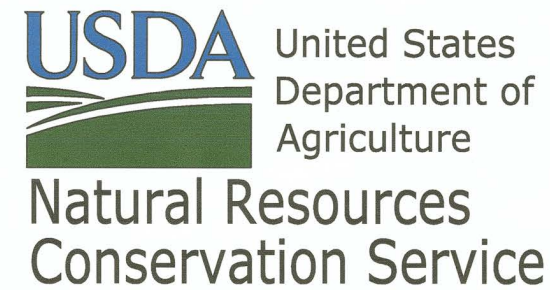


PART V

DRAWINGS

Plum Creek Watershed – REHABILITATION
Floodwater Retarding Structure Site 21
Caldwell County, Texas

Drawing No. TX-EN-0754
(Cover page + 83 sheets)



PLUM CREEK WATERSHED

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION CALDWELL COUNTY, TEXAS

DRAINAGE AREA	5,521 ACRES
TOTAL STORAGE	3,394 AC. FT.
EFFECTIVE HEIGHT OF DAM	32 FEET
OVERALL HEIGHT OF DAM	40 FEET

SPONSORED BY

HAYS COUNTY SOIL AND WATER CONSERVATION DISTRICT
CALDWELL-TRAVIS SOIL AND WATER CONSERVATION DISTRICT
PLUM CREEK CONSERVATION DISTRICT

COOPERATING WITH

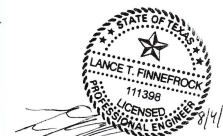
NATURAL RESOURCES CONSERVATION SERVICE
OF THE
U.S. DEPARTMENT OF AGRICULTURE

2021

CONSTRUCTION DRAWINGS APPROVED
ENGINEERING JOB CLASS VII

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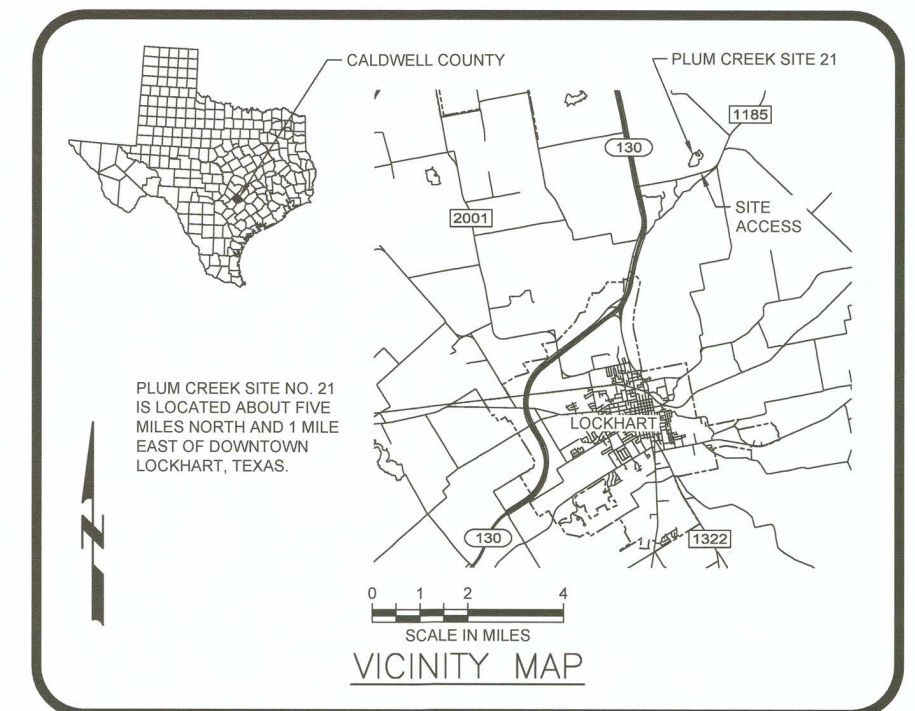
AUGUST 4, 2021
DATE

LANCE T. FINNEFROCK
TEXAS PE NO. 111398

P. B. S. O.
STATE CONSERVATION ENGINEER, N.R.C.S.
TEMPLE, TEXAS

8/10/2021
DATE

SEE SHEET 2 FOR INDEX OF DRAWINGS

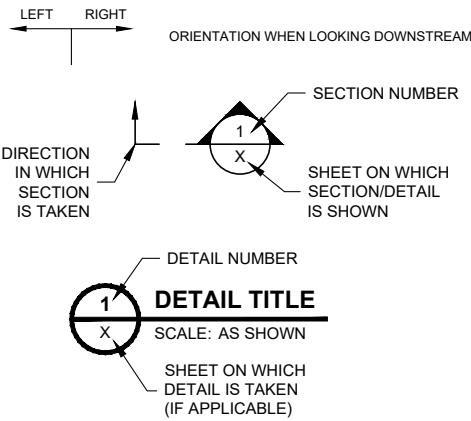


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SYMBOLS LEGEND

	EXISTING PROPERTY LINE
	EXISTING CONTOUR
	STREAM
	EXISTING FENCE
	EXISTING FENCE TO BE REMOVED
	FENCE TO BE CONSTRUCTED
	EXISTING OVERHEAD ELECTRIC LINES
	EXISTING UNDERGROUND ELECTRIC LINES
	EXISTING WASTEWATER LINES
	CITY LIMITS
	TEMPORARY EASEMENT
	PERMANENT EASEMENT
	LIMITS OF CONSTRUCTION
	SILT FENCE
	100-YR FLOOD INUNDATION LEVEL
	PROPOSED HANDRAIL
	EXISTING BOREHOLES
	EXISTING POWER POLE
	EXISTING BENCHMARK
	EXISTING PIEZOMETER
	DIRECTION OF STORMWATER RUNOFF
	WATER LEVELS
	FLEX ROAD
	CONCRETE
	STABILIZED CONSTRUCTION ENTRANCE
	HIGH-SERVICE ROCK BERM
	EXISTING WETLAND
	CUT SLOPE
	FILL SLOPE
	EARTHFILL TYPE A
	EARTHFILL TYPE B
	EARTHFILL TYPE C
	EARTHFILL TYPE D
	EARTHFILL TYPE E
	EARTHFILL TYPE F
	EARTHFILL TYPE G



ABBREVIATIONS

FT or '	FEET
APPROX.	APPROXIMATELY
AS	AUXILIARY SPILLWAY
BL or BL	BASELINE
BMP	BEST MANAGEMENT PRACTICE
BM	BENCH MARK
C/C	CENTER TO CENTER
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CJ	CONSTRUCTION JOINT
CRJ	CONTRACTION JOINT
DEG. or °	DEGREES
DIA. or Ø	DIAMETER
D/S	DOWNSTREAM
EA	EACH
E/F	EACH FACE
E/W	EACH WAY
E	EAST, EASTING
ELEV. or EL.	ELEVATION
EXIST.	EXISTING
IN. or "	INCHES
LOC	LIMITS OF CONSTRUCTION
MAX.	MAXIMUM
MIN.	MINIMUM
MSL	MEAN SEA LEVEL
NOI	NOTICE OF INTENT
N	NORTH, NORTHING
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O/S	OFFSET
PS	PRINCIPAL SPILLWAY
PSI	POUNDS PER SQUARE INCH
R	RADIUS
RCC	ROLLER COMPACTED CONCRETE
REINF.	REINFORCED, REINFORCING
SCH.	SCHEDULE
SHT.	SHEET
SF	SILT FENCE
STA.	STATION
S.S.	STAINLESS STEEL
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
S.D.	STUB DIVERSION
TYP.	TYPICAL
U/S	UPSTREAM
WPAP	WATER POLLUTION ABATEMENT PLAN
YR	YEAR



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LEGEND AND ABBREVIATIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN

CALDWELL COUNTY, TEXAS



DRAWING NO.
TX-EN-0754

SHEET NO.
1

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GENERAL NOTES:

1. THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS, INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY OWNER'S RESIDENT REPRESENTATIVE IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK.
3. CONTOURS WERE OBTAINED FROM SURVEYS PERFORMED IN NOVEMBER 2019. CONTRACTOR SHALL MAKE SITE SURVEYS AS NECESSARY FOR CONSTRUCTION AND IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION 7, CONSTRUCTION SURVEYS.
4. THE LIMITS OF CONSTRUCTION ARE SET 2 FEET INSIDE PERMANENT AND TEMPORARY EASEMENTS UNLESS OTHERWISE SHOWN. CONTRACTOR SHALL STAY WITHIN THE LIMITS OF CONSTRUCTION AND NOT VENTURE OFF THE ACCESS ROADS EXCEPT FOR DIRECT ACCESS TO THE WORK AREAS. CONTRACTOR SHALL CLEARLY MARK THE LIMITS OF CONSTRUCTION WITH SILT FENCE.
5. 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.
6. 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 11, REMOVAL OF WATER.
7. NOTIFY OWNER OF ANY SIGNS TO BE TEMPORARILY REMOVED. ALL EXISTING SIGNS TEMPORARILY REMOVED, IF ANY, SHALL BE STORED ON SITE BY THE CONTRACTOR AND SHALL BE REINSTALLED BY THE CONTRACTOR AT THE END OF CONSTRUCTION IN THEIR ORIGINAL CONDITION.
8. 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.
9. 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.
10. CONTRACTOR SHALL FOLLOW REQUIREMENTS OF SWPPP.
11. CONSTRUCT THE STAGING AREAS AND VEHICLE MAINTENANCE AREAS IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS.
12. NO ON-SITE CONCRETE BATCH PLANT WILL BE PERMITTED.
13. NO CONSTRUCTION FILL OR MATERIALS SHALL BE PLACED OR STORED IN AREAS NOT SPECIFICALLY DESIGNATED FOR THAT PURPOSE.
14. PROVIDE PROTECTED STORAGE FOR PAINTS, CHEMICALS, SOLVENTS, AND OTHER POTENTIALLY HAZARDOUS MATERIALS.
15. HANDLING, STORAGE, AND DISPOSAL OF ALL WASTE MATERIAL SHALL CONFORM TO THE SWPPP.
16. 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 CONTAMINATED WATER, TO ENTER A DRAINAGE WAY, STREAM, OR RIVER.
17. 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.
18. 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.
19. 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.
20. REMOVE ALL FORM WORK FOLLOWING CONSTRUCTION.
21. 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.
22. DATUM INFORMATION:

HORIZONTAL DATUM IS TEXAS STATE PLANE, NAD83, SOUTH CENTRAL ZONE, 4204, US SURVEY FEET

VERTICAL DATUM IS NAVD 88. ALL ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL (MSL).

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GENERAL NOTES AND INDEX OF DRAWINGS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



United States
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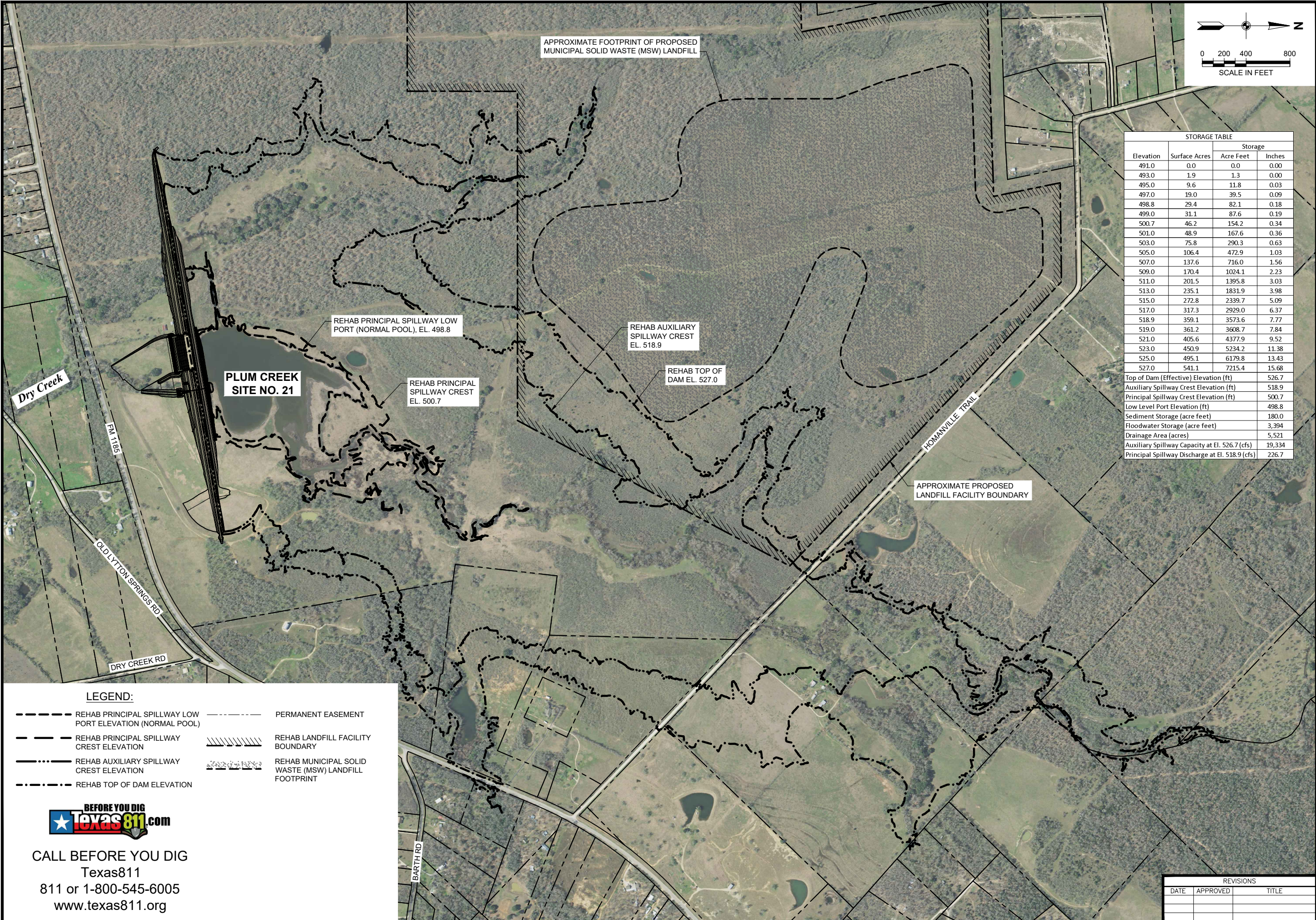
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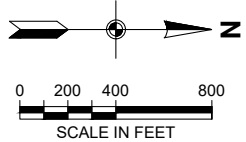
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APPROXIMATE FOOTPRINT OF PROPOSED
MUNICIPAL SOLID WASTE (MSW) LANDFILL



STORAGE TABLE			
Elevation	Surface Acres	Storage	
		Acre Feet	Inches
491.0	0.0	0.0	0.00
493.0	1.9	1.3	0.00
495.0	9.6	11.8	0.03
497.0	19.0	39.5	0.09
498.8	29.4	82.1	0.18
499.0	31.1	87.6	0.19
500.7	46.2	154.2	0.34
501.0	48.9	167.6	0.36
503.0	75.8	290.3	0.63
505.0	106.4	472.9	1.03
507.0	137.6	716.0	1.56
509.0	170.4	1024.1	2.23
511.0	201.5	1395.8	3.03
513.0	235.1	1831.9	3.98
515.0	272.8	2339.7	5.09
517.0	317.3	2929.0	6.37
518.9	359.1	3573.6	7.77
519.0	361.2	3608.7	7.84
521.0	405.6	4377.9	9.52
523.0	450.9	5234.2	11.38
525.0	495.1	6179.8	13.43
527.0	541.1	7215.4	15.68
Top of Dam (Effective) Elevation (ft)		526.7	
Auxiliary Spillway Crest Elevation (ft)		518.9	
Principal Spillway Crest Elevation (ft)		500.7	
Low Level Port Elevation (ft)		498.8	
Sediment Storage (acre feet)		180.0	
Floodwater Storage (acre feet)		3,394	
Drainage Area (acres)		5,521	
Auxiliary Spillway Capacity at El. 526.7 (cfs)		19,334	
Principal Spillway Discharge at El. 518.9 (cfs)		226.7	

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DRAWN BY: MDE

CHECKED BY: TEA

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RESERVOIR AREA MAP

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN CALDWELL COUNTY, TEXAS

United States
Department of
Agriculture

Natural Resources
Conservation Service

DRAWING NO. TX-EN-0754

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- LEGEND:
- REHAB PRINCIPAL SPILLWAY LOW PORT ELEVATION (NORMAL POOL)

REHAB PRINCIPAL SPILLWAY CREST ELEVATION

REHAB AUXILIARY SPILLWAY CREST ELEVATION

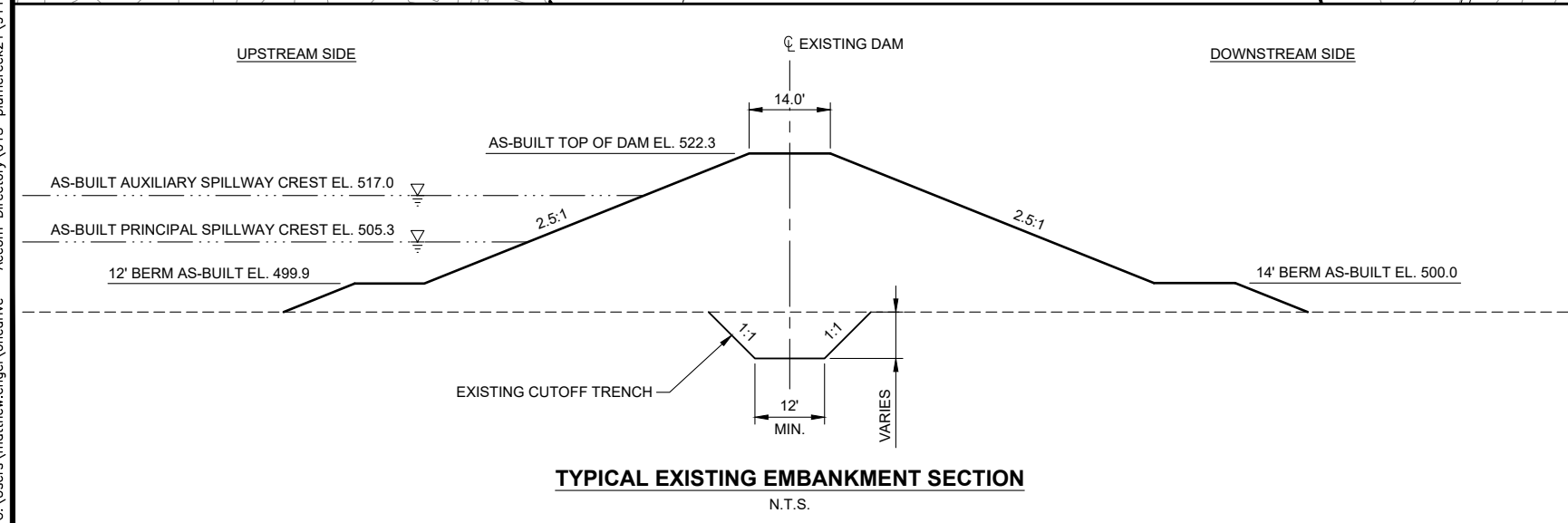
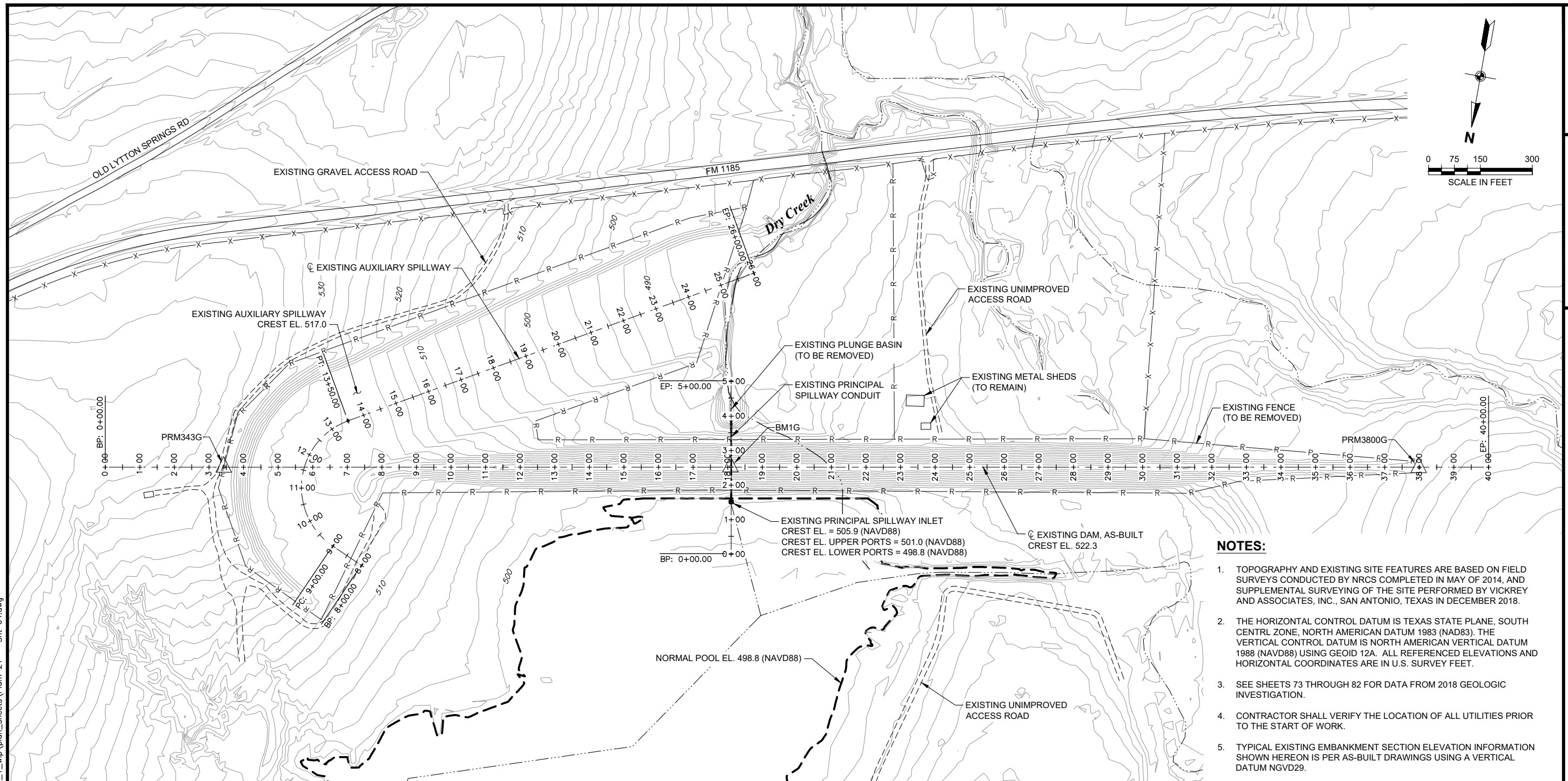
REHAB TOP OF DAM ELEVATION
- PERMANENT EASEMENT

REHAB LANDFILL FACILITY BOUNDARY

REHAB MUNICIPAL SOLID WASTE (MSW) LANDFILL FOOTPRINT



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BENCHMARKS				
BM ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
PRM343G	13,898,301.57	2,396,084.04	534.539	PERMANENT REFERENCE MARKER STA. 3+43
BM1G	13,898,047.34	2,394,640.91	525.635	5/8" IRON ROD ON TOP OF DAM (APPROX. STA. 18+10)
PRM3800G	13,897,704.85	2,392,680.38	522.873	PERMANENT REFERENCE MARKER STA. 38+00

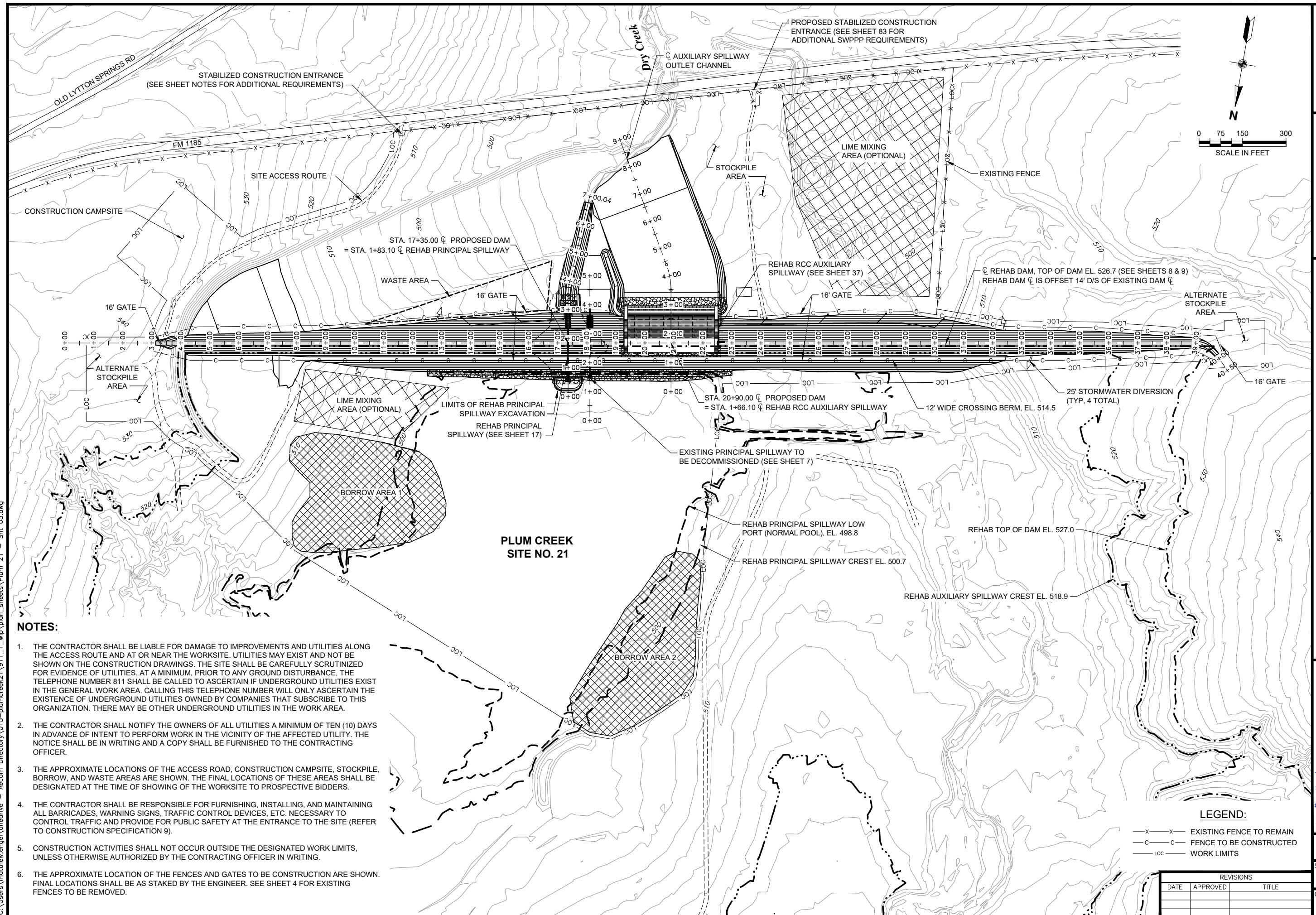
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EXISTING SITE PLAN
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS


**United States
Department of
Agriculture**
**Natural Resources
Conservation Service**

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GENERAL PLAN OF MODIFICATIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

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CALDWELL COUNTY, TEXAS



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Agriculture

**Natural Resources
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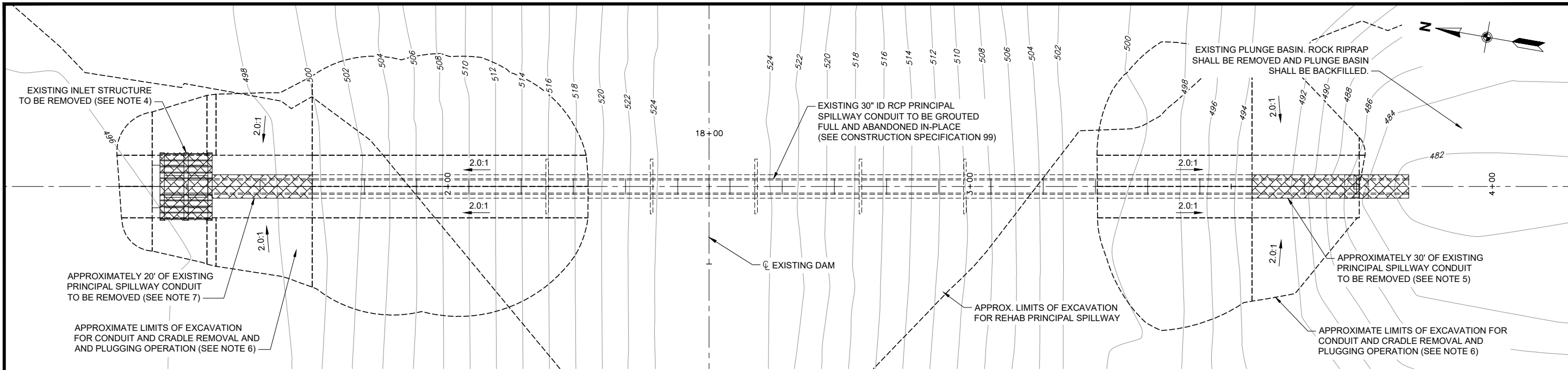
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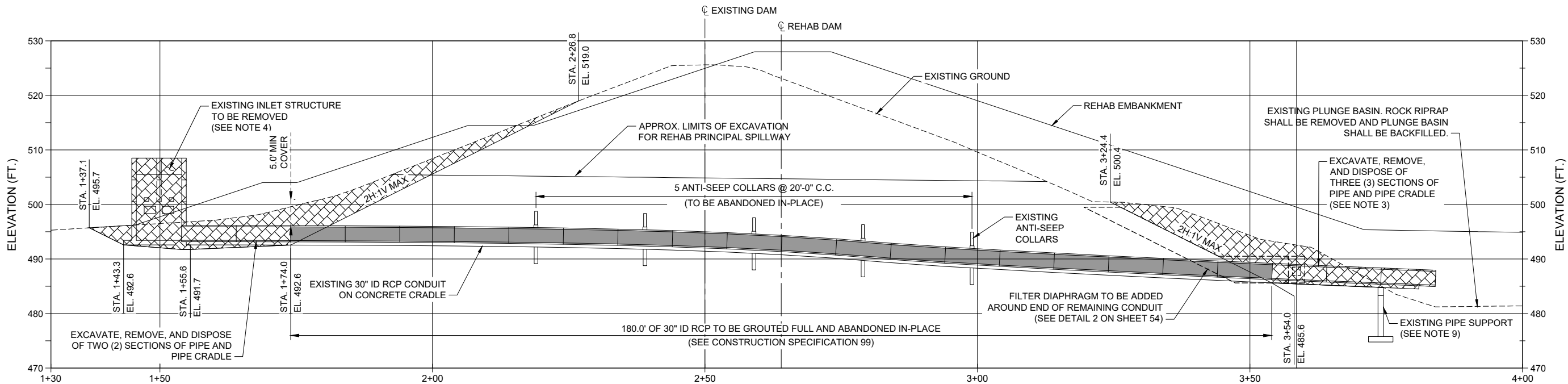
—X—X— EXISTING FENCE TO REMAIN
—C—C— FENCE TO BE CONSTRUCTED
——LOC—— WORK LIMITS

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PLAN - EXISTING PRINCIPAL SPILLWAY DECOMMISSIONING

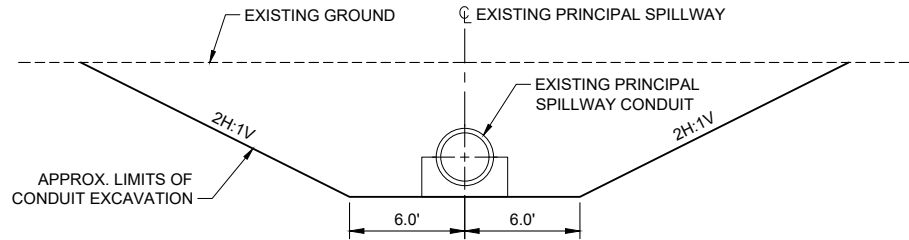


PROFILE - EXISTING PRINCIPAL SPILLWAY DECOMMISSIONING



NOTES:

- EXISTING CONDUIT MAY BE USED TO DEWATER THE RESERVOIR / SITE DURING CONSTRUCTION. SEE CONSTRUCTION SPECIFICATION 11.
- DRAWINGS OF EXISTING STRUCTURES WERE DEVELOPED FROM THE AS-BUILT DRAWINGS. AS A RESULT, THE DIMENSIONS OF EXISTING FACILITIES ARE APPROXIMATE. ACTUAL DIMENSIONS COULD VARY FROM DIMENSIONS AND THICKNESS SHOWN. CONTRACTOR SHALL FIELD VERIFY ACTUAL DIMENSIONS PRIOR TO THE START OF WORK. A COPY OF THE AS-BUILT DRAWINGS ARE AVAILABLE FROM THE CONTRACTING OFFICER.
- REINFORCEMENT AND EMBEDDED METALWORK NOT SHOWN. HOWEVER, AS-BUILT DRAWINGS INDICATE THAT ALL CONCRETE EXCEPT THE PIPE CRADLE IS REINFORCED. HOWEVER, THE AS-BUILT DRAWINGS ALSO INDICATE THAT THE LAST 17' OF PIPE CRADLE (DOWNSTREAM END) IS ALSO REINFORCED.
- REMOVE AND DISPOSE OF EXISTING INLET STRUCTURE, INCLUDING TRASH RACK, METAL GRADING, SLIDE GATE, AND ALL ASSOCIATED APPURTENANCES IN ACCORDANCE WITH THE REQUIREMENTS OF CONSTRUCTION SPECIFICATION 3.
- EXCAVATION FOR REMOVAL OF THE EXISTING PRINCIPAL SPILLWAY INLET STRUCTURE SHALL BE COORDINATED WITH CONSTRUCTION OF NEW STRUCTURES.
- THE LIMITS OF EXCAVATION SHOWN ARE APPROXIMATE. ALL EXCAVATION CUT SLOPES SHOWN ARE 2H:1V OR FLATTER AS DETERMINED BY CONTRACTOR. FINAL EXCAVATION LIMITS SHALL BE APPROVED BY THE ENGINEER.
- REMOVE AND DISPOSE OF EXISTING RCP CONDUIT AND CONCRETE CRADLE IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION 3. THE BOTTOM OF THE EXISTING CONCRETE CRADLE SHALL BE THE LOWER LIMIT OF EXCAVATION ALONG THE LENGTH OF THE CONDUIT AT THE AREAS OF CONDUIT REMOVAL.
- GROUT EXISTING RCP FOLLOWING REMOVAL OF EXISTING INLET STRUCTURE AND REMOVAL OF SPECIFIED PORTIONS OF EXISTING RCP. GROUT RCP FROM DOWNSTREAM END OF RCP TO REMAIN IN-PLACE. SEE CONSTRUCTION SPECIFICATION 3 AND CONSTRUCTION SPECIFICATION 99 FOR REQUIREMENTS REGARDING REMOVAL OF EXISTING INLET STRUCTURE AND GROUTING OF EXISTING PRINCIPAL SPILLWAY CONDUIT RESPECTIVELY.
- EXISTING PIPE SUPPORT SHALL BE REMOVED TO THE EXTENT NECESSARY FOR THE CONTRACTOR TO PERFORM THE NECESSARY EARTHWORK



1 TYPICAL PRINCIPAL SPILLWAY EXCAVATION LIMITS

SCALE: NTS

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EXISTING PRINCIPAL SPILLWAY DECOMMISSIONING

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN

CALDWELL COUNTY, TEXAS

United States
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USDA

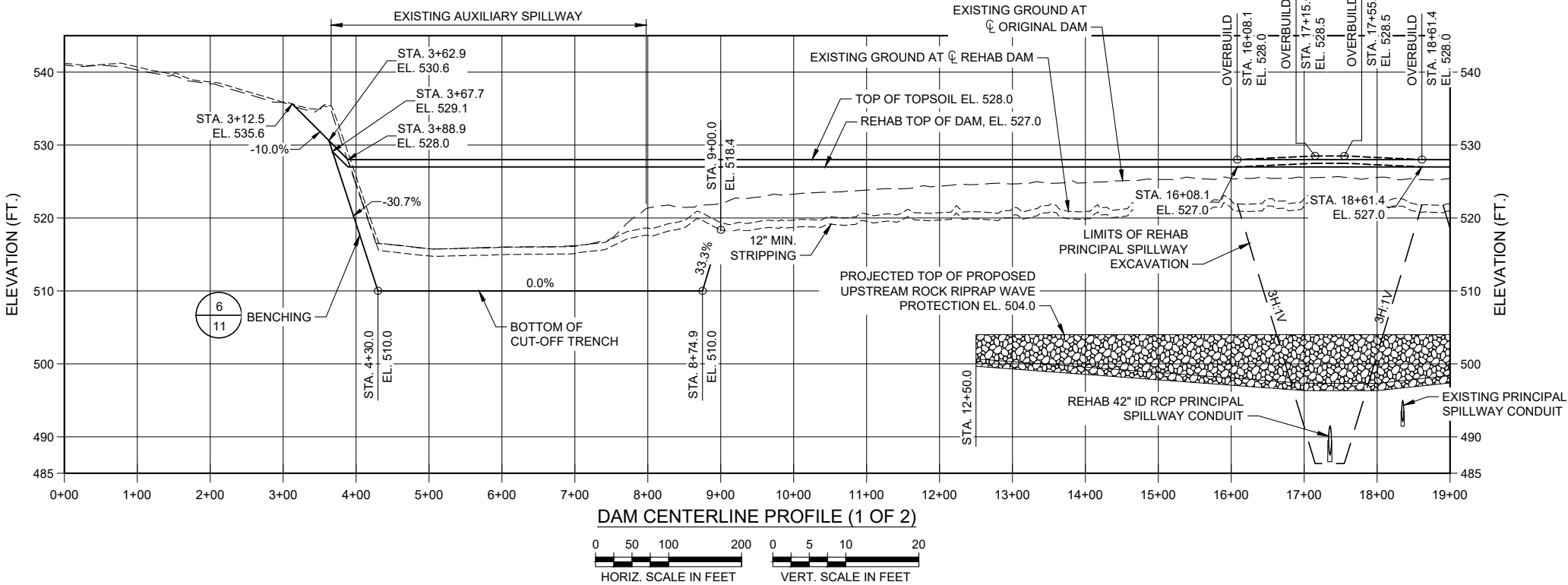
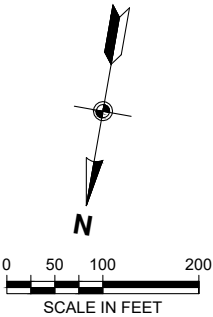
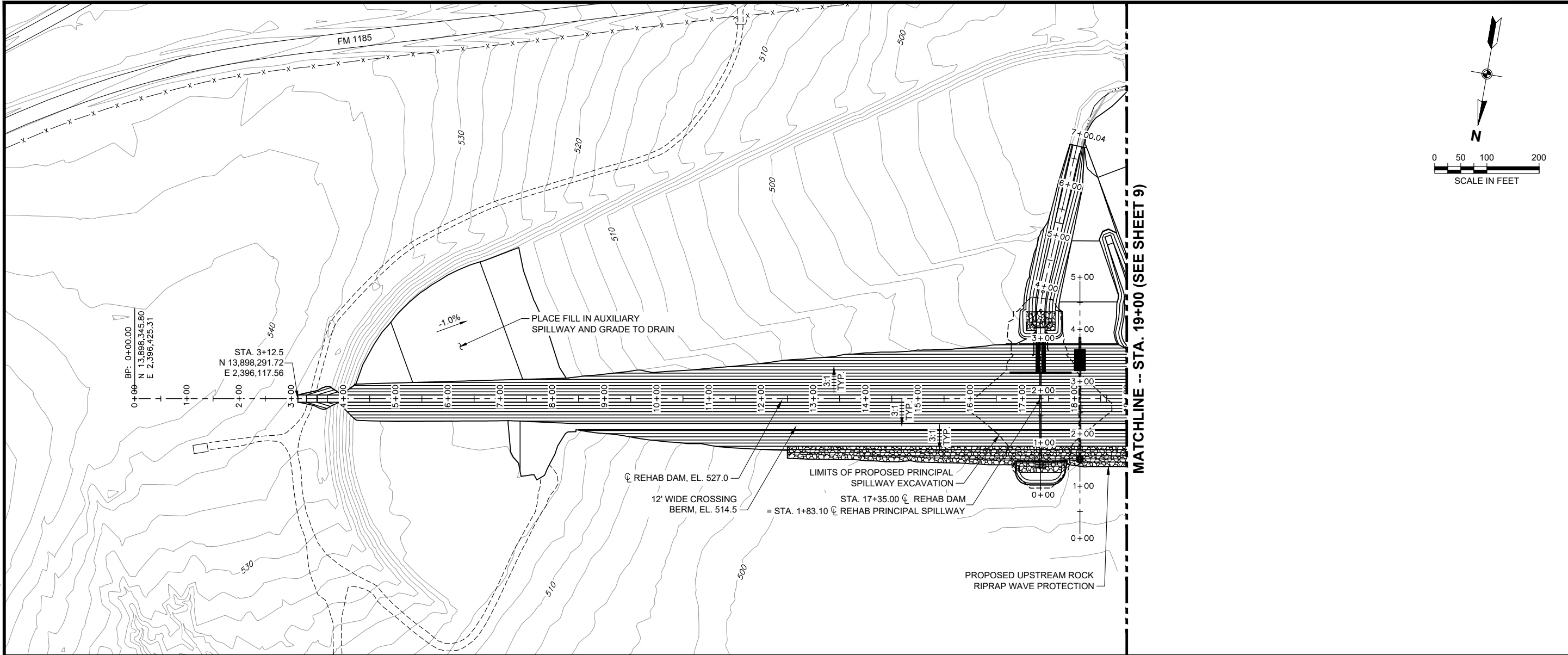
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STATE OF TEXAS

LAND SURVEYING

17368

11/14/21

EMBANKMENT PLAN & PROFILE (1 OF 2)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN

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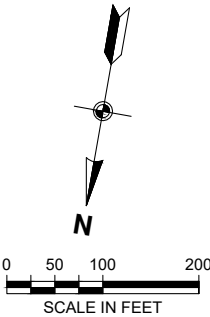
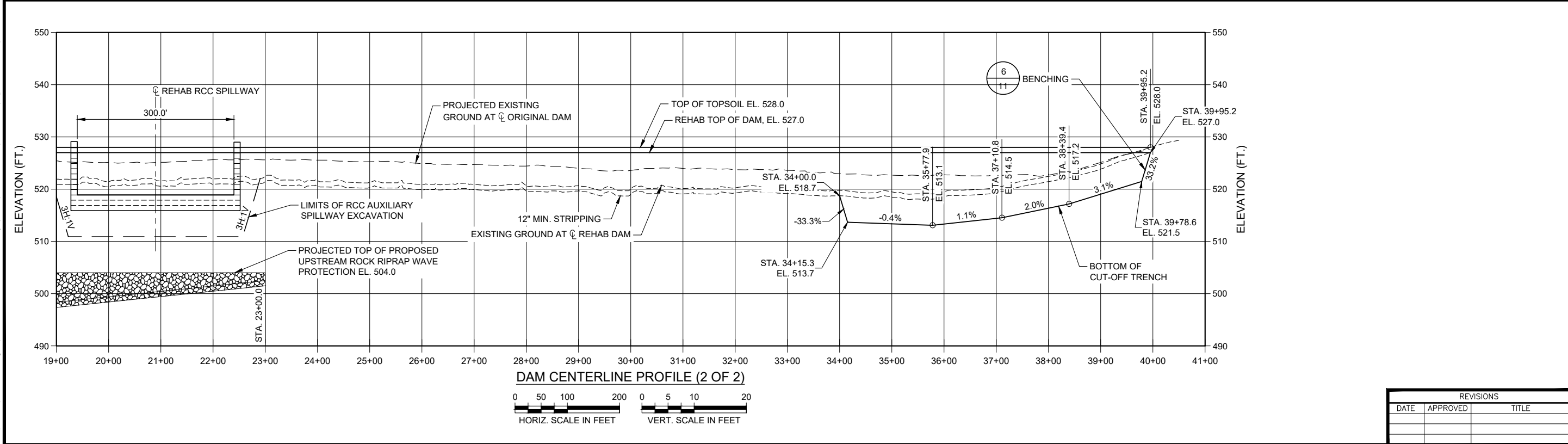
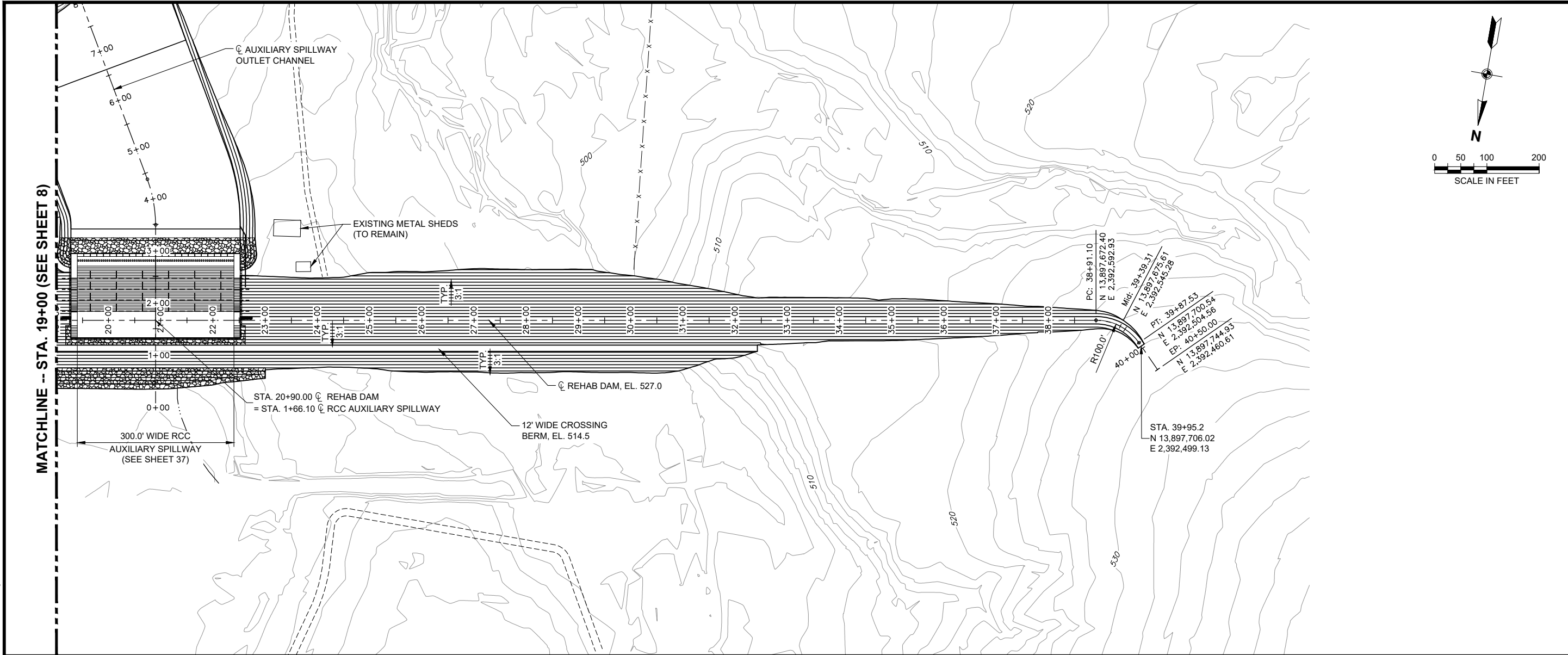
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EMBANKMENT PLAN & PROFILE (2 OF 2)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
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PROPOSED FILL MATERIALS			MATERIAL SOURCE INFORMATION				FILL MATERIAL REQUIREMENTS													
MATERIAL TYPE	DESCRIPTION	PLACEMENT LOCATION	MATERIAL SOURCE LOCATION	MATERIAL SOURCE DESCRIPTION	TYPICAL DEPTHS (FEET)		REQUIRED USCS GROUP SYMBOL (SEE NOTE 5)	REQUIRED ATTERBERG LIMITS		PERCENT FINER THAN NO. 200 SIEVE (%)	MAX. PARTICLE SIZE (SEE NOTE 5)	MAXIMUM UNCOMPACTED LIFT THICKNESS (SEE NOTE 7)	SPECIFIED COMPACTION CLASS	CRUMB TEST	PINHOLE DISPERSION	FIELD MOISTURE DENSITY TEST		REQUIRED RELATIVE COMPACTION (%)	COMPACTION MOISTURE LIMITS (±OPTIMUM)	
					TOP	BOTTOM		LL	PI							ASTM NO.	METHOD			
A	IMPORTED FILL	ADJACENT TO RCC SPILLWAY (SEE NOTE 1)	OFF-SITE BORROW AREA	---	---	---	CL, SC	< 45	7 - 20	> 40	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
B	IMPORTED FILL	UNDER RCC SPILLWAY (SEE NOTE 2)	OFF-SITE BORROW AREA	---	---	---	CL, SC	< 45	7 - 20	> 40	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	98 MIN.	OPT	+4%
C	ON-SITE FILL	EXTERIOR ZONE OF EMBANKMENT (SEE NOTES 3 AND 4)	BORROW AREA 1 (UPPER)	ALLUVIUM	1	4	CL, CH, SC	< 55	10 - 30	> 40	3	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
			BORROW AREA 1 (LOWER)	RESIDUUM	4	10														
			PSW EMBANKMENT EXCAVATION*	EMBANK. FILL	1	39														
			RCC OUTLET CHANNEL EXCAVATION	FILL, RESIDUUM	1	5														
D	ON-SITE FILL	INTERIOR ZONE OF EMBANKMENT (SEE NOTES 3)	PSW EMBANKMENT EXCAVATION*	EMBANK. FILL	1	39	CH, CL	< 60	10 - 40	> 50	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
			PSW DS TOE EXCAV.	FILL, ALLUVIUM	1	10 TO 13.5														
				RESIDUUM	10 TO 13.5	17														
			RCC DS TOE EXCAV. (UPPER)	FILL, ALLUVIUM	1	2.5 TO 6.5														
			BORROW AREA 2 (UPPER)	ALLUVIUM	1	3														
E	ON-SITE FILL	BERMS FOR RCC OUTLET CHANNEL, BACKFILL FOR EXISTING PSW PLUNGE POOL AND DOWNSTREAM CHANNEL	RCC DS TOE EXCAV. (LOWER)	RESIDUUM	5 TO 13.5	19	CH, CL	< 65	10 - 50	> 40	3	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
F	LIME-TREATED ON-SITE FILL	ADJACENT TO RCC SPILLWAY (SEE NOTE 1)	BORROW AREA 2 (LOWER)	RESIDUUM	3	8	(SEE NOTE 6)	< 55	7 - 15	> 50	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
			OTHER AREAS (SEE NOTE 8)	---	---	---														
G	LIME-TREATED ON-SITE FILL	UNDER RCC SPILLWAY (SEE NOTE 2)	RCC EMBANKMENT EXCAVATION	EMBANK. FILL	1	4 TO 14	(SEE NOTE 6)	< 55	7 - 15	> 50	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	98 MIN.	OPT	+4%
			OTHER AREAS (SEE NOTE 8)	---	---	---														
H	LIME-TREATED ON-SITE FILL	EXTERIOR ZONE OF EMBANKMENT (SEE NOTES 3, 4, AND 9)	BORROW AREA 2 (LOWER)	RESIDUUM	3	8	(SEE NOTE 6)	< 55	7 - 15	> 50	2	9	A	GRADE 1 OR 2	ND1 OR ND2	D698	A	95 - 100	OPT	+4%
			OTHER AREAS (SEE NOTE 8)	---	---	---														

NOTES:

- *PRIORITIZE SOURCE FOR MATERIAL C
- APPLIES TO FILL ZONES LOCATED WITHIN A HORIZONTAL DISTANCE EQUAL TO THE WALL HEIGHT (1H) FROM RETAINED-SIDE FACE OF PROPOSED SPILLWAY WALLS AS SHOWN ON THE DRAWINGS.
 - APPLIES TO FILL ZONES LOCATED UNDER AND WITHIN 5-FOOT HORIZONTAL DISTANCE OF THE RCC SPILLWAY STRUCTURES FOOTPRINT AS SHOWN ON THE DRAWINGS.
 - APPLIES TO FILL ZONES LOCATED A DISTANCE GREATER THAN 1H FROM RETAINED-SIDE FACE OF WALL STRUCTURES.
 - APPLIES TO FILL ZONES LOCATED IN THE OUTER 5 FEET (VERTICAL) OF THE EMBANKMENT. MINIMUM LIFT PLACEMENT WIDTH OF 10 FEET (HORIZONTAL).
 - ALL MATERIALS SHALL HAVE NO GREATER THAN 20% GRAVEL (I.E., PERCENT COARSER THAN THE US NO. 4 SIEVE BY WEIGHT). SOILS OF THE LEONA FORMATION WHICH CLASSIFY AS CLAYEY GRAVEL (GC) AND TYPICALLY CONTAIN OVERSIZE PARTICLES ARE NOT SUITABLE FOR USE AS EMBANKMENT FILL.
 - REQUIRED ATTERBERG LIMITS REFER TO MATERIAL AFTER MODIFICATION BY LIME TREATMENT.
 - EARTHFILLS AND BACKFILLS TO BE COMPACTED BY HAND TAMPING OR WITH MANUALLY-DIRECTED POWER TAMPERS OR PLATE VIBRATORS BEHIND WALLS SHALL BE PLACED IN LAYERS NOT EXCEEDING 4 INCHES IN THICKNESS BEFORE COMPACTION. MAXIMUM ALLOWABLE PARTICLE SIZE FOR SUCH MATERIAL SHALL BE 2 INCHES. EACH LAYER SHALL BE CAREFULLY BONDED TO THE PRECEDING LAYER USING METHODS APPROVED BY THE ENGINEER.
 - BORROW SOURCES FOR MATERIALS F AND G ARE INTERCHANGEABLE. IF SUPPLEMENTAL VOLUME OF LIME-TREATED SOILS ARE REQUIRED, BORROW FROM OTHER ON-SITE AREAS MAY BE APPROVED BY THE ENGINEER SUBJECT TO THE RESULTS OF LABORATORY TREATABILITY TESTING BY THE CONTRACTOR AS REQUIRED BY THE PROJECT SPECIFICATIONS.
 - MATERIAL TYPE H IS A BID OPTION ITEM THAT IS RESERVED FOR USE ONLY AFTER AVAILABLE ON-SITE SOURCES OF MATERIAL TYPE C HAVE BEEN DEPLETED. WRITTEN AUTHORIZATION FROM THE CONTRACTING OFFICER IS REQUIRED PRIOR TO PROCEEDING WITH OPERATIONS ASSOCIATED WITH MATERIAL TYPE H.

FINE FILTER GRADATION

Sieve Size	Particle Size (mm)	Recommended Fine Filter Gradation Percent Finer by Weight	
		Coarse Band	Fine Band
3/8"	9.5	100	---
No. 4	4.75	100	---
No. 8	2.36	90	100
No. 16	1.18	65	100
No. 30	0.6	45	90
No. 50	0.3	45	93
No. 100	0.15	7	40
No. 200	0.074	0	3

COARSE FILTER GRADATION (ASTM C-33 No. 89)

Sieve Size	Particle Size (mm)	Recommended Coarse Filter Gradation Percent Finer by Weight	
		Coarse Band	Fine Band
2 in.	50	100	---
1 in.	25	90	100
½ in.	12.7	75	100
3/8 in.	9.5	65	100
No. 4	4.75	45	90
No. 10	2	20	65
No. 18	1	3	50
No. 40	0.425	0	25
No. 100	0.15	0	8
No. 200	0.075	0	3

FLEXBASE SPECIFICATION

Table 1
Material Requirements

Property	Test Method	Grade 1-2
Sampling	Tex-400-A	
Master gradation sieve size (cumulative % retained)	Tex-110-E	
2-1/2"		0
1-3/4"		0-10
7/8"		10-35
3/8"		30-65
#4		45-75
#40		65-90
Liquid Limit, % Max	Tex-104-E	40
Plasticity Index, Max	Tex-106-E	10
Plasticity index, Min		As shown on the plans
Wet ball mill, % Max	Tex-116-E	40
Wet ball mill, % Max increase passing the #40 sieve		20
Min compressive strength, psi	Tex-117-E	35
lateral pressure 0 psi		-
lateral pressure 3 psi		-
lateral pressure 15 psi		175

- Determine plastic index in accordance with Tex-107-E (linear shrinkage) when liquid limit is unattainable as defined in Tex-104-E.
- Grade 4 may be further designated as Grade 4A, Grade 4B, etc.

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MATERIAL TABLES
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



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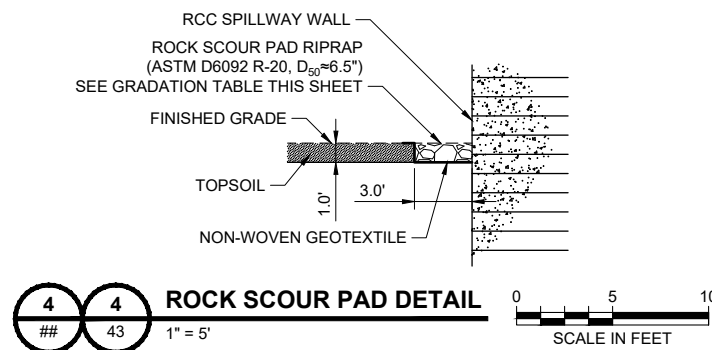
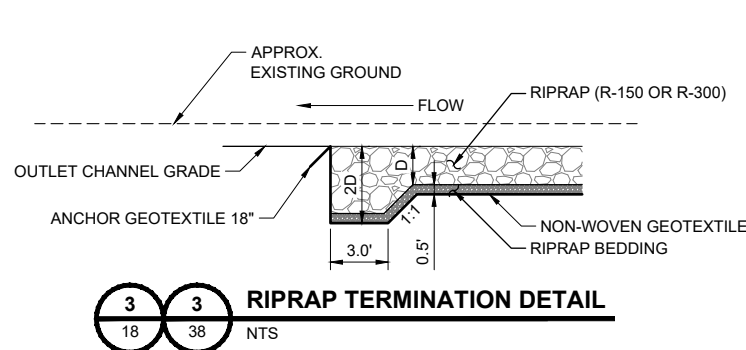
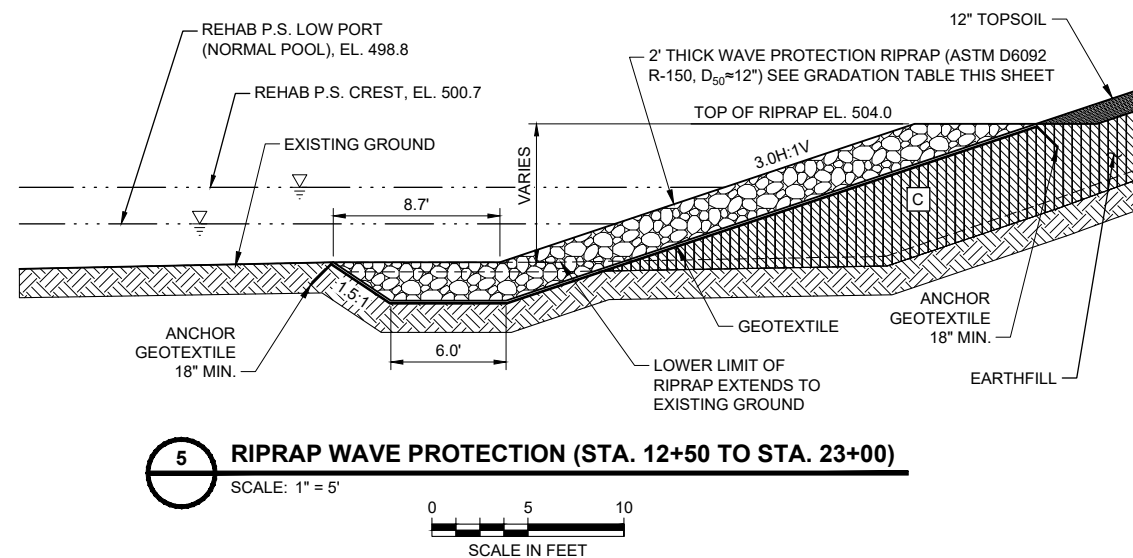
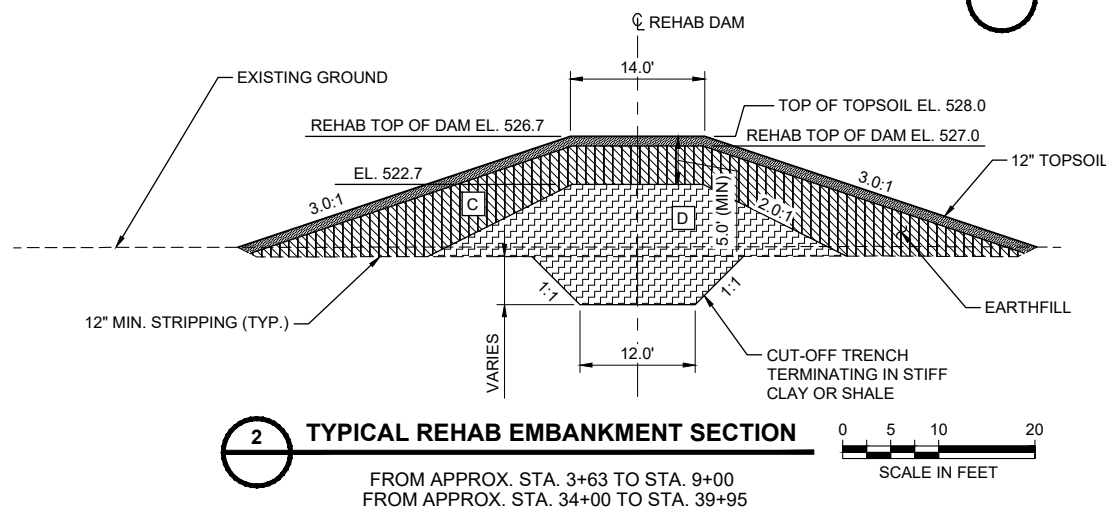
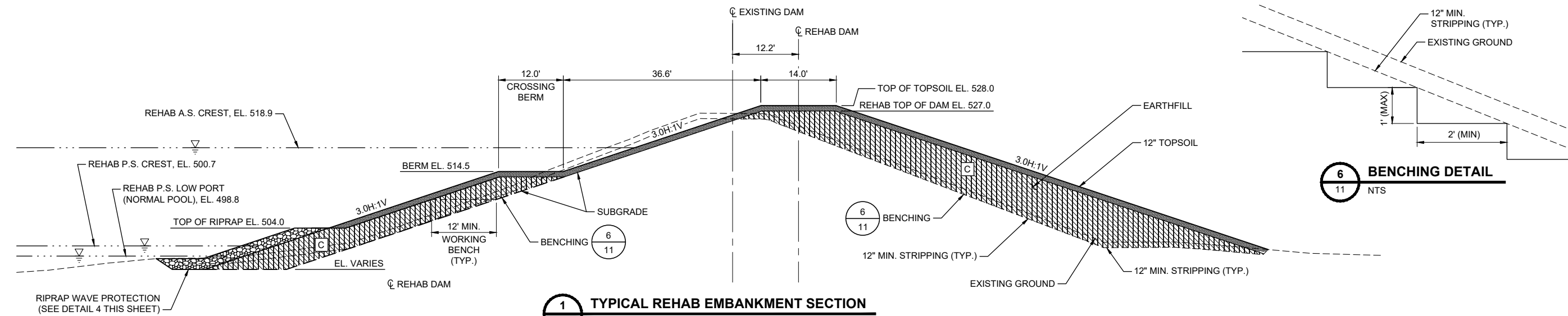
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RIPRAP NOTES:

- ROCK RIPRAP FOR THE WAVE BERM SHALL MEET THE GRADATION REQUIREMENTS OF ASTM D6092 FOR R-150 ROCK RIPRAP AS SHOWN IN THE TABLE ON THIS SHEET.
- 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.
- ROCK PLACED AGAINST CONCRETE WORKS SHALL BE PLACED CAREFULLY TO AVOID DAMAGE.

ASTM D6092 R-300 RIPRAP GRADATION	
SIZE (POUNDS)	% LIGHTER
700	100
300	50 - 100
150	15 - 50
45	0 - 15

ASTM D6092 R-150 RIPRAP GRADATION	
SIZE (POUNDS)	% LIGHTER
300	100
150	50 - 100
60	15 - 50
20	0 - 15

ASTM D6092 R-20 RIPRAP GRADATION	
SIZE (POUNDS)	% LIGHTER
45	100
20	50 - 100
10	15 - 50
2	0 - 15

RIPRAP BEDDING FOR R-150 RIPRAP (C-33 No. 2)	
PARTICLE SIZE (INCHES)	% SMALLER
3	100
2.5	90 - 100
2	35 - 70
1.5	0 - 15
0.75	0 - 5

RIPRAP BEDDING FOR R-300 RIPRAP (C-33 No. 1)	
PARTICLE SIZE (INCHES)	% SMALLER
4	100
3.5	90 - 100
2.5	25 - 60
1.5	0 - 15
0.75	0 - 5

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UNITED STATES OF AMERICA

STATE OF TEXAS

PLUM CREEK WATERSHED

REHABILITATION

STRUCTURE SITE NO. 21

FLOODWATER RETARDING

UNITED STATES

DEPARTMENT OF

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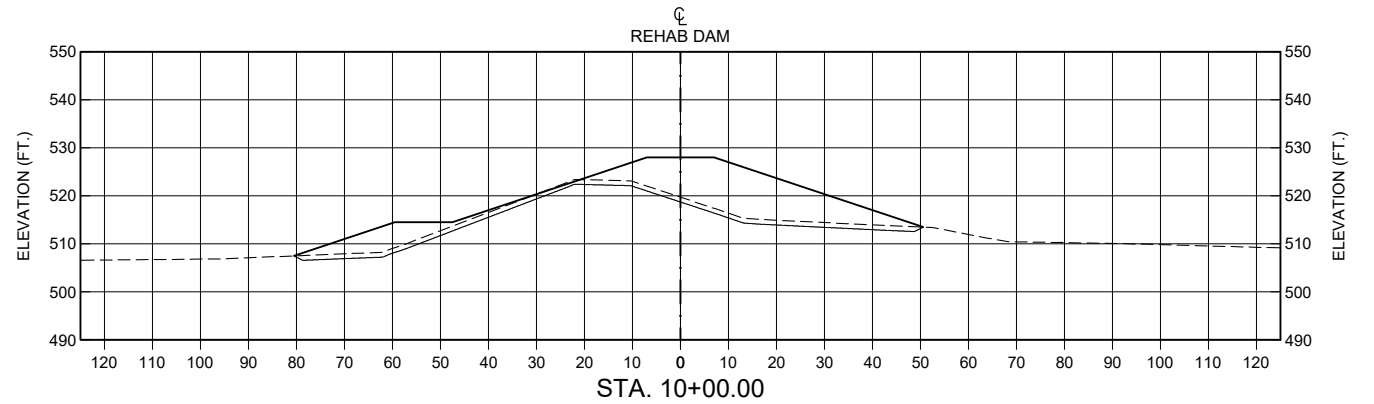
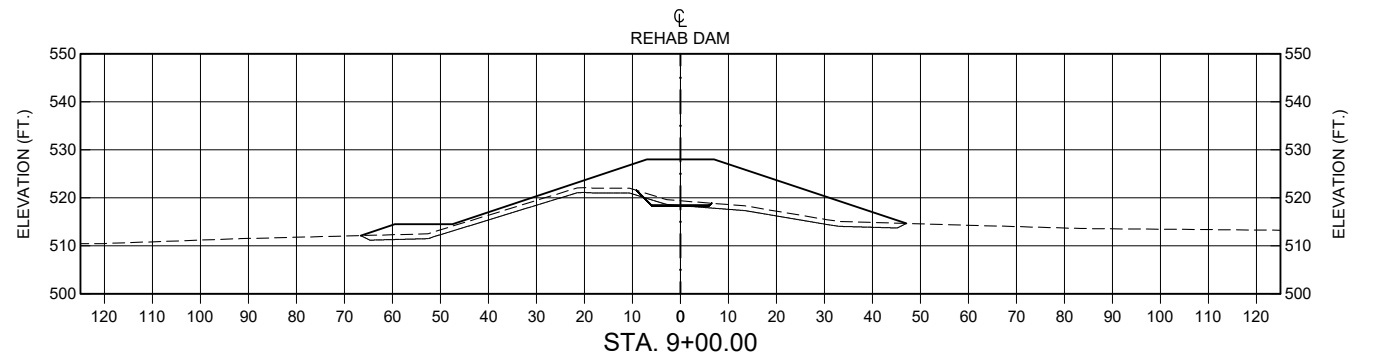
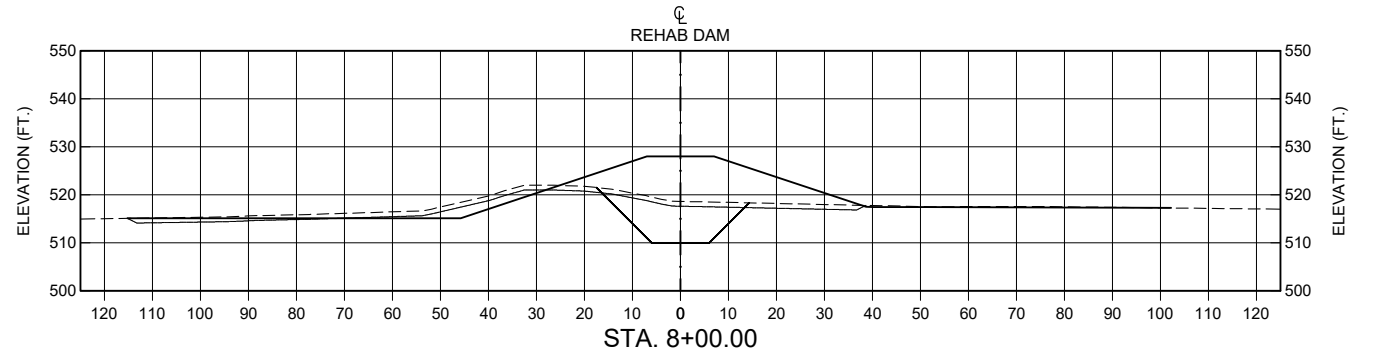
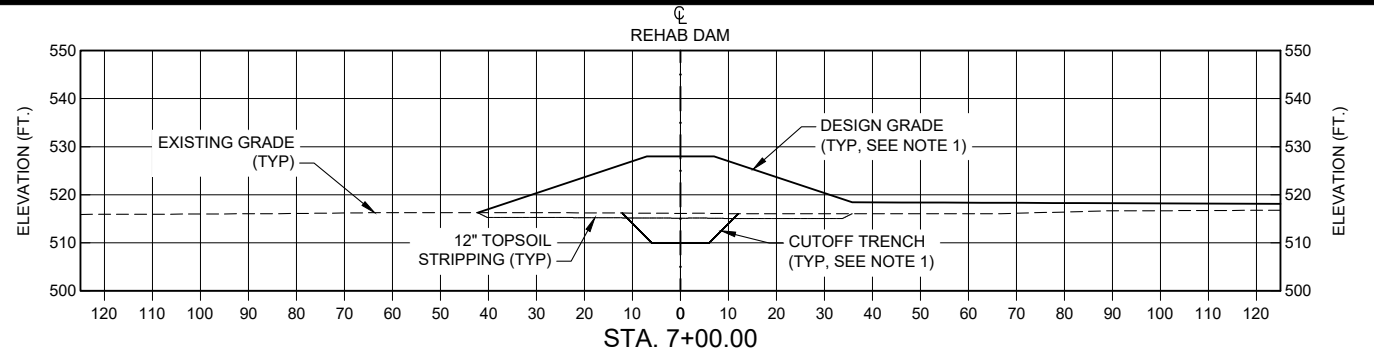
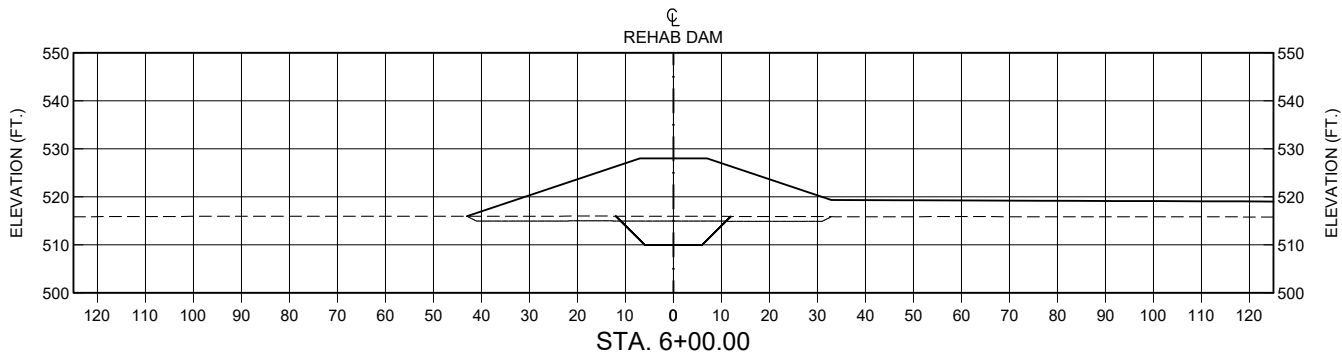
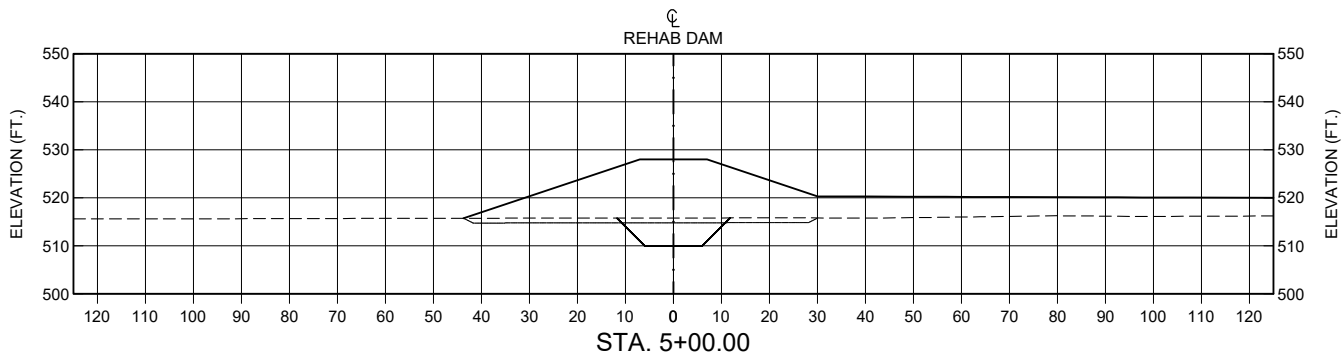
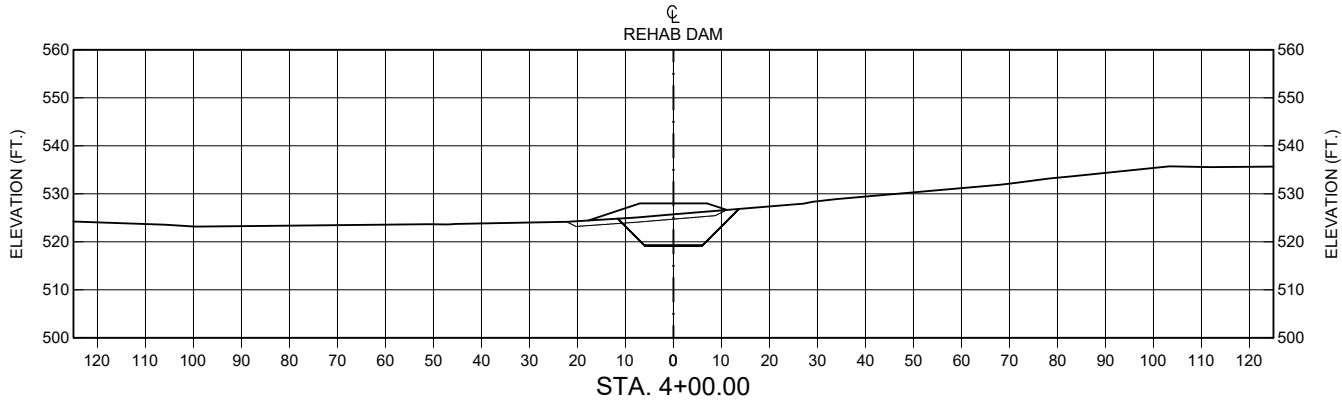
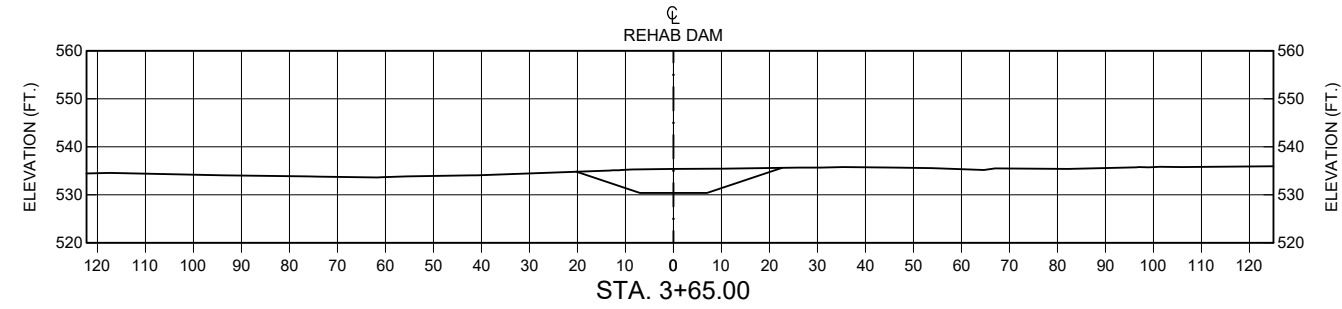
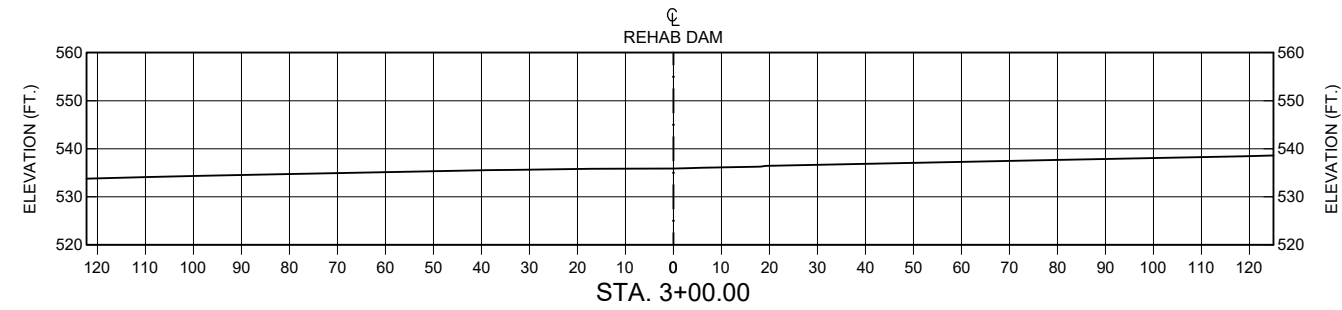
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NOTES:

1. REFER TO SHEET 11 FOR EMBANKMENT TYPICAL SECTIONS.
2. REFER TO SHEET 49 FOR TOE DRAIN PLAN AND PROFILE.
3. REFER TO SHEETS 37 AND 38 FOR RCC AUXILIARY SPILLWAY PLAN AND PROFILES.



