

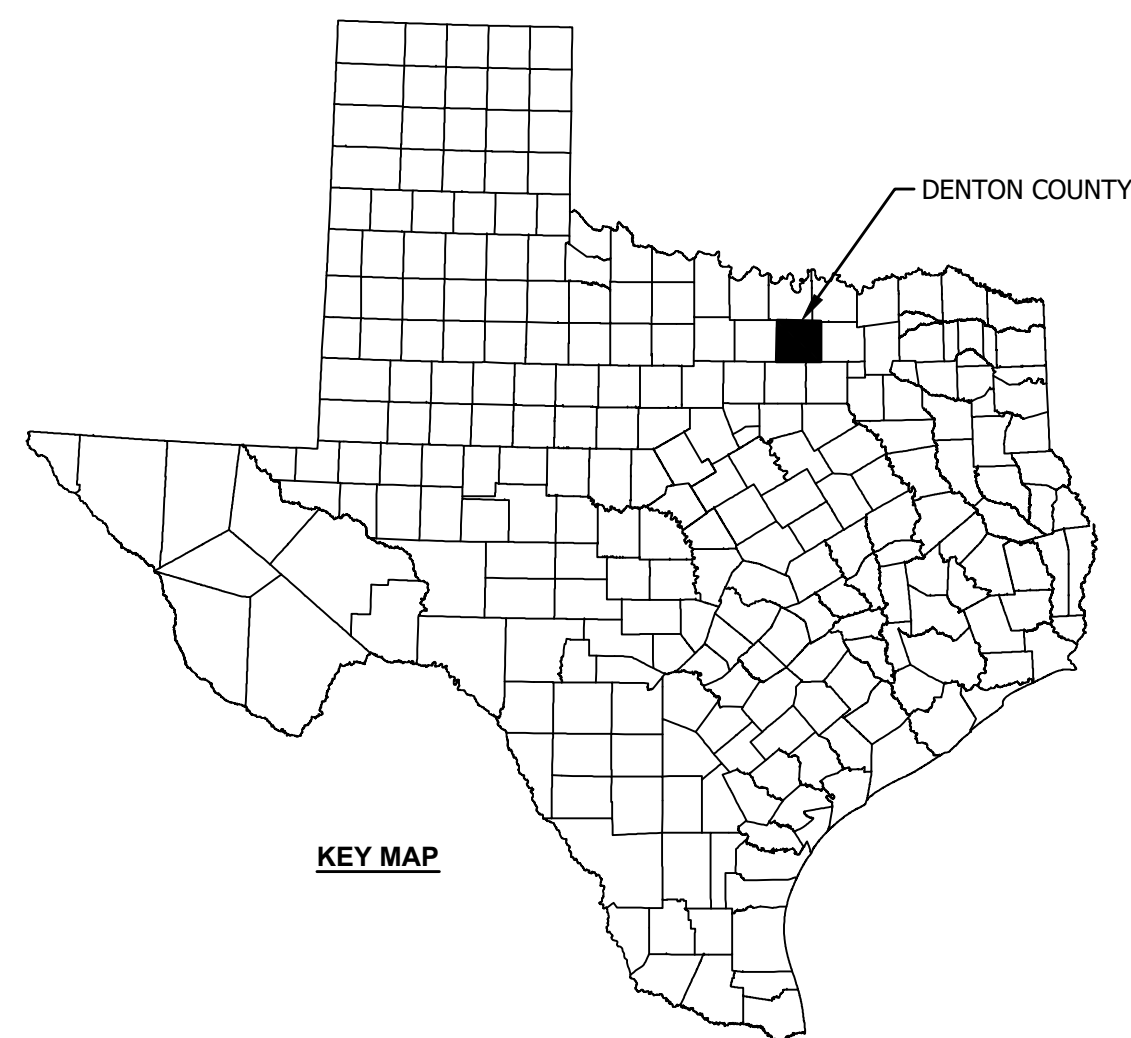
ENGINEERING PLANS FOR HEADWALL & WINGWALL REPLACEMENT

MARCHANT PLACE & RIDGEWAY CIRCLE

CITY OF LEWISVILLE

DENTON COUNTY, TX

LOCATION MAP

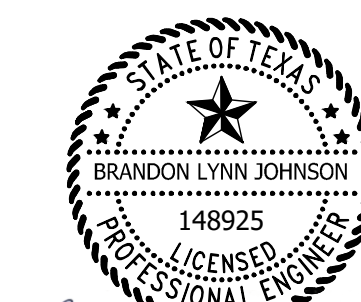


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* THESE STANDARD SHEETS HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

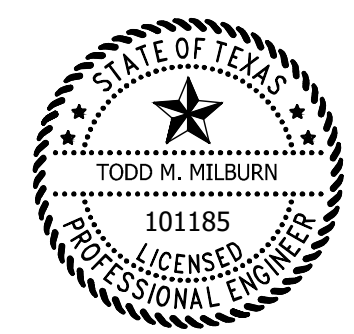
** THESE STANDARD SHEETS HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.



Brandon L. Johnson
12-3-2024



James E. Browne
12-03-2024



SEALED DATE:	=====
DESIGNED BY:	JEB
DRAWN BY:	BLJ
APPROVED BY:	TMM
DESIGN PROJ:	20263.002
DATE:	12/2/2024
DRAWING NO:	1
SHEET NO:	1 of 32

COVER SHEET

**HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGEWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX**

Bartlett & West

4800 MERCANTILE PLAZA, SUITE 301 - FT. WORTH
PHONE 888-200-6464 - FAX 785-273-8735
TEXAS FIRM REGISTRATION NO. 6499
NCTCOG REGISTRATION NO. 00000000000000000000

#	DATE	DESCRIPTION
1	12/2/2024	REPLACED STANDARD DETAILS - NCTCOG
1	12/2/2024	REVISED STANDARD RIPRAP DETAILS

CITY OF LEWISVILLE GENERAL NOTES

- THE CITY OF LEWISVILLE'S INSPECTOR OVERTIME POLICY ALLOWS THE CONTRACTOR TO WORK FROM 7:00 AM TO 7:00 PM, MONDAY THROUGH SATURDAY. ANY REQUEST TO WORK ON A SATURDAY MUST BE MADE PRIOR TO 12:00 PM ON THURSDAY AFTERNOON AND WILL REQUIRE A MINIMUM FOUR (4) HOUR CHARGE. THE CONTRACTOR SHALL PAY OVERTIME CHARGES OF \$45.00 PER HOUR TO THE CITY OF LEWISVILLE FOR WORK OUTSIDE THE NORMAL WORK WEEK (8:00 AM TO 5:00 PM, MONDAY THROUGH FRIDAY). NO WORK IS ALLOWED ON SUNDAYS OR CITY HOLIDAYS WITHOUT WRITTEN APPROVAL FROM THE CITY ENGINEER OR DESIGNEE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A FULL BREAKDOWN OF THE PRICING ON THE PROPOSAL INCLUDING ALL COST, QUANTITIES AND AMOUNTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A BID BOND, PAYMENT BOND, AND PERFORMANCE BOND FOR THIS PROJECT. IN ADDITION, A 2-YEAR MAINTENANCE BOND IN THE FINAL COST OF THE PROJECT WILL BE REQUIRED AT THE END OF THE PROJECT.
- NO WATER JETTING IS ALLOWED FOR WATER, SANITARY SEWER AND STORM SEWER DRAINAGE CONSTRUCTION.
- TEMPORARY SPECIAL SHORING IS REQUIRED FOR CONSTRUCTION OF HEADWALLS AND WINGWALLS. DESIGN, CONSTRUCTION, AND EXCAVATION SHALL COMPLY WITH ALL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS AND TEXAS STATE LAW. THE CONTRACTOR SHALL SUBMIT PLANS AND DESIGN CALCULATIONS PREPARED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF TEXAS FOR APPROVAL BY THE CITY OF LEWISVILLE OR THE ENGINEER. INSTALLATION OF TEMPORARY SPECIAL SHORING SHALL NOT COMMENCE PRIOR TO WRITTEN APPROVAL BY THE CITY OF LEWISVILLE OR THE ENGINEER. THE CONTRACTOR SHALL MAINTAIN TEMPORARY SPECIAL SHORING AND EXCAVATION DURING CONSTRUCTION.
- ALL EMBEDMENT AND BACKFILL SHALL BE WETTED TO APPROXIMATE OPTIMUM MOISTURE AND COMPACTED IN EIGHT (8) INCH LOOSE LIFTS TO 95% STANDARD PROCTOR DENSITY. DENSITY TESTS SHALL BE OBTAINED FOR EACH LIFT AND FOR EACH 150 LINEAR FEET OF TRENCH OR INCREMENT THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A COPY OF ALL GEOTECHNICAL LABORATORY REPORTS/TEST RESULTS TO THE CITY OF LEWISVILLE.
- THERE SHALL BE NO FILLING IN THE FLOODPLAIN OR DUMPING WITHIN THE CITY OF LEWISVILLE WITHOUT AN APPROVED GRADING PLAN AND/OR FILL PERMIT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING ALL FIELD CHANGES TO THE PLANS. THE PROJECT ENGINEER SHALL INCORPORATE THESE CHANGES IN "RECORD DRAWINGS".
- THE CONTRACTOR IS REQUIRED TO USE STANDARD EROSION CONTROL PROCEDURES FOR THIS PROJECT.
- THE PERMITTED OPERATOR SHALL SUBMIT COPIES OF THE NOTICE OF INTENT (N.O.I.) AND THE NOTICE OF TERMINATION (N.O.T.) TO THE CITY OF LEWISVILLE ENGINEERING DIVISION AS PART OF THE SUBMITTAL TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ).
- THE USE OF FLY ASH IS NOT ALLOWED IN THE CONCRETE MIX DESIGN.
- THE MAXIMUM P.I. ALLOWED FOR BACKFILL WITHIN THE UPPER TWO (2) FEET IS 25.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL THIRD PARTY COSTS ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT (I.E., FLAGGERS, TRAFFIC CONTROL PERFORMED BY POLICE OFFICERS AND ETC.).

ADDITIONAL GENERAL NOTES

- THE CONTRACTOR SHALL PREPARE A TRAFFIC CONTROL PLAN THAT MEETS THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE TRAFFIC CONTROL PLAN SHALL BE SUBMITTED FOR APPROVAL 14 DAYS PRIOR TO CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO MAINTAIN TRAFFIC CONTROL DEVICES DURING CONSTRUCTION AND SHALL INSTALL ADDITIONAL DEVICES WHEN FIELD CONDITIONS WARRANT OR AS DIRECTED BY THE CITY OF LEWISVILLE OR THE ENGINEER.
- LIMITED TOPOGRAPHIC SURVEY WAS PROVIDED FOR DESIGN. BOUNDARY, UTILITY, OR GEOTECHNICAL SURVEYS WERE NOT PROVIDED FOR DESIGN. LOCATION AND DIMENSIONS OF SIDEWALK ARE TO MATCH EXISTING. NEW HEADWALLS ARE TO MATCH EXISTING ENDS OF BOX AND/OR PIPE CULVERTS. SLIGHT FIELD ADJUSTMENTS MAY BE NECESSARY. ADJUSTMENTS SHALL BE COORDINATED WITH THE CITY OF LEWISVILLE AND THE ENGINEER.
- NO FENCES SHALL BE DISTURBED DURING THE CONSTRUCTION OF THIS PROJECT. IN THE EVENT A PROPERTY FENCE IS DISTURBED, THE CONTRACTOR SHALL IMMEDIATELY INSTALL TEMPORARY FENCING AND REPLACE PROPERTY FENCE, IN-KIND, WITHIN 48 HOURS OF DISTURBANCE. ANY TEMPORARY OR PERMANENT FENCING SHALL BE CONSTRUCTED AT THE CONTRACTOR'S SOLE EXPENSE.

TRAFFIC CONTROL NOTES - MARCHANT PLACE

- MARCHANT PLACE TRAFFIC MAY BE REDUCED TO ONE LANE BETWEEN 7:30 A.M. AND 5:00 P.M., MONDAY THROUGH FRIDAY. THE ROAD WILL BE OPEN TO THE PUBLIC AT THE END OF EACH DAY.
- LIMITS FOR LANE CLOSURE ARE FROM EAST OF THE DRIVEWAY AT 1193 MARCHANT PLACE TO THE RADIUS OF RETURN FROM CLIFFROSE LANE.
- MAINTAIN A MINIMUM OF ONE PEDESTRIAN ROUTE THROUGH THE PROJECT 24-HOURS A DAY, SEVEN DAYS PER WEEK.
- MAINTAIN ACCESS FOR ALL DRIVEWAYS.
- THE CONTRACTOR'S TRAFFIC CONTROL PLAN (REFER TO ADDITIONAL GENERAL NOTES) SHALL INCLUDE BARRICADES AT EACH END OF THE LANE CLOSURE, PEDESTRIAN ROUTE, AND INTERIM DETOUR SIGNAGE ON MARCHANT PLACE AND OTHER STREETS (MARCHANT DR., OLD ORCHARD LN., BUEHLER PL., DENICE CT., BUEHLER CT., CLIFFROSE LN., CASCADE FALLS DR., TIMBERLAKE LN.) AS APPROPRIATE TO FACILITATE INGRESS AND EGRESS FOR PROPERTY OWNERS, EMERGENCY SERVICES, UNITED STATES POSTAL SERVICE, PRIVATE DELIVERY SERVICES, AND VISITORS.

TRAFFIC CONTROL NOTES - RIDGEWAY CIRCLE

- RIDGEWAY CIRCLE TRAFFIC MAY BE REDUCED TO ONE LANE BETWEEN 7:30 A.M. AND 5:00 P.M., MONDAY THROUGH FRIDAY. THE ROAD WILL BE OPEN TO THE PUBLIC AT THE END OF EACH DAY.
- LIMITS FOR LANE CLOSURE ARE FROM THE SOUTH SIDE OF THE DRIVEWAY AT 284 RIDGEWAY CIRCLE TO 301 RIDGEWAY CIRCLE.
- MAINTAIN A MINIMUM OF ONE PEDESTRIAN ROUTE THROUGH THE PROJECT 24-HOURS A DAY, SEVEN DAYS PER WEEK.
- MAINTAIN ACCESS FOR ALL DRIVEWAYS.
- THE CONTRACTOR'S TRAFFIC CONTROL PLAN (REFER TO ADDITIONAL GENERAL NOTES) SHALL INCLUDE BARRICADES AT EACH END OF THE LANE CLOSURE, PEDESTRIAN ROUTE, AND INTERIM DETOUR SIGNAGE ON RIDGEWAY CIRCLE AND OTHER STREETS (FOX AVE., PRICE DR., EDMONDS LN., WILLOW SPRINGS DR.) AS APPROPRIATE TO FACILITATE INGRESS AND EGRESS FOR PROPERTY OWNERS, EMERGENCY SERVICES, UNITED STATES POSTAL SERVICE, PRIVATE DELIVERY SERVICES, AND VISITORS.

ESTIMATED QUANTITIES - MARCHANT PLACE

ITEM	SPEC ITEM *	DESCRIPTION	UNIT	QUANTITY
M-1	SP B.1	START-UP (MOBILIZATION / DEMOBILIZATION)	LS	1
M-2	SP B.2	TRAFFIC CONTROL	LS	1
M-3	SP B.3	PREPARE RIGHT-OF-WAY	LS	1
M-4	SP B.4	EROSION CONTROL	LS	1
M-5	203.1	REMOVING CONCRETE (SIDEWALK)	SY	16
M-6	701.2	ADJUST/EXTEND EXISTING STRUCTURE (CULVERT) (SEE NOTE 1)	LS	1
M-7	TxDOT 403	TEMPORARY SPECIAL SHORING	SF	1,305
M-8	203.2	CHANNEL EXCAVATION	CY	35
M-9	701.2	STRUCTURAL EXCAVATION	CY	315
M-10	701.2	STRUCTURAL BACKFILL	CY	171
M-11	702.5	CLASS C CONCRETE (HEADWALL)(EXTEND)	CY	5.0
M-12	702.5	CLASS C CONCRETE (WINGWALL)(EXTEND)	CY	44.6
M-13	702.5	CLASS C CONCRETE (CULVERT)(EXTEND)	CY	6.8
M-14	702.5	CLASS C CONCRETE (RAIL FOUNDATION) (MOD)	CY	17.5
M-15	TxDOT 450	RAIL (TYPE PR11) (MOD)	LF	137.4
M-16	803.3	RIPRAP (STONE) REMOVE, STOCKPILE & REINSTALL	SY	131
M-17	803.3	DRY RIPRAP, TYPE C	CY	30
M-18	305.2	CONCRETE SIDEWALK (4 IN)	SY	16
M-19	204	BLOCK SODDING W/ 4-IN. DEPTH TOPSOIL	SY	440

*NOTE: ITEMS REFERENCE NCT COG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION UNLESS OTHERWISE NOTED

NOTES:
1. INCLUDES REMOVAL OF EXISTING WINGWALLS, PARTIAL REMOVAL OF EXISTING CONCRETE HEADWALL AND TOP SLAB, PREPARATION OF EXISTING CONCRETE FOR BONDING TO A NEW CONCRETE, AND CLEANING AND STRAIGHTENING EXISTING REINFORCING AS SHOWN IN THE PLANS.

ESTIMATED QUANTITIES - RIDGEWAY CIRCLE

ITEM	SPEC ITEM *	DESCRIPTION	UNIT	QUANTITY
R-1	SP B.1	START-UP (MOBILIZATION / DEMOBILIZATION)	LS	1
R-2	SP B.2	TRAFFIC CONTROL	LS	1
R-3	SP B.3	PREPARE RIGHT-OF-WAY	LS	1
R-4	SP B.4	EROSION CONTROL	LS	1
R-5	203.1	REMOVING CONCRETE (SIDEWALK)	SY	44
R-6	203.1	REMOVE CONCRETE (HEADWALL & WINGWALLS)	LS	1
R-7	203.1	REMOVE CONCRETE CHANNEL LINING	SY	33
R-8	203.1	REMOVE EXISTING HANDRAIL	LF	73
R-9	TxDOT 403	TEMPORARY SPECIAL SHORING	SF	1,680
R-10	203.2	CHANNEL EXCAVATION	CY	10
R-11	701.2	STRUCTURAL EXCAVATION	CY	216
R-12	701.2	STRUCTURAL BACKFILL	CY	135
R-13	504.2	FLOWABLE BACKFILL	CY	10.3
R-14	702.5	CLASS C CONCRETE (HEADWALL)	CY	16.5
R-15	702.5	CLASS C CONCRETE (WINGWALL)	CY	28.4
R-16	702.5	CLASS C CONCRETE CHANNEL LINING (6 IN) (SEE NOTE 2)	CY	7
R-17	702.5	CLASS C CONCRETE (RAIL FOUNDATION) (MOD)	CY	12.4
R-18	TxDOT 450	RAIL (TYPE PR11) (MOD)	LF	97.4
R-19	305.2	CONCRETE SIDEWALK (4 IN)	SY	44
R-20	204	BLOCK SODDING W/ 4-IN. DEPTH TOPSOIL	SY	160

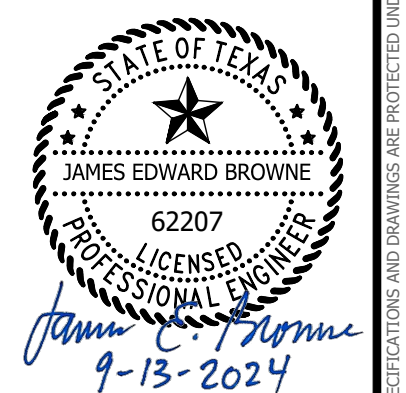
*NOTE: ITEMS REFERENCE NCT COG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION UNLESS OTHERWISE NOTED

NOTES:
2. REFER TO CITY OF LEWISVILLE STANDARD DETAIL "CONCRETE CHANNEL LINING" FOR EDGE TO E DETAIL.

Last edit: on: Sep 12, 2024 by: BL01713 Drawing Name: c:\Users\BL01713\OneDrive\Bartlett & West\20263.002 - Lewisville headwall replace m8r\project files\AutoCAD\Plan Set\20263.002_General.dwg Layout Name: GENERAL NOTES Plotted on: 9/13/2024 10:17:30 AM



GENERAL NOTES
QUANTITIES
HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGEWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX



SEALED DATE: =====
DESIGNED BY: JEB
DRAWN BY: BLJ
APPROVED BY: TMM
DESIGN PROJ: 20263.002
DATE: 9/13/2024
DRAWING NO: 2
SHEET NO: 2 of 32

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GENERAL PROJECT INFORMATION

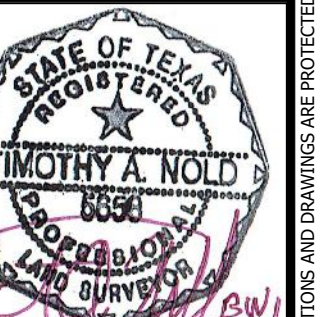
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 SCALE FACTOR: 0.999872695/1.000127321
 HORIZONTAL DATUM: NAD 83
 VERTICAL DATUM: NAVD 88
 NOTE: ALL COORDINATES AND DISTANCES ARE SHOWN IN SURFACE VALUES AND MAY BE CONVERTED TO GRID USING THE SURFACE ADJUSTMENT FACTOR OF 0.999872695.

PROJECT CONTROL

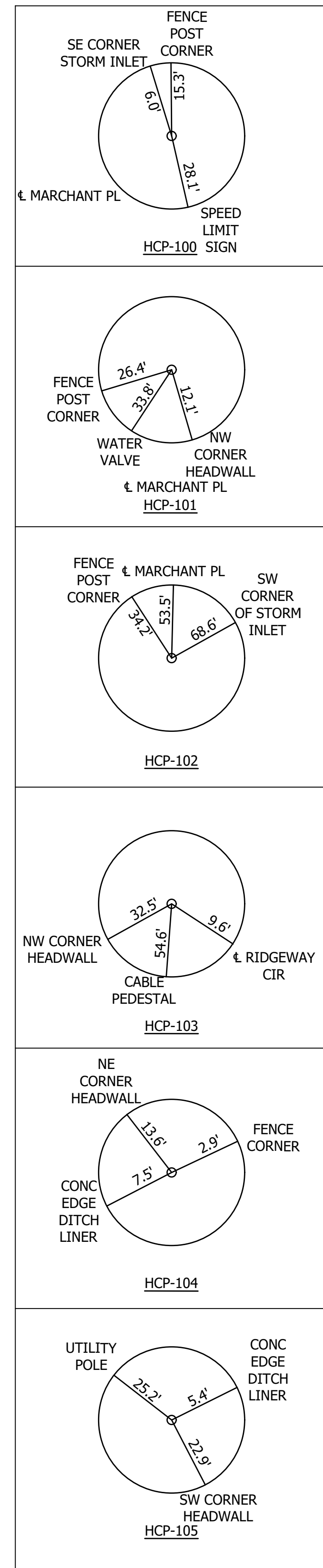
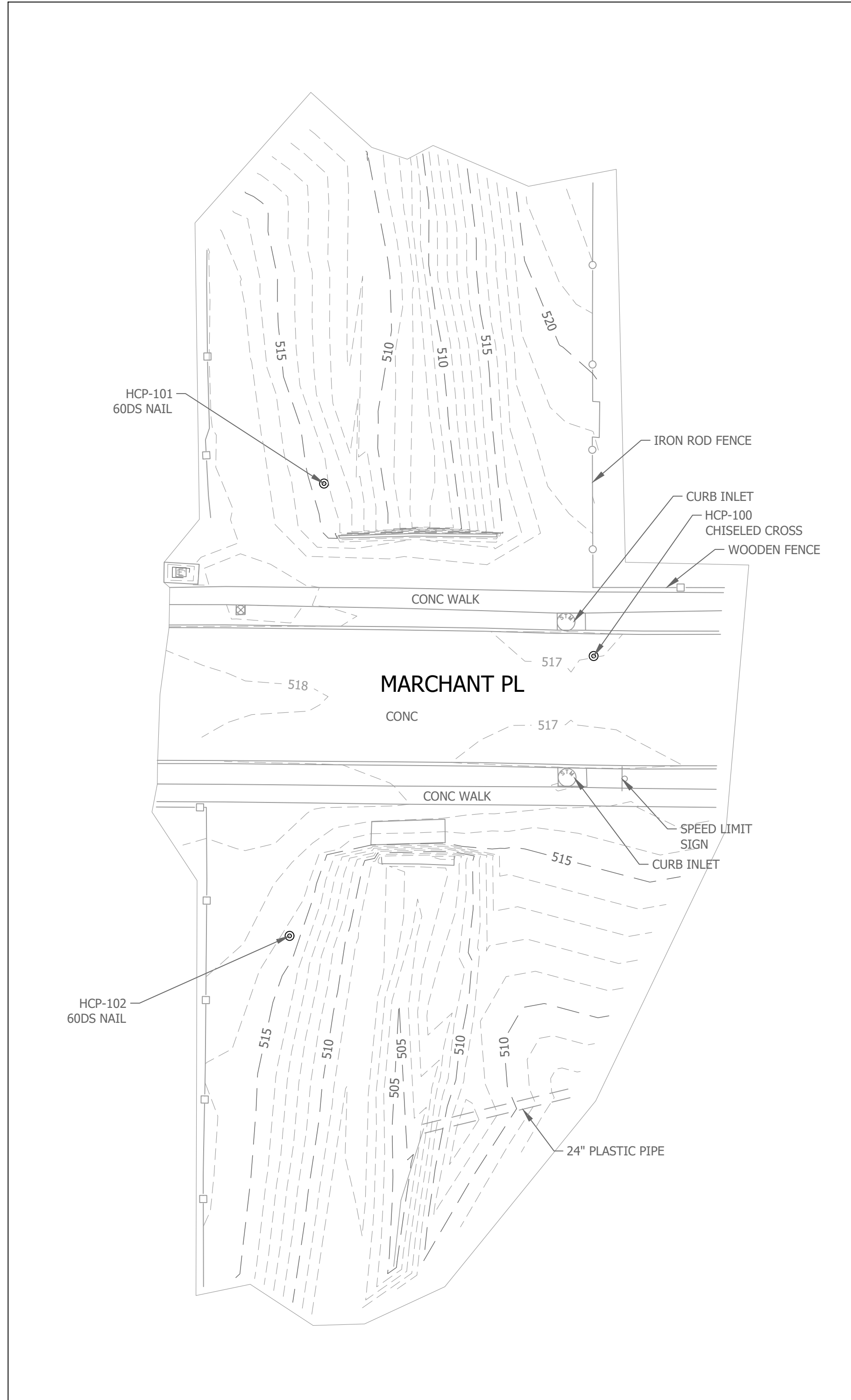
- HCP-100 CHISELED "X" IN PAVEMENT LOCATED 9.9' NORTH OF CENTER LINE OF MARCHANT PLACE AND WEST OF RESIDENCE AT 1193 MARCHANT PL
 N=7,059,659.29
 E=2,421,424.14
 ELEV=517.07
- HCP-101 60DS NAIL LOCATED 53.5' SOUTH OF THE CENTERLINE OF MARCHANT PL AND WEST OF RESIDENCE AT 1193 MARCHANT PL
 N=7,059,697.77
 E=2,421,364.01
 ELEV=514.49
- HCP-102 60DS NAIL LOCATED 47.5' NORTH OF THE CENTERLINE OF MARCHANT PL AND WEST OF RESIDENCE AT 1701 BUEHLER PL
 N=7,059,596.83
 E=2,421,356.32
 Z=515.92
- HCP-103 PK NAIL SET IN PAVEMENT ON RIDGEWAY CIR 9.6' WEST CENTER LINE OF RIDGEWAY CIR AND NW OF RESIDENCE AT 301 RIDGEWAY CIR
 N=7,065,231.12
 E=2,426,460.19
 Z=537.81
- HCP-104 60DS NAIL LOCATED 48.2' EAST OF CENTERLINE OF RIDGEWAY CIR AND SOUTH OF RESIDENCE OF 294 RIDGEWAY CIR
 N=7,065,147.37
 E=2,426,474.01
 Z=535.93
- HCP-105 60DS NAIL LOCATED 48.6' WEST OF CENTERLINE OF RIDGEWAY CIR AND NORTH OF RESIDENCE OF 301 RIDGEWAY CIR
 N=7,065,210.45
 E=2,426,399.92
 Z=537.27

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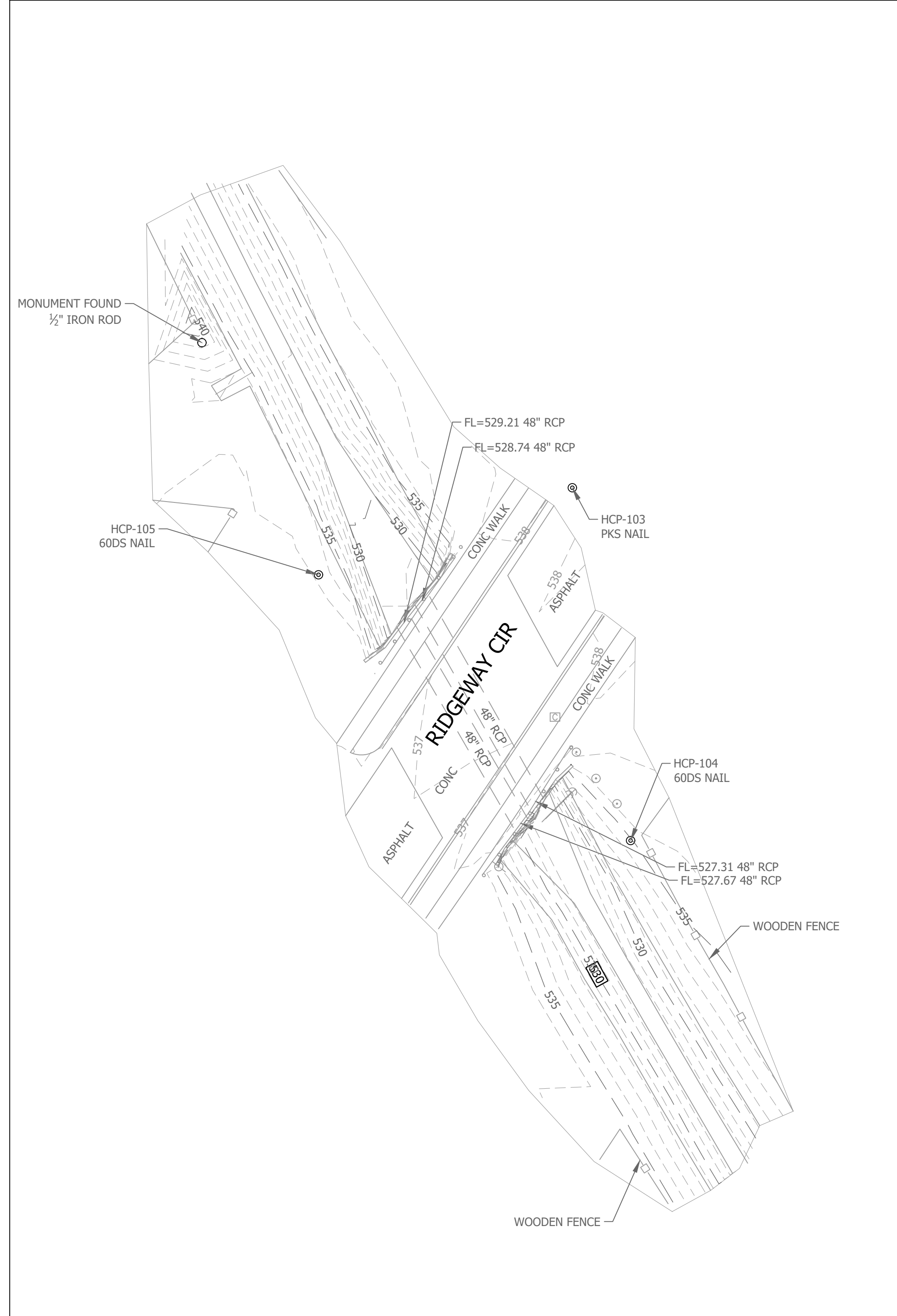
**HORIZONTAL AND VERTICAL CONTROL
 MARCHANT PLACE
 RIDGEWAY CIRCLE
 HEADWALL & WINGWALL REPLACEMENT
 MARCHANT PLACE & RIDGEWAY CIRCLE
 CITY OF LEWISVILLE, DENTON COUNTY, TX**



SEALED DATE:	=====
DESIGNED BY:	
DRAWN BY:	BLJ
APPROVED BY:	TAN
DESIGN PROJ:	20263.002
DATE:	9/13/2024
DRAWING NO:	3
SHEET NO:	3 of 32



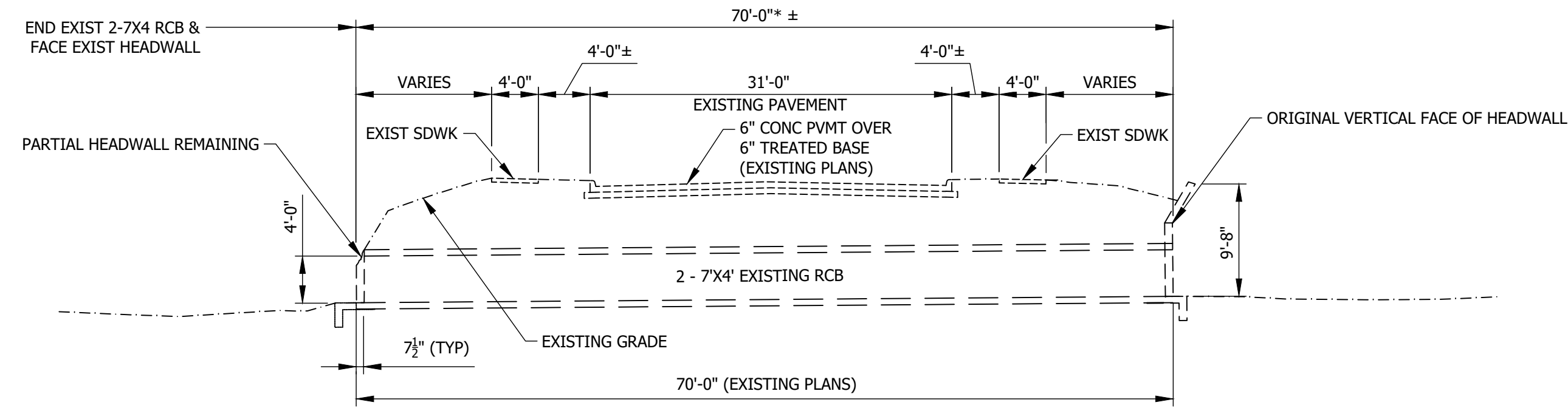
CONTROL POINT REFERENCES
 NOT TO SCALE



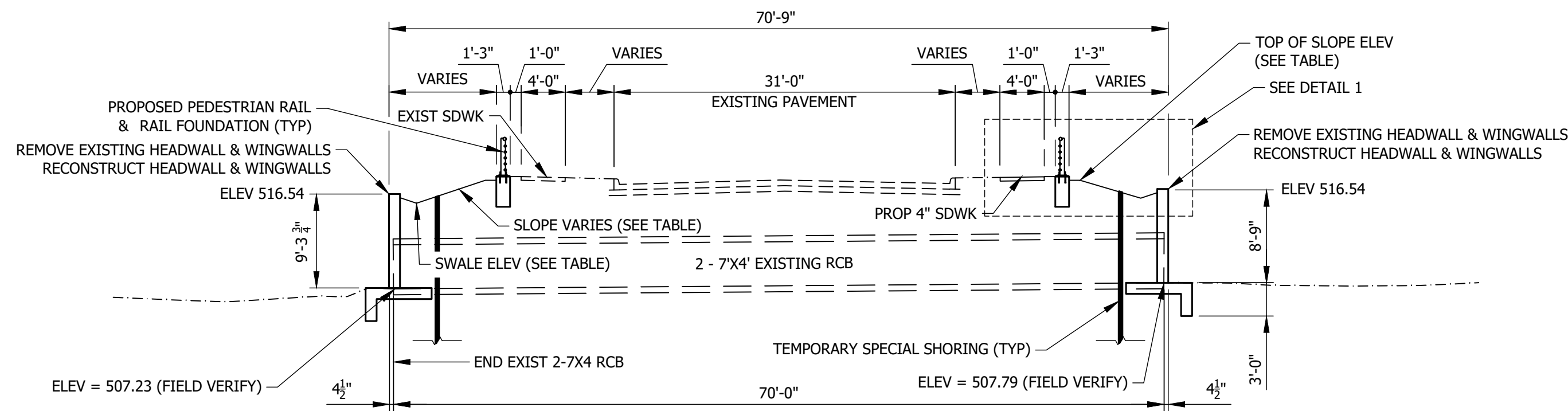
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 Layout Name: SURVEY CONTROL
 Plotted on: 9/13/2024 10:18:01 AM
 Last edit on: 8/22/2024 8:50 AM by: BLJ01713

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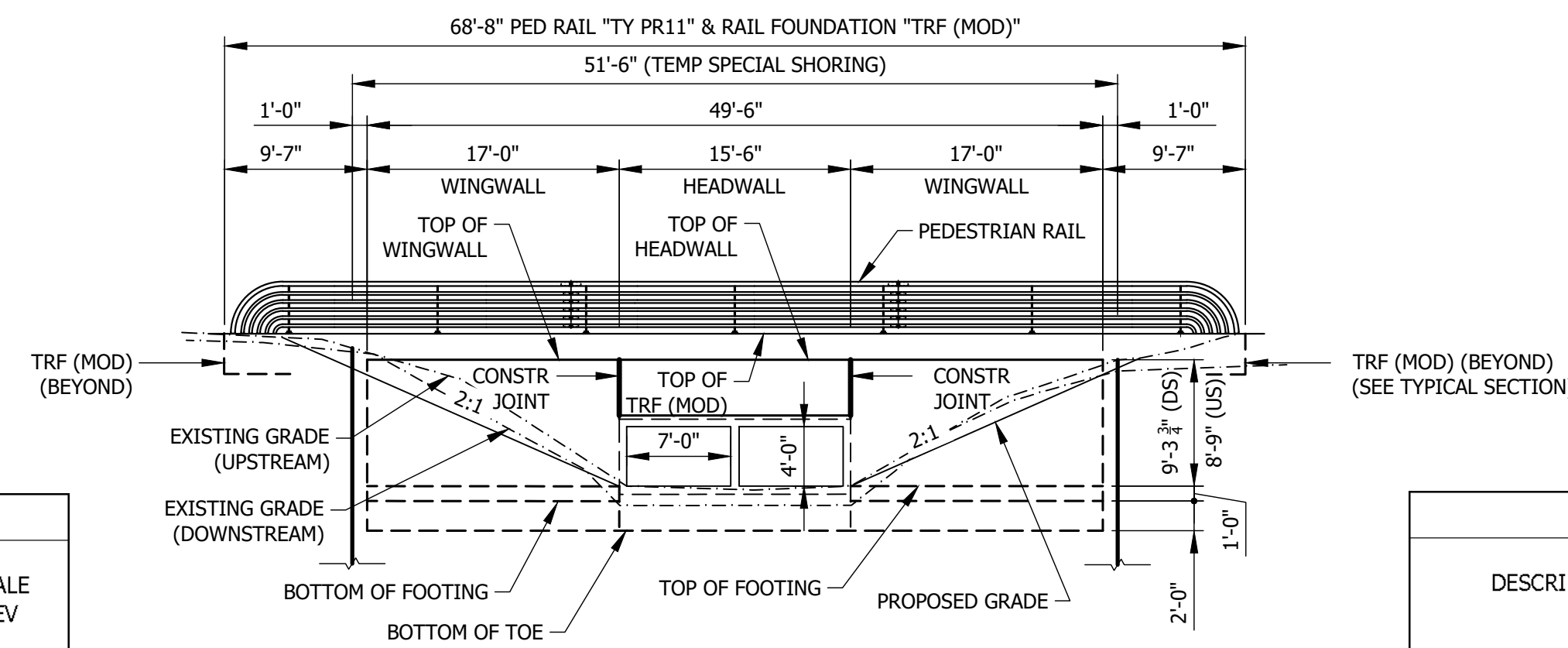
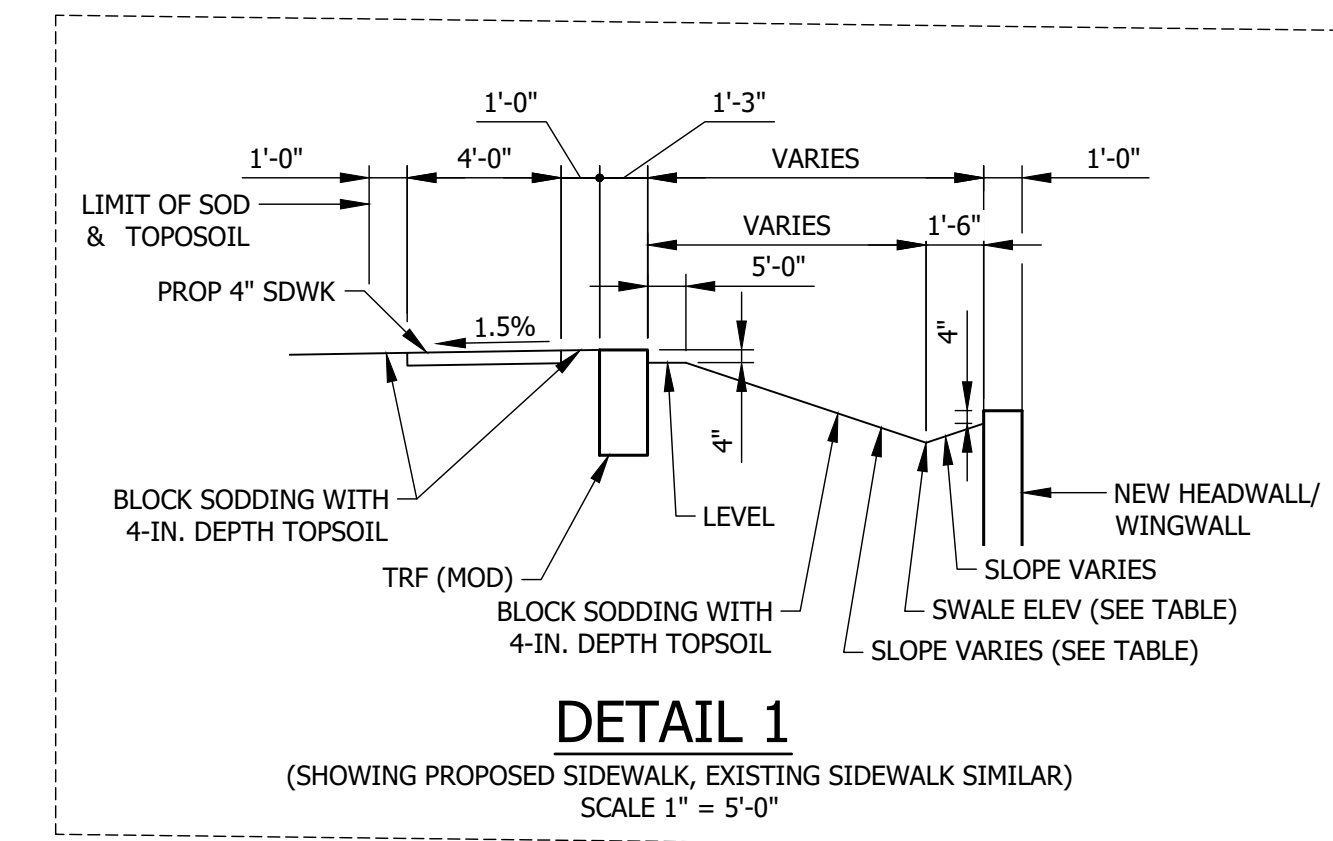
MARCHANT PLACE HORIZONTAL GEOMETRY			
STATION	DESCRIPTION	NORTHING	EASTING
1+00.00	POB, BEGIN \pm MARCHANT PLACE	7059648.9315	2421483.0556
3+00.00	POE, END \pm MARCHANT PLACE	7059651.3210	2421283.0698



