

Multiple-Purpose Project
Little Blue River Basin
East Fork Little Blue River
Missouri

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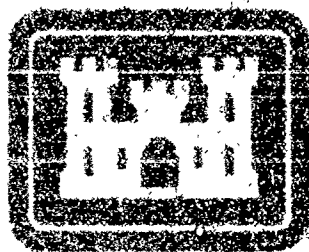
Blue Springs Lake

Operation and Maintenance Manual

AD-A229 026

Appendix IV
Volume Two

Construction Foundation Report



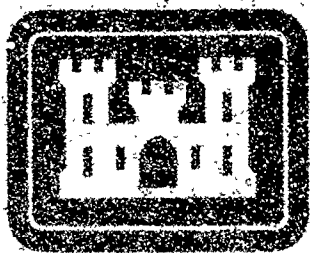
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Operation and Maintenance Manual

Appendix IV
Volume Two

Construction Foundation Report



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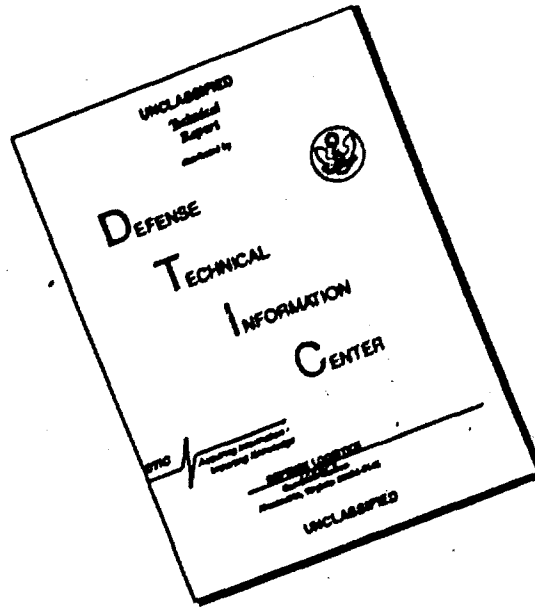
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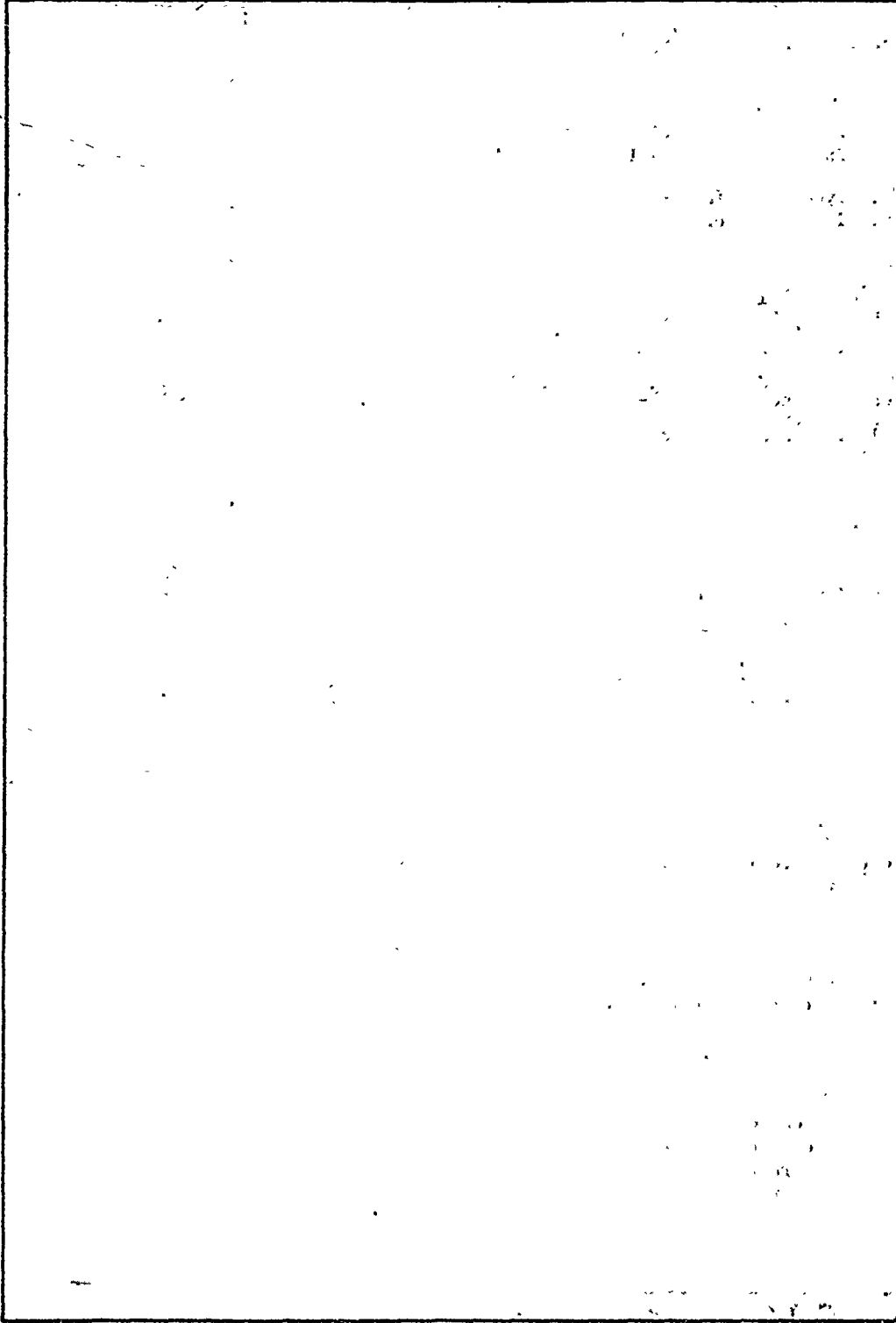
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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER APPENDIX IV to the Blue Springs Lake, Missouri Operation & Maintenance Manual	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) MULTIPLE-PURPOSE PROJECT; LITTLE BLUE RIVER BASIN; EAST FORK LITTLE BLUE RIVER, MO; BLUE SPRINGS LAKE, OPERATION AND MAINTENANCE MANUAL; APPENDIX IV, VOLUMES ONE & TWO CONSTRUCTION FOUNDATION REPORT		5. TYPE OF REPORT & PERIOD COVERED 29 Aug 82 to 15 Sep 88
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Volume Two (of 2 Volumes) Construction Foundation Report		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The purpose of this report is to provide a record of foundation conditions encountered during construction and methods used to adapt to these conditions. This information is a part of the permanent collection of project engineering data required by ER 1110-1-1801, change 2, dated 1 April 1983.		

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OPERATION AND MAINTENANCE MANUAL

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GROUT CURTAIN PROFILE, LEFT ABUTMENT LINE C, STA. 101+40 TO STA. 102+50	60	RBL-2-1303	OUTLET WORKS FINAL CROSS SECTIONS, STA. 50+50 TO STA. 48+50	83
GROUT CURTAIN PROFILE, RIGHT ABUTMENT LINE A, STA. 76+30 TO STA. 75+20	61	RBL-2-1304	OBSERVATION DEVICES PLAN, SECTIONS AND SCHEDULES	84
GROUT CURTAIN PROFILE, RIGHT ABUTMENT LINE A, STA. 75+20 TO STA. 74+00	62	RBL-2-1305	OBSERVATION DETAILS DEVICES INSTALLATION	85
GROUT CURTAIN PROFILE, RIGHT ABUTMENT LINE A, STA. 74+00 TO STA. 72+90	63	RBL-2-1306	BLASTING SCHEDULE	86
GROUT CURTAIN PROFILE, RIGHT ABUTMENT LINE B, STA. 76+30 TO STA. 75+00	64	RBL-2-1307	BLASTING SCHEDULE	87
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		RBL-2-1310	BLASTING SCHEDULE	90

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By _____

Distribution/

Availability Codes

Dist	Avail and/or Special
A-1	



DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

FILE NO. RBL-2-1220

3	2	1
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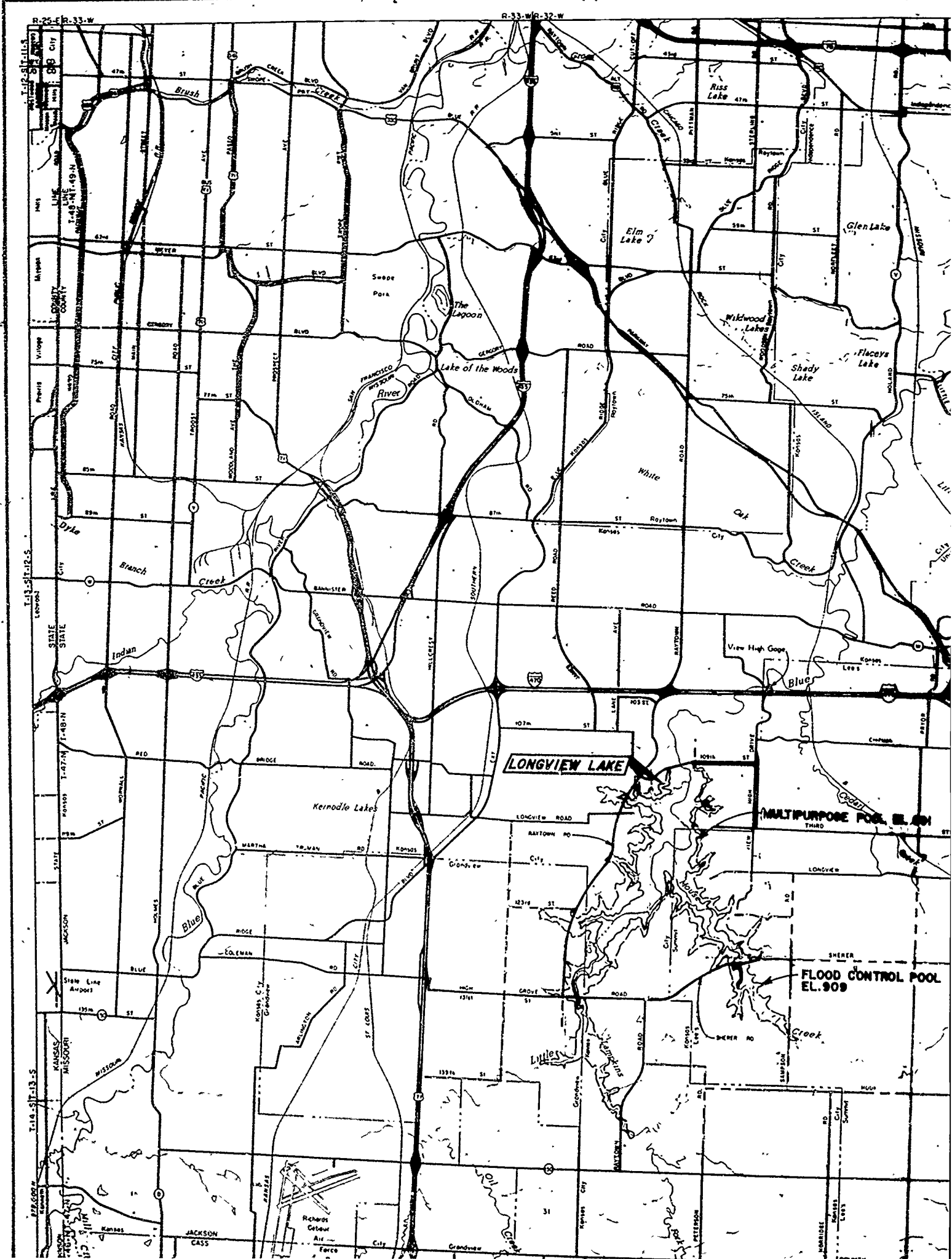
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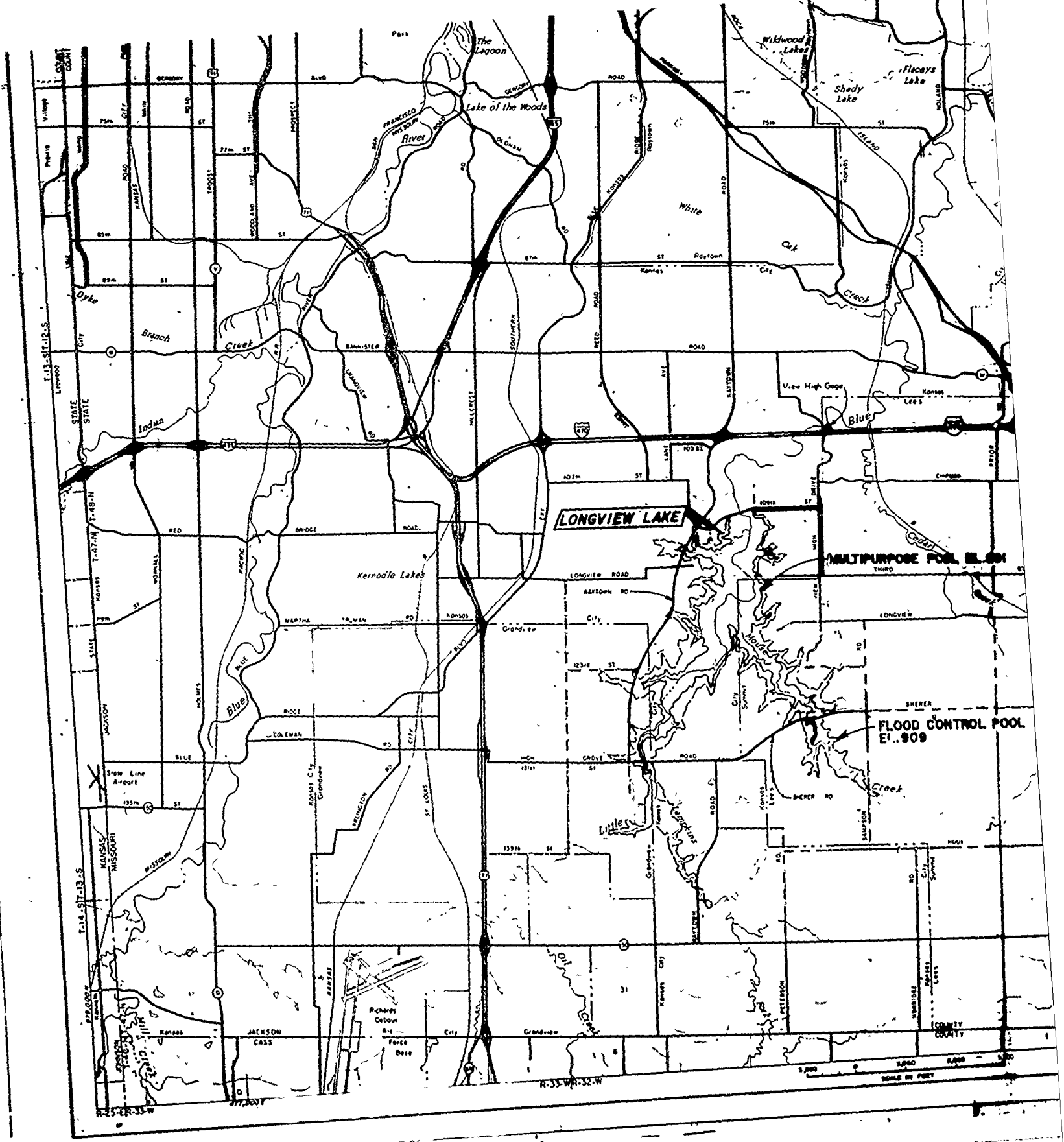


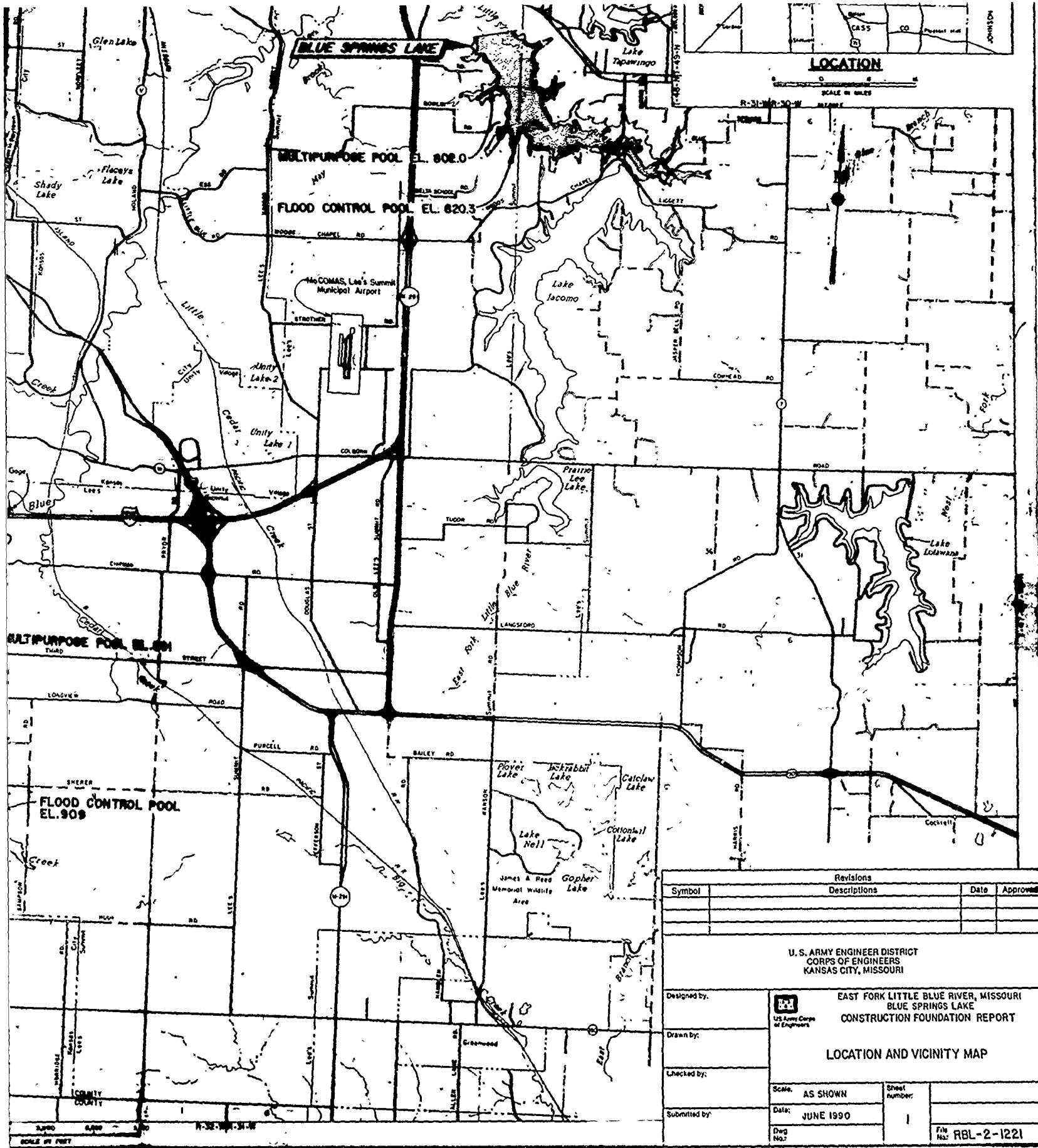
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Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI



EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

LOCATION AND VICINITY MAP

Designed by:
Drawn by:
Checked by:
Submitted by:

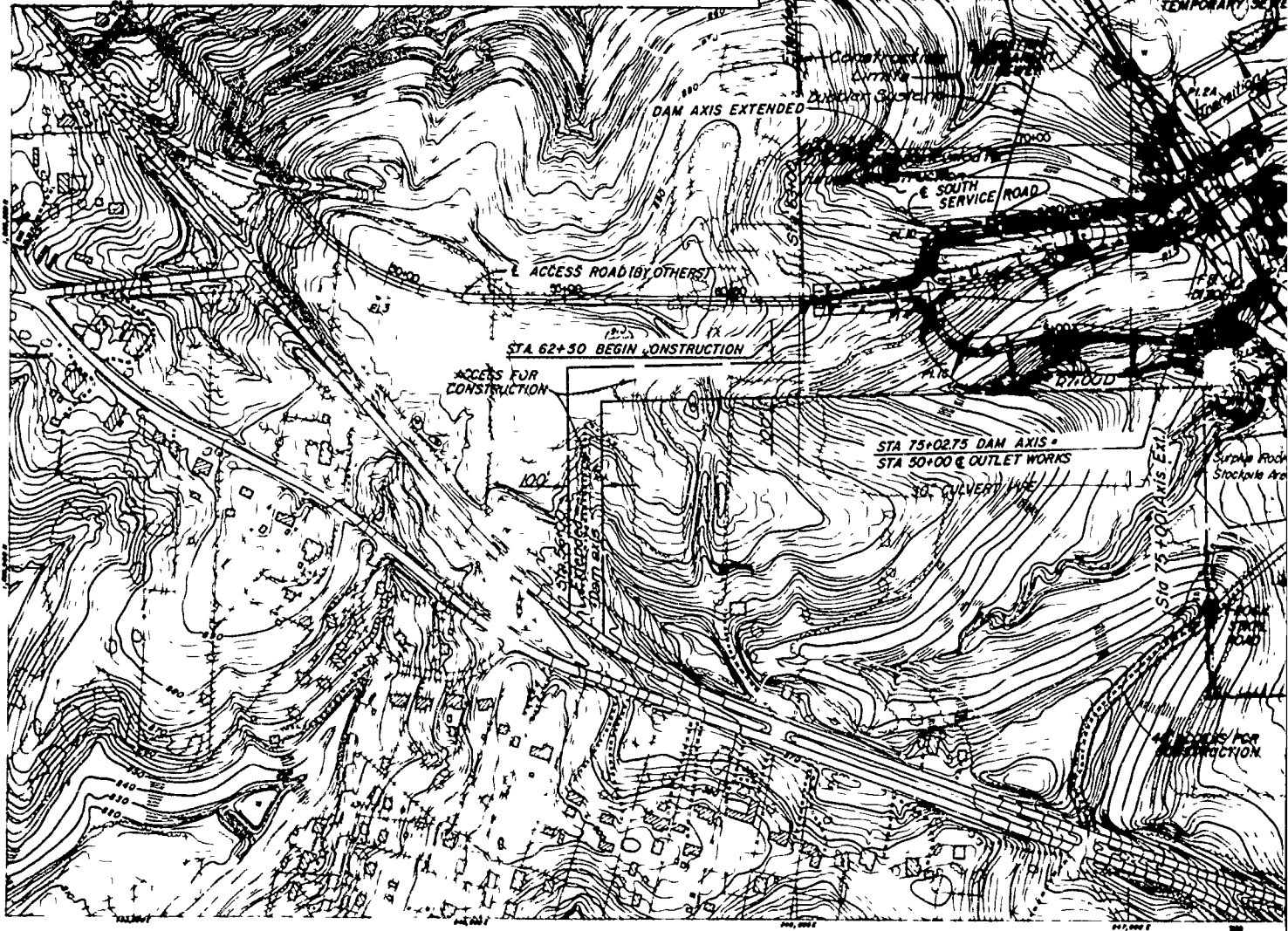
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Date: JUNE 1990
Dwg No:

Sheet number:
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File No: RBL-2-1221

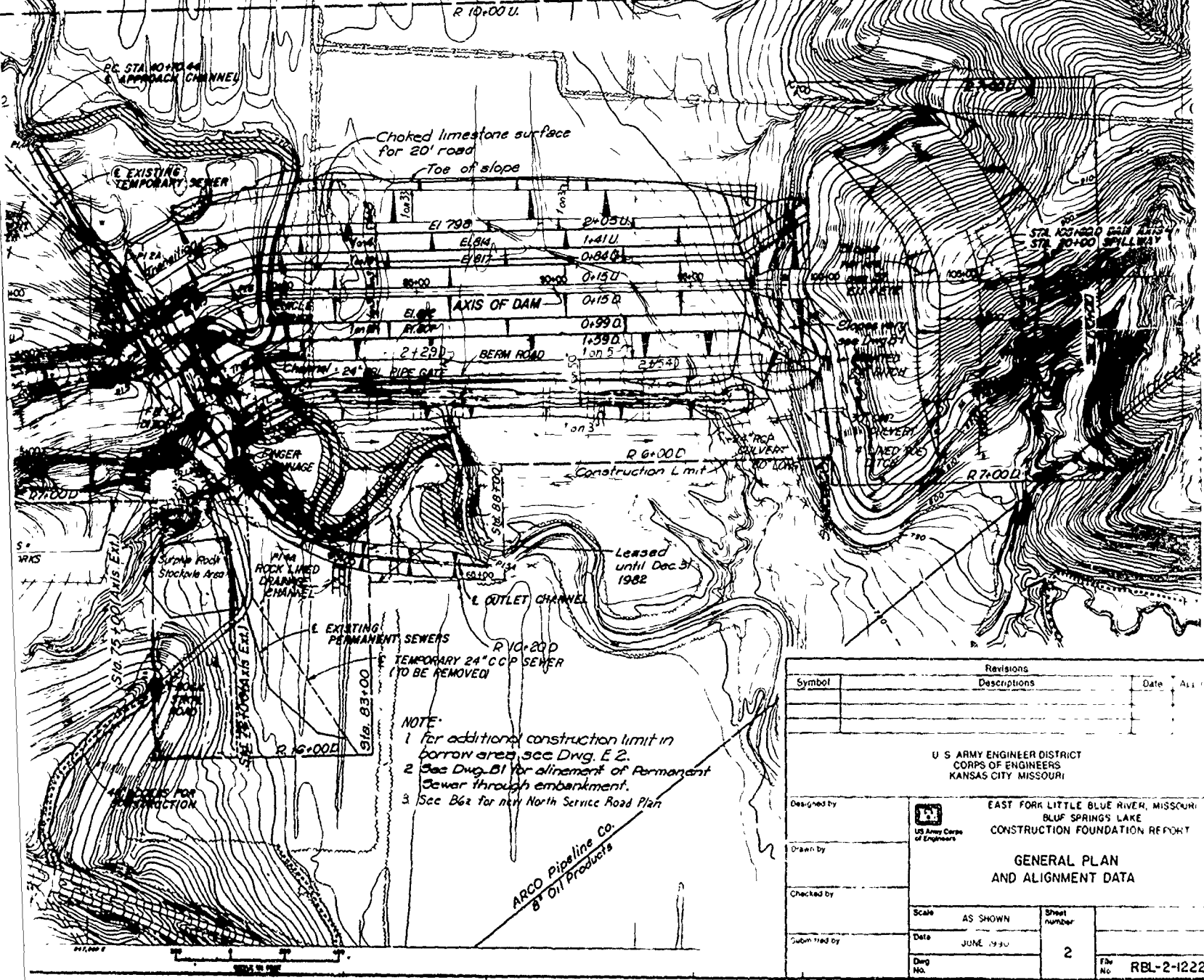
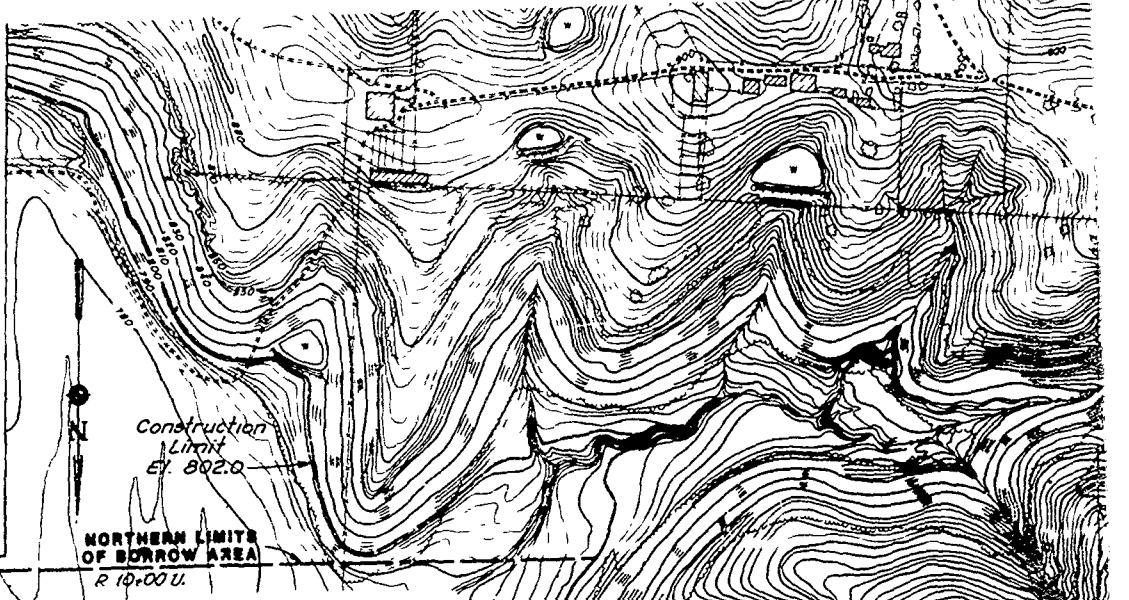
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STATION	POT	PI	BEARING	DISTANCE	ALINEMENT DATA						
					CO-ORDINATES		Δ	D	R	T	L
					NORTH	EAST					
ACCESS ROAD AND DAM ALIGNMENT											
57+08.42		1	S 48°28'W	163.81'	1,037,310.10	550,134.30	0°	-	-	-	-
58+72.63		2	N 42°18'00"W	1,102.61'	1,037,401.03	550,012.89	88°18'	-	-	-	-
46+28.81	RC	3	N 90°00'W	1,622.19'	1,038,217.20	549,271.53	47°25'	8"	716.20	31700'	596.88'
52+23.12	RT	4	S 76°00'W	807.49'	1,038,217.20	547,649.45	14°00'	1°30'	3,819.72'	469.00'	933.33'
50+94.20	RC	5	S 56°30'W	503.66'	1,038,021.91	545,866.20	19°30'	9"	636.62'	109.29'	216.67'
70+24.53	RC	6	S 68°30'W	2,704.31'	1,037,743.92	546,446.20	32°00'	10"	572.96'	164.25'	320.00'
74+23.32	RC	7	S 68°30'W	2,704.31'	1,037,673.13	545,742.82	E Spillway Sta 103+62.04				
74+23.04	PT										
77+00.02	RC										
80+20.02	PT										
105+60.04											
SPILLWAY											
10+00	POT		N 69°30'W	25000'	1,037,026.23	544,420.27					
12+80	RC		N 69°30'W	488.21'	1,037,113.78	544,126.11					
		1B	N 1°00'E	488.21'	1,037,234.75	543,728.81	70°30'	8.294"	69.180'	488.21'	850.00'
21+00	PT		N 1°00'E	50000'	1,037,772.89	543,737.33					
26+00					1,038,272.81	543,746.06					
20+00	POC				1,037,673.13	543,742.82	E Dam Sta 103+62.04				
21+00	PT				1,037,772.89	543,737.33					
NORTH SERVICE ROAD											
0+00	POT				1,023,823.56	547,611.23	E Access Road Sta 68+00				
0+51.22	RC	K	N 75°28'W	219.76'	1,038,401.18	547,528.05	96°22'00"	35"	150.78'	163.54'	233.60'
3+04.02	RT		S 75°00'W	363.72'	1,038,313.18	547,229.13	16°30'	6"	354.93'	138.46'	275.00'
5+27.23	RC	2C	N 87°30'W	560.73'	1,038,337.64	546,668.94	64°20'	49°31'	115.71'	104.80'	170.31'
6+38.54	RT		S 67°0'W	134.16'	1,038,125.05	546,647.04	43°20'	57°04'30"	110.03'	49.37'	92.81'
8+34.01	RC	4C	S 56°30'W	129.26'	1,038,113.64	546,339.15	90°	71°37'11"	80.00'	80.00'	125.66'
11+24.32	RC	5C	EQUATION								
11+24.32	RC	6C	N 33°30'W	140.00'	1,038,290.39	546,491.83					
12+17.13	RC	7C	S 38°30'W	250.23'	1,038,022.89	546,233.17	33°20'	47°33'	300.00'	150.48'	292.34'
12+17.13	RC	8C	N 53°00'W	1,662.85'	1,038,092.26	544,532.13					
13+03.83											

STATION	POT	PI	BEARING	DISTANCE	ALINEMENT DATA			
					CO-ORDINATES		Δ	D
					NORTH	EAST		
OUTLET WORKS								
40+20.44	PC		N 10°35'17"W	62.71'	1,037,157.11	547,241.91	E Approach	
		1A	N 33°30'W	550.37'	1,037,217.58	547,218.87	12°38'33"	948°30'
46+25	POT		N 33°30'W	44.00'	1,037,676.53	546,943.10	Begin E App	
47+29	2A		N 56°30'E	775'	1,037,713.22	546,890.82	End E App	
47+29	3A		N 33°30'W	590.00'	1,037,717.50	546,897.28	Begin E App	
47+38	POT		N 33°30'W	212.00'	1,037,766.70	546,864.72	End E Tower	
50+00	POT		N 33°30'W	271.00'	1,037,943.43	546,747.71	Axis of Dam	
52+71	POT		N 33°30'W	62.00'	1,038,169.47	546,598.13	End E Condu	
53+33	POT		N 33°30'W	480.68'	1,038,221.17	546,523.91	End E Shilling B	
54+88.35	PC	4A	N 33°30'W	480.68'	1,038,222.00	546,528.61	51°30'	8°30'
60+94.43	PT		N 85°00'W	748.33'	1,038,687.22	545,533.13	End E Outl	
65+17.63		5A						
SOUTH SERVICE ROAD								
0+00	POT		S 73°25'E	150.00'	1,038,123.36	547,611.23	E Access R	
0+60	PC		S 62°22'16"W	787.82'	1,038,034.69	547,631.16	90°00'	63.662'
2+01.37	DT	1D						
7+26.56	PC	2D	S 56°30'W	132.14'	1,037,938.03	546,908.78	27°10'	25°
8+30.03	DT							
9+13.58	PC	3D	S 33°30'E	50.00'	1,037,865.10	546,799.99	90°00'	114.992'
9+98.08	PT				1,037,825.90	546,825.53		



1007.1150	546,897.28	Begin @ Intake Tower
1037.76670	546,864.72	End @ Tower, Begin @ Conduit
1,037,943.48	546,747.71	Axis of Dam Sta. 75+02.75
1038.16947	546,558.19	End @ Conduit, Begin Stilling Basin
1038.2217	546,563.91	End @ Stilling Basin, Beg @ Outlet Channel
338,622.00	546,898.61	51'30" 8'30" 674.07' 583.15' 608.86'
338.68722	545,593.13	End @ Outlet Channel
SOUTH SERVICE ROAD		
338.183.96	547,611.23	@ Access Road Sta. 66+00
1038.034.69	547,631.16	90'00' 63.662' 90.00' 90.00' 141.57'
1,037,938.03	546,908.78	27'30" 25' 229.18' 32.63' 103.47'
1,337,865.10	546,799.59	90'00' 114.596' 90.00' 30.00' 78.54'
337,829.90	546,029.53	



Revisions		Date	Ass'y
Symbol	Descriptions		

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KANSAS CITY MISSOURI

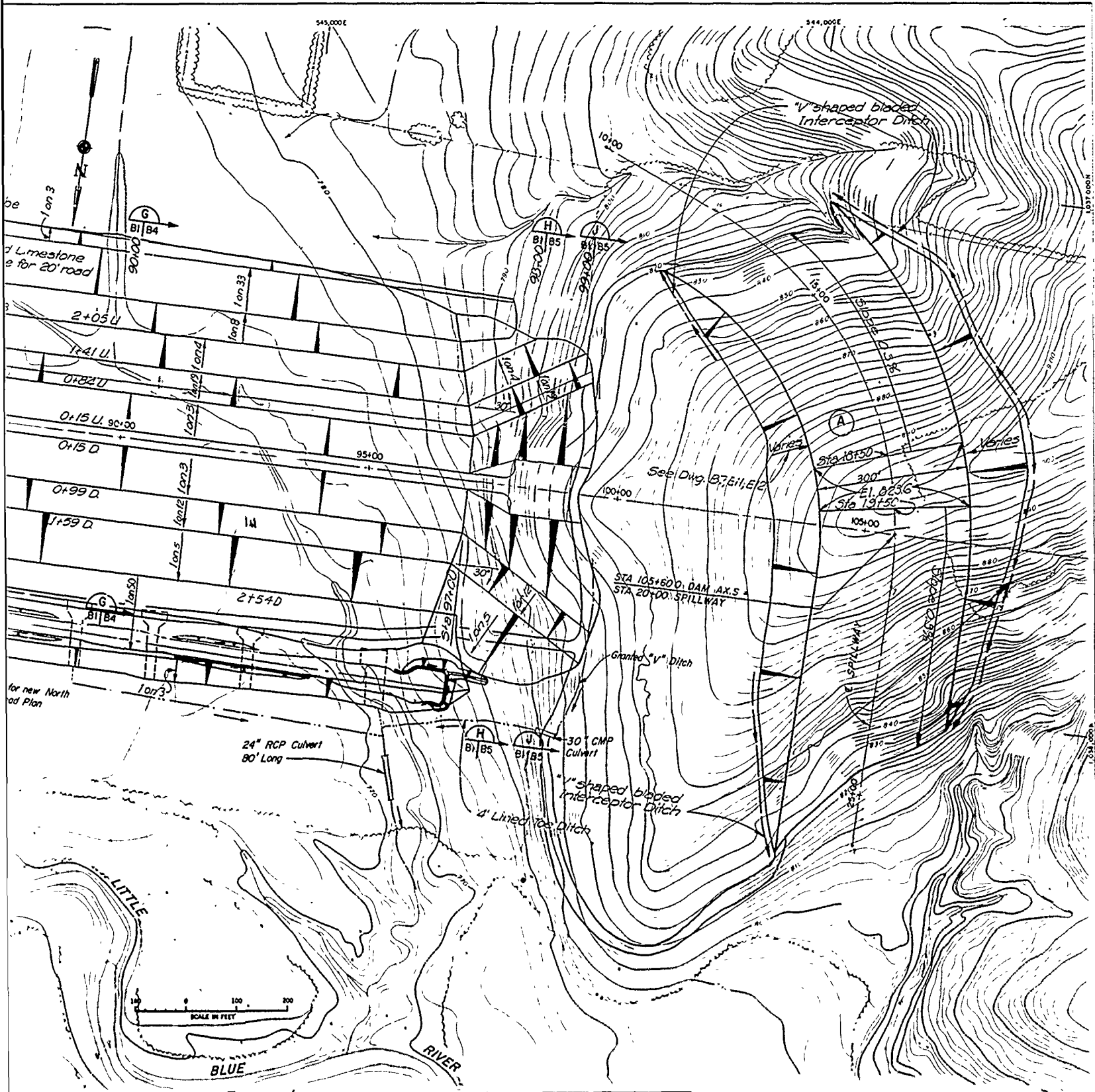
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DRAWN BY: [Signature]
CHECKED BY: [Signature]
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EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUF SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

GENERAL PLAN
AND ALIGNMENT DATA

Scale	AS SHOWN	Sheet number	
Date	JUNE 1980	2	
Dwg No.			F3w RBL-2-1222

VALU. ENGINEERING PAYS



REMARKS	SEWER ALIGNMENT DATA						REMARKS
	BURNS & MCDONNELL STATION	PI	BEARING	DISTANCE	CO-ORDINATES		
					NORTH	EAST	
	EXIST	TEMPORARY	24" CCP	SEWER (APPROXIMATE LOCATION)			
Downstream termination of Exst Perm Sewer	12+00	1	S36°20'E	600.00'	1,039,272.31	546,058.82	Downstream termination Plug manhole
	18+00	2	S31°30'E	694.00'	1,038,789.17	546,411.59	
	24+94	3	S31°29'E	335.00'	1,038,096.26	546,450.53	
to Sewer Approach Structure	28+29	4	S56°30'E	455.00'	1,037,810.57	546,625.49	Temporary sewer to be removed
to Tower	32+84	5	S46°37'E	2044'	1,037,560.44	547,005.56	
to Tower	33+01.44	5A	S65°37'E	473.14'	1,037,542.9	547,020.50	
to Dam = 75+00 Dam Axis	97+77.58				1,037,223.50	547,366.25	Upstream termination Plug Ends
to Dam Termination Exst Perm Sewer							

Revisions			
Symbol	Descriptions	Date	Approved

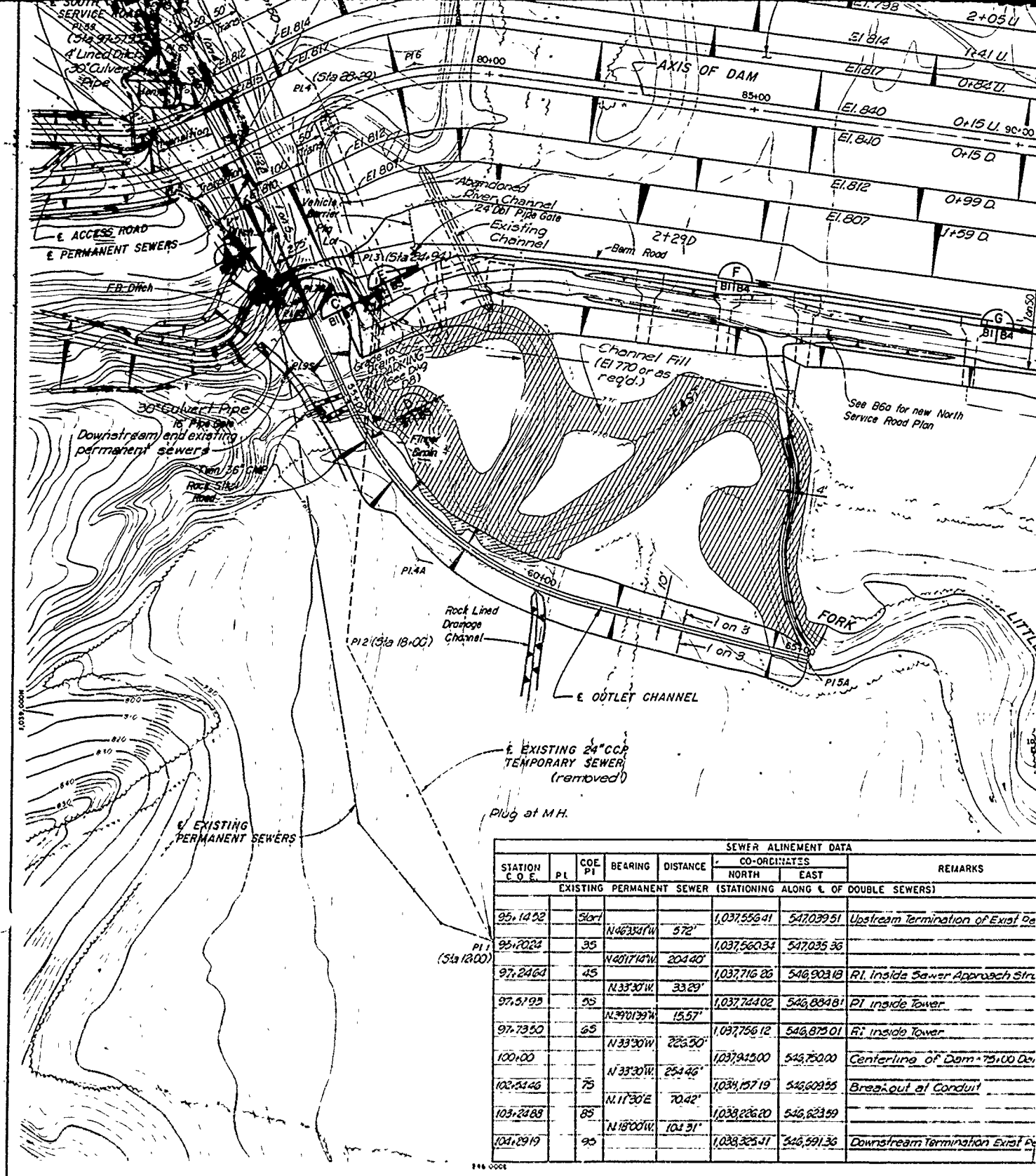
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

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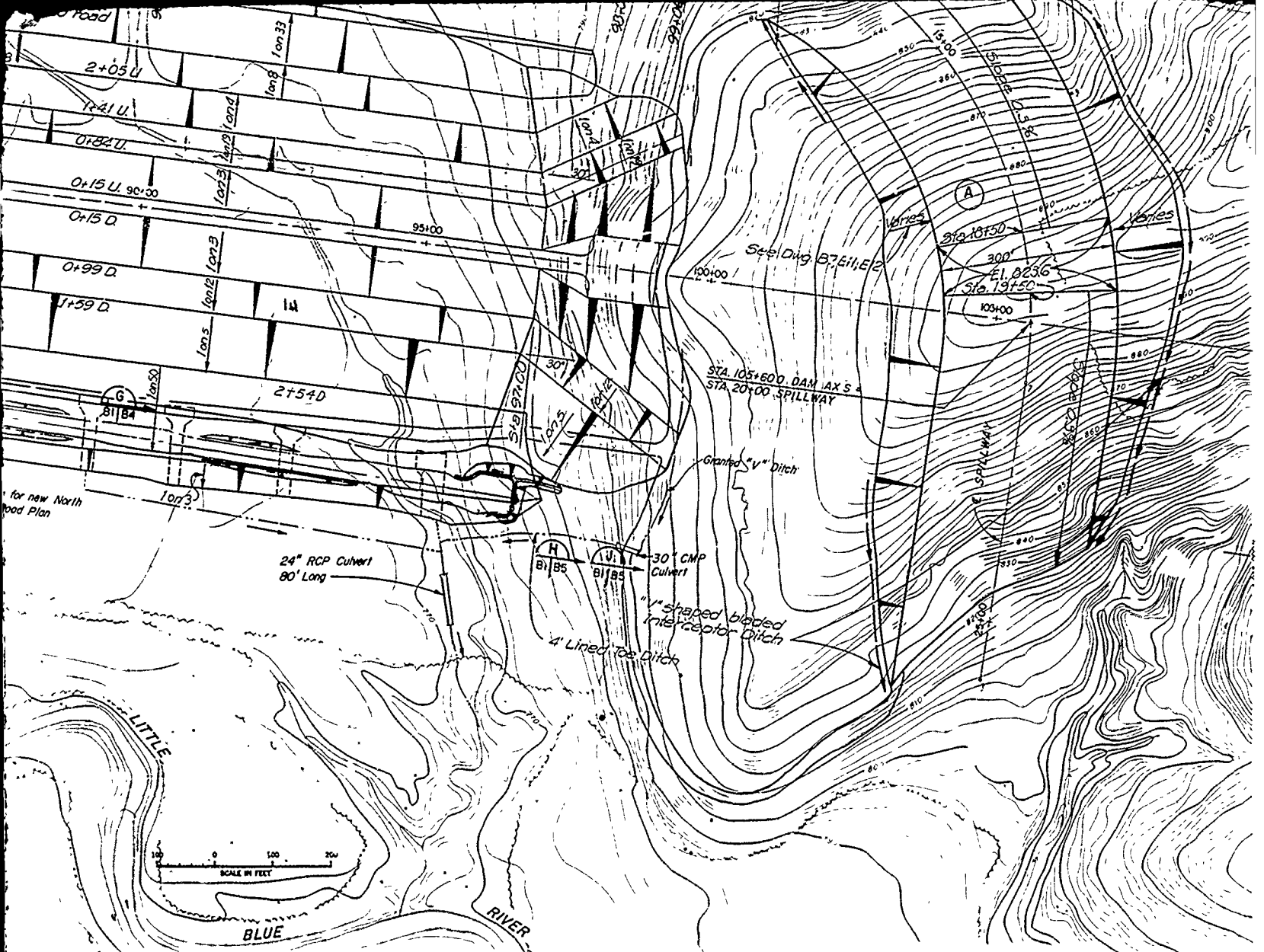
**EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT**

**EMBANKMENT PLAN AND
SEWER ALIGNMENT DATA**

Scale: AS SHOWN Sheet number: _____



SEWER ALINEMENT DATA							
STATION C.O.E.	P.L.	COE PI	BEARING	DISTANCE	CO-ORDINATES		REMARKS
					NORTH	EAST	
EXISTING PERMANENT SEWER (STATIONING ALONG C. OF DOUBLE SEWERS)							
95+14.52		Start			1,037,556.41	547,039.51	Upstream Termination of Exist. Se
95+20.24		35	N46°34'W	57.2'	1,037,560.34	547,035.36	
97+24.64		45	N40°17'4\"/>				



REMARKS

SEWERS)

Termination of Exist Perm Sewer

Sewer Approach Structure

Sewer Tower

Sewer Tower

Line of Dam = 75+00 Down Driv

End of Conduit

Perm Termination Exist Perm Sewer

REMARKS	SEWER ALINEMENT DATA						
	BURNS & MCDONNELL STATION	PI	BEARING	DISTANCE	CO-ORDINATES		REMARKS
					NORTH	EAST	
	EXIST #1	TEMPORARY	24" CCP	SEWER (APPROXIMATE LOCATION)			
	12+00	1	53°22'00"E	600.00'	1039,872.31	546,028.82	Downstream termination plug manhole
	12+00	2	53°13'07"E	694.00'	1,038,789.17	546,411.59	
	24+94	3	53°29'00"E	335.00'	1,039,096.26	546,450.53	
	28+29	4	53°29'00"E	455.00'	1,037,810.57	546,625.49	Temporarily sewer to be removed
	32+84	5	54°57'00"E	204.4'	1,037,562.44	547,005.56	
	33+04.44	5A	34°57'00"E	473.14'	1,037,542.9	547,020.50	Upstream termination plug ends
	37+77.58				1,037,223.50	547,366.25	

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

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EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

**EMBANKMENT PLAN AND
SEWER ALINEMENT DATA**

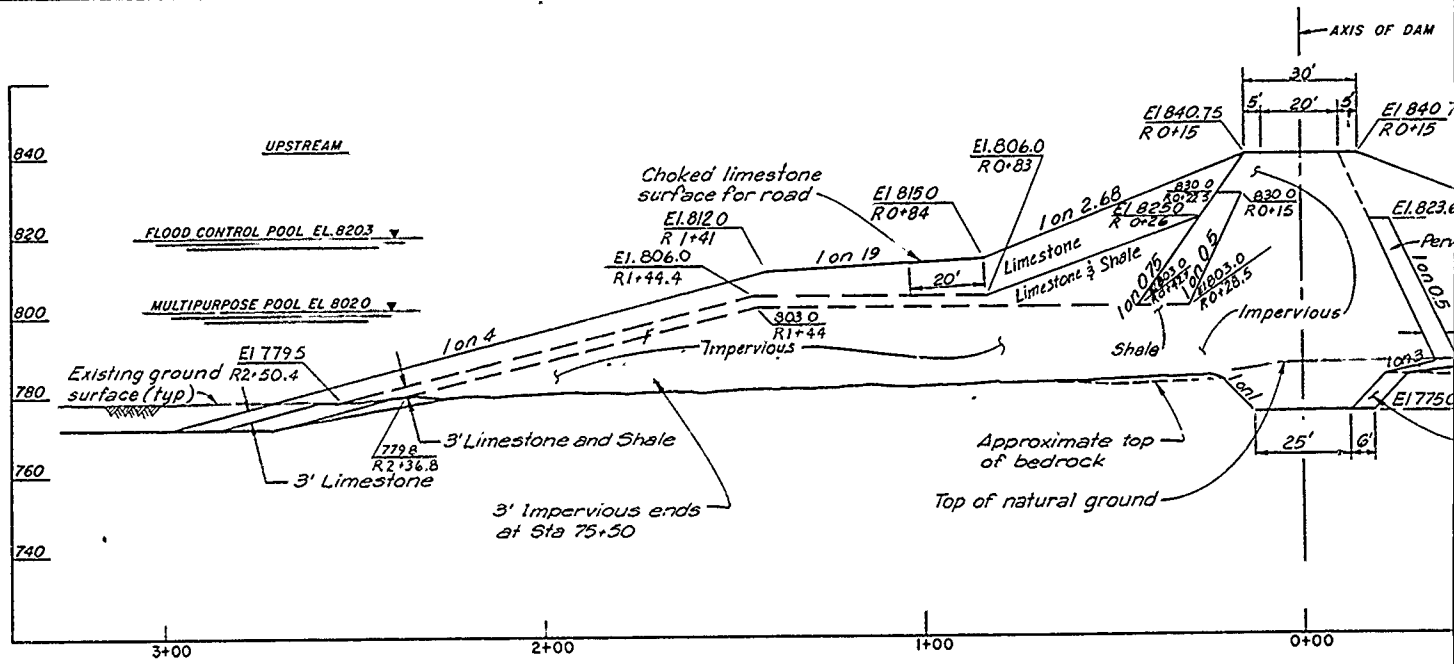
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Date: JUNE 1990

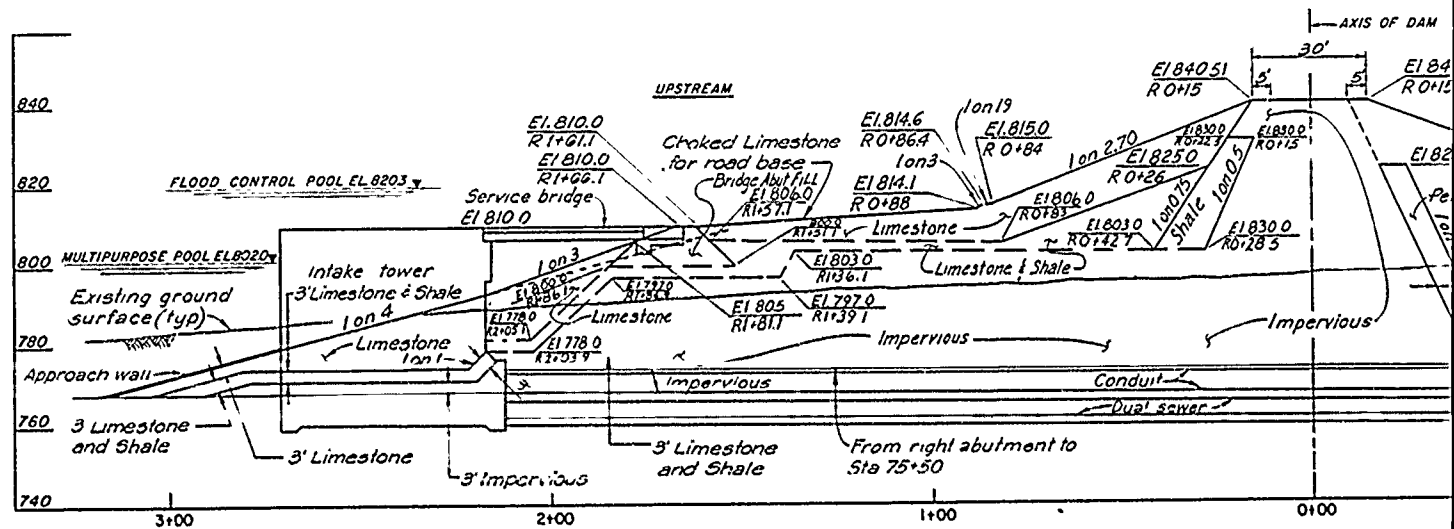
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PLATE NO.

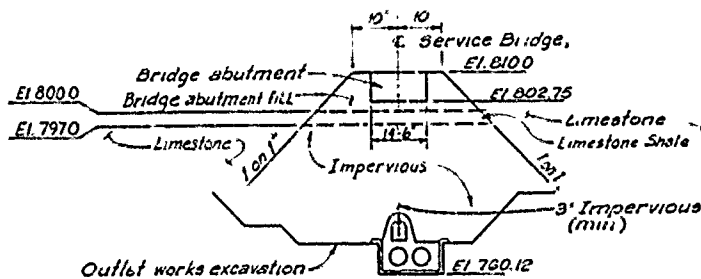
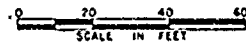
ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929



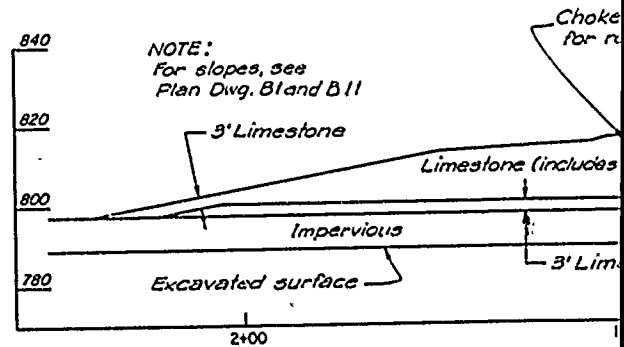
SECTION C STA. 75+50
B1/B2



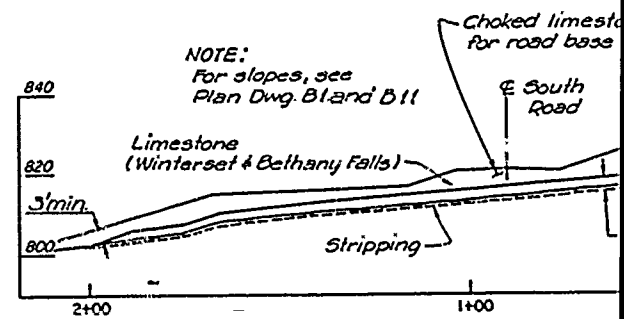
CONDUIT SECTION (STA. 75+02.7)



BRIDGE ABUTMENT FILL DETAIL

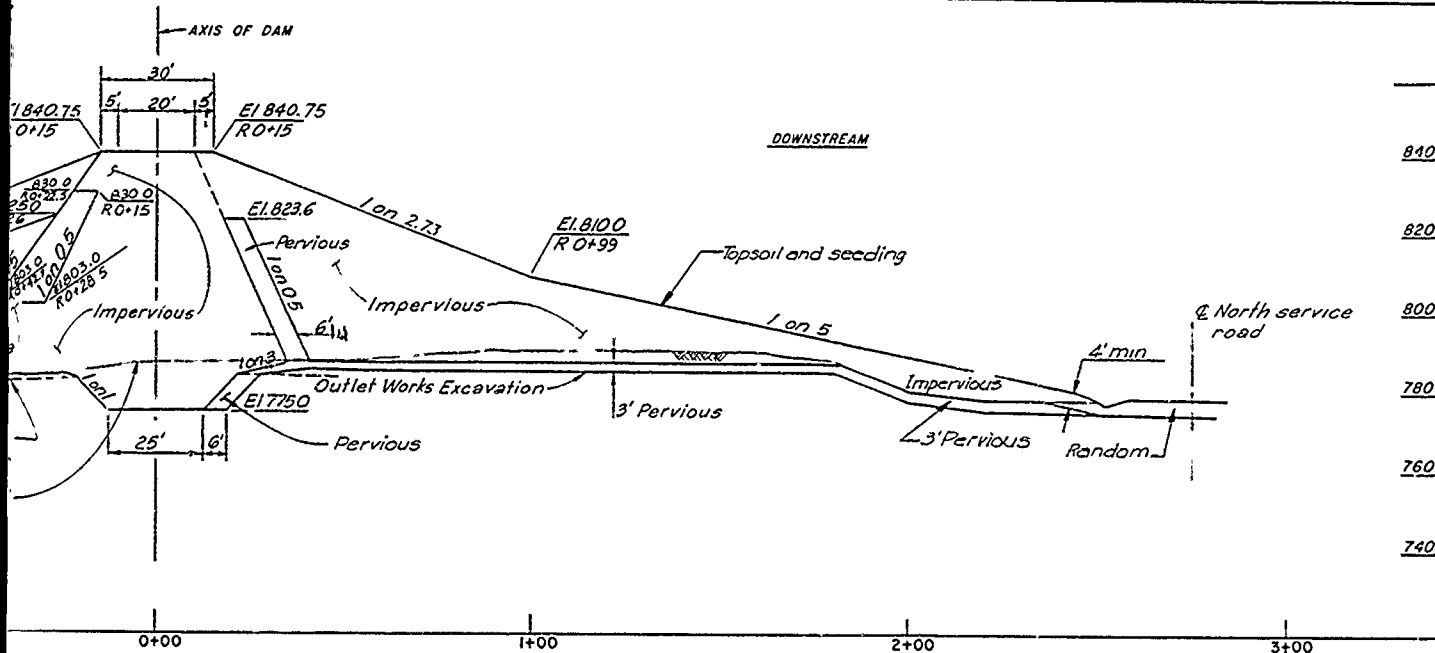


NOTE:
For slopes, see
Plan Dwg. B1 and B11



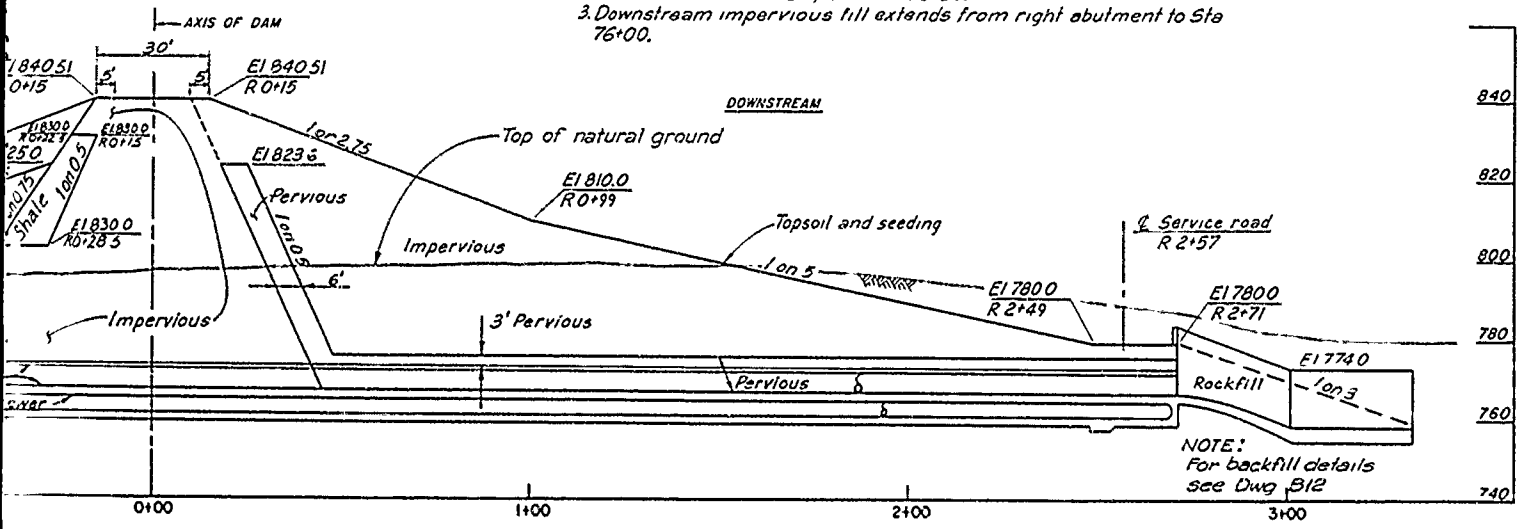
NOTE:
For slopes, see
Plan Dwg. B1 and B11

VALUE ENGINEERING PAYS



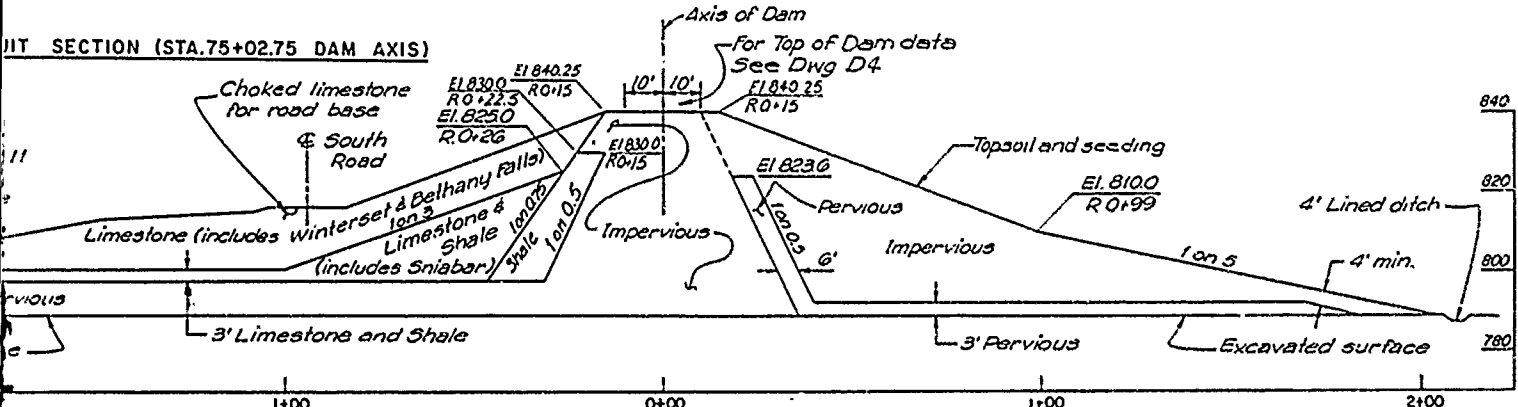
SECTION C STA. 75+50
B1|B2

- NOTES:**
1. Upstream 1 on 2.76 slope extends from right abutment to Sta. 75+50 and transitions to 1 on 3 slope at Sta. 76+00
 2. Downstream 1 on 2.8 slope extends from right abutment to Sta. 76+00 and transitions to 1 on 3 slope at Sta. 76+50.
 3. Downstream impervious fill extends from right abutment to Sta. 76+00.

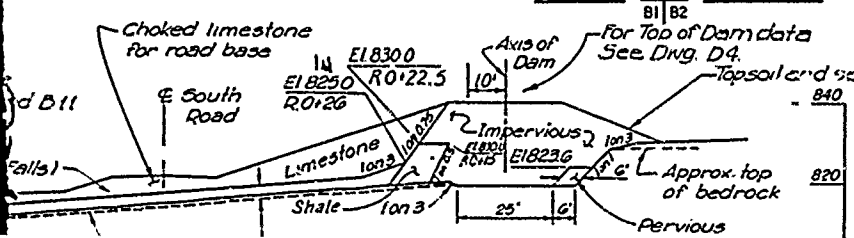


SECTION (STA. 75+02.75 DAM AXIS)

NOTE:
For backfill details see Dwg. B12



SECTION B STA. 74+50
B1|B2



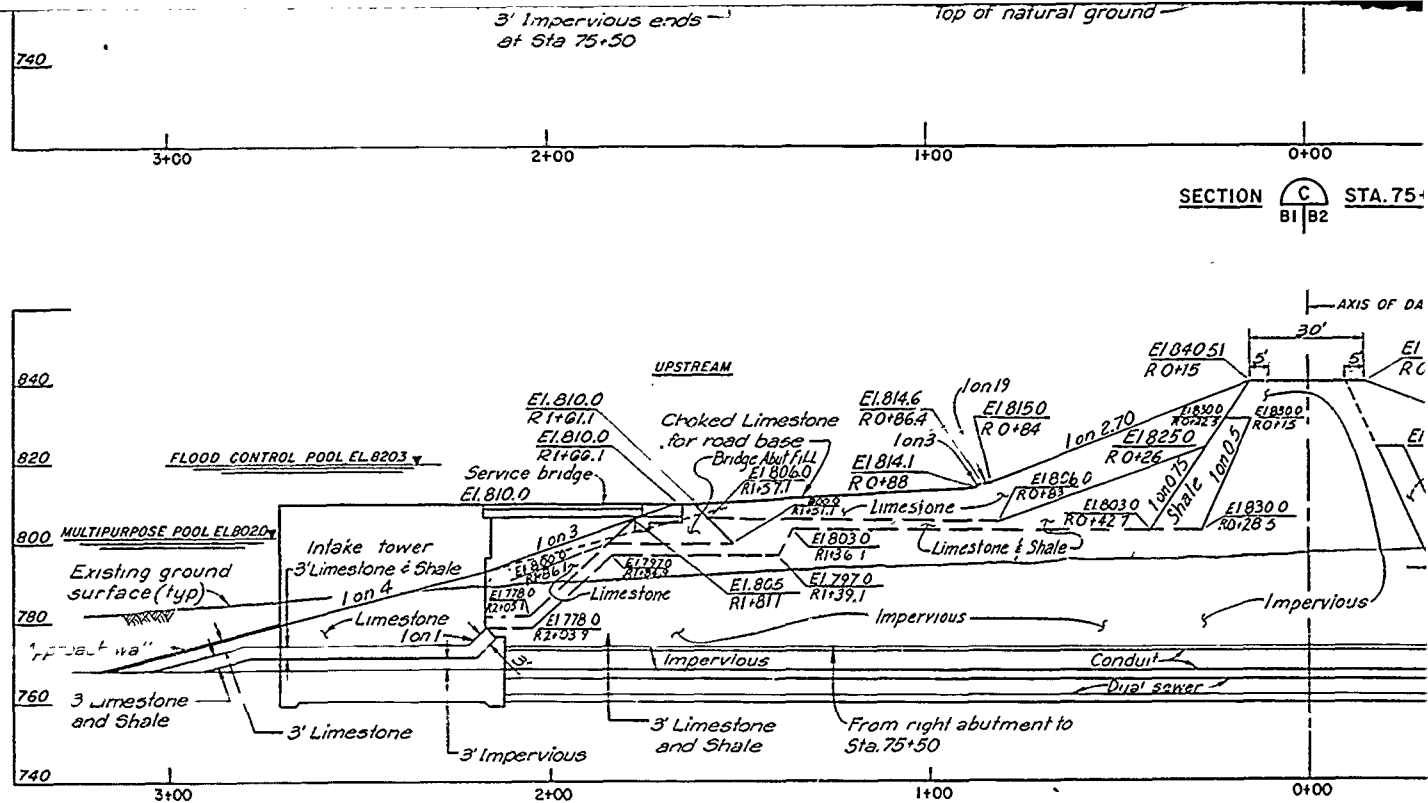
Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

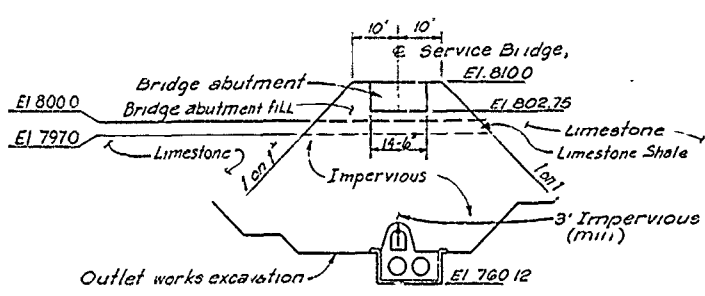
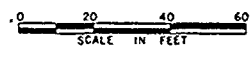
Drawn by:

ELEVATION IN FEET BASED ON NATIONAL GEODETIC

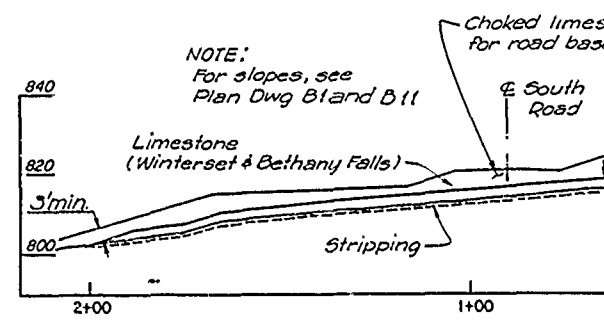
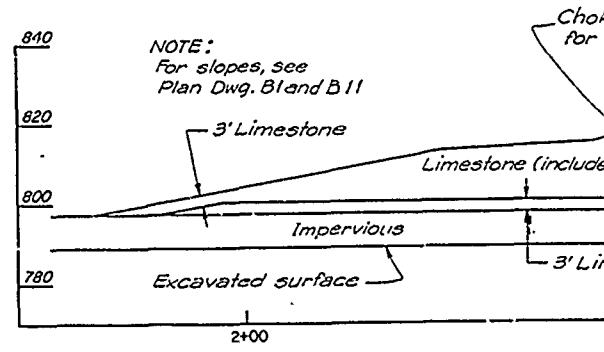


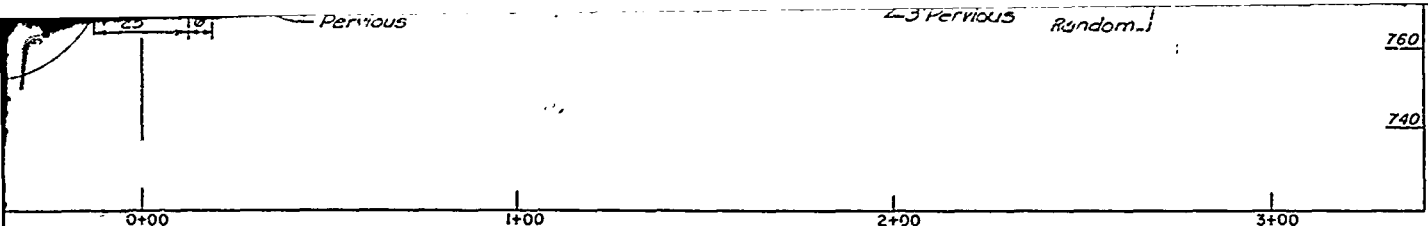
SECTION C STA. 75+ BI|B2

CONDUIT SECTION (STA. 75+02)



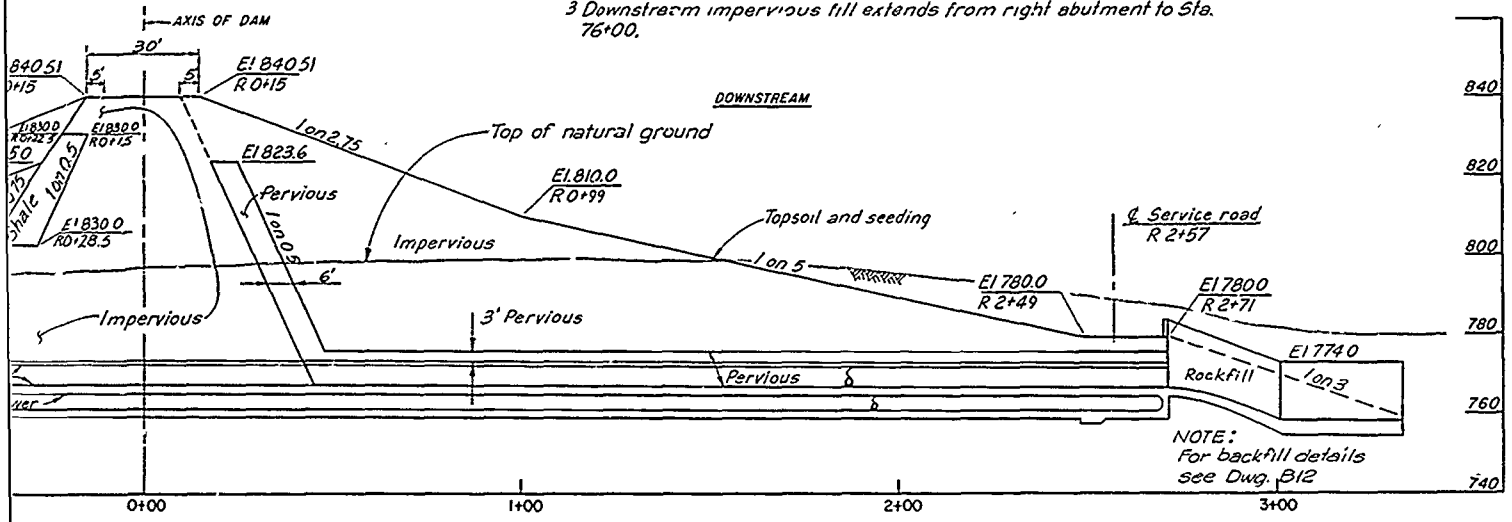
BRIDGE ABUTMENT FILL DETAIL





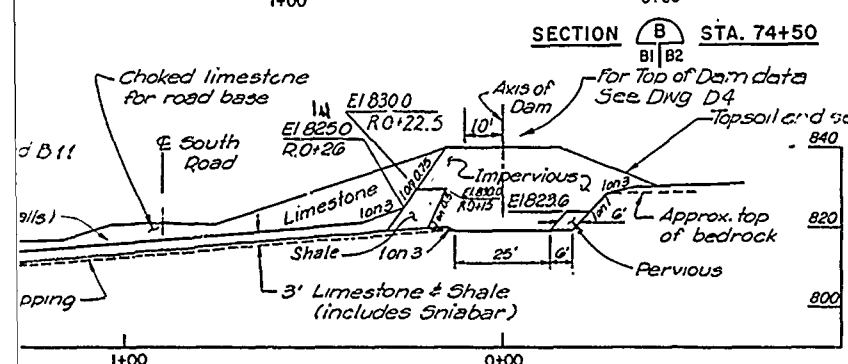
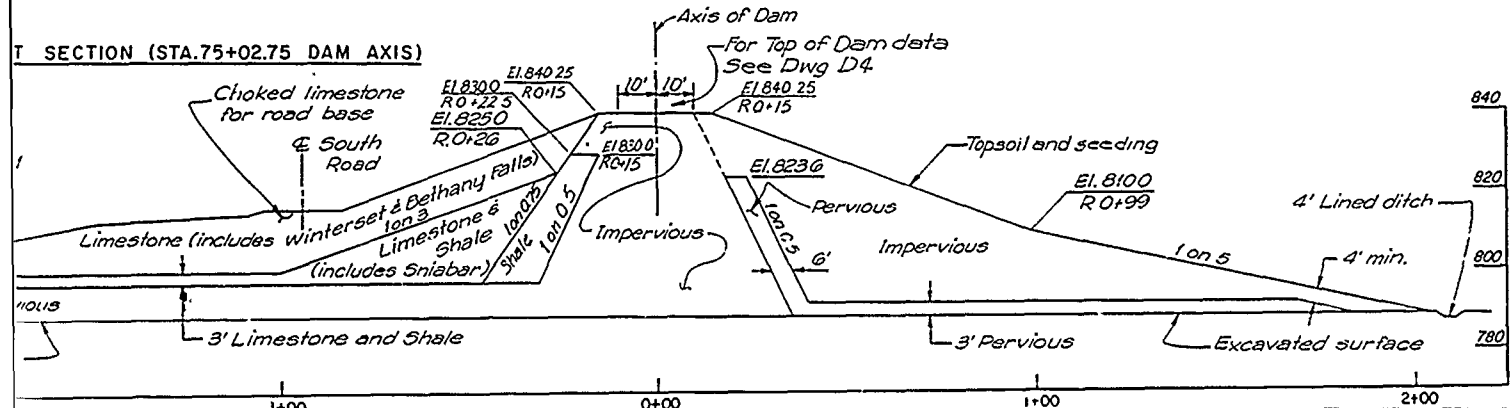
SECTION C STA. 75+50
B1|B2

- NOTES:**
1. Upstream 1 on 2.76 slope extends from right abutment to Sta. 75+50 and transitions to 1 on 3 slope at Sta. 76+00.
 2. Downstream 1 on 2.8 slope extends from right abutment to Sta. 76+00 and transitions to 1 on 3 slope at Sta. 76+50.
 3. Downstream impervious fill extends from right abutment to Sta. 76+00.



NOTE:
For backfill details see Dwg. B12

T SECTION (STA. 75+02.75 DAM AXIS)

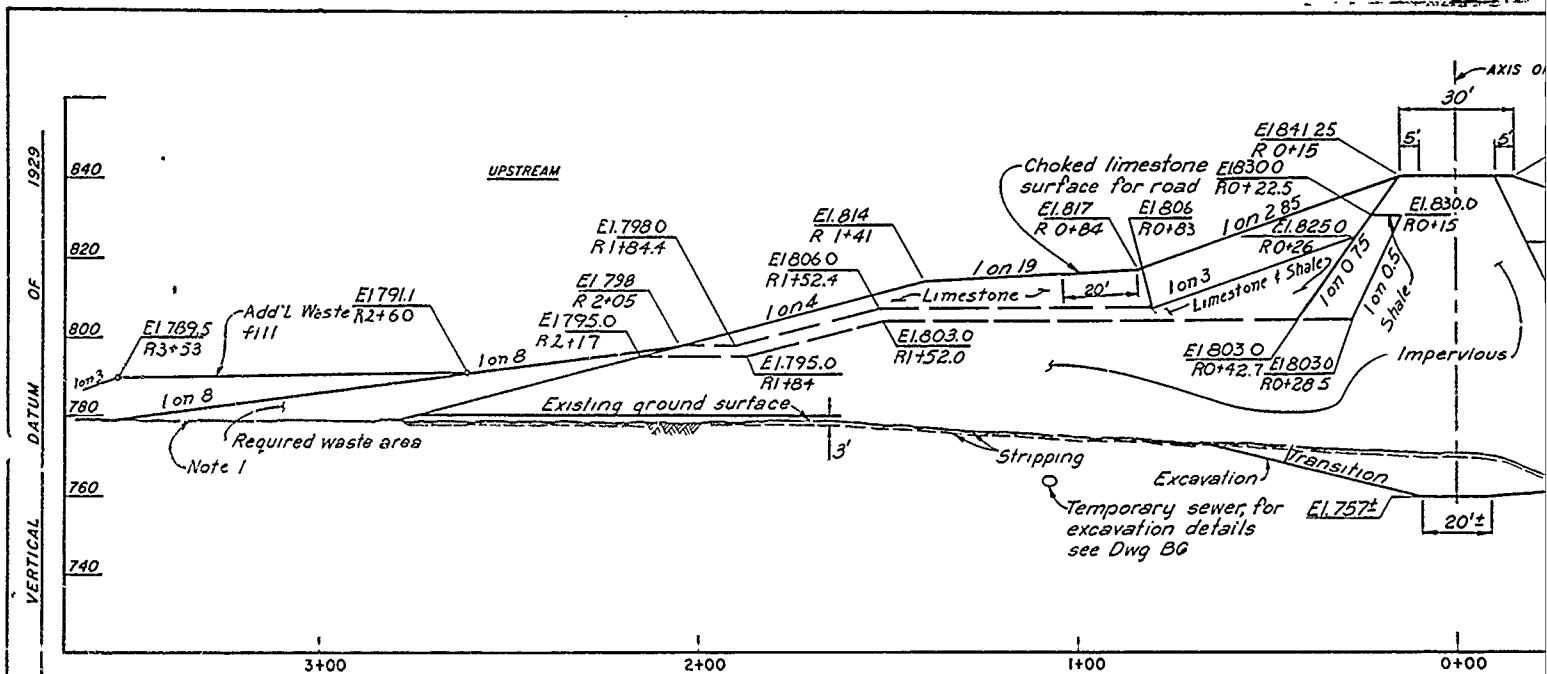


SECTION A STA. 74+00
B1|B2

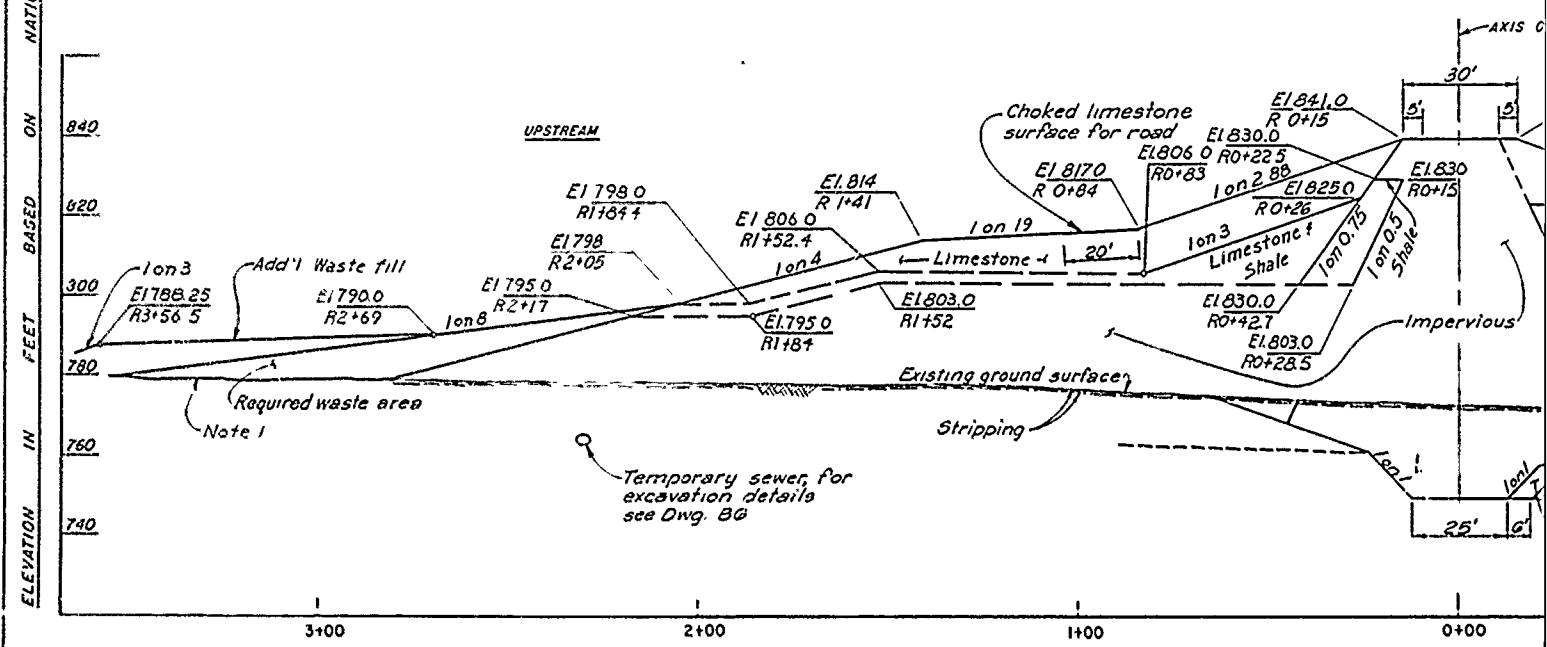
Revisions			
Symbol	Descriptions	Date	Approved

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CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

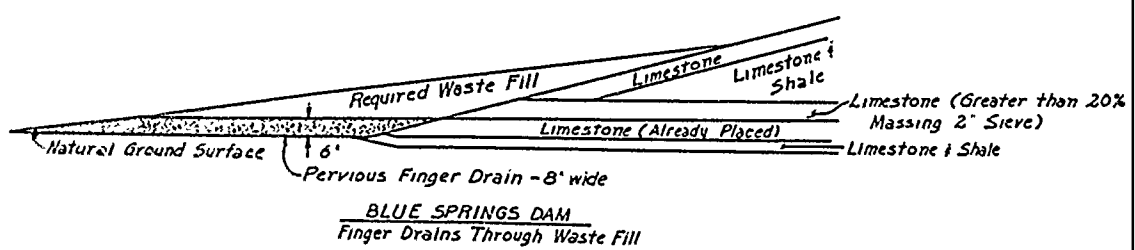
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Checked by:			
Submitted by:			
Scale:	AS SHOWN	Sheet number:	4
Date:	JUNE 1990	Dwg No.:	RBL-2-1224

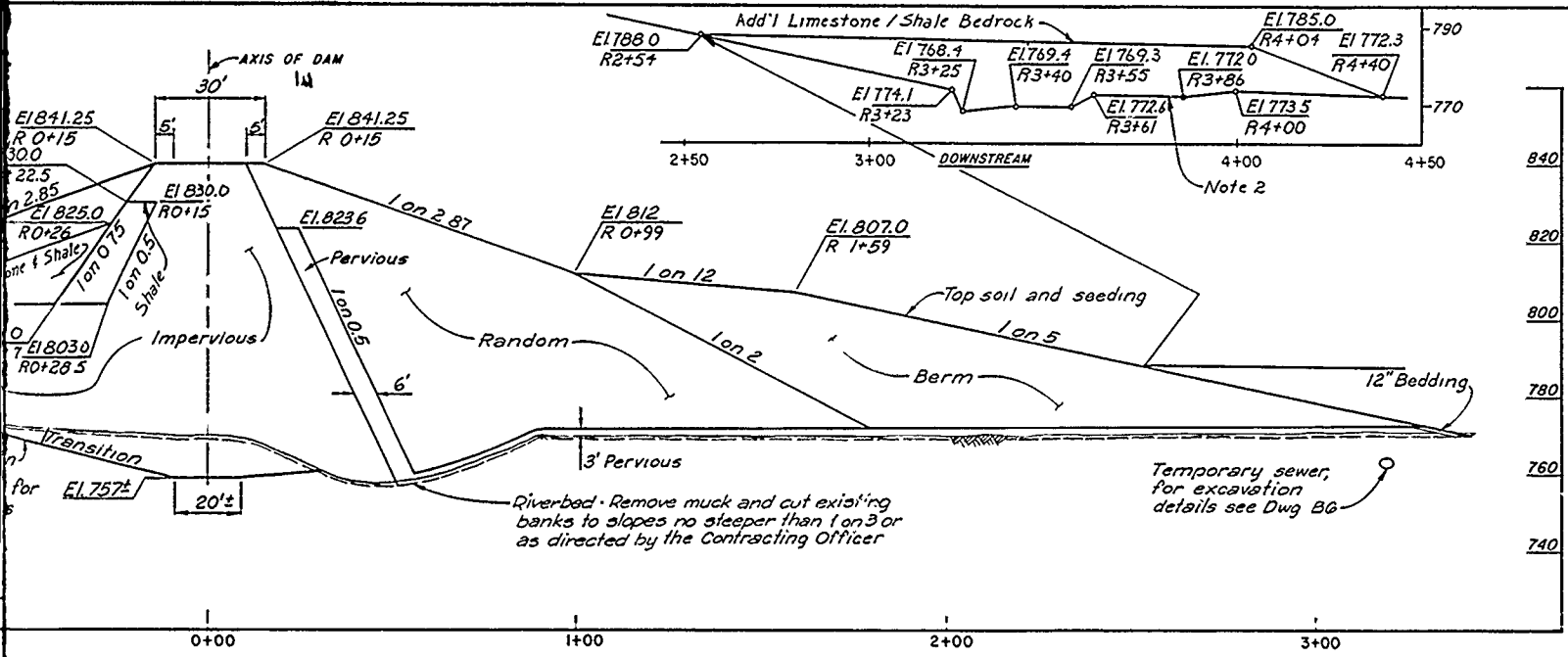


SECTION E STA. B1|B3



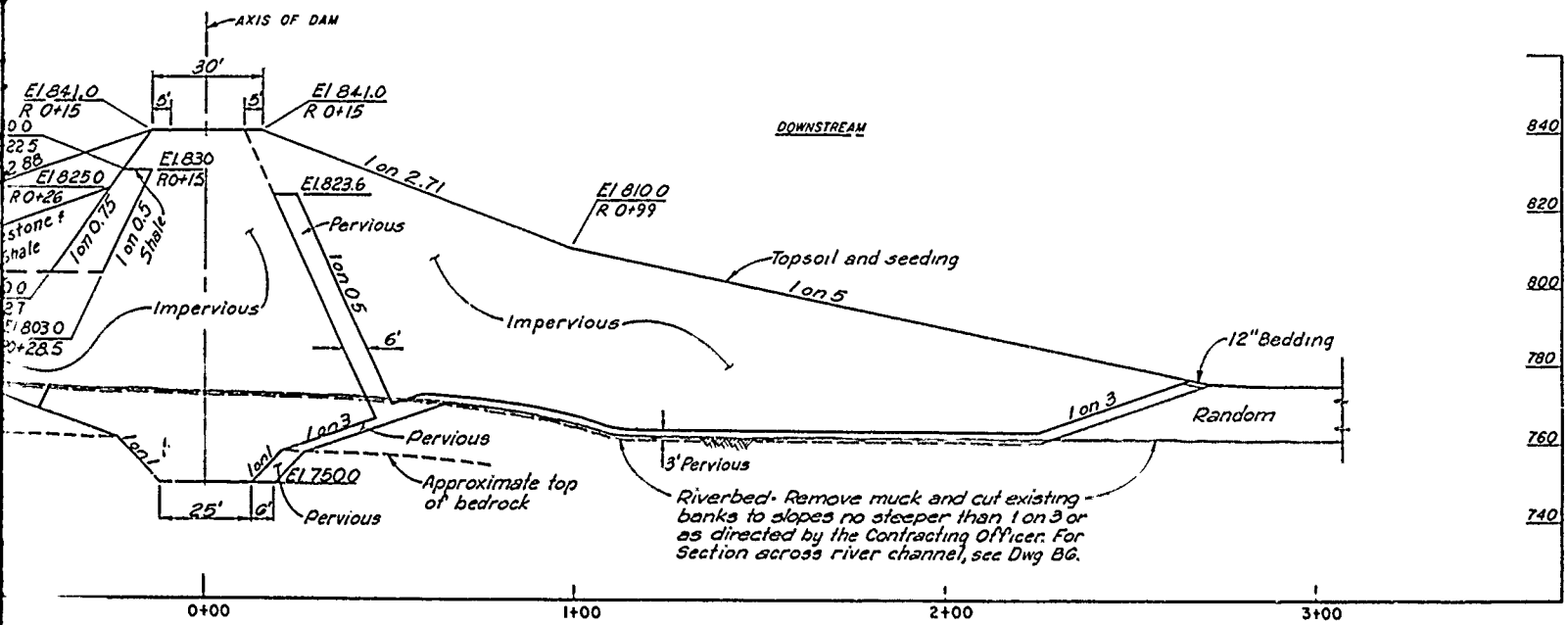
SECTION D STA. B1|B3





SECTION E STA. 76+50

NOTE:
The impervious fill transitions (slopes) to random and berm fill at Sta 76+50. Construct full impervious and berm at Sta 76+00 and full random and berm at Sta 76+50. "For pay purposes only"- The break point of impervious to Random and berm will be Station 76+25.



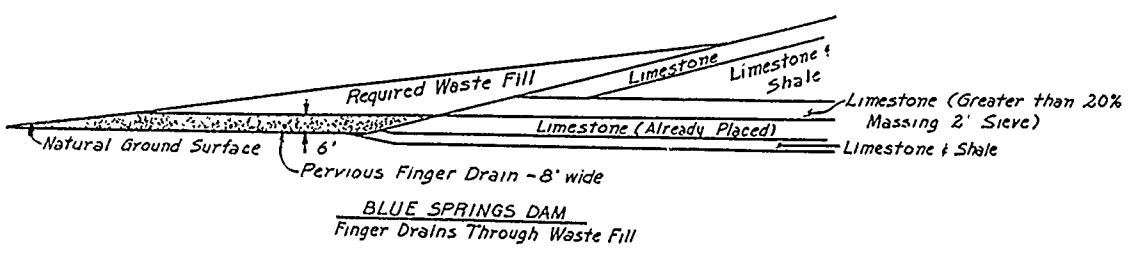
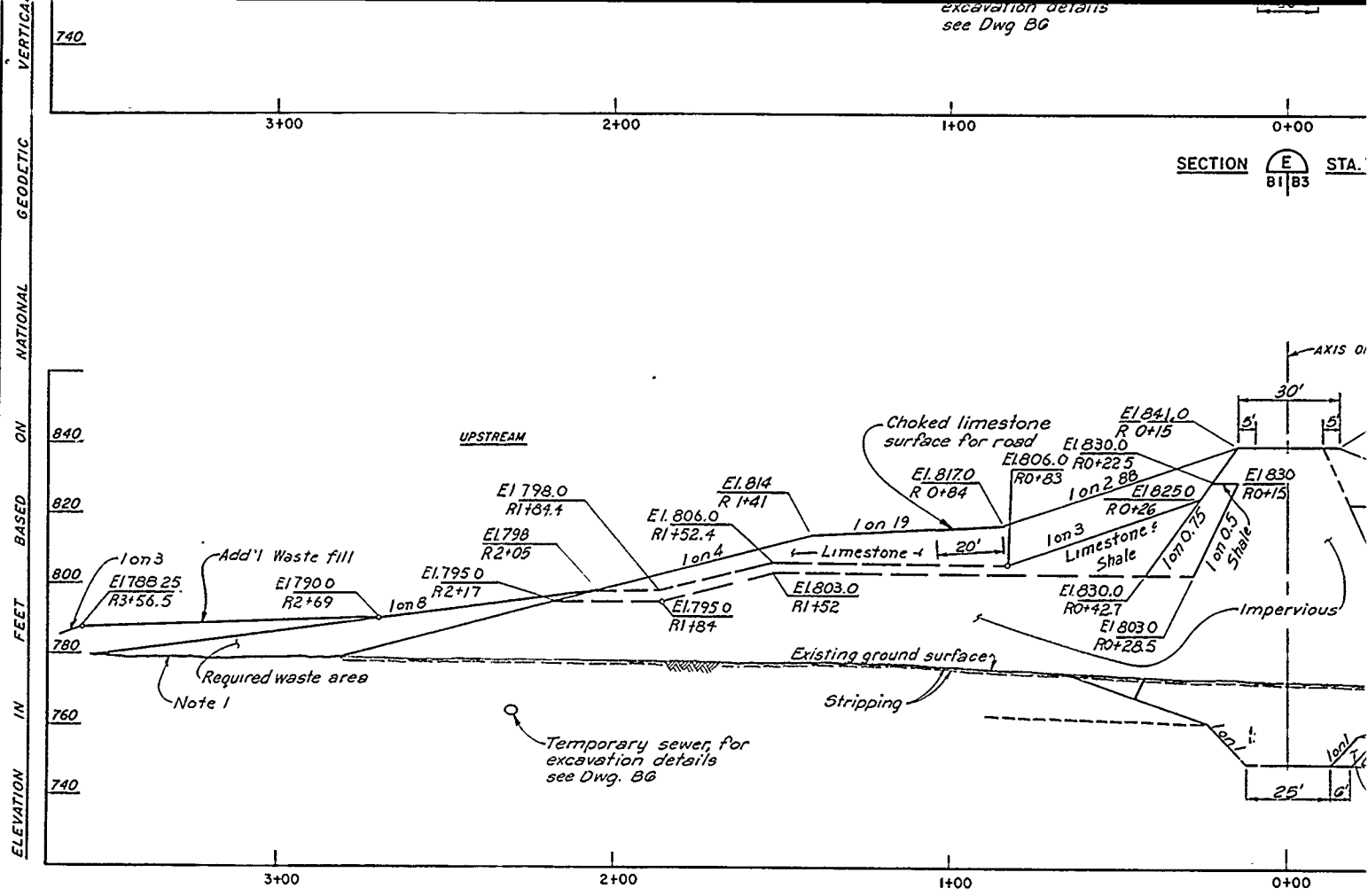
SECTION D STA. 76+00

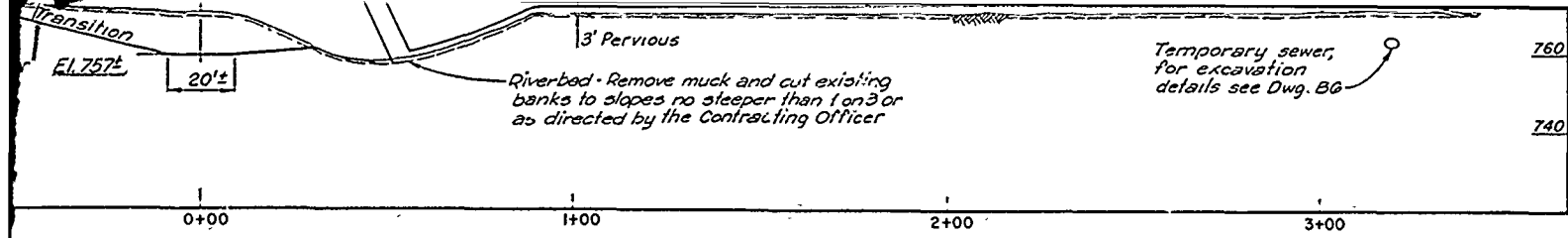
- NOTES:
- 6" thick x 8' wide pervious finger drains at Stations 83+00, 85+50, 88+00, 90+50, 93+00 and 95+50.
 - 18" Limestone fill with 3" thick x 20' wide pervious finger drains at Stations 77+00, 79+00, 81+00, 83+00, 85+00, 87+00, 89+00, 91+00, 93+00 and 50' wide at 95+00.
 - Upstream 1 on 2.76 slope extends from right abutment to Sta. 75+50 and transitions to 1 on 3 slope at Sta. 76+00.
 - Downstream 1 on 2.8 slope extends from right abutment to Sta. 76+00 and transitions to 1 on 3 slope at Sta. 76+50.
 - Downstream impervious fill extends from right abutment to Sta. 76+00.

Limestone (Greater than 20% Massing 2" Sieve)
Limestone & Shale

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	EMBANKMENT SECTIONS	
Drawn by:			
Checked by:			
Scale:	Sheet:		

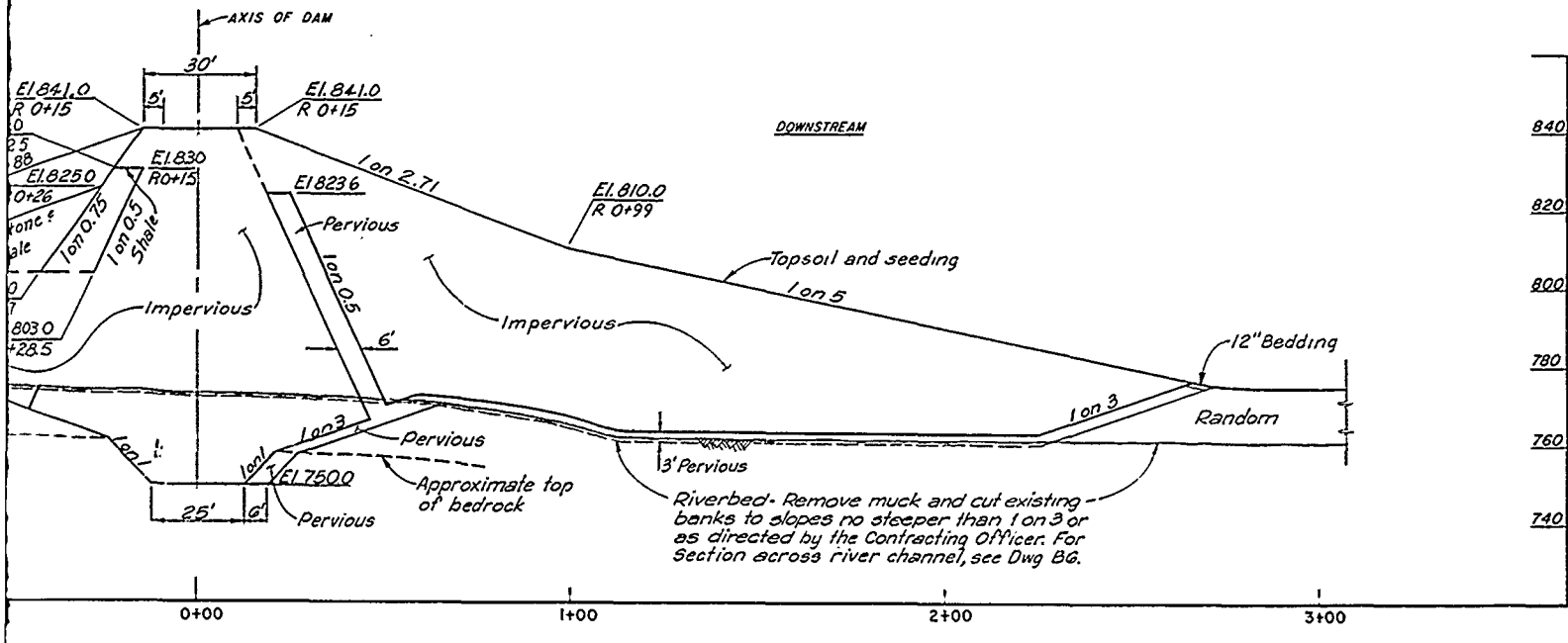
excavation details
see Dwg BG





SECTION **E** STA. 76+50
81|B3

NOTE:
The impervious fill transitions (slopes) to random and berm fill at Sta. 76+50. Construct full impervious at Sta. 76+00 and full random and berm at Sta. 76+50. "For pay purposes only" - The break point of impervious to Random and berm will be Station 76+25.



SECTION **D** STA. 76+00
81|B3

- NOTES:**
- 6" thick x 8' wide pervious finger drains at Stations 83+00, 85+50, 88+00, 90+50, 93+00 and 95+50.
 - 18" Limestone fill with 3" thick x 20' wide pervious finger drains at Stations 77+00, 79+00, 81+00, 83+00, 85+00, 87+00, 89+00, 91+00, 93+00 and 50' wide at 95+00.
 - Upstream 1 on 2.76 slope extends from right abutment to Sta. 75+50 and transitions to 1 on 3 slope at Sta. 76+00.
 - Downstream 1 on 2.8 slope extends from right abutment to Sta. 76+00 and transitions to 1 on 3 slope at Sta. 76+50.
 - Downstream impervious fill extends from right abutment to Sta. 76+00.

Limestone (Greater than 20% Massing 2" Sieve)
Limestone & Shale

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

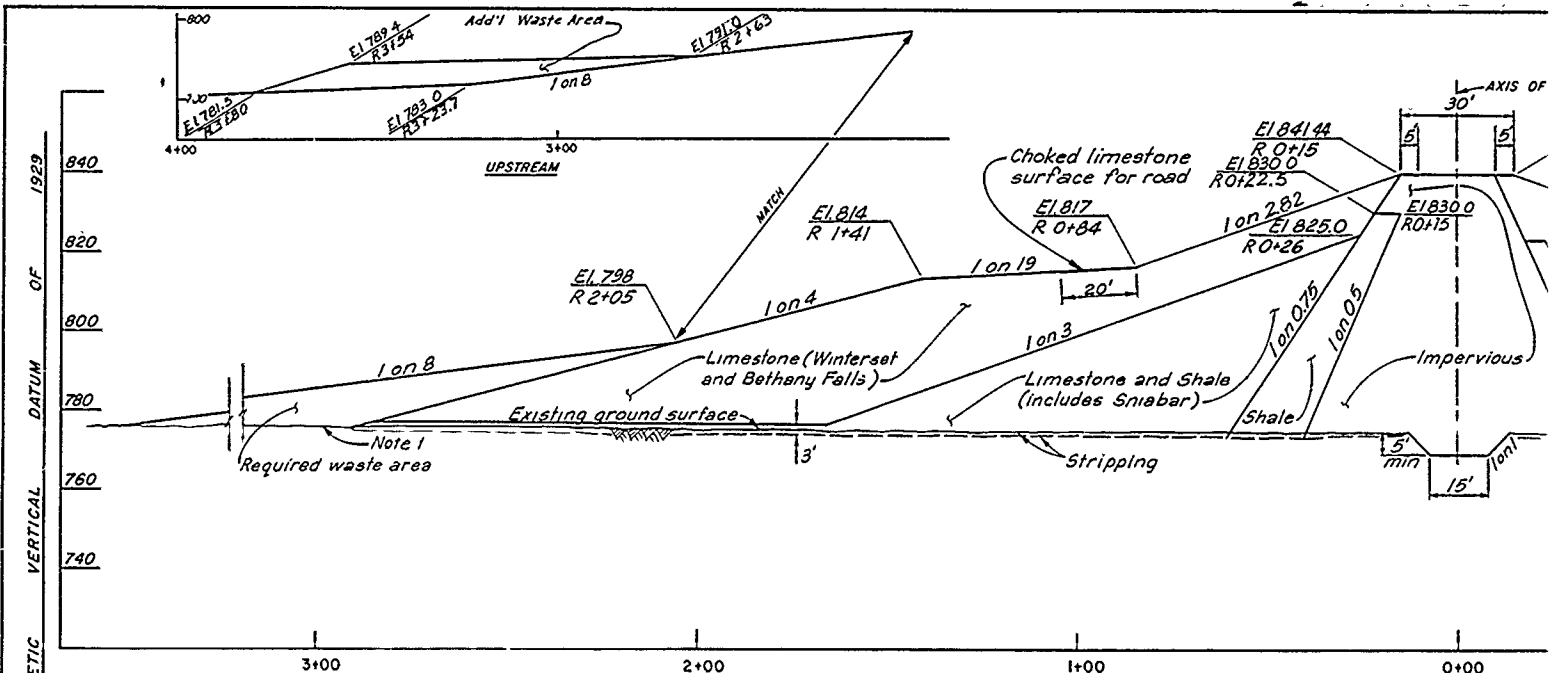
Designed by: EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

Drawn by: **EMBANKMENT SECTIONS**

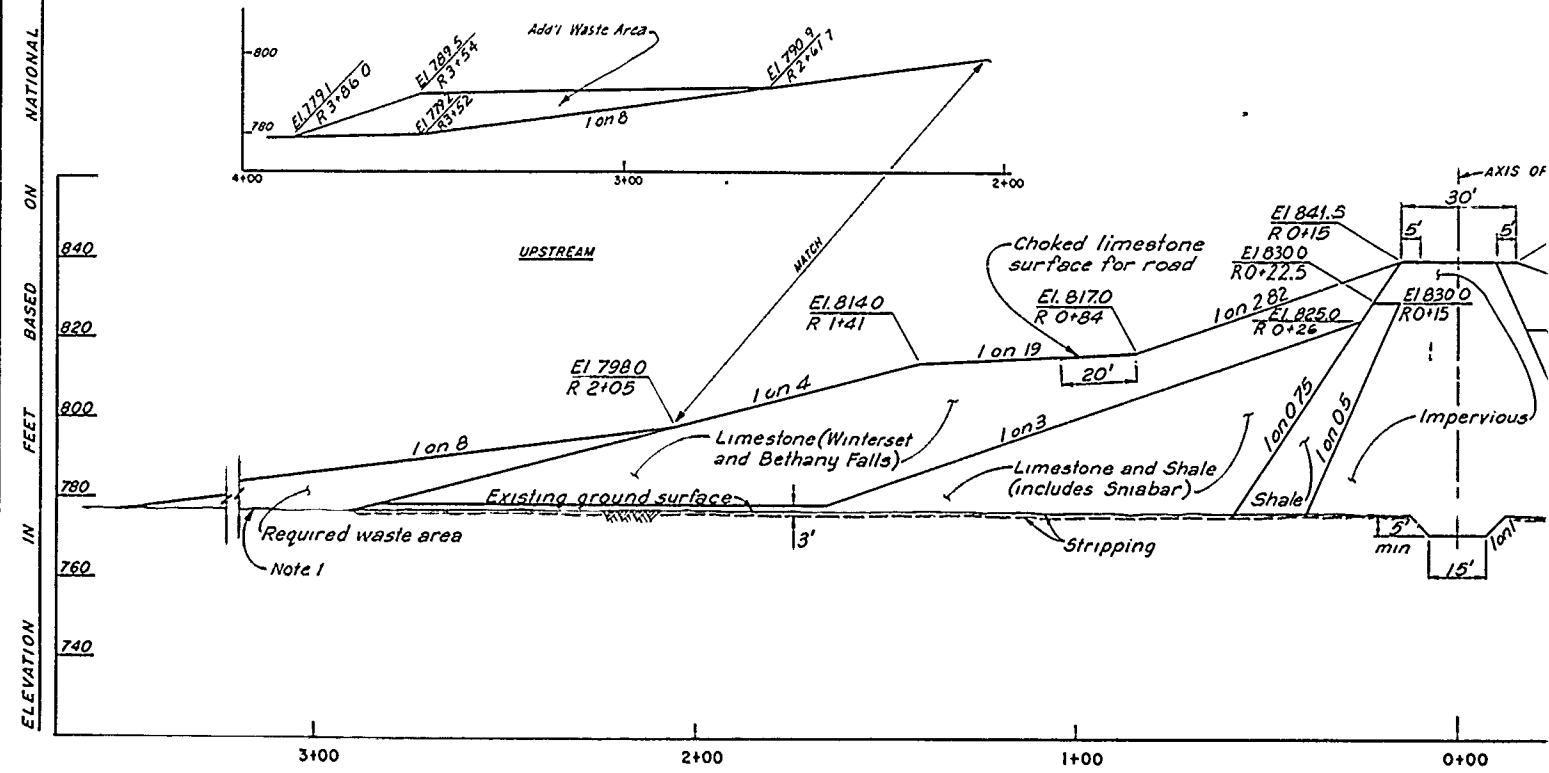
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Submitted by:

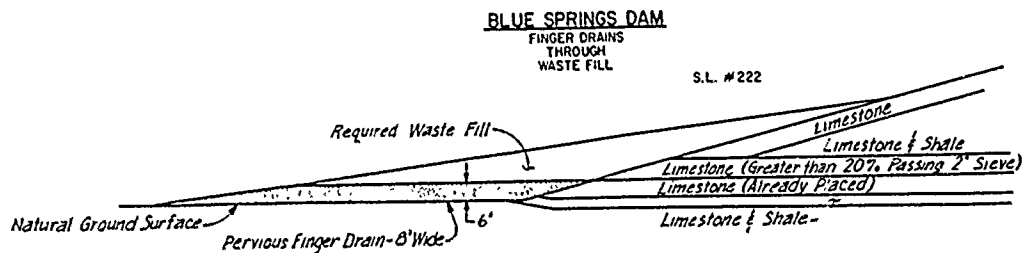
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Dwg No.:		RBL-2-1225	



SECTION **G** STA. B1/B4

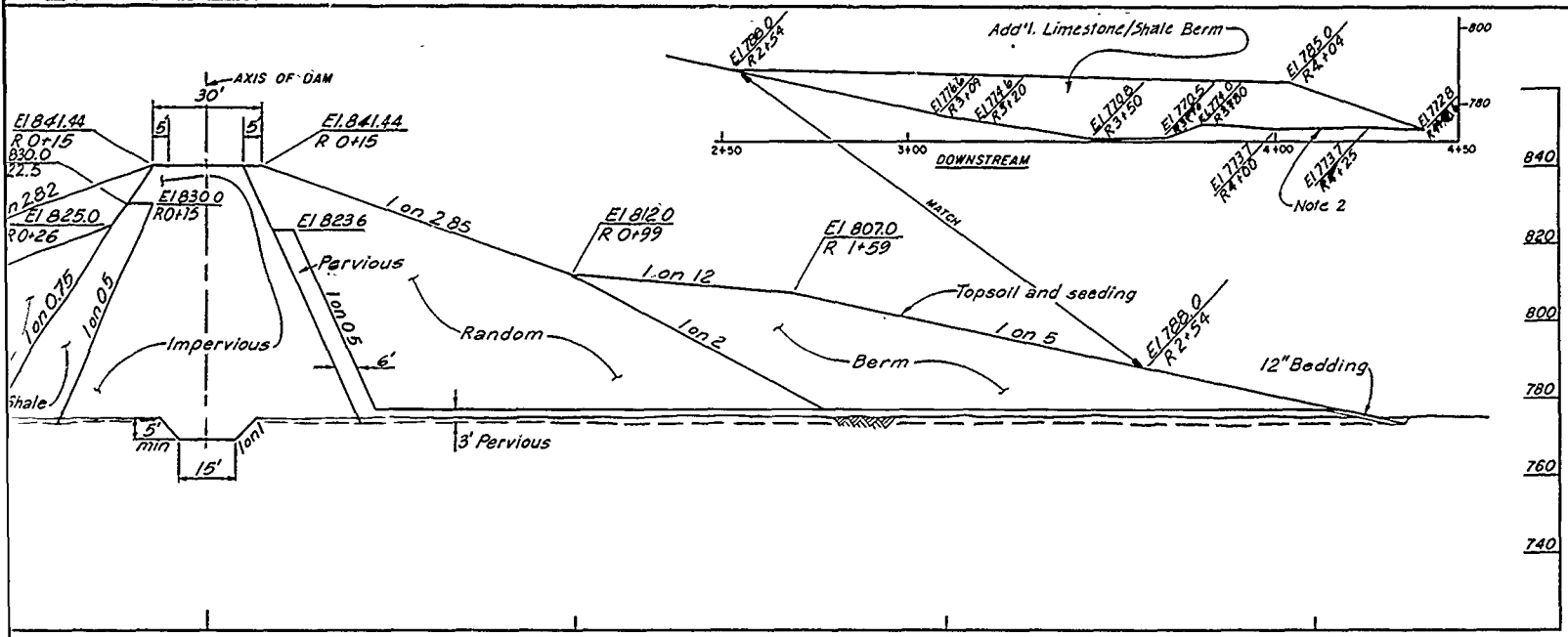


SECTION **F** STA. B1/B4

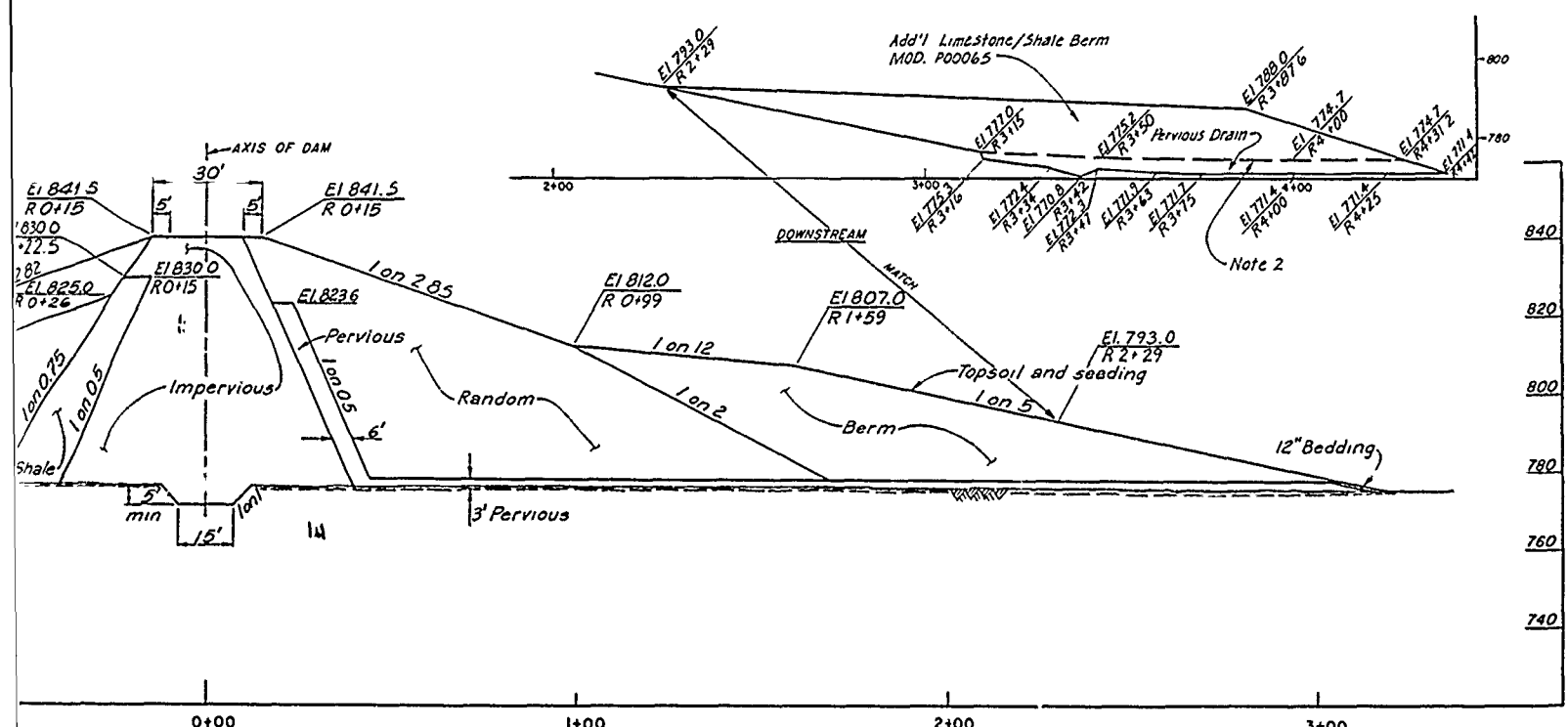


- Notes:
1. 6" Thick x 8" Wide
83+00, 85+50,
 2. 18" Limestone & Finger Drains
83+00, 85+00,
50' Wide at 9'

VALUE ENGINEERING PAYS



SECTION **G** STA. 90+00
B1|B4



SECTION **F** STA. 85+00
B1|B4

- Notes:
- 6" Thick x 8" Wide Pervious Finger Drains at Stations 83+00, 85+50, 88+00, 90+50, 93+00 and 95+50.
 - 18" Limestone Fill with 3" Thick x 20" Wide Pervious Finger Drains at Stations 77+00, 79+00, 81+00, 83+00, 85+00, 87+00, 89+00, 91+00, 93+00 and 50' Wide at 95+00.

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

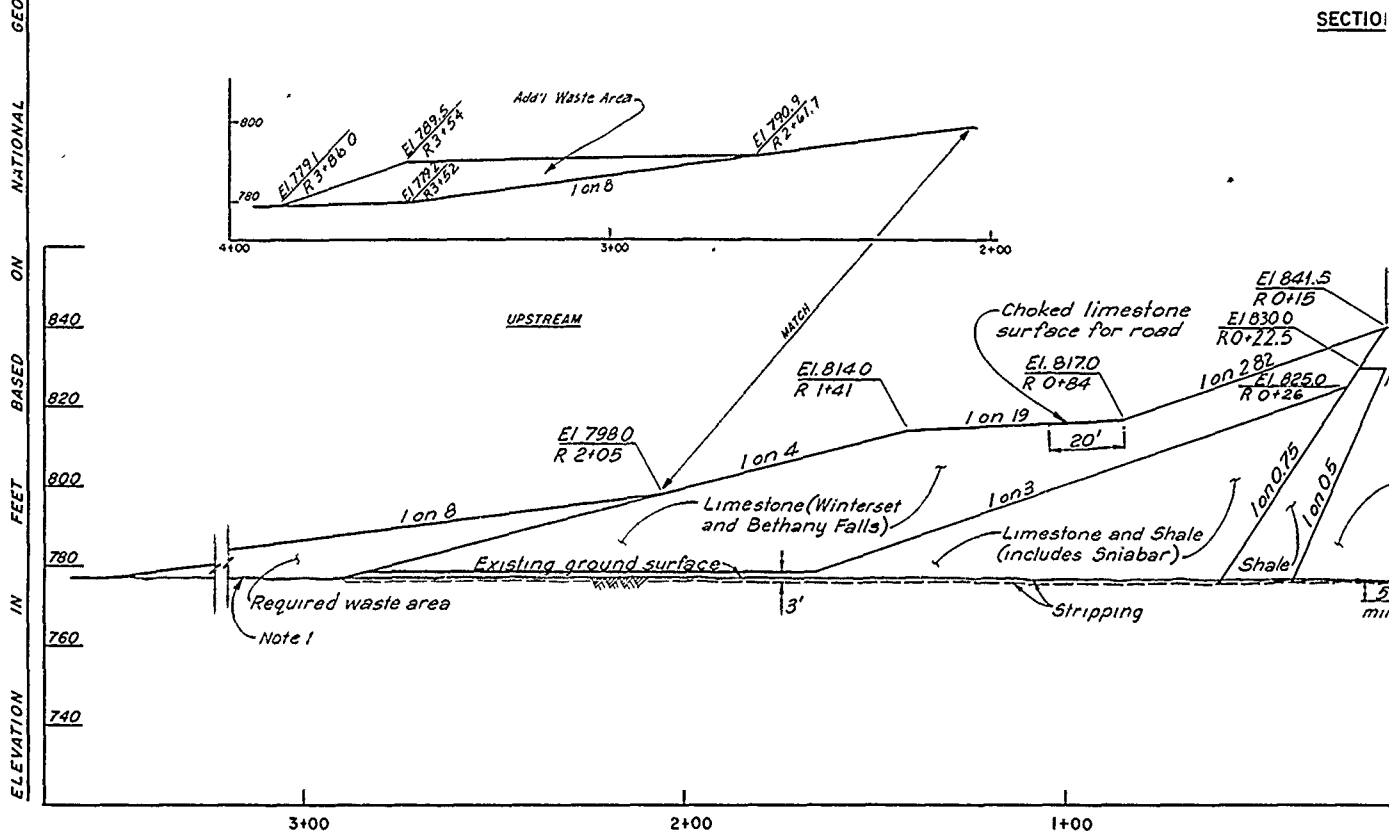
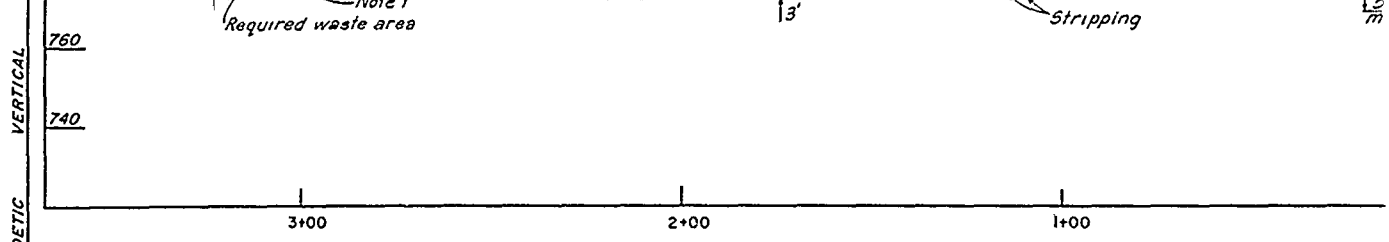
Designed by: _____

Drawn by: _____

Checked by: _____

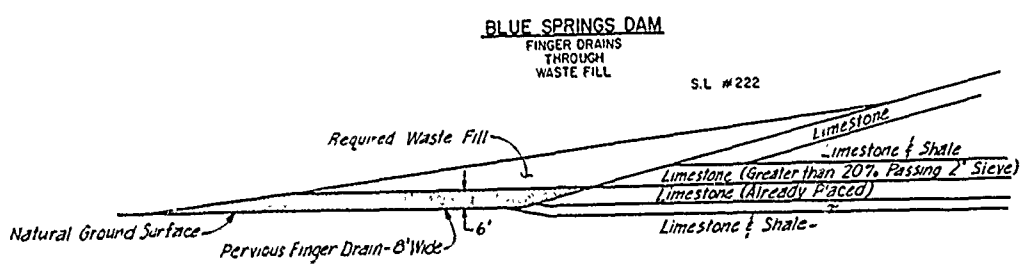
EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

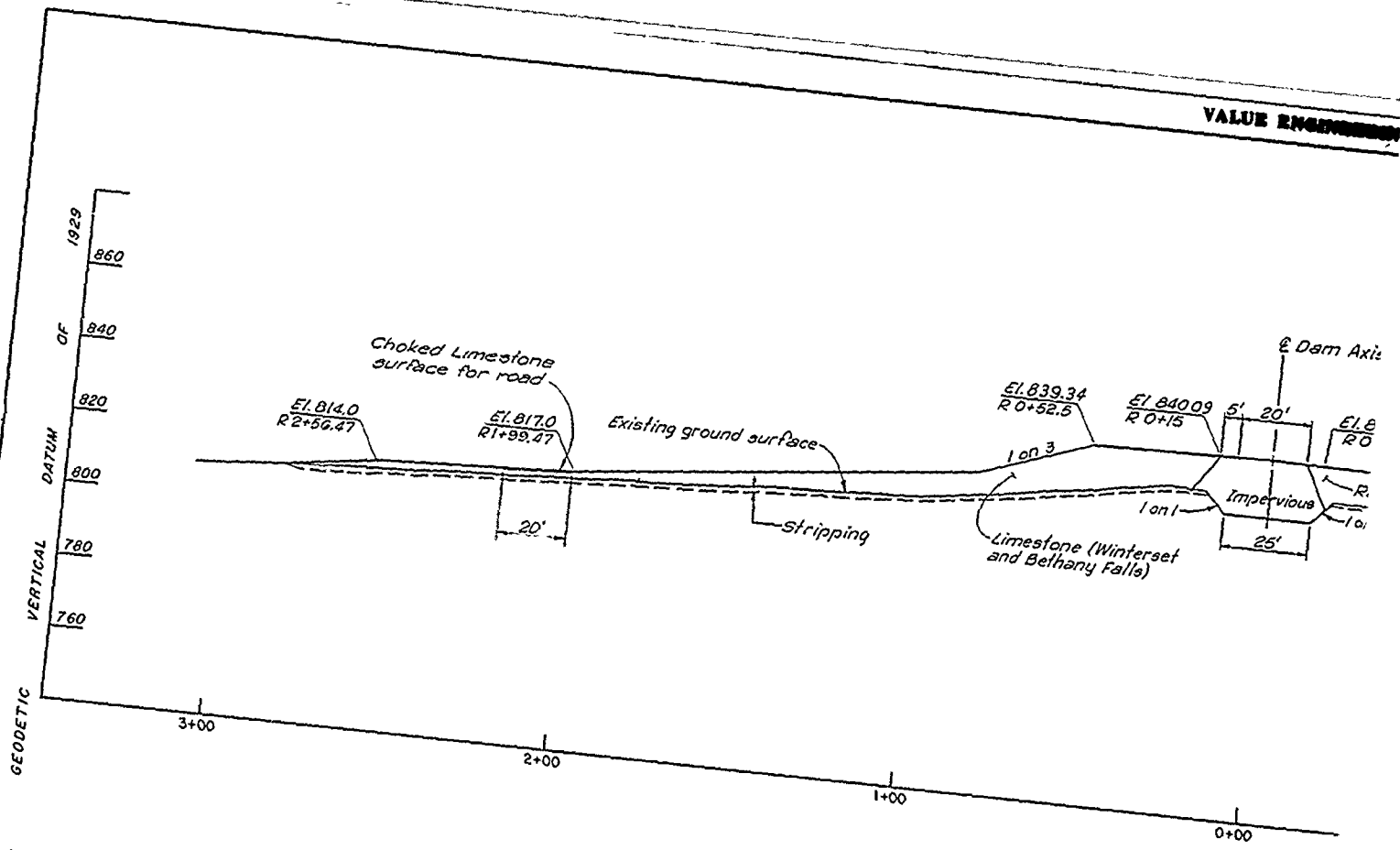
EMBANKMENT SECTIONS



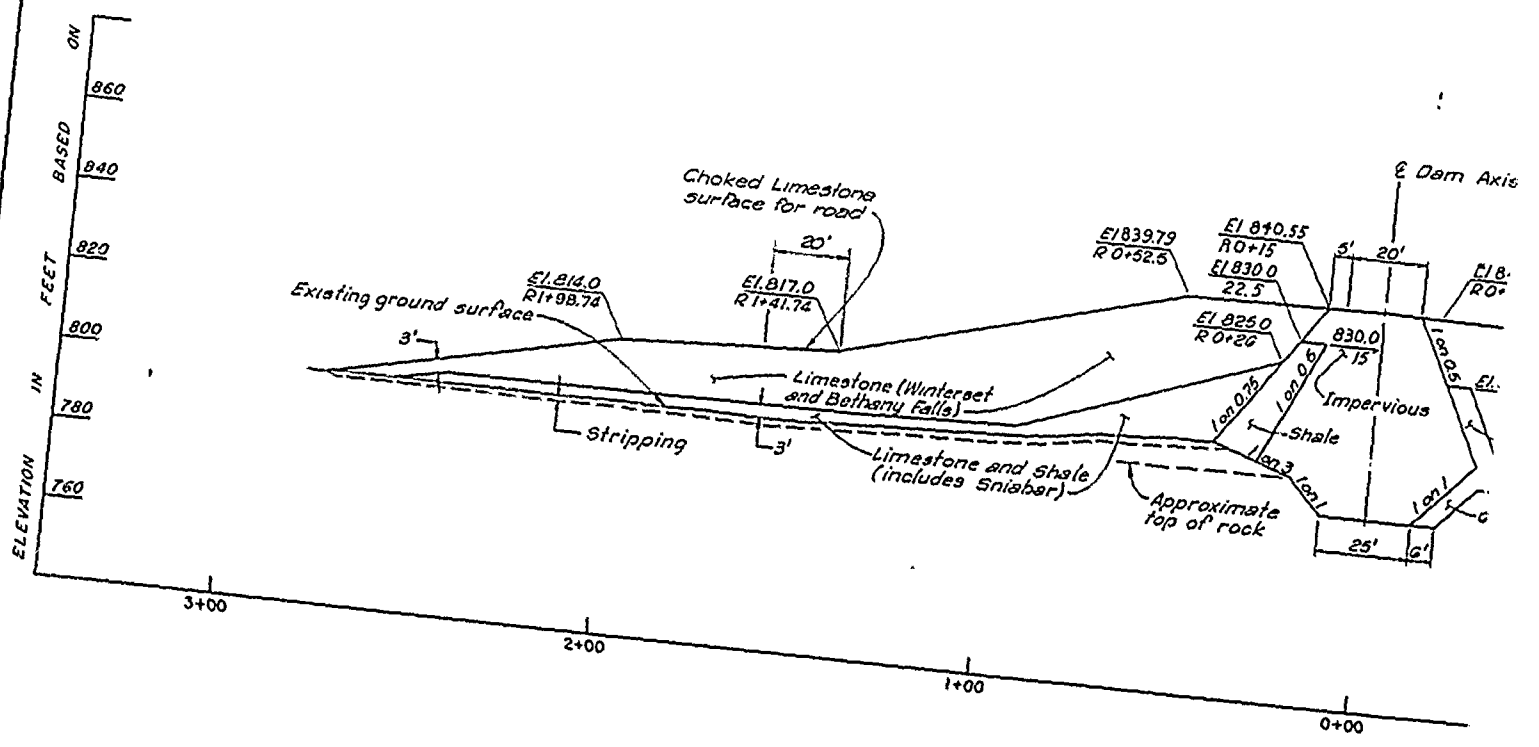
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SECTION



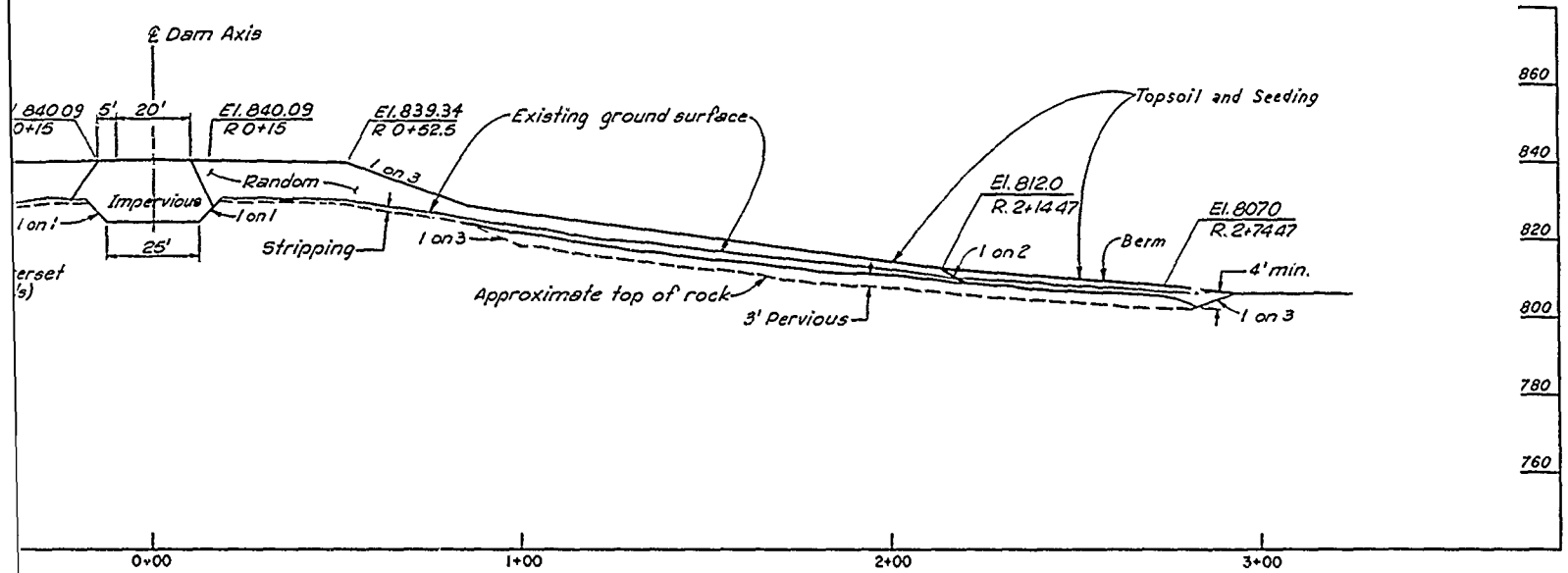


SECTION J STA. 99
8185

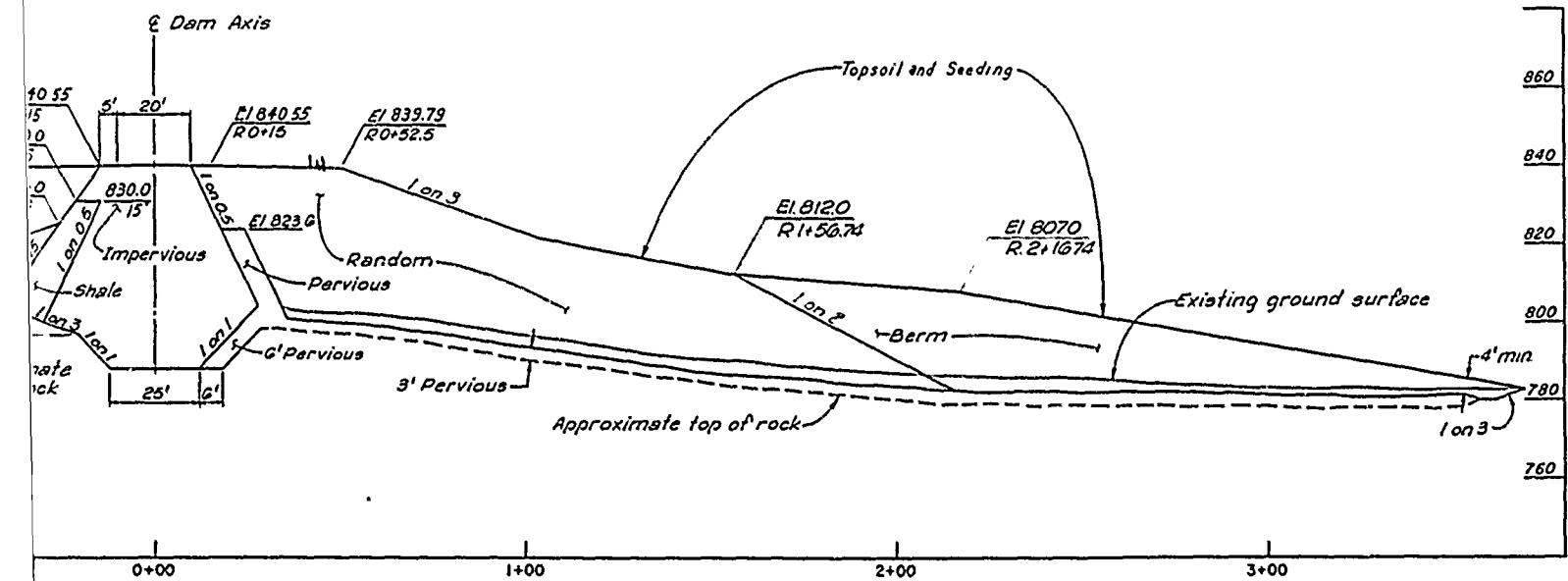


SECTION H STA. 98+0
8185

VALUE ENGINEERING PAYS



SECTION $\frac{J}{81185}$ STA. 99+00



SECTION $\frac{H}{81185}$ STA. 98+00

Symbol	Revisions	Date	Approved
	Descriptions		

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

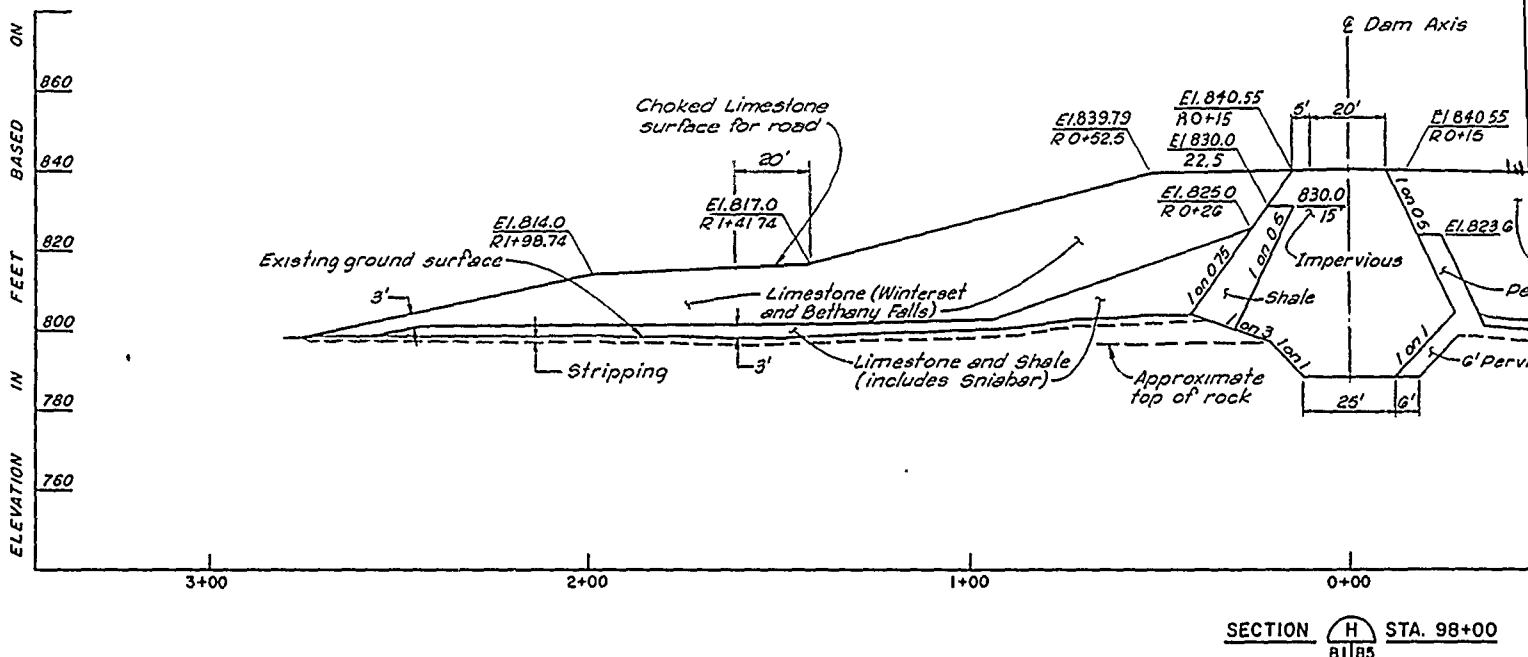
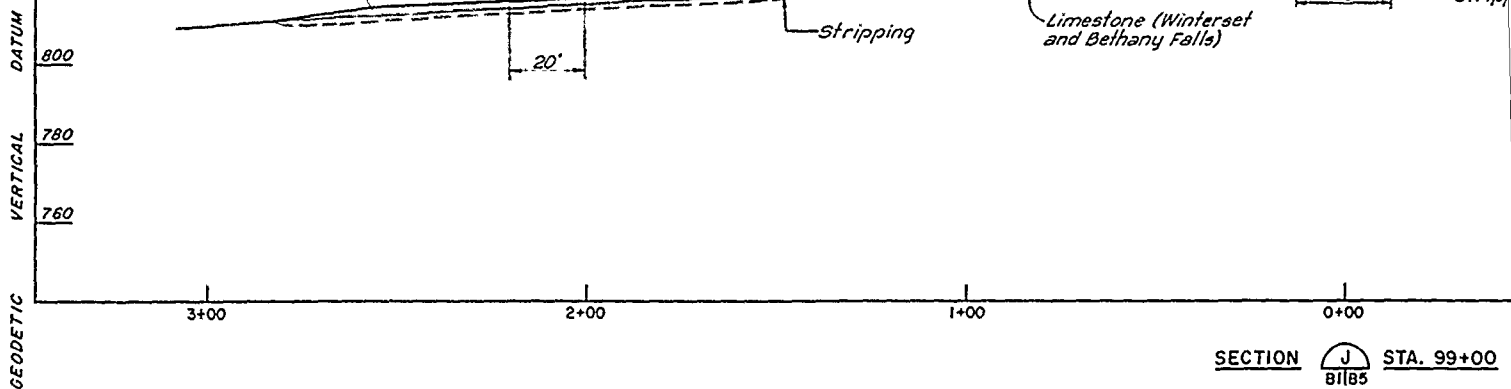
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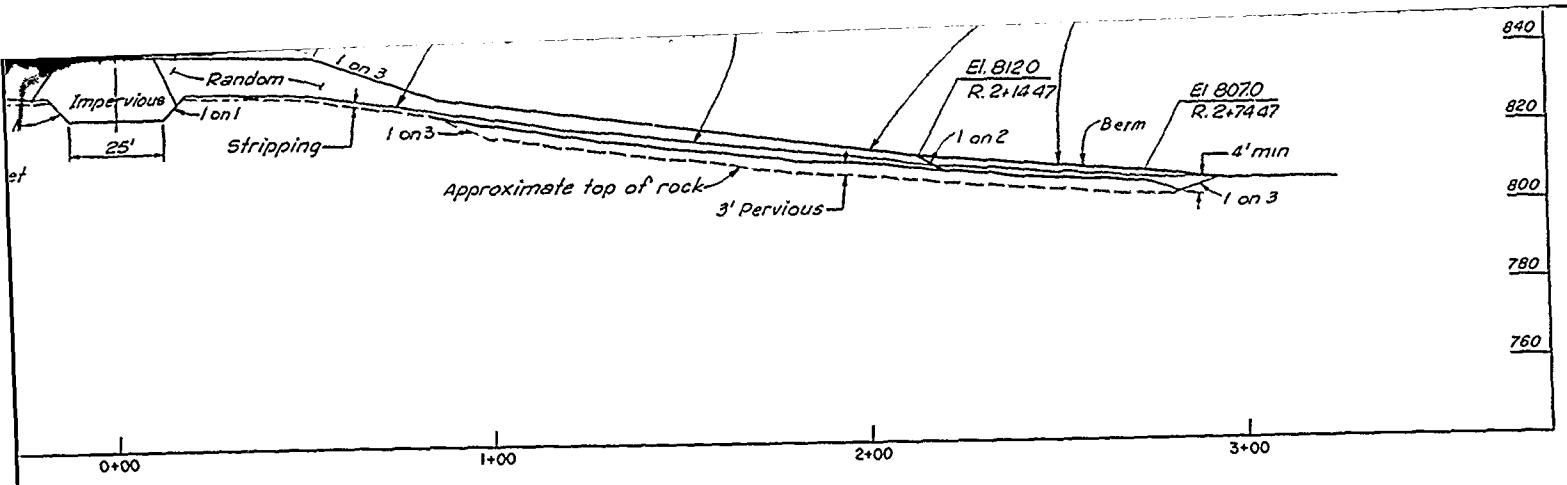


EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

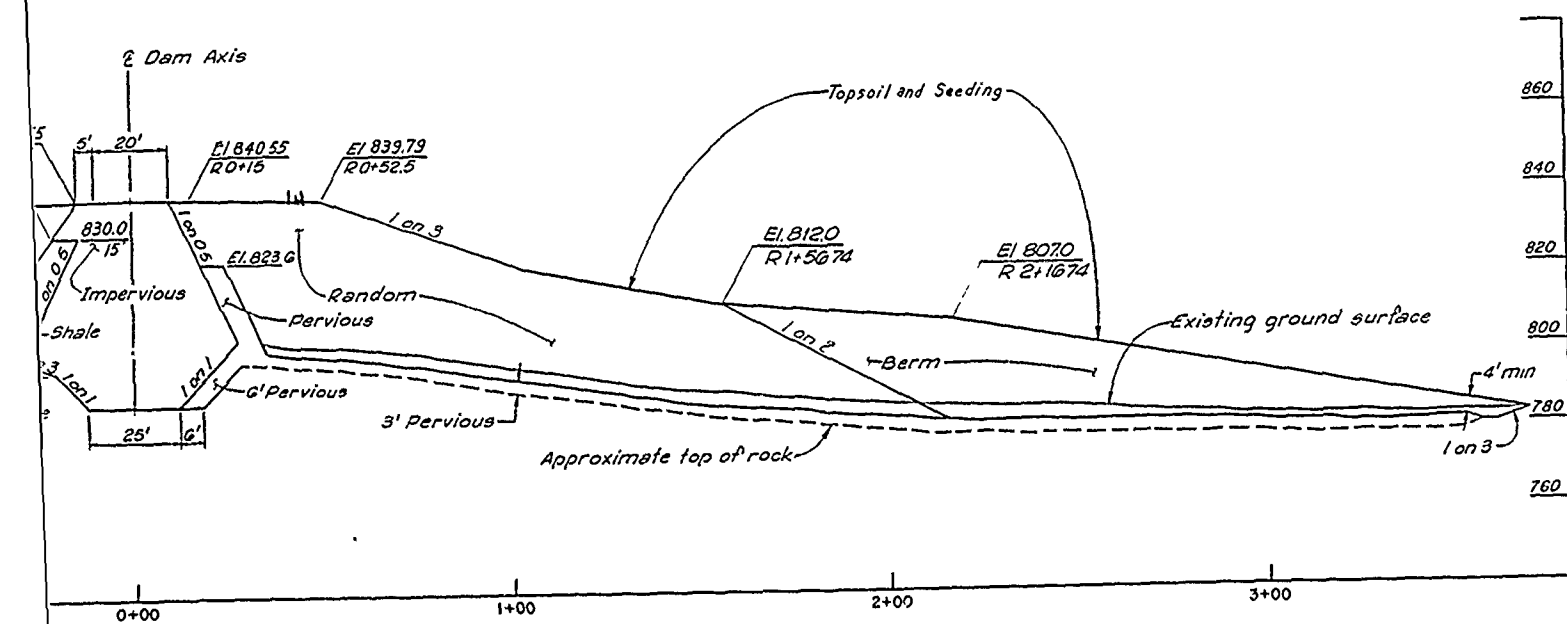
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EMBANKMENT SECTIONS




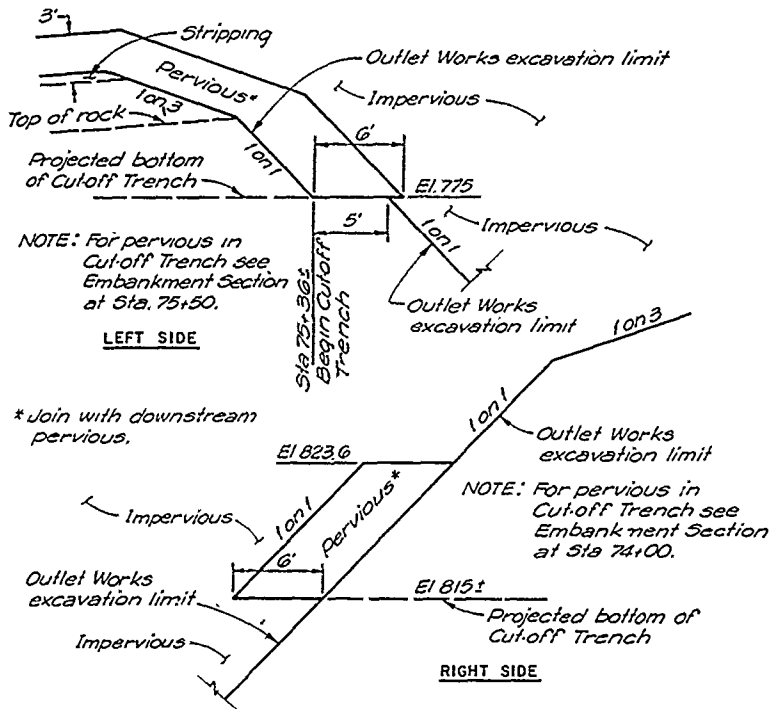


SECTION **J** STA. 99+00
BIB5

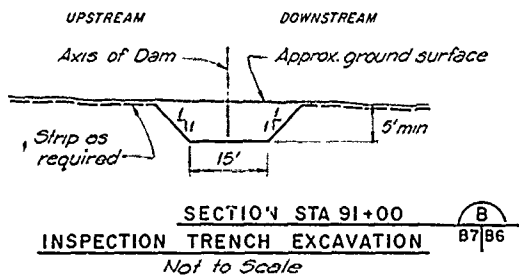


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BIB5

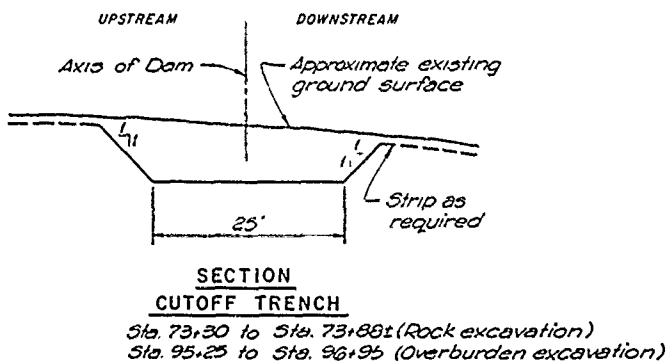
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	EMBANKMENT SECTIONS	
Drawn by:		Scale: AS SHOWN	Sheet number: 7
Checked by:		Date: JUNE 1990	File No.: RBL-2-1227
Submitted by:	Dwg. No.:		



DETAIL SHOWING PERVIOUS TIE-INS BETWEEN OUTLET WORKS AND CUT-OFF TRENCH EXCAVATIONS, AT OUTLET WORKS STA. 50+20± (LOOKING DOWNSTREAM)
Not to Scale

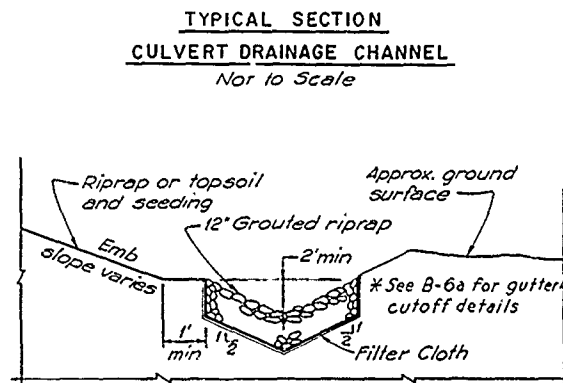
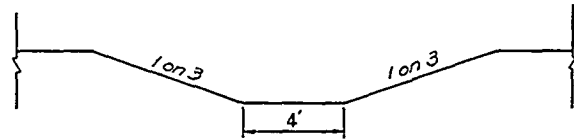
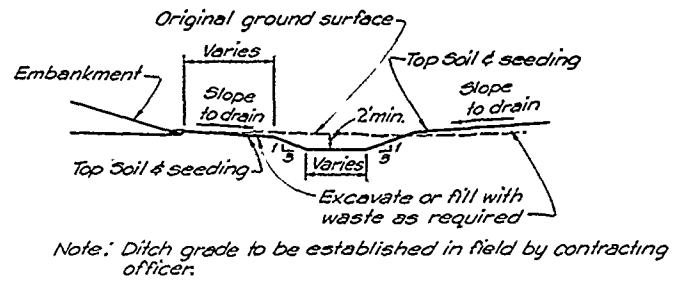


Note: Inspection trench extends from Sta. 77+00± to Sta. 79+00± and from Sta. 80+00± to Sta. 95+00

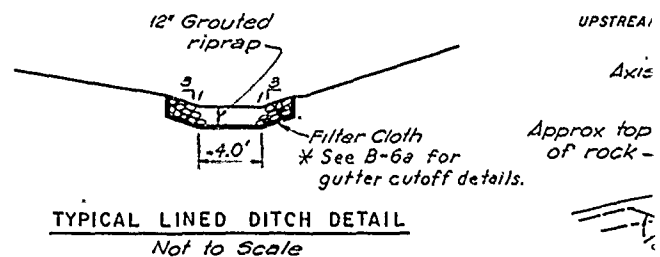


SECTION STA. 98+60
CUTOFF TRENCH
Not to Scale

Sta. 97+05 to Sta. 99+47

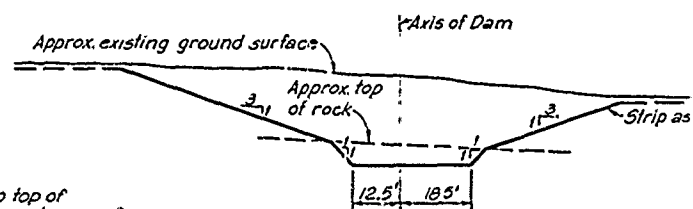
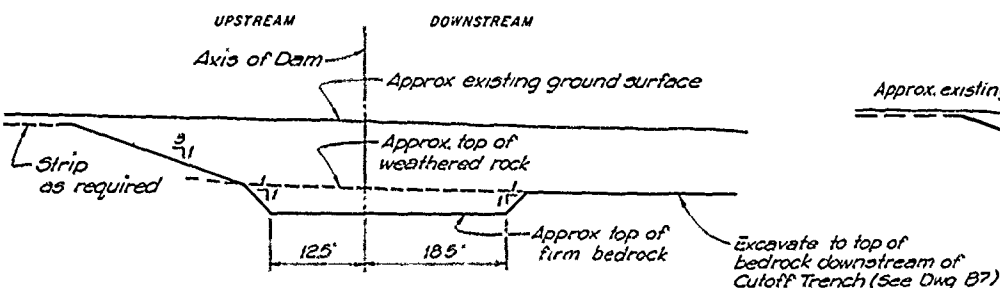


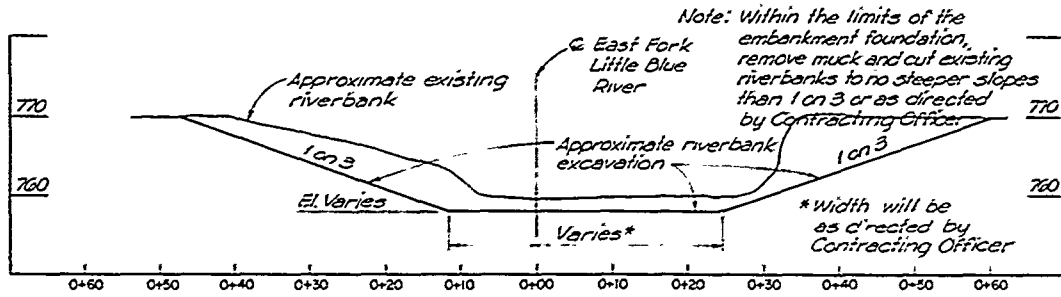
TYPICAL LINED DITCH DETAIL
Not to Scale



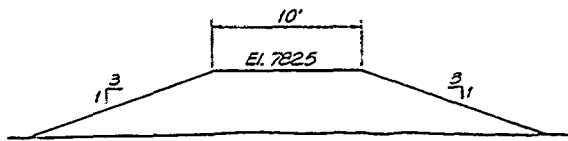
SECTION STA. 76+20
CUTOFF TRENCH
Not to Scale

Sta. 75+36 to Sta. 76+30



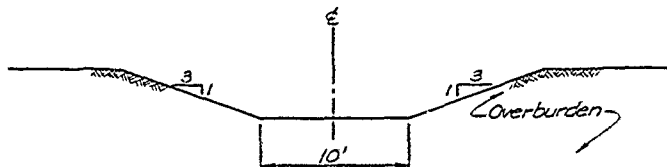


TYPICAL SECTION
RIVERBANK EXCAVATION INCLUDING ABANDONED
RIVER CHANNEL AND EXISTING CHANNEL

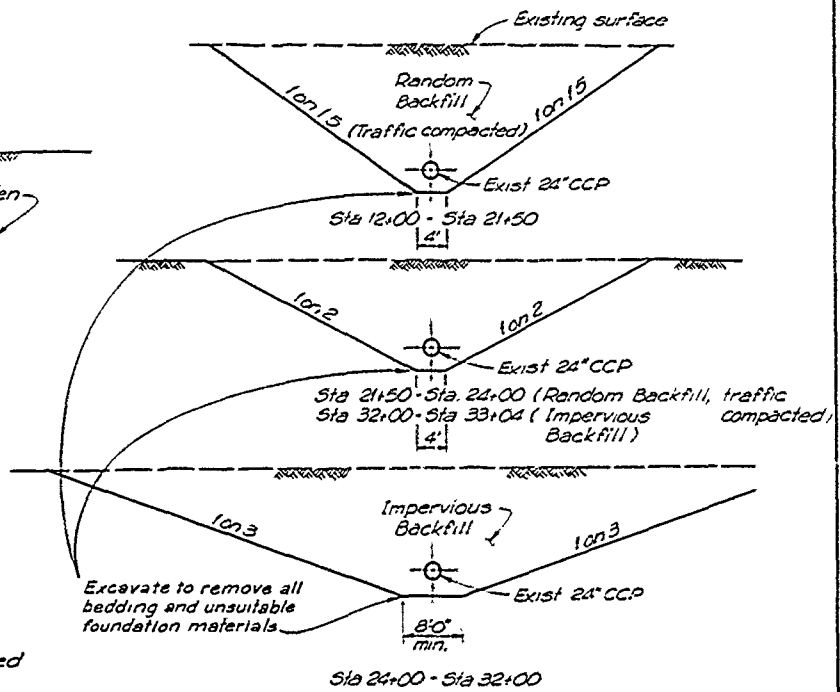


TYPICAL SECTION
PROTECTION DIKE
Not to Scale

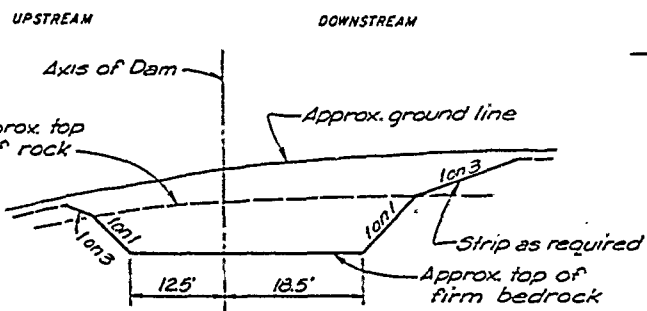
Note: All ditch depths, except as shown, shall be 2 ft. minimums. Depths and grades shall be established in the field by the Contracting Officer.



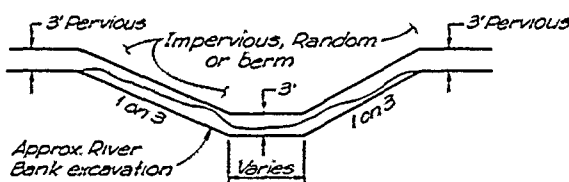
CROSS-SECTION
APPROACH AND OUTLET CHANNELS
Not to Scale



EXCAVATION OF EXISTING TEMPORARY SEWER
Not to Scale
See Profile Drawing B13.



SECTION
CUTOFF TRENCH
Sta. 73+88t to Sta. 74+22t



SECTION ACROSS ABANDONED RIVER

Revisions			
Symbol	Descriptions	Date	Approved

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by:

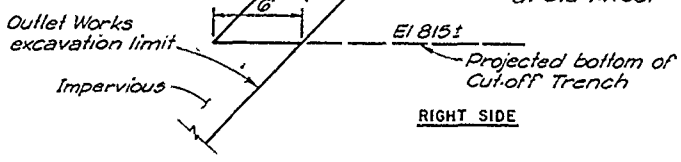


EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

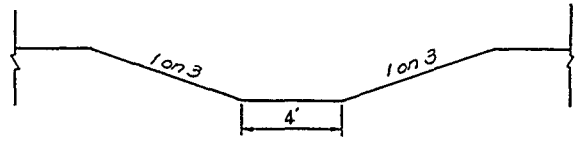
Drawn by:

EMBANKMENT CONSTRUCTION DETAILS

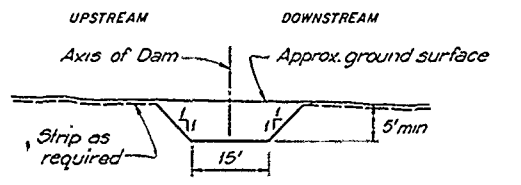
Checked by:



**DETAIL SHOWING PERVIOUS TIE-INS BETWEEN
OUTLET WORKS AND CUT-OFF TRENCH EXCAVATIONS, AT
OUTLET WORKS STA. 50+20± (LOOKING DOWNSTREAM)**
Not to Scale

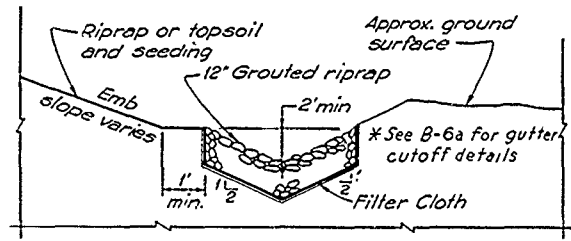


**TYPICAL SECTION
CULVERT DRAINAGE CHANNEL**
Not to Scale

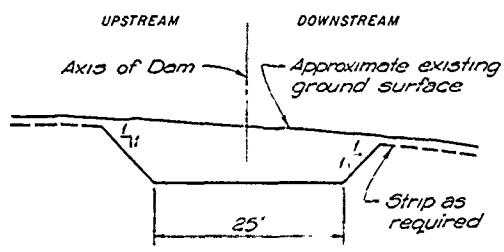


**SECTION STA. 91+00
INSPECTION TRENCH EXCAVATION**
Not to Scale

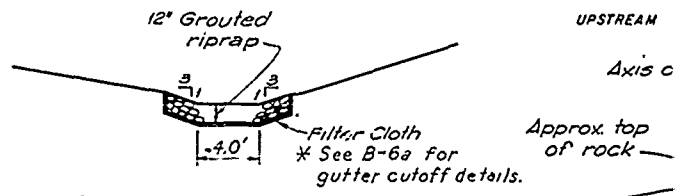
Note: Inspection trench extends from Sta 77+00± to Sta. 79+00± and from Sta 80+00± to Sta. 95+00



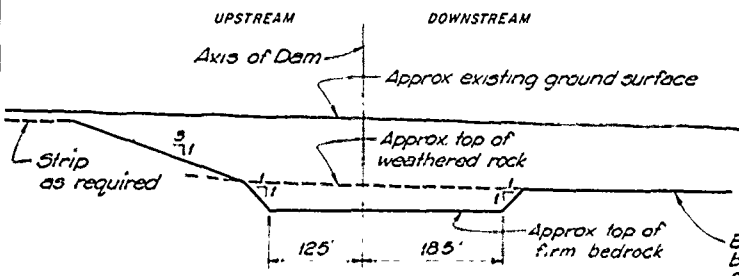
TYPICAL ABUTMENT GUTTER DITCH DETAIL
Not to Scale



**SECTION
CUTOFF TRENCH**
Sta 73+30 to Sta 73+88± (Rock excavation)
Sta 95+25 to Sta 96+25 (Overburden excavation)

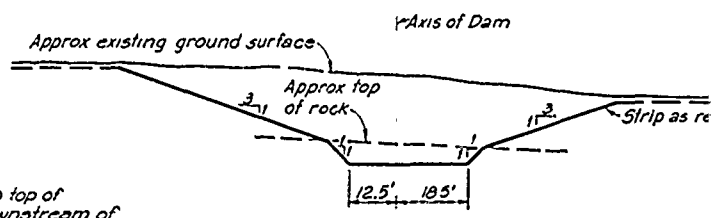


TYPICAL LINED DITCH DETAIL
Not to Scale

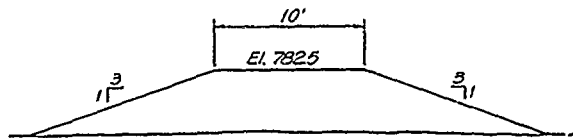


**SECTION STA. 98+60
CUTOFF TRENCH**
Sta 97+05 to Sta 99+47
Not to Scale

Excavate to top of bedrock downstream of Cutoff Trench (See Dwg B7)

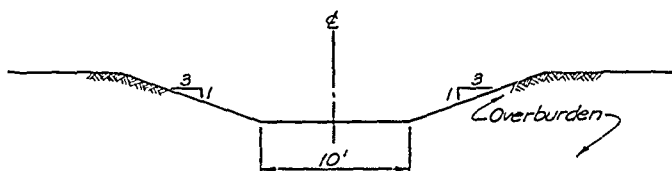


**SECTION STA. 76+20
CUTOFF TRENCH**
Sta. 75+36 to Sta. 76+30
Not to Scale

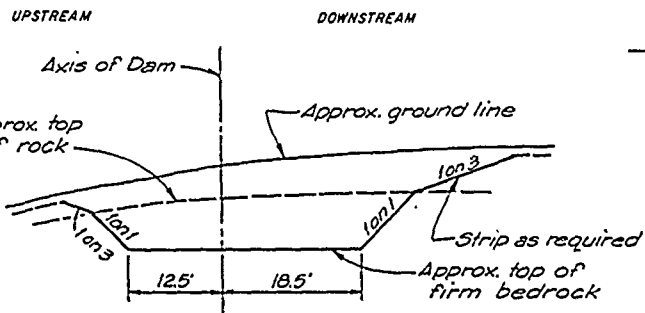


Note: All ditch depths, except as shown, shall be 2 ft. minimums. Depths and grades shall be established in the field by the Contracting Officer.

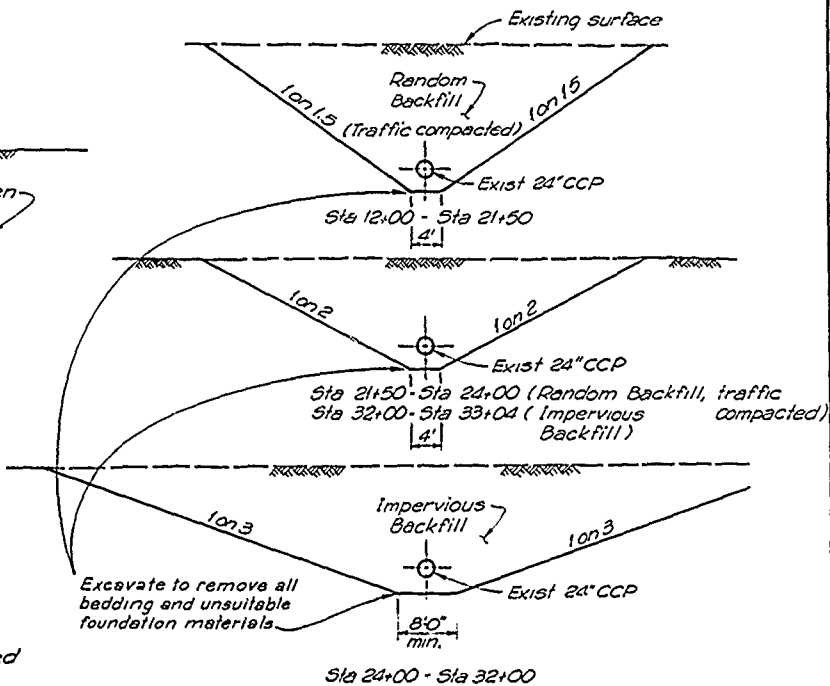
TYPICAL SECTION PROTECTION DIKE
Not to Scale



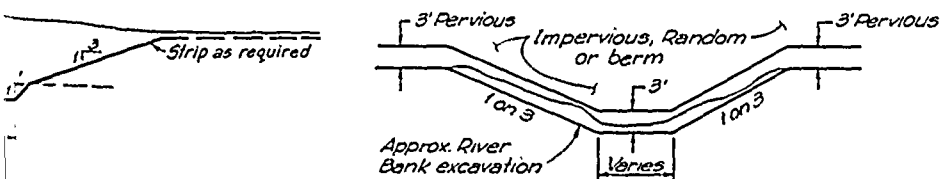
CROSS-SECTION APPROACH AND OUTLET CHANNELS
Not to Scale



SECTION A CUTOFF TRENCH
Sta 73+88 to Sta 74+22

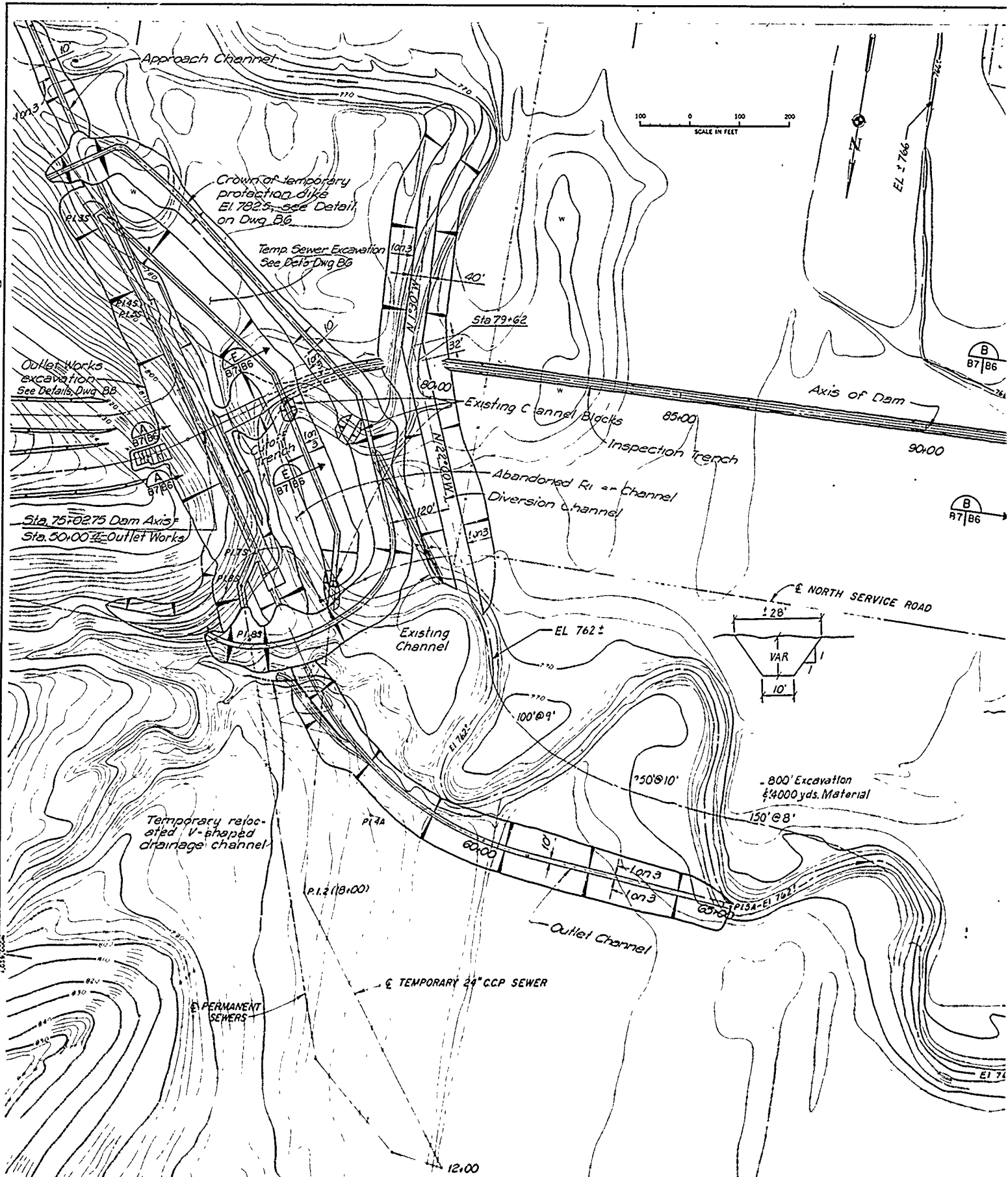


EXCAVATION OF EXISTING TEMPORARY SEWER
Not to Scale
See Profile Drawing B13.

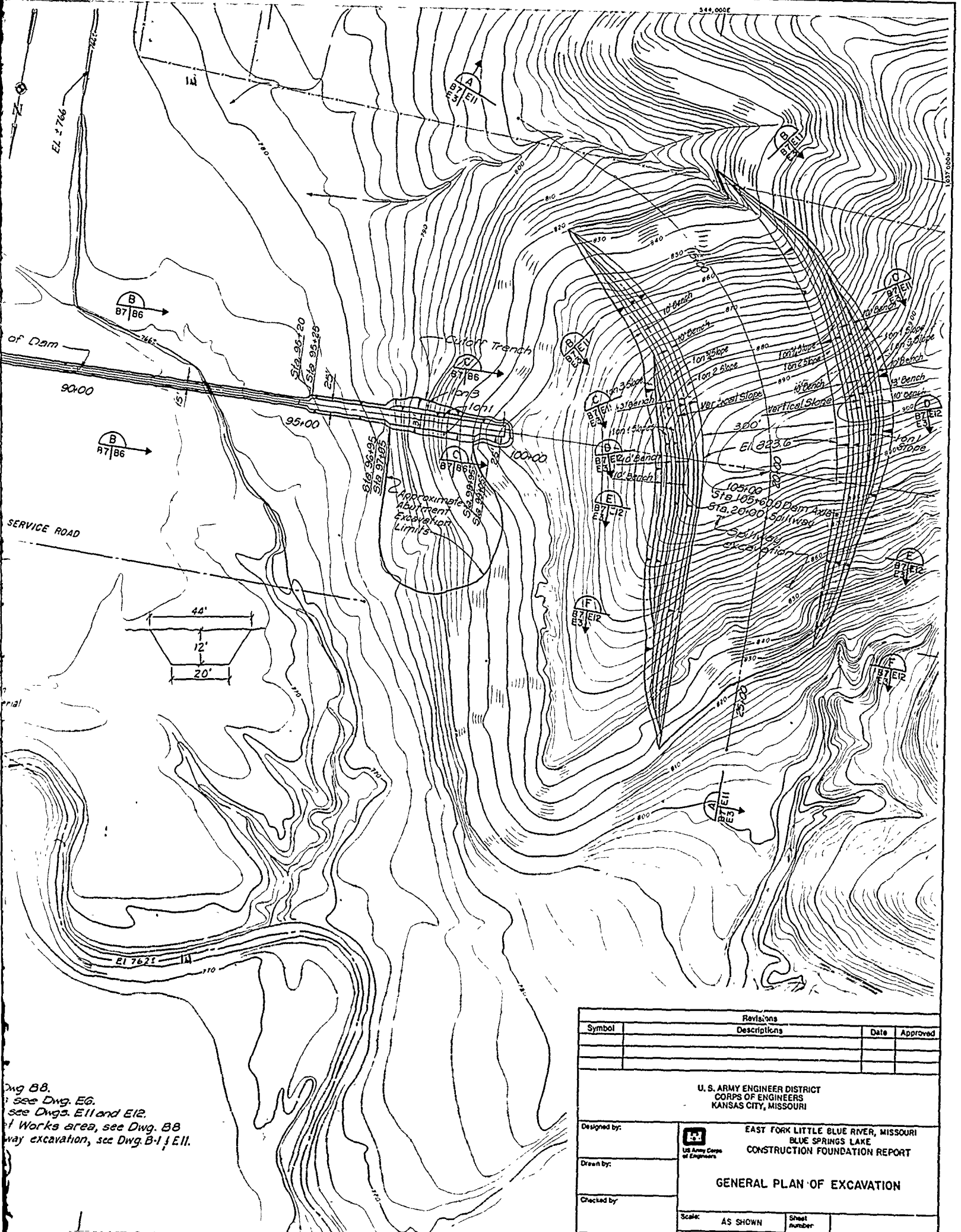


SECTION ACROSS ABANDONED RIVER CHANNEL AND EXISTING CHANNEL SHOWING PLACEMENT OF PERVIOUS
Not to Scale

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:	EMBANKMENT CONSTRUCTION DETAILS		
Checked by:			
Submitted by:			
Scale:	AS SHOWN	Sheet Number:	8
Date:	JUNE 1990	File No:	RBL-2-1228
Dwg No.:			



Notes:
 1. For Outlet Works excavation see Dwg. B8.
 2. For Approach and Outlet Channels see Dwg. E6.
 3. For Spillway Profile and Sections see Dwg. E11 and E1.
 4. For slopes and elevations in Outlet Works area, see D.
 "For bottom elevations and slope of spillway excavation, see Dwg.

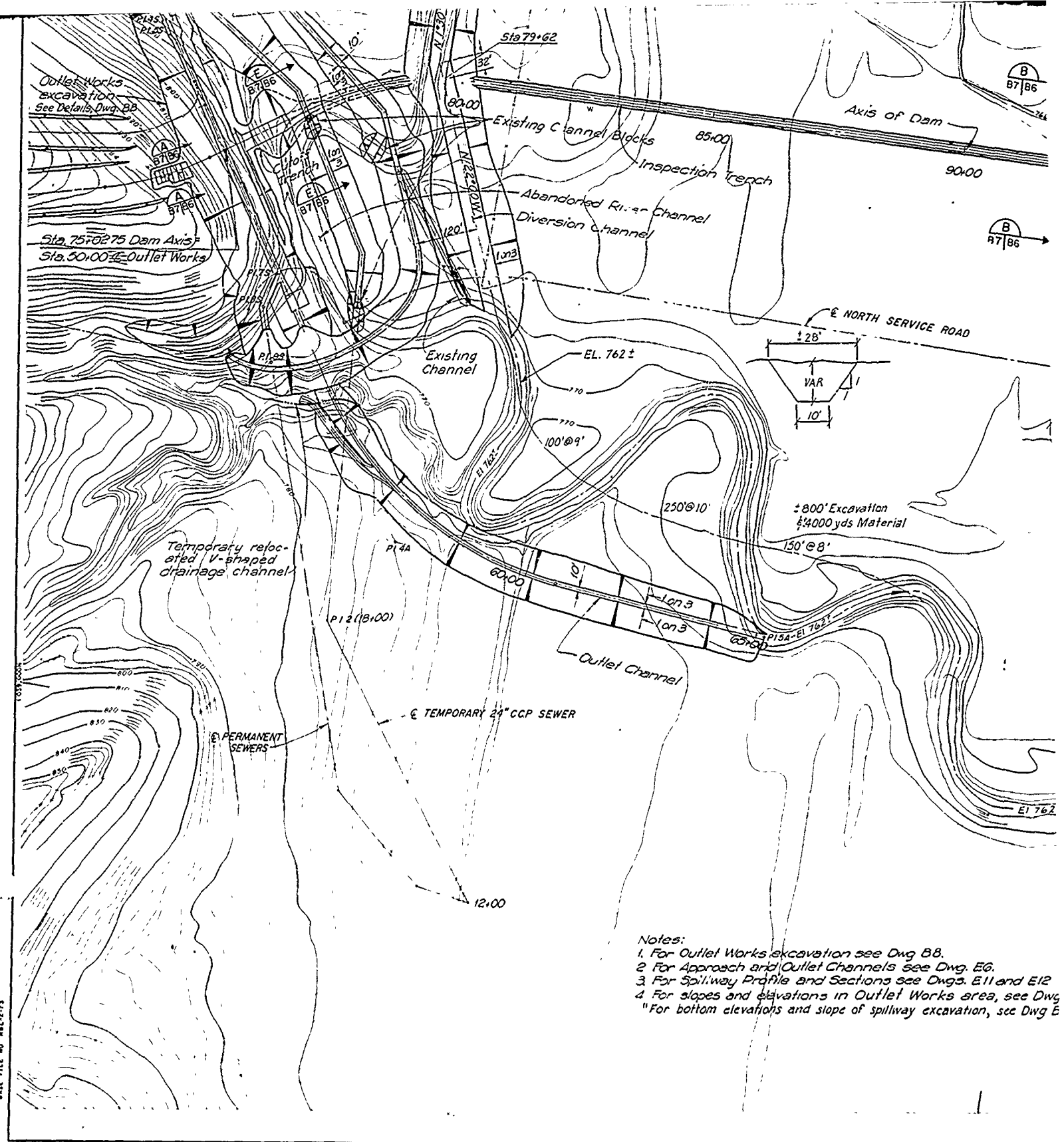


Dwg BB.
 see Dwg. EG.
 see Dws. E11 and E12.
 Works area, see Dwg. BB
 way excavation, see Dwg. B-1 & E11.

