



LOWER EAST FORK LATERALS OF THE TRINITY WATERSHED FLOODWATER RETARDING STRUCTURE NO. 3 UPGRADE KAUFMAN COUNTY, TEXAS

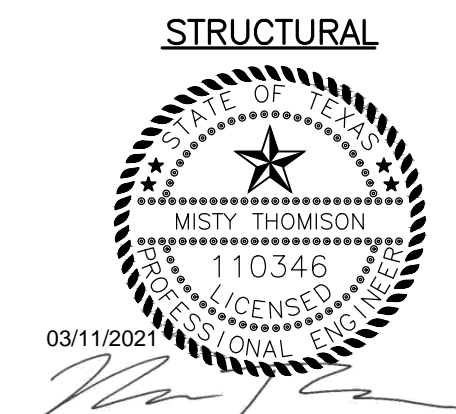
DRAINAGE AREA	1342 ACRES
TOTAL STORAGE	1824 AC. FT.
EFFECTIVE HEIGHT OF DAM	25.5 FEET

SPONSORED BY
KAUFMAN-VAN ZANDT SOIL AND WATER CONSERVATION DISTRICT #505
KAUFMAN COUNTY

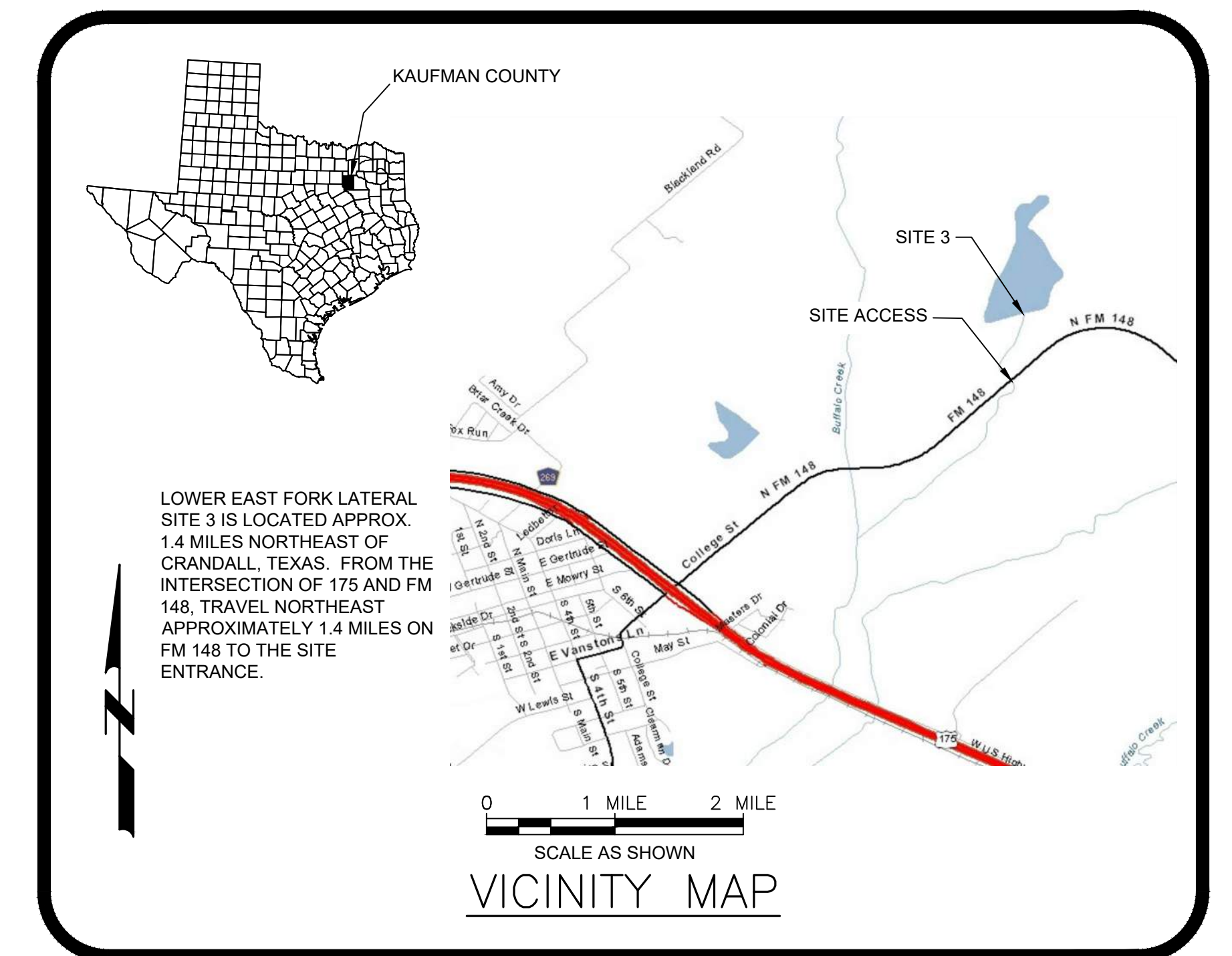
COOPERATING WITH
NATURAL RESOURCES CONSERVATION SERVICE
OF THE
U.S. DEPARTMENT OF AGRICULTURE
AND
TEXAS STATE SOIL AND WATER CONSERVATION BOARD

MARCH 2021
100% DELIVERABLE

COMPLIANCE CERTIFICATION
TO THE BEST OF OUR PROFESSIONAL KNOWLEDGE, JUDGEMENT,
AND BELIEF, THESE PLANS MEET APPLICABLE NRCS DESIGN CRITERIA.



SEE SHEET G-1 FOR INDEX OF DRAWINGS



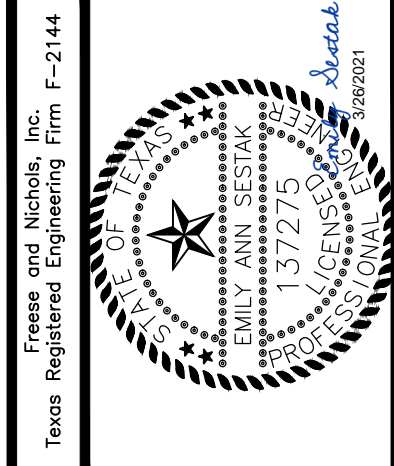
SYMBOLS LEGEND

	EXISTING PROPERTY LINE		EXISTING TREES
	EXISTING MAJOR CONTOUR		EXISTING TREE TO BE REMOVED
	EXISTING MINOR CONTOUR		BRUSHLINE
	PROPOSED MAJOR CONTOUR		CUT SLOPE
	PROPOSED MINOR CONTOUR		FILL SLOPE
	STREAM		ORIENTATION WHEN LOOKING DOWNSTREAM
	EXISTING FIELD FENCE		SECTION NUMBER
	EXISTING OVERHEAD ELECTRIC LINES		SHEET ON WHICH SECTION IS SHOWN
	EXISTING UNDERGROUND ELECTRIC LINES		DETAIL NUMBER
	EXISTING WASTEWATER LINES		SHEET ON WHICH DETAIL IS TAKEN
	CITY LIMITS		
	TEMPORARY EASEMENT		
	PERMANENT EASEMENT		
	LIMITS OF CONSTRUCTION		
	SILT FENCE		
	PROPOSED CHAINLINK FENCE		
	PROPOSED FIELD FENCE		
	WATER SURFACE BOUNDARY (XXX STORM EVENT)		
	PROPOSED HANDRAIL		
	STUB DIVERSION (APPROX. LOCATION SHOWN)		
	FENCE TO BE REMOVED		
	APPROX. LIMITS OF BORROW AREA		
	ORANGE SAFETY FENCE		
	EXISTING BOREHOLES		
	EXISTING POWER POLE		
	EXISTING BENCHMARK		
	EXISTING PIEZOMETER		
	DIRECTION OF STORMWATER RUNOFF		
	WATER LEVELS		
	PERMANENT REFERENCE MARKER (PRM) TO BE INSTALLED UNDER THIS CONTRACT - FIVE (5) REQUIRED (APPROX. LOCATIONS SHOWN. FINAL LOCATIONS SHALL BE AS STAKED)		
	CONTROL POINT		
	SIGNAGE		
	GUYLINE		
	CONCRETE		COMPACTED EARTHFILL, ZONE 1
	STABILIZED CONSTRUCTION ENTRANCE		SELECT BACKFILL, ZONE 2
	EXISTING WETLAND		FLEXIBLE BASE, ZONE 3
	AREA TO HAVE PERMANENT VEGETATION ESTABLISHED		AGGREGATE FILL, ZONE 4
	PROPOSED STAGING AREA		STEEL
	BORROW AREA		GROUT
	SPOIL AREA		
	TOPSOIL, PIPE WALL, OR STEEL		
	FINE DRAINFILL/FILTER		
	IN-SITU SOIL MATERIAL		
	ROCK RIPRAP OR COARSE DRAINFILL/FILTER		
	ITEMS TO BE REMOVED AND DISPOSED		
	ROCK RIPRAP BEDDING		

ABBREVIATIONS

'	FEET
ADD'L	ADDITIONAL
APPROX.	APPROXIMATELY
BL	BASELINE
BMP	BEST MANAGEMENT PRACTICE
BM	BENCH MARK
C/C	CENTER TO CENTER
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
C.J.	CONSTRUCTION JOINT
CT. J.	CONTRACTION JOINT
CLR	CLEAR
CVC	CONVENTIONAL CONCRETE
DEG.	DEGREES
ø	DIAMETER
D/S	DOWNSTREAM
DWLS	DOWELS
EA	EACH
E/F	EACH FACE
E/W	EACH WAY
E	EAST, EASTING
ELEV., EL.	ELEVATION
EQ	EQUALS
EQ SPA	EQUALLY SPACED
EXP JT	EXPANSION JOINT
EXIST.	EXISTING
FL	FLOWLINE
GE-RCC	GROUT-ENRICHED RCC
"	INCHES
I.D.	INSIDE DIAMETER
IF	INSIDE FACE
LOC	LIMITS OF CONSTRUCTION
MAX.	MAXIMUM
MIN.	MINIMUM
NOI	NOTICE OF INTENT
N	NORTH, NORTHING
N.T.S	NOT TO SCALE
O.C.	ON CENTER
OF	OUTSIDE FACE
PRM	PERMANENT REFERENCE MARKER
PSI	POUNDS PER SQUARE INCH
R	RADIUS
RCC	ROLLER COMPACTED CONCRETE
REINF.	REINFORCED, REINFORCING
SCH	SCHEDULE
SF	SILT FENCE
SHT.	SHEET
SIM.	SIMILAR TO
STD	STANDARD
STA	STATION
S.S.	STAINLESS STEEL
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
S.D.	STUB DIVERSION
T&B	TOP AND BOTTOM
TYP.	TYPICAL
U.N.O	UNLESS NOTED OTHERWISE
U/S	UPSTREAM
WPAP	WATER POLLUTION ABATEMENT PLAN
YR	YEAR

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DESIGNED BY: EAS
 DRAWN BY: NBB
 CHECKED BY: BEK & DGM
 FILE NAME: LEF3-GN-INDEX.dwg
 DATE CHECKED: 3/25/2021

INDEX, LEGEND, & ABBREVIATIONS
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
 TRINITY RIVER WATERSHED, TEXAS

FREES & NICHOLS
 801 Cherry Street, Suite 2800
 Fort Worth Texas 76102
 Phone - (817) 735-7330
 Web - www.freese.com

DRAWING NO.
 SHEET NO. **G-1**
 SEQUENCE NO. **1 OF 43**

REVISIONS		
DATE	APPROVED	TITLE

GENERAL NOTES

- PLANS AND SPECIFICATIONS WILL NOT BE SUBSTANTIALLY CHANGED WITHOUT EITHER WRITTEN AUTHORIZATION OF THE TCEQ EXECUTIVE DIRECTOR BEFORE THE WORK IS STARTED, OR NOTIFICATION OF THE CHANGES AS DEFINED IN 30 TAC 299.26, "CONSTRUCTION ORDERS".
- THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.
- CONTOURS WERE OBTAINED FROM SURVEY PERFORMED IN JANUARY OF 2020. CONTRACTOR SHALL MAKE SITE SURVEYS AS NECESSARY FOR CONSTRUCTION AND IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION 7, CONSTRUCTION SURVEYS. HORIZONTAL DATUM IS TEXAS STATE PLANE, NAD83, NORTH CENTRAL ZONE, 4204, US SURVEY FEET WITH A LOCALIZED SCALE FACTOR OF 1.00016. VERTICAL DATUM IS NAVD88.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS, INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY CONTRACTING OFFICER'S REPRESENTATIVE IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK.
- THE CONTRACTOR SHALL BE LIABLE FOR DAMAGE TO IMPROVEMENTS AND UTILITIES ALONG THE ACCESS ROUTE AND AT OR NEAR THE WORKSITE. UTILITIES MAY EXIST AND NOT BE SHOWN ON THE CONSTRUCTION DRAWINGS. THE SITE SHALL BE CAREFULLY SCRUTINIZED FOR EVIDENCE OF UTILITIES. AT A MINIMUM, PRIOR TO ANY GROUND DISTURBANCE, THE TELEPHONE NUMBER 811 SHALL BE CALLED TO ASCERTAIN IF UNDERGROUND UTILITIES EXIST IN THE GENERAL WORK AREA. CALLING THIS TELEPHONE NUMBER WILL ONLY ASCERTAIN THE EXISTENCE OF UNDERGROUND UTILITIES OWNED BY COMPANIES THAT SUBSCRIBE TO THIS ORGANIZATION. THERE MAY BE OTHER UNDERGROUND UTILITIES IN THE WORK AREA.
- THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER'S REPRESENTATIVE OF ALL UTILITIES A MINIMUM OF TEN (10) DAYS IN ADVANCE OF INTENT TO PERFORM WORK IN THE VICINITY OF THE AFFECTED UTILITY. THE NOTICE SHALL BE IN WRITING AND A COPY SHALL BE FURNISHED TO THE CONTRACTING OFFICER.
- COMPLY AND CONDUCT WORK IN ACCORDANCE WITH OWNER'S SECURITY REGULATIONS AND REQUIREMENTS. PROVIDE SITE SECURITY AS NECESSARY TO PROTECT AGAINST VANDALISM AND LOSS BY THEFT.
- CONTRACTOR SHALL MANAGE AND PROTECT THE WORK FROM FLOOD FLOWS, STREAM FLOWS, SURFACE WATER RUNOFF, GROUNDWATER OR ANY OTHER WATER ENCOUNTERED DURING THE PROGRESS OF THE WORK IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION II, REMOVAL OF WATER.
- THE APPROXIMATE LOCATIONS OF THE ACCESS ROAD(S), CONSTRUCTION CAMPSITE, SOIL STOCKPILE, BORROW AND WASTE AREAS ARE SHOWN. THE FINAL LOCATIONS OF THESE AREAS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE CONTRACTING OFFICER'S REPRESENTATIVE PRIOR TO BEGINNING WORK..
- THE AREA AROUND OVERHEAD ELECTRICAL TOWERS SHALL BE PROTECTED. PROTECTION SHALL BE PROVIDED TO ANY TOWER, POLE OR GUY STRUCTURE WHEN TRAFFIC OR CONSTRUCTION ACTIVITY IS WITHIN 50 FEET OF THE STRUCTURE.
- WORK UNDER THIS CONTRACT IS AUTHORIZED UNDER THE TERMS AND CONDITIONS OF THE U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT 3, MAINTENANCE. SEE THE SWPPP FOR DETAILS.
- THE CONTRACTING OFFICER HAS PREPARED THE MINIMUM REQUIREMENTS FOR THE SWPPP AS SHOWN ON SHEET C-18. THE CONSTRUCTOR SHALL REVIEW THE MINIMUM REQUIREMENTS OF THE SWPPP AND SHALL PREPARE A PLAN WITH A DETAILED WORK SEQUENCE OUTLINE THAT DEFINES AND DELINEATES THE PROPOSED CONSTRUCTION OPERATION. REFER TO CONSTRUCTION SPECIFICATIONS 5.
- CONSTRUCT THE STAGING AREAS AND VEHICLE MAINTENANCE AREAS IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL BARRICADES, WARNING SIGNS, TRAFFIC CONTROL DEVICES, ETC. NECESSARY TO CONTROL TRAFFIC AND PROVIDE FOR PUBLIC SAFETY AT THE ENTRANCE TO THE SITE (REFER TO CONSTRUCTION SPECIFICATION 9).
- CONSTRUCTION ACTIVITIES SHALL NOT OCCUR OUTSIDE THE DESIGNATED WORK LIMITS, UNLESS OTHERWISE AUTHORIZED.
- PROVIDE PROTECTED STORAGE FOR PAINTS, CHEMICALS, SOLVENTS, AND OTHER POTENTIALLY HAZARDOUS MATERIALS.
- HANDLING, STORAGE, AND DISPOSAL OF ALL WASTE MATERIAL SHALL CONFORM TO THE SWPPP.
- PREVENT POLLUTION OF SURFACE WATER AND GROUNDWATER WITH PETROLEUM PRODUCTS OR OTHER HAZARDOUS OR REGULATED SUBSTANCES. TAKE SPECIAL MEASURES TO PREVENT CHEMICALS, FUELS, OILS, GREASES, HERBICIDES, AND INSECTICIDES FROM ENTERING DRAINAGE WAYS. DO NOT ALLOW WATER USED IN ON-SITE MATERIAL PROCESSING AND CLEANUP, AND OTHER WASTEWATERS TO ENTER A DRAINAGE WAY, STREAM, OR RIVER.
- PROMPTLY REPAIR EQUIPMENT LEAKING OIL/HYDRAULIC FLUID/ETC. IMMEDIATELY REMOVE AND REPLACE, AS NECESSARY, ALL SOILS ON WHICH SUCH LEAKAGE OCCURRED. PREVENT THE SPREAD OF LEAKED FLUIDS OR FLUID CONTAMINATED MATERIALS FROM THE ORIGINAL LEAK AREA. BE RESPONSIBLE FOR THE PROPER HANDLING AND DISPOSAL OF ALL SUCH CONTAMINATED MATERIALS.
- PROVIDE SECONDARY CONTAINMENT AROUND ANY FUEL AND CHEMICAL STORAGE AREAS TO ENSURE THAT SPILLS FROM ANY SUCH AREAS DO NOT DISCHARGE FROM THE SECONDARY CONTAINMENT AREA. THE SECONDARY CONTAINMENT CAPACITY SHALL BE ADEQUATE TO CONTAIN THE CAPACITY OF THE LARGEST TANK/CONTAINER PLUS SUFFICIENT FREEBOARD TO CONTAIN PRECIPITATION.
- PRECAUTIONS SHALL BE TAKEN DURING EQUIPMENT FUELING AND CHEMICAL TRANSFER OPERATIONS IN ORDER TO PREVENT SPILLS FROM OCCURRING AND TO MINIMIZE THE IMPACT OF ANY SPILL THAT DOES OCCUR. ALL FUEL AND CHEMICAL TRANSFERS SHALL BE CONTINUOUSLY MONITORED. MAINTAIN APPROPRIATE EQUIPMENT ON-SITE FOR RESPONDING TO ANY OIL OR HAZARDOUS SUBSTANCE SPILL. ADDITIONALLY THERE SHALL BE AN ON-SITE PROHIBITION AGAINST THE TOPPING OFF OF TANKS AND EQUIPMENT.
- REMOVE ALL FORM WORK FOLLOWING CONSTRUCTION.
- NO CONSTRUCTION FILL OR MATERIALS SHALL BE PLACED OR STORED IN AREAS NOT SPECIFICALLY DESIGNATED FOR THAT PURPOSE.
- EXISTING ROADS, ACCESS DRIVES, UTILITIES AND PROPERTY WITHIN THE LIMITS OF CONSTRUCTION DAMAGED BY CONTRACTOR AND ALL DISTURBED AREAS SHALL BE REPAIRED BY CONTRACTOR TO SAME OR BETTER CONDITION PRIOR TO END OF CONSTRUCTION AT THE CONTRACTOR'S EXPENSE, UNLESS PROVIDED FOR IN THE CONSTRUCTION SPECIFICATIONS.

EARTHFILL MATERIAL REQUIREMENTS

MATERIAL PLACEMENT DATA											
ZONE	MATERIAL CLASSIFICATION	MATERIAL SOURCE	PLACEMENT LOCATION	LIQUID LIMIT	PLASTICITY INDEX	PERCENT PASSING NO 200	MAXIMUM PARTICLE SIZE	MAXIMUM LOOSE LIFT	MOISTURE DENSITY TEST	MINIMUM PERCENT COMPACTION	MOISTURE LIMITS
1	CH	ONSITE BORROW	EMBANKMENT	≤105	≤75	≥60	2"	8"	ASTM D698 A	95%	-1% +4%
2	CL	IMPORTED FILL	BACKFILL MATERIAL	<50	≤ 35	> 50	2"	8"	ASTM D698 A	95%	-1% +3%
3	CRUSHED STONE (FLEXIBLE BASE)	IMPORTED FILL	VARIES	SEE NOTE 5					ASTM D1557 C	100%	-3% +1%
4	FREE-DRAINING FILL	IMPORTED FILL	BELOW STRUCTURES	N/A	N/A	<5	2"	SEE NOTE 8			

MATERIAL DATA TABLE NOTES:

- MATERIALS FOR ALL TYPES OF EARTHFILLS AND BACKFILLS SHALL BE OBTAINED FROM REQUIRED SITE EXCAVATIONS. ADDITIONAL MATERIAL, IF REQUIRED, WILL COME FROM THE APPROVED BORROW AREAS DESIGNATED ON THE DRAWINGS. IMPORTED SOILS SHALL COME FROM AN APPROVED SOURCE. APPROVAL SHALL BE OBTAINED PRIOR TO DELIVERY OF MATERIALS TO THE PROJECT SITE.
- THE SOIL MATERIALS EXCAVATED FROM THE EMBANKMENT (FROM ANY GIVEN LOCATION) SHALL BE REPLACED WITH LIKE MATERIALS, UNLESS OTHERWISE INDICATED.
- CONDUCT SUCH FIELD TESTS DEEMED NECESSARY AS CONSTRUCTION PROGRESSES ON MATERIALS BEING EXCAVATED TO IDENTIFY DISPERSIVE SOILS. MATERIALS THAT TEST TO BE HIGHLY DISPERSIVE SHALL NOT BE USED TO CONSTRUCT ANY EMBANKMENT ZONE. (SEE CONSTRUCTION SPECIFICATION 23.)
- ZONE 3 CRUSHED STONE SHALL CONFORM TO TXDOT 2014 STANDARD SPECIFICATION ITEM 247 – FLEXIBLE BASE, TYPE A/D, GRADE 1/2. TXDOT TEX-113E MAY BE USED AS AN ALTERNATIVE METHOD TO ASTM D1557 FOR DETERMINING THE MOISTURE DENSITY CHARACTERISTICS OF CRUSHED STONE (FLEXIBLE BASE).
- COMPACTION REQUIREMENTS FOR ZONES 3 VARIES BASED ON PLACEMENT LOCATION.
- ZONE 4 FREE-DRAINING FILL SHALL BE ASTM C-33, NO. 4, NO. 467, NO. 5, NO. 56 MATERIALS OR APPROVED EQUIVALENT.
- FREE-DRAINING FILL (ZONE 4) SHALL BE COMPACTED USING ROLLING OR PLATE VIBRATORY COMPACTORS. COMPACTON EFFORT SHALL BE BASED ON A TEST PASS THAT ESTABLISHES THE NUMBER OF PASSES REQUIRED TO ACHIEVE COMPACTION OF THE GRAVEL, AFTER REVIEWED AND APPROVED BY CONTRACTING OFFICER'S REPRESENTATIVE. MAXIMUM LIFT THICKNESS IS 12 INCHES, BUT SHALL BE REDUCED DEPENDING ON THE RESULTS OF THE TEST PASS. MAXIMUM LIFT THICKNESS WHEN USING WALK-BEHIND VIBRATORY COMPACTORS IS 4 INCHES.

DRAINFILL/FILTER GRADATIONS

THE DRAINFILL/FILTER MATERIALS FOR THE FOUNDATION TRENCH DRAIN SHALL MEET THE FOLLOWING CRITERIA UNLESS OTHERWISE SPECIFIED IN CONSTRUCTION SPECIFICATION 24:

COARSE – ASTM C33 #89 COARSE AGGREGATE
 FINE – ASTM C33 FINE AGGREGATE WITH A MODIFIED GRADATION MEETING THE FOLLOWING:

SIEVE SIZE	PERCENT PASSING
3/8"	100
NO. 4	100
NO. 8	75 TO 100
NO. 16	65 TO 90
NO. 30	50 TO 75
NO. 50	30 TO 60
NO. 100	5 TO 40
NO. 200	0 TO 5

ROCK RIPRAP GRADATIONS

ROCK RIPRAP FOR THE ROCK LINED OUTLET SHALL MEET THE GRADATION REQUIREMENTS OF ASTM D6092 FOR R-60 ROCK RIPRAP. IT IS ESTIMATED THAT 510 TONS OF R-60 ROCK RIPRAP WILL BE REQUIRED TO COMPLETE THE ROCK LINED OUTLET.

ROCK RIPRAP FOR THE ROCK LINED WAVE BERM SHALL MEET THE GRADATION REQUIREMENTS OF ASTM D6092 FOR R-60 ROCK RIPRAP. IT IS ESTIMATED THAT 810 TONS OF R-60 ROCK RIPRAP WILL BE REQUIRED TO COMPLETE THE WAVE BERM.

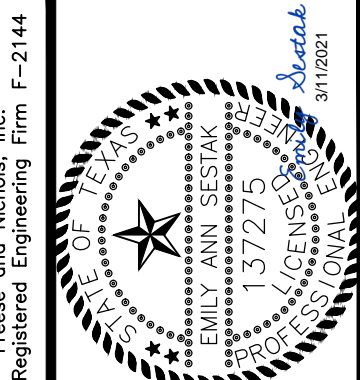
ALL ROCK RIPRAP SHALL COMPLY WITH CONSTRUCTION SPECIFICATION 61, AND MATERIAL SPECIFICATION 523.

SPALLS AND ROCK DUST THAT PASS A 3" SIEVE SHALL CONSIST OF LESS THAN 5 PERCENT BY WEIGHT.

ASTM R-60 GRADATION		
MASS LBS	PERCENT PASSING	
	MIN	MAX
150	100	-
60	50	100
30	15	50
10	0	15

GEOTECHNICAL BORING NOTES:

PARTIAL GEOTECHNICAL BORING LOGS AND EXISTING SOIL DESCRIPTIONS ARE INCLUDED IN THESE DRAWINGS FOR INFORMATION ONLY. ANY REPRESENTATION OF THE SOILS AND FOUNDATION CONDITIONS SHOWN IN THESE DRAWINGS SHOULD BE CONSIDERED PARTIAL, INCOMPLETE, AND NOT PART OF THE CONTRACT DOCUMENTS. ADDITIONAL GEOTECHNICAL MAY BE FOUND IN THE GEOLOGIC INVESTIGATION REPORT AND SOIL MECHANIC REPORT. THIS SEPARATE DOCUMENT IS ALSO NOT PART OF THE CONTRACT DOCUMENTS. THE GEOTECHNICAL DATA REPORT REPRESENTS DATA THAT WAS CONSIDERED SUFFICIENT FOR DESIGN, BUT MAY NOT BE SUFFICIENT FOR CONSTRUCTION. THE CONTRACTOR IS FULLY RESPONSIBLE FOR DETERMINING SUBSURFACE CONDITIONS TO A DEGREE NECESSARY TO SUBMIT THE ASSOCIATED BID ITEMS AND MAY USE THE PROVIDED INFORMATION AT THEIR OWN RISK. REFER TO THE GEOLOGIC INVESTIGATION REPORT FOR DETERMINATIONS OF SOIL AND ROCK PROFILE ELEVATIONS AND BORING LOGS. THE REPORT IS AND ITS FINDING ARE A REPRESENTATION OF THE SUBSURFACE BASED ON CURRENT PRACTICE FOR GEOTECHNICAL INVESTIGATION AND TESTING. ACTUAL FIELD CONDITIONS MAY VARY.



DESIGNED BY: EAS
 DRAWN BY: NBB
 CHECKED BY: BEK & DGM
 FILE NAME: LEF3-CN-NOTE.dwg
 DATE CHECKED: 3/11/2021

GENERAL NOTES
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
 TRINITY RIVER WATERSHED, TEXAS

FREES & NICHOLS
 801 Cherry Street, Suite 2800
 Fort Worth Texas 76102
 Phone - (817) 735-7330
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DRAWING NO.

SHEET NO. **G-2**

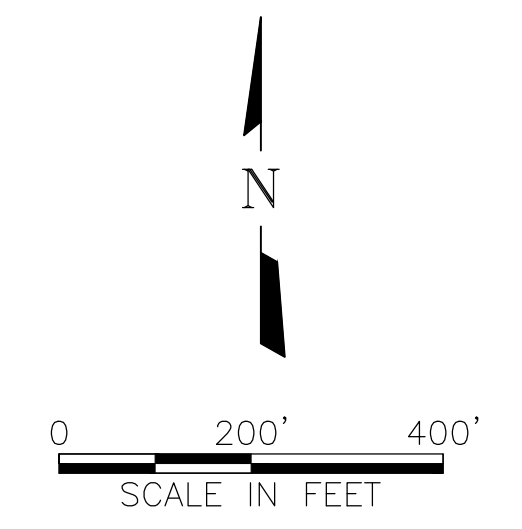
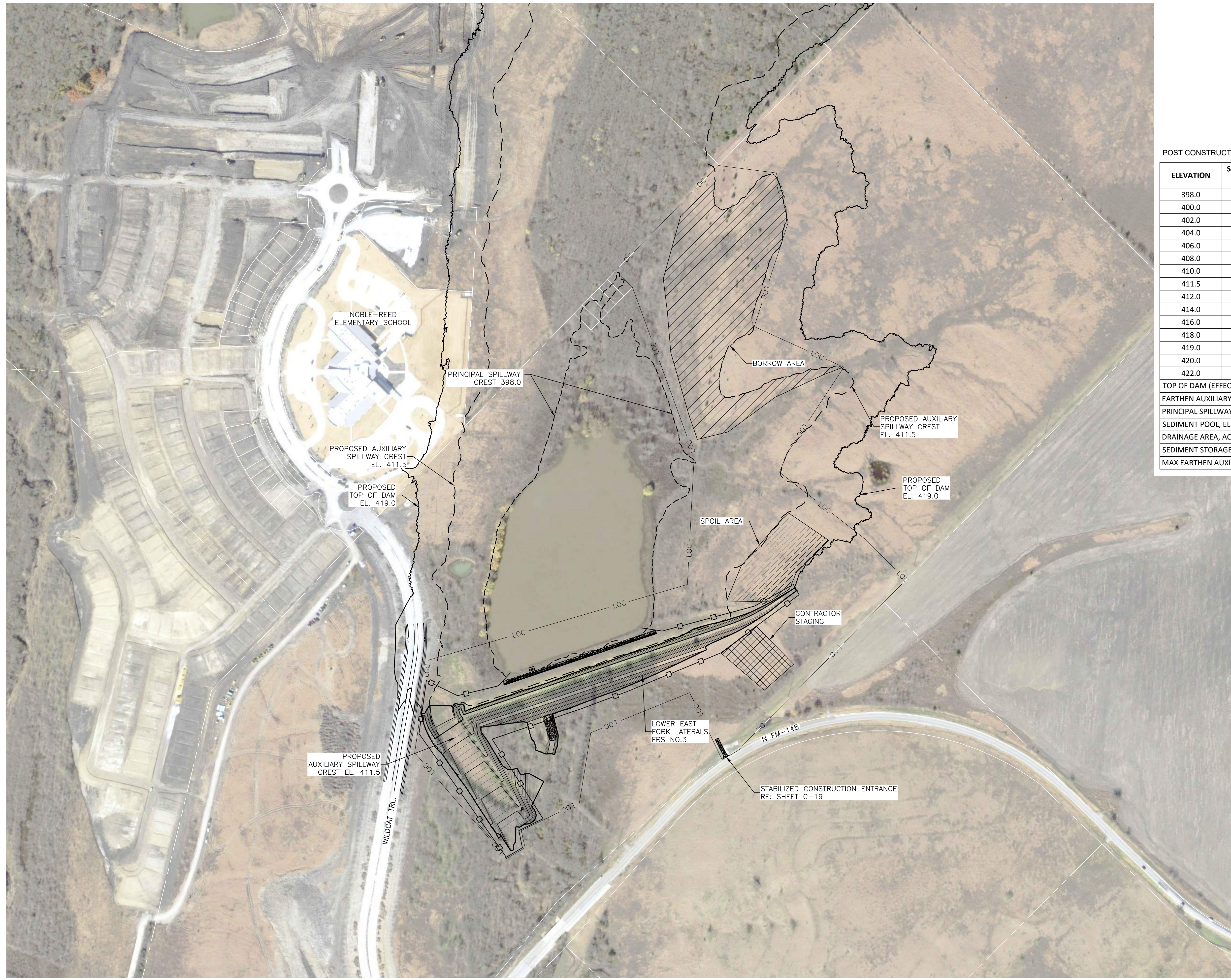
SEQUENCE NO. **2 OF 43**

REVISIONS		
DATE	APPROVED	TITLE

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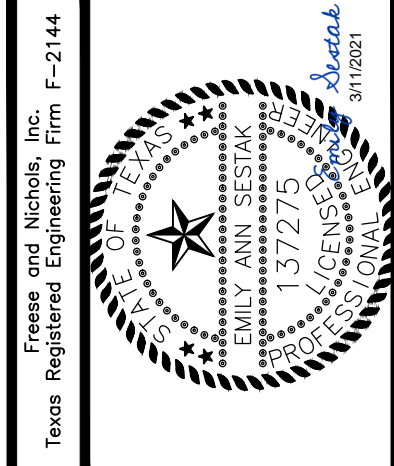


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POST CONSTRUCTION DAM INFORMATION

ELEVATION	STORAGE		
	SURFACE AREA (ACRES)	(ACRE-FT)	(INCHES)
398.0	11.4	171.9	1.5
400.0	19.6	244.3	2.2
402.0	28.3	291.1	2.6
404.0	38.3	357.4	3.2
406.0	51.8	446.0	4.0
408.0	68.4	567.2	5.1
410.0	82.7	718.4	6.4
411.5	94.2	851.9	7.6
412.0	98.3	898.9	8.0
414.0	114.1	1111.4	9.9
416.0	136.9	1361.3	12.2
418.0	159.7	1658.0	14.8
419.0	173.6	1824.3	16.3
420.0	188.2	2005.0	17.9
422.0	220.6	2413.5	21.6
TOP OF DAM (EFFECTIVE), EL.		419.0	
EARTHEN AUXILIARY SPILLWAY CREST, EL.		411.5	
PRINCIPAL SPILLWAY CREST, EL.		398.0	
SEDIMENT POOL, EL.		398.0	
DRAINAGE AREA, ACRES		1342	
SEDIMENT STORAGE, ACRE-FT		171.9	
MAX EARTHEN AUXILIARY SPILLWAY CAPACITY, CFS		6301.3	



DESIGNED BY: EAS
 DRAWN BY: NBB
 CHECKED BY: BEK & DSM
 FILE NAME: LEF3-PL-GN.dwg
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GENERAL PLAN
 FLOODWATER RETARDING STRUCTURE SITE NO. 3
 LOWER EAST FORK LATERALS
 IN
 TRINITY RIVER WATERSHED, TEXAS

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 801 Cherry Street, Suite 2800
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DRAWING NO.
 SHEET NO. G-3
 SEQUENCE NO. 3 OF 43

REVISIONS		
DATE	APPROVED	TITLE

ALIGNMENT CURVE DATA

CURVE #	DELTA (Δ)	D	R	L	P.C.	P.I.	P.T.	T
C1	55° 56' 14"	039' 57' 02"	143.4	140.02	STA. 0+60 N: 6923438.454 E: 2604454.281	STA. 1+36.2 N: 6923375.664 E: 2604411.189	STA. 2+00 N: 6923304.796 E: 2604439.069	76.16
C2	41° 59' 56"	009' 19' 55"	614.0	450.05	STA. 2+00 N: 6923304.796 E: 2604439.069	STA. 4+35.7 N: 6923085.484 E: 2604525.351	STA. 6+50.1 N: 6922980.233 E: 2604736.217	235.67

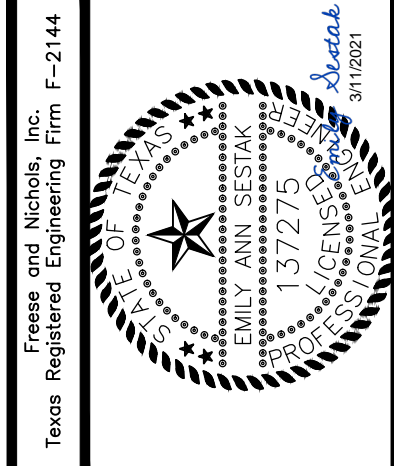
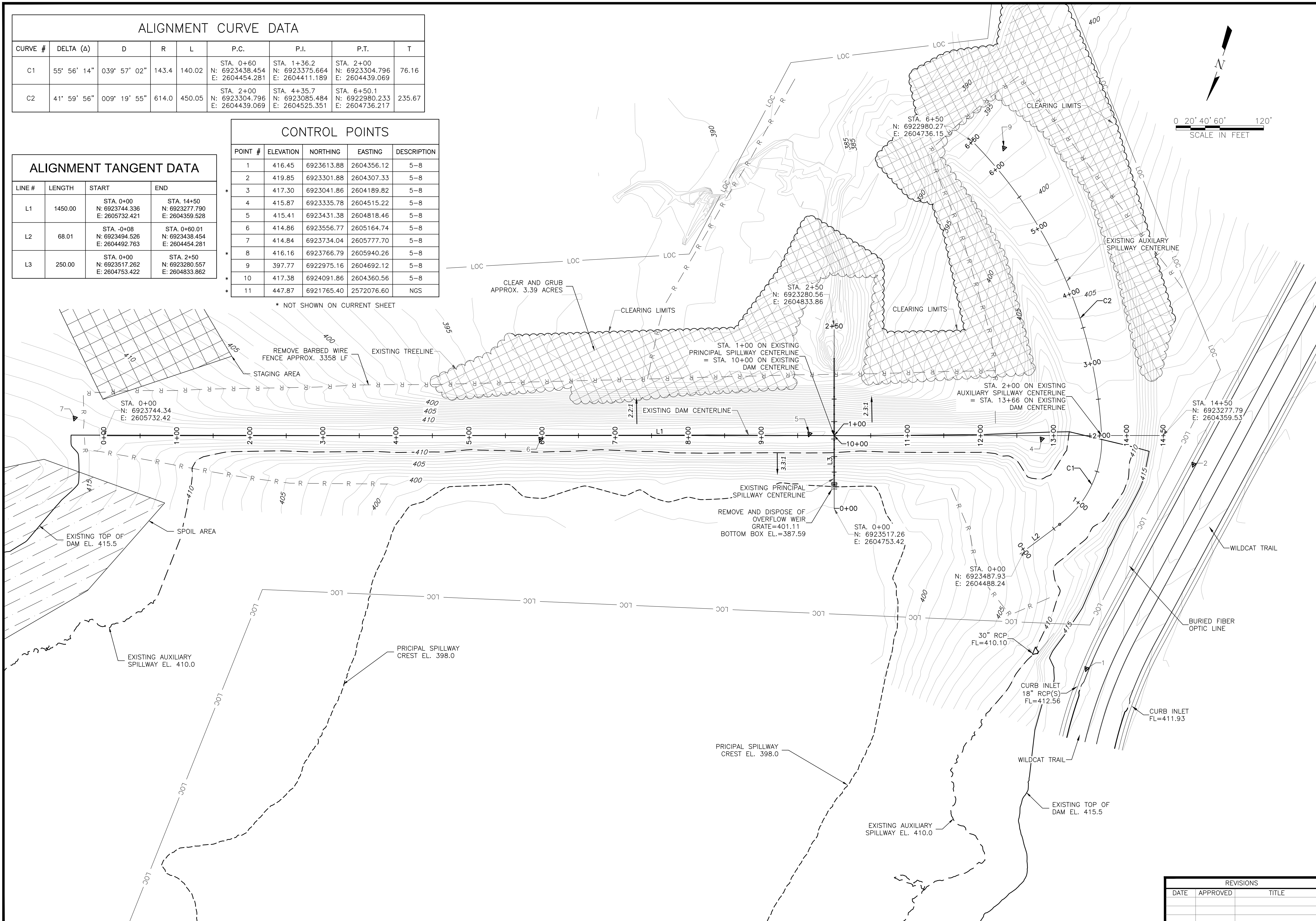
CONTROL POINTS

POINT #	ELEVATION	NORTHING	EASTING	DESCRIPTION
1	416.45	6923613.88	2604356.12	5-8
2	419.85	6923301.88	2604307.33	5-8
3	417.30	6923041.86	2604189.82	5-8
4	415.87	6923335.78	2604515.22	5-8
5	415.41	6923431.38	2604818.46	5-8
6	414.86	6923556.77	2605164.74	5-8
7	414.84	6923734.04	2605777.70	5-8
8	416.16	6923766.79	2605940.26	5-8
9	397.77	6922975.16	2604692.12	5-8
10	417.38	6924091.86	2604360.56	5-8
11	447.87	6921765.40	2572076.60	NGS

* NOT SHOWN ON CURRENT SHEET

ALIGNMENT TANGENT DATA

LINE #	LENGTH	START	END
L1	1450.00	STA. 0+00 N: 6923744.336 E: 2605732.421	STA. 14+50 N: 6923277.790 E: 2604359.528
L2	68.01	STA. -0+08 N: 6923494.526 E: 2604492.763	STA. 0+60.01 N: 6923438.454 E: 2604454.281
L3	250.00	STA. 0+00 N: 6923517.262 E: 2604753.422	STA. 2+50 N: 6923280.557 E: 2604833.862



DESIGNED BY: EAS
 DRAWN BY: NBB
 CHECKED BY: BEK & DGM
 FILE NAME: LEF3-EX-SITE.dwg
 DATE CHECKED: 3/9/2021

EXISTING SITE PLAN
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
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DRAWING NO.
 SHEET NO. C-1
 SEQUENCE NO. 4 OF 43

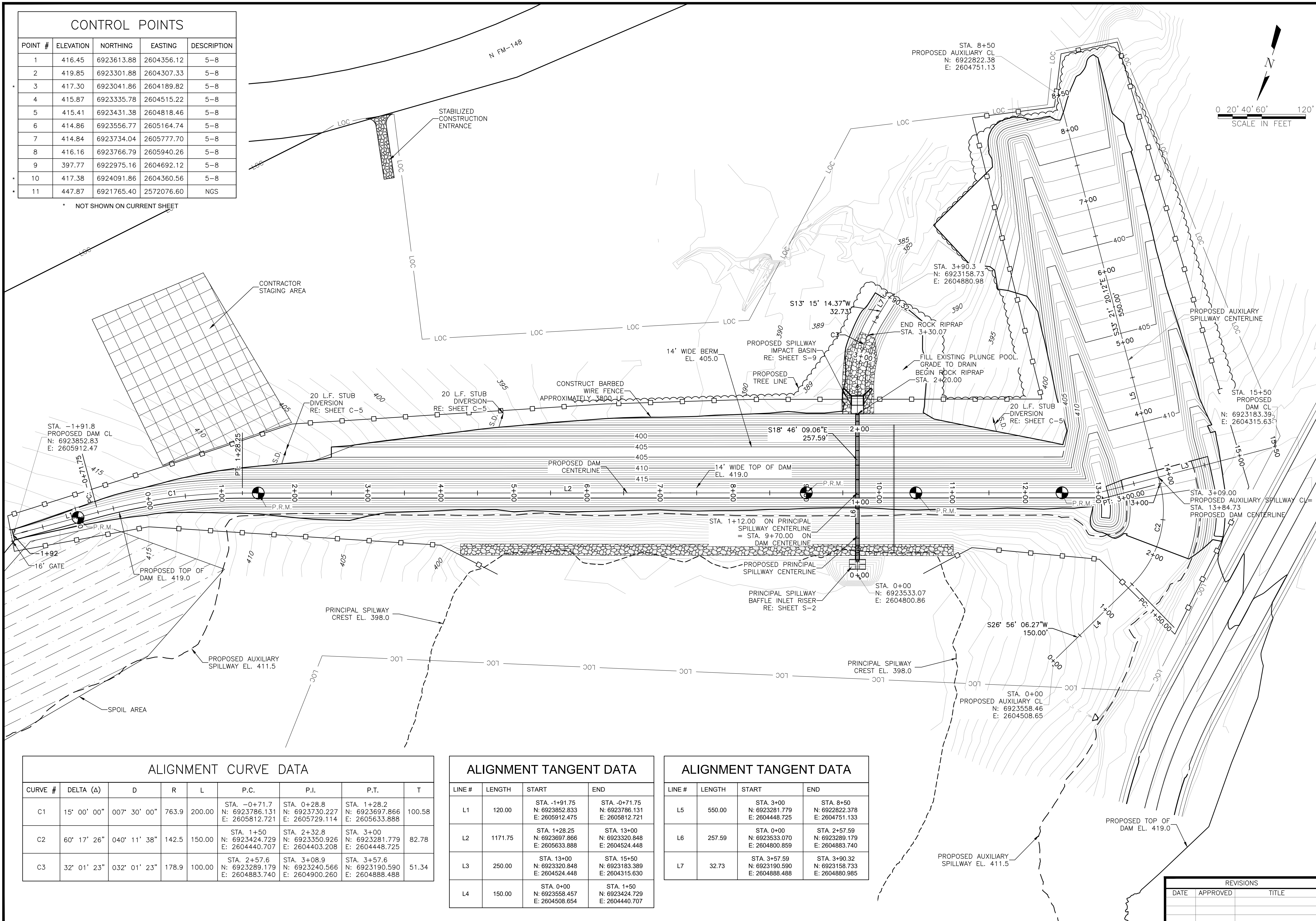
REVISIONS		
DATE	APPROVED	TITLE

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CONTROL POINTS

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2	419.85	6923301.88	2604307.33	5-8
3	417.30	6923041.86	2604189.82	5-8
4	415.87	6923335.78	2604515.22	5-8
5	415.41	6923431.38	2604818.46	5-8
6	414.86	6923556.77	2605164.74	5-8
7	414.84	6923734.04	2605777.70	5-8
8	416.16	6923766.79	2605940.26	5-8
9	397.77	6922975.16	2604692.12	5-8
10	417.38	6924091.86	2604360.56	5-8
11	447.87	6921765.40	2572076.60	NGS

* NOT SHOWN ON CURRENT SHEET



ALIGNMENT CURVE DATA

CURVE #	DELTA (Δ)	D	R	L	P.C.	P.I.	P.T.	T
C1	15° 00' 00"	007' 30" 00"	763.9	200.00	STA. -0+71.7 N: 6923786.131 E: 2605812.721	STA. 0+28.8 N: 6923730.227 E: 2605912.475	STA. 1+28.2 N: 6923697.866 E: 2605812.721	100.58
C2	60° 17' 26"	040' 11' 38"	142.5	150.00	STA. 1+50 N: 6923424.729 E: 2604440.707	STA. 2+32.8 N: 6923350.926 E: 2604403.208	STA. 3+00 N: 6923281.779 E: 2604448.725	82.78
C3	32° 01' 23"	032' 01' 23"	178.9	100.00	STA. 2+57.6 N: 6923289.179 E: 2604883.740	STA. 3+08.9 N: 6923240.566 E: 2604900.260	STA. 3+57.6 N: 6923190.590 E: 2604888.488	51.34

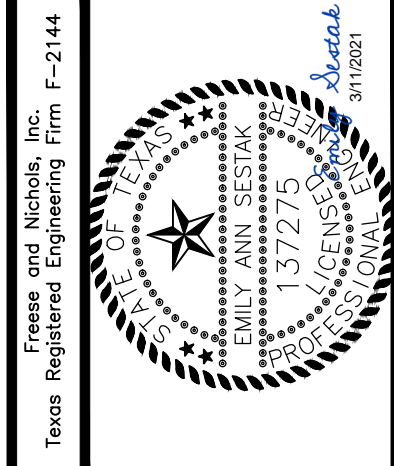
ALIGNMENT TANGENT DATA

LINE #	LENGTH	START	END
L1	120.00	STA. -1+91.75 N: 6923852.833 E: 2605912.475	STA. -0+71.75 N: 6923786.131 E: 2605812.721
L2	1171.75	STA. 1+28.25 N: 6923697.866 E: 2605633.888	STA. 13+00 N: 6923320.848 E: 2604524.448
L3	250.00	STA. 13+00 N: 6923320.848 E: 2604524.448	STA. 15+50 N: 6923183.389 E: 2604315.630
L4	150.00	STA. 0+00 N: 6923558.457 E: 2604508.654	STA. 1+50 N: 6923424.729 E: 2604440.707

ALIGNMENT TANGENT DATA

LINE #	LENGTH	START	END
L5	550.00	STA. 3+00 N: 6923281.779 E: 2604448.725	STA. 8+50 N: 6922822.378 E: 2604751.133
L6	257.59	STA. 0+00 N: 6923533.070 E: 2604800.859	STA. 2+57.59 N: 6923289.179 E: 2604883.740
L7	32.73	STA. 3+57.59 N: 6923190.590 E: 2604888.488	STA. 3+90.32 N: 6923158.733 E: 2604880.985

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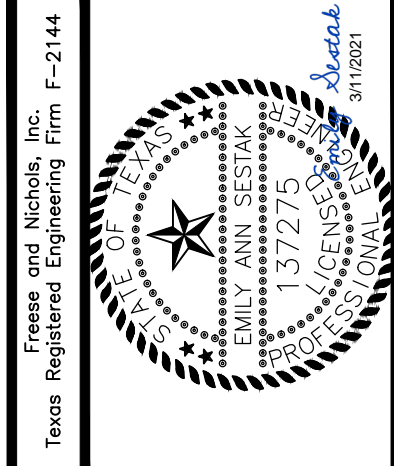
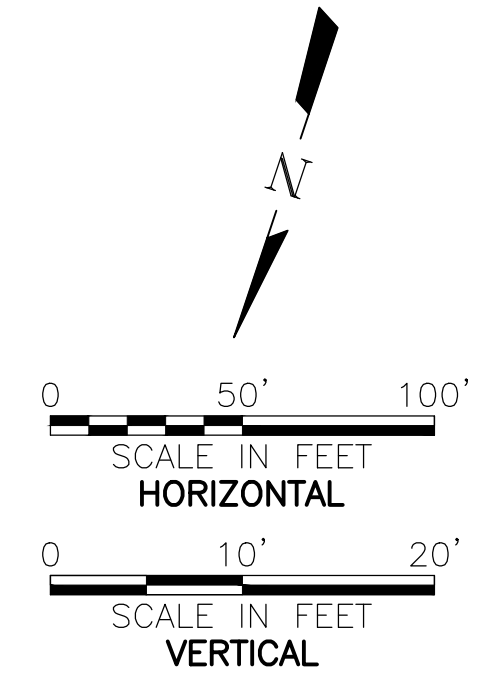
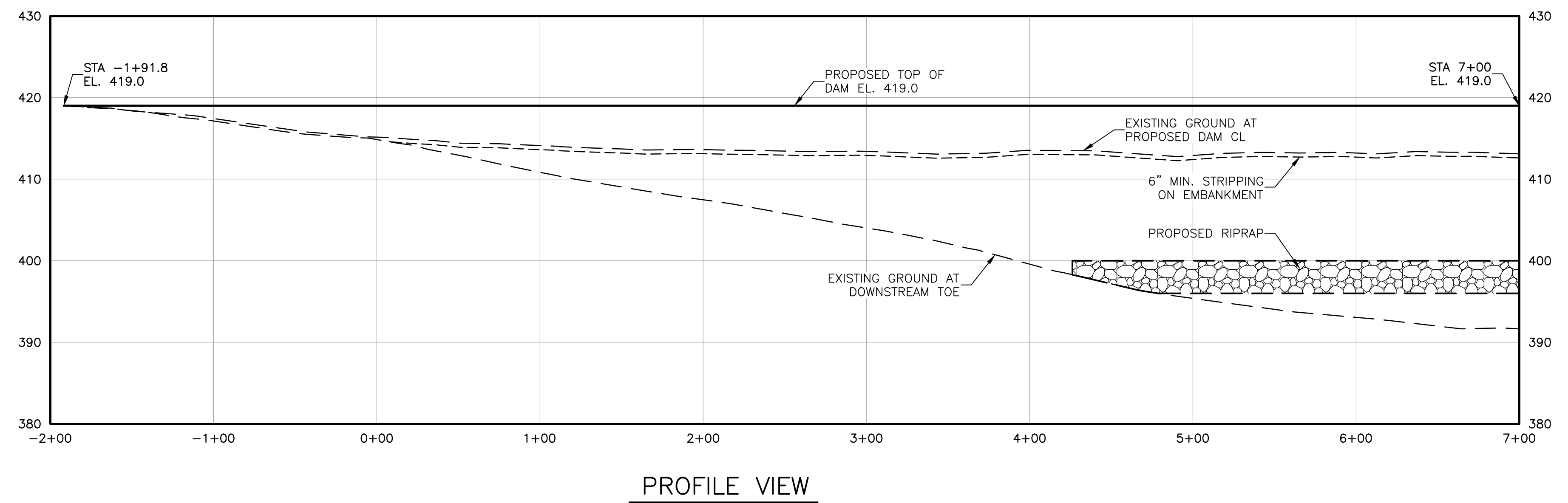
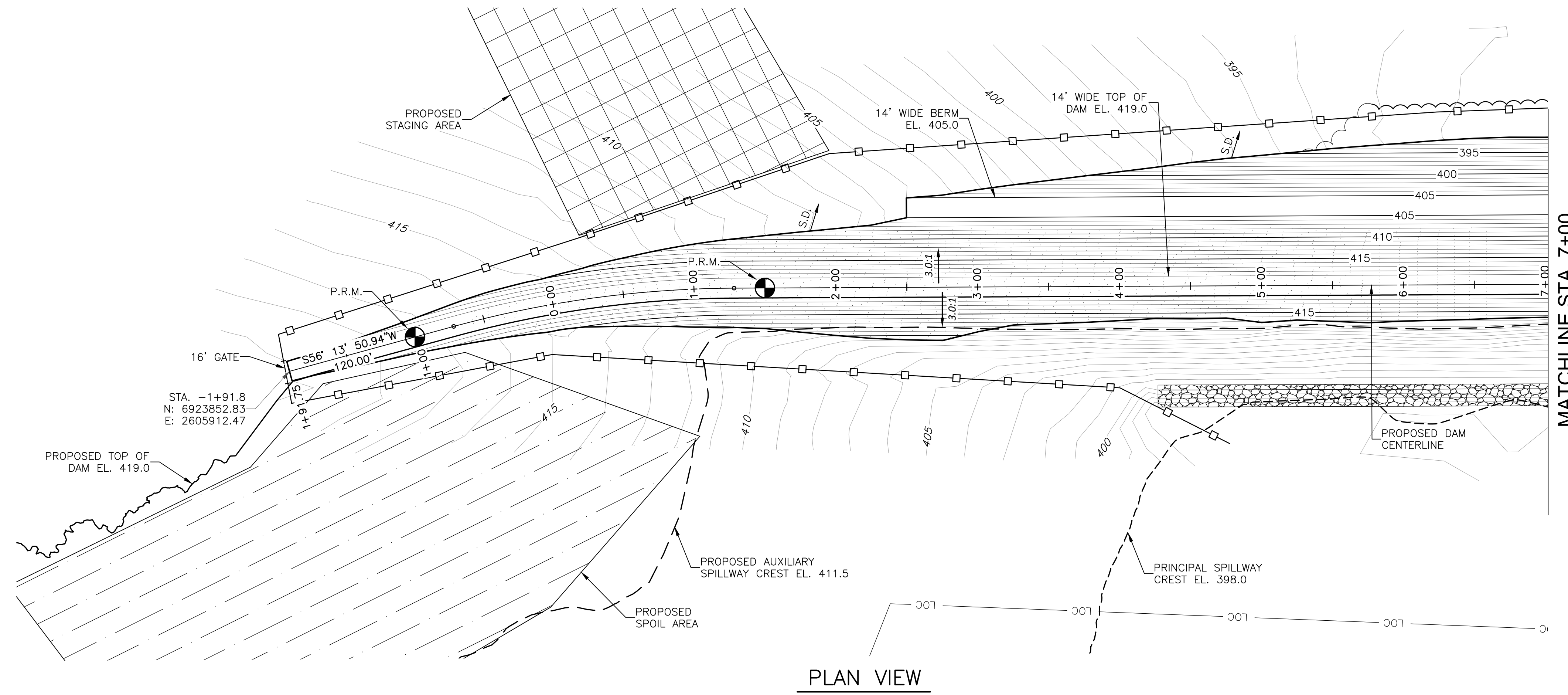
PROPOSED SITE PLAN
 FLOODWATER RETARDING STRUCTURE SITE No. 3
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DRAWING NO.
 SHEET NO. **C-2**
 SEQUENCE NO. **5 OF 43**

REVISIONS		
DATE	APPROVED	TITLE

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EMBANKMENT - PLAN AND PROFILE
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
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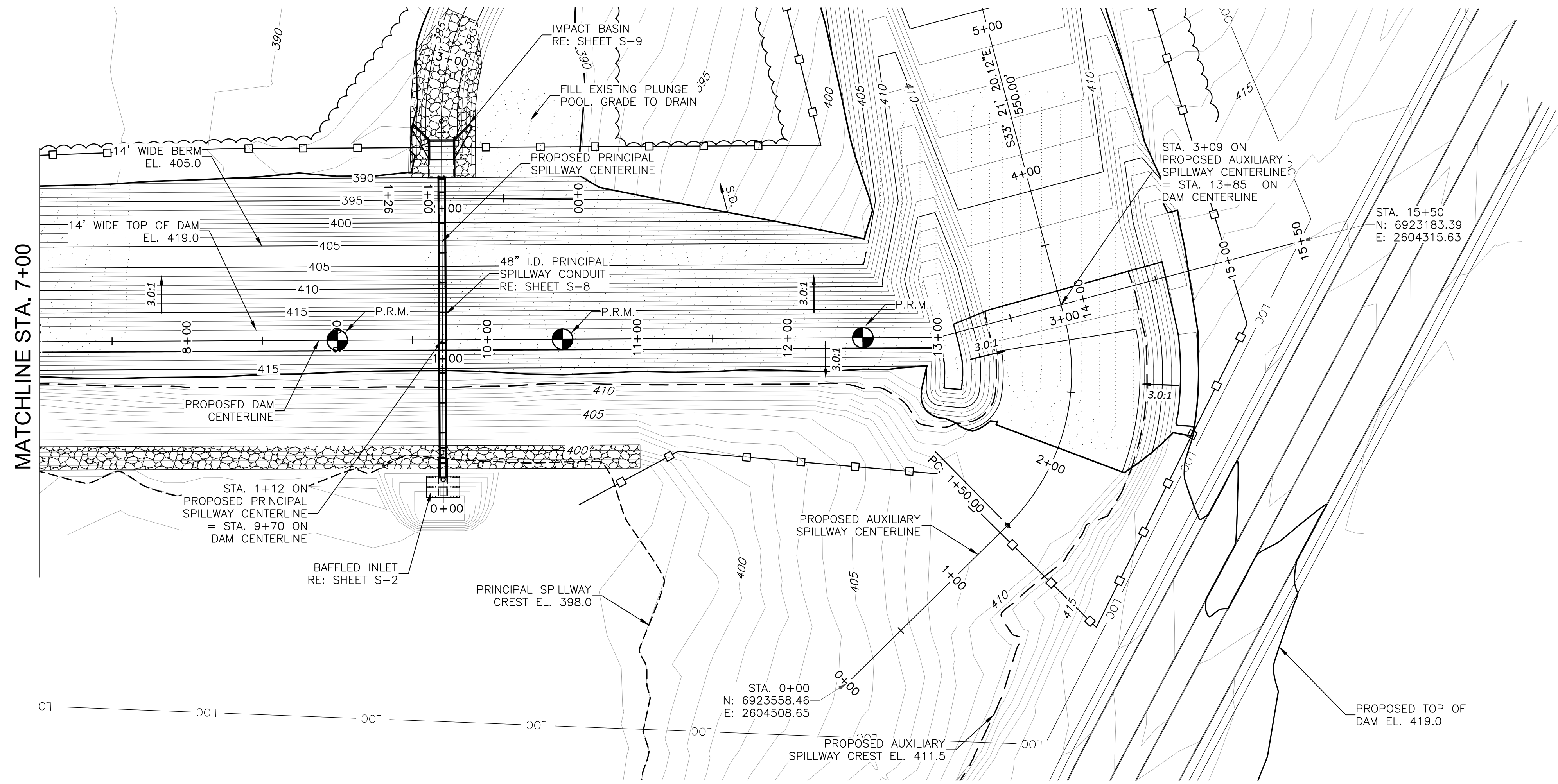
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C-3

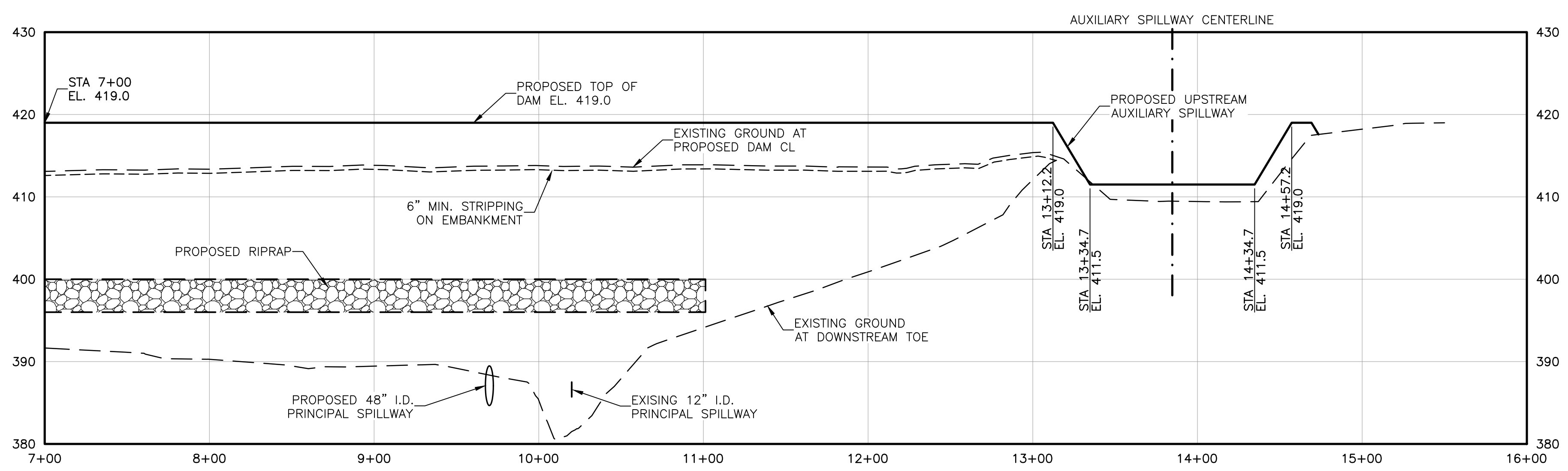
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DATE	APPROVED	TITLE

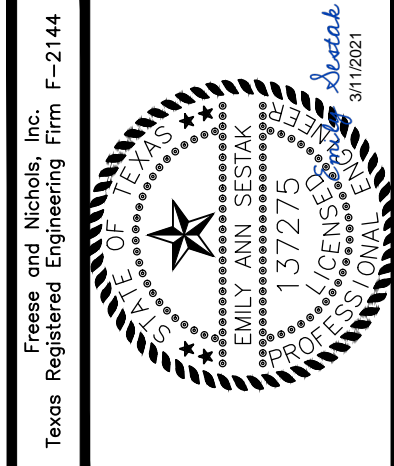
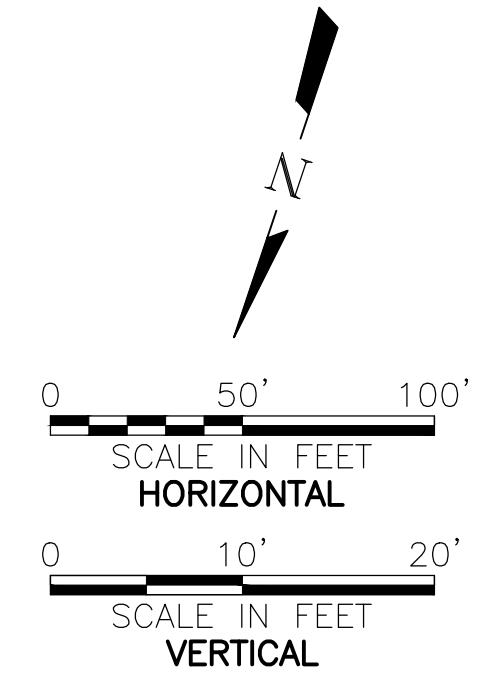
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PLAN VIEW



PROFILE VIEW



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EMBANKMENT - PLAN AND PROFILE
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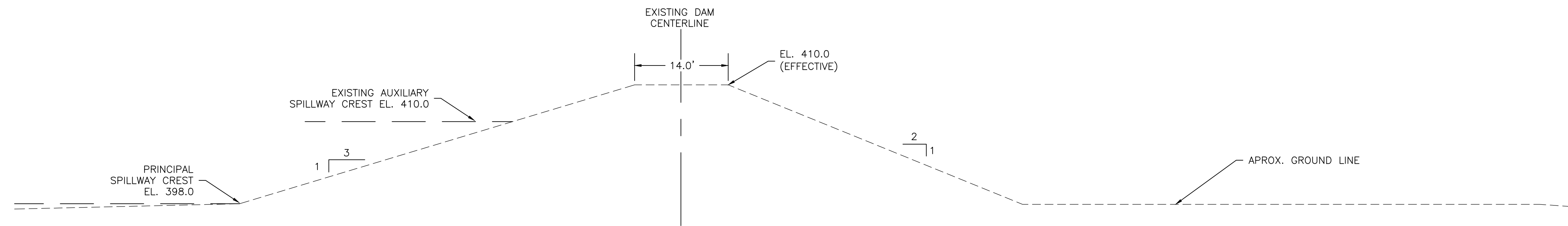
SHEET NO.
C-4

SEQUENCE NO.
7 OF 43

REVISIONS		
DATE	APPROVED	TITLE

UPSTREAM

DOWNSTREAM

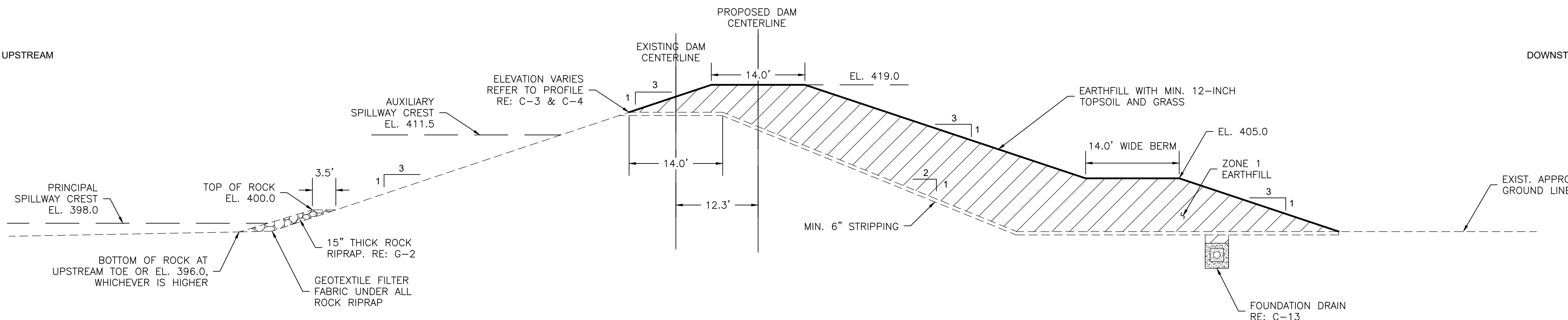


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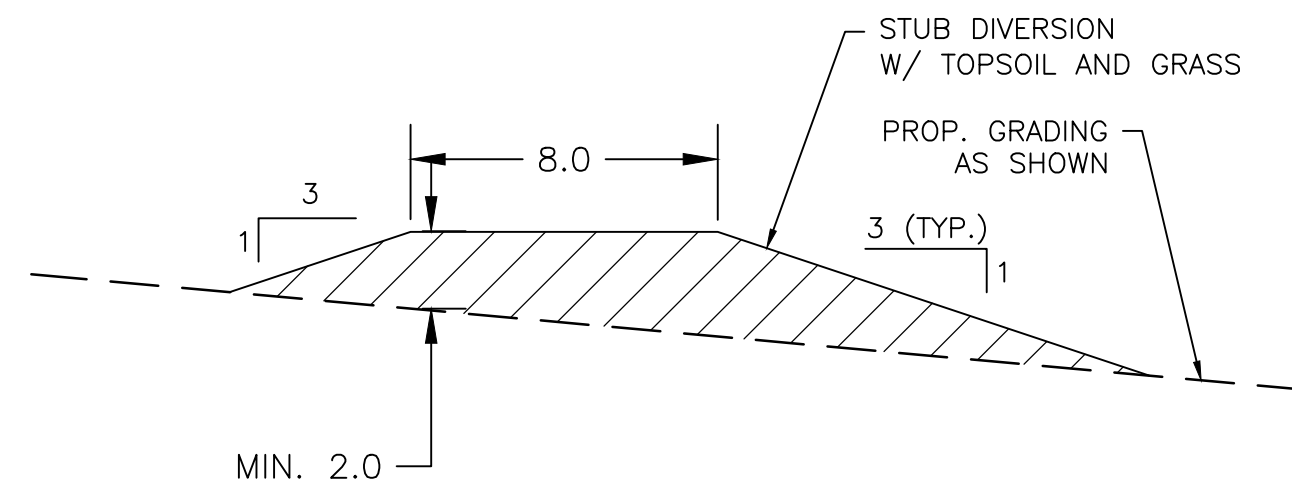


UPSTREAM

DOWNSTREAM



PROPOSED EMBANKMENT TYPICAL SECTION

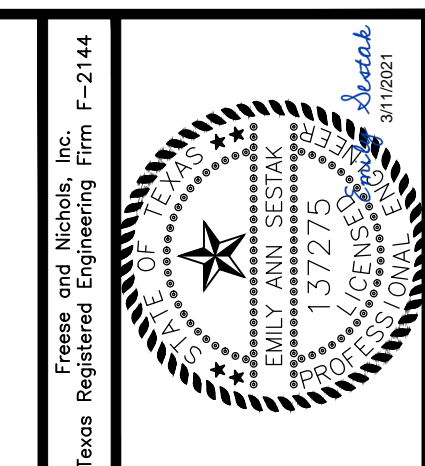


TYPICAL STUB DIVERSION SECTION



NOTES:

1. STRIP AND REMOVE TOPSOIL AND REGRADE UPSTREAM EMBANKMENT AT 3:1 SLOPE.
2. FOR MATERIAL AND PLACEMENT DETAILS REFER TO SHEET G-2.