MARCHANT PLACE EXISTING
SCALE 1" = 10'-0"



MARCHANT PLACE PROPOSED
(EXISTING SIDEWALK AT LEFT SIDE TO REMAIN)
SCALE 1" = 10'-0"



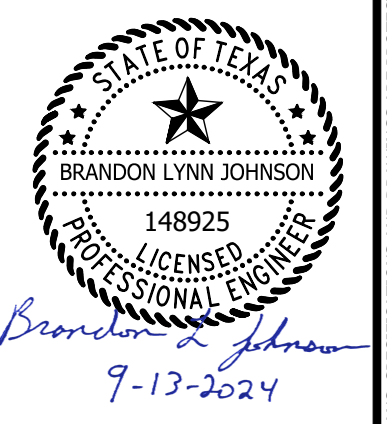
MARCHANT PLACE PROPOSED HEADWALL
SCALE 1" = 10'-0"

DOWNSTREAM WINGWALL & HEADWALL							
DESCRIPTION	STATION ALONG \pm MARCHANT PLACE	ELEV TOP OF CURB	DISTANCE BACK OF CURB TO TRF	ELEV TOP OF TRF	TOP OF SLOPE ELEV OUTSIDE FACE OF TRF	SLOPE TRF TO SWALE	SWALE ELEV
W END OF WINGWALL	2+22.38	518.13	8.56'	518.38	518.05	3.0 : 1	515.88
W END OF HEADWALL	2+05.38	517.80	8.66'	518.16	517.83	3.3 : 1	515.79
\pm BOX CULVERT	1+97.63	517.65	8.65'	517.95	517.62	3.7 : 1	515.75
E END OF HEADWALL	1+89.88	517.50	8.63'	517.71	517.38	4.2 : 1	515.71
E END OF WINGWALL	1+72.88	517.14	8.48'	517.27	516.94	5.5 : 1	515.63

UPSTREAM WINGWALL & HEADWALL							
DESCRIPTION	STATION ALONG \pm MARCHANT PLACE	ELEV TOP OF CURB	DISTANCE BACK OF CURB TO TRF	ELEV TOP OF TRF	TOP OF SLOPE ELEV OUTSIDE FACE OF TRF	SLOPE TRF TO SWALE	SWALE ELEV
W END OF WINGWALL	2+21.60	518.03	8.59'	518.16	517.83	3.0 : 1	515.88
W END OF HEADWALL	2+04.61	517.88	8.63'	518.01	517.68	3.0 : 1	515.79
\pm BOX CULVERT	1+96.86	517.78	8.60'	517.91	517.58	3.1 : 1	515.75
E END OF HEADWALL	1+89.11	517.68	8.56'	517.81	517.48	3.2 : 1	515.71
E END OF WINGWALL	1+72.11	517.49	8.61'	517.62	516.29	3.3 : 1	515.63

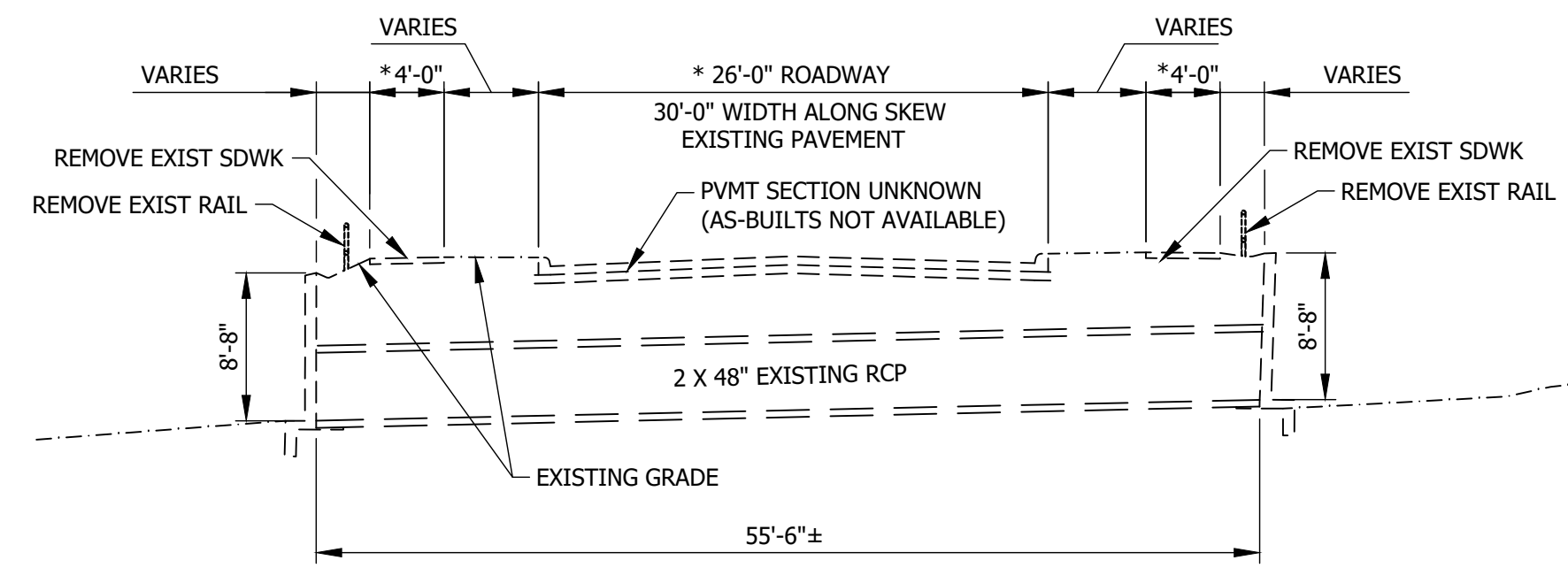
TYPICAL SECTIONS
MARCHANT PLACE

HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX



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SHEET NO:	4 of 32

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* MEASURED PERPENDICULAR TO \perp RIDGEWAY CIRCLE

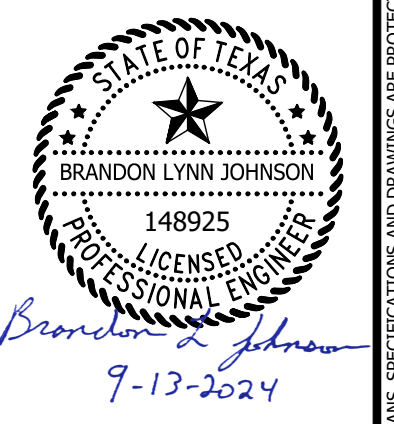
RIDGEWAY CIRCLE EXISTING

SCALE 1" = 10'-0"

RIDGEWAY CIRCLE HORIZONTAL GEOMETRY			
STATION	DESCRIPTION	NORTHING	EASTING
4+00.00	POB, BEGIN \perp RIDGEWAY CIRCLE	7065260.5045	2426492.0275
6+00.00	POE, END \perp RIDGEWAY CIRCLE	7065094.5389	2426380.4409

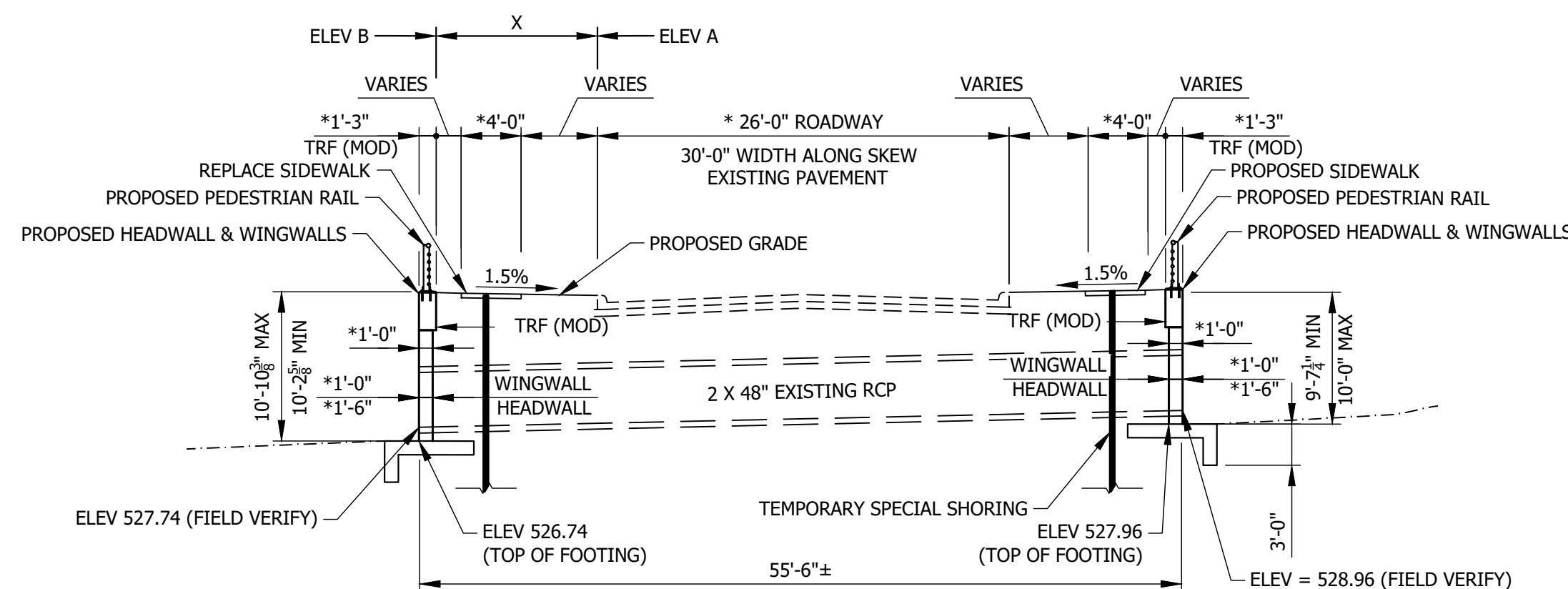
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**TYPICAL SECTIONS
 RIDGEWAY CIRCLE**
 HEADWALL & WINGWALL REPLACEMENT
 MARCHANT PLACE & RIDGEWAY CIRCLE
 CITY OF LEWISVILLE, DENTON COUNTY, TX



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SHEET NO:	5 of 32

DOWNSTREAM WINGWALL & HEADWALL				
POINT	"X" BACK OF CURB TO TRF	ELEV TOP OF CURB (EXIST)	ELEV TOP OF TRF	STATION ALONG \perp RIDGEWAY CIRCLE
①	10.37	536.80	536.96	5+31.10
②	10.33	537.03	537.18	5+19.35
③	10.29	537.20	537.35	5+12.26
④	10.29	537.28	537.43	5+04.27
⑤	10.31	537.45	537.60	4+92.43

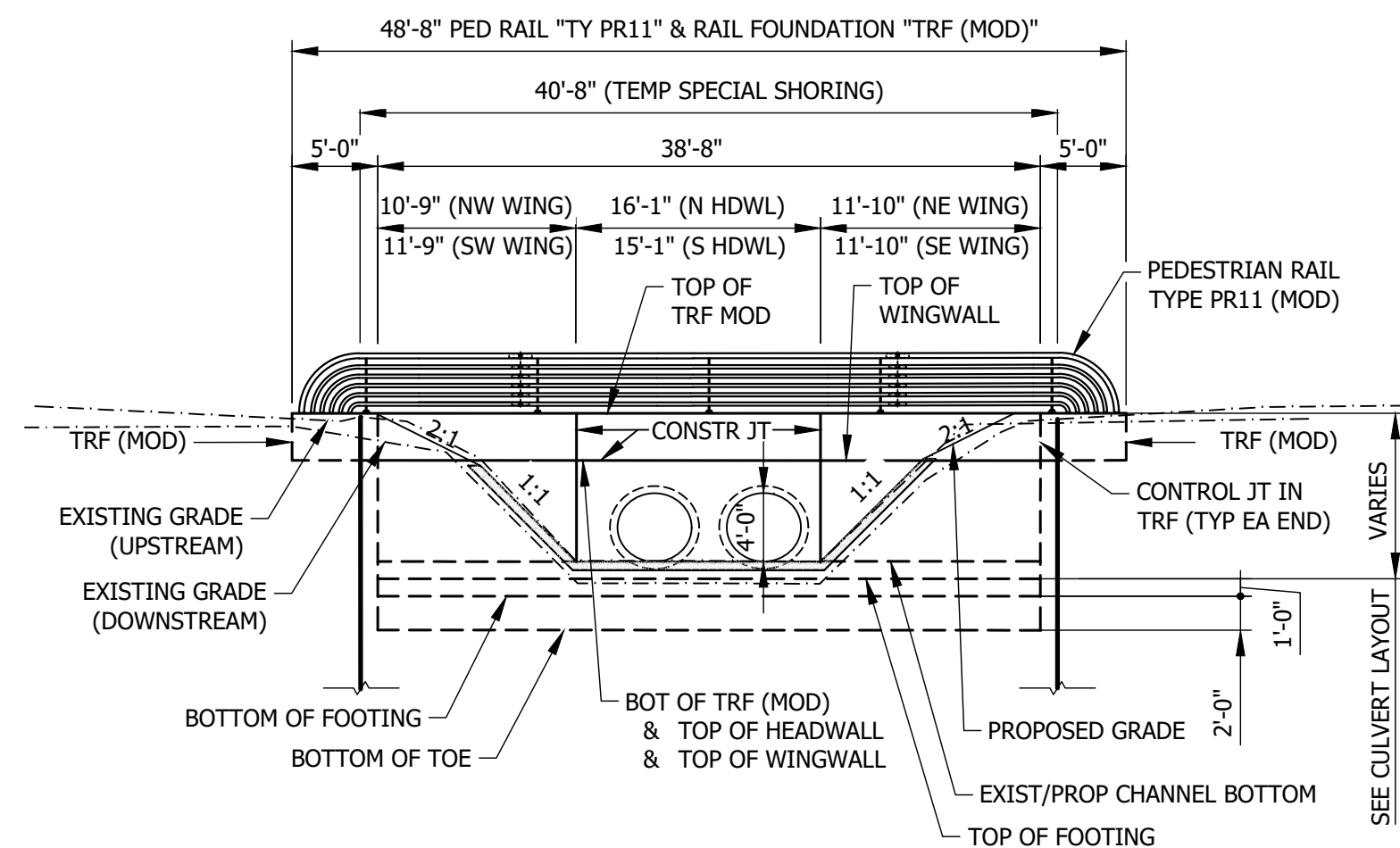


* MEASURED PERPENDICULAR TO \perp RIDGEWAY CIRCLE

RIDGEWAY CIRCLE PROPOSED

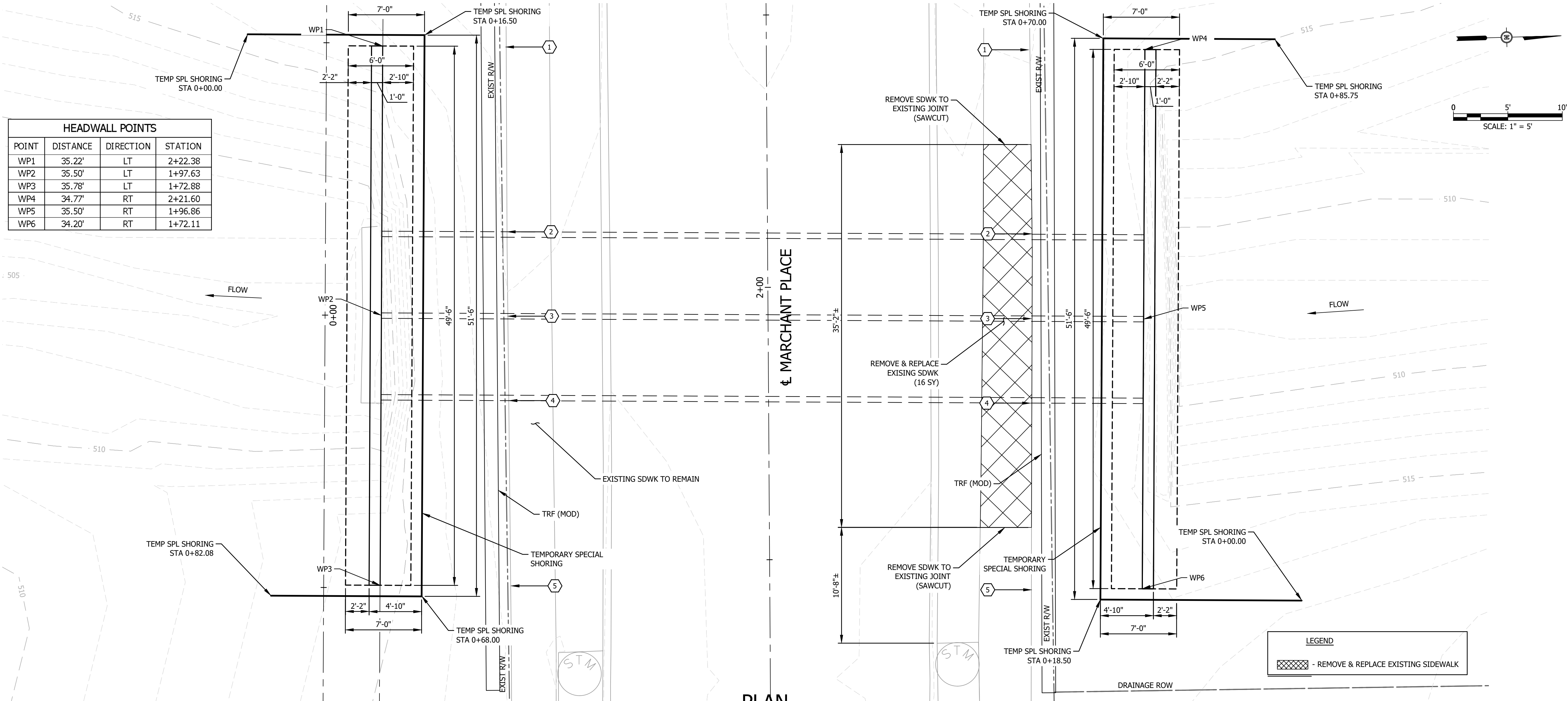
SCALE 1" = 10'-0"

NGWALL & HEADWALL				
POINT	"X" BACK OF CURB TO TRF	ELEV TOP OF CURB (EXIST)	ELEV TOP OF TRF	STATION ALONG \perp RIDGEWAY CIRCLE
①	10.02	537.41	537.56	5+07.02
②	10.00	537.54	537.69	4+96.26
③	9.99	537.57	537.72	4+87.69
④	9.98	537.60	537.75	4+80.19
⑤	10.00	537.81	537.96	4+68.35



RIDGEWAY CIRCLE PROPOSED HEADWALL

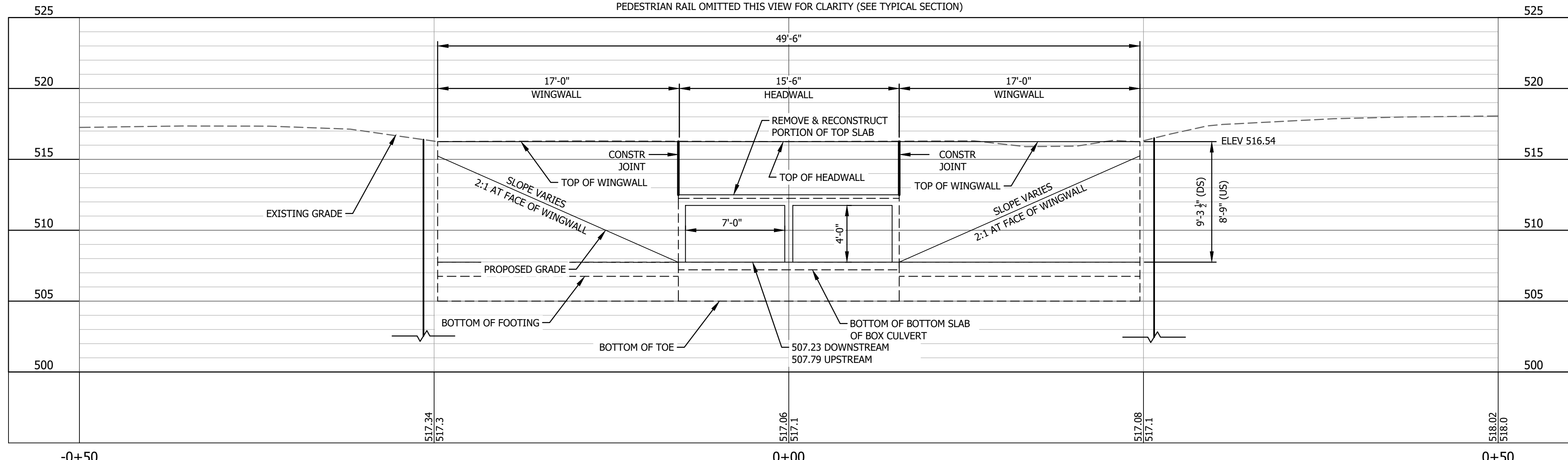
(LOOKING UPSTREAM AT N & S HEADWALLS & WINGWALLS)
 SCALE 1" = 10'-0"



HEADWALL POINTS			
POINT	DISTANCE	DIRECTION	STATION
WP1	35.22'	LT	2+22.38
WP2	35.50'	LT	1+97.63
WP3	35.78'	LT	1+72.88
WP4	34.77'	RT	2+21.60
WP5	35.50'	RT	1+96.86
WP6	34.20'	RT	1+72.11

PLAN

PEDESTRIAN RAIL OMITTED THIS VIEW FOR CLARITY (SEE TYPICAL SECTION)

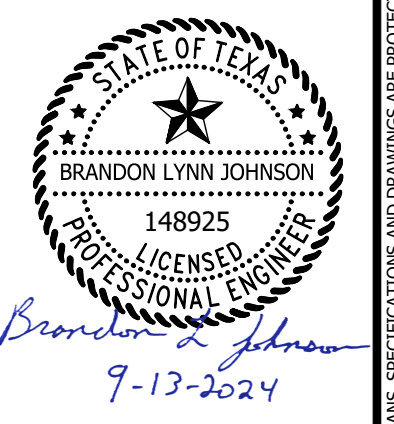


HEADWALL & WINGWALL ELEVATION

PEDESTRIAN RAIL & TRF MOD OMITTED THIS VIEW FOR CLARITY (SEE TYPICAL SECTION)

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**CULVERT LAYOUT
 MERCHANT PLACE**
 HEADWALL & WINGWALL REPLACEMENT
 MERCHANT PLACE & RIDGEWAY CIRCLE
 CITY OF LEWISVILLE, DENTON COUNTY, TX

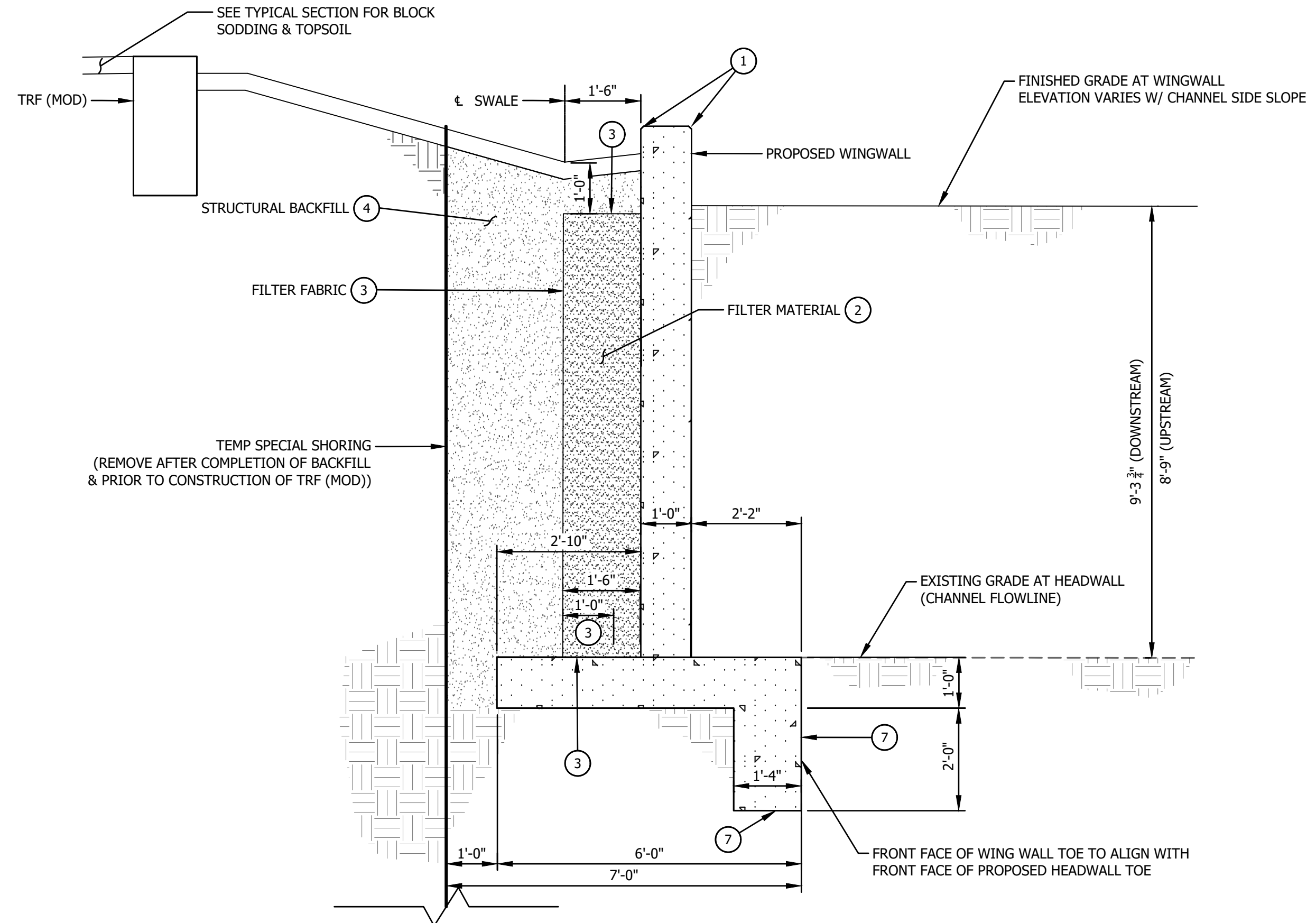
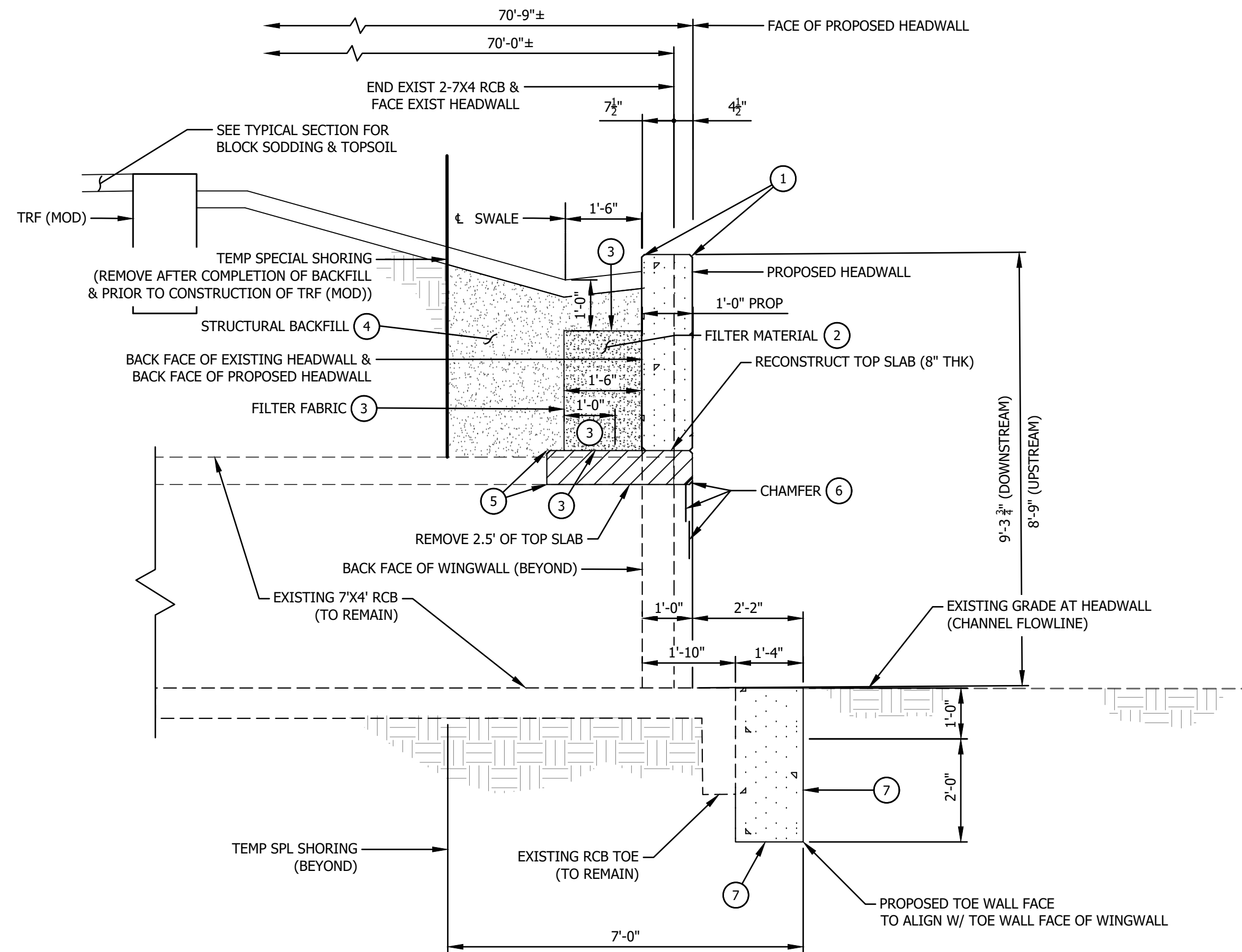


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DESIGNED BY:	JEB
DRAWN BY:	BLJ
APPROVED BY:	TMM
DESIGN PROJ:	20263.002
DATE:	9/13/2024
DRAWING NO:	6
SHEET NO:	6 of 32

Last edit on: 8/22/2024 8:54 AM by: BLJ01713
 Drawing Name: c:\Users\BLJ01713\Documents\Bartlett & West\20263.002 - Lewisville headwall replace.mxd
 Project files: AutoCAD\Plan Set\20263.002_CULVERT_LAYOUT.dwg
 Layout Name: MERCHANT PLACE
 Plotted on: 9/13/2024 10:18:49 AM

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Drawing Name: c:\Users\BLJ01713\Documents\Bartlett & West\20263.002 - Lewisville Headwall Replace.mbx\project files\AutoCAD\Plan Set\20263.002_CULVERT DETAILS.dwg Layout Name: MARCHANT PLACE Placed by: BLDJ01713 Printed on: 9/13/2024 10:19:08 AM



NOTES

- ① 3/8" CHAMFER EDGES OF CONCRETE, INCLUDING EACH SIDE OF CONSTRUCTION JOINTS. DO NOT CHAMFER CONSTRUCTION JOINT AT BOTTOM OF HEADWALL OR BOTTOM OF WINGWALL.
- ② FILTER MATERIAL - USE CONCRETE COARSE AGGREGATE GRADE 2 OR 3 (REFER TO TxDOT ITEM 421, ARTICLE 2.6.1, TABLE 4). FILTER MATERIAL IS INCLUDED IN THE VOLUME OF STRUCTURAL BACKFILL. NO DIRECT PAYMENT WILL BE MADE; THIS WILL BE SUBSIDIARY TO STRUCTURAL BACKFILL.
- ③ FILTER FABRIC - PROVIDE TYPE 1 FILTER FABRIC MEETING THE REQUIREMENTS OF TxDOT DMS -6200. INSTALL FABRIC BETWEEN FILTER MATERIAL AND BACKFILL. LIMITS OF FILTER FABRIC: TOP AND BACK FACE OF FILTER MATERIAL AND 1'-0" ACROSS TOP OF CULVERT TOP SLAB (OR TOP OF WINGWALL FOOTING). FILTER FABRIC WILL NOT BE PAID FOR DIRECTLY, AND WILL BE CONSIDERED SUBSIDIARY TO STRUCTURAL BACKFILL.
- ④ STRUCTURAL BACKFILL - PROVIDE MATERIAL MEETING THE REQUIREMENTS SHOWN IN THE TABLE "STRUCTURAL BACKFILL GRADATION LIMITS". IN ADDITION, STRUCTURAL BACKFILL SHALL HAVE A PLASTICITY INDEX (PI) OF 20 MAX, AND LIQUID LIMIT (LL) OF 45 MAX. ON-SITE EXCAVATED MATERIAL MEETING THESE REQUIREMENTS WILL BE ALLOWED AS STRUCTURAL BACKFILL. THE CONTRACTOR SHALL SAMPLE AND TEST PROPOSED MATERIAL AND SUBMIT TEST RESULTS FOR APPROVAL BY THE ENGINEER PRIOR TO PLACEMENT. ON-SITE MATERIAL THAT DOES NOT MEET GRADATION REQUIREMENTS CAN BE SUPPLEMENTED WITH OFF-SITE MATERIAL SO THAT THE BLENDED MATERIAL MEETS REQUIREMENTS. BLENDING SHALL BE SUFFICIENT TO PROVIDE UNIFORM DISTRIBUTION OF THE VARIOUS GRAIN SIZES THROUGHOUT THE PROPOSED MATERIAL. BLENDING OF STRUCTURAL BACKFILL MATERIAL IS INTENDED FOR THE CONVENIENCE OF THE CONTRACTOR, AND NO ADDITIONAL PAYMENT WILL BE MADE FOR TIME, MATERIAL, LABOR, OR INCIDENTALS.
- ⑤ PROVIDE SAWCUT ACROSS THE TOP AND UNDERSIDE SURFACES AND THE OUTSIDE FACE OF THE EXTERIOR WALL OF THE BOX CULVERT PRIOR TO REMOVAL OF EXISTING TOP SLAB. SAWCUT DEPTH TO BE 1/2" DEEP (AVOID CUTTING EXISTING REINFORCING STEEL). REMOVE CONCRETE TO NEAT LINES. PREVENT DAMAGE TO EXISTING CONCRETE BEYOND THE LIMITS OF REMOVAL. CLEAN AND STRAIGHTEN EXISTING LONGITUDINAL REINFORCING AND EXTEND 2'-0" MIN. INTO NEW TOP SLAB.
- ⑥ CHAMFER UNDERSIDE OF SLAB AND VERTICAL EDGES OF WINGWALLS: 2" AT UPSTREAM END AND 3/8" AT DOWNSTREAM END.
- ⑦ PLACE CONCRETE FOR TOE WALL AGAINST UNDISTURBED SOIL.