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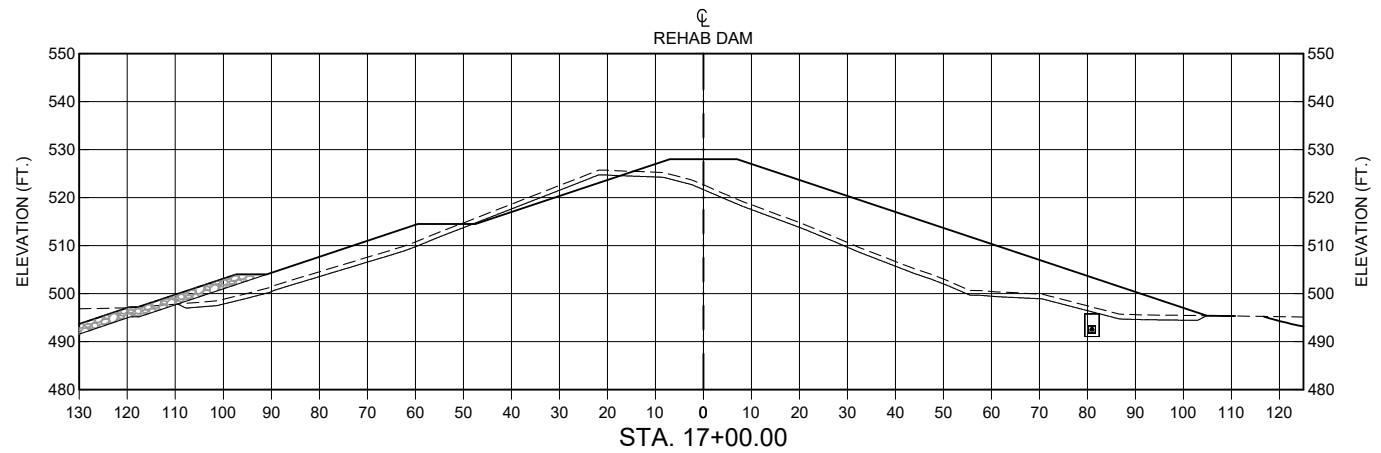
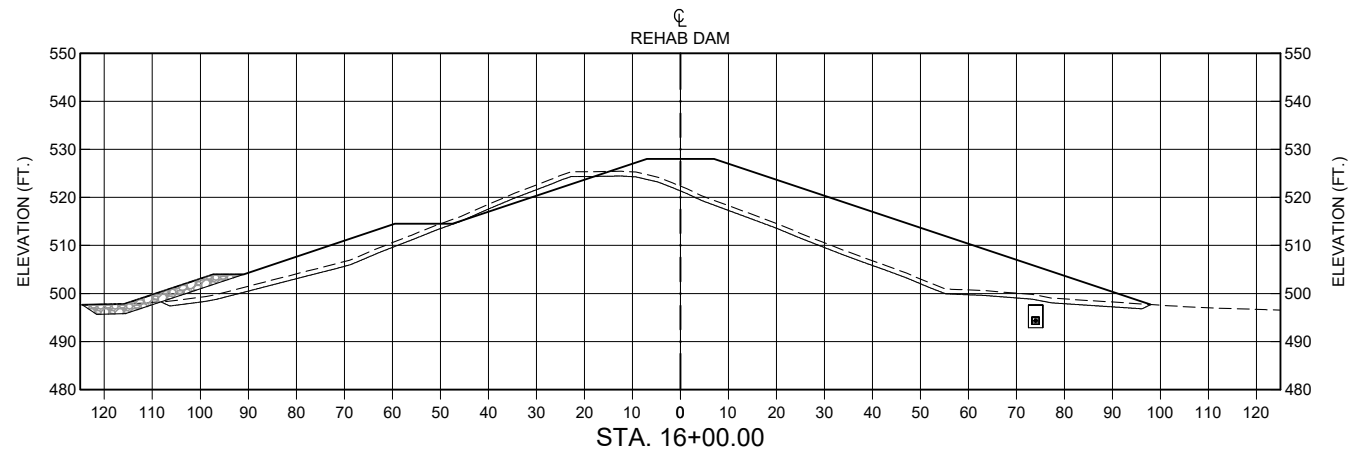
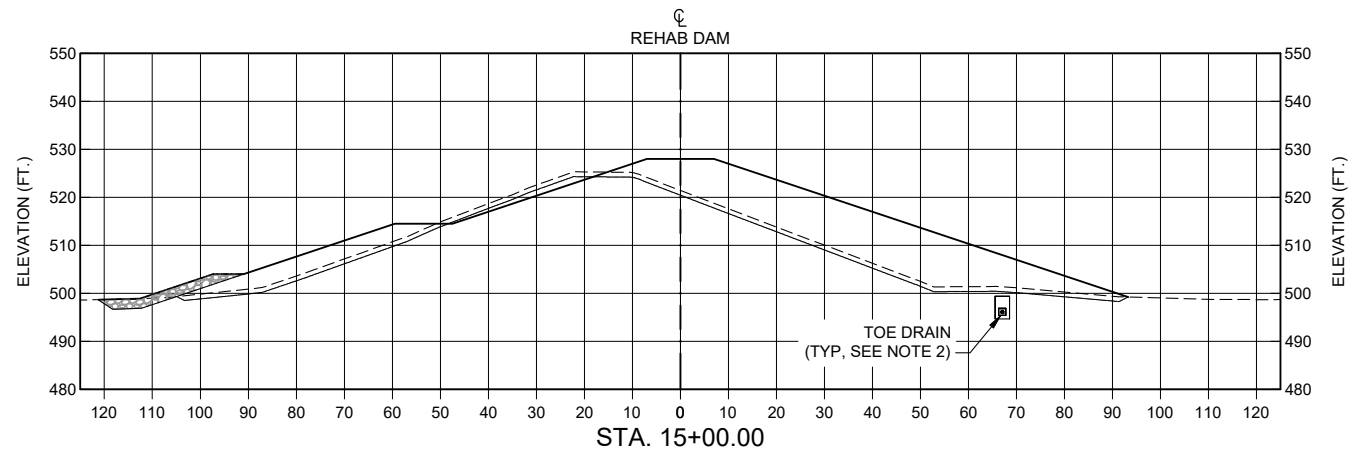
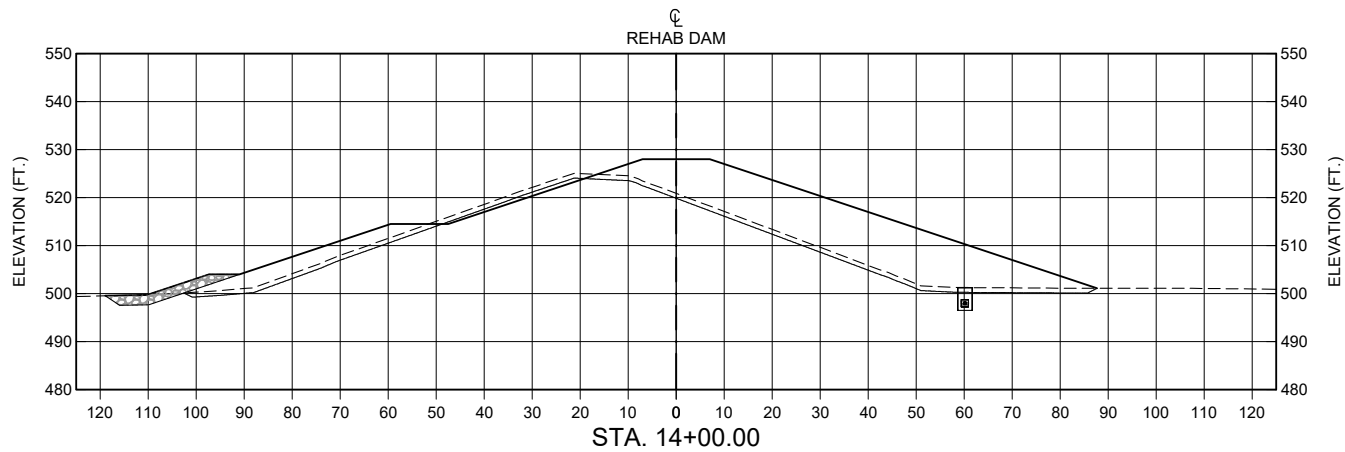
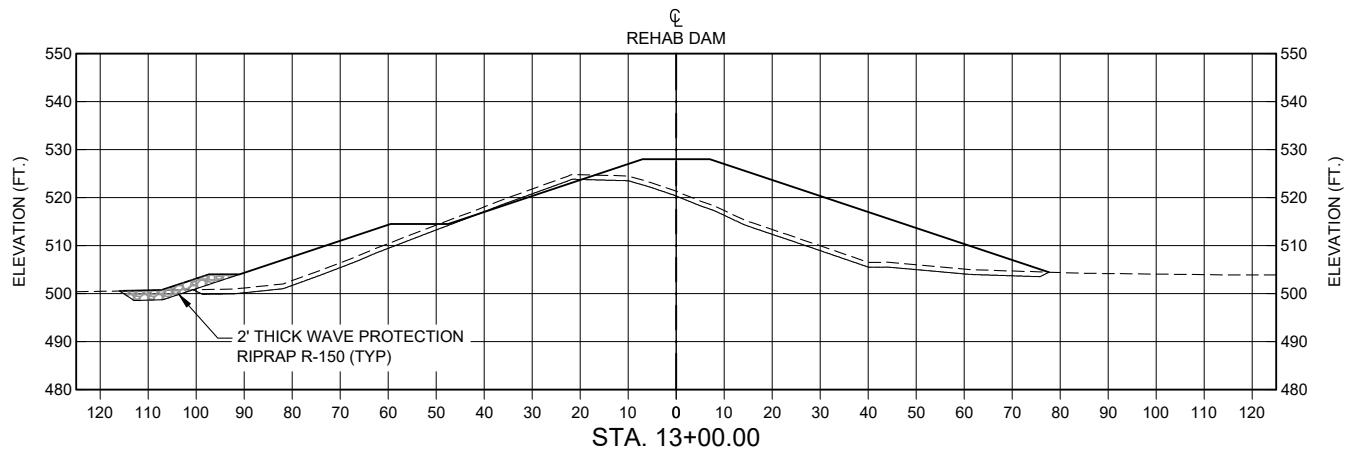
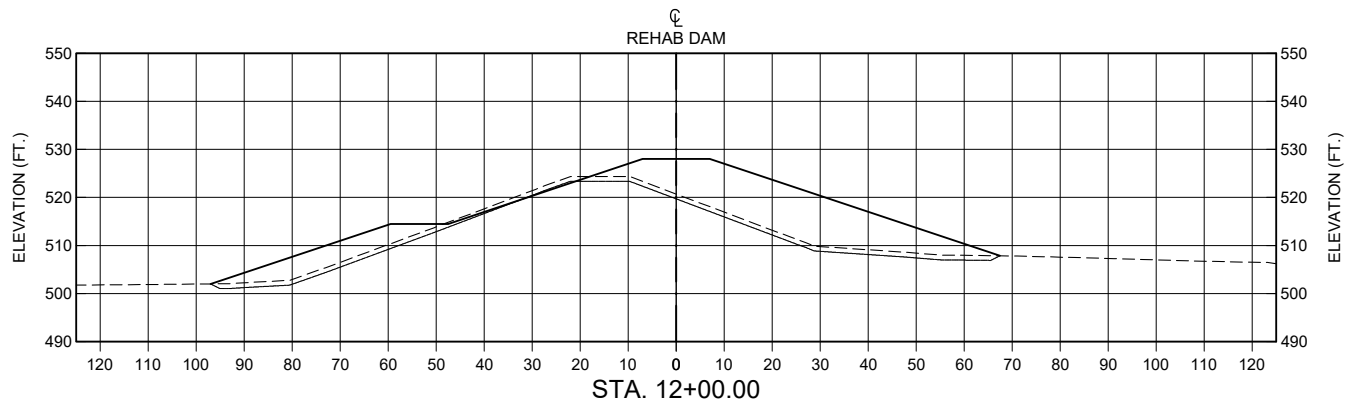
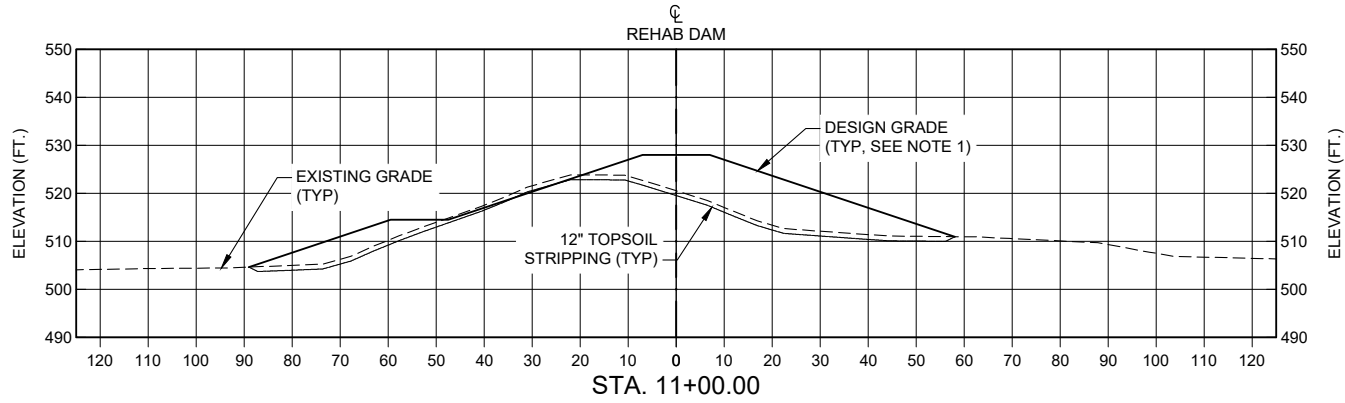
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EMBANKMENT CROSS-SECTIONS (1 OF 5)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
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1. REFER TO SHEET 11 FOR EMBANKMENT TYPICAL SECTIONS.
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EMBANKMENT CROSS-SECTIONS (2 OF 5)

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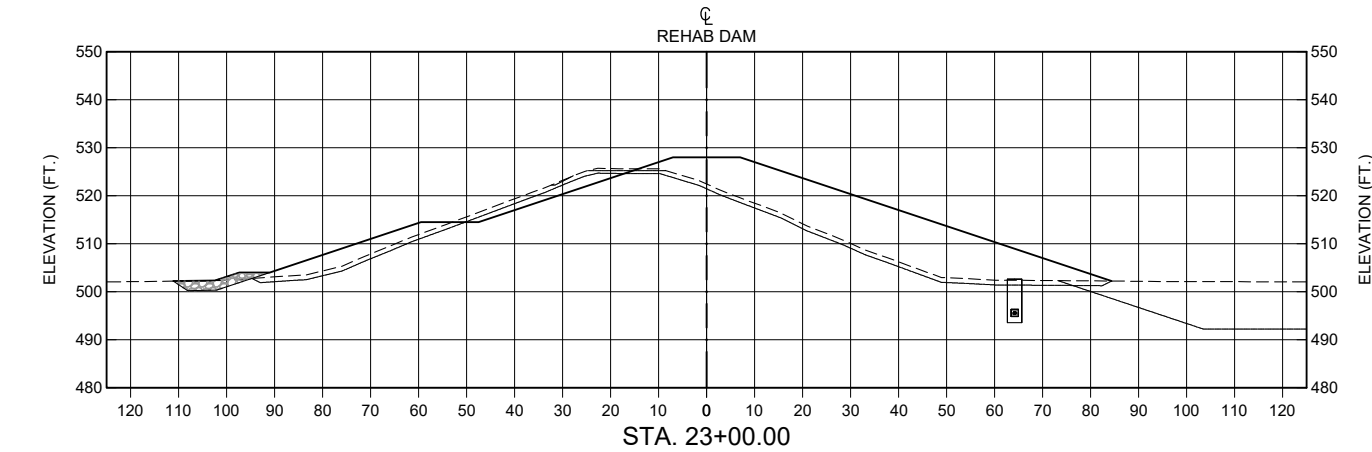
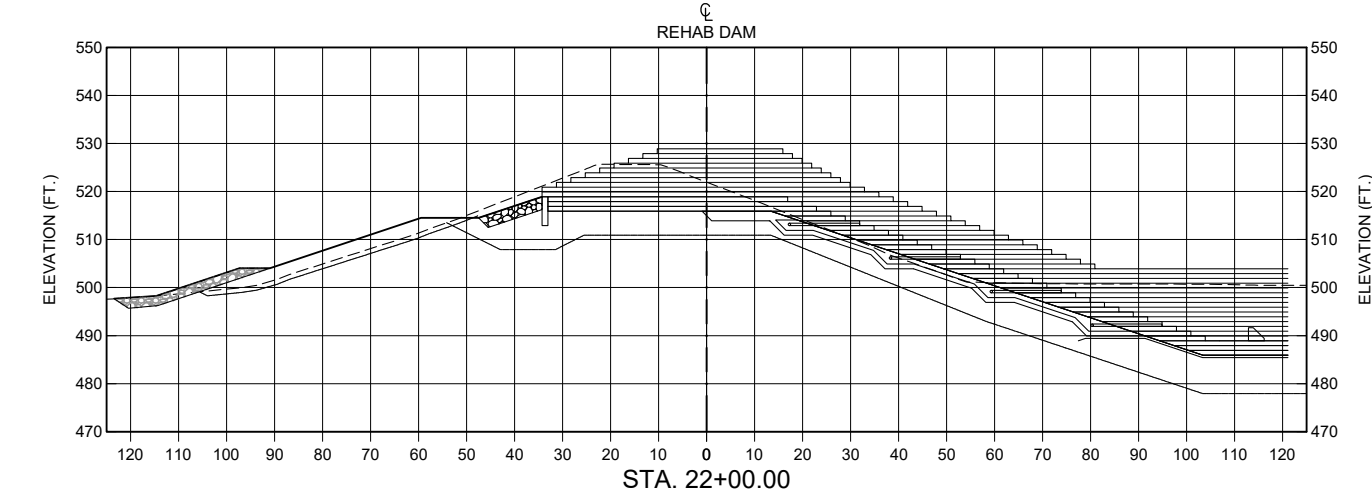
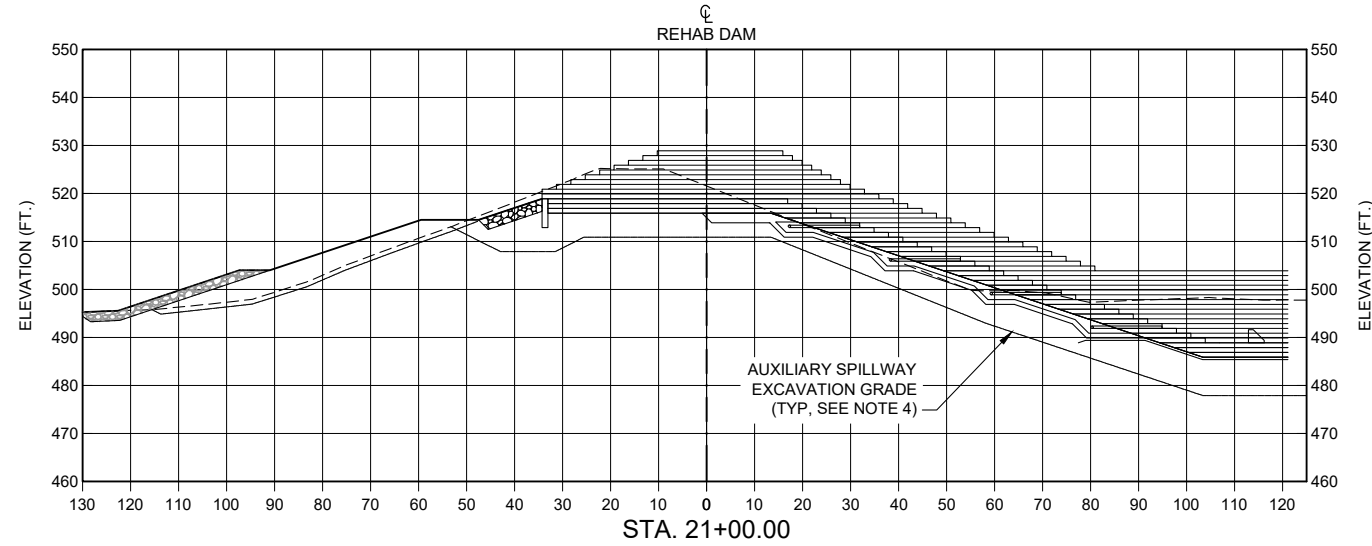
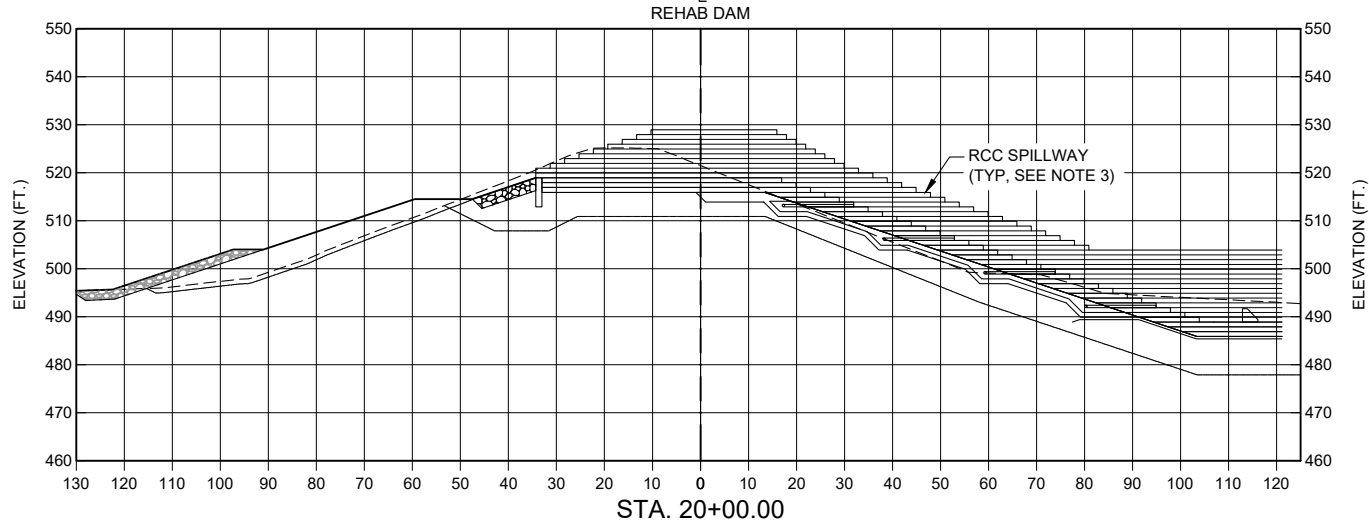
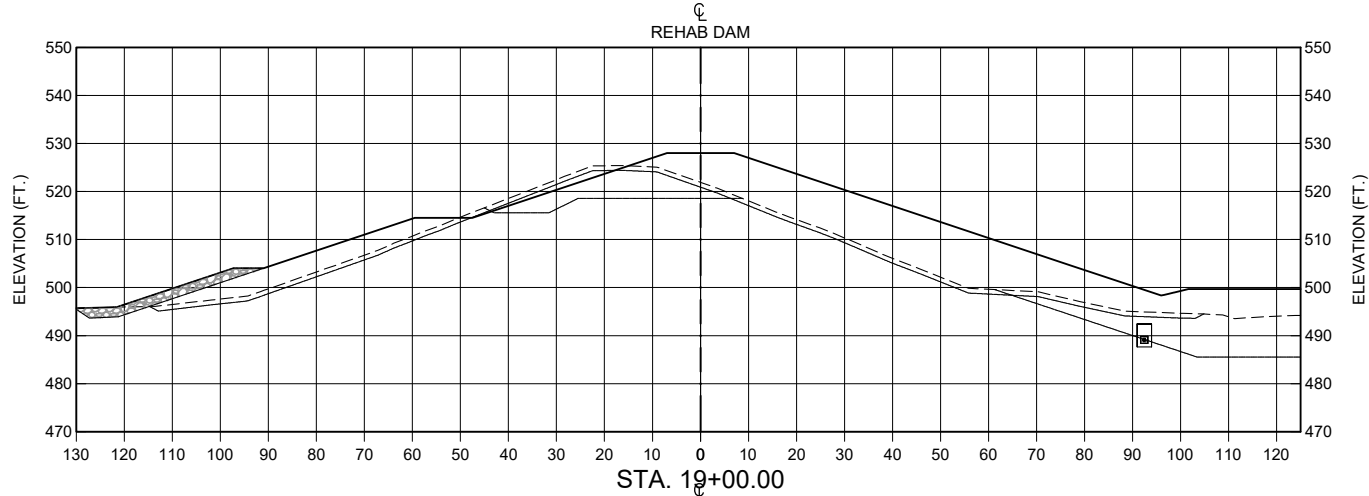
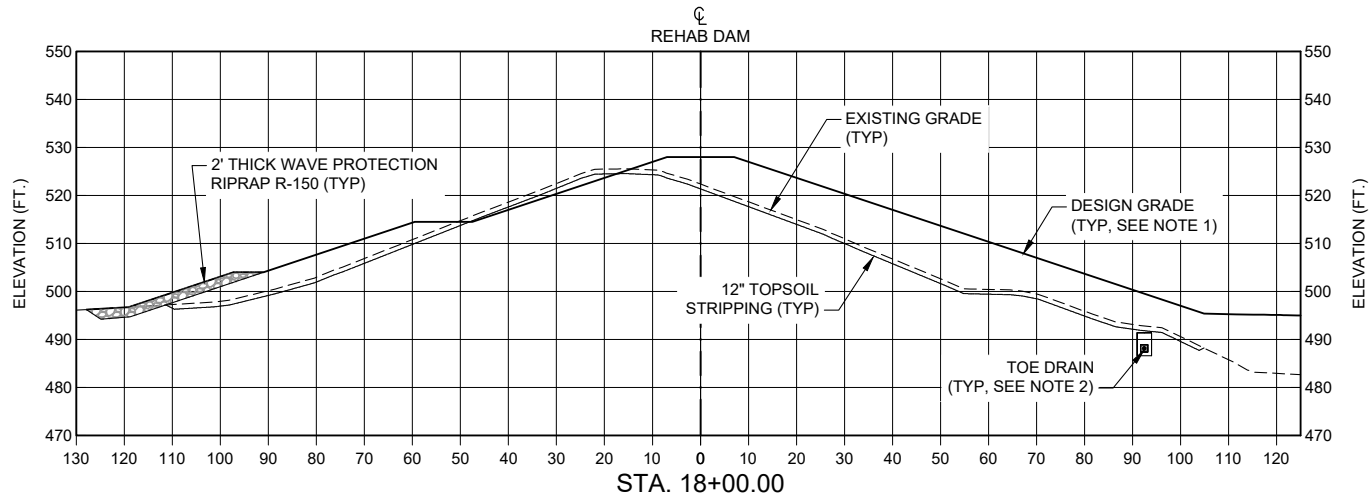


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2. REFER TO SHEET 49 FOR TOE DRAIN PLAN AND PROFILE.
3. REFER TO SHEETS 37 AND 38 FOR RCC AUXILIARY SPILLWAY PLAN AND PROFILES.
4. REFER TO SHEETS 40 AND 41 FOR RCC AUXILIARY SPILLWAY EXCAVATION PLAN AND SECTION.



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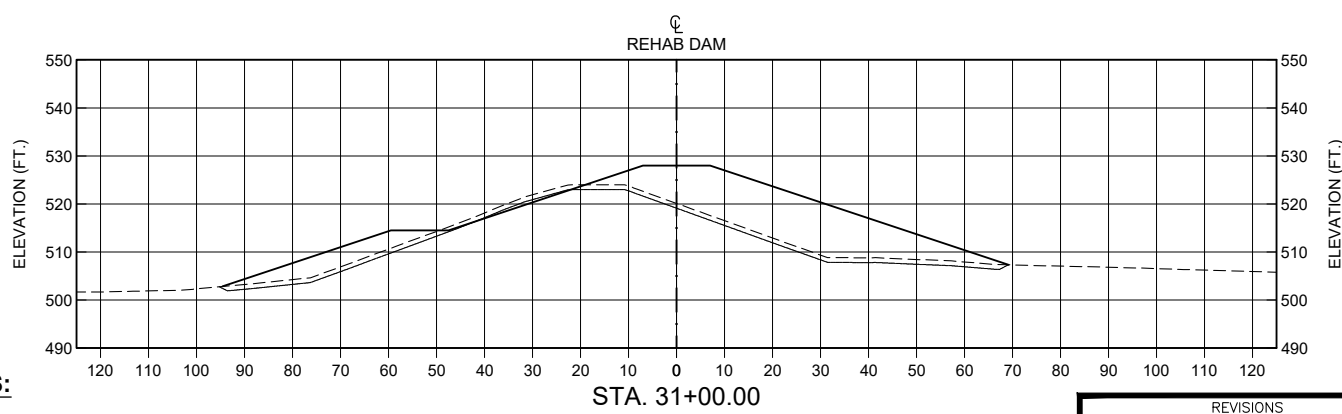
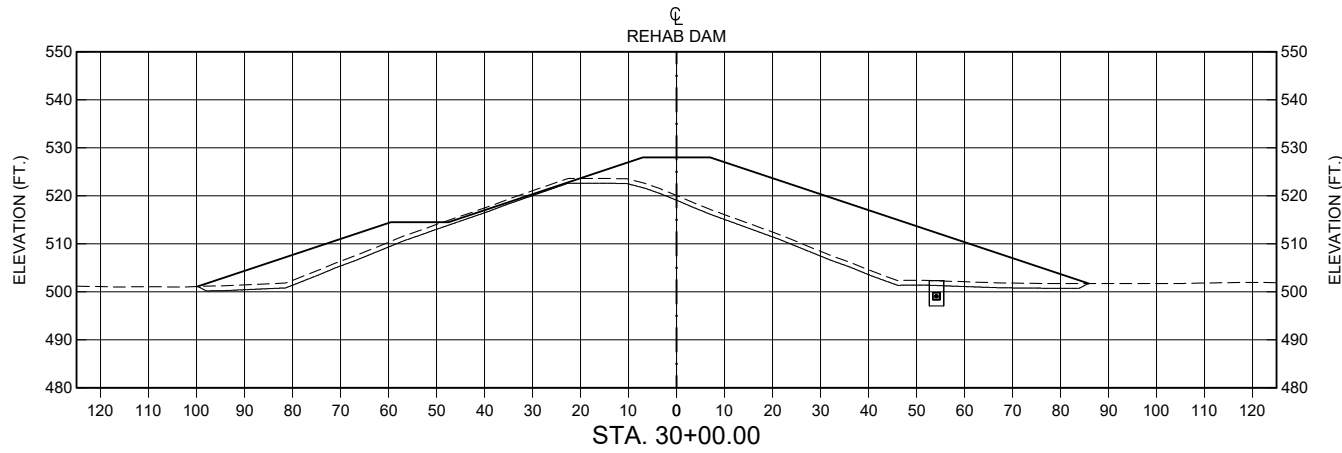
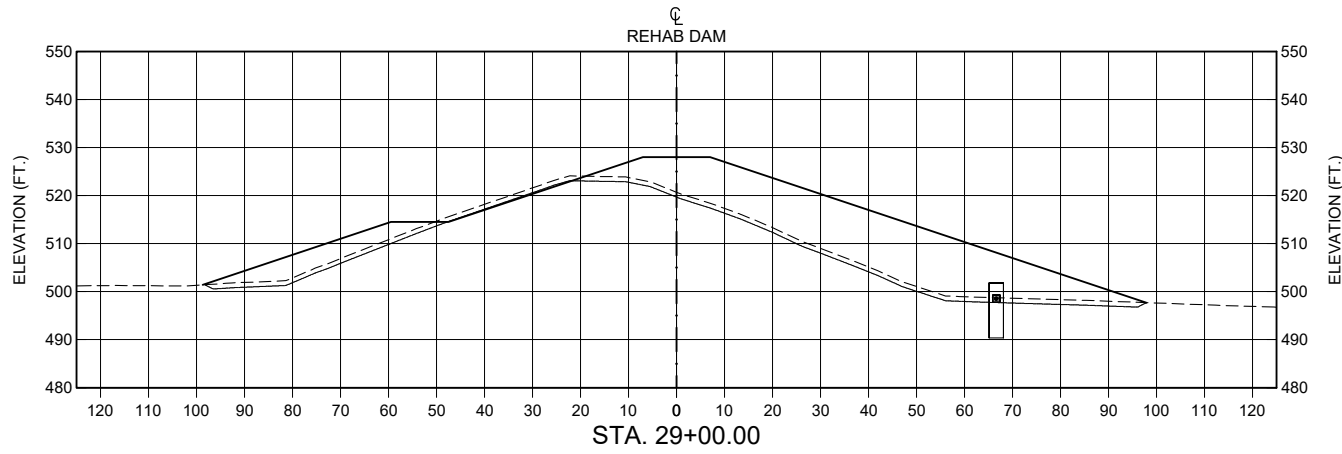
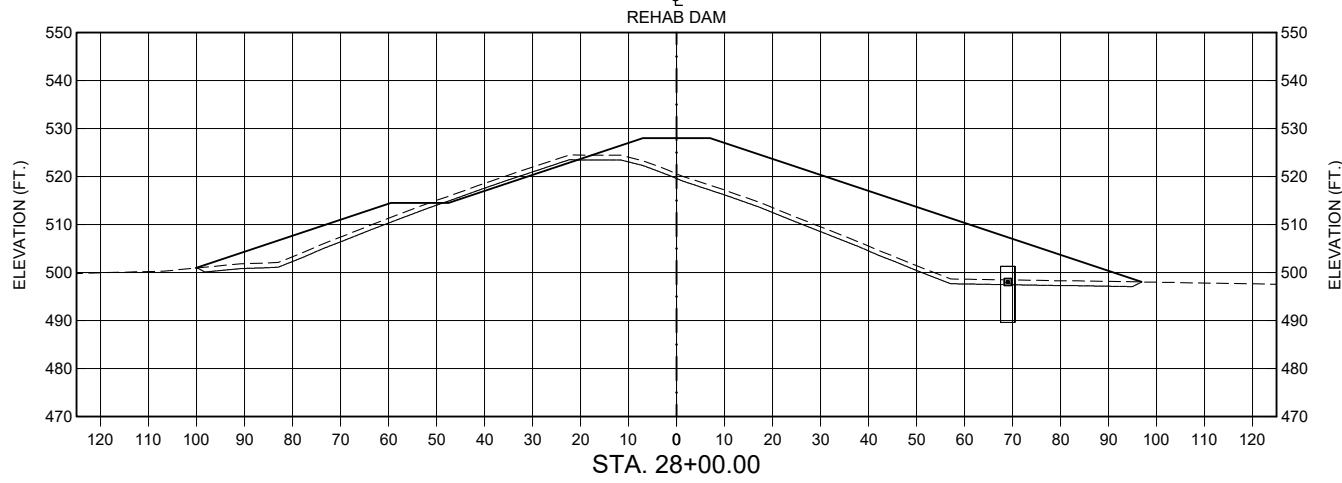
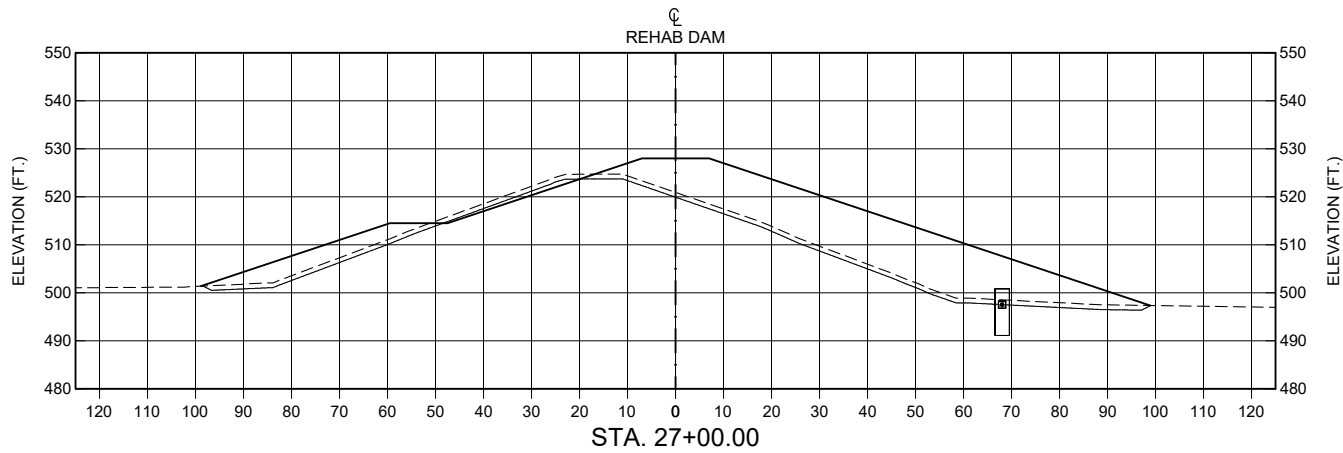
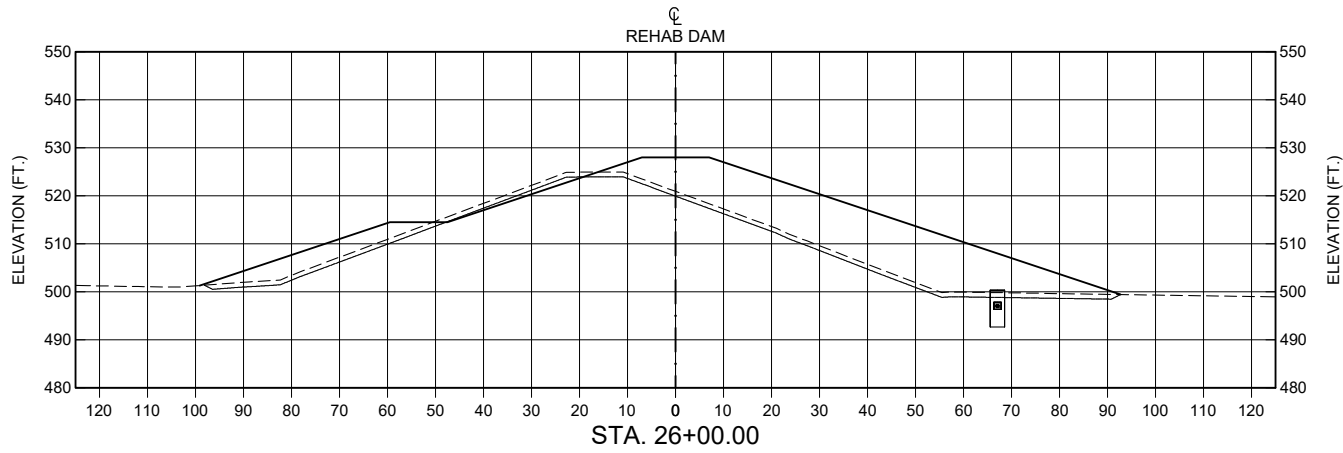
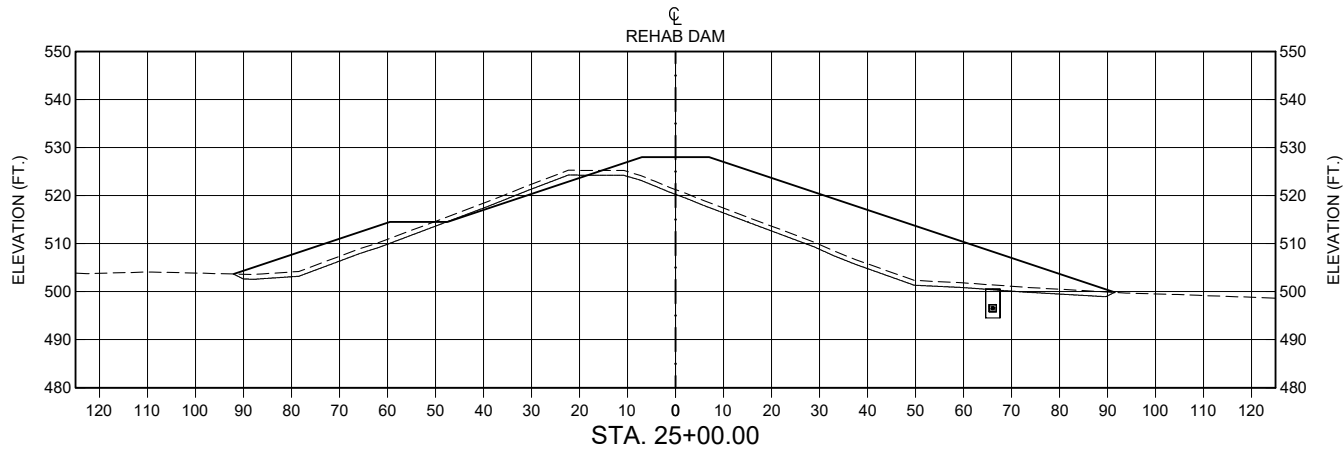
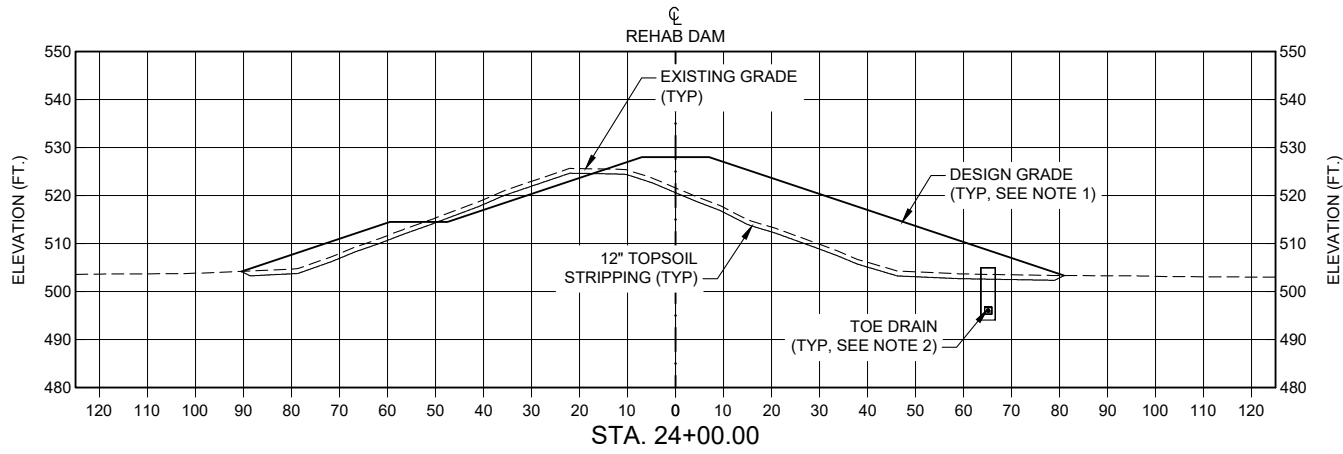
EMBANKMENT CROSS-SECTIONS (3 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



DRAWING NO.
TX-EN-0754
SHEET NO.
14
OF
83

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NOTES:

1. REFER TO SHEET 11 FOR EMBANKMENT TYPICAL SECTIONS.
2. REFER TO SHEET 49 FOR TOE DRAIN PLAN AND PROFILE.
3. REFER TO SHEETS 37 AND 38 FOR RCC AUXILIARY SPILLWAY PLAN AND PROFILES.



REVISIONS		
DATE	APPROVED	TITLE



DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 - Sht 12_48.dwg
DATE CHECKED: 8/4/2021

EMBANKMENT CROSS-SECTIONS (4 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN CALDWELL COUNTY, TEXAS



United States
Department of
Agriculture

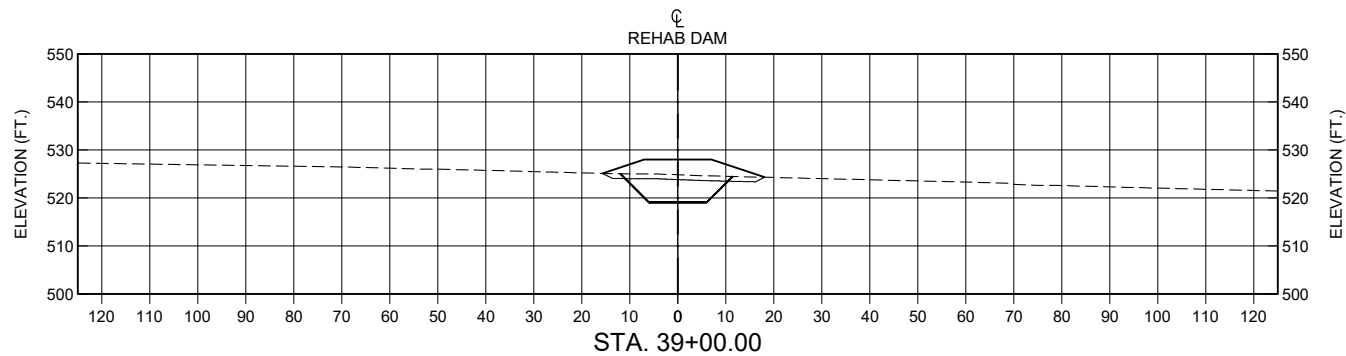
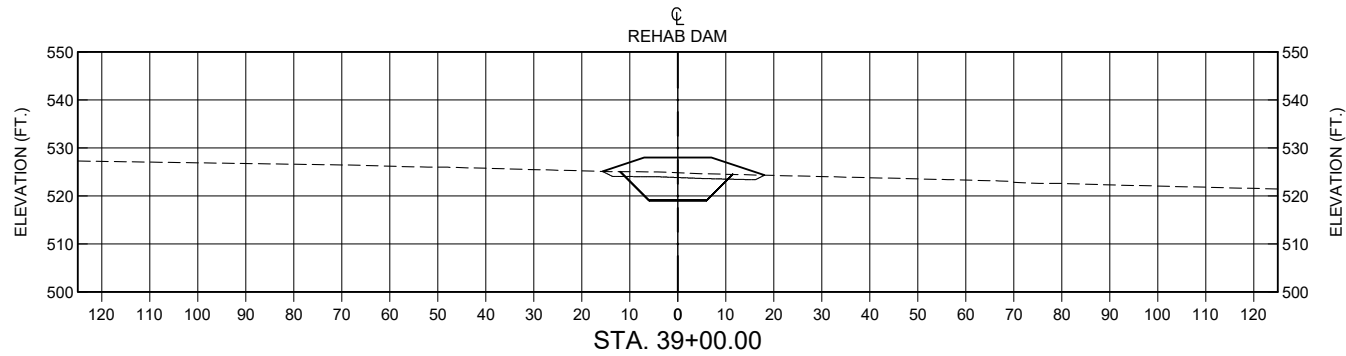
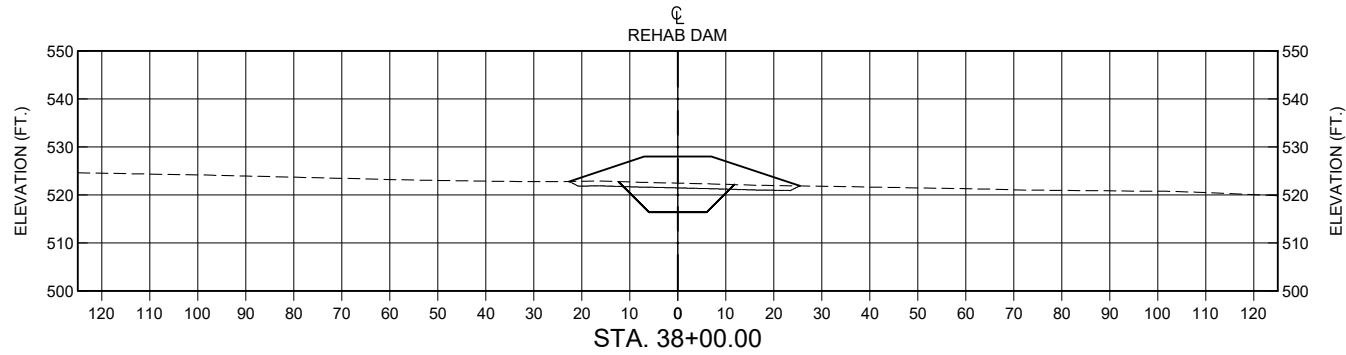
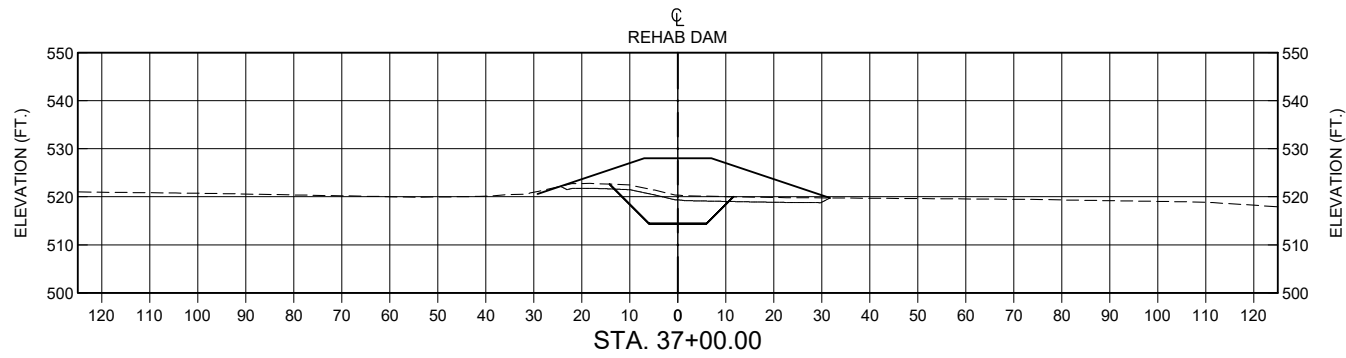
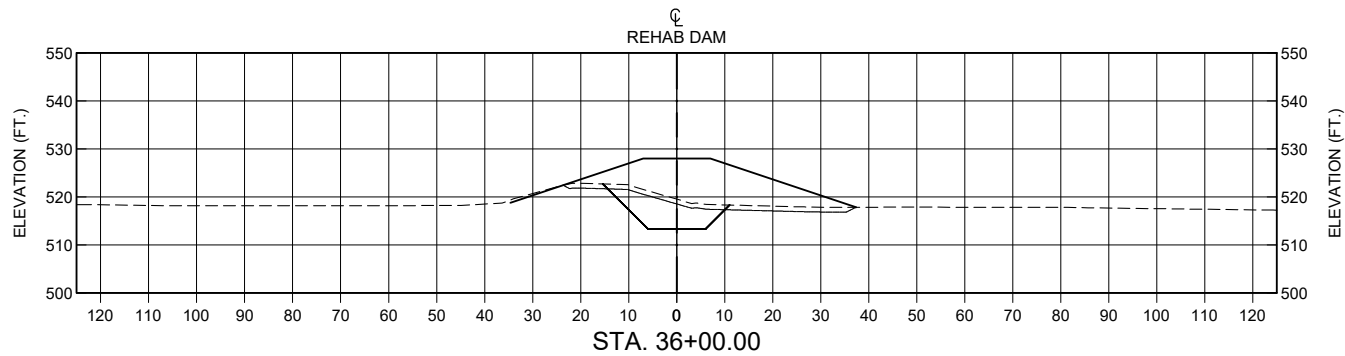
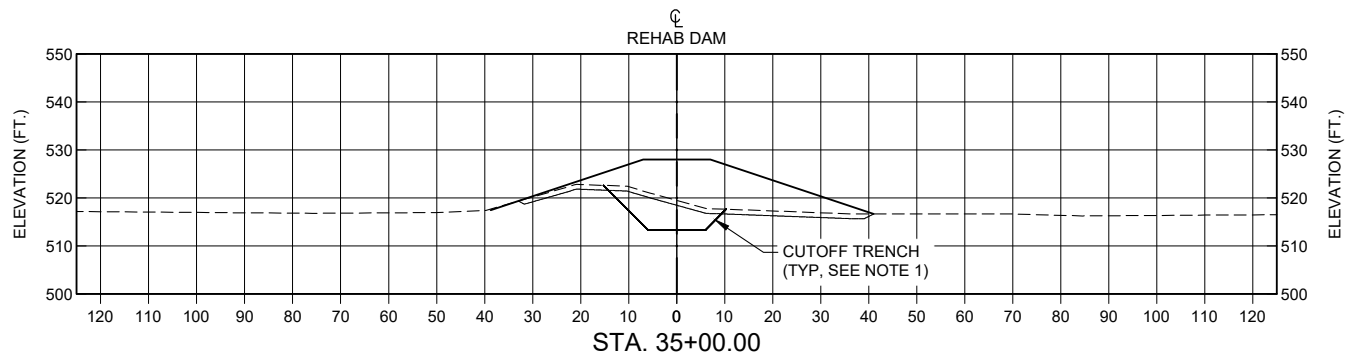
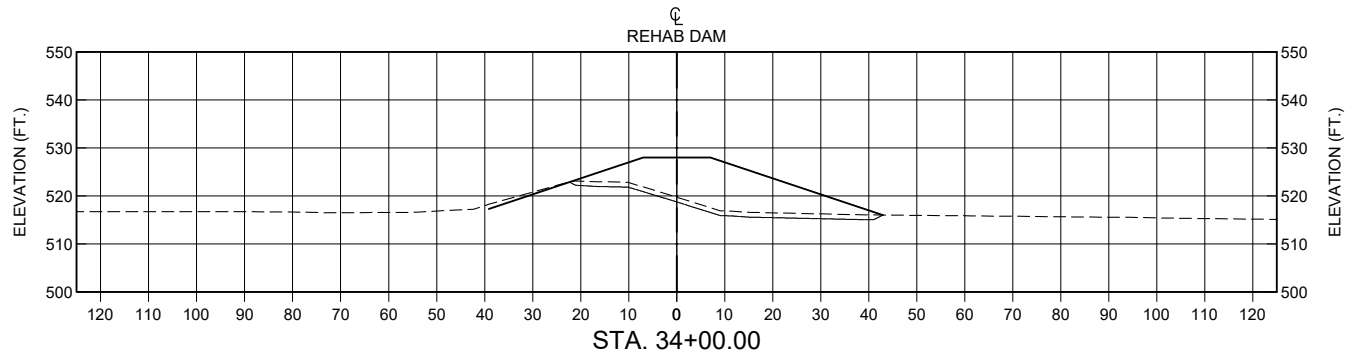
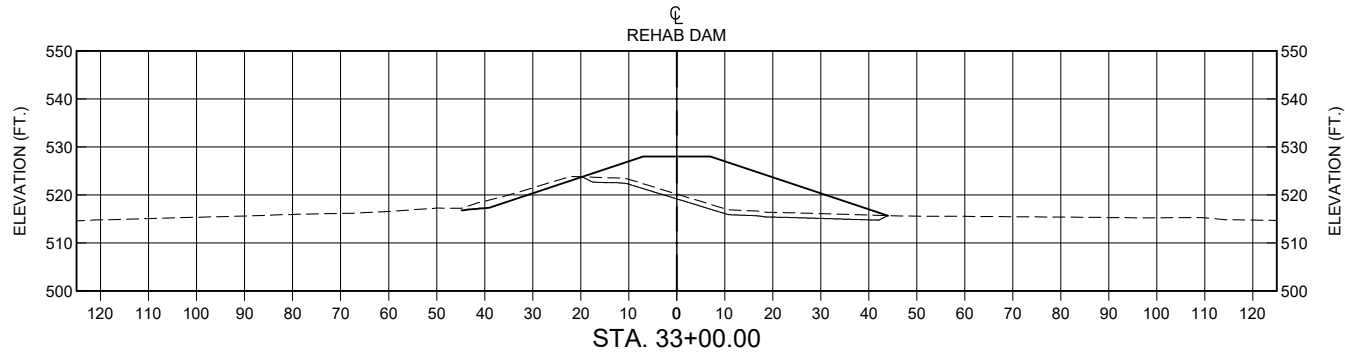
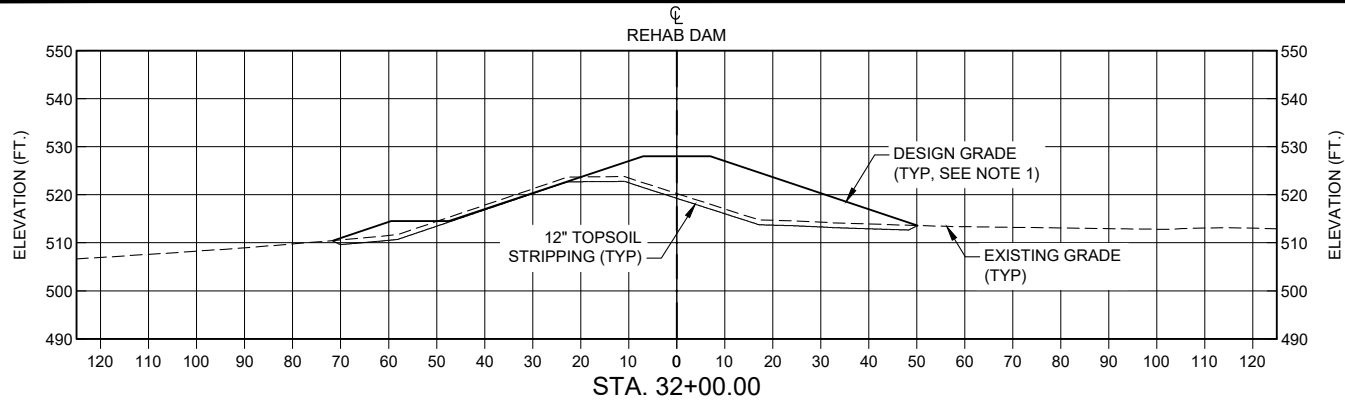
Natural Resources
Conservation Service

DRAWING NO.
TX-EN-0754

SHEET NO.
15

OF
83

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NOTES:

1. REFER TO SHEET 11 FOR EMBANKMENT TYPICAL SECTIONS.
2. REFER TO SHEET 49 FOR TOE DRAIN PLAN AND PROFILE.
3. REFER TO SHEETS 37 AND 38 FOR RCC AUXILIARY SPILLWAY PLAN AND PROFILES.



REVISIONS		
DATE	APPROVED	TITLE

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DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 - Sht 12_48.dwg
DATE CHECKED: 8/4/2021

EMBANKMENT CROSS-SECTIONS (5 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States
Department of
Agriculture

Natural Resources
Conservation Service

DRAWING NO.
TX-EN-0754

SHEET NO.
16

OF
83

A horizontal scale bar with a black top line and a white bottom line. The top line has tick marks at 0, 5, 10, and 20. The bottom line has tick marks at 0, 5, 10, and 20. The text 'SCALE IN FEET' is centered below the bar.

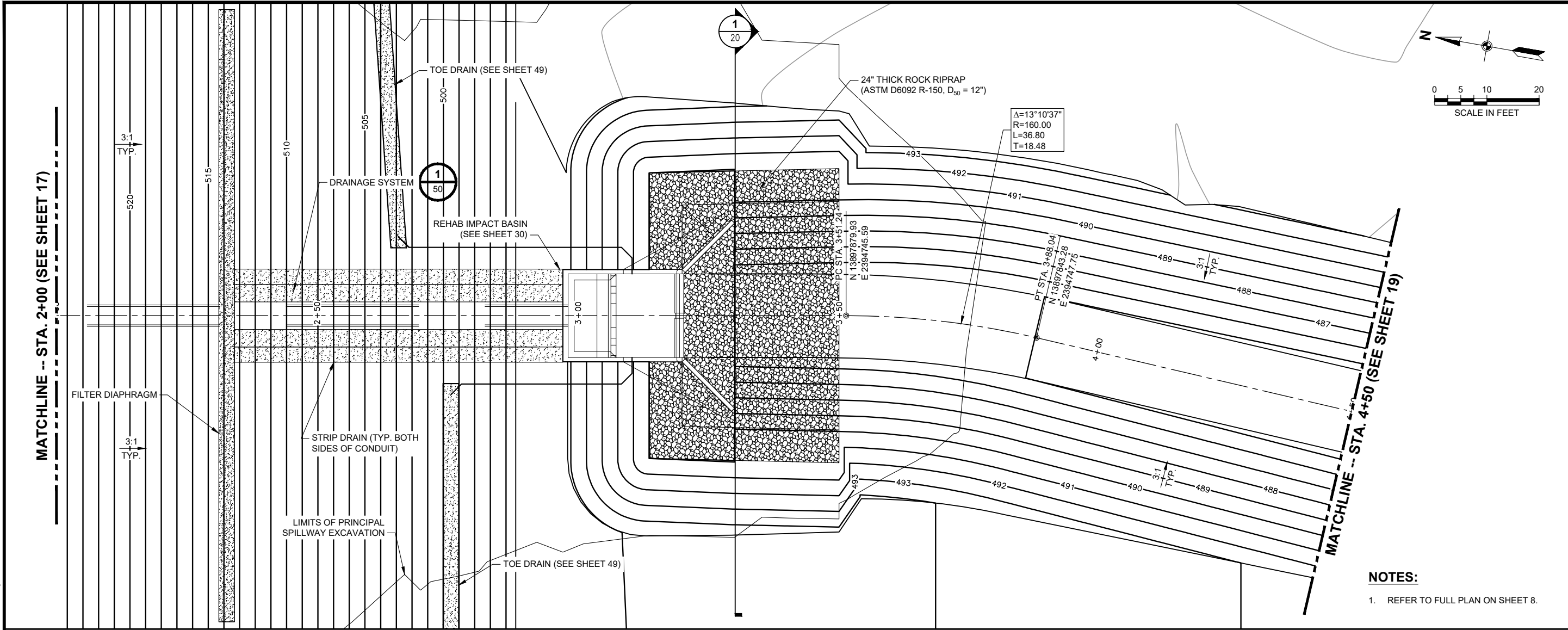
 United States Department of Agriculture		Natural Resources Conservation Service	
DRAWING NO. TX-EN-0754		SHEET NO. 17	
PRINCIPAL SPILLWAY PLAN & PROFILE (1 OF 2) FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION PLUM CREEK WATERSHED IN CALDWELL COUNTY, TEXAS			
DESIGNED BY: _____ LTF		DRAWN BY: _____ MDE	
CHECKED BY: _____ TEA		FILE NAME: <u>Plum 21 - Sht 17-20.dwg</u>	
DATE CHECKED: _____		8/4/2021	



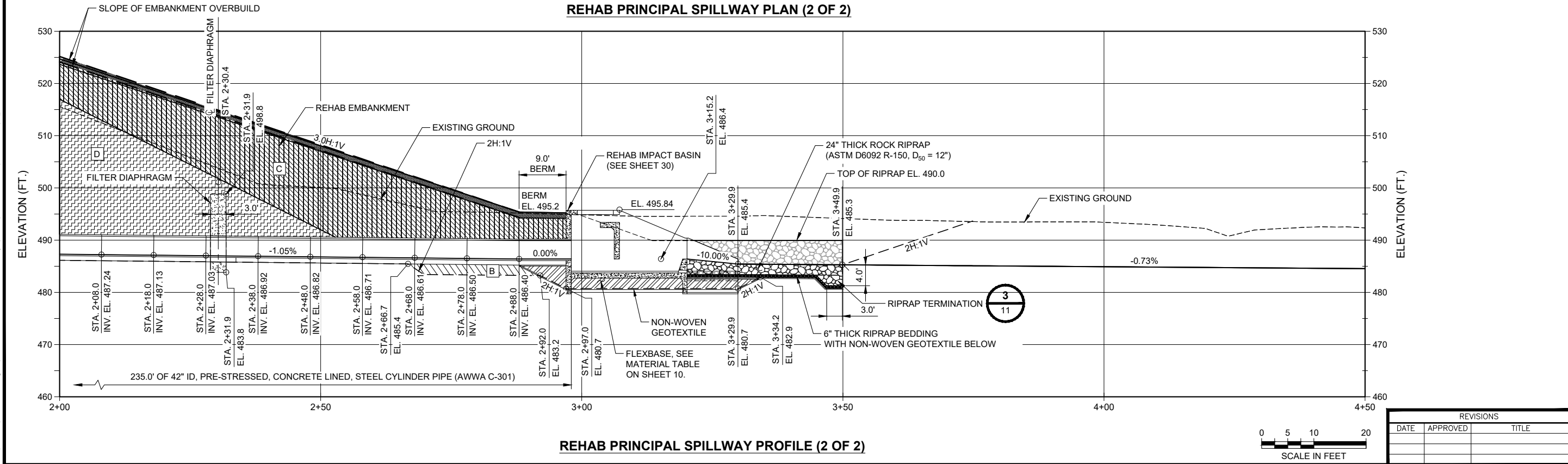
STATE OF TEXAS
JANICE T. FINN-PROCTOR
11/1/88
PRESIDENT
3/4/21

PRINCIPAL SPILLWAY PLAN & PROFILE (1 OF 2)

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- NOTES:**
- REFER TO FULL PLAN ON SHEET 8.



