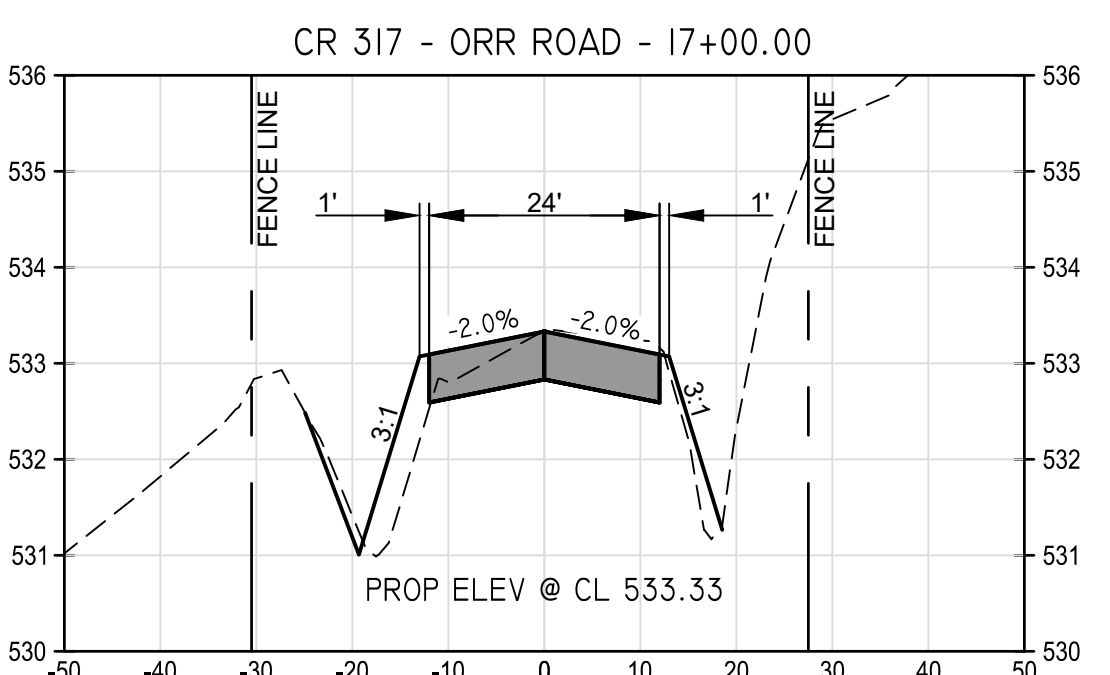
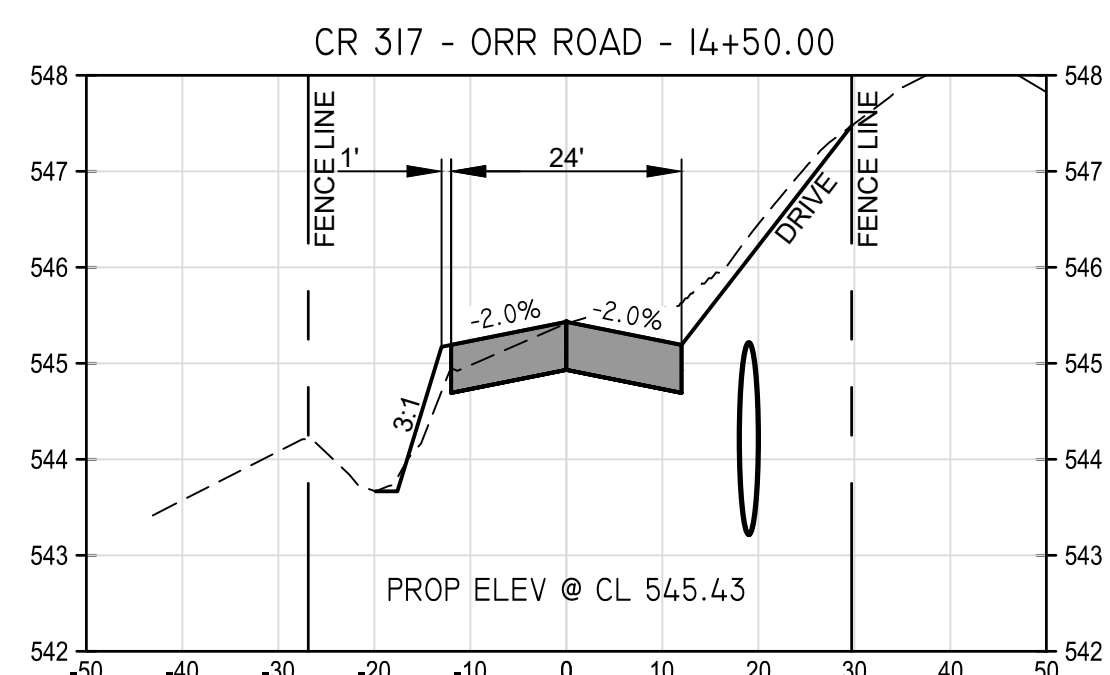
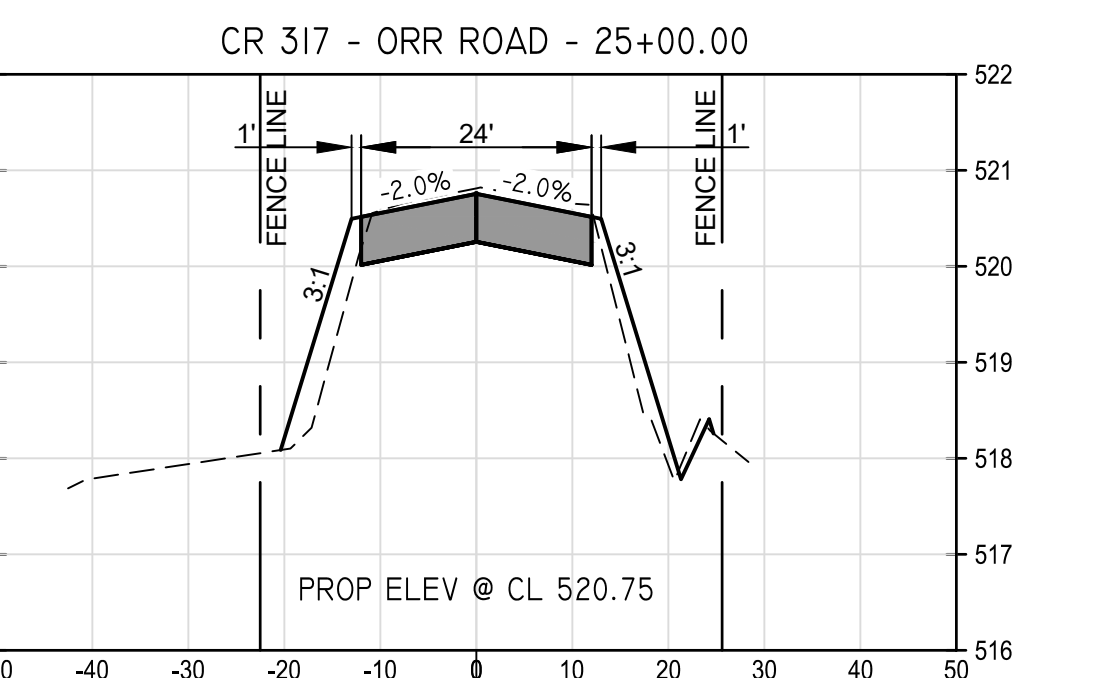
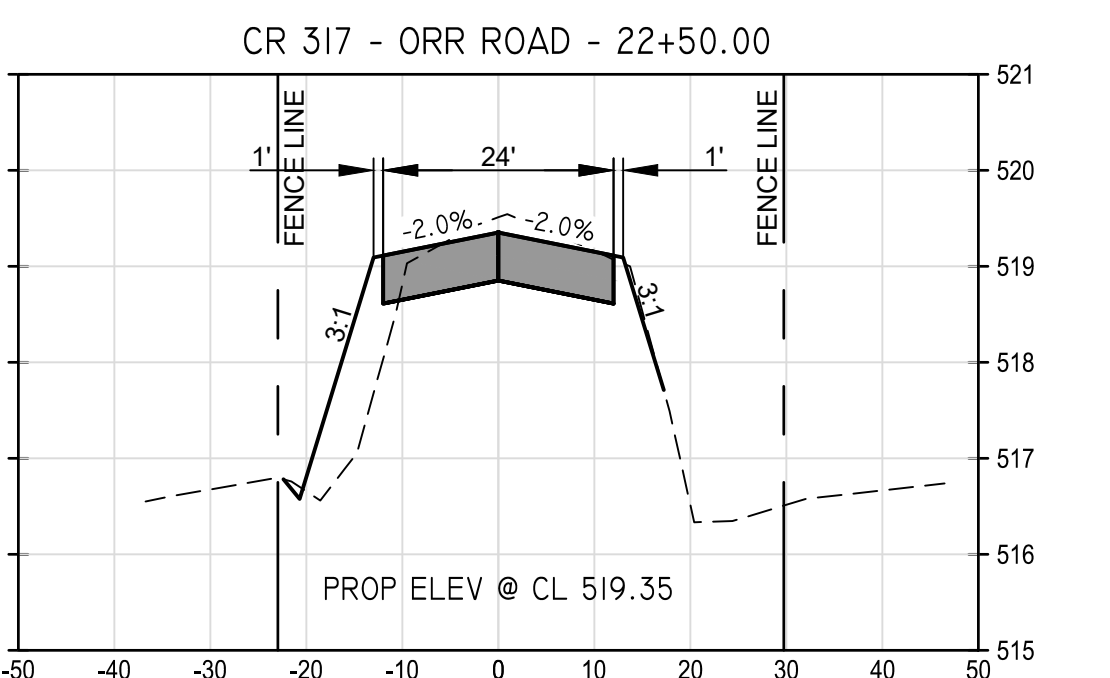
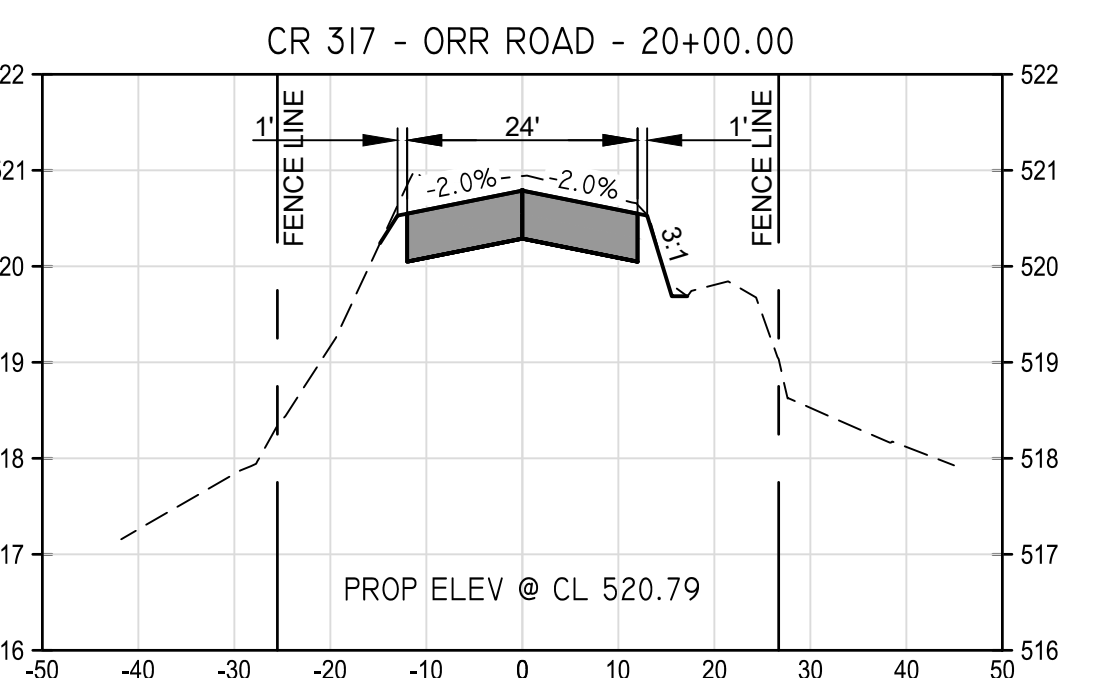
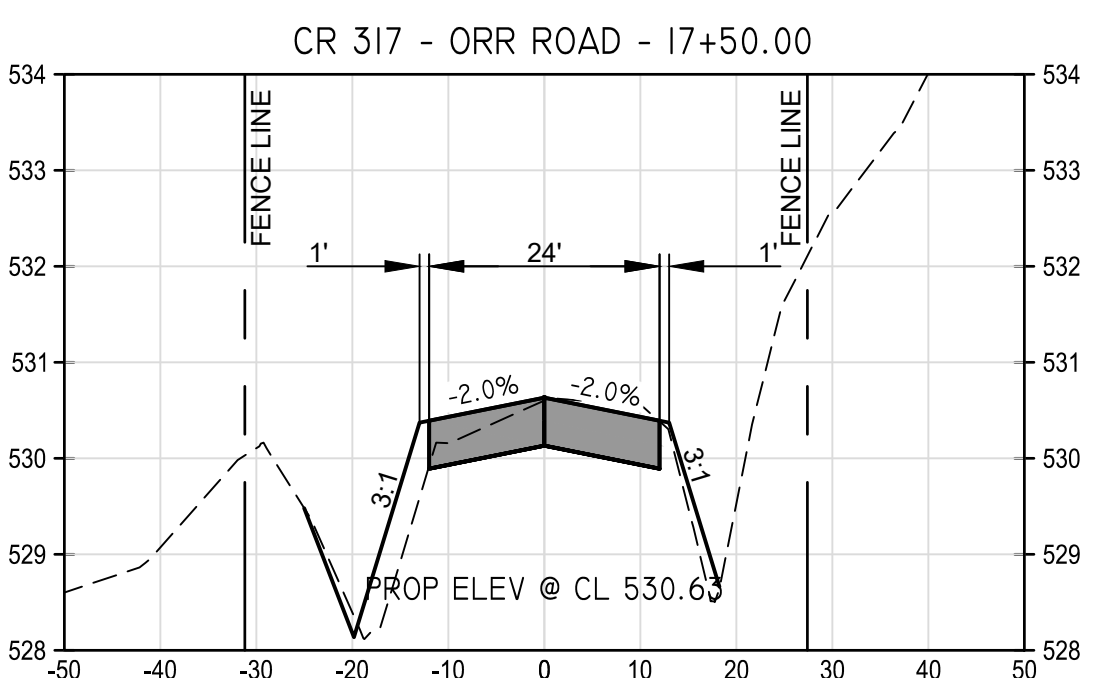
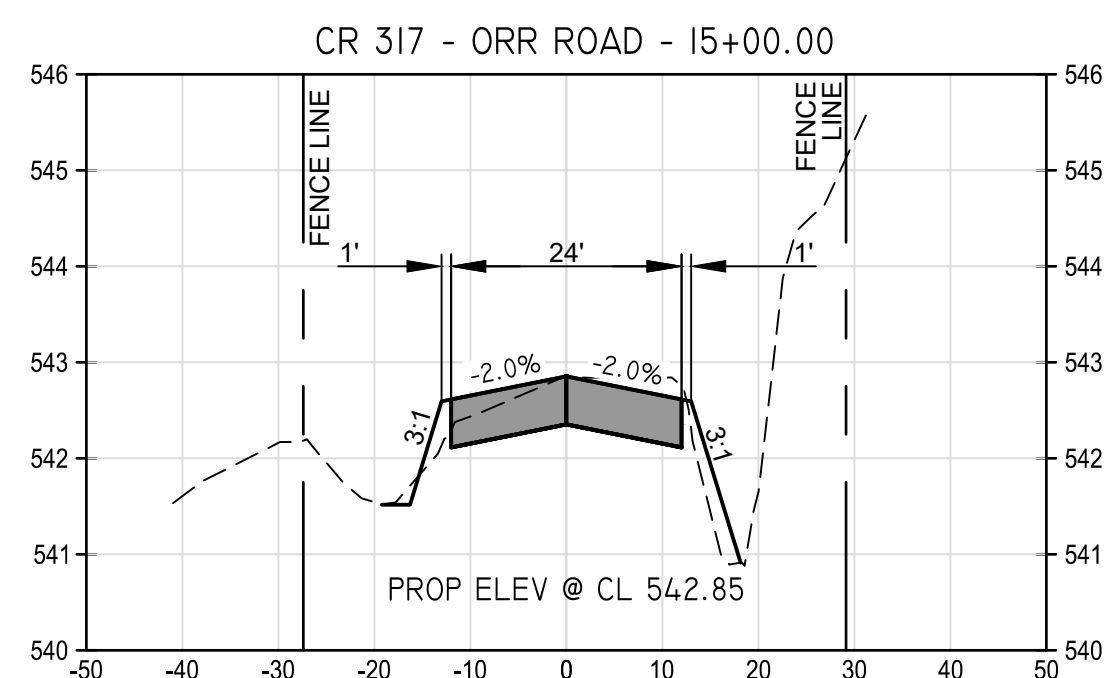


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CR 317 (ORR ROAD) COLLIN COUNTY COUNTY ROAD 317 (ORR ROAD) CROSS SECTIONS STA 0+00 TO STA 12+50		
Scale:	Date:	Job No.:
1"=20' H 1"=2' V	Nov 18, 2020	BB19006
		X-1

N:\BBI9006 (Collin County) Reconstruction of Orr Road\05 CAD Files\PAVE - CR 317-ORR Road\dwg-2.dwg - 2, Plotted Nov 18, 2020 at 7:28am by afrancis | Last Saved by: afrancis



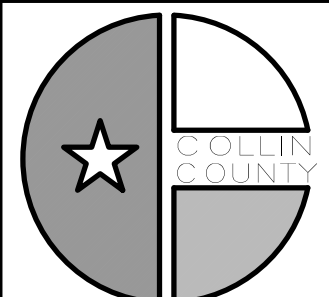
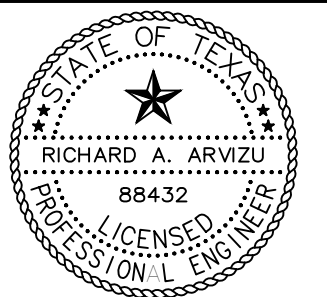
Rev	Description	Date

CAUTION EXISTING UTILITIES !!!