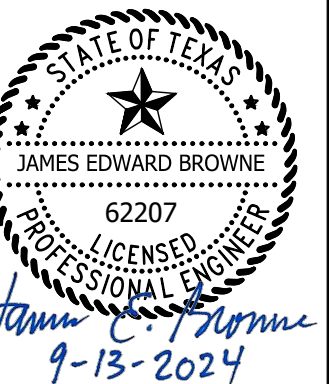
STRUCTURAL BACKFILL GRADATION LIMITS	
SIEVE SIZE	% RETAINED
3"	0
#4	20 - 100
#40	40 - 100
#200	85 - 100

DESCRIPTION
DATE
#

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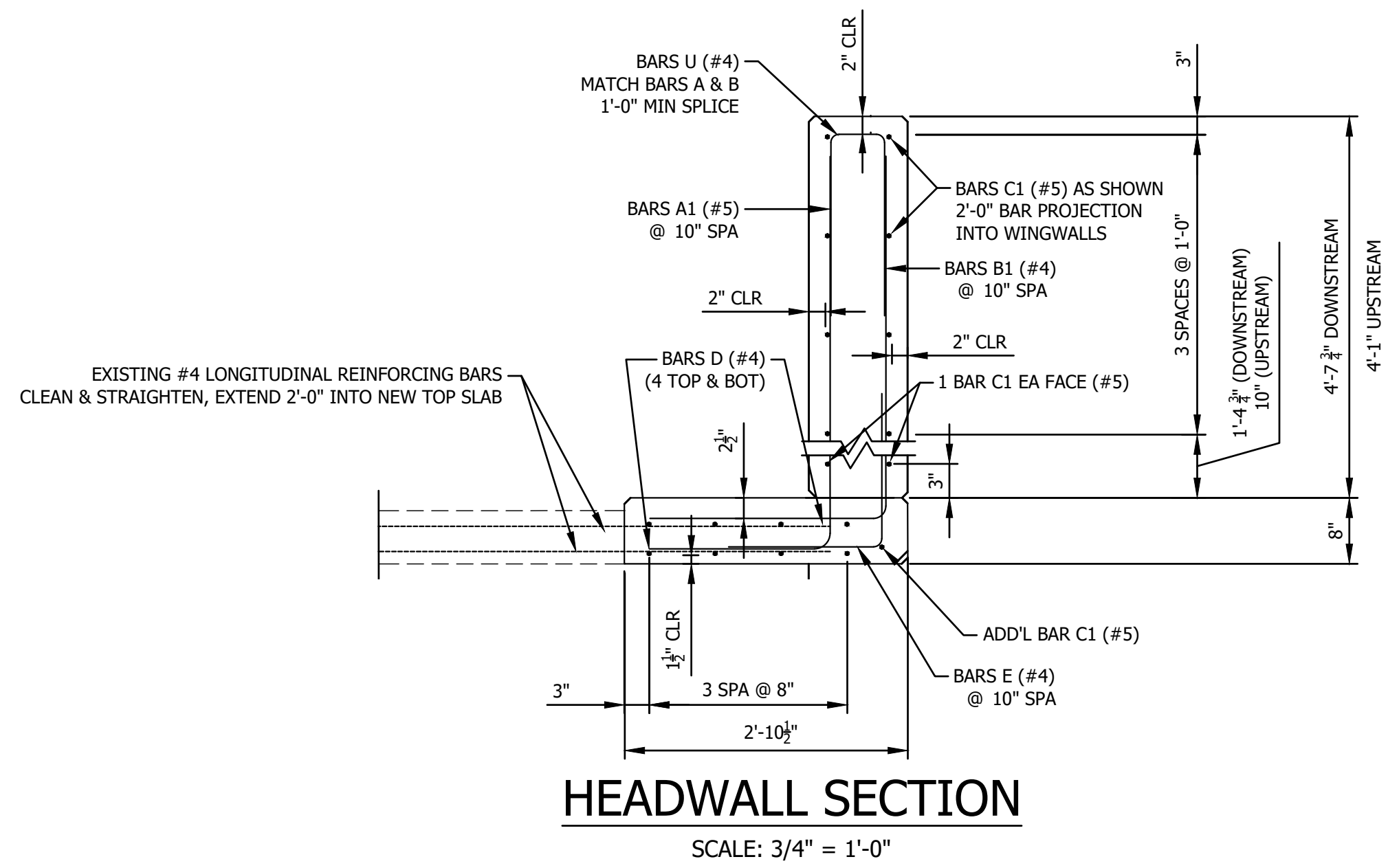
**CULVERT DETAILS
MARCHANT PLACE**

HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX



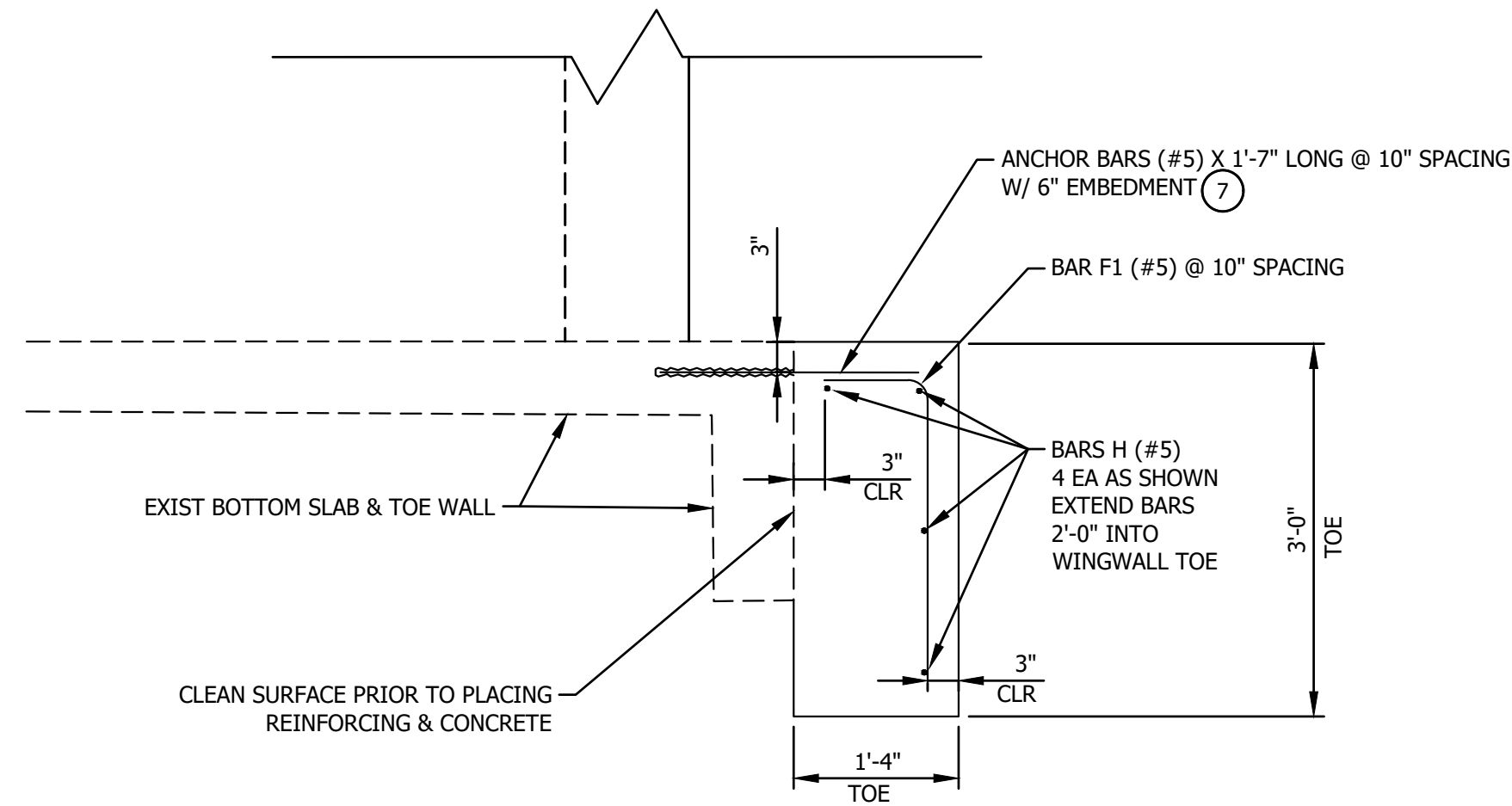
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DESIGNED BY:	JEB
DRAWN BY:	BLJ
APPROVED BY:	TMM
DESIGN PROJ:	20263.002
DATE:	9/13/2024
DRAWING NO:	7
SHEET NO:	7 of 32

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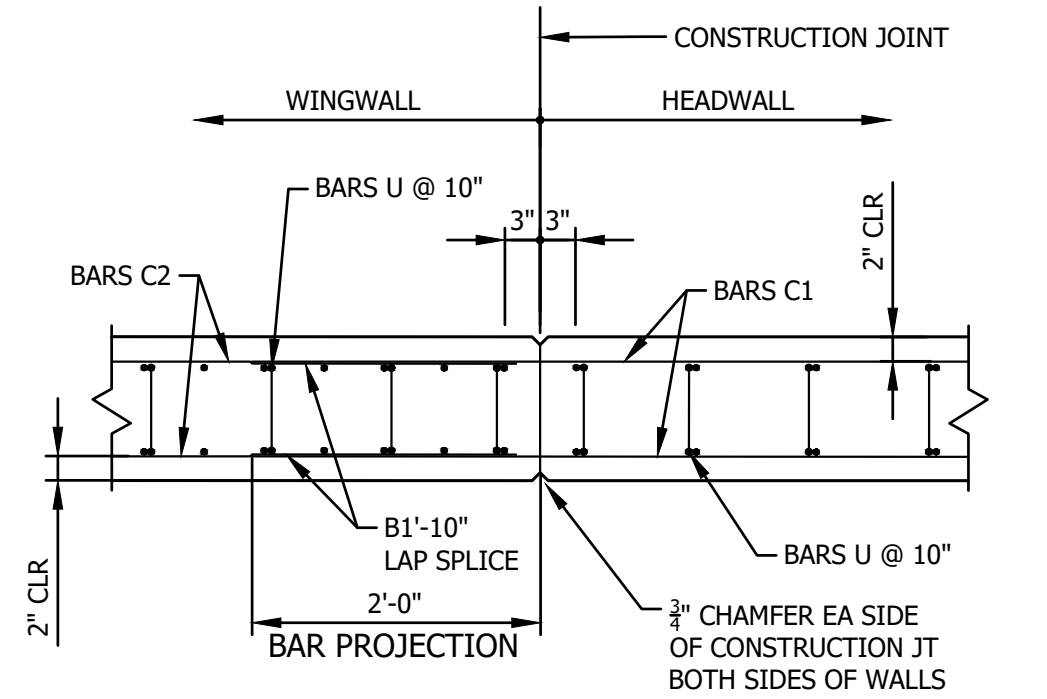
HEADWALL SECTION

SCALE: 3/4" = 1'-0"



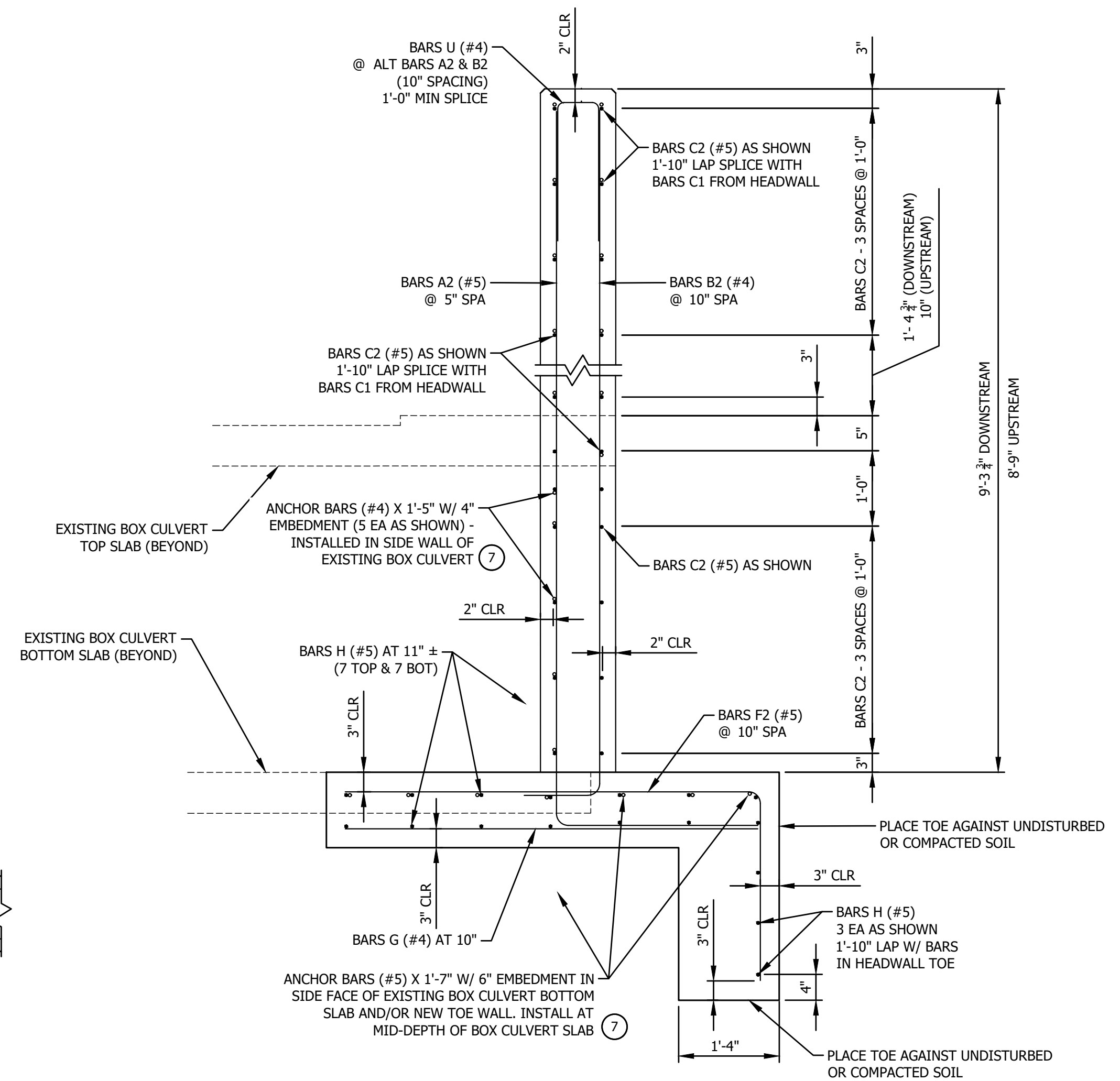
TOE WALL DETAIL

SCALE: 3/4" = 1'-0"



CONSTRUCTION JOINT DETAIL

PLAN VIEW
SCALE: 3/4" = 1'-0"

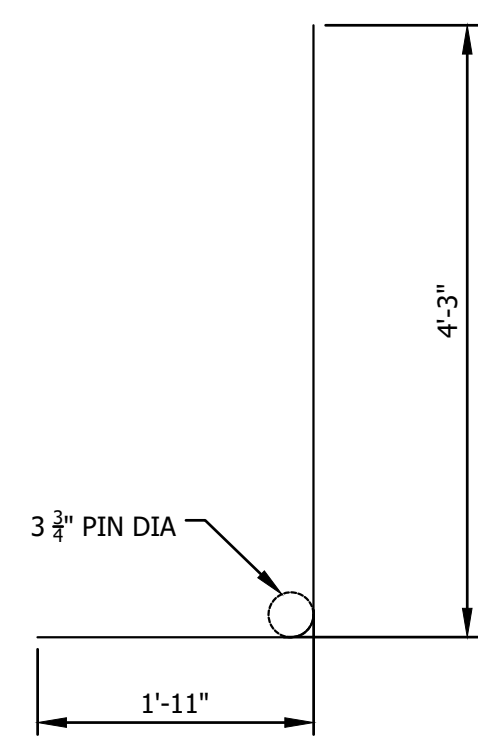


WINGWALL SECTION

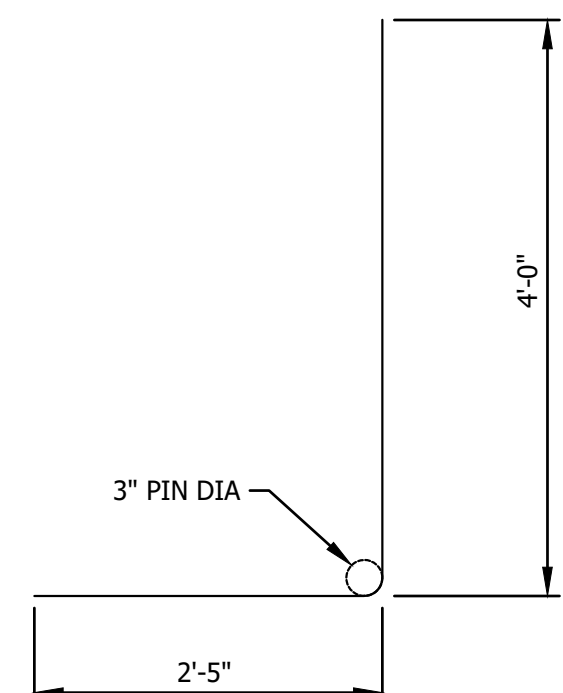
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NOTES

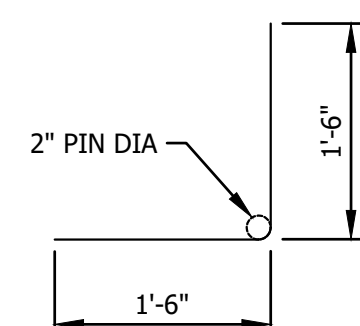
- ANCHOR BARS (#5) X 1'-7" & (#4) X 1'-5" LONG W/ EMBEDMENT & SPACING AS SHOWN IN THE DETAILS. INSTALL WITH A TYPE III, CLASS C, D, E, OR F ANCHOR ADHESIVE. ANCHOR ADHESIVE CHOSEN MUST BE ABLE TO ACHIEVE A BASIC BOND STRENGTH IN TENSION, N_b , OF 20 KIPS FOR #5 ANCHORS OR 10 KIPS FOR #4 ANCHORS. SUBMIT SIGNED AND SEALED CALCULATIONS OR MANUFACTURER'S PUBLISHED LITERATURE SHOWING THE PROPOSED ANCHOR ADHESIVE'S ABILITY TO DEVELOP THESE LOADS TO THE ENGINEER FOR APPROVAL PRIOR TO USE. ANCHOR INSTALLATION, INCLUDING HOLE SIZE, DRILLING, AND CLEAN OUT SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



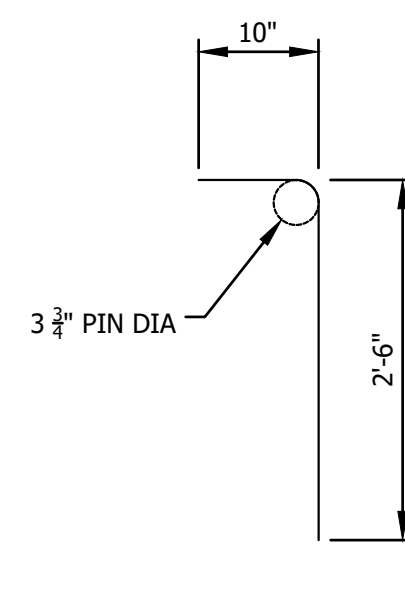
BAR A1 (#5)



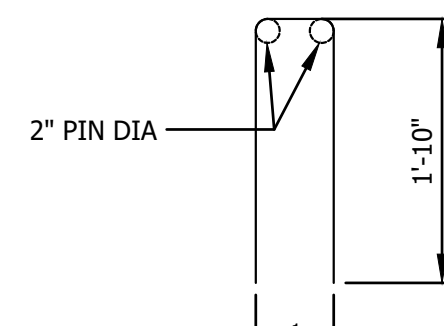
BAR B1 (#4)



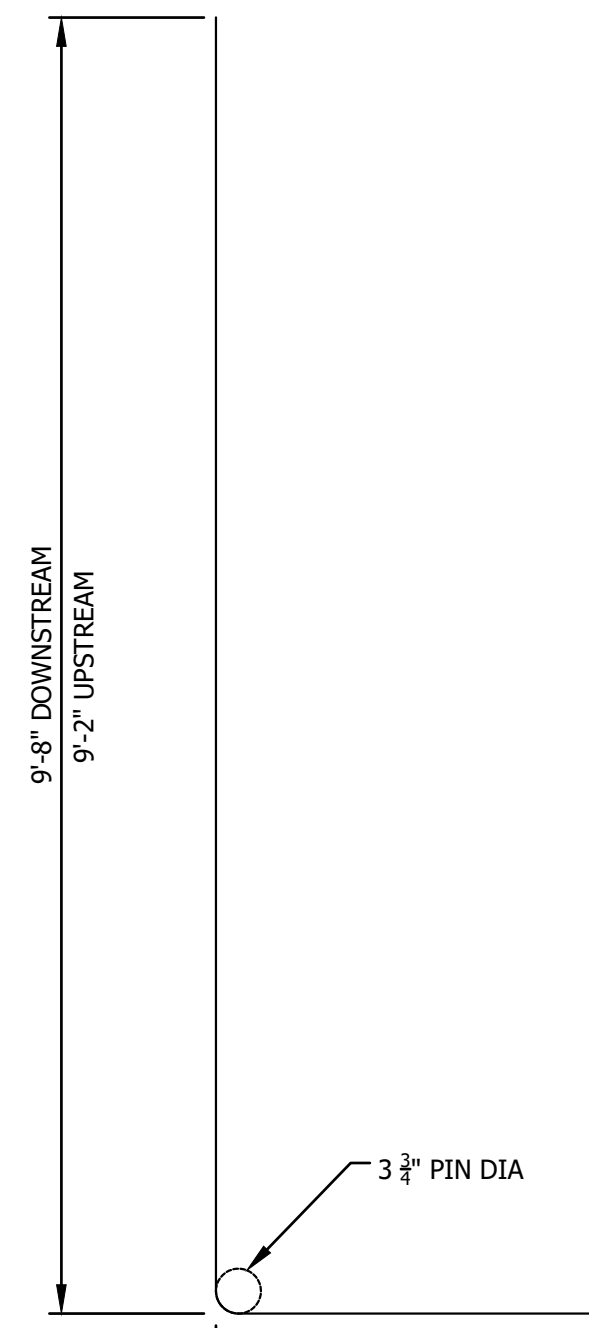
BAR E (#4)



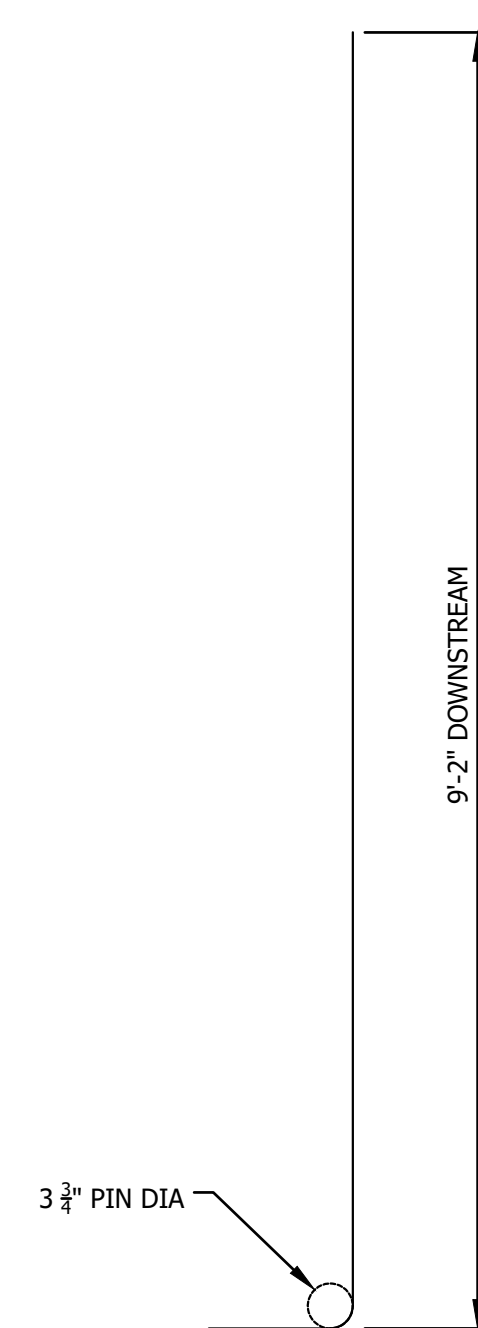
BAR F1 (#5)



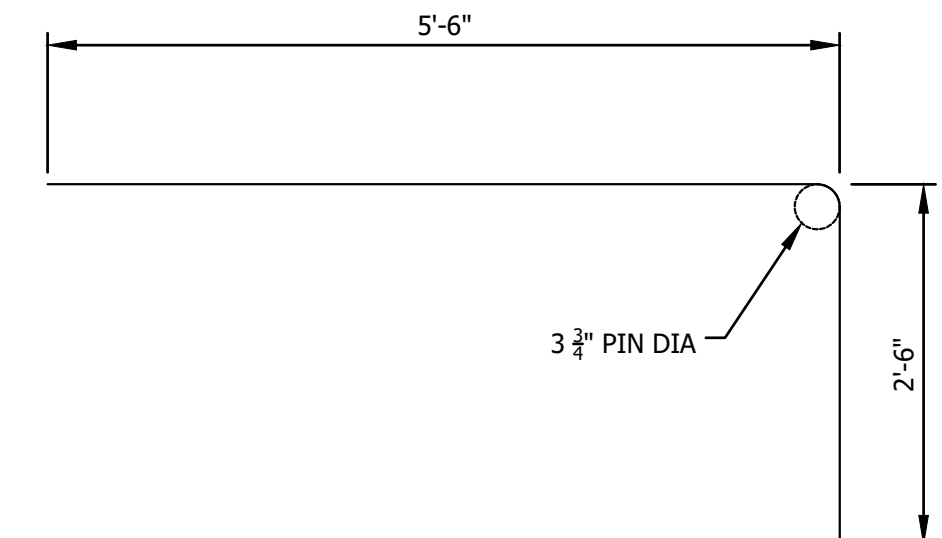
BAR U (#4)



BAR A2 (#5)



BAR B2 (#4)



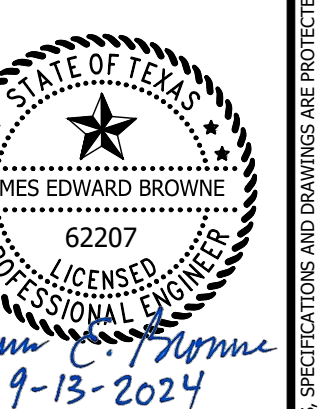
BAR F2 (#5)

**BAR DETAILS
MERCHANT PLACE**

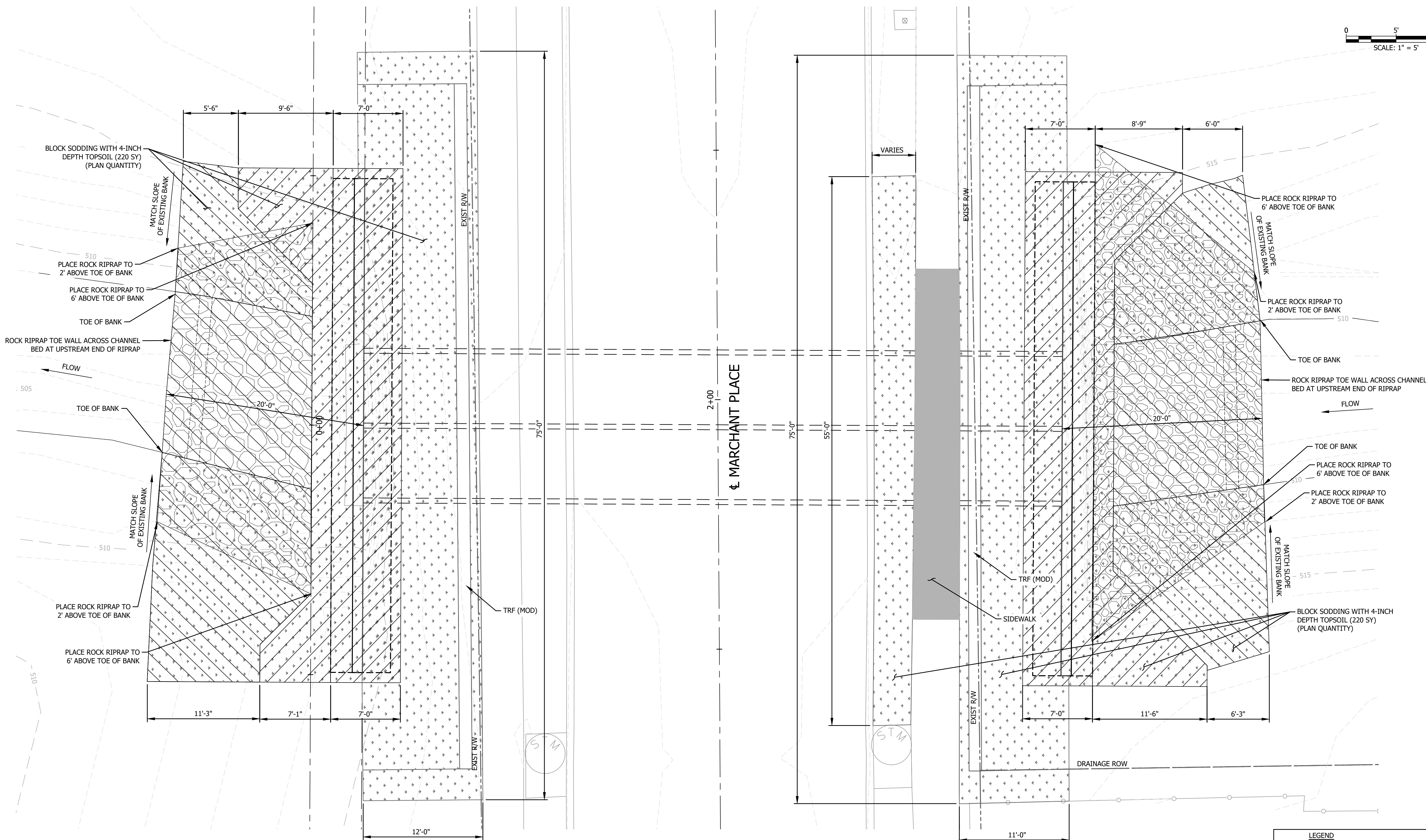
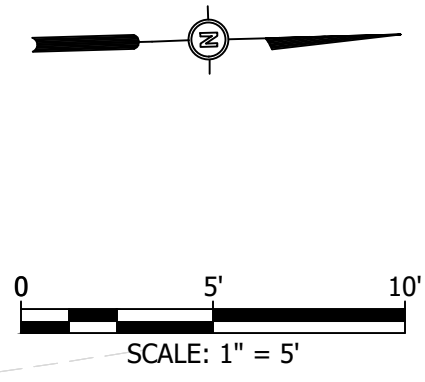
HEADWALL & WINGWALL REPLACEMENT
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CITY OF LEWISVILLE, DENTON COUNTY, TX

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APPROVED BY:	TMM
DESIGN PROJ:	20263.002
DATE:	9/13/2024
DRAWING NO:	8
SHEET NO:	8 of 32



PLAN

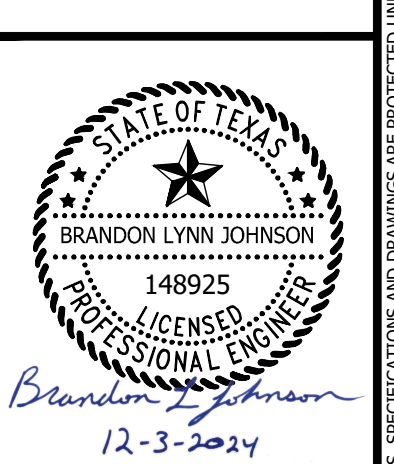
1
 ROCK RIPRAP DRY SHALL BE 15" THICK OVER FILTER FABRIC OVER 6" BEDDING MATERIAL. REFER TO SHEET 29 "DRY RIPRAP, TYPE C" FOR GRADATION OF ROCK AND DETAILS FOR FILTER FABRIC AND BEDDING MATERIAL. PROVIDE FILTER FABRIC MEETING DRAINAGE UPR APPLICATION (SEE TABLE 803.4.1(a) IN NCTCOG STANDARD SPECIFICATIONS).

LEGEND	
	TEMPORARY EXCAVATION AND REMOVE & STOCKPILE EXISTING STONE RIPRAP
	REMOVE & STOCKPILE EXISTING ROCK RIPRAP, REGRADE CHANNEL & BANK
	PLACE ROCK RIPRAP
	PLACE BLOCK SODDING WITH 4-IN. TOPSOIL

#	DATE	DESCRIPTION
1	12/2/2024	REVISED STANDARD RIPRAP DETAILS

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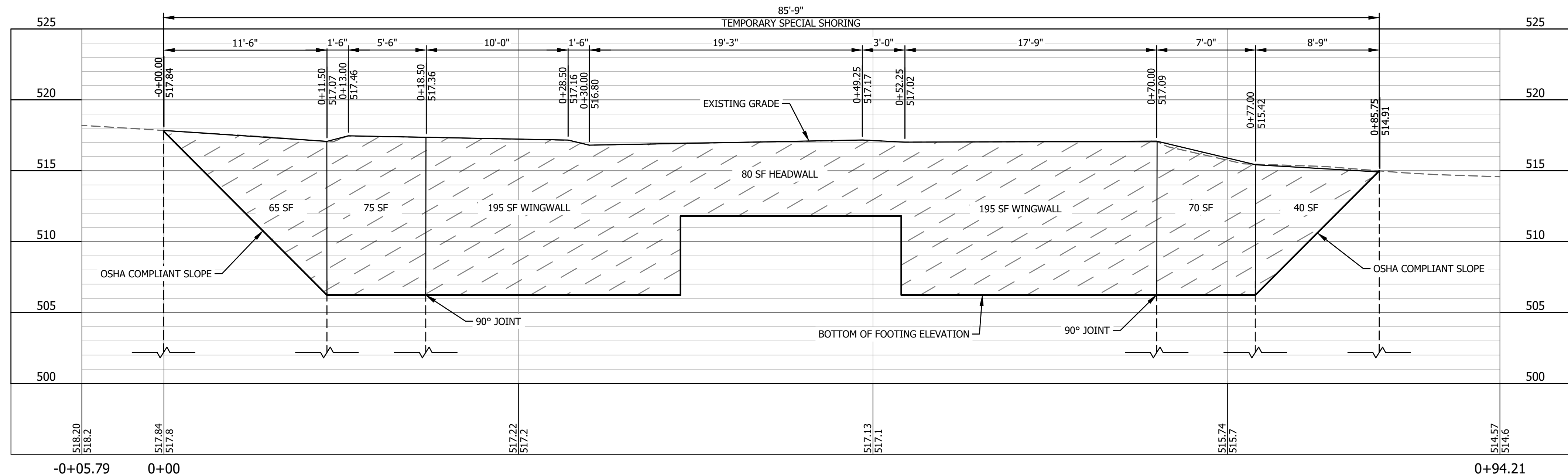
**CHANNEL GRADING & STONE RIPRAP
 MARCHANT PLACE**
 HEADWALL & WINGWALL REPLACEMENT
 MARCHANT PLACE & RIDGEWAY CIRCLE
 CITY OF LEWISVILLE, DENTON COUNTY, TX



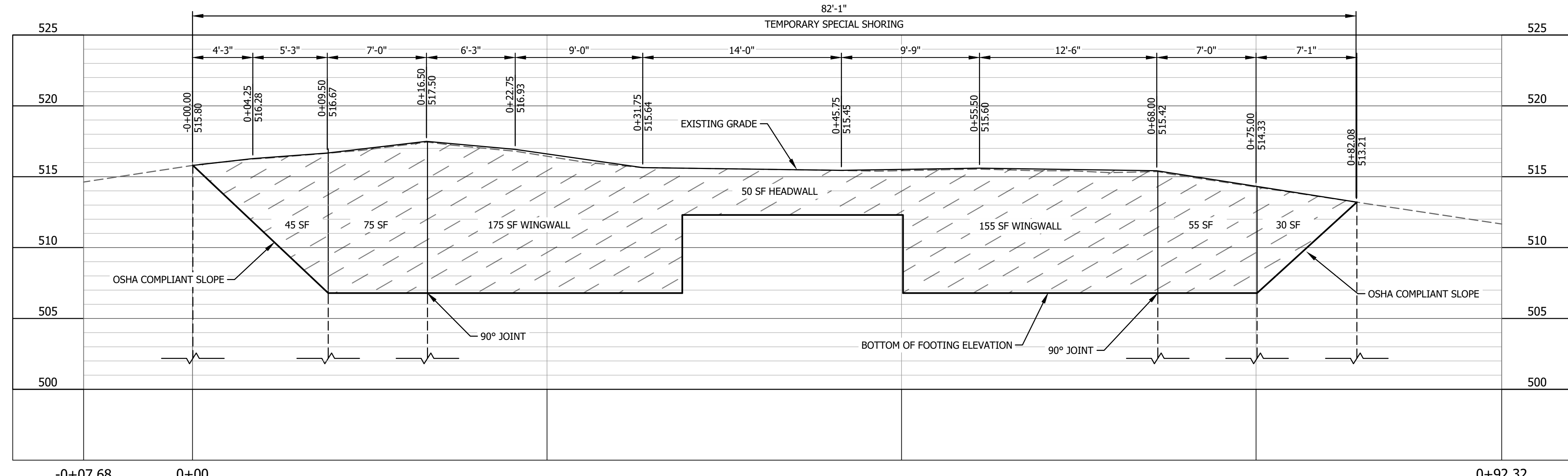
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APPROVED BY:	TMM
DESIGN PROJ.:	20263.002
DATE:	12/2/2024
DRAWING NO.:	9
SHEET NO.:	9 of 32

Last edit on: 12/2/2024 3:18 PM by: BLJ01713
 Drawing Name: C:\Users\BLJ01713\Documents\Bartlett & West\20263.002 - Lewisville Headwall Replacement M&R\Project Files\AutoCAD\Plan Set\20263.002_CVIL LAYOUT.dwg Layout Name: CHANNEL GRADING & STONE RIPRAP Plotted By: BLJ01713 Plotted on: 12/2/2024 3:37:17 PM

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DEVELOPED ELEVATION
 (UPSTREAM LOOKING SOUTH)
 SCALE: 1" = 5'-0"



DEVELOPED ELEVATION
 (DOWNSTREAM LOOKING NORTH)
 SCALE: 1" = 5'-0"

#	DATE	DESCRIPTION

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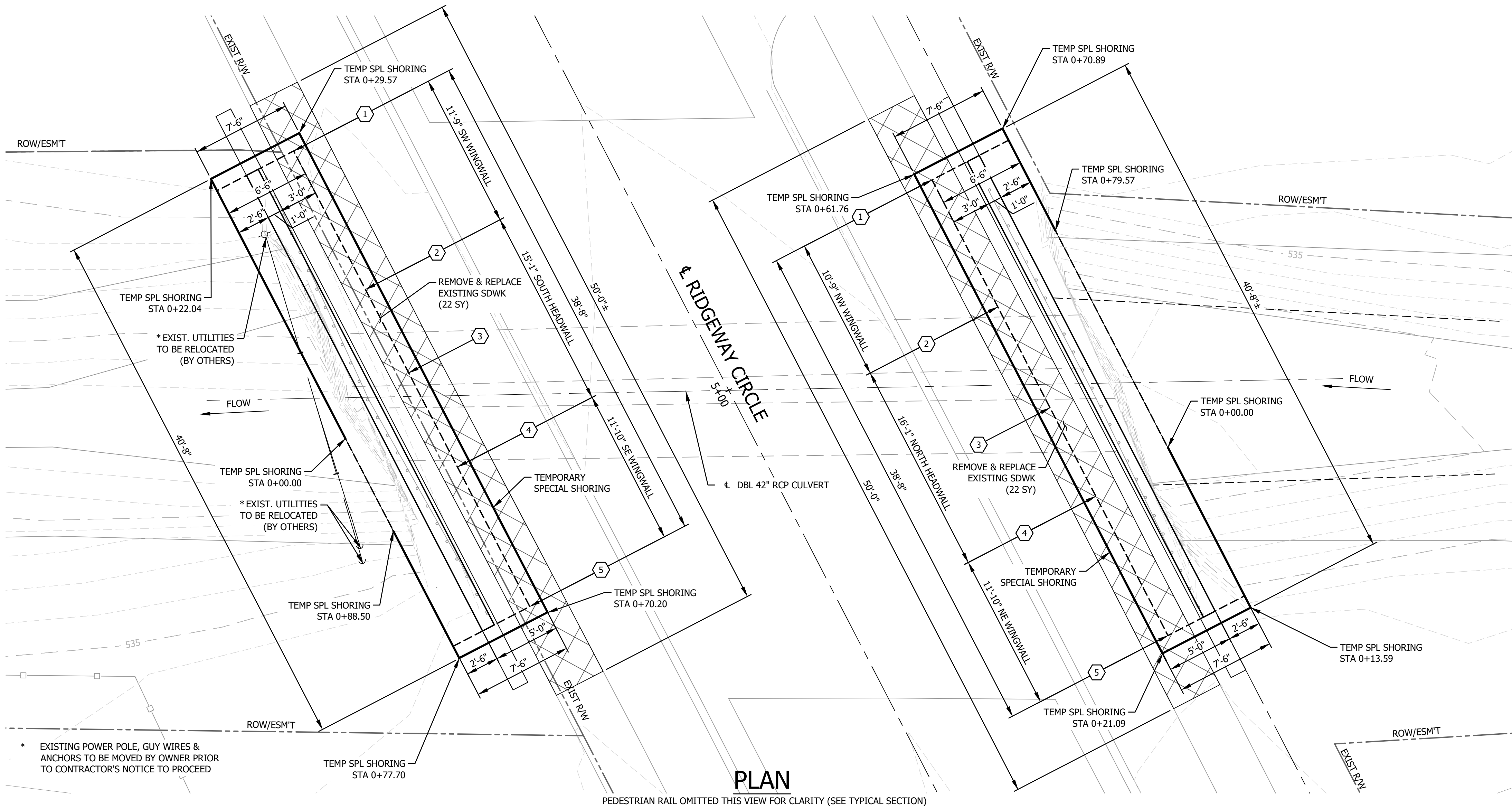
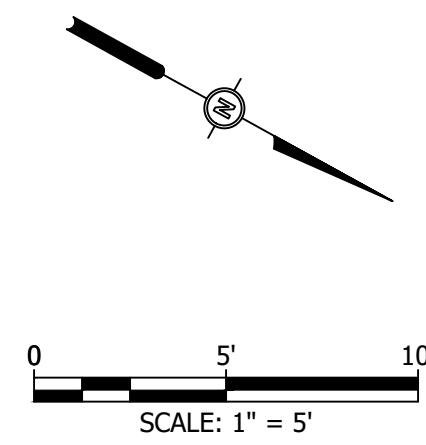
**TEMPORARY SPECIAL SHORING
 MARCHANT PLACE**
 HEADWALL & WINGWALL REPLACEMENT
 MARCHANT PLACE & RIDGEWAY CIRCLE
 CITY OF LEWISVILLE, DENTON COUNTY, TX



SEALED DATE:	=====
DESIGNED BY:	JEB
DRAWN BY:	BLJ
APPROVED BY:	TMM
DESIGN PROJ:	20263.002
DATE:	9/13/2024
DRAWING NO:	10
SHEET NO:	10 of 32