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DESIGNED BY: LTF
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CHECKED BY: TEA
FILE NAME: Plum 21 - Sht 17-20.dwg
DATE CHECKED: 8/4/2021

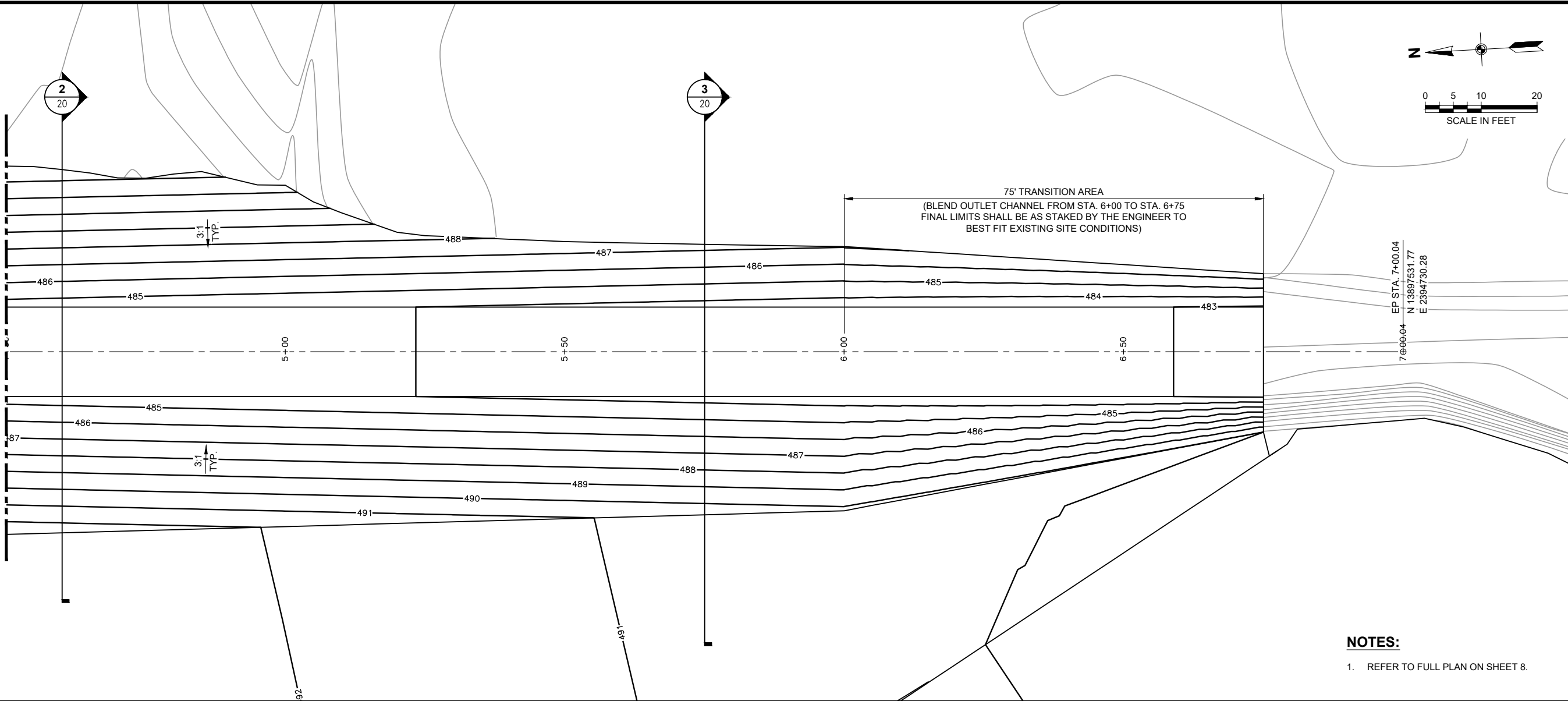
PRINCIPAL SPILLWAY PLAN & PROFILE (2 OF 2)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States
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Agriculture
USDA
Natural Resources
Conservation Service

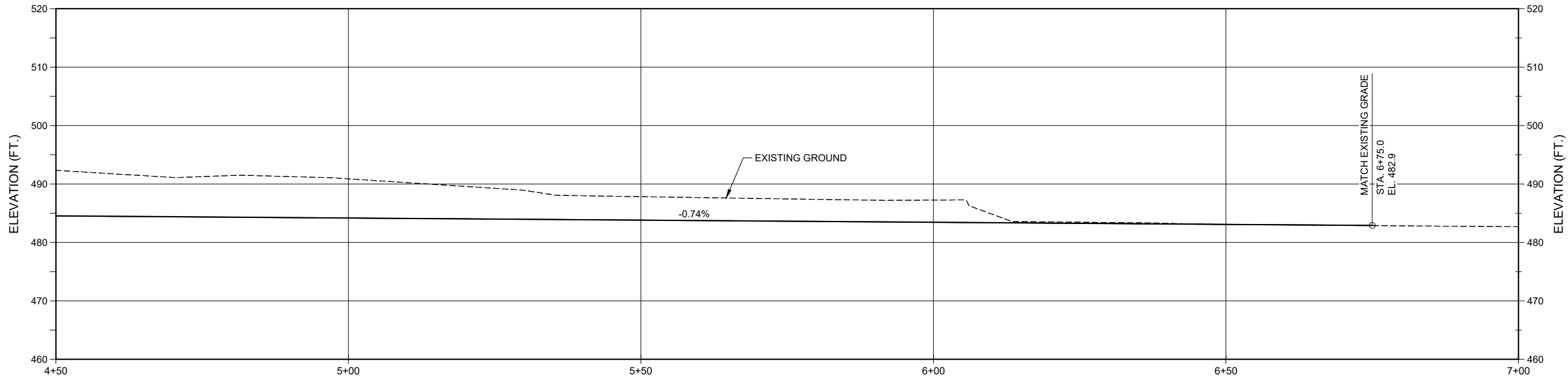
DRAWING NO.
TX-EN-0754
SHEET NO.
18
OF
83

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MATCHLINE -- STA. 4+50 (SEE SHEET 18)



PRINCIPAL SPILLWAY OUTLET CHANNEL PLAN (2 OF 2)



PRINCIPAL SPILLWAY OUTLET CHANNEL PROFILE (2 OF 2)



REVISIONS		
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Natural Resources
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DRAWING NO.
TX-EN-0754

SHEET NO.
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83

DESIGNED BY: LTF

DRAWN BY: MDE

CHECKED BY: TEA

FILE NAME: Plum 21 - Sht 17-20.dwg

DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY OUTLET CHANNEL PLAN & PROFILE

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

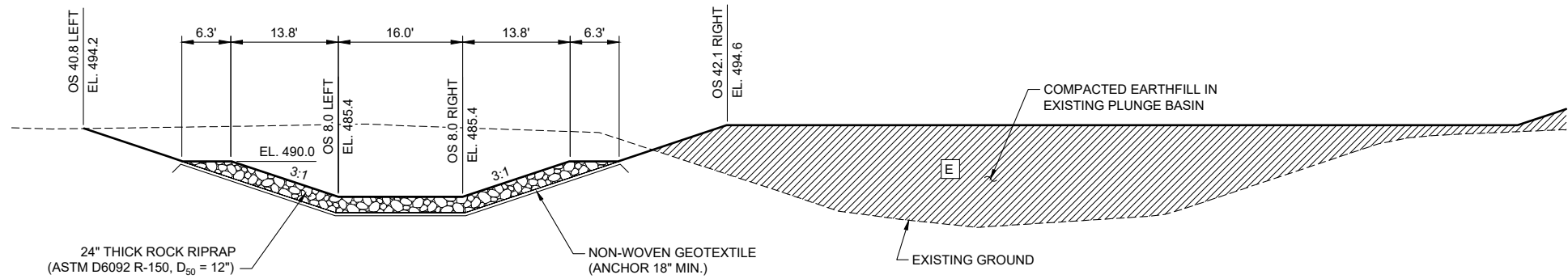
PLUM CREEK WATERSHED

IN

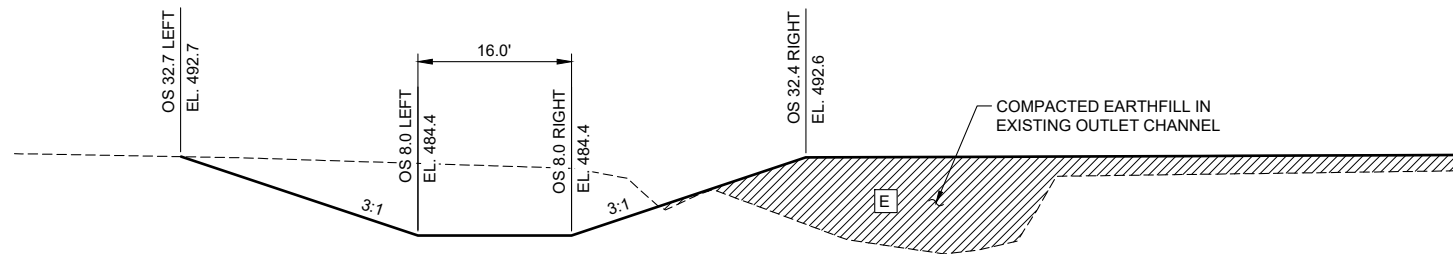
CALDWELL COUNTY, TEXAS



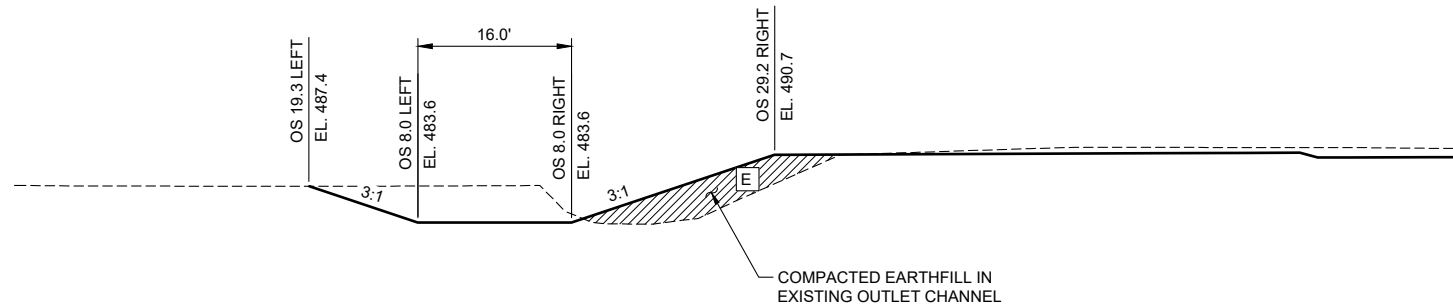
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1 TYPICAL PRINCIPAL SPILLWAY OUTLET CHANNEL SECTION
18 SCALE: 1" = 10'



2 TYPICAL PRINCIPAL SPILLWAY OUTLET CHANNEL SECTION
19 SCALE: 1" = 10'



3 TYPICAL PRINCIPAL SPILLWAY OUTLET CHANNEL SECTION
19 SCALE: 1" = 10'



REVISIONS		
DATE	APPROVED	TITLE

DRAWING NO.	TX-EN-0754
SHEET NO.	20
OF	83

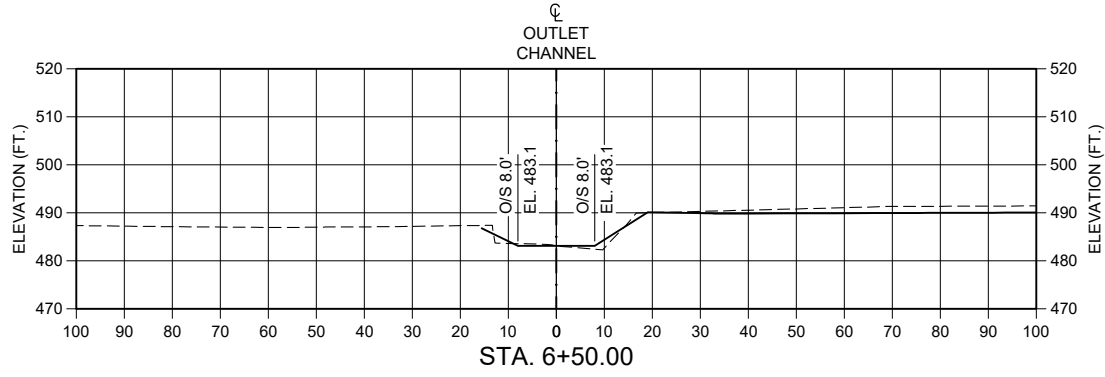
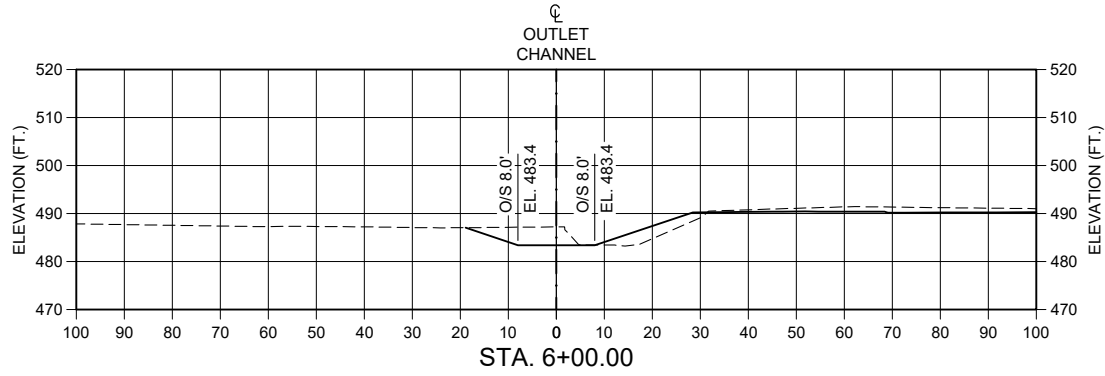
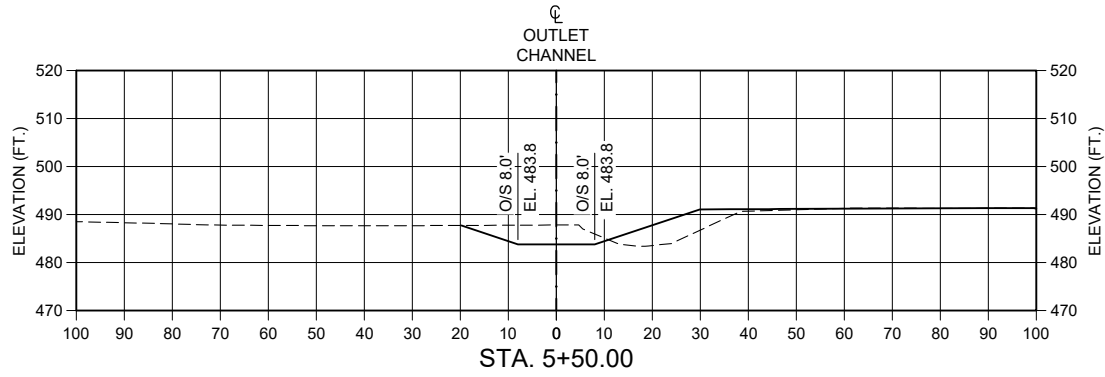
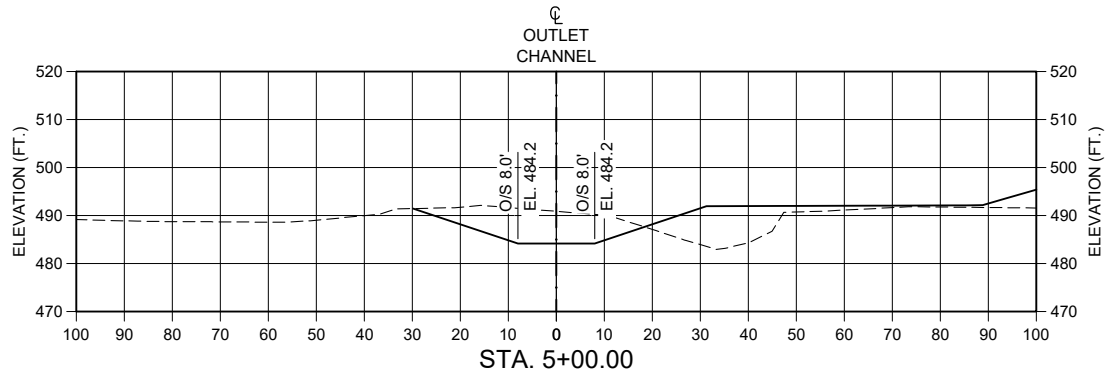
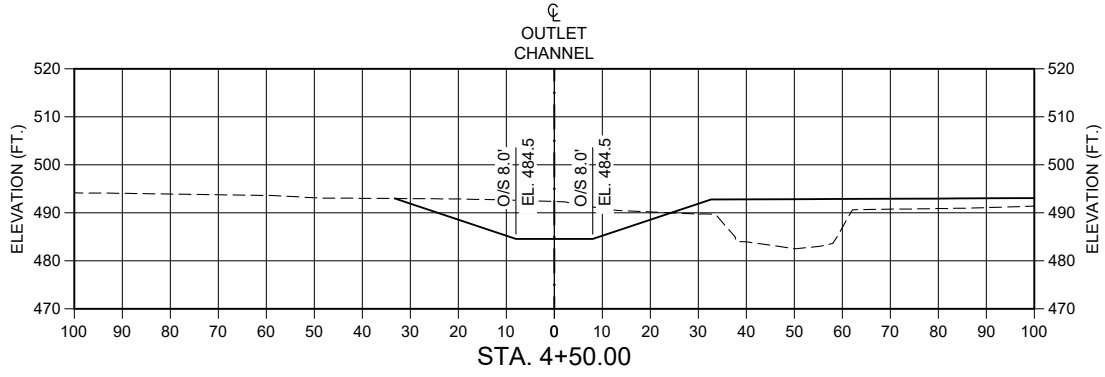
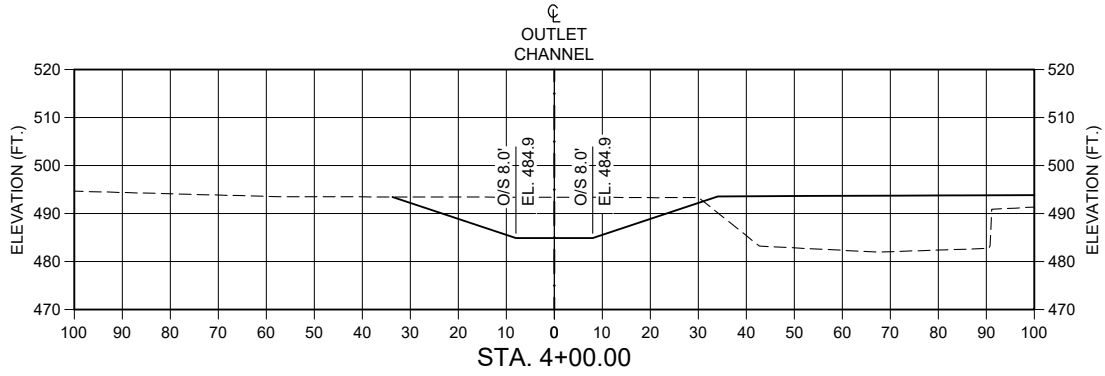
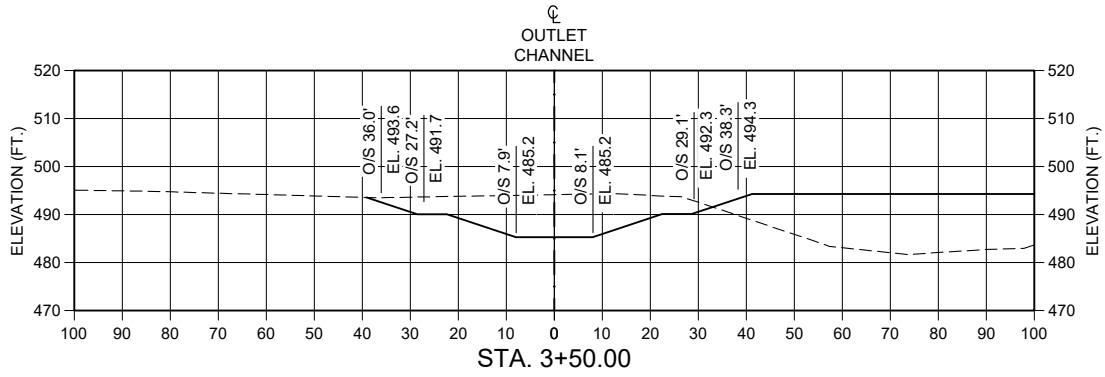
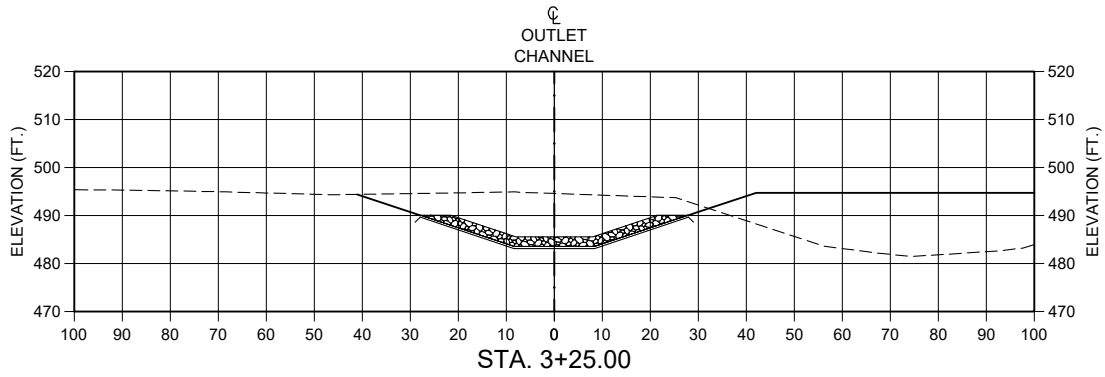


PRINCIPAL SPILLWAY OUTLET CHANNEL DETAILS
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

DESIGNED BY:	LTF
DRAWN BY:	MDE
CHECKED BY:	TEA
FILE NAME:	Plum 21 - Sht 17-20.dwg
DATE CHECKED:	8/4/2021



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TX-EN-0754

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PRINCIPAL SPILLWAY OUTLET CHANNEL CROSS-SECTIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

DESIGNED BY: LTF

DRAWN BY: MDE

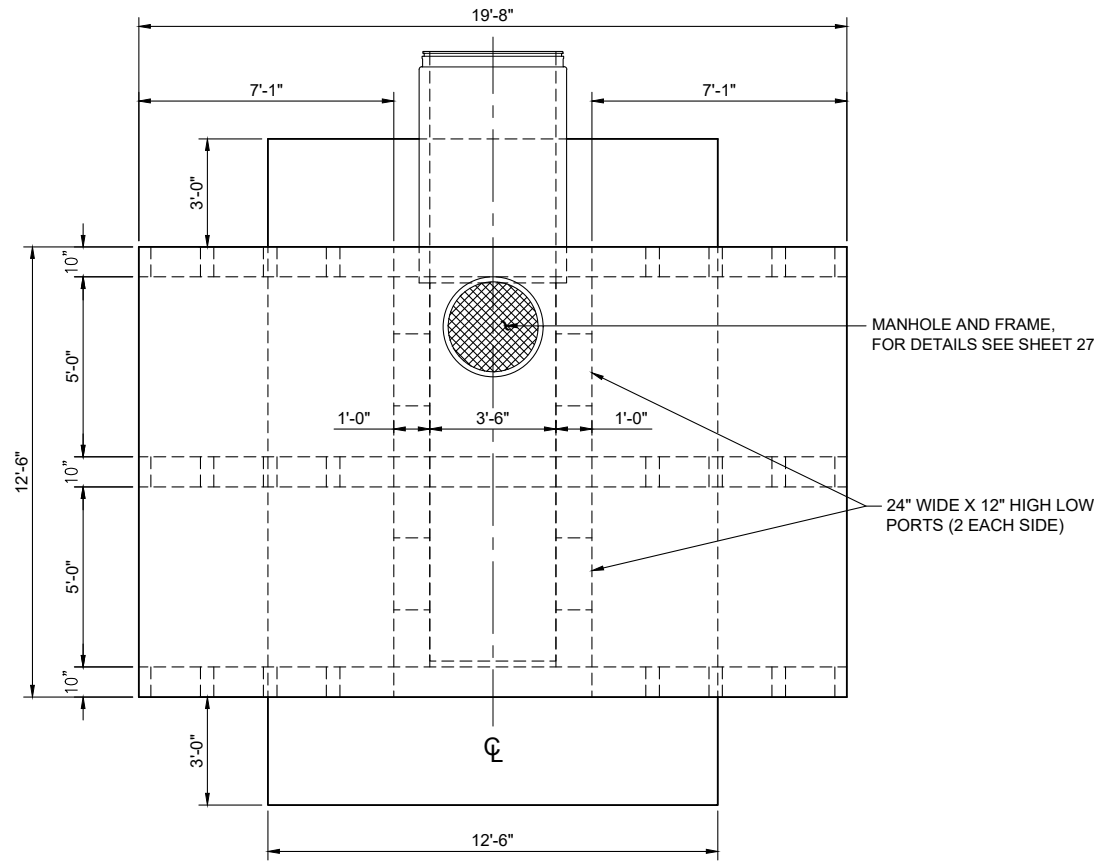
CHECKED BY: TEA

FILE NAME: Plum 21 - Sht 12_48.dwg

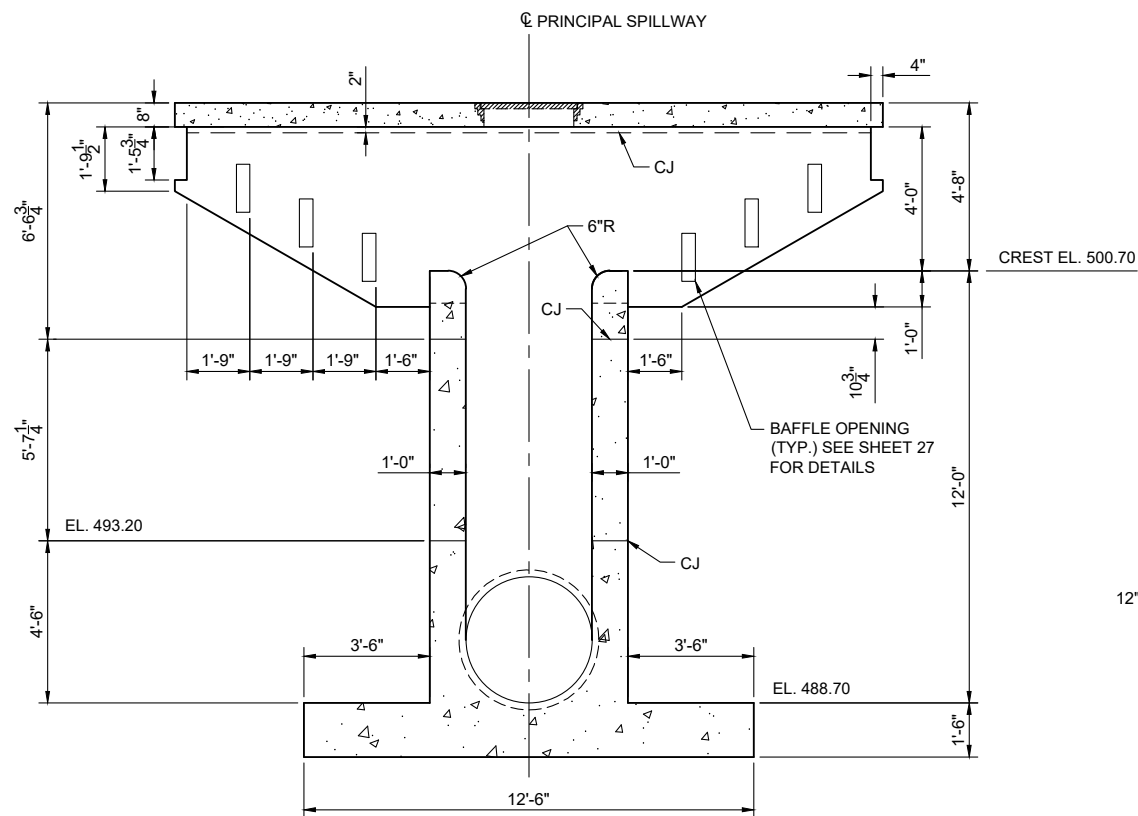
DATE CHECKED: 8/4/2021



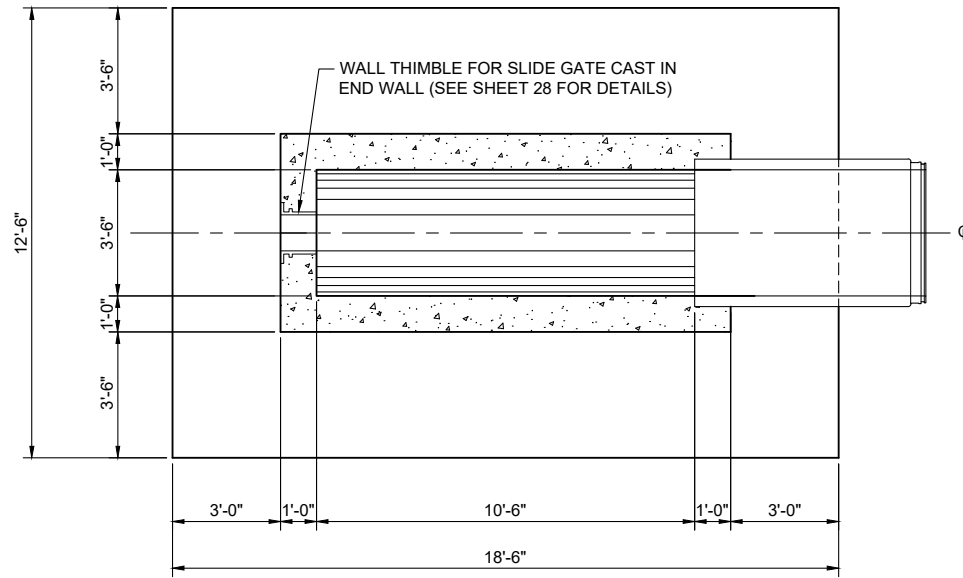
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TOP SLAB PLAN



SECTION B-B

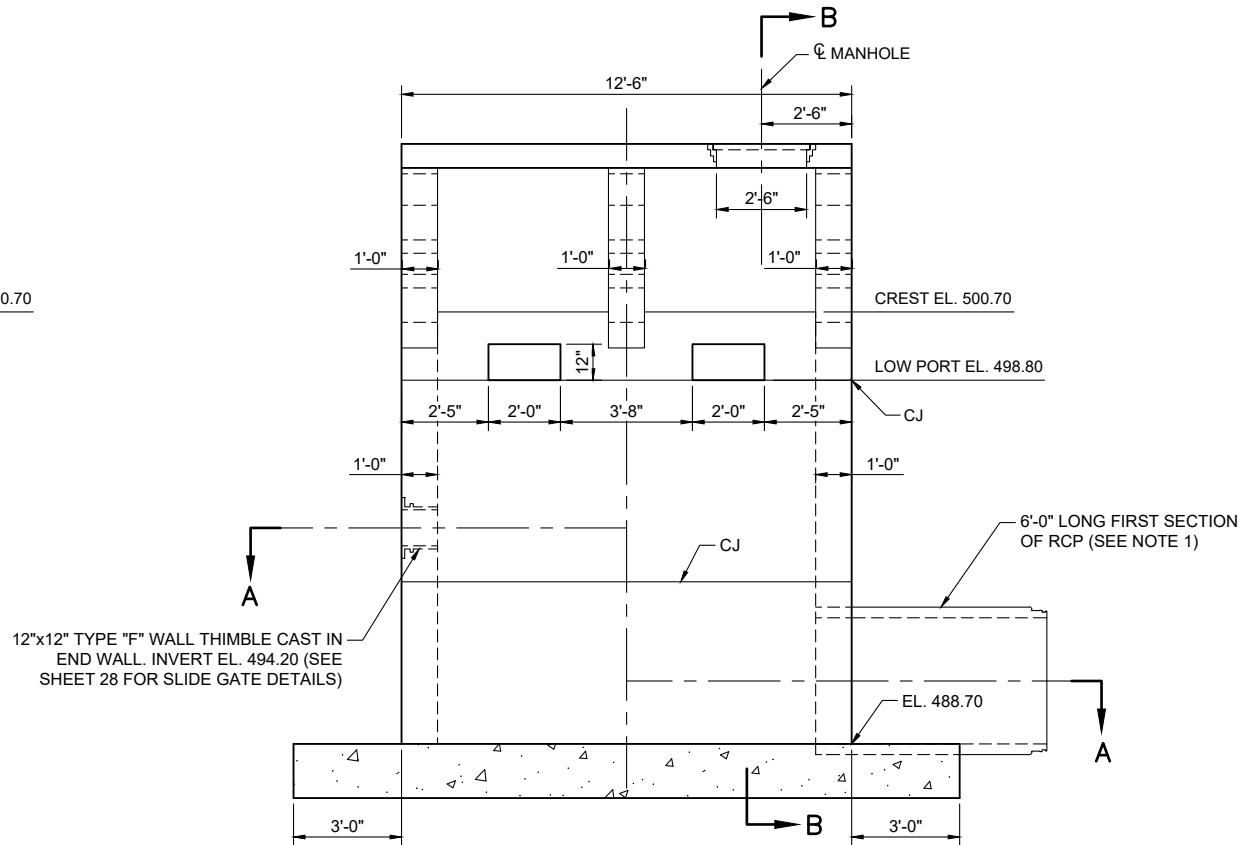


SECTION A-A

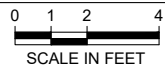


NOTES:

1. CAST INITIAL 6'-0" LONG PIPE SECTION INTO PLACE DURING CONCRETE PLACEMENT FOR INLET STRUCTURE.
2. REINFORCEMENT NOT SHOWN. SEE SHEETS 23 TO 26 FOR DETAILS.
3. SEE SHEET 28 FOR SLIDE GATE SECTIONS AND DETAILS.
4. SEE SHEET 29 FOR RCP SECTIONS AND DETAILS.
5. CHAMFER ALL EXPOSED EDGES 3/4 INCH.



SIDEWALL ELEVATION



DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 - Sht 22.dwg
DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY INLET PLAN AND SECTIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

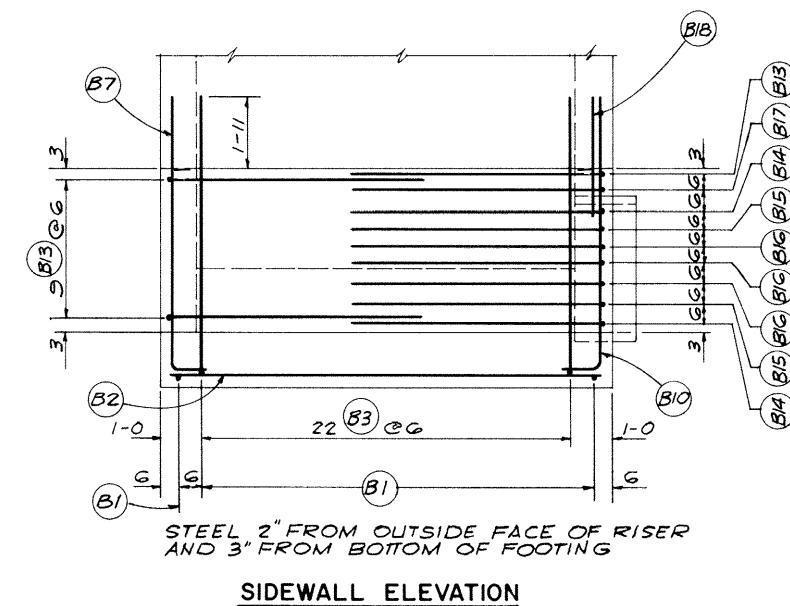
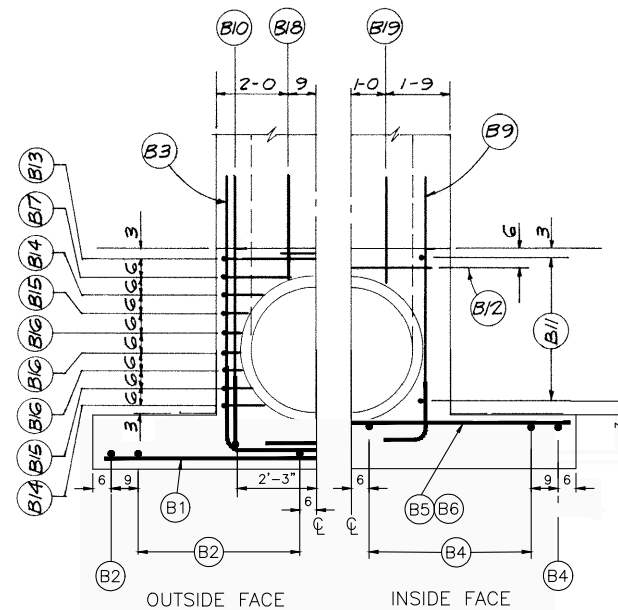
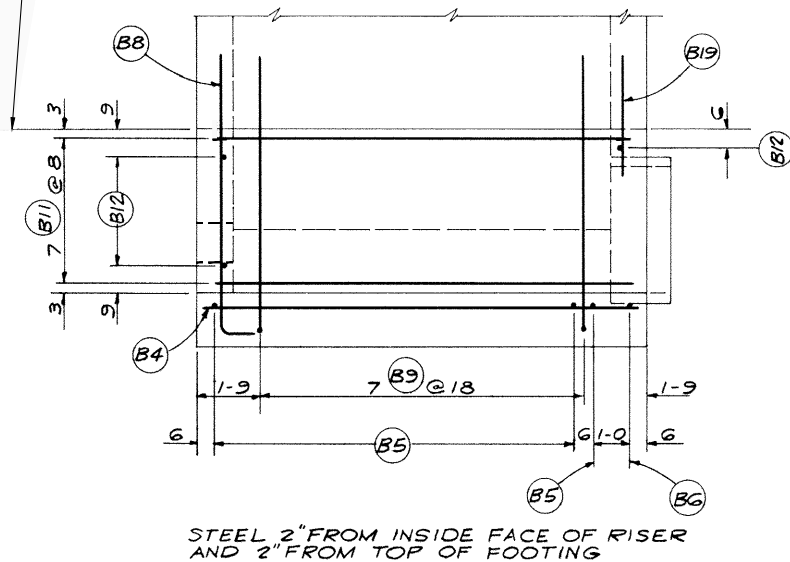
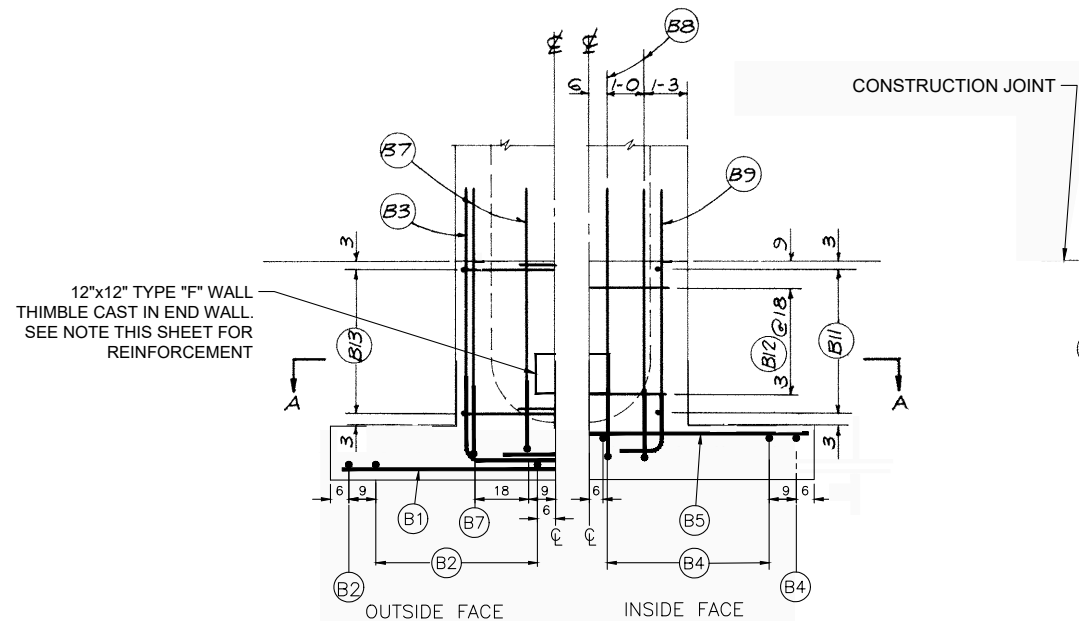
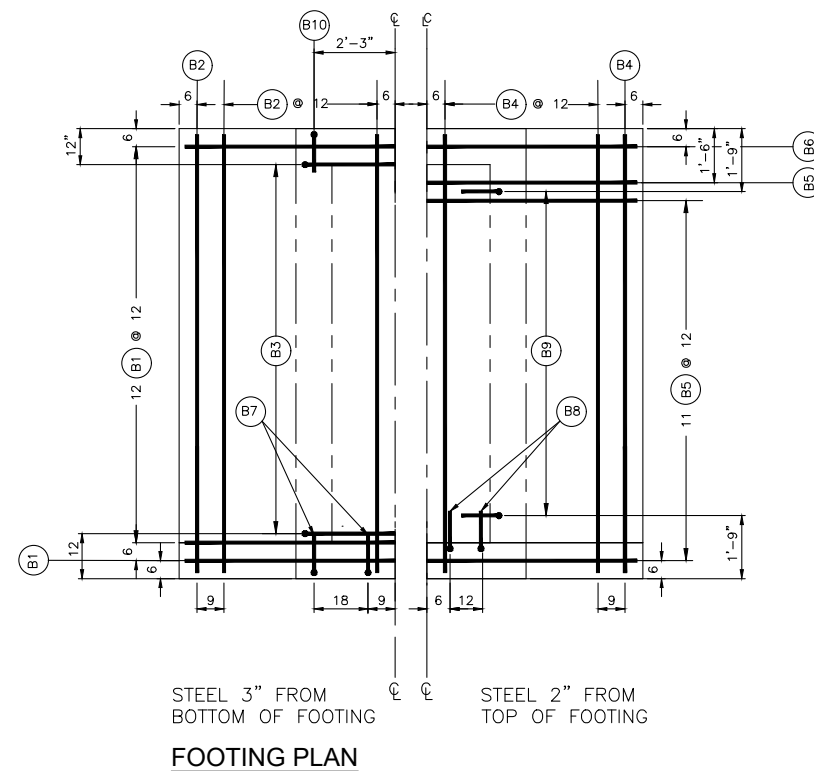
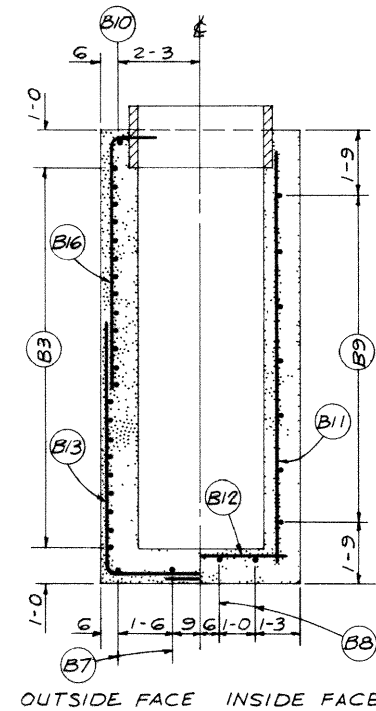


DRAWING NO.
TX-EN-0754

SHEET NO.

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REVISIONS		
DATE	APPROVED	TITLE



STANDARD BAFFLE RISER	
STANDARD DWG. NO.	ES-3242-1515R
DATE 9-79	SHEET 2 OF 4
ADAPTED FROM	
STANDARD COVER RISER	
DESIGN CONSTANTS	
$f'c = 4,000 \text{ psi}$ $n = 8$	$fc = 1,600 \text{ psi}$ $fs = 20,000$
STANDARD DWG. NO.	ES-3042-2015R
DATE 4-65	SHEET 2 OF 4

REVISIONS		
DATE	APPROVED	TITLE

NOTE: BARS B7, B8, B12 AND B13 PASSING THROUGH WALL THIMBLE / OPENING SHALL BE FIELD CUT OR MOVED TO CLEAR THE THIMBLE BY 2 INCHES. SEE SHEET 26 FOR CRACK CONTROL REINFORCEMENT AROUND BLOCKOUTS, OPENINGS, AND THIMBLES.

DRAWN BY: CAD
 CHECKED BY: SS
 FILE NAME: Plum 21 - Sht 23.dwg
 DATE CHECKED: 8/4/2021

PRINCIPAL SPILLWAY INLET REINFORCEMENT (1 OF 3)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

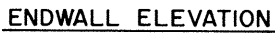


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DRAWING NO.
TX-EN-0754

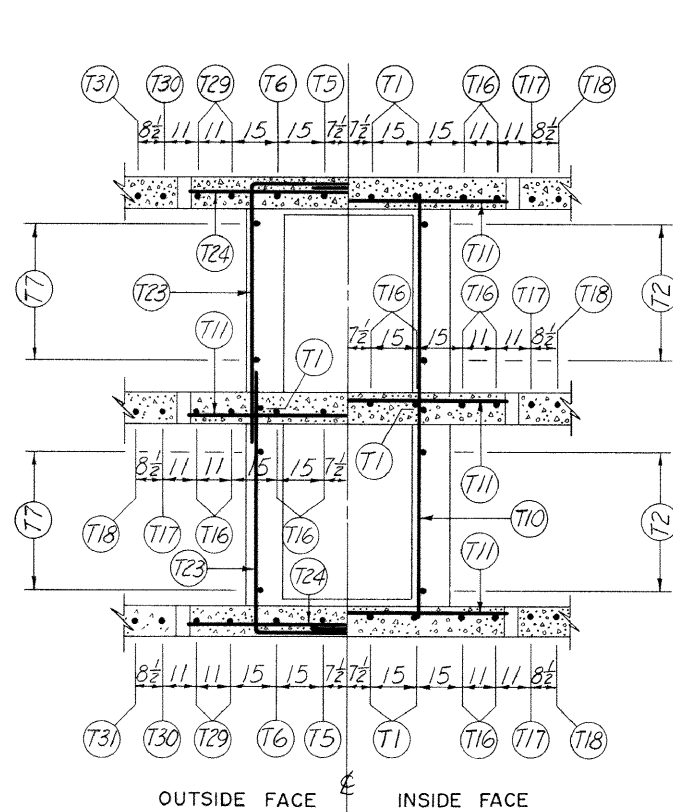
ET NO.
23
83



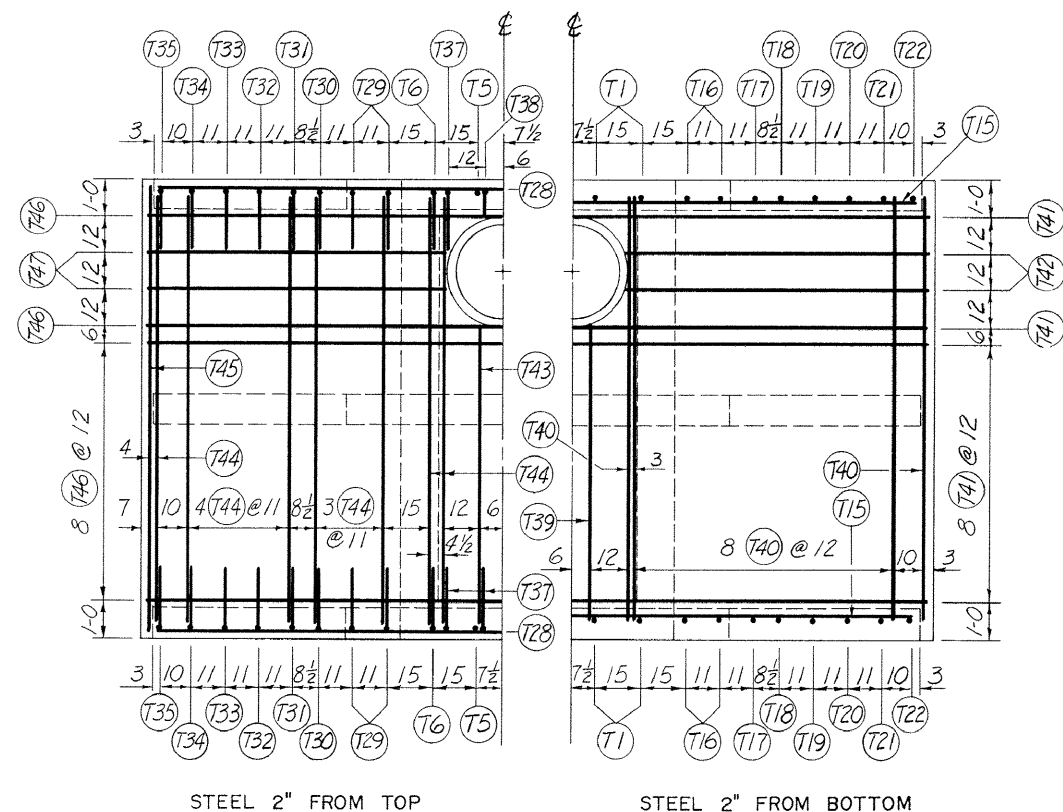
REVISIONS		
DATE	APPROVED	TITLE



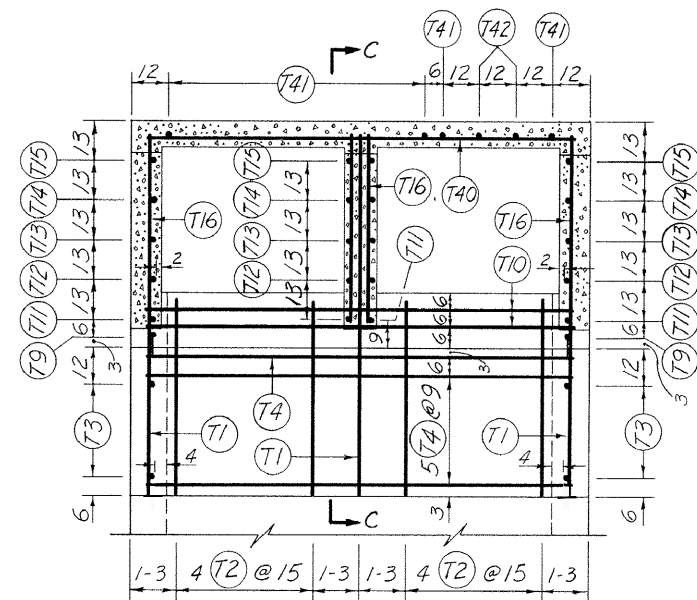
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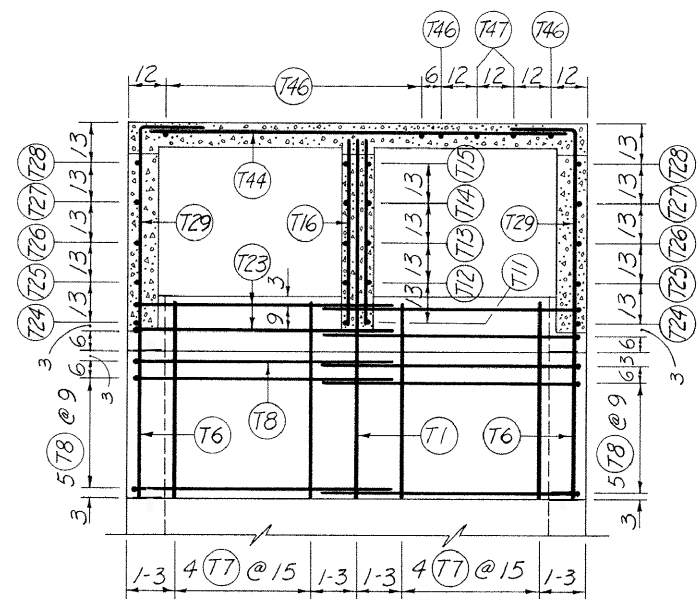
SECTION A-A



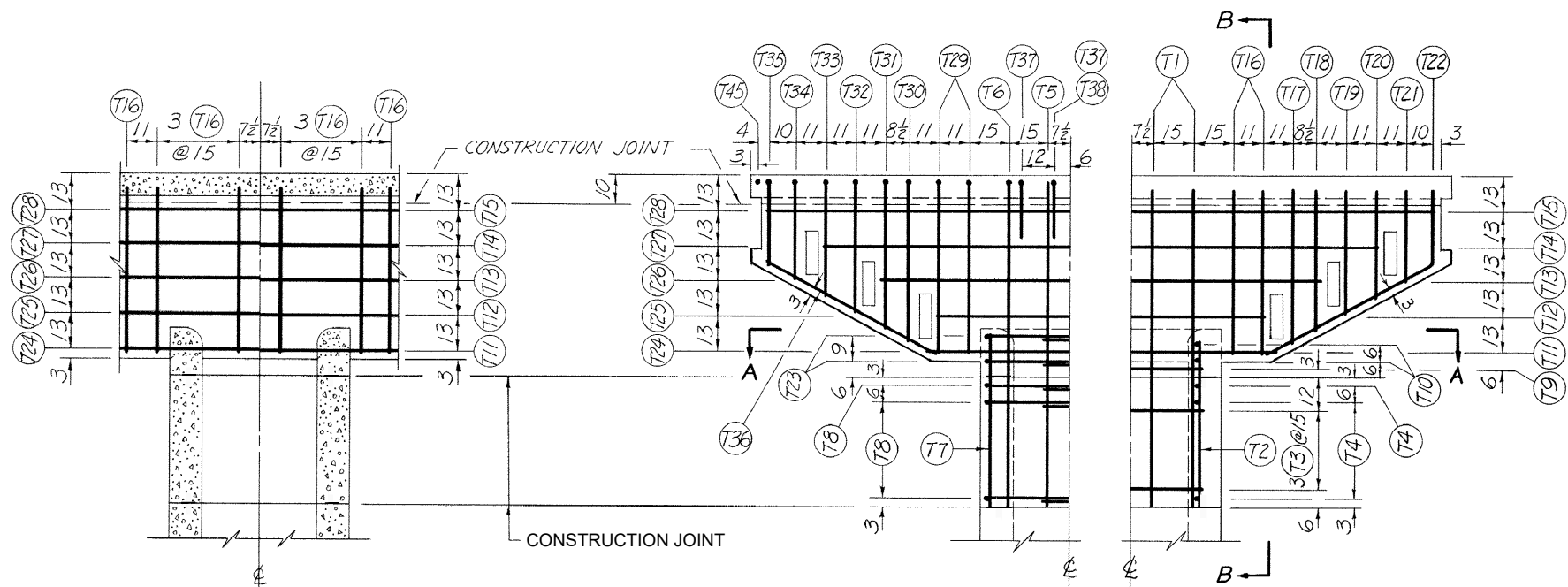
COVER SLAB PLAN



SECTION B-B



SECTION B-B



ENDWALL ELEVATION

SECTION C-C

NOTES:

- ALL DIMENSIONS IN INCHES.
- STEEL NOT SHOWN IS IDENTICAL TO INSIDE ENDWALL STEEL.
- THE 2", 3" AND 4" DISTANCES FROM SPECIFIED CONCRETE SURFACES ARE CLEAR DISTANCES.
- BARS (T1), (T3), AND (T9) IN ENDWALLS BELOW CREST ARE 4" FROM INSIDE FACE.

STANDARD BAFFLE RISER	
DESIGN CONSTANTS	
f'c = 4,000 psi	fc = 1,600 psi
n = 8	fs = 20,000
STANDARD DWG. NO. ES-3242-21515R	
DATE 9-79 SHEET 4 OF 4	

REVISIONS		
DATE	APPROVED	TITLE



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Department of
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PRINCIPAL SPILLWAY INLET REINFORCEMENT (3 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

DRAWING NO. TX-EN-0754

SHEET NO. 25

OF 83

DESIGNED BY: KMF

DRAWN BY: CAD

CHECKED BY: SS

FILE NAME: Plum 21 - Sht 25.dwg

DATE CHECKED: 8/4/2021



LANCE T. HEFNER
11386
MECHANICAL ENGINEERING
STATE OF TEXAS

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Reinforcing Steel Schedule							
Mark	Size (Bar #)	Quantity	Type	B (ft) (in)	C (ft) (in)	Length (ft) (in)	Total Length (ft) (in)
B1	6	13	1	-	-	12 - 0	156 - 0
B2	6	14	1	-	-	12 - 0	168 - 0
B3	7	44	21	4 - 0	7 - 8	11 - 8	513 - 4
B4	6	14	1	-	-	12 - 0	168 - 0
B5	6	12	1	-	-	12 - 0	144 - 0
B6	6	2	1	-	-	5 - 4	10 - 8
B7	6	4	21	1 - 0	7 - 8	8 - 8	34 - 8
B8	6	4	21	1 - 0	7 - 8	8 - 8	34 - 8
B9	6	14	21	1 - 0	7 - 8	8 - 8	121 - 4
B10	6	2	21	1 - 0	7 - 8	8 - 8	17 - 4
B11	6	14	1	-	-	11 - 2	156 - 4
B12	6	4	1	-	-	4 - 2	16 - 8
B13	6	20	21	3 - 7	7 - 1	10 - 8	213 - 4
B14	6	4	21	1 - 1	7 - 1	8 - 2	32 - 8
B15	6	4	21	0 - 9	7 - 1	7 - 10	31 - 4
B16	6	6	21	0 - 6	7 - 1	7 - 7	45 - 6
B17	6	2	21	2 - 1	7 - 1	9 - 2	18 - 4
B18	6	2	1	-	-	2 - 9	5 - 6
B19	6	2	1	-	-	2 - 10	5 - 8
R1	6	14	1	-	-	5 - 2	72 - 4
R2	6	6	1	-	-	5 - 2	31 - 0
R3	6	16	1	-	-	5 - 2	82 - 8
R4	6	8	1	-	-	5 - 2	41 - 4
R5	6	12	1	-	-	11 - 2	134 - 0
R6	6	8	1	-	-	4 - 2	33 - 4
R7	6	28	21	3 - 7	7 - 1	10 - 8	298 - 8
T1	5	12	1	-	-	9 - 9	117 - 0
T2	5	16	1	-	-	5 - 2	82 - 8
T3	5	6	1	-	-	4 - 4	26 - 0
T4	5	12	1	-	-	11 - 6	138 - 0
T5	5	4	1	-	-	9 - 9	39 - 0
T6	5	4	21	1 - 9	10 - 0	11 - 9	47 - 0
T7	5	16	1	-	-	5 - 3	84 - 0
T8	5	24	21	3 - 5	6 - 11	10 - 4	248 - 0
T9	5	4	1	-	-	4 - 4	17 - 4
T10	5	4	1	-	-	11 - 6	46 - 0
T11	5	4	1	-	-	8 - 8	34 - 8
T12	5	4	1	-	-	8 - 2	32 - 8
T13	5	4	1	-	-	11 - 8	46 - 8
T14	5	4	1	-	-	15 - 2	60 - 8
T15	5	4	1	-	-	18 - 8	74 - 8
T16	5	24	1	-	-	5 - 1	122 - 0
T17	5	8	1	-	-	4 - 8	37 - 4
T18	5	8	1	-	-	4 - 3	34 - 0
T19	5	8	1	-	-	3 - 9	30 - 0
T20	5	8	1	-	-	3 - 3	26 - 0
T21	5	8	1	-	-	2 - 10	22 - 8
T22	5	8	23	2 - 4	5 - 10	8 - 2	65 - 4
T23	5	8	21	3 - 5	6 - 11	10 - 4	82 - 8
T24	5	2	1	-	-	8 - 8	17 - 4
T25	5	2	1	-	-	8 - 2	16 - 4
T26	5	2	1	-	-	11 - 8	23 - 4
T27	5	2	1	-	-	15 - 2	30 - 4
T28	5	2	1	-	-	18 - 8	37 - 4
T29	5	8	21	1 - 9	5 - 4	7 - 1	56 - 8
T30	5	4	21	1 - 9	4 - 11	6 - 8	26 - 8
T31	5	4	21	1 - 9	4 - 6	6 - 3	25 - 0
T32	5	4	21	1 - 9	4 - 0	5 - 9	23 - 0
T33	5	4	21	1 - 9	3 - 7	5 - 4	21 - 4
T34	5	4	21	1 - 9	3 - 1	4 - 10	19 - 4
T35	5	4	21	1 - 9	2 - 8	4 - 5	17 - 8
T36	5	4	1	-	-	5 - 11	23 - 8
T37	5	6	21	1 - 9	1 - 9	3 - 6	21 - 0
T38	5	2	21	0 - 10	1 - 9	2 - 7	5 - 2
T39	4	2	1	-	-	8 - 1	16 - 2
T40	4	20	1	-	-	11 - 6	230 - 0
T41	4	10	1	-	-	19 - 4	193 - 4
T42	4	4	1	-	-	8 - 3	33 - 0
T43	5	2	1	-	-	8 - 2	16 - 4
T44	5	20	1	-	-	11 - 9	235 - 0
T45	5	2	1	-	-	12 - 2	24 - 4
T46	4	10	1	-	-	19 - 4	193 - 4
T47	4	4	1	-	-	8 - 2	32 - 8

PRINCIPAL SPILLWAY INLET STRUCTURE REINFORCEMENT SUMMARY			
Bar Size	Weight (lbs./l.f.)	Total Length (ft) (in)	Total Weight (lbs.)
4	0.668	698 - 6	467
5	1.043	2,154 - 2	2247
6	1.502	2,073 - 4	3114
7	2.044	513 - 4	1049
TOTAL REINFORCING (lb.):			6877

NOTE:

1. REBAR SCHEDULES AND LAYOUTS ARE FOR INFORMATION AND MAY BE USED AS A GUIDE. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING FULL REBAR LAYOUTS AND SCHEDULES FOR REVIEW AND APPROVAL.

ABBREVIATIONS:

BO = BOTTOM OF
TO = TOP OF
BF = BOTTOM FACE
TF = TOP FACE
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
IF = INSIDE FACE
OF = OUTSIDE FACE
CJ = CONSTRUCTION JOINT
OCJ = OPTIONAL CONSTRUCTION JOINT
CTJ = CONTROL JOINT

HP = HIGH POINT
OC = ON CENTER
CRJ = CONTRACTION JOINT
EJ= EXPANSION JOINT
BR = BOTTOM ROW
TR = TOP ROW
NR = NEAR ROW
FR = FAR ROW
ER= EACH ROW
IR = INSIDE ROW
OR= OUTSIDE ROW
MR = MIDDLE ROW

SST = STAINLESS STEEL
TOC = TOP OF CONCRETE
BL = BOTTOM LAYER
TL = TOP LAYER
ML = MIDDLE LAYER
NS = NEAR SIDE
FS = FAR SIDE
ES = EACH SIDE
EW = EACH WAY
EC = EACH CORNER
L_d = DEVELOPMENT LENGTH
D_b = NOMINAL DIAMETER OF REINFORCING BAR

SPC = SPACE OR SPACES
EQ SPC = EQUALLY SPACED, EQUAL SPACES
UV = UNIFORMLY VARYING LENGTHS OF BARS BETWEEN LENGTHS SHOWN
CLR = CLEAR
CTR = CENTER OR CENTERS
WS = PVC WATERSTOP
CL = CENTERLINE

SYMBOLS:

SPICES SHOWN THUS  INDICATE A LAPPED SPLICE, NOT A BEND IN THE BAR.

DIMENSIONS:

DIMENSIONS ARE TO THE CENTERLINE OF THE BARS UNLESS OTHERWISE SHOWN.

COVER:

UNLESS INDICATED ON THE DRAWINGS, PLACE THE REINFORCEMENT SO THAT THE CLEAR DISTANCE BETWEEN FACE OF CONCRETE AND NEAREST REINFORCEMENT IS 2". PROVIDE 3" CLEAR DISTANCE FROM FACE OF CONCRETE FOR ALL BARS WHEN THE CONCRETE IS PLACED AGAINST EARTH OR ROCK. CLEAR DISTANCE IS THE DESIGN DIMENSION LINE. REINFORCEMENT PARALLELING CONSTRUCTION JOINTS SHALL HAVE A MINIMUM OF 2" CLEAR COVER.

BENT BARS:

UNLESS OTHER RADIUS BENDS ARE INDICATED ON THE DRAWINGS, ALL REINFORCEMENT REQUIRING BENDING SHALL BE BENT AROUND A PIN HAVING A DIAMETER AS INDICATED IN TABLE 1.

ACCESSORIES:

BAR SUPPORTS, SPACERS, AND OTHER ACCESSORIES ARE NOT SHOWN ON THE DRAWINGS. THE RECOMMENDATIONS OF THE ACI DETAILING MANUAL—CURRENT EDITION, OR OTHER APPROVED SUPPORTING SYSTEM MAY BE USED.

REFERENCE CODE:

UNLESS OTHERWISE SHOWN FOLLOW THE RECOMMENDATIONS ESTABLISHED BY THE AMERICAN CONCRETE INSTITUTE'S DETAILING MANUAL (ACI SP-66).

SPICES:

THE MINIMUM LENGTH OF LAP FOR SPLICING PARALLEL BARS SHALL BE GIVEN IN TABLE 2. WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTHS OF LAP SHALL BE GOVERNED BY THE SMALLER DIAMETER BAR. SPICES ARE TO BE MADE SO THAT THE REQUIRED CLEAR DISTANCES TO FACE OF CONCRETE WILL BE MAINTAINED.

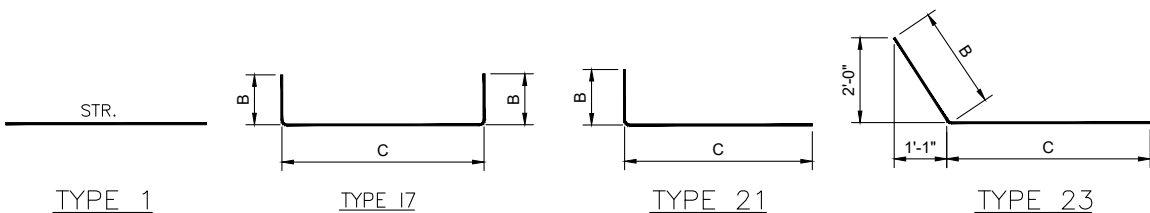


TABLE 1
PIN DIAMETER IN INCHES

BAR NO.	3	4	5	6	7	8	9	10	11
STANDARD BENDS	2 1/4	3	3 3/4	4 1/2	5 1/4	6	9 1/2	10 3/4	12
STIRRUP AND TIE BENDS	1 1/2	2	2 1/2	4 1/2	5 1/4	6	—	—	—

TABLE 2
REINFORCEMENT REQUIREMENTS

BAR SIZE #	MINIMUM CLEAR BAR SPACING (INCHES)	DEVELOPMENT LENGTH, L _d		CLASS B SPLICE LENGTH	
		OTHER BARS (INCHES)	TOP BAR (INCHES)	OTHER BARS (INCHES)	TOP BAR (INCHES)
3	3	12	12	16	16
4	3	12	15	16	20
5	4	15	19	19	24
6	5	18	23	23	29
7	5	25	33	33	43
8	6	29	37	37	49
9	7	36	46	46	60
10	8	44	57	57	74
11	9	53	68	68	89

TABLE 2 NOTES:

1. SPLICE LENGTHS AND DEVELOPMENT LENGTHS INDICATED ARE MINIMUM LENGTHS REQUIRED BASED ON THE PROVISIONS OF ACI 318, SECTIONS 12.2.3 AND 12.15.1. WHEN SPLICE LENGTHS BASED ON THE REINFORCEMENT SCHEDULES ARE LONGER THAN THOSE INDICATED IN TABLE 2, THE REINFORCEMENT SCHEDULE SHALL GOVERN. NO FIELD CUTTING OF REINFORCEMENT WILL BE ALLOWED UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR APPROVED BY THE CONTRACTING OFFICER.

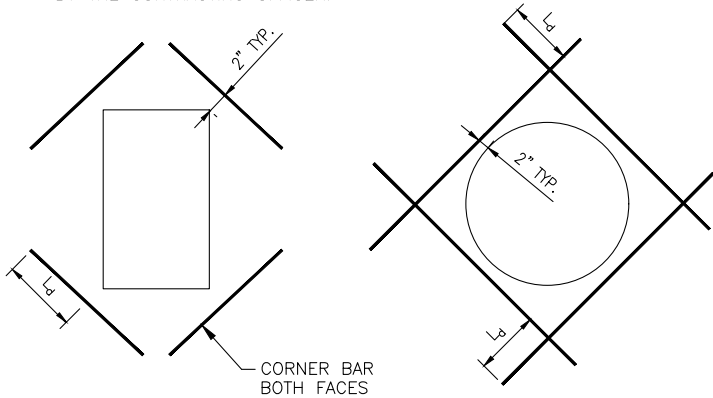


TABLE FOR REINFORCEMENT AROUND OPENINGS	
MEMBER THICKNESS	CORNER BARS
LESS THAN 10"	1-#4 CTR.
10" THRU 1'-6"	2-#4 (1EF)
1'-7" THRU 3'-0"	2-#6 (1EF)
OVER 3'-0"	2-#8 (1EF)

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PRINCIPAL SPILLWAY INLET REINFORCEMENT SCHEDULE

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States
Department of
Agriculture

USDA

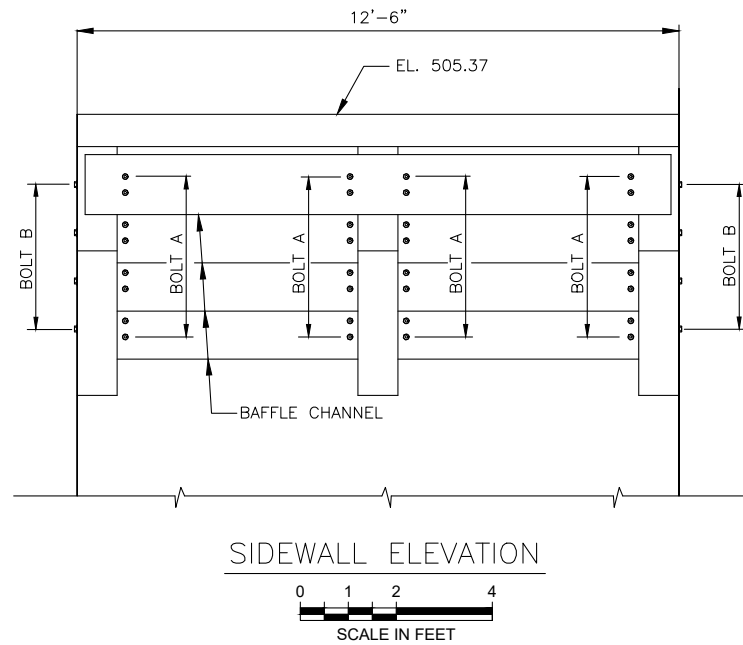
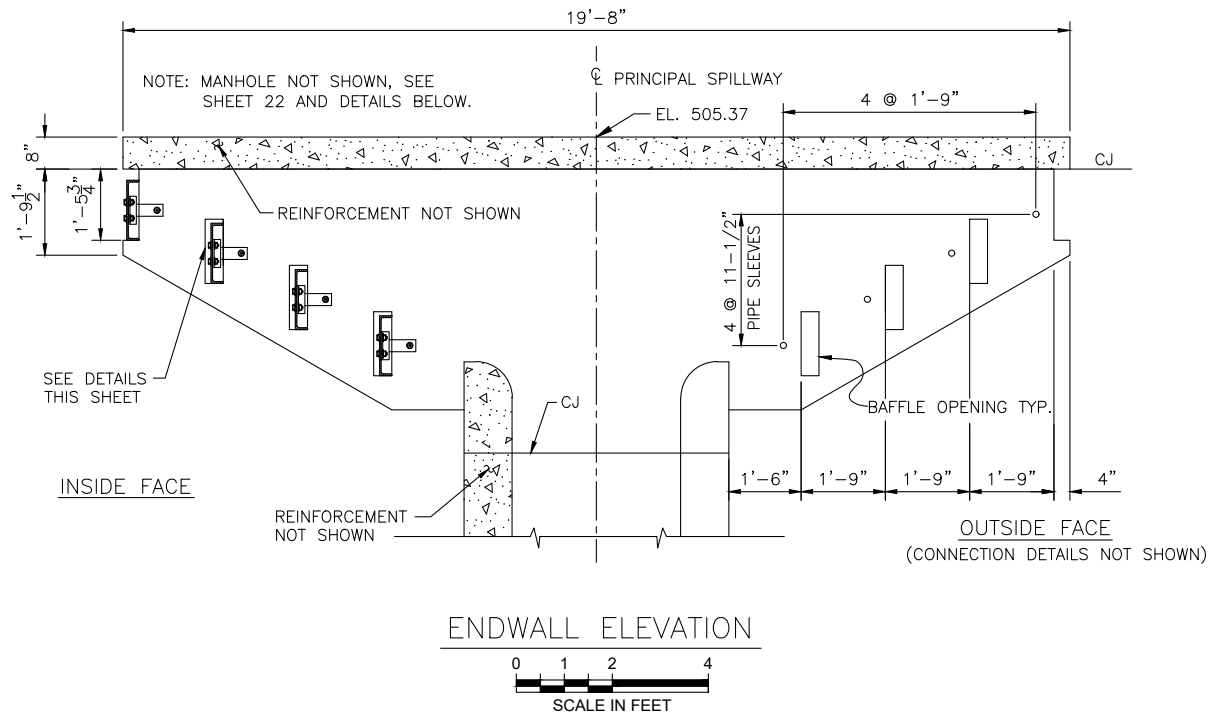
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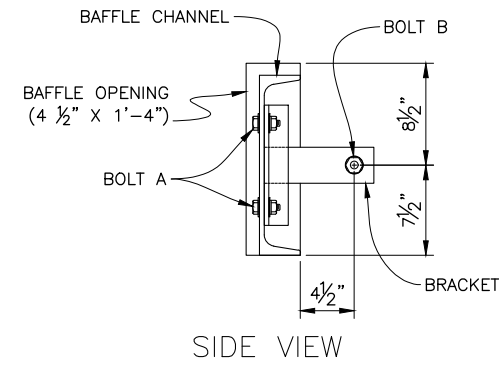
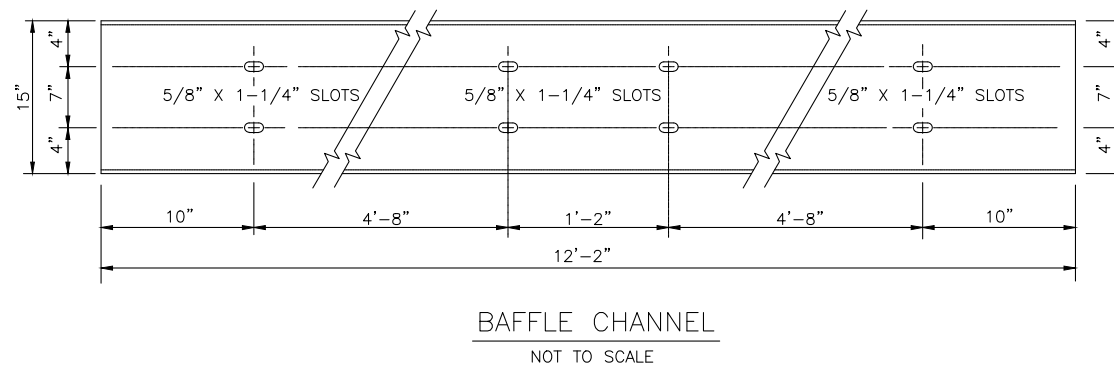
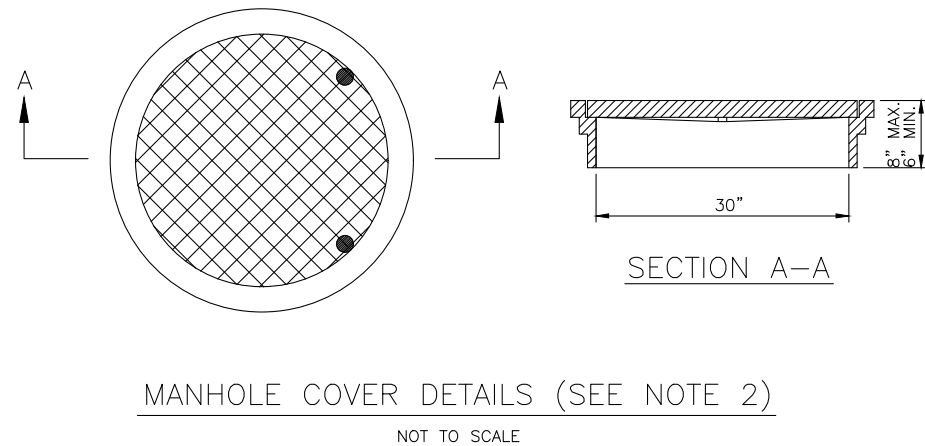
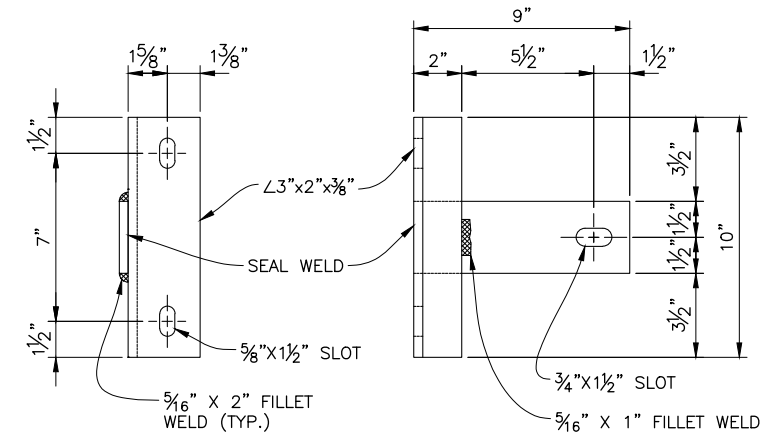
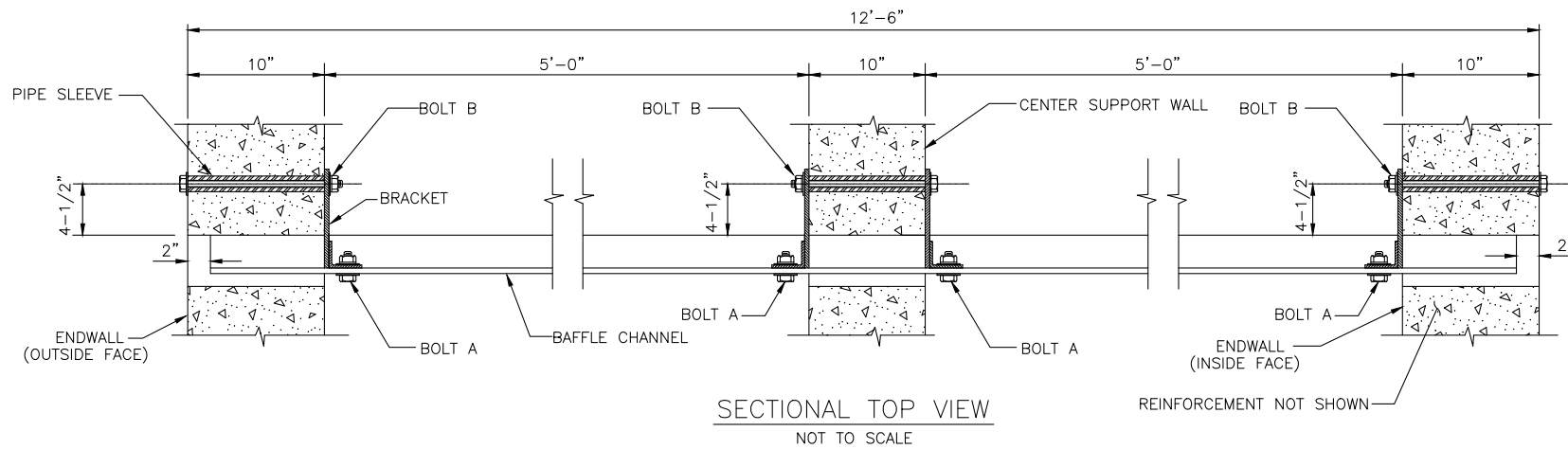


SCHEDULE OF QUANTITIES		
ITEM	SIZE	QUANTITY
CHANNEL	C 15 x 33.9	8
BRACKET	SEE DETAIL	32
BOLT A 1/2"	1/2 x 2 1/2	64
BOLT B 1/2"	5/8 x 12	24
PIPE SLEEVE	3/4 x 10	24

1/2" BOLT WITH TWO FLAT WASHERS, ONE LOCK WASHER AND NUT.

NOTES:

- ALL PARTS OF TRASHRACK SHALL BE A36 STEEL AND GALVANIZED AFTER FABRICATION. SEE MATERIAL SPECIFICATIONS 581 AND 582.
- MANHOLE COVER SHALL BE NEENAH FOUNDRY COMPANY R-6078 ROUND SERIES WITH TYPE E LOCKING DEVICE (WITH STAINLESS STEEL CAP SCREWS) OR EQUIVALENT AS APPROVED BY THE CONTRACTING OFFICER OR THEIR DESIGNATED REPRESENTATIVE. IF AN APPROVED EQUIVALENT IS USED, IT SHALL HAVE A SIMILAR LOCKING DEVICE. SEE CONSTRUCTION SPECIFICATION 81.



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PRINCIPAL SPILLWAY INLET - TRASHRACK DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



DRAWING NO.
TX-EN-0754

SHEET NO.

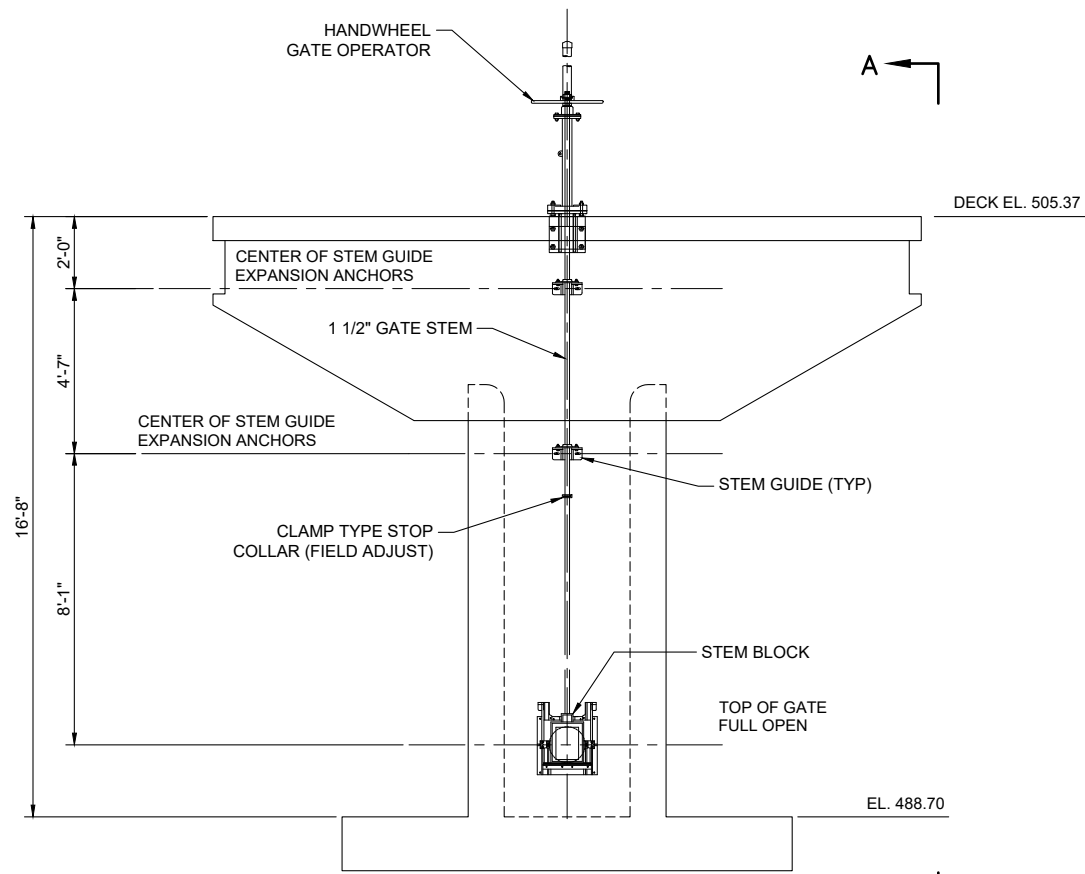
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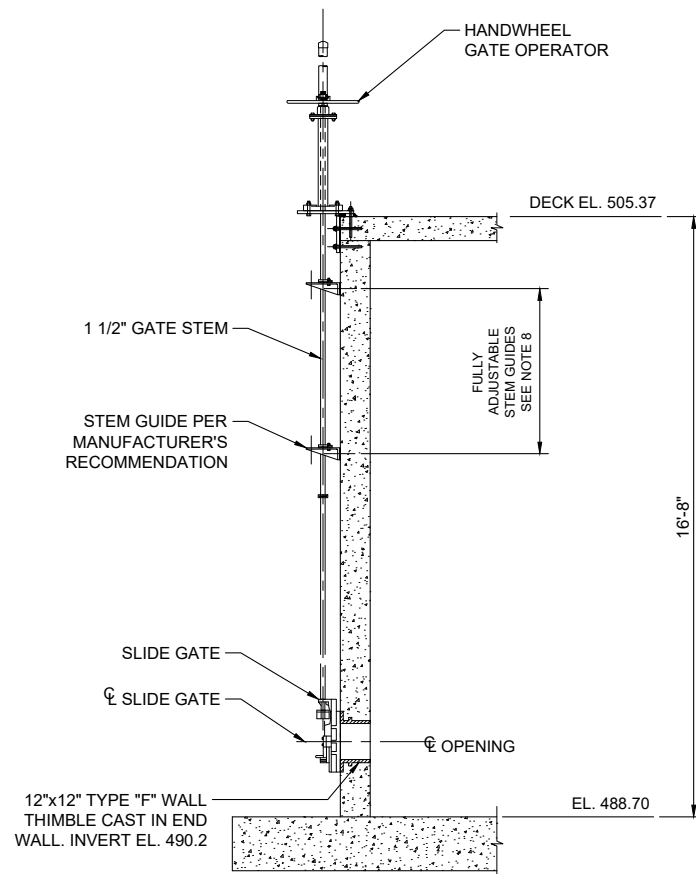
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DATE	APPROVED	TITLE

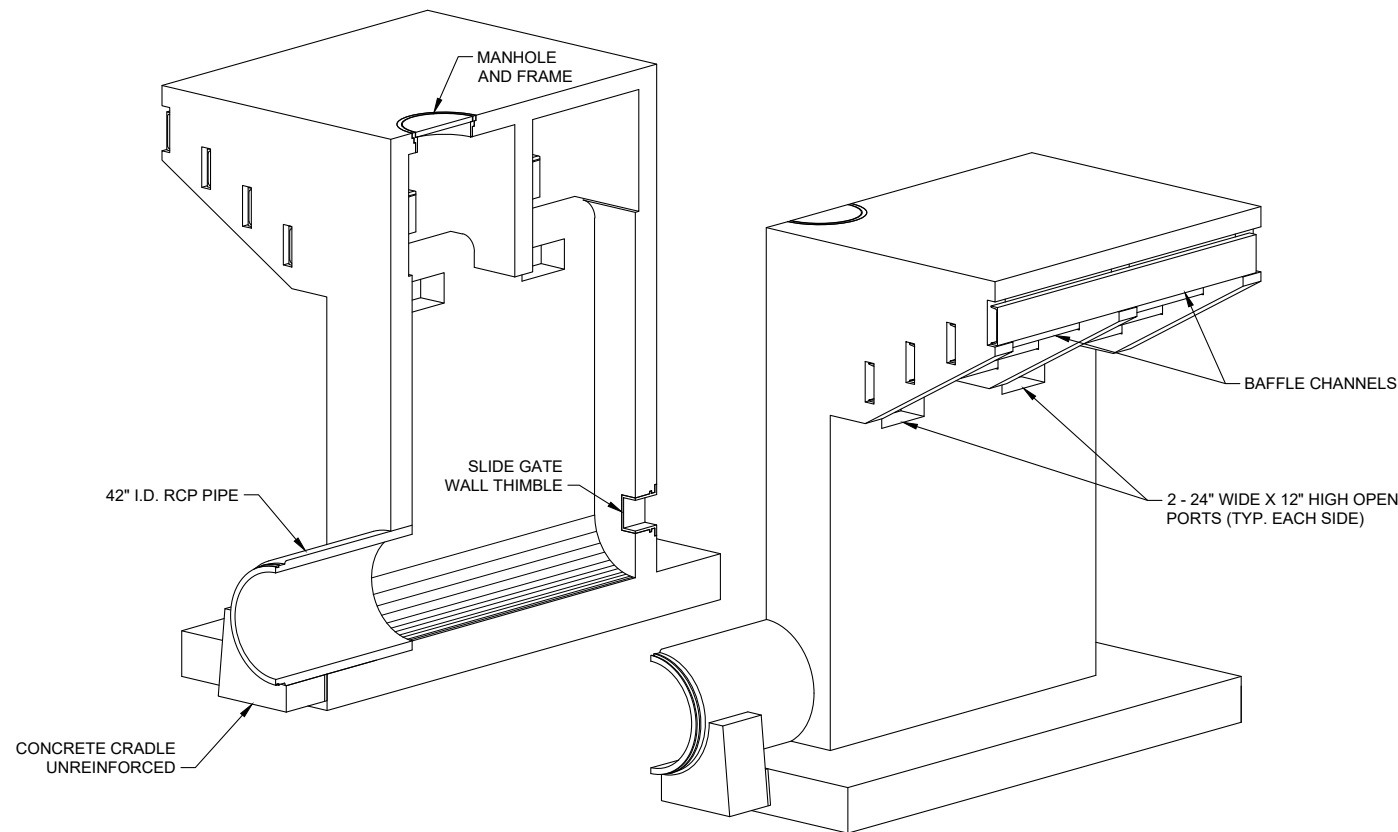
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DETAILS OF SLIDE GATE
NOT TO SCALE



SECTION A-A
NOT TO SCALE



PRINCIPAL SPILLWAY INLET SECTION ISOMETRIC VIEW
NOT TO SCALE

NOTES:

1. REINFORCEMENT NOT SHOWN. SEE SHEETS 20 TO 23 FOR DETAILS.
2. THE SLIDE GATE SHALL BE CENTERED IN THE UPSTREAM ENDWALL OF THE PRINCIPAL SPILLWAY INLET. WALL BRACKET AND STEM GUIDES SHALL HAVE SUFFICIENT ADJUSTMENT TO ENSURE VERTICAL MOUNTING FOR THE GATE WALL FITTING.
3. 12" SQUARE FABRICATED CAST IRON SLIDE GATE, SELF CONTAINED, CLASS 30-20, TYPE MLS-2, FLANGE BACK, WITH THIMBLE AND RUBBER GASKET. THIMBLE - TYPE F, CAST IRON. FOR ADDITIONAL SLIDE GATE DETAILS SEE CONSTRUCTION SPECIFICATION 71.
4. 1-1/2" DIA. STAINLESS STEEL PIPE NON-RISING STEM EXTENSION AND BRACKETS (TORQUE TUBE).
5. 10" DIAMETER HANDWHEEL, TYPE 1.
6. STAINLESS STEEL BOLTS AND NUTS.
7. GATE TO BE INSTALLED ACCORDING TO MANUFACTURERS INSTALLATION INSTRUCTIONS.
8. STEM GUIDE SPACING SHALL BE ACCORDING TO MANUFACTURERS RECOMMENDATIONS OR AT 6 FOOT MAX. SPACING, WHICHEVER CONTROLS. CONTRACTOR SHALL COORDINATE BOLT LOCATIONS TO MAINTAIN 2 INCH MINIMUM CLEARANCE FROM REINFORCEMENT AND 6 INCH MINIMUM DISTANCE FROM CONSTRUCTION JOINTS.