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EMBANKMENT - TYPICAL SECTIONS
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
 TRINITY RIVER WATERSHED, TEXAS

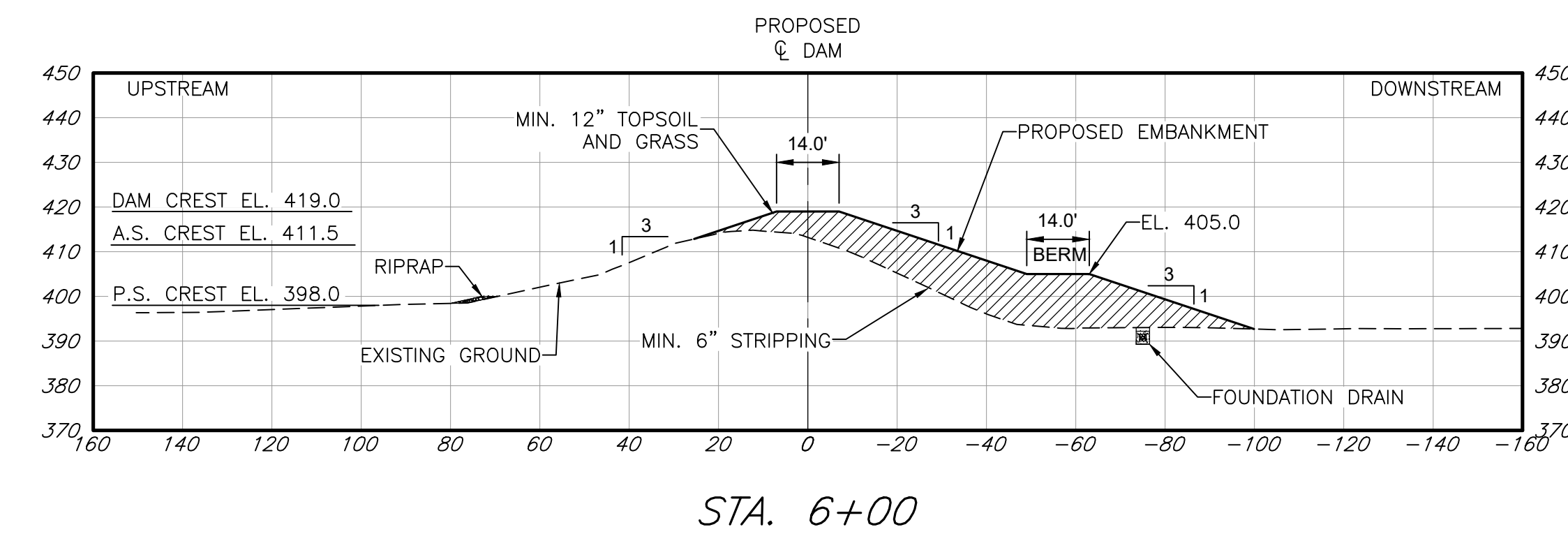
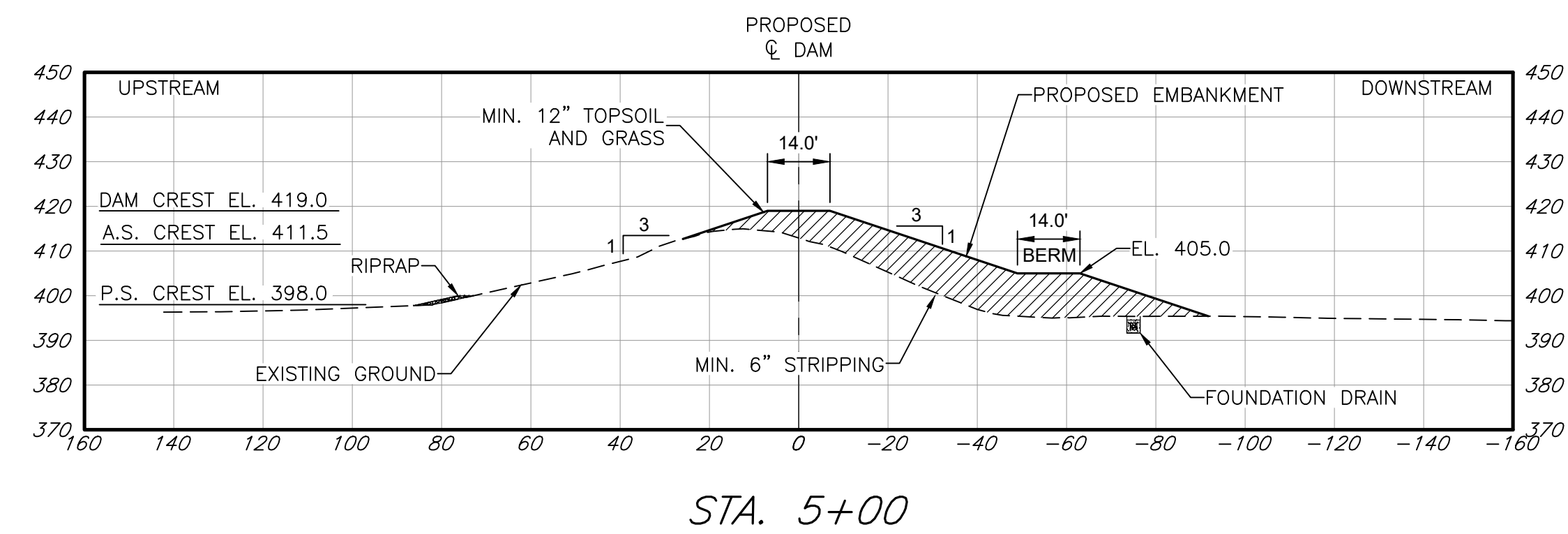
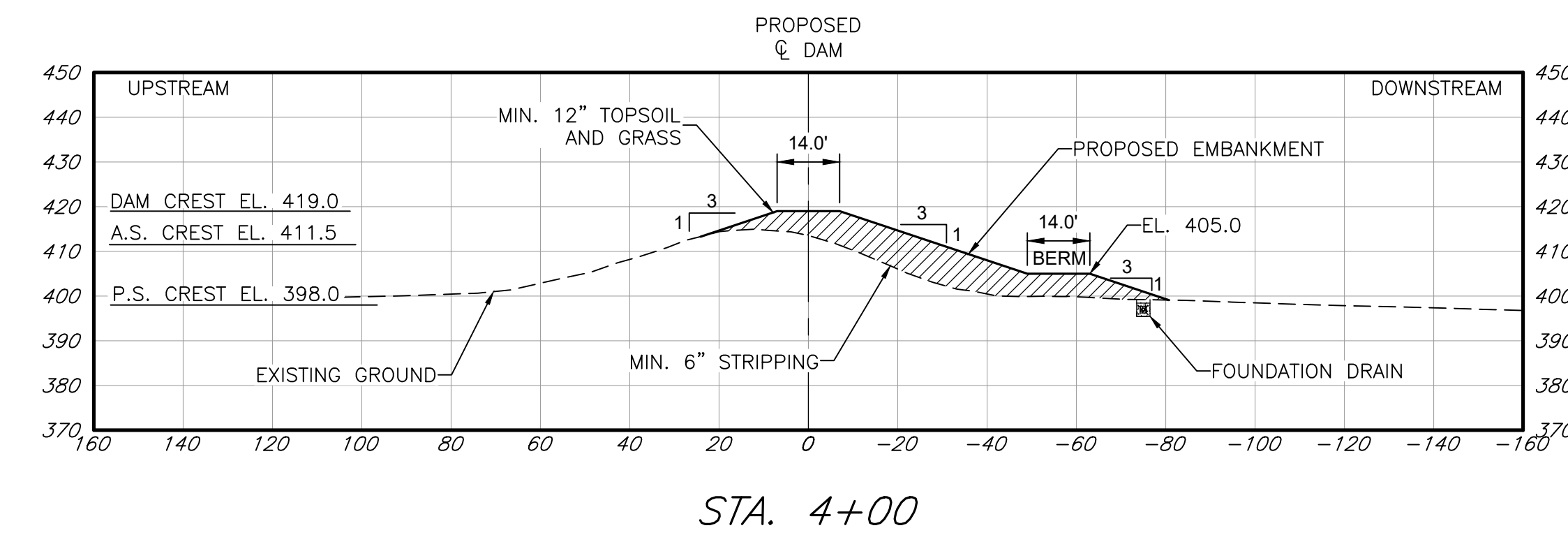
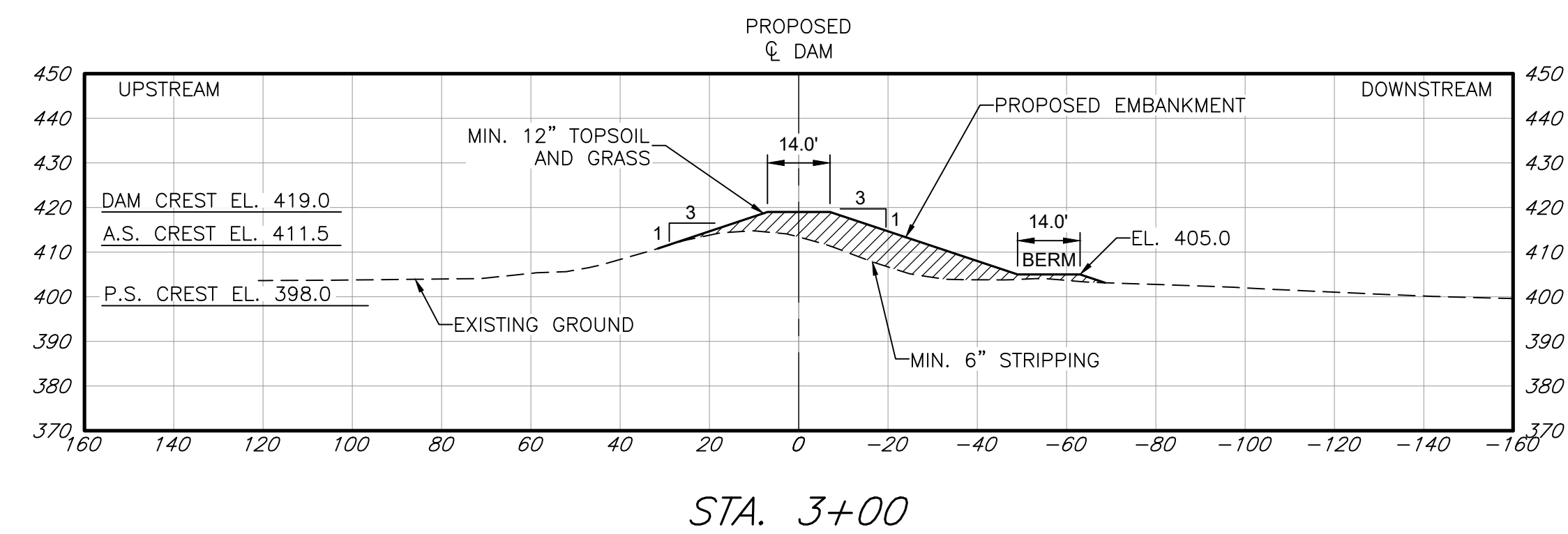
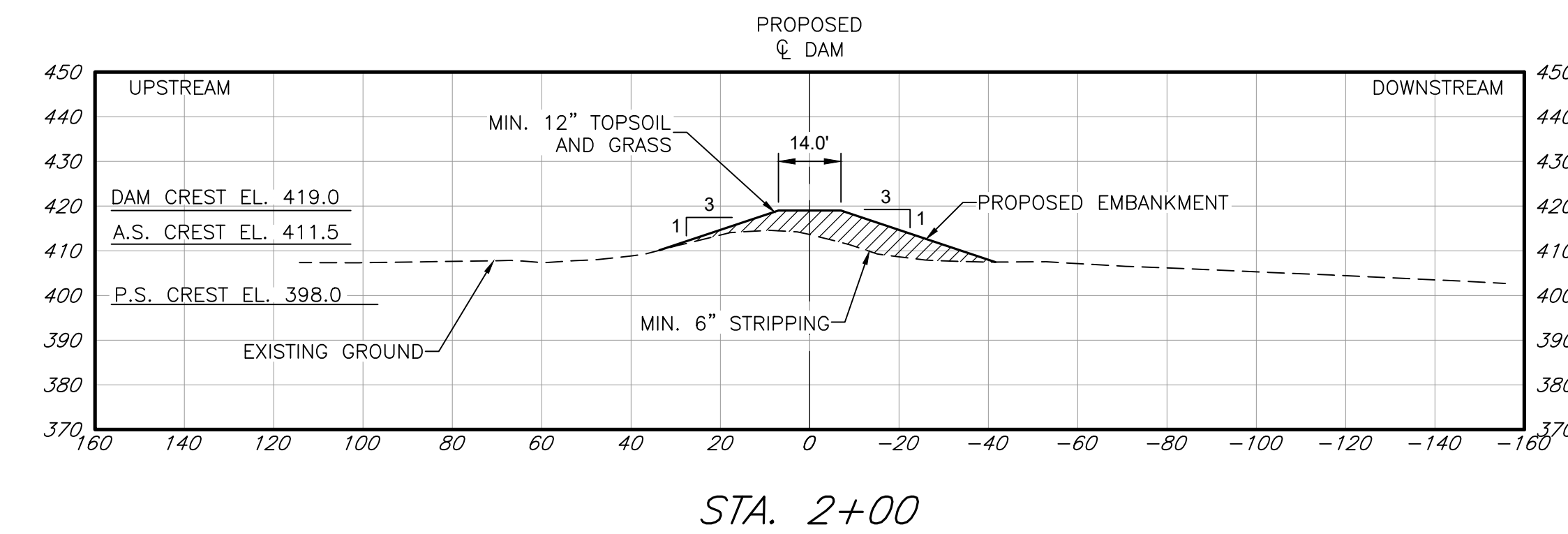
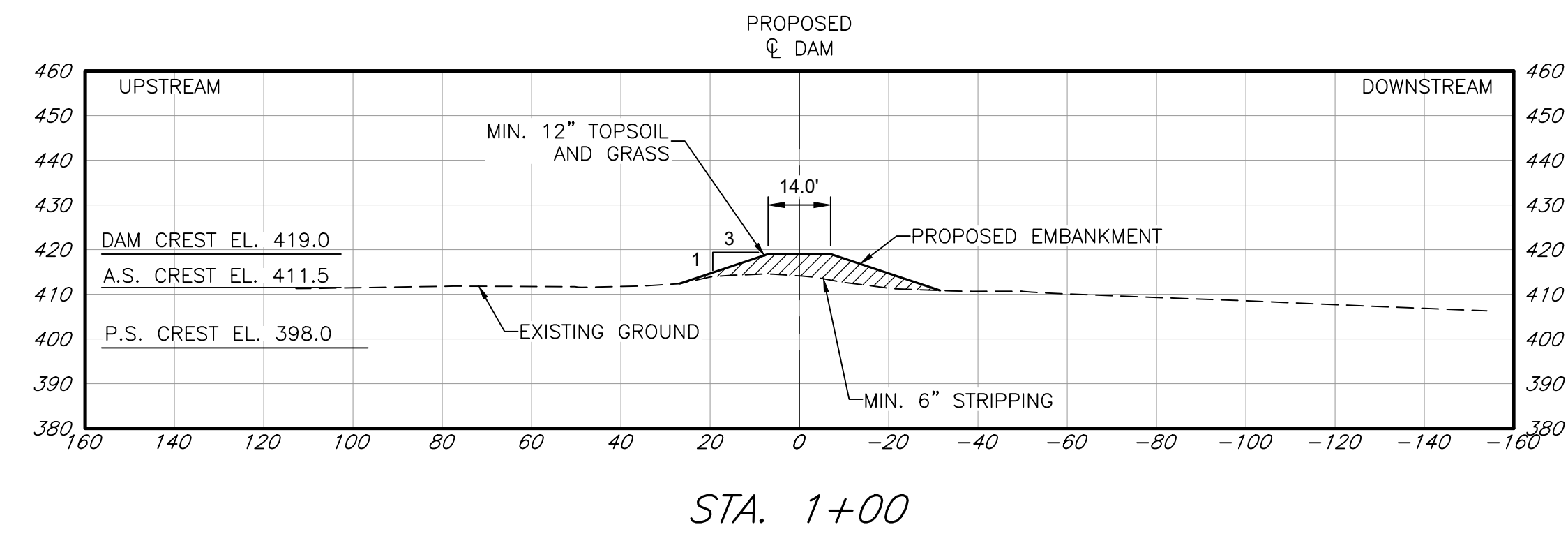
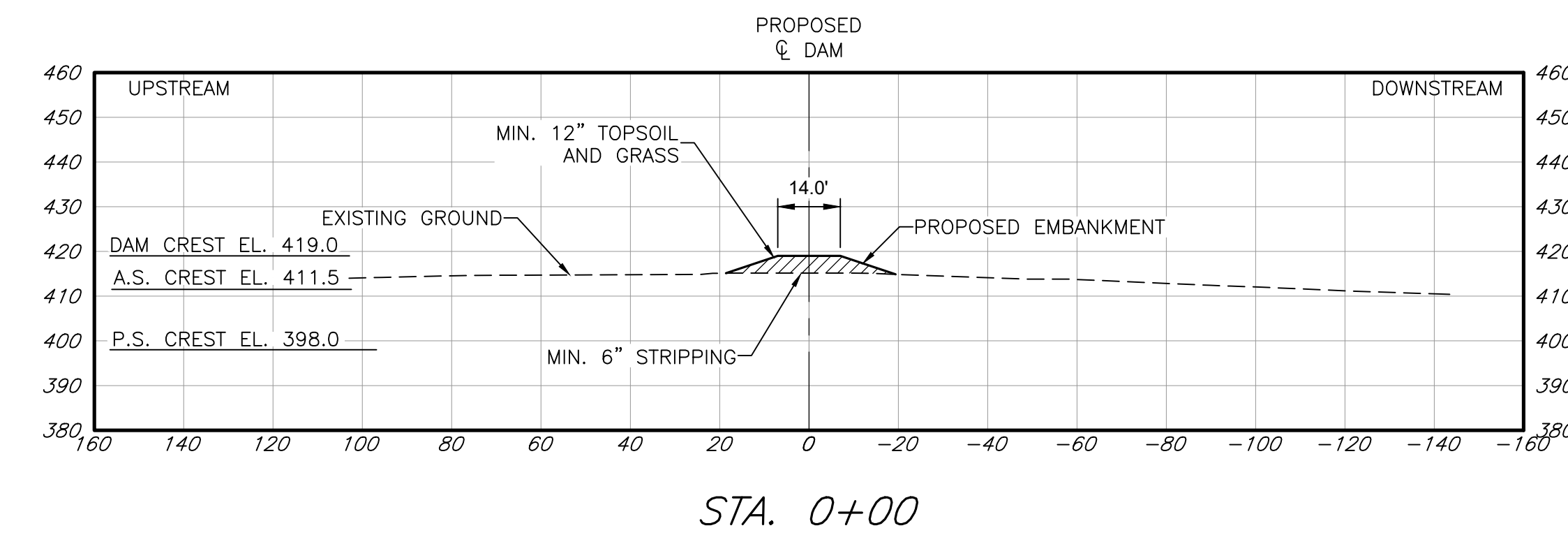
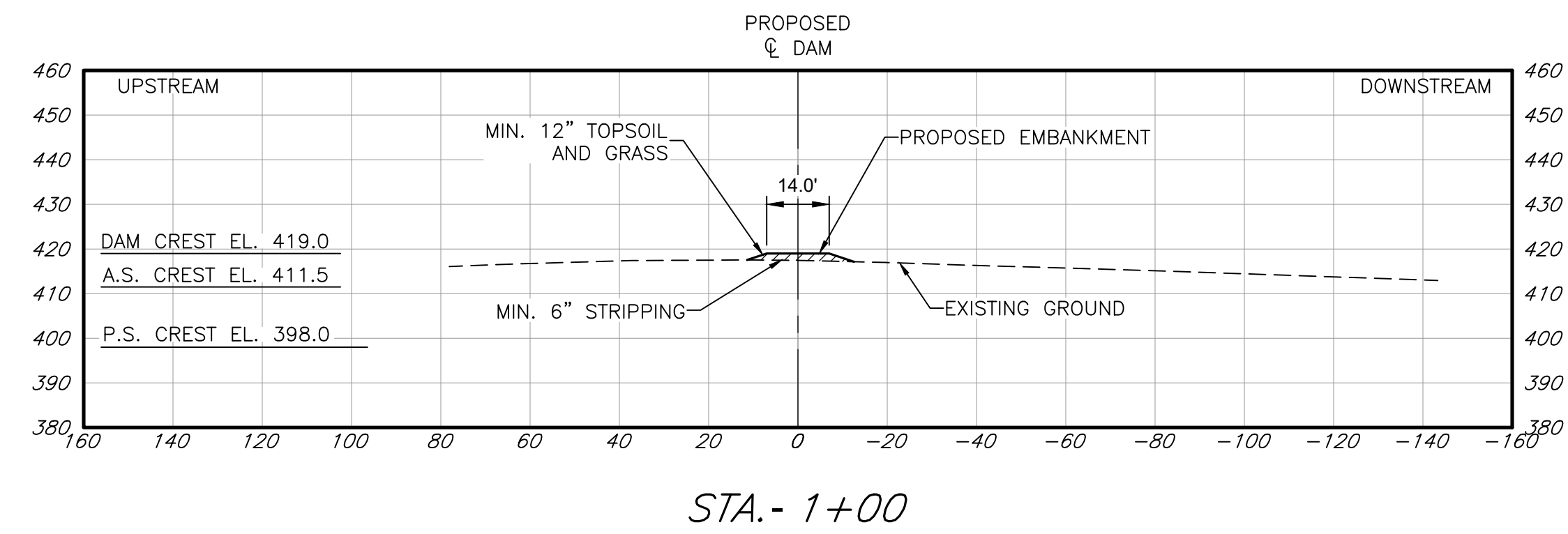
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 SHEET NO. C-5
 SEQUENCE NO. 8 OF 43

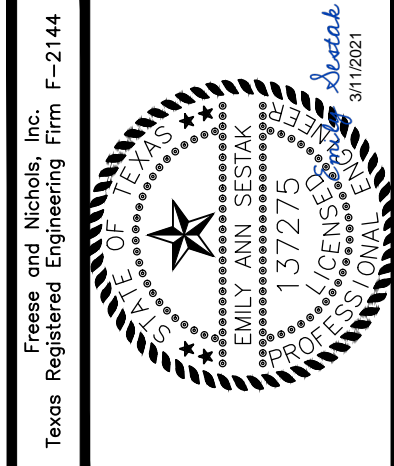
REVISIONS		
DATE	APPROVED	TITLE

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SCALE IN FEET



- NOTES:
1. STRIP AND REMOVE TOPSOIL AND REGRADE UPSTREAM EMBANKMENT AT 3:1 SLOPE.



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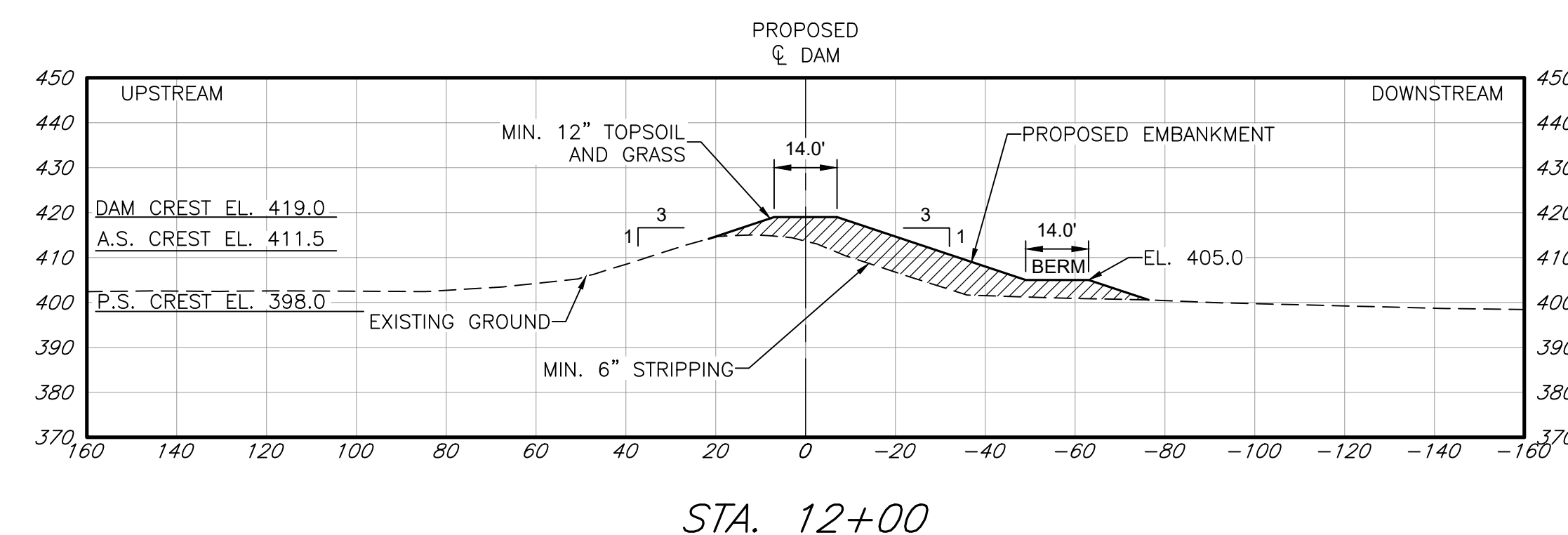
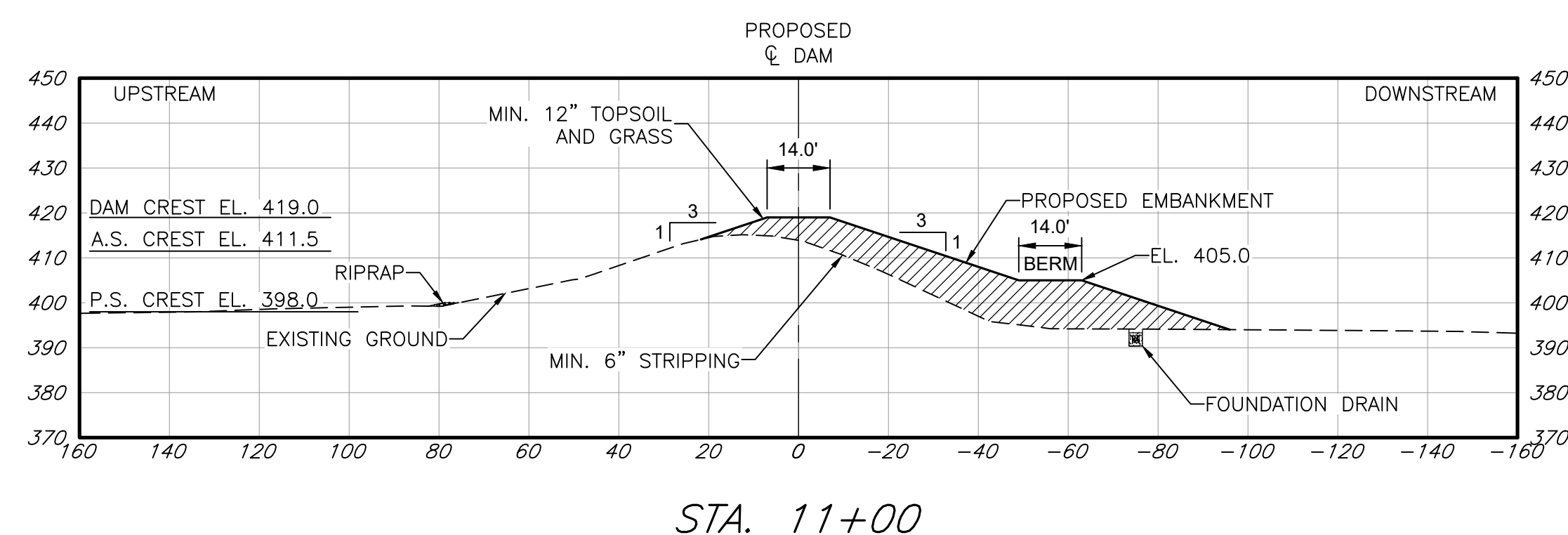
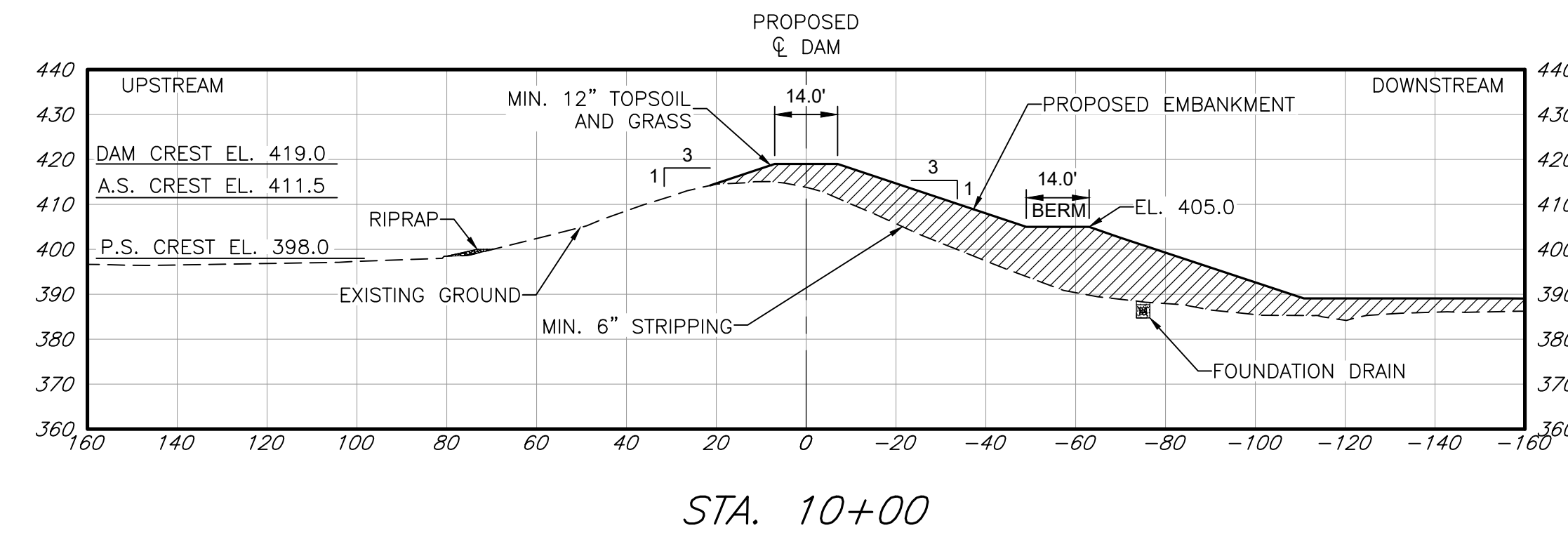
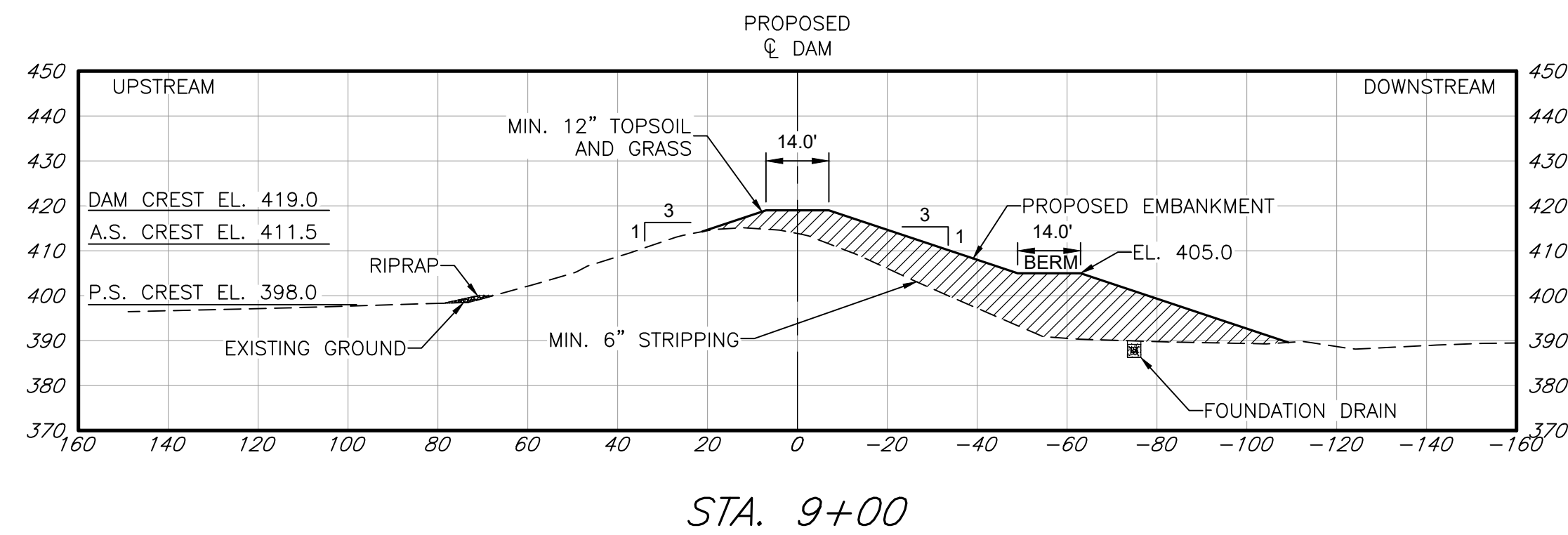
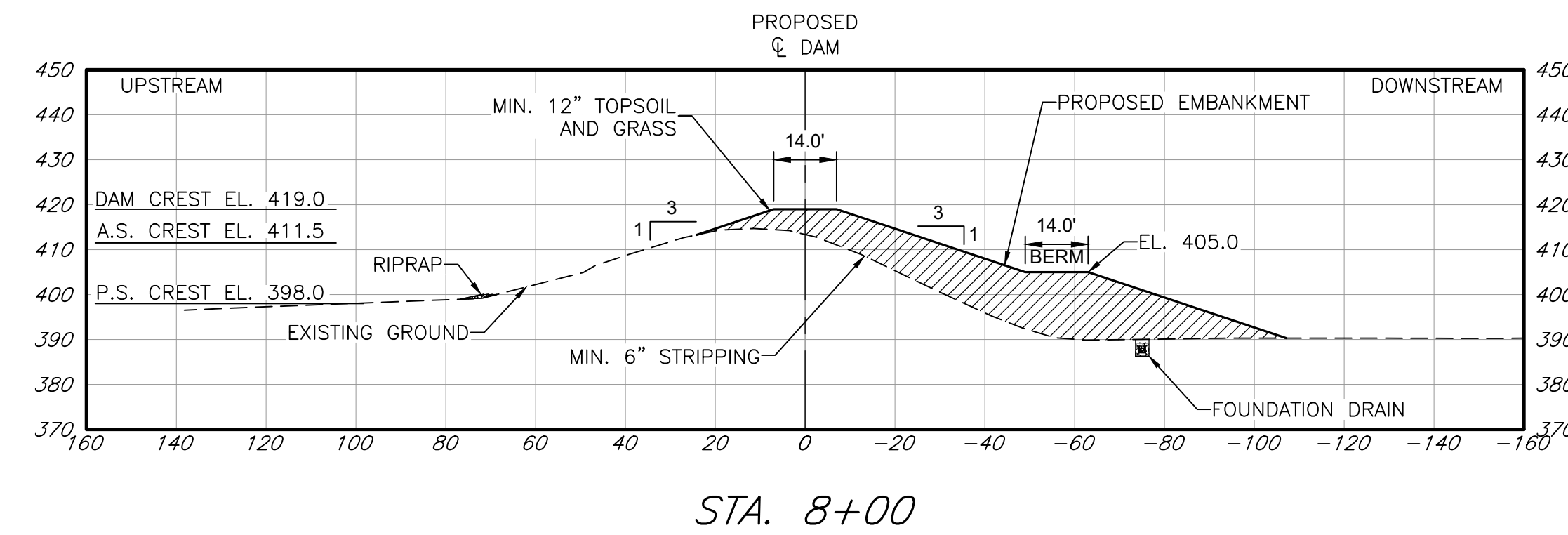
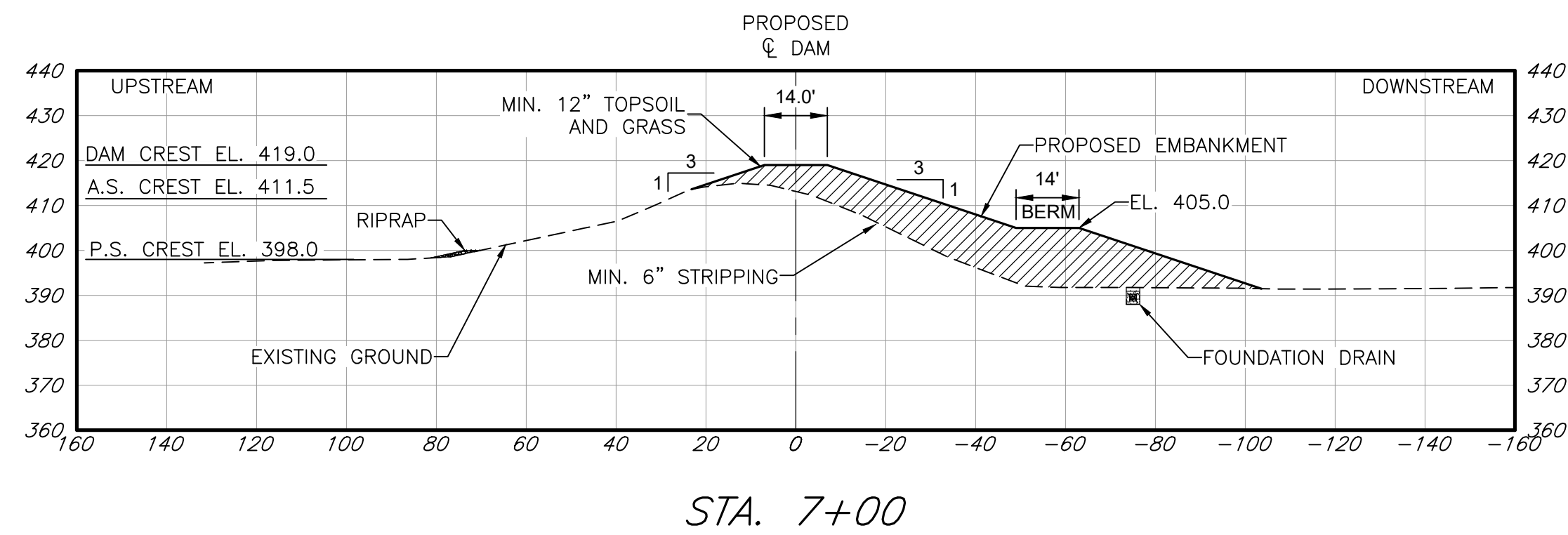
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 FLOODWATER RETARDING STRUCTURE SITE No. 3
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DRAWING NO.
 SHEET NO. C-6
 SEQUENCE NO. 8 OF 43

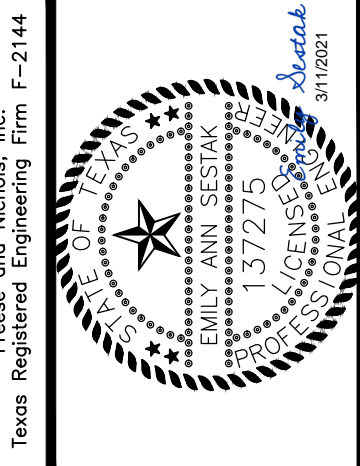
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SCALE IN FEET



NOTES:

1. STRIP AND REMOVE TOPSOIL AND REGRADE UPSTREAM EMBANKMENT AT 3:1 SLOPE.

REVISIONS		
DATE	APPROVED	TITLE



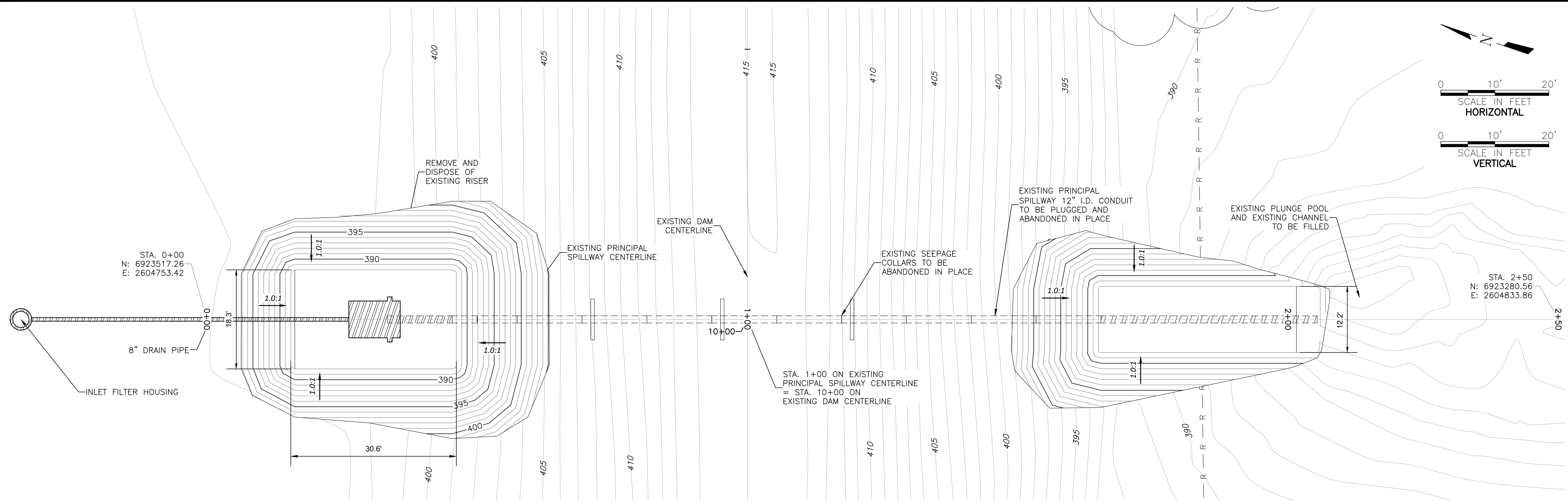
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DATE CHECKED: 3/9/2021

EMBANKMENT - SECTIONS
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

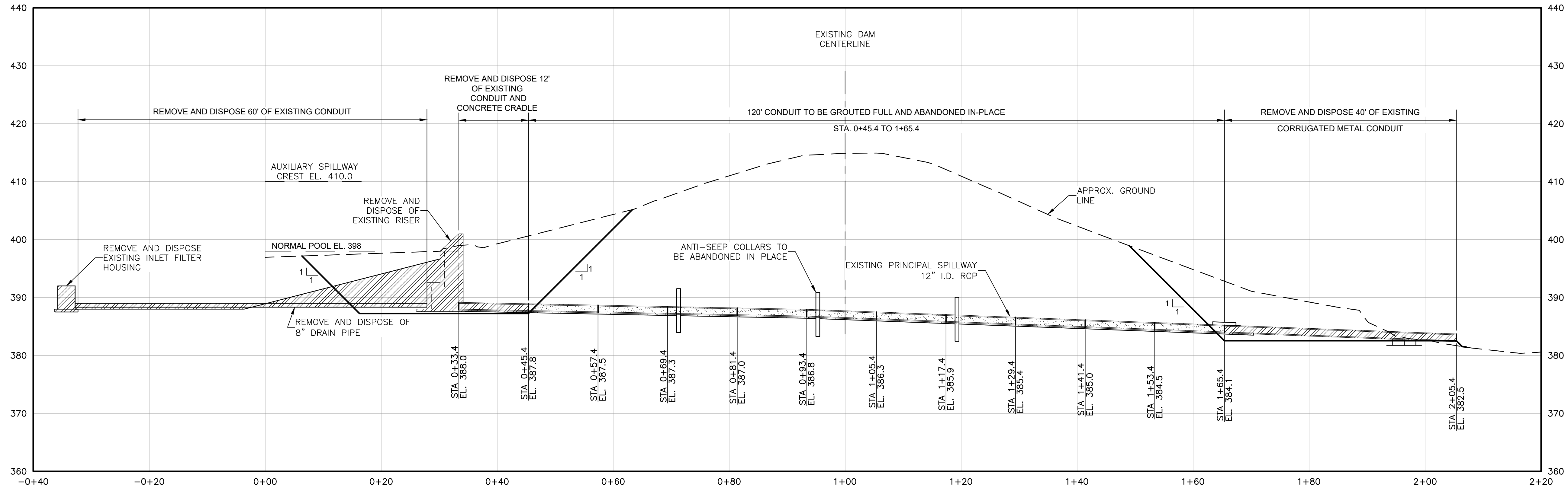
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SHEET NO. C-7
SEQUENCE NO. 8 OF 43

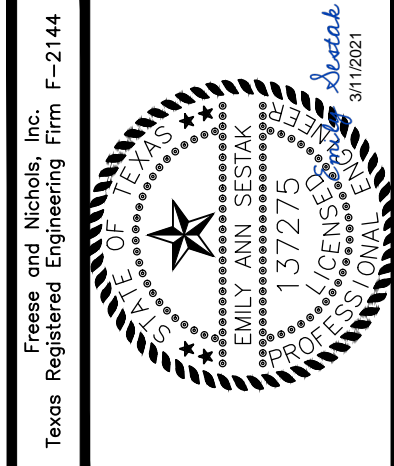
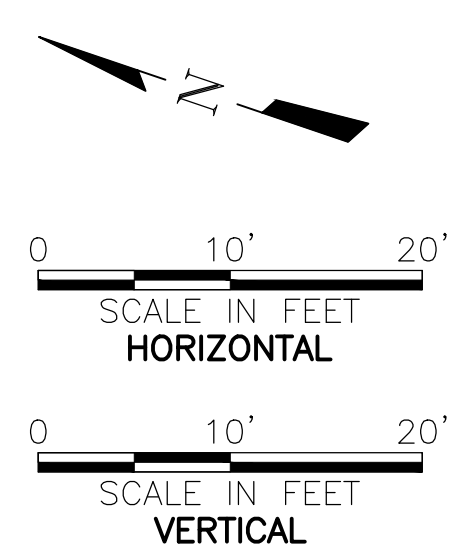
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EXISTING PRINCIPAL SPILLWAY DEMOLITION PLAN



EXISTING PRINCIPAL SPILLWAY DEMOLITION PROFILE



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 FILE NAME: LEF3-EX-SPWY-PP01.dwg
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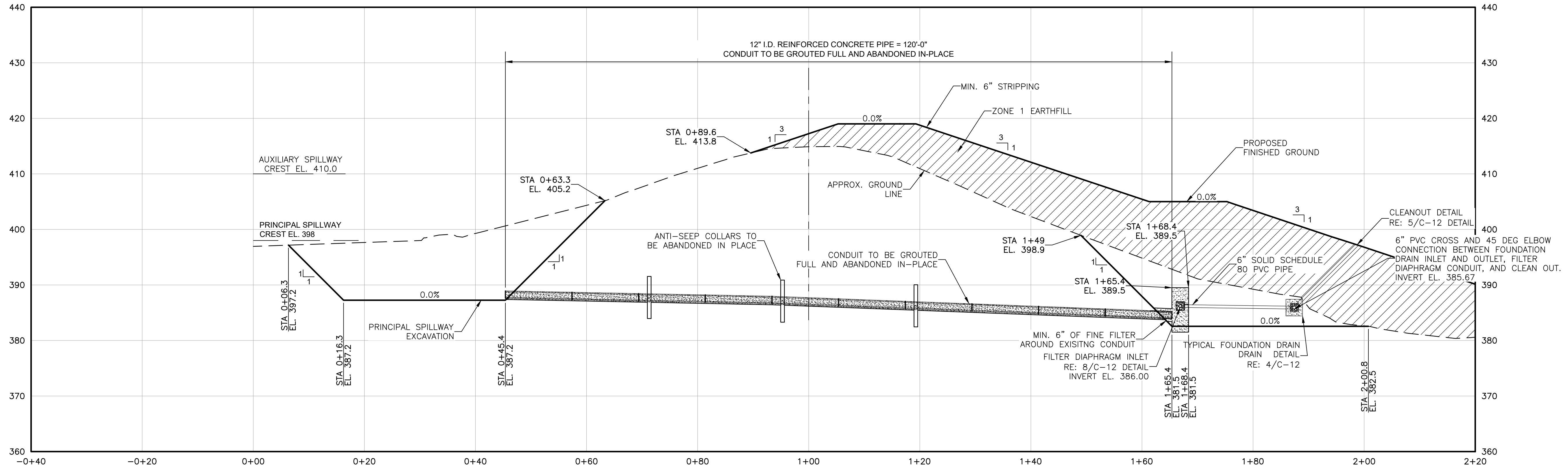
PRINCIPAL SPILLWAY – EXISTING PLAN AND PROFILE
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
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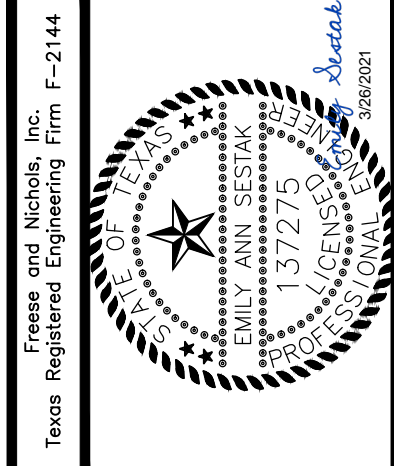
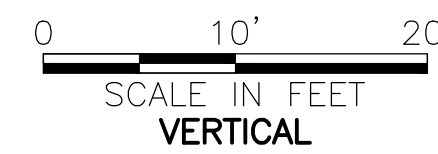
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REVISIONS		
DATE	APPROVED	TITLE

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EXISTING PRINCIPAL
SPILLWAY PROFILE VIEW



DESIGNED BY: EAS
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CHECKED BY: BEK & DGM
FILE NAME: LEF3-EX-PR-SPWY.dwg
DATE CHECKED: 3/25/2021

EXISTING PRINCIPAL SPILLWAY-PROPOSED FILTER DIAPHRAGM
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LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

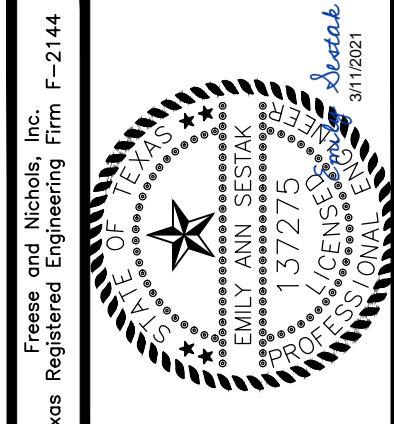
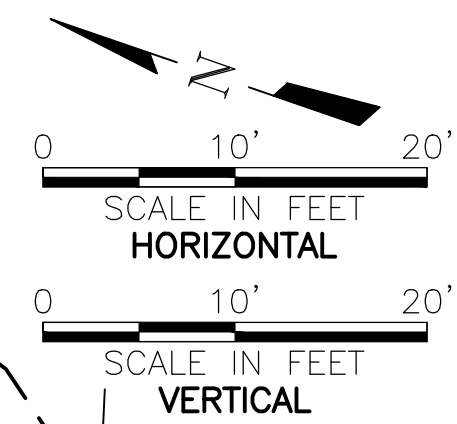
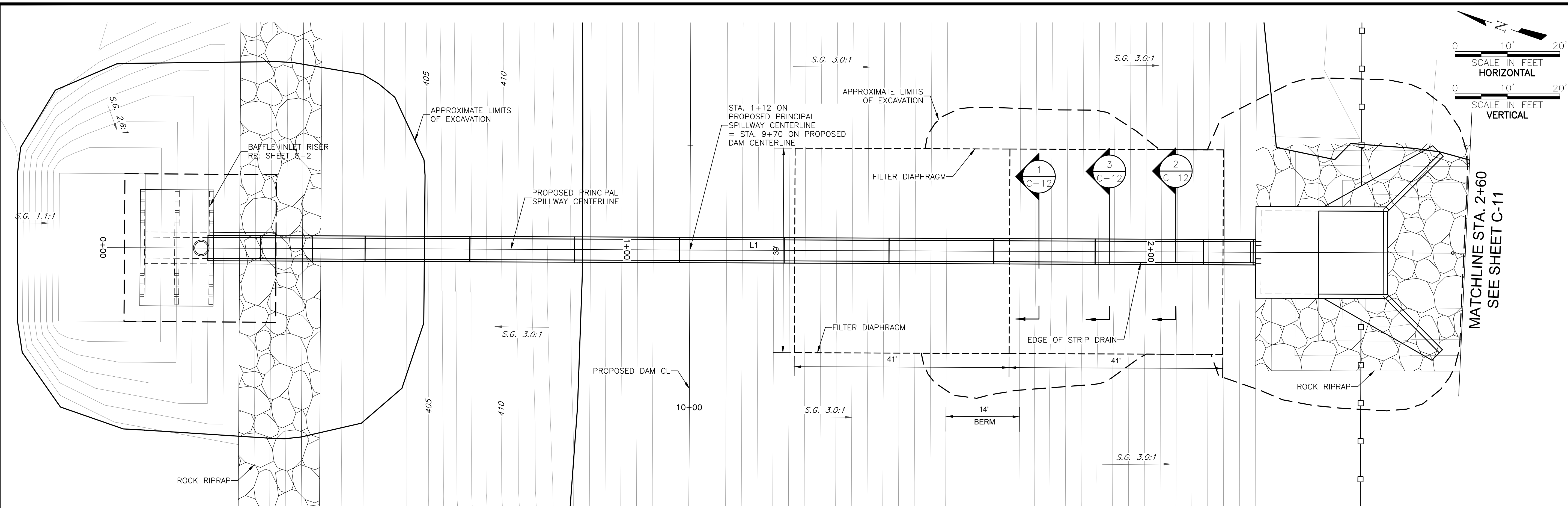
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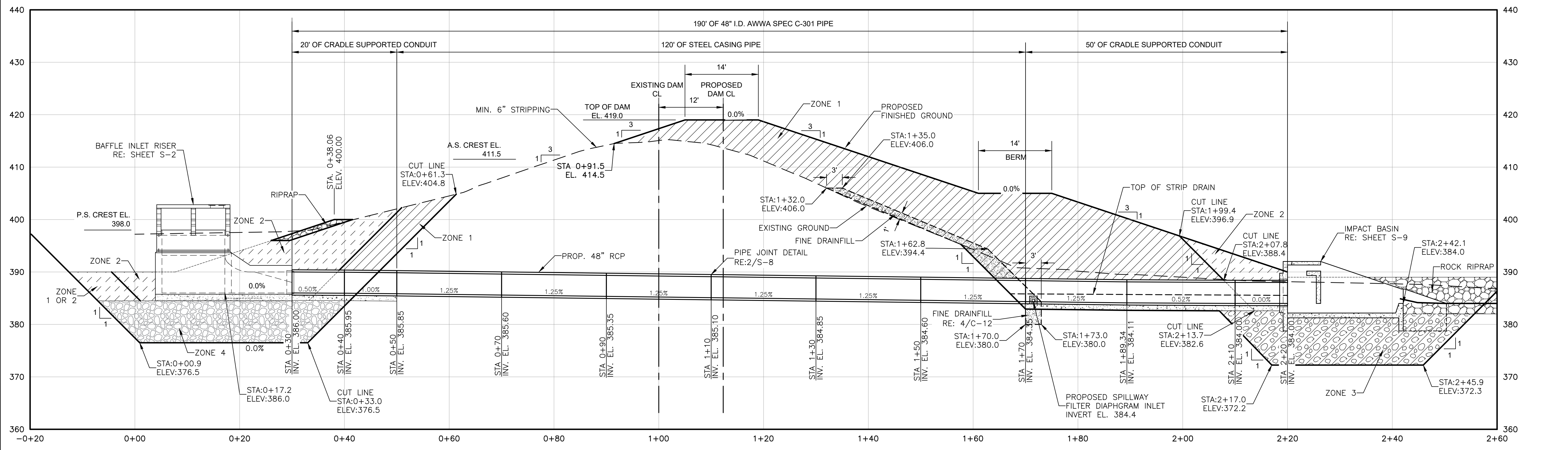
SHEET NO.
C-9

SEQUENCE NO.
12 OF 43

REVISIONS		
DATE	APPROVED	TITLE



DESIGNED BY: EAS
DRAWN BY: NBB
CHECKED BY: BEK & DGM
FILE NAME: CV_LEF3_PRO1.dwg
DATE CHECKED: 3/9/2021



PROPOSED PRINCIPAL SPILLWAY — PLAN AND PROFILE
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
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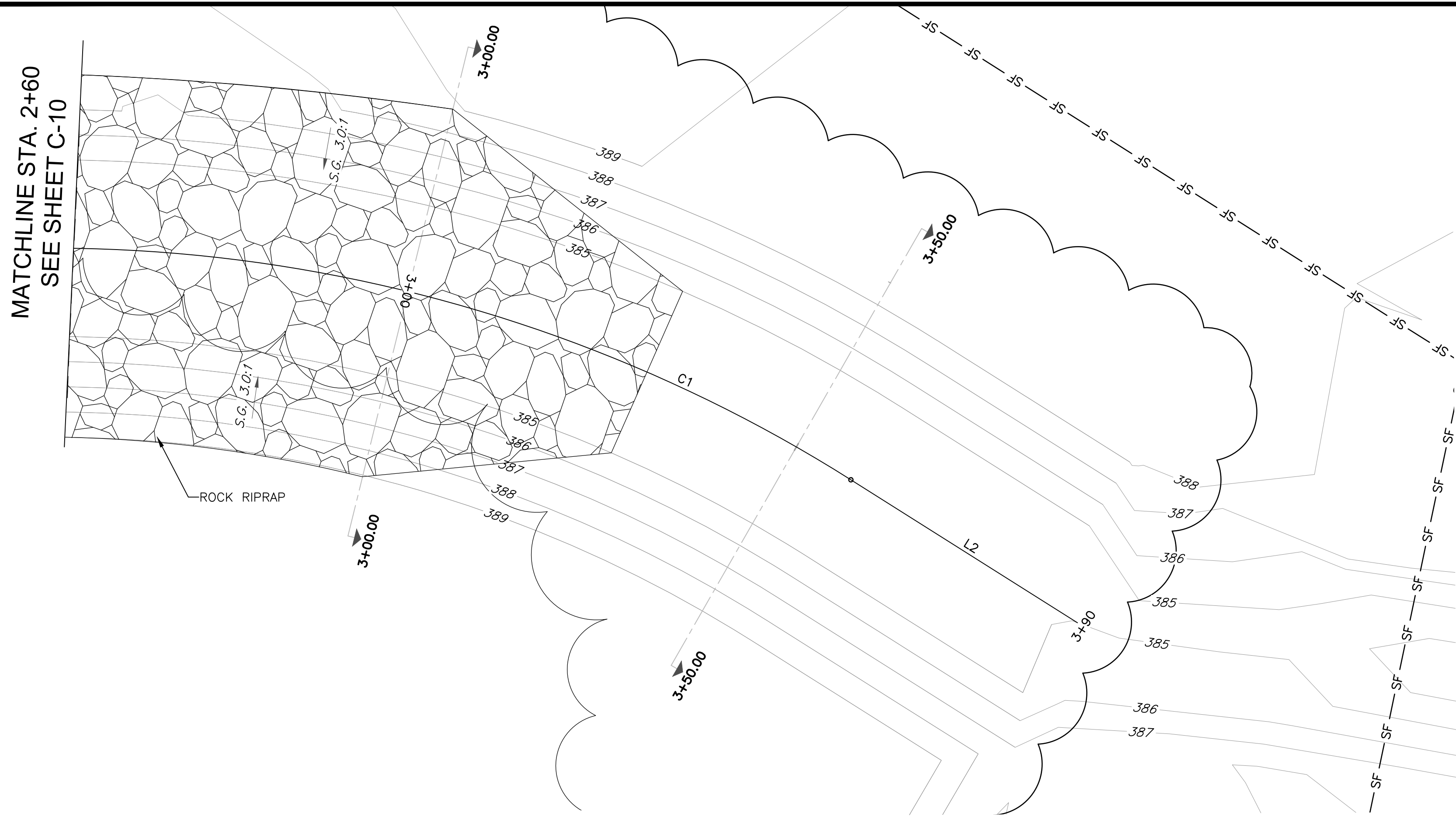
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SEQUENCE NO. **13 OF 43**

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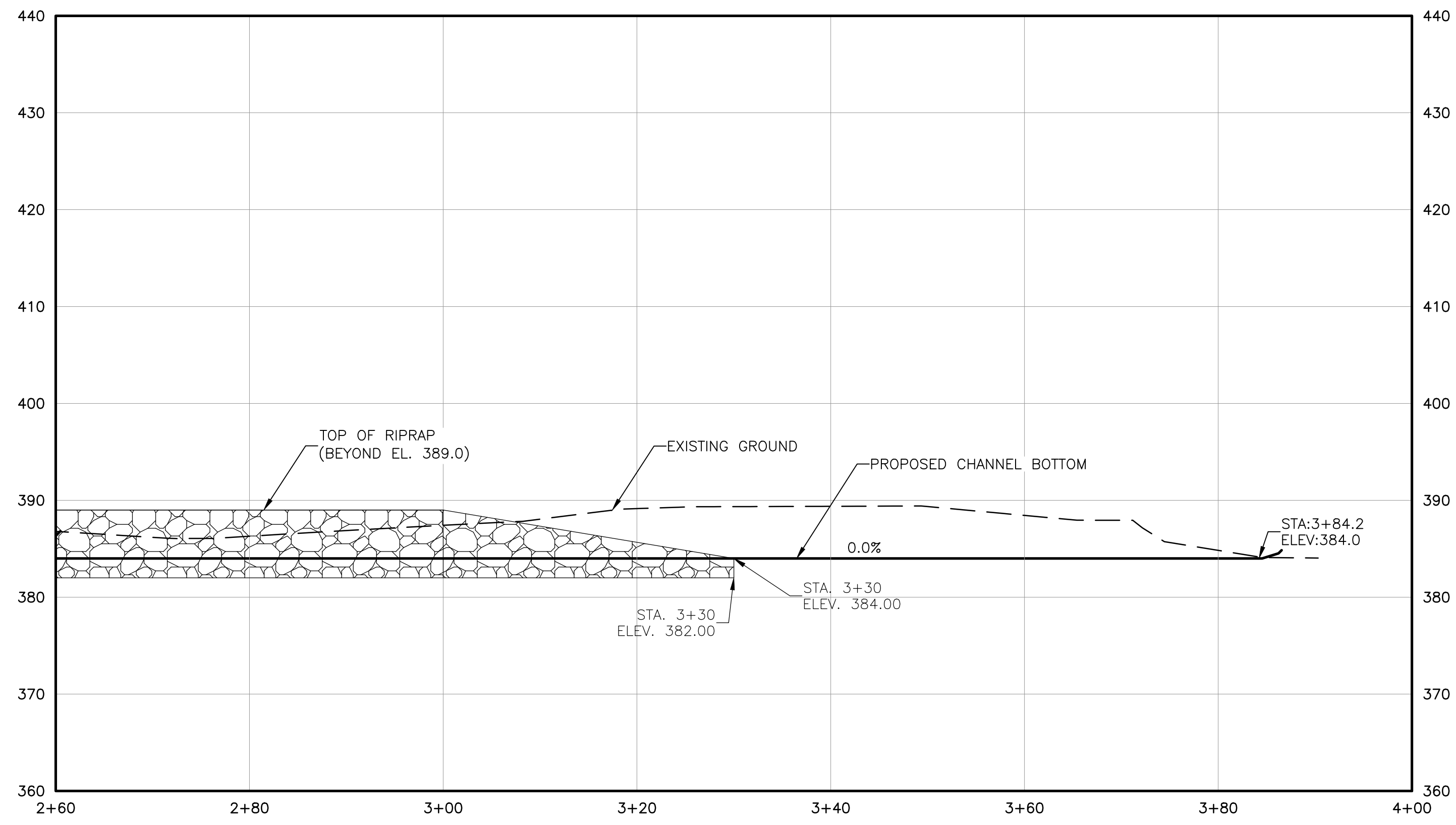
PRINCIPAL SPILLWAY
PLAN VIEW

