



FLOODWATER RETARDING STRUCTURE SITE NO. 5 REHABILITATION

**PLUM CREEK WATERSHED**

HAYS COUNTY, TEXAS

DRAINAGE AREA 3,546 ACRES  
 TOTAL STORAGE 2,246 AC. FT.  
 HEIGHT OF DAM 42 FEET

SPONSORED BY

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

COOPERATING WITH

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

**2009**

CONSTRUCTION DRAWINGS APPROVED  
 ENGINEERING JOB CLASS VII

M&E Consultants  
 Soil & Water Engineering Solutions  
 F-4324

*William H. Erion P.E.*  
 WILLIAM H. ERION  
 TEXAS REG. P.E. NO. 84920



*12-8-2009*  
 DATE

CONSTRUCTION DRAWINGS APPROVED

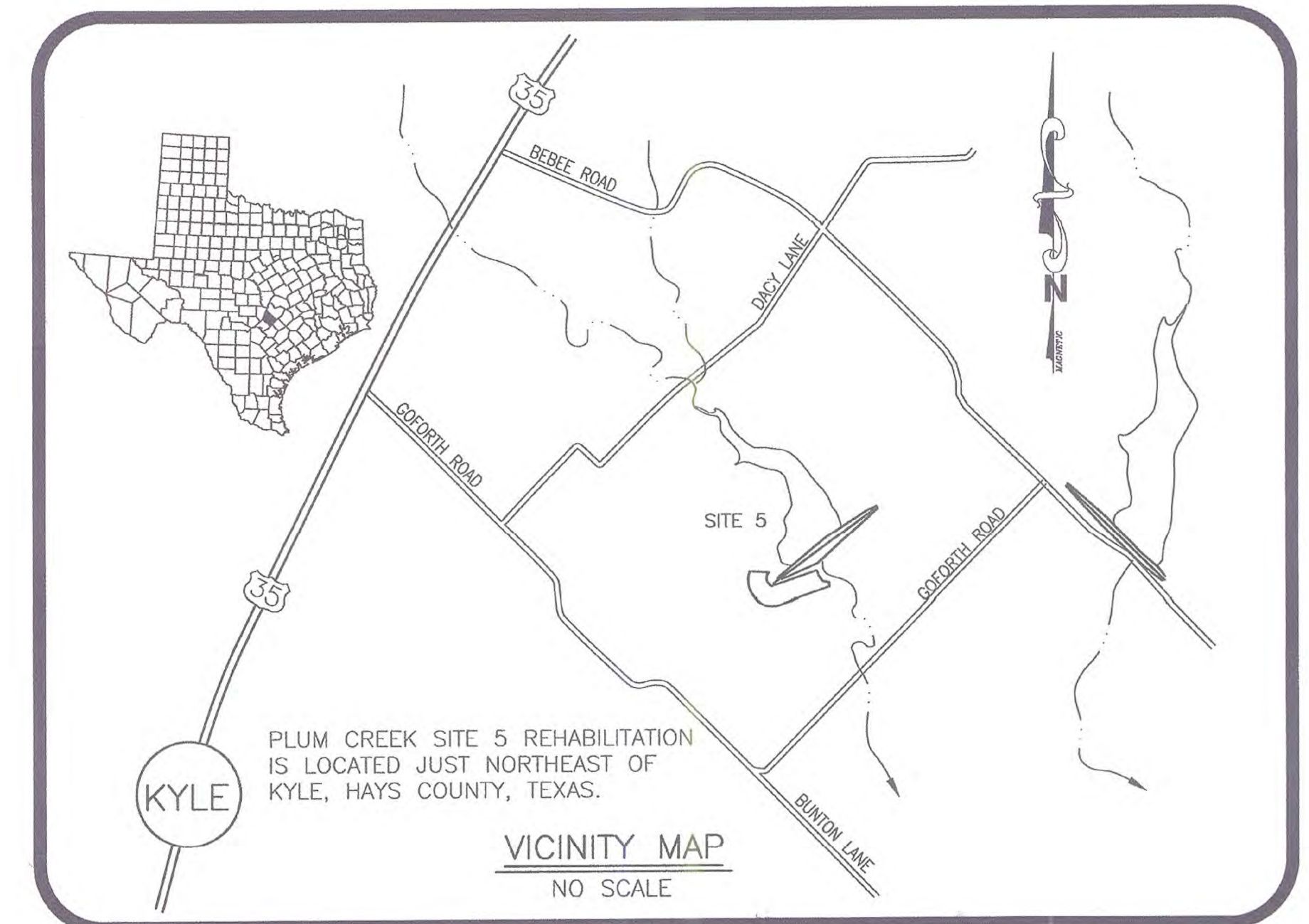
*John W. Mueller*  
 STATE CONSERVATION ENGINEER, N.R.C.S.  
 TEMPLE, TEXAS