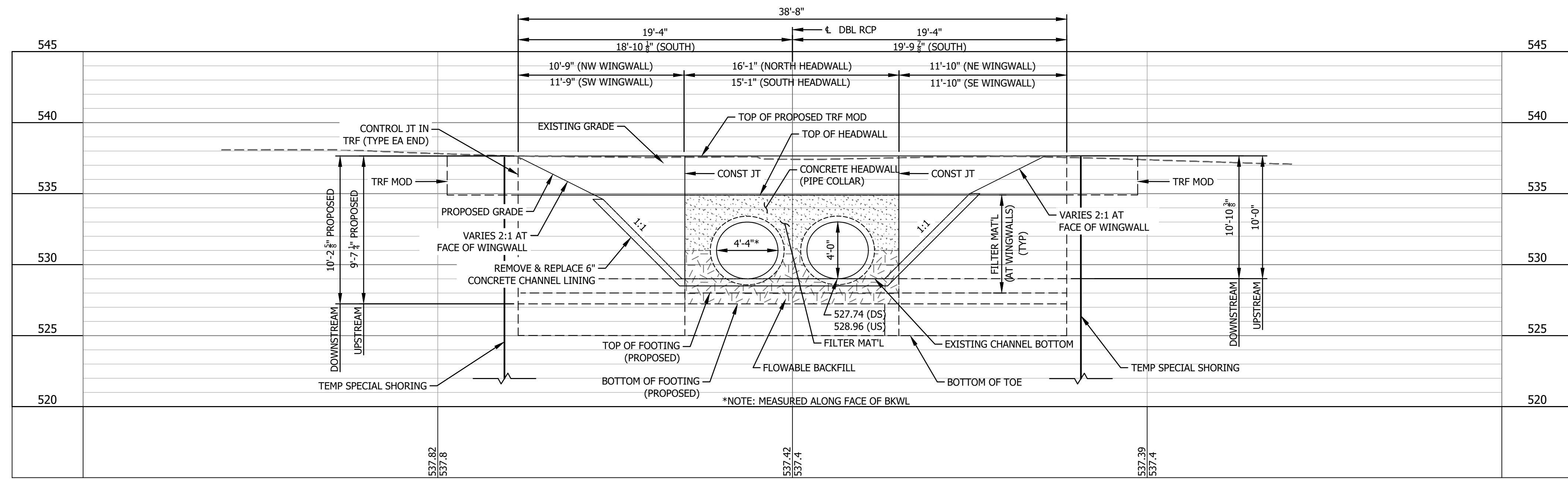
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PLAN

PEDESTRIAN RAIL OMITTED THIS VIEW FOR CLARITY (SEE TYPICAL SECTION)



ELEVATION

PEDESTRIAN RAIL OMITTED THIS VIEW FOR CLARITY (SEE TYPICAL SECTION)
(LOOKING UPSTREAM AT N & S HEADWALL & WINGWALLS)

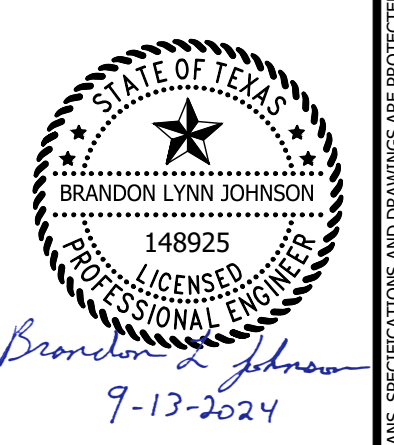
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Last edit on: 8/22/2024 8:54 AM by: BLJ01713

BY	
DESCRIPTION	
DATE	
#	

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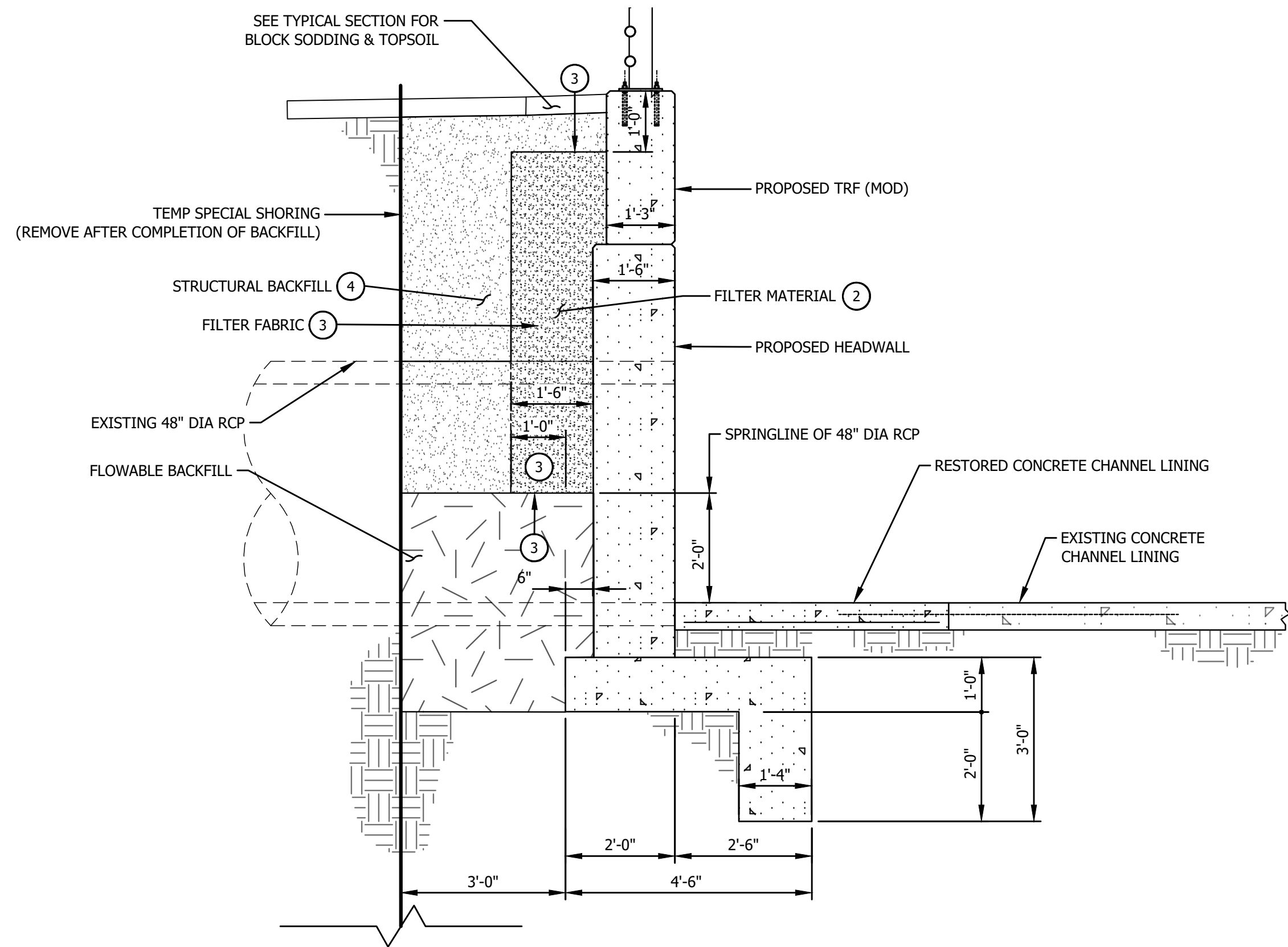
CULVERT LAYOUT RIDGEWAY CIRCLE

HEADWALL & WINGWALL REPLACEMENT MERCHANT PLACE & RIDGEWAY CIRCLE CITY OF LEWISVILLE, DENTON COUNTY, TX

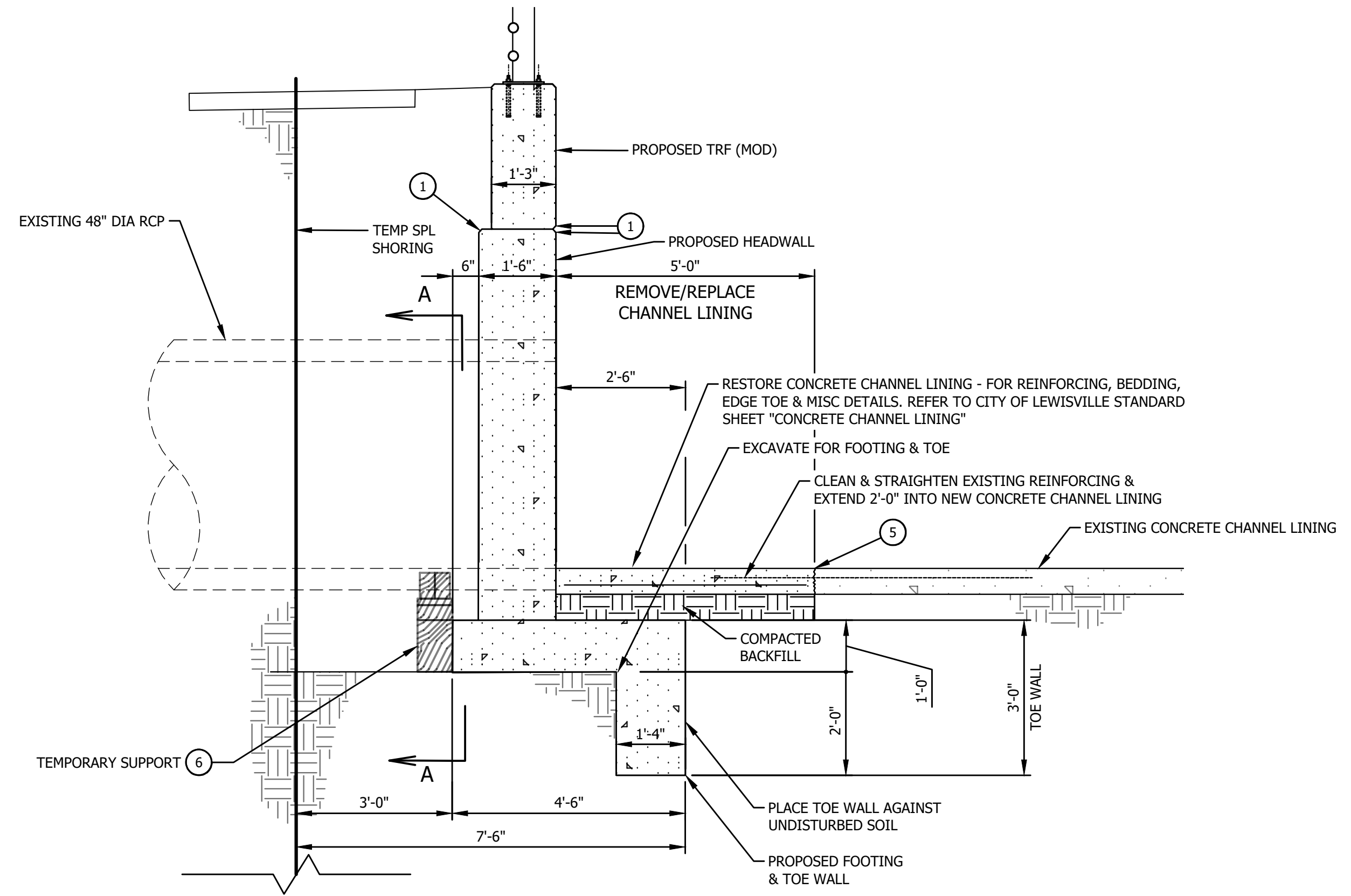


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APPROVED BY:	
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DATE:	9/13/2024
DRAWING NO:	11
SHEET NO:	11 of 32

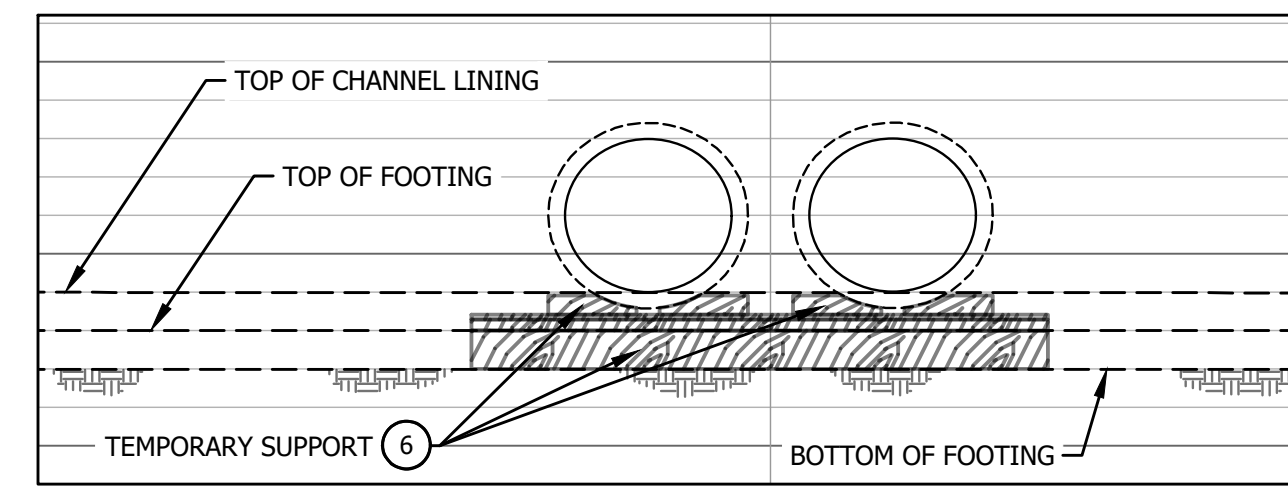
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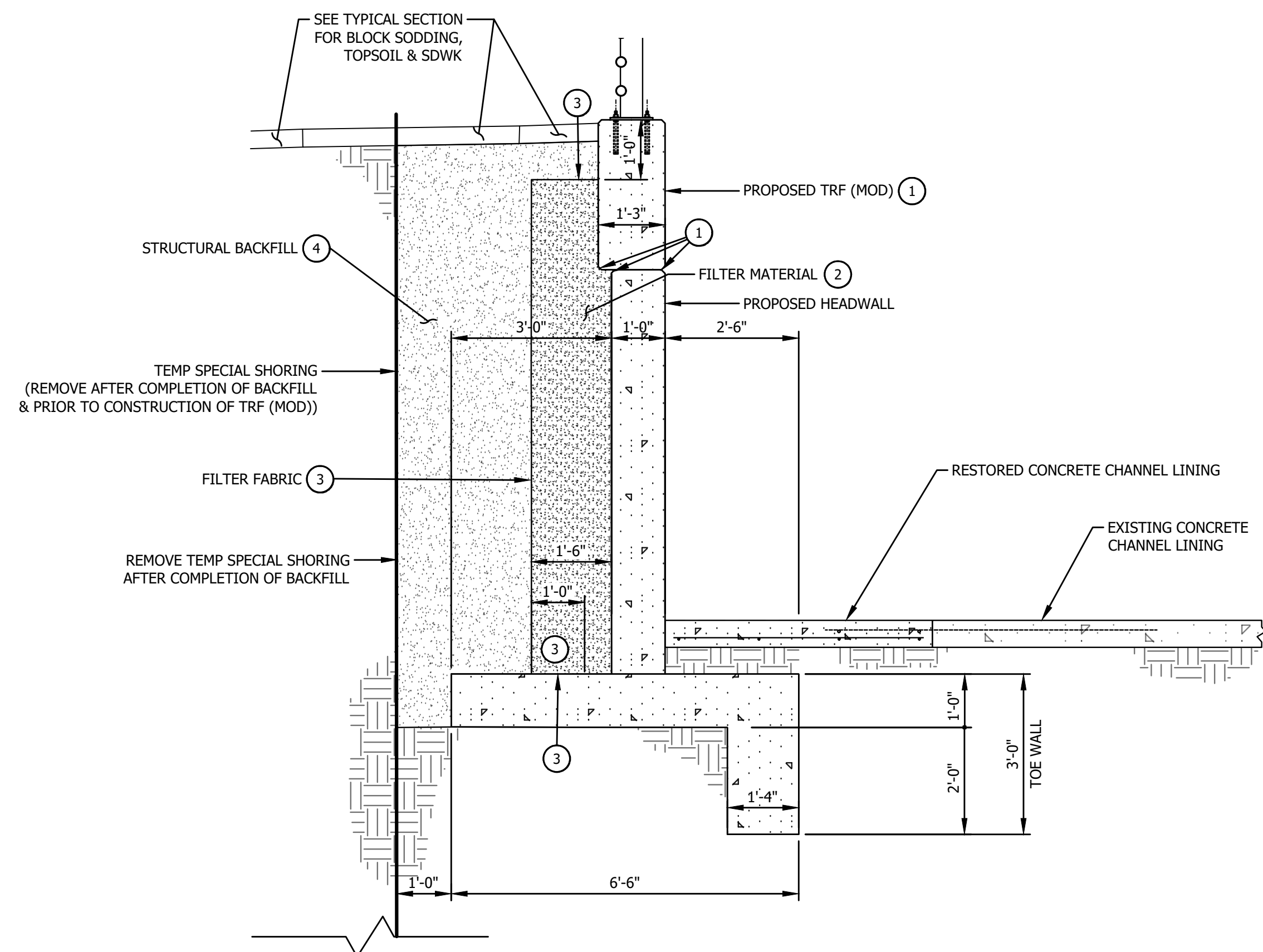
HEADWALL SECTION
(CONSTRUCTION COMPLETED)
SCALE: 1/2" = 1'-0"



HEADWALL SECTION
(DURING CONSTRUCTION)
SCALE: 1/2" = 1'-0"



SECTION A-A
(DURING CONSTRUCTION)
SCALE: 1" = 5'-0"



WINGWALL SECTION
(CONSTRUCTION COMPLETED)
SCALE: 1/2" = 1'-0"

NOTES

- 1/2" CHAMFER EDGES OF CONCRETE, INCLUDING EACH SIDE OF CONSTRUCTION JOINTS. DO NOT CHAMFER CONSTRUCTION JOINT AT BOTTOM OF HEADWALL OR BOTTOM OF WINGWALL.
- FILTER MATERIAL - USE CONCRETE COARSE AGGREGATE GRADE 2 OR 3 (REFER TO TxDOT ITEM 421, ARTICLE 2.6.1, TABLE 4). FILTER MATERIAL IS INCLUDED IN THE VOLUME OF STRUCTURAL BACKFILL. NO DIRECT PAYMENT WILL BE MADE; THIS WILL BE SUBSIDIARY TO STRUCTURAL BACKFILL.
- FILTER FABRIC - PROVIDE TYPE 1 FILTER FABRIC MEETING THE REQUIREMENTS OF TxDOT DMS -6200. INSTALL FABRIC BETWEEN FILTER MATERIAL AND BACKFILL. LIMITS OF FILTER FABRIC: TOP AND BACK FACE OF FILTER MATERIAL AND 1'-0" ACROSS TOP OF CULVERT TOP SLAB (OR TOP OF WINGWALL FOOTING). FILTER FABRIC WILL NOT BE PAID FOR DIRECTLY, AND WILL BE CONSIDERED SUBSIDIARY TO STRUCTURAL BACKFILL.
- STRUCTURAL BACKFILL - PROVIDE MATERIAL MEETING THE REQUIREMENTS SHOWN IN THE TABLE "STRUCTURAL BACKFILL GRADATION LIMITS". IN ADDITION, STRUCTURAL BACKFILL SHALL HAVE A PLASTICITY INDEX (PI) OF 20 MAX, AND LIQUID LIMIT (LL) OF 45 MAX. ON-SITE EXCAVATED MATERIAL MEETING THESE REQUIREMENTS WILL BE ALLOWED AS STRUCTURAL BACKFILL. THE CONTRACTOR SHALL SAMPLE AND TEST PROPOSED MATERIAL AND SUBMIT TEST RESULTS FOR APPROVAL BY THE ENGINEER PRIOR TO PLACEMENT. ON-SITE MATERIAL THAT DOES NOT MEET GRADATION REQUIREMENTS CAN BE SUPPLEMENTED WITH OFF-SITE MATERIAL SO THAT THE BLENDED MATERIAL MEETS REQUIREMENTS. BLENDING SHALL BE SUFFICIENT TO PROVIDE UNIFORM DISTRIBUTION OF THE VARIOUS GRAIN SIZES THROUGHOUT THE PROPOSED MATERIAL. BLENDING OF STRUCTURAL BACKFILL MATERIAL IS INTENDED FOR THE CONVENIENCE OF THE CONTRACTOR, AND NO ADDITIONAL PAYMENT WILL BE MADE FOR TIME, MATERIAL, LABOR, OR INCIDENTALS.
- PROVIDE SAWCUT ACROSS THE SURFACE OF EXISTING CHANNEL LINING. SAWCUT DEPTH TO BE 1/2" DEEP (AVOID CUTTING EXISTING REINFORCING STEEL). REMOVE CONCRETE TO NEAT LINES. PREVENT DAMAGE TO EXISTING CONCRETE BEYOND THE LIMITS OF REMOVAL. CLEAN AND STRAIGHTEN EXISTING LONGITUDINAL REINFORCING AND EXTEND 2'-0" MIN. INTO NEW CONCRETE CHANNEL LINING.
- PROVIDE TEMPORARY SUPPORT FOR EXISTING REINFORCED CONCRETE PIPES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN OF THE TEMPORARY SUPPORT SYSTEM. SUBMIT DETAILS AND DESIGN CALCULATIONS BEARING THE SEAL AND SIGNATURE OF A LICENSED PROFESSIONAL ENGINEER BEFORE CONSTRUCTING/INSTALLING THE TEMPORARY SUPPORT. STRUCTURAL SYSTEMS TO COMPLY WITH "AASHTO Standard Specifications for Highway Bridges OR AASHTO LRFD Bridge Design Specifications. TEMPORARY SUPPORT TO REMAIN IN PLACE UNTIL NEW FOOTING AND HEADWALL CONCRETE HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 2,700 psi. ALL TEMPORARY SUPPORT MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF FLOWABLE BACKFILL. TEMPORARY PIPE SUPPORT SHALL BE SUBSIDIARY TO HEADWALL CONCRETE.

STRUCTURAL BACKFILL GRADATION LIMITS	
SIEVE SIZE	% RETAINED
3"	0
#4	20 - 100
#40	40 - 100
#200	85 - 100

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TELAS PERMITS ONLY bartlettandwest.com

**CULVERT DETAILS
RIDGWAY CIRCLE**

**HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX**

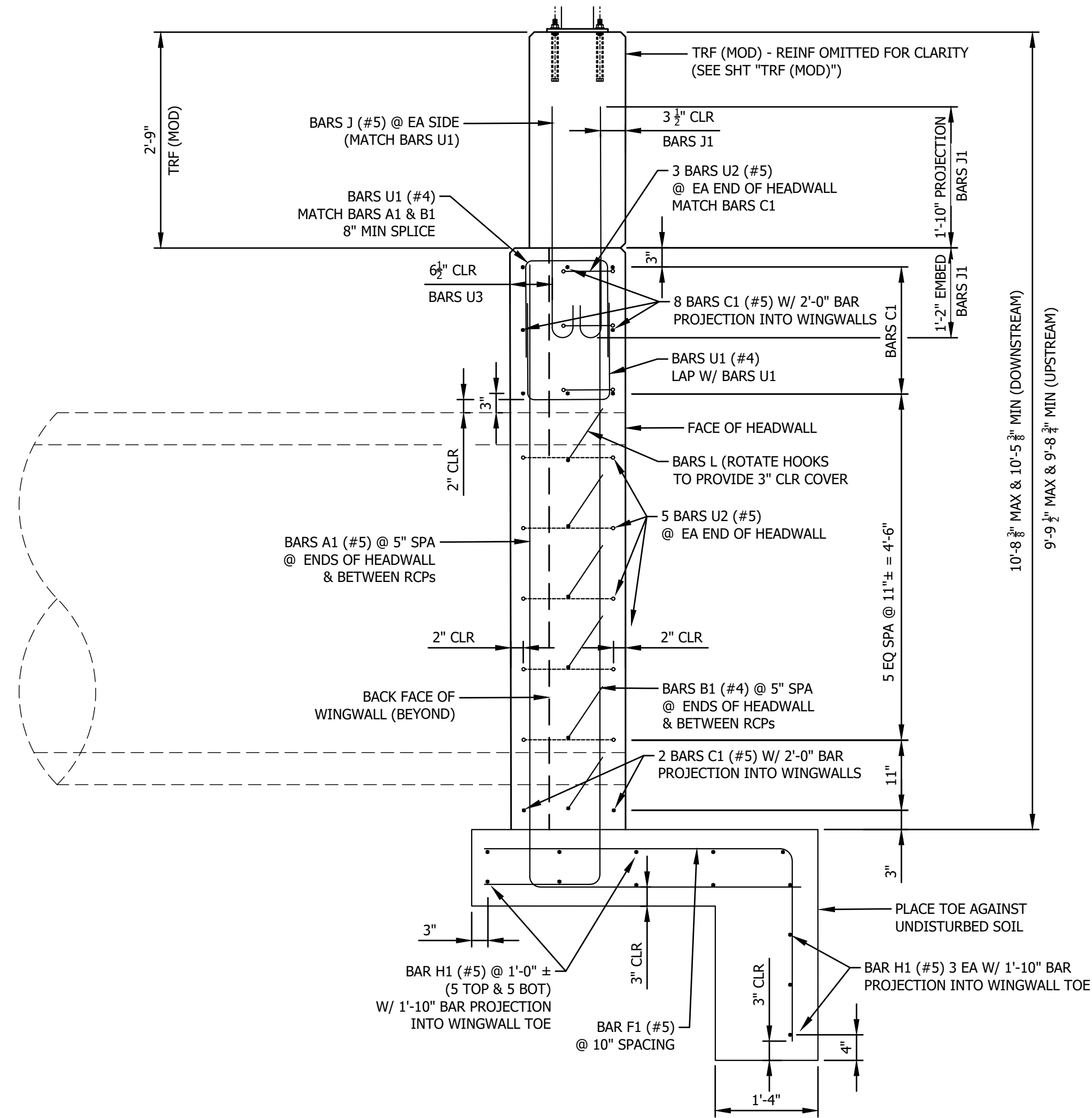
STATE OF TEXAS
JAMES EDWARD BROWNE
62207
LICENSED PROFESSIONAL ENGINEER
9-13-2024

SEALED DATE:	=====
DESIGNED BY:	JEB
DRAWN BY:	BLJ
APPROVED BY:	TMM
DESIGN PROJ:	20263.002
DATE:	9/13/2024
DRAWING NO:	12
SHEET NO:	12 of 32

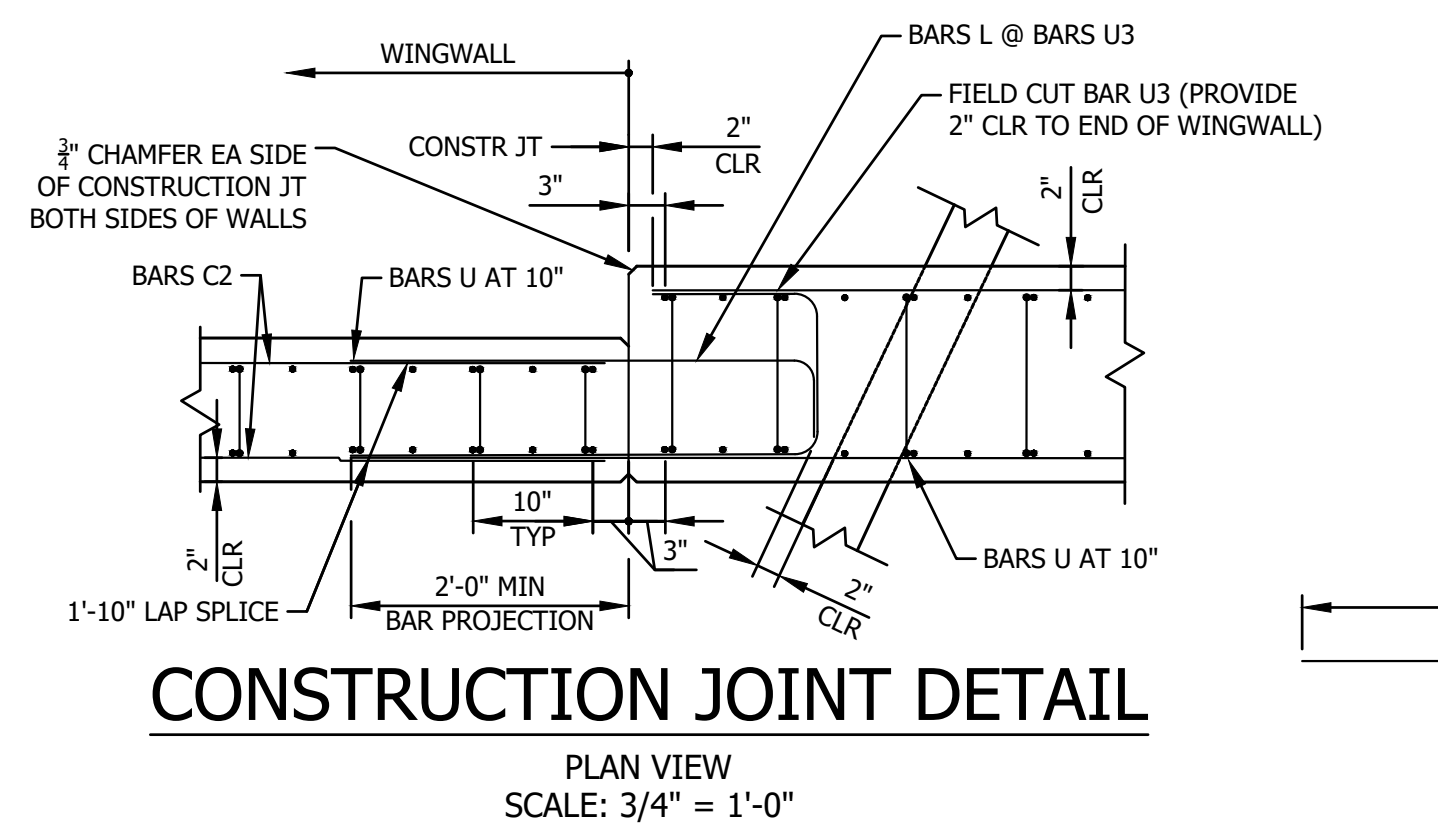
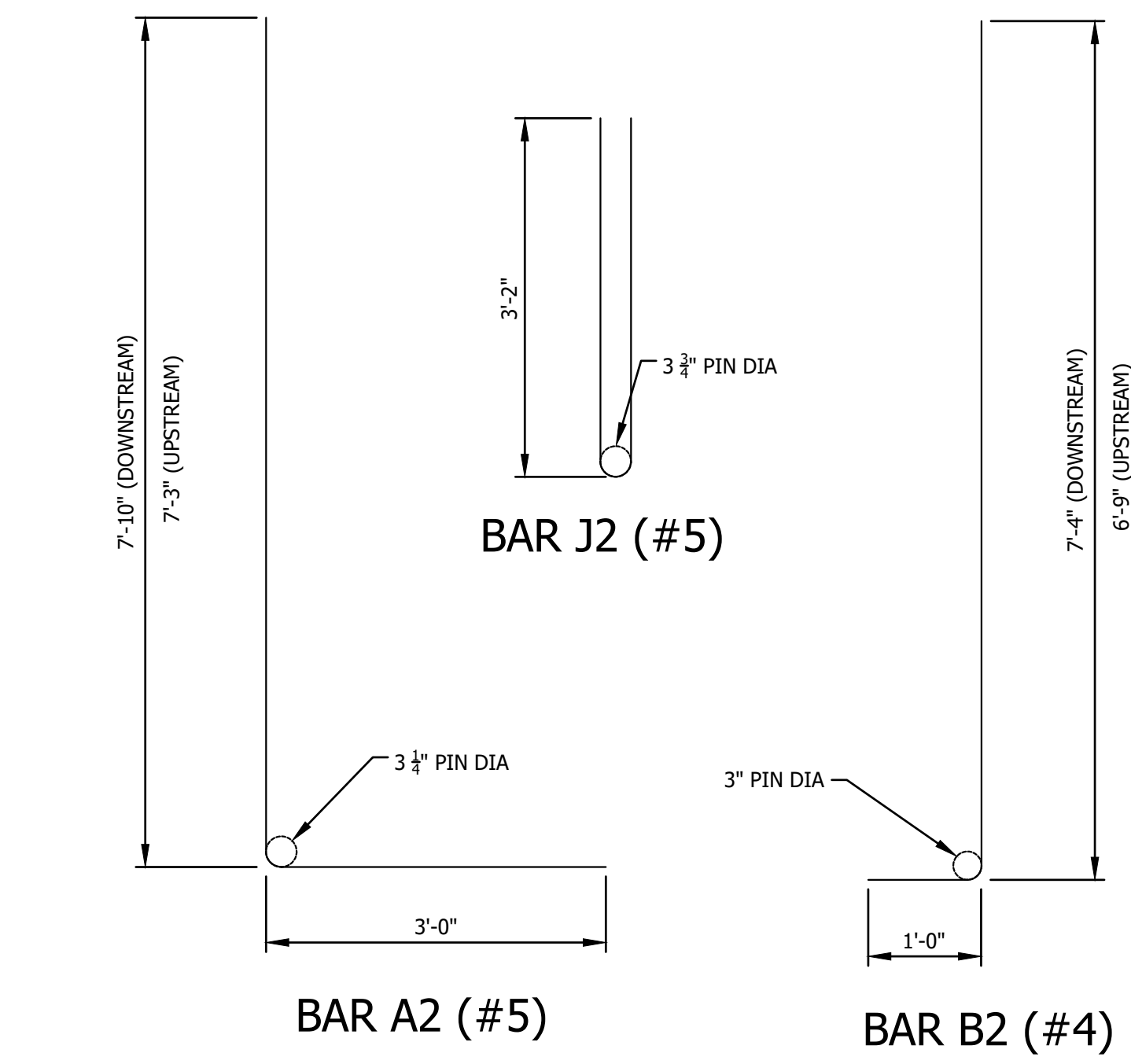
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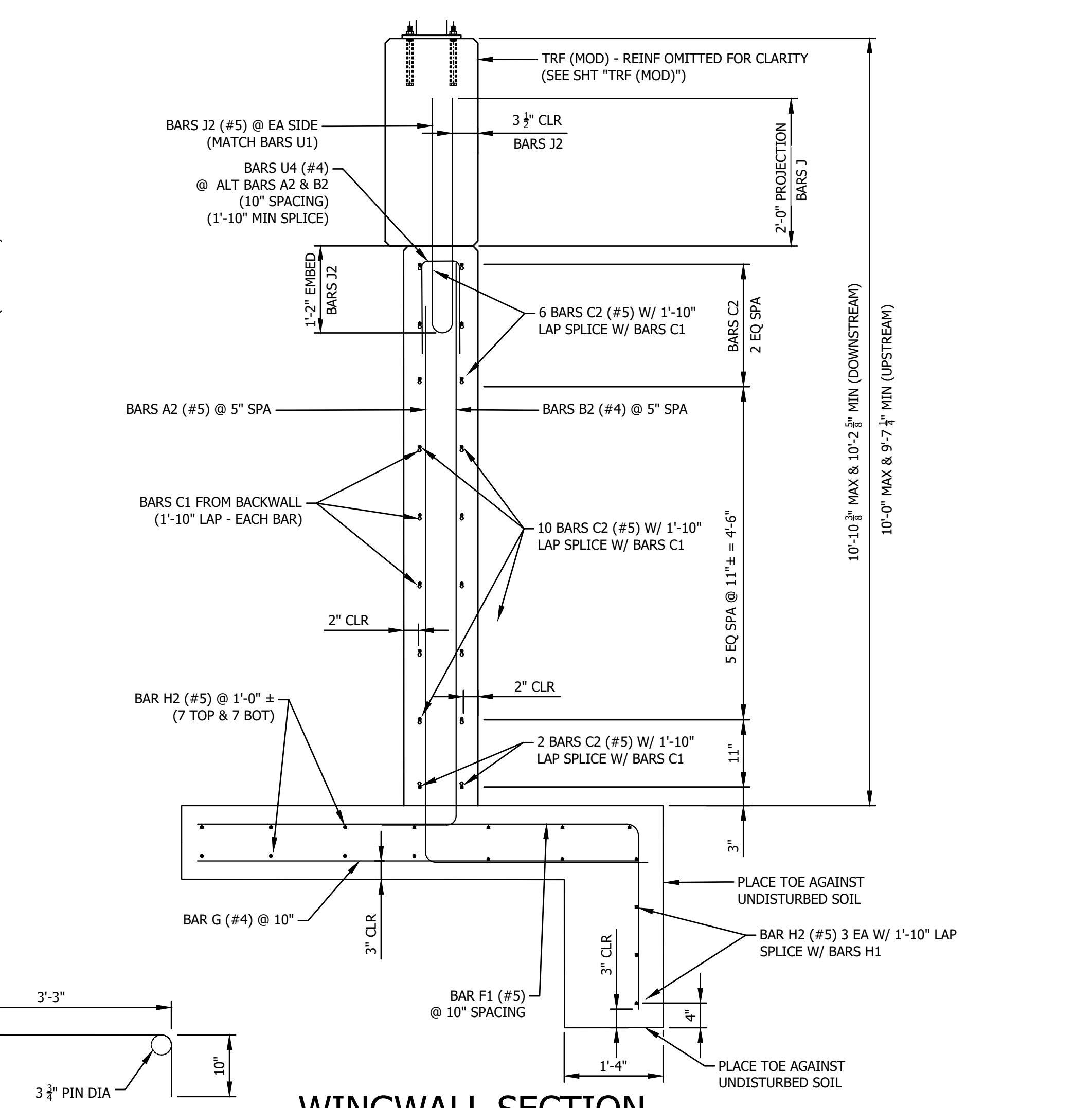
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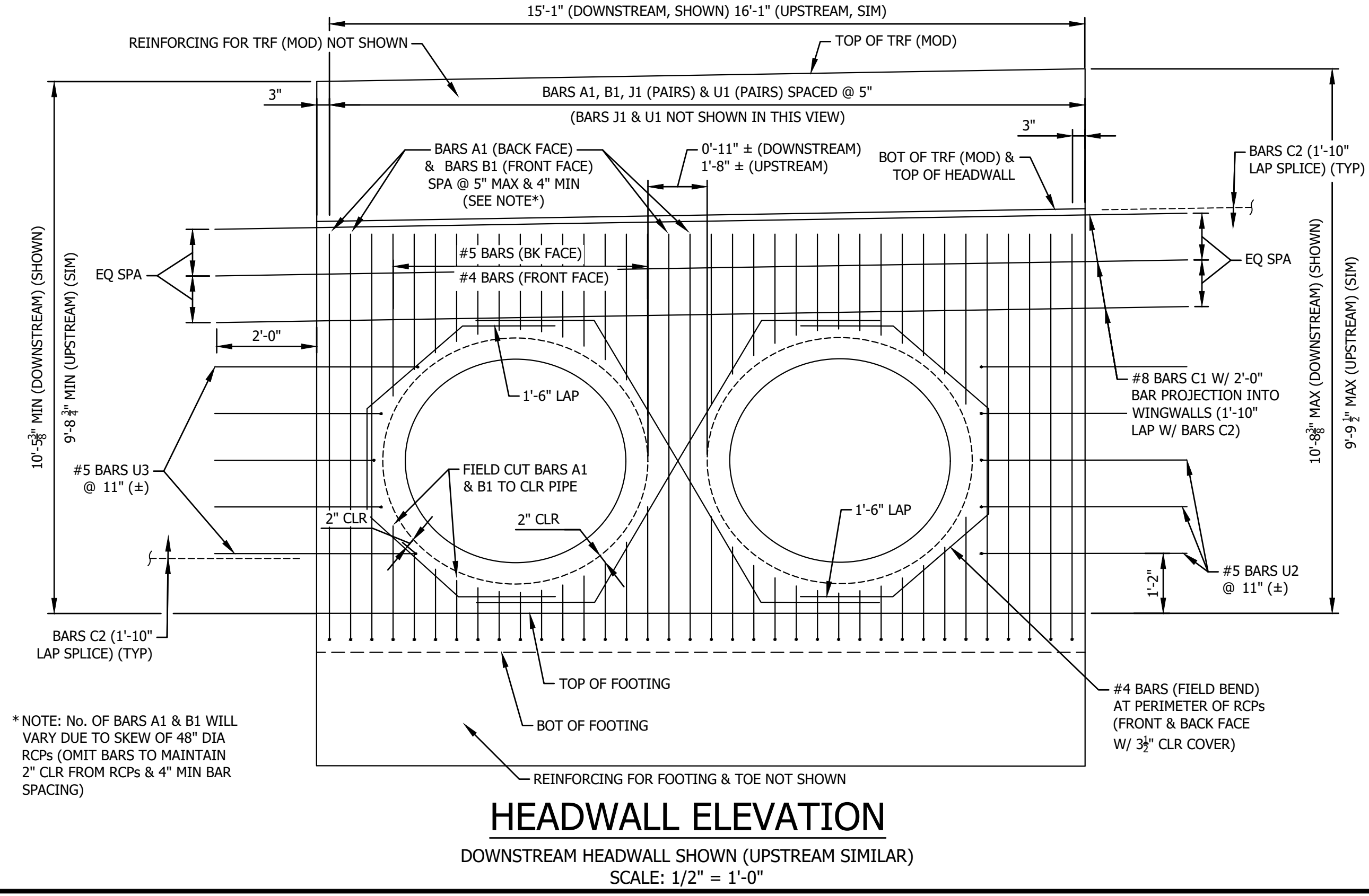
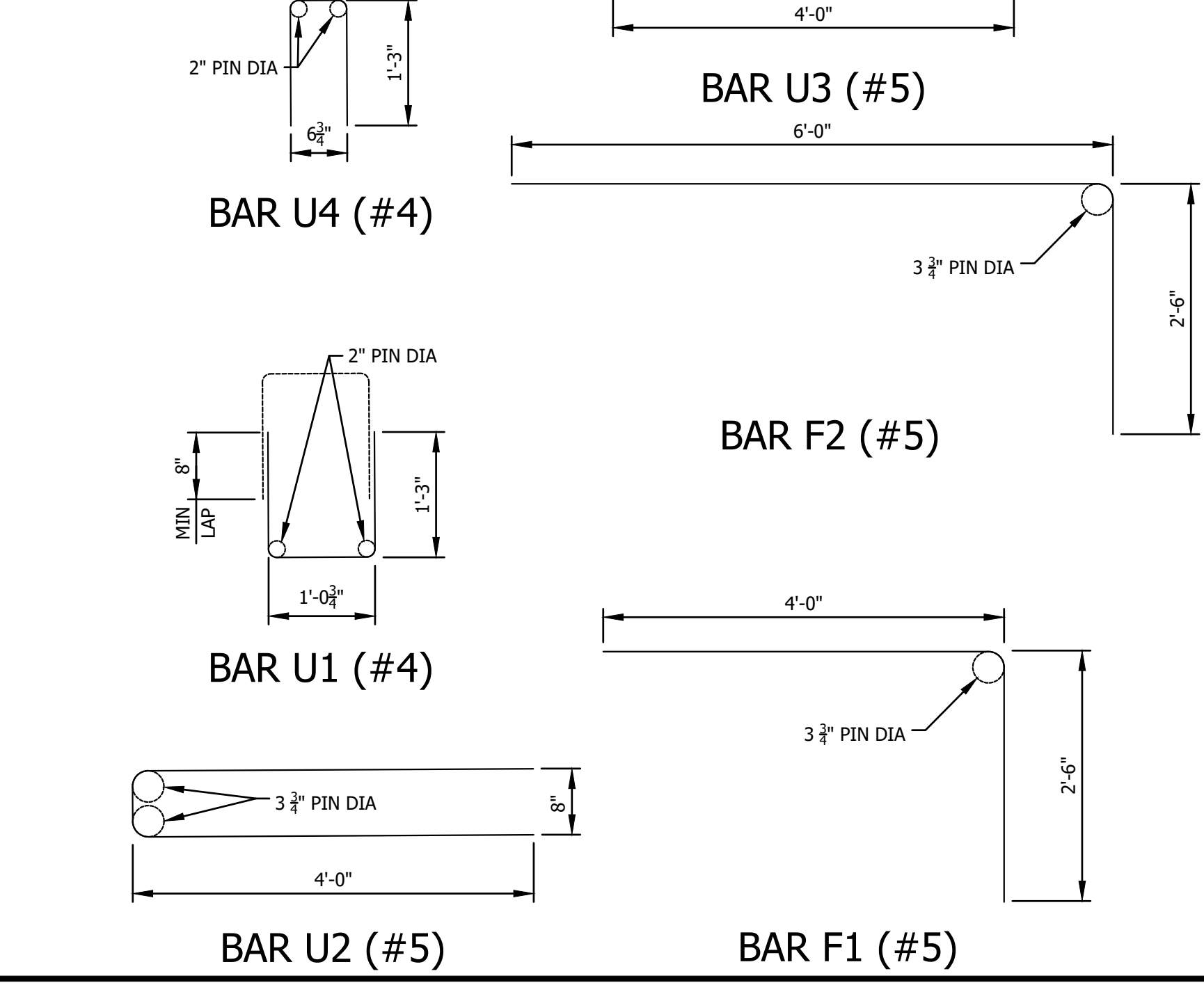
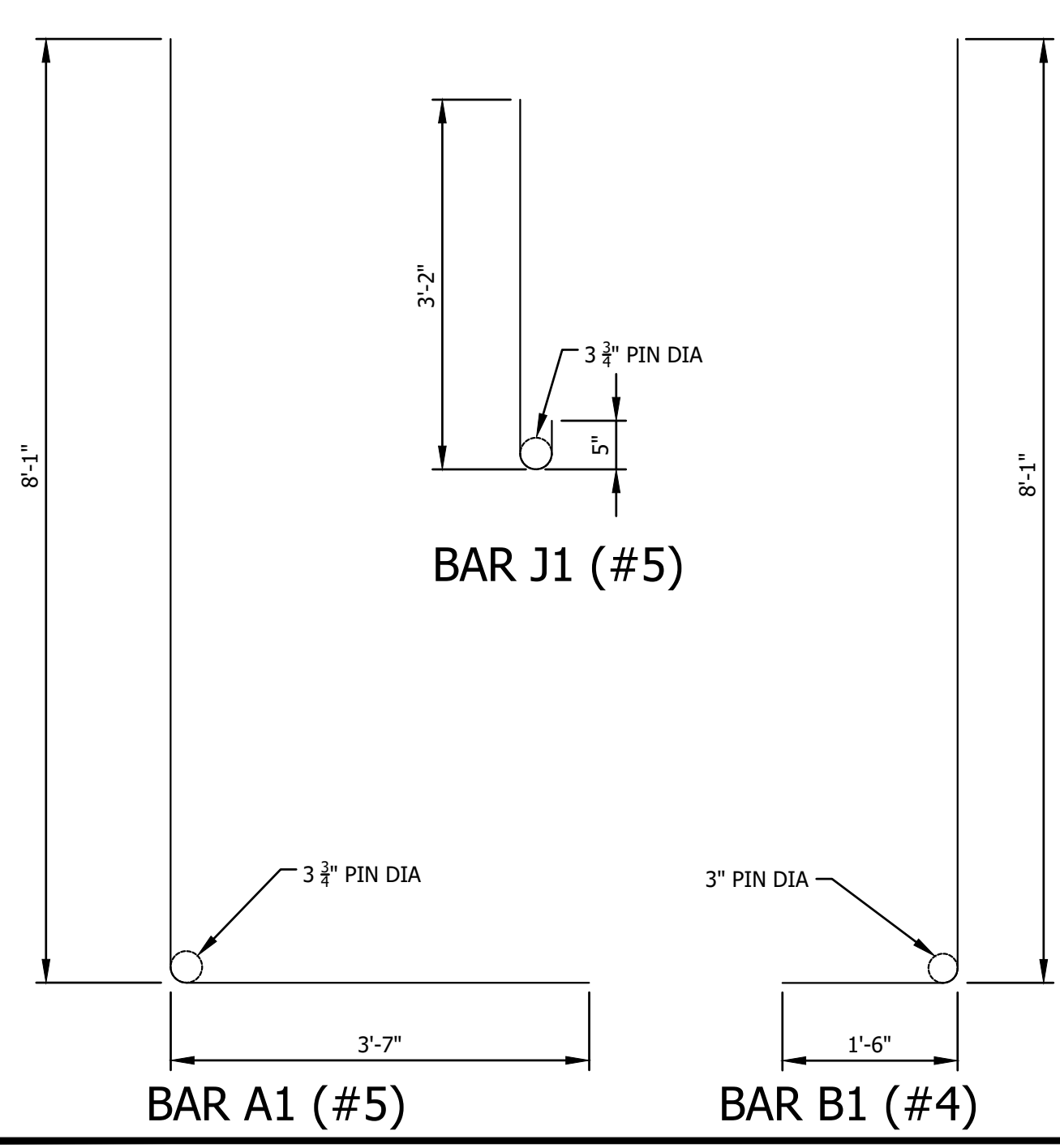
HEADWALL SECTION
SCALE: 3/4" = 1'-0"