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PRINCIPAL SPILLWAY INLET - SLIDE GATE DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



DRAWING NO.
TX-EN-0754

SHEET NO.

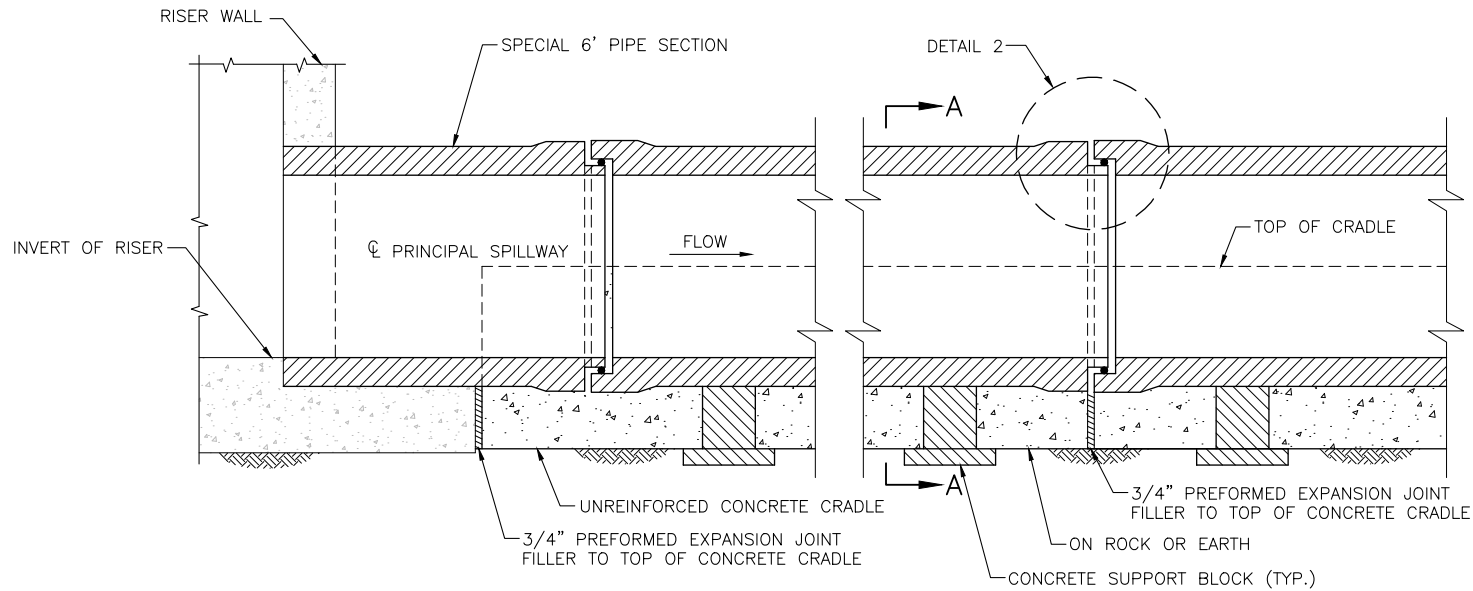
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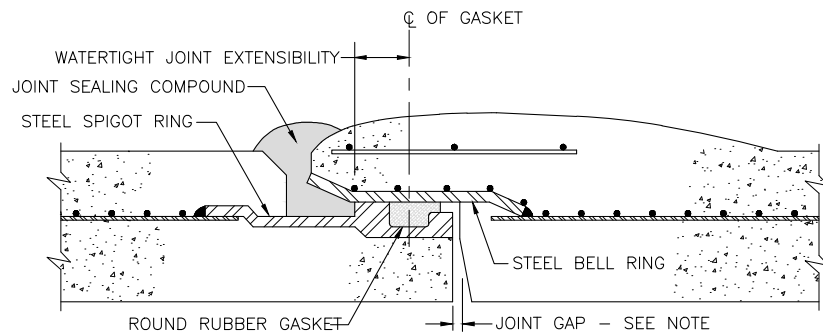
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DETAIL OF WALL FITTING
NOT TO SCALE

DETAIL OF PIPE JOINT
NOT TO SCALE

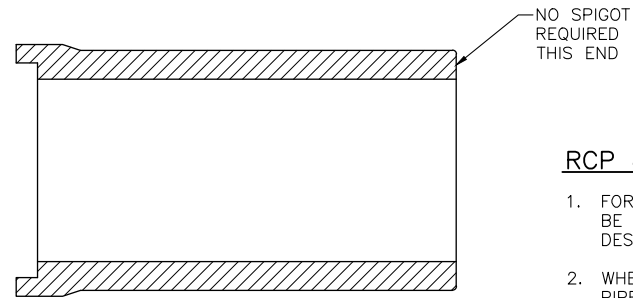


DETAIL 2
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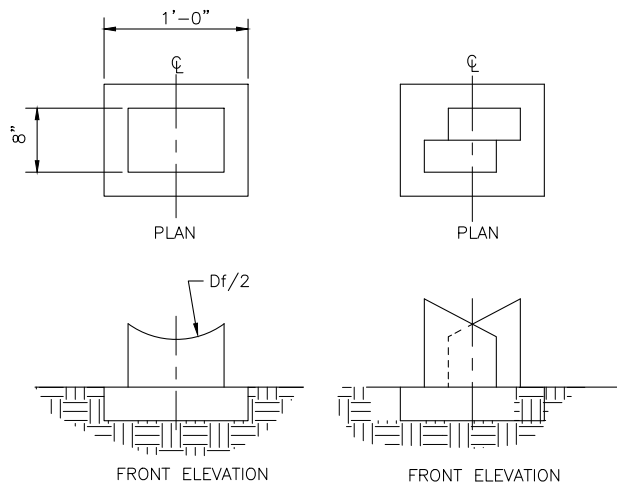
NOTE:
JOINT LENGTH EQUALS WATERTIGHT JOINT
EXTENSIBILITY PLUS JOINT GAP. THE PIPE
SHALL BE DRAWN TOGETHER SO THAT THE
MAXIMUM JOINT GAP DOES NOT EXCEED 3/8"
FOR PIPE LAID ON A STRAIGHT LINE.

RCP STRENGTH REQUIREMENTS		
I.D. OF PIPE	INTERNAL LOAD	EXTERNAL LOAD
	HYDROSTATIC PRESSURE HEAD OF WATER IN FEET	MINIMUM 3-EDGE BEARING STRENGTH IN POUNDS PER LINEAL FOOT OF PIPE (SEE AWWA C-301 FOR REFERENCE) OR EQUIVALENT LOAD TO PRODUCE 0.001 IN. CRACK ONE FOOT LONG
INCHES	FEET	LBS/FT
42	50	10,500

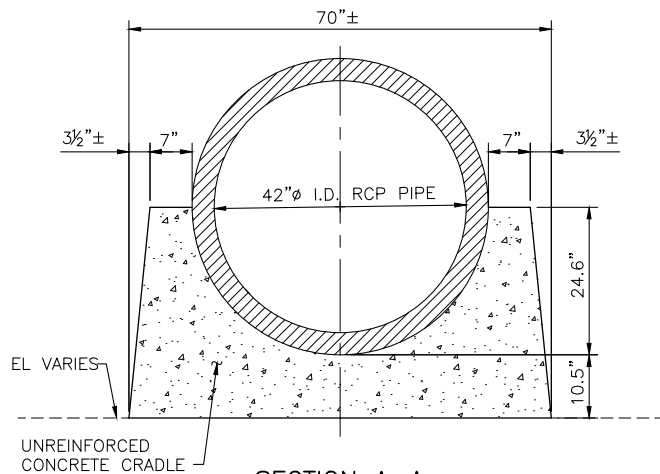
JOINT REQUIREMENTS				
PIPE I.D.	LENGTH OF PIPE SECTION	MINIMUM JOINT LENGTH	MINIMUM JOINT LIMITING ANGLE	
INCH	FEET	INCHES	RADIANS	DEGREES
42	10	3 1/8	0.0157	0.90



TERMINAL PIPE SECTION
(ONE REQUIRED)
NOT TO SCALE



SUGGESTED SUPPORT BLOCKS AND WEDGES
NOT TO SCALE



SECTION A-A
NOT TO SCALE

RCP JOINT NOTES:

- FOR PIPE LENGTH OTHER THAN SHOWN, JOINT REQUIREMENTS WILL BE DETERMINED BY THE CONTRACTING OFFICER OR THEIR DESIGNATED REPRESENTATIVE.
- 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 OR THEIR DESIGNATED REPRESENTATIVE FOR APPROVAL.

SUPPORT BLOCK NOTES

- SUFFICIENT BLOCKS OR WEDGES SHALL BE PROVIDED TO SUPPORT THE PIPE TO THE REQUIRED LINE AND GRADE. THE CONTRACTOR SHALL DETERMINE THE NUMBER AND SIZE OF BLOCKS OR WEDGES REQUIRED.
- A MINIMUM OF TWO SUPPORTS SHALL BE REQUIRED FOR EACH SECTION OF PIPE.
- AT LEAST 6" SHALL BE MAINTAINED BETWEEN THE SIDE OF THE FINISHED CRADLE SURFACE AND THE COMPLETED SUPPORT BLOCK OR WEDGE.



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PRINCIPAL SPILLWAY RCP SECTIONS AND DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN

CALDWELL COUNTY, TEXAS



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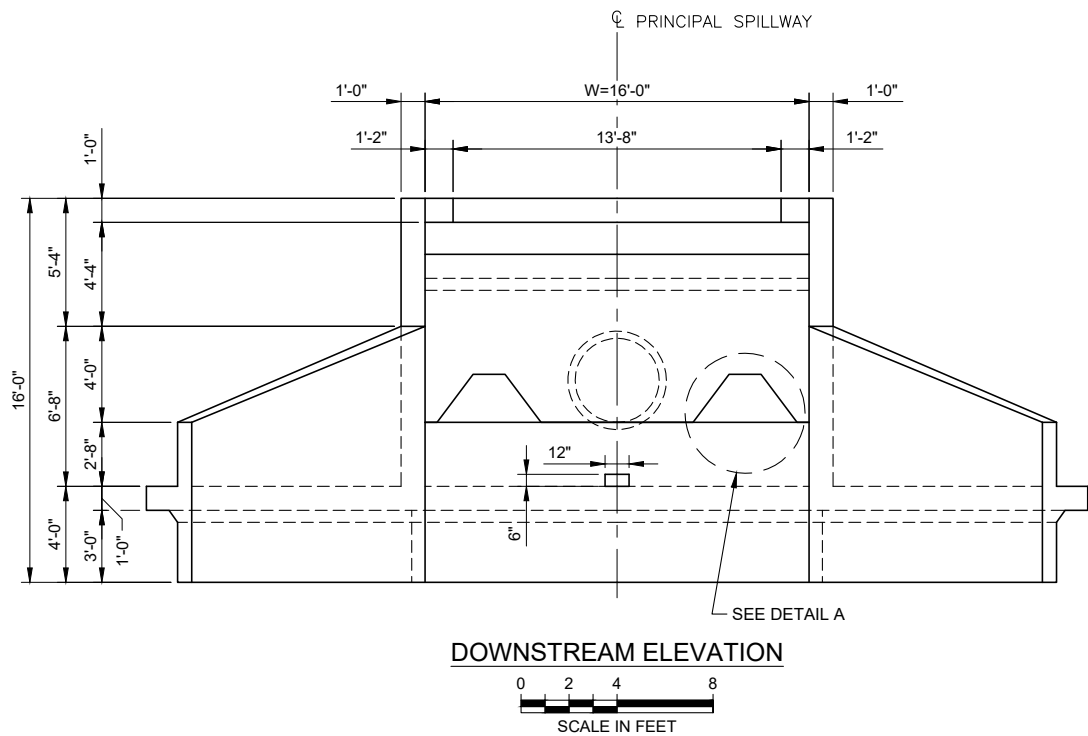
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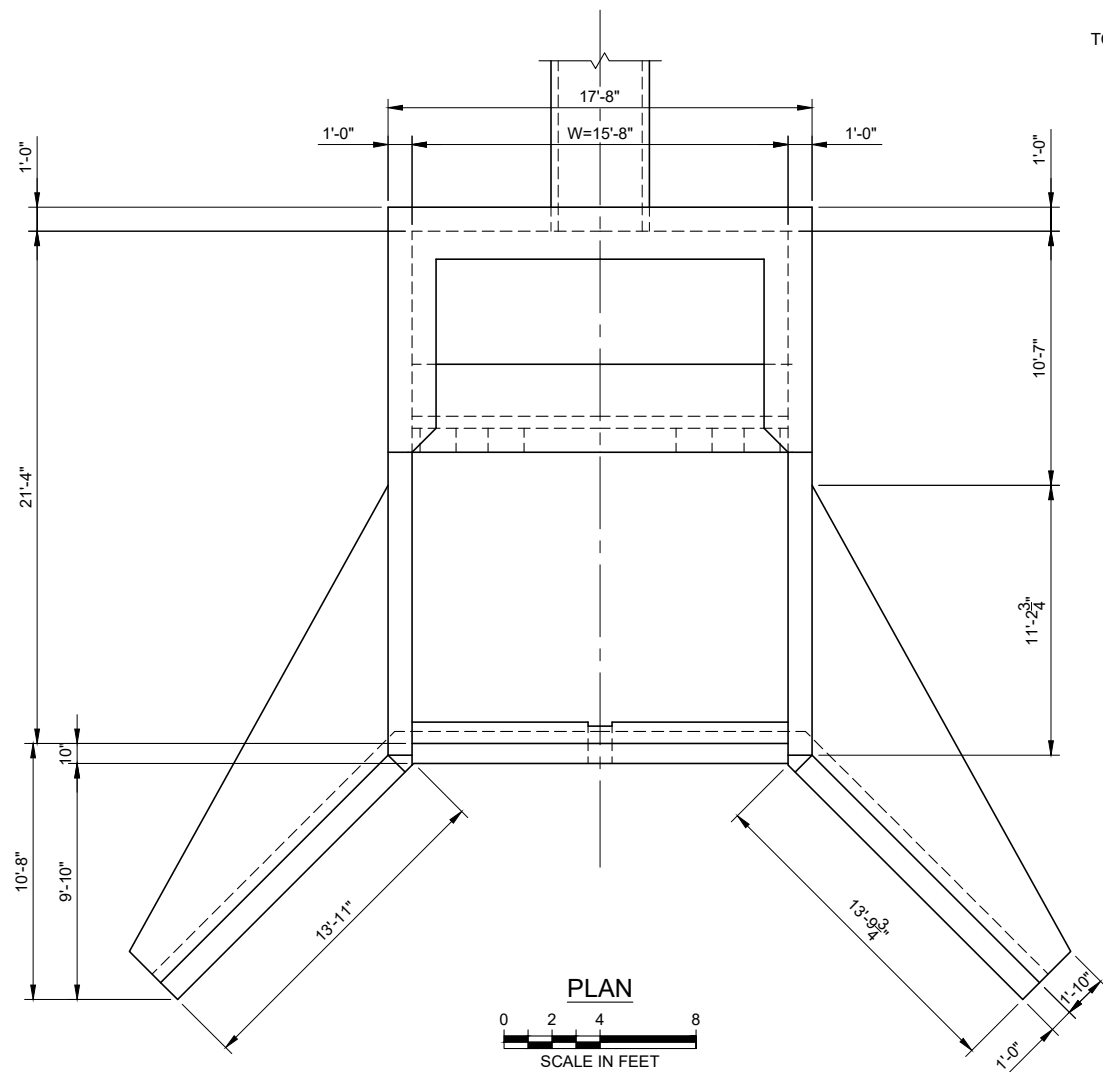
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DOWNSTREAM ELEVATION



PLAN



3/4" THICK x 12" WIDE VIRGIN SPONGE RUBBER
EXPANSION JOINT FILLER ALL AROUND PIPE, ASTM
D1752, TYPE 1 (SEE MATERIAL SPECIFICATION 535)

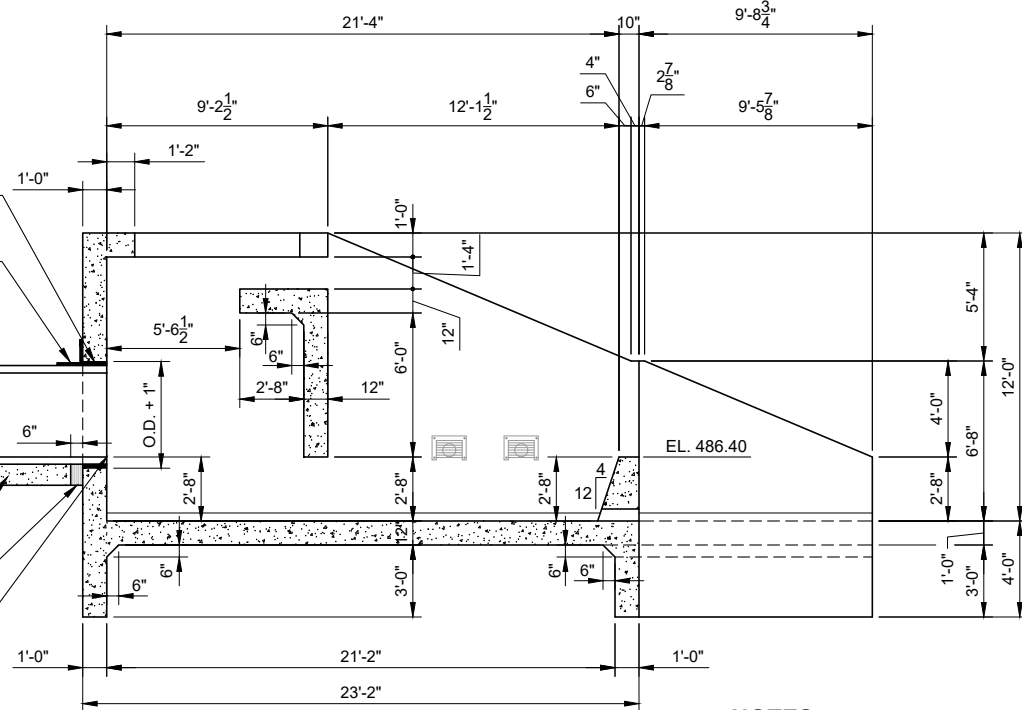
NON-WOVEN GEOTEXTILE
(SEE NOTE 3)

LAST SECTION OF CONDUIT
TO BE LAID HORIZONTAL

CONCRETE CRADLE
UNREINFORCED

6" THICK VIRGIN SPONGE
RUBBER FILLER (SEE NOTE 2)

P.S. STA. 2+93.0
INV. EL. 486.4

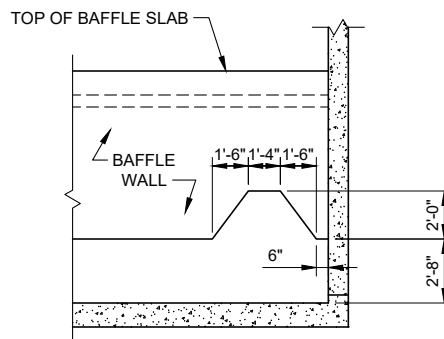


SECTION ON CENTERLINE

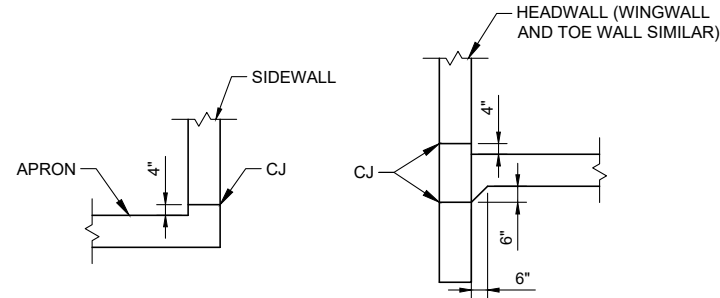


NOTES:

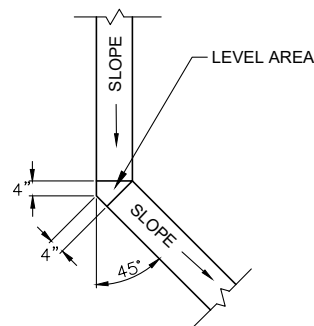
1. REINFORCEMENT NOT SHOWN (SEE SHEETS 31 THRU 34).
2. 6" THICK VIRGIN SPONGE RUBBER FILLER TO BE INSTALLED BETWEEN THE UPSTREAM FACE OF THE HEADWALL AND DOWNSTREAM FACE OF THE CRADLE. VIRGIN SPONGE RUBBER FILLER AS PER ASTM D1752, TYPE 1. SEVERAL LAYERS LAMINATED TO MAKE A TIGHT 6" COMPRESSIBLE LAYER. (SEE CONSTRUCTION SPECIFICATION 31).
3. WRAP EXPOSED PERIMETER OF CONDUIT WITH GEOTEXTILE FABRIC AS INDICATED. GEOTEXTILE SHALL EXTEND AROUND PERIMETER OF PIPE AND DOWN THE SIDES OF THE CRADLE, AND ALONG THE UPSTREAM FACE OF THE HEADWALL.



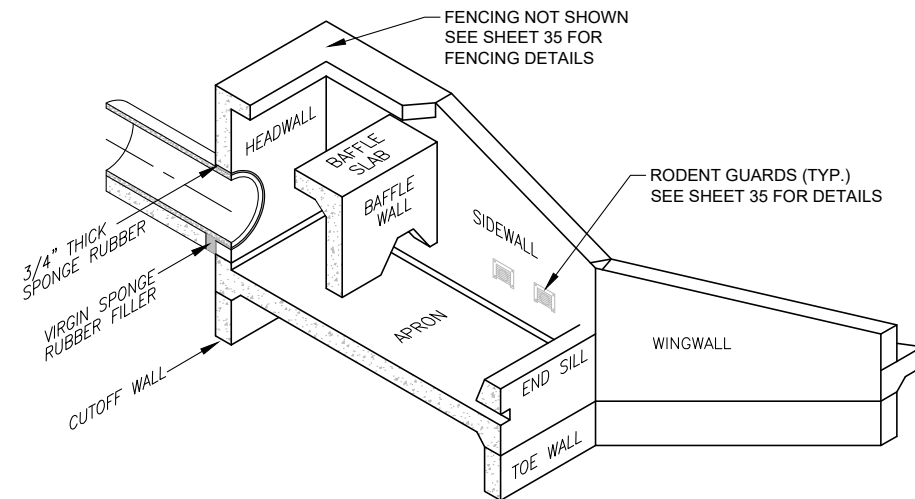
DETAIL A
NOT TO SCALE



CONSTRUCTION JOINT DETAILS
NOT TO SCALE



PLAN AT JUNCTION
SIDEWALL & WINGWALL
NOT TO SCALE



SECTION ISOMETRIC VIEW

NOT TO SCALE

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IMPACT BASIN SECTIONS AND DETAILS
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

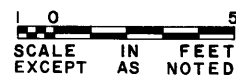
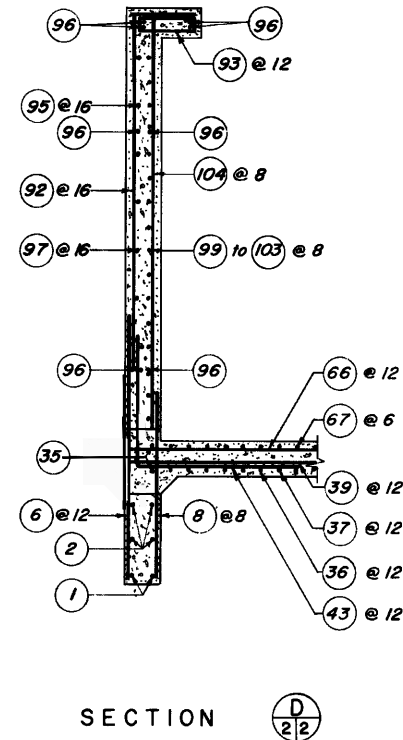
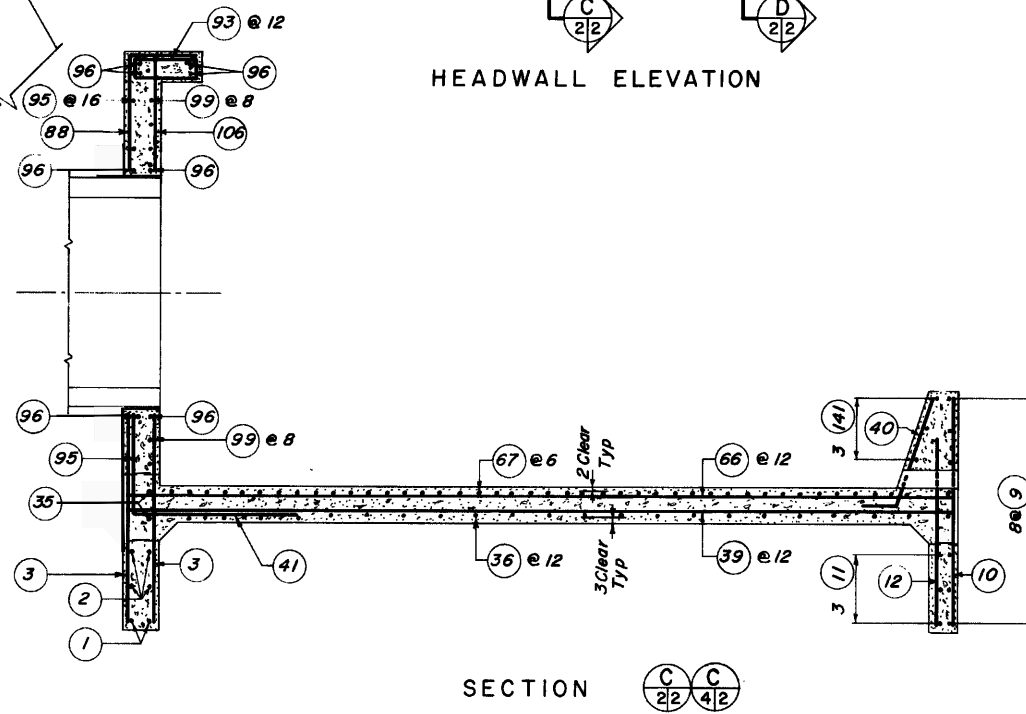
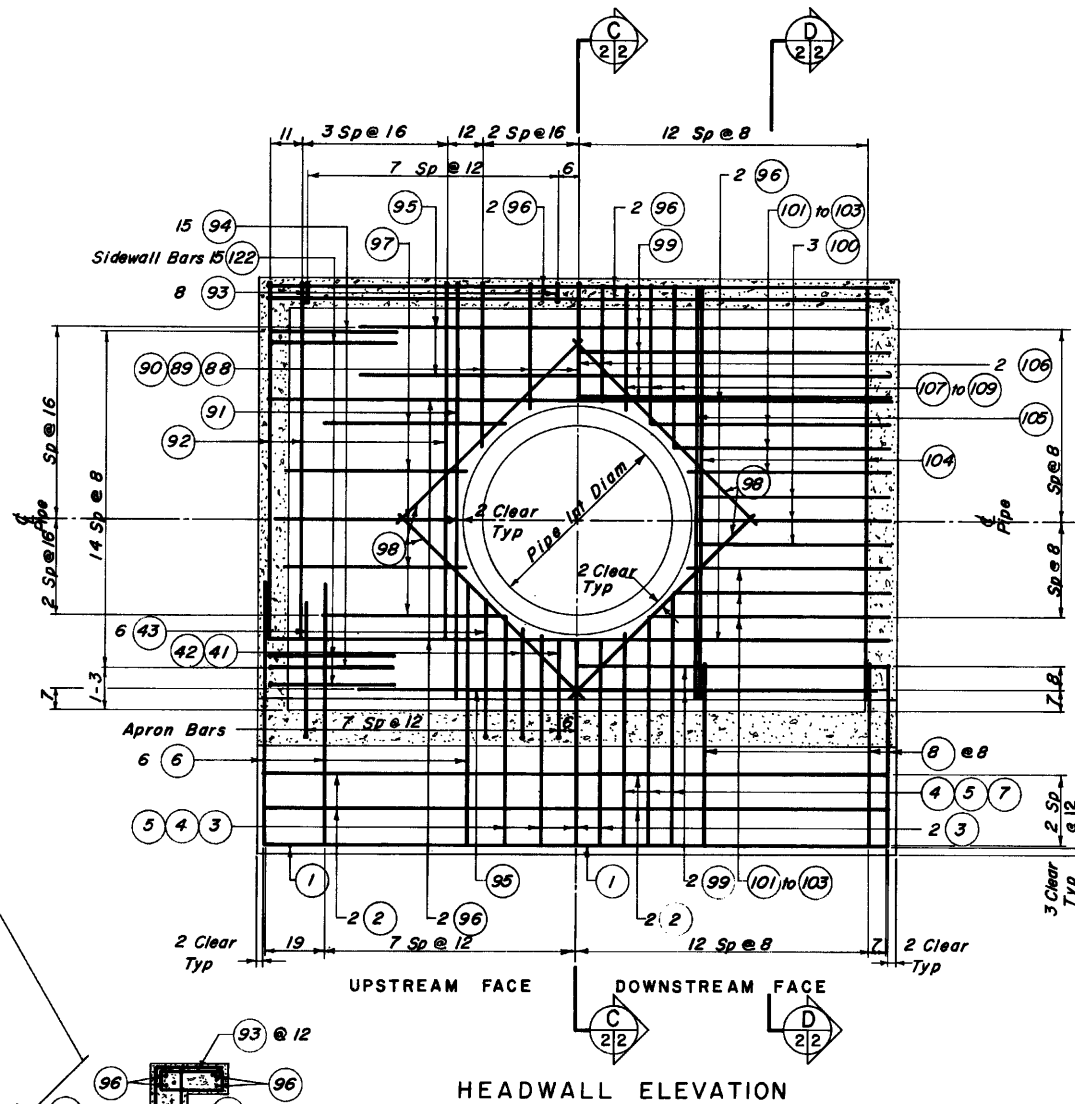
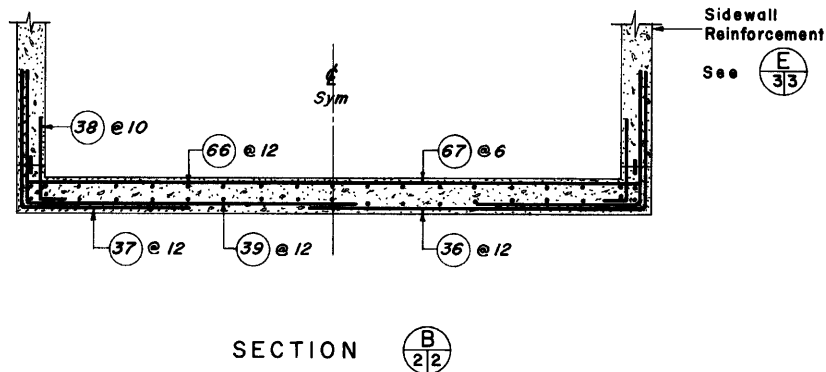
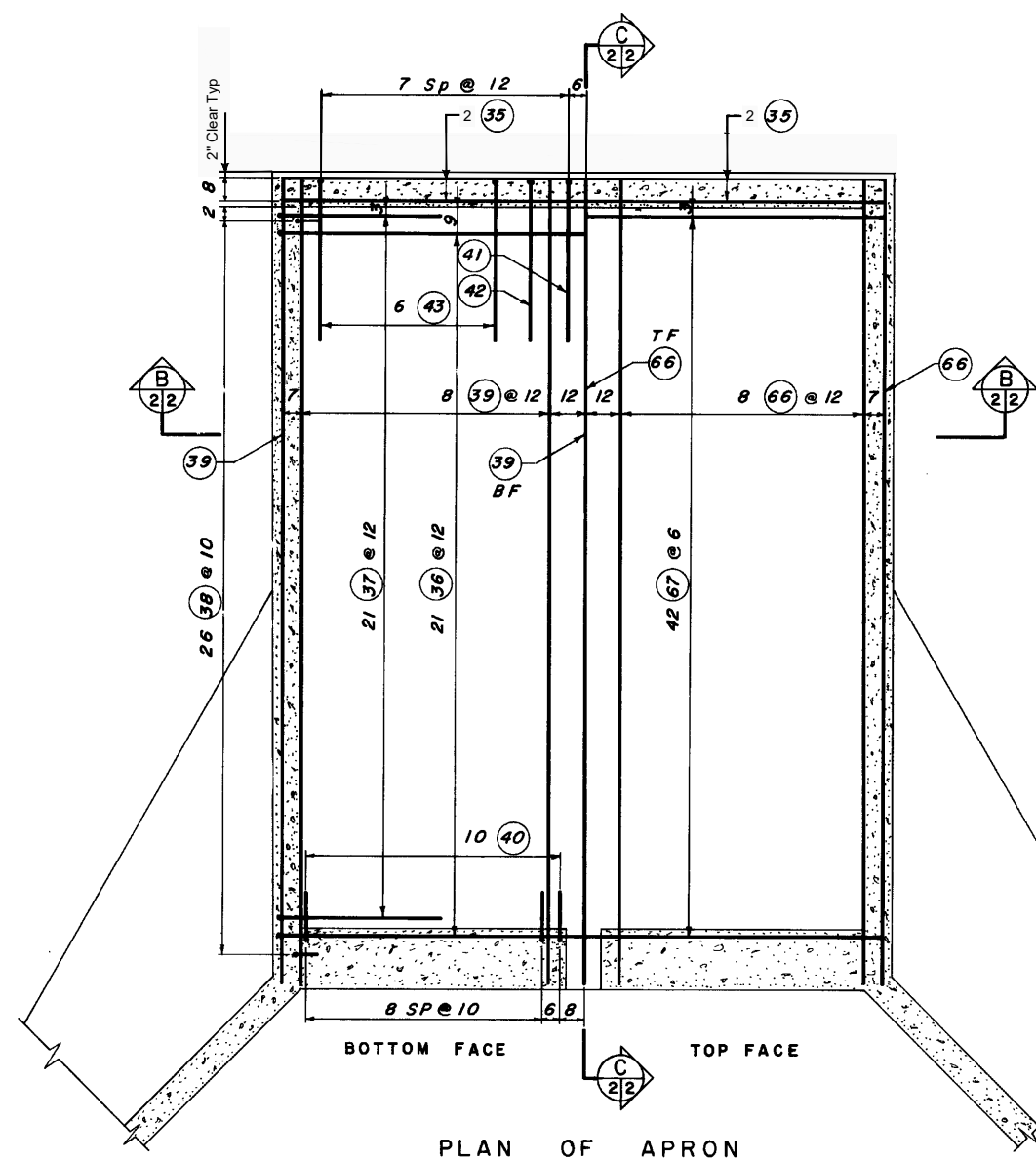
United States
Department of
Agriculture

Natural Resources
Conservation Service

DRAWING NO.
TX-EN-0754
SHEET NO.
30
OF
83

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ADAPTED FROM	DATE: 12-18
STANDARD IMPACT BASIN	
DESIGN CONSTANTS	
f _c = 4,000 psi f _c = 1,600 psi n = 8 f _s = 20,000	
STANDARD DWG. NO. ES-4160	
DATE 1-70	SHEET 2 OF 5



DESIGNED BY: KMF
DRAWN BY: CAD
CHECKED BY: SS
FILE NAME: Plum 21 - Sht 31.dwg
DATE CHECKED: 8/4/2021

IMPACT BASIN REINFORCEMENT (1 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



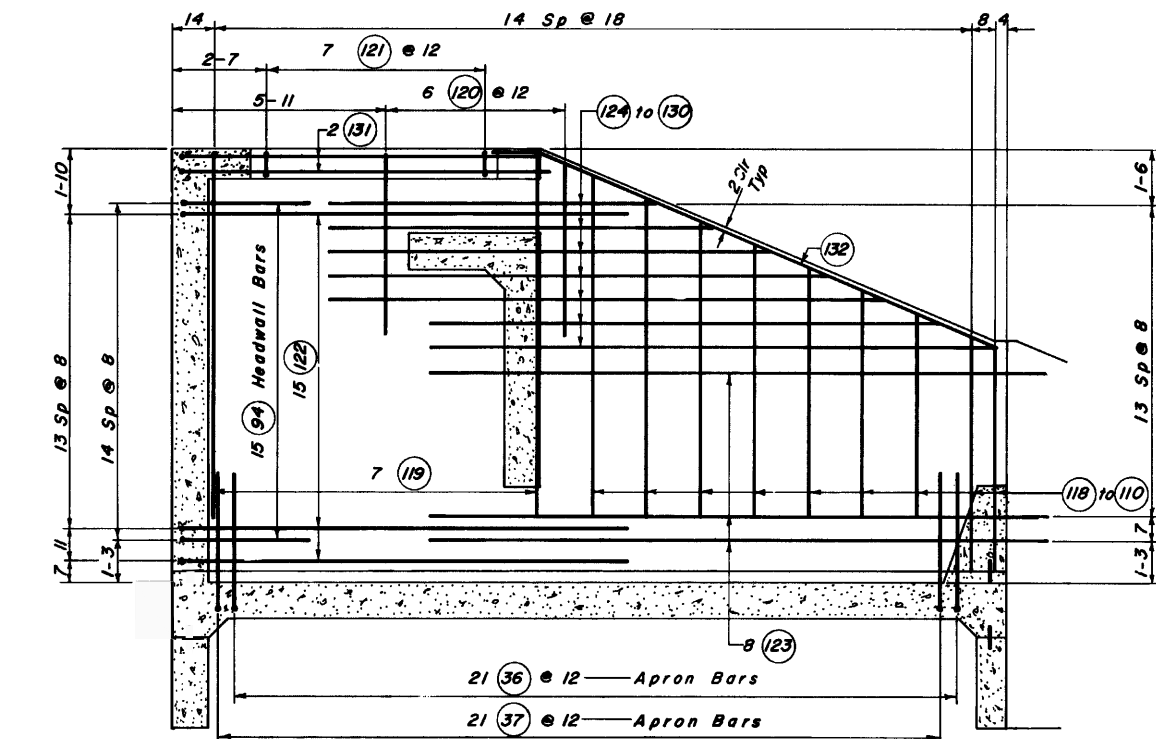
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SHEET NO. 31

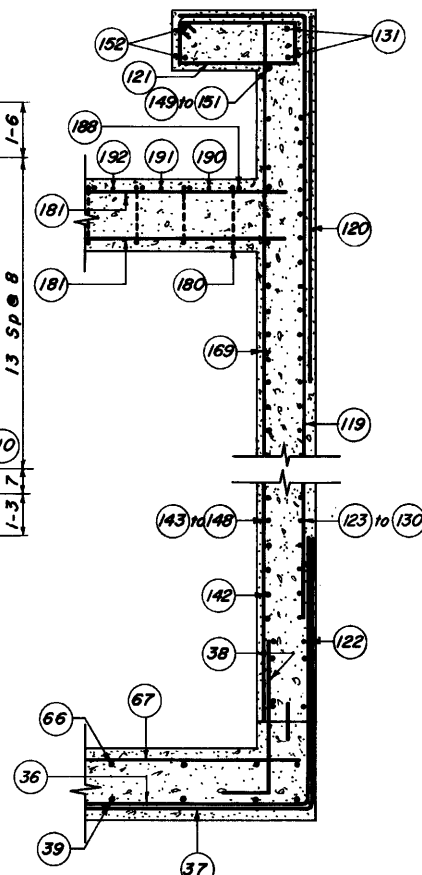
OF 83

REVISIONS		
DATE	APPROVED	TITLE

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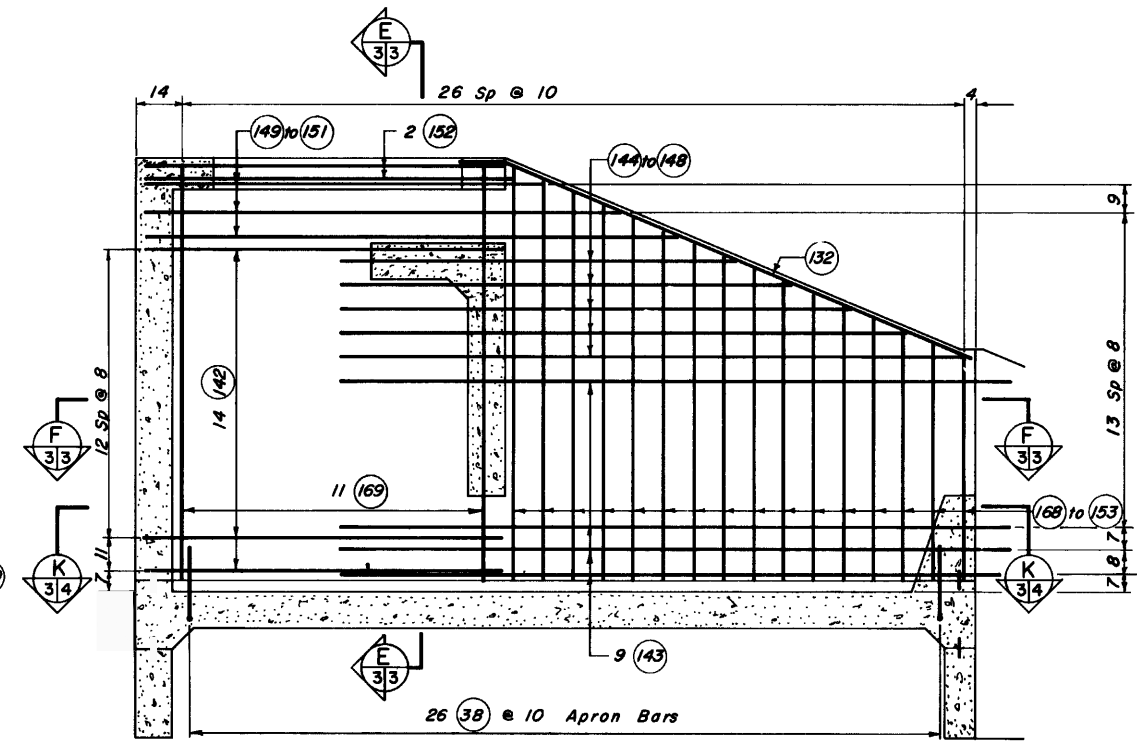


UNEXPOSED FACE
ELEVATION SIDEWALL

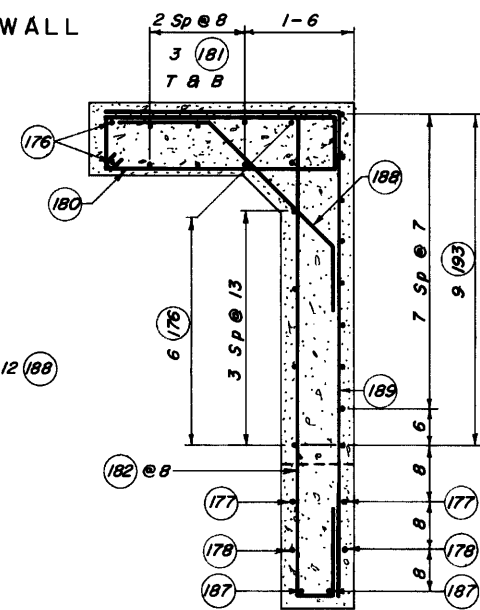


SECTION E
3/3

SCALE IN FEET

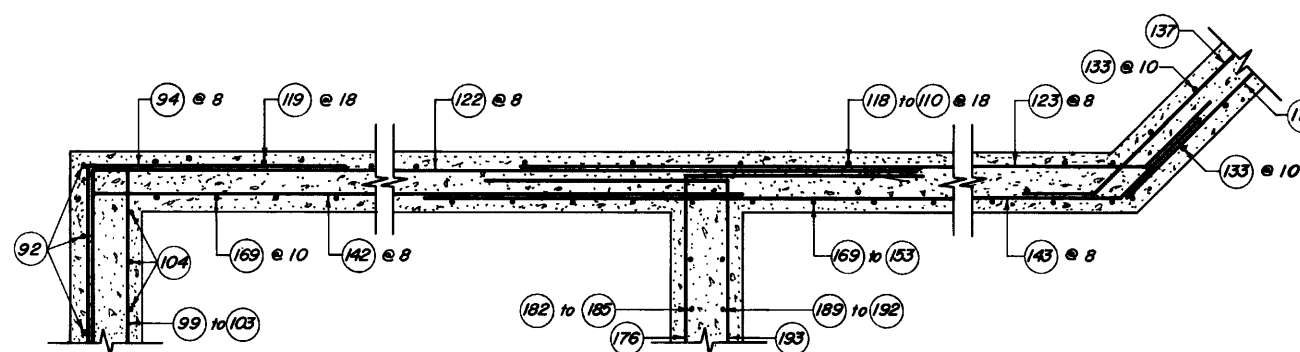


EXPOSED FACE
ELEVATION SIDEWALL



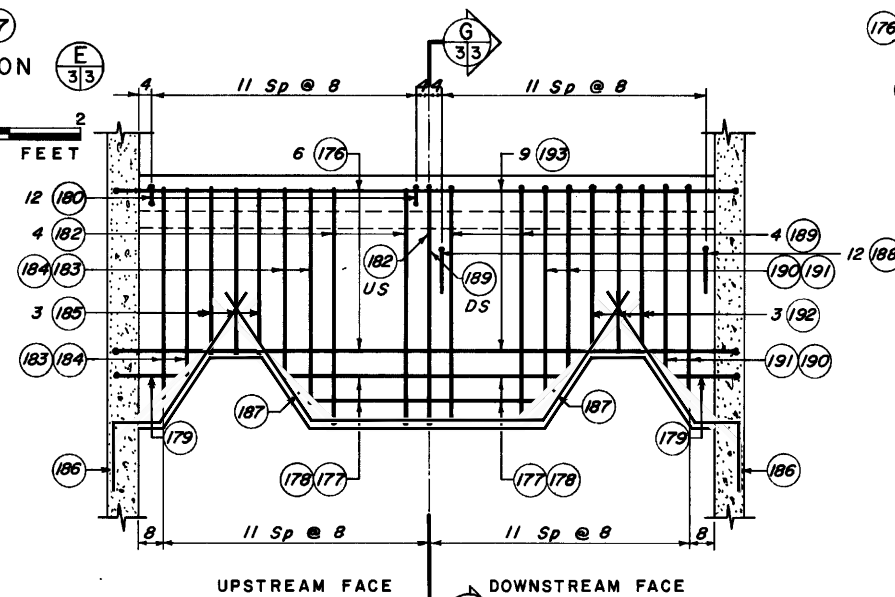
SECTION G
3/3

SCALE IN FEET



SECTION F
3/3

SCALE IN FEET



UPSTREAM FACE DOWNSTREAM FACE
BAFFLE ELEVATION

SCALE IN FEET
EXCEPT AS NOTED

ADAPTED FROM	DATE: 12-18
STANDARD IMPACT BASIN	
DESIGN CONSTANTS	
$f_c = 4,000$ psi	$f_c = 1,600$ psi
$n = 8$	$f_s = 20,000$
STANDARD DWG. NO. ES-4160	
DATE 1-70	SHEET 3 OF 5



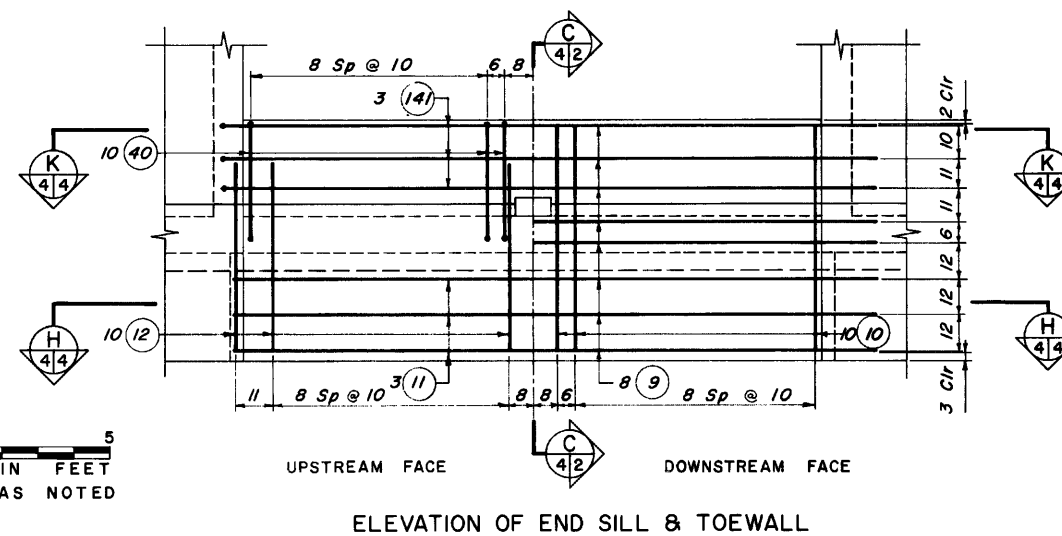
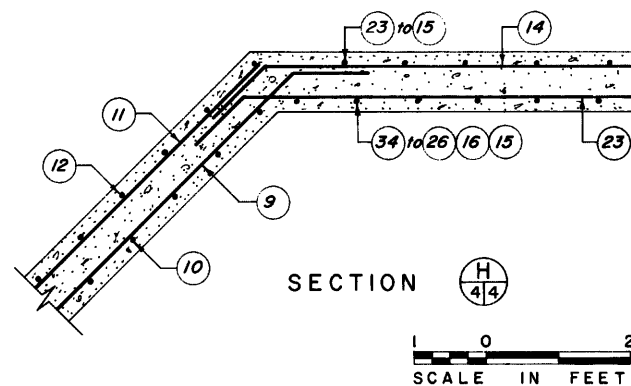
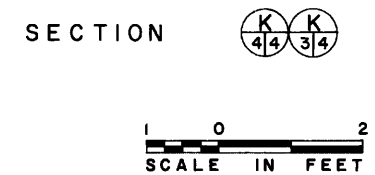
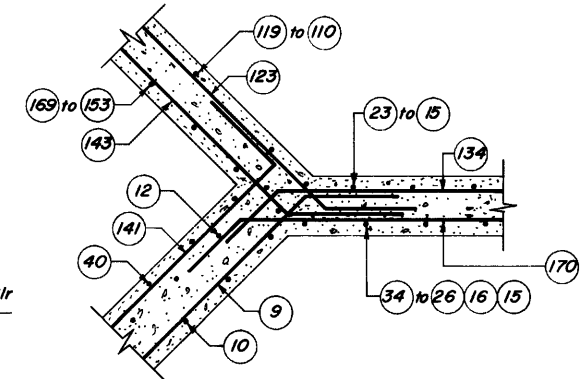
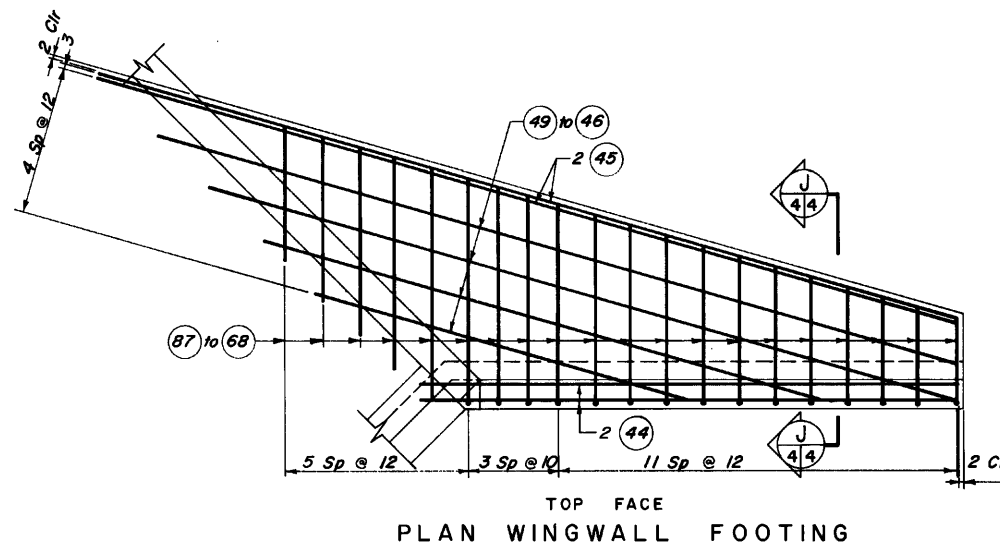
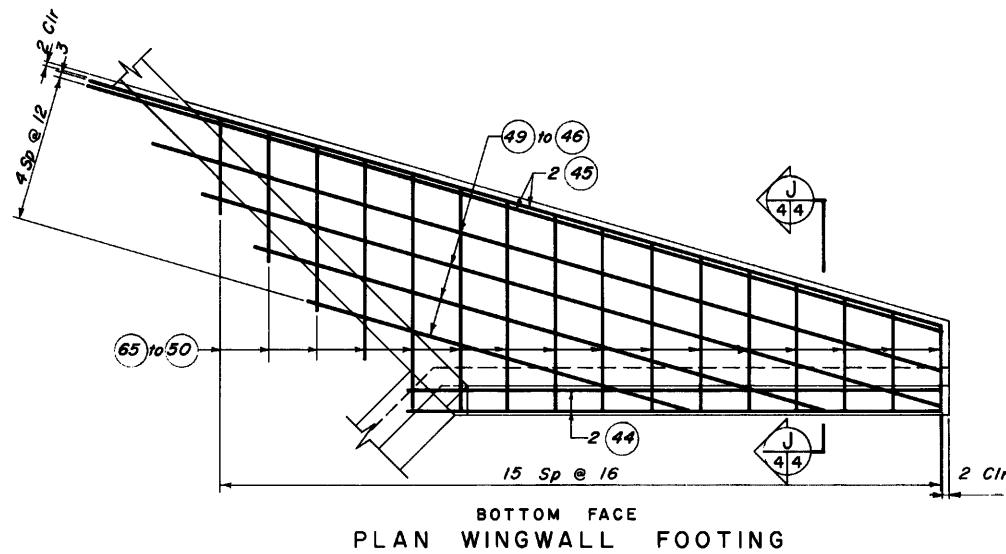
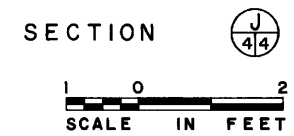
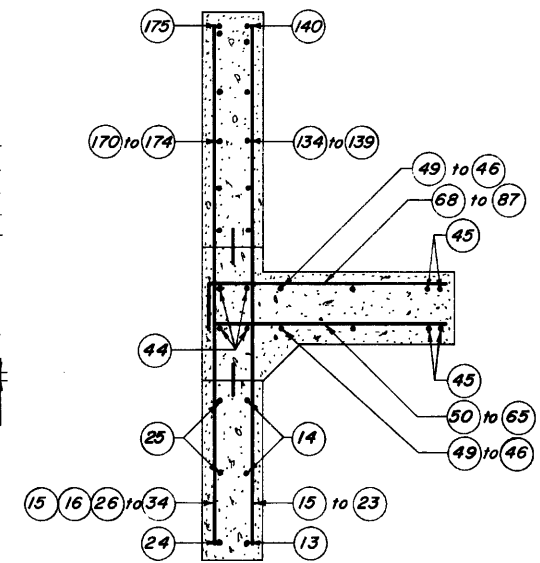
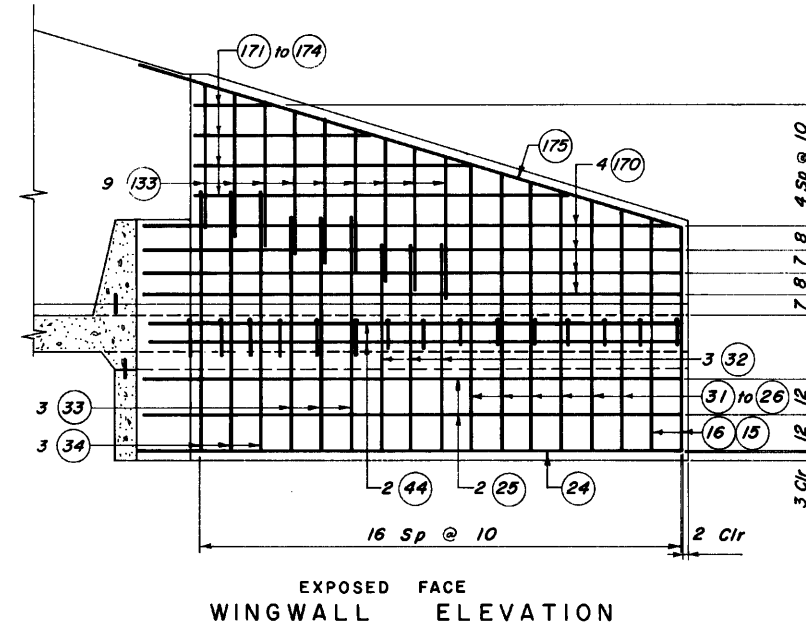
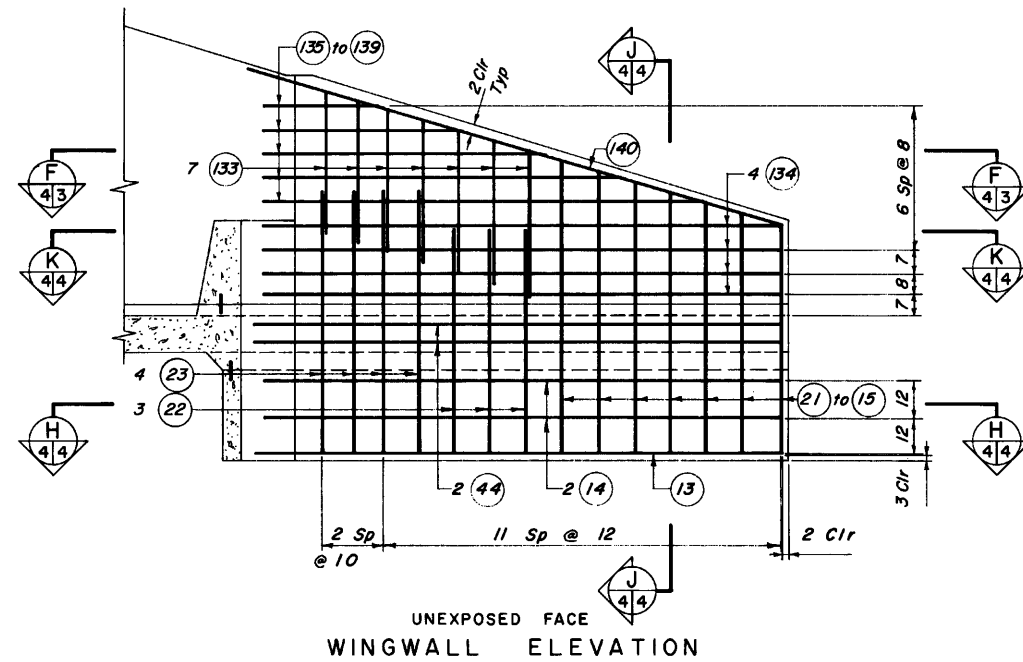
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DRAWN BY: CAD
CHECKED BY: SS
FILE NAME: Plum 21 - Sht 32.dwg
DATE CHECKED: 8/4/2021

IMPACT BASIN REINFORCEMENT (2 OF 3)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States
Department of
Agriculture
USDA
Natural Resources
Conservation Service

DRAWING NO.
TX-EN-0754
SHEET NO.
32
OF
83

REVISIONS		
DATE	APPROVED	TITLE



ADAPTED FROM	DATE: 12-18
STANDARD IMPACT BASIN	
DESIGN CONSTANTS	
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STANDARD DWG. NO. ES-4160	
DATE 1-70	SHEET 4 OF 5

REVISIONS		
DATE	APPROVED	TITLE

DRAWN BY: CAD
CHECKED BY: SS
FILE NAME: Plum 21 - Sht 33.dwg
DATE CHECKED: 8/4/2021

IMPACT BASIN REINFORCEMENT (3 OF 3)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



United States
Department of
Agriculture

DRAWING NO.
X-EN-0754

ET NO.
33
83

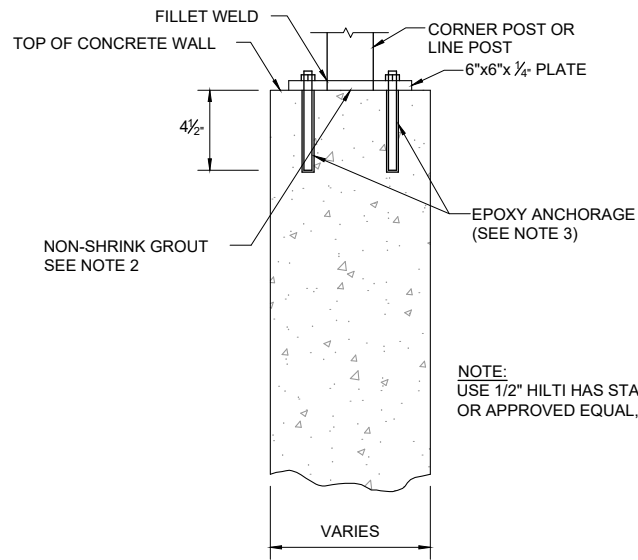
STEEL SCHEDULE

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	17-4	St			34-8	Apron	43	6	12	8-4	St	3-8	4-8	100-0	Wingwall	85	4	2	5-1	St				10-2	Sidewall	127	5	2	13-10	St			27-8	Sidewall	169	4	24	11-6	St			276-0
"	2	4	4	17-4	St			69-4	Wingwall	44	4	8	14-9	St			118-0	"	86	4	2	4-4	St				8-8	"	128	4	2	12-3	St			24-6	"	170	4	8	15-3	19	1-0	14-3	122-0
"	3	4	4	5-9	St			23-0	"	45	6	8	24-9	St			198-0	"	87	4	2	3-8	St				7-4	"	129	4	2	10-8	St			21-4	"	171	4	2	10-9	St			21-6
"	4								"	46	4	4	22-10	St			91-4	Headwall	88								"	130	4	2	9-1	St			18-2	"	172	4	2	8-0	St			16-0	
"	5								"	47	4	4	21-6	St			86-0	"	89								"	131	5	4	11-3	21	1-3	10-0	45-0	"	173	4	2	5-2	St			10-4	
"	6	4	12	7-4	St			88-0	"	48	4	4	16-6	St			66-0	"	90								"	132	5	4	15-1	23	1-3	13-10	60-4	"	174	4	2	2-5	St			4-10	
"	7								"	49	4	4	11-2	St			44-8	"	91	5	2	13-4	21	11-6	1-10	26-8	Wingwall	133	4	32	4-0	St			128-0	"	175	5	2	15-2	19	1-3	13-11	30-4	
"	8								"	50	4	2	2-4	St			4-8	"	92								"	134	4	8	14-11	19	1-0	13-11	119-4	Baffle	176	5	8	23-10	17	3-4	17-2	190-8	
EndSill	9	5	8	19-8	7	17-2	1-3	157-4	"	51	4	2	2-8	St			5-4	"	93	4	16	5-5	11	0-6	1-10	86-8	"	135	4	2	12-8	19	1-0	11-8	25-4	"	177	5	2	8-3	St			16-6	
"	10	5	20	6-3	St			125-0	"	52	4	2	3-1	St			6-2	"	94	5	30	7-2	21	3-7	3-7	215-0	"	136	4	2	10-5	19	1-0	9-5	20-10	"	178	5	2	7-3	St			14-6	
"	11	5	3	16-7	St			49-9	"	53	4	2	3-6	St			7-0	"	95								"	137	4	2	8-2	19	1-0	7-2	16-4	"	179	5	4	3-1	21	1-3	1-10	12-4	
"	12	4	20	5-3	St			105-0	"	54	4	2	3-10	St			7-8	"	96	5	8	17-4	St				138-8	"	138	4	2	5-11	19	1-0	4-11	11-10	"	180	4	24	8-7	21	0-8	3-3	206-0
Wingwall	13	5	2	15-0	19	1-3	13-9	30-0	"	55	4	2	4-2	St			8-4	"	97								"	139	4	2	3-8	19	1-0	2-8	7-4	"	181	6	6	20-2	17	1-6	17-2	121-0	
"	14	4	4	14-9	19	1-0	13-9	59-0	"	56	4	2	4-7	St			9-2	"	98	5	8	7-3	St				58-0	"	140	5	2	15-7	19	1-3	14-4	31-2	"	182	5	9	8-4	24	6-7	0-6	75-0
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"	18	4	2	7-1	St			14-2	"	60	4	2	6-1	St			12-2	"	102								"	144	6	2	17-2	St			34-4	"	186	6	4	7-2	25	1-3	4-10	28-8	
"	19	4	2	7-5	St			14-10	"	61	4	2	6-2	St			12-4	"	103								"	145	6	2	15-11	St			31-10	"	187	6	2	17-4	7	6-3	4-10	34-8	
"	20	4	2	7-8	St			15-4	"	62	4	2	5-2	St			10-4	"	104								"	146	5	2	14-4	St			28-8	"	188	5	24	4-11	7	2-6	1-3	116-0	
"	21	4	2	8-0	St			16-0	"	63	4	2	4-3	St			8-6	"	105	5	2	11-5	St				22-10	"	147	5	2	12-9	St			25-6	"	189	5	9	9-11	21	3-3	6-8	89-3
"	22	5	6	6-2	St			37-0	"	64	4	2	3-4	St			6-8	"	106								"	148	5	2	11-3	St			22-6	"	190	5	4	9-3	21	3-3	6-0	37-0	
"	23	6	8	7-3	St			58-0	"	65	4	2	2-4	St			4-8	"	107								"	149	4	2	14-6	St			29-0	"	191	5	4	8-7	21	3-3	5-4	34-4	
"	24	5	2	15-6	19	1-3	14-3	31-0	Apron	66	6	19	22-11	St			435-5	"	108								"	150	4	2	12-11	St			25-10	"	192	5	6	7-11	21	3-3	4-8	47-6	
"	25	4	4	15-3	19	1-0	14-3	61-0	"	67	4	42	17-4	St			728-0	"	109								"	151	4	2	11-4	St			22-8	"	193	7	9	23-10	17	3-4	17-2	214-6	
"	26	4	2	6-8	St			13-4	Wingwall	68	4	2	3-0	21	0-8	2-4	6-0	"	110	4	2	6-2	St				12-4	"	152	5	4	10-11	19	2-4	8-7	43-8									
"	27	4	2	6-11	St			13-10	"	69	4	2	3-3	21	0-8	2-7	6-6	"	111	4	2	6-5	St				12-10	"	153	4	2	6-2	St			12-4									
"	28	4	2	7-2	St			14-4	"	70	4	2	3-6	21	0-8	2-10	7-0	"	112	4	2	5-8	St				11-4	"	154	4	2	6-5	St			12-10									
"	29	4	2	7-5	St			14-10	"	71	4	2	3-10	21	0-8	3-2	7-8	"	113	4	2	6-3	St				12-6	"	155	4	2	6-9	St			13-6									
"	30	4	2	7-8	St			15-4	"	72	4	2	4-1	21	0-8	3-5	8-2	"	114	4	2	6-11	St				13-10	"	156	4	2	7-1	St			14-2									
"	31	4	2	7-11	St			15-10	"	73	4	2	4-5	21	0-8	3-9	8-10	"	115	4	2	7-6	St				15-0	"	157	4	2	7-6	St			15-0									
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"	37	5	42	8-5	21	3-9	4-8	353-6	"	79	6	2	6-5	21	1-0	5-5	12-10	"	121	4	14	5-1	21	0-6	1-8	71-2	"	163	4	2	9-7	St			19-2										
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"	39	4	19	22-11	St			435-5	"	81	6	2	6-11	21	1-0	5-11	13-10	"	123	5	16	17-8	19	1-3	16-5	282-8	"	165	4	2	10-3	St			20-6										
"	40	5	20	4-4	22	1-0	3-4	86-8	"	82	6	2	7-2	21	1-0	6-2	14-4	"	124	5	2	15-10	St				31-8	"	166	4	2	10-7	St			21-2									
"	41	6	2	7-3	21	2-7	4-8	14-6	"	83	5	2	6-6	St			13-0	"	125	5	2	14-6	St				29-0	"	167	4	2	10-11	St			21-10									
"	42								"	84	5	2	5-9	St			11-6	"	126	5	2	15-4	St				30-8	"	168	4	2	11-4	St			22-8									

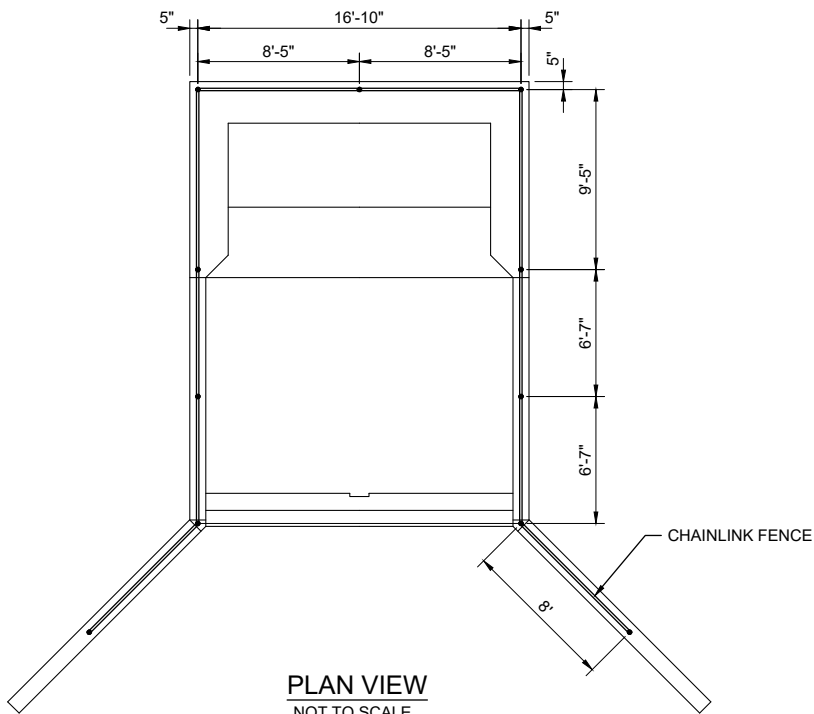
HEAD WALL STEEL SCHEDULE

42 I D CONDUIT									48 I D CONDUIT									54 I D CONDUIT									60 I D CONDUIT									63 I D CONDUIT									
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	LOCATION	MARK	SIZE	QUAN	LENGTH	TYPE	B	C	TOTAL LENGTH	
Headwall	4	4	4	6-1	St			24-4	Headwall	4	4	4	6-1	St			24-4	Headwall	4	4	4	6-0	St				24-0	Headwall	4	4	4	5-11	St			23-8	Headwall	4	4	4	5-10	St			23-4
"	5	4	4	6-11	St			27-8	"	5	4	4	6-8	St			26-8	"	5	4	4	6-6	St				26-0	"	5	4	4	6-5	St			25-8	"	5	4	4	6-4	St			25-4
"	7	None							"	7	None							"	7	4	2	7-4	St				14-8	"	7	4	2	7-1	St			14-2	"	7	4	2	6-11	St			13-10
"	8	4	20	5-1	St			101-8	"	8	4	20	5-1	St			101-8	"	8	4	18	5-1	St				91-6	"	8	4	18	5-1	St			91-6	"	8	4	18	5-1	St			91-6
Apron	42	6	2	7-11	21	3-3	4-8	15-10	Apron	42	6	2	7-10	21	3-2	4-8	15-8	Apron	42	6	2	7-9	21	3-1	4-8	15-6	Apron	42	6	2	7-8	21	3-0	4-8	15-4	Apron	42	6	2	7-7	21	2-11	4-8	15-2	
Headwall	88	4	1	6-11	21	5-1	1-10	6-11	Headwall	88	4	1	6-4	21	4-6	1-10	6-4	Headwall	88	4	1	5-10	21	4-0	1-10	5-10	Headwall	88	4	1	5-3	21	3-5	1-10	5-3	Headwall	88	4	1	5-0	21	3-2	1-10	5-0	
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"	92	4	12	11-8	21	9-10	1-10	140-0	"	92	4	12	11-8	21	9-10	1-10	140-0	"	92	4	10	11-8	21	9-10	1-10	116-8	"	92	4	10	11-8	21	9-10	1-10	116-8	"	92	4	10	11-8	21	9-10	1-10	116-8	
"	95	4	5	12-2	St			60-10	"	95	4	4	12-2	St			48-8	"	95	4	3	12-2	St				36-6	"	95	4	3	12-2	St			36-6	"	95	4	3	12-2	St			36-6
"	97	4	6	5-1	St			30-6	"	97	4	6	5-1	St			30-6	"	97	4	10	5-1	St				50-10	"	97	4	10	5-1	St			50-10	"	97	4	10	5-1	St			50-10
"	99	4	9	17-4	St			156-0	"	99	4	8	17-4	St			138-8	"	99	4	7	17-4	St				121-4	"	99	4	7	17-4	St			121-4	"	99	4	5	17-4	St			86-8
"	100	4	6	6-4	St			38-0	"	100	4	6	6-0	St			36-0	"	100	4	6	5-9	St				34-6	"	100	4	6	5-5	St			32-6	"	100	4	7	5-3	St			36-9
"	101	4	4	6-9	St			27-0	"	101	4	4	6-4	St			25-4	"	101	4	4	6-1	St				24-4	"	101	4	4	5-9	St			23-0	"	101	4	4	5-7	St			22-4
"	102	4	4	7-6	St			30-0	"	102	4	4	6-11	St			27-8	"	102	4	4	6-6	St				26-0	"	102	4	4	6-2	St			24-8	"	102	4	4	5-11	St			23-8
"	103	None							"	103	None							"	103	4	4	7-6	St				30-0	"	103	4	4	6-11	St			27-8	"	103	4	4	6-7	St			26-4
"	104	4	18	11-5	St			205-6	"	104	4	18	11-5	St			205-6	"	104	4	16	11-5	St				182-8	"	104	4	16	11-5	St			182-8	"	104	4	16	11-5	St			182-8
"	106	4	3	5-1	St			15-3	"	106	4	3	4-6	St			13-6	"	106	4	3	4-0	St				12-0	"	106	4	3	3-5	St			10-3	"	106	4	3	3-2	St			9-6
"	107	4	2	5-6	St			11-0	"	107	4	2	4-11	St			9-10	"	107	4	2	4-3	St				8-6	"	107	4	2	3-9	St			7-6	"	107	4	2	3-5	St			6-10
"	108	4	2	6-2	St			12-4	"	108	4	2	5-5	St			10-10	"	108	4	2	4-9	St				9-6	"	108	4	2	4-1	St			8-2	"	108	4	2	3-9	St			7-6
"	109	None							"	109	None							"	109	4	2	5-8	St				11-4	"	109	4	2	4-10	St			9-8	"	109	4	2	4-5	St			8-10

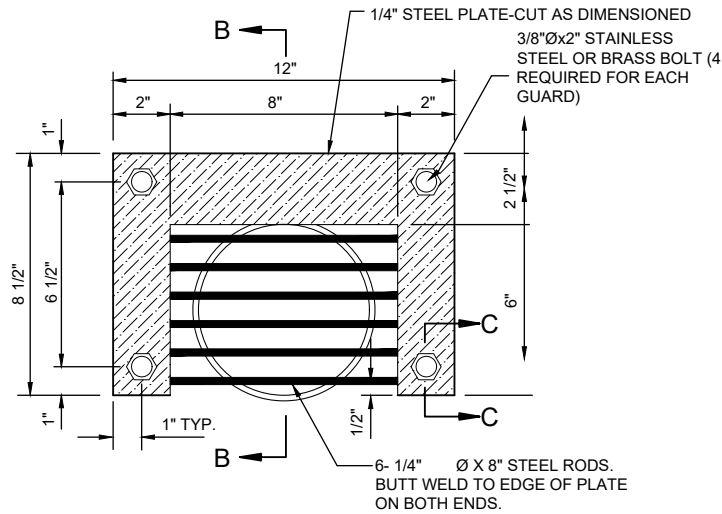
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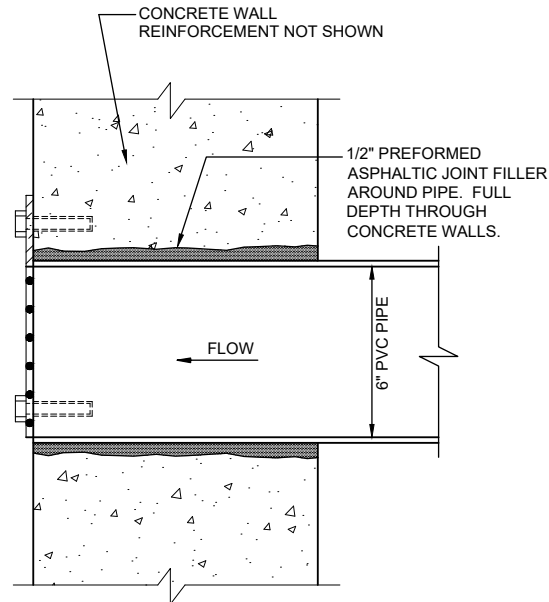
FENCE POST ANCHORAGE DETAIL
NOT TO SCALE



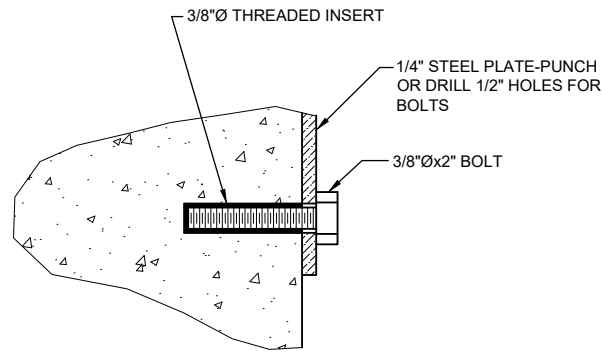
PLAN VIEW
NOT TO SCALE



ELEVATION
NOT TO SCALE



SECTION B-B
NOT TO SCALE

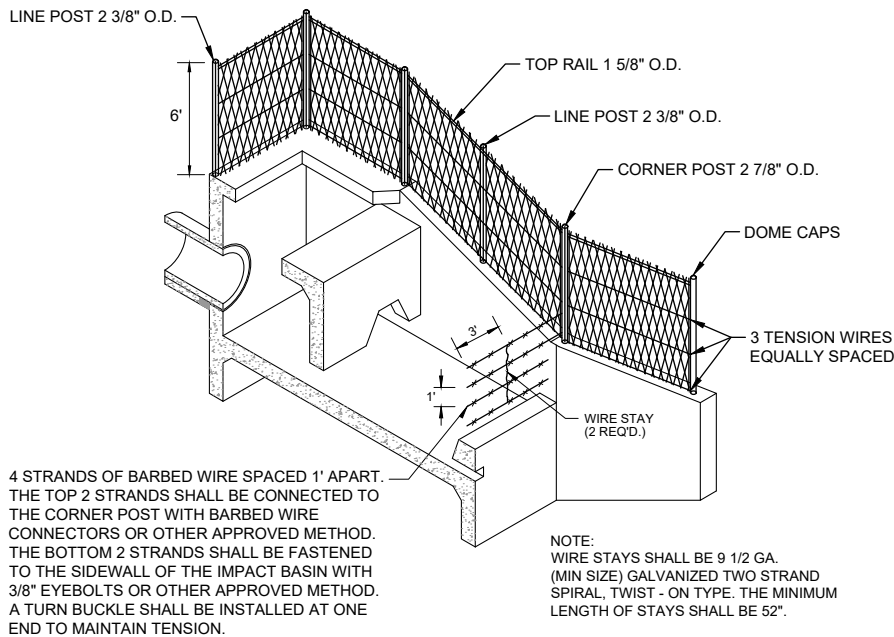


SECTION C-C
NOT TO SCALE

RODENT GUARD DETAILS (IMPACT BASIN)
NOT TO SCALE

NOTES:

- RODENT GUARDS SHALL BE GALVANIZED AFTER FABRICATION. SEE MATERIAL SPECIFICATION 581 AND CONSTRUCTION SPECIFICATION 81. RODENT GUARDS TO BE PLACED OVER ALL DRAIN PIPE OUTFALLS.
- NON-SHRINK GROUT TO BE APPLIED IF AND AS DIRECTED BY THE CONTRACTING OFFICER, FOR FILLING IN IRREGULARITIES ON THE CONCRETE SURFACE AND ENSURING A FLUSH MOUNTED BASE PLATE.
- CONTRACTOR SHOULD ADJUST THE LOCATION OF THE ANCHORS TO AVOID REINFORCEMENT AND PROVIDE FULL EMBEDMENT OF ANCHORS. USE HILTI HY-200 EPOXY, OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATION.