ALIGNMENT TANGENT DATA

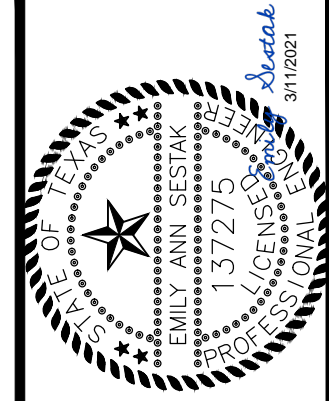
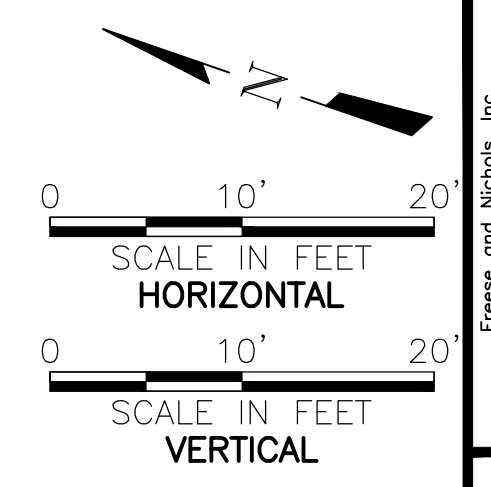
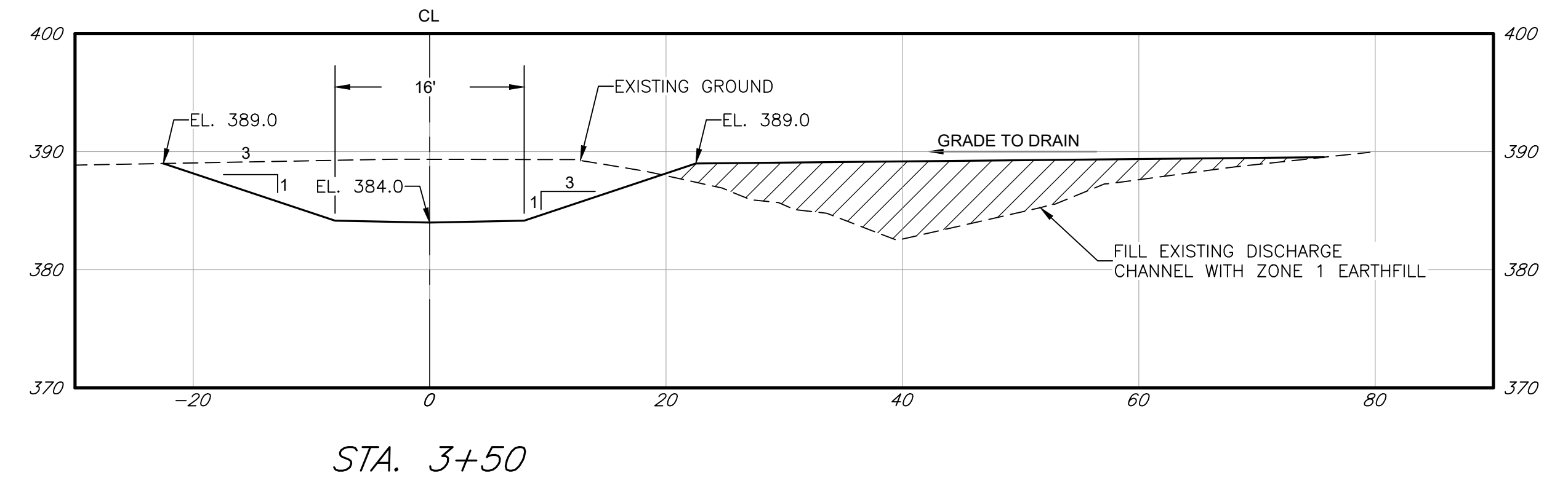
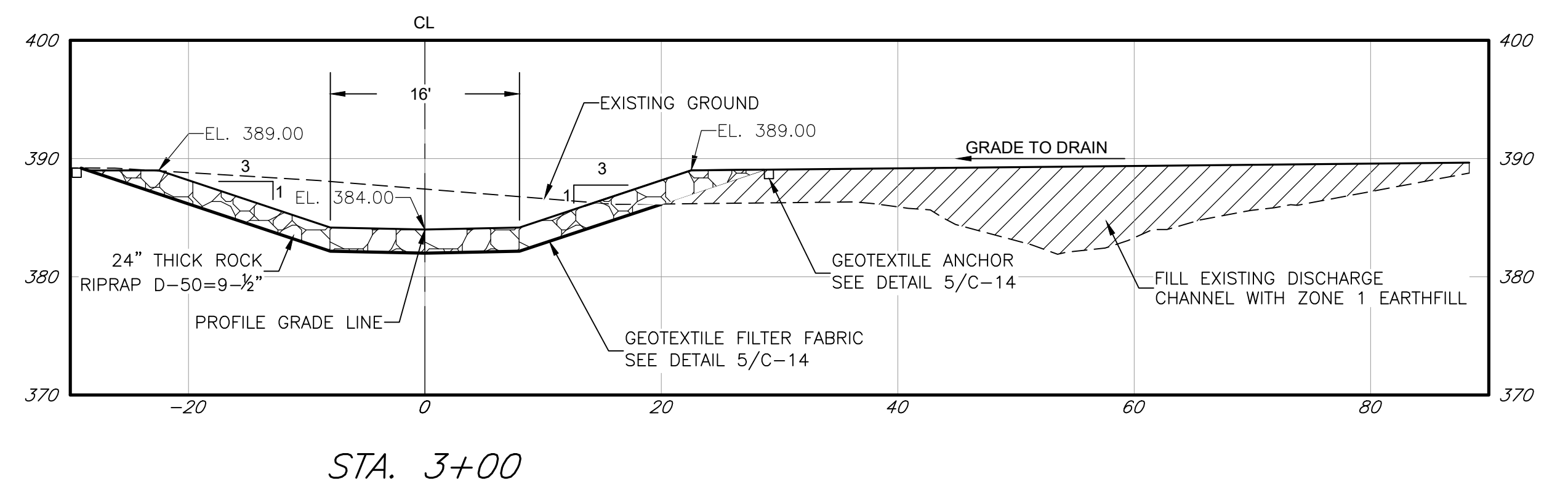
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L1	257.59	STA. 0+00 N: 6923533.070 E: 2604800.859	STA. 2+57.59 N: 6923289.179 E: 2604883.740
L2	32.73	STA. 3+57.59 N: 6923190.590 E: 2604888.488	STA. 3+90.32 N: 6923158.733 E: 2604880.985

ALIGNMENT CURVE DATA

CURVE #	DELTA (A)	D	R	L	P.C.	P.I.	P.T.	T
C1	32° 01' 23"	032' 01' 23"	178.9	100.00	STA. 2+57.6 N: 6923289.179 E: 2604883.740	STA. 3+08.9 N: 6923240.566 E: 2604900.260	STA. 3+57.6 N: 6923190.590 E: 2604888.488	51.34



PRINCIPAL SPILLWAY
PROFILE VIEW



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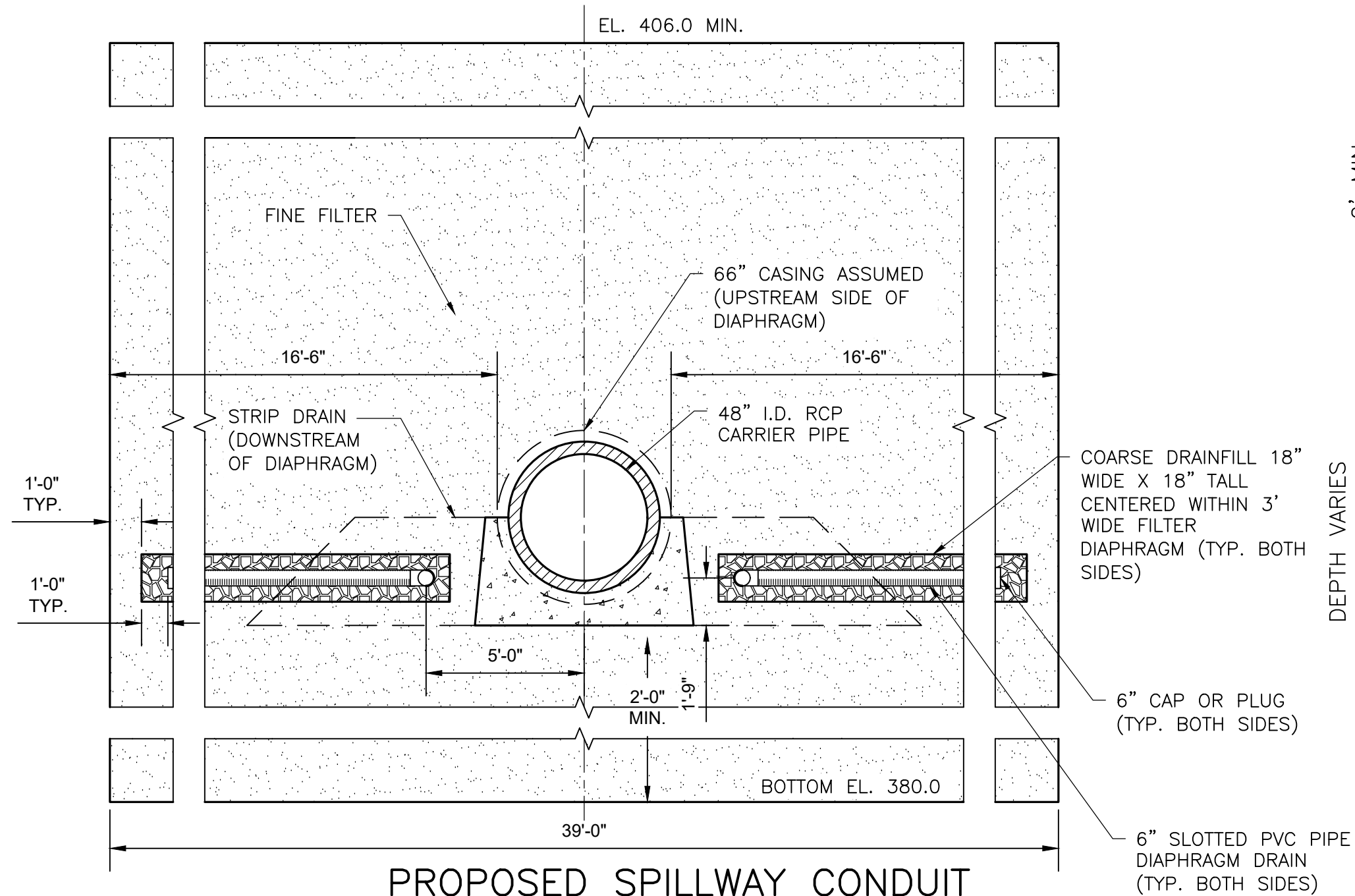
PROPOSED PRINCIPAL SPILLWAY — PLAN AND PROFILE
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
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SHEET NO. **C-11**
SEQUENCE NO.
14 OF 43

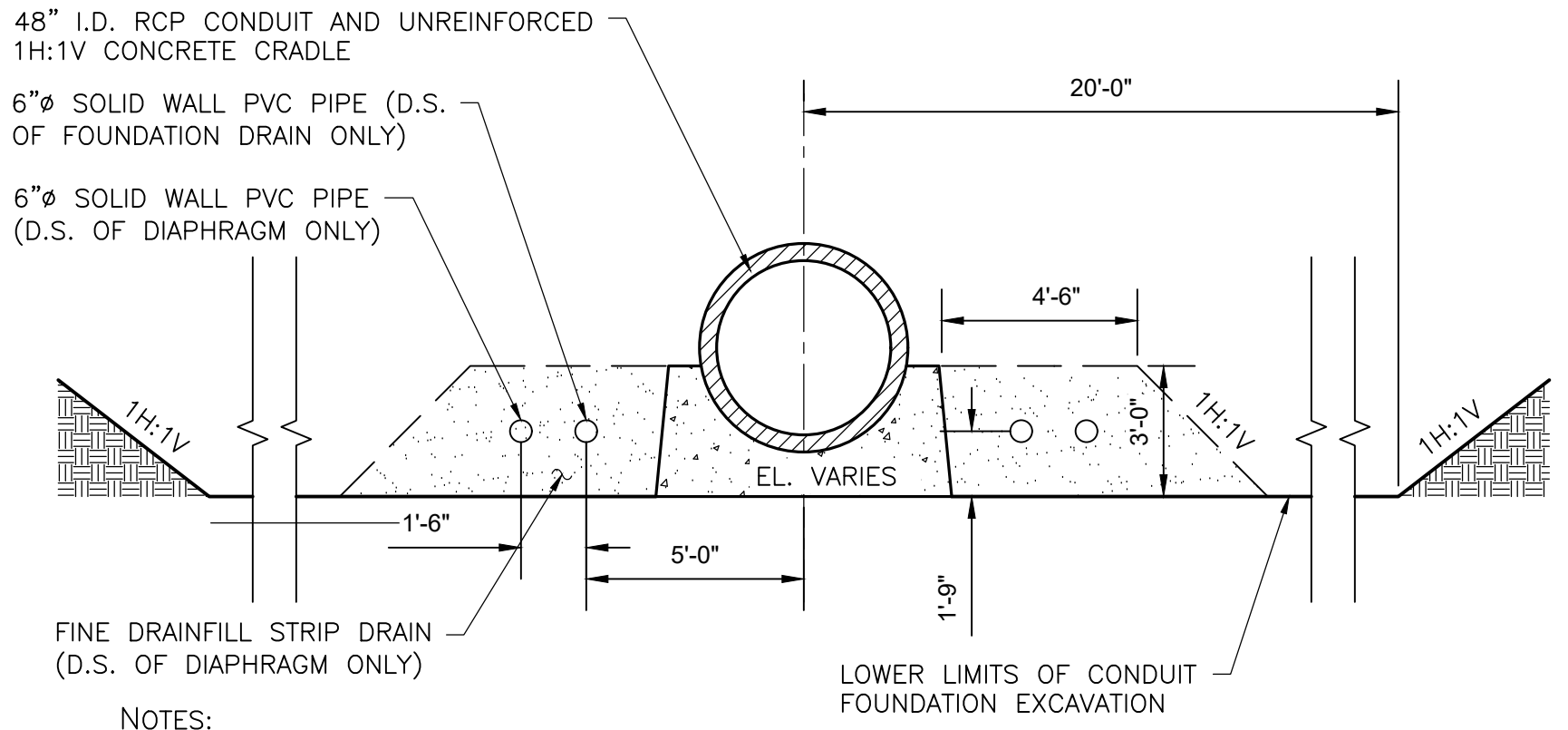
REVISIONS

DATE	APPROVED	TITLE



PROPOSED SPILLWAY CONDUIT FILTER DIAPHRAGM DETAIL

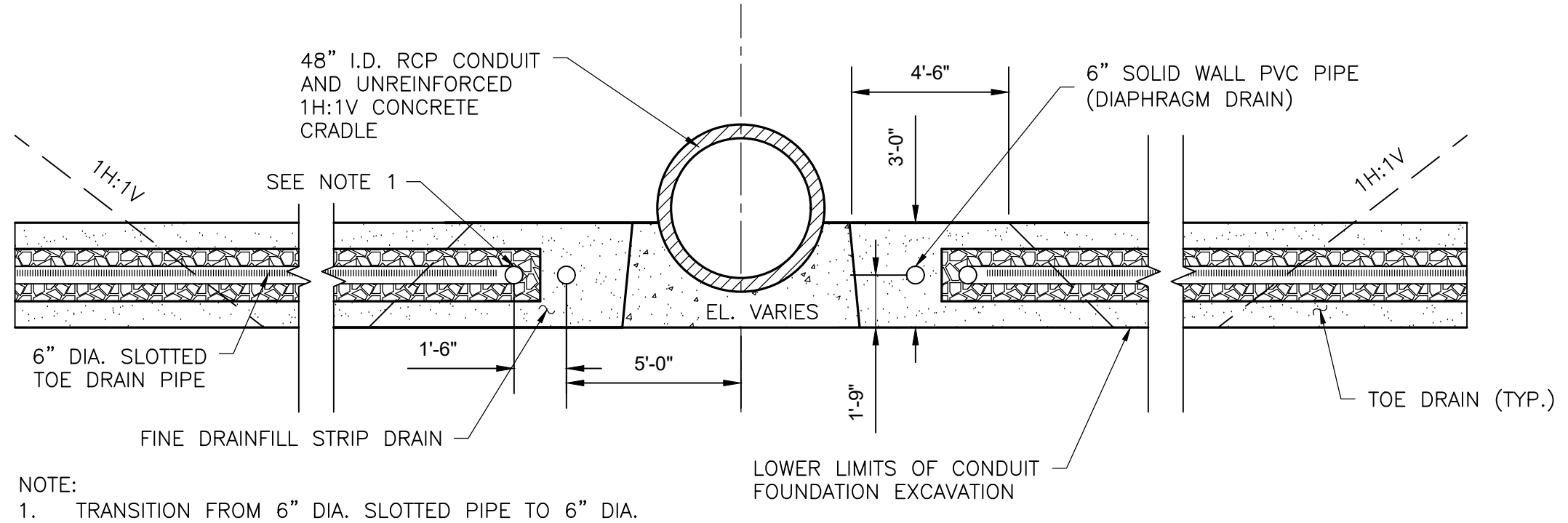
1
1/4" = 1'-0"



- NOTES:
- CONTRACTOR CAN MAKE EXCAVATION WIDE ENOUGH TO ACCOMMODATE A READY-MIX CONCRETE TRUCK TO FACILITATE THE PLACEMENT OF THE CONCRETE CRADLE. CARE SHOULD BE EXERCISED NOT TO COMPROMISE FOUNDATION SUBGRADE FOR PROPER CRADLE/PIPE SUPPORT AND EMBANKMENT BACKFILLING
 - DIMENSIONS ARE SYMMETRICAL ABOUT CENTERLINE UNLESS MODIFIED AS DESCRIBED IN NOTE 1.

TYPICAL FOUNDATION EXCAVATION AND STRIP DRAIN DETAIL

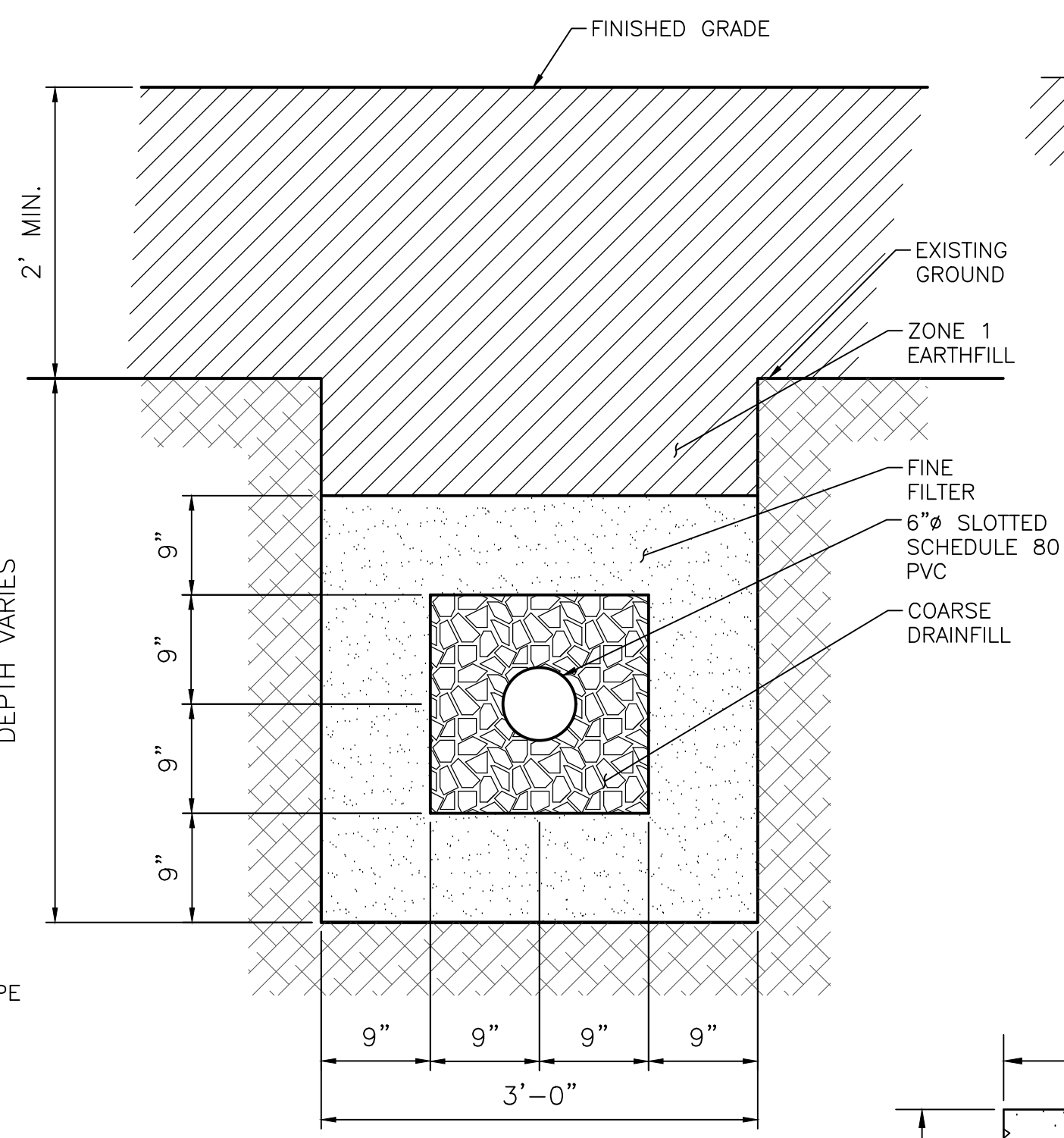
2
1/4" = 1'-0"



- NOTE:
- TRANSITION FROM 6" DIA. SLOTTED PIPE TO 6" DIA. NON-PERFORATED PIPE AT STRIP DRAIN SHOULD INCLUDE TWO 45-DEGREE BENDS WITH AT LEAST 2' STRAIGHT PIPE BETWEEN BENDS

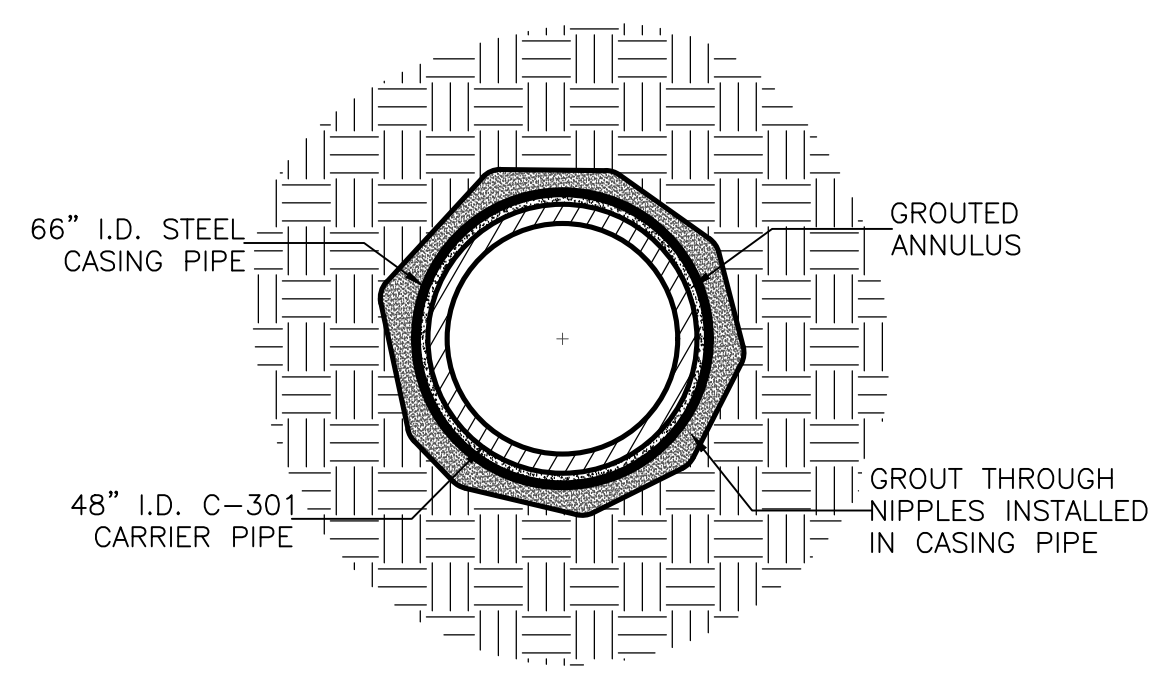
FOUNDATION DRAIN AT STRIP DRAIN AND CONDUIT DETAIL

3
1" = 1'-0"



TYPICAL FOUNDATION DRAIN AND TRENCH DRAIN DETAIL

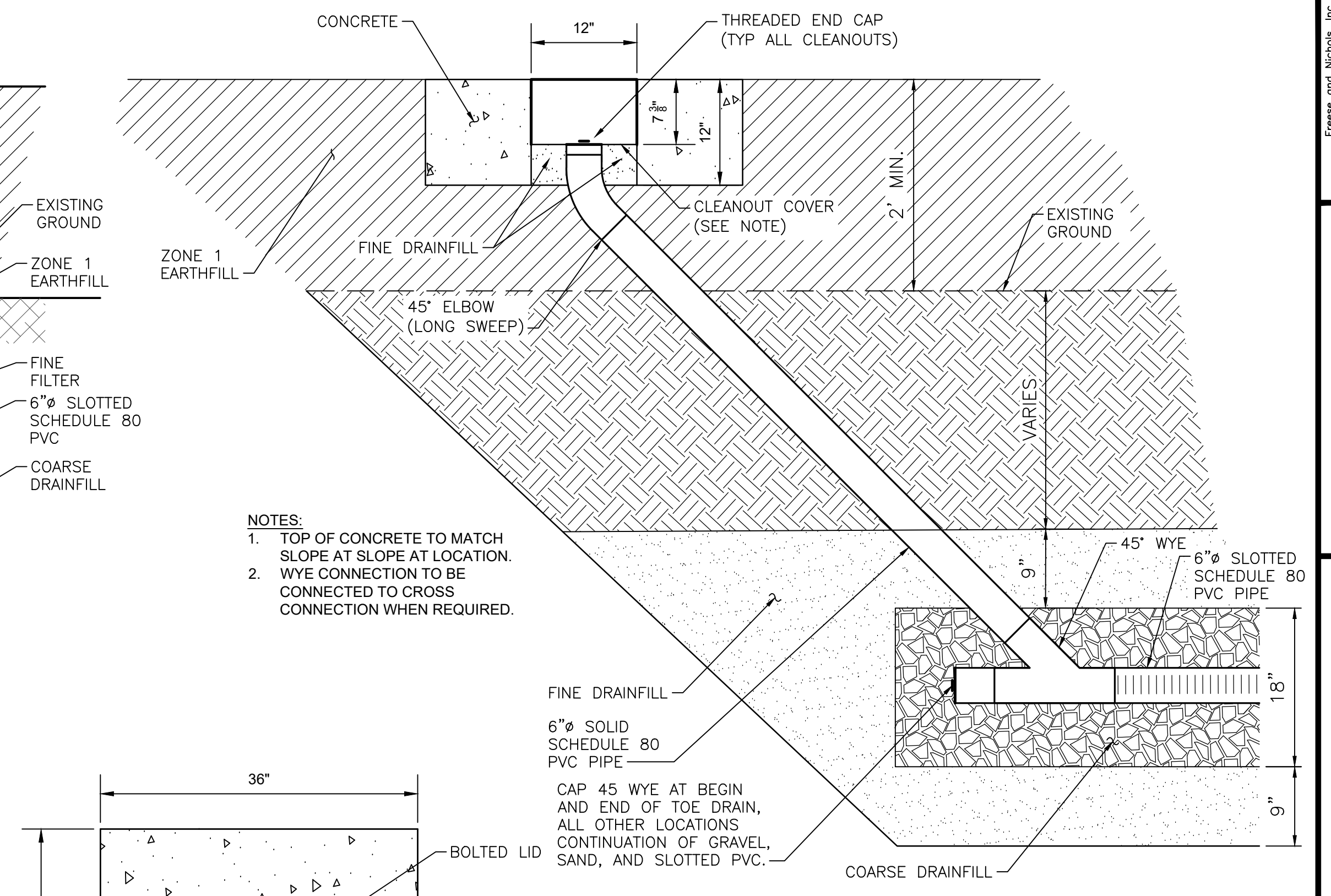
4



- NOTES:
- THE 48" CARRIER PIPE SHALL BE MANUFACTURED SPECIFICALLY FOR TRENCH-LESS INSTALLATION PROCEDURES. THIS SHALL INCLUDE THAT THE CARRIER PIPE BE MANUFACTURED/SUPPLIED SO THAT THE PIPE BELLS DO NOT TOUCH THE CASING PIPE.
 - JOINT DETAILS FOR THE CARRIER PIPE SHALL BE SUPPLIED BY THE MANUFACTURER.
 - THE CARRIER PIPE SHALL NOT BE ALLOWED TO FLOAT DURING THE GROUTING PROCESS.
 - REFER TO CONSTRUCTION SPECIFICATION 54 AND 85.
 - CONTRACTOR SHALL DETERMINE REQUIRED THICKNESS FOR THE STEEL CASING PIPE TO RESIST THE JACK AND BORE CONSTRUCTION METHOD. THE THICKNESS SHALL NOT BE LESS THAN 0.5 INCHES.

PRINCIPAL SPILLWAY JACK AND BORE

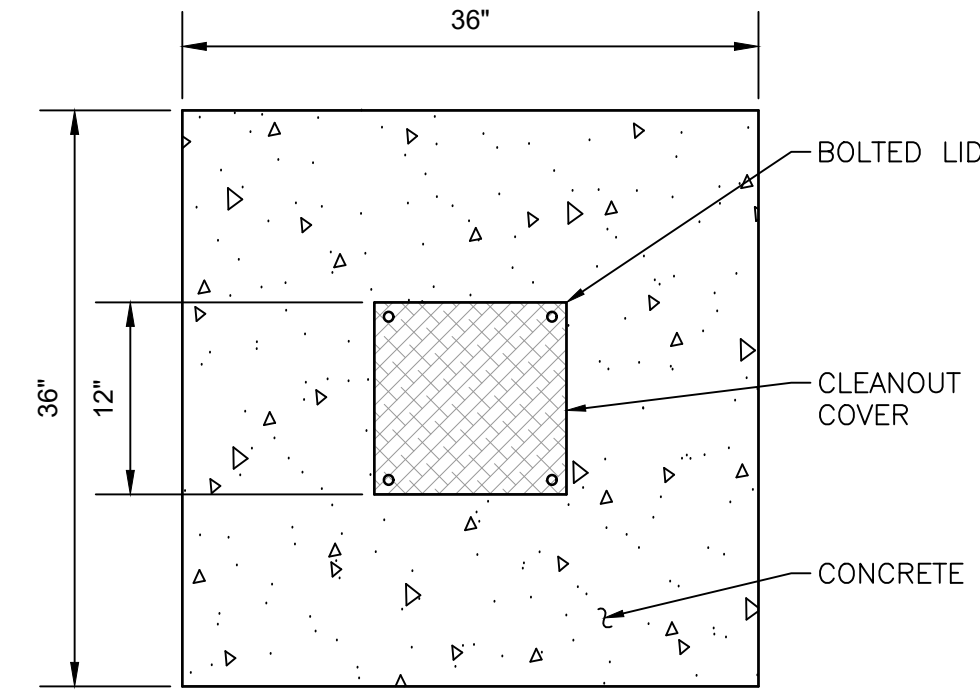
6
NTS



- NOTES:
- TOP OF CONCRETE TO MATCH SLOPE AT LOCATION.
 - WYE CONNECTION TO BE CONNECTED TO CROSS CONNECTION WHEN REQUIRED.

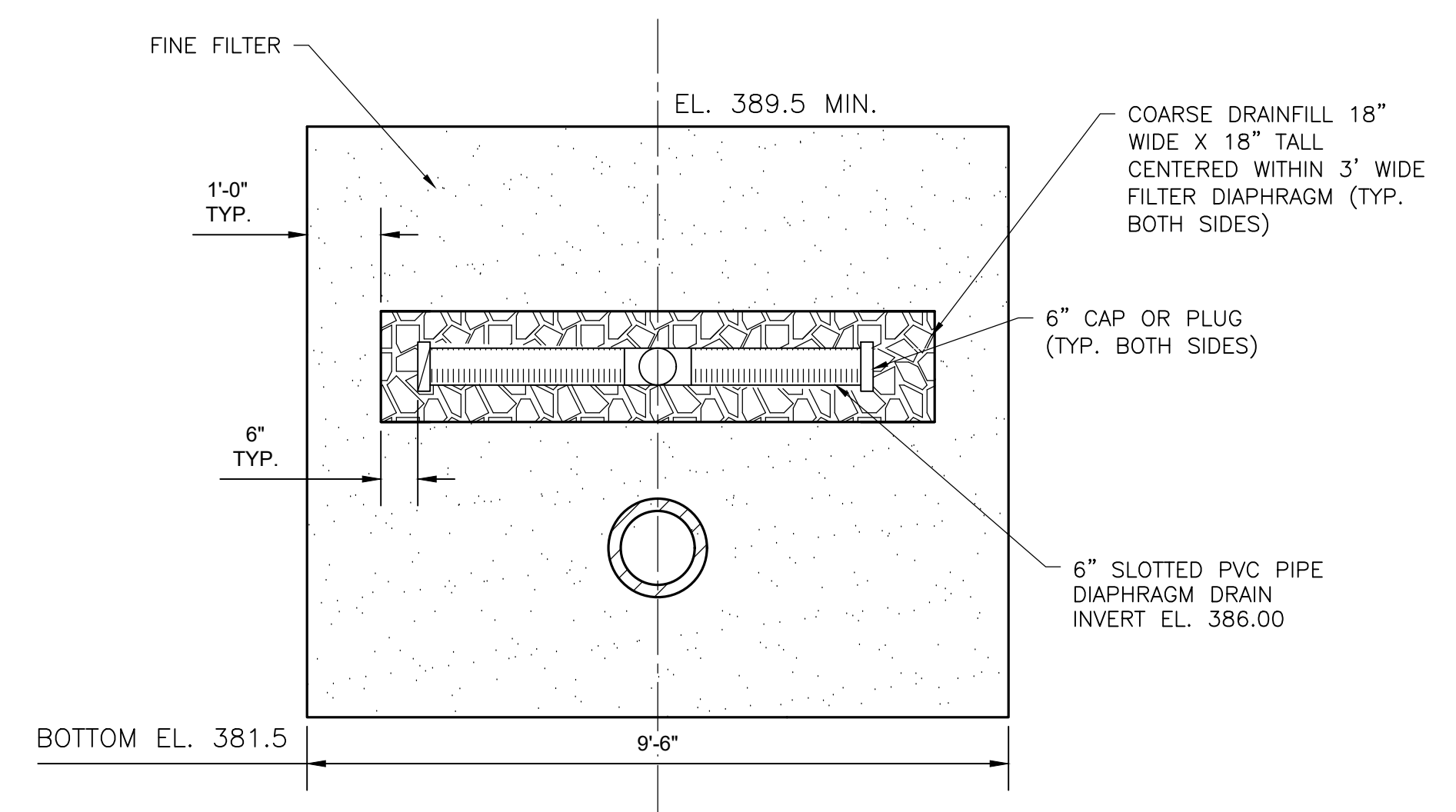
FOUNDATION DRAIN CLEANOUT DETAIL

5
1" = 1'-0"



CLEANOUT COVER

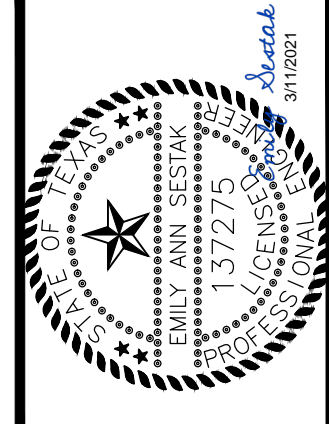
7



EXISTING SPILLWAY CONDUIT FILTER DIAPHRAGM DETAIL

8
1/2" = 1'-0"

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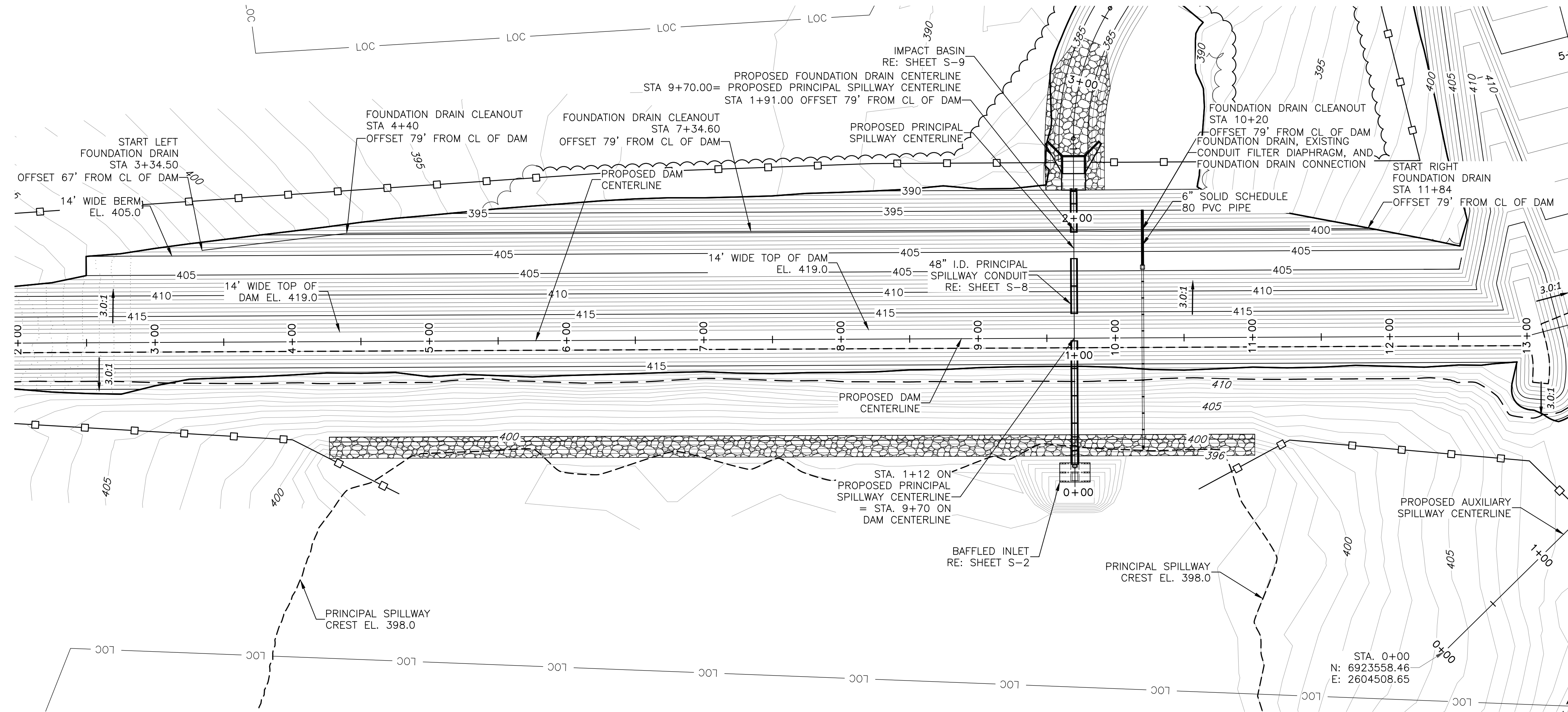
PRINCIPAL SPILLWAY SECTIONS AND DETAILS

FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
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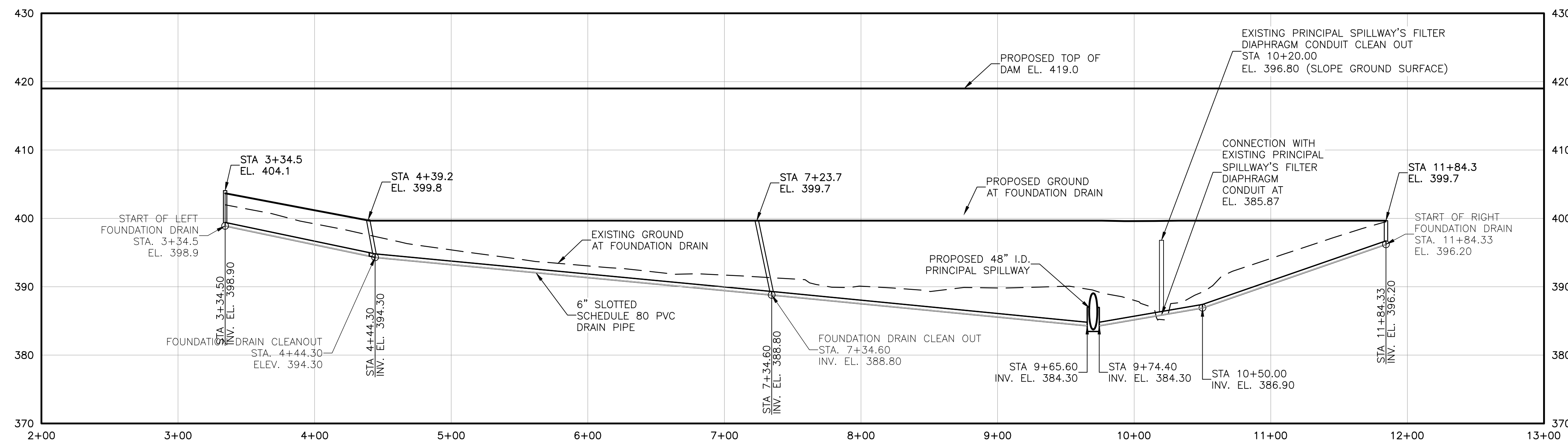
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 SHEET NO. **C-12**
 SEQUENCE NO. **15 OF 43**

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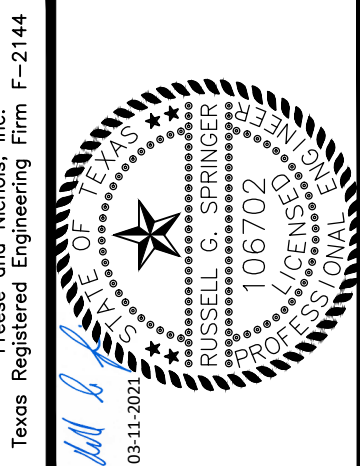
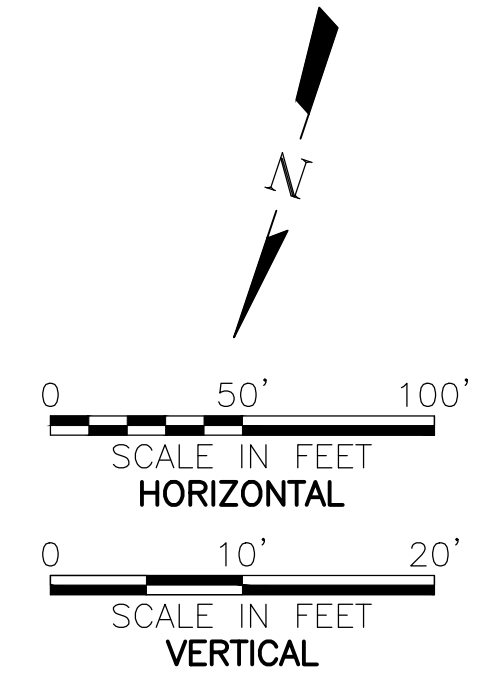


- NOTES:
- CLEANOUT LOCATIONS AS SHOWN ARE APPROXIMATE. REFER TO DETAIL ON SHEET C-12.
 - CONTRACTOR SHALL STAKE ACTUAL CLEANOUT LOCATIONS FOR APPROVAL BY THE ENGINEER.

PLAN VIEW



PROFILE VIEW



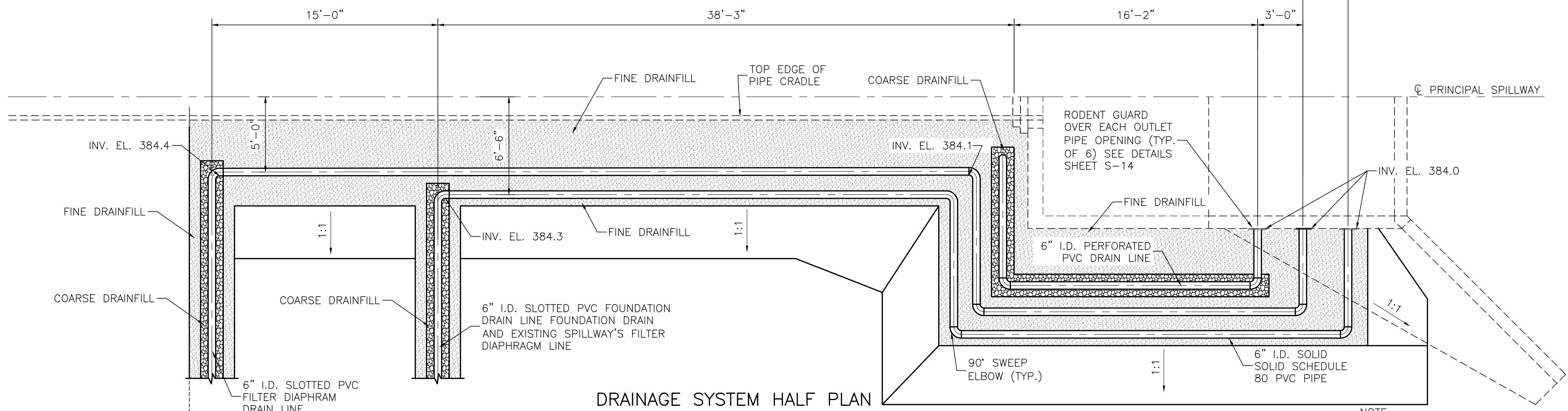
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PROPOSED FOUNDATION DRAIN PLAN AND PROFILE
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
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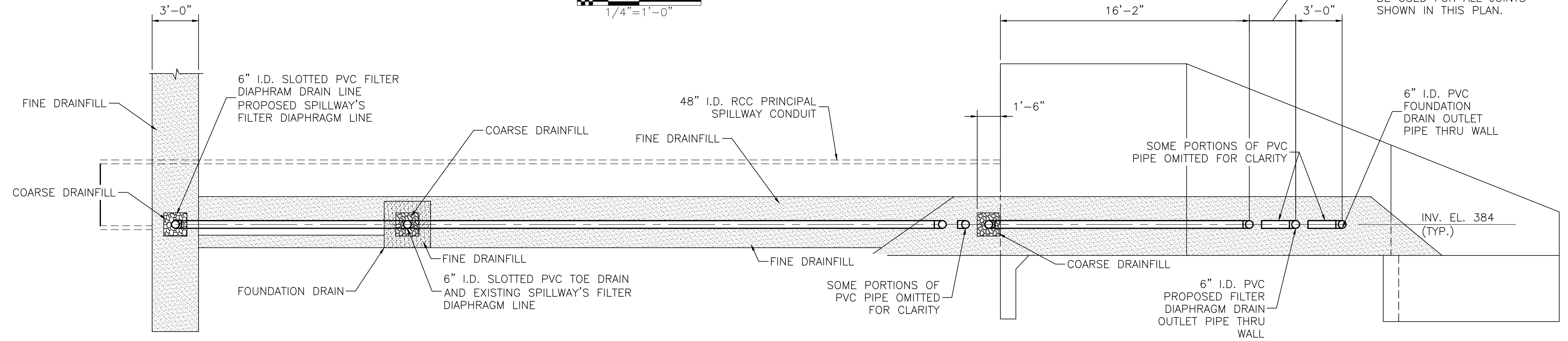
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 SEQUENCE NO. **17 OF 43**

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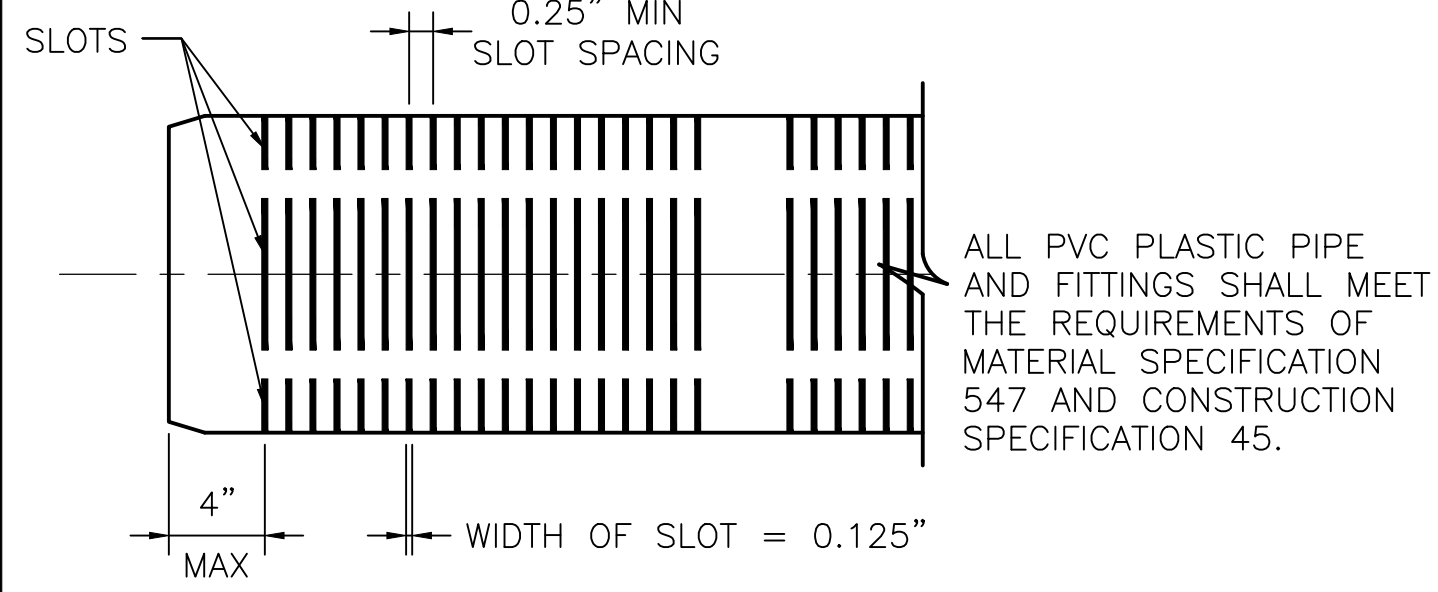


1
DRAINAGE SYSTEM HALF PLAN
TYPICAL BOTH SIDES
0 1' 2' 4' 8'
1/4"=1'-0"

NOTE:
1. SWEEP ELBOWS OR LONG RADIUS ELBOWS SHALL BE USED FOR ALL JOINTS SHOWN IN THIS PLAN.

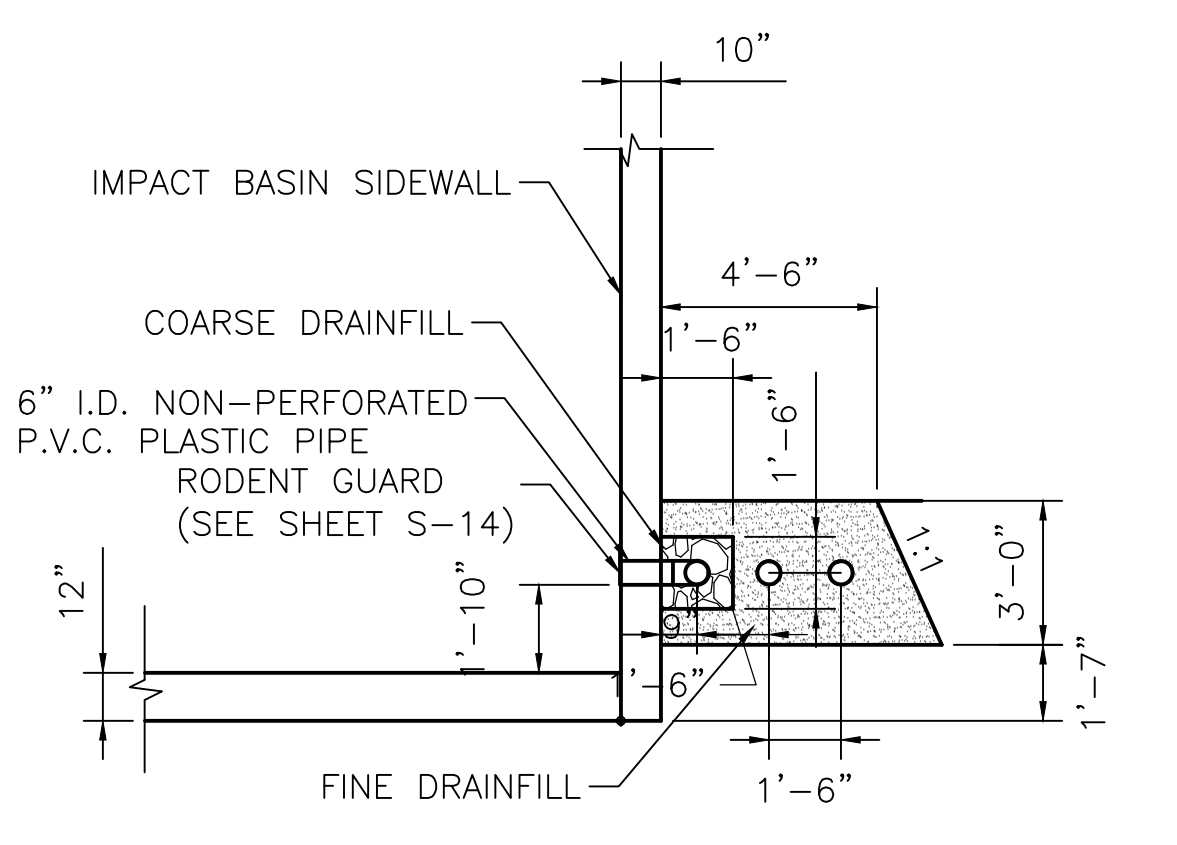


2
DRAINAGE SYSTEM ELEVATION
TYPICAL BOTH SIDES
0 1' 2' 4' 8'
1/4"=1'-0"

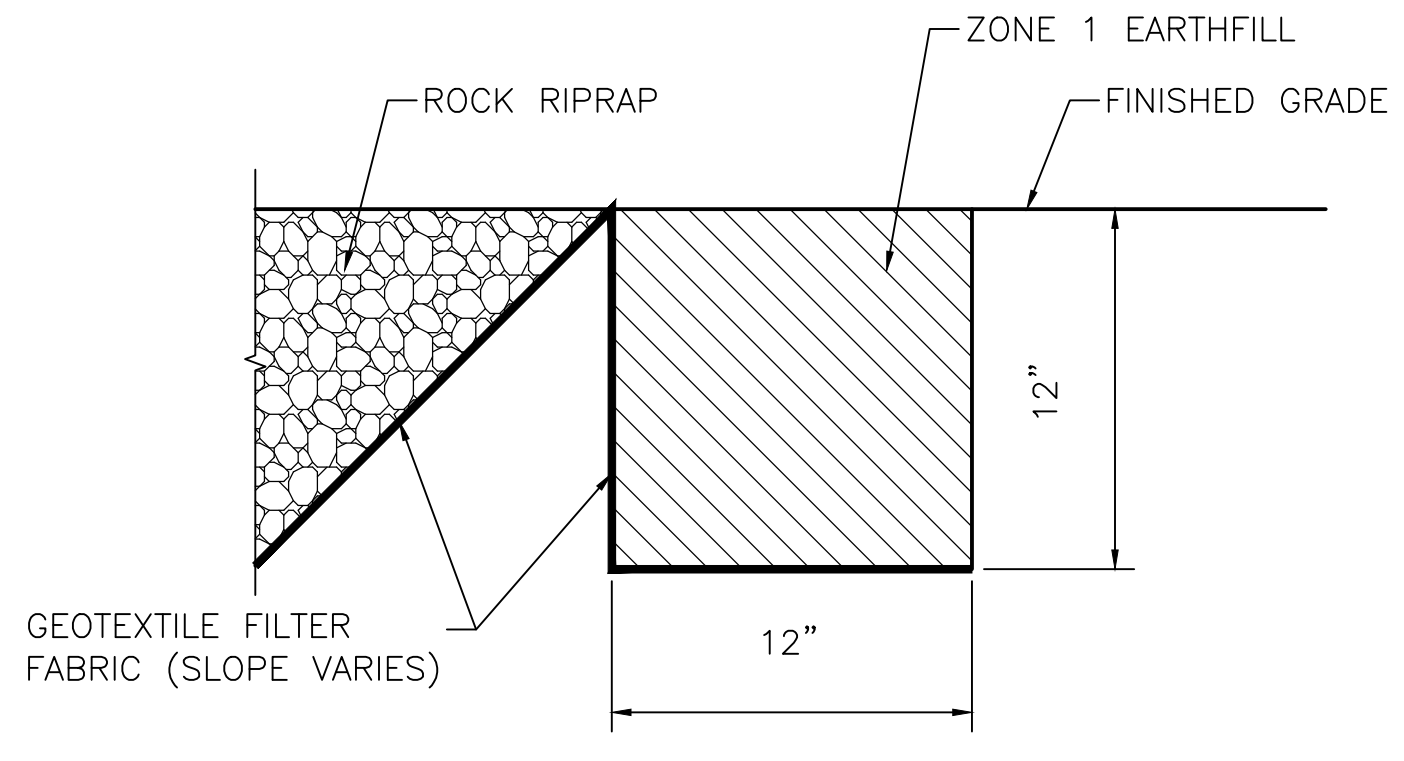


- NOTES:
1. SLOT SPACING SHALL BE 0.25".
 2. SLOTS SHALL BE PLACED IN NO MORE THAN SIX (6) ROWS SYMMETRICALLY ABOUT THE PIPE CENTERLINE. THE SOLID SPACING BETWEEN EACH ROW SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
 3. SLOTTED PIPE SHALL PROVIDE A MINIMUM OF ONE (1) SQ. IN. OF OPEN AREA PER FOOT OF PIPE.

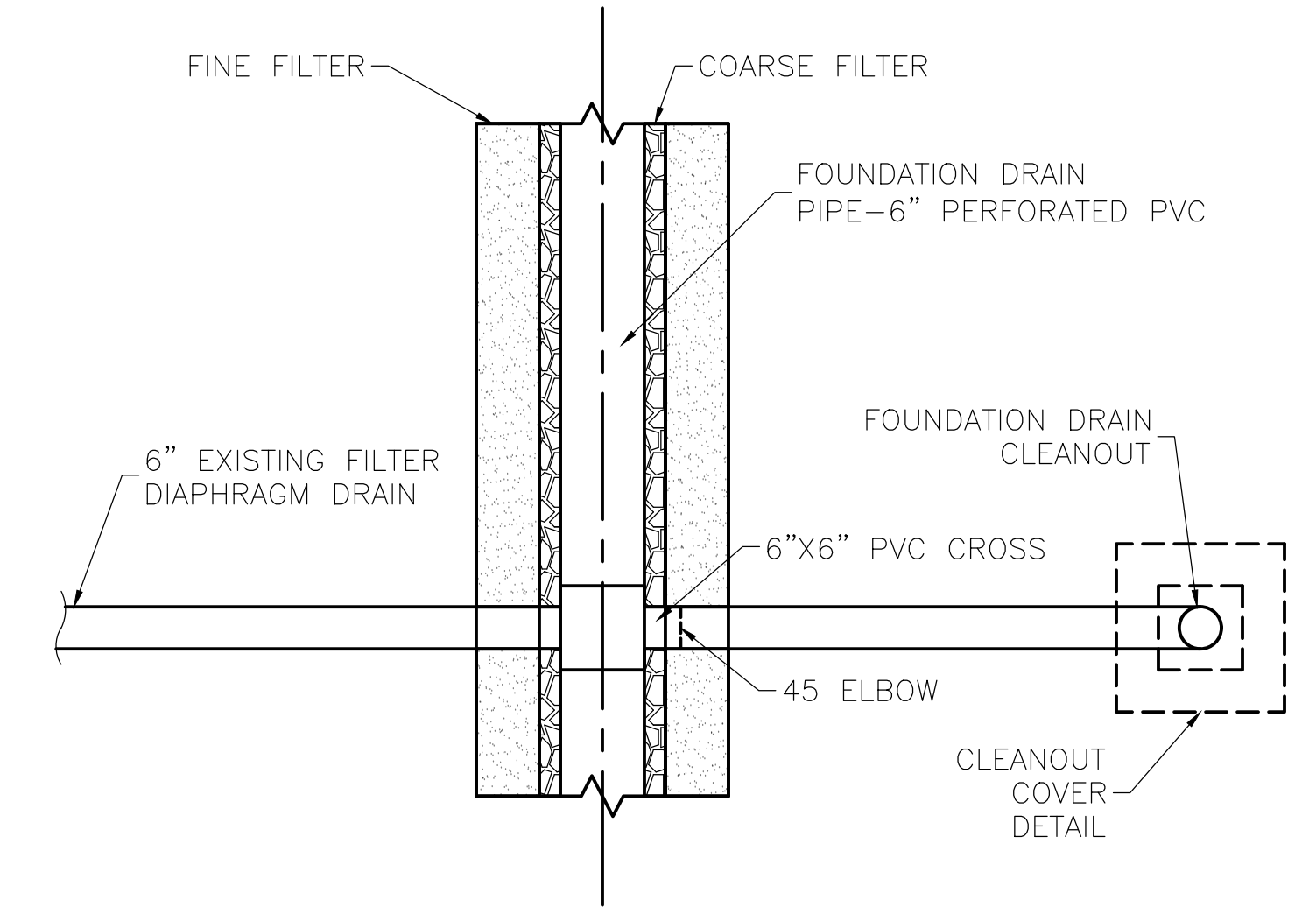
3
PERFORATED PVC PIPE DETAIL
NOT TO SCALE



4
DRAIN SECTION
0 1' 2' 4' 8'
1/2"=1'-0"



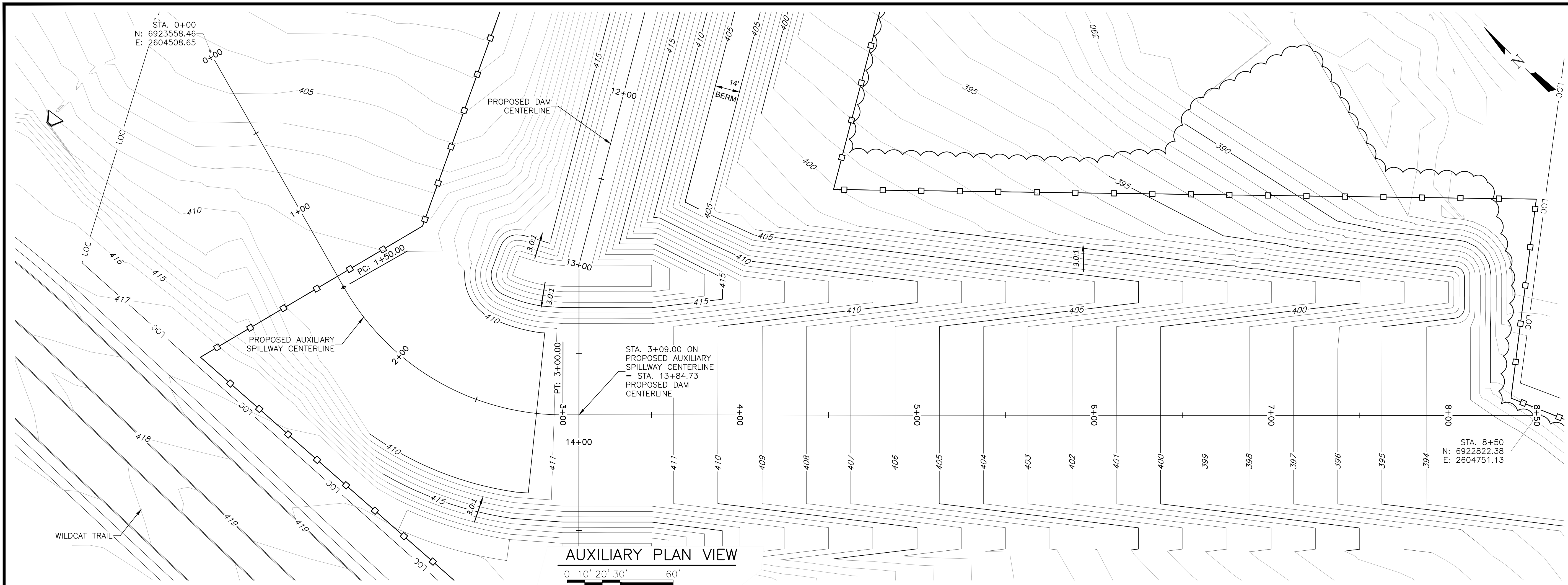
5
TYPICAL GEOTEXTILE ANCHOR TRENCH
0 1' 2' 4' 8'
1/4"=1'-0"



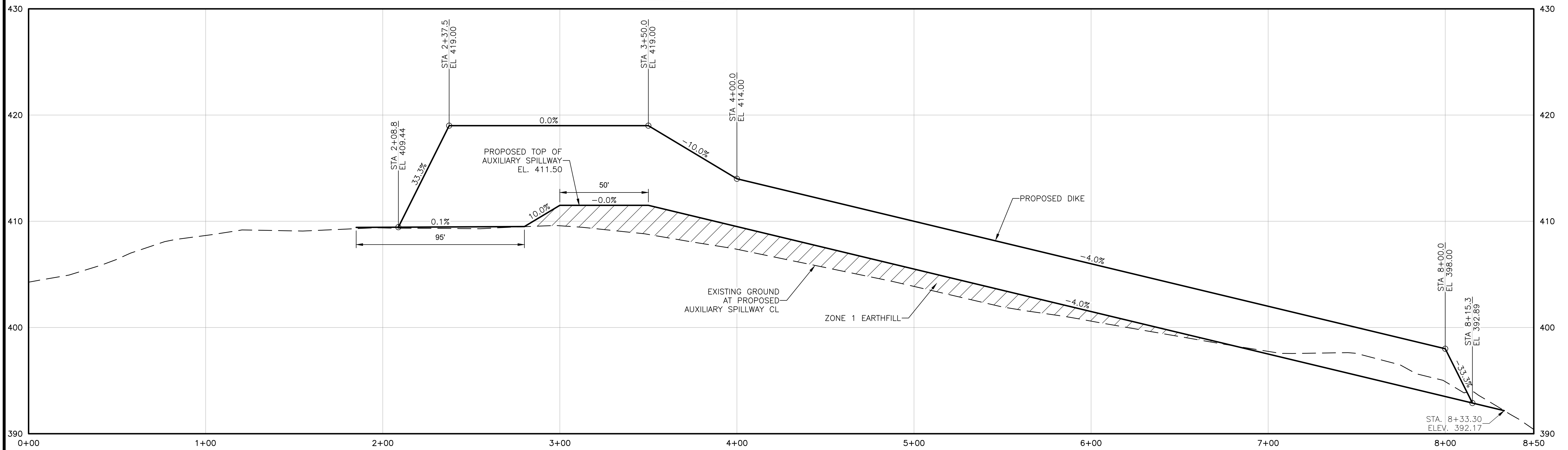
6
EXISTING FILTER DIAPHRAM DRAIN
TO FOUNDATION DRAIN DETAIL
0 1' 2' 4'
1/2"=1'-0"

REVISIONS		
DATE	APPROVED	TITLE

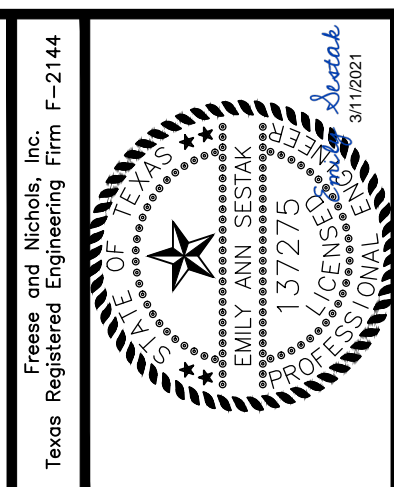
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AUXILIARY PLAN VIEW
0 10' 20' 30' 60'
SCALE IN FEET



AUXILIARY SPILLWAY—PROFILE VIEW
0 10' 20' 30' 60' 0 5' 10'
SCALE IN FEET HORIZONTAL VERTICAL



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DATE CHECKED: 3/9/2021

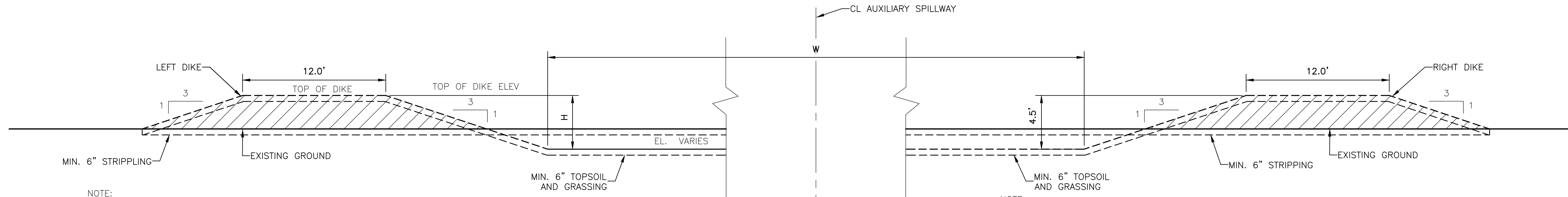
AUXILIARY SPILLWAY – PLAN AND PROFILE
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
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C-15		
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NOTE:

LEFT DIKE
 FROM STA. 1+85 TO STA. 2+08, H=0.0'
 FROM STA. 2+08 TO STA. 2+37.5, TRANSITION UNIFORMLY FROM H=0.0' TO TOP OF DIKE ELEVATION= 419.0
 FROM STA. 2+37.5 TO STA. 3+50, TOP OF DIKE ELEVATION=419.0
 FROM STA. 3+50 TO STA. 4+00, TRANSITION UNIFORMLY FROM TOP OF DIKE ELEVATION=419.0 TO H=4.5'
 FROM STA. 4+00 TO STA. 8+00, H=4.5'
 FROM STA. 8+00 TO STA. 8+15, TRANSITION UNIFORMLY FROM H=4.5' TO H=0.0'

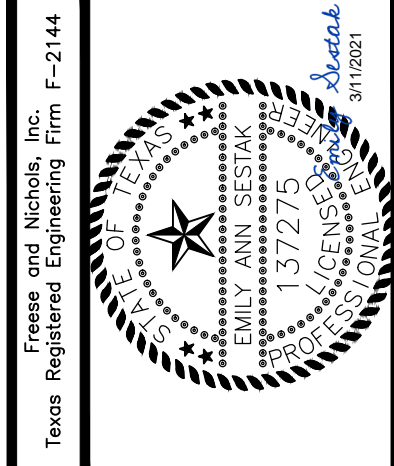
SPILLWAY WIDTH
 FROM STA. 1+85 TO STA. 2+80.0, W=88.0'
 FROM STA. 2+80 TO STA. 3+00, TRANSITION UNIFORMLY FROM W=88.0' TO W=100.0'
 FROM STA. 3+00 TO END STATION, W=100.0'

NOTE:

RIGHT DIKE
 FROM STA. 2+08 TO STA. 2+37.5, EXCAVATE TO DAYLIGHT
 FROM STA. 2+37.5 TO STA. 3+50, TOP OF DIKE ELEVATION=419.0
 FROM STA. 3+50 TO STA. 4+00, TRANSITION UNIFORMLY FROM TOP OF DIKE ELEVATION=419.0 TO H=4.5'
 FROM STA. 4+00 TO STA. 8+00, H=4.5'
 FROM STA. 8+00 TO STA. 8+15, TRANSITION UNIFORMLY FROM H=4.5' TO H=0.0'

1
 TYPICAL SECTION – LEFT SIDE OF AUXILIARY SPILLWAY
 STA 1+90 TO STA. 8+00
 0 5' 10'
 SCALE IN FEET

2
 TYPICAL SECTION – RIGHT SIDE OF AUXILIARY SPILLWAY
 STA 1+90 TO STA. 8+00
 0 5' 10'
 SCALE IN FEET



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AUXILIARY SPILLWAY – TYPICAL SECTIONS
 FLOODWATER RETARDING STRUCTURE SITE No. 3
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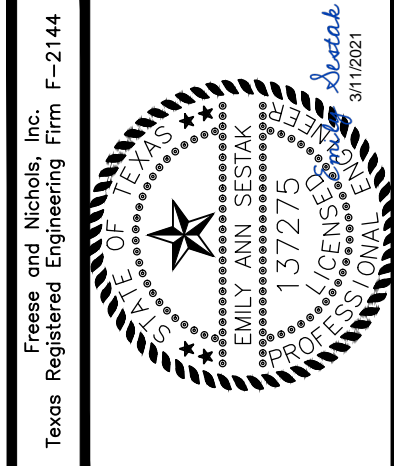
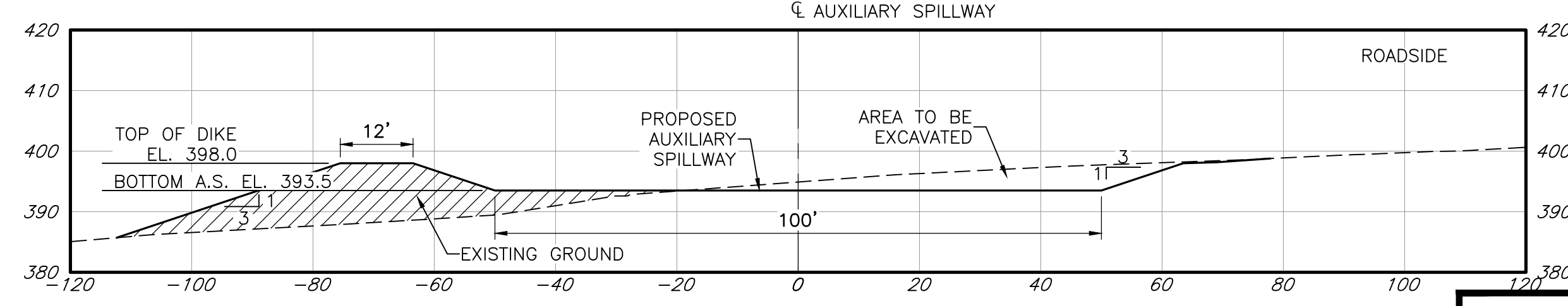
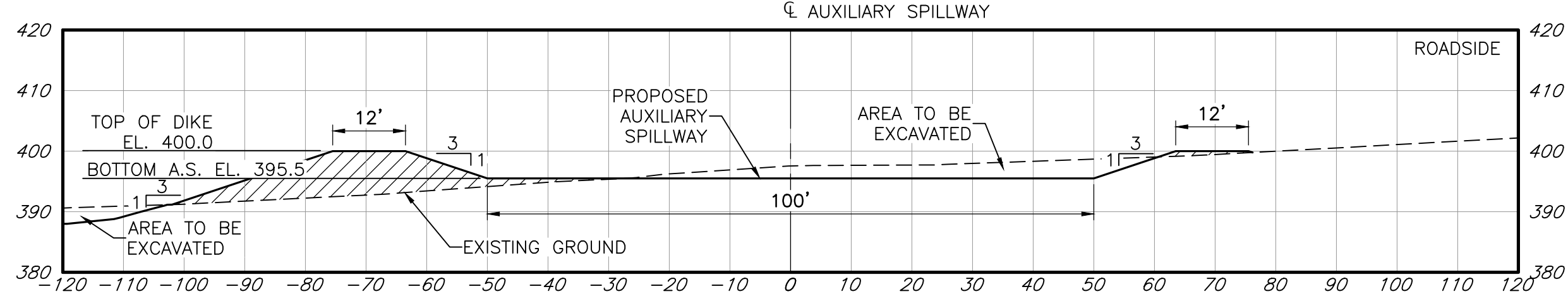
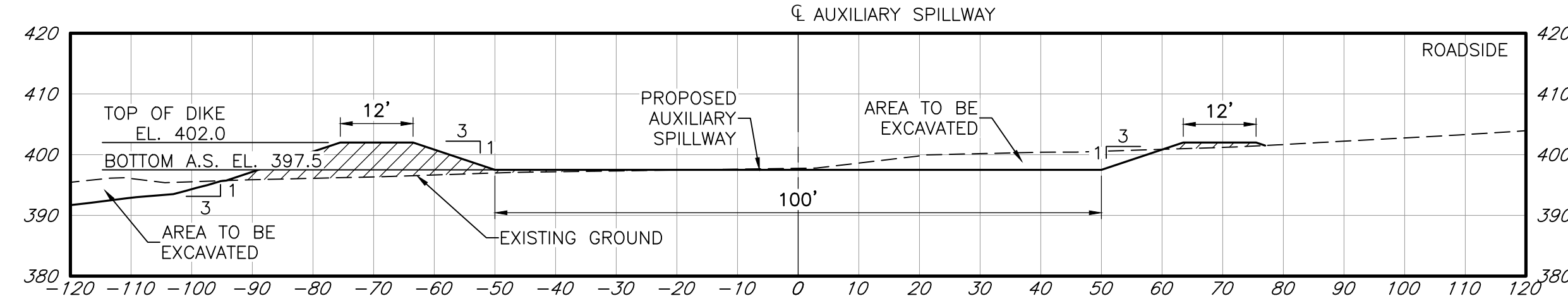
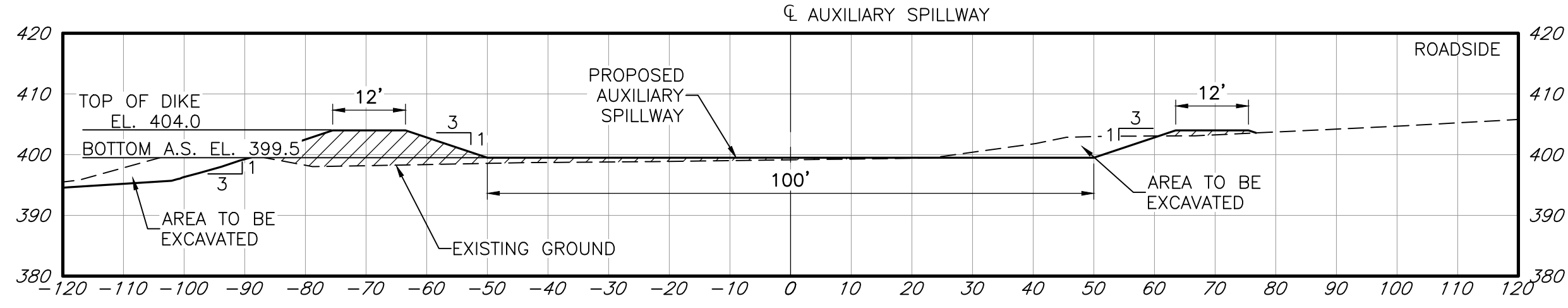
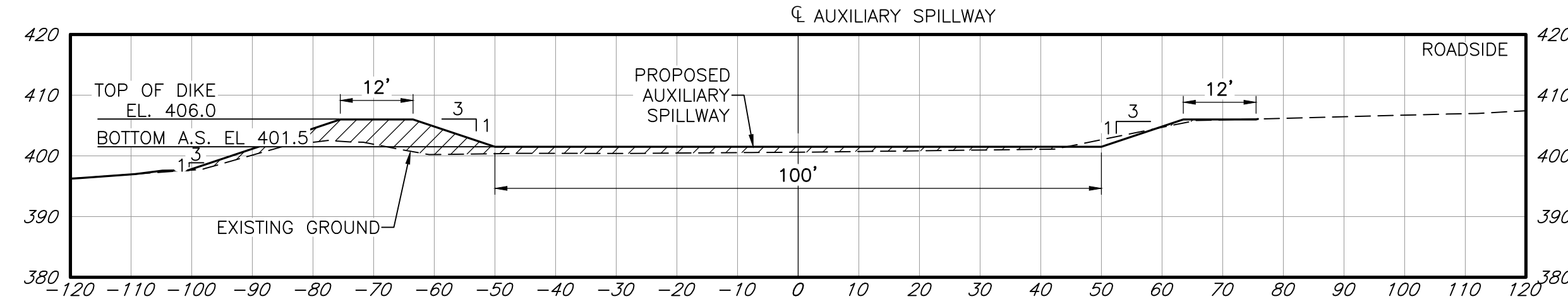
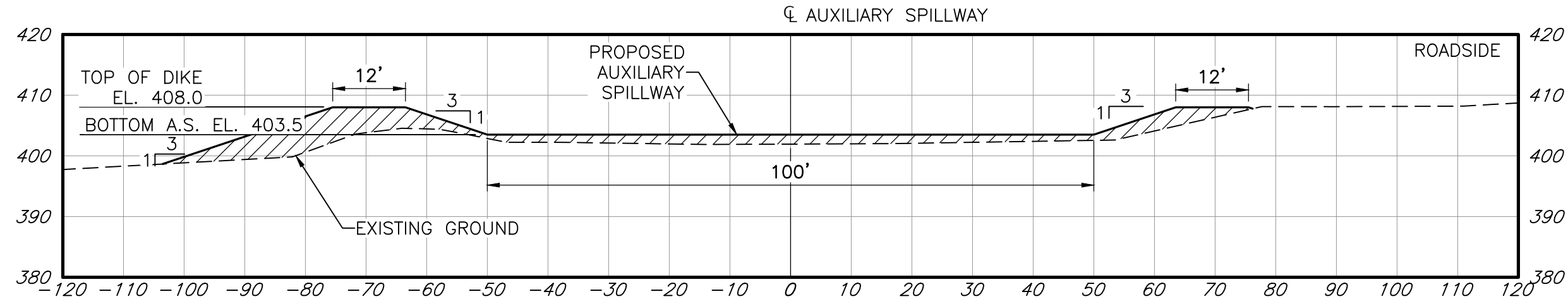
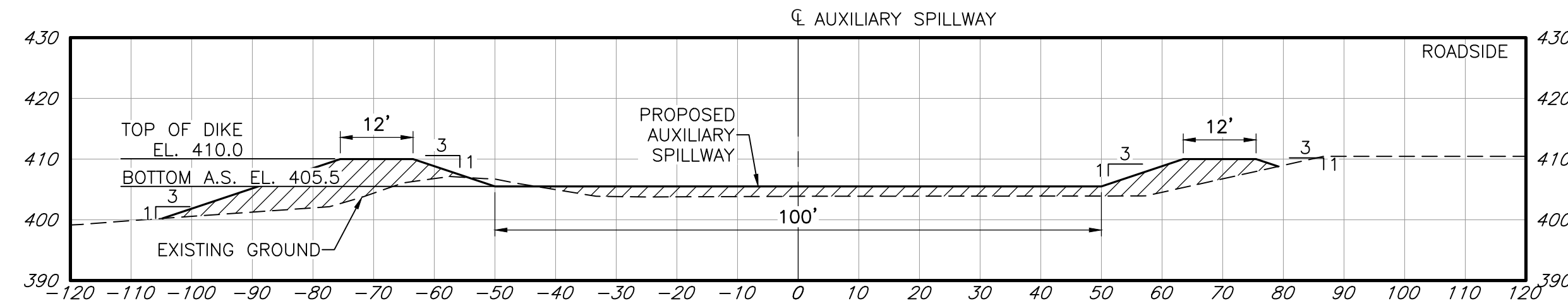
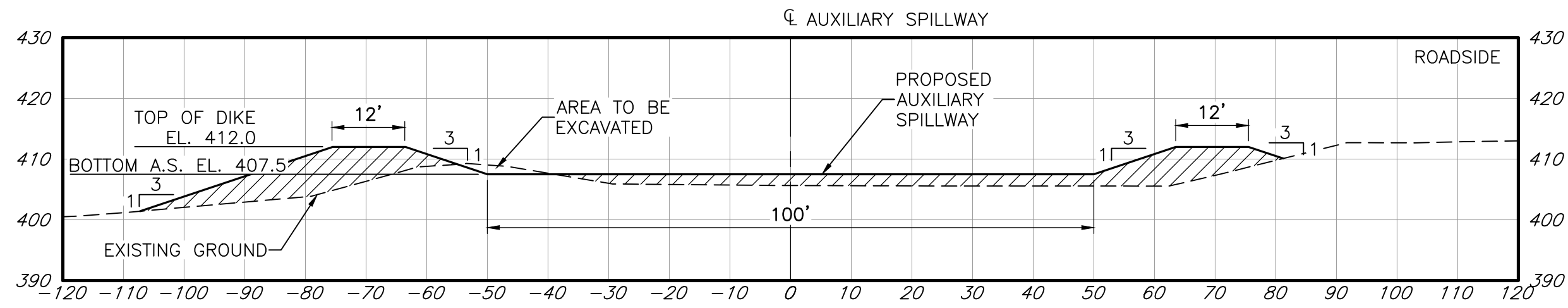
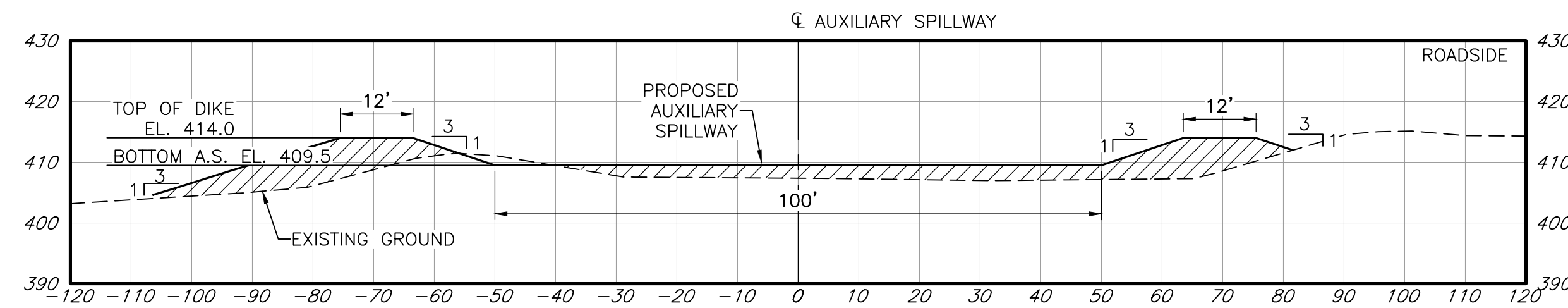
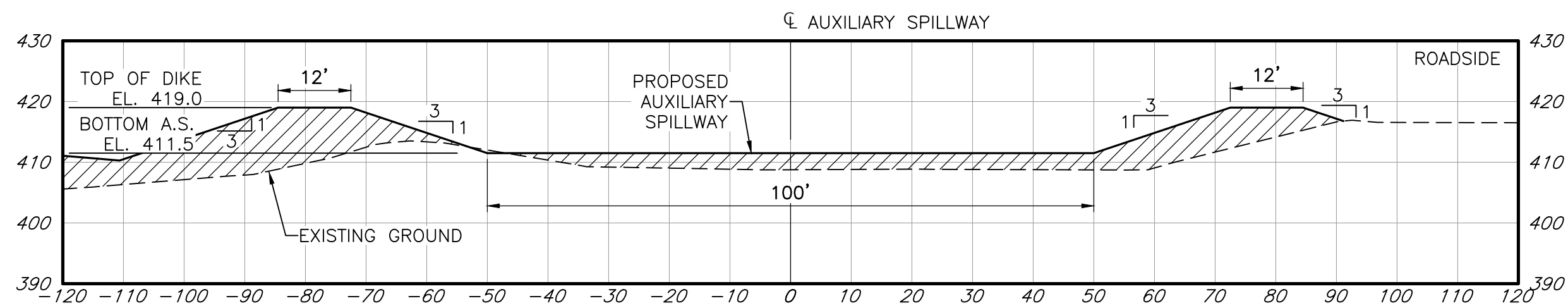
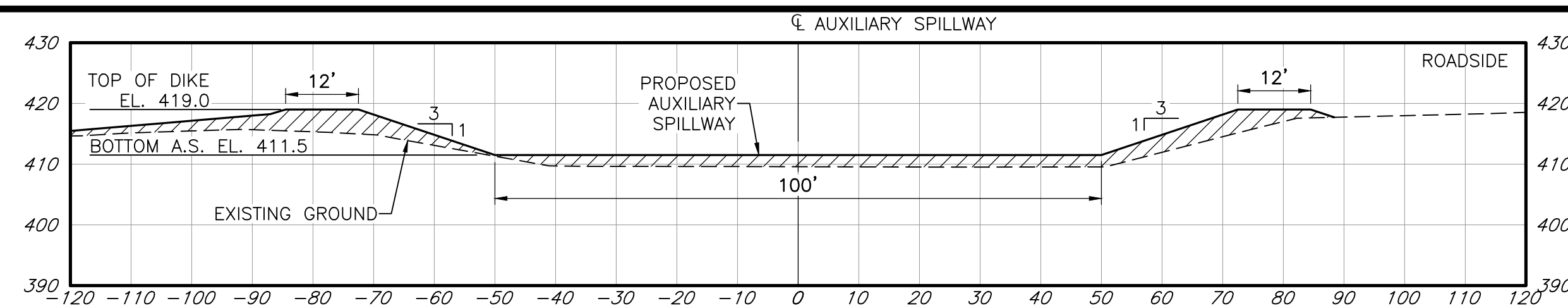
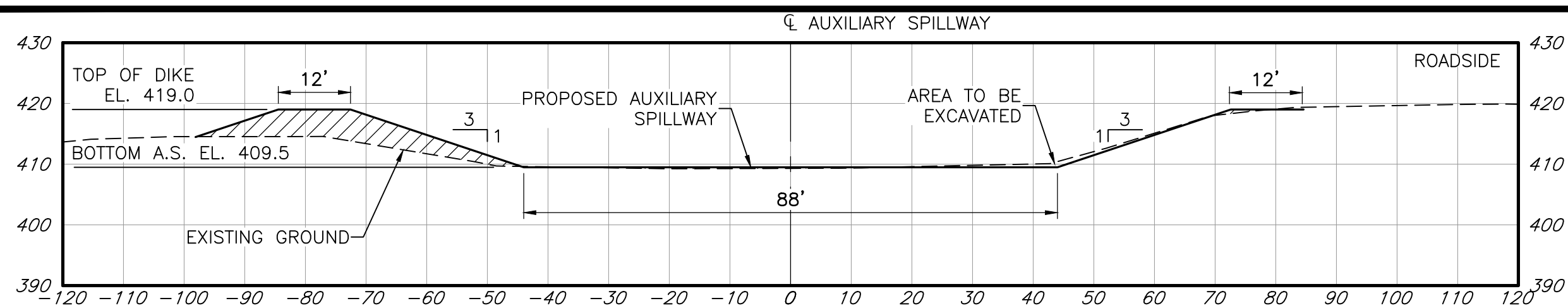
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 C-16

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 19 OF 43

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AUXILIARY SPILLWAY - SECTIONS
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
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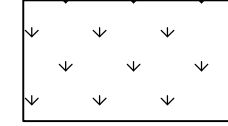
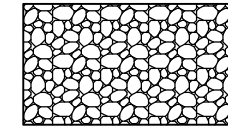
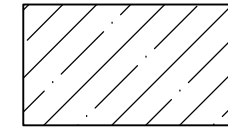
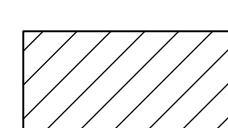

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SHEET NO. C-17
SEQUENCE NO. 20 OF 43

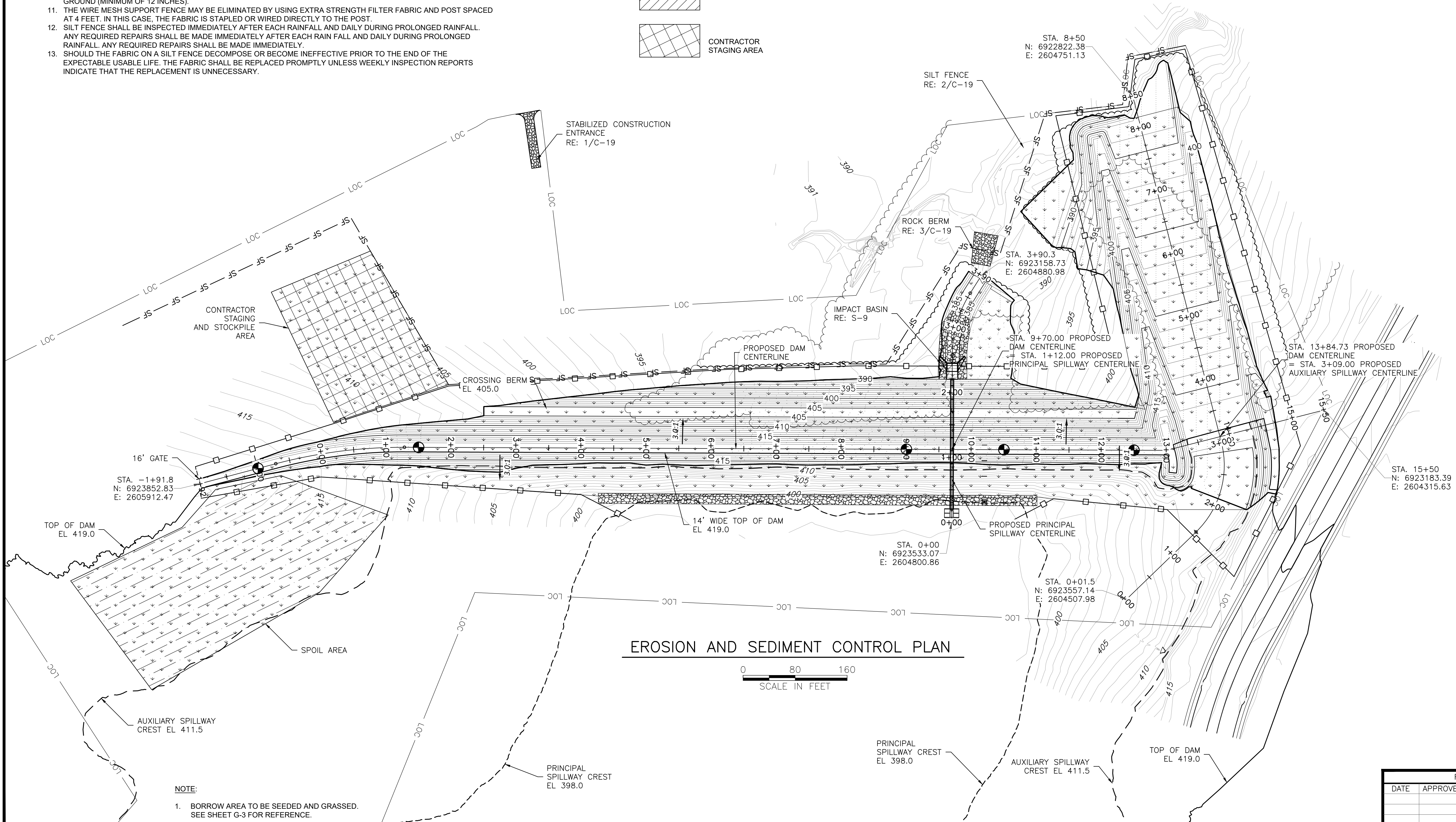
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DATE	APPROVED	TITLE

NOTES:

- THIS DRAWING INDICATES THE MINIMUM REQUIREMENTS OF THE SWPPP, WHICH SHALL BE PREPARED AND IMPLEMENTED BY THE CONTRACTOR. REFER TO CS-5 FOR ADDITIONAL INFORMATION.
- A DRAWING SHOWING THE LOCATIONS OF THE DRAINAGE WORKS AND ALL POLLUTION CONTROL MEASURES SHALL BE KEPT IN ACCORDANCE WITH THE SWPPP.
- CONTRACTOR SHALL INDICATE ON THE PLAN ALL PRODUCT SPECIFIC STORAGE AREAS AS DESCRIBED IN THE SWPPP. THESE AREAS SHALL INCLUDE BUT ARE NOT LIMITED TO: EQUIPMENT STORAGE, FUEL STORAGE, CONCRETE WASHOUT PITS, OR HAZARDOUS MATERIAL STORAGE.
- APPROXIMATELY 2,148 FEET OF SILT FENCE IS SHOWN. CONTRACTOR SHALL ADD LOCATIONS OF SILT FENCE TO PLAN AS REQUIRED.
- SILT FENCE SHALL BE NON-WOVEN GEOTEXTILE AS SPECIFIED IN MS 592-3.
- SILT FENCE SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS:
 - ALONG THE DOWNSTREAM BOUNDARY OF ANY AREA WHICH IS STRIPPED OF EXISTING VEGETATION AND/OR SURFACE MATERIAL DURING ANY PHASE OF CONSTRUCTION ACTIVITY.
 - ALONG THE DOWNSTREAM BOUNDARY OF ANY SOIL MATERIAL WHICH IS STOCKPILED DURING ANY PHASE OF CONSTRUCTION ACTIVITY FOR MORE THAN 14 DAYS.
 - OTHER AREAS WHICH ARE DETERMINED BY THE CONTRACTING OFFICER TO BE POTENTIAL SEDIMENT SOURCES.
- SILT FENCE SHALL NOT BE USED WHERE CONCENTRATED FLOWS WHICH EXCEED ONE CFS ARE EXPECTED, OR WHERE THE DRAINAGE AREA EXCEEDS TWO ACRES.
- THE HEIGHT OF SILT FENCES SHALL NOT EXCEED 48 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE TO THE STRUCTURE).
- SPLICES IN THE FILTER FABRIC ARE NOT RECOMMENDED. WHEN JOINTS ARE NOT AVOIDABLE, FABRIC SHALL BE SPLICED TOGETHER ONLY AT SUPPORT POST, WITH A MINIMUM OF 6-INCH LAP.
- POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AT THE FENCE LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES).
- THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED BY USING EXTRA STRENGTH FILTER FABRIC AND POST SPACED AT 4 FEET. IN THIS CASE, THE FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POST.
- SILT FENCE SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY AFTER EACH RAIN FALL AND DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTABLE USABLE LIFE. THE FABRIC SHALL BE REPLACED PROMPTLY UNLESS WEEKLY INSPECTION REPORTS INDICATE THAT THE REPLACEMENT IS UNNECESSARY.

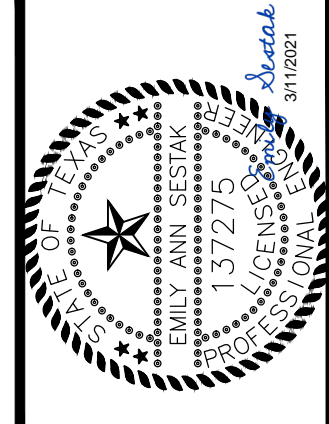
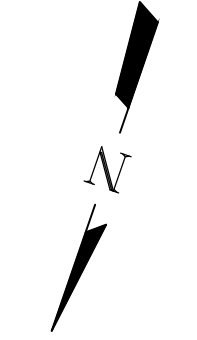
LEGEND

- SF — SILT FENCE
- LOC — LIMITS OF CONSTRUCTION
-  PERMANENT GRASSING, REFER TO CONSTRUCTION SPECIFICATION 6 - SEEDING SPRIGGING & MULCHING
-  RIPRAP
-  SPOIL AREA
-  BORROW AREA
-  CONTRACTOR STAGING AREA



NOTE:

- BORROW AREA TO BE SEED AND GRASSED. SEE SHEET G-3 FOR REFERENCE.



DESIGNED BY: EAS
 DRAWN BY: NBB
 CHECKED BY: BEK & DGM
 FILE NAME: LEF3-PL-SSPP.dwg
 DATE CHECKED: 3/9/2021

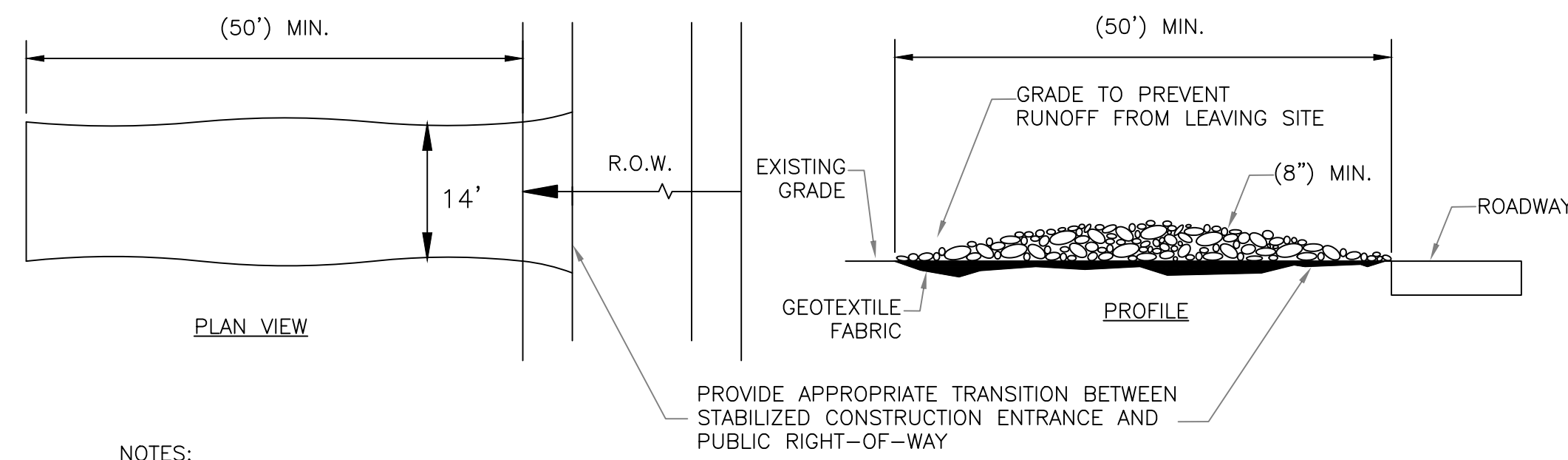
STORMWATER POLLUTION PREVENTION PLAN
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
 TRINITY RIVER WATERSHED, TEXAS

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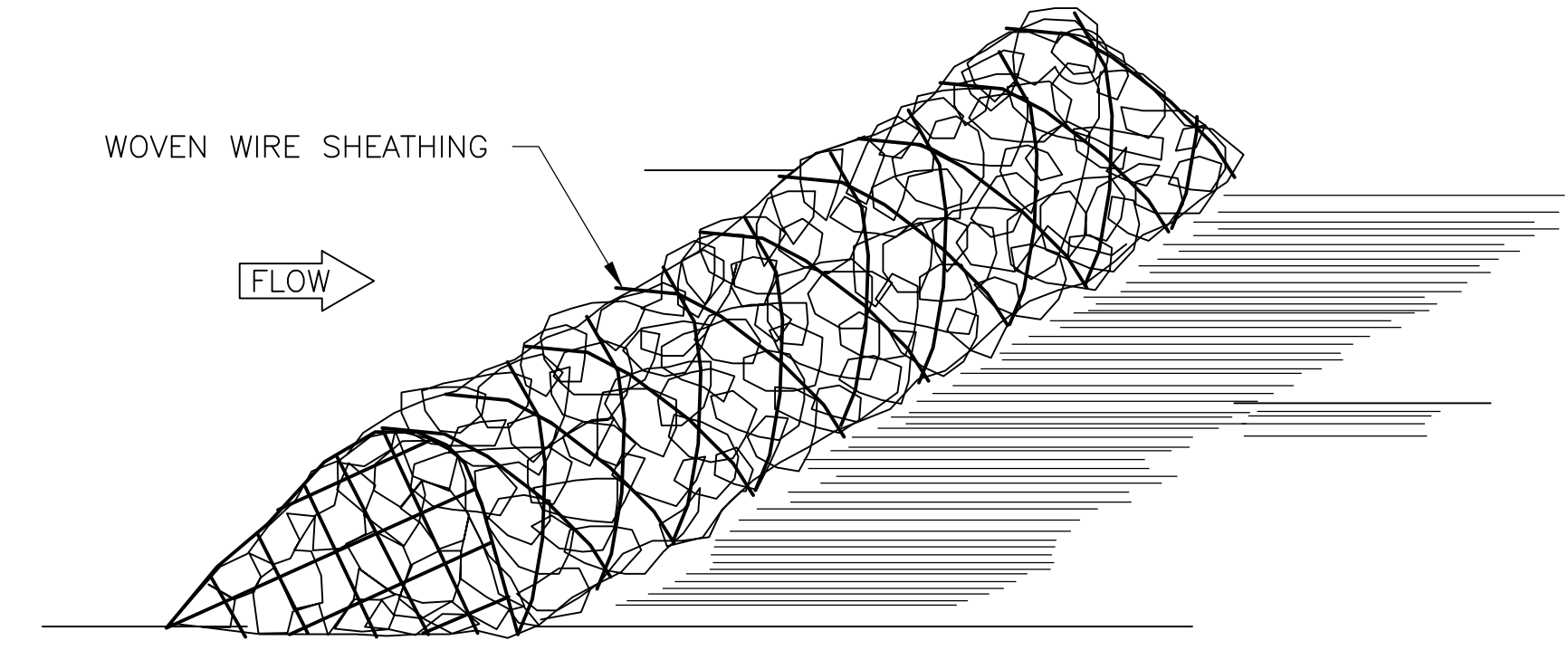
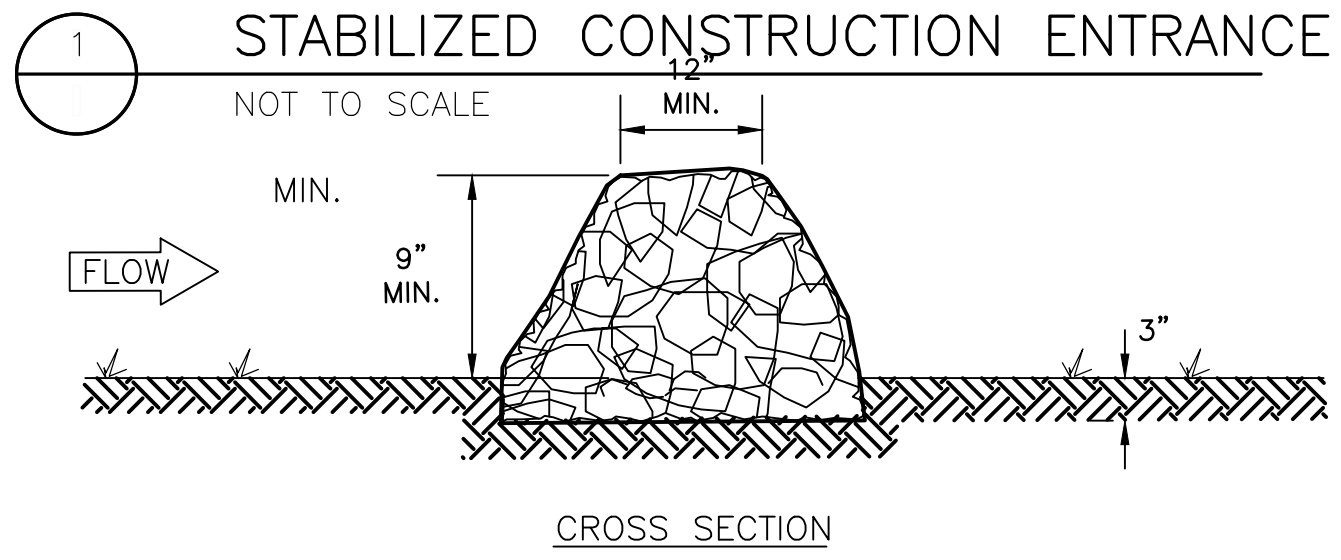
DRAWING NO.
 SHEET NO. **C-18**
 SEQUENCE NO. **21 OF 43**

REVISIONS		
DATE	APPROVED	TITLE

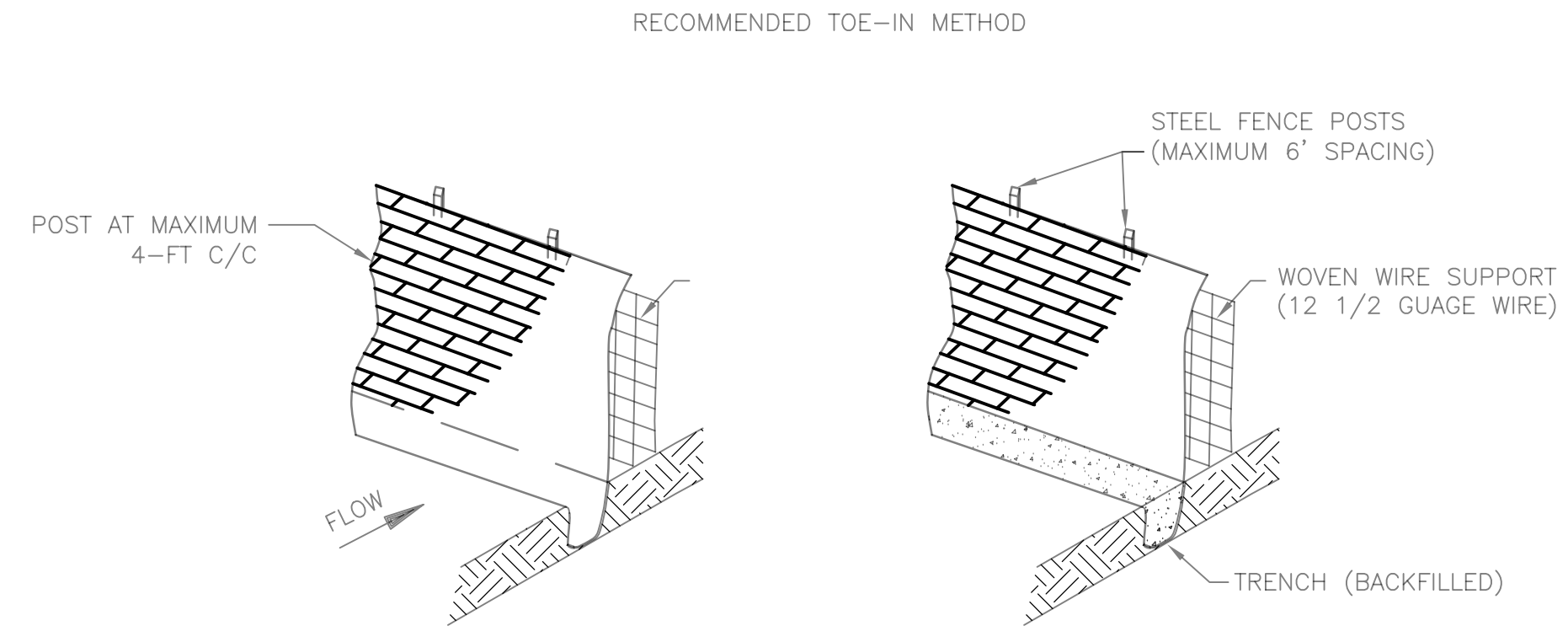
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- NOTES:**
1. STONE SIZE: 3"-5" OPEN GRADED ROCK.
 2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 50'
 3. THICKNESS: NOT LESS THAN 8"
 4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
 5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
 6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENT THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
 7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
 8. PROVIDE GEOTEXTILE FABRIC BETWEEN NATURAL GRADE AND 3"-5" ROCK.



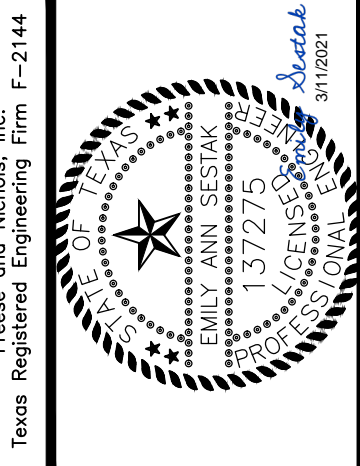
- ROCK BERM NOTES:**
1. USE ONLY OPEN GRADE ROCK 4-8 INCH DIAMETER FOR STREAM FLOW CONDITION; USE OPEN GRADED ROCK 3-5 INCHES DIAMETER FOR OTHER CONDITIONS.
 2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM ONE INCH OPENING AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
 3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN WIRE SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
 4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
 5. DAILY INSPECTION SHALL BE MADE ON SEVERE SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE FOOT.
 6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.



- NOTES:**
1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MIN. OF ONE (1') 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 WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW 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 STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST.
 5. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
 6. ACCUMULATED SILT SHALL BE REMOVED AFTER EACH STORM EVENT OR WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.



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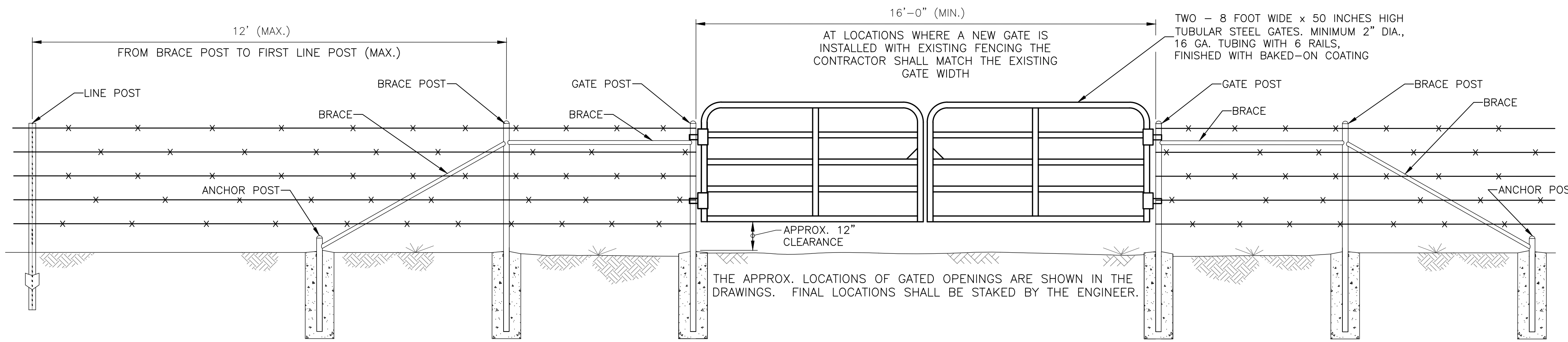
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DRAWN BY: NBB
CHECKED BY: BEK & DGM
FILE NAME: LEF3-DT-SWPPP.dwg
DATE CHECKED: 3/9/2021

SWPPP DETAILS
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
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SHEET NO. C-19
SEQUENCE NO. 22 OF 43

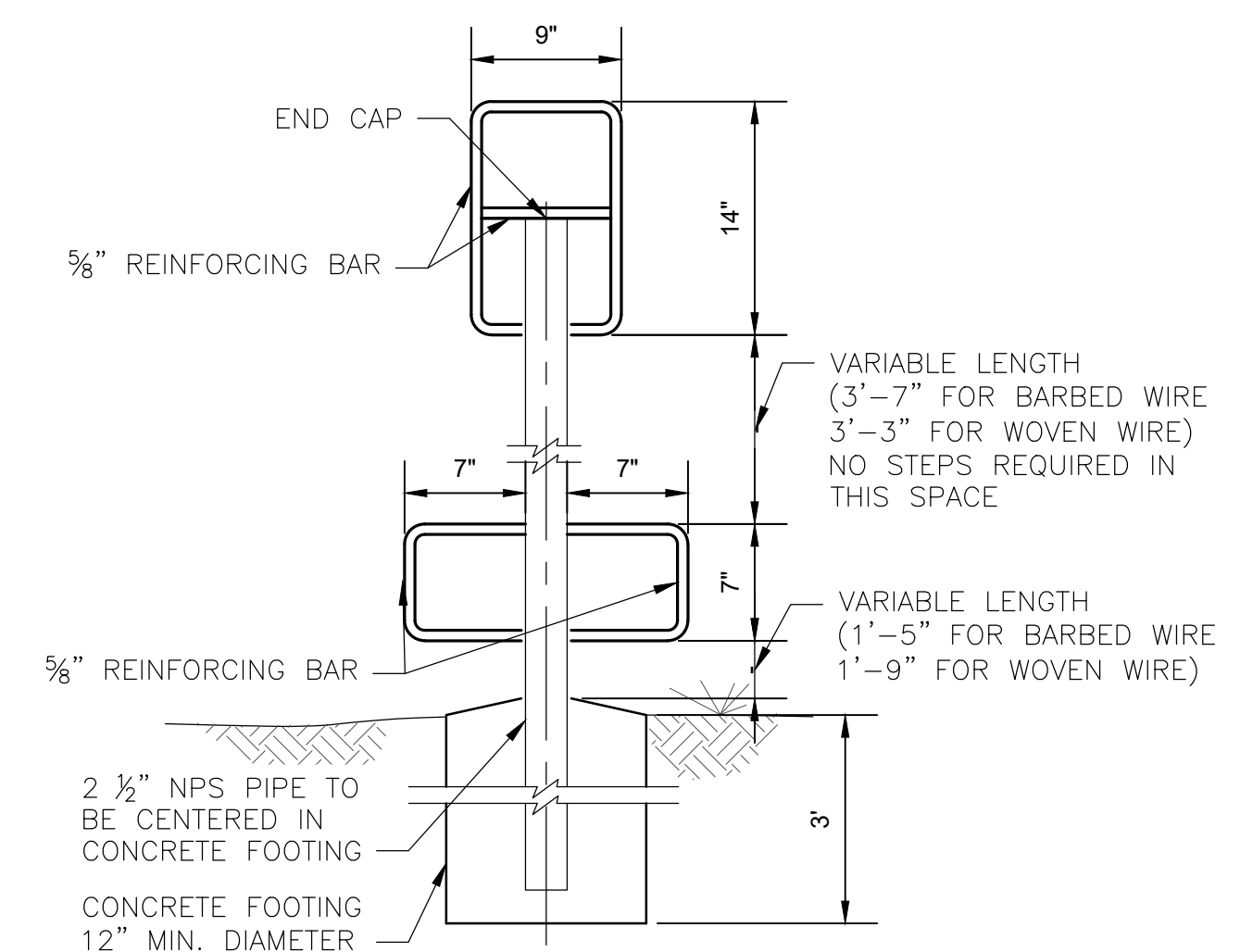
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DATE	APPROVED	TITLE



NOTE: IN LIEU OF TWO 8-FOOT GATES ONE 16-FOOT WIDE GATE MAY BE USED.

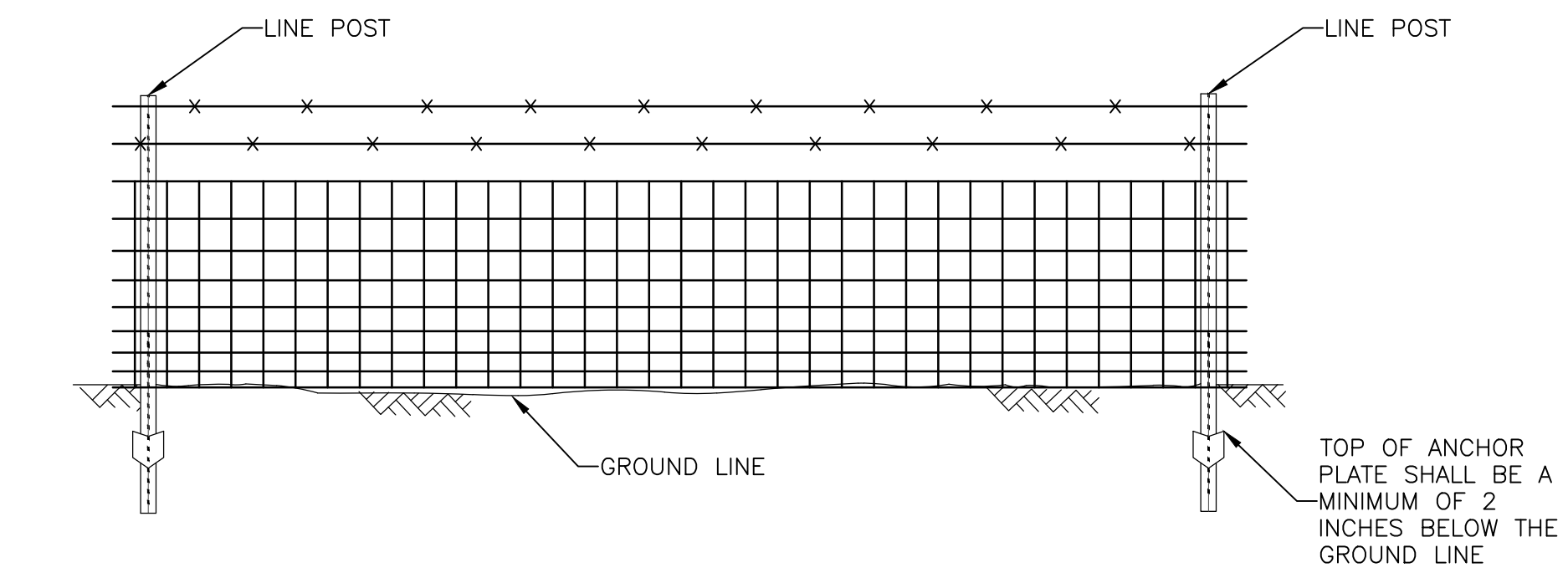
16' GATE OPENING
NOT TO SCALE
(ONE (1) OPENING SHOWN)

TEE POSTS SHALL MEET THE REQUIREMENTS OF ASTM A702 WITH TWO COATS OF PAINT. ALL LINE POST SHALL BE THE SAME COLOR.
PIPE POSTS AND BRACES SHALL MEET THE REQUIREMENTS OF ASTM A500 OR ASTM A53, EXCEPT SECTION B, HYDROSTATIC TEST SHALL NOT APPLY.
GALVANIZATION OF GATE/CORNER POSTS, BRACE POSTS, ANCHOR POSTS, BRACES, AND CAPS SHALL NOT BE REQUIRED.
GATE POSTS, CORNER POSTS, BRACE POSTS, ANCHOR POSTS, AND PULL POSTS SHALL BE 2.875" O.D.
BRACES AND LINE POSTS SHALL BE MIN. 2.375" O.D.. ALL POSTS AND BRACES SHALL BE SCHEDULE 40 PIPE.



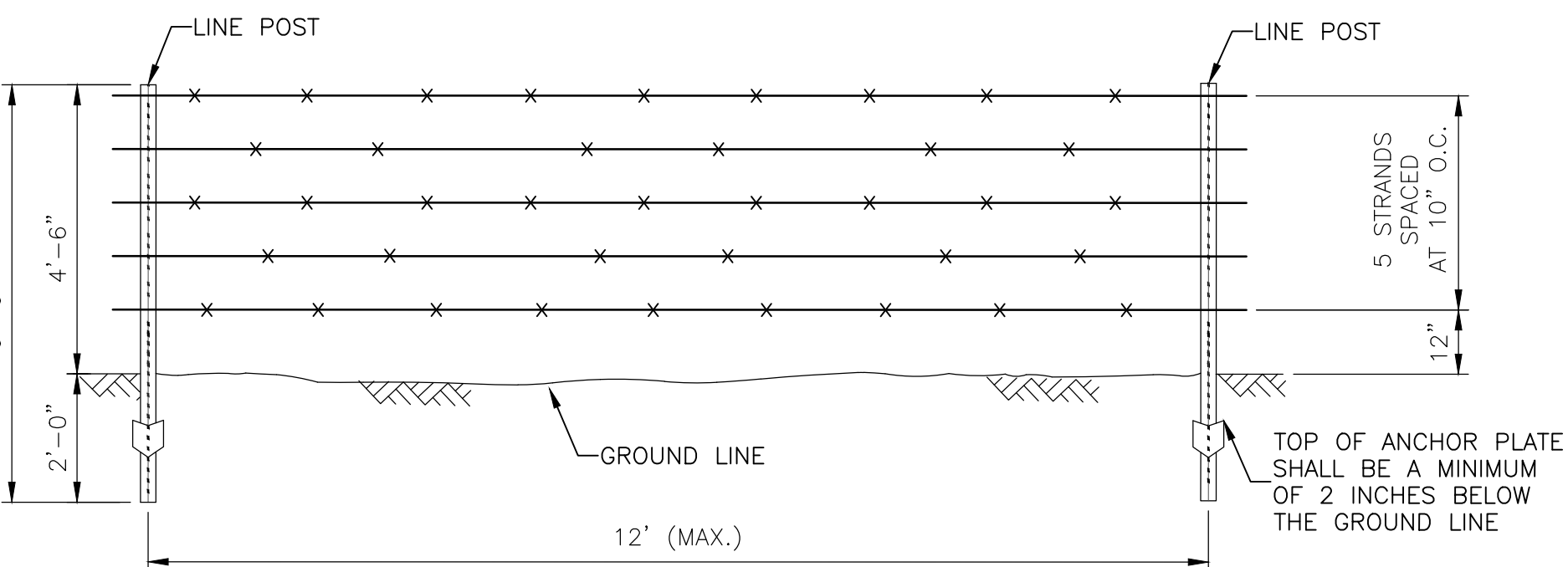
STILE DETAIL
NOT TO SCALE
(2 REQUIRED)

- NOTES:
1. POSITION STILE SO THAT STEPS AND HANDLE ARE PERPENDICULAR TO ALIGNMENT OF FENCE.
 2. ALL BAR BENDS SHOWN SHALL HAVE AN INSIDE RADIUS OF APPROX. 1 1/2"
 3. PIPE FOR STILE SHALL BE 3" NPS SCHEDULE 40 STEEL PIPE.
 4. ALL BAR CONNECTIONS SHALL HAVE ALL AROUND FILLET WELD.
 5. ATTACH END CAP TO PIPE WITH ALL AROUND WELD, AND BAR TO END CAP BY WELDING BOTH SIDES.
 6. GALVANIZE STILE AFTER FABRICATION.
 7. STILE LOCATIONS WILL BE DESIGNATED BY THE ENGINEER DURING FENCE LAYOUT.



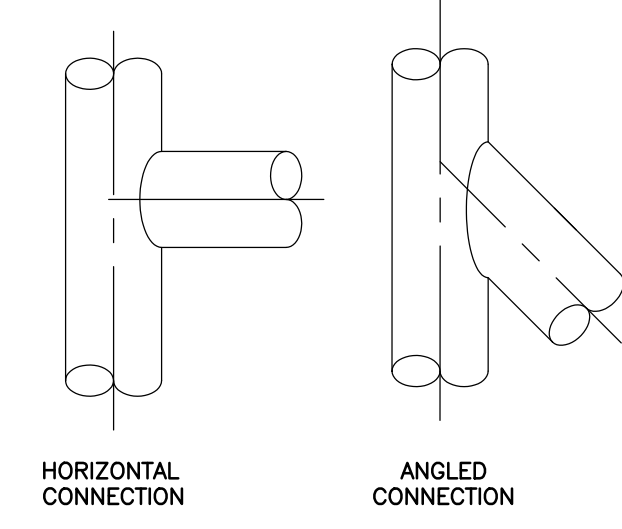
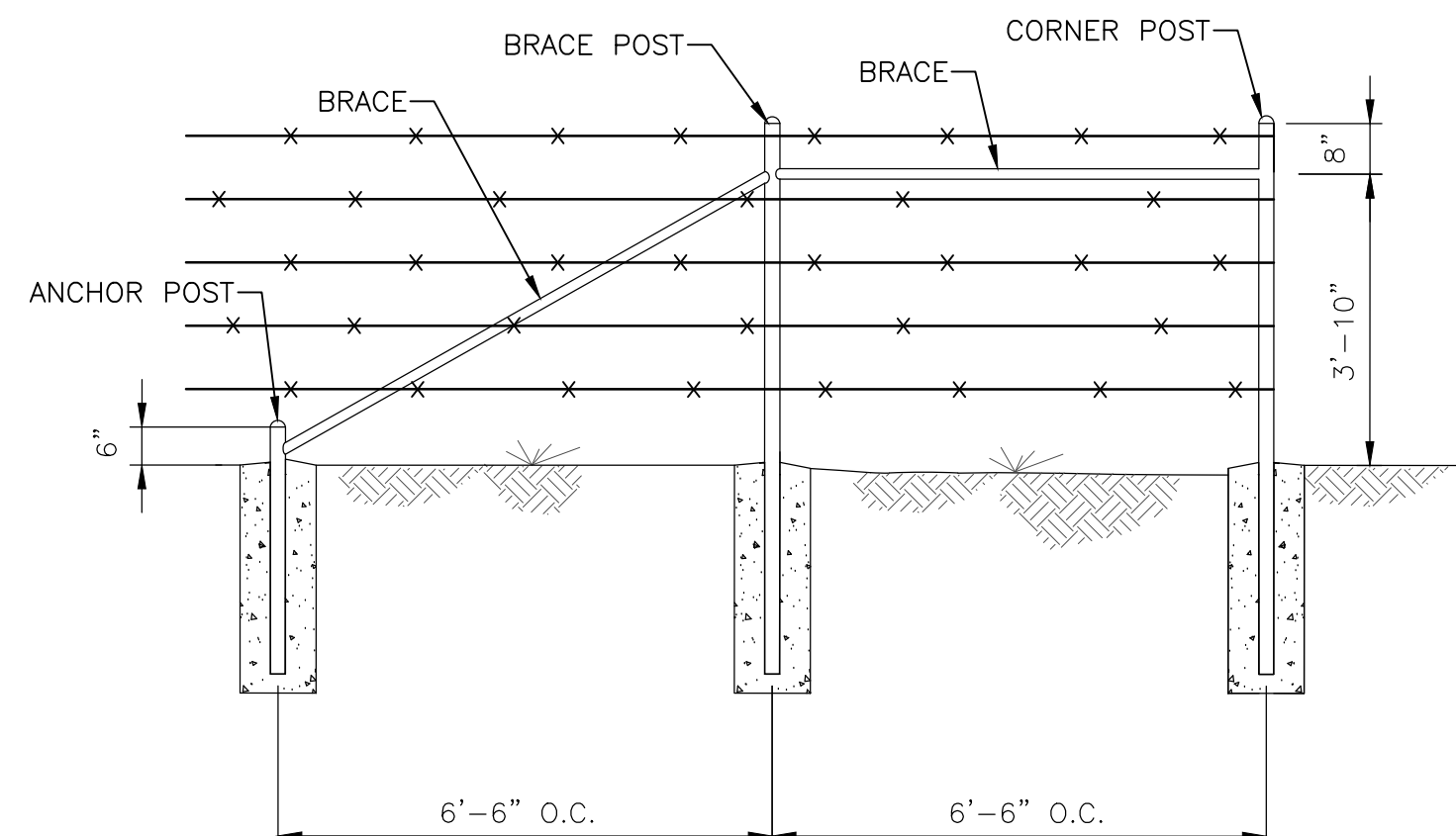
BARBED WIRE REQUIRED SHALL BE STEEL DOUBLE STRAND 12 1/2 GA., COATING TYPE Z (ZINC GALVANIZED) AND COATING CLASS 3 WIRE CONFORMING TO ASTM A121.
BARBS SHALL BE (2) POINT, 14 GA. OR LARGER, ROUND OR FLAT AND ON 4" SPACING.
WOVEN WIRE REQUIRED SHALL BE STEEL 12 1/2 GA., GRADE 60, COATING TYPE Z (ZINC GALVANIZED) AND COATING CLASS 3 WIRE CONFORMING TO ASTM A116.
ATTACH EACH BARBED WIRE STRAND AND EACH WOVEN LINE WIRE TO THE CORNER, END POST, AND PULL PANEL BRACE POST WITH A DOUBLE WRAP OF GALVANIZED WIRE TIED BACK WITH A MIN. OF 4 WRAPS.
ANCHORAGE OF FENCE WIRE TO POSTS WHERE THERE IS A CHANGE IN VERTICAL ALIGNMENT THAT PRODUCES UPWARD OR DOWNWARD PULL SHALL BE ACCOMPLISHED WITH DOUBLE TIE WIRES TO EACH SUCCESSIVE FENCE WIRE. THE ENGINEER WILL DESIGNATE THE POSTS WHERE THIS SPECIAL FASTENING OF THE FENCE WIRES ARE REQUIRED.

BARBED AND WOVEN WIRE FENCE
(2-STRAND BARBED WIRE TOP)
NOT TO SCALE



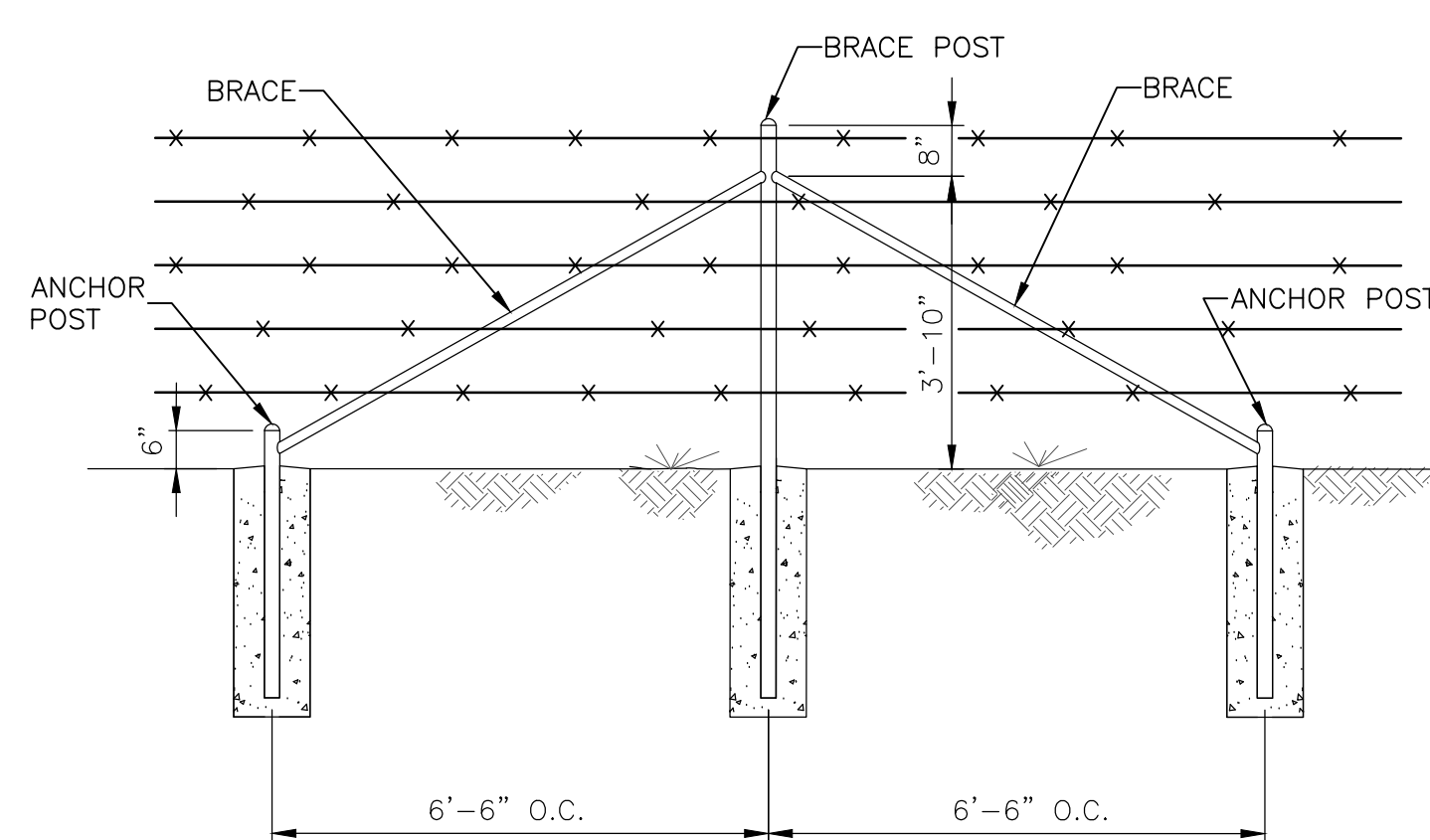
BARBED WIRE REQUIRED SHALL BE STEEL DOUBLE STRAND 12 1/2 GA., COATING TYPE Z (ZINC GALVANIZED) AND COATING CLASS 3 WIRE CONFORMING TO ASTM A121.
BARBS SHALL BE (2) POINT, 14 GA. OR LARGER, ROUND OR FLAT AND ON 4" SPACING.
ATTACH EACH BARBED WIRE STRAND TO THE CORNER, END POST, AND PULL PANEL BRACE POST WITH A DOUBLE WRAP OF GALVANIZED WIRE TIED BACK WITH A MIN. OF 4 WRAPS.
ANCHORAGE OF FENCE WIRE TO POSTS WHERE THERE IS A CHANGE IN VERTICAL ALIGNMENT THAT PRODUCES UPWARD OR DOWNWARD PULL SHALL BE ACCOMPLISHED WITH DOUBLE TIE WIRES TO EACH SUCCESSIVE FENCE WIRE. THE ENGINEER WILL DESIGNATE THE POSTS WHERE THIS SPECIAL FASTENING OF THE FENCE WIRES ARE REQUIRED.

5-STRAND BARBED WIRE
NOT TO SCALE

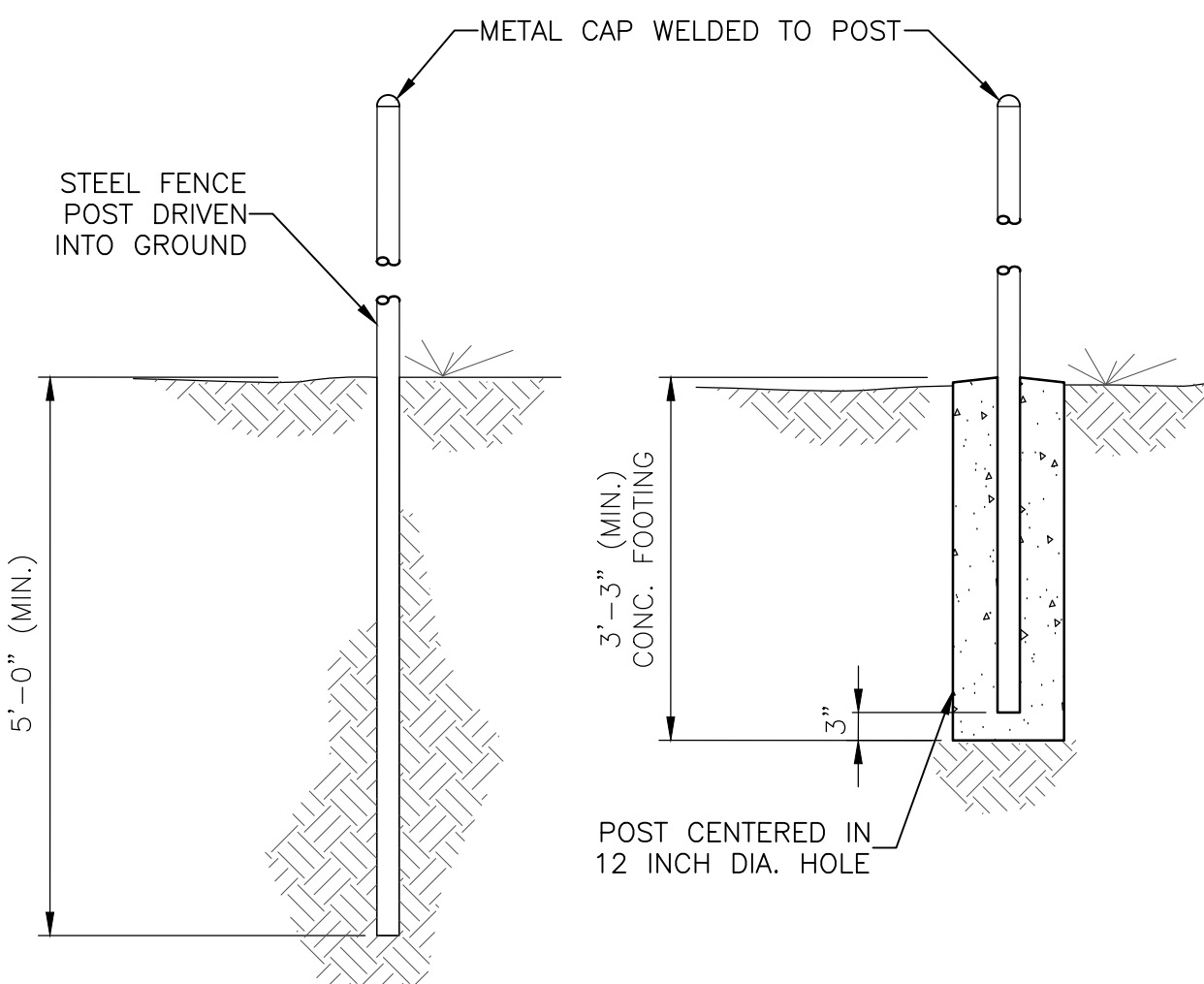


POST DETAILS
NOT TO SCALE

CORNER PANEL
NOT TO SCALE



PULL PANEL
NOT TO SCALE

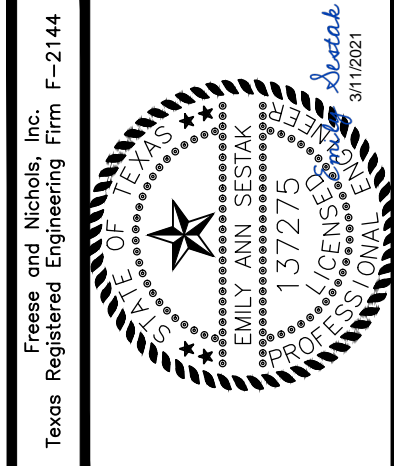


DRIVE EMBEDMENT OPTION DETAIL
NOT TO SCALE

CONCRETE EMBEDMENT OPTION DETAIL
NOT TO SCALE

- CONCRETE EMBEDMENT NOTES:
1. SET STEEL CORNER, BRACE, AND GATE POSTS IN CONCRETE AS SHOWN.
 2. IF SOUND ROCK IS ENCOUNTERED THE DRILL HOLE MAY BE A MINIMUM OF 6" IN DIAMETER.
 3. UNLESS OTHERWISE STATED OR APPROVED THE CONCRETE FOR THE FOOTING SHALL HAVE A MINIMUM STRENGTH OF 3,000 PSI AT 28 DAYS.
 4. CONCRETE SHALL BE MIXED PRIOR TO PLACEMENT.
 5. CHANGES IN VERTICAL ALIGNMENT, SUCH AS CROSSING OF STUB DIVERSIONS, LINE POSTS OR PULL PANEL POSTS THAT RESTRAIN UPWARD PULL OF THE FENCE STRANDS SHALL BE ANCHORED BY SETTING SUCH POST IN 18" OF CONCRETE. THE ENGINEER WILL DESIGNATE THE LOCATIONS WHERE THIS ANCHORAGE TREATMENT IS REQUIRED.