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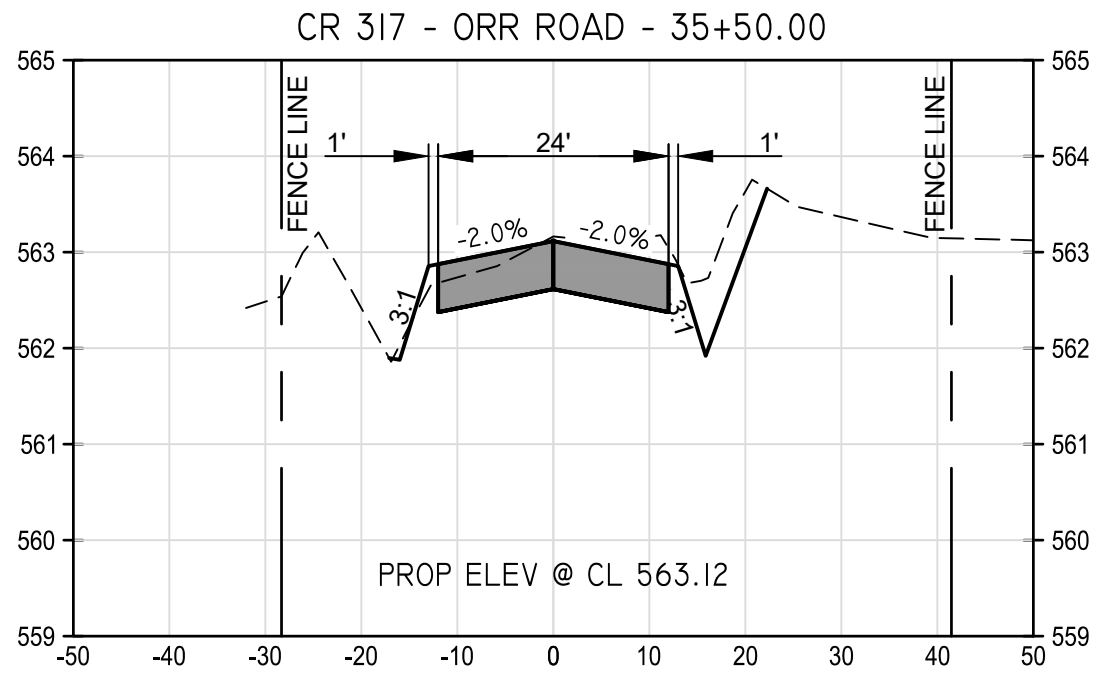
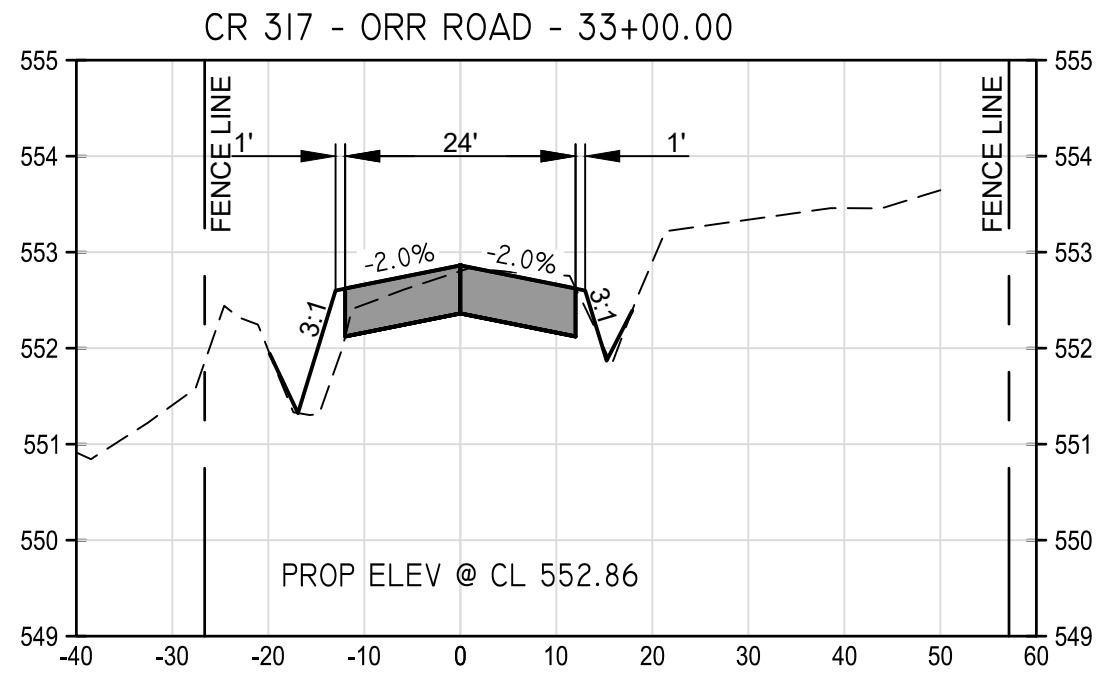
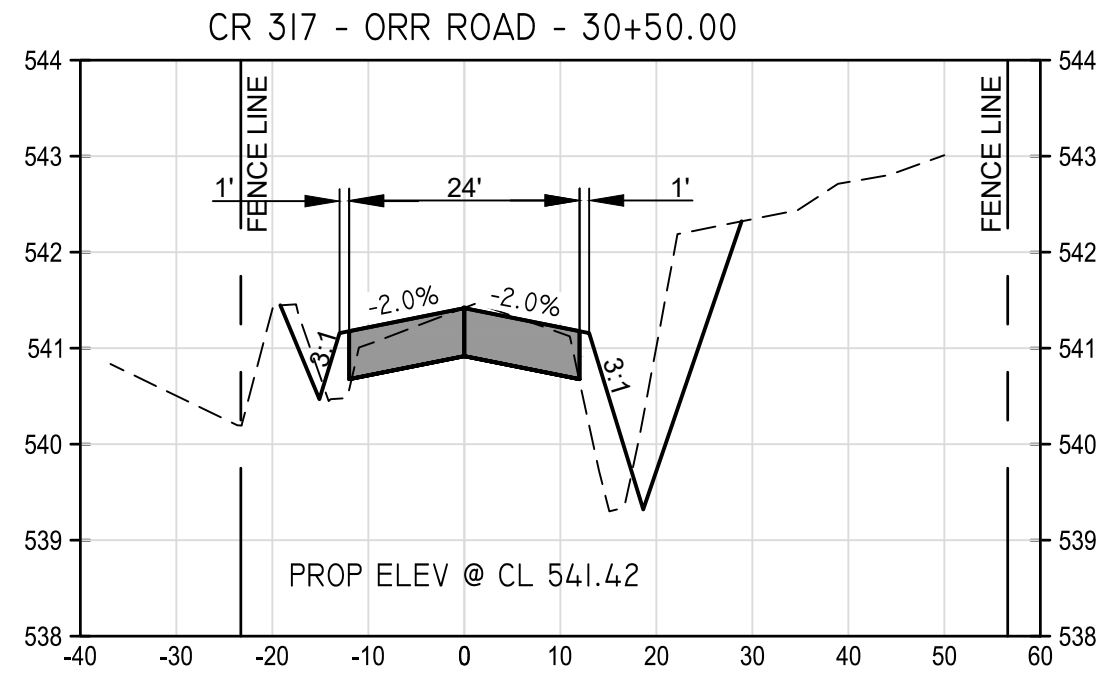
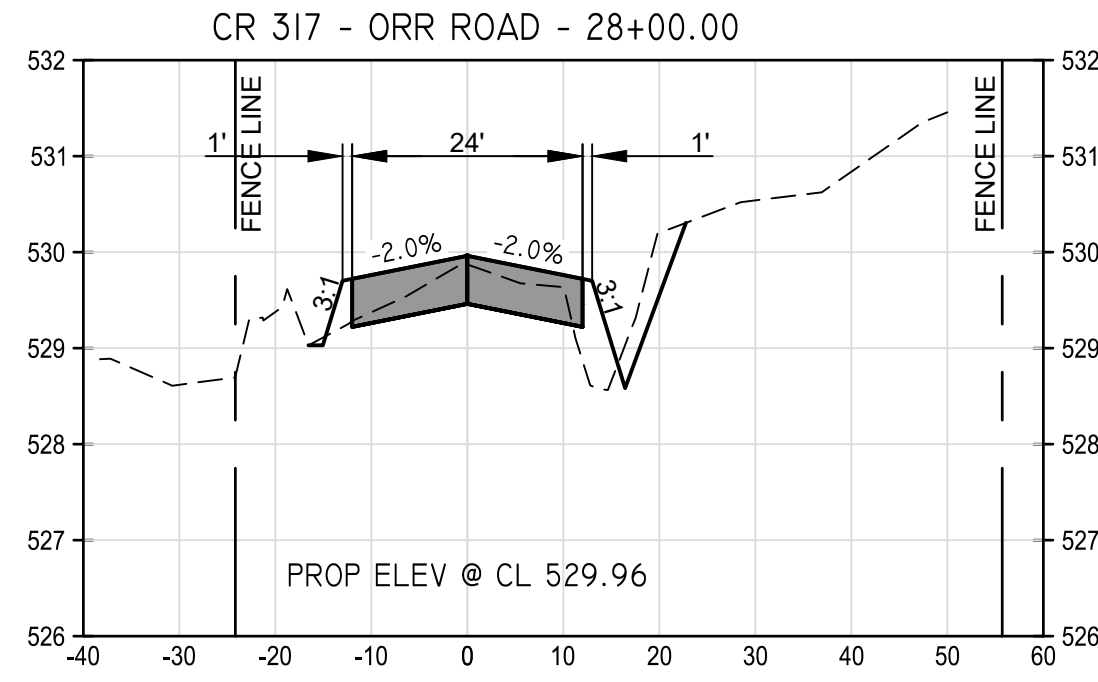
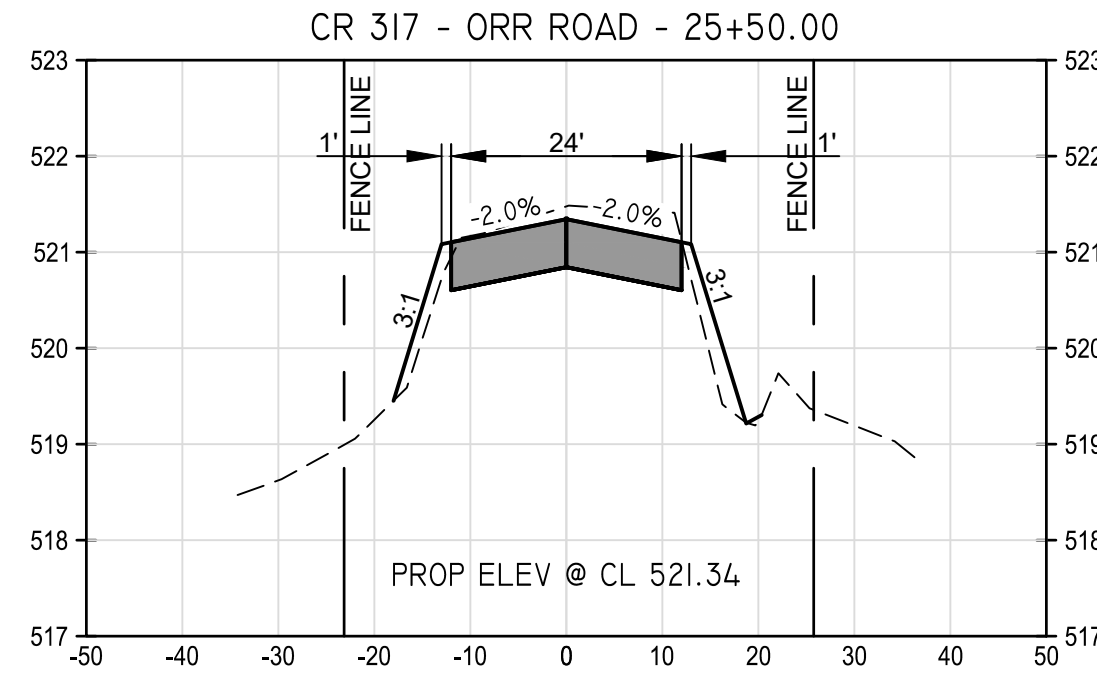
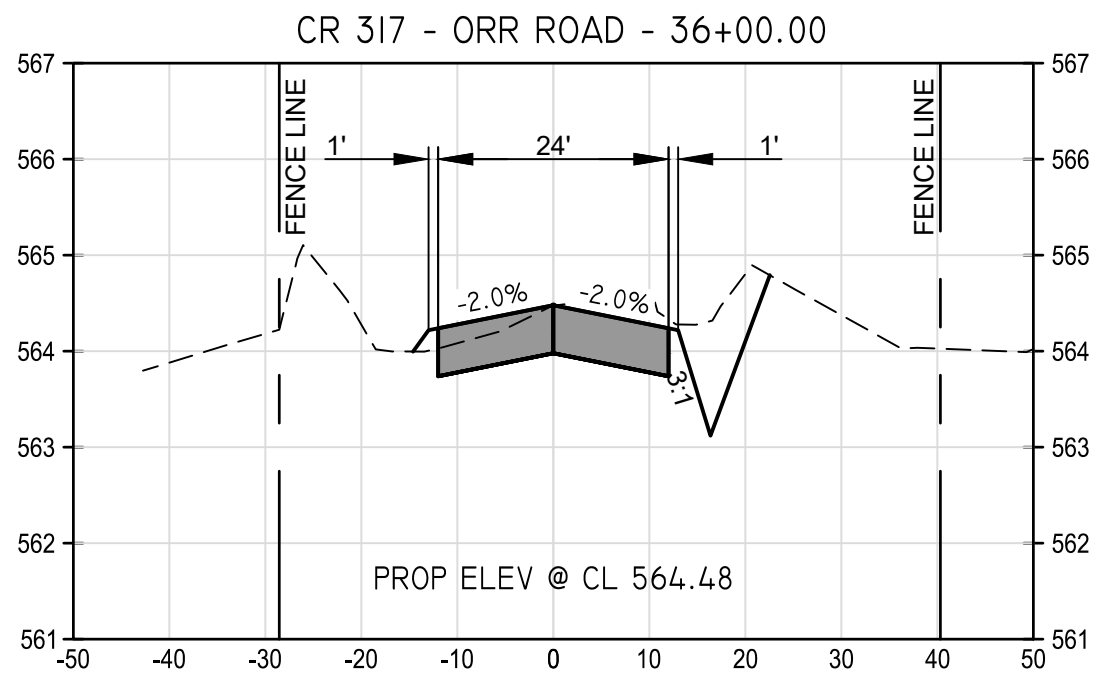
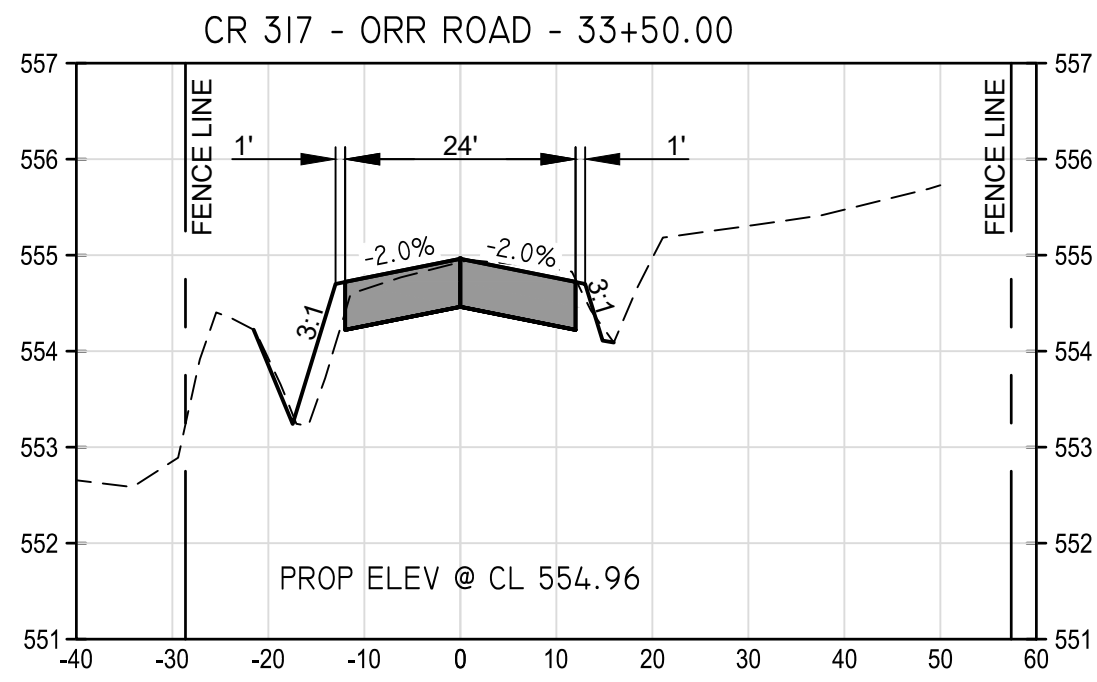
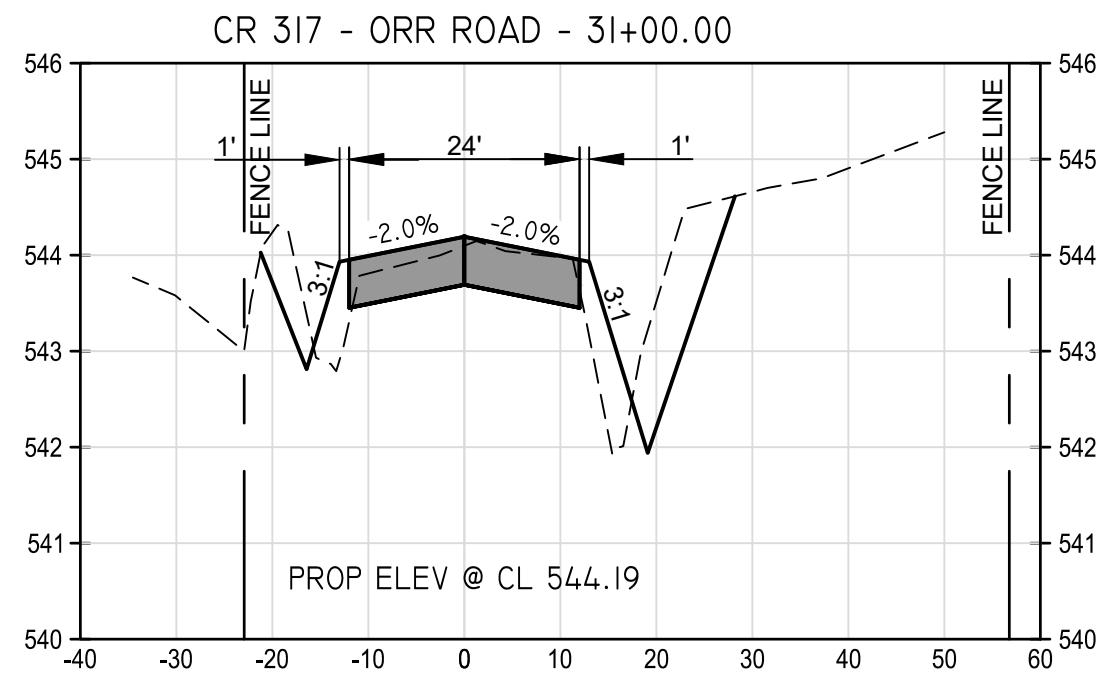
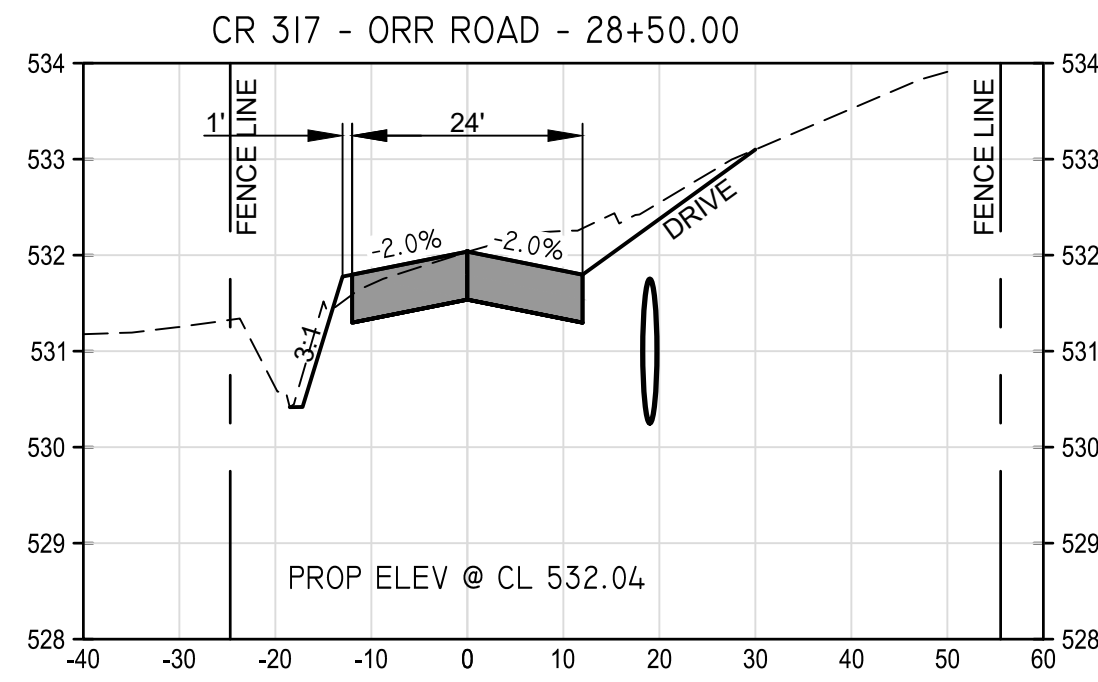
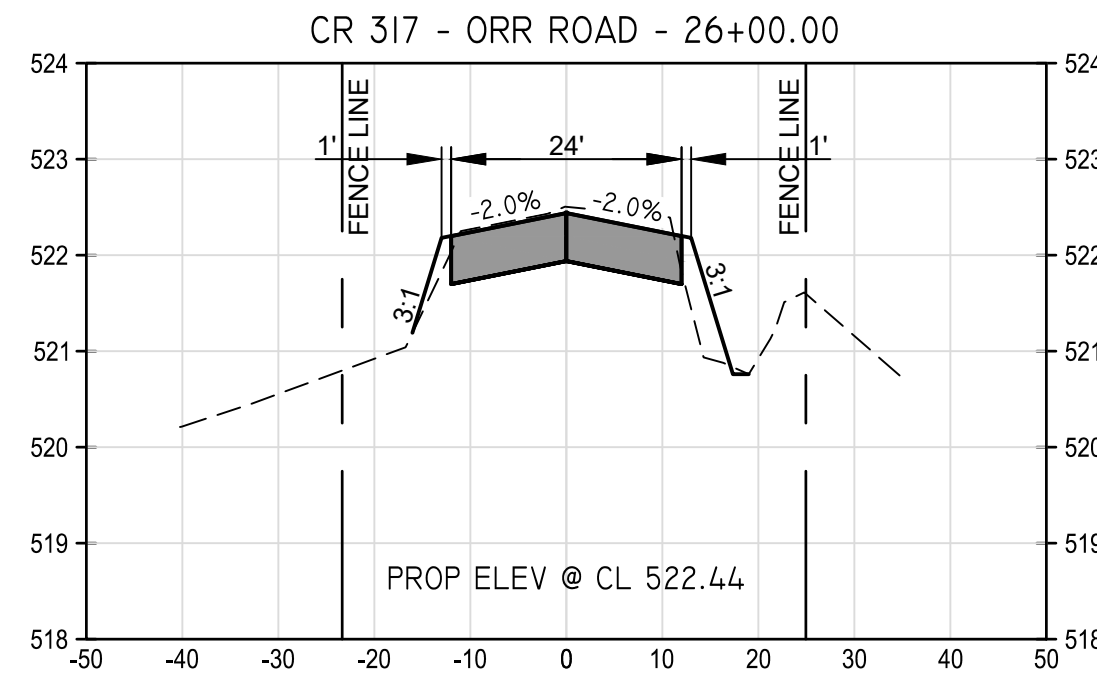
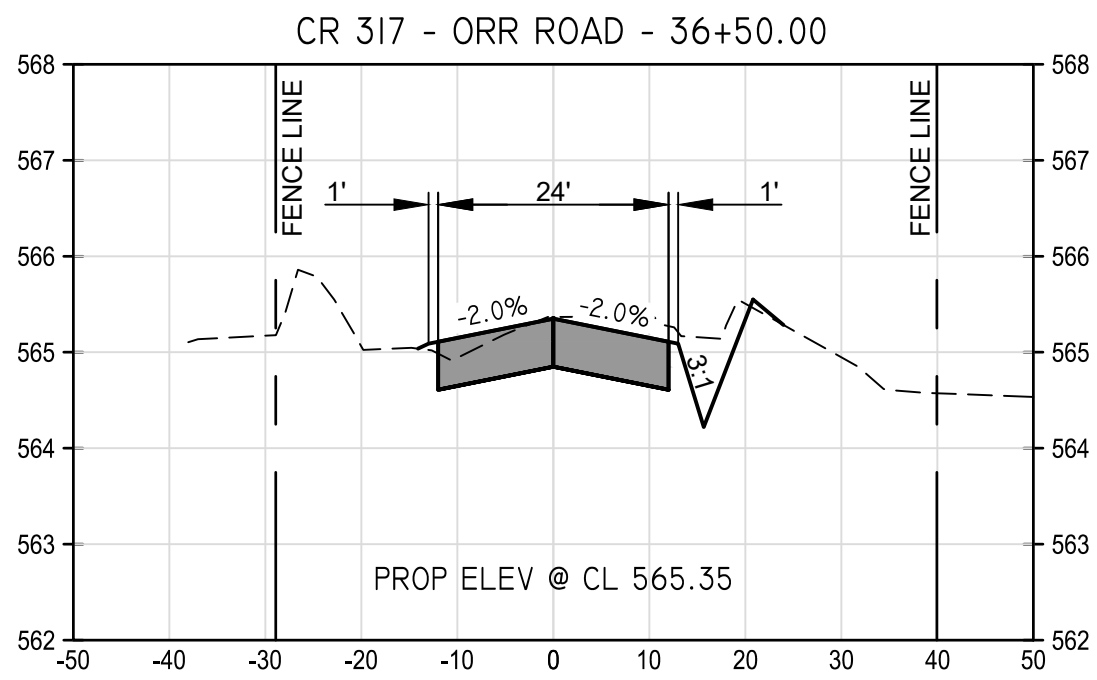
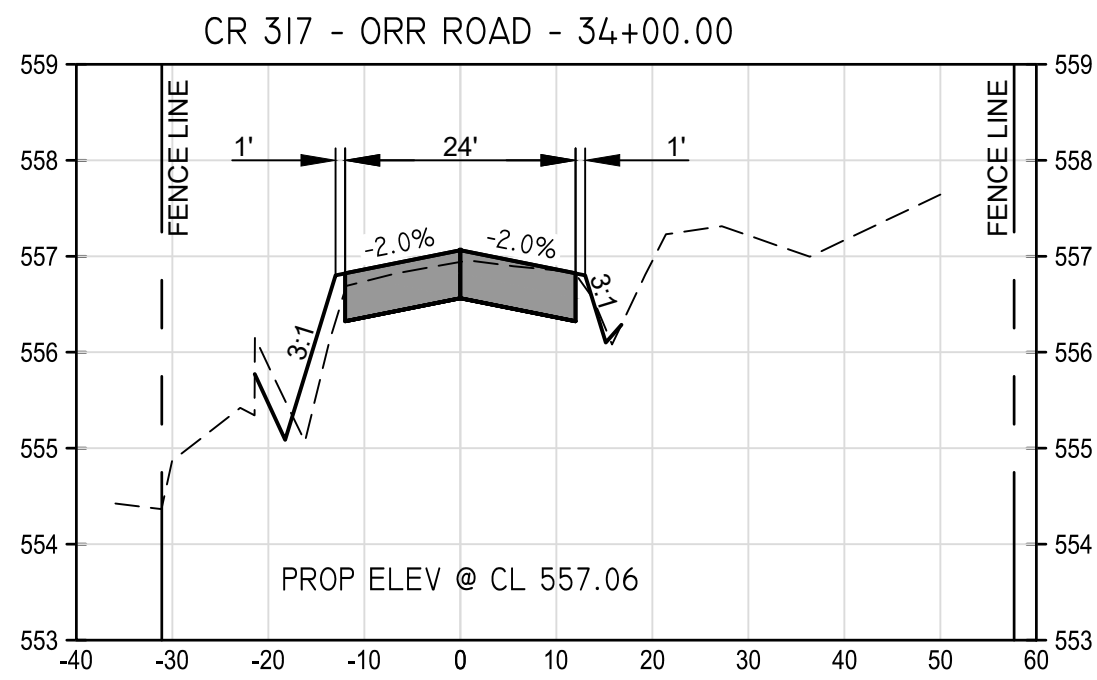
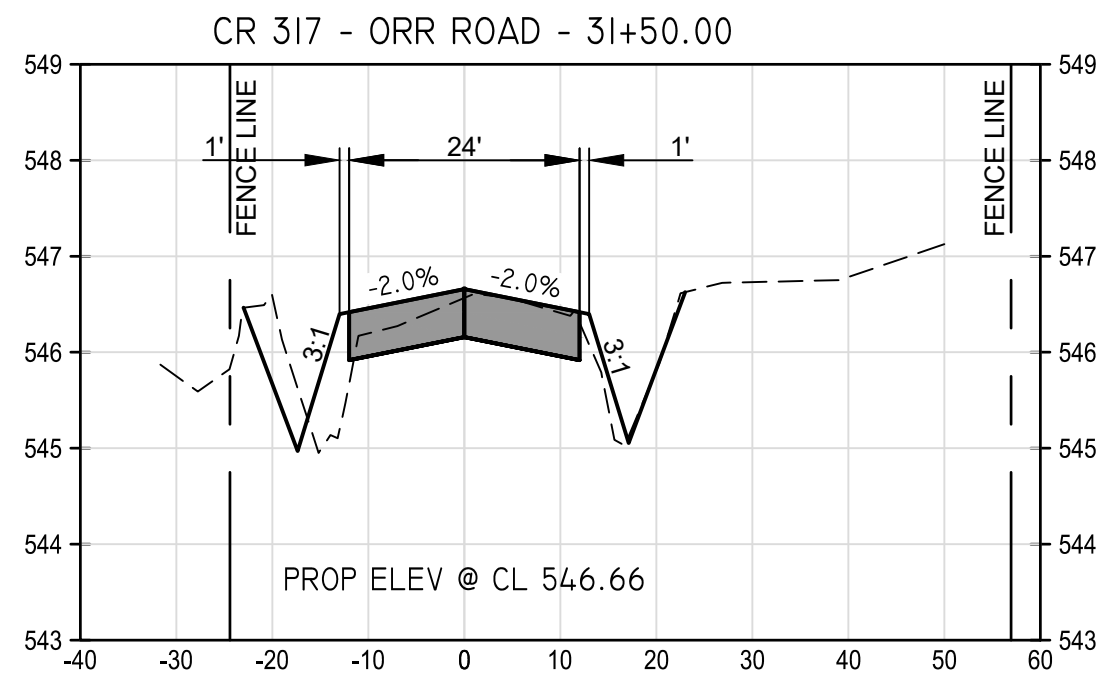
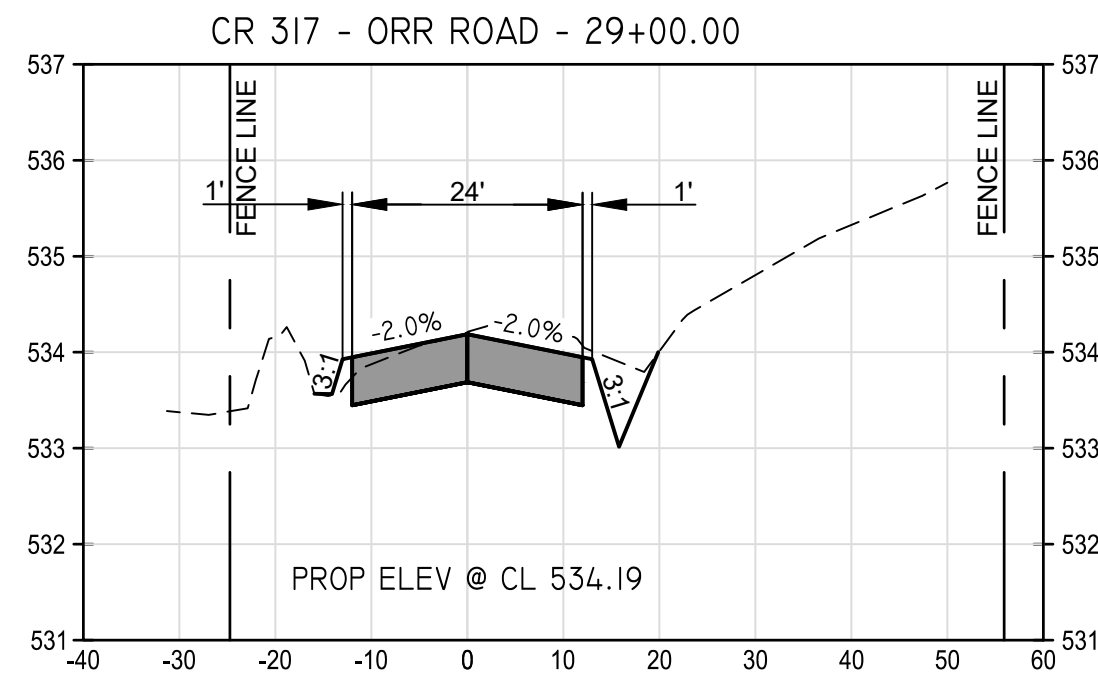
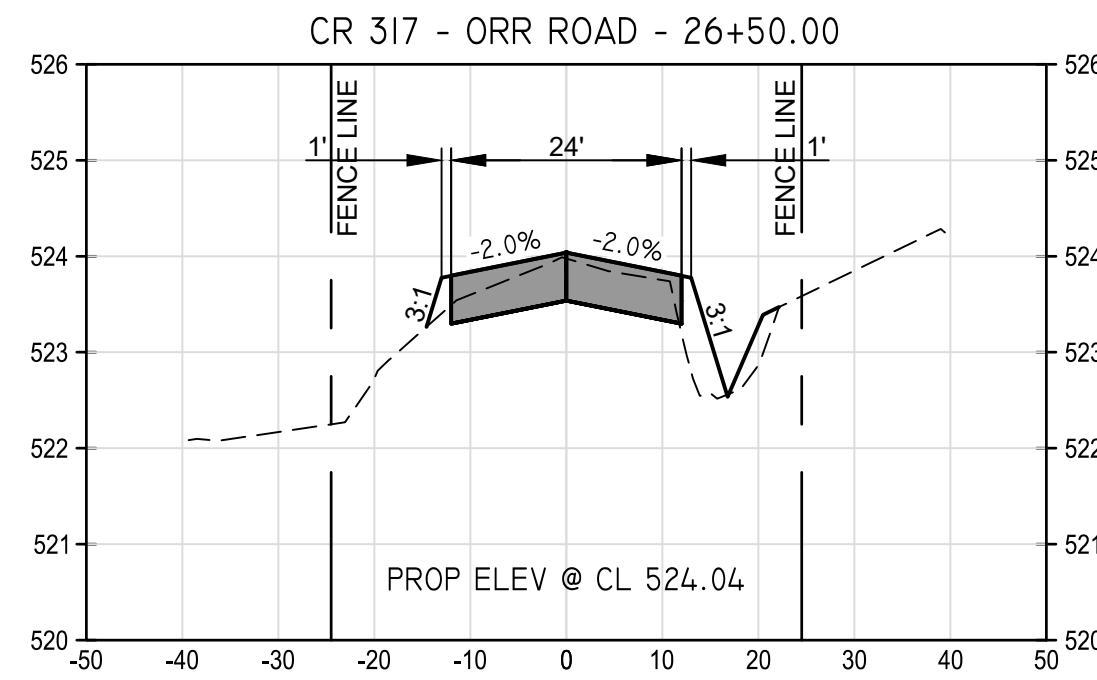
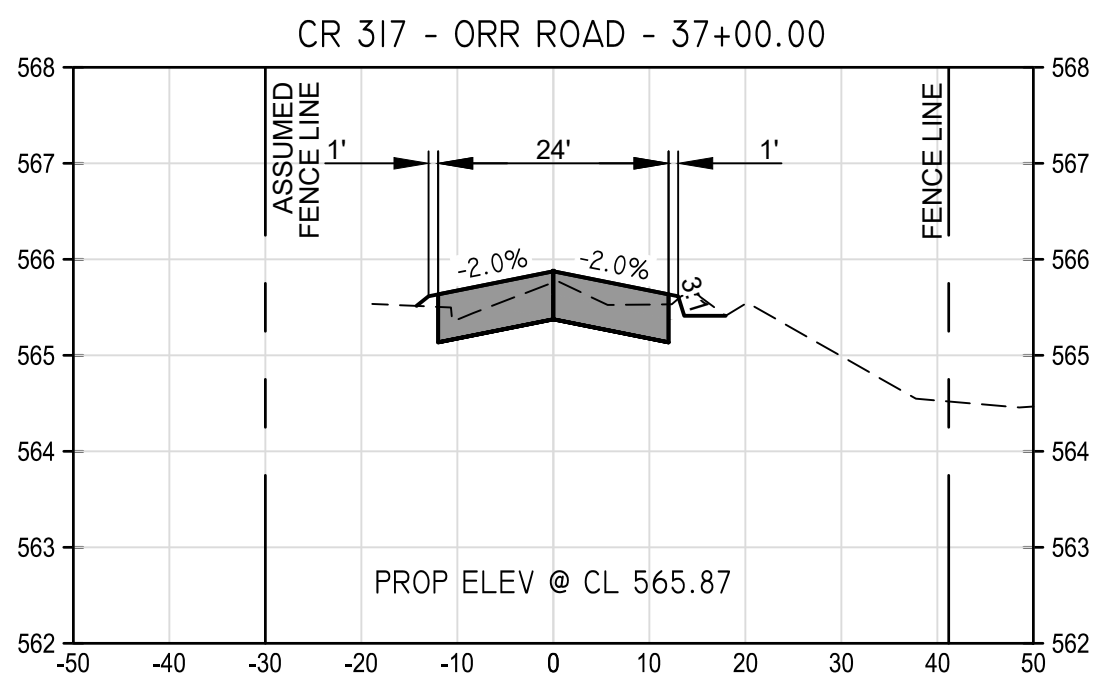
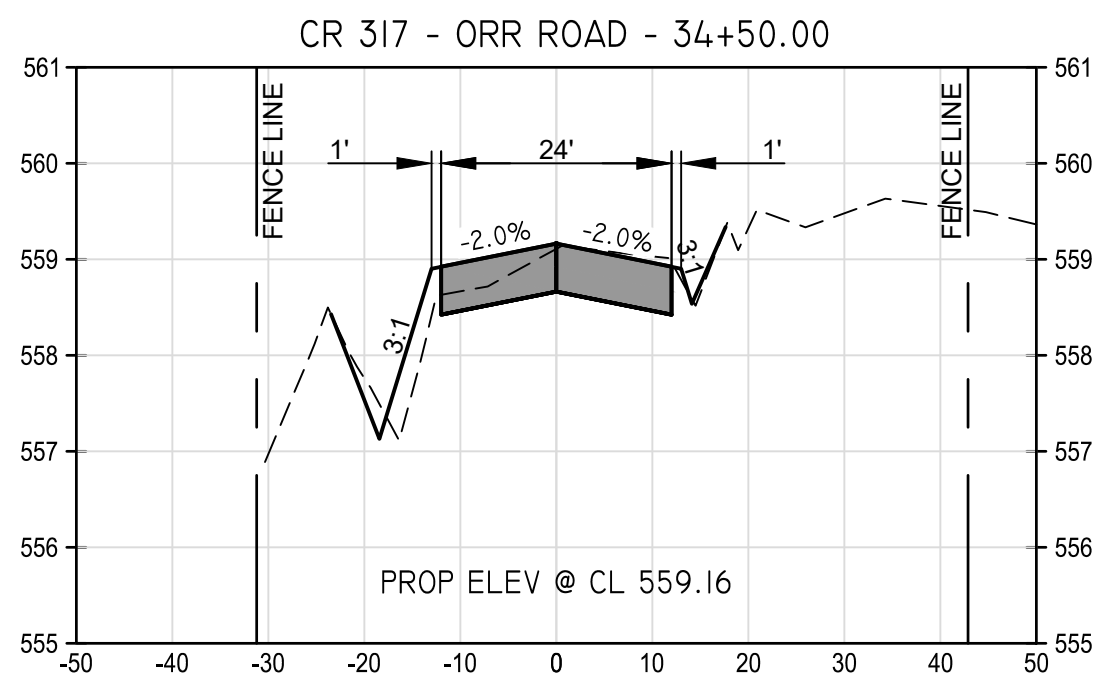
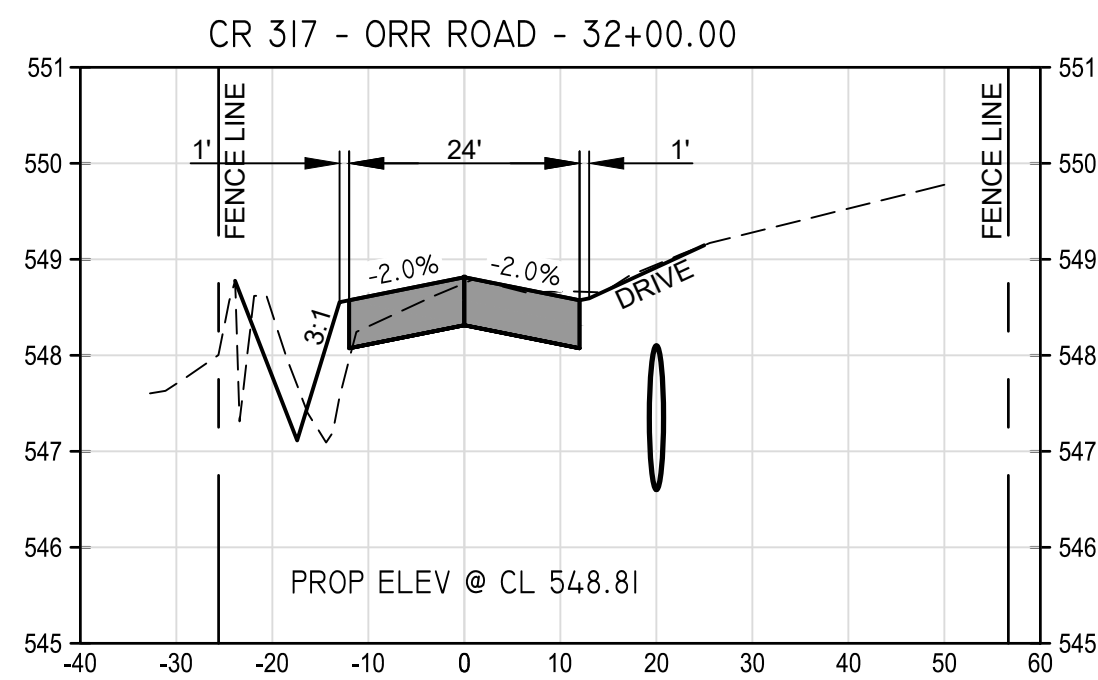
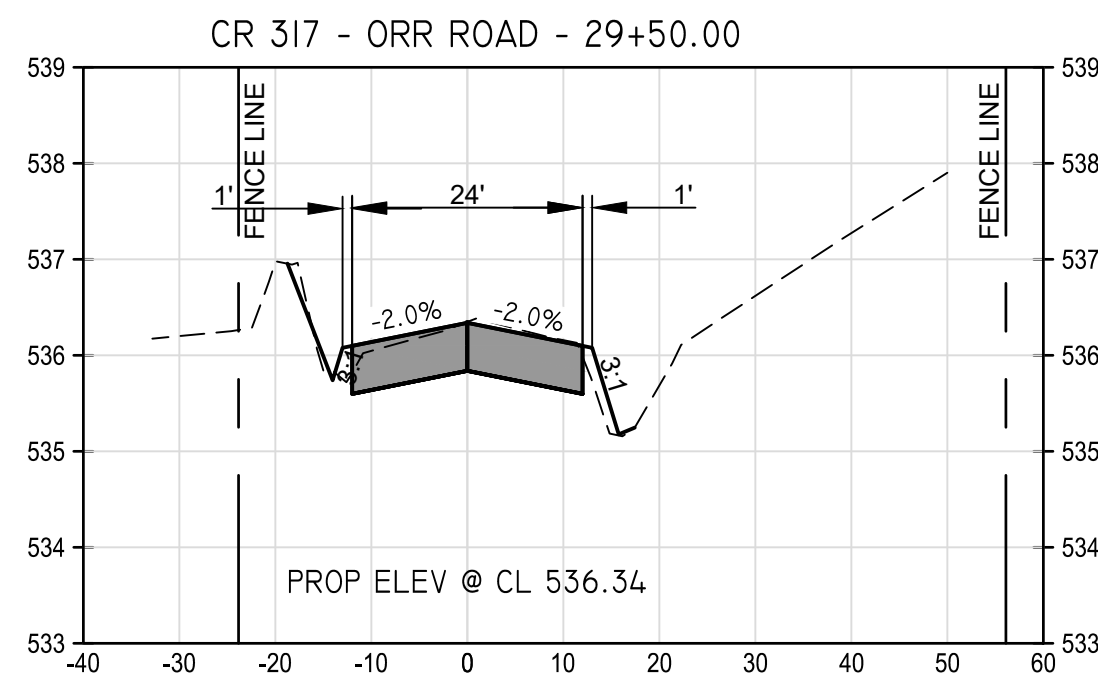
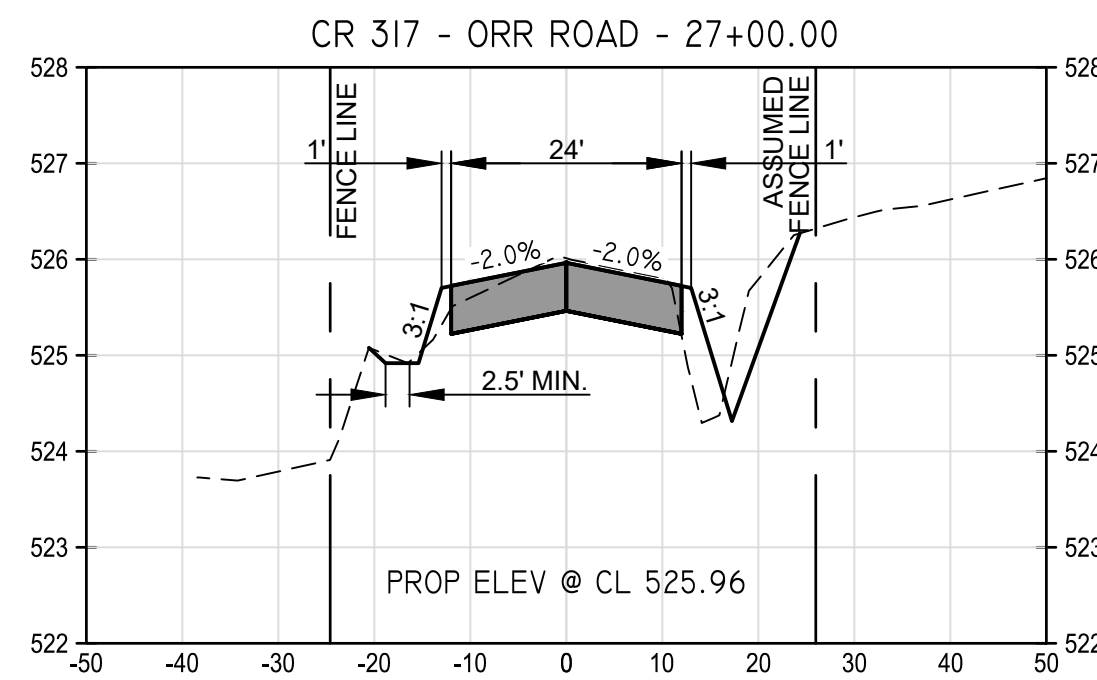
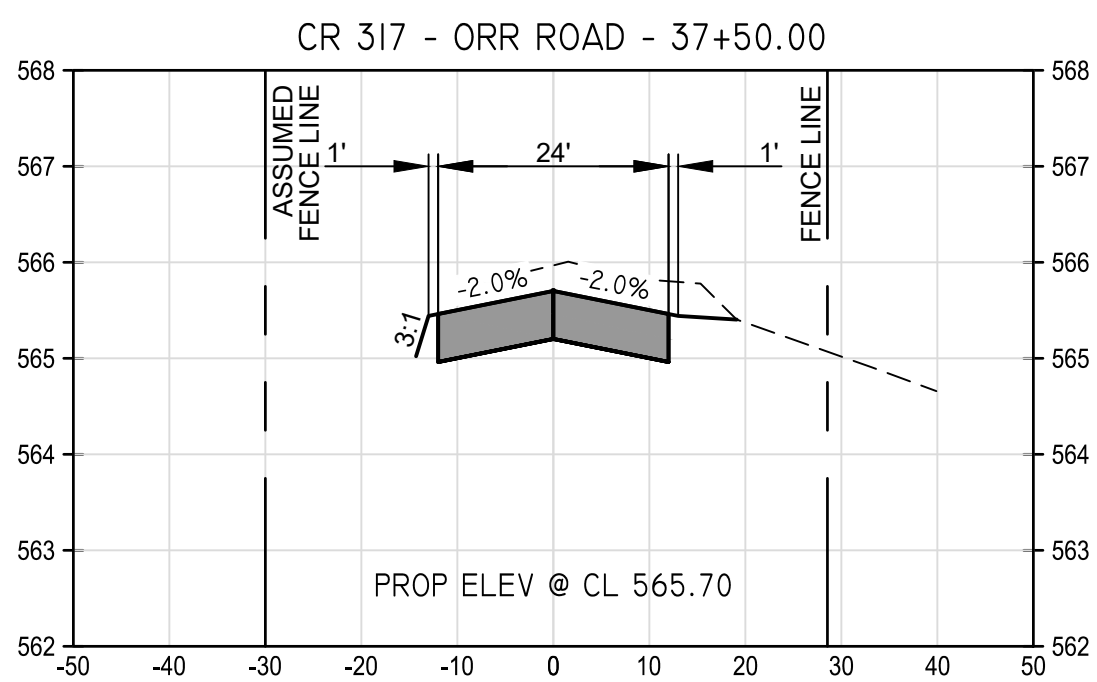
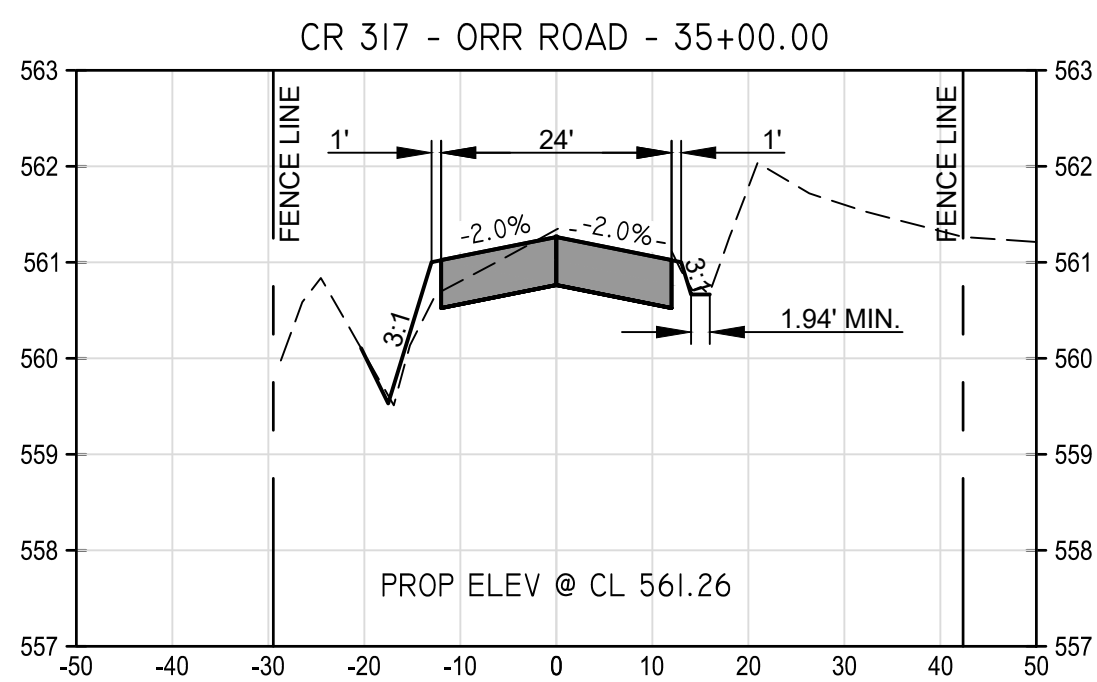
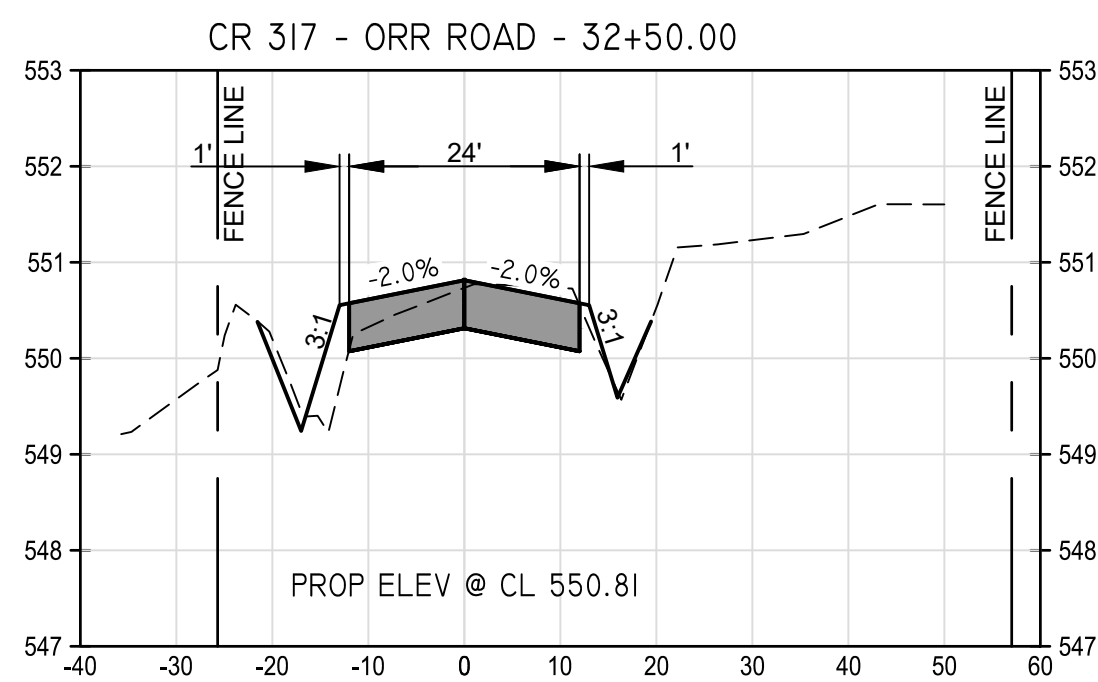
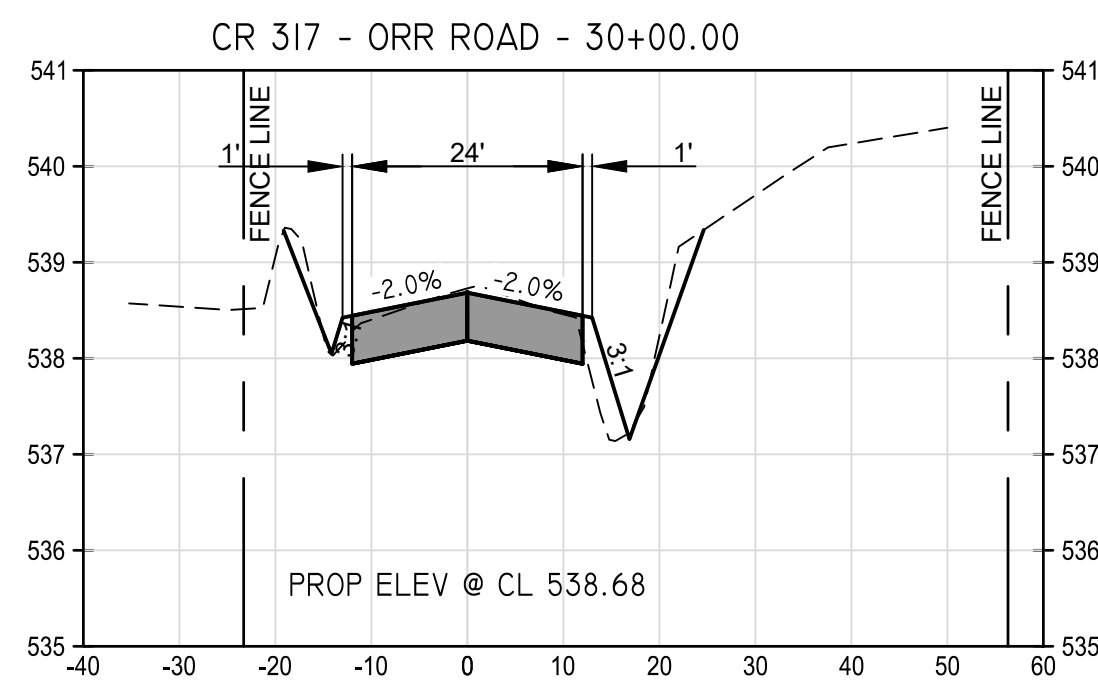
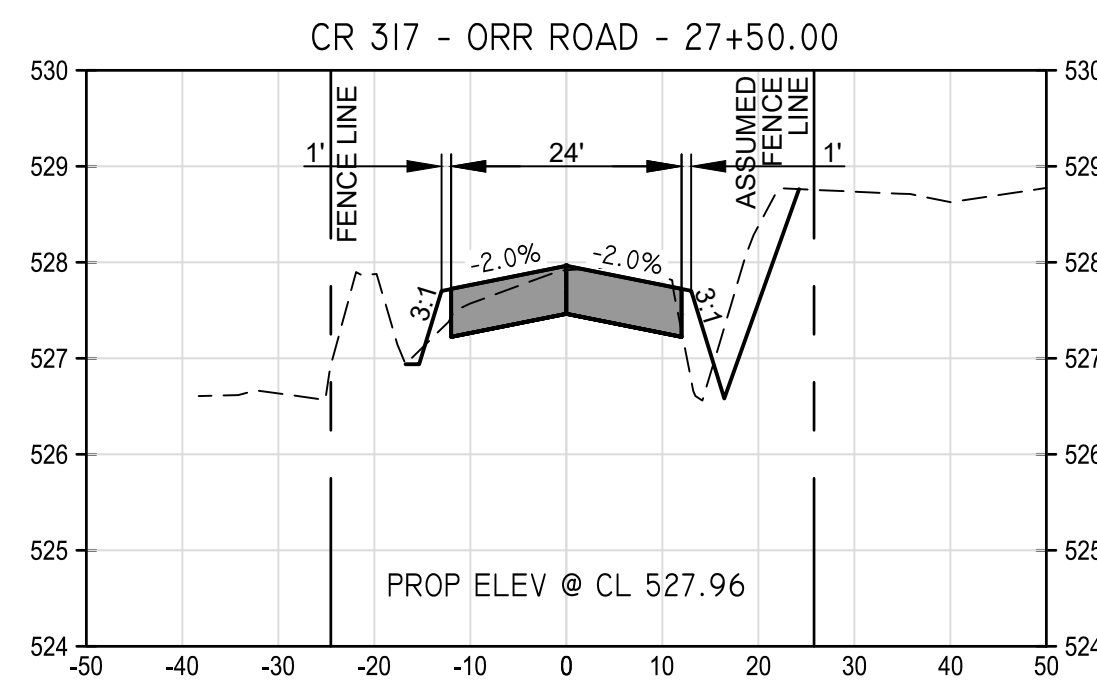