CONSTRUCTION JOINT DETAIL
PLAN VIEW
SCALE: 3/4" = 1'-0"



WINGWALL SECTION
SCALE: 3/4" = 1'-0"



HEADWALL ELEVATION
DOWNSTREAM HEADWALL SHOWN (UPSTREAM SIMILAR)
SCALE: 1/2" = 1'-0"

*NOTE: No. OF BARS A1 & B1 WILL VARY DUE TO SKEW OF 48" DIA RCPs (OMIT BARS TO MAINTAIN 2" CLR FROM RCPs & 4" MIN BAR SPACING)

#	DATE	DESCRIPTION

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 TEXAS PROFESSIONAL ENGINEERING
 LICENSE NO. 100440

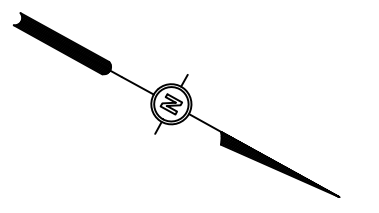
**BAR DETAILS
RIDGEWAY CIRCLE**

**HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGEWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX**

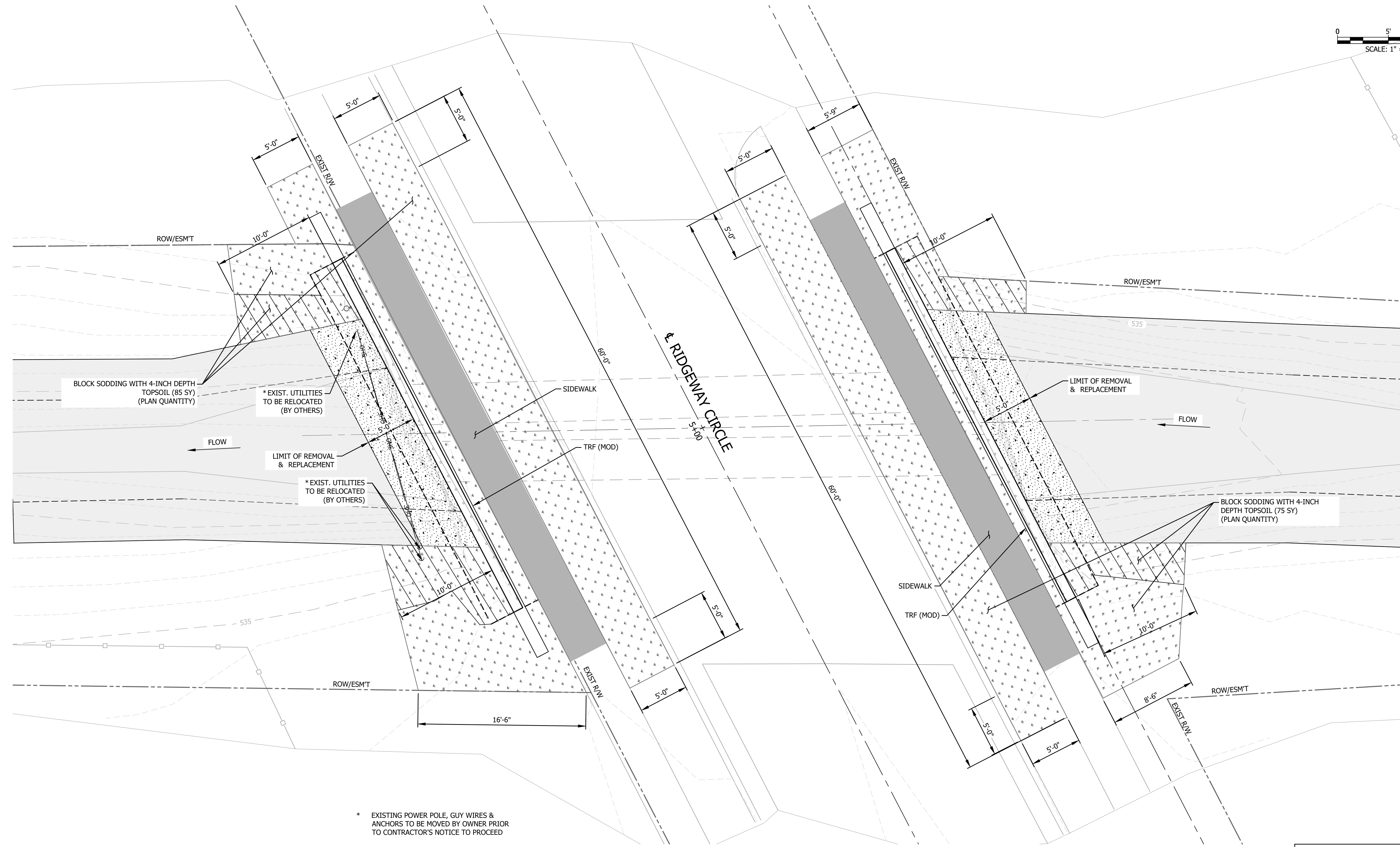
STATE OF TEXAS
 JAMES EDWARD BROWNE
 LICENSED PROFESSIONAL ENGINEER
 62207
 James E. Browne
 9-13-2024

SEALED DATE:	=====
DESIGNED BY:	JEB
DRAWN BY:	BLJ
APPROVED BY:	TMM
DESIGN PROJ:	20263.002
DATE:	9/13/2024
DRAWING NO:	13
SHEET NO:	13 of 32

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0 5' 10'
SCALE: 1" = 5'



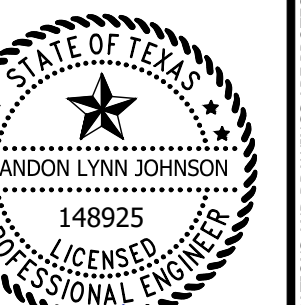
* EXISTING POWER POLE, GUY WIRES & ANCHORS TO BE MOVED BY OWNER PRIOR TO CONTRACTOR'S NOTICE TO PROCEED

PLAN

LEGEND	
	REGRADE CHANNEL BANK ABOVE CONCRETE CHANNEL LINING
	EXISTING CHANNEL LINING TO REMAIN
	REMOVE & REPLACE EXISTING CHANNEL LINING
	PLACE BLOCK SODDING WITH 4-IN. TOPSOIL

GRADING & CHANNEL LINING RIDGWAY CIRCLE

HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX

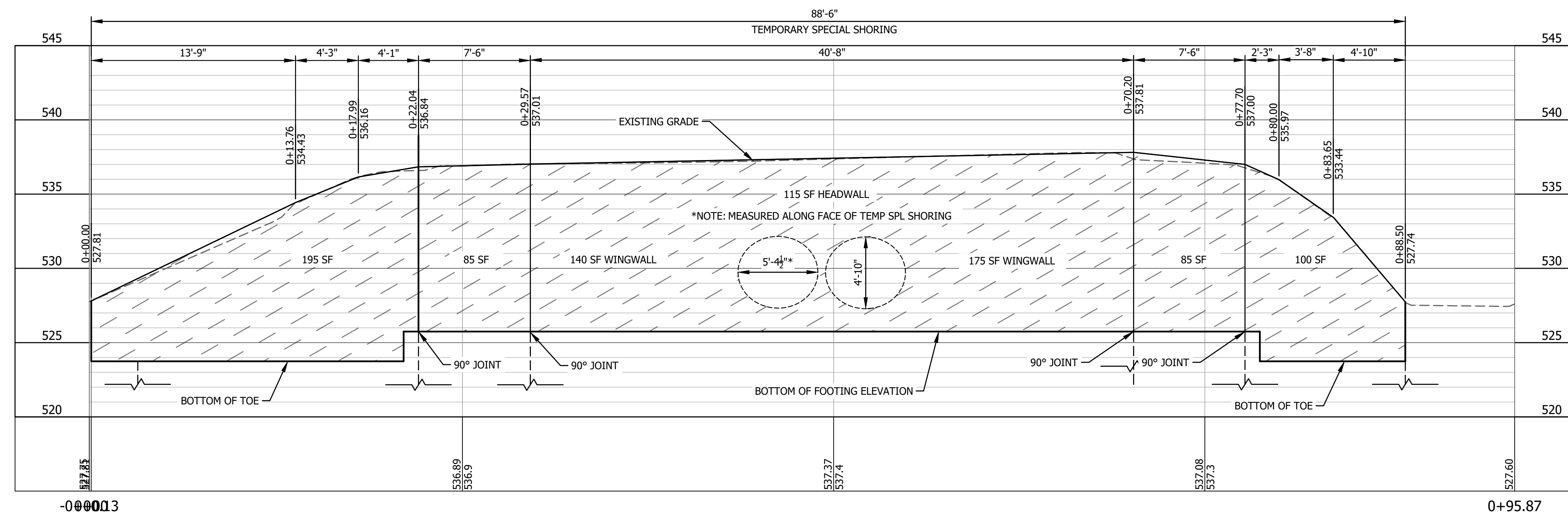
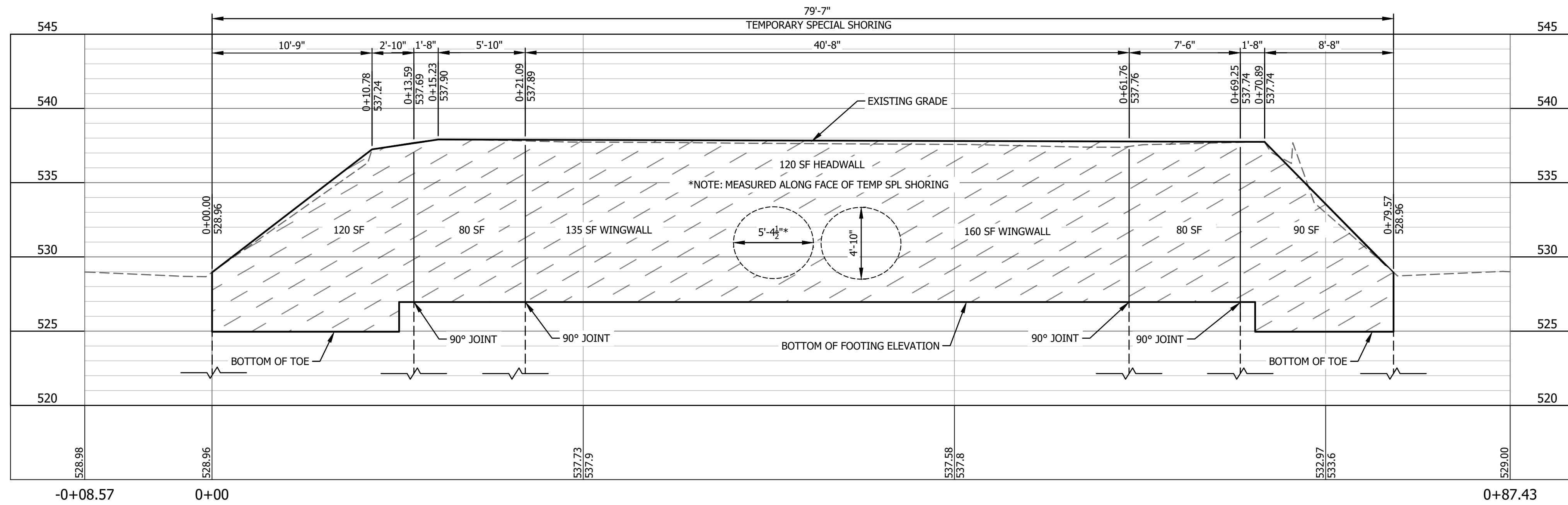


Brandon Lynn Johnson
9-13-2024

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APPROVED BY:	JEB
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DATE:	9/13/2024
DRAWING NO:	14
SHEET NO:	14 of 32

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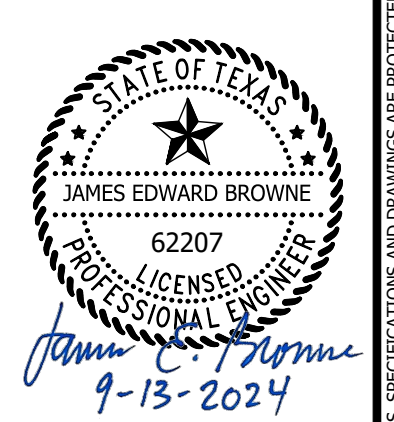
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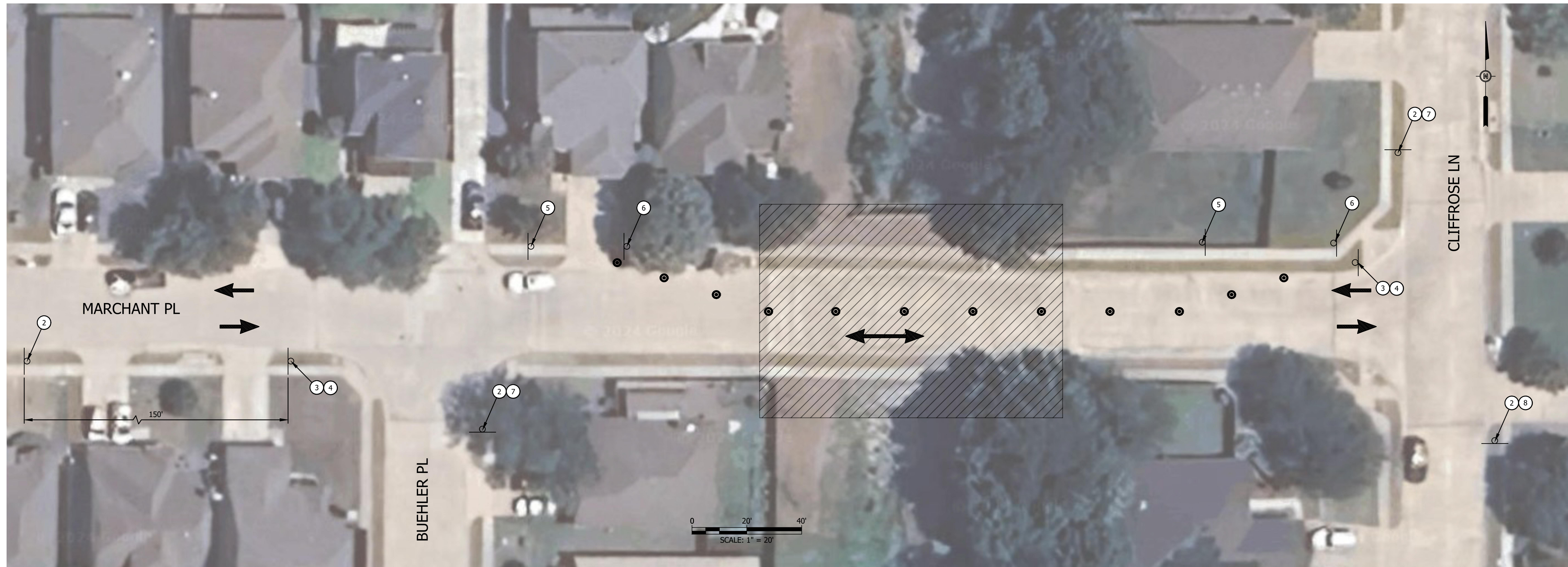
**TEMPORARY SPECIAL SHORING
RIDGEWAY CIRCLE**

HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGEWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX



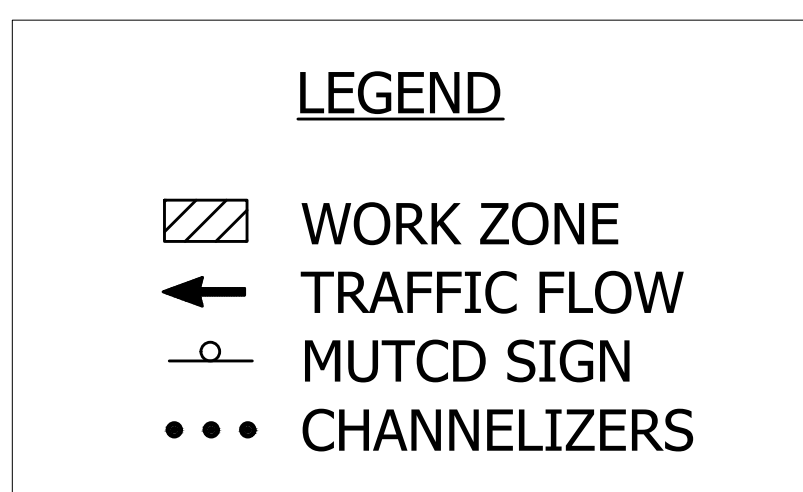
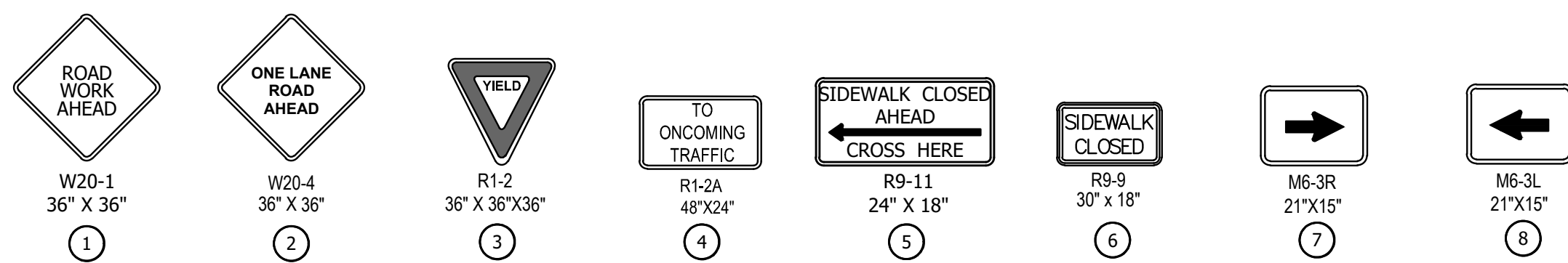
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DRAWN BY:	BLJ
APPROVED BY:	TMM
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SHEET NO:	15 of 32

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NOTES:

1. PLAN VIEW SHOWS EASTBOUND CLOSURE. WESTBOUND SIMILAR. CONTRACTOR SHALL RELOCATE SIGNS AS NECESSARY TO CLOSE OPPOSITE LANE AND/OR SIDEWALK.
2. CONTRACTOR TO SPACE CHANNELIZERS IN A MANNER THAT MAINTAINS ACCESS TO DRIVEWAYS AT ALL TIMES.
3. SEE GENERAL NOTES FOR ADDITIONAL TRAFFIC CONTROL GUIDANCE.

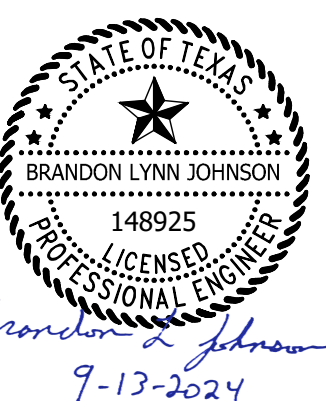


**TEMPORARY TRAFFIC CONTROL
MARCHANT PLACE**

HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGEWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX

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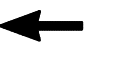
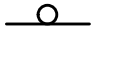

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APPROVED BY:	TMM
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DATE:	9/13/2024
DRAWING NO:	16
SHEET NO:	16 of 32






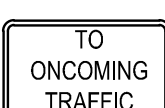
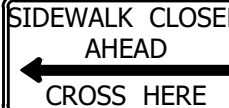
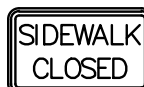
LEGEND

-  WORK ZONE
-  TRAFFIC FLOW
-  MUTCD SIGN
-  CHANNELIZERS

NOTES:

1. PLAN VIEW SHOWS EASTBOUND CLOSURE. WESTBOUND SIMILAR. CONTRACTOR SHALL RELOCATE SIGNS AS NECESSARY TO CLOSE OPPOSITE LANE AND/OR SIDEWALK.
2. CONTRACTOR TO SPACE CHANNELIZERS IN A MANNER THAT MAINTAINS ACCESS TO DRIVEWAYS AT ALL TIMES.
3. SEE GENERAL NOTES FOR ADDITIONAL TRAFFIC CONTROL GUIDANCE.

Diagram showing six types of traffic signs and their dimensions:

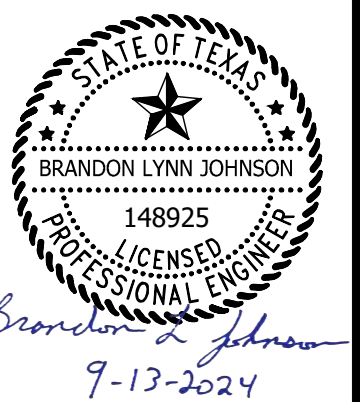
-  W20-1
36" X 36"
1
-  W20-4
36" X 36"
2
-  R1-2
36" X 36" X 36"
3
-  TO ONCOMING TRAFFIC
R1-2A
48" X 24"
4
-  SIDEWALK CLOSED AHEAD
CROSS HERE
R9-11
24" X 18"
5
-  SIDEWALK CLOSED
R9-9
30" X 18"
6



Last edit on: 9/13/2024 3:00 PM by: BLJ01713
Drawing Name: C:\Users\BLJ01713\OneDrive\Bartlett & West\20263.002 - Lewisville Headwall Replace M&R\Project\Files\AutoCAD\Plan Set\20263.002C_TRAFFIC CONTROL PLAN.dwg Layout Name: RIDGEWAY CIRCLE Plotted on: 9/13/2024 3:05:51 PM

**TEMPORARY TRAFFIC CONTROL
RIDGEWAY CIRCLE**

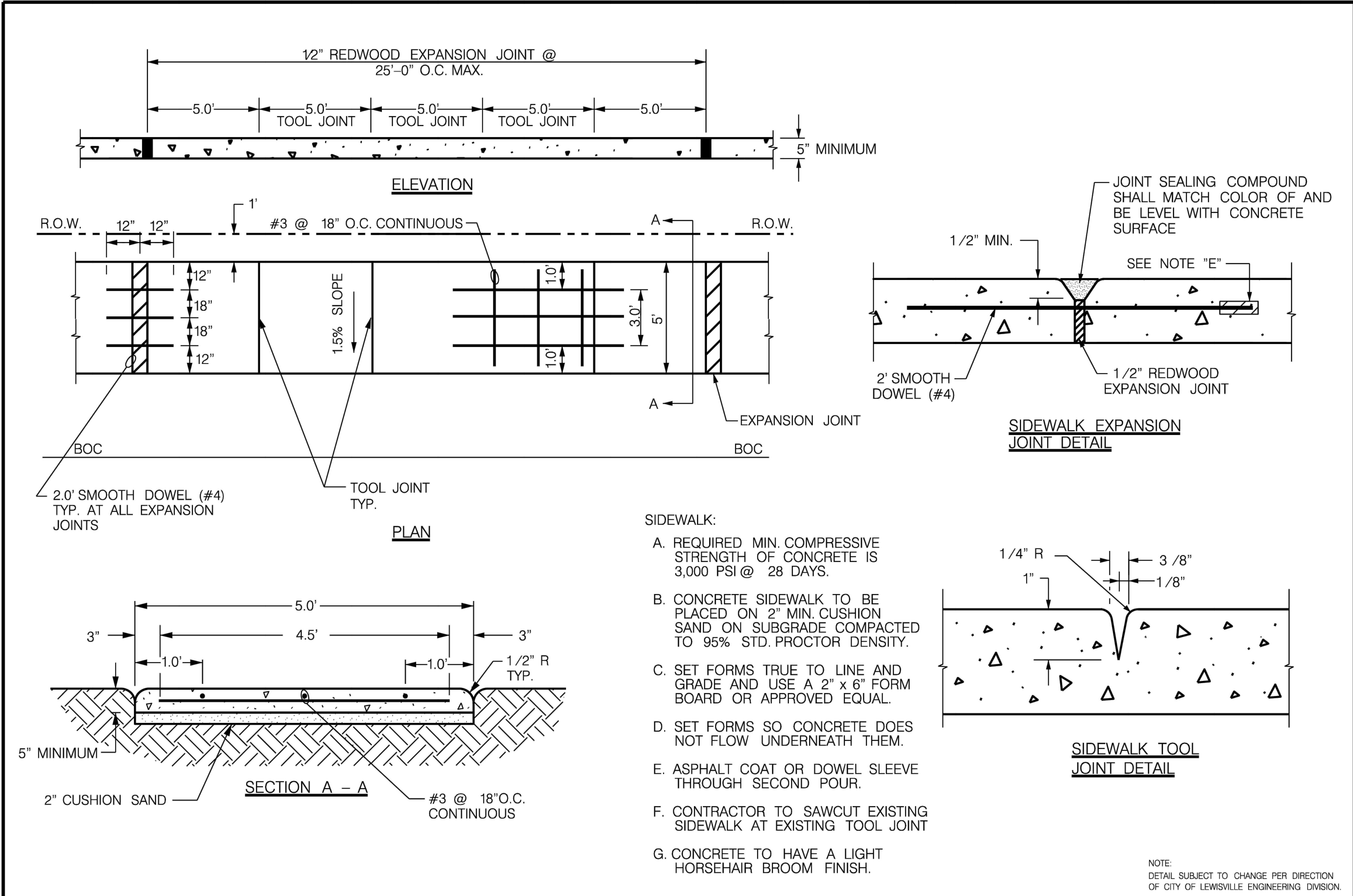
HEADWALL & WINGWALL REPLACEMENT
MARCHANT PLACE & RIDGEWAY CIRCLE
CITY OF LEWISVILLE, DENTON COUNTY, TX



SEALED DATE:	=====
DESIGNED BY:	BLJ
DRAWN BY:	BLJ
APPROVED BY:	TMM
DESIGN PROJ:	20263.002
DATE:	9/13/2024
DRAWING NO.:	17
SHEET NO.:	17 of 32

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- SIDEWALK:
- A. REQUIRED MIN. COMPRESSIVE STRENGTH OF CONCRETE IS 3,000 PSI @ 28 DAYS.
 - B. CONCRETE SIDEWALK TO BE PLACED ON 2" MIN. CUSHION SAND ON SUBGRADE COMPACTED TO 95% STD. PROCTOR DENSITY.
 - C. SET FORMS TRUE TO LINE AND GRADE AND USE A 2" x 6" FORM BOARD OR APPROVED EQUAL.
 - D. SET FORMS SO CONCRETE DOES NOT FLOW UNDERNEATH THEM.
 - E. ASPHALT COAT OR DOWEL SLEEVE THROUGH SECOND POUR.
 - F. CONTRACTOR TO SAWCUT EXISTING SIDEWALK AT EXISTING TOOL JOINT
 - G. CONCRETE TO HAVE A LIGHT HORSEHAIR BROOM FINISH.

NOTE:
DETAIL SUBJECT TO CHANGE PER DIRECTION
OF CITY OF LEWISVILLE ENGINEERING DIVISION.

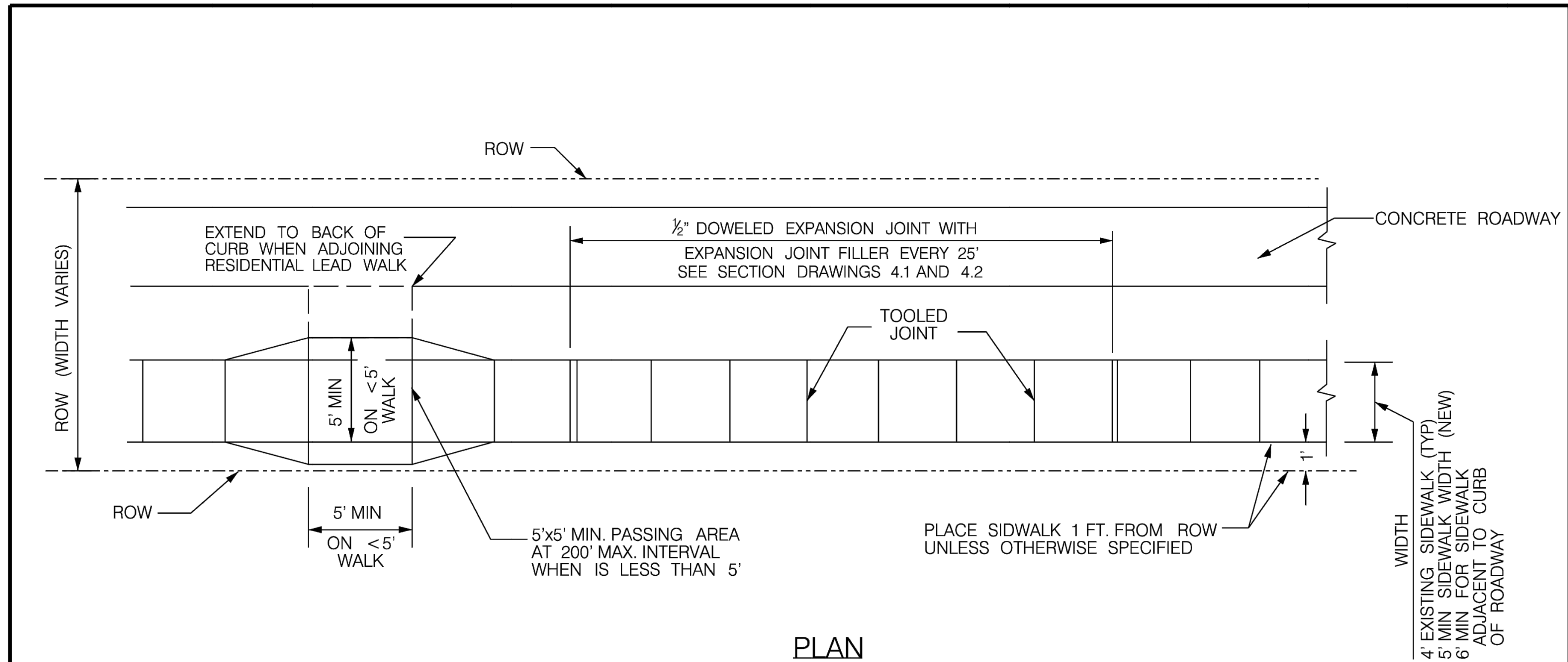


Standard Details
5.0' SIDEWALK DETAILS

Revisions:		
No.	Description	Date

Engineering Department
Office No. 972-219-3490
www.cityoflewisville.com

Dated: 8-16-2022
Dated: _____
Sheet: 4.2



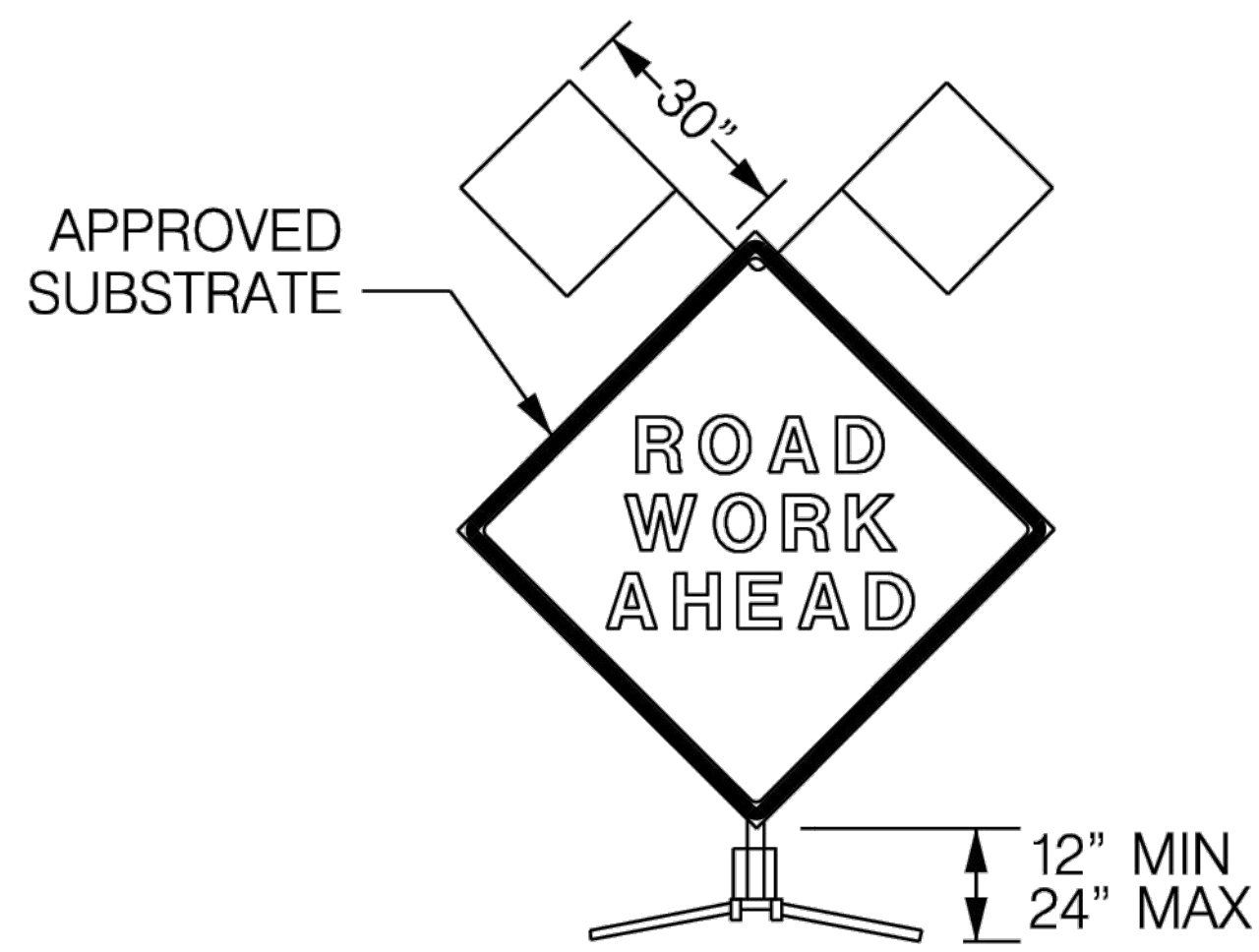
PLAN

NOTES

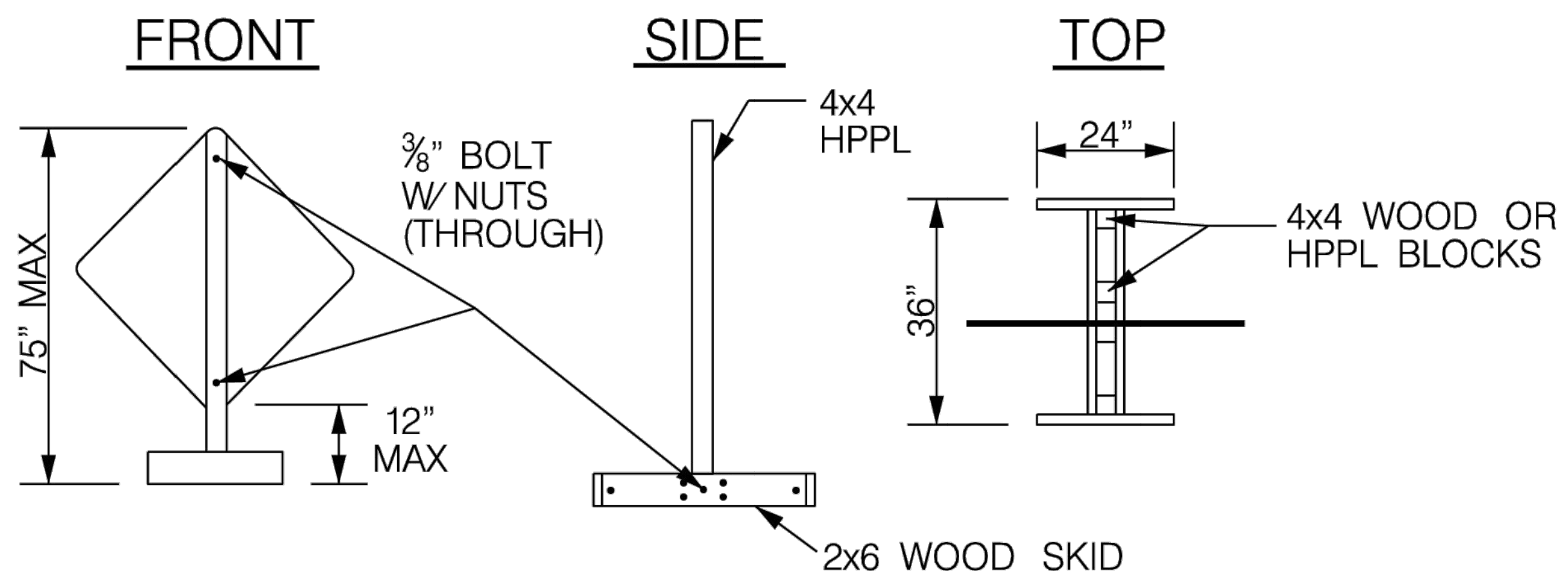
1. WIRE MESH REINFORCEMENT NOT PERMITTED.
2. CROSS SLOPE OF SIDEWALK TO BE <1.5% MAX.
3. SIDEWALK OTHER THAN 5'-0" MAY BE SPECIFIED BY CITY.
4. SIDEWALK TO BE 3,000 PSI CONCRETE UNLESS OTHERWISE SPECIFIED.
5. ALL HONEYCOMB IN BACK OF CURB TO BE TROWEL PLASTERED BEFORE POURING SIDEWALK.
6. SIDEWALK SURFACE FINISH TO BE TRANSVERSE TO DIRECTION OF TRAVEL AND TO BE LIGHT HORSEHAIR BROOM FINISH.
7. ALL ACCESSIBLE ROUTES TO COMPLY WITH ADA REGULATIONS AND TAS REGULATIONS.
8. FOR SIDEWALK DETAILS, SEE DRAWINGS 4.1 AND 4.2.
9. FOR JOINT DETAIL FOR SIDEWALK ADJACENT TO CURB OR INLET SEE DETAIL 4.7

NOTE:
DETAIL SUBJECT TO CHANGE PER DIRECTION
OF CITY OF LEWISVILLE ENGINEERING DIVISION.