*1/5/10*  
 DATE

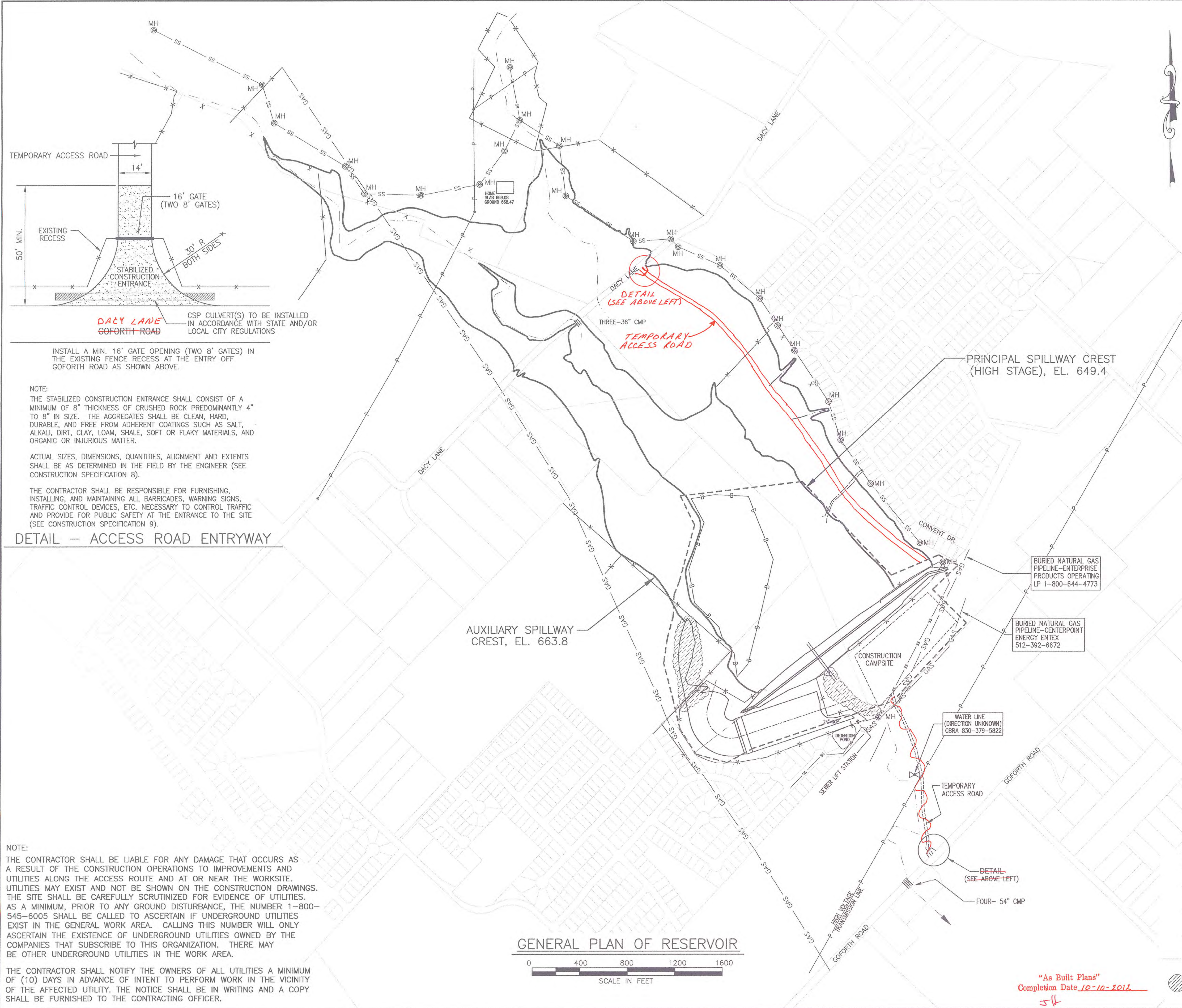
AS BUILT PLANS

CONTRACT NO. AG-7442-C-11-0069  
 CONTRACTOR FUEL TANK MAINTENANCE CO. LLC  
 CONSTRUCTION COMMENCED 10-4-2011  
 GOV. REPRESENTATIVE JOHN HREBICK  
 GOV. INSPECTOR ADAM RANGEL  
 BID PRICE \$1,119,554.00  
 FINAL PRICE \$1,118,956.00  
 CONSTRUCTION COMPLETED 10-10-2012

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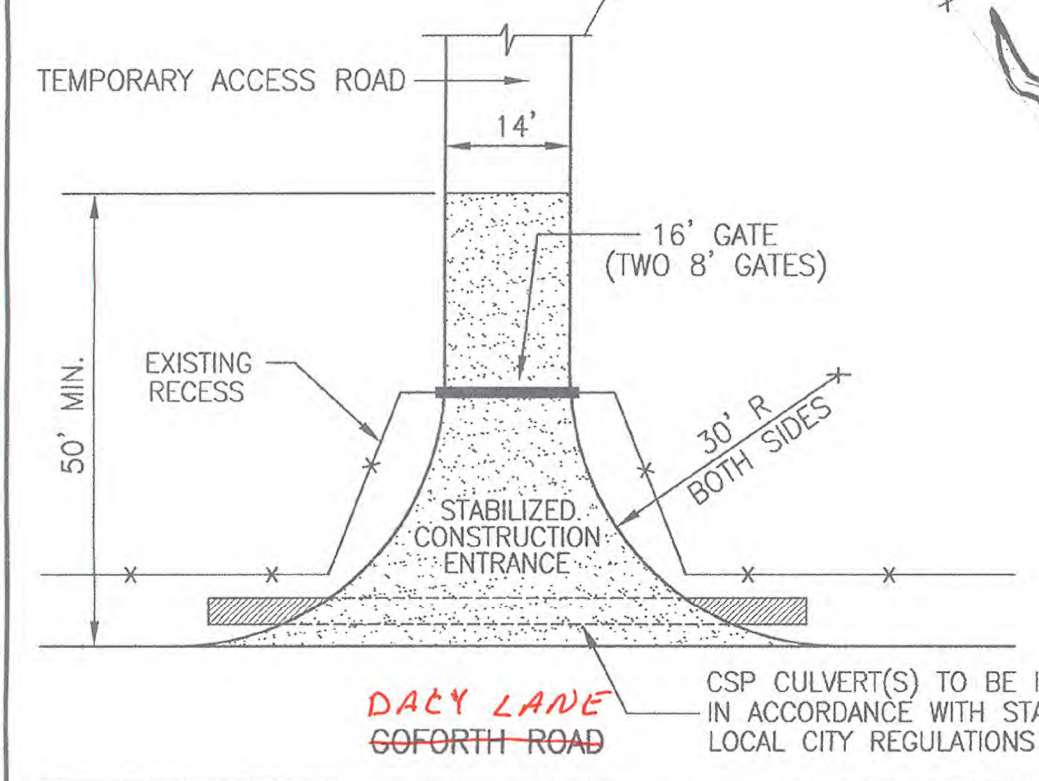


DRAWING NO. FN: PLUMS-COV  
 TX-EN-0557



ELEVATION	SURFACE ACRES	CAPACITY	
		AC. FT.	INCHES
649	65.5	427.0	2.09
651	81.1	573.6	2.17
653	97.1	751.8	2.89
655	113.5	962.4	3.76
657	130.8	1206.7	4.80
659	150.0	1487.5	6.06
661	170.1	1807.6	7.58
663	193.4	2171.1	8.45
665	211.1	2575.6	9.32
667	230.8	3017.5	11.27
669	251.6	3499.9	13.44
671	274.0	4025.5	15.83
673	297.0	4596.5	15.83

DRAINAGE AREA, ACRES	3,546
TOP OF DAM (EFFECTIVE), EL.	671.2
AUXILIARY SPILLWAY CREST, EL.	663.8
PRINCIPAL SPILLWAY CREST (HIGH STAGE), EL.	649.4
PRINCIPAL SPILLWAY CREST (LOW STAGE), EL.	645.1
SEDIMENT CAPACITY, ACRE FEET	204.5
FLOODWATER CAPACITY, ACRE FEET	2,042
MAXIMUM AUXILIARY SPILLWAY CAPACITY, CUBIC FEET/SECOND	16,526
PRINCIPAL SPILLWAY CAPACITY @ EL. 663.8, CFS	185



INSTALL A MIN. 16' GATE OPENING (TWO 8' GATES) IN THE EXISTING FENCE RECESS AT THE ENTRY OFF GOFORTH ROAD AS SHOWN ABOVE.