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

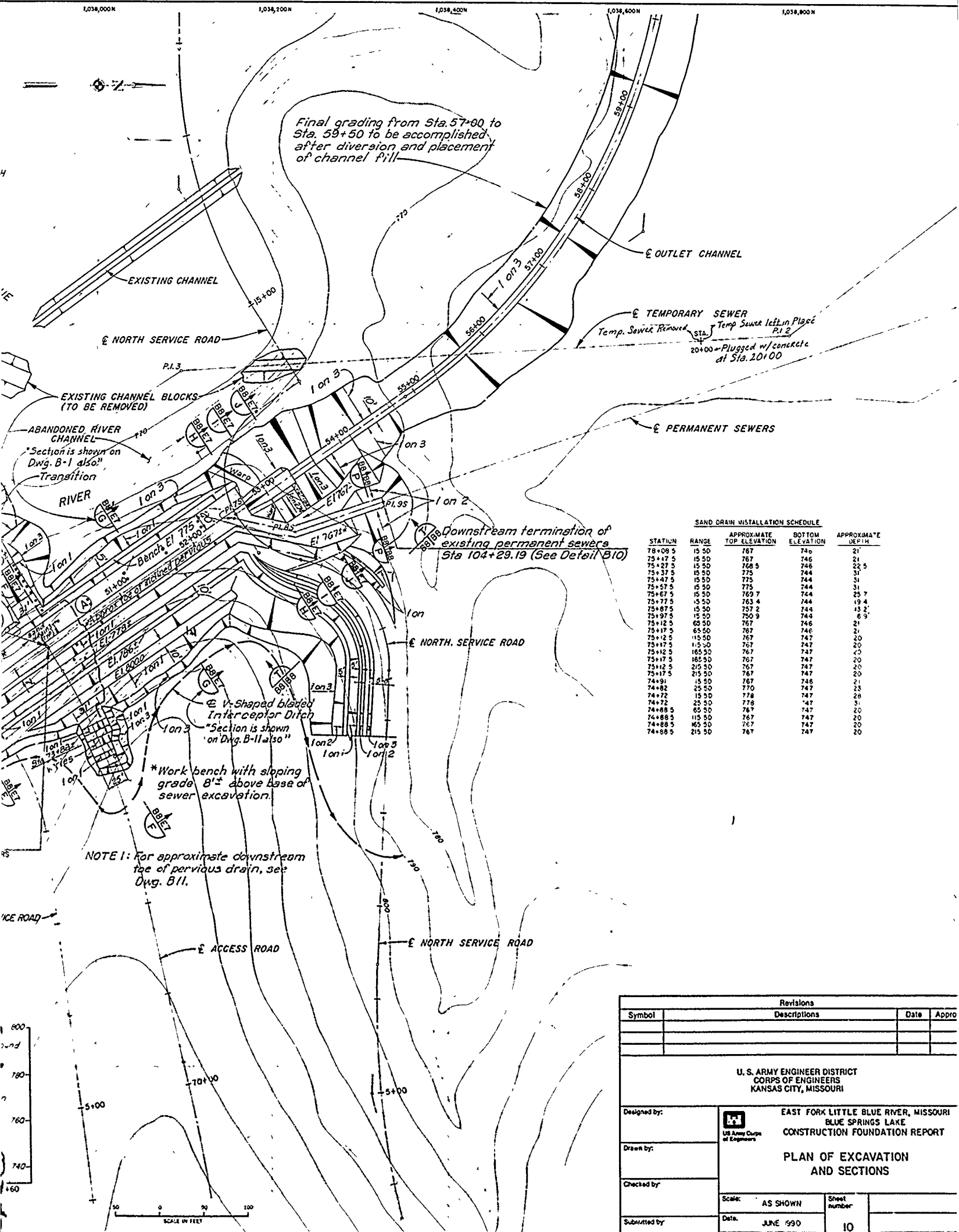
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Drawn by:			
Checked by:	GENERAL PLAN OF EXCAVATION		
Submitted by:			
Scale:	AS SHOWN	Sheet number:	
Date:	JUNE 1990		



- Notes:
1. For Outlet Works excavation see Dwg B8.
 2. For Approach and Outlet Channels see Dwg E6.
 3. For Spillway Profile and Sections see Dwg. E11 and E12
 4. For slopes and elevations in Outlet Works area, see Dwg E
 5. For bottom elevations and slope of spillway excavation, see Dwg E

BASE FILE NO. 881-2-73

VALUE ENGINEERING PAYS



SAND DRAIN INSTALLATION SCHEDULE

STATION	RANGE	APPROXIMATE TOP ELEVATION	BOTTOM ELEVATION	APPROXIMATE DEPTH
78+09.5	15.50	767	740	27'
78+17.5	15.50	767	746	21'
78+25.5	15.50	768.5	746	22.5'
78+33.5	15.50	775	744	31'
78+41.5	15.50	775	744	31'
78+49.5	15.50	775	744	31'
78+57.5	15.50	775	744	31'
78+65.5	15.50	769.7	744	25.7'
78+73.5	15.50	763.4	744	19.4'
78+81.5	15.50	757.2	744	13.2'
78+89.5	15.50	750.9	744	6.9'
78+97.5	15.50	767	746	21'
79+05.5	65.50	767	746	21'
79+13.5	15.50	767	747	20'
79+21.5	15.50	767	747	20'
79+29.5	15.50	767	747	20'
79+37.5	15.50	767	747	20'
79+45.5	15.50	767	747	20'
79+53.5	15.50	767	747	20'
79+61.5	15.50	767	747	20'
79+69.5	15.50	767	747	20'
79+77.5	15.50	767	747	20'
79+85.5	15.50	767	747	20'
79+93.5	15.50	767	747	20'
79+101.5	15.50	767	747	20'
79+109.5	15.50	767	747	20'
79+117.5	15.50	767	747	20'
79+125.5	15.50	767	747	20'
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79+149.5	15.50	767	747	20'
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79+205.5	15.50	767	747	20'
79+213.5	15.50	767	747	20'
79+221.5	15.50	767	747	20'
79+229.5	15.50	767	747	20'
79+237.5	15.50	767	747	20'
79+245.5	15.50	767	747	20'
79+253.5	15.50	767	747	20'
79+261.5	15.50	767	747	20'
79+269.5	15.50	767	747	20'
79+277.5	15.50	767	747	20'
79+285.5	15.50	767	747	20'
79+293.5	15.50	767	747	20'
79+301.5	15.50	767	747	20'
79+309.5	15.50	767	747	20'
79+317.5	15.50	767	747	20'
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79+397.5	15.50	767	747	20'
79+405.5	15.50	767	747	20'
79+413.5	15.50	767	747	20'
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79+965.5	15.50	767	747	20'
79+973.5	15.50	767	747	20'
79+981.5	15.50	767	747	20'
79+989.5	15.50	767	747	20'
79+997.5	15.50	767	747	20'

Revisions			
Symbol	Descriptions	Date	Appr

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: _____

Drawn by: _____

Checked by: _____

Submitted by: _____

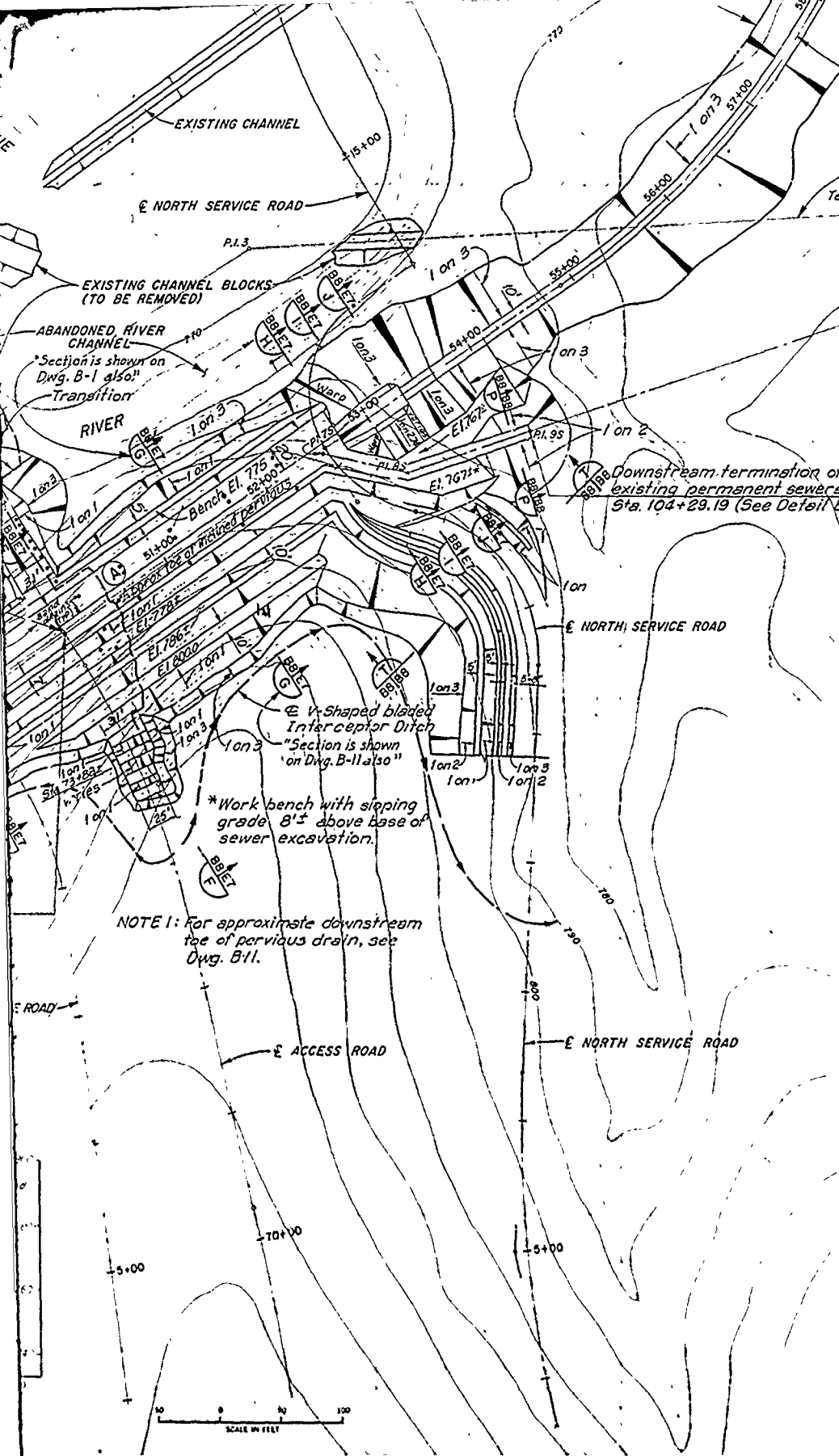
EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

PLAN OF EXCAVATION
AND SECTIONS

Scale: AS SHOWN

Date: JUNE 1990

Sheet number: 10



SAND DRAIN INSTALLATION SCHEDULE

STATION	RANGE	APPROXIMATE TOP ELEVATION	BOTTOM ELEVATION	APPROXIMATE DEPTH
78+08.5	15.50	767	740	27'
75+17.5	15.50	767	746	21'
75+27.5	15.50	768.5	746	22.5'
75+37.5	15.50	775	744	31'
75+47.5	15.50	775	744	31'
75+57.5	15.50	775	744	31'
75+67.5	15.50	769.7	744	25.7'
75+77.5	15.50	763.4	744	19.4'
75+87.5	19.50	757.2	744	13.2'
75+97.5	15.50	750.9	744	6.9'
75+12.5	65.50	767	746	21'
75+17.5	65.50	767	746	21'
75+12.5	115.50	767	747	20'
75+17.5	115.50	767	747	20'
75+12.5	165.50	767	747	20'
75+17.5	165.50	767	747	20'
75+12.5	215.50	767	747	20'
75+17.5	215.50	767	747	20'
74+91	15.50	767	716	21'
74+82	25.50	770	747	23'
74+72	15.50	778	747	28'
74+72	25.50	778	747	31'
74+68.5	65.50	767	747	20'
74+88.5	115.50	767	747	20'
74+88.5	165.50	767	747	20'
74+88.5	215.50	767	747	20'

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: _____

Drawn by: _____

Checked by: _____

Submitted by: _____

EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

PLAN OF EXCAVATION
AND SECTIONS

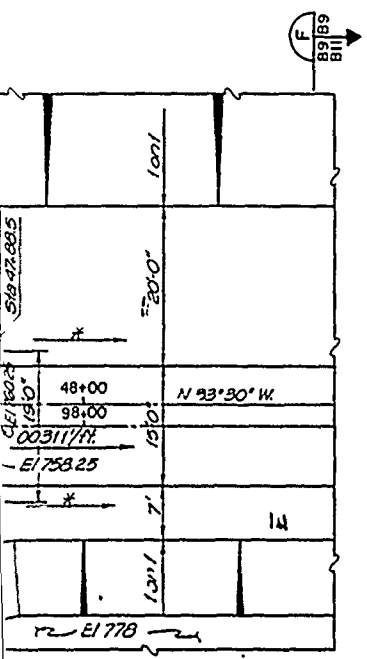
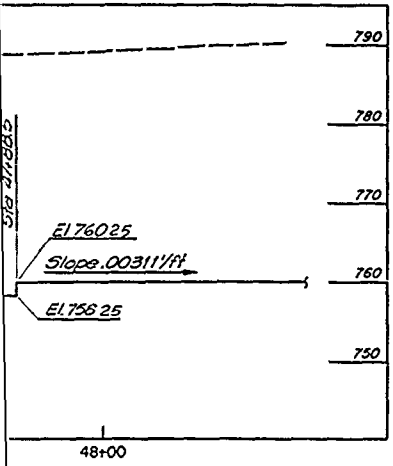
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Date: JUNE 1990

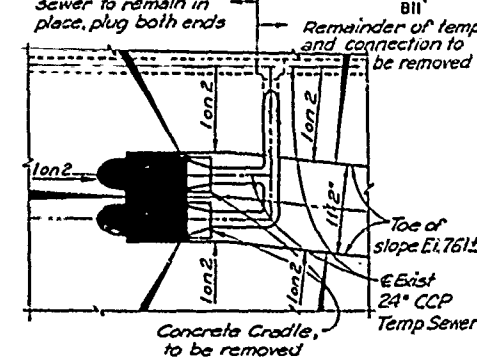
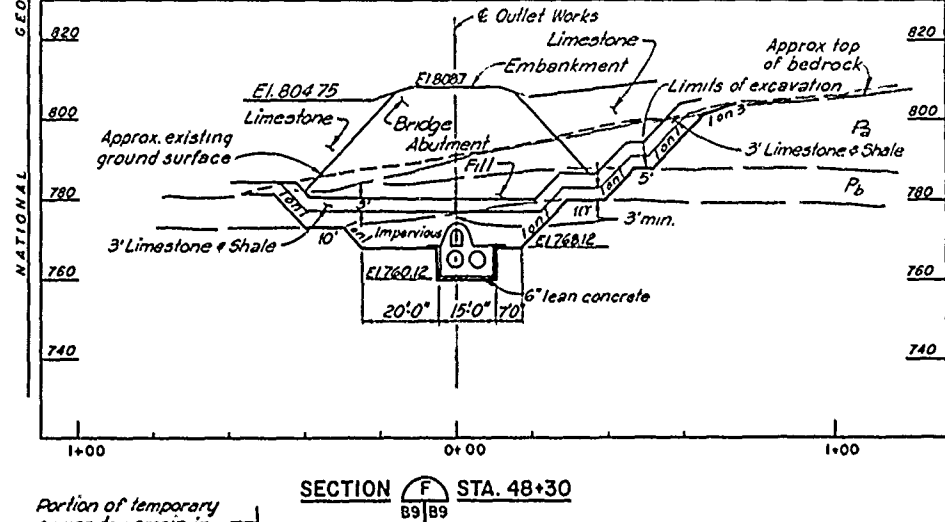
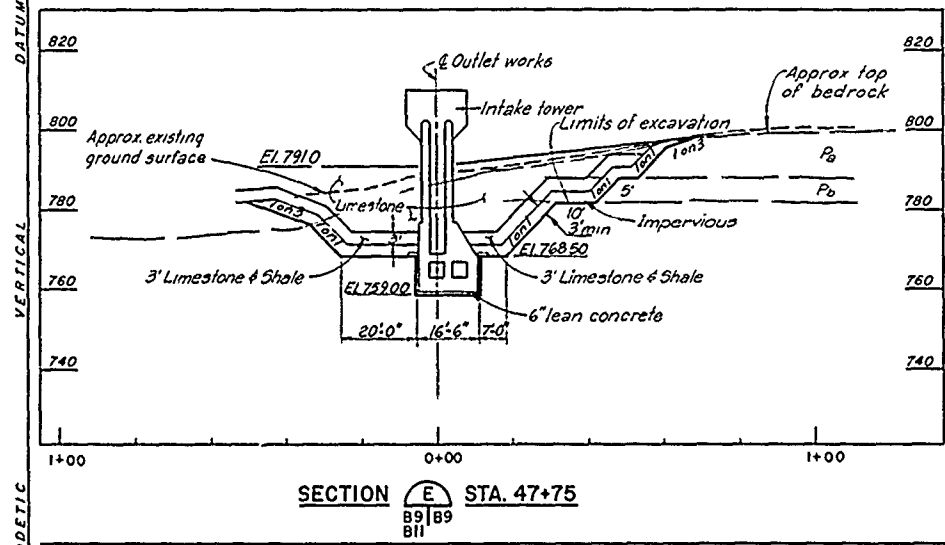
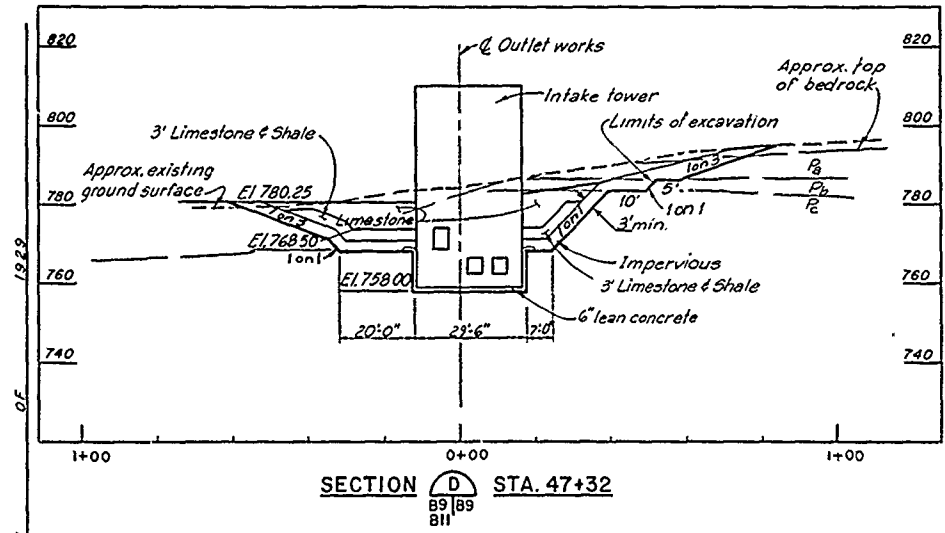
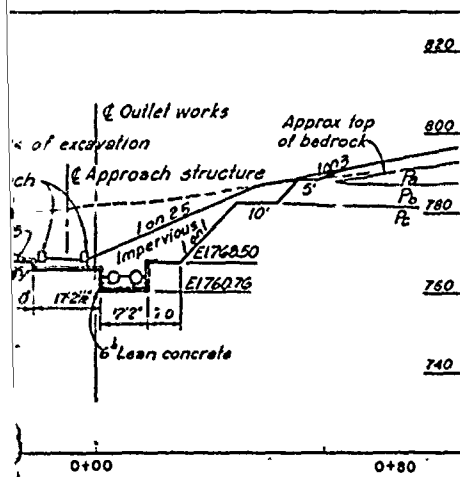
Dwg. No.: _____

Sheet number: 10

File No: RBL-2-1230



Top of work bench to be 8.0' above
 top of base of sewer excavation
 upstream from Sta. 47+88.5

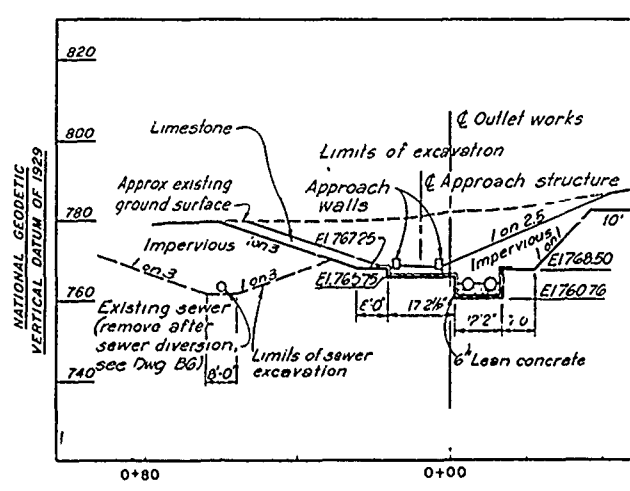
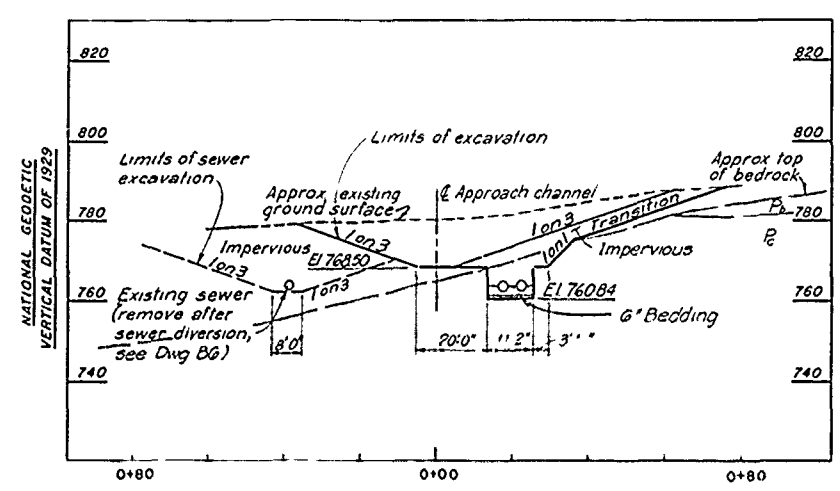
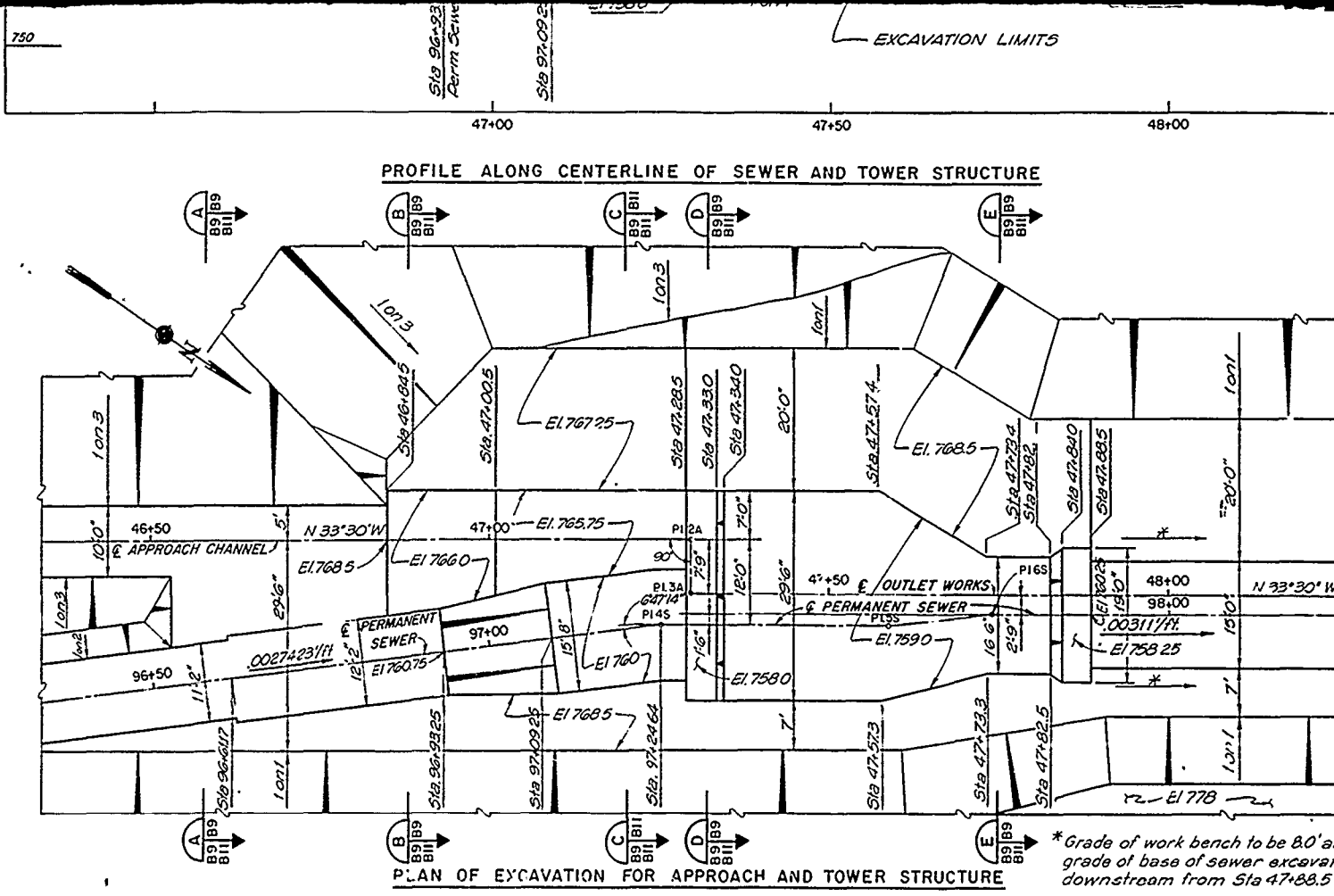


Symbol	Revisions Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

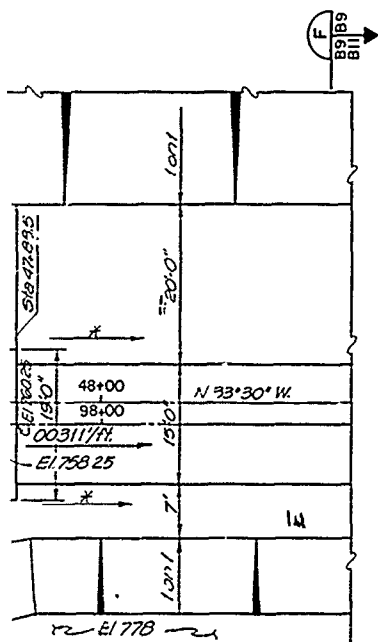
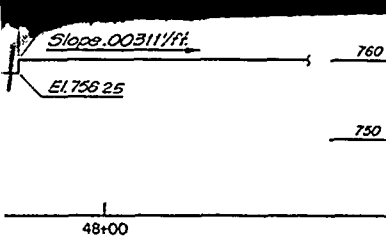
Designed by: _____
 Drawn by: _____
 Checked by: _____

Scale: 2" = 30' 0"

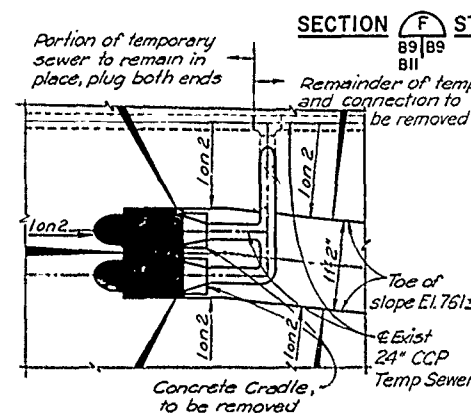
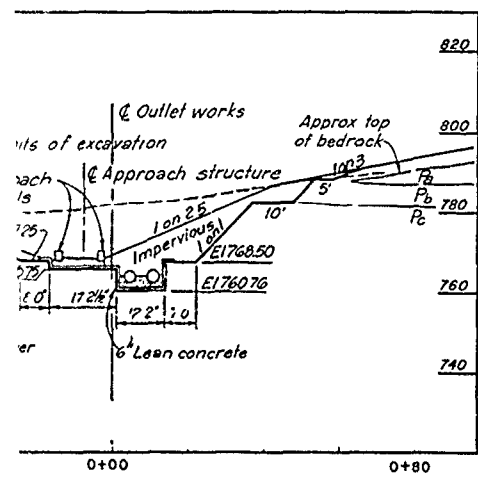
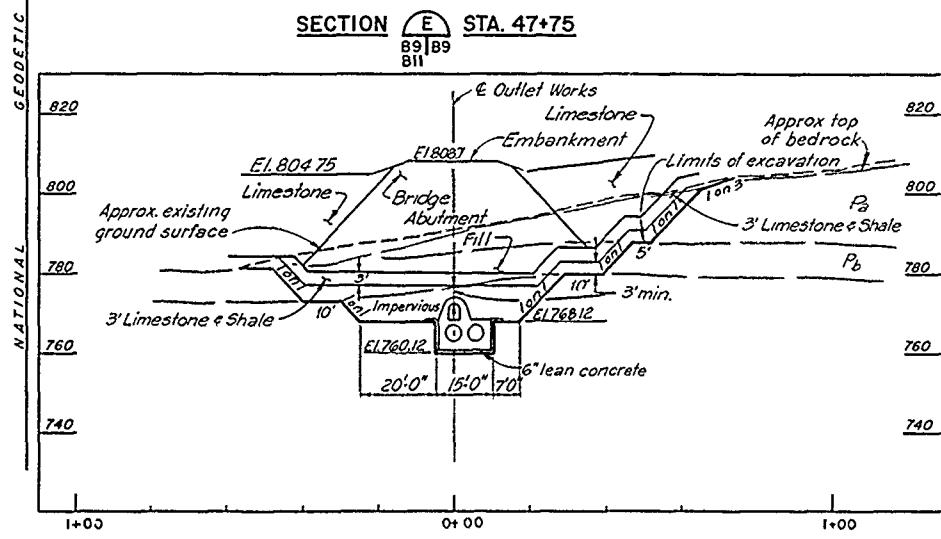
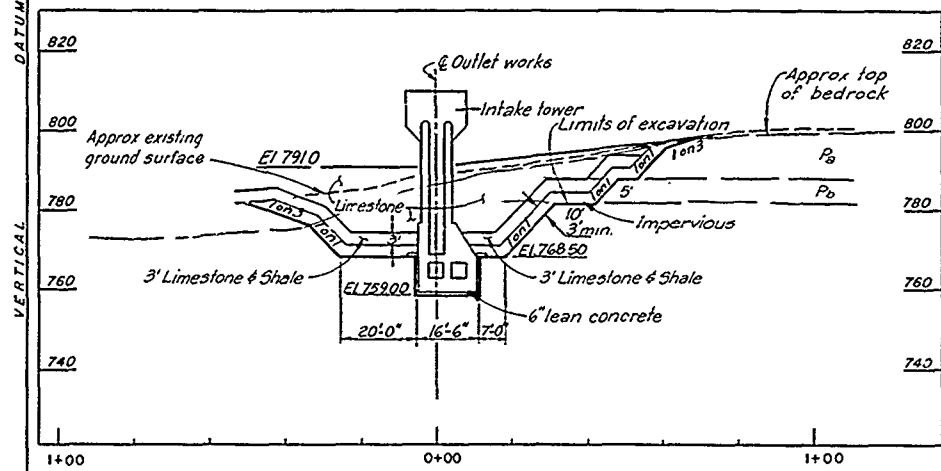
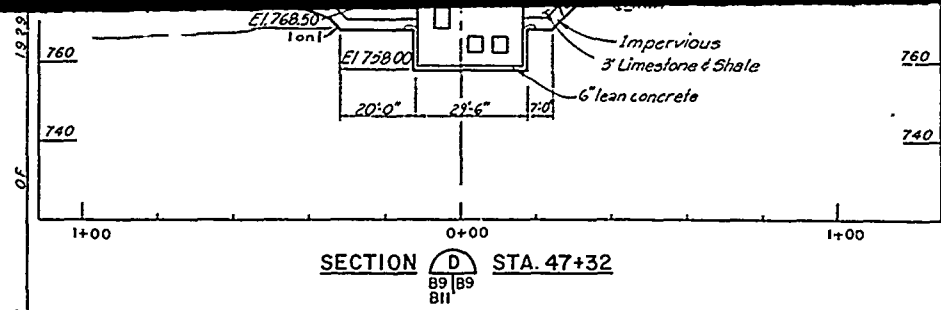


SECTION A STA. 46+58
89|89
Bill

SECTION B STA. 46+88
89|89
Bill



side of work bench to be 8.0' above
side of base of sewer excavation
downstream from Sta 47+88.5



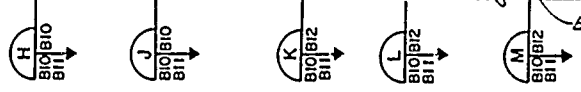
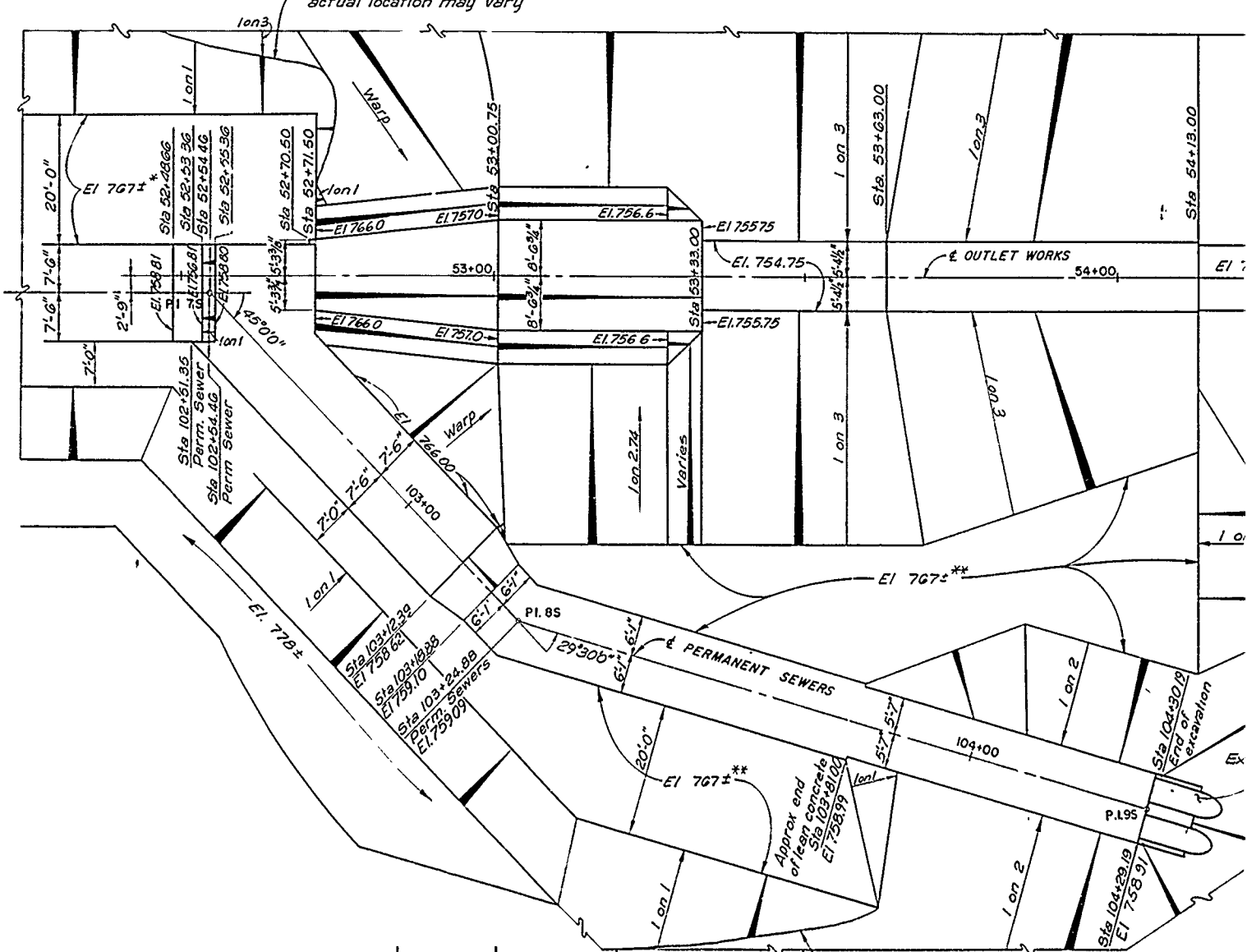
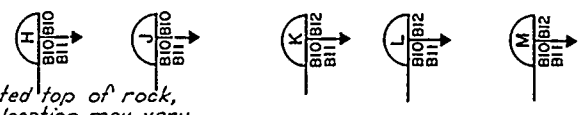
EXCAVATION AT UPSTREAM TERMINATION OF EXISTING PERMANENT SEWER
Not to Scale

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	Scale:	AS SHOWN
Drawn by:		Date:	JUNE 1990
Checked by:		Sheet number:	11
Submitted by:		Dwg. No.:	RBL-2-1231

SECTION B STA. 46+88
89/89
B11

STATION	X	Y	ELEV.
52+71.50	0	0	764.00
52+76.50	5	0.26	763.74
52+81.50	10	1.05	762.95
52+86.50	15	2.37	761.63
52+91.50	20	4.21	759.79
52+96.50	25	6.57	757.43
53+00.75	29.25	9.00	755.00

NOTE
See Dwg B11 for layout of stilling basin

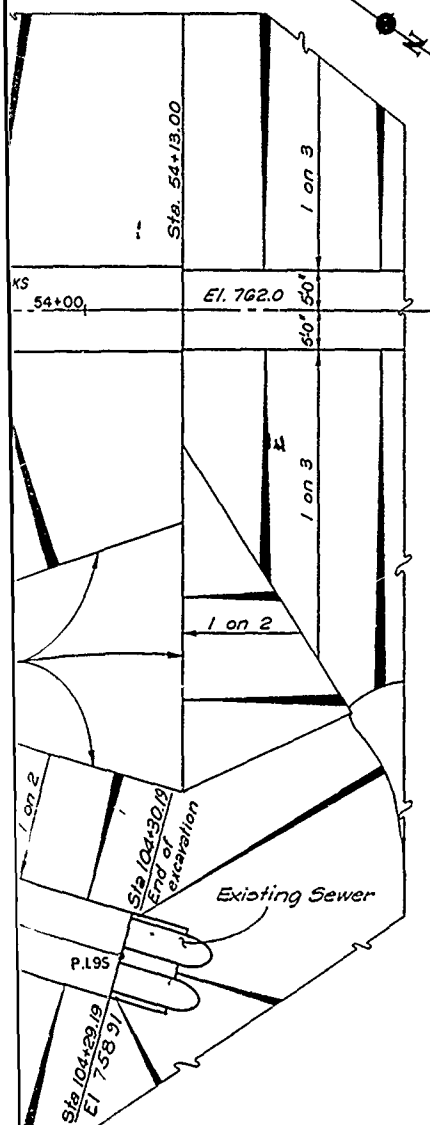


* Grade of work bench to be 80% above grade of base of sewer excavation from Sta 97+88.5 to Sta 103+12.
 ** Grade of work bench to be 7.5'± above grade of base of sewer excavation from Sta 103+19 to end.

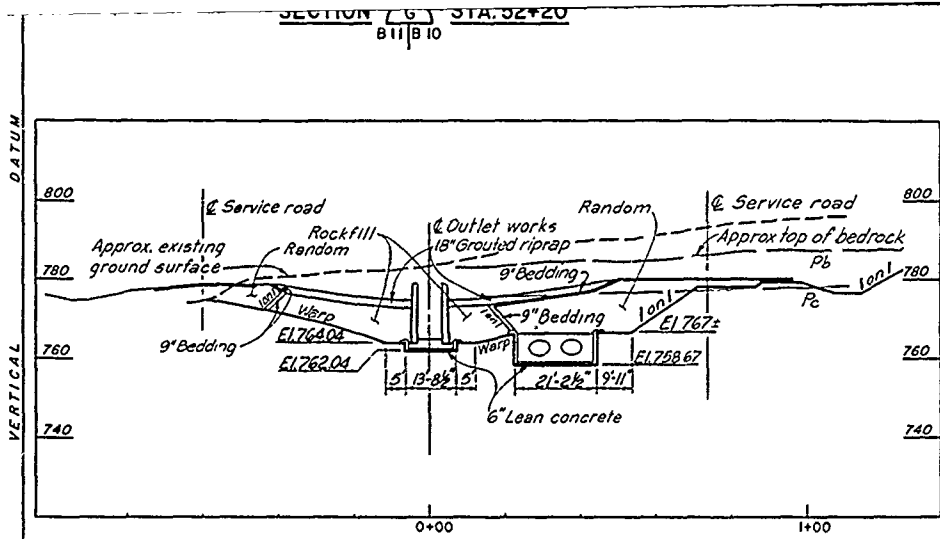
PLAN OF EXCAVATION FOR STILLING BASIN AND PERMANENT SEWER



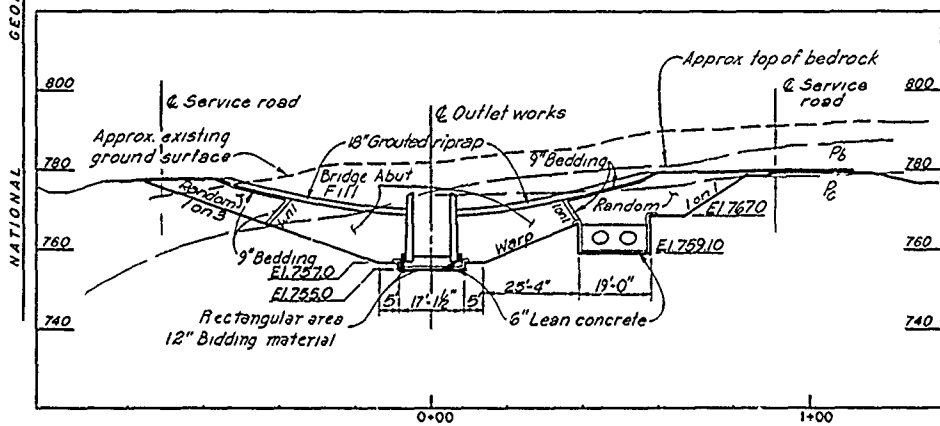
for layout of stilling basin



ual location may vary



SECTION H STA. 52+85



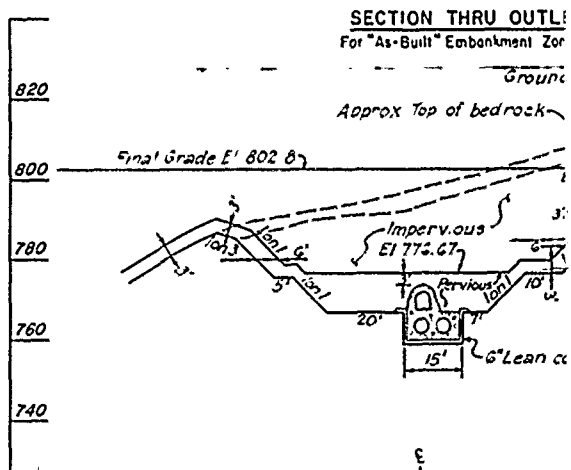
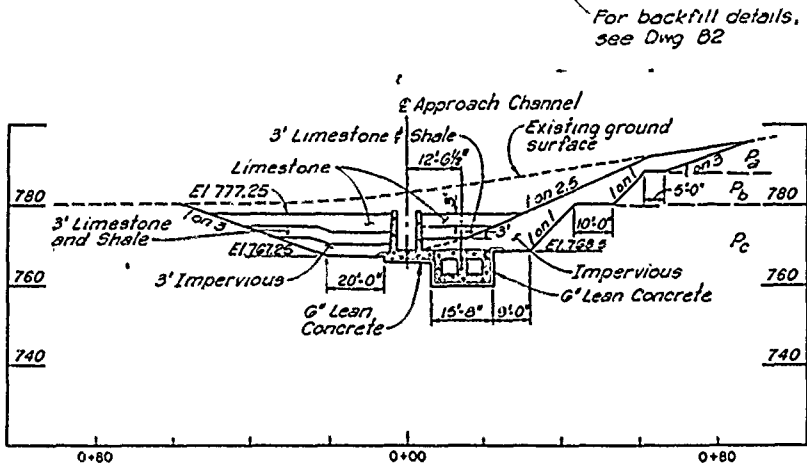
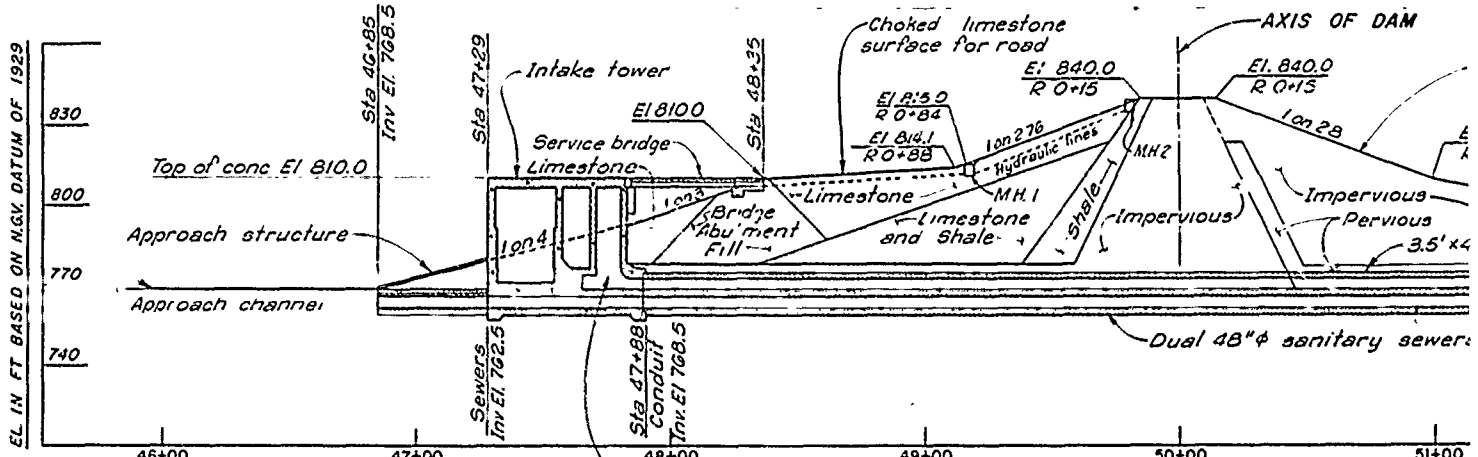
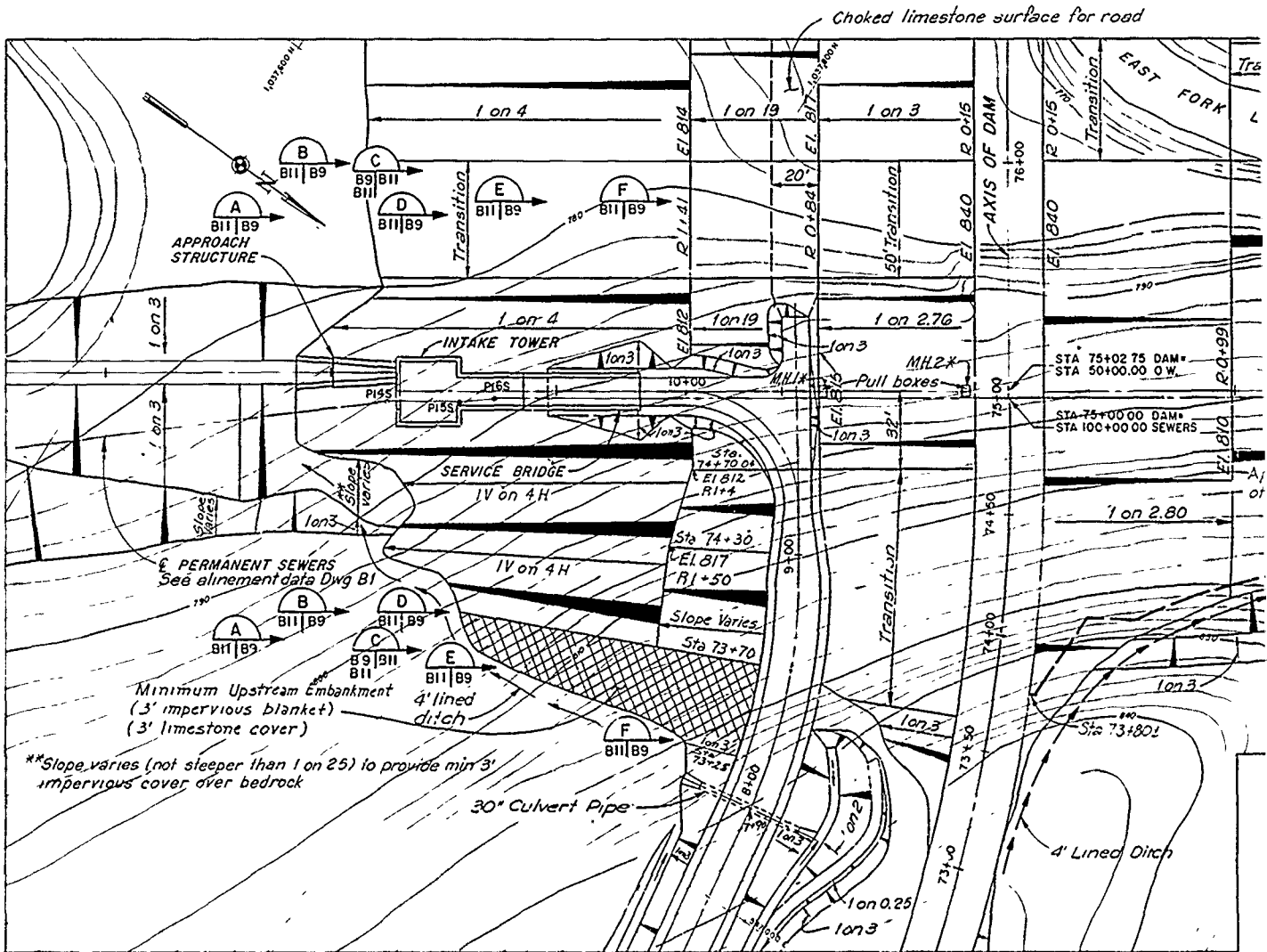
SECTION J STA. 53+01

NOTE:
See excavation and backfill Sta. 51+35 on dng B11

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

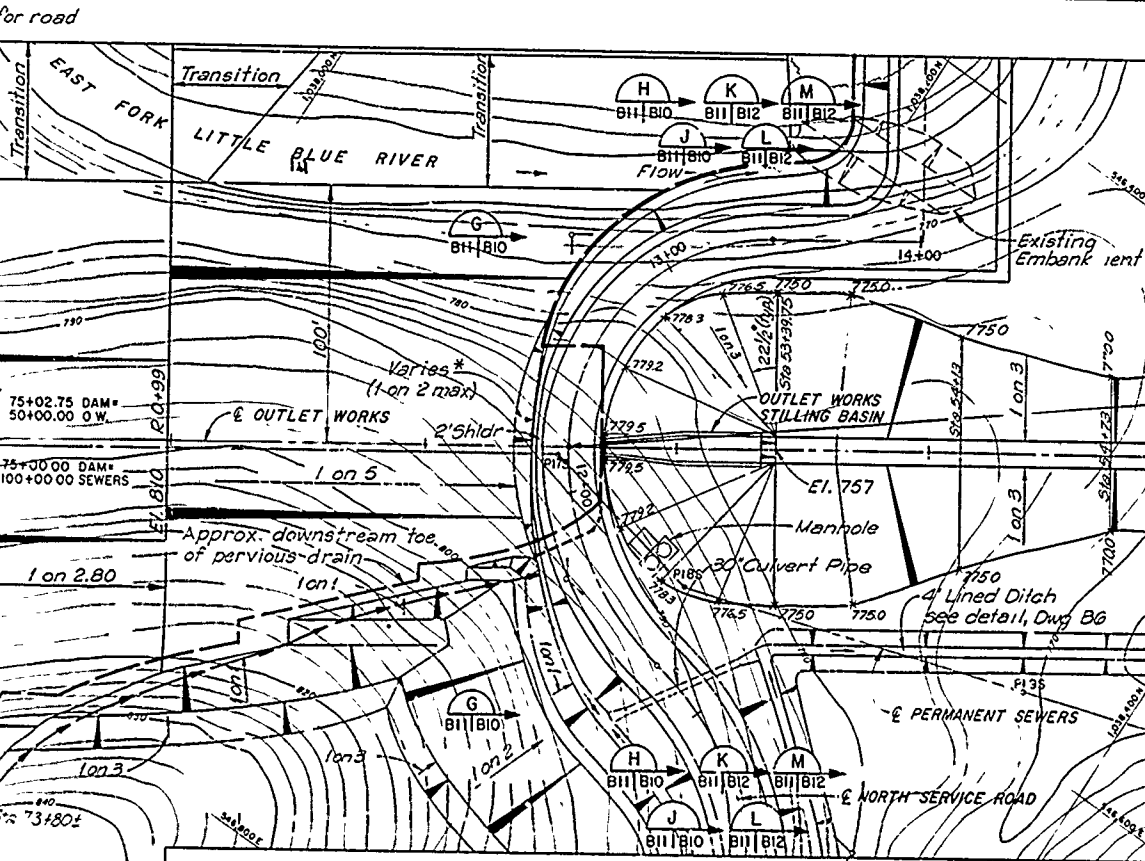
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Drawn by:		Date	JUNE 1990	File No.	
Checked by:		Dwg No.:	RBL-2-1232		
Submitted by:					



For backfill details, see Dwg B2

SECTION THRU OUTLET For "As-Built" Embankment Zone

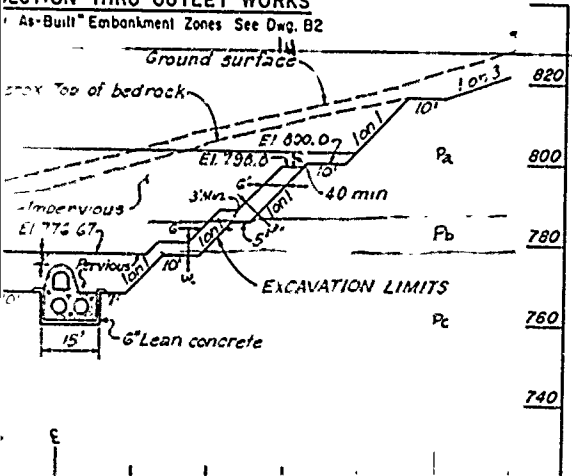
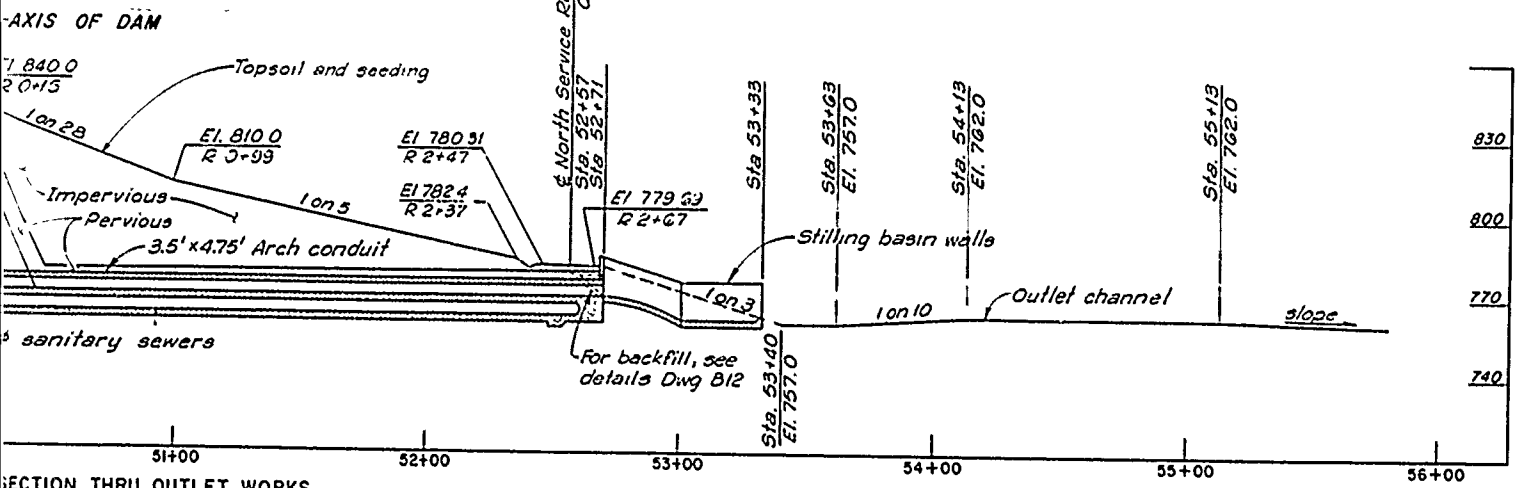
VALUE ENGINEERING PAYS



12" Bedding on all Rock Fill / Pervious
Contact at 1 on 1 DNST. and Vert. on 30'
At Side portion As-Built

Connect to Side Hill
Drainage Channel

* Backslope varies to intersect embankment
slope within 8' of ditchline.



NOTE:
See drawings B2 and B3
for embankment details

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

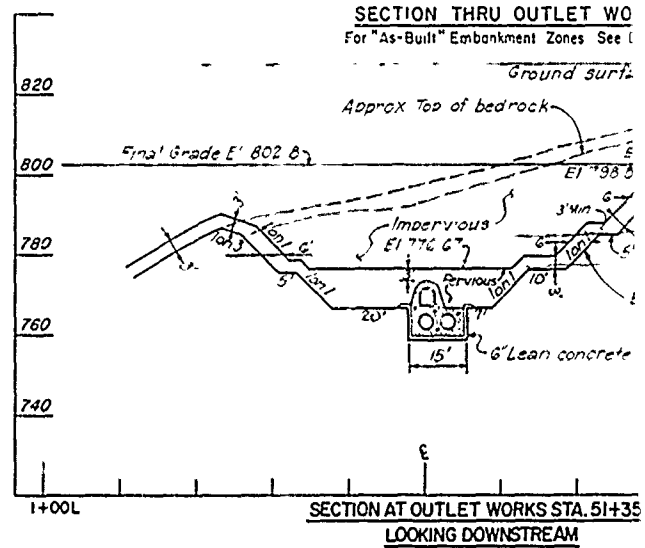
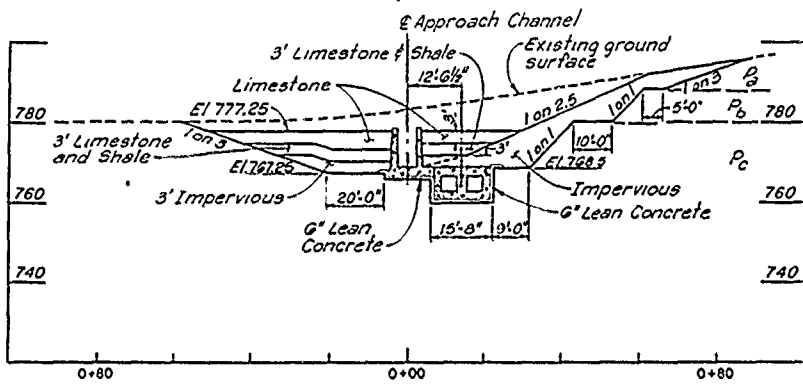
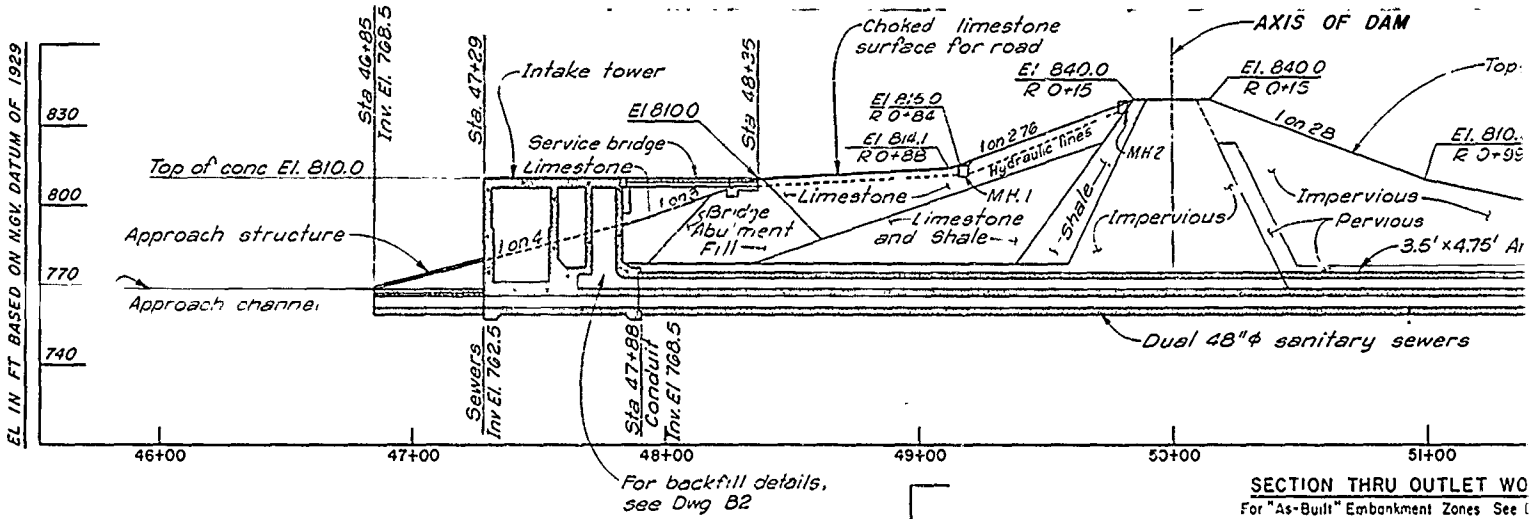
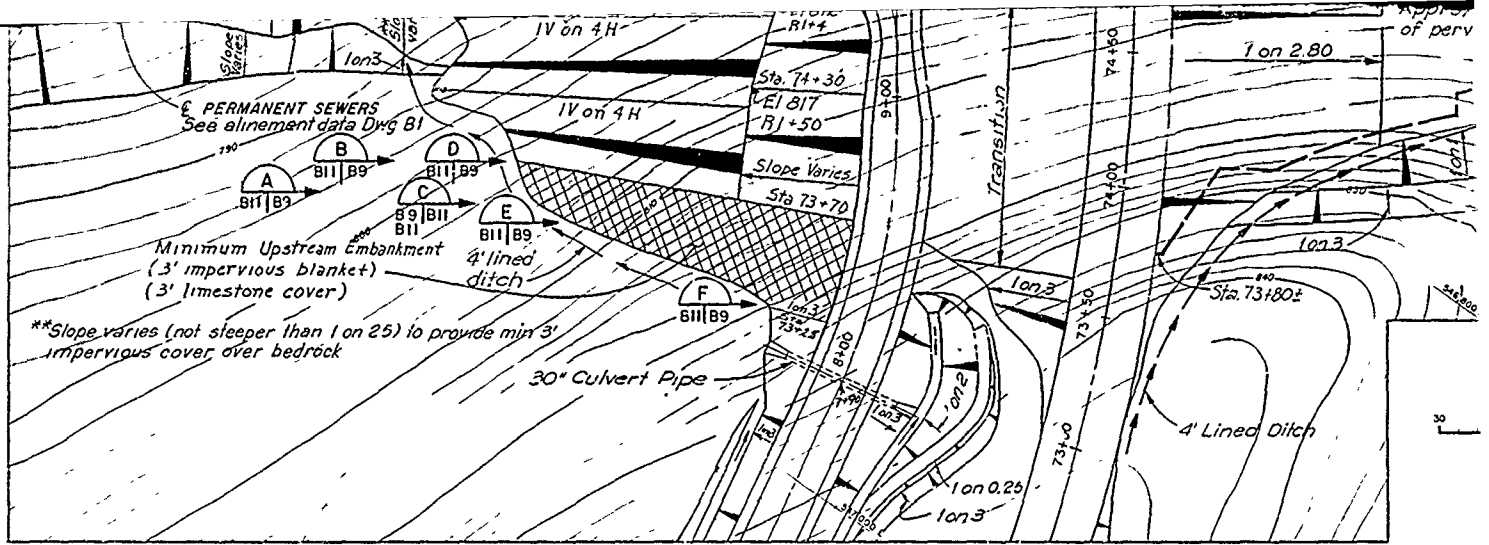
Designed by: _____

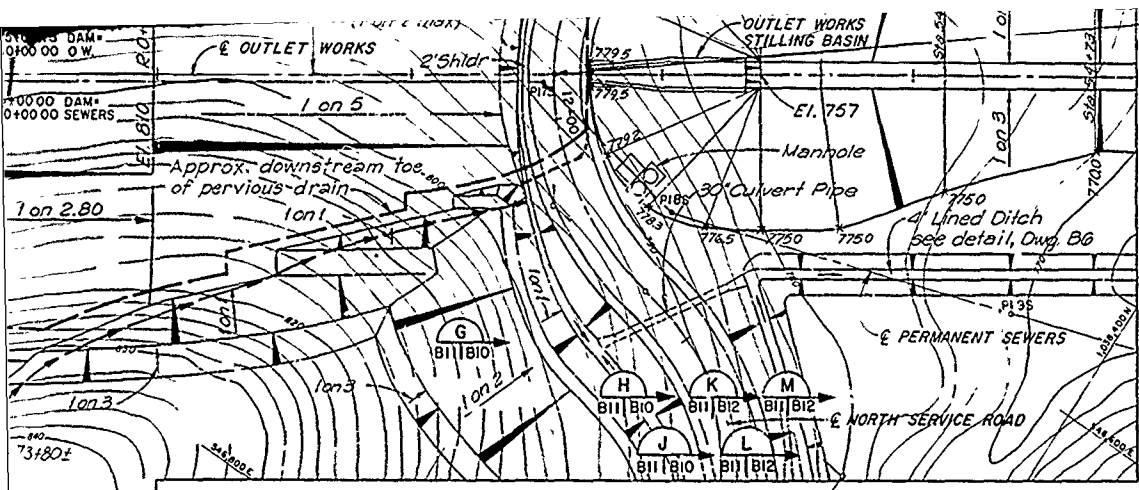
Drawn by: _____

Checked by: _____

OUTLET WORKS PLAN AND SECTION

Scale: AS SHOWN Sheet No. 2 of 2

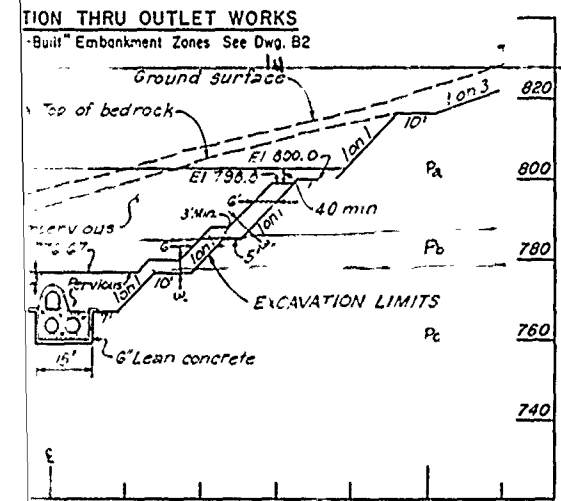
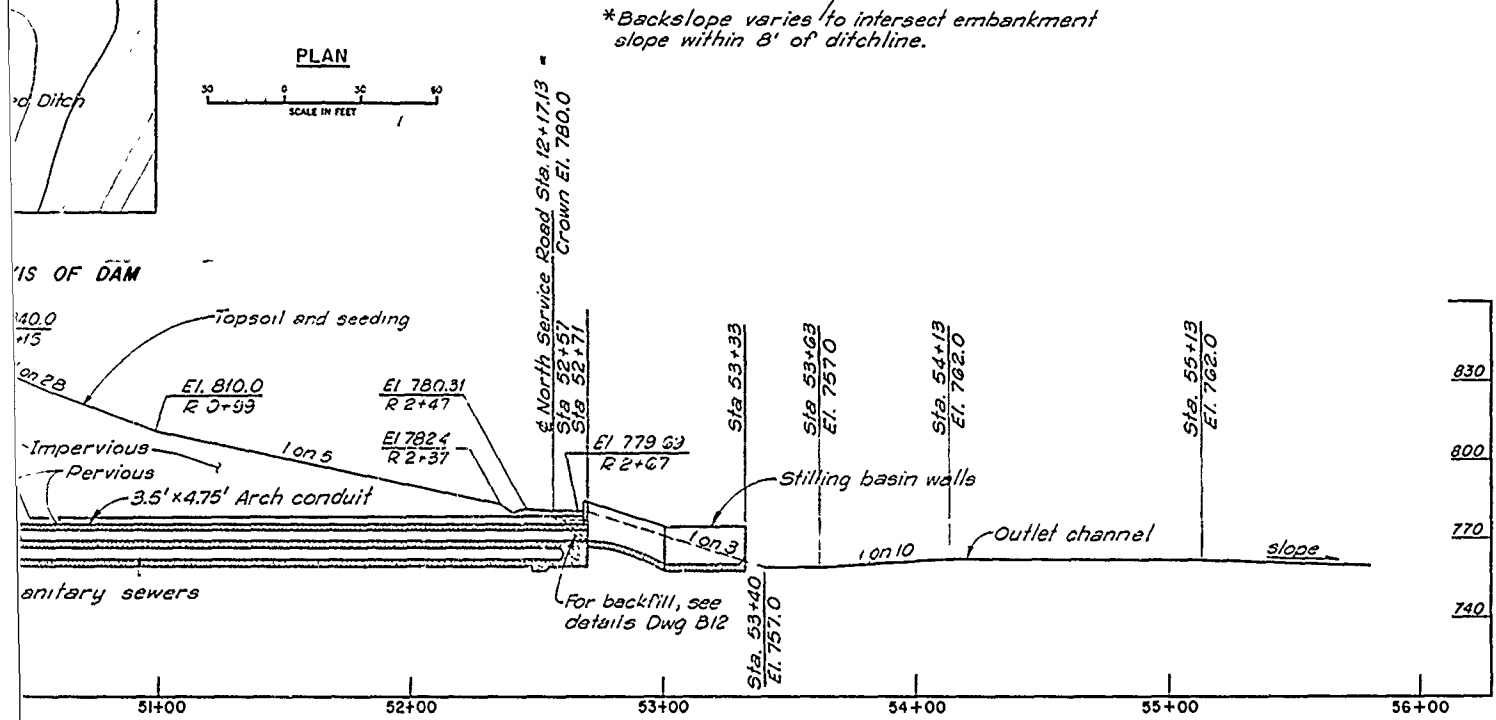
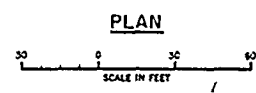




12 Bedding on all Rock Fill / Pervious
 Contact at 1on1 DNST. and Vert. on 30
 Rt Side portion As-Built

Connect to Side Hill
 Drainage Channel

* Backslope varies to intersect embankment
 slope within 8' of ditchline.



NOTE:
 See drawings B2 and B3
 for embankment details

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

DESIGNED BY: [Signature] EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE
 CONSTRUCTION FOUNDATION REPORT

DRAWN BY: [Signature]

CHECKED BY: [Signature]

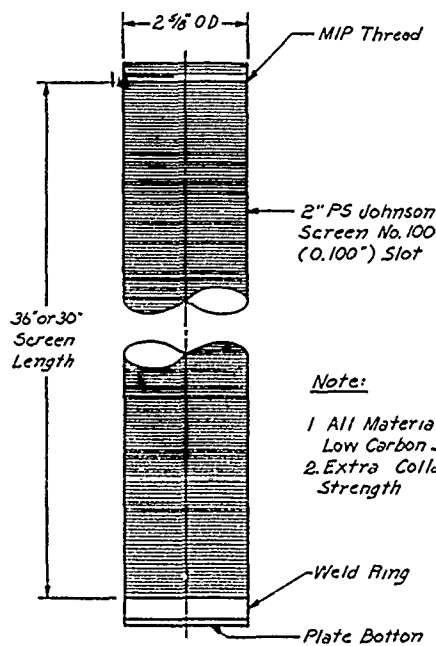
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Scale: AS SHOWN Sheet number: 13

Date: JUNE 1990

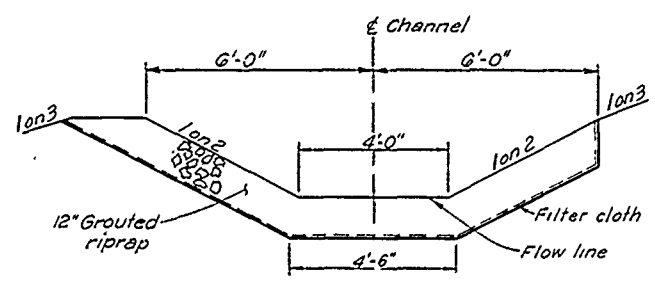
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OUTLET WORKS STA. 51+35
 LOOKING DOWNSTREAM



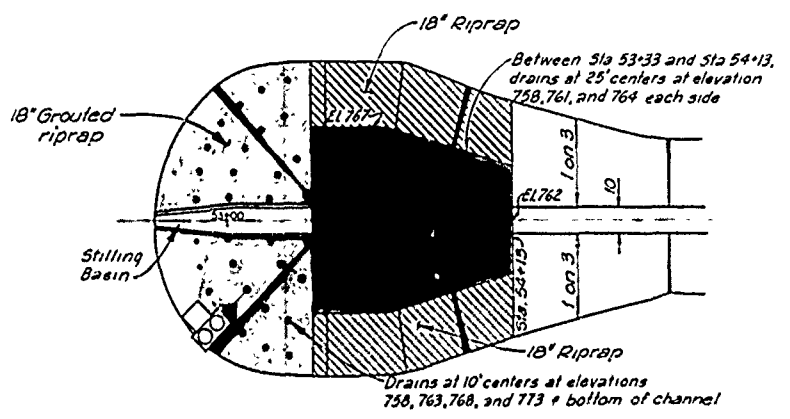
Note:
 1 All Material Galv Low Carbon Steel
 2 Extra Collapse Strength

"For connecting the 4-foot lined ditch to side-hill drainage channel, See Dwg B1 and B11."

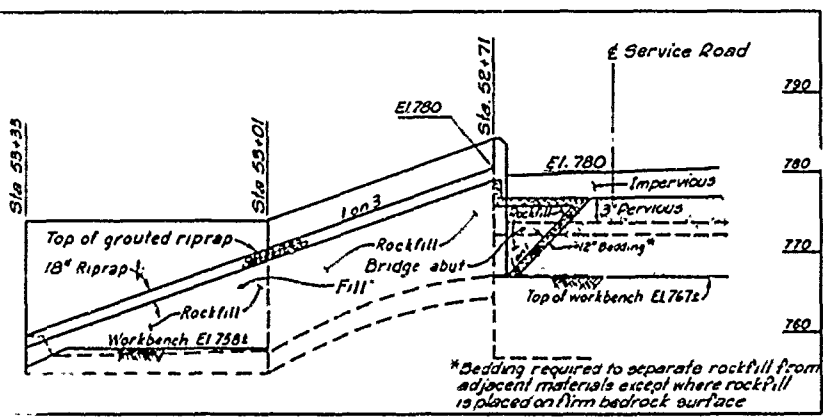


**DETAIL OF SIDE-HILL DRAINAGE CHANNEL
 LOOKING DOWNSTREAM
 Not to Scale**

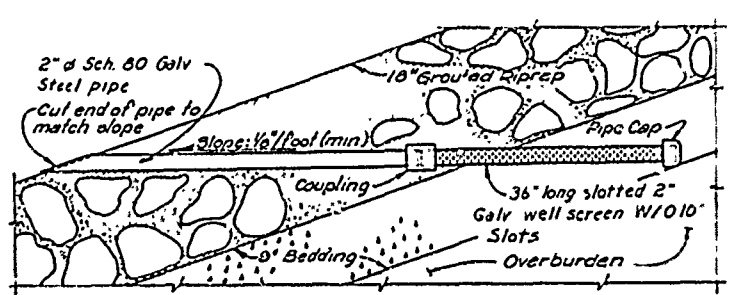
OUTLET WORKS & STATION	RIGHT ANGLE OFFSET FROM TANGENT TO & SIDE-DRAIN, FT	SIDE DRAIN ELEVATION IN FT (NGVD)
55+20.00	37.18 to P.C.	768.0
55+60.00	31.75	766.0
56+00.00	26.36	764.0
56+40.00	20.80	762.0
56+52.56	19.09 to P.T.	761.4
57+00.00		761.2



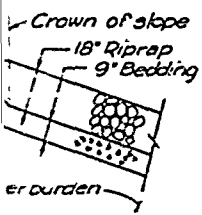
**PLAN OF STILLING BASIN
 SLOPE PROTECTION AND DRAINS**



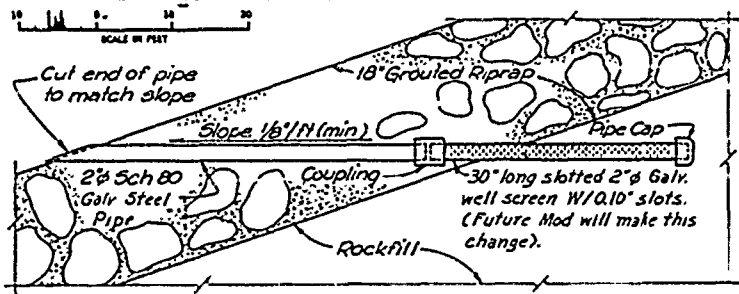
DETAIL OF BACKFILL AT STILLING BASIN



**STILLING BASIN OUTLET DRAIN
 INSTALLATION DETAIL
 RIPRAP OVER BEDDING
 Not to Scale**



**TERMINATION PROTECTION
 to Scale**

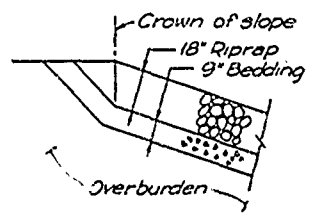
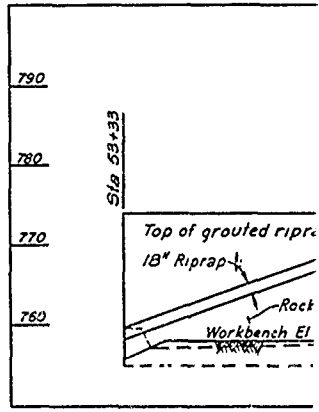
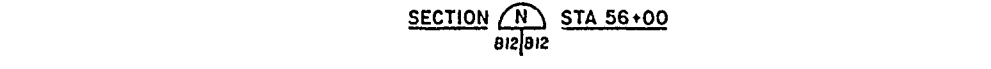
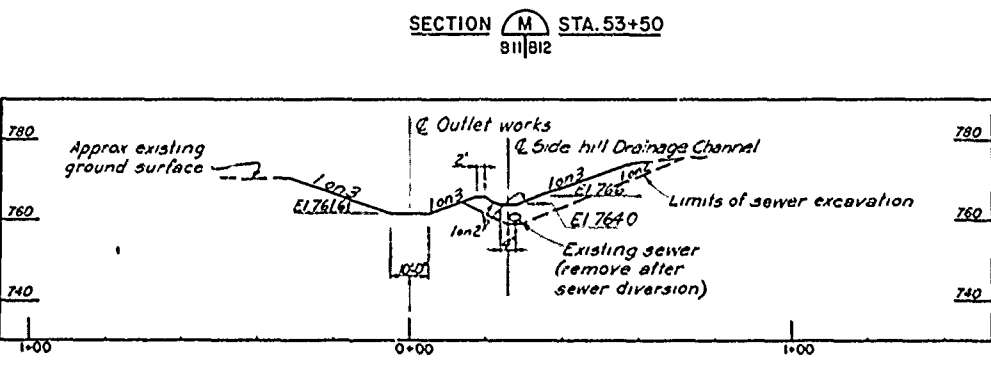
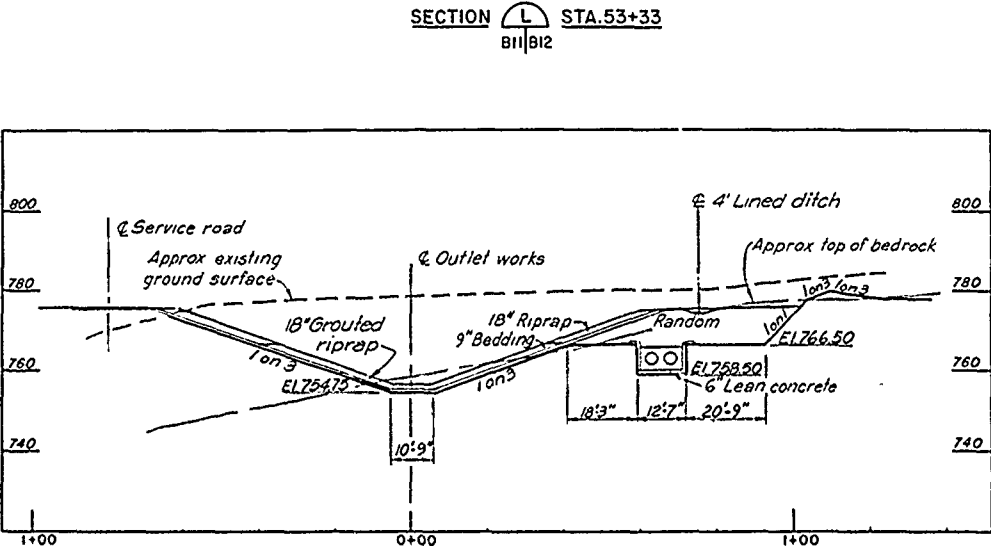
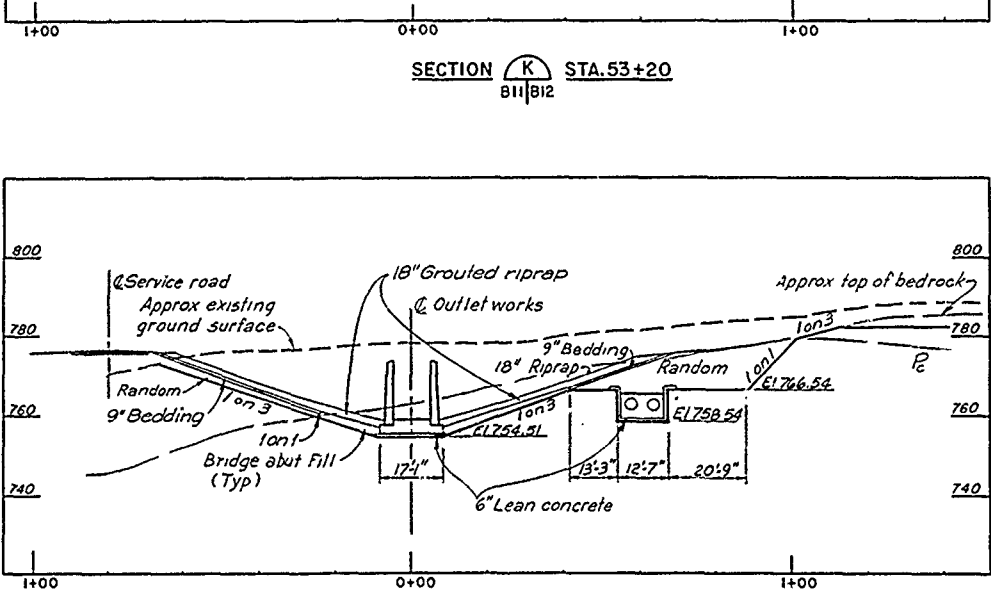


STILLING BASIN OUTLET DRAIN

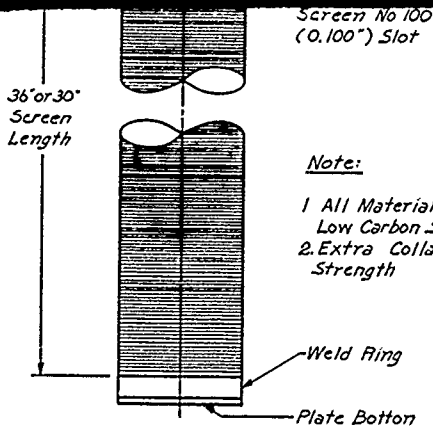
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drew by:			
Checked by:			

Screen Length

VERTICAL DATUM
GEODETTIC
NATIONAL



RECORD C
 SEPTEMBER
 CONTRACT NO. DACW

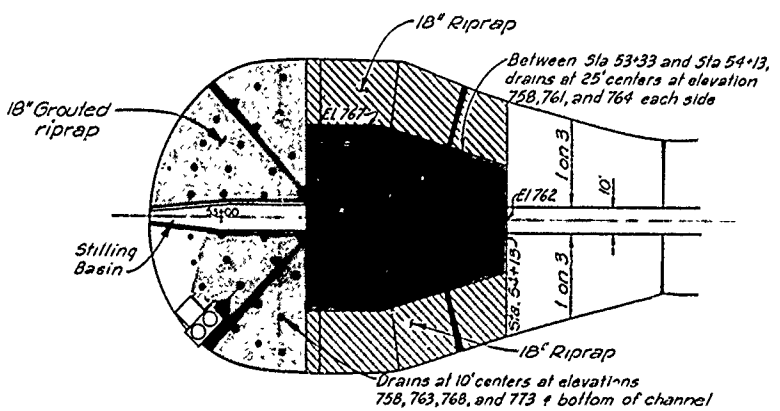


Note:
1 All Material Galv
Low Carbon Steel
2. Extra Collapse
Strength

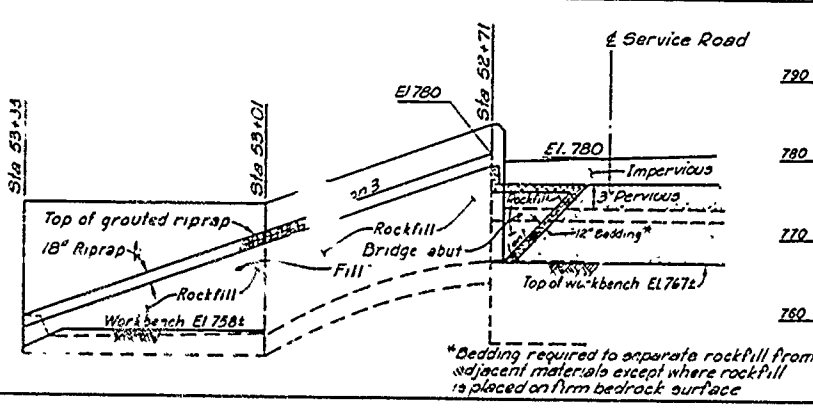
"For connecting the 4-foot-
lined ditch to side-hill
drainage channel, See Dwg
B1 and B11."

**DETAIL OF SIDE-HILL DRAINAGE CHANNEL
LOOKING DOWNSTREAM
Not to Scale**

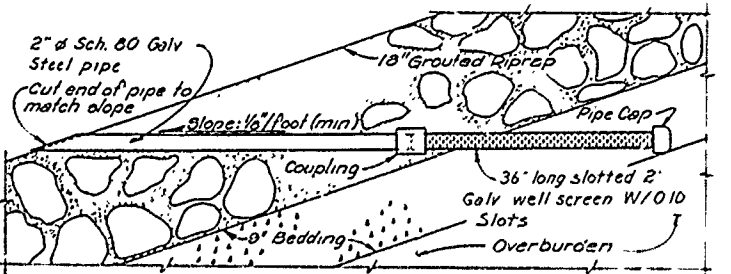
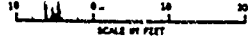
OUTLET WORKS & STATION	RIGHT ANGLE OFFSET FROM TANGENT TO & SIDE-DRAIN, FT.	SIDE DRAW ELEVATION IN FT (NGVD)
55+20.00	37.18 to PC	768.0
55+60.00	31.75	766.0
56+00.00	26.36	764.0
56+40.00	20.80	762.0
56+52.56	19.09 to PT	761.4
57+00.00		761.2



**PLAN OF STILLING BASIN
SLOPE PROTECTION AND DRAINS**



DETAIL OF BACKFILL AT STILLING BASIN



**STILLING BASIN OUTLET DRAIN
INSTALLATION DETAIL
RIPRAP OVER BEDDING
Not to Scale**

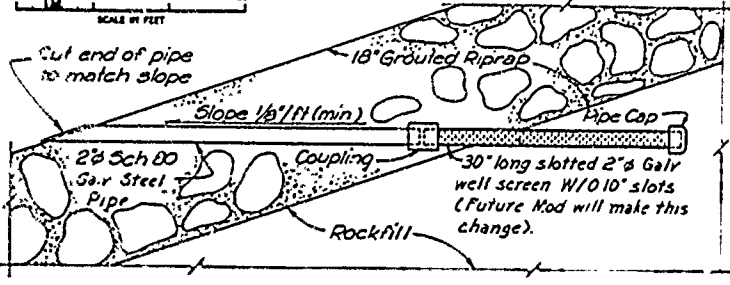
Crown of slope

18" Riprap

9" Bedding

Overburden

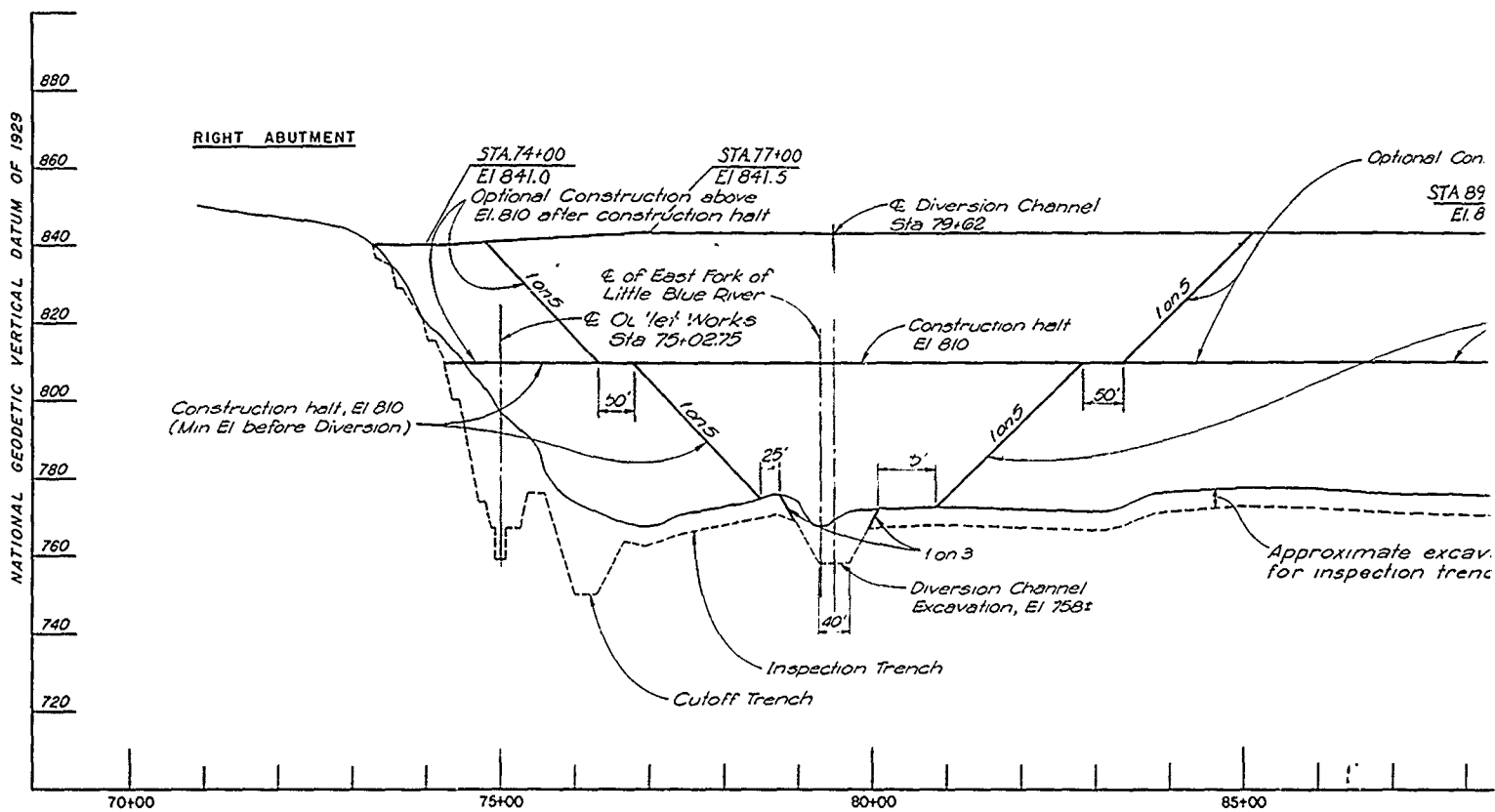
**TERMINATION
PROTECTION**
to Scale



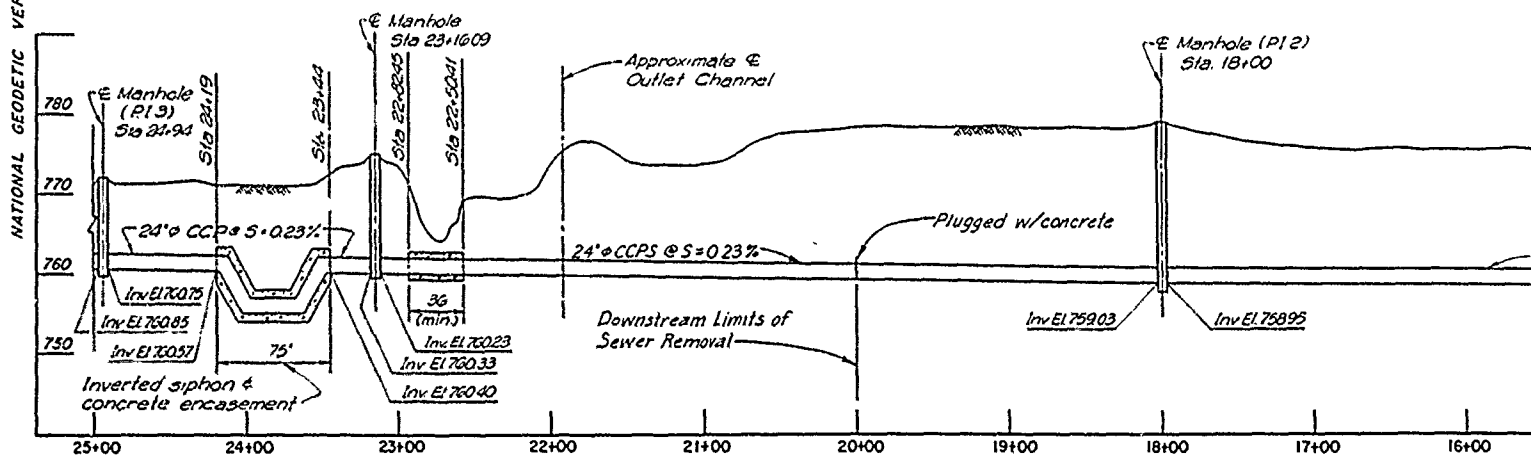
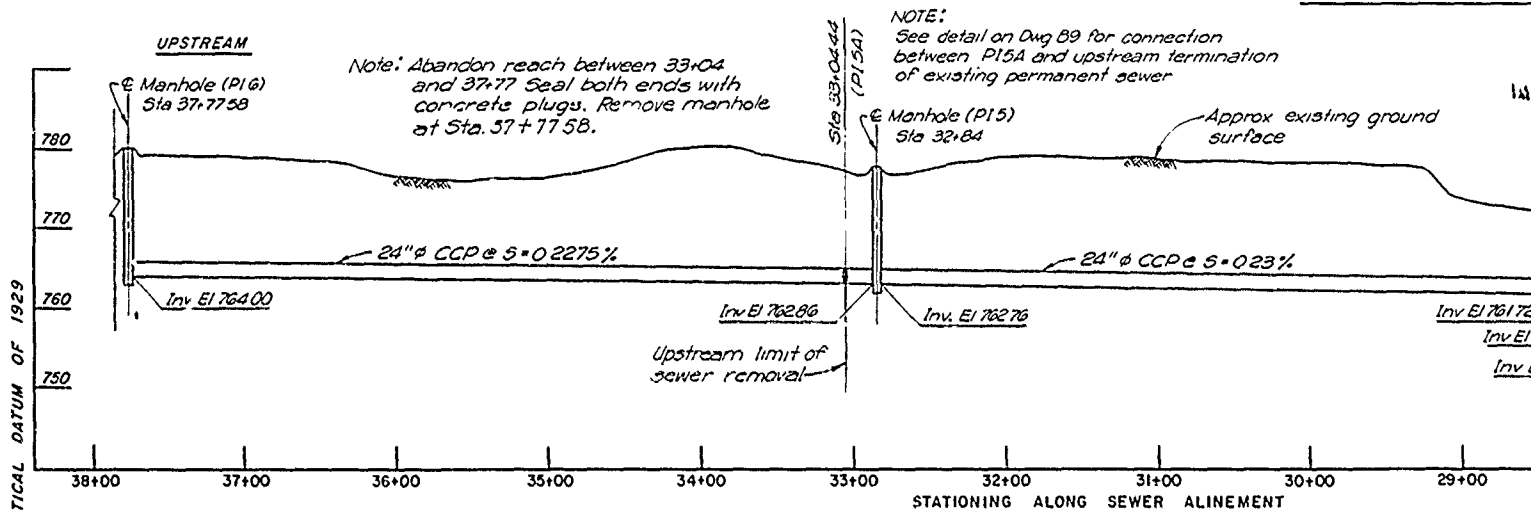
**STILLING BASIN OUTLET DRAIN
INSTALLATION DETAIL
RIPRAP OVER ROCKFILL
Not to Scale**

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:	OUTLET WORKS SECTIONS AND DETAILS		
Checked by:			
Submitted by:	Scale: AS SHOWN	Sheet number: 14	File No: RBL-2-1234
	Date: JUNE 1990		
	Dwg. No.:		

RECORD DRAWING
SEPTEMBER 1988
CONTRACT NO. BACW 41-82-C-0198

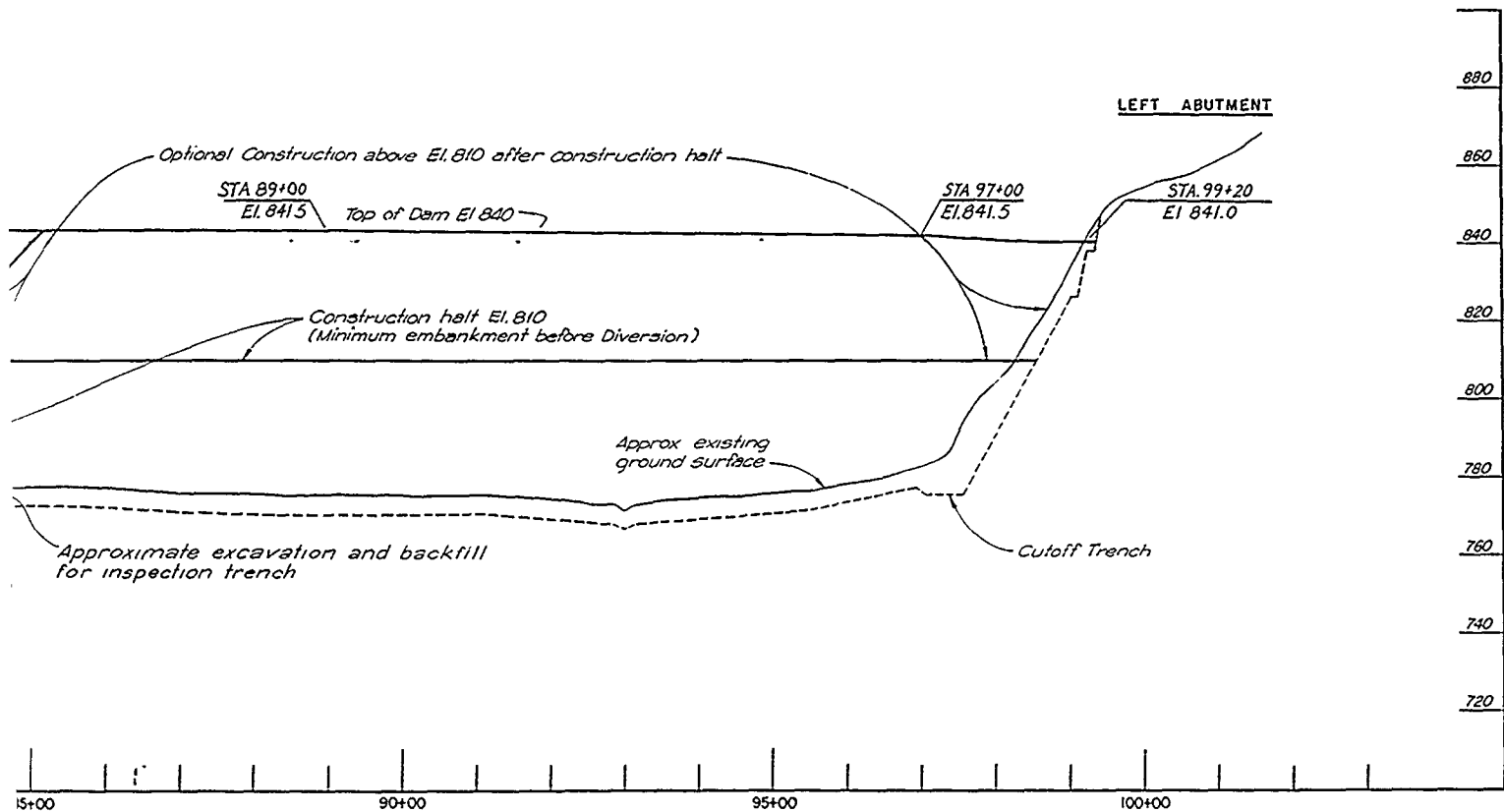


PROFILE ALONG E OF DAM AND C (LOOKING UPSTREAM)

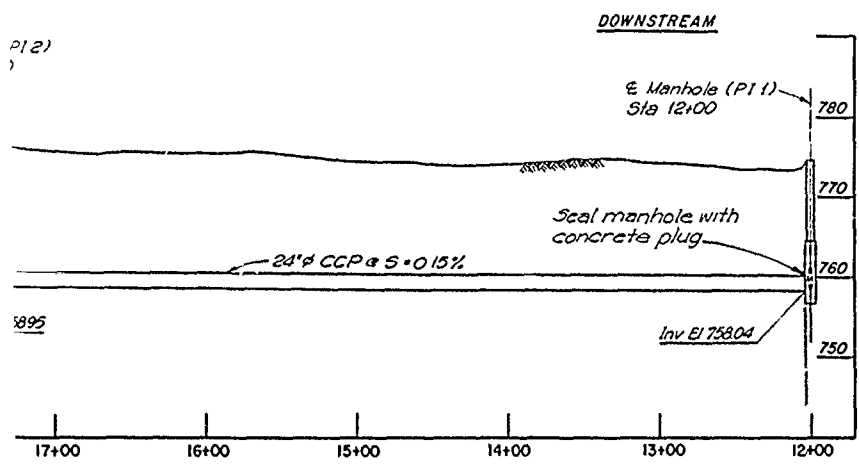
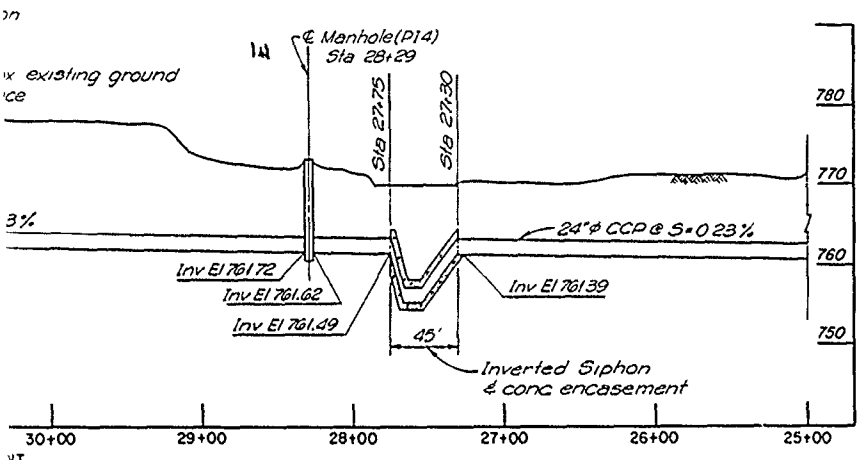


Note: All data for this profile obtained from Burns & McDonnell Plan & Profile drawings No. 6-1 and 7-1 of Contract No. C-3, dated August 7, 1978.

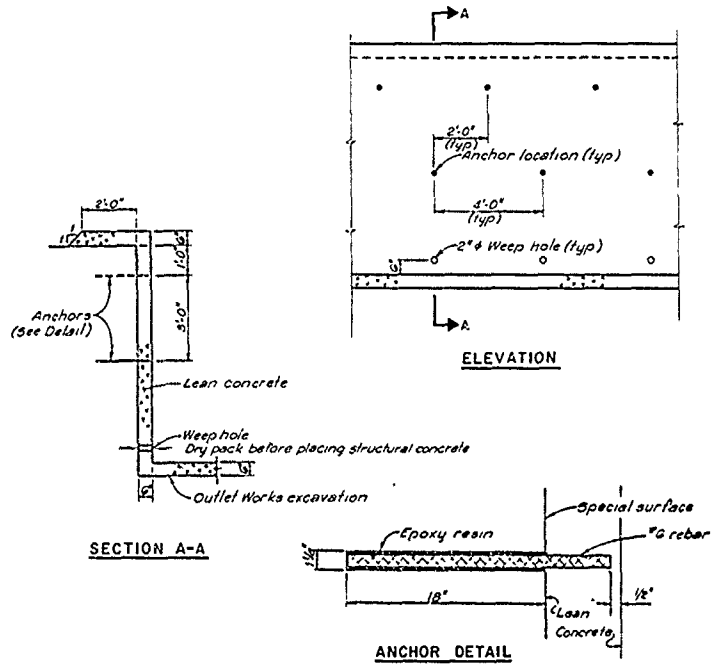
EXISTING TEMPORARY SEWER PROFILE




ALONG E DAM AND CUTOFF TRENCH
(LOOKING UPSTREAM)

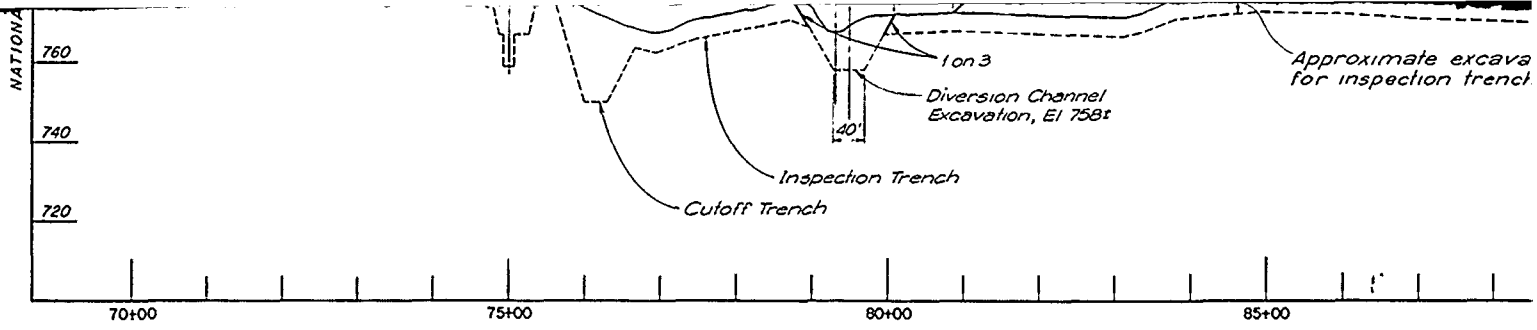


PROFILE

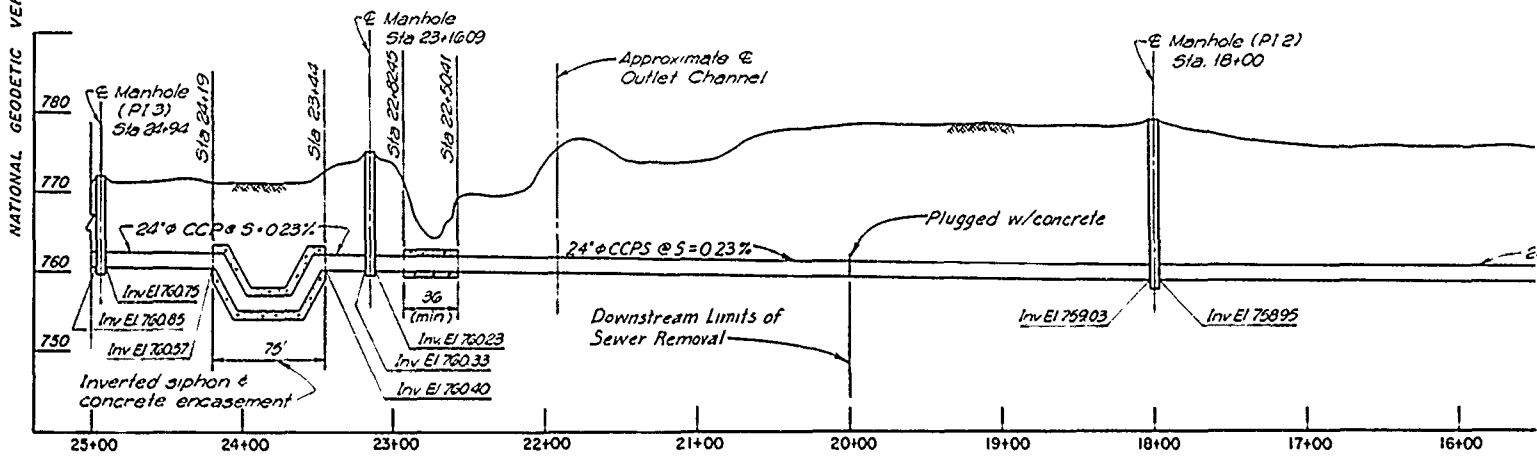
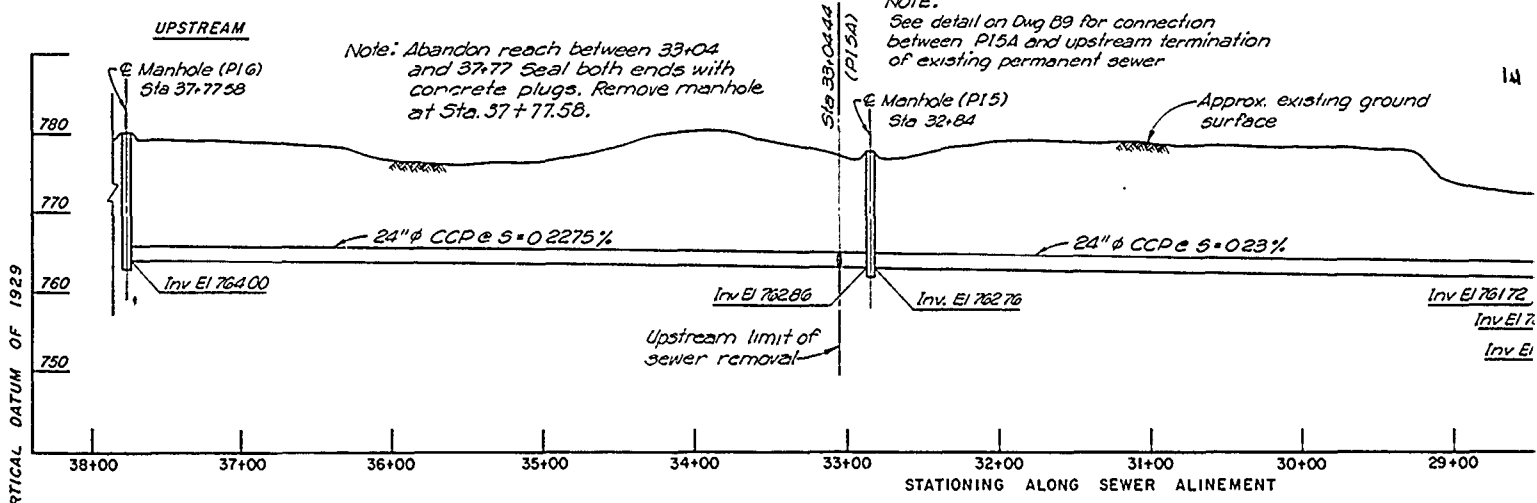


SPECIAL SURFACE AND BEARING SURFACE PROTECTION
LEAN CONCRETE DETAILS FOR
INTAKE TOWER AND OUTLET WORKS
N.T.S.

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:			
Checked by:			
DAM AXIS AND TEMPORARY SEWER PROFILES AND ANCHOR DETAILS		Scale: AS SHOWN	Sheet number



PROFILE ALONG E DAM AND C (LOOKING UPSTREAM)



Note: All data for this profile obtained from Burns & McDonnell Plan & Profile drawings No 6-1 and 7-1 of Contract No 4 J, dated August 7, 1978.

EXISTING TEMPORARY SEWER PROFILE

Construction halt: El 810
(Minimum embankment before Diversion)

Approx existing
ground surface

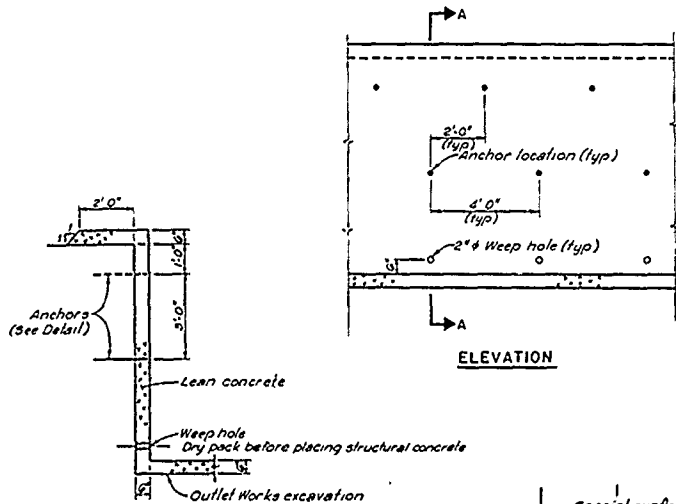
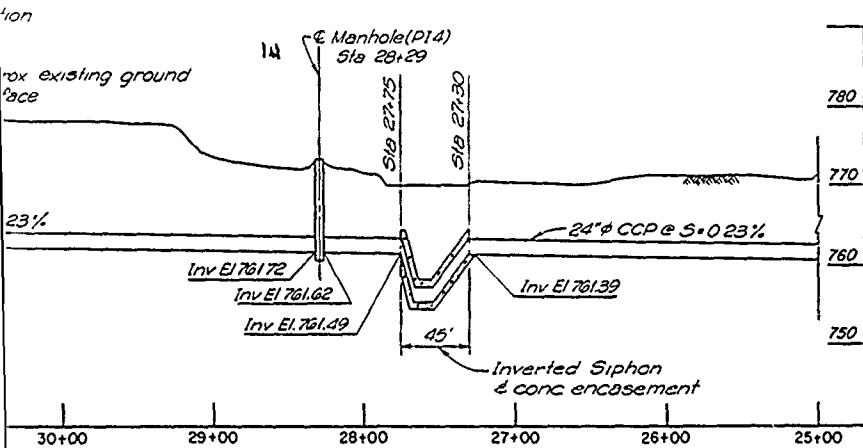
Approximate excavation and backfill
for inspection trench

Cutoff Trench

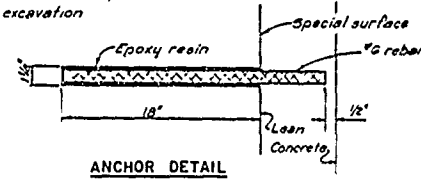
820
800
780
760
740
720

85+00 90+00 95+00 100+00

**ALONG E DAM AND CUTOFF TRENCH
(LOOKING UPSTREAM)**

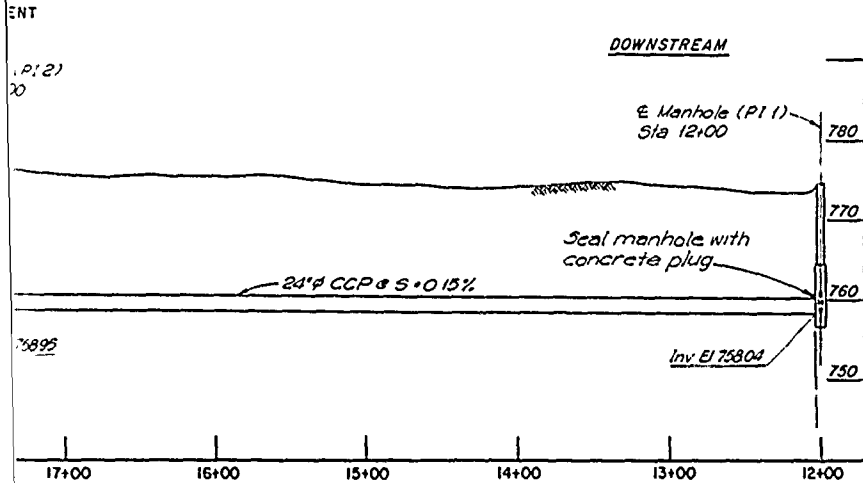


SECTION A-A




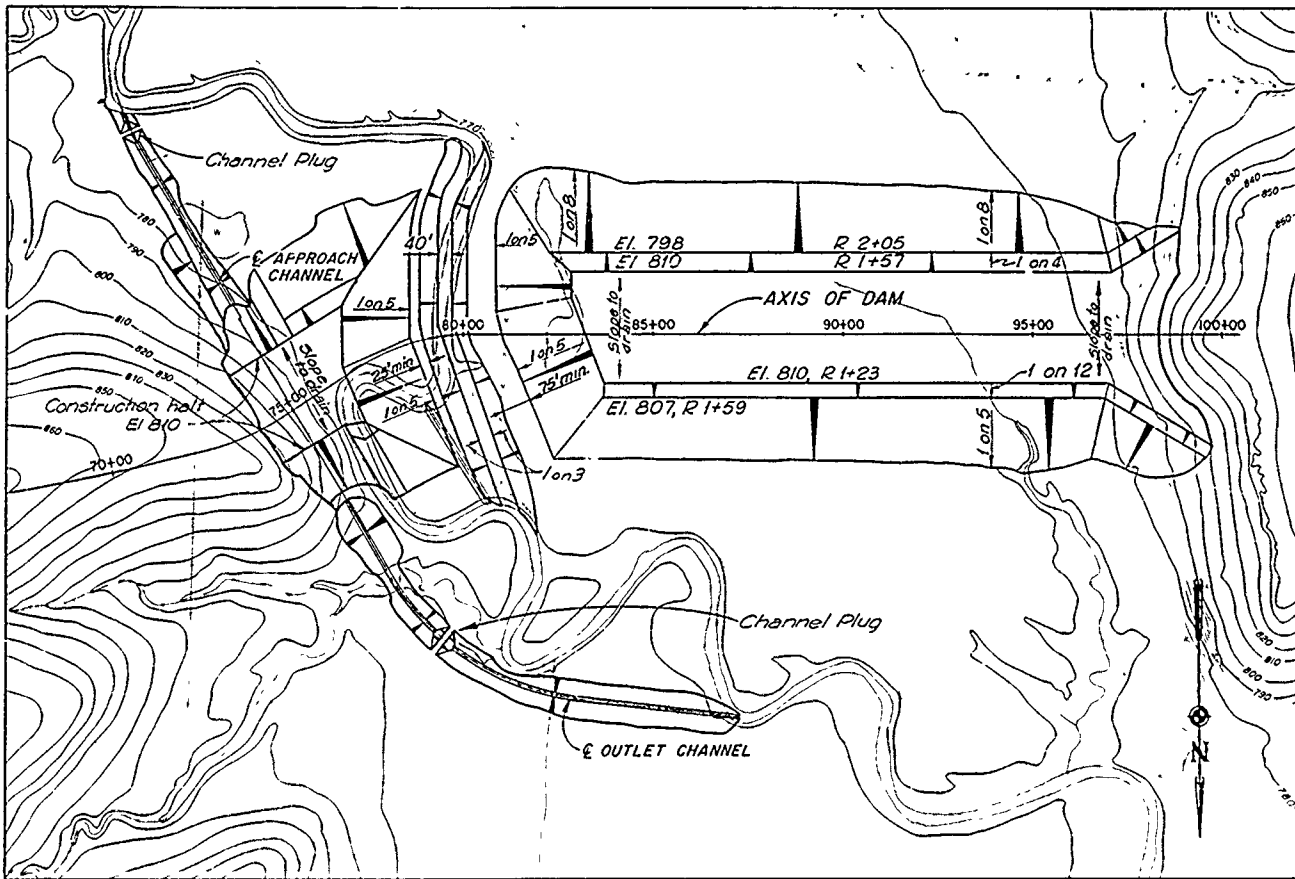
**SPECIAL SURFACE AND BEARING SURFACE PROTECTION
LEAN CONCRETE DETAILS FOR
INTAKE TOWER AND OUTLET WORKS**

NTS

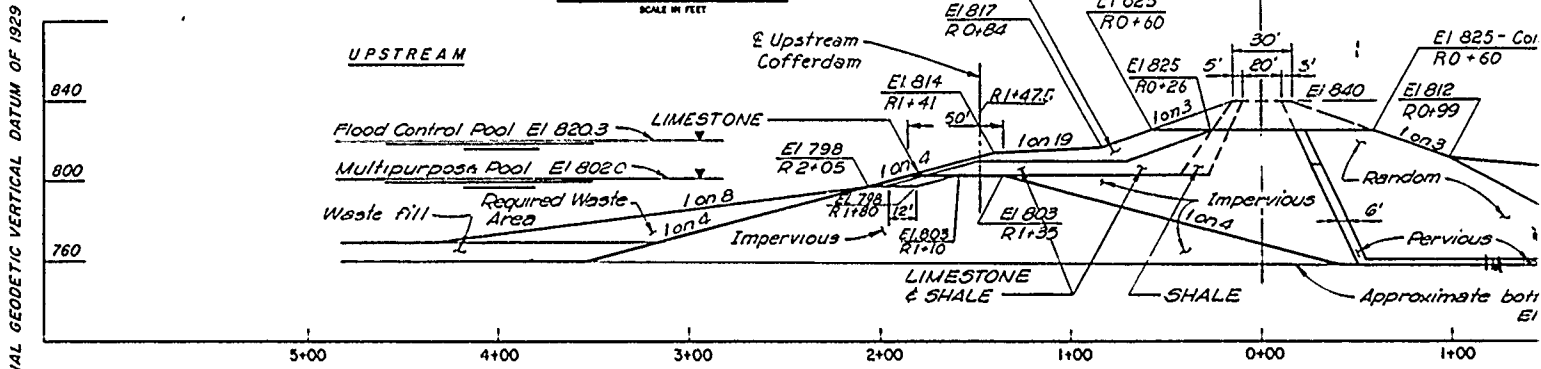
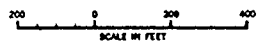


PROFILE

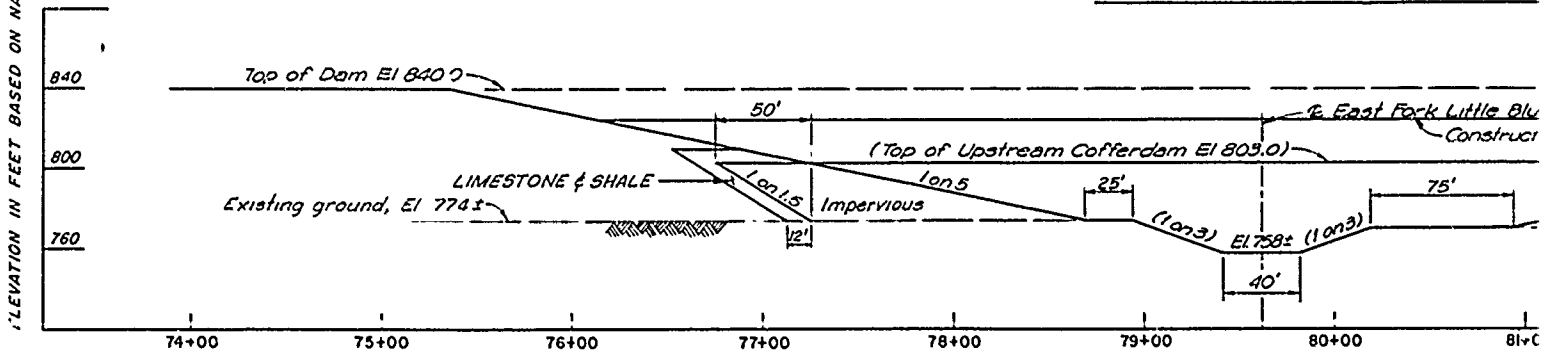
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:			
Checked by:			
Submitted by:	Scale: AS SHOWN	Sheet number: 15	
	Date: JUNE 1990		
	Draw No:		File No.: RBL-2-1235



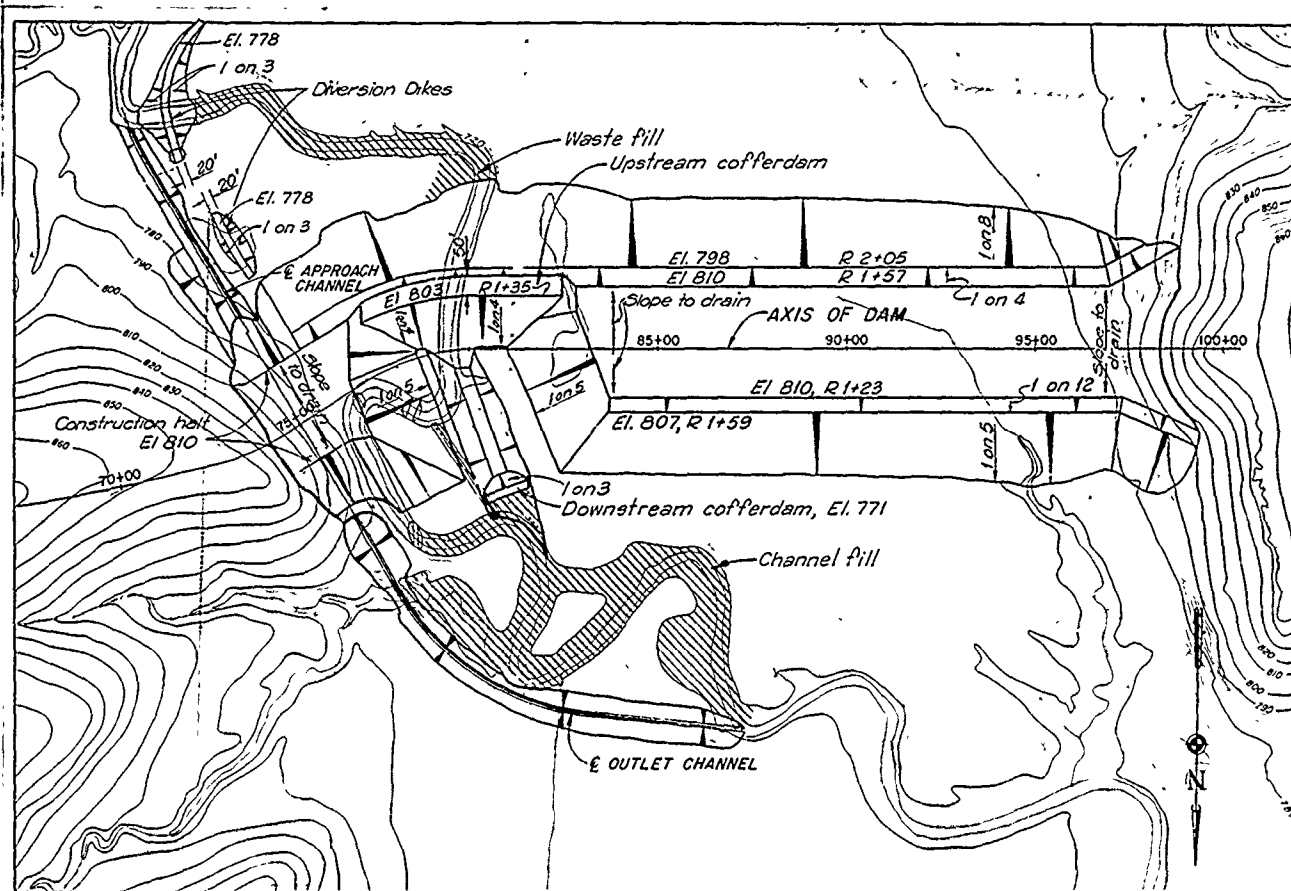
EMBANKMENT PLAN PRIOR TO DIVERSION



CLOSURE SECTION ALONG CENTERLINE



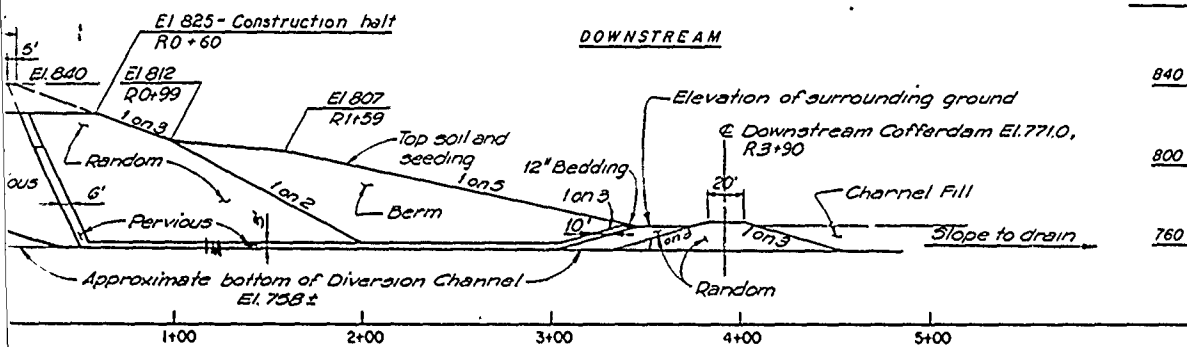
CLOSURE AREA PROFILE - LOOKING UPSTREAM



EMBANKMENT PLAN AFTER DIVERSION

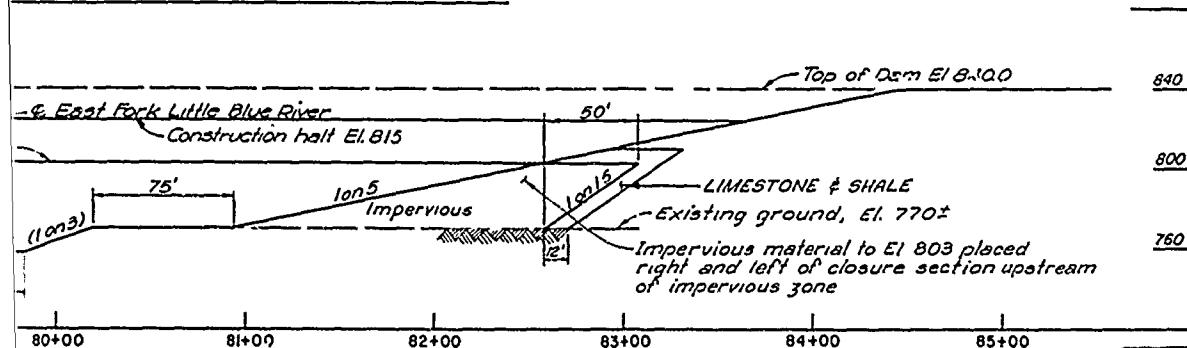


-DAM AXIS

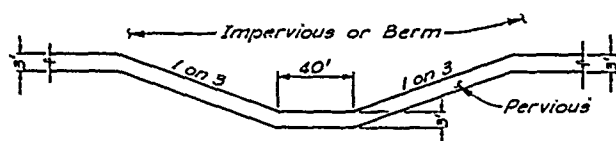


SECTION ALONG CENTERLINE OF DIVERSION CHANNEL

Remove muck and excavate Diversion Channel as directed.

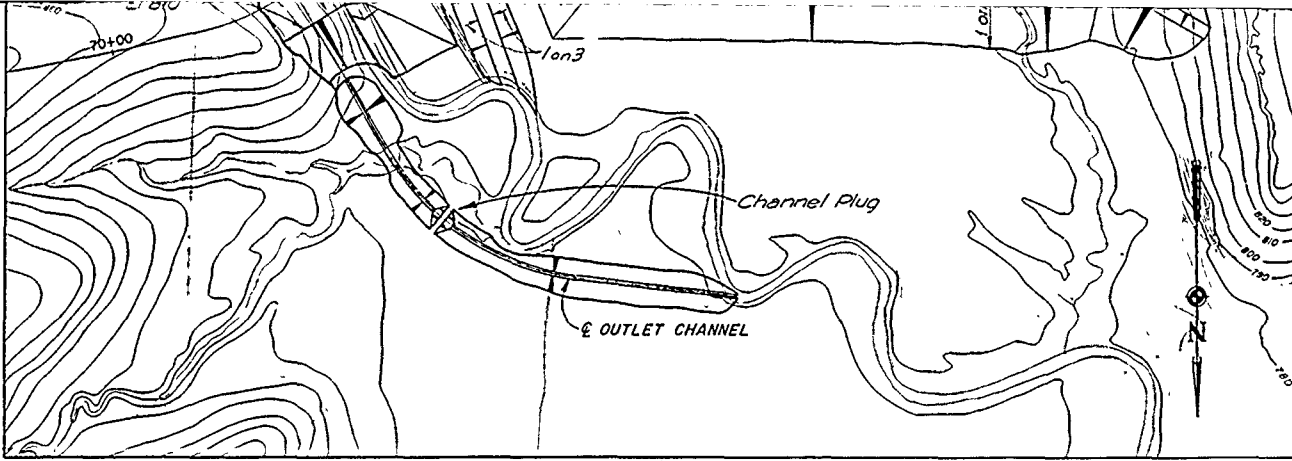


LOOKING UPSTREAM - § COFFERDAM

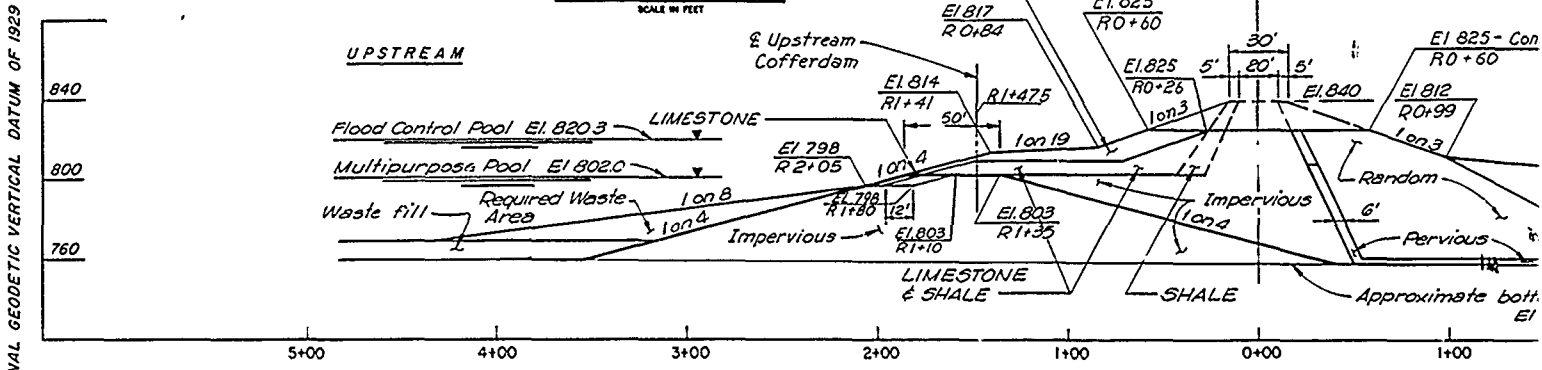


SECTION ACROSS DIVERSION CHANNEL

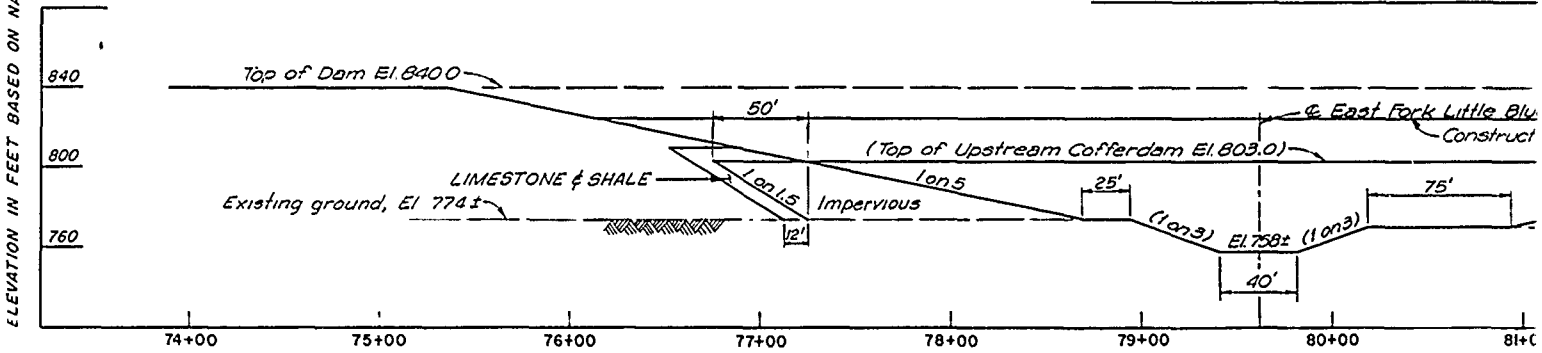
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	DIVERSION AND CLOSURE DETAILS	
Drawn by:			
Checked by:			
Scale			



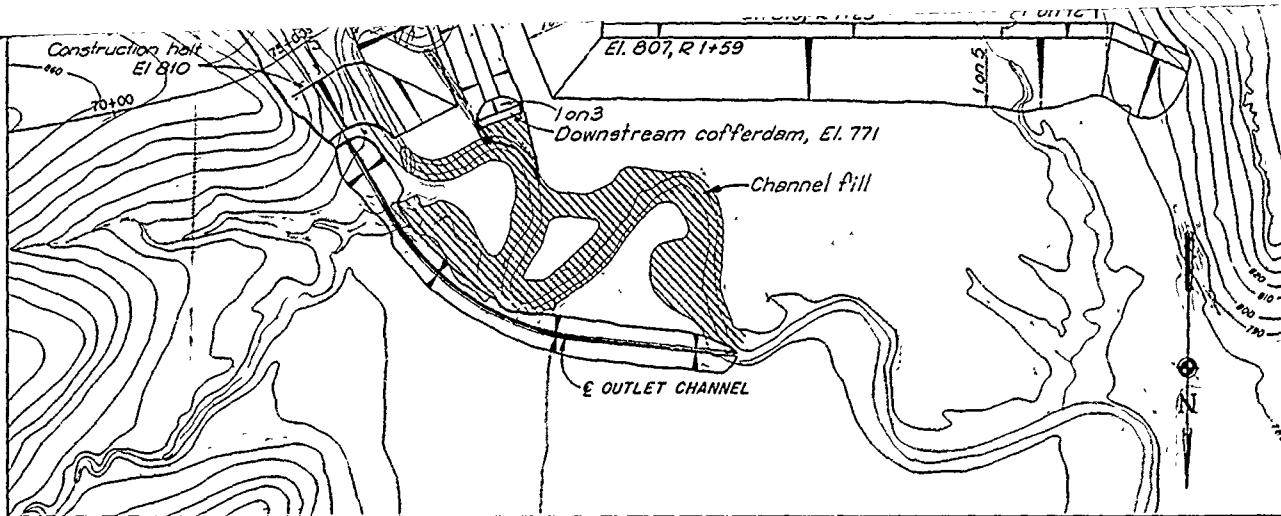
EMBANKMENT PLAN PRIOR TO DIVERSION



CLOSURE SECTION ALONG CENTERLINE C



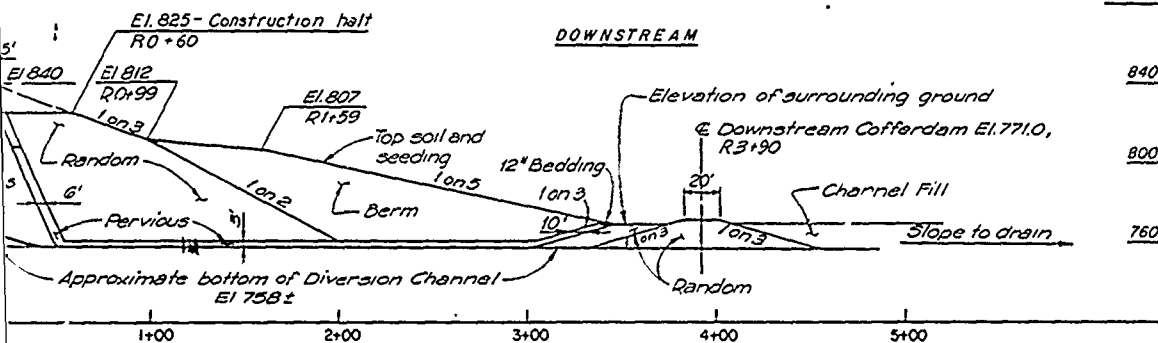
CLOSURE AREA PROFILE - LOOKING UPSTREAM -



EMBAKMENT PLAN AFTER DIVERSION

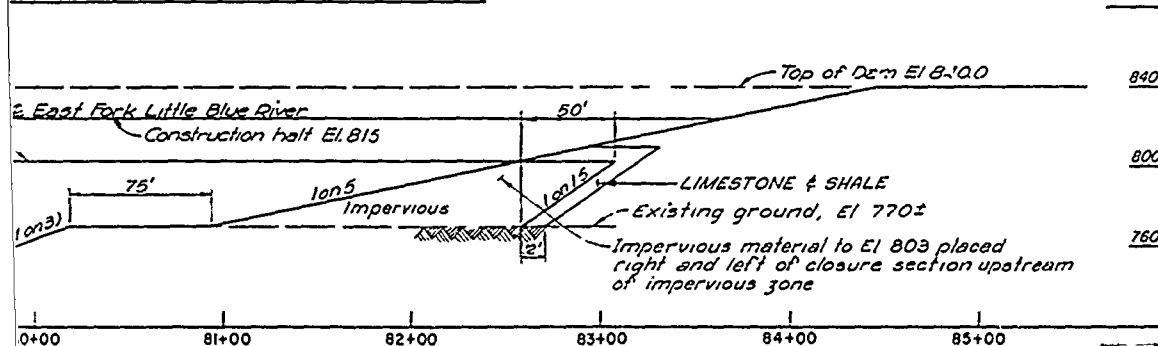


DAM AXIS

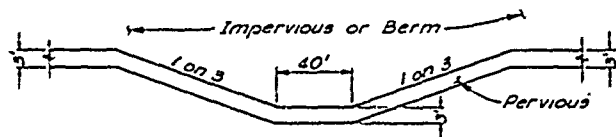


ALONG CENTERLINE OF DIVERSION CHANNEL

Remove muck and excavate Diversion Channel as directed.

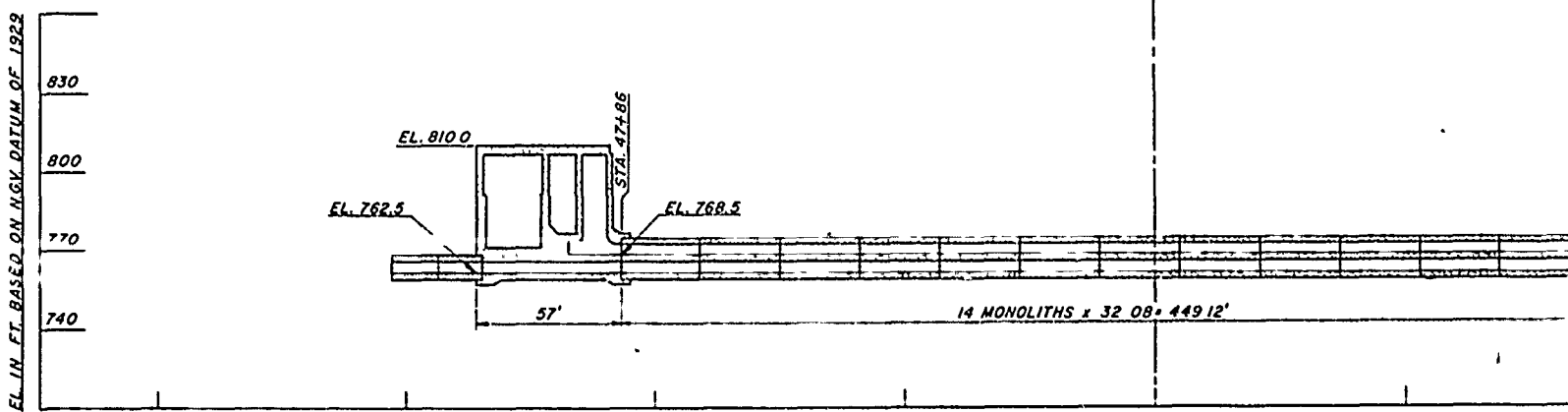
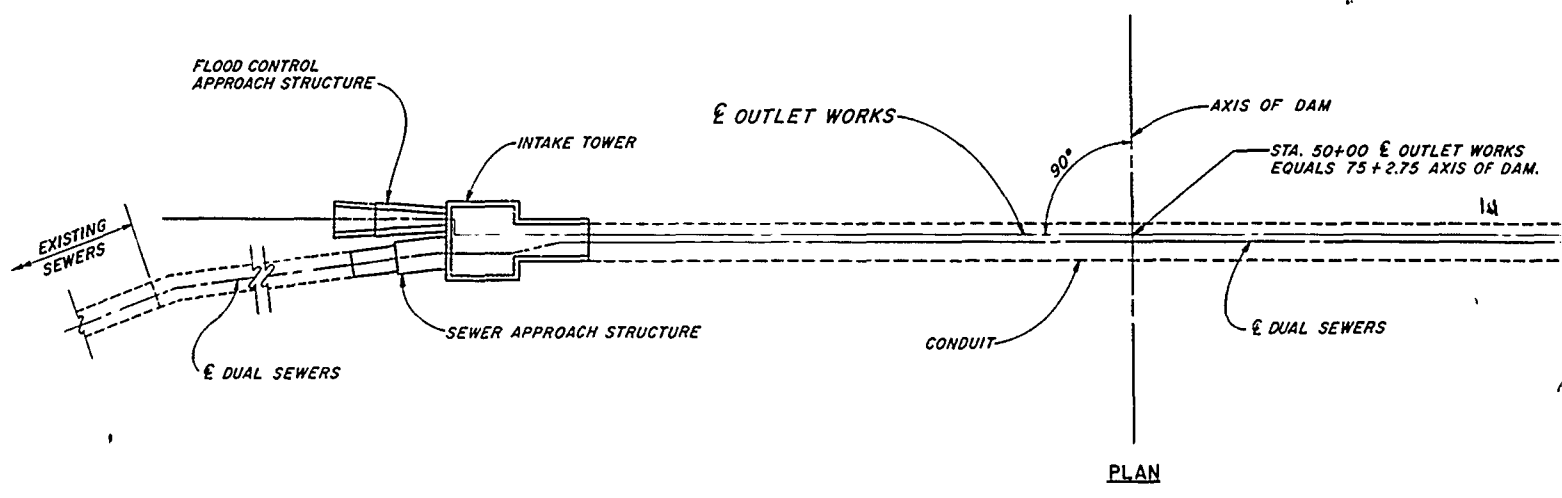


LOOKING UPSTREAM - COFFERDAM



SECTION ACROSS DIVERSION CHANNEL
LOOKING DOWNSTREAM
Not to Scale

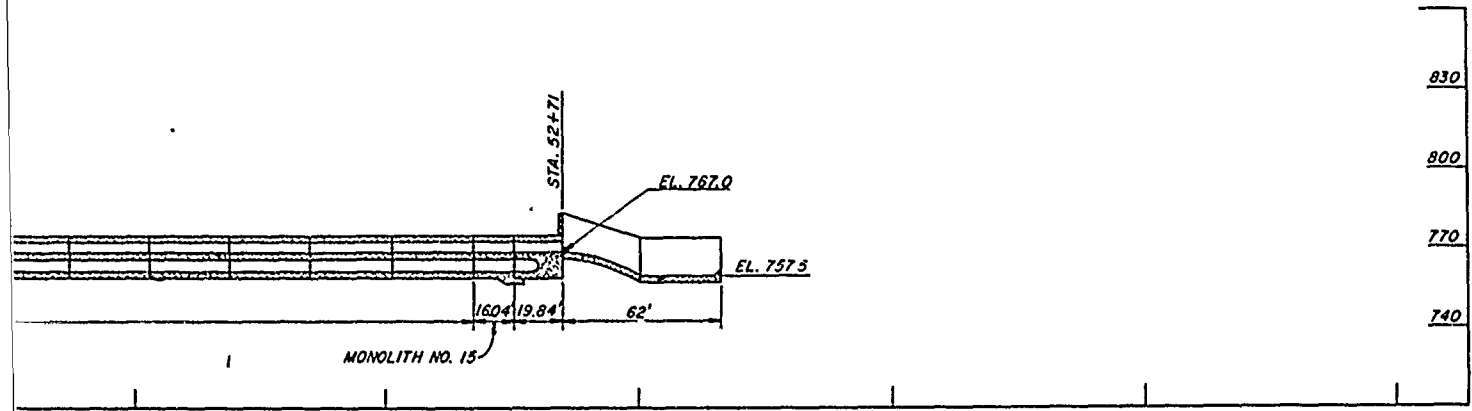
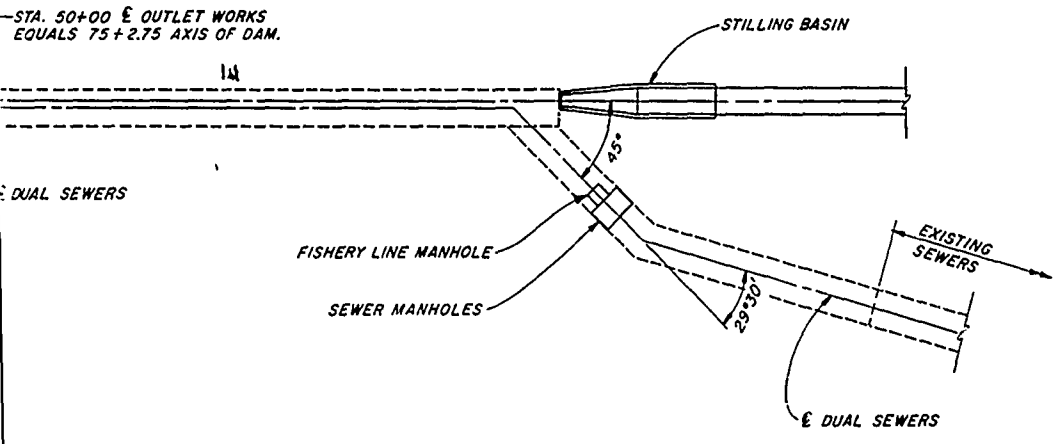
Revisions		Date	Approved
Symbol	Descriptions		
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	DIVERSION AND CLOSURE DETAILS	
Drawn by			
Checked by			
Submitted by			
Scale:	AS SHOWN	Sheet Number	
Date	JUNE 1990	16	
Dwg. No.:			File No. RBL-2-1236



B
C
S
A
A
C


OF DAM

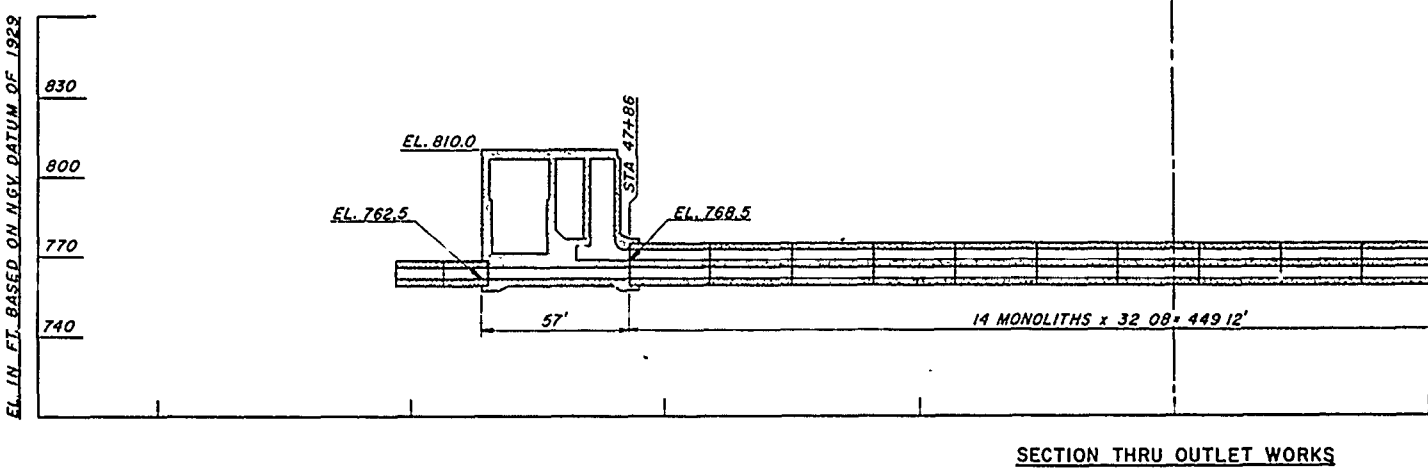
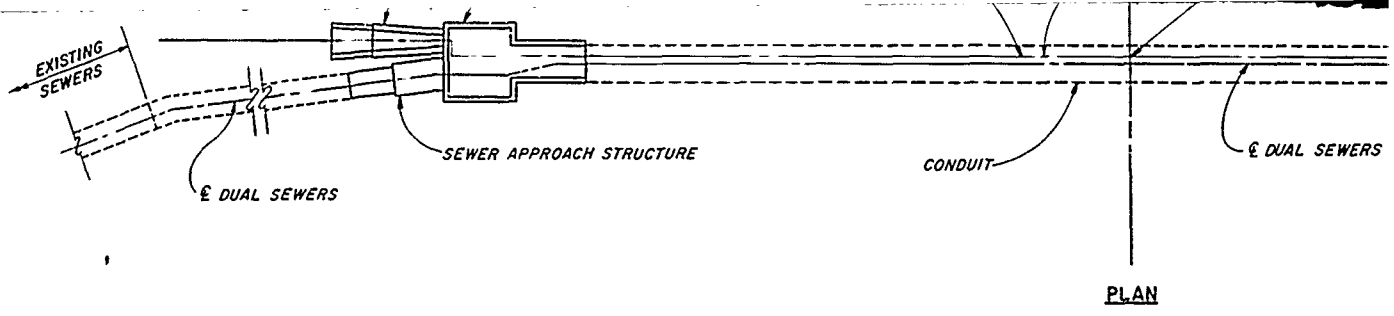
STA. 50+00 & OUTLET WORKS
EQUALS 75+2.75 AXIS OF DAM.



NOTE:
EMBANKMENT NOT SHOWN.
SEE DWG. BB

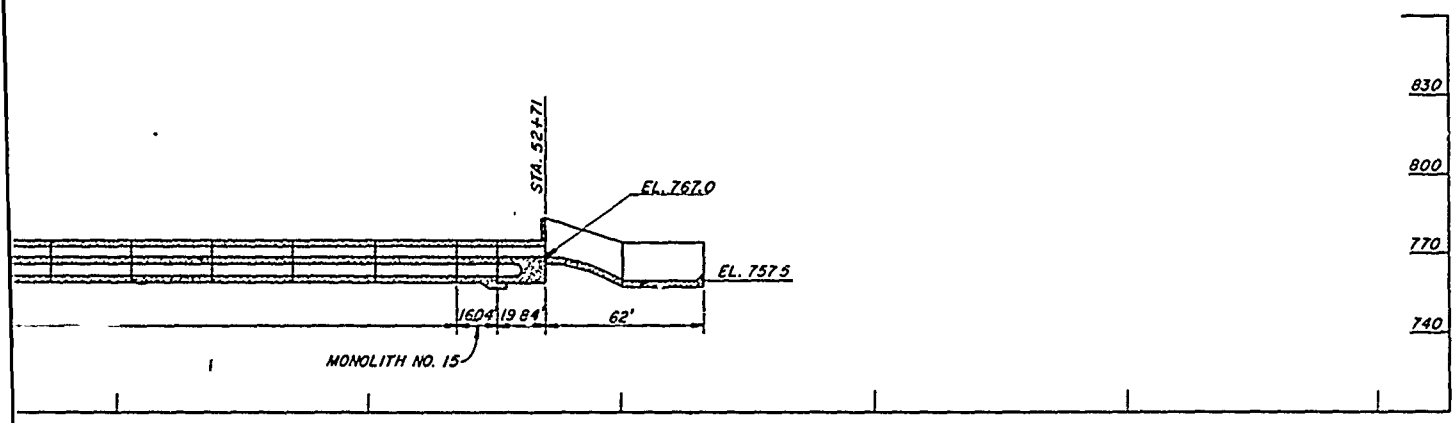
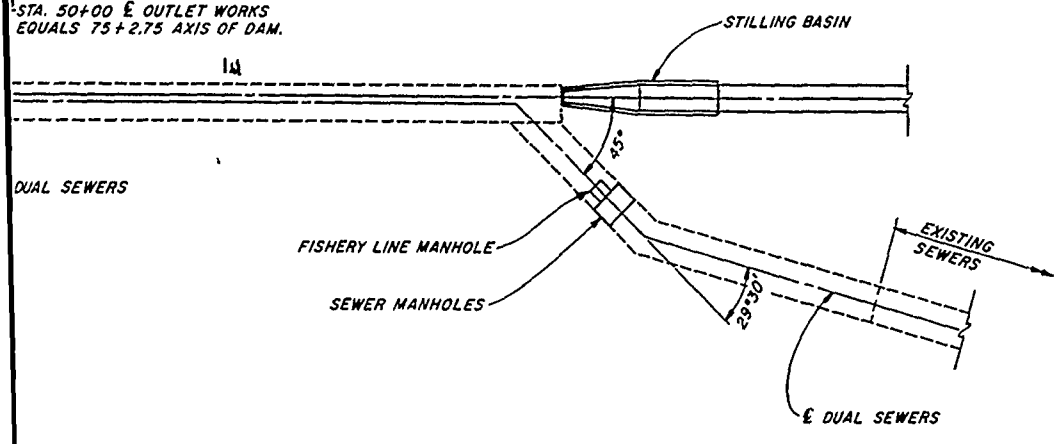
REFERENCE DWGS.	DWG. NO.
INTAKE TOWER	J1
CONDUIT	P1
STILLING BASIN	R1
APPROACH STRUCTURE (SEWER)	H1
APPROACH STRUCTURE (FLOOD CONTROL)	H3
DOWNSTREAM SEWER	Q1

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
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Drawn by:			
Checked by:			
OUTLET WORKS - PLAN AND PROFILE			



OF DAM

STA. 50+00 & OUTLET WORKS
EQUALS 75 + 2.75 AXIS OF DAM.



NOTE:
EMBANKMENT NOT SHOWN.
SEE DWG. 88

REFERENCE DWGS	DWG NO
INTAKE TOWER	J1
CONDUIT	P1
STILLING BASIN	R1
APPROACH STRUCTURE (SEWER)	H1
APPROACH STRUCTURE (FLOOD CONTROL)	H3
DOWNSTREAM SEWER	Q1


Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	OUTLET WORKS - PLAN AND PROFILE	
Drawn by:		Scale	AS SHOWN
Checked by:		Date	JUNE 1990
Submitted by:		Sheet number	17
		File No.	RBL-2-1237

PLATE NO. 17

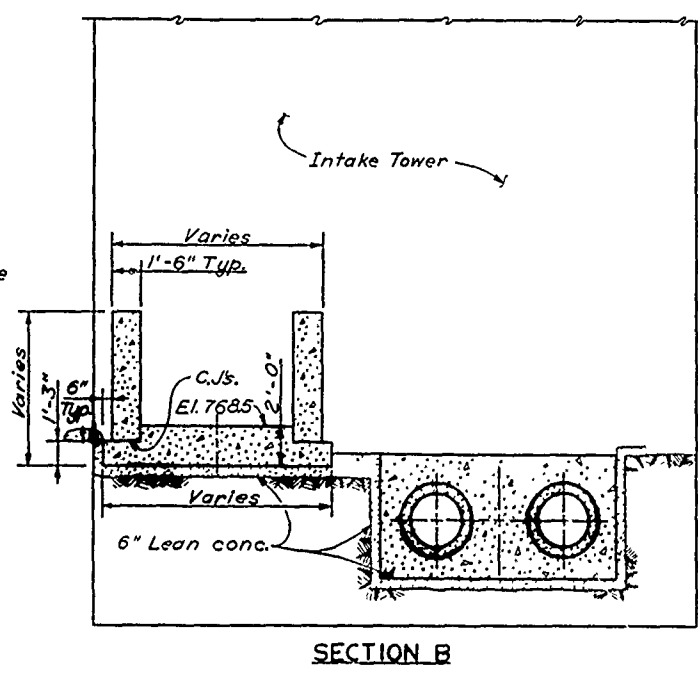
tion of
fed Gage
details)

let Works
ch Structure

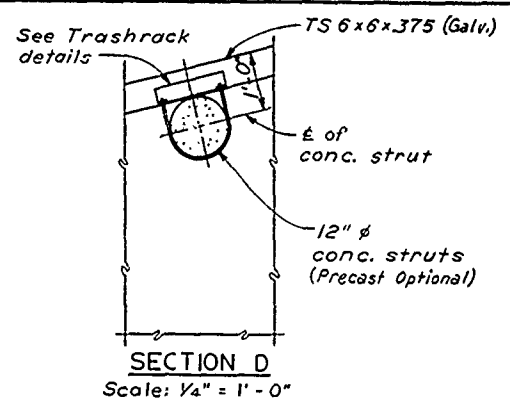
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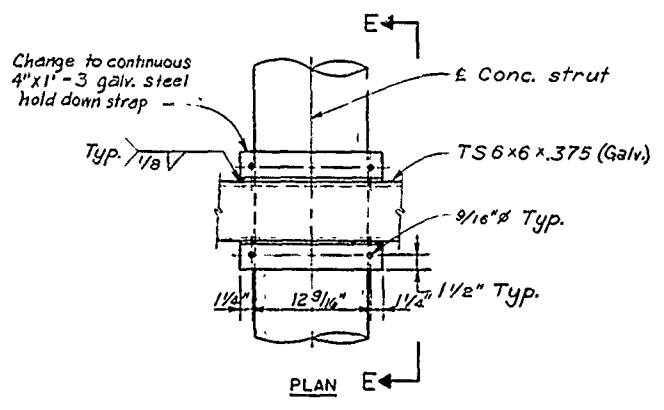
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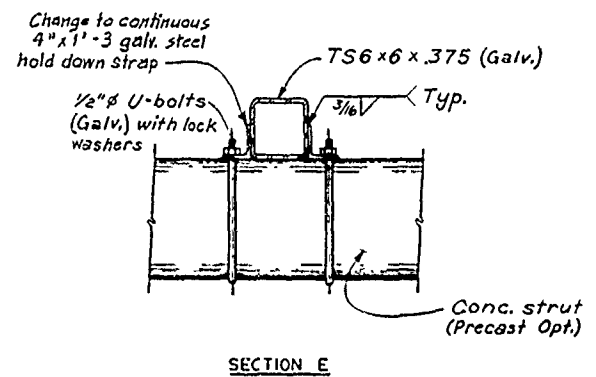
SECTION B



SECTION D
Scale: 1/4" = 1'-0"



PLAN E

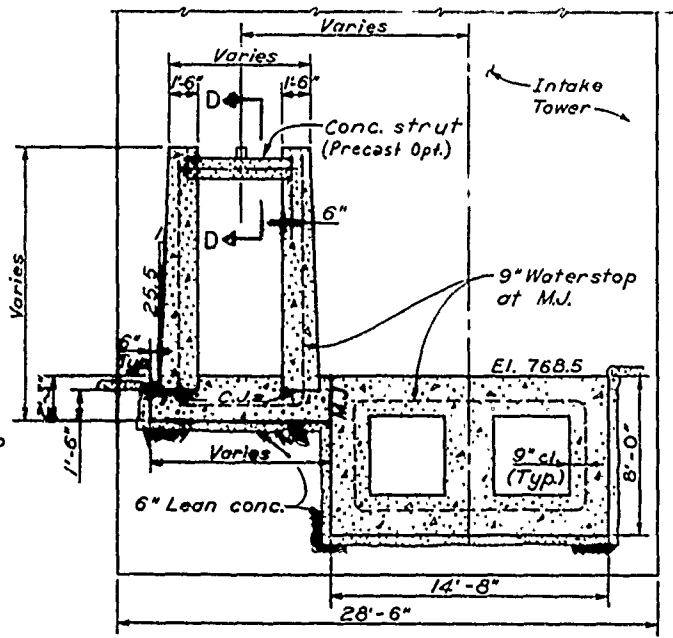


SECTION E

TRASHRACK DETAILS
Scale: 1/2" = 1'-0"

GENERAL NOTES - APPROACH STRUCTURE

1. M.J. = Monolith joint. - Painted
2. C.J. = Construction joint.
3. Reinforcement is not continuous through Monolith joints.
4. Reinforcement is continuous through Construction joint.
5. Clear distance of reinforcement from waterstop shall be 2 1/2".



SECTION C

REFERENCE DWG. _____ DWG. NO. _____
RUBBER WATERSTOP _____ P2
INTAKE TOWER _____ J3

Revisions			
Symbol	Descriptions	Date	Approved

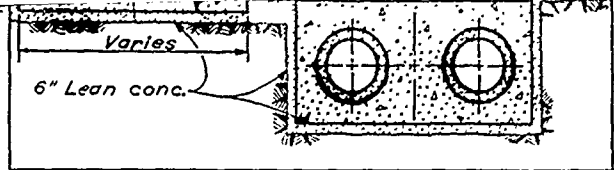
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by _____

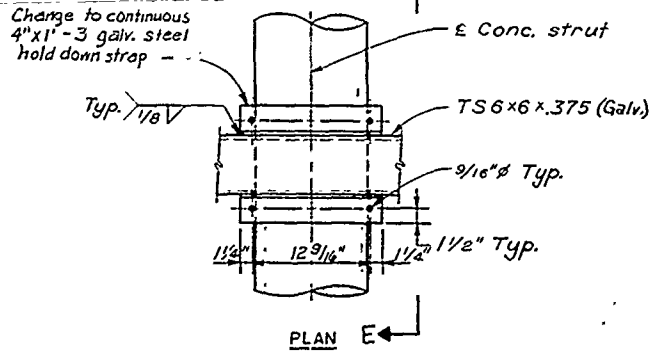
Drawn by _____

**EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT**

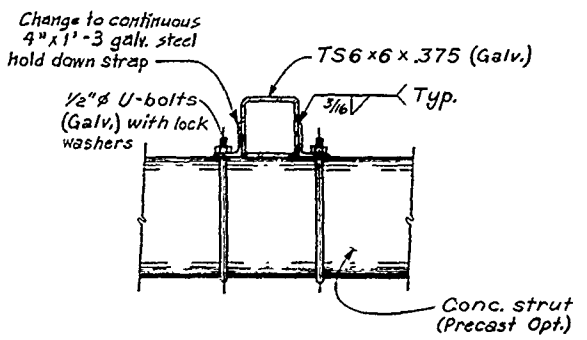
**APPROACH STRUCTURE
PLAN AND DETAILS**



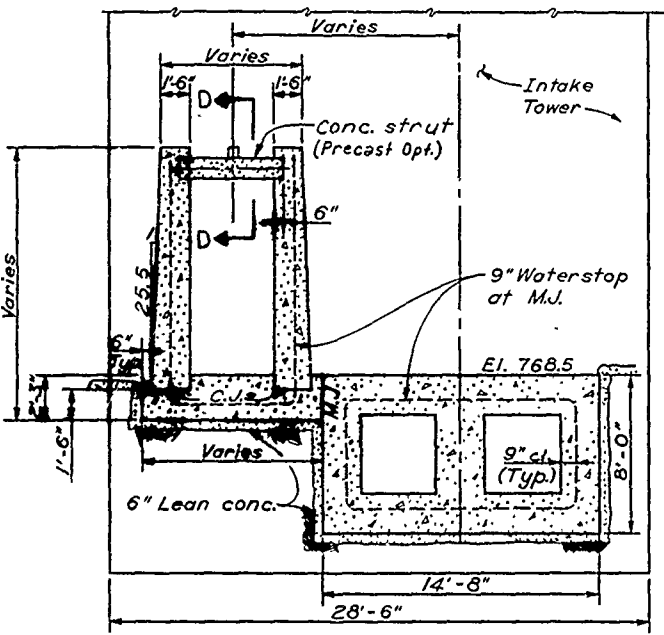
SECTION B



PLAN E



SECTION E



SECTION C


TRASHRACK DETAILS
Scale: 1/2" = 1'-0"

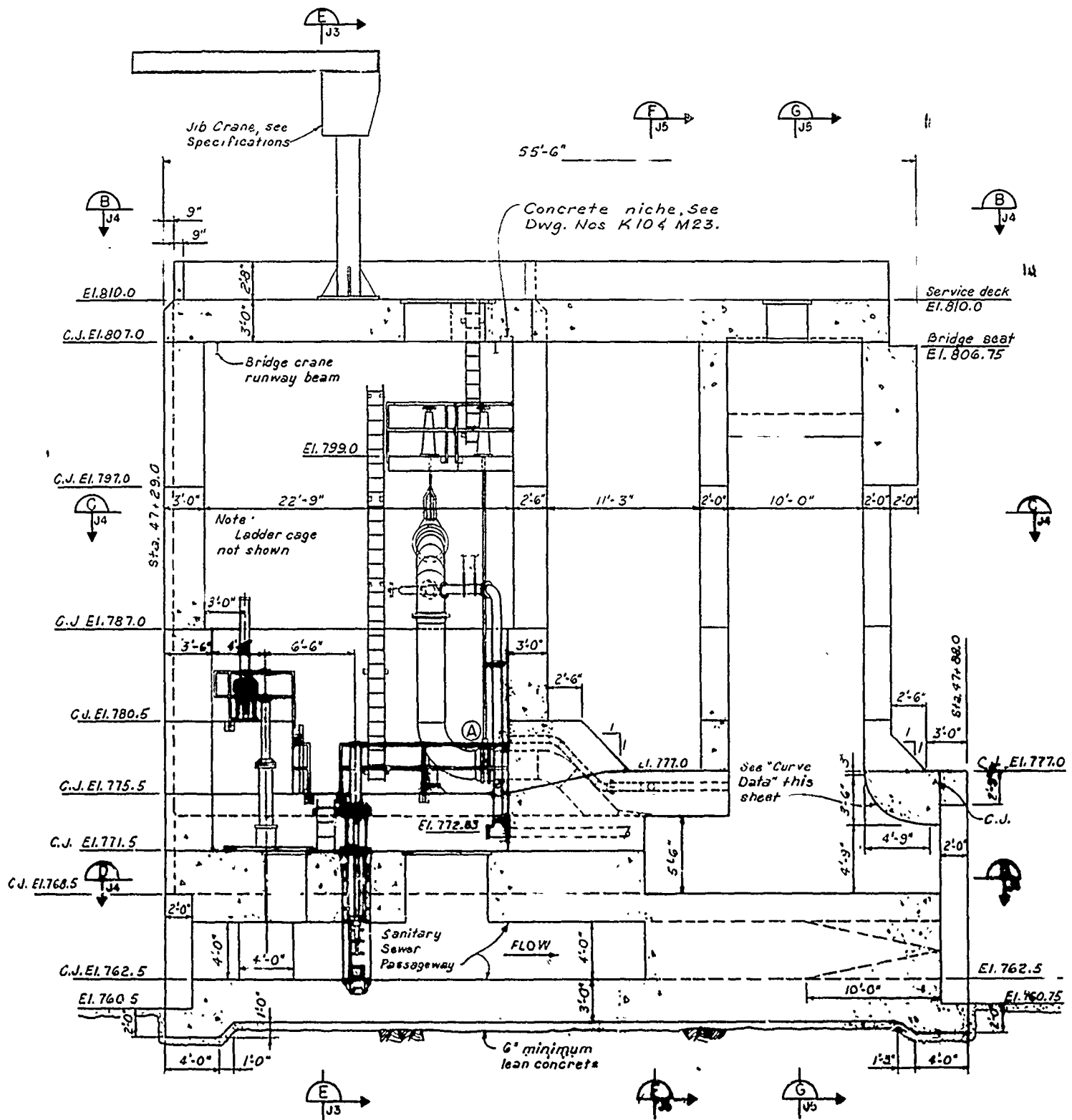
GENERAL NOTES - APPROACH STRUCTURE

1. M.J. = Monolith joint. - Painted
2. C.J. = Construction joint.
3. Reinforcement is not continuous through Monolith joints.
4. Reinforcement is continuous through Construction joint.
5. Clear distance of reinforcement from waterstop shall be 2 1/2"

REFERENCE DWG. _____ DWG. NO. _____
RUBBER WATERSTOP _____ P2
INTAKE TOWER _____ J3

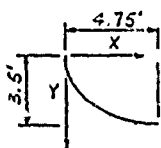
Scale: 1/4" = 1'-0"
(Except as noted)

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	APPROACH STRUCTURE PLAN AND DETAILS	
Drawn by:		Scale	AS SHOWN
Checked by:		Date	JUNE 1990
Submitted by:		Dwg No.	18
		Sheet number	18
		File No.	RBL - 2 - 1238



CURVE DATA

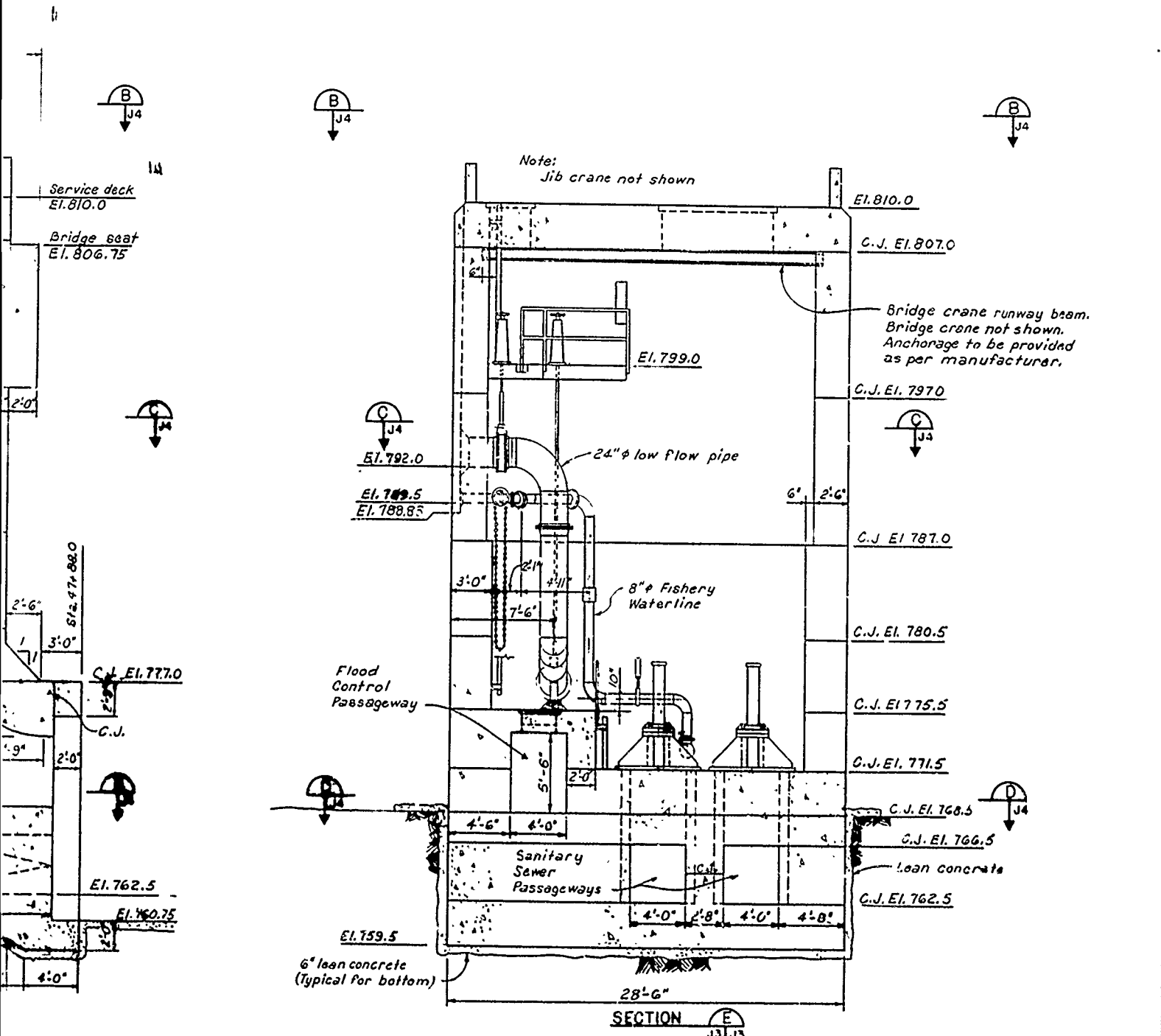
X (ft.)	Y (ft.)
0	0
.25	1.12
.5	1.56
1.0	2.15
1.5	2.55
2.5	3.08
3.5	3.38
4.75	3.50



CONCRETE QUANTITY
1268 CU YDS

REFERENCE DWGS. DW

- RAILINGS
- LADDERS
- HATCHES
- LOW FLOW PIPING
- WATERSTOPS



DWGS.	DWG. NO.
---	L1
---	L3
---	L4
---	M1
---	J6

NOTE:
Parapet railing & Removable railing
not shown.

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: _____

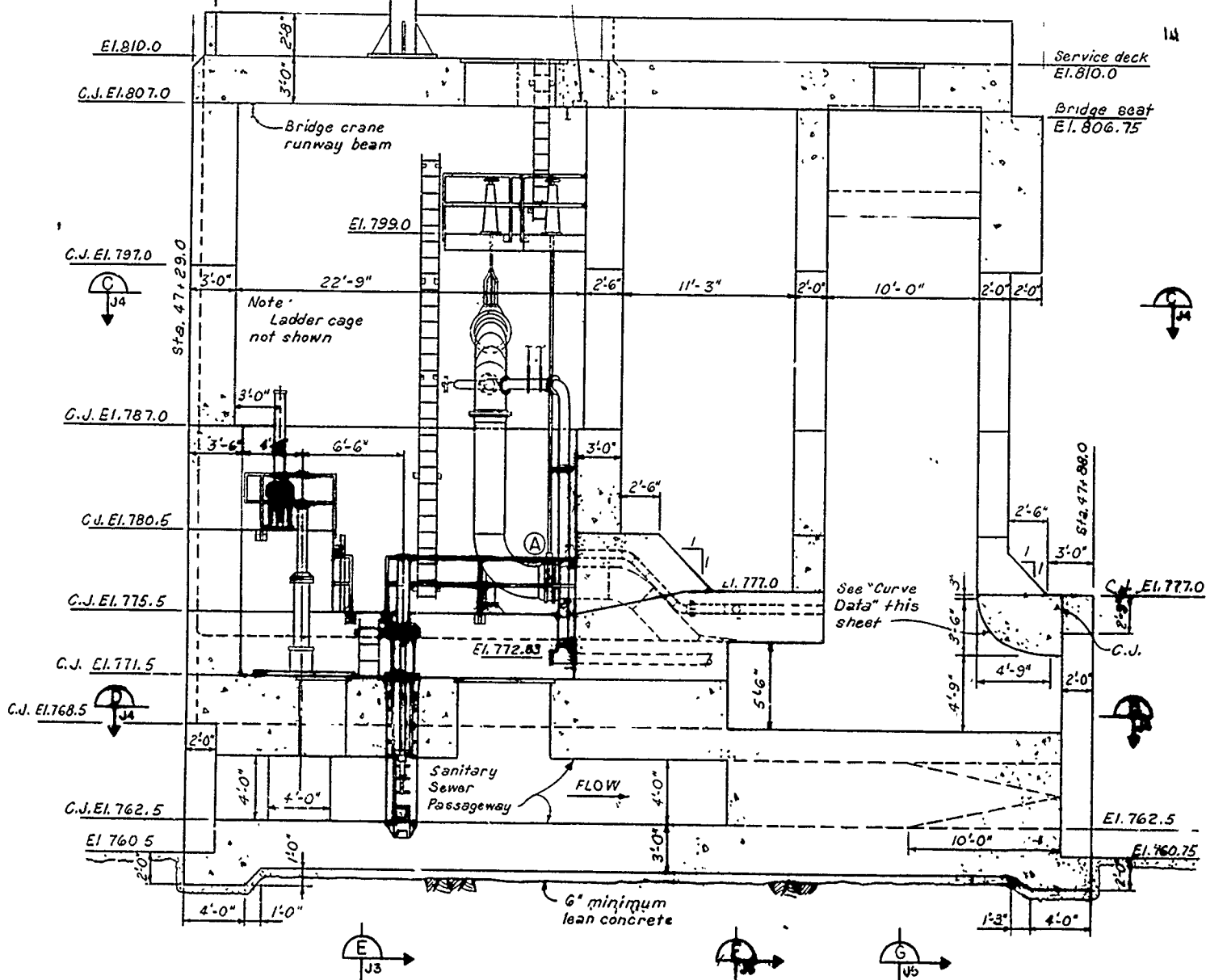
Drawn by: _____

Checked by: _____

INTAKE TOWER CONCRETE DIMENSIONS

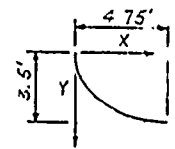
Scale: AC SHOWN Sheet Number: _____

Concrete niche, See Dwg Nos K104 M23.