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CR 317 (ORR ROAD) COLLIN COUNTY COUNTY ROAD 317 (ORR ROAD) CROSS SECTIONS STA 13+00 TO STA 25+00		
Scale: 1"=20' H 1"=2" V	Date: Nov 18, 2020	Job No.: BB19006
		X-2

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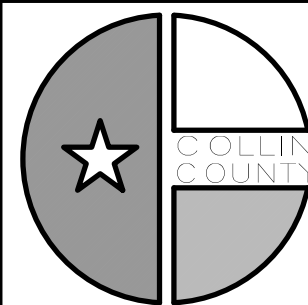
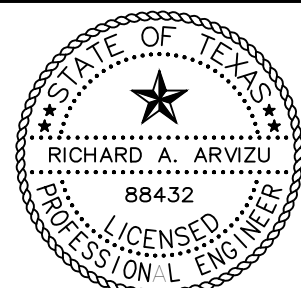


Rev	Description	Date

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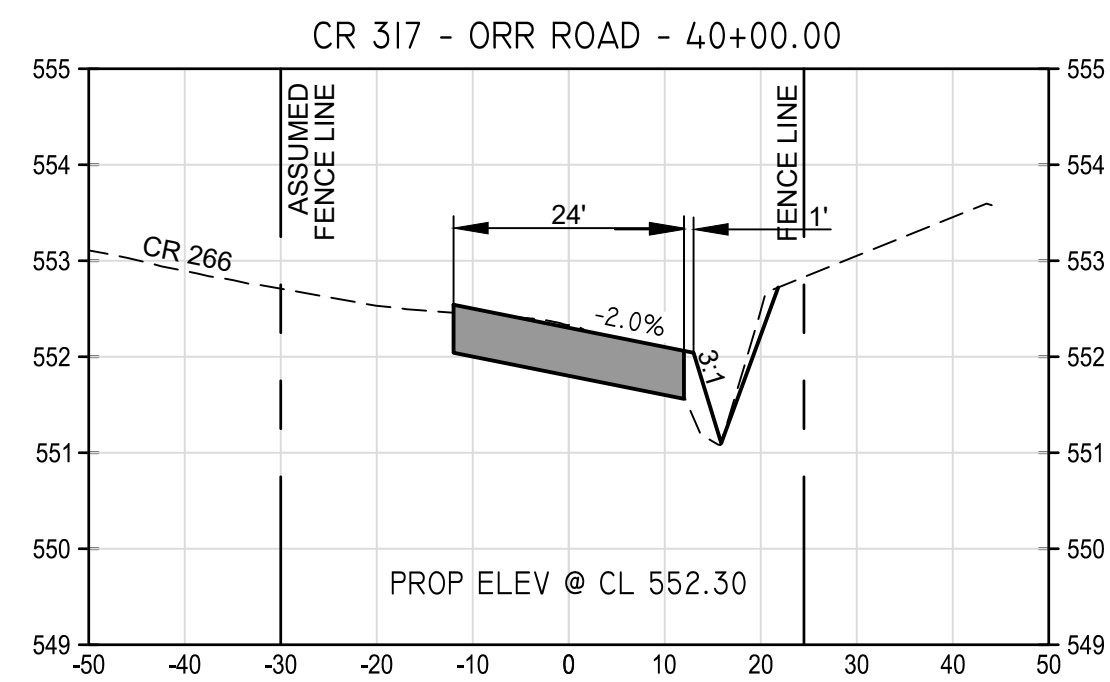
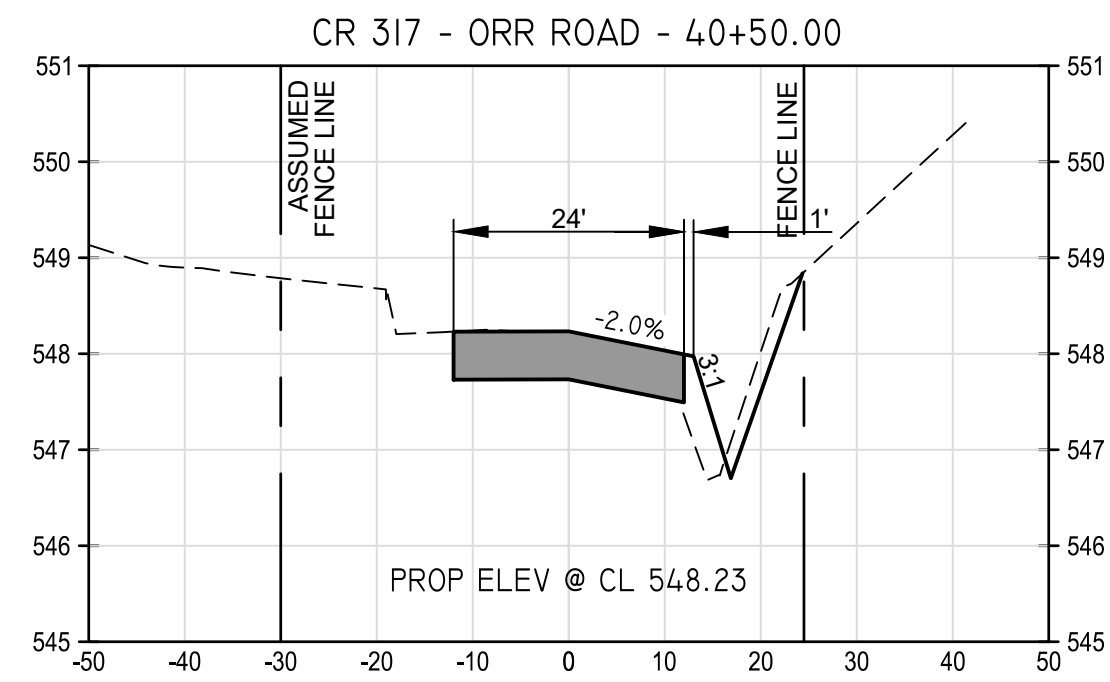
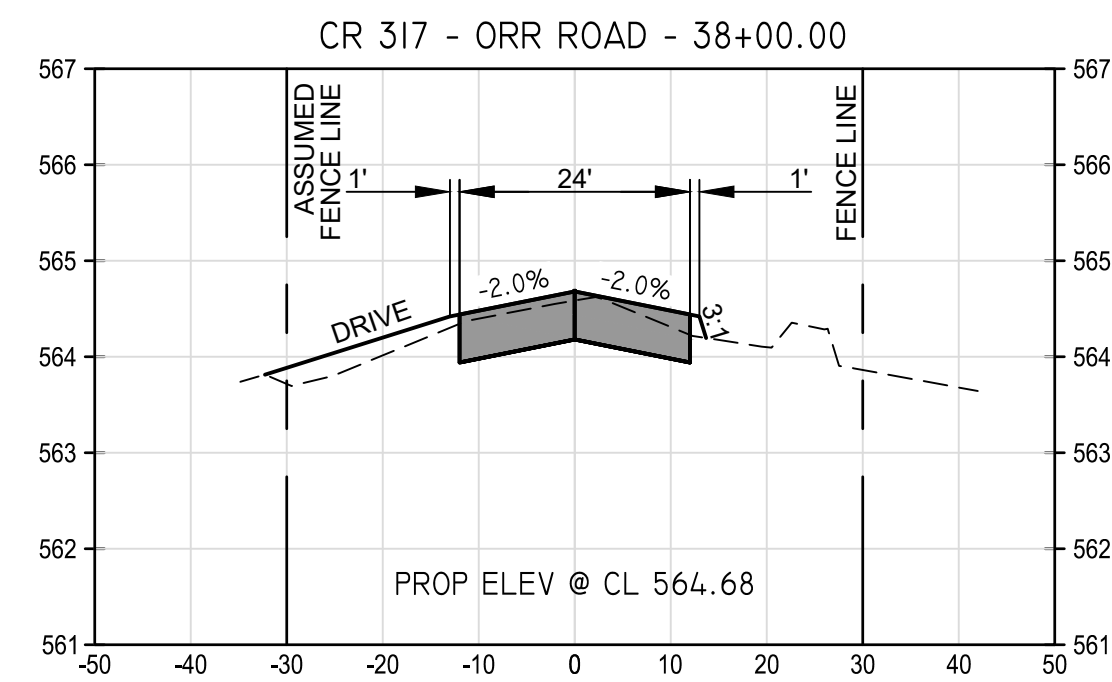
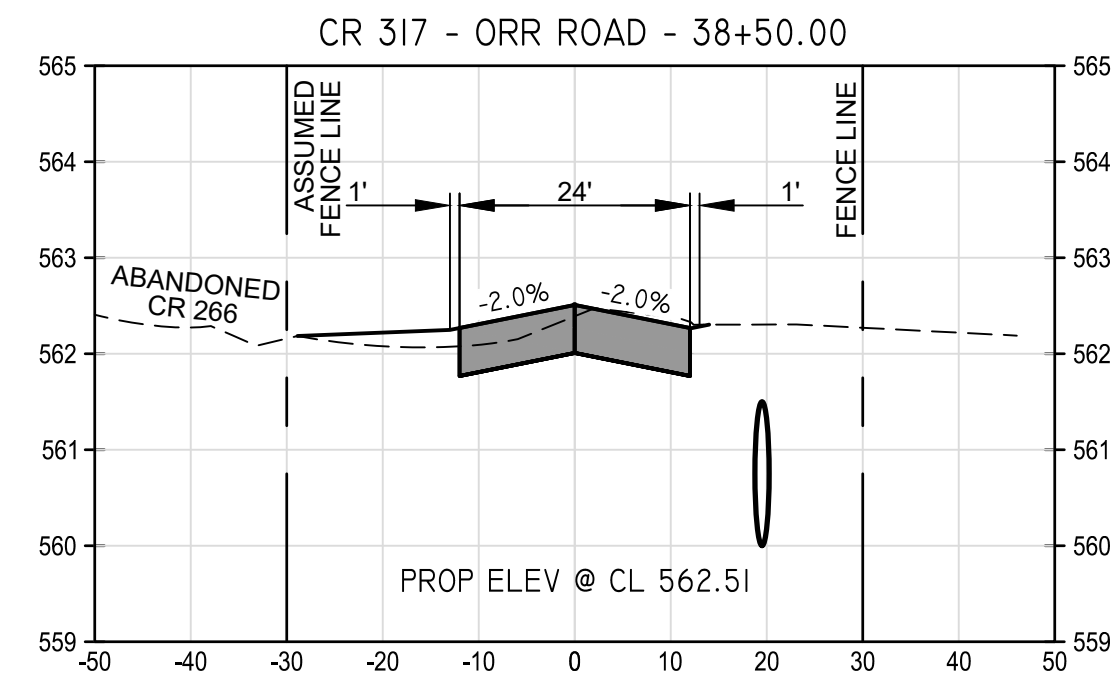
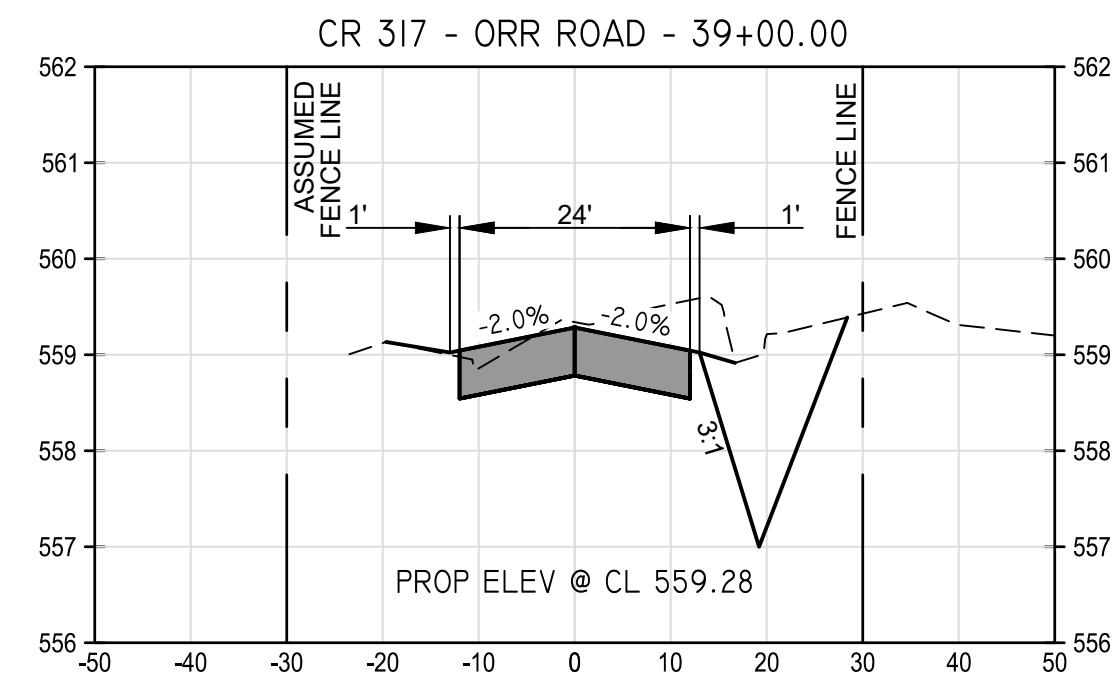
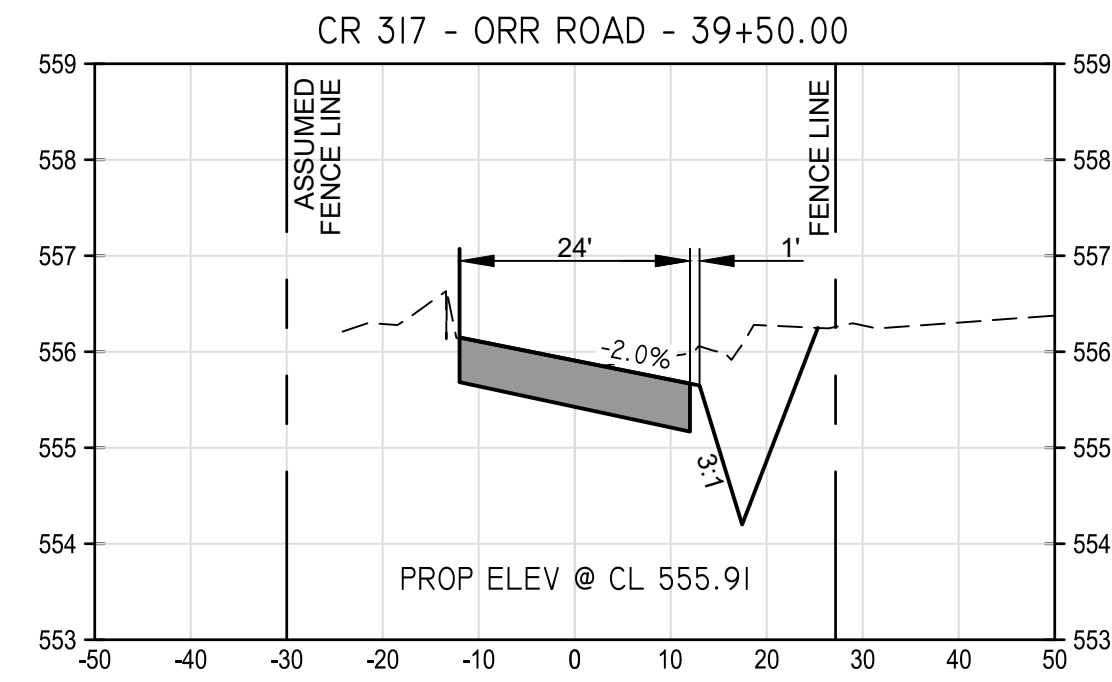


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CR 317 (ORR ROAD) COLLIN COUNTY COUNTY ROAD 317 (ORR ROAD) CROSS SECTIONS STA 25+50 TO STA 37+50		
Scale: 1"=20' H 1"=2' V	Date: Nov 18, 2020	Job No.: BB19006

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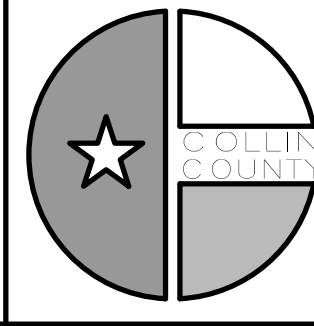
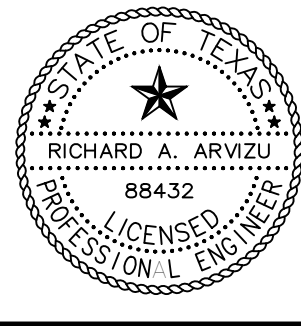
Rev	Description	Date

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CR 317 (ORR ROAD) COLLIN COUNTY COUNTY ROAD 317 (ORR ROAD) CROSS SECTIONS STA 38+00 TO STA 40+50		
Scale: 1"=20' H 1"=2' V	Date: Nov 18, 2020	Job No.: BB19006
X-4		

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TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (5)