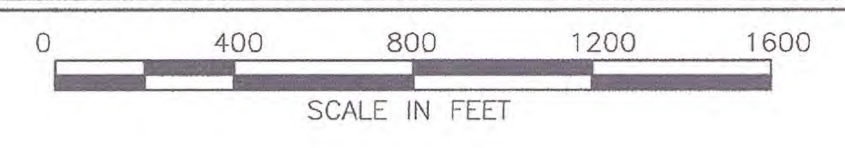
**NOTES:**  
 THE STABILIZED CONSTRUCTION ENTRANCE SHALL CONSIST OF A MINIMUM OF 8" THICKNESS OF CRUSHED ROCK PREDOMINANTLY 4" TO 8" IN SIZE. THE AGGREGATES SHALL BE CLEAN, HARD, DURABLE, AND FREE FROM ADHERENT COATINGS SUCH AS SALT, ALKALI, DIRT, CLAY, LOAM, SHALE, SOFT OR FLAKY MATERIALS, AND ORGANIC OR INJURIOUS MATTER.  
 ACTUAL SIZES, DIMENSIONS, QUANTITIES, ALIGNMENT AND EXTENTS SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER (SEE CONSTRUCTION SPECIFICATION 8).  
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL BARRICADES, WARNING SIGNS, TRAFFIC CONTROL DEVICES, ETC. NECESSARY TO CONTROL TRAFFIC AND PROVIDE FOR PUBLIC SAFETY AT THE ENTRANCE TO THE SITE (SEE CONSTRUCTION SPECIFICATION 9).

**DETAIL - ACCESS ROAD ENTRYWAY**

**NOTE:**  
 THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE THAT OCCURS AS A RESULT OF THE CONSTRUCTION OPERATIONS TO IMPROVEMENTS AND UTILITIES ALONG THE ACCESS ROUTE AND AT OR NEAR THE WORKSITE. UTILITIES MAY EXIST AND NOT BE SHOWN ON THE CONSTRUCTION DRAWINGS. THE SITE SHALL BE CAREFULLY SCRUTINIZED FOR EVIDENCE OF UTILITIES. AS A MINIMUM, PRIOR TO ANY GROUND DISTURBANCE, THE NUMBER 1-800-545-6005 SHALL BE CALLED TO ASCERTAIN IF UNDERGROUND UTILITIES EXIST IN THE GENERAL WORK AREA. CALLING THIS NUMBER WILL ONLY ASCERTAIN THE EXISTENCE OF UNDERGROUND UTILITIES OWNED BY THE COMPANIES THAT SUBSCRIBE TO THIS ORGANIZATION. THERE MAY BE OTHER UNDERGROUND UTILITIES IN THE WORK AREA.

THE CONTRACTOR SHALL NOTIFY THE OWNERS OF ALL UTILITIES A MINIMUM OF (10) DAYS IN ADVANCE OF INTENT TO PERFORM WORK IN THE VICINITY OF THE AFFECTED UTILITY. THE NOTICE SHALL BE IN WRITING AND A COPY SHALL BE FURNISHED TO THE CONTRACTING OFFICER.

**GENERAL PLAN OF RESERVOIR**



**LEGEND**

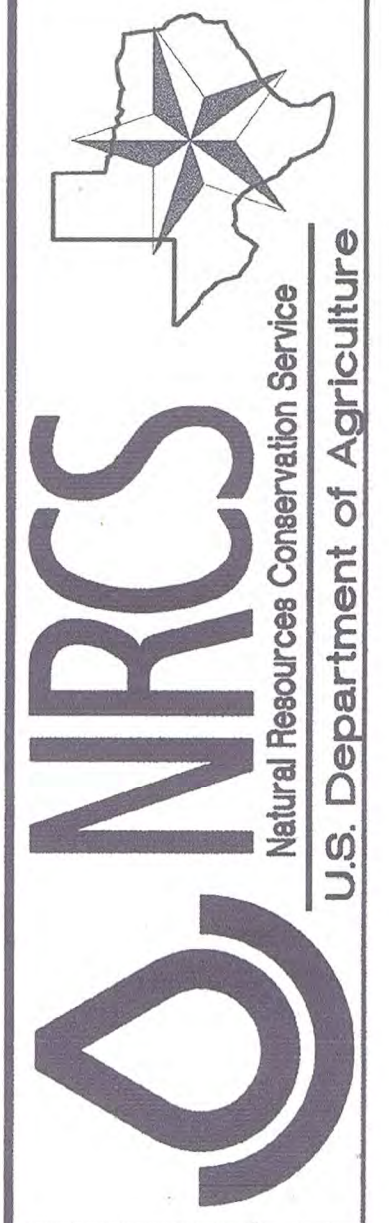
---	APPROX. LIMITS OF WORK
-x-	EXISTING FENCE
-B-	APPROX. LIMITS OF BORROW AREA
-P-	OVERHEAD POWER LINE
MH	SANITARY SEWER
SS	SANITARY SEWER
	AREAS TO BE CLEARED

"As Built Plans"  
 Completion Date 10-10-2016  
 54



DESIGNED BY: WILLIAM H. ERION  
 DRAWN BY: CP  
 CHECKED BY: LDM  
 FILE NAME: PLUMS-GP  
 DATE PLOTTED: 11/09

GENERAL PLAN OF RESERVOIR  
 FLOODWATER RETARDING STRUCTURE NO. 5 REHAB  
 PLUM CREEK WATERSHED  
 IN  
 HAYS COUNTY, TEXAS