	Standard Details	Revisions: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">No.</th> <th style="width: 60%;">Description</th> <th style="width: 35%;">Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date																			Engineering Department Office No. 972-219-3490 www.cityoflewisville.com	Dated: 8-30-2022 Dated: _____ Sheet: 4.4
	No.	Description	Date																						
REINFORCED CONCRETE SIDEWALK JOINTS AND SPACING																									

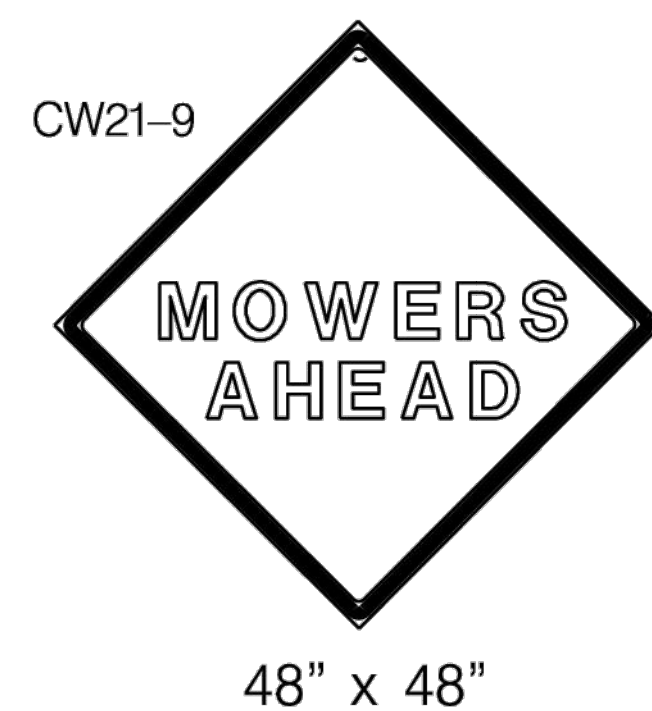


FLAGS AS REQUIRED BY ENGINEER OR AS SHOWN ON PLANS



UPRIGHT TO BE MADE OF HOLLOW PROFILE PLASTIC LUMBER (HPPL) DO NOT USE WOOD OR METAL.

SIGN SUPPORTS



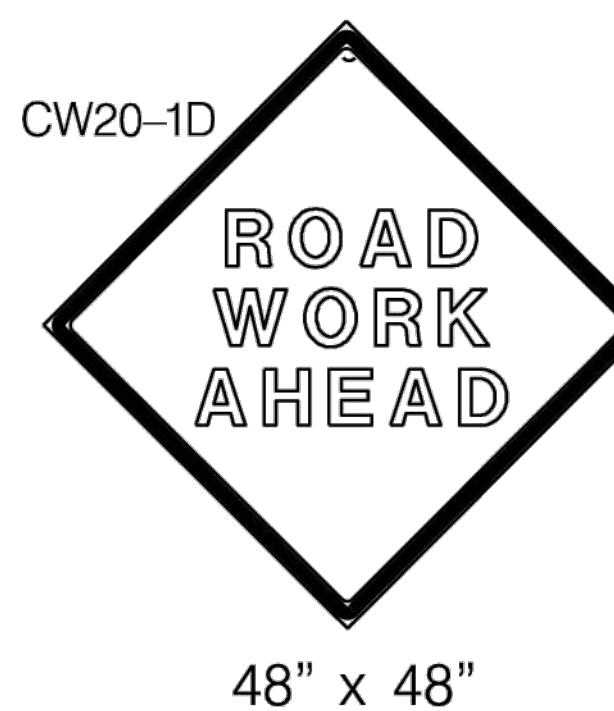
#CW21-SPECIAL



CW20-18



CW20-1D



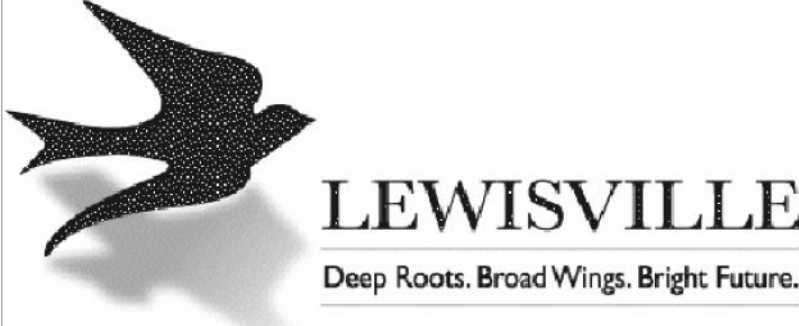
SIGNS MUST BE IN ACCORDANCE WITH CWZTCD FOR STREETS AND HIGHWAYS.
ROLL UP SIGNS THAT CONFORM TO CWZTCD ARE ALLOWED

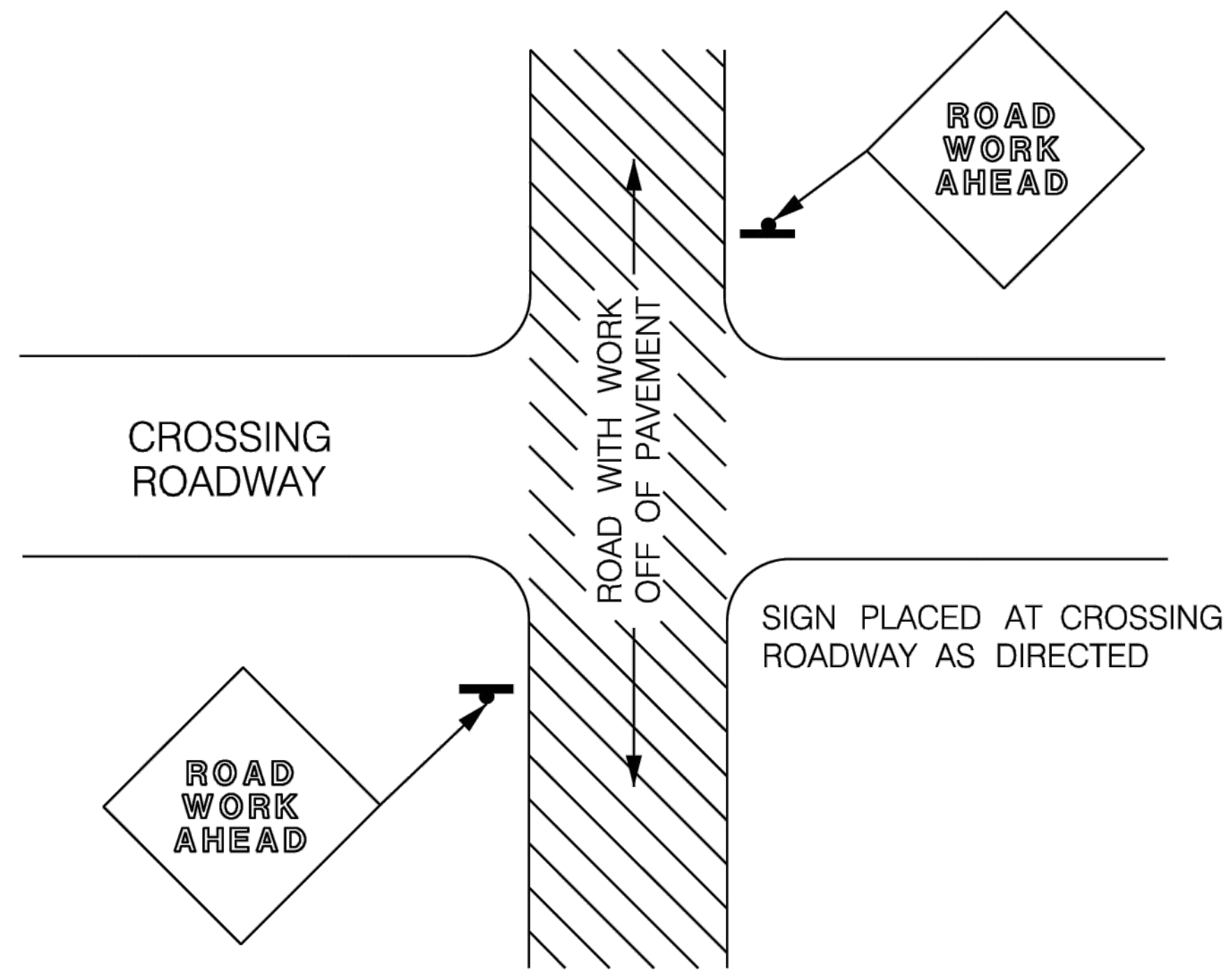
NOTES

1. SEE TxDOT COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICE (CWZTCD) LIST FOR APPROVED SUBSTRATE FOR EACH TYPE OF SIGN SUPPORT.
2. USE SCREWS OR NUTS AND BOLTS TO ATTACH SIGNS TO WOODEN BOARDS. DO NOT USE NAILS. ATTACH SIGN SUBSTRATES TO OTHER MATERIALS USING TxDOT OR MANUFACTURERS RECOMMENDATIONS.

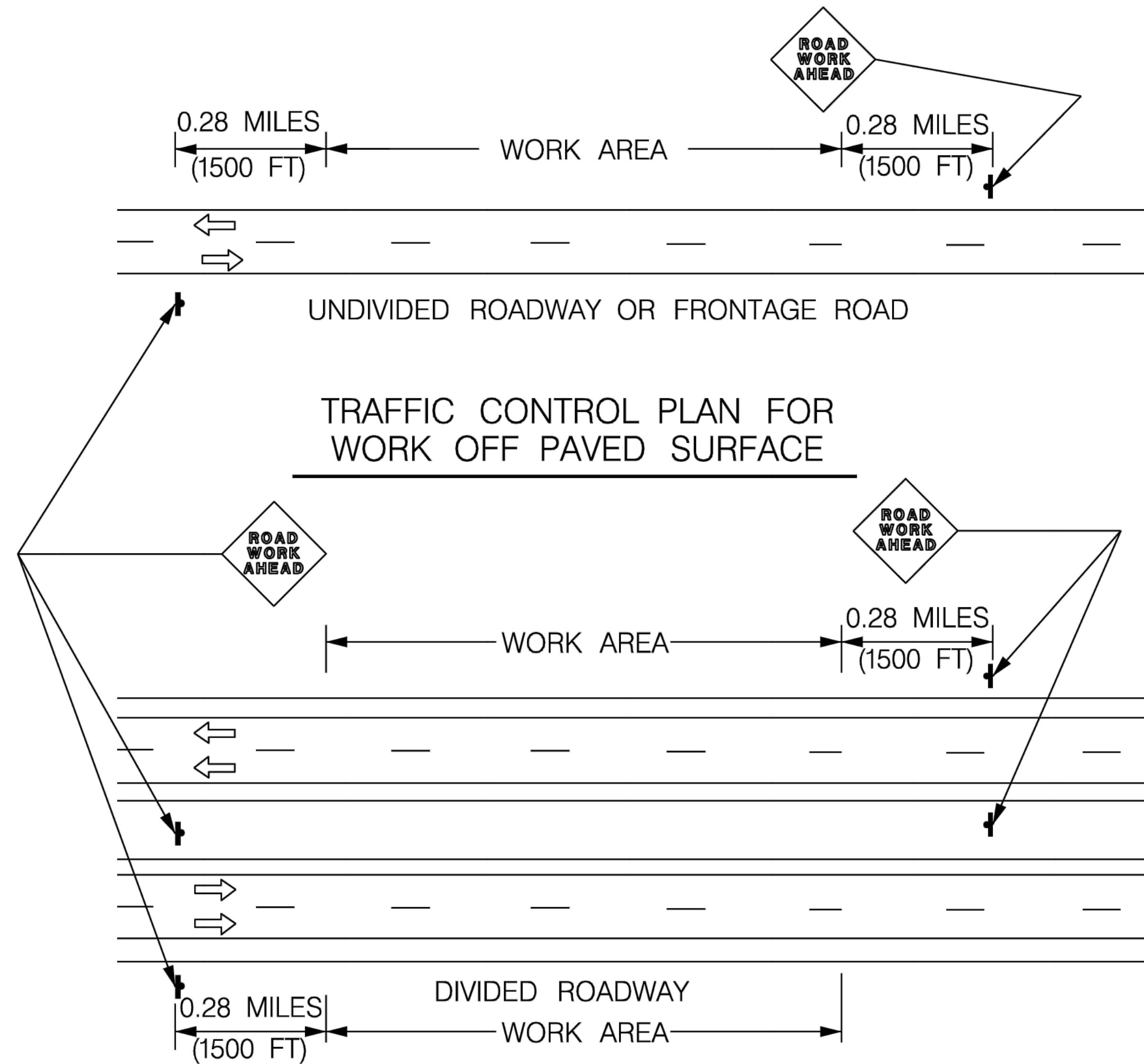
NOTE:
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	Standard Details	Revisions:	Engineering Department	Dated: 4-27-2012																	
	ROADSIDE TRAFFIC CONTROL SIGNS AND SUPPORTS	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">No.</th> <th style="width: 65%;">Description</th> <th style="width: 30%;">Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date																Office No. 972-219-3490 www.cityoflewisville.com
No.	Description	Date																			



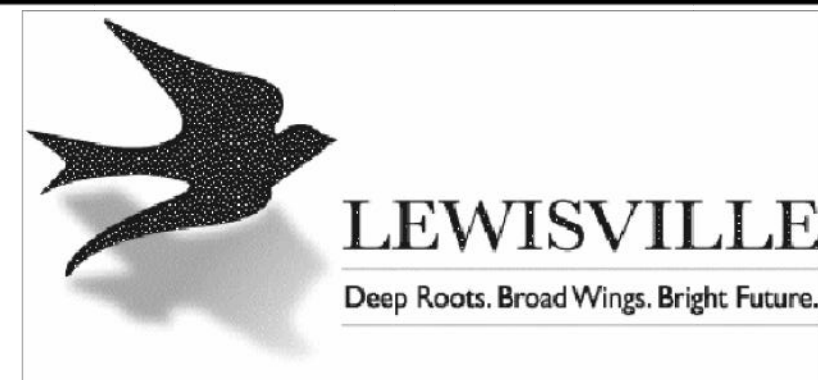
TYPICAL LOCATION OF SIGNS AT ROADWAY CROSSING



NOTES

1. WORK ARE IS A MAXIMUM OF 2.0 MILES UNLESS OTHERWISE DIRECTED.
2. SIGNS MAY REMAIN IN PLCE ONLY DURING DAYLIGHT HOURS.
3. PLACE SIGNS 6- TO 12- FEET OFF PAVED SURFACE UNLESS OTHERWISE DIRECTED.
4. "ROAD WORK AHEAD" SIGNS ARE EXPAMPLES, USE ONE OF THE FOUR TYPE SIGNS AS DIRECTED
5. SIGNS IN THE MEDIAN ARE REQUIRED WHEN WORK OCCURS IN THE MEDIAN

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Standard Details
ROADSIDE TRAFFIC CONTROL
SIGN LOCATION AND PLAN

Revisions:		
No.	Description	Date

Engineering Department
Office No. 972-219-3490
www.cityoflewisville.com

Dated: 4-27-2012
Dated:
Sheet: 5.18

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor to install and maintain signs in a straight and plumb condition or as directed by Inspector.
2. Paint wooden sign posts white.
3. Do not use barricades as sign supports.
4. Do not use nails to attach signs to any support.
5. Install all signs in accordance with plans or as directed by Inspector. Use signs to regulate, warn, and guide traveling public safely through the work zone.
6. The Contractor may furnish either the sign design shown in plans or the "Standard Highway Designs for Texas" SHSD. The Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but have been omitted from the plans.
7. Any variation in plans must be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before implementation.
8. Additional signs requested by Inspector are not subsidiary.
9. The Contractor will furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List (CWZTCD).
10. The contractor will install the sign support in accordance with the manufacturer's recommendations.
11. If there is a question regarding the installation procedures, the Contractor will supply the Engineer and Inspector a copy of the manufacturer's recommendations so the Engineer and Inspector can verify correct procedures are followed.
12. The Contractor is responsible for sign installation and replacing damaged or cracked substrates or damaged or marred reflective sheeting as directed by the Inspector.
13. Identification marking may only be shown on the back of sign substrate.
14. The maximum height of lettering and company logos for identification may only be one inch.
15. The Contractor must also replace any damaged posts. Do not use spliced wood posts.


DURATION OF WORK (AS DEFINED BY TMUTCD, PART VI)

1. The contractor is responsible for ensuring that the sign support and substrate meet crashworthiness.
2. For mowing operation, all signs and supports are short-term duration for daytime work.
3. The Contractor will furnish the sign sizes shown on sheet 5-17 as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor is responsible for ensuring that the sign substrate is allowed for the type of support being used. The CWZTCD lists each substrate to use for different types and models of sign supports.
2. "Mesh" type materials are NOT approved sign substrate.
3. All wooden individual sign panels fabricated from 2 or more pieces must have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign.
4. Attach the cleat to the back of the sign using wood screws that do not penetrate the face of the sign panels.
5. Place the screws on both sides of the splice and space them at 6" centers.
6. The Engineer or Inspector may approve other methods of splicing sign faces.

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	<h2 style="margin: 0;">Standard Details</h2> <h3 style="margin: 0;">ROADSIDE TRAFFIC CONTROL PLAN NOTES (1 OF 2)</h3>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: left; padding: 2px;">Revisions:</th> </tr> <tr> <th style="width: 5%; padding: 2px;">No.</th> <th style="width: 75%; padding: 2px;">Description</th> <th style="width: 20%; padding: 2px;">Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Revisions:			No.	Description	Date																			<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; text-align: center; vertical-align: middle;"> Engineering Department </td> <td style="width: 30%; text-align: center; vertical-align: middle;"> Dated: 4-27-2012 Dated: </td> </tr> <tr> <td style="text-align: center; vertical-align: bottom;"> Office No. 972-219-3490 www.cityoflewisville.com </td> <td style="text-align: center; vertical-align: bottom;"> Sheet: 5.19 </td> </tr> </table>	Engineering Department	Dated: 4-27-2012 Dated:	Office No. 972-219-3490 www.cityoflewisville.com	Sheet: 5.19
	Revisions:																														
No.	Description	Date																													
Engineering Department	Dated: 4-27-2012 Dated:																														
Office No. 972-219-3490 www.cityoflewisville.com	Sheet: 5.19																														

REFLECTIVE SHEETING

1. Reflectorized signs to be constructed of sheeting that meets the color and retro-reflectivity requirements of DMS-8300 or DMS-8310.
2. Use white sheeting meeting DMS-8300 requirements Type C (High Specific Intensity) for signs with white background and channelizing devices.
3. Use orange sheeting meeting DMS-8300 requirements Type E (Fluorescent Prismatic) for signs with orange background.

SIGN LETTERS

1. All sign letters and numbers must be clear and open rounded type upper case alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the 'Standard Highway Sign Design for Texas' manual.
2. Signs, letters, and numbers must be of first class workmanship in accordance with TxDOT Standards and Specifications.

REMOVING OR COVERING

1. Remove or completely cover signs when not moving.
2. Do not use duct tape or other adhesive material to affix a sign face.
3. Remove signs and supports at the end of the day.

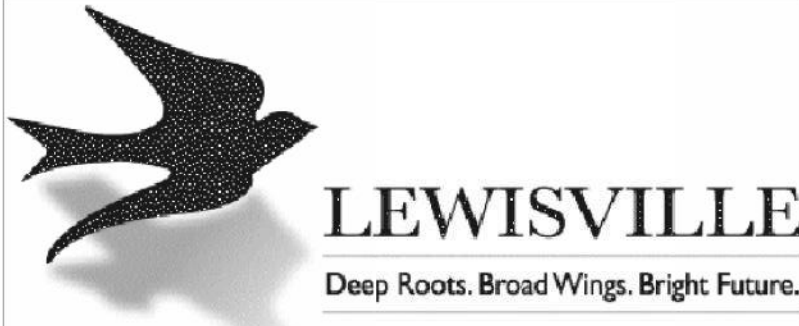
SIGN SUPPORT WEIGHTS

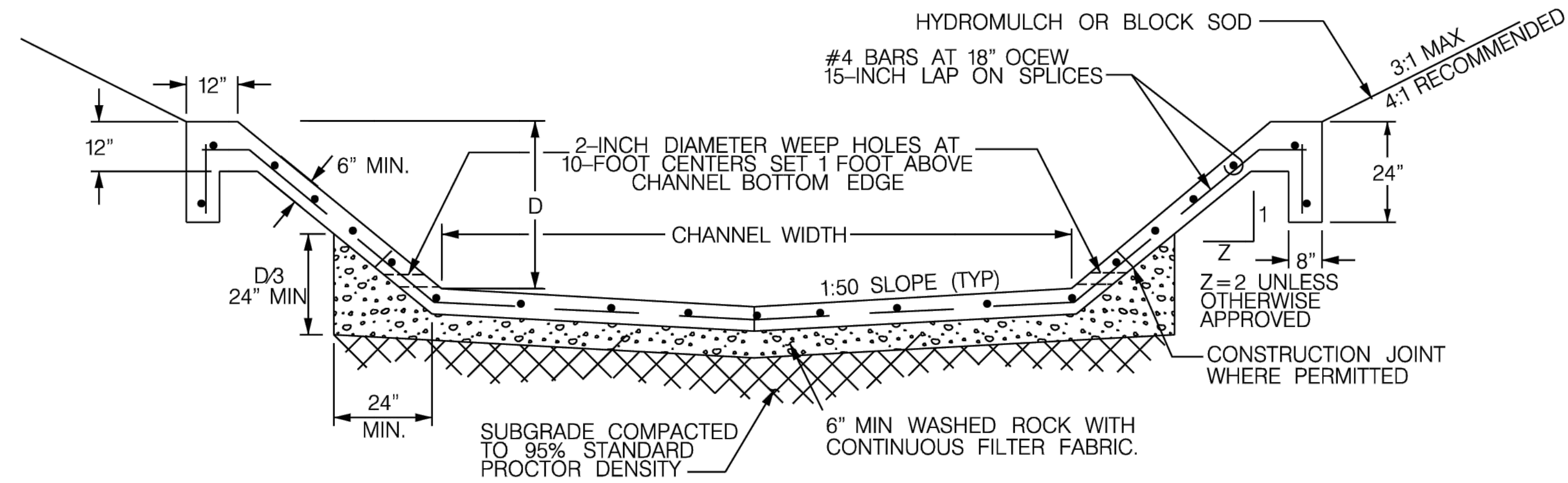
1. Where sign supports require the use of weights to keep from turning over, it is recommended that sandbags with dry cohesionless sand be used.
2. Tie the sandbags shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel, or other solid objects are not permitted to use as sign support weights.
4. Sandbags should weight a minimum of 35 pounds and a maximum of 50 pounds.
5. Sandbags should be made of a durable material that tears upon vehicular impact.
6. Do not use rubber (such as tire inner tubes) for sandbags.
7. Do not use rubber ballasts (such as those used with cones or edgeline channelizers) for sign supports.
8. Only place sandbags along or over the base supports of the traffic control device and do not suspend them above ground level or hang them with rope, wire, chains or other fasteners.
9. Place sandbags along the length of the skids to weigh down the sign supports.
10. Do not place sandbags under the skid or use them to level sign supports placed on slopes.

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN PROJECT LIMITS

1. Any sign, sign support, or traffic control device that is struck or damaged by the Contractor or their construction equipment must be replaced or repaired as soon as possible by the Contractor at the Contractor's expense.

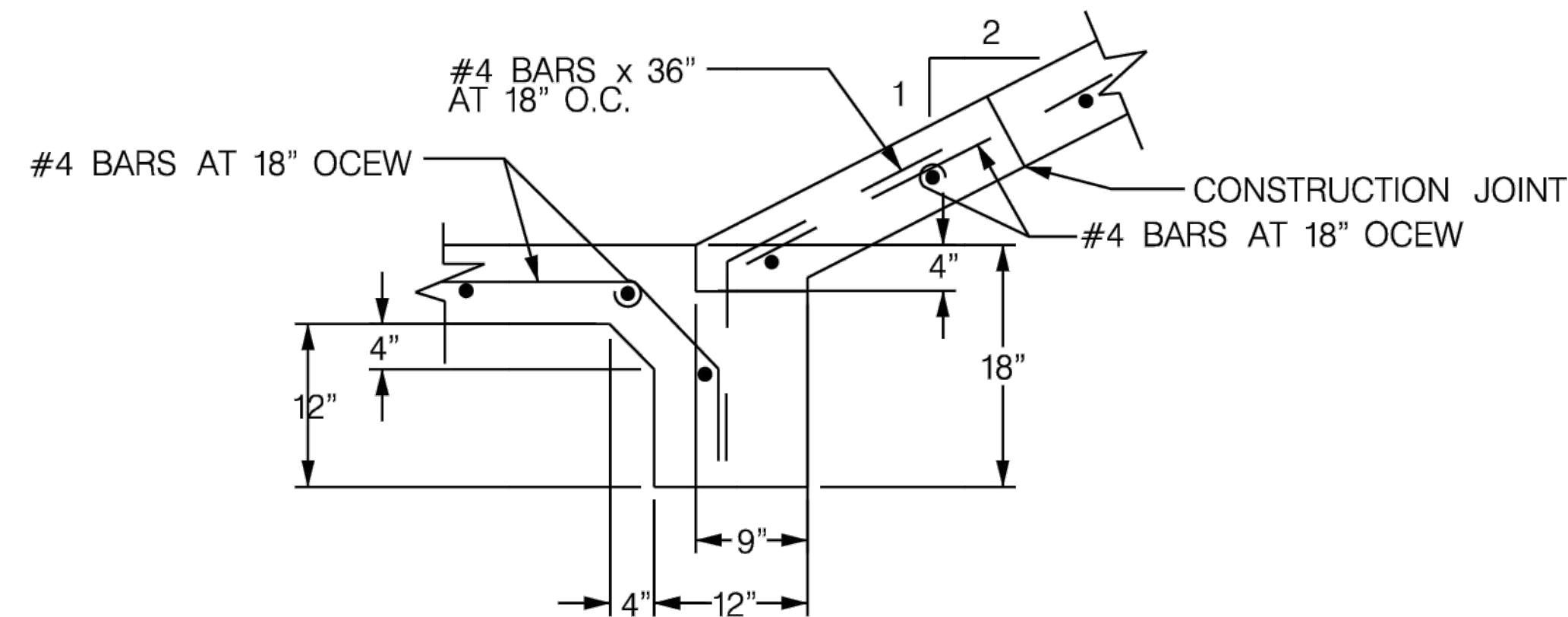
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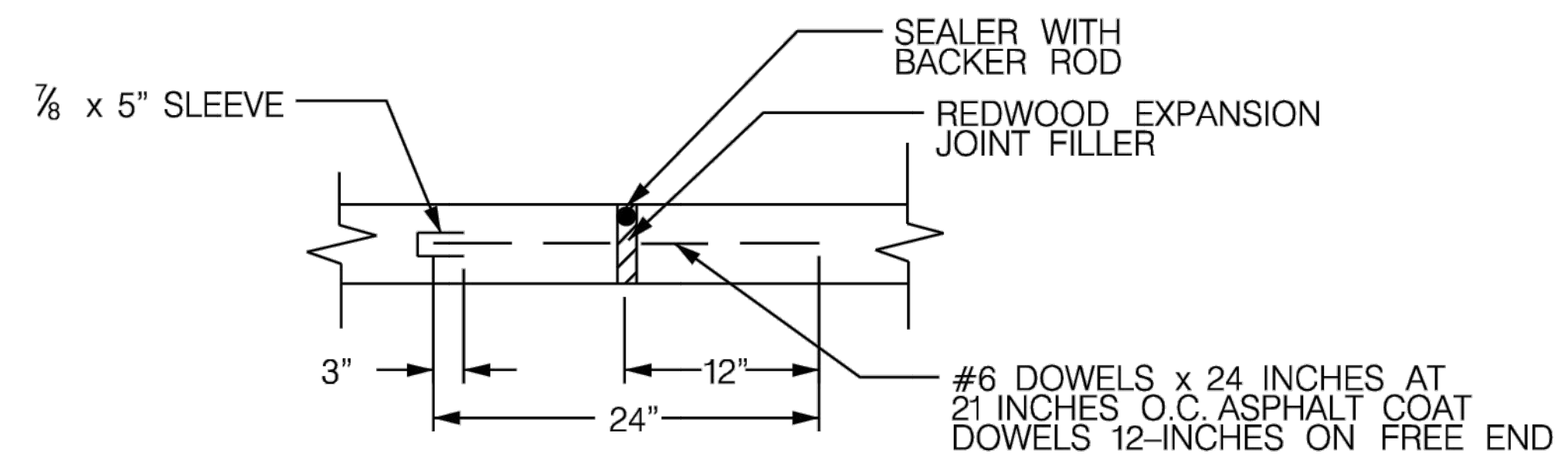


REINFORCED CONCRETE CHANNEL SECTION

NTS



CONSTRUCTION JOINT

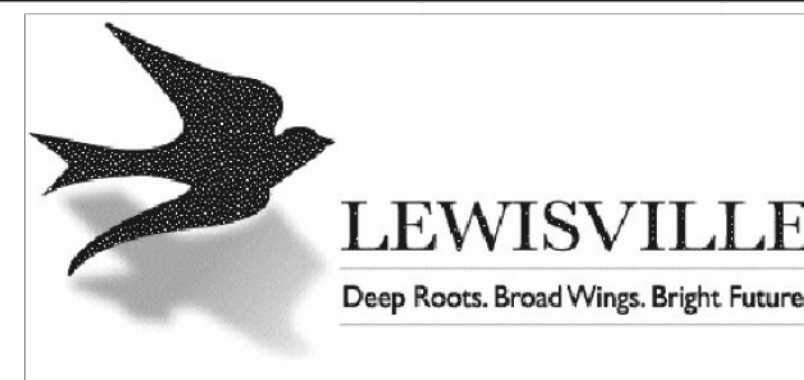


TRAVERSE EXPANSION JOINT

SPACE 100-FEET C TO C AND USE AT ENDS OF CURVES - P.C AND P.T.
NTS

NOTES

1. FILL AREAS TO BE COMPACTED TO A DENSITY NO LESS THAN 95% STANDARD PROCTOR DENSITY.
2. FULL CHANNEL LINING TO BE USED ONLY WITH APPROVAL OF CITY ENGINEER AND ARMY CORPS OF ENGINEERS.
3. WASHED ROCK TO BE GAP GRADED 1/2 INCH.
4. ALL CONCRETE TO BE 4,000 PSI.