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FIELD FENCE DETAILS
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

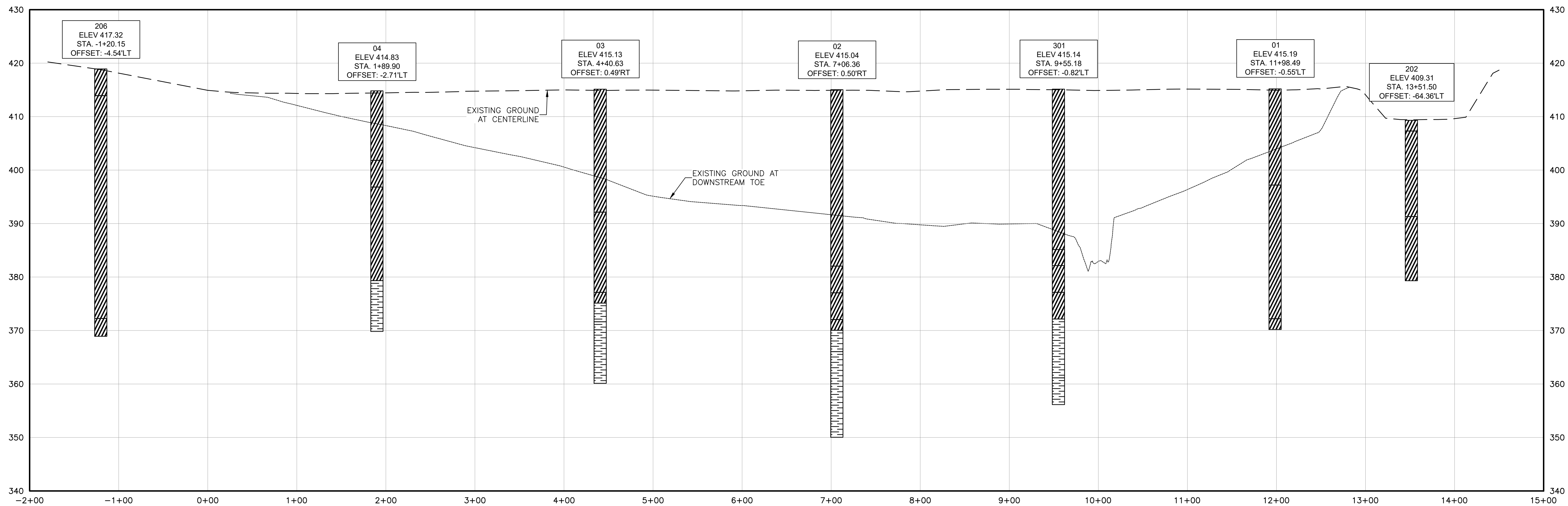
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DRAWING NO.
SHEET NO. C-20
SEQUENCE NO. 23 OF 43

REVISIONS		
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EXISTING EMBANKMENT PROFILE



LEGEND

CH (diagonal hatching)

MARL (horizontal hatching)

0 20' 40' 60' 120'
 SCALE IN FEET
 HORIZONTAL

0 10' 20'
 SCALE IN FEET
 VERTICAL

Freese and Nichols, Inc.
 Texas Registered Engineering Firm F-2144
 09-11-2021
 RUSSELL G. SPRINGER
 106702
 LICENSED PROFESSIONAL ENGINEER
 CIVIL ENGINEERING

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GEOLOGICAL INVESTIGATIONS PROFILES
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
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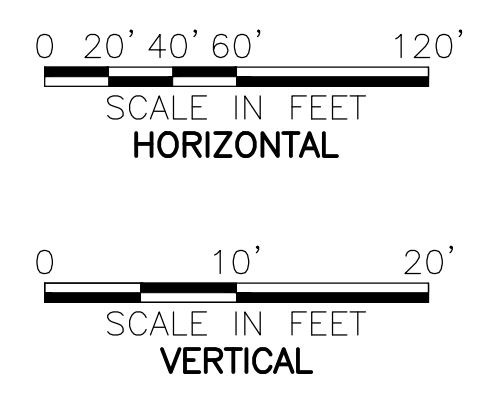
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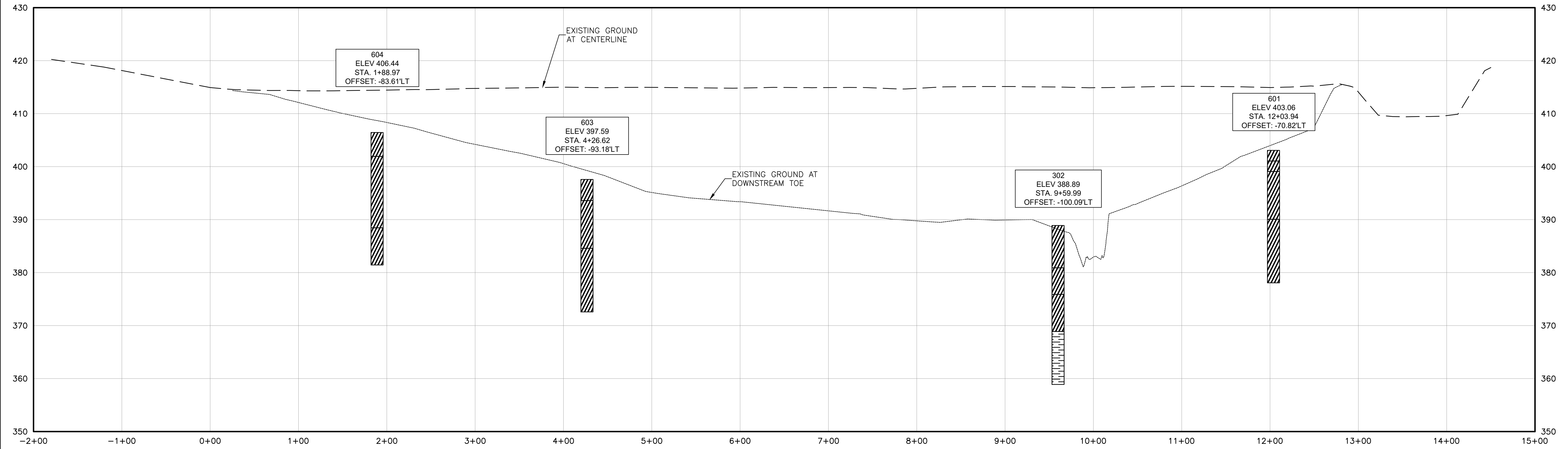
LEGEND

CH
MARL



Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
09-11-2021

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EXISTING DOWNSTREAM TOE PROFILE

GEOLOGICAL INVESTIGATIONS PROFILES
FLOODWATER RETARDING STRUCTURE SITE No. 3
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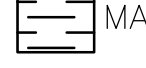
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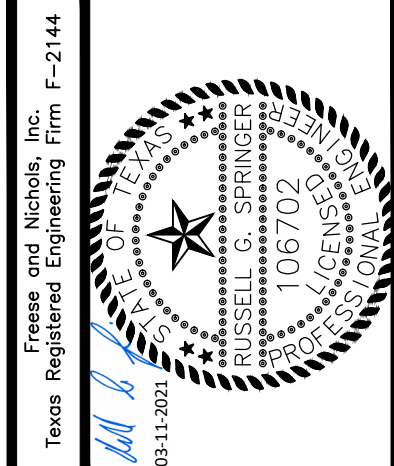
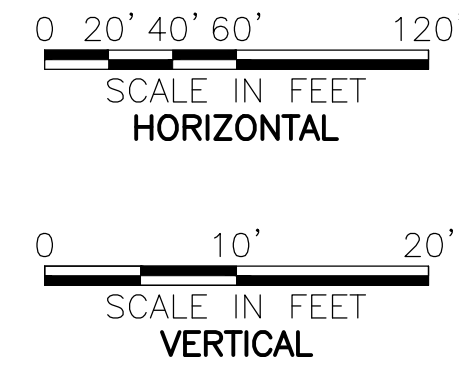
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REVISIONS		
DATE	APPROVED	TITLE

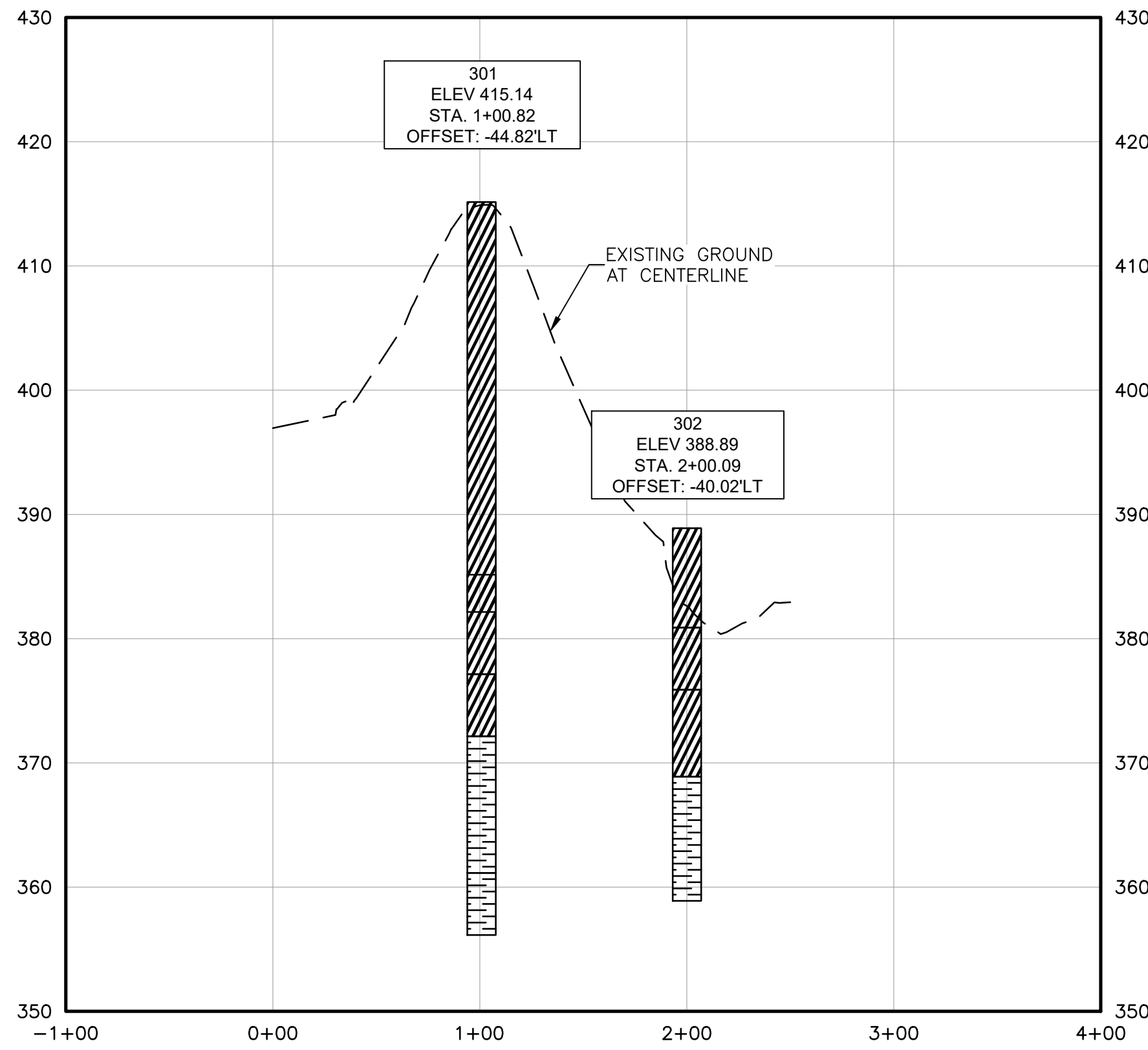
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LEGEND

	CH
	MARL



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EXISTING PRINCIPAL SPILLWAY PROFILE

GEOLOGICAL INVESTIGATIONS PROFILES
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
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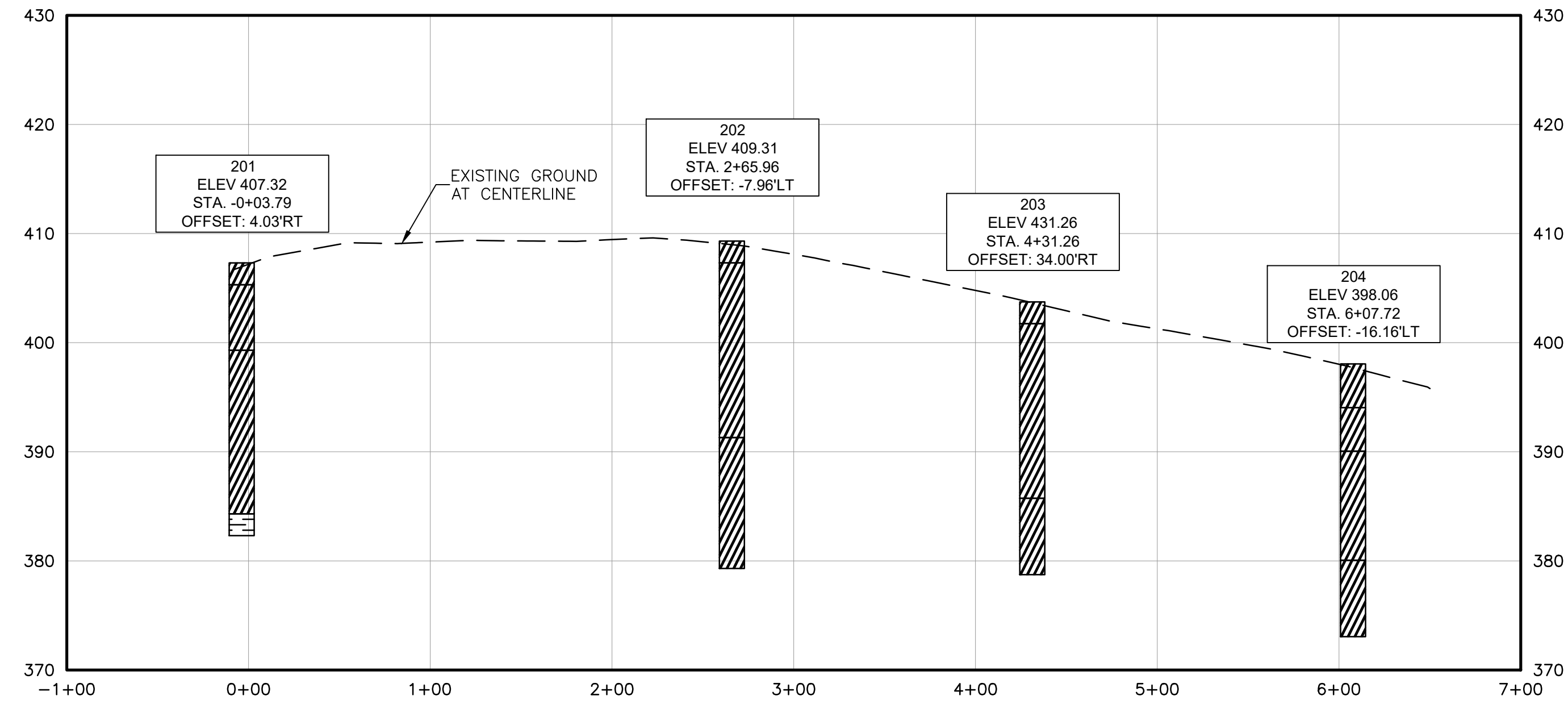
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SHEET NO.
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SEQUENCE NO.
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REVISIONS		
DATE	APPROVED	TITLE

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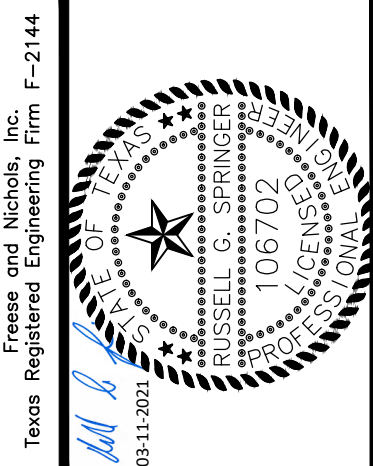
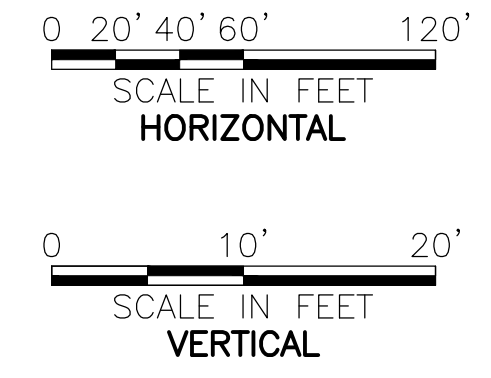


EXISTING AUXILIARY SPILLWAY PROFILE

LEGEND

CH (Hatched pattern)

MARL (Horizontal line pattern)



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GEOLOGICAL INVESTIGATIONS PROFILES
 FLOODWATER RETARDING STRUCTURE SITE No. 3
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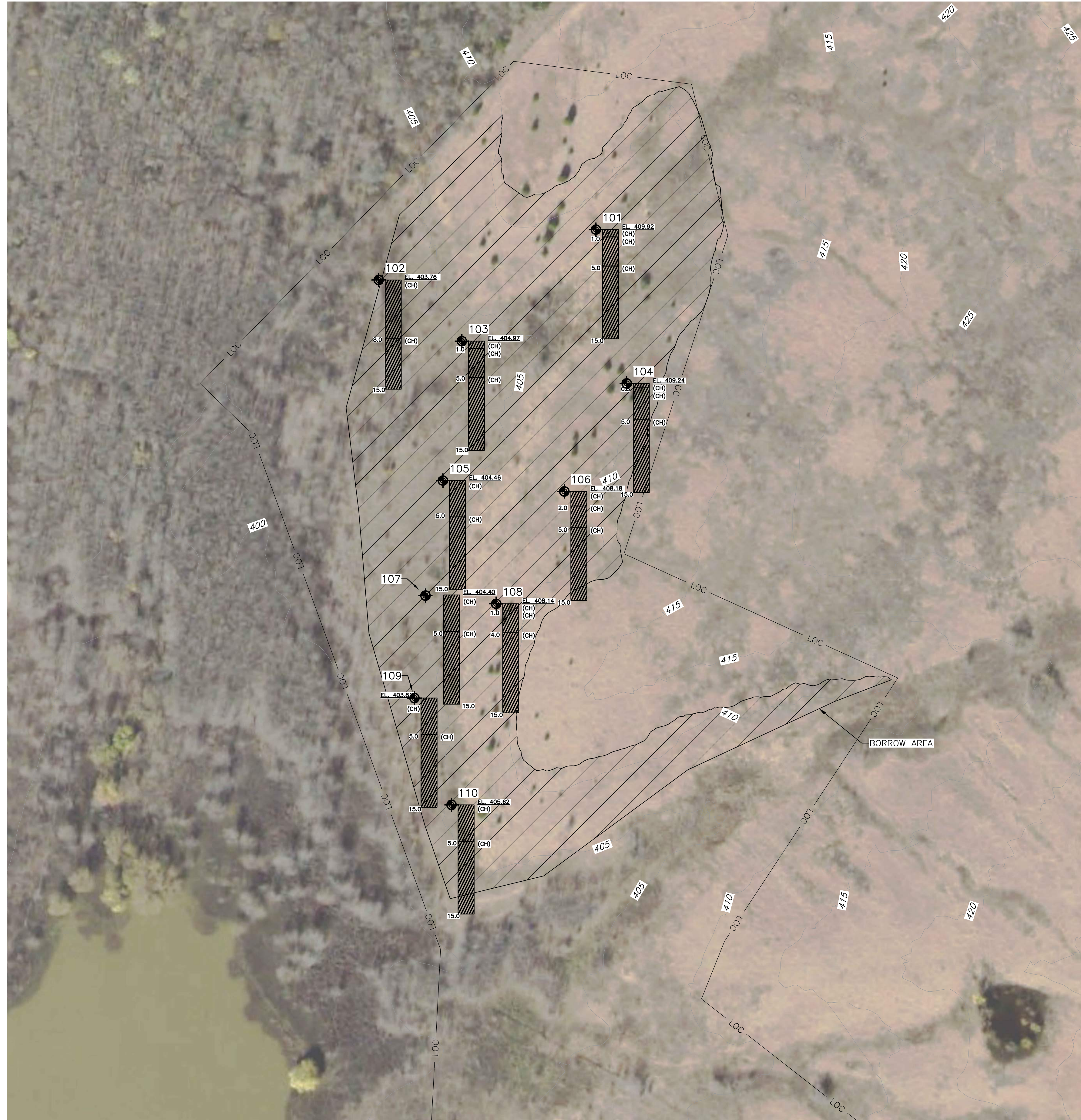
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C-25

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28 OF 43

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BORROW PLAN

LEGEND

- CH
- MARL
- BORING LOCATION

0 80 160
SCALE IN FEET
HORIZONTAL

0 10' 20'
SCALE IN FEET
VERTICAL PLAN STRIPS

N

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
09-11-2021

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GEOLOGICAL INVESTIGATION - BORROW PLAN
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
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SEQUENCE NO. **29 OF 43**

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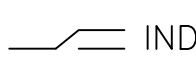
GENERAL NOTES

1. VERIFY ALL DIMENSIONS, ELEVATIONS, AND OPENING SIZES PRIOR TO STARTING WORK.
2. REMOVE ALL ABANDONED FOUNDATIONS, UTILITIES, PIPELINES, ETC. THAT INTERFERE WITH NEW CONSTRUCTION.
3. FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK.
4. STRUCTURES ARE DESIGNED FOR OPERATIONAL LOADS ON COMPLETED STRUCTURES ONLY. DURING CONSTRUCTION, STRUCTURES SHALL BE PROTECTED BY TEMPORARY BRACING AND SHORING AS REQUIRED FOR STABILITY DURING CONSTRUCTION. THE DESIGN OF BRACING AND SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. SEE OTHER DISCIPLINE DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS, DEPRESSIONS, OFFSETS, SLEEVES, CURBS, PADS, INSERTS, ETC. NOT SHOWN ON STRUCTURAL DRAWINGS.
6. PLANS, SECTIONS, AND DETAILS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.
7. THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.

CONCRETE AND REINFORCEMENT

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITIONS OF ACI 301, AND ACI 350.
2. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS NOTED OTHERWISE, SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
3. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI, UNLESS NOTED OTHERWISE.
4. REINFORCING SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60, DEFORMED.
5. CONCRETE CLEAR COVER OVER REINFORCING SHALL BE AS NOTED BELOW, UNLESS NOTED OTHERWISE.
 - A. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
 - B. ALL OTHER: 2"
 - C. SEE DRAWINGS FOR EXCEPTIONS
6. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" INSIDE FORMS OR TOOLED TO 3/4" RADIUS ON SLABS, UNLESS NOTED OTHERWISE.
7. ADDITIONAL CONSTRUCTION JOINTS SHALL HAVE PRIOR APPROVAL OF THE ENGINEER.
8. PENETRATIONS OTHER THAN SHOWN SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
9. ALL REINFORCING SHALL BE CONTINUOUS. CONTINUOUS BARS SHALL LAP IN ACCORDANCE WITH THE FOLLOWING TABLE, UNLESS NOTED OTHERWISE. ALL REBAR EMBEDMENT LENGTHS SHALL BE 75% OF THE LAP SPLICE LENGTH, UNLESS NOTED OTHERWISE. "TOP BARS" ARE HORIZONTAL REINFORCEMENT PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BARS (INCLUDING WALLS). "OTHER BARS" ARE ALL BARS OTHER THAN "TOP BARS".

REBAR LAP SPLICE LENGTHS (INCHES)		
BAR SIZE	4,500 PSI	
	TOP BARS	OTHER BARS
#4	19	14
#5	23	18
#6	28	21
#7	40	31
#8	46	35
#9	56	44
#10	70	54

10. THE SYMBOL  INDICATES A LAP SPLICE, NOT A BEND IN THE BAR.
11. LAP SPLICES IN BEAMS AND WALLS SHALL BE STAGGERED, UNLESS NOTED OTHERWISE.
12. LAP SPLICES SHALL BE LOCATED WHERE INDICATED ON THE DRAWINGS OR AS APPROVED BY THE ENGINEER.
13. WHEN REINFORCING BARS OF DIFFERENT SIZES ARE TO BE SPLICED, THE LENGTH OF LAP SHALL BE GOVERNED BY THE SMALLER BAR.
14. IF BARS ARE SPACED CLOSER THAN 6" OR 6 BAR DIAMETERS, CENTER-TO-CENTER SPACING, LAP SPLICES SHALL BE STAGGERED TO PROVIDE 12" CLEAR BETWEEN ENDS OF ADJACENT SPLICES.
15. LAP SPLICES IN REINFORCING BARS AT VERTICAL CONSTRUCTION JOINTS MAY BE SHIFTED TO AGREE WITH THE SEQUENCE OF CONSTRUCTION, UNLESS NOTED OTHERWISE.

16. NON-CONTACT LAP SPLICES SHALL NOT BE SPACED FARTHER APART THAN ONE-FIFTH THE REQUIRED LENGTH OF LAP SPLICE OR 6", WHICHEVER IS LESS.
17. REINFORCING BARS PARALLELING CONSTRUCTION JOINTS SHALL HAVE A MINIMUM OF 2" CLEAR CONCRETE COVER FROM JOINT.
18. IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED DUE TO THE LIMITED EXTENT OF THE ADJACENT CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND END IN STANDARD HOOKS.
19. HOOKS SHOWN ON DRAWINGS SHALL BE ASSUMED TO BE STANDARD HOOKS PER ACI 350, UNLESS NOTED OTHERWISE.
20. REINFORCING BARS MAY BE ADJUSTED Laterally TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1" BETWEEN THE REINFORCING BARS AND KEYS, WATERSTOPS, ANCHOR RODS, FORM TIES, CONDUITS, AND OTHER EMBEDDED MATERIAL. IN HEAVILY REINFORCED AREAS, RELOCATION OF EMBEDDED MATERIAL MUST BE CONSIDERED.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMING, TEMPORARY BRACING, AND SHORING.

FOUNDATION

1. REF TO SHEETS C-21 TO C-26 FOR GEOTECHNICAL INFORMATION AND LOG OF BORINGS.
2. MINIMUM ALLOWABLE NET BEARING PRESSURES USED FOR FOUNDATION DESIGN ARE AS FOLLOWS:
 - A. AGGREGATE FILL AT INLET RISER: 3,000 PSF
 - B. FLEXIBLE BASE AT IMPACT BASIN: 3,500 PSF

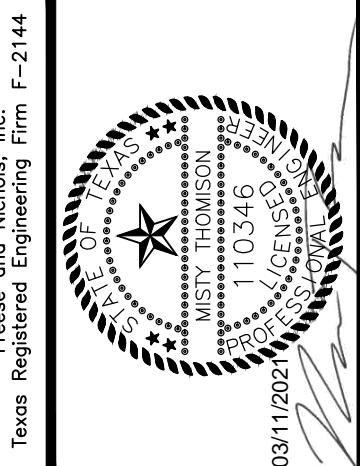
LOADS:

1. DESIGN IS IN ACCORDANCE WITH NRCS NEM, USACE, AND 2018 INTERNATIONAL BUILDING CODE, LOCAL AMENDMENTS, AND APPLICABLE CODE REFERENCE STANDARDS.
2. LIVE LOADS:
 - A. RISER TOP SLAB = 100 PSF.
3. GROUND SNOW LOADS: $P_g = 5$ PSF
4. LATERAL LOADS:
 - A. RISK CATEGORY III
 - B. RISER WIND LOAD = 50 PSF
 - C. SEISMIC LOAD:
 - i. SEISMIC IMPORTANCE FACTOR: $I = 1.25$
 - ii. MAPPED SPECTRAL ACCELERATIONS: $SS = 0.094$, $S_1 = 0.055$
 - iii. SITE CLASS: C
 - iv. SPECTRAL RESPONSE COEFFICIENT: $SDS = 0.082$, $SD_1 = 0.055$
 - v. SEISMIC DESIGN CATEGORY: A
 - vi. INTAKE RISER BASIC SEISMIC FORCE-RESISTING SYSTEM: ORDINARY REINFORCED CONCRETE SHEAR WALL.
 - vii. DESIGN CATEGORY: A
 - viii. RESPONSE MODIFICATION FACTOR:
 - A. INTAKE RISER: $R=4$
 - B. MPACT BASIN: $R=2$
 - ix. ANALYSIS PROCEDURE:
 - A. INTAKE RISER: MODAL ANALYSIS
 - B. IMPACT BASIN: EQUIVALENT LATERAL FORCE PROCEDURE

POST-INSTALLED ANCHORS (EXPANSION OR ADHESIVE):

1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII), BUT NOT LESS THAN INDICATED BELOW.
2. INSTRUCTIONS BELOW ARE NOT INTENDED TO CONFLICT WITH APPLICABLE SAFETY OR OSHA REGULATIONS OR TO RELIEVE CONTRACTOR OF COMPLIANCE WITH ALL APPLICABLE SAFETY AND OSHA REGULATIONS. IN CASE OF CONFLICT WITH SAFETY OR OSHA REGULATIONS, CONTACT THE ENGINEER FOR GUIDANCE BEFORE PROCEEDING WITH FABRICATION OR CONSTRUCTION.
3. ADHESIVE ANCHORS SHALL ONLY BE INSTALLED BY CONSTRUCTION PERSONNEL CERTIFIED UNDER ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM OR APPROVED EQUAL. SUBMIT CERTIFICATIONS AS RECORD DATA.
4. ANCHOR DIAMETER AND EMBEDMENT SHALL BE AS INDICATED.
5. HOLES SHALL BE DRILLED USING ROTARY HAMMER DRILL WITH ANSI MATCHED TOLERANCE CARBIDE-TIPPED DRILLED BITS. DRILL BIT DIAMETER SHALL MATCH DIAMETER RECOMMENDED BY MANUFACTURER, DRILL HOLES USING HILTI SAFESSET TECHNOLOGY OR APPROVED EQUAL.
6. USE CARE AND CAUTION WHEN INSTALLING TO AVOID CUTTING OR DAMAGING EXISTING REINFORCING STEEL. FIELD VERIFY EXISTING REINFORCING LOCATIONS PRIOR TO FABRICATION OR CONSTRUCTION, AND THEN COORDINATE REBAR LOCATIONS WITH SHOP DRAWINGS.
7. ADHESIVE ANCHORS SHALL BE DEFORMED REINFORCING BARS (ASTM A615, GR 60 OR GALVANIZED THREADED ROD (ASTM F1554 GRADE 55), UNLESS OTHERWISE NOTED, AND AS NOTED BELOW:
 - A. ADHESIVE SHALL BE HILTI HIT-RE 500 V3 IO APPROVED EQUAL. USE HILTI HIT-HY 270 FOR HALLOW OR GROUTED MASONRY OR APPROVED EQUAL. SUBMIT PUBLISHED COMPARISONS BETWEEN EACH SPECIFIED AND EACH ALTERNATE ANCHOR.
 - B. PRIOR TO INSTALLATION: ALL DEFORMED BARS AND THREADED ROD SHALL BE CLEANS, FREE OF OIL, GREASE, OR OTHER RESIDUE, IN ACCORDANCE WITH MPII.
 - C. VERIFY HOLE IS CLEAR OF DUST AND DEBRIS.
 - D. INSTALL ADHESIVE STARTING AT BACK OF HOLE. AS REQUIRED BY MPII, USE MANUFACTURER SUPPLIED PISTON PLUG INJECTION SYSTEM FOR ALL HORIZONTAL AND VERTICALLY INCLINED HOLES.
 - E. INSTALL ANCHOR BY SIMULTANEOUSLY TWISTING AND INSERTING INTO HOLE.
 - F. ALLOW ANCHOR TO SET REQUIRED TIME, DO NOT DISTURB.
 - G. TIGHTEN NUT, DO NOT OVER-TORQUE.
 - H. MINIMUM CONCRETE AGE AT TIME OF INSTALLATION 28 DAYS.
 - I. CONCRETE TEMPERATURE RANGE AT TIME OF INSTALLATION SHALL BE 41°F TO 104°F.
 - J. CONCRETE MOISTURE CONDITION AT TIME FOR INSTALLATION DRY.

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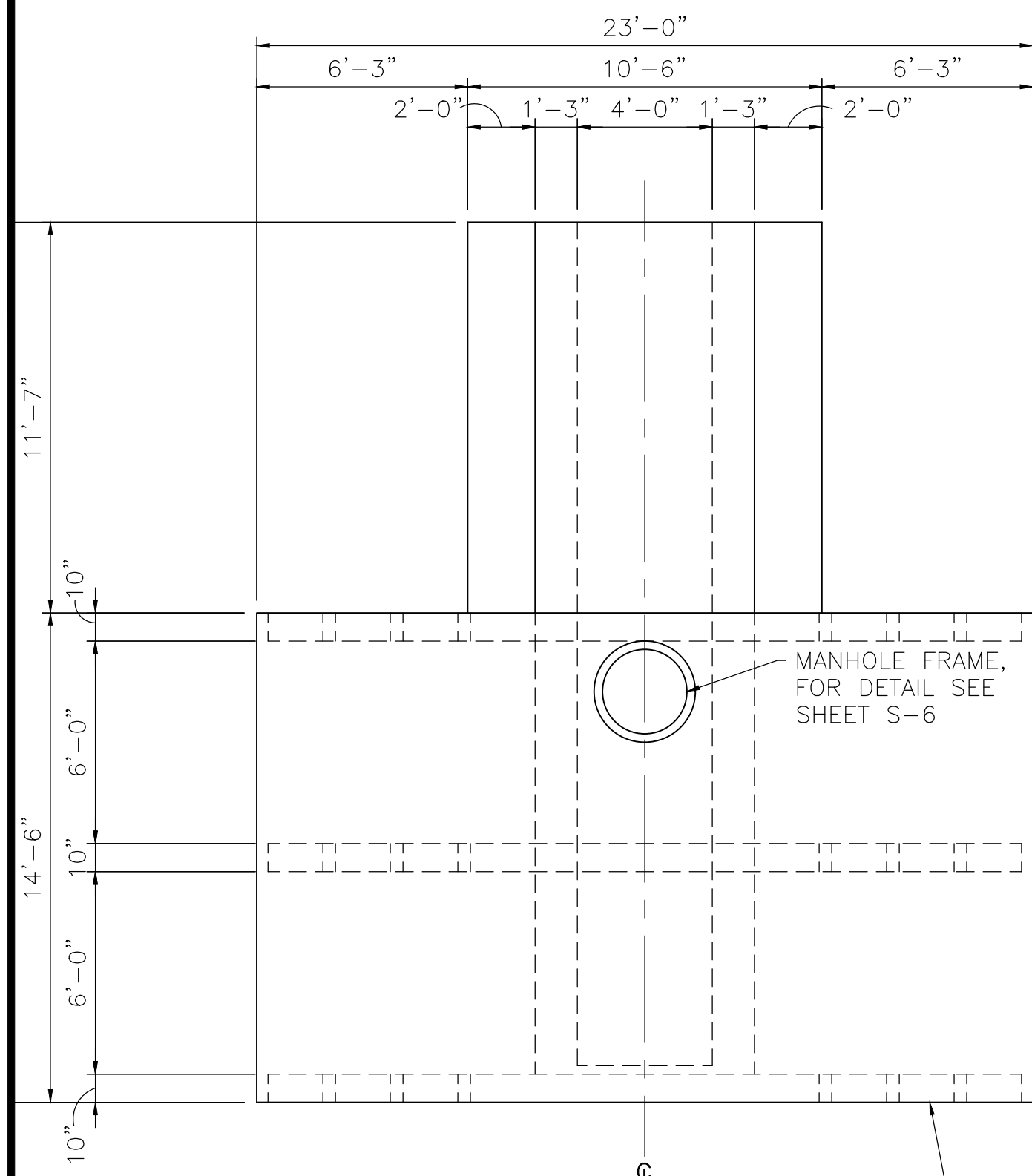
STRUCTURAL GENERAL NOTES
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
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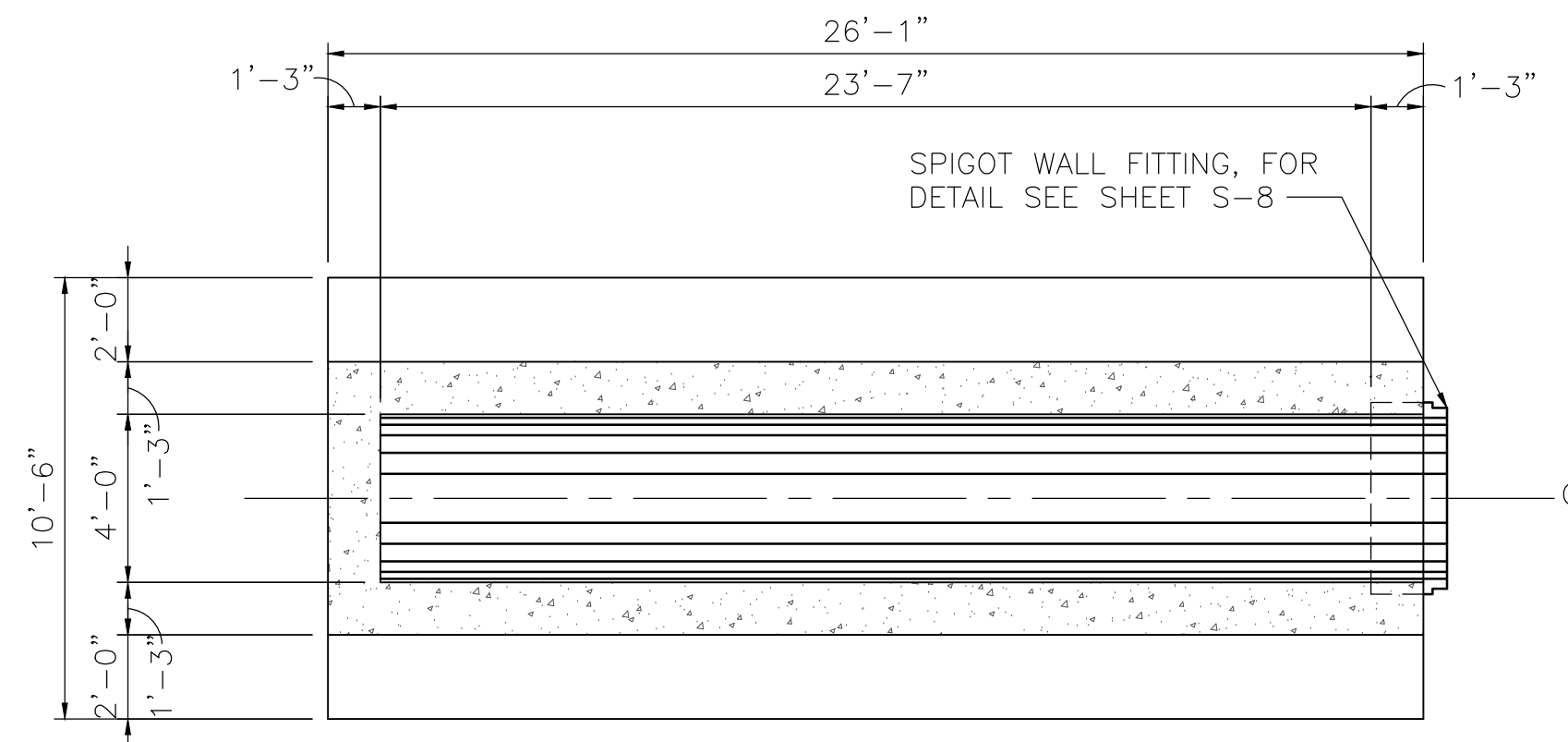
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 SEQUENCE NO. 30 OF 43

REVISIONS		
DATE	APPROVED	TITLE

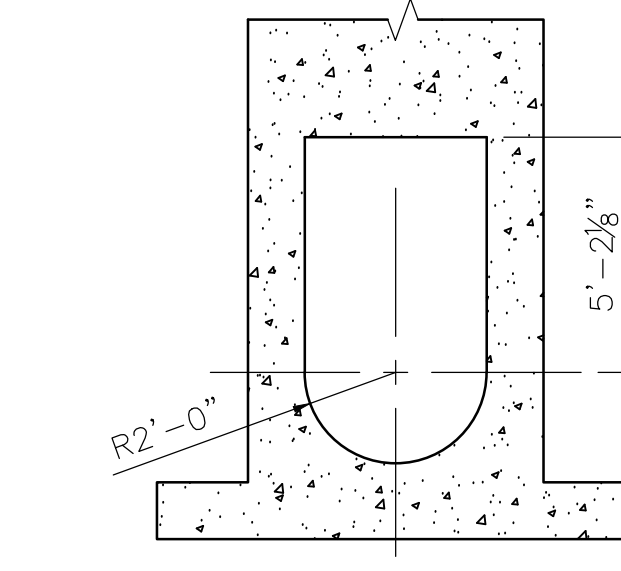
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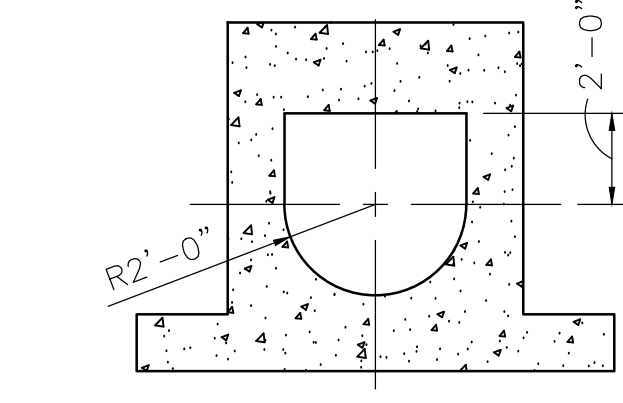
1 TOP PLAN
0 1' 2' 4' 8'
1/4"=1'-0"



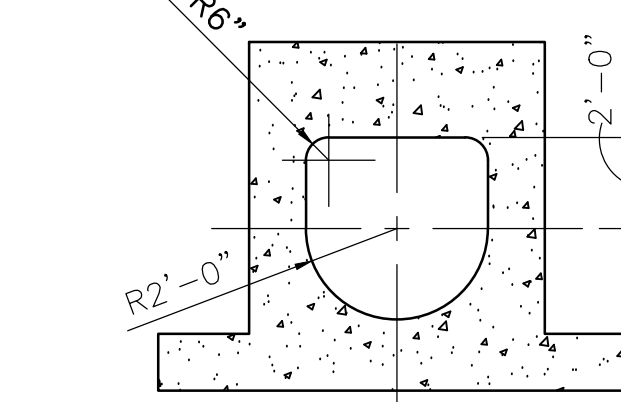
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1/4"=1'-0"



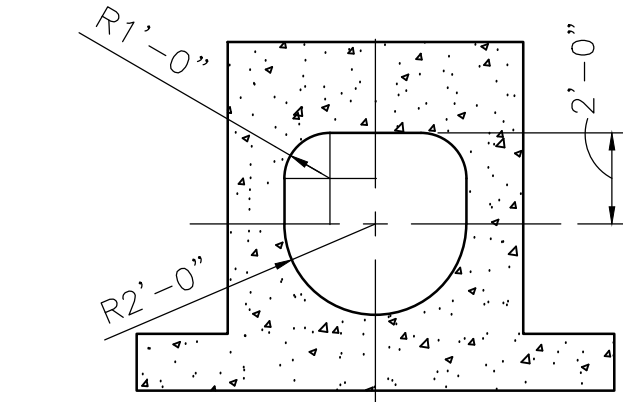
C SECTION C-C
0 1' 2' 4' 8'
1/4"=1'-0"



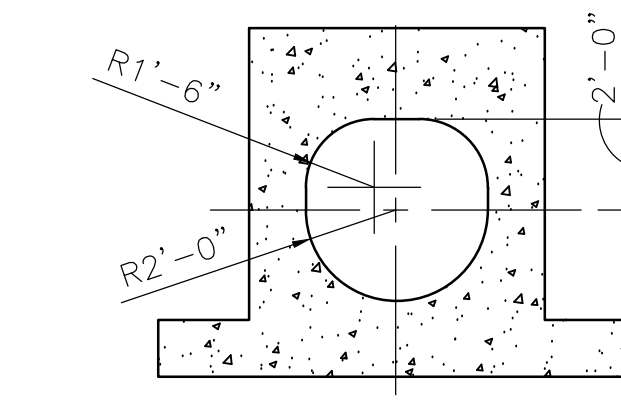
D SECTION D-D
0 1' 2' 4' 8'
1/4"=1'-0"



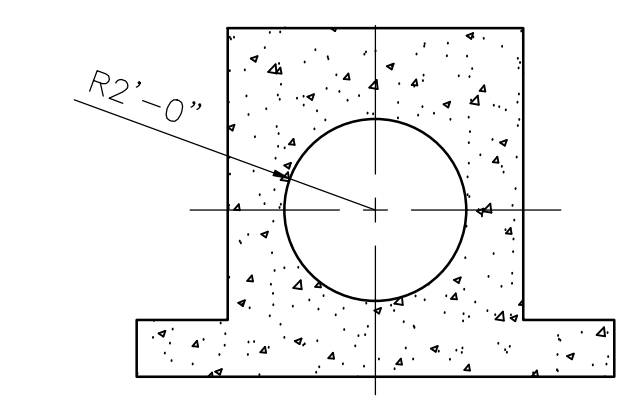
E SECTION E-E
0 1' 2' 4' 8'
1/4"=1'-0"



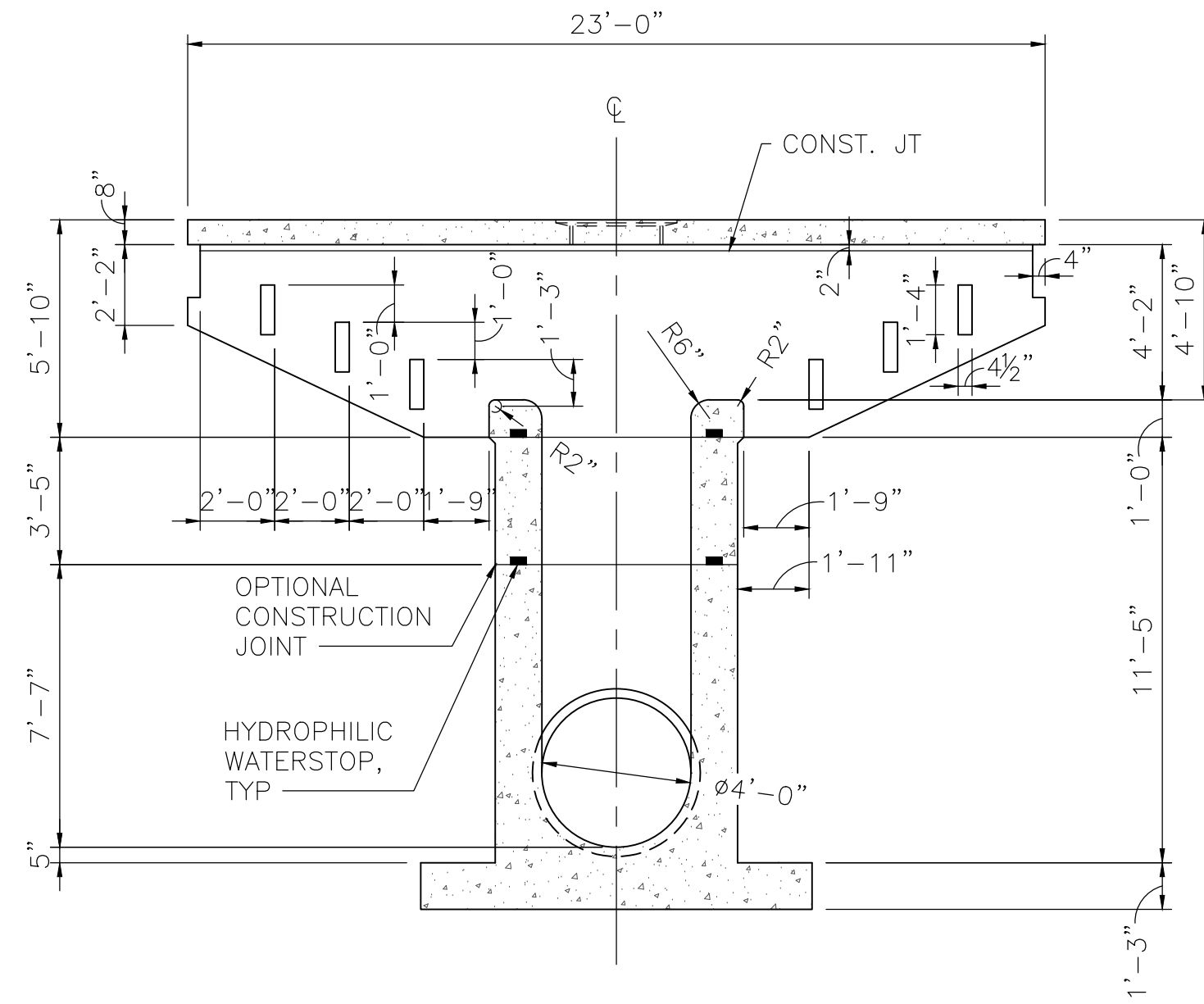
F SECTION F-F
0 1' 2' 4' 8'
1/4"=1'-0"



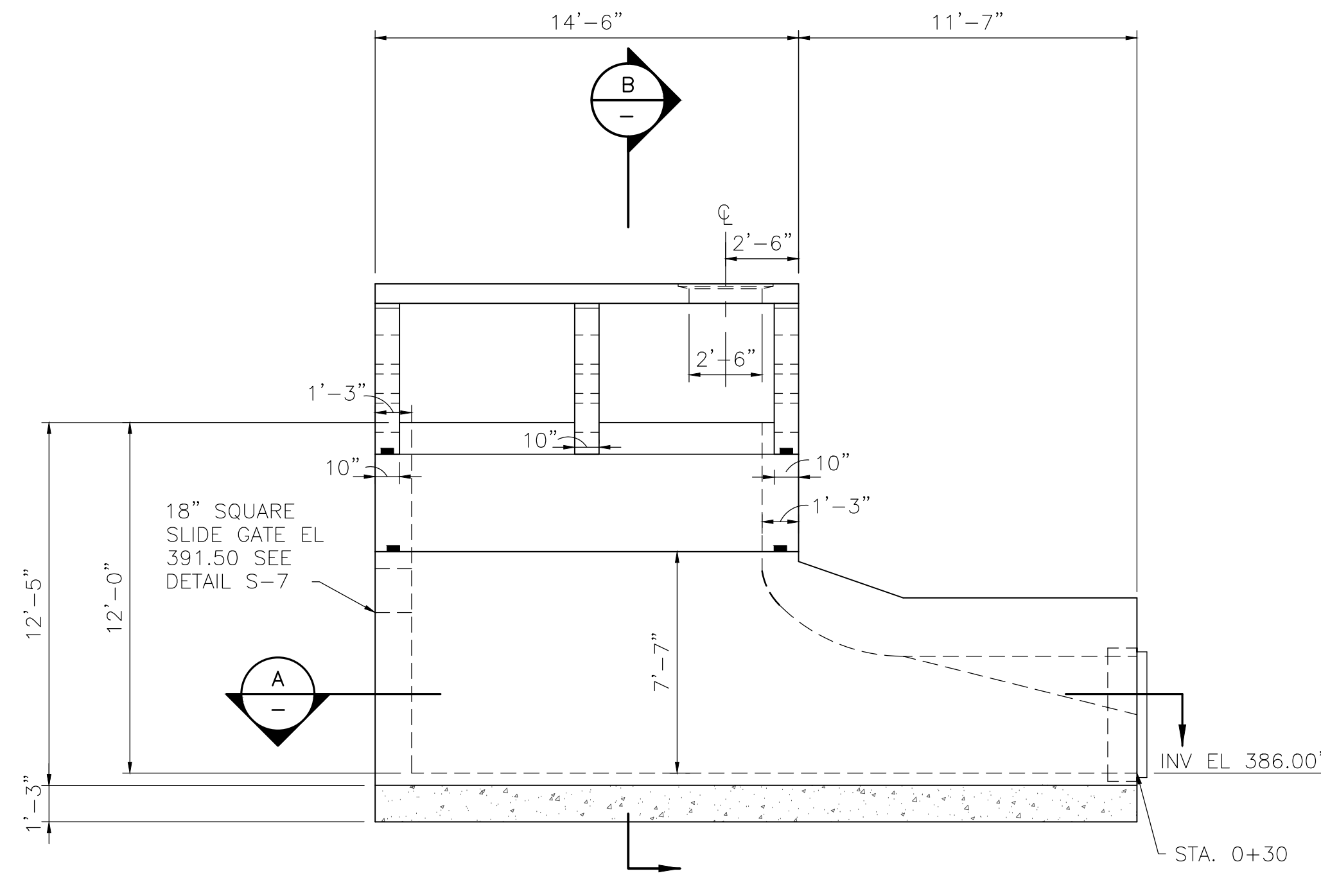
G SECTION G-G
0 1' 2' 4' 8'
1/4"=1'-0"



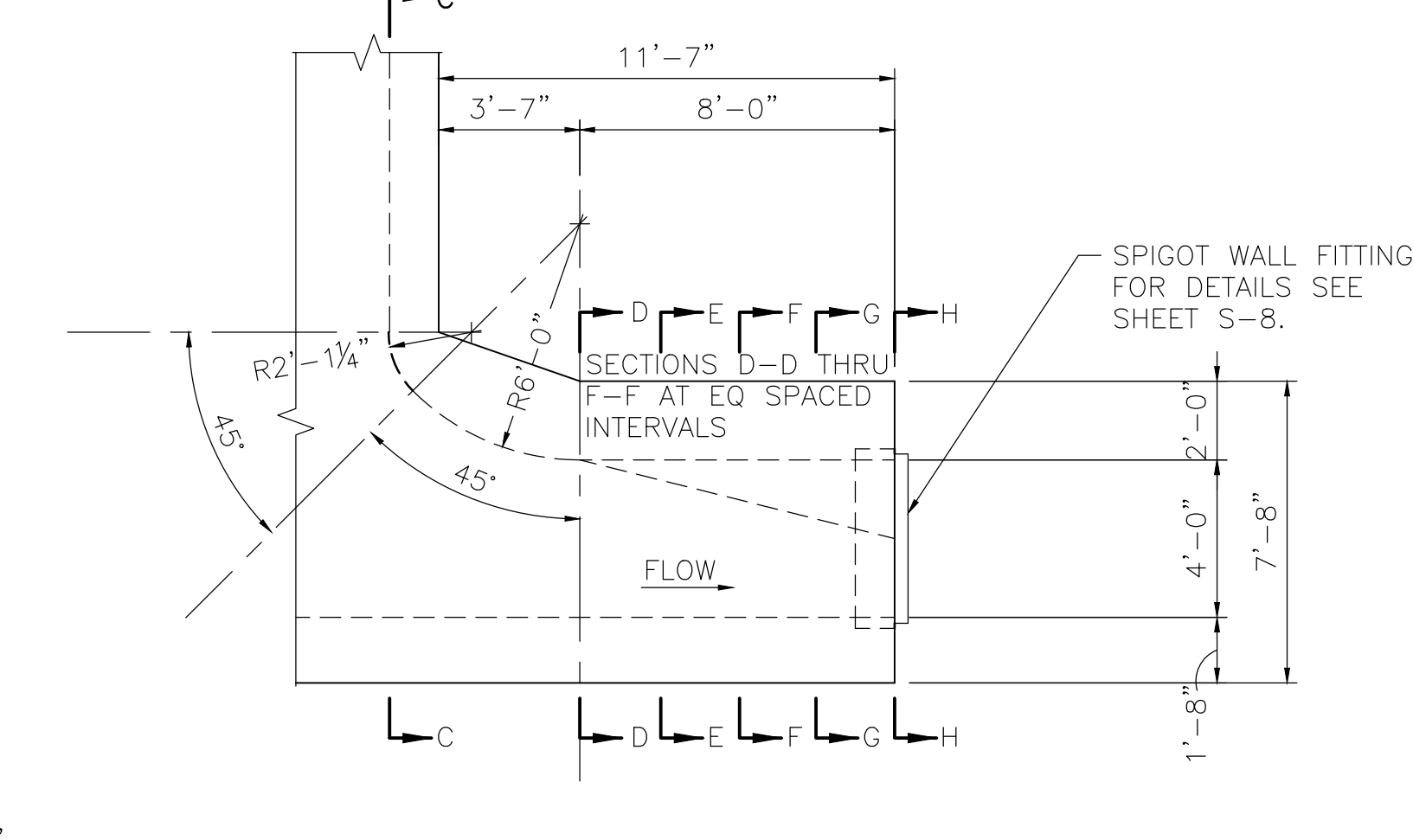
H SECTION H-H
0 1' 2' 4' 8'
1/4"=1'-0"



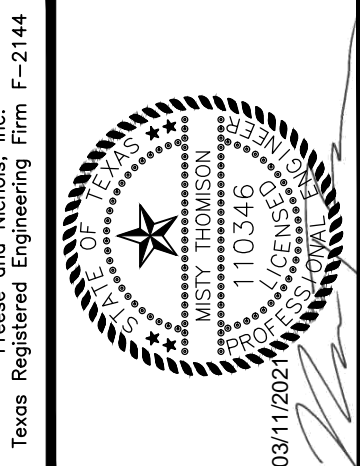
B SECTION B-B
0 1' 2' 4' 8'
1/4"=1'-0"



2 SIDE WALL ELEVATION
0 1' 2' 4' 8'
1/4"=1'-0"



3 TRANSITIONAL THROAT AND VERTICAL CURVE DETAILS
0 1' 2' 4' 8'
1/4"=1'-0"



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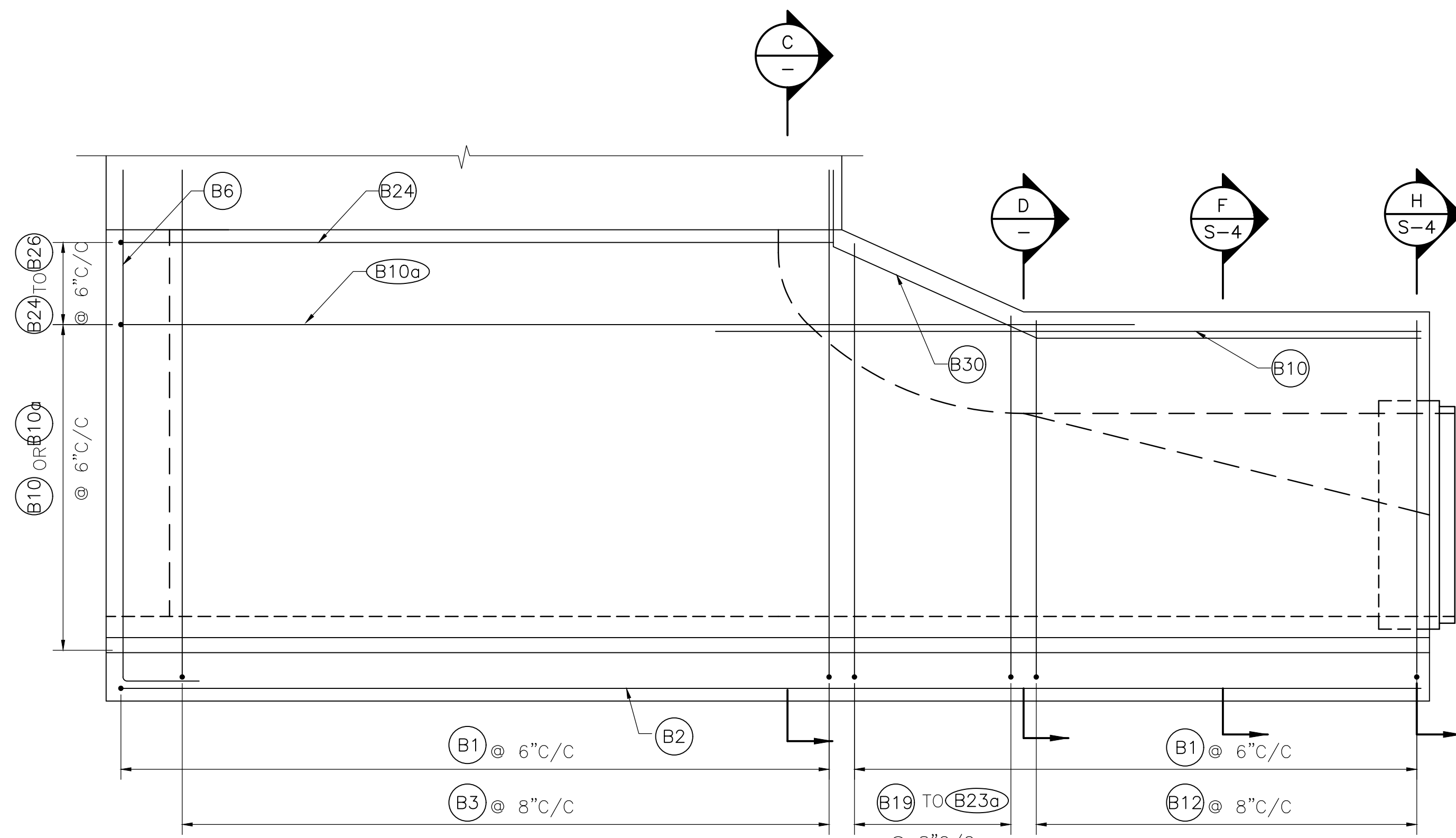
RISER - PLAN, ELEVATION, AND SECTIONS
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

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SHEET NO. S-2
SEQUENCE NO. 31 OF 43

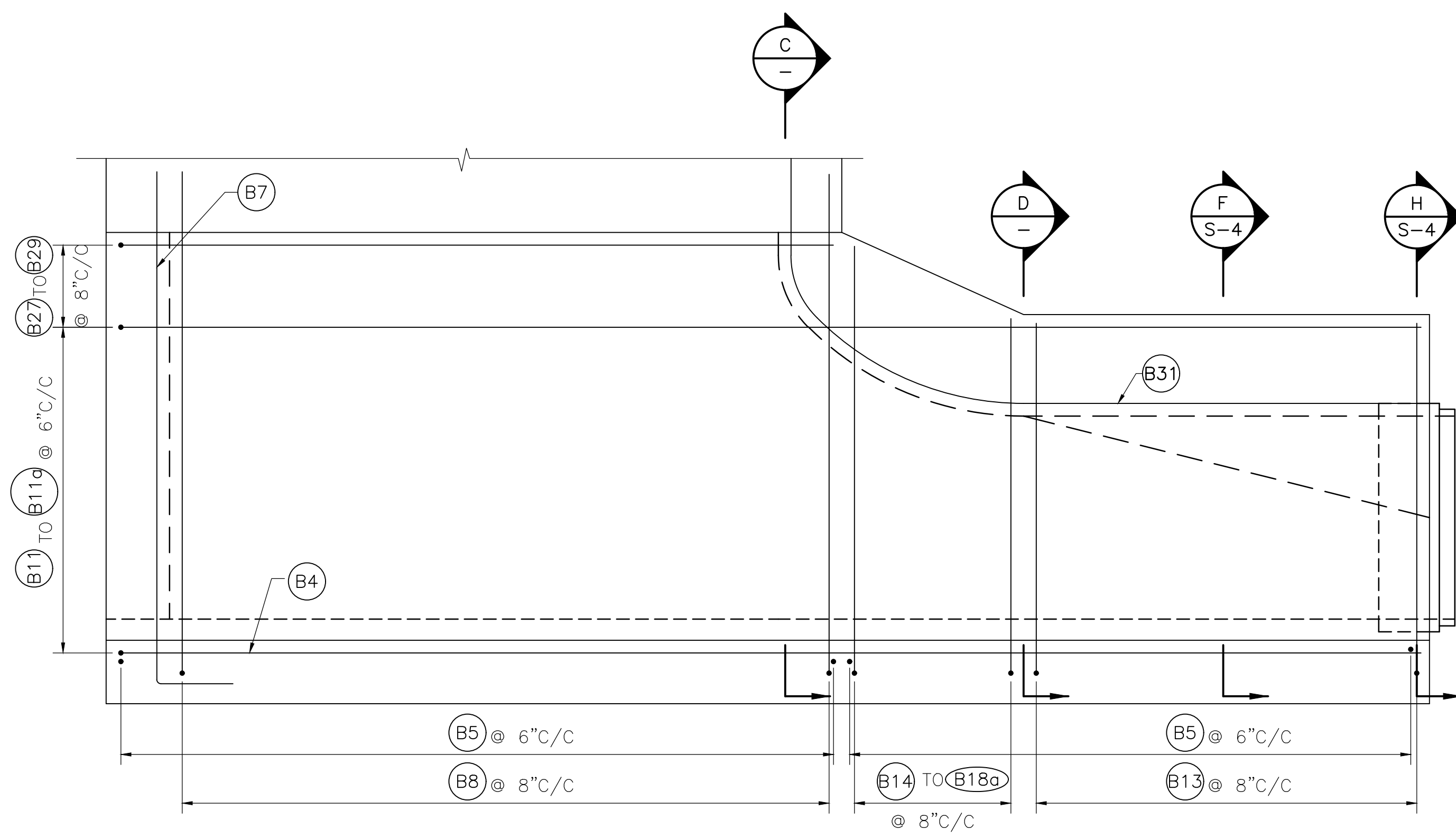
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STEEL 2" FROM OUTSIDE FACE OF RISER AND 3" FROM BOTTOM OF FOOTING.