REVISIONS DATE  
 DRAWING NO. TX-EN-0557  
 SHEET

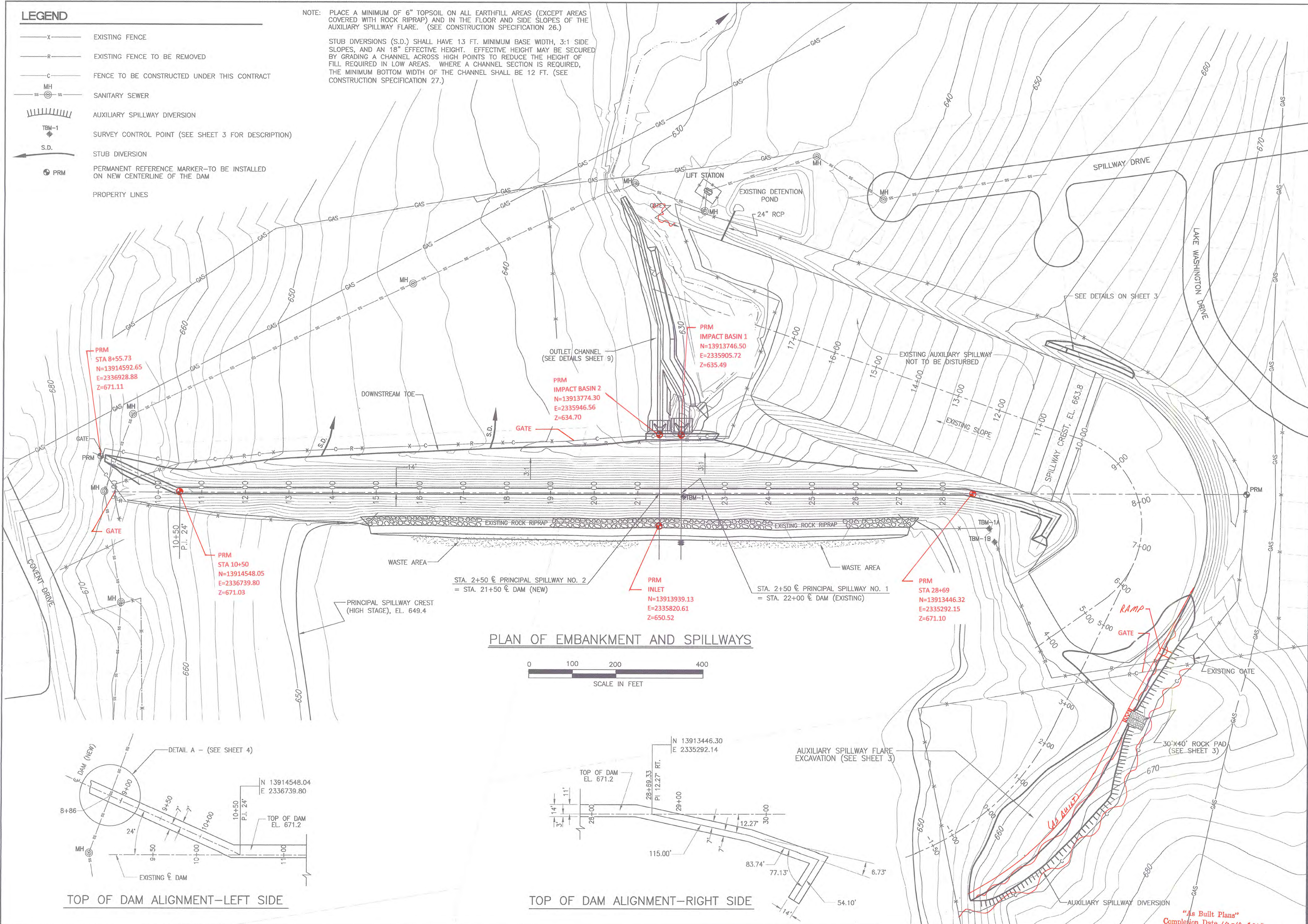
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**LEGEND**

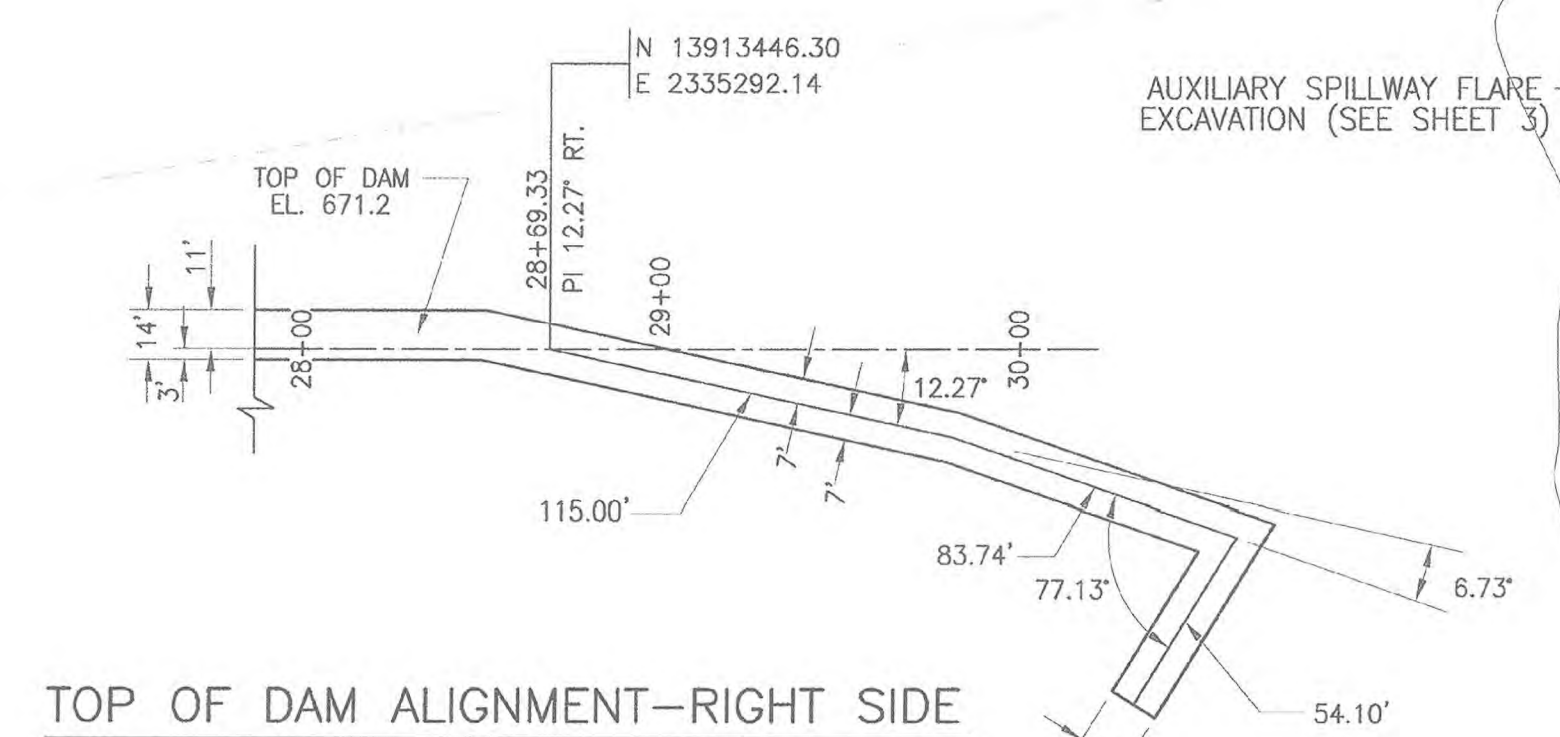
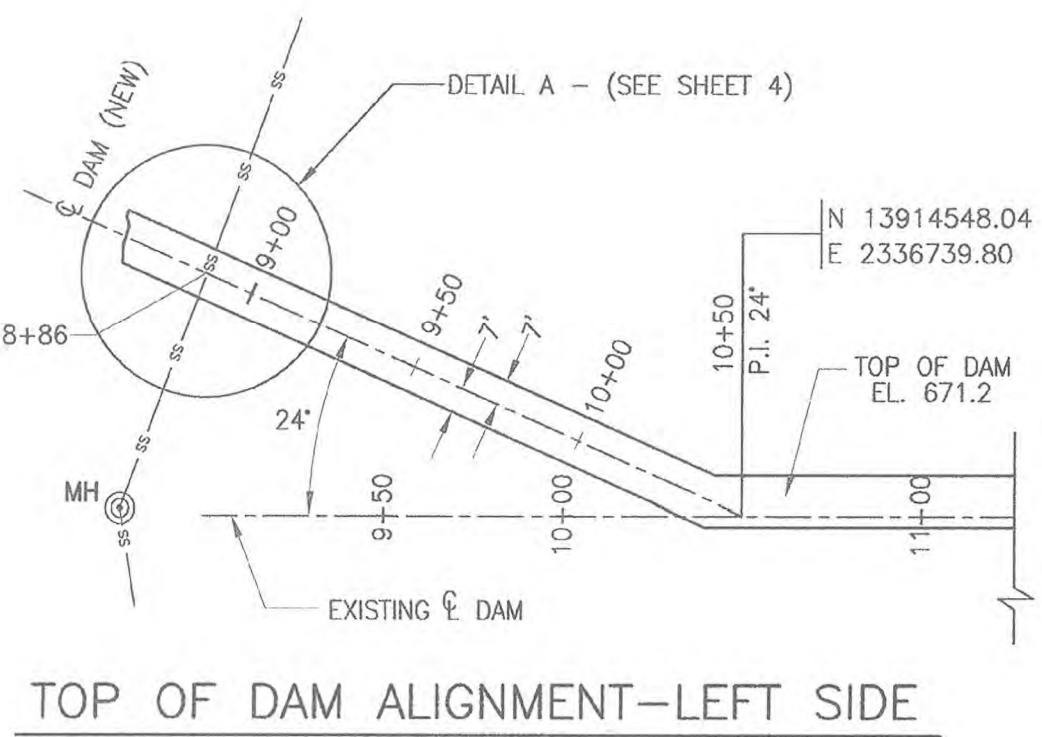
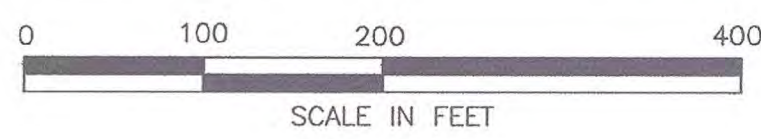
- X — EXISTING FENCE
- R — EXISTING FENCE TO BE REMOVED
- C — FENCE TO BE CONSTRUCTED UNDER THIS CONTRACT
- MH — SANITARY SEWER
- SS — SANITARY SEWER
- ||||| AUXILIARY SPILLWAY DIVERSION
- TBM-1 — SURVEY CONTROL POINT (SEE SHEET 3 FOR DESCRIPTION)
- S.D. — STUB DIVERSION
- PRM — PERMANENT REFERENCE MARKER—TO BE INSTALLED ON NEW CENTERLINE OF THE DAM
- — PROPERTY LINES