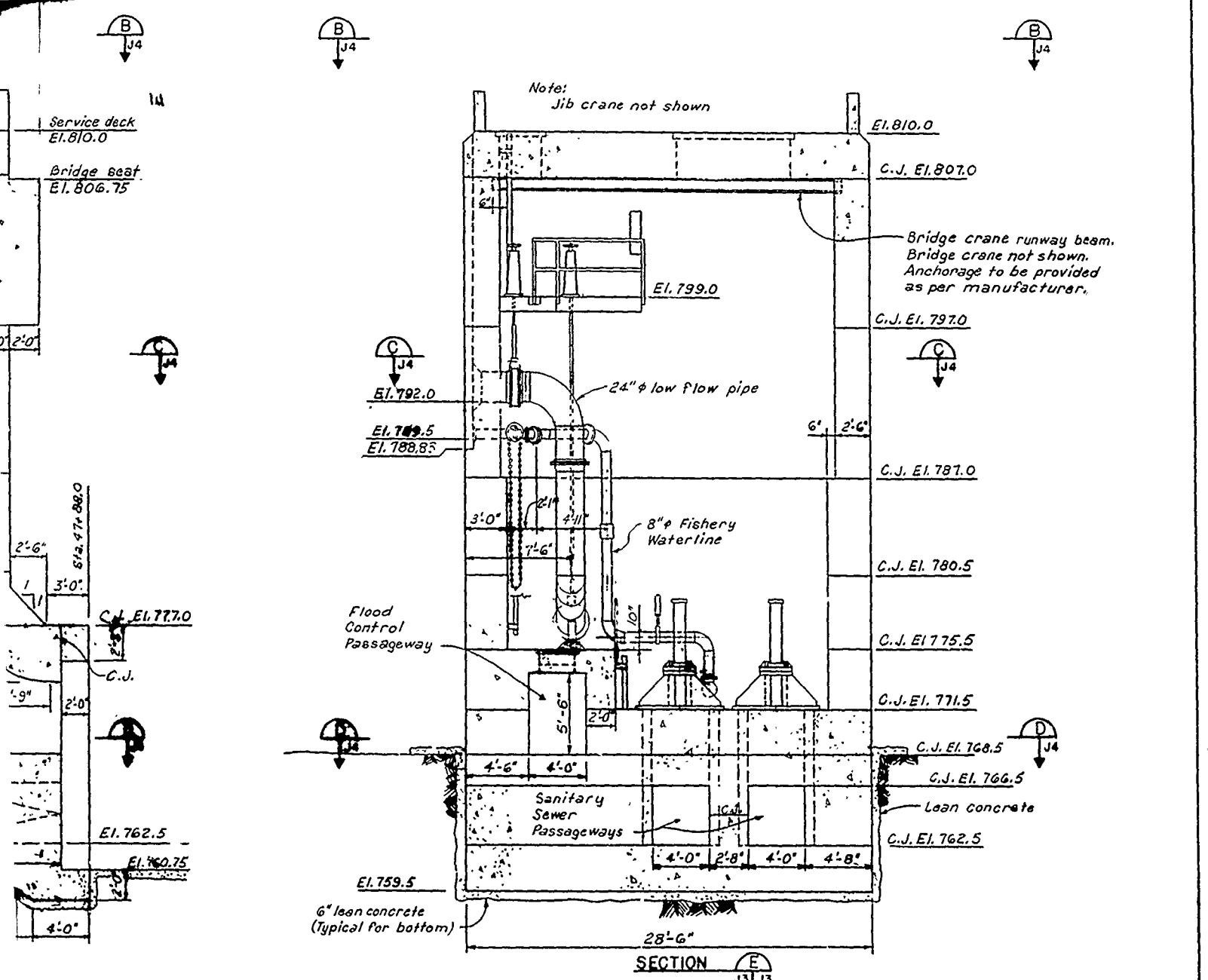
CURVE DATA

X (ft)	Y (ft)
0	0
.25	1.12
.5	1.56
1.0	2.15
1.5	2.55
2.5	3.08
3.5	3.38
4.75	3.50



CONCRETE QUANTITY
1268 CU YDS

- REFERENCE DWGS. DWG
- RAILINGS
 - LADDERS
 - HATCHES
 - LOW FLOW PIPING
 - WATERSTOPS



Note:
Jib crane not shown

Bridge crane runway beam.
Bridge crane not shown.
Anchorage to be provided
as per manufacturer.

Flood
Control
Passageway

Sanitary
Sewer
Passageways

DWGS.	DWG. NO.
1	L1
2	L3
3	L4
4	M1
5	J6

NOTE:
Parapet railing & Removable railing
not shown.

Scale: 1/4" = 1'-0"


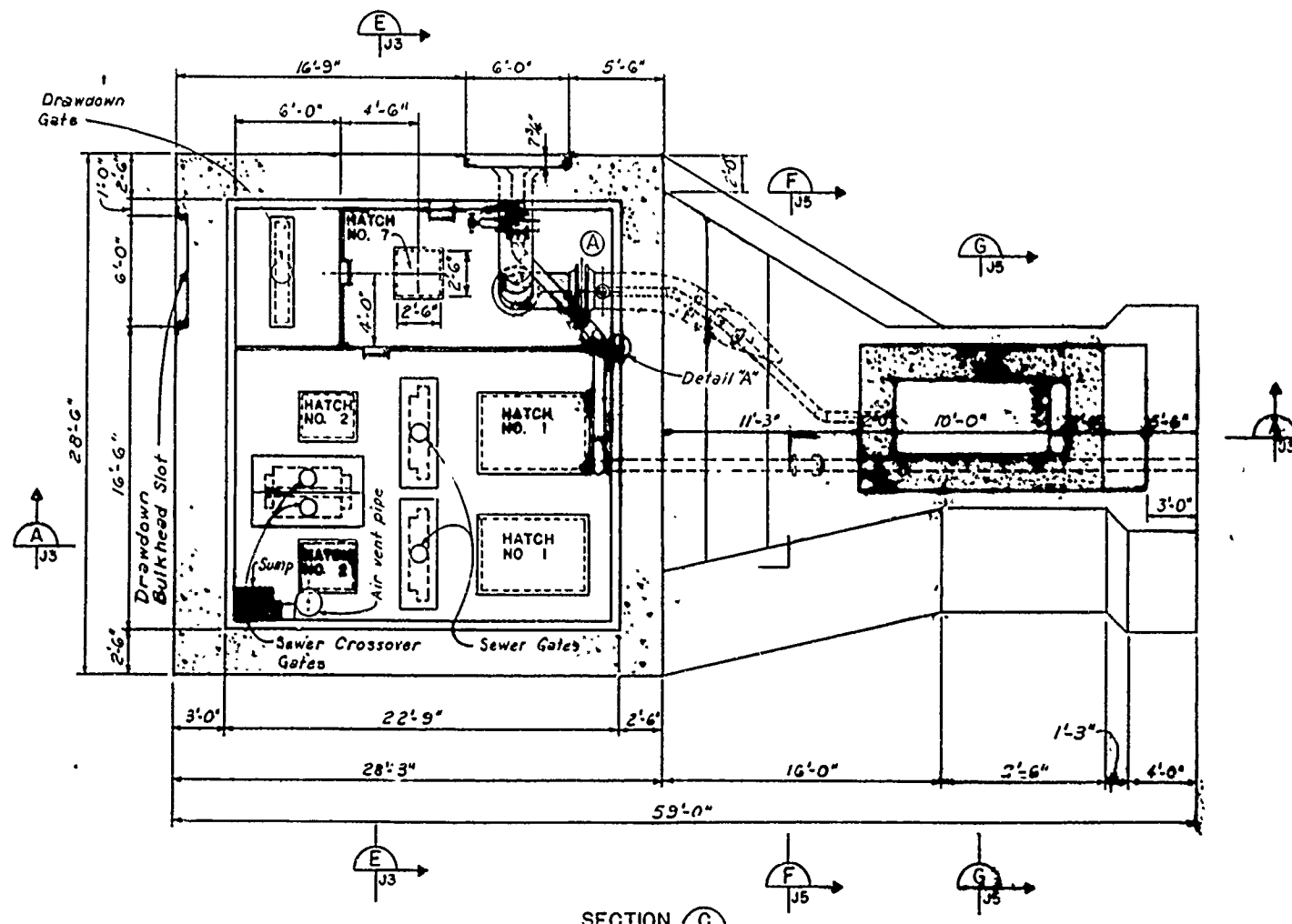
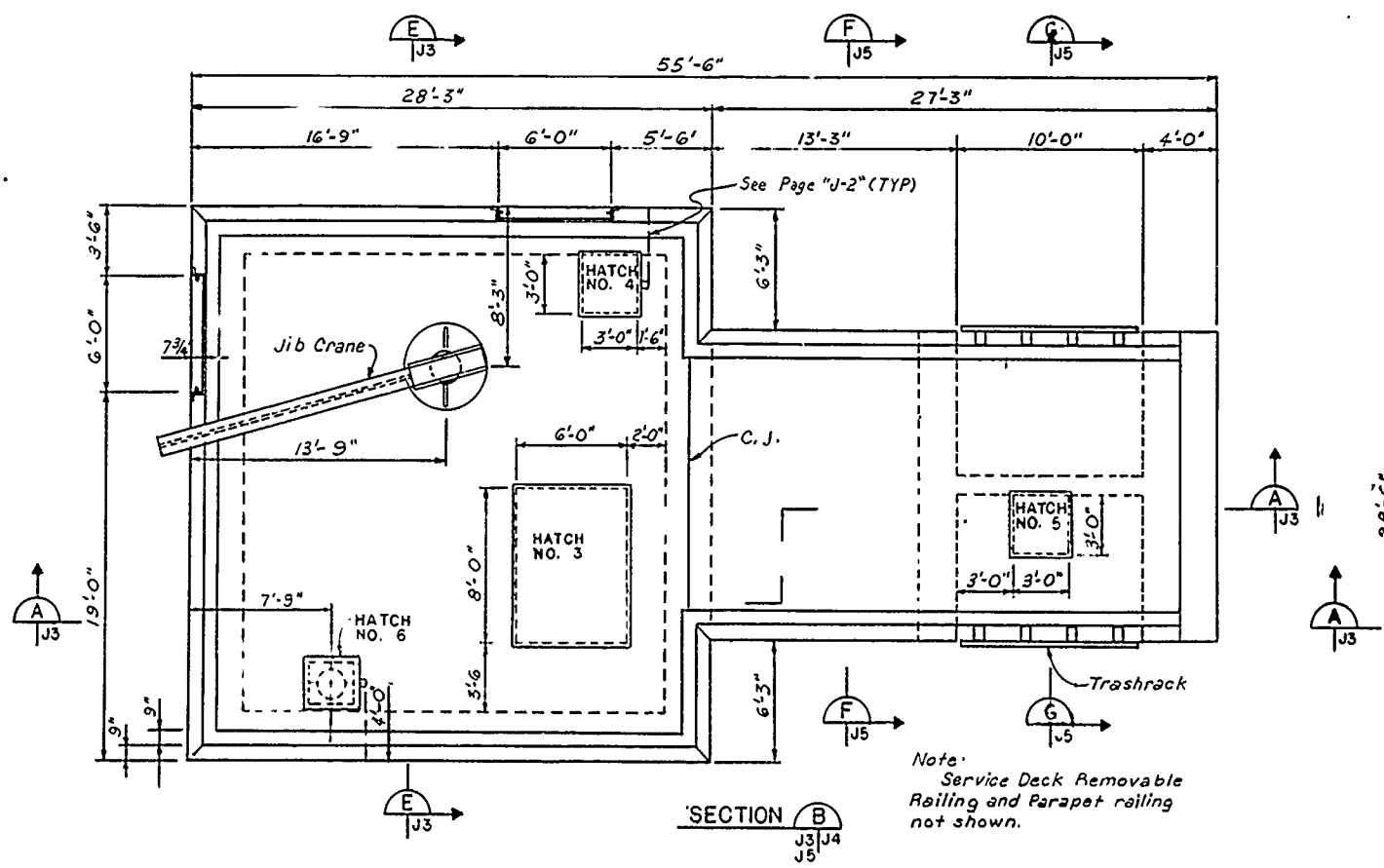
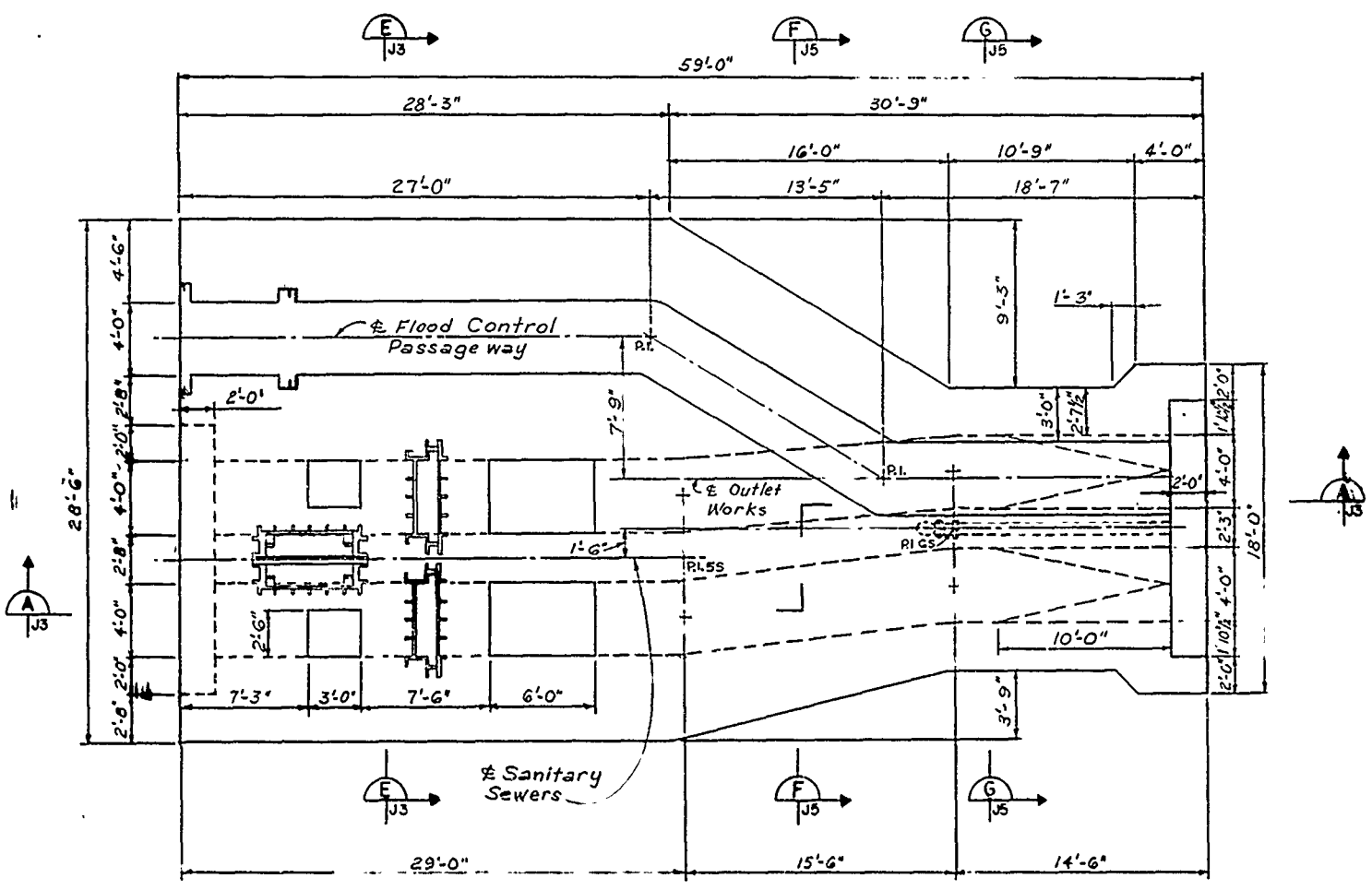
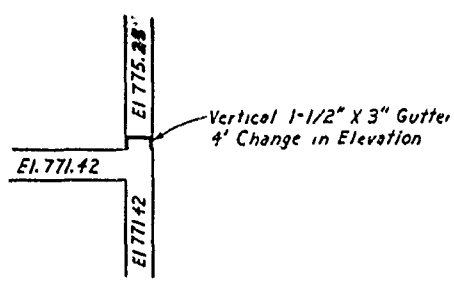
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by			
Checked by			
Submitted by			
Scale	AS SHOWN	Sheet Number	
Date	JUNE 1990	19	
Dwg No.		File No.	RBL-2-1239

PLATE NO. 19





SECTION D
J3 J4
J5




VERTICAL GUTTER DETAIL "A"

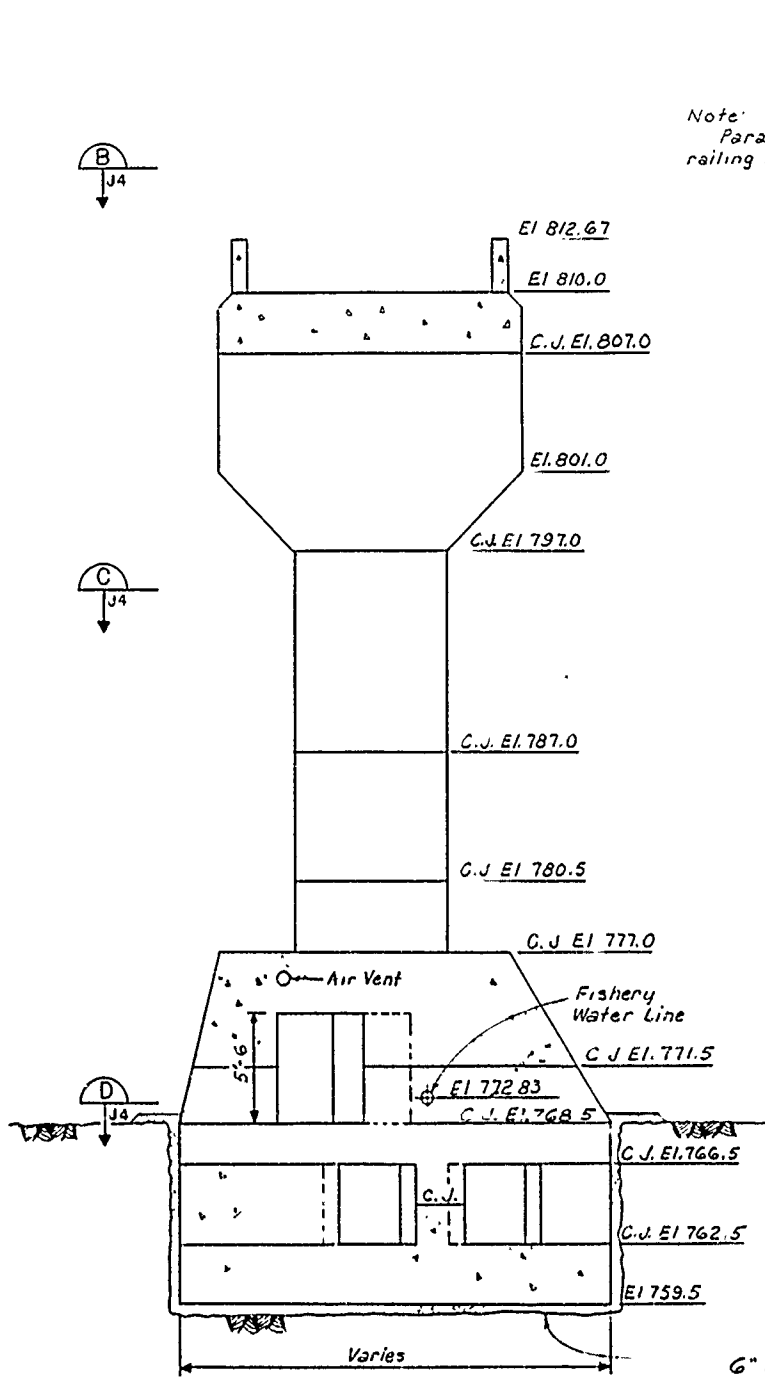
REFERENCE DWGS.	DWG NO.
HATCHES AND FRAMES	L4
DROP INLET TRASHRACK	L5
PIPING	MI

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

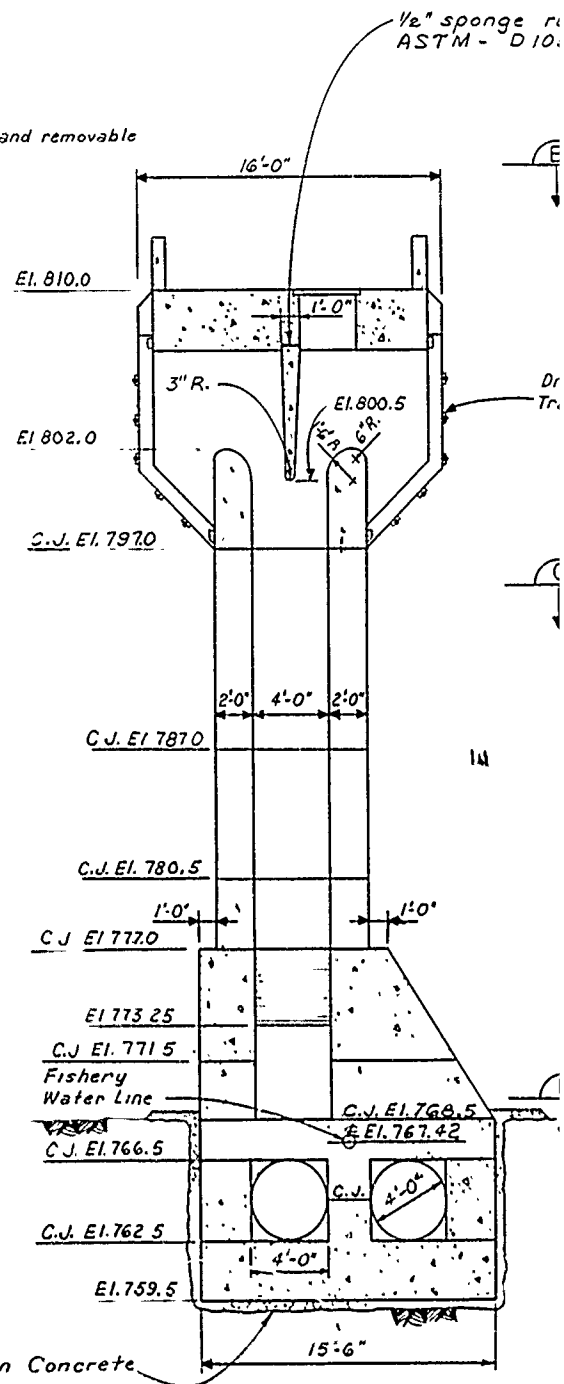
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT
Drawn by:	
Checked by:	

INTAKE TOWER CONCRETE DIMENSIONS



SECTION **F**
Scale: 1/4" = 1'-0" J3/J5
J4

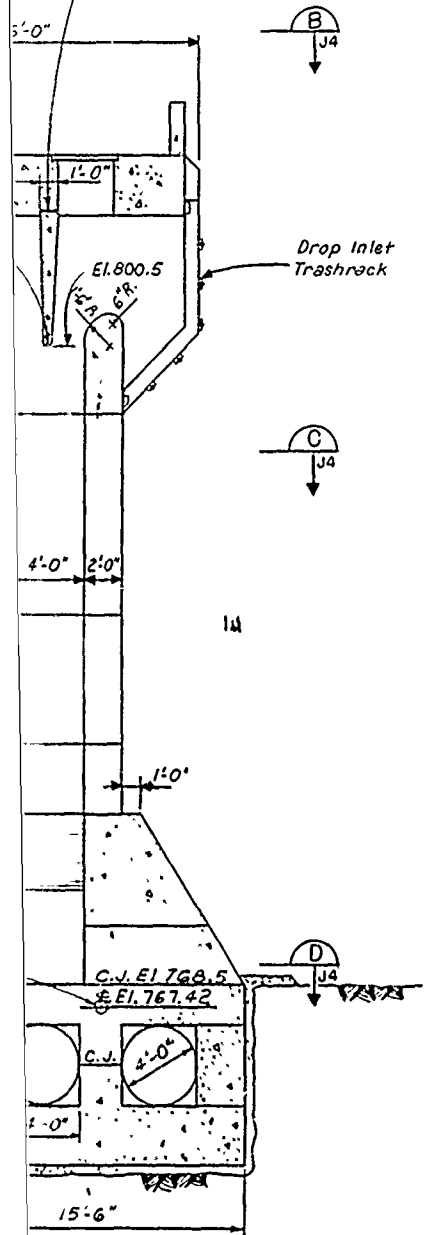
Note:
Parapet railing and removable railing not shown



SECTION **G**
Scale: 1/4" = 1'-0" J3/J5
J4

111.

1/2" sponge rubber (top only)
ASTM - D1056 grade RE-41




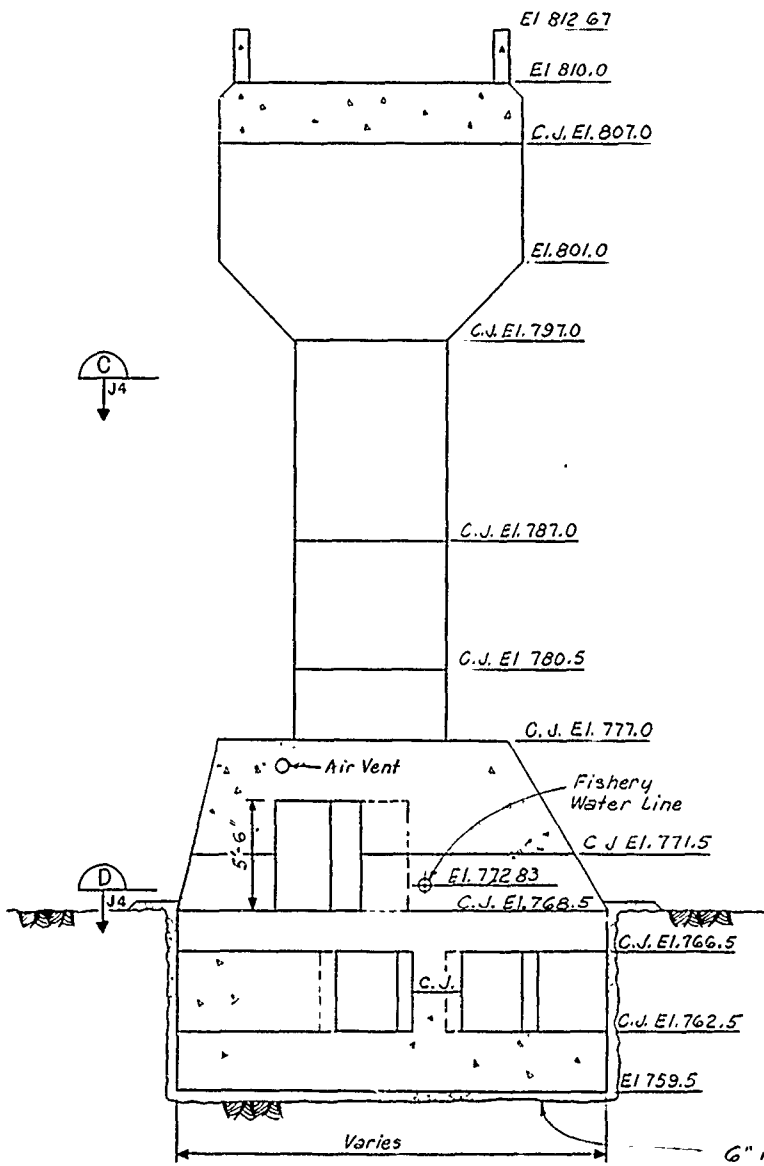
114

111.

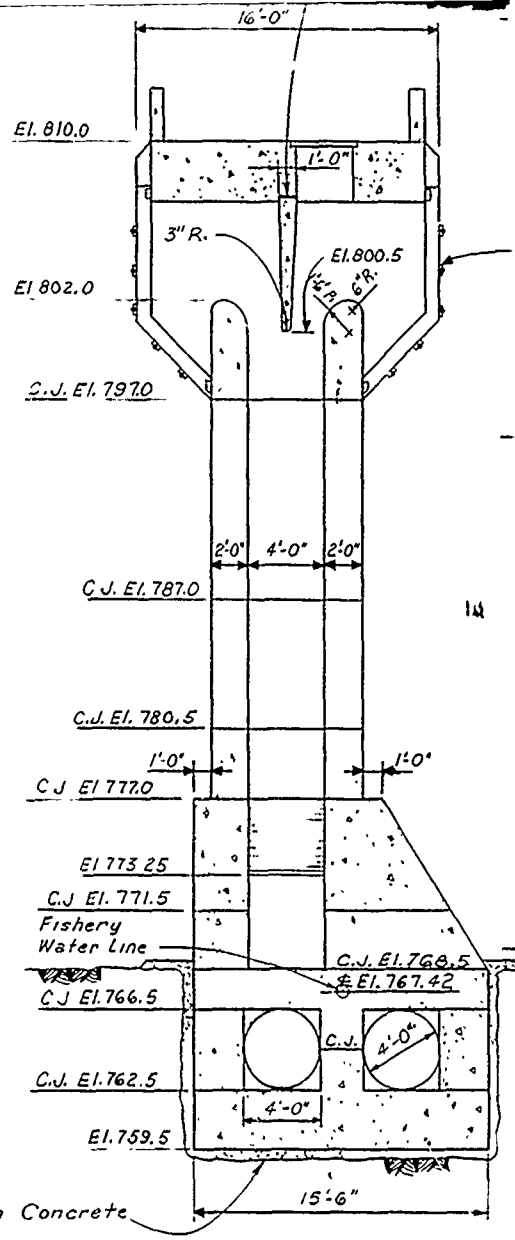
SECTION G
1/4" x 1'-0" J3/J5
J4

REFERENCE DWGS. DWG. NOS.
WATERSTOPS _____ J6
DROP INLET TRASHRACK _____ L5

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	INTAKE TOWER CONCRETE DIMENSIONS	
Drawn by			
Checked by			

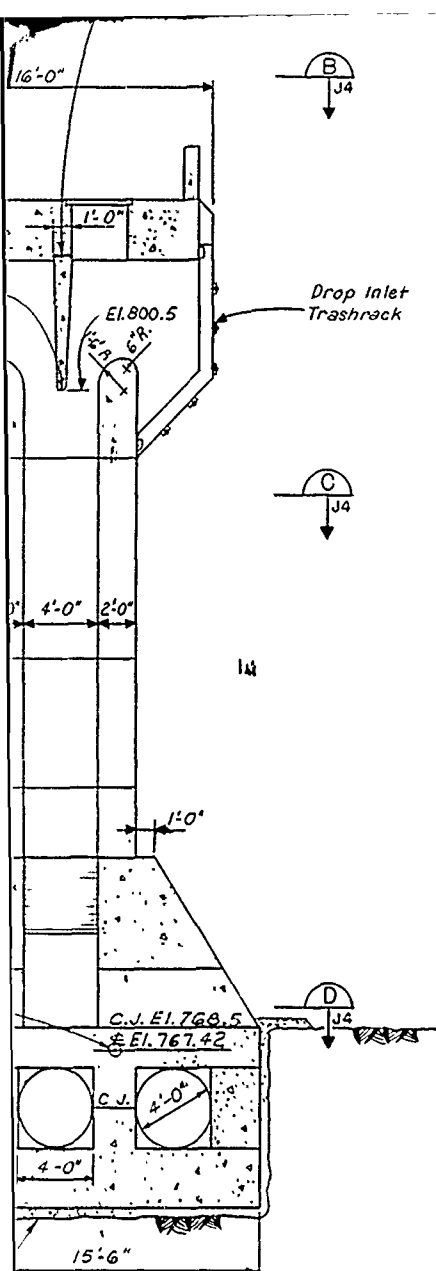


SECTION **F**
 Scale: 1/4" = 1'-0" J3|J5
 J4




SECTION **G**
 Scale: 1/4" = 1'-0" J3|J5
 J4

6" min. Lean Concrete



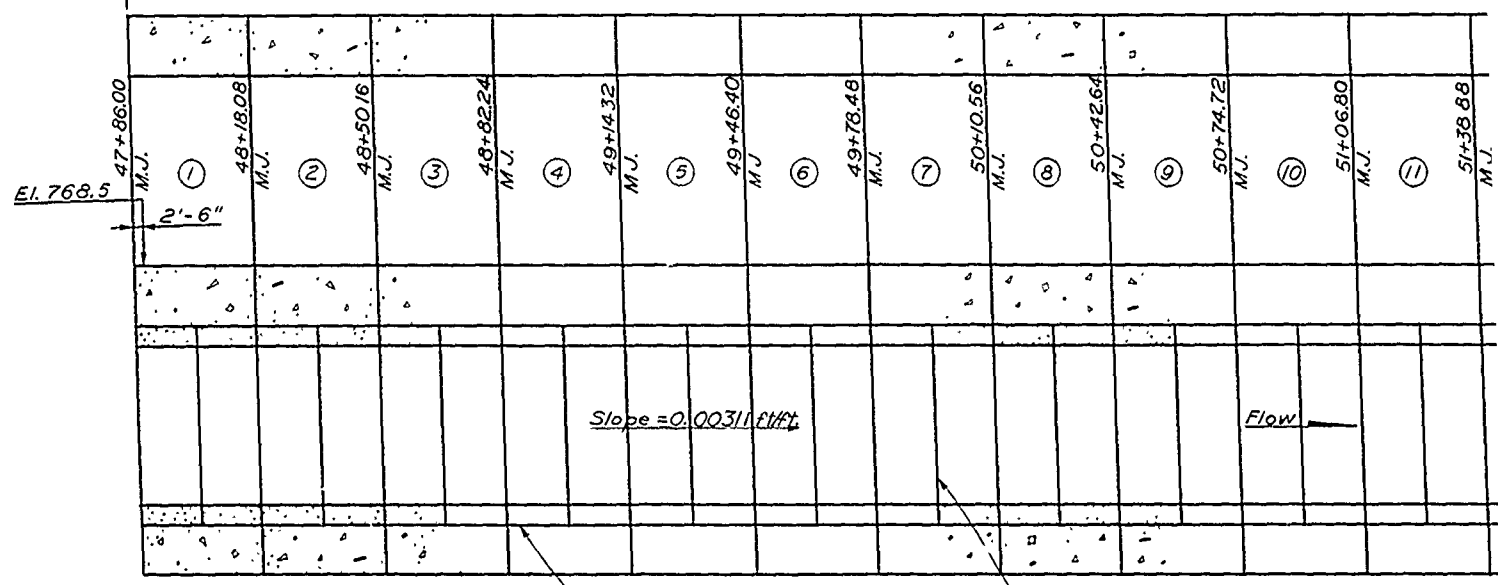
REFERENCE DWGS. _____ DWG. NOS. _____
 WATERSTOPS -----J6
 DROP INLET TRASHRACK -----L5

SECTION G
 1/4" = 1'-0" J3 | J5
 J4

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by			
Checked by	INTAKE TOWER CONCRETE DIMENSIONS		
Submitted by	Scale	AS SHOWN	Sheet number 21
	Date	JUNE 1990	
	Dwg No.		File No RBL-2-1241

A

14 Monoliths @ 32.08' = 449.12



Slope = 0.00311

Flow

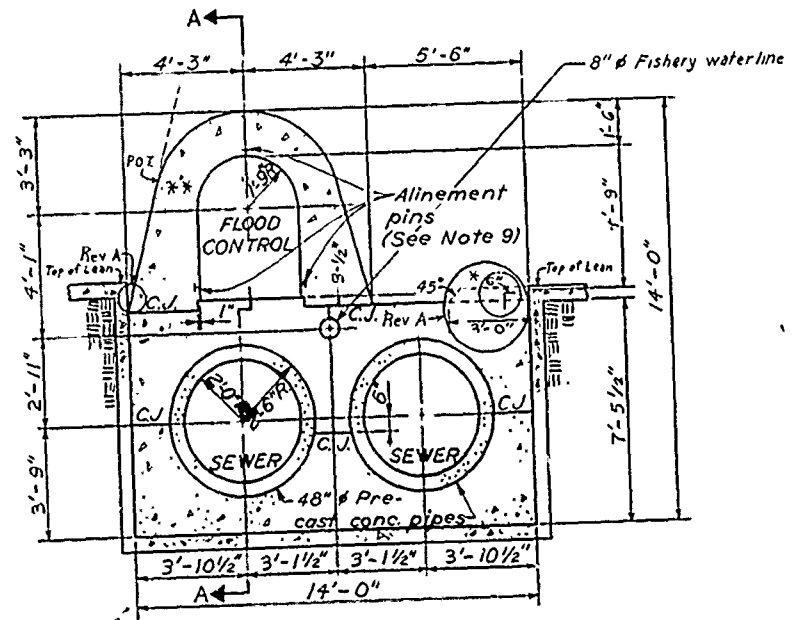
48" ϕ Precast conc. cylinder pipe

Precast pipe Jt. (Typ)

SECTION A

Scale: Horiz. 1" = 20'-0"
Vert. 1" = 2'-0"

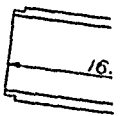
FLOOD CONTROL INVERT ELEVATIONS	
STATION	ELEVATIONS
47+86.00	768.5
47+88.50	768.5
48+18.08	768.41
48+50.16	768.31
48+82.24	768.21
49+14.32	768.11
49+46.40	768.01
49+78.48	767.91
50+10.56	767.81
50+42.64	767.71
50+74.72	767.61
51+06.80	767.51
51+38.88	767.41
51+70.96	767.31
52+03.04	767.21
52+35.12	767.11
52+51.16	767.06
52+71.00	767.00



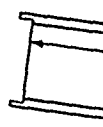
**SECTION THRU CONDUIT (A)
MONOLITHS 2 THRU 15**

Scale: 3/8" = 1'-0"

*Note: Install #4 Re-Bar 6" x 6" on 24" centers where structure concrete has previously been placed. The #4 Bar shall be dowl in and set in epoxy. The concrete in this area shall conform to the dashed

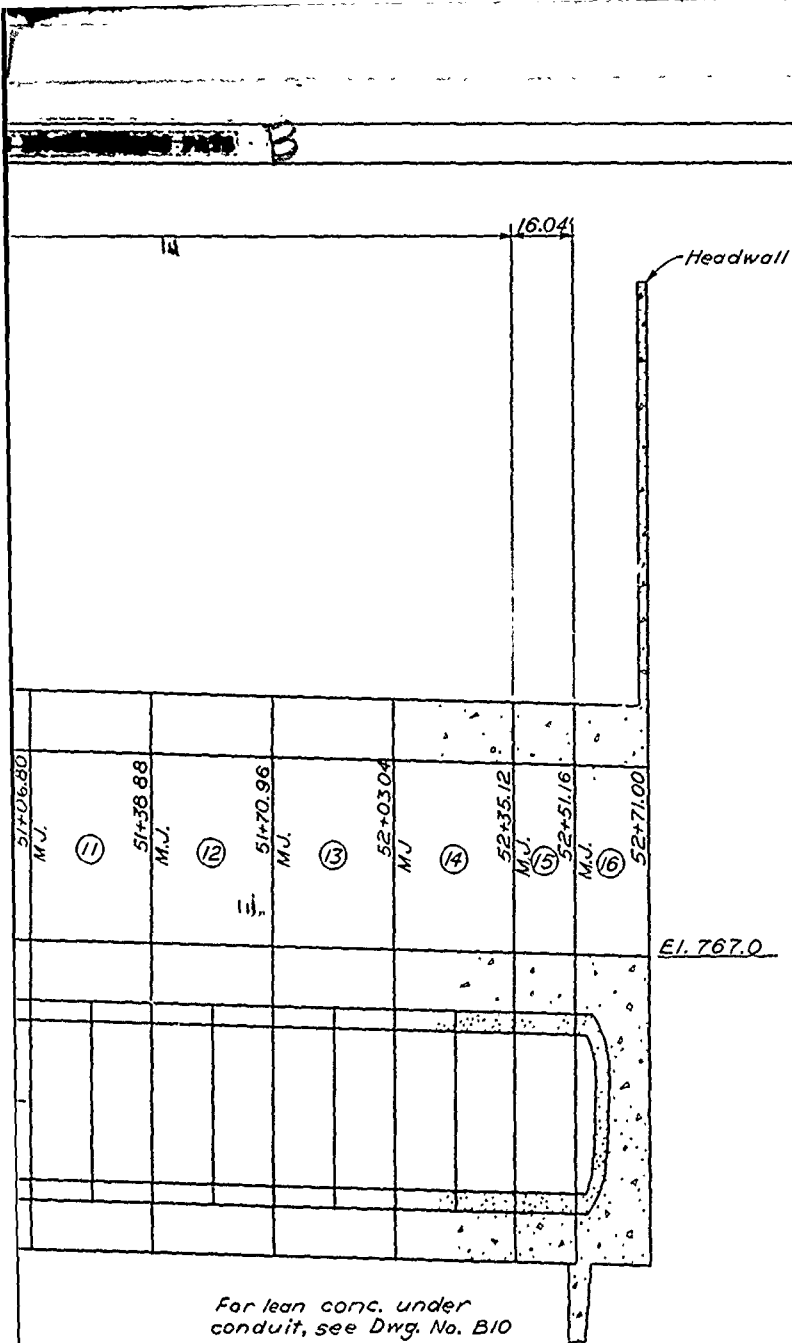


MET



MET

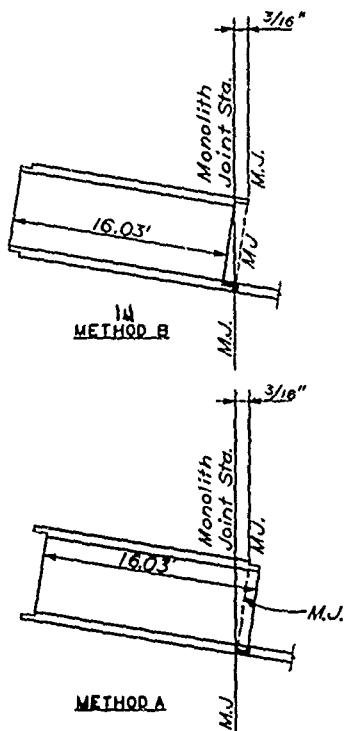
TYPICAL



For lean conc. under conduit, see Dwg. No. B10

GENERAL NOTES - CONDUIT AND SEWER ENCASMENT

1. M.J. - Monolith Joint.
2. C.J. - Construction Joint.
3. Clear distance of reinforcement from Monolith Joint shall be 6" and from face of concrete shall be 4" unless otherwise noted.
4. Clear distance of reinforcement from waterstop and joint filler shall be 1 1/2".
5. All reinforcement splice and anchorage lengths shall conform to table shown on Dwg. No. H4 unless otherwise noted.
6. Reinforcement continuous thru C.J.
7. Reinforcement not continuous thru M.J.
8. All conduit monolith joints shall be coated with bituminous curing compound and the flood control invert joint shall have a 1/8" tooled edge.
9. Provide 3-Sinks St. rods 1/2" x 4", 5" upstream and downstream of each monolith joint between Sta. 47+85.9 and Sta. 52+51.26. Drill 4 1/2" deep hole. Install rods flush with surface using epoxy adhesive Sika Sikadur Lo-Mod Gel or equal. Follow epoxy manufacturers recommendations for installation. The rods shall be center punched with a fine point punch and approved by the Contracting Officer prior to installation. The final product shall be a permanent, firmly anchored system that will be used to monitor conduit monolith movement.
10. Monolith joints and sewer points of intersection (P.I.s) downstream of Sta. 47+86.00 may differ in the location shown (upstream-downstream direction only) by not more than or less than 0.01 feet, accumulative, for each 15 feet of sewer pipe. Deviations in the conduit monolith locations will be adjusted in Monolith 16 so that the headwall is located at Sta. 52+71.00.

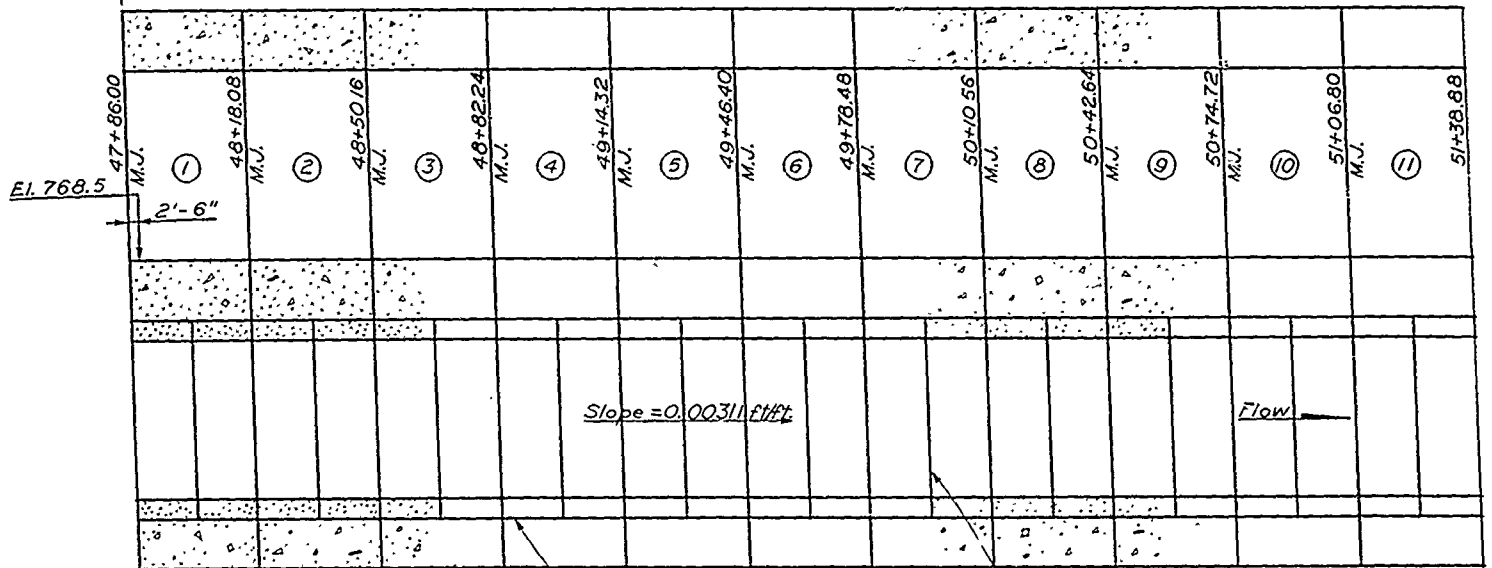


REFERENCE DWG. DWG. NO.
 Conduit Monolith 1 --- P3
 Conduit Monolith 16 --- Q1
 9" Rubber Waterstop --- P2

CONCRETE QUANTITY
 CONDUIT MONO 1 THRU 16
 1685 CU. YDS.

**TYPICAL PRECAST PIPE
 MONOLITH JOINT DETAIL**

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	CONDUIT PROFILE AND DETAILS	
Drawn by:			
Checked by:			
Scale AS SHOWN		Sheet	



Slope = 0.00311 ft/ft

Flow

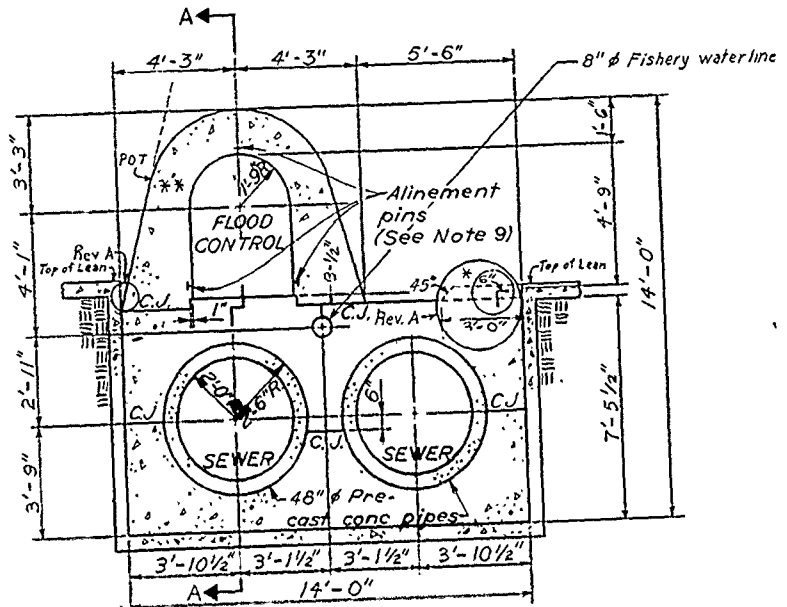
48" ϕ Precast conc. cylinder pipe

Precast pipe Jt. (Typ)

SECTION A

Scale: Horiz. 1" = 20'-0"
Vert. 1" = 2'-0"

FLOOD CONTROL INVERT ELEVATIONS	
STATION	ELEVATIONS
47+86.00	768.5
47+88.50	768.5
48+18.08	768.41
48+50.16	768.31
48+82.24	768.21
49+14.32	768.11
49+46.40	768.01
49+78.48	767.91
50+10.56	767.81
50+42.64	767.71
50+74.72	767.61
51+06.80	767.51
51+38.88	767.41
51+70.96	767.31
52+03.04	767.21
52+35.12	767.11
52+51.16	767.06
52+71.00	767.00

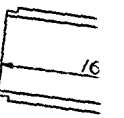


SECTION THRU CONDUIT (A)
MONOLITHS 2 THRU 15

Scale: 3/8" = 1'-0"

*Note: Install #4 Re-Bar 6" x 6" on 24" centers where structure concrete has previously been placed. The #4 Bar shall be dowel in and set in epoxy. The concrete in this area shall conform to the dashed section shown.
**Construct template to verify theoretical structural dimension.

--- Concrete surface prior to modification

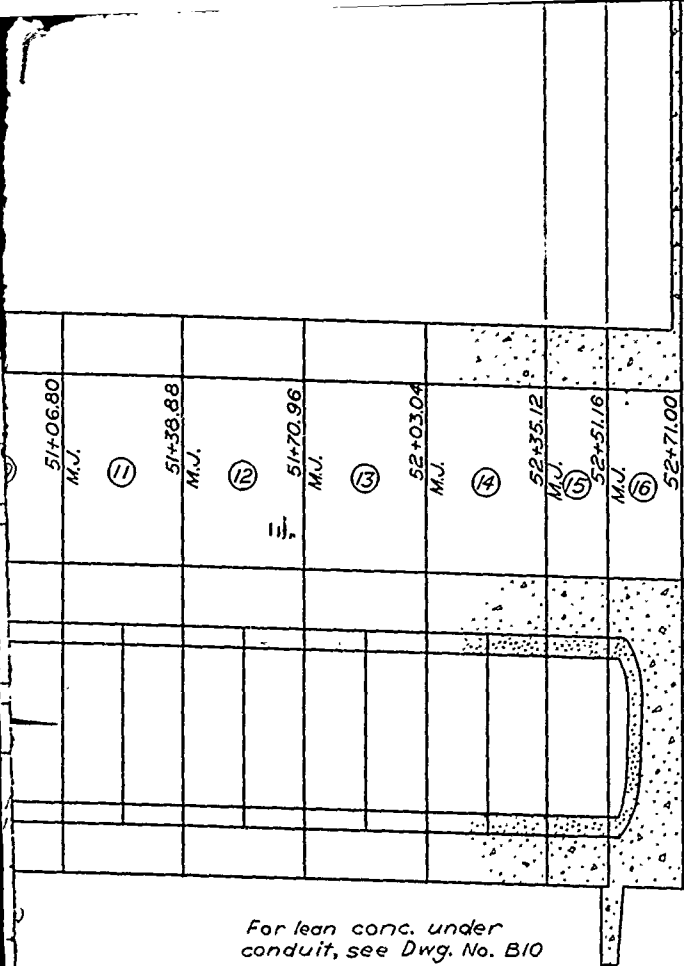


MEI

MEI

TYPICAL MONOLITH

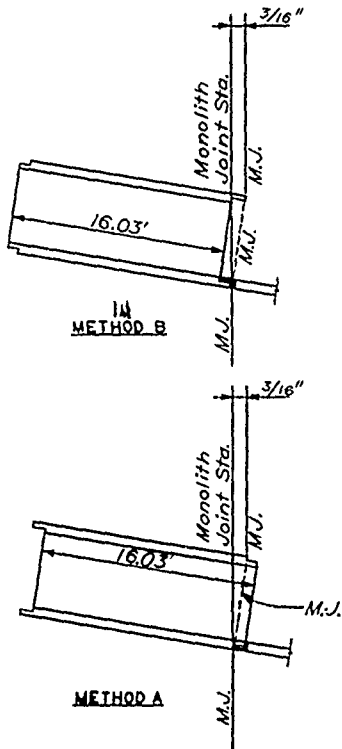
USE EITHER MEI No. 1



For lean conc. under conduit, see Dwg. No. B10

GENERAL NOTES - CONDUIT AND SEWER ENCASEMENT

1. M.J. - Monolith Joint.
2. C.J. - Construction Joint.
3. Clear distance of reinforcement from Monolith Joint shall be 6" and from face of concrete shall be 4" unless otherwise noted.
4. Clear distance of reinforcement from waterstop and joint filler shall be 1 1/2".
5. All reinforcement splice and anchorage lengths shall conform to table shown on Dwg. No. H4 unless otherwise noted.
6. Reinforcement continuous thru C.J.
7. Reinforcement not continuous thru M.J.
8. All conduit monolith joints shall be coated with bituminous curing compound and the flood control invert joint shall have a 1/8" tooled edge.
9. Provide 3-Strs. Strods 1/2" x 4", 5" upstream and downstream of each monolith joint between Sta. 47+85.9 and Sta. 52+51.26. Drill 4 1/2" deep hole. Install rods flush with surface using epoxy adhesive. **(A)** Sika Sikadur Lo-Mod Gel or equal. Follow epoxy manufacturers recommendations for installation. The rods shall be center punched with a fine point punch and approved by the Contracting Officer prior to installation. The final product shall be a permanent, firmly anchored system that will be used to monitor conduit monolith movement.
10. Monolith joints and sewer points of intersection (P.I.s) downstream of Sta. 47+86.00 may differ in the location shown (upstream-downstream direction only) by not more than or less than 0.01 feet, accumulative, for each 16 feet of sewer pipe. Deviations in the conduit monolith locations will be adjusted in Monolith 16 so that the headwall is located at Sta. 52+71.00.




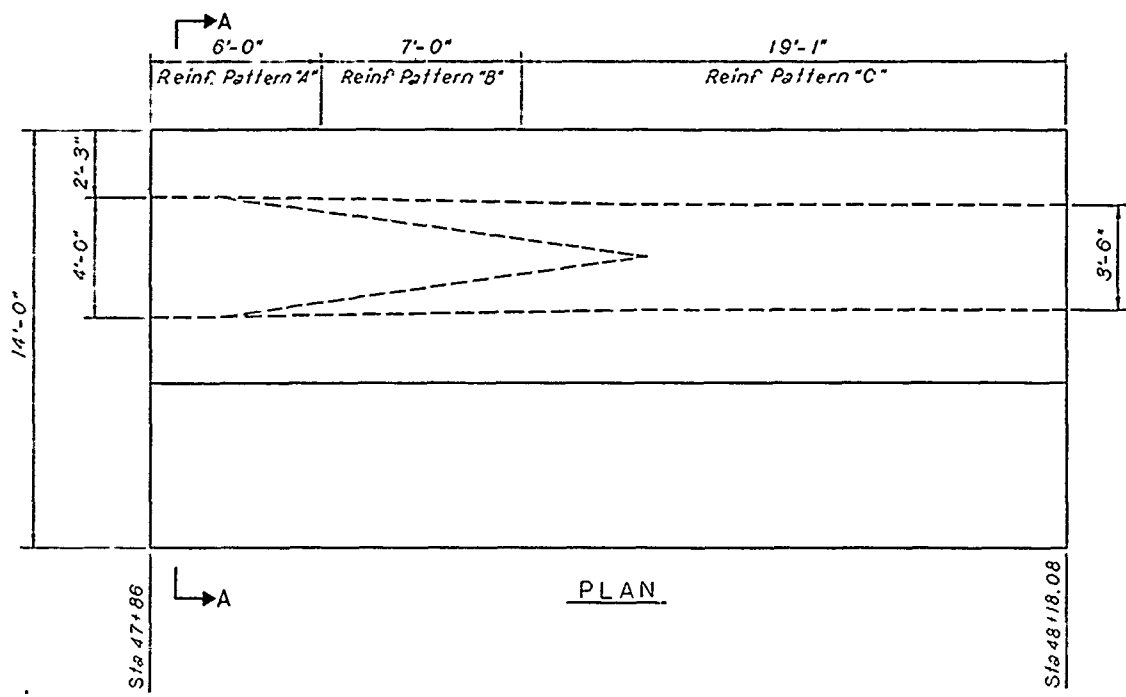
REFERENCE DWG. _____ DWG. NO. _____
 Conduit Monolith 1-----P3
 Conduit Monolith 16-----Q1
 9" Rubber Waterstop--P2

CONCRETE QUANTITY
 CONDUIT MONO 1 THRU 16
 1685 CU. YDS.

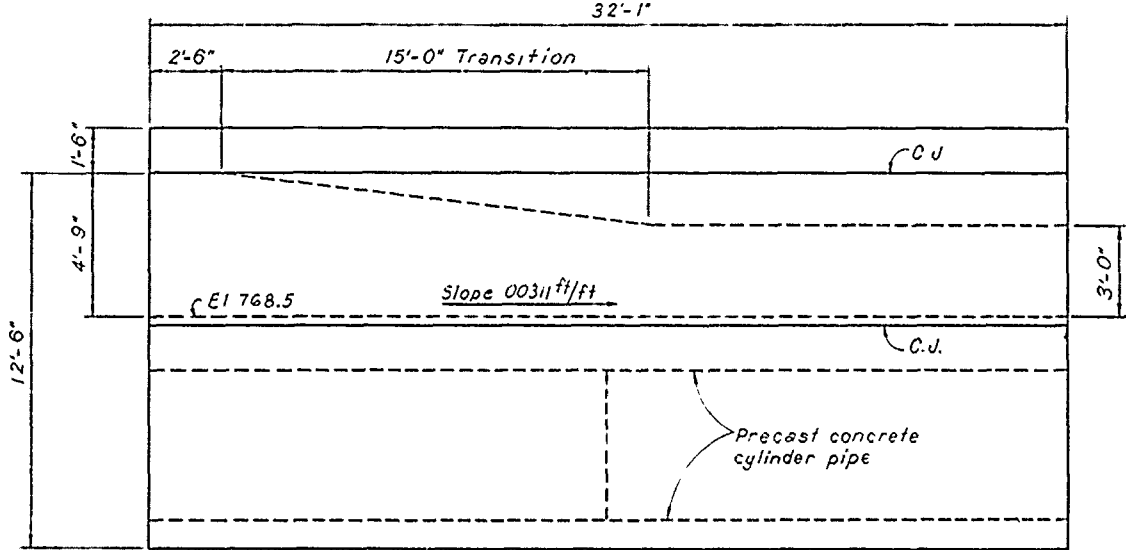
**TYPICAL PRECAST PIPE
 MONOLITH JOINT DETAIL**

USE EITHER METHOD A OR B THROUGHOUT
 Not to Scale

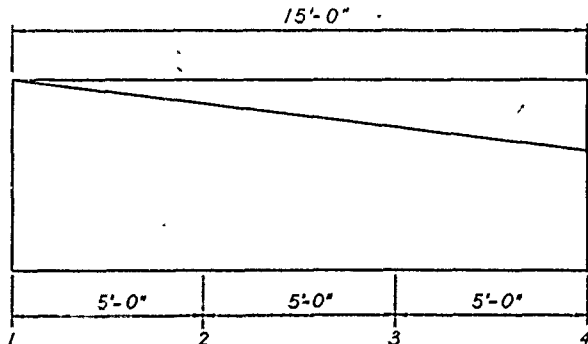
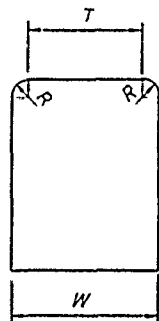
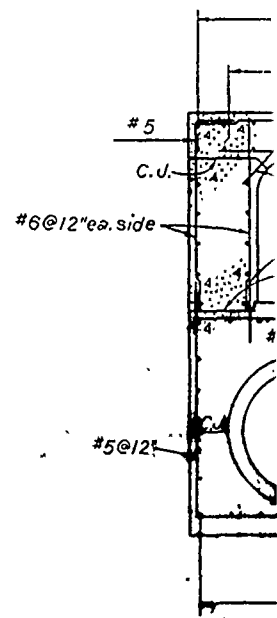
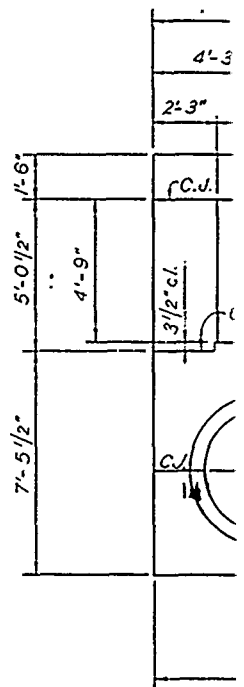
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	CONDUIT PROFILE AND DETAILS	
Drawn by:		Scale: AS SHOWN	Sheet number: 22
Checked by:		Date: JUNE 1990	File No.: RBL-2-1242
Submitted by:		Dwg No.:	



PLAN

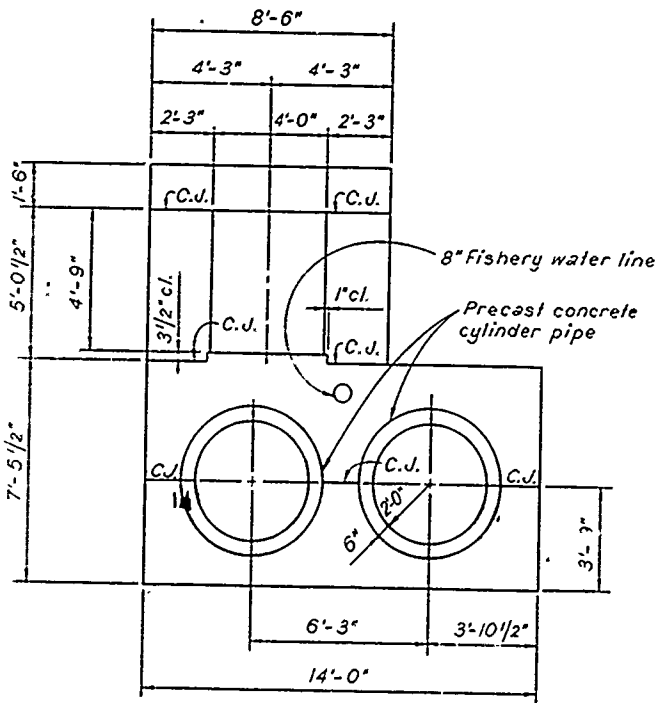


ELEVATION

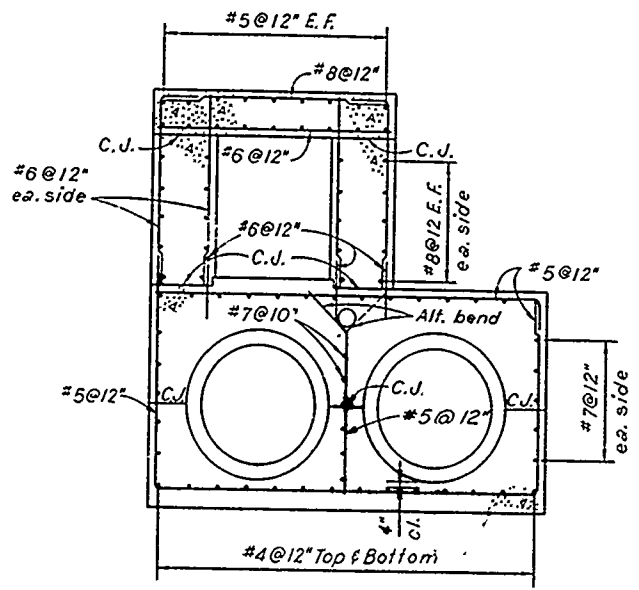


TRANSITION DETAILS

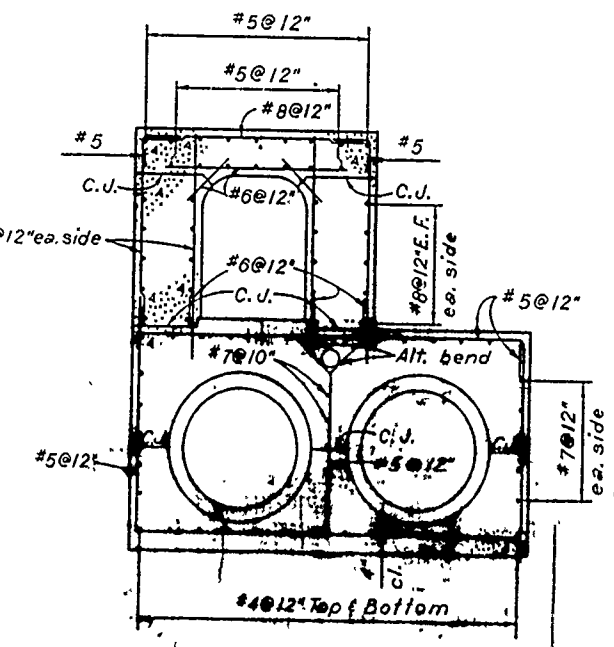
SECTION	R #1
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2	0.58
3	1.17
4	1.75



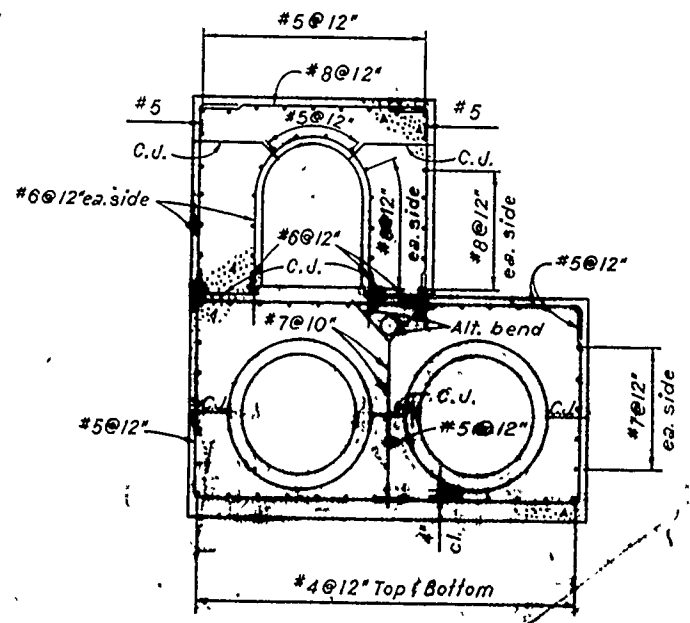
SECTION A



PATTERN 'A' REINF.



PATTERN 'B' REINF.



PATTERN 'C' REINF.

SECTION	R (FT.)	T (FT.)	W (FT.)
1	0.00	4.00	4.00
2	0.58	2.00	3.83
3	1.17	1.33	3.67
4	1.75	0.00	3.50

Scale: 3/8" = 1'-0"

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: _____

Drawn by: _____

Checked by: _____

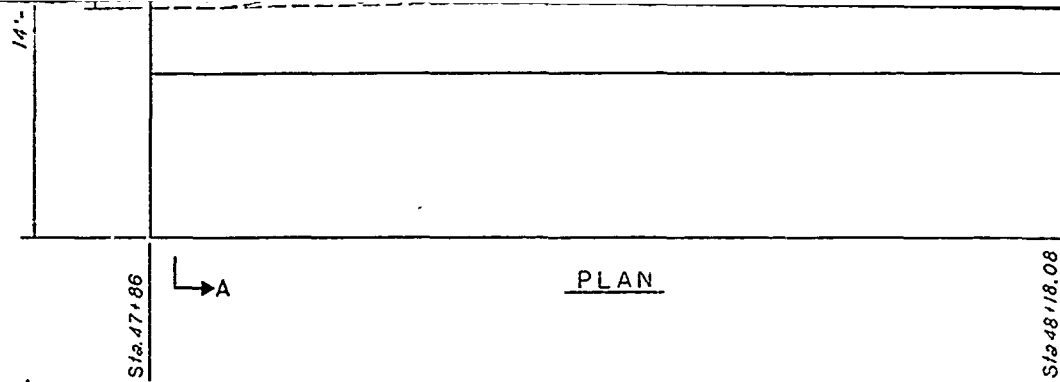
Submitted by: _____

EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

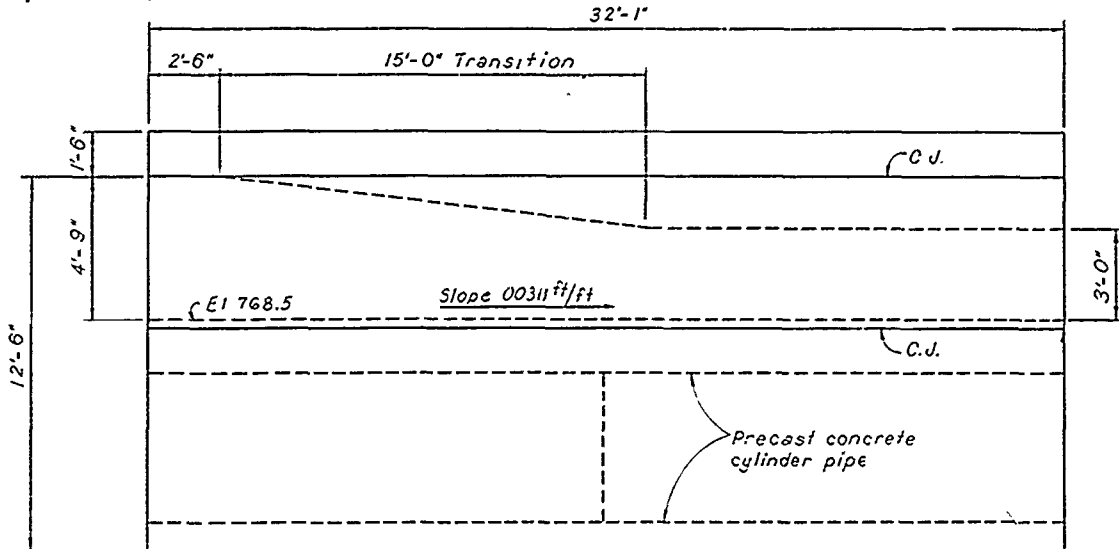
CONDUIT MONOLITH I

Scale: AS SHOWN Sheet number: _____

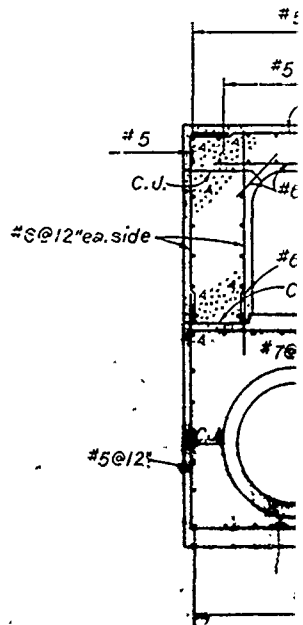
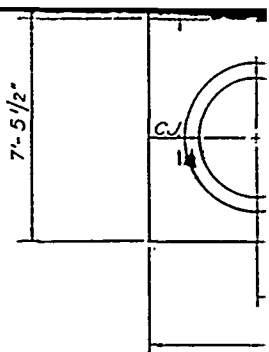
Date: JUNE 1990



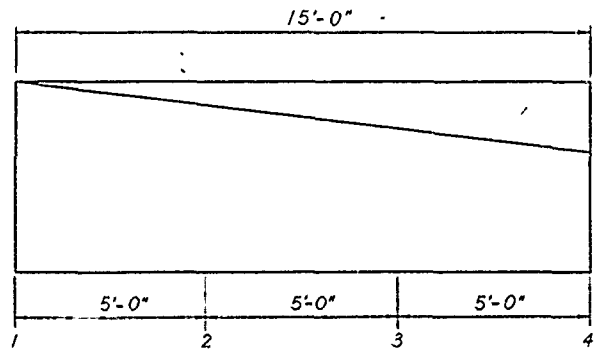
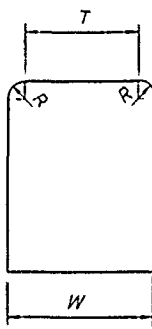
PLAN



ELEVATION

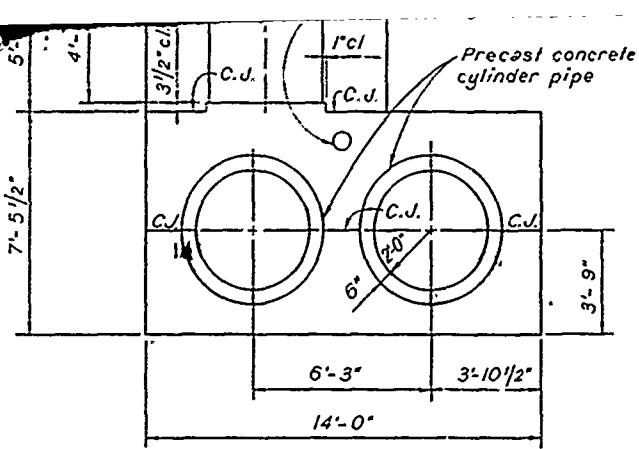


PAT

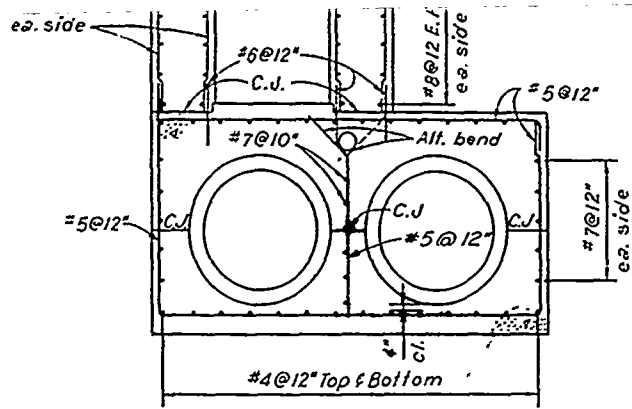


TRANSITION DETAILS

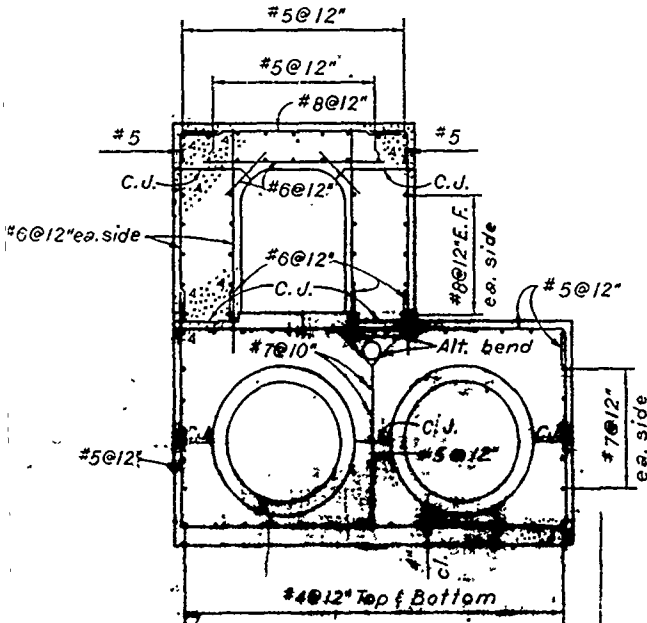
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2	0.58
3	1.17
4	1.75



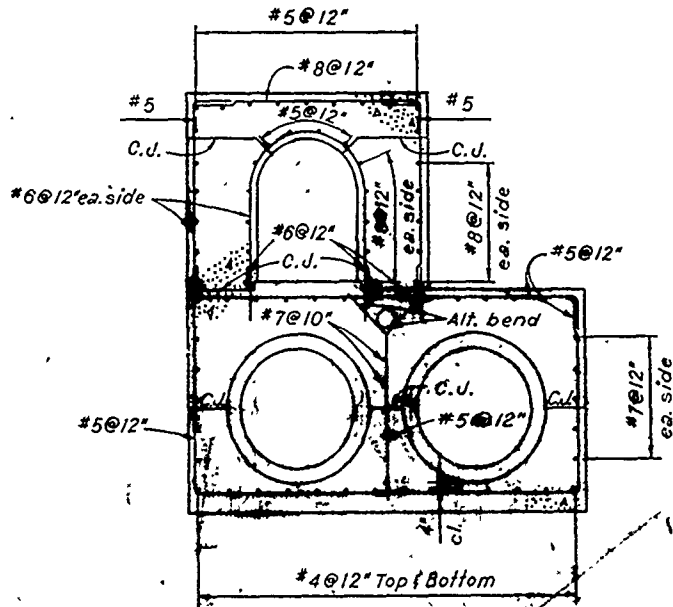
SECTION A



PATTERN 'A' REINF.




PATTERN 'B' REINF.

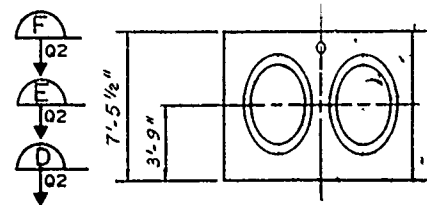
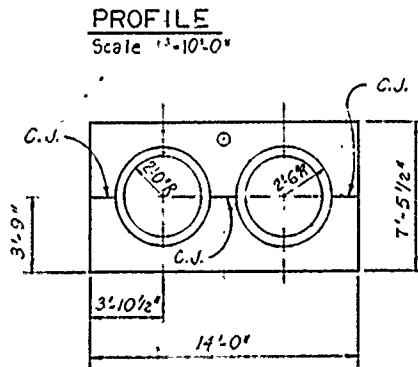
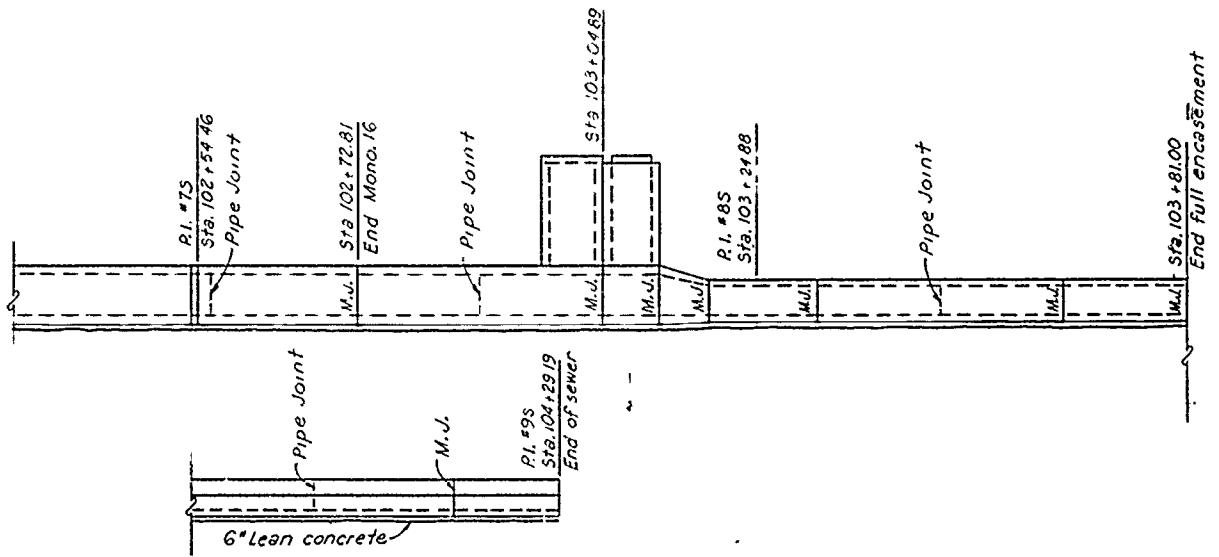
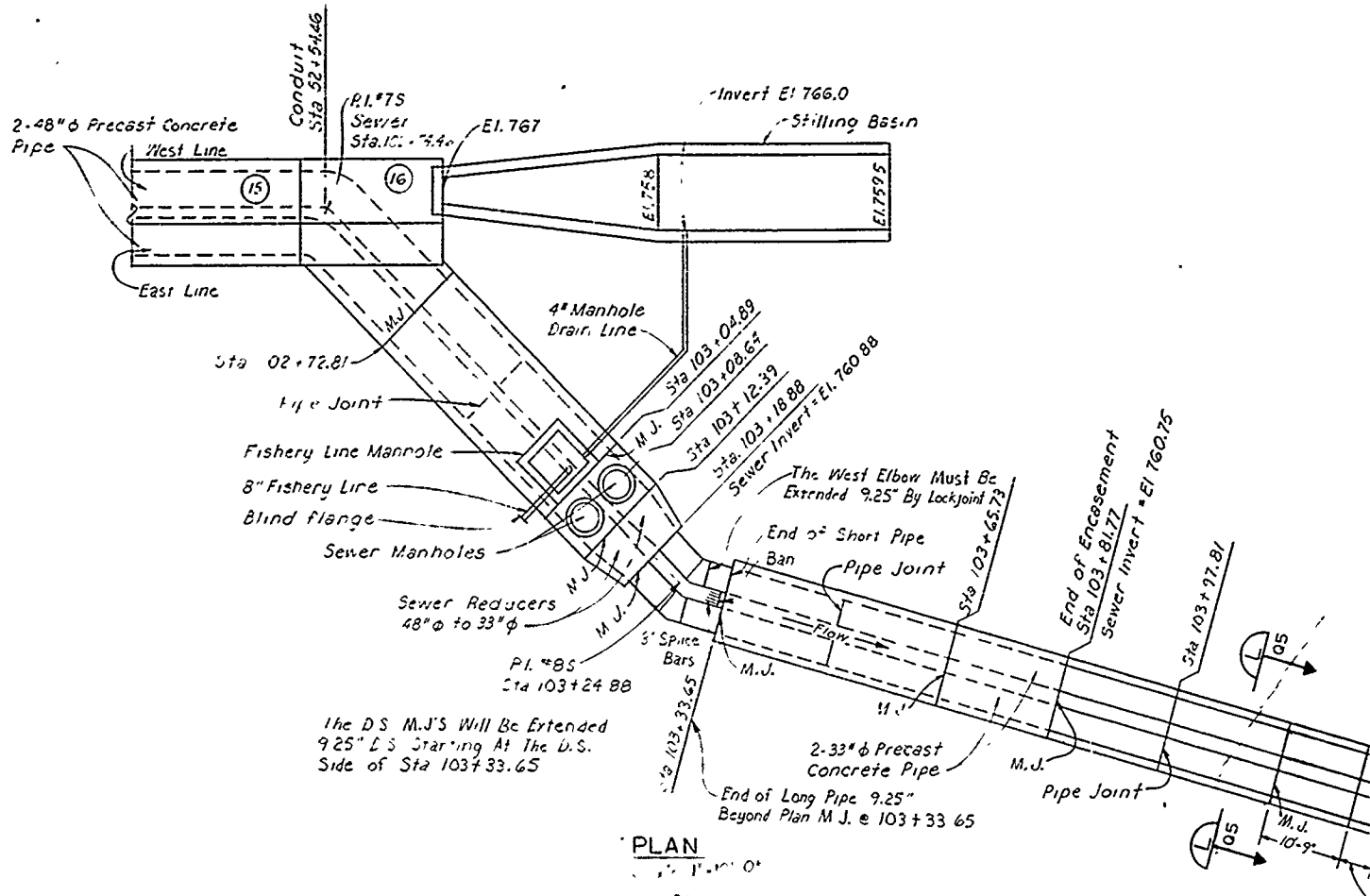


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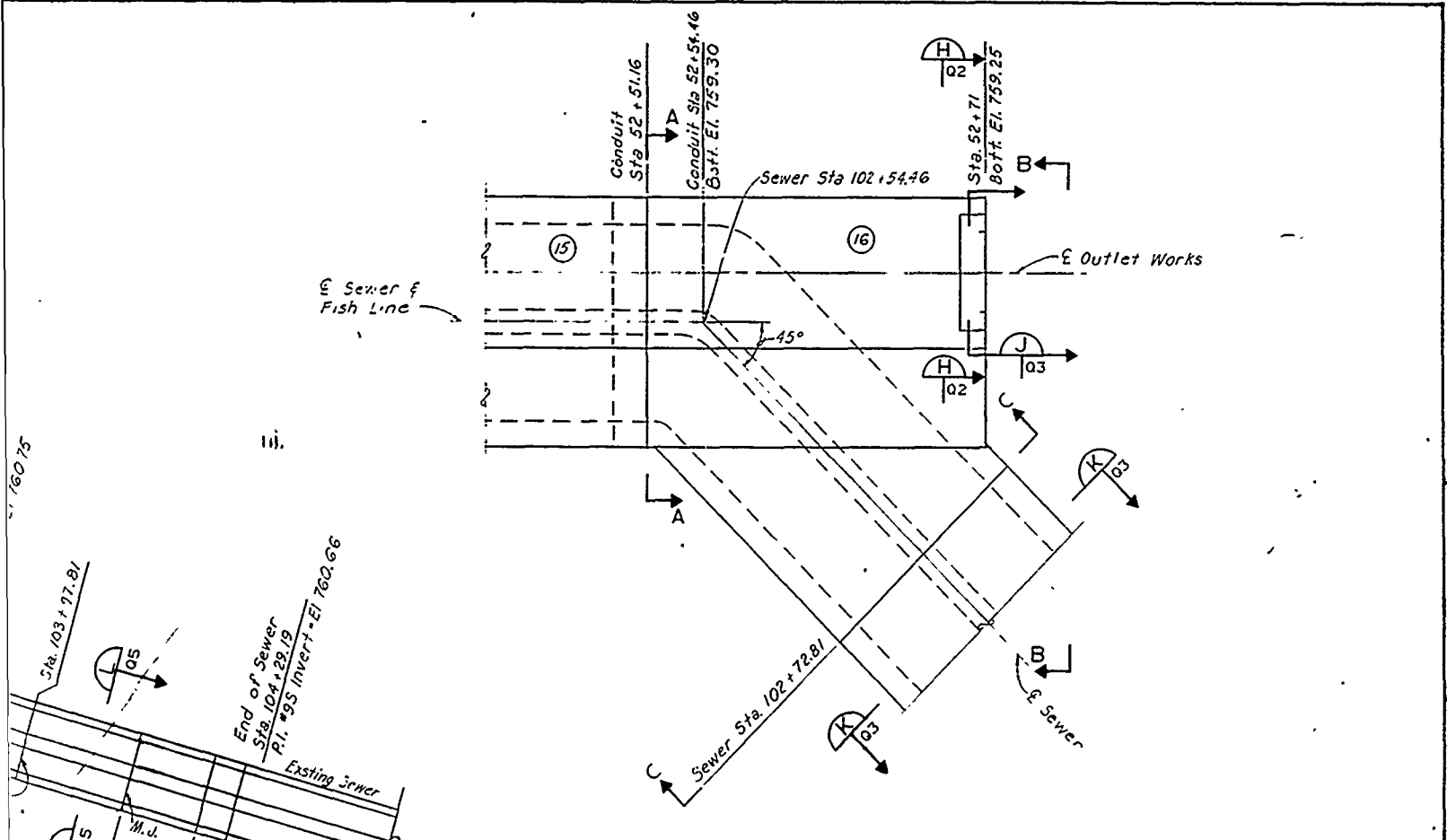
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1	0.00	4.00	4.00
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3	1.17	1.33	3.67
4	1.75	0.00	3.50

Scale: 3/8" = 1'-0"

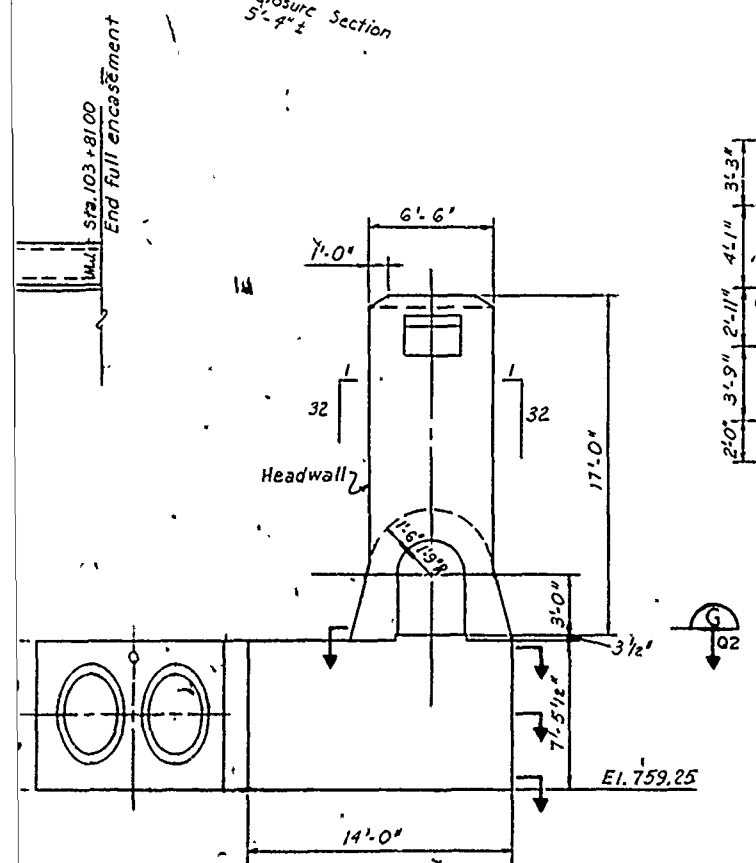
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	CONDUIT MONOLITH I	
Drawn by:			
Checked by:			
Submitted by:	Scale: AS SHOWN	Sheet number: 23	File No. RBL-2-1243
	Date: JUNE 1990		
	Dwg. No.:		



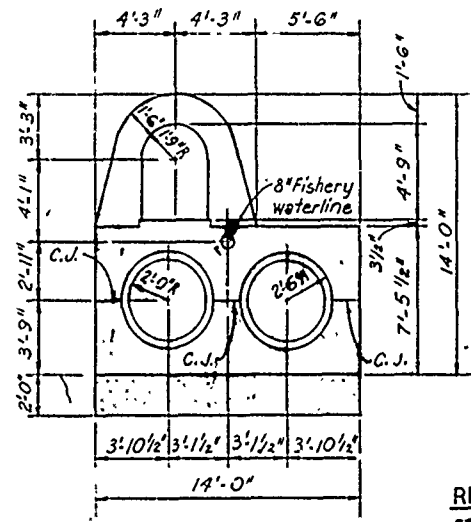
CONCRETE QUANTITIES
D.S. SEWER ENCASEMENT
STA. 102+72.81 TO STA. 104+29.19
220 CU. YDS.



PLAN OF MONOLITH 16
Scale: 1/4" = 1'-0"



SECTION B
Scale: 1/4" = 1'-0"



SECTION A
Scale: 1/4" = 1'-0"

REFERENCE DWG. STALLING BASIN
DWG. NO. RI

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: _____
Drawn by: _____
Checked by: _____

**EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT**

**CONDUIT MONOLITH 16 AND DOWNSTREAM
SEWER PLAN, PROFILE AND DETAILS**

Fishery Line Manhole
 8" Fishery Line
 Blind Flange
 Sewer Manholes

Sewer Reducers
 48" ϕ to 33" ϕ

P.I. #85
 Sta 103+24.88

The D.S. M.J.'S Will Be Extended
 9.25' D.S. Starting At The D.S.
 Side of Sta 103+33.65

The West Elbow Must Be
 Extended 9.25' By Lockjoint

End of Short Pipe
 Ban
 Pipe Joint

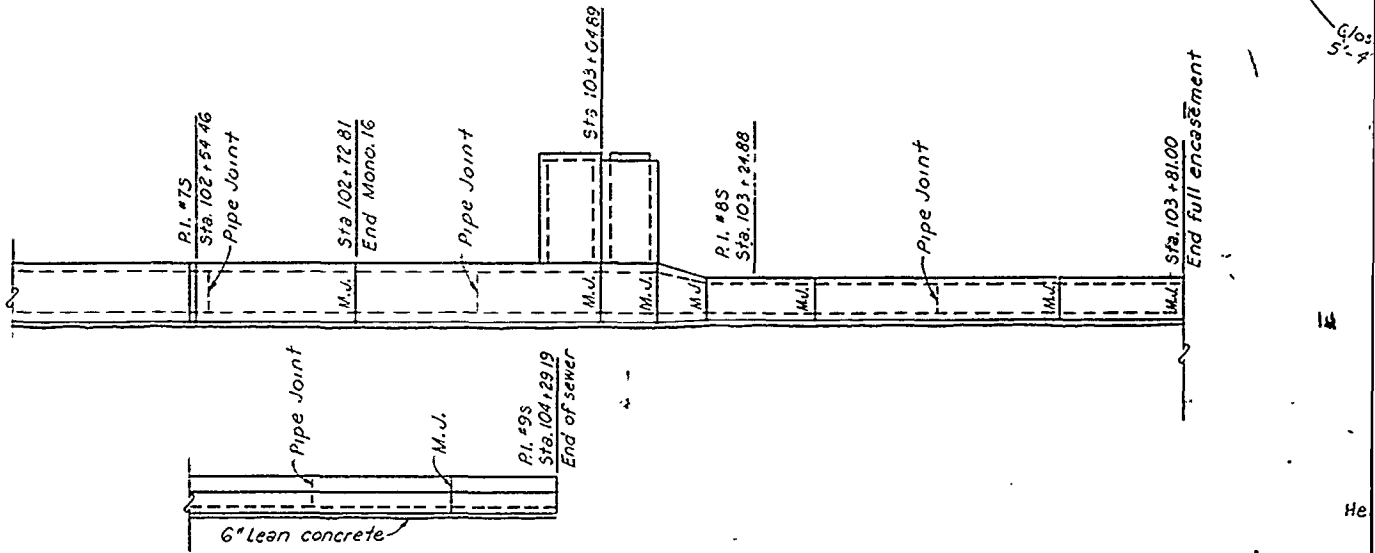
End of Encasement
 Sta 103+81.77
 Sewer Invert = El 760.73

Sta 103+97.81

2-33" ϕ Precast
 Concrete Pipe
 End of Long Pipe 9.25'
 Beyond Plan M.J. e 103+33.65

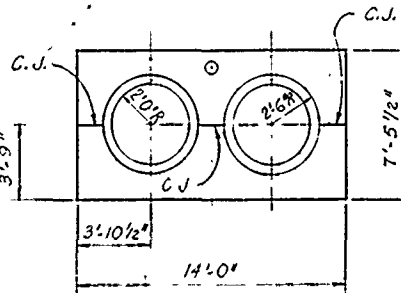
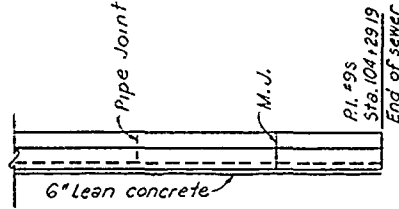
PLAN

Scale: 1" = 10'-0"



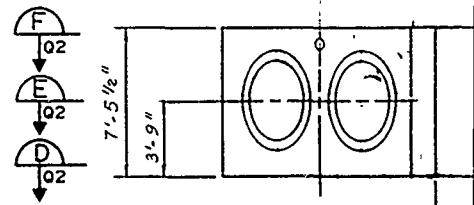
PROFILE

Scale: 1" = 10'-0"



SECTION C

Scale: 1/4" = 1'-0"

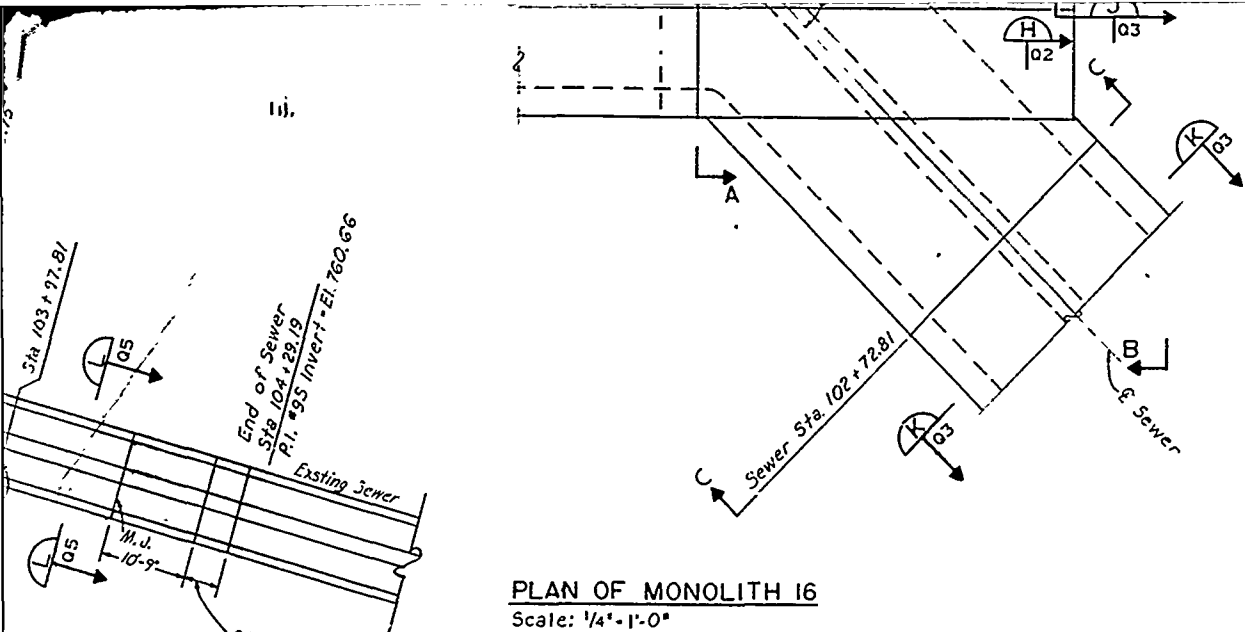


SECTION

Scale: 1/4" = 1'-0"

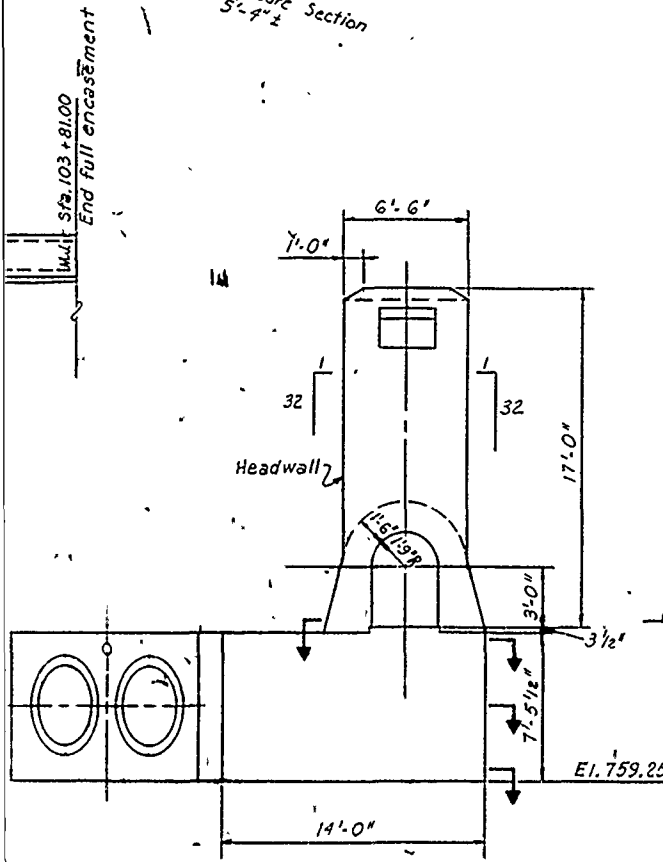
CONCRETE QUANTITIES
 D.S. SEWER ENCASUREMENT
 STA. 102+72.81 TO STA. 104+29.19
 220 CU. YDS.

iii.



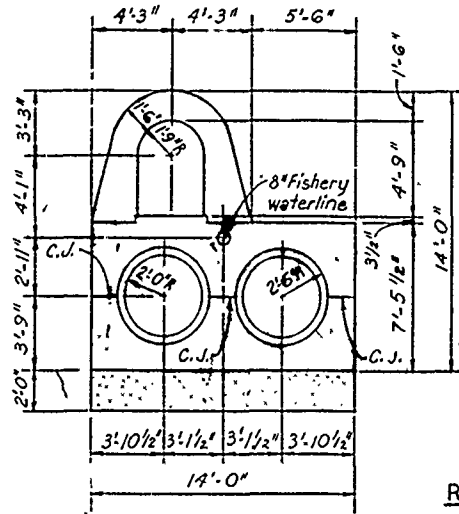
PLAN OF MONOLITH 16

Scale: 1/4" = 1'-0"



SECTION B

Scale: 1/4" = 1'-0"



SECTION A

Scale: 1/4" = 1'-0"

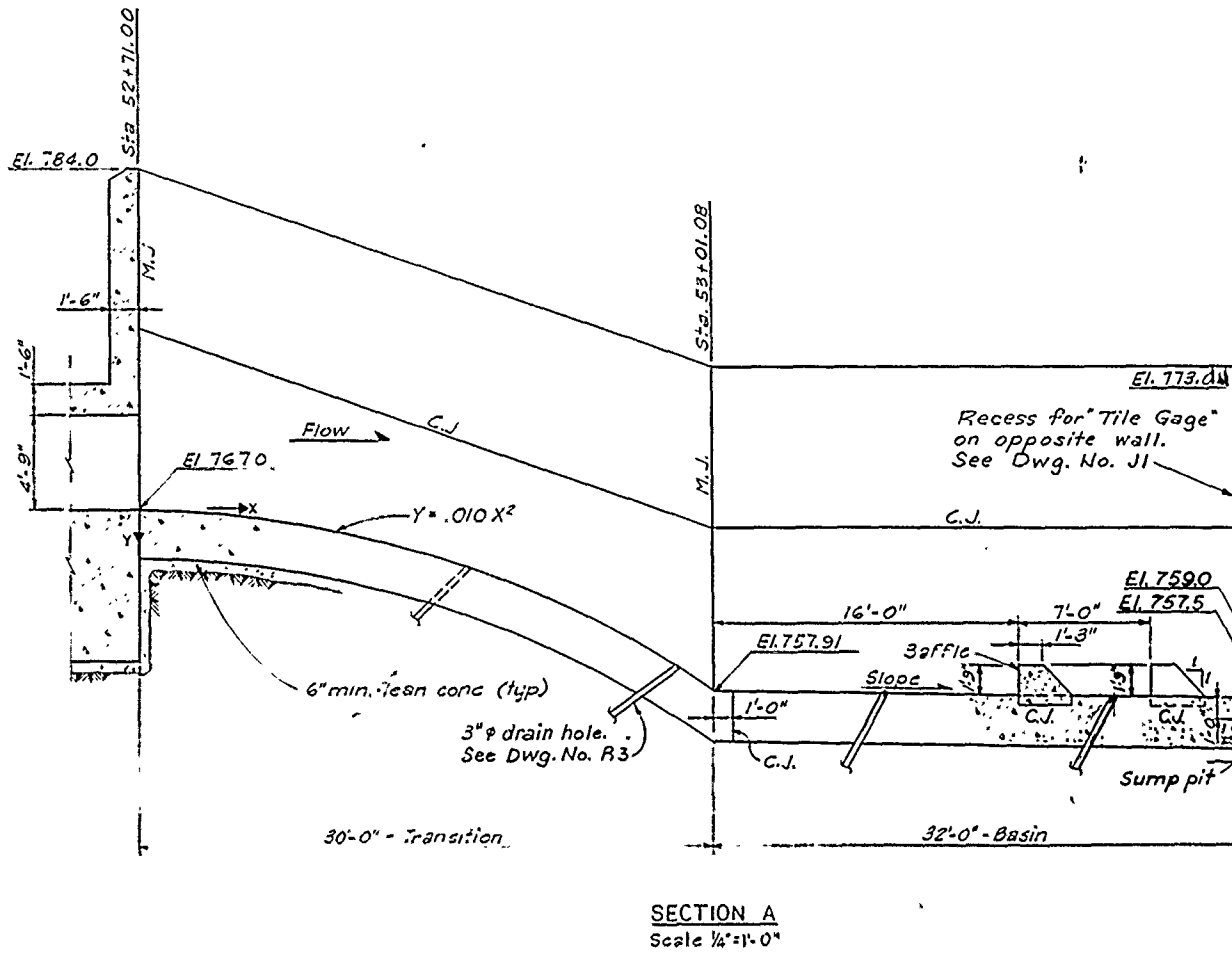
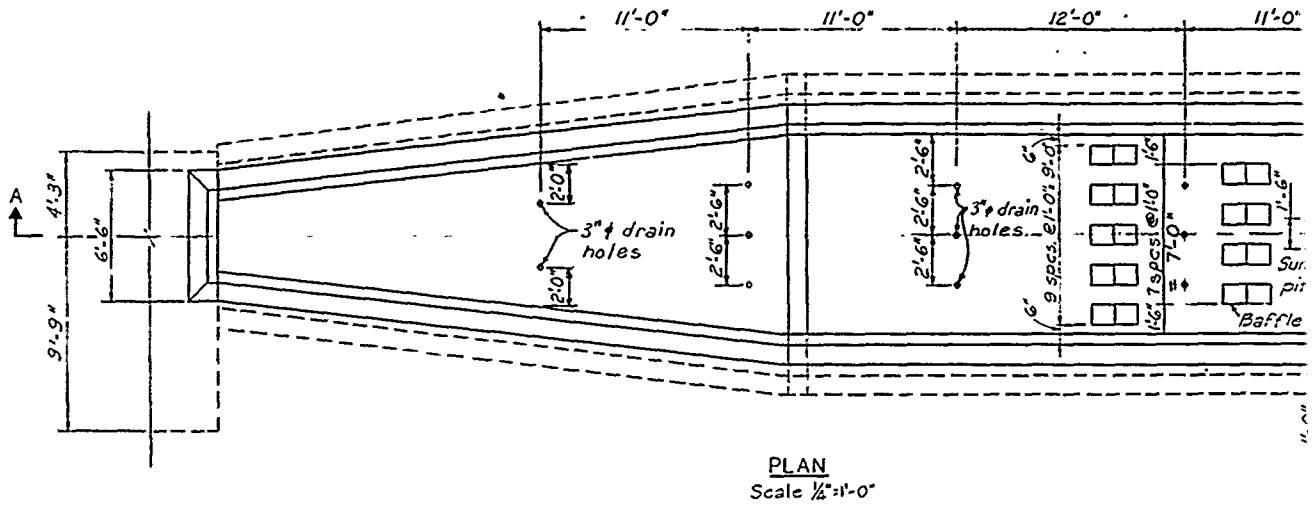
REFERENCE DWG.

STALING BASIN

DWG. NO.

RI

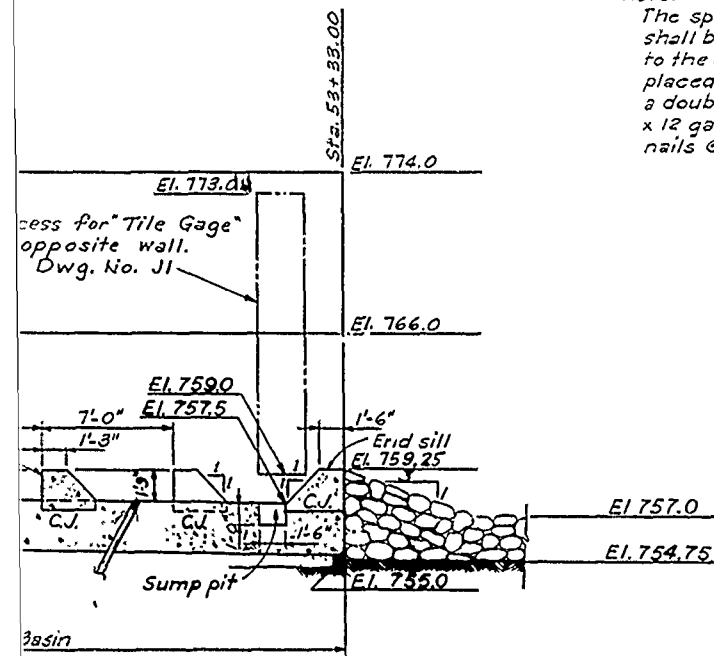
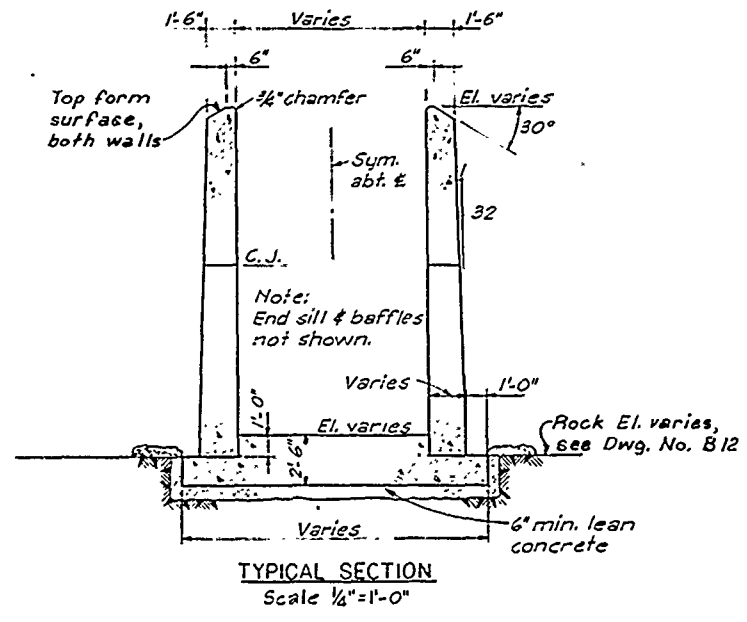
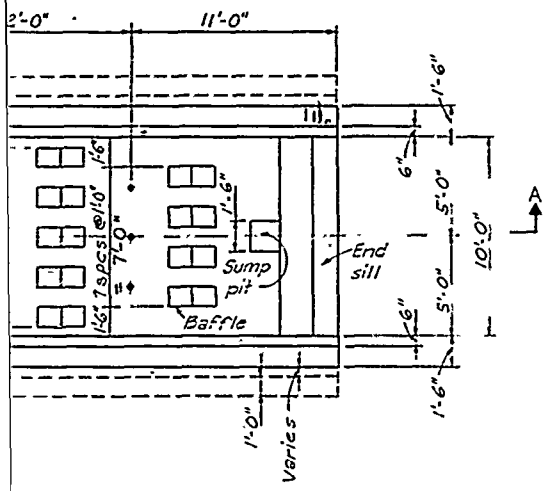
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:	CONDUIT MONOLITH 16 AND DOWNSTREAM SEWER PLAN, PROFILE AND DETAILS		
Checked by:			
Submitted by:	Scale: AS SHOWN Date: JUNE 1990 Dwg. No.:	Sheet number: 24	File No.: RBL-2-1244



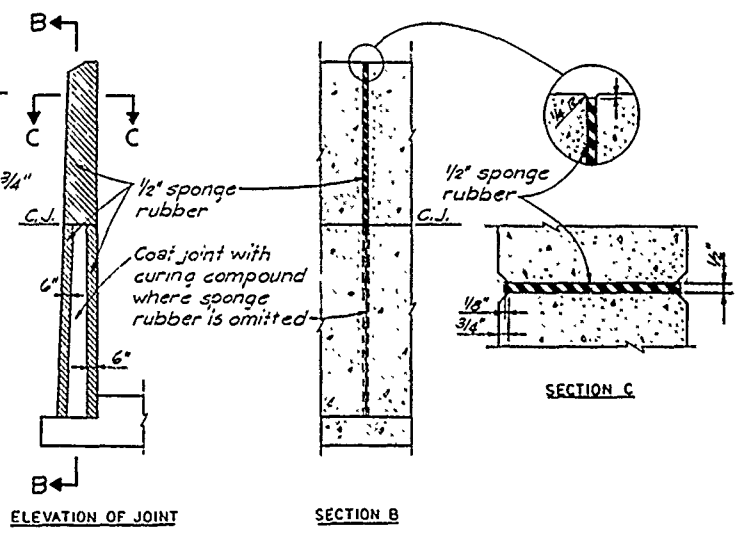
CONCRETE QUANTITIES
STILLING BASIN
198 CU. YDS.

CURVE DATA

STATION	X	Y	ELEVATION
52+71	0	0.0	767.00
52+76	5	0.25	766.75
52+81	10	1.00	766.00
52+86	15	2.25	764.75



Note:
The sponge rubber shall be secured to the concrete placed first with a double row of 1 3/4" x 12 gage copper nails @ 16" o.c.

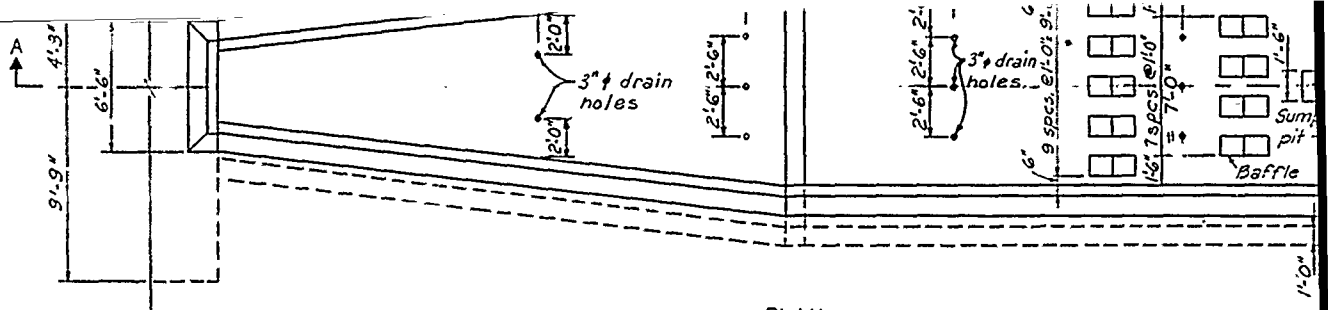


GENERAL NOTES - STILLING BASIN

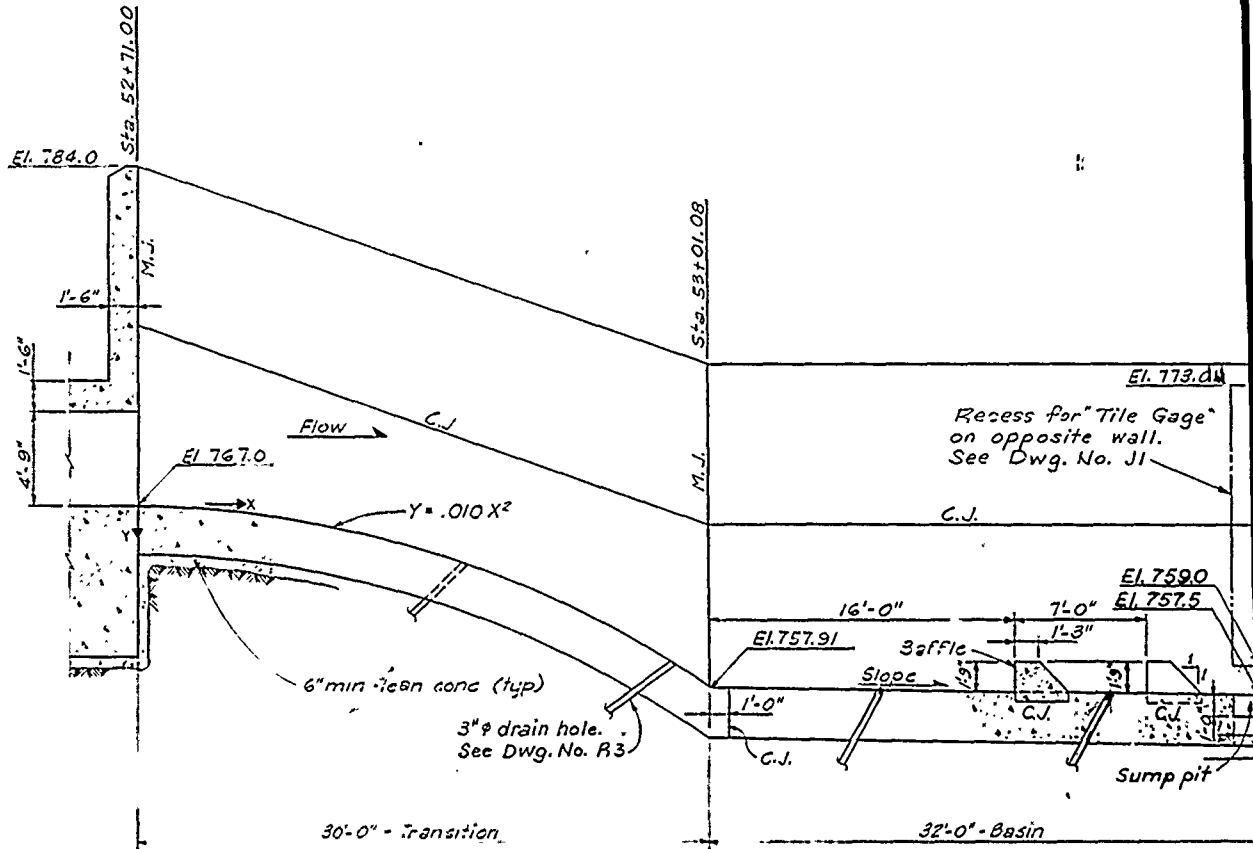
1. C.J. = Construction joint
M.J. = Monolith joint
2. Reinforcement continuous thru Construction joints.
3. Reinforcement not continuous thru Monolith joints.
4. Reinforcement in top of base slab shall have a clear distance of 6" from surface of concrete. All other reinforcement shall have a clear distance of 4" from surface of concrete unless otherwise noted.
5. Reinforcement splice and anchorage lengths are shown on Dwg. No. H4
6. All exposed edges of concrete shall be chamfered 3/4" unless otherwise noted.

ELEVATION
767.00
766.75
766.50

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Desig ^d by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by:		STILLING BASIN CONCRETE DIMENSIONS	



PLAN
Scale 1/2"=1'-0"



SECTION A
Scale 1/4"=1'-0"

CONCRETE QUANTITIES
STILLING BASIN
198 CU. YDS.

CURVE DATA

STATION	X	Y	ELEVATION
52+71	0	0.0	767.00
52+76	5	0.25	766.75
52+81	10	1.00	766.00
52+86	15	2.25	764.75
52+91	20	4.00	763.00
52+96	25	6.25	760.75
53+01	30	9.00	758.00

TYPE OF EXPLORATION

MAP SYMBOL

- Vertical boring
- Inclined boring showing direction and vertical angle
- Hand or machine dug test pit

CODE DESI

- D Drive sample
- C Core hole
- TP Test pit in 24" or larger
- U Undersized
- A Auger hole in auger less than
- NS Not Sampled
- Field Classifications or FS Field Section

TERMS FOR CONSISTENCY SOIL AND HARDNESS OF BEDROCK

SOIL	
Consistency	Estimated Unconfined Compressive (Tons per square foot)
Very soft	< 0.25
Soft	0.25 - 0.5
Medium	0.5 - 1.0
Stiff	1.0 - 2.0
Very stiff	2.0 - 4.0
Hard	> 4.0

BEDROCK SCALE OF HARDNESS

SCALE OF HARDNESS	
Very soft or plastic	Can be indented
Soft	Can be scratched
Moderately hard	Can be scratched with difficulty
Hard	Difficult to scratch
Very Hard	Cannot be scratched

BEDROCK UNIT THICKNESSES

Parting	< 0.02'
Band	0.02 to 0.2'
Thin Bed	0.2' to 0.5'
Medium bed	0.5' to 1.0'
Thick bed	1.0' to 2.0'
Massive	> 2.0'

ABBREVIATIONS

alt	alternating	dmp	damp	lea
ang	angular	dol (c)	dolomite, (dolomitic)	lg
an	anhydrite	ext	extremely	ls
ar	argillaceous	f (y)	fine, (thinly)	lt
bdd	bed, bedded, bedded	fe	iron	lo
bd	bedrock	fd	filled	LC
bly	blocky	fm	furn	LDW
bl	blue	fos (s)	fossil, (fossiliferous)	med
blb	boulder	frac (d)	fractures, (fractured)	mic
blk	black	frag (d)	fragments, (fragmented)	min
brec (d)	breccia, (brecciated)	frs	fracture	mod (y)
brc	broken	fs	fissile	mot
brn	brown	gr	grain	ms
c	coarse	grd	gradation	mst
calc	calcareous	grn	green	mtl
carb	carbonaceous	grv (y)	gravel, (gravelly)	ms
cav	cavity	grv	gravel	nod
cb	cobble	gsd	gypsum	num
cht	chert	ha	high angle	occ (y)
circ	circulation	hd	hard	op
cl (y)	clay, (clayey)	hld	healed	or
cl	closed	hor	horizontal	org
cmtd	cemented	inbd	interbedded	par
col	columnar	incl	inclusions	pt
conc	concretions	inlm	interlaminated	pl
cong	conglomerate	irr	irregular	pla
crm	crumbly	jt (s)	joint, (joints)	pln
d	dense	la	low angle	plg (s)
dk	dark	lam (d)	laminae, (laminated)	qtz (c)

GENERAL GEOLOGIC COLUMN							
SYSTEM	GROUP	FORMATION	MEMBER OR ZONE	SYMBOL	AVERAGE THICKNESS AND RANGE ()	GENERAL DESCRIPTION	
PENNSYLVANIAN	KANSAS CITY	CHERRYVALE	WEA	WE	77 ± (20-25)	SHALE with interbedded LIMESTONE. Shale—soft to occasionally very soft, platy clayey to slightly silty, occasionally fractured, gray weathers tan. Limestone—moderately hard, partings to thin beds, finely crystalline, argillaceous, open stained fractures and bedding planes, light gray weathers tan.	
			BLOCK	Bl	19 (1-4)	LIMESTONE. Moderately hard, medium to thin bedded, very finely crystalline, shaly light gray.	
			FONTANA	FN	22 (2-5)	SHALE. Soft, platy, blocky, calcareous, occasionally silty, dark gray to black.	
		DENNIS	WINTERSET	WS	13.6 (***)	LIMESTONE. Moderately hard, medium to thick bedded, finely crystalline, black chert nodules to bands in upper half and shale partings lower half, light gray.	
			STARK	SI	3.2 (1.6-5.2)	SHALE. Soft, platy to fissile, calcareous, carbonaceous, occasional siltstone laminae lower part, medium gray upper grading to dark gray to black lower. Occasionally contains a band to thin bed of shaly limestone to limy shale which is correlative with the Canvle limestone member. Contact with the Galesburg is usually transitional and often not defined.	
		SWOPE	[Undifferentiated Stark-Galesburg]	[SG]	[7.4]		
			GALESBURG	GA	4.2 (3.1-5.5)	SHALE. Upper—soft, platy, silty, slightly calcareous, dark gray. Lower—soft to occasionally very soft, blocky, slightly silty, occasionally slickensided, gray to greenish gray. Base occasionally transitional into the Bethany Falls "peanut rock".	
			BETHANY FALLS	Bf	22.1' (19.5-23.2)	LIMESTONE. Moderately hard, medium to thick bedded, dense to very finely crystalline, numerous undulating shale partings and stylolites nodular ("peanut rock") zone at top 2 to 6 feet, joints are frequently solutioned and open to clay filled, occasional solutioning along bedding planes, light gray with dark gray shale. Often found as very large stump blocks along valley walls.	
		HERTHA	HUSH-PUCKNEY	HP	2.5 (1.0-3.2)	SHALE. Soft, fissile to platy, clayey, silty at top, carbonaceous lower occasional siltstone laminae, dark gray to black weathers brown.	
			MIDDLE CREEK	MC	1.2' (0.5-2.1')	LIMESTONE. Moderately hard, thin bedded, finely crystalline, slightly shaly, shale band in middle, gray.	
			LADORE	LD	2.3' (0.6-3.2')	SHALE. Soft, platy, silty upper, calcareous lower, gray to dark gray. Contact with the Sniabar is frequently transitional and not well defined.	
		PLEASANTON (Undifferentiated)	SNIABAR	Sb	6.0' (4.7-7.1')	LIMESTONE. Moderately hard, thin bedded to massive, finely crystalline, shaly top and bottom, occasional shaly partings light gray to tan. Sometimes transitional contact with the Mound City.	
			MOUND CITY	MO	4.1' (2.0-6.0)	SHALE. Soft, massive upper to platy lower, blocky, clayey, calcareous with occasional limy nodules upper, numerous slickensides upper, light gray green to light gray upper and gray lower. Transitional into Critzer and contact often questionable.	
			CRITZER	Cz	2.1' (1.2-6.0')	SHALE. Soft, platy, clayey, slightly calcareous, limestone nodules and partings, occasionally slickensided, gray to occasionally gray green. Occasionally transitional into Pleasanton.	
MARMATON	PLEASANTON (Undifferentiated)	ZONE A	Pa	21.6' (19.8-24.1')	SHALE interlaminated with SILTSTONE and SANDSTONE. Soft, platy to occasionally massive, clayey, occasionally silty, occasionally calcareous, dark gray to gray green with light gray siltstone and sandstone. The massive, non-silty, gray green shale checks rapidly. The sandstone is soft to moderately hard, thin bedded, fine grained and micaceous. There is a fairly persistent zone of sandstone, from 0.5' to 2' thick, near the top of the Pleasanton.		
		ZONE B	Pb	9.4' (8.0-12.6)	SANDSTONE. Moderately hard to soft, medium bedded to massive with shale partings, fine to very fine grained, silty, micaceous, occasionally calcareous, occasional phosphate nodules, fossiliferous at base, light gray with dark gray laminae and partings. Frequently stained or weathered to light brown, especially when near surface.		
		ZONE C	Pc	60.3' (58.5-65.5)	SHALE and SILTSTONE. Upper half—generally siltstone with occasional shale interbeds, but sometimes is all massive shale, moderately hard to soft, thin bedded, argillaceous, calcareous, pyritic, light to dark gray; Lower half—soft, thick to medium bedded, occasionally fissile, non-calcareous, occasional limestone nodules and thin beds lower part, very fossiliferous and carbonaceous to thin coal beds at base, dark gray to nearly black.		
		ZONE D	Pd	8.8' (5.9-10.7)	UNDERCLAY and SHALE. Underclay is soft, massive to thin bedded, disseminated carbonaceous particles, calcareous with sparse limestone nodules, light greenish gray, shale is soft, thin bedded with occasional thin interbeds of siltstone and micaceous sandstone. Limestone nodules are sparsely distributed throughout the zone.		
		ZONE E	Pe	6.5' (4.2-9.1')	SANDSTONE. Soft to moderately hard, thin bedded with occasional shale and siltstone partings to interbeds, very fine grained, micaceous, occasional limestone nodules, disseminated carbonaceous particles, limy at base, light gray to light greenish gray, with dark gray laminae. Correlative with Hepler member?		
MARMATON	PLEASANTON (Undifferentiated)	HOLDENVILLE	HO	9.7' (7.8-10.7)	SHALE. Soft, thin bedded, fissile, clayey, calcareous with occasional limestone partings to thin beds, occasional siltstone at top, dark gray with light gray laminae, red brown zone at base.		
		LENAPAH	LP	12.0' (1-23)	INTERBEDDED SHALE, SANDSTONE and SILTSTONE. Shale—soft, fissile to massive, clayey, non-calcareous, vandyked gray, green and red. Sandstone—moderately hard, massive, fine to medium grained, occasionally calcareous and micaceous, greenish gray; Siltstone—soft to moderately hard, partings to massive, non-calcareous, occasionally clayey, gray to greenish gray, where clayey thin COAL and UNDERCLAY at top of unit. Underclay usually slickensided reddish gray to greenish gray.		

* Full unit thickness not penetrated. Range shown is reported for region.
 ** Only penetrated in one boring (DC-1 A).
 *** Full unit thickness penetrated in only one boring—Regional thickness reportedly 25 to 40 feet.

VALUE ENGINEERING PAYS

TYPE OF EXPLORATION

TYPE OF EXPLORATION	CODE DESIGNATION
1. Core boring	D Drive Sample hole
2. Test boring showing	Z Core hole
3. Test boring showing and measuring angle	T ₁ Test boring includes power auger 24" or larger diameter
4. Undisturbed sample hole	U Undisturbed sample hole
5. Auger hole hand powered	A Auger hole hand powered auger less than 24" diameter
6. Auger hole hand powered	AS Auger hole hand powered auger less than 24" diameter
7. Not Sampled	NS Not Sampled
8. Field Classification from cuttings only	FC Field Classification from cuttings only
9. Field Section or bucket	FS Field Section or bucket

TERMS FOR CONSISTENCY OF SOIL AND HARDNESS OF BEDROCK

SOIL

Estimated Unconfined Compressive Strength	tons per square foot:
< 0.25	< 0.25
0.25 - 0.5	0.25 - 0.5
0.5 - 1.0	0.5 - 1.0
1.0 - 2.0	1.0 - 2.0
2.0 - 4.0	2.0 - 4.0
> 4.0	> 4.0

BEDROCK

SCALE OF HARDNESS

1. Can be scooped easily with thumb	1. Can be scooped easily with thumb
2. Can be scratched with fingernail	2. Can be scratched with fingernail
3. Can be scratched easily with knife	3. Can be scratched easily with knife
4. Cannot be scratched with fingernail	4. Cannot be scratched with fingernail
5. Difficult to scratch with knife	5. Difficult to scratch with knife
6. Cannot be scratched with knife	6. Cannot be scratched with knife

BEDROCK UNIT THICKNESS

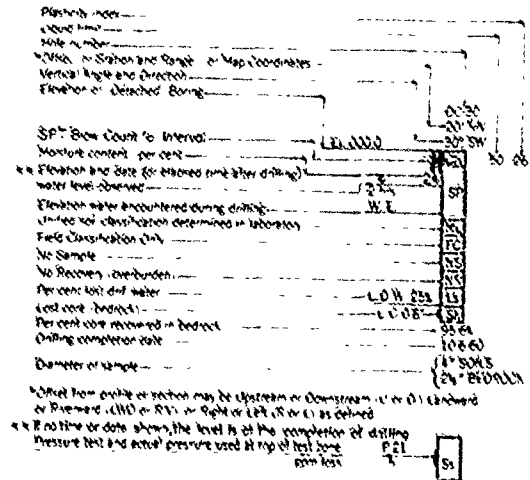
Thin	< 0.02
Thin bed	0.02 to 0.05
Medium bed	0.05 to 0.10
Thick bed	0.10 to 0.20
Massive	> 0.20

UNIFIED SOIL CLASSIFICATION SYSTEM

SW Well graded, clean, coarse sand	ML Inorganic silt and clay with fine sand
SP Poorly graded, clean, coarse sand	CL Inorganic clay, fine to medium
SM Silty, clean, coarse sand	CH Inorganic clay, medium to high plasticity
SC Clean, coarse, coarse sand, clay	OH Organic clay, high plasticity
SW Well graded, silty, coarse sand	ML Inorganic silt and clay with fine sand
SP Poorly graded, silty, coarse sand	CL Inorganic clay, fine to medium
SM Silty, coarse sand	CH Inorganic clay, medium to high plasticity
SC Clean, coarse, coarse sand, clay	OH Organic clay, high plasticity

Classification from a test log shall be taken from the Unified Soil Classification System. The classification shall be based on the Unified Soil Classification System. For more information, see the Unified Soil Classification System. For more information, see the Unified Soil Classification System. For more information, see the Unified Soil Classification System.

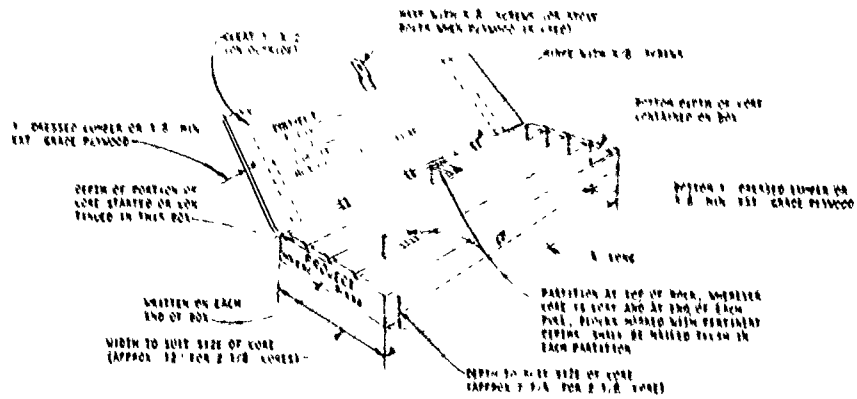
LEGEND FOR LOSS OF BORINGS



14

ABBREVIATIONS

Sample	lea	leached	rd (r)	round (rounded)
dolomite	lg	lignite	sat	saturated
extremely fine (finely)	ls	limestone	scat	scattered
fine	lt	light	sd (s)	sand (sandy)
loose	lo	loose	sev	several
lost core	LC	lost core	sh (s)	shale (shaly)
medium	L.D.W	lost drill water	sl (s)	silt (silty)
medium	mc	medium	slt	siltstone
micaceous	mic	micaceous	sl	slightly
mineralized	min	mineralized	slcs	slickensides
moderate, (moderately)	mod (r)	moderate, (moderately)	slks	slickensides
moist	mo	moist	so	soft
massive	mss	massive	sol (d)	solution (solutionized)
moist	mo	moist	ss	sandstone
material	ml	material	sl (g)	slated (slanery)
matrix	mtx	matrix	slt	slit
nodules	nod	nodules	stv	stylolite
numerous	num	numerous	v	very
occasional, (occasionally)	occ (r)	occasional, (occasionally)	vert	vertical
open	op	open	vst	very
orange	or	orange	w	water
organic	org	organic	w	with
partially	par	partially	wth	weathered
pit, pitted, pitting	pt	pit, pitted, pitting	whl	white
plastic	pl	plastic	x bdd	crossed bedded
platy	pla	platy	zln	zirconium
plane	pls	plane	y	yellow
parting, (partings)	ptg (r)	parting, (partings)		
quartz, (quartzite)	qtz (r)	quartz, (quartzite)		



CORE BOX DETAILS (FOR EXPLORATORY DRILLING)

Symbol	Revisions Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

Drawn by: GENERAL GEOLOGIC

PENNSYLVANIAN	KANSAS CITY	CH	FONTANA	Fn	**2.2 (2'-5')	SHALE	Soft, platy, blocky, calcareous, occasionally silty, dark gray to black
			DENNIS	WINTERSET	Ws	13.6 (***)	LIMESTONE
			STARK	St	3.2' (1.6'-5.2')	SHALE	Soft, platy to fissile, calcareous, carbonaceous, occasional siltstone laminae lower part, medium gray upper grading to dark gray to black lower. Occasionally contains a band to thin bed of shaly limestone to limy shale which is correlative with the Carville limestone member. Contact with the Galesburg is usually transitional and often not defined.
			[Undifferentiated Stark-Galesburg]	[SG]	[7.4']		
			GALESBURG	Ga	4.2' (3.1'-5.5')	SHALE	Upper—soft, platy, silty, slightly calcareous, dark gray. Lower—soft to occasionally very soft, blocky, slightly silty, occasionally slickensided, gray to greenish gray. Base occasionally transitional into the Bethany Falls "peanut rock".
			BETHANY FALLS	Bf	22.1 (19.5'-23.2')	LIMESTONE	Moderately hard, medium to thick bedded, dense to very finely crystalline, numerous undulating shale partings and stylolites, nodular ("peanut rock") zone at top 2 to 6 feet, joints are frequently solutioned and open to clay filled, occasional solutioning along bedding planes, light gray with dark gray shale. Often found as very large slump blocks along valley walls.
			HUSH-PUCKNEY	Hp	2.5' (1.0'-3.2')	SHALE	Soft, fissile to platy, clayey, silty at top, carbonaceous lower occasional siltstone laminae, dark gray to black weathers brown.
			MIDDLE CREEK	Mc	1.2' (0.5'-2.1')	LIMESTONE	Moderately hard, thin bedded, finely crystalline, slightly shaly, shale band in middle, gray.
			LADORE	Ld	2.3' (0.6'-3.2')	SHALE	Soft, platy, silty upper, calcareous lower, gray to dark gray. Contact with the Sniabar is frequently transitional and not well defined.
			SNIABAR	Sb	6.0' (4.7'-7.1')	LIMESTONE	Moderately hard, thin bedded to massive, finely crystalline, shaly top and bottom, occasional shaly partings, light gray to tan. Sometimes transitional contact with the Mound City.
			MOUND CITY	Md	4.1' (2.0'-6.0')	SHALE	Soft, massive upper to platy lower, blocky, clayey, calcareous with occasional limy nodules upper, numerous slickensides upper, light gray green to light gray upper and gray lower. Transitional into Critzer and contact often questionable.
			CRITZER	Cz	2.1' (1.2'-6.0')	SHALE	Soft, platy, clayey, slightly calcareous, limestone nodules and partings, occasionally slickensided, gray to occasionally gray green. Occasionally transitional into Pleasanton.
			ZONE A	Pa	21.6' (19.8'-24.1')	SHALE	interbedded with SILTSTONE and SANDSTONE: Soft, platy to occasionally massive, clayey, occasionally silty, occasionally calcareous, dark gray to gray green with light gray siltstone and sandstone. The massive, non-silty, gray green shale checks rapidly. The sandstone is soft to moderately hard, thin bedded, fine grained and micaceous. There is a fairly persistent zone of sandstone, from 0.5' to 2' thick, near the top of the Pleasanton.
			ZONE B	Pb	9.4' (8.0'-12.6')	SANDSTONE	Moderately hard to soft, medium bedded to massive with shale partings, fine to very fine grained, silty, micaceous, occasionally calcareous, occasional phosphate nodules, fossiliferous at base, light gray with dark gray laminae and partings. Frequently stained or weathered to light brown, especially when near surface.
			ZONE C	Pc	60.3' (58.5'-65.5')	SHALE and SILTSTONE	Upper half—generally siltstone with occasional shale interbeds, but sometimes is all massive shale; moderately hard to soft, thin bedded, argillaceous, calcareous, pyritic, light to dark gray. Lower half—soft, thick to medium bedded, occasionally fissile, non-calcareous, occasional limestone nodules and thin beds lower part, very fossiliferous and carbonaceous to thin coal bed(s) at base, dark gray to nearly black.
			ZONE D	Pd	8.8' (5.9'-10.7')	UNDERCLAY and SHALE	Underclay is soft, massive to thin bedded, disseminated carbonaceous particles, calcareous with sparse limestone nodules, light greenish gray, shale is soft, thin bedded with occasional thin interbeds of siltstone and micaceous sandstone. Limestone nodules are sparsely distributed throughout the zone.
			ZONE E	Pe	6.5' (4.2'-9.1')	SANDSTONE	Soft to moderately hard, thin bedded with occasional shale and siltstone partings to interbeds, very fine grained, micaceous, occasional limestone nodules, disseminated carbonaceous particles, limy at base, light gray to light greenish gray, with dark gray laminae. Correlative with Hepler member?
			HOLDENVILLE	Ho	9.7' (7.8'-10.7')	SHALE	Soft, thin bedded, fissile, clayey, calcareous with occasional limestone partings to thin beds, occasional siltstone at top, dark gray with light gray laminae, red brown zone at base.
			LENAPAH	Lp	**12.0' (1'-23')	INTERBEDDED SHALE, SANDSTONE and SILTSTONE	Shale—soft, fissile to massive, clayey, non-calcareous, varicolored gray, green and red; Sandstone—moderately hard, massive, fine to medium grained, occasionally calcareous and micaceous, greenish gray. Siltstone—soft to moderately hard, partings to massive, non-calcareous, occasionally clayey, gray to greenish gray, reddish gray, where clayey. Thin COAL and UNDERCLAY at top of unit, underclay usually slickensided reddish gray to greenish gray.

*Full unit thickness not penetrated. Range shown is reported for region.
 **Only penetrated in one boring (DC-1 A).
 ***Full unit thickness penetrated in only one boring—Regional thickness reportedly 25 to 40 feet.

	tons per square foot
Very soft	< 0.25
Soft	0.25 - 0.5
Medium	0.5 - 1.0
Stiff	1.0 - 2.0
Very stiff	2.0 - 4.0
Hard	> 4.0

BEDROCK

SCALE OF HARDNESS

Very soft or plastic	Can be indented easily
Soft	Can be scratched with
Moderately hard	Can be scratched easily
Hard	cannot be scratched w/
Very Hard	Difficult to scratch with
	Cannot be scratched w/

BEDROCK UNIT THICKNESS

Parting	< 0.02'
Band	0.02' to 0.2'
Thin Bed	0.2' to 0.5'
Medium bed	0.5' to 1.0'
Thick bed	1.0' to 2.0'
Massive	> 2.0'

ABBREVIATIONS

alt	alternating	dmp	damp	lea	leaf
ang	angular	dol (c)	dolomite, (dolomitic)	lig	light
an	anhydrite	ext	extremely	ls	limestone
ar	argillaceous	f (y)	fine, (finely)	lt	light
bdd	bed, bedded bedding	fe	iron	lo	loose
bdr	bedrock	fid	filled	LC	lost
bky	blocky	fm	firm	LDW	lost
bl	blue	fos (s)	fossil (fossiliferous)	med	medium
bld	boulder	frac (d)	fractures, (fractured)	mic	micaceous
blk	black	frag (d)	fragments, (fragmented)	min	mine
brec (d)	breccia (brecciated)	fr	frangible	mod (y)	moderate
bkn	broken	fst	fissile	mss	massive
brn	brown	gr	grain	mt	mass
c	coarse	gra	gradation	mst	massive
calc	calcareous	grn	green	mtl	mate
carb	carbonaceous	grv (y)	gravel (gravelly)	msl	matrix
cav	cavily	grv	gravel	nod	nodular
cb	cobble	gyp	gypsum	num	numerous
chl	chert	ha	high angle	occ (y)	occasional
circ	circulation	hd	hard	op	open
cl (y)	clay (clayey)	hld	healed	or	orange
cl	closed	hor	horizontal	org	organic
cmtd	cemented	inbd	interbedded	pat	particulate
col	columnar	incl	inclusions	pt	part
conc	concretions	inlam	interlaminated	pl	plastic
cong	conglomerate	irr	irregular	pla	plate
crm	crumbly	jt (s)	joint (jointed)	pln	plane
d	dense	la	low angle	plg (s)	particulate
dk	dark	lam (d)	laminae, (laminated)	qtz (r)	quartz

TERMS FOR CONSISTENCY OF SOIL AND HARDNESS OF BEDROCK

SOIL

Estimated Unconfined Compressive Strength (Tons per square foot)

< 0.25
0.25 - 0.5
0.5 - 1.0
1.0 - 2.0
2.0 - 4.0
> 4.0

BEDROCK

SCALE OF HARDNESS

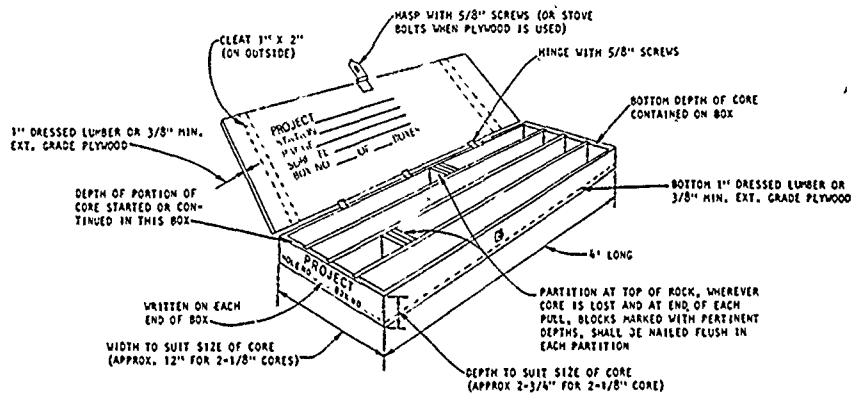
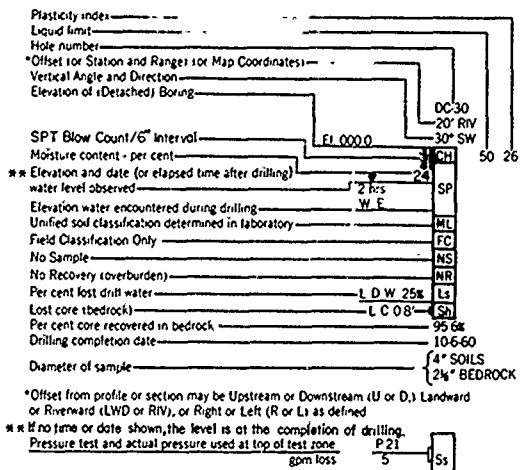
plastic	Can be indented easily with thumb
	Can be scratched with fingernail
hard	Can be scratched easily with knife
	cannot be scratched with fingernail
	Difficult to scratch with knife
	Cannot be scratched with knife

BEDROCK UNIT THICKNESS

Parting	< 0.02'
Band	0.02' to 0.2'
Thin bed	0.2' to 0.5'
Medium bed	0.5' to 1.0'
Thick bed	1.0' to 2.0'
Massive	> 2.0'

SC Clayey sands, sand clay, siltstone
 Pt Peat and other highly organic soils
 Classification from actual laboratory tests where L₁ and PI are shown
 Dual classification where used in accordance with the Unified Soil Classification System
 For details on the Unified Soil Classification System See Waterways Experiment Station
 Technical Memorandum No. 3-357 dated March 1953 and revised in 1960

LEGEND FOR LOGS OF BORINGS



NOTE: LABELS FOR CORE BOX WILL BE PLACED ON OUTSIDE AND INSIDE OF COVER AND OUTSIDE ON EACH END.

CORE BOX DETAILS (FOR EXPLORATORY DRILLING)

ABBREVIATIONS

am	lea	leached	rnd (d)	round (rounded)
domite (dolomitic)	lign	lignite	sat	saturated
trmely	ls	limestone	scat	scattered
e (fine)	lt	light	sd (y)	sand, (sandy)
n	lo	loose	sev	several
ed	LC	lost core	sh (y)	shale, (shaly)
m	L D W	lost drill water	sl (y)	silt, (silty)
is (fossiliferous)	med	medium	sls	siltstone
ctures (fractured)	mic	micaceous	sl	slightly
gments (fragmented)	min	mineralized	slics	siliceous
ble	mod (y)	moderate, (moderately)	slics	slickensides
le	mot	mottled	so	soft
at on	mss	massive	sol (d)	solution, (esolutionized)
en	mst	moist	ss	sandstone
ive gravelly	mtl	material	-st (gl)	stained (staining)
is	mtx	matrix	stf	stiff
sum	nod	nodules	sty	stylolite
angle	num	numerous	v	very
y	occ (yt)	occasional, (occasionally)	vert	vertical
ed	op	open	vgy	vuggy
at	or	orange	w	water
bedded	org	organic	w	with
ms	par	partially	wth	weathered
amated	prt, pitted	pitting	wh	white
ar	pl	plastic	x bdd	crossed bedded
nts)	ply	platy	aln	crystalline
ge	pln	plane	y	yellow
raminated	ptg (st)	parting, (partings)		When used as log symbol first letter is capitalized
	qtz (q)	quartz (quartzite)		

Revisions			
Symbol	Descriptions	Date	Approved

**U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI**

Designed by: EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE
 CONSTRUCTION FOUNDATION REPORT


Drawn by: **GENERAL GEOLOGIC
 COLUMN AND LEGEND**

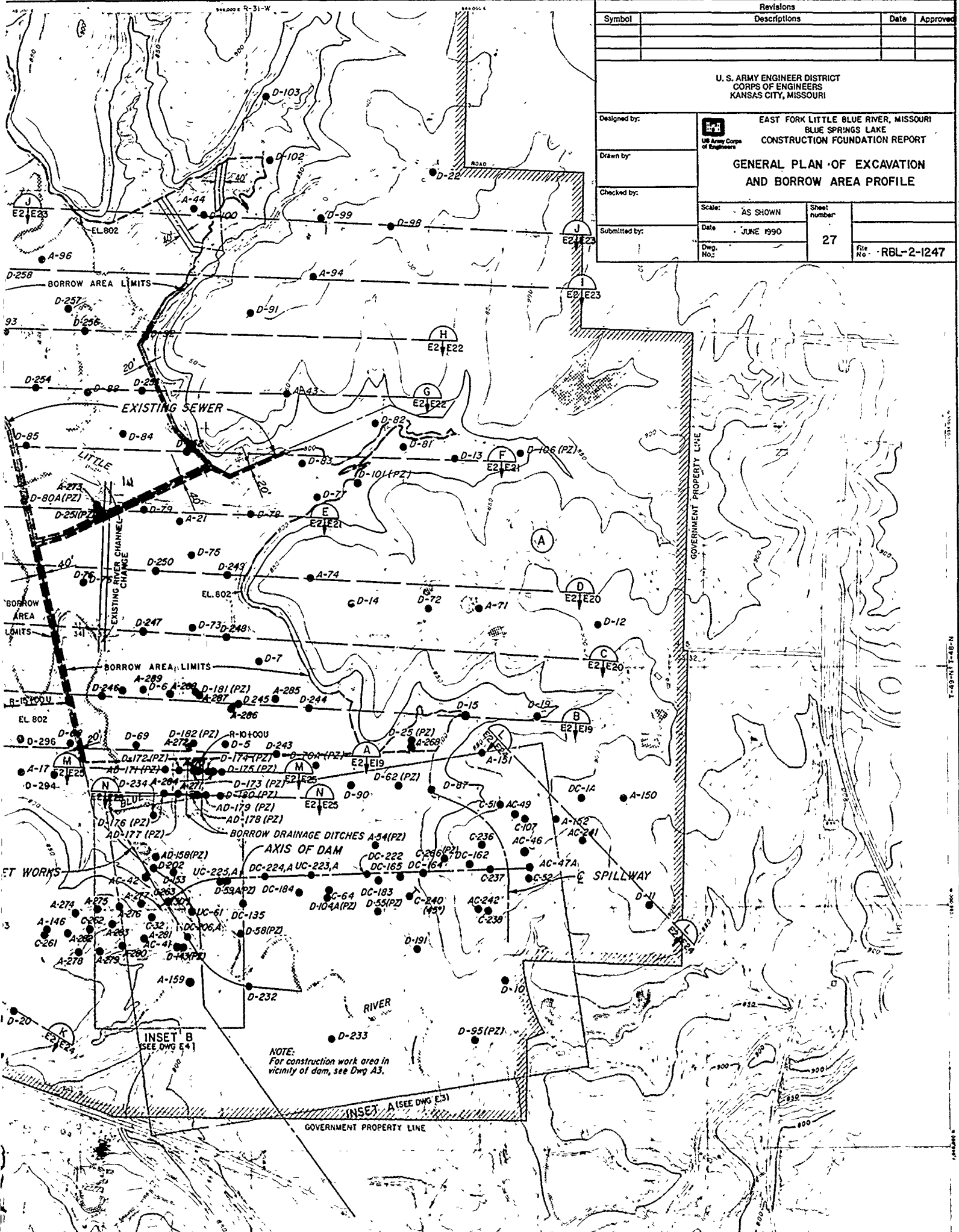
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Submitted by:

Scale:	AS SHOWN	Sheet number:	26
Date:	JUNE 1990	File No.:	RBL-2-1246
Dwg. No.:			

VALUE ENGINEERING PAYS

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GENERAL PLAN OF EXCAVATION AND BORROW AREA PROFILE	Scale: AS SHOWN	Sheet number
Drawn by:		Date: JUNE 1990	27
Checked by:		Dwg. No.:	File No. RBL-2-1247
Submitted by:			



NOTE:
For construction work area in vicinity of dam, see Dwg A3.

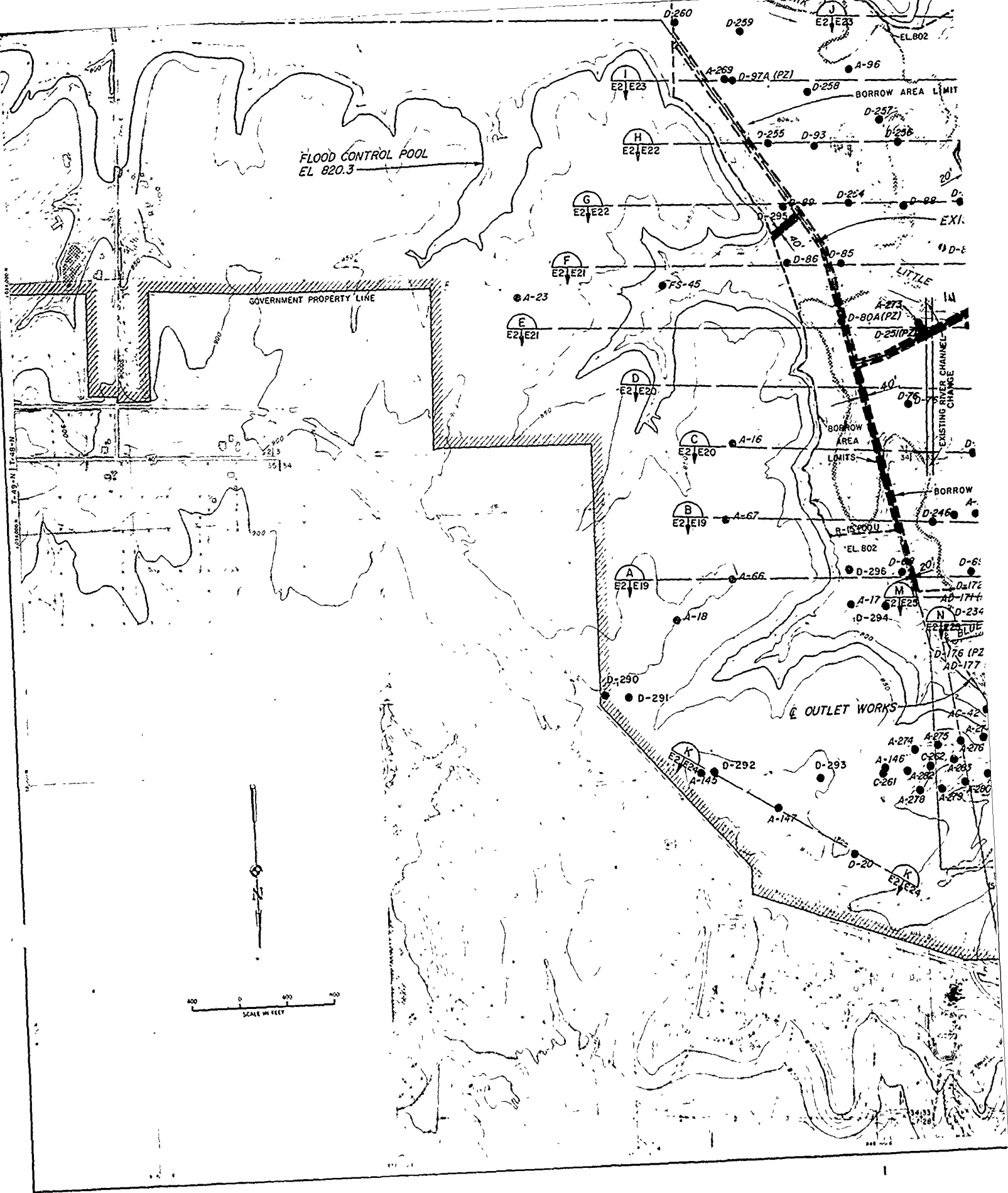
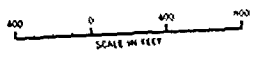
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EL 820.3

GOVERNMENT PROPERTY LINE

LITTLE
EXISTING RIVER CHANNEL
CHANGE

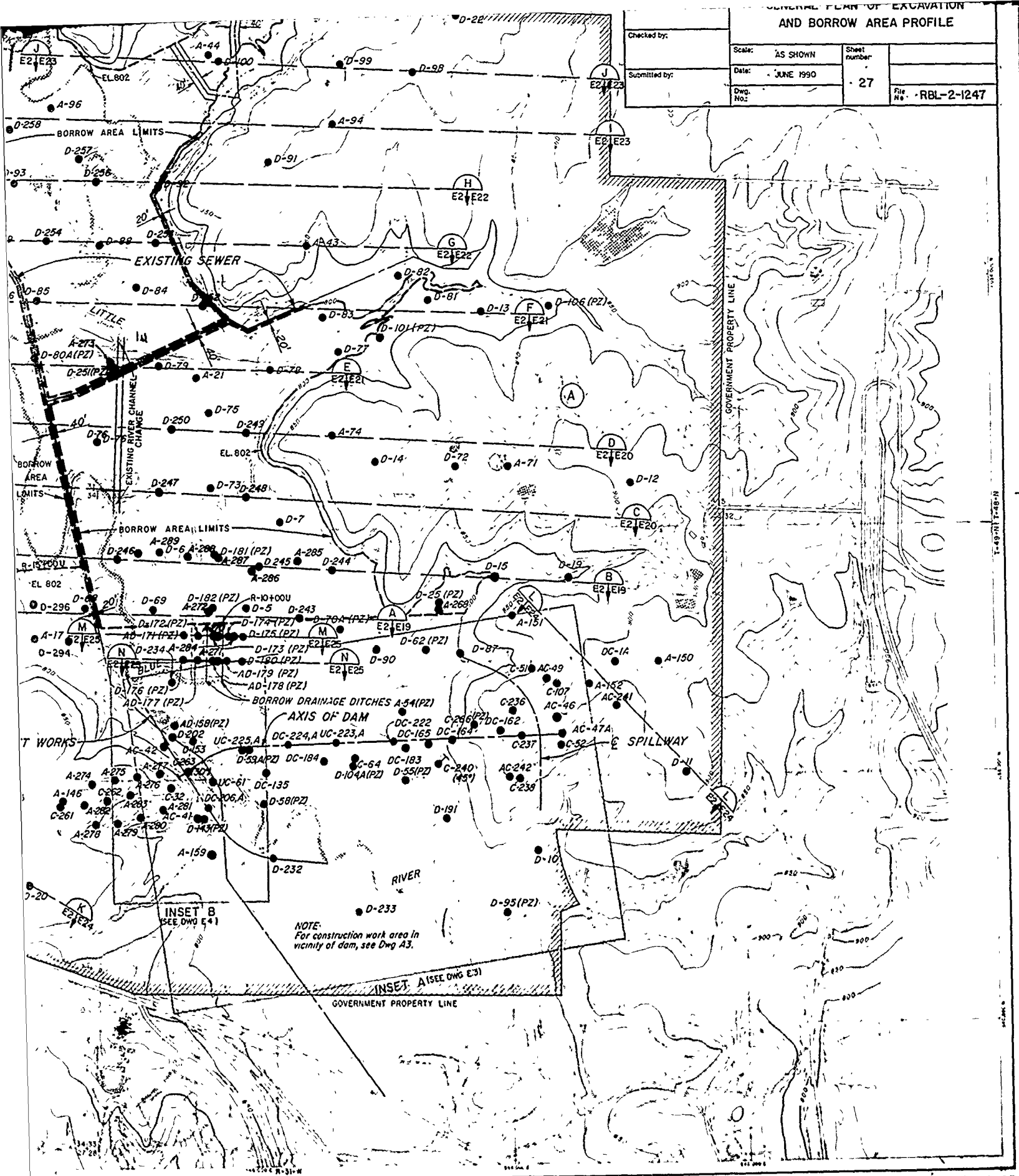
BORROW
AREA
LIMITS

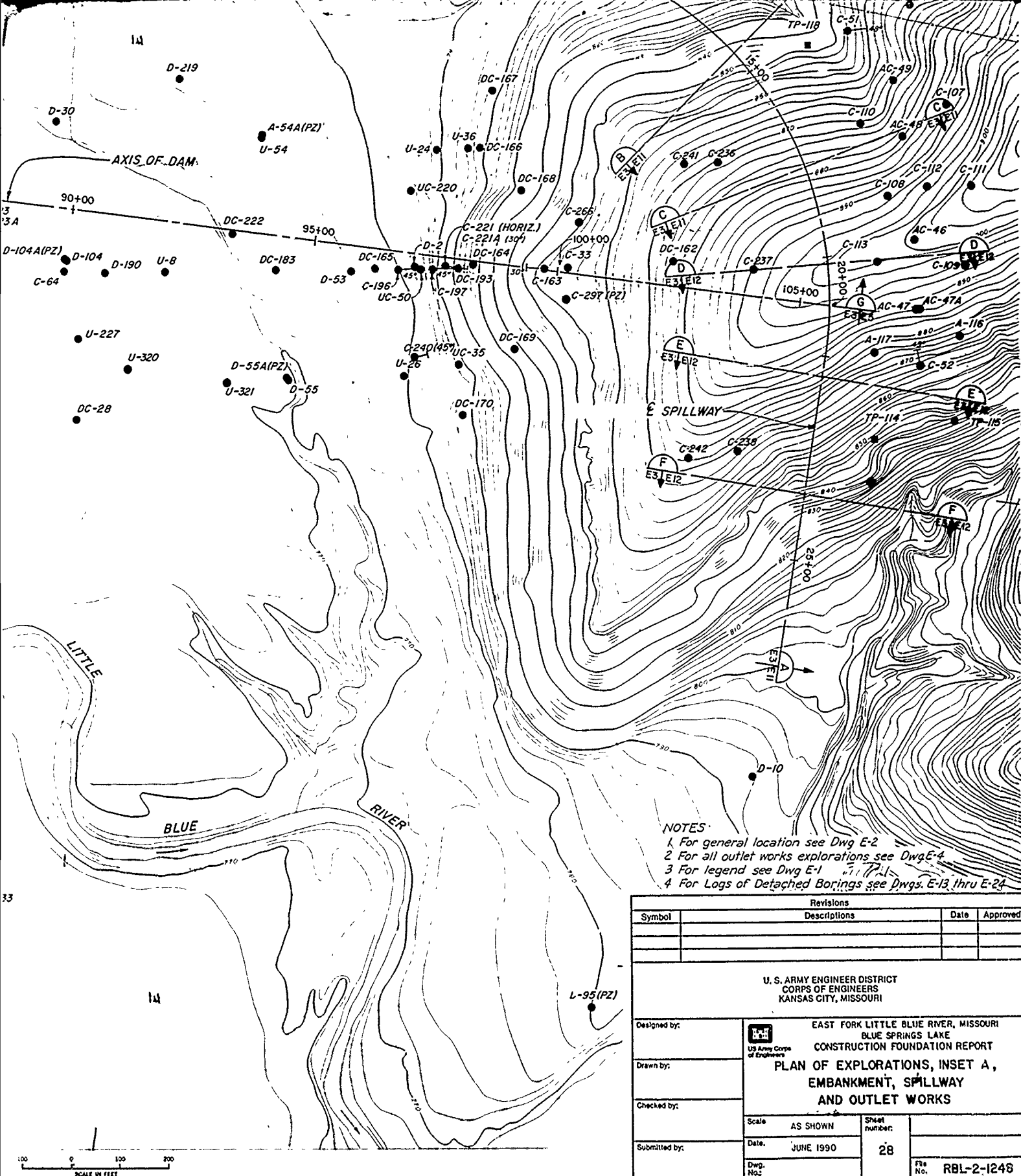
OUTLET WORKS



GENERAL PLAN OF EXCAVATION
AND BORROW AREA PROFILE

Checked by:	Scale: AS SHOWN	Sheet number:	27	File No. RBL-2-1247
Submitted by:	Date: JUNE 1990			




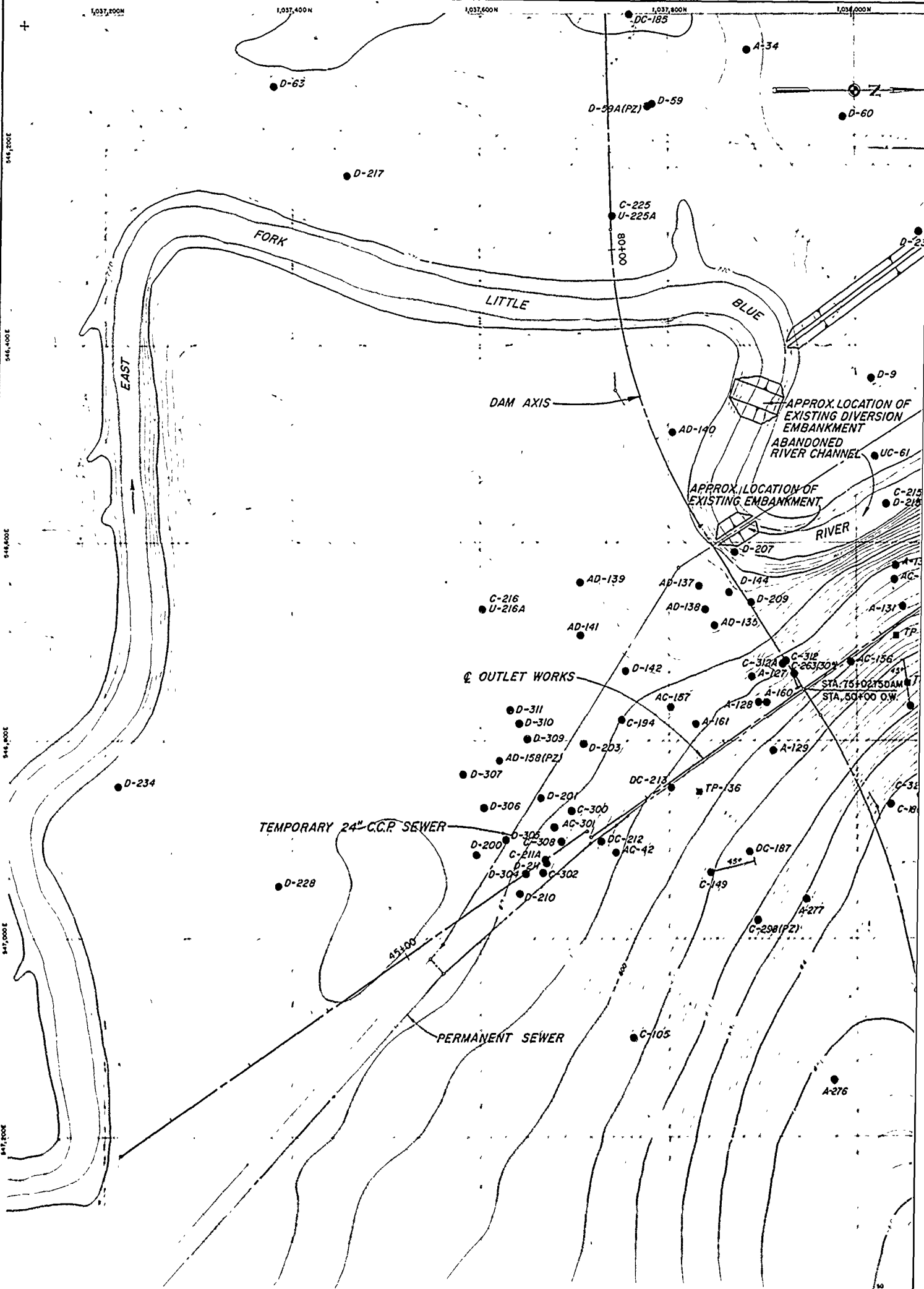


- NOTES:
- 1 For general location see Dwg E-2
 - 2 For all outlet works explorations see Dwg E-4
 - 3 For legend see Dwg E-1
 - 4 For Logs of Detached Borings see Dwg. E-13 thru E-24

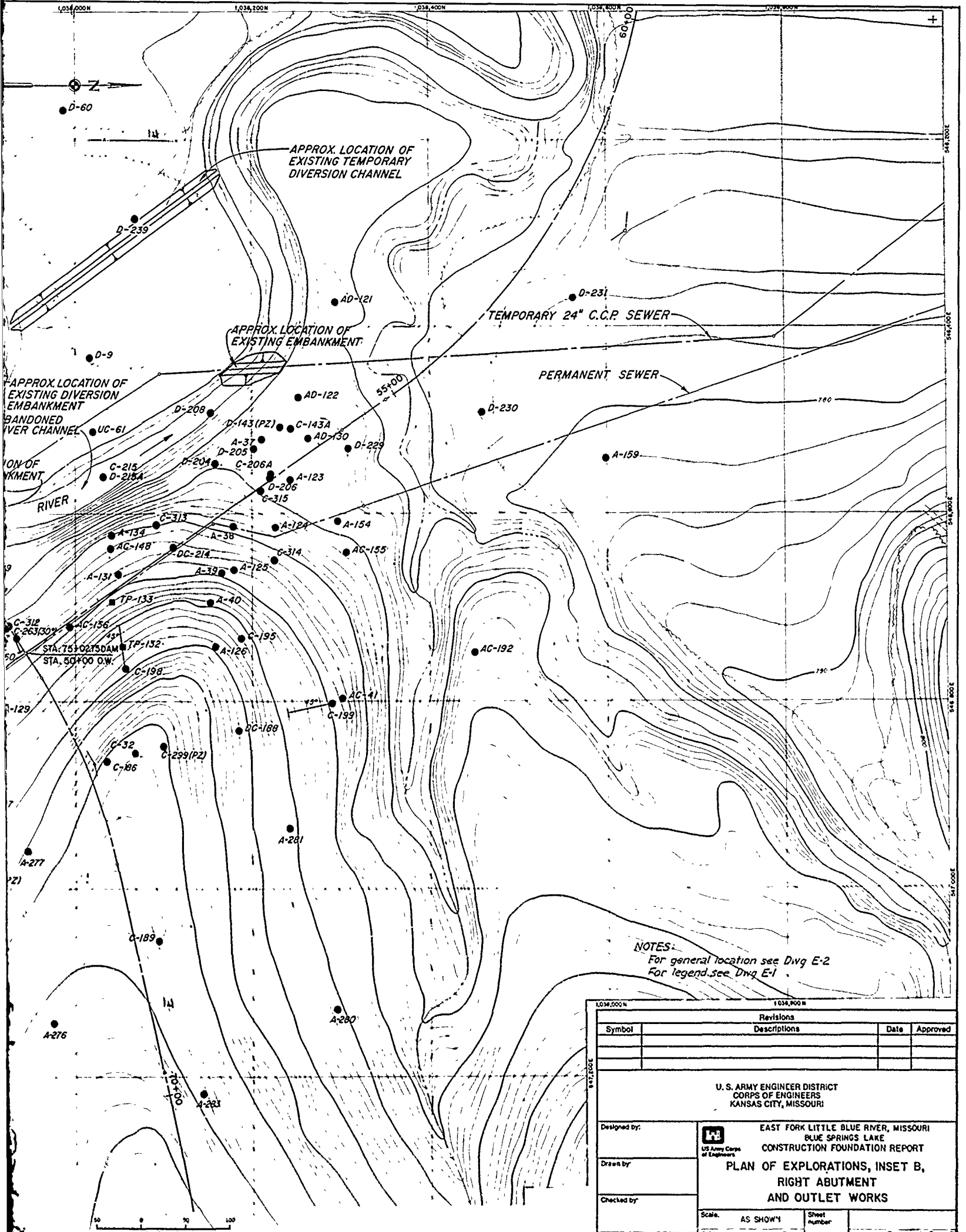
Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT PLAN OF EXPLORATIONS, INSET A, EMBANKMENT, SPILLWAY AND OUTLET WORKS	Scale	AS SHOWN	Sheet number:	28	
Drawn by:		Date:	JUNE 1990	File No.:		RBL-2-1248
Checked by:		Dwg. No.:				
Submitted by:						




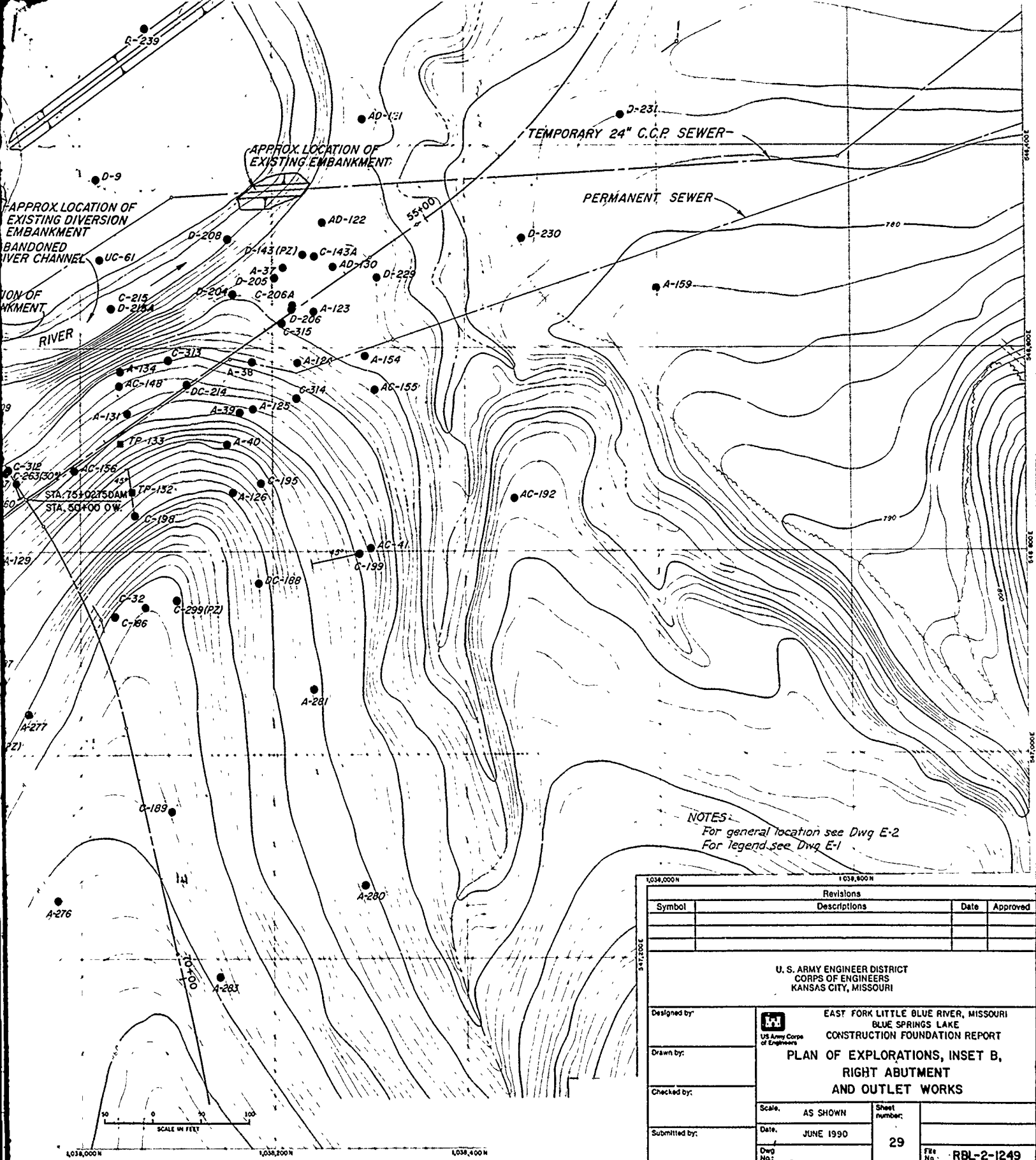
VALUE ENGINEERING PAYS




NOTES:
 For general location see Dwg E-2
 For legend see Dwg E-1

Revisions			
Symbol	Descriptions	Date	Approved

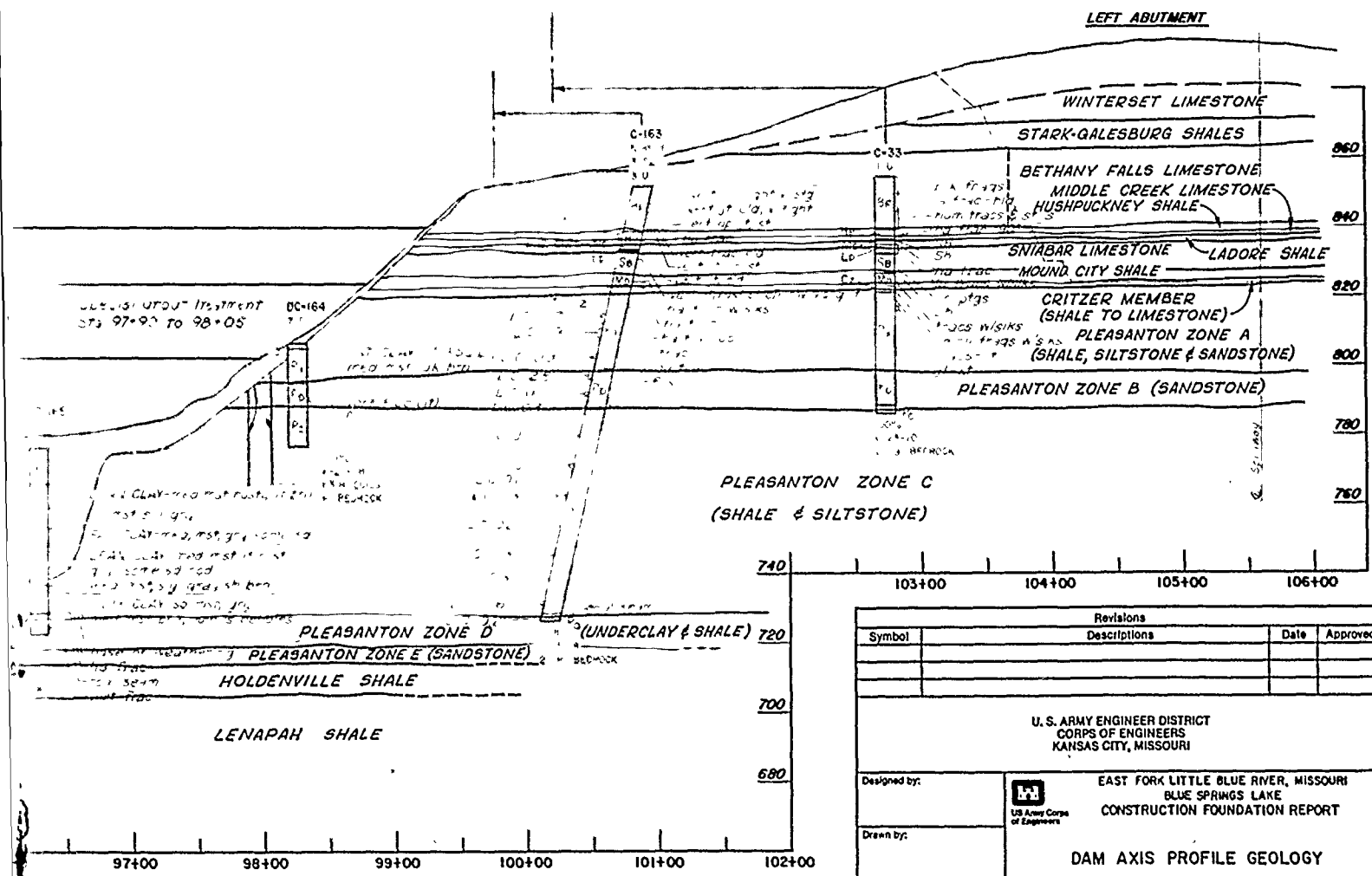
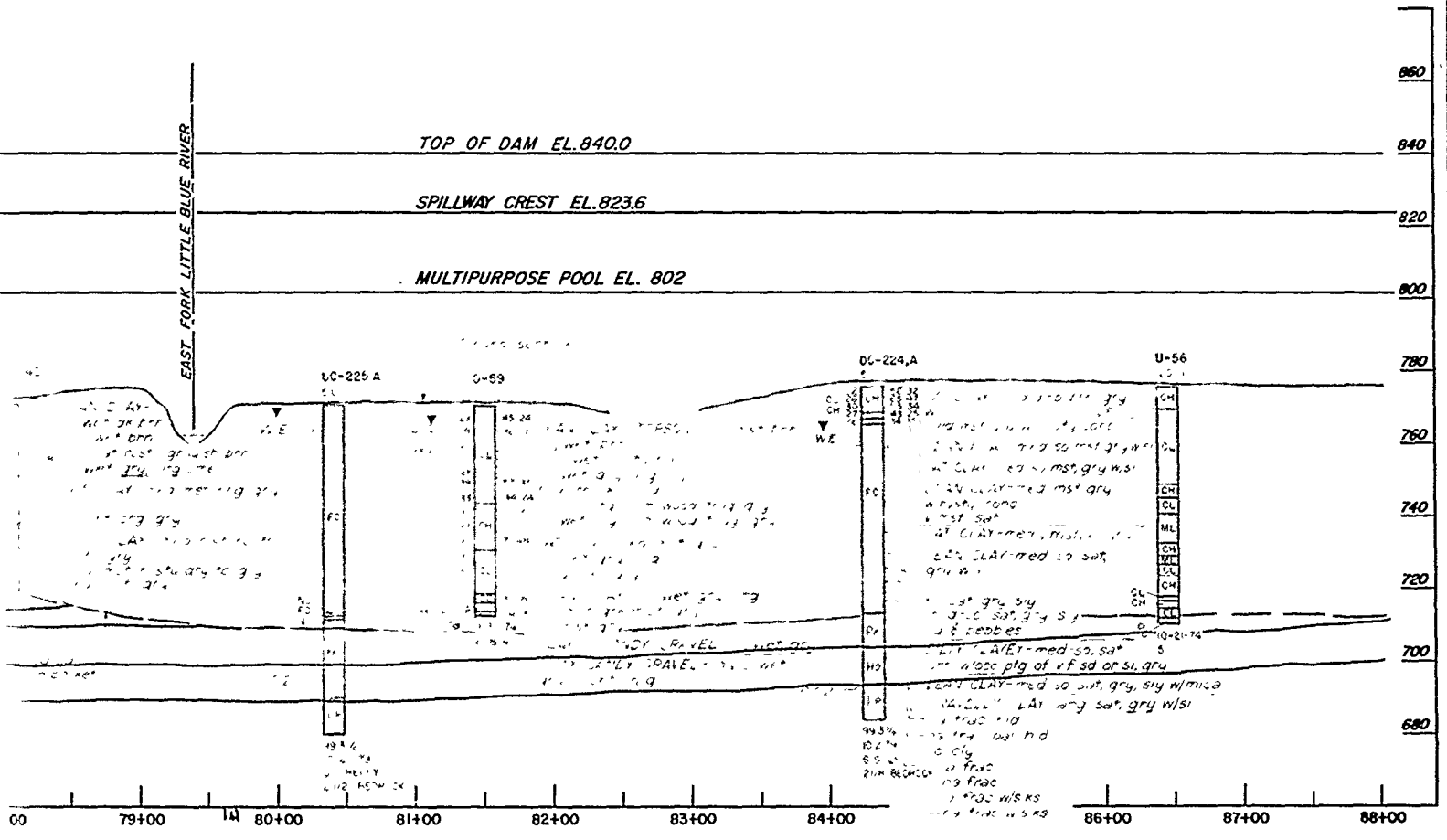
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by: Drawn by: Checked by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT PLAN OF EXPLORATIONS, INSET B, RIGHT ABUTMENT AND OUTLET WORKS
Scale: AS SHOWN Sheet number:	1034,000 N 1034,000 N



NOTES:
 For general location see Dwg E-2
 For legend see Dwg E-1

1038,000 N		1038,000 N	
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT PLAN OF EXPLORATIONS, INSET B, RIGHT ABUTMENT AND OUTLET WORKS	Scale:	AS SHOWN
Drawn by:		Date:	JUNE 1990
Checked by:		Sheet number:	29
Submitted by:	Dwg No.:	RBL-2-1249	





Revisions			
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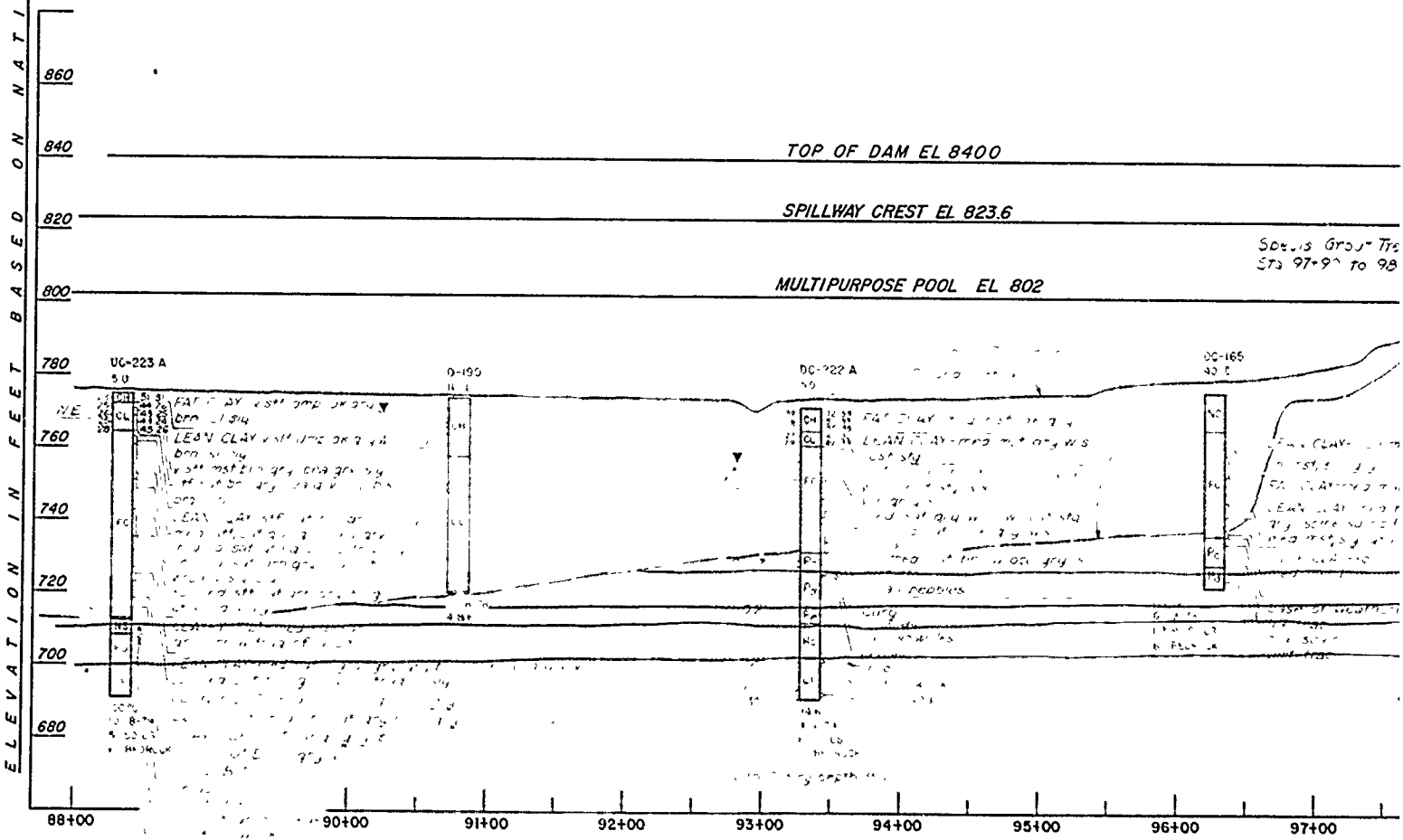
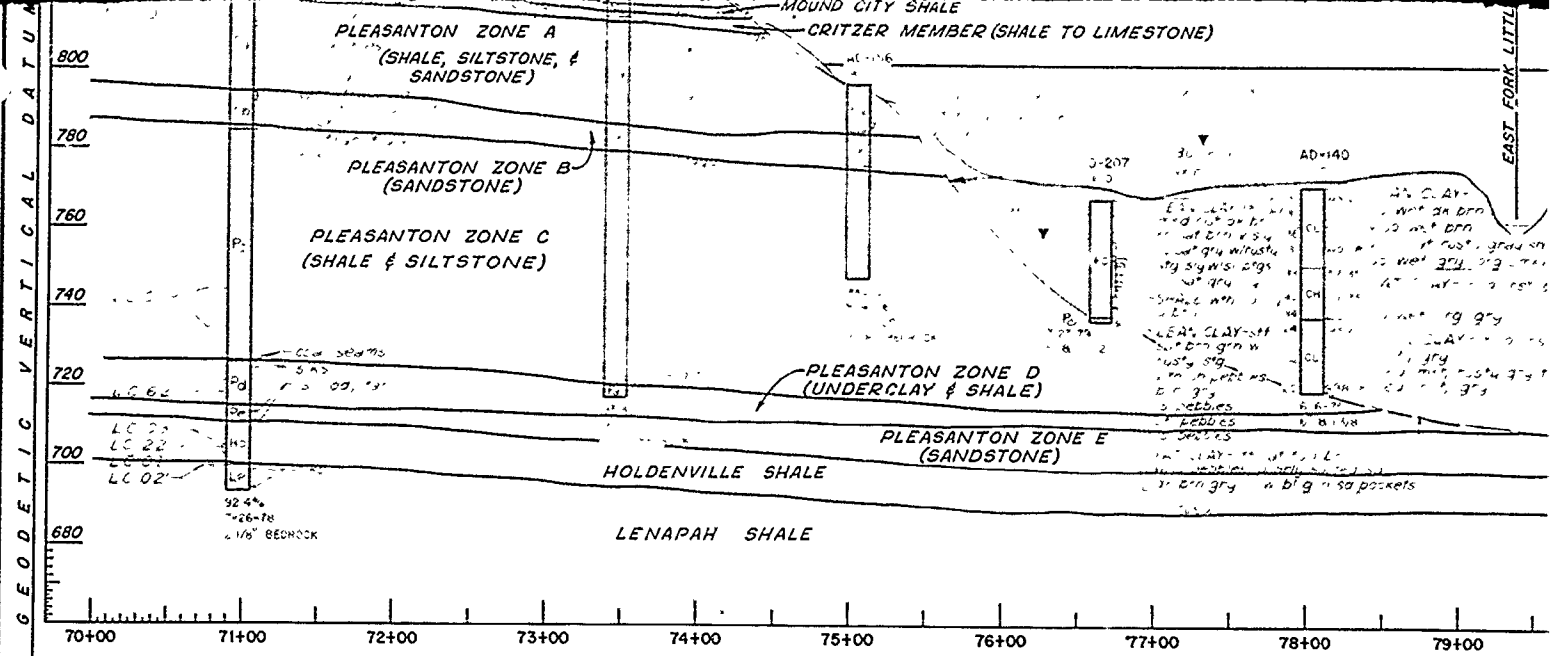
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

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Drawn by:	
Checked by:	

DAM AXIS PROFILE GEOLOGY

Scale:	AS SHOWN	Sheet	Number
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Note:
1 For location of Borings see



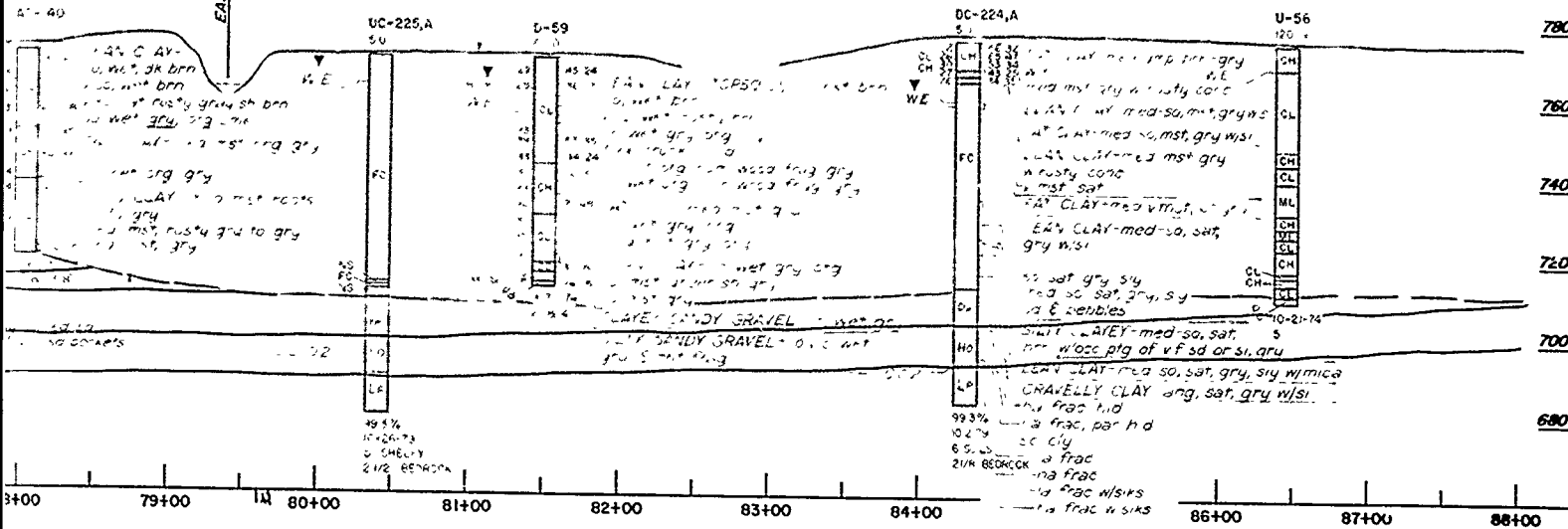
GEOLOGIC PROFILE ALONG DAM AXIS (LOOKING UPSTREAM)

(6)
E3/E5

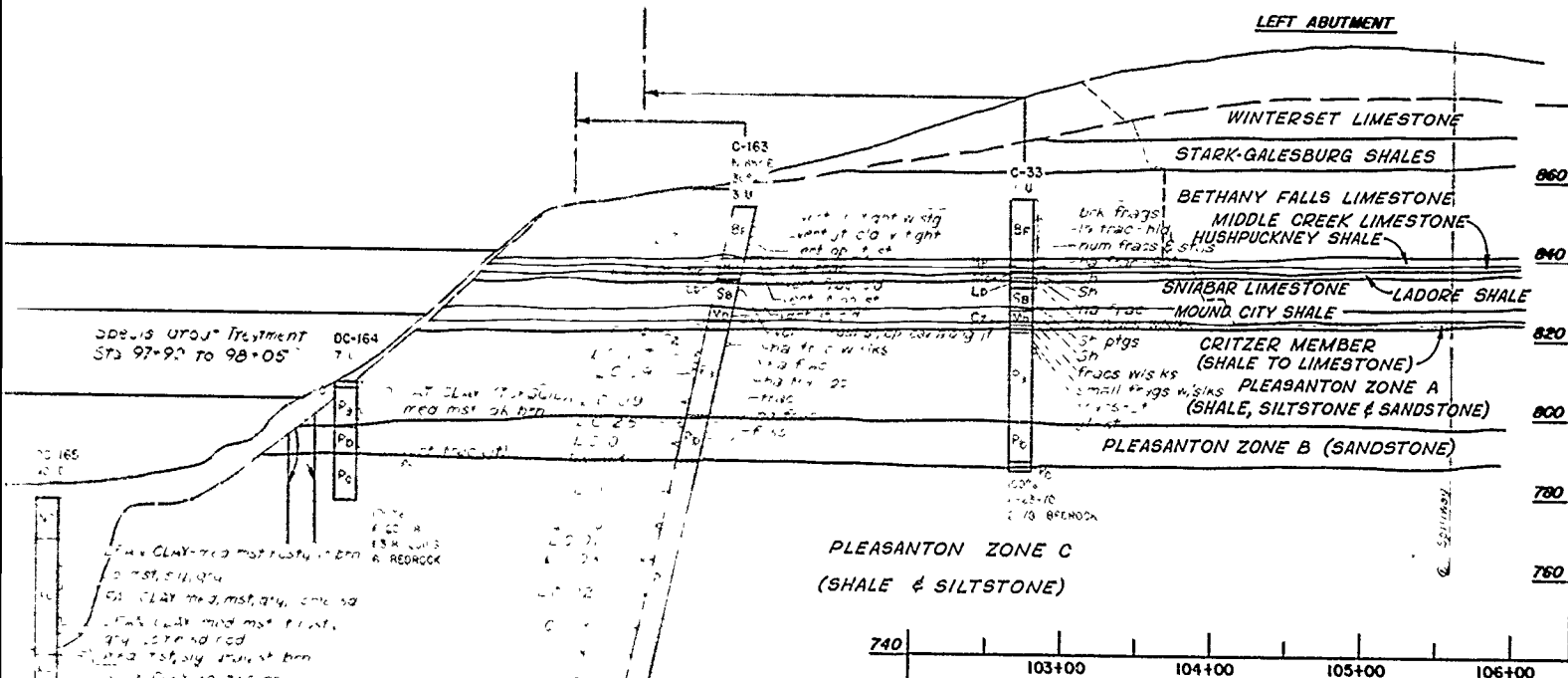
SPILLWAY CREST EL. 823.6

MULTIPURPOSE POOL EL. 802

EAST FORK LITTLE BLUE RIVER



LEFT ABUTMENT



Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

Drawn by:

Checked by:

Submitted by:

Scale: AS SHOWN

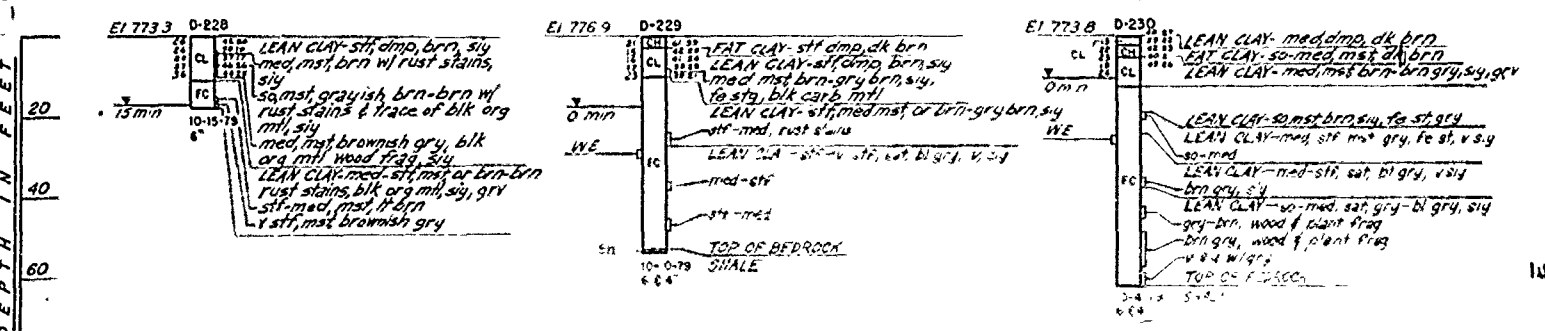
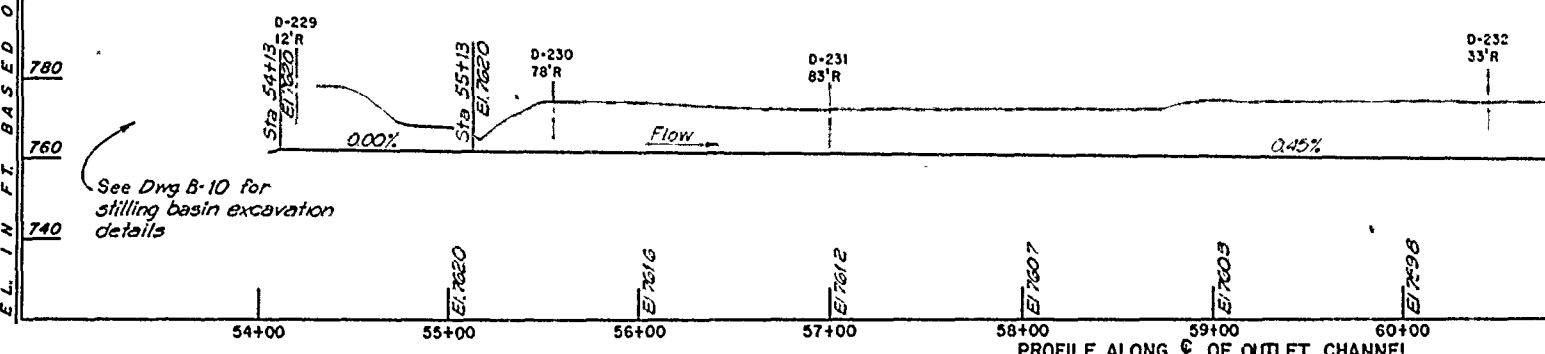
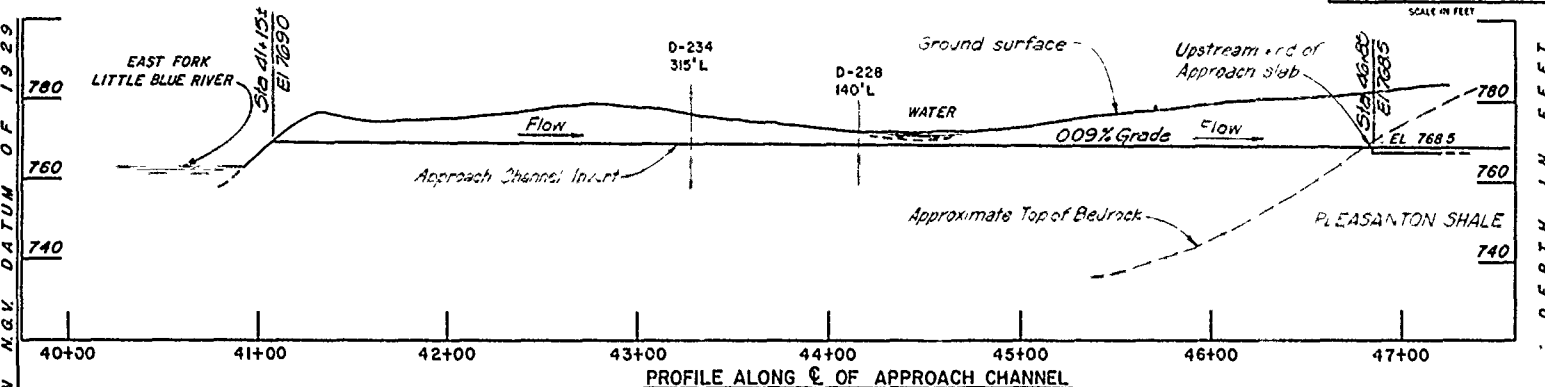
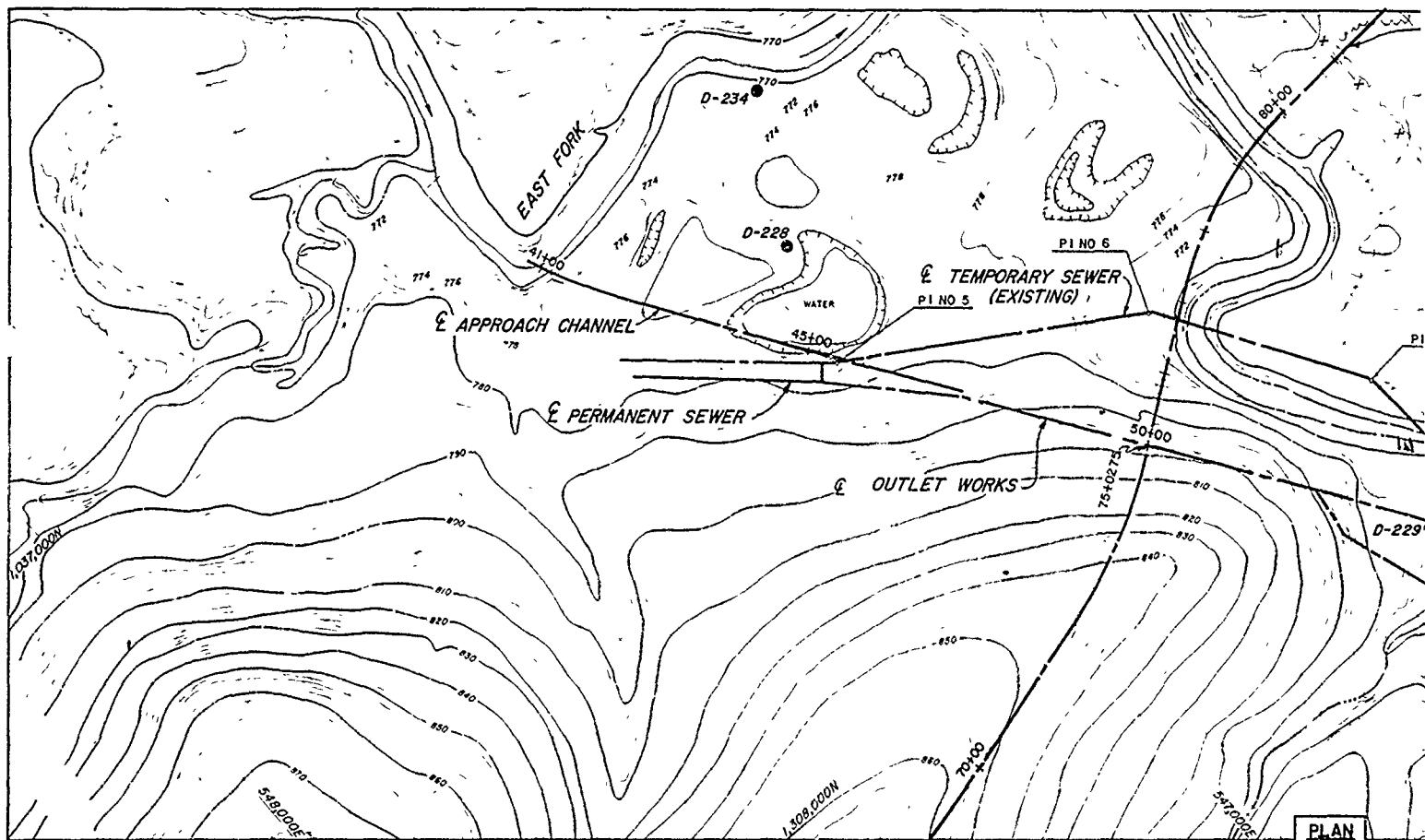
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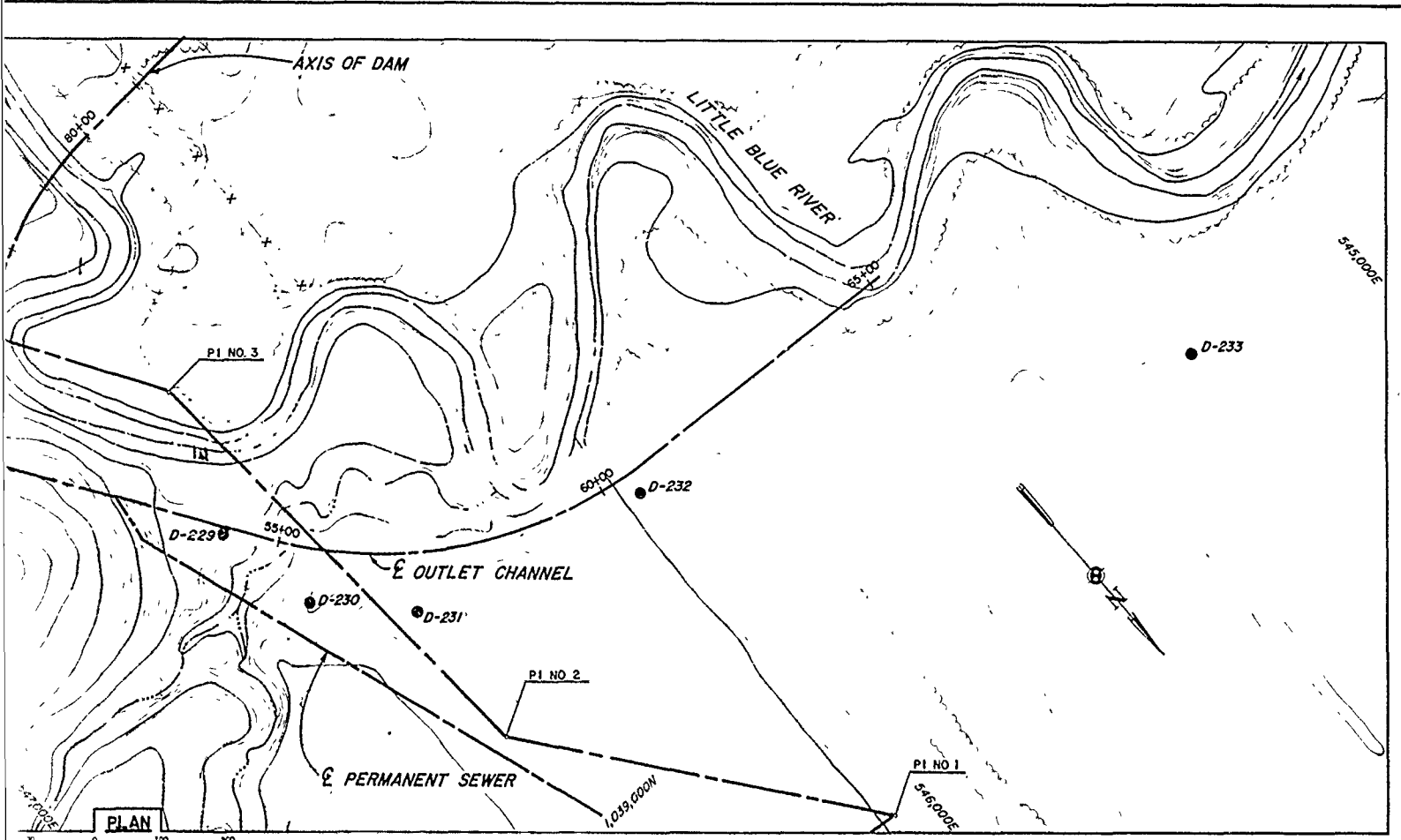
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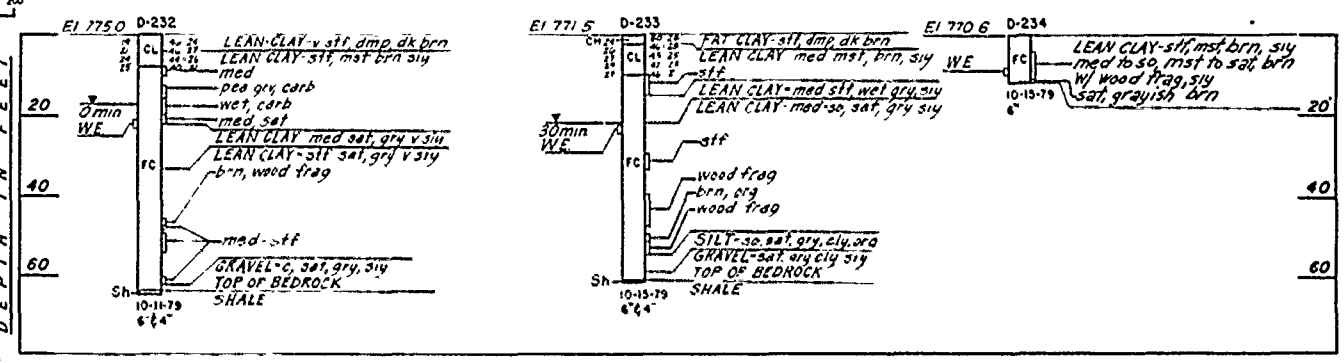
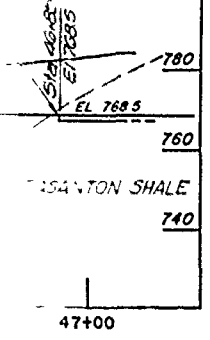
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Note:
1. For location of Borings see Dwg. E2, E3 and E4.
2. For General Geologic Column and Legend see Dwg. E1.