HALF ISOMETRIC
NOT TO SCALE

BILL OF MATERIALS FOR IMPACT BASIN CHAINLINK FENCE	
QUANTITY	MATERIAL
66'-0"	2 7/8" O.D. TUBULAR STEEL PIPE FOR CORNER POST (CUT INTO 11 - 6' POSTS)
18'-0"	2 3/8" O.D. TUBULAR STEEL PIPE FOR ONE LINE POST (CUT INTO 3 - 6' POSTS)
78'-0"	1 5/8" O.D. TUBULAR STEEL PIPE FOR TOP RAIL (CUT AS REQUIRED)
78'-0"	6'-0" HIGH CHAIN LINK FABRIC (SELVAGE SHALL BE KNUCKLED AT BOTTOM AND TOP)
14	STRETCHER BARS
70	STRETCHER BANDS
20	OFFSET CUPS (FOR TOP RAIL)
14	DOMES TOPS
234'-0"	TENSION WIRE
72'-0"	BARBED WIRE
4	BARBED WIRE CONNECTORS
48	ANCHOR BOLTS
4	3/8" EYE BOLTS
4	TURN BUCKLES

NOTE: QUANTITY OF TIE WIRE REQUIRED NOT INCLUDED IN TABLE ABOVE.

FOR TYPE AND SPECIFICATIONS OF FENCING MATERIALS SEE CONSTRUCTION SPECIFICATION 91.

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DATE	APPROVED	TITLE

DESIGNED BY: KMF
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CHECKED BY: SS
FILE NAME: Plum 21 - Sht 35.dwg
DATE CHECKED: 8/4/2021

IMPACT BASIN DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States
Department of
Agriculture

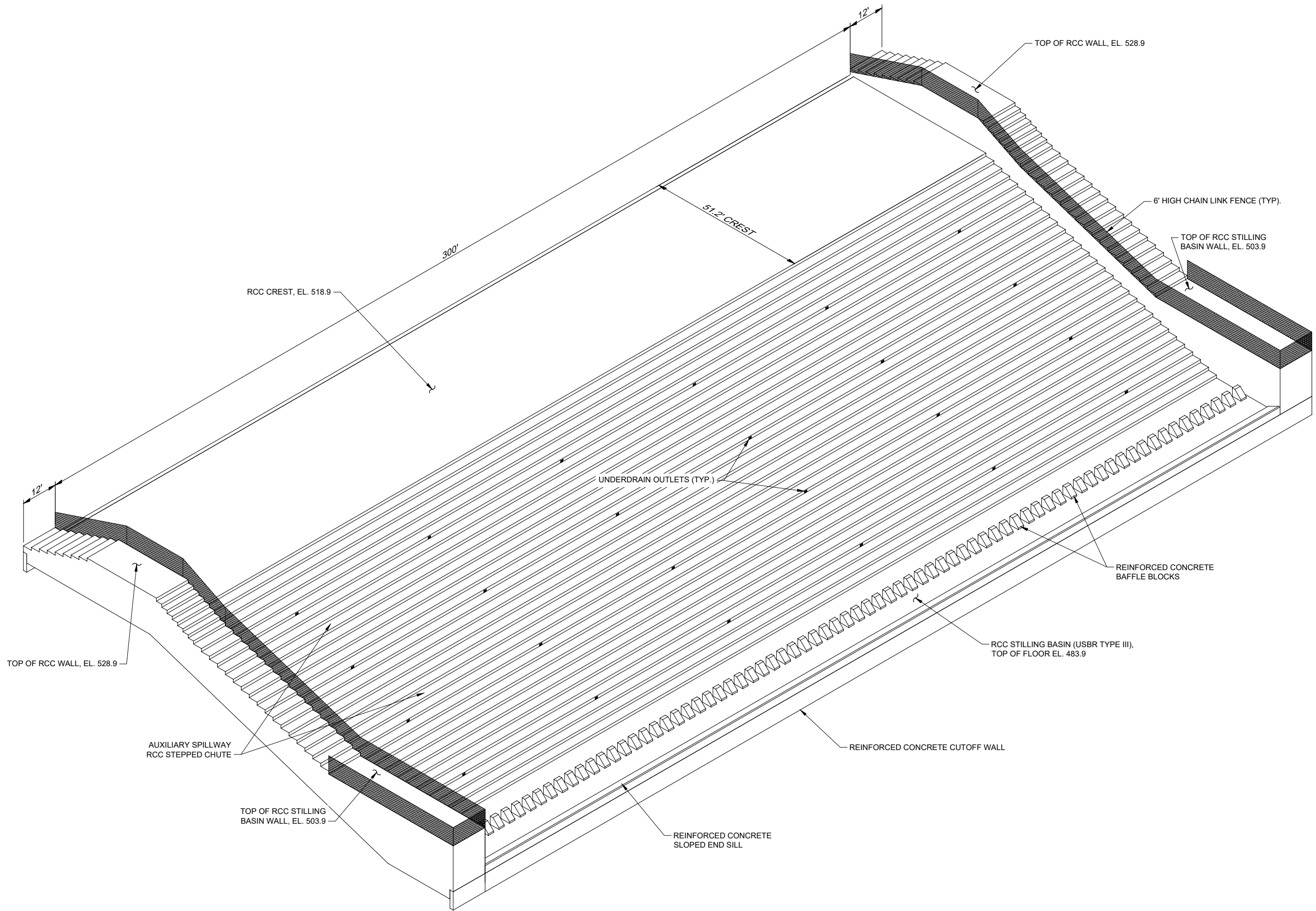
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Conservation Service

DRAWING NO.
TX-EN-0754

SHEET NO.
35

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83

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DRAWN BY: CAD
CHECKED BY: SS
FILE NAME: Plum 21 - Sht 36.dwg
DATE CHECKED: 8/4/2021

AUXILIARY SPILLWAY ISOMETRIC
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



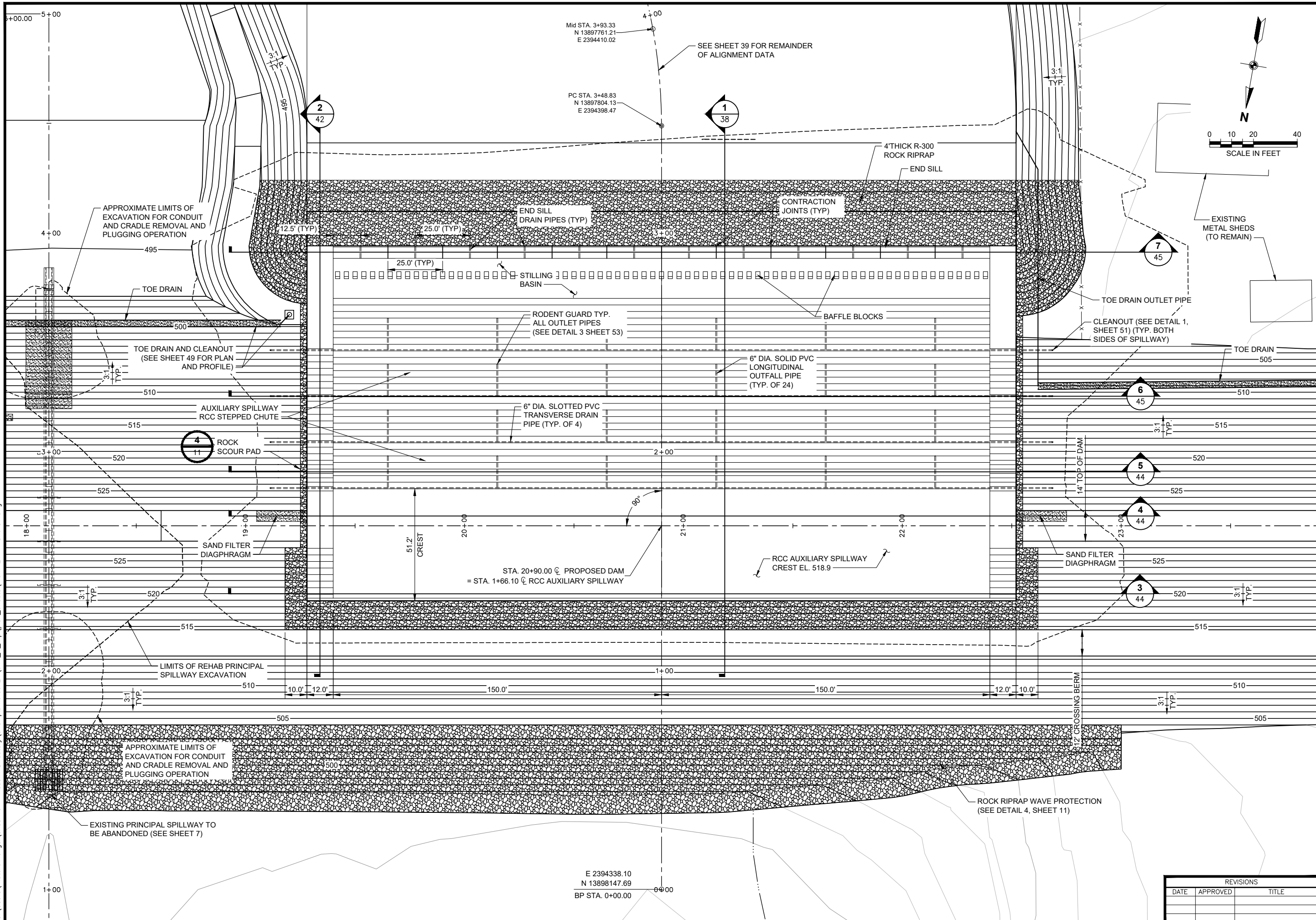
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36

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83

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United States
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Natural Resources
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TX-EN-0754

SHEET NO.
37

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83

AUXILIARY SPILLWAY PLAN

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

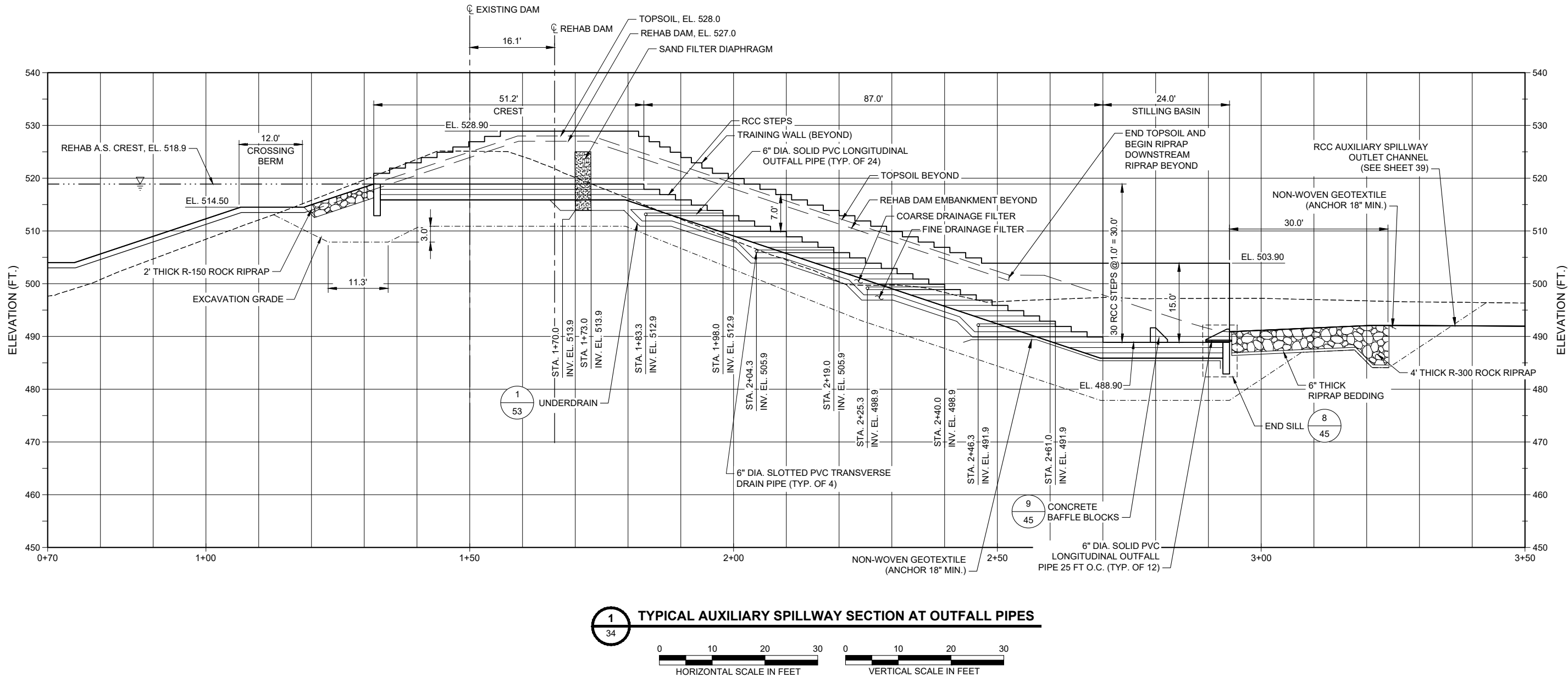
PLUM CREEK WATERSHED

IN

CALDWELL COUNTY, TEXAS

REVISIONS		
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DRAWING NO.
TX-EN-0754

SHEET NO.
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OF
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AUXILIARY SPILLWAY PROFILE

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN

CALDWELL COUNTY, TEXAS

DESIGNED BY: LTF

DRAWN BY: MDE

CHECKED BY: TEA

FILE NAME: Plum 21 - Sht 38.dwg

DATE CHECKED: 8/4/2021

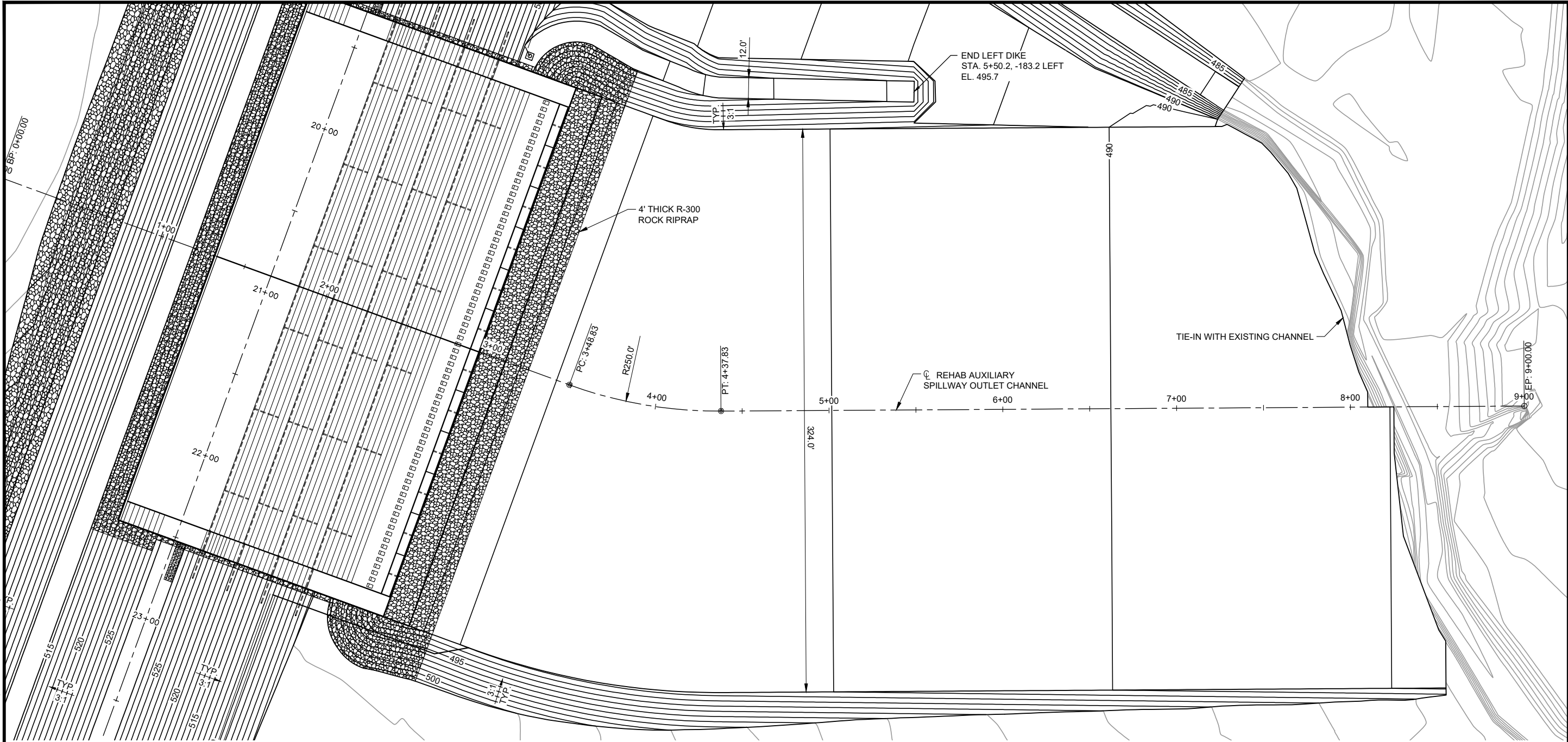
STATE OF TEXAS

PLUM CREEK WATERSHED

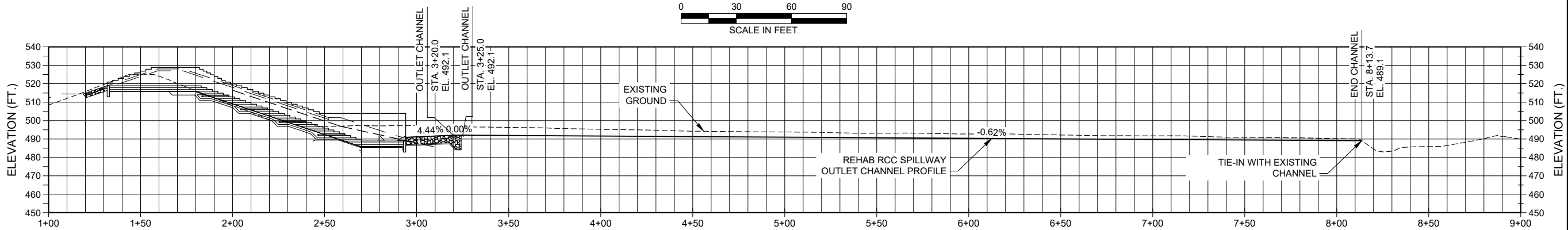
REHABILITATION

8/4/21

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REHAB AUXILIARY SPILLWAY OUTLET CHANNEL PLAN



REHAB AUXILIARY SPILLWAY OUTLET CHANNEL PROFILE

- NOTES:
- REFER TO SHEETS 46, 47, AND 48 FOR OUTLET CHANNEL SECTIONS.

REVISIONS		
DATE	APPROVED	TITLE



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DRAWN BY: _____ MDE
CHECKED BY: _____ TEA
FILE NAME: Plum 21 - Sht 39.dwg
DATE CHECKED: 8/4/2021

AUXILIARY SPILLWAY OUTLET CHANNEL PLAN AND PROFILE

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN CALDWELL COUNTY, TEXAS



United States
Department of
Agriculture

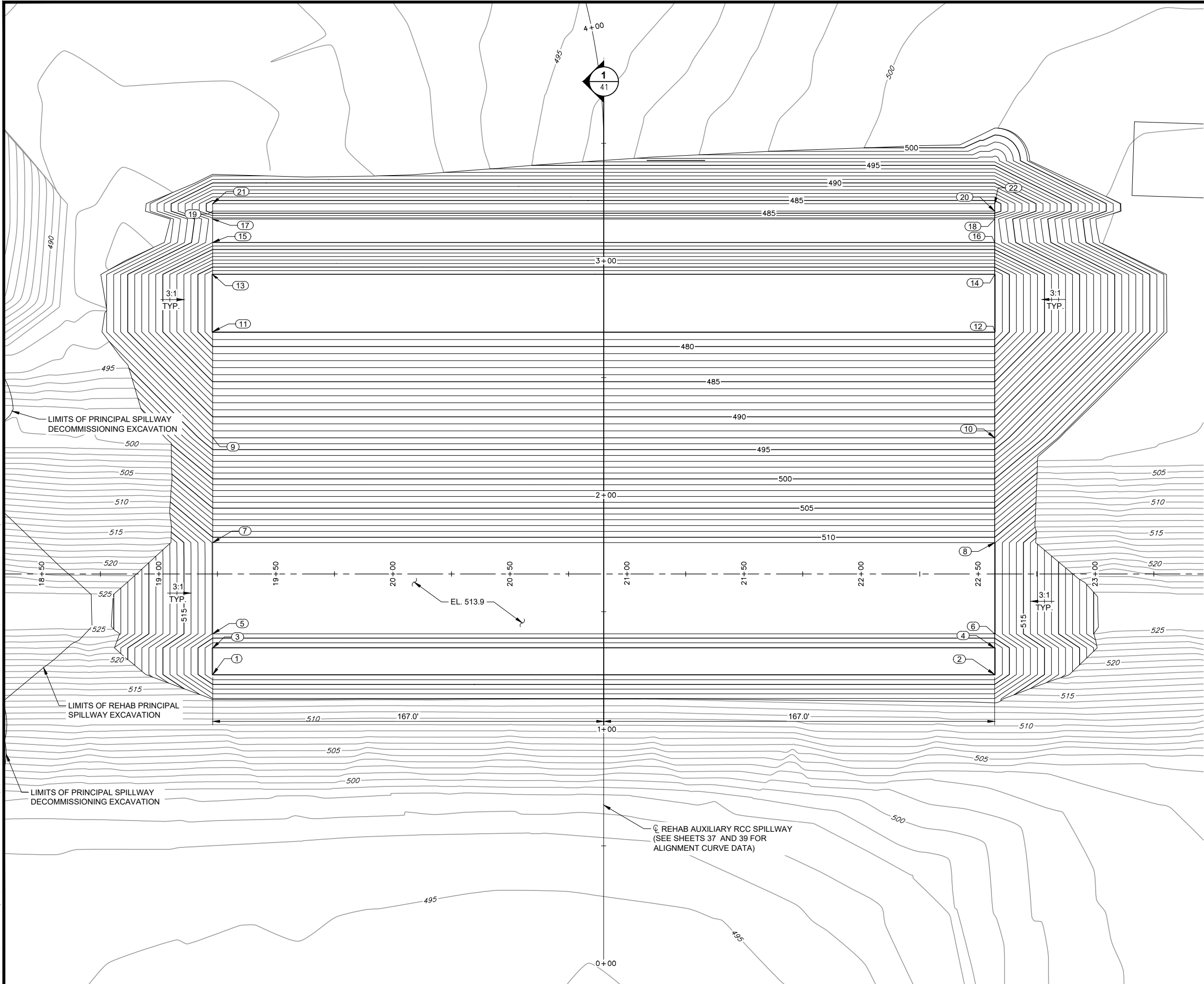
Natural Resources
Conservation Service

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TX-EN-0754

SHEET NO.
39

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83

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EXCAVATION POINT TABLE			
Point #	Northing	Easting	Elevation
1	13898055.3	2394523.9	507.9
2	13897997.5	2394194.9	507.9
3	13898044.1	2394525.9	507.9
4	13897986.3	2394196.9	507.9
5	13898038.2	2394526.9	510.9
6	13897980.4	2394197.9	510.9
7	13897999.8	2394533.7	510.9
8	13897942.0	2394204.7	510.9
9	13897955.7	2394541.4	493.0
10	13897897.9	2394212.4	493.0
11	13897911.2	2394549.3	477.9
12	13897853.4	2394220.3	477.9
13	13897887.0	2394553.5	477.9
14	13897829.2	2394224.5	477.9
15	13897873.6	2394555.9	487.0
16	13897815.8	2394226.9	487.0
17	13897863.7	2394557.6	487.4
18	13897805.9	2394228.6	487.4
19	13897860.4	2394558.2	484.1
20	13897802.6	2394229.2	484.1
21	13897857.3	2394558.8	484.1
22	13897799.6	2394229.7	484.1

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TX-EN-0754

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AUXILIARY SPILLWAY OVEREXCAVATION PLAN

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN

CALDWELL COUNTY, TEXAS

DESIGNED BY: LTF

DRAWN BY: MDE

CHECKED BY: TEA

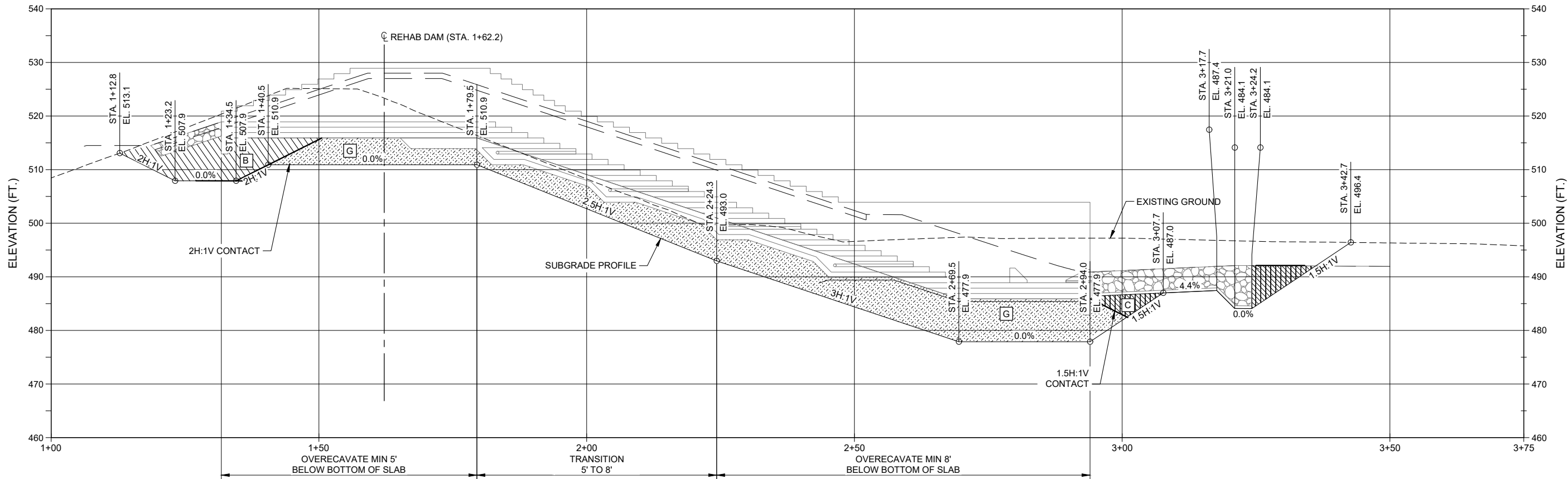
FILE NAME: Plum 21 - Sht 38-41.dwg

DATE CHECKED: 8/4/2021



LANCE T. FINEROCK
LICENSE NO. 11386
STATE OF TEXAS

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1 AUXILIARY SPILLWAY CENTERLINE EXCAVATION SECTION

0 5 10 20
SCALE IN FEET

REVISIONS		
DATE	APPROVED	TITLE

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TX-EN-0754

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41

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83

USDA United States
Department of
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Conservation Service

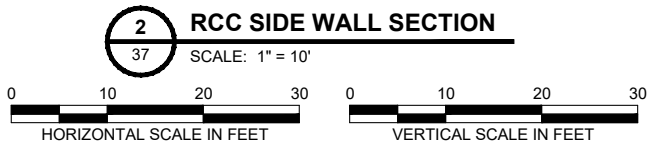
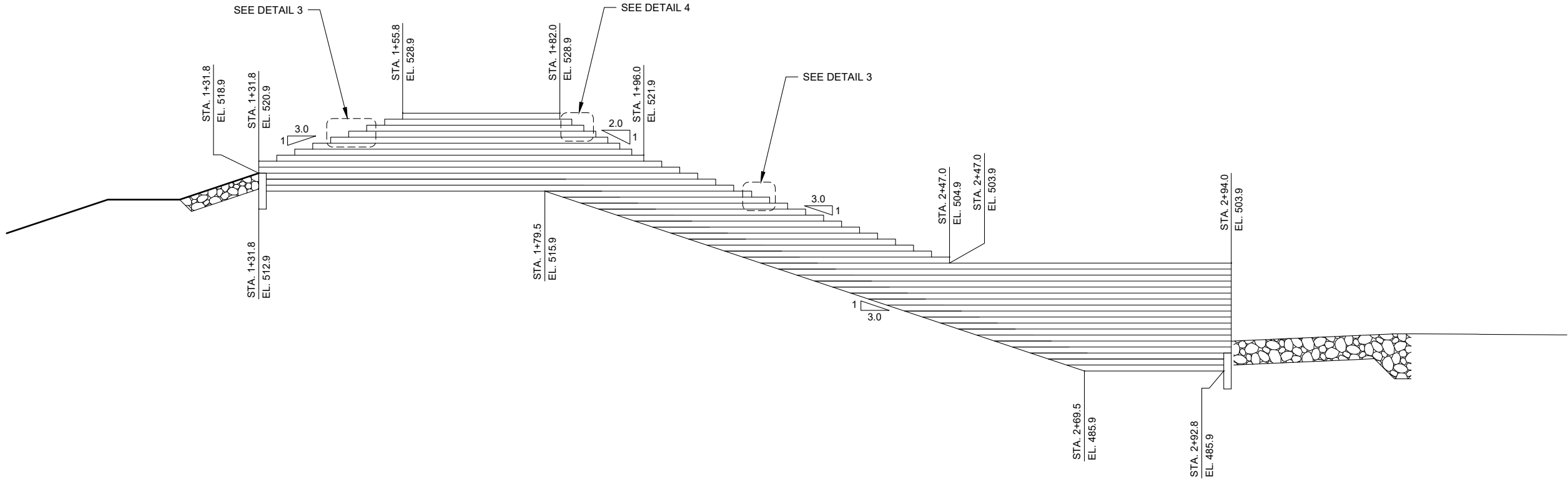
AUXILIARY SPILLWAY OVEREXCAVATION SECTIONS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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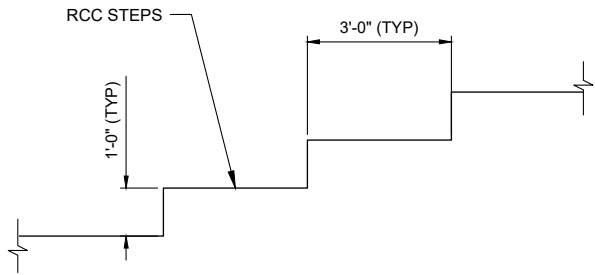


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NOTES:

1. DRAINS NOT SHOWN FOR CLARITY.

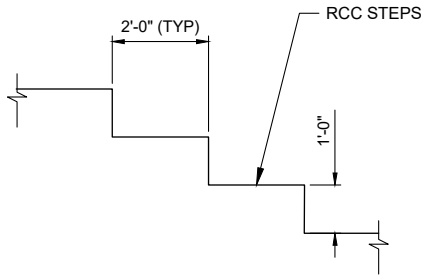


3
42

DETAIL

SCALE: 1/2"=1'-0"

STA 1+31.8 TO STA 1+55.8 AND
1+96.0 TO STA 2+47.0



4
42

DETAIL

SCALE: 1/2"=1'-0"

STA 1+82.0 TO STA 1+96.0

REVISIONS		
DATE	APPROVED	TITLE

DRAWING NO.	TX-EN-0754
SHEET NO.	42
OF	83

USDA United States Department of Agriculture

Natural Resources Conservation Service

AUXILIARY SPILLWAY SECTIONS AND DETAILS (1 OF 4)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

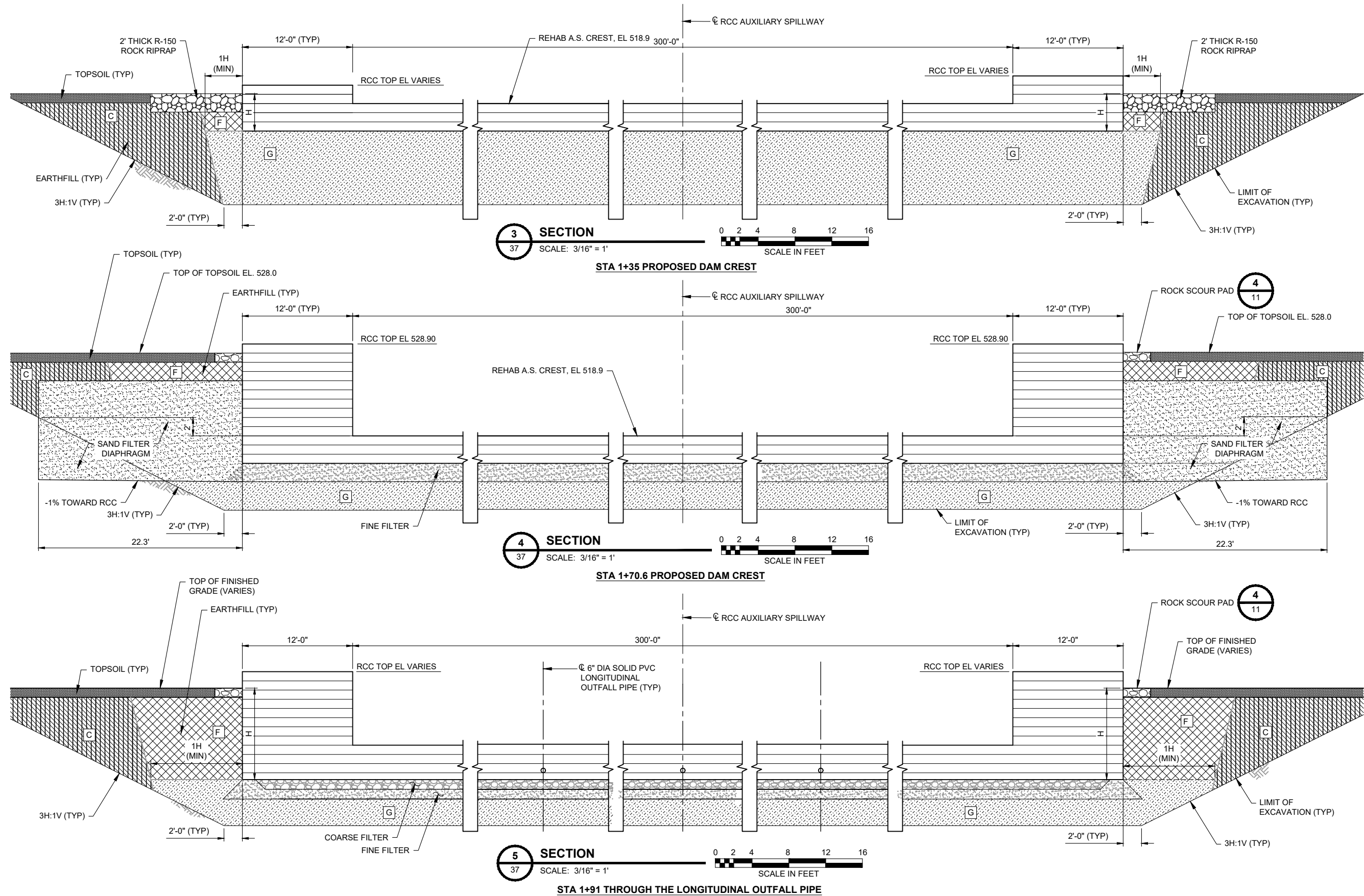
PLUM CREEK WATERSHED

IN CALDWELL COUNTY, TEXAS

DESIGNED BY: LTF
DRAWN BY: MDE
CHECKED BY: TEA
FILE NAME: Plum 21 - Sht 42.dwg
DATE CHECKED: 8/4/2021

STATE OF TEXAS
JANICE T. FINEROCK
REGISTERED PROFESSIONAL ENGINEER
NO. 11386
EXPIRATION DATE 8/14/21

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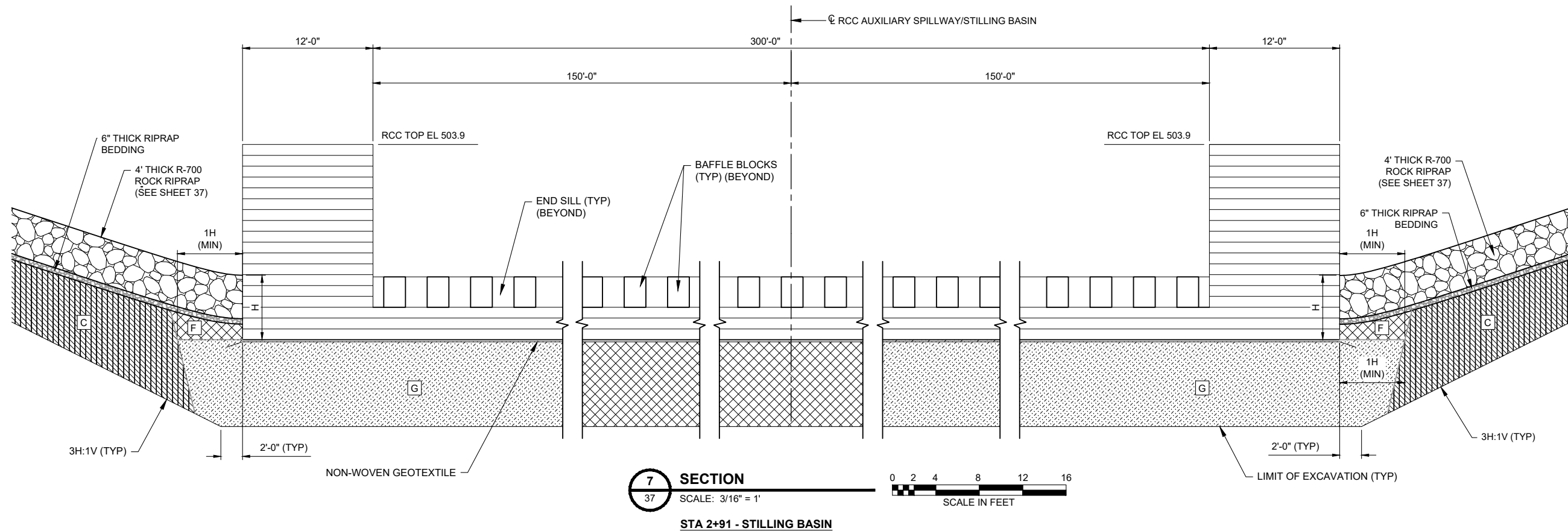
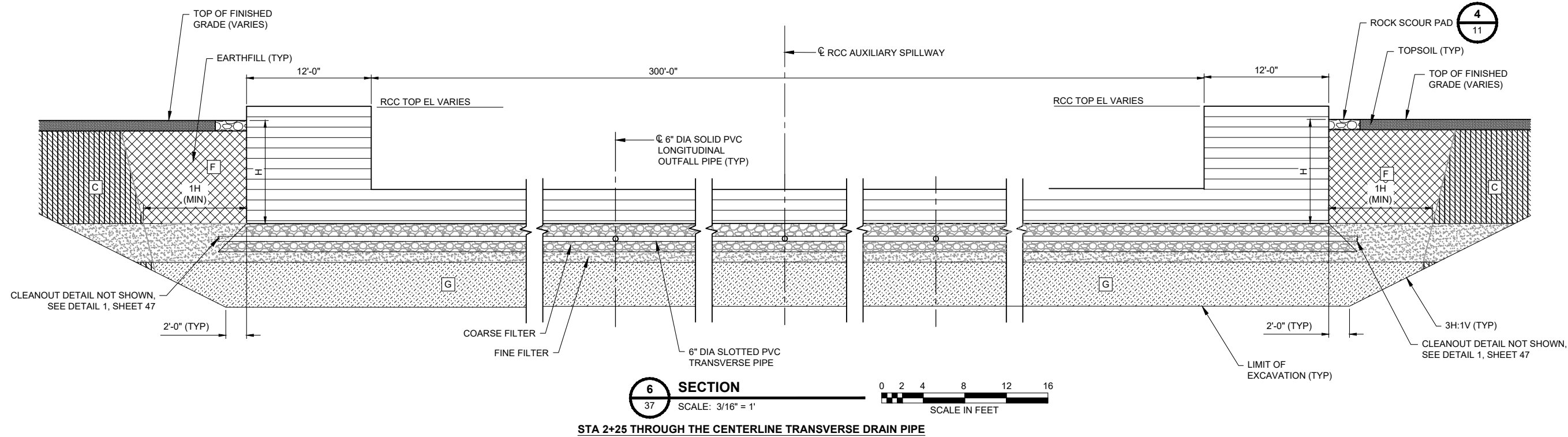
AUXILIARY SPILLWAY SECTIONS AND DETAILS (2 OF 4)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN CALDWELL COUNTY, TEXAS

United States Department of Agriculture
USDA
Natural Resources Conservation Service

DRAWING NO. TX-EN-0754
SHEET NO. 43 OF 83

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AUXILIARY SPILLWAY SECTIONS AND DETAILS (3 OF 4)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN CALDWELL COUNTY, TEXAS



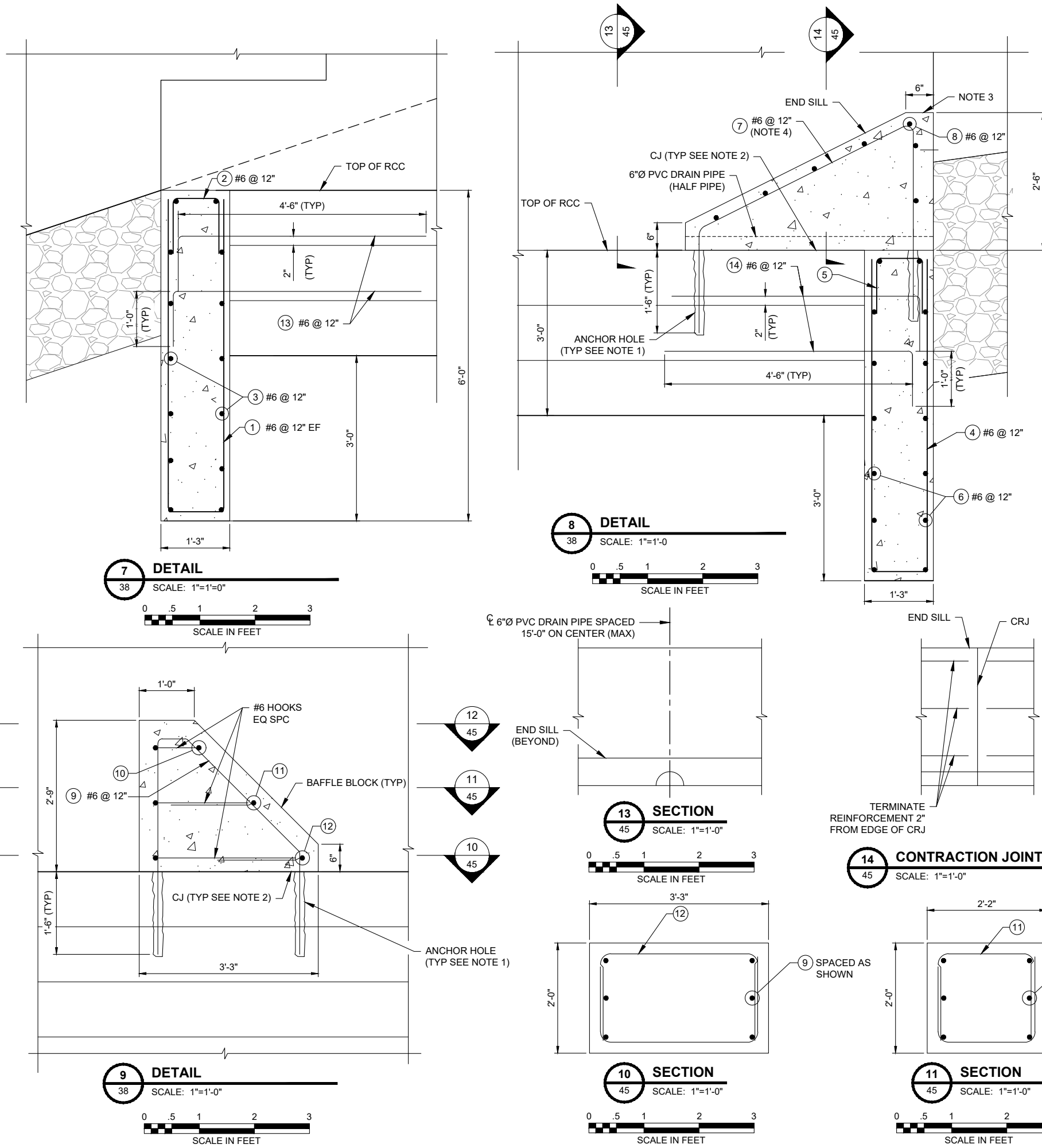
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TX-EN-0754

SHEET NO.
44

OF
83

REVISIONS		
DATE	APPROVED	TITLE

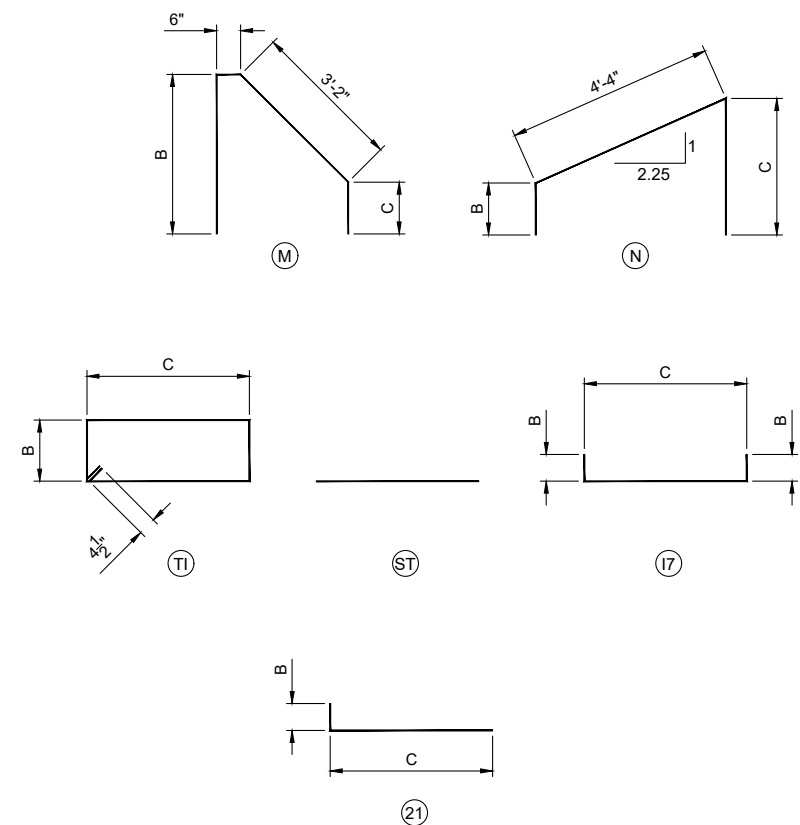
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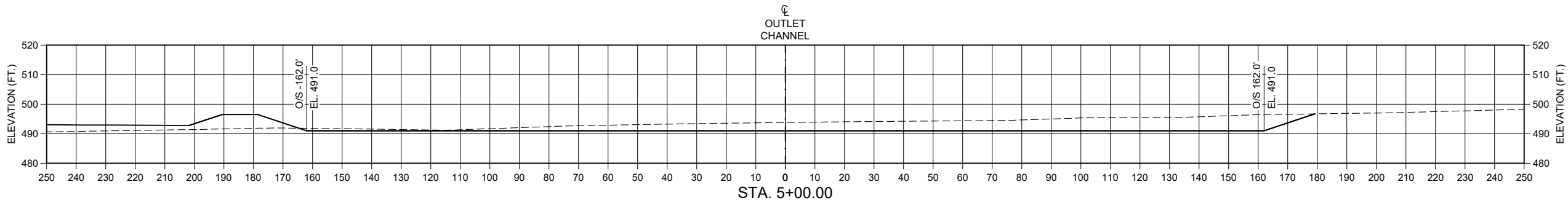
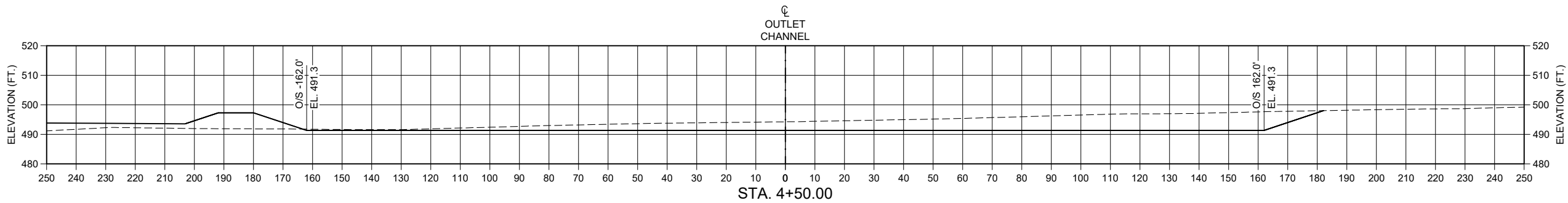
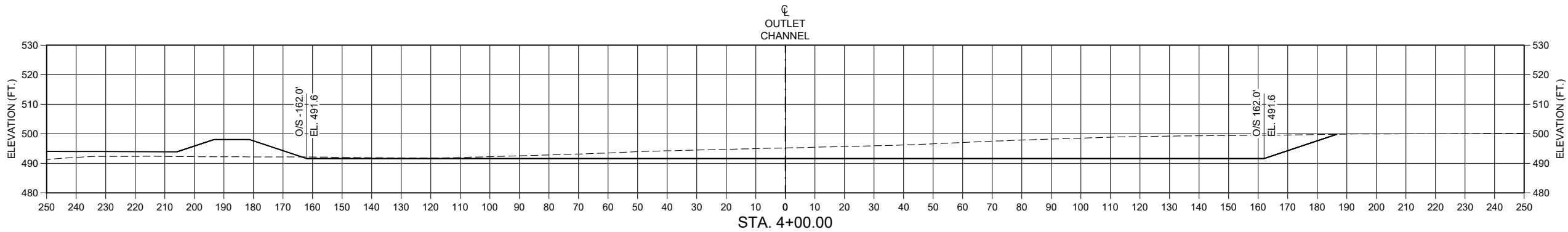
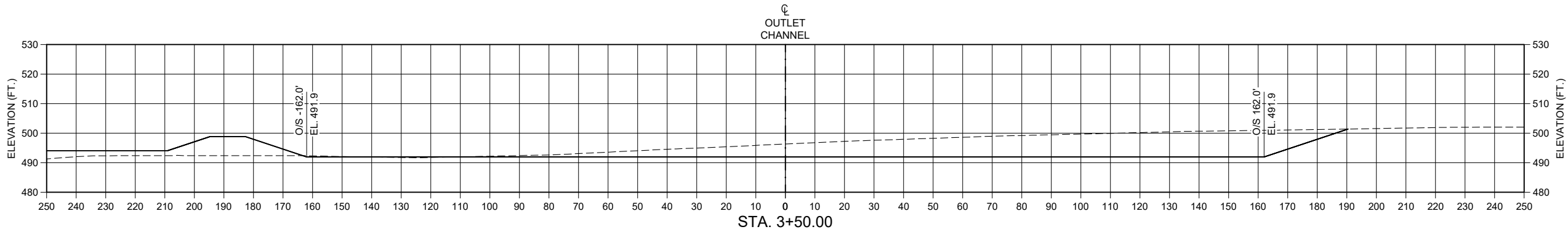
NOTES:

1. DRILL ALL ANCHOR HOLES TO 1"Ø. USE CEMENT GROUT TO FILL ANNULAR SPACE BETWEEN ANCHOR AND ANCHOR HOLE.
2. PREPARE THE RCC FOR CONSTRUCTION JOINT BETWEEN BAFFLE BLOCKS AND END SILL.
3. CONTRACTION JOINTS SPACED AT MAXIMUM OF 25'-0" ALONG THE LENGTH OF THE ENDSILL.
4. IT SHALL BE PERMISSABLE TO ANCHOR BAR MARK 7 INTO THE STILLING BASIN AT 24" OC TO REDUCE THE AMOUNT OF EMBEDDED REINFORCEMENT FROM THE END SILL. THE REINFORCEMENT AT 12" OC FOR THE MINIMUM REINFORCEMENT IS STILL REQUIRED AND MAY BE TRIMMED 2" ABOVE THE TOP OF THE STILLING BASIN SLAB IN BETWEEN THE EMBEDDED BARS.

Reinforcing Steel Schedule															
Mark	Size (Bar #)	Quantity	Type	B		C		Length		Total Length		(ft)	(in)		
				(ft)	(in)	(ft)	(in)	(ft)	(in)	(ft)	(in)				
1	6	300	17	5	-	8	1	-	1	12	-	5	3725	-	0
2	6	300	17	1	-	6	1	-	1	4	-	1	1225	-	0
3	6	168	ST	-	-	-	-	-	-	22	-	0	3696	-	0
4	6	300	17	8	-	2	1	-	1	17	-	5	3725	-	6
5	6	300	17	1	-	6	1	-	1	4	-	1	1225	-	6
6	6	168	ST	-	-	-	-	-	-	22	-	0	3696	-	0
7	6	420	21	1	-	3	5	-	6	6	-	9	2835	-	0
8	6	168	ST	-	-	-	-	-	-	14	-	4	2408	-	0
9	6	225	M	4	-	3	1	-	9	9	-	8	2175	-	0
10	6	150	T1	0	-	8	1	-	8	2	-	4	350	-	0
11	6	150	T1	1	-	8	1	-	10	3	-	6	525	-	0
12	6	150	T1	1	-	8	2	-	11	4	-	7	687	-	0
13	6	300	21	1	-	0	4	-	6	5	-	6	1650	-	0
14	6	300	21	1	-	0	4	-	6	5	-	6	1650	-	0
Total											29572	-	0		



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DATE CHECKED: 8/4/2021

AS OUTLET CHANNEL CROSS-SECTIONS (1 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

United States
Department of
Agriculture

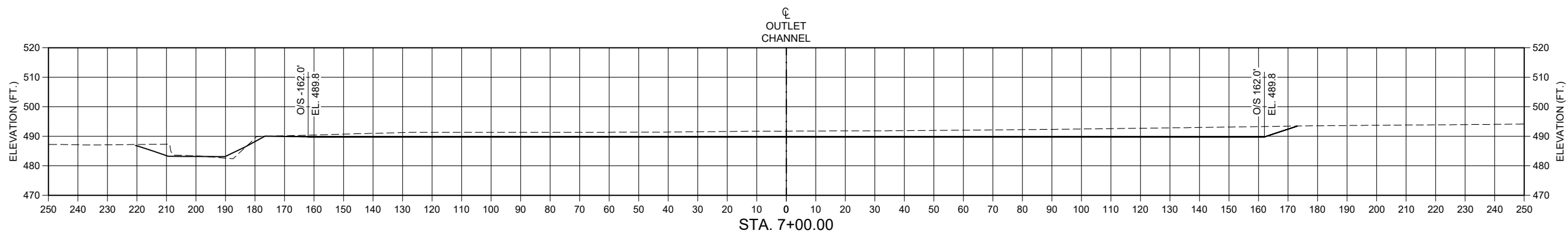
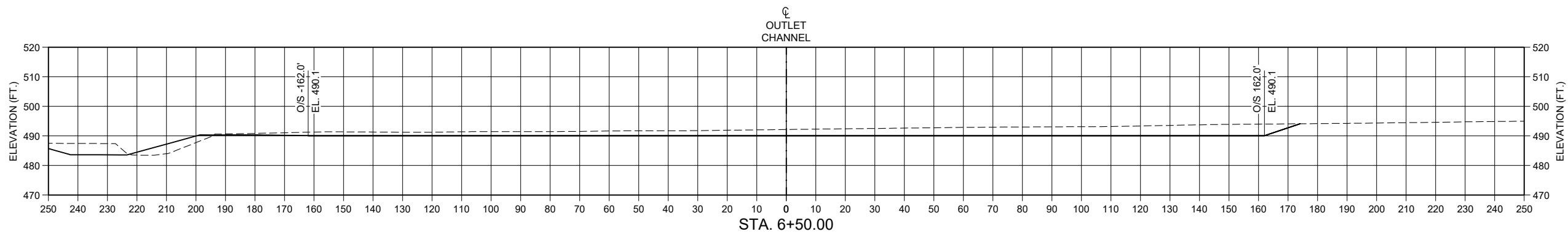
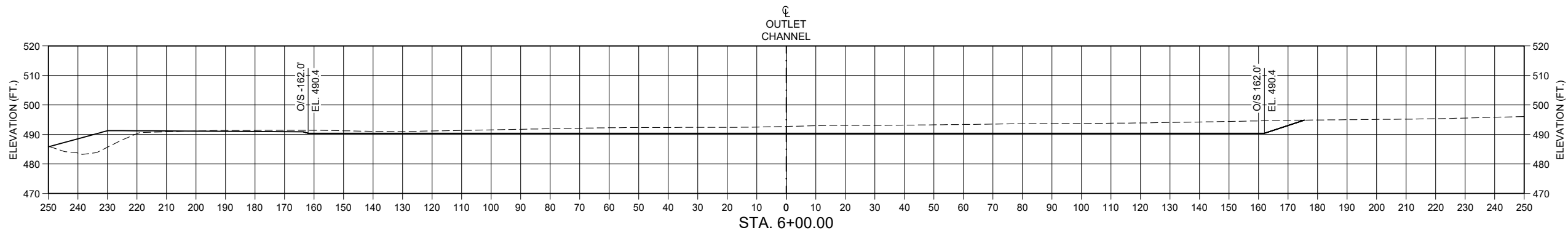
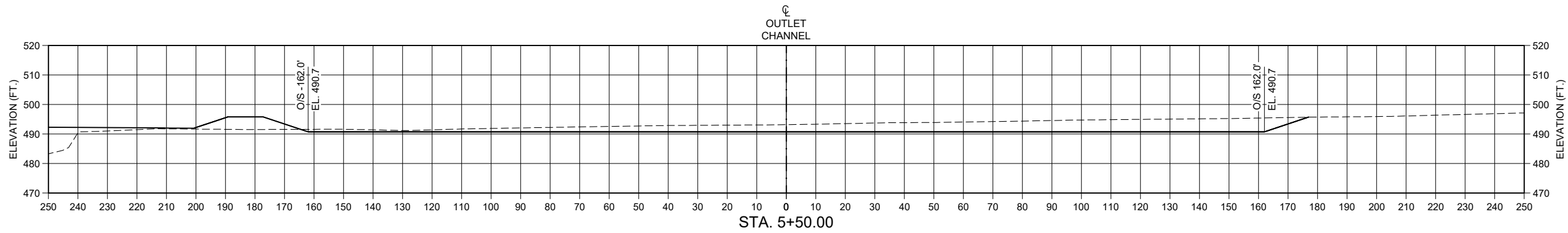
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TX-EN-0754

SHEET NO.
46

OF
83

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DESIGNED BY: LTF
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FILE NAME: Plum 21 - Sht 12_48.dwg
DATE CHECKED: 8/4/2021

AS OUTLET CHANNEL CROSS-SECTIONS (2 OF 3)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

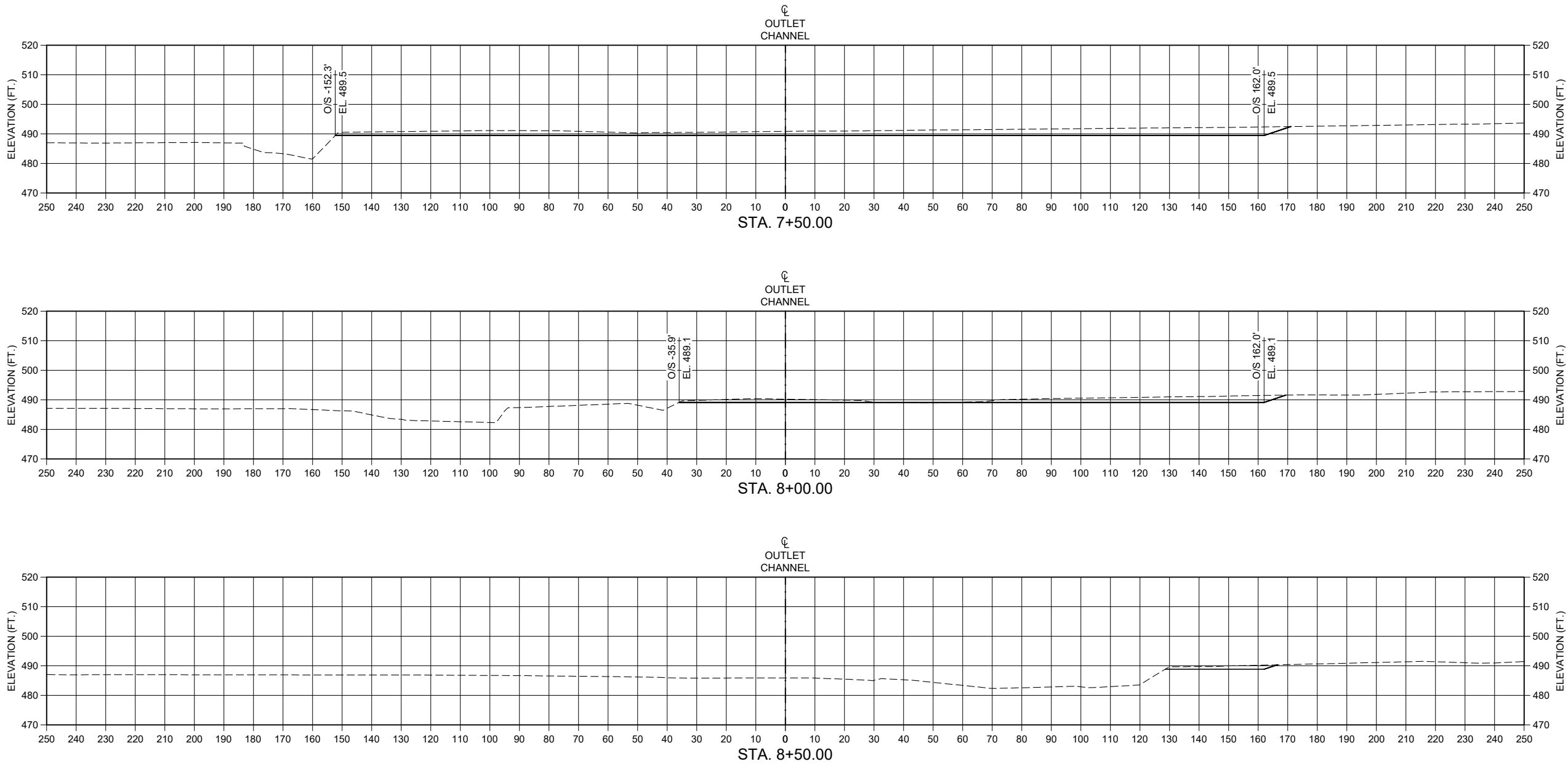


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TX-EN-0754

SHEET NO.
47

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83

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REVISIONS		
DATE	APPROVED	TITLE

DRAWING NO.	TX-EN-0754
SHEET NO.	48
OF	83

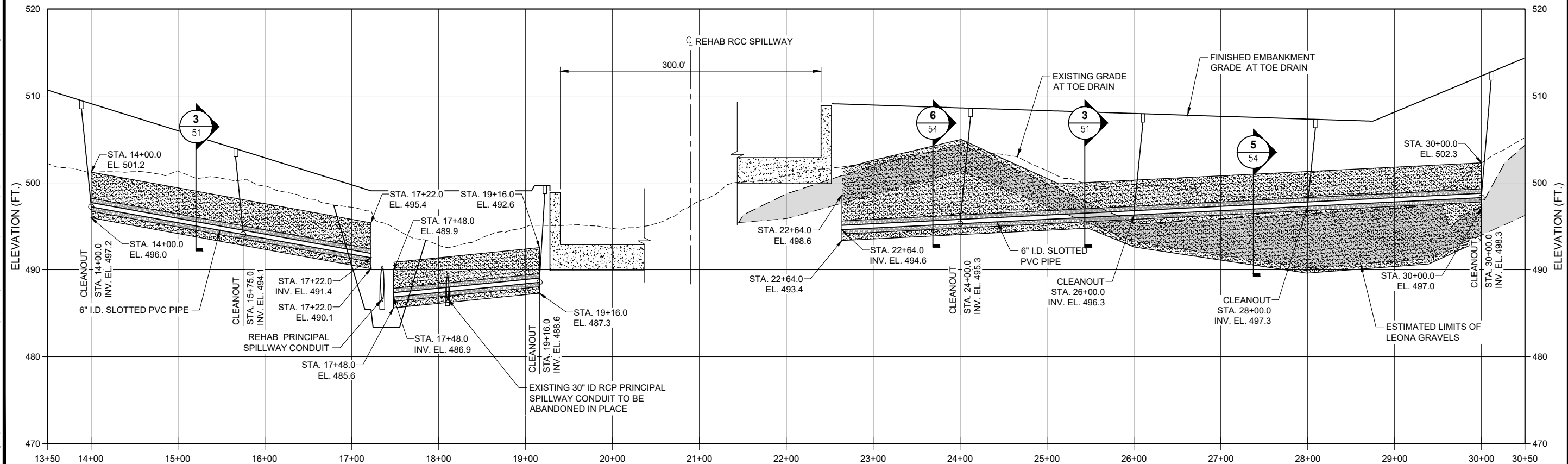
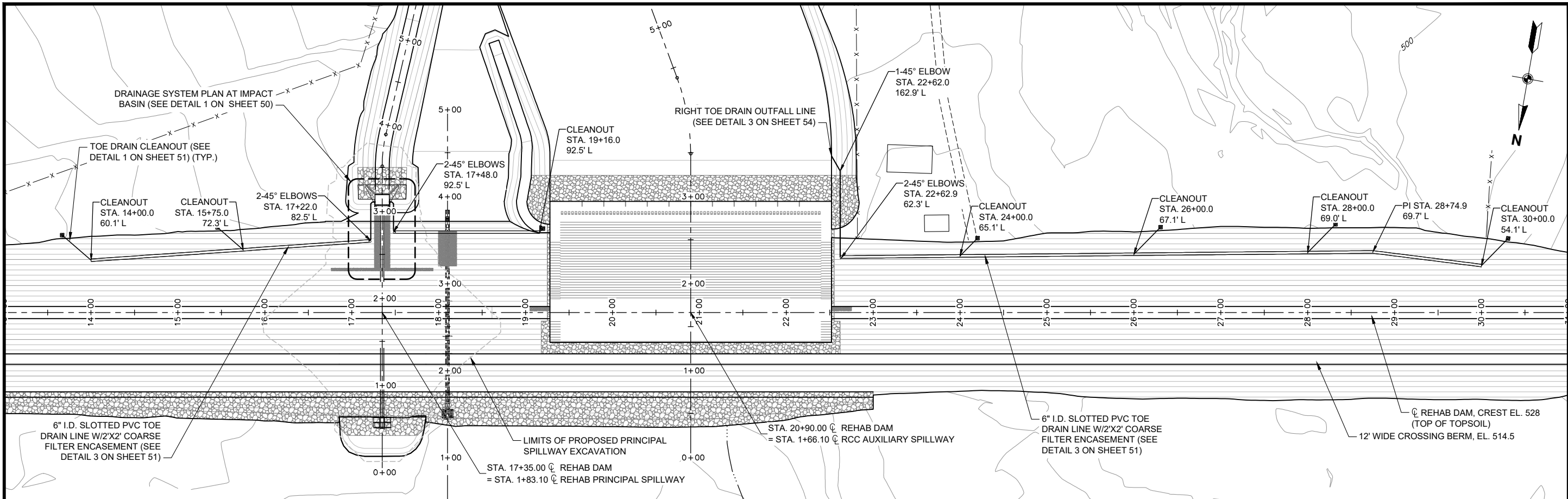


AS OUTLET CHANNEL CROSS-SECTIONS (3 OF 3)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

DESIGNED BY:	LTF
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FILE NAME: Plum 21 - Sht 49.dwg
DATE CHECKED: 8/4/2021