Slope	Dia of Pipe (D)	Values for One Pipe					Values to be Added for Each Add'l Pipe			
		W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	4'-7 1/2"	2'-6"	2'-10"	3'-3 1/4"	88	0.6	1'-9"	20	0.2
	15"	5'-5 3/4"	2'-9 1/2"	3'-4"	3'-10 1/4"	103	0.7	2'-2"	24	0.3
	18"	6'-4 1/4"	3'-1"	3'-10"	4'-5"	124	0.9	2'-8"	32	0.3
	21"	7'-2 3/4"	3'-4 1/2"	4'-4"	5'-0"	143	1.1	3'-1"	43	0.4
	24"	8'-2 1/2"	3'-9 1/2"	4'-10"	5'-7"	164	1.3	3'-7"	50	0.5
	27"	9'-1"	4'-1"	5'-4"	6'-2"	179	1.5	3'-11"	56	0.6
	30"	9'-11 1/2"	4'-4 1/2"	5'-10"	6'-8 3/4"	203	1.7	4'-4"	65	0.8
	33"	10'-10"	4'-8"	6'-4"	7'-3 3/4"	224	2.0	4'-8"	71	0.9
	36"	11'-8 1/4"	4'-11 1/2"	6'-10"	7'-10 3/4"	249	2.2	5'-1"	81	1.0
	42"	13'-5 1/4"	5'-6 1/2"	7'-10"	9'-0 1/2"	298	2.8	5'-10"	97	1.3
	48"	15'-9"	6'-1 1/2"	9'-4"	10'-9 1/4"	360	3.8	6'-7"	117	1.7
	54"	17'-5 3/4"	6'-8 1/2"	10'-4"	11'-11 1/4"	427	4.5	7'-6"	151	2.1
60"	19'-2 3/4"	7'-3 1/2"	11'-4"	13'-1"	481	5.3	8'-3"	174	2.5	
66"	20'-11 1/2"	7'-10 1/2"	12'-4"	14'-3"	544	6.2	8'-9"	194	2.9	
72"	22'-8 1/2"	8'-5 1/2"	13'-4"	15'-4 3/4"	601	7.1	9'-4"	213	3.3	
3:1	12"	6'-3"	2'-6"	4'-3"	4'-11"	118	0.8	1'-9"	22	0.2
	15"	7'-5"	2'-9 1/2"	5'-0"	5'-9 1/4"	137	1.1	2'-2"	28	0.3
	18"	8'-6 3/4"	3'-1"	5'-9"	6'-7 3/4"	170	1.3	2'-8"	37	0.5
	21"	9'-8 3/4"	3'-4 1/2"	6'-6"	7'-6"	195	1.6	3'-1"	48	0.6
	24"	11'-0"	3'-9 1/2"	7'-3"	8'-4 1/2"	227	2.0	3'-7"	58	0.7
	27"	12'-2"	4'-1"	8'-0"	9'-2 3/4"	251	2.3	3'-11"	67	0.8
	30"	13'-4"	4'-4 1/2"	8'-9"	10'-1 1/4"	293	2.7	4'-4"	77	1.0
	33"	14'-5 3/4"	4'-8"	9'-6"	10'-11 3/4"	318	3.1	4'-8"	84	1.2
	36"	15'-7 3/4"	4'-11 1/2"	10'-3"	11'-10"	351	3.5	5'-1"	96	1.4
	42"	17'-11 1/2"	5'-6 1/2"	11'-9"	13'-6 3/4"	432	4.5	5'-10"	119	1.7
	48"	21'-1 3/4"	6'-1 1/2"	14'-0"	16'-2"	537	6.1	6'-7"	146	2.3
	54"	23'-5 1/2"	6'-8 1/2"	15'-6"	17'-10 3/4"	630	7.3	7'-6"	186	2.9
60"	25'-9 1/4"	7'-3 1/2"	17'-0"	19'-7 1/2"	719	8.7	8'-3"	219	3.4	
66"	28'-1"	7'-10 1/2"	18'-6"	21'-4 1/4"	811	10.1	8'-9"	242	3.9	
72"	30'-4 3/4"	8'-5 1/2"	20'-0"	23'-1 1/4"	924	11.7	9'-4"	272	4.4	
4:1	12"	7'-10 3/4"	2'-6"	5'-8"	6'-6 1/2"	148	1.1	1'-9"	24	0.3
	15"	9'-4"	2'-9 1/2"	6'-8"	7'-8 1/2"	181	1.5	2'-2"	32	0.4
	18"	10'-9 1/2"	3'-1"	7'-8"	8'-10 1/4"	221	1.9	2'-8"	42	0.5
	21"	12'-2 3/4"	3'-4 1/2"	8'-8"	10'-0"	260	2.3	3'-1"	57	0.7
	24"	13'-9 1/2"	3'-9 1/2"	9'-8"	11'-2"	301	2.8	3'-7"	67	0.9
	27"	15'-3"	4'-1"	10'-8"	12'-3 3/4"	334	3.3	3'-11"	77	1.0
	30"	16'-8 1/4"	4'-4 1/2"	11'-8"	13'-5 3/4"	385	3.8	4'-4"	89	1.3
	33"	18'-1 3/4"	4'-8"	12'-8"	14'-7 1/2"	425	4.5	4'-8"	101	1.4
	36"	19'-7"	4'-11 1/2"	13'-8"	15'-9 1/4"	472	5.1	5'-1"	115	1.7
	42"	22'-5 3/4"	5'-6 1/2"	15'-8"	18'-1"	583	6.5	5'-10"	141	2.1
	48"	26'-6 1/4"	6'-1 1/2"	18'-8"	21'-6 3/4"	730	8.9	6'-7"	175	2.8
	54"	29'-5"	6'-8 1/2"	20'-8"	23'-10 1/4"	875	10.7	7'-6"	226	3.6
60"	32'-3 3/4"	7'-3 1/2"	22'-8"	26'-2"	996	12.7	8'-3"	264	4.3	
66"	35'-2 1/2"	7'-10 1/2"	24'-8"	28'-5 3/4"	1,140	14.9	8'-9"	300	4.9	
72"	38'-1 1/4"	8'-5 1/2"	26'-8"	30'-9 1/2"	1,297	17.3	9'-4"	334	5.6	
6:1	12"	11'-2"	2'-6"	8'-6"	9'-9 3/4"	224	1.9	1'-9"	28	0.4
	15"	13'-2 1/4"	2'-9 1/2"	10'-0"	11'-6 1/2"	268	2.5	2'-2"	37	0.5
	18"	15'-2 1/2"	3'-1"	11'-6"	13'-3 1/4"	330	3.2	2'-8"	50	0.7
	21"	17'-2 3/4"	3'-4 1/2"	13'-0"	15'-0 1/4"	387	3.9	3'-1"	69	0.9
	24"	19'-4 1/2"	3'-9 1/2"	14'-6"	16'-9"	453	4.8	3'-7"	80	1.2
	27"	21'-4 3/4"	4'-1"	16'-0"	18'-5 3/4"	512	5.7	3'-11"	96	1.4
	30"	23'-5 1/4"	4'-4 1/2"	17'-6"	20'-2 1/2"	593	6.7	4'-4"	110	1.7
	33"	25'-5 1/2"	4'-8"	19'-0"	21'-11 1/4"	675	7.8	4'-8"	127	2.0
	36"	27'-5 3/4"	4'-11 1/2"	20'-6"	23'-8"	735	9.0	5'-1"	144	2.3
	42"	31'-6 1/4"	5'-6 1/2"	23'-6"	27'-1 1/2"	922	11.5	5'-10"	179	3.0
	48"	37'-3 1/2"	6'-1 1/2"	28'-0"	32'-4"	1,191	15.9	6'-7"	231	4.0
	54"	41'-4 1/4"	6'-8 1/2"	31'-0"	35'-9 1/2"	1,424	19.2	7'-6"	300	5.0
60"	45'-4 3/4"	7'-3 1/2"	34'-0"	39'-3"	1,631	22.9	8'-3"	353	6.0	

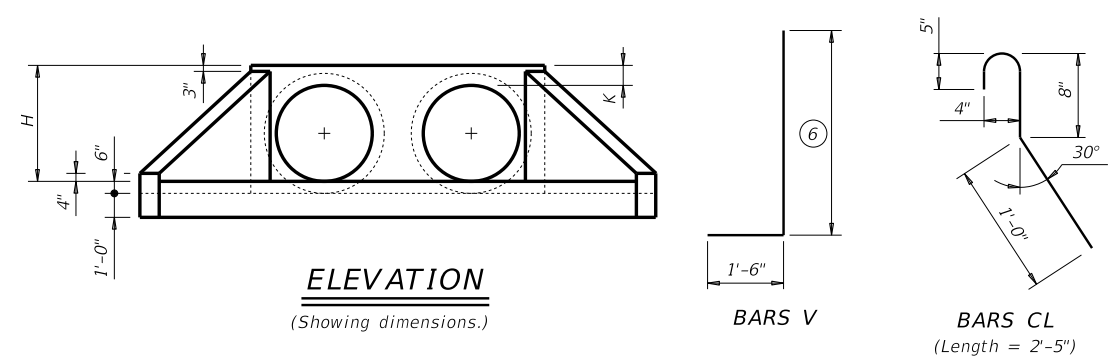
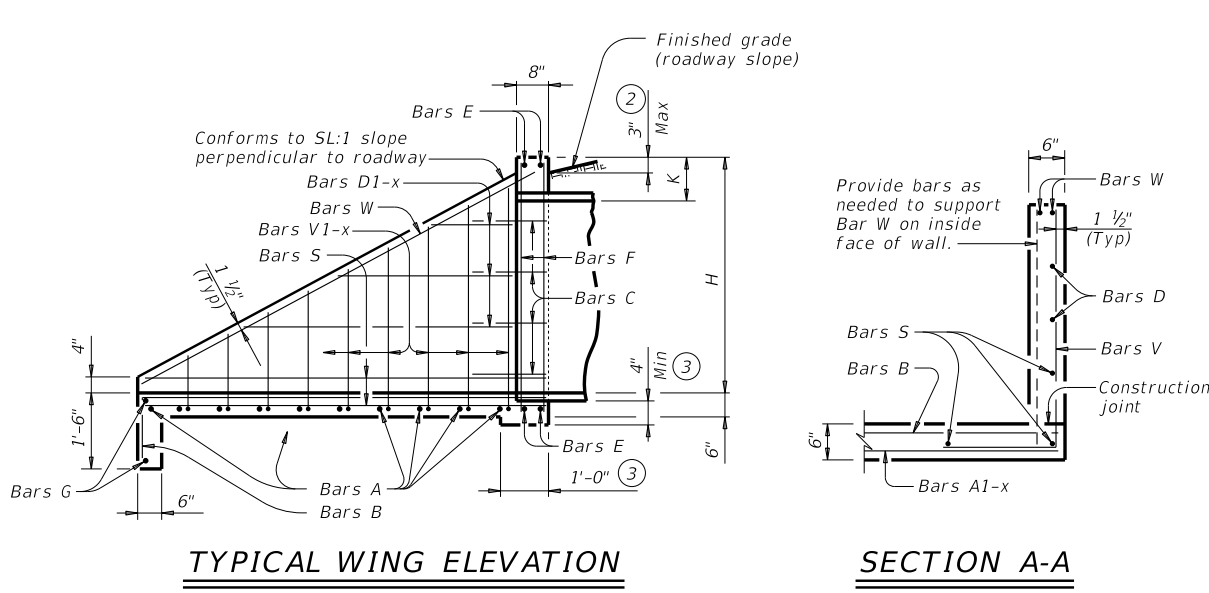
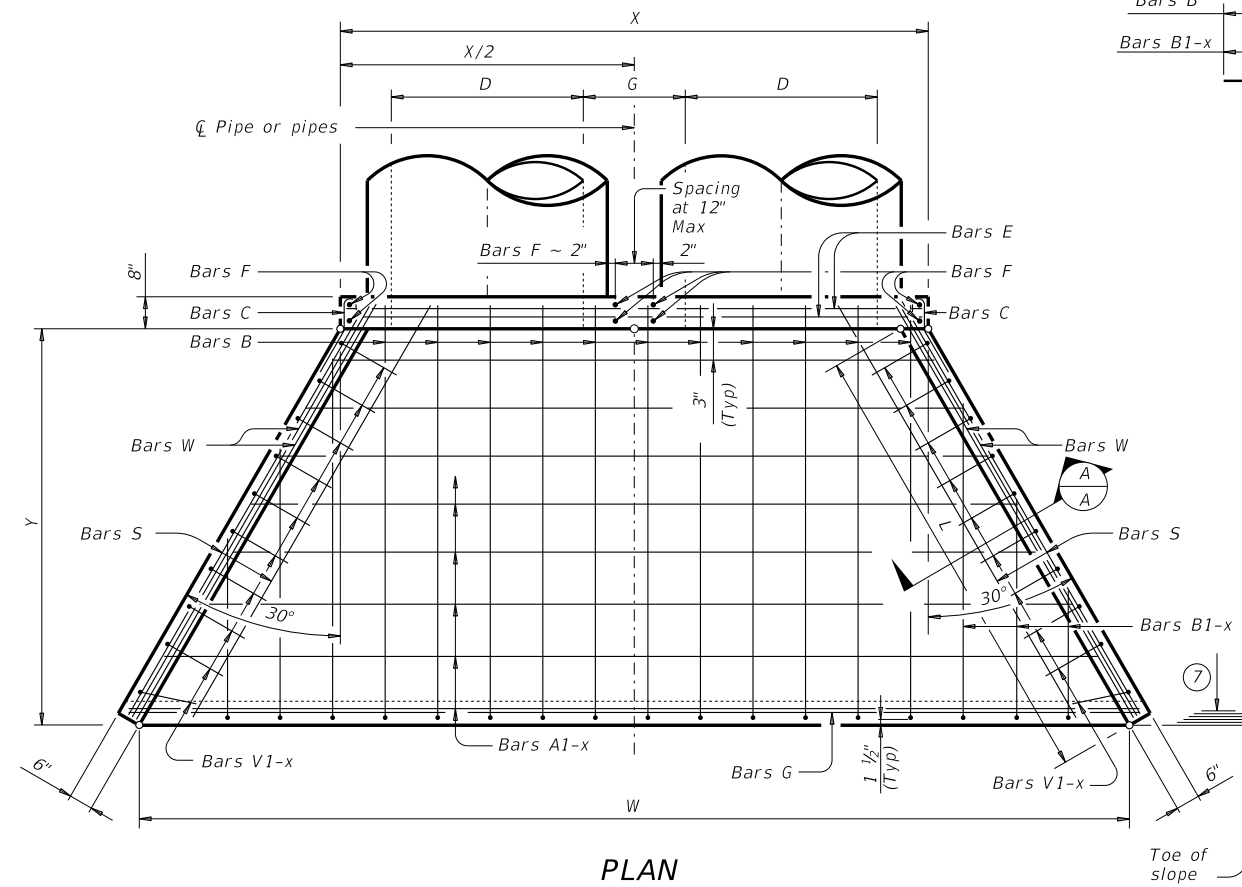
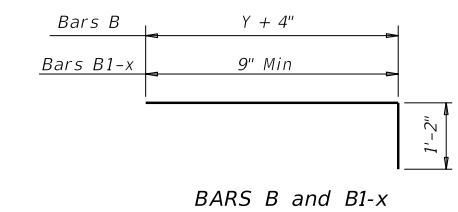


TABLE OF REINFORCING STEEL (5)

Bar	Size	Spa	No.
A	#4	1' - 0"	~
B	#3	1' - 6"	~
C	#4	1' - 0"	~
D	#3	1' - 0"	~
E	#5	~	4
F	#5	~	~
G	#3	~	2
S	#4	~	6
V	#4	1' - 0"	~
W	#5	~	4

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (4)	H
12"	0' - 9"	1' - 0"	2' - 0"
15"	0' - 11"	1' - 0"	2' - 3"
18"	1' - 2"	1' - 0"	2' - 6"
21"	1' - 4"	1' - 0"	2' - 9"
24"	1' - 7"	1' - 0"	3' - 0"
27"	1' - 8"	1' - 0"	3' - 3"
30"	1' - 10"	1' - 0"	3' - 6"
33"	1' - 11"	1' - 0"	3' - 9"
36"	2' - 1"	1' - 0"	4' - 0"
42"	2' - 4"	1' - 0"	4' - 6"
48"	2' - 7"	1' - 3"	5' - 3"
54"	3' - 0"	1' - 3"	5' - 9"
60"	3' - 3"	1' - 3"	6' - 3"
66"	3' - 3"	1' - 3"	6' - 9"
72"	3' - 4"	1' - 3"	7' - 3"



- Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
- For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.
- Dimensions shown are usual and maximum.
- Quantities shown are for one structure end only (one headwall).
- Min Length = $6" + 3" \times \left(\frac{12 \times H - 7}{12 \times L} \right)$
Max Length = $12 \times H - 3" \times \left(\frac{12 \times H - 7}{12 \times L} \right) - 1"$
- Lengths of wings based on SL:1 slope along this line.

MATERIAL NOTES:
 Provide Grade 60 reinforcing steel.
 Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications.
 Do not mount bridge rails of any type directly to these culvert headwalls.
 This standard may not be used for wall heights, H, exceeding the values shown.

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

Bridge Division Standard

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

CH-FW-0

FILE: chfw00se-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST		COUNTY	SHEET NO.
				SD1

DATE: FILE:

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DATE: FILE:

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (5)

Slope	Dia of Pipe (D)	Values for One Pipe					Values to be Added for Each Add'l Pipe			
		W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	3'-3 1/2"	2'-8 3/4"	2'-10"	3'-3 1/4"	85	0.5	1'-9 3/4"	20	0.2
	15"	3'-10 1/2"	3'-0 1/4"	3'-4"	3'-10 1/4"	97	0.6	2'-3"	25	0.3
	18"	4'-5 1/2"	3'-4"	3'-10"	4'-5"	119	0.8	2'-9 1/4"	32	0.4
	21"	5'-0 3/4"	3'-7 1/2"	4'-4"	5'-0"	134	0.9	3'-2 1/4"	43	0.5
	24"	5'-9 1/4"	4'-0 3/4"	4'-10"	5'-7"	154	1.1	3'-8 1/2"	51	0.6
	27"	6'-4 1/2"	4'-4 1/2"	5'-4"	6'-2"	164	1.3	4'-0 3/4"	57	0.7
	30"	6'-11 1/2"	4'-8"	5'-10"	6'-8 3/4"	187	1.5	4'-5 3/4"	67	0.8
	33"	7'-6 1/2"	4'-11 3/4"	6'-4"	7'-3 3/4"	205	1.7	4'-10"	73	0.9
	36"	8'-1 3/4"	5'-3 1/4"	6'-10"	7'-10 3/4"	231	1.9	5'-3 1/4"	82	1.1
	42"	9'-3 3/4"	5'-10 1/2"	7'-10"	9'-0 1/2"	271	2.4	6'-0 1/2"	100	1.4
	48"	10'-9 1/2"	6'-5 3/4"	9'-4"	10'-9 1/4"	325	3.2	6'-9 3/4"	121	1.8
	54"	11'-11 3/4"	7'-1"	10'-4"	11'-11 1/4"	384	3.8	7'-9 1/4"	154	2.2
60"	13'-1 3/4"	7'-8 1/4"	11'-4"	13'-1"	431	4.5	8'-6 1/2"	178	2.6	
66"	14'-4"	8'-3 1/2"	12'-4"	14'-3"	489	5.3	9'-0 3/4"	198	3.0	
72"	15'-6 1/4"	8'-10 3/4"	13'-4"	15'-4 3/4"	537	6.1	9'-8"	220	3.3	
3:1	12"	4'-1 1/4"	2'-8 3/4"	4'-3"	4'-11"	108	0.7	1'-9 3/4"	23	0.2
	15"	4'-10"	3'-0 1/4"	5'-0"	5'-9 1/4"	127	0.9	2'-3"	29	0.3
	18"	5'-7"	3'-4"	5'-9"	6'-7 3/4"	156	1.1	2'-9 1/4"	37	0.5
	21"	6'-3 3/4"	3'-7 1/2"	6'-6"	7'-6"	177	1.3	3'-2 1/4"	49	0.6
	24"	7'-2"	4'-0 3/4"	7'-3"	8'-4 1/2"	204	1.6	3'-8 1/2"	59	0.7
	27"	7'-11"	4'-4 1/2"	8'-0"	9'-2 3/4"	225	1.9	4'-0 3/4"	68	0.9
	30"	8'-7 3/4"	4'-8"	8'-9"	10'-1 1/4"	260	2.2	4'-5 3/4"	79	1.0
	33"	9'-4 1/2"	4'-11 3/4"	9'-6"	10'-11 3/4"	282	2.5	4'-10"	86	1.2
	36"	10'-1 1/4"	5'-3 1/4"	10'-3"	11'-10"	313	2.9	5'-3 1/4"	97	1.4
	42"	11'-7"	5'-10 1/2"	11'-9"	13'-6 3/4"	379	3.7	6'-0 1/2"	122	1.8
	48"	13'-5 3/4"	6'-5 3/4"	14'-0"	16'-2"	465	4.9	6'-9 3/4"	152	2.4
	54"	14'-11 1/2"	7'-1"	15'-6"	17'-10 3/4"	544	5.9	7'-9 1/4"	190	3.0
60"	16'-5"	7'-8 1/4"	17'-0"	19'-7 1/2"	616	7.0	8'-6 1/2"	224	3.5	
66"	17'-10 3/4"	8'-3 1/2"	18'-6"	21'-4 1/4"	701	8.1	9'-0 3/4"	248	4.0	
72"	19'-4 1/4"	8'-10 3/4"	20'-0"	23'-1 1/4"	786	9.4	9'-8"	281	4.6	
4:1	12"	4'-11"	2'-8 3/4"	5'-8"	6'-6 1/2"	136	0.9	1'-9 3/4"	26	0.3
	15"	5'-9 1/2"	3'-0 1/4"	6'-8"	7'-8 1/2"	162	1.2	2'-3"	33	0.4
	18"	6'-8 1/4"	3'-4"	7'-8"	8'-10 1/4"	198	1.5	2'-9 1/4"	43	0.6
	21"	7'-6 3/4"	3'-7 1/2"	8'-8"	10'-0"	232	1.8	3'-2 1/4"	57	0.7
	24"	8'-6 3/4"	4'-0 3/4"	9'-8"	11'-2"	264	2.2	3'-8 1/2"	68	0.9
	27"	9'-5 1/4"	4'-4 1/2"	10'-8"	12'-3 3/4"	292	2.6	4'-0 3/4"	79	1.1
	30"	10'-4"	4'-8"	11'-8"	13'-5 3/4"	333	3.0	4'-5 3/4"	91	1.3
	33"	11'-2 1/2"	4'-11 3/4"	12'-8"	14'-7 1/2"	368	3.5	4'-10"	104	1.5
	36"	12'-1"	5'-3 1/4"	13'-8"	15'-9 1/4"	411	4.0	5'-3 1/4"	115	1.7
	42"	13'-10"	5'-10 1/2"	15'-8"	18'-1"	495	5.1	6'-0 1/2"	144	2.2
	48"	16'-2 1/4"	6'-5 3/4"	18'-8"	21'-6 3/4"	612	6.8	6'-9 3/4"	183	3.0
	54"	17'-11 1/4"	7'-1"	20'-8"	23'-10 1/4"	729	8.2	7'-9 1/4"	231	3.7
60"	19'-8 1/4"	7'-8 1/4"	22'-8"	26'-2"	824	9.8	8'-6 1/2"	270	4.4	
66"	21'-5 1/2"	8'-3 1/2"	24'-8"	28'-5 3/4"	947	11.4	9'-0 3/4"	305	5.0	
72"	23'-2 1/2"	8'-10 3/4"	26'-8"	30'-9 1/2"	1,060	13.2	9'-8"	342	5.7	
6:1	12"	6'-6 3/4"	2'-8 3/4"	8'-6"	9'-9 3/4"	192	1.4	1'-9 3/4"	30	0.4
	15"	7'-8 3/4"	3'-0 1/4"	10'-0"	11'-6 1/2"	230	1.9	2'-3"	40	0.5
	18"	8'-10 3/4"	3'-4"	11'-6"	13'-3 1/4"	281	2.4	2'-9 1/4"	51	0.7
	21"	10'-0 3/4"	3'-7 1/2"	13'-0"	15'-0 1/4"	334	2.9	3'-2 1/4"	69	1.0
	24"	11'-4 1/4"	4'-0 3/4"	14'-6"	16'-9"	377	3.5	3'-8 1/2"	83	1.3
	27"	12'-6 1/4"	4'-4 1/2"	16'-0"	18'-5 3/4"	428	4.2	4'-0 3/4"	98	1.5
	30"	13'-8 1/4"	4'-8"	17'-6"	20'-2 1/2"	488	4.9	4'-5 3/4"	113	1.8
	33"	14'-10 1/4"	4'-11 3/4"	19'-0"	21'-11 1/4"	551	5.7	4'-10"	130	2.0
	36"	16'-0 1/4"	5'-3 1/4"	20'-6"	23'-8"	606	6.5	5'-3 1/4"	145	2.4
	42"	18'-4 1/2"	5'-10 1/2"	23'-6"	27'-1 1/2"	740	8.4	6'-0 1/2"	184	3.1
	48"	21'-6 3/4"	6'-5 3/4"	28'-0"	32'-4"	946	11.4	6'-9 3/4"	240	4.1
	54"	23'-10 3/4"	7'-1"	31'-0"	35'-9 1/2"	1,124	13.8	7'-9 1/4"	303	5.2
60"	26'-2 3/4"	7'-8 1/4"	34'-0"	39'-3"	1,278	16.4	8'-6 1/2"	358	6.2	

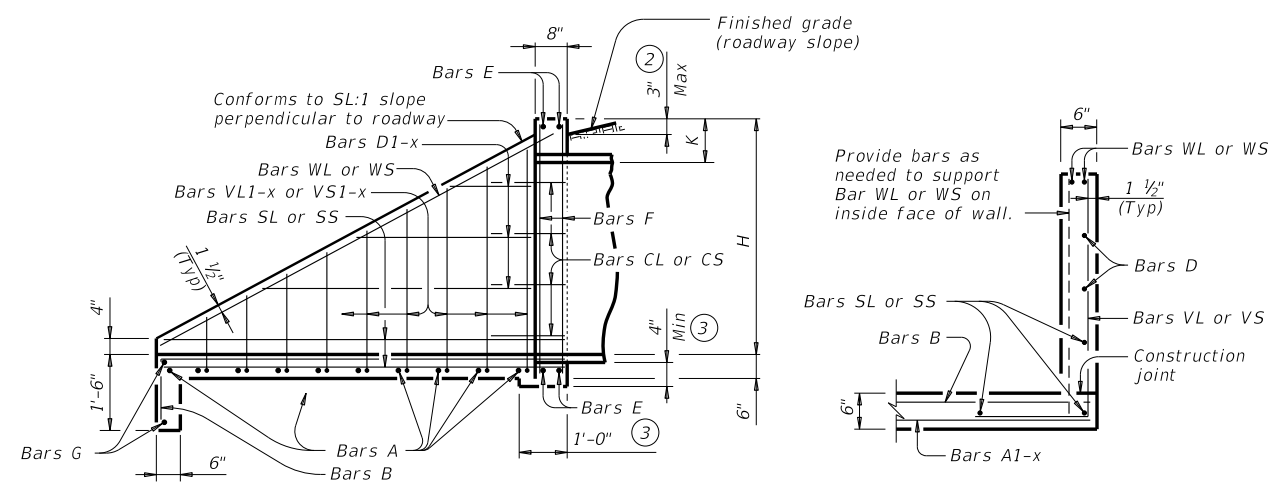
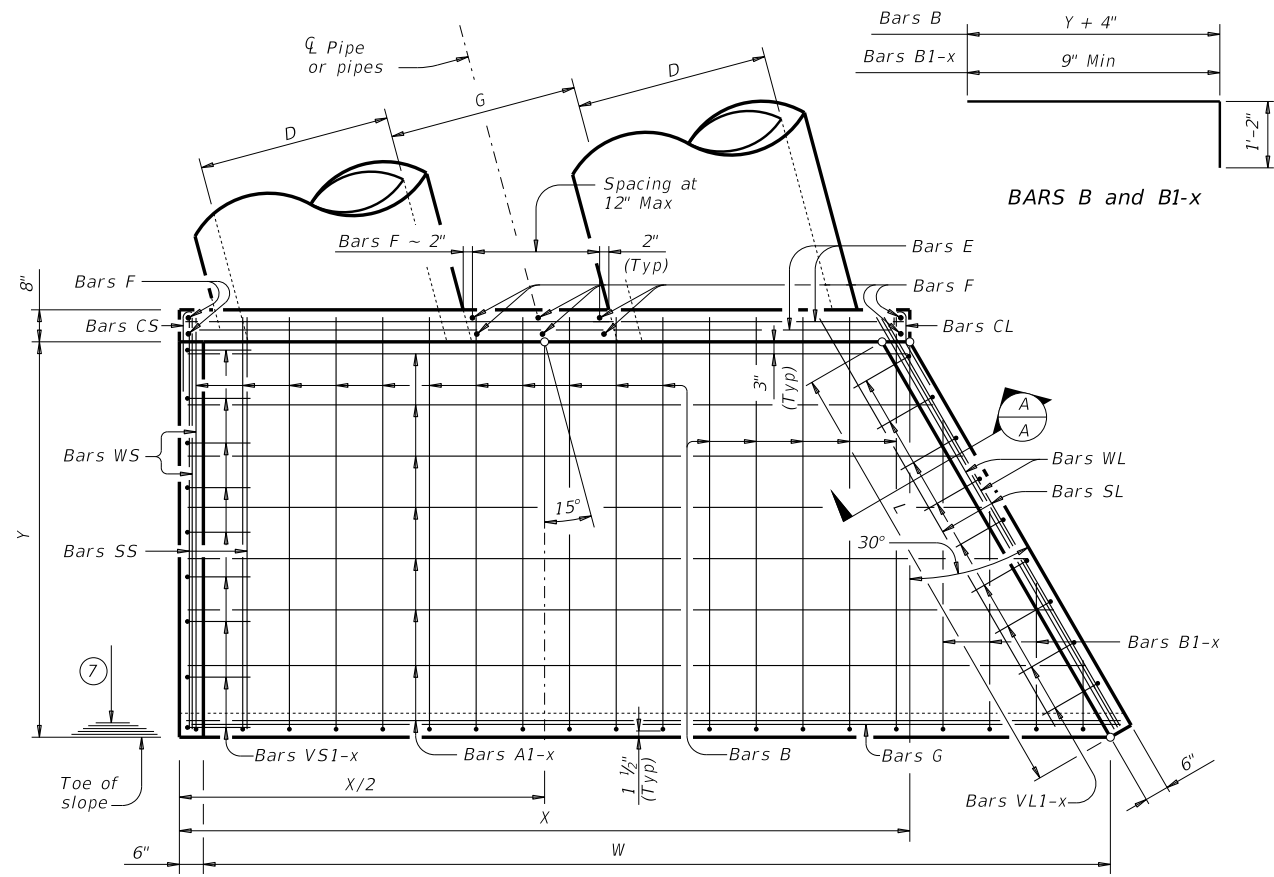
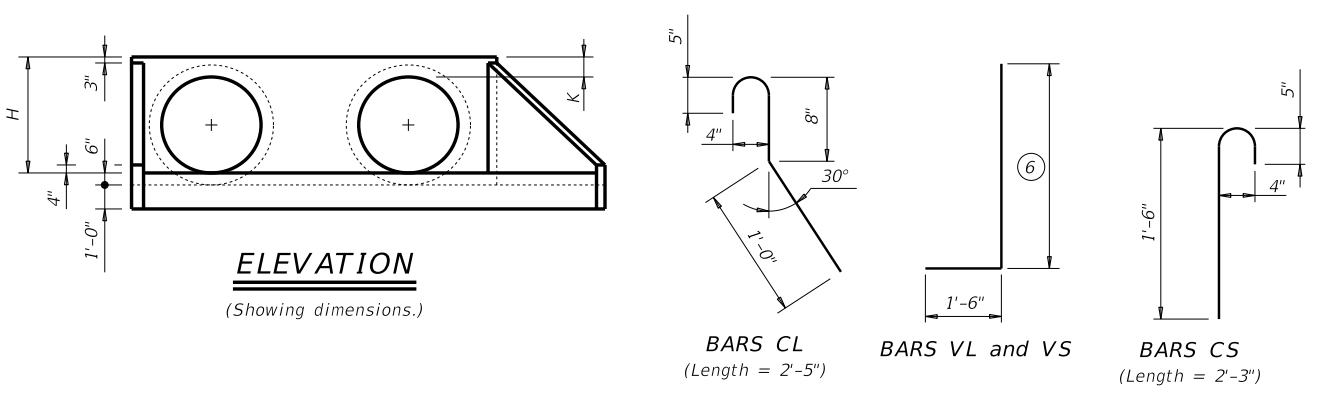


TABLE OF (5) REINFORCING STEEL

Bar	Size	Spa	No.
A	#4	1'-0"	~
B	#3	1'-6"	~
CL & CS	#4	1'-0"	~
D	#3	1'-0"	~
E	#5	~	4
F	#5	~	~
G	#3	~	2
SL & SS	#4	~	6
VL & VS	#4	1'-0"	~
WL & WS	#5	~	4

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (4)	H
12"	0'-9"	1'-0"	2'-0"
15"	0'-11"	1'-0"	2'-3"
18"	1'-0"	1'-0"	2'-6"
21"	1'-4"	1'-0"	2'-9"
24"	1'-7"	1'-0"	3'-0"
27"	1'-8"	1'-0"	3'-3"
30"	1'-10"	1'-0"	3'-6"
33"	1'-11"	1'-0"	3'-9"
36"	2'-1"	1'-0"	4'-0"
42"	2'-4"	1'-0"	4'-6"
48"	2'-7"	1'-3"	5'-3"
54"	3'-0"	1'-3"	5'-9"
60"	3'-3"	1'-3"	6'-3"
66"	3'-3"	1'-3"	6'-9"
72"	3'-4"	1'-3"	7'-3"

- Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
- For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.
- Dimensions shown are usual and maximum.
- Quantities shown are for one structure end only (one headwall).
- Min Length = $6" + 3" \times \left(\frac{12 \times H - 7}{12 \times L} \right)$
Max Length = $12 \times H - 3" \times \left(\frac{12 \times H - 7}{12 \times L} \right) - 1"$
- Lengths of wings based on SL:1 slope along this line.

MATERIAL NOTES:
 Provide Grade 60 reinforcing steel.
 Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications.
 Do not mount bridge rails of any type directly to these culvert headwalls.
 This standard may not be used for wall heights, H, exceeding the values shown.