NOTE: PLACE A MINIMUM OF 6" TOPSOIL ON ALL EARTHFILL AREAS (EXCEPT AREAS COVERED WITH ROCK RIPRAP) AND IN THE FLOOR AND SIDE SLOPES OF THE AUXILIARY SPILLWAY FLARE. (SEE CONSTRUCTION SPECIFICATION 26.)

STUB DIVERSIONS (S.D.) SHALL HAVE 13 FT. MINIMUM BASE WIDTH, 3:1 SIDE SLOPES AND AN 18" EFFECTIVE HEIGHT. EFFECTIVE HEIGHT MAY BE SECURED BY GRADING A CHANNEL ACROSS HIGH POINTS TO REDUCE THE HEIGHT OF FILL REQUIRED IN LOW AREAS. WHERE A CHANNEL SECTION IS REQUIRED, THE MINIMUM BOTTOM WIDTH OF THE CHANNEL SHALL BE 12 FT. (SEE CONSTRUCTION SPECIFICATION 27.)



**PLAN OF EMBANKMENT AND SPILLWAYS**



DESIGNED BY: WILLIAM H. ERIÓN  
 DRAWN BY: CP  
 CHECKED BY: LDM  
 FILE NAME: PLUM5-PLAN  
 DATE PLOTTED: 11/09

**PLAN OF EMBANKMENT AND SPILLWAYS**  
 FLOODWATER RETARDING STRUCTURE NO. 5 REHAB  
 PLUM CREEK WATERSHED  
 IN  
 HAYS COUNTY, TEXAS



**NRCS**  
 Natural Resources Conservation Service  
 U.S. Department of Agriculture

REVISIONS	DATE

DRAWING NO. TX-EN-0557  
 SHEET

**2**

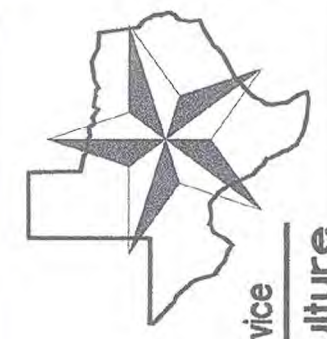
"As Built Plans"  
 Completion Date 10-10-2010

54



DESIGNED BY: WILLIAM H. ERION  
 DRAWN BY: CP  
 CHECKED BY: LDM  
 FILE NAME: PLUMS-DETAILS  
 DATE PLOTTED: 11/09

TYPICAL SECTION-EMBANKMENT AND AUXILIARY SPILLWAY FLARE  
 FLOODWATER RETARDING STRUCTURE NO. 5 REHAB  
 IN PLUM CREEK WATERSHED  
 HAYS COUNTY, TEXAS



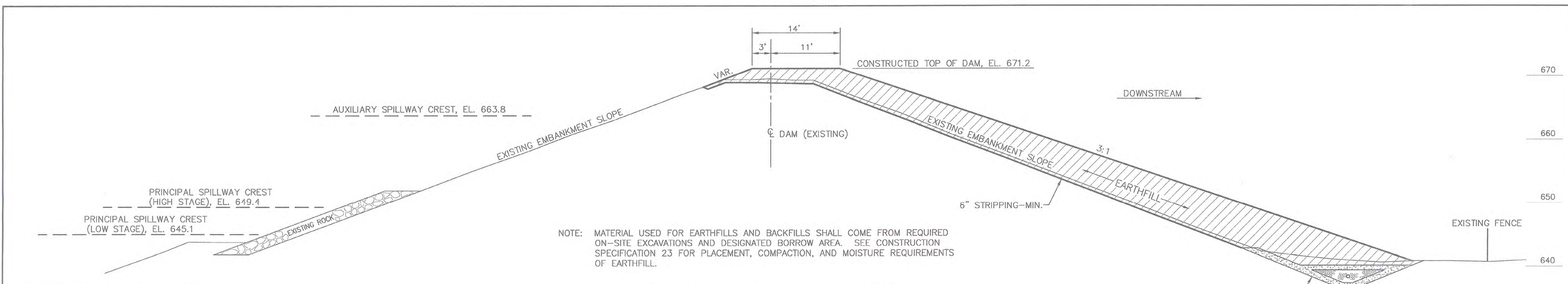
**NRCS**  
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REVISIONS	DATE