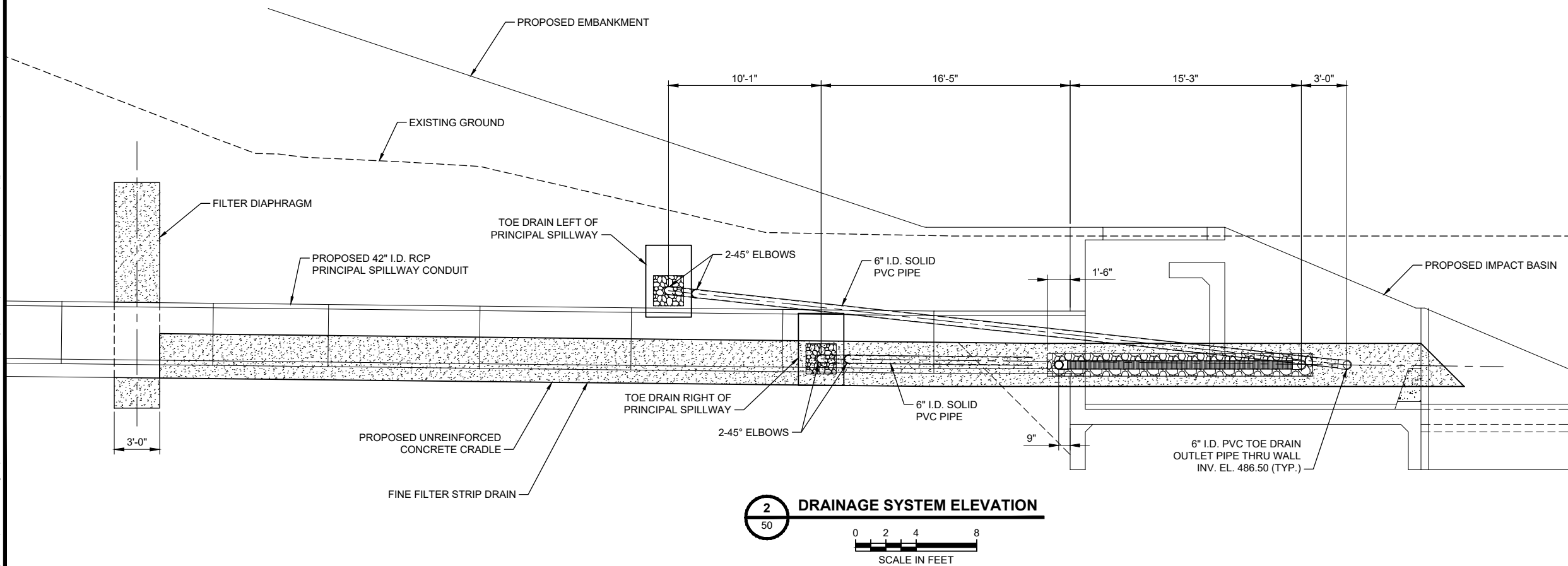
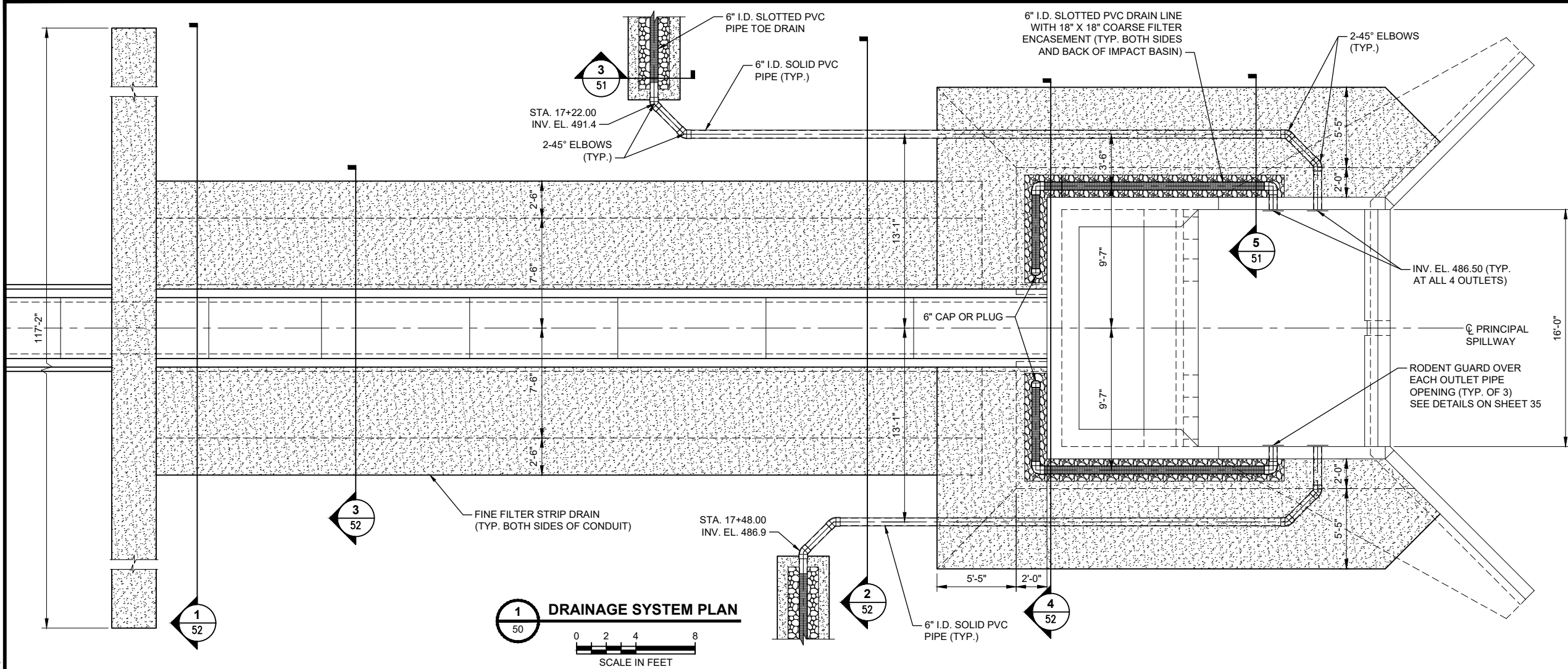
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FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



DRAWING NO. TX-EN-0754
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REVISIONS		
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DRAINAGE SYSTEM DETAILS (1 OF 5)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN CALDWELL COUNTY, TEXAS



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Conservation Service

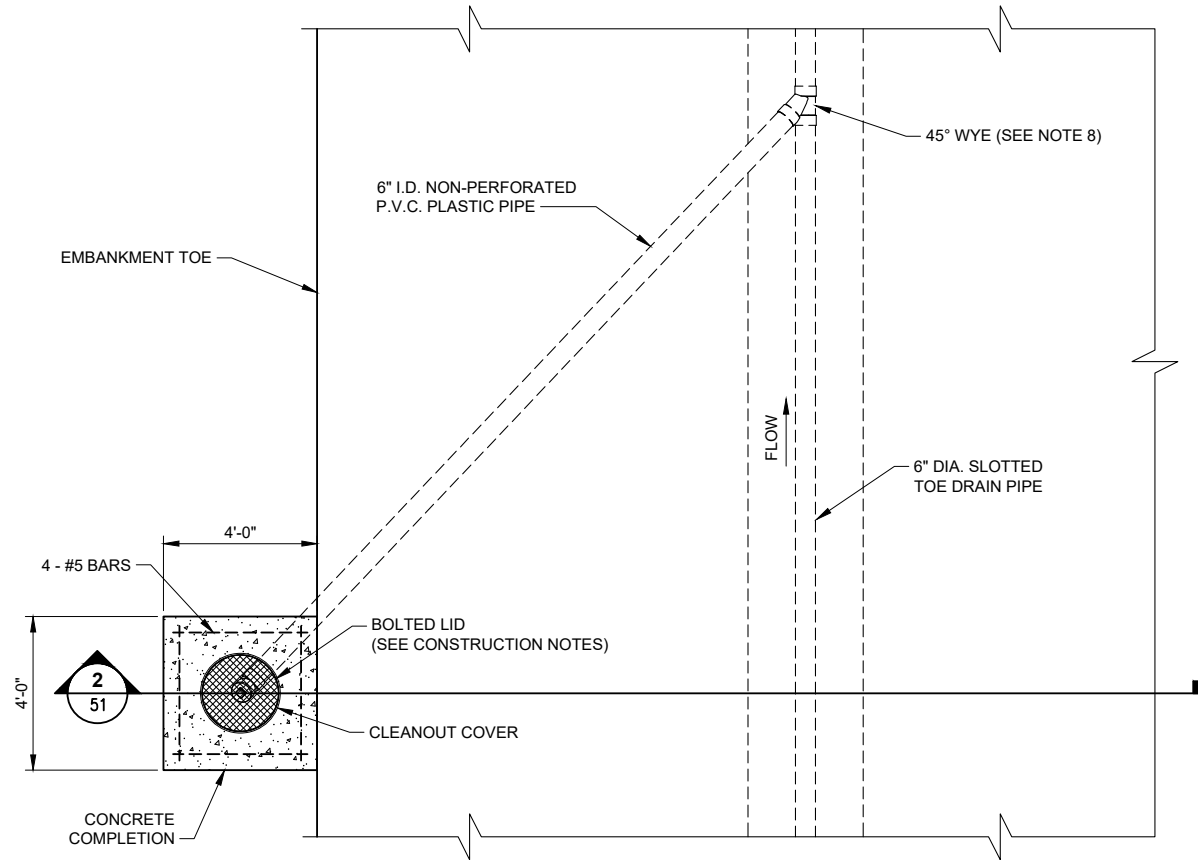
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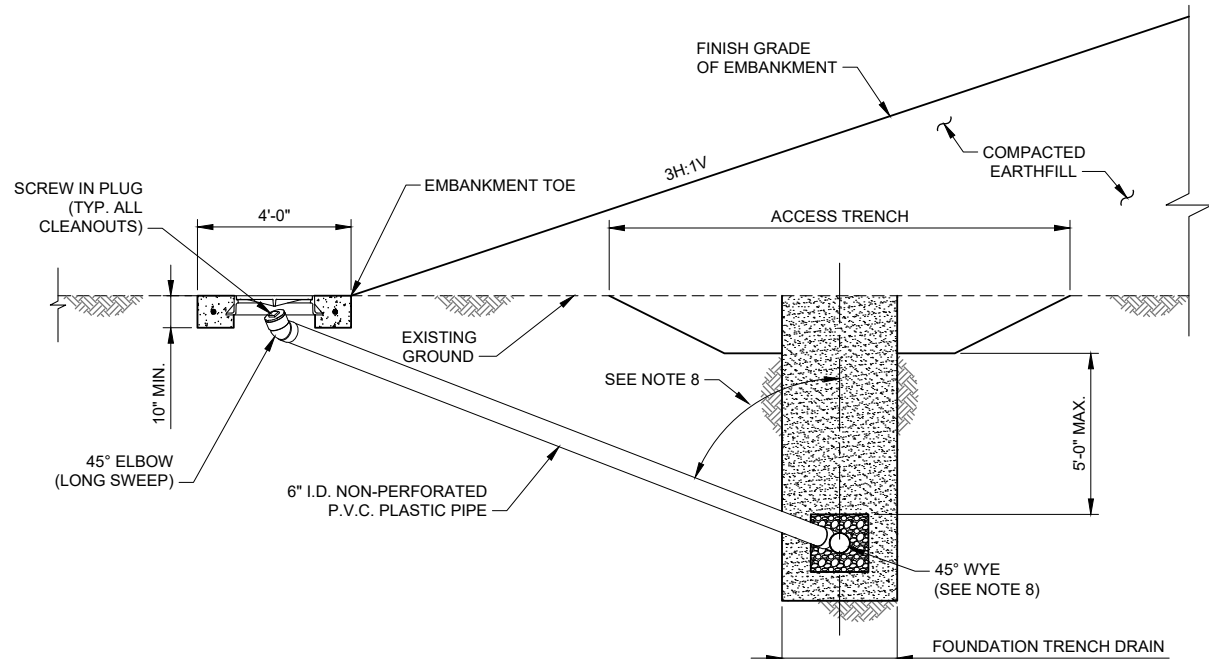
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DATE	APPROVED	TITLE

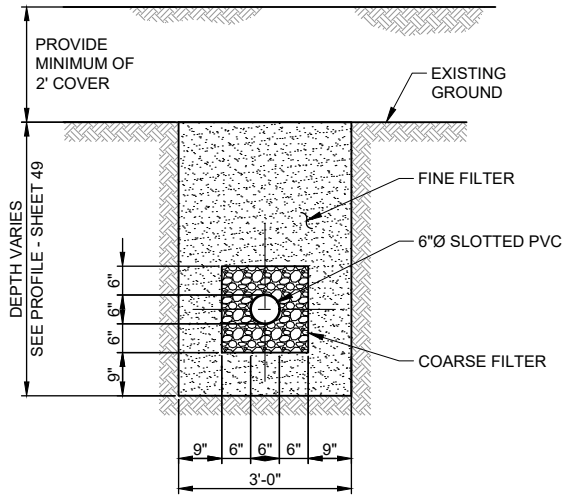
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1 TYP TRENCH DRAIN CLEANOUT DETAIL
51 NTS



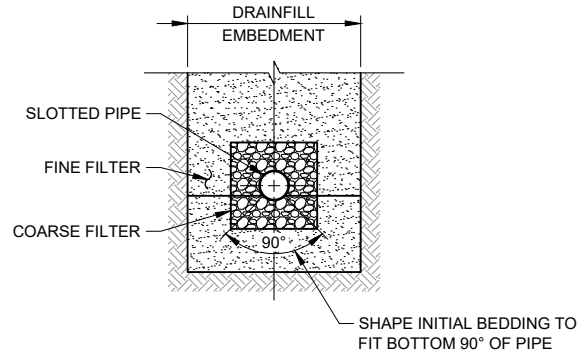
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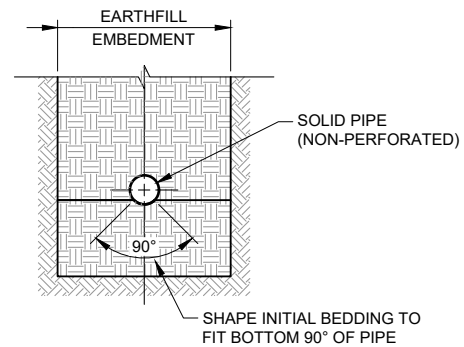
3 TYPICAL REHAB TOE DRAIN DETAIL
50 NTS

CLEANOUT CONSTRUCTION NOTES:

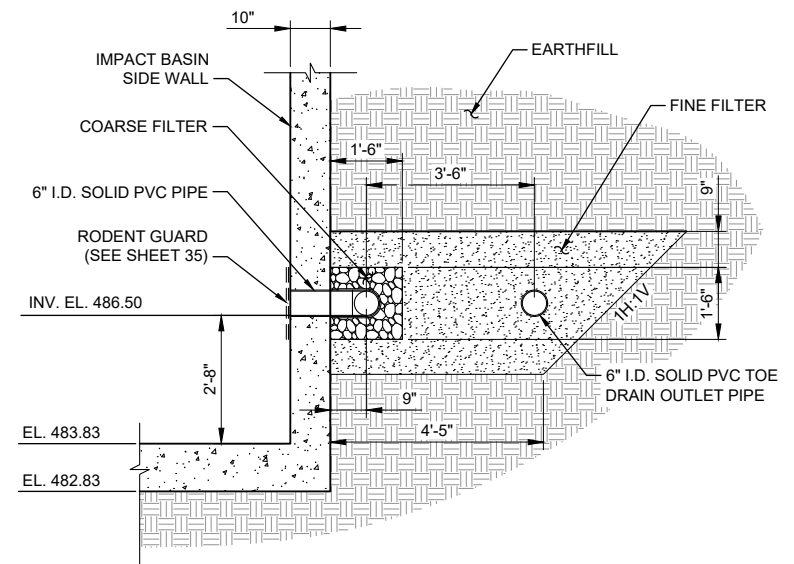
- CLEANOUT COVERS SHALL BE NEENAH FOUNDRY COMPANY R-1478-EB WITH BOLTED AND GASKETED LID OR EQUIVALENT AS APPROVED BY THE ENGINEER.
- ALL BOLTING HARDWARE SHALL CONSIST OF STAINLESS STEEL WASHERS, LOCK WASHERS, AND HEX HEAD BOLTS.
- THE CONCRETE COMPLETION SHALL HAVE A MIX OF 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
- FINISHED GRADE OF THE CONCRETE AND CLEANOUT COVER SHALL EXTEND NO MORE THAN 0.1' ABOVE THE SURROUNDING TOPOGRAPHY (TYP. ALL FOUR SIDES).
- CLEANOUT COVERS SHALL BE ORIENTED TO PREVENT PONDING OF WATER.
- CONCRETE THICKNESS SHALL BE A MINIMUM OF 10" THICK ENOUGH TO FULLY ENCASE THE CAST IRON CLEANOUT COVER.
- THE AREA SURROUNDING THE COVERS SHALL BE GRADED AND DRESSED TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE COVERS.
- THE 45° WYE FOR THE TRENCH DRAIN CLEANOUTS SHALL BE ROTATED/ORIENTED ABOUT THE SLOTTED PIPE TO ALLOW THE CLEANOUTS TO BE INSTALLED BEYOND THE TOE OF THE EMBANKMENT AS SHOWN. FINAL LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
- THE 6" NON-PERFORATED P.V.C. LOCATED BETWEEN THE 45° WYE AND THE 45° LONG SWEEP ELBOW FOR THE CHIMNEY DRAIN/R.C.C. DRAIN CLEANOUTS SHALL BE FIELD FIT TO ENSURE THE VERTICAL CLEANOUT SECTION OF 6" NON-PERFORATED P.V.C. PIPE EXTENDS TO THE CENTER OF THE CLEANOUT COVER.
- THE CLEANOUT COVER FOR THE CHIMNEY DRAIN AND R.C.C. DRAINAGE SYSTEM SHALL BE CONSTRUCTED ADJACENT TO THE R.C.C. SIDEWALLS AT ELEVATION CORRESPONDING TO THE R.C.C. STEP ELEVATION AS SHOWN.



4 DRAIN PIPE BEDDING DETAILS - DRAINFILL
51 NTS



5 DRAIN PIPE BEDDING DETAIL - EARTHFILL
51 NTS



6 DRAIN AND FILTER SECTION
51 NTS

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DRAINAGE SYSTEM DETAILS (2 OF 5)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN CALDWELL COUNTY, TEXAS

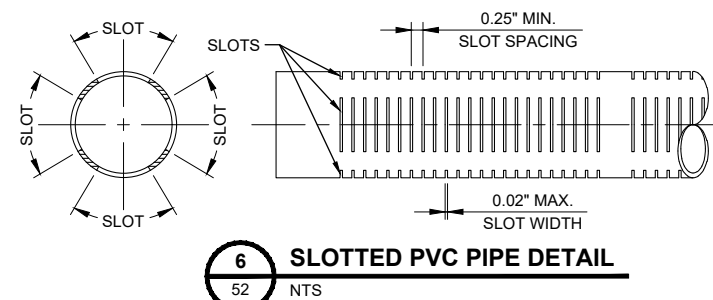
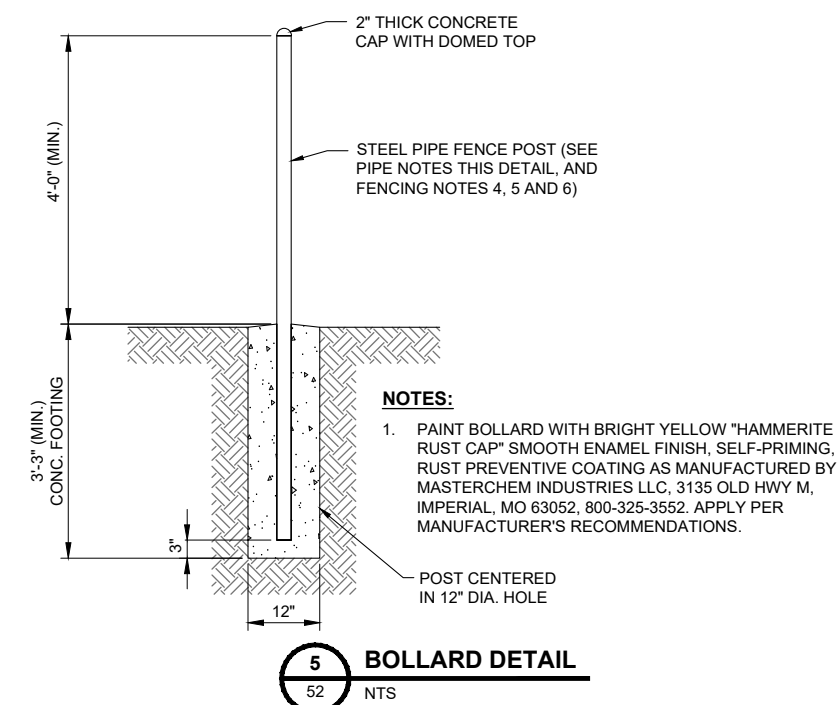
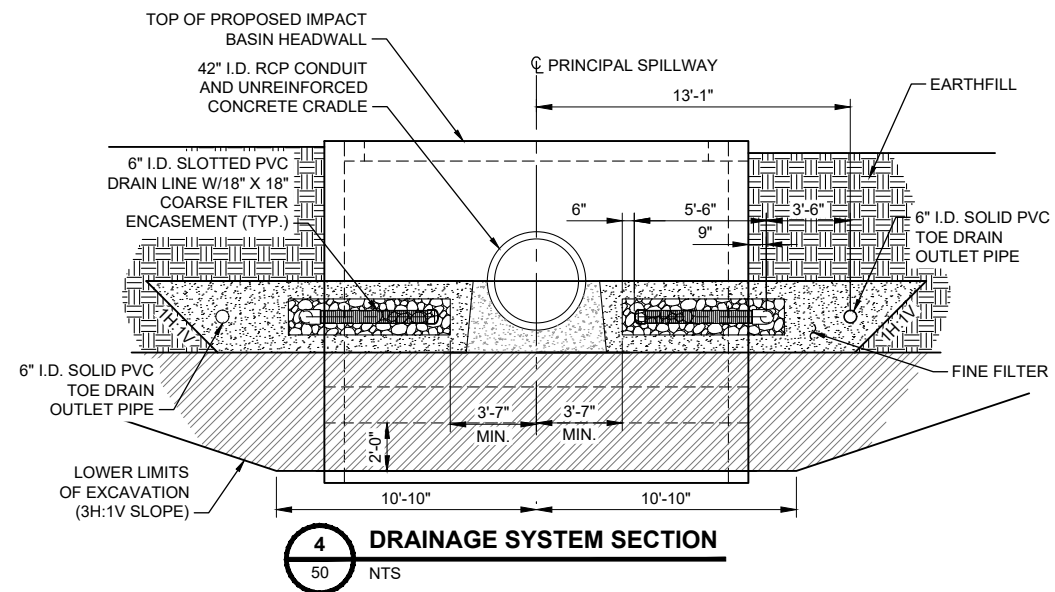
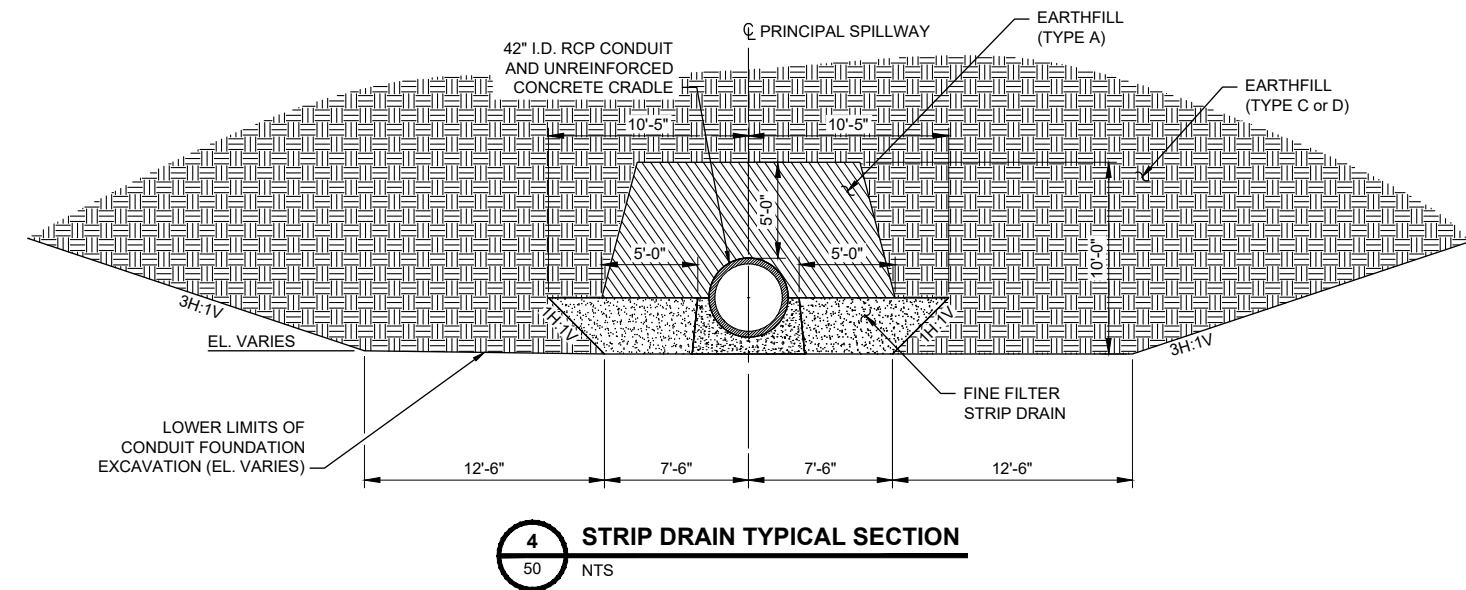
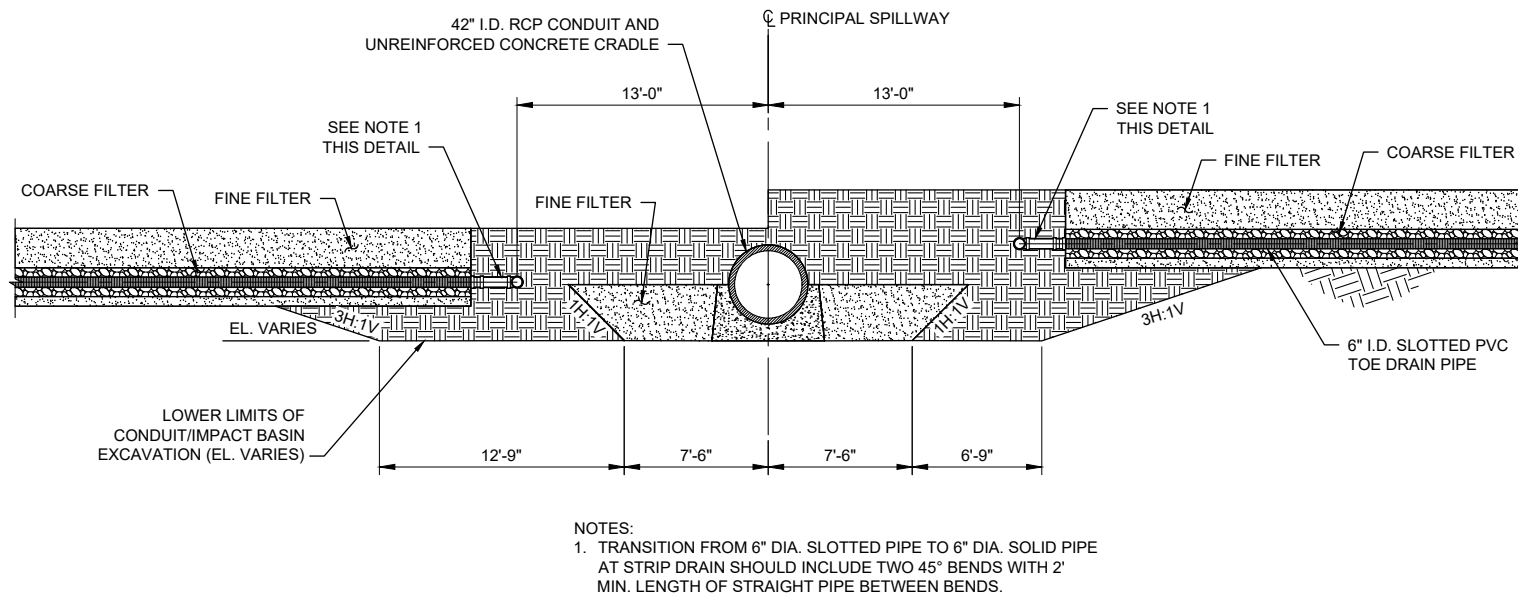
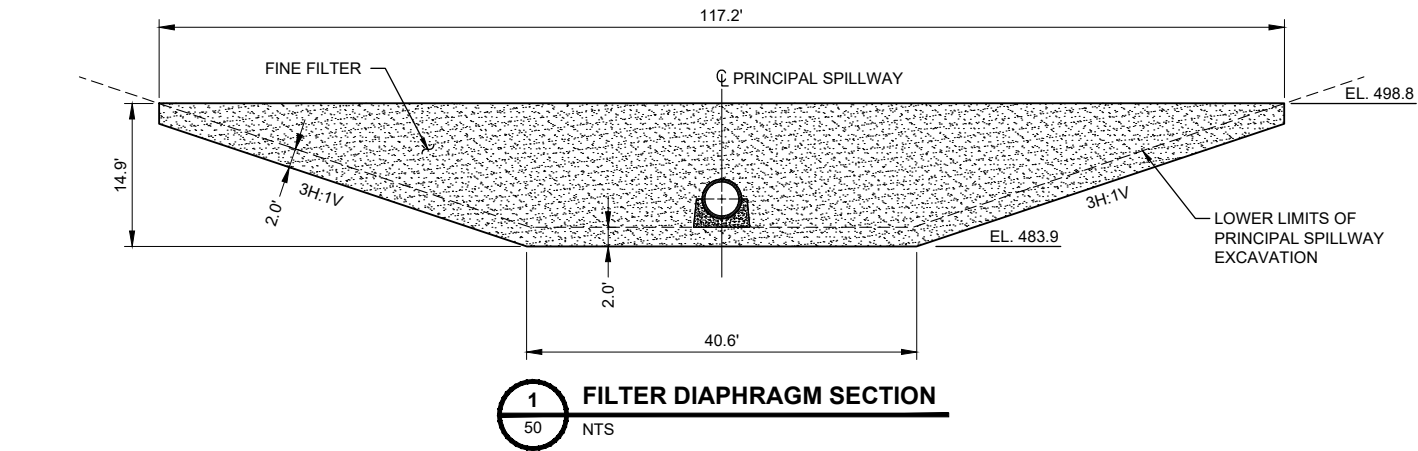
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TX-EN-0754

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SLOTTED PVC PIPE NOTES:

THE SLOTTED PVC PIPE SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. THE MINIMUM REQUIREMENTS ARE AS FOLLOWS:

- ALL PVC PIPE AND FITTING SHALL MEET THE REQUIREMENTS OF CONSTRUCTION SPECIFICATION 45, AND MATERIAL SPECIFICATION 547.
- SLOTS SHALL BE PLACED IN NO MORE THAN FOUR (4) ROWS SYMMETRICALLY ABOUT THE PIPE CENTERLINE, UNLESS APPROVED OTHERWISE.
- SLOTTED PIPE SHALL PROVIDE A MINIMUM OF FOUR (4) SQUARE INCHES OF OPEN AREA PER LINEAR FOOT OF PIPE.

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DATE	APPROVED	TITLE



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FILE NAME: Plum 21 - Sht 50-54.dwg
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DRAINAGE SYSTEM DETAILS (3 OF 5)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

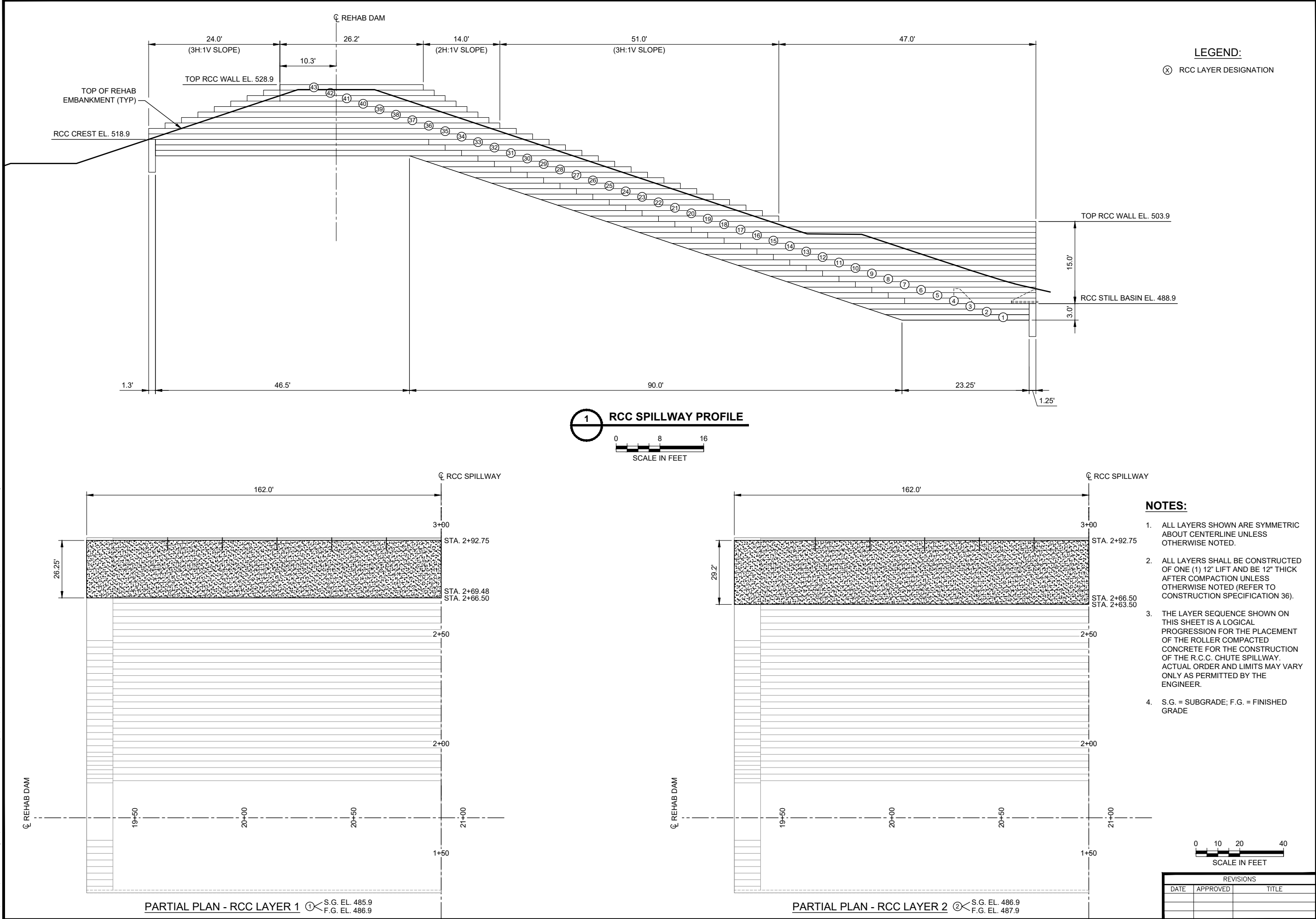


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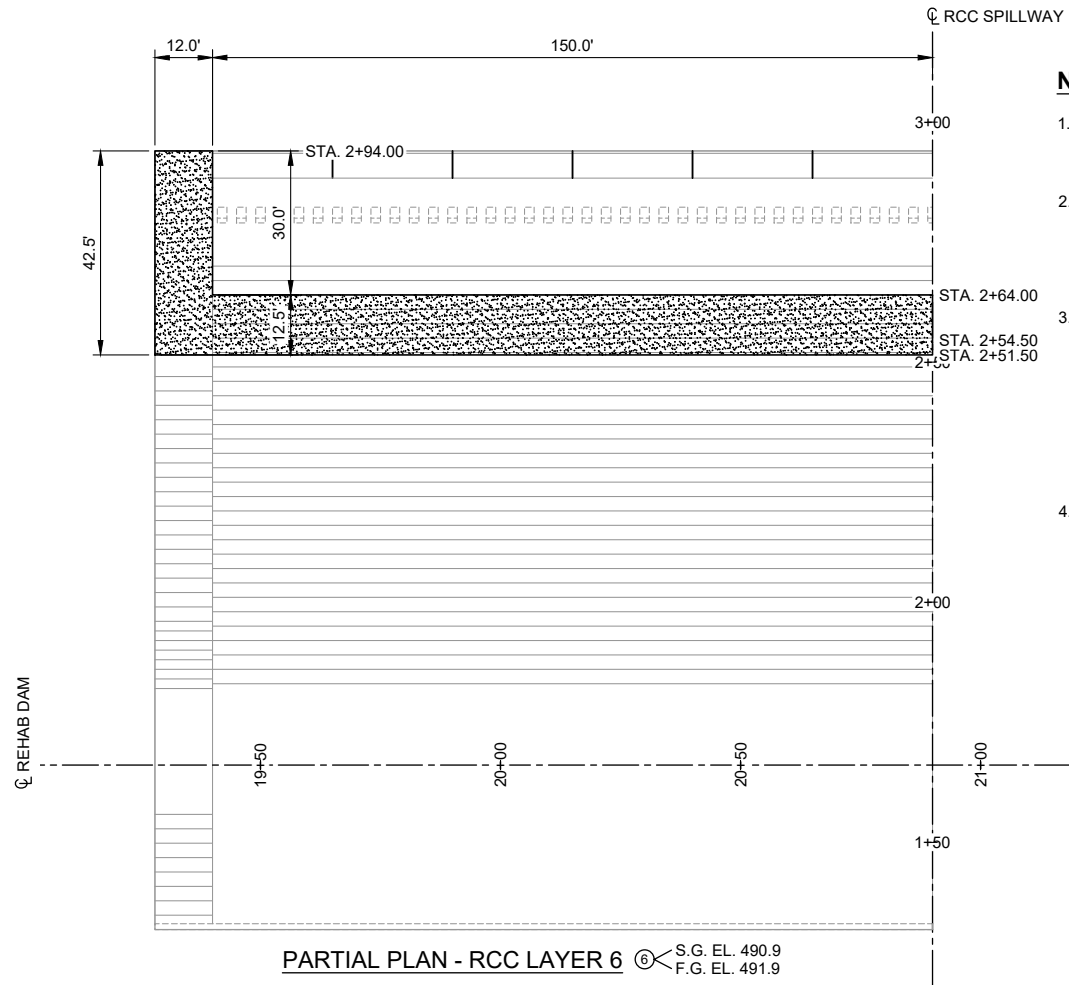
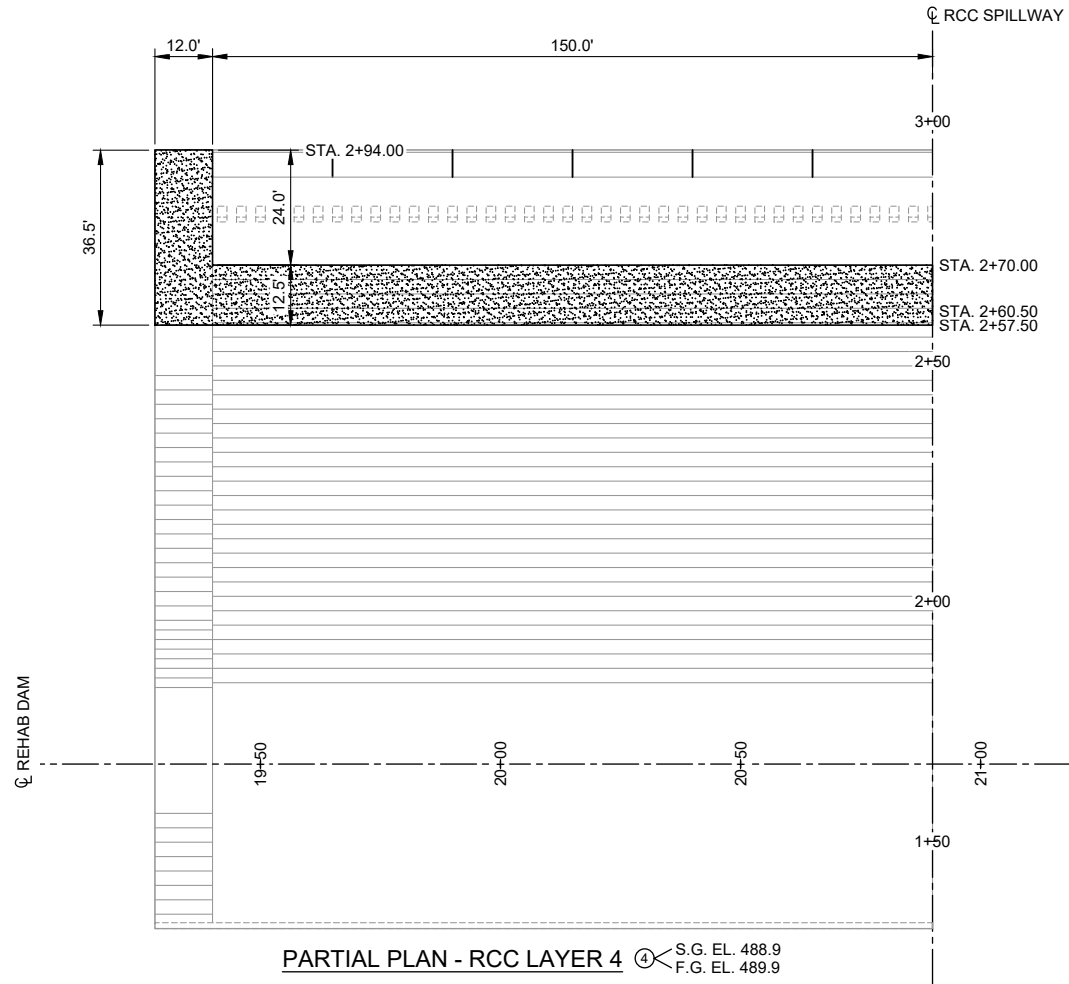
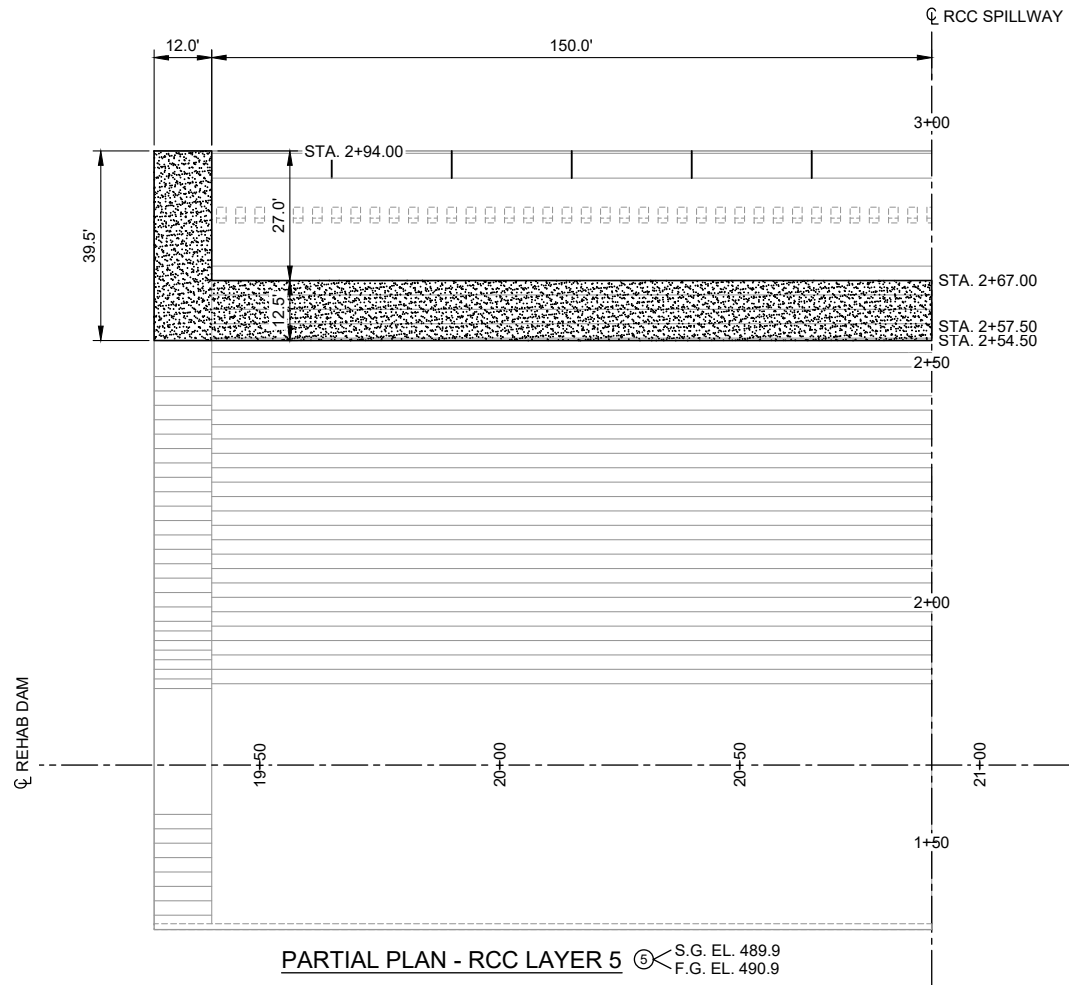
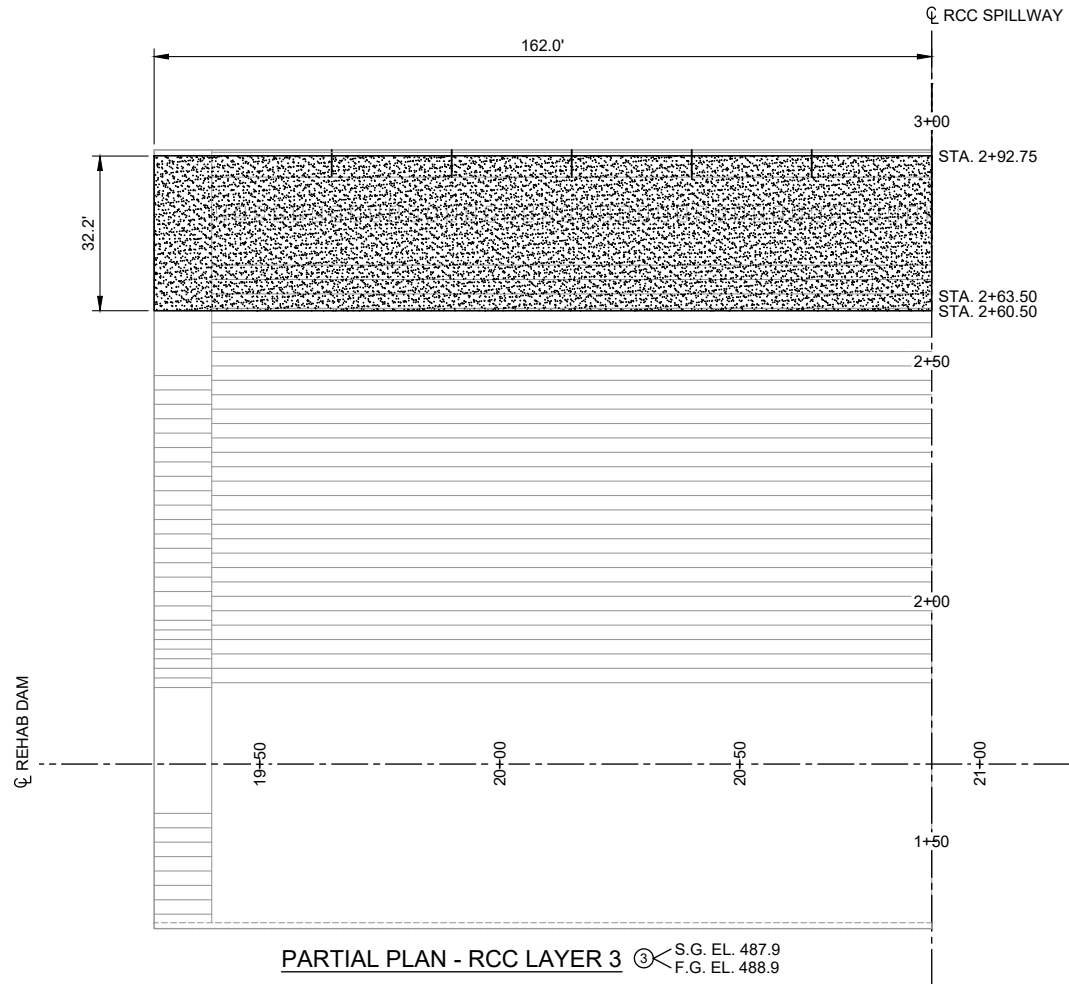
SHEET NO.
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NOTES:

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- S.G. = SUBGRADE; F.G. = FINISHED GRADE



REVISIONS		
DATE	APPROVED	TITLE

DRAWING NO.	TX-EN-0754
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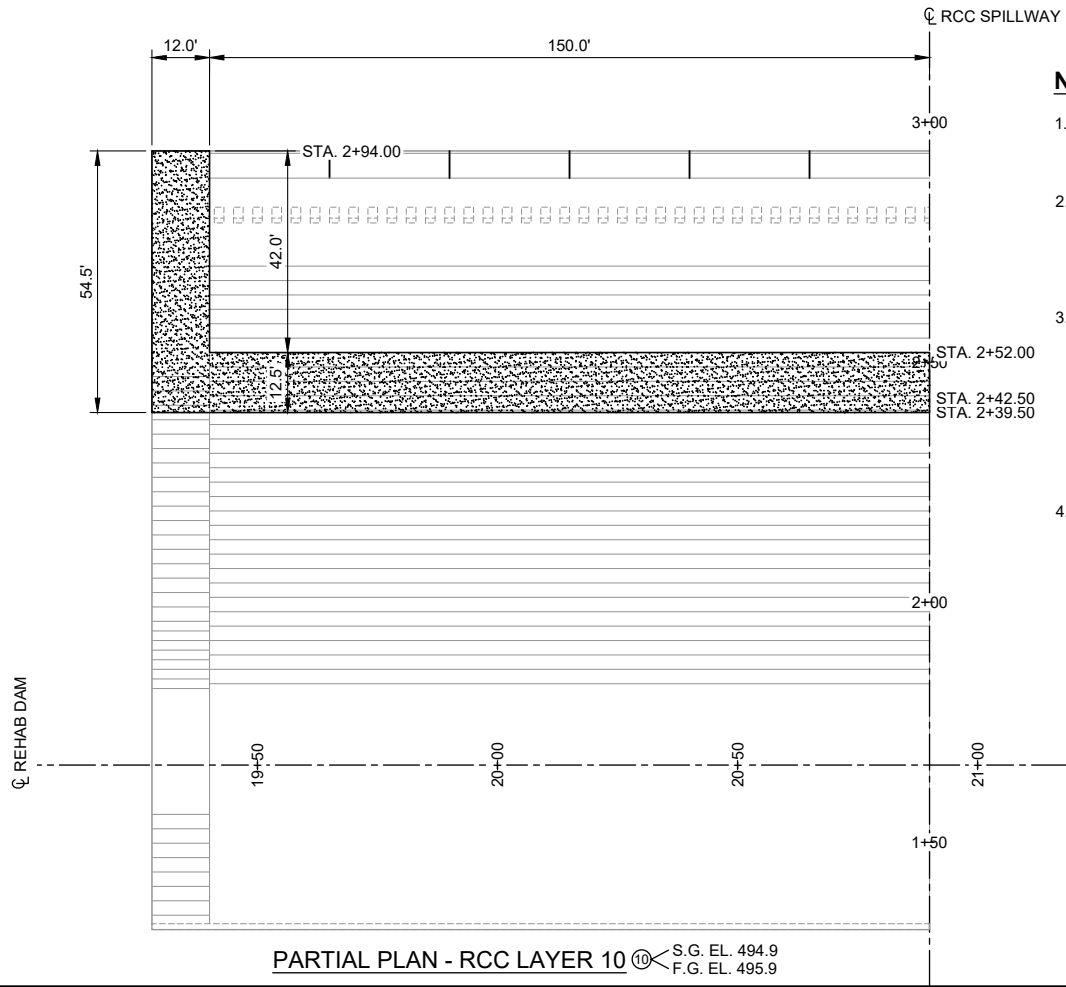
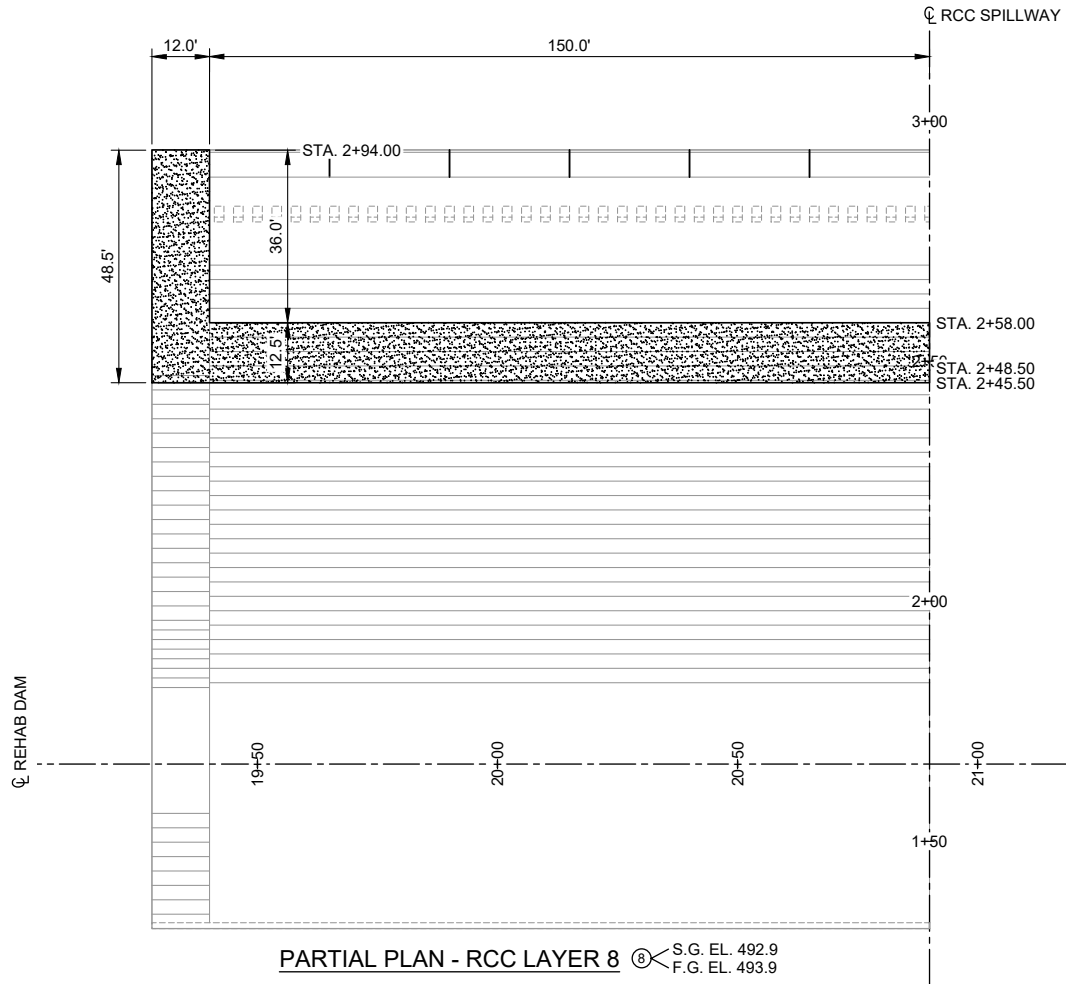
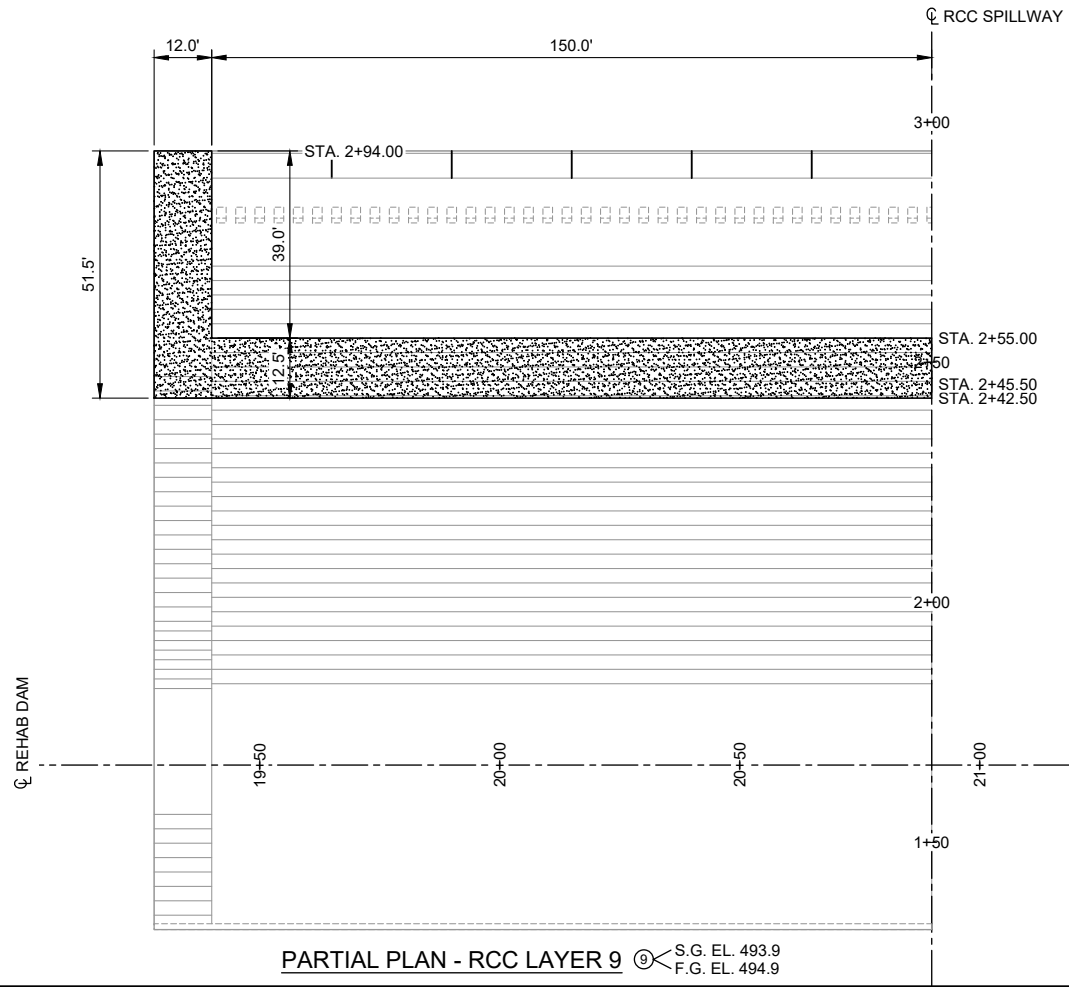
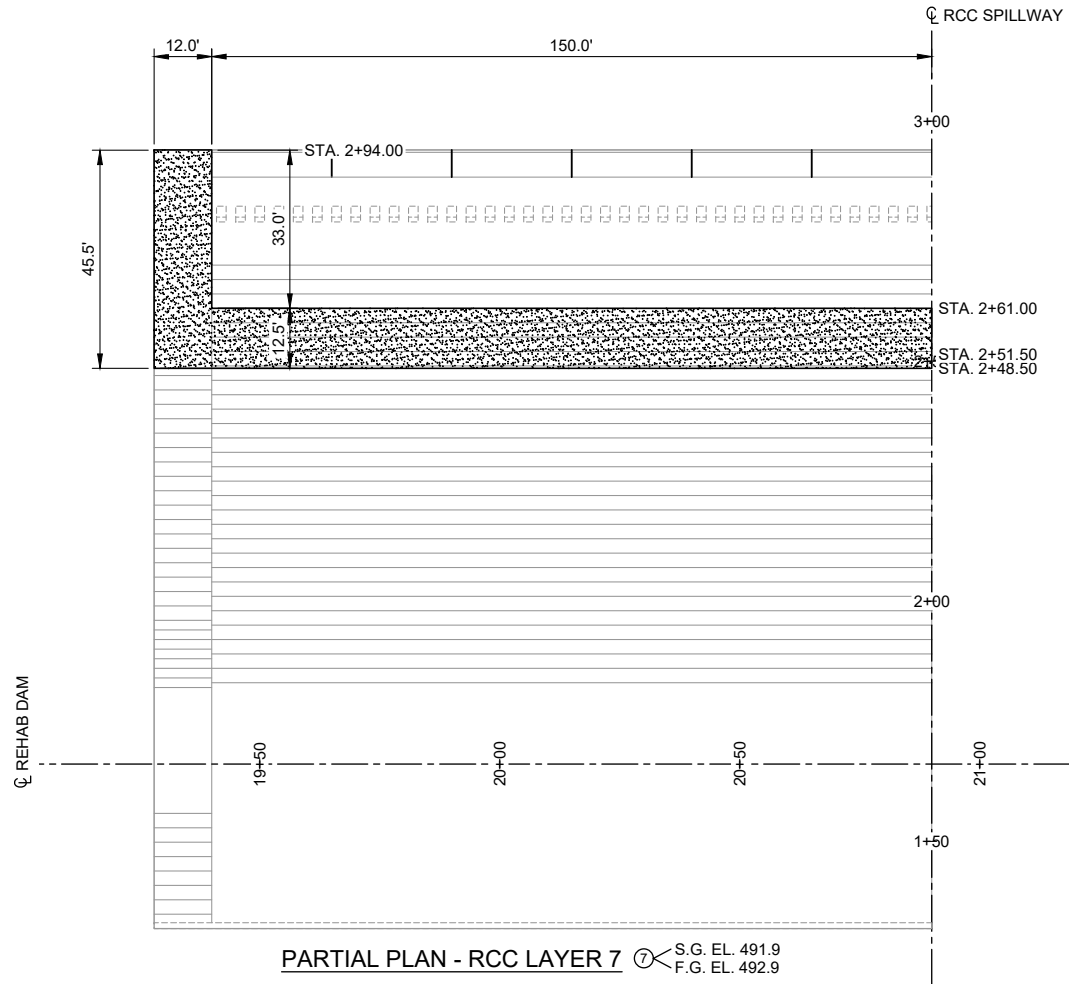
RCC SPILLWAY LIFT SCHEMATIC (2 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

DESIGNED BY:	KNF
DRAWN BY:	CAD
CHECKED BY:	SS
FILE NAME:	Plum 21 - Sht 55-66.dwg
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SHEET NO.
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RCC SPILLWAY LIFT SCHEMATIC (3 OF 12)

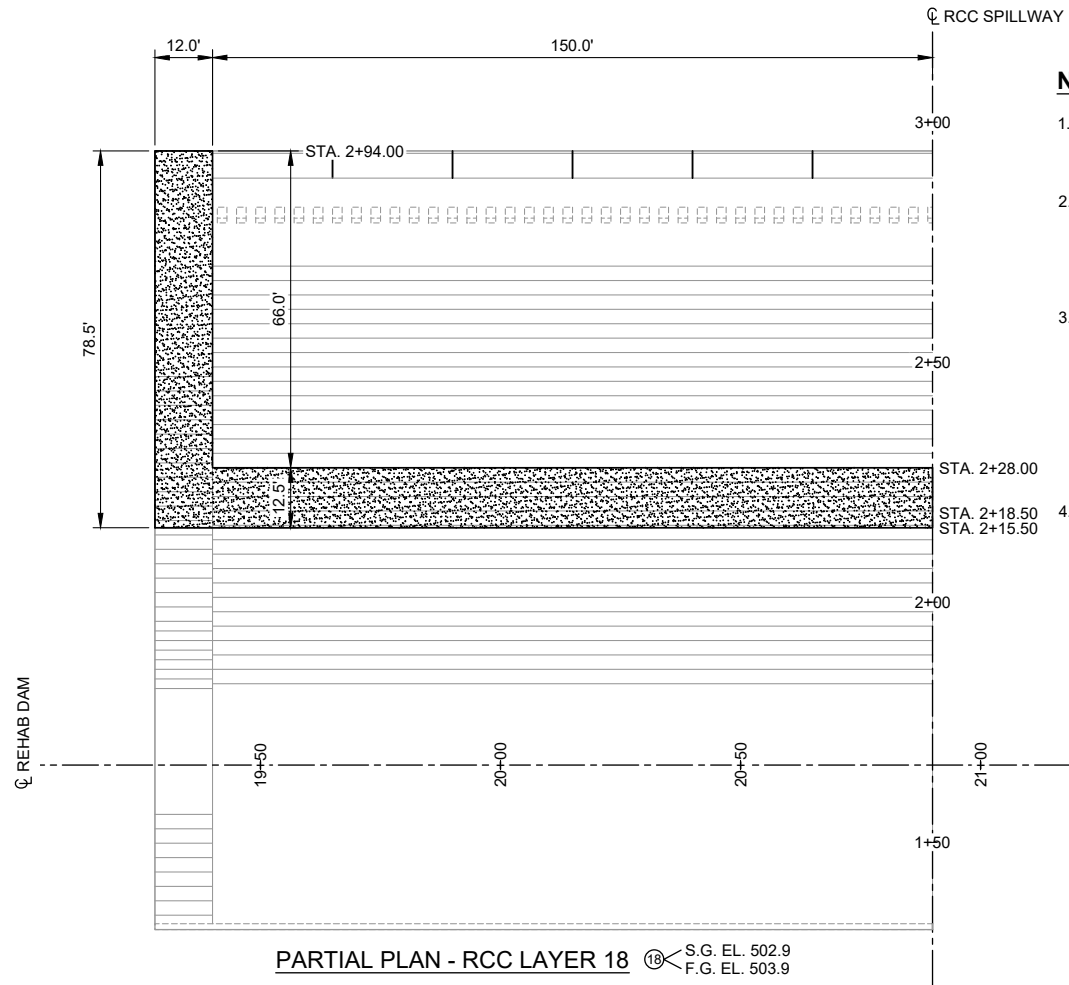
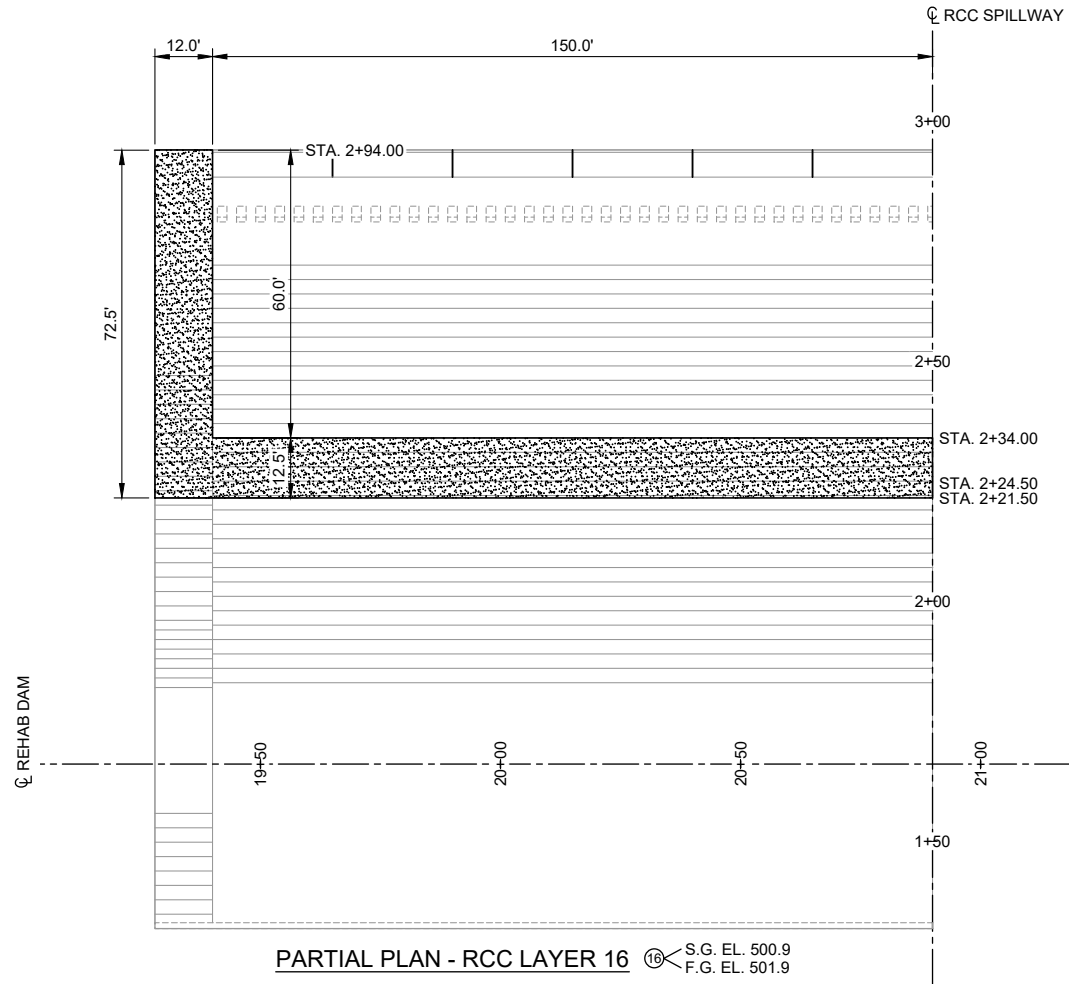
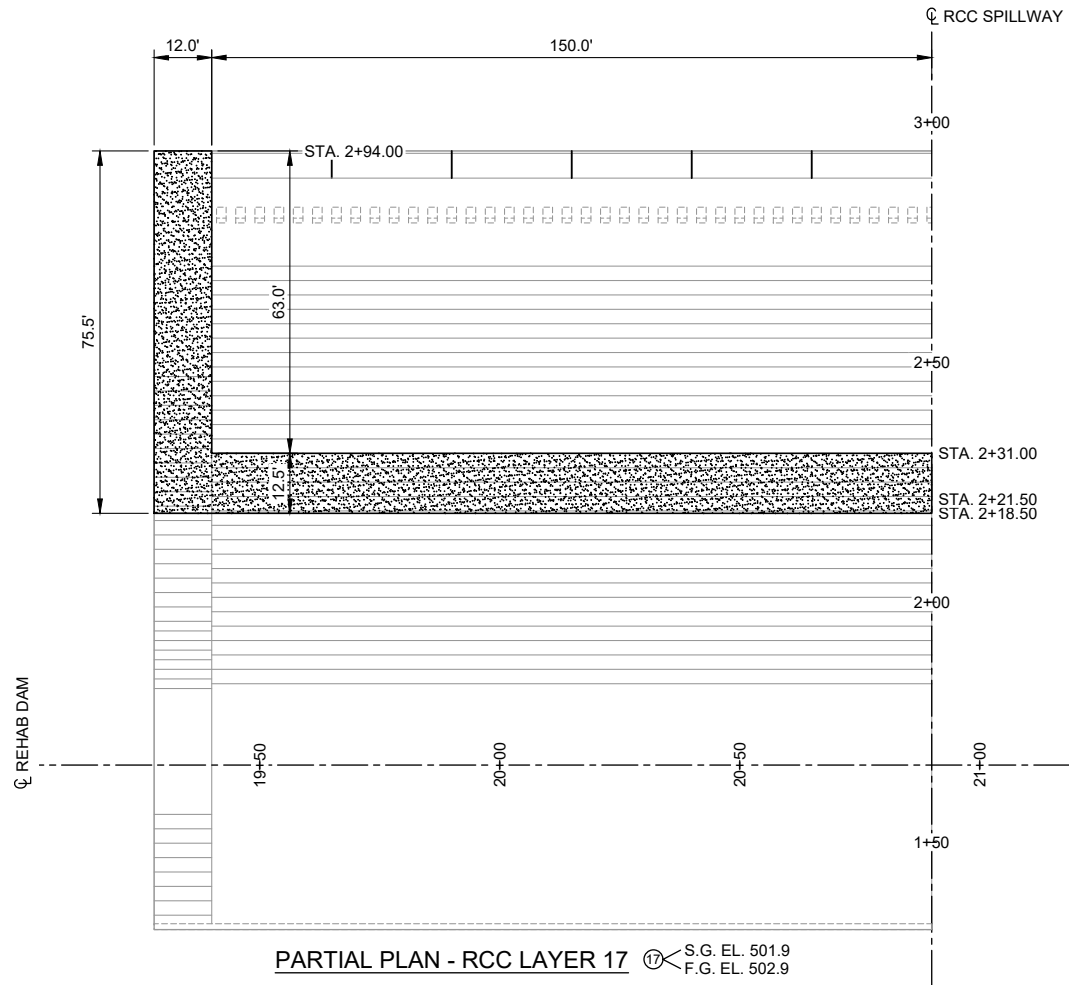
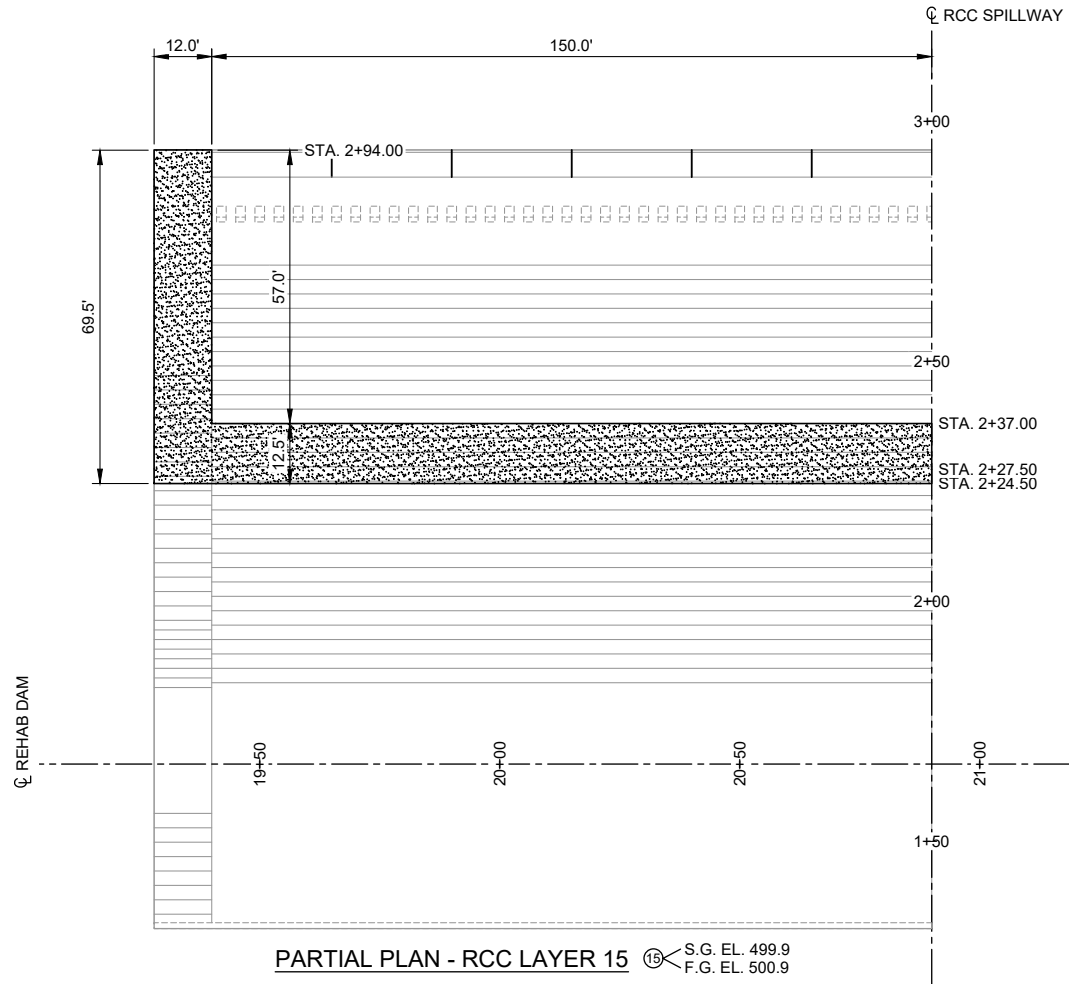
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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DATE CHECKED: 8/4/2021