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

Bridge Division Standard

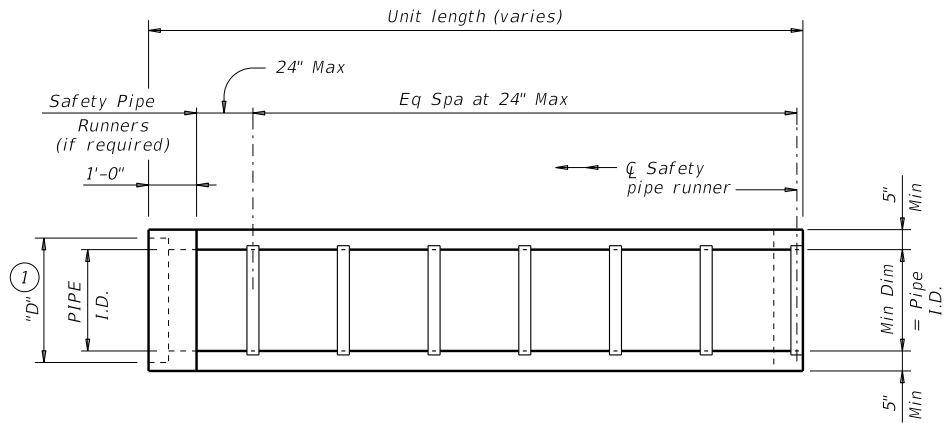
CONCRETE HEADWALLS WITH FLARED WINGS FOR 15° SKEW PIPE CULVERTS

CH-FW-15

FILE: chfw15se-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
	DIST	COUNTY		SHEET NO.
				SD2

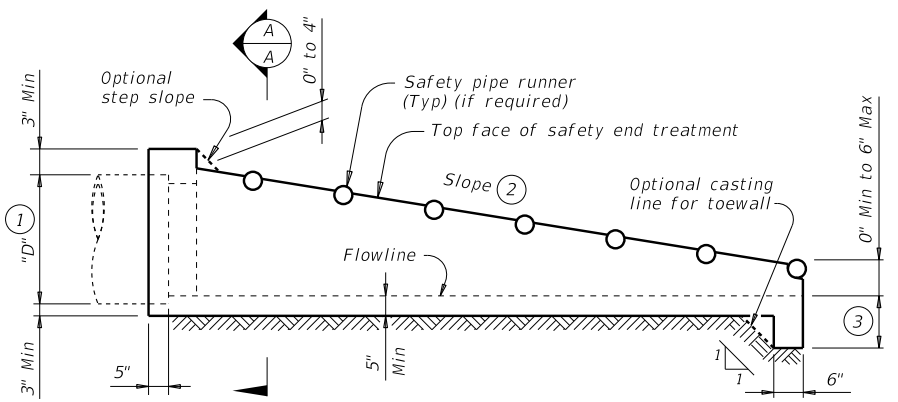
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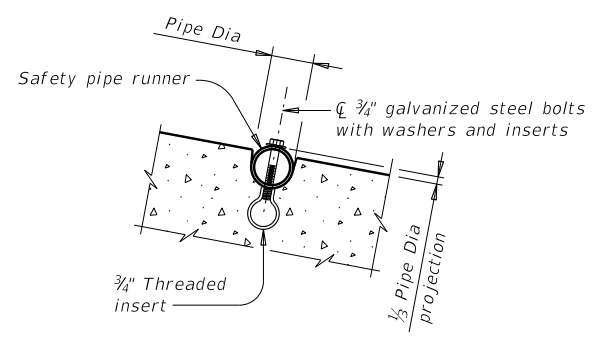
PLAN

(Showing bell end connection.)



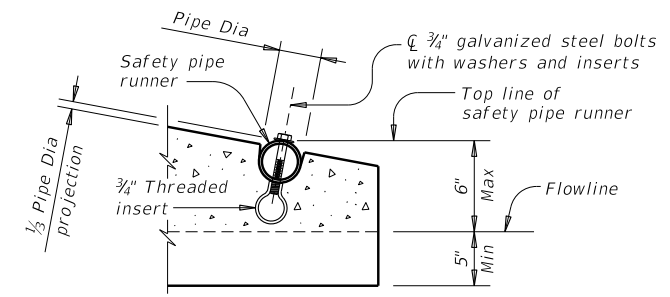
LONGITUDINAL ELEVATION

(Showing bell end connection.)

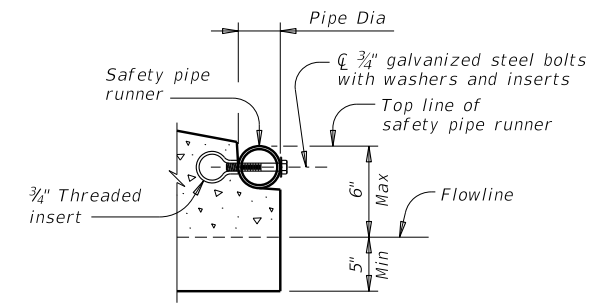


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



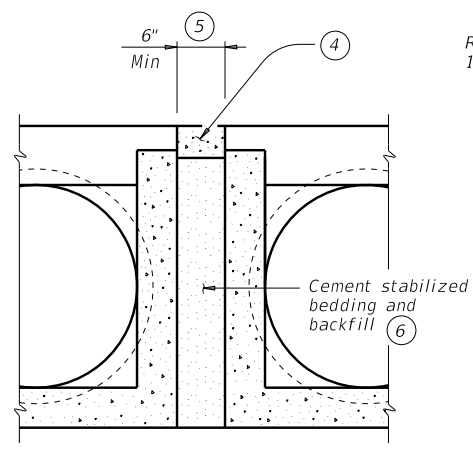
OPTION A



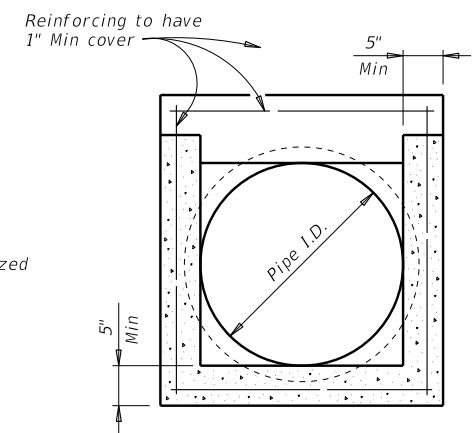
OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

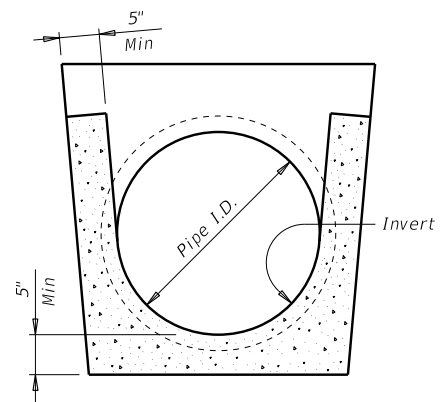


MULTIPLE PIPE INSTALLATION

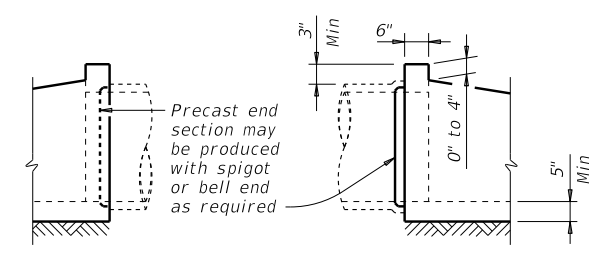


OPTION WITH SQUARE BOTTOM

SECTION A-A



OPTION WITH INVERT BOTTOM



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	Length	Pipe Runners Required		Required Pipe Runner Size		
						Single Pipe	Multiple Pipe	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 1/4"	1.30"	20.50"	6:1	6' - 5"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
18"	2 1/2"	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 1/2"	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 1/2"	N/A	52.50"	6:1	21' - 2"	Yes	Yes	4" STD	4.500"	4.026"

- 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.
- Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.
- Toewall to be used only when dimension is shown elsewhere in the plans.
- Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".
- Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.
- 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.
- 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 end treatment as specified in Item "Safety End Treatment".

When precast safety end treatment is 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 precast (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.

Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe". Connect TP by grouting. See PBGC standard for grouted connections with TP and precast safety end treatment.

Texas Department of Transportation
 Bridge Division Standard

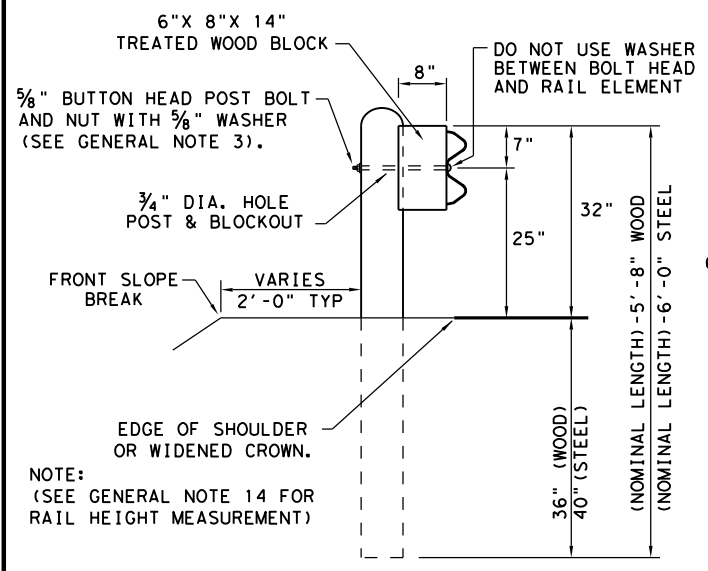
PRECAST SAFETY END TREATMENT TYPE II ~ PARALLEL DRAINAGE

PSET-SP

FILE: psetspss-20.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
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REVISIONS				
	DIST	COUNTY		SHEET NO.
				SD3

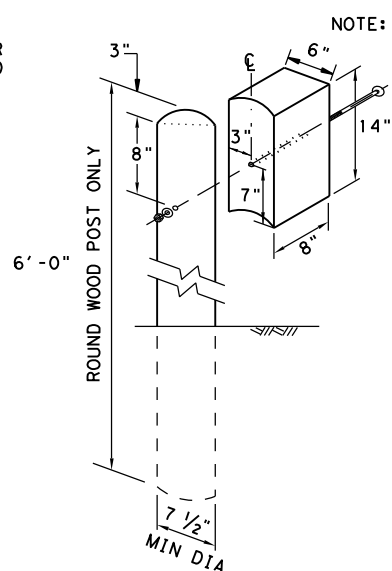
DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TXDOT FOR ANY PURPOSE WHATSOEVER. TXDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

DATE: FILE:

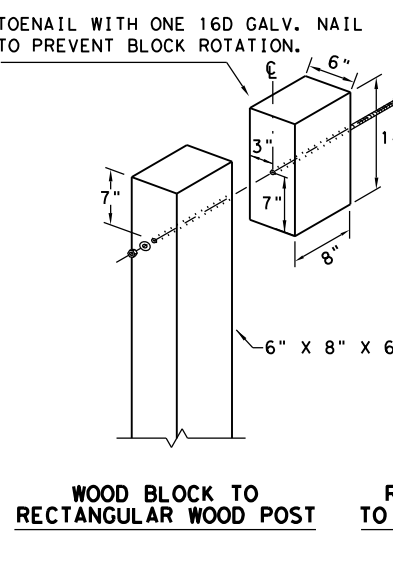


TYPICAL POST PLACEMENT

NOTE: (SEE GENERAL NOTE 14 FOR RAIL HEIGHT MEASUREMENT)

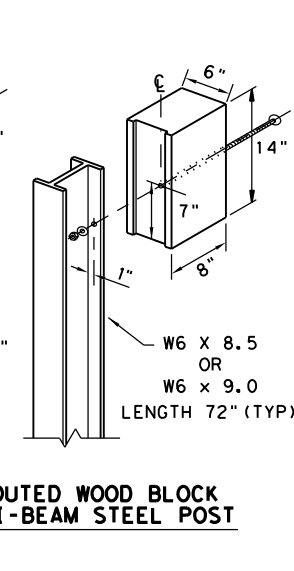


WOOD BLOCK TO ROUND WOOD POST

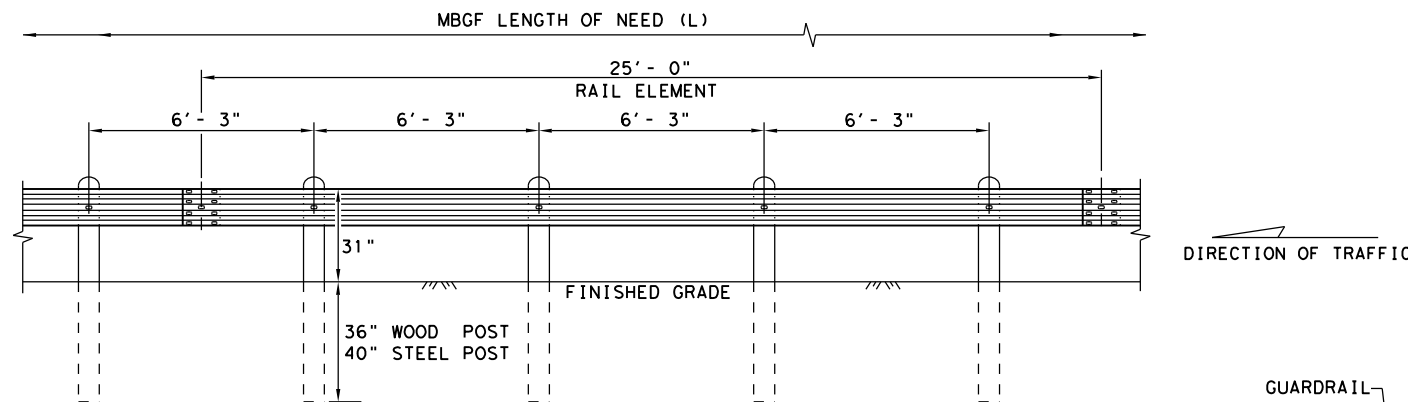


WOOD BLOCK TO RECTANGULAR WOOD POST

ROUTED WOOD BLOCK TO I-BEAM STEEL POST

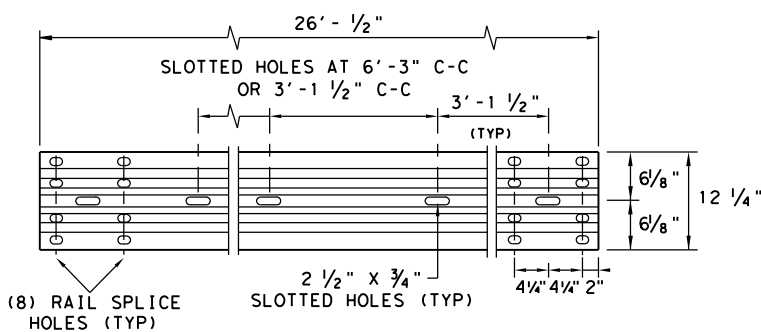


NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.



ELEVATION MID-SPAN RAIL SPLICE

SHOWING A 25' - 0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



ELEVATION 25' - 0" (NOM.) W-BEAM SECTION

NOTES: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES. SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.

NOTE: FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECESSED NUT.

SPLICE BOLT LENGTH VARIES

FBB01 = 1 1/4"

FBB02 = 2"

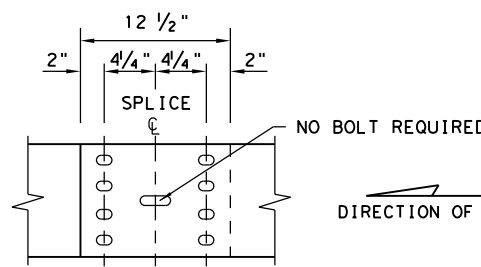
POST & BLOCK LENGTH

FBB03 = 10"

FBB04 = 18"

BUTTON HEAD BOLT

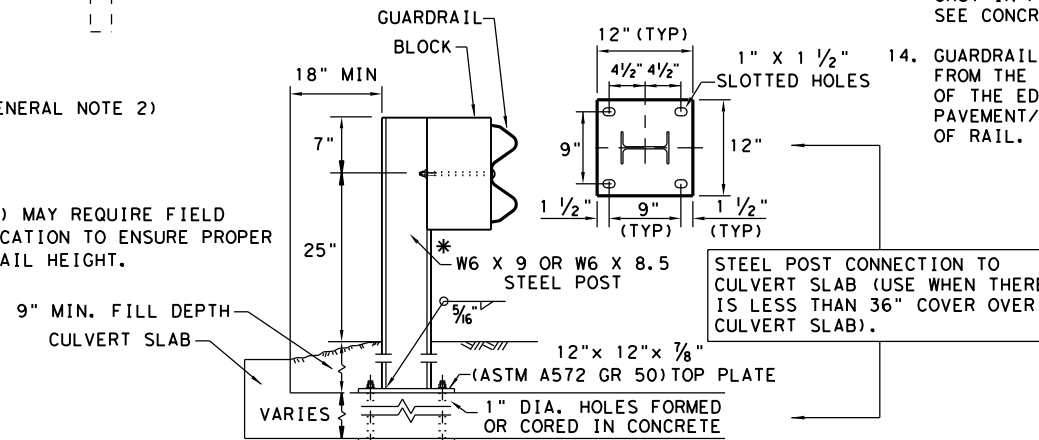
NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



MID-SPAN RAIL SPLICE DETAIL

NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.

* POST(S) MAY REQUIRE FIELD MODIFICATION TO ENSURE PROPER GUARDRAIL HEIGHT.



LOW FILL CULVERT POST

NOTE: TWO INSTALLATION OPTIONS.

1. **BOLT-THROUGH OPTION:** REQUIRES A 6" MIN. SLAB THICKNESS. 7/8" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS. NOTE: BOLT LENGTH = SLAB PLUS 2 1/4" MIN.

2. **EPOXY ANCHOR OPTION:** THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE 7/8" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS 1/4" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

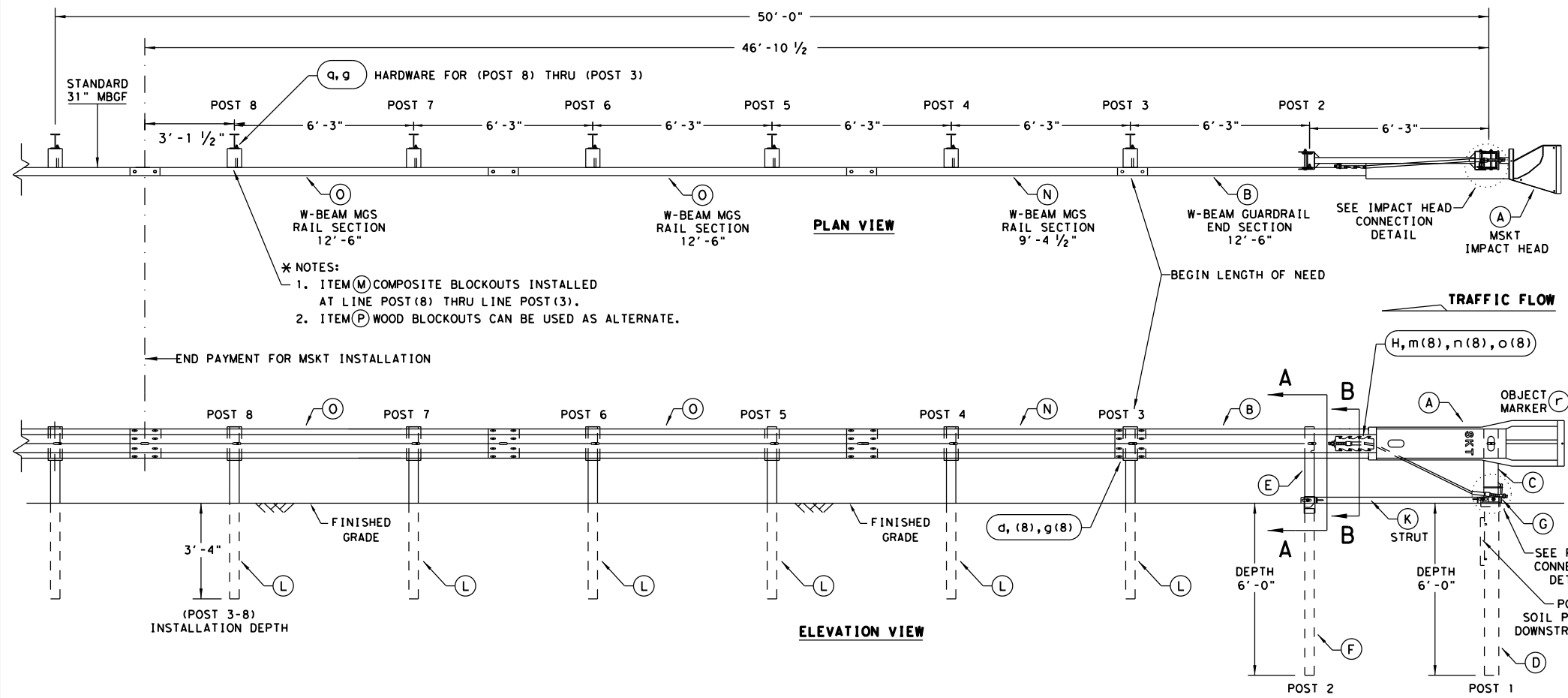
GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25' - 0", OR 12' - 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3' - 1 1/2" C-C OR 6' - 3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 3/8" WASHER (FWC16G) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

NOTE: TRANSITIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS. SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS. SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

		Design Division Standard	
METAL BEAM GUARD FENCE TL-3 MASH COMPLIANT GF(31)-19			
FILE: gf3119.dgn	DN: TXDOT	CK: KM	DW: VP
© TXDOT: NOVEMBER 2019	CONT	SECT	JOB
REVISIONS			
DIST	COUNTY	SHEET NO.	
		SD4	

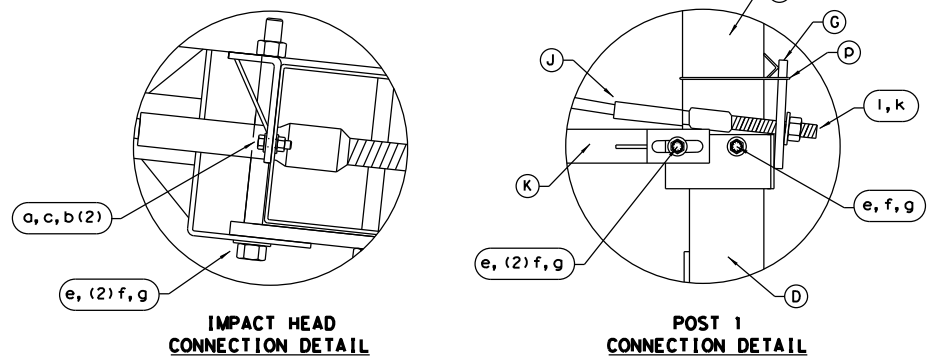
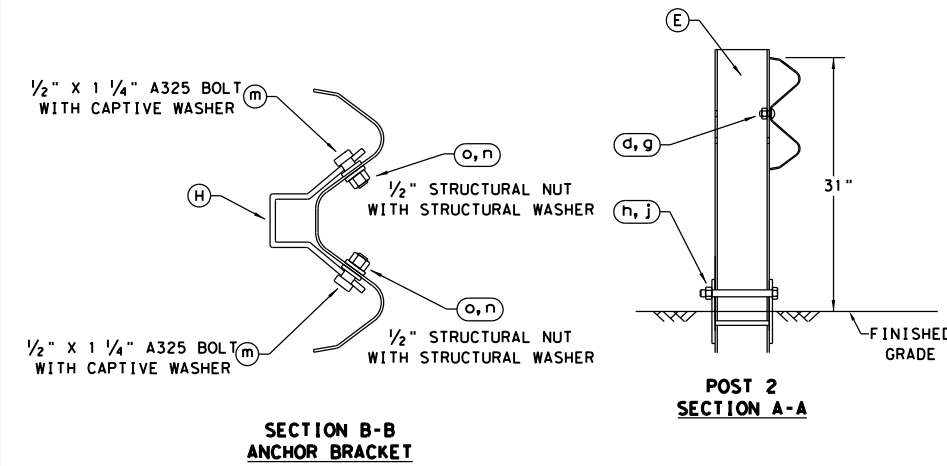
DISCLAIMER: THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TXDOT FOR ANY PURPOSE WHATSOEVER. THE USE OF THIS STANDARD FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE. TXDOT ASSUMES NO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



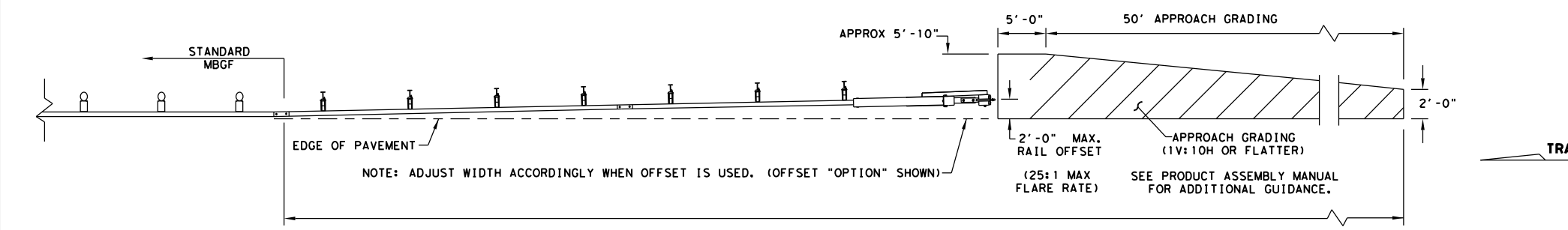
- * NOTES:**
- ITEM (M) COMPOSITE BLOCKOUTS INSTALLED AT LINE POST (8) THRU LINE POST (3).
 - ITEM (P) WOOD BLOCKOUTS CAN BE USED AS ALTERNATE.

- 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 PRODUCERS.
 - IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, & REFER TO THE LATEST ROADWAY MOW STRIP 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 ENCRoACHING 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 ITS 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 1/8" TUBE)	MTPHP1A
D	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
E	1	POST 2 - ASSEMBLY TOP	UHP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	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 1/2")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G1209
SMALL HARDWARE			
a	2	5/8" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	5/8" WASHER	W0516
c	2	5/8" HEX NUT	N0516
d	25	5/8" Dia. x 1 1/4" SPLICE BOLT (POST 2)	B580122
e	2	5/8" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	5/8" WASHER	W050
g	33	5/8" 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	N012A
o	8	1 1/8" O.D. x 3/8" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	5/8" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" x 18"	E3151



ALTERNATIVE ITEMS NOT SHOWN. *
 * ITEM (P) 8" WOOD-BLOCKOUT
 ** ITEM (Q) 25' GUARD FENCE PANEL



NOTE: TXDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE MSKT END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Design Division Standard

SINGLE GUARDRAIL TERMINAL

MSKT-MASH-TL-3

SGT (12S) 31-18

FILE: sgt12s3118.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CL
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REVISIONS				
DIST	COUNTY			SHEET NO.
				SD5

DATE: FILE:

DIVISION I

TECHNICAL SPECIFICATIONS

REFERENCE TECHNICAL SPECIFICATIONS

For this contract, the "Texas Department of Transportation, ~~2004~~ **2014** Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges", shall govern for the construction of this project. Said Specifications in their entirety are hereby incorporated into the Contract Documents by reference herein and Contractor shall comply with all provisions contained in said specifications and shall be bound by them in their entirety, except where modified and except in the project plans and specifications.

Copies of these specifications are available for a small charge from any District office or the Austin office of the Department of Transportation.

In the event that an item is not addressed in aforementioned document, the "North Central Texas Council of Governments Standard Specifications for Public Works Construction (~~Fourth Edition 2004~~ **Fifth Edition 2017**)" shall govern that item.

SPECIAL PROVISION TO
TXDOT ITEM 420, CONCRETE SUBSTRUCTURES

For this project, Item 420, TxDOT 2014 Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, is hereby amended with respect to the clauses cited below and no other clauses or requirements of these items are waived or changed hereby.

ITEM 420. CONCRETE SUBSTRUCTURES

4.11. Removal of Forms and Falsework.

Add the following paragraphs:

No backfill is to be replaced behind or on top of any structure prior to the structure attaining its specified 28-day compressive strength.

When tests are performed to determine flexural strengths of the concrete as the basis for removal of forms or shoring, or support of forms or elements on previously placed portions of the structure, it shall be done at the expense of the Contractor. Specimens shall be field cured under the same conditions as the actual structure in accordance with ASTM C-31. Flexural tests shall be performed in accordance with ASTM C-78. The average strength based on a minimum of two tests on two beam specimens will be the basis for evaluation.

In lieu of flexural tests, the Contractor may use the required 28-day strength as the basis for formwork or shoring removal. The concrete shall obtain its 28-day strength, prior to removal of forms or falsework or support of forms or elements on previously placed portions of the structure.

When 28-day compressive strengths are used as the basis for formwork or shoring removal, the Contractor may either;

At his own expense, have an independent laboratory make samples in accordance with ASTM C-31 and conduct compressive strength tests in accordance with ASTM C-39. The samples shall be field cured in accordance with ASTM C-31. A minimum of two cylinders will be made for each element to be evaluated or 100 C.Y. maximum. The average strength of the two will be the basis for evaluation of the 28-day strength.

Utilize the compressive strength test conducted for other concrete elements as specified herein on laboratory cured samples.

When formwork removal is based on the concrete reaching its specified 28-day strength the concrete shall be presumed to have reached this strength in accordance with the following:

When test cylinders, field cured under the most unfavorable conditions prevailing for any portion of the concrete represented, have reached the required strength. Except for the field curing and age at test, the Cylinders shall be molded and tested as specified in ASTM C-31.

END OF SECTION

CONSTRUCTION AGREEMENT

THIS CONSTRUCTION AGREEMENT is made and entered into by and between _____, a _____ corporation (hereinafter referred to as “Contractor”), and COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas (hereinafter referred to as “County” or “OWNER”), to be effective from and after the date hereinafter provided.

For and in consideration of the covenants and agreements contained herein, and for the mutual benefits to be obtained hereby, the parties hereto agree as follows:

CONTRACT SUM

The County shall pay the Contractor in current funds for the performance of the work, subject to additions and deductions by Change orders as provided in the Contract Documents. The contract sum shall be the amount of _____ (\$_____).

EFFECTIVE DATE

This Construction Agreement, having been previously approved by the Commissioners’ Court of Collin County, Texas, shall be effective upon the date of delivery and execution by Contractor, provided the County executes the same within five (5) consecutive calendar days after said delivery and execution by Contractor.

I. CONTRACT GENERAL PROVISIONS

1.1 DEFINITIONS

Words which have well-known technical or construction industry meanings shall have their commonly understood meanings in the Contract Documents, unless a different meaning is stated in the Contract Documents. The following words and expressions, or pronouns used in their place, shall wherever they appear in this contract be construed as follows, unless a different meaning is clear from the context:

Addendum, Bulletin or Letter of Clarification: Any additional contract provisions, or change, revisions or clarification of the Contract Documents issued in writing by the OWNER, to prospective bidders prior to the receipt of bids.

Contract or Contract Documents: The written agreement covering the performance of the work. The Contract and Contract Documents include this written Construction Agreement between OWNER and CONTRACTOR, Advertisement for Bids, Instructions to Bidders, Requests for Proposal, all Addenda, the Specifications, including the general and supplemental special and technical conditions, Drawings, provisions, plans or working drawings — and any supplemental changes or agreements pertaining to the Work or materials therefor; and bonds and any additional documents incorporated by reference in the above.

CONTRACTOR: The person, persons, partnership, firm, corporation, association or organization, or any combination thereof, entering into the contract for the execution of the work, acting directly or through a duly authorized representative.

Other CONTRACTORS: Any contractor, other than the CONTRACTOR or his subcontractors, who has a direct contact with the OWNER for work on or adjacent to the site of the work.

Contract Work or Work: Everything expressly or impliedly required to be furnished and done by the CONTRACTOR by the Contract Documents.

Engineer: The term “Engineer” means the Engineer or his duly authorized representative. The Engineer shall be understood to be the Engineer of the OWNER, and nothing contained in the Contract Documents shall create any contractual or agency relationship between the Engineer and the CONTRACTOR.

Extra Work: Work other than that which is expressly or impliedly required by the Contract Documents at the time of the execution of the contract.

Change Order: A written order to the CONTRACTOR authorizing and directing an addition, deletion or revision in the work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or the Contract time.

Contract Price: The total amount of money payable to the CONTRACTOR under the terms and conditions of the Contract Documents. When used in such context, it may also mean the unit price of an item of work under the Contract terms.

OWNER’S Representative: The Engineer or other duly authorized assistant, agent, engineer, inspector or superintendent acting within the scope of their particular duties.

Drawings or Contract Drawings: Those drawings that are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, including but not limited to, the plans, elevations, sections, details, schedules, diagrams, any bulletin, or any detailed drawing furnished by the OWNER, pertaining or supplemental thereto.

Specifications: Those portions of the Contract Documents that specify the requirements for materials, equipment, systems, standards and workmanship for performance of the Work, and related services.

Inspector: Any representative of the OWNER designated to inspect the work.

Materialman or Supplier: Any subcontractor contracting with the CONTRACTOR, or any of his subcontractors, to fabricate or deliver or who actually fabricates or delivers materials, supplies or equipment to be consumed or incorporated into the Work.

Notice: Written notice effective the date of the postmark thereon, or if hand delivered, effective the date of hand delivery.

OWNER: COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas. The term OWNER means the OWNER or its authorized representative.

Payment Bond: A bond in the amount of the Contract executed by a corporate surety in accordance with all Texas Law, including but not limited to, Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code, for public works projects as security furnished by the CONTRACTOR and his sureties solely for the protection of payment bond beneficiaries supplying labor and materials in the prosecution of the Contract Work.

Performance Bond: A bond in the amount of the Contract executed by a corporate surety in accordance with all Texas Law, including but not limited to, Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code, for public works projects as security furnished by the CONTRACTOR and his sureties solely for the protection of the Owner, conditioned on the faithful performance of the Contract Work in accordance with the plans, specification, and Contract Documents.