DRAWING NO. TX-EN-0557  
 SHEET

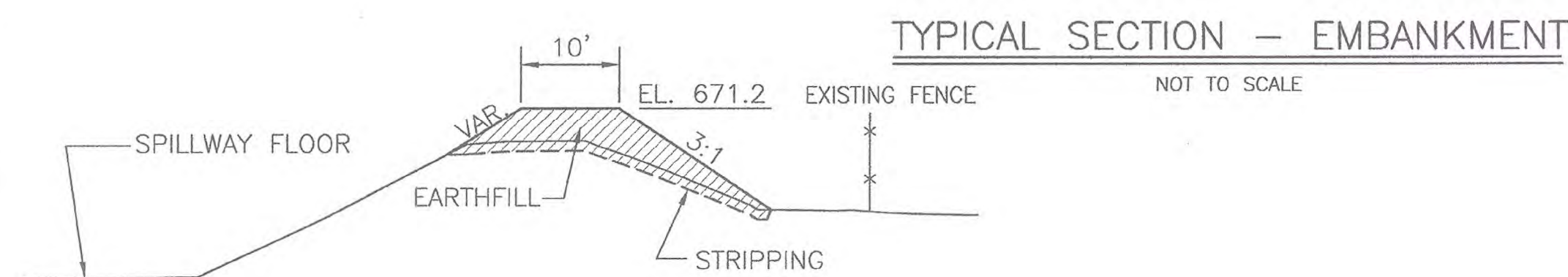
**3**

54



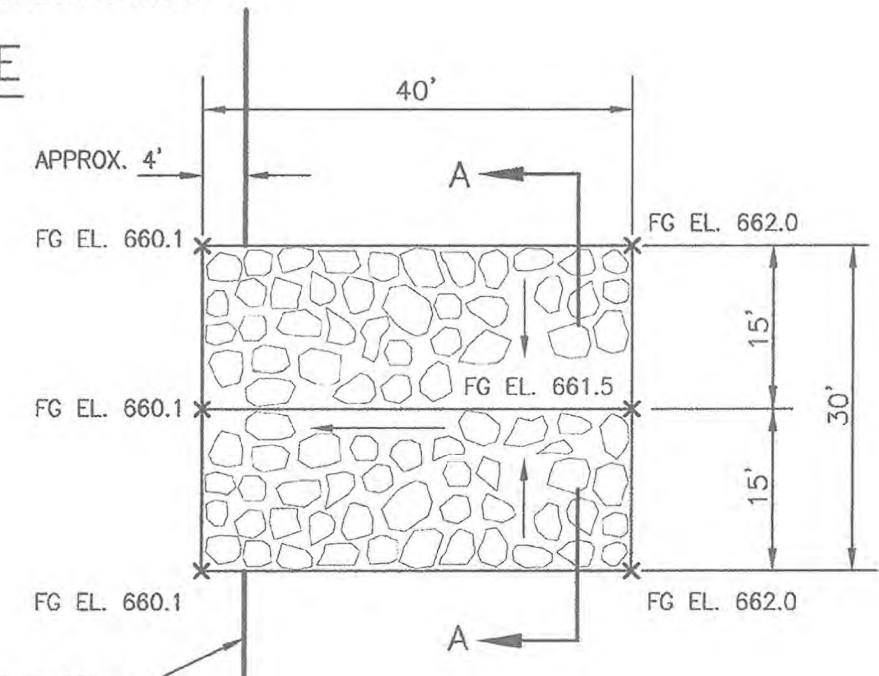
NOTE: MATERIAL USED FOR EARTHFILLS AND BACKFILLS SHALL COME FROM REQUIRED ON-SITE EXCAVATIONS AND DESIGNATED BORROW AREA. SEE CONSTRUCTION SPECIFICATION 23 FOR PLACEMENT, COMPACTION, AND MOISTURE REQUIREMENTS OF EARTHFILL.

SURVEY CONTROL POINTS	
NUMBER	DESCRIPTION
TBM-1	1/2" REBAR WITH RED M&E CAP SET ON UPSTREAM SLOPE OF DAM ON APPROX. CENTERLINE OF PRINCIPAL SPILLWAY NO. 1 N 13913854.52 E 2335815.50 ELEVATION-669.52
TBM-1A	1/2" REBAR WITH RED M&E CAP SET 6" FROM 2 1/2" BRACE POST OF SPILLWAY FENCE AT GAP. N 13913486.26 E 2335214.26 ELEVATION-657.69
TBM-1B	1/2" REBAR WITH RED M&E CAP SET 6" FROM 2 1/2" BRACE POST OF SPILLWAY FENCE AT GAP. N 13913502.91 E 2335185.87 ELEVATION-659.08

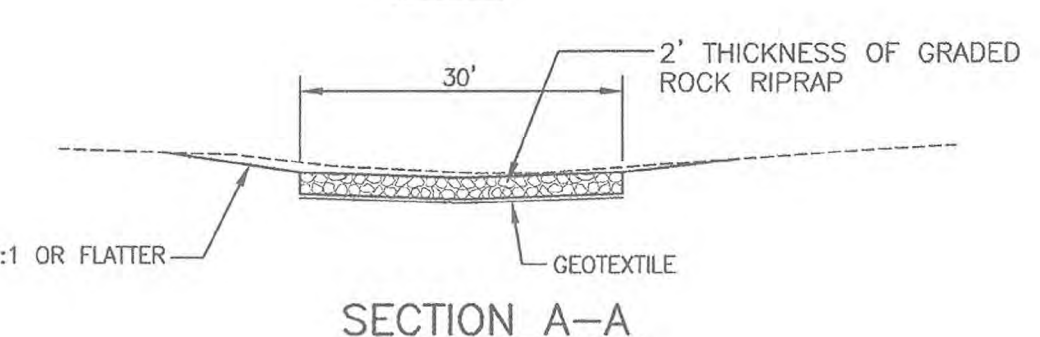


RECONSTRUCT THE EXISTING RIGHT SIDE AUXILIARY SPILLWAY DIKE FROM APPROX. STA. 9+50 TO STA. 11+00 TO THE LIMITS SHOWN. TRANSITION UNIFORMLY FROM STA. 11+00 TO THE EXISTING DIKE AT APPROX. STA. 11+50. MATERIALS FORMING DIKE AND TRANSITIONAL AREA SHALL BE PLACED AND PAID FOR AS "EARTHFILL". (SEE CONSTRUCTION SPECIFICATION 23.)