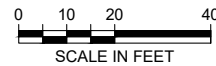
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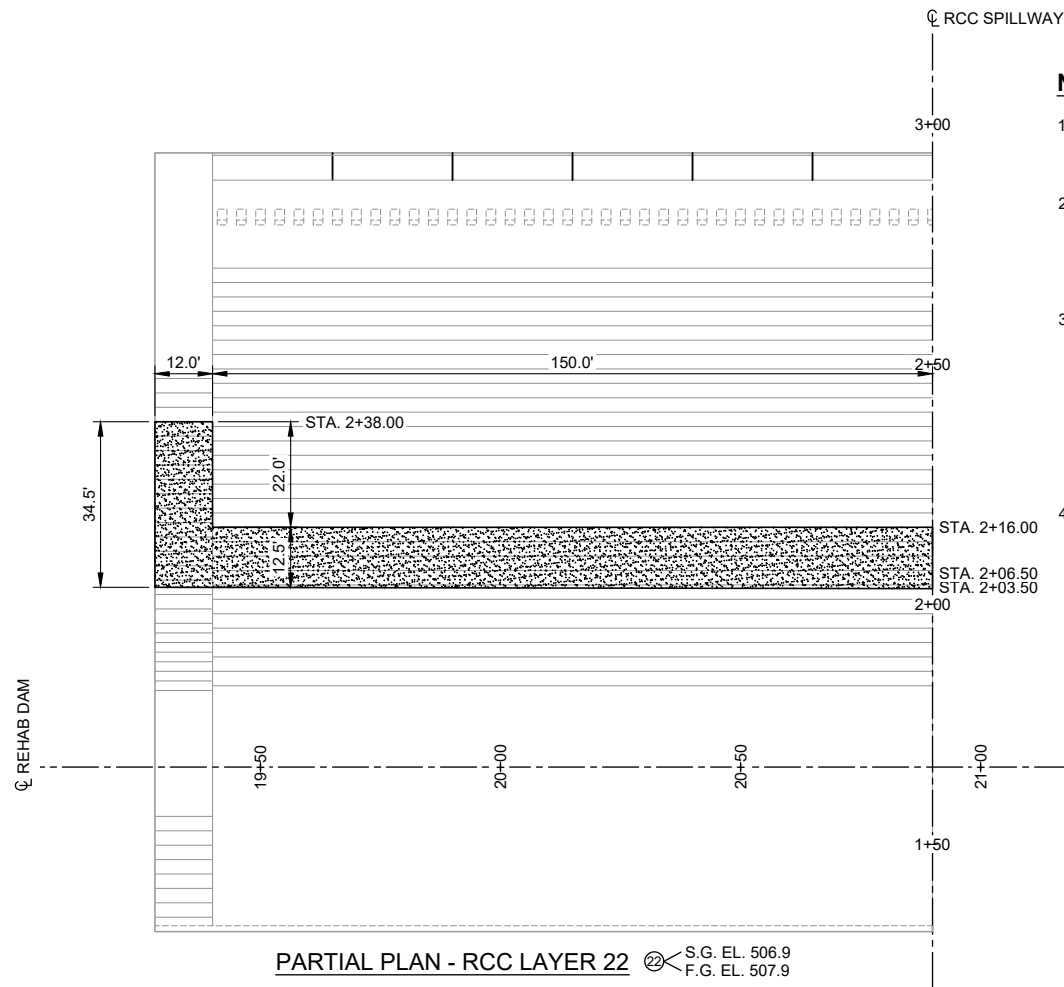
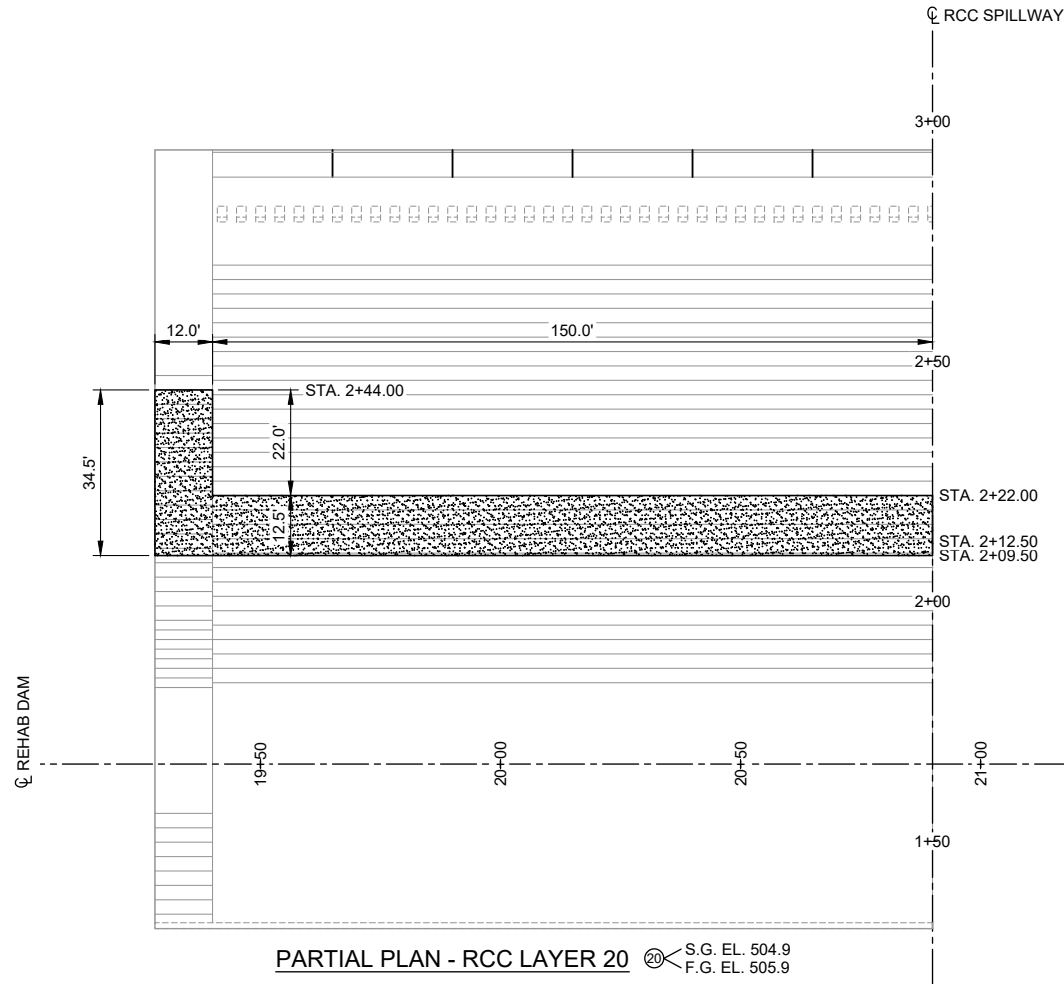
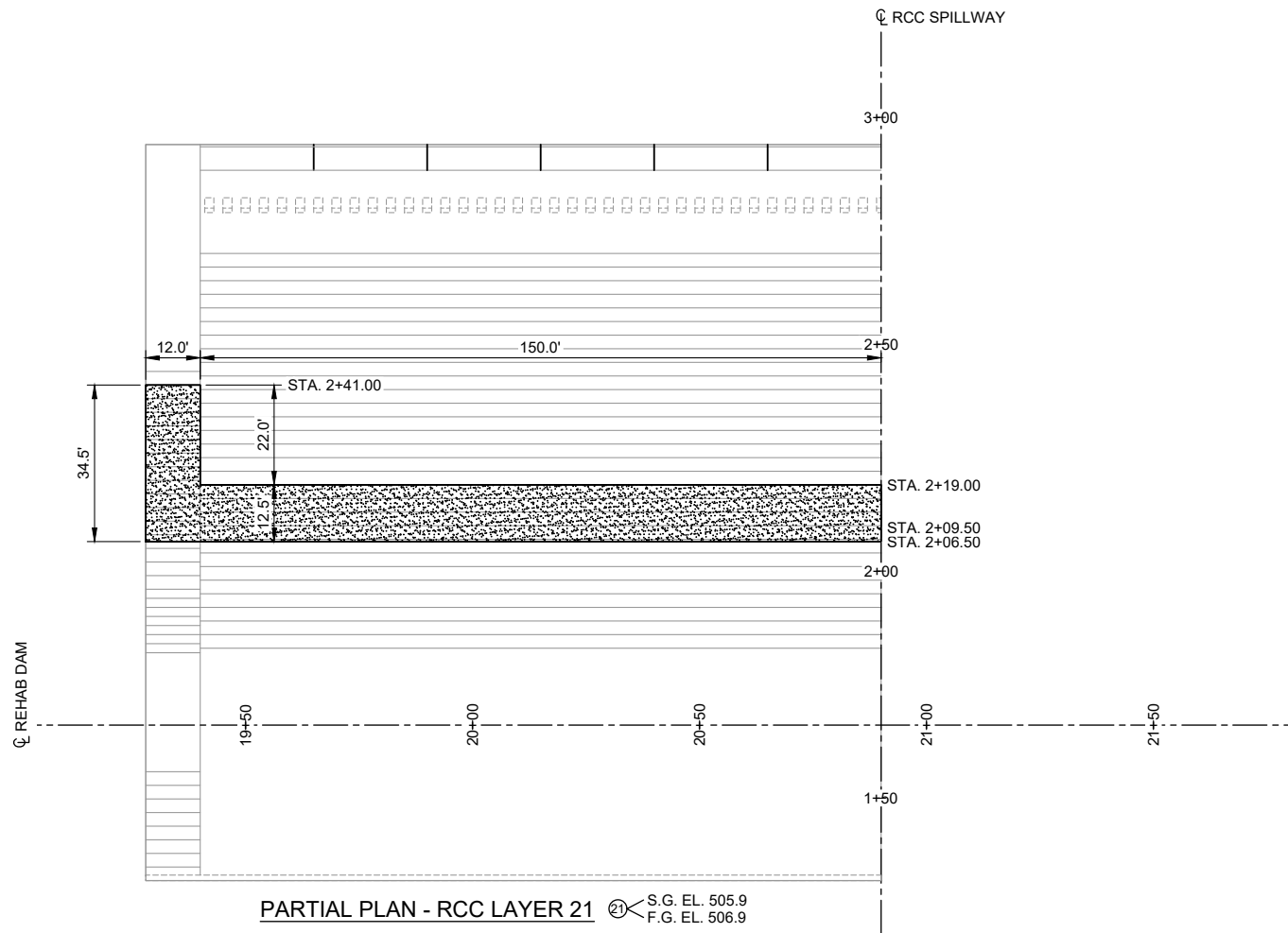
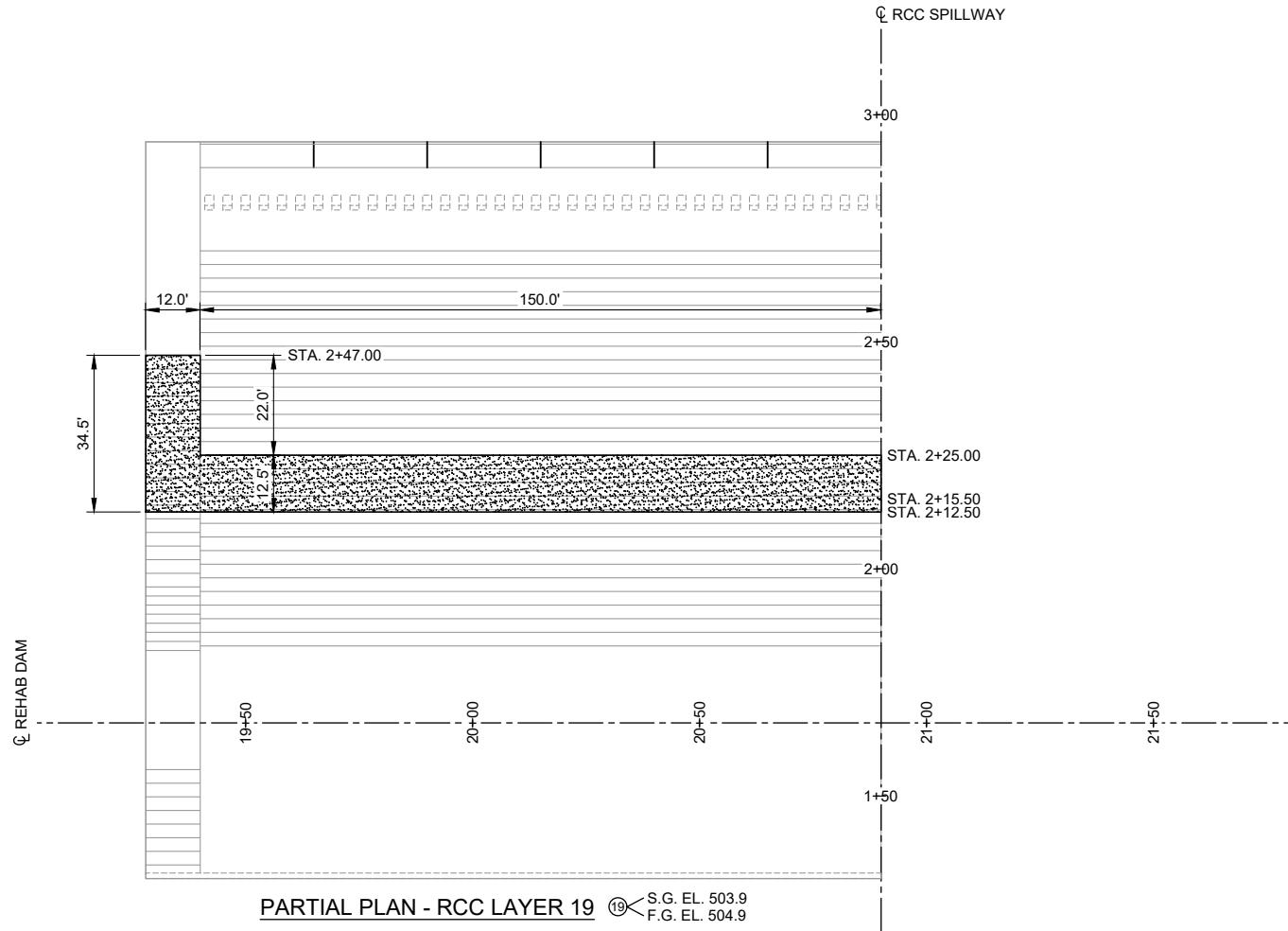
RCC SPILLWAY LIFT SCHEMATIC (5 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

DESIGNED BY:	KNF
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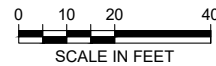


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RCC SPILLWAY LIFT SCHEMATIC (6 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



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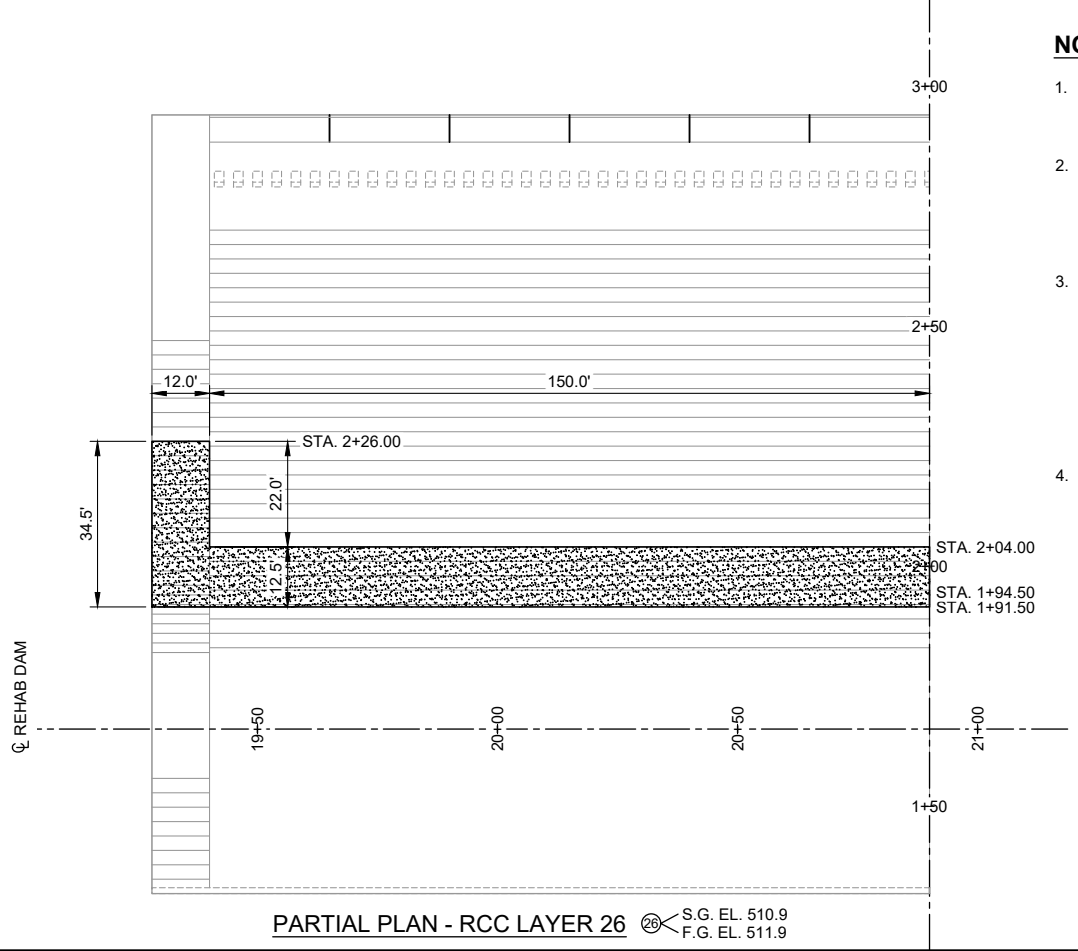
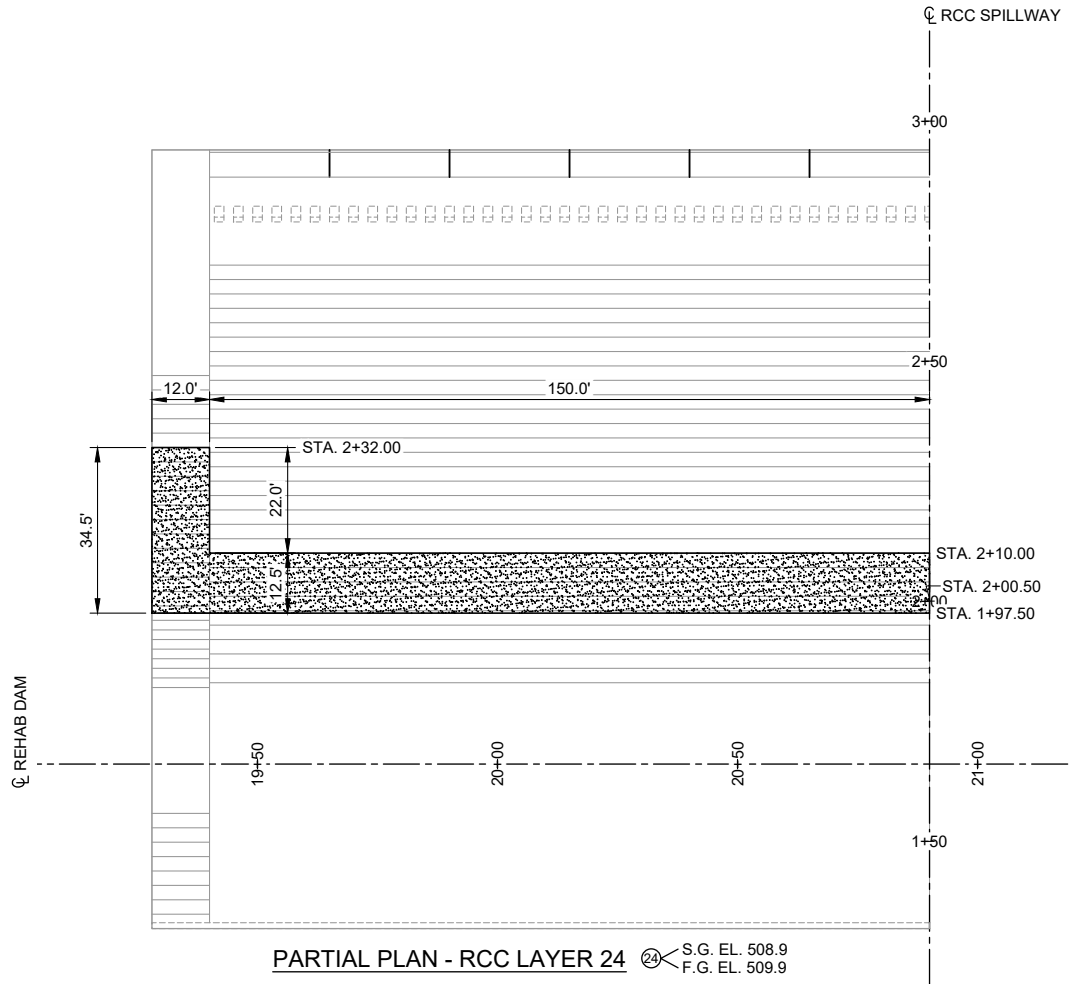
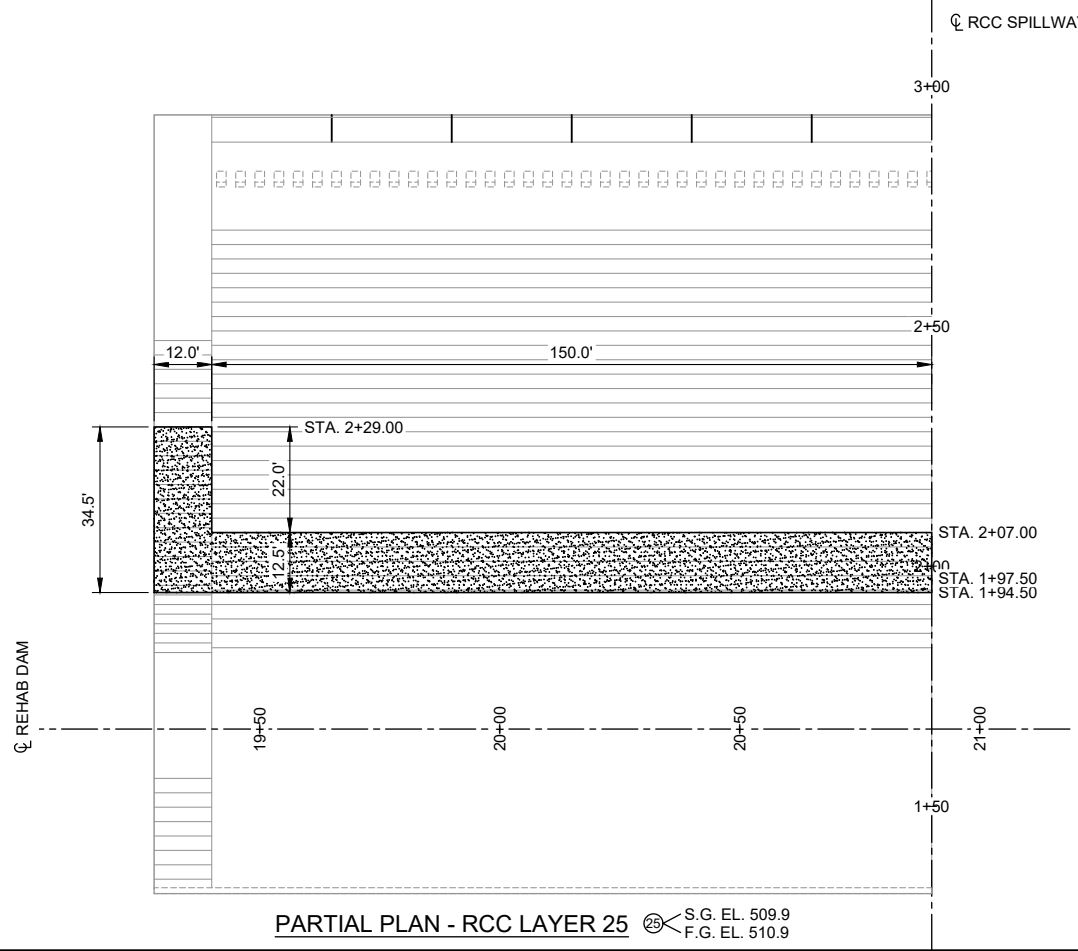
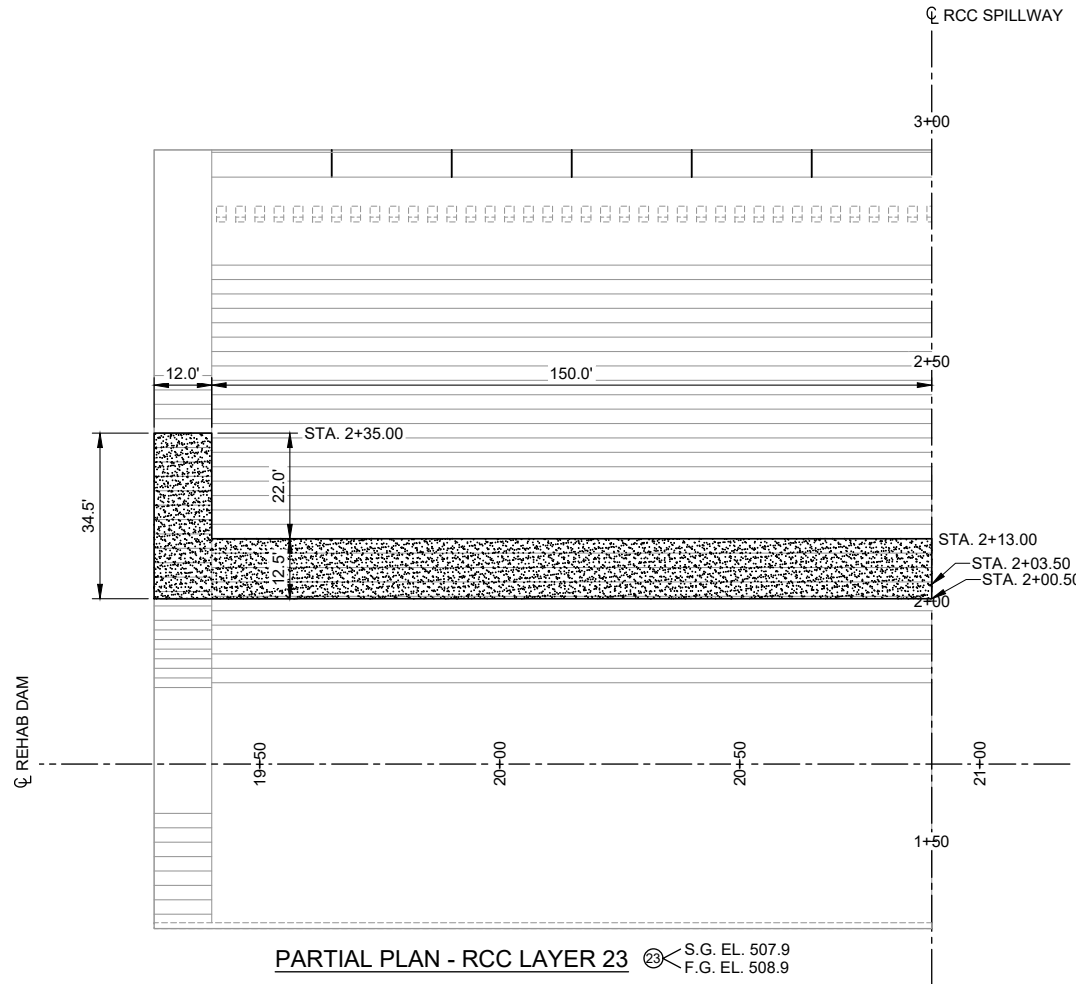
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RCC SPILLWAY LIFT SCHEMATIC (7 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



United States
Department of
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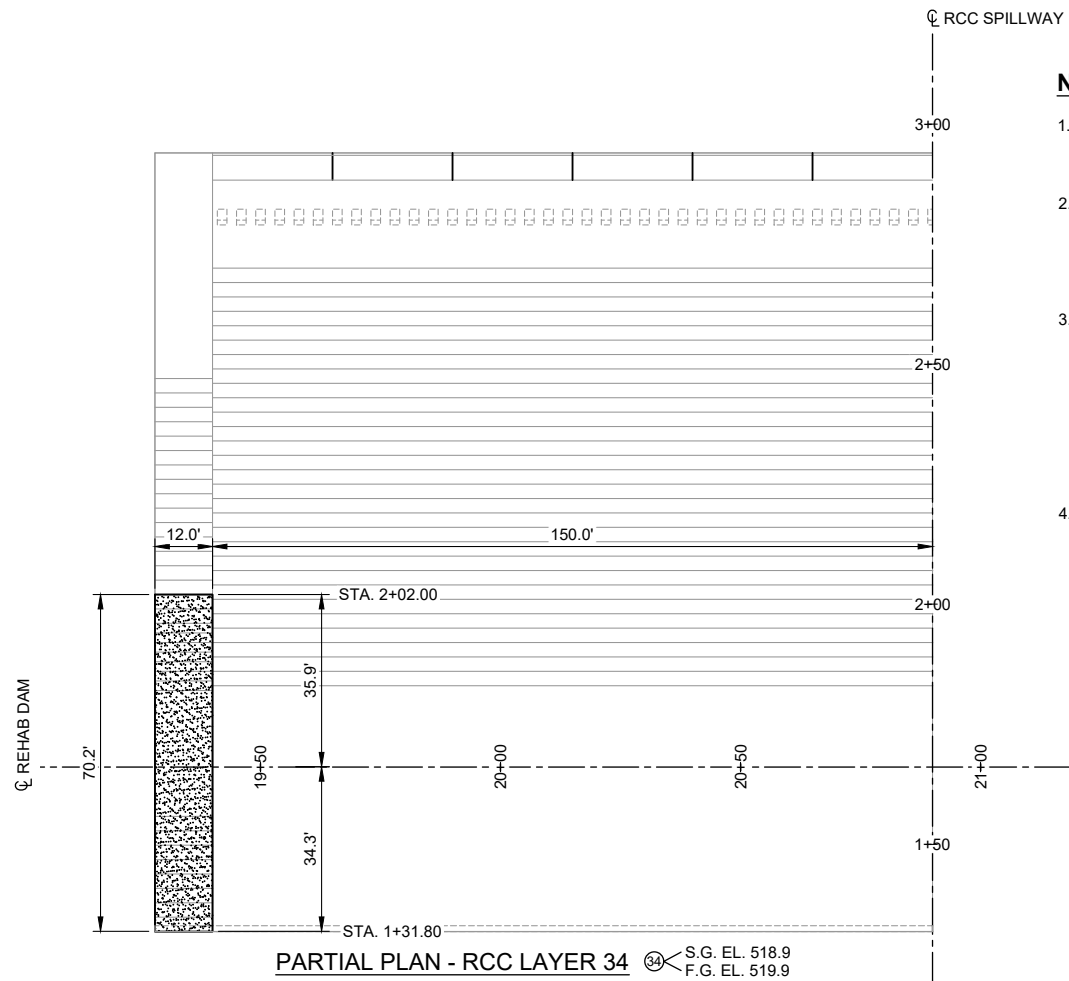
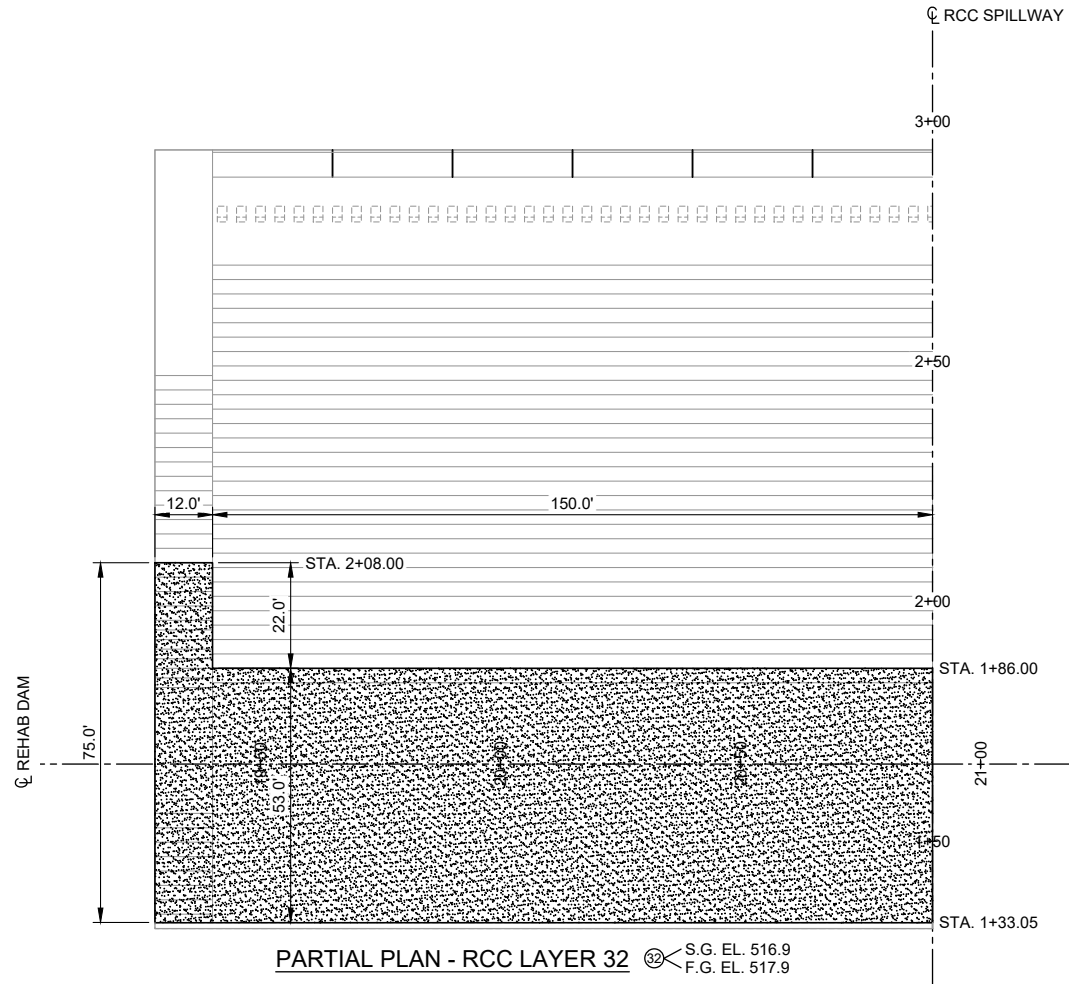
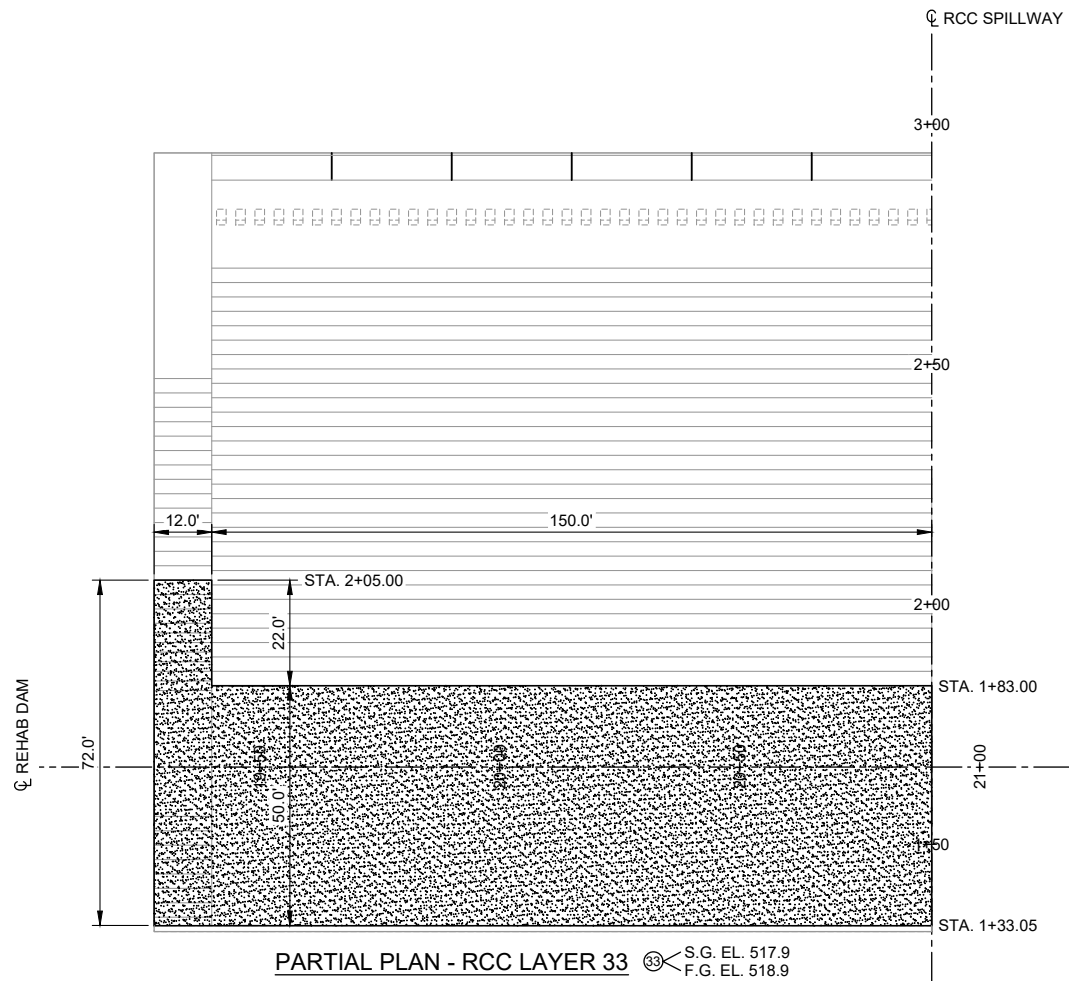
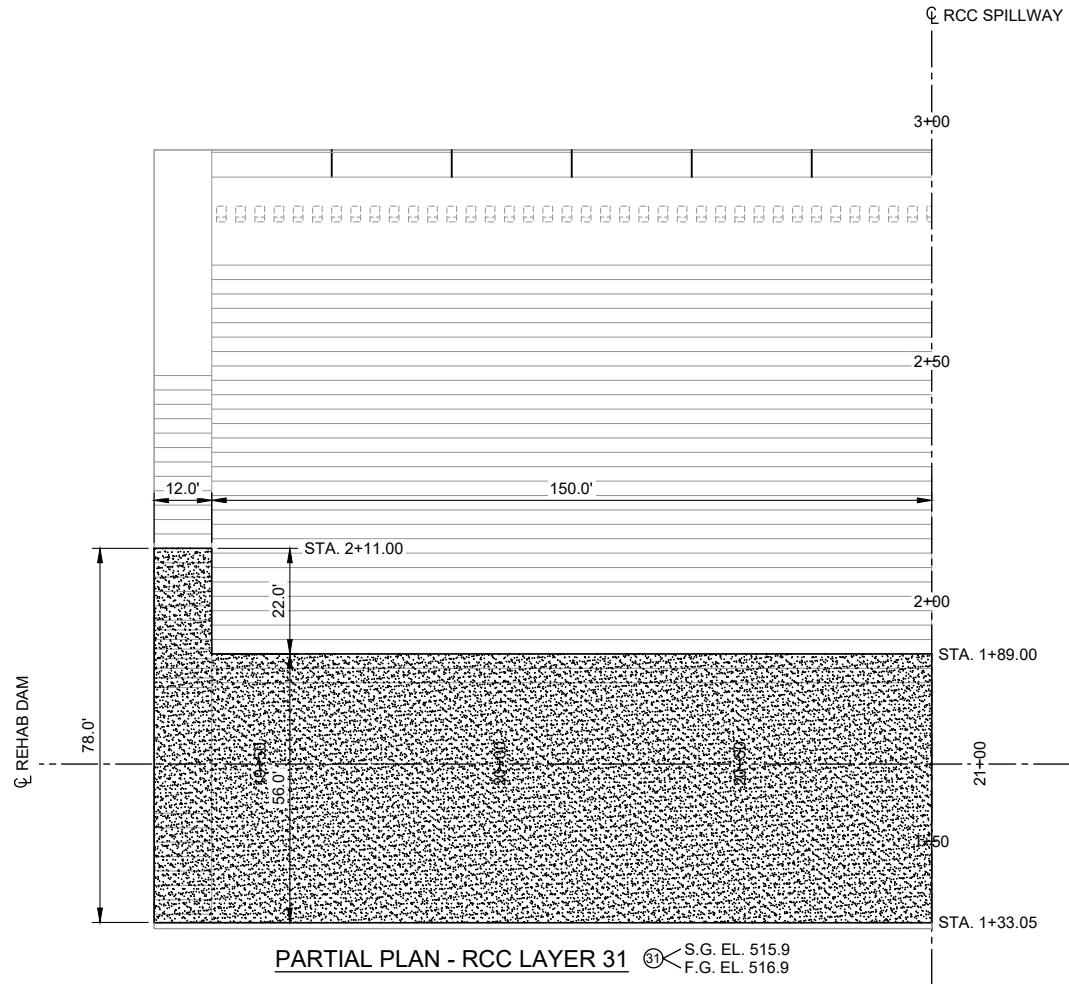
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TX-EN-0754

SHEET NO.
61

OF
83

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NOTES:

- ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
- ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
- THE LAYER SEQUENCE SHOWN ON THIS SHEET IS A LOGICAL PROGRESSION FOR THE PLACEMENT OF THE ROLLER COMPACTED CONCRETE FOR THE CONSTRUCTION OF THE R.C.C. CHUTE SPILLWAY. ACTUAL ORDER AND LIMITS MAY VARY ONLY AS PERMITTED BY THE ENGINEER.
- S.G. = SUBGRADE; F.G. = FINISHED GRADE



REVISIONS		
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RCC SPILLWAY LIFT SCHEMATIC (9 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



DRAWING NO.
TX-EN-0754

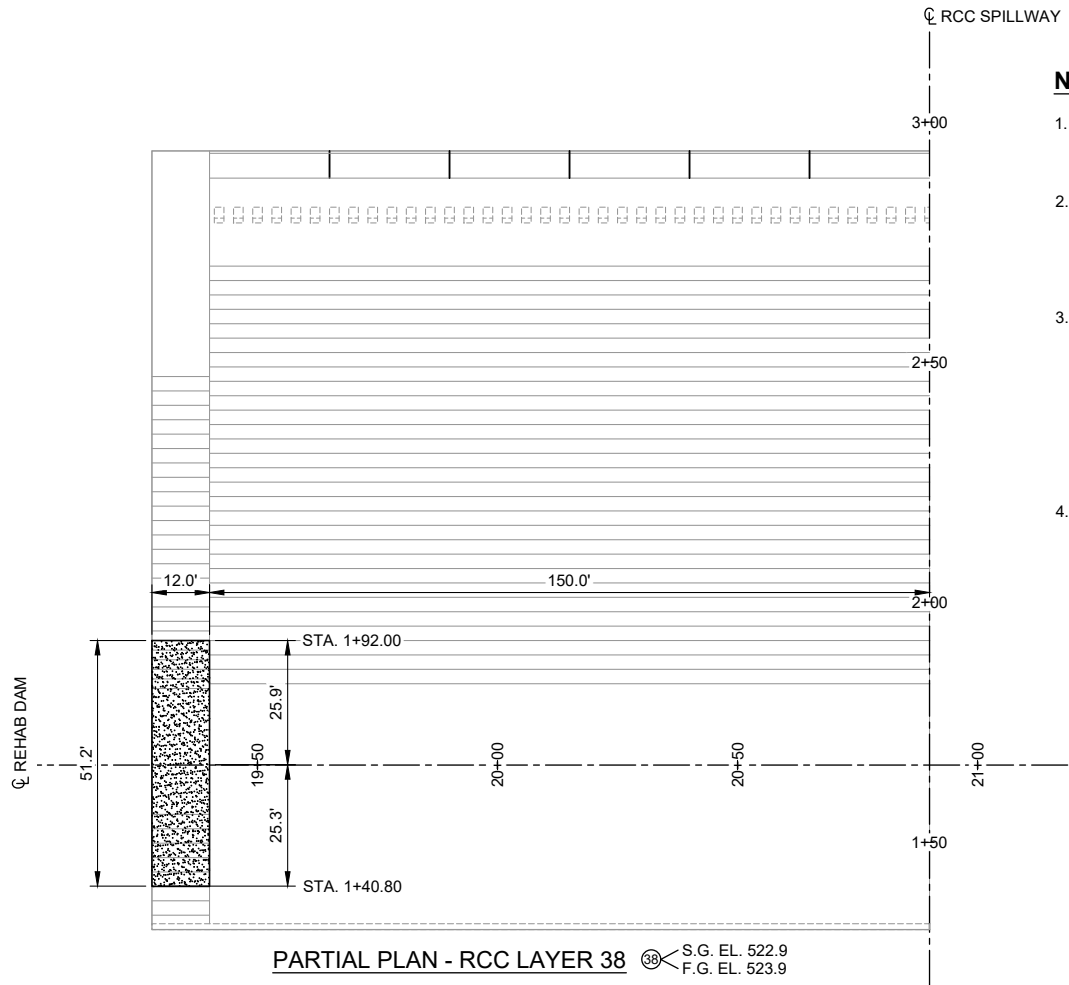
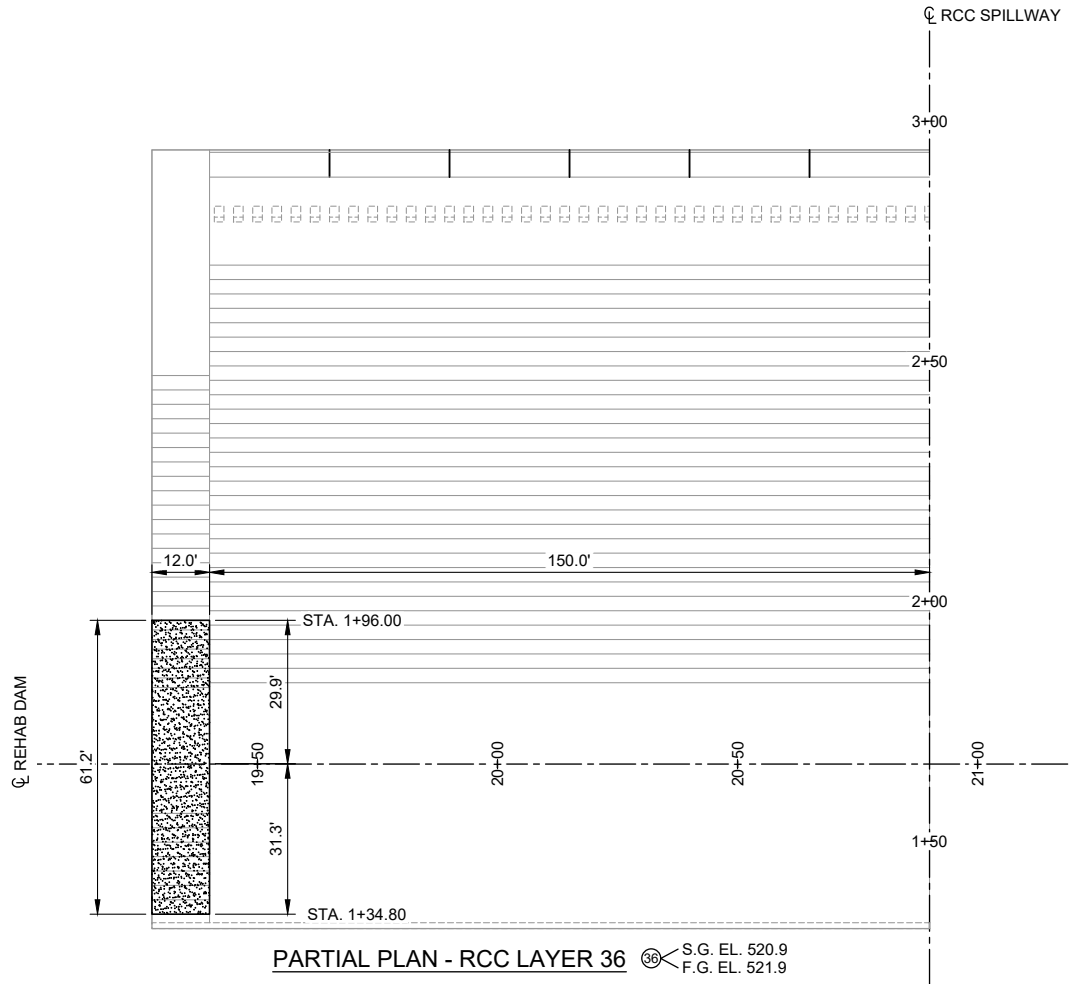
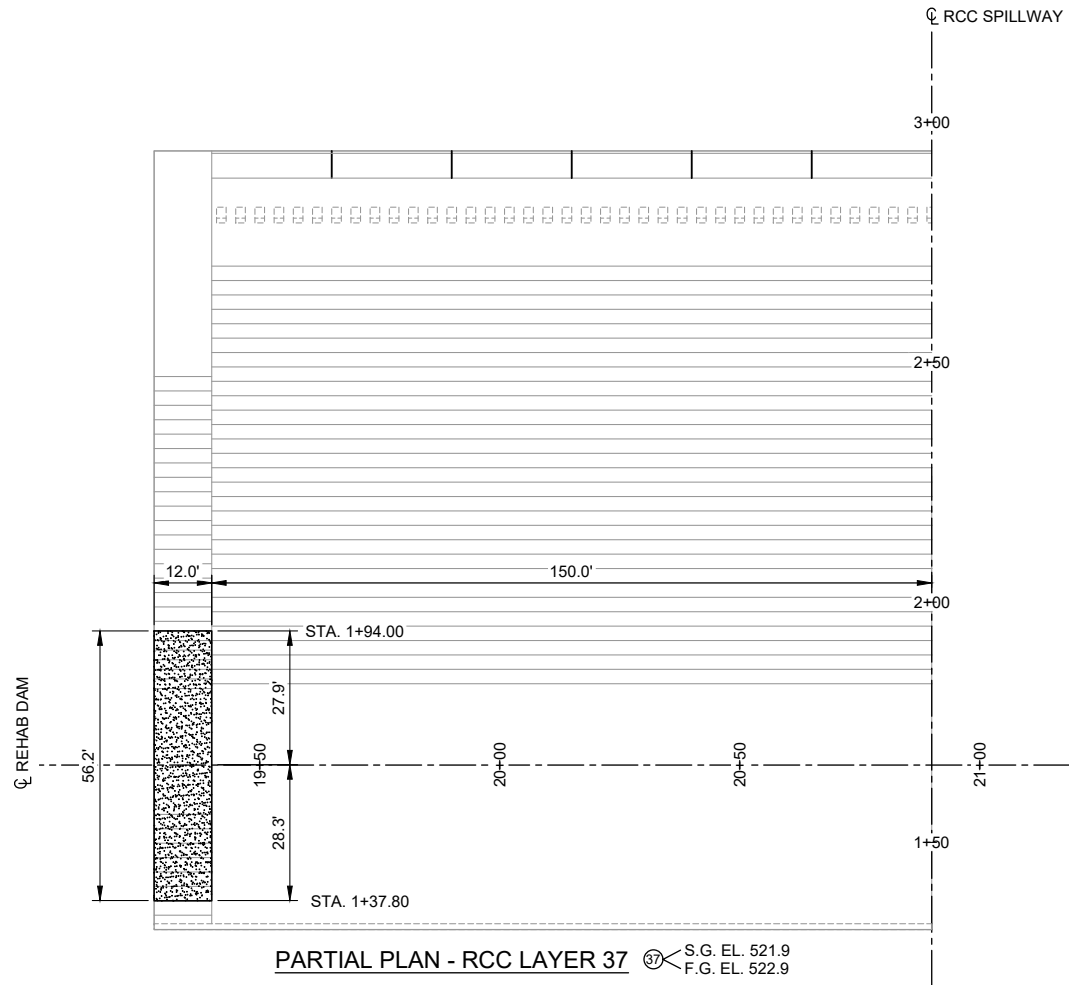
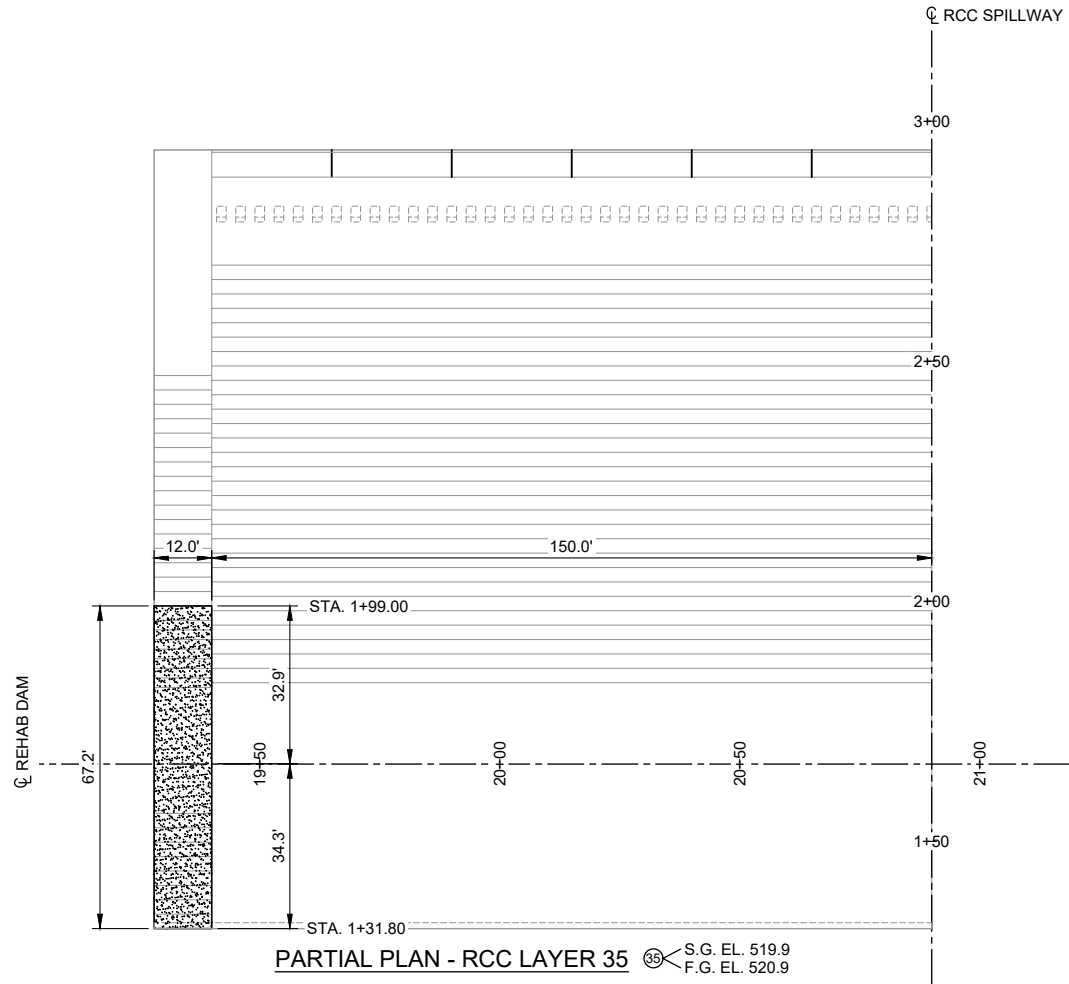
SHEET NO.
63

OF
83

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FILE NAME: Plum 21 - Sht 55-66.dwg
DATE CHECKED: 8/4/2021



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- NOTES:**
- ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
 - ALL LAYERS SHALL BE CONSTRUCTED OF ONE (1) 12" LIFT AND BE 12" THICK AFTER COMPACTION UNLESS OTHERWISE NOTED (REFER TO CONSTRUCTION SPECIFICATION 36).
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RCC SPILLWAY LIFT SCHEMATIC (10 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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DRAWN BY: CAD

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LANCE T. FINEROCK
11398
STATE OF TEXAS
REGISTERED PROFESSIONAL ENGINEER

Partial plan view of the RCC Layer 39. The diagram shows the spillway structure, including the dam and the spillway itself. Key dimensions and features include:

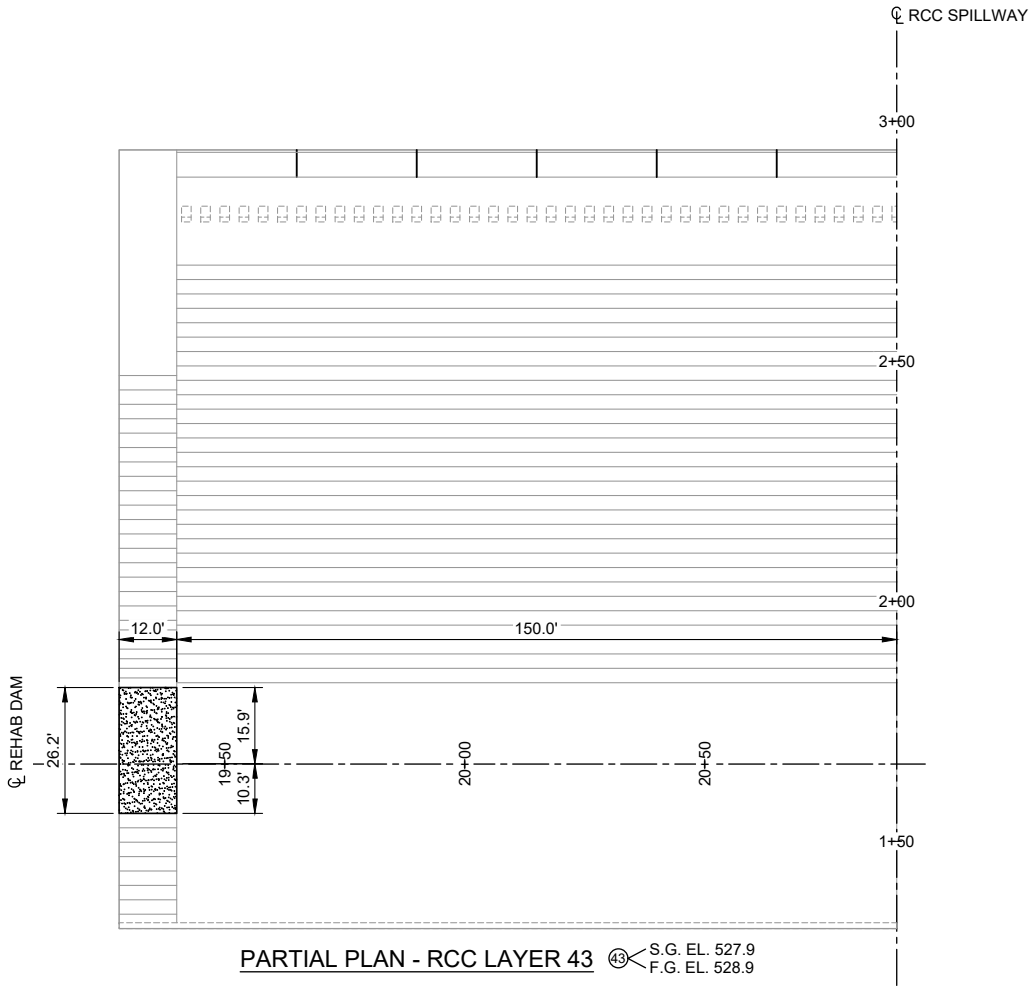
- Spillway Structure:** The spillway is shown with a width of 150.0' and a height of 23.9'.
- Dam:** The dam is shown with a width of 12.0' and a height of 46.2'.
- Dimensions:** The total width of the spillway structure is 150.0'. The height of the spillway structure is 23.9'. The height of the dam is 46.2'.
- Stationing:** The stationing is marked along the right side of the spillway, ranging from 1+50 to 3+00.
- Labels:** The diagram is labeled "PARTIAL PLAN - RCC LAYER 39" and "RCC SPILLWAY".

Partial plan view of the RCC Layer 40. The diagram shows the dam structure on the left, the spillway on the right, and the various dimensions. The dam structure is labeled "REHAB DAM" and has a width of 41.2'. The spillway is labeled "RCC SPILLWAY" and has a width of 150.0'. The dam structure is divided into sections with dimensions 12.0', 19.3', and 21.9'. The spillway is divided into sections with dimensions 19.50 and 20.50. The dam structure is also labeled with "CL REHAB DAM" and "CL RCC SPILLWAY". The diagram includes a title block with the text "PARTIAL PLAN - RCC LAYER 40" and a note "S.G. EL. 524.9 F.G. EL. 525.9".

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NOTES:

- ALL LAYERS SHOWN ARE SYMMETRIC ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
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- THE LAYER SEQUENCE SHOWN ON THIS SHEET IS A LOGICAL PROGRESSION FOR THE PLACEMENT OF THE ROLLER COMPACTED CONCRETE FOR THE CONSTRUCTION OF THE R.C.C. CHUTE SPILLWAY. ACTUAL ORDER AND LIMITS MAY VARY ONLY AS PERMITTED BY THE ENGINEER.
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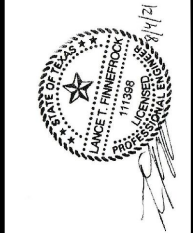


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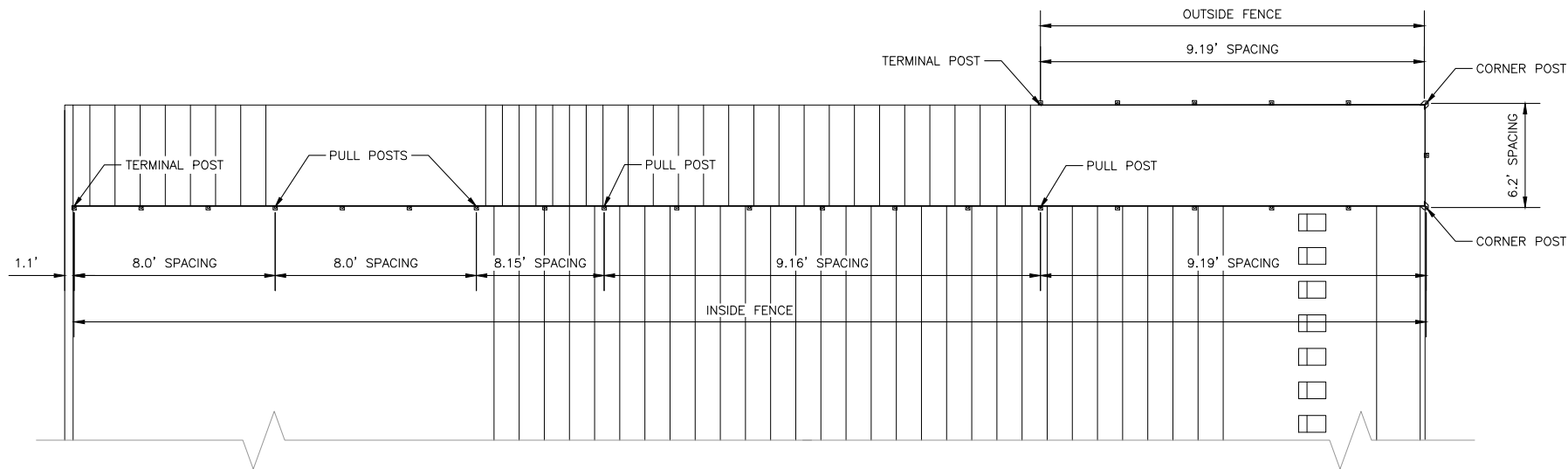
RCC SPILLWAY LIFT SCHEMATIC (12 OF 12)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

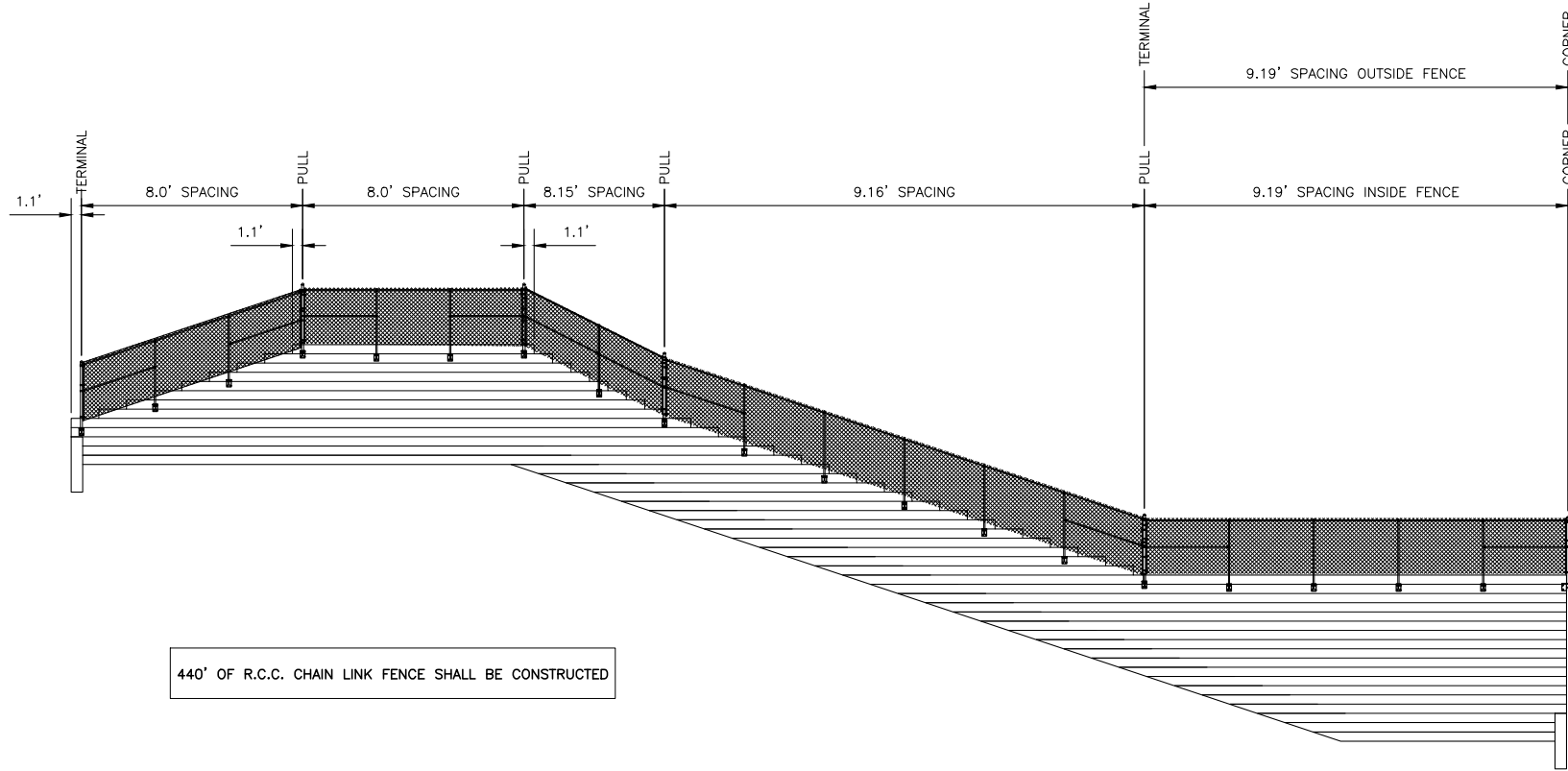
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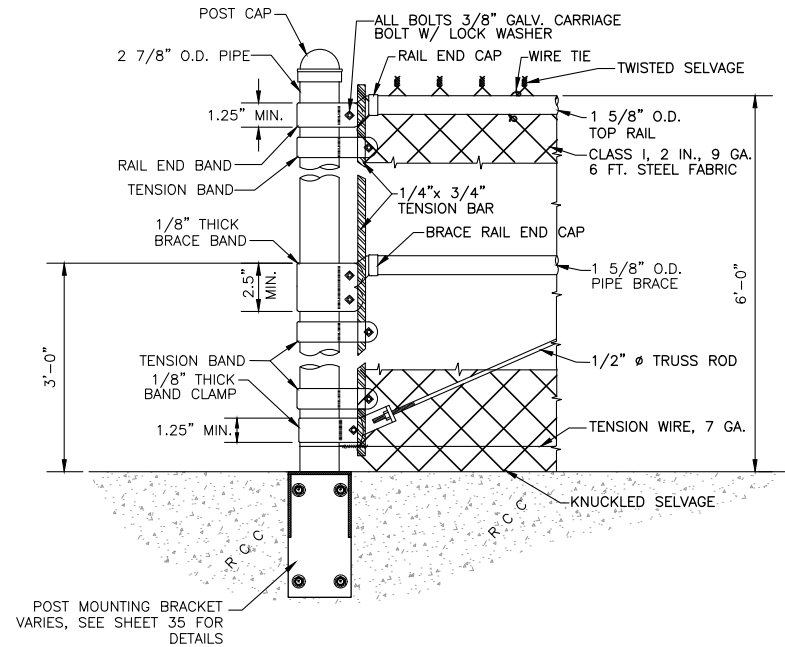


RCC SPILLWAY FENCE – PARTIAL PLAN (LEFT WALL SHOWN)
RCC FENCING IS SYMMETRICAL ABOUT SPILLWAY CENTERLINE – RIGHT WALL FENCING IS OPPOSITE HAND OF LEFT WALL
SCALE AS SHOWN



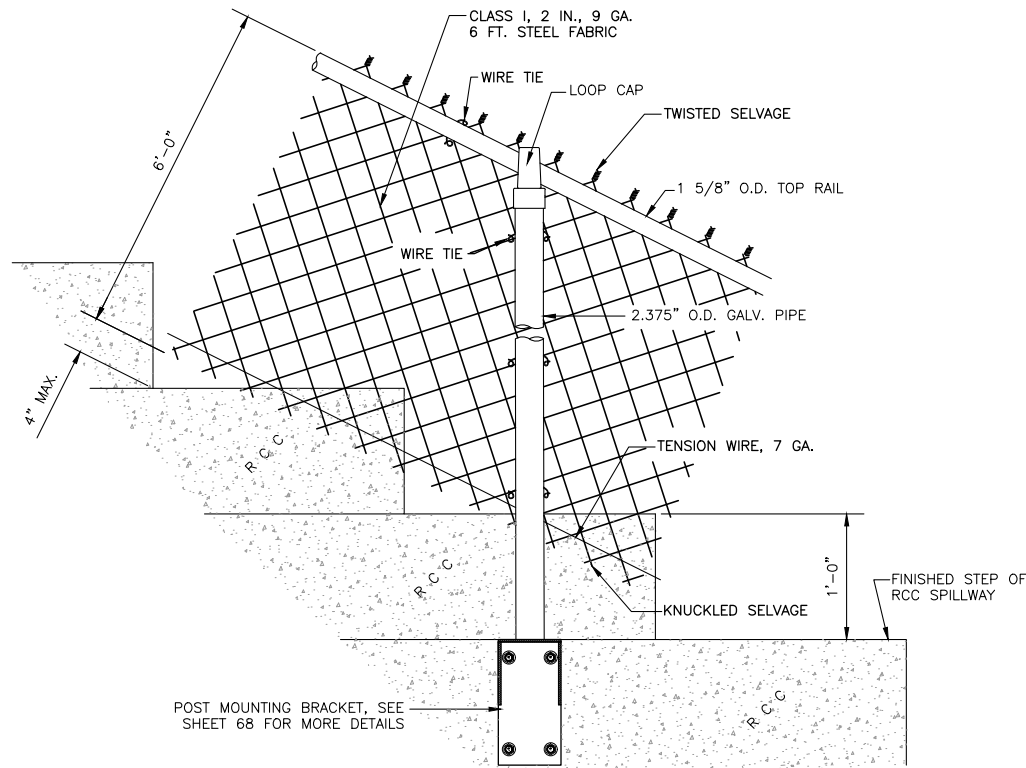
440' OF R.C.C. CHAIN LINK FENCE SHALL BE CONSTRUCTED

RCC SPILLWAY FENCE – INSIDE FENCE ELEVATION (LEFT WALL SHOWN)
SCALE AS SHOWN
(1:1 H:V)



POST DETAIL
(CORNER, PULL & TERMINAL POST)
(NOT TO SCALE)

- NOTES:
1. WIRE TIES SHALL HAVE MAX. SPACING OF 24 INCHES ON TOP RAIL AND 12 INCHES ON LINE POSTS.
 2. TIE WIRE SHALL BE MIN. 9 GAGE STEEL GALV. WIRE.
 3. FOUR (4) 12 GA. TENSION BANDS SHALL BE USED PER TENSION BAR.
 4. TENSION WIRE SHALL BE MARCELLED (SPIRAL OR CRIMP) #7 GAGE AS PER ASTM A 824, TYPE II ZINC-COAT CLASS 2.
 5. FENCE FABRIC SHALL BE PLACED BETWEEN THE INSTALLED POSTS AND THE R.C.C.
 6. FINAL FENCE LAYOUT SHALL BE APPROVED BY THE ENGINEER.



LINE POST DETAIL
(NOT TO SCALE)

REVISIONS		
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RCC SPILLWAY FENCE DETAILS
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN CALDWELL COUNTY, TEXAS



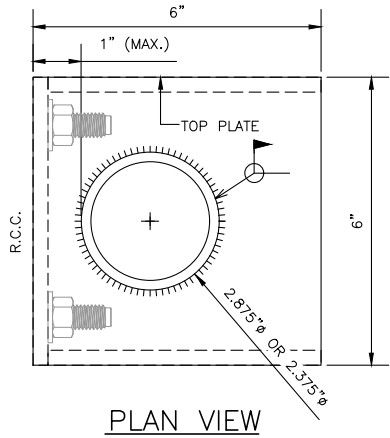
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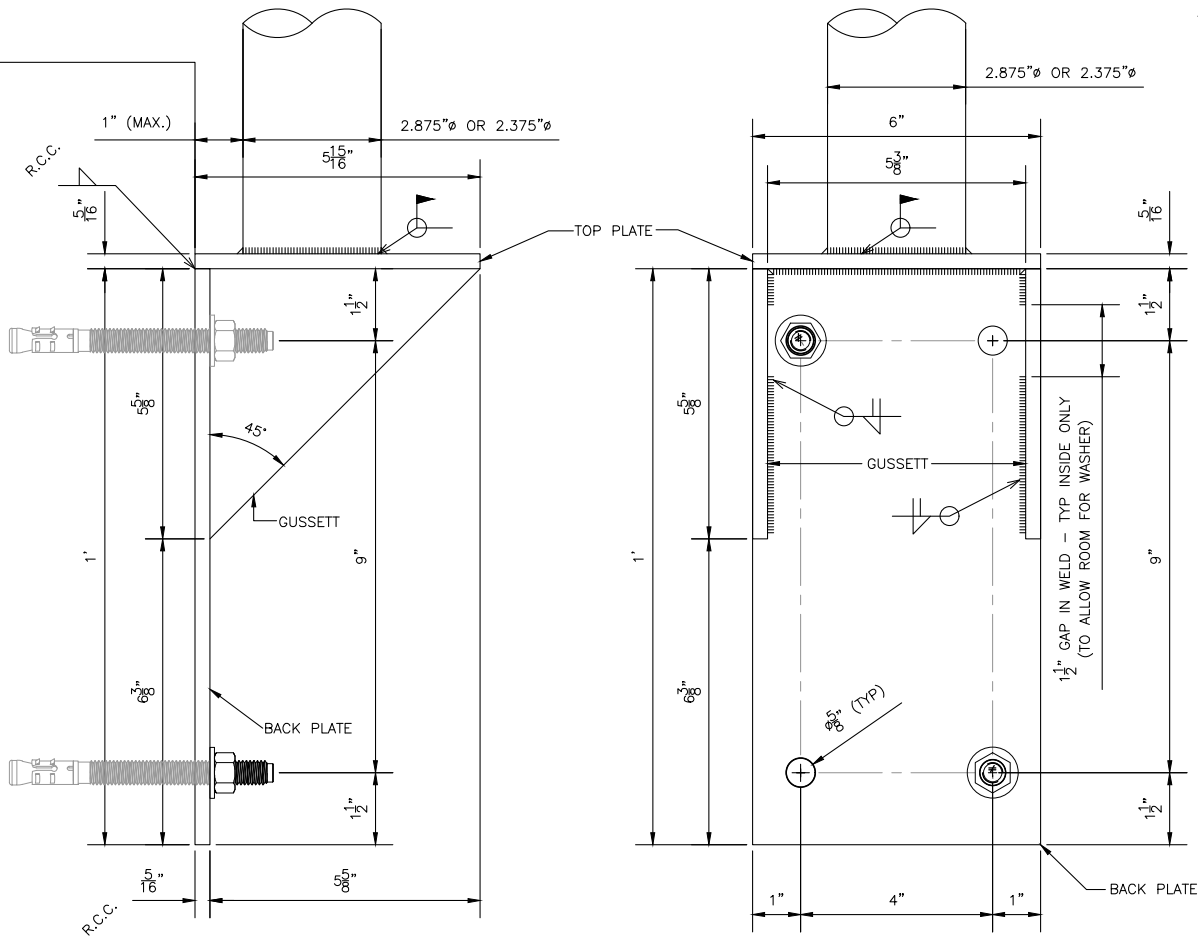
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- NOTES:
- FOR 2.375" O.D. LINE POST, THE SAME BRACKET SHALL BE USED AS SHOWN IN POST MOUNTING BRACKET.
 - BOTH 2.875" O.D. AND 2.375" O.D. POSTS SHALL BE MOUNTED TO ALLOW A MAXIMUM OF 1" FREE SPACE BETWEEN THE RCC SIDEWALL AND THE POST TO ALLOW FOR PLACEMENT OF THE CHAINLINK FENCE AND ITS ASSOCIATED APPURTENANCES.
 - BOTH 2.875" O.D. AND 2.375" O.D. POSTS SHALL BE SCHEDULE 40, REGULAR GRADE.
 - ALL PARTS OF MOUNTING BRACKETS SHALL BE GALVANIZED AFTER FABRICATION (SEE MATERIAL SPECIFICATION 582).