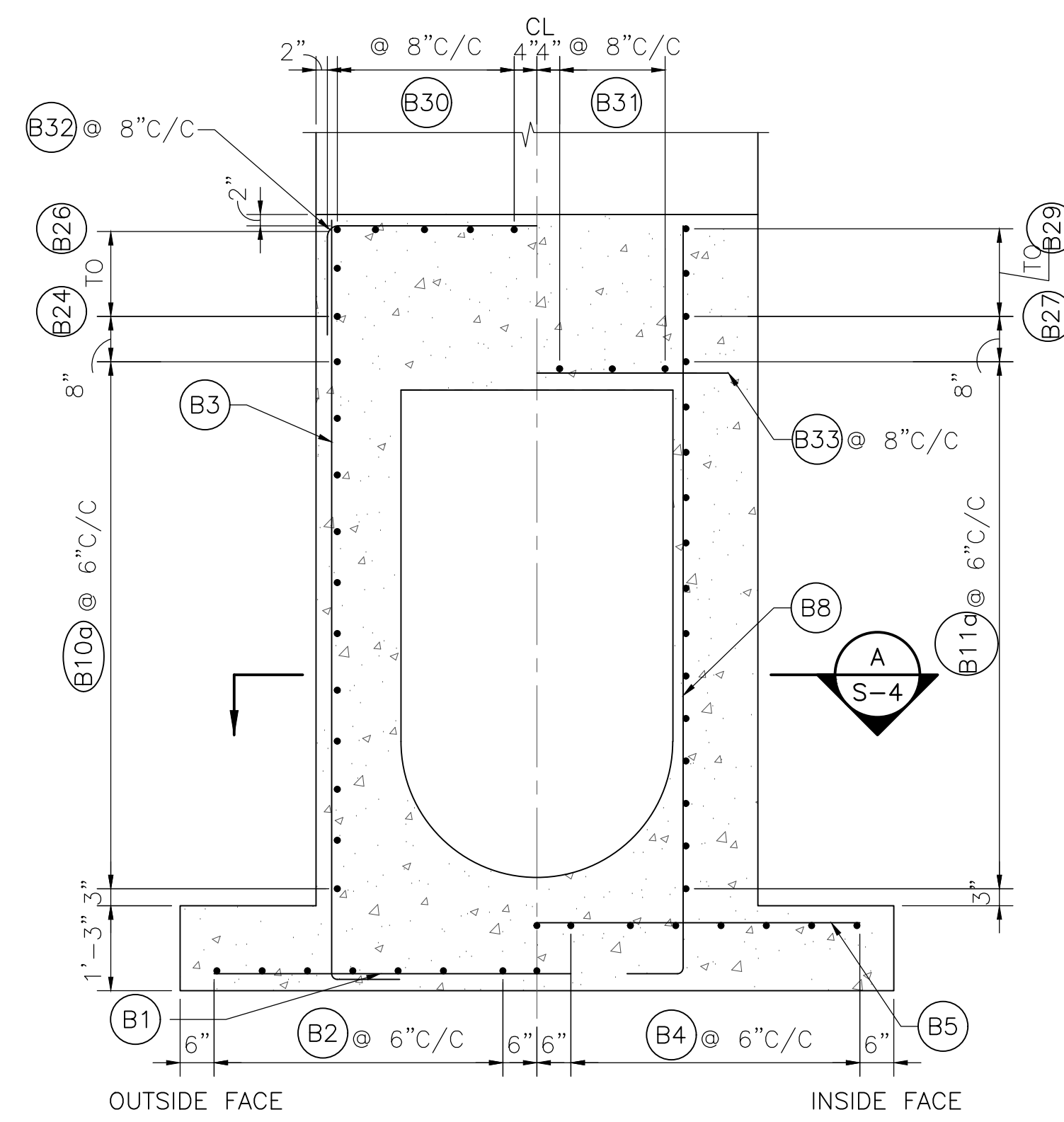
1
—
SIDEWALL ELEVATION
0 1' 2' 4'
1/2"=1'-0"



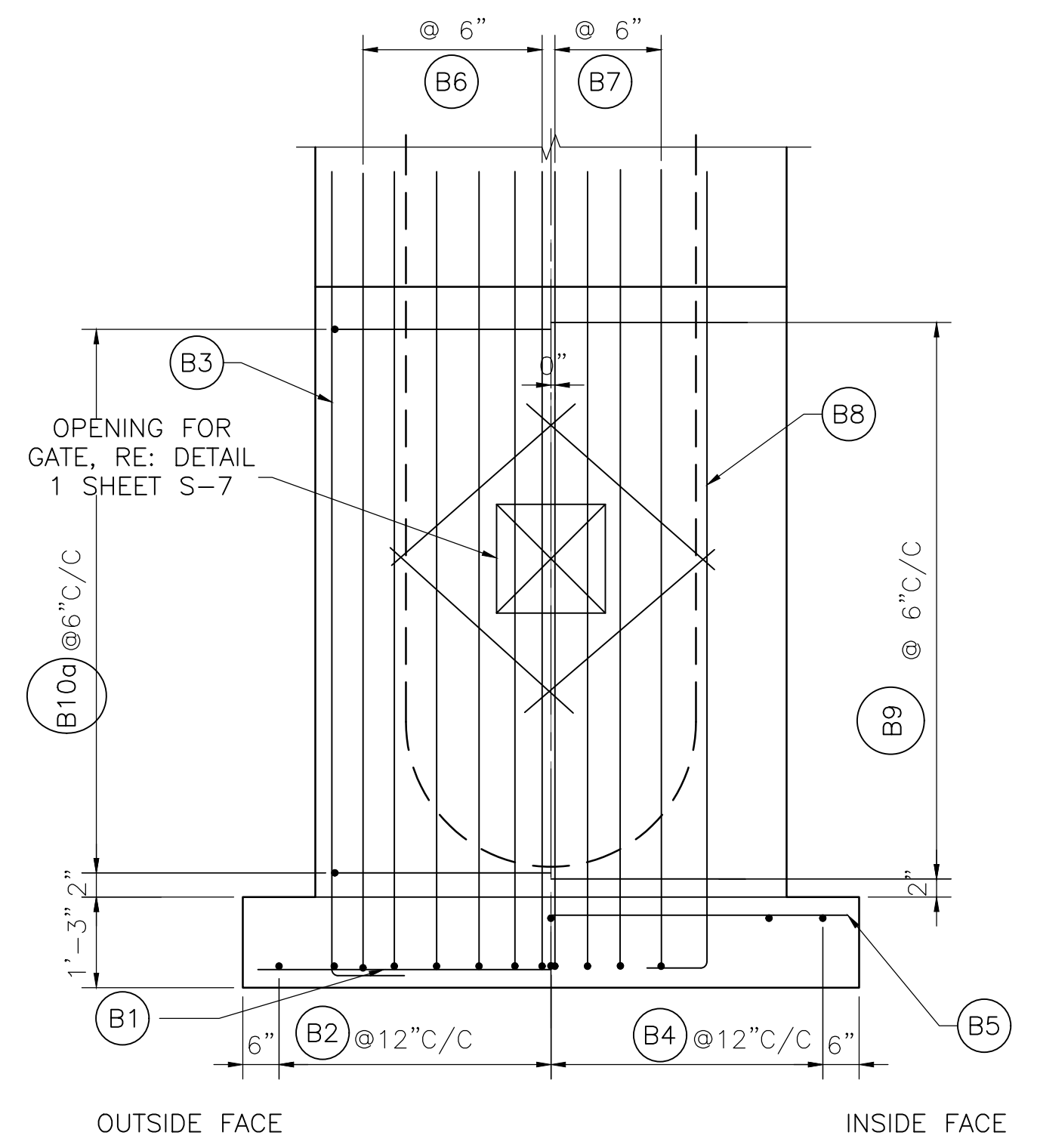
STEEL 2" FROM INSIDE FACE OF RISER AND 2" FROM TOP OF FOOTING.

2
—
SIDEWALL ELEVATION
0 1' 2' 4'
1/2"=1'-0"

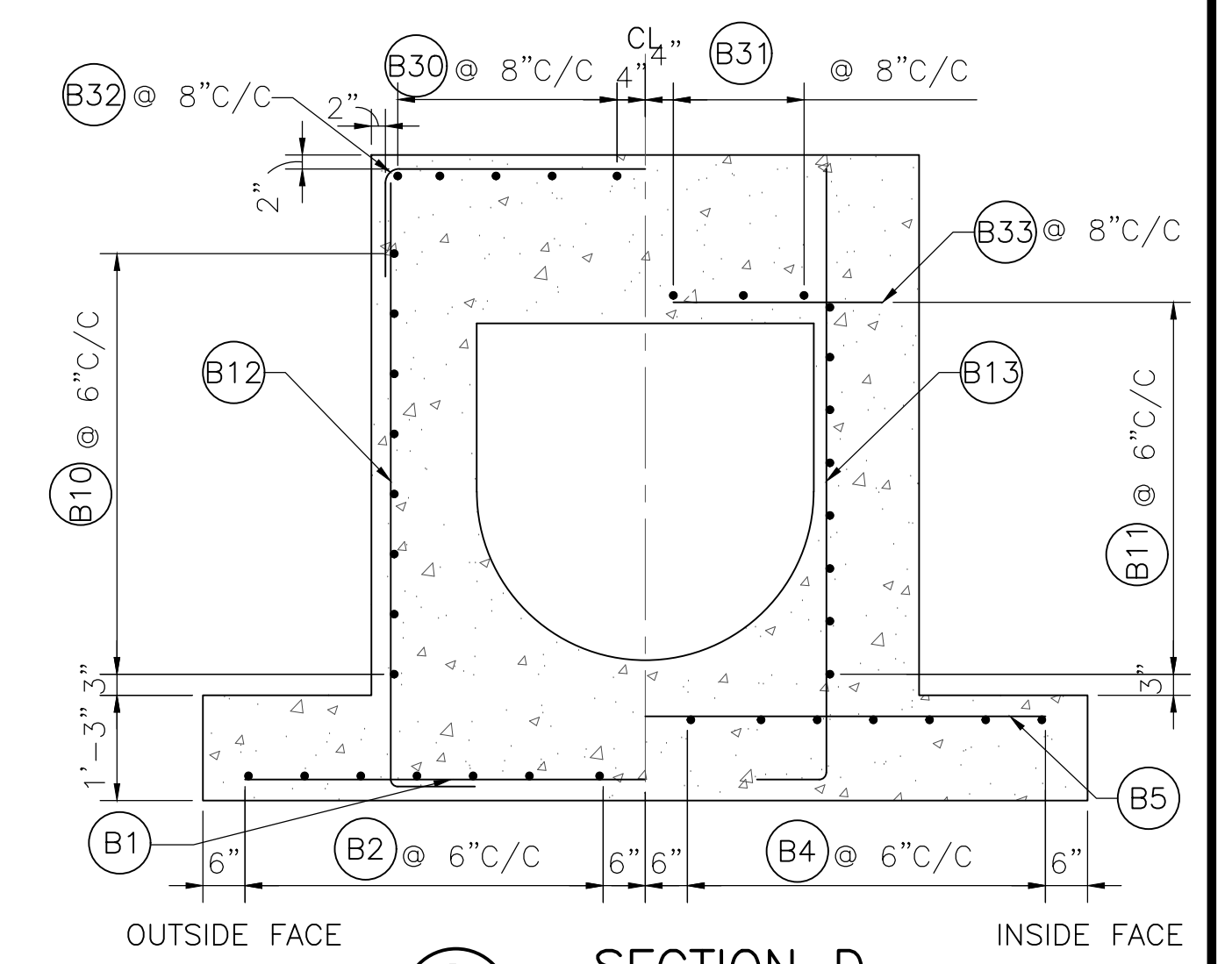
NOTES:
1. REFER TO S-7 FOR BAR SCHEDULE AND BAR TYPES.



SECTION C
0 1' 2' 4'
1/2"=1'-0"



3
—
UPSTREAM ELEVATION
0 1' 2' 4'
1/2"=1'-0"



SECTION D
0 1' 2' 4'
1/2"=1'-0"

DETAIL NOTES:
1. TRIM REINFORCING GOING THROUGH OPENING FOR GATE TO 2" CLEAR FROM OPENING.

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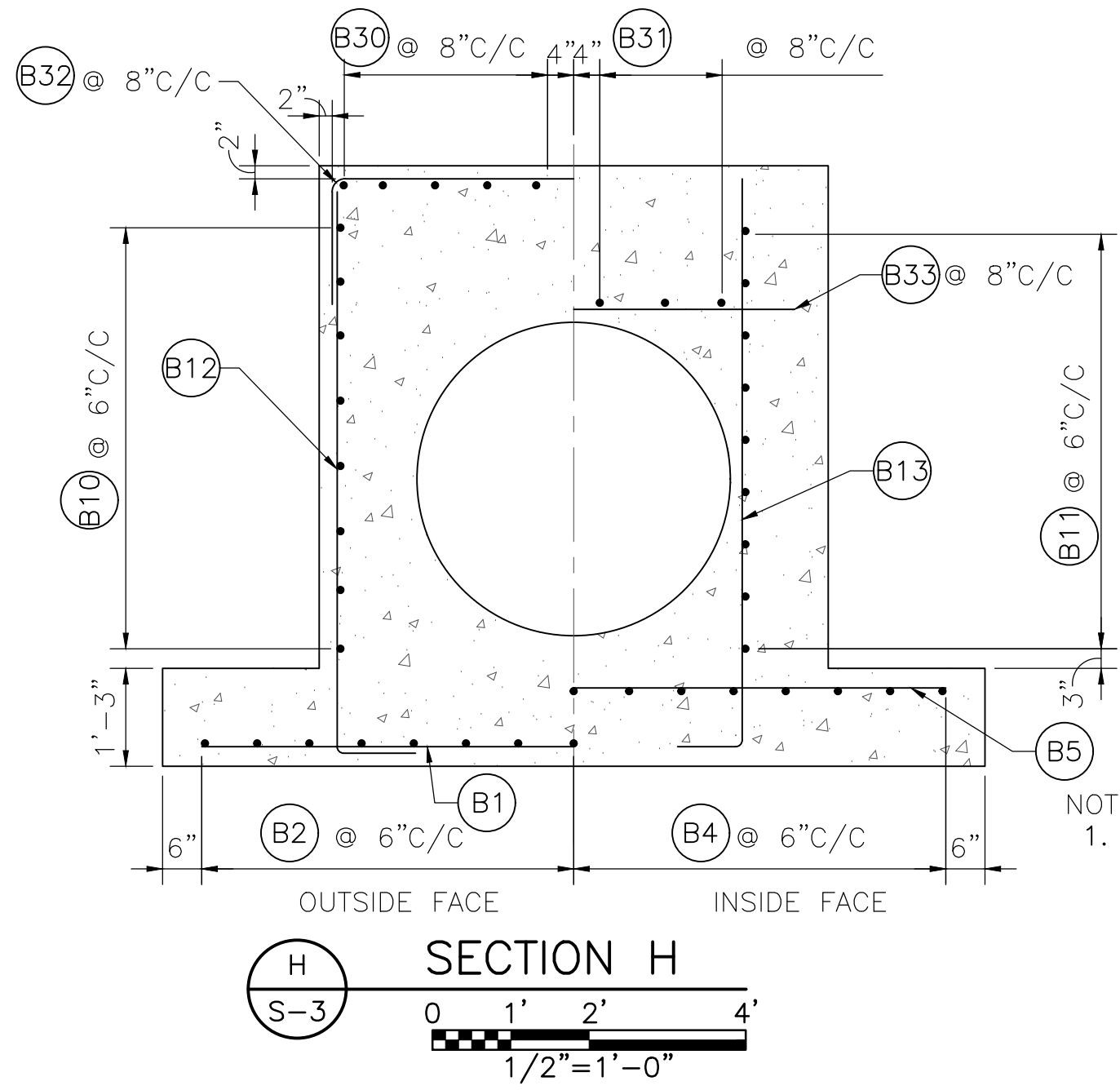
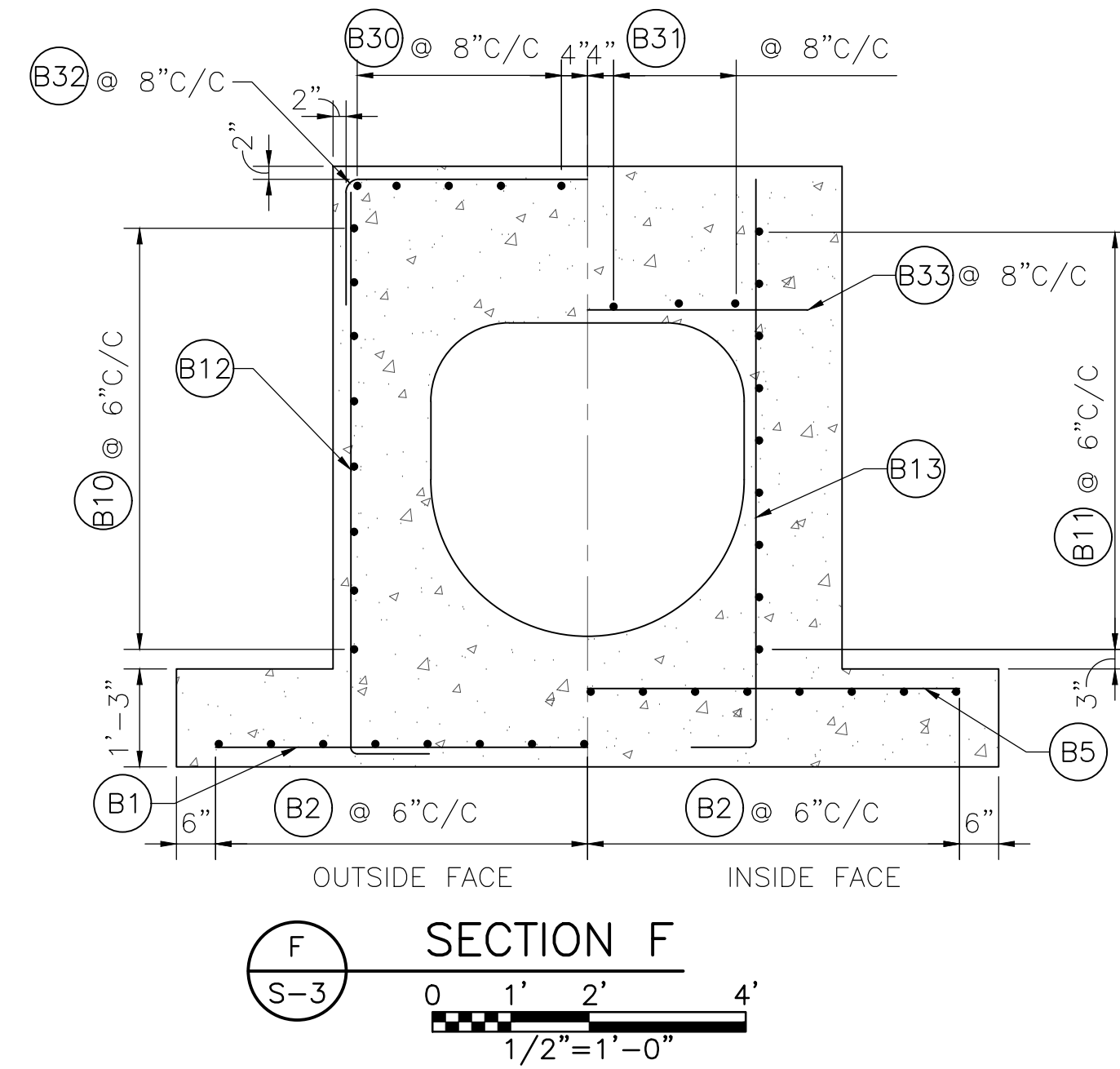
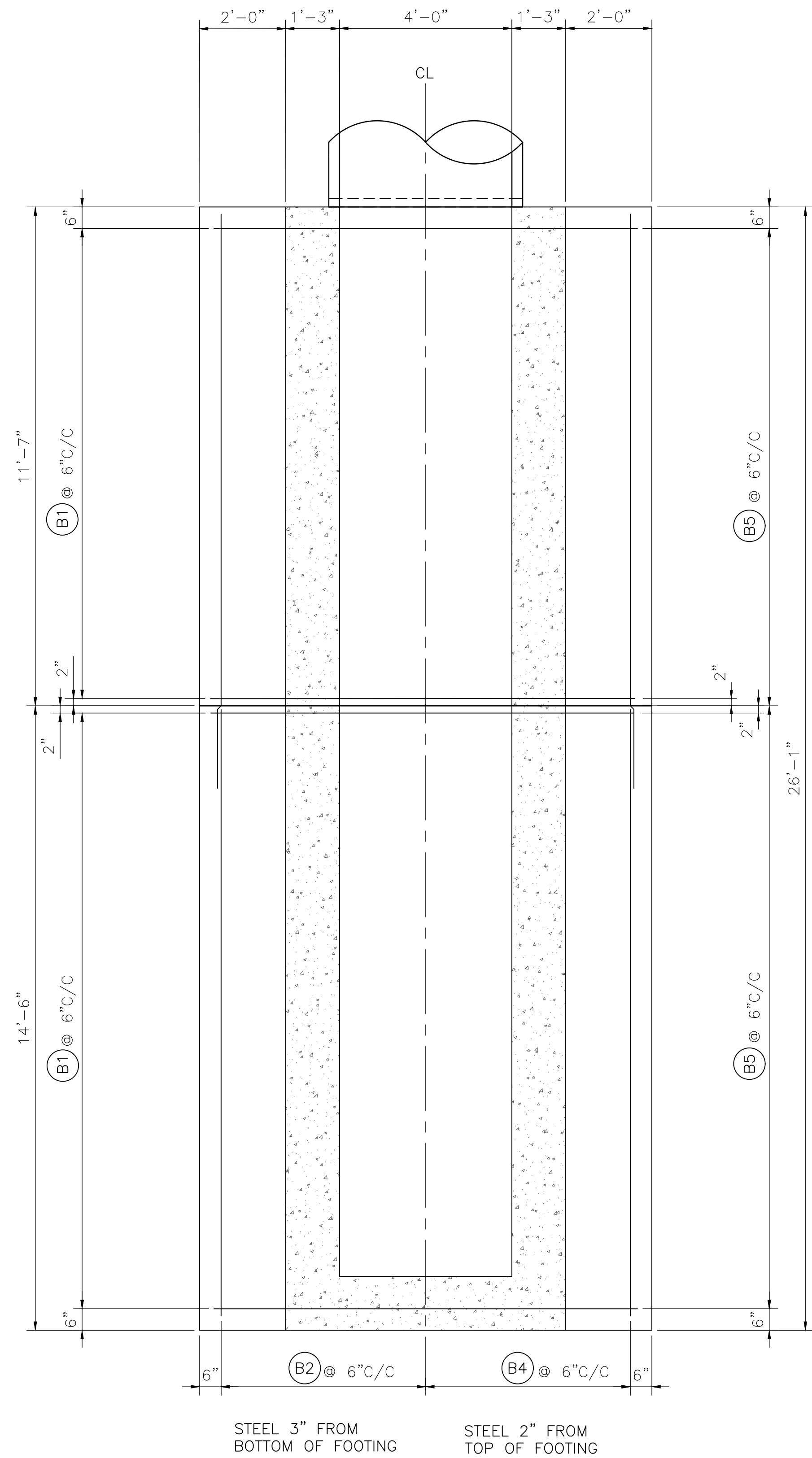
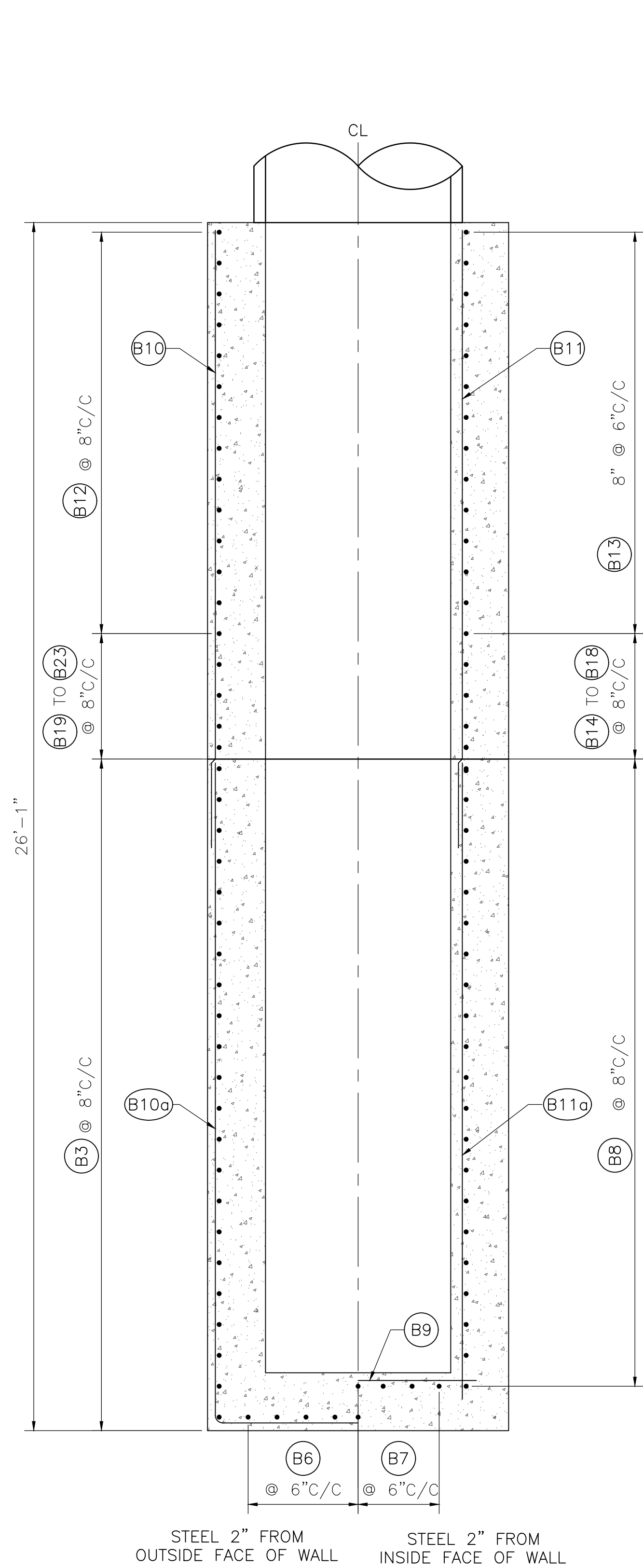
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RISER - REINFORCEMENT DETAILS 1
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
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SEQUENCE NO. 32 OF 43

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NOTES:
1. REFER TO S-7 FOR BAR SCHEDULE AND BAR TYPES.



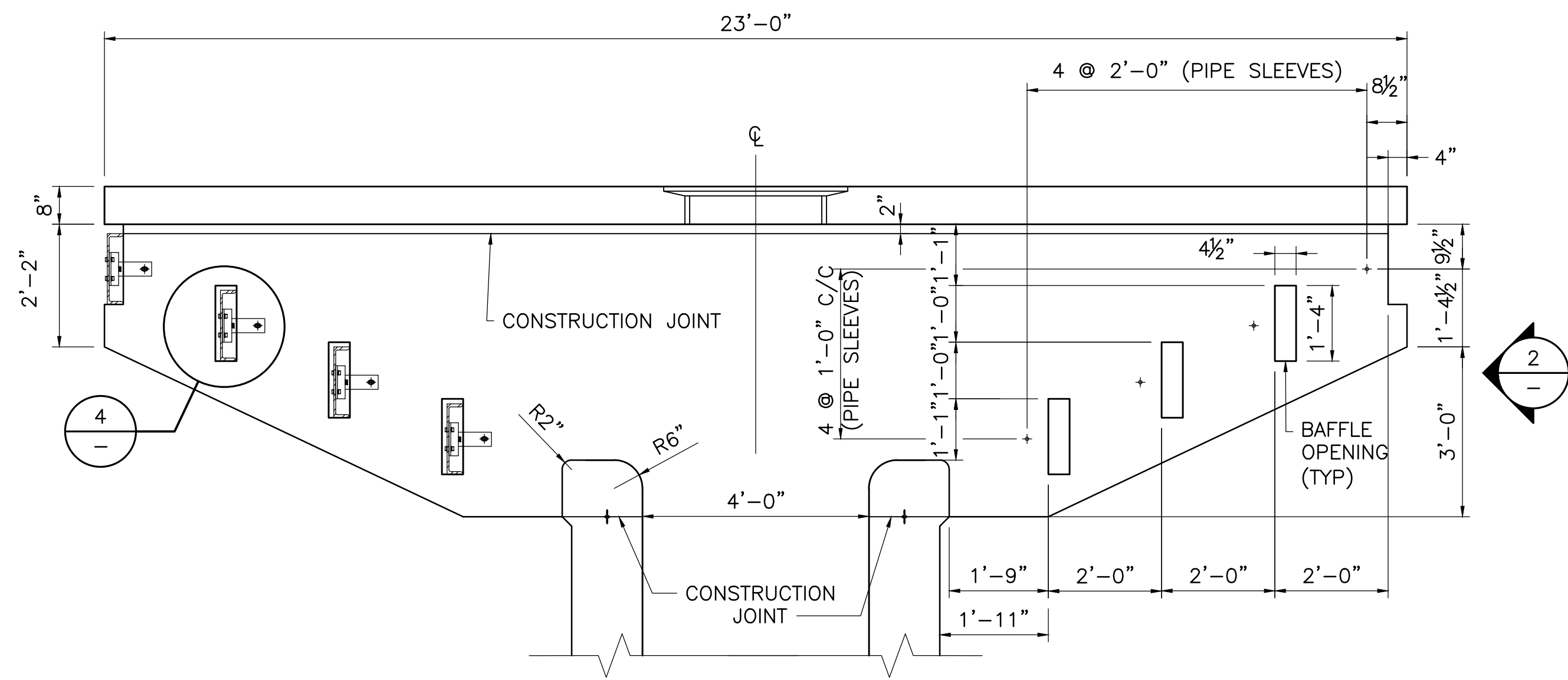
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RISER - REINFORCEMENT DETAILS 2
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

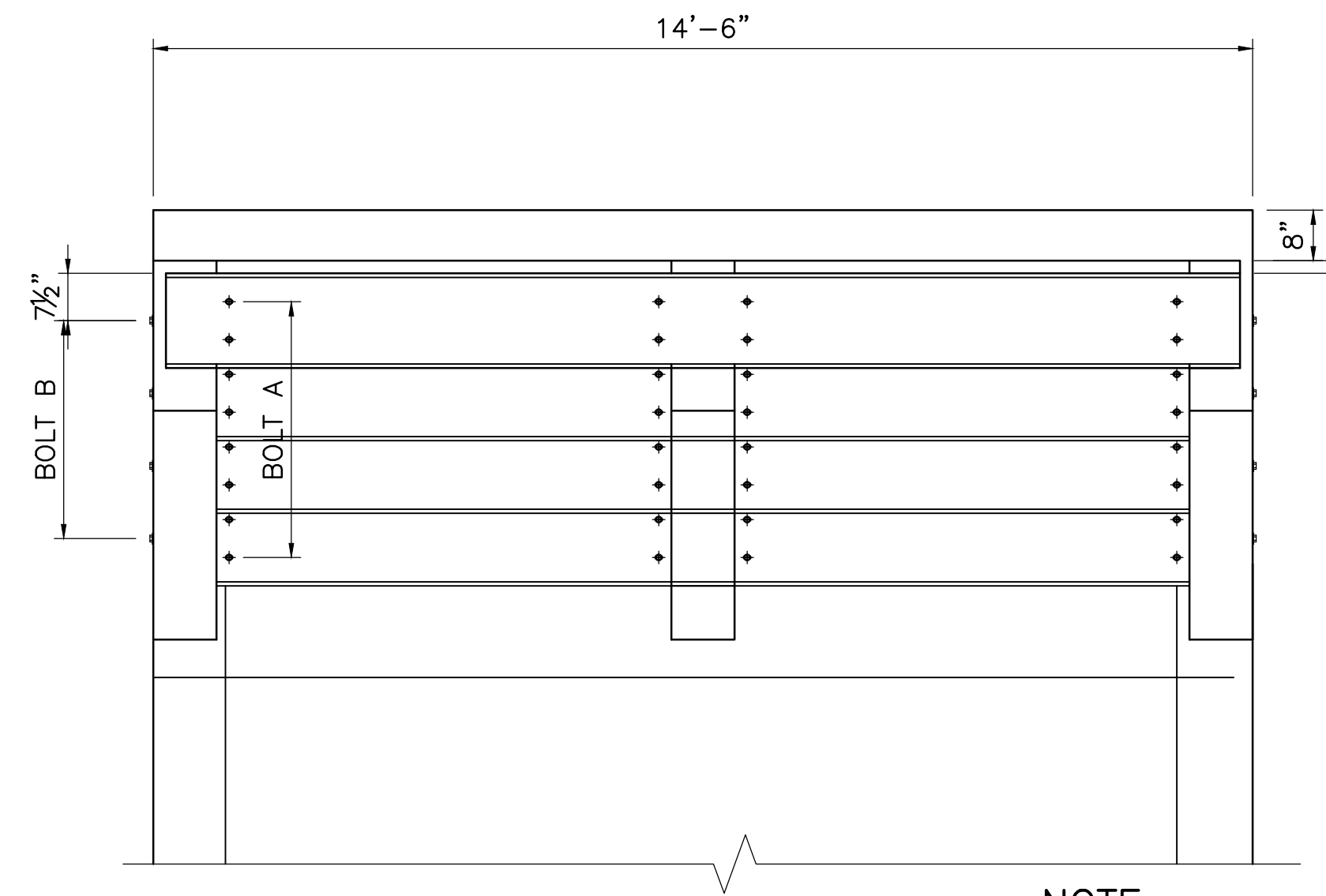
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SHEET NO. S-4
SEQUENCE NO. 33 OF 43

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1 ENDWALL ELEVATION
S-2
0 1' 2' 4'
1/2" = 1'-0"

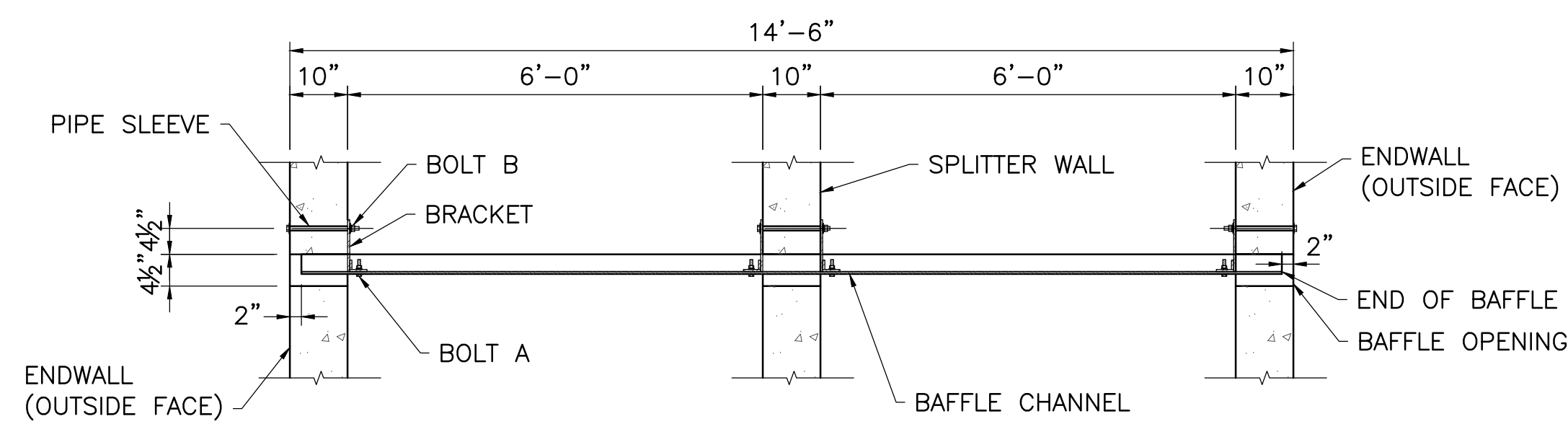


2 ENDWALL ELEVATION
-
0 1' 2' 4'
1/2" = 1'-0"

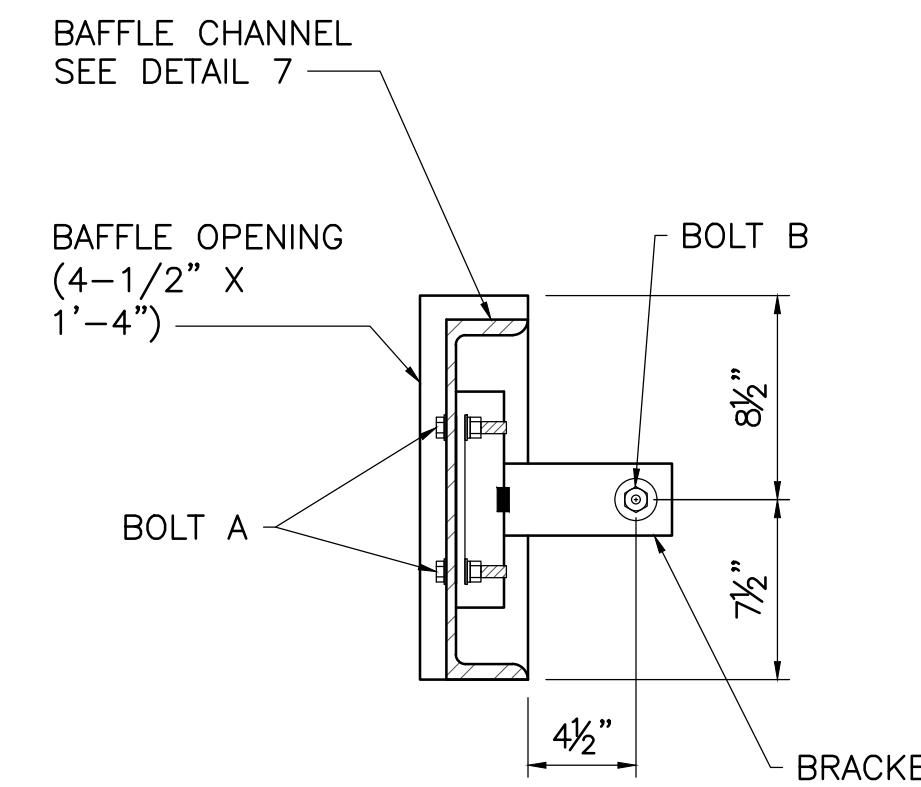
SCHEDULE OF QUANTITIES		
ITEM	SIZE	QUANTITY
CHANNEL	C 15X33.9	8
BRACKET	SEE DETAIL	32
BOLT A*	1/2"X2-1/2"	64
BOLT B*	5/8"X12"	24
PIPE SLEEVE	3/4"X10"	24

*BOLT WITH TWO FLAT WASHERS, ONE LOCK WASHER AND NUT.

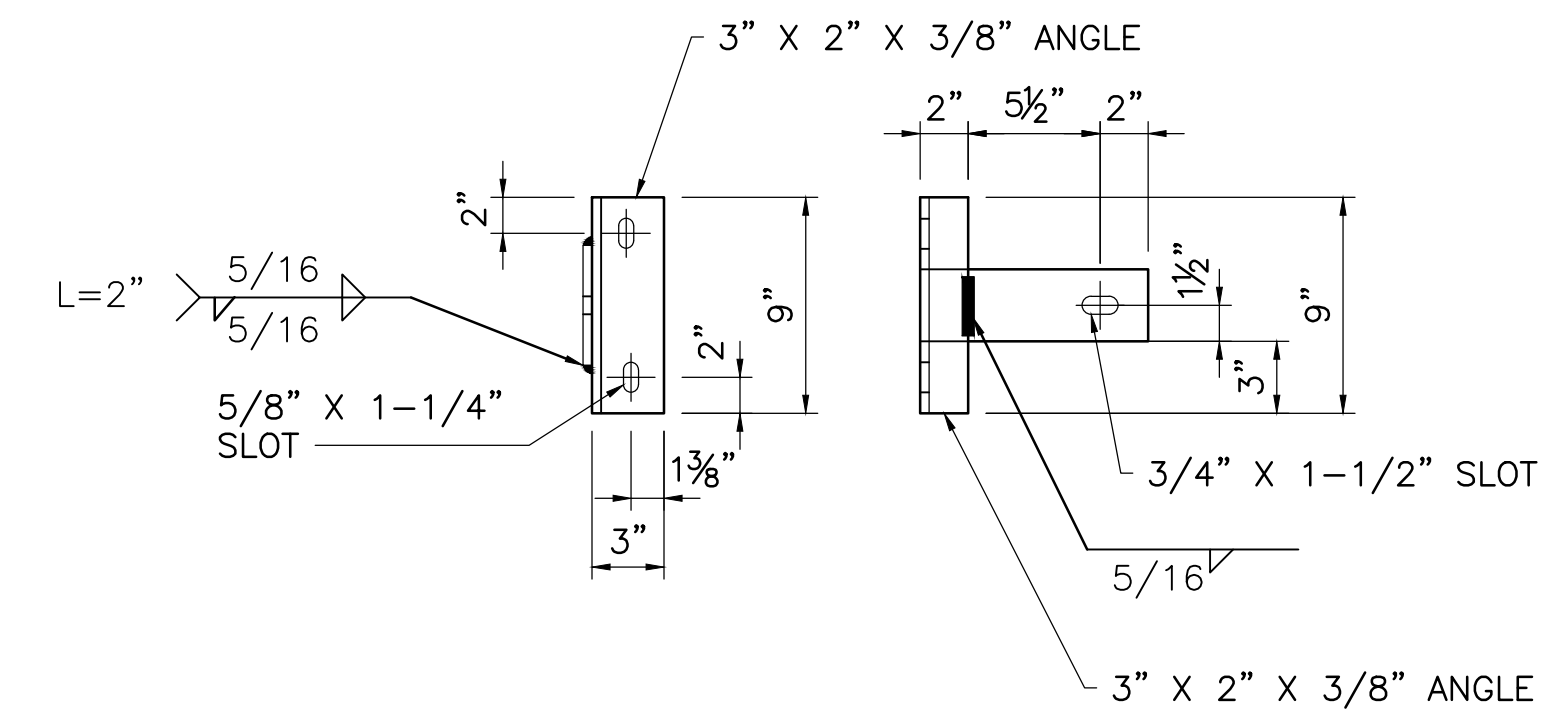
NOTE: MANHOLE NOT SHOWN (SEE DETAIL 6 BELOW)



3 SECTIONAL TOP VIEW
-
0 1' 2' 4'
1/2" = 1'-0"

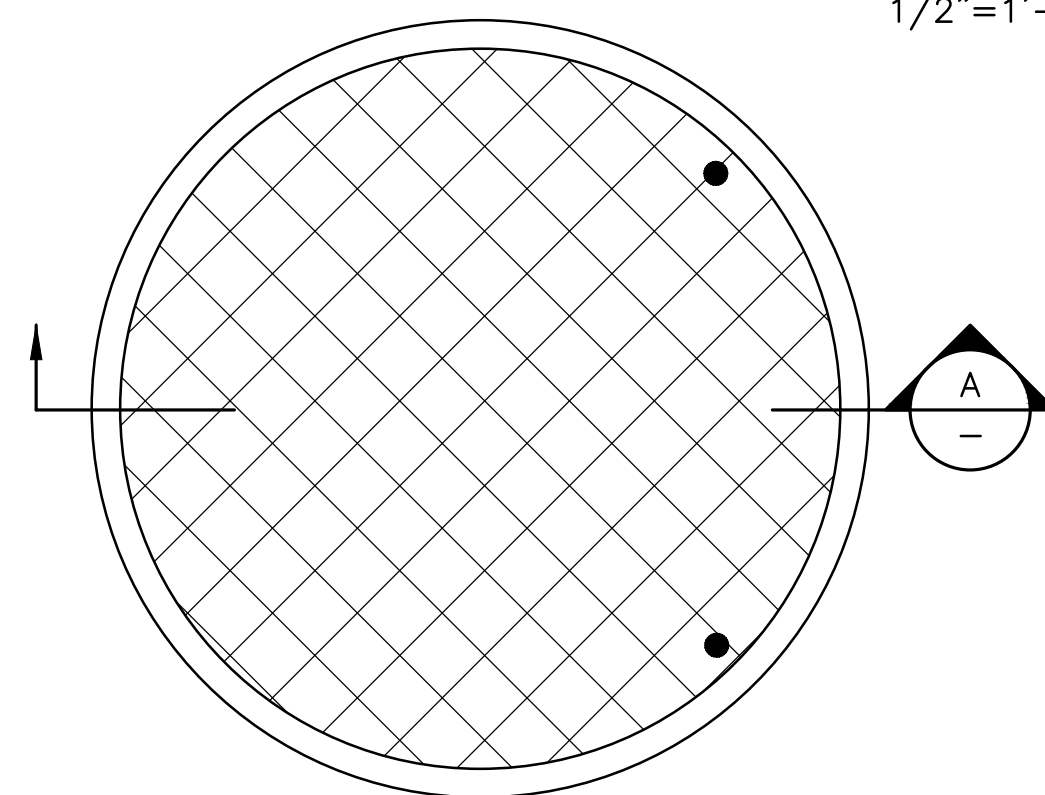


4 SIDE VIEW
-
0 4" 8" 1'
1-1/2" = 1'-0"

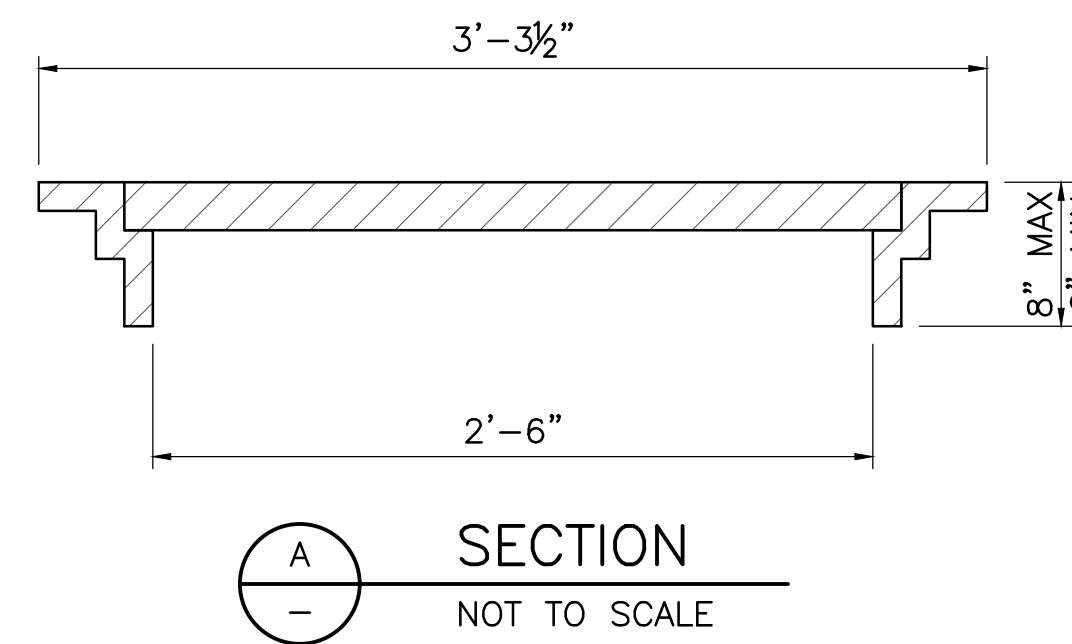


5 BRACKET
-
0 4" 8" 1'
1-1/2" = 1'-0"

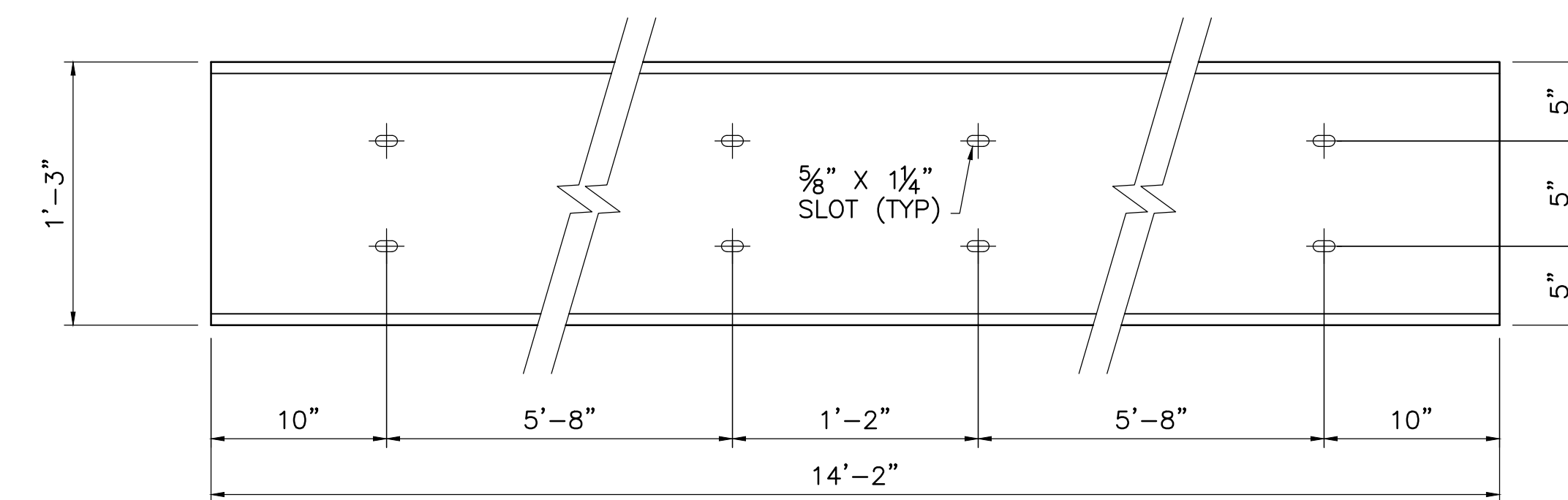
NOTE: FABRICATE BRACKET FROM 3/8" STEEL PLATE AND ANGLE



6 MANHOLE COVER DETAILS
S-2
NOT TO SCALE



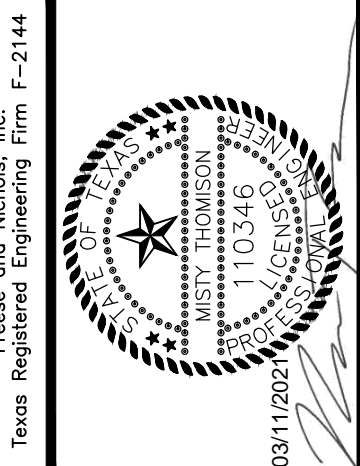
A SECTION
-
NOT TO SCALE



7 BAFFLE CHANNEL
-
0 4" 8" 1'
1-1/2" = 1'-0"

NOTE: BAFFLE CHANNEL TO BE TYPE C 15X33.9. STEEL FOR THE BAFFLE CHANNEL SHALL BE ASTM A36 STEEL. REFER TO CONSTRUCTION SPECIFICATION 81 AND MATERIAL SPECIFICATIONS 581 AND 582.

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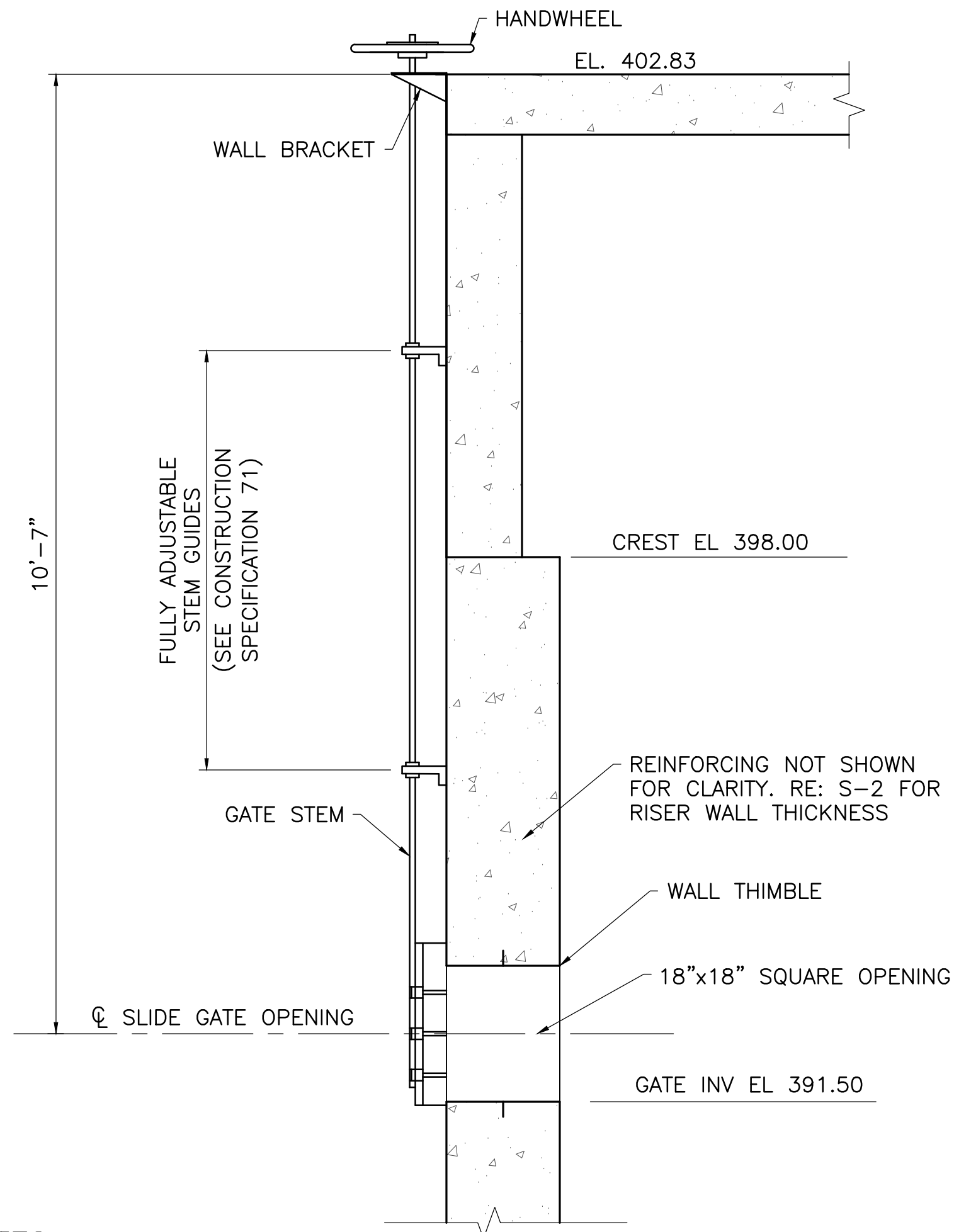
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RISER TRASHRACK AND MANHOLE COVER DETAILS
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

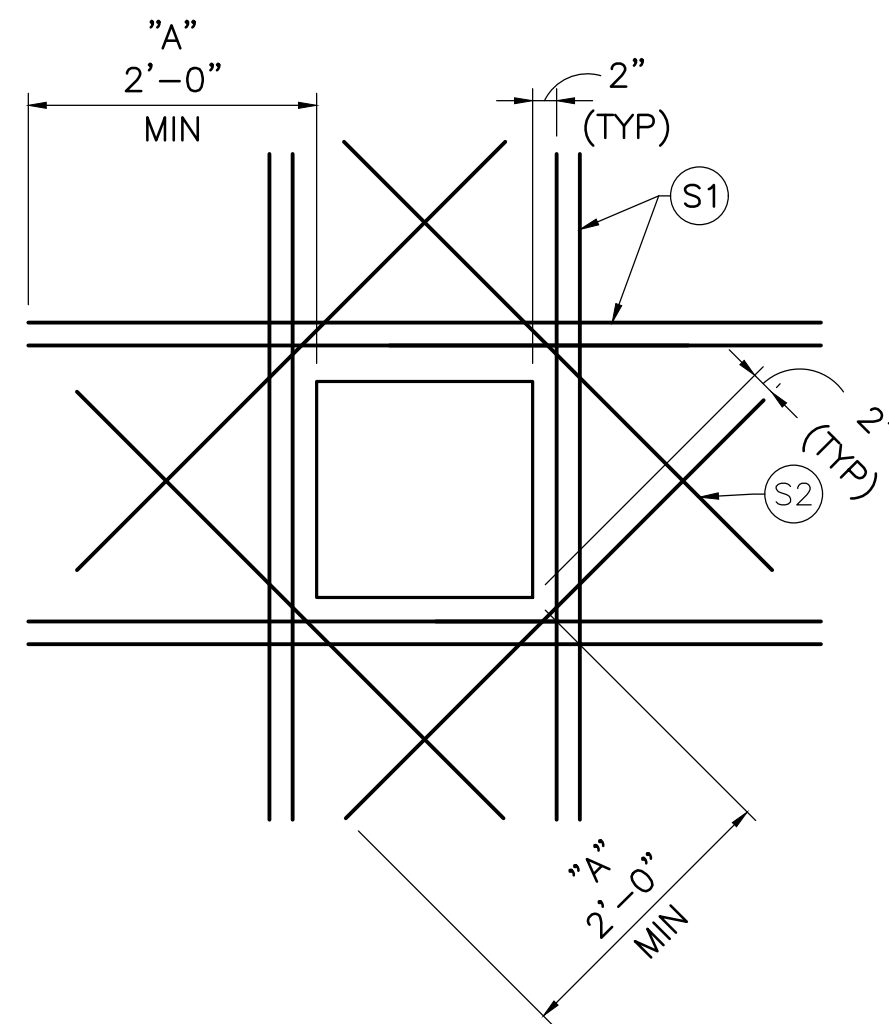
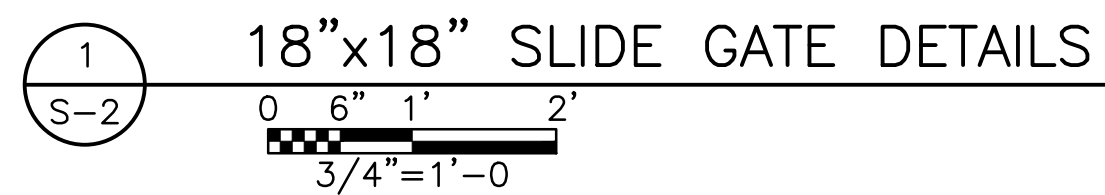
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DATE	APPROVED	TITLE



- NOTES:**
1. THE SLIDE GATE SHALL BE CENTERED IN THE UPSTREAM ENDWALL OF THE PRINCIPAL SPILLWAY INTAKE RISER. WALL BRACKET AND STEM GUIDES SHALL HAVE SUFFICIENT ADJUSTMENT TO ENSURE A VERTICAL MOUNTING FOR THE GATE STEM. SEE MANUFACTURER'S DATA FOR DETAILS OF GATE FRAME, STEM SPLICES, AND ANCHOR BOLT LAYOUT. (SEE CONSTRUCTION SPECIFICATION 71.)
 2. COORDINATE GATE STEM GUIDES WITH REINFORCING AND CONSTRUCTION JOINTS. EPOXY ANCHORS ARE ACCEPTABLE.

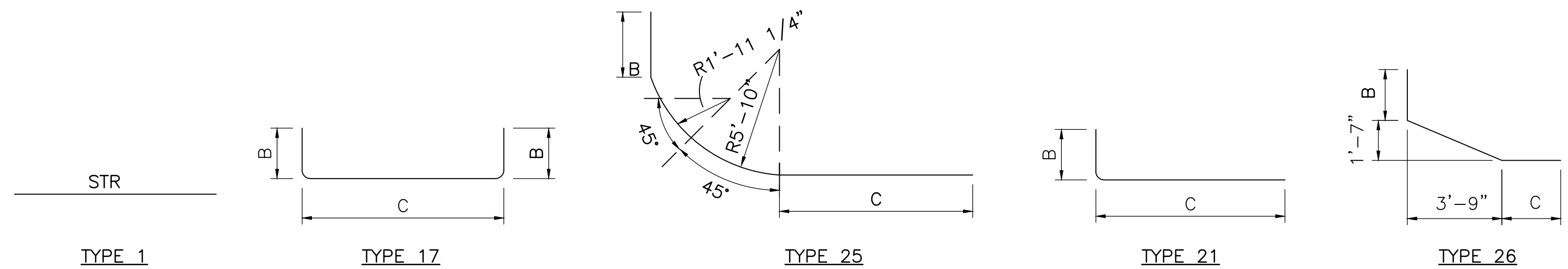


- DETAIL NOTES:**
1. DISCONTINUE TYPICAL REINFORCING AT OPENINGS.
 2. PLACE ADDITIONAL BARS IN THE SAME ORIENTATION AND POSITION AS BARS CUT BY OPENING. PROVIDE ON SET OF BARS FOR EACH LAYER OF REINFORCING CUT.
 3. "A"= TOP BAR EMBEDMENT LENGTH (24" MINIMUM) PROVIDE STANDARD HOOK IF FULL EMBEDMENT LENGTH IS NOT POSSIBLE.
 4. REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS.
 5. ALL REINFORCING SPACING SHALL BE GREATER THAN 3" CENTER TO CENTER.

STEEL SCHEDULE															
MARK	SIZE (BAR #)	QUANTITY	TYPE	Length (ft) (in)	B (ft) (in)	C (ft) (in)	TOTAL LENGTH (ft) (in)	MARK	SIZE (BAR #)	QUANTITY	TYPE	LENGTH (ft) (in)	B (ft) (in)	C (ft) (in)	TOTAL LENGTH (ft) (in)
B1	5	52	1	10-0	-	-	520-0	T1	5	12	1	9-1	-	-	109-0
B2	5	20	1	25-7	-	-	511-8	T2	5	24	1	4-3	0	0	102-0
B3	5	44	21	11-5	0-10	10-7	502-4	T3	5	8	1	5-0	-	-	40-0
B4	5	20	1	25-7	-	-	511-8	T4	5	16	1	13-0	-	-	208-0
B5	5	52	1	10-0	-	-	520-0	T5	5	2	21	9-11	0-10	9-1	19-10
B6	5	12	21	11-5	0-10	10-7	137-0	T6	5	10	21	10-10	1-9	9-1	108-4
B7	5	9	21	11-5	0-10	10-7	102-9	T7	5	28	1	4-3	-	-	119-0
B8	5	42	21	11-5	0-10	10-7	479-6	T8	5	32	21	12-2	4-1	8-1	389-4
B9	5	16	1	6-2	-	-	98-8	T9	5	4	1	12-0	-	-	48-0
B10	5	26	1	16-7	-	-	431-2	T10	5	4	1	10-8	-	-	42-8
B11	5	26	1	16-7	-	-	431-2	T11	5	4	1	14-8	-	-	58-8
B10a	5	26	21	15-7	4-1	11-6	405-2	T12	5	4	1	18-8	-	-	74-8
B11a	5	26	1	11-6	-	-	299-0	T13	5	4	1	22-2	-	-	88-8
B12	5	26	21	8-1	0-10	7-3	210-2	T14	5	2	1	13-6	-	-	27-0
B13	5	26	21	8-1	0-10	7-3	210-2	T15	5	26	1	5-6	-	-	143-0
B14	5	2	21	9-7	0-10	8-9	19-2	T16	5	8	1	5-1	-	-	40-8
B15	5	2	21	9-4	0-10	8-6	18-8	T17	5	8	1	4-7	-	-	36-8
B16	5	2	21	9-0	0-10	8-2	18-0	T18	5	8	1	4-1	-	-	32-8
B17	5	2	21	8-9	0-10	7-11	17-6	T19	5	8	1	3-8	-	-	29-4
B18	5	2	21	8-6	0-10	7-8	17-0	T20	5	8	1	3-2	-	-	25-4
B18a	5	2	21	8-2	0-10	7-4	16-4								
B19	5	2	21	9-7	0-10	8-9	19-2	T21	5	8	1	2-8	-	-	21-4
B20	5	2	21	9-4	0-10	8-6	18-8	T22	5	8	21	12-2	4-1	8-1	97-4
B21	5	2	21	9-0	0-10	8-2	18-0	T23	5	2	1	12-0	-	-	24-0
B22	5	2	21	8-9	0-10	7-11	17-6	T24	5	2	1	10-8	-	-	21-4
B23	5	2	21	8-6	0-10	7-8	17-0	T25	5	2	1	14-8	-	-	29-4
B23a	5	2	21	8-2	0-10	7-4	16-4								
B24	5	2	21	18-4	4-1	14-4	36-8	T26	5	2	1	18-8	-	-	37-4
B25	5	2	21	18-9	4-1	15-8	37-6	T27	5	2	1	22-2	-	-	44-4
B26	5	2	21	21-2	4-1	17-1	42-4	T28	5	8	21	7-3	1-9	5-6	58-0
B27	5	2	1	14-4	0	14-4	28-8	T29	5	4	21	6-10	1-9	5-1	27-4
B28	5	2	1	15-8	0	15-8	31-4	T30	5	4	21	6-4	1-9	4-7	25-4
B29	5	2	1	17-1	0	17-1	34-2	T31	5	4	21	5-10	1-9	4-1	23-4
B30	5	10	26	13-5	1'-9	7-8	134-2	T32	5	4	21	5-5	1-9	3-8	21-8
B31	5	6	25	17-1	2-7	7-8	102-6	T33	5	4	21	4-11	1-9	3-2	19-8
B32	5	19	17	7-0	0-10	6-2	133-0	T34	5	4	21	4-5	1-9	2-8	17-8
B33	5	19	1	6-2	-	-	117-2	T35	5	4	1	6-7	-	-	26-4
								T36	5	2	1	10-5	-	-	20-10
								T37	5	24	1	14-2	-	-	340-0
								T38	5	12	1	22-8	-	-	272-0
								T39	5	4	1	9-10	-	-	39-4
								T40	5	2	1	10-5	-	-	20-10
								T41	5	20	1	14-2	-	-	283-4
								T42	5	4	1	14-2	-	-	56-8
								T43	5	12	1	22-8	-	-	272-0
								T44	5	4	1	9-10	-	-	39-4
S1	5	8	1	2-8	-	-	21-4								
S2	5	8	1	2-0	-	-	16-0								
S3	5	16	1	5-6	-	-	88-0								
S4	5	8	1	2-8	-	-	21-4								

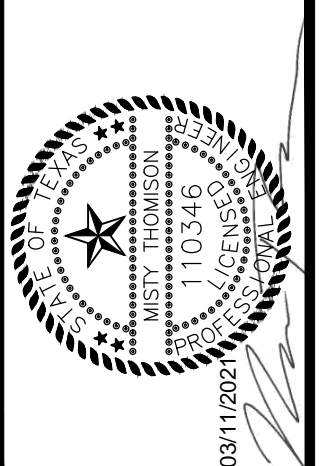
STEEL QUANTITIES			
WEIGHT PER LINEAR FOOT	BAR SIZE	LENGTH IN FEET	WEIGHT IN POUNDS
1.043	5	10,010	10,440

CONCRETE QUANTITIES V = 60.24 CY



- NOTES:**
1. BAR DIMENSIONS ARE OUT TO OUT OF BAR.
 2. RADIUS OF BENDS EQUAL 3 BAR DIAMETERS FOR SIZES < #7 AND 4 BAR DIAMETERS FOR #8.
 3. THE 2", 3", AND 4" DISTANCES FROM SPECIFIED CONCRETE SURFACES ARE CLEAR DISTANCE.
 4. STEEL NOT SHOWN IS IDENTICAL TO INSIDE ENDWALL STEEL.