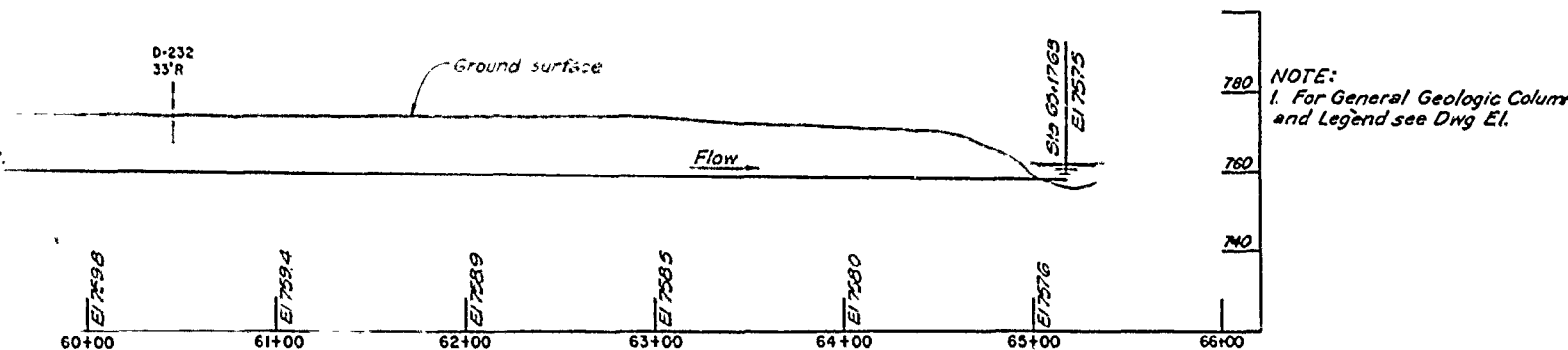




PLAN

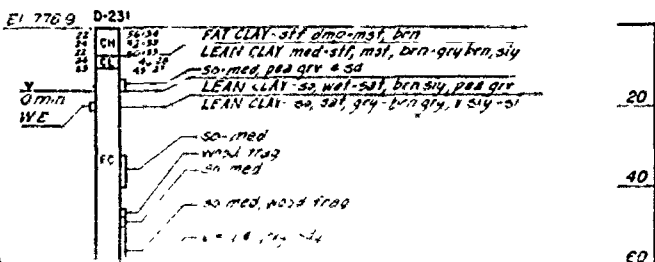


LOGS OF DETACHED BORINGS



CHANNEL

Handwritten notes and symbols on the left side of the page, including 'D-232 33'R' and various symbols like '30min WE'.



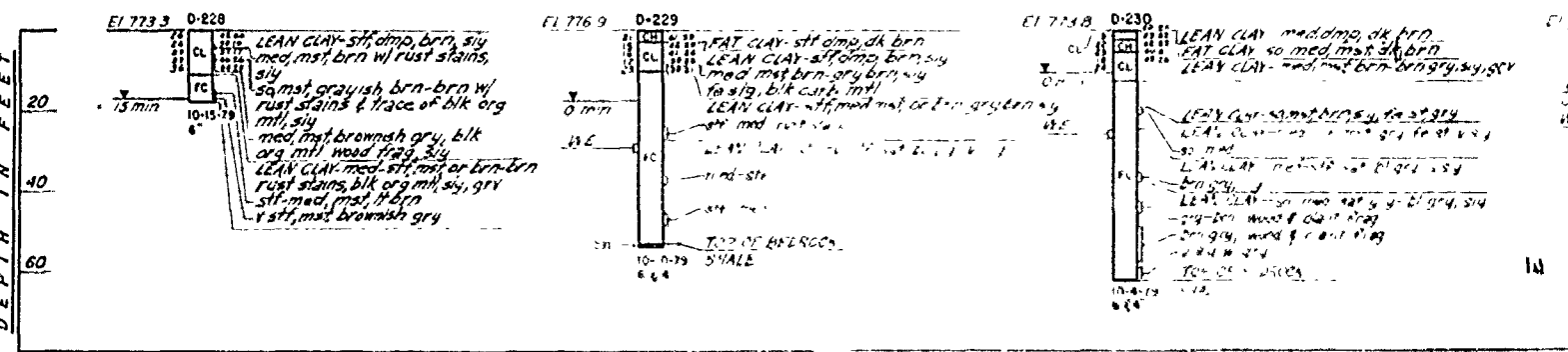
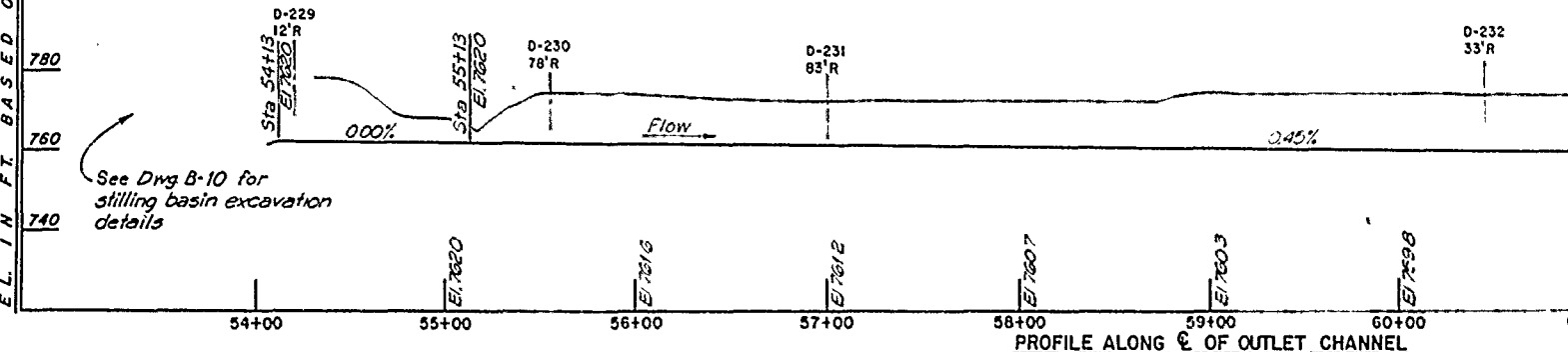
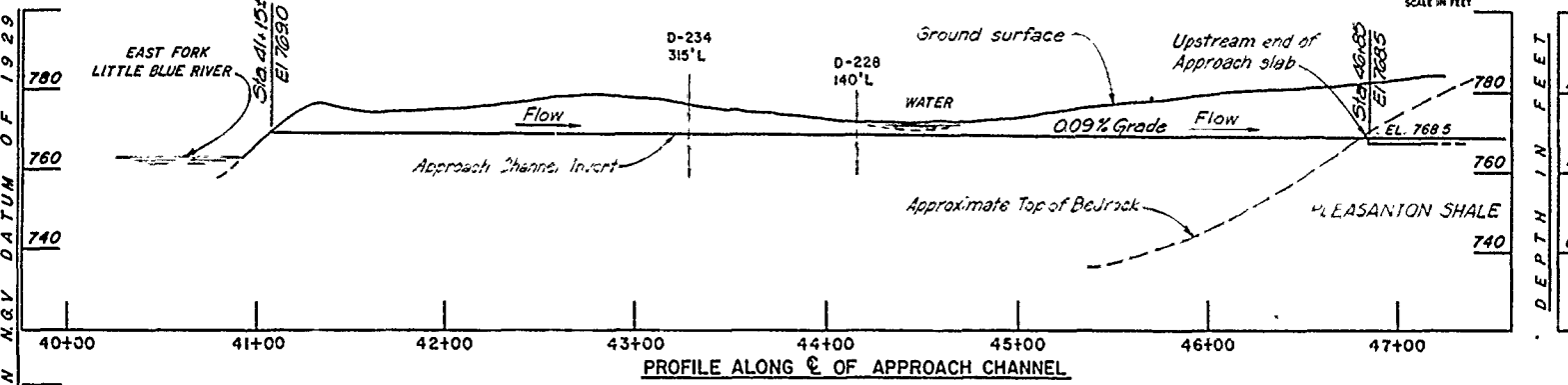
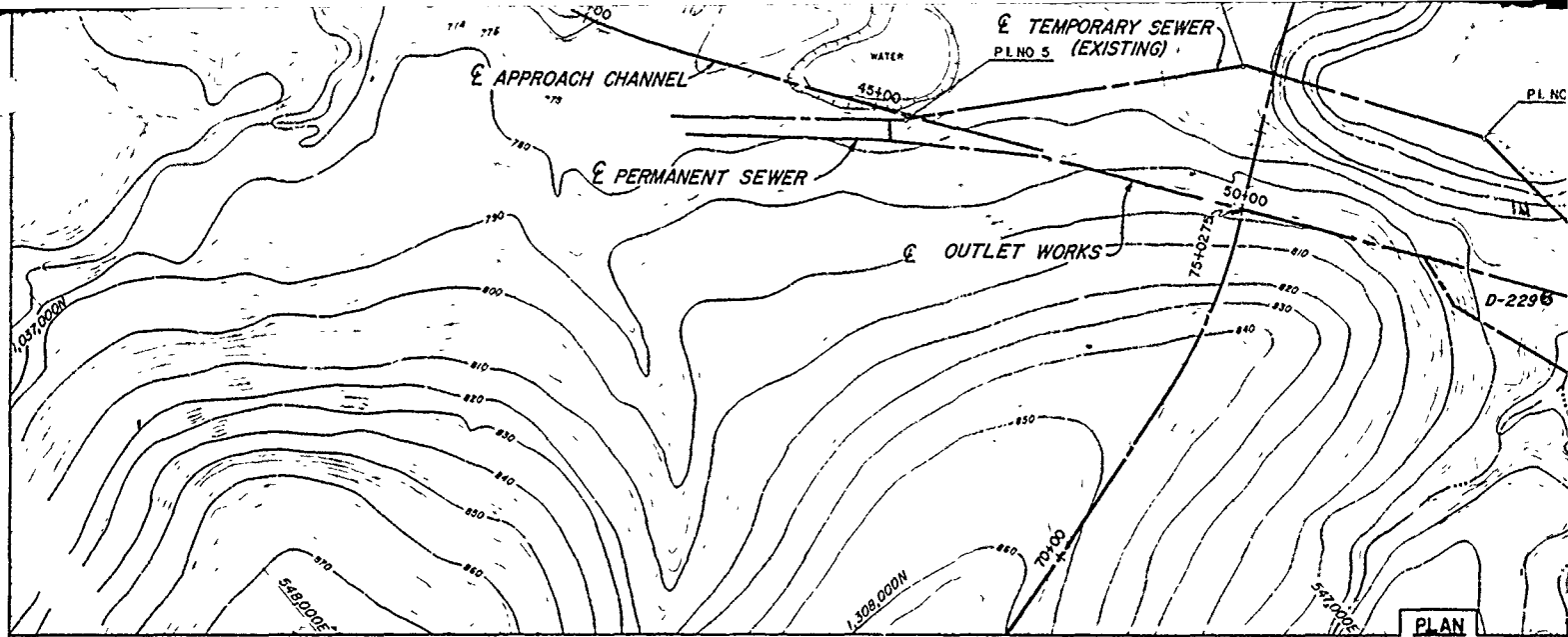
Revisions			
Symbol	Descriptions	Date	Approved

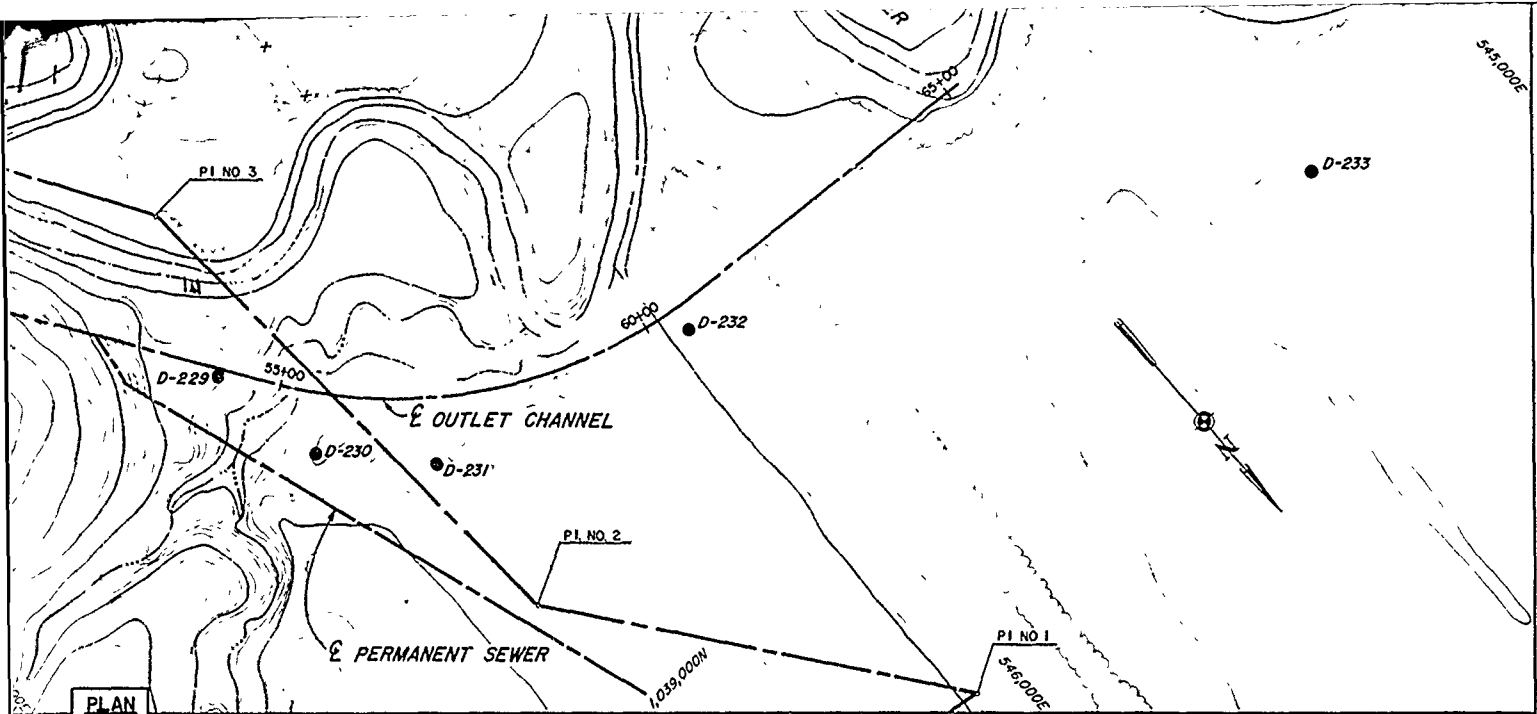
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by _____

Drawn by _____

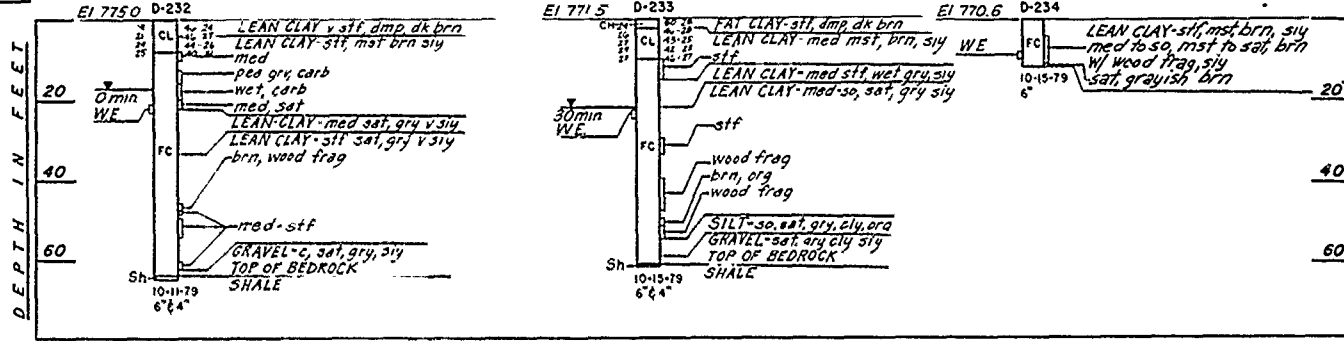
EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT
APPROACH AND OUTLET CHANNELS



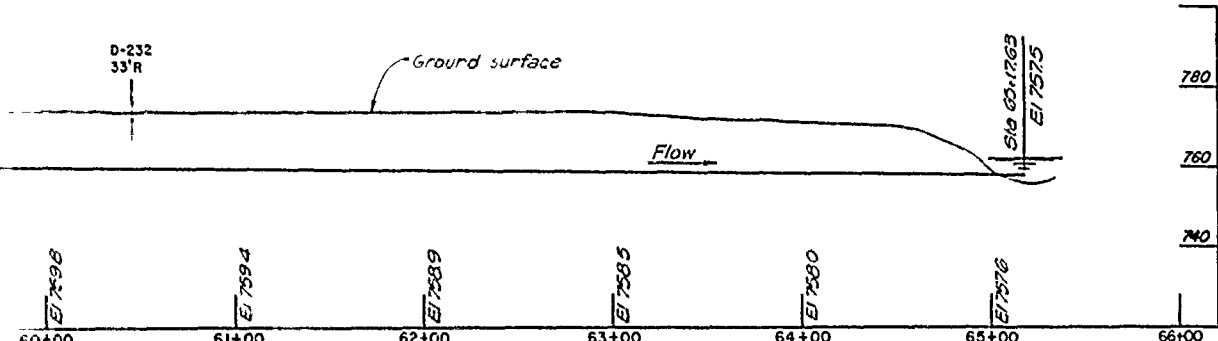


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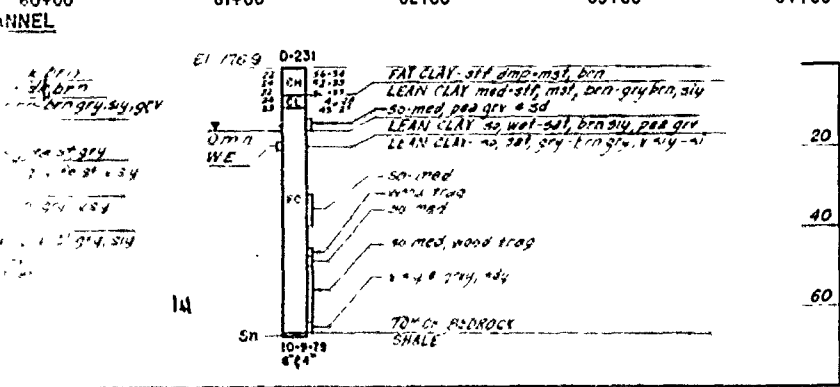
SCALE IN FEET



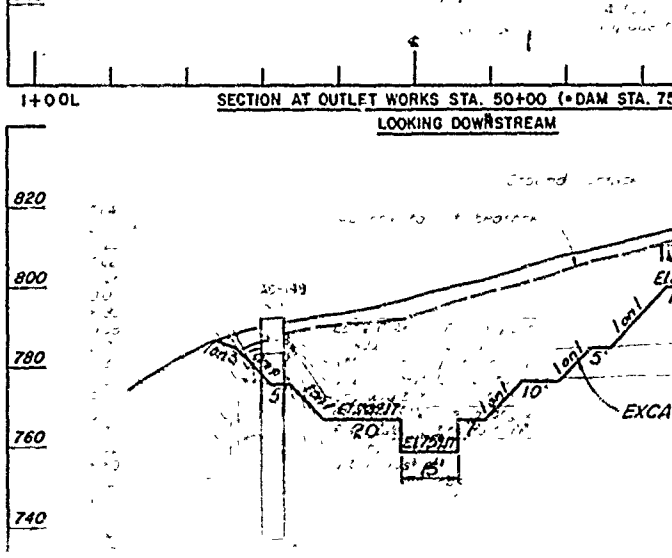
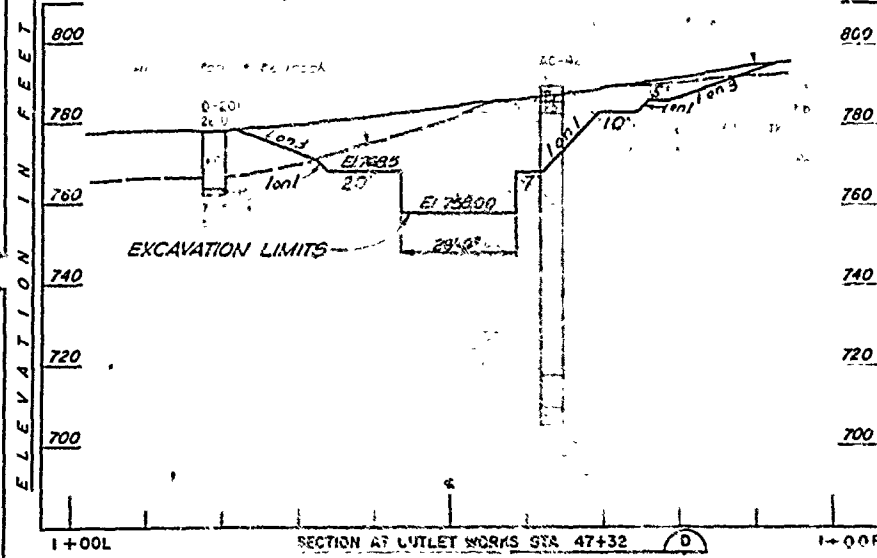
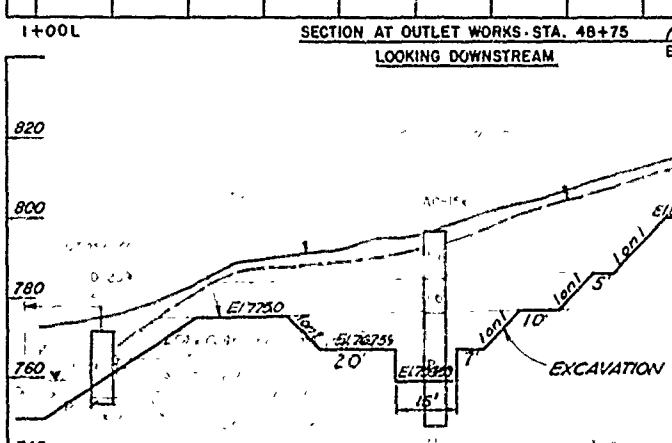
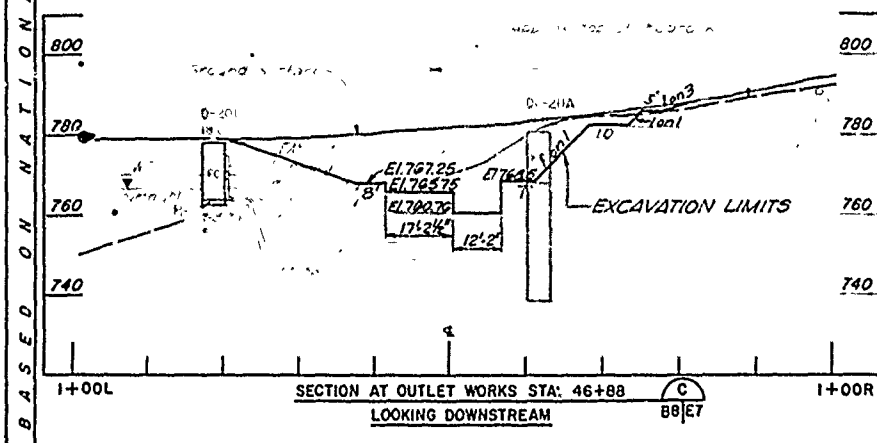
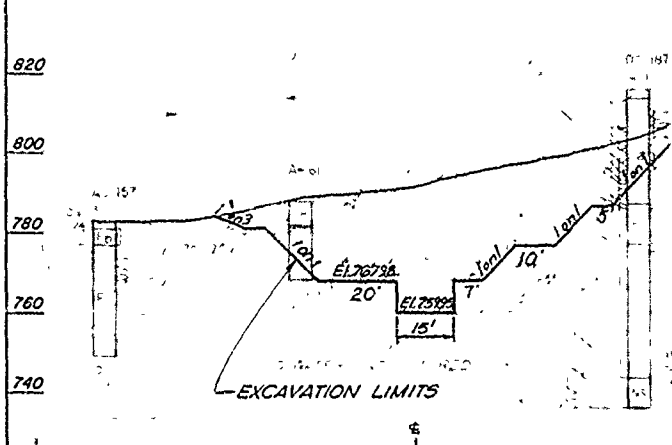
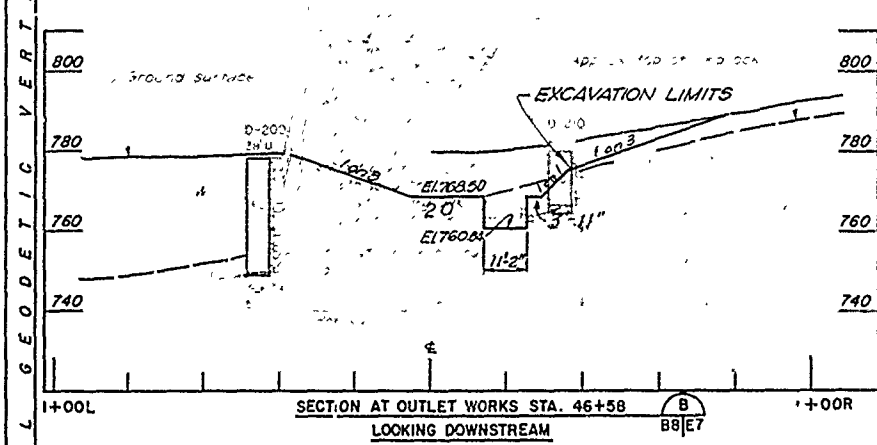
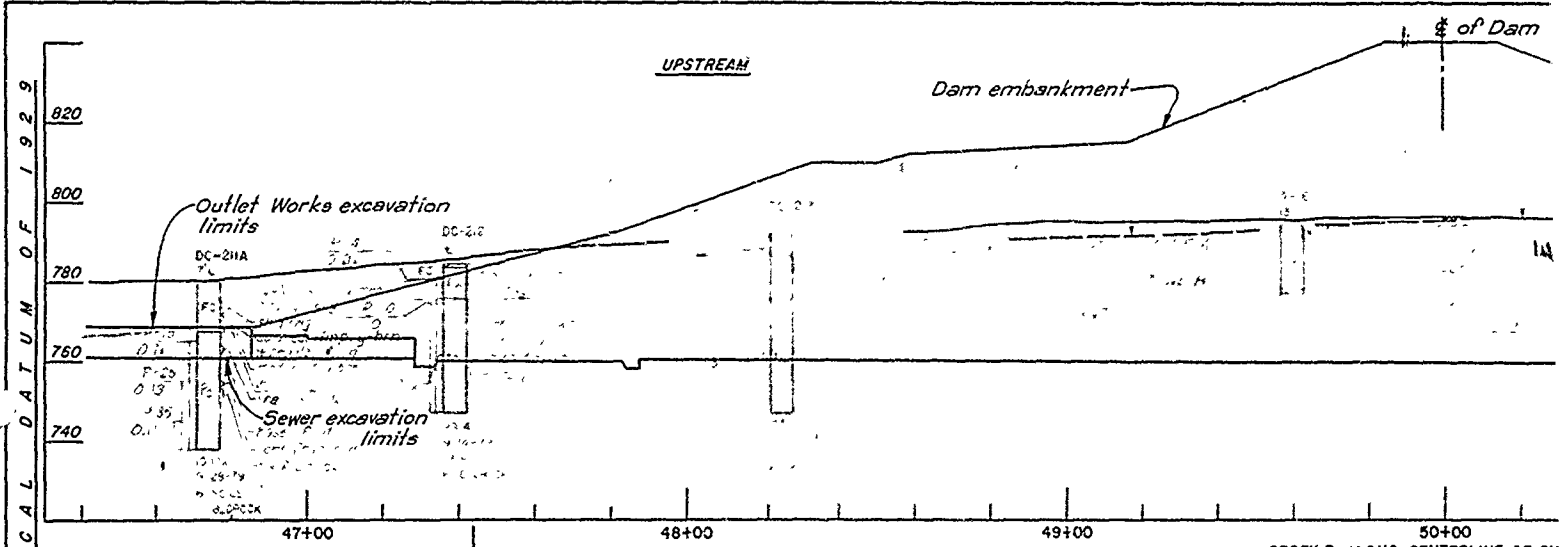
LOGS OF DETACHED BORINGS



NOTE:
1. For General Geologic Column and Legend see Dwg E1.

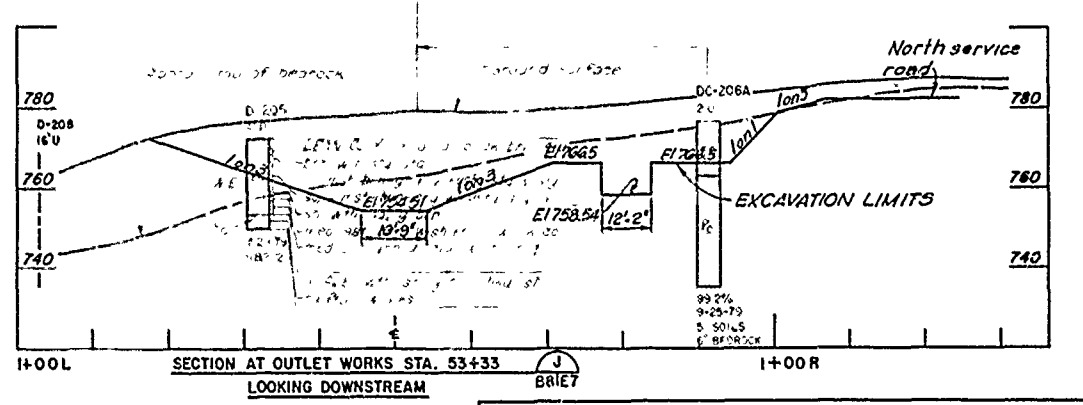
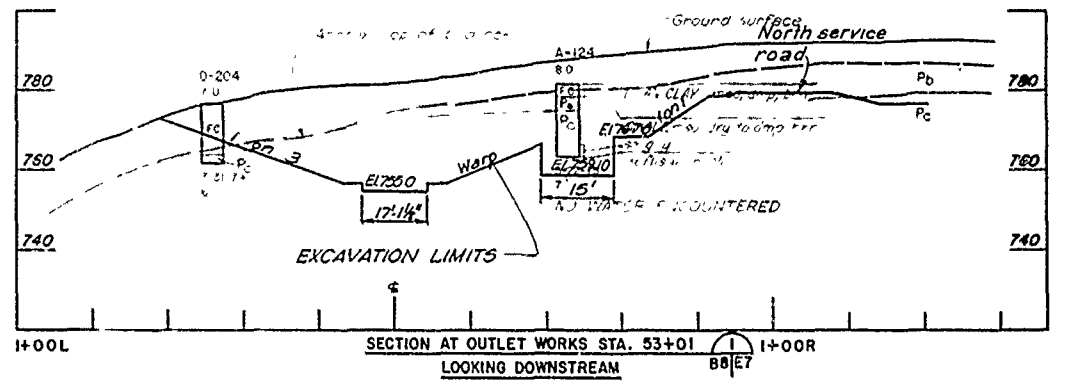
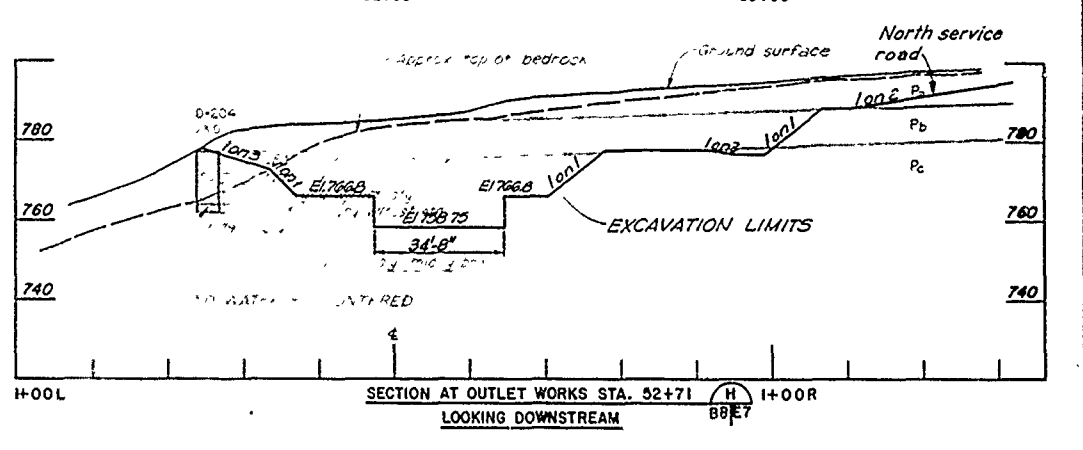
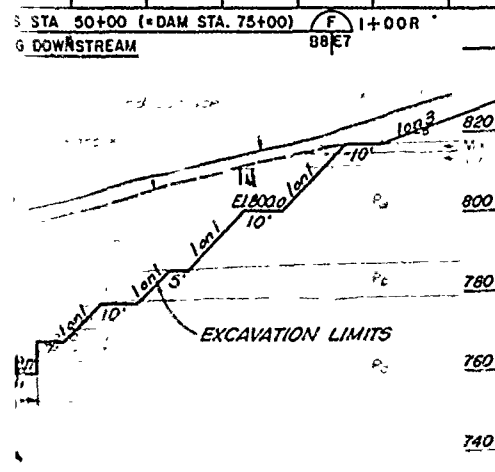
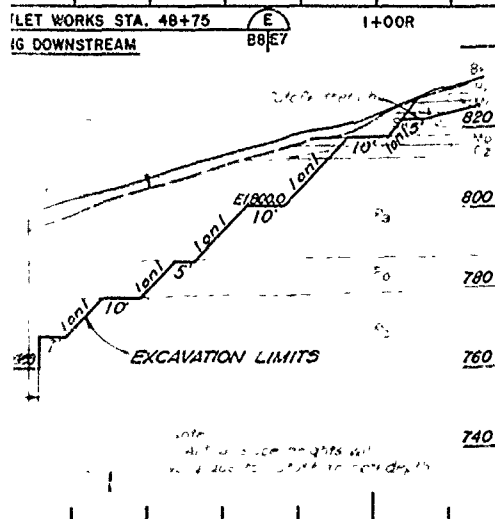
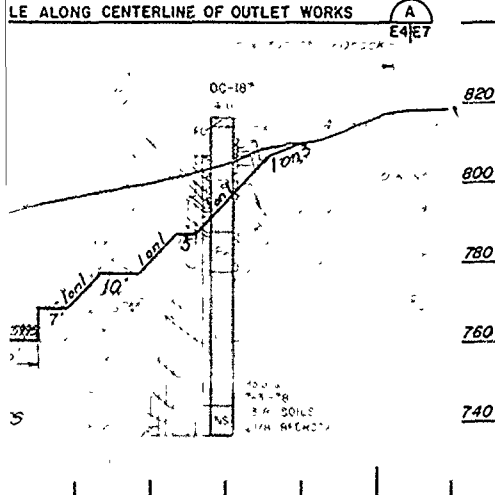
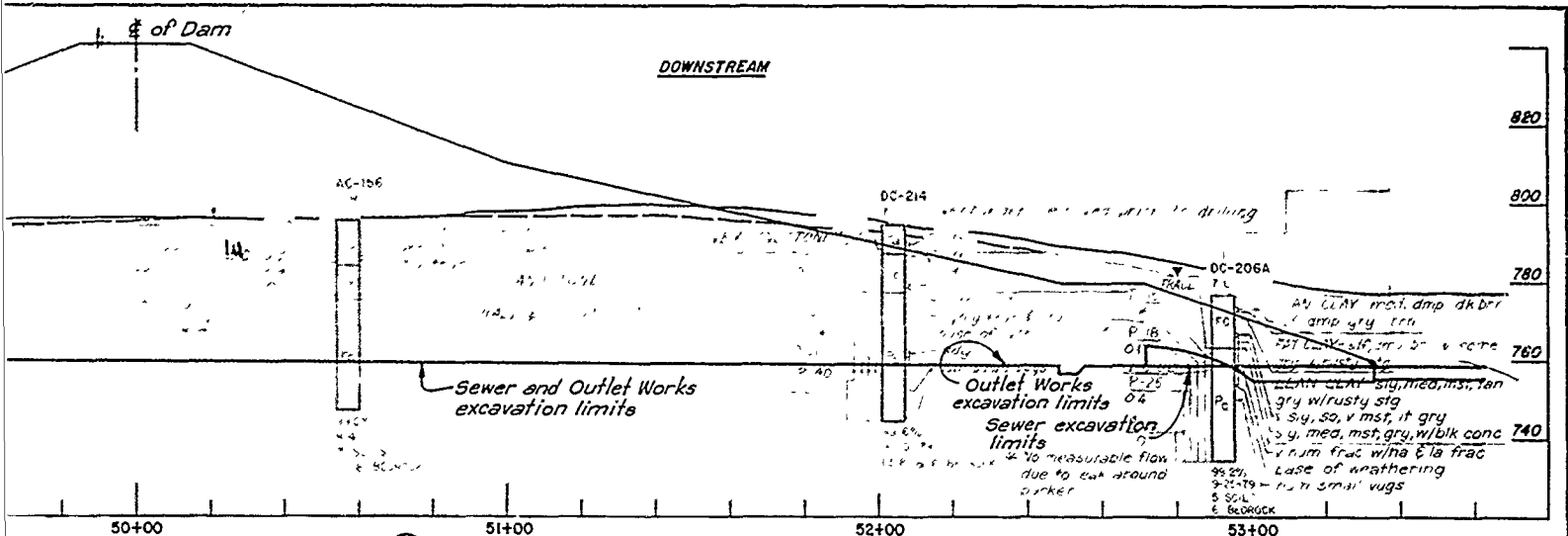


Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT APPROACH AND OUTLET CHANNELS PLAN AND PROFILES AND LOGS OF DETAILED BORINGS		
Drawn by:	Scale: AS SHOWN	Sheet Number: 31	File No. RBL-2-1251
Checked by:	Date: JUNE 1990		
Submitted by:	Dwg. No.:		



ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

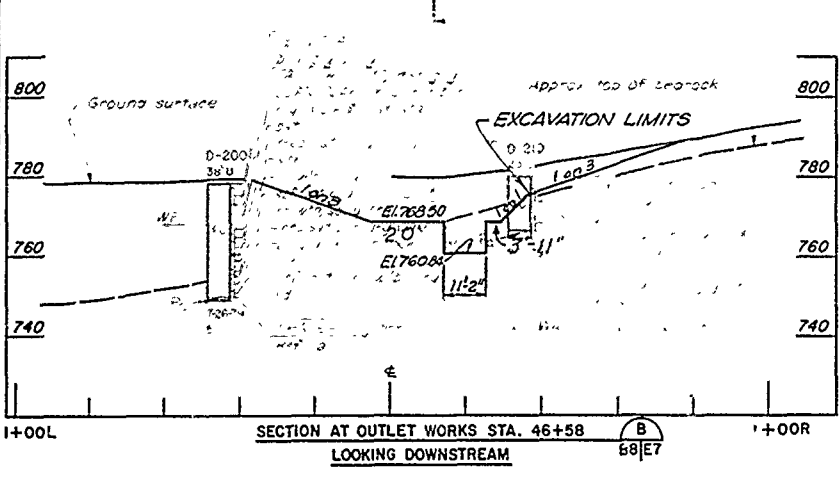
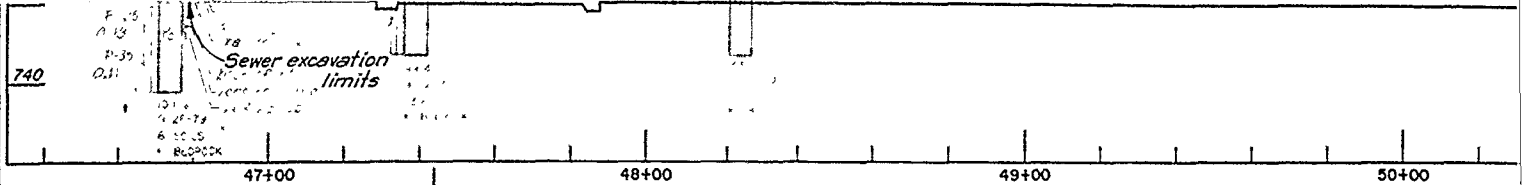
VALU ENGINEERING PASS



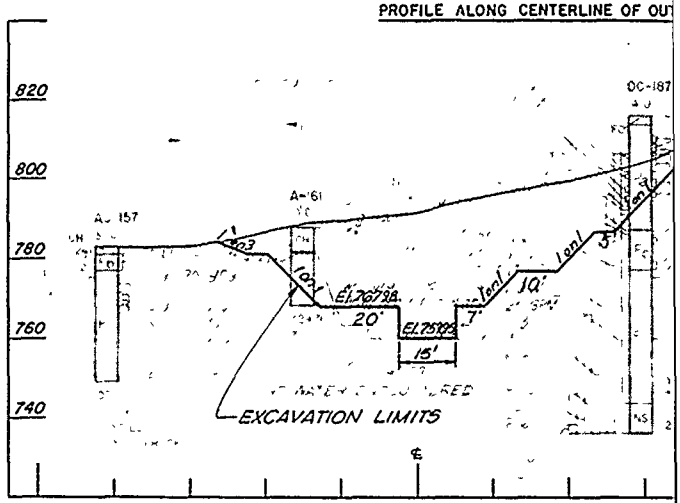
- NOTES:**
1. For location of Profile, Sections and Borings, see Dwg. No. E4
 2. For General Geologic Column and Legend see Dwg. No. E1.
 3. Logs of Detached Borings see Dwg. E13 thru E18.

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:		OUTLET WORKS GEOLOGIC PROFILES AND SECTIONS AND EXCAVATION LIMITS	

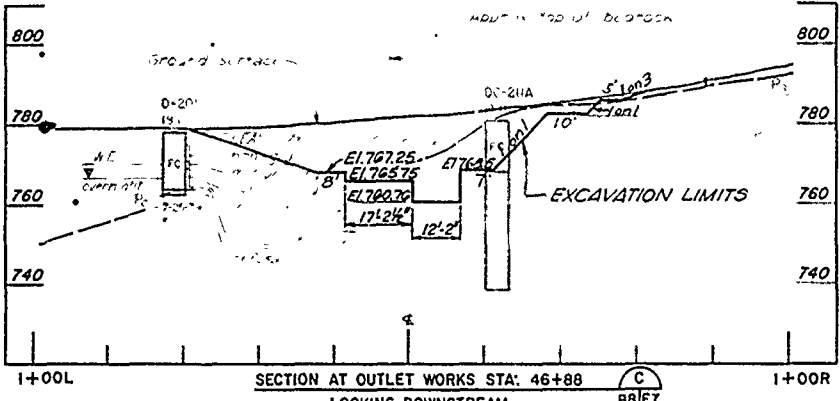
ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DAT



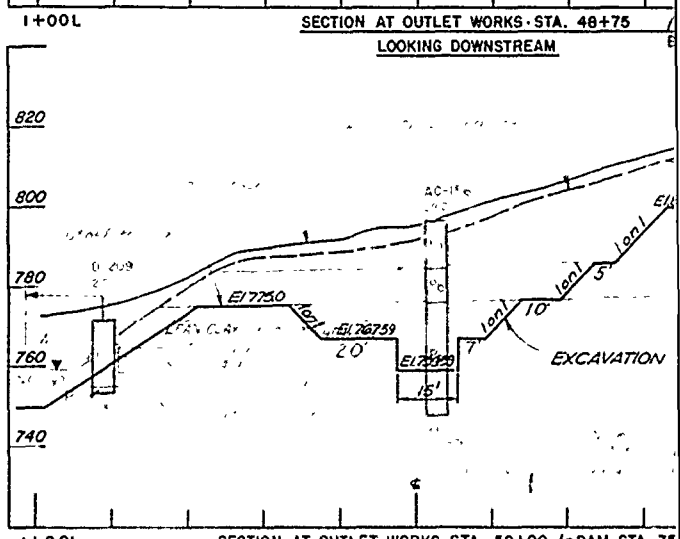
SECTION AT OUTLET WORKS STA. 46+58
LOOKING DOWNSTREAM



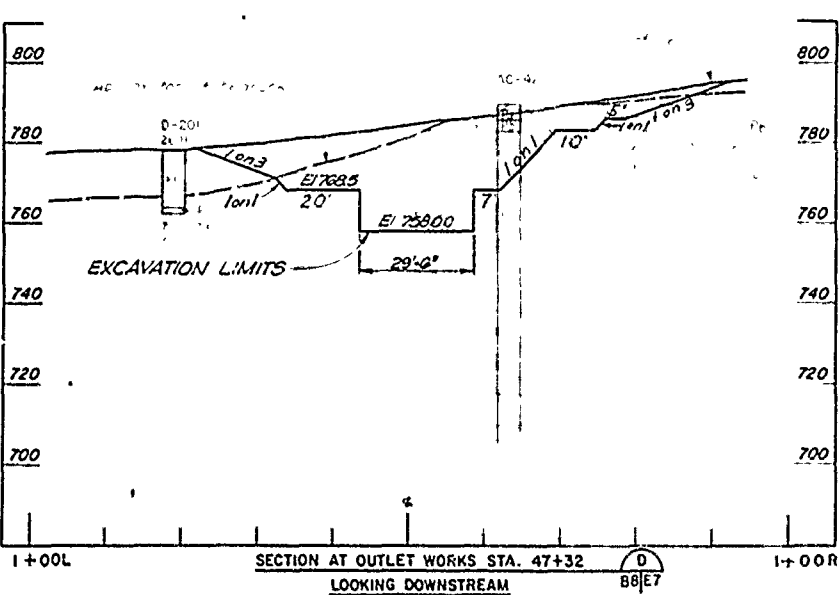
SECTION AT OUTLET WORKS STA. 48+75
LOOKING DOWNSTREAM



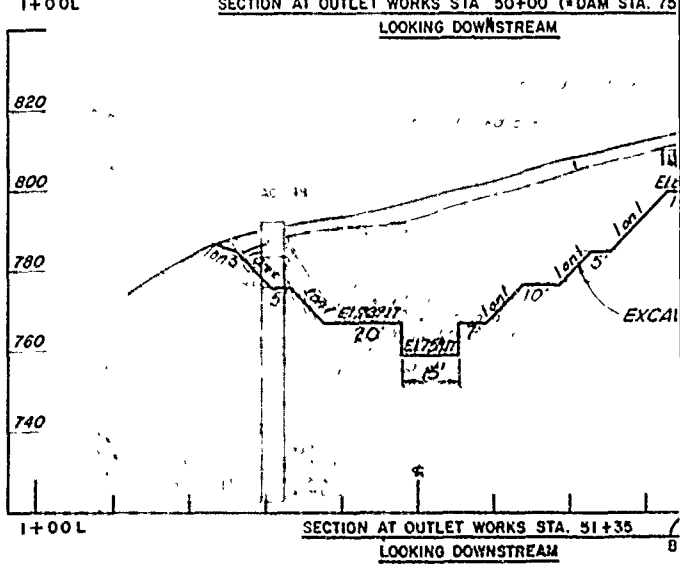
SECTION AT OUTLET WORKS STA. 46+88
LOOKING DOWNSTREAM



SECTION AT OUTLET WORKS STA. 50+00 (DAM STA. 75)
LOOKING DOWNSTREAM



SECTION AT OUTLET WORKS STA. 47+32
LOOKING DOWNSTREAM

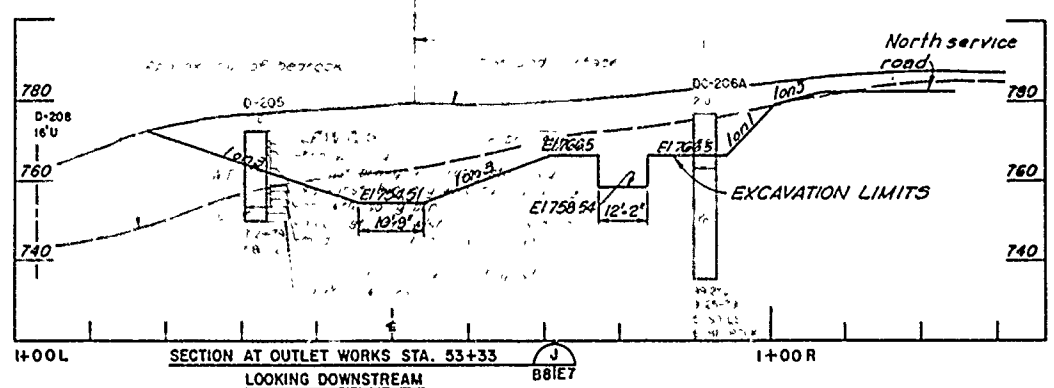
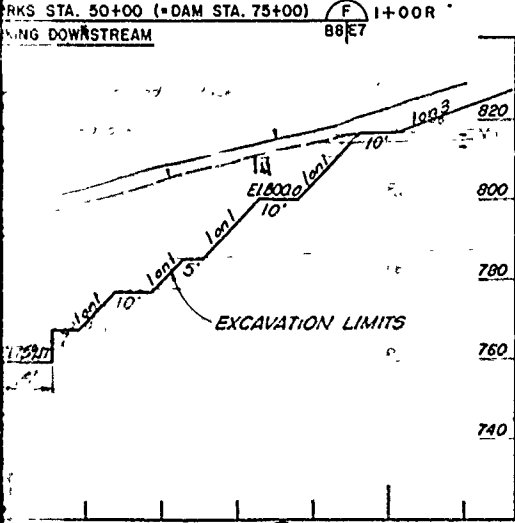
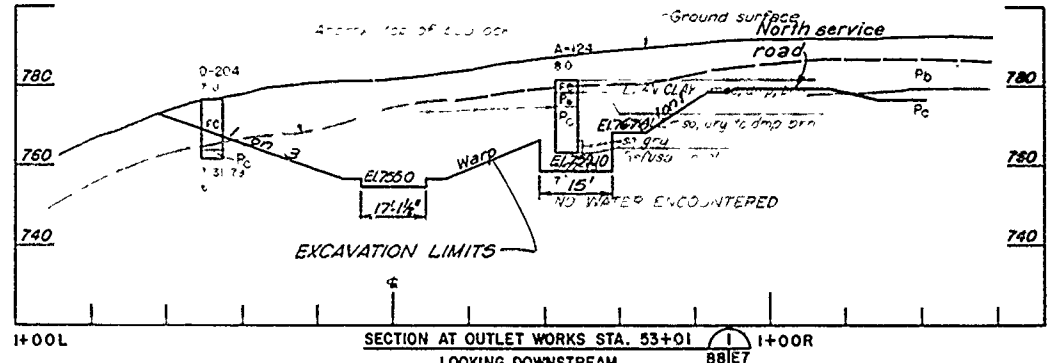
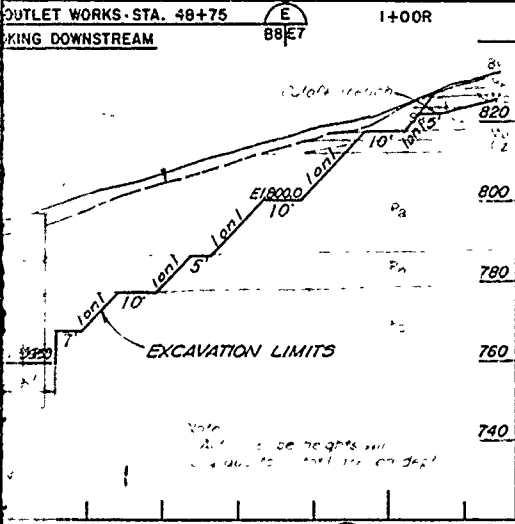
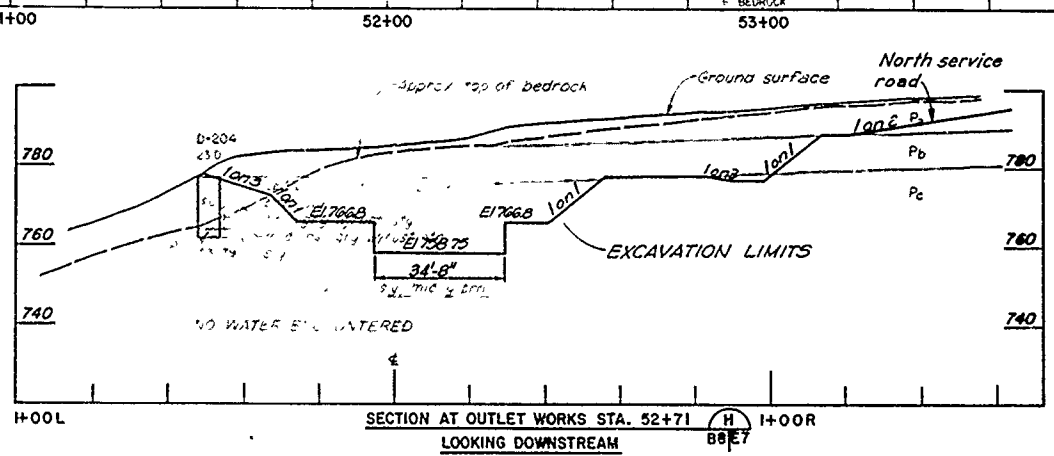
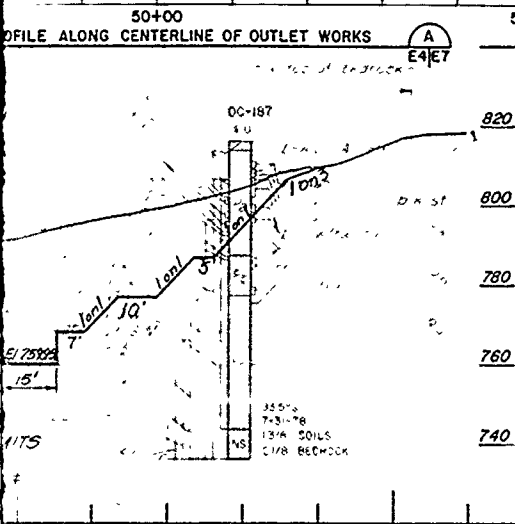


SECTION AT OUTLET WORKS STA. 51+35
LOOKING DOWNSTREAM

Sewer and Outlet Works excavation limits

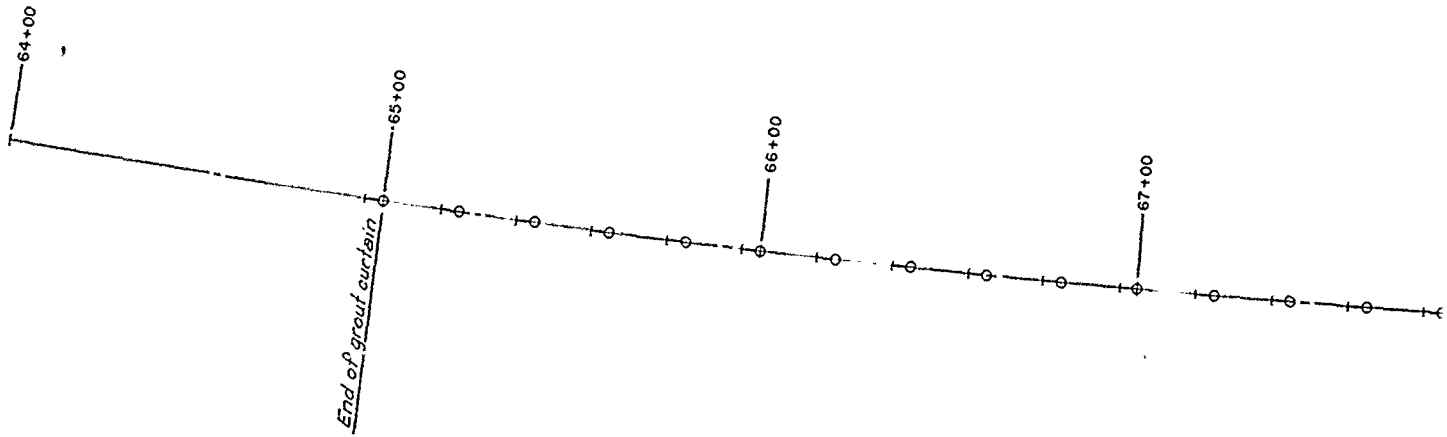
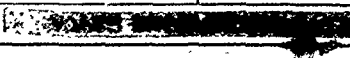
Outlet Works excavation limits
Sewer excavation limits

760
740
720
700
680
660
640
620
600
580
560
540
520
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460
440
420
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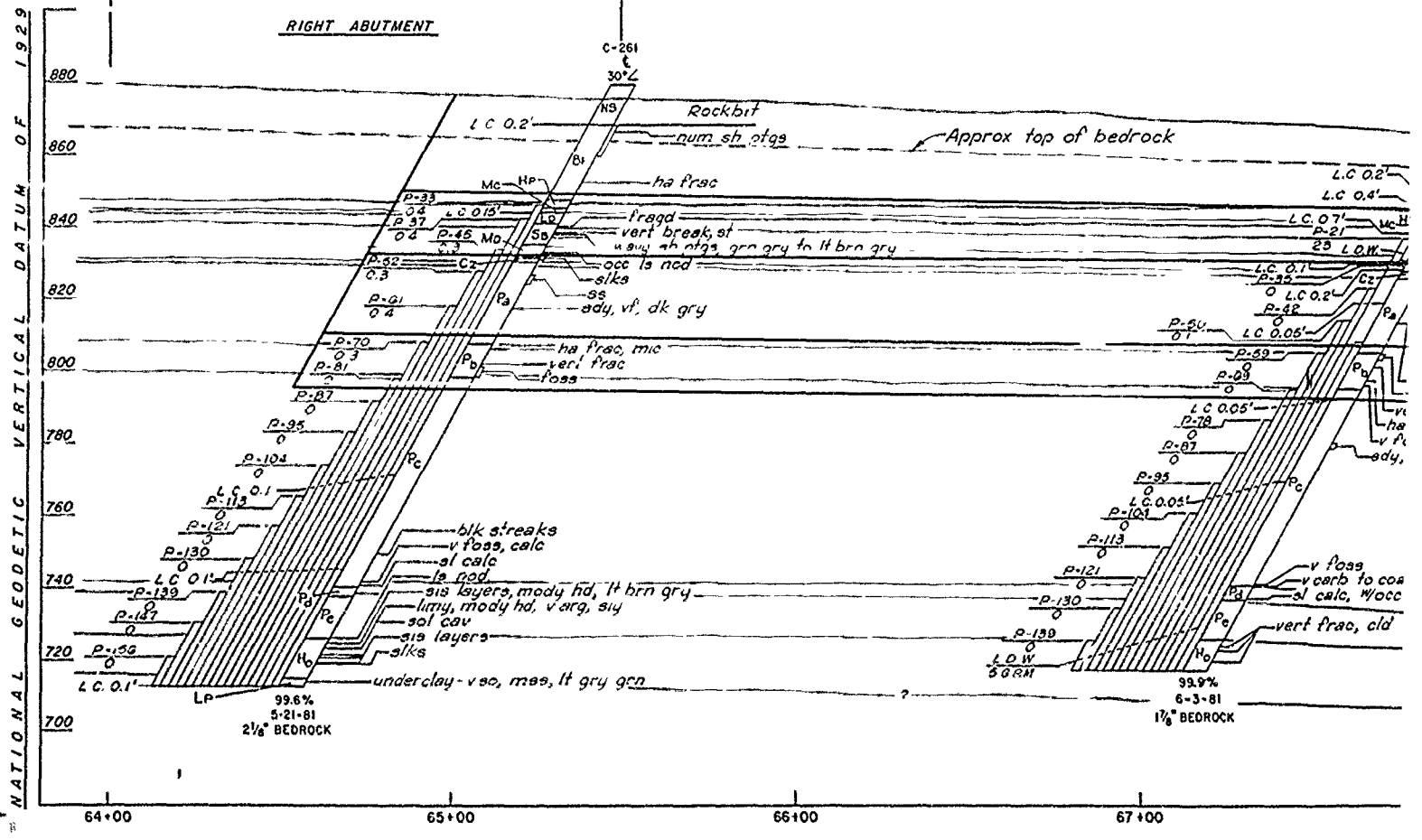
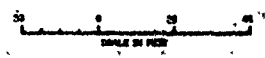


- NOTES:
1 For location of Profile, Sections and Borings, see Dwg. No. E4
2 For General Geologic Column and Legend see Dwg. No. E1.
3 For logs of Detached Borings see Dwg. E13 thru E18.

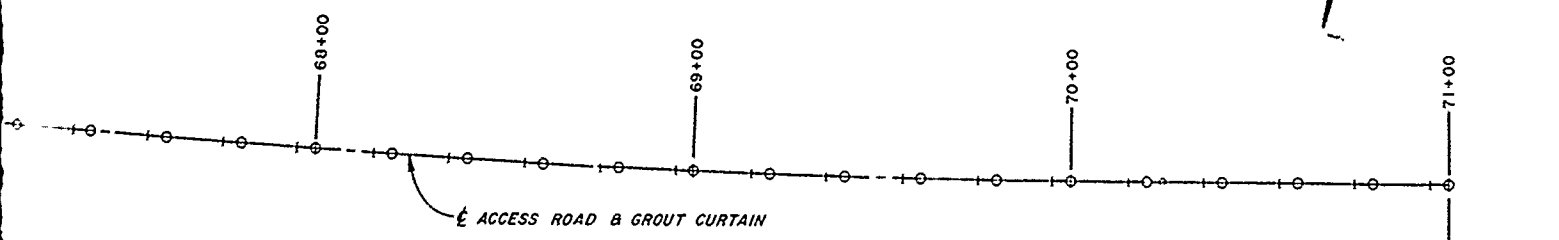
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:	OUTLET WORKS GEOLOGIC PROFILES AND SECTIONS AND EXCAVATION LIMITS		
Checked by:			
Submitted by:	Scale: AS SHOWN	Sheet number:	
	Date: JUNE 1950	32	
	Dwg. No.:		File No. RML-2-1252



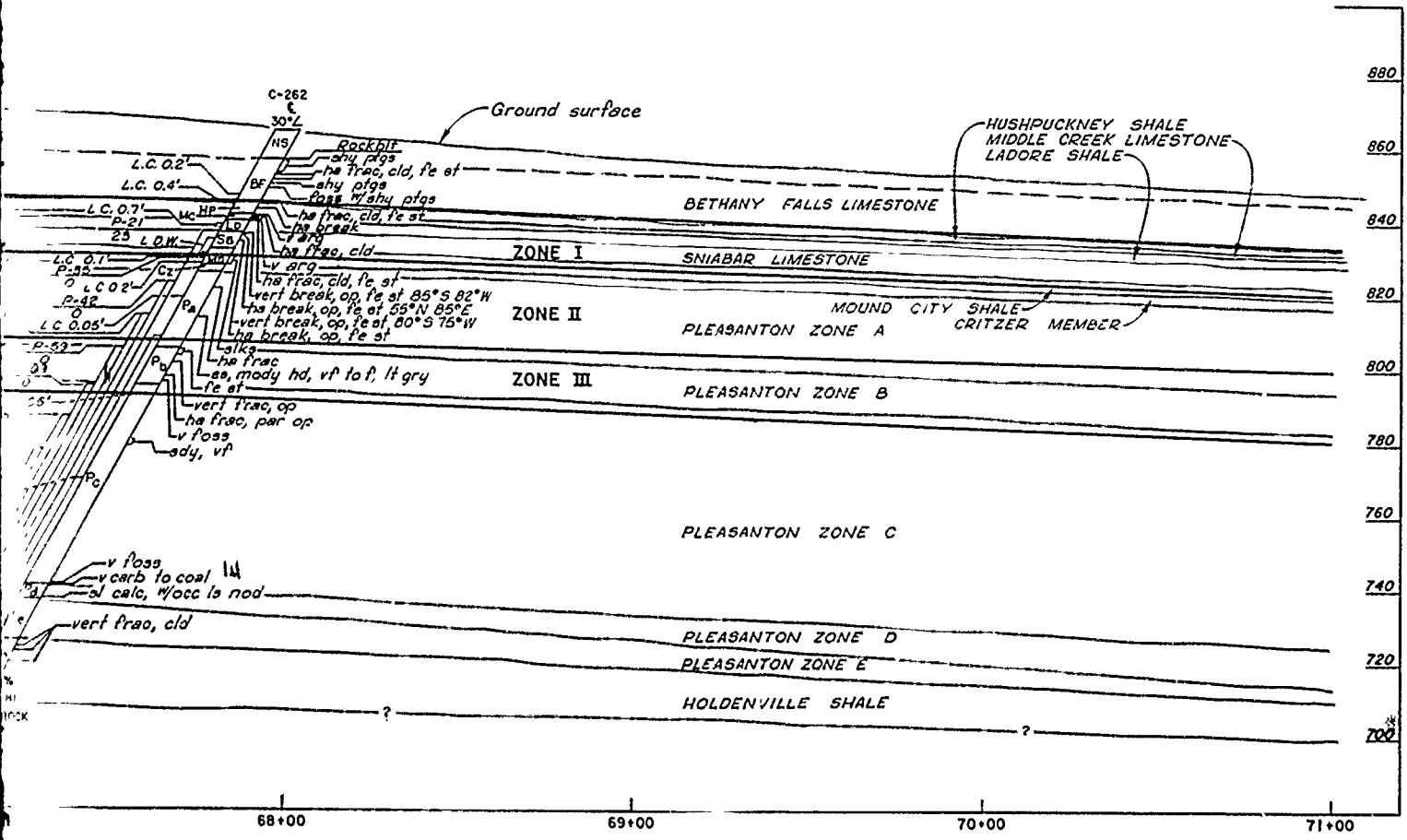
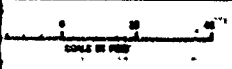
GROUTING PLAN - RIGHT ABUT



GROUTING PROFILE - RIGHT




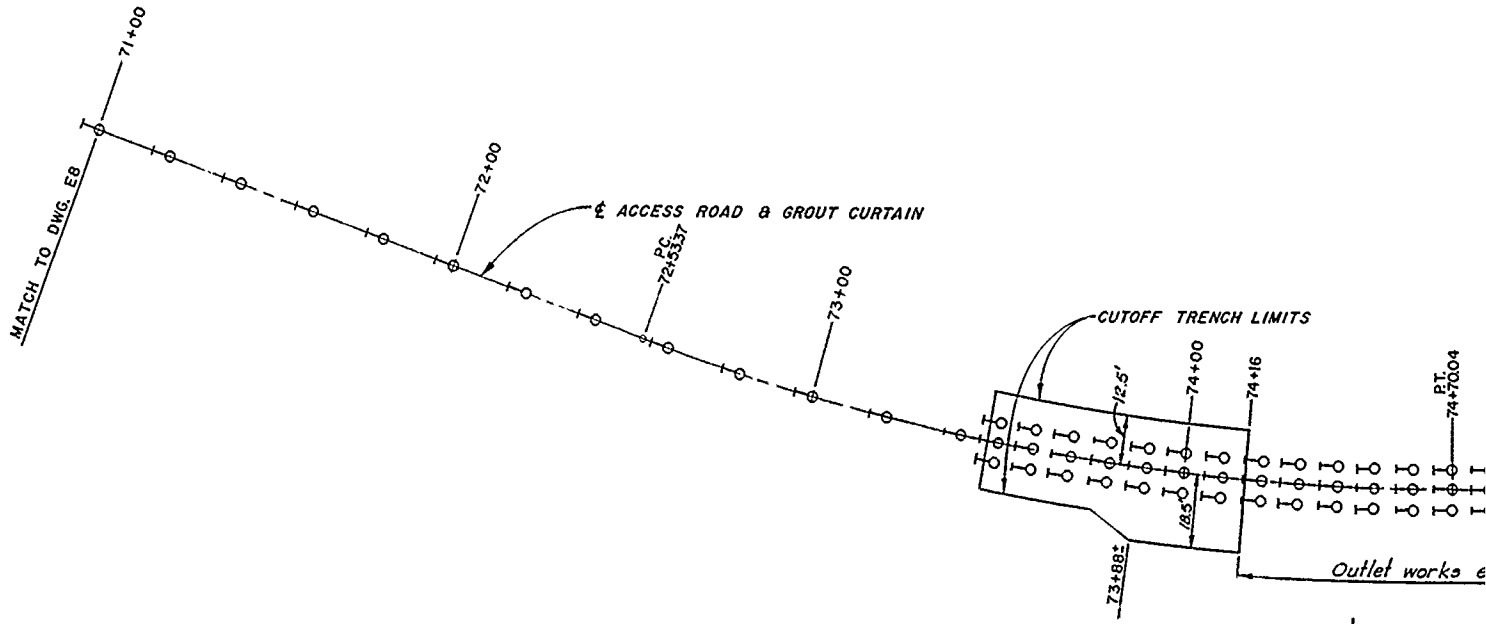
PLAN - RIGHT ABUTMENT



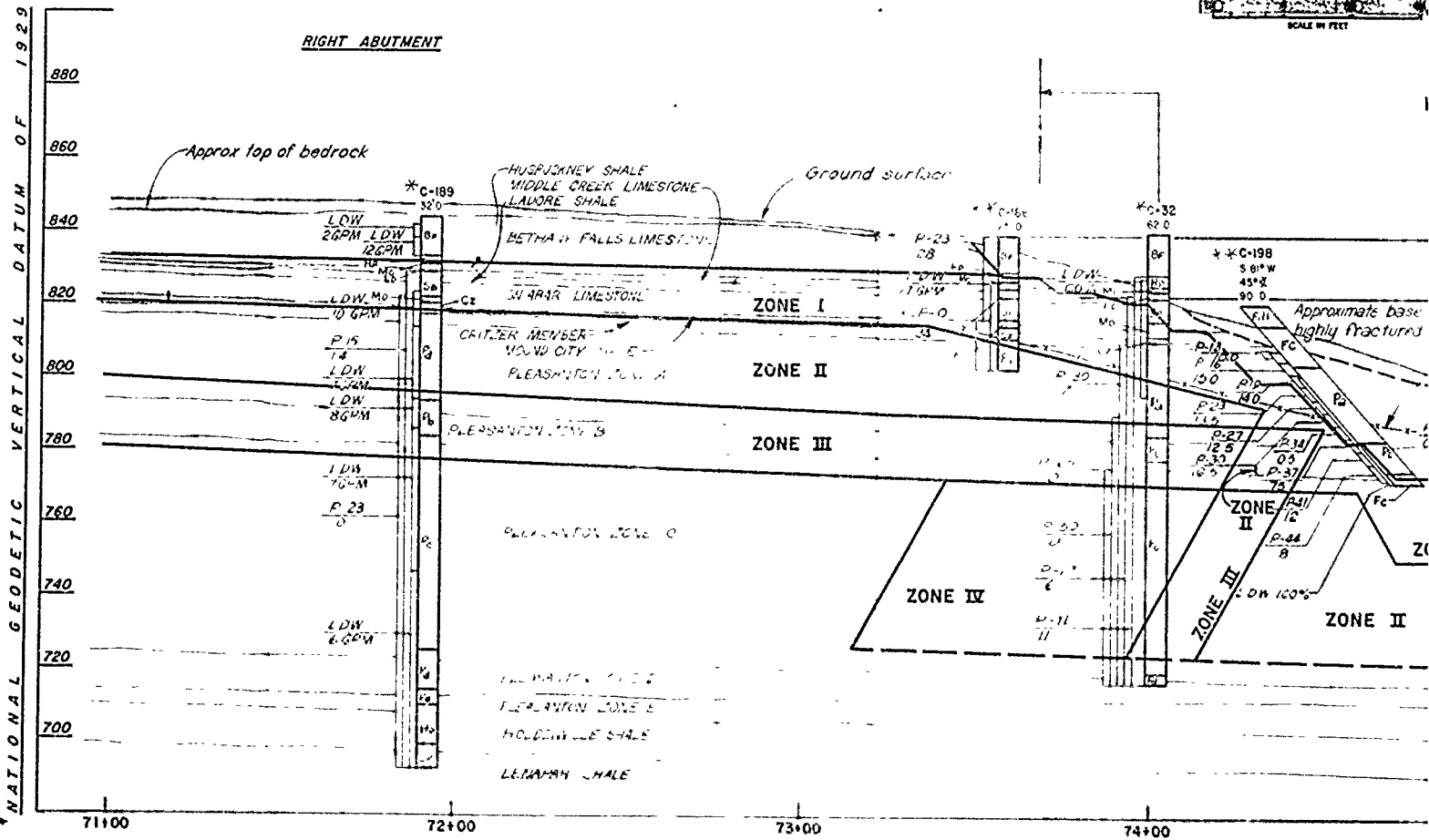
PROFILE - RIGHT ABUTMENT

- Notes
1. For general geologic column see Dwg. E1.
 2. For location of borings see Dwg. E2.
 3. Only primary grout holes are shown on plan.
 4. Borings C-201 & C-202 are drilled landward and parallel to dam axis.

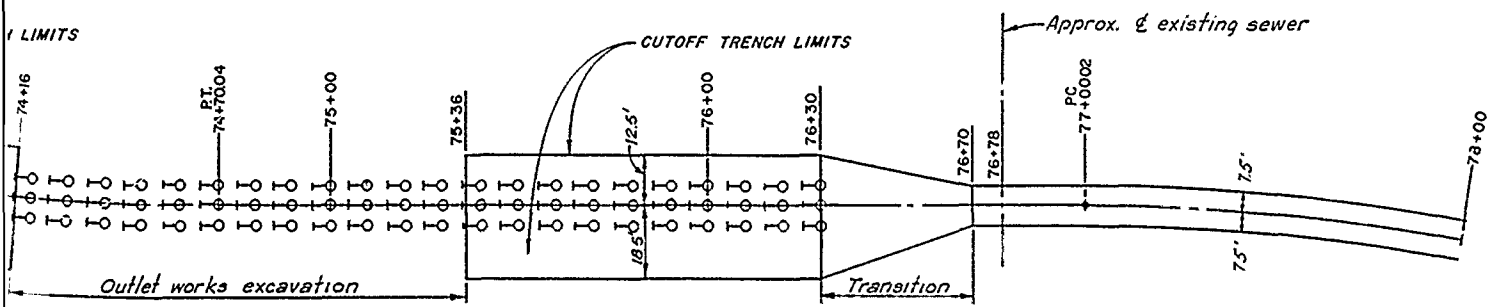
Symbol	Description	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAYE CONSTRUCTION FOUNDATION REPORT CURTAIN GROUTING PLAN AND PROFILE FOR RIGHT ABUTMENT STA. 64+00 TO STA. 71+00		
Drawn by:			
Checked by:			
Scale:	AS SHOWN	Sheet number:	33



GROUTING PLAN - RIGHT ABUTMENT

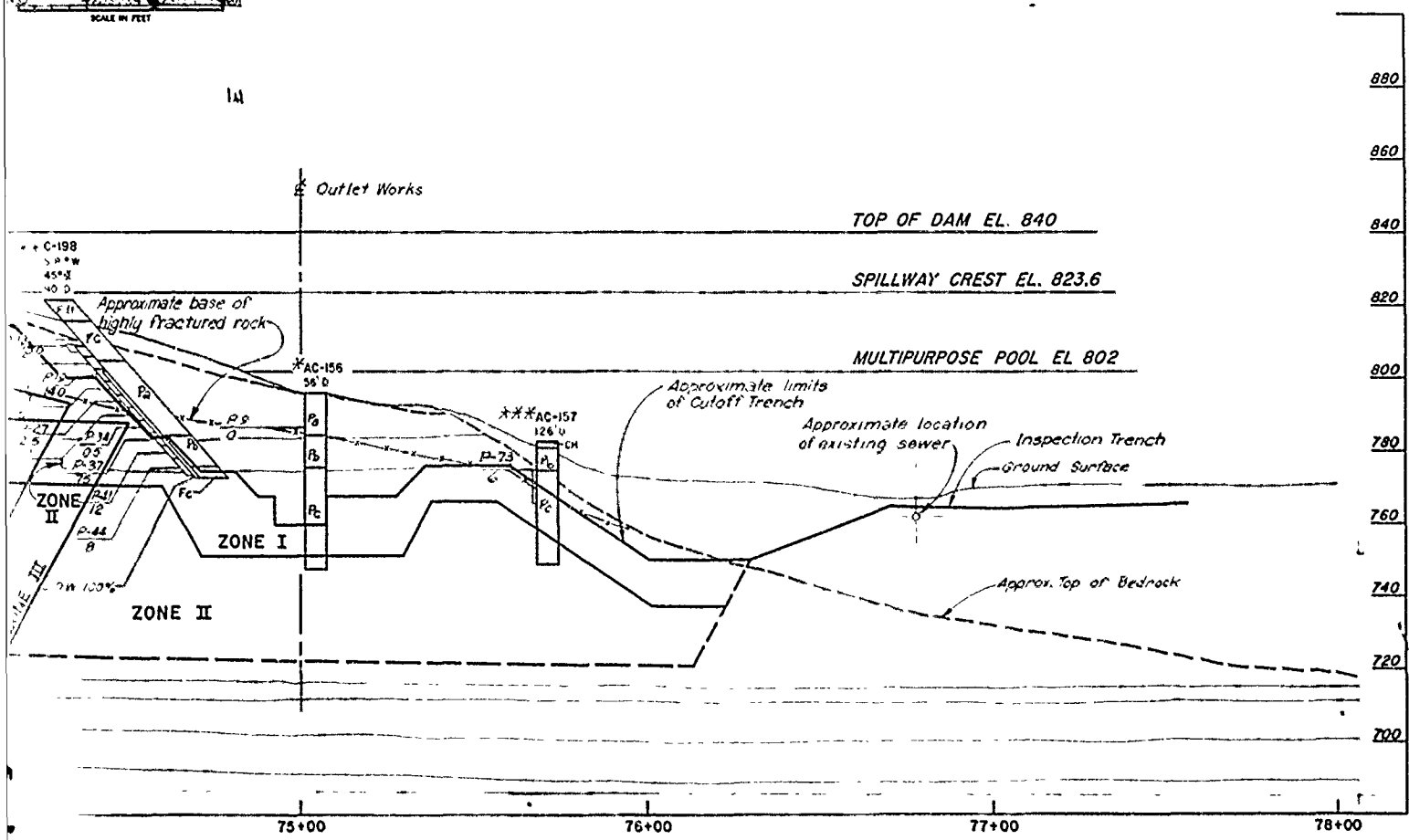


GROUTING PROFILE - RIGHT ABUTMENT



NG PLAN - RIGHT ABUTMENT

SCALE IN FEET



NG PROFILE - RIGHT ABUTMENT

- Notes:
1. For General Geologic Column and legend, see Dwg E1.
 2. For location of borings see Dwgs E2, E3 & E4.
 3. Borings with a single *, see Dwg E5.
 4. Borings with a double **, see Logs of Detached Borings.
 5. Borings with a triple ***, see Dwg E7.
 6. Only primary grout holes are shown on Plan.

Symbol	Revisions		
	Descriptions	Date	Approved

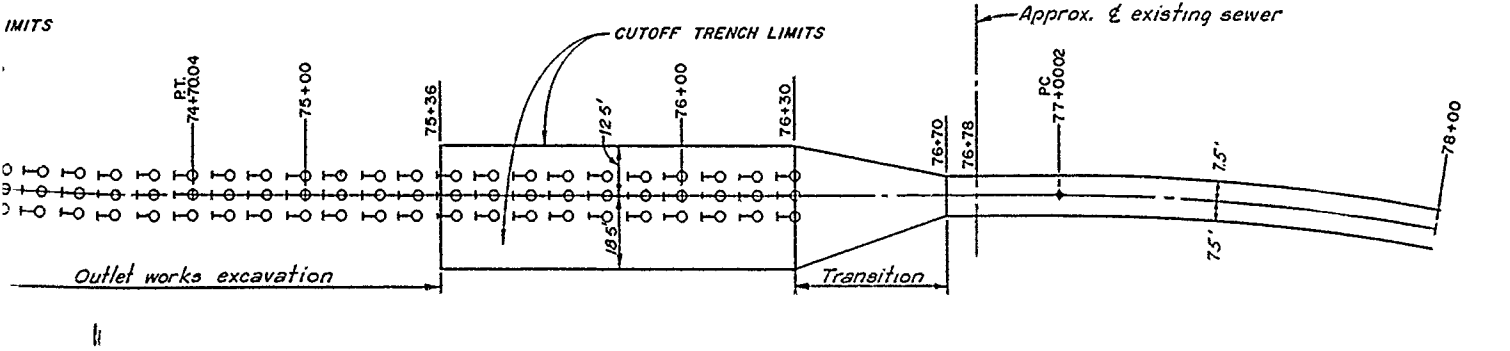
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by
Drawn by

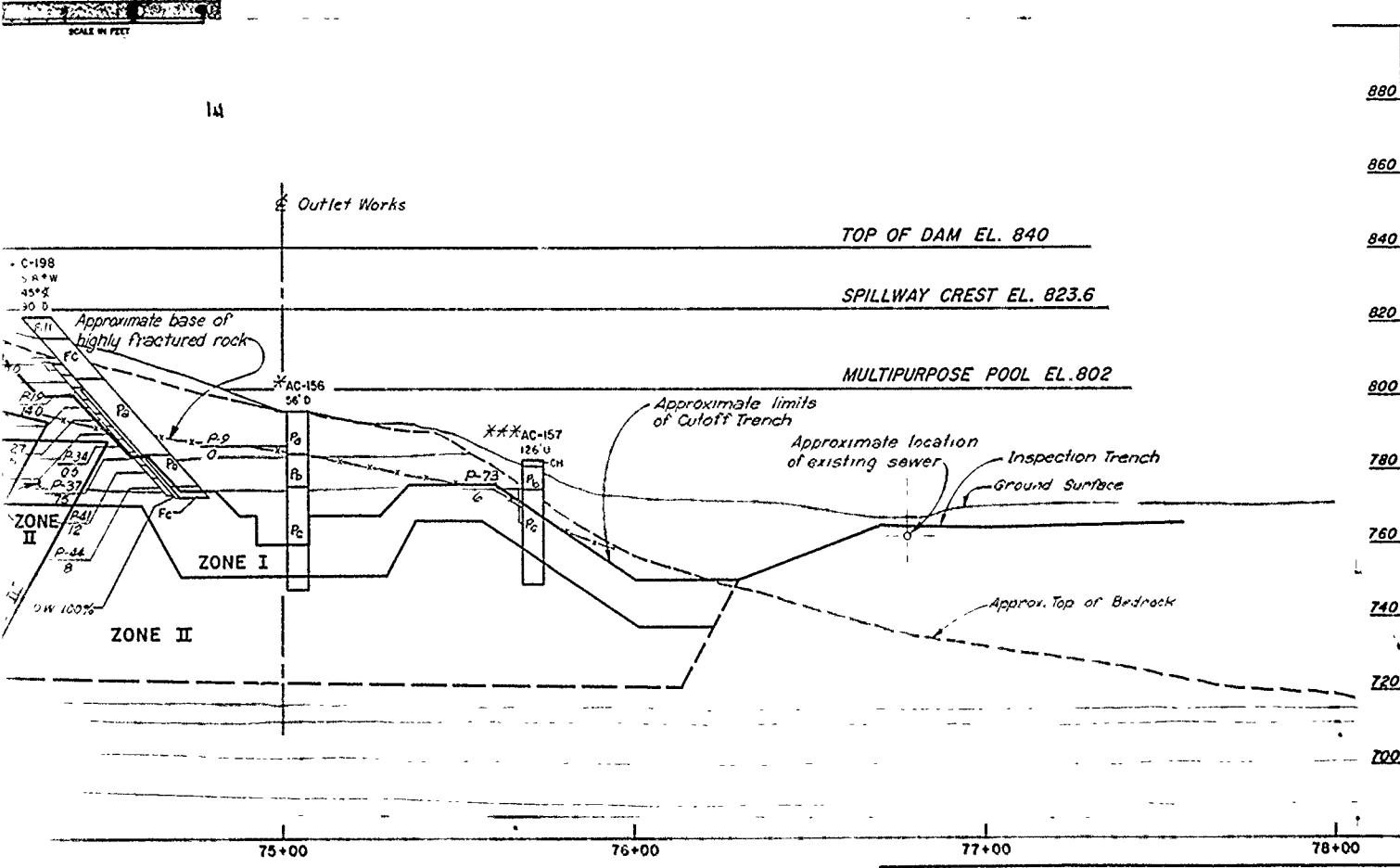


EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

**CURTAIN GROUTING-PLAN AND PROFILE
FOR RIGHT ABUTMENT**
STA 71+00 TO STA 78+00




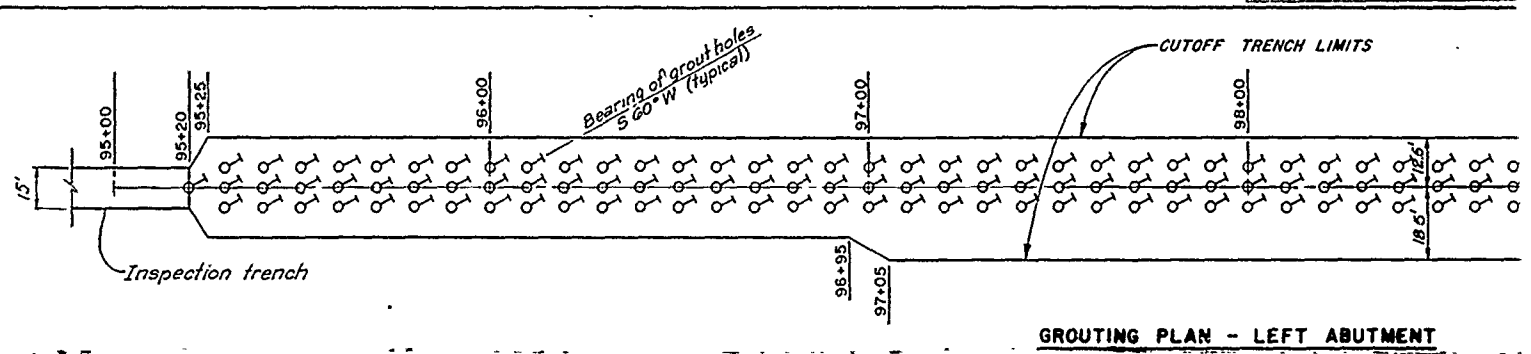
PLAN - RIGHT ABUTMENT



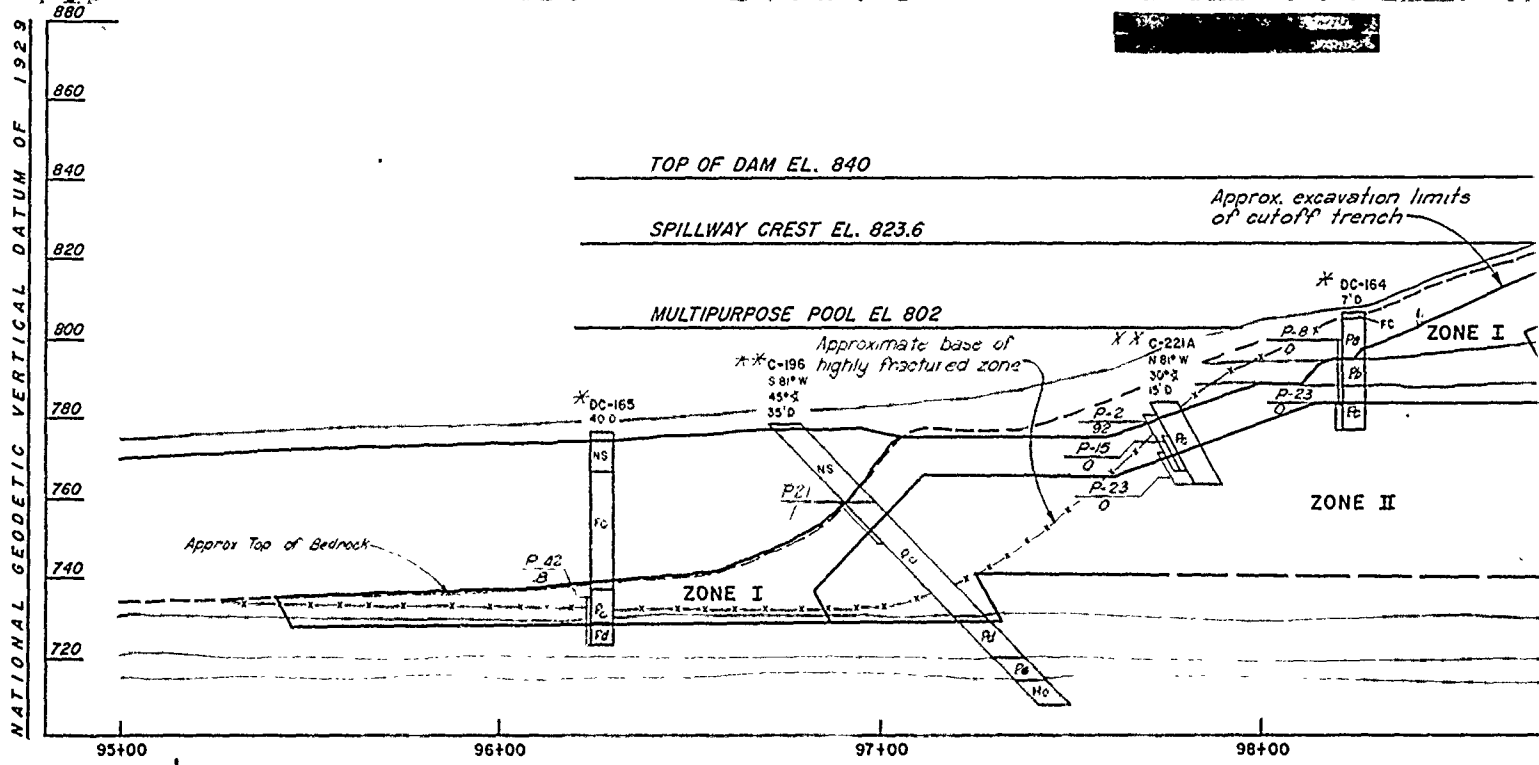
PROFILE - RIGHT ABUTMENT

- Notes:
1. For General Geologic Column and legend, see Dwg E1.
 2. For location of borings see Dwg E2, E3 & E4.
 3. Borings with a single *, see Dwg E5.
 4. Borings with a double **, see Logs of Detached Borings.
 5. Borings with a triple ***, see Dwg E7.
 6. Only primary grout holes are shown on Plan.

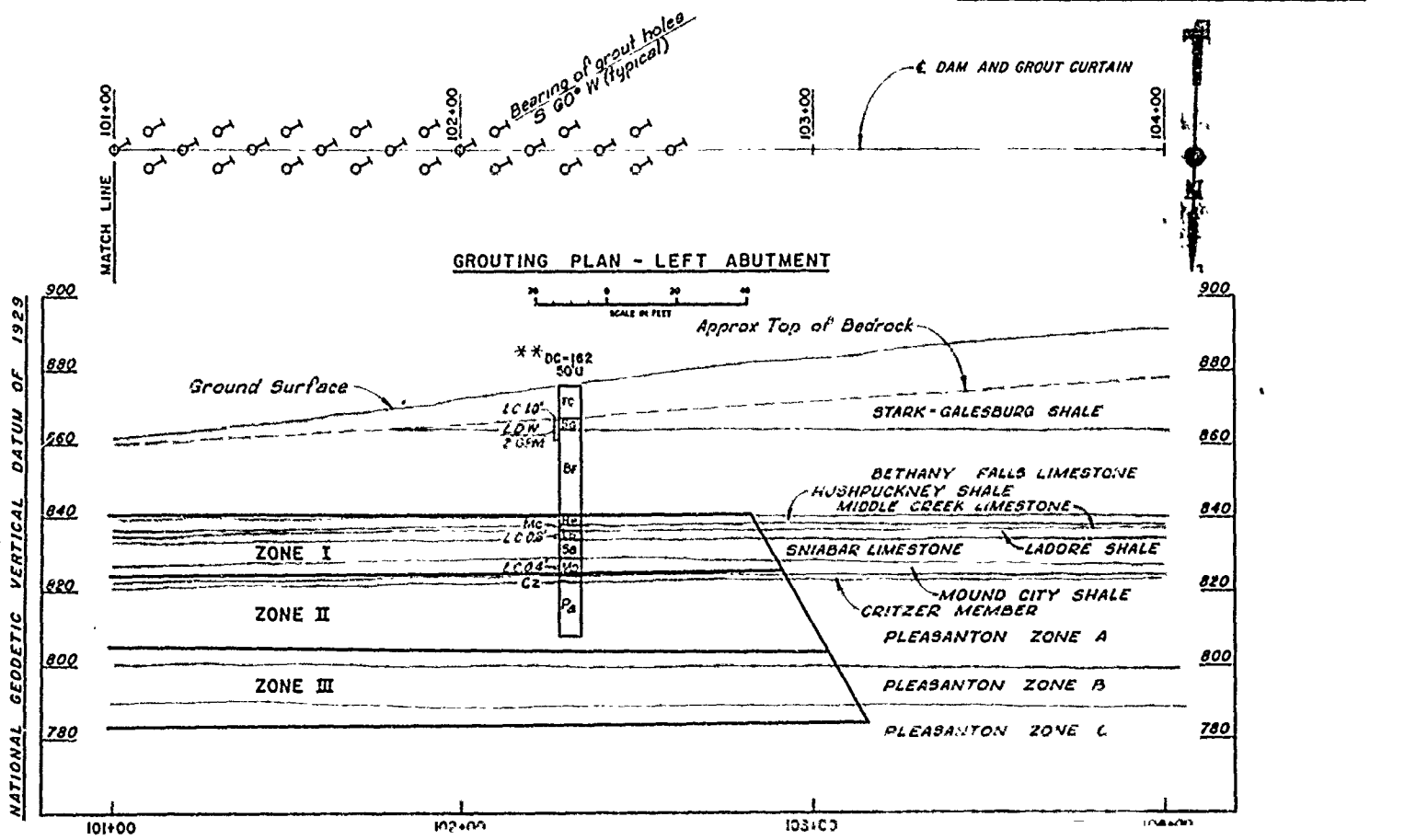
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT CURTAIN GROUTING-PLAN AND PROFILE FOR RIGHT ABUTMENT STA. 71+00 TO STA. 78+00		
Drawn by			
Checked by			
Submitted by			
Scale	AS SHOWN	Sheet Number	
Date	JUNE 1930	34	
Proj No			No R3L-2-1254



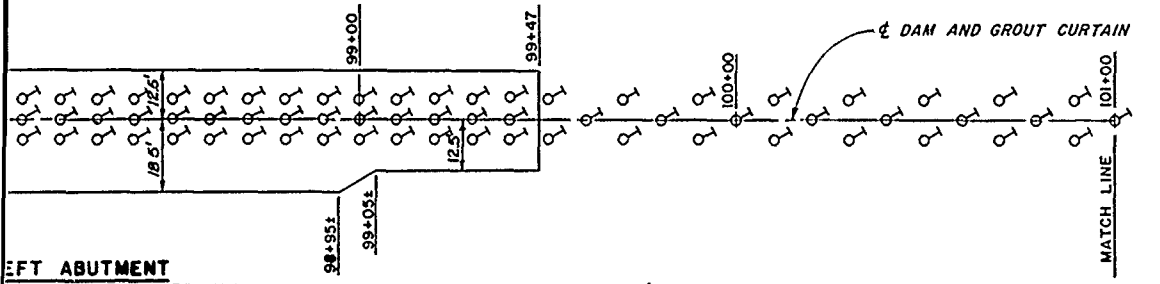
GROUTING PLAN - LEFT ABUTMENT



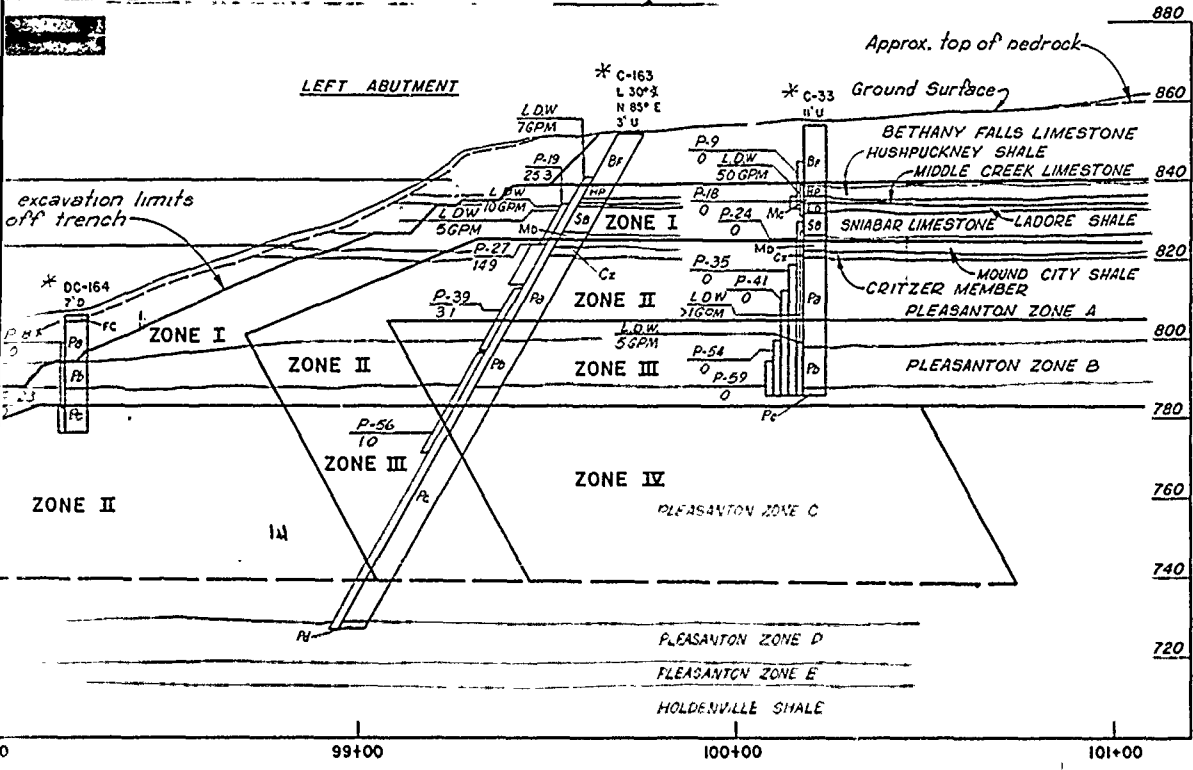
GROUTING PROFILE - LEFT ABUTMENT



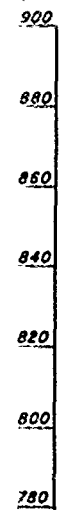
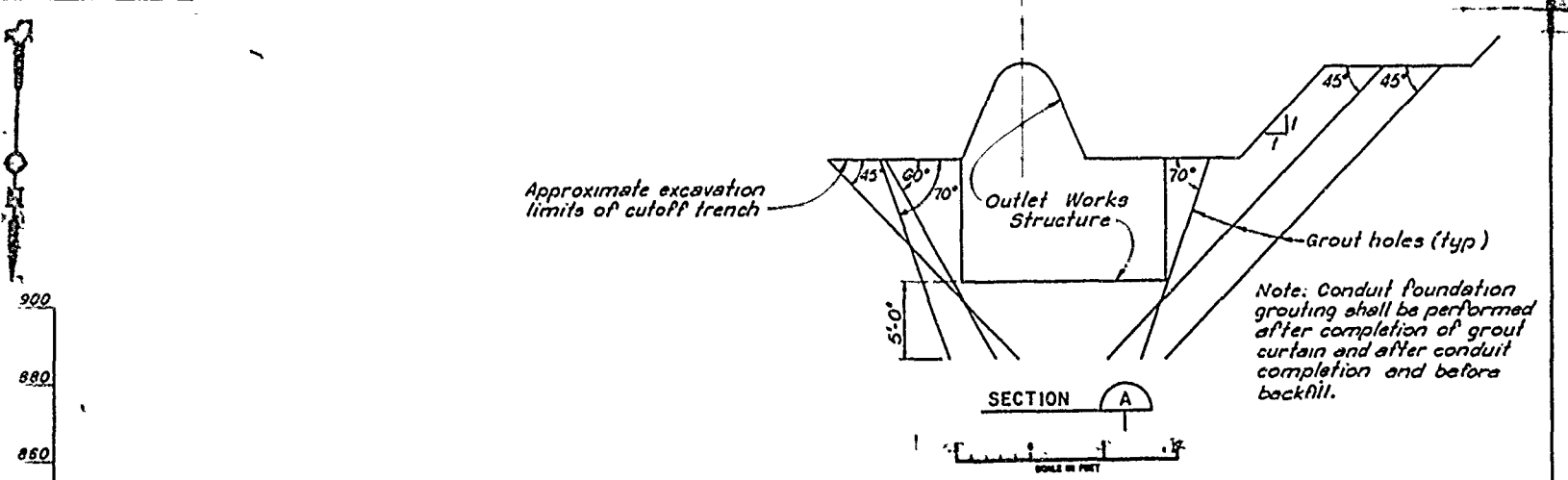
NCH LIMITS



LEFT ABUTMENT



LEFT ABUTMENT



Revisions			
Symbol	Descriptions	Date	Approved

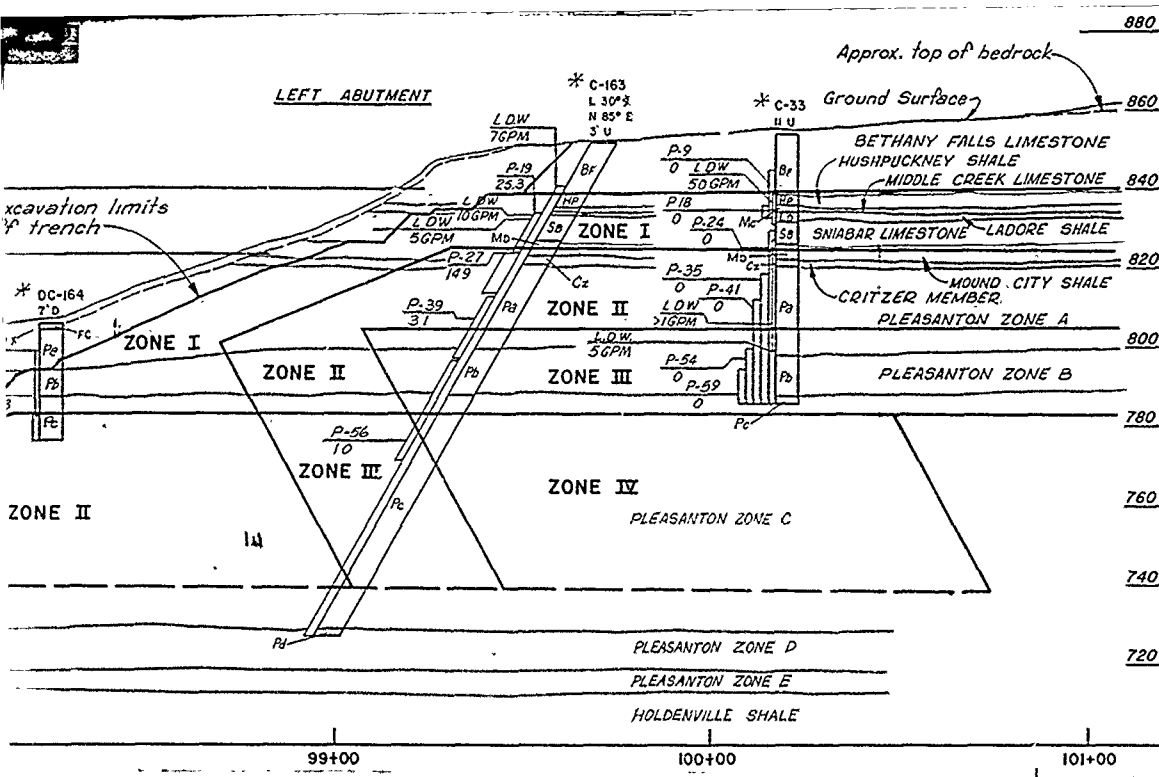
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

U.S. Army Corps of Engineers

Drawn by: CURTAIN GROUTING PLAN AND PROFILE

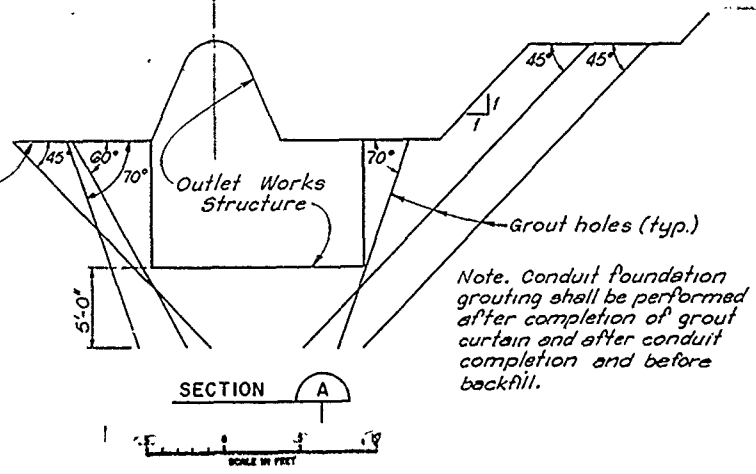
Notes:
1. For General Geologic Column, see Dwg E1
2. For location of Piezoms, see Dwg E3



LEFT ABUTMENT

Outlet Works & Dam Sta. 75+02.75

Approximate excavation limits of cutoff trench

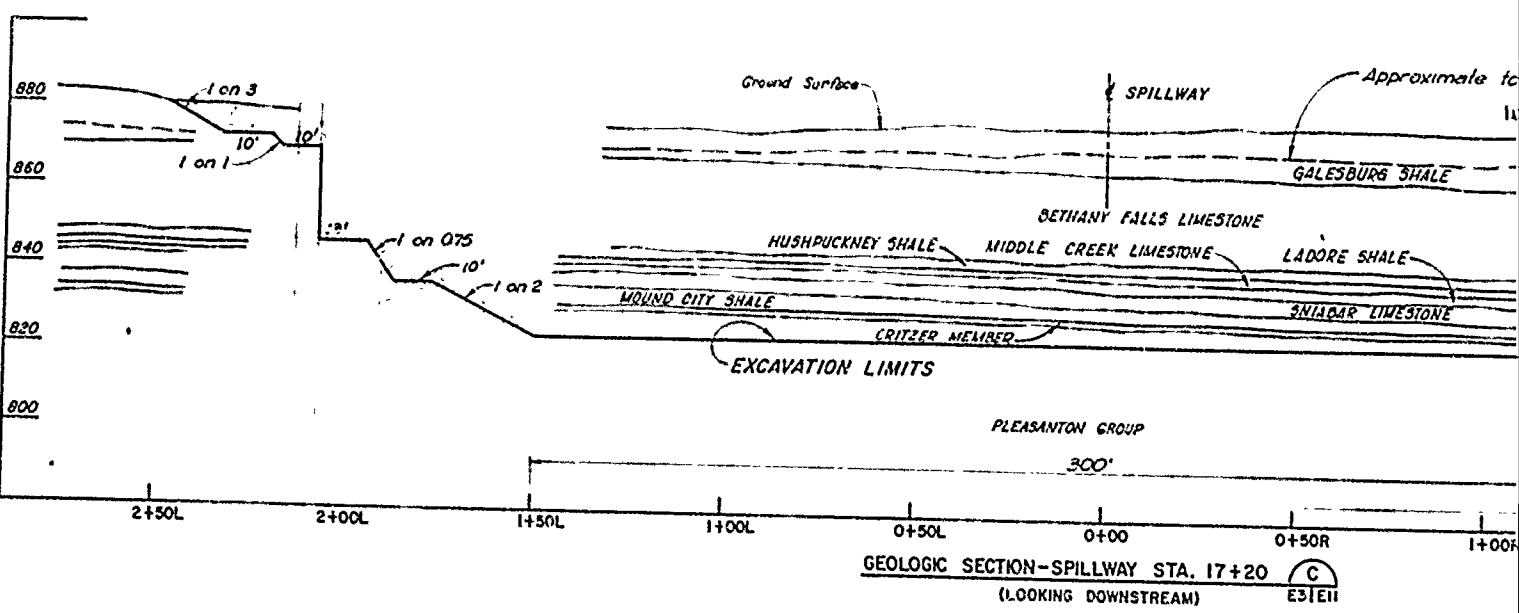
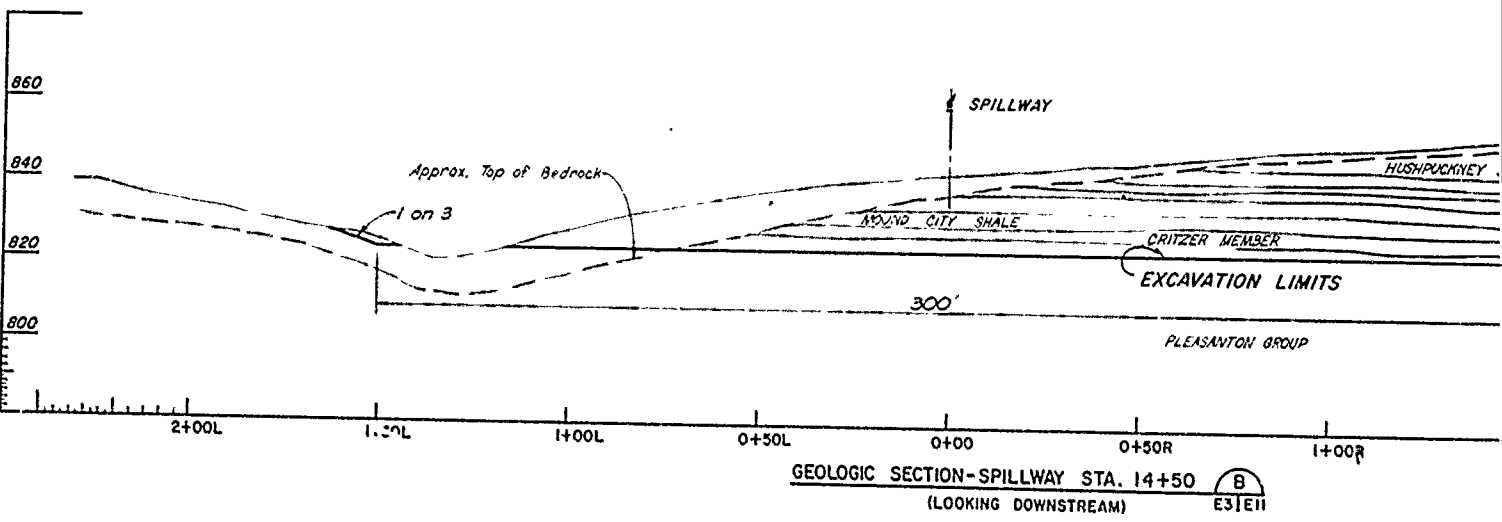
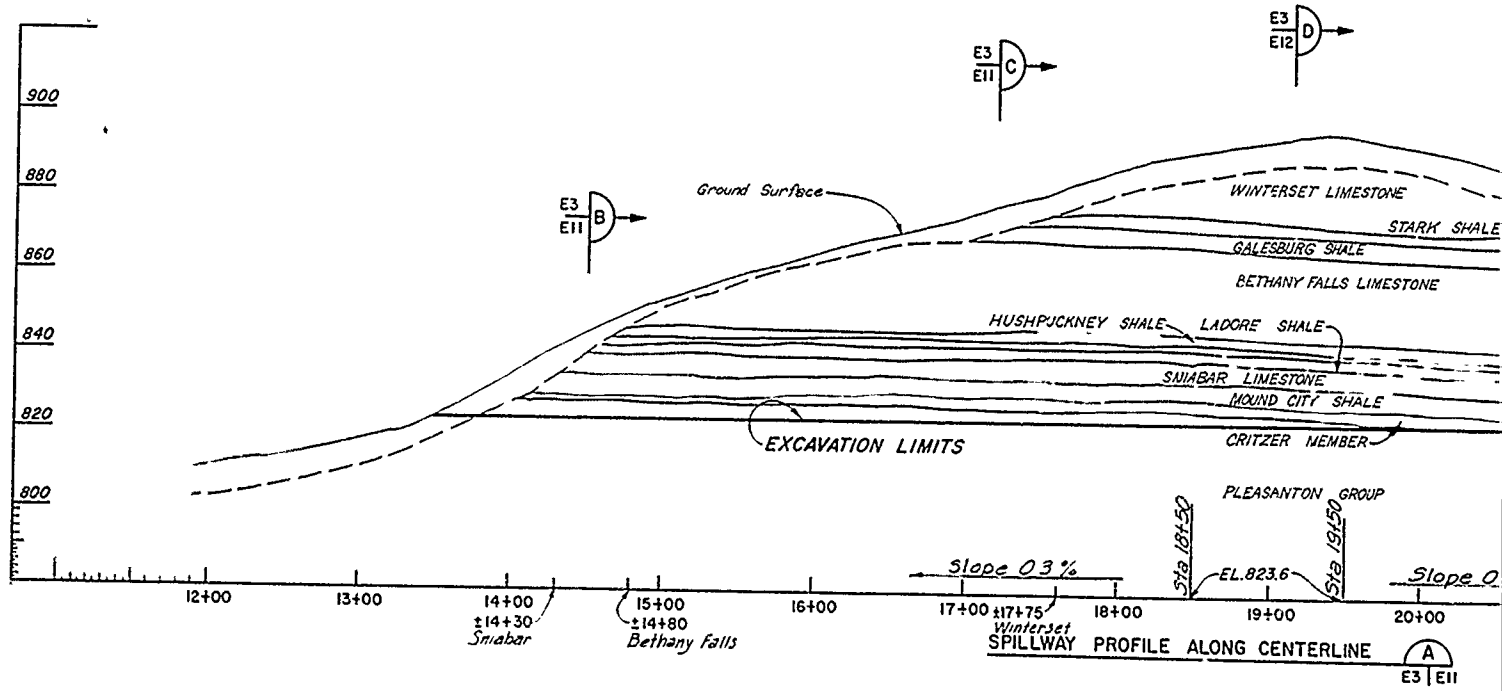


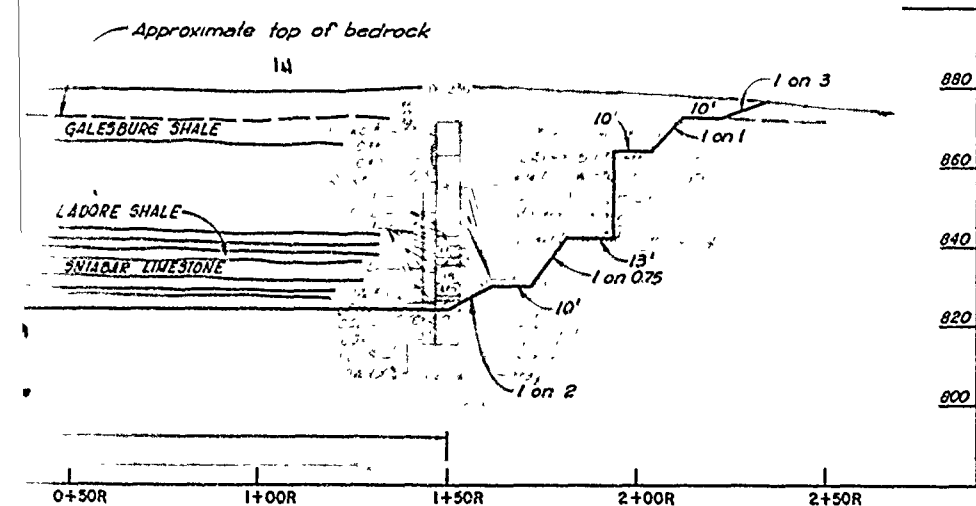
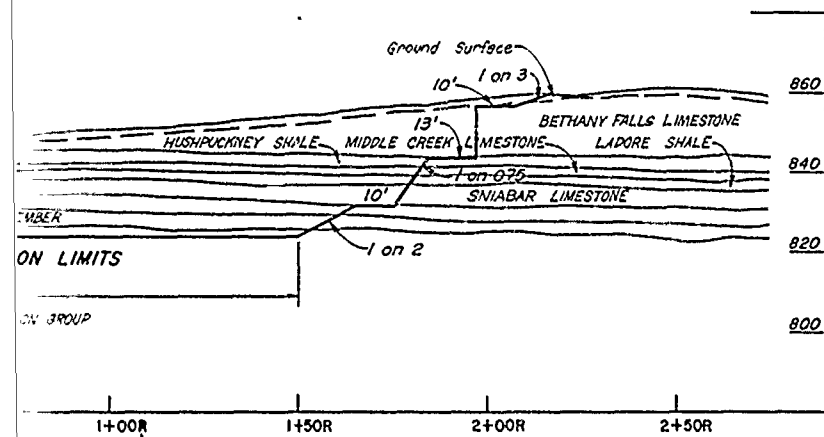
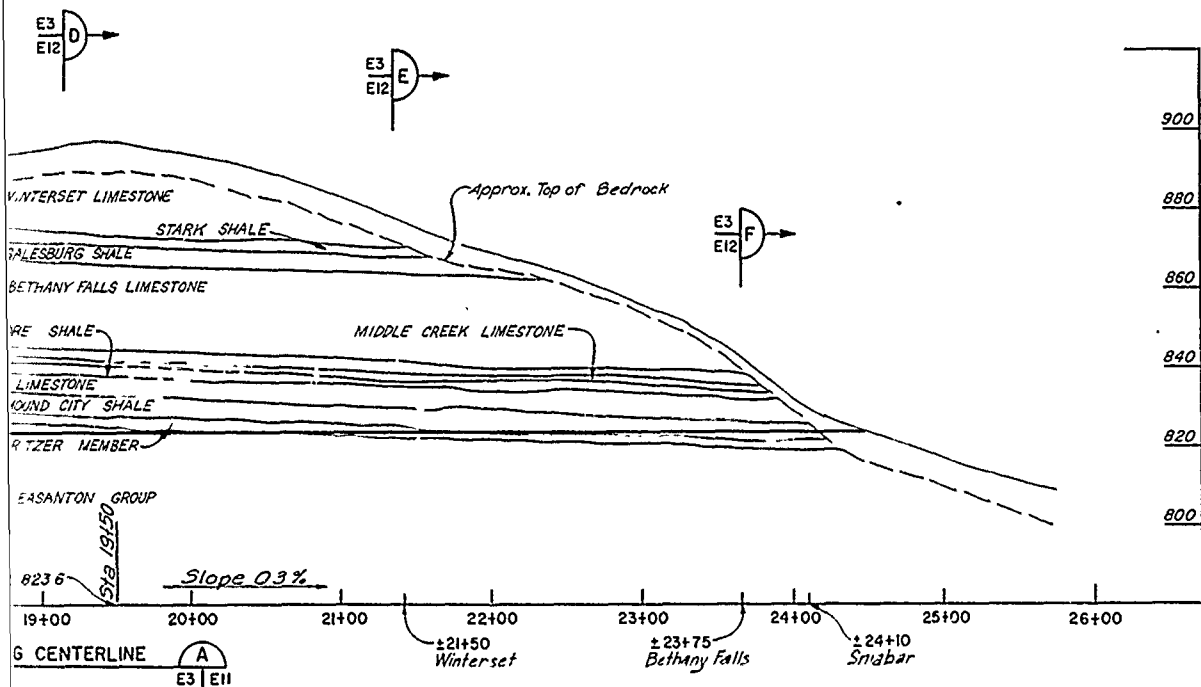
20
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70
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90
100

- Notes:
1. For General Geologic Column, see Dwg. E1.
 2. For location of Borings, see Dwg. E3
 3. Only primary grout holes are shown on plan.
 4. Borings with a single *, see Dwg. E5
 5. Borings with a double **, see Logs of Detached Borings.

Revisions			
Symbol	Descriptions	Date	Approved
U S ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	CURTAIN GROUTING PLAN AND PROFILE FOR LEFT ABUTMENT AND CONDUIT FOUNDATION GROUTING DETAIL	
Drawn by			
Checked by	Scale: AS SHOWN	Sheet number:	35
Submitted by	Date: JUNE 1990	Dwg. No.	
			File No. RBL-2-1255

ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929





NOTES:
 1 For general geologic column and legend see Dwg. E 1
 2 For plan of spillway see Dwg. B7.
 3 For location of Borings, see Dwg. E2 & E3.

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

Designed by:



EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE
 CONSTRUCTION FOUNDATION REPORT

Drawn by:

SPILLWAY PROFILE AND SECTIONS
 GEOLOGY AND EXCAVATION LIMITS

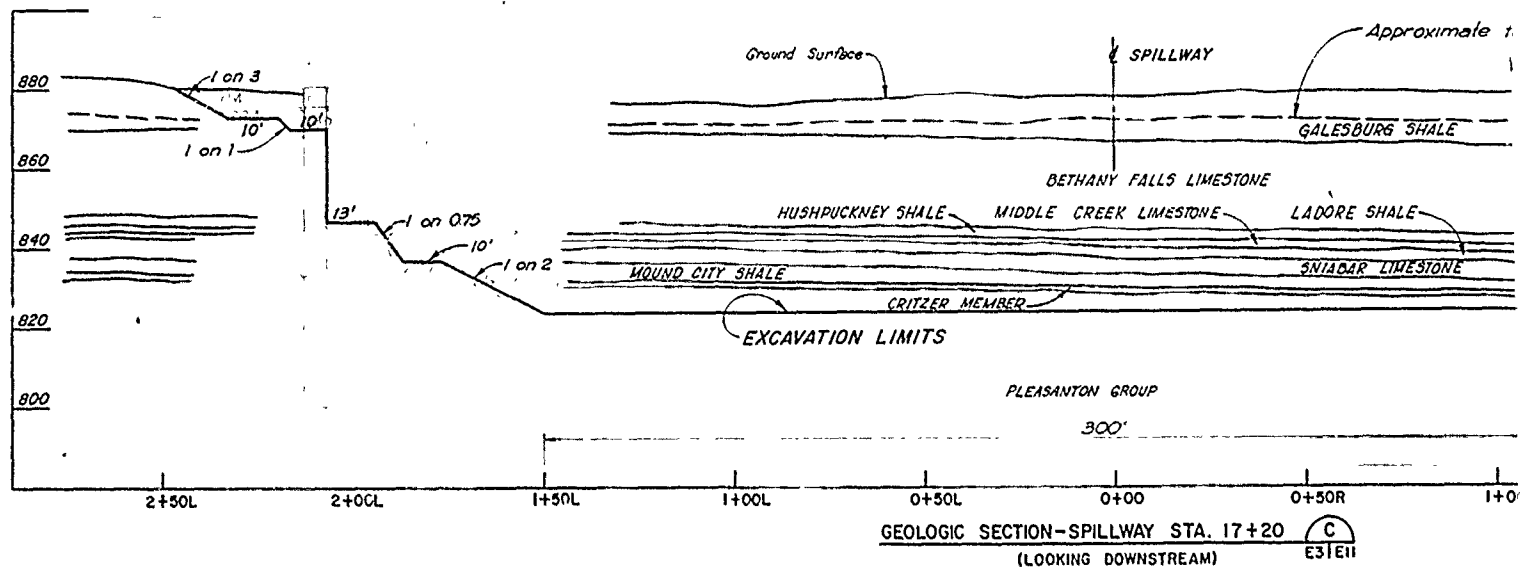
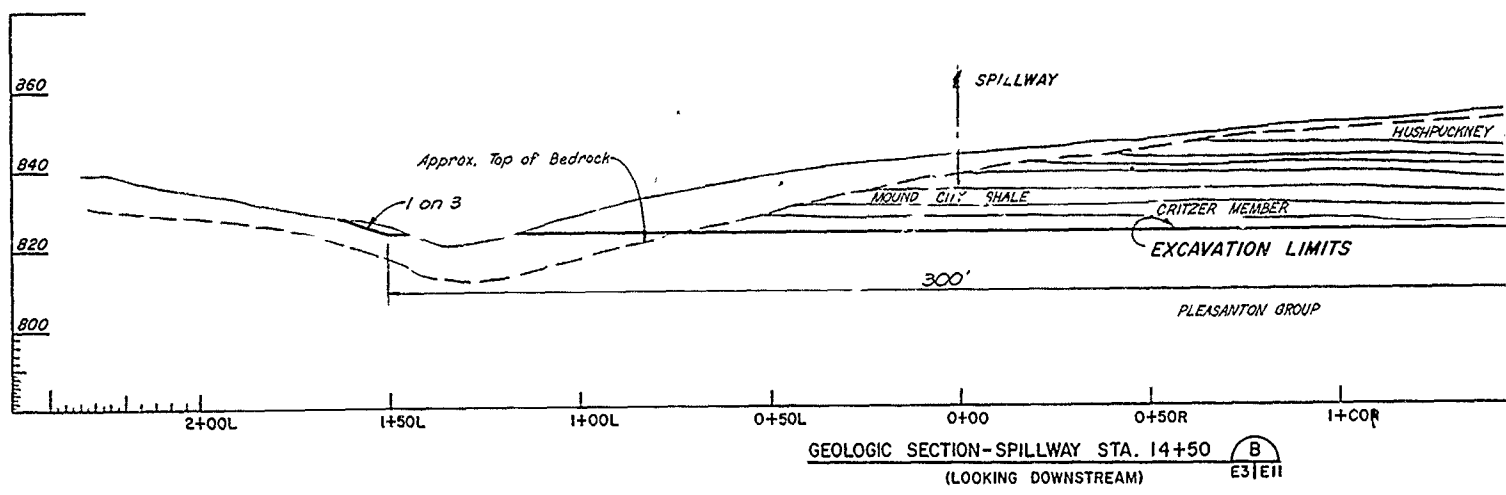
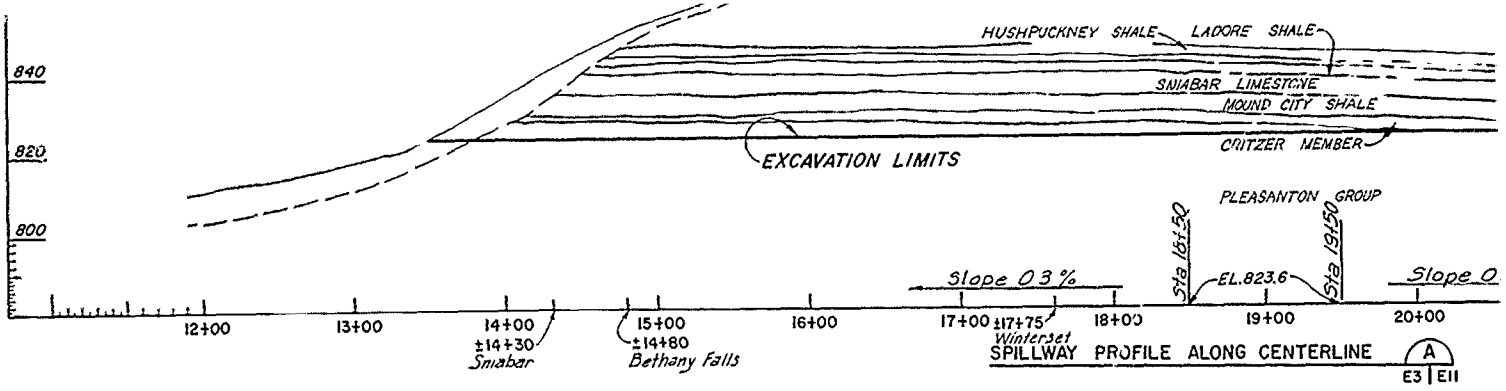
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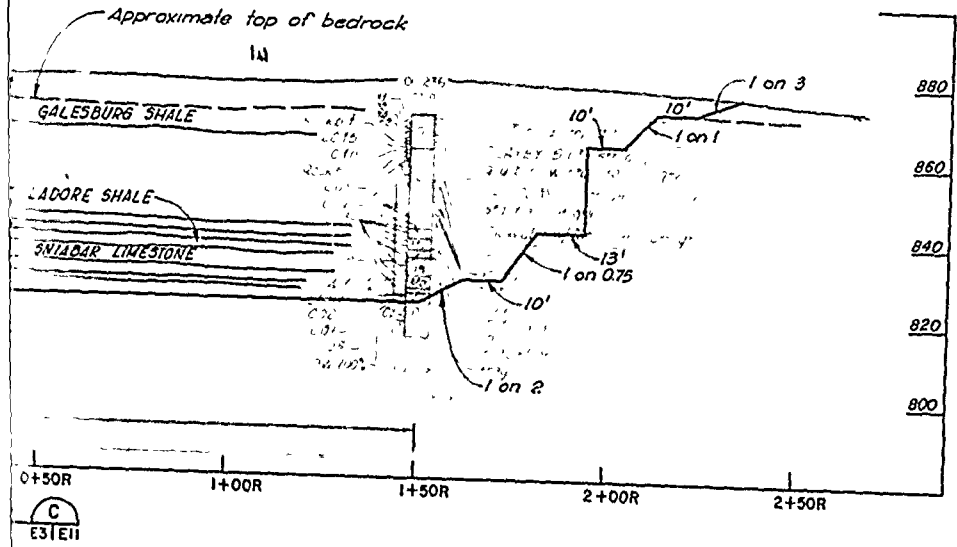
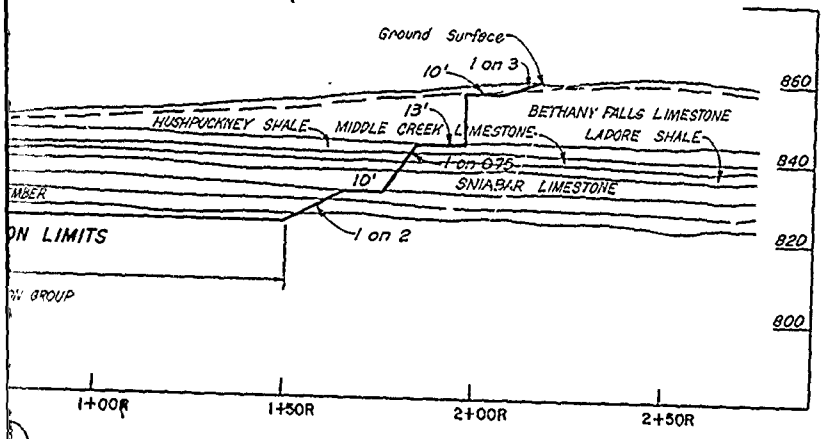
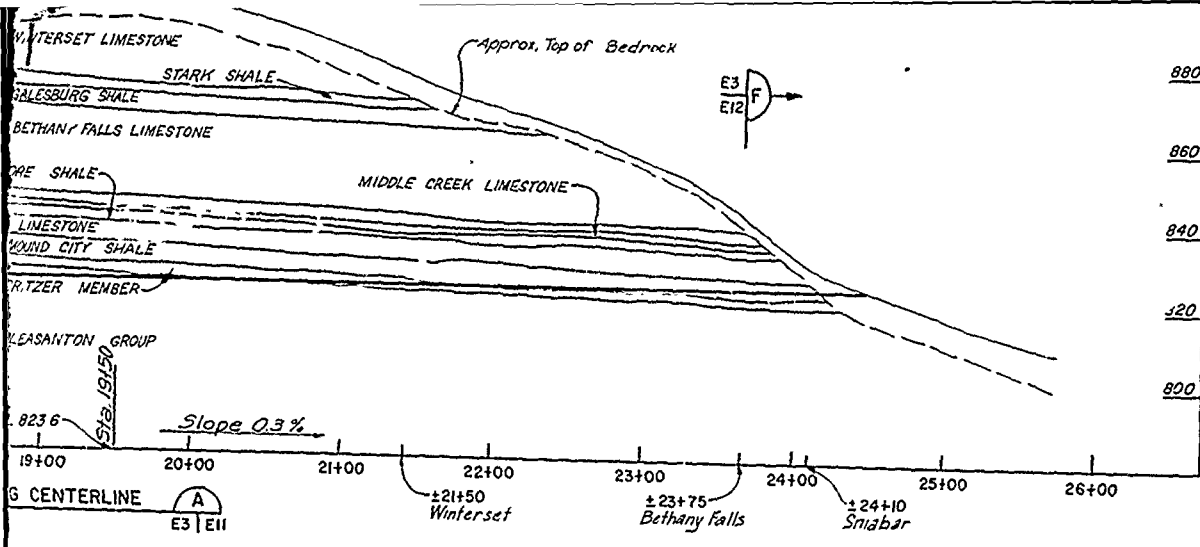
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Sheet number

Date: 26 1960

ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM





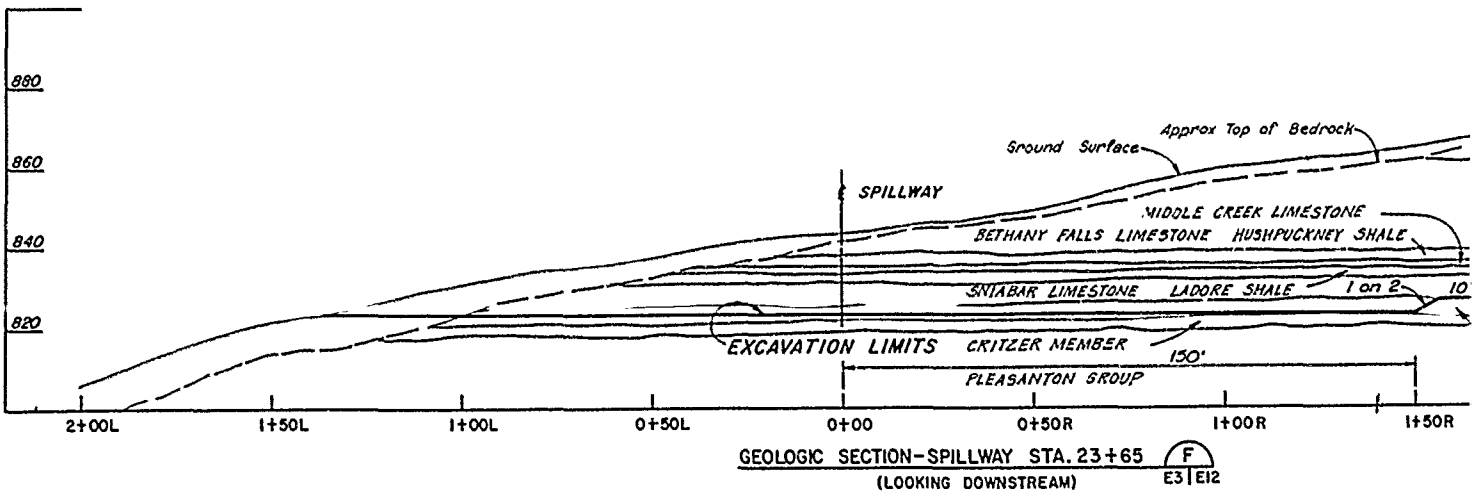
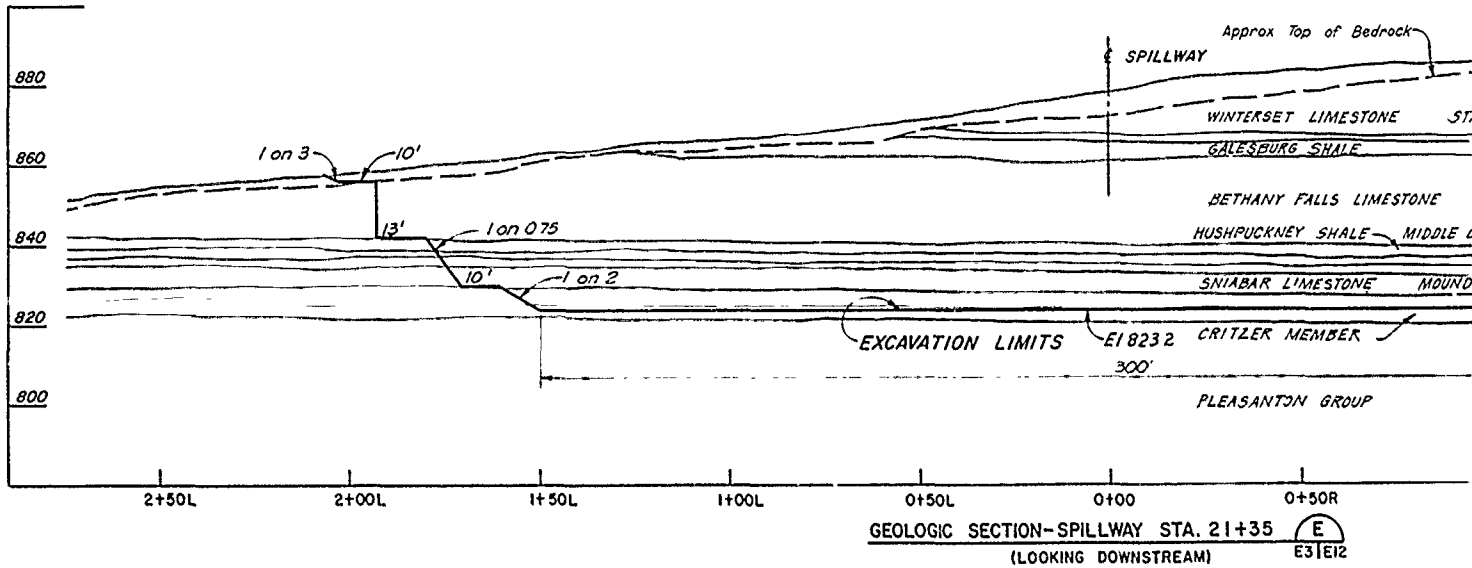
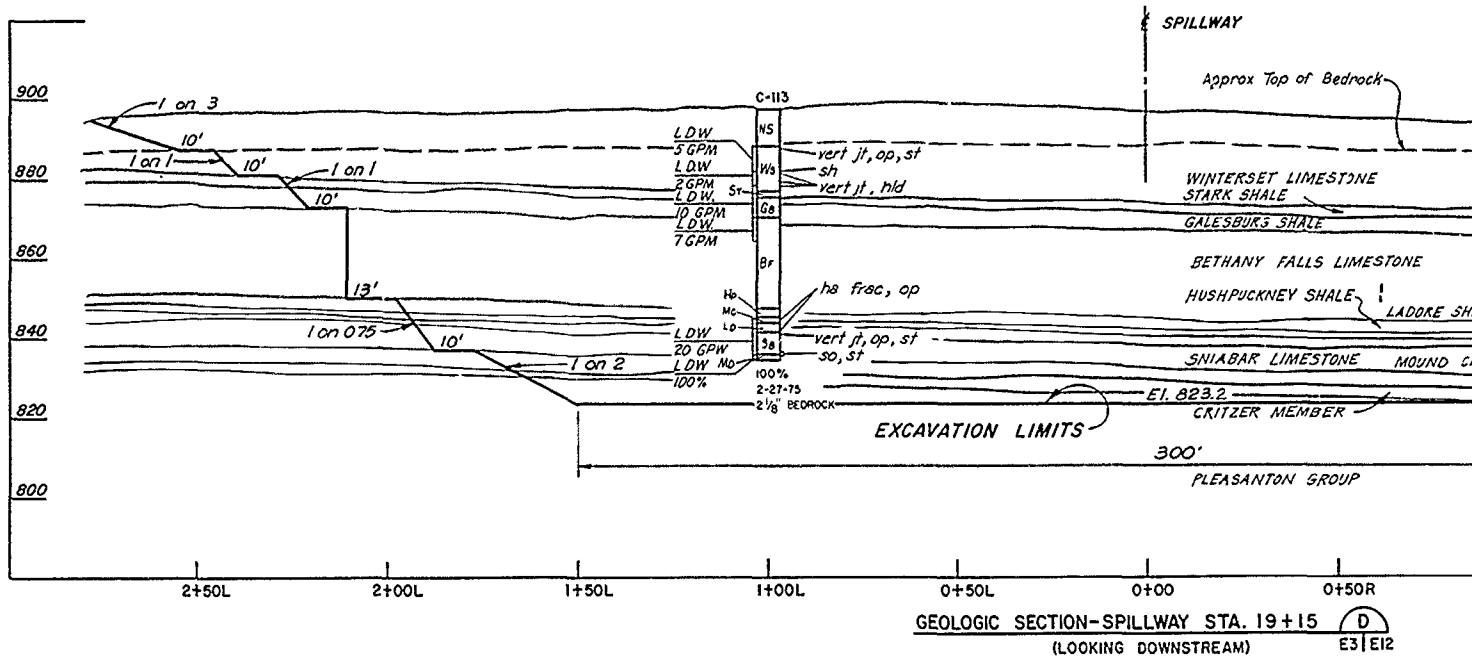
NOTES:
 1 For general geologic column and legend see Dwg E1
 2 For plan of spillway see Dwg. B7.
 3 For location of Borings, see Dwg. E2 & E3.

Revisions			
Symbol	Descriptions	Date	Approved

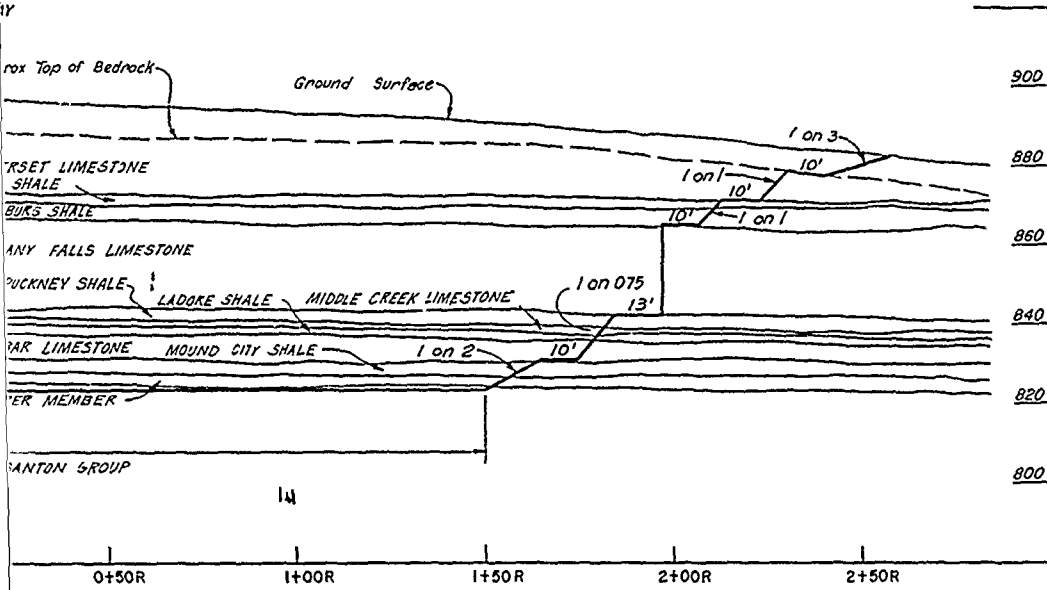
U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	Scale:	AS SHOWN	Sheet number:	36
Drawn by:		Date:	JUNE 1990	Proj. No.:	
Checked by:		Dwg. No.:			
Submitted by:					

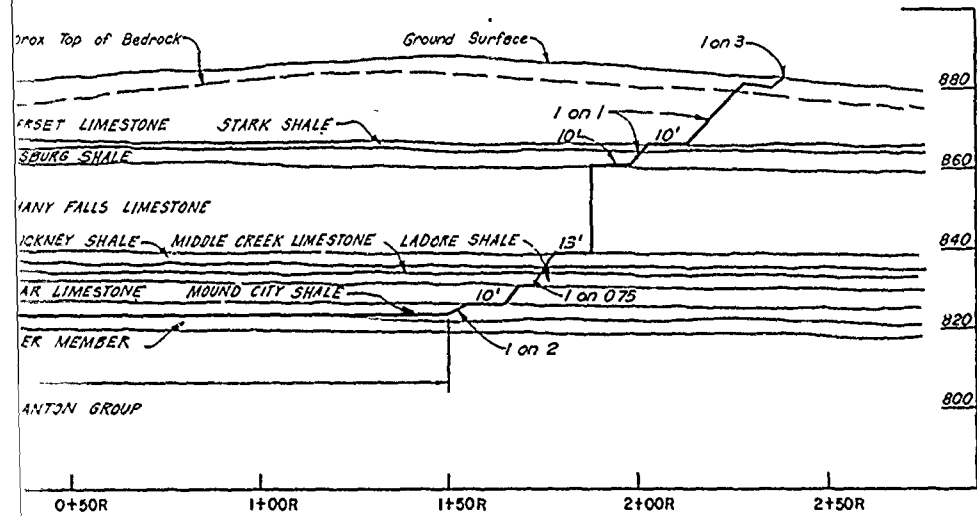
ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929



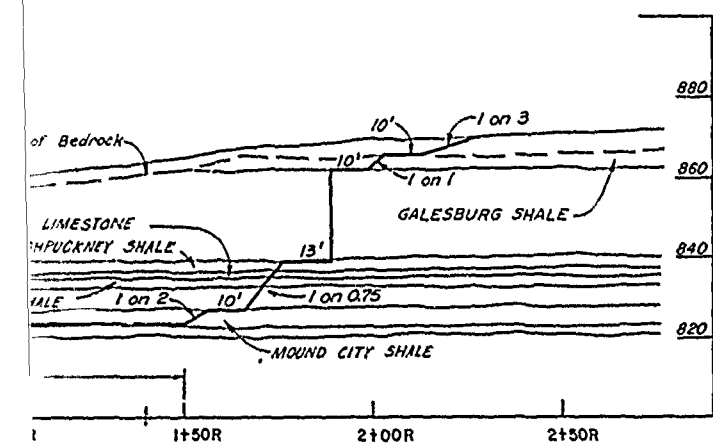
VALUE ENGINEERING PAYS




19+15 **D**
E3|E12



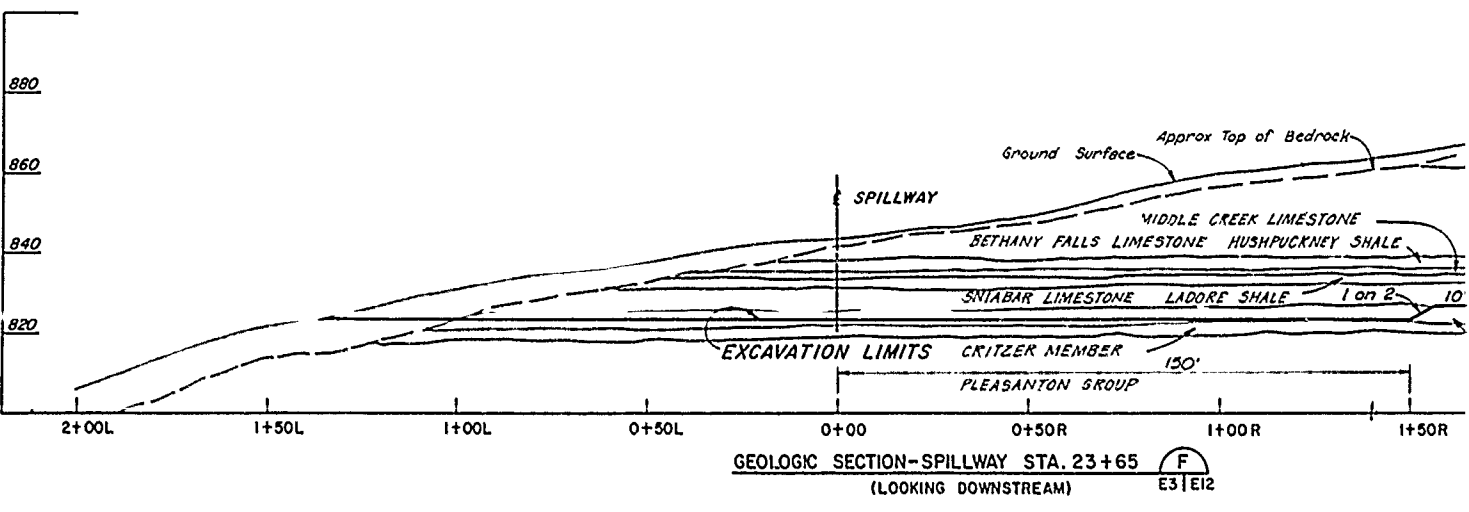
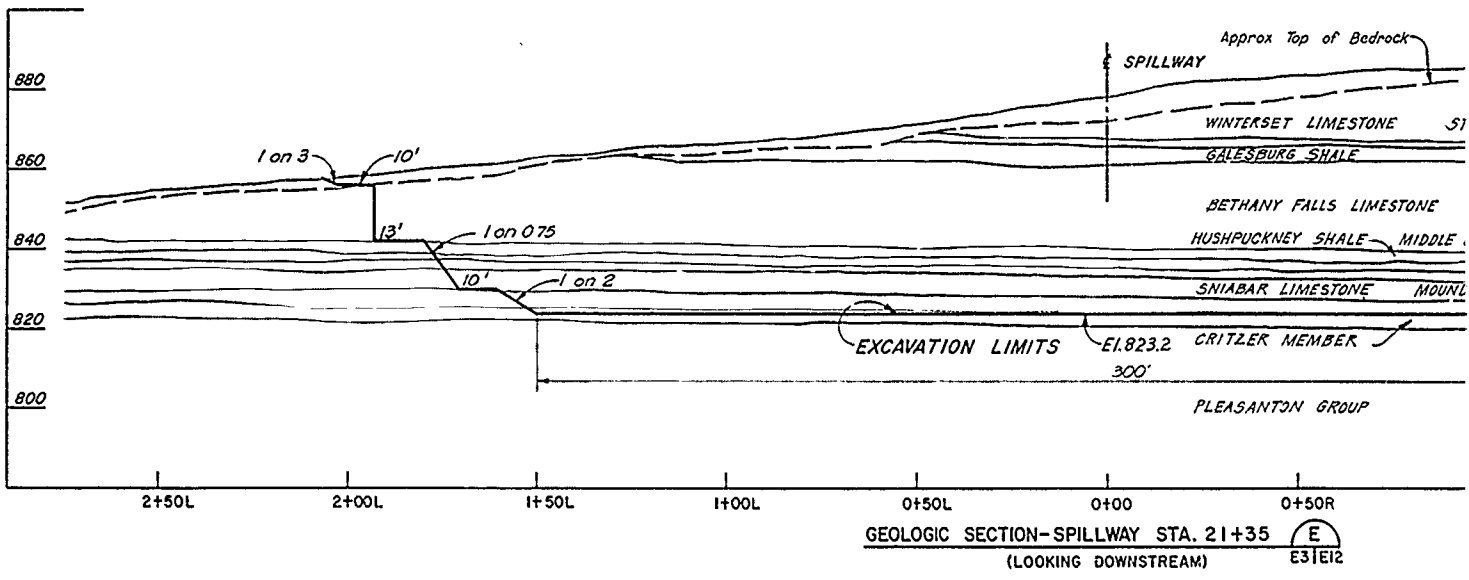
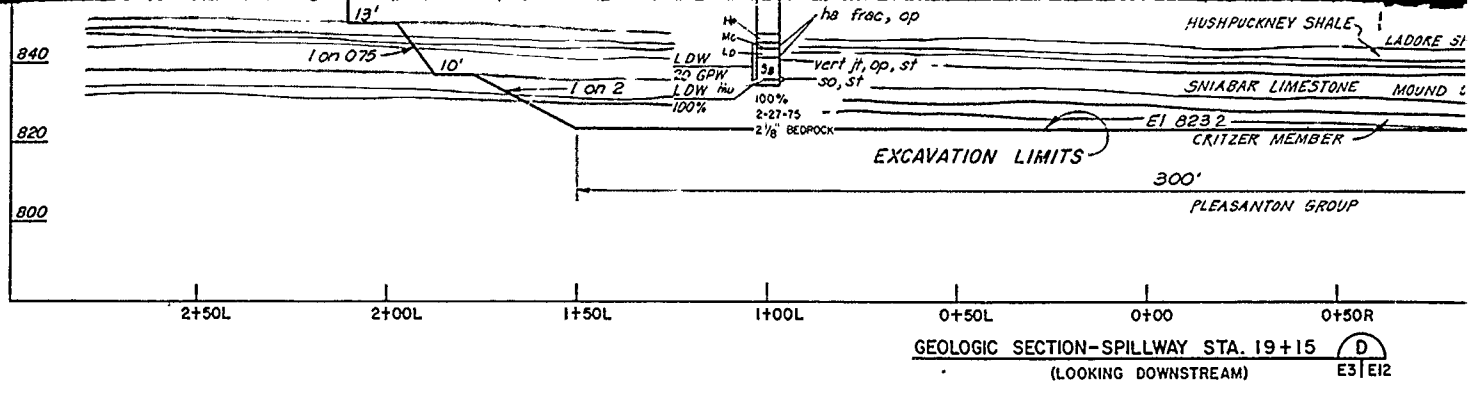
35 **E**
E3|E12

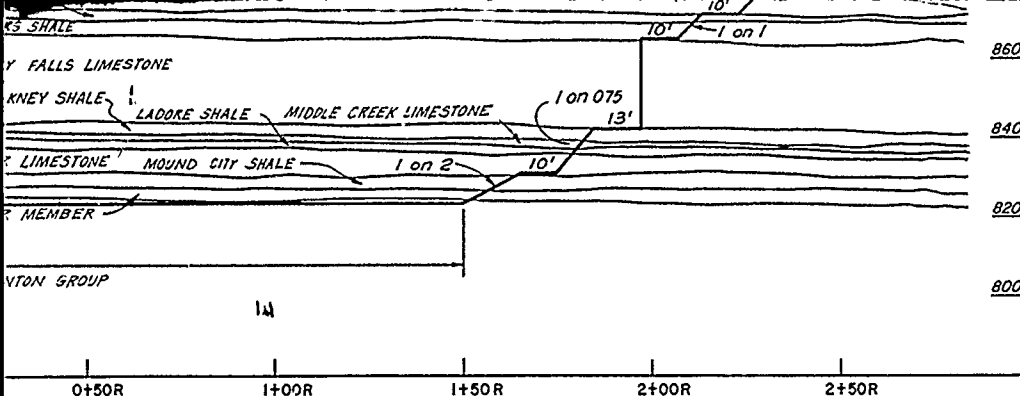


NOTES:
 1. For general geologic column and legend see Dwg. E 1
 2. For plan of spillway see Dwg. B7.
 3. For location of Borings see Dwg. E2 & E3.