PLAN VIEW

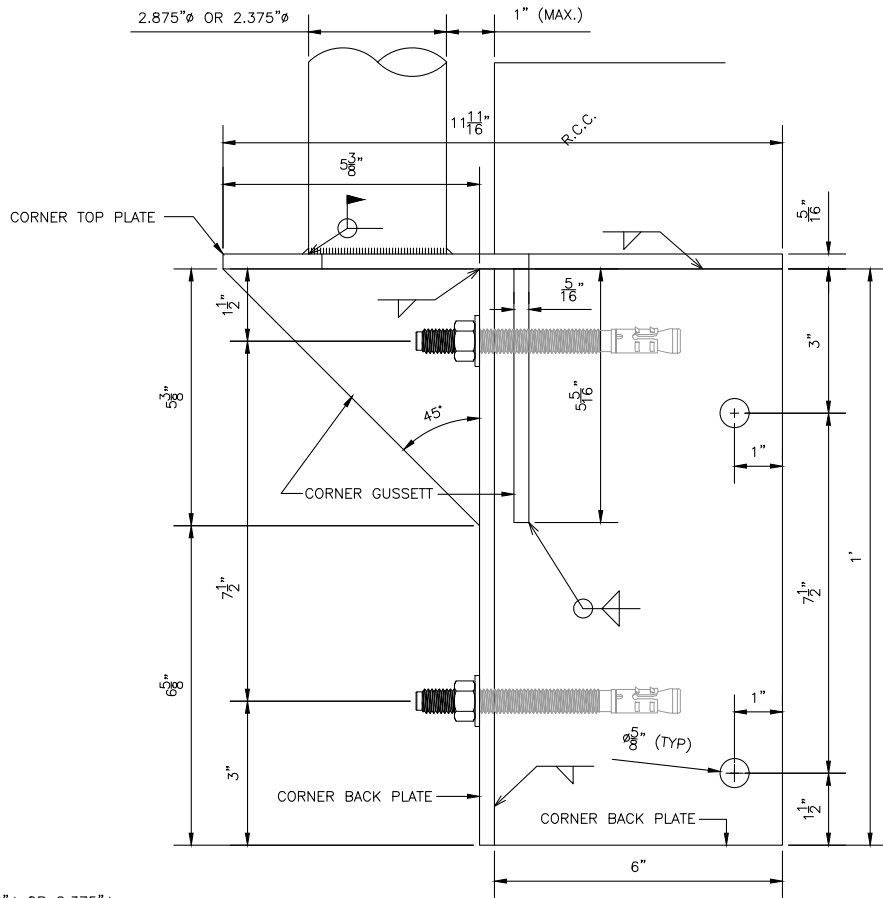


SIDE VIEW

FRONT ELEVATION VIEW

POST MOUNTING BRACKET

(LINE, PULL & TERMINAL POST)
NOT TO SCALE
BRACKET STEEL SHALL BE 5/16" THICK
(54 REQUIRED)

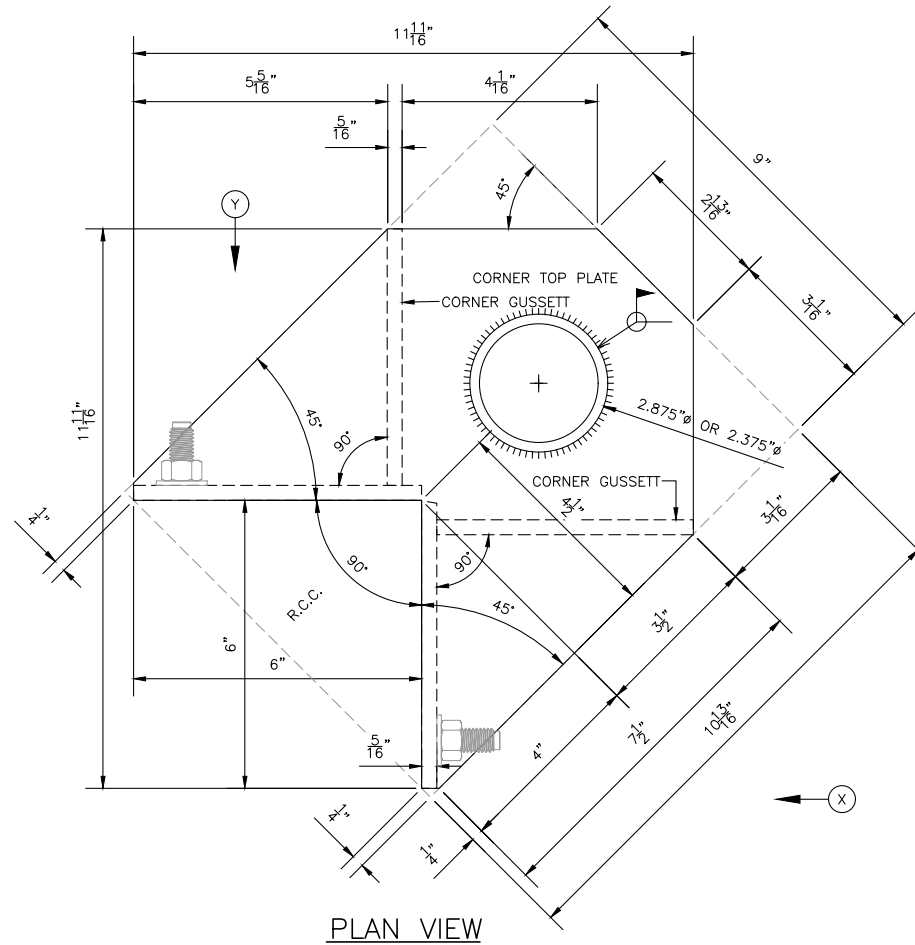


SIDE VIEW - Y DIRECTION

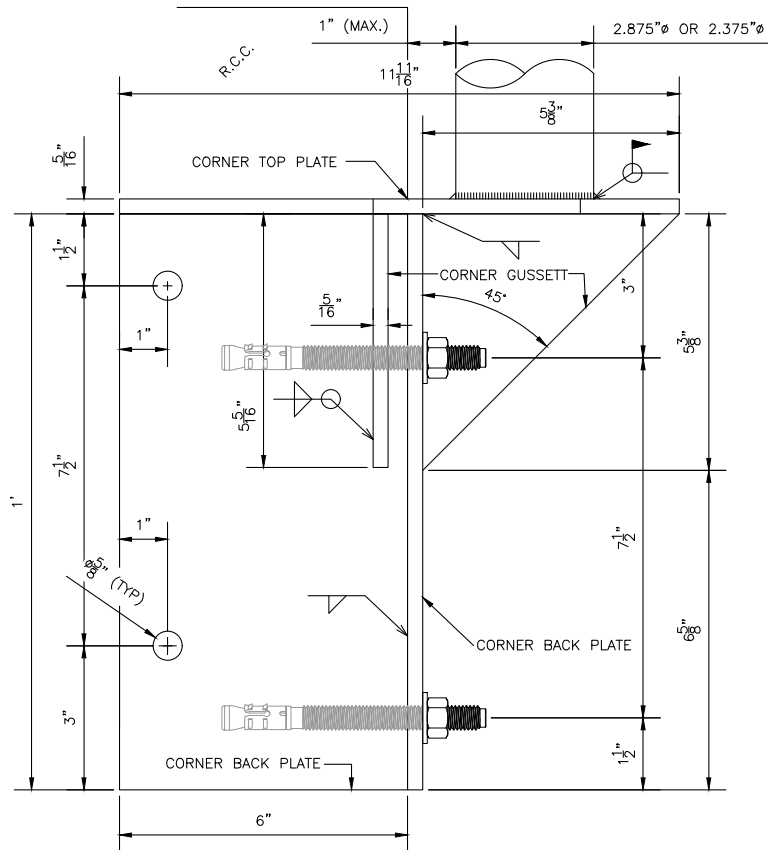
ESTIMATED BILL OF MATERIALS - R.C.C. FENCE	
114'-8"	2.875" O.D. TUBULAR STEEL PIPE FOR CORNER POST (CUT INTO (16) - 7'-2" POSTS)
273'-4"	2.375" O.D. TUBULAR STEEL PIPE FOR ONE LINE POST (CUT INTO (40) - 6'-10" POSTS)
480'-0"	1 5/8" O.D. TUBULAR STEEL PIPE FOR TOP RAIL (CUT AS REQUIRED)
232'-0"	1 5/8" O.D. TUBULAR STEEL PIPE FOR BRACE RAIL (CUT AS REQUIRED)
484'-0"	6'-0" HIGH CHAIN LINK FABRIC (SELVAGE SHALL BE TWISTED AT THE TOP AND KNUCKLED AT THE BOTTOM)
26	STRETCHER BARS
78	STRETCHER BANDS
16	DOME POST CAPS (2.875")
40	LOOP CAPS FOR LINE POST TOP RAIL (2.375")
26	TRUSS RODS
52	TRUSS BAND CLAMP
28	1 5/8" TOP RAIL END CAPS
56	1 5/8" PIPE BRACE RAIL END CAPS
56	1 5/8" PIPE BRACE CLAMP
500'-0"	7 GAGE GALVANIZED TENSION WIRE (ESTIMATED)
54	POST MOUNTING BRACKET
4	CORNER MOUNTING BRACKET
232	ANCHOR BOLTS WITH WASHERS AND NUTS

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

ALL ANCHOR BOLTS SHALL BE SIMPSON STRONG-TIE STRONG-BOLT™ 2 - 1/2" x 5 1/2" (NOMINAL) WITH MINIMUM 3 3/8" EFFECTIVE EMBEDMENT OR APPROVED EQUIVALENT



PLAN VIEW



SIDE VIEW - X DIRECTION

CORNER POST MOUNTING BRACKET

(CORNER POST)
NOT TO SCALE
BRACKET STEEL SHALL BE 5/16" THICK
(4 REQUIRED)

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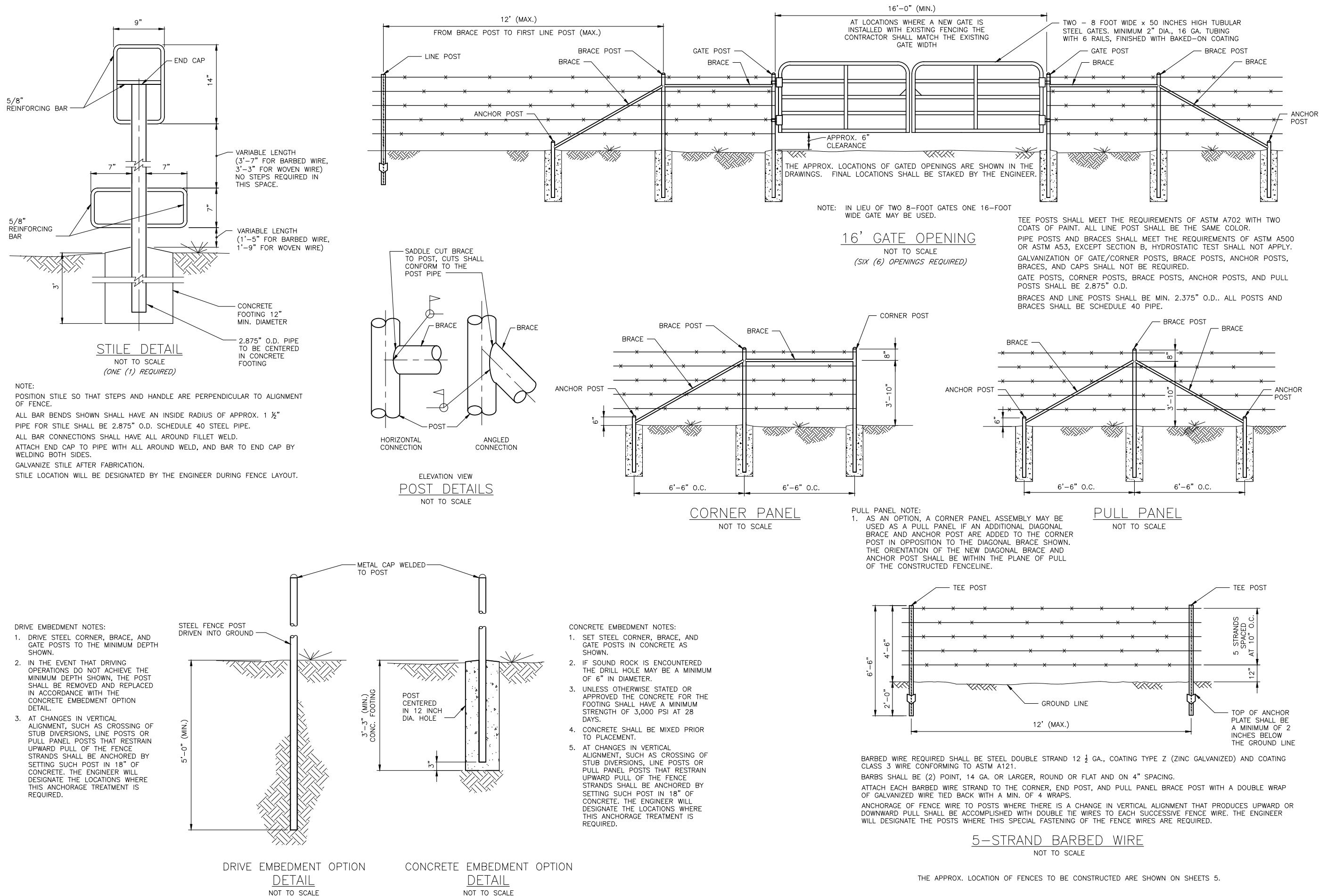
RCC SPILLWAY FENCE BRACKETS AND DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



DRAWING NO. TX-EN-0754
SHEET NO. 68
OF 83

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FENCE DETAILS

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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Natural Resources
Conservation Service

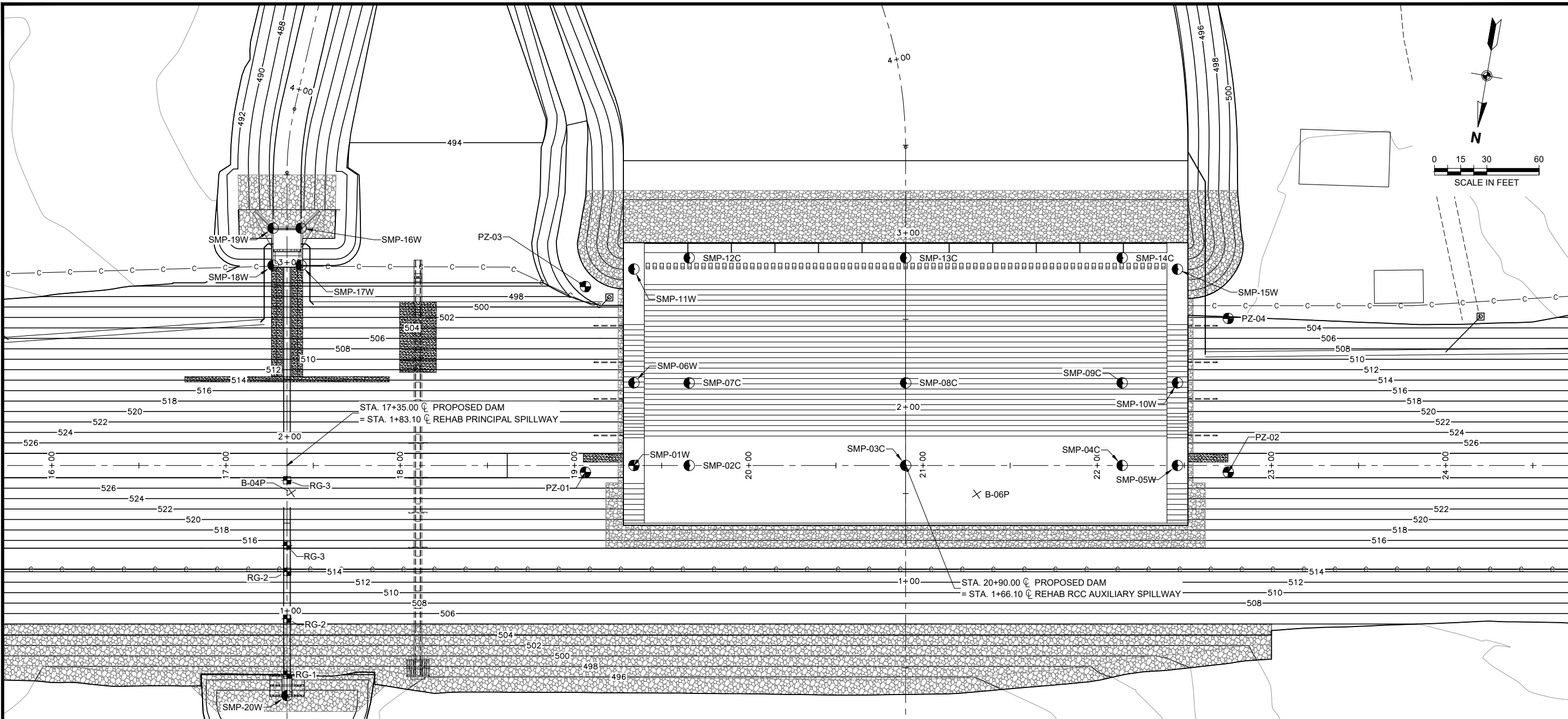
DRAWING NO.
TX-EN-0754

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69

OF
83

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DATE	APPROVED	TITLE

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HORIZONTAL CONTROL

ID #	NORTHING	EASTING	INSTRUMENT TYPE
B-04P	13898060.5	2394711.3	EXISTING PIEZOMETER (DECOMMISSION)
B-06P	13897993.3	2394323.8	EXISTING PIEZOMETER (DECOMMISSION)
PZ-01	13898019.8	2394547.2	PROPOSED PIEZOMETER
PZ-02	13897955.9	2394183.8	PROPOSED PIEZOMETER
PZ-03	13897914.8	2394565.6	PROPOSED PIEZOMETER
PZ-04	13897868.9	2394199.1	PROPOSED PIEZOMETER
RG-1	13898163.8	2394695.7	RESERVOIR GAUGE (METAL)
RG-2	13898132.2	2394701.3	RESERVOIR GAUGE (CONCRETE, LOWER)
RG-2	13898105.6	2394705.9	RESERVOIR GAUGE (CONCRETE, UPPER)
RG-3	13898053.9	2394715.0	RESERVOIR GAUGE (CONCRETE, UPPPER)
RG-3	13898090.8	2394708.5	RESERVOIR GAUGE (CONCRETE, LOWER)
SMP-01W	13898011.1	2394520.5	SURVEY MONITORING POINT
SMP-02C	13898005.6	2394489.2	SURVEY MONITORING POINT
SMP-03C	13897984.1	2394366.8	SURVEY MONITORING POINT
SMP-04C	13897962.6	2394244.5	SURVEY MONITORING POINT
SMP-05W	13897957.1	2394213.2	SURVEY MONITORING POINT

HORIZONTAL CONTROL

ID #	NORTHING	EASTING	INSTRUMENT TYPE
SMP-06W	13897964.4	2394528.7	SURVEY MONITORING POINT
SMP-07C	13897958.9	2394497.4	SURVEY MONITORING POINT
SMP-08C	13897937.4	2394375.1	SURVEY MONITORING POINT
SMP-09C	13897915.9	2394252.7	SURVEY MONITORING POINT
SMP-10W	13897910.4	2394221.4	SURVEY MONITORING POINT
SMP-11W	13897900.1	2394540.0	SURVEY MONITORING POINT
SMP-12C	13897888.2	2394509.8	SURVEY MONITORING POINT
SMP-13C	13897866.7	2394387.5	SURVEY MONITORING POINT
SMP-14C	13897845.2	2394265.1	SURVEY MONITORING POINT
SMP-15W	13897846.2	2394232.7	SURVEY MONITORING POINT
SMP-16W	13897910.0	2394732.2	SURVEY MONITORING POINT
SMP-17W	13897931.0	2394728.5	SURVEY MONITORING POINT
SMP-18W	13897933.8	2394744.3	SURVEY MONITORING POINT
SMP-19W	13897912.7	2394747.9	SURVEY MONITORING POINT
SMP-20W	13898175.6	2394693.6	SURVEY MONITORING POINT

LEGEND:

- STRUCTURE SURVEY MONITORING POINT (20 REQ'D)
- PIEZOMETER (4 REQ'D)
- RESERVOIR STAFF GAGE (3 REQ'D)

REVISIONS		
DATE	APPROVED	TITLE

PLAN OF INSTRUMENTATION

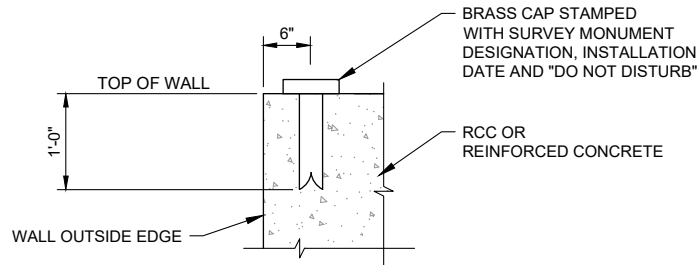
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



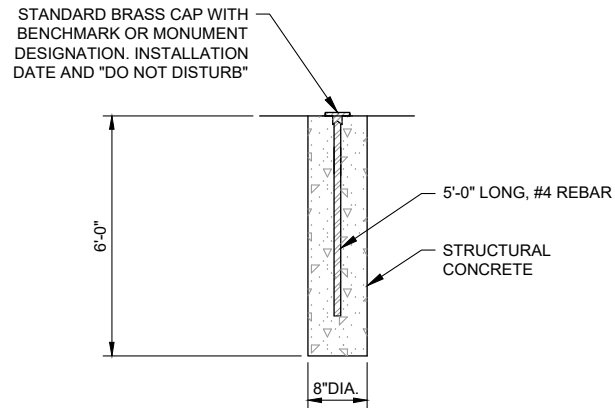
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DRAWN BY: MDE
CHECKED BY: TEA
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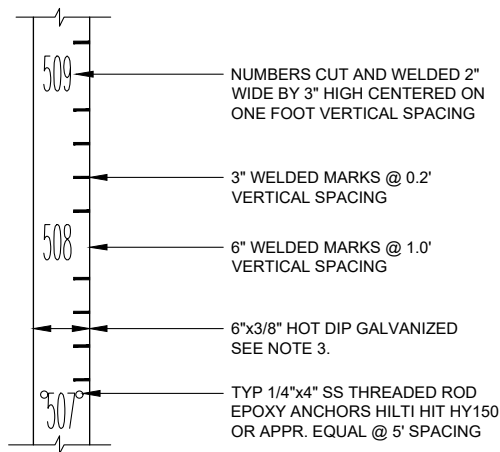
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1 TYPICAL NEW STRUCTURAL SURVEY MONITORING POINT
SCALE: NTS



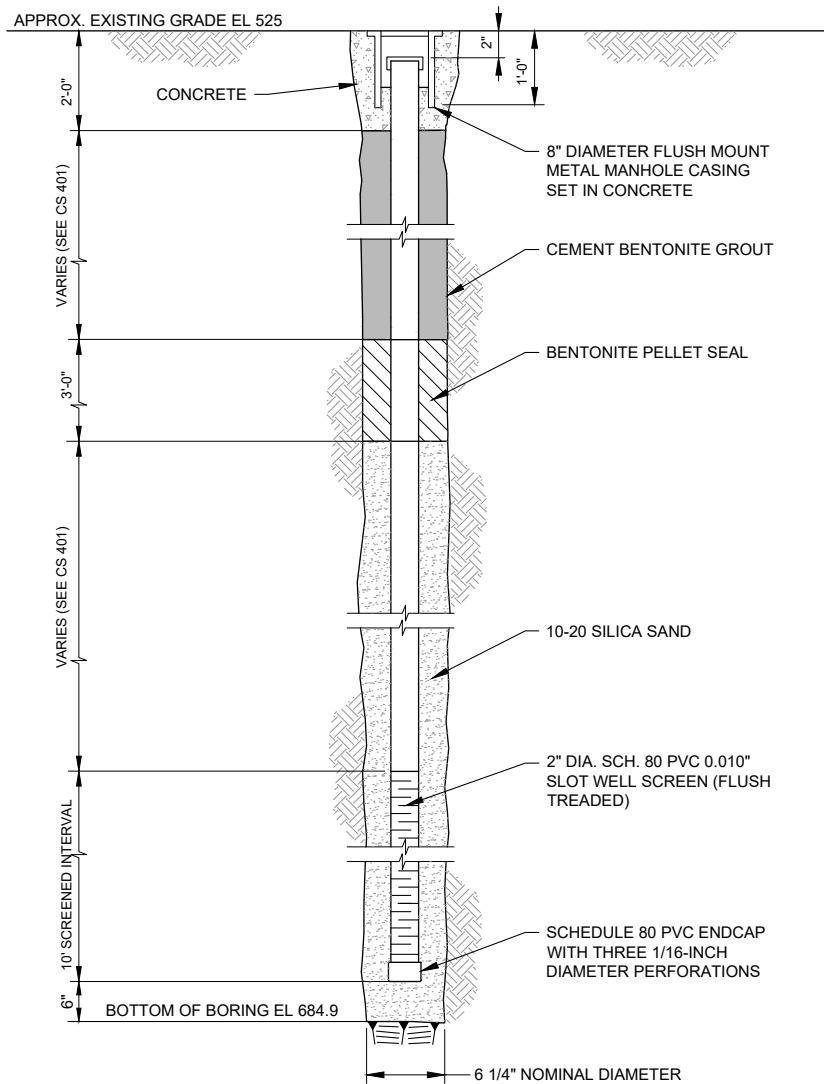
2 TYPICAL NEW BENCHMARK OR GROUND SURVEY MONITORING POINT
SCALE: NTS



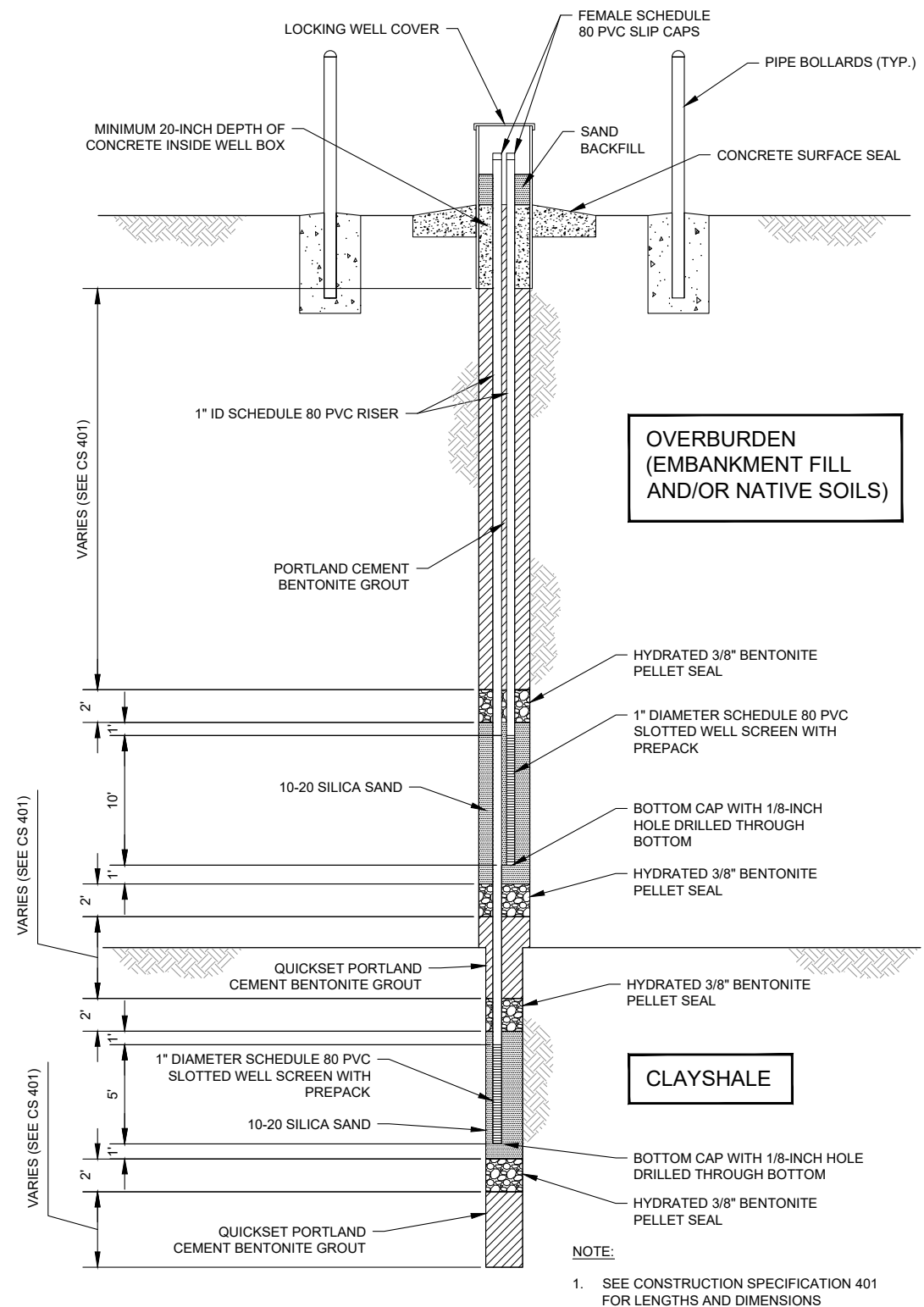
METAL STAFF GAUGE NOTES:

- ELEVATION SHOWN ON STAFF GAUGES SHALL BE ACTUAL ELEVATION PER NAVD88.
- SURVEY GAUGE ELEVATIONS BEFORE FABRICATION AND FOR FIELD INSTALLATION.
- NUMBERS AND MARKS TO BE WELDED BEFORE GALVANIZING.
- STAFF GAUGE SHALL BE MOUNTED VERTICALLY ON THE DOWNSTREAM FACE OF THE PRINCIPAL SPILLWAY INLET RISER BETWEEN ELEVATIONS 497.0 AND 505.4.

3 RESERVOIR METAL STAFF GAUGE DETAIL
SCALE: NTS



4 TYPICAL DETAIL OF EXISTING PIEZOMETERS TO BE DECOMMISSIONED
SCALE: NTS



5 TYPICAL PIEZOMETER DETAIL
SCALE: NTS

- NOTE:
- SEE CONSTRUCTION SPECIFICATION 401 FOR LENGTHS AND DIMENSIONS

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INSTRUMENTATION DETAILS (1 OF 2)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN CALDWELL COUNTY, TEXAS



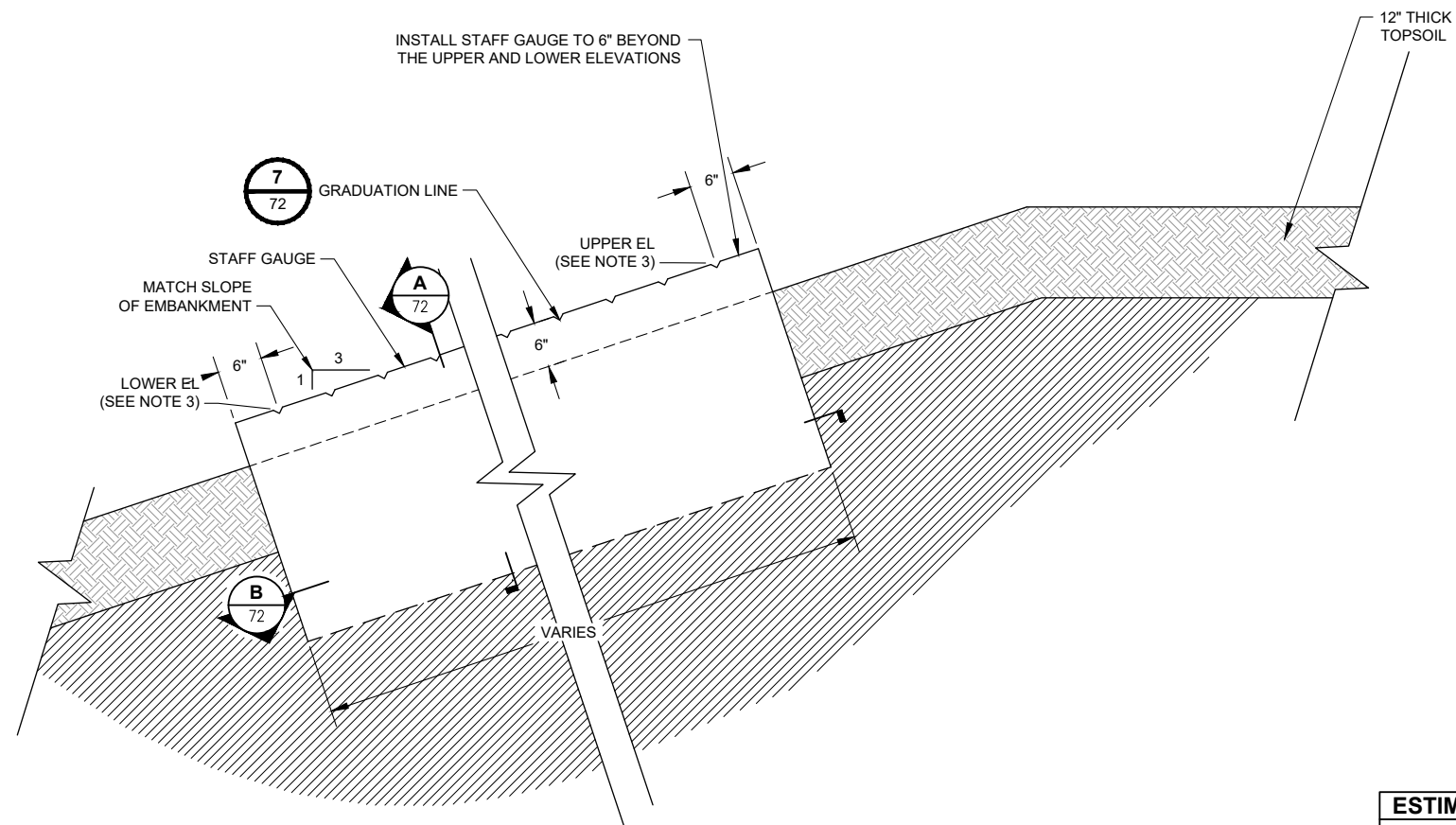
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Natural Resources
Conservation Service

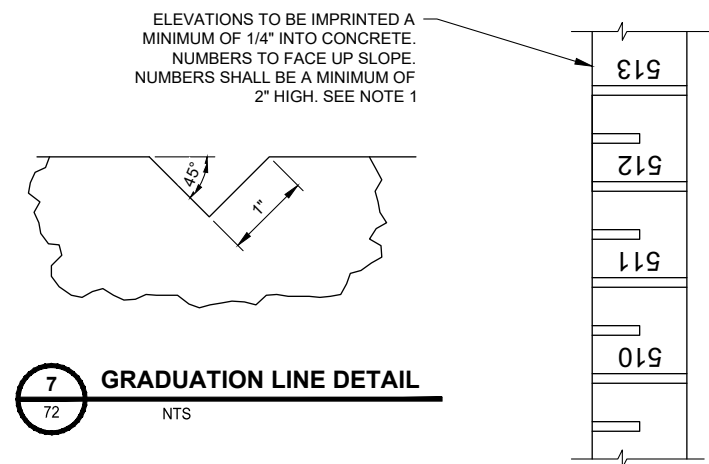
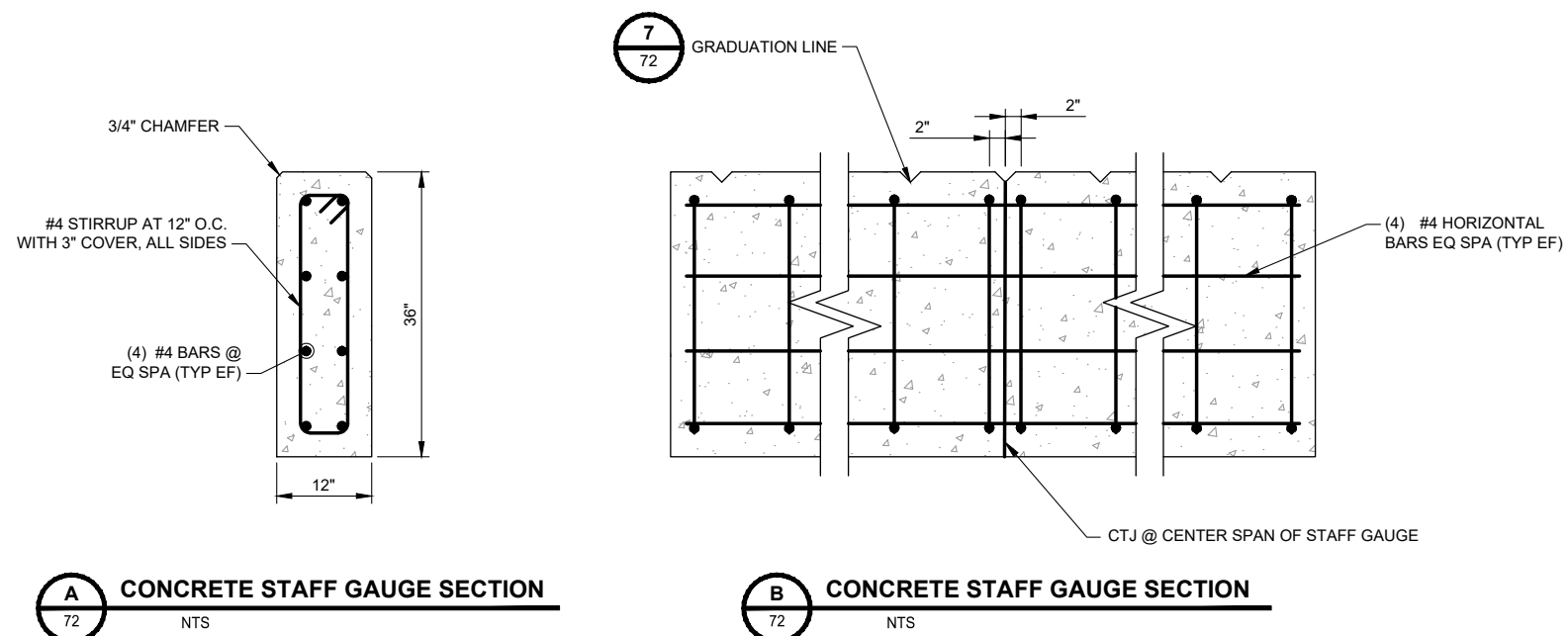
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71

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83

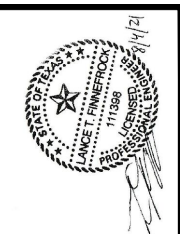


ESTIMATED BILL OF MATERIAL - STAFF GAUGE		
CONCRETE	4.5	CY
REINFORCING STEEL	300	LB



- ## **NOTES:**
1. ELEVATION MARKERS INDENTED INTO CONCRETE AT ONE FOOT AND HALF FOOT VERTICAL INTERVALS. LOCATIONS TO BE SET BY A QUALIFIED SURVEYOR AT 10' VERTICAL INTERVALS PRIOR TO POURING CONCRETE, BUT AFTER FORMS ARE PLACED. INTERMEDIATE VALUES MAY BE SET BY CONTRACTOR WITH PRECISION LEVELING EQUIPMENT.
 2. RG-02 LOWER AND UPPER ELEVATIONS ARE 505.5 AND 514.0. RG-03 LOWER AND UPPER ELEVATIONS ARE 515.0 AND 527.5. REFER TO PLAN OF INSTRUMENTATION ON SHEET 70.
 3. ELEVATIONS SHOWN SHALL BE ACTUAL ELEVATIONS PER NAVD88

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PLAN OF GEOLOGIC INVESTIGATIONS
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



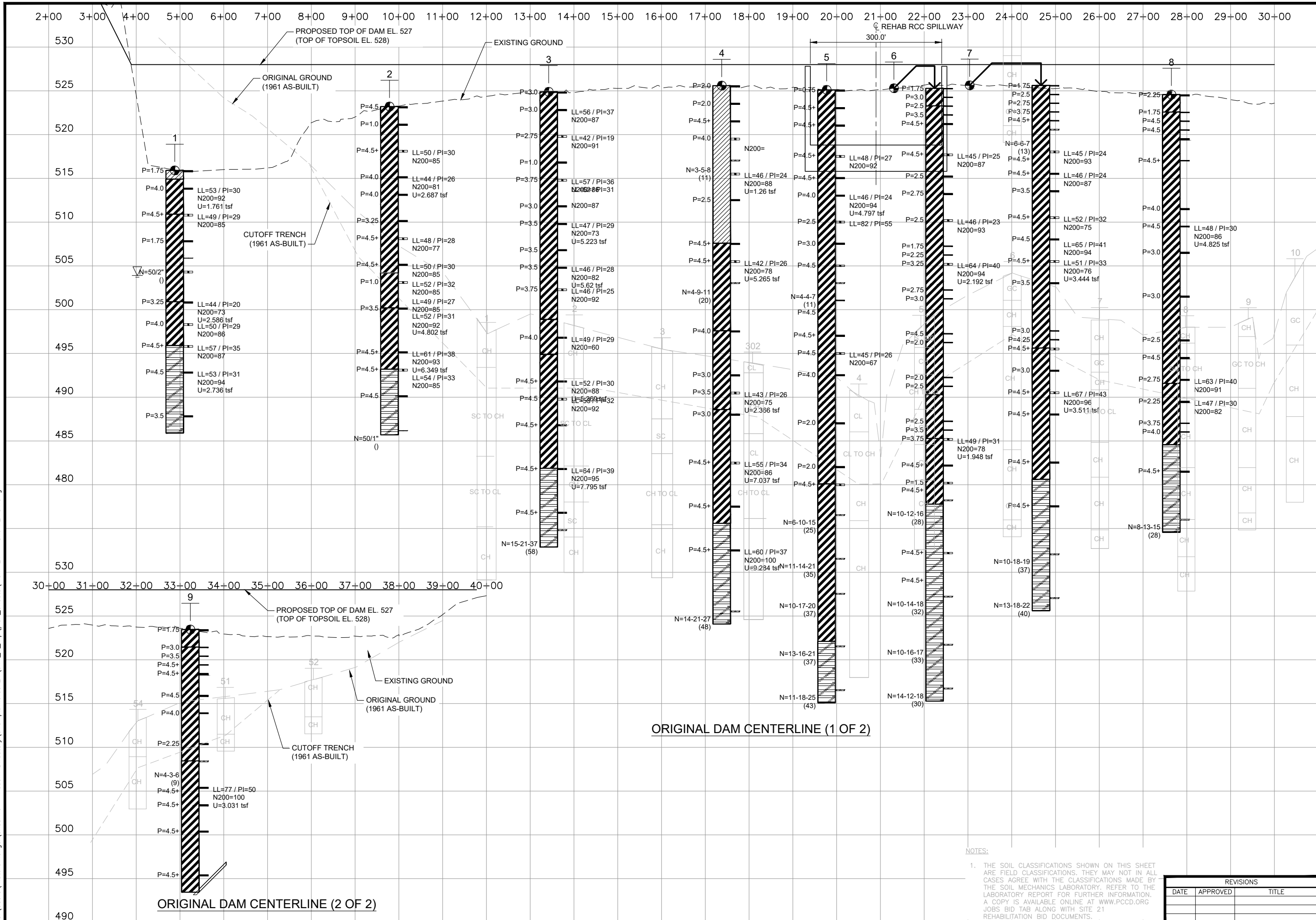
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Natural Resources
Conservation Service

DRAWING NO.	TX-EN-0754
SHEET NO.	73
OF	83

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GEOLOGIC INVESTIGATIONS - PROFILES (1 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN CALDWELL COUNTY, TEXAS



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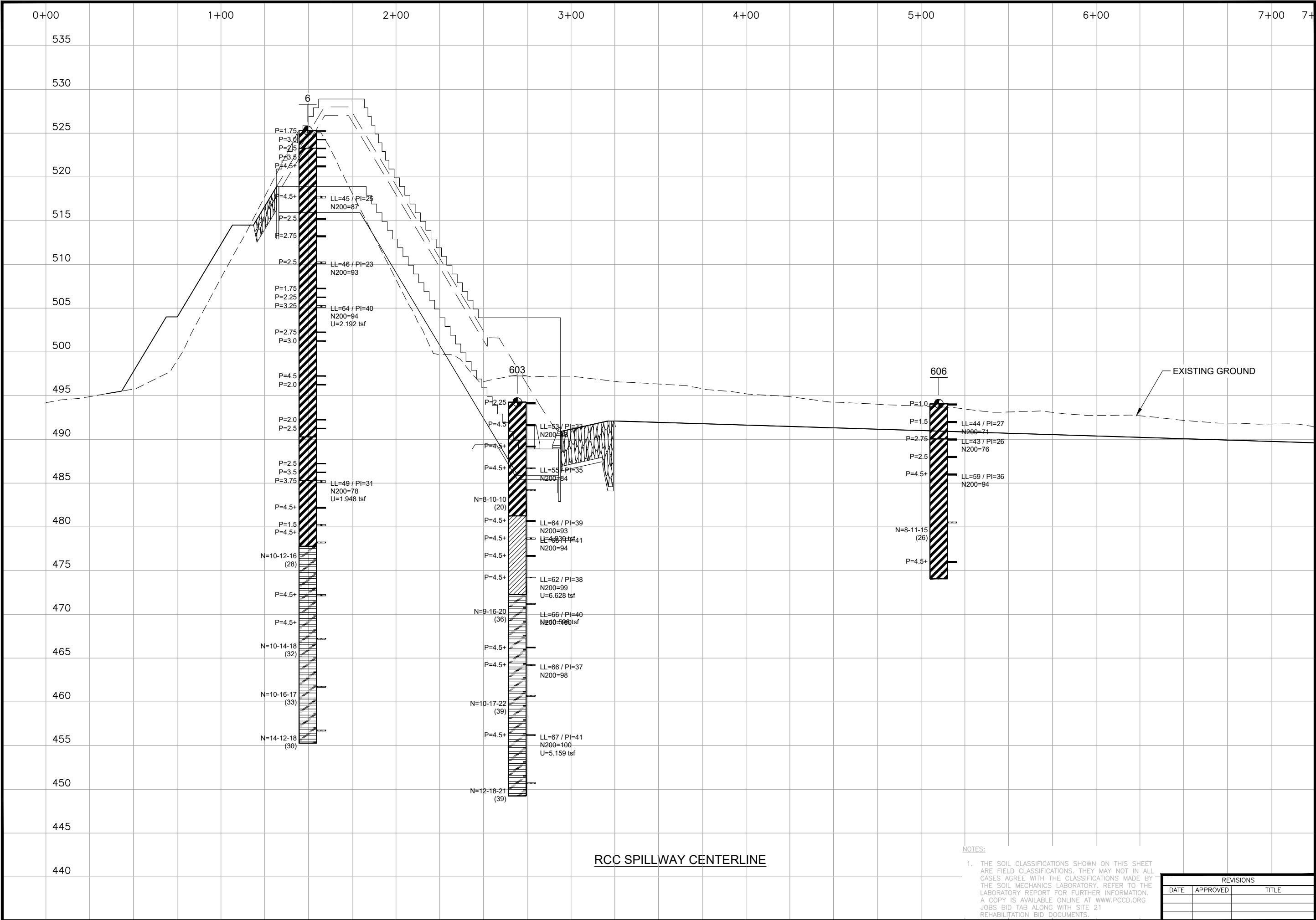
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GEOLOGIC INVESTIGATIONS - PROFILES (2 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



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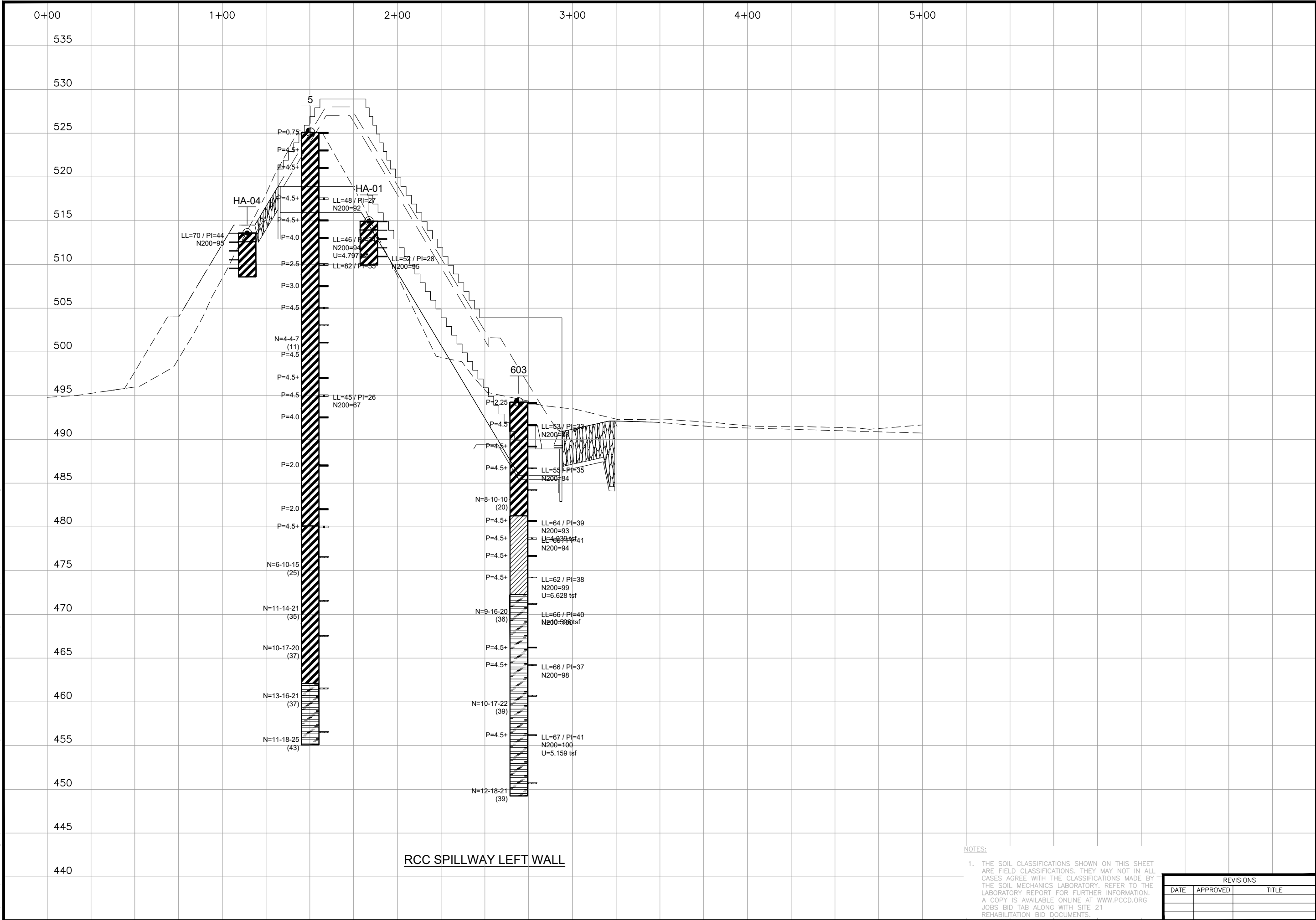
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RCC SPILLWAY LEFT WALL

NOTES:

- THE SOIL CLASSIFICATIONS SHOWN ON THIS SHEET ARE FIELD CLASSIFICATIONS. THEY MAY NOT IN ALL CASES AGREE WITH THE CLASSIFICATIONS MADE BY THE SOIL MECHANICS LABORATORY. REFER TO THE LABORATORY REPORT FOR FURTHER INFORMATION. A COPY IS AVAILABLE ONLINE AT WWW.PCCD.ORG

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GEOLOGIC INVESTIGATIONS – PROFILES (3 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



United States
Department of
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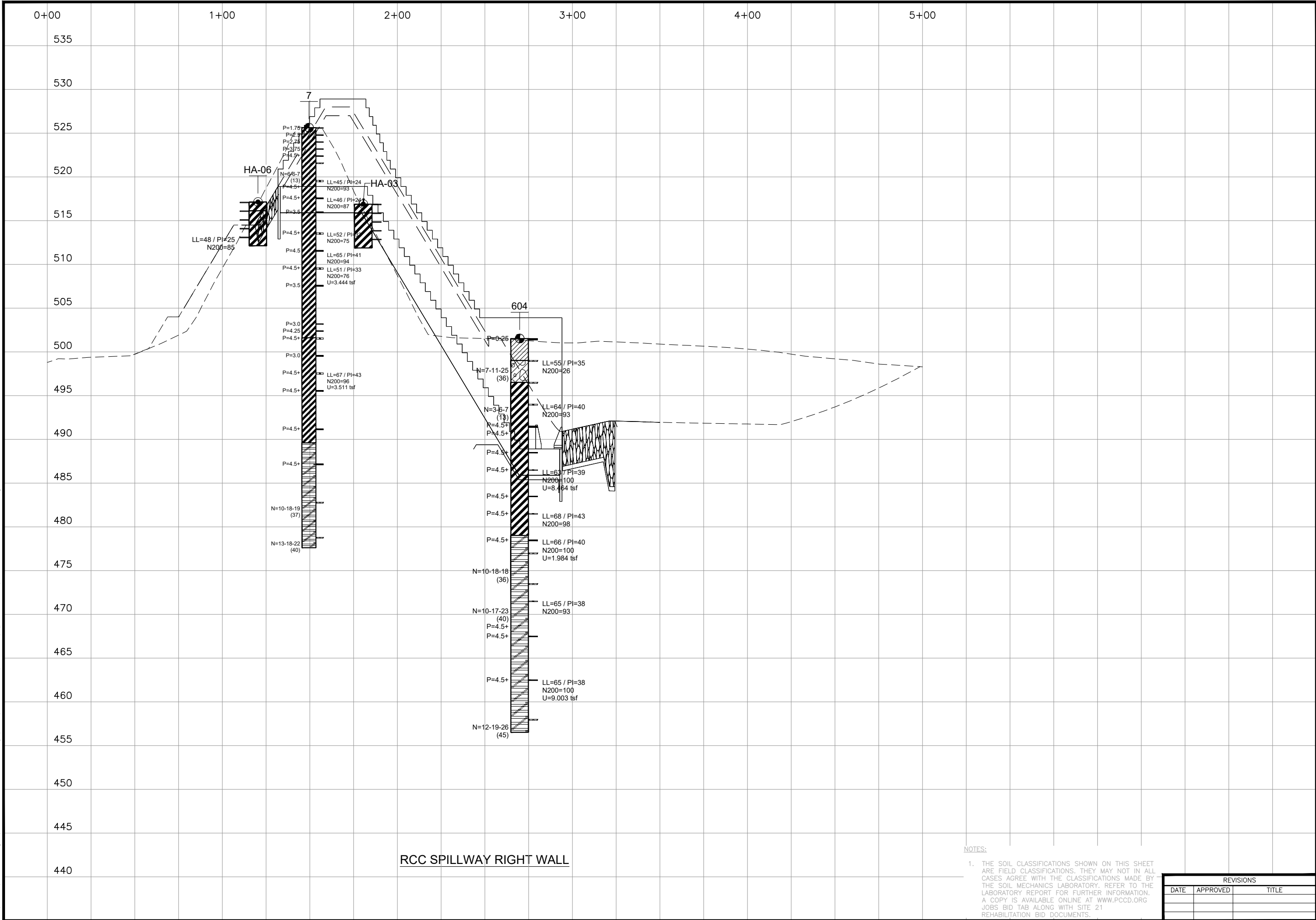
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RCC SPILLWAY RIGHT WALL

NOTES:

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GEOLOGIC INVESTIGATIONS – PROFILES (4 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



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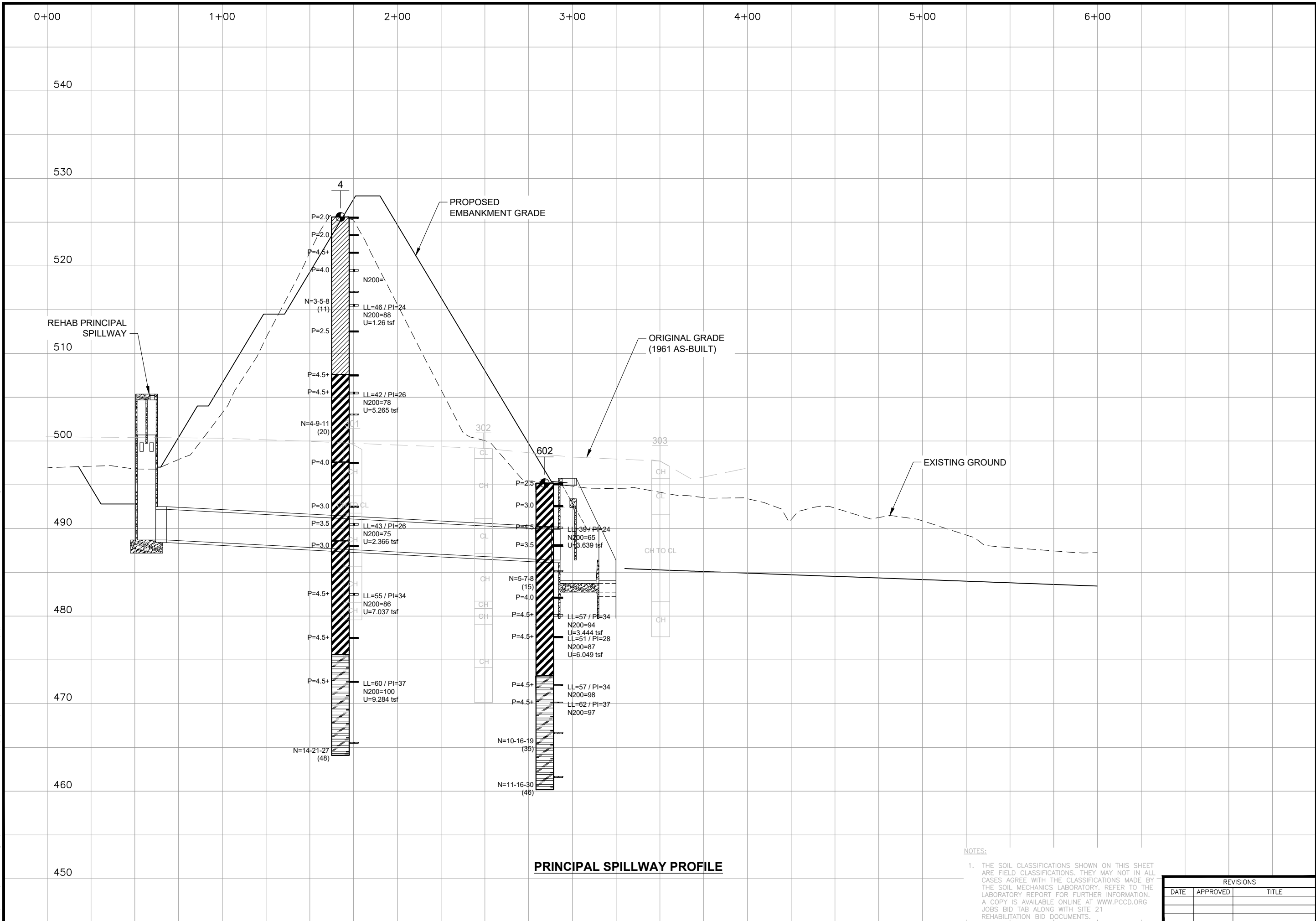
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83

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78

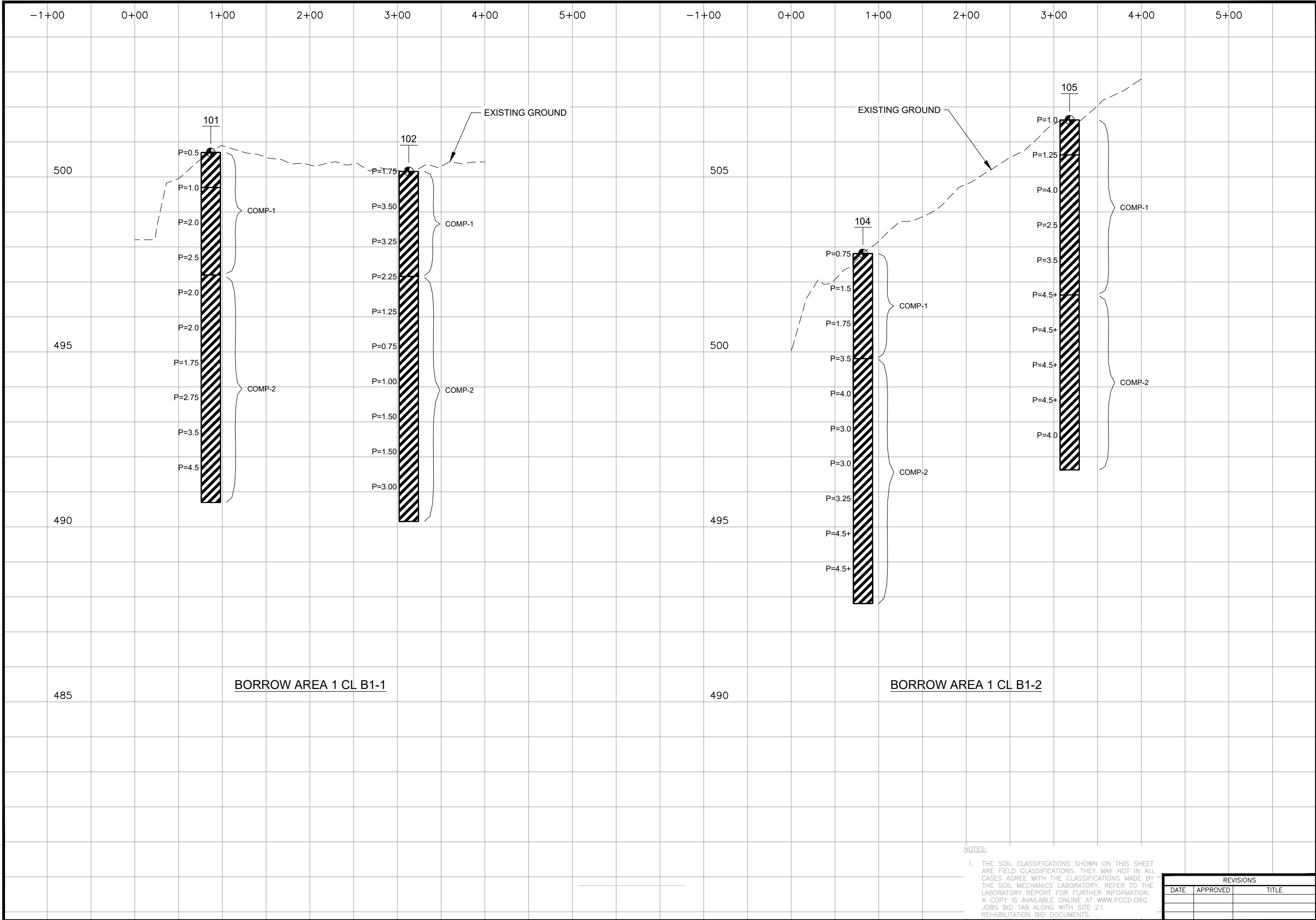
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GEOLOGIC INVESTIGATIONS – PROFILES (5 OF 9)
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS

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NOTES:
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GEOLOGIC INVESTIGATIONS – PROFILES (6 OF 9)

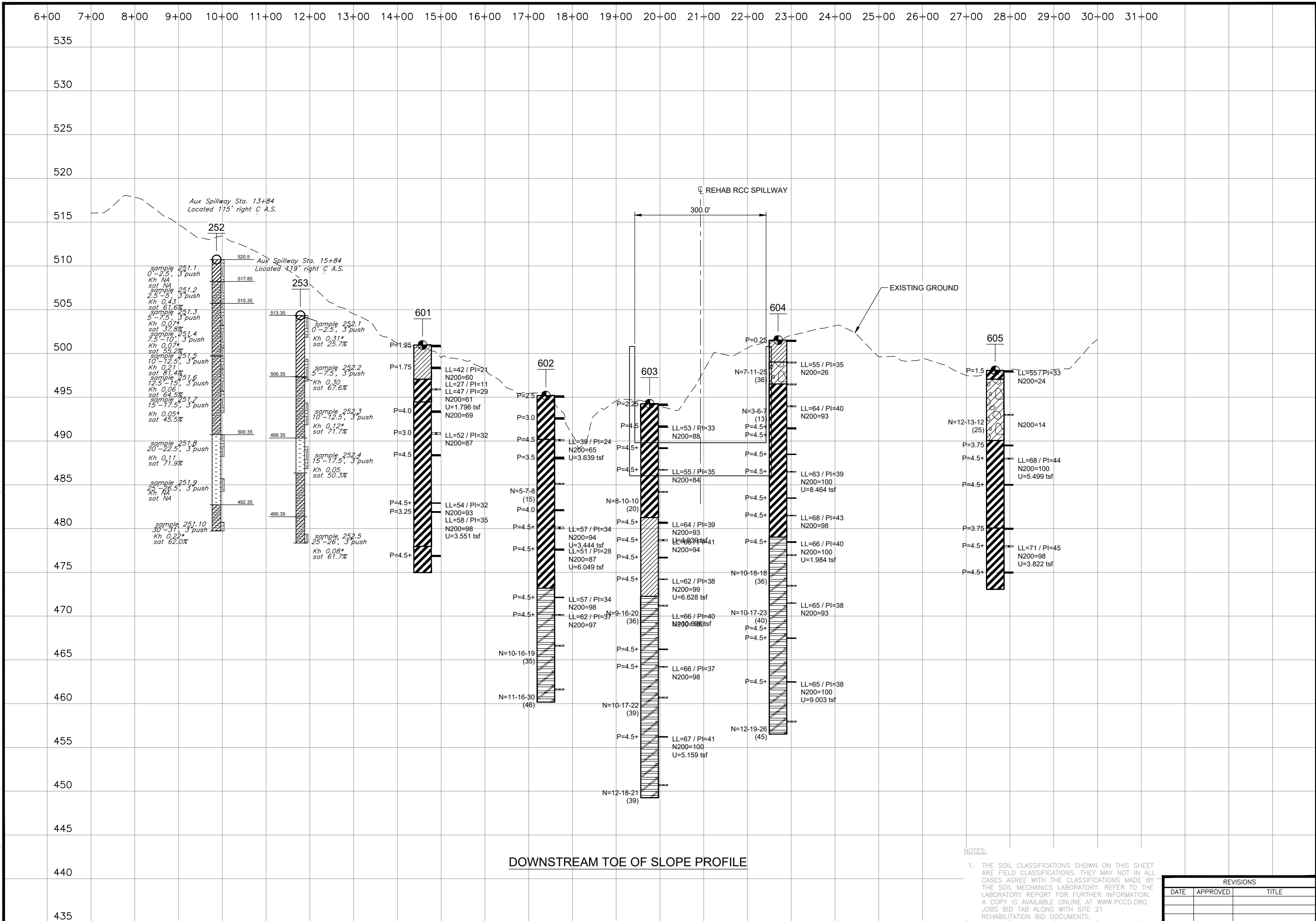
FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
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GEOLOGIC INVESTIGATIONS - PROFILES (8 OF 9)

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION
PLUM CREEK WATERSHED
IN
CALDWELL COUNTY, TEXAS



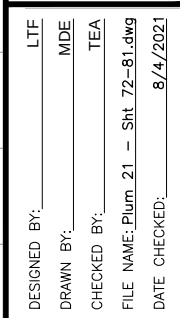
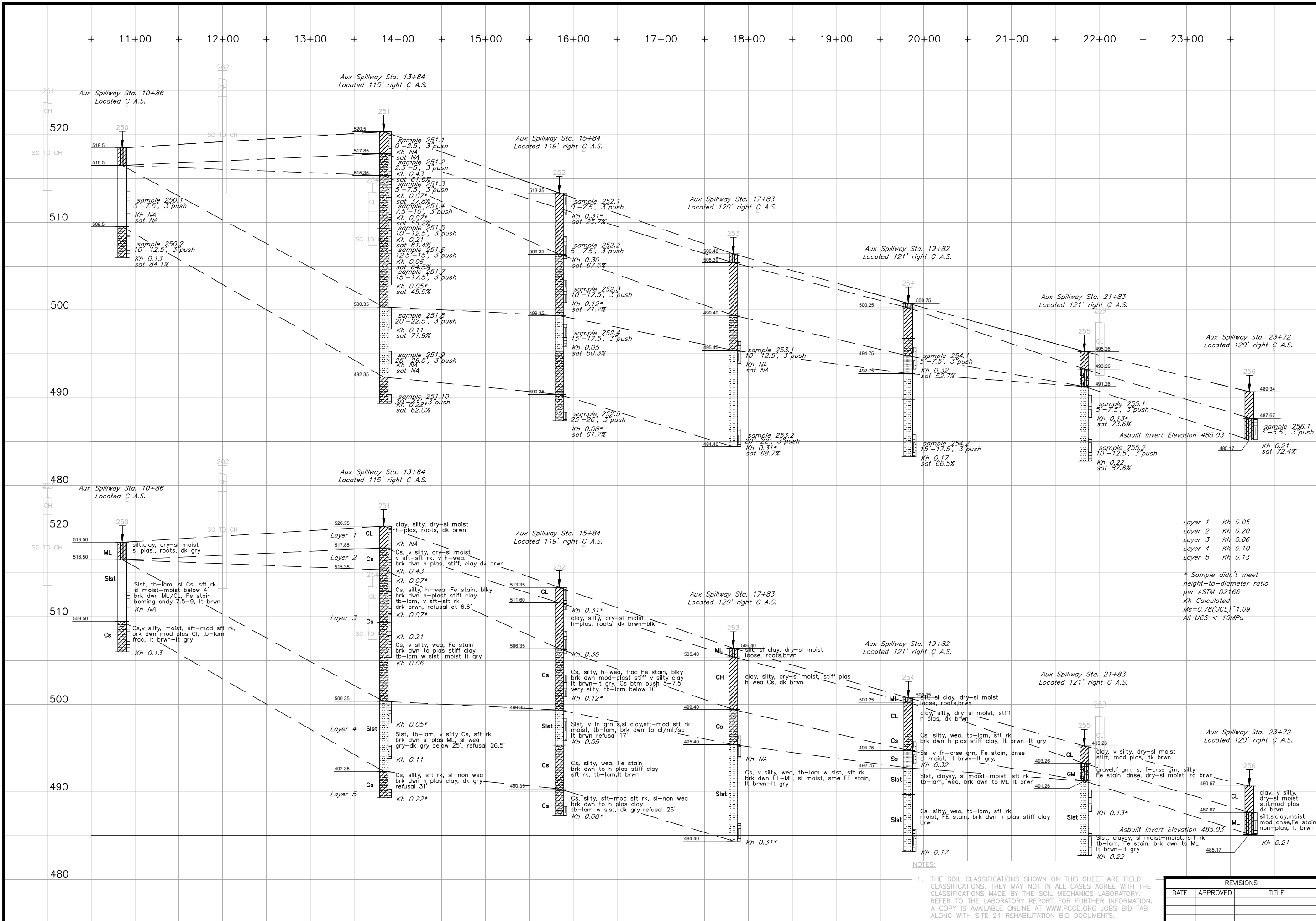
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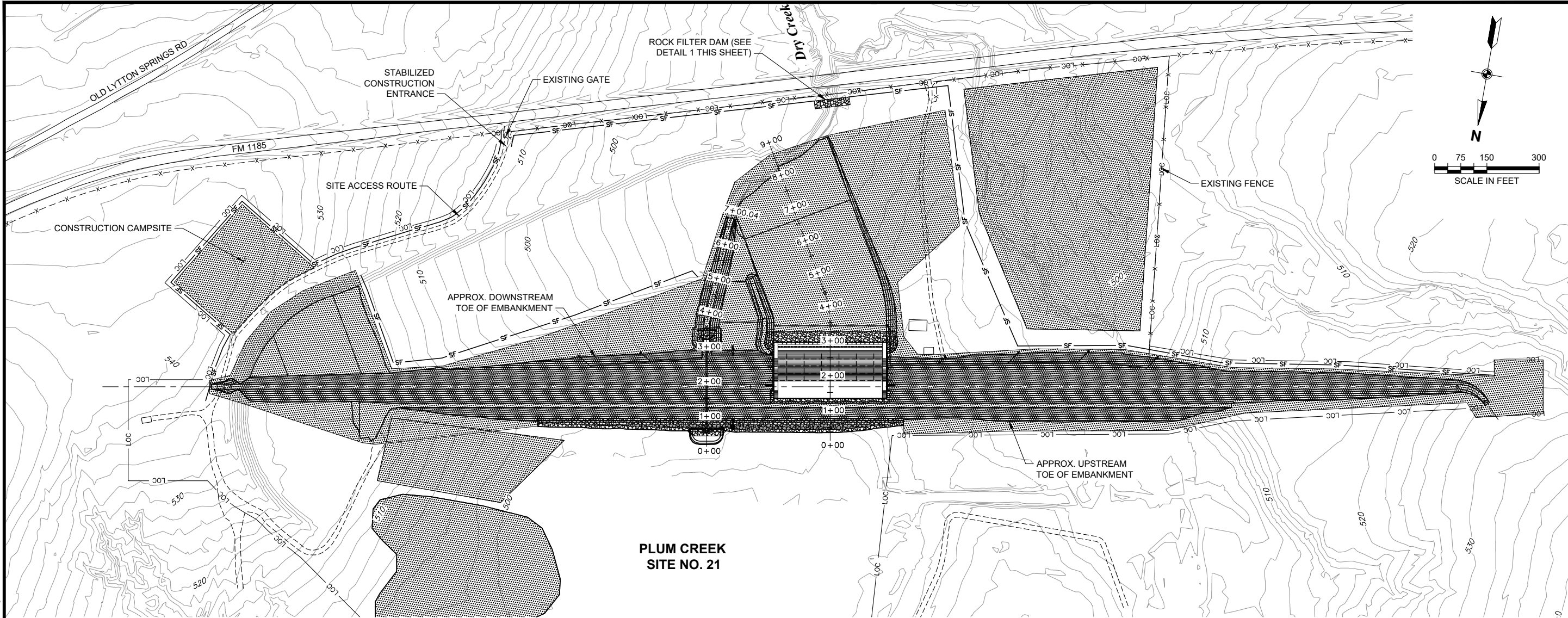
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GENERAL NOTES:

- CONTRACTOR SHALL ADD LOCATION(S) OF SEDIMENT FENCE TO PLAN AS REQUIRED. APPROXIMATELY 6,273 FEET OF SEDIMENT FENCE IS CURRENTLY SHOWN.
- CONTRACTOR SHALL INDICATE ON THE PLAN ALL PRODUCT SPECIFIC STORAGE AREAS AS DESCRIBED IN THE SWP3.

THESE AREAS SHALL INCLUDE, BUT ARE NOT LIMITED TO:
 - EQUIPMENT STORAGE
 - FUEL STORAGE
 - HAZARDOUS MATERIAL STORAGE
 - CONCRETE WASHOUT PITS
- A DRAWING SHOWING THE LOCATIONS OF THE DRAINAGE WORKS AND ALL POLLUTION CONTROL MEASURES SHALL BE KEPT IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN.
- IN ADDITION TO THE EMBANKMENT AND OUTLET CHANNEL EARTHWORK AREAS, DISTURBED AREAS WITHIN THE CAMPSITE, STOCKPILE, AND ACCESS ROAD AREAS SHALL HAVE PERMANENT VEGETATION ESTABLISHED.

STABILIZED CONSTRUCTION ENTRANCE:

- A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED AND MAINTAINED IN ACCORDANCES WITH CONSTRUCTION SPECIFICATION 8 AND 9 AND TxDOT SPECIFICATION 506.
- THE STABILIZED CONSTRUCTION ENTRANCE SHALL CONSIST OF A MINIMUM OF 8" THICKNESS OF CRUSHED ROCK PREDOMINANTLY 4" TO 8" IN SIZE. THE AGGREGATES SHALL BE CLEAN, HARD, DURABLE, AND FREE FROM ADHERENT COATINGS SUCH AS SALT, ALKALI, DIRT, CLAY, LOAM, SHALE, SOFT OR FLAKY MATERIALS, AND ORGANIC OR INJURIOUS MATTER.

SEDIMENT FILTER:

- SEDIMENT FILTER SHALL BE FABRIC (GEOTEXTILE) SILT FENCES AS DETAILED IN FIGURE 1 OF ASTM D 6462-19, STANDARD PRACTICE FOR SILT FENCE INSTALLATION AND MAINTENANCE.
- SEDIMENT FILTER SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS.

(A) ALONG THE DOWNSTREAM BOUNDARY OF ANY AREA WHICH IS STRIPPED OF EXISTING VEGETATION AND/OR SURFACE MATERIAL DURING ANY PHASE OF CONSTRUCTION ACTIVITY.

(B) ALONG THE DOWNSTREAM BOUNDARY OF ANY SOIL MATERIAL WHICH IS STOCKPILED DURING ANY PHASE OF CONSTRUCTION ACTIVITY FOR MORE THAN 14 DAYS.

(C) OTHER AREAS WHICH ARE DETERMINED BY THE CONTRACTING OFFICER TO BE POTENTIAL SILT SOURCES.

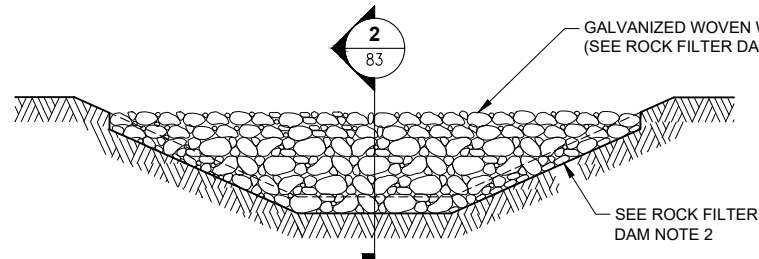
- SEDIMENT FILTER SHALL NOT BE USED WHERE CONCENTRATED FLOWS WHICH EXCESS ONE CFS ARE EXPECTED, OR WHERE DRAINAGE AREA EXCESS TWO ACRES.
- THE HEIGHT OF SILT FENCES SHALL NOT EXCEED 48 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
- SPLICES IN THE FILTER FABRIC ARE NOT RECOMMENDED. WHEN JOINTS ARE UNAVOIDABLE, FABRIC SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH LAP.
- POST 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.

MAINTENANCE:

- SEDIMENT FILTER SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- SILT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE SEDIMENT FILTER.
- SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE, THE FABRIC SHALL BE REPLACED PROMPTLY UNLESS INSPECTION REPORTS INDICATE THAT THE REPLACEMENT IS UNNECESSARY.

ROCK FILTER DAM:

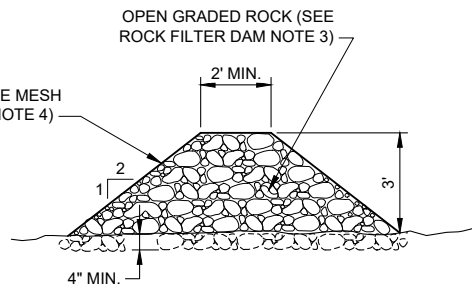
- FINAL LOCATION OF THE FILTER DAM SHALL BE AS DIRECTED BY THE ENGINEER.
- FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4" INTO EXISTING GROUND.
- USE ONLY OPEN GRADED ROCK THE SAME SIZE AS THE ROCK USED FOR THE STABILIZED CONSTRUCTION ENTRANCE.
- ROCK FILTER DAM SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT & SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. FOR IN STREAM USE, THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
- THE GUIDELINES SHOWN HEREON MAY BE MODIFIED BY THE ENGINEER.
- WHEN THE SITE IS COMPLETELY STABILIZED, THE DAM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.



1
83
ROCK FILTER DAM DETAIL
SCALE: NTS

LEGEND:

- SF — SILT FENCE
- ▨ AREAS TO BE VEGETATED



2
83
ROCK FILTER DAM SECTION
SCALE: NTS

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STORM WATER POLLUTION PREVENTION PLAN

FLOODWATER RETARDING STRUCTURE SITE NO. 21 REHABILITATION

PLUM CREEK WATERSHED

IN

CALDWELL COUNTY, TEXAS



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