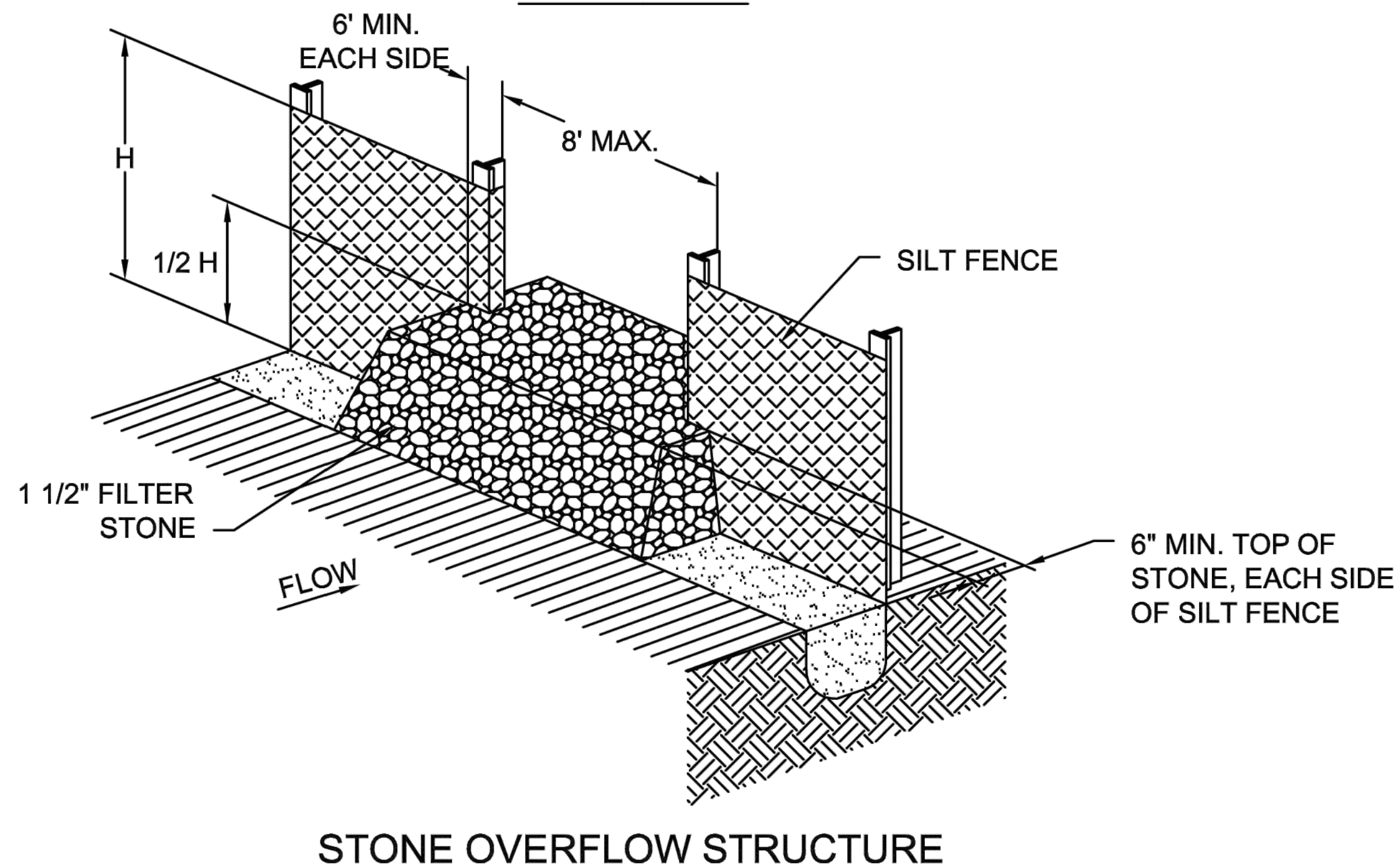
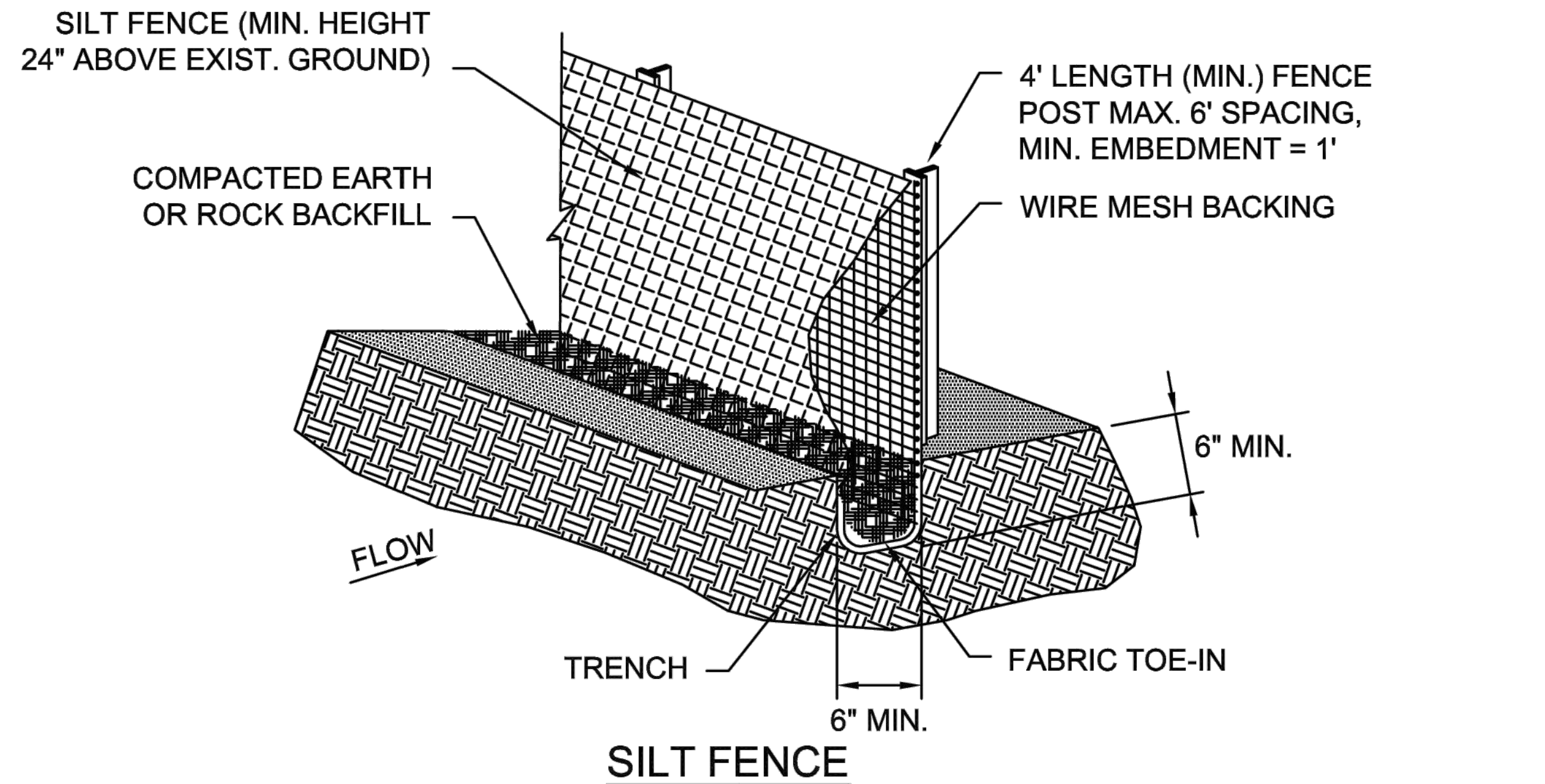


Standard Details
CONCRETE CHANNEL LINING

Revisions:		
No.	Description	Date

Engineering Department
Office No. 972-219-3490
www.cityoflewisville.com

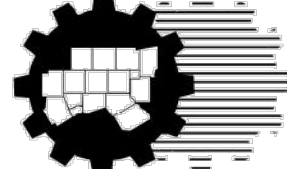
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Dated:
Sheet: **9.27**



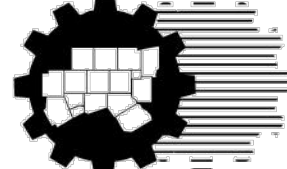
SILT FENCE GENERAL NOTES:

1. POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

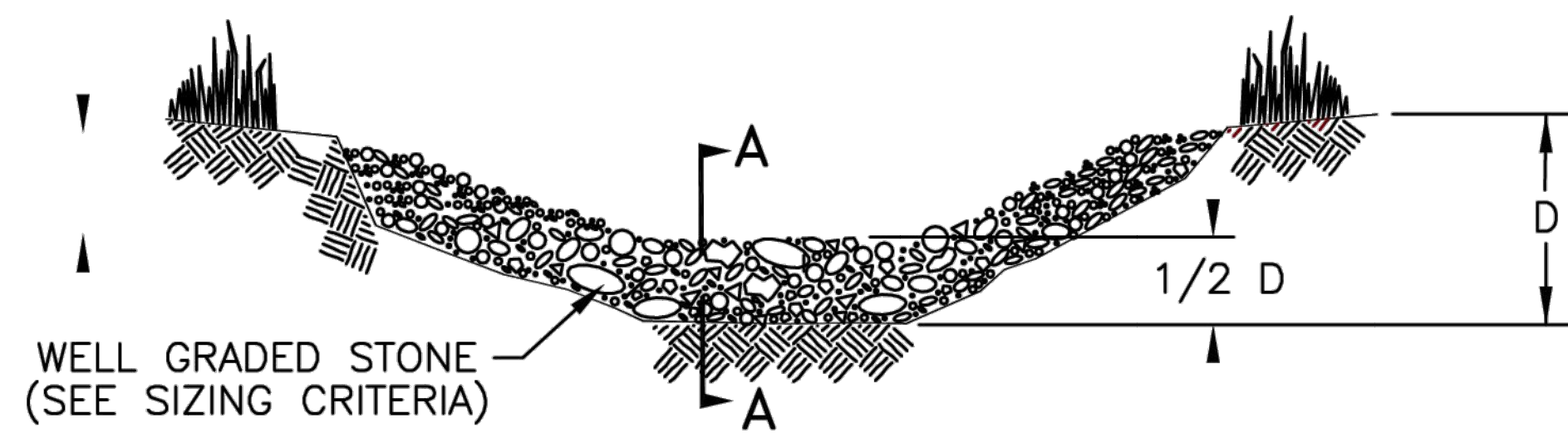
1 12/3/2024 REVISED STANDARD DRAWING TO CONFORM WITH SPECIFICATION VERSION BLJ

SILT FENCE	North Central Texas Council of Governments 	STANDARD SPECIFICATION REFERENCE 202.5 *	
		DATE OCT. '04	STANDARD DRAWING NO. 1020A

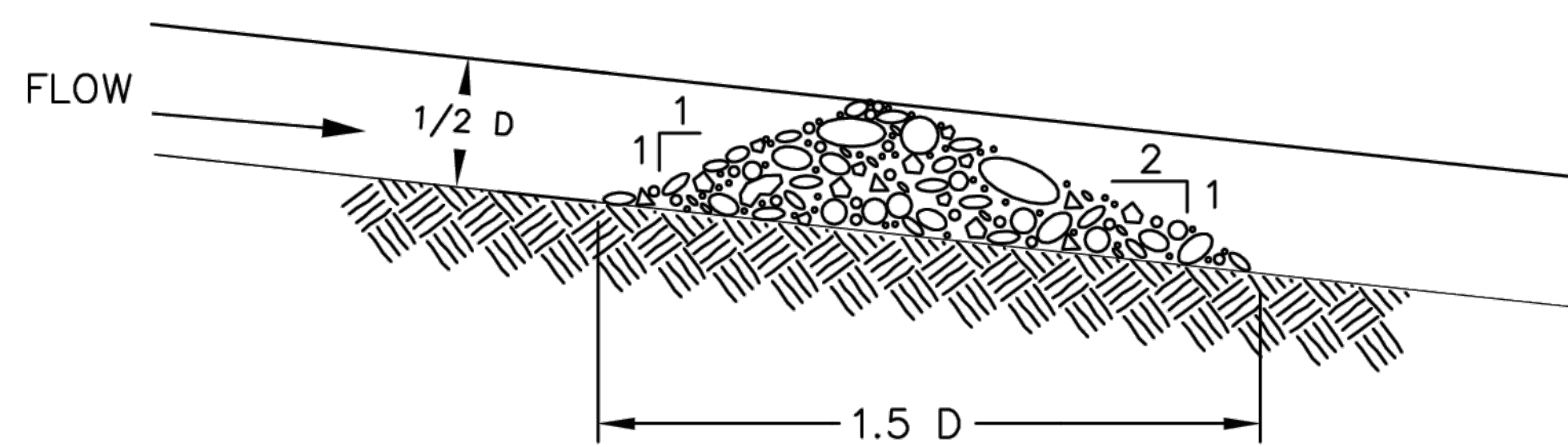
*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

SILT FENCE	North Central Texas Council of Governments 	STANDARD SPECIFICATION REFERENCE 202.5 *	
		DATE OCT. '04	STANDARD DRAWING NO. 1020B

*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

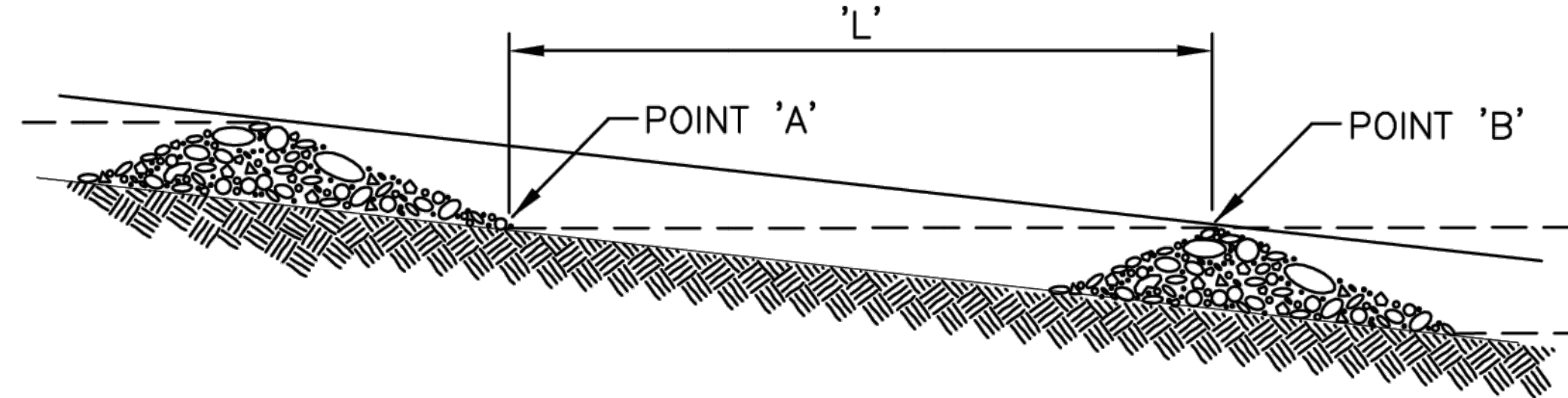


VIEW LOOKING UPSTREAM



SECTION A - A

'L' = THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.

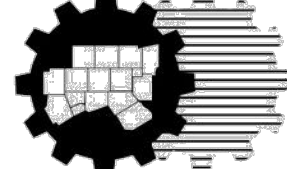


SPACING BETWEEN CHECK DAMS

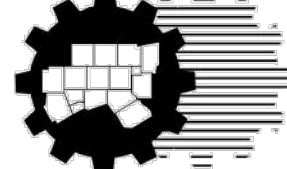
ROCK CHECK DAM GENERAL NOTES:

1. STONE SHALL BE WELL GRADED WITH SIZE RANGE FROM 1½ TO 3½ INCHES IN DIAMETER DEPENDING ON EXPECTED FLOWS.
2. THE CHECK DAM SHALL BE INSPECTED AS SPECIFIED IN THE SWPPP AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
3. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
4. WHEN THE SITE HAS ACHIEVED FINAL STABILIZATION OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED, THE CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

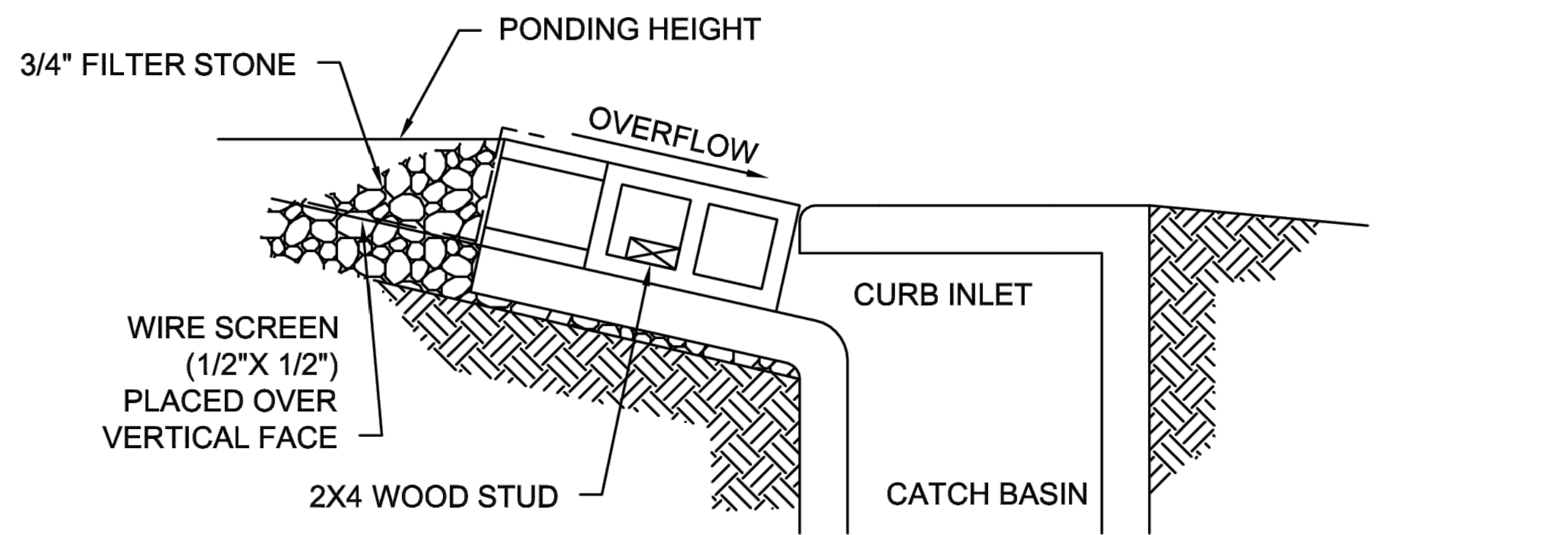
1 12/3/2024 REVISED STANDARD DRAWING TO CONFORM WITH SPECIFICATION VERSION BLJ

ROCK CHECK DAM	 North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
		202.9 *	
		DATE	STANDARD DRAWING NO.
		OCT. '04	1060A

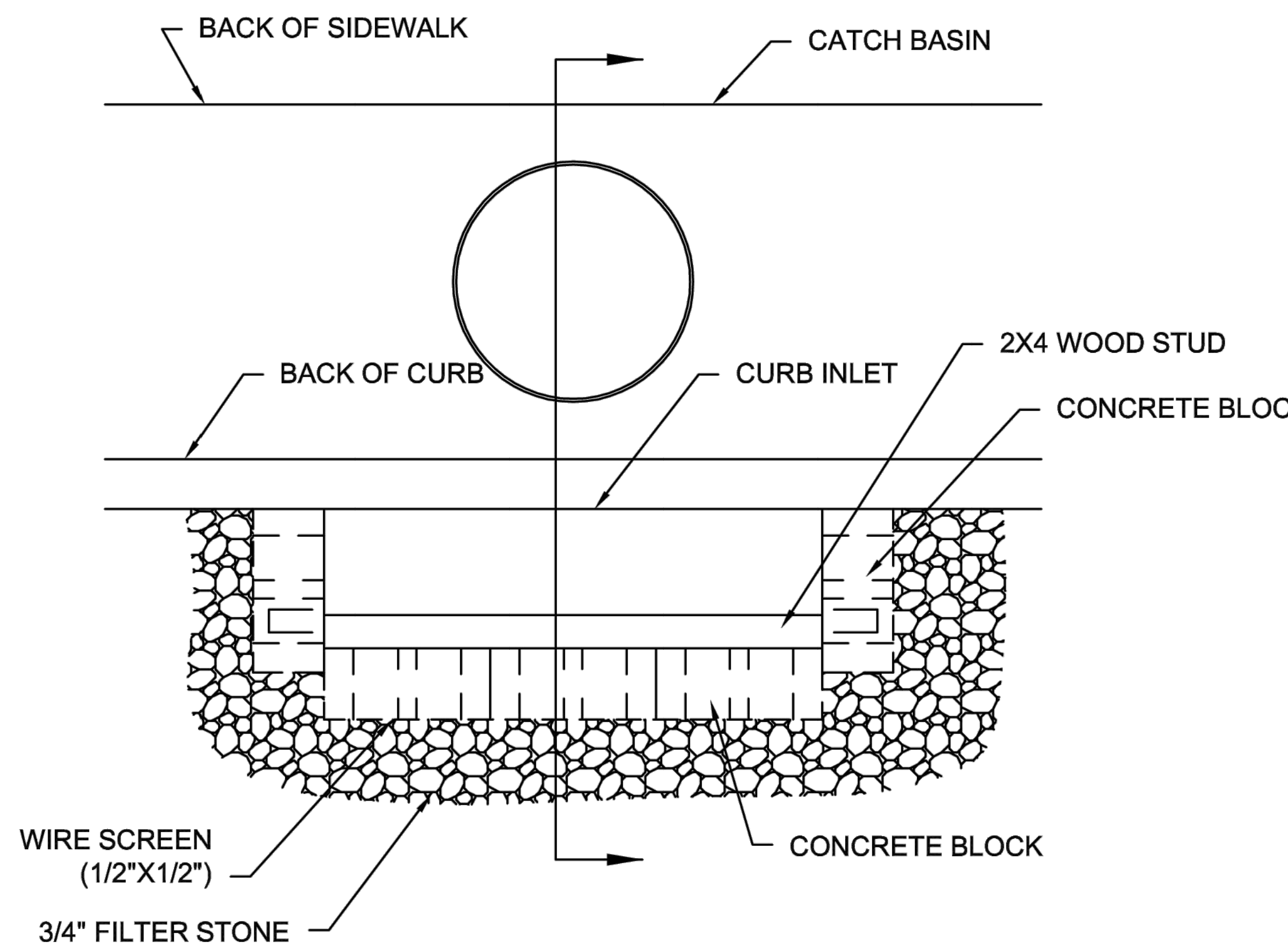
*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

ROCK CHECK DAM	 North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
		202.9 *	
		DATE	STANDARD DRAWING NO.
		OCT. '04	1060B

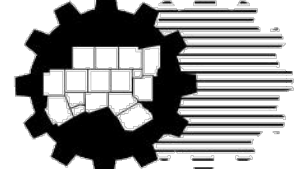
*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*



CROSS SECTION



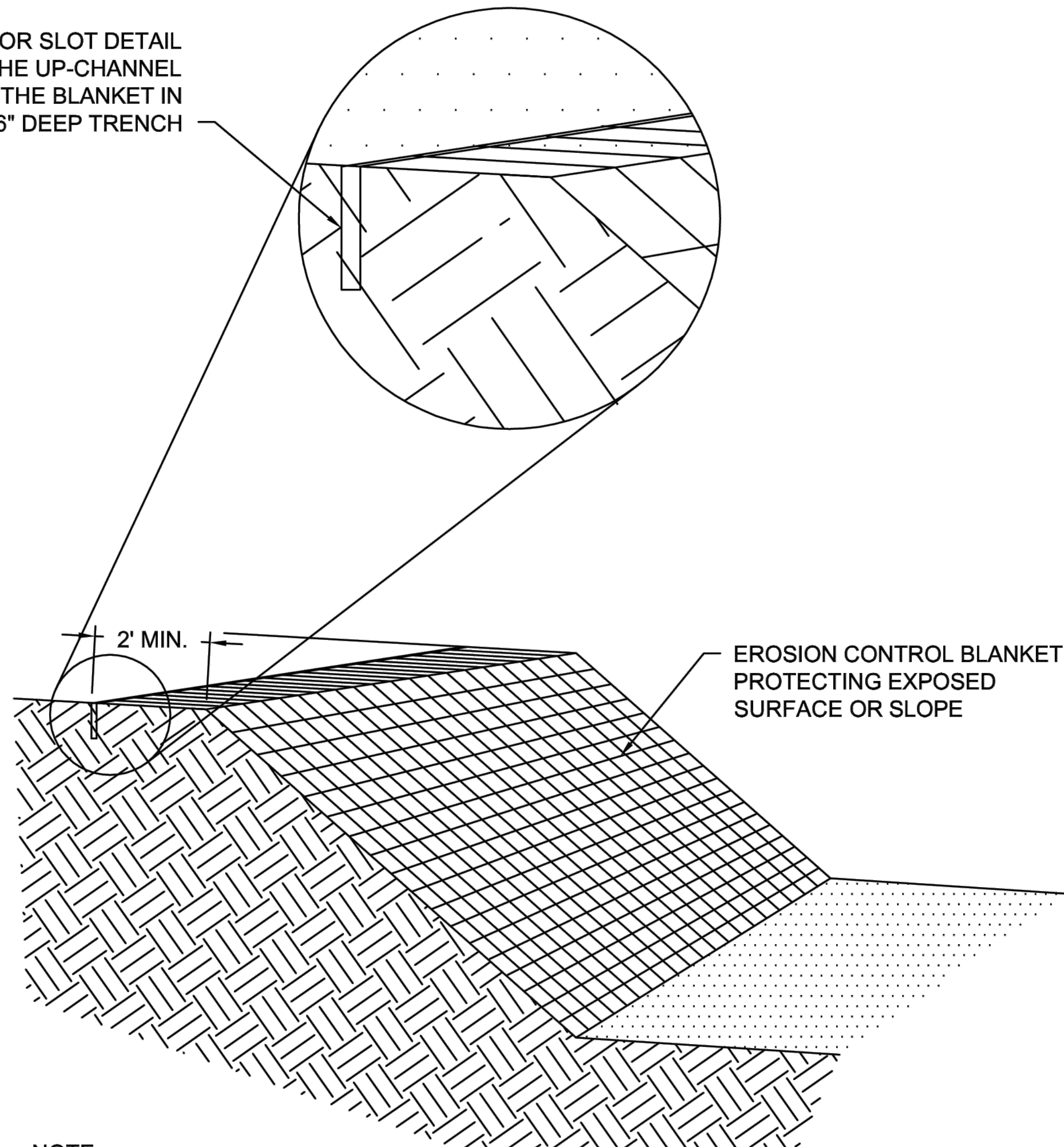
PLAN VIEW

INLET PROTECTION—CURB	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
		202.14 *	
		DATE	STANDARD DRAWING NO.
		OCT. '04	1140

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1 12/3/2024 REVISED STANDARD DRAWING TO CONFORM WITH SPECIFICATION VERSION BLJ

ANCHOR SLOT DETAIL
BURY THE UP-CHANNEL
END OF THE BLANKET IN
A 6" DEEP TRENCH



NOTE:
ANCHORING OF THE EROSION CONTROL BLANKETS SHALL BE
DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

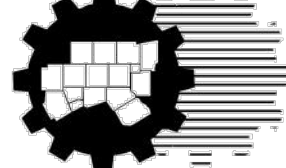
EROSION CONTROL BLANKETS GENERAL NOTES:

1. PRIOR TO THE INSTALLATION OF ANY EROSION CONTROL BLANKETS, ALL ROCKS, DIRT CLODS, STUMPS, ROOTS, TRASH AND ANY OTHER OBSTRUCTIONS THAT WOULD PREVENT THE BLANKET FROM LYING IN DIRECT CONTACT WITH THE SOIL SHALL BE REMOVED. ANCHOR TRENCHING SHALL BE LOCATED ALONG THE ENTIRE PERIMETER OF THE INSTALLATION AREA, EXCEPT FOR SMALL AREAS WITH LESS THAN 2% SLOPE.
2. INSTALLATION AND ANCHORING SHALL CONFORM TO THE RECOMMENDATIONS SHOWN WITHIN THE MANUFACTURER'S PUBLISHED LITERATURE FOR THE APPROVED EROSION CONTROL BLANKET. PARTICULAR ATTENTION MUST BE PAID TO JOINTS AND OVERLAPPING MATERIAL.
3. AFTER APPROPRIATE INSTALLATION, THE BLANKETS SHOULD BE CHECKED FOR UNIFORM CONTACT WITH THE SOIL, SECURITY OF THE LAP JOINTS, AND FLUSHNESS OF THE STAPLES WITH THE GROUND.
4. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP.

1 12/3/2024 REVISED STANDARD DRAWING TO CONFORM WITH SPECIFICATION VERSION BLJ

EROSION CONTROL BLANKETS	North Central Texas Council of Governments 	STANDARD SPECIFICATION REFERENCE 202.15 *	
		DATE OCT. '04	STANDARD DRAWING NO. 1160A

*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

EROSION CONTROL BLANKETS	North Central Texas Council of Governments 	STANDARD SPECIFICATION REFERENCE 202.15 *	
		DATE OCT. '04	STANDARD DRAWING NO. 1160B

*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

Last edit on: 12/3/2024 8:27 AM by: BLJ01713
Drawing Name: C:\Users\BLJ01713\Documents\Bartlett & West\20263.002 - Lewisville Headwall Replace M&R\Project Files\AutoCAD\Plan Set\20263.002_C_EROSION CONTROL STANDARD DETAILS.dwg Layout Name: DRY RIPRAP Plotted By: BLJ01713 Plotted on: 12/3/2024 8:28:42 AM

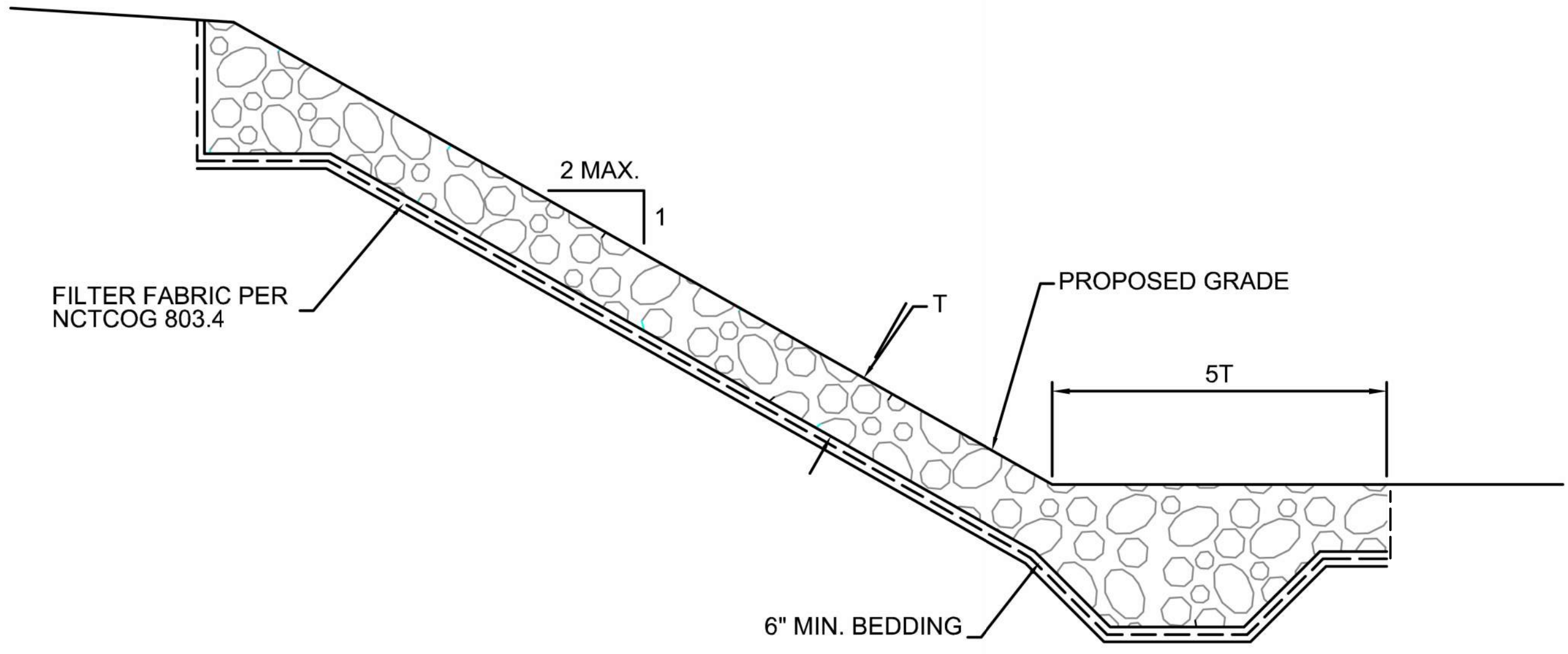
#	DATE	DESCRIPTION
1	12/3/2024	REVISED STANDARD RIPRAP DETAILS

Bartlett & West
 4500 MERCANTILE PLAZA, SUITE 301 - FT. WORTH
 PHONE 888.200.6464 - FAX 785.273.8735
 TEXAS PERMITS ONLY bartlettandwest.com

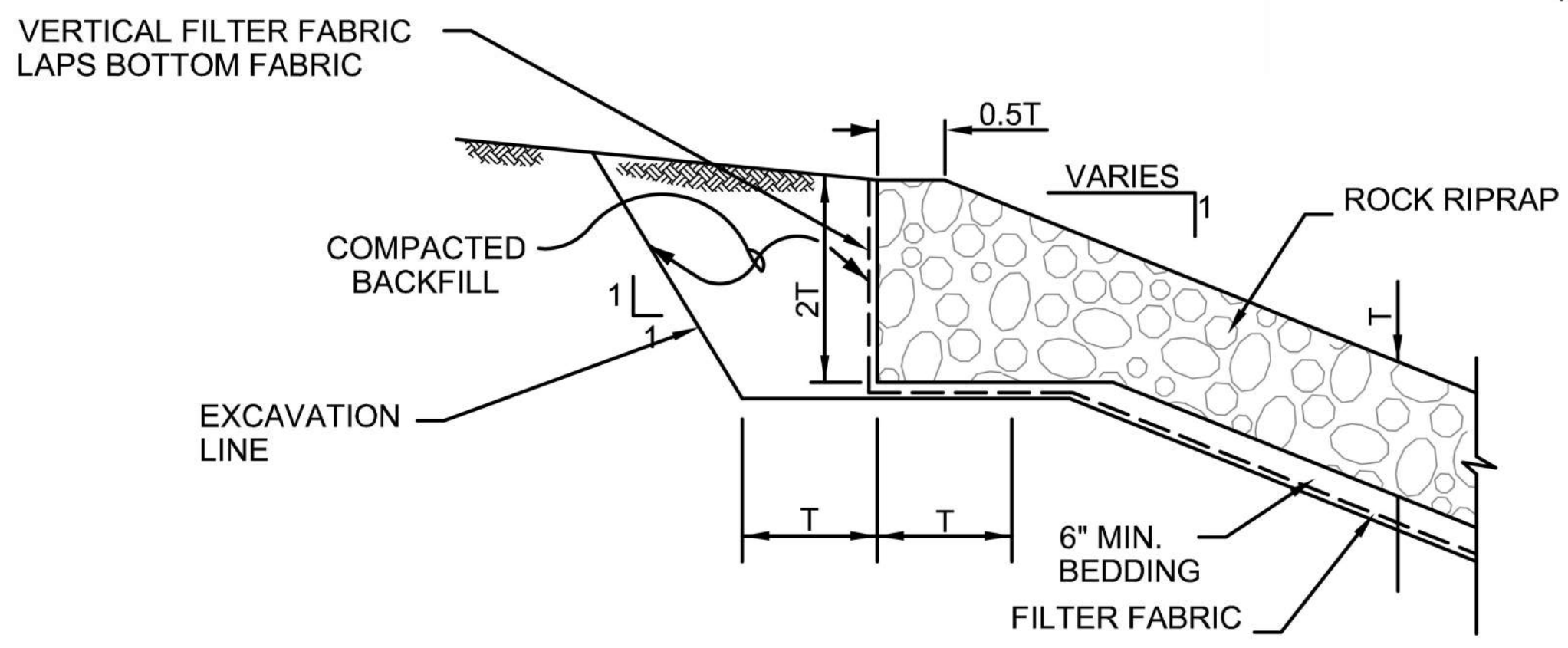
DRY RIPRAP TYPE C
 HEADWALL & WINGWALL REPLACEMENT
 MARCHANT PLACE & RIDGEWAY CIRCLE
 CITY OF LEWISVILLE, DENTON COUNTY, TX

STATE OF TEXAS
 JAMES EDWARD BROWNE
 62207
 LICENSED PROFESSIONAL ENGINEER
James E. Browne
 12-03-2024

SEALED DATE:	=====
DESIGNED BY:	JEB
DRAWN BY:	BLJ
APPROVED BY:	TMM
DESIGN PROJ:	20263.002
DATE:	12/2/2024
DRAWING NO:	29
SHEET NO:	29 of 32

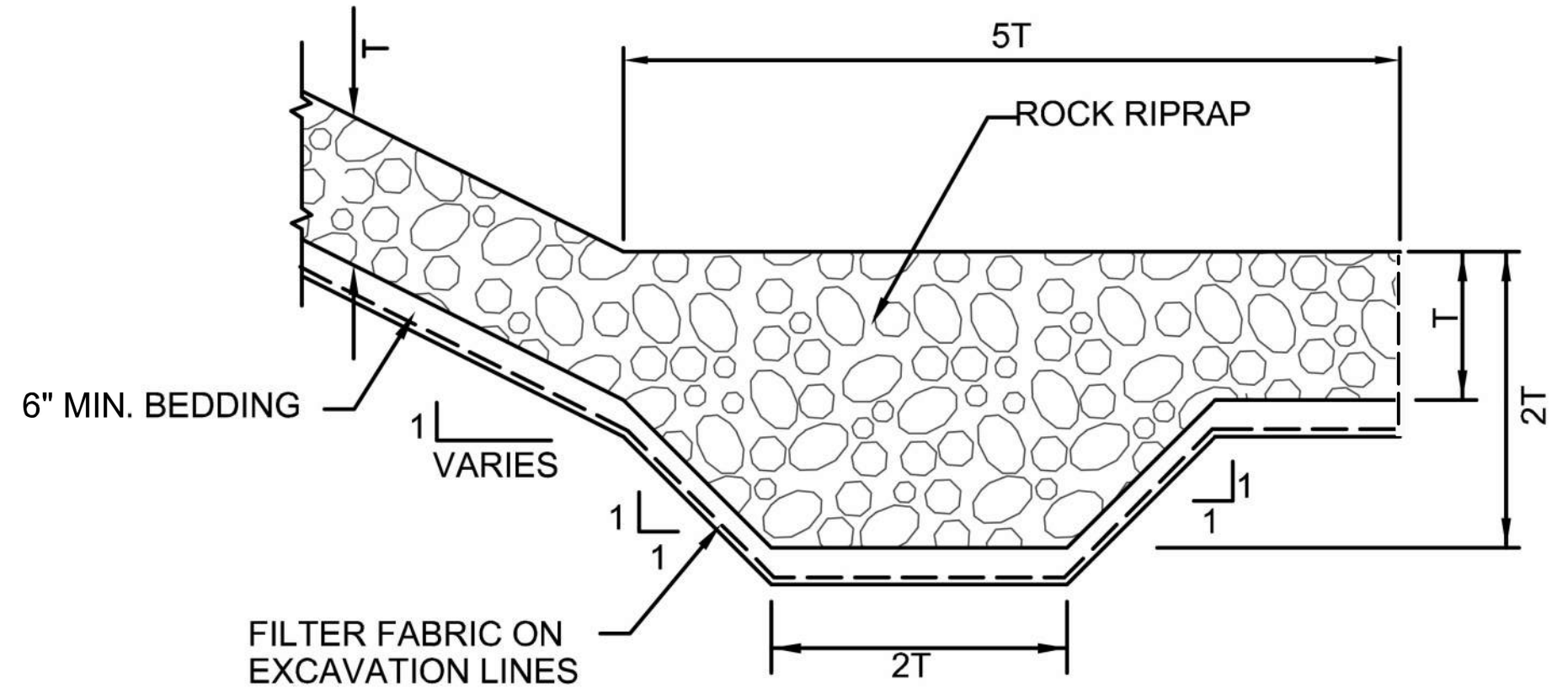


TYPICAL ROCK RIPRAP SLOPE PROTECTION SECTION
 N.T.S.

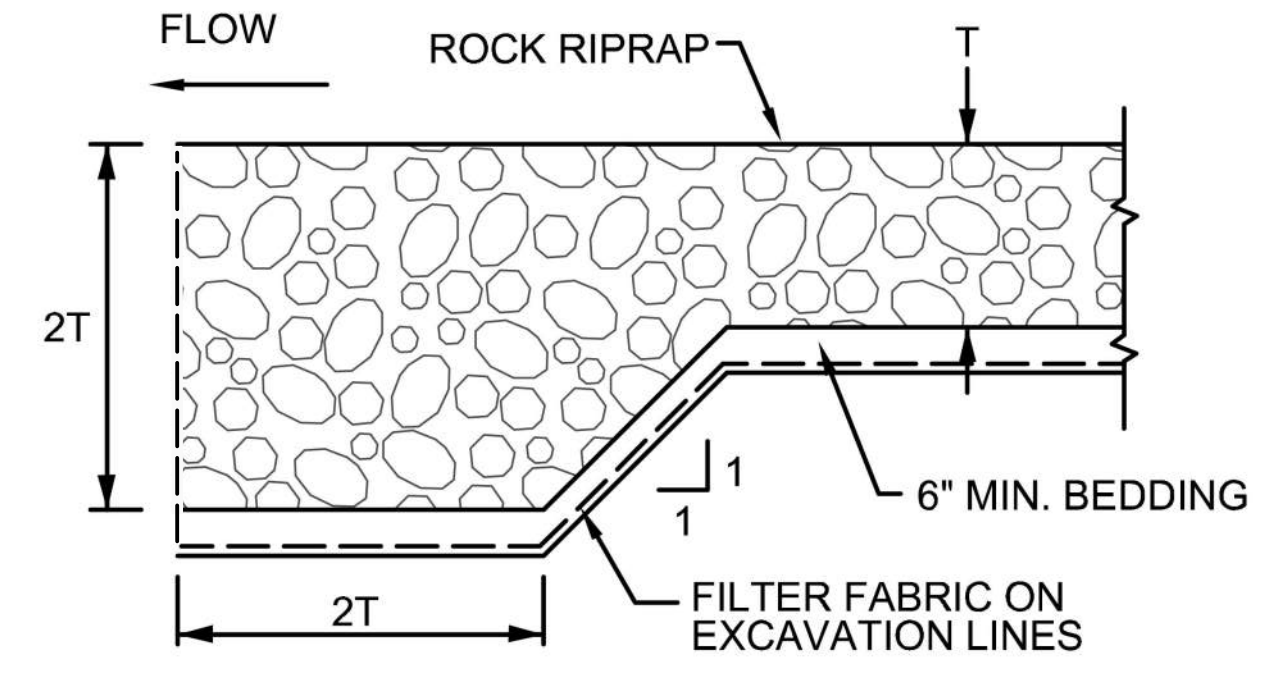


ROCK RIPRAP TOP OF BANK DETAIL
 N.T.S.

- ROCK RIPRAP DRY OR GROUTED AS SHOWN ON EROSION CONTROL PLANS
 - FILTER FABRIC SPLICES SHALL HAVE A MINIMUM 18 INCHES OVERLAP
 - DETERMINE GRADATION FOR d_{50} WELL GRADED STONE
 - MEDIAN STONE DIAMETER d_{50} AND MAXIMUM STONE DIAMETER d_{100} , FEET
 - SIZING OF $d(\min)$, $d(50)$, AND $d(100)$ AS DETERMINED BY OWNER
- $T = 1.5 \times d_{50}$
 $d_{\min} = 3.4 \text{ in.}$
 $d_{50} = 7.3 \text{ in.} - 9.9 \text{ in.}$
 $d_{100} = 13.75 \text{ in.}$

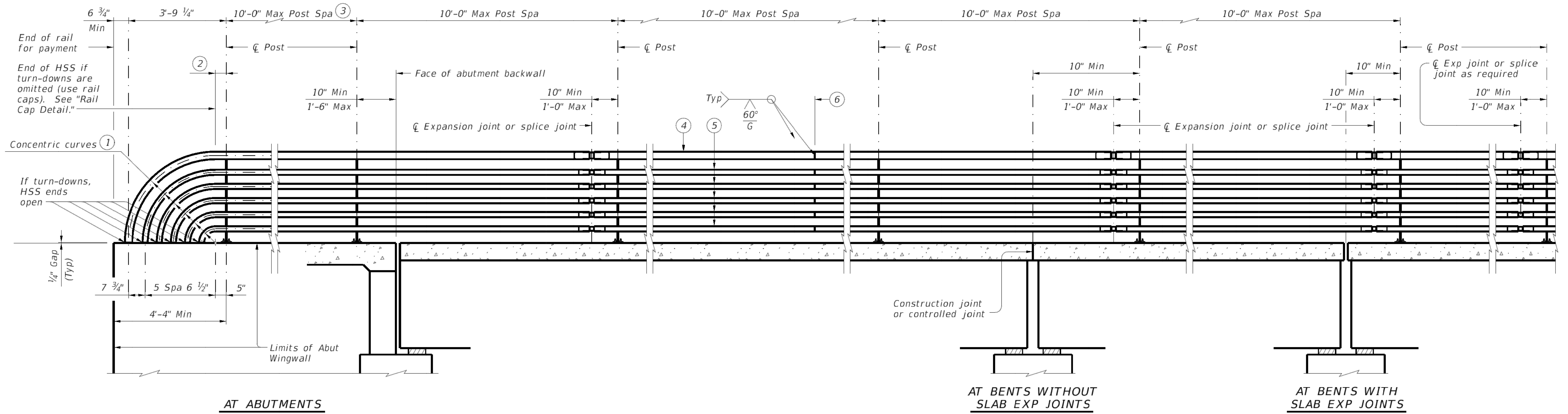


ROCK RIPRAP TOE OF SLOPE DETAIL
 N.T.S.