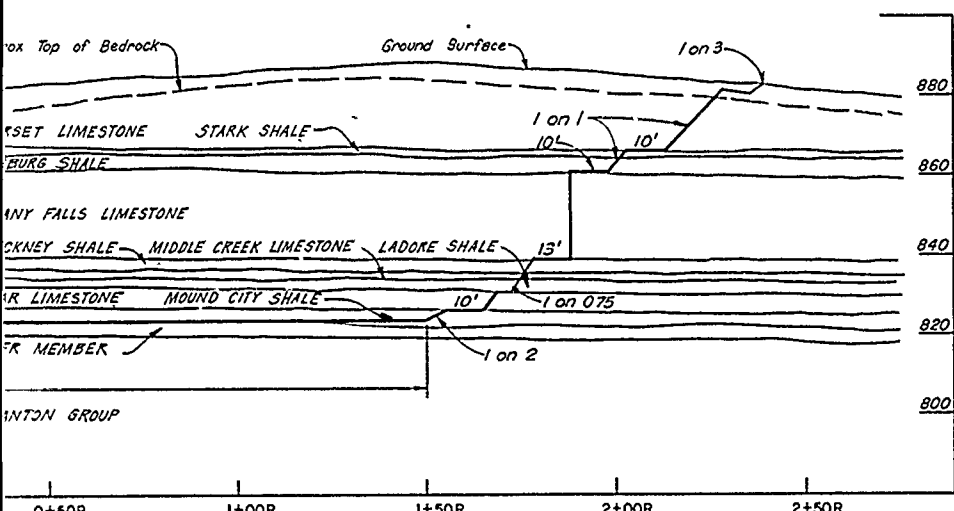
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	SPILLWAY SECTIONS, GEOLOGY AND EXCAVATION LIMITS	
Drawn by:			
Checked by:			
Scale:	AS SHOWN	Sheet	

ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM

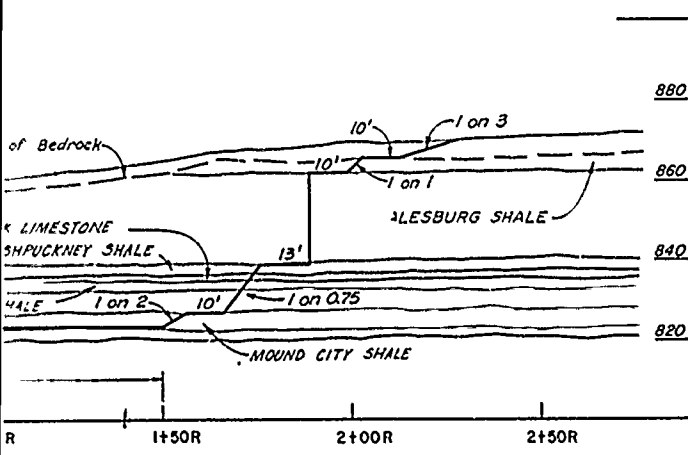




19+15 **D**
E3|E12




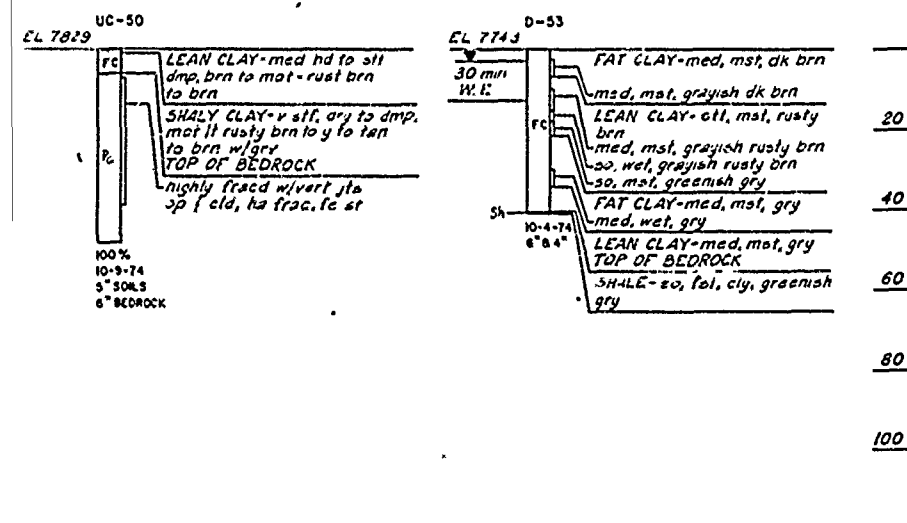
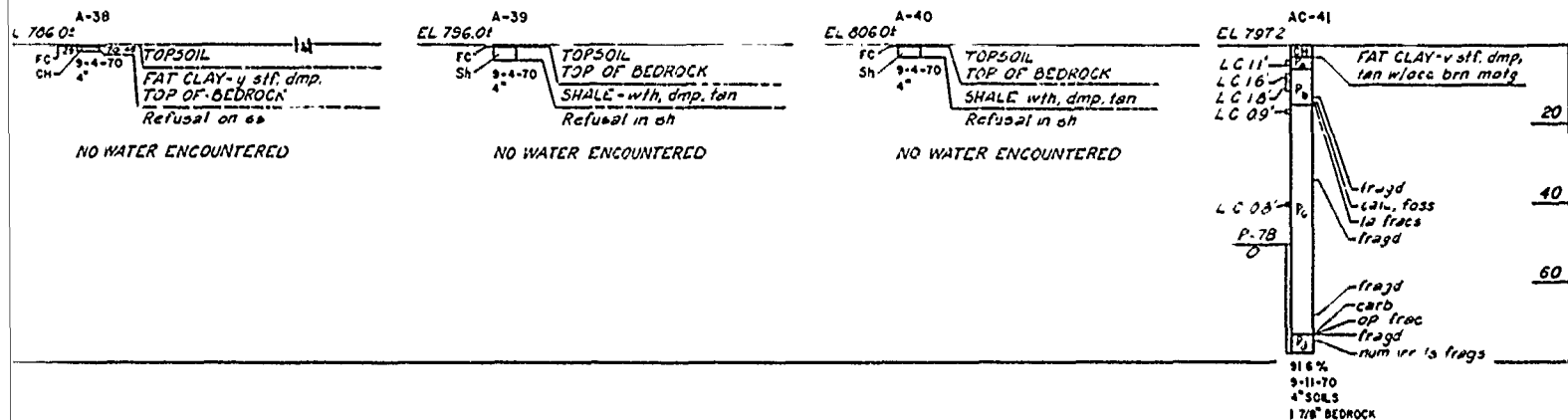
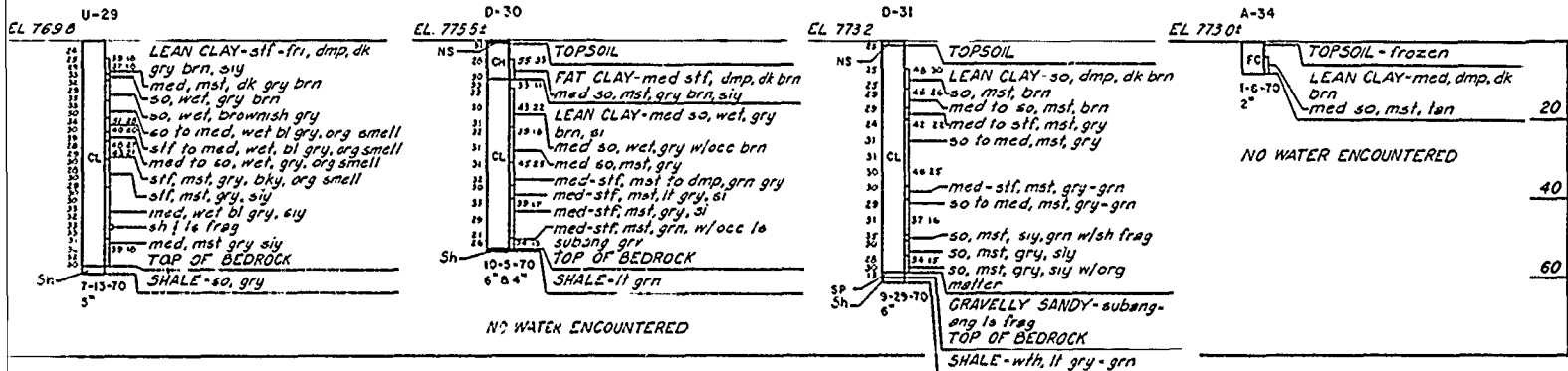
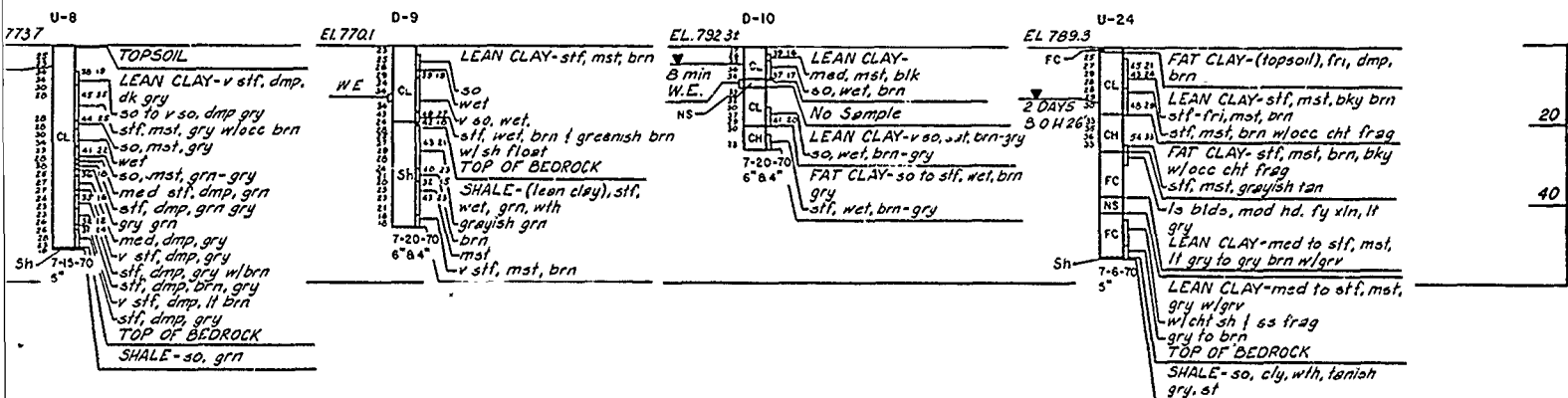
35 **E**
E3|E12



14

NOTES:
 1. For general geologic column and legend see Dwg. E 1
 2. For plan of spillway see Dwg. B7.
 3. For location of Borings see Dwgs E2 & E3.

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT SPILLWAY SECTIONS, GEOLOGY AND EXCAVATION LIMITS	Scale:	AS SHOWN
Drawn by:		Date:	JUNE 1990
Checked by:		Sheet number:	37
Submitted by:		Dwg. No.:	RBL-2-1257



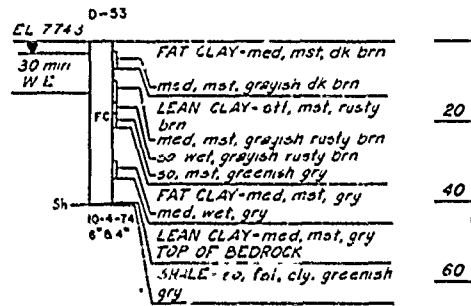
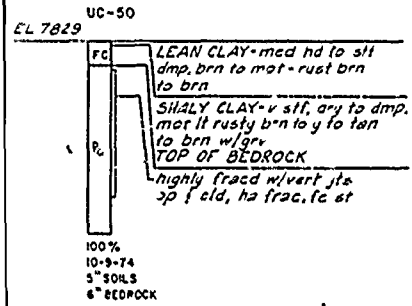
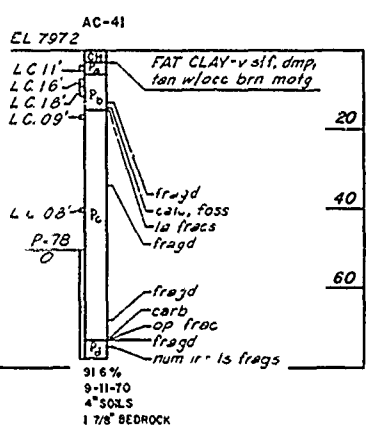
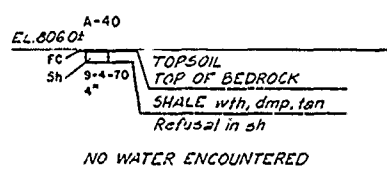
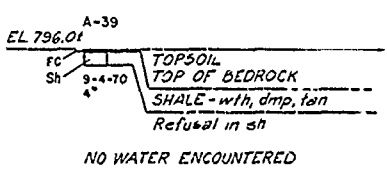
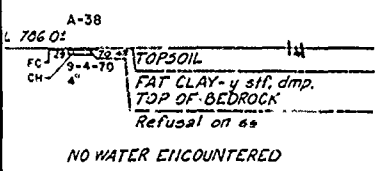
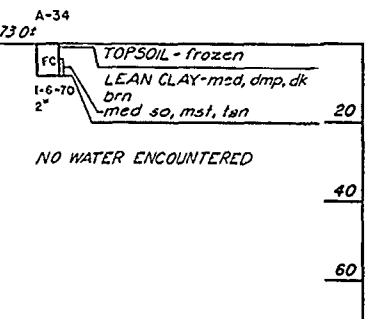
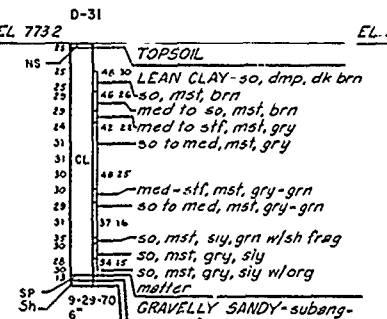
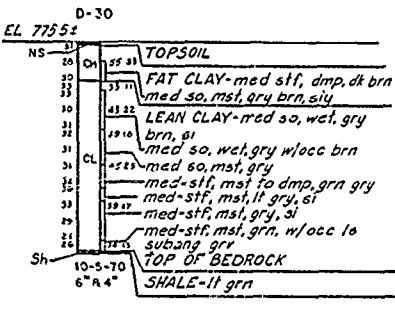
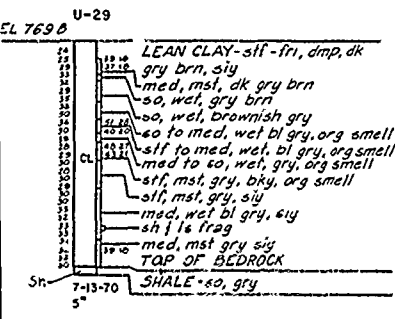
NOTES
 1 For General Geologic Column and Legend, see Divg E-1
 2 For location of borings, see Dwg. E-2, E-3, and E-4.

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

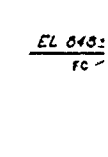
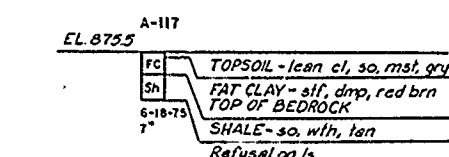
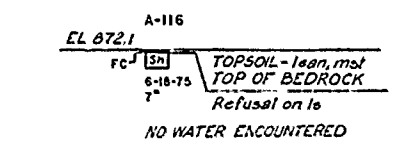
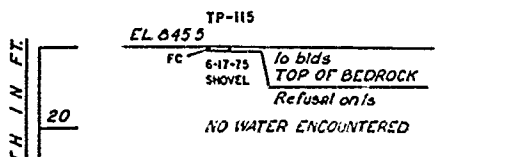
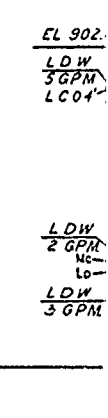
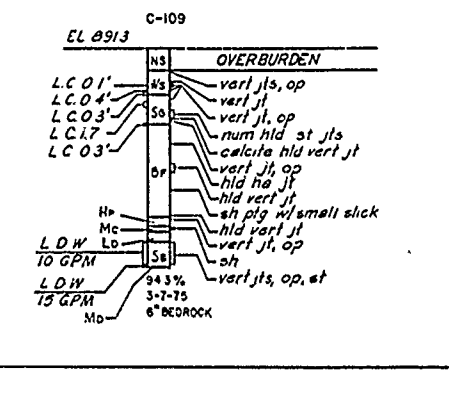
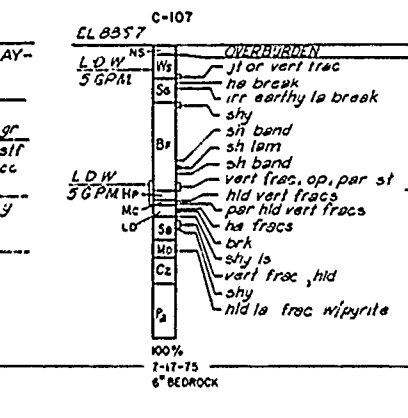
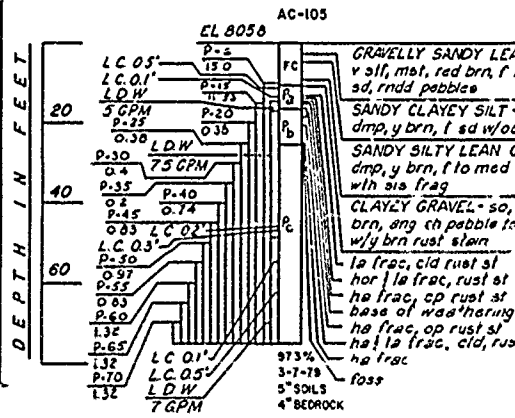
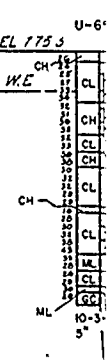
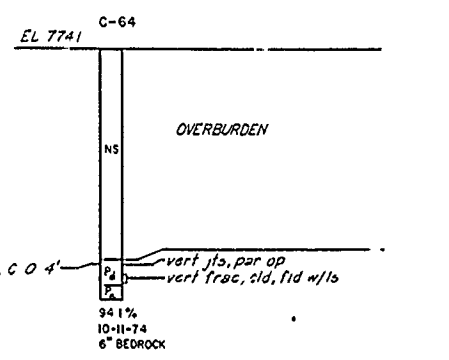
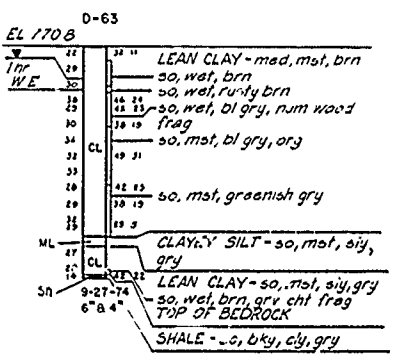
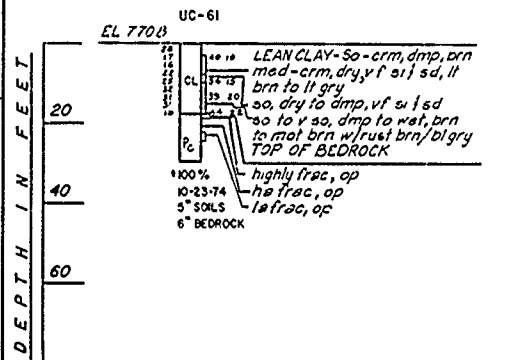
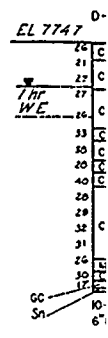
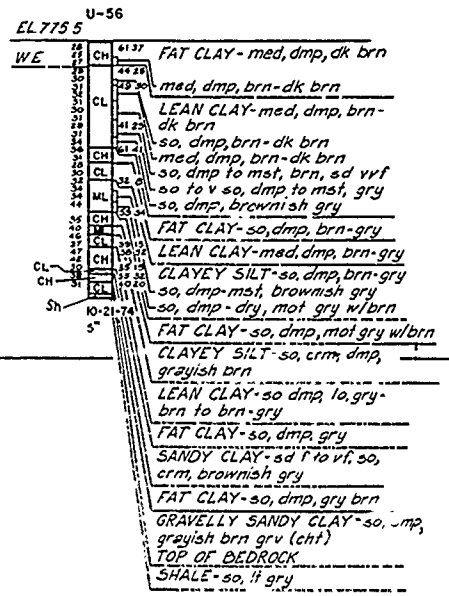
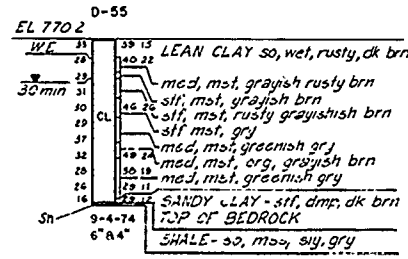
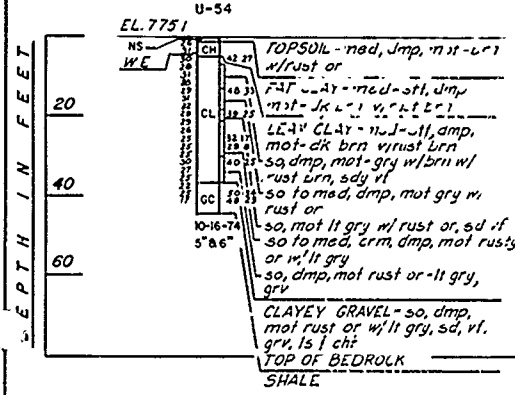
sst, dmp, gry w/brn
sst, dmp, brn, gry
v sst, dmp, lt brn
sst, dmp, gry
TOP OF BEDROCK
SHALE - so, grn

lt gry to gry brn w/grv
LEAN CLAY-med to sst, mst,
gry w/grv
w/cht sh / ss frag
gry to brn
TOP OF BEDROCK
SHALE - so, cly, wth, tanish
gry, st



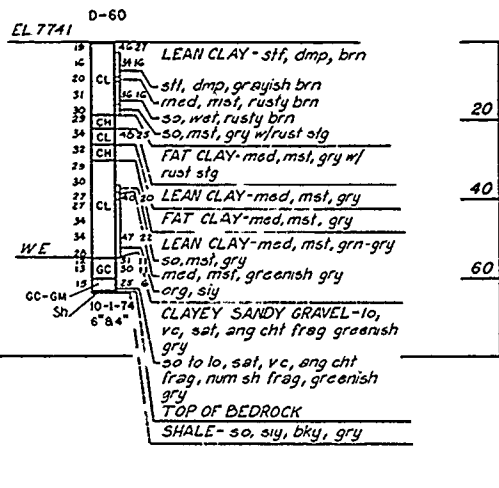
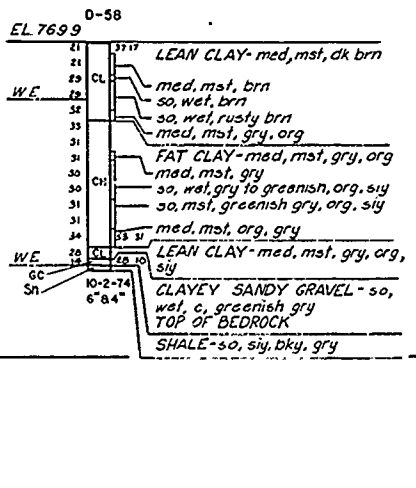
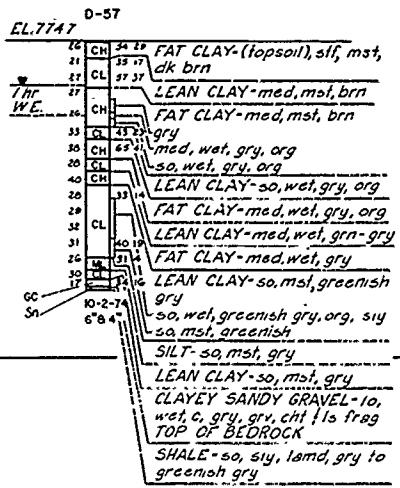
NOTES
1 For General Geologic Column and Legend, see Dwg E-1
2 For location of borings, see Dwg E-2, E-3 and E-4

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:	LOGS OF DETACHED BORINGS NOS. 2 THROUGH 53		
Checked by:	Scale: AS SHOWN	Sheet Number: 38	
Submitted by:	Date: JUNE 1990		
	Dwg. No.:		File No. RBL-2-1258

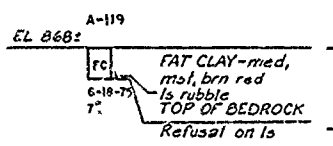
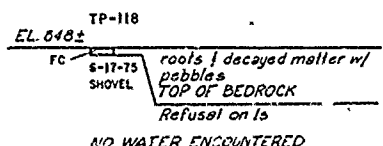
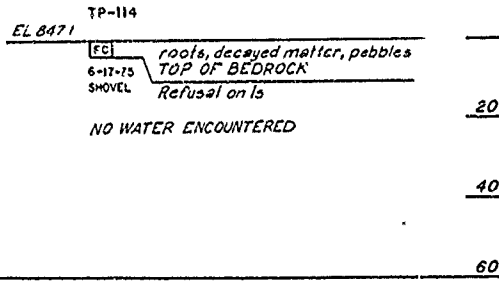
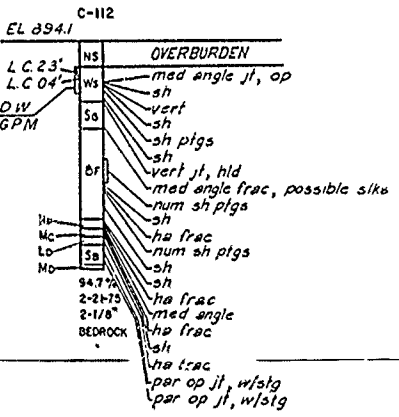
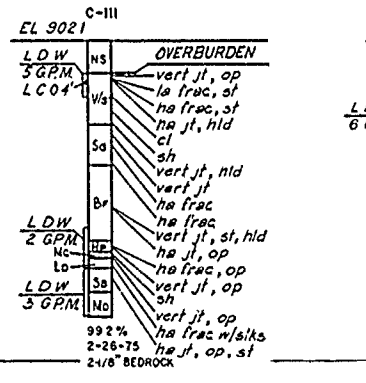
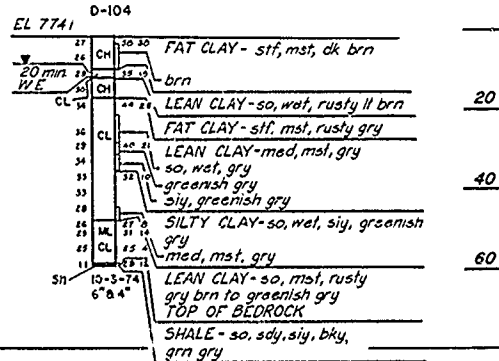
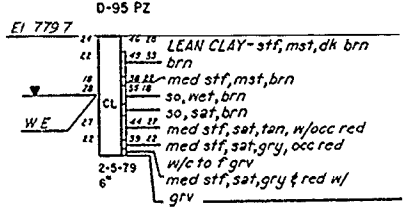
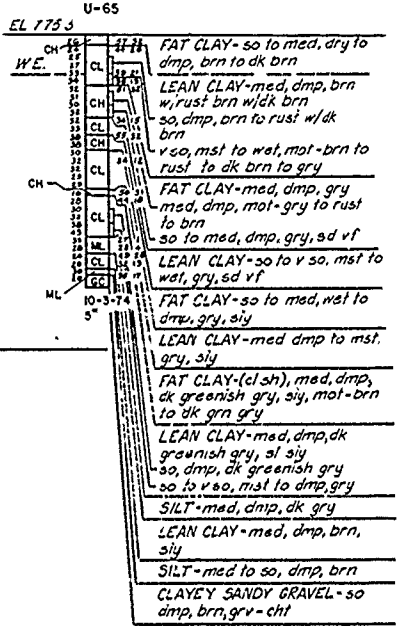


ERING PAYS

- dk brn
- brn
- mp, brn-
- brn
- sd vrf
- st, gry
- gry
- brn-gry
- mp, brn-gry
- sh gry
- gry w/brn
- mol gry w/brn
- mp, dmp,
- lo, gry-
- gry
- so, v, so,
- gry brn
- AY-so, dmp,



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NOTES:
 1 For General Geologic Column and Legend see Dwg. E-1.
 2. For location of borings see Dwg. E-2, E-3, and E-4.

Revisions			
Symbol	Descriptions	Date	Approved

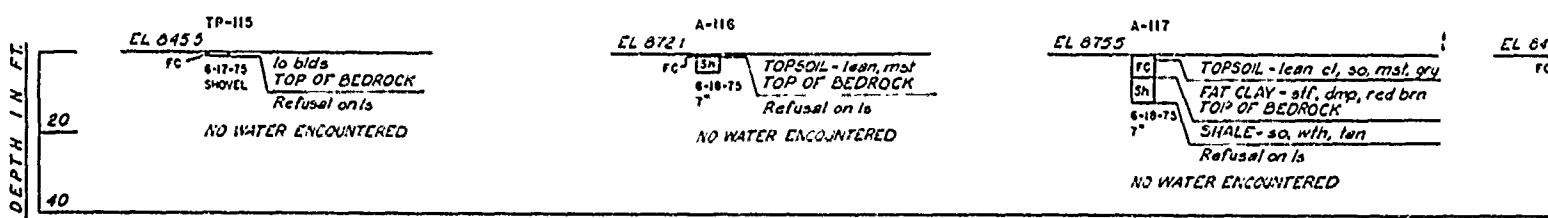
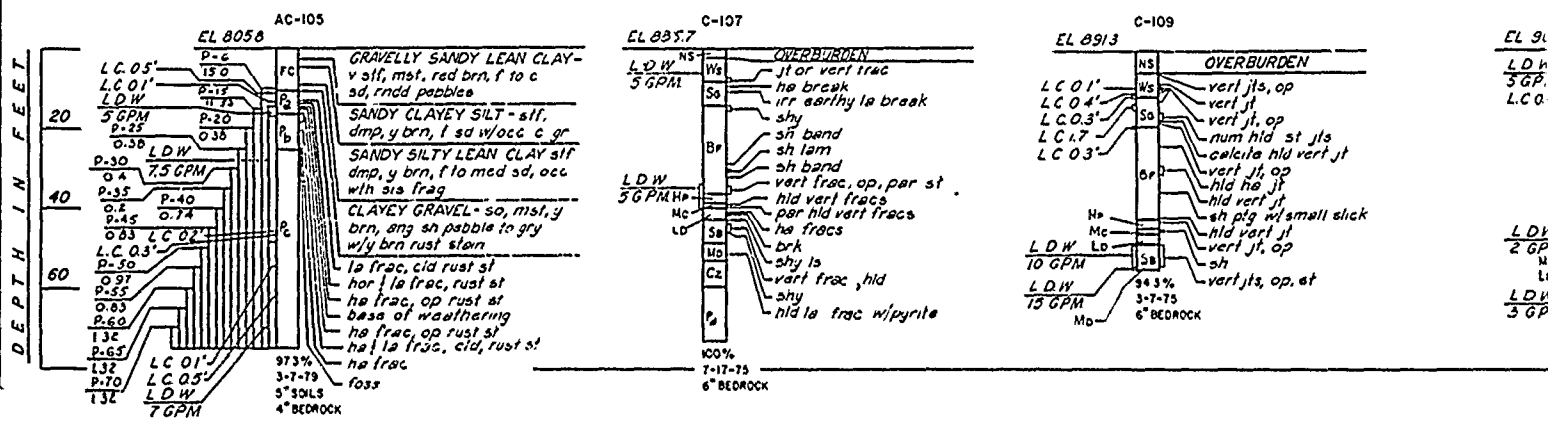
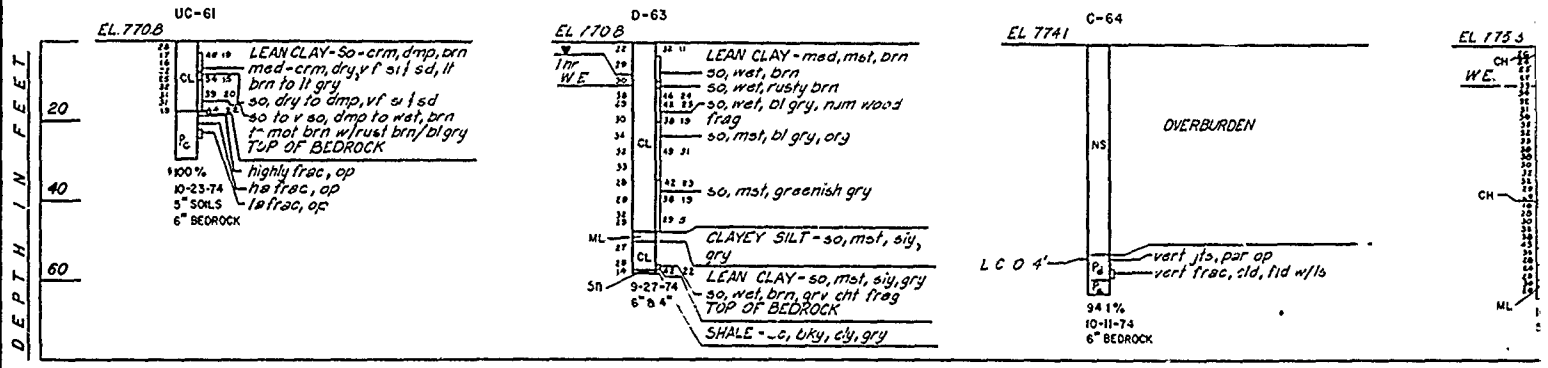
U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

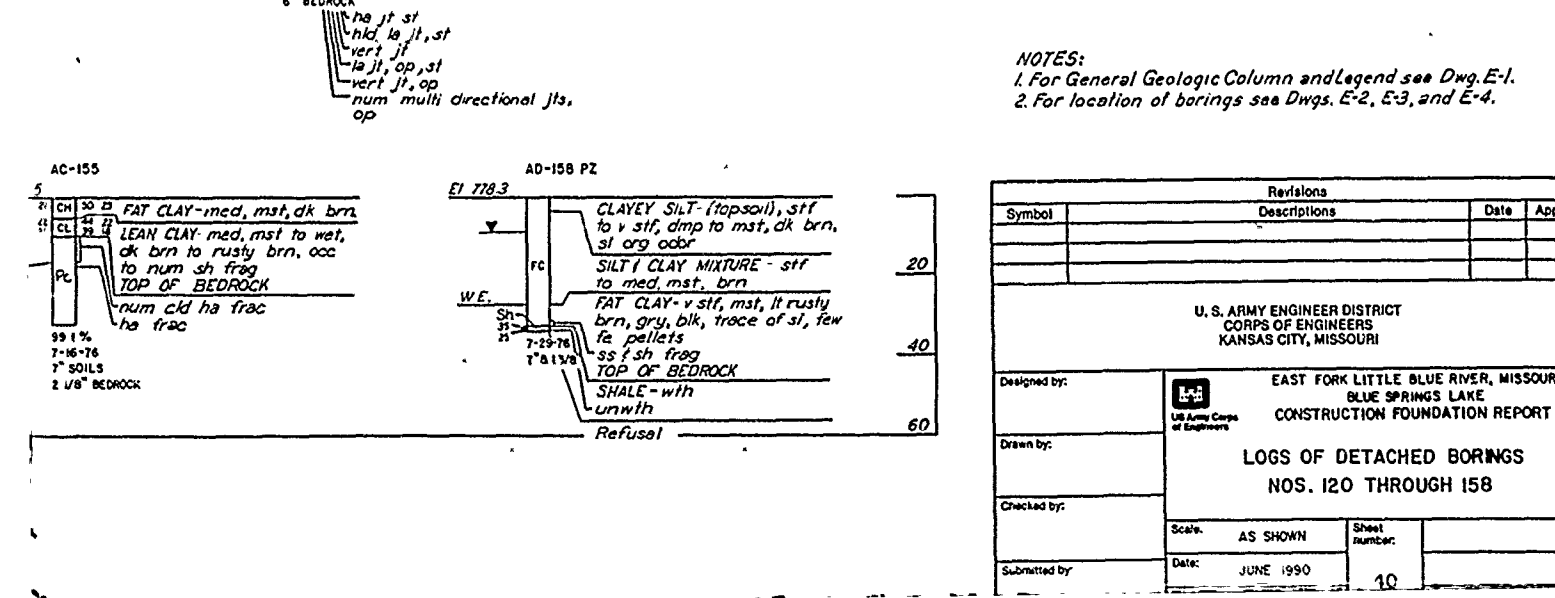
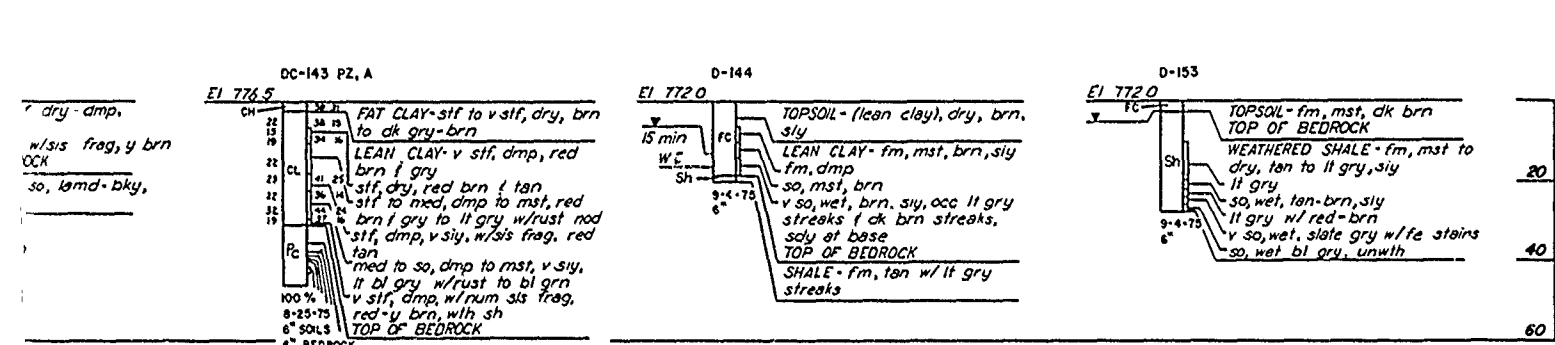
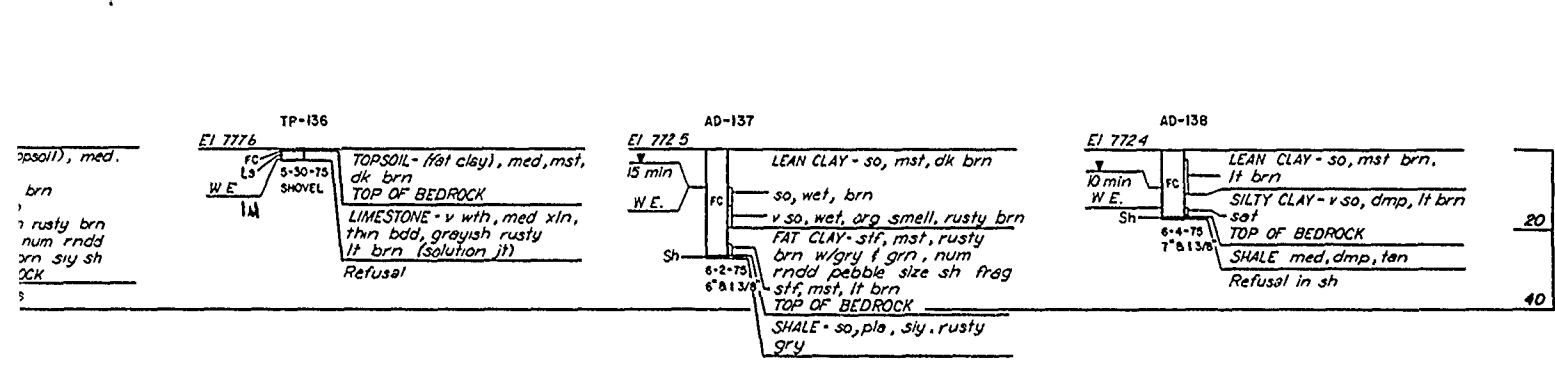
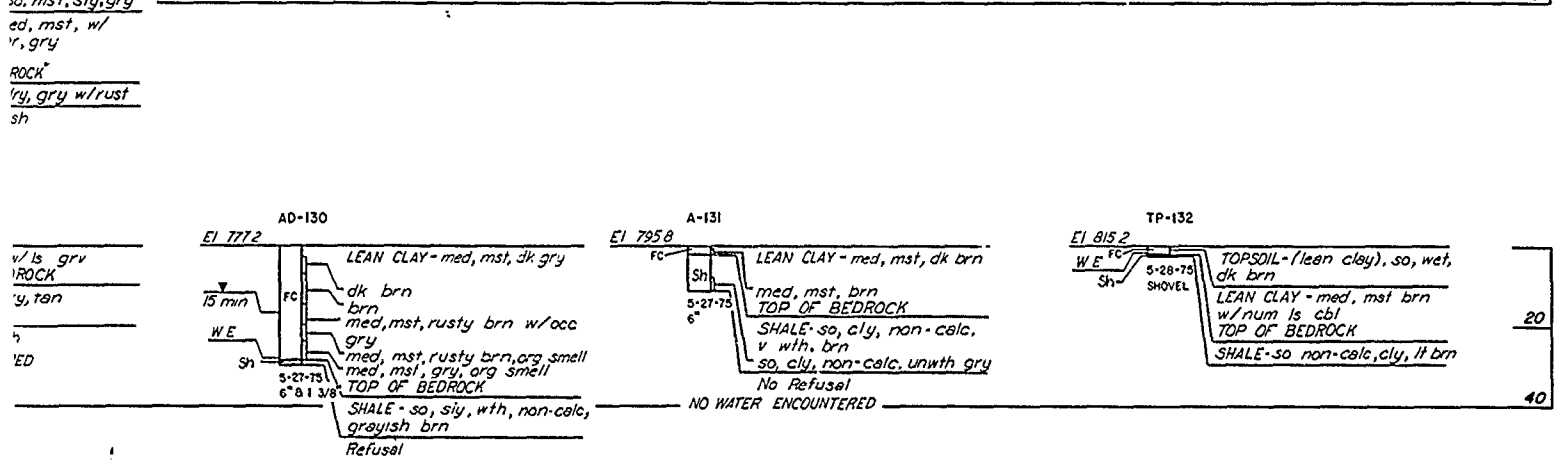
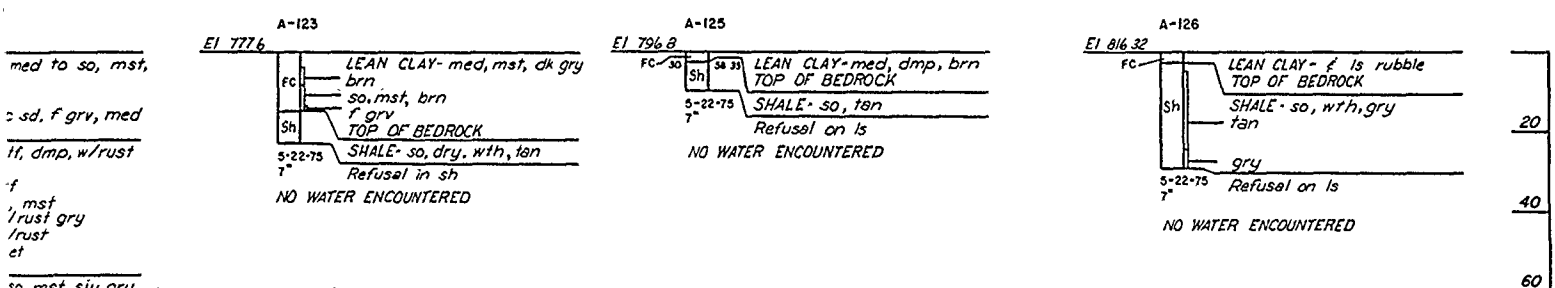
Designed by: EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE
 CONSTRUCTION FOUNDATION REPORT

Drawn by: **LOGS OF DETACHED BORINGS
 NOS. 54 THROUGH 119**

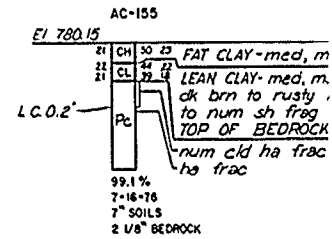
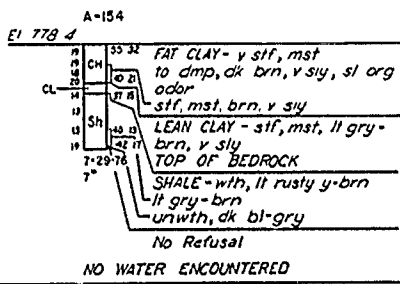
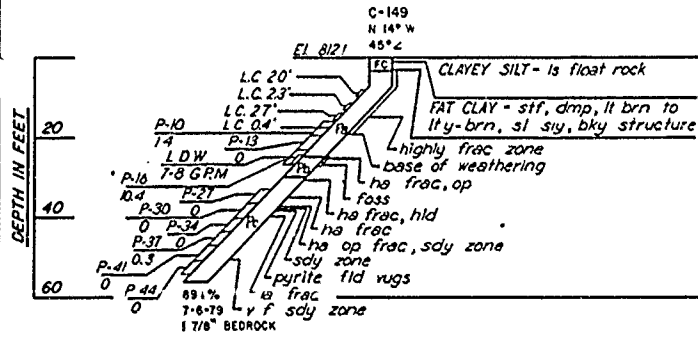
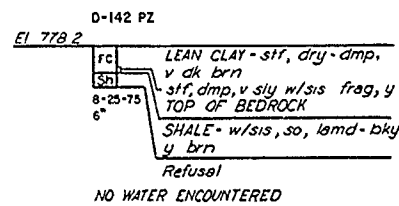
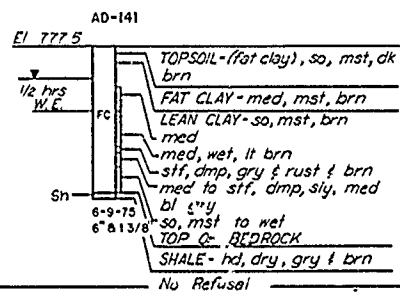
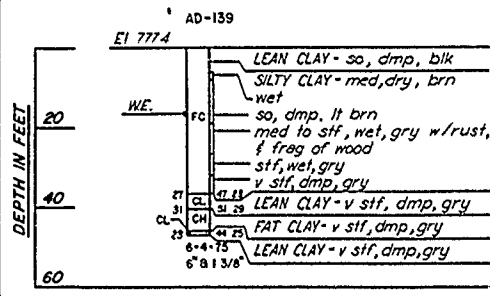
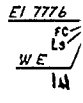
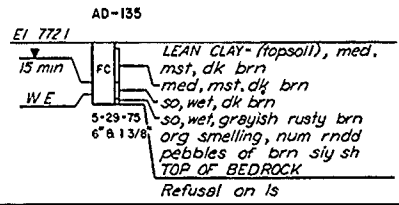
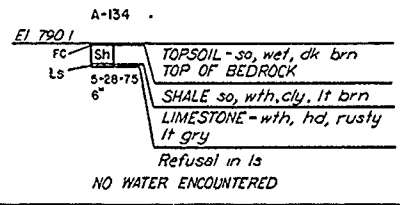
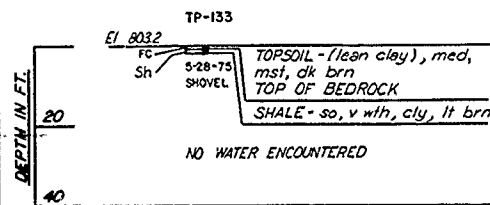
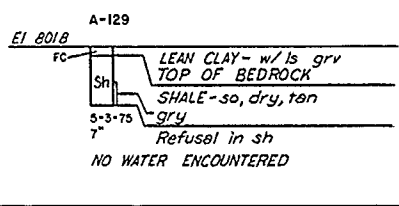
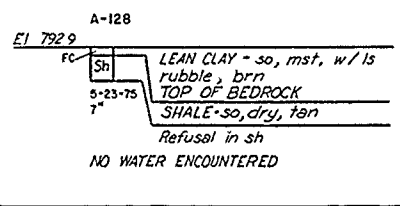
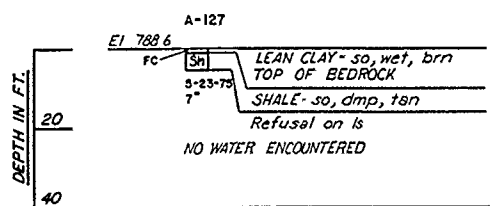
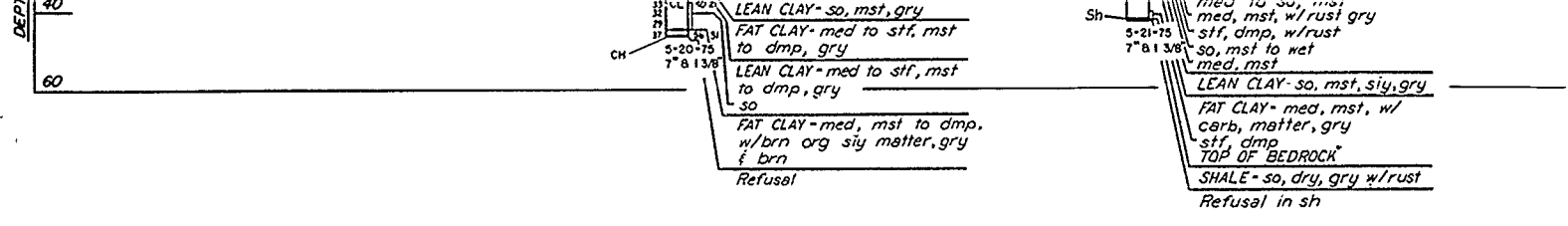
SHALE

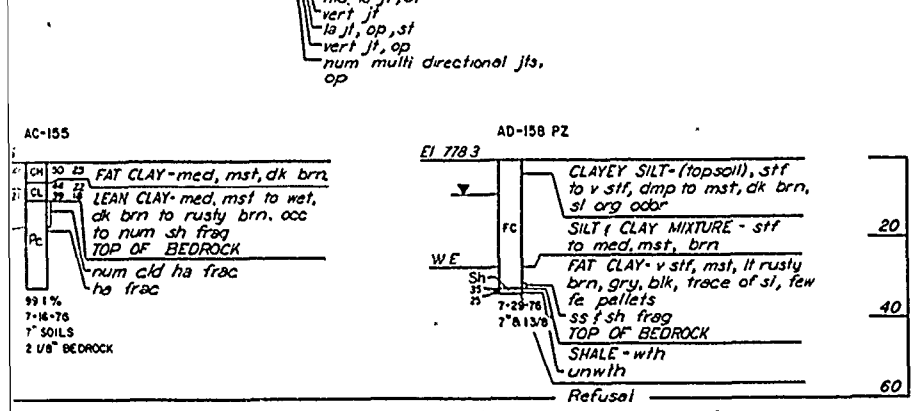
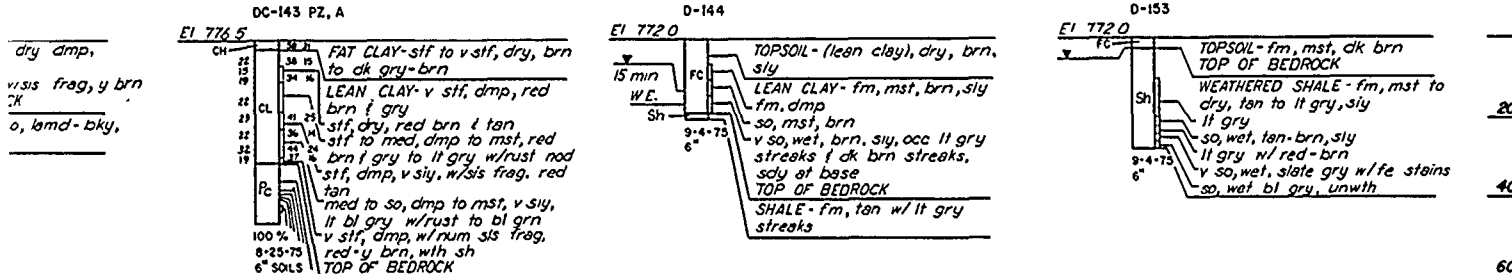
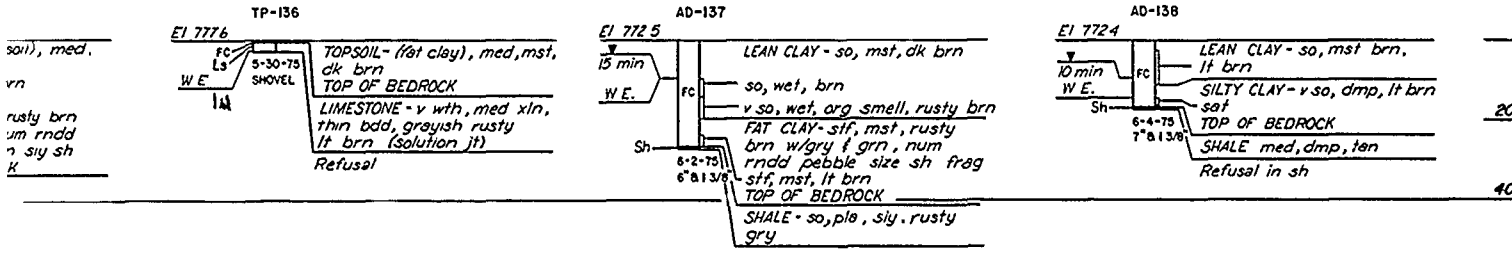
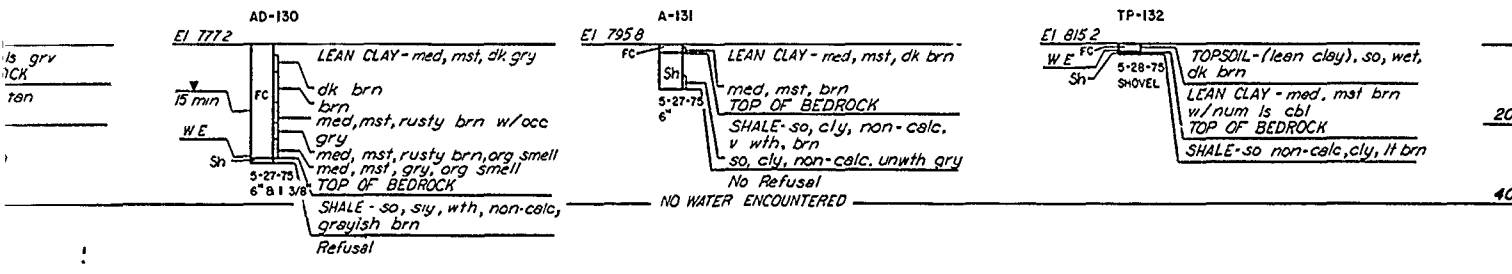
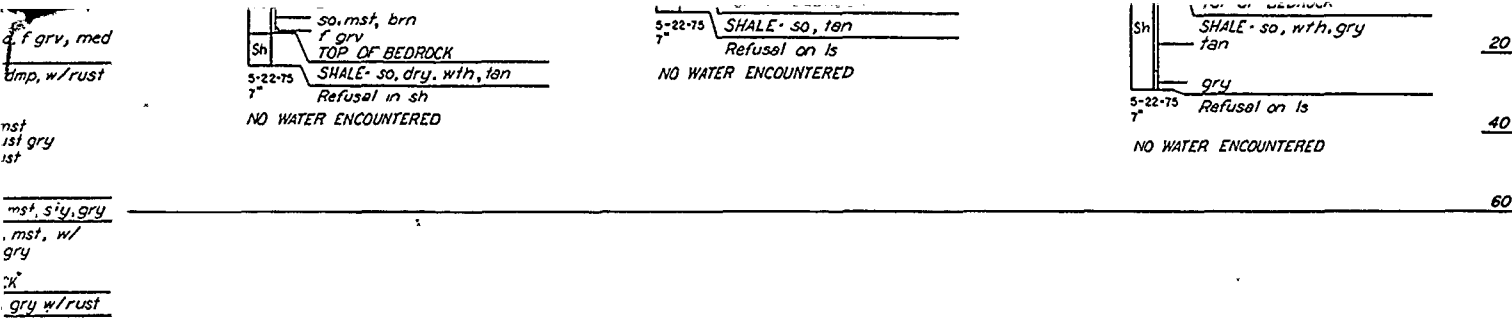
LEAN CLAY - so, crm, dmp, grayish brn
 LEAN CLAY - so dmp, lo, gry-brn to brn-gry
 FAT CLAY - so, dmp, gry
 SANDY CLAY - sd f to vf, so, crm, brownish gry
 FAT CLAY - so, dmp, gry brn
 GRAVELLY SANDY CLAY - so, dmp, grayish brn, gry (cht)
 TOP OF BEDROCK
 SHALE - so, lf gry






NOTES:
1. For General Geologic Column and Legend see Dwg. E-1.
2. For location of borings see Dwg. E-2, E-3, and E-4.

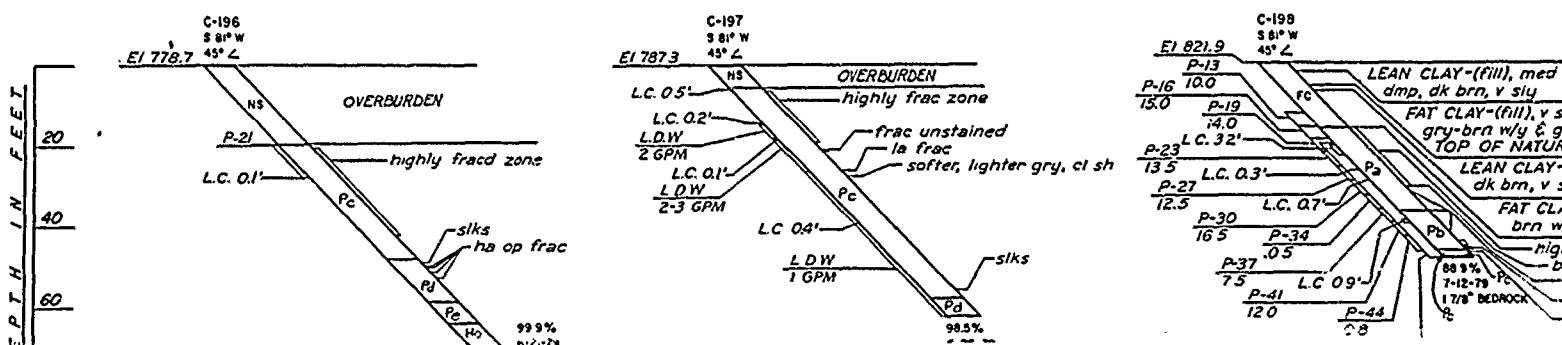
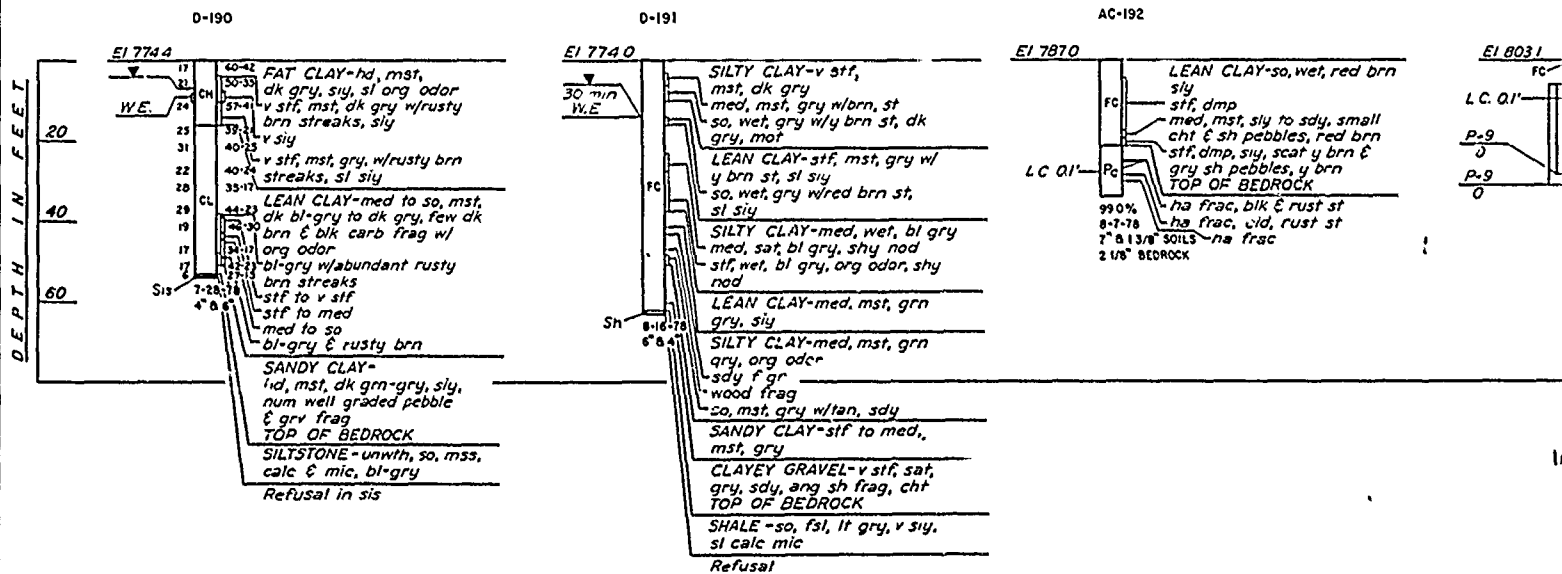
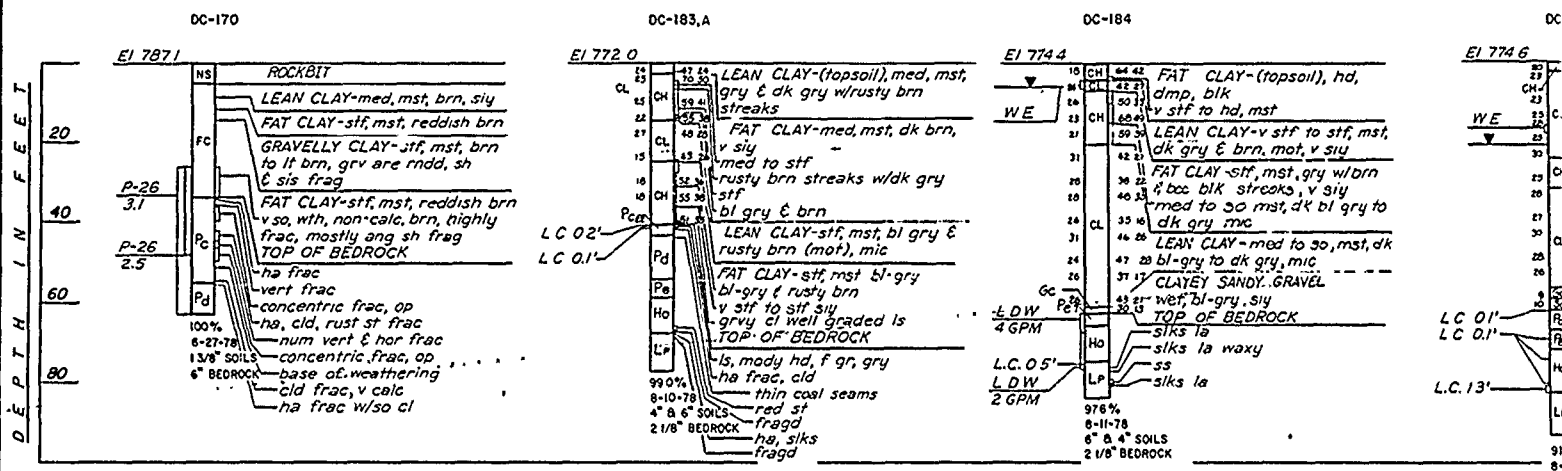
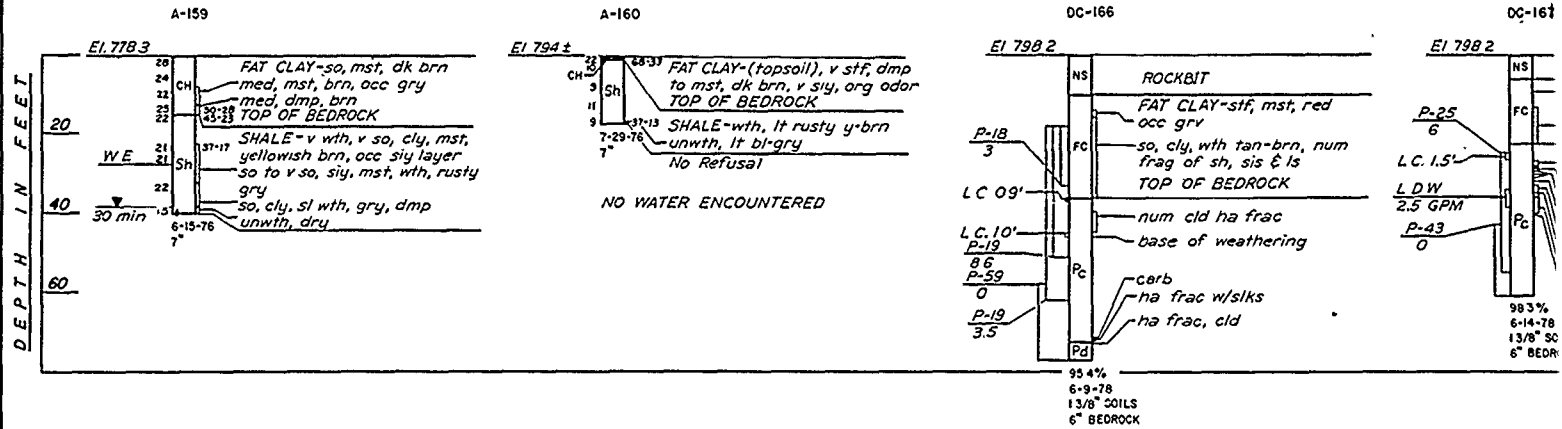


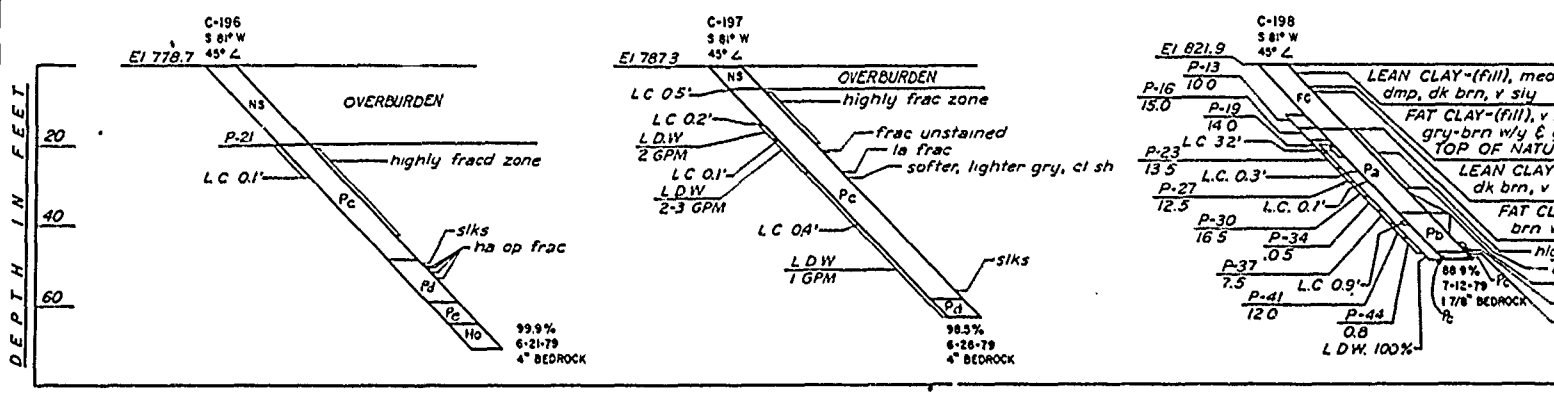
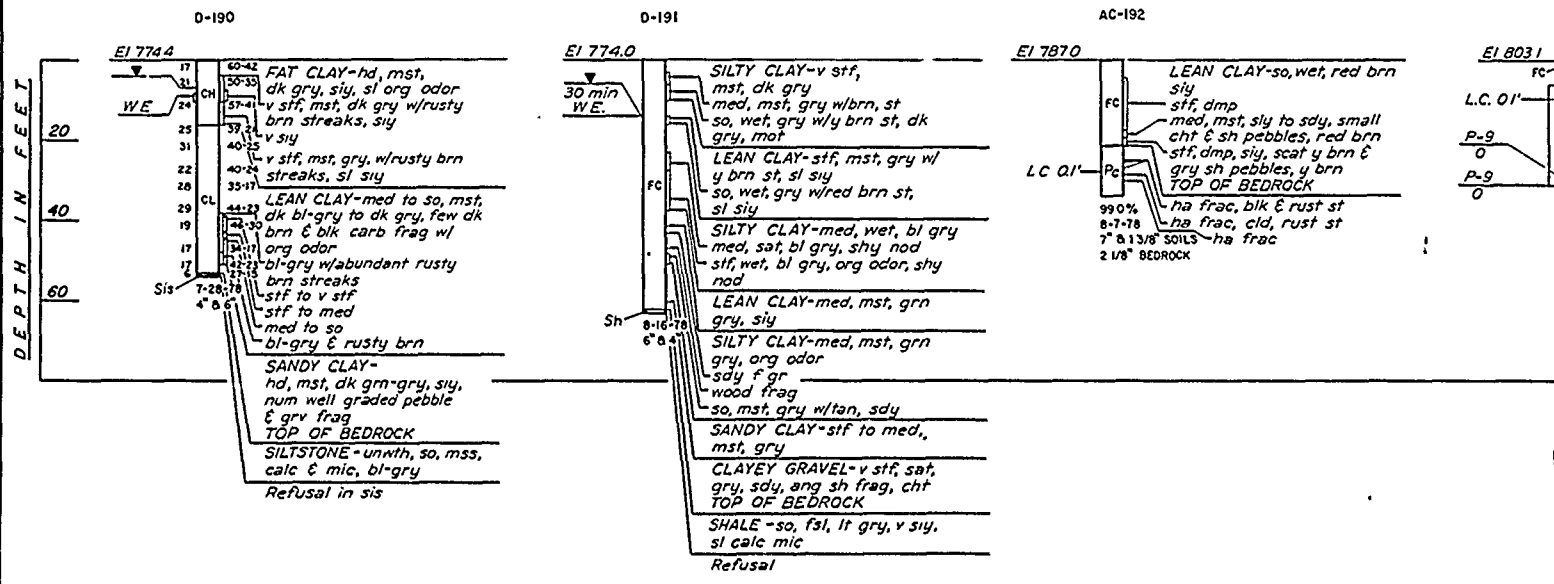
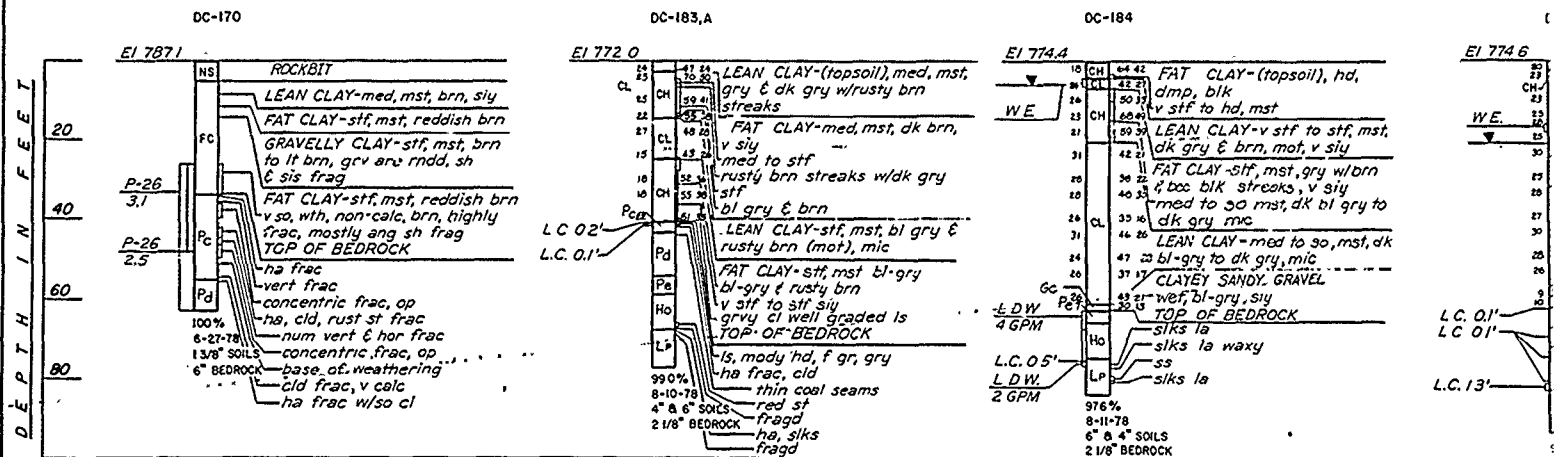


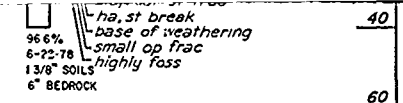
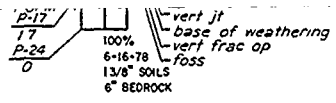
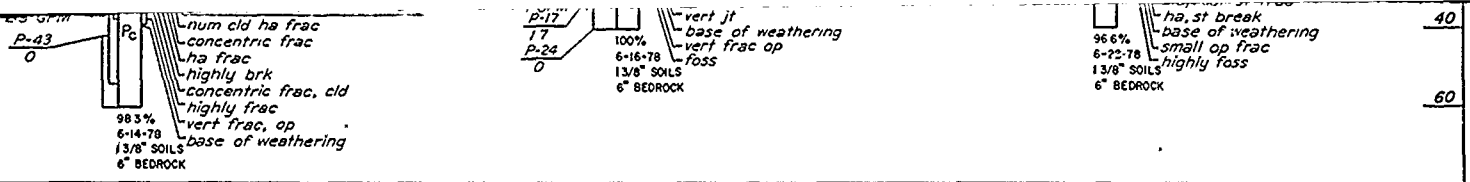
NOTES:
 1. For General Geologic Column and Legend see Dwg. E-1.
 2. For location of borings see Dwg. E-2, E-3, and E-4.

Revisions				
Symbol	Descriptions	Date	Approved	
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI				
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT LOGS OF DETACHED BORINGS NOS. 120 THROUGH 158	Scale: AS SHOWN		
Drawn by:		Sheet number: 40		
Checked by:		Date: JUNE 1990	File No. RBL-2-1260	
Submitted by:		Dwg No.:		

VALUE ENGINEERING PAYS





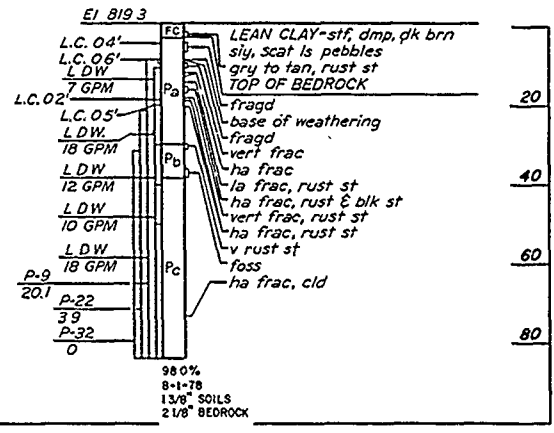
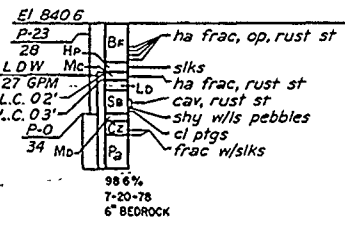
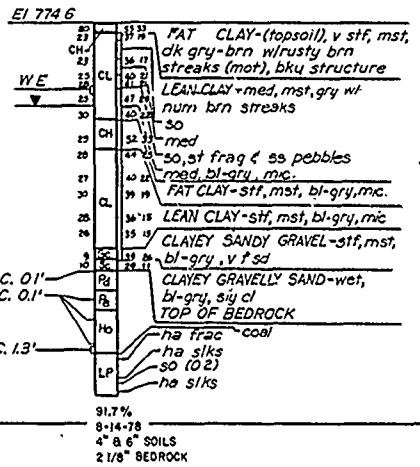


40
60

DC-185,A

C-186

DC-188

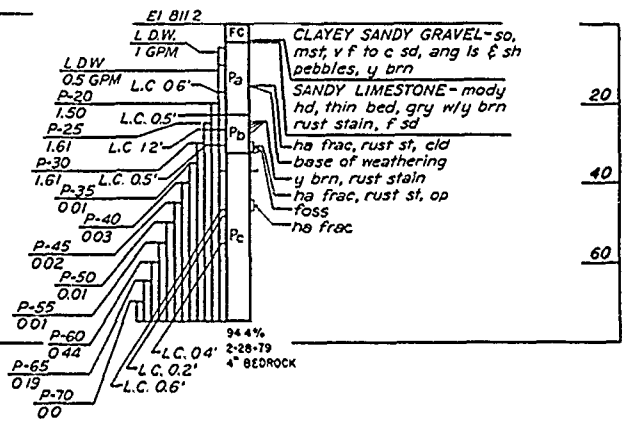
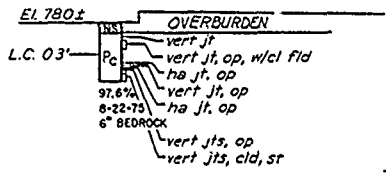
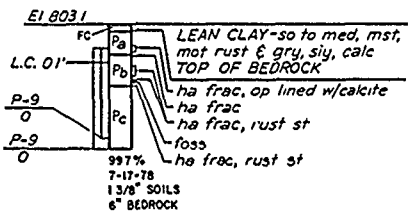


20
40
60
80

DC-193

C-194

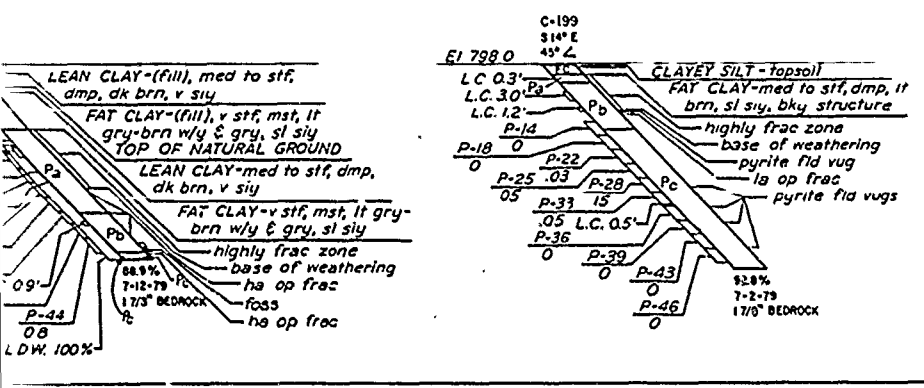
C-195



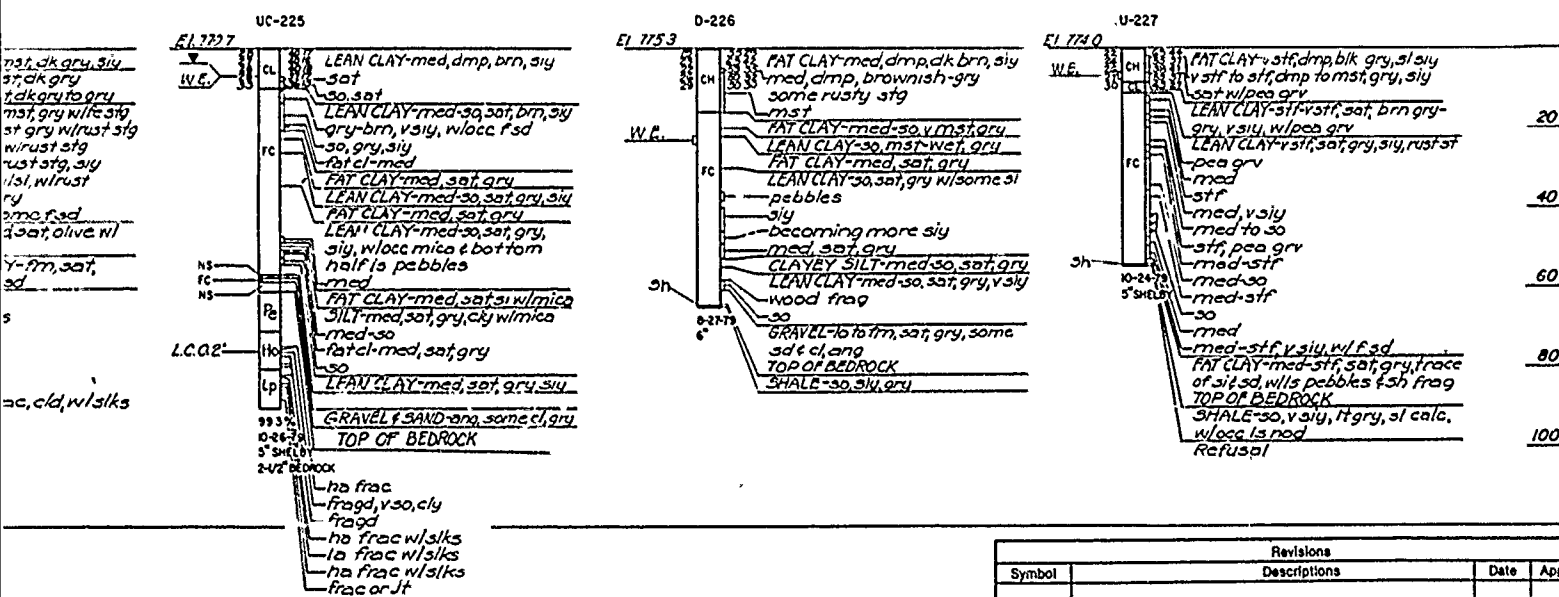
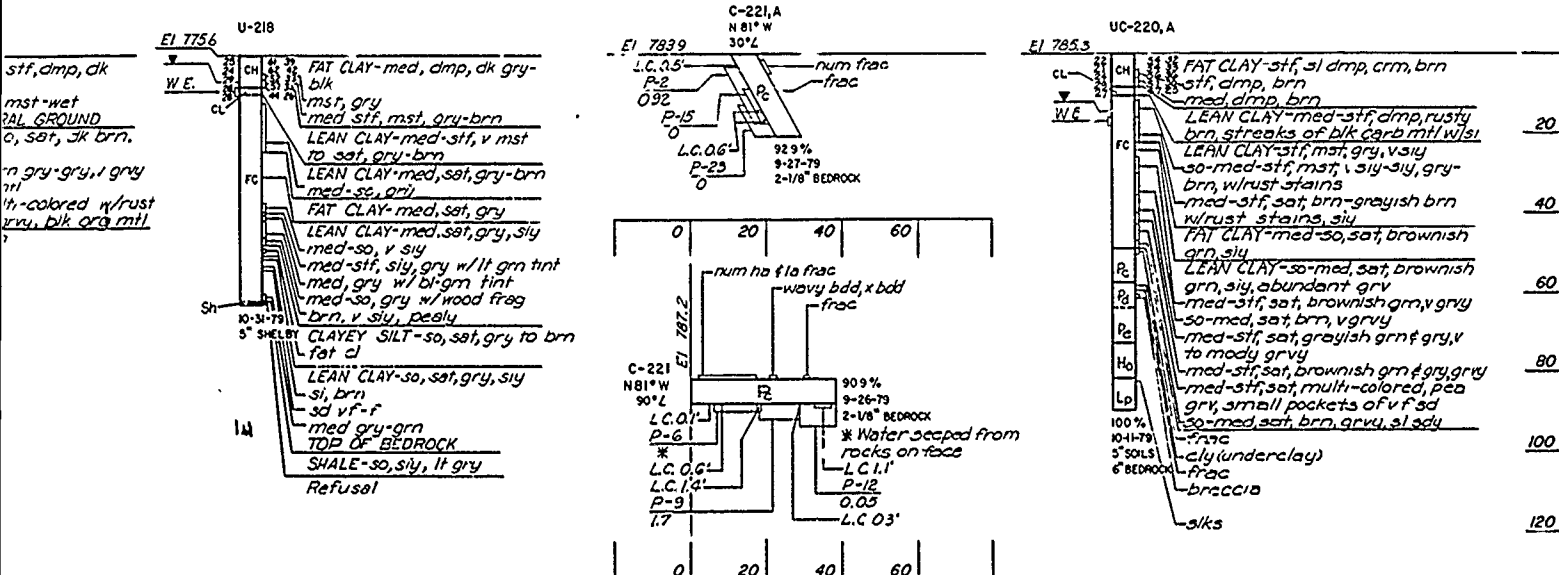
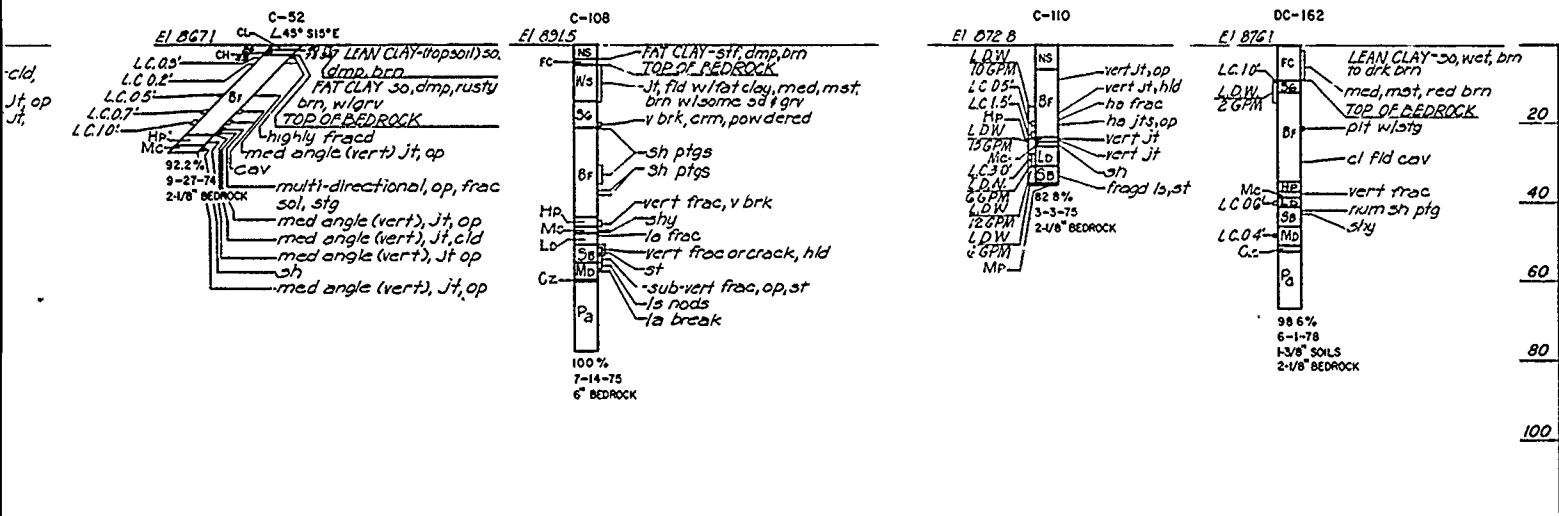
20
40
60

14

NOTES:
 1 For General Geologic Column and Legend see Dwg E-1
 2 For location of borings see Dwgs. E-2, E-3, and E-4



Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	SHEET NUMBER: 41	
Drawn by:		DATE: JUNE 1990	
Checked by:		Dwg. No.: RBL-2-1261	
Submitted by:	Scale: AS SHOWN	Sheet number: 41	F&E No.: RBL-2-1261



NOTES
 1 For General Geologic Column and Legend, see Dwg. E-1
 2 For location of borings, see Dwgs. E-2, E-3, and E-4

Revisions			
Symbol	Descriptions	Date	Approved

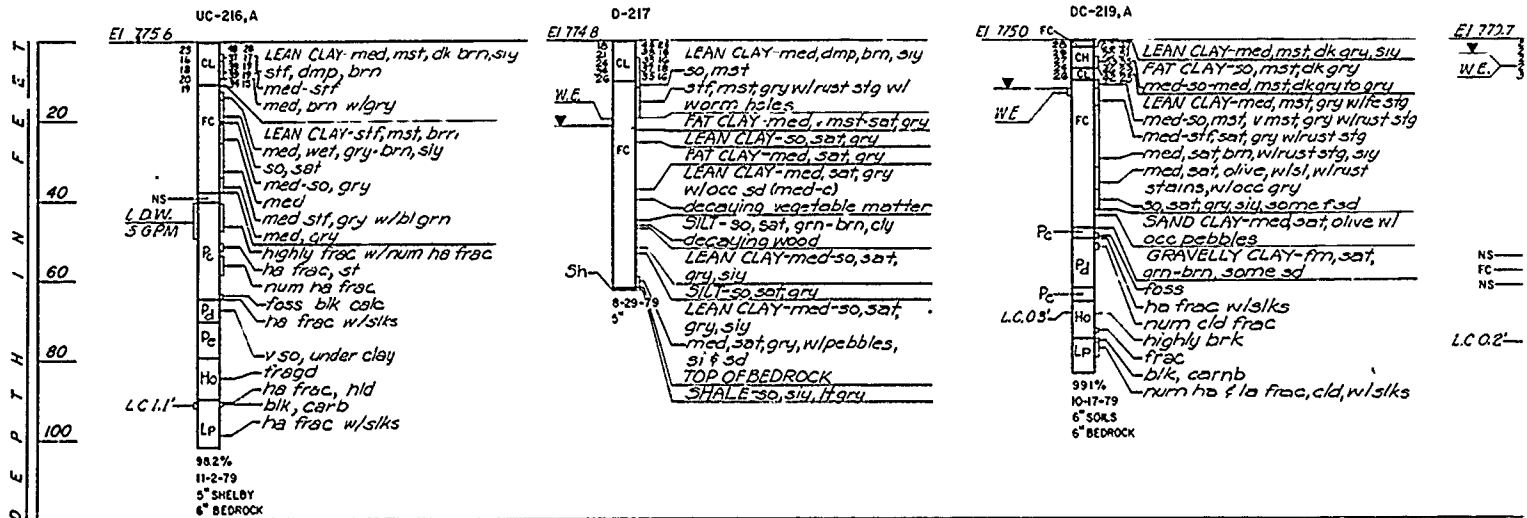
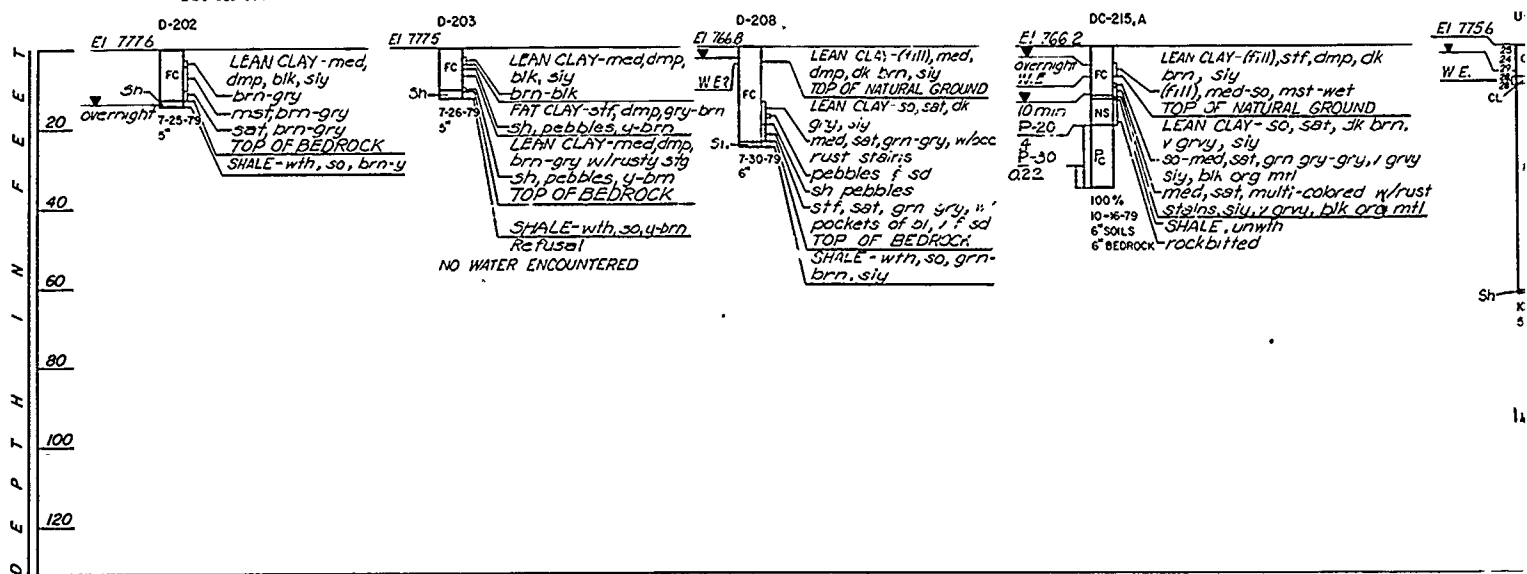
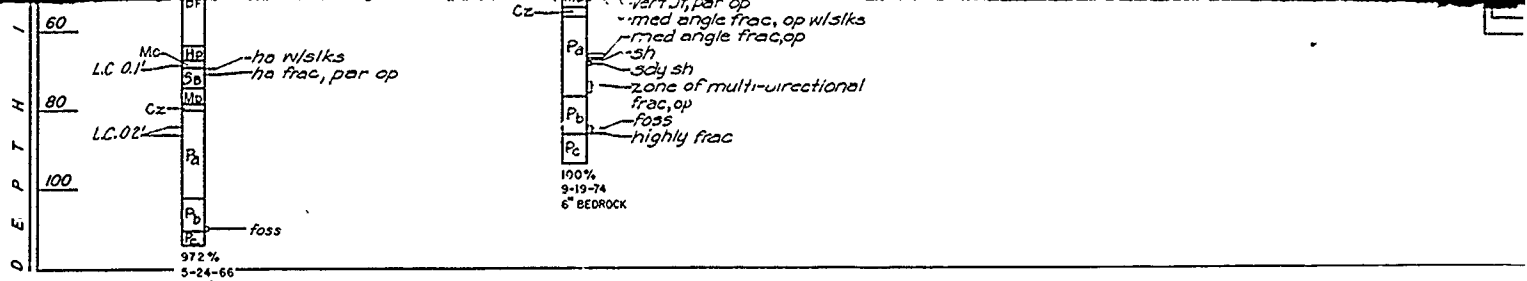
U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

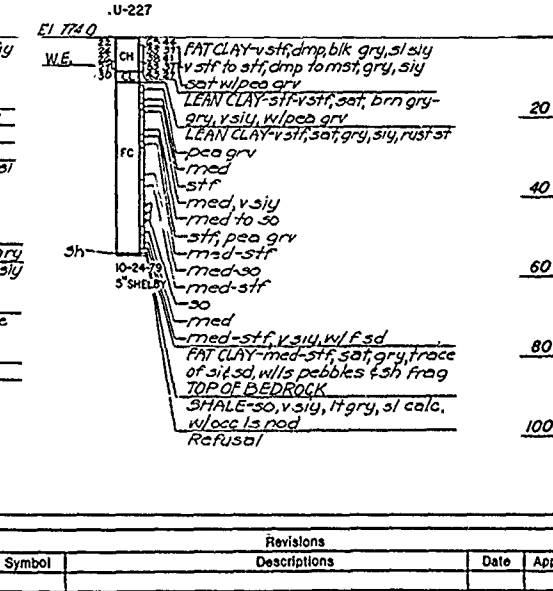
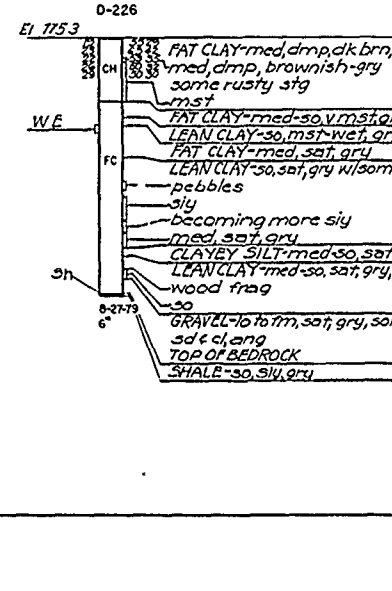
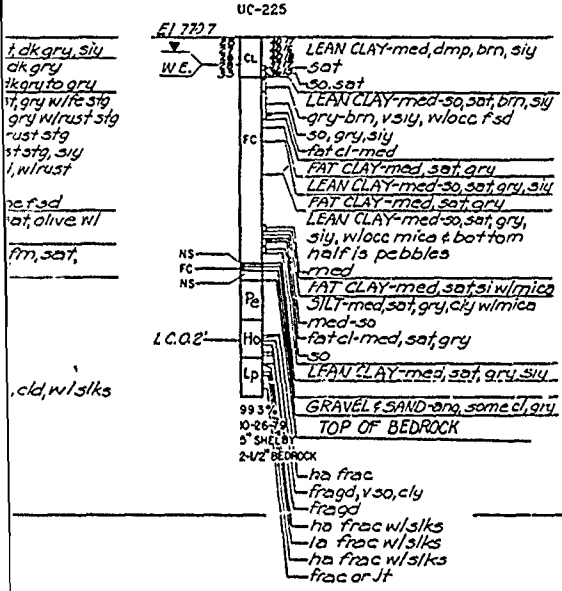
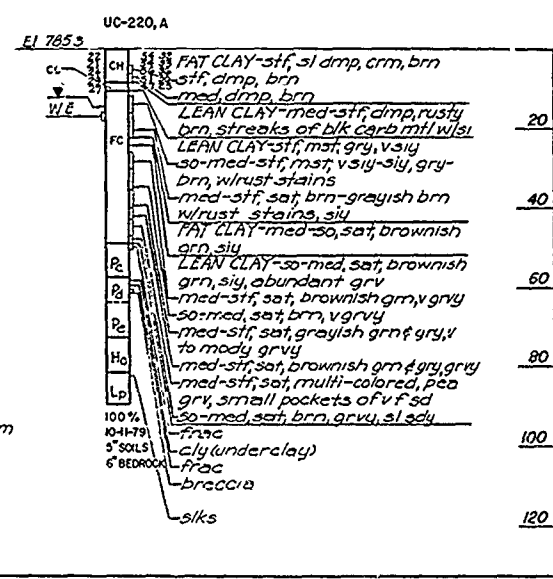
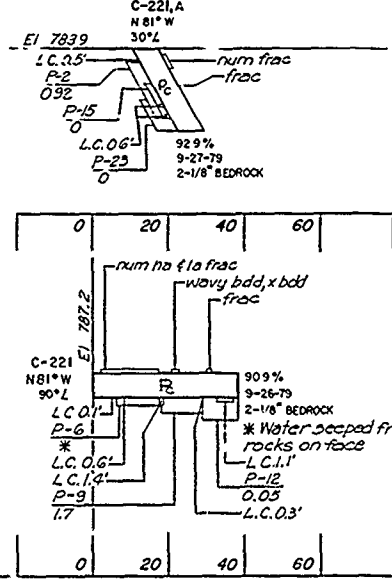
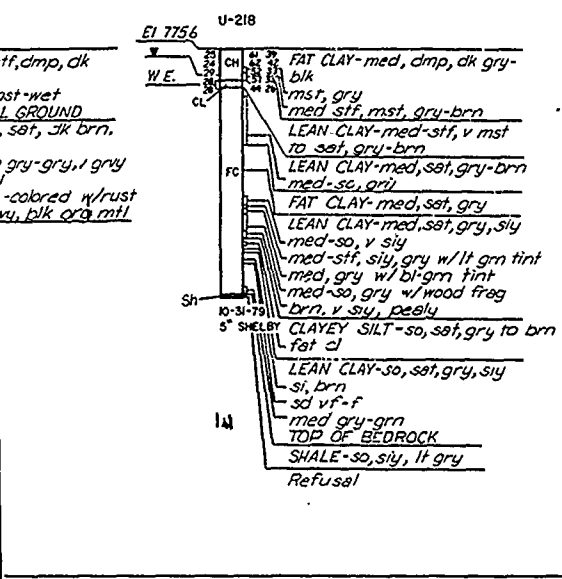
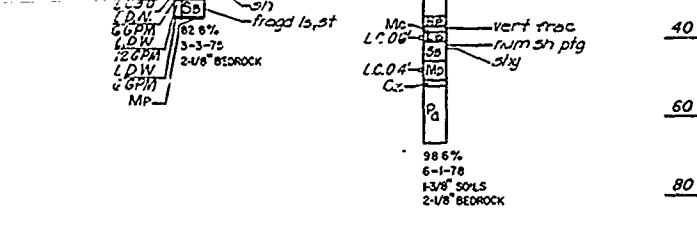
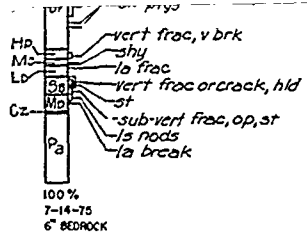
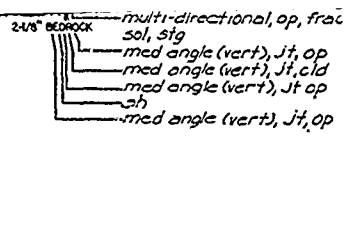
Designed by: EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE
 CONSTRUCTION FOUNDATION REPORT

Drawn by:

Checked by:

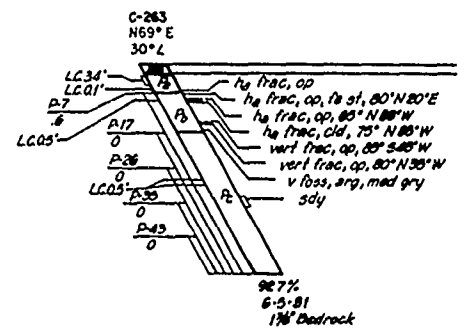
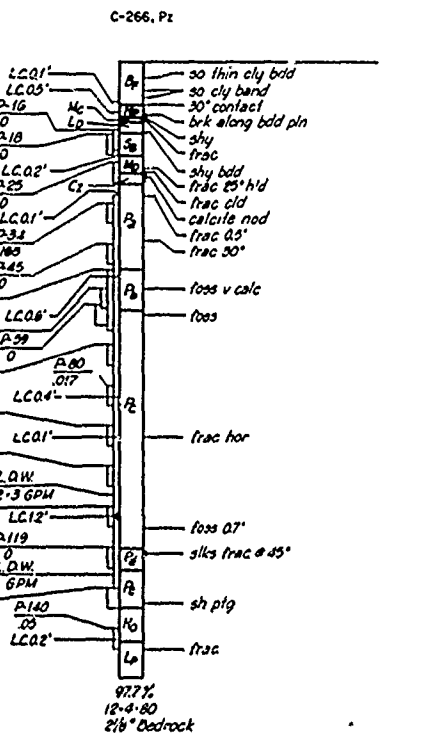
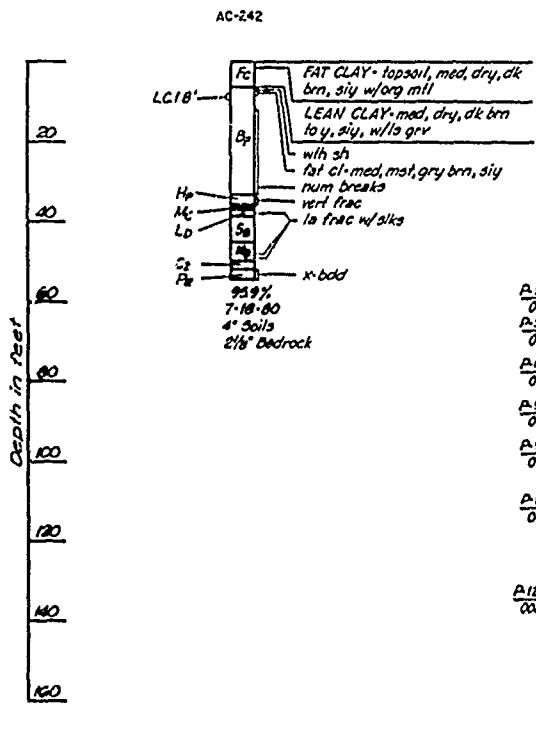
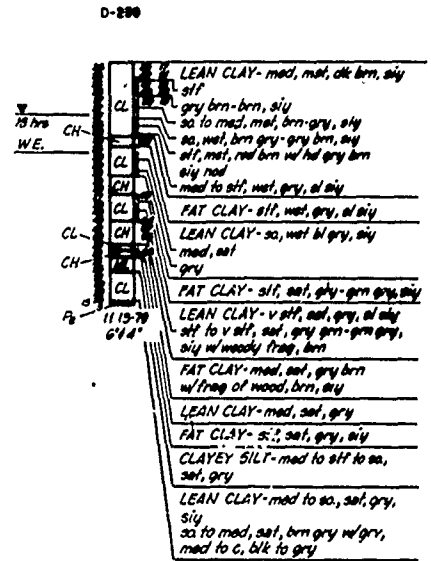
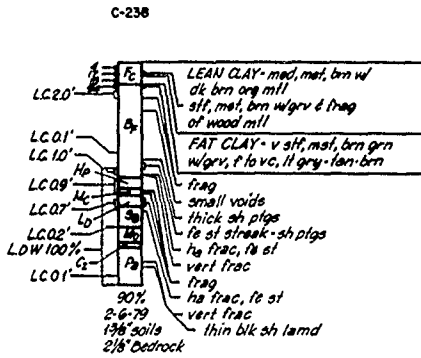
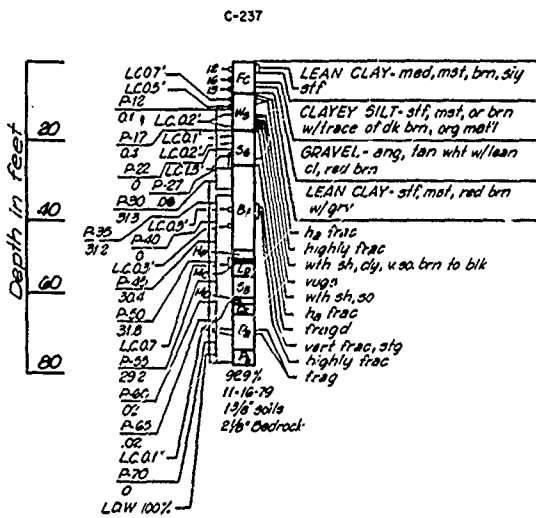
LOGS OF DETACHED BORINGS
 NOS. 202 THROUGH 227



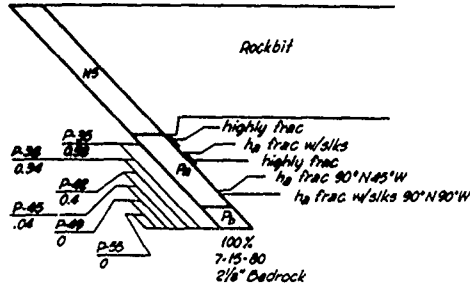


NOTES
 1 For General Geologic Column and Legend, see Dwg E-1
 2 For location of borings, see Dwgs E-2, E-3, and E-4

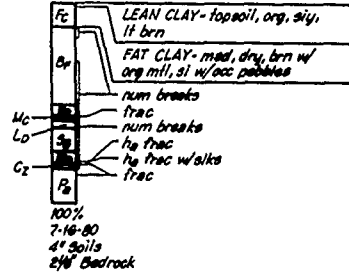
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT LOGS OF DETACHED BORINGS NOS. 202 THROUGH 227	Scale:	AS SHOWN
Drawn by:		Date:	JUNE 1990
Checked by:		Sheet number:	42
Submitted by:		Dwg. No.:	RBL-2-1262



C-240
N 118° W
45° Z



AC-241




Depth in feet
20
40
60
80

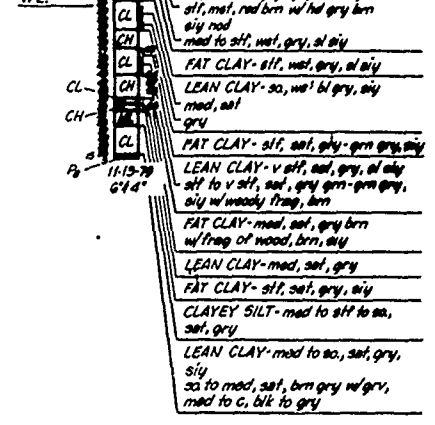
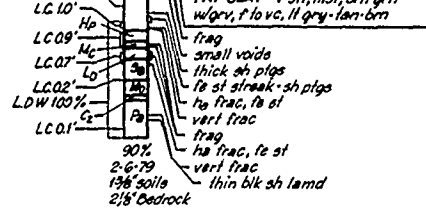
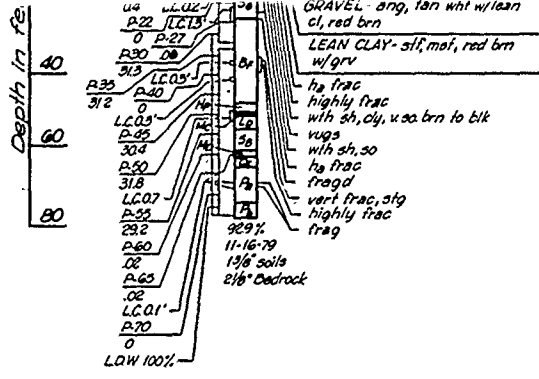
- Y - med, mat, dk brn, silty
- n, silty
- mat, brn-gry, silty
- gr, grn-grn, silty
- brn w/ hd grn brn
- med, gr, silty
- silt, med, gr, silty
- so, med bl gr, silty
- silt, sat, silty-grn, silty
- v silt, sat, gr, silty
- sat, gr, grn-grn, silty
- frag, brn
- med, sat, gr, brn
- wood, brn, silty
- med, sat, gr
- silt, sat, gr, silty
- T - med to silt to so,
- med to so, sat, gr,
- wt, brn gr w/ gr,
- k to gr

- 0
- 00, 0° st, 80° N 80° E
- 01, 00, 85° N 80° W
- 02, 01, 75° N 80° W
- 03, 00, 80° S 40° W
- 04, 00, 80° N 30° W
- 05, 00, 70° N 30° W
- 06, 00, 70° N 30° W
- 07, 00, 70° N 30° W
- 08, 00, 70° N 30° W
- 09, 00, 70° N 30° W
- 10, 00, 70° N 30° W
- 11, 00, 70° N 30° W
- 12, 00, 70° N 30° W
- 13, 00, 70° N 30° W
- 14, 00, 70° N 30° W
- 15, 00, 70° N 30° W
- 16, 00, 70° N 30° W
- 17, 00, 70° N 30° W
- 18, 00, 70° N 30° W
- 19, 00, 70° N 30° W
- 20, 00, 70° N 30° W
- 21, 00, 70° N 30° W
- 22, 00, 70° N 30° W
- 23, 00, 70° N 30° W
- 24, 00, 70° N 30° W
- 25, 00, 70° N 30° W
- 26, 00, 70° N 30° W
- 27, 00, 70° N 30° W
- 28, 00, 70° N 30° W
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- 38, 00, 70° N 30° W
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- 94, 00, 70° N 30° W
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- 96, 00, 70° N 30° W
- 97, 00, 70° N 30° W
- 98, 00, 70° N 30° W
- 99, 00, 70° N 30° W
- 100, 00, 70° N 30° W

Depth in feet
80
100
120
140
160
180
200

NOTE:
1. For location of boring see Dwg. E2.
2. For General Geologic Column and Legend see Dwg. E1.

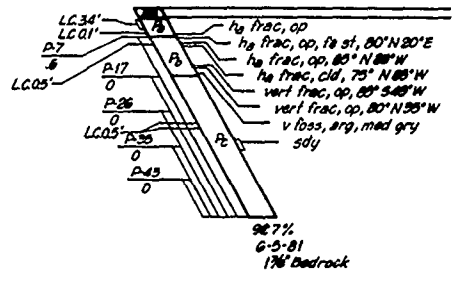
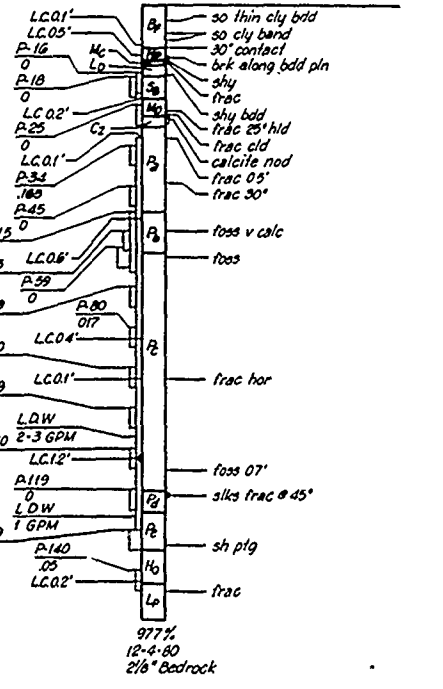
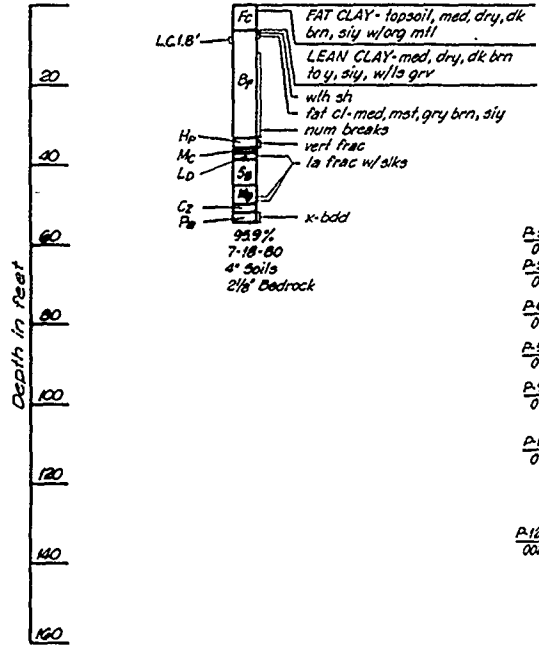
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	LOGS OF DETACHED BORINGS NOS. 237 THROUGH 266	
Drawn by:			
Checked by:			
Submitted by:			
Scale:	AS SHOWN	Sheet Number:	
Date:			



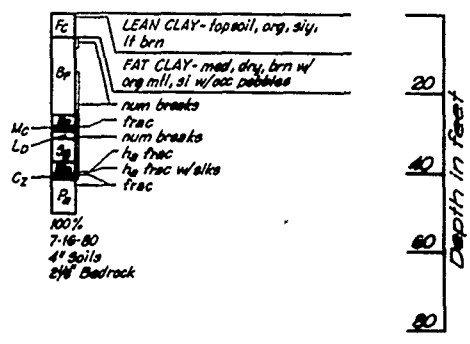
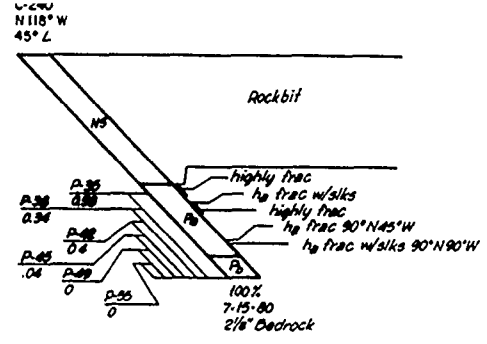
AC-242

C-266, Px

C-263
N69°E
30°L




Y- med, mat, dk brn, sil
 brn, sil
 l, med, brn-gry, sil
 m, gry-gry brn, sil
 w, brn w/ hd gry brn
 t, med, gry, sil
 - sil, med, gry, sil
 Y- so, med bl gry, sil
 - sil, sat, sly-grn, sil
 Y- v sil, sat, gry, sil
 f, sat, gry-grn-gry, sil
 dy frag, brn
 med, sat, gry brn
 wood, brn, sil
 Y- med, sat, gry
 - sil, sat, gry, sil
 YLT- med to sil to ss,
 Y- med to so, sat, gry,
 sat, brn gry w/ grv,
 blk to gry



.00
 G, op, th st, 80°N80°E
 20, op, 85°N85°W
 frac, old, 75°N85°W
 + frac, op, 80°S85°W
 - frac, op, 80°N85°W
 v loss, arg, med gry
 soy
 %
 81
 * Bedrock

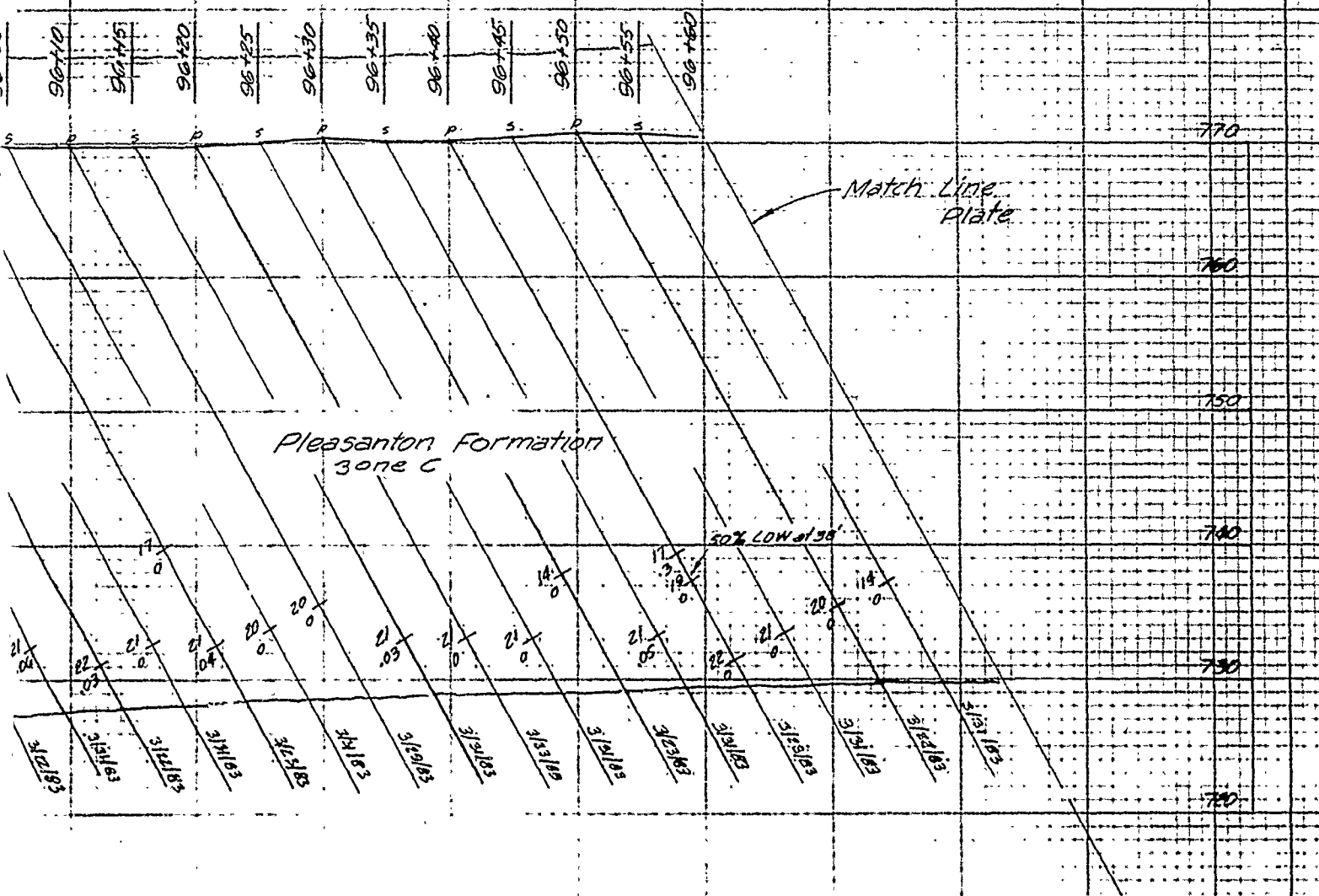
20
 40
 60
 80
 100
 120
 140
 160
 180
 200
 Depth in Feet

NOTE:
 1. For location of boring see Dwg. E2.
 2. For General Geologic Column and Legend see Dwg. E1.


Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	LOGS OF DETACHED BORINGS NOS. 237 THROUGH 266	
Drawn by:		Scale:	AS SHOWN
Checked by:		Date:	JUNE 1990
Submitted by:	Sheet number:	43	File No. RBL-2-1285

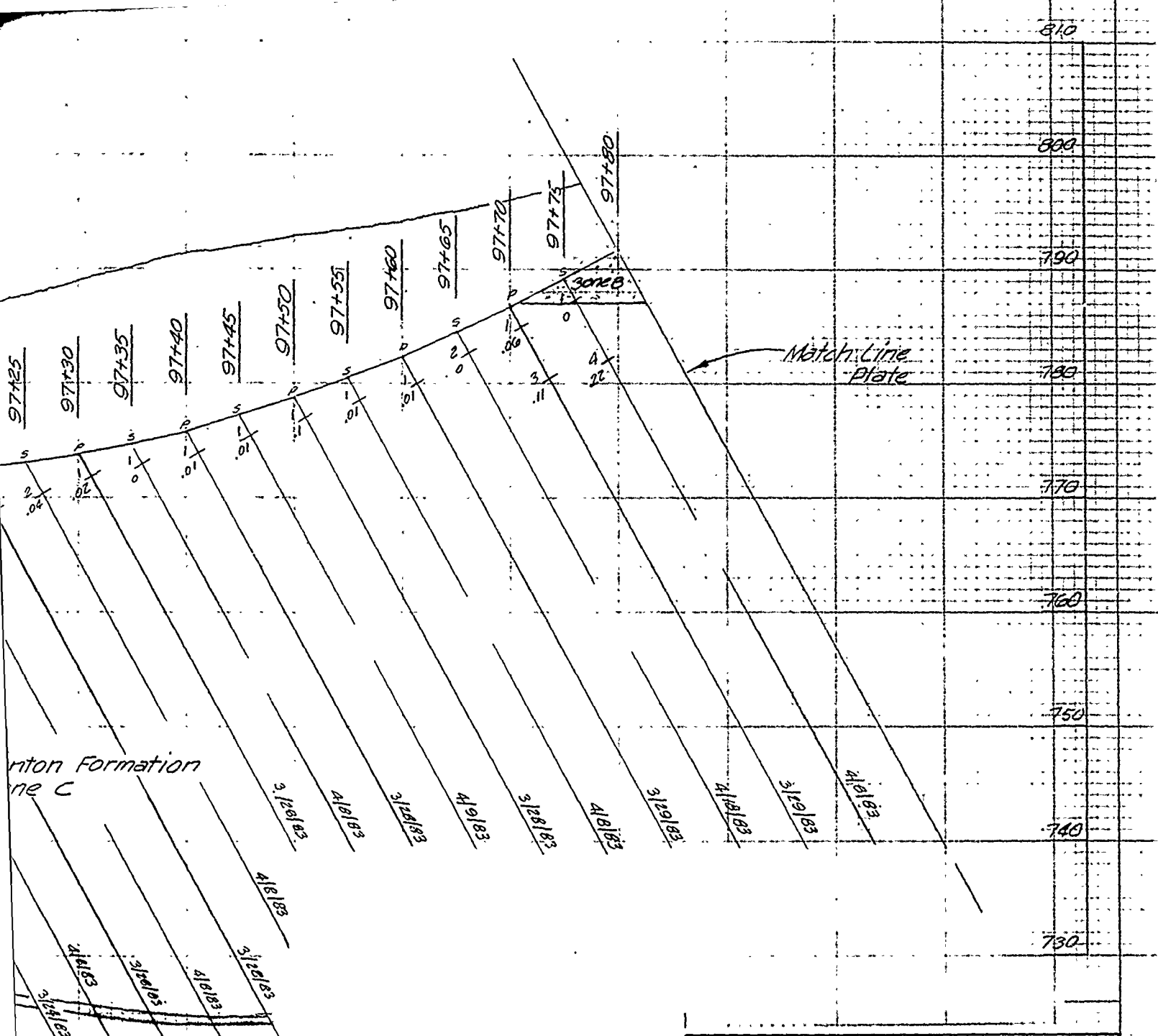
	HOLES	DRILL	SACKS
PRIMARY	12	660'	0
SECONDARY	13	715'	0
EXPLORATORY	1	62'	0

edrock



FILE LEFT ABUTMENT
STA 95+30 TO STA 96+60

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAAS CITY, MISSOURI			
Designed by:		 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE A STA. 95+30 TO STA. 96+60	
Drawn by:	V. A.		
Checked by:	C. H.		
Substituted by:			
Scale:	AS SHOWN	Sheet number:	
Date:	MAY 1960		



ton Formation
ne C

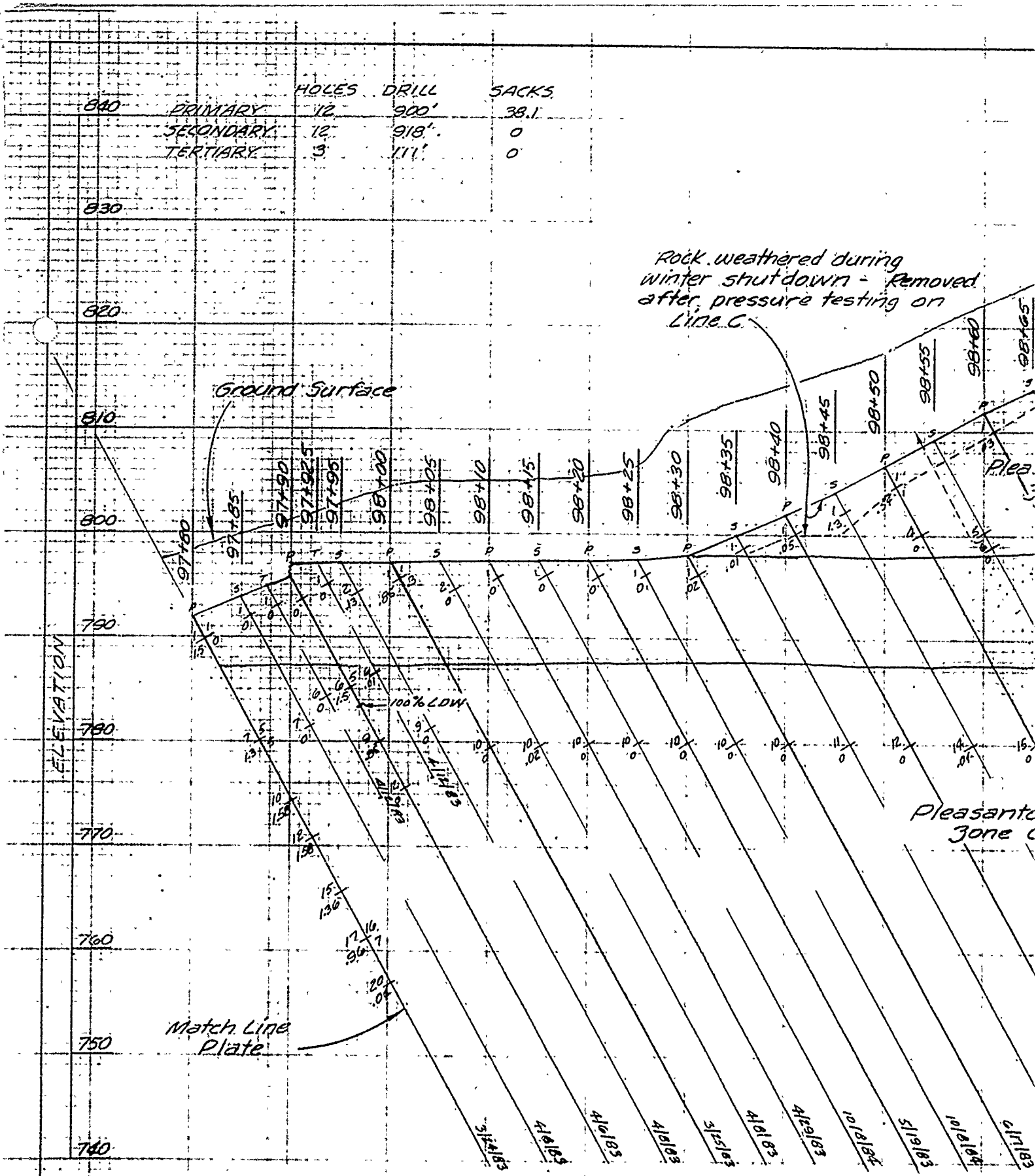
PROFILE LEFT ABUTMENT
STA 96+60 TO STA 97+80

Legend see Plate 44

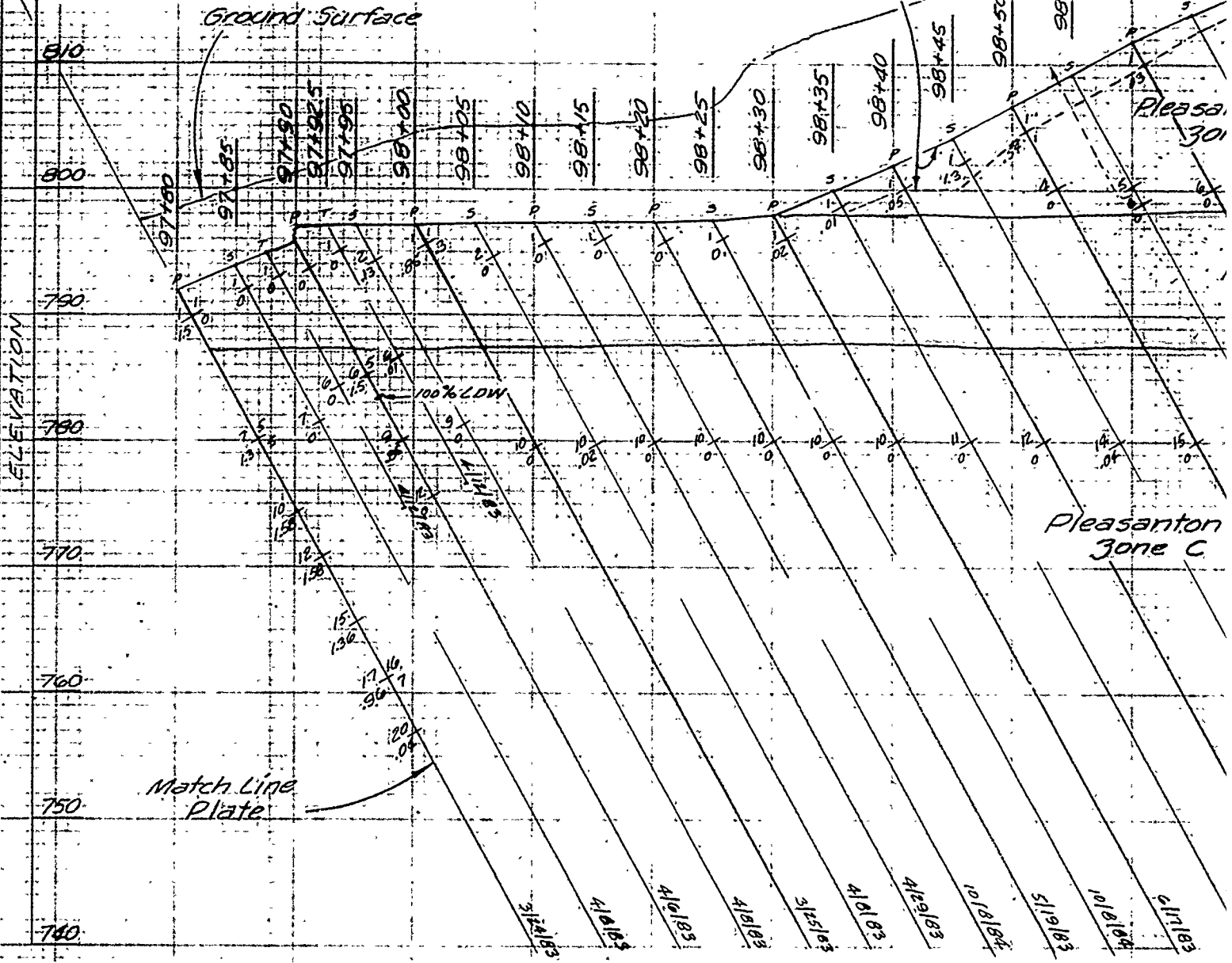
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE A STA. 96+60 TO STA. 97+80	
Drawn by:	V. A.		
Checked by:	C. H.		
Submitted by:			
Scale:	AS SHOWN	Sheet number:	45
Date:	JUNE 1990		
File No.:	RBL-2-1265		

	HOLE	DRILL	SACKS
840	PRIMARY	12	900'
	SECONDARY	12	918"
	TERTIARY	3	111'
			38.1
			0
			0

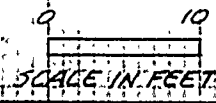
Rock weathered during winter shutdown - removed after pressure testing on Line C.



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE A 5 FEET DOWNSTREAM STA. 9
 LOOKING UPSTREAM

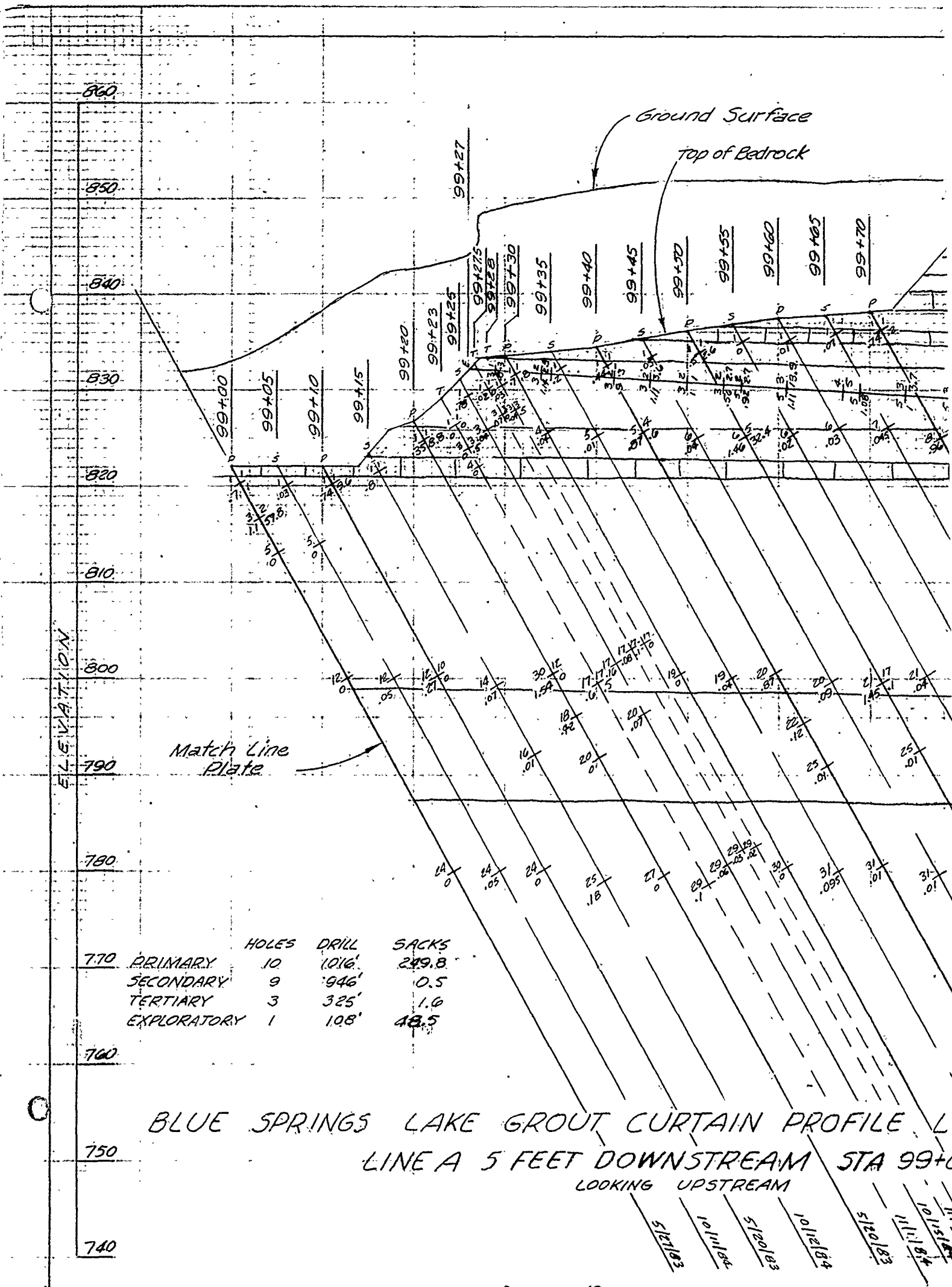


BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE A 5 FEET DOWNSTREAM STA 97+
 LOOKING UPSTREAM



for legend see Plate

C

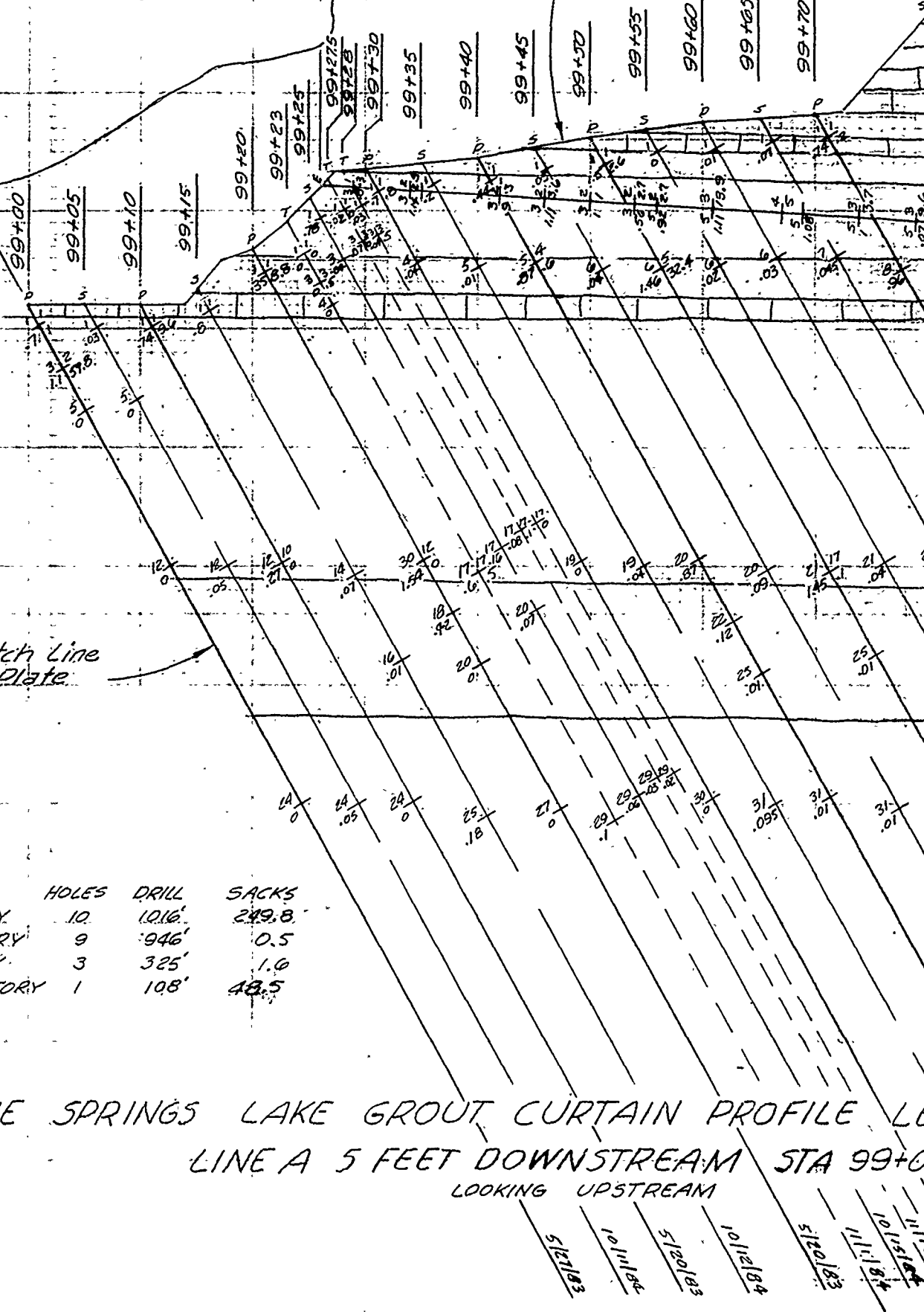


	HOLES	DRILL	SACKS
770	PRIMARY	10	1016'
	SECONDARY	9	946'
	TERTIARY	3	325'
	EXPLORATORY	1	108'
			48.5

BLUE SPRINGS LAKE GROUT CURTAIN PROFILE, L
 LINE A 5 FEET DOWNSTREAM STA 99+0
 LOOKING UPSTREAM

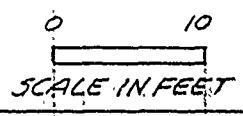
ELEVATION

840
830
820
810
800
790
780
770
760
750
740

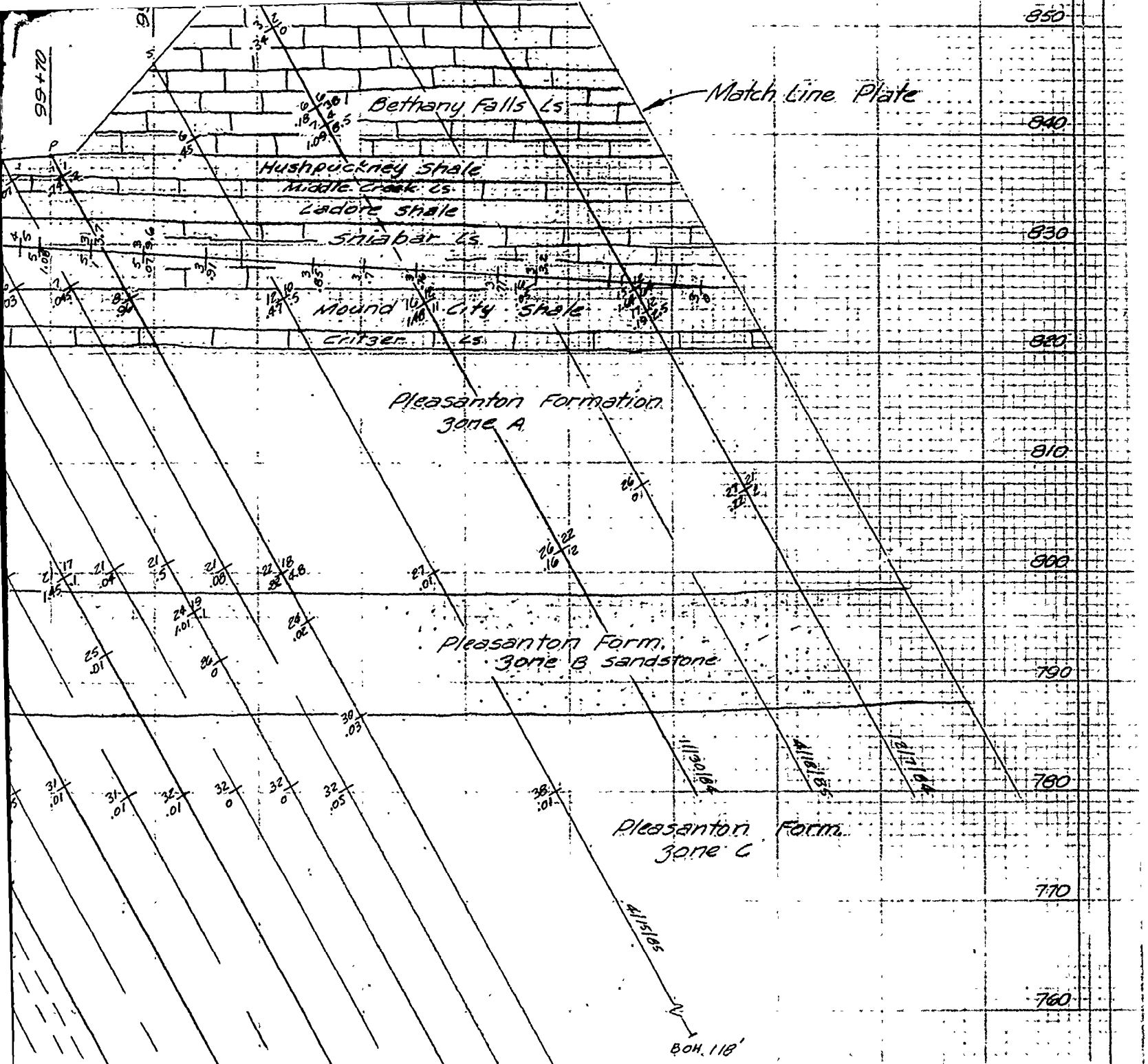


	HOLES	DRILL	SACKS
770 PRIMARY	10	1,016'	249.8
SECONDARY	9	946'	0.5
TERTIARY	3	325'	1.0
EXPLORATORY	1	108'	48.5

BLUE SPRINGS LAKE GROUT CURTAIN PROFILE LE
LINE A 5 FEET DOWNSTREAM STA 99+00
LOOKING UPSTREAM



5/27/83
10/11/84
5/20/83
10/12/84
5/20/83
11/11/84
10/15/84
11/11/84
11/11/84

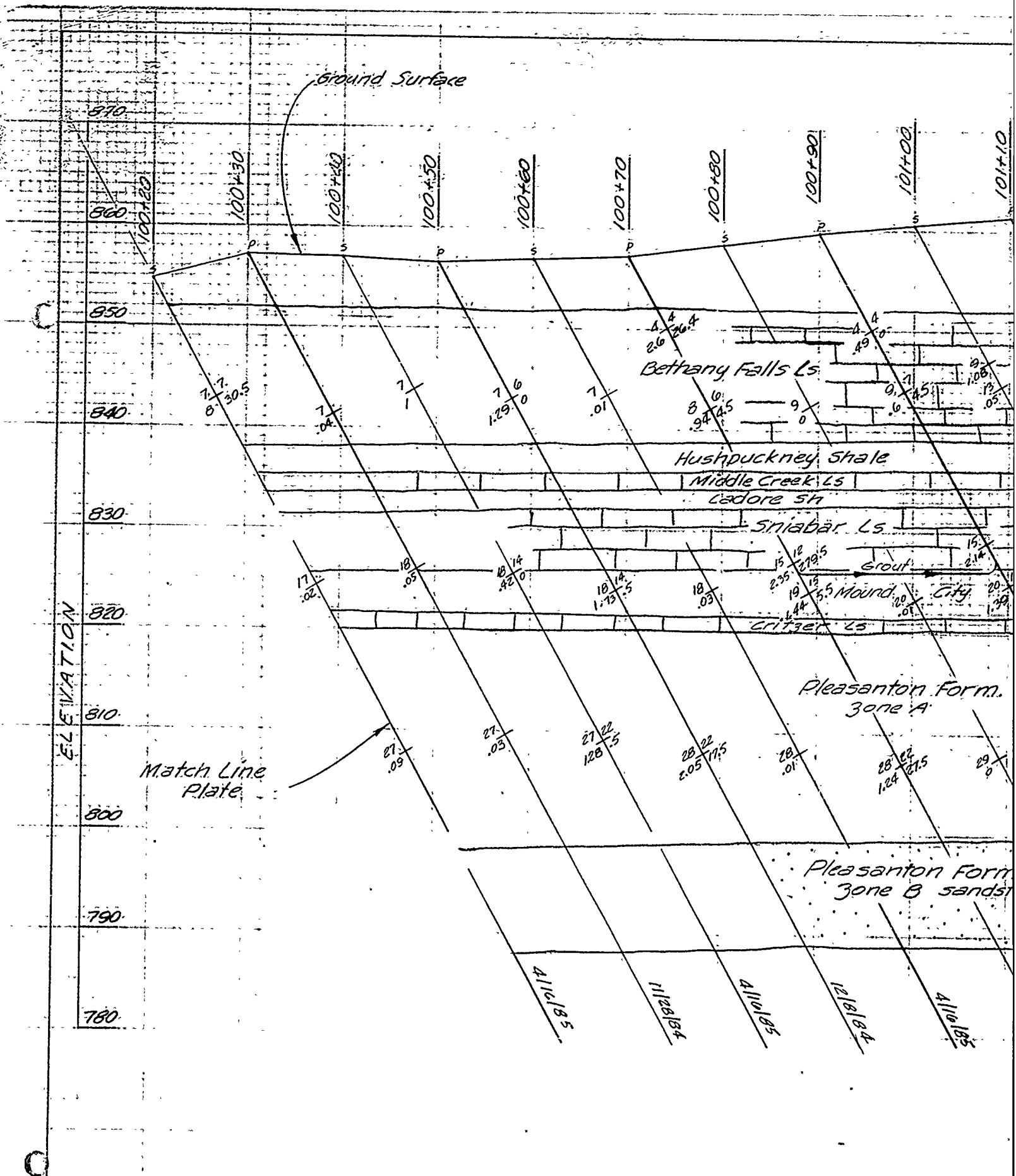


FILE LEFT ABUTMENT
STA 99+00 TO STA 100+20

- 5/20/83
- 11/11/84
- 10/15/84
- 11/17/84
- 11/17/84
- 11/17/84
- 5/12/83
- 10/15/84
- 10/26/84
- 5/20/83
- 10/26/84
- 5/24/85
- 10/15/84
- 5/20/83

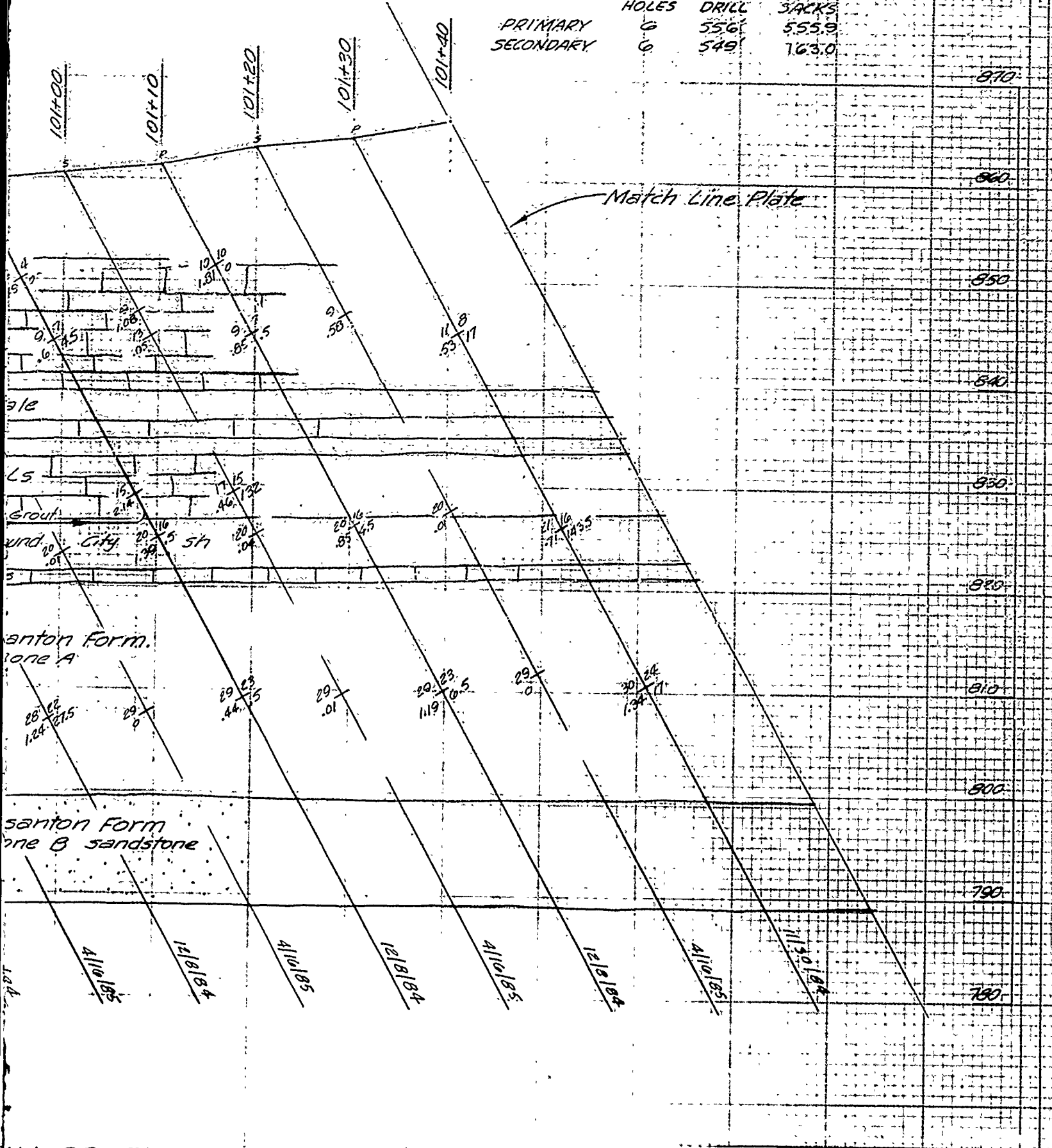
for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE A STA. 99+00 TO STA. 100+20	
Drawn by: V.A.		Scale: AS SHOWN	Sheet number: 47
Checked by: C.H.		Date: JUNE 1990	No. RBL-2-1267
Submitted by:		Date:	No.:



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE A 5 FEET DOWNSTREAM- STA
 LOOKING UPSTREAM

	HOLES	DRILL	SACKS
PRIMARY	6	556'	555.9
SECONDARY	6	549'	763.0



IN PROFILE LEFT ABUTMENT
 BEAM STA 100+20 TO STA 101+40
 BEAM

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

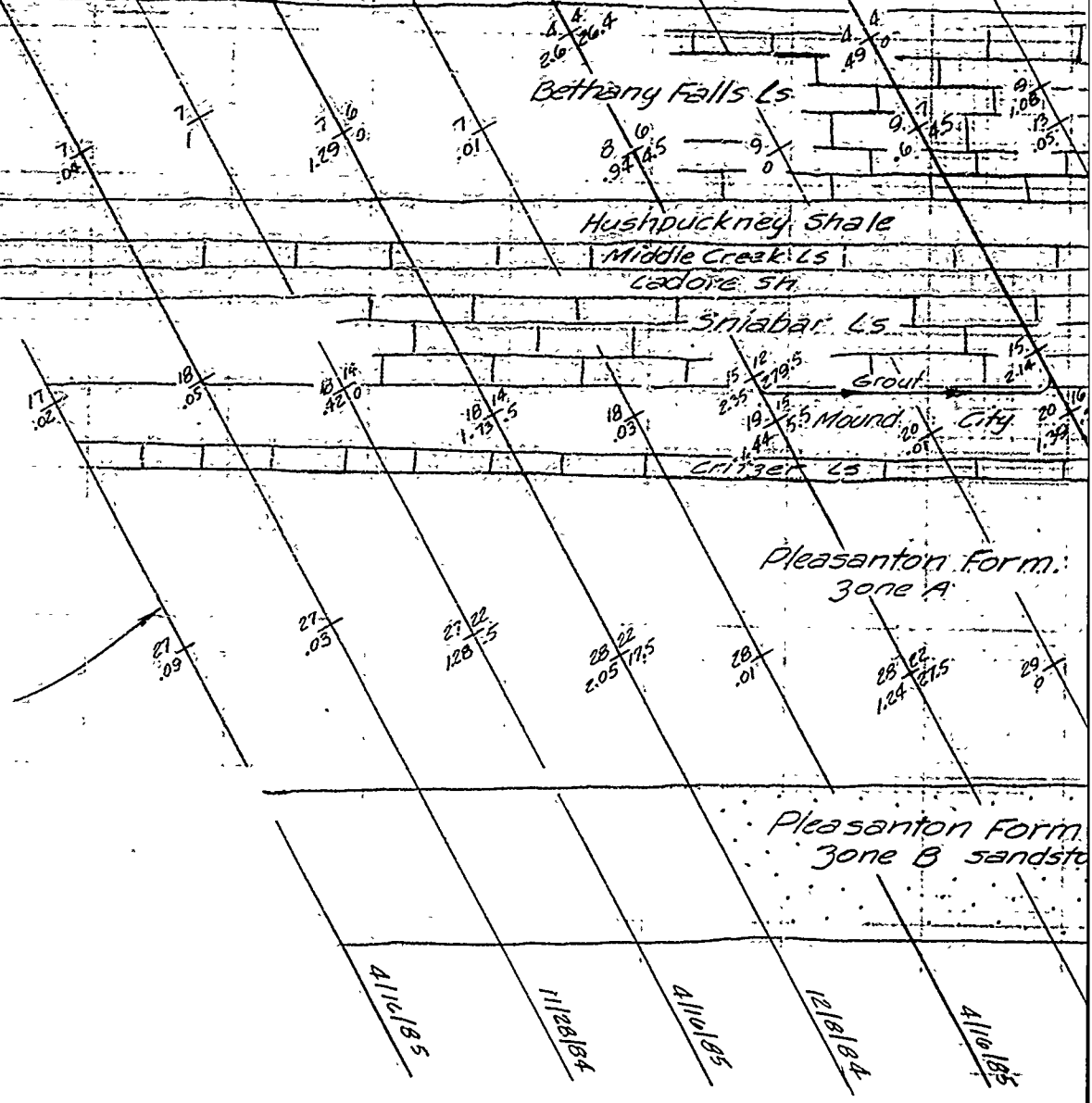
Designed by: [] EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE
 CONSTRUCTION FOUNDATION REPORT
 GROUT CURTAIN PROFILE
 LEFT ABUTMENT LINE A
 STA 100+20 TO STA 101+40

Drawn by: V.A.

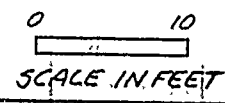
ELEVATION

850
840
830
820
810
800
790
780

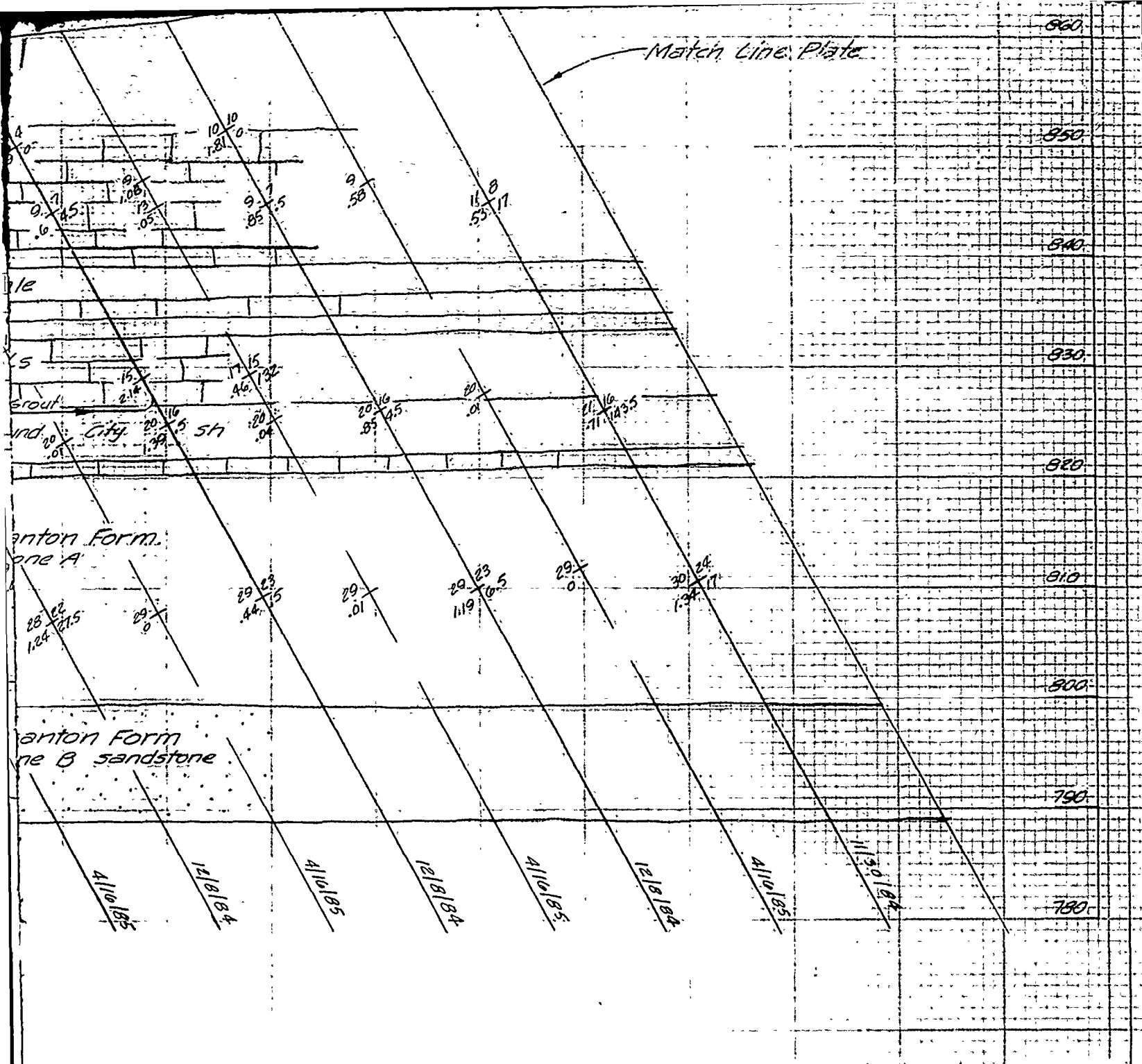
Match Line
Plate



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
LINE A 5 FEET DOWNSTREAM STA
LOOKING UPSTREAM



for 1e

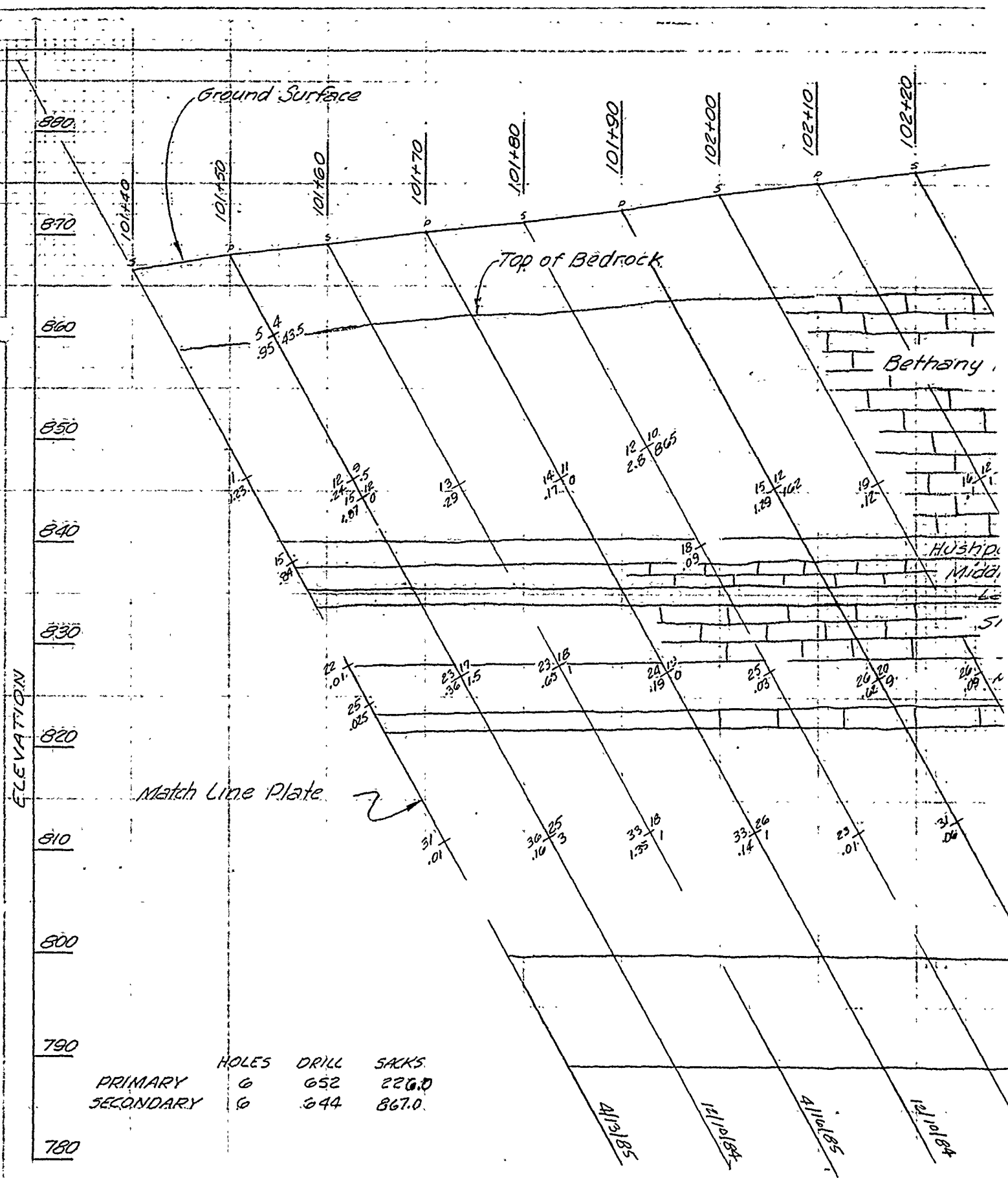


IN PROFILE LEFT ABUTMENT
 E.A.M. STA 100+20 TO STA 101+40
 E.A.M.

for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE A STA. 100+20 TO STA. 101+40	
Drawn by:	V. A.	Date:	AS SHOWN
Checked by:	C. H.	Date:	JUNE 1990
Submitted by:		Sheet number:	48
			No. RBL-2-1268

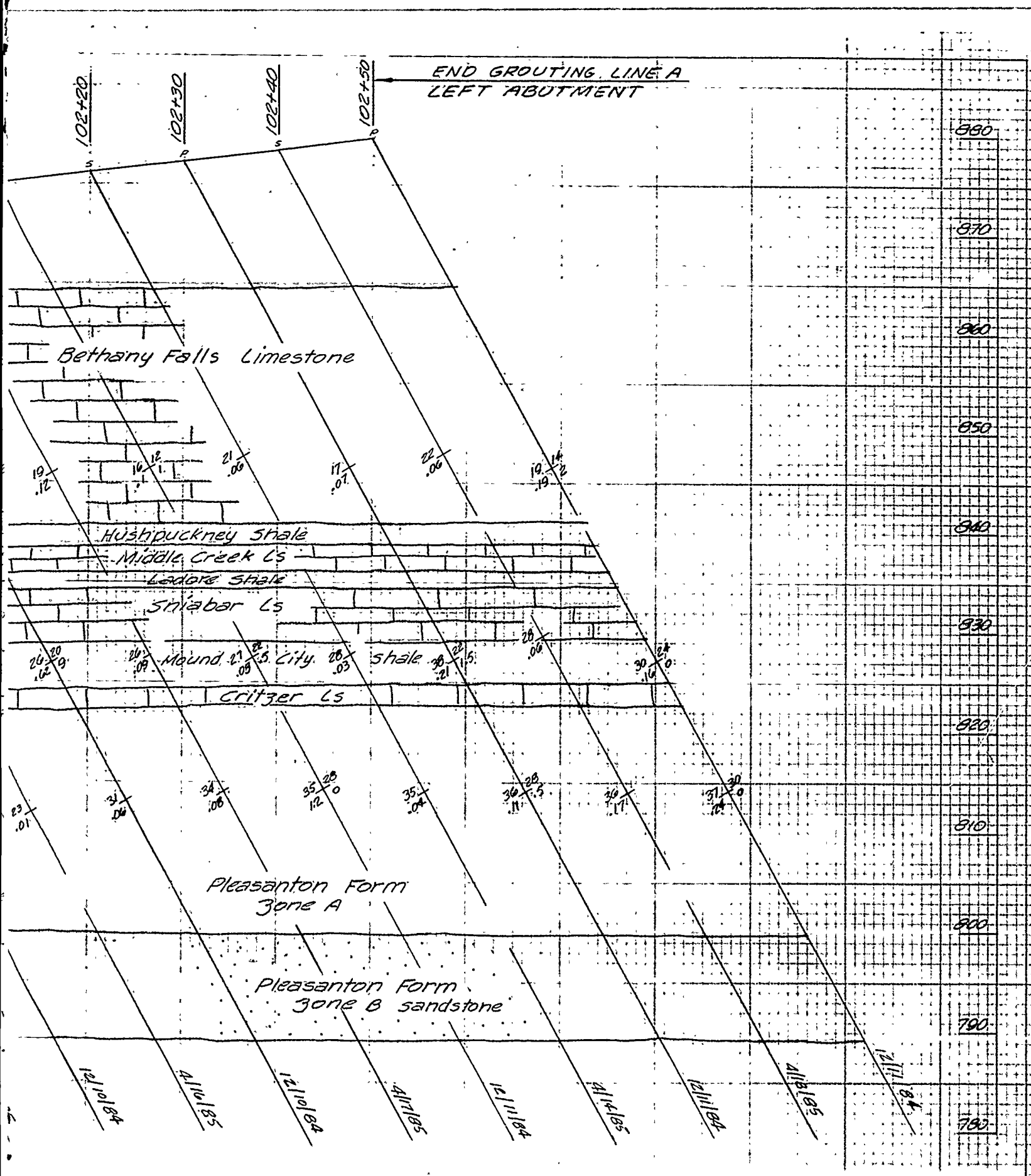
PLATE NO. 48



	HOLES	DRILL	SACKS
PRIMARY	6	652	226.0
SECONDARY	6	644	867.0

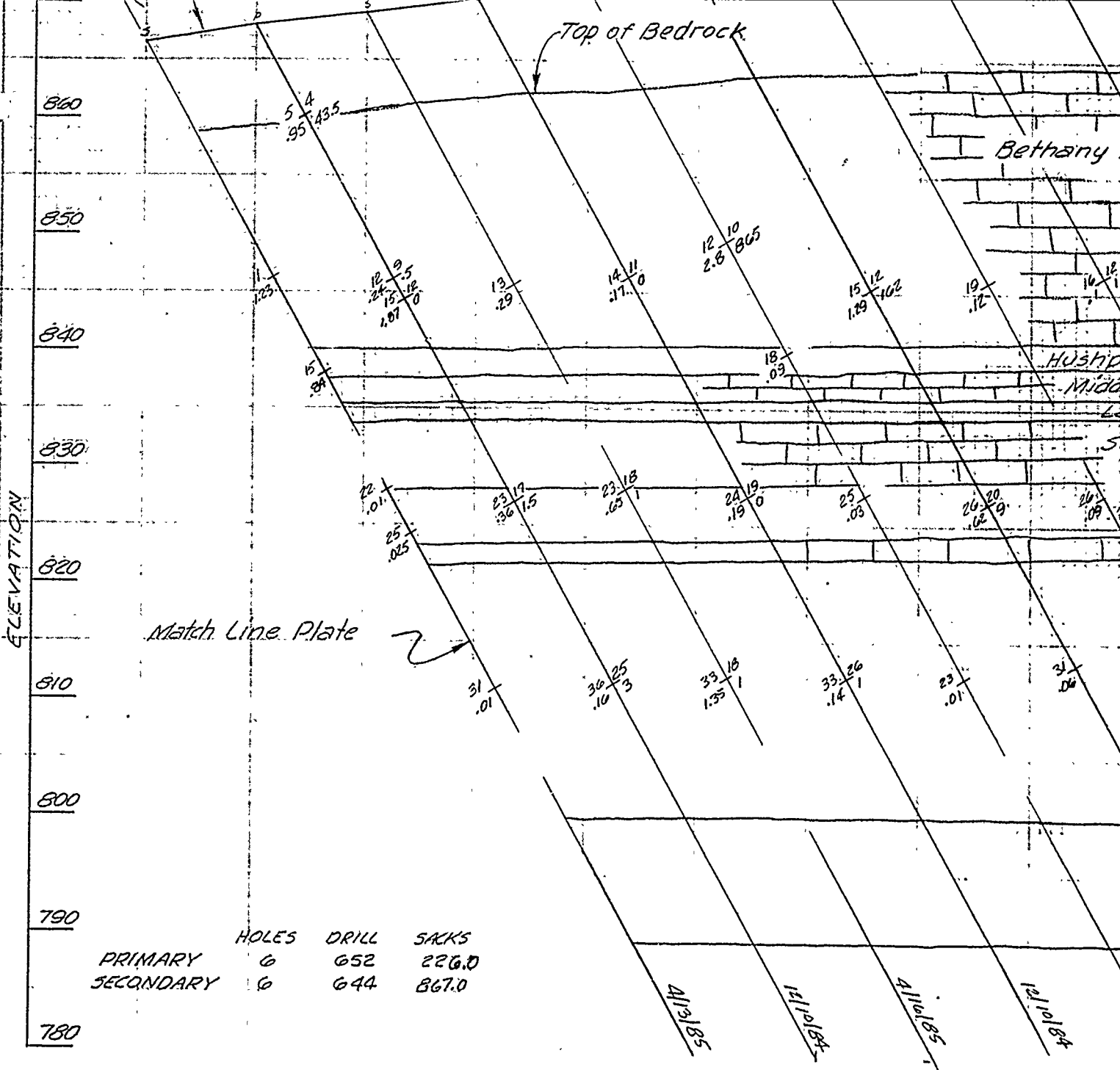
BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE A 5 FEET DOWNSTREAM STA
 LOOKING UPSTREAM



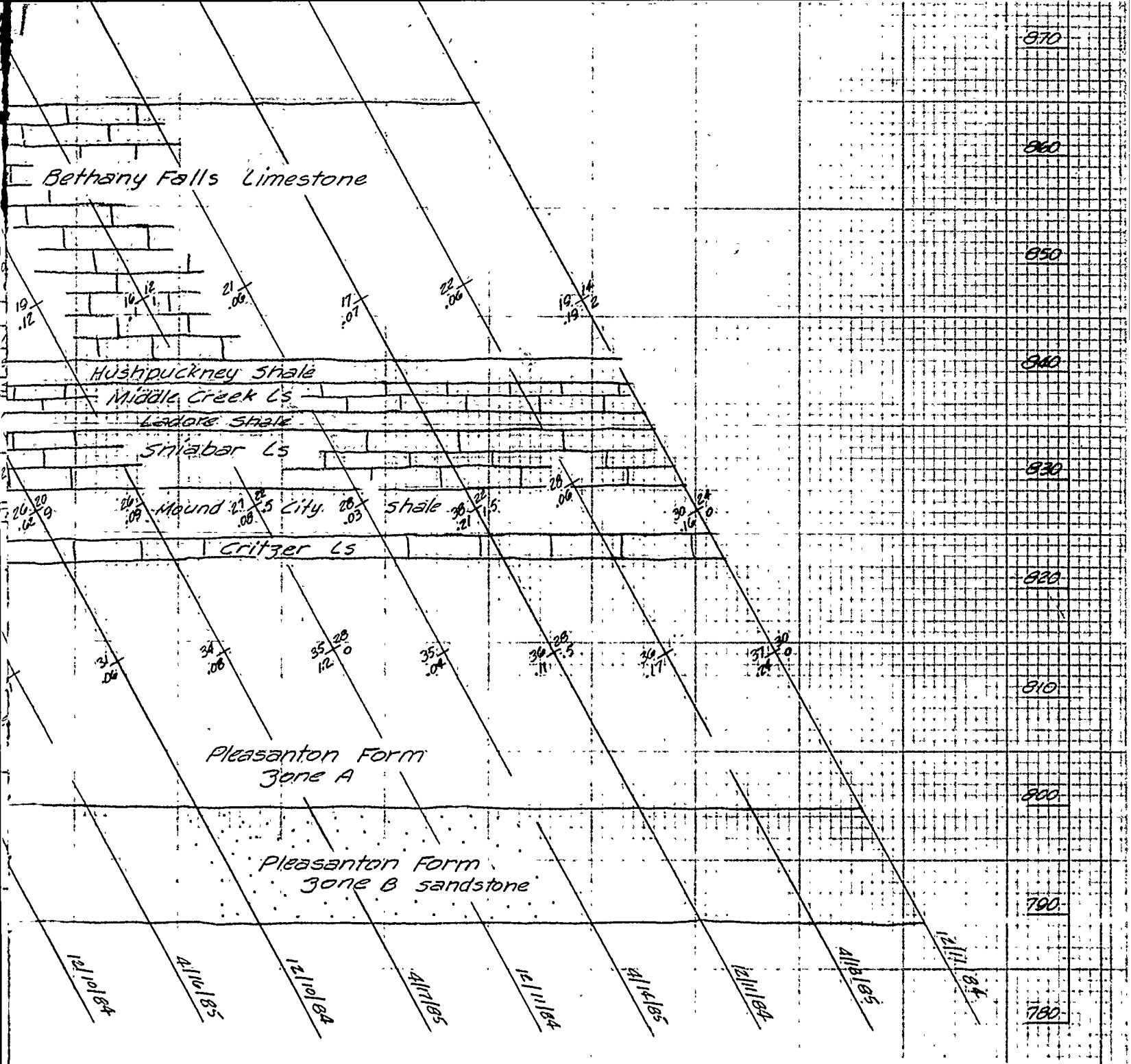


MAIN PROFILE LEFT ABUTMENT
 STREAM STA 101+40 TO STA 102+50
 STREAM

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE
Drawn by:	CONSTRUCTION FOUNDATION REPORT
Checked by:	GROUT CURTAIN PROFILE LEFT ABUTMENT LINE A STA 101+40 TO STA 102+50
V. A.	



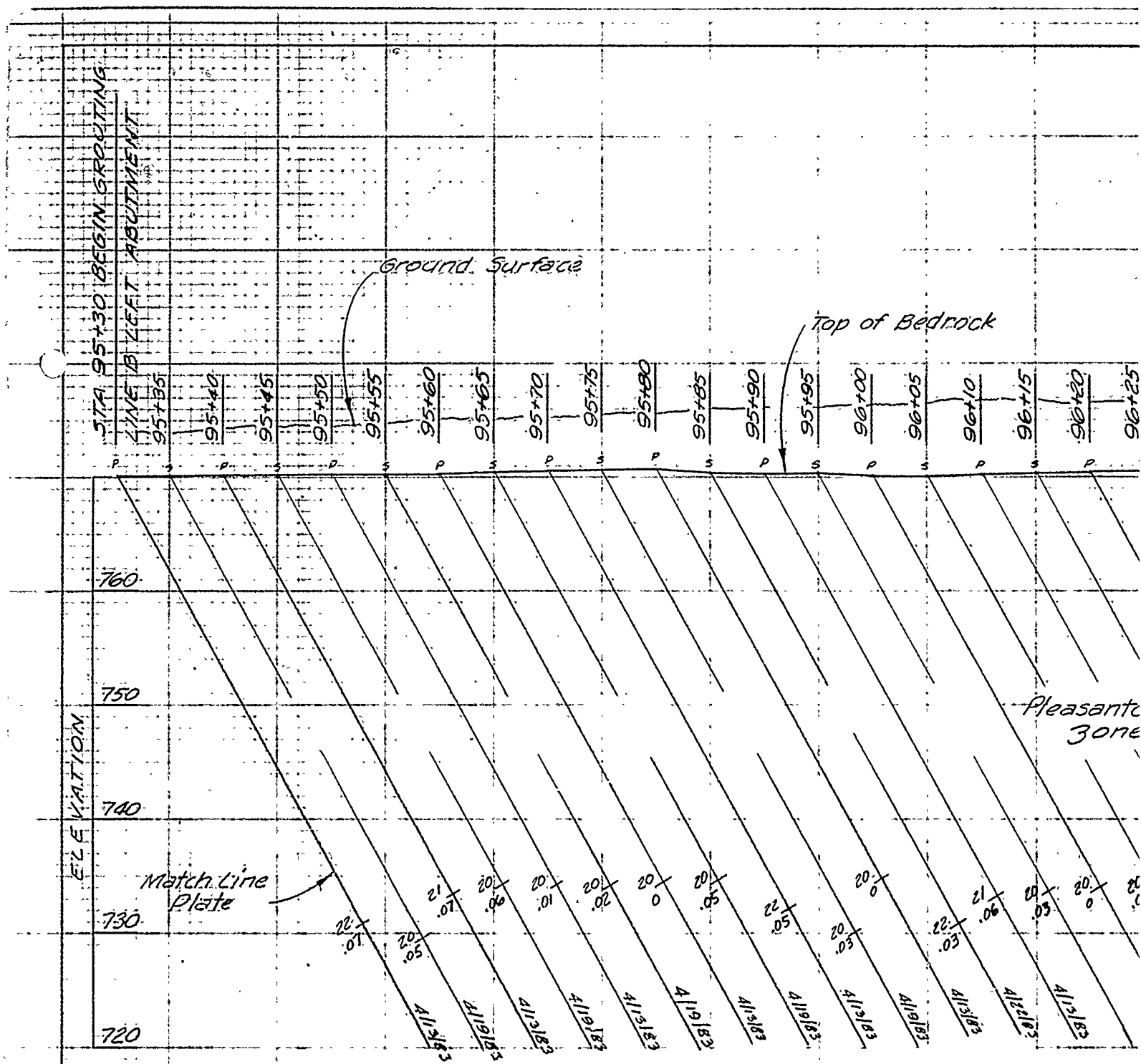
BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE A 5 FEET DOWNSTREAM STA
 LOOKING UPSTREAM



IN PROFILE LEFT ABUTMENT
 PEAM STA 101+40 TO STA 102+50
 CANI

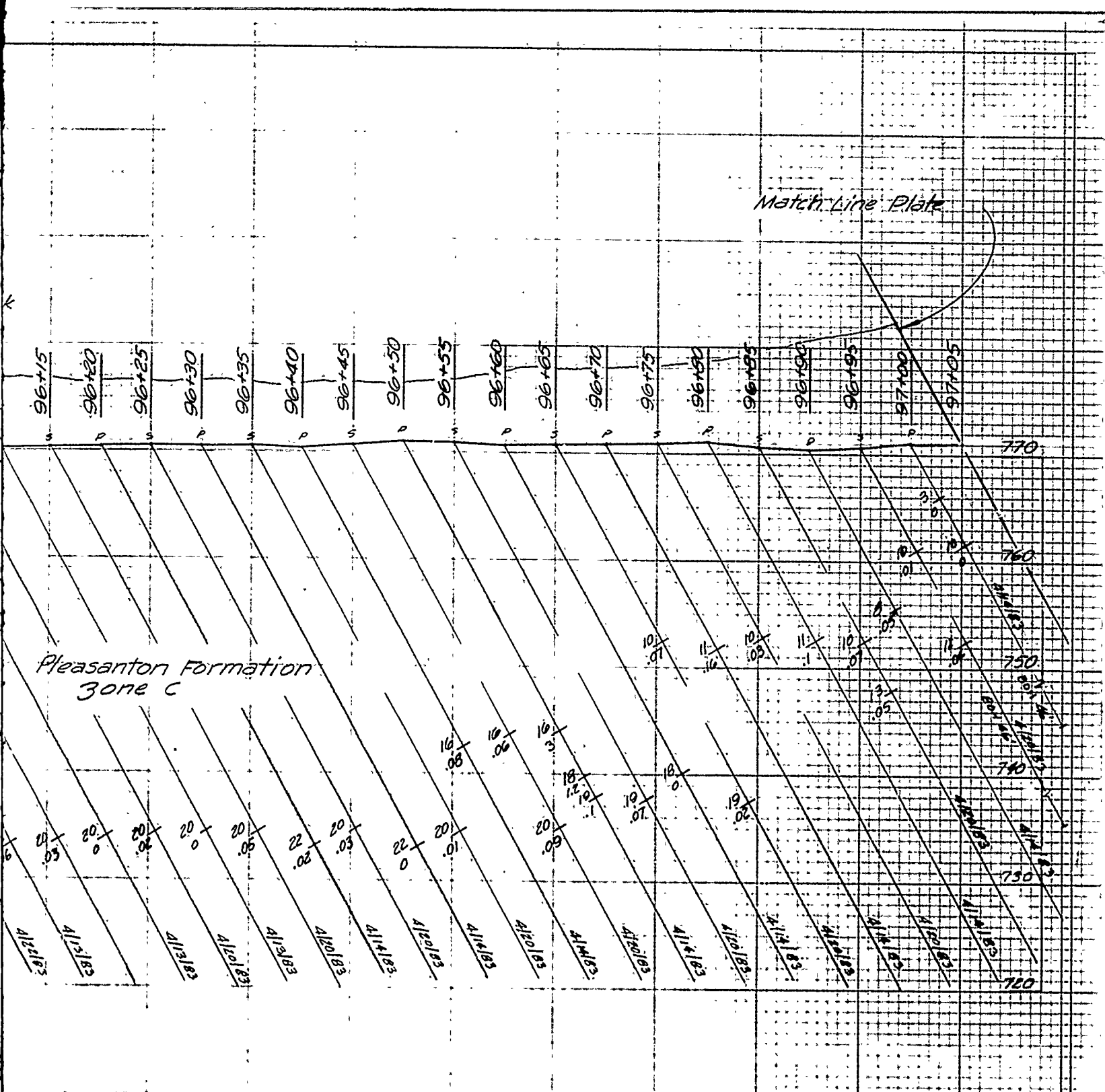
for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI				
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE A STA. 101+40 TO STA. 102+50	Scale:	AS SHOWN	
Drawn by:		V. A.	Date:	JUNE 1990
Checked by:		C. H.	Sheet number:	49
Submitted by:		File No.:	RBL-2-1269	



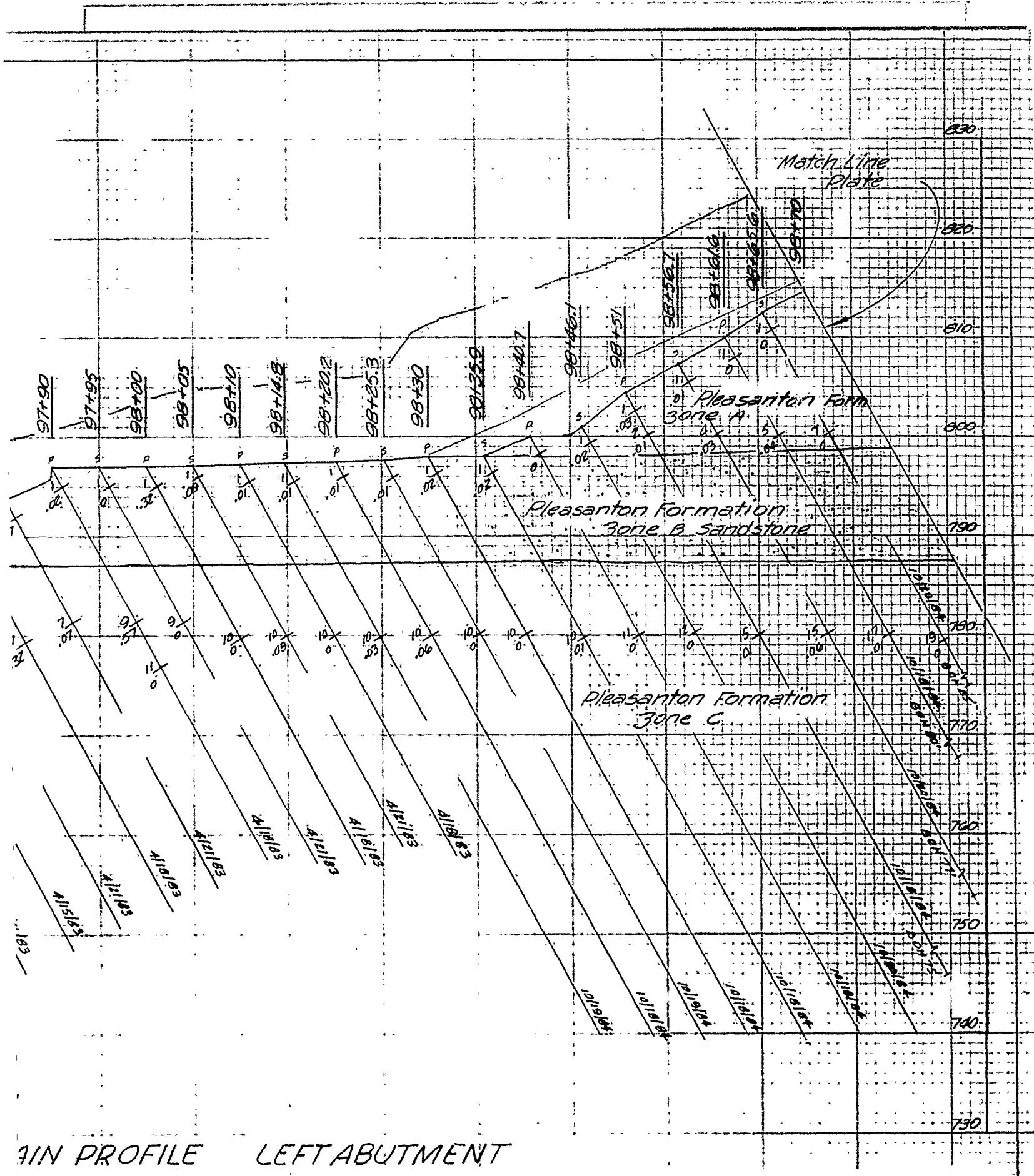
BLUE SPRINGS LAKE GROUT CURTAIN P.
 LINE B 5 FEET UPSTREAM
 LOOKING UPSTREAM.