Maintenance Bond: A bond executed by a corporate surety for 10% of the Contract Price that complies with all Texas Laws, including but not limited to, Chapter 3503 of the Texas Insurance Code, guaranteeing the prompt, full and faithful performance of the general guaranty and warranty contained in the Contract Documents, and Texas Law.

Project: The total construction of the work described in the Contract Documents performed by the Contractor, Other Contractor or the Owner in whole or part.

Proposal: The written statement or statements duly submitted to the OWNER by the person, persons, partnership, company, firm, association or corporation proposing to do the Work contemplated, including the approved form on which the formal bids for the Work are to be proposed.

Plan, or Plans: The plans are the drawings or reproductions therefrom made by the Owner or Owner's Representative and approved by the Owner showing the dimensions, location, design and position of the various elements of the Project and Work, including plans, elevations, sections, details, schedules, diagrams, working drawings, preliminary drawings, and such supplemental drawings as the Owner may issue to clarify other drawings or for the purpose of showing changes in the Contract Work authorized by the Owner, or for showing details not shown therein.

Special Provisions or Conditions: The special clauses of the Contract, or Contract Documents, setting forth conditions or requirements peculiar to the specific Project involved, supplementing the standard or general specifications and taking

precedence over any conditions or requirements of the standard or general specifications with which they are in conflict.

Specifications or Contract Specifications: All of the general, special and technical conditions or provisions, and all addendum or supplements thereto consisting of written requirements for materials, equipment, systems, standards and performance of the work.

Site: The area upon or in which the CONTRACTOR'S operations are carried on, and such other areas adjacent thereto as may be designated as such by the OWNER.

Subcontractors: Any persons, firm or corporation, other than employees of the CONTRACTOR, who or which contracts with the CONTRACTOR to furnish, or who actually furnishes, labor and/or materials and equipment at or about the site.

Sureties: The corporate bodies which are bound by such bonds as are required with and for the CONTRACTOR. The sureties engaged to be responsible for the entire and satisfactory fulfillment of the Contract and for any and all requirements as set out in the specifications, Contract or plans.

The Work: All work including the furnishing of all labor, materials, tools, equipment, required submittals and incidentals to be performed by the CONTRACTOR under the terms of the Contract.

Directed, Required, Approved and Words of Like Import: Whenever they apply to the Work or its performance, the words "directed," "required," "permitted," "ordered," "designated," "established," "prescribed" and words of like import used in the Contract, specifications or upon the drawings shall imply the direction, requirement, permission, order, designation or prescription of the OWNER; and "approved," "acceptable," "satisfactory" and words of like import shall mean approved by, acceptable to or satisfactory to the OWNER.

Equal: Materials, articles or methods which are of equal or higher quality than those specified or shown on the drawings and as further defined in the "or equal" clause. Substitution of Materials shall be determined by the Engineer at his or her discretion, and approved by the Owner.

Working Time, Completion Time or Contract Time: The time set forth in the Contract for the performance and completion of the Work contracted for. The time may be expressed as calendar days, working days or a specific date.

Calendar Day or Days: Any successive days of the week or month, no days being excepted.

Working Day: A working day is defined as a calendar day not including Saturdays, Sundays or those legal holidays as specified in the list prepared by the OWNER for contract purposes. Nothing in this definition shall be construed as prohibiting the

CONTRACTOR from working on Saturdays if he so desires, however permission of the OWNER shall be necessary if the CONTRACTOR chooses to work on Saturday. Work on Sundays shall not be permitted without the written permission of the OWNER. If Saturday or Sunday work is permitted, working time shall be charged on the same basis as week days. Where the working time is expressed as calendar days or a specific date, the concept of working days shall no longer be relevant to the contract.

CONTRACT DOCUMENTS

1.2 The parties agree that the Contract Documents shall consist of the following documents in addition to any other documents referenced or incorporated herein:

- A. This written Construction Agreement, including any changes or modifications;
- B. All addenda including the following listed and numbered addenda:
 Addendum No. 1 dated _____ Received _____
 Addendum No. 2 dated _____ Received _____
- C. Advertisement for Bids, Instructions to Bidder, the Invitation to Bid and Bid Form;
- D. The Special/Supplemental Conditions;
- E. The Specifications and the Project Drawings (if any);
- F. The Construction Details shown on plans;
- G. The Standard Specifications and Standard Drawings from the Public Works Construction Standards-North Central Texas Council of Governments, 2004 2017 edition and all subsequent addendums;
- H. The Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, as adopted by the Texas Department of Transportation on November 1, 2014, hereinafter referred to as the "Texas Standard Specifications";
- I. The Performance Bond in the sum of ONE HUNDRED PERCENT (100%) of the total Contract Price;
- J. The Payment Bond in the sum of ONE HUNDRED PERCENT (100%) of the total Contract Price; and,
- K. The two (2) year Maintenance Bond in the sum of TEN PERCENT (10%) of the total Contract Price.

1.2.1 PRIORITY OF THE CONTRACT DOCUMENTS

These Contract Documents (A through K above) form the Construction Agreement and are a part of this Construction Agreement as if fully set forth herein. In the event of an inconsistency in any of the provisions of the Contract Documents, the inconsistency shall be resolved by giving precedence to the Contract Documents in the order in which they are listed above.

1.2.2 THE CONTRACT

The Contract Documents form the Contract. The Contract represents the entire integrated agreement between the OWNER and the CONTRACTOR and supercedes all prior negotiations, and representations by either party.

1.3 CORRELATION AND INTENT OF DOCUMENTS

The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intent of the documents, unless otherwise specifically provided, is to produce complete and finished work, which the CONTRACTOR undertakes to do in full compliance with the Contract Documents. It is not intended to mention every item of work in the specifications which can be adequately shown on the drawings nor to show on the drawings all items of work described or required by the specifications. All materials or labor for work shown on the drawings or reasonably inferable therefrom as being necessary to produce a finished job shall be provided by the CONTRACTOR whether or not same is expressly covered in the specifications. No verbal conversation, understanding or agreement with any officer or employee or agent of the OWNER, either before or after the execution of the Contract, shall affect or modify any of the terms, conditions or obligations contained in the Contract Documents.

1.3.1 CONTRACT DRAWINGS AND SPECIFICATIONS

The OWNER shall furnish the CONTRACTOR one copy of the Contract Drawings and any supplemental drawings and specifications reasonably necessary for the proper execution of the work. At least one copy of all drawings and specifications shall be accessible at all times to the OWNER at the job site.

1.3.2 SUPPLEMENTAL DRAWINGS AND SPECIFICATIONS

In order to carry out the intent of the Contract Documents and to assist the CONTRACTOR in performing its work, the OWNER, after the execution of the Contract, may, by supplemental drawings, specifications or otherwise, furnish additional information or instructions as may be necessary for construction purposes.

All such supplemental drawings, specifications or instructions are intended to be consistent with the Contract Documents and reasonably inferable therefrom. Therefore, no extra costs shall be allowed by the OWNER on a claim that particular supplemental drawings, specifications or instructions differ from the requirements of the Contract Documents, incurring extra costs, unless the CONTRACTOR has first brought the matter, in writing, to the OWNER'S attention for adjustment before proceeding with the work covered by such.

If the OWNER decides that there is no departure from the requirements of the Contract Documents, the CONTRACTOR shall then proceed with the work as shown, specified or directed. If the OWNER shall decide that Extra Work is involved, he shall so modify the supplemental drawings, specifications or instructions to eliminate the Extra Work, or cause a written Change Order to be issued in accordance with the Contract Documents.

1.3.3 ERRORS AND CORRECTIONS IN DRAWINGS AND SPECIFICATIONS

The CONTRACTOR shall not take advantage of any apparent errors, omissions or discrepancies in the drawings or specifications; and the Engineer shall be permitted to make such corrections or interpretations as may be necessary for the fulfillment of the intent of the Contract Documents. In case of any errors, omissions or discrepancies in the drawings or specifications, the CONTRACTOR shall promptly submit the matter to the OWNER or OWNER'S Representative in writing who, in turn, shall promptly make a determination and issue the necessary instructions in writing. Any adjustment by the CONTRACTOR without this determination and instructions shall be at the CONTRACTOR'S own risk and expense. The Work is to be made complete as intended by the Contract Documents.

1.3.4 EXISTING STRUCTURES

The plans show the general locations of some known surface and subsurface structures. The locations of many gas mains, water mains, conduits, sewers, other utilities, etc., however, are unknown, and the OWNER assumes no responsibility for failure to show any or all of these structures on the plans or to show them in their exact locations. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for Extra Work or for increasing the pay quantities in any manner whatsoever. The CONTRACTOR shall be solely responsible for locating all gas mains, water mains, conduits, sewers, other utilities etc., so as to perform the Work without damaging the same.

II. THE WORK

2.1 SCOPE OF WORK

Contractor shall provide all labor, supervision, materials, and equipment necessary to perform all work required by the Contract Documents in connection with IFB No. 2021-084 Project: Construction, Road: County Road 317 (Orr Rd) from Stacy Rd to South NTMWD Driveway.

2.2 CHANGE OR MODIFICATION OF CONTRACT

2.2.1 ALTERATION OF PLANS AND SPECIFICATIONS

The OWNER reserves the right to make such changes in the plans and specifications and in the character of the work as may be necessary or desirable to insure completion in the most satisfactory manner, provided such changes do not materially alter the original plans and specifications or change the general nature of the Work as a whole. Such changes shall not be considered as waiving or invalidating any condition or provision of the Contract or bonds. Such changes shall be issued by the Engineer.

2.2.2 INCREASED OR DECREASED QUANTITIES OF WORK

The OWNER reserves the right and may from time to time, by written order, and without notice to any surety, make changes in the quantity or time of performance of the Work, as may be considered necessary or desirable and such changes shall not be considered as waiving or invalidating any conditions or provisions of the Contract or bonds. The CONTRACTOR shall perform all the Contract Work in strict compliance with the Contract Documents, and shall not make any changes to the Work without prior written authorization from the OWNER, in the form of a written Change Order. If such changes increase or decrease either the cost or the time necessary for the performance of the Work, then the parties will mutually agree upon an equitable adjustment to the price or time to perform the Work pursuant to the terms of the Contract.

2.2.3 EXTRA WORK/CHANGE ORDERS

When any work is necessary to the proper completion of the Project and for which no prices are provided for in the Bid or Proposal and Contract, the CONTRACTOR shall do such work, but only when and as ordered in writing by the OWNER. The OWNER may order changes in the Work without invalidating Contract. Payment for Extra Work shall be made as provided herein. Contractor agrees that overhead and profit for Extra Work shall not exceed 10% of the total cost of the Extra Work. The Contractor shall not be entitled to any additional funds for any work or Extra Work performed on the Project, unless a Change Order is issued and signed by the Owner. The CONTRACTOR shall perform the work as altered, whether increased or decreased, and no allowances shall be made for anticipated profits. Nothing in this section shall give rise to any claims for any delay or acceleration damages, and the CONTRACTORS sole remedy for any delays in the Project shall remain an equitable extension of time as provided for in the Contract Documents. CONTRACTOR acknowledges and agrees to waive all rights or claims for compensation for any additional or other work not specifically authorized by the OWNER.

2.3 DISPUTED WORK AND CLAIMS FOR ADDITIONAL COMPENSATION

If the CONTRACTOR is of the opinion that (a) the work necessary or required to accomplish the result intended by this Contract, or (b) any work ordered to be done as Contract Work by the OWNER is Extra Work and not Contract Work, or (c) any determination or order of the OWNER violates the terms and provisions of this Contract, the CONTRACTOR shall promptly, either before proceeding with such work or complying with such order or determination, notify the OWNER in writing of his contentions with respect thereto and request a final determination thereof.

Such determination of the OWNER shall be given in writing to the CONTRACTOR. If the OWNER determines that the work in question is Extra Work and not Contract Work, or that the order complained of requires performance by the CONTRACTOR beyond that required by the Contract or violates the terms and provisions of the Contract, thereupon the OWNER shall cause either (a) the issuance of a written Change Order covering the Extra Work as provided herein, or (b) the determination or order complained of to be rescinded or so modified so as to not require performance beyond that required by the terms and provisions of the Contract.

If the OWNER determines that the work in question is Contract Work and not Extra Work, or that the determination or order complained of does not require performance by the CONTRACTOR beyond that required by the Contract or violate the terms and provisions of the Contract, he shall direct the CONTRACTOR to proceed, and the CONTRACTOR must promptly comply. In order to reserve his right to claim compensation for such work resulting from such compliance, however, the CONTRACTOR must, within 20 calendar days after receiving the OWNER'S determination and direction, notify the OWNER in writing that the work is being performed, or that the determination and direction is being complied with, under protest.

If the CONTRACTOR fails to so appeal to the OWNER for a determination or, having so appealed, should the CONTRACTOR thus fail to notify the OWNER in writing of his protest, the CONTRACTOR shall be deemed to have waived any claim for extra compensation or damages therefore. No oral appeals or oral protests, no matter to whom made, shall be deemed even substantial compliance with the provisions of this item.

In addition to the foregoing requirements, the CONTRACTOR shall, upon notice from the OWNER, produce for examination for a minimum period of three (3) years following final payment or termination of contract and audit at the CONTRACTOR'S office, by the representatives of the OWNER, all his books and records showing all of his acts and transactions in connection with contractual performance as well as relating to or arising by reason of the matter in dispute. At such examination a duly authorized representative of the CONTRACTOR may be present.

Unless the aforesaid requirements and conditions are complied with by the CONTRACTOR, the OWNER shall be released from all claims arising under, relating to or by reason of disputed work or Extra Work. It is further stipulated and agreed that no conduct on the part of the OWNER or any agent or employee of the OWNER shall ever be construed as a waiver of the requirements of this section, when such requirements constitute an absolute condition precedent to any approval of any claim for extra compensation, notwithstanding any other provisions of the Contract Documents; and in any action against the OWNER to recover any sum in excess of the contract amount, the CONTRACTOR must allege and prove strict compliance with the provisions of this section. The CONTRACTOR ASSUMES THE RISK OF NONPAYMENT, for failing to comply with any of the requirements of this section.

III. CONTRACTORS RESPONSIBILITIES

3.1 CONTRACTOR'S REPRESENTATIONS, WARRANTIES AND ASSURANCES.

In consideration of, and to induce the award of this contract to him, the CONTRACTOR represents and warrants: (a) That he is financially solvent, and sufficiently experienced and competent to perform the work; (b) That the facts stated in the proposal and the information given by him pursuant to the bidding documents are true and correct in all respects; (c) That he has read, understood and complied with all the requirements set forth in the bidding documents; (d) That he is familiar with and understands all laws and regulations applicable to the work; and (e) unless otherwise specifically provided for in the Contract Documents, the CONTRACTOR shall do all the Work and shall furnish all the tools, equipment, machinery, materials, labor and appliances, except as herein otherwise specified, necessary or proper for performing and completing the work required by this Contract, in the manner and within the time herein prescribed.

By executing the contract, the CONTRACTOR represents that he has visited the site of Work, has fully familiarized himself with the local and on-site conditions under which the work is to be performed and has correlated his observation with the requirements of the Contract Documents. In addition, the CONTRACTOR represents that he has satisfied himself as to subsurface conditions at the site of the Work. Information, data and representations contained in the Contract Documents pertaining to the conditions at the site, including subsurface conditions, are for information only and are not warranted or represented in any manner to accurately show the conditions at the site of the Work. The CONTRACTOR agrees that he shall make no claims for damages, additional compensation or extension of time against the OWNER because of encountering actual conditions in the course of the Work which vary or differ from conditions or information contained in the Contract Documents. All risks of differing subsurface conditions shall be borne solely by the CONTRACTOR.

The CONTRACTOR shall carefully study and compare the Contract Documents and shall at once report to the OWNER any error, inconsistency or omission he

may discover. The CONTRACTOR shall perform no portion of the Work at any time without Contract Documents or, where required, approved shop drawings, product data or samples for such portion of the work.

3.1.1 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Shop drawings are drawings, diagrams, schedules and other data specially prepared for the work by the CONTRACTOR or any subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the CONTRACTOR to illustrate a material, product or system for some portion of the work.

C. Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the work shall be judged.

D. the CONTRACTOR shall provide, review, approve and submit to the Engineer with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the OWNER or any separate contractor, all shop drawings, product data and samples required by the Contract Documents. The Work will be performed in accordance with submittals approved by the Engineer. The CONTRACTOR shall not be relieved responsibility for deviations from the requirements of the Contract Documents by errors or omissions by the OWNER or Engineer in approving Shop Drawings, Product Data, samples or any other submittals.

E. By approving and submitting shop drawings, product data and samples, the CONTRACTOR represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or shall do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

F. As the Engineer's review is only for general conformance with the requirements of the Contract Documents, the CONTRACTOR shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Engineer's approval of shop drawings, product data or samples unless the CONTRACTOR has specifically informed the Engineer in writing of such deviation at the time of submission and the Engineer have given written approval to the specific deviation. The CONTRACTOR shall not be relieved from responsibility for errors or omissions in the shop drawings, product data or samples by the Engineer's approval thereof. The CONTRACTOR shall direct specific

attention, in writing or on resubmitted shop drawings, product data or samples, to revisions other than those requested by the Engineer on previous submittals.

G. the CONTRACTOR shall be responsible for delays caused by rejection of the submittal of inadequate or incorrect shop drawings, product data or samples. The CONTRACTOR shall be responsible for seeing that any “approved” copies of shop drawings bearing the approval of the Engineer are allowed on the job site. The CONTRACTOR shall be responsible for providing all copies of approved shop drawings necessary for the construction operations.

H. the CONTRACTOR shall keep adequate records of submittal and approvals so that an accurate up-to-date record file is maintained at the job site at all times.

I. No portion of the work requiring submission of a shop drawing, product data or sample shall be commenced until the submittal has been approved by the Engineer. All such portions of the work shall be in accordance with approved submittals.

3.1.2 SURETY BONDS

With the execution and delivery of the contract, the CONTRACTOR shall furnish and file with the OWNER in the amounts herein required, the surety bonds specified hereunder. Without exception, the OWNER’S bond forms, attached hereto as Section 00610 and 00611 must be used, and exclusive venue for any lawsuit in connection with such bonds shall be specified as the county in which the OWNER’S principal office is located. Such surety bonds shall be in accordance with Texas Law, including but not limited to, the provisions of Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code. These bonds shall automatically be increased by the amount of any change order or supplemental agreement which increases the contract price with or without notice to the surety, but in no event shall a change which reduces the contract amount reduce the penal amount of such bonds.

A. Performance Bond. A good and sufficient bond in an amount not less than 100 percent (100%) of the total amount of the Contract Price guaranteeing the full and faithful execution of the Work and performance of the Contract in accordance with the plans, specifications and Contract Documents, including any extensions thereof, for the protection of the OWNER. This bond shall provide for the repair and/or replacement of all defects due to faulty materials and workmanship that appear within a period of one year from the date of completion and acceptance of the improvement by the OWNER or such lesser or greater period as may be designated in the Contract Documents.

B. Payment Bond. A good and sufficient bond in an amount not less than 100 percent (100%) of the total amount of the Contract Price guaranteeing the full and proper protection of all payment bond beneficiaries and claimants supplying labor and material in the prosecution of the work provided for in said Contract and for the use of each claimant.

C. Maintenance Bond. A good and sufficient bond in an amount not less than ten percent (10%) of the total amount of the Contract Price guaranteeing the project against defects for two (2) years.

D. Sureties. No sureties shall be accepted by the OWNER who are now in default or delinquent on any bonds or who are interested in any litigation against the OWNER. All bonds shall be made on forms furnished by the OWNER and shall be executed by not less than one corporate surety authorized to do business in the State of Texas and acceptable to the OWNER. The sureties shall be listed in the most current Federal Register Treasury List. Each bond shall be executed by the CONTRACTOR and surety. Each surety shall designate an agent resident in the OWNER'S jurisdictional area acceptable to the OWNER to whom any requisite notices may be delivered and on whom service of process may be had in matters arising out of such suretyship. The OWNER reserves the right to reject any and all sureties.

E. Additional or Substitute Bonds. If at any time the OWNER is or becomes dissatisfied with any surety, then upon the performance or payment bond, the CONTRACTOR shall, within five days after notice from the OWNER to do so, substitute an acceptable bond (or bonds), or provide an additional bond, in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such bonds shall be paid by the CONTRACTOR without recourse to the OWNER. No further payments under the contract shall be deemed due or payable until the substitute or additional bonds shall have been furnished and accepted by the OWNER.

3.1.3 PERMITS AND FEES

The CONTRACTOR shall secure and pay for all building permits and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are normally and legally required for the construction of similar projects in the State of Texas. The CONTRACTOR will give all notices required by laws, ordinances, rules, regulations and lawful orders of authorized public authorities required for the proper and legal performance of the Work.

3.14 CONTRACT DOCUMENTS AT SITE

The CONTRACTOR shall keep and maintain at the Project site one record copy of the Contract Documents, including but not limited to, the Drawings, Specifications, addenda, Change Orders, submittals, Product Data, Samples and other modifications, in good order and marked to show the current construction of the Project. These documents shall be available to the OWNER or Engineer to review at any time and shall be submitted to the OWNER upon completion of the Project, along with a complete set of as built drawings.

3.2 CONTRACTOR'S RESPONSIBILITIES

3.2.1 PERFORMANCE OF THE WORK

In addition to those matters elsewhere expressly made the responsibility of the CONTRACTOR, the CONTRACTOR shall have the full and direct responsibility for the performance and completion of the Work under this Contract and for any act or neglect of the CONTRACTOR, his agents, employees or subcontractors. He shall bear all losses, if any, resulting on account of the amount and character of the Work, or because the conditions under which the work must be done are different from what were estimated or anticipated by him, or because of weather, floods, elements or other causes.

3.2.2 MEANS AND METHODS OF CONSTRUCTION

Unless otherwise expressly provided in the contract drawings, specifications or bulletins, the means and methods of construction shall be such as the CONTRACTOR may choose; subject, however, to the OWNER'S right to prohibit means and methods proposed by the CONTRACTOR which in the OWNER'S judgment:

- A. shall constitute a hazard to the Work, or to persons or property, or shall violate express requirements of applicable laws or ordinances; or
- B. shall cause unnecessary or unreasonable inconvenience to the public; or
- C. shall not produce finished work in accordance with the requirements of the Contract Documents; or
- D. shall not assure the Work to be completed within the time allowed by the contract.

The OWNER'S approval of the CONTRACTOR'S means or methods of construction, or the OWNER'S failure to exercise his right to prohibit such means or methods, shall not relieve the CONTRACTOR of his responsibility for the Work or of his obligation to accomplish the result intended by the Contract Documents; nor shall the exercise or non-exercise of such rights to prohibit create a cause of action for damages or

provide a basis for any claim by the CONTRACTOR against the OWNER. The CONTRACTOR shall be solely responsible for, the construction means and methods, techniques, sequences, procedures, and for the safety precautions and programs in connection with the Work or the Project.

If the Contract Documents specify any means, methods, techniques, sequences or procedures, the CONTRACTOR shall evaluate said specifications and determine that they are safe for the proper prosecution of the Work. The CONTRACTOR shall be solely responsible for the job site safety of such means, methods, techniques, sequences or procedures. If the CONTRACTOR determines the specified means, methods, techniques, sequences or procedures may not be safe, the CONTRACTOR shall immediately notify the OWNER and Engineer and shall not proceed without further instructions.

3.2.3 CONSTRUCTION SCHEDULE

The CONTRACTOR, immediately after being awarded the contract, shall prepare and submit for the OWNER, and Engineer's information an estimated progress schedule for the work. The progress schedule shall be related to the entire Project to the extent required by the Contract Documents and shall provide for expeditious and reasonable execution of the work, not to exceed the time limits for completion provided in the Contract Documents. The progress schedule shall be updated as the Work proceeds or the schedule changes and immediately upon request by the OWNER. The CONTRACTOR shall also prepare a schedule of submittals that allows for a reasonable time for the OWNER or Engineer to review the submittals so as not to delay the Project.

3.2.4 TIME OF PERFORMANCE OF THE WORK

The CONTRACTOR shall begin the work to be performed under this Contract not later than 10 days from the date specified in the purchase or work order and shall conduct the work in such a manner and with sufficient equipment, material and labor as is necessary to insure its completion within the working time. It is the intent of this specification to provide a continuous construction operation without delay except as occasioned by unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, and it shall be the CONTRACTOR's responsibility to execute the work in the most expeditious manner.

Work shall be done only during the regular and commonly accepted and prescribed working hours. No work shall be done on nights, Sundays or regular holidays unless permission is given by the OWNER

Time is of the Essence for the performance of the Work by the CONTRACTOR. CONTRACTOR agrees that the time allotted for the performance of the Work is reasonable.

3.2.5 PERFORMANCE OF EXTRA OR DISPUTED WORK

While the CONTRACTOR or his subcontractor is performing Extra Work in accordance with the OWNER'S written order, the cost of which is to be determined on a time and material basis, or is performing disputed work or complying with a determination or order under protest, the CONTRACTOR shall, on the Monday following the performance of the work, furnish the OWNER'S representative at the site with three copies of verified statements showing:

A. the name, address and telephone number of each workman employed on such Extra Work or engaged in complying with such determination or order, the character of Extra Work each is doing and the wages paid to him, including the rate and amount of payroll taxes, contributions for insurance, and federal social security; and

B. the nature, cost and quantity of any materials, plant equipment or construction equipment furnished or used in connection with the performance of such Extra Work or in complying with such determination or order, and from whom purchased or rented, along with copies of invoices for such materials, plant equipment or construction equipment.

The CONTRACTOR and his subcontractors, when required by the OWNER, must also produce for inspection for a minimum period of three (3) years following final payment or termination of contract, produce for examination and audit by designated OWNER representatives, any and all of his books, vouchers, records, daily job diaries and reports, canceled checks, etc. showing the nature and quantity of labor, materials and equipment actually used in the performance of the Extra Work; the amounts expended therefore; and the costs incurred for insurance premiums and other items of expense directly chargeable to such Extra Work. The CONTRACTOR must permit the OWNER'S representatives to make extracts therefrom or copies thereof as may be desired.

Failure of the CONTRACTOR to comply strictly with the requirements of this section shall constitute a waiver of any claim for extra compensation on account of the performance of such Extra Work.

3.3 QUALITY OF WORK

3.3.1 INSPECTION AND TESTS

The CONTRACTOR shall furnish the OWNER with every reasonable accommodation and opportunity to ascertain whether or not the work performed is in accordance with the requirements and intent of the plans and specifications. Any work done or materials used without suitable inspection by the OWNER may be ordered removed and replaced at the CONTRACTOR'S expense. The CONTRACTOR shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the OWNER in his administration of the contract, or by inspections, tests or approvals required or performed by persons other than the CONTRACTOR.

Unless otherwise provided, the CONTRACTOR shall make arrangements for all tests, inspections and approvals with an independent testing laboratory or entity required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction over the Work or items to be tested, inspected or approved. If additional testing or inspection is required they shall be performed at the CONTRACTOR'S expense.

3.3.2 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

All work which has been rejected or condemned shall be repaired, or if it cannot be repaired satisfactorily, it shall be removed and replaced at the CONTRACTOR'S expense. Defective materials shall be immediately removed from the site of the work. Work done without line and grade having been given, work done beyond the lines or not in conformity with the grades shown on the plans or as given, save as herein provided, work done without written authority and prior agreement in writing as to process, shall be done at the CONTRACTOR'S risk and shall be considered unauthorized and at the option of the OWNER may be ordered removed at the CONTRACTOR'S expense.

Upon failure of the CONTRACTOR to repair satisfactorily or to remove and replace, if so directed, rejected, unauthorized or condemned work or materials immediately after receiving notice from the OWNER, the OWNER shall, after giving written notice to the CONTRACTOR, have the authority to cause defective work to be remedied or removed and replaced, or to cause unauthorized work to be removed and to deduct the cost thereof from any monies due or to become due the CONTRACTOR. Alternatively, the OWNER may, at its option, declare the CONTRACTOR in default.

3.3.3 WORKING AREA; COORDINATION WITH OTHER CONTRACTORS; FINAL CLEANUP

The CONTRACTOR shall confine his equipment, storage of materials and construction operations to the area shown on the contract drawings or stated in the specifications, prescribed by ordinance, laws, or permits or as may be directed by the OWNER, and shall not unreasonably encumber the site or public right-of-way with his construction equipment, plant or materials.

Such area shall not be deemed for the exclusive use of the CONTRACTOR. Other contractors of the OWNER may enter upon and use such portions of the area and for such items as determined by the OWNER are necessary for all purposes required by their contracts. The CONTRACTOR shall give to such other contractors all reasonable facilities and assistance to the end that the work on this and other contracts shall not be unduly or unreasonably delayed. Any additional areas desired by the CONTRACTOR for his use shall be provided by him at his own cost and expense.

The CONTRACTOR is responsible for cutting, fitting or patching any parts of the Work where such work is necessary to make the Work complete, for parts to fit together, or for any damage to the Work prior to Final Acceptance.

The CONTRACTOR shall keep the Project and the surrounding area clean and free from the accumulation of waste materials or trash. Upon completion of the work and before final acceptance and final payment shall be made, the CONTRACTOR shall completely clean and remove from the site of the work surplus and discarded materials, temporary structures and debris of every kind. He shall leave the site of the work in a neat and orderly condition equal to that which originally existed, or as called for in the Contract Documents. Surplus and waste materials removed from the site of the work shall be disposed of at locations satisfactory to the OWNER, and at the CONTRACTOR'S sole cost.

3.4 LEGAL RESPONSIBILITIES

3.4.1. PATENTS AND COPYRIGHTS

The CONTRACTOR shall pay all royalties and license fees and shall provide, by suitable legal agreement with the patentee or owner, for the use of any design, device, material or process covered by letters, patent or any copyright. The CONTRACTOR shall indemnify, defend, hold and save the OWNER and its officers, employees and agents harmless from all liability and claims for infringement of any patent or copyright.

In the event that any claims, suit or action at law or in equity of any kind whatsoever is brought against the OWNER, or its officers, employees or

agents involving any such patents, copyrights or license rights, then the OWNER shall have the right to and may retain from any money due or to become due to the CONTRACTOR such sum deemed necessary by the OWNER for its protection until such claim or suit shall have been settled and satisfactory evidence to that effect shall have been furnished the OWNER.

3.4.2 INDEMNIFICATION

To the fullest extent permitted by law, the CONTRACTOR and his sureties shall indemnify, defend and hold harmless the OWNER and all of its, past, present and future, officers, agents and employees from all suits, cause of action, claims, liabilities, losses, fines, penalties, liens, demands, obligations, actions, proceedings, of any kind, character, name and description brought or arising, on account of any injuries or damages received or sustained by any person, destruction or damage to any property on account of, in whole or part, the operations of the CONTRACTOR, his agents, employees or subcontractors; or on account of any negligent act or fault of the CONTRACTOR, his agents, employees or subcontractors in the execution of said Contract; failing to comply with any law, ordinance, regulation, rule or order of any governmental or regulatory body including those dealing with health, safety, welfare or the environment; on account of the failure of the CONTRACTOR to provide the necessary barricades, warning lights or signs; and shall be required to pay any judgment, with cost, which may be obtained against the OWNER growing out of such injury or damage. In no event shall OWNER be liable to CONTRACTOR for indirect or consequential damages or loss of income or profit irrespective of the cause, fault or reason for same. CONTRACTOR'S duty to indemnify herein shall not be limited by any limitation on the type or amount of damages payable by or for CONTRACTOR or any Subcontractor under workman's compensation acts, disability benefit acts or any other employee benefit acts.

In addition, the CONTRACTOR likewise covenants and agrees to, and does hereby, indemnify and hold harmless the OWNER from and against any and all injuries, loss or damages to property of the OWNER during the performance of any of the terms and conditions of this Contract, arising out of or in connection with or resulting from, in whole or in part, any and all alleged acts or omissions of officers, agents, servants, employees, contractors, subcontractors, licenses or invitees of the CONTRACTOR.

The rights and responsibilities provided in this indemnification provision shall survive the termination or completion of this Contract.

3.5 SUPERVISION AND CONSTRUCTION PROCEDURES

3.5.1. SUPERVISION BY CONTRACTOR

The status of the CONTRACTOR is that of an independent CONTRACTOR under Texas law and the work under this Contract shall be under the direct charge and superintendence of the CONTRACTOR. Except where the CONTRACTOR is an individual and gives his personal superintendence to the work, the CONTRACTOR shall provide a competent superintendent or general foreman on the work site at all times during progress with full authority to act for the CONTRACTOR. The CONTRACTOR shall also provide an adequate staff for the coordination and expediting of the Work.

The superintendent and staff shall be satisfactory to the OWNER. The superintendent or general foreman shall not be changed during this Contract except with the written consent of the OWNER or unless the superintendent or general foreman proves unsatisfactory to the CONTRACTOR and ceases to be in his employ.

If the superintendent should be or become unsatisfactory to the OWNER, he shall be replaced by the CONTRACTOR upon written direction of the OWNER, and in such event, the CONTRACTOR shall not be entitled to file a claim for any additional working time or money from the OWNER.