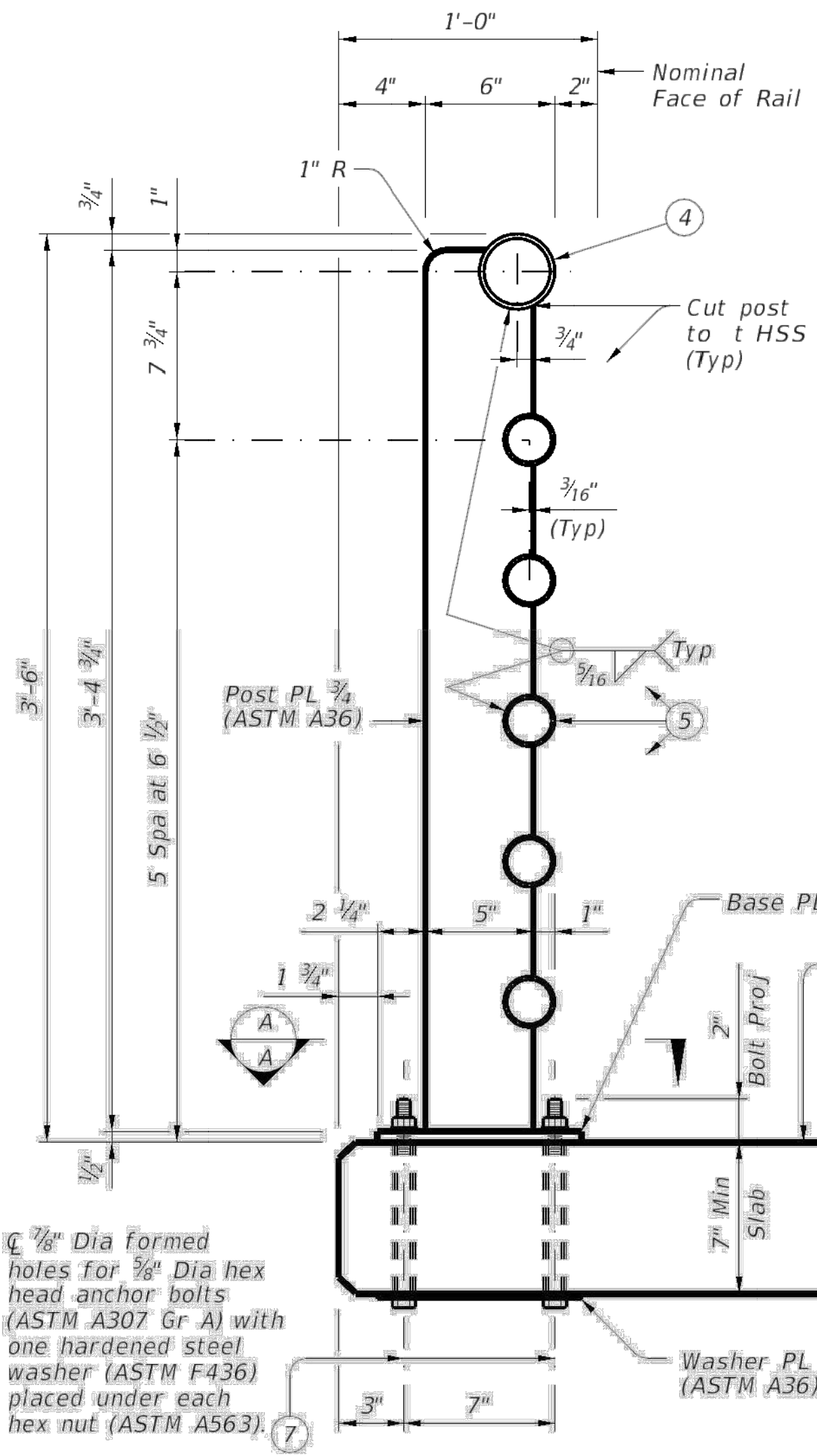


UPSTREAM ROCK RIPRAP TOE WALL DETAIL
 N.T.S.

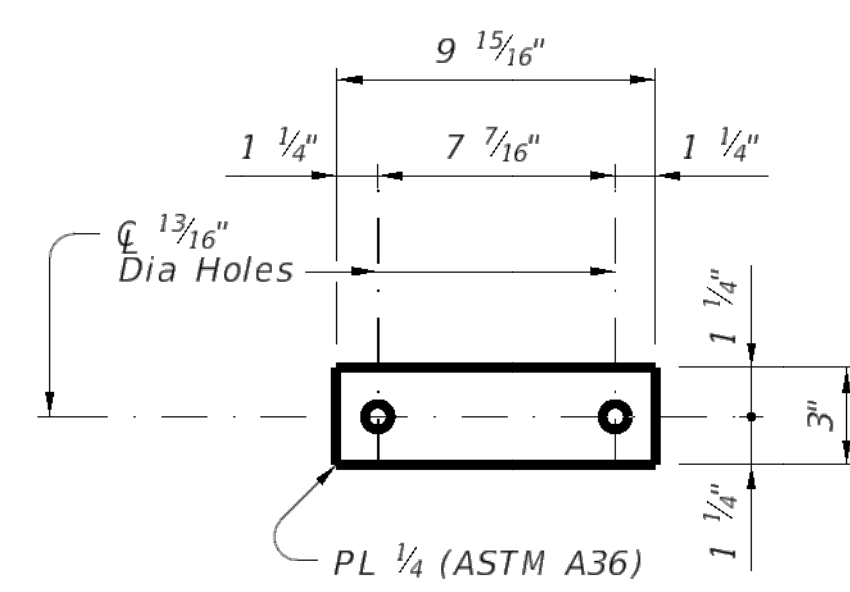
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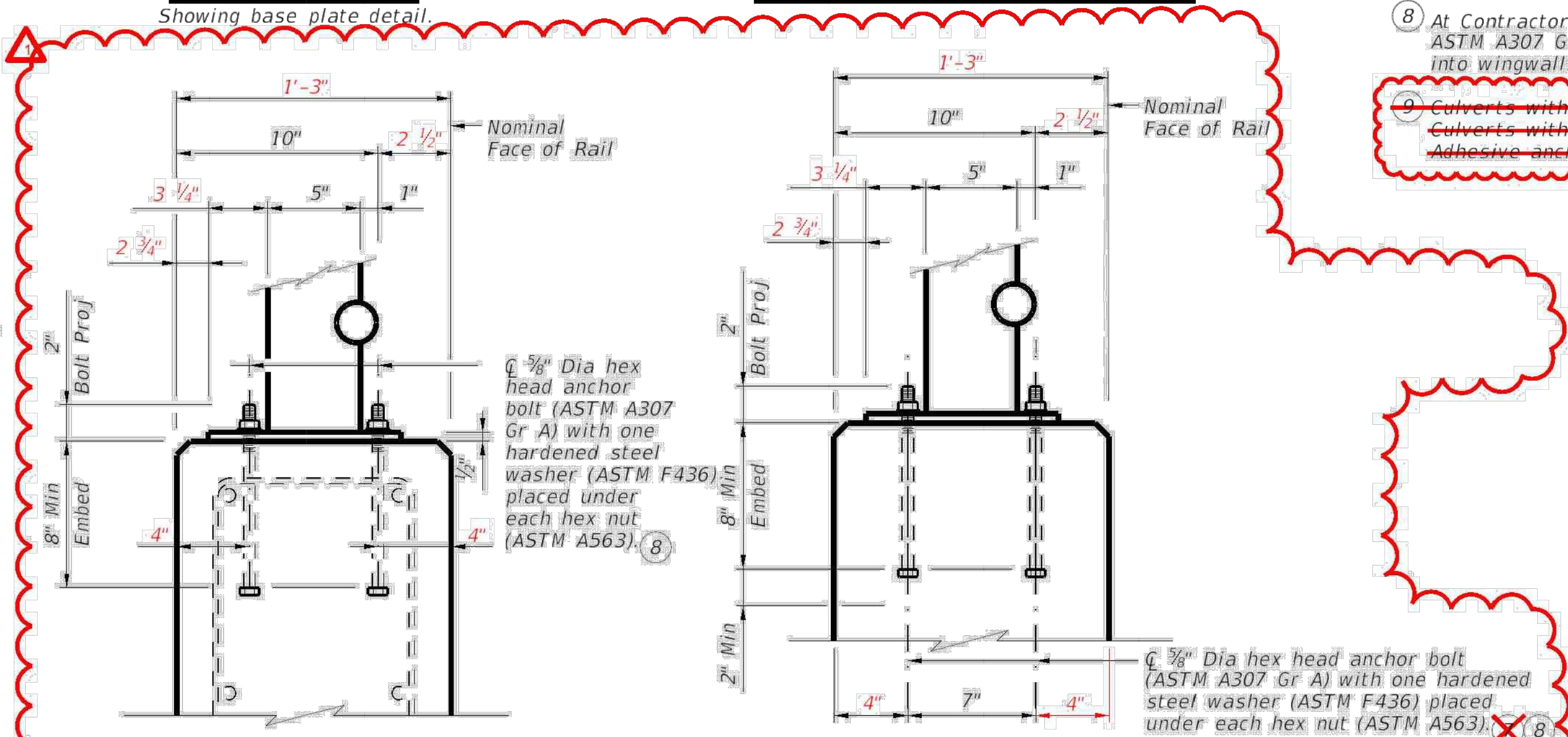
ROADWAY ELEVATION OF RAIL



SECTION A-A
Showing base plate detail.



WASHER PLATE DETAIL



SECTIONS THRU RAIL

- ① Portion of railing with turn-downs to be used or omitted as indicated on Bridge Layout.
- ② 10" Min ~ 1'-6" Max if turn-downs are omitted.
- ③ Min of 2 posts required on wingwall.
- ④ HSS 3.500 x 0.216 (Rail Member)
- ⑤ HSS 2.375 x 0.154 (Rail Member)
- ⑥ One shop splice per panel is permitted (with minimum 85 percent penetration). The weld may be square groove or single V groove. Grind smooth.
- ⑦ At Contractor's option, adhesive anchors may be used. Adhesive anchors must be 5/8" Dia ASTM A307 Grade A fully threaded rods. Minimum adhesive anchor embedment depth is 5" into slabs or culverts without curbs. See "Material Notes" for adhesive anchor requirements.
- ⑧ At Contractor's option, adhesive anchors may be used. Adhesive anchors must be 3/4" Dia ASTM A307 Grade A fully threaded rods. Minimum adhesive anchor embedment depth is 7" into wingwalls or culverts with curbs. See "Material Notes" for adhesive anchor requirements.

~~⑨ Culverts without curbs for cast in place anchor bolts require a 10" Min slab thickness. Culverts with curbs for cast in place anchor bolts require a curb plus slab thickness of 10" Min. Adhesive anchors may be used with a 7" Min slab thickness or culverts with curbs.~~

ON BRIDGE SLAB
MOUNTING ON TRF OR HEADWALL (SIM)

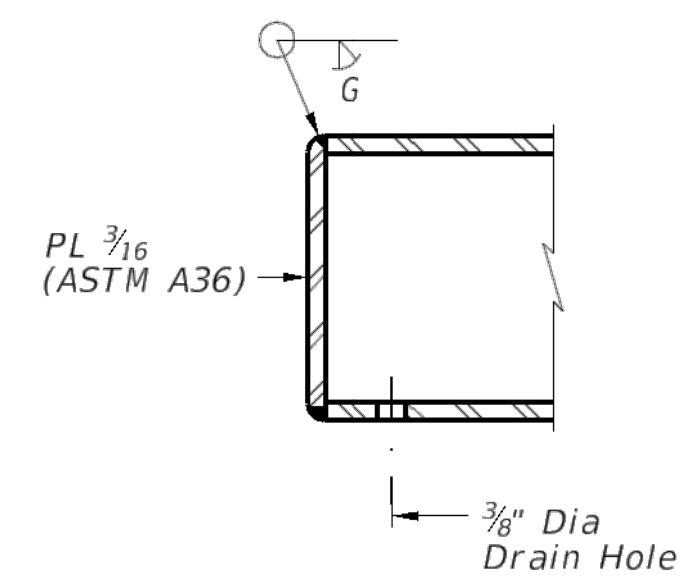
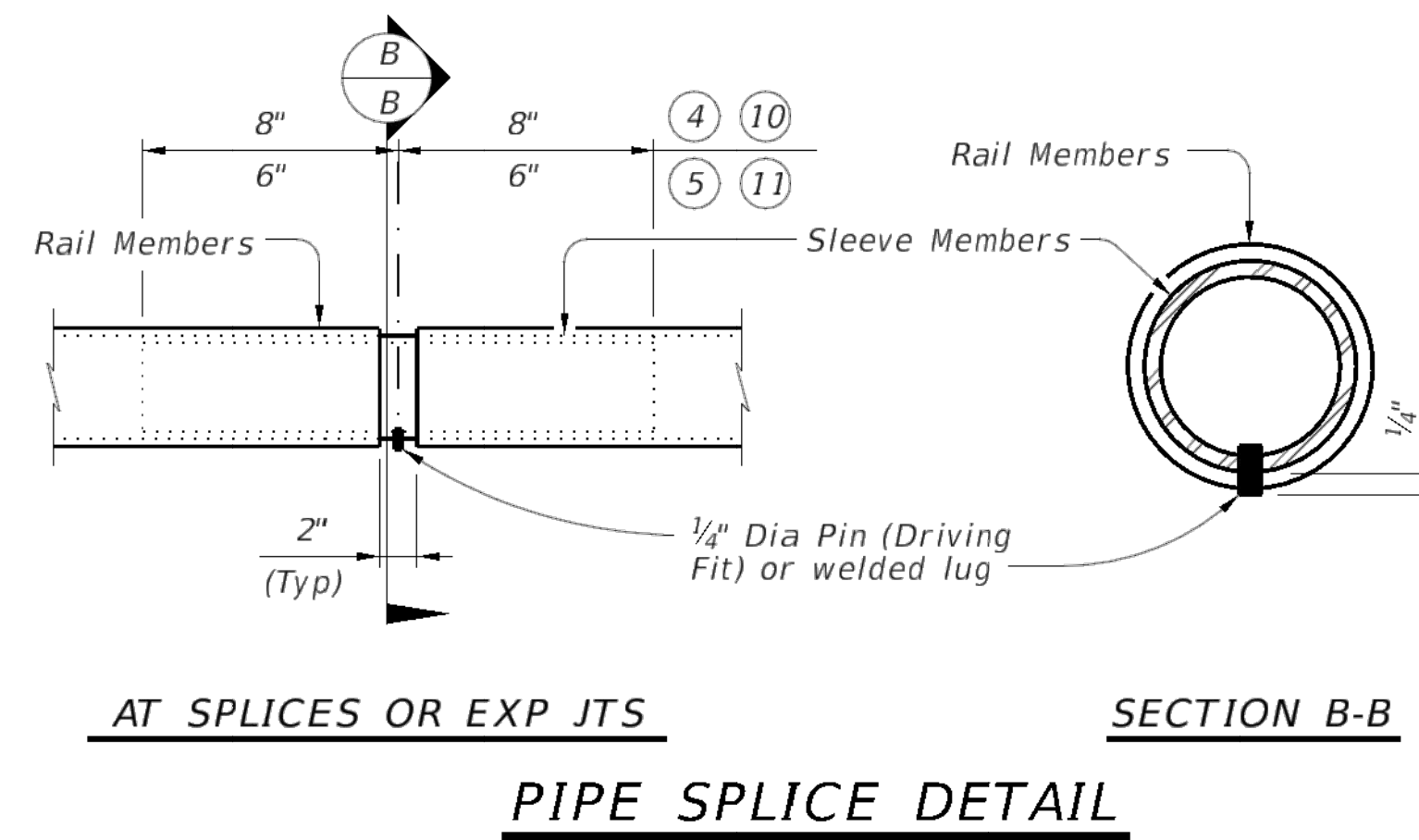
ON CULVERT HEADWALLS
Used with 1'-0" Min thick parallel wings on culverts.

SHEET 1 OF 2

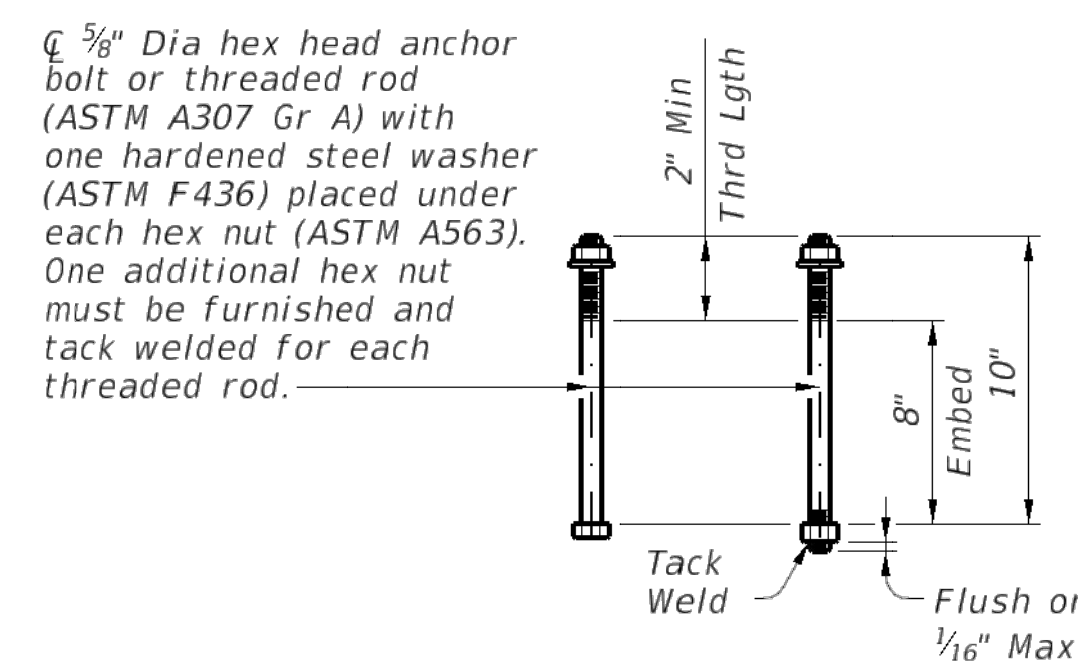
		Bridge Division Standard	
PEDESTRIAN RAIL			
TYPE PR11 (MOD) TYPE PR11			
FILE:	DATE:	DESIGNED BY:	CHECKED BY:
CJ/TxDOT	September 2019	JEB	JEB
REVISIONS		CONTRACT NO.:	SECTION NO.:
7-19-2024 Modified for use with TRF (MOD)		DESIGN NO.:	COUNTY:
			SHEET NO. 30 of 32

STATE OF TEXAS
JAMES EDWARD BROWNE
62207
LICENSED PROFESSIONAL ENGINEER
James E. Browne
9-13-2024

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- ④ HSS 3.500 x 0.216 (Rail Member)
- ⑤ HSS 2.375 x 0.154 (Rail Member)
- ⑩ HSS 2.875 x 0.203 (Sleeve Member)
- ⑪ HSS 1.900 x 0.145 (Sleeve Member)



CONSTRUCTION NOTES:

Panel lengths of railing must be attached to a minimum of three posts except at abutment wingwalls.
 At the Contractor's option anchor bolts may be an adhesive anchorage system. See "Material Notes."
 Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 3 anchors per 100 anchors installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.
 Face of rail and posts must be vertical transversely unless otherwise approved. Posts must be perpendicular to adjacent roadway grade. Use Type VIII epoxy mortar under post base plates if gaps larger than 1/16" exist.
 For curved railing applications, fabricate the HSS rail to the radius when the radius is 600' or less. Submit shop drawings for approval when tubes are required to be fabricated to a radius. Shop drawings must be submitted to the Engineer for approval.
 Round or chamfer all exposed edges of steel components 1/16" by grinding prior to galvanizing.

MATERIAL NOTES:

Provide ASTM A500 Gr B, A1085 or A53 Gr B for all HSS.
 Galvanize all metal components of steel rail system. Apply additional coatings when shown elsewhere on the plans. When plans require paint over galvanizing, follow the requirements for painting galvanized steel in Item 445, "Galvanizing" and when field painting, Item 446, "Field Cleaning and Painting Steel." Sleeve members and anchor bolts must receive galvanization prior to installation and only field paint after installation unless directed otherwise by Engineer.
 Anchor bolts must be 3/8" Dia ASTM A307 Gr A with one hardened steel washer (ASTM F436) placed under each hex nut or ASTM A307 Gr A threaded rods with one tack welded hex nut each and with one hex nut with one hardened steel washer (ASTM F436) each. Nuts must conform to ASTM A563 requirements.
 Optional adhesive anchorage system must be 3/8" Dia ASTM A307 Gr A fully threaded rods with one hex nut and one hardened steel washer (ASTM F436). Nuts must conform to ASTM A563 requirements. Embed fully threaded rods into slab, wingwalls, or culvert curbs using a Type III, Class C, D, E, or F anchor adhesive. Anchor adhesive chosen must be able to achieve a nominal bond strength in tension, Na, of a single anchor of 10 kips (edge distance must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.
 Do not use this railing on bridges with expansion joints providing more than 5" movement.
 Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.
 For all rails, submit erection drawings showing section lengths, splice locations, rail post spacing and anchor bolt setting for approval. Average weight of railing is 30 pcf.

SHEET 2 OF 2

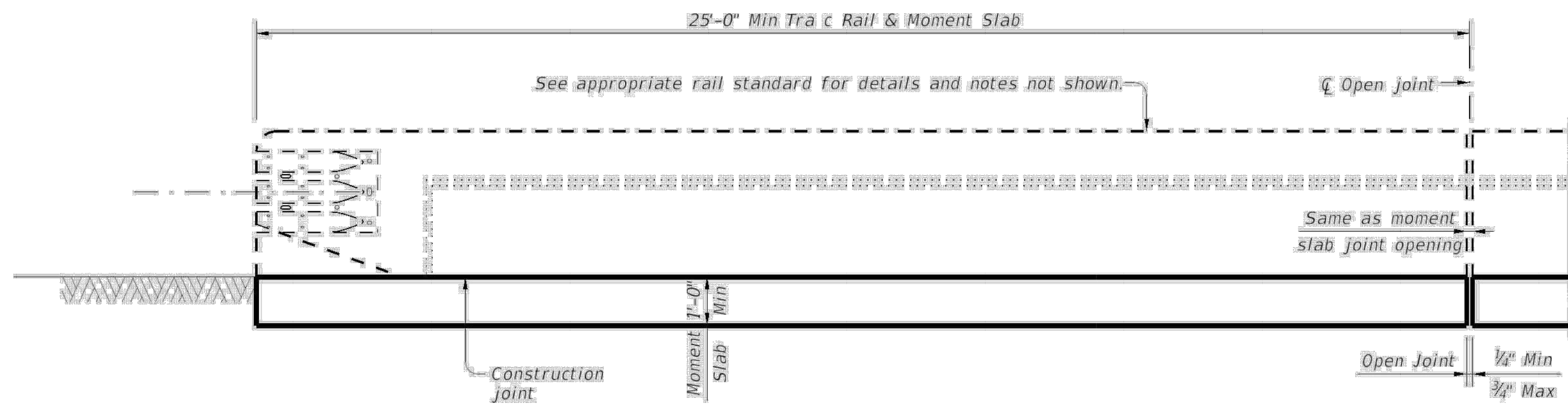
Texas Department of Transportation		Bridge Division Standard
PEDESTRIAN RAIL		
TYPE PR11 (MOD) TYPE PR11		
FILE:	CON: JEB	EKS
C/TxDOT	September 2019	CONF: SECT: JOB: HIGHWAY:
REVISIONS		
7-19-2024	Modified for use with TRF (MOD)	IDEST: COUNTY: SHEET NO.:
		31 of 32



DATE:
FILE:

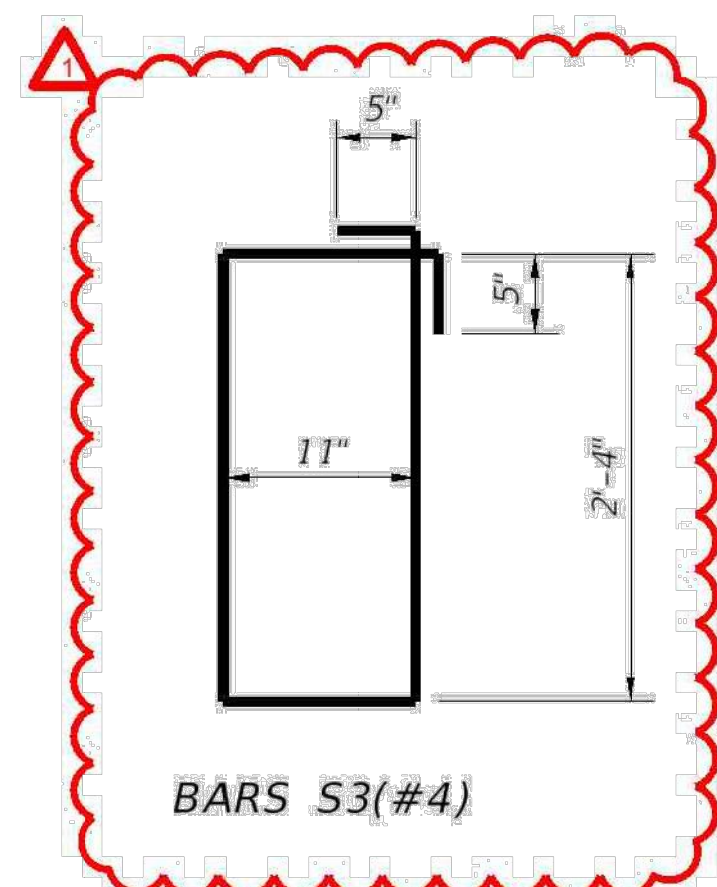
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DATE: FILE:



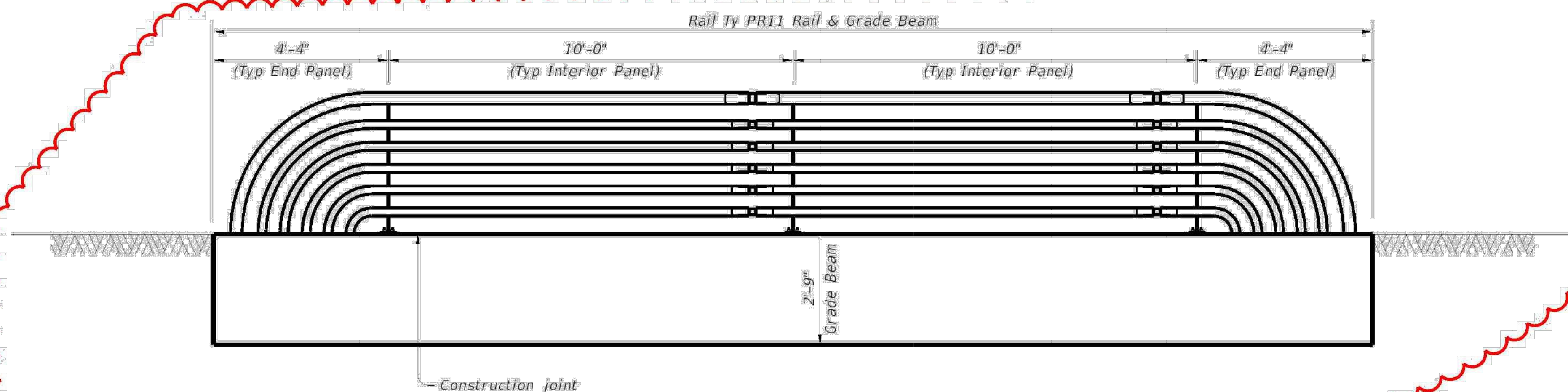
ROADWAY ELEVATION OF TRAFFIC RAIL ON MOMENT SLAB (TRF-MS)

(Showing SSTR rail other rails are similar. Reinforcing not shown for clarity.)



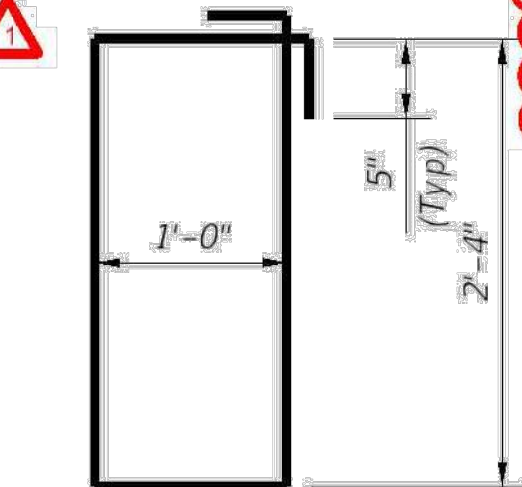
BARS S3(#4)

- 1 See applicable bridge rail standard.
- 2 ~~MA(#5) space longitudinally along moment slab at 12" Max. (Spaced 2 1/2" longitudinally from outside edge of moment slab).~~
- 3 ~~Approximate moment slab concrete = 0.19 CY/LF and reinforcement = 22.4 LB/LF.~~
- 4 ~~S1(#4) or S2(#4) or S3(#4) spaced longitudinally along grade beam at 8" Max. (Spaced 2 1/2" longitudinally from end of grade beam).~~
- 5 ~~Use bar S1(#4) with 1'-4" grade beam width and bridge rail types. All rails except for T224, C412, T66, C66, T80HT and T8055. Approximate grade beam concrete = 0.14 CY/LF and reinforcement = 13.8 LB/LF.~~
- 6 ~~1'-6" for bridge rail types. All rails except for T224, C412, T66, C66, T80HT and T8055. 1'-9" bridge rail types: T66 and C66.~~
- 7 ~~Modify reinforcing on standard bridge rail anchorage if necessary by extending rail anchorage 12" Min. vertically into traffic rail.~~
- 8 Use bar S3(#4) with 1'-3" grade beam width and bridge rail type PR11. Approximate grade beam concrete = 0.12 CY/LF and reinforcement = 13.2 LB/LF.
- 9 1'-5" for bridge rail type PR11.

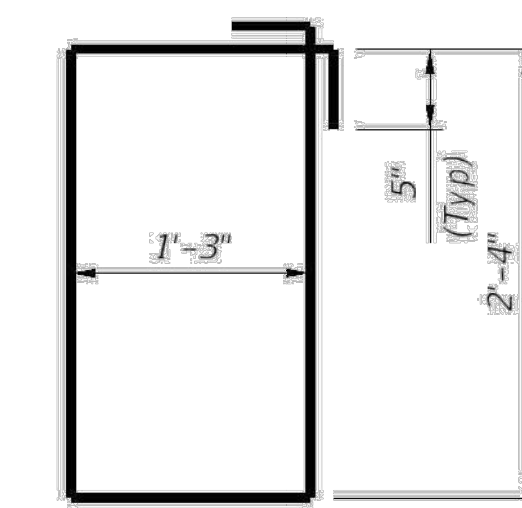


ROADWAY ELEVATION OF PEDESTRIAN RAIL ON GRADE BEAM (TRF-GB)

(Showing SSTR rail other rails are similar. Reinforcing not shown for clarity.)



BARS S1(#4)



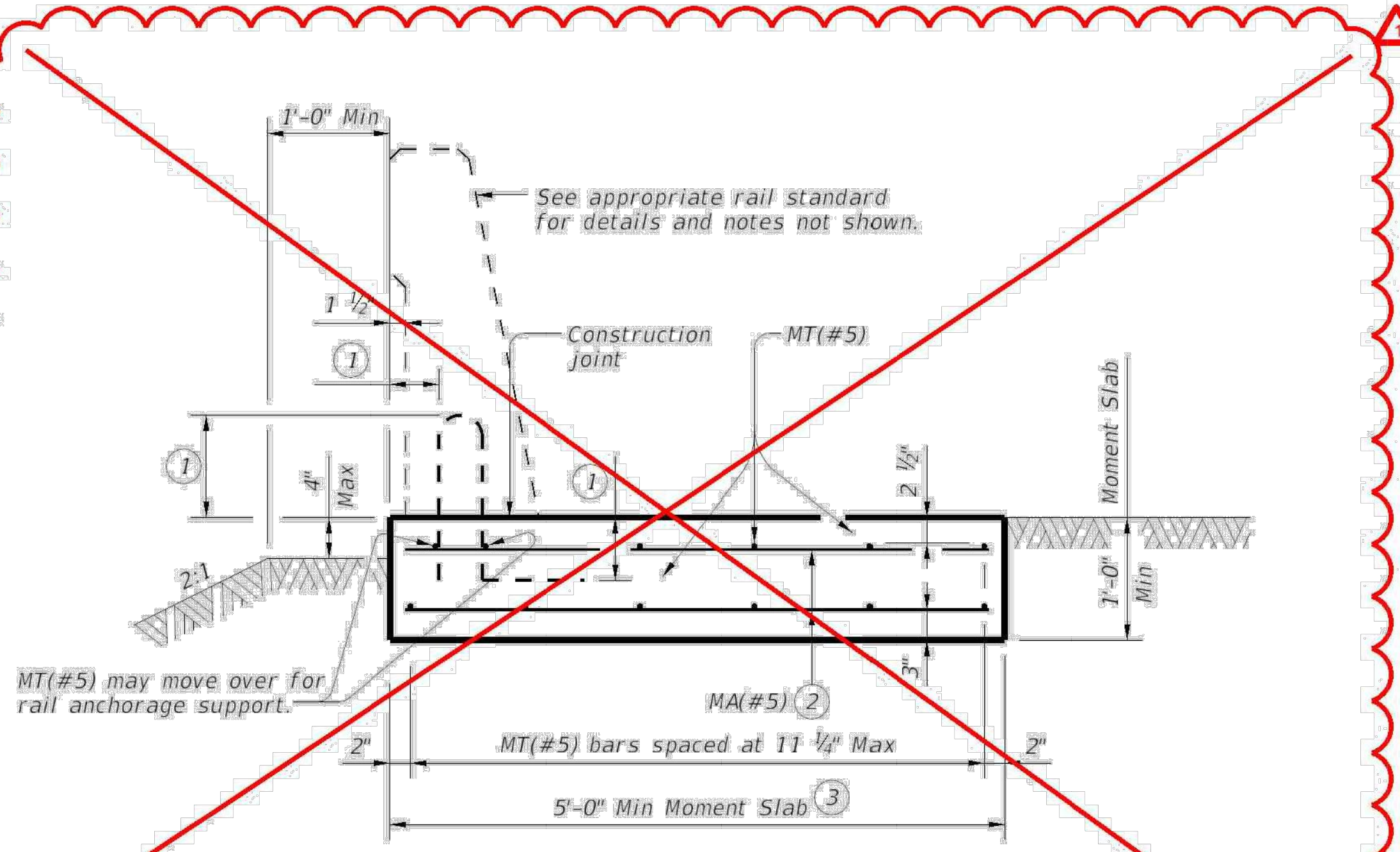
BARS S2(#4)

CONSTRUCTION NOTES:
Align moment slab (TRF-MS) or grade beam (TRF-GB) open joints with rail open joints maintaining no less than minimum rail length. Provide moment slab (TRF-MS) or grade beam (TRF-GB) with open joints at no greater than 100' spacing unless otherwise shown on the plans or approved by the Engineer.

MATERIAL NOTES:
Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.
Provide Grade 60 reinforcing steel.
Epoxy coat or galvanize all reinforcing steel if required elsewhere.
Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for bars S1(#4), S2(#4) and H(#5) unless noted otherwise. Provide the same laps as required for reinforcing bars.
Provide bar laps, where required, as follows:
Uncoated or galvanized - #5 = 2'-4"
Epoxy coated - #5 = 3'-6"

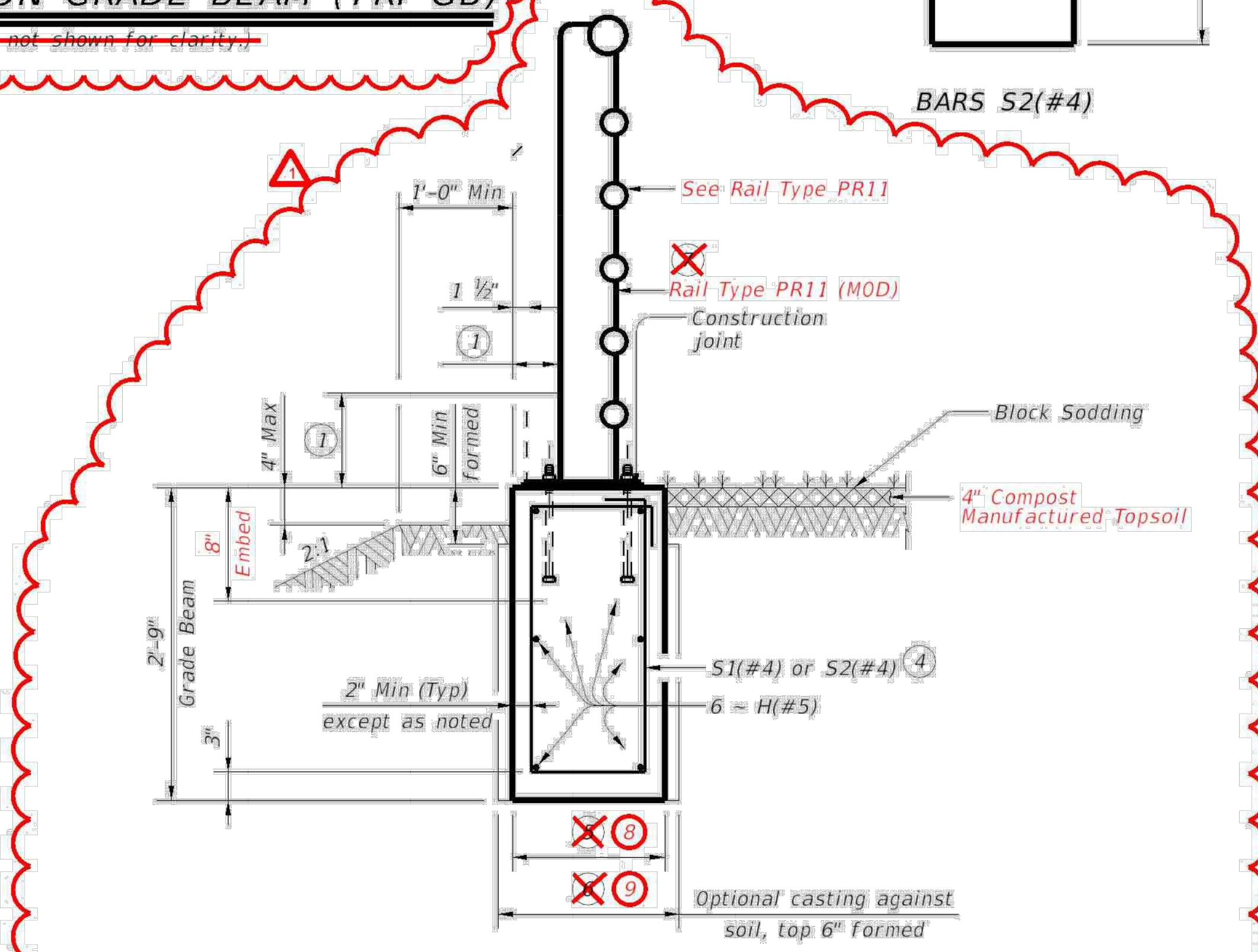
GENERAL NOTES:
Use of these details will result in a moment slab (TRF-MS) or grade beam (TRF-GB) foundation that is acceptable for traffic rails which are MASH TL-2, TL-3, or TL-4 compliant.
See elsewhere in the plans for selected options between moment slab (TRF-MS) and/or grade beam (TRF-GB).
The foundation design resistance is based on the current AASHTO bridge railing requirements with the assumption of fair to good soil support conditions. Poor soil conditions will require suitably deeper and/or wider foundations.
See appropriate rail standard for details and notes not shown. This detail is intended for use as a guide to unusual railing anchorage situations but may be included in the plans, modified as necessary to apply to special installations required on the project.
Payment for moment slab (TRF-MS) and/or grade beam (TRF-GB) will be by Class "C" concrete or Class "C" (HPC) concrete for rail foundations.
The associated bridge railing will be paid for by the linear foot which includes the concrete and reinforcement.
Excavation will be subsidiary to other items.

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



SECTION OF TRAFFIC RAIL ON MOMENT SLAB (TRF-MS)

(Showing SSTR rail other rails are similar.)



SECTION OF TRAFFIC RAIL ON GRADE BEAM (TRF-GB)

(Showing Pedestrian Rail Type PR11(MOD))



James C. Flynn
9-13-2024

Texas Department of Transportation		Bridge Division Standard	
TRAFFIC RAIL FOUNDATIONS FOR MASH TL-2, TL-3 & TL-4 BRIDGE RAILS			
TRF (MOD)			
FILE:	CON: JEB	ENR: KEG	DWG: BLJ
C:\TxDOT	September 2019	CONF: SECT	JOB: HIGHWAY
REVISIONS			
07-2011	Added moment slab with rail foundation details.	DISP:	COUNTY: SHEET NO.
7-19-2024	Modified for use with Ped Rail Ty PR11 (MOD)		32 of 32