	HOLES	DRILL	SACKS
PRIMARY	18	1016'	0
SECONDARY	17	967'	0




GROUT CURTAIN PROFILE LEFT ABUTMENT
 STREAM STA 95+30 TO STA 97+05
 STREAM

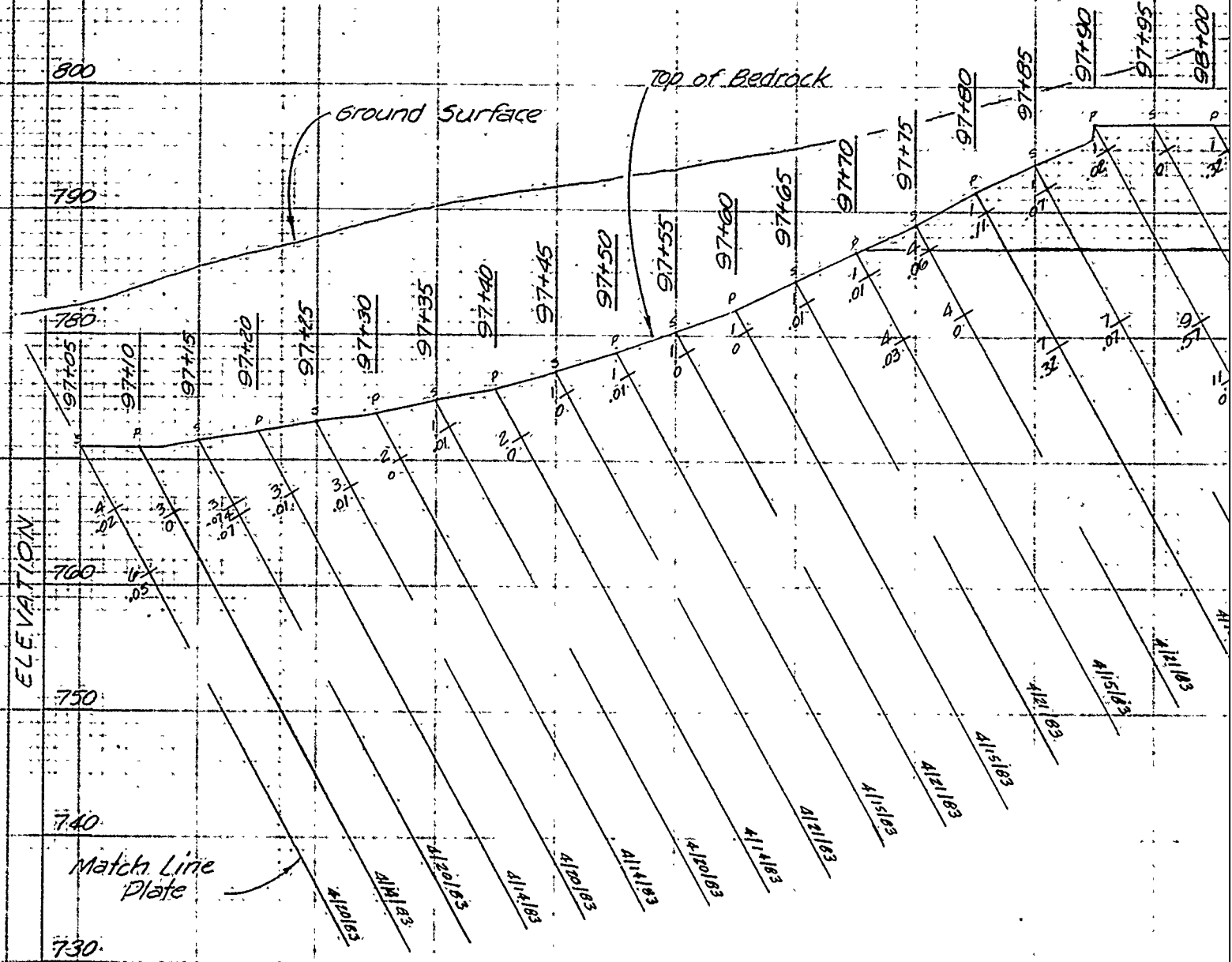
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE B STA 95+30 TO STA 97+05
Drawn by:	
V. A.	



AIN PROFILE LEFT ABUTMENT
 FAM STA 97+05 TO STA 98+70

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

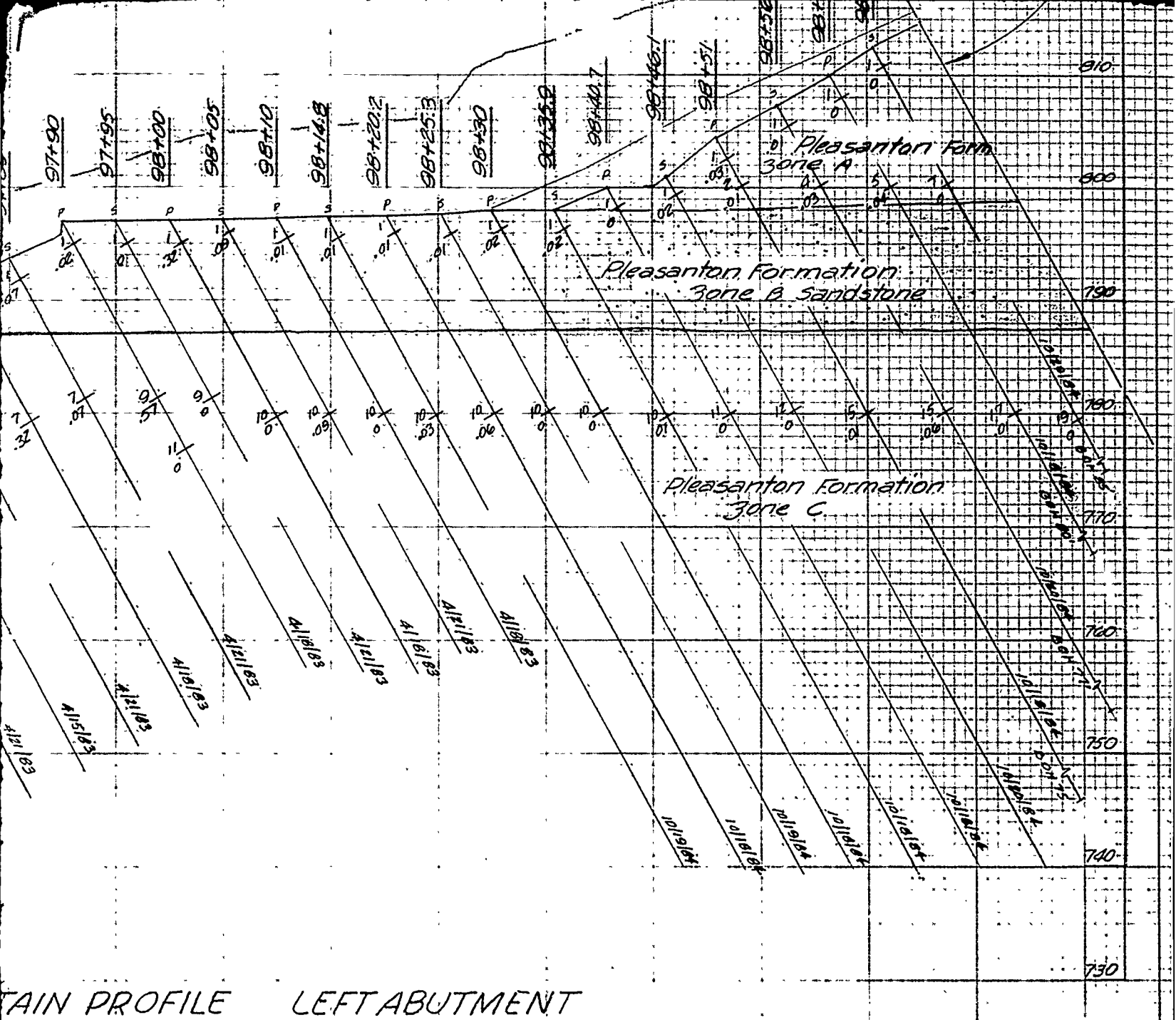
Designed by:  EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE B 5 FEET UPSTREAM STA
 LOOKING UPSTREAM.



for leg



GRAIN PROFILE LEFT ABUTMENT
 STREAM STA 97+05 TO STA 98+70
 STREAM

for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by:	V. A.	GROUT CURTAIN PROFILE. LEFT ABUTMENT LINE B STA. 97+05 TO STA. 98+70	
Checked by:	C. H.	Date:	AS SHOWN
Submitted by:		Date:	JUNE 1990
		Sheet number:	51
		Project number:	RBL-2-1271

860
850
840
830
820
810
800
790
780
770
760
750

	HOLES	DRILL	SACKS
PRIMARY	12	1202	4
SECONDARY	11	1137	25

Ground Surface

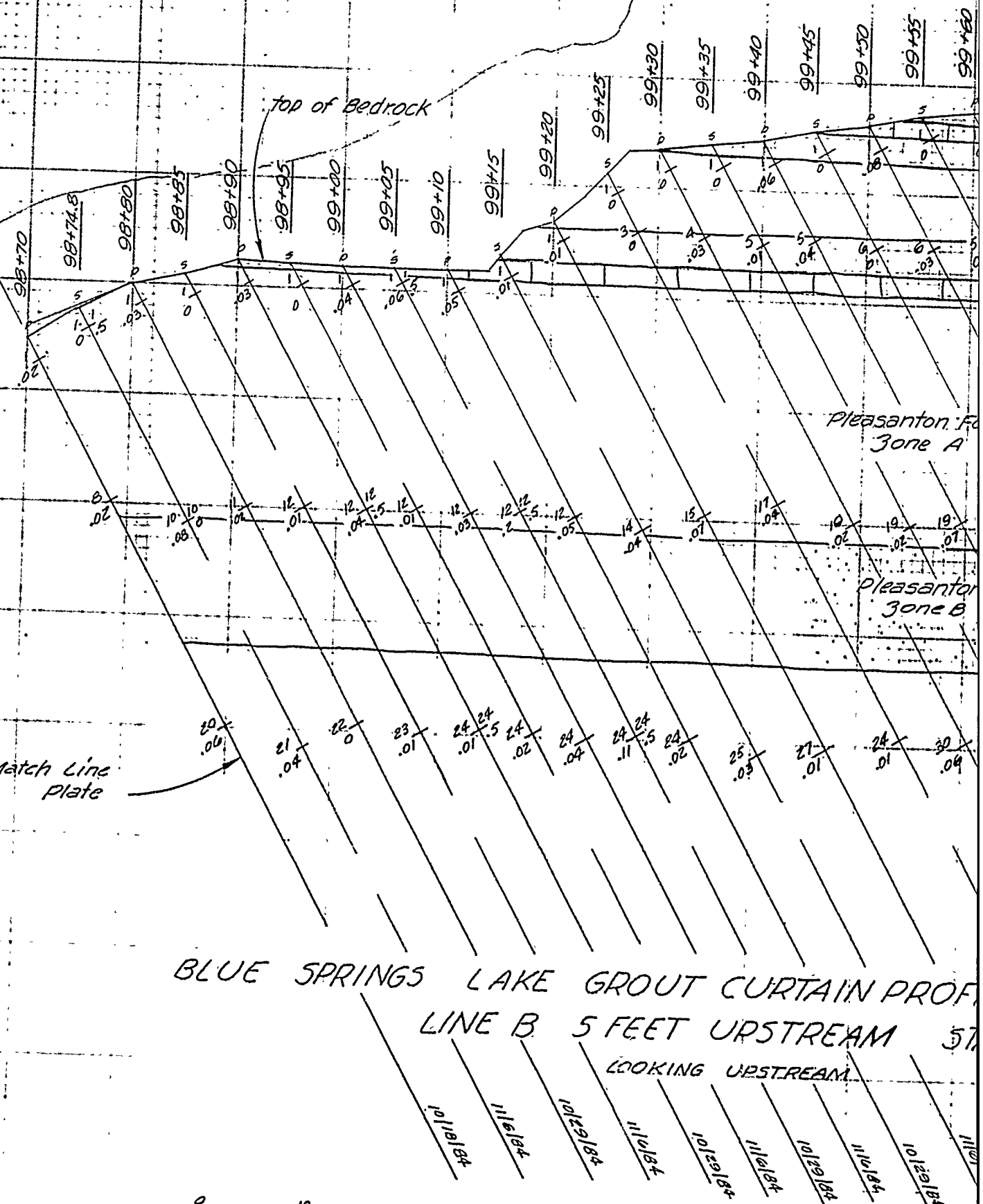
top of Bedrock

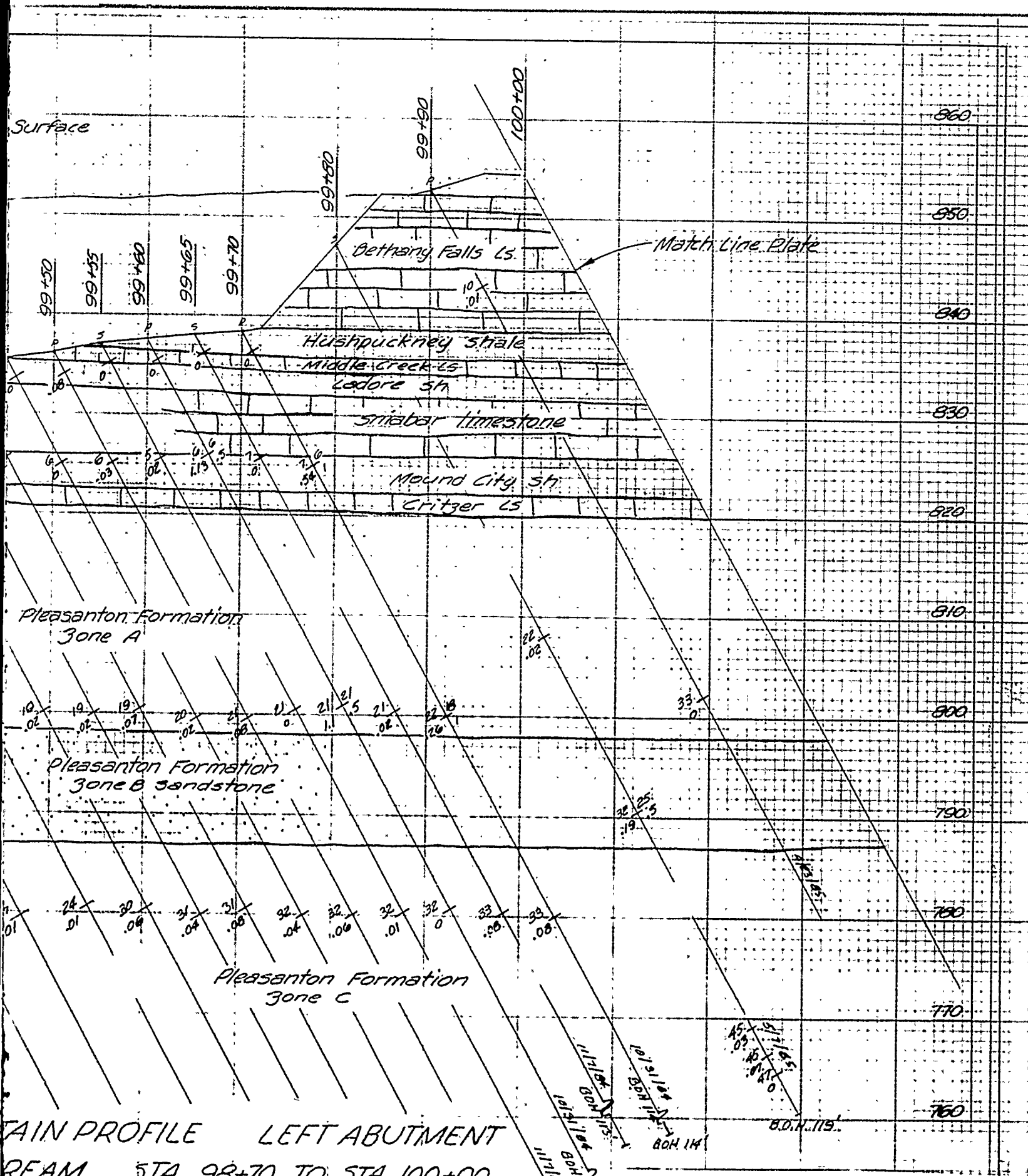
Pleasanton Fd
Zone A

Pleasanton
Zone B

Match Line
plate

BLUE SPRINGS LAKE GROUT CURTAIN PROF.
LINE B 5 FEET UPSTREAM 57
LOOKING UPSTREAM

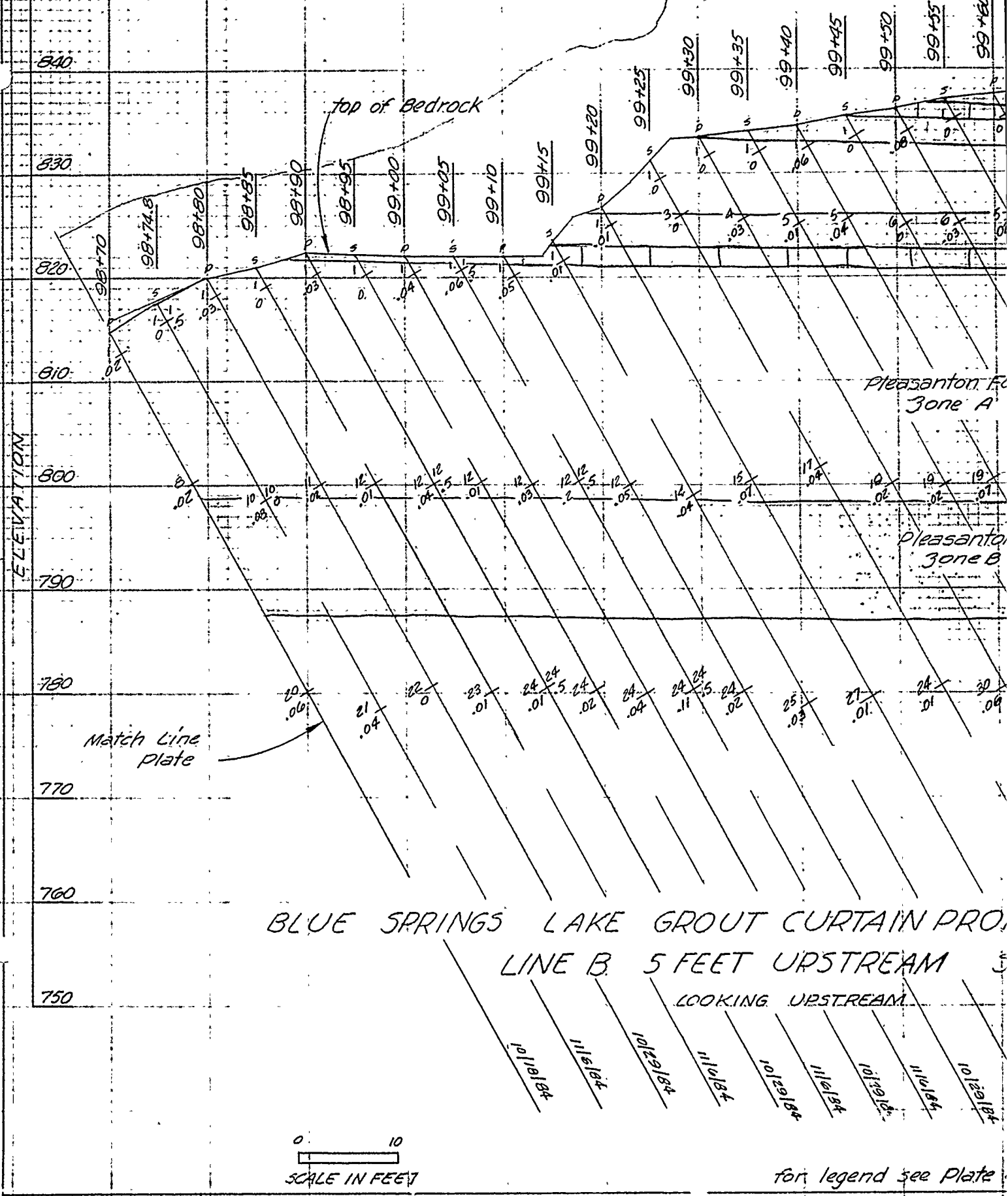




U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

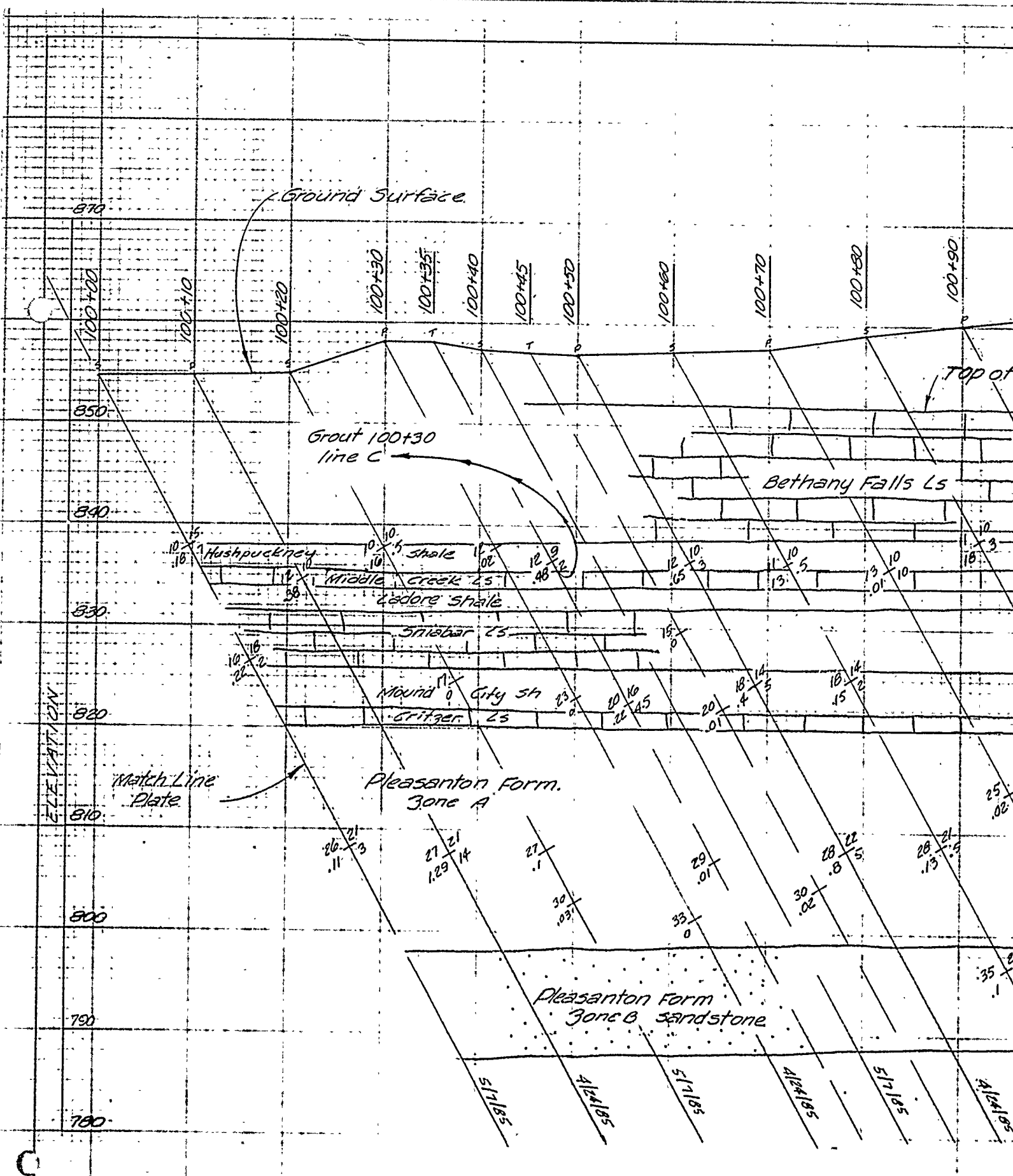
Designed by
Checked by



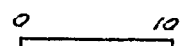
BLUE SPRINGS LAKE GROUT CURTAIN PROJECT
 LINE B 5 FEET UPSTREAM
 LOOKING UPSTREAM

0 10
 SCALE IN FEET

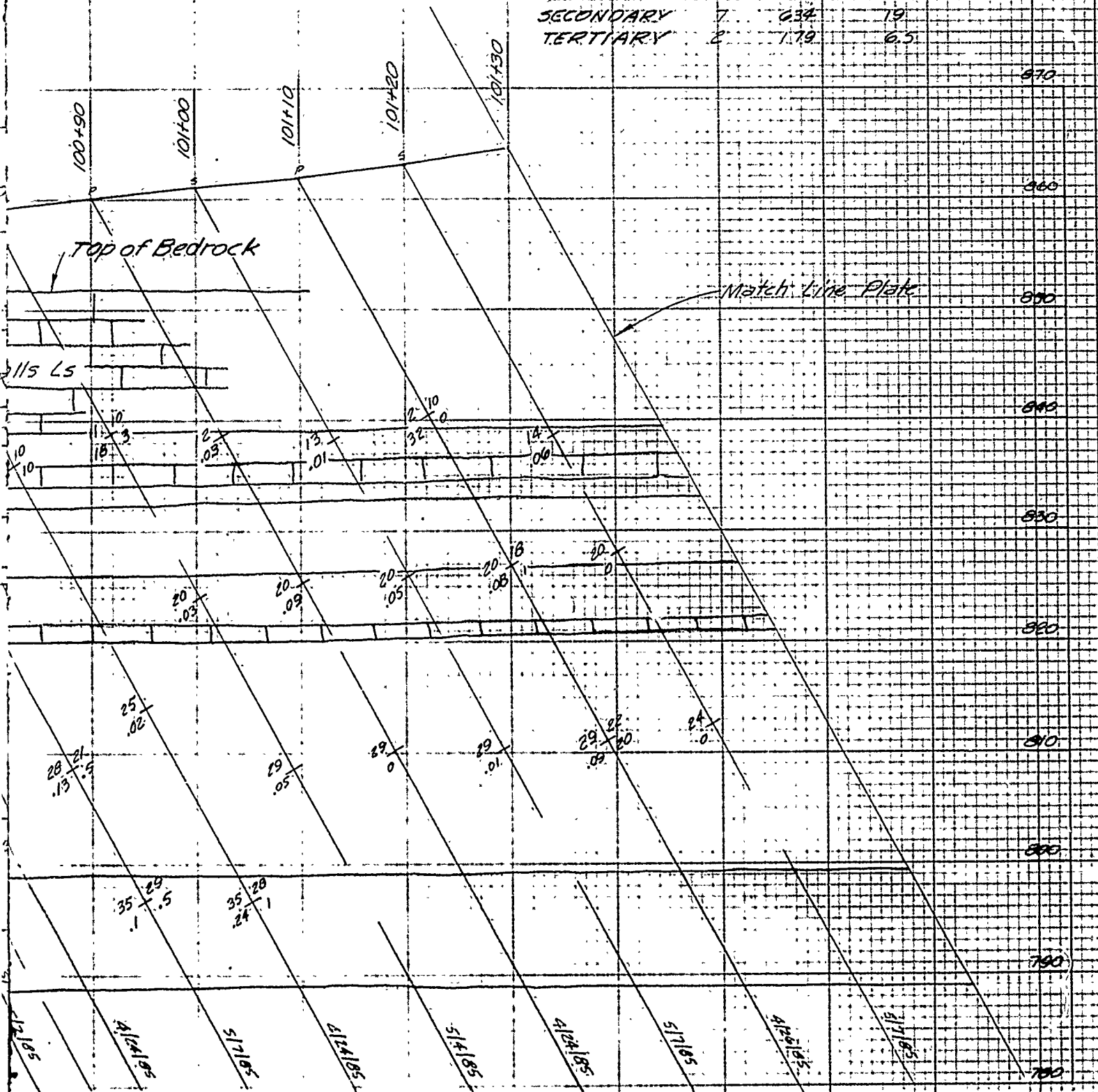
for legend see Plate



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE B 5 FEET UPSTREAM STA 100+
 LOOKING UPSTREAM.

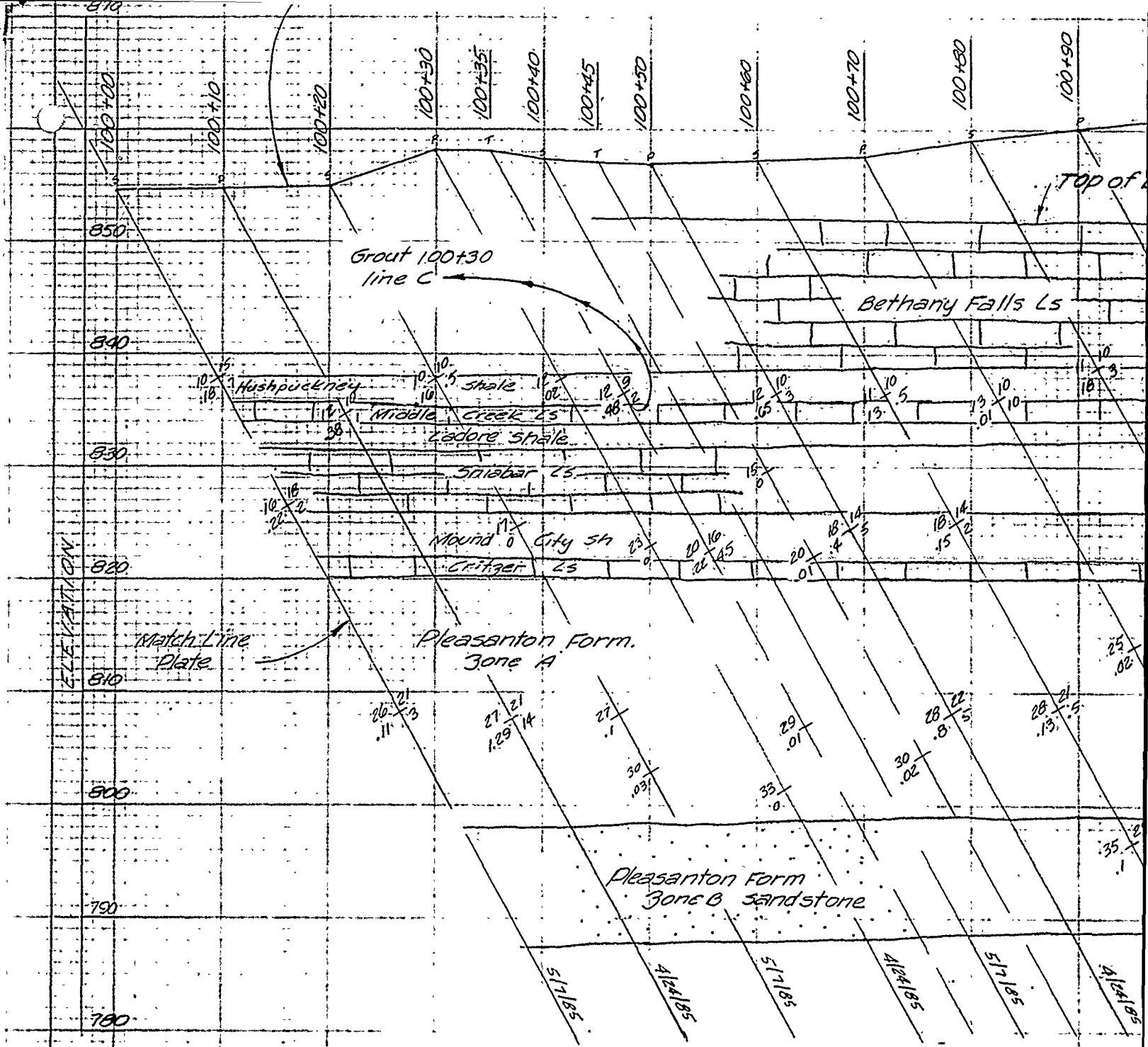


	HOLES	DRILL	SACKS
PRIMARY	6	545	60
SECONDARY	7	634	19
TERTIARY	2	179	6.5

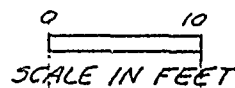


PROFILE LEFT ABUTMENT
 STA 100+00 TO STA 101+30

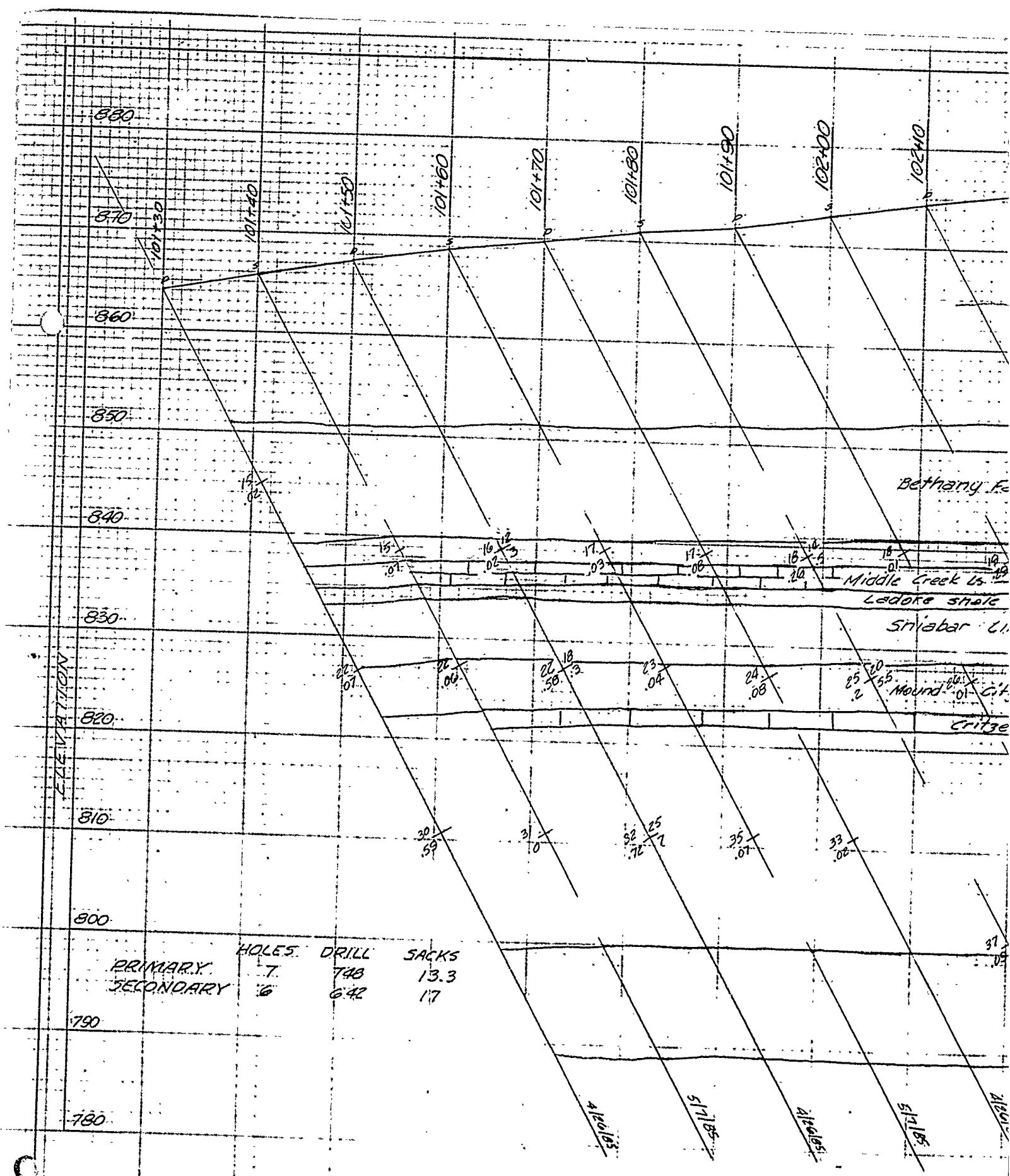
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE
Drawn by:	CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE B
V. A.	



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE B 5 FEET UPSTREAM STA 100
 LOOKING UPSTREAM.

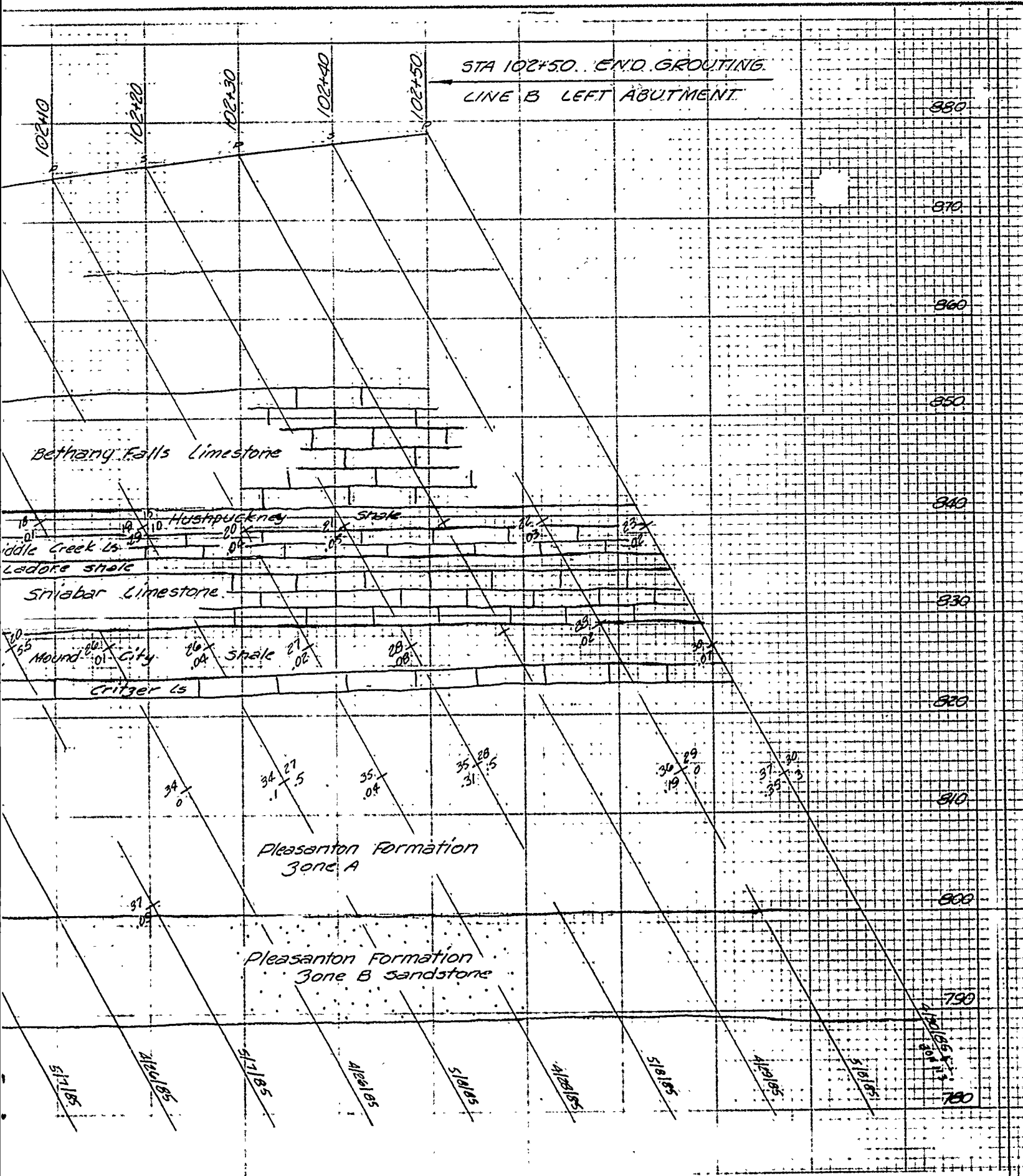


for legs




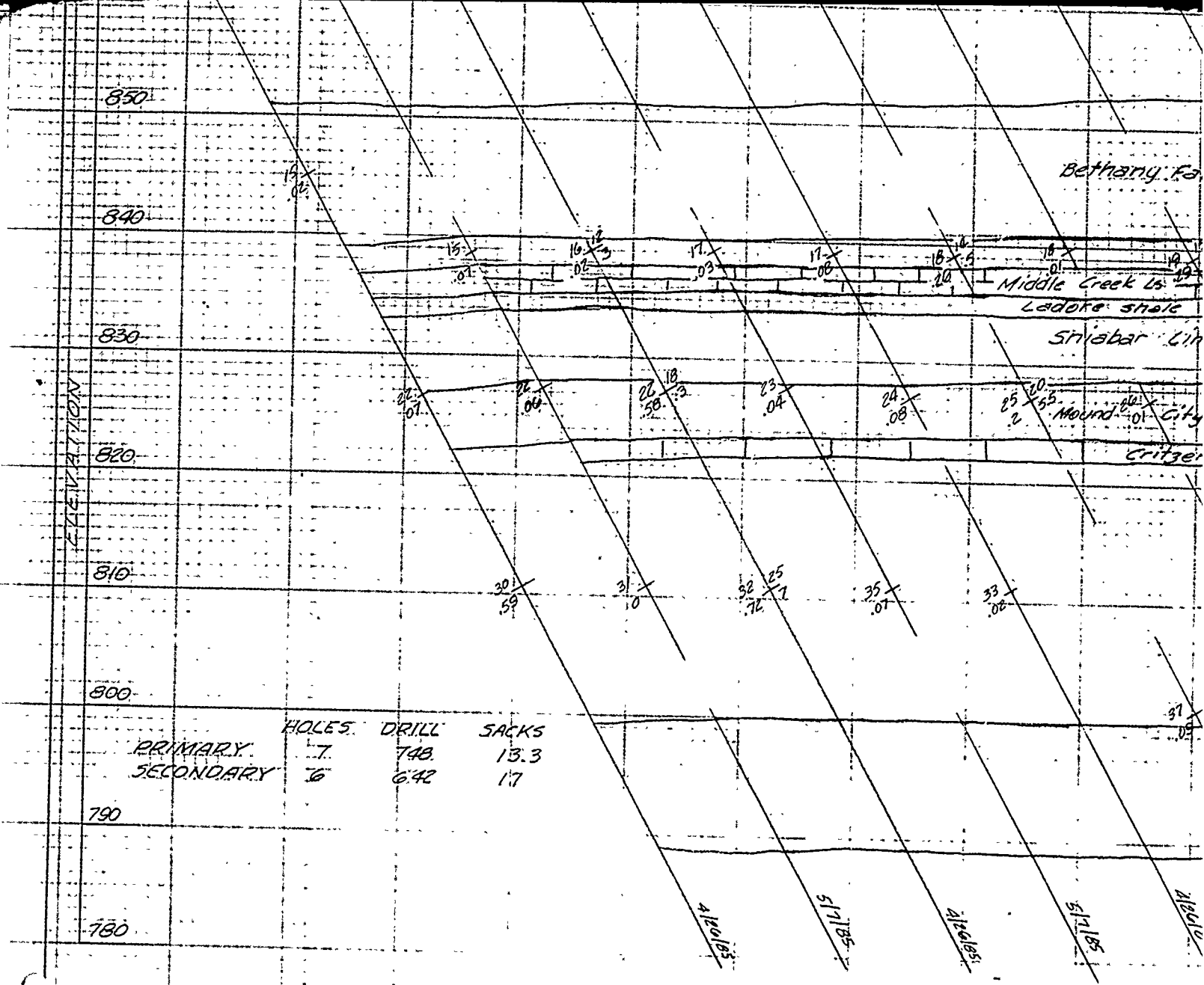
	HOLE	DRILL	SACKS
PRIMARY	7	748	13.3
SECONDARY	6	642	17

BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE B 5 FEET UPSTREAM STA 101+5
 LOOKING UPSTREAM



PROFILE LEFT ABUTMENT
STA 101+30 TO STA 102+50

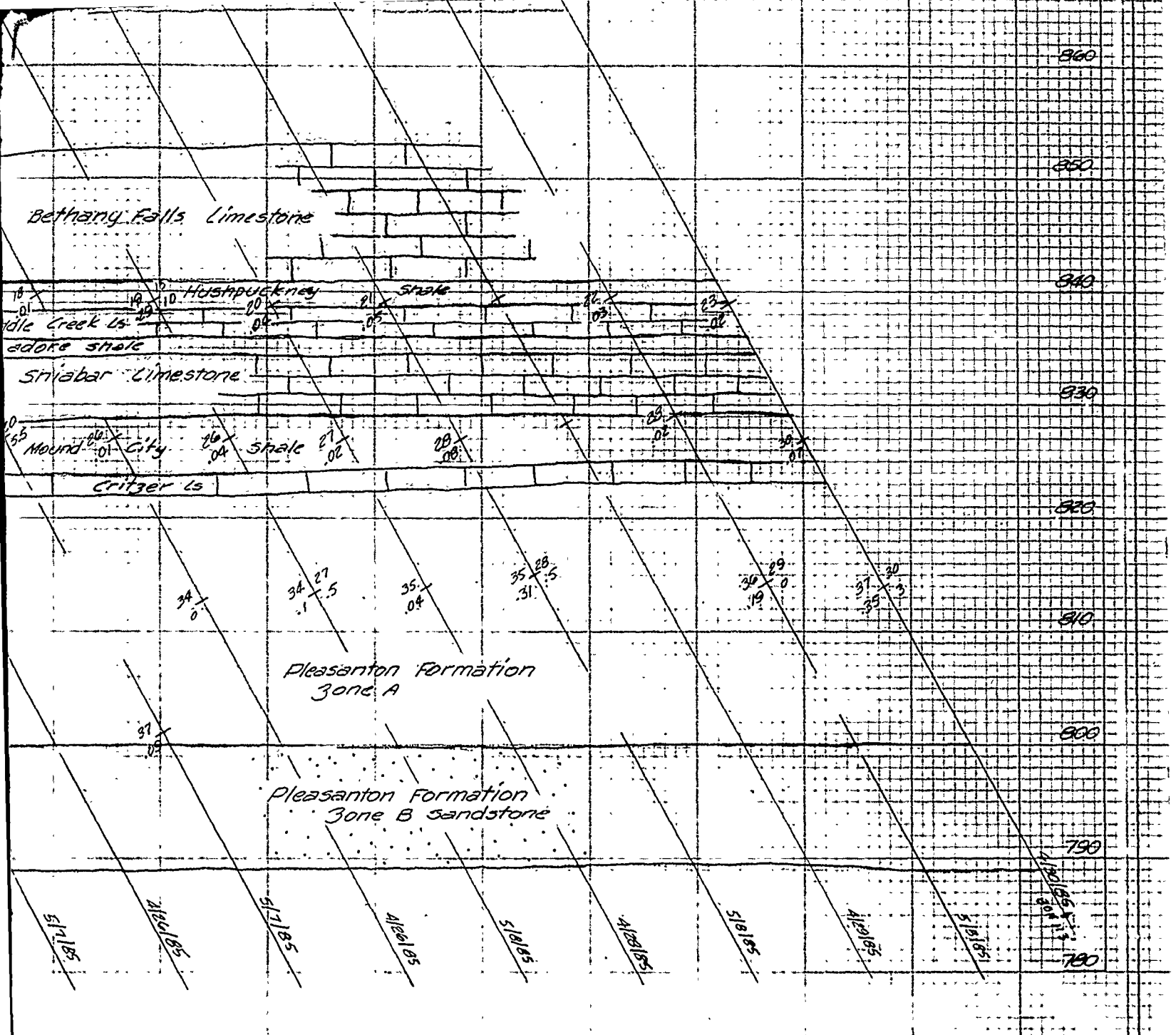
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI.	
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE B STA 101+30 TO STA 102+50
Drawn by:	
V.A.	



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE B 5 FEET UPSTREAM STA 101+30
 LOOKING UPSTREAM



for ledger

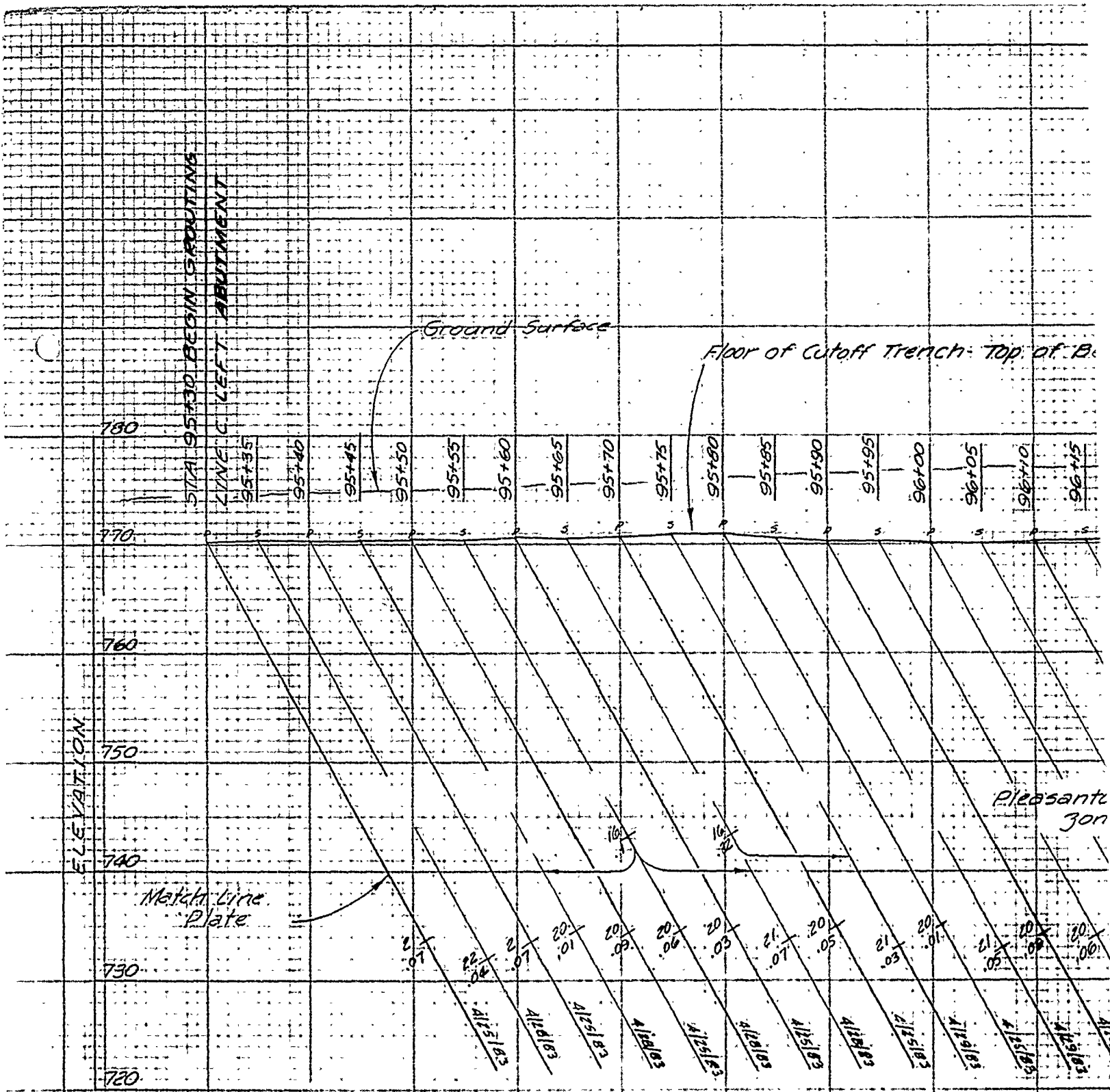


PROFILE LEFT ABUTMENT
 STA 101+30 TO STA 102+50

for legend see Plate 44

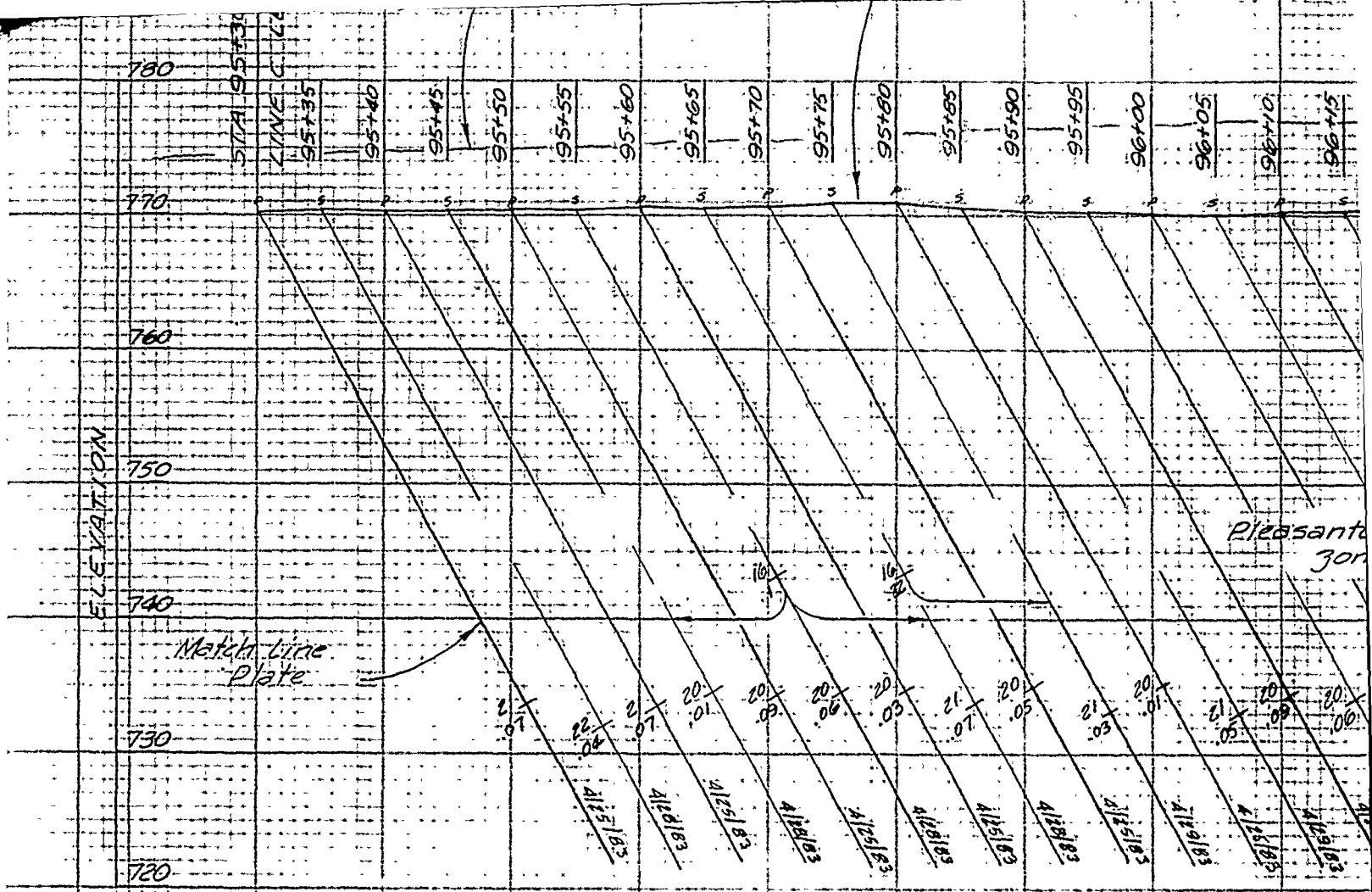
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE B STA. 101+30 TO STA. 102+50	
Drawn by:	V. A.		
Checked by:	C. H.	Scale:	AS SHOWN
Submitted by:		Date:	JUNE 1990
		Sheet Number:	54
		File No.:	RBL-2-1274

PLATE NO. 54



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS. STA 95+35 TO 96+15
 LOOKING UPSTREAM.

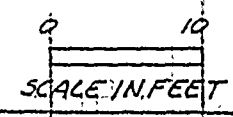
	HOLES	DRILL	SACKS
PRIMARY	13	728	0
SECONDARY	13	728	0



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS. STA 95+30

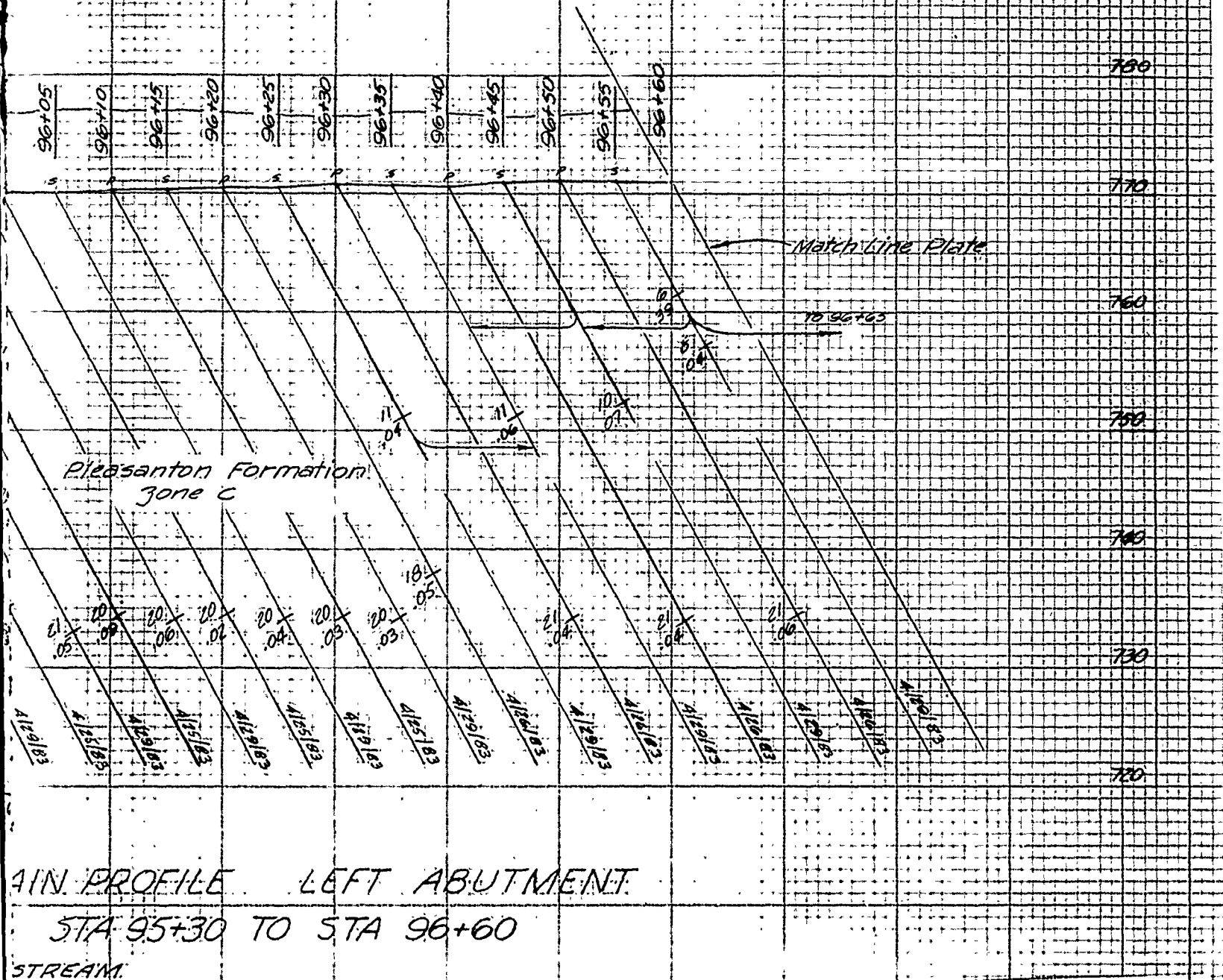
LOOKING UPSTREAM.

	HOLE#	DRILL	SACKS
PRIMARY	13	728	0
SECONDARY	13	728	0



for legend s

ch- Top of Bedrock

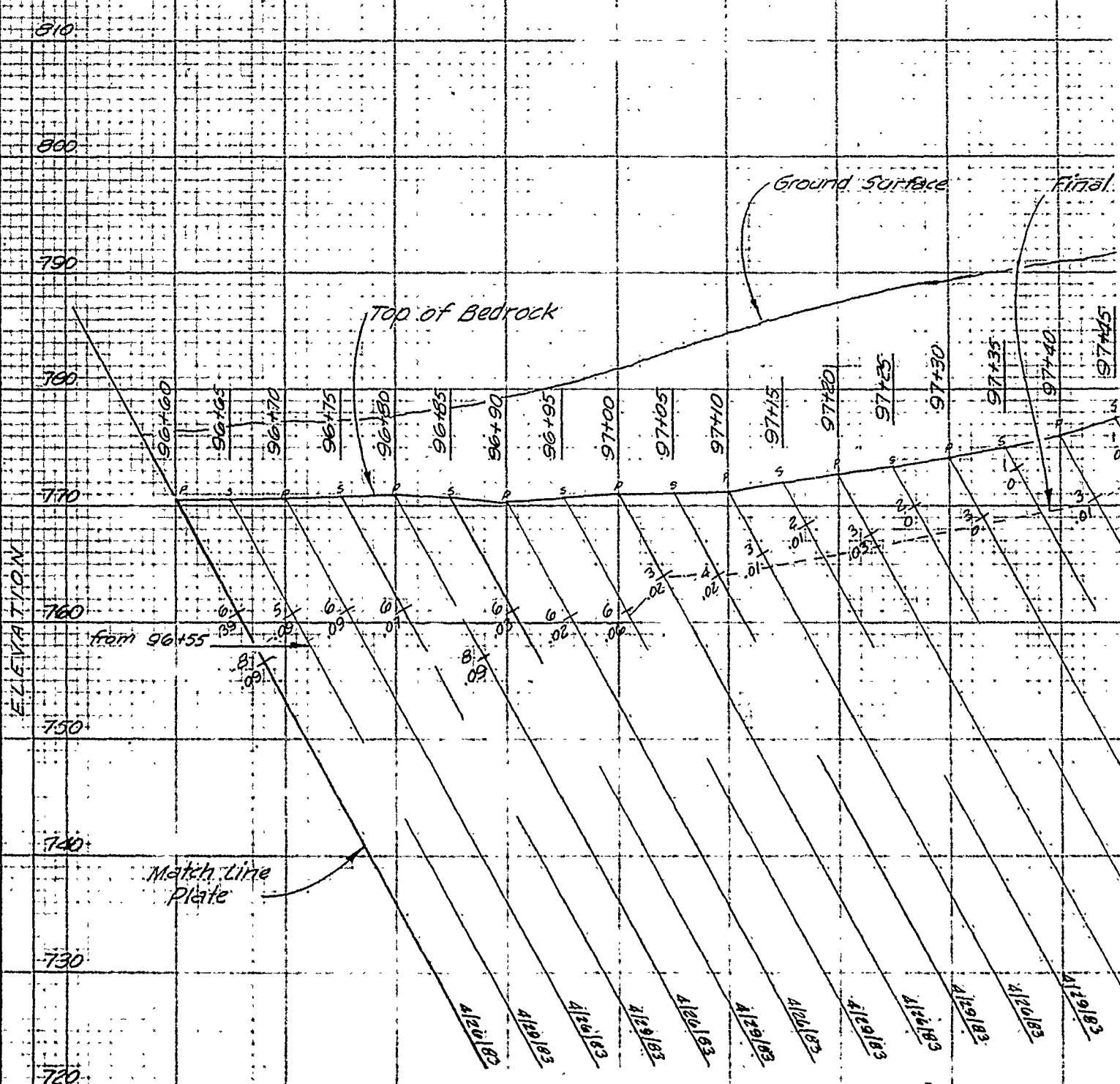


AIN. PROFILE LEFT ABUTMENT.
 STA 95+30 TO STA 96+60
 STREAM.

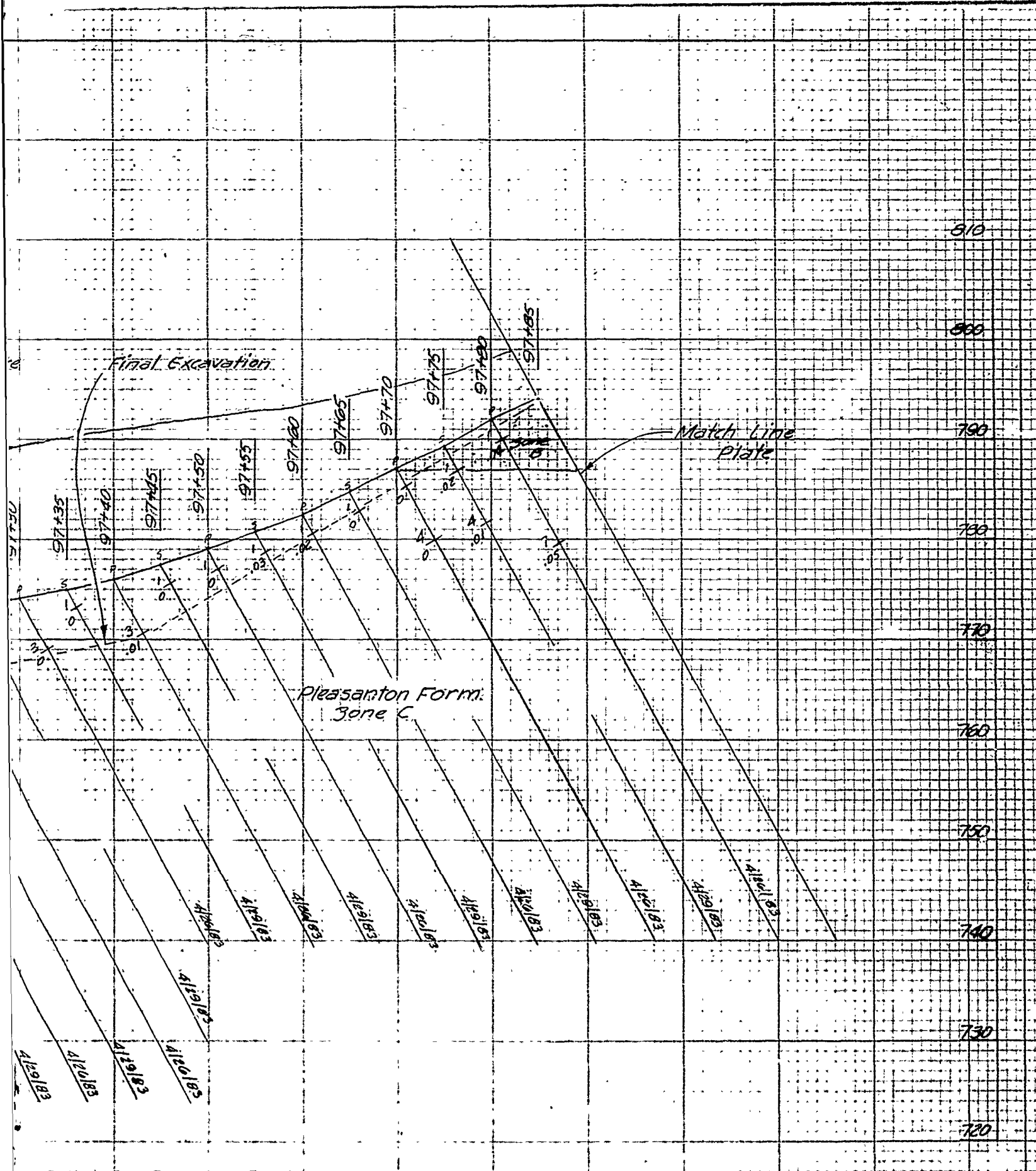
for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE C STA. 95+30 TO STA. 96+60	
Drawn by:	V. A.	Scale:	AS SHOWN
Checked by:	C. H.	Date:	JUNE 1990
Submitted by:		Sheet number:	55
			RBL-2-1275

	HOLES	DRILL	SACKS
PRIMARY	13	611	0
SECONDARY	12	622	0

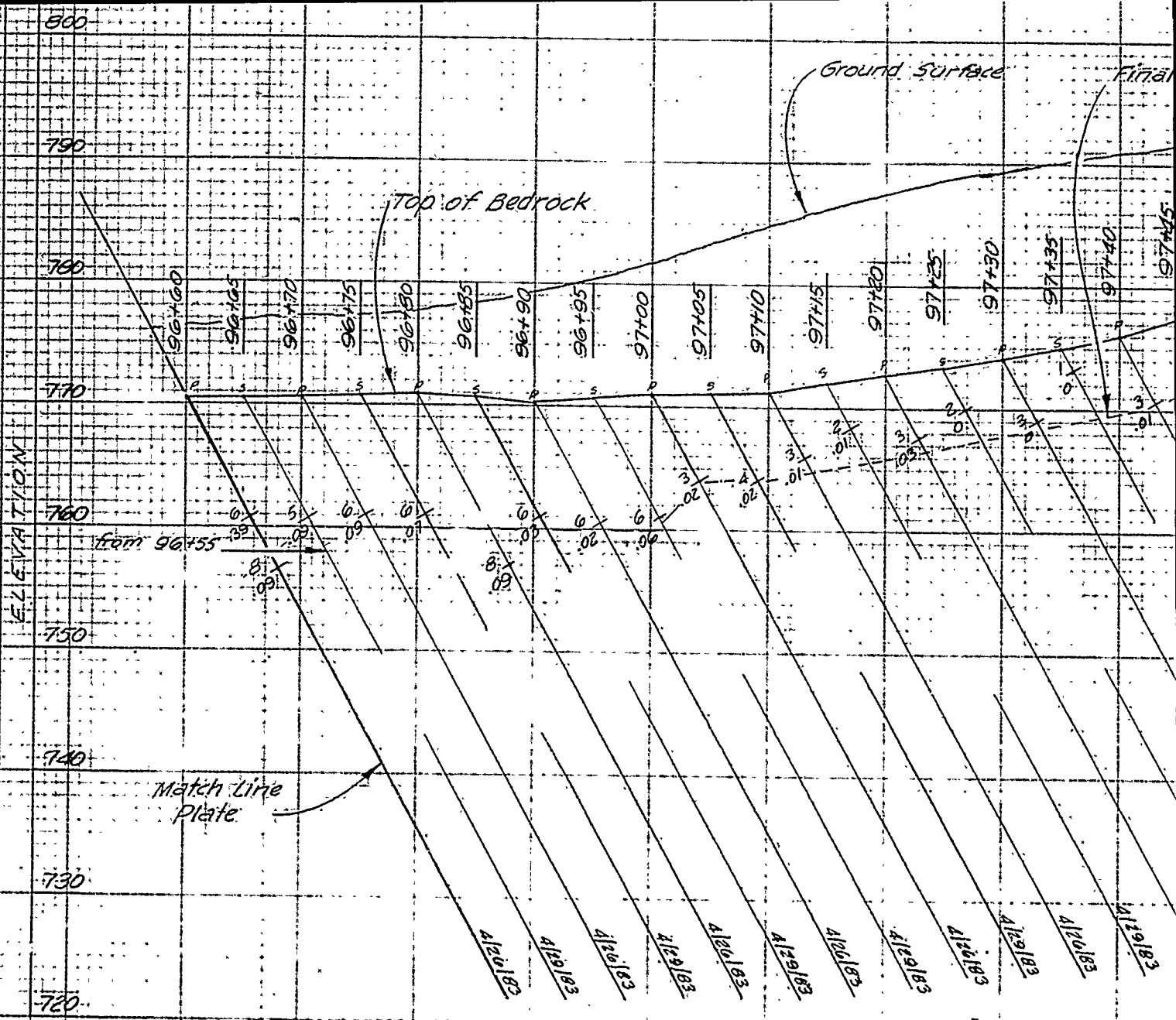


BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 96+60
 LOOKING UPSTREAM

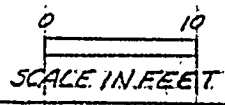


PROFILE LEFT ABUTMENT
 STA 96+60 TO STA 97+85

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by:	
Drawn by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE

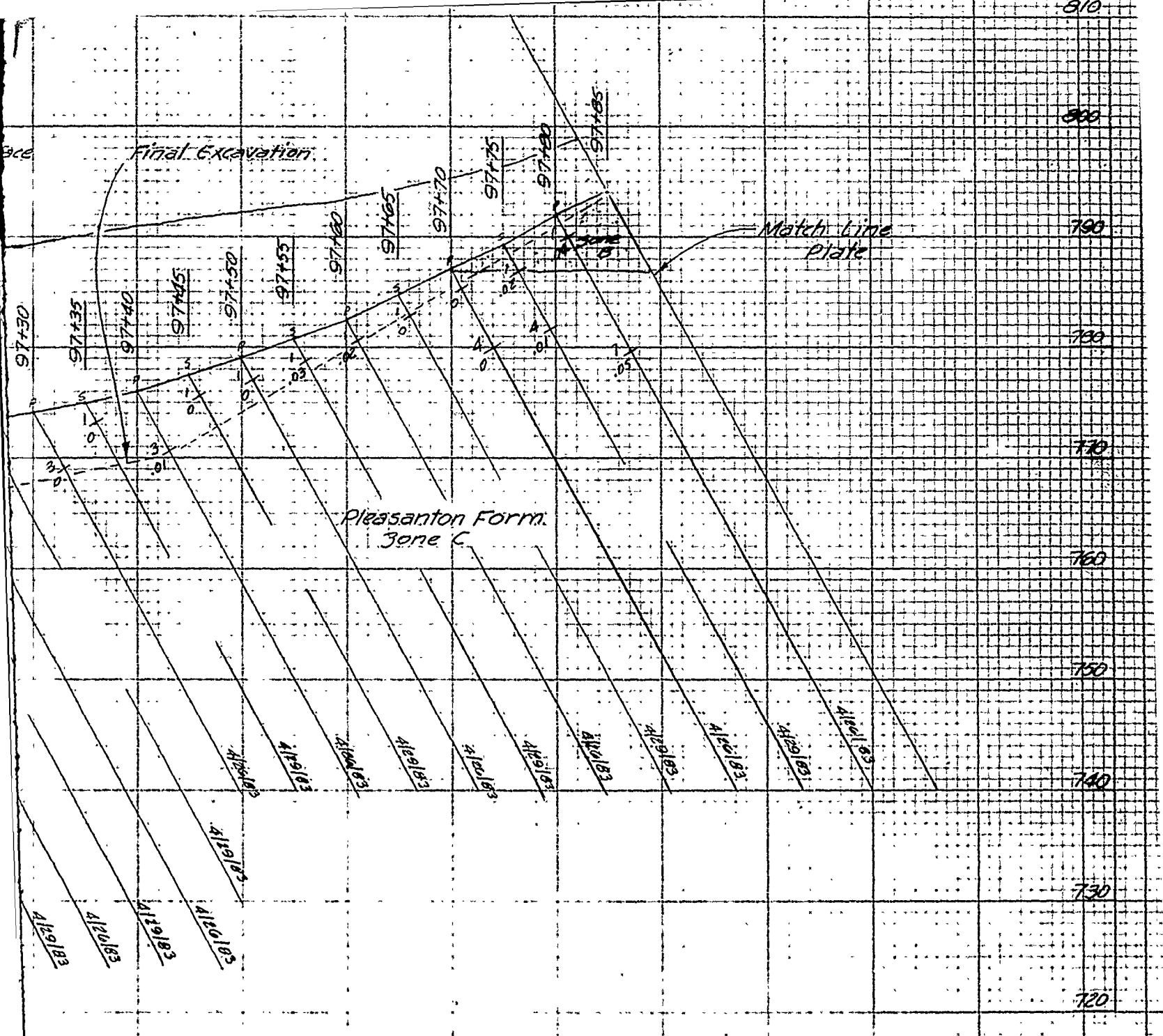


BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 96+60
 LOOKING UPSTREAM



for legend see A.

810
800
790
780
770
760
750
740
730
720



1 PROFILE LEFT ABUTMENT
STA 96+60 TO STA 97+85

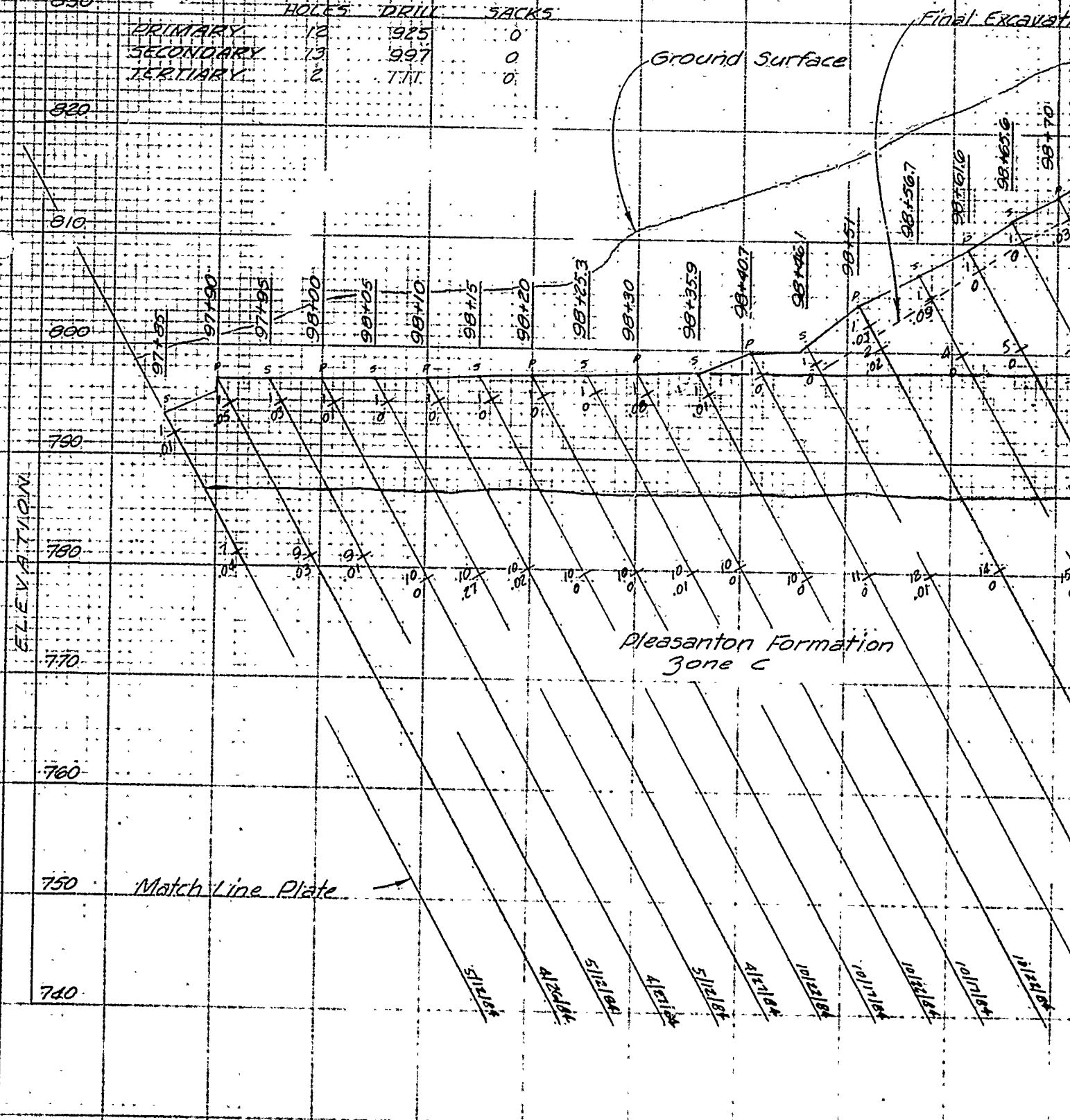
AM

r legend see Plate 44

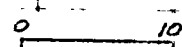
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE C STA. 96+60 TO STA. 97+85	
Drawn by:	V.A.	Scale:	AS SHOWN
Checked by:	C.H.	Sheet number:	56
Submitted by:		Date:	JUNE 1990
		Sheet:	56
		Project:	RBL-2-1276

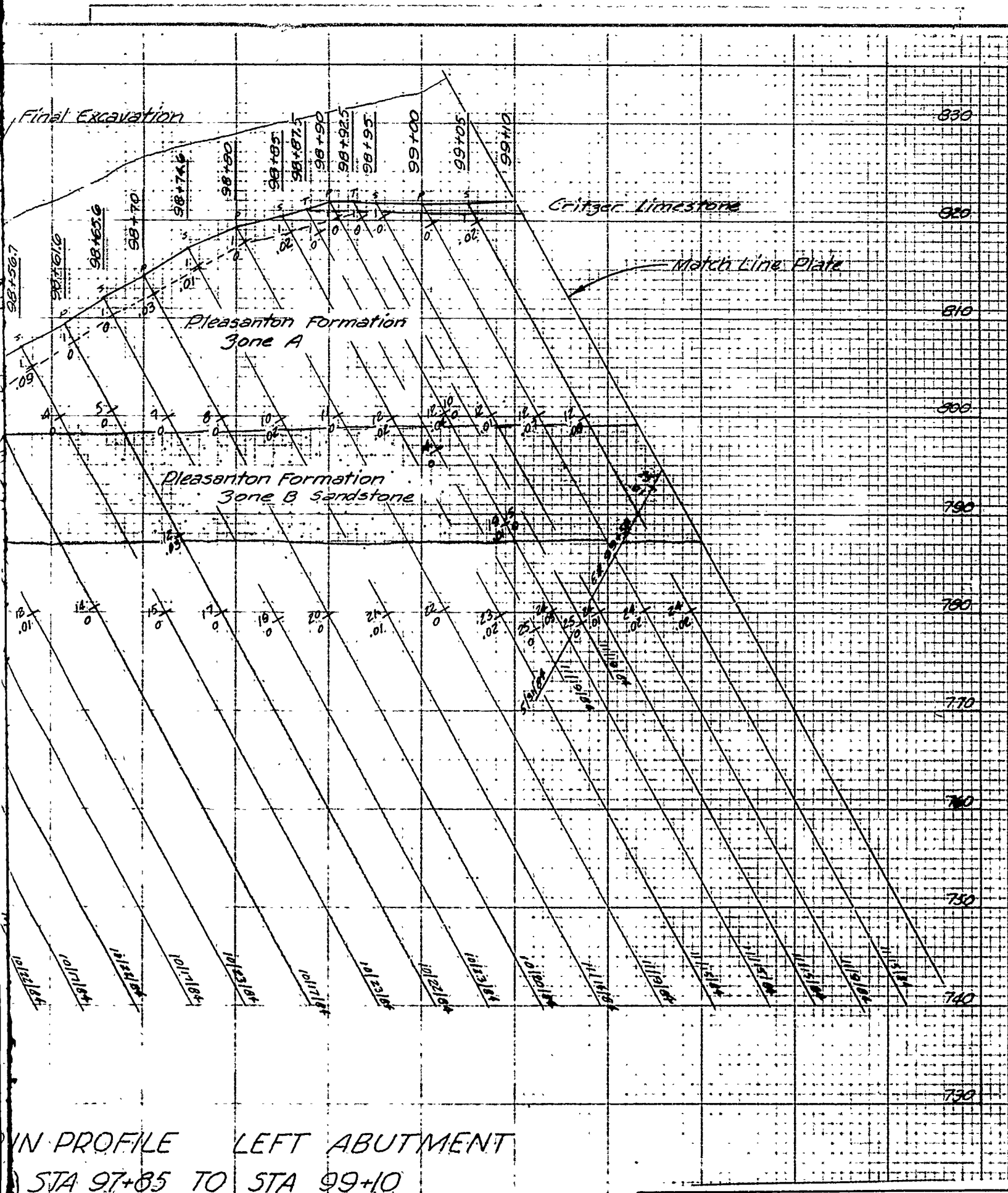
PLATE NO. 56

	HOLE	DRILL	SACKS
PRIMARY	12	925	0
SECONDARY	13	997	0
TERTIARY	2	T.A.T.	0



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 97+85
 LOOKING UPSTREAM





IN PROFILE LEFT ABUTMENT
 STA 97+85 TO STA 99+10

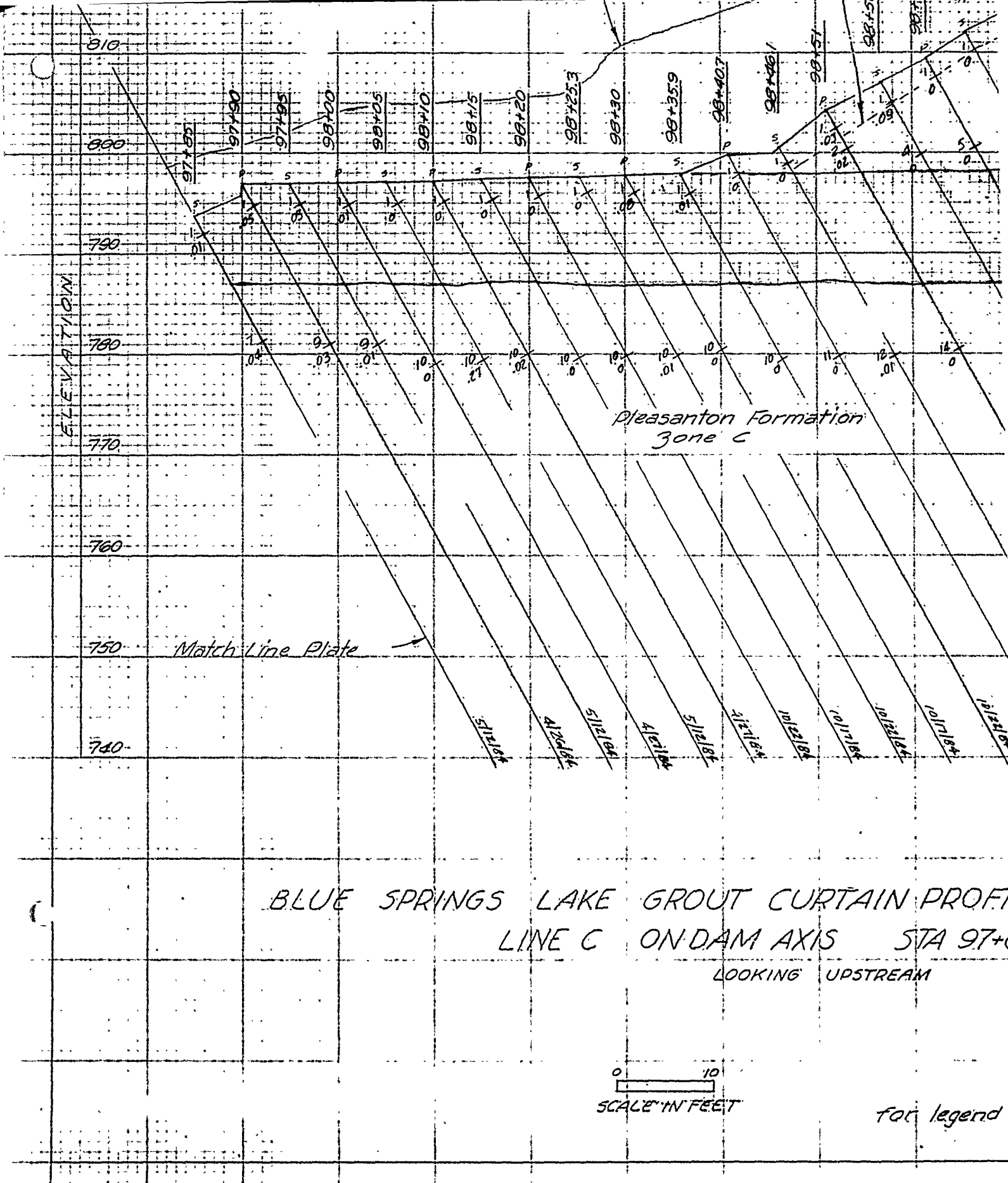
REAM

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

Designed by

EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE

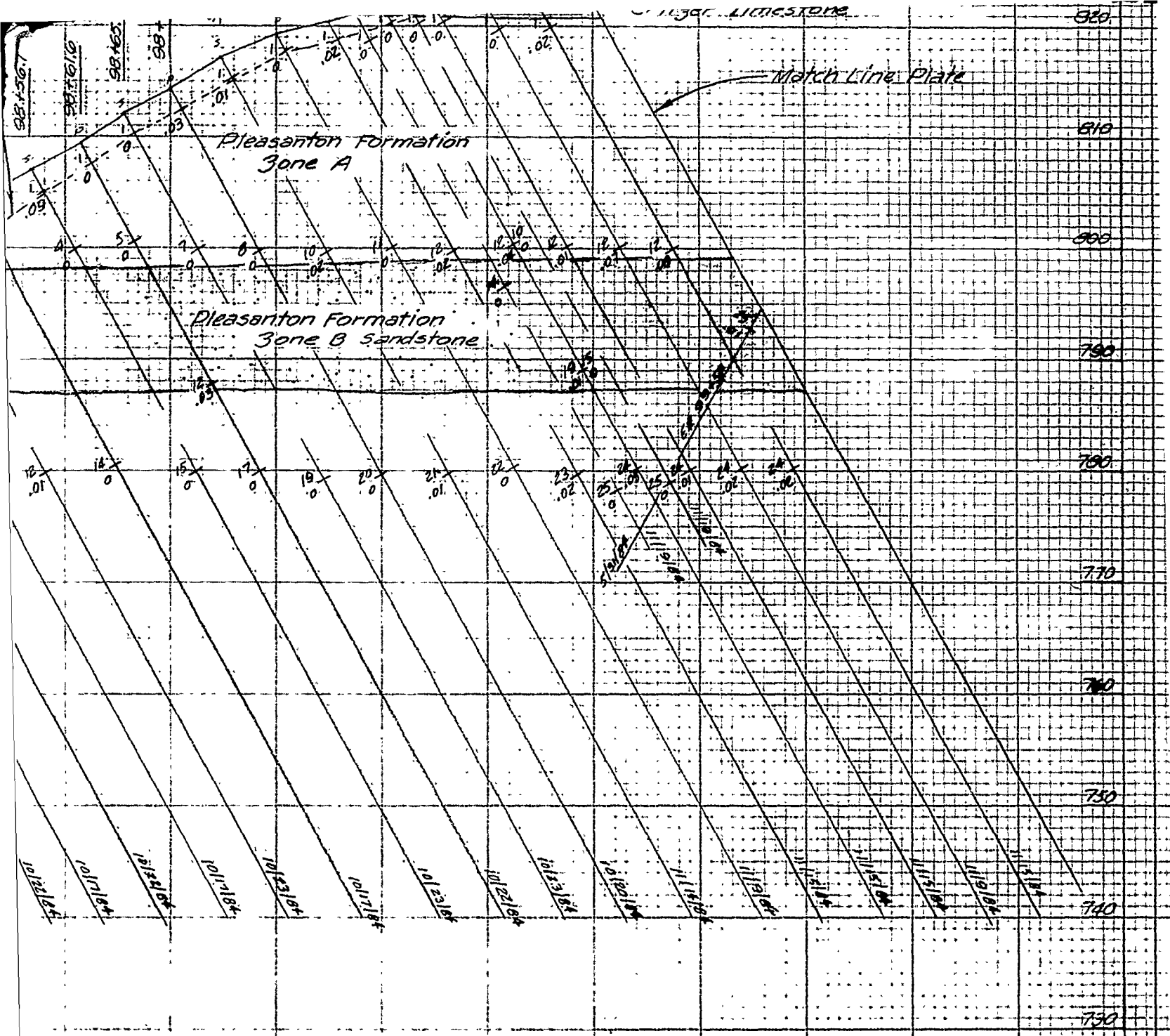
U.S. Army Corps of Engineers Construction Management Education Center



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 97+0
 LOOKING UPSTREAM

0 10
 SCALE IN FEET

for legend

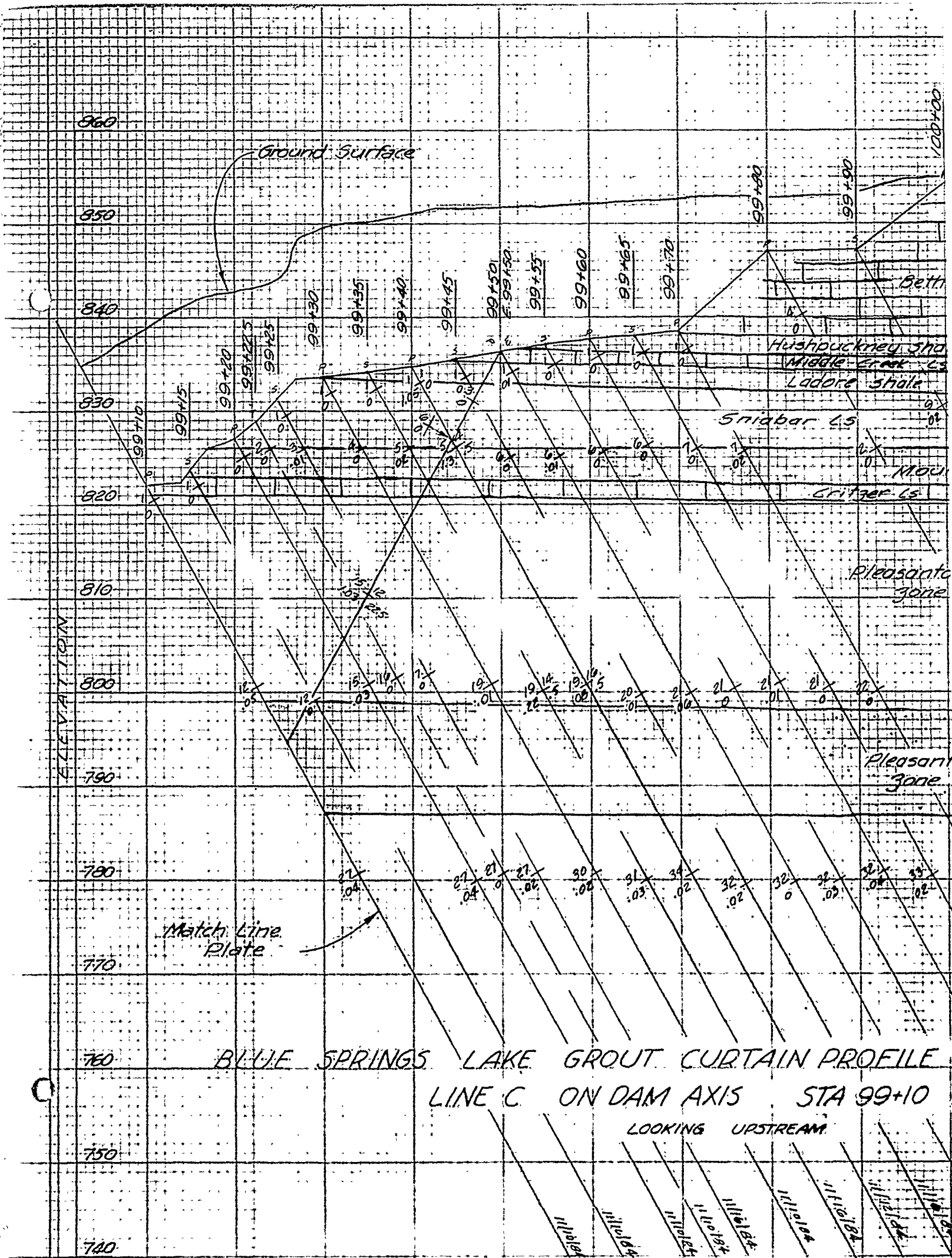


IN PROFILE LEFT ABUTMENT
 STA 97+85 TO STA 99+10

REAM

for legend see plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE C STA. 97+85 TO STA. 99+10	
Drawn by:	V. A.	Date:	AS SHOWN
Checked by:	C. H.	Date:	JUNE 1980
Submitted by:		Sheet number:	57
			Proj. No.: RBL-2-1277



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 99+10
 LOOKING UPSTREAM

960
950
940
930
920
910
800
790
780
770
760
750
740

ELEVATION

Ground Surface

Match Line Plate

Beth.

Hushbuckney sh.
Middle Creek ls.
Ladora shale

Sniabar ls.

Mou.
Gritzer ls.

Pleasant zone

Pleasant zone

100+00

99+85

99+80

99+75

99+70

99+65

99+60

99+55

99+50

99+45

99+40

99+35

99+30

99+25

99+20

99+15

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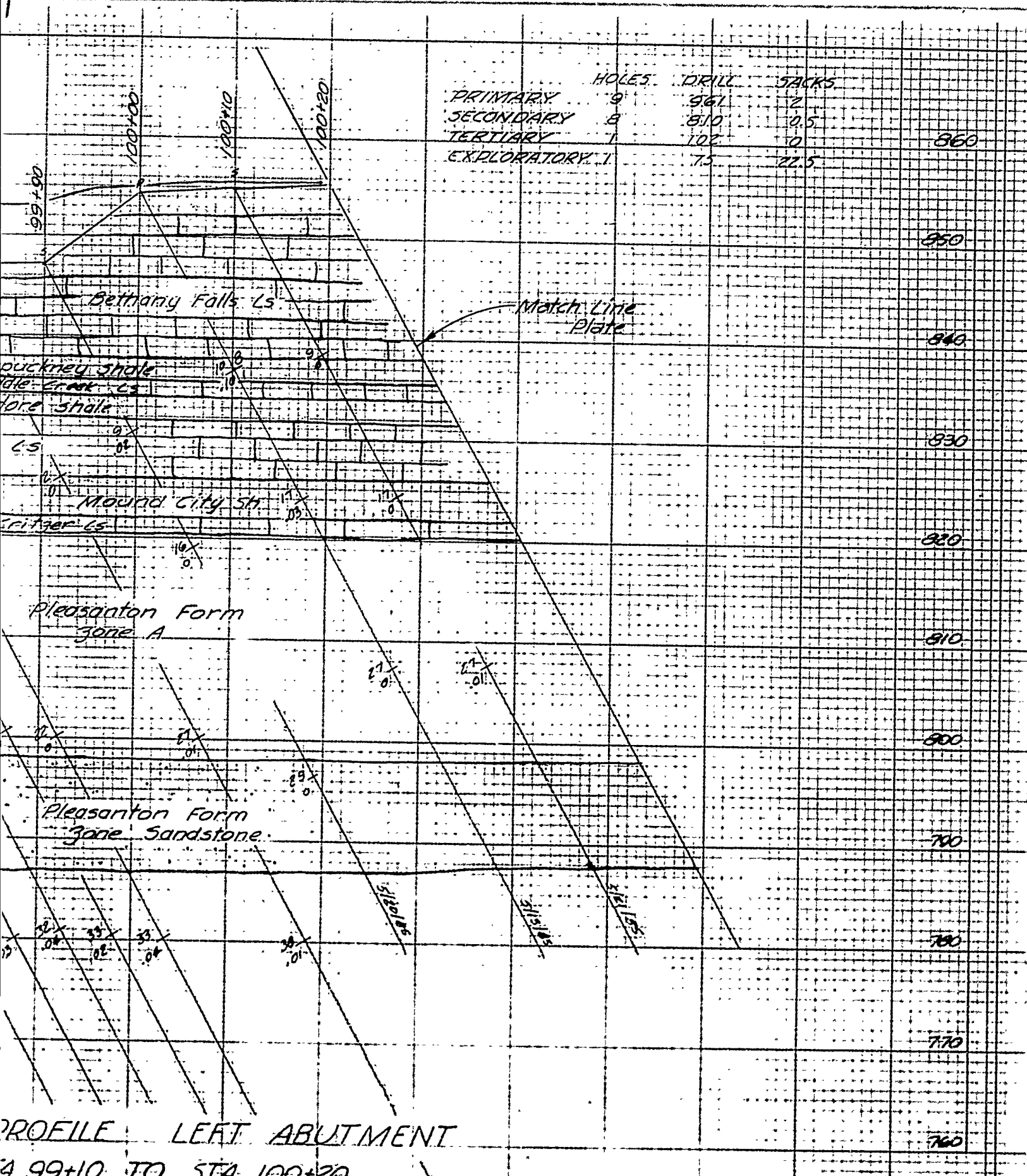
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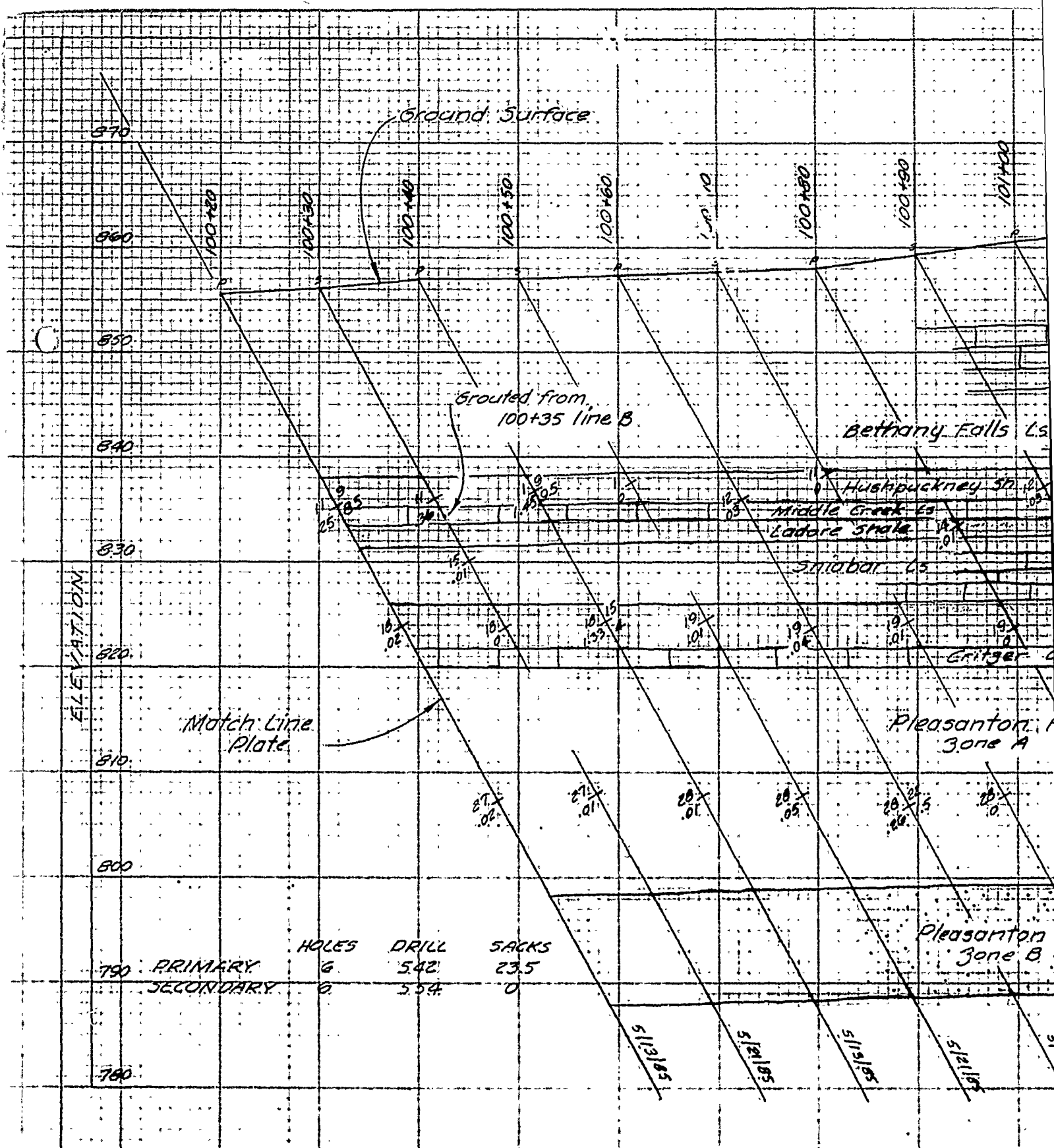
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	HOLES	DRILL	SACKS	
PRIMARY	9	561	2	
SECONDARY	8	810	0.5	
TERTIARY	1	102	0	860
EXPLORATORY	1	75	22.5	



PROFILE LEFT ABUTMENT
 STA 99+10 TO STA 100+20

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	V.A.	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE C STA. 99+10 TO STA. 100+20	
Drawn by:	C.H.		
Checked by:			
Submitted by:			
Date:	JUNE 1990	Sheet number:	58
		2-DRI-2-1272	



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 100+20
 LOOKING UPSTREAM

850
840
830
820
810
800
790
780

ELEVATION

Grouted from
100+35 line B

Bethany Falls ls

Hushpuckney sh

Middle Creek ls
Ladore shale

Snobar ls

Gritzer ls

Match line
plate

Pleasanton Fo
Zone A

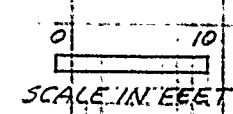
27
01
28
01
29
01
30
01
31
01

Pleasanton F
Zone B 50

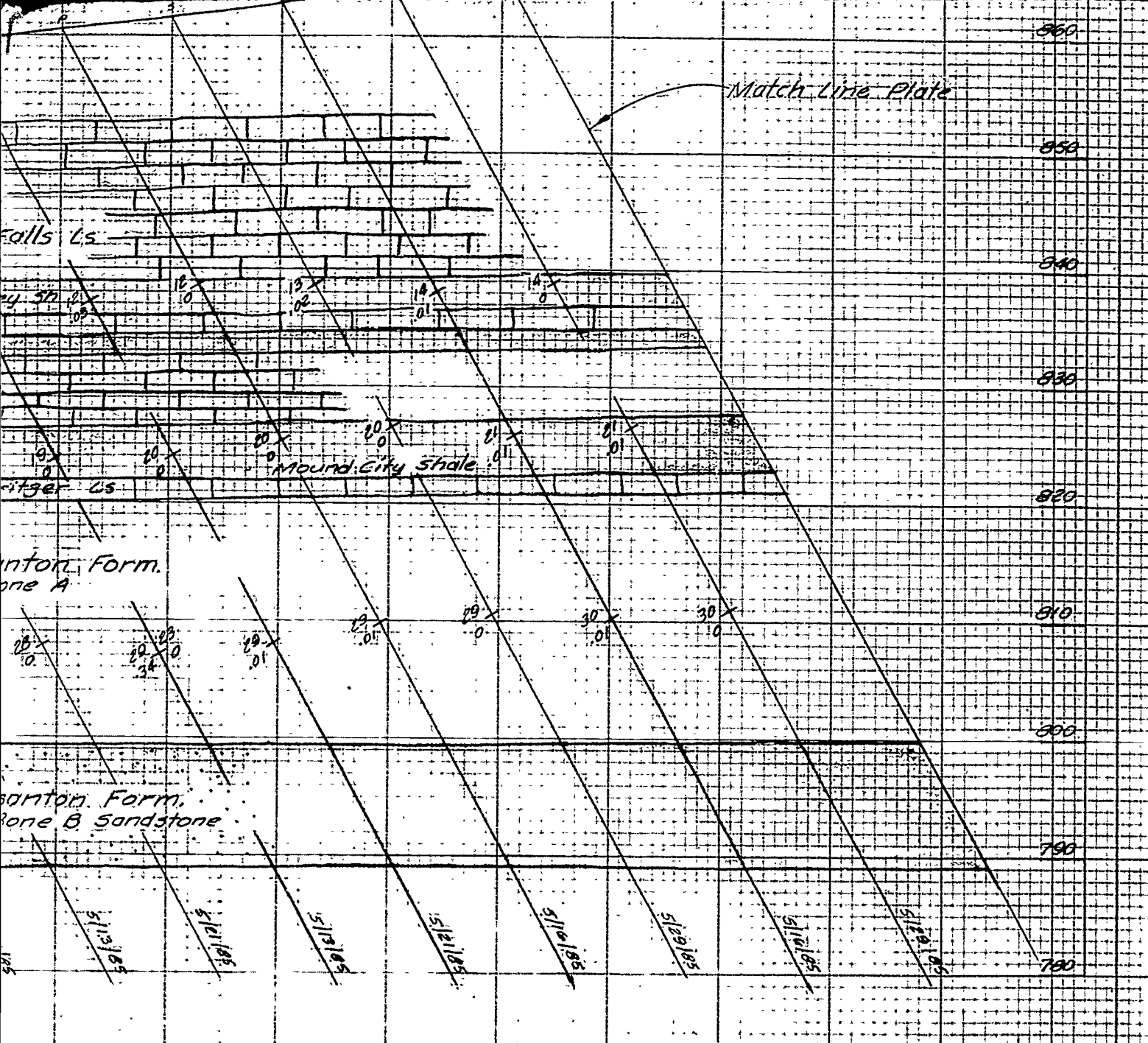
	HOLES	DRILL	SACKS
PRIMARY	6	542	23.5
SECONDARY	0	554	0

5113/85
5121/85
5131/85
5141/85
5151/85

BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
LINE C ON DAM AXIS STA 100+20
LOOKING UPSTREAM



for leg



PROFILE LEFT ABUTMENT
 100+20 TO STA 101+40

for legend see Plate 44


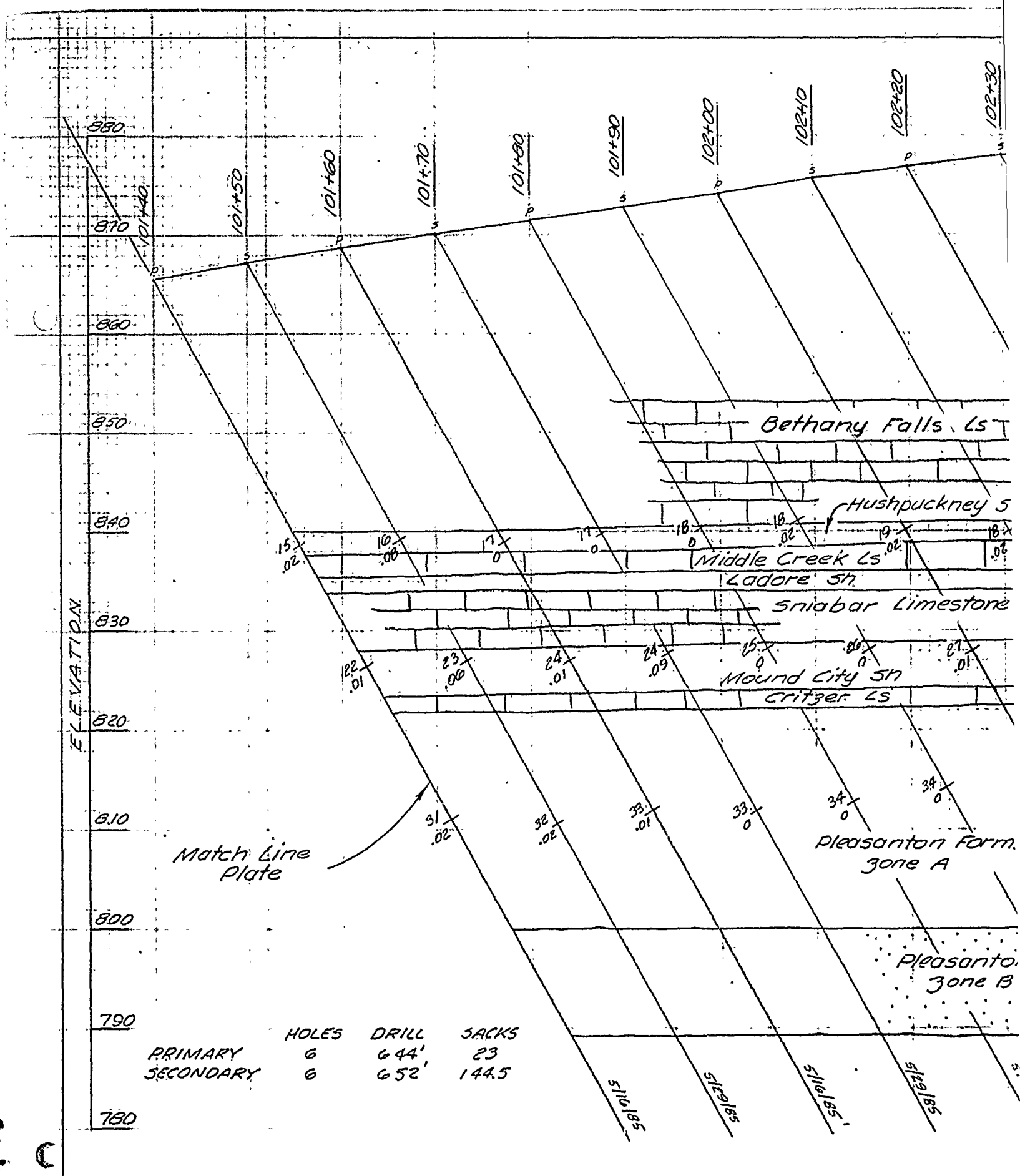
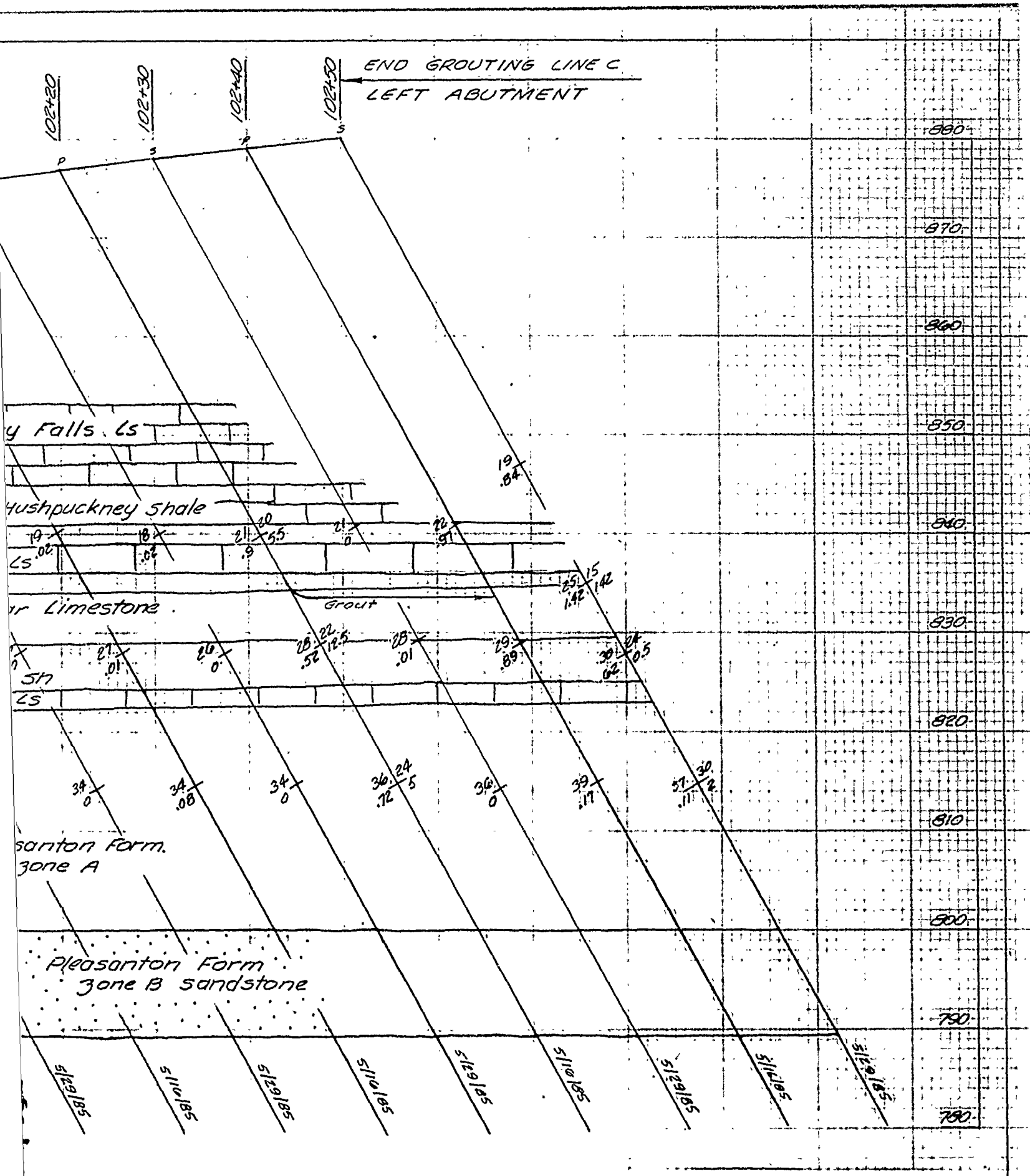
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI				
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE C STA: 100+20 TO STA. 101+40	Sheet:	AS SHOWN	
Drawn by:		V. A.	Sheet number:	.59
Checked by:		C. H.	Date:	JUNE 1990
Submitted by:			Drawn by:	
		File No.: RBL-2-1279		

PLATE NO. 59

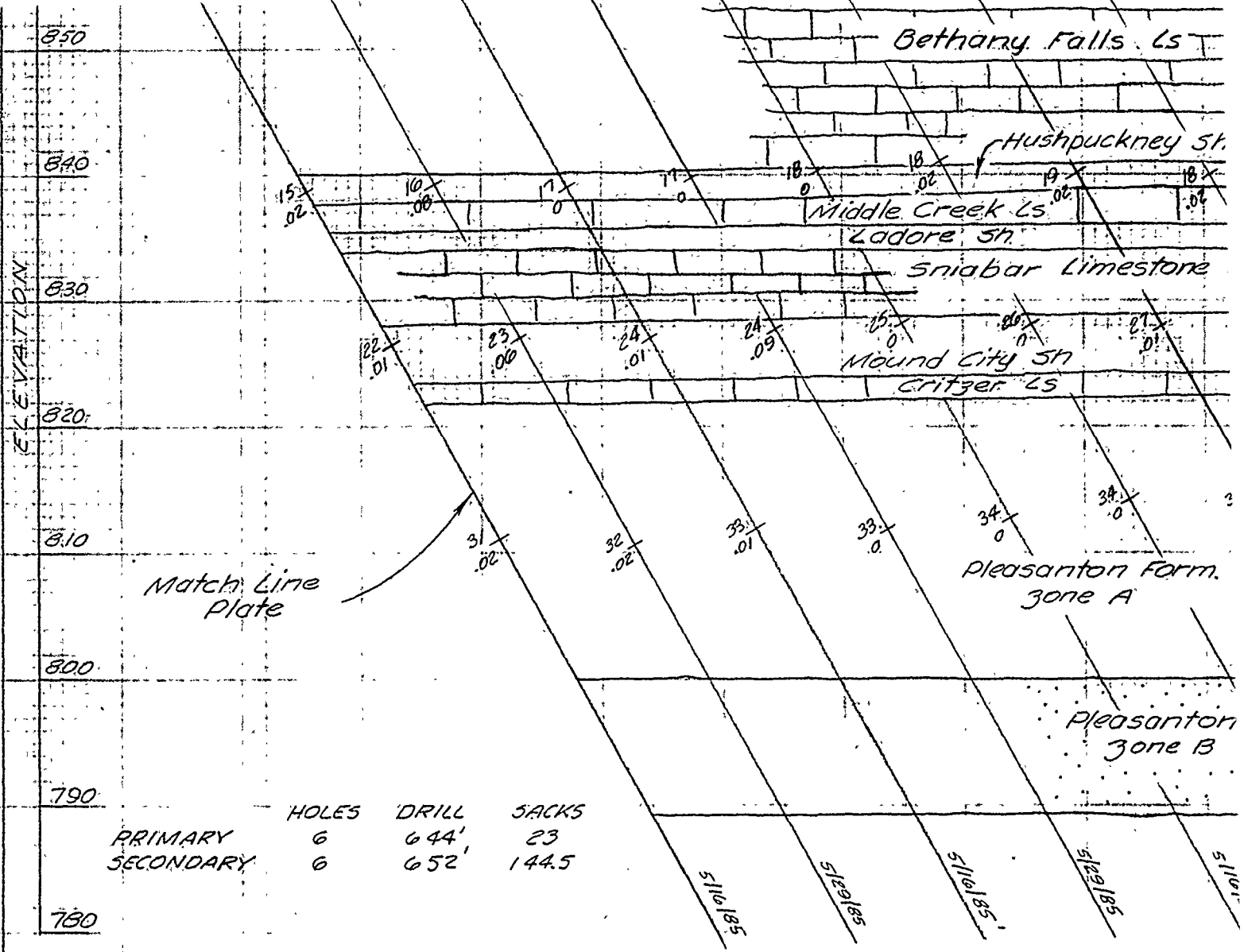


BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 101+40 TO
 LOOKING UPSTREAM



PROFILE LEFT ABUTMENT
 101+40 TO STA 102+50

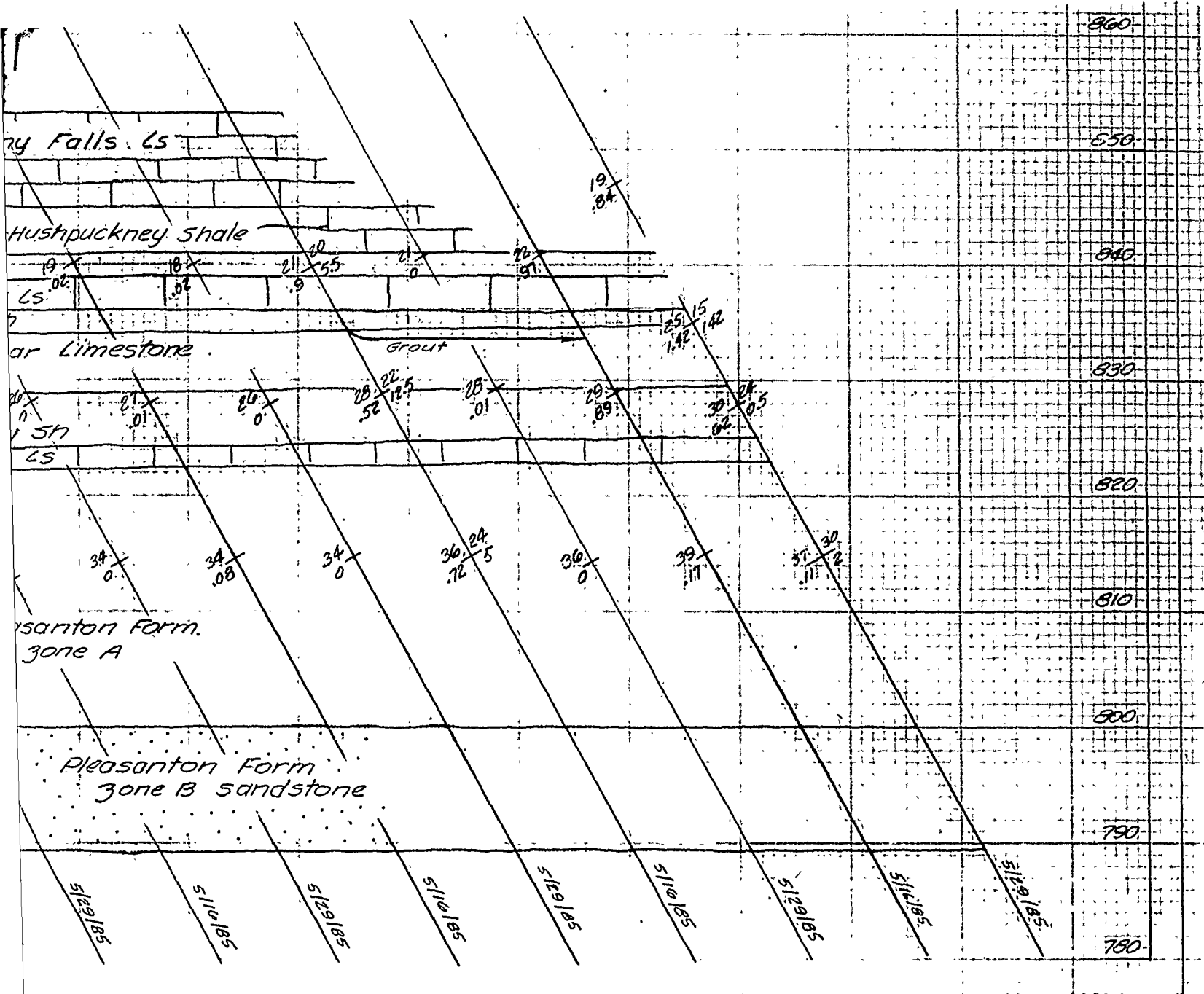
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT
Drawn by:	GROUT CURTAIN PROFILE LEFT ABUTMENT LINE C
Checked by:	STA 101+40 TO STA 102+50



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 101+40 TO
 LOOKING UPSTREAM



for legend see



PROFILE LEFT ABUTMENT
 STA 101+40 TO STA 102+50

for legend see Plate 44

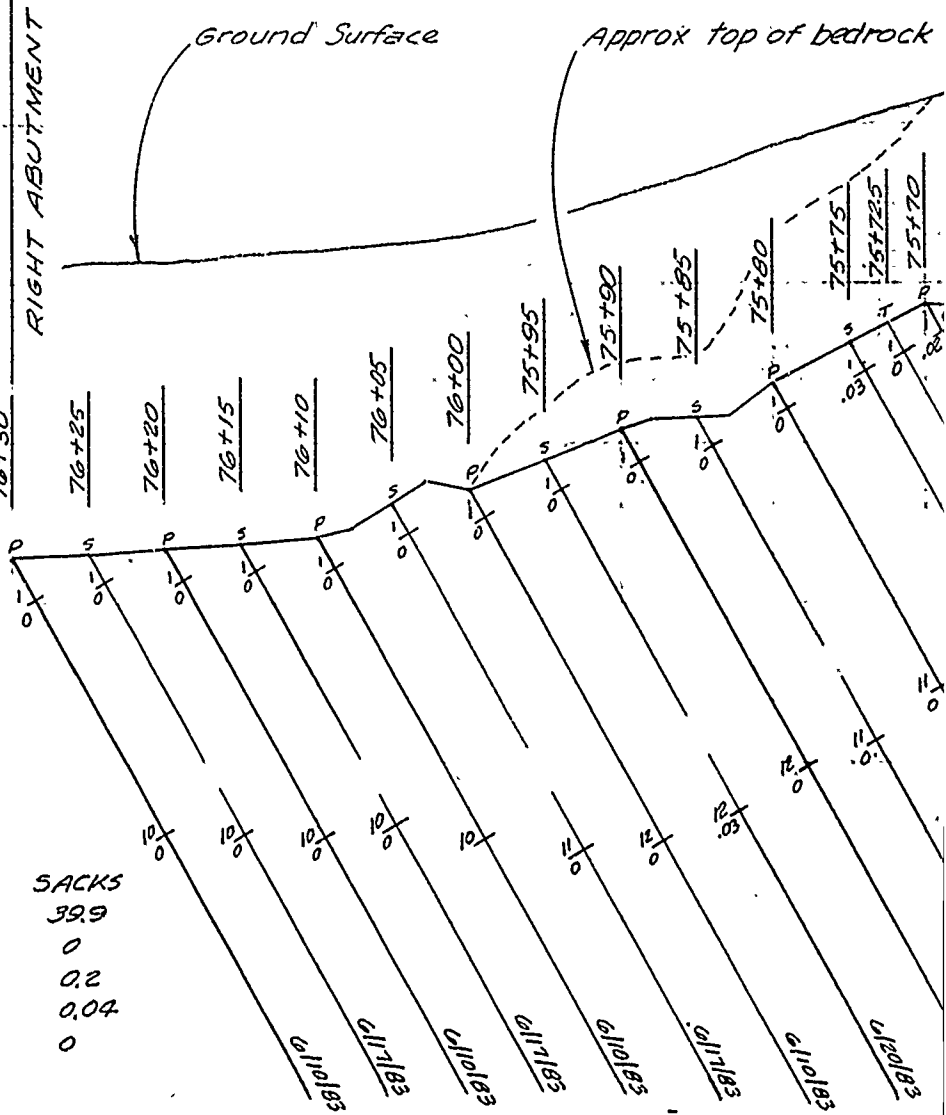
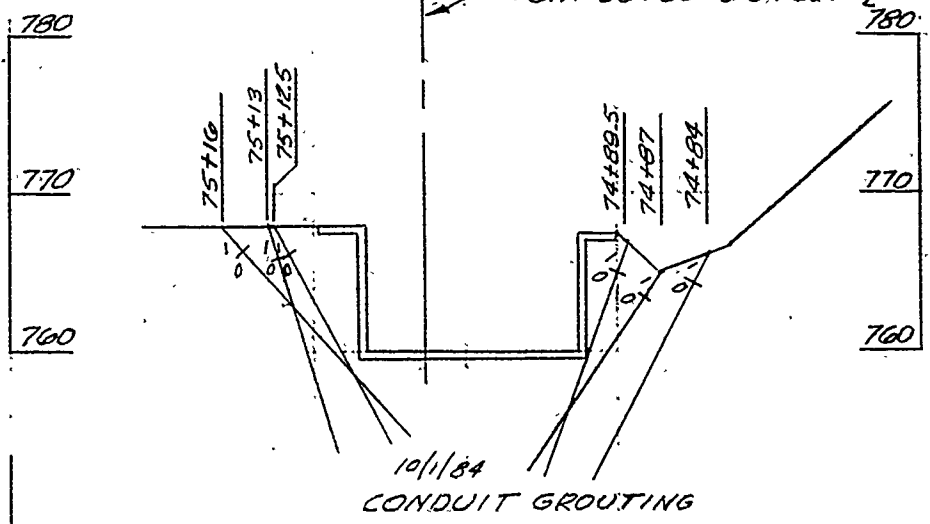
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE LEFT ABUTMENT LINE C STA. 101+40 TO STA. 102+50	Scale:	AS SHOWN
Drawn by:		Date:	JUNE 1990
Checked by:		Sheet number:	60
Submitted by:		Proj. No.:	RBL-2-1280

PLATE NO. 60

ELEVATION

800
790
780
770
760
750
740
730
720

BEGIN GROUTING LINE A
RIGHT ABUTMENT

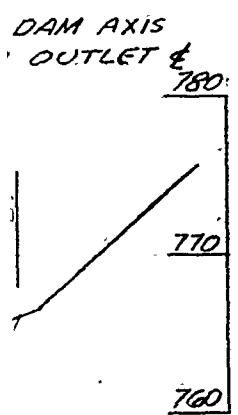


	HOLES	DRILL	SACKS
730 PRIMARY	11	564	39.9
SECONDARY	9	455	0
TERTIARY	3	82	0.2
QUATERNARY	1	21	0.04
720 EXPLORATORY	2	58	0

BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
LINE A 5 FEET DOWNSTREAM STA 70
LOOKING DOWNSTREAM

0 10
SCALE - IN FEET

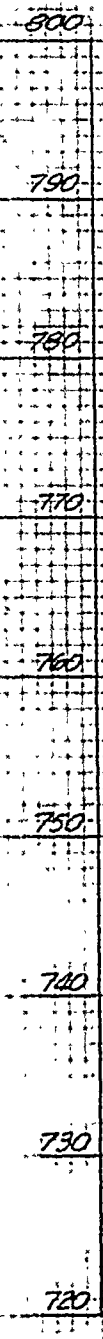
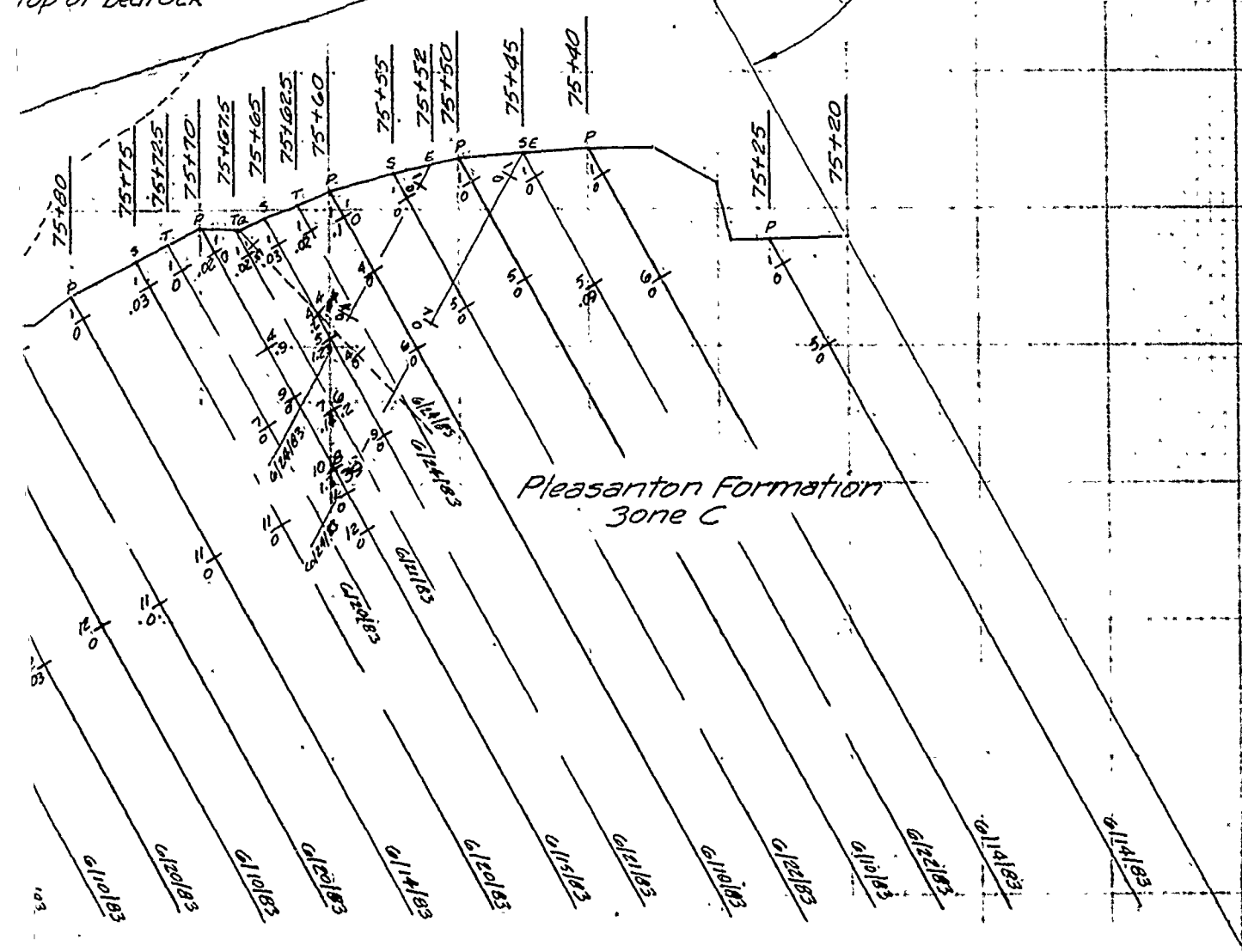
for



top of bedrock

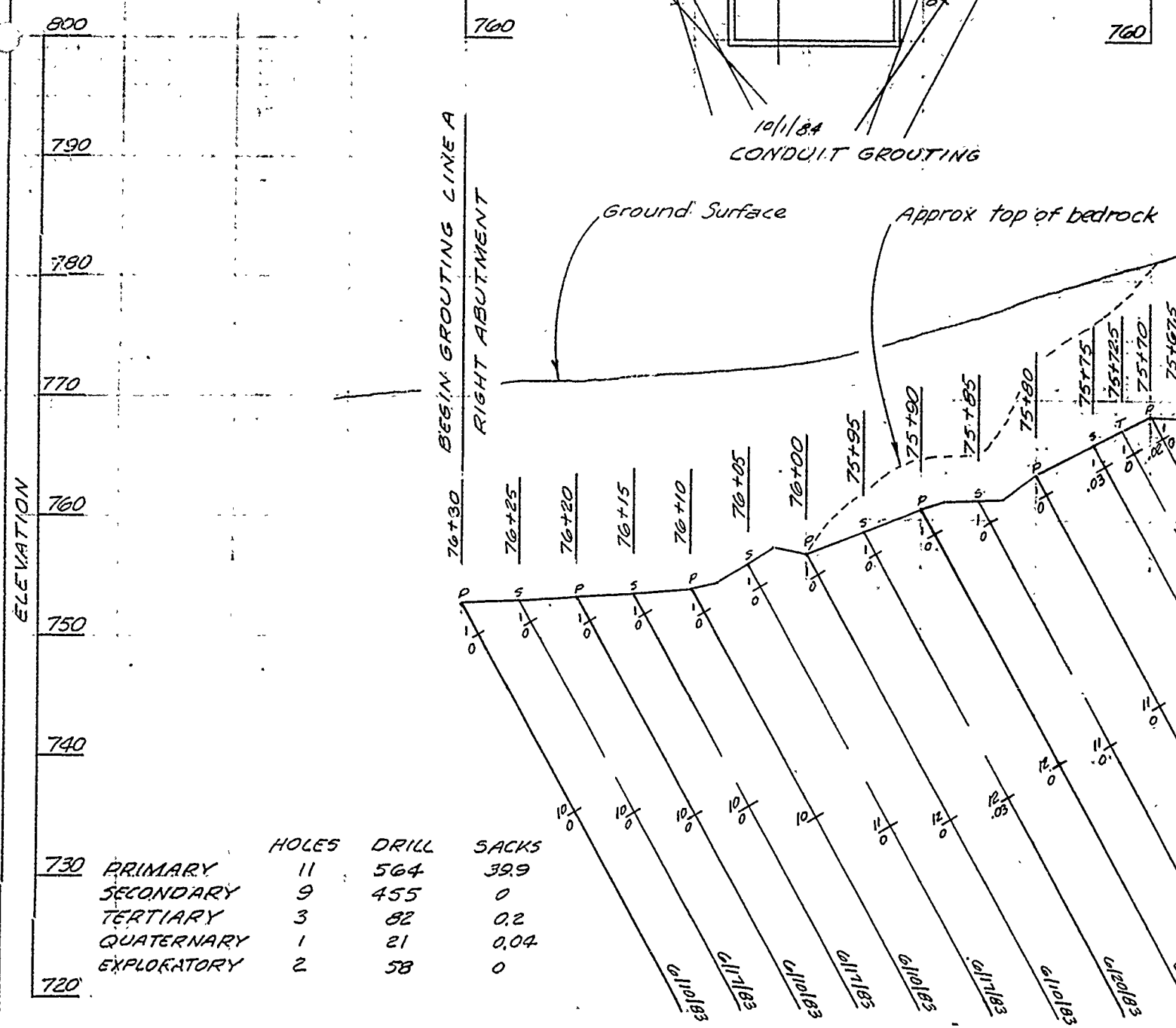
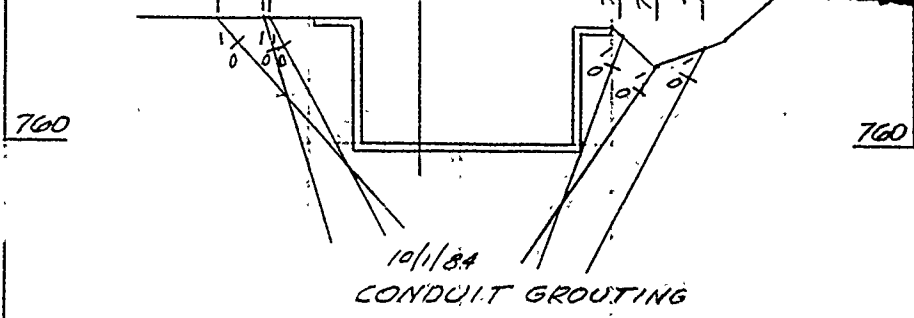
Match Line plate

Pleasanton Formation zone C



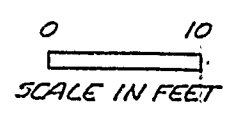
PROFILE RIGHT ABUTMENT
M STA 76+30 TO STA 75+20
REAM

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by: Drawn by: V. A.	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT



ELEVATION		HOLES	DRILL	SACKS
730	PRIMARY	11	564	39.9
	SECONDARY	9	455	0
	TERTIARY	3	82	0.2
	QUATERNARY	1	21	0.04
720	EXPLOKATORY	2	58	0

BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
LINE A 5 FEET DOWNSTREAM STA 76+
LOOKING DOWNSTREAM



for 1

770

760

800

790

780

770

760

750

740

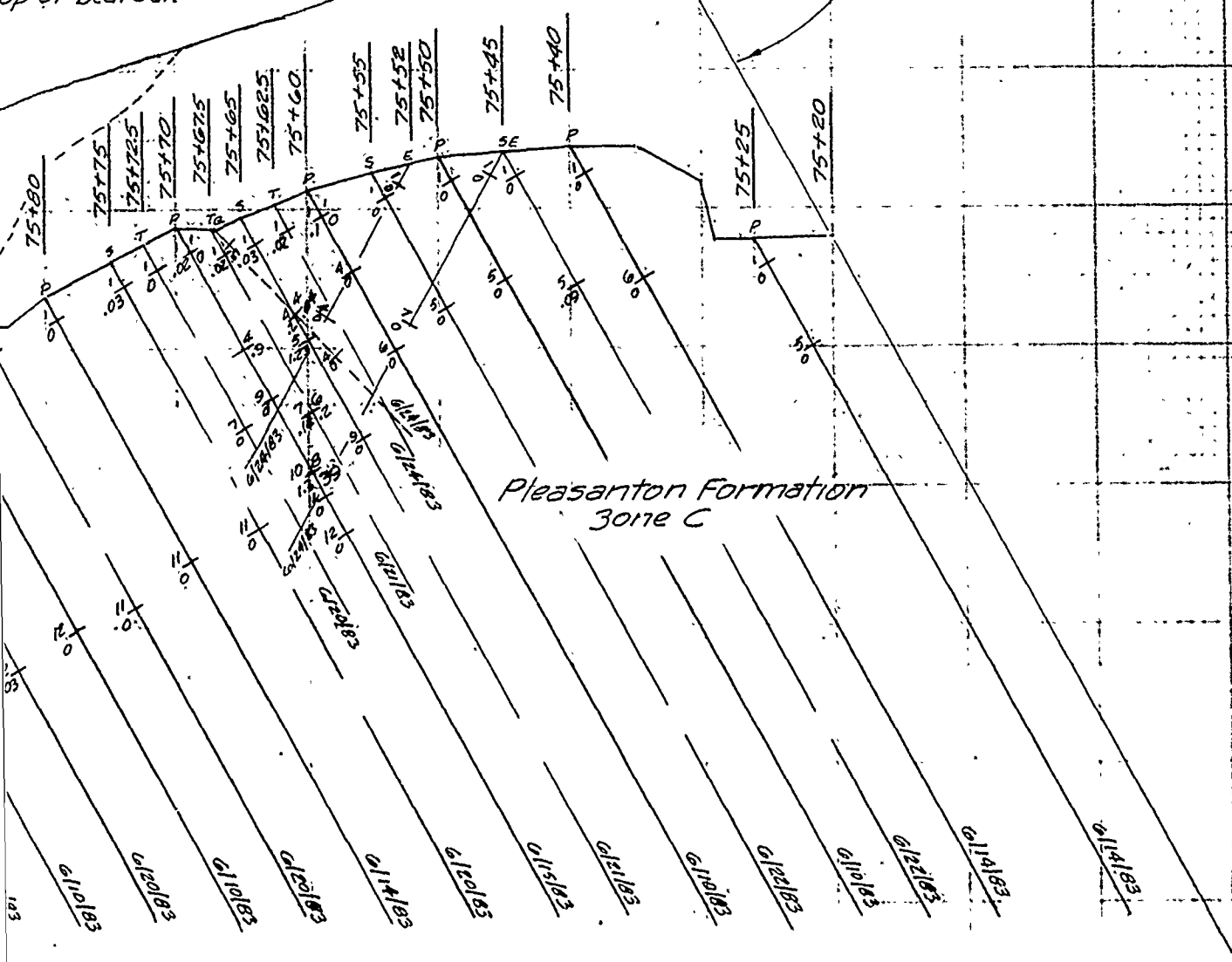
730

720

Match Line
plate

top of bedrock

Pleasanton Formation
zone C

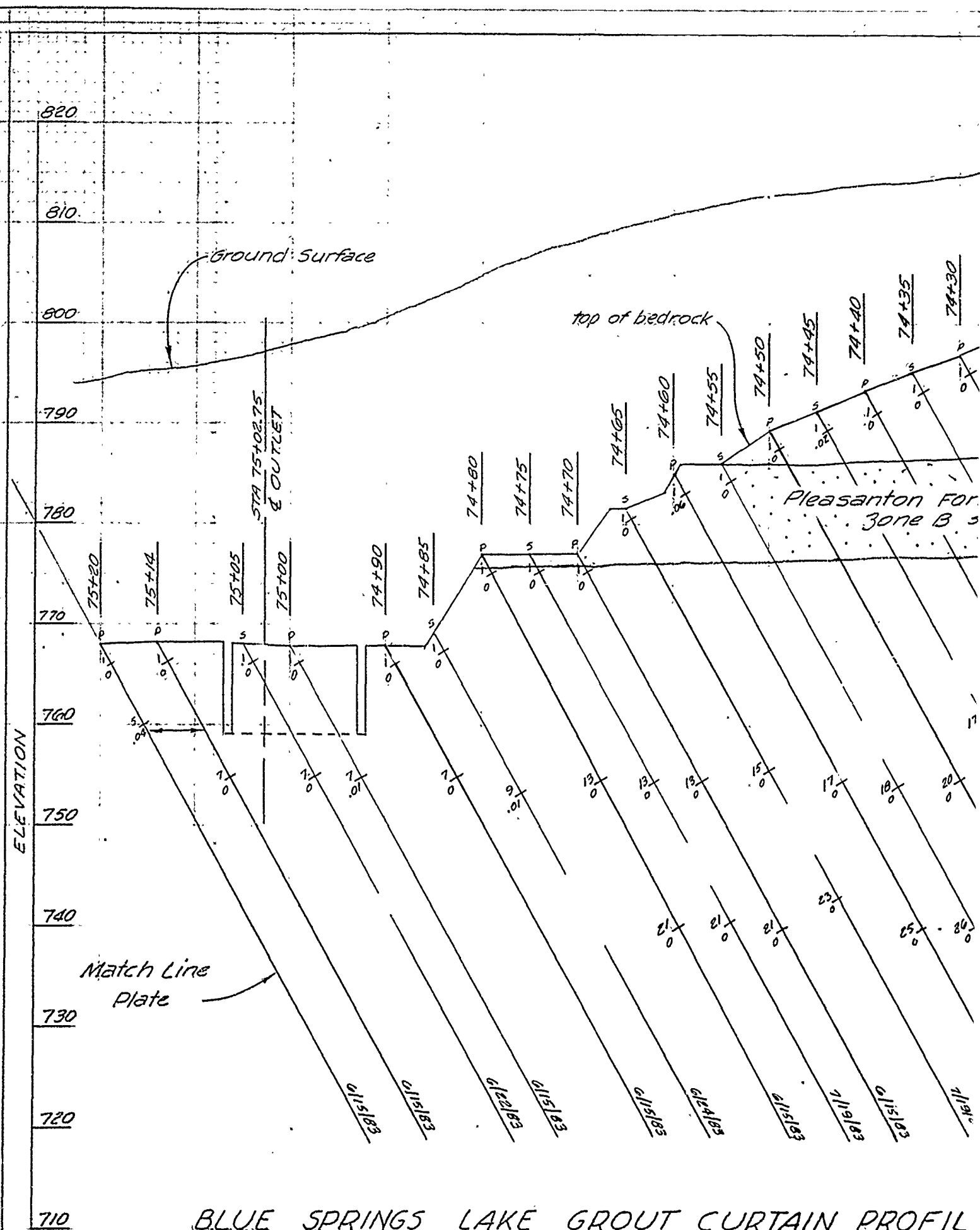


PROFILE RIGHT ABUTMENT
M STA 76+30 TO STA 75+20
STREAM

for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE A STA: 76+30 TO STA. 75+20	
Drawn by:	V. A.	Scale:	AS SHOWN
Checked by:	C. H.	Date:	JUNE 1990
Submitted by:		Sheet number:	61
			RBL-2-1281

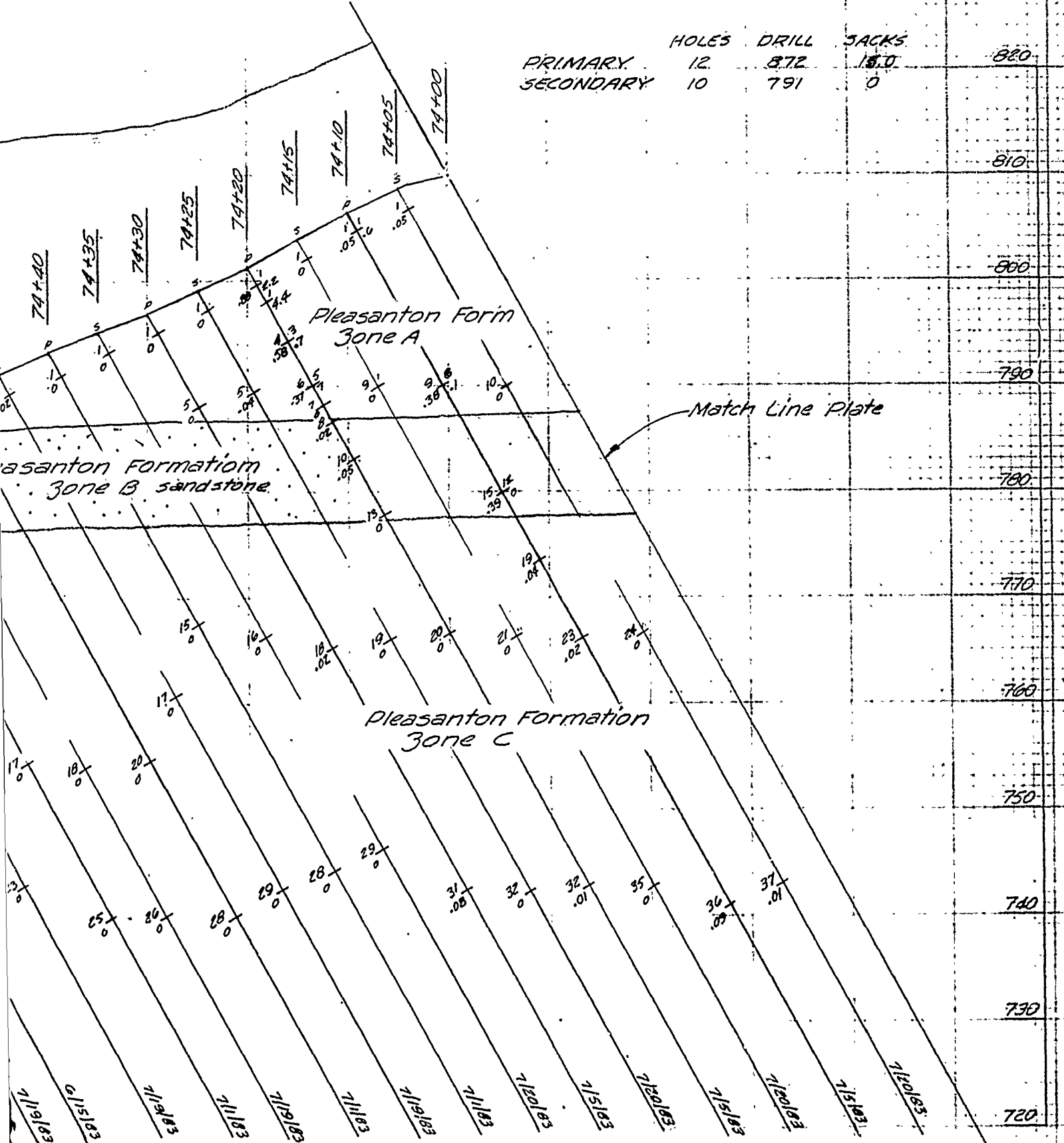
PLATE NO. 61



BLUE SPRINGS LAKE GROUT CURTAIN PROFIL
 LINE A 5 FEET DOWNSTREAM STA 75
 LOOKING DOWNSTREAM

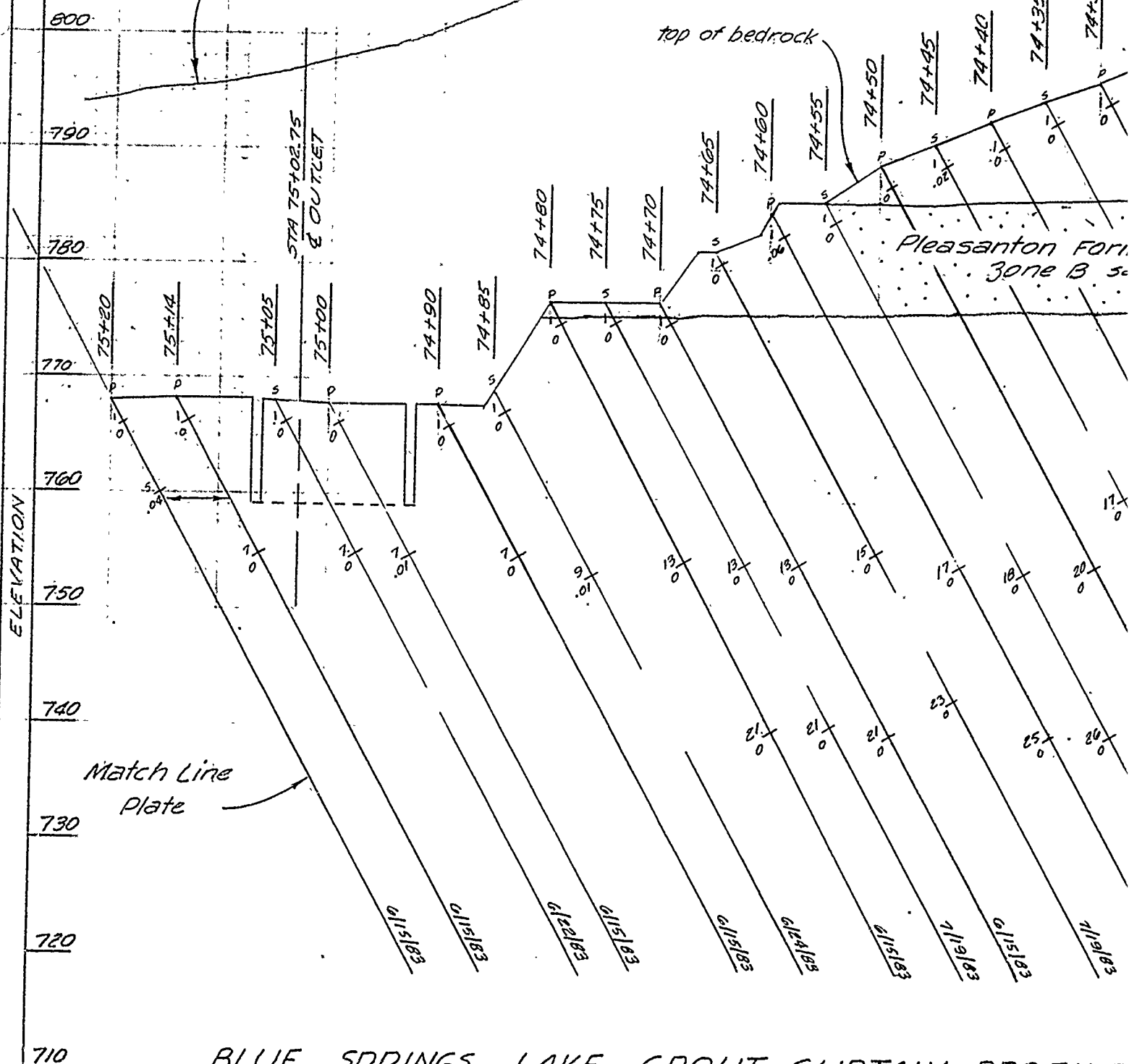


	HOLES	DRILL	JACKS
PRIMARY	12	872	15.0
SECONDARY	10	791	0

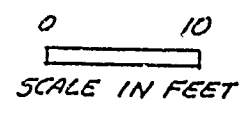


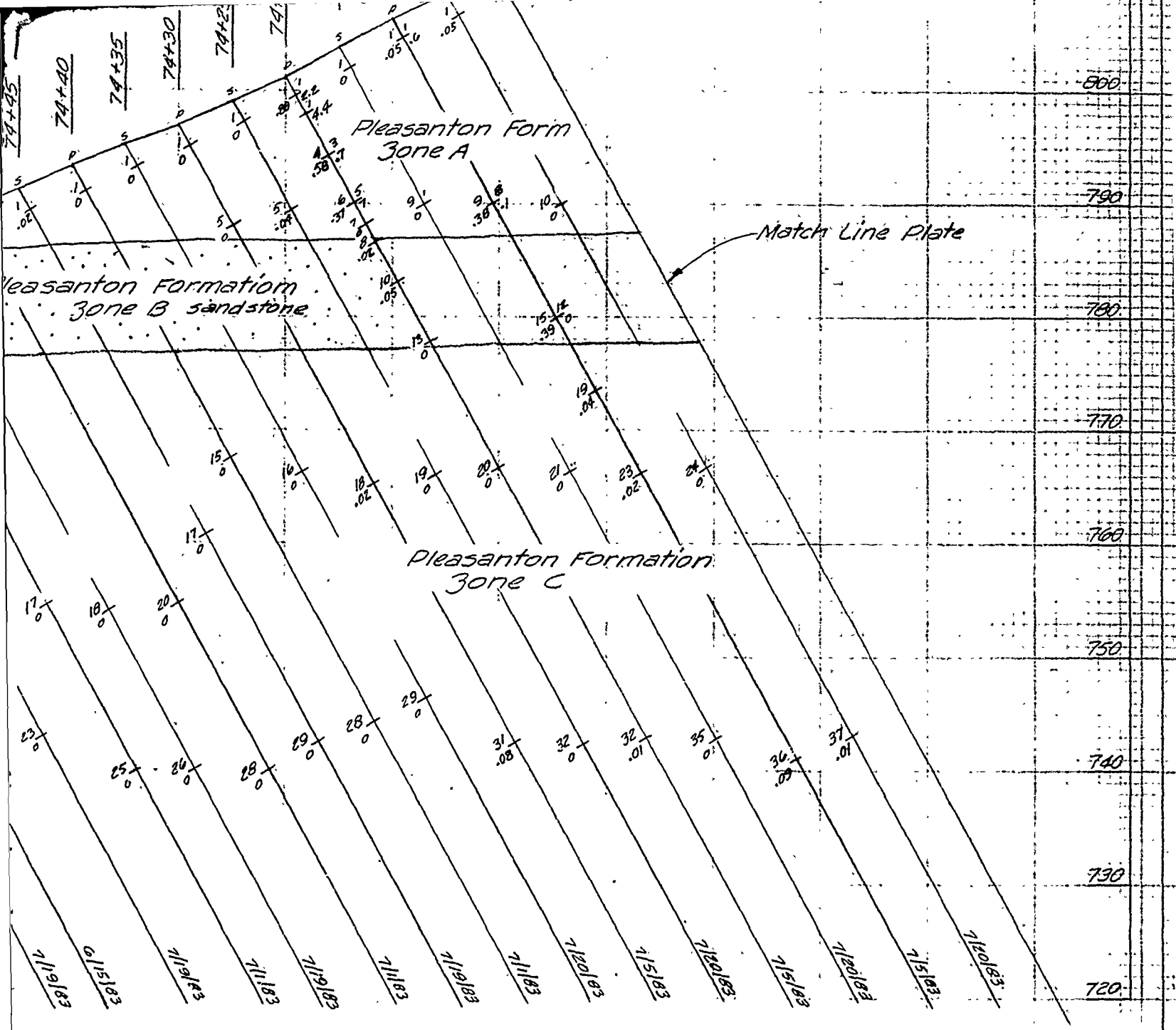
PROFILE RIGHT ABUTMENT
 STA 75+20 TO STA 74+00
 DOWNSTREAM

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Prepared by: Drawn by: V. A.	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE A STA. 75+20 TO STA. 74+00
Checked by: C. H.	



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE A 5 FEET DOWNSTREAM STA 75+2
 LOOKING DOWNSTREAM





IN PROFILE RIGHT ABUTMENT
 DAM STA 75+20 TO STA 74+00
 DOWNSTREAM

10
 IN FEET
 for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE A STA. 75+20 TO STA. 74+00	
Drawn by:			
Checked by:	C. H.	Date:	AS SHOWN
Submitted by:		Date:	JUNE 1990
		Sheet number:	62
		RBL-2-1282	

PLATE NO. 62

ELEVATION

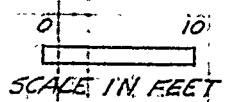
840
830
820
810
800
790
780
770
760
750
740
730
720

Ground Surface

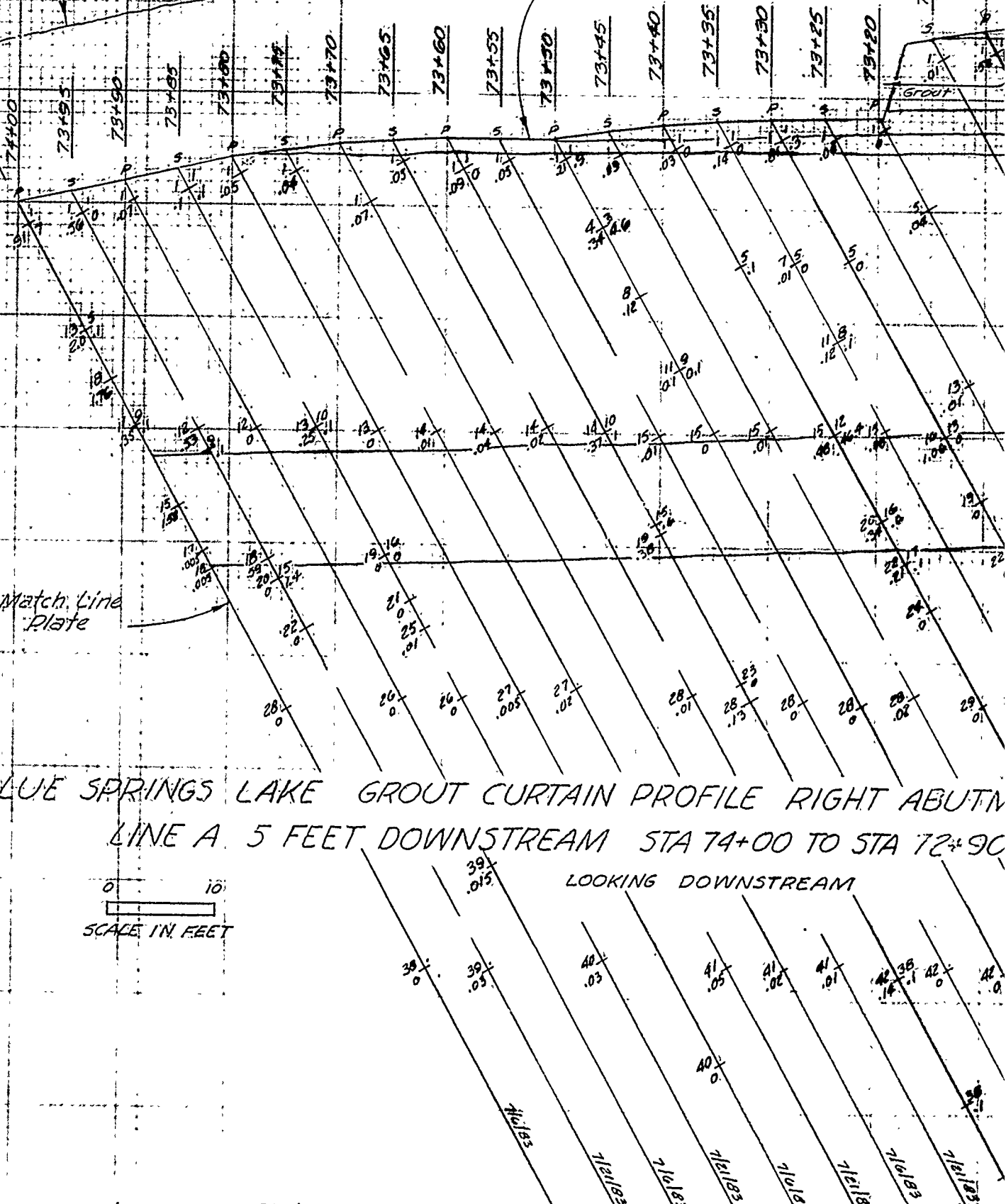
top of bedrock

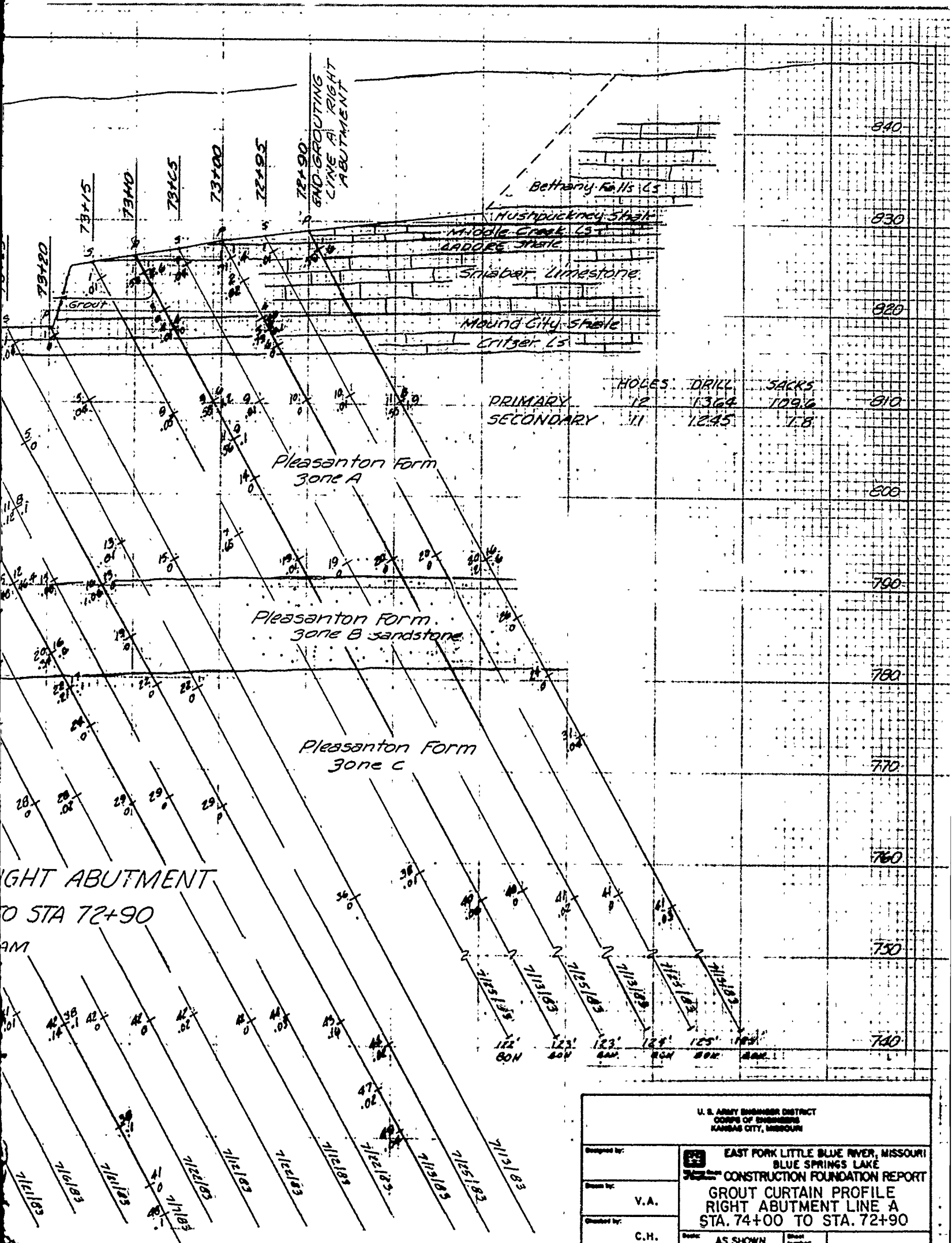
Match Line
Plate

BLUE SPRINGS LAKE GROUT CURTAIN PROFILE RIGHT ABUTN
LINE A 5 FEET DOWNSTREAM STA 74+00 TO STA 72+90



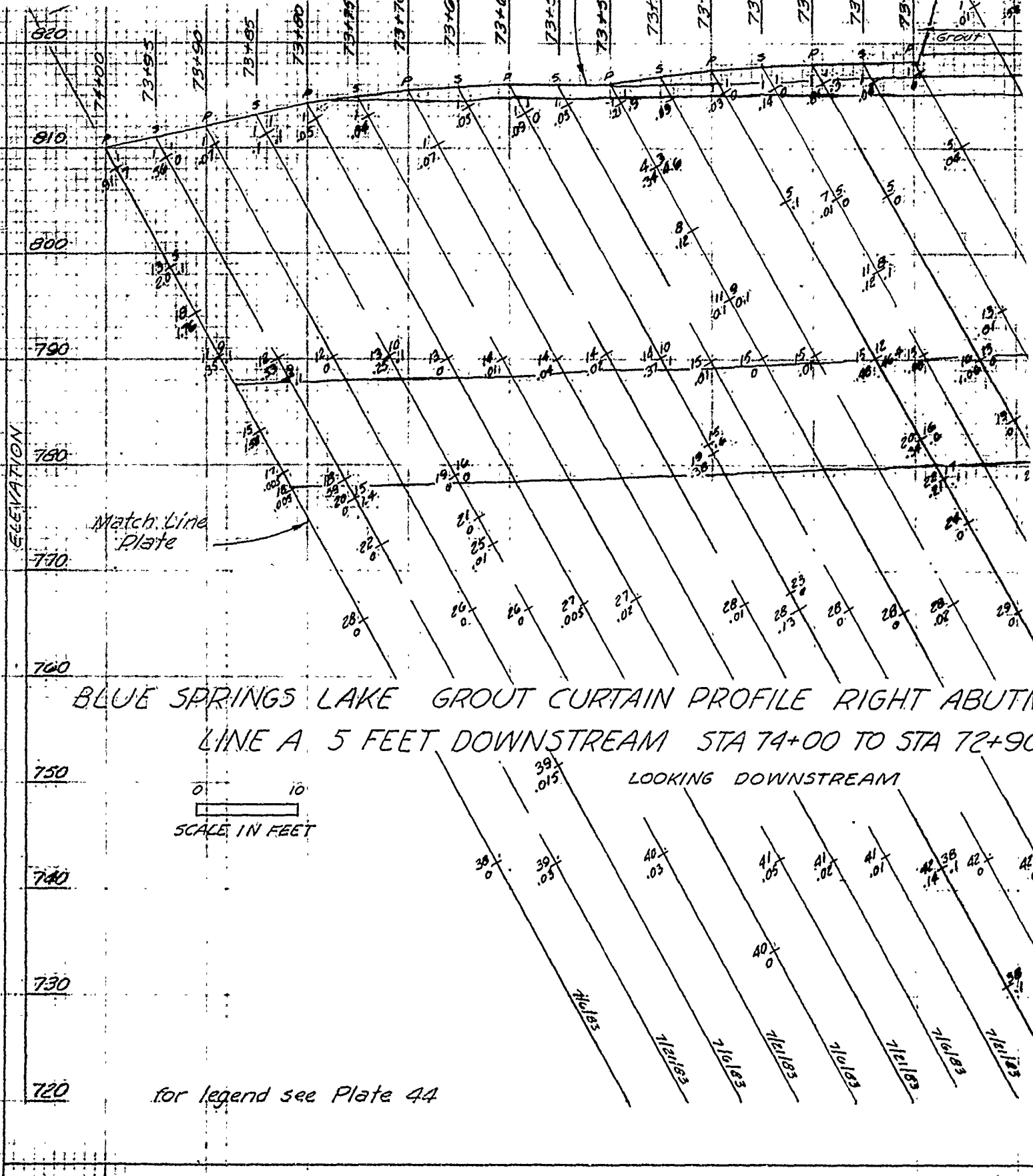
LOOKING DOWNSTREAM





RIGHT ABUTMENT
TO STA 72+90

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by:		GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE A STA. 74+00 TO STA. 72+90	
Checked by:		V.A.	C.H.