3.5.2 EMPLOYEES

The CONTRACTOR shall employ only competent, efficient workmen and shall not use on the work any unfit person or one not skilled in the work assigned to him and shall at all times maintain good order among its employees. Whenever the OWNER shall inform the CONTRACTOR in writing that, in his opinion, any employee is unfit, unskilled, disobedient, or is disrupting the orderly progress of the work, such employee shall be removed from the work and shall not again be employed on it. Under urgent circumstances, the OWNER may orally require immediate removal of an employee for cause, to be followed by written confirmation.

The CONTRACTOR shall supervise and direct all the work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences, procedures and safety procedures and for coordinating all portions of the Work under the Contract. The CONTRACTOR shall be responsible to the OWNER for the acts and omissions of his employees, subcontractors and their agents, employees and subcontractors performing any of the work under a contract with the CONTRACTOR.

3.5.3 LABOR AND MATERIALS

Unless otherwise provided in the Contract Documents, the CONTRACTOR shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation and other facilities and services necessary for the proper execution and completion of the work, whether temporary or permanent and whether or not incorporated or to be incorporated into the work.

The CONTRACTOR shall at all times enforce strict discipline and good order among his employees and shall not employ on the work site any unfit person or anyone not skilled in the task assigned to him.

The rate of progress shall be such that the whole work shall be performed and the premises cleaned up in accordance with the Contract within the working time established in the Contract, unless an extension of time is made in the manner hereinafter specified.

3.5.4 WAGE SCALE

In accordance with The Texas Government Code, Title 10, Chapter 2258, Prevailing Wage Rates, the general prevailing wage rate has been determined for this locality for the craft or type of workman needed to execute work of a similar character of the project listed herein. The Contractor shall pay the prevailing wage rate in this locality to all his/her employees and subcontractors performing work on this project, and in no event shall the Contractor pay less than the rate shown in the following schedule.

General Decision Number: TX20200025 01/03/2020

Superseded General Decision Number: TX20190025

State: Texas

Construction Type: Highway

Counties: Archer, Callahan, Clay, Collin, Dallas, Delta, Denton, Ellis, Grayson, Hunt, Johnson, Jones, Kaufman, Parker, Rockwall, Tarrant and Wise Counties in Texas.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after

January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number Publication Date
 0 01/03/2020

* SUTX2011-007 08/03/2011

	Rates
Fringes	
CONCRETE FINISHER (Paving and Structures).....	\$ 14.12
ELECTRICIAN.....	\$ 19.80
FORM BUILDER/FORM SETTER	
Paving & Curb.....	\$ 13.16
Structures.....	\$ 13.84
LABORER	
Asphalt Raker.....	\$ 12.69
Flagger.....	\$ 10.06
Laborer, Common.....	\$ 10.72
Laborer, Utility.....	\$ 12.32
Pipelayer.....	\$ 13.24
Work Zone Barricade Servicer.....	\$ 11.68
POWER EQUIPMENT OPERATOR:	
Asphalt Distributor.....	\$ 15.32
Asphalt Paving Machine.....	\$ 13.99
Broom or Sweeper.....	\$ 11.74
Concrete Pavement Finishing Machine.....	\$ 16.05
Concrete Saw.....	\$ 14.48
Crane Operator, Lattice Boom 80 Tons or Less.....	\$ 17.27

Crane Operator, Lattice Boom over 80 Tons.....	\$ 20.52
Crane, Hydraulic 80 Tons or Less.....	\$ 18.12
Crawler Tractor.....	\$ 14.07
Excavator, 50,000 pounds or less.....	\$ 17.19
Excavator, over 50,000 pounds.....	\$ 16.99
Foundation Drill , Truck Mounted.....	\$ 21.07
Foundation Drill, Crawler Mounted.....	\$ 17.99
Front End Loader 3 CY or Less.....	\$ 13.69
Front End Loader, over 3 CY.....	\$ 14.72
Loader/Backhoe.....	\$ 15.18
Mechanic.....	\$ 17.68
Milling Machine.....	\$ 14.32
Motor Grader, Fine Grade.....	\$ 17.19
Motor Grader, Rough.....	\$ 16.02
Pavement Marking Machine.....	\$ 13.63
Reclaimer/Pulverizer.....	\$ 11.01
Roller, Asphalt.....	\$ 13.08
Roller, Other.....	\$ 11.51
Scraper.....	\$ 12.96
Small Slipform Machine.....	\$ 15.96
Spreader Box.....	\$ 14.73
 Servicer.....	 \$ 14.58
 Steel Worker (Reinforcing).....	 \$ 16.18
 TRUCK DRIVER	
Lowboy-Float.....	\$ 16.24
Off Road Hauler.....	\$ 12.25
Single Axle.....	\$ 12.31
Single or Tandem Axle Dump Truck.....	\$ 12.62
Tandem Axle Tractor with Semi Trailer.....	\$ 12.86
Transit-Mix.....	\$ 14.14
 WELDER.....	 \$ 14.84

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with

1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted

average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division

U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

Except for work on legal holidays, the “General Prevailing Rate of Per Diem Wage” for the various crafts or type of workers or mechanics is the product of (a) the number of hours worked per day, except for overtime hours, times (b) the above respective rate per hour.

For legal holidays, the “General Prevailing Rate of Per Diem Wage” for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective rate per hour, times (b) the number of hours worked on the legal holiday.

For overtime work, the “General Prevailing Rate of Per Diem Wage” for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective rate per hour, times (b) the number of hours worked on overtime.

Under the provisions of Texas Government Code, Title 10, Chapter 2258, Prevailing Wage Rates, the contractor or subcontractor of the contractor

shall forfeit as a penalty to the entity on whose behalf the contract is made or awarded, sixty dollars (\$60.00) for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the contract.

If the construction project involves the expenditure of Federal funds in excess of \$2,000, the minimum wages to be paid various classes of laborers and mechanics will be based upon the wages that will be determined by the Secretary of Labor to be prevailing for the corresponding classes of laborers and mechanics employed on the project of a character similar to the Contract Work.

3.5.5 Contractors doing business with OWNER agree to comply with Federal Executive Order 13465 E-Verify. It is OWNER'S intention and duty to comply and support the Immigration and Nationality Act (INA) which includes provisions addressing employment eligibility, employment verification and non-discrimination. According to the INA, contractors/employers may hire only persons who may legally work in the United States. Subsequently, contractors and subcontractors doing business with OWNER must confirm their enrollment in the E-Verify system which verifies employment eligibility through completion and checking of I-9 forms. OWNER reserves the right to audit contractors process to verify enrollment compliance.

3.5.6 COMPLIANCE WITH LAWS

The CONTRACTOR shall fully comply with all local, state and federal laws, including all codes, ordinances and regulations applicable to this Contract and the Work to be done thereunder, which exist or which may be enacted later by governmental bodies having jurisdiction or authority for such enactment.

All work required under this Contract is intended to comply with all requirements of law, regulation, permit or license. If the CONTRACTOR finds that there is a variance, he shall immediately report this to the OWNER for resolution.

3.5.6.1 EQUAL EMPLOYMENT OPPORTUNITY

The CONTRACTOR shall comply with all local, state and federal employment and discrimination laws and shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, national origin or any other class protected by law.

3.5.7 RAILWAY CROSSINGS

Where the Work encroaches upon any right-of-way of any railway, the OWNER shall secure the necessary easement for the work. Where railway tracks are to be crossed, the CONTRACTOR shall observe all the regulations and instructions of the railway company as to methods of

doing the work or precautions for safety of property and the public. All negotiations with the railway company, except for right-of-way, shall be made by the CONTRACTOR. The railway company shall be notified by the CONTRACTOR not less than five days prior to commencing the work. The CONTRACTOR shall not be paid separate compensation for such railway crossing but shall receive only the compensation as set out in the proposal.

3.5.8 OTHER CONTRACTORS; OBLIGATION TO COOPERATE

The OWNER reserves the right to perform construction on the Project with its own forces or may award other contracts for additional work on this Project, and the CONTRACTOR shall fully cooperate with such other contractors and shall coordinate and fit his work to be done hereunder to such additional work as may be contracted by the OWNER. The CONTRACTOR shall not commit or permit any act which shall interfere with the performance of work by any other contractor.

Upon receiving written notice from the CONTRACTOR that the OWNER or another contractor is failing to coordinate his work with the Work under this Contract as directed by the OWNER, the OWNER shall promptly investigate the charge and take such necessary action as the situation may require. However, the OWNER shall not be liable to the CONTRACTOR for damages suffered by the CONTRACTOR due to the fault or negligence of another contractor or through failure of another contractor to carry out the directions of the OWNER. Should any interference occur between contractors, the Engineer may furnish the CONTRACTOR with written instructions designating priority of effort, whereupon the CONTRACTOR shall immediately comply with such direction. In such event, the CONTRACTOR shall be entitled to an extension of working time only for unavoidable delays verified by the Engineer; however, no increase in the Contract Price shall be due the CONTRACTOR.

3.5.9 SUBCONTRACTS

The CONTRACTOR shall not make any subcontract for performing any portion of the Work included in the contract without written notice to the OWNER. This contract having been made pursuant to the bid submitted by the CONTRACTOR and in reliance with the CONTRACTOR'S personal qualifications and responsibility, the OWNER reserves the right to withhold approval of any subcontractor which the OWNER may deem would not be in the OWNER'S best interest.

The CONTRACTOR shall, as soon as practicable after signing the Contract, submit a separate written notice to the OWNER identifying each proposed subcontractor. Upon request of the OWNER, the CONTRACTOR shall promptly furnish additional information tending to

establish that any proposed subcontractor has the necessary facilities, skill, integrity, past experience and financial resources to perform the work in accordance with the terms and conditions of this Contract.

If the OWNER determines that any proposed subcontractor is unacceptable, he shall so notify the CONTRACTOR, who may thereupon submit another proposed subcontractor unless the CONTRACTOR decides to do the work himself. Disapproval by the OWNER of any proposed subcontractor shall not provide a basis for any claim by the CONTRACTOR.

If an approved subcontractor fails to properly perform the work undertaken, he shall be removed from the job upon request of the OWNER, following notification to the CONTRACTOR in writing of the request for removal and the reasons therefore.

Each subcontract entered into shall provide that the provisions of this Contract shall apply to such subcontractor and his officers and employees in all respects as if he and they were employees of the CONTRACTOR. The OWNER'S decision not to disapprove of any subcontract shall not relieve the CONTRACTOR of any of his responsibilities, duties and liabilities hereunder. The CONTRACTOR shall be solely responsible for the acts, omissions, negligence or defaults of his subcontractors and of such subcontractor's officers, agents and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the CONTRACTOR to the extent of his subcontract.

The CONTRACTOR agrees to bind each subcontractor and each subcontractor agrees to be bound by the terms of the Contract Documents insofar as applicable to his work. The CONTRACTOR and each subcontractor jointly and severally agree that nothing in the Contract Documents or otherwise shall create or be deemed to create any rights in favor of a subcontractor against the OWNER; nor shall be deemed or construed to impose upon the OWNER any obligation, liability or duty to a subcontractor; or to create any contractual relation whatsoever between a subcontractor and the OWNER.

The provisions contained herein shall likewise apply to any sub-subcontracts.

3.6 PROTECTION OF WORK AND OF PERSONS AND PROPERTY

3.6.1 PROTECTION OF WORK

During performance and up to date of final acceptance, the CONTRACTOR shall be under the absolute obligation to protect the

finished work against any damage, loss or injury. In the event of such damage, loss or injury, the CONTRACTOR shall promptly replace or repair such work, whichever the OWNER shall determine to be preferable. The obligation to deliver finished work in strict accordance with the Contract prior to final acceptance shall be absolute and shall not be affected by the OWNER'S approval of or failure to prohibit means and methods of construction used by the CONTRACTOR. All risk of loss or damage to the work shall be borne solely by the CONTRACTOR until final completion and acceptance of all work by the OWNER, as evidenced by the OWNER'S issuance of a certificate of acceptance.

3.6.2 PROTECTION OF PERSONS AND PROPERTY

The CONTRACTOR shall have the responsibility to provide and maintain all warning devices and take all precautionary measures required by law or otherwise to protect persons and property while said persons or property are approaching, leaving or within the work site or any area adjacent to said work site. No separate compensation shall be paid to the CONTRACTOR for the installation or maintenance of any warning devices, barricades, lights, signs or any other precautionary measures required by law or otherwise for the protection of persons or property.

The CONTRACTOR shall assume all duties owed by the OWNER to the general public in connection with the general public's immediate approach to and travel through the work site and the area adjacent to said work site.

Where the work is carried on in or adjacent to any street, alley, sidewalk, public right-of-way or public place, the CONTRACTOR shall at his own cost and expense provide such flagmen and watchmen and furnish, erect and maintain such warning devices, barricades, lights, signs and other precautionary measures for the protection of persons or property as may be prudent or necessary, or as are required by law. The CONTRACTOR'S responsibility for providing and maintaining flagmen, watchmen, warning devices, barricades, signs and lights and other precautionary measures shall not cease until the project shall have been completed and accepted by the OWNER, and shall cease when the certificate of acceptance is issued by the OWNER pursuant to the Contract Documents.

If the OWNER discovers that the CONTRACTOR has failed to comply with the applicable federal and state law (by failing to furnish the necessary flagmen, warning devices, barricades, lights, signs or other precautionary measures for the protection of persons or property), the OWNER may order the CONTRACTOR to take such additional precautionary measures as required by law to be taken to protect persons and property.

In addition, the CONTRACTOR shall be held responsible for all damages to the work and other public or private property due to the failure of warning devices, barricades, signs, lights or other precautionary measures in protecting said property; and whenever evidence is found of such damage, the OWNER may order the damaged portion immediately removed and replaced by and at the cost and expense of the CONTRACTOR.

3.6.3 SAFETY; TRENCH SAFETY; UNDERGROUND UTILITY SAFETY; PUBLIC CONVENIENCE AND SAFETY;

The CONTRACTOR shall be responsible for complying with state laws and federal regulations relating to safety, trench safety, and underground utility safety, including those which may be enacted during the performance under this Contract. The CONTRACTOR shall comply with the provisions of the The Standard Specifications and Standard Drawings from the Public Works Construction Standards-North Central Texas Council of Governments, 2004 2017 edition and all subsequent addendums and the Instructions to Bidders regarding trench safety, public convenience and safety, and sanitary provisions. The CONTRACTOR shall be solely responsible for, the construction means and methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work and the Project.

3.6.4 STORM WATER PROTECTION

The Contractor shall perform, track, participate, implement, and comply with storm water pollution prevention minimum control measures, protocols, and best management practices (BMP) and ensure that water quality standards are not violated in accordance with all regulations and policies as they apply to the Texas Pollutant Discharge Elimination System general permits. Applicable permits include: 1) Texas Construction General Permit (TXR150000).

Contractors will obtain permit coverage for construction activities disturbing over one acre of land (total acreage is cumulative across all portions of the project). BMPs include, but are not limited to:

- Preparing and implementing a site-specific Storm Water Pollution Prevention Plan (SWPPP) as outlined in the permit and prior to any soil disturbance.
- Installing and managing erosion and sediment control.
- Make available, upon request, permit associated documentation.
- Practicing spill prevention and good housekeeping.
- Meeting the requirements of the MS4 permit.

3.7 MATERIALS AND WORKMANSHIP; WARRANTIES AND GUARANTEES

Unless otherwise expressly provided in the contract drawings or specifications, the work shall be performed in accordance with the best modern practice with materials and workmanship of the highest quality and suitable for their purpose. The OWNER shall judge and determine the CONTRACTOR'S compliance with these requirements.

3.7.1 MATERIALS AND EQUIPMENT

The CONTRACTOR shall be free to secure the approved materials, equipment and articles from sources of his own selection. However, if the OWNER finds that the work shall be delayed or adversely affected in any way because a selected source of supply cannot furnish a uniform product in sufficient quantity and at the time required and a suitable source does exist, or the product is not suitable for the Work, the OWNER shall have the right to require the original source of supply changed by the CONTRACTOR. The CONTRACTOR shall have no claim for extra cost or damage because of this requirement.

The CONTRACTOR warrants to the OWNER that all materials and equipment furnished under this contract shall be new unless otherwise specified in the Contract Documents and that same shall be of good quality and workmanship, free from faults and defects and in conformance with the Contract Documents. All materials and equipment not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective and shall be promptly repaired or replaced by the CONTRACTOR at the CONTRACTOR's sole cost upon demand of the OWNER. If required by the OWNER, the CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

3.7.1.1 "OR EQUAL" CLAUSE

A. Whenever a material or article required is specified or shown on the plans, by using the name of a proprietary product or of a particular manufacturer or vendor, any material or article which the Engineer determines shall perform adequately the duties imposed by the general design or which the Engineer deems to be of similar appearance (in cases where appearance is of importance) shall be considered equal and satisfactory, provided the material or article so proposed is of equal substance and function. Authorization for any substitution of materials or articles must be obtained by the CONTRACTOR from the Engineer before proceeding with such substitution.

B. Should an authorized substitution require redesign of a portion of the work or alterations to the plans or

specifications in order for the materials or articles which are to be substituted to properly fit or in other ways to be satisfactory, the Engineer shall accomplish such redesigns and alterations. The CONTRACTOR shall bear all reasonable costs associated with redesign and alteration efforts performed by the Engineer.

3.7.2 WORKMANSHIP

The CONTRACTOR shall promptly correct or replace all work rejected by the OWNER as defective or as failing to conform to the Contract Documents whether observed before or after substantial completion and whether or not fabricated, installed or completed. The CONTRACTOR shall bear all costs of correcting such rejected work, including costs incurred for additional services made necessary thereby.

3.8 WARRANTIES

3.8.1 SPECIAL WARRANTY

If within one year after final acceptance of the work by the OWNER, as evidenced by the final certificate of acceptance or within such longer or shorter period of time as may be prescribed by law or by the terms of any other applicable special warranty on designated equipment or portions of work as required by the Contract Documents, any of the work is found to be defective or not in accordance with the Contract Documents, the CONTRACTOR shall correct it promptly after receipt of a written notice from the OWNER to do so. This obligation shall survive termination or completion of the Contract. The OWNER shall give such notice promptly after discovery of the condition.

The CONTRACTOR shall remove from the site all portions of the work which are defective or nonconforming and which have not been corrected unless removal is waived in writing by the OWNER.

3.8.2 SUBCONTRACTORS' AND MANUFACTURERS' WARRANTIES

All subcontractors', manufacturers' and suppliers' warranties and guarantees, express or implied, respecting any part of the work and any materials used therein, shall be obtained and enforced by the CONTRACTOR for the benefit of the OWNER without the necessity of separate transfer or assignment thereof.

3.8.3 CORRECTED WORK WARRANTY

Any work repaired or replaced, pursuant to this section, shall be subject to the provisions of this section to the same extent as work originally performed.

3.8.4 RIGHTS AND REMEDIES

The rights and remedies of the OWNER provided in this section are in addition to, and do not limit, any rights or remedies afforded to the OWNER by law or any other provision of the Contract Documents, or in any way limit the OWNER'S right to recovery of damage due to default under the Contract. No action or inaction by the OWNER shall constitute a waiver of a right or duty afforded it under the Contract.

IV. INSURANCE

4.1 CONTRACTOR'S INSURANCE

Before commencing work, the CONTRACTOR shall be required to furnish the Collin County Purchasing Agent with certified copies of all insurance certificate(s) required by Texas Law, and the coverages required herein, indicating the coverage is to remain in force throughout the term of this Contract. CONTRACTOR shall also be required to furnish the Collin County Purchasing Agent with certified copies of subcontractor's insurance certificates required by the Texas Department of Insurance, Division of Workers' Compensation, section 406.096(b), and coverages required herein in section 4.2. Without limiting any of the other obligations or liabilities of the CONTRACTOR, during the term of the Contract the CONTRACTOR and each subcontractor at their own expense shall purchase and maintain the herein stipulated minimum insurance with companies duly approved to do business in the State of Texas and satisfactory to the OWNER. Certificates required of each policy for the CONTRACTOR and each subcontractor shall be delivered to the OWNER before any work is started, along with a written statement from the issuing company stating that said policy shall not be canceled, nonrenewed or materially changed without 30 days advance written notice being given to the OWNER.

In addition to any coverage required by Texas Law, the CONTRACTOR shall provide the following coverages at not less than the specified amounts:

- 4.2 Workers Compensation insurance required by Texas Law at statutory limits, including employer's liability coverage at \$500,000. In addition to these, the CONTRACTOR and each subcontractor must comply with all the requirements of the Texas Department of Insurance, Division of Workers' Compensation, section 406.096(b); (Note: If you have questions concerning these requirements, you are instructed to contact the DWC.)

By signing this contract or providing or causing to be provided a certificate of coverage, the CONTRACTOR is representing to the OWNER that all employees of the CONTRACTOR and its subcontractors who will provide services on the Project will be covered by workers compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or

misleading information may subject the CONTRACTOR to administrative penalties, criminal penalties, civil penalties, or other civil actions.

The CONTRACTOR'S failure to comply with any of these provisions is a breach of Contract by the Contractor which entitles the OWNER to declare the Contract void if the CONTRACTOR does not remedy the breach within ten (10) days after receipt of notice of breach from the OWNER.

- 4.3 Broad form commercial general liability insurance, including independent contractor's liability, completed operations and contractual liability, written on an occurrence form, covering, but not limited to, the liability assumed under the indemnification provisions of this contract, fully insuring CONTRACTOR'S liability for injury to or death of OWNER'S employees and third parties, extended to include personal injury liability coverage with damage to property, with minimum limits as set forth below:

General Aggregate \$2,000,000
 Products — Components/Operations Aggregate \$2,000,000
 Personal and Advertising Injury \$ 1,000,000
 Each Occurrence \$ 1,000,000

4.3.1 The policy shall include coverage extended to apply to completed operations, asbestos hazards (if this project involves work with asbestos) and XCU (explosion, collapse and underground) hazards. The completed operations coverage must be maintained for a minimum of one year after final completion and acceptance of the work, with evidence of same filed with OWNER.

- 4.4 Comprehensive automobile and truck liability insurance, covering owned, hired and non-owned vehicles, with a combined bodily injury and property damage minimum limit of \$1,000,000 per occurrence; or separate limits of \$1,000,000 for bodily injury (per person), \$1,000,000 for bodily injury (per accident) and \$1,000,000 for property damage. Such insurance shall include coverage for loading and unloading hazards.

4.5 OWNER'S PROTECTIVE LIABILITY INSURANCE

CONTRACTOR shall obtain, pay for and maintain at all times during the prosecution of the work under this contract an OWNER'S protective liability insurance policy naming the OWNER as insured for property damage and bodily injury, which may arise in the prosecution of the Work or CONTRACTOR'S operations under this Contract. Coverage shall be on an "occurrence" basis, and the policy shall be issued by the same insurance company that carries the CONTRACTOR'S liability insurance with a combined bodily injury and property damage minimum limit of \$1,000,000 per occurrence and \$2,000,000 aggregate.

4.6 "UMBRELLA" LIABILITY INSURANCE

CONTRACTOR shall obtain, pay for and maintain umbrella liability insurance during the contract term, insuring CONTRACTOR for an amount of not less than \$1,000,000 per occurrence combined limit for bodily injury and property damage that follows from and applies in excess of the primary liability coverages required hereinabove. The policy shall provide “drop down” coverage where underlying primary insurance coverage limits are insufficient or exhausted. OWNER shall be named as an additional insured.

4.7 RAILROAD PROTECTIVE INSURANCE

When required in the Special Provisions, CONTRACTOR shall obtain, maintain and present evidence of railroad protective insurance (RPI). The policy shall be in the name of the railroad company having jurisdiction over the right-of-way involved. The minimum limit of coverage shall meet the specifications provided by the railroad company. The OWNER shall specify the amount of RPI necessary.

4.8 POLICY ENDORSEMENTS AND SPECIAL CONDITIONS

All policies to be furnished by CONTRACTOR shall include the following conditions by endorsement to the policy:

- A. each policy shall name the OWNER as an additional insured as to all applicable coverage;
- B. each policy shall require that 30 days prior to the cancellation, nonrenewal or any material change in coverage, a notice thereof shall be given to OWNER by certified mail;
- C. the term “OWNER” shall include all past, present or future, authorities, boards, bureaus, commissions, divisions, departments and offices of the OWNER and individual members, elected official, officers, employees and agents thereof in their official capacities and/or while acting on behalf of the OWNER;
- D. the policy phrase “other insurance” shall not apply to the OWNER where the OWNER is an additional insured on the policy;
- E. all provisions of the contract concerning liability, duty and standard of care together with the indemnification provision, shall be underwritten by contractual liability coverage sufficient to include such obligations within applicable policies;
- F. each policy shall contain a waiver of subrogation in favor of OWNER, and its, past, present and future, officials, employees, and volunteers; and,
- G. each certificate of insurance shall reference the Project and Contract number, contain all the endorsement required herein, and require a notice to the OWNER of cancellation.

Insurance furnished by the CONTRACTOR shall be in accordance with the following requirements:

- A. any policy submitted shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements to be fulfilled by the CONTRACTOR. The OWNER'S decision thereon shall be final;
- B. all policies are to be written through companies duly licensed to transact that class of insurance in the State of Texas with a financial ratings of A-VII or better as assigned by BEST Rating Company or equivalent; and
- C. All liability policies required herein shall be written with an "occurrence" basis coverage trigger.

CONTRACTOR agrees to the following:

- A. CONTRACTOR hereby waives subrogation rights for loss or damage to the extent same are covered by insurance. Insurers shall have no right of recovery or subrogation against the OWNER, it being the intention that the insurance policies shall protect all parties to the Contract and be primary coverage for all losses covered by the policies;
- B. Companies issuing the insurance policies and CONTRACTOR shall have no recourse against the OWNER for payment of any premiums or assessments for any deductibles, as all such premiums and deductibles are the sole responsibility and risk of the CONTRACTOR;
- C. Approval, disapproval or failure to act by the OWNER regarding any insurance supplied by the CONTRACTOR (or any subcontractors) shall not relieve the CONTRACTOR of full responsibility or liability for damages and accidents as set forth in the Contract Documents. Neither shall the bankruptcy, insolvency or denial of liability by the insurance company exonerate the CONTRACTOR from liability; and
- D. No special payments shall be made for any insurance that the CONTRACTOR and subcontractors are required to carry; all are included in the Contract Price and the Contract unit prices. Any of such insurance policies required under this section may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered thereby.

V. OWNERS RIGHTS AND RESPONSIBILITIES

MONTHLY ESTIMATE, PARTIAL PAYMENTS AND FINAL PAYMENTS

- 5.1 Progress and final payments shall be paid to the Contractor based upon the progress of the Project as indicated by the approved Applications for Payment, certificates of acceptance, or Certificates for Payment, that include an approved Schedule of Values that will be submitted by the CONTRACTOR to the OWNER prior to the commencement of the Work and in accordance with the following:
- 5.2 MONTHLY ESTIMATES

The CONTRACTOR shall deliver to the OWNER an itemized Application for Payment that shall include the work completed, materials stored at the Project site but not incorporated into the work, materials ready to be installed and stored at another agreed location, and the percentage of Work completed, through the 20th day of each month, on an Application for Payment with a schedule of values previously submitted by the Contractor and approved by the Owner. Prior to release of funds in connection with any Application for Payment, the Owner may request, and the Contractor must provide, properly executed statements of full or partial releases of claims acceptable to Owner in form and content, for all persons or entities supplying labor or materials to the Project.

5.2.1 The Application for Payment is a representation by the CONTRACTOR to the OWNER that the construction has progressed to the point indicated, the quality of the Work covered by the application is in accordance with the Contract Documents, and the Contractor is entitled to payment in the amount requested.

5.2.2 INSPECTION AND PARTIAL PAYMENTS

Whenever the CONTRACTOR shall submit an Application for Payment to the OWNER for work performed by the CONTRACTOR, the CONTRACTOR shall notify the Engineer that the improvement is ready for inspection. The Engineer shall then make such inspection, and will have the authority to reject work that does not conform to the Contract Documents. If the work is satisfactory and in accordance with the specifications and Contract Documents, the Engineer shall issue a Certificate for Payment.

5.2.3 Within thirty (30) days of the Owner's receipt of a properly submitted and correct Application for Payment, and the issuance of a Certificate for Payment, the Owner shall make payment to the Contractor, in the amount approved by the Owner less 5% retainage. Such payment shall be adjusted for work that is incomplete or not in accordance with the Contract Documents or that is the subject of a separate contract, or subcontract or supplier claim or lien against the Contractor or the payment bonds for the project.

5.2.4 No partial or final payment or the entire use or occupancy of the Project by the OWNER shall be considered acceptance of work that does not strictly comply with the Contract Documents or release the CONTRACTOR of any of his responsibilities under the Contract.

5.2.5 PAYMENT FOR LABOR AND MATERIAL; NO LIENS

The CONTRACTOR for himself or any of his subcontractors shall pay all indebtedness which may become due to any person, firm or corporation having furnished labor, material or both in the performance of this

Contract. It shall be the responsibility of each person, firm or corporation claiming to have furnished labor, materials or both, in connection with this Contract, to protect his or its interest in the manner prescribed by applicable laws of the State of Texas, provided, however, that as this Contract provides for a public works project, no lien of any kind shall ever exist or be placed against the Work or any portion thereof, or any public funds or retainage held by the OWNER; and any subcontractor shall look solely to the CONTRACTOR and the payment bond surety, and not the OWNER, for payment of any outstanding amounts due for labor, materials or any other indebtedness in connection with the Work. However, the OWNER may, at any time prior to making final payment, require the CONTRACTOR to furnish a Consent of Surety to any payment due the CONTRACTOR for completed work and may, at the discretion of the OWNER or the request of the Surety, make the check jointly payable to the CONTRACTOR and the Surety. The Owner shall have no obligation under this Agreement to pay or to be responsible in any way for payment to any Engineer, another design professional, contractor, subcontractor or supplier performing portions of the Work, pursuant to a contract with the Contractor.

5.2.6 PAYMENT WITHHELD

In addition to express provisions elsewhere contained in the contract, the OWNER may withhold from any payment otherwise due the CONTRACTOR such amount as determined necessary to protect the OWNER'S interest, or, if it so elects, may withhold or retain all or a portion of any progress payment or refund payment on account of:

- A. unsatisfactory progress of the Work not caused by conditions beyond the CONTRACTOR'S control,
- B. defective work not corrected,
- C. CONTRACTOR'S failure to carry out instructions or orders of the OWNER or his representative,
- D. a reasonable doubt that the Contract can be completed for the balance then unpaid,
- E. work or execution thereof not in accordance with the Contract Documents,
- F. claim filed by or against the CONTRACTOR or reasonable evidence indicating probable filing of claims,
- G. failure of the CONTRACTOR to make payments to subcontractor or for material or labor,
- H. damage to another contractor,
- I. unsafe working conditions allowed to persist by the CONTRACTOR,
- J. failure of the CONTRACTOR to provide work schedules as required by the OWNER,
- K. use of subcontractors without the OWNER'S approval or,

L. failure of the CONTRACTOR to keep current as-built record drawings at the job site or to turn same over in completed form to the OWNER.

When the above grounds are removed, payment shall be made for amounts withheld because of them, and OWNER shall never be liable for interest on any delayed or late payment.

5.2.7 PAYMENT FOR EXTRA WORK

The Extra Work done by the CONTRACTOR as authorized and approved by the Engineer shall be paid for in the manner hereinafter described, and the compensation thus provided shall be accepted by the CONTRACTOR as payment in full for all labor, materials, tools, equipment and incidentals and all superintendents' and timekeepers' services, all insurance, bond and all other overhead expense incurred in the performance of the Extra Work.

Payment for Extra Work shall be made by one of the following methods:

A. Method "A" — by unit prices agreed on in writing by the OWNER and CONTRACTOR before said Extra Work is commenced, subject to all other conditions of the contract.

B. Method "B" — by lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said Extra Work is commenced, subject to all other conditions of the contract.

5.2.8 SUBSTANTIAL COMPLETION

The Project will be considered substantially complete when the OWNER can utilize the Project for its intended purpose and the Work is in conformance with the Contract Documents.

5.3 APPLICATION FOR FINAL PAYMENT.

Upon full performance of all the Contract Work and the full performance of all the provisions of the Contract, the CONTRACTOR shall submit a final application for payment to the OWNER, the CONTRACTOR shall notify the Engineer that the improvement is ready for inspection. All warranties and guaranties required of the CONTRACTOR by the Contract Documents shall be assembled and delivered by the CONTRACTOR to the OWNER as Part of the final Application for Payment. The Contractor will assign to the Owner all manufacturer's warranties relating to materials and labor used in the work and will perform the Work in such a manner as to preserve all such manufacturer's warranties. The CONTRACTOR will deliver a certificate evidencing that insurance and bonds required by the Contract Documents will remain in full force and effect pursuant to the requirements of the Contract. The final Certificate for Payment will not be issued until all such warranties and guaranties have been

received and accepted by the Owner, and a Certificate of Acceptance is issued by the Engineer.