DETAIL-AUXILIARY SPILLWAY DIKE



PLAN

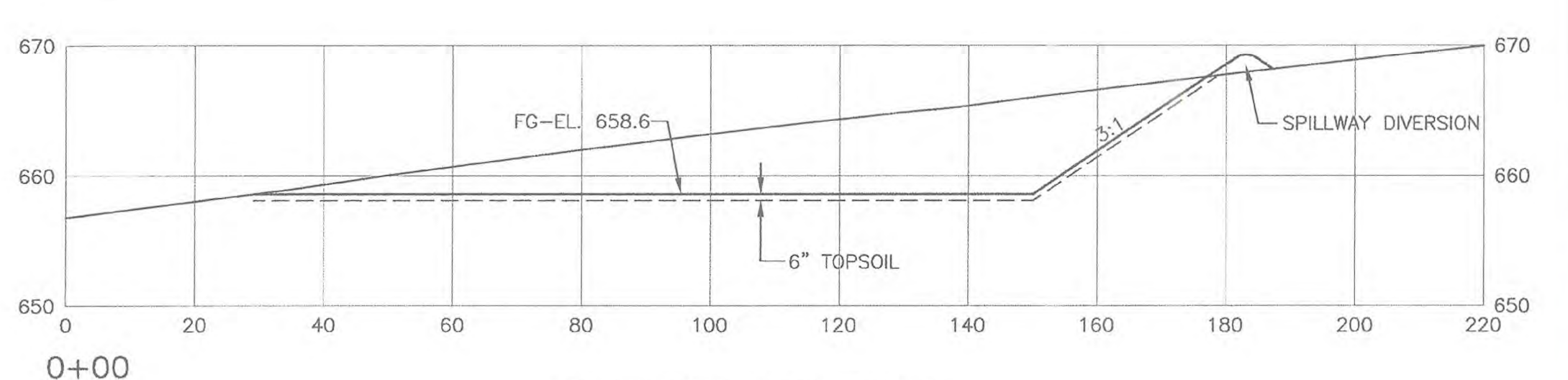
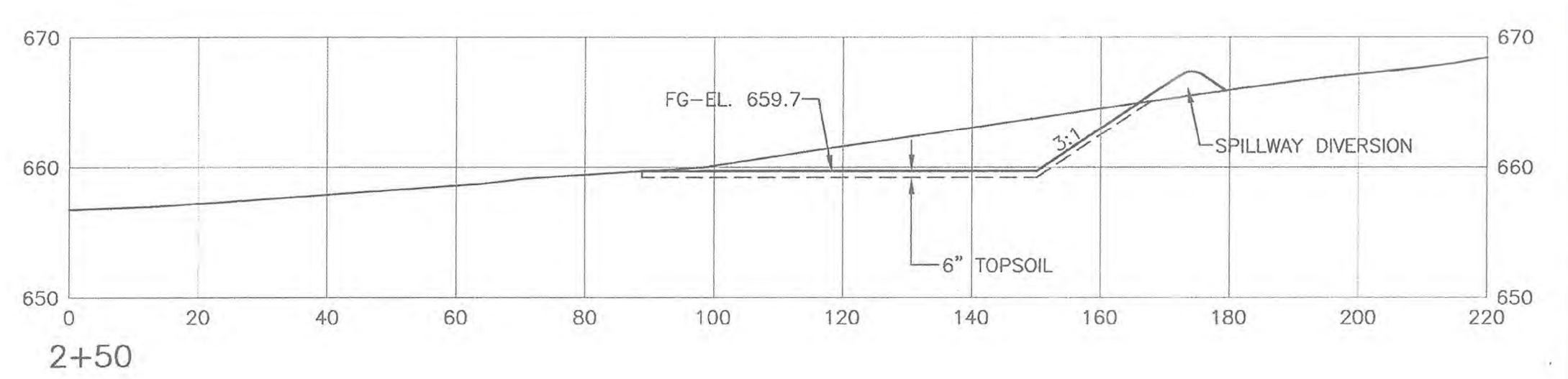
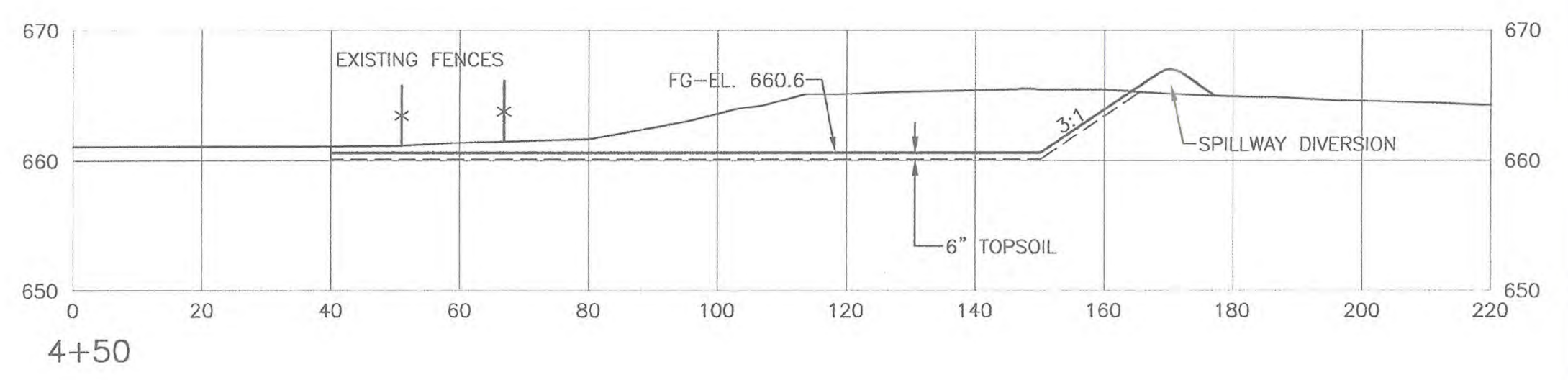