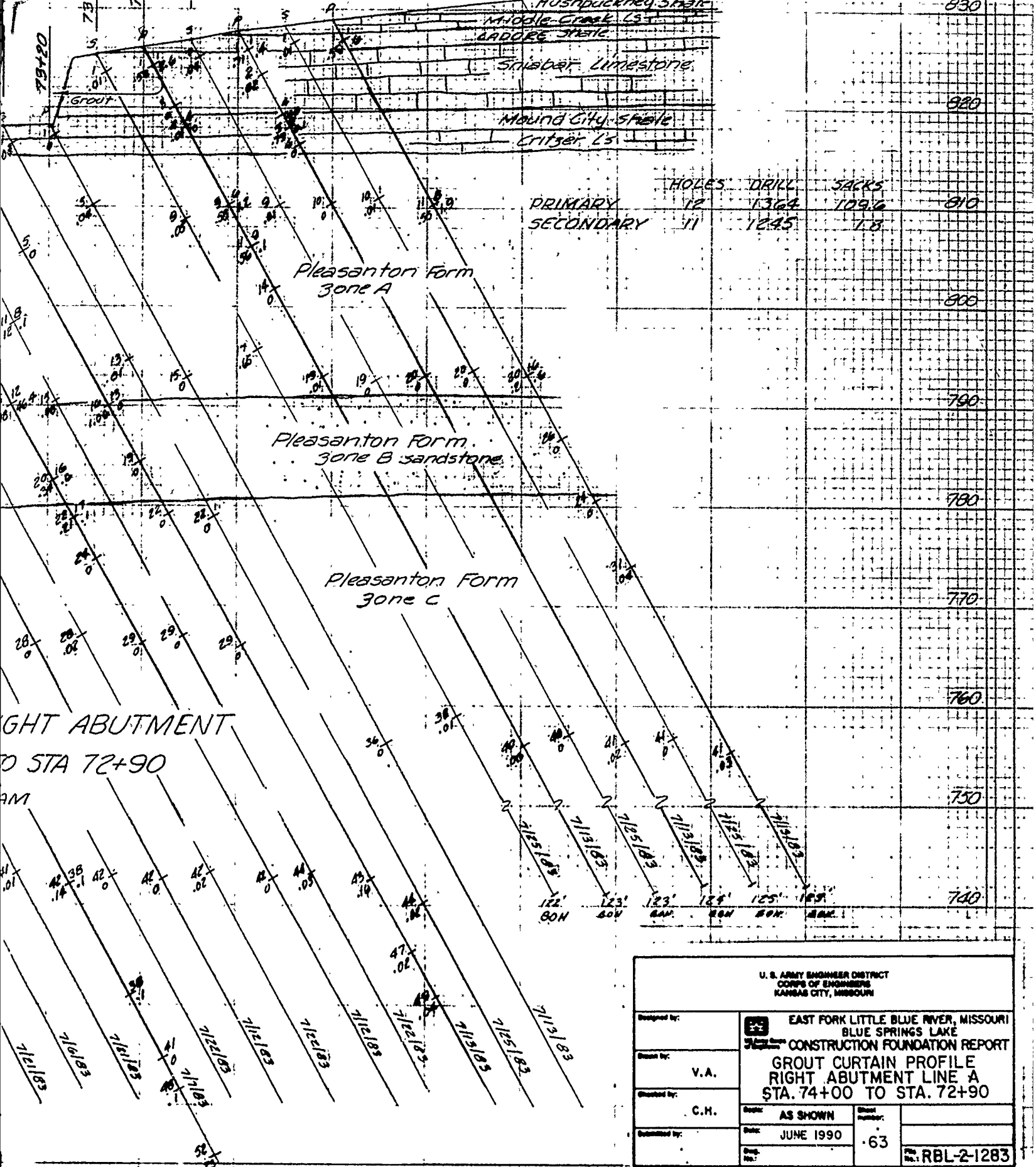


BLUE SPRINGS LAKE GROUT CURTAIN PROFILE RIGHT ABUTMENT
LINE A 5 FEET DOWNSTREAM STA 74+00 TO STA 72+90

0 10
SCALE IN FEET

LOOKING DOWNSTREAM

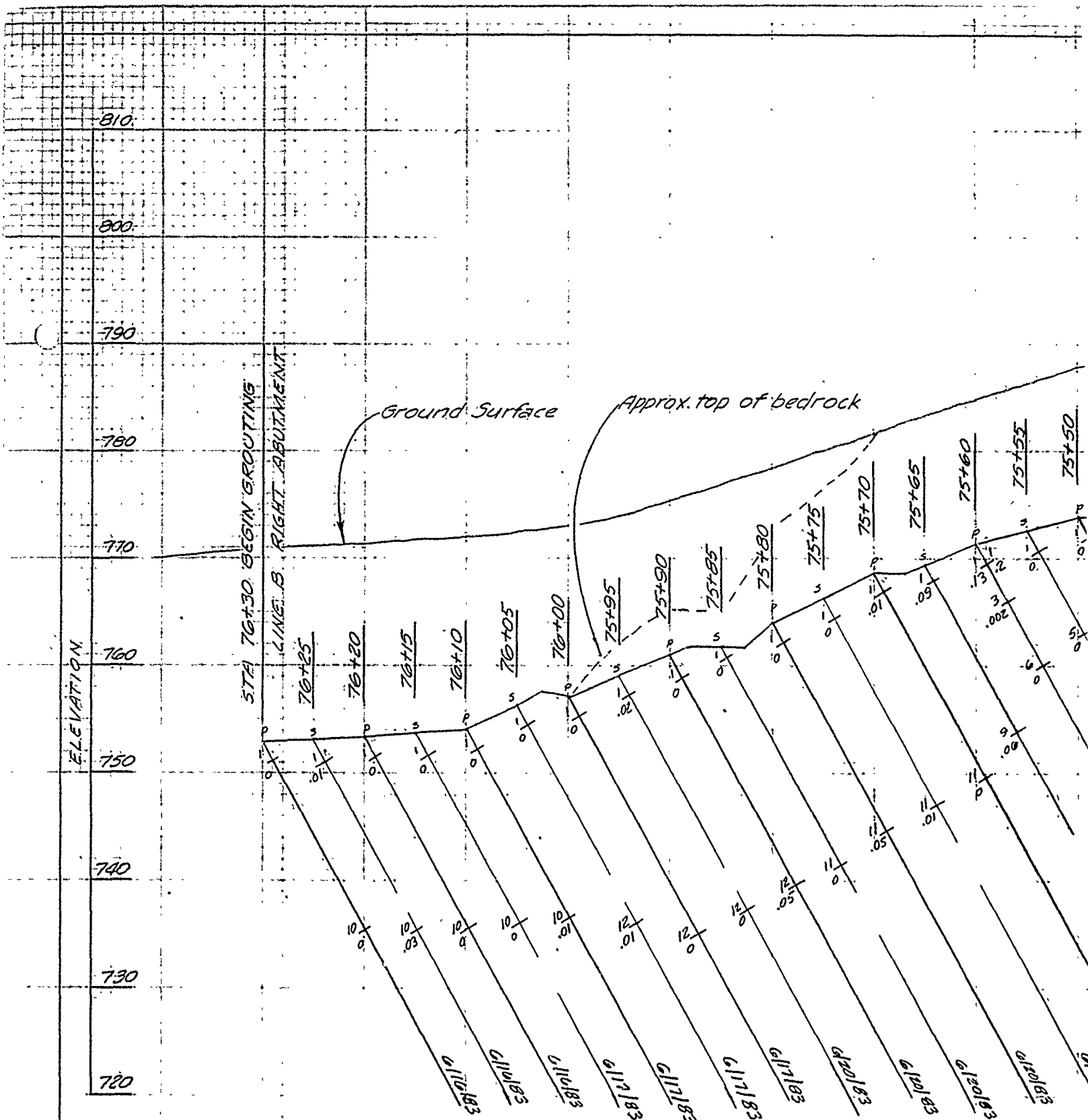
for legend see Plate 44



RIGHT ABUTMENT
 TO STA 72+90
 AM

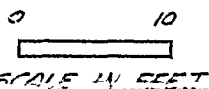
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by:	V. A.	GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE A STA. 74+00 TO STA. 72+90	
Checked by:	C. H.	Date:	Sheet Number:
Submitted by:		JUNE 1990	63
		No. RBL-2-1283	

PLATE NO. 63

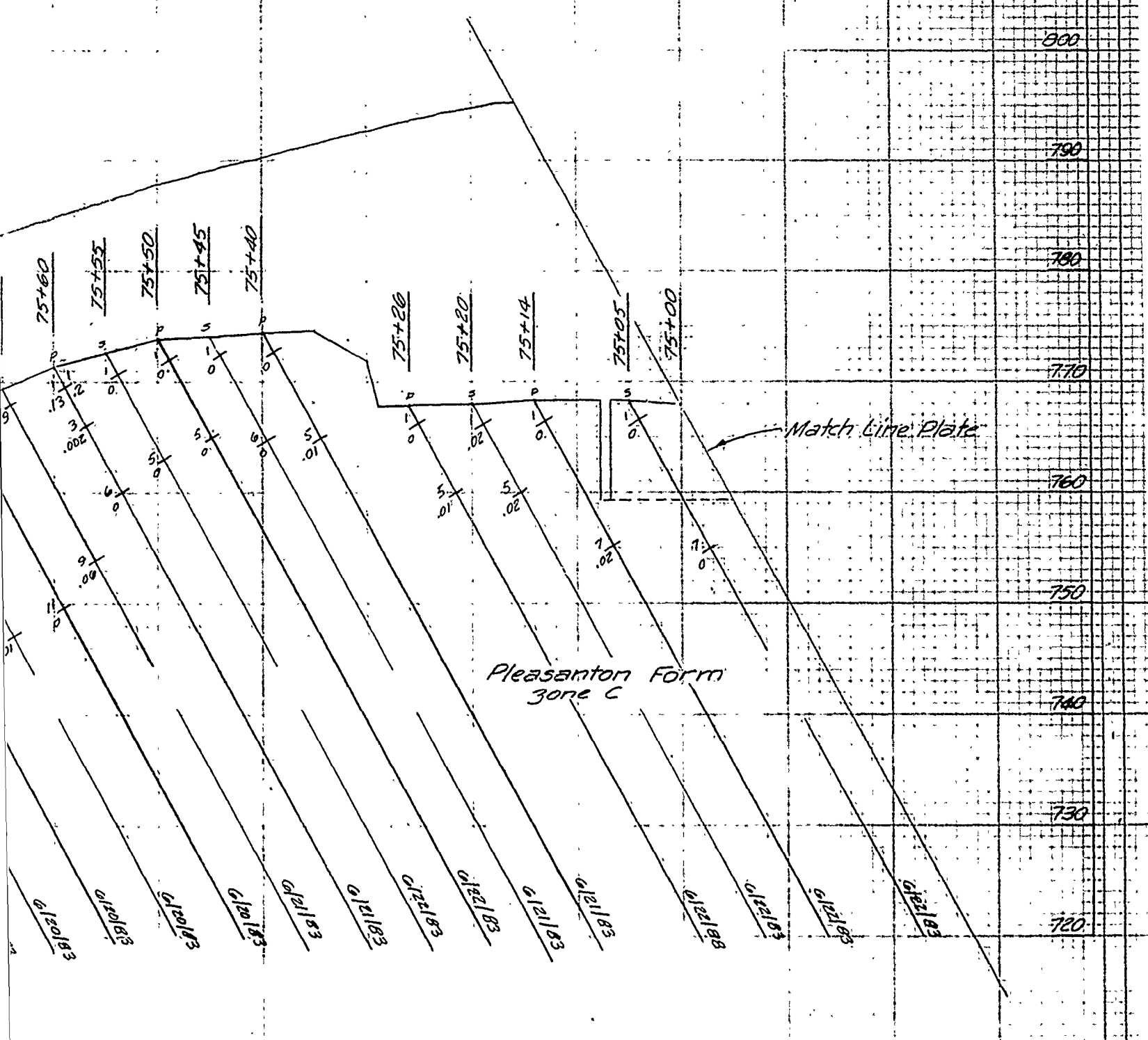


BLUE SPRINGS LAKE GROUT CURTAIN PRO
LINE B 5 FEET UPSTREAM STA

LOOKING DOWNSTREAM



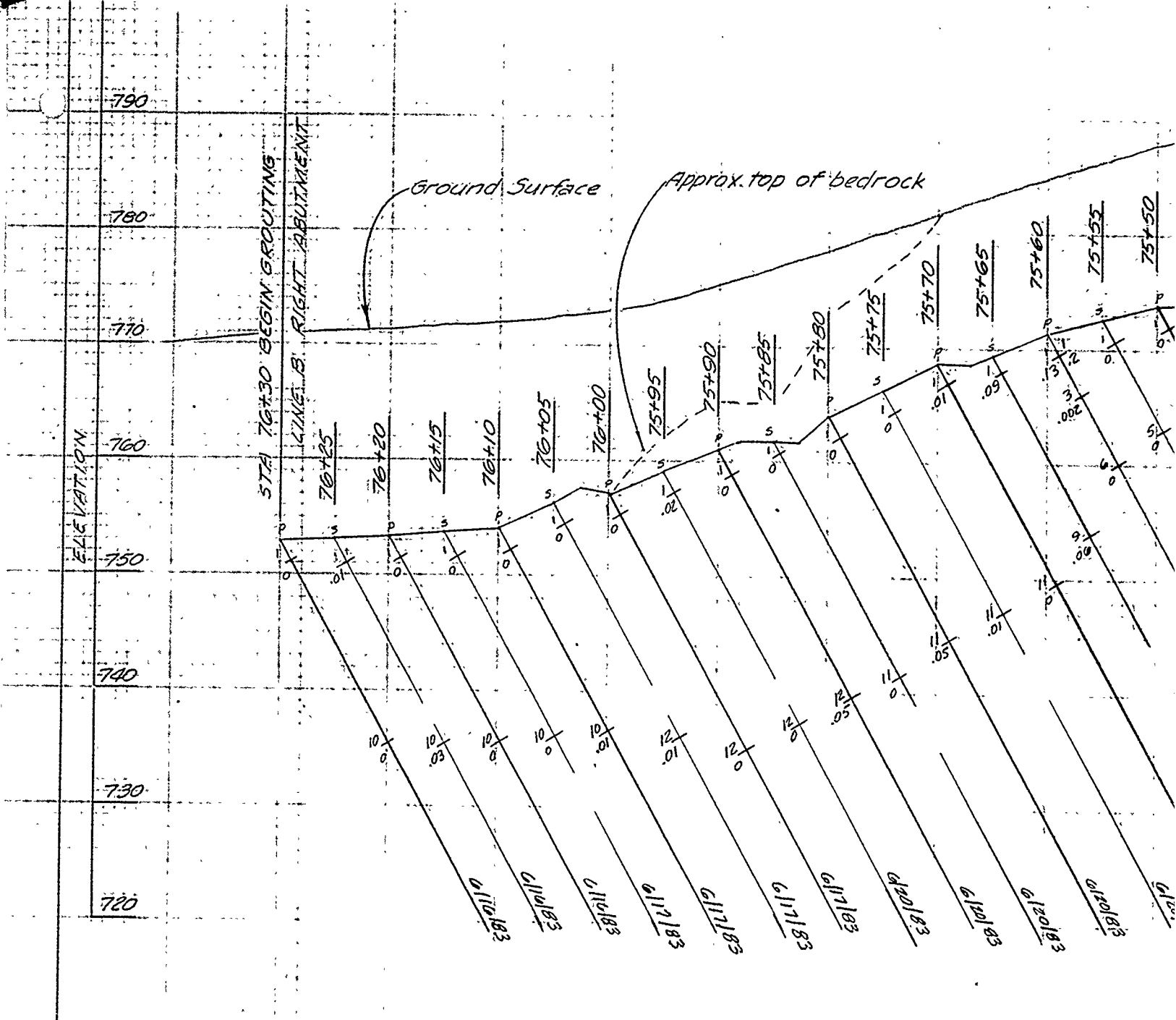
	HOLES	DRILL	SACKS	
PRIMARY	12	614	0.2	512
SECONDARY	11	568	0	



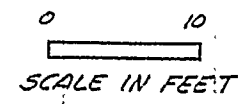
GROUT CURTAIN PROFILE RIGHT ABUTMENT
 FROM STA 76+30 TO STA 75+00

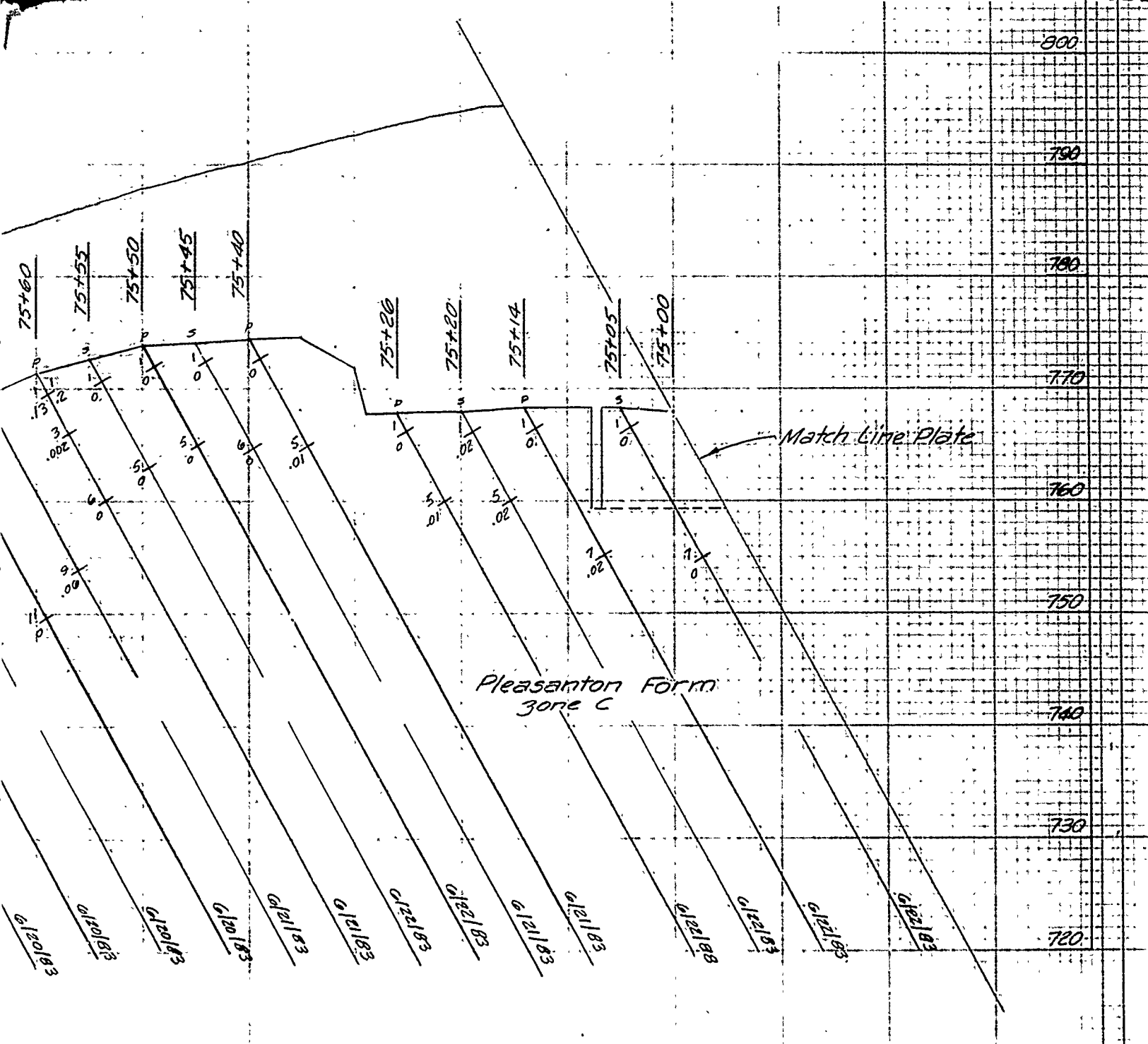
for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE B. STA. 76+30 TO STA. 75+00	Scale:	AS SHOWN
Drawn by:		Date:	JUNE 1990
Checked by:		Sheet Number:	64
Submitted by:			



BLUE SPRINGS LAKE GROUT CURTAIN PROJECT
 LINE B 5 FEET UPSTREAM STA 76+30
 LOOKING DOWNSTREAM



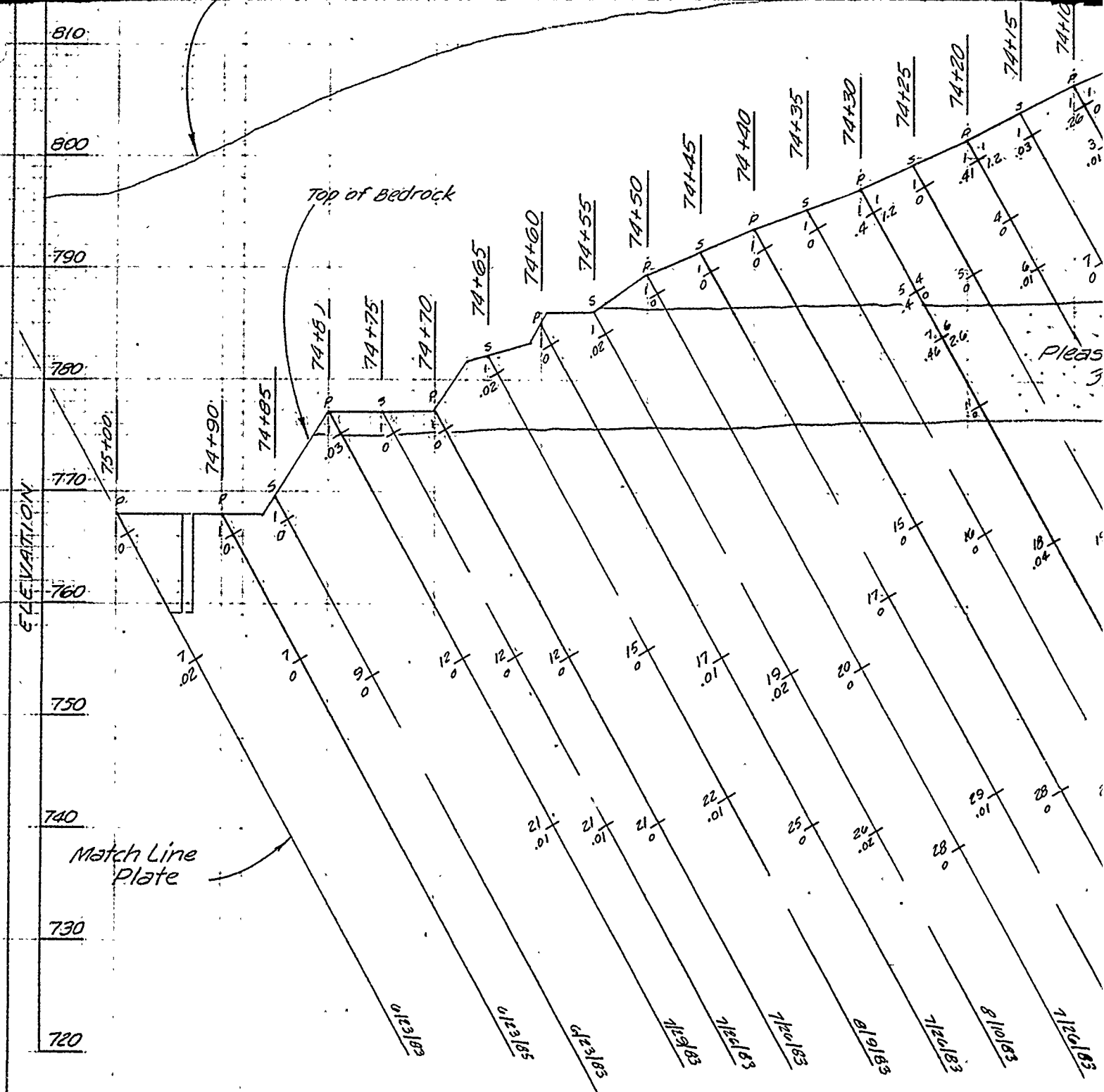


GRAIN PROFILE RIGHT ABUTMENT
 FROM STA 76+30 TO STA 75+00

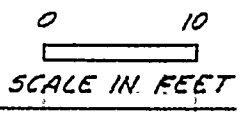
for legend see Plate 44

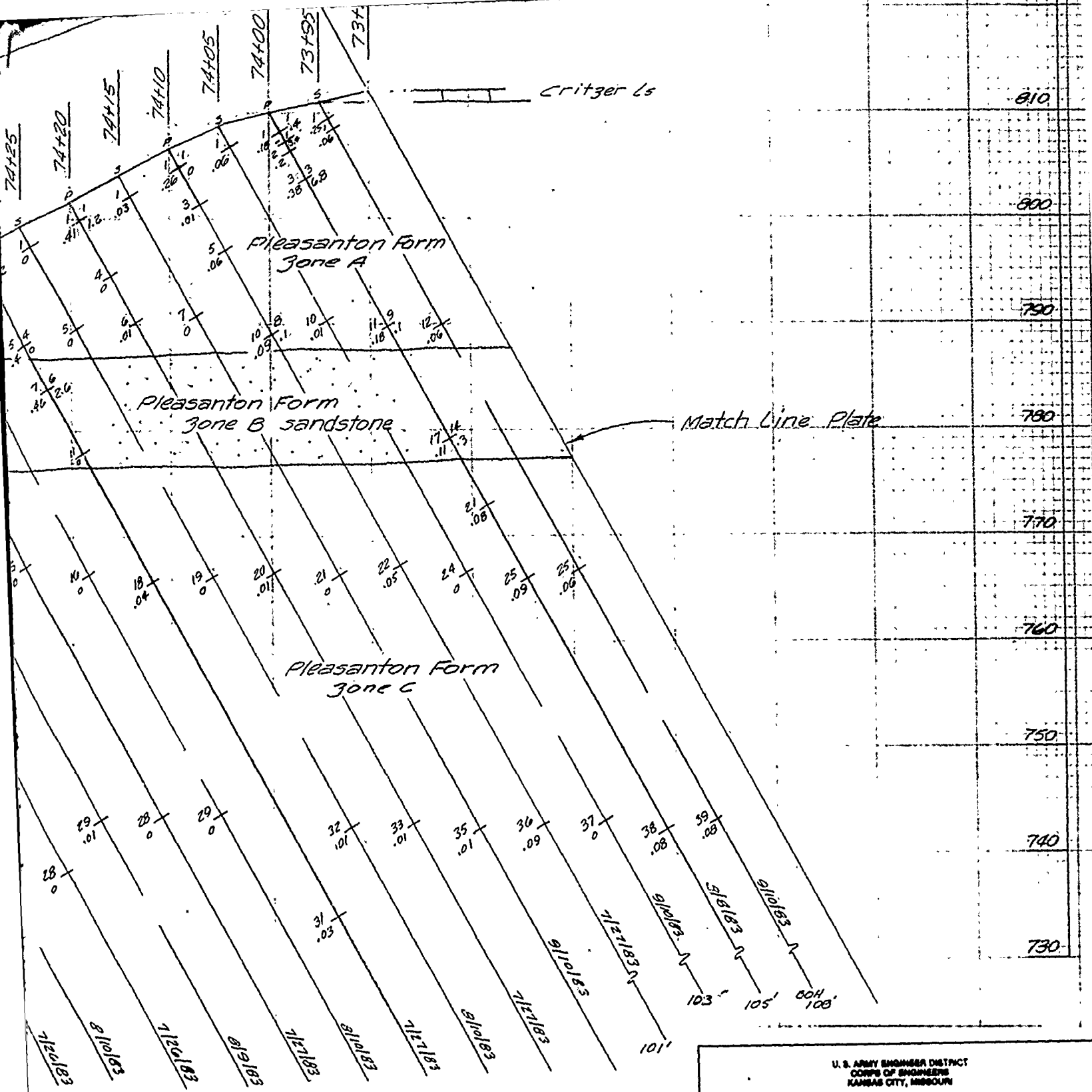
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by:	V. A.	GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE B STA. 76+30 TO STA. 75+00	
Checked by:	C. H.	Scale:	AS SHOWN
Submitted by:		Date:	JUNE 1990
		Sheet Number:	64
		RBL-2-1284	

PLATE NO. 64

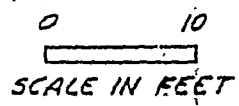


BLUE SPRINGS LAKE GROUT CURTAIN PROFILE R
 LINE B 5 FEET UPSTREAM STA 75+00 ;
 LOOKING DOWNSTREAM



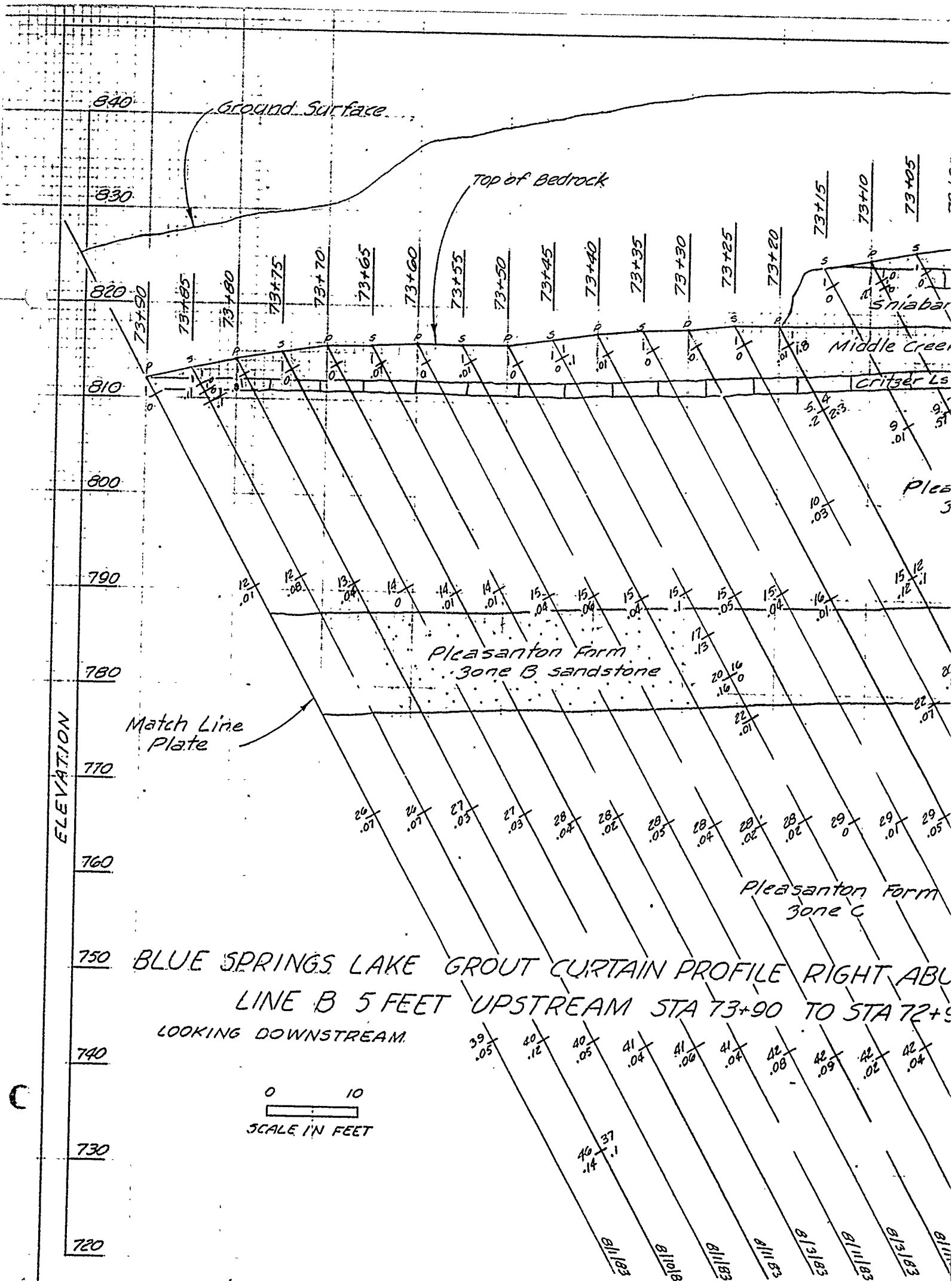


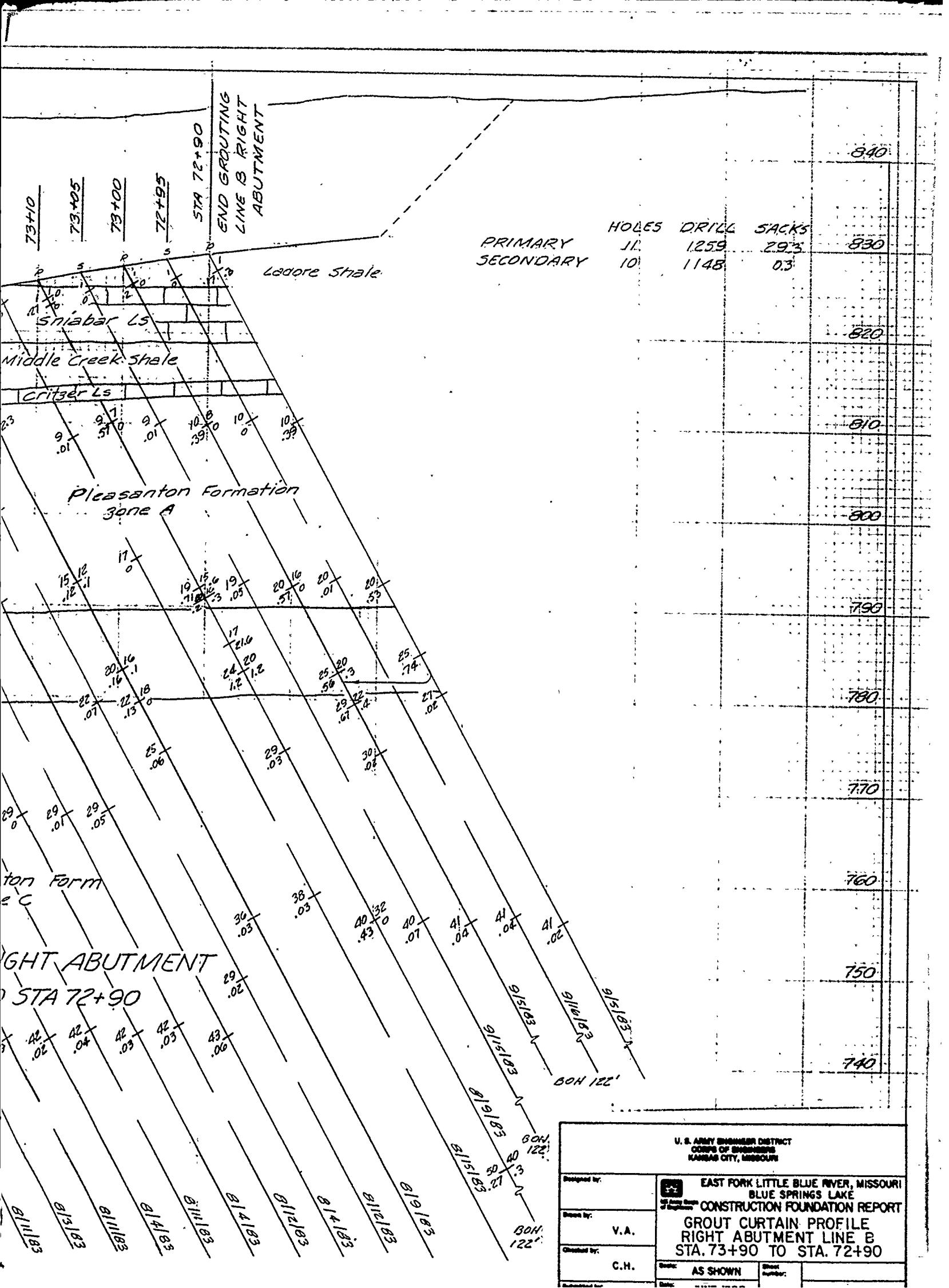
PROFILE RIGHT ABUTMENT
STA 75+00 TO STA 73+90



for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by:	V. A.	GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE B STA. 75+00 TO STA. 73+90	
Checked by:	C. H.	Scale:	AS SHOWN
Submitted by:		Date:	JUNE 1990
		Sheet number:	65
		RBL-2-1285	





STA 72+90
END GROUTING
LINE B RIGHT
ABUTMENT

Ladore Shale

Sniabar Ls

Middle Creek Shale

Critzer Ls

Pleasanton Formation
zone A

	HOLES	DRILL	SACKS
PRIMARY	11	1259	29.3
SECONDARY	10	1148	0.3

840

830

820

810

800

790

780

770

760

750

740

RIGHT ABUTMENT

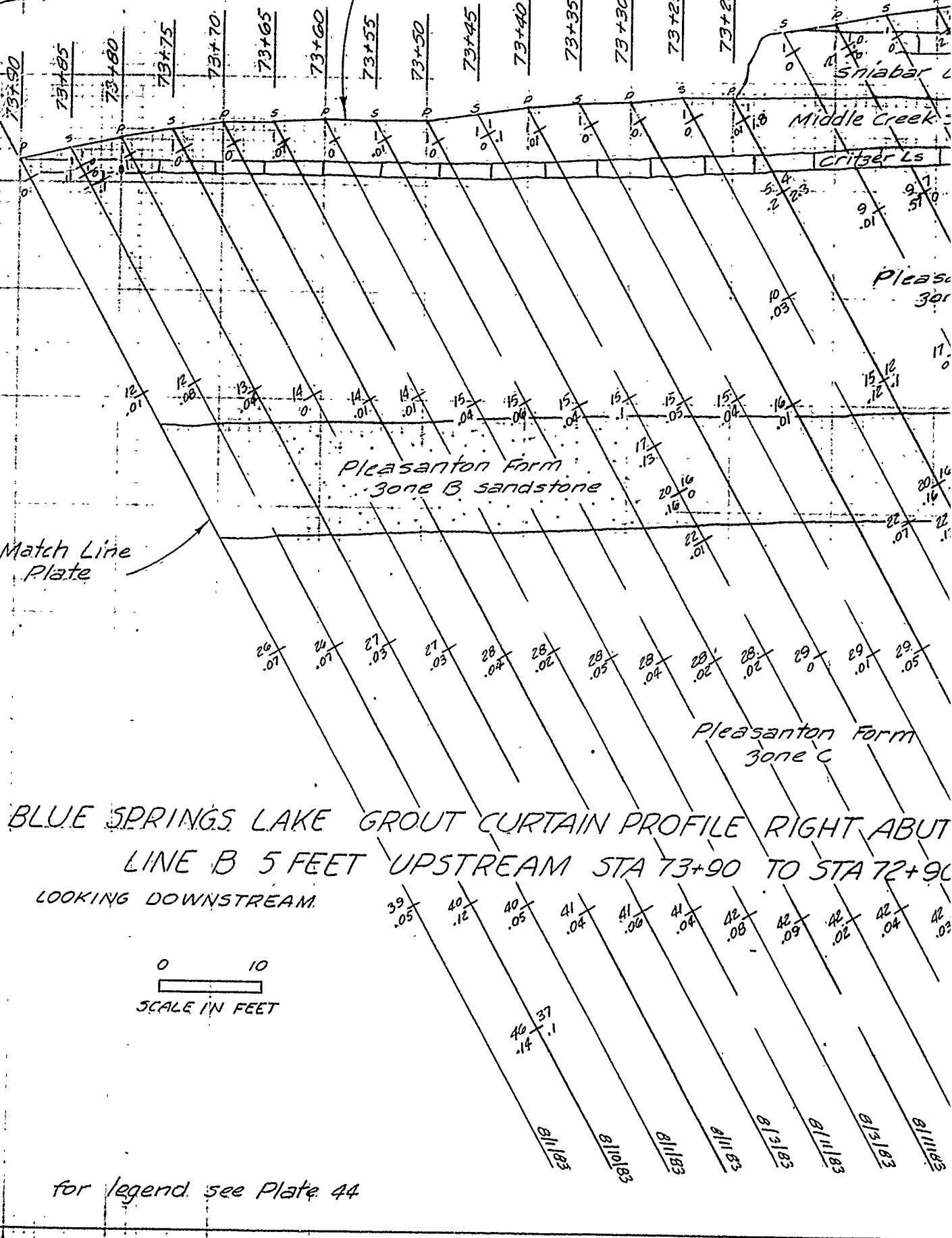
STA 72+90

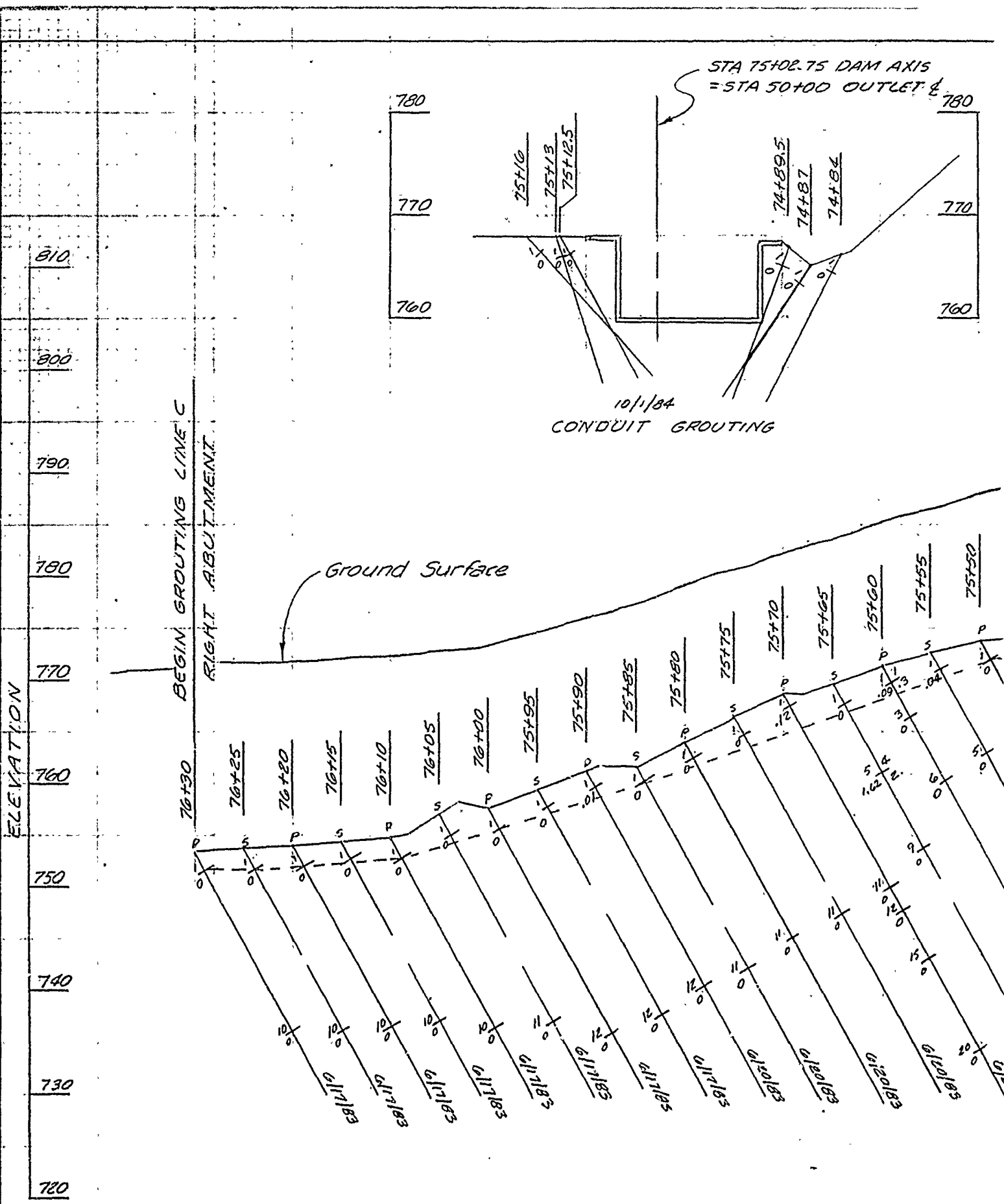
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE B STA. 73+90 TO STA. 72+90	Date:	AS SHOWN	Sheet number:	
Drawn by:		V. A.			
Checked by:		C. H.			

ELEVATION

820
810
800
790
780
770
760
750
740
730
720





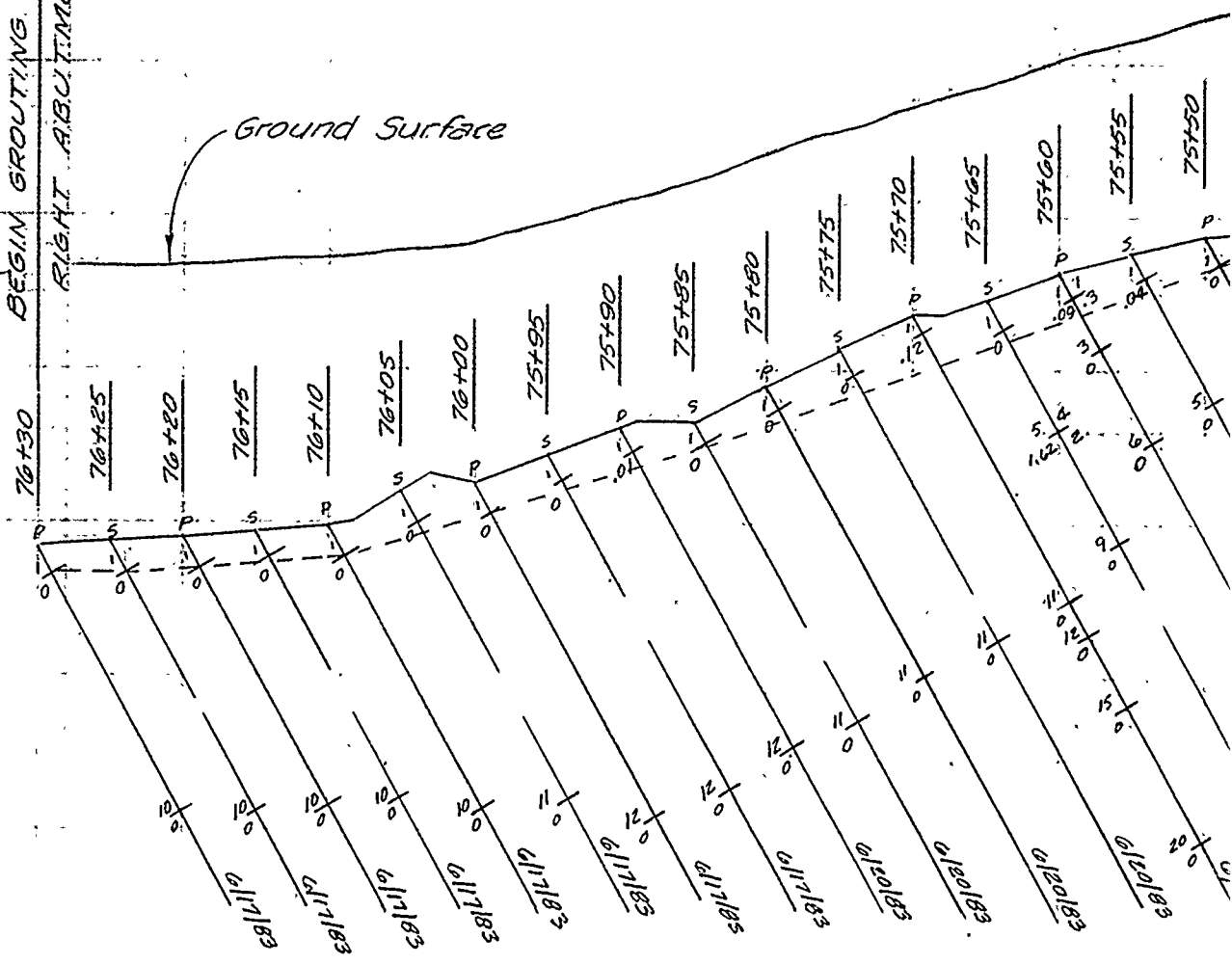
BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 76+30
 LOOKING DOWNSTREAM

10/1/84
CONDUIT GROUTING

ELEVATION
800
790
780
770
760
750
740
730
720

BEGIN GROUTING LINE C
RIGHT ABUTMENT

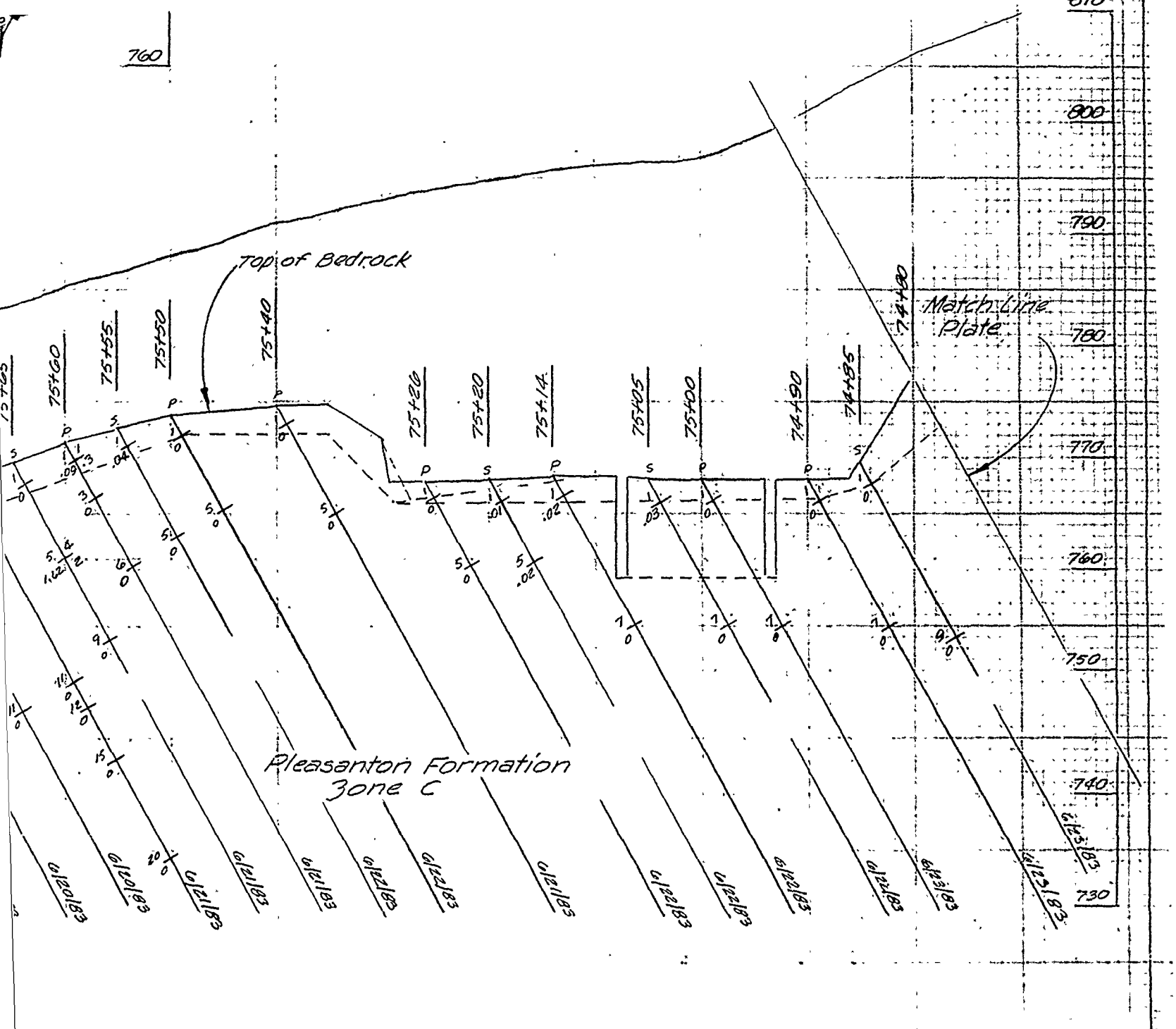
Ground Surface



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
LINE C ON DAM AXIS STA 76+30
LOOKING DOWNSTREAM

0 10
SCALE IN FEET

for leg



N PROFILE RIGHT ABUTMENT
 TA 76+30 TO STA 74+80

1M

for legend see Plate 44


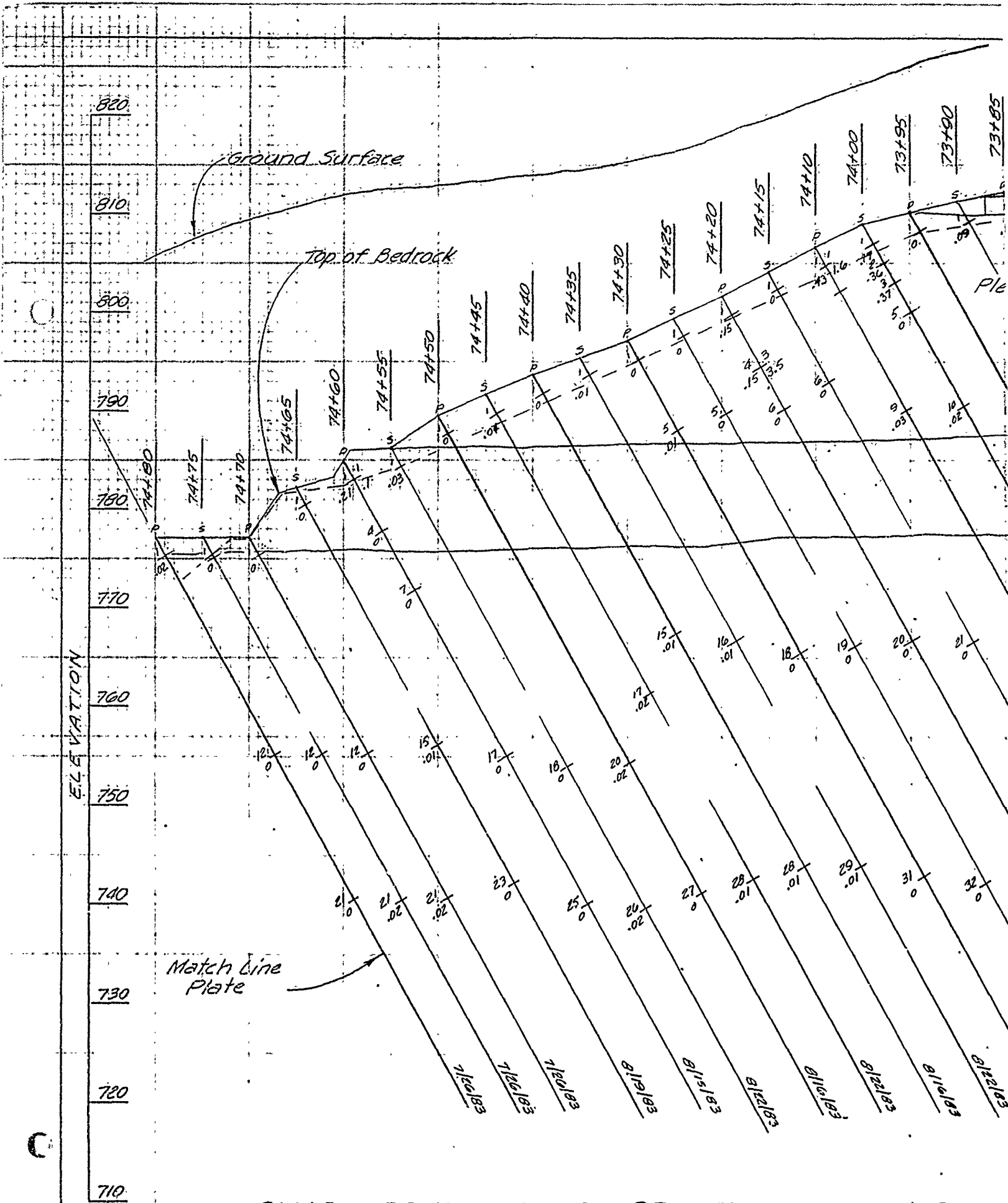
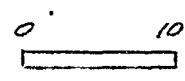
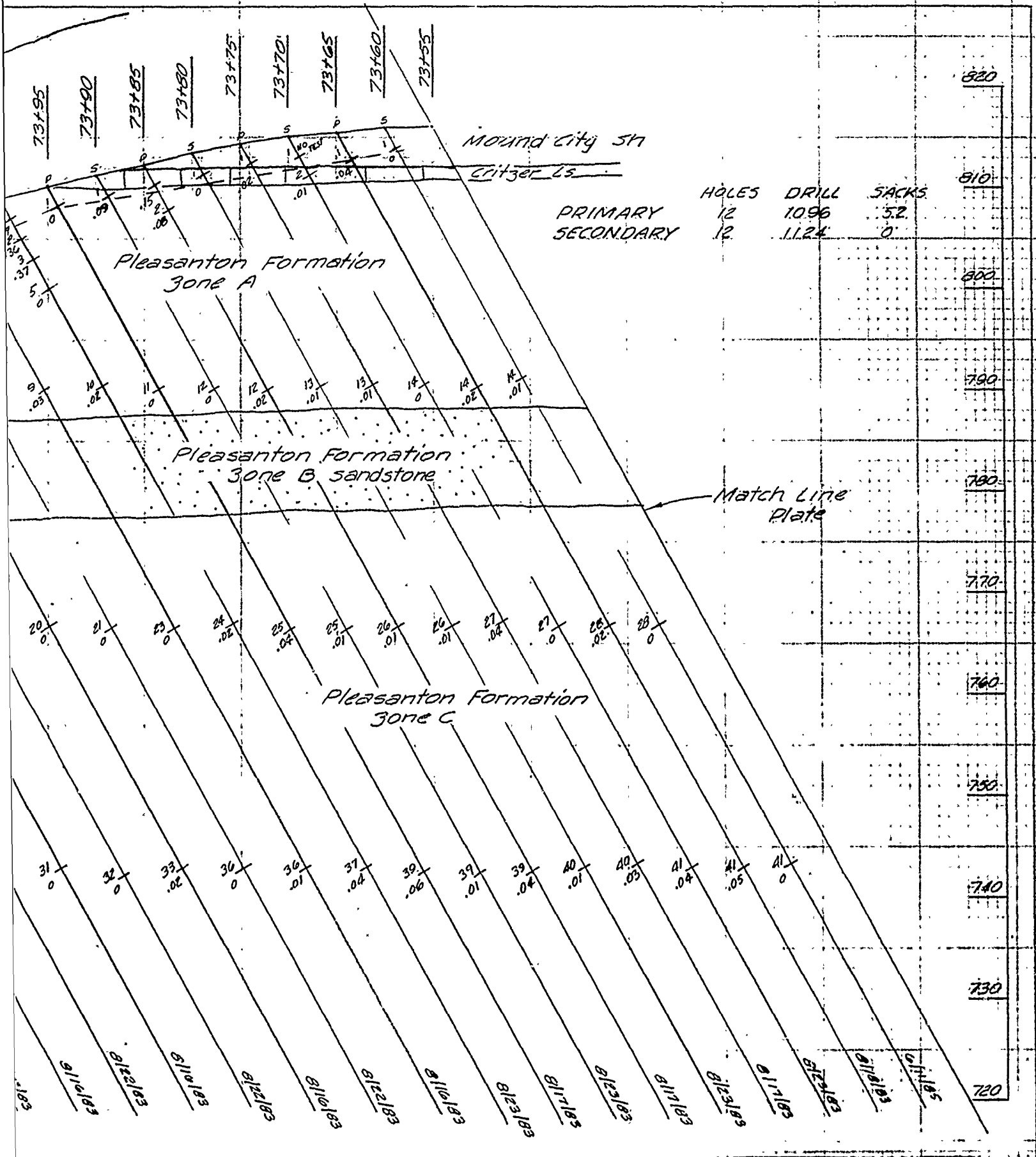
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Prepared by: Drawn by: V. A.	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE C STA. 76+30 TO STA. 74+80	Checked by: C. H.	Scale: AS SHOWN
Submitted by:		Date: JUNE 1990	Sheet Number: 67
		Drawing No.: RBL-2-1287	

PLATE NO. 67



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 74+80
 LOOKING DOWNSTREAM





	Holes	Drill	Sacks
PRIMARY	12	1096	52
SECONDARY	12	1124	0

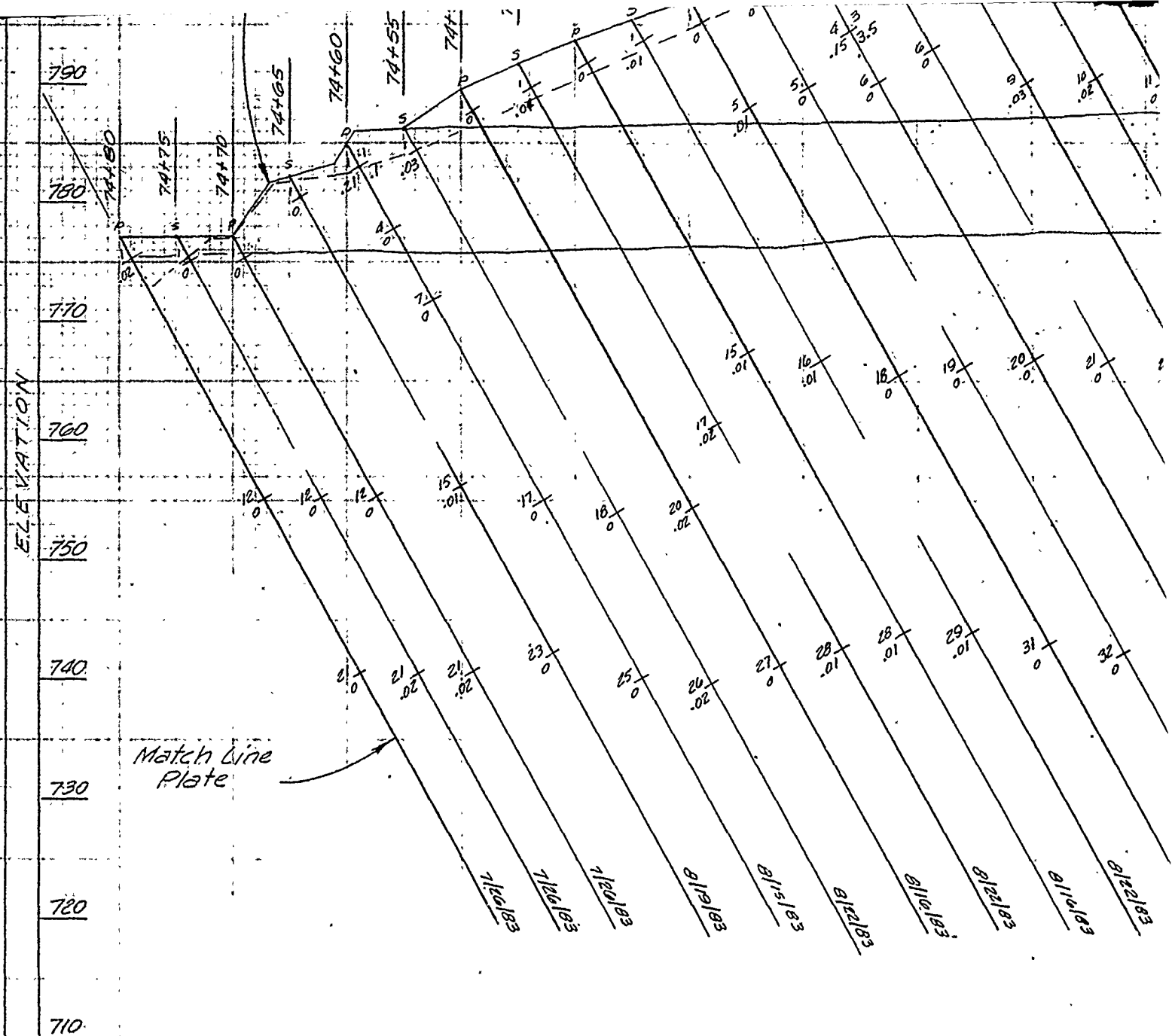
1 PROFILE RIGHT ABUTMENT
4 74+80 TO STA 73+55

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

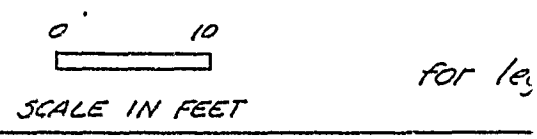
Designed by: _____

Checked by: _____

**EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT
GROUT CURTAIN PROFILE**



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 74+80
 LOOKING DOWNSTREAM

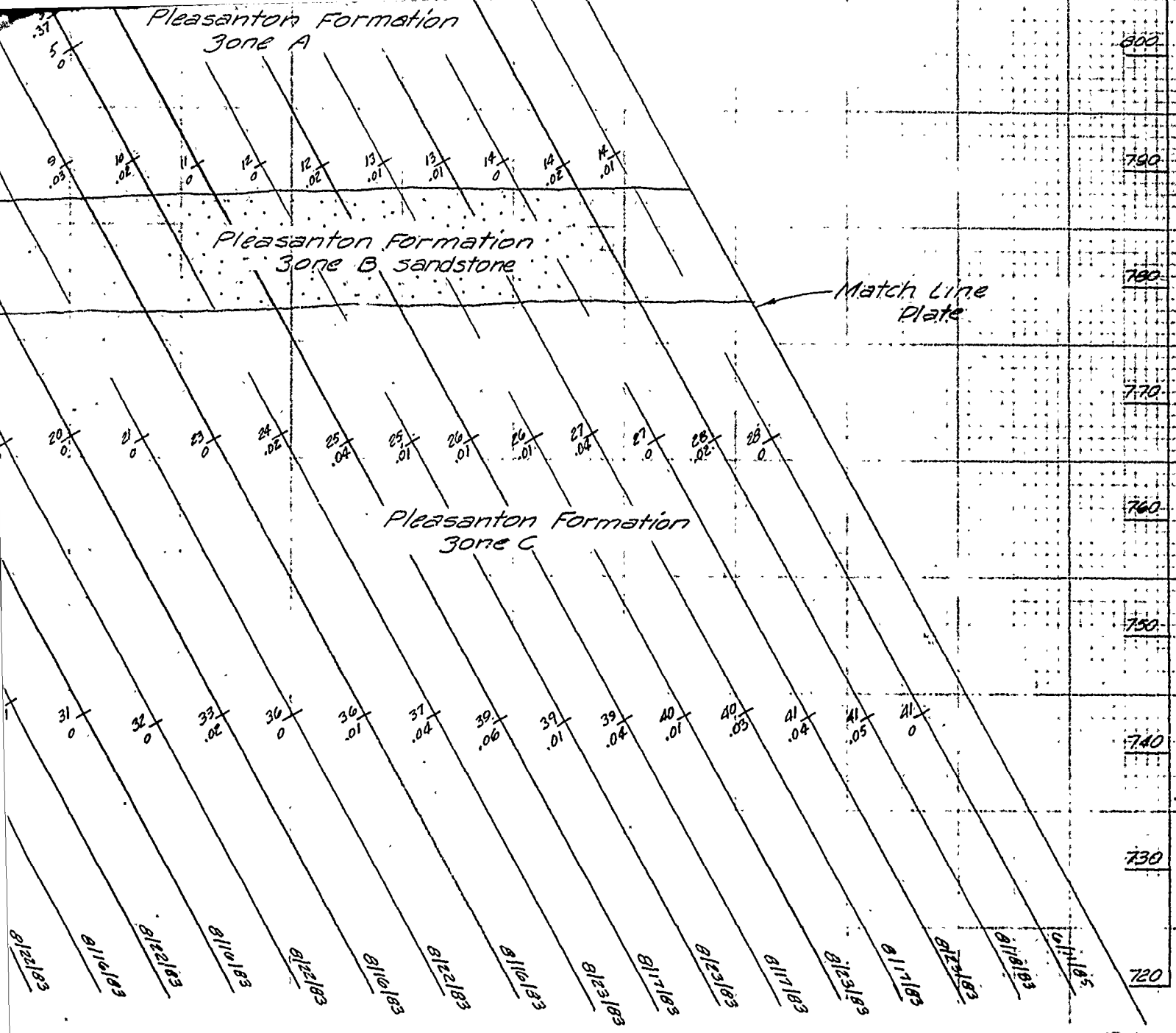


Pleasanton Formation
Zone A

Pleasanton Formation
Zone B sandstone

Pleasanton Formation
Zone C

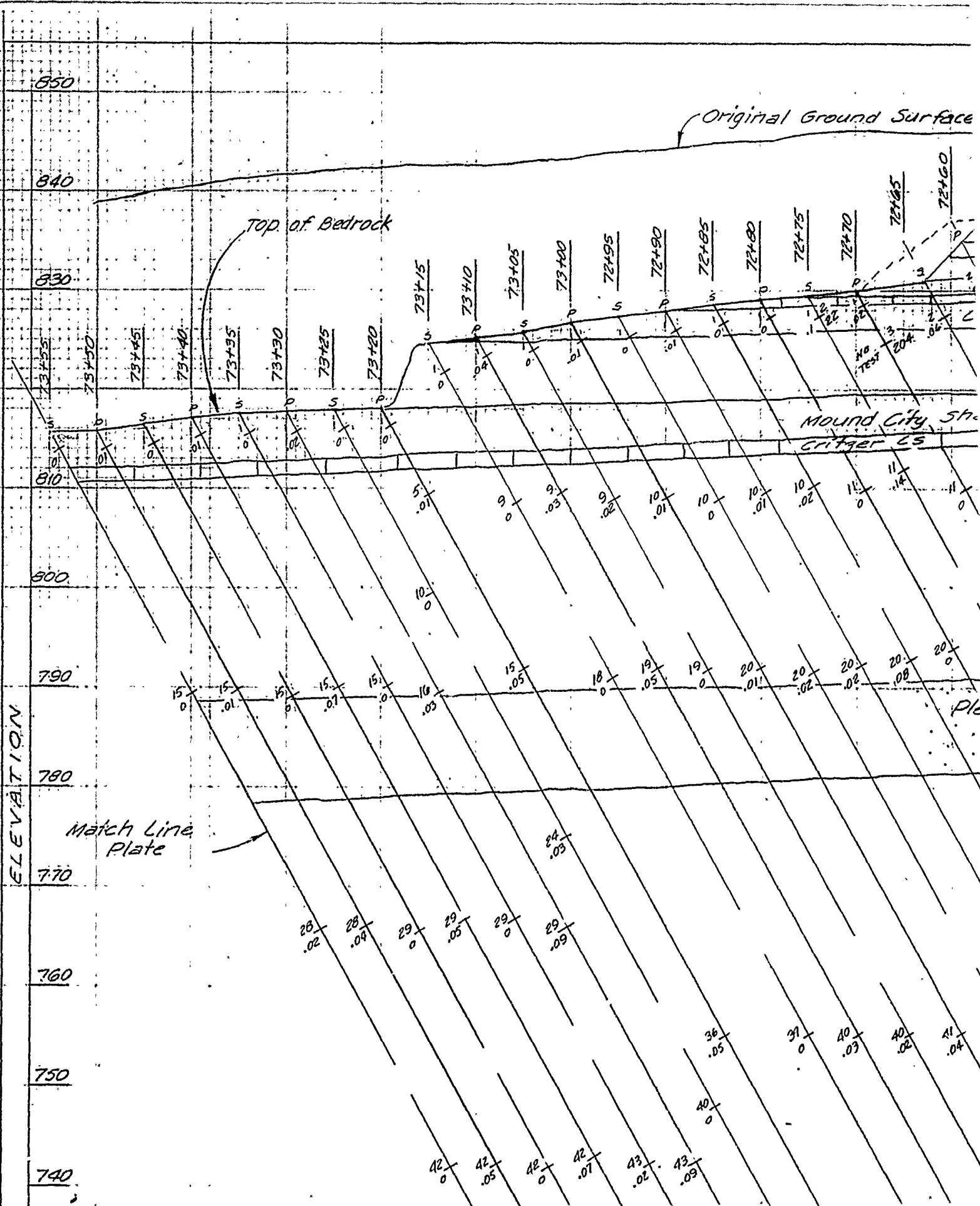
Match Line
Plate



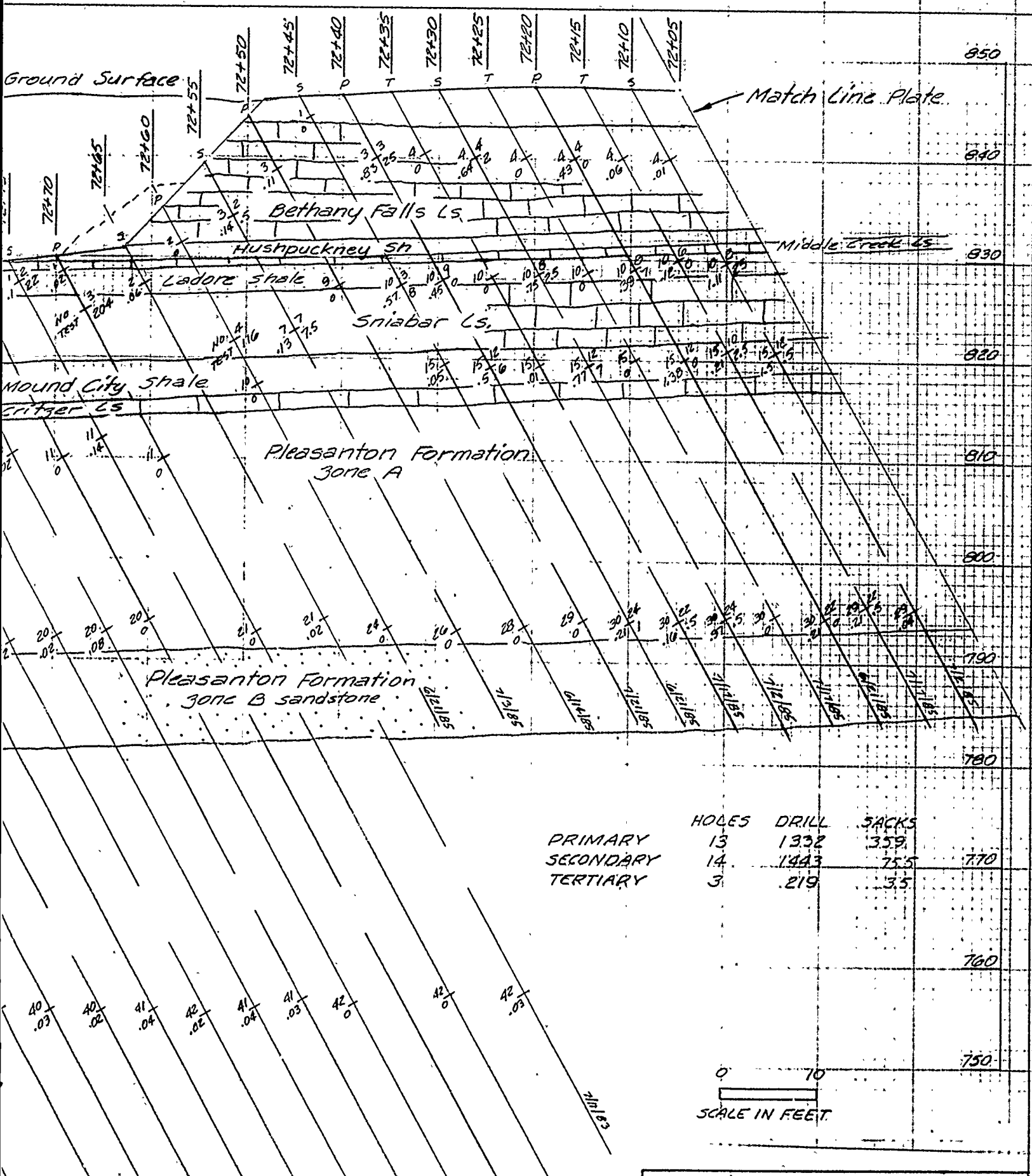
N PROFILE RIGHT ABUTMENT
TA 74+80 TO STA 73+55
CAM

for legend see Plate 44

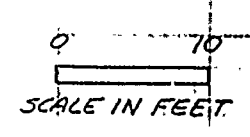
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANAS CITY, MISSOURI							
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE C STA. 74+80 TO STA. 73+55						
Drawn by:							
Checked by:							
Submitted by:	<table border="1"> <tr> <td>Scale:</td> <td>AS SHOWN</td> <td rowspan="2">Sheet Number:</td> <td rowspan="2">68</td> </tr> <tr> <td>Date:</td> <td>JUNE 1990</td> </tr> </table>	Scale:	AS SHOWN	Sheet Number:	68	Date:	JUNE 1990
Scale:	AS SHOWN	Sheet Number:	68				
Date:	JUNE 1990						
		RBL-2-1288					



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE RIGHT
 LINE C ON DAM AXIS STA 73+55 TO STA
 LOOKING DOWNSTREAM



	HOLES	DRILL	SACKS	
PRIMARY	13	1332	359	
SECONDARY	14	1443	75.5	770
TERTIARY	3	219	3.5	



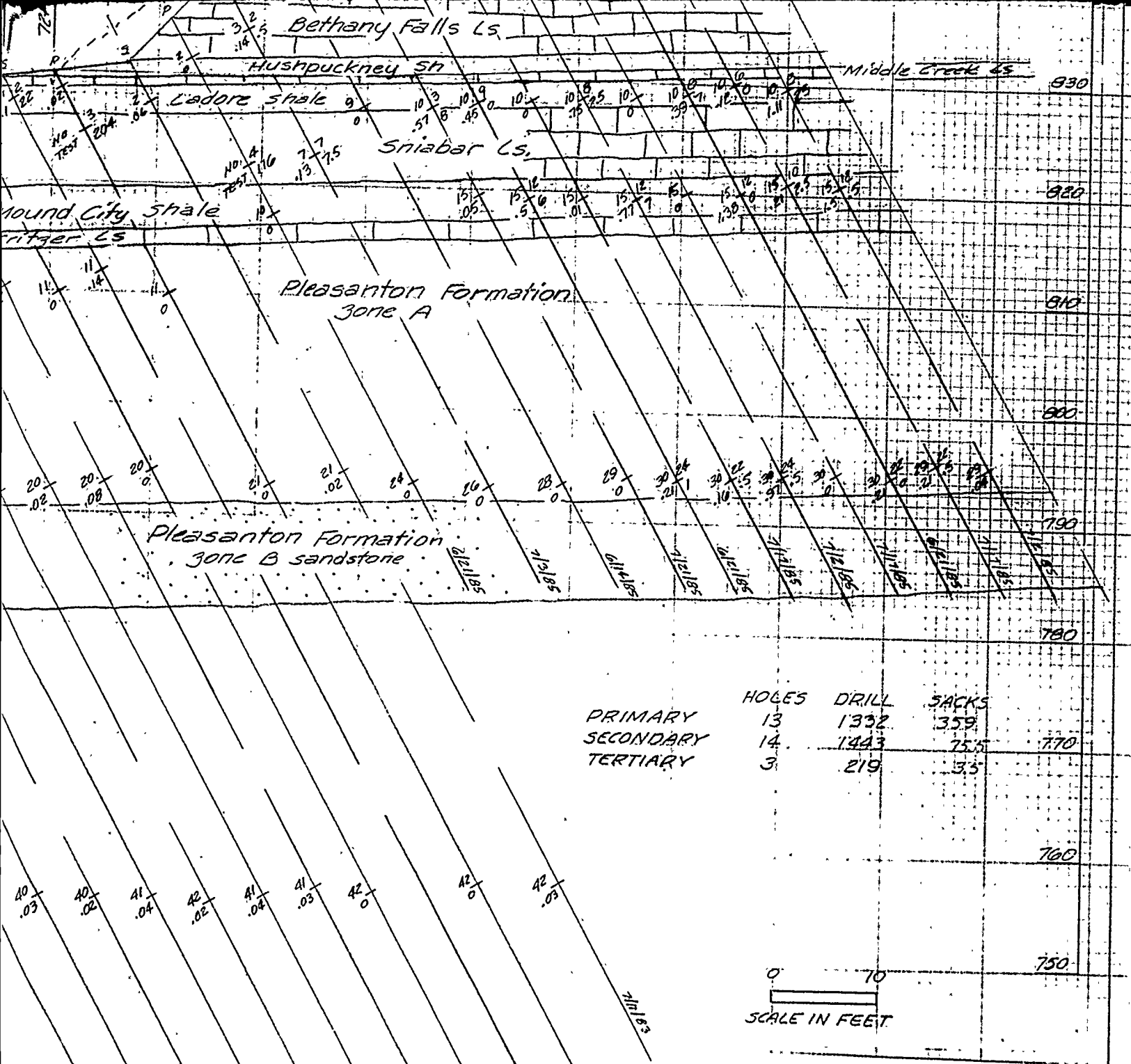
PROFILE RIGHT ABUTMENT
 55 TO STA 72+05

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

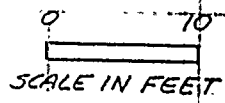
Designed by: _____

Drawn by: _____

EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE
 CONSTRUCTION FOUNDATION REPORT
 GROUP CURTAIN PROFILE



	HOLES	DRILL	JACKS	
PRIMARY	13	1332	359	
SECONDARY	14	1443	75.5	770
TERTIARY	3	219	3.5	

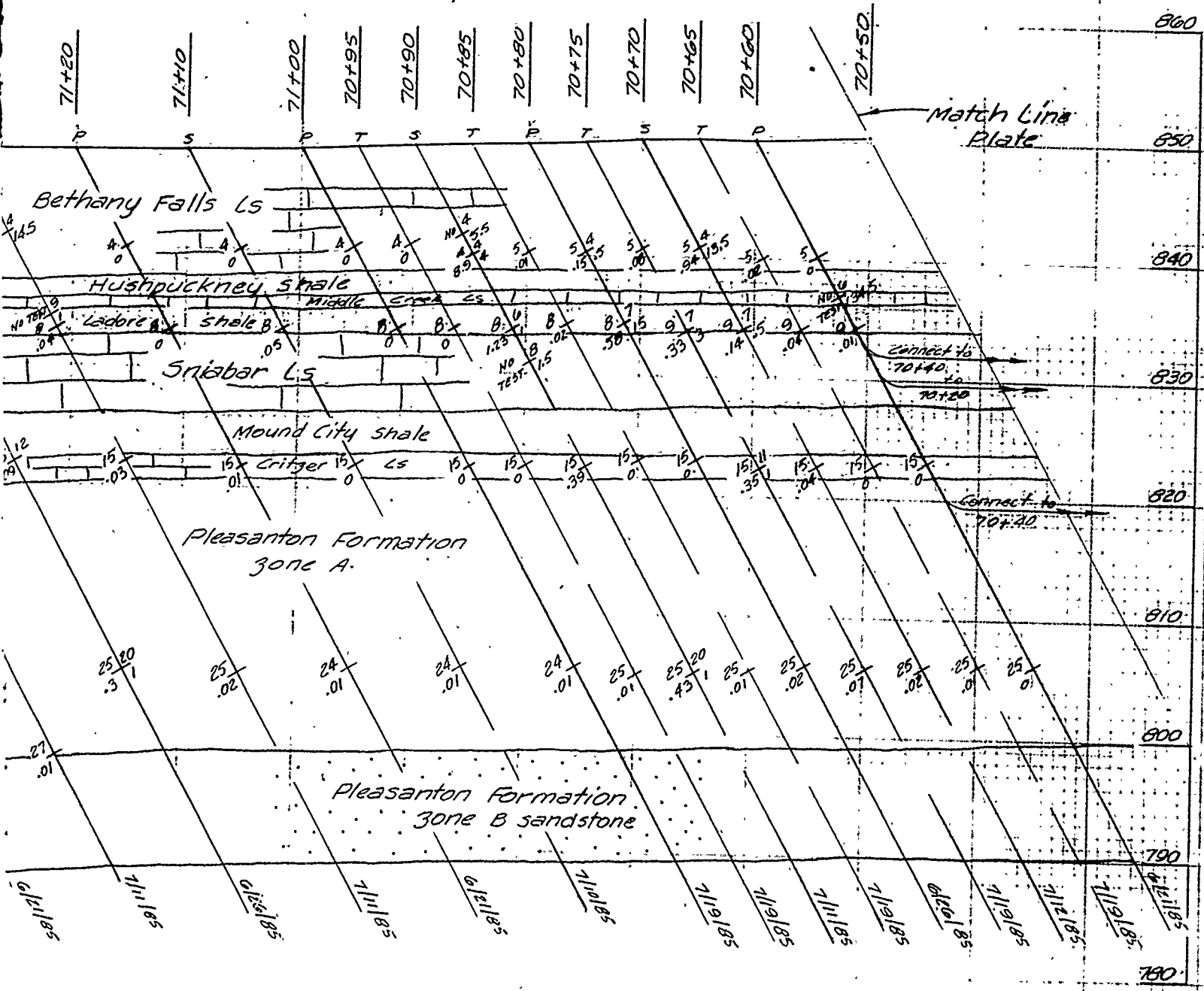


FILE RIGHT ABUTMENT
 5 TO STA 72+05

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE B STA. 73+55 TO STA. 72+05	
Drawn by:	V. A.		
Checked by:	C. H.		
Submitted by:			
Scale:	AS SHOWN	Sheet Number:	69
Date:	JUNE 1990		
Drawn by:		RBL-2-1289	

PLATE NO. 69

B

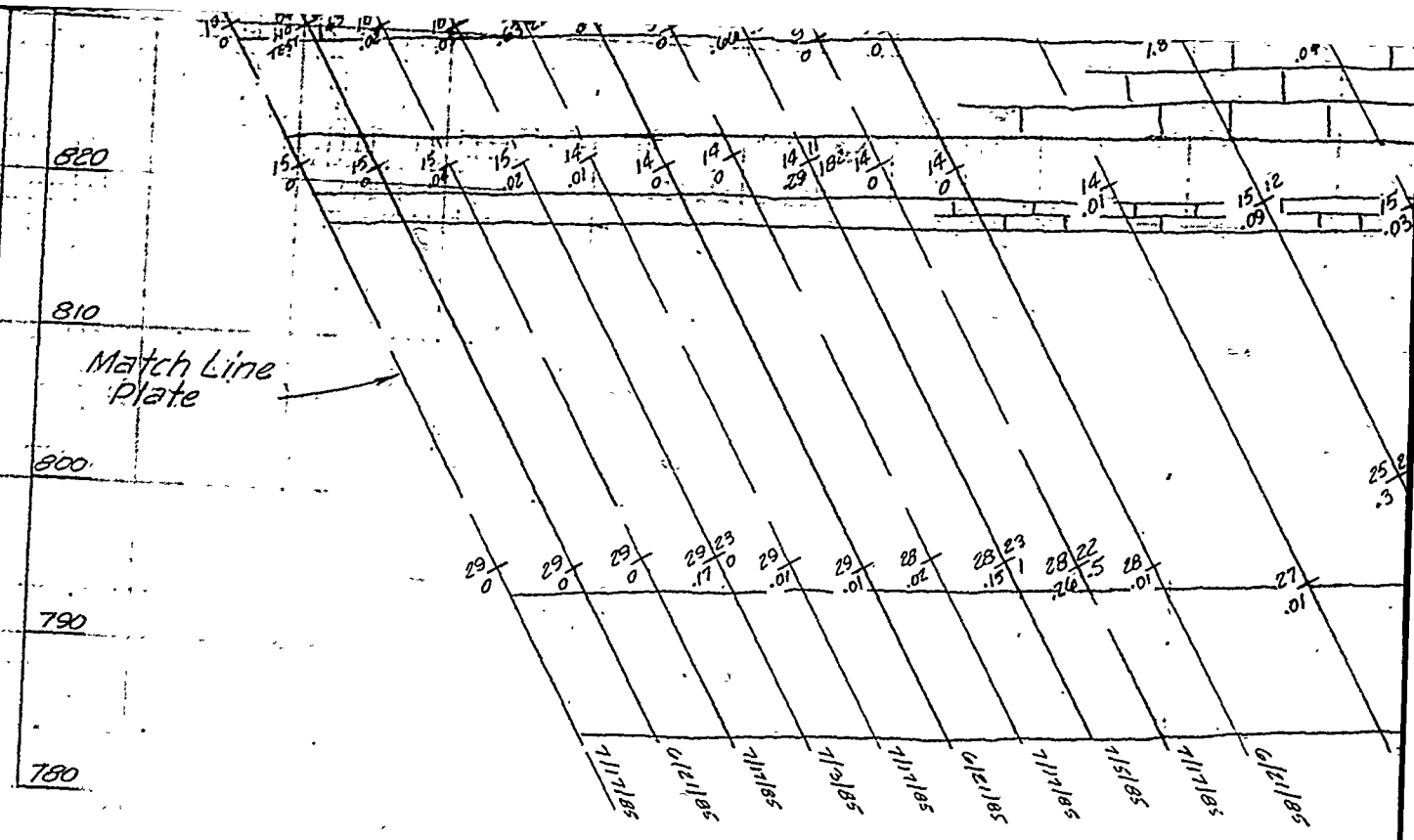


	HOLES	DRILL	SACKS
PRIMARY	8	585'	517
SECONDARY	7	511'	240
TERTIARY	9	666'	28

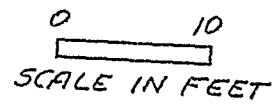
PROFILE RIGHT ABUTMENT
+05 TO STA 70+50

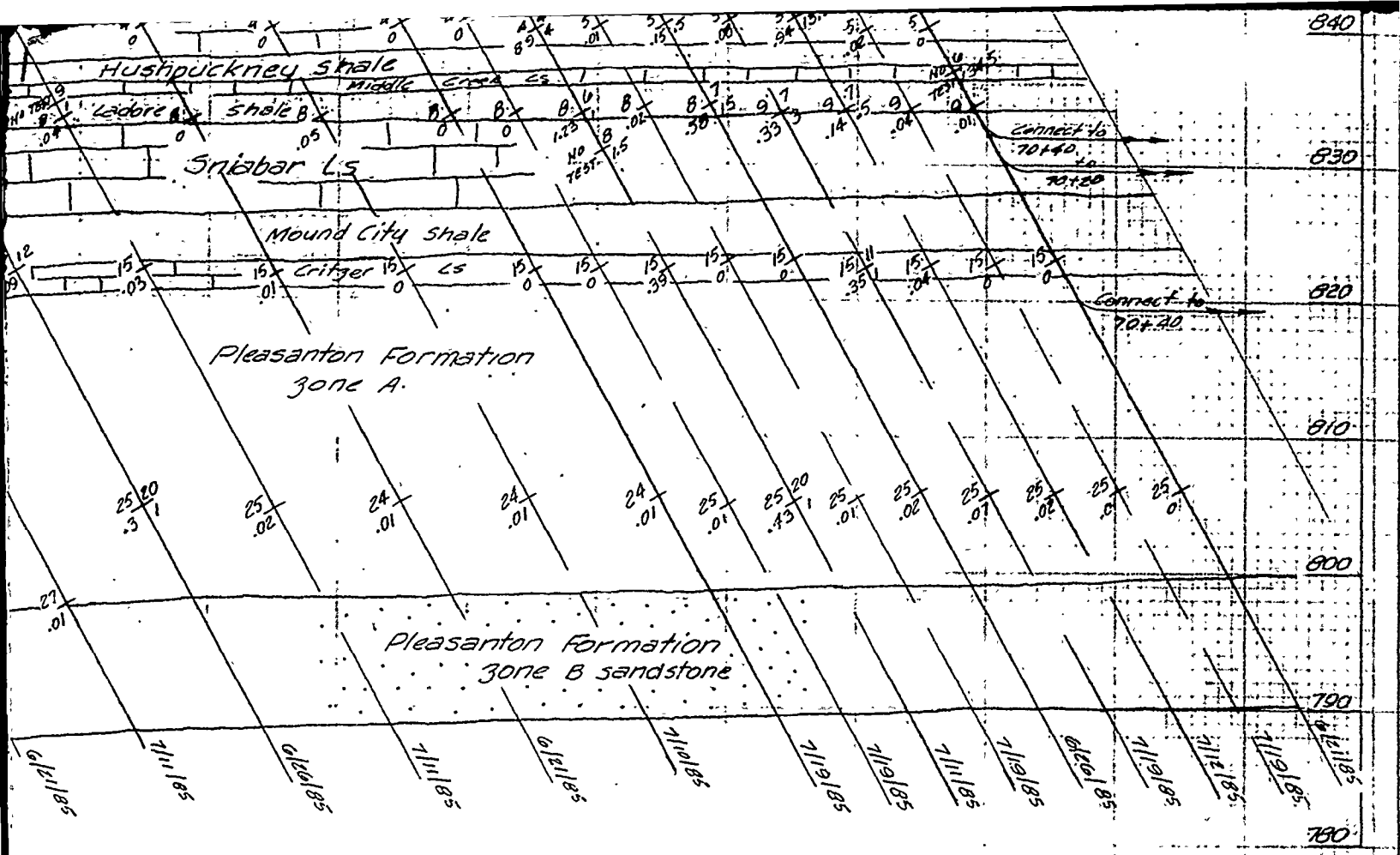
for legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE C STA. 72+05 TO STA. 70+50	
Drawn by:	V. A.	Scale:	AS SHOWN
Checked by:	C. H.	Date:	JUNE 1990
Submitted by:		Sheet Number:	70



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 72+05 TO
 LOOKING DOWNSTREAM





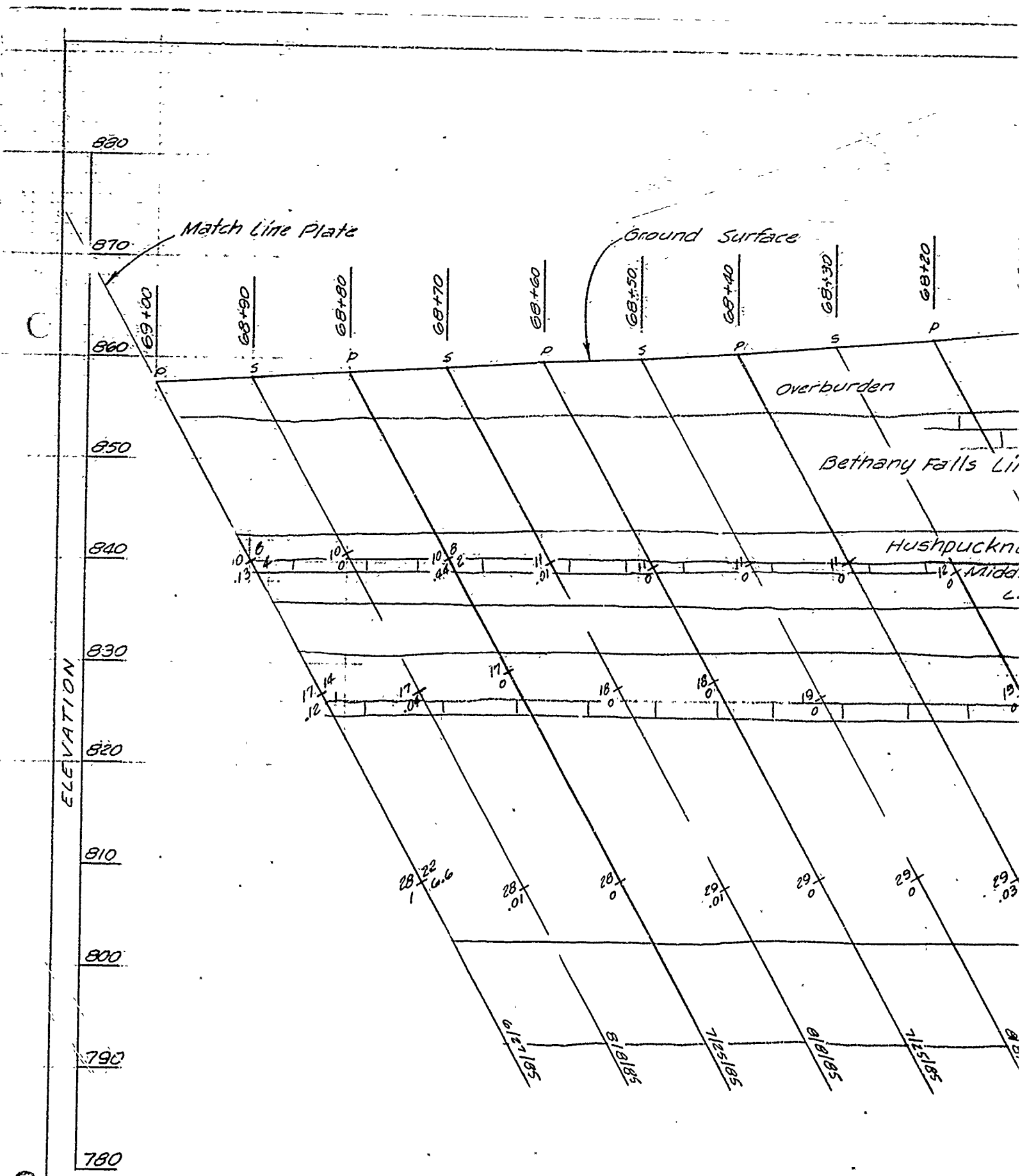
	HOLE'S	DRILL	SACKS
PRIMARY	8	585'	517
SECONDARY	7	511'	292
TERTIARY	9	666'	28

PROFILE RIGHT ABUTMENT
 72+05 TO STA 70+50

for legend see Plate 44

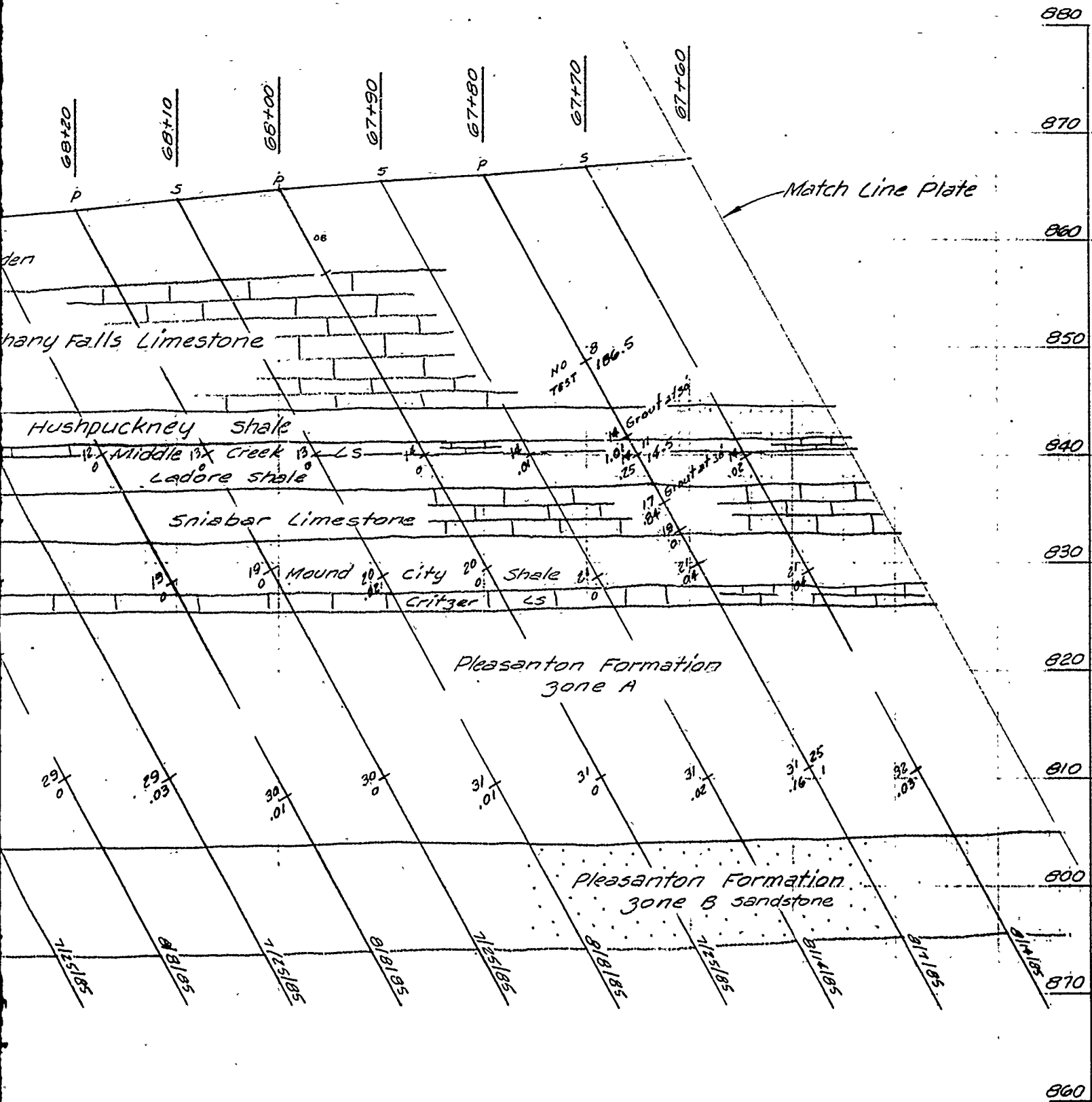
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI				
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE C STA. 72+05 TO STA. 70+50	Scale:	AS SHOWN	
Drawn by:		V. A.	Date:	JUNE 1990
Checked by:		C. H.	Sheet number:	70
Submitted by:		File No.:	RBL-2-1290	

PLATE NO. 70



BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 69+00
 LOOKING DOWNSTREAM

	HOLES	DRILL	SACKS
PRIMARY	7	585'	215.6
SECONDARY	7	590'	0

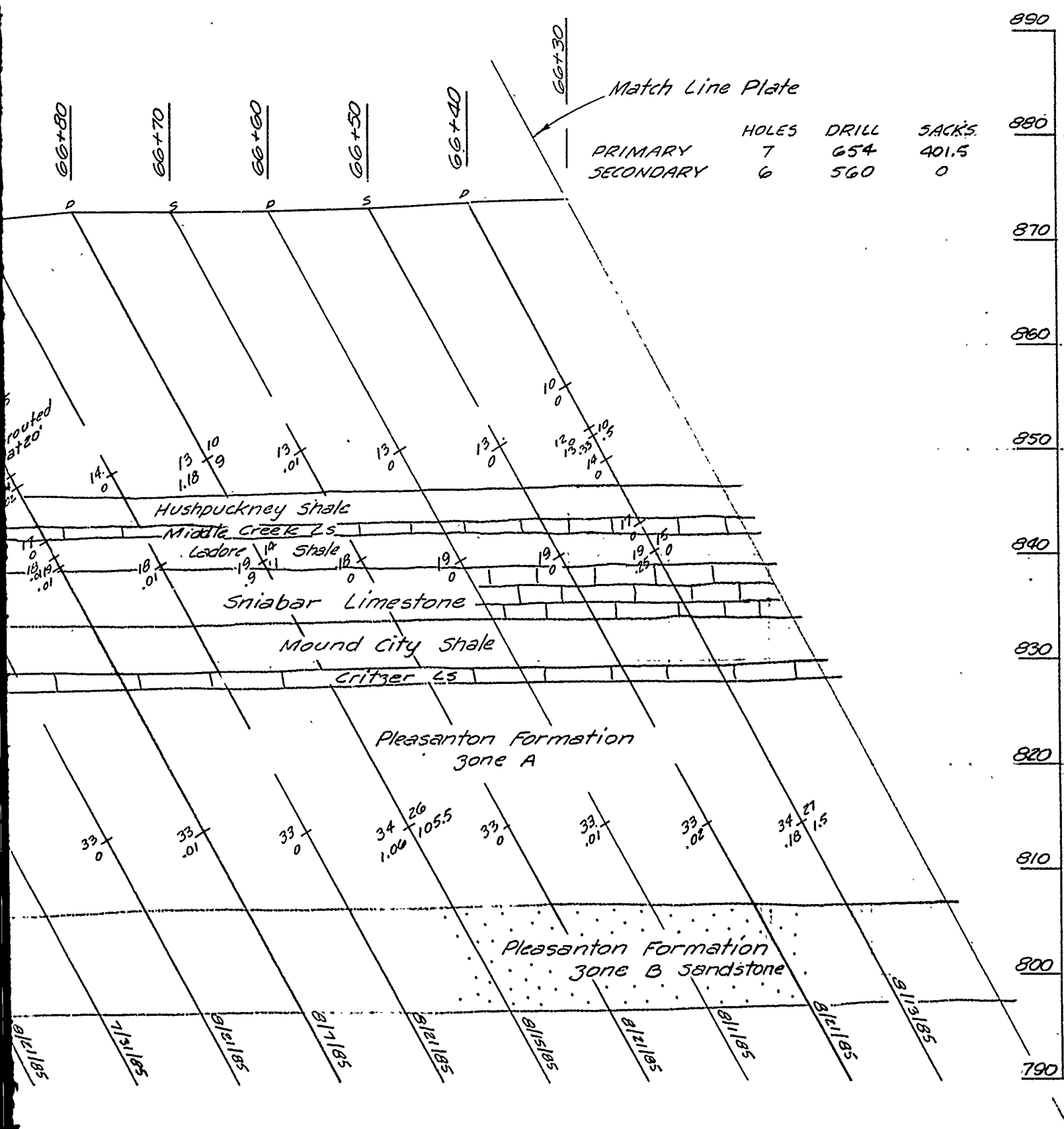


PROFILE RIGHT ABUTMENT
 STA 69+00 TO STA 67+60

TEAM


U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 KANSAS CITY, MISSOURI

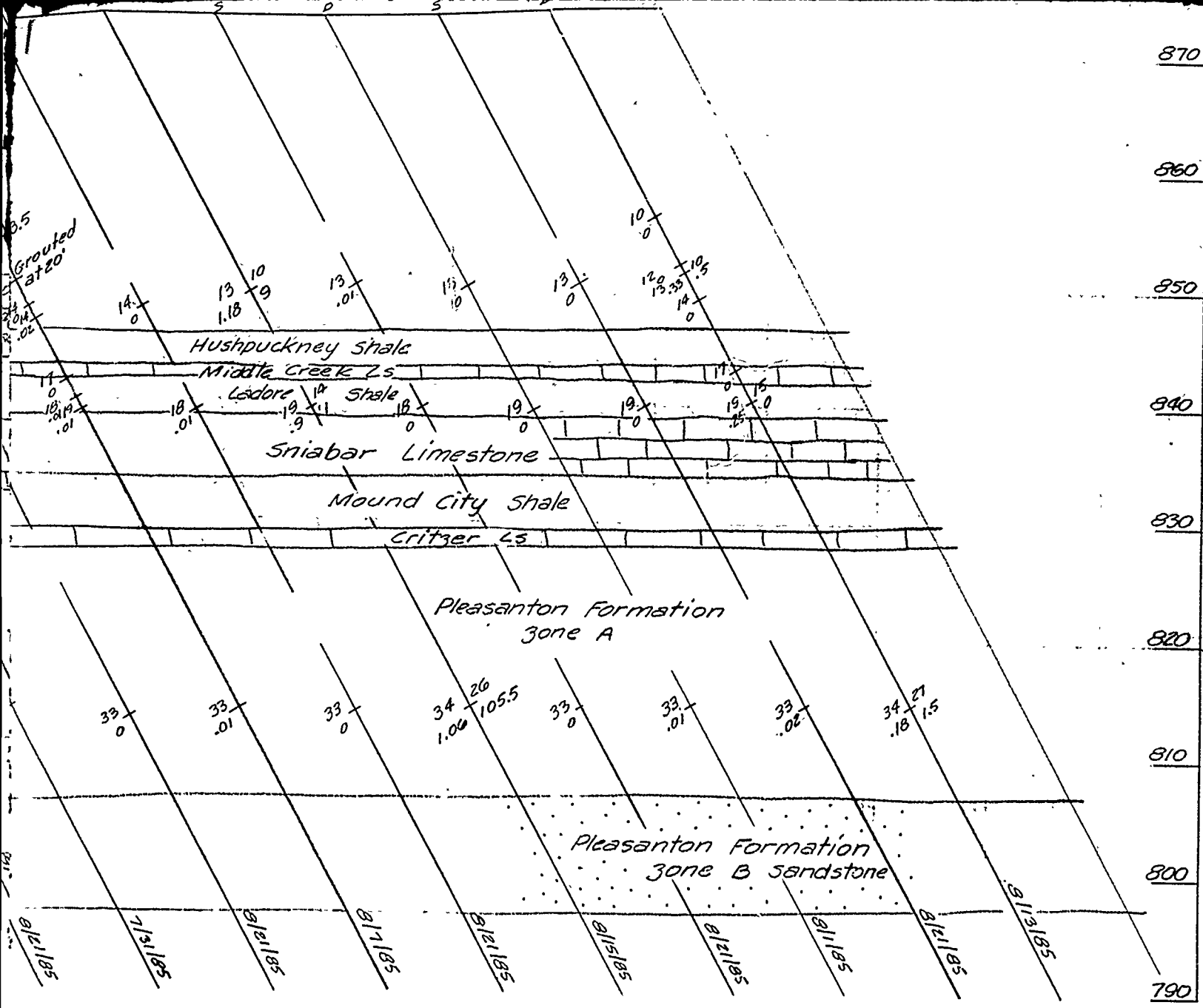
Designed by: EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE
 CONSTRUCTION FOUNDATION REPORT



	HOLES	DRILL	SACKS
PRIMARY	7	654	401.5
SECONDARY	6	560	0

PROFILE RIGHT ABUTMENT
 STA 67+60 TO STA 66+30
 AM

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE C STA. 67+60 TO STA. 66+30
Drawn by:	
Checked by:	

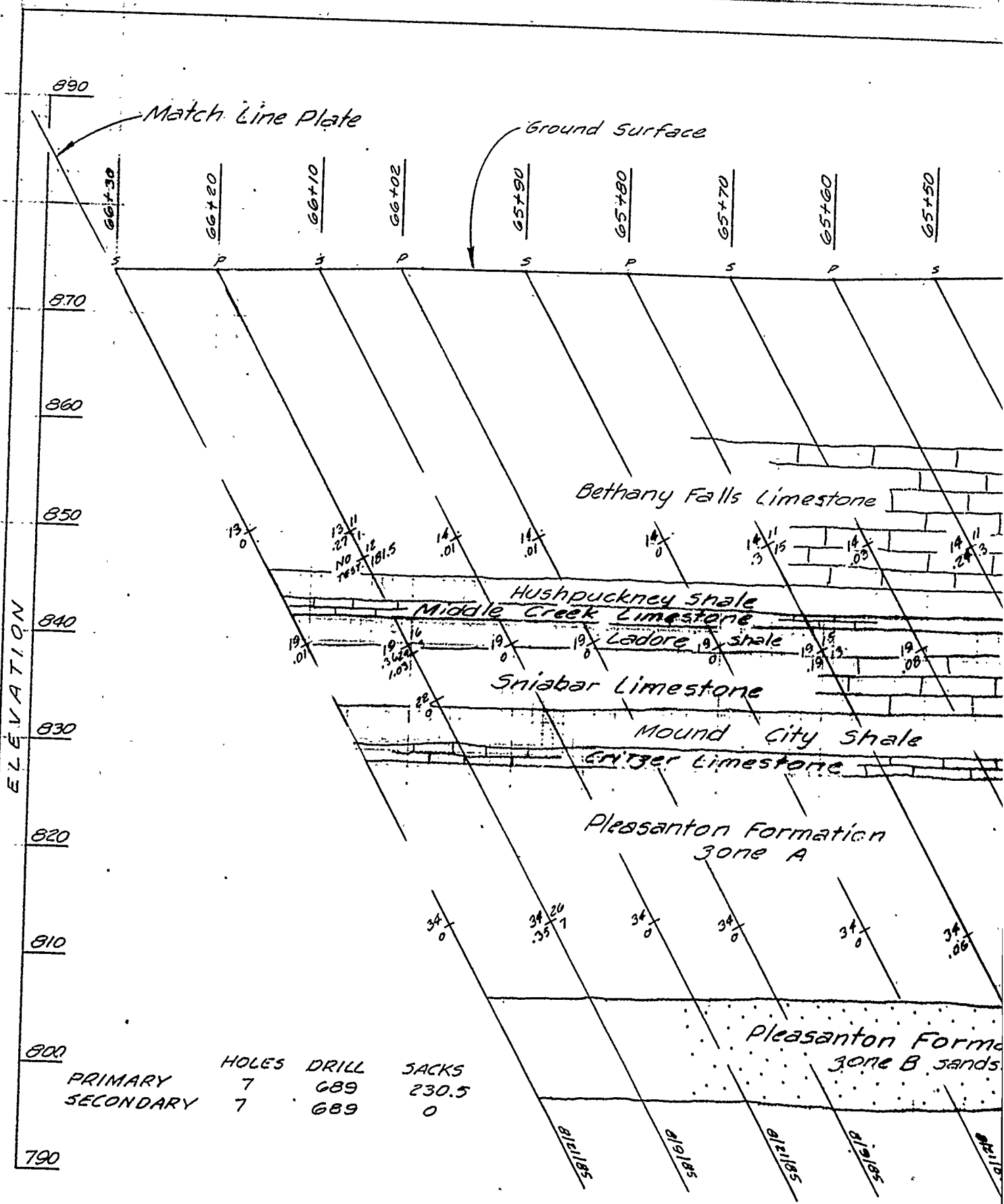


PROFILE RIGHT ABUTMENT
 STA 67+60 TO STA 66+30
 EAM

For legend see Plate 44

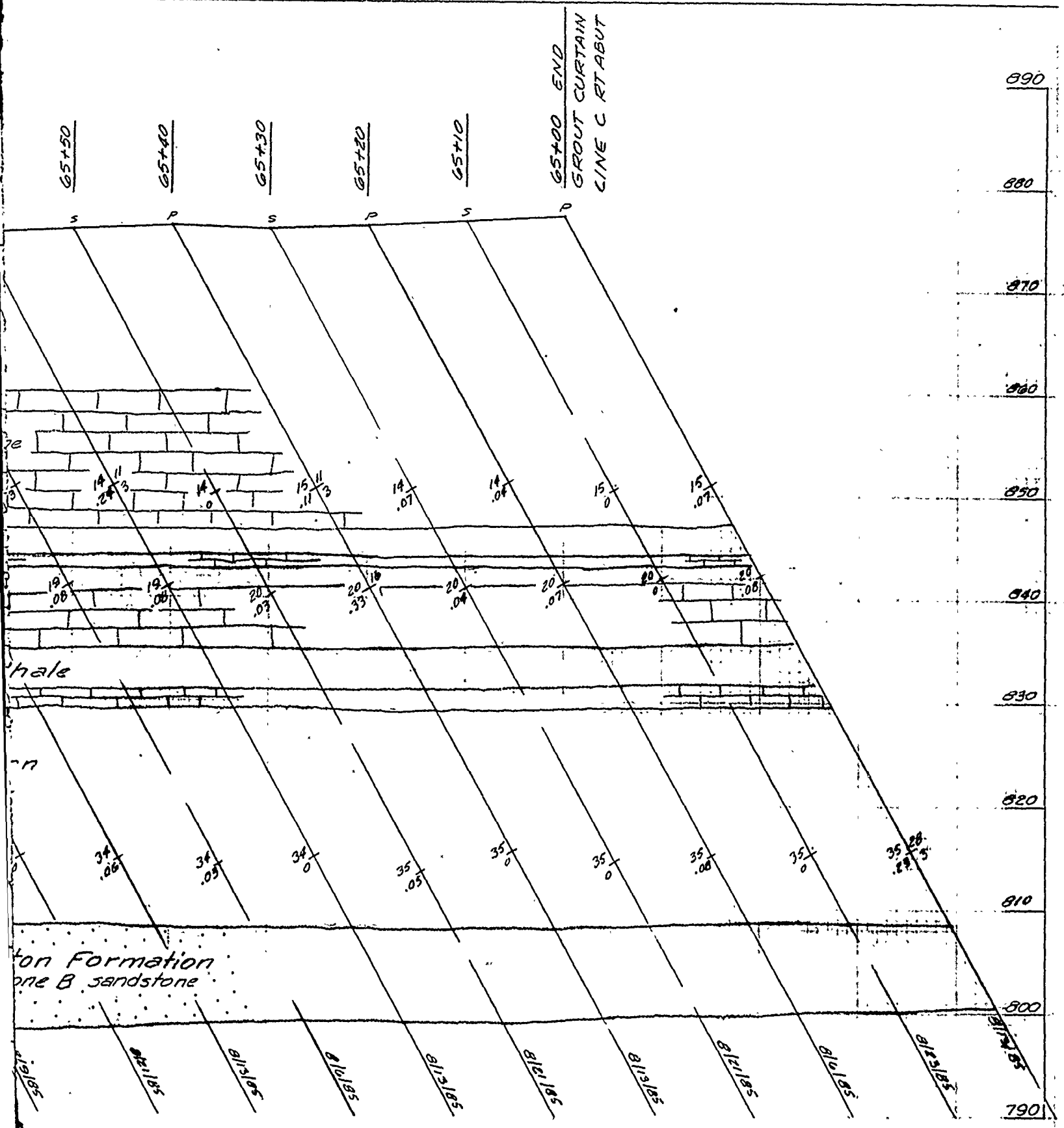
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by:	V. A.	GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE C STA. 67+60 TO STA. 66+30	
Checked by:	C. H.	Scale:	AS SHOWN
Submitted by:		Date:	JUNE 1990
		Sheet number:	73
		Proj. No.: RBL-2-1293	

PLATE NO. 7:



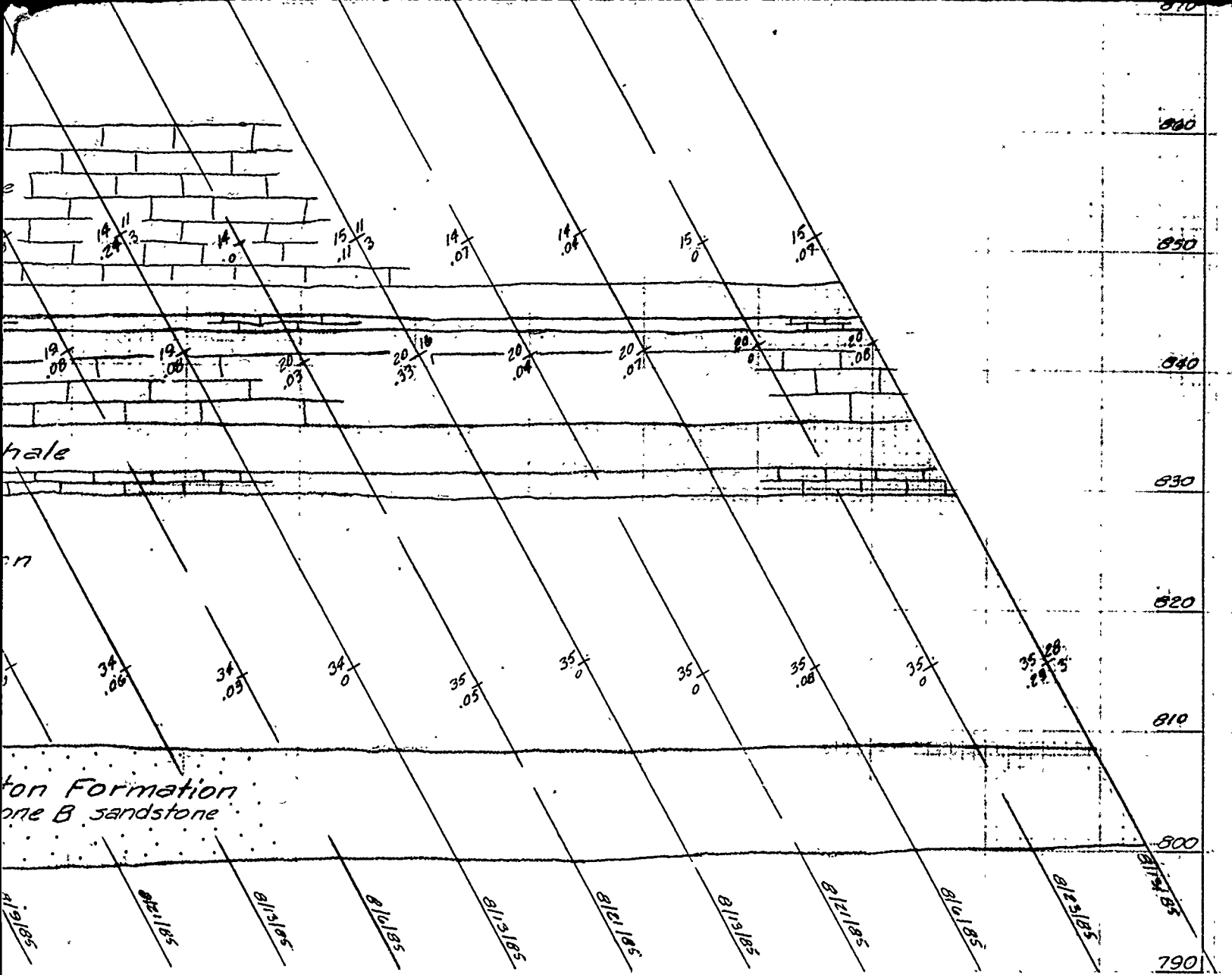
	HOLES	DRILL	SACKS
PRIMARY	7	689	230.5
SECONDARY	7	689	0

BLUE SPRINGS LAKE GROUT CURTAIN PROFILE
 LINE C ON DAM AXIS STA 66+30
 LOOKING DOWNSTREAM



PROFILE RIGHT ABUTMENT
 STA 66+30 TO STA 65+00
 TAM

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by: Drawn by: V. A. Checked by: C. H.	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE C STA. 66+30 TO STA. 65+00



PROFILE RIGHT ABUTMENT
 STA 66+30 TO STA 65+00
 TEAM

For legend see Plate 44

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:	V. A.	GROUT CURTAIN PROFILE RIGHT ABUTMENT LINE C STA. 66+30 TO STA. 65+00	
Checked by:	C. H.	Date:	AS SHOWN
Submitted by:		Date:	JUNE 1990
		Sheet number:	74
		Proj. No.:	RBL-2-1294

PLATE NO. 74

LEFT ABUTMENT

GEOLOGIC UNIT
BETHANY FALLS LIMESTONE
HUSHPUCKNEY SHALE
MIDDLE CREEK LIMESTONE
LADORE SHALE
SNIABAR LIMESTONE
MOUND CITY SHALE
CRITZER LIMESTONE
PLEASANTON ZONE A
ZONE B
ZONE C

LINE A	LINE B	LINE C	TOTAL
SACKS OF CEMENT INJECTED			
1483.4			1483.4
	29.5	16.0	45.5
0.2	11.0	8.5	19.7
2.6			2.6
187.8	2.0	142.0	331.8
282.3	19.8	17.5	319.6
181.7	57.0	32.0	270.7
0.4	2.0		2.4
12.0	1.0		13.0
<u>2150.4</u>	<u>122.3</u>	<u>216.0</u>	<u>2488.7</u>

LEFT ABUTMENT			
	HOLES	DRILL	SACKS
LINE A	P-58	4410	1069.8
	S-58	4415	1030.5
	T-6	436	1.6
	EXP-2	170	48.5
	<u>124</u>	<u>9431'</u>	<u>2150.4</u>
LINE B	P-59	4365	77.3
	S-58	4308	38.5
	T-2	179	6.5
	<u>119</u>	<u>8852'</u>	<u>122.3</u>
LINE C	P-59	4477	48.5
	S-58	4363	145.0
	T-3	213	0
	EXP-1	75	22.5
	<u>121</u>	<u>9128'</u>	<u>216.0</u>
TOTALS	364	27,411'	2,488.7

BLUE SPRINGS DAM SUMMARY OF GROUTING

MENT

RIGHT ABUTMENT

TOTAL	%
1483.4	59.6
45.5	1.8
19.7	0.8
2.6	
331.8	13.3
319.6	12.8
270.7	10.8
2.4	
13.0	
<u>2488.7</u>	


LINE A	LINE B	LINE C	TOTAL	%
		1118.0	1118.0	38.8
		55.5	55.5	1.9
	1.9	140.5	142.4	4.9
0.6	0.3	660.0	660.9	22.9
3.0		341.5	344.5	12.0
40.2		200.0	240.2	8.3
		7.5	7.5	
33.3	16.6	140.2	190.1	6.6
47.7	26.1	0.1	73.9	2.6
41.74	1.0	2.3	45.04	1.6
<u>166.54</u>	<u>45.9</u>	<u>2665.6</u>	<u>2878.04</u>	

T

SACKS
1069.8
1030.5
1.6
<u>48.5</u>
2150.4
77.3
38.5
<u>6.5</u>
122.3
48.5
145.0
0
<u>22.5</u>
210.0
<u>2488.7</u>

RIGHT ABUTMENT			
	HOLES	DRILL	SACKS
LINE A	P-35	2800	164.5
	S-30	2491	1.8
	T-3	82	0.2
	Q-1	21	.04
	EXP-2	<u>58</u>	0
	71	5452'	166.54
LINE B	P-34	2752	45.6
	S-31	<u>2566</u>	0.3
	65	5318'	45.9
LINE C	P-75	6050	2147.1
	S-72	5962	487.0
	T-14	<u>1038</u>	31.5
	161	13,050'	2665.6
TOTALS	297	23,820'	2,878.04

ROUTING

U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT
Drawn by:	
V.A.	SUMMARY OF GROUTING

19.7	0.8	1.9	140.5	142.4	4.9	
2.6		0.6	660.0	660.9	22.9	
331.8	13.3	3.0	341.5	344.5	12.0	
319.6	12.8	40.2	200.0	240.2	8.3	
			7.5	7.5		
270.7	10.8	33.3	16.6	140.2	190.1	6.6
2.4		47.7	26.1	0.1	73.9	2.6
13.0		41.74	1.0	2.3	45.04	1.6
2488.7		166.54	45.9	2665.6	2878.04	

SACKS
1069.8
1030.5
1.6
48.5
<u>2150.4</u>
77.3
38.5
6.5
<u>122.3</u>
48.5
145.0
0
22.5
<u>210.0</u>
2488.7

RIGHT ABUTMENT			
	HOLES	DRILL	SACKS
LINE A	P-35	2800	164.5
	S-30	2491	1.8
	T-3	82	0.2
	Q-1	21	.04
	EXP-2	58	0
	71	5452'	166.54
LINE B	P-34	2752	45.6
	S-31	2566	0.3
	65	5318'	45.9
LINE C	P-75	6050	2147.1
	S-72	5962	487.0
	T-14	1038	31.5
	161	13,050'	2665.6
TOTALS	297	23,820'	2,878.04

ROUTING

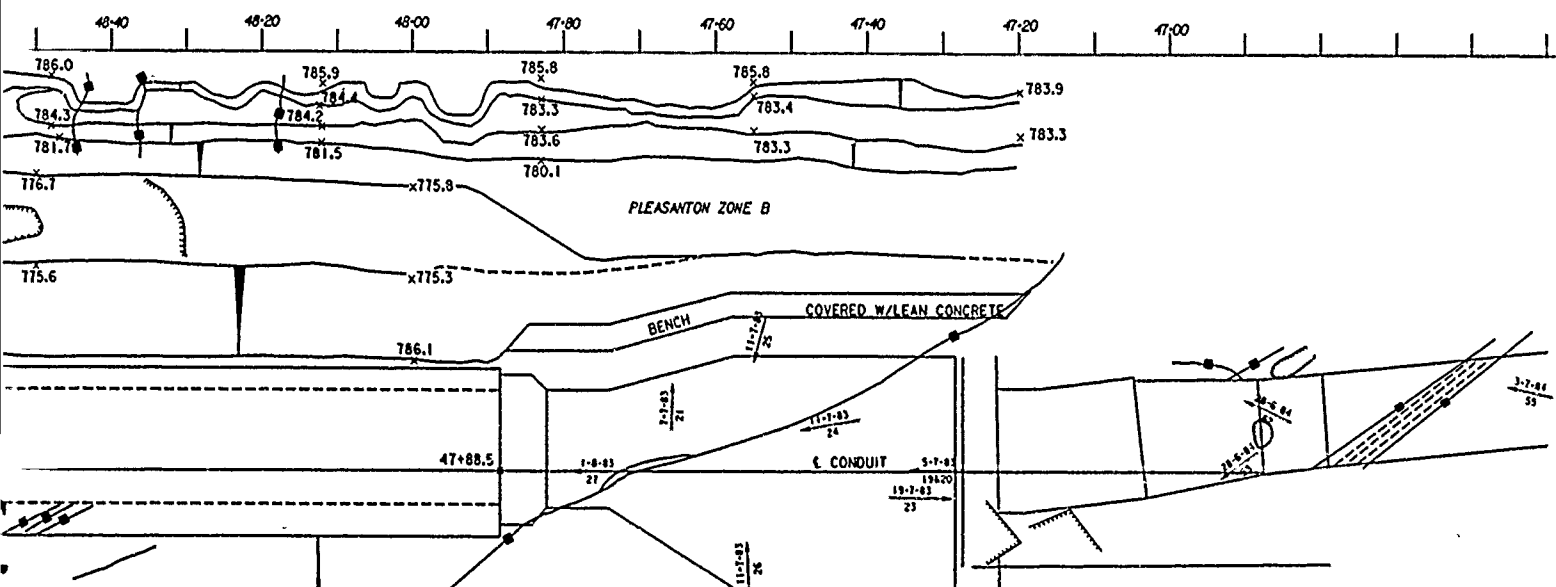
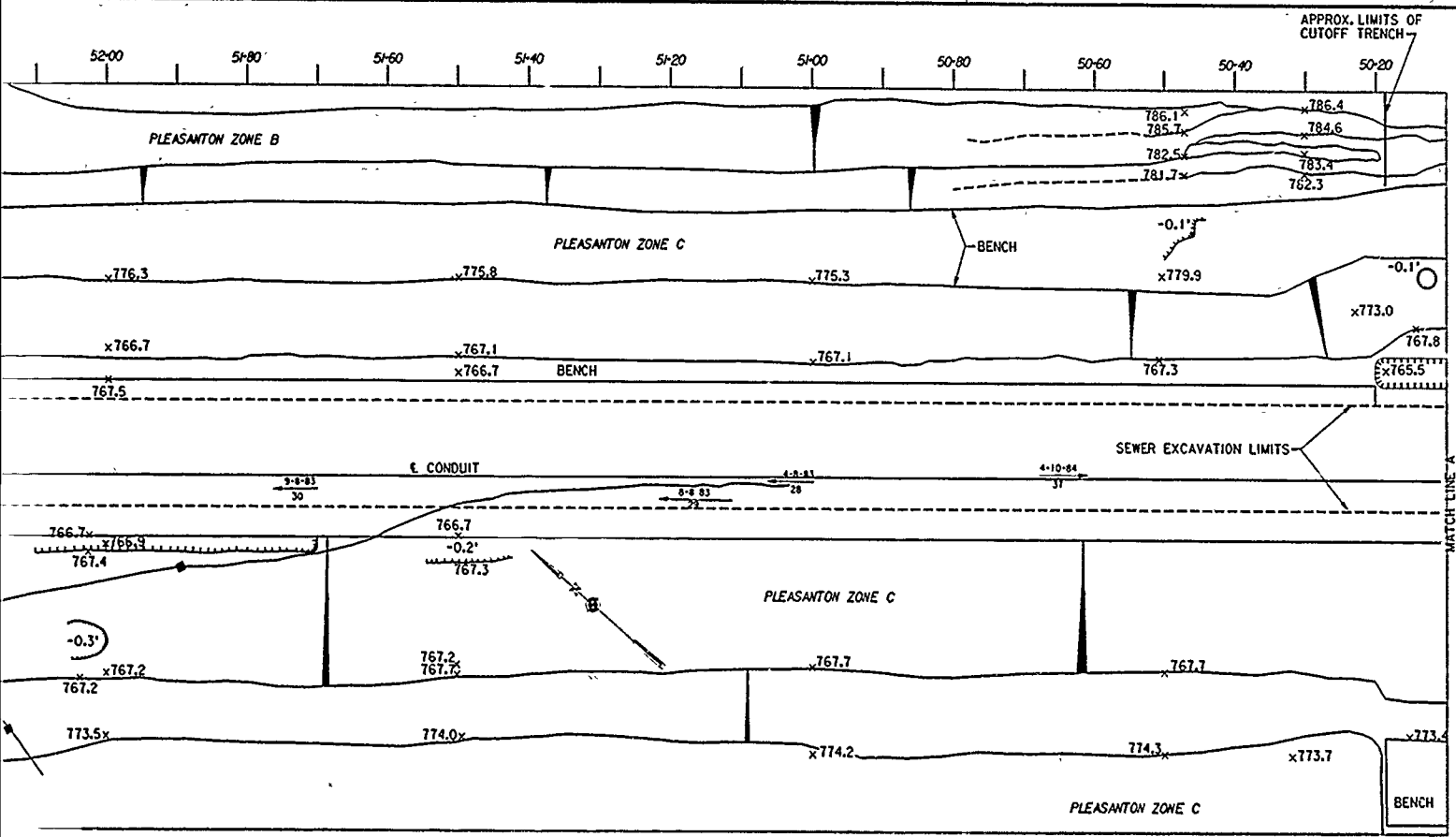
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by: V. A.			
Checked by: C. H.	SUMMARY OF GROUTING		
Submitted by:	Date: JUNE 1990	Sheet Number: 75	File No.: RBL-2-1295

PLATE NO. 75

VALUE ENGINEERING PAYS

3

2



Revisions			
Symbol	Descriptions	Date	Approved

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: J.M.M.
 EAST FORK LITTLE BLUE RIVER, MISSOURI
 BLUE SPRINGS LAKE
 CONSTRUCTION FOUNDATION REPORT

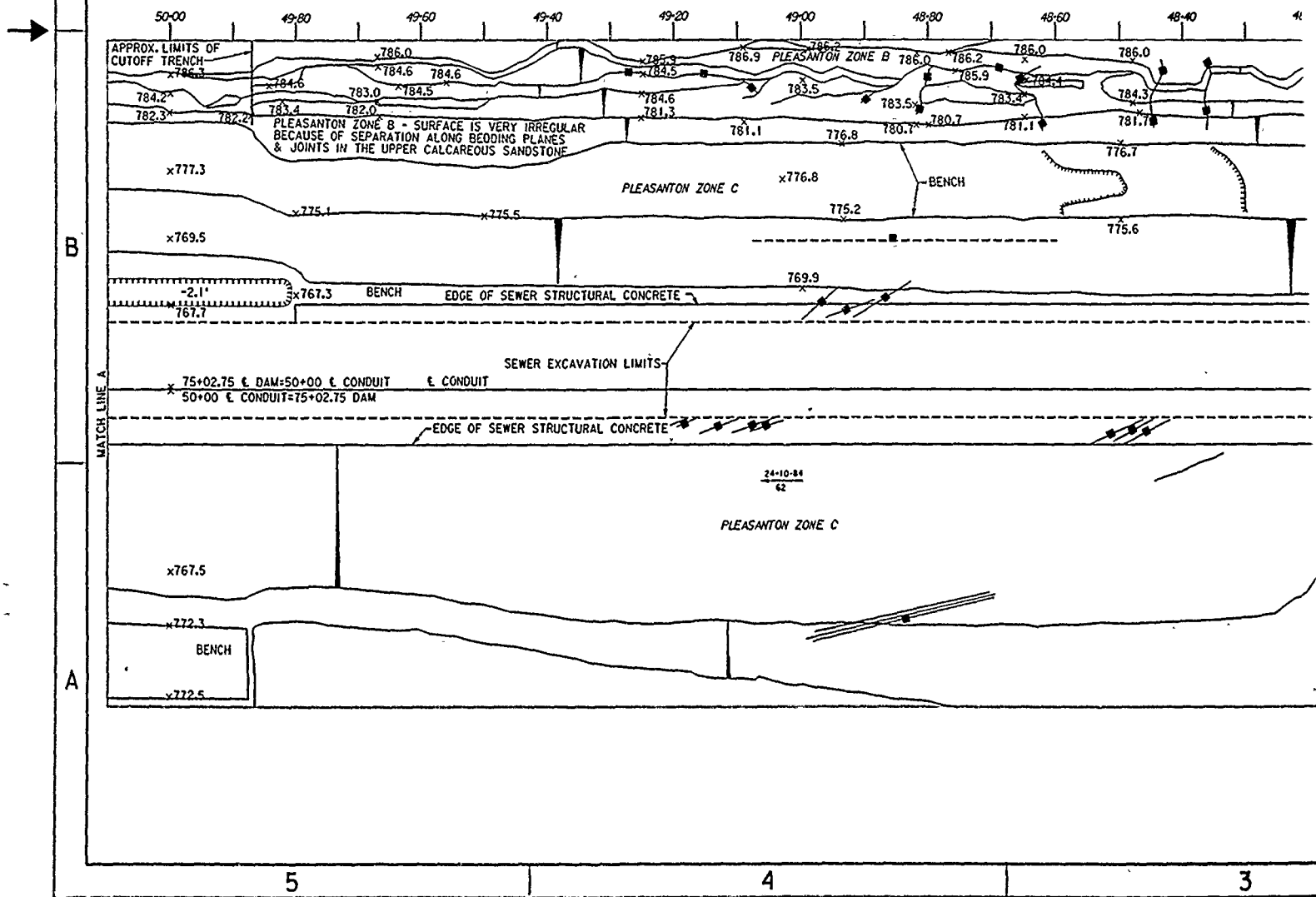
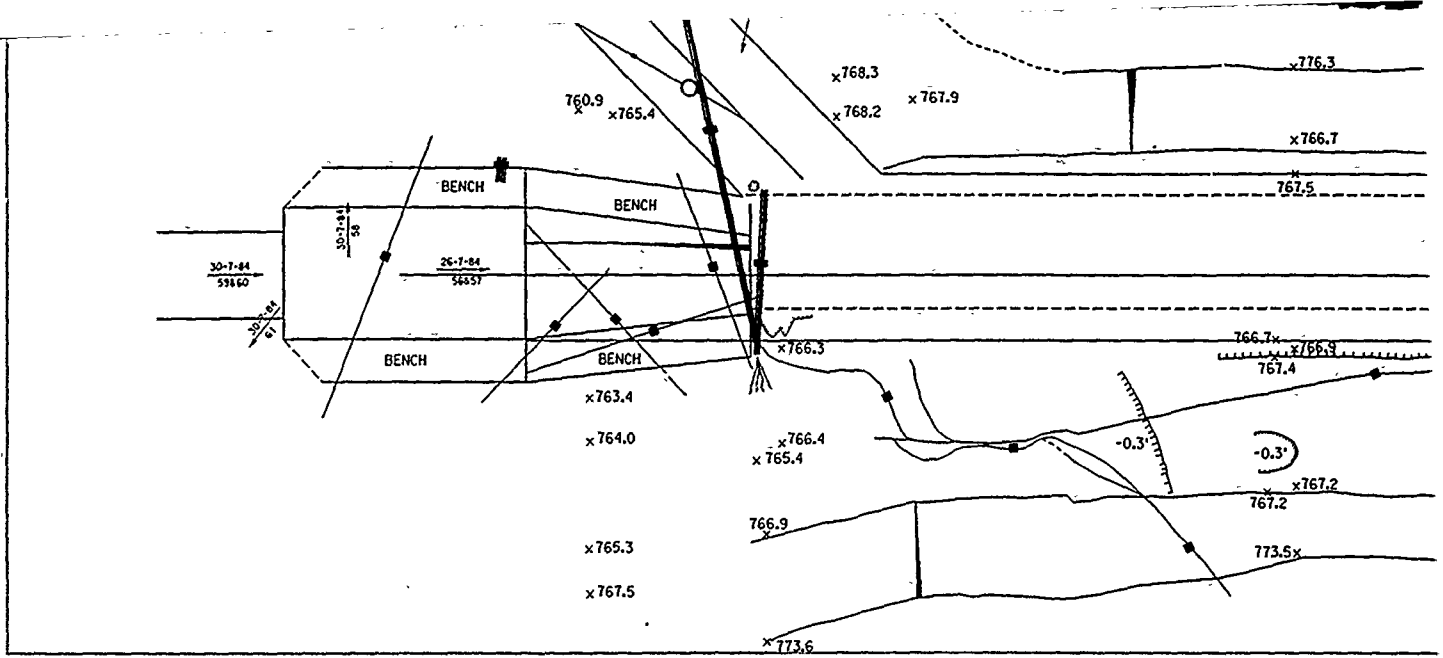
LEGEND

D

C

B

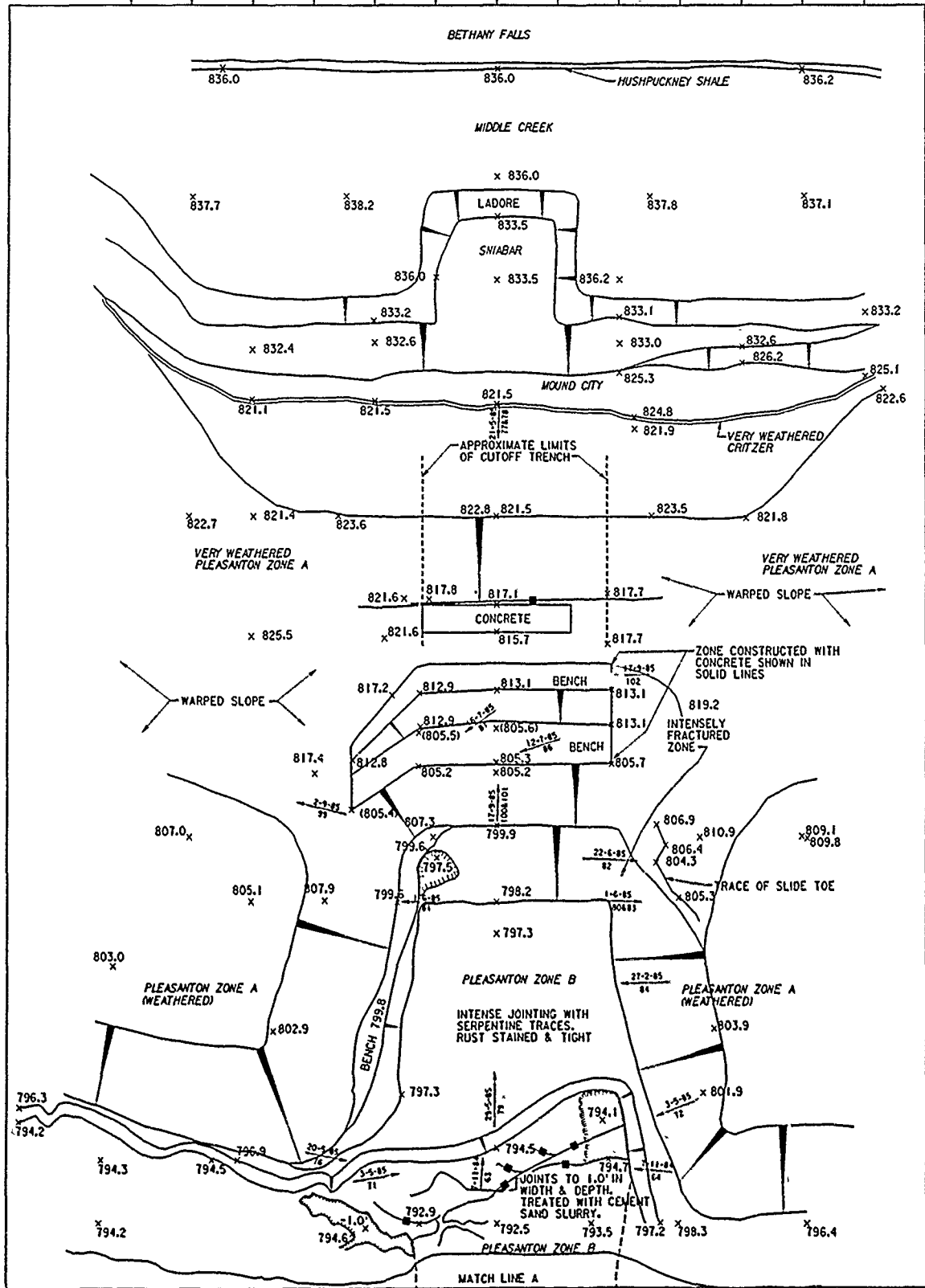
A





5 4 3

UPSTREAM 60 50 40 30 20 10 0 10 20 30 40 50 60 DOWNSTREAM



99-70
99-60
99-50
99-40
99-30
99-20
99-10
99-00
98-90
98-80
98-70
98-60
98-50
98-40
98-30
98-20
98-10
98-00
97-90



D
C
B
A

UPSTREAM 60 50 40 30 20 10 0 10 20 30 40 50 60 DOWNSTREAM

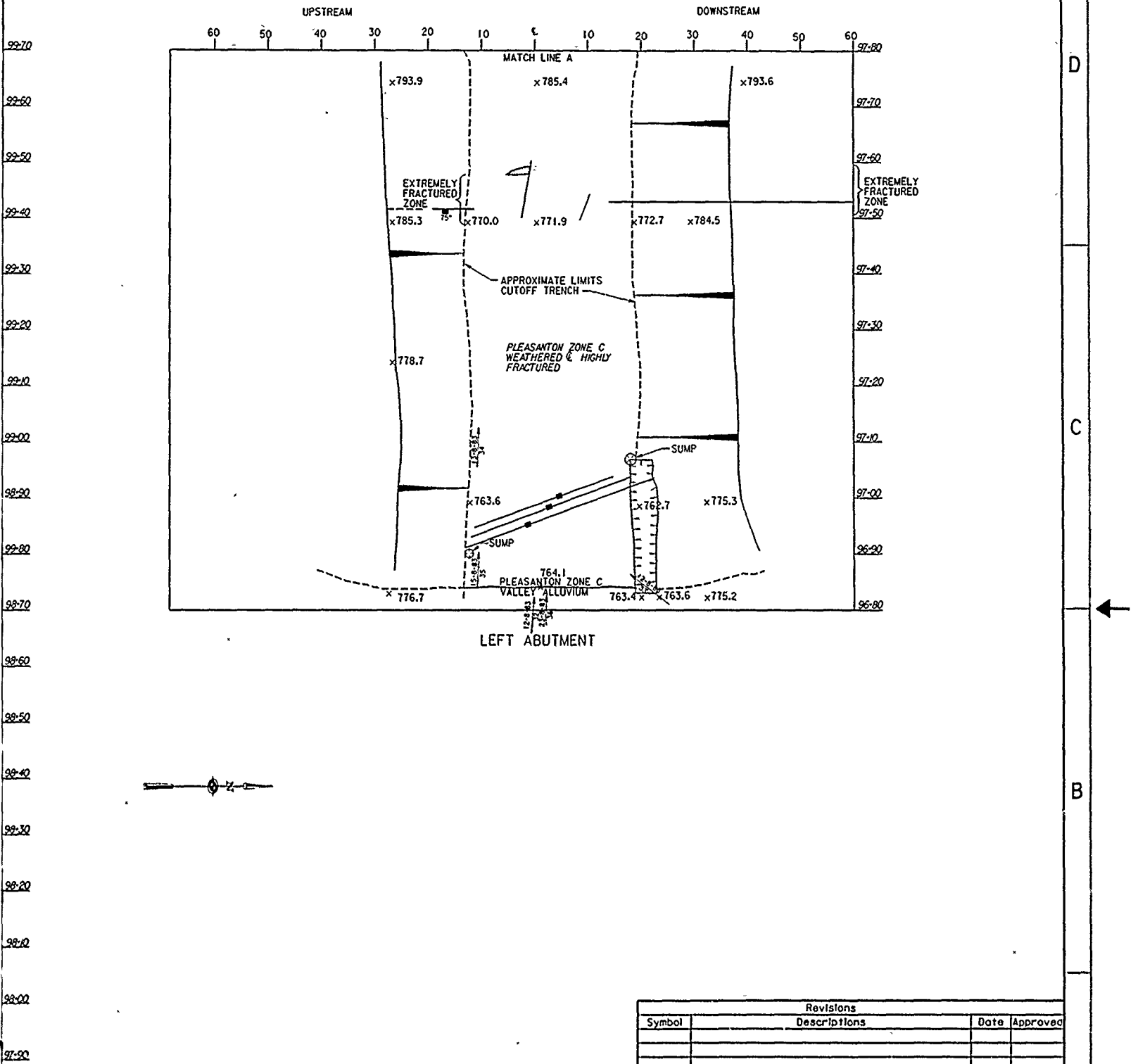
LEFT ABUTMENT

VALUE ENGINEERING PAYS

3

2

1



LEFT ABUTMENT

LEGEND
 -●- VERTICAL JOINTS
 -○- JOINTS SHOWING DEGREE & DIRECTION OF DIP
 - - - CONTACT BETWEEN ROCK UNITS
 27-2-85 DIRECTION, DATE AND NUMBER OF PHOTO
 81

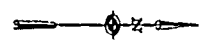
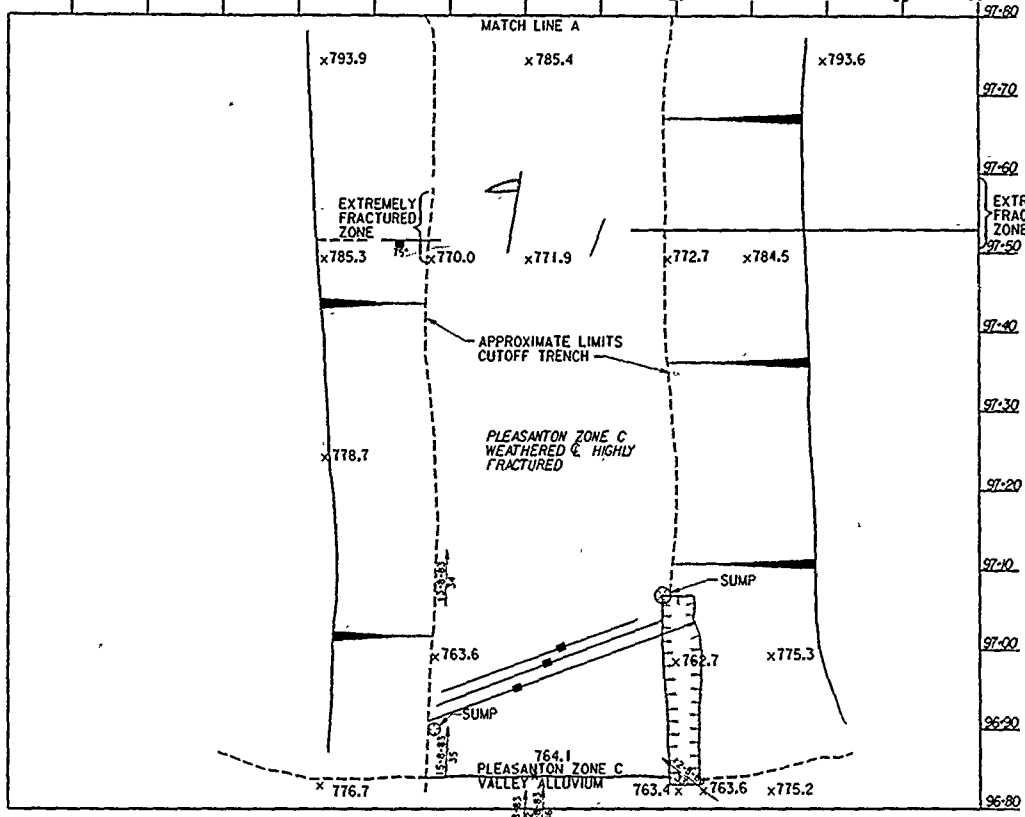
Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	J.M.M.	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by	R.A.A.	LEFT ABUTMENT CUTOFF TRENCH STA 99+70 TO STA 96+80	
Checked by	J.M.M.	Scale: AS SHOWN	Sheet numbers: 77
Submitted by	X	Date: X	Plot Scale: S=0.833 Design File: (100,30)BSCF77

D

C

B

A



LEGEND

- VERTICAL JOINTS
- $\frac{\alpha}{\beta}$ — JOINTS SHOWING DEGREE & DIRECTION OF DIP
- |— CONTACT BETWEEN ROCK UNITS
- 27-2-85
#4— DIRECTION, DATE AND NUMBER OF PHOTO

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	J.M.M.	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by	R.A.A.	LEFT ABUTMENT CUTOFF TRENCH STA 99+70 TO STA 96+80	
Checked by	J.M.M.	Scale: AS SHOWN	Sheet number: 77
Submitted by	X	Date: X	Plot Scale: S=0833
			Design File: (100,30)BSCF77
			File No: RBL-2-1297

3

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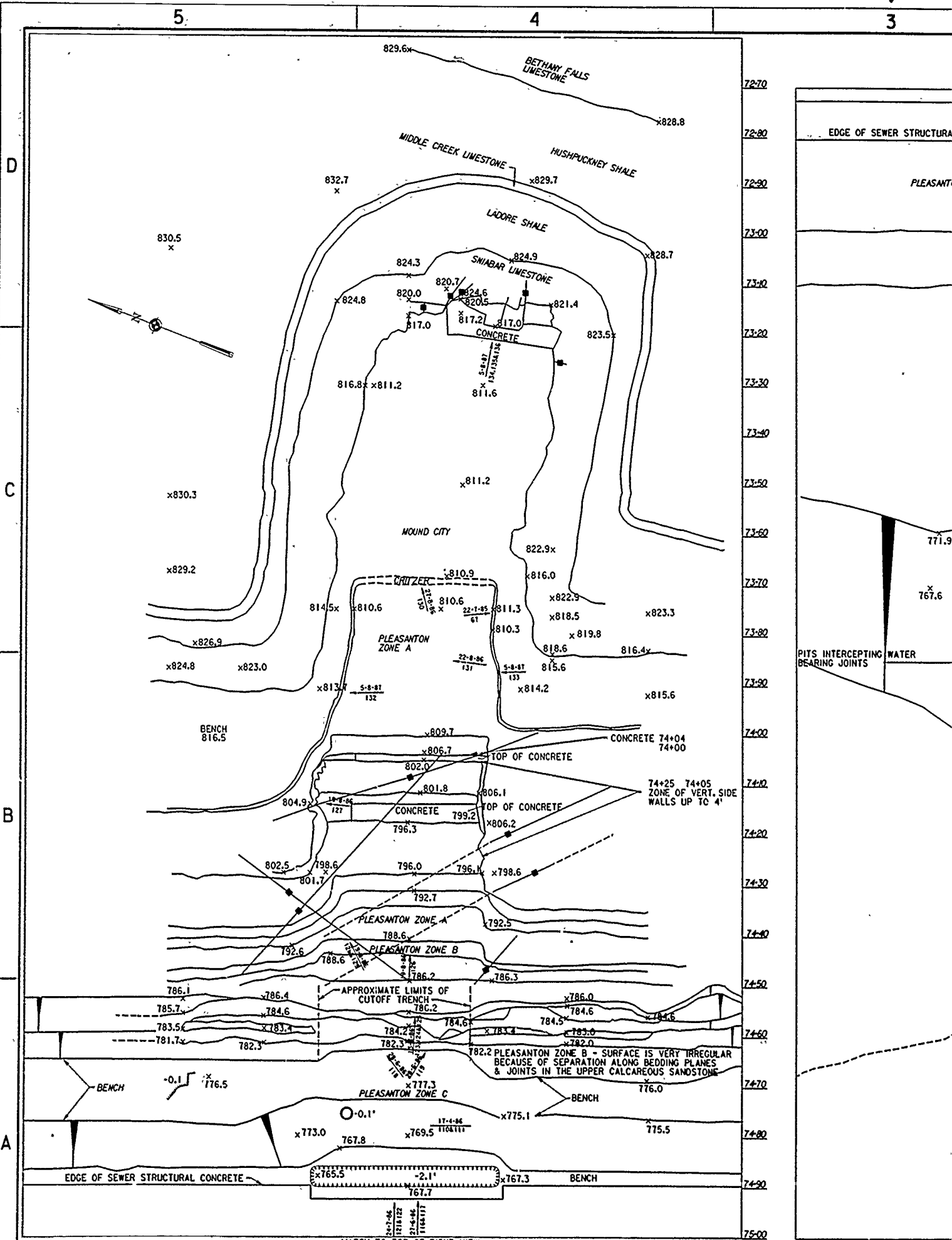
PLATE NO. 77



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3



VALUE ENGINEERING PAYS

3

2

1

MATCH TO BOTTOM OF LEFT VIEW

75-00

€ CONDUIT

x75+02.75 € DAM=50+00 € CONDUIT
x50+00 € CONDUIT=75+02.75 € DAM

EDGE OF SEWER STRUCTURAL CONCRETE

75-10

PLEASANTON ZONE C

€ DAM
15'-4.85'
65'

75-20

x767.5

75-30

x773.7

x772.3

75-40

BENCH

x772.5

75-50

773.3x

x767.2

168.1x

x773.5

75-60

x764.4

x764.8

75-70

x SAND DRAIN

APPROXIMATE LIMITS OF CUTOFF TRENCH

772.8

x760.7

x761.4

75-80

PLEASANTON ZONE C

771.9

x767.6

75-90

x758.6

SERPENTINE JOINT PATTERN

76-00

767.1x

763.9x

759.6x

757.0x

76-10

752.0x

752.0x

755.7x

757.4x

76-20

751.4x

751.1x

750.8x

749.2x

76-30

751.4x

751.1x

750.8x

749.2x

76-40

753.2x

748.8x

x750.4

76-50

752.8x

754.9x

753.1x

x750.1

76-60

752.8x

754.9x

750.8x

76-70

752.8x

754.7x

752.8x

76-80

752.8x

754.7x

752.1x

753.7x

76-90

752.1x

753.7x

751.9x

x752.9

76-00

751.9x

x752.9

748.6x

76-10

748.6x

END OF UPSTREAM SAND DRAIN 77+18

SUMP

UPSTREAM SAND DRAIN


SUMP (BOTTOM 752.6)

TRACE OF 6" GRAVEL BED

PITS INTERCEPTING WATER BEARING JOINTS

LEGEND

- +— VERTICAL JOINTS
- +— JOINTS SHOWING DEGREE & DIRECTION OF DIP
- CONTACT BETWEEN ROCK UNITS
- DIRECTION, DATE AND NUMBER OF PHOTO

Revisions			
Symbol	Descriptions	Date	Approved
76-90			
77-00	U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI		
77-10	Designed by	J.M.M.	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT
77-20	Drawn by	R.A.A.	
	Checked by	J.M.M.	
		Sheet	Plot

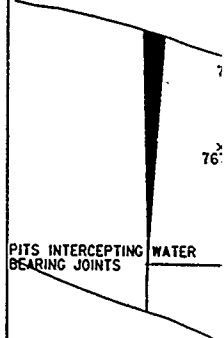
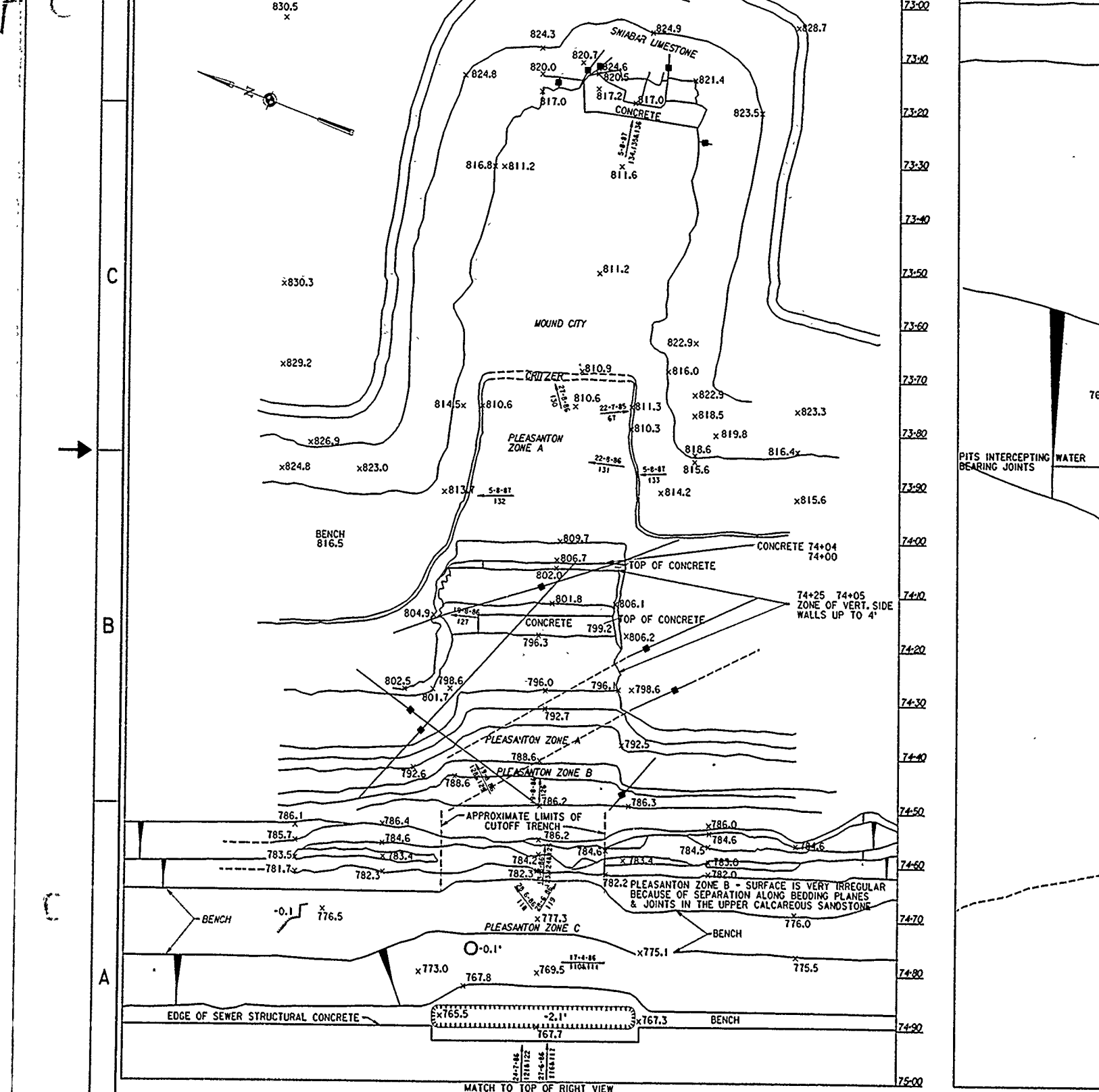
RIGHT ABUTMENT CUTOFF TRENCH
STA 72+70 TO STA 77+30

D

C

B

A



73:00
73:10
73:20
73:30
73:40
73:50
73:60
73:70
73:80
73:90
74:00
74:10
74:20
74:30
74:40
74:50
74:60
74:70
74:80
74:90
75:00

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MATCH TO TOP OF RIGHT VIEW

PITS INTERCEPTING WATER BEARING JOINTS

CONCRETE 74+04
74+00

74+25 74+05
ZONE OF VERT. SIDE
WALLS UP TO 4'

APPROXIMATE LIMITS OF
CUTOFF TRENCH

782.2 PLEASANTON ZONE B - SURFACE IS VERY IRREGULAR
BECAUSE OF SEPARATION ALONG BEDDING PLANES
& JOINTS IN THE UPPER CALCAREOUS SANDSTONE

EDGE OF SEWER STRUCTURAL CONCRETE

17-4-86
12/18/22
21-6-86
TERRIT



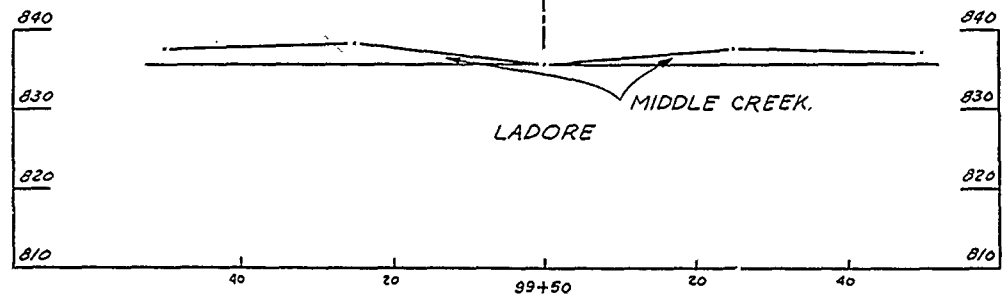
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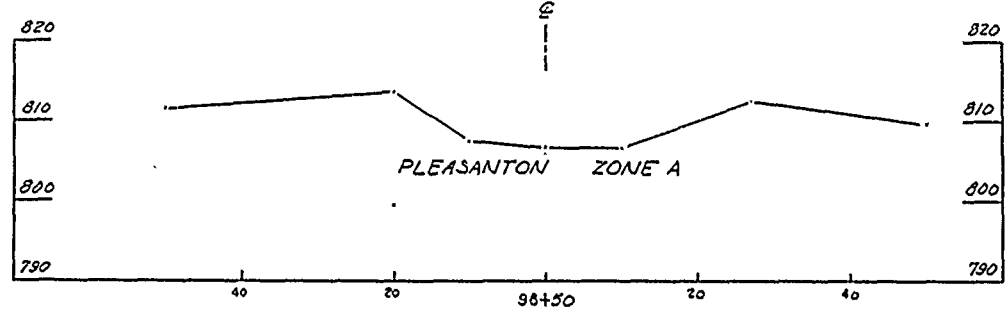
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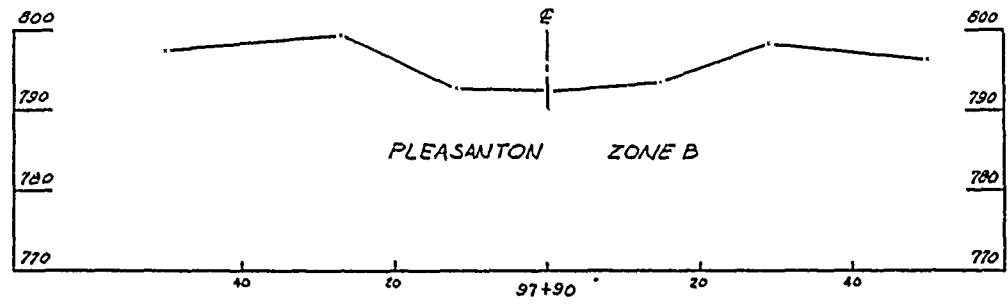
ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929



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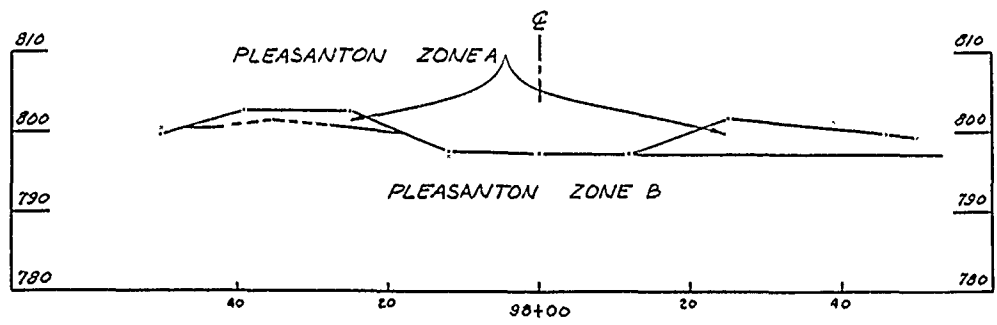
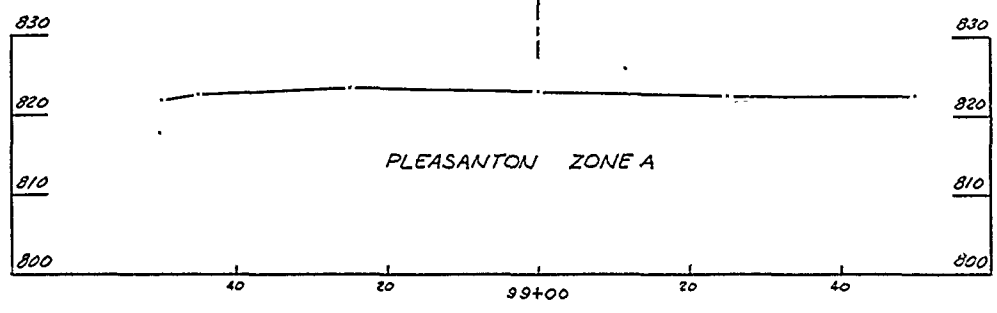




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Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by:



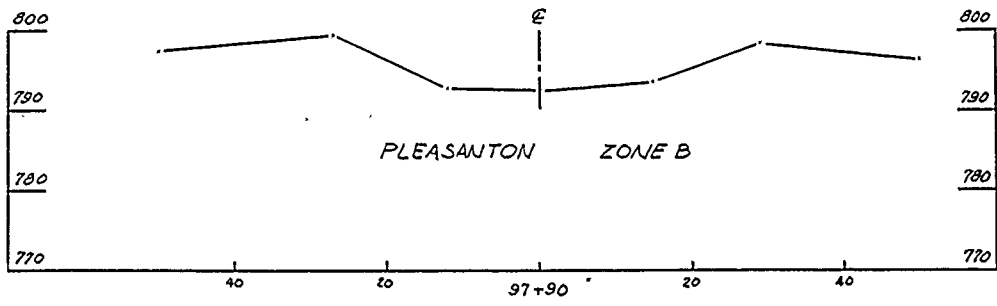
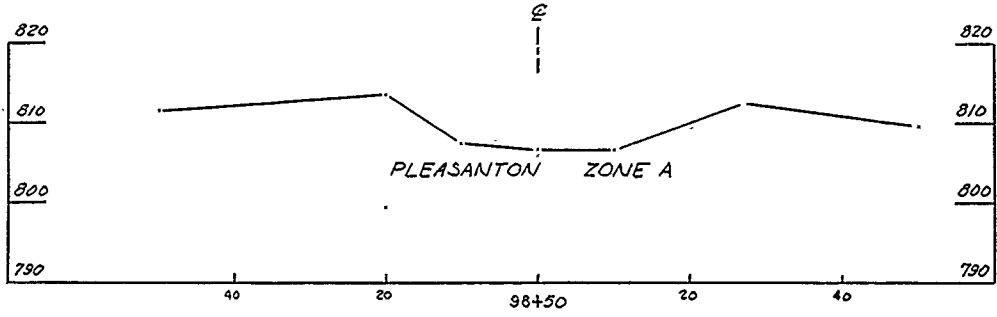
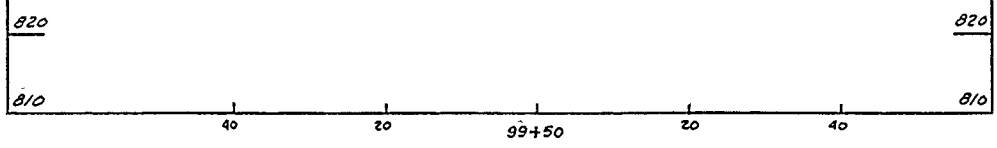
EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

Drawn by:

CUTOFF TRENCH
FINAL CROSS SECTIONS
STA. 99+50 TO STA. 97+90

Checked by:

ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF



C
C
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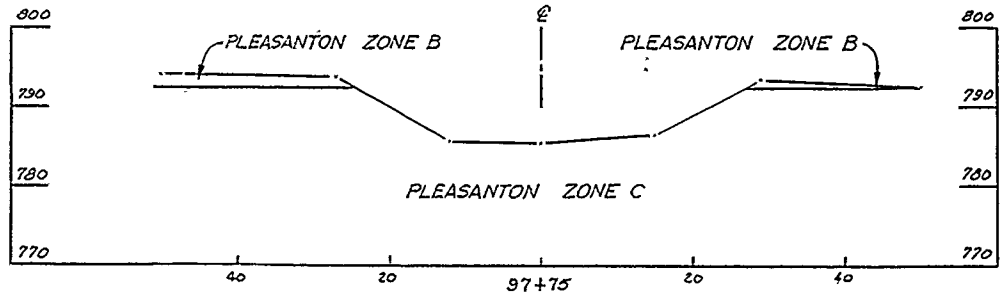


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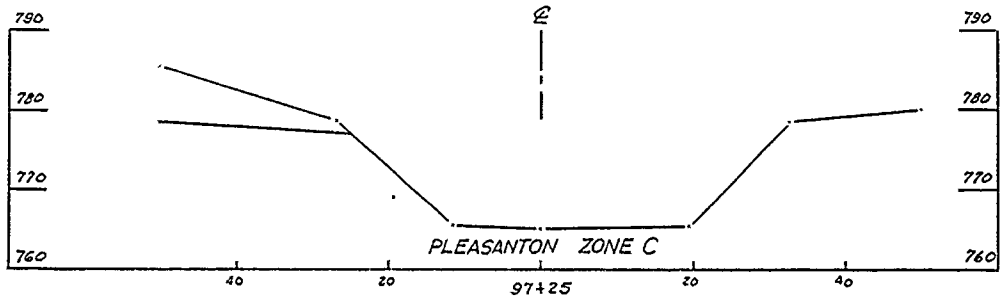
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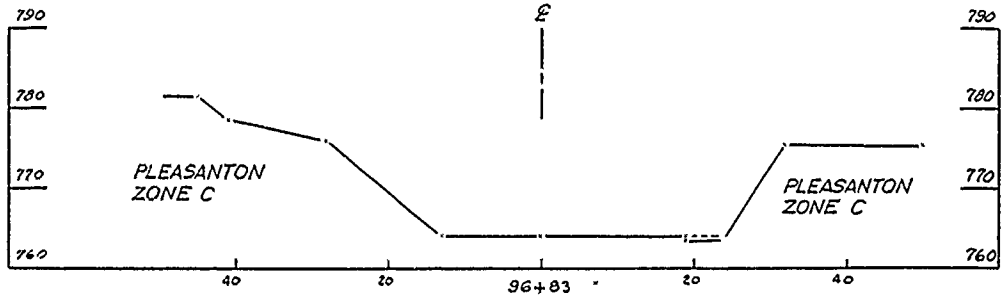
D



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ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

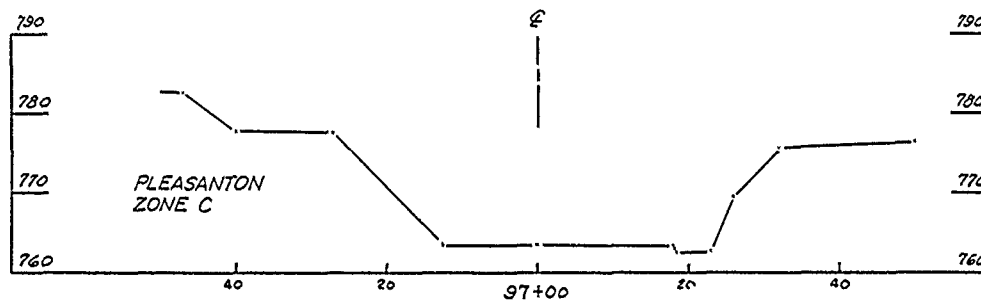
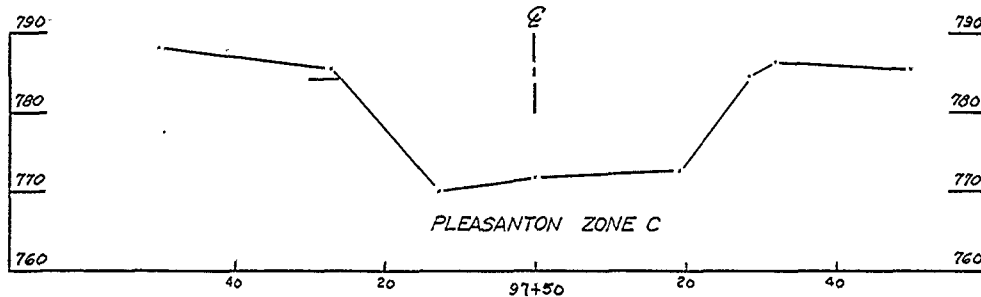




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Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	CUTOFF TRENCH FINAL CROSS SECTIONS STA. 97+75 TO STA. 96+83	
Drawn by:			
Checked by:			
Submitted by:	Scale: AS SHOWN	Sheet number: 80	File No.: RBL-2-1300
	Date: JUNE 1990		
	Dwg. No.:		

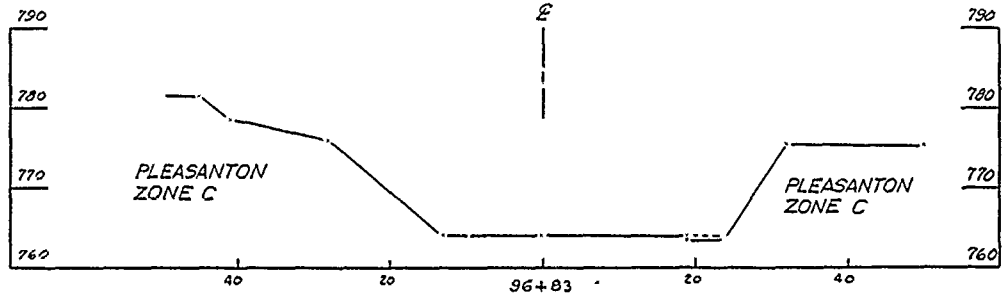
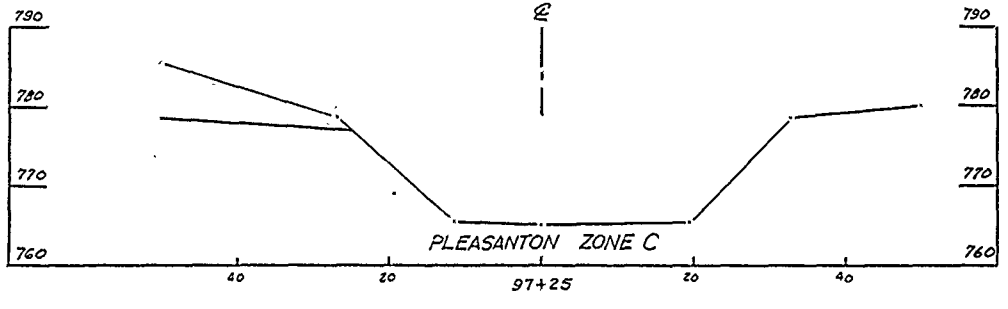
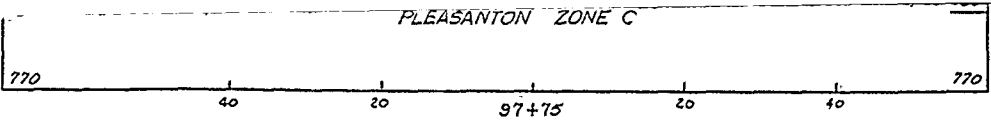
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PLATE NO. 80

ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM



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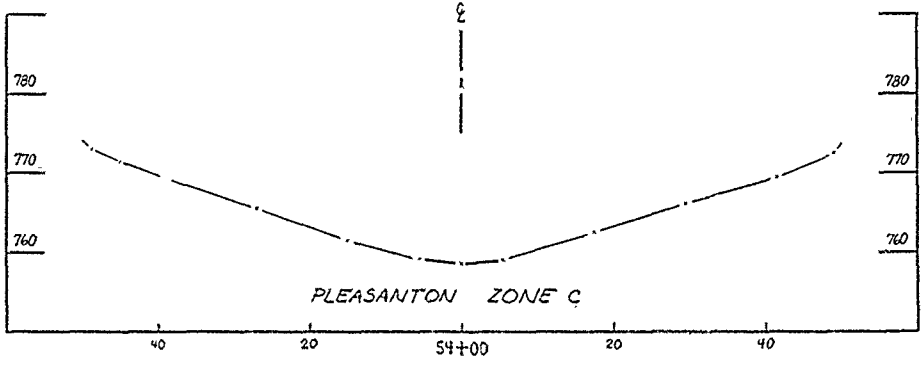
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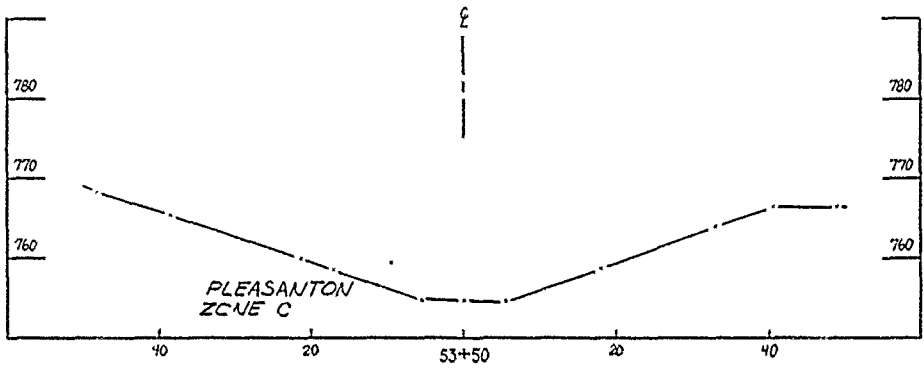
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ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

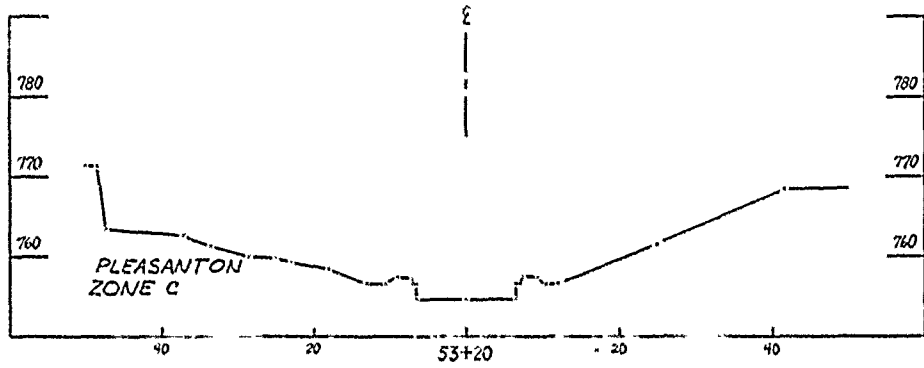
D



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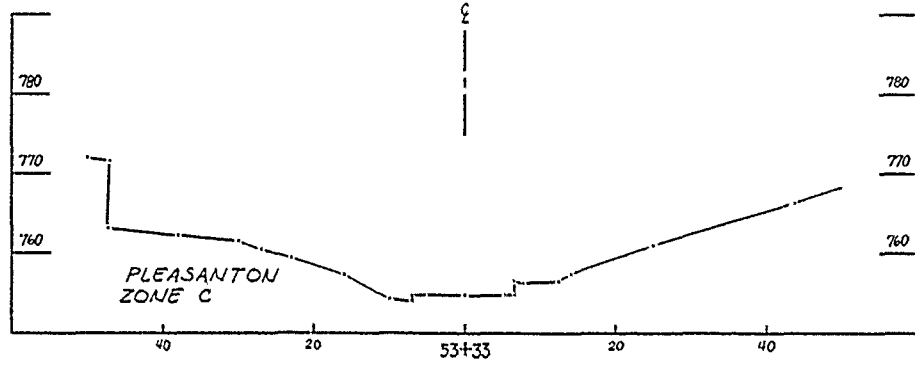
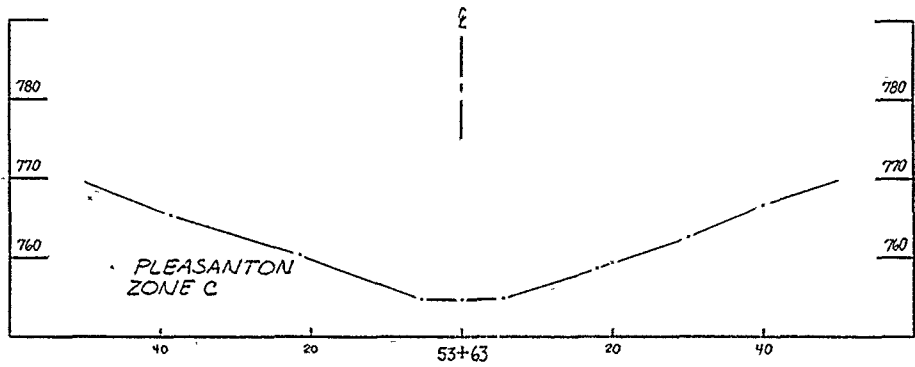
C



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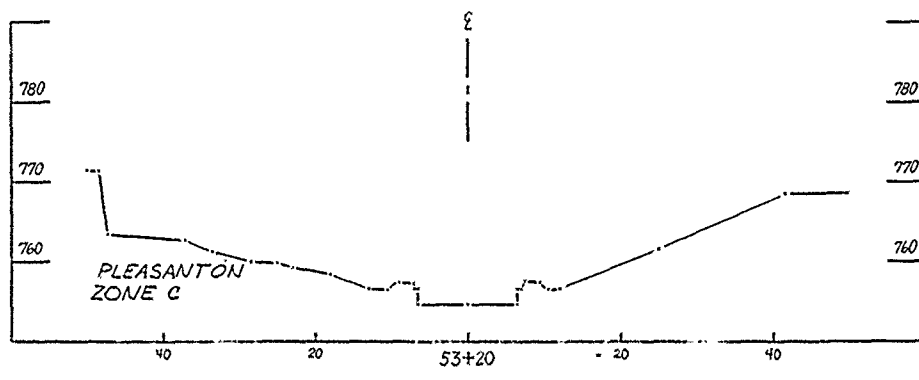
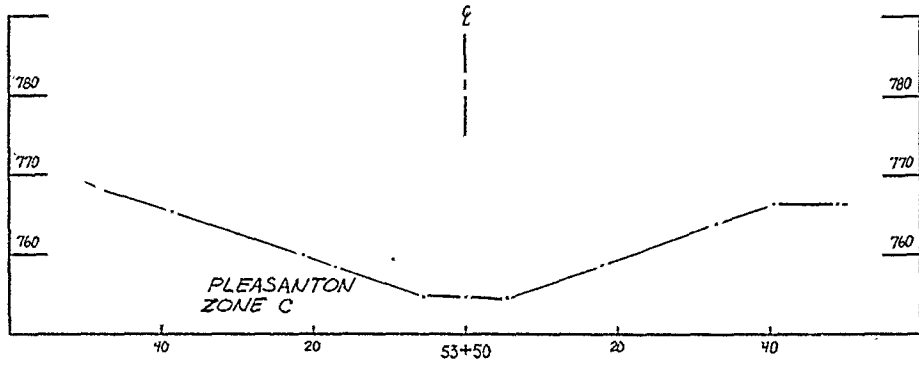
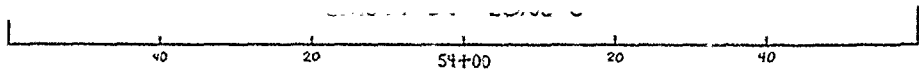
Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI- BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	OUTLET WORKS FINAL CROSS SECTIONS STA. 54+00 TO STA. 53+01
Drawn by:		
Checked by:		
Submitted by:	Scale: AS SHOWN	Sheet number: 81
	Date: JUNE 1990	File No. RBL-2-1301
	Dep. No.:	

A

ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL



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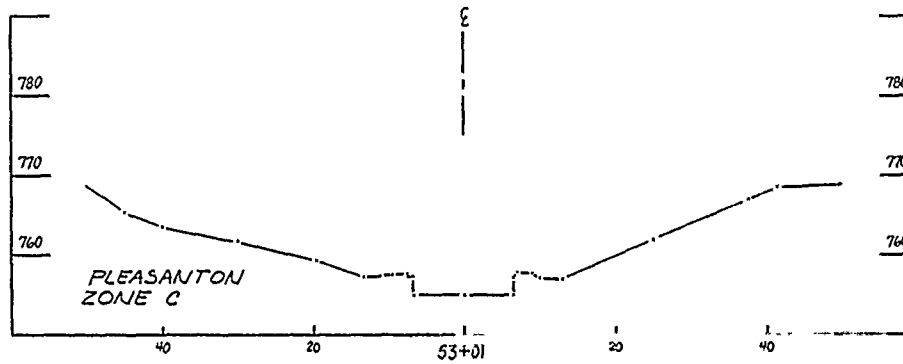
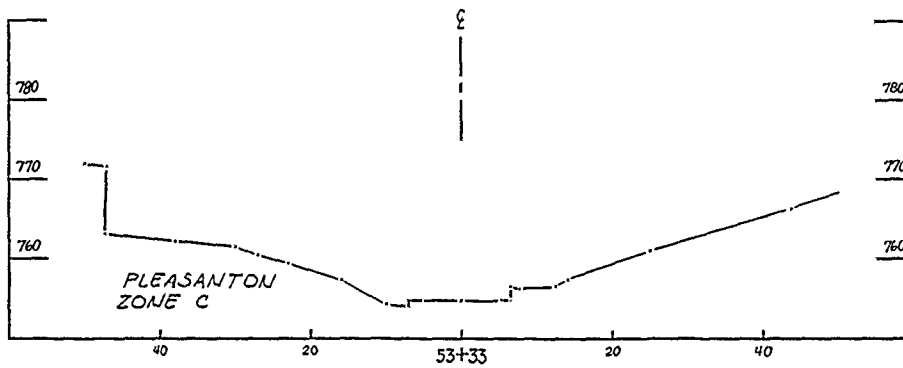
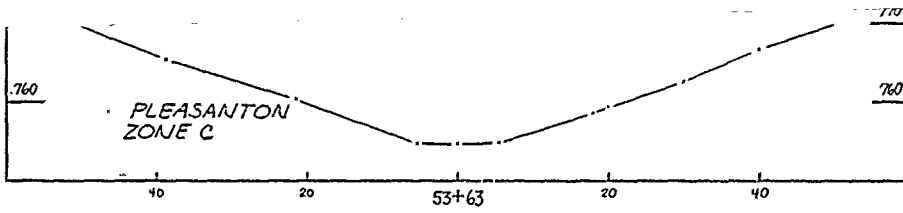
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Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	OUTLET WORKS FINAL CROSS SECTIONS STA. 54+00 TO STA. 53+01	
Drawn by:			
Checked by:			
Submitted by:	Scale: AS SHOWN	Sheet Number:	81
	Date: JUNE 1990		
	Dwg. No.:	File No.:	RBL-2-1301

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PLATE NO. 81



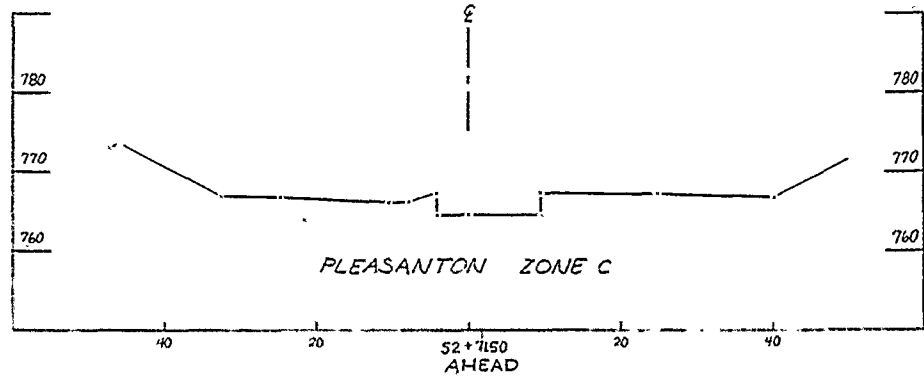
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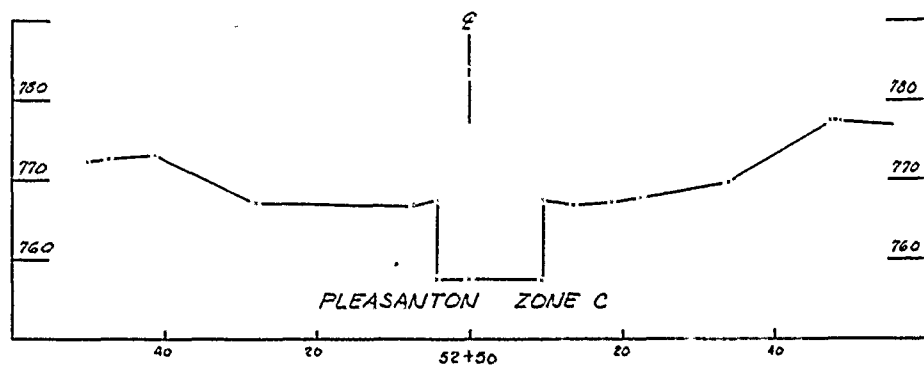
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ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