REVISIONS		
DATE	APPROVED	TITLE

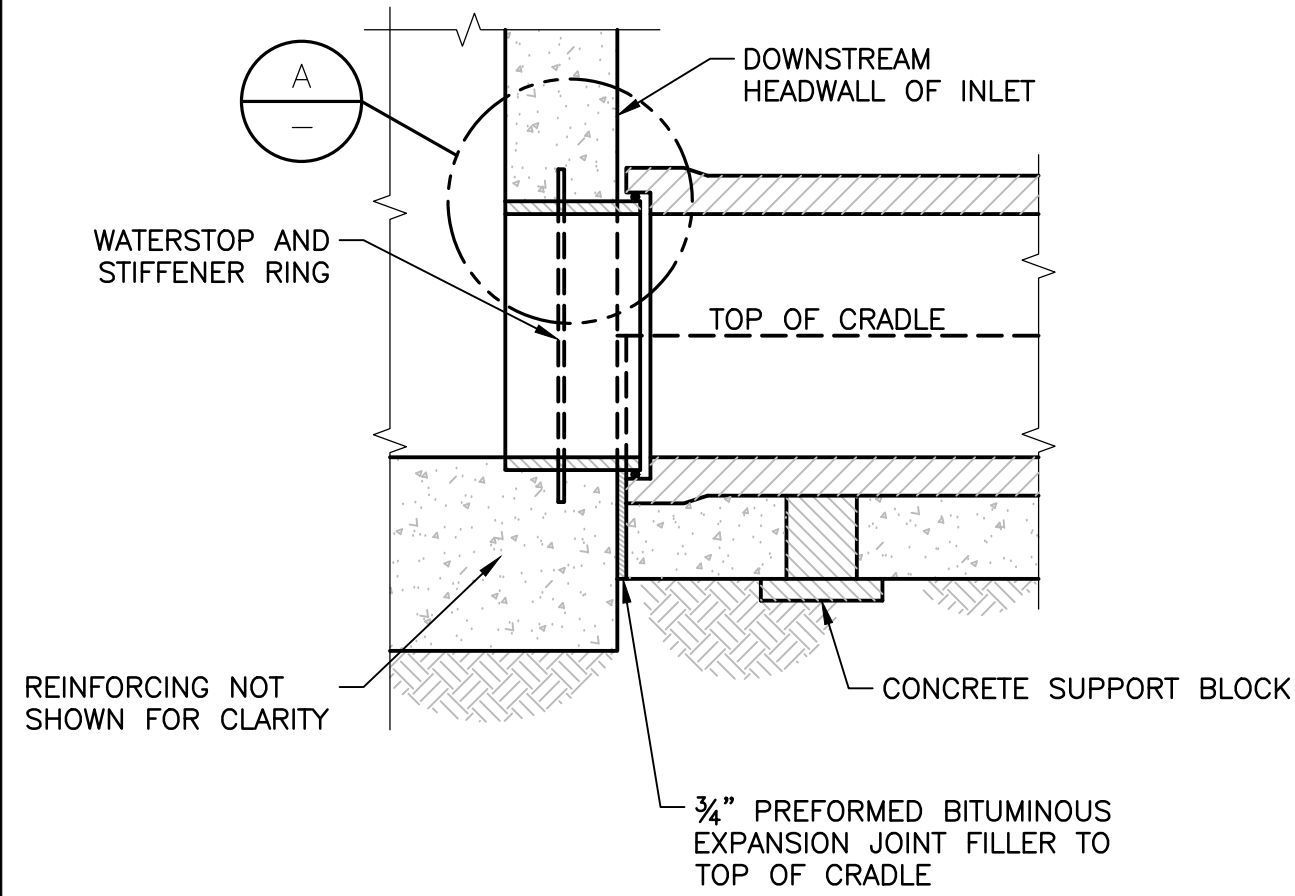


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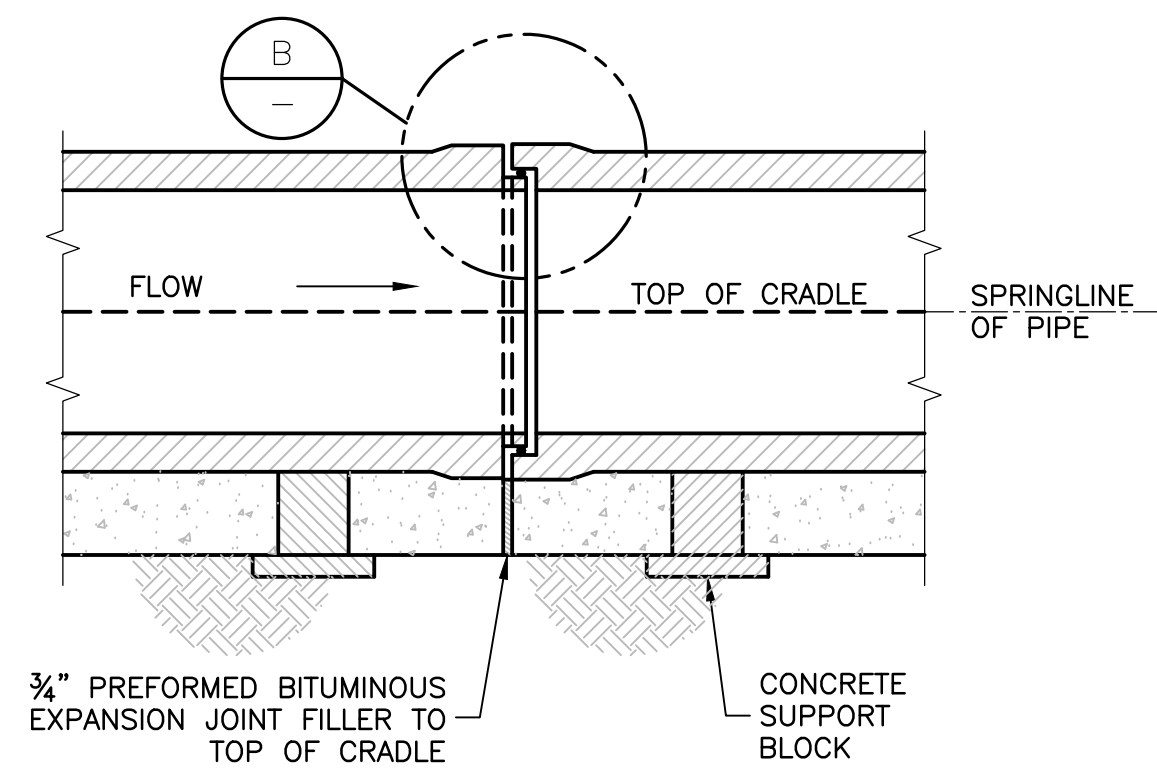
RISER - SLIDE GATE DETAILS
 FLOODWATER RETARDING STRUCTURE SITE No. 3
 LOWER EAST FORK LATERALS
 IN
 TRINITY RIVER WATERSHED, TEXAS

FREESSE & NICHOLS
 801 Cherry Street, Suite 2800
 Fort Worth Texas 76102
 Phone - (817) 735-7330
 Web - www.freese.com

DRAWING NO.
 SHEET NO. S-7
 SEQUENCE NO. 36 OF 43



1
S-2
DETAIL OF SPIGOT WALL FITTING
NOT TO SCALE



2
C-10
DETAIL OF PIPE JOINT
NOT TO SCALE

		STRENGTH REQUIREMENTS	
INSIDE DIAMETER OF PIPE INCHES	INTERNAL LOAD HYDROSTATIC PRESSURE	EXTERNAL LOAD	
		MINIMUM 3-EDGE BEARING STRENGTH IN POUNDS PER LINEAL FOOT OF PIPE	
		HEAD OF WATER	APPLICABLE STANDARD SPECIFICATION
		AWWA C-301	AWWA C-300
		LOAD TO PRODUCE 0.001 IN. CRACK ONE FOOT LONG	LOAD TO PRODUCE 0.01 INCH CRACK ONE FOOT LONG
INCHES	FEET	2880 LB/FT	-
48	50		

THE OUTSIDE DIAMETER OF PIPE ASSUMED IN DESIGN IS 57.5 INCHES. WHERE THE PIPE FURNISHED HAS AN OUTSIDE DIAMETER GREATER THAN ASSUMED IN DESIGN, THE THREE-EDGE BEARING STRENGTH OF THE PIPE FURNISHED MUST NOT BE LESS THAN THE SPECIFIED THREE-EDGE BEARING STRENGTH MULTIPLIED BY THE RATIO OF THE OUTSIDE DIAMETER OF THE PIPE FURNISHED TO THE OUTSIDE DIAMETER ASSUMED IN DESIGN.

REFER TO MATERIAL SPECIFICATIONS 541 FOR FURTHER DETAILS ON PIPE STRENGTH REQUIREMENTS.

JOINT REQUIREMENTS			
LENGTH OF PIPE SECTION FEET	MINIMUM JOINT LENGTH INCHES	MAXIMUM DEFLECTION ANGLE PER ALIGNMENT ON C-10	
		RADIANS	DEGREES
10	3-1/4	0.005	0.29
20	3-1/4	0.008	0.43

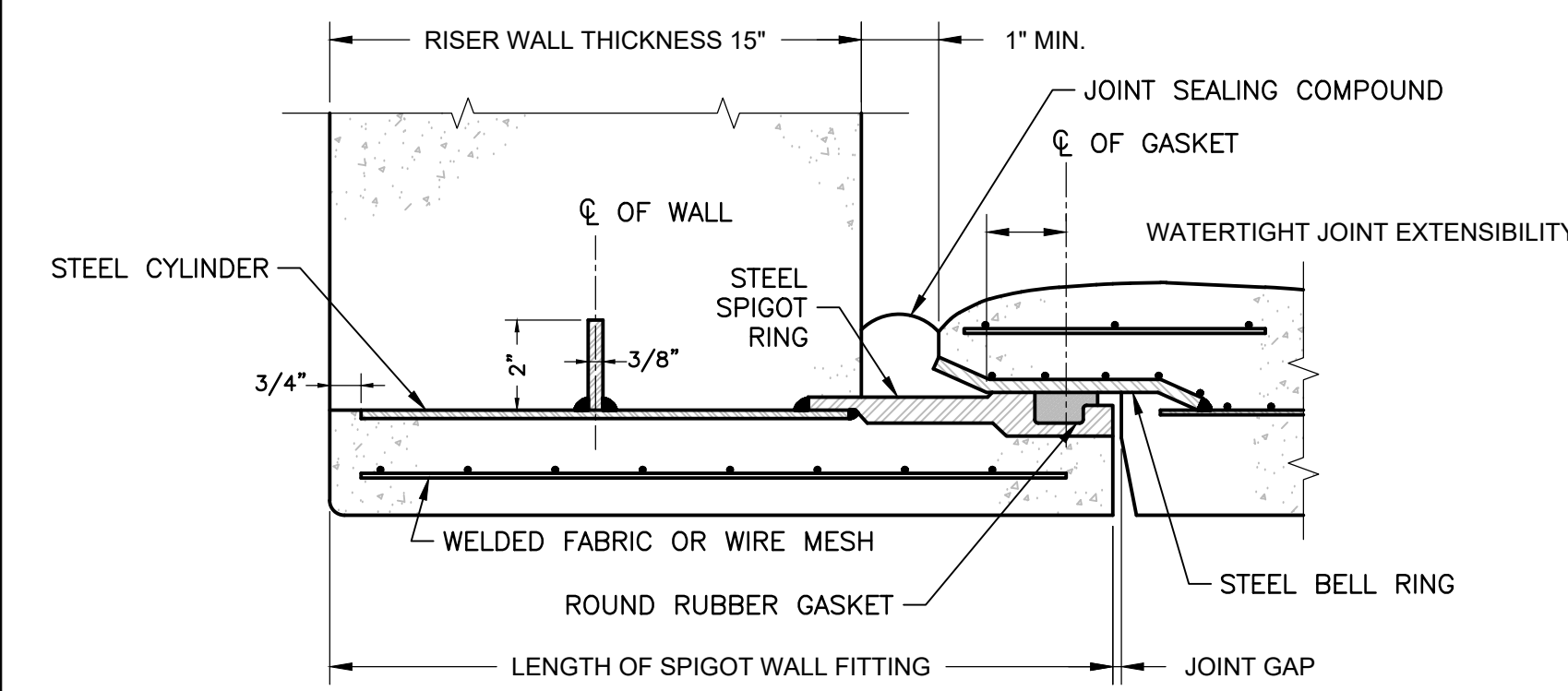
FOR PIPE CONFIGURATIONS OTHER THAN SHOWN, JOINT REQUIREMENTS WILL BE DETERMINED BY THE ENGINEER.

WHERE PIPES OF DIFFERENT LENGTH ARE CONNECTED, ADJOINING PIPES SHALL MEET THE REQUIREMENTS OF THE LONGER PIPE.

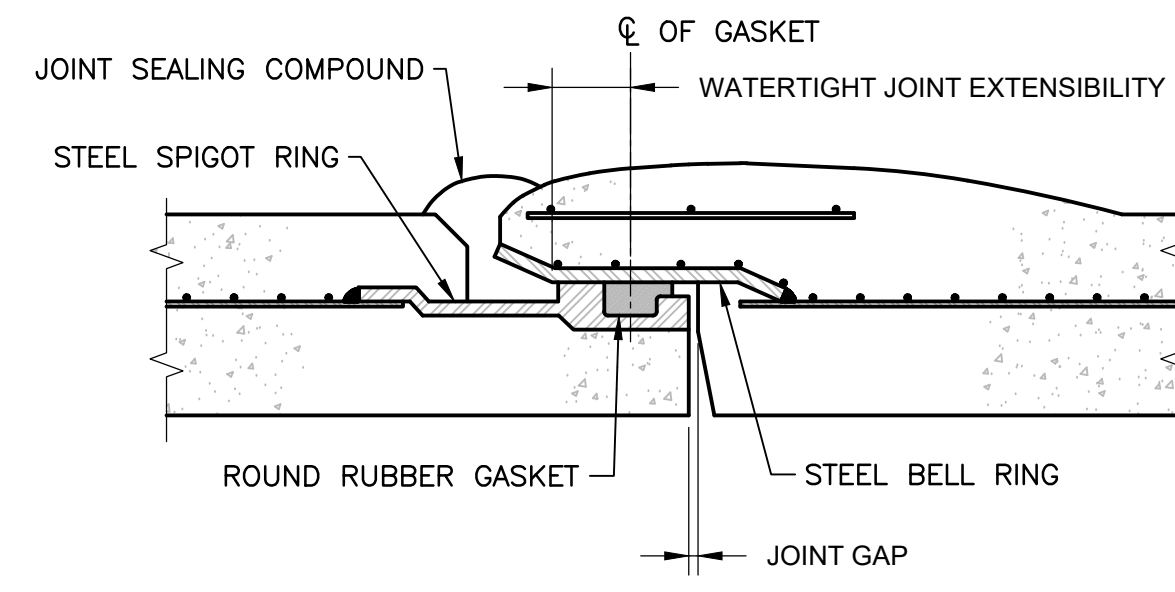
PRIOR TO DELIVERY OF PIPE, THE PIPE JOINT DETAIL PROPOSED FOR USE SHALL BE SUBMITTED TO THE CONTRACTING OFFICER FOR APPROVAL.

JOINT LENGTH EQUALS WATERTIGHT JOINT EXTENSIBILITY PLUS JOINT GAP.

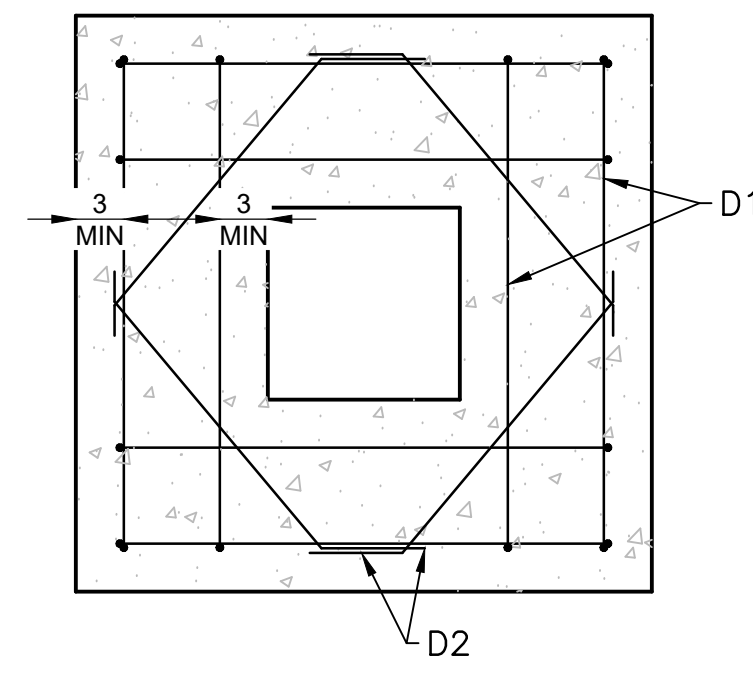
MARK	SIZE	QUANTITY PER STRUCTURE	LENGTH	TYPE	B	C	TOTAL LENGTH
D1	4	16	3'-6"	17	2'-6"	0'-6"	56'-0"
D2	4	8	3'-6"	7	1'-6"	1'-0"	28'-0"
TOTAL	4						84'-0"



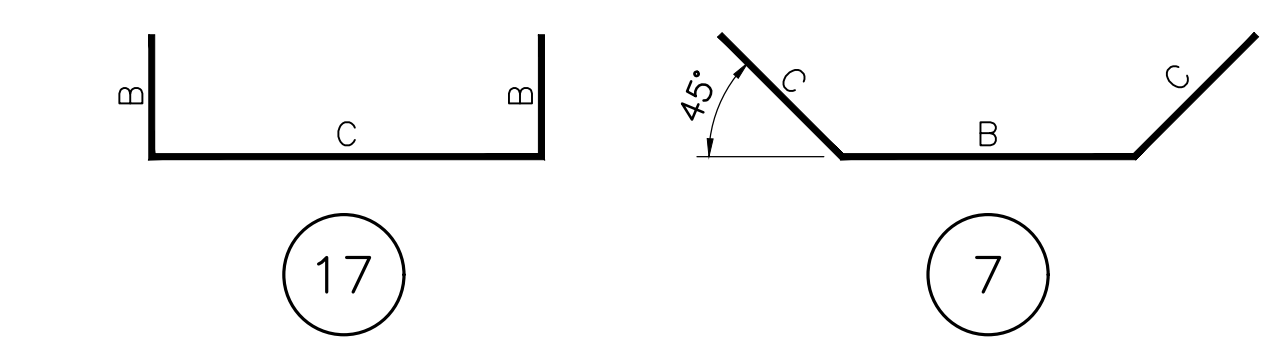
A
-
DETAIL A
NOT TO SCALE



B
-
DETAIL B
NOT TO SCALE



5
C-12
DRAIN CLEANOUT CAP REINFORCEMENT
NOT TO SCALE

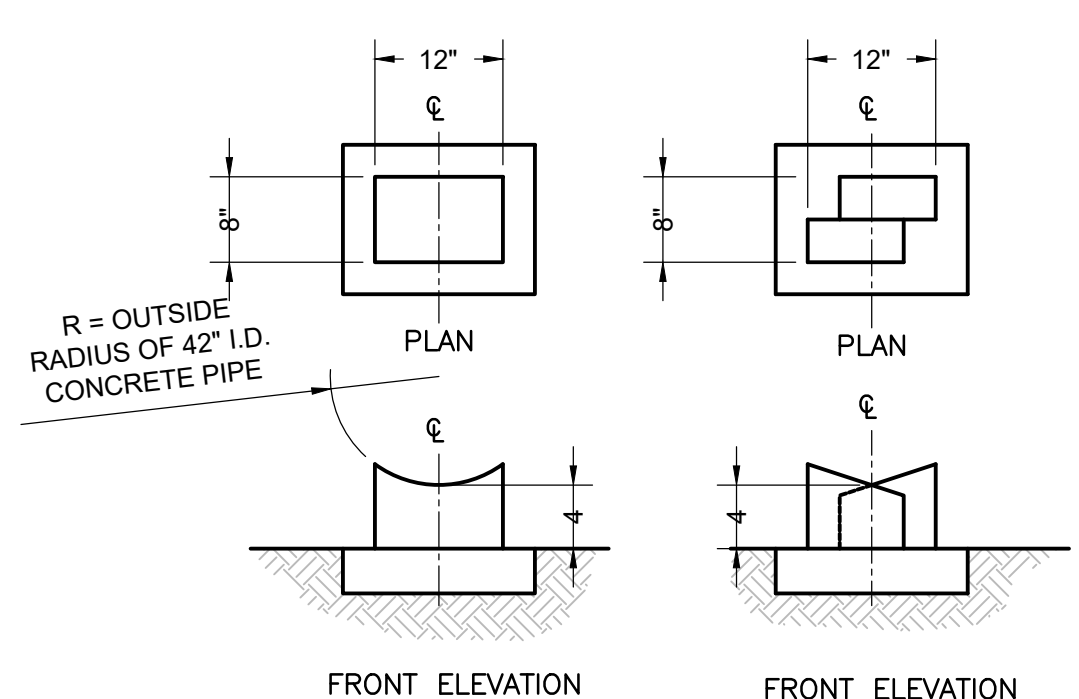


STEEL QUANTITIES			
WEIGHT PER LIN FOOT	BAR SIZE	TOTAL LENGTH IN FEET	TOTAL WEIGHT IN POUNDS
0.668	4	84'-0"	56.11
TOTAL WEIGHT ALL BARS PER STRUCTURE			56.11
TOTAL WEIGHT ALL BARS			448.88

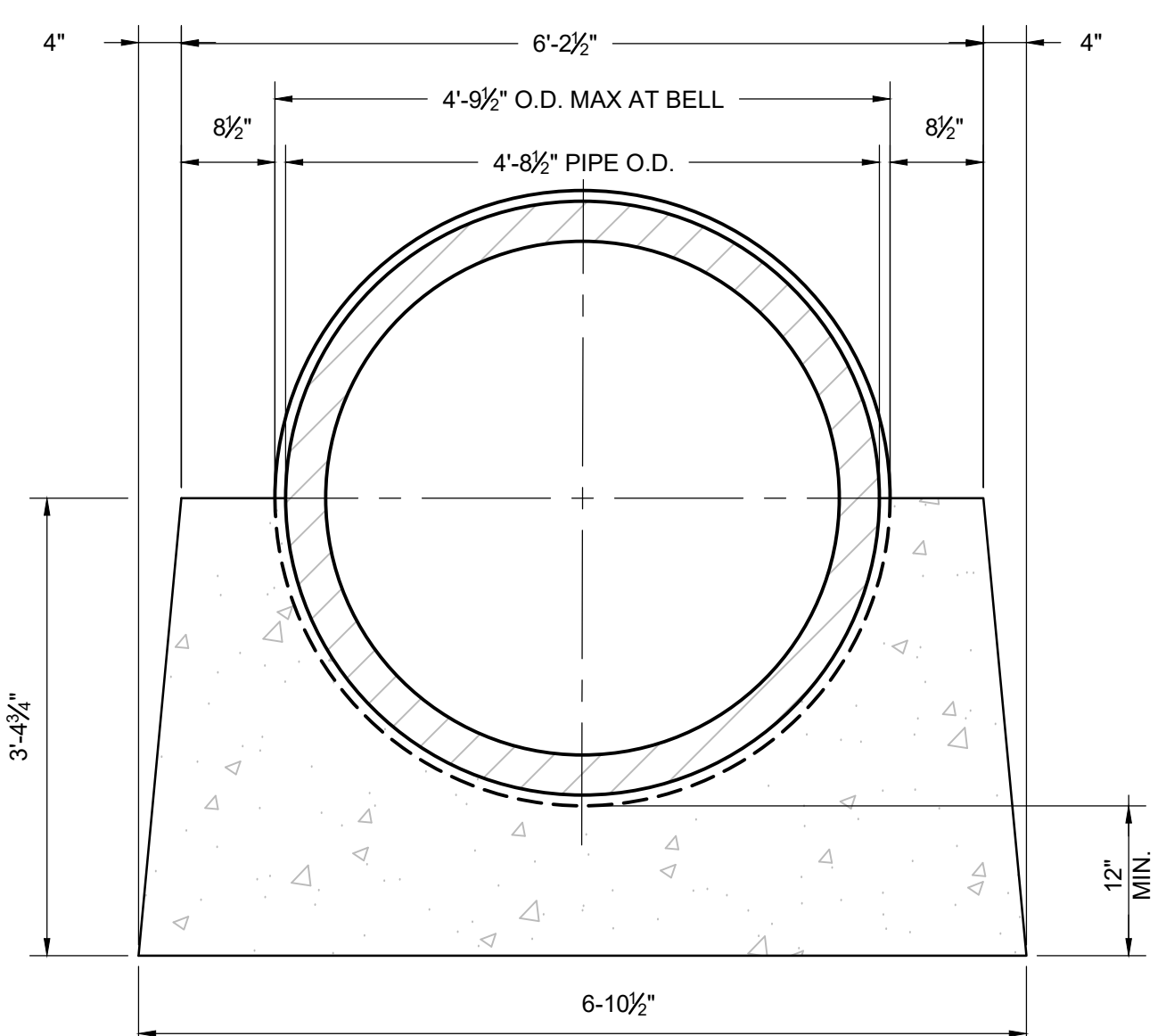
TOTAL CONCRETE QUANTITY = 8 CF x 8 STRUCTURES = 64 CF

NOTE:

1. PROVIDE TWO LAYERS OF REINFORCING. REINFORCING BARS SHALL BE PLACED 3" CLEAR BELOW THE TOP OF CONCRETE AND 3" CLEAR ABOVE BOTTOM OF CONCRETE.



3
-
SUGGESTED SUPPORT BLOCK AND WEDGES
NOT TO SCALE



5
-
DETAIL OF 48" PIPE CRADLE
NOT TO SCALE

CRADLE CONCRETE QUANTITIES				
INSIDE DIAMETER OF PIPE INCHES	OUTSIDE DIAMETER OF PIPE INCHES	CONCRETE PER LINEAL FOOT OF CRADLE CU. YDS.	LENGTH OF CRADLE FEET	TOTAL CONCRETE QUANTITY CU. YDS.
48	56.5	0.49	70	34.3
TOTAL CONCRETE QUANTITY = 34.3				

REVISIONS		
DATE	APPROVED	TITLE

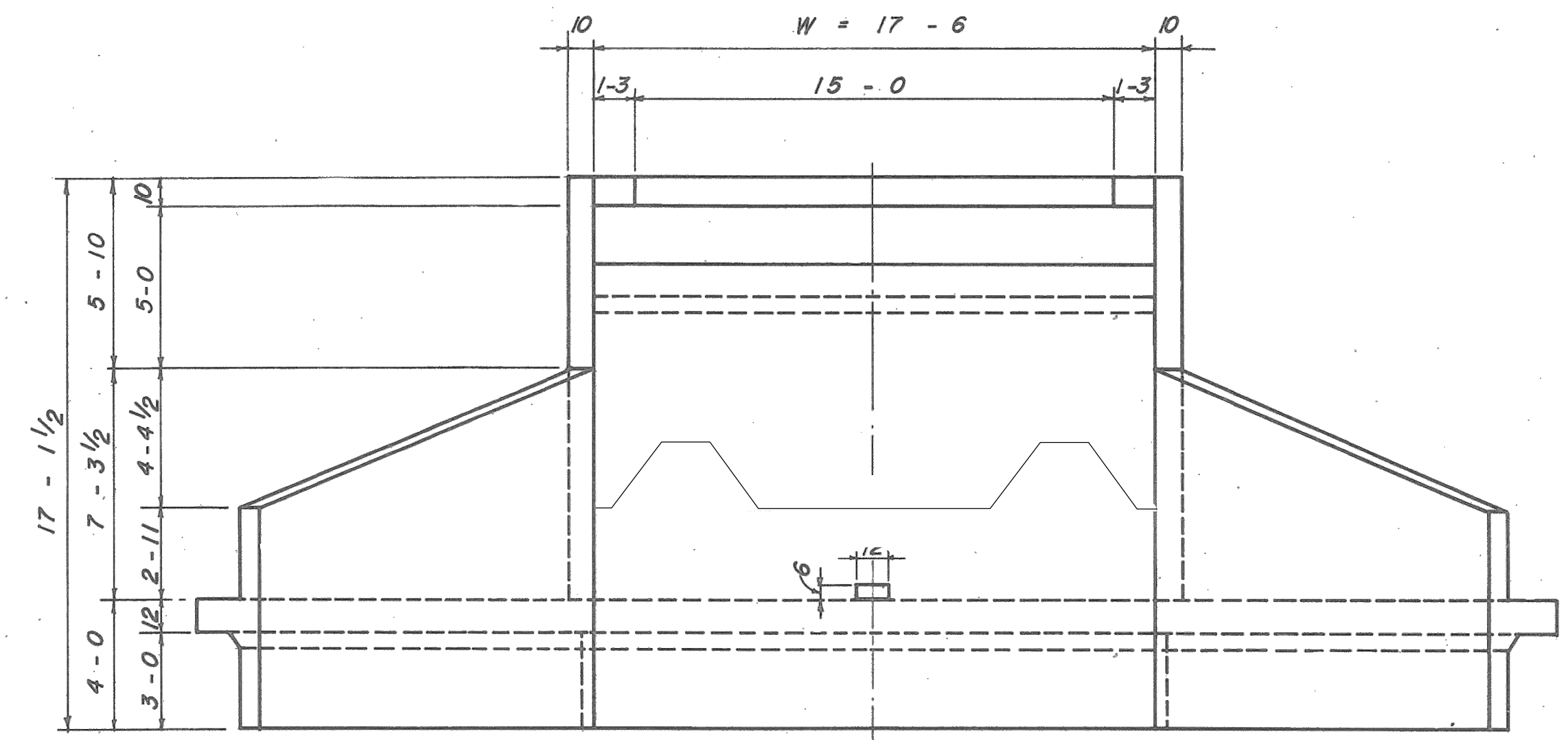
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CHECKED BY: MMT
FILE NAME: LEF3-ST-DT-COND.dwg
DATE CHECKED: 3/11/2021

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
MSTY-THOMSON
110346
3/11/2021

PRINCIPAL SPILLWAY PIPE DETAILS
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

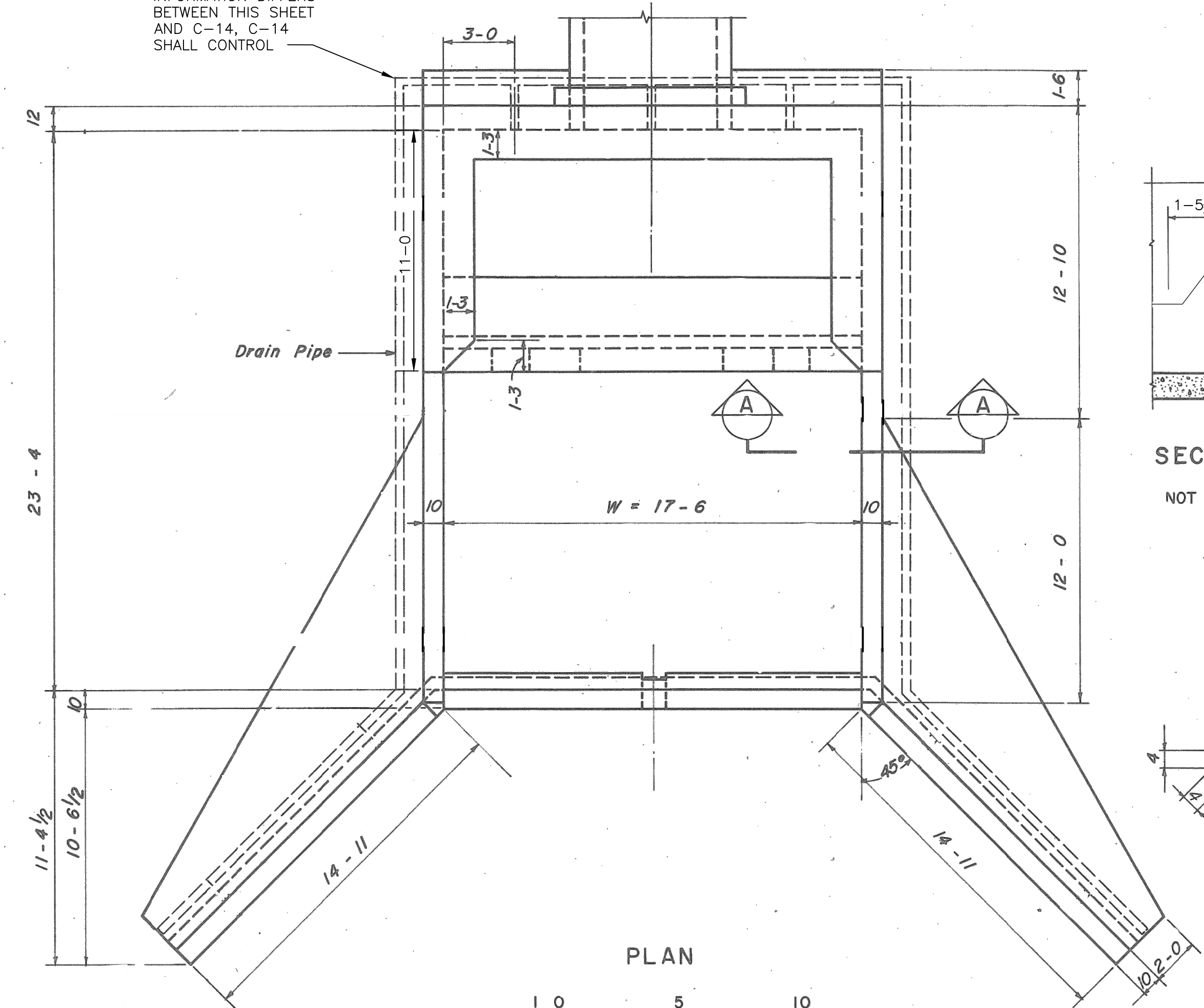
FREESSE & NICHOLS
801 Cherry Street, Suite 2800
Fort Worth Texas 76102
Phone - (817) 735-7330
Web - www.freese.com

DRAWING NO.
SHEET NO. S-8
SEQUENCE NO. 37 OF 43

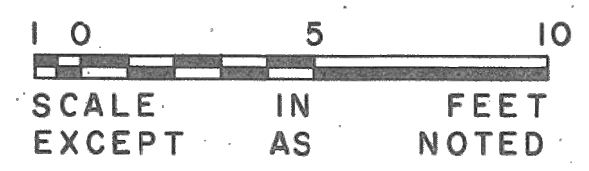


DOWNSTREAM ELEVATION

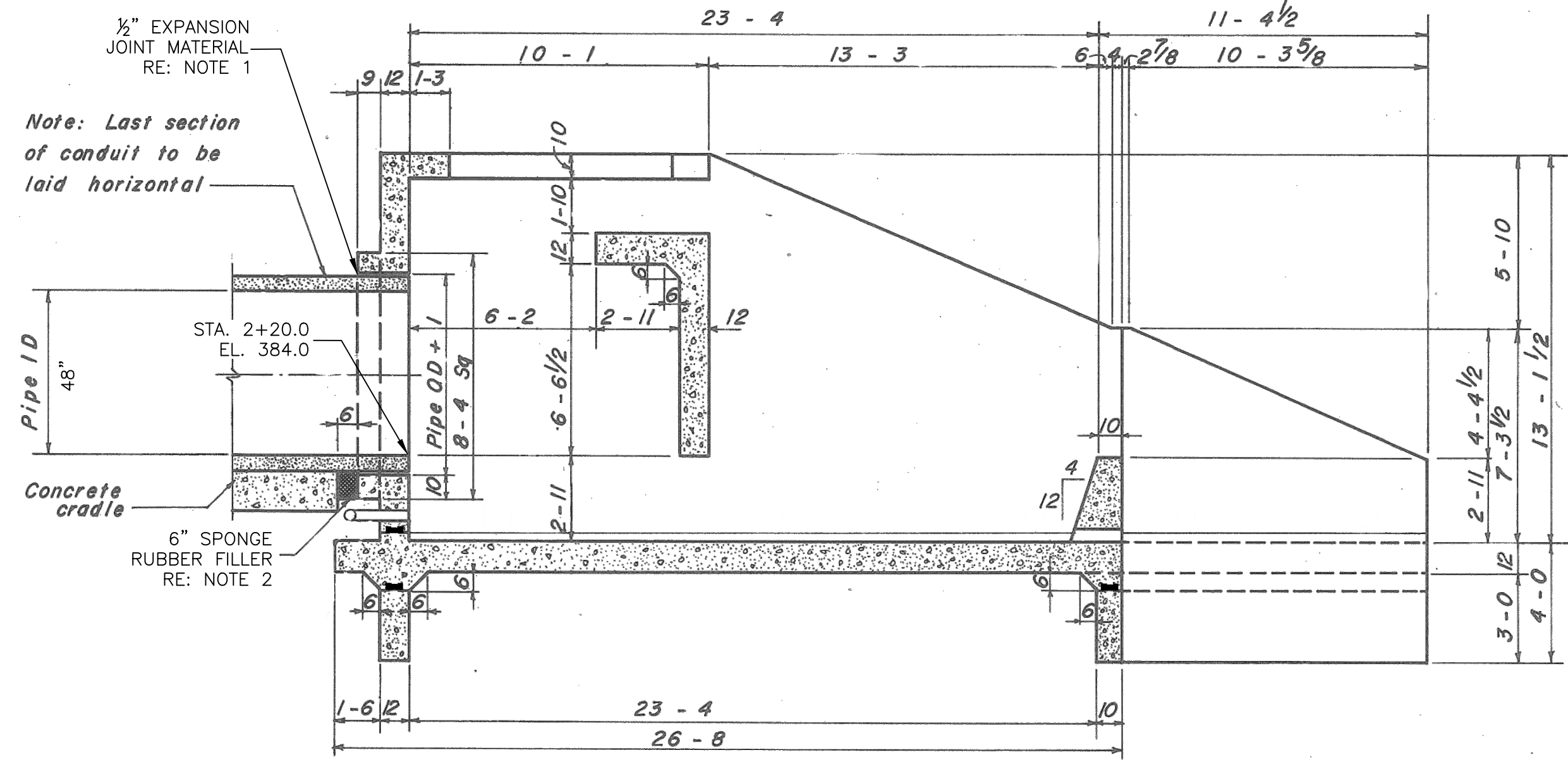
REFER TO C-14 FOR DRAIN PIPE INFO. WHERE DRAINAGE INFORMATION DIFFERS BETWEEN THIS SHEET AND C-14, C-14 SHALL CONTROL



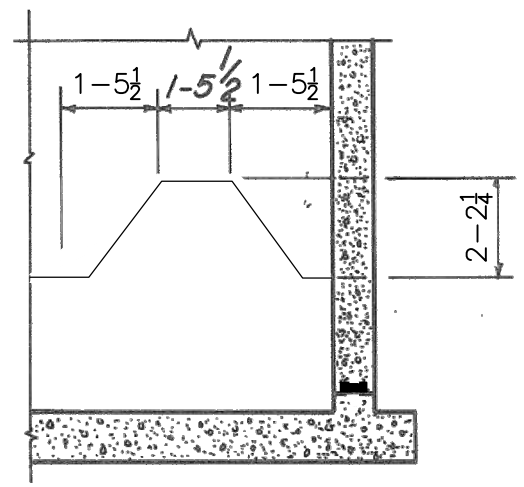
PLAN



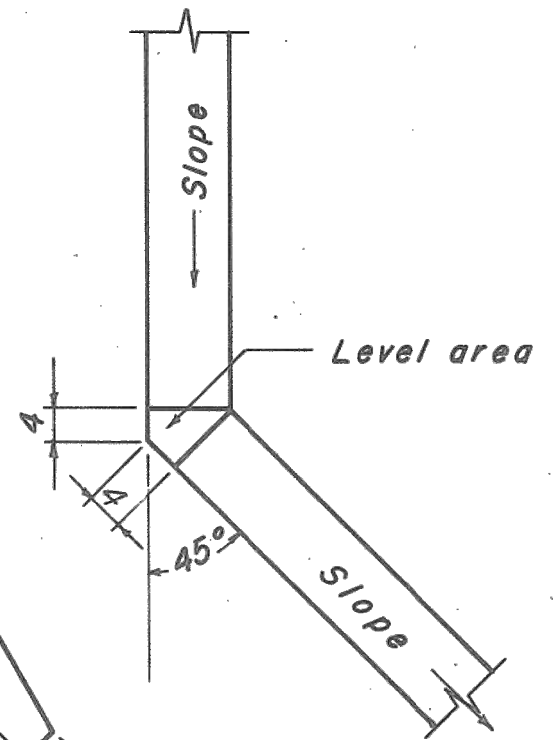
NOTE:
 1. LOCATIONS SHOWN FOR THE EMBANKMENT AND FOUNDATION DRAIN OUTLET PIPES ARE APPROXIMATE.



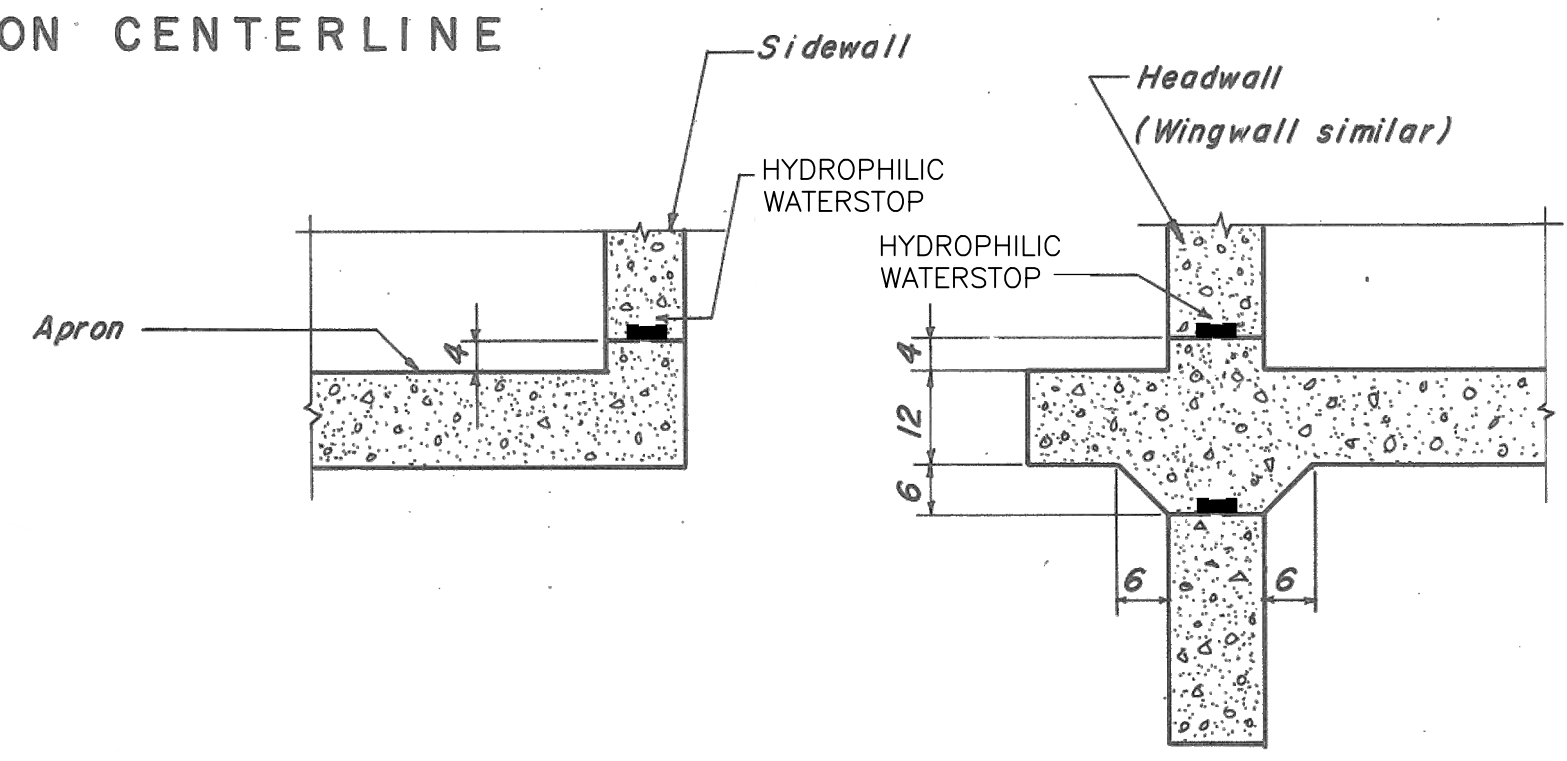
SECTION ON CENTERLINE



SECTION A
 NOT TO SCALE



PLAN-JUNCTION SIDEWALL AND WINGWALL
 NOT TO SCALE



CONSTRUCTION JOINT DETAILS

NOT TO SCALE

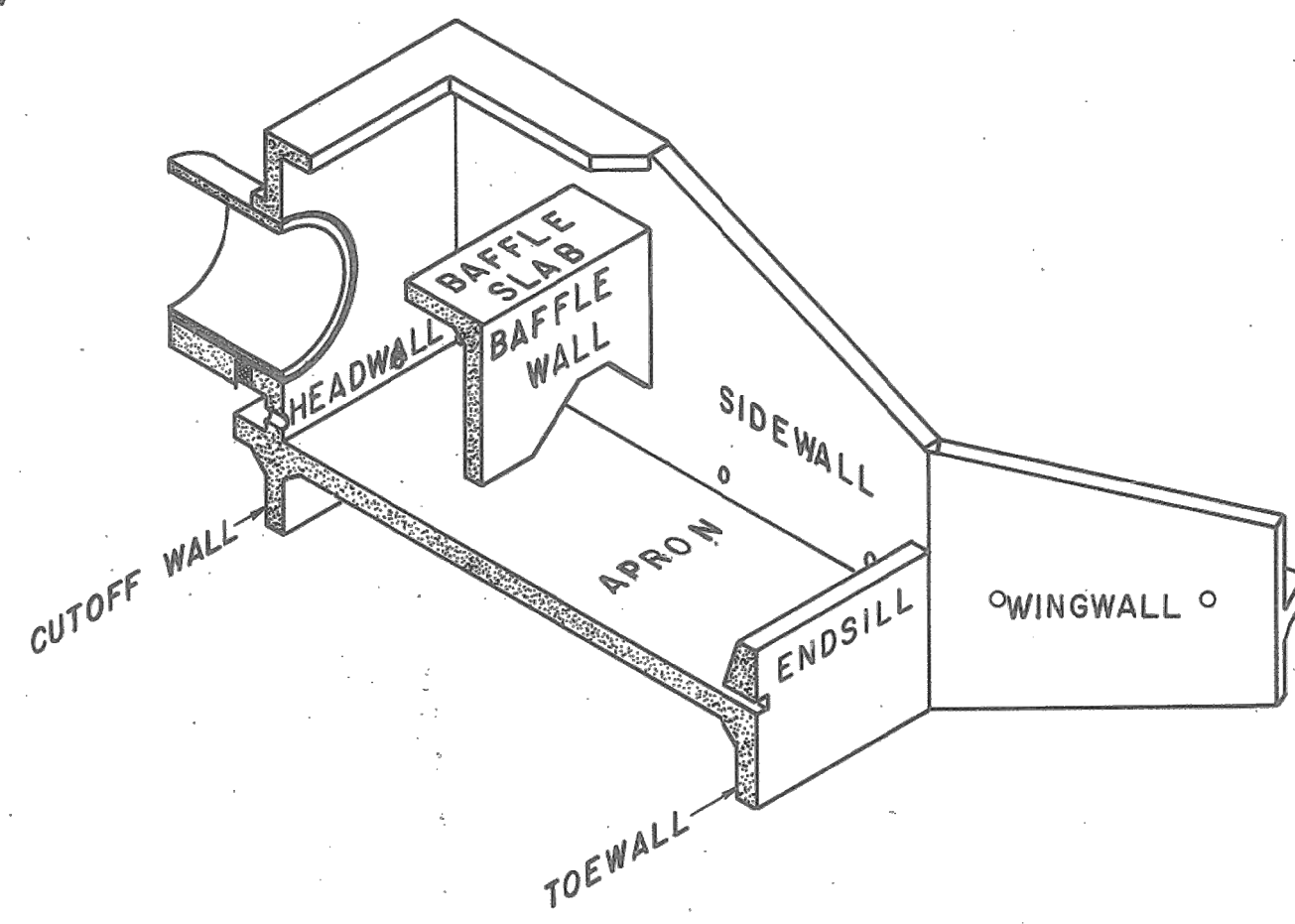
- NOTES:
 1. EXPANSION JOINT FILLER SHALL BE ASTM D994, BITUMINOUS, 1/2" THICK AND SHALL BE A 12" WIDE STRIP COMPLETELY ENCOMPASSING THE 48" PIPE. (SEE MATERIAL SPECIFICATION)
 2. TO BE INSTALLED BETWEEN THE UPSTREAM FACE OF THE HEADWALL AND THE DOWNSTREAM FACE OF THE CRADLE. SPONGE RUBBER FILLER SHALL COMPLY WITH ASTM D 1752, TYPE 1. LAMINATE SEVERAL LAYERS. (SEE CONSTRUCTION SPEC 31 AND MATERIAL SPECIFICATION 535).

QUANTITIES

Formwork (Contact area) 3080 Sq Ft
 Reinforced Concrete 77 Cu Yds

STEEL QUANTITIES

WEIGHT PER. LIN FOOT	BAR SIZE	TOTAL LENGTH IN FEET	TOTAL WEIGHT IN POUNDS
0.668	4	5258-2	3512
1.043	5	4801	5007
1.502	6	3215-2	4829
2.044	7	502-0	1026
2.670	8	-	-
TOTAL WEIGHT ALL BARS			14375

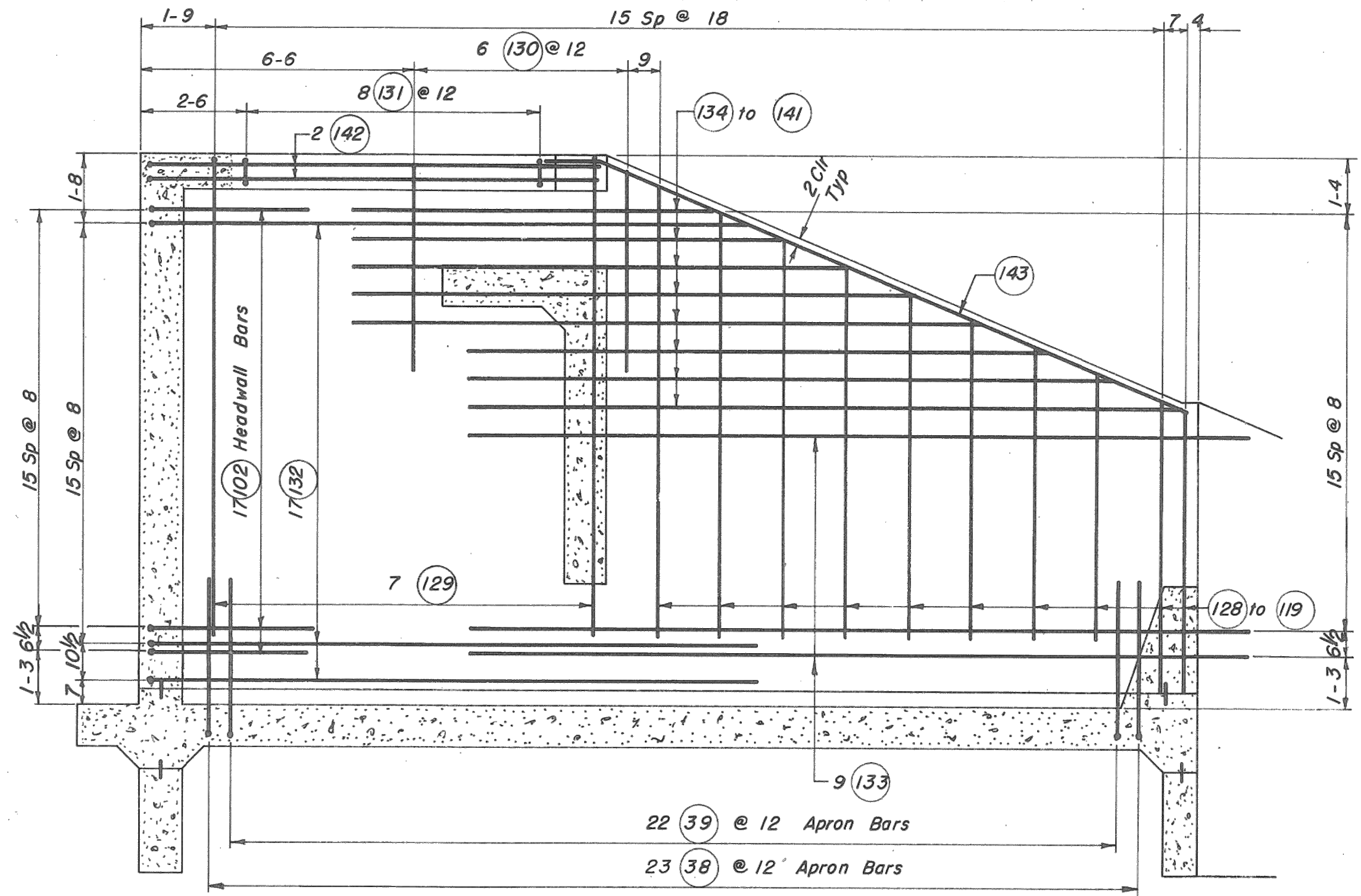


ISOMETRIC VIEW

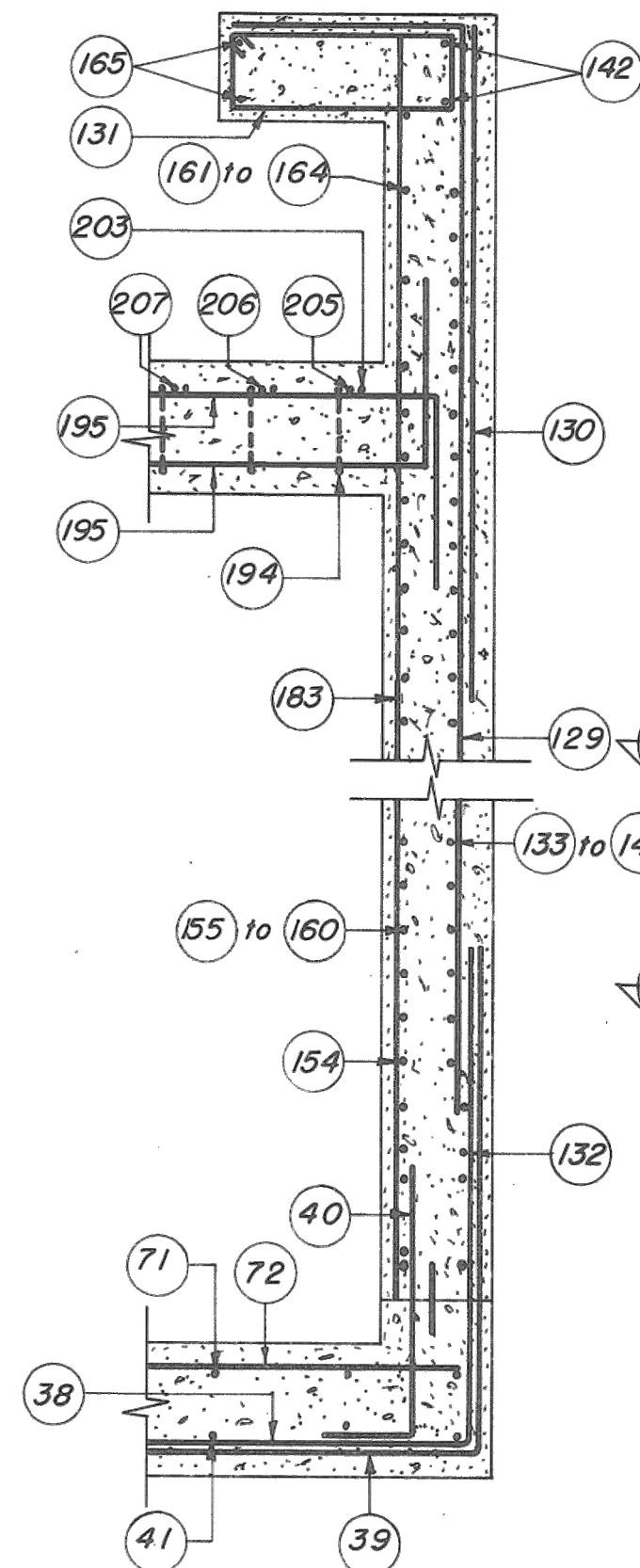
STANDARD IMPACT BASIN	
DESIGN CONSTANTS	$f'_c = 4500$ psi $n = 7.6$
STANDARD DRAWING NO.	ES-4175
DATE	1-70
SHEET	1 OF 5

REVISED BY	DATE	REFERENCES
FREASE AND NICHOLS, INC.	AUGUST 19, 2020	NRCS RECOMMENDATION

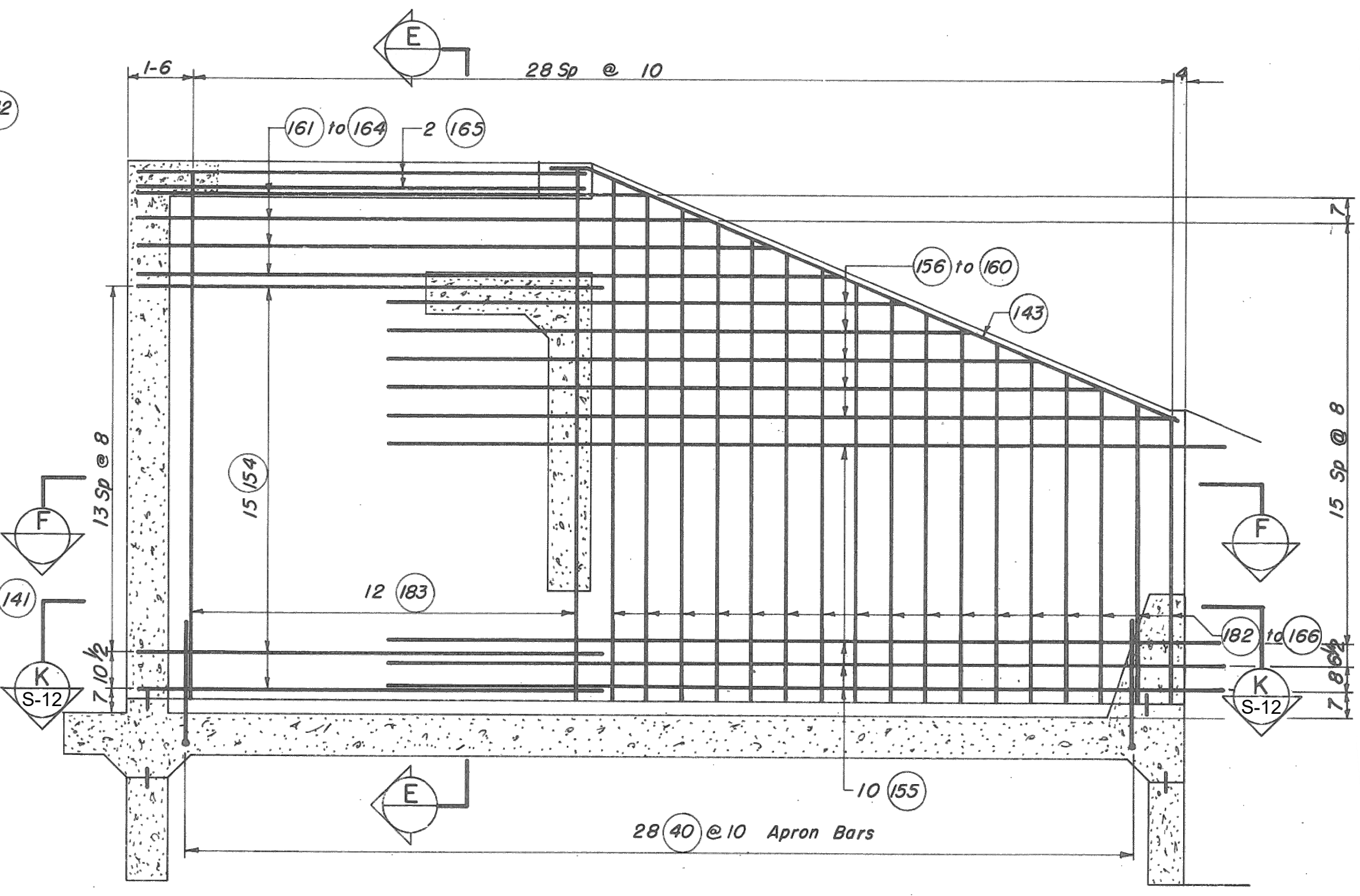
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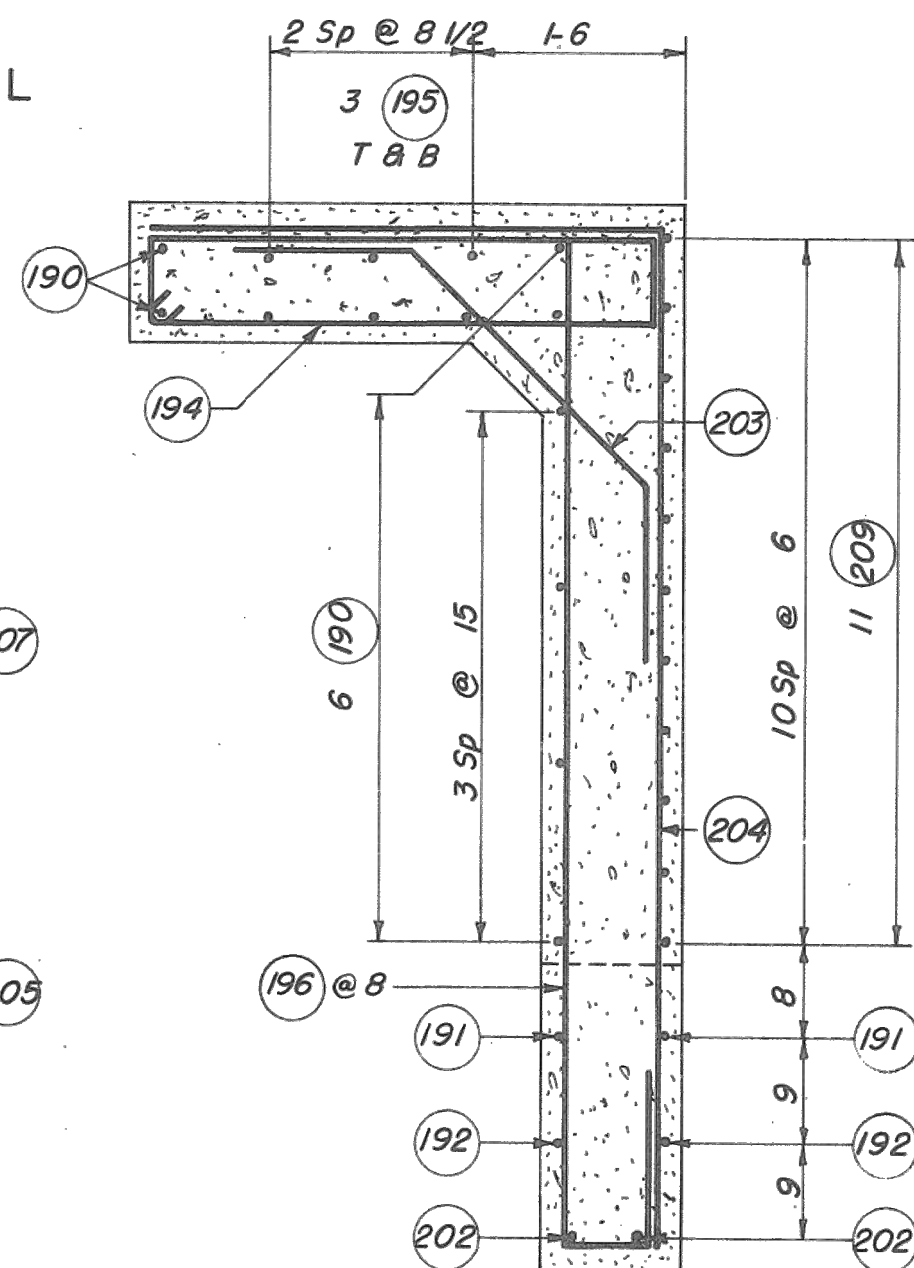
UNEXPOSED FACE
ELEVATION SIDEWALL