5.3.1 FINAL INSPECTION AND ACCEPTANCE

Whenever the improvements provided for by the Contract shall have been completely performed on the part of the CONTRACTOR, the CONTRACTOR shall notify the OWNER, and Engineer that the improvement is ready for final inspection. The Engineer shall then make such final inspection, and if the work is satisfactory and in accordance with the specifications and Contract Documents, the CONTRACTOR shall be issued a certificate of acceptance.

5.3.2 FINAL PAYMENT

Whenever the improvements provided for by the Contract shall have been completely performed on the part of the CONTRACTOR, as evidenced in the certificate of acceptance, and all required submissions provided to the OWNER, a final estimate showing the value of the work shall be prepared by the Engineer as soon as the necessary measurements and computations can be made. All prior estimates upon which payments have been made are subject or necessary corrections or revisions in the final payment. The amount of this final estimate, less any sums that have been previously paid, or deducted under the provisions of the Contract, shall be paid the CONTRACTOR within 30 days after the final acceptance, provided that the CONTRACTOR has furnished to the OWNER a consent of surety and an affidavit or other satisfactory evidence that all indebtedness connected with the Work and all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished for and used in the performance of the work have been paid or otherwise satisfied, or that the person or persons to whom the same may respectively be due have consented to such final payment.

The acceptance by the CONTRACTOR of the final payment as aforesaid shall operate as and shall be a release to the OWNER from all claims or liabilities under the Contract, including all subcontractor claims, for anything done or furnished or relating to the Work under the Contract or for any act or neglect of said OWNER relating to or connected with the Contract.

All warranties and guarantees shall commence from the date of the certificate of acceptance. No interest shall be due the CONTRACTOR on any partial or final payment or on the retainage.

5.3 MODIFICATIONS TO CONTRACT WORK OR TIME OF PERFORMANCE

5.3.1 OWNER'S RIGHT TO TEMPORARILY SUSPEND WORK

5.3.2 REASONS FOR SUSPENSION

The OWNER shall have the right by written order to temporarily suspend the work, in whole or in part, whenever, in the judgment of the OWNER, such temporary suspension is required:

- A. in the interest of the OWNER generally,
- B. due to government or judicial controls or orders which make performance of this contract temporarily impossible or illegal,
- C. to coordinate the work of separate contractors at the job site,
- D. to expedite the completion of a separate contract even though the completion of this particular Contract may be thereby delayed,
- E. because of weather conditions unsuitable for performance of the Work, or
- F. because the CONTRACTOR is proceeding contrary to contract provisions or has failed to correct conditions considered unsafe for workmen.

The written order of the OWNER to the CONTRACTOR shall state the reasons for suspending the work and the anticipated periods for such suspension. Upon receipt of the OWNER'S written order, the CONTRACTOR shall suspend the work covered by the order and shall take such means and precautions as may be necessary to properly protect the finished and partially finished work, the unused materials and uninstalled equipment, including the providing of suitable drainage about the work and erection of temporary structures where necessary. The CONTRACTOR shall not suspend the Work without written direction from the OWNER and shall proceed with the work promptly when notified by the OWNER to resume operations.

5.3.3 NO ADDITIONAL COMPENSATION

No additional compensation shall be paid to the CONTRACTOR for a temporary suspension of the Work by the OWNER or otherwise where same is caused by the fault of the CONTRACTOR. Where such temporary suspension is not due to the fault of the CONTRACTOR, he shall be entitled to:

- A. an equitable extension of working time for the completion of the work, not to exceed the delay caused by such temporary suspension, as determined by the OWNER; and
- B. the actual and necessary costs of properly protecting the finished and partially finished work, unused materials and uninstalled equipment during the period of the ordered suspension as determined by the OWNER as being beyond the Contract

requirements, such costs, if any, to be determined pursuant to the terms of the Contract; and

C. where the CONTRACTOR elects to move equipment from the job site and then return it to the site when the work is ordered resumed, the actual and necessary costs of these moves, in an amount determined by the OWNER pursuant to the terms of the Contract.

5.3.4 USE OF COMPLETED PORTIONS OF WORK

The OWNER may, after written notice to the CONTRACTOR, and without incurring any liability for increased compensation to the CONTRACTOR, take over and use any completed portion of the Work prior to the final completion and acceptance of the entire work included in the Contract, and notwithstanding that the time allowed for final completion has not expired. The OWNER and CONTRACTOR agree that occupancy of portions of the Work by the OWNER shall not in any way evidence the substantial completion of the entire work or signify the OWNER's acceptance of the Work.

The CONTRACTOR shall not object to, nor interfere in any way with, such occupancy or use after receipt of the OWNER'S written notice. Immediately prior to such occupancy and use, the OWNER shall inspect such portion of the Work to be taken over and shall furnish the CONTRACTOR a written statement of the work, if any, still to be done on such part. The CONTRACTOR shall promptly thereafter complete such unfinished work to permit occupancy and use on the date specified in the OWNER'S written order, unless the OWNER shall permit specific items of work to be finished after the occupancy and use by the OWNER.

In the event the CONTRACTOR is unreasonably delayed by the OWNER exercising its rights under this section, the CONTRACTOR may submit a request for an extension of time; CONTRACTOR'S sole remedy for an unreasonable delay shall be an extension of time and shall not be entitled to any additional compensation.

5.4 COMMENCEMENT; TIME OF COMPLETION; DELAYS; EXTENSION OF TIME; LIQUIDATED DAMAGES

5.4.1 COMMENCEMENT; TIME OF COMPLETION

Contractor shall commence work within ten (10) consecutive calendar days after receiving from County a notice to proceed. Contractor agrees and covenants that the number of consecutive calendar days allowed to complete all work following a notice to proceed shall be as follows:

- A. Final Completion – Entire project length is 210 calendar days.

5.4.2. LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE ON TIME

Time is of the essence in the progress and completion of this Contract. For each calendar day that any Work shall remain uncompleted after the time specified in the proposal and the Contract, or the increased time granted by the OWNER, or as equitably increased by additional work or materials ordered after the Contract is signed, the sum per day given in the following schedule, unless otherwise specified in the special provisions, shall be deducted from the monies due the CONTRACTOR:

- A. Final Completion: (\$1,000/day)

The sum of money thus deducted for such delay, failure or noncompletion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per calendar day that the CONTRACTOR shall be in default after the time stipulated in the Contract for completing the Work. The said amounts are fixed and agreed upon by and between OWNER and CONTRACTOR because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER in such event would sustain; and said amounts are agreed to be the amount of damages which the OWNER would sustain and which shall be retained from the monies due, or that may become due, the CONTRACTOR under this Contract; and if said monies be insufficient to cover the amount owing, then the CONTRACTOR or his surety shall pay any additional amounts due.

5.4.3 EXTENSIONS OF TIME

The CONTRACTOR shall be entitled to an extension of working time under this Contract only when claim for such extension is submitted to the OWNER in writing by the CONTRACTOR within seven days from and after the time when any alleged cause of delay shall occur, and then only when such time is approved by the OWNER. In adjusting the Contract working time for the completion of the Project, unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including, acts of God or the public enemy, acts of the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight

embargoes, or delays of subcontractors due to such causes beyond their control shall be taken into consideration.

If the satisfactory execution and completion of the Contract should require work and materials in greater amounts or quantities than those set forth in the Contract, requiring more time for completion than the anticipated time, then the contract working time shall be equitably increased, but not more than in the same proportion as the cost of the additional work bears to the cost of the original work contracted for. No allowances shall be made for delays or suspension of the performance of the Work due to the fault of the CONTRACTOR.

No adjustment to working time shall be made if, concurrently with the equitable cause for delay, there existed a cause for delay due to the fault or negligence of the CONTRACTOR, his agents, employees or subcontractors; and no adjustment shall be made to the Contract Price and the CONTRACTOR shall not be entitled to claim or receive any additional compensation as a result of or arising out of any delay resulting in adjustment to the working time hereunder, including delays caused by the acts or negligence of the OWNER. Notwithstanding any other provision of the Contract Documents, all claims for extension of working time must be submitted in accordance with the provisions of this Contract, and no act of the OWNER shall be deemed a waiver or entitlement of such extension.

5.5 TERMINATION FOR CONVENIENCE OF THE OWNER

5.5.1 NOTICE OF TERMINATION

The performance of the Work under this Contract may be terminated by the OWNER in whole or from time to time in part, in accordance with this section, whenever the OWNER shall determine that such termination is in the best interest of the OWNER. Any such termination shall be effected by mailing a notice of termination to the CONTRACTOR specifying the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective. Receipt of the notice shall be deemed conclusively presumed and established when the letter is placed in the United States Mail by the OWNER. Further, it shall be deemed conclusively presumed and established that such termination is made with just cause as therein stated; and no proof in any claim, demand or suit shall be required of the OWNER regarding such discretionary action.

5.5.2 CONTRACTOR ACTION

After receipt of a notice of termination, and except as otherwise directed by the OWNER or Engineer, the CONTRACTOR shall:

- A. stop work under the Contract on the date and to the extent specified in the notice of termination;
- B. place no further orders or subcontracts for materials, services or facilities except as may be necessary for completion of such portion the Work under the Contract as is not terminated;
- C. terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the notice of termination;
- D. transfer title to the OWNER and deliver in the manner, at the times, and to the extent, if any, directed by the OWNER or Engineer:
 - 1. the fabricated or unfabricated parts, work in process, completed work, supplies and other material produced as a part of, or acquired in connection with the performance of, the work terminated by the notice of termination; and
 - 2. the completed or partially completed plans, drawings, information and other property which, if the Contract had been completed, would have been required to be furnished to the OWNER.
- E. complete performance of such part of the work as shall not have been terminated by the notice of termination; and
- F. take such action as may be necessary, or as the Engineer may direct, for the protection and preservation of the property related to its Contract which is in the possession of the CONTRACTOR and in which the OWNER has or may acquire an interest.

At a time not later than 30 days after the termination date specified in the notice of termination, the CONTRACTOR may submit to the OWNER a list, certified as to the quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by the Engineer. Not later than 15 days thereafter, the OWNER shall accept title to such items and remove them or enter into a storage agreement covering the same, provided that the list submitted shall be subject to verification by the Engineer upon removal of the items, or, if the items are stored, within 45 days from the date of submission of the list, and provided that any necessary adjustments to correct the list as submitted shall be made prior to final settlement.

5.5.3 TERMINATION CLAIM

Within 60 days after notice of termination, the CONTRACTOR shall submit his termination claim to the Engineer and the OWNER in the form and with the certification prescribed herein. Unless one or more extensions in writing are granted by the OWNER upon request of the CONTRACTOR, made in writing within such 60-day period or authorized

extension thereof, any and all such claims shall be conclusively deemed waived. The termination claim shall (1) list all Contract Work which the CONTRACTOR has completed but for which the CONTRACTOR asserts it has not been paid, including any retainage; (2) list of all fabricated or unfabricated parts, work in process, completed work, supplies and other material produced as a part of, or acquired in connection with the performance of the Contract and the itemized cost for each such fabricated or unfabricated part, work in process, completed work, supplies and other material; (3) list all costs and expenses saved as a result of the termination of the Contract. The termination claim must include a copy of all invoices for fabricated or unfabricated parts, supplies and other material produced as a part of, or acquired in connection with the performance of the Contract for which the CONTRACTOR seeks compensation; all invoices for any subcontractors providing services related to the Contract; and (3) evidence of payment of all material suppliers and subcontractors, together with CONTRACTOR's certification that all such-material suppliers and subcontractors have been fully paid together with executed lien releases from each such material supplier and subcontractor. The termination claim may not include any request for payment of Extra Work for which a Change Order has not been issued or for which the CONTRACTOR has not fully and timely complied with the provisions of section 2.3 of this Contract.

5.5.4 AMOUNTS

The CONTRACTOR and OWNER may agree upon the whole or any part of the amount or amounts to be paid to the CONTRACTOR by reason of the total or partial termination of work pursuant hereto, provided that such agreed amount or amounts shall never exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the Contract Price of work not terminated. The contract shall be amended accordingly, and the CONTRACTOR shall be paid the agreed amount. No amount shall be due for lost or anticipated profits. Nothing prescribing the amount to be paid to the CONTRACTOR in the event of failure of the CONTRACTOR and the OWNER to agree upon the whole amount to be paid to the CONTRACTOR by reason of the termination of work pursuant to this section, shall be deemed to limit, restrict or otherwise determine or affect the amount or amounts which may be agreed upon to be paid to the CONTRACTOR pursuant to this paragraph.

5.5.5 FAILURE TO AGREE

In the event of the failure of the CONTRACTOR and the OWNER to agree, as provided herein, upon the whole amount to be paid to the CONTRACTOR by reason of the termination of work pursuant to this section, the OWNER shall determine, on the basis of information available to it, the amount, if any, due to the CONTRACTOR by reason of

the termination and shall pay to the CONTRACTOR the amounts determined. No amount shall be due for lost or anticipated profits.

5.5.6 DEDUCTIONS

In arriving at the amount due the CONTRACTOR under this section, there shall be deducted (a) all unliquidated advance or other payments on account theretofore made to the CONTRACTOR, applicable to the terminated portion of this contract; (b) any claim which the OWNER may have against the CONTRACTOR in connection with this Contract; and (c) the agreed price for or the proceeds of sale of any materials, supplies or other things kept by the CONTRACTOR or sold, pursuant to the provisions of this clause, and not otherwise recovered by or credited to the OWNER.

5.5.7 ADJUSTMENT

If the termination hereunder be partial prior to the settlement of the terminated portion of this Contract, the CONTRACTOR may file with the Owner a request in writing for an equitable adjustment of the price or prices specified in the Contract relating to the continued portion of the Contract (the portion not terminated by the notice of termination), and such equitable adjustment as may be agreed upon shall be made in such price or prices; nothing contained herein, however, shall limit the right of the OWNER and the CONTRACTOR to agree upon the amount or amounts to be paid to the CONTRACTOR for the completion of the continued portion of the Contract when said contract does not contain an established contract price for such continued portion.

5.5.8 NO LIMITATION OF RIGHTS

Nothing contained in this section shall limit or alter the rights which the OWNER may have for termination of this Contract under any other provision of this Contract or any other right which OWNER may have for default or breach of contract by CONTRACTOR.

5.6 CONTRACTOR DEFAULT: OWNER'S RIGHT TO SUSPEND WORK AND ANNUL CONTRACT

The Work or any portion of the Work under contract shall be suspended immediately on written order of the OWNER declaring the CONTRACTOR to be in default. A copy of such notice shall be served on the CONTRACTOR'S surety. The contract may be annulled by the OWNER for any good cause or causes, among others of which special reference is made to the following:

- A. failure of the CONTRACTOR to start the work within 10 days from date specified in the written work order issued by the OWNER to begin the work;
- B. evidence that the progress of the work being made by the CONTRACTOR is insufficient to complete the work within the specified working time;
- C. failure of the CONTRACTOR to provide sufficient and proper equipment, materials or construction forces for properly executing the Work;
- D. evidence that the CONTRACTOR has abandoned the Work or discontinuance of the performance of the Work or any part thereof and failure to resume performance within a reasonable time after notice to do so;
- E. evidence that the CONTRACTOR has become insolvent or bankrupt, or otherwise financially unable to carry on the Work;
- F. deliberate failure on the part of the CONTRACTOR to observe any requirements of the specifications or to comply with any orders given by the Engineer as provided for in the specifications;
- G. failure of the CONTRACTOR to promptly make good any defects in materials or workmanship, or any defects of any nature, the correction of which has been directed in writing by the OWNER;
- H. evidence of collusion for the purpose of illegally procuring a contract or perpetrating fraud on the OWNER in the construction of work under contract;
- I. repeated violations of safe working procedures;
- J. the filing by the CONTRACTOR of litigation against the OWNER prior to final completion of the Work. When the Work is suspended for any of the causes itemized above, or for any other cause or causes, the CONTRACTOR shall discontinue the Work or such part thereof as the OWNER shall designate, whereupon the surety may either at its option assume the Contract or that portion thereof which the OWNER has ordered the CONTRACTOR to discontinue and perform the same or, with the written consent of the OWNER, sublet the same, provided, however, that the surety shall exercise its option within two weeks after the written notice to discontinue the work has been served upon the CONTRACTOR and upon the surety or its authorized agents. The surety in such event shall assume the CONTRACTOR'S place in all respects and shall be paid by the OWNER for all work performed by it in accordance with the terms of the Contract, but in no event shall such payments exceed the contract amount, regardless of the cost to the surety to complete the Work.

In the event that the surety assumes the CONTRACTOR'S place, duties and responsibilities in the Contract, all monies remaining due the CONTRACTOR at the time of his default shall thereupon become due and payable to the surety as the work progresses, subject to all terms of the Contract. In case the surety does not, within the hereinabove specified time, exercise its obligation to assume the Contract or that portion thereof which the OWNER has ordered the

CONTRACTOR to discontinue, then the OWNER shall have the power to complete by contract or otherwise, as it may determine, the Work herein described or such part thereof as it may deem necessary; and the CONTRACTOR hereto agrees that the OWNER shall have the right to take possession of or use any or all of the materials, plans, tools, equipment, supplies and property of every kind provided by the CONTRACTOR for the purpose of the Work and to procure other tools, equipment and materials for the completion of the same and to charge to the account of the CONTRACTOR the expense of said contract for labor, materials, tools, equipment and expenses incident thereto. The expense so charged shall be deducted by the OWNER out of such monies as may be due or may at any time thereafter become due the CONTRACTOR under and by virtue of the Contract or any part thereof.

The OWNER shall not be required to obtain the lowest bid for the work of completing the Contract, but the expenses to be deducted shall be the actual cost of such work. In case such expense is less than the sum which would have been payable under the contract if the same had been completed by the CONTRACTOR, then in such case the OWNER may pay the CONTRACTOR the difference in the cost, provided that the CONTRACTOR shall not be entitled to any claim for damages or for loss of anticipated profits.

In case such expense shall exceed the amount which would have been payable under the Contract if the same had been completed by the CONTRACTOR, the CONTRACTOR and his surety shall pay the amount of the excess to the OWNER on notice from the OWNER for excess due including any costs incurred by the OWNER, such as inspection, legal fees and liquidated damages. When any particular part of the Work is being carried out by the OWNER by contract or otherwise under the provisions of this section, the CONTRACTOR shall continue the remainder of the Work in conformity with the terms of the contract and in such manner as not to hinder or interfere with the performance of workmen employed as above provided by the OWNER or surety.

5.7 SUSPENSION BY COURT ORDER AGAINST THE OWNER

The CONTRACTOR shall suspend such part or parts of the Work pursuant to a court order issued against the OWNER and shall not be entitled to additional compensation by virtue of such court order; neither shall the CONTRACTOR be liable to the OWNER in the event the Work is suspended by such court order, unless such suspension is due to the fault or negligence of the CONTRACTOR. A delay of the CONTRACTOR due to a court order against the OWNER, or due to the OWNER'S failure to secure right-of-way at the time required or because of a conflict of a utility with the Work, shall not be cause for additional compensation for damages sustained by the CONTRACTOR, but may be a cause for extension of contract working time only. The CONTRACTOR'S sole remedy for any suspensions of the Work is an equitable extension of time to perform the Work.

5.8 NO WAIVER OF RIGHTS OR ESTOPPEL

The OWNER, or any officer or agent thereof, shall not be precluded at any time, either before or after final completion and acceptance of the Work and final payment therefore from:

A. showing the true and correct amount, classifications, quality and character of the Work done and materials furnished by the CONTRACTOR or any other person under this Contract, or from showing at any time that any determination, return, decision, approval, order, letter, payment or certification is untrue and incorrect or improperly made in any particular, or that the Work or the materials or any parts thereof do not in fact conform to the contract requirements; and (b) demanding the recovery from the CONTRACTOR of any overpayments made to him, or such damages as the OWNER may sustain by reason of the CONTRACTOR'S failure to perform each and every part of this Contract in strict accordance with its terms; or both.

VI. AUTHORITY OF THE ENGINEER

6.1 All work shall be performed in a good and workmanlike manner and to the satisfaction of the Engineer. The Engineer shall decide all questions which arise as to the quality and acceptability of materials furnished, work performed, manner of performance, rate of progress of the work, sequence of the construction, interpretation of the plans and specifications, acceptable fulfillment of the Contract, compensation, mutual rights between contractors under these specifications and suspension of the Work. He shall determine the amount and quality of work performed and materials furnished, and his decisions and estimates shall be final. His estimate in such event shall be a condition precedent to the right of the CONTRACTOR to receive money due him under the Contract.

6.2 OWNER'S REPRESENTATIVES

Where the Contract Documents indicate that determinations, directions or approvals shall be made by the OWNER or "Owner's representatives," this shall mean the OWNER acting directly, or through duly authorized persons acting within the limit of authority delegated to them. Any determination, direction or approval of such authorized representatives shall be subject to review by the OWNER. For purposes of administering the schedule or the payment provisions of this Contract the Engineer may act as the Owner's representative for purposes of approving payments, changes, scheduling, or acceptance of the Work, at the OWNER'S discretion.

6.3 INSPECTIONS OF WORK PROGRESS

The Engineer shall visit the site at during construction of the Project as necessary as the Owner's Representative to verify that the Work is being performed in compliance with the Contract Documents and shall be given total access to the

Project by the CONTRACTOR. Site visits or inspections by the Engineer shall in no way relieve the CONTRACTOR of any of its responsibilities or duties pursuant to the Contract Documents. The Engineer will neither have control over, nor be responsible for, the construction means and methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work or the Project. The CONTRACTOR shall be solely responsible for, the construction means and methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work or the Project.

6.4 CONSTRUCTION STAKES

Engineer will provide the Contractor with primary horizontal and vertical control to consist of one construction baseline and two benchmarks.

The Contractor shall take all necessary precautions to preserve any and/or all markings and staking. Payment for costs of restaking shall be the responsibility of the Contractor.

6.5 APPROVAL OF SUBMITTALS

The Engineer shall review and approve or take other appropriate action the CONTRACTOR's submittals such as Shop Drawings, Product Data and Samples, for the purpose of checking for conformance with the Contract Documents. The Engineer's review of the submittals shall not relieve the CONTRACTOR of any of its obligations to perform the Work in strict compliance with the Contract Documents. The Engineer's review shall not be considered approval of safety precautions, means and methods, techniques, sequences or procedures that are the responsibility of the CONTRACTOR.

VII. CLAIMS OR DISPUTES

7.1 CLAIMS AGAINST OWNER AND ACTION THEREON.

No claim against the OWNER under the Contract or for breach of the Contract or additional compensation for extra or disputed work shall be made or asserted against the OWNER under the Contract or in any court action, unless the CONTRACTOR shall have strictly complied with all requirements relating to the giving of notice and information with respect to such claim as required by the Contract.

7.2 CLAIM AGAINST OFFICERS, EMPLOYEES OR AGENT OF THE OWNER.

No claim whatsoever shall be made by the CONTRACTOR against any, past, present or future, officer, employee or agent of the OWNER for or on account of, anything done or omitted to be done in connection with this Contract.

VIII. MISCELLANEOUS PROVISIONS

8.1 FINANCIAL INTEREST IN ANY CONTRACT BY OWNER'S OFFICERS, EMPLOYEES OR AGENTS

No officer, employee or agent of the OWNER shall have a financial interest, direct or indirect, in any contract with the OWNER or be financially interested, directly or indirectly, in the sale to the OWNER of any land, materials, supplies or services, except on behalf of the OWNER as an officer or employee. Any willful violation of this article shall constitute malfeasance in office, and any officer or employee guilty thereof shall thereby forfeit his office or position. Any violation of this article with the knowledge, expressed or implied, of the persons, partnership, company, firm, association or corporation contracting with the OWNER shall render the contract involved voidable by the OWNER.

8.2 SERVICE OF NOTICES

The OWNER and the CONTRACTOR shall each designate addresses where all notices, directions or other communication may be delivered or to which they may be mailed.

Notices to the surety or sureties on contract bonds shall be directed or delivered to the home office, or to the agent or agents who executed the bonds on behalf of the surety or sureties, or to their designated agent for delivery of notices.

Actual delivery of any such notice, direction or communication to the aforesaid places or depositing it in a postpaid wrapper addressed thereto in any post office regularly maintained by the United States Postal Service shall be conclusively deemed to be sufficient service thereof upon the above persons as of the date of such delivery or deposit.

The designated addresses may be changed at any time by an instrument in writing executed by the party changing the addresses and delivered to the other party.

Nothing herein contained shall, however, be deemed to preclude or tender inoperative the service of any notice, direction or communication upon the above parties personally or, if the CONTRACTOR be a corporation, upon any officer or director thereof.

8.3 UNLAWFUL PROVISIONS DEEMED STRICKEN

In the event a term, condition, or provision of this Agreement is determined to be void, unenforceable, or unlawful by a court of competent jurisdiction, then that term, condition, or provision shall be deleted and the remainder of the Agreement shall remain in full force and effect.

8.4 ALL LEGAL PROVISIONS INCLUDED

It is the intent and agreement of the parties to this contract that all legal provisions of law required to be inserted herein shall be and are inserted herein. If through

mistake or oversight, however, any such provision is not herein inserted, or is not inserted in proper form, then upon application of either party, the contract shall be amended so as to strictly comply with the law and without prejudice to the rights of either party hereunder.

8.5 ASSIGNMENTS

The CONTRACTOR shall not assign, transfer, convey or otherwise dispose of this contract, or his right to execute it, or his right, title or interest in it or any part thereof without the previous written consent of the surety company and the written approval of the OWNER.

The CONTRACTOR shall not assign, either legally or equitably, by power of attorney or otherwise, any of the monies due or to become due under this Contract or its claim thereto without the prior written consent of the surety company and the written approval of the OWNER.

The approval of the OWNER of a particular assignment, transfer or conveyance shall not dispense with such approval to any further or other assignments.

The approval by the OWNER of any assignment, transfer or conveyance shall not operate to release the CONTRACTOR or surety hereunder from any of the Contract and bond obligations, and the CONTRACTOR shall be and remain fully responsible and liable for the defaults, negligent acts and omissions of his assignees, their agents and employees, as if they were his own.

8.6 STATE AND LOCAL SALES AND USE TAXES

The OWNER qualifies for exemption from the state and local sales and use taxes, pursuant to the provisions of Section 151.309 of the Texas Limited Sales, Excise and Use Tax Act. Therefore, the CONTRACTOR shall not pay such taxes which would otherwise be payable in connection with the performance of this Contract.

The CONTRACTOR shall issue an exemption certificate in lieu of the tax on the purchase, rental or lease of:

- A. all materials, supplies, equipment and other tangible personal property incorporated into the real property being improved; and
- B. all materials, supplies, equipment and other tangible personal property used or consumed by the CONTRACTOR in performing the Contract with the OWNER. Materials and supplies "used in the performance of a contract" include only those materials actually incorporated into the property being improved and those supplies directly used to incorporate such materials into the property being improved. Overhead supplies and supplies used indirectly or only incidental to the performance of the Contract with the OWNER are not included in the exemption.

Under “reasons said purchaser is claiming this exemption” in the exemption certificate, the CONTRACTOR must name the OWNER and the project for which the equipment, material and supplies are being purchased, leased or rented.

8.7 VENUE AND GOVERNING LAW

The parties agree that the laws of the State of Texas shall govern the interpretation, validity, performance and enforcement of this Construction Agreement, and that the exclusive venue for any legal proceeding involving this Construction Agreement shall be in Collin County, Texas.

8.8 NO WAIVER OF LEGAL RIGHTS

Inspection by the Engineer or OWNER; any order, measurement, quantity or certificate by the Engineer; any order by the OWNER for payment of money; any payment for or acceptance of any work; or any extension of time or any possession taken by the OWNER shall not operate as a waiver of any provisions of the contract or any power therein reserved to the OWNER of any rights or damages therein provided. Any waiver of any breach of contract shall not be held to be a waiver of any other or subsequent breach. The OWNER reserves the right to correct any error that may be discovered in any estimate that may have been paid and to adjust the same to meet the requirements of the Contract Documents. The OWNER reserves the right to recover by process of law sums as may be sufficient to correct any error or make good any deficiency in the Work resulting from such error, dishonesty or collusion by the CONTRACTOR or his agents, discovered in the Work after the final payment has been made.

Neither final acceptance of the Work, nor final payment shall relieve the CONTRACTOR of responsibility for faulty materials or workmanship, and the CONTRACTOR shall promptly remedy any defects due thereto and pay for any damage to other work resulting therefrom. Likewise, neither final acceptance nor final payment, nor partial or entire use or occupancy of the work by the OWNER shall constitute acceptance of work not done in accordance with the Contract Documents or relieve CONTRACTOR of liability with respect to any expressed or implied warranties or responsibility for faulty materials or workmanship, whether same be patently or latently defective.

8.9 OBLIGATION TO PERFORM FUNCTIONS

Any failure or neglect on the part of OWNER or Engineer or inspectors to enforce provisions herein dealing with supervision, control, inspection, testing or acceptance and approval of the work shall never operate to relieve CONTRACTOR from full compliance with the Contract Documents nor render OWNER liable to CONTRACTOR for money damages, extensions of time or increased compensation of any kind.

8.10 SUCCESSORS AND ASSIGNS

Subject to the limitations upon assignment and transfer herein contained, this contract shall be binding upon and inure to the benefit of the parties hereto, their respective successors and assigns.

8.11 HEADINGS

The title and headings contained in the Contract Documents and the subject organization are used only to facilitate reference, and in no way define or limit the scope of intent of any of the provisions of this Contract.

8.12 ENTIRE AGREEMENT; AMENDMENTS; BINDING EFFECT

This Construction Agreement, including the Contract Documents and all the documents incorporated therein represents the entire and integrated agreement between the OWNER, Collin County, and the CONTRACTOR, and supersedes all prior negotiations, representations, or agreements, either written or oral. This Construction Agreement may be amended only by written instrument signed by both, the OWNER, Collin County, and the CONTRACTOR. CONTRACTOR acknowledges that no representations have been made to it, upon which it is relying in entering into this Contract, which are not expressly set forth in the Contract Documents.

8.13 INTERPRETATION

Although this Agreement is drafted by the OWNER, Collin County, should any part be in dispute, the parties agree that this Construction Agreement shall not be construed more favorable for either party. No rule of construction requiring that ambiguities in this Contract shall be construed more favorably for either party shall apply.

8.14 EXPENSES FOR ENFORCEMENT

In the event either Party hereto is required to employ an attorney to enforce the provisions of this Agreement or is required to commence legal proceedings to enforce the provisions hereof, the prevailing Party shall be entitled to recover from the other, reasonable attorney's fees and court costs incurred in connection with such enforcement, including collection.

8.15 FORCE MAJEURE

No party shall be liable or responsible to the other party, nor be deemed to have defaulted under or breached this Agreement, for any failure or delay in fulfilling or performing any term of this Agreement, when and to the extent such failure or delay is caused by or results from acts beyond the affected party's reasonable control, including, without limitation: acts of God; flood, fire or explosion; war, invasion, riot or other civil unrest; actions, embargoes or blockades in effect on or after the date of this Agreement; or national or regional emergency (each of the foregoing, a "Force Majeure Event"). A party whose performance is affected by a Force Majeure Event shall give notice to the other party, stating the period of time the occurrence is expected to continue and shall use diligent efforts to end the failure or delay and minimize the effects of such Force Majeure Event.

IN WITNESS WHEREOF, the parties have executed this Construction Agreement upon the year and date indicated beneath their signatures hereto.

CONTRACTOR:

By: _____

Date: _____

ATTEST:

Secretary

COLLIN COUNTY, TEXAS:

By: _____
Michelle Charnoski, CPPB, Purchasing Agent

Date: _____

Collin County Commissioners' Court Order No.

ATTEST:

Secretary

ACKNOWLEDGMENTS

STATE OF TEXAS §

COUNTY OF _____ §

BEFORE ME, _____ on this day personally appeared _____
_____, of _____, a _____ corporation,
known to me (or proved to me on the oath of) _____ or
through _____ (description of identity card or other document) to be the
person whose name is subscribed to the foregoing instrument and acknowledged to me
that he/she executed the same as the act and deed of the corporation, for the purposes and
consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the ___ day of _____, 2021

Notary Public, State of Texas

Printed Name

My Commission expires on the ___ day of _____, _____.

STATE OF TEXAS §

COUNTY OF COLLIN §

BEFORE ME, _____ on this day personally appeared _____
_____, Purchasing Agent of COLLIN COUNTY, TEXAS, a political
subdivision of the State of Texas, known to me (or proved to me on the oath of) _____
_____ or through _____ (description of identity card or other
document) to be the person whose name is subscribed to the foregoing instrument and
acknowledged to me that he/she executed the same as the act and deed of COLLIN
COUNTY, TEXAS, for the purposes and consideration therein expressed and in the
capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the ___ day of _____, 2021

Notary Public, State of Texas

Printed Name

My Commission expires on the ___ day of _____, _____.