SECTION A-A

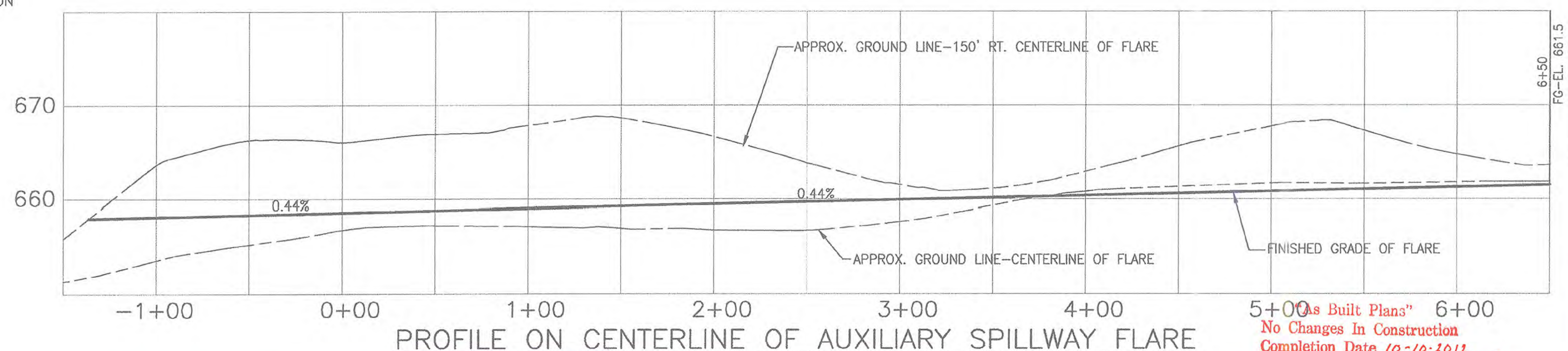
CONSTRUCT A ROCK PAD TO THE APPROX. LIMITS AND ELEVATIONS SHOWN. LOCATE THE ROCK PAD AT THE LOW POINT IN THE PROFILE FOR THE RIGHT SIDE OF THE AUXILIARY SPILLWAY FLARE (APPROX. STA. 3+40). FINAL LOCATION, LIMITS, AND ELEVATIONS SHALL BE AS STAKED IN THE FIELD. (SEE CONSTRUCTION SPECIFICATIONS 21, 61, AND 95.)

ROCK PAD-DETAILS

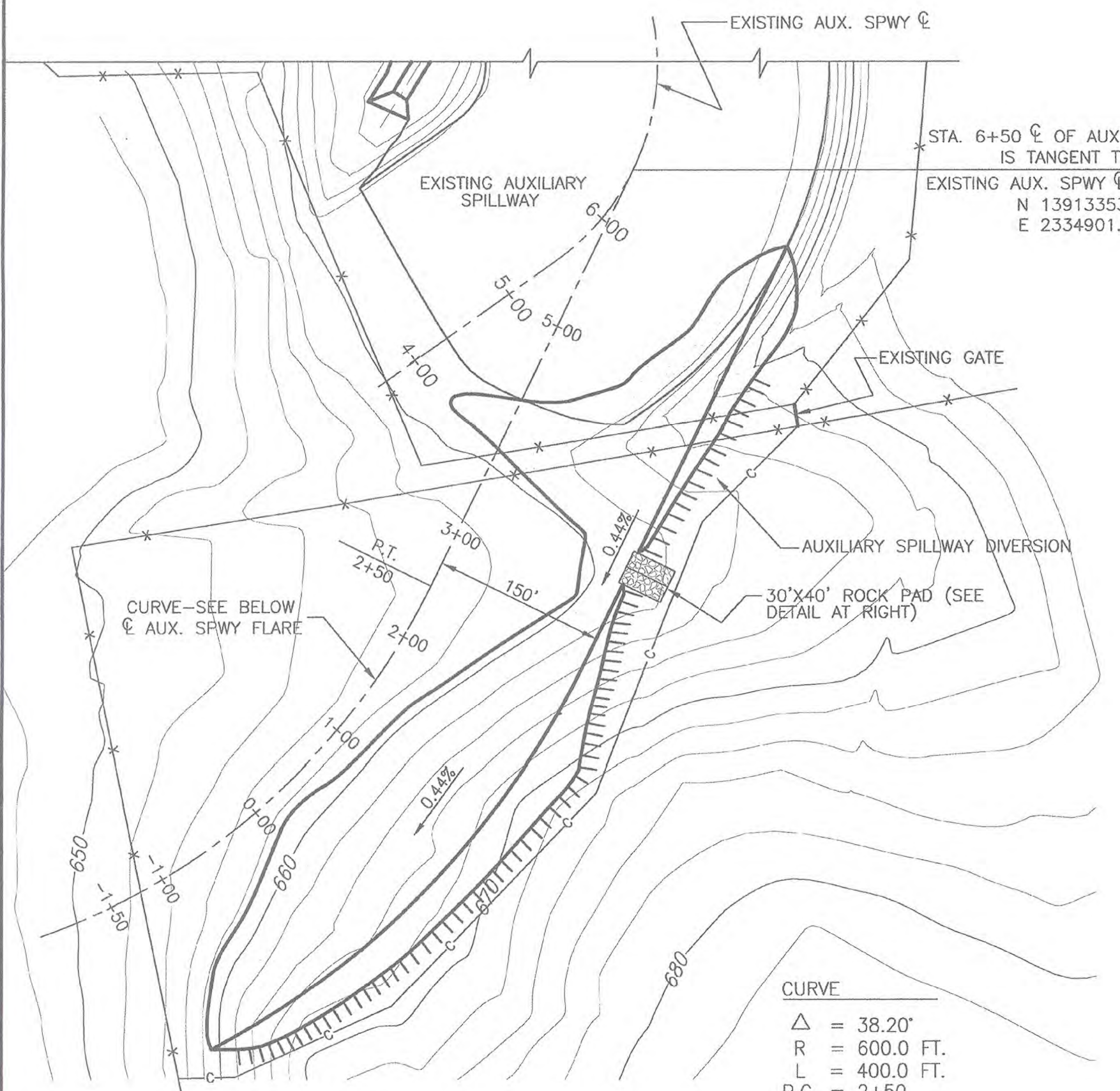
QUANTITIES  
 ROCK RIPRAP.....147 TONS  
 GEOTEXTILE.....133 SQ. YDS.  
 NOTE: SEE SHEET 9 FOR GRADATION OF ROCK RIPRAP.



SECTIONS ON FLARE



PROFILE ON CENTERLINE OF AUXILIARY SPILLWAY FLARE



CURVE  
 $\Delta = 38.20^\circ$   
 R = 600.0 FT.  
 L = 400.0 FT.  
 P.C. = 2+50  
 P.T. = -1+50

EXCAVATE THE FOREBAY OF THE EXISTING AUXILIARY SPILLWAY BY FLARING OUT THE RIGHT SIDE TO THE APPROXIMATE LIMITS SHOWN AND DETAILED. THE FINAL LIMITS, ELEVATIONS, AND GRADES OF THE FLARE SHALL BE AS STAKED IN THE FIELD. OVER EXCAVATE THE FLARE 6" FOR THE PLACEMENT OF TOPSOIL. (SEE CONSTRUCTION SPECIFICATION 21.)

PLAN-AUXILIARY SPILLWAY FLARE