SECTION E



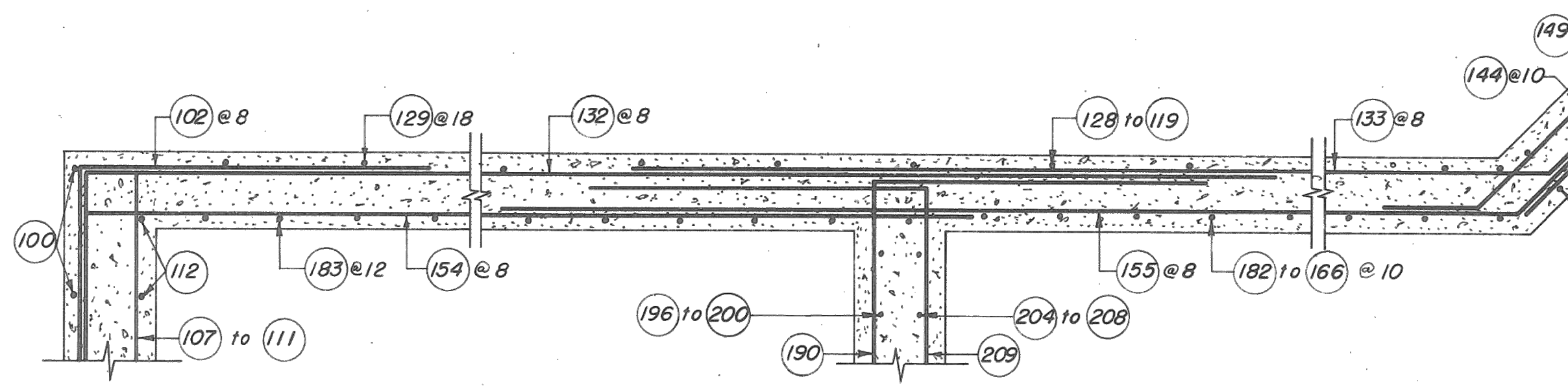
EXPOSED FACE
ELEVATION SIDEWALL



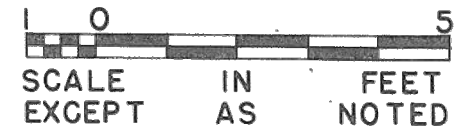
SECTION G
SCALE IN FEET



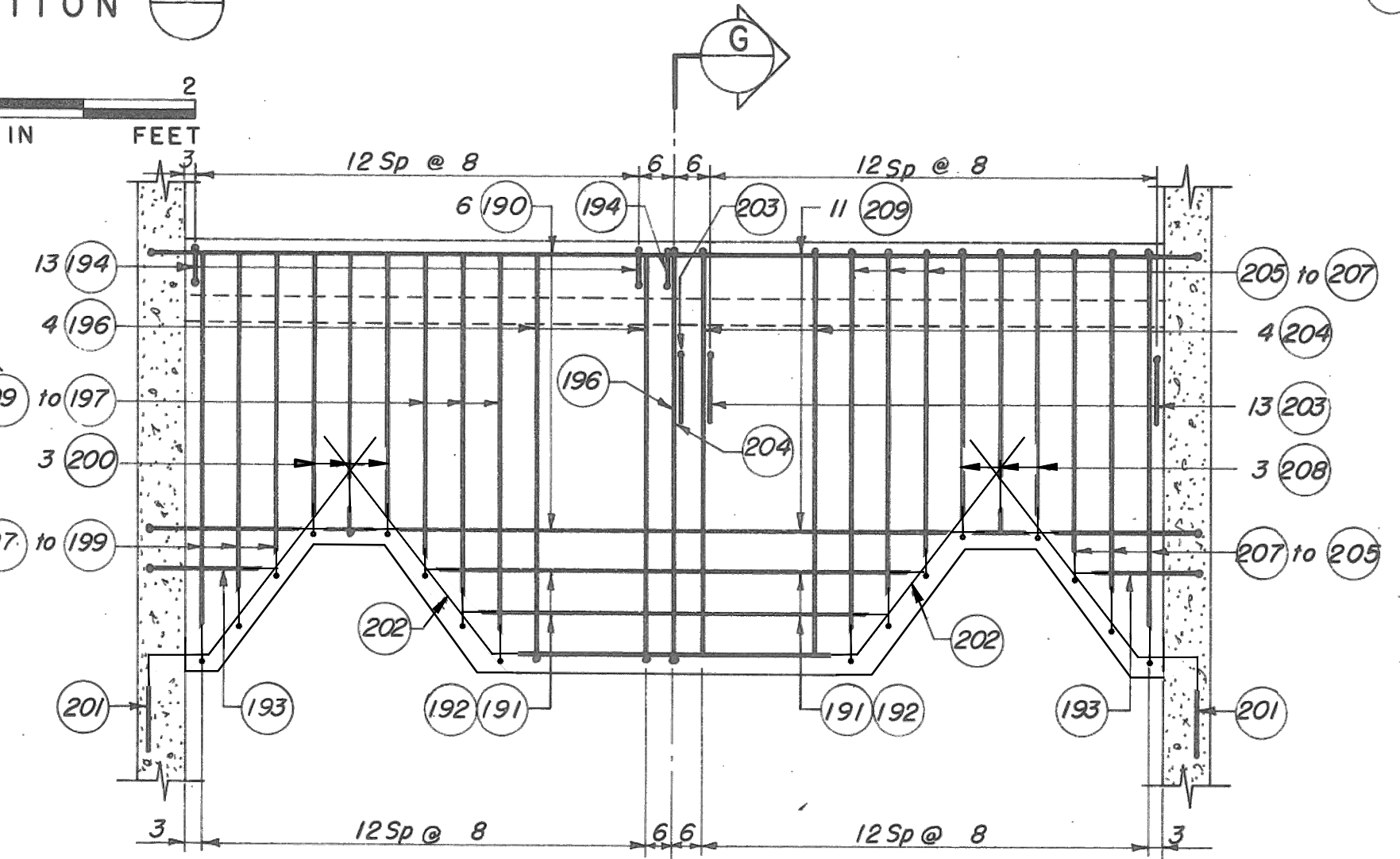
SCALE IN FEET



SECTION F
SCALE IN FEET



SCALE IN FEET EXCEPT AS NOTED

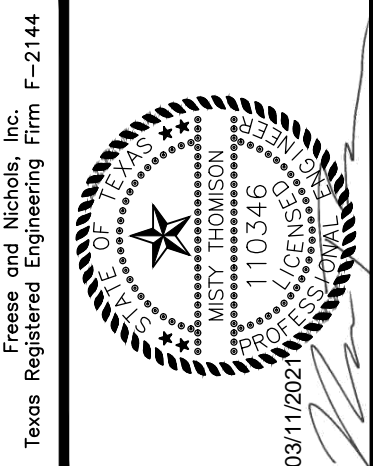


UPSTREAM FACE
DOWNSTREAM FACE
BAFFLE ELEVATION

STANDARD IMPACT BASIN	
DESIGN CONSTANTS	$f'_c = 4500$ psi $n = 7.6$
STANDARD DRAWING NO. ES-4175	
DATE 1-70	SHEET 3 OF 5

REVISED BY	DATE	REFERENCES
FRESE AND NICHOLS, INC.	AUGUST 19, 2020	NRCS RECOMMENDATION

REVISIONS		
DATE	APPROVED	TITLE



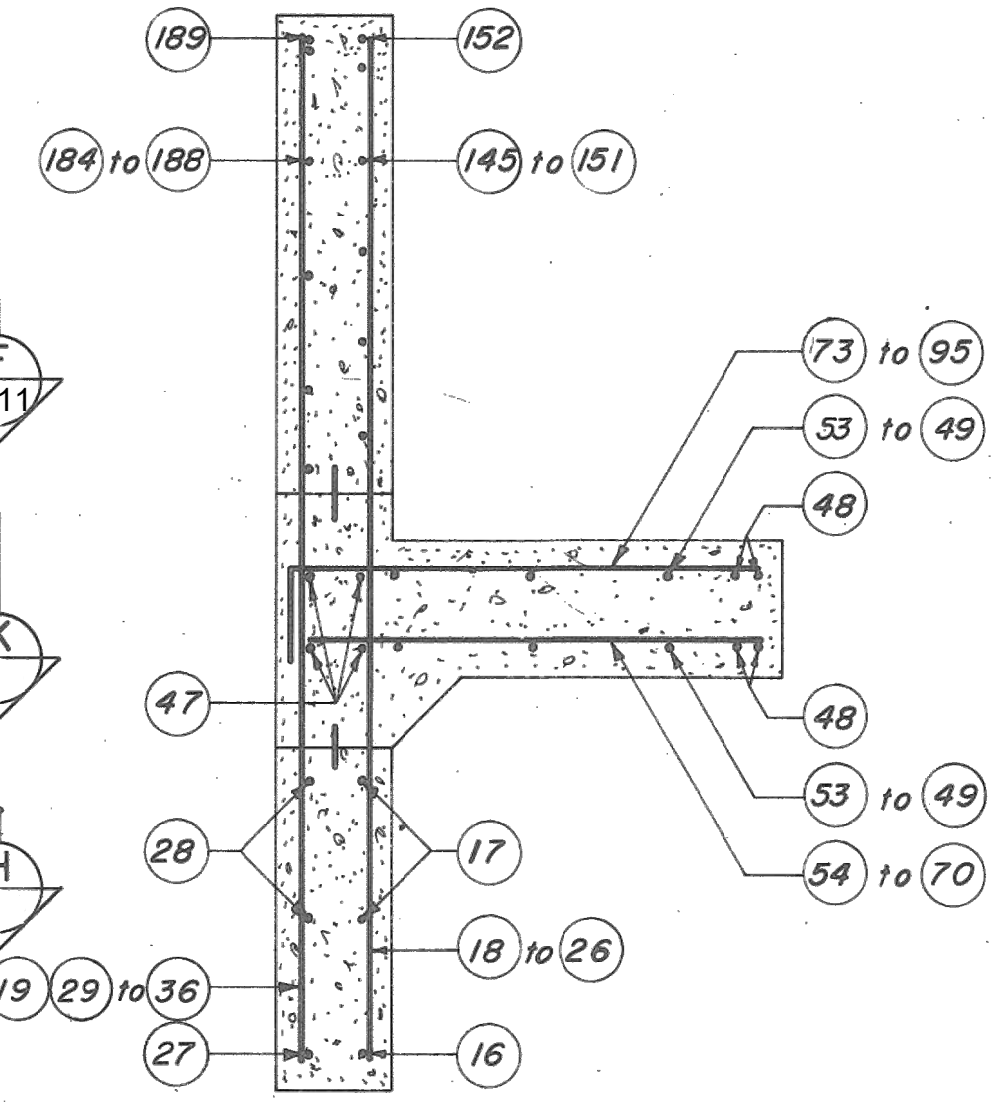
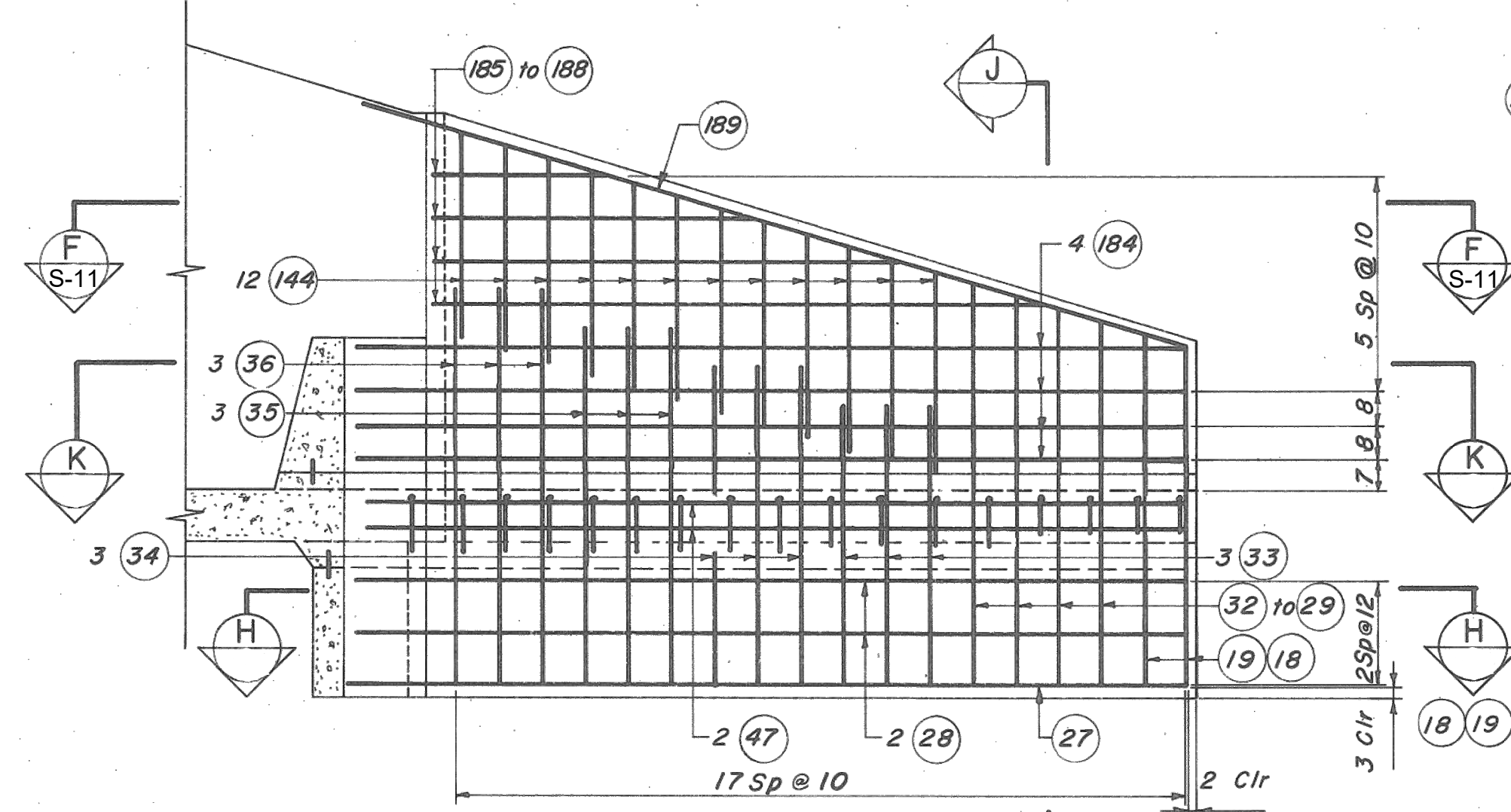
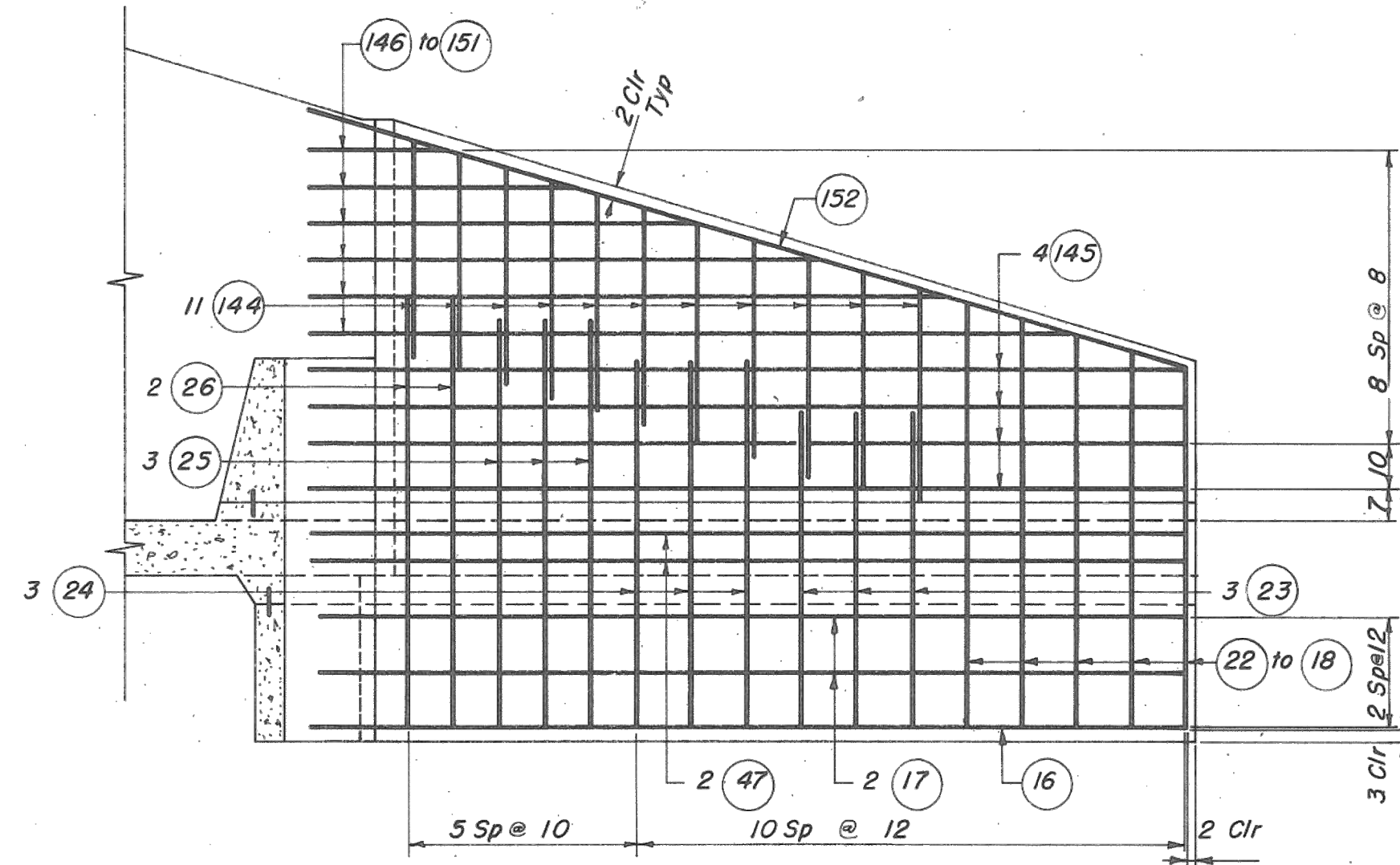
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DRAWN BY: NBB
CHECKED BY: MMT
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DATE CHECKED: 3/11/2021

IMPACT BASIN - REINFORCEMENT DETAILS 2
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

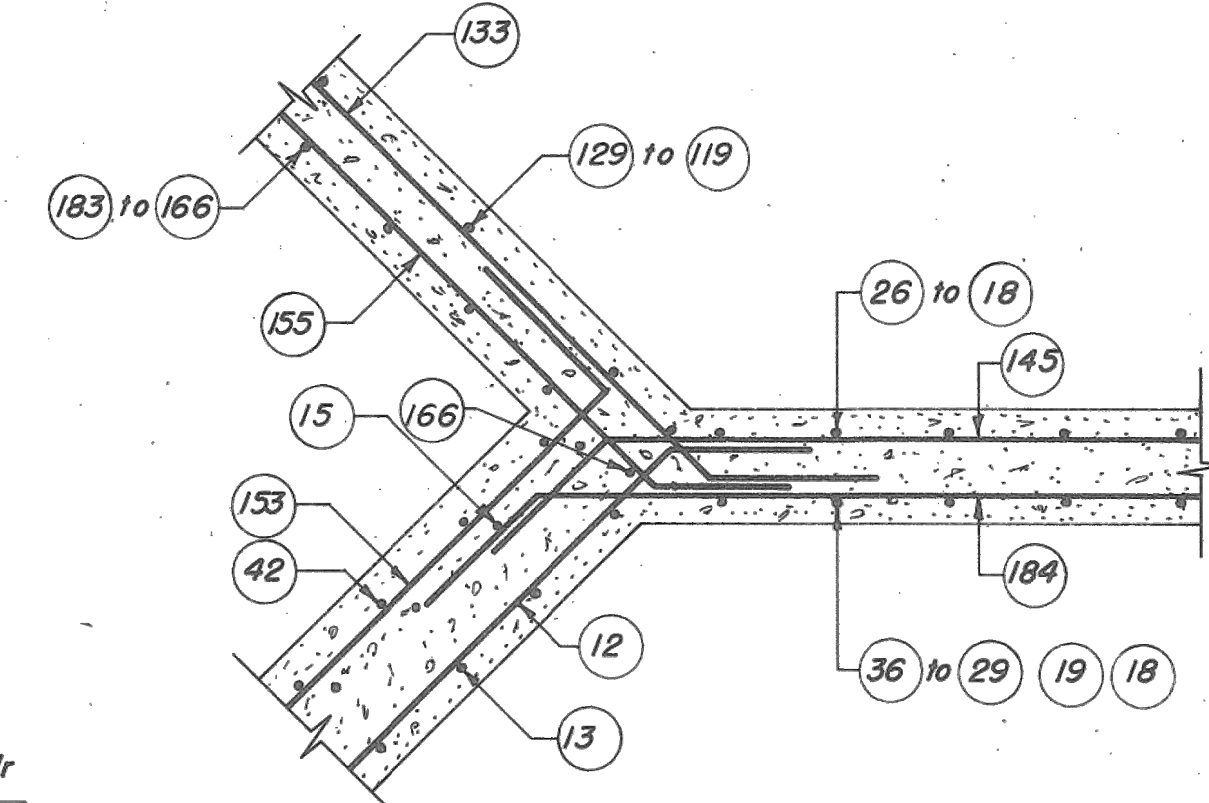
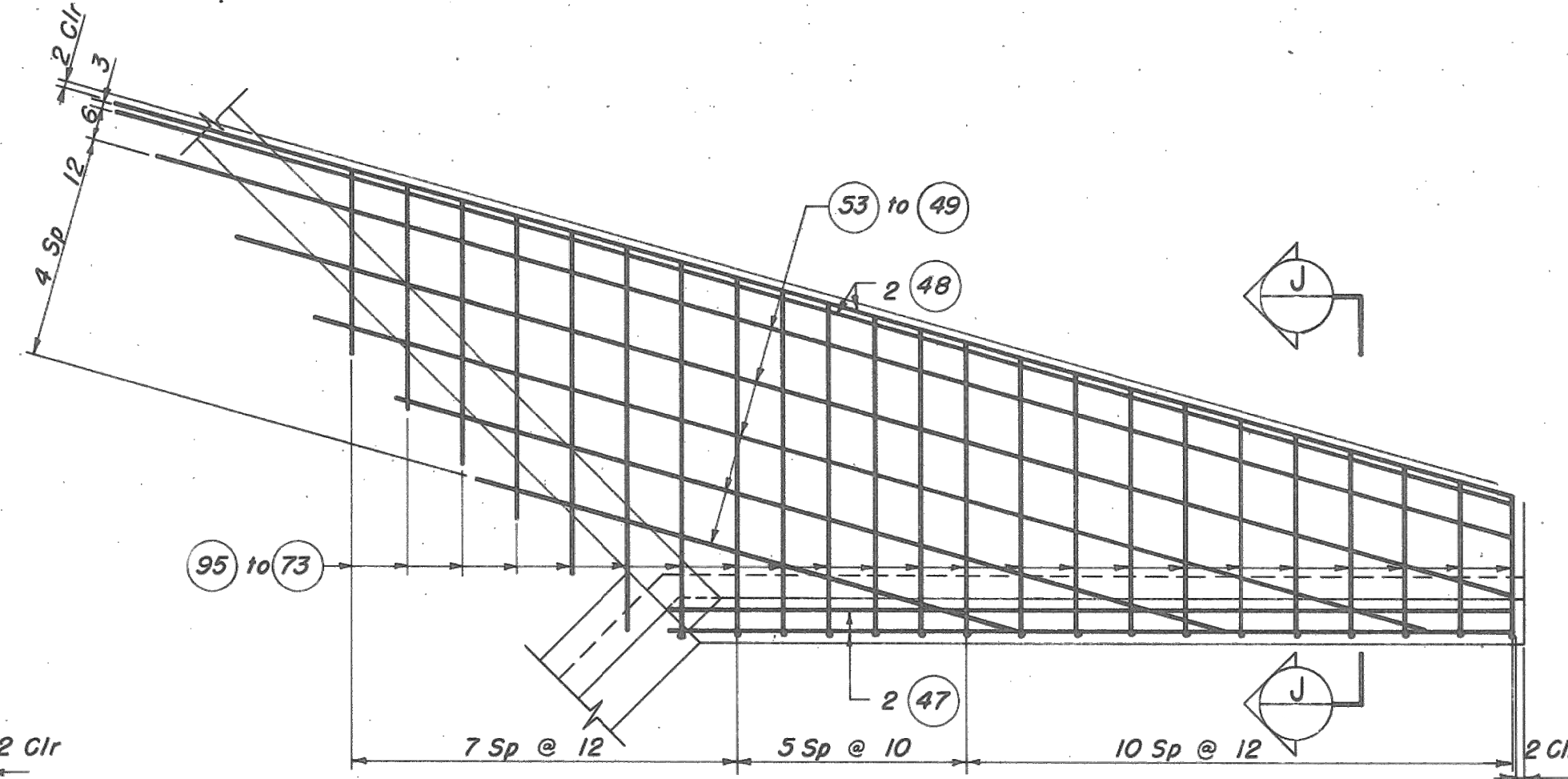
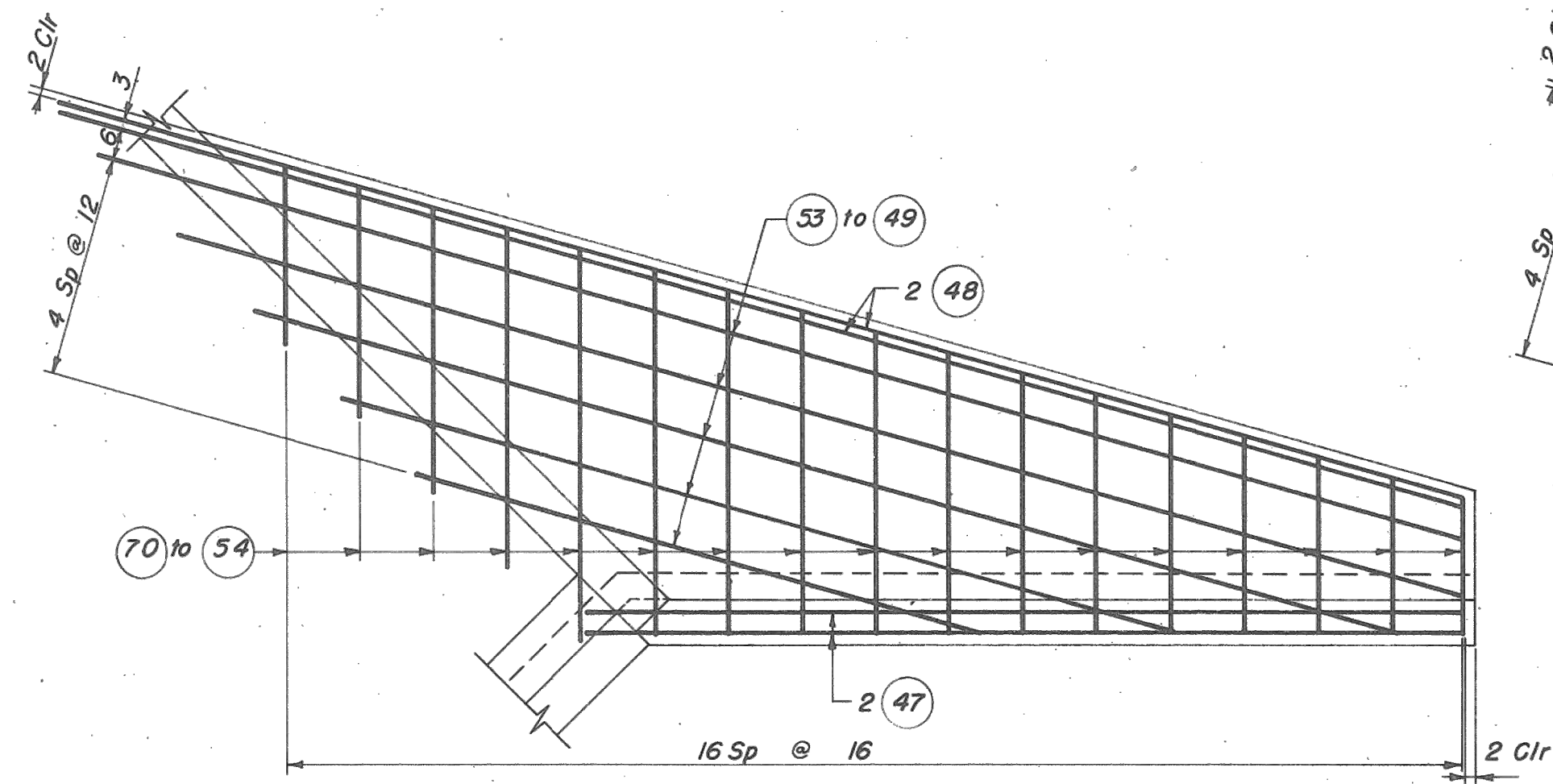
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Phone - (817) 735-7330
Web - www.freese.com

DRAWING NO.
SHEET NO. S-11
SEQUENCE NO. 40 OF 43

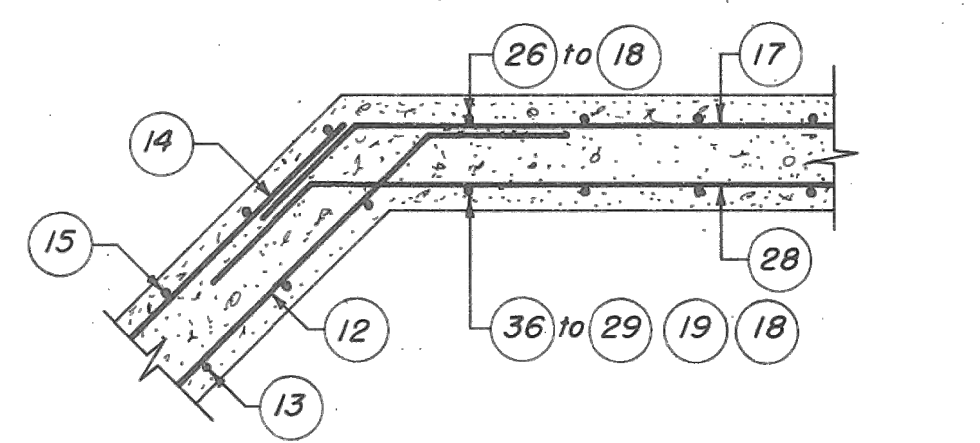
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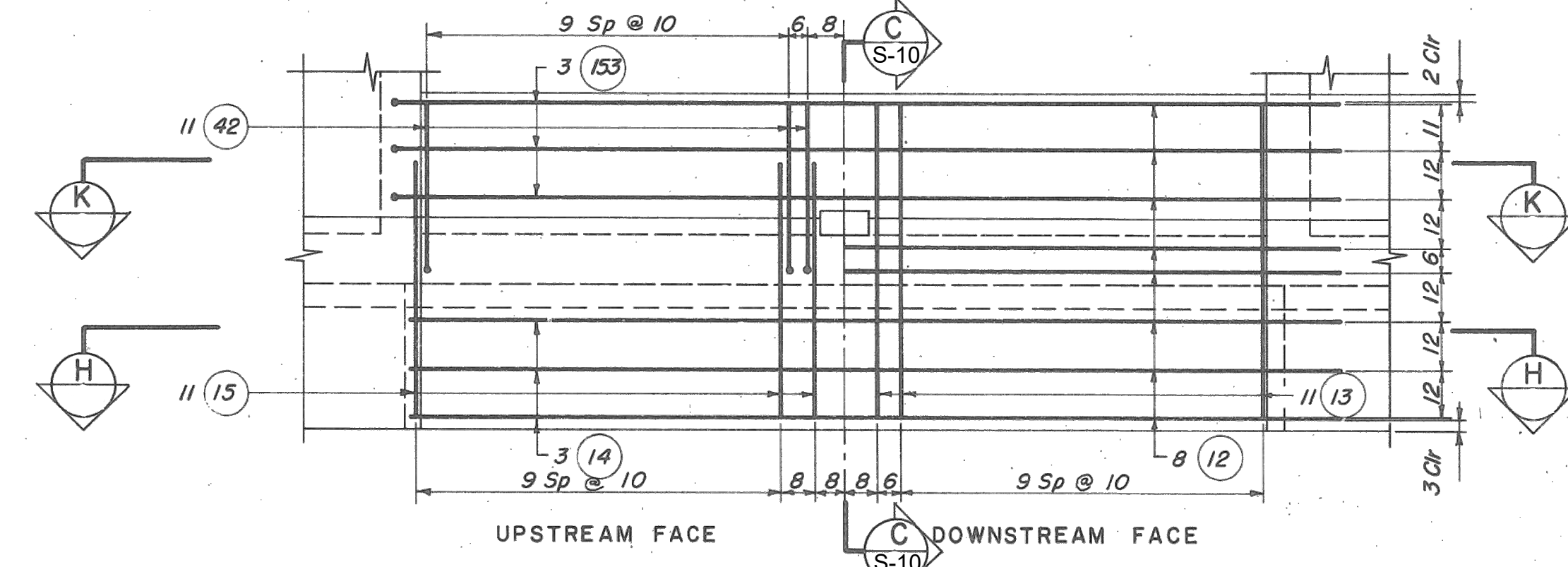
SCALE IN FEET
1 0 2



SCALE IN FEET
1 0 2



SCALE IN FEET
1 0 2



SCALE IN FEET
1 0 5
EXCEPT AS NOTED

STANDARD IMPACT BASIN	
DESIGN CONSTANTS	$f'_c = 4500$ psi $n = 7.6$
STANDARD DRAWING NO. ES-4175	
DATE 1-70	SHEET 4 OF 5

REVISED BY	DATE	REFERENCES
FREES AND NICHOLS, INC.	AUGUST 19, 2020	NRCS RECOMMENDATION

REVISIONS		
DATE	APPROVED	TITLE



DESIGNED BY: MT
DRAWN BY: NBB
CHECKED BY: MMT
FILE NAME: LEF3-ST-IMBAS3.dwg
DATE CHECKED: 3/11/2021

IMPACT BASIN - REINFORCEMENT DETAILS 3
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

FREES AND NICHOLS
801 Cherry Street, Suite 2800
Fort Worth Texas 76102
Phone - (817) 735-7330
Web - www.freese.com

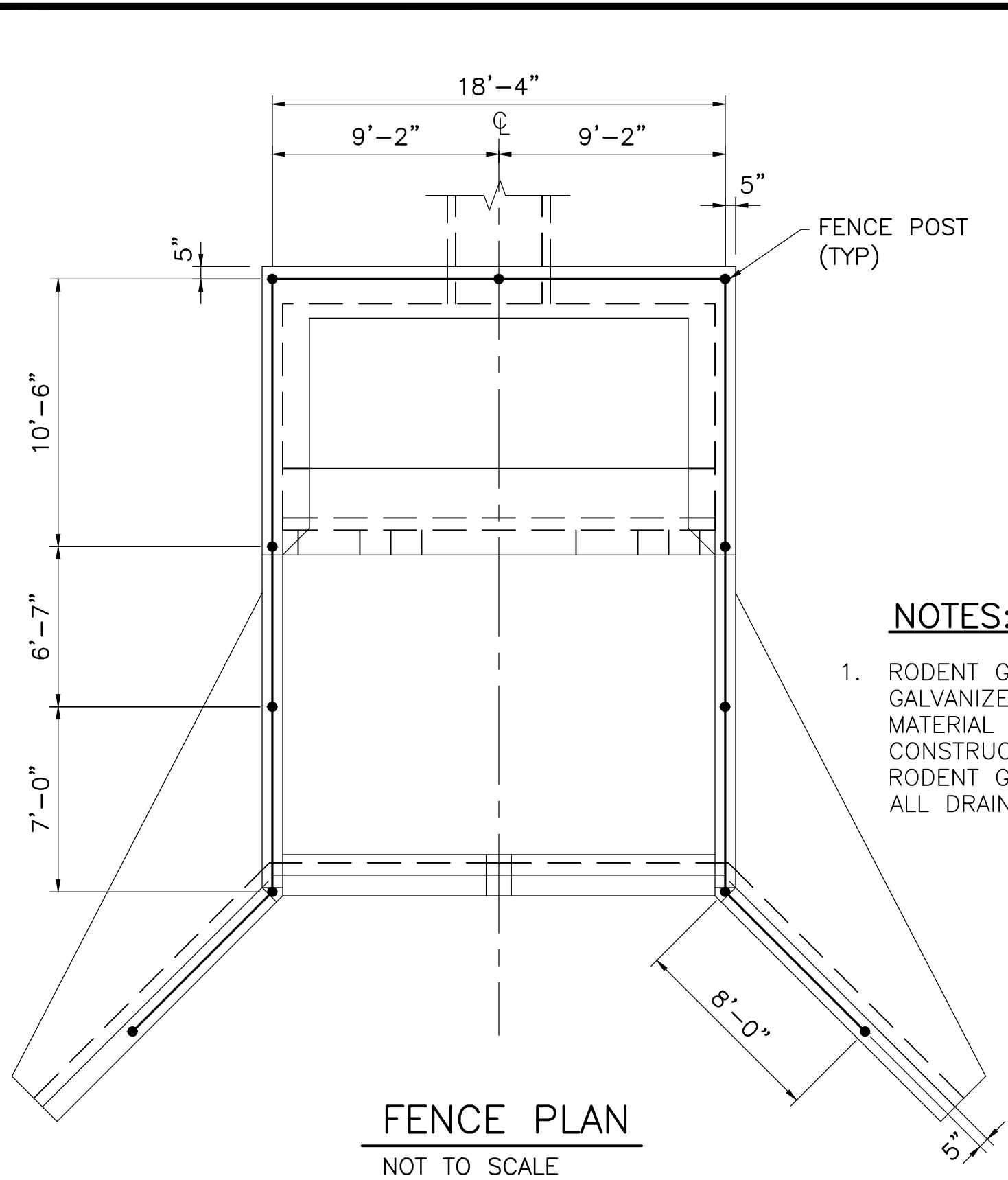
DRAWING NO.
SHEET NO. S-12
SEQUENCE NO. 41 OF 43

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Thursday, March 11, 2021 1:29:48 PM

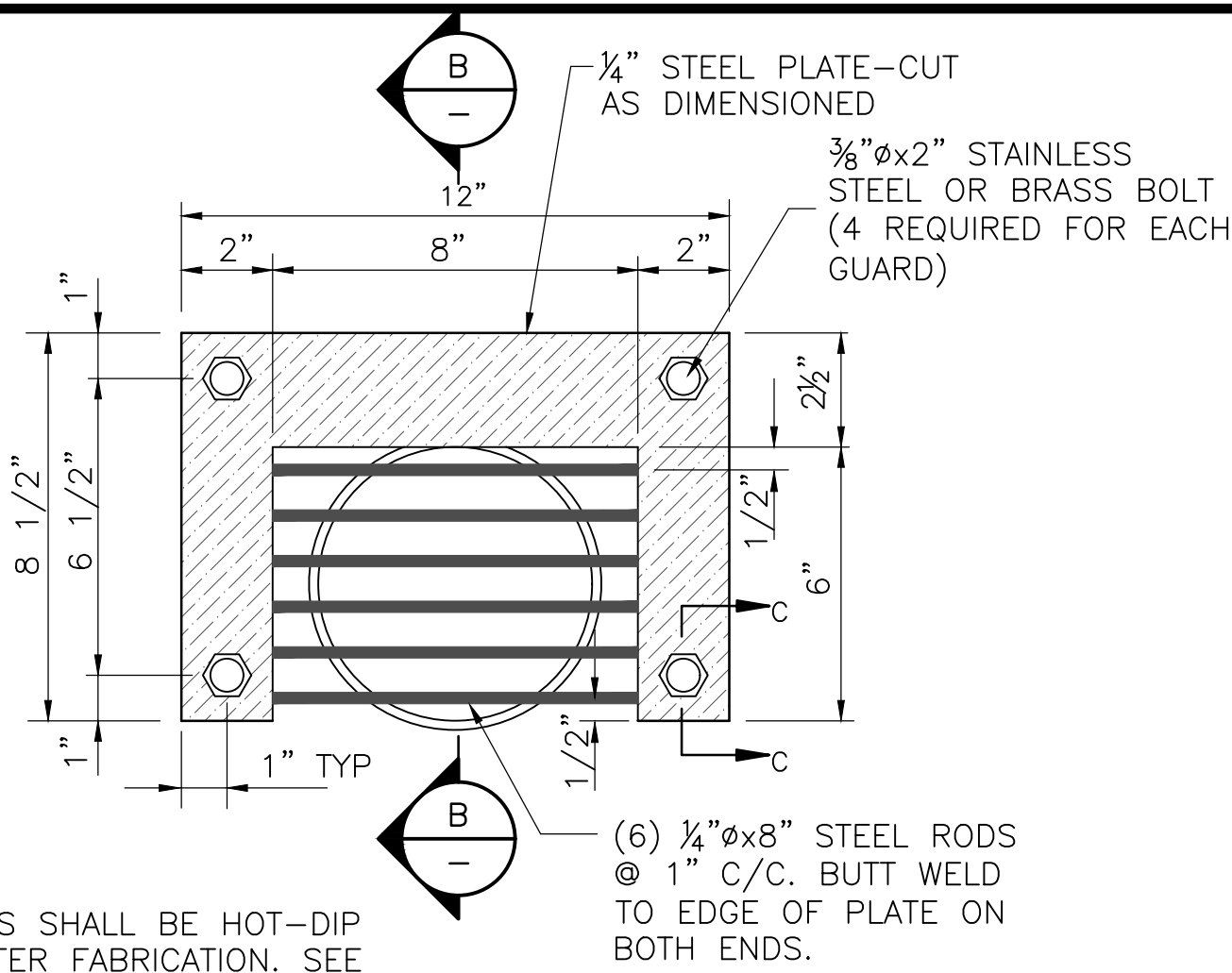
STEEL SCHEDULE

LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH	LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH	LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH	LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH									
Headwall	1	5	2	18-10	St			37-8	Apron	43	6	2	7-11	21	2-11	5-0	15-10	Wingwall	85	6	2	6-9	21	1-0	5-0	13-6	Sidewall	127	4	2	10-8	St			21-4	Sidewall	169	4	2	7-9	St			15-6
"	2	4	4	18-10	St			75-4	"	44	6	2	8-5	21	3-5	5-0	16-10	"	86	6	2	7-0	21	1-0	6-0	14-0	"	128	4	2	11-3	St			22-6	"	170	4	2	8-2	St			16-4
"	3	5	5	6-0	St			30-0	"	45	6	2	9-9	21	4-9	5-0	13-10	"	87	6	2	7-2	21	1-0	6-2	14-4	"	129	4	1.6	13-6	21	11-9	1-0	189-0	"	171	4	2	8-6	St			17-0
"	4	5	2	6-11	St			13-0	"	46	6	10	8-8	21	3-8	5-0	86-8	"	88	6	2	7-5	21	1-0	6-5	14-10	"	130	4	12	5-0	St			50-0	"	172	4	2	8-10	St			17-8
"	5	5	26	7-7	St			197-2	Wingwall	47	4	18	15-11	St			127-4	"	89	6	2	7-9	21	1-0	6-9	15-6	"	131	4	16	5-3	11	0-6	1-9	84-0	"	173	4	2	9-2	St			18-4
"	6	4	5	6-0	St			30-0	"	48	7	8	27-0	St			216-0	"	90	6	2	7-0	St			14-0	"	132	5	34	18-3	21	3-10	14-5	620-6	"	174	4	2	9-7	St			19-2
"	7	4	2	6-5	St			12-10	"	49	4	4	25-8	St			102-8	"	91	6	2	6-3	St			12-6	"	133	5	18	19-3	19	7-9	18-0	346-6	"	175	4	2	9-11	St			19-10
"	8	4	2	6-11	St			13-10	"	50	4	4	24-2	St			96-8	"	92	5	2	5-7	St			11-2	"	134	5	2	17-3	St			34-6	"	176	4	2	10-3	St			20-6
"	9	NONE	NONE						"	51	4	4	21-0	St			84-0	"	93	4	2	4-10	St			9-8	"	135	5	2	15-3	St			30-6	"	177	4	2	10-7	St			21-9
"	10	NONE	NONE						"	52	4	4	15-9	St			63-0	"	94	4	2	4-1	St			8-2	"	136	5	2	13-8	St			27-4	"	178	4	2	11-0	St			22-0
"	11	4	22	5-1	St			111-10	"	53	4	4	10-6	St			42-0	"	95	4	2	3-5	St			6-10	"	137	5	2	15-0	St			30-0	"	179	4	2	11-4	St			22-8
End Still	12	5	8	21-2	7	18-8	1-3	169-4	"	54	4	2	2-6	St			5-0	Headwall	96	4	1	7-4	21	5-5	1-11	7-4	"	138	4	2	13-5	St			26-10	"	180	4	2	11-8	St			23-4
"	13	5	22	6-6	St			143-0	"	55	4	2	2-10	St			5-8	"	97	4	2	7-7	21	5-8	1-11	15-2	"	139	4	2	11-10	St			23-8	"	181	4	2	12-0	St			24-0
"	14	5	3	18-1	St			54-3	"	56	4	2	3-2	St			6-4	"	NONE								"	140	4	2	10-3	St			20-6	"	182	4	2	12-4	St			24-8
"	15	5	22	5-3	St			115-6	"	57	4	2	3-7	St			7-2	"	99	5	2	14-6	21	12-7	1-11	29-0	"	141	4	2	8-8	St			17-4	"	183	4	24	12-7	St			302-0
Wingwall	16	6	2	16-2	19	1-3	14-11	32-4	"	58	4	2	4-0	St			8-0	"	100	4	12	12-11	21	11-0	1-11	155-0	"	142	5	4	12-2	21	1-3	10-11	48-8	Wingwall	184	4	8	16-5	19	1-0	15-5	131-4
"	17	4	4	16-6	19	1-7	14-11	66-0	"	59	4	2	4-4	St			8-8	"	101	4	18	5-7	11	0-6	1-11	100-6	"	143	5	4	17-0	23	1-3	15-9	68-0	"	185	4	2	12-0	St			24-0
"	18	6	4	6-6	St			26-0	"	60	4	2	4-8	St			9-4	"	102	5	34	7-8	21	3-10	3-10	260-8	Wingwall	144	4	46	4-0	St			184-0	"	186	4	2	9-2	St			18-4
"	19	6	4	6-9	St			27-0	"	61	4	2	5-1	St			10-2	"	103	4	4	18-0	St			64-0	"	145	6	8	16-3	19	1-3	15-0	130-0	"	187	4	2	6-5	St			12-10
"	20	6	2	7-1	St			14-2	"	62	4	2	5-5	St			10-10	"	104	5	8	18-10	St			150-8	"	146	6	2	14-1	19	1-3	12-10	28-2	"	188	4	2	3-8	St			7-4
"	21	6	2	7-4	St			14-8	"	63	4	2	5-10	St			11-8	"	105	4	10	5-5	St			54-2	"	147	6	2	11-10	19	1-3	10-7	23-8	"	189	5	2	16-5	19	1-3	15-2	32-10
"	22	6	2	7-8	St			15-4	"	64	4	2	6-2	St			12-4	"	106	5	8	7-6	St			60-0	"	148	6	2	9-7	19	1-3	8-4	19-2	Baffle	190	6	8	26-0	17	3-8	18-8	208-0
"	23	6	6	6-9	St			34-6	"	65	4	2	6-7	St			13-2	"	107	4	10	18-10	St			188-4	"	149	6	2	7-5	19	1-3	6-2	14-10	"	191	5	2	8-8	St			17-4
"	24	6	6	6-10	St			41-0	"	66	4	2	6-11	St			13-10	"	108	4	8	6-10	St			54-8	"	150	6	2	6-2	19	1-3	3-11	10-4	"	192	5	2	7-2	St			14-4
"	25	6	6	7-7	St			45-6	"	67	4	2	6-0	St			12-0	"	109	4	4	7-4	St			29-4	"	151	6	2	3-0	15	1-3	1-9	6-0	"	193	5	4	3-3	21	1-3	2-0	245-3
"	26	6	4	8-0	St			32-0	"	68	4	2	5-0	St			10-0	"	110	4	4	8-3	St			33-0	"	152	5	2	16-11	19	1-3	15-8	33-10	"	194	4	27	9-7	11	0-8	3-6	245-3
"	27	5	2	16-8	19	1-3	15-5	33-4	"	69	4	2	4-1	St			8-2	"	111	NONE							End Still	153	5	3	21-2	17	1-3	18-8	63-6	"	195	6	6	21-8	17	1-6	18-8	130-0
"	28	4	4	16-5	19	1-0	15-5	65-8	"	70	4	2	3-1	St			6-2	"	112	4	20	12-7	St			251-8	Sidewall	154	4	30	11-2	St			335-0	"	196	5	9	8-10	24	7-1	0-6	79-6
"	29	4	2	6-11	St			13-10	Apron	71	5	20	26-4	St			526-8	"	113	5	2	12-7	St			25-2	"	155	6	20	21-4	19	2-4	19-0	426-8	"	197	5	4	8-9	24	7-0	0-6	35-0
"	30	4	2	7-2	St			14-4	"	72	6	46	18-10	St			866-4	"	114	4	3	5-4	St			16-0	"	156	6	2	18-9	St			37-6	"	198	5	4	8-3	24	6-6	0-6	33-0
"	31	4	2	7-5	St			14-10	Wingwall	73	4	2	3-2	21	0-8	2-6	6-4	"	115	4	2	5-8	St			11-4	"	157	6	2	17-1	St			34-2	"	199	5	4	7-5	24	5-8	0-6	29-8
"	32	4	2	7-8	St			15-4	"	74	4	2	3-5	21	0-8	2-9	6-10	"	116	4	2	6-3	St			12-6	"	158	6	2	15-7	St			31-2	"	200	5	6	6-8	24	4-11	0-6	40-0
"	33	4	6	5-8	St			34-0	"	75	4	2	3-8	21	0-8	3-0	7-4	"	117	NONE							"	159	5	2	14-0	St			28-0	"	201	6	4	8-7	25	1-3	6-4	34-4
"	34	4	6	6-5	St			38-6	"	76	4	2	4-0	21	0-8	3-4	8-0	"	118	NONE							"	160	5	2	12-5	St			28-10	"	202	6	2	17-0	8	6-8	5-2	34-0
"	35	4	6	7-2	St			43-0	"	77	5	2	4-5	21	0-10	3-7	8-10	Sidewall	119	4	2	6-9	St			13-6	"	161	5	2	16-10	St			33-8	"	203	5	27	4-11	7	2-5	1-3	132-9
"	36	4	6	7-11	St			47-6	"	78	5	2	4-8	21	0-10	3-10	5-4	"	120	4	2	7-0	St			14-0	"	162	4	2	15-3	St			30-6	"	204	5	9	10-8	21	3-6	7-2	96-0
Apron	37	5	6	18-10	St			113-0	"	79	5	2	5-0	21	0-10	4-2	10-0	"	121	4	2	6-9	St			13-6	"	163	4	2	13-8	St			27-4	"	205	5	4	10-4	21	3-6	6-10	41-4
"	38	5	46	14-5	21	4-0	10-5	663-2	"	80	5	2	5-3	21	0-10	4-5	10-6	"	122	4	2	7-5	St			14-10	"	164	4	2	12-4	St			24-8	"	206	5	4	9-8	21	3-6	6-2	38-8
"	39	6	44	9-0	21	4-0	5-0	396-0	"	81	6	2	5-8	21	1-0	4-8	11-4	"	123	4	2	7-10	St			15-8	"	165	5	4	11-11	19	2-5	9-6	47-8	"	207	5	4	9-0	21	3-6	5-6	36-0
"	40	4	56	2-9	21	2-1	0-8	154-0	"	82	6	2	6-0	21	1-0	5-0	12-0	"	124	4	2	8-9	St			17																		

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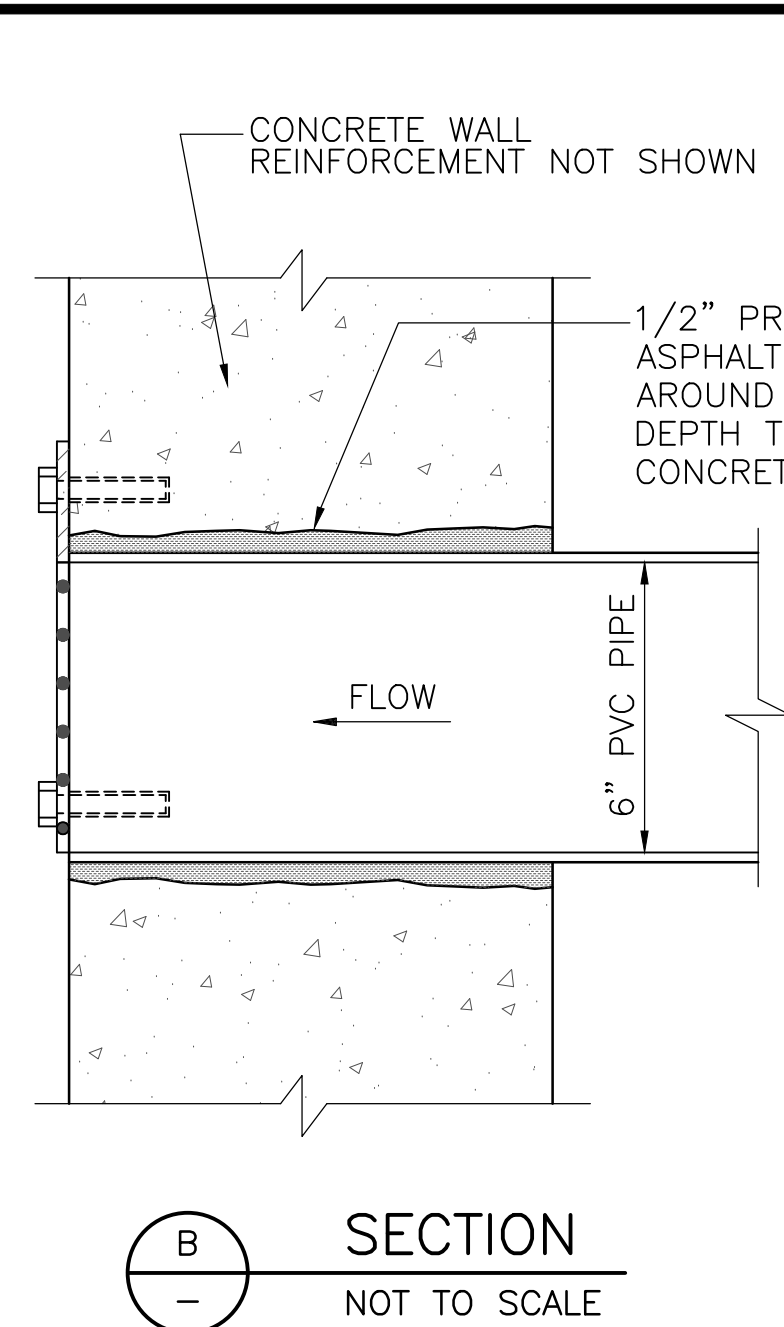


FENCE PLAN
NOT TO SCALE

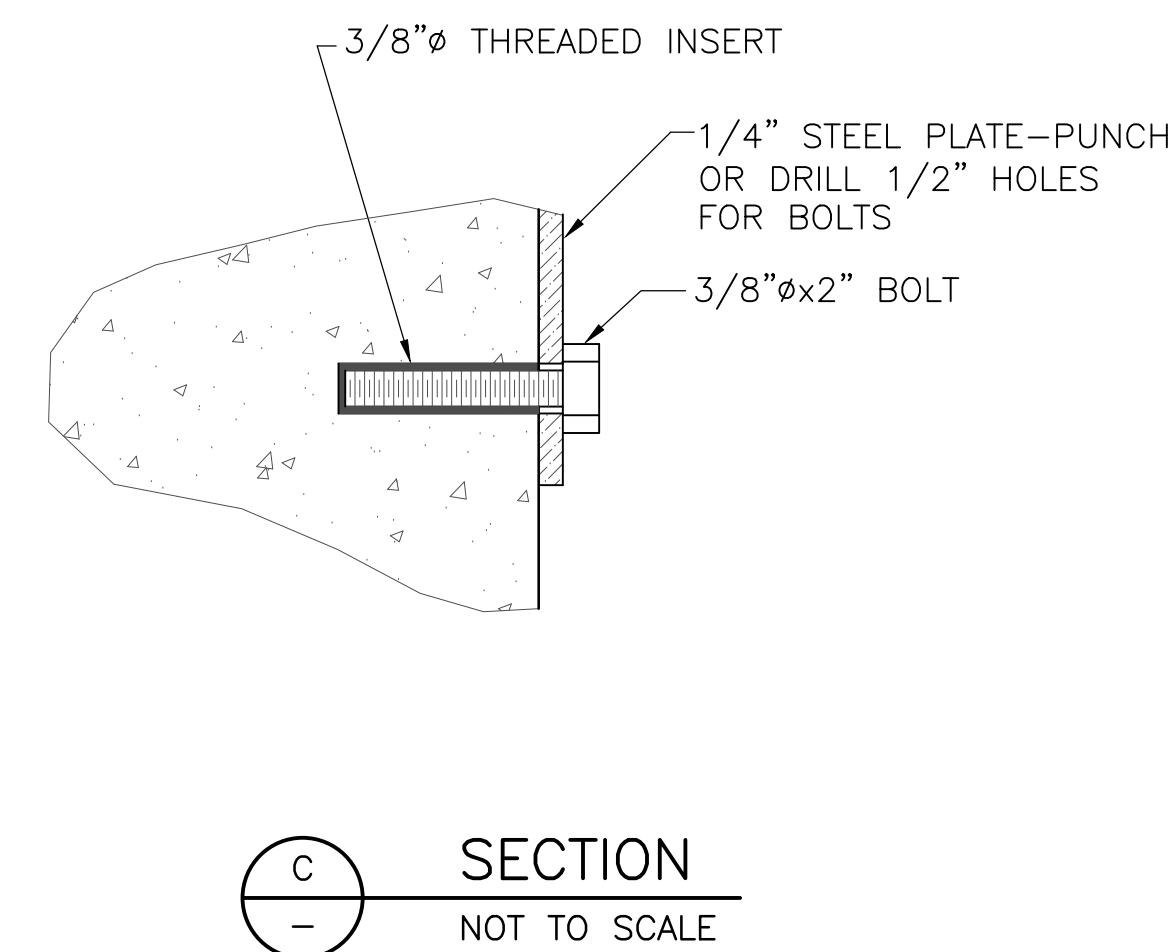


RODENT GUARD DETAIL
NOT TO SCALE (6 REQUIRED)

- NOTES:**
- RODENT GUARDS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION. SEE MATERIAL SPECIFICATION 581 AND CONSTRUCTION SPECIFICATION 81. RODENT GUARDS TO BE PLACED OVER ALL DRAIN PIPE OUTFALLS.



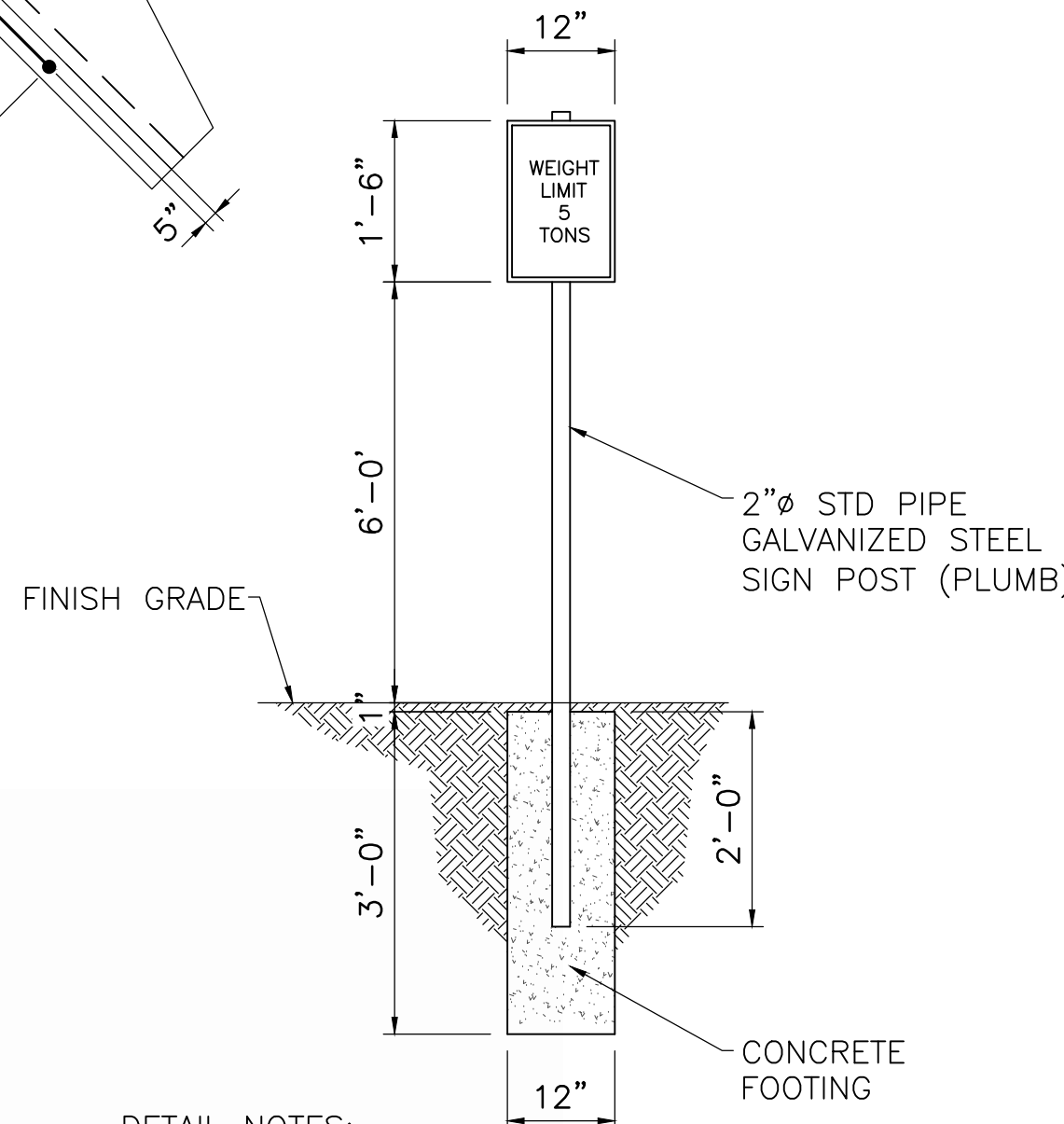
SECTION B
NOT TO SCALE



SECTION C
NOT TO SCALE

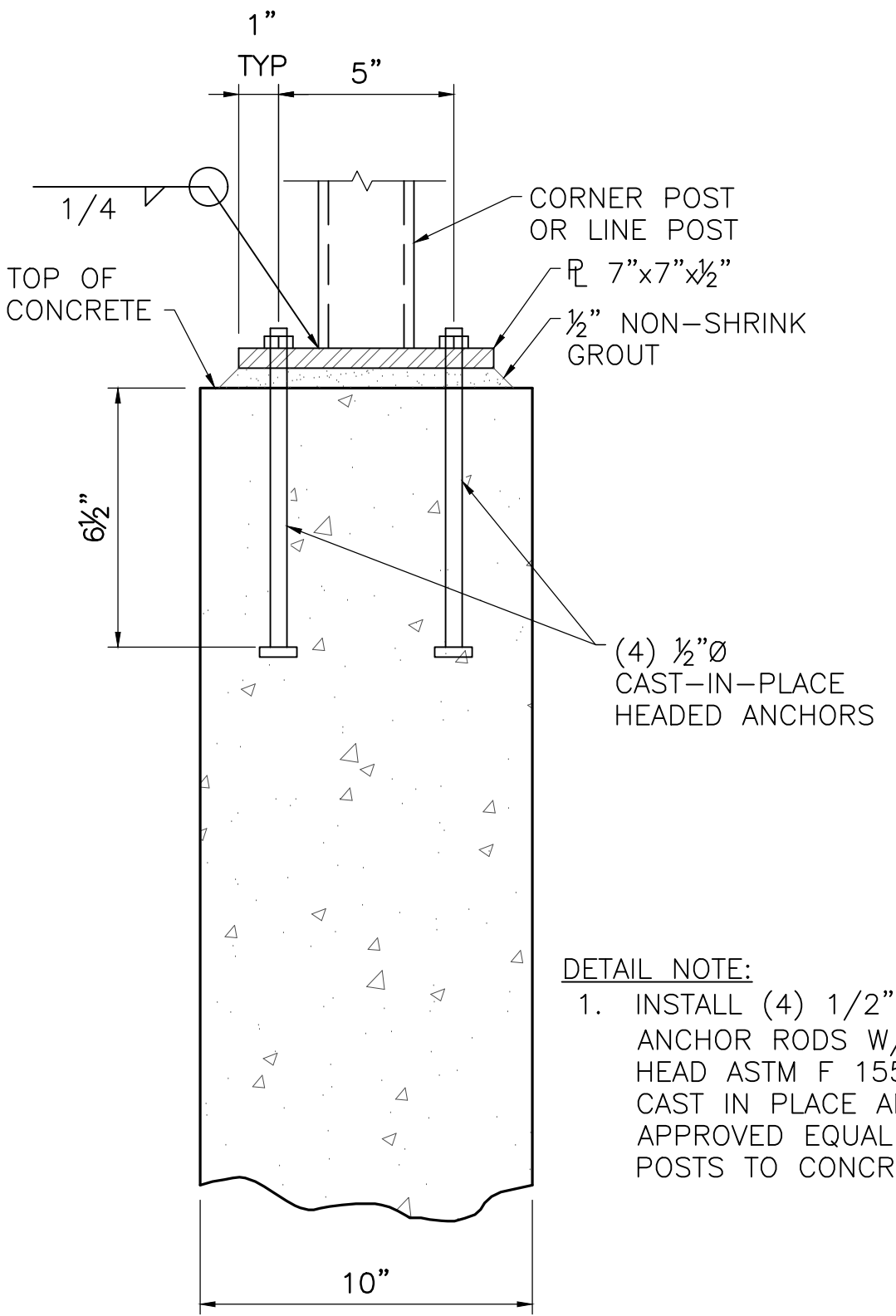
BILL OF MATERIALS	
QUALITY	MATERIAL
66'-0"	2 7/8" O.D. TUBULAR STEEL PIPE FOR 11 POSTS (CUT INTO 11, 6' POST)
133'-0"	1 5/8" O.D. TUBULAR STEEL PIPE FOR RAILS (CUT AS REQUIRE)
66'-6"	6'-0" HIGH CHAIN LINK FABRIC (SELVAGE SHALL BE KNUCKLED AT BOTTOM TOP)
20	TENSION BARS
80	TENSION BARS
40	OFFSET CUPS
11	DOMES TOPS

NOTE: QUANTITY OF TIE WIRE REQUIRED NOT INCLUDED IN TABLE ABOVE.
FOR TYPE AND SPECIFICATIONS OF FENCING MATERIALS, SEE CONSTRUCTION SPECIFICATION 91.



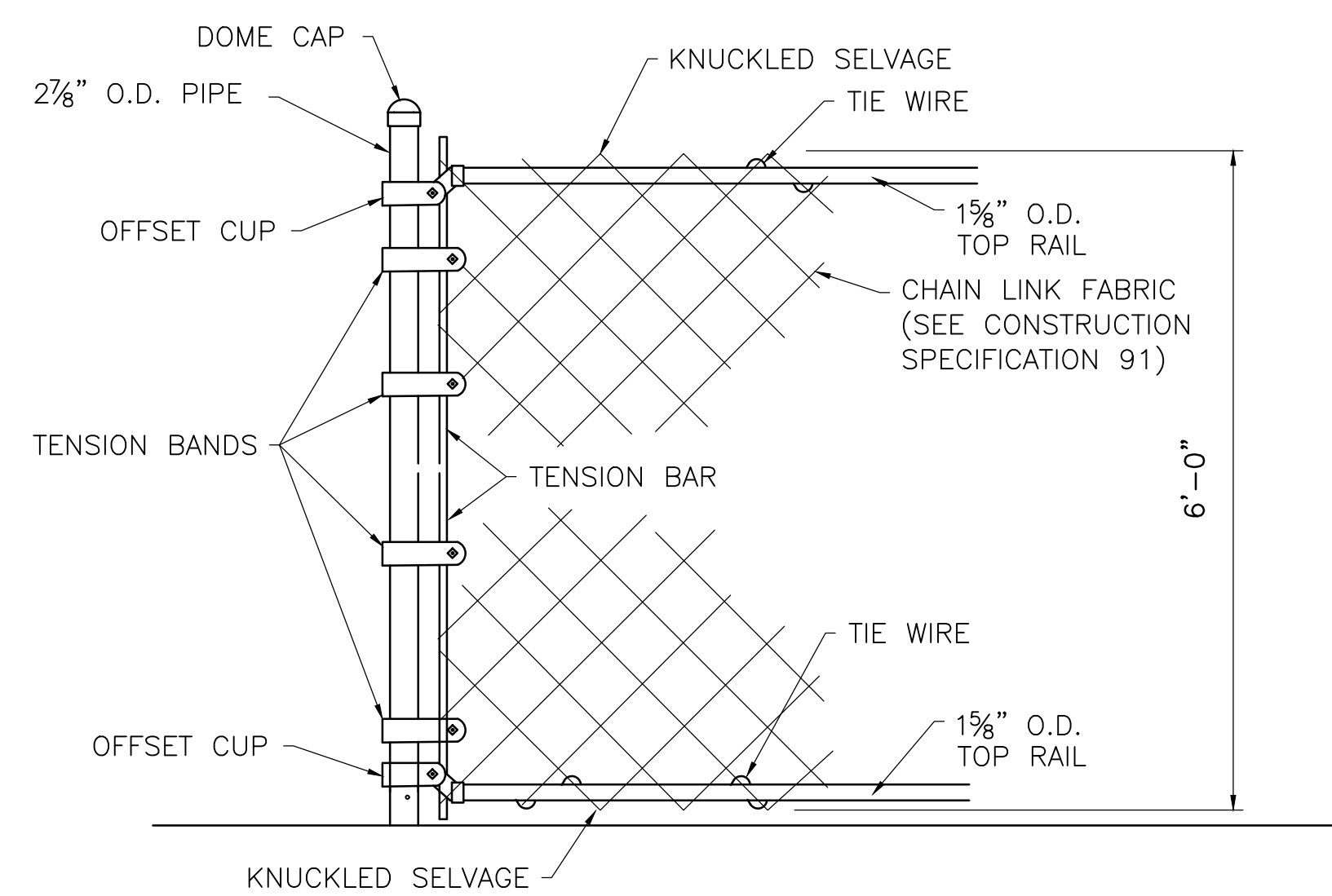
- DETAIL NOTES:**
- PLACE WEIGHT LIMIT SIGN AT HEADWALL BERM.
 - SIGNS SHALL BE 16 GAUGE STEEL WITH BAKED ENAMEL FINISH.
 - ATTACH SIGNS AS PER TXDOT STANDARD MSX-76.

WEIGHT LIMIT SIGN
NOT TO SCALE



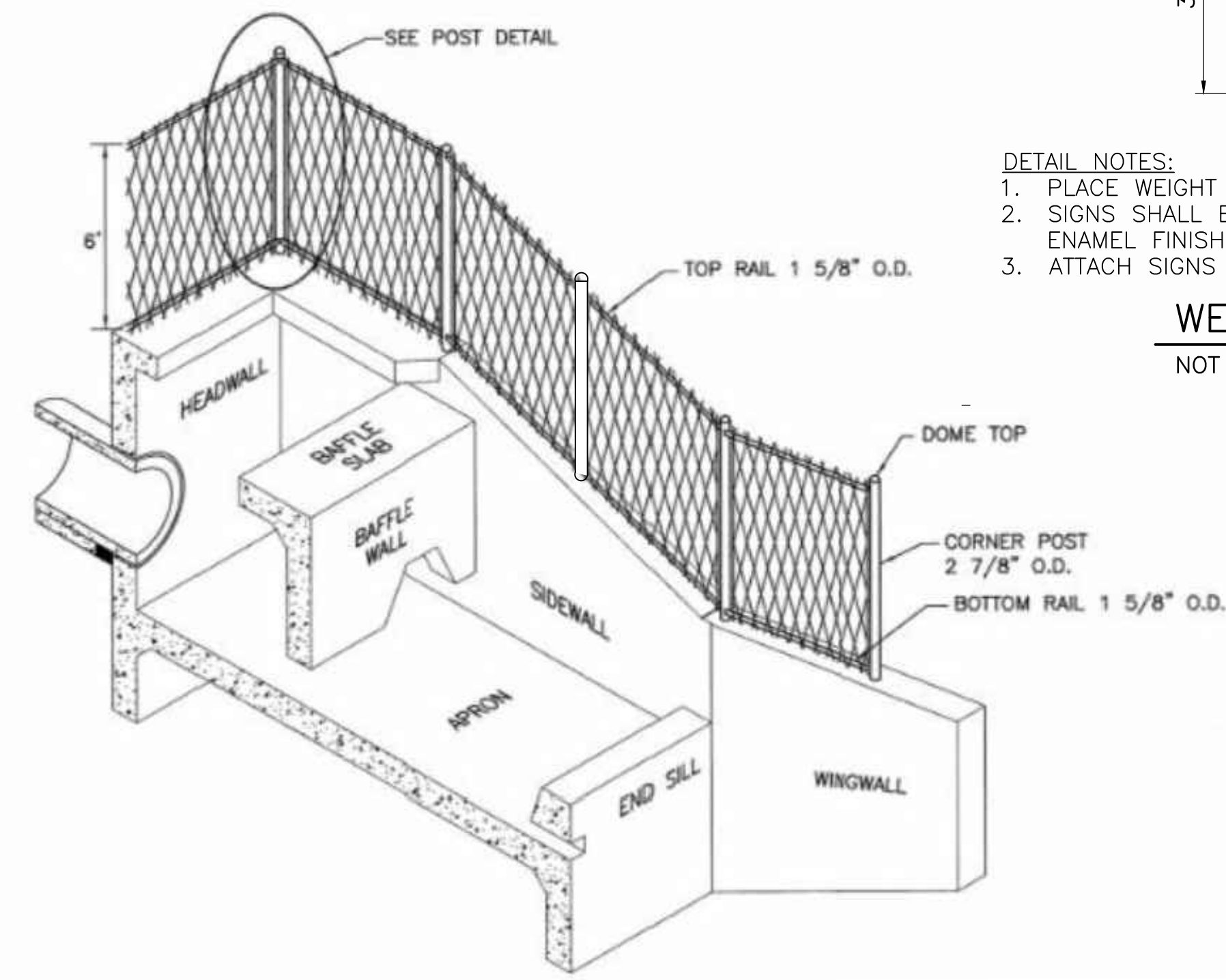
- DETAIL NOTE:**
- INSTALL (4) 1/2" DIA ANCHOR RODS W/ HILTI HEX HEAD ASTM F 1554 GR. 36 CAST IN PLACE ANCHORS OR APPROVED EQUAL TO SECURE POSTS TO CONCRETE.

FENCE POST ANCHORAGE DETAIL
NOT TO SCALE



- DETAIL NOTES:**
- SECURE THE CHAIN LINK FABRIC TO THE TOP AND BOTTOM RAIL WITH TIE WIRE. MAXIMUM TIE WIRE SPACING SHALL BE 12" BETWEEN TIES.
 - THE CHAIN LINK SAFETY FENCE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS DIRECTED BY THE ENGINEER.

POST DETAIL
NOT TO SCALE



HALF ISOMETRIC
NOT TO SCALE



DESIGNED BY: MT
DRAWN BY: AD
CHECKED BY: MMT
FILE NAME: LEF3-DT-MISC01.dwg
DATE CHECKED: 3/11/2021

IMPACT BASIN - CHAINLINK FENCE DETAILS
FLOODWATER RETARDING STRUCTURE SITE No. 3
LOWER EAST FORK LATERALS
IN
TRINITY RIVER WATERSHED, TEXAS

FREESSE & NICHOLS
801 Cherry Street, Suite 2800
Fort Worth Texas 76102
Phone - (817) 735-7330
Web - www.freese.com

DRAWING NO.
SHEET NO. S-14
SEQUENCE NO. 43 OF 43

REVISIONS		
DATE	APPROVED	TITLE