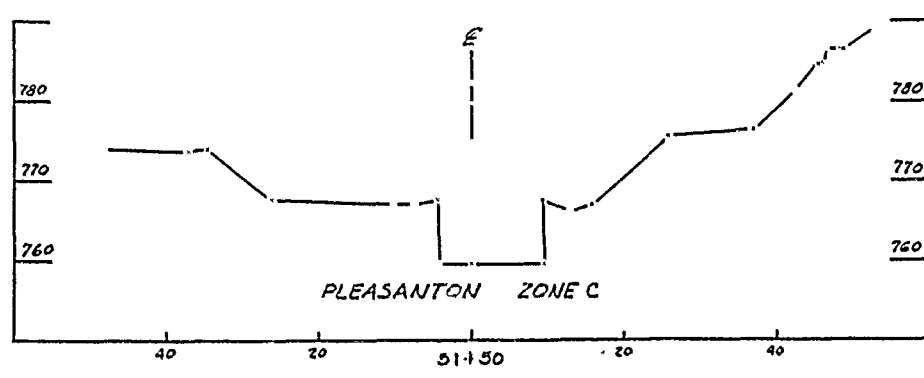
D



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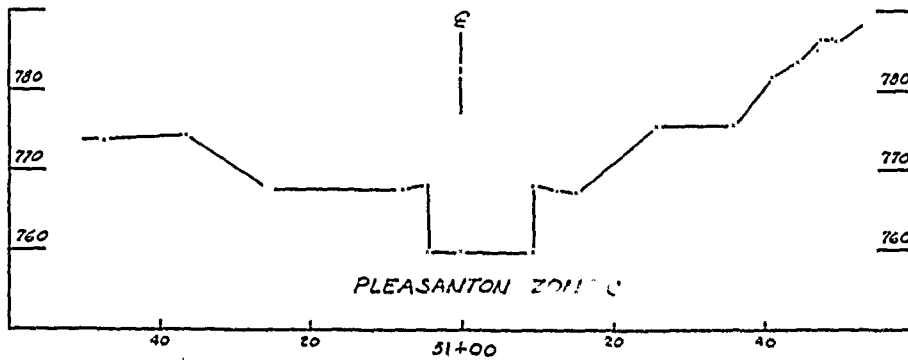
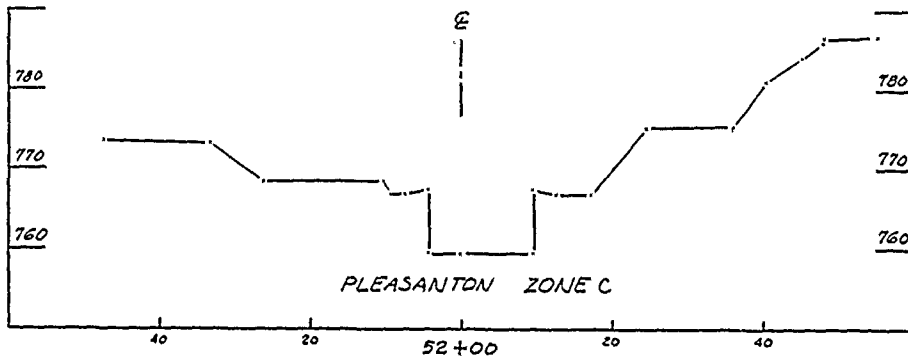
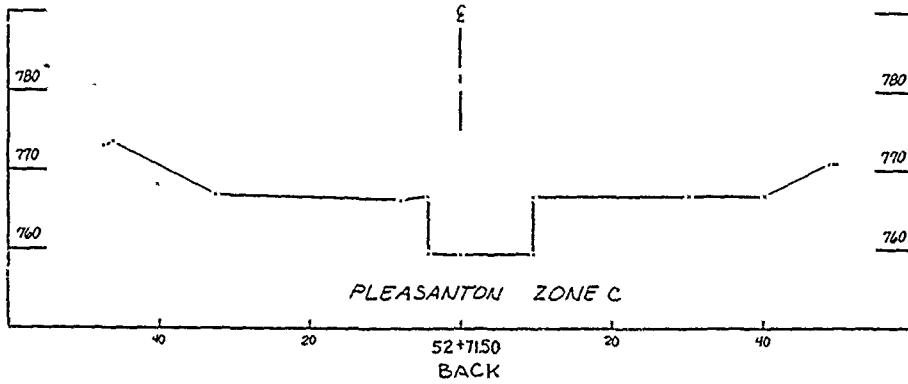




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Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT OUTLET WORKS FINAL CROSS SECTIONS STA. 52+71.5 TO STA. 51+00	Scale:	AS SHOWN
Drawn by:		Date:	JUNE 1990
Checked by:		Sheet number:	82
Submitted by:		File No.:	RBL-2-1302

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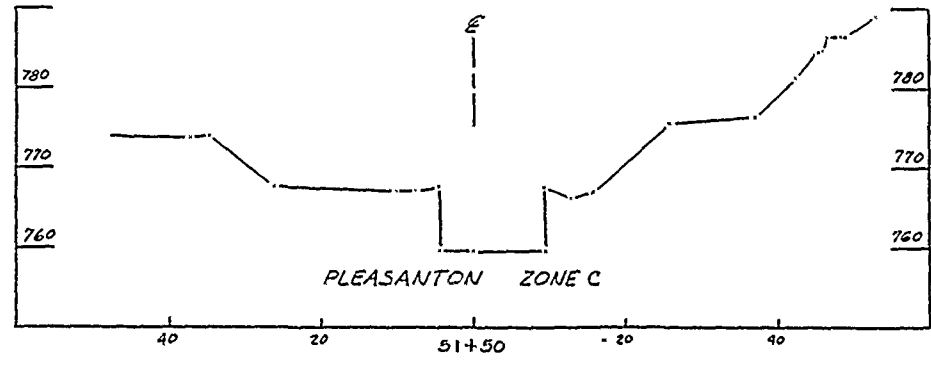
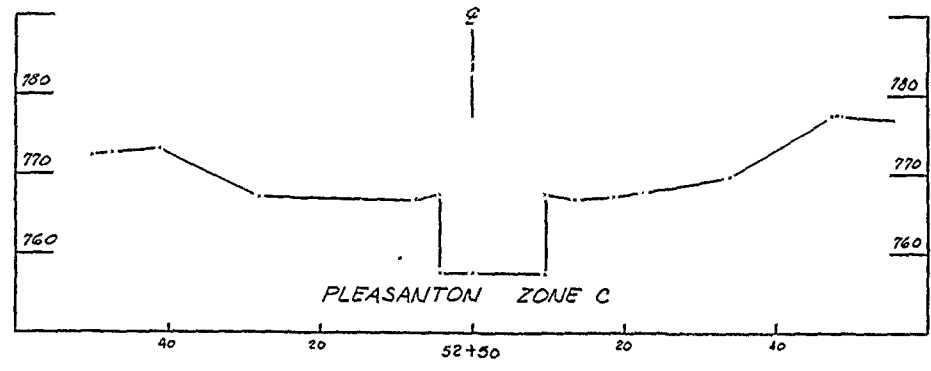
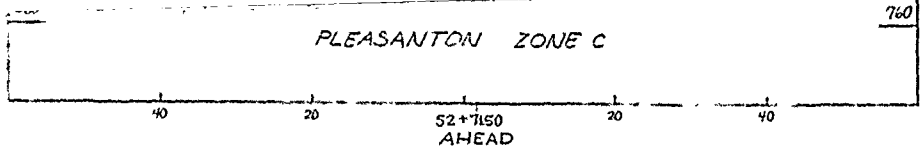
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PLATE NO. 82



ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATA



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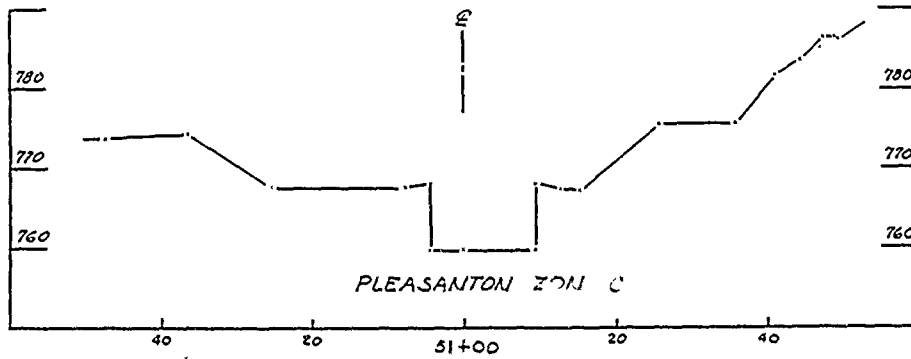
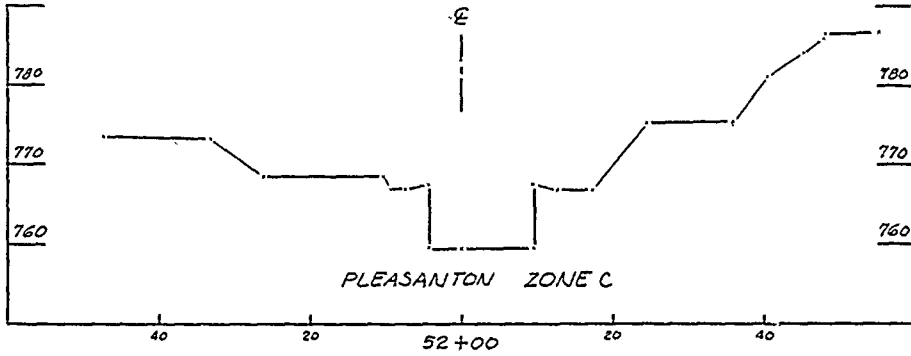
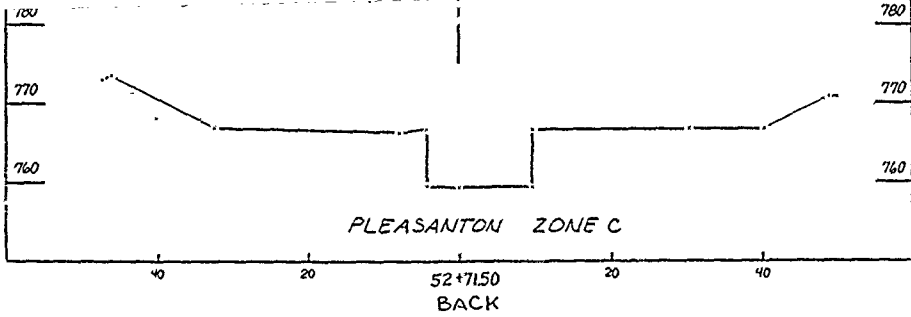


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Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by:  EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

Drawn by: **OUTLET WORKS
FINAL CROSS SECTIONS
STA. 52+71.5 TO STA. 51+00**

Checked by:

Submitted by:

Scale:	AS SHOWN	Sheet number:	82
Date:	JUNE 1990	File No.:	RBL-2-1302
Dwg. No.:			

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PLATE NO. 82



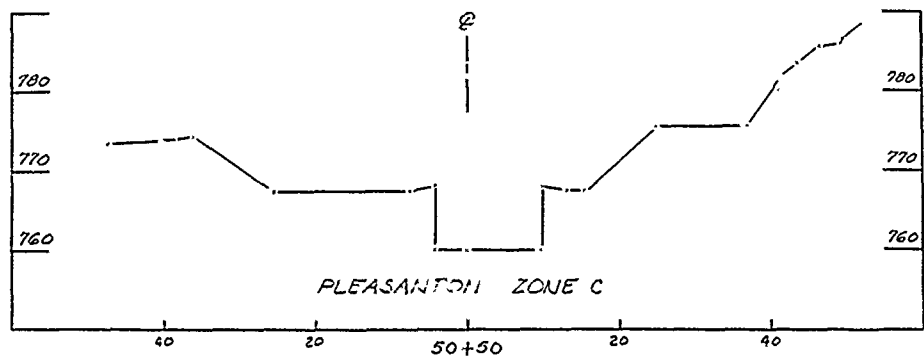


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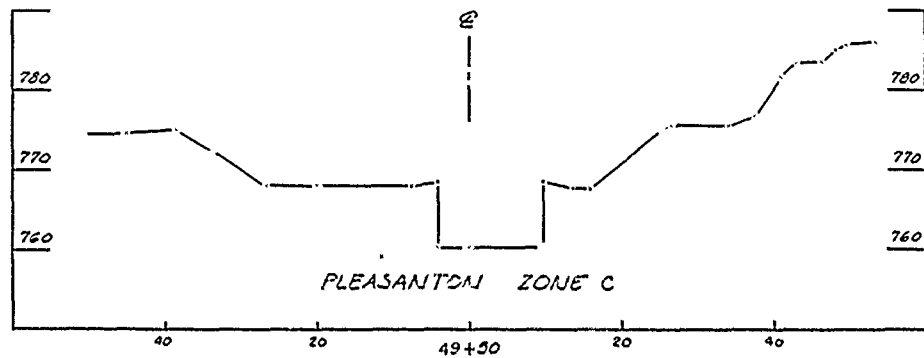
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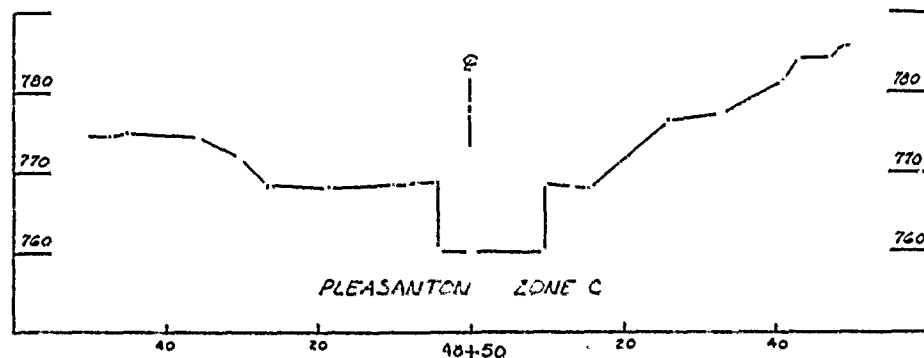
D



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ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

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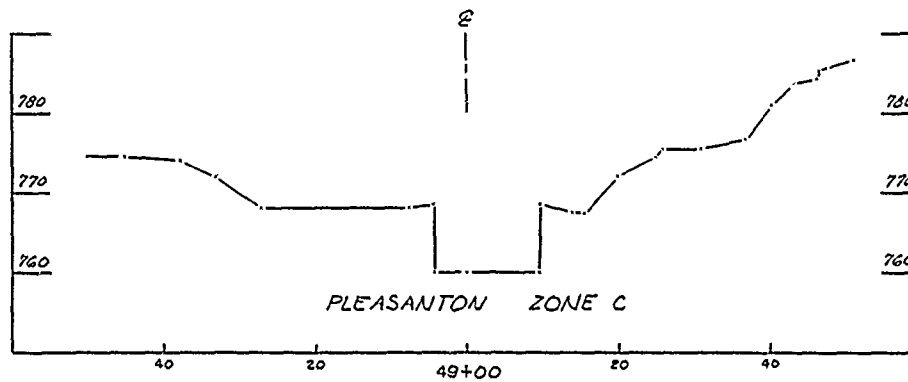
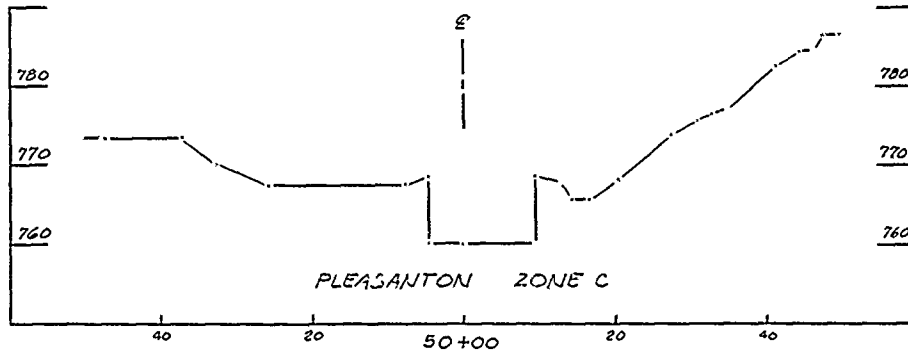
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Revisions			
Syinet	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by:  EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE

Drawn by: CONSTRUCTION FOUNDATION REPORT

Checked by: OUTLET WORKS
FINAL CROSS SECTIONS
STA. 50+50 TO STA. 48+50

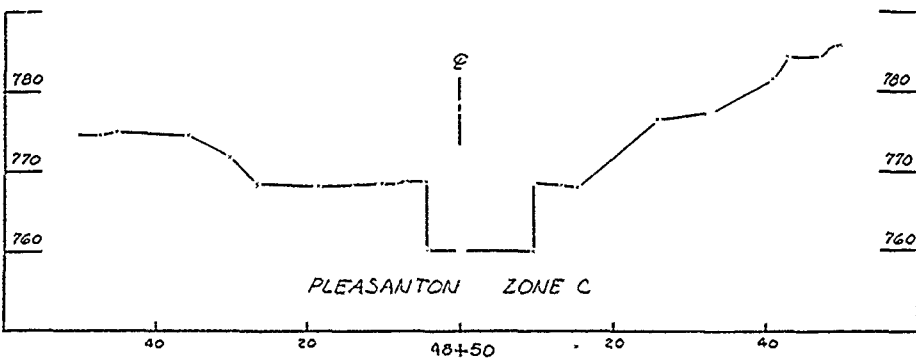
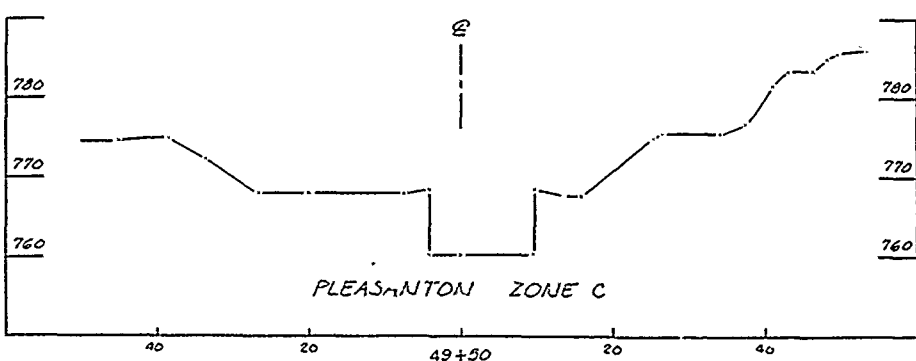
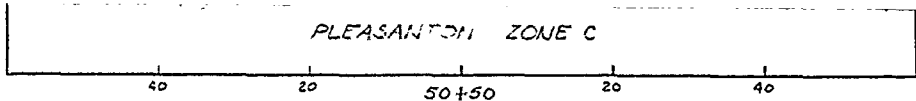
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ELEVATION IN FEET BASED ON NATIONAL GEODETIC VERTICAL DATA

C

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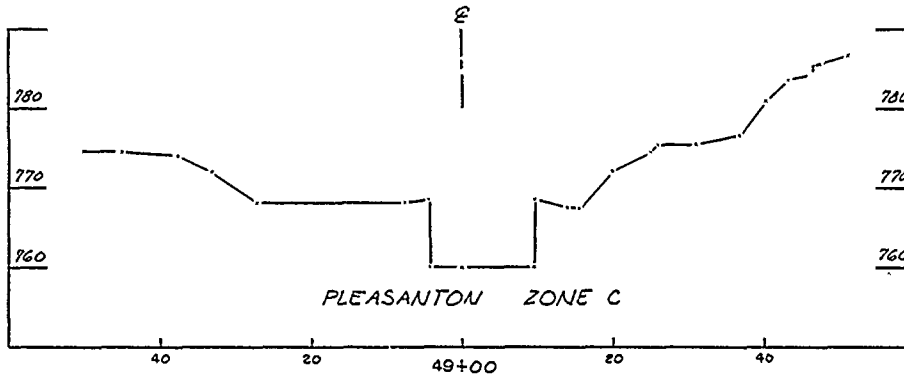
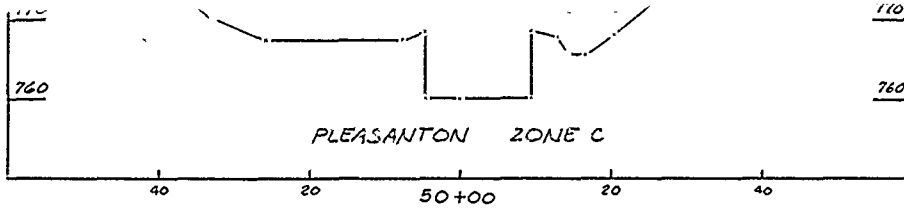


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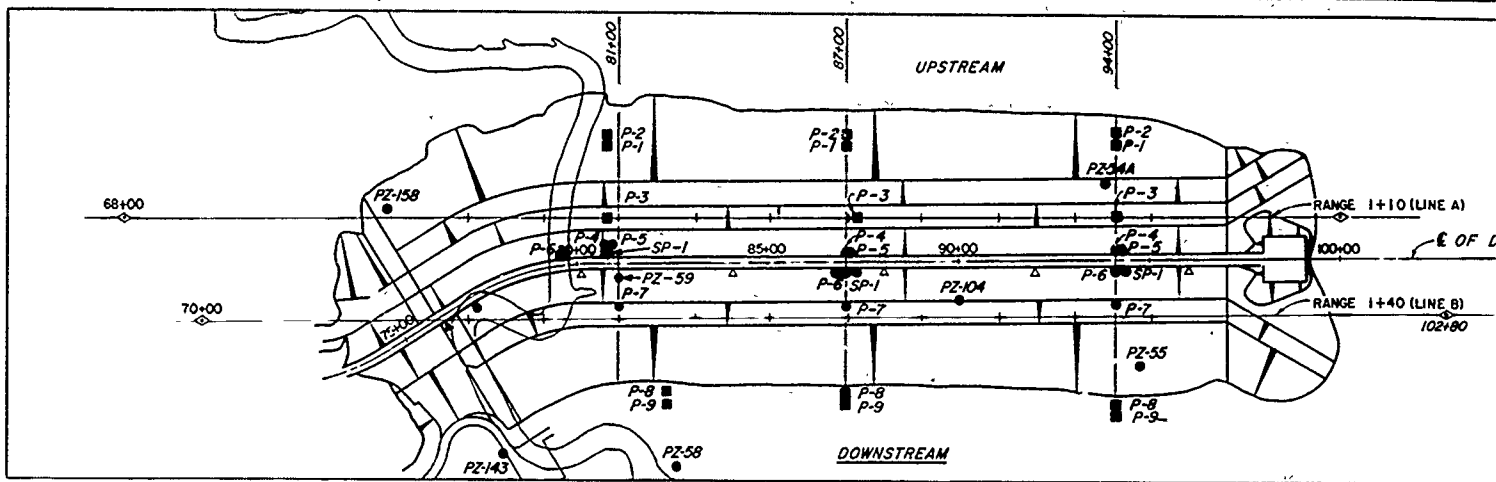
Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT OUTLET WORKS FINAL CROSS SECTIONS STA. 50+50 TO STA. 48+50	Scale:	AS SHOWN
Drawn by:		Date:	JUNE 1990
Checked by:		Sheet number:	83
Submitted by:		Proj. No.:	RBL-2-1303

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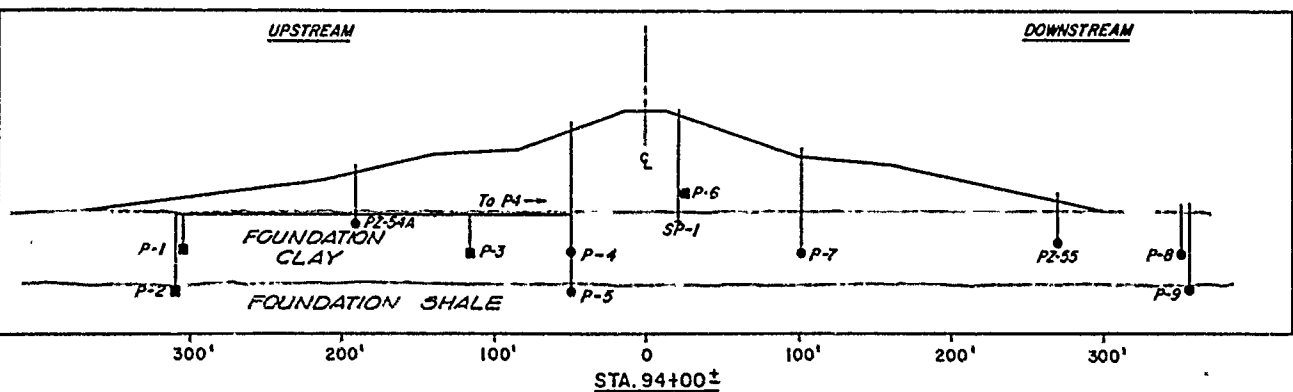
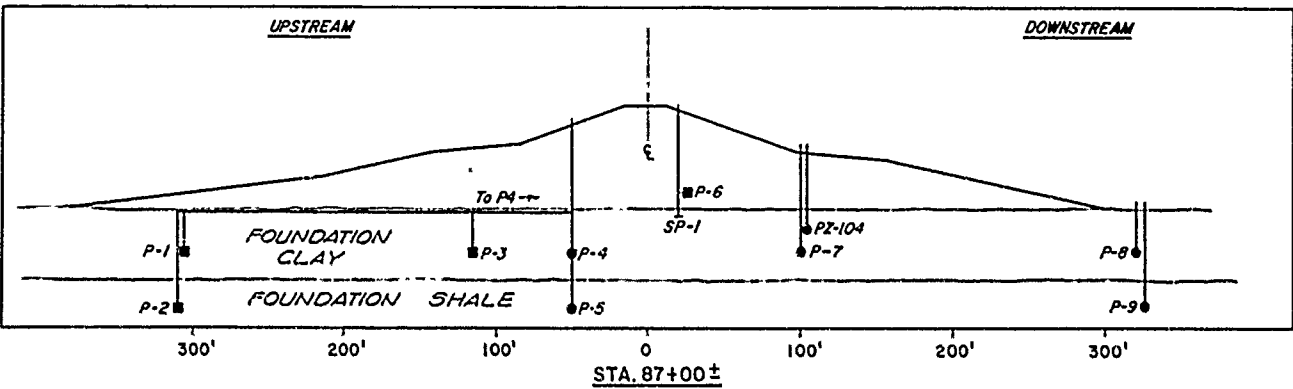
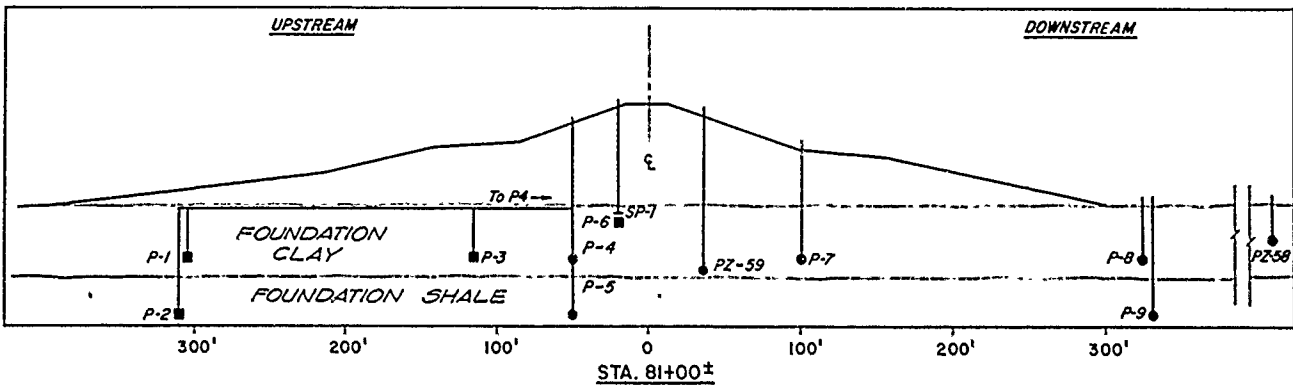
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PLATE NO. 83

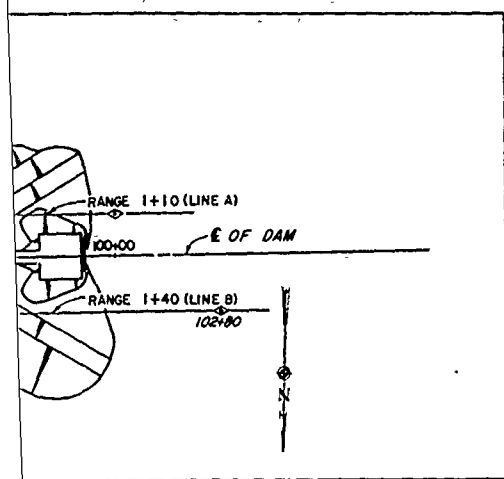


NOTE: See Schedule for device loc



14

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E: See Schedule for device location.

OBSERVATION DEVICE SCHEDULE

GAGE NO.	STATION	RANGE	TIP ELEVATION	TYPE PZ	MATERIAL
P-81-1	80+70	3+05U	740	AIR	CLAY
P-81-2	80+70	3+10U	705	AIR	SHALE
P-81-3	80+70	1+15U	740	AIR	CLAY
P-81-4	80+70	0+50U	740	OPEN	CLAY
P-81-5	80+75	0+50U	705	OPEN	SHALE
P-81-7	81+00	1+02D	740	OPEN	CLAY
P-81-8	82+20	3+25D	740	OPEN	CLAY
P-81-9	82+20	3+30D	705	OPEN	SHALE
P-87-1	87+00	3+05U	745	AIR	CLAY
P-87-2	87+00	3+10U	710	AIR	SHALE
P-87-3	87+00	1+15U	745	AIR	CLAY
P-87-4	87+00	0+50U	745	OPEN	CLAY
P-87-5	87+05	0+50U	710	OPEN	SHALE
P-87-7	87+00	1+02D	745	OPEN	CLAY
P-87-8	87+00	3+20D	745	OPEN	CLAY
P-87-9	87+00	3+25D	710	OPEN	SHALE
P-94-1	94+00	3+05U	750	AIR	CLAY
P-94-2	94+00	3+10U	725	AIR	SHALE
P-94-3	94+00	1+15U	750	AIR	CLAY
P-94-4	94+00	0+50U	750	OPEN	CLAY
P-94-5	94+05	0+50U	725	OPEN	SHALE
P-94-7	94+00	1+02D	750	OPEN	CLAY
P-94-8	94+00	3+50D	750	OPEN	CLAY
P-94-9	94+00	3+55D	725	OPEN	SHALE
SP-81-1	79+65	0+20U	770	SETTLEMENT & OPEN	CLAY
SP-87-1	87+00	0+20D	770	SETTLEMENT & OPEN	CLAY
SP-94-1	94+00	0+20D	770	SETTLEMENT & OPEN	CLAY
I-77-1	77+00	0+20D	705	INCLINOMETER	SHALE
I-94-1	94+00	0+20D	710	INCLINOMETER	SHALE

EXISTING OBSERVATION DEVICES

PIEZ. NO.	STATION	RANGE	TIP ELEVATION	TYPE PZ	MATERIAL
PZ 54A	93+70	1+90U	766	OPEN	CLAY
PZ 55	94+75	2+70D	750	OPEN	CLAY
PZ 58	82+55	5+5D	754	OPEN	CLAY
PZ 59	81+45	0+35D	757	OPEN	CLAY
PZ 104	90+00	1+00D	760	OPEN	CLAY
PZ 143	77+95	4+80D	746	OPEN	CLAY
PZ 158	74+90	1+38U	747	OPEN	CLAY

NOTES:
 1. USE EXTENDED CENTERLINE OF DAM FOR LOCATION OF PIEZOMETERS 143 AND 158.
 2. THE EXISTING PIEZOMETERS ARE TO REMAIN OPERATIVE THROUGHOUT THE CONTRACT AND SHALL BE EXTENDED UP THROUGH THE EMBANKMENT AS REQUIRED.

LEGEND

- OPEN TUBE PIEZOMETERS
- AIR OPERATED PIEZOMETERS
- ↓ SETTLEMENT GAGE AND OPEN TUBE PIEZOMETERS
- ⊕ ALINEMENT MONUMENTS
- ⊙ INCLINOMETERS
- △ CREST SETTLEMENT MONUMENTS
- ◇ INSTRUMENT MONUMENTS

Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

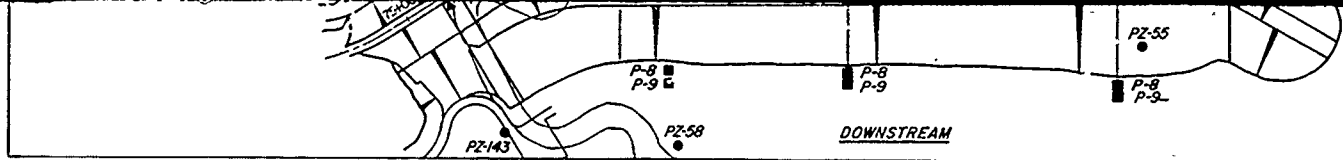
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Drawn by: _____

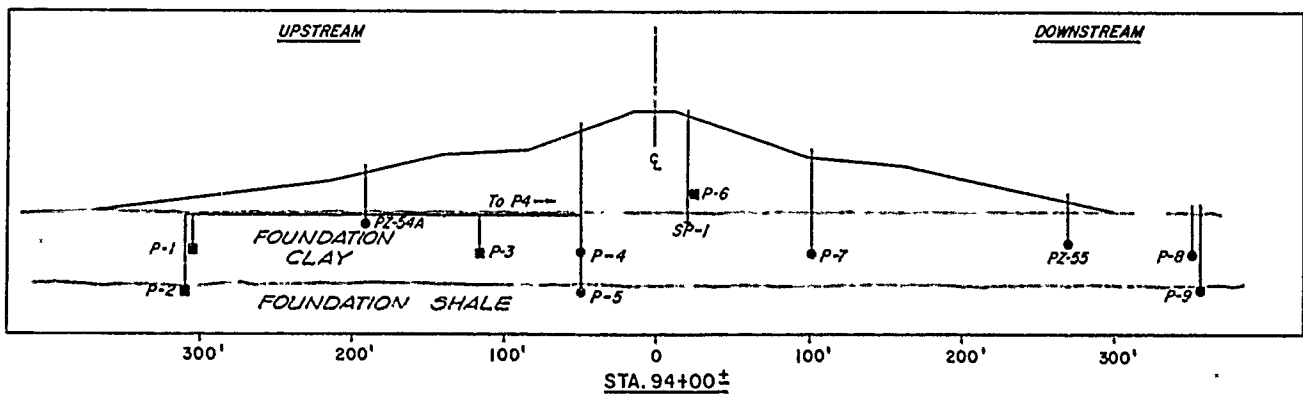
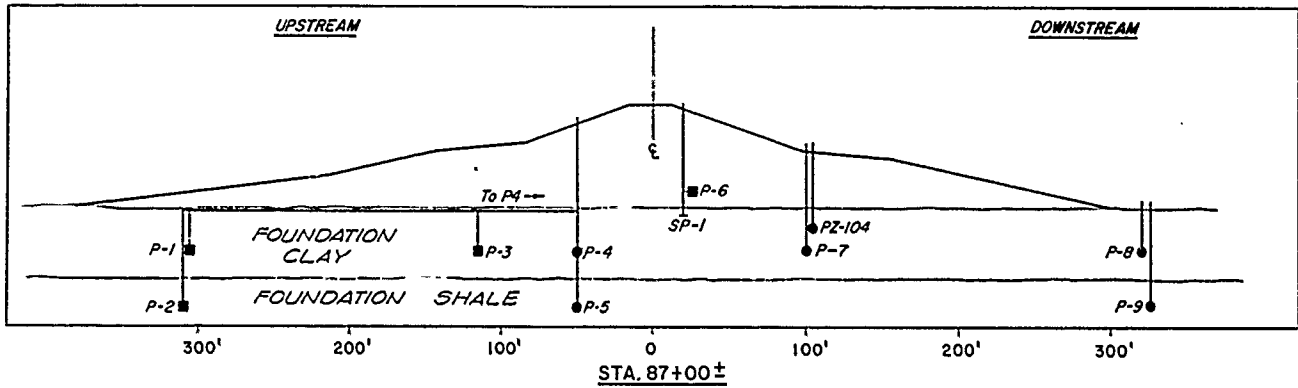
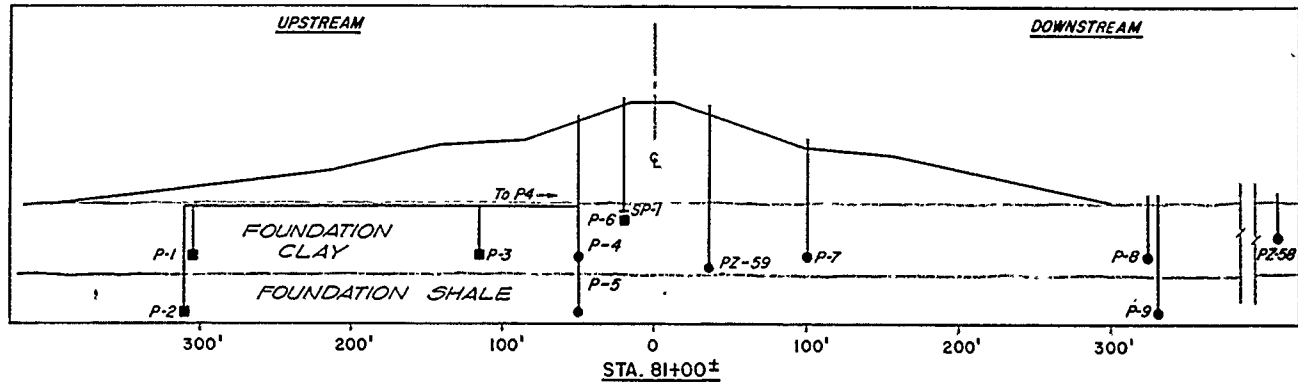
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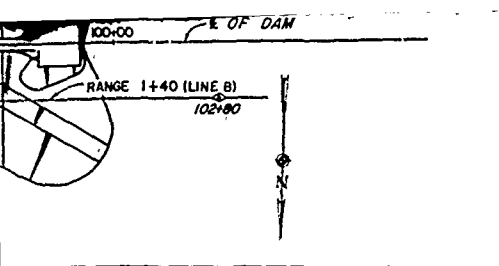
EAST FORK LITTLE BLUE RIVER, MISSOURI
BLUE SPRINGS LAKE
CONSTRUCTION FOUNDATION REPORT

**OBSERVATION DEVICES PLAN,
SECTIONS AND SCHEDULES**



NOTE: See Schedule for details.





PIEZ. NO.	STATION	RANGE	TIP ELEVATION	TYPE	MATERIAL
P-81-7	81+00	1+02D	740	OPEN	CLAY
P-81-8	82+20	3+25D	740	OPEN	CLAY
P-81-9	82+20	3+30D	705	OPEN	SHALE
P-87-1	87+00	3+05U	745	AIR	CLAY
P-87-2	87+00	3+10U	710	AIR	SHALE
P-87-3	87+00	1+15U	745	AIR	CLAY
P-87-4	87+00	0+50U	745	OPEN	CLAY
P-87-5	87+05	0+50U	710	OPEN	SHALE
P-87-7	87+00	1+02D	745	OPEN	CLAY
P-87-8	87+00	3+20D	745	OPEN	CLAY
P-87-9	87+00	3+25D	710	OPEN	SHALE
P-94-1	94+00	3+05U	750	AIR	CLAY
P-94-2	94+00	3+10U	725	AIR	SHALE
P-94-3	94+00	1+15U	750	AIR	CLAY
P-94-4	94+00	0+50U	750	OPEN	CLAY
P-94-5	94+05	0+50U	725	OPEN	SHALE
P-94-7	94+00	1+02D	750	OPEN	CLAY
P-94-8	94+00	3+50D	750	OPEN	CLAY
P-94-9	94+00	3+55D	725	OPEN	SHALE
SP-81-1	81+65	0+20U	770	SETTLEMENT & OPEN	CLAY
SP-87-1	87+00	0+20D	770	SETTLEMENT & OPEN	CLAY
SP-94-1	94+00	0+20D	770	SETTLEMENT & OPEN	CLAY
I-77-1	77+00	0+20D	705	INCLINOMETER	SHALE
I-94-1	94+00	0+20D	710	INCLINOMETER	SHALE

EXISTING OBSERVATION DEVICES					
PIEZ. NO.	STATION	RANGE	TIP ELEVATION	TYPE PZ	MATERIAL
PZ 54A	93+70	1+90U	766	OPEN	CLAY
PZ 55	94+75	2+70D	755	OPEN	CLAY
PZ 58	82+35	5+50D	754	OPEN	CLAY
PZ 59	81+45	0+350	757	OPEN	CLAY
PZ 104	90+00	1+00D	760	OPEN	CLAY
PZ 143	77+95	4+80D	746	OPEN	CLAY
PZ 158	74+90	1+35U	747	OPEN	CLAY

NOTES:
 1. USE EXTENDED CENTERLINE OF DAM FOR LOCATION OF PIEZOMETERS 143 AND 158.
 2. THE EXISTING PIEZOMETERS ARE TO REMAIN OPERATIVE THROUGHOUT THE CONTRACT AND SHALL BE EXTENDED UP THROUGH THE EMBANKMENT AS REQUIRED.

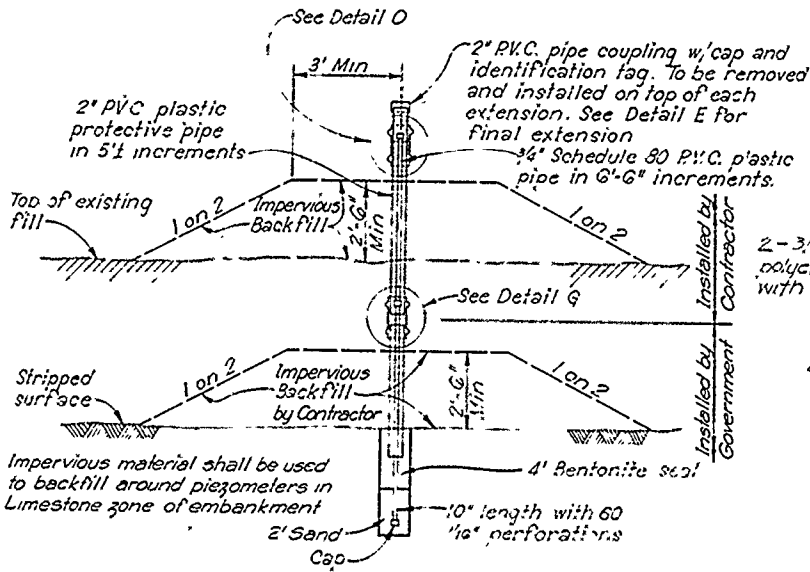
LEGEND

- OPEN TUBE PIEZOMETERS
- AIR OPERATED PIEZOMETERS
- ↓ SETTLEMENT GAGE AND OPEN TUBE PIEZOMETERS
- + ALIGNMENT MONUMENTS
- ⊕ INCLINOMETERS
- △ CREST SETTLEMENT MONUMENTS
- ◇ INSTRUMENT MONUMENTS

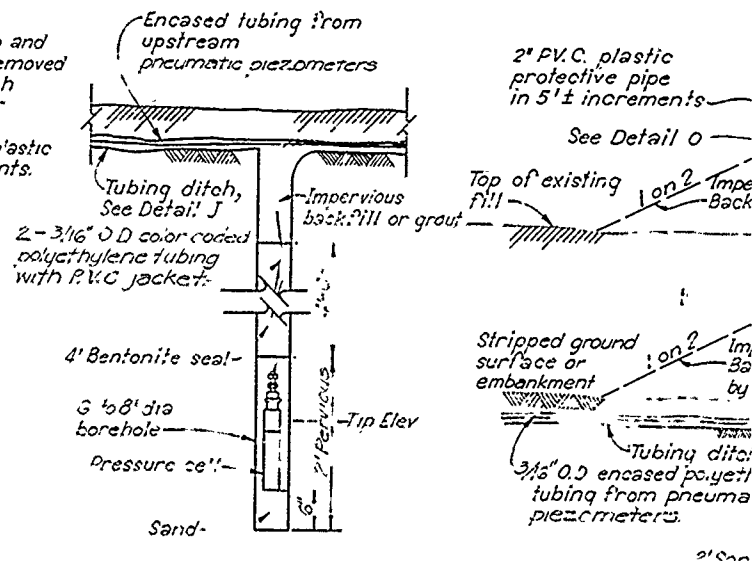
Revisions			
Symbol	Descriptions	Date	Approved

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

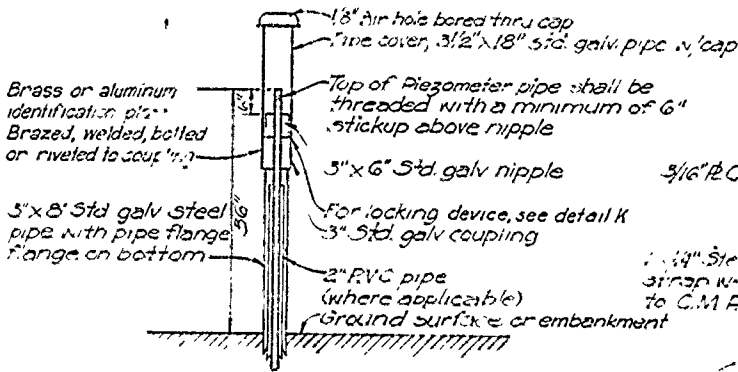
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT OBSERVATION DEVICES PLAN, SECTIONS AND SCHEDULES	Scale:	AS SHOWN	Sheet number:	84	
Drawn by:		Date:	JUNE 1990	File No.:		RBL-2-1304
Checked by:		Des. No.:				
Submitted by:						



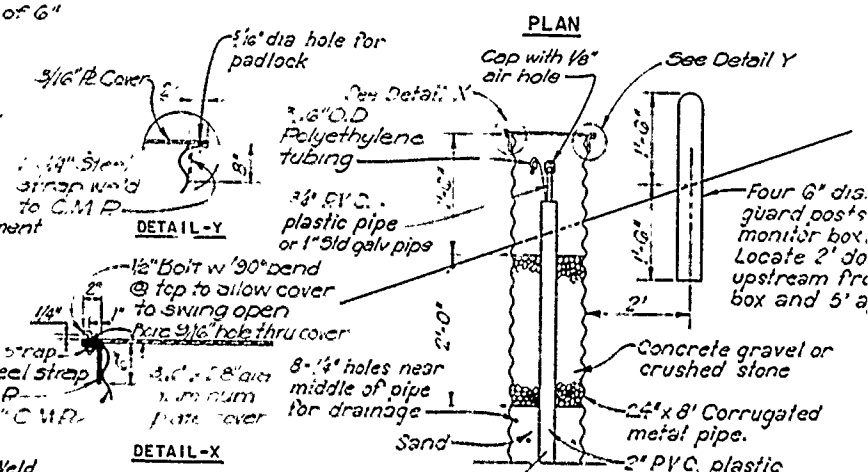
**OPEN TUBE PIEZOMETER
INSTALLATION AND EXTENSION
DETAIL-A**



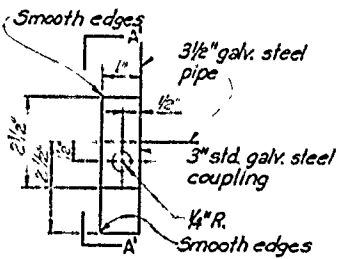
**PNEUMATIC
PIEZOMETER INSTALLATION
DETAIL-B**



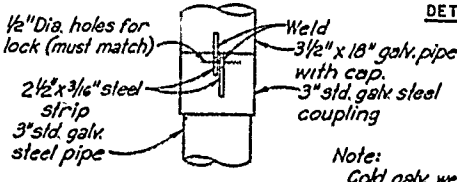
**FINAL POSITION OF PIEZOMETERS
DETAIL-E**



**MONITOR BOX
DETAIL-F**

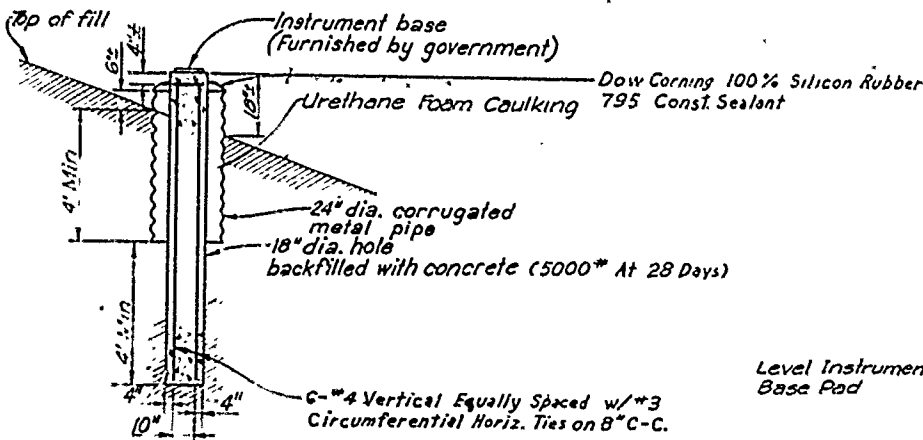


**LOCKING DEVICE
DETAIL K**

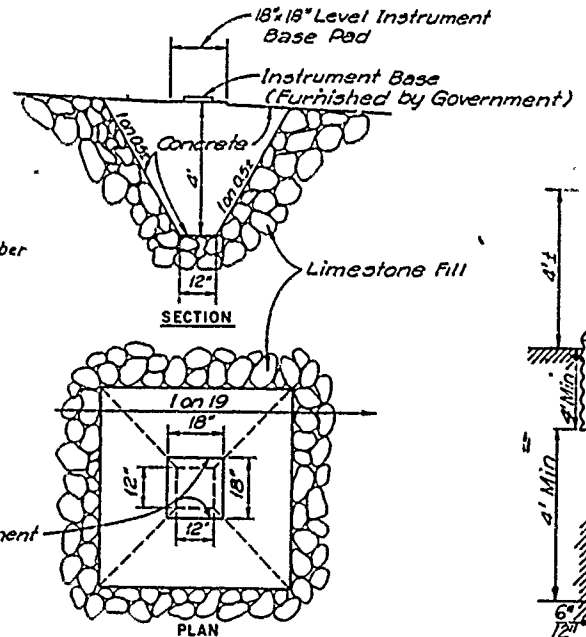


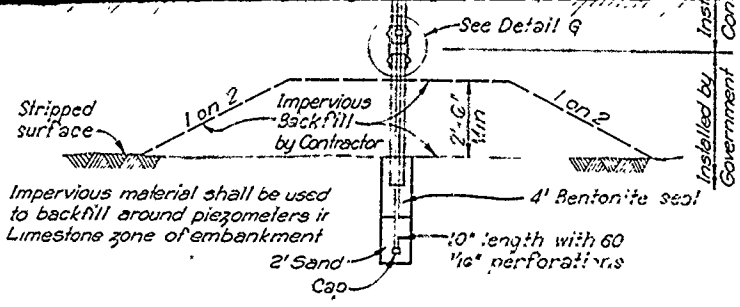
**LOCKING DEVICE
SECTION A'**

Note: Cold galv welds and strips after welding

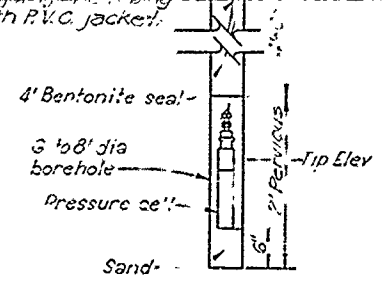


SOIL FILL AREAS

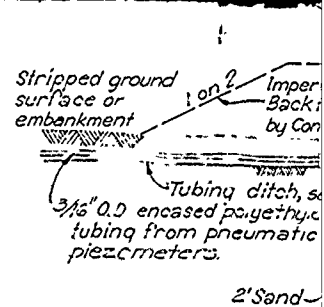




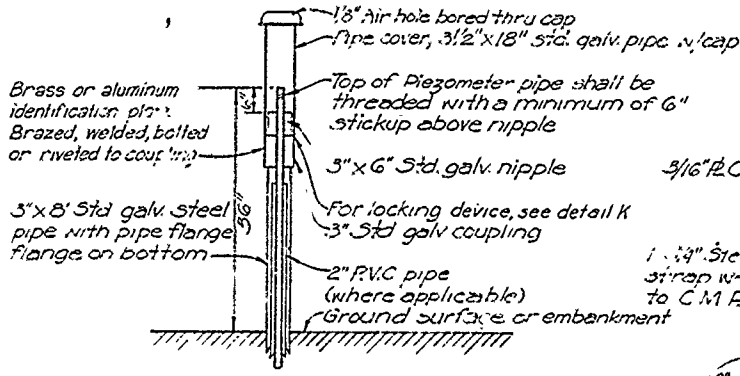
**OPEN TUBE PIEZOMETER
INSTALLATION AND EXTENSION
DETAIL-A**



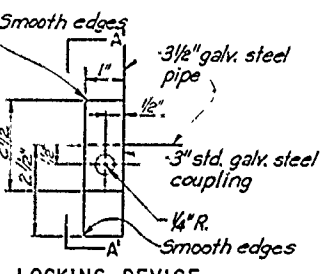
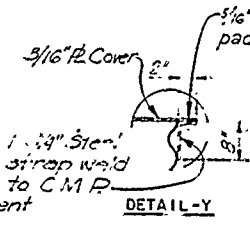
**PNEUMATIC
PIEZOMETER INSTALLATION
DETAIL-B**



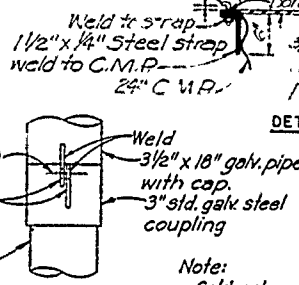
**OPEN
PIEZOMETER WITH TUBING
DETAIL-C**



**FINAL POSITION OF PIEZOMETERS
DETAIL-E**

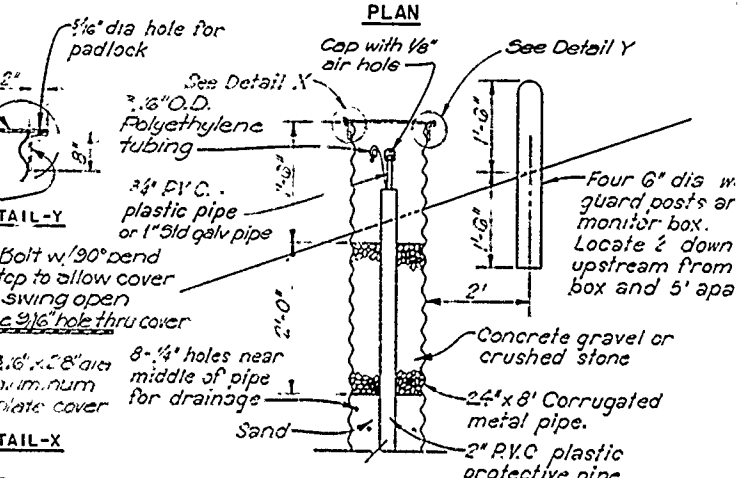


**LOCKING DEVICE
DETAIL K**

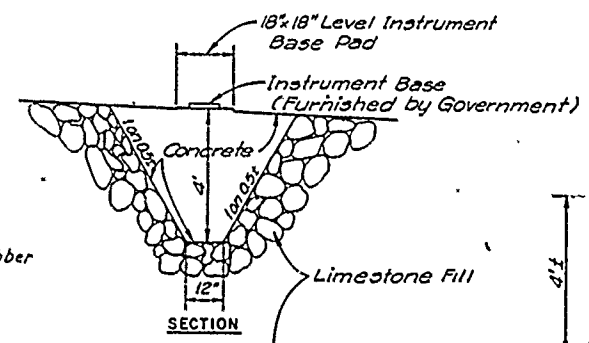


**LOCKING DEVICE
SECTION A'**

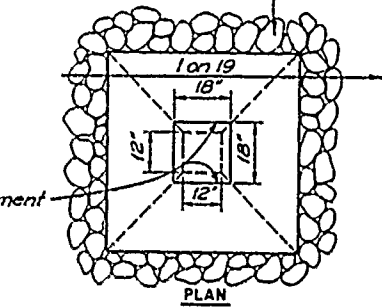
Note: Cold galv welds and strips after welding



**MONITOR BOX
DETAIL-F**

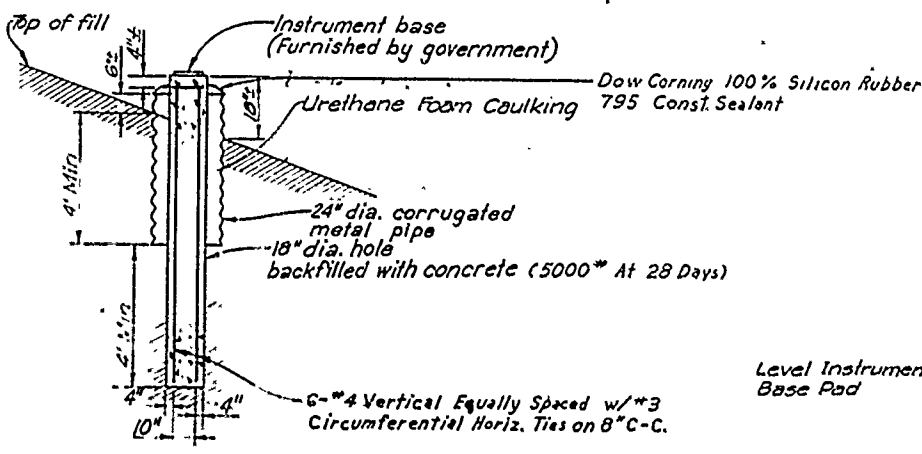


SECTION



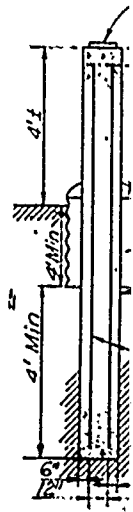
PLAN

LIMESTONE FILL AREA

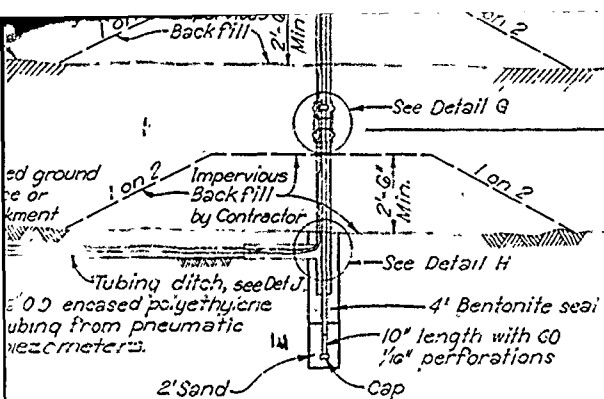


SOIL FILL AREAS

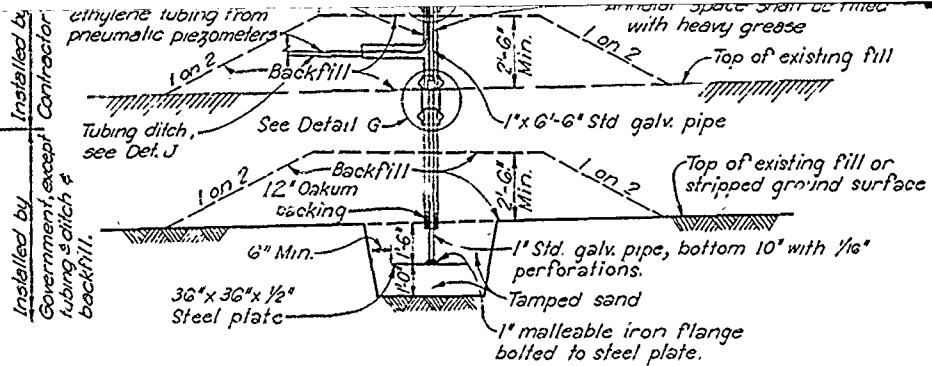
**ALINEMENT MONUMENTS
DETAIL-L**



**INSTRUMENT
DETAIL M**

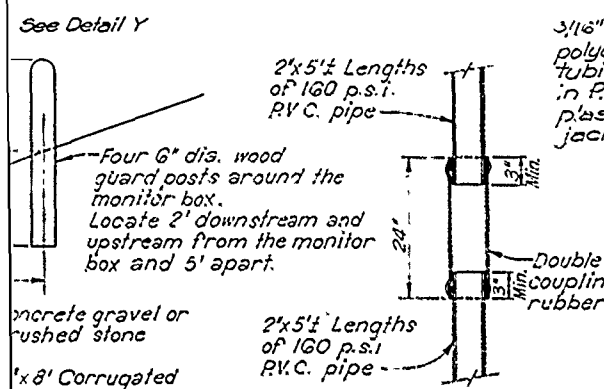


OPEN TUBE PIEZOMETER WITH TUBING FROM PNEUMATIC PIEZOMETER
DETAIL-C

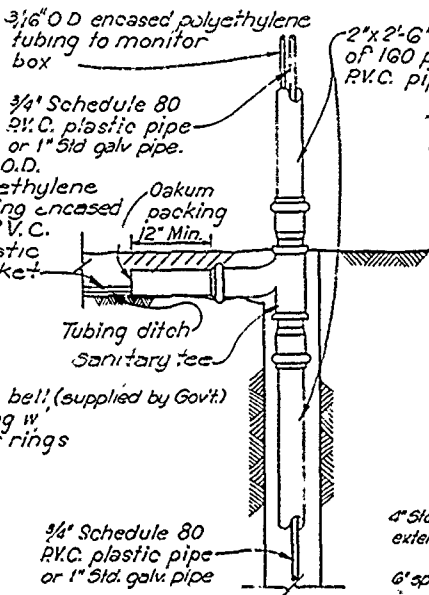


SETTLEMENT DEVICE INSTALLATION AND EXTENSION (By Contractor)
DETAIL-D

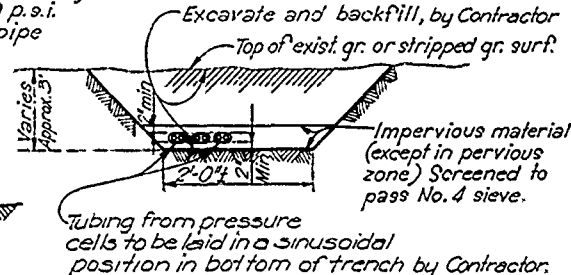
NOTE:
A 3' length bentonite plug shall be placed in tubing ditch @ 50' intervals beginning at Range 2+00 upstream.



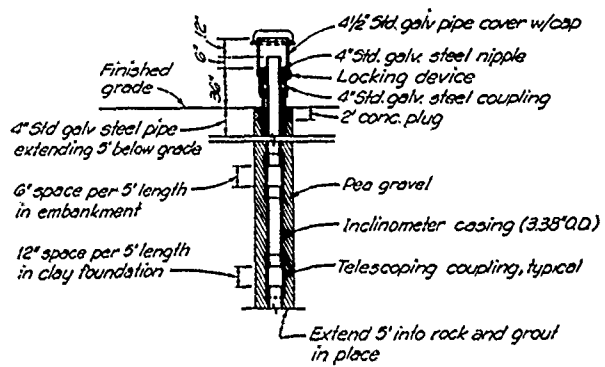
PROTECTIVE PIPE COUPLING
DETAIL-G



TEE CONNECTION
DETAIL-H



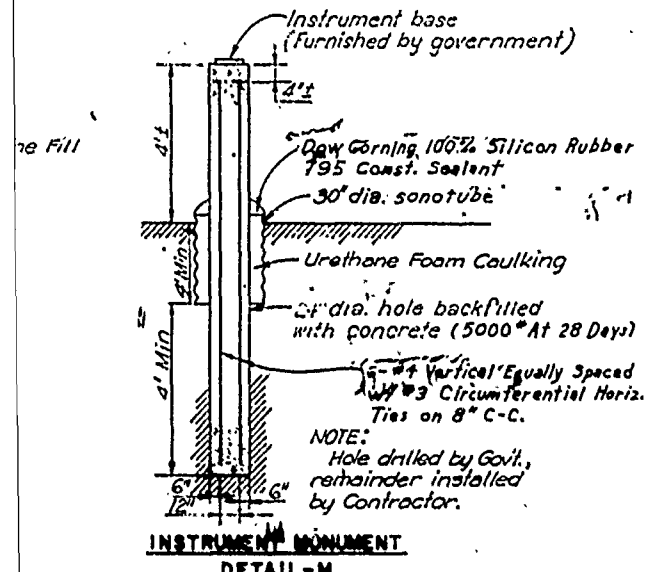
TUBING DITCH
DETAIL-J



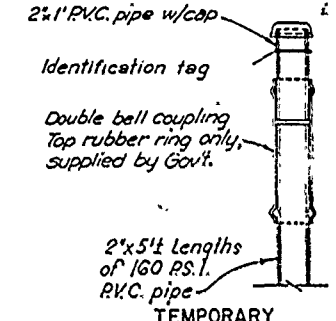
INCLINOMETER CASING WITH SETTLEMENT COUPLINGS AND PROTECTIVE CAP

(Installed by Government)

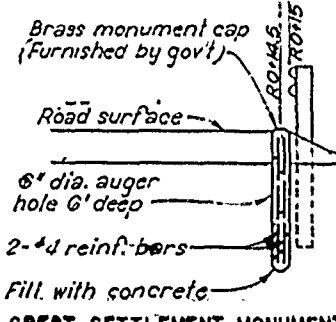
NOTE:
Contractor shall keep caps and identification tags on pipes and in sight at all times



INSTRUMENT MONUMENT
DETAIL-M



TEMPORARY PROTECTIVE PIPE COVER
DETAIL-O



CREST SETTLEMENT MONUMENT
DETAIL-N

Revisions			
Symbol	Descriptions	Date	Approved
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designer by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT OBSERVATION DEVICE INSTALLATION DETAILS	Scale:	AS SHOWN
Drawn by:		Date:	JUNE 1990
Checked by:		Sheet number:	85
Submitted by:		Dwg. No.:	RBL-2-1305

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3

BLUE SPRINGS BLASTING

SHOT NO.	DATE	GEOLOGIC LOCATION	ELEV.	LOCATION		PURPOSE	NO. OF HOLES	DEPTH (FT.)	SPACING (FT.)	BURDEN (FT.)	STEM (FT.)	SHOT VOL.	EX
				STATION	RANGE								
1	10/22/82	BETHANY FALLS LIMESTONE	853-843	99+85		PRE-SPLIT	24	8'-16'	20'	0	TOTAL	560' 200 GR. 40' E	
2	10/26/82	BETHANY FALLS LIMESTONE	858	99+85	34' DS TO 91 US	PRE-SPLIT	62	20'	2'	0	TOTAL	2125 SQ. FT. 1600' 200 GR. 130	
3	11/16/82	BETHANY FALLS LIMESTONE	846	72+75	45' US TO 40' DS	PRE-SPLIT	48	18'-20'	20'	0	TOTAL 1/2 GRAVEL	1805 SQ. FT. 1200' 200 GR. 100	
4	11/17/82	SNABAR	832	99+26	103' DS TO 63' US	PRE-SPLIT	100	7.3'-9'	20'	0	TOTAL	1253 SQ. FT. 1100' 200 GR. 11'	
5	11/22/82	SNABAR	832	99+26	45' US TO 50' DS	PRE-SPLIT	57	7'-9'	20'	0	TOTAL 1/2 GRAVEL	713 SQ. FT. 500' 200 GR. 100'	
6	11/22/82	SNABAR	832	99+26	16' DS TO 16' US	PRE-SPLIT	19	8.5'	20'	0	TOTAL 1/2 GRAVEL	272 SQ. FT. 400' 200 GR. 40' E	
7	12/8/82	BETHANY FALLS LIMESTONE	846	73+35-73+85	60' US	PRE-SPLIT	28	14'-19'	20'	0	TOTAL 1/2 GRAVEL	850 SQ. FT. 500' 200 GR. 60' E	
8	12/9/82	BETHANY FALLS LIMESTONE	846	73+35-72+75	60' DS TO 40' DS	PRE-SPLIT	41	17'	20'	0	TOTAL 1/2 GRAVEL	1146 SQ. FT. 850' 200 GR. 75' E	
9	12/14/82	BETHANY FALLS LIMESTONE	841	72+75	45' US TO 60' US	PRE-SPLIT	12	8'-12'	20'	0	TOTAL 1/2 GRAVEL	300 SQ. FT. 250' 200 GR. 25' E	
10	12/16/82	WINTERSET		17+50-18+70	LEFT SIDE	PRE-SPLIT	72	12'-16'	0	20'-36'	1/2 GRAVEL	2271 SQ. FT. 1100' 200 GR. 50'	
11	11/2/82	BETHANY FALLS LIMESTONE	854	99+85-99+20	100' US TO 65' DS	PRODUCTION	84	8'-14'	10'-8'	7'-6'	4 1/2'	1150 CU. YDS. 1215' MAYNES 10'	
2	11/3/82	BETHANY FALLS LIMESTONE	855	14+80-14+50	€ TO 15 RT.	PRODUCTION	43	7'-11'	9'	7'	4 1/2'	920 CU. YDS. 500' MAYNES 11'	
3	11/4/82	BETHANY FALLS LIMESTONE	855	14+80-14+50	€ T.O. 90' LT.	PRODUCTION	42	5'-9'	9'	7'	5'	595 CU. YDS. 450' MAYNES 50'	
4	11/8/82	BETHANY FALLS LIMESTONE	855	15+75-15+10	100' LT. TO 100' RT.	PRODUCTION	143	16'	10'	7'	5'	7100 CU. YDS. 5050' MAYNES 40'	
5	11/18/82	BETHANY FALLS LIMESTONE	850	15+75-16+25	100' LT. TO 100' RT.	PRODUCTION	54	18.5'	16'	12'	9'	6465 CU. YDS. 16500' MAYNES 10'	
6	12/8/82	SNABAR	832	99+26	97' US TO 72' DS	PRODUCTION	60	3.5'	7'	5'	4 1/2'	798 CU. YDS. 425' UNCEL	
7	12/13/82	BETHANY FALLS LIMESTONE		16+25-16+73	100' LT. TO 108' RT.	PRODUCTION	42-29	19' 19'	16'-10'	12'-7'	8 1/2' 4'	7000 CU. YDS. 9315' MAYNES 50'	
8	12/14/82	BETHANY FALLS LIMESTONE	842-836	72+75-73+85	60' US TO 60' DS	PRODUCTION	127	6'-14'	9'	7'	4'	2900 CU. YDS. 2000' MAYNES 5'	
9	12/20/82	WINTERSET		17+50-17+90	108' LT. TO €	PRODUCTION	129	5 1/2'-8'	7'-10'	6'	4'	1360 CU. YDS. 1450' MAYNES 70'	
10	12/22/82	WINTERSET		17+90-18+35	120' LT. TO €	PRODUCTION	137	8.7'	7'-10'	6'	4'	2655 CU. YDS. 2400' MAYNES 41'	
11	12/23/82	WINTERSET		18+35-18+90	30' LT. 120' LT.	PRODUCTION	91	10'	10'	6'	4'	1978 CU. YDS. 1750' MAYNES 71'	
12	12/23/82	BETHANY FALLS LIMESTONE		72+75	50'-115' DS	PRE-SPLIT	32	6'-15'	2'		1/2 GRAVEL	480 SQ. FT. 600' 200 GRAIN 70'	
13	12/23/82	SNABAR	828.5	73+15-73+80	20' LT. TO 20' RT.	PRE-SPLIT	139	9'	20'			2175 SQ. FT. 1700' 200 GRAIN 2'	
14	12/23/82	SNABAR		74+00	45'-157' DS	PRE-SPLIT	67	9'	20'			1008 SQ. FT. 1000' 200 GRAIN 1'	
15	2/4/83	BETHANY FALLS LIMESTONE	841	72+75	121' US TO 23' DS	PRE-SPLIT	96	18'	2'		1/2 GRAVEL	3456 SQ. FT. 2100' 200 GRAIN 2'	
16	2/18/83	WINTERSET		18+32-19+41	LEFT SIDE	PRE-SPLIT	39	14'	30'		1/2 GRAVEL	1350 SQ. FT. 1500' 200 GRAIN 1'	
17	2/23/83	WINTERSET		18+00-20+80	LEFT SIDE	PRE-SPLIT	34	5'-11 1/2'	30'		1/2 GRAVEL	2940 SQ. FT. 2000' 200 GRAIN	
18	2/23/83	WINTERSET		20+80-22+70	RIGHT SIDE	PRE-SPLIT	51	8'-15'	30'		CRUSHED STONE	1500 SQ. FT. 850' 200 GRAIN 15'	
19	2/23/83	WINTERSET		20+80-22+70	RIGHT SIDE	PRE-SPLIT	51	8'-15'	30'		CRUSHED STONE	1500 SQ. FT. 850' 200 GRAIN 15'	
20	3/28/83	PLEASANTON	785	52+47-51+06		PRE-SPLIT	53	12'	2'-3'		TOTAL STONE	1692 SQ. FT. 1350' 200 GRAIN 1'	
21	3/31/83	PLEASANTON	785	51+06-47+00	75+03 DAM AXIS	PRE-SPLIT	155	12'	2'-2 1/2'		1/2 STONE	4872 SQ. FT. 4000' 200 GRAIN	
22	4/15/83	PLEASANTON		11+88-10+50		PRE-SPLIT	46	12'	2 1/2'-3'		1/2 STONE	1636 SQ. FT. 100' 200 GRAIN 78'	
23	4/18/83	PLEASANTON		10+50-9+48		PRE-SPLIT	25	12'	30'		1/2 STONE	780 SQ. FT. 430' 200 GRAIN	
24	4/26/83	BETHANY FALLS LIMESTONE		12+88-14+02	RIGHT SIDE	PRE-SPLIT	35	7'-13'	2'-3'		1/2 GRAVEL	756 SQ. FT. 400' 200 GRAIN 30'	
25	5/5/83	BETHANY FALLS LIMESTONE		14+05-16+08	195' RT. OF €	PRE-SPLIT	55	13'-20'	2 1/2'-3'		1/2 GRAVEL	2288 SQ. FT. 400' 200 GRAIN 95'	
26	5/9/83	BETHANY FALLS LIMESTONE		16+09-17+00	195' RT. OF €	PRE-SPLIT	26	10'	2'		1/2 GRAVEL	1900 SQ. FT. 325' 200 GRAIN 361'	
27	5/17/83	BETHANY FALLS LIMESTONE		25+18-24+50	195' RT. OF €	PRE-SPLIT	29	18'	2 1/2'-3'		1/2 GRAVEL	1224 SQ. FT. 700' 200 GRAIN 271'	
28	5/19/83	BETHANY FALLS LIMESTONE		24+50-23+05	195' RT. OF €	PRE-SPLIT	47	21'	3'		6'	2981 SQ. FT. 1250' E CORO 225'	
29	5/23/83	BETHANY FALLS LIMESTONE		20+70-20+30	210' LT. OF €	PRE-SPLIT	63	18'	2 1/2'-3'		1/2 GRAVEL	3150 SQ. FT. 1512' 200 GRAIN 5'	
30	5/24/83	BETHANY FALLS LIMESTONE		21+70-20+00	210' LT. OF €	PRE-SPLIT	14	22'	2 1/2'-3'		1/2 GRAVEL	874 SQ. FT. 460' 200 GRAIN 12'	
31	6/1/83	BETHANY FALLS LIMESTONE		15+35-17+00	210' LT. OF €	PRE-SPLIT	82	13.3'	30'		1/2 GRAVEL	2127 SQ. FT. 2400' 200 GRAIN 2'	
32	7/22/83	BETHANY FALLS LIMESTONE		16+93-18+00	210' LT. OF €	PRE-SPLIT	52	21'	2 1/2'-3'		1/2 GRAVEL	2919 SQ. FT. 1100' 200 GRAIN 6'	
33	7/25/83	BETHANY FALLS LIMESTONE		17+90-18+00	195' RT. OF €	PRE-SPLIT	25	21'	2 1/2'-3'		1/2 GRAVEL	1515 SQ. FT. 120' MERCOSPLIT-	
34	11/2/83	WINTERSET		18+90-19+50	30' RT. OF PRE-SPL.	PRODUCTION	112	7.3'	7'-10'	5'-6'	4'	1320 CU. YDS. 1100' MAYNES 115'	
35	11/2/83	WINTERSET		17+40-17+80	90' LT. OF €	PRODUCTION	118	5.6'	7'	5'	4'	822 CU. YDS. 600' UNCEL 15' V	
36	11/6/83	WINTERSET		17+90-18+10	€ TO 160 LT.	PRODUCTION	157	9.1'	10'	6'-7'	4'	3400 CU. YDS. 2800' MAYNES 450'	
37	11/17/83	WINTERSET		18+10-19+50	100' 200' LT. OF PRE-SPL.	PRODUCTION	128	7'-10 1/2'	9'-10'	5'-10'	4'	2900 CU. YDS. 2325' MAYNES 155'	
38	11/13/83	BETHANY FALLS LIMESTONE		92+75-93+70	40 DS TO 130 DS	PRODUCTION	122	8'	9'	6'	4'	2560 CU. YDS. 1450' MAYNES 175'	
39	11/17/83	WINTERSET		19+50	100'-200' RT. OF LT. PRE-SPL.	PRODUCTION	112	6.4'	6'-9'	5 1/2'	4'	2300 CU. YDS. 1715' MAYNES 200'	
40	11/18/83	WINTERSET		17+50-18+00	200'-300' RT. OF LT. PRE-SPL.	PRODUCTION	146	5 1/2'-7'	7'-9'	5'	4'	1320 CU. YDS. 800' MAYNES 445'	
41	12/20/83	WINTERSET		18+00-18+60	200'-300' RT. OF LT. PRE-SPL.	PRODUCTION	137	9'	9'-10'	6'	4'	2160 CU. YDS. 2100' MAYNES 150'	
42	12/31/83	SNABAR		73+20-74+25	35' DS TO 60' US	PRODUCTION	105	2.5'			4'	820 CU. YDS. 450' MAYNES 650'	
43	2/2/83	SNABAR		74+00-74+27	30'-155' DS	PRODUCTION	68	7'	7'	5'	4'	1135 CU. YDS. 240' MAYNES 315'	
44	2/8/83	BETHANY FALLS LIMESTONE		72+50-72+75	120 US TO 80 DS	PRODUCTION	127	7'-14'			4'	2400 CU. YDS. 2250' MAYNES 250'	
45	2/10/83	WINTERSET		18+50-19+25	50' LT TO 50' RT OF €	PRODUCTION	116	12.3'	10'	7'	4'	3400 CU. YDS. 3850' MAYNES 200'	
46	2/11/83	WINTERSET		19+75-20+25	200' 300' LT. OF PRE-SPL.	PRODUCTION	93	10.2'	10'	7'	4'	2390 CU. YDS. 2200' MAYNES 225'	
47	2/22/83	WINTERSET		20+00-20+30	20' 300' LT. OF PRE-SPL.	PRODUCTION	176	6.6'	6'	7'	4'	1600 CU. YDS. 1400' MAYNES 550'	
48	2/25/83	WINTERSET		17+50-18+00	60' LT. TO 155 LT.	PRODUCTION	108	6.2'	7'	5'	4'	995 CU. YDS. 475' UNCEL 50' H	
49	3/1/83	WINTERSET		18+00-18+55	70' RT. TO 110' RT. OF PRE-SPLIT	PRODUCTION	113	8.1'	9'	6'	4'	1620 CU. YDS. 1450' MAYNES 550'	
50	3/3/83	WINTERSET		18+50-19+25		PRODUCTION	124	11.0'	10'	7'	4'	3600 CU. YDS. 3500' MAYNES 150'	
51	3/11/83	WINTERSET		18+30-19+60		PRODUCTION	35	5'	7'	5'	4'	760 CU. YDS. 500' MAYNES 41' 1	
52	3/11/83	WINTERSET		19+50-20+00	€ TO 160' RT	PRODUCTION	107	10.7'	10'	6'	4'	2354 CU. YDS. 2625' MAYNES 150'	
53	3/15/83	WINTERSET		20+50-21+50	100' RT TO €	PRODUCTION	21	6.8'	9'	6'	4'	2700 CU. YDS. 2400' MAYNES 250'	
54	3/24/83	WINTERSET		21+50-22+50	150' LT. OF PRE-SPLIT	PRODUCTION	220	6.2'	8'	6'	4'	2600 CU. YDS. 1600' MAYNES 400'	
55	3/25/83	WINTERSET			47' SIDE TO 122' RT.	PRODUCTION	102	8'	9'	6'	4'	1724 CU. YDS. 1500' MAYNES 200'	
56	3/29/83	PLEASANTON	785	52+47-51+55	EDGE TO 85' LT.	PRODUCTION	146	8'	9'	6'	4'	2281 CU. YDS. 1950' MAYNES 150'	
57	4/6/83	PLEASANTON	785	47+50-49+00	H400-1600 DAM STA	PRODUCTION	153	8'	9'	6'	4'	2400 CU. YDS. 1900' MAYNES 75'	
58	4/12/83	PLEASANTON	785	49+08-50+00	H100-1500 DAM STA	PRODUCTION	160	9'	9'	6'	4'	2480 CU. YDS. 2400' MAYNES 375'	
59	4/18/83	PLEASANTON	785	50+00-50+90	75+00-76+00	PRODUCTION	166	8'	9'	6'	4'	2750 CU. YDS. 2650' MAYNES 275'	
60	4/11/83	PLEASANTON	785	50+90-51+62		PRODUCTION	134	8'	9'	6'	4'	2780 CU. YDS. 2100' MAYNES 200'	
61	4/18/83	PLEASANTON		11+88-10+00		PRODUCTION	109	8'	9'	6'	4'	1150 CU. YDS. 1900' MAYNES 150'	
62	4/20/83	WINTERSET		19+50-21+00		PRODUCTION	147	8'	9'	6'	4'	2400 CU. YDS. 1225' MAYNES 105'	
63	4/21/83	WINTERSET		19+50-18+90		PRODUCTION	103	4.8'	8'	5'	4'	1092 CU. YDS. 525' MAYNES 450'	
64	4/25/83	WINTERSET				PRODUCTION	51	5'	7'	5'	4'	360 CU. YDS. 182' MAYNES 150' 1	
65	5/1/83	BETHANY FALLS LIMESTONE		13+12-13+15	195 TO 91 RT. €	PRODUCTION	76	9'	8'	6'	4'	2016 CU. YDS. 560' MAYNES 625'	
66	5/1/83	BETHANY FALLS LIMESTONE		14+02-14+50	195 TO 150 RT. €	PRODUCTION	59	12'	10'	6'	4'	1150 CU. YDS. 1160' MAYNES 115'	
67	5/10/83	BETHANY FALLS LIMESTONE		14+50-15+30	195 TO 110 RT. €	PRODUCTION	72	15'	10'	7'	4'	2940 CU. YDS. 3300' MAYNES 400'	

VALUE ENGINEERING PAYS


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B SPRINGS BLASTING REPORT

SHOT VOL.	EXPLOSIVES (LBS.)	NO. OF CAPS	DELAYS IN MIL/SEC	CARTRIDGE STRENGTH	REMARKS
	560' 200 GR. 40' E CORD	2	0	PRIMACORD, ENSIGN BICKFORD	NORMAL TO DAM AXIS, 3' HOLES
2125 SO. FT.	1600' 200 GR. 130' E CORD	2	0	PRIMACORD	NORMAL TO DAM, 3' HOLES
1805 SO. FT.	1200' 200 GR. 100' E CORD	2	0	PRIMACORD	3' HOLES, NORMAL TO AXIS
1253 SO. FT.	1100' 200 GR. 115' E CORD	1	0	PRIMACORD	NORMAL TO DAM, 3 1/2' HOLES
713 SO. FT.	500' 200 GR. 100' E CORD	1	0	PRIMACORD	3 1/2' HOLES, NORMAL TO DAM, RESHOOT 4
272 SO. FT.	400' 200 GR. 40' E CORD	1	0	PRIMACORD	3 1/2' HOLES, NORMAL TO AXIS, RESHOOT 4
850 SO. FT.	500' 200 GR. 60' E CORD	1	0	PRIMACORD	3' PARALLEL TO AXIS
1146 SO. FT.	850' 200 GR. 75' E CORD	1	0	PRIMACORD	3' HOLES, PARALLEL AND AT ANGLE TO DAM AXIS
200 SO. FT.	250' 200 GR. 25' E CORD	1	0	PRIMACORD	NORMAL TO AXIS, 3' HOLES
2271 SO. FT.	1100' 200 GR. 500' E CORD 67 LBS.	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3 HOLES, LEFT SIDE OF SPILLWAY
150 CU. YDS.	1215' MAYNES 181' UNIGEL	34	0-9	50' SACKS MAYNES MIX #1, UNIGEL 2 7/8" AND 2 1/2" X 16"	3 1/2' HOLES, POWDER FACTOR 0.83
920 CU. YDS.	500' MAYNES 112' UNIGEL	43	0-7	50' SACKS MAYNES MIX #1, HERCULES UNIGEL 2 7/8" AND 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY 0.67 LBS./YD.
595 CU. YDS.	450' MAYNES 50' UNIGEL	42	0-7	50' SACKS MAYNES MIX #1, HERCULES UNIGEL 2 7/8"	3 1/2' HOLES, SPILLWAY 0.76 LBS./YD.
710 CU. YDS.	5050' MAYNES 400' UNIGEL	143	0-11	50' SACKS MAYNES, 2 7/8" AND 2 1/2" X 16" UNIGEL, 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY 0.77 LBS./YD.
465 CU. YDS.	6500' MAYNES 100' UNIGEL 105' TITAN G BOOSTER	54	0-8	50' SACKS MAYNES, 2 7/8" AND 2 1/2" X 16" UNIGEL, 2 1/2" X 16" TITAN	6 1/2' HOLES, SPILLWAY 1.04 LBS./YD.
798 CU. YDS.	425' UNIGEL	60	0-10	HERCULES UNIGEL 2 1/2" X 16" AND 2 7/8"	3 1/2' HOLES, POWDER FACTOR 0.53
900 CU. YDS.	9815' MAYNES 50' UNIGEL 40' TITAN	71	0-8	50' SACKS MAYNES MIX #1, 3 1/2" X 16" UNIGEL, 2 1/2" X 16" UNIGEL, 3 1/2" TITAN G BOOSTER	3 1/2" & 6 1/2" HOLES, SPILLWAY
930 CU. YDS.	2000' MAYNES 550' UNIGEL	127	0-12	50' SACKS OF MAYNES MIX #1, UNIGEL 2 7/8" AND 2 1/2" X 16"	3-3 1/2' HOLES, 0.88 POWDER FACTOR
360 CU. YDS.	1450' MAYNES 700' UNIGEL	129	0-8	50' SACKS OF MAYNES MIX #1, UNIGEL 2 7/8" AND 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY 1.58 POWDER FACTOR MEASURED OFF PRESPLIT
665 CU. YDS.	2400' MAYNES 475' UNIGEL	137	0-11	50' SACKS OF MAYNES MIX #1, UNIGEL 2 7/8" AND 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY 1.08 POWDER FACTOR MEASURED OFF PRESPLIT
978 CU. YDS.	1750' MAYNES 125' UNIGEL	91	0-9	50' SACKS OF MAYNES MIX #1, UNIGEL 2 7/8" AND 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY, MEASURED OFF PRESPLIT
480 SO. FT.	1600' 200 GRAIN 70' E CORD	1	0	ENSIGN BICKFORD PRIMACORD	3' HOLES
2115 SO. FT.	1100' 200 GRAIN 250' E CORD	2	0	PRIMACORD	3' HOLES
1008 SO. FT.	1000' 200 GRAIN 150' E CORD	2	0	PRIMACORD	3' HOLES
3456 SO. FT.	2100' 200 GRAIN 200' E CORD	1	0	PRIMACORD	3' HOLES
1356 SO. FT.	11500' 200 GRAIN 110' E CORD	1	6	PRIMACORD	3' HOLES, SPILLWAY
2940 SO. FT.	2000' 200 GRAIN	2	0-1	PRIMACORD	3' HOLES, SPILLWAY
1500 SO. FT.	850' 200 GRAIN 150' E CORD	1	0	PRIMACORD	3' HOLES, SPILLWAY
1620 SO. FT.	1850' 200 GRAIN 150' E CORD	1	0	PRIMACORD	3' HOLES, SPILLWAY
1682 SO. FT.	11350' 200 GRAIN 150' E CORD	1	0	PRIMACORD	3' HOLES, SPILLWAY
1812 SO. FT.	4000' 200 GRAIN	2	0-1	PRIMACORD	3' HOLES, SPILLWAY
1656 SO. FT.	1100' 200 GRAIN 780' E CORD 92' MERCOSPLIT	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3' HOLES, N. SERVICE ROAD
780 SO. FT.	430' 200 GRAIN	1	0	PRIMACORD	3' HOLES, N. SERVICE ROAD
156 SO. FT.	400' 200 GRAIN 300' E CORD 40' MERCOSPLIT	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	SPILLWAY 195' FROM E, 3' HOLES
288 SO. FT.	400' 200 GRAIN 950' E CORD 185' MERCOSPLIT	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3' HOLES, SPILLWAY
920 SO. FT.	320' 200 GRAIN 360' E CORD 54' MERCOSPLIT	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3' HOLES, SPILLWAY
224 SO. FT.	700' 200 GRAIN 215' E CORD 50' MERCOSPLIT	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3' HOLES, SPILLWAY
961 SO. FT.	1250' E CORD 225' MERCOSPLIT	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3' HOLES, SPILLWAY
1150 SO. FT.	11512' 200 GRAIN 515' E CORD 71.4' MERCOSPLIT	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3' HOLES, SPILLWAY
814 SO. FT.	460' 200 GRAIN 125' E CORD 19.2' MERCOSPLIT	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3' HOLES, SPILLWAY
1727 SO. FT.	2400' 200 GRAIN 220' E CORD	1	0	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3' HOLES, SPILLWAY
919 SO. FT.	1700' 200 GRAIN 600' E CORD 78' MERCOSPLIT	1	14	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3' HOLES, LT. SIDE OF SPILLWAY
575 SO. FT.	120' MERCOSPLIT	1	18	PRIMACORD, 1/2" X 2" HERCULES MERCOSPLIT	3 1/2" ES, SPILLWAY
232 CU. YDS.	1100' MAYNES 115' UNIGEL	112	0-8	50' SACKS OF MAYNES MIX #1, UNIGEL 2 7/8" AND 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY 1.01 LBS./YD.
40 CU. YDS.	600' UNIGEL 15' HERCO MIX #1	116	0-9	50' SACKS OF MAYNES MIX #1, UNIGEL AND 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY 0.15 LBS./YD.
50 CU. YDS.	3800' MAYNES 35' UNIGEL	157	0-13	50' SACKS OF MAYNES MIX #1, UNIGEL 2 7/8" AND 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY 0.99 LBS./YD.
80 CU. YDS.	2325' MAYNES 175' UNIGEL	120	0-12	50' SACKS OF MAYNES MIX #1, UNIGEL 2 7/8" AND 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY 0.86 LBS./YD.
160 CU. YDS.	1150' MAYNES 175' UNIGEL	122	0-12	50' SACKS OF MAYNES MIX #1, UNIGEL 2 7/8" AND 2 1/2" X 16"	3 1/2' HOLES, SPILLWAY 0.77 LBS./YD. POWDER FACTOR
130 CU. YDS.	1475' MAYNES 200' UNIGEL	112	0-12	50' SACKS OF MAYNES MIX #1, 2 7/8" HERCULES UNIGEL	3 1/2' HOLES, SPILLWAY 0.73 "/YD.
120 CU. YDS.	800' MAYNES 445' UNIGEL	146	0-12	50' SACKS OF MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, SPILLWAY 0.93 "/YD.
60 CU. YDS.	2100' MAYNES 150' UNIGEL	137	0-12	50' SACKS OF MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, LEFT SIDE OF SPILLWAY, 1.32 "/YD.
30 CU. YDS.	450' MAYNES 650' UNIGEL	105	0-7	50' SACKS OF MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, 1.14 "/YD. POWDER FACTOR
15 CU. YDS.	250' MAYNES 375' UNIGEL	68	0-13	50' SACKS OF MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, 0.55 "/YD.
100 CU. YDS.	2250' MAYNES 250' UNIGEL	127	0-13	50' SACKS OF MAYNES MIX #1, 2 1/2" X 16" AND 2 7/8" UNIGEL	3 1/2' HOLES, 1.04 "/YD.
60 CU. YDS.	3850' MAYNES 200' UNIGEL	116	0-14	50' SACKS OF MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, SPILLWAY 1.19 "/YD.
140 CU. YDS.	2200' MAYNES 225' UNIGEL	99	0-13	50' SACKS OF MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, SPILLWAY 1.01 "/YD.
50 CU. YDS.	1400' MAYNES 350' UNIGEL	116	0-13	50' SACKS OF MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, LEFT SIDE OF SPILLWAY, 1.17 "/YD.
95 CU. YDS.	475' UNIGEL 50' MAYNES	108	0-13	50' SACKS OF MAYNES MIX #1, 2 1/2" X 16" AND 2 7/8" UNIGEL	3 1/2' HOLES, RIGHT SIDE OF SPILLWAY 0.53 "/YD.
11 CU. YDS.	1450' MAYNES 550' UNIGEL	113	0-13	50' SACKS OF MAYNES MIX #1, 2 1/2" X 16" AND 2 7/8" UNIGEL	RT. PRESPLIT LINE OF SPILLWAY, 3 1/2' HOLES 1.25 "/YD.
60 CU. YDS.	3500' MAYNES 150' HERCO MIX 325	124	0-13	50' SACKS OF MAYNES MIX #1, 2 7/8" HERCULES UNIGEL	3 1/2' HOLES, SPILLWAY 1.01 "/YD. POWDER FACTOR
30 CU. YDS.	500' MAYNES 41' UNIGEL	35	0-8	50' SACKS OF MAYNES MIX #1, 2 7/8" HERCULES UNIGEL	3 HOLES, NEXT TO MERCO ON LEFT SIDE OF SPILLWAY, 0.11 "/YD.
34 CU. YDS.	2625' MAYNES 150' UNIGEL	107	0-13	50' SACKS OF MAYNES MIX #1, 2 7/8" HERCULES UNIGEL	3 1/2' HOLES, SPILLWAY
60 CU. YDS.	2400' MAYNES 250' 325 125' UNIGEL	217	0-13	50' SACKS OF MAYNES MIX #1, 2 7/8" HERCO MIX 325, 2 1/2" X 16" UNIGEL	3 1/2' HOLES, SPILLWAY 1.03 "/YD.
11 CU. YDS.	1800' MAYNES 400' UNIGEL 200' 325	220	0-15	50' SACKS OF MAYNES MIX #1, 2 7/8" HERCO MIX 325, 2 1/2" X 16" UNIGEL	3 1/2' HOLES, RIGHT SIDE OF SPILLWAY 0.85 "/YD.
11 CU. YDS.	1800' MAYNES 200' UNIGEL 150' 325	102	0-12	50' SACKS OF MAYNES MIX #1, 2 1/2" X 16" UNIGEL, 2 7/8" UNIGEL	3 1/2' HOLES, RIGHT SIDE OF SPILLWAY 1.07 "/YD.
11 CU. YDS.	1850' MAYNES 150' 325 125' UNIGEL	142	0-11	50' SACKS OF MAYNES MIX #1, 2 7/8" UNIGEL, 2 7/8" HERCO MIX 325	3 1/2' HOLES, OUTLET WORKS RT. PRESPLIT LINE 0.98 "/YD.
11 CU. YDS.	1800' MAYNES 75' 325 425' UNIGEL	153	0-15	50' SACKS MAYNES MIX #1, 2 7/8" 325 HERCO MIX, 2 1/2" X 16" UNIGEL	3 1/2' HOLES, OUTLET WORKS, 0.87 "/YD.
84 CU. YDS.	2400' MAYNES 275' UNIGEL	160	0-13	50' SACKS MAYNES MIX #1, 2 7/8" UNIGEL, 2 1/2" X 16" UNIGEL	3 1/2' HOLES, OUTLET WORKS, 1.08 "/YD.
50 CU. YDS.	2550' MAYNES 275' UNIGEL	166	-	50' SACKS MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, OUTLET WORKS, 1.08 "/YD.
93 CU. YDS.	2100' MAYNES 200' UNIGEL	134	0-10	50' SACKS MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, OUTLET WORKS, 1.01 "/YD.
50 CU. YDS.	1900' MAYNES 150' UNIGEL	108	0-11	50' SACKS MAYNES MIX #1, 2 7/8" HERCULES UNIGEL	3 1/2' HOLES, N. SERVICE RD., 1.17 "/YD.
30 CU. YDS.	1225' MAYNES 1050' UNIGEL	147	0-13	50' SACKS MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, SPILLWAY 0.99 "/YD.
12 CU. YDS.	525' MAYNES 450' UNIGEL	103	0-13	50' SACKS MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, SPILLWAY 0.89 "/YD.
13 CU. YDS.	75' MAYNES 150' UNIGEL	51	0-7	50' SACKS MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, SPILLWAY 0.61 "/YD.
8 CU. YDS.	550' MAYNES 425' UNIGEL	76	0-10	50' SACKS MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, SPILLWAY 0.59 "/YD.
13 CU. YDS.	1150' MAYNES 115' UNIGEL	59	-	50' SACKS MAYNES MIX #1, 2 1/2" X 16" AND 2 7/8" UNIGEL	3 1/2' HOLES, SPILLWAY 1.07 "/YD.
13 CU. YDS.	1350' MAYNES 400' UNIGEL	72	0-9	50' SACKS MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, SPILLWAY 1.26 "/YD.
4 CU. YDS.	2450' MAYNES 200' UNIGEL	43	0-6	50' SACKS MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, 1.15 "/YD. SPILLWAY
10 CU. YDS.	1450' MAYNES 315' UNIGEL	130	0-10	50' SACKS MAYNES MIX #1, 2 7/8" AND 2 1/2" X 16" UNIGEL	3 1/2' HOLES, 0.84 "/YD. SPILLWAY
10 CU. YDS.	3150' MAYNES 1125' UNIGEL	134	0-15	50' SACKS MAYNES MIX #1, 2 1/2" X 16" AND 2 7/8" UNIGEL	3 1/2' HOLES, 1.22 "/YD. SPILLWAY
18 CU. YDS.	1425' MAYNES 231' UNIGEL	98	-	50' SACKS MAYNES MIX #1, 2 1/2" X 16" AND 2 7/8" UNIGEL	3 1/2' HOLES, 1.12 "/YD. SPILLWAY

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	BLASTING SCHEDULE	
Drawn by:			
Checked by:			

7	12/9/82	BETHANY FALLS LIMESTONE	846	73+35-73+85	60' US	PRE-SPLIT	19	8.5'	20'	0	TOTAL	3/4 GRAVEL	272 SO. FT.	400 200 GR. 20' E CORO
8	12/14/82	BETHANY FALLS LIMESTONE	846	73+35-72+75	60' DS TO 40' DS	PRE-SPLIT	28	14'-19'	20'	0	TOTAL	3/4 GRAVEL	850 SO. FT.	500 200 GR. 60' E CORO
9	12/14/82	BETHANY FALLS LIMESTONE	841	72+75	45' US TO 60' US	PRE-SPLIT	12	8'-12'	20'	0	TOTAL	3/4 GRAVEL	1146 SO. FT.	850 200 GR. 75' E CORO
10	12/16/82	WINTERSET		17+50-18+70	LEFT SIDE	PRE-SPLIT	72	12'-16'	0	20'-36'	TOTAL	3/4 GRAVEL	200 SO. FT.	250 200 GR. 25' E CORO
1	1/12/82	BETHANY FALLS LIMESTONE	854	99+85-99+20	100' US TO 65' DS	PRE-SPLIT	84	8'-14'	10'-8'	7'-6'	TOTAL	3/4 GRAVEL	2271 SO. FT.	1700 200 GR. 500' E CORO
2	1/13/82	BETHANY FALLS LIMESTONE	855	14+80-14+50	€ TO 115' RT.	PRODUCTION	43	7'-11'	9'	7'	TOTAL	3/4 GRAVEL	1150 CU. YDS.	1275* MAYNES 181' UNG
3	1/14/82	BETHANY FALLS LIMESTONE	855	14+80-14+50	€ T.O. 90' LT.	PRODUCTION	42	5'-9'	9'	7'	TOTAL	3/4 GRAVEL	920 CU. YDS.	500* MAYNES 112* UNG
4	1/18/82	BETHANY FALLS LIMESTONE	855	15+75-15+10	100' LT. TO 100' RT.	PRODUCTION	143	16'	10'	7'	TOTAL	3/4 GRAVEL	595 CU. YDS.	450* MAYNES 50* UNG
5	1/18/82	BETHANY FALLS LIMESTONE	860	15+75-16+25	100' LT. TO 100' RT.	PRODUCTION	54	18.5'	16'	12'	TOTAL	3/4 GRAVEL	7100 CU. YDS.	5050* MAYNES 400' UNG
6	12/28/82	SHABAR	832	99+26	97' US TO 72' DS	PRODUCTION	60	7.5'	7'	5'	TOTAL	3/4 GRAVEL	6465 CU. YDS.	6500* MAYNES 100' UNG
7	12/13/82	BETHANY FALLS LIMESTONE		16+25-16+73	100' LT. TO 108' RT.	PRODUCTION	42-29	19'-19'	16'-10'	12'-7'	TOTAL	3/4 GRAVEL	798 CU. YDS.	425* UNGEL
8	12/14/82	BETHANY FALLS LIMESTONE	842-836	72+75-73+85	60' US TO 60' DS	PRODUCTION	127	6'-14'	9'	7'	TOTAL	3/4 GRAVEL	7000 CU. YDS.	5815* MAYNES 50* UNG
9	12/20/82	WINTERSET		17+50-17+90	108' LT. TO €	PRODUCTION	129	5/2'-8'	7'-10'	6'	TOTAL	3/4 GRAVEL	2900 CU. YDS.	2000* MAYNES 550* UNG
10	12/22/82	WINTERSET		17+90-18+35	120' LT. TO €	PRODUCTION	137	8.7'	7'-10'	6'	TOTAL	3/4 GRAVEL	1360 CU. YDS.	1450* MAYNES 700' UNG
11	12/23/82	WINTERSET		18+35-18+90	30' LT. TO 120' LT.	PRODUCTION	91	10'	10'	6'	TOTAL	3/4 GRAVEL	2665 CU. YDS.	2400* MAYNES 475* UNG
12	12/23/82	WINTERSET		18+35-18+90	30' LT. TO 120' LT.	PRODUCTION	91	10'	10'	6'	TOTAL	3/4 GRAVEL	1978 CU. YDS.	1750* MAYNES 125* UNG
13	1/12/83	BETHANY FALLS LIMESTONE		72+75	50'-115' DS	PRE-SPLIT	32	6'-15'	2'		TOTAL	3/4 GRAVEL	480 SO. FT.	600 200 GRAIN 70' E CORO
14	1/25/83	SHABAR	828.5	73+15-73+80	20' LT. TO 20' RT.	PRE-SPLIT	139	9'	20'		TOTAL	3/4 GRAVEL	2115 SO. FT.	1700 200 GRAIN 250' E C
15	1/28/83	SHABAR		74+00	45'-157' DS	PRE-SPLIT	67	9'	20'		TOTAL	3/4 GRAVEL	1008 SO. FT.	1000 200 GRAIN 150' E C
16	2/4/83	BETHANY FALLS LIMESTONE	841	72+50	121 US TO 73 DS	PRE-SPLIT	96	18'	2'		TOTAL	3/4 GRAVEL	3456 SO. FT.	2100 200 GRAIN 200' E C
17	3/10/83	WINTERSET		18+32-19+41	LEFT SIDE	PRE-SPLIT	39	14'	30'		TOTAL	3/4 GRAVEL	1350 SO. FT.	1500 200 GRAIN 110' E C
18	3/18/83	WINTERSET		18+00-20+80	LEFT SIDE	PRE-SPLIT	94	5'-11 1/2'	30'		TOTAL	3/4 GRAVEL	2940 SO. FT.	2000 200 GRAIN
19	3/23/83	WINTERSET		20+80-22+70	RIGHT SIDE	PRE-SPLIT	51	8'-15'	30'		TOTAL	3/4 GRAVEL	1500 SO. FT.	850 200 GRAIN 150' E CO
20	3/23/83	WINTERSET		20+80-22+70	RIGHT SIDE	PRE-SPLIT	51	8'-15'	30'		TOTAL	3/4 GRAVEL	1500 SO. FT.	850 200 GRAIN 150' E CO
21	3/28/83	PLEASANTON	785	52+47-51+06		PRE-SPLIT	53	12'	2'-3'		TOTAL	3/4 GRAVEL	1692 SO. FT.	1350 200 GRAIN 150' E C
22	3/31/83	PLEASANTON	785	51+06-47+00	75+03 DAM AXIS	PRE-SPLIT	155	12'	2'-2 1/2'		TOTAL	3/4 GRAVEL	4872 SO. FT.	4000 200 GRAIN
23	4/15/83	PLEASANTON		11+88-10+50		PRE-SPLIT	46	12'	2 1/2'-3'		TOTAL	3/4 GRAVEL	1656 SO. FT.	1500 200 GRAIN 780' E CO
24	4/15/83	PLEASANTON		10+50-9+48		PRE-SPLIT	25	12'	30'		TOTAL	3/4 GRAVEL	780 SO. FT.	1430 200 GRAIN
25	4/26/83	BETHANY FALLS LIMESTONE		12+88-14+02	RIGHT SIDE	PRE-SPLIT	35	7'-13'	2'-3'		TOTAL	3/4 GRAVEL	756 SO. FT.	400 200 GRAIN 300' E CO
26	5/5/83	BETHANY FALLS LIMESTONE		14+05-16+08	195' RT. OF €	PRE-SPLIT	55	12'-20'	2 1/2'-3'		TOTAL	3/4 GRAVEL	2288 SO. FT.	400 200 GRAIN 950' E CO
27	5/9/83	BETHANY FALLS LIMESTONE		16+09-17+00	195' RT. OF €	PRE-SPLIT	26	20'	30'		TOTAL	3/4 GRAVEL	1900 SO. FT.	325 200 GRAIN 360' E CO
28	5/17/83	BETHANY FALLS LIMESTONE		25+18-24+50	195' RT. OF €	PRE-SPLIT	23	18'	2 1/2'-3'		TOTAL	3/4 GRAVEL	1224 SO. FT.	700 200 GRAIN 275' E CO
29	5/19/83	BETHANY FALLS LIMESTONE		24+50-23+05	195' RT. OF €	PRE-SPLIT	47	21'	3'		TOTAL	3/4 GRAVEL	2861 SO. FT.	1250 E CORO 225* HERCO
30	5/23/83	BETHANY FALLS LIMESTONE		20+70-20+30	210' LT. OF €	PRE-SPLIT	63	18'	2 1/2'-3'		TOTAL	3/4 GRAVEL	3150 SO. FT.	1512 200 GRAIN 515' E CO
31	5/24/83	BETHANY FALLS LIMESTONE		21+70-20+00	210' LT. OF €	PRE-SPLIT	14	22'	2 1/2'-3'		TOTAL	3/4 GRAVEL	814 SO. FT.	460 200 GRAIN 125' E CO
32	6/1/83	BETHANY FALLS LIMESTONE		15+35-17+00	210' LT. OF €	PRE-SPLIT	82	13.3'	30'		TOTAL	3/4 GRAVEL	2127 SO. FT.	2400 200 GRAIN 220' E CO
33	7/22/83	BETHANY FALLS LIMESTONE		16+93-18+00	210' LT. OF €	PRE-SPLIT	52	21'	2 1/2'-3'		TOTAL	3/4 GRAVEL	2919 SO. FT.	1700 200 GRAIN 600' E CO
34	7/26/83	BETHANY FALLS LIMESTONE		17+00-18+00	195' RT. OF €	PRE-SPLIT	25	21'	3'		TOTAL	3/4 GRAVEL	1675 SO. FT.	120* HERCOSPLIT
12	1/4/83	WINTERSET		18+90-19+50	30' RT. OF PRE-SPL.	PRODUCTION	112	7.3'	7'-10'	5'-6'	TOTAL	3/4 GRAVEL	1232 CU. YDS.	1100* MAYNES 175* UNGEL
13	1/5/83	WINTERSET		17+40-17+80	90' LT. OF €	PRODUCTION	118	5.6'	7'	5'-7'	TOTAL	3/4 GRAVEL	820 CU. YDS.	600* UNGEL 15* MAYNES
14	1/6/83	WINTERSET		17+90-18+70	€ TO 100' LT.	PRODUCTION	157	9.1'	10'	6'-7'	TOTAL	3/4 GRAVEL	3400 CU. YDS.	2800* MAYNES 550* UNGEL
15	1/7/83	WINTERSET		18+70-19+50	100' 200' LT. OF PRE-SPL.	PRODUCTION	128	7'-10 1/2'	9'-10'	5'-10'	TOTAL	3/4 GRAVEL	2900 CU. YDS.	2325* MAYNES 175* UNGEL
16	1/7/83	BETHANY FALLS LIMESTONE		32+75-91+70	40' DS TO 130' DS	PRODUCTION	122	8'	9'	6'	TOTAL	3/4 GRAVEL	2560 CU. YDS.	1150* MAYNES 175* UNGEL
17	1/7/83	WINTERSET		19+50	100'-200' RT. OF LT. PRE-SPL.	PRODUCTION	172	6.4'	6'-9'	5 1/2'	TOTAL	3/4 GRAVEL	2300 CU. YDS.	1475* MAYNES 200* UNGEL
18	1/18/83	WINTERSET		17+50-18+00	200'-300' RT. OF LT. PRE-SPL.	PRODUCTION	146	5 1/2'-7'	7'-9'	5'	TOTAL	3/4 GRAVEL	1320 CU. YDS.	800* MAYNES 445* UNGEL
19	1/20/83	WINTERSET		18+00-18+60	200'-300' RT. OF LT. PRE-SPL.	PRODUCTION	137	9'	9'-10'	6'	TOTAL	3/4 GRAVEL	2160 CU. YDS.	2700* MAYNES 150* UNGEL
20	1/31/83	SHABAR		73+74+25	35' DS TO 60' US	PRODUCTION	105	6.5'			TOTAL	3/4 GRAVEL	820 CU. YDS.	450* MAYNES 650* UNGEL
21	2/2/83	SHABAR		74+00-74+27	30'-155' DS	PRODUCTION	68	7'	7'	5'	TOTAL	3/4 GRAVEL	1135 CU. YDS.	250* MAYNES 375* UNGEL
22	2/8/83	BETHANY FALLS LIMESTONE		72+50-72+75	120' US TO 80' DS	PRODUCTION	127	7'-14'			TOTAL	3/4 GRAVEL	2400 CU. YDS.	2250* MAYNES 250* UNGEL
23	2/10/83	WINTERSET		18+50-19+25	50' LT TO 50' RT OF €	PRODUCTION	116	12.3'	10'	7'	TOTAL	3/4 GRAVEL	3400 CU. YDS.	3850* MAYNES 200* UNGEL
24	2/11/83	WINTERSET		19+75-20+25	200'-300' RT. OF PRE-SPL.	PRODUCTION	99	10.2'	10'	7'	TOTAL	3/4 GRAVEL	2390 CU. YDS.	2200* MAYNES 225* UNGEL
25	2/22/83	WINTERSET		20+00-20+50	200'-300' LT. OF PRE-SPL.	PRODUCTION	176	6.6'	6'	7'	TOTAL	3/4 GRAVEL	1660 CU. YDS.	1400* MAYNES 550* UNGEL
26	2/25/83	WINTERSET		17+50-18+00	60' LT. TO 155' LT.	PRODUCTION	108	6.2'	7'	5'	TOTAL	3/4 GRAVEL	995 CU. YDS.	475* UNGEL 50* MAYNES
27	3/1/83	WINTERSET		18+00-18+55	70' RT. TO 170' RT. OF PRESSPLIT	PRODUCTION	113	8.1'	9'	6'	TOTAL	3/4 GRAVEL	1620 CU. YDS.	1450* MAYNES 550* UNGEL
28	3/3/83	WINTERSET		18+60-19+25		PRODUCTION	124	11.0'	10'	7'	TOTAL	3/4 GRAVEL	3600 CU. YDS.	3500* MAYNES 1500* HERCO
29	3/11/83	WINTERSET		18+30-19+60		PRODUCTION	35	5'-11'	7'	5'	TOTAL	3/4 GRAVEL	760 CU. YDS.	500* MAYNES 41* UNGEL
30	3/17/83	WINTERSET		19+50-20+00	€ TO 100' RT.	PRODUCTION	107	10.7'	10'	6'	TOTAL	3/4 GRAVEL	2354 CU. YDS.	2625* MAYNES 150* UNGEL
31	3/15/83	WINTERSET		20+50-21+50	100' RT TO €	PRODUCTION	217	6.8'	9'	6'	TOTAL	3/4 GRAVEL	2700 CU. YDS.	2400* MAYNES 250* 325
32	3/24/83	WINTERSET		21+50-22+50	10' 150' LT OF PRE-SPL.	PRODUCTION	220	6.2'	8'	6'	TOTAL	3/4 GRAVEL	2600 CU. YDS.	1600* MAYNES 400* UNGEL
33	3/25/83	WINTERSET		21+50-22+50	RT. SIDE TO 122' RT.	PRODUCTION	102	8'	9'	6'	TOTAL	3/4 GRAVEL	1128 CU. YDS.	1500* MAYNES 200* UNGEL
34	3/29/83	PLEASANTON	785	52+47-51+06	EDGE TO 85' LT.	PRODUCTION	142	8'	9'	6'	TOTAL	3/4 GRAVEL	2281 CU. YDS.	1950* MAYNES 150* 325
35	4/6/83	PLEASANTON	785	47+50-49+00	75+00-76+00 DAM STA J	PRODUCTION	153	8'	9'	6'	TOTAL	3/4 GRAVEL	2400 CU. YDS.	1900* MAYNES 75* 325 42
36	4/7/83	PLEASANTON	785	49+08-50+05	75+00-75+95 DAM STA J	PRODUCTION	160	8'	9'	6'	TOTAL	3/4 GRAVEL	2400 CU. YDS.	2400* MAYNES 275* UNGEL
37	4/8/83	PLEASANTON	785	50+00-50+90	75+00-76+00	PRODUCTION	166	8'	9'	6'	TOTAL	3/4 GRAVEL	2750 CU. YDS.	2650* MAYNES 275* UNGEL
38	4/7/83	PLEASANTON	785	50+90-51+62		PRODUCTION	134	8'	9'	6'	TOTAL	3/4 GRAVEL	2280 CU. YDS.	2100* MAYNES 200* UNGEL
39	4/7/83	PLEASANTON		11+85-10+00		PRODUCTION	109	8'	9'	6'	TOTAL	3/4 GRAVEL	1750 CU. YDS.	1900* MAYNES 150* UNGEL
40	4/20/83	PLEASANTON		19+50-21+00		PRODUCTION	147	8'	9'	6'	TOTAL	3/4 GRAVEL	2400 CU. YDS.	1225* MAYNES 1050* UNGEL
41	4/21/83	PLEASANTON		19+50-18+50		PRODUCTION	103	6.5'	8'	6'	TOTAL	3/4 GRAVEL	1692 CU. YDS.	525* MAYNES 450* UNGEL
42	4/25/83	PLEASANTON		19+50-18+50		PRODUCTION	57	5'	7'	5'	TOTAL	3/4 GRAVEL	360 CU. YDS.	75* MAYNES 150* UNGEL
43	5/3/83	BETHANY FALLS LIMESTONE		13+12-13+75	195' TO 95' RT. €	PRODUCTION	76	9'	8'	6'	TOTAL	3/4 GRAVEL	2016 CU. YDS.	550* MAYNES 625* UNGEL
44	5/3/83	BETHANY FALLS LIMESTONE		14+02-14+50	195' TO 100' RT. €	PRODUCTION	59	12'	10'	6'	TOTAL	3/4 GRAVEL	1150 CU. YDS.	1700* MAYNES 175* UNGEL
45	5/10/83	BETHANY FALLS LIMESTONE		14+50-15+30	195' TO 110' RT. €	PRODUCTION	72	15'	10'	7'	TOTAL	3/4 GRAVEL	2940 CU. YDS.	3300* MAYNES 400* UNGEL
46	5/17/83	BETHANY FALLS LIMESTONE		15+30-16+00	195' TO 110' RT. €	PRODUCTION	43	16'	10'	8'	TOTAL	3/4 GRAVEL	2314 CU. YDS.	2450* MAYNES 200* UNGEL
47	6/2/83	BETHANY FALLS LIMESTONE		15+35-15+75	210' TO 90' LT. €	PRODUCTION	1							

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BLUE SPRINGS DAM BLASTING

SHOT NO.	DATE	GEOLOGIC LOCATION	ELEV.	LOCATION		PURPOSE	NO. OF HOLES	DEPTH (FT.)	SPACING (FT.)	BURDEN (FT.)	STEM (FT.)	SHOT VOL.	EXPLOSIVES
				STATION	RANGE								
50	6/16/83	BETHANY FALLS		23+00	30' LT. TO 10' RT. E	PRODUCTION	116	17'	10'	7'	4'	5415 CU. YDS.	4100* MAYNES 900* UNIGEL
51	6/20/83	BETHANY FALLS		25+50-24+50	EDGE TO 150' LT. PRESPLIT	PRODUCTION	91	18'	10'	7'	4'	3715 CU. YDS.	12300* MAYNES 375* UNIGEL
52	6/22/83	BETHANY FALLS		23+50-24+50	EDGE TO 170' RT.	PRODUCTION	86	19'	10'	7'	4'	4316 CU. YDS.	14050* MAYNES 850* UNIGEL
53	6/24/83	BETHANY FALLS		24+00-23+50	EDGE TO 60' RT.	PRODUCTION	44	19'	10'	7'	4'	2318 CU. YDS.	2050* MAYNES 350* UNIGEL
54	7/1/83	BETHANY FALLS		22+50-22+00	30'-110' LT. E	PRODUCTION	82	18'	10'	7'	4'	3780 CU. YDS.	3225* MAYNES 900* UNIGEL
55	7/7/83	BETHANY FALLS		22+00		PRODUCTION	100	18'	10'	7'	4'	5022 CU. YDS.	14625* MAYNES 475* UNIGEL
56	7/13/83	BETHANY FALLS		20+50-21+50		PRODUCTION	127	17'	10'	7'	3/2'	5950 CU. YDS.	15650* MAYNES 175* UNIGEL
57	7/15/83	BETHANY FALLS		21+15-20+50	EDGE TO 110' RT.	PRODUCTION	72	18'	10'	7'	4'	4250 CU. YDS.	4200* MAYNES 100* UNIGEL
58	7/19/83	BETHANY FALLS		23+30-23+80	5' TO 100' LT. OF PRESPLIT	PRODUCTION	89	20'	10'	7'	4'	4433 CU. YDS.	14600* MAYNES 750* UNIGEL
59	7/25/83	BETHANY FALLS		23+30-23+80	E TO 100' RT.	PRODUCTION	77	21'	10'	7'	3/2'	4900 CU. YDS.	4225* MAYNES 500* UNIGEL
60	7/29/83	BETHANY FALLS		16+20-17+20	195' TO 110' LT. E	PRODUCTION	89	22'	10'	7'	3/2'	4360 CU. YDS.	5350* MAYNES 205* UNIGEL
61	8/2/83	BETHANY FALLS		17+00-17+43	130' TO 40' LT. E	PRODUCTION	90	22'	10'	7'	3/2'	5133 CU. YDS.	5800* MAYNES 115* UNIGEL
62	8/4/83	BETHANY FALLS			165' RT. OF RT. PRESPLIT TO 60' LT. E	PRODUCTION	94	22'	10'	7'	3/2'	5544 CU. YDS.	5450* MAYNES 115* UNIGEL
63	8/8/83	BETHANY FALLS		17+00-17+50	80'-170' LT. OF RT. PRESPLIT	PRODUCTION	130	22.5'	10'	7'	3/2'	6750 CU. YDS.	8900* MAYNES 150* UNIGEL
64	8/11/83	BETHANY FALLS		16+75 17+75	EDGE TO 64' LT.	PRODUCTION	108	22.5'	10'	7'	3/2'	7300 CU. YDS.	7150* MAYNES 150* UNIGEL
65	8/15/83	BETHANY FALLS		22+00	10' TO 100' RT. E	PRODUCTION	89	22'	10'	7'	3/2'	5166 CU. YDS.	6100* MAYNES 260* UNIGEL
66	8/17/83	BETHANY FALLS		20+50-20+00	70' LT TO 50' RT E	PRODUCTION	82	21.5'	10'	8'	3/2'	5160 CU. YDS.	5500* MAYNES 100* UNIGEL
67	8/19/83	BETHANY FALLS		20+00-20+40	50' TO 110' RT.	PRODUCTION	58	21.5'	10'	9'	3/2'	4379 CU. YDS.	4000* MAYNES 75* UNIGEL
1	8/22/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	12+72-15+65	195 RT. E	PRE-SPLIT	114	7'-12'	2'			2280 SO. FT.	1500* 200 GR. 250' E CORD.
2	8/24/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	15+65-17+00	195 RT. E	PRE-SPLIT	49	12'	2'			1152 SO. FT.	1200* 200 GR. 100' E CORD.
3	8/27/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	866	18+00-18+50	195 RT. E	PRE-SPLIT	12	23' x	2 1/2'			690 SO. FT.	600* 200 GR. 40' E CORD.
4	10/1/84	BETHANY FALLS	864	18+54-20+42		PRE-SPLIT	52	22'	2 1/2'			2860 SO. FT.	2500* 200 GR. 140' E CORD.
5	10/2/84	BETHANY FALLS	864	20+42-21+75		PRE-SPLIT	50	22'	2 1/2'			2150 SO. FT.	2300* 200 GR.
6	10/4/84	BETHANY FALLS	864	21+75-23+15	195 RT. E	PRE-SPLIT	54	21'	30'			2835 SO. FT.	2500* 200 GR. 160' E CORD.
7	11/2/84	BETHANY FALLS	864	17+50-18+28	210' LT. OF E	PRE-SPLIT	32	22'	30'			1716 SO. FT.	1600* 200 GR. 100' E CORD.
8	11/7/84	BETHANY FALLS	864	18+28-19+10	210' LT. OF E	PRE-SPLIT	29	21'	30'			1525 SO. FT.	1500* 200 GR. 100' E CORD.
9	11/13/84	BETHANY FALLS	864	19+00-20+00	210' LT. OF E	PRE-SPLIT	21	21'	30'			2667 SO. FT.	2350* 200GR. 190' E CORD.
10	11/24/84	BETHANY FALLS	854	25+40-25+52	195 RT. OF E	PRE-SPLIT	6	12'	2'			192 SO. FT.	150* 200 GR. 15' E CORD.
11	12/1/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	23+50-24+83	182' RT. OF E	PRE-SPLIT	57	16'	2'			1922 SO. FT.	1800* 200 GR. 130' E CORD.
12	12/7/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	24+83-26+05	182' RT. OF E	PRE-SPLIT	61	16'	2'			1708 SO. FT.	1500* 200 GR. 130' E CORD.
13	12/11/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	17+00-16+01	197' LT. OF E	PRE-SPLIT	65	16'	2'			2044 SO. FT.	2200* 200 GR. 135' E CORD.
14	12/12/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	16+01-15+42	197' LT. OF E	PRE-SPLIT	36	16'	2'			1152 SO. FT.	1100* 200 GR. 100' E CORD.
15	12/13/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	15+42-15+38	197' LT. OF E	PRE-SPLIT	13	16'	2'			416 SO. FT.	400* 200 GR. 35' E CORD.
1	8/25/84	SNABAR	834	12+16-13+10	195' TO 100' RT. E	PRODUCTION	92	7.5'	7'	5'	2 1/2'	720 CU. YDS.	1000* MAYNES 105* UNIGEL
2	8/28/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	838	13+15-13+40	185' TO 60' RT. E	PRODUCTION	87	7.5'	7'	5'	3/2'	900 CU. YDS.	850* MAYNES 105* UNIGEL
3	8/31/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	841	13+40-14+00	E TO 195 RT.	PRODUCTION	157	8'-12'	7'	6'	3/2'	1900 CU. YDS.	2300* MAYNES 190* UNIGEL
4	9/6/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	841	14+50-14+90	E TO 195 RT.	PRODUCTION	131	9'-13'	7'	6'	4'	2020 CU. YDS.	2000* MAYNES 175* UNIGEL
5	9/11/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	14+70-15+00	E TO 195 RT.	PRODUCTION	155	10'-12'	7'	6'	5'	2508 CU. YDS.	2400* MAYNES 400* UNIGEL
6	9/13/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	841	15+30-15+50	E TO 195 RT.	PRODUCTION	125	11.5'	7'	6'	5'	2150 CU. YDS.	2350* MAYNES 220* UNIGEL
7	9/20/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	15+42-15+75	E TO 195 RT.	PRODUCTION	122	11.5'	7'	6'	5'	2108 CU. YDS.	2150* MAYNES 200* UNIGEL
8	9/22/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	843	15+85-16+13	E TO 185' LT.	PRODUCTION	122	11.5'	7'	6'	5'	2108 CU. YDS.	2100* MAYNES 250* UNIGEL
9	9/26/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	843	16+13-16+45	E TO 195 RT.	PRODUCTION	121	12'	7'	6'	5'	2200 CU. YDS.	2250* MAYNES 250* UNIGEL
10	10/8/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	15+50-16+50	E TO 30' LT.	PRODUCTION	69	12'	7'	6'	5'	1213 CU. YDS.	1525* MAYNES 113* UNIGEL
11	10/10/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	15+50-16+50	30' LT. TO 60' LT.	PRODUCTION	70	13'	7'	6'	5'	1312 CU. YDS.	1150* MAYNES 150* UNIGEL
12	10/12/84	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	15+50-16+50	60'-90' LT.	PRODUCTION	72	12.5'	7'	6'	5'	1400 CU. YDS.	1350* MAYNES 300* UNIGEL
13	11/5/84	BETHANY FALLS	864	17+15-18+25	110' TO 195' RT.	PRE-SPLIT	45	21'	9'	8'	3/2'	2200 CU. YDS.	1700* 16.2 300* UNWHITE
16	4/12/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	840	15+45-14+65	E TO 197' LT.	PRE-SPLIT	36	14'	2'	0'	3/2'	900 CU. YDS.	1000* 200 GR. 100' E CORD.
14	4/21/85	SNABAR	832	15+00-16+00	50' LT TO E	PRODUCTION	75	6'	6'	4'		850 CU. YDS.	1025* MAYNES 130* UNIGEL
15	4/18/85	SNABAR	835	15+00-16+00	70' LT TO E	PRODUCTION	97	6'-11'	5'	5'	3/2'	1260 CU. YDS.	1200* MAYNES 100* UNIGEL
16	4/19/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	0940	15+00-16+00	95' LT TO E	PRODUCTION	60	10'	8'	5'	4'	815 CU. YDS.	1025* MAYNES 65* UNIGEL
17	4/24/85	BETHANY FALLS	921	17+20-17+40	120' LT. E	PRODUCTION	42	21'	10'	8'	8'	2315 CU. YDS.	1650* MAYNES 74* UNWHITE
18	5/3/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	840	17+00-16+50	140' LT. TO E	PRODUCTION	32	12'-14'	8'	5'	4'	540 CU. YDS.	700* MAYNES 40* UNIGEL
19	5/22/85	BETHANY FALLS	863	17+50-18+00	100' LT. TO E	PRODUCTION	44	21'	10'	8'	4'	2695 CU. YDS.	1720* MAYNES 96* UNWHITE
-	6/25/86	BOULDERS	-	07+00-17+50	LT. TO E	-	67	8'x2'	-	-	-	-	3* HERCUSPLIT 5.5* UNIGEL
-	6/26/86	BOULDERS	-	17+00-17+50	100' RT. TO E	-	20	-	-	-	-	-	4* UNIGEL
20	6/27/86	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	?	26+00-25+60	112' RT. OF E	PRODUCTION	91	9'	7'	5'	4'	911 CU. YDS.	400* MAYNES 150* UNWHITE
21	7/1/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	837-840	25+50-25+00	105' RT. TO E	PRODUCTION	79	9'-12'	7'	5'	4'	1070 CU. YDS.	900* MAYNES 356* UNIGEL
22	7/3/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	0840	25+00-24+50	108' RT. TO E	PRODUCTION	76	12'	8'	6'	4'	1365 CU. YDS.	1000* MAYNES 210* UNIGEL
23	7/5/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	841	24+12-24+48	106 RT. TO E	PRODUCTION	57	13.5'	8'	6'	4'	1152 CU. YDS.	1100* MAYNES 70* UNIGEL
24	9/12/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	842	23+75-24+10	112 RT. TO E	PRODUCTION	59	12.5'	8'	6'	-	1070 CU. YDS.	1125* MAYNES 66* UNIGEL
25	9/16/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	942	23+25-23+70	100 RT. TO E	PRODUCTION	69	12.5'	8'	6'	4'	1263 CU. YDS.	1025* MAYNES 400* UNIGEL
26	9/18/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	837	24+50-24+00	100 RT. TO E	PRODUCTION	108	8-11'	7'	5'	4'	1404 CU. YDS.	1100* MAYNES 100* UNIGEL
27	9/20/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	836	24+00-24+50	25 RT. TO E	PRODUCTION	104	9-11'	7'	5'	4'	1120 CU. YDS.	1100* MAYNES 100* UNIGEL
28	9/26/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	938	24+00-25+00	80 RT. TO E	PRODUCTION	61	5-13'	7.8'	5'		1000 CU. YDS.	1100* MAYNES 100* UNIGEL
29	10/2/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	935	24+00-24+30	RT. OF E	PRODUCTION	46	8'	7'	5'		480 CU. YDS.	450* MAYNES 75* UNIGEL
30	10/3/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	935	24+00-23+50	80 RT. TO E	PRODUCTION	72	7-9'	7'	5'		810 CU. YDS.	850* MAYNES 66* UNIGEL
31	10/12/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	935	24+00-23+75	40 RT. TO E	PRODUCTION	72	10'	8'	5'		815 CU. YDS.	900* MAYNES 16* UNIGEL
32	10/18/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	935	24+00-23+75	RT. OF E	PRODUCTION	35	10.5'	8'	5'		535 CU. YDS.	1000* MAYNES 40* UNIGEL
33	10/17/85	HUSPUCKEYN MIDDLE CREEK LADORE & SNABAR	935	23+00-22+50	RT. OF E	PRODUCTION	86	11'	8'	5'		1470 CU. YDS.	1650* MAYNES 100* UNIGEL

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VALUE ENGINEERING PAYS

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BLASTING REPORT

SHOT VOL.	EXPLOSIVES (LBS.)	NO. OF CAPS	DELAYS IN MIL/SEC	CARTRIDGE STRENGTH	REMARKS
5415 CU. YDS.	4100* MAYNES 900* UNIGEL	116	0-11	50* SACKS MAYNES MIX #1, 2 1/2"x16" AND 2"x8" UNIGEL	3/2" HOLES, 0.92"/YD, SPILLWAY
5416 CU. YDS.	2300* MAYNES 375* UNIGEL	91	0-9	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, RT. PRESPLIT SPILLWAY, 0.71"/YD.
4376 CU. YDS.	4050* MAYNES 550* UNIGEL	86	0-10	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, 1.05"/YD, SPILLWAY
4318 CU. YDS.	2050* MAYNES 350* UNIGEL	44	0-7	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, 1.04"/YD, SPILLWAY
3780 CU. YDS.	4,25* MAYNES 900* UNIGEL	82	0-10	50* SACKS MAYNES MIX #1, 2 1/2"x16" AND 2"x8" UNIGEL	3/2" HOLES, 1.09"/YD, SPILLWAY
3022 CU. YDS.	4,25* MAYNES 475* UNIGEL	100	0-10	50* SACKS MAYNES MIX #1, 2 1/2"x16" AND 2"x8" UNIGEL	3/2" HOLES, SPILLWAY 1.02"/YD.
3950 CU. YDS.	5650* MAYNES 175* UNIGEL	127	0-10	50* SACKS MAYNES MIX #1, 2 1/2"x16" AND 2"x8" UNIGEL	3/2" HOLES, SPILLWAY 0.98"/YD.
1250 CU. YDS.	4200* MAYNES 100* UNIGEL	72	0-10	50* SACKS MAYNES MIX #1, 2"x8" UNIGEL	3/2" HOLES LEFT PRESPLIT OF SPILLWAY 1.01"/YD.
1433 CU. YDS.	4600* MAYNES 750* UNIGEL	88	3-8	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, RIGHT PRESPLIT, 1.21"/YD, SPILLWAY
1900 CU. YDS.	4225* MAYNES 500* UNIGEL	77	0-9	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, SPILLWAY 0.96"/YD.
1360 CU. YDS.	5350* MAYNES 205* UNIGEL	90	0-9	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" HERCULES UNIGEL	3/2" HOLES, 1.27"/YD, SPILLWAY
133 CU. YDS.	5800* MAYNES 115* UNIGEL	90	0-9	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, 1.15"/YD, SPILLWAY
1544 CU. YDS.	5450* MAYNES 115* UNIGEL	94	0-9	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, 1"/YD, SPILLWAY
750 CU. YDS.	8900* MAYNES 150* UNIGEL	130	0-12	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, 1.34"/YD, SPILLWAY
330 CU. YDS.	7150* MAYNES 150* UNIGEL	109	0-12	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" HERCULES UNIGEL	3/2" HOLES, 1.19"/YD, RIGHT PRESPLIT OF SPILLWAY
166 CU. YDS.	6100* MAYNES 260* UNIGEL	90	0-11	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, 1.23"/YD, SPILLWAY
160 CU. YDS.	5500* MAYNES 100* UNIGEL	83	0-11	50* SACKS MAYNES MIX #1, 2"x8" AND 2 1/2"x16" UNIGEL	3/2" HOLES, 1.07"/YD, SPILLWAY
319 CU. YDS.	4000* MAYNES 75* UNIGEL	60	0-9	50* SACKS OF MAYNES MIX #1, 2"x8" HERCULES UNIGEL	3/2" HOLES, 0.93"/YD, SPILLWAY
280 SO. FT.	3500* 200 GR. 250' E. CORD.	1	0	HENSIGN BICKFORD PRIMACORD	3" HOLES, SPILLWAY
152 SO. FT.	1200* 200 GR. 100' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
690 SO. FT.	1600* 200 GR. 40' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
860 SO. FT.	2800* 200 GR. 140' E. CORD.	1	12	PRIMACORD	3" HOLES, SPILLWAY
1750 SO. FT.	2300* 200 GR.	1	12	PRIMACORD	3" HOLES, SPILLWAY
3035 SO. FT.	2500* 200 GR. 160' E. CORD 2.4" HERCOSPPLIT	1	12	PRIMACORD, 1/2" HERCULES HERCOSPPLIT	3" HOLES, RIGHT SIDE OF SPILLWAY
116 SO. FT.	1600* 200 GR. 100' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
525 SO. FT.	11600* 200 GR. 100' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
107 SO. FT.	1350* 200 GR. 100' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
192 SO. FT.	1150* 200 GR. 15' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
322 SO. FT.	11800* 200 GR. 130' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
708 SO. FT.	11650* 200 GR. 130' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
544 SO. FT.	2200* 200 GR. 135' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
152 SO. FT.	11100* 200 GR. 100' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
116 SO. FT.	400* 200 GR. 35' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY
20 CU. YDS.	850* MAYNES 105* UNIGEL	92	0-10	50* SACKS MAYNES MIX #1, 2"x8" UNIGEL	3/2" HOLES, RT. SIDE OF SPILLWAY, 1.31"/YD.
40 CU. YDS.	850* MAYNES 105* UNIGEL	87	0-10	50* SACKS OF MAYNES MIX #1, 2"x8" HERCULES UNIGEL	3" HOLES, SPILLWAY 1.05"/YD, POWDER FACTOR
100 CU. YDS.	2350* MAYNES 190* UNIGEL	151	0-10	50* SACKS MAYNES MIX #1, 2 1/2"x16" & 2"x8" UNIGEL	3" HOLES, SPILLWAY
140 CU. YDS.	2000* MAYNES 175* UNIGEL	131	0-14	50* SACKS MAYNES MIX #1, 2 1/2"x16" & 2"x8" UNIGEL	3" HOLES, RT. SIDE OF SPILLWAY, 1.03"/YD.
109 CU. YDS.	2400* MAYNES 400* UNIGEL	155	0-13	50* SACKS MAYNES MIX #1, 2 1/2"x16" & 2"x8" UNIGEL	3" HOLES, RT. SIDE OF SPILLWAY, 1.12"/YD.
74 CU. YDS.	2350* MAYNES 225* UNIGEL	125	0-15	50* SACKS MAYNES MIX #1, 2 1/2"x16" & 2"x8" UNIGEL	3" HOLES, SPILLWAY 1.2"/YD.
68 CU. YDS.	2150* MAYNES 200* UNIGEL	122	0-13	50* SACKS MAYNES MIX #1, 2 1/2"x16" & 2"x8" UNIGEL	3" HOLES, SPILLWAY
68 CU. YDS.	2100* MAYNES 250* UNIGEL	122	0-13	50* SACKS MAYNES MIX #1, 2 1/2"x16" & 2"x8" HERCULES UNIGEL	3" HOLES, SPILLWAY 1.11"/YD.
60 CU. YDS.	2250* MAYNES 250* UNIGEL	121	0-13	50* SACKS MAYNES MIX #1, 2 1/2"x16" & 2"x8" HERCULES UNIGEL	3" HOLES, SPILLWAY 1.14"/YD.
73 CU. YDS.	1575* MAYNES 115* UNIGEL	69	0-9	50* SACKS MAYNES MIX #1, 2"x8" & 2 1/2"x16" UNIGEL	3" HOLES, SPILLWAY
12 CU. YDS.	1150* MAYNES 150* UNIGEL	70	0-9	50* SACKS MAYNES MIX #1, 2"x8" & 2 1/2"x16" UNIGEL	3" HOLES, SPILLWAY 0.95"/YD.
50 CU. YDS.	1150* MAYNES 300* UNIGEL	73	0-9	50* SACKS MAYNES MIX #1, 2 1/2"x16" & 2"x8" UNIGEL	3" HOLES, SPILLWAY 1.4"/YD.
40 CU. YDS.	1100* 162 300 UNIMITE 100* UNIGEL	45	0-12	40* & 50* SACKS OF HERCULES 1/2", 162, 2 1/2"x16" UNIMITE & 2"x8" UNIGEL	3" HOLES, SPILLWAY 1.182"/YD.
10 CU. YDS.	1000* 200 GR. 100' E. CORD.	1	0	PRIMACORD	3" HOLES, SPILLWAY 0.95"/YD.
10 CU. YDS.	1025* MAYNES 130* UNIGEL	153	0-10	50* SACKS MAYNES 2 1/2"x16", 2"x8" UNIGEL	3" HOLES, LT. SIDE OF SPILLWAY 1.24"/CU. YD.
80 CU. YDS.	1200* MAYNES 100* UNIGEL	97	0-10	50* SACKS MAYNES 2"x8" UNIGEL	3" HOLES, SPILLWAY 1.03"/CU. YD.
5 CU. YDS.	1025* MAYNES 65* UNIGEL	60	0-8	50* SACKS MAYNES 2"x8" UNIGEL	3" HOLES, SPILLWAY 1.31"/CU. YD.
15 CU. YDS.	1165* MAYNES 74* UNIMITE 47* UNIGEL	42	0-8	40* SACKS 2 1/2"x16", 2"x8"	3" HOLES, SPILLWAY 1.36"/CU. YD.
10 CU. YDS.	700* MAYNES 40* UNIGEL	32	0-6	50* SACKS MAYNES 2"x8" UNIGEL	3" HOLES, LT. SIDE SPILLWAY 1.36"/CU. YD.
75 CU. YDS.	1120* MAYNES 96* UNIMITE 60* UNIGEL	46	1-9	40* BAGS MAYNES 2 1/2"x16" 2"x8"	3/2" HOLES LT. SPILLWAY 0.69"/CU. YD.
	3* HERCOSPPLIT 5.5* UNIGEL 6.5* UNIGEL			1 1/2"x2 1/2", 1 1/2"x2 1/2"	65 BOUNDERS IN SPILLWAY 1 1/2" DIA. HOLES
	4* UNIGEL			1 1/2"x8"	BOUNDERS LT. SIDE OF SPILLWAY, 1 1/2" HOLES
10 CU. YDS.	400* MAYNES 150* UNIMITE 350* UNIGEL 100* UNIGEL	92	0-9	50* SACKS 2 1/2"x16", 2 1/2"x16", 2"x8"	RT. SIDE OF SPILLWAY 3" HOLES 1.1"/CU. YD.
10 CU. YDS.	900* MAYNES 350* UNIGEL	79	0-9	50* BAGS 2"x16"	RT. SIDE OF SPILLWAY 3" HOLES 1.17"/CU. YDS.
5 CU. YDS.	1000* MAYNES 210* UNIGEL 100* UNIGEL	16	0-9	50* SACKS 2 1/2"x16", 2"x8"	3" HOLES, SPILLWAY 0.96"/CU. YD.
10 CU. YDS.	1160* MAYNES 70* UNIGEL 70* UNIGEL	37	0-8	50* SACKS 2 1/2"x16", 2"x8"	RT. SIDE OF SPILLWAY 3" HOLES 1.08" CU. YDS.
10 CU. YDS.	1125* MAYNES 86* UNIGEL 55* UNIGEL	59	0-9	50* SACKS 2 1/2"x16", 2"x8"	RT. SIDE OF SPILLWAY 3" HOLES 1.16"/CU. YD.
10 CU. YDS.	1025* MAYNES 400* UNIGEL 75* UNIGEL	69	0-11	50* SACKS 2 1/2"x16", 2"x8"	RT. SIDE OF SPILLWAY 3" HOLES 1.2"/CU. YD.
4 CU. YDS.	900* MAYNES 300* UNIGEL 150* UNIGEL	107	0-12	50* SACKS 2 1/2"x16", 2"x8"	RT. SIDE OF SPILLWAY 3" HOLES 0.9"/CU. YD.
10 CU. YDS.	1100* MAYNES 100* UNIGEL 125* UNIGEL	69	0-12	50* SACKS 2 1/2"x16", 2"x8"	RT. SIDE OF SPILLWAY 3" HOLES 1.18"/CU. YD.
10 CU. YDS.	1100* MAYNES 100* UNIGEL 100* UNIGEL	69	0-12	50* SACKS 2 1/2"x16", 2"x8"	3" HOLES, SPILLWAY 1.37"/CU. YD.
10 CU. YDS.	450* MAYNES 75* UNIGEL 50* UNIGEL	46	0-9	50* SACKS 2 1/2"x16", 2"x8"	3" HOLES, SPILLWAY 1.37"/CU. YD.
10 CU. YDS.	850* MAYNES 62* UNIGEL 100* UNIGEL	72	0-10	50* SACKS 2 1/2"x16", 2"x8"	RT. SIDE SPILLWAY, 3" HOLES 1.5"/CU. YD.
5 CU. YDS.	900* MAYNES 16* UNIGEL 60* UNIGEL	36	0-9	50* SACKS 2 1/2"x16", 2"x8"	RT. SIDE OF SPILLWAY, 3" HOLES 1.22"/CU. YD.
10 CU. YDS.	700* MAYNES 40* UNIGEL	36	0-8	50* SACKS 2 1/2"x16", 2"x8"	RT. SIDE OF SPILLWAY, 3" HOLES 1.5"/CU. YD.
10 CU. YDS.	1650* MAYNES 100* UNIGEL 100* UNIGEL	86	0-10	50* SACKS 2 1/2"x16", 2"x8"	3" HOLES 1.2"/CU. YD.

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI US Army Corps of Engineers CONSTRUCTION FOUNDATION REPORT		
Drawn by:	V.A.B. BLASTING SCHEDULE		
Checked by:			
Submitted by:	Soder: AS SHORN Date: JUNE 1990 Use:	Sheet numbers: 87	Plot Scale: S-0833 Design File: D00.63MS2.DGN

NO.	DATE	GEOLOGIC LOCATION	ELEV.	STATION	LOCATION RANGE	PURPOSE	NO. OF HOLES	DEPTH (FT.)	SPACING (FT.)	BURDEN (FT.)	STEM (FT.)	SHOT VOL.	EXPLC
50	6/16/83	BETHANY FALLS		23-00	30' LT. TO 70' RT. €	PRODUCTION	116	17'	10'	7'	4'	5415 CU. YDS.	4100* MAYNES 900* L
51	6/20/83	BETHANY FALLS		25+50-24+50	EDGE TO 150' LT. PRESPLIT	PRODUCTION	91	18'	10'	7'	4'	3715 CU. YDS.	2300* MAYNES 375* L
52	6/22/83	BETHANY FALLS		23+50-24+50	EDGE TO 170' RT. €	PRODUCTION	86	19'	10'	7'	4'	4376 CU. YDS.	4050* MAYNES 550* L
53	6/24/83	BETHANY FALLS		24+00-23+50	EDGE TO 60' RT. €	PRODUCTION	44	19'	10'	7'	4'	2318 CU. YDS.	2050* MAYNES 350* L
54	7/1/83	BETHANY FALLS		22+50-22+00	30'-110' LT. €	PRODUCTION	82	18'	10'	7'	4'	3180 CU. YDS.	3225* MAYNES 900* L
55	7/7/83	BETHANY FALLS		22-00		PRODUCTION	100	18'	10'	7'	4'	5022 CU. YDS.	4625* MAYNES 475* L
56	7/11/83	BETHANY FALLS		20+50-21+50		PRODUCTION	127	17'	10'	7'	3 1/2'	5950 CU. YDS.	5650* MAYNES 175* L
57	7/15/83	BETHANY FALLS		21+15-20+50	EDGE TO 110' RT. €	PRODUCTION	72	18'	10'	7'	4'	4250 CU. YDS.	4200* MAYNES 100* L
58	7/19/83	BETHANY FALLS		23+30-23+80	5' TO 100' LT. OF PRESPLIT	PRODUCTION	88	20'	10'	7'	4'	4433 CU. YDS.	4600* MAYNES 750* L
59	7/25/83	BETHANY FALLS		23+30-23+90	€ TO 100' RT. €	PRODUCTION	77	21'	10'	7'	3 1/2'	4900 CU. YDS.	4225* MAYNES 500* L
60	7/29/83	BETHANY FALLS		16+20-17+20	130' TO 110' LT. €	PRODUCTION	89	22'	10'	7'	3 1/2'	4360 CU. YDS.	5350* MAYNES 205* L
61	8/2/83	BETHANY FALLS		17+00-17+43	130' TO 40' LT. €	PRODUCTION	90	22'	10'	7'	3 1/2'	5133 CU. YDS.	5800* MAYNES 115* L
62	8/4/83	BETHANY FALLS			165' RT. OF RT. PRESPLIT TO 60' LT. €	PRODUCTION	94	22'	10'	7'	3 1/2'	5544 CU. YDS.	5450* MAYNES 115* L
63	8/8/83	BETHANY FALLS		17+00-17+50	80'-170' LT. OF RT. PRESPLIT	PRODUCTION	130	22.5'	10'	7'	3 1/2'	6150 CU. YDS.	8900* MAYNES 150* L
64	8/11/83	BETHANY FALLS		16+75-17+75	EDGE TO 64' LT	PRODUCTION	108	22.5'	10'	7'	3 1/2'	7300 CU. YDS.	7150* MAYNES 150* L
65	8/15/83	BETHANY FALLS		22-00	10' TO 100' RT. €	PRODUCTION	89	22'	10'	7'	3 1/2'	5166 CU. YDS.	6100* MAYNES 260* L
66	8/17/83	BETHANY FALLS		20+50-20+00	70' LT TO 50' RT. €	PRODUCTION	82	21.5'	10'	8'	3 1/2'	5160 CU. YDS.	5500* MAYNES 100* L
67	8/19/83	BETHANY FALLS		20+00-20+40	50' TO 110' RT	PRODUCTION	58	21.5'	10'	9'	3 1/2'	4379 CU. YDS.	4000* MAYNES 75* L
1	8/22/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842.4	12+72-15+65	195' RT. €	PRE-SPLIT	114	7'-12'	2'	2'	1 1/2' GRAV.	2280 SO. FT.	3500' 200 GR. 250' E
2	8/24/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842.4	15+65-17+00	195' RT. €	PRE-SPLIT	49	12'	2'	2'	1 1/2' GRAV.	1152 SO. FT.	1200' 200 GR. 100' E
3	8/27/84	BETHANY FALLS	866	18+00-18+50	195' RT. €	PRE-SPLIT	12	23'	2 1/2'	2 1/2'	1 1/2' GRAV.	690 SO. FT.	600' 200 GR. 40' E
4	10/1/84	BETHANY FALLS	864	18+54-20+42	195' RT. €	PRE-SPLIT	52	22'	2 1/2'	2 1/2'	1 1/2' GRAV.	2860 SO. FT.	2500' 200 GR. 140' E
5	10/2/84	BETHANY FALLS	864	20+42-21+75	195' RT. €	PRE-SPLIT	50	22'	2 1/2'	2 1/2'	1 1/2' GRAV.	2150 SO. FT.	2300' 200 GR.
6	10/4/84	BETHANY FALLS	864	21+75-23+15	195' RT. €	PRE-SPLIT	54	21'	30"	30"	1 1/2' GRAV.	2835 SO. FT.	2500' 200 GR. 160' E
7	11/2/84	BETHANY FALLS	864	17+50-18+28	210' LT. OF €	PRE-SPLIT	32	22'	30"	30"	1 1/2' GRAV.	1716 SO. FT.	1600' 200 GR. 100' E
8	11/7/84	BETHANY FALLS	864	18+28-19+10	210' LT. OF €	PRE-SPLIT	29	21'	30"	30"	1 1/2' GRAV.	1525 SO. FT.	1500' 200 GR. 100' E
9	11/13/84	BETHANY FALLS	864	19+00-20+00	210' LT. OF €	PRE-SPLIT	52	21'	30"	30"	1 1/2' GRAV.	2667 SO. FT.	2350' 200GR. 190' E
10	11/24/84	BETHANY FALLS	854	25+40-25+52	195' RT. OF €	PRE-SPLIT	6	12'	2'	2'	1 1/2' GRAV.	192 SO. FT.	150' 200 GR. 15' E
11	12/1/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842.4	23+50-24+83	182' RT. OF €	PRE-SPLIT	57	16'	2'	2'	1 1/2' GRAV.	1922 SO. FT.	1800' 200 GR. 130' E
12	12/7/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842.4	24+83-26+05	182' RT. OF €	PRE-SPLIT	61	16'	2'	2'	1 1/2' GRAV.	1708 SO. FT.	1650' 200 GR. 130' E
13	12/11/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842	17+00-16+01	197' LT. OF €	PRE-SPLIT	65	16'	2'	2'	1 1/2' GRAV.	2044 SO. FT.	2200' 200 GR. 135' E
14	12/12/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842	16+01-15+42	197' LT. OF €	PRE-SPLIT	36	16'	2'	2'	1 1/2' GRAV.	1152 SO. FT.	1100' 200 GR. 100' E
15	12/13/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842	15+42-15+38	197' LT. OF €	PRE-SPLIT	13	16'	2'	2'	1 1/2' GRAV.	416 SO. FT.	400' 200 GR. 35' E
1	8/25/84	SNABAR	834	12+76-13+10	195' TO 100' RT. €	PRODUCTION	92	7.5'	7'	5'	4 1/2'	720 CU. YDS.	850* MAYNES 105* L
2	8/28/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	838	13+15-13+40	185' TO 60' RT. €	PRODUCTION	87	7.5'	7'	5'	3 1/2'	900 CU. YDS.	850* MAYNES 105* L
3	8/31/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	841	13+40-14+00	€ TO 195' RT.	PRODUCTION	157	8'-12'	7'	6'	4'	1500 CU. YDS.	2350* MAYNES 190* L
4	9/6/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	841	14+50-14+90	€ TO 195' RT.	PRODUCTION	131	9'-13'	7'	6'	4'	2020 CU. YDS.	2000* MAYNES 175* L
5	9/11/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842	14+70-15+00	€ TO 195' RT.	PRODUCTION	155	10'-12'	7'	6'	5'	2508 CU. YDS.	2400* MAYNES 400* L
6	9/13/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	841	15+30-15+50	€ TO 195' RT.	PRODUCTION	125	11.5'	7'	6'	5'	2150 CU. YDS.	2350* MAYNES 225* L
7	9/20/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842	15+42-15+75	€ TO 195' RT.	PRODUCTION	122	11.5'	7'	6'	5'	2108 CU. YDS.	2150* MAYNES 200* L
8	9/22/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	843	15+85-16+13	€ TO 185' LT.	PRODUCTION	122	11.5'	7'	6'	5'	2108 CU. YDS.	2100* MAYNES 250* L
9	9/26/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	843	16+13-16+45	€ TO 195' RT.	PRODUCTION	121	12'	7'	6'	5'	2200 CU. YDS.	2250* MAYNES 250* L
10	10/8/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842	15+50-16+50	€ TO 30' LT.	PRODUCTION	69	12'	7'	6'	5'	1213 CU. YDS.	1525* MAYNES 113* L
11	10/10/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842	15+50-16+50	30' LT. TO 60' LT.	PRODUCTION	70	13'	7'	6'	5'	1372 CU. YDS.	1750* MAYNES 150* L
12	10/12/84	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842	15+50-16+50	60'-90' LT.	PRODUCTION	72	12.5'	7'	6'	5'	1400 CU. YDS.	1350* MAYNES 300* L
13	11/5/84	BETHANY FALLS	864.4	17+15-18+25	110' TO 195' RT	PRE-SPLIT	45	21'	9'	8'	3 1/2'	2200 CU. YDS.	1700* 16.2 300' UNL
14	4/12/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	832	15+45-14+65	€ TO 197' LT	PRE-SPLIT	36	14'	2'	0	1 1/2' GRAV.	900 CU. YDS.	1000' 200 GR. 100' E
15	4/16/85	SNABAR	832	15+00-16+00	50' LT. TO €	PRODUCTION	153	6'	6'	4'	3'	550 CU. YDS.	1025* MAYNES 130* L
16	4/18/85	SNABAR	935	15+00-16+00	70' LT. TO €	PRODUCTION	97	6'-11'	5'	5'	3 1/2'	1260 CU. YDS.	1200* MAYNES 100* L
17	4/19/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	0940	15+00-16+00	95' LT. TO €	PRODUCTION	60	10'	8'	5'	4'	815 CU. YDS.	1025* MAYNES 65* L
18	4/24/85	BETHANY FALLS	921	17+20-17+40	120' LT. TO €	PRODUCTION	42	21'	10'	8'	8'	2315 CU. YDS.	1650* MAYNES 74* L
19	5/22/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	840	17+00-16+50	140' LT. TO €	PRODUCTION	32	12'-14'	8'	5'	4'	540 CU. YDS.	100* MAYNES 40* L
-	6/25/85	BETHANY FALLS	863	17+50-18+00	100' LT. TO €	PRODUCTION	44	21'	10'	8'	4'	2695 CU. YDS.	1720* MAYNES 96* L
-	6/25/85	BOULDERS	-	07+00-17+50	LT. TO €	-	67	8'22"	-	-	-	-	3* HERCUPSPLIT 5.5* L
-	6/25/85	BOULDERS	-	17+00-17+50	100' RT. TO €	-	20	-	-	-	-	-	4* UNIGEL
20	6/27/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	7	26+00-25+60	112' RT. OF €	PRODUCTION	91	9'	7'	5'	4'	911 CU. YDS.	400* MAYNES 150* L
21	7/1/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	837-840	25+50-25+00	105' RT. TO €	PRODUCTION	79	9'-12'	7'	5'	4'	1070 CU. YDS.	900* MAYNES 356* L
22	7/3/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	0840	25+00-24+50	108' RT. TO €	PRODUCTION	76	12'	8'	6'	4'	1365 CU. YDS.	1000* MAYNES 210* L
23	7/5/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	841	24+12-24+48	106' RT. TO €	PRODUCTION	57	13.5'	8'	6'	4'	1152 CU. YDS.	1100* MAYNES 270* L
24	9/12/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	842	23+75-24+10	112' RT. TO €	PRODUCTION	59	12.5'	8'	6'	4'	1070 CU. YDS.	1125* MAYNES 66* L
25	9/16/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	942	23+25-23+70	100' RT. TO €	PRODUCTION	69	12.5'	8'	6'	4'	1263 CU. YDS.	1025* MAYNES 400* L
26	9/18/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	837	24+50-25+00	100' RT. TO €	PRODUCTION	109	5'-11'	7'	5'	4'	1404 CU. YDS.	900* MAYNES 300* L
27	9/20/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	836	24+00-24+50	25' RT. TO €	PRODUCTION	104	5'-11'	7'	5'	4'	1120 CU. YDS.	1100* MAYNES 100* L
28	9/26/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	938	24+00-25+00	80' RT. TO €	PRODUCTION	61	5'-13'	7'-8'	5'	-	1000 CU. YDS.	1100* MAYNES 00* L
29	10/2/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR	835	24+00-24+30	RT. OF €	PRODUCTION	46	8'	7'	5'	-	480 CU. YDS.	450* MAYNES 76* L
30	10/3/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR		24+00-23+50	80' RT. TO €	PRODUCTION	72	7-9'	7'	5'	-	810 CU. YDS.	850* MAYNES 66* L
31	10/7/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR		24+00-23+75	40' RT. TO €	PRODUCTION	72	10'	8'	5'	-	815 CU. YDS.	900* MAYNES 16* L
32	10/8/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR			RT. OF €	PRODUCTION	35	10.5'	8'	5'	-	535 CU. YDS.	100* MAYNES 40* L
33	10/17/85	HUSPUCNEY MIDDLE CREEK LADORE & SNABAR		23+00-22+50		PRODUCTION	86	11'	8'	5'	-	1470 CU. YDS.	1650* MAYNES 100* L

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BLUE SPRINGS DAM-BLASTING

SHOT NO.	DATE	GEOLOGIC LOCATION	ELEV.	LOCATION		PURPOSE	NO. OF HOLES	DEPTH (FT.)	SPACING (FT.)	BURDEN (FT.)	STEM (FT.)	SHOT VOL.	EXPLOSIVES
				STATION	RANGE								
34	10/17/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		23+50-23+00	RT. OF C	PRODUCTION	40	11	8'	5'	4'	611 CU. YDS.	825* MAYNES 50* UNIGEL
35	10/22/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		24+00-23+50	LT. OF C	PRODUCTION	57	6'	8'	5'	4'	480 CU. YDS.	1375* MAYNES 50* UNIGEL
36	10/23/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		23+00	LT. OF C	PRODUCTION	70	11.5'	8'	5.5'	4'	776 CU. YDS.	825* MAYNES 50* UNIGEL
37	10/24/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		24+00-23+50	LT. OF C	PRODUCTION	72	8.5'	7'	5'	4'	990 CU. YDS.	1075* MAYNES 10* UNIGEL
38	10/25/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		23+00-23+30	60' LT. TO C	PRODUCTION	71	12.0'	8'	5.5'	4'	1396 CU. YDS.	1650* MAYNES 50* UNIGEL
39	10/26/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		23+00-22+30	40' LT. TO C	PRODUCTION	51	12.0'	8'	5.5'	4'	976 CU. YDS.	1000* MAYNES 50* UNIGEL
40	10/28/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		23+00-22+70	C	PRODUCTION	62	12'	8'	5'	4'	960 CU. YDS.	1300* MAYNES 30* UNIGEL
41	10/30/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		22+80-22+60	25 LT. TO C	PRODUCTION	26	12'	8'	5'	4'	428 CU. YDS.	500* MAYNES 7* UNIGEL 30*
42	10/31/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		22+50-23+00	70' RT. TO C	PRODUCTION	44	22'	10'	8'	X	871 CU. YDS.	1560* H.P. 162, 200* MAYNES
43	11/4/85	BETHANY FALLS		20+00-20+50	140 LT. TO C	PRODUCTION	39	21'	10'	8'	X	2587 CU. YDS.	1360* H.P. 162, 225* MAYNES
44	11/7/85	BETHANY FALLS		18+00	40' LT. TO C	PRODUCTION	53	12'	8'	5'	X	960 CU. YDS.	1025* MAYNES 10* UNIGEL
45	11/9/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		23+11-23+30	137 RT. TO C	PRODUCTION	34	6'	5'	5'	4'	222 CU. YDS.	175* MAYNES 35* UNIGEL 37*
46	11/21/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		23+50-23+00	100' LT TO C	PRODUCTION	34	7.5'	6'	5'	4'	333 CU. YDS.	200* MAYNES 110* UNIGEL 4*
47	11/22/85	LADORE MIDDLE CREEK SWABAR		23+00-23+50	LT. OF C	PRODUCTION	35	11'	7'	5'	4'	500 CU. YDS.	650* MAYNES 40* UNIGEL
48	11/25/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		23+00-23+55	150' LT. TO C	PRODUCTION	34	12'	7'	5'	4'	467 CU. YDS.	600* MAYNES 50* UNIGEL 4*
49	11/27/85	HUSPUCNEY MOOLE CREEK LADORE & SWABAR		23+00	100' TO 150' LT. OF C	PRODUCTION	23	16'	2-2.5'			800' ROOGR.	
IT	4/12/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	20+25-20+75	197' LT. OF C	PRE-SPLIT	48	16'	2'			1184 SO. FT.	1650' ROOGR.
18	4/15/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	20+75-21+70	197' LT. OF C	PRE-SPLIT	36	8'-16'	2'			959 SO. FT.	2500' ROOGR.
19	4/16/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	21+40-22+35	197' LT. OF C	PRE-SPLIT	27	8'	7'	5'	5'	500 CU. YDS.	425* MAYNES 55* UNIGEL
50	3/4/86	FILL MIDDLE CREEK LADORE & SWABAR	840	14+35-14+50	50-90' LT.	PRODUCTION	40	12'	8'	5'	5'	972 CU. YDS.	625* MAYNES 55* UNIGEL
51	3/4/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	844	14+60-15+50	95-120 LT. C	PRODUCTION	52	12'	8'	6'	5'	1090 CU. YDS.	950* MAYNES 72* UNIGEL
52	3/6/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	15+20-15+60	160-124' LT. OF C	PRODUCTION	40	13'	8'	6'	5'	1063 CU. YDS.	850* MAYNES 40* UNIGEL
53	3/7/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	15+40-16+40	110-144' LT. OF C	PRODUCTION	42	12'	8'	6'	5'	907 CU. YDS.	1025* MAYNES 86* UNIGEL
54	3/8/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	15+50-15+85	155-185 LT. OF C	PRODUCTION	48	13'	8'	6'	5'	1136 CU. YDS.	1250* MAYNES 85* UNIGEL
55	3/17/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	15+50-15+80	155-195 LT. OF C	PRODUCTION	55	12.8'	8'	6'	5'	1221 CU. YDS.	1250* MAYNES 323* UNIGEL
56	3/20/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	16+00-16+50	155-185 LT. OF C	PRODUCTION	57	13'	8'	5.5'	5'	1248 CU. YDS.	1150* MAYNES 163* UNIGEL
57	3/21/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	845	23+30-23+10	50-90' LT. C	PRODUCTION	21	12'	8'	5'	5'	430 CU. YDS.	450* MAYNES 46* UNIGEL
58	3/21/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	845	23+30-23+10	100-150' LT. C	PRODUCTION	20	13'	8'	5'	5'	405 CU. YDS.	450* MAYNES 25* UNIGEL
59	3/24/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	845	23+10-22+90	100-150' LT. C	PRODUCTION	24	22'	10'	10'	4'	2464 CU. YDS.	1650* MAYNES 9* UNIGEL 2*
60	3/25/86	BETHANY FALLS	866	17+80-18+20	195-115' RT. C	PRODUCTION	30	22.5'	12'	10'	4'	2205 CU. YDS.	1400* MAYNES 105* UNIGEL
61	3/27/86	BETHANY FALLS	866	18+10-18+50	130-55' LT. C	PRODUCTION	30	22.5'	12'	10'	4'	2250 CU. YDS.	2000* 100, 47* 62, 35* UNIGEL
62	3/29/86	BETHANY FALLS	866	18+70-18+30	55' LT. TO 30' RT	PRODUCTION	29	22.5'	12'	10'	4'	2800 CU. YDS.	2000* 100, 33* UNIGEL 18*
63	4/5/86	BETHANY FALLS	866	18+50-18+80	30-124 RT. C	PRODUCTION	28	22.5'	12'	10'	4'	2800 CU. YDS.	2000* 100, 50* 82, 33* UNIGEL
64	4/7/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	21+00-21+50	25' LT. TO C	PRODUCTION	46	12.5'	8'	6'	4'	1000 CU. YDS.	1200* 100, 80* 62, 12.5* UNIGEL
65	4/7/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	21+00-21+50	55' TO 85' LT. C	PRODUCTION	45	12'	8'	6'	4'	853 CU. YDS.	800* 100, 80* 62, 12.5* UNIGEL
66	4/10/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	21+25-20+75	125 TO 135 LT. C	PRODUCTION	42	12'	8'	6'	4'	960 CU. YDS.	800* MAYNES 162* 62, 75* UNIGEL
67	4/11/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	21+00-20+50	135 TO 155' LT. C	PRODUCTION	42	12'	8'	5'	4'	830 CU. YDS.	850* MAYNES 80* 162, 72* UNIGEL
70	4/17/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846-839	22+50-22+80	197 TO 145' LT. C	PRODUCTION	50	7-12'	7'	5'	4'	425 CU. YDS.	600* MAYNES 583* UNIGEL 3*
71	4/18/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	22+00-22+25	197 TO 133' LT. C	PRODUCTION	56	12.5'	8'	5'	4'	1137 CU. YDS.	1100* MAYNES 91* UNIGEL 3*
72	4/19/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	21+50-22+00	100 TO 135' LT. C	PRODUCTION	53	12.5'	8'	5'	4'	1000 CU. YDS.	1100* MAYNES 165* UNIGEL
73	4/21/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	22+50-21+00	135 TO 157' LT. C	PRODUCTION	54	12.5'	8'	5'	4'	1336 CU. YDS.	1200* MAYNES 110* UNIGEL
74	4/22/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	20+25-20+75	150 TO 180' LT. C	PRODUCTION	52	12.5'	8'	5'	4'	760 CU. YDS.	1000* MAYNES 150* UNIGEL
75	4/23/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	20+25-21+0	150 TO 185' LT. C	PRODUCTION	35	12.5'	8'	5'	4'	900 CU. YDS.	1075* MAYNES 90* UNIGEL
76	4/24/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	846	21+50-22+00	185 TO 195' LT. C	PRODUCTION	37	8-13'	9'	6'	4'	55 CU. YDS.	800* MAYNES 50* UNIGEL
77	4/25/86	BETHANY FALLS				PRODUCTION	30	12-15'	9'	6'	4'	560 CU. YDS.	600* MAYNES 90* UNIGEL
78	4/26/86	BETHANY FALLS				PRODUCTION	39	12'	9'	6'	4'	670 CU. YDS.	575* MAYNES 35* UNIGEL
79	4/29/86	BETHANY FALLS				PRODUCTION	48	9.5-11'	9'	6'	4'	600 CU. YDS.	825* MAYNES 45* UNIGEL
80	4/30/86	BETHANY FALLS				PRODUCTION	48	9.5-11'	9'	6'	4'	703 CU. YDS.	115* MAYNES 53* UNIGEL
81	5/1/86	BETHANY FALLS				PRODUCTION	100	7-8'	9'-8'	5'	4'	802 CU. YDS.	700* MAYNES 56* UNIGEL
82	5/5/86	BETHANY FALLS				PRODUCTION	100	6.5'	7'	4'	4'	567 CU. YDS.	600* MAYNES 116* UNIGEL
83	8/9/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	844	16+50-16+76	130 RT. TO C	PRODUCTION	71	12'	8'	6'	4'	1480 CU. YDS.	1450* MAYNES 105* UNIGEL
84	8/13/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	844	16+50-16+75	C TO 120' RT.	PRODUCTION	65	12'	8'	6'	4'	1390 CU. YDS.	1425* MAYNES 98* UNIGEL
85	8/14/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	844	16+75-17+00	C TO 120' RT.	PRODUCTION	67	12'	8'	6'	4'	1290 CU. YDS.	1350* MAYNES 85* UNIGEL
86	8/18/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	844	16+75-17+00	RT OF C TO C	PRODUCTION	94	12'	8'	5'	5'	1600 CU. YDS.	1850* MAYNES 125* UNIGEL
87	8/20/86	BETHANY FALLS	865	18+50-18+70	195 RT. TO C	PRODUCTION	35	22'	10'	8'		1408 CU. YDS.	1200* H.P. 162, 100* MAYNES 11* X
88	8/21/86	BETHANY FALLS	865	17+50-18+00	170' LT. TO C	PRODUCTION	12	22'	12'	10'	5'	1236 CU. YDS.	800* MAYNES 30* H.P. 162, 140, 11*
89	8/22/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	865	17+50-17+25	100' RT. TO C	PRODUCTION	61	11'	8'	5'	4'	896 CU. YDS.	1150* MAYNES 61* UNIGEL
90	8/25/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	845	17+25-17+00	37-67 RT. OF C	PRODUCTION	60	12'	8'	6'	4'	1044 CU. YDS.	1150* MAYNES 37* UNIGEL 7*
91	8/26/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	845	17+00-17+75	70-130' LT. OF C	PRODUCTION	45	12'	8'	5'	4'	800 CU. YDS.	825* MAY. 50* IRECO UNIGEL
92	8/28/86	BETHANY FALLS	865	18+50-19+00	65 RT. TO 15' LT. OF C	PRODUCTION	30	21'	12'	10'		2426 CU. YDS.	1900* MAYNES 31* UNIGEL 10* 850*
93	9/2/86	BETHANY FALLS	865	18+10-19+10	15-100' LT. OF C	PRODUCTION	28	21'	12'	10'		2613 CU. YDS.	20* H.P.-162, 1625* MAYNES
94	9/3/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	843	21+00		PRODUCTION	49	12'	8'	5.5'	4'	805 CU. YDS.	1000* MAYNES 61.5* UNIGEL
95	9/4/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	843	22+00		PRODUCTION	56	12'	8'	5.5'	4'	976 CU. YDS.	1050* MAYNES 50* UNIGEL
96	9/5/86	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	843	21+00-21+50	72 160' LT. OF C	PRODUCTION	32	12'	8'	6'		240 CU. YDS.	650* MAYNES 35* UNIGEL 1*
97	9/9/86	BETHANY FALLS	865	18+00-18+50	10-160' LT. OF C	PRODUCTION	30	21'	12'	10'	4'	2800 CU. YDS.	1800* MAYNES 33* UNIGEL 1*
98	9/10/86	BETHANY FALLS		18+50		PRODUCTION	18	21'	12'	10'	4'	1563 CU. YDS.	1175* MAYNES 40* H.P. 162, 31* UNIGEL
99	7/14/87	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	843	16+50-17+65	181-141 RT OF C	PRODUCTION	80	10'	8'	5'	4'	1111 CU. YDS.	1150* MAYNES 100* UNIGEL
100	7/17/87	BETHANY FALLS	860	19+00-19+50		PRODUCTION	26	21.5'	12'	10'		2510 CU. YDS.	1500* MAYNES 20* UNIGEL 10* UNIGEL
101	7/20/87	BETHANY FALLS	867	19+50-20+00	195-135 RT OF C	PRODUCTION	25	21.5'	12'	10'	4'	1600 CU. YDS.	135* MAYNES 100* UNIGEL 32* UNIGEL
102	7/22/87	HUSPUCNEY MOOLE CREEK LADORE & SWABAR	843	17+65-18+20	173-61 RT OF C	PRODUCTION	105	10'	8'	5'	4'	600 CU. YDS.	1475* MAYNES 35* UNIGEL



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VALUE ENGINEERING PAYS


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SPRINGS DAM BLASTING REPORT

LOT VOL.	EXPLOSIVES (LBS.)	NO. OF CAPS	DELAYS IN M/LI/SEC	CARTRIDGE STRENGTH	REMARKS
1 CU. YDS.	825* MAYNES 50* UNIGEL	40	0-10	50* SACKS 2'X8"	RT. SIDE OF SPILLWAY, 3* HOLES, 1.4*/CU. YD.
1 CU. YDS.	300* MAYNES 50* UNIGEL	57	0-10	50* SACKS 2'X8"	RT. SIDE OF SPILLWAY, 3* HOLES, 0.90*/CU. YD.
3 CU. YDS.	1375* MAYNES 50* UNIGEL	70	0-11	50* SACKS 2'X8"	LT. OF 3* HOLES, 1.1*/CU. YD.
1 CU. YDS.	825* MAYNES 50* UNIGEL	40	0-11	50* SACKS 2'X8"	3* HOLES, 1.1*/CU. YD.
1 CU. YDS.	11075* MAYNES 10* UNIGEL 70* UNIGEL	61	0-11	50* SACKS 2 1/2'X16", 2'X8"	LT. SIDE OF SPILLWAY, 3* HOLES, 1.2*/CU. YD.
6 CU. YDS.	1650* MAYNES 50* UNIGEL 10* UNIGEL	71	0-10	50* SACKS 2'X8", 2 1/2'X16"	LT. SIDE OF SPILLWAY, 3* HOLES, 1.2*/CU. YD.
1 CU. YDS.	1000* MAYNES 50* UNIGEL 60* UNIGEL	51	0-10	50* SACKS 2 1/2'X16", 2'X8"	NEAR 3* HOLES, 1.1*/CU. YD.
1 CU. YDS.	1300* MAYNES 50* UNIGEL 70* UNIGEL	62	0-10	50* SACKS 2 1/2'X16", 2'X8"	3* HOLES, 1.4*/CU. YD.
1 CU. YDS.	500* MAYNES 70* UNIGEL 30* UNIGEL	26	0-8	50* SACKS 2 1/2'X16", 2'X8"	3* HOLES, 1.25*/CU. YD.
1 CU. YDS.	1550* H.P. 162, 200* MAYNES	45	0-15	40* SACKS 50* SACKS	LT. SIDE OF SPILLWAY, 3 1/2* HOLES, 1.4*/CU. YD.
1 CU. YDS.	1350* H.P. 162, 225* MAYNES, 35* UNIMITE, 50* UNIGEL	39	0-8	40* SACKS 50* SACKS, 2 1/2'X16", 2'X8"	LT. SIDE OF SPILLWAY, 3 1/2* HOLES, 1.5*/CU. YD.
1 CU. YDS.	1025* MAYNES 10* UNIGEL 60* UNIGEL	63	0-11	50* SACKS 2 1/2'X16", 2'X8"	RT. SIDE OF SPILLWAY, 3* HOLES, 1.14*/CU. YD.
1 CU. YDS.	175* MAYNES 35* UNIGEL 37* UNIGEL	34	0-7	50* SACKS 2 1/2'X16", 2'X8"	LT. SIDE OF SPILLWAY, 3* HOLES, 1.1*/CU. YD.
1 CU. YDS.	200* MAYNES 110* UNIGEL 40* UNIGEL	35	0-9	50* SACKS 2 1/2'X16", 2'X8"	LT. OF 3* DIA. HOLES, 1.1*/CU. YD.
1 CU. YDS.	650* MAYNES 40* UNIGEL	35	0-10	50* SACKS 2'X8"	3* HOLES, 1.18*/CU. YD.
1 CU. YDS.	1600* MAYNES 50* UNIGEL 40* UNIGEL	34	0-11	50* SACKS 2 1/2'X16", 2'X8"	LT. SIDE OF SPILLWAY, 3* HOLES, 1.47*/CU. YD.
1 CU. YDS.	800* 200GR.	1	15	ENSIGN BICKFORD PRIMACORD	3* HOLES, SPILLWAY
1 CU. YDS.	1650* 200GR.	1	-	PRIMACORD	3* HOLES, SPILLWAY
1 CU. YDS.	950* 200GR.	1	-	PRIMACORD	3* HOLES, SPILLWAY
1 CU. YDS.	1425* MAYNES 55* UNIGEL	27	-	50* SACKS MAYNES MIX #1, 2'X8" HERCULES UNIGEL	3* HOLES, SPILLWAY 0.91*/YD.
1 CU. YDS.	1625* MAYNES 55* UNIGEL	40	0-9	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/4'X16" UNIGEL (HERCULES)	3* HOLES, SPILLWAY 0.70*/YD.
1 CU. YDS.	950* MAYNES 72* UNIGEL	50	0-9	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" IRECO UNIGEL	3* HOLES, SPILLWAY 0.94*/YD.
1 CU. YDS.	950* MAYNES 40* UNIGEL	42	0-9	50* SACKS MAYNES MIX #1, 2'X8" IRECO UNIGEL	3* HOLES, SPILLWAY 0.84*/YD.
1 CU. YDS.	1500* MAYNES 86* UNIGEL	42	0-9	50* SACKS MAYNES MIX #1, 2 1/2'X16" & 2'X8" IRECO UNIGEL	3* HOLES, SPILLWAY 0.90*/YD.
1 CU. YDS.	1025* MAYNES 85* UNIGEL	45	0-9	50* SACKS MAYNES MIX #1, 2 1/2'X16" & 2'X8" IRECO UNIGEL	3* HOLES, SPILLWAY 0.98*/YD.
1 CU. YDS.	1250* MAYNES 32* UNIGEL	55	-	50* SACKS MAYNES MIX #1, 2 1/2'X16" & 2'X8" IRECO UNIGEL	3* HOLES, SPILLWAY 1.17*/YD.
1 CU. YDS.	1150* MAYNES 163* UNIGEL	57	0-10	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" IRECO UNIGEL	3* HOLES, SPILLWAY 1.0*/YD.
1 CU. YDS.	450* MAYNES 46* UNIGEL	21	0-9	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" IRECO UNIGEL	3* HOLES, SPILLWAY 1*/YD.
1 CU. YDS.	450* MAYNES 25* UNIGEL	20	0-8	50* SACKS MAYNES MIX #1, 2'X8" IRECO UNIGEL	3* HOLES, SPILLWAY 1*/YD.
1 CU. YDS.	1650* MAYNES 9* UNIMITE 25* UNIGEL	25	0-6	50* SACKS MAYNES MIX #1, 2'X8" IRECO UNIGEL, 2 1/2'X16" IRECO UNIMITE	3 1/2* HOLES, SPILLWAY 0.68*/YD.
1 CU. YDS.	1400* MAYNES 105* UNIGEL	37	0-12	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" IRECO UNIGEL	3 1/2* HOLES, SPILLWAY 0.68*/YD.
1 CU. YDS.	2000* 100, 47* 62, 35* UNIGEL	30	0-10	50* SACKS IREXEX 100, 2 1/2'X16" IREXEX 62, 2'X8" UNIGEL	3 1/2* HOLES, SPILLWAY 0.92*/YD.
1 CU. YDS.	2050* 100, 33* UNIGEL 19* 62	29	0-8	50* SACKS IRECO 100, 2'X8" IRECO UNIGEL 2 1/2'X16" IREXEX 62	3 1/2* HOLES, SPILLWAY 0.75*/YD.
1 CU. YDS.	2000* 100, 50* 6, 33* UNIGEL	29	0-8	50* SACKS IREXEX 100, 2 1/2'X16" IREXEX 62, 2'X8" IRECO UNIGEL	3 1/2* HOLES, SPILLWAY 0.75*/YD.
1 CU. YDS.	1200* 100, 50* 6, 62* UNIGEL	46	0-10	50* SACKS IRECO IREXEX 100, 2'X8" IRECO UNIGEL, 2 1/2'X16" IRECO IREXEX 62	3* HOLES, SPILLWAY 1.2*/YD.
1 CU. YDS.	800* 100, 80* 62, 12.5* UNIGEL	45	0-11	50* SACKS IREXEX 100, 2 1/2'X16" IREXEX 62, 2 1/2'X16" IRECO UNIGEL	SPILLWAY
1 CU. YDS.	700* MAYNES 162* 62, 75* UNIMITE 50* UNIGEL	42	0-10	50* SACKS MAYNES MIX #1, 2 1/2'X16" IRECO UNIGEL, 2 1/2'X16" IRECO UNIMITE 62	3* HOLES, SPILLWAY 1*/YD.
1 CU. YDS.	850* MAYNES 80* 162, 72* UNIGEL	42	0-10	50* SACKS MAYNES MIX #1, 2 1/2'X16" IRECO UNIMITE 162, 72* AND 2 1/2'X16" IRECO UNIGEL	3* HOLES, SPILLWAY 1.2*/YD.
1 CU. YDS.	600* MAYNES 583* UNIGEL 38* 62	50	0-11	50* SACKS MAYNES MIX #1, 2 1/2'X16" IRECO UNIGEL, 2 1/2'X16" IRECO UNIMITE 62	3* HOLES, SPILLWAY 1.5*/YD.
1 CU. YDS.	1050* MAYNES 97* UNIGEL 36* 62	57	0-13	50* SACKS MAYNES MIX #1, 2 1/2'X16" & 2'X8" IRECO UNIGEL, 2 1/2'X16" IREXEX 62	3* HOLES, SPILLWAY 1.07*/YD.
1 CU. YDS.	1100* MAYNES 165* UNIGEL 23* 62	53	0-13	50* SACKS MAYNES MIX #1, 2 1/2'X16" & 2'X8" IRECO UNIGEL, 2 1/2'X16" IREXEX 62	3* HOLES, SPILLWAY 1.29*/YD.
1 CU. YDS.	1200* MAYNES 110* UNIGEL	54	0-14	50* SACKS MAYNES MIX #1, 2 1/2'X16" & 2'X8" IRECO UNIGEL	3* HOLES, SPILLWAY 1.0*/YD.
1 CU. YDS.	1000* MAYNES 150* UNIGEL 30* 62	52	0-12	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" UNIGEL, 2 1/2'X16" IREXEX 62	3* HOLES, SPILLWAY 1.5*/YD.
1 CU. YDS.	1075* MAYNES 90* UNIGEL 34* 62	53	0-12	50* SACKS MAYNES MIX #1, 2 1/2'X16" & 2'X8" IRECO UNIGEL, 2 1/2'X16" IRECO UNIMITE 62	3* HOLES, SPILLWAY 1.5*/YD.
1 CU. YDS.	800* MAYNES 50* UNIGEL	35	0-10	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" IRECO UNIGEL	3* HOLES, SPILLWAY 1.5*/YD.
1 CU. YDS.	600* MAYNES 90* UNIGEL	37	0-8	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" IRECO UNIGEL	3* HOLES, HAIR ROAD, 1.2*/YD.
1 CU. YDS.	575* MAYNES 35* UNIGEL	30	0-8	50* SACKS MAYNES MIX #1, 2'X8" IRECO UNIGEL	3* HOLES, HAIR ROAD, 0.90*/YD.
1 CU. YDS.	825* MAYNES 45* UNIGEL	39	0-10	50* SACKS MAYNES MIX #1, 2'X8" IRECO UNIGEL	3* HOLES, HAIR ROAD, 1.1*/YD.
1 CU. YDS.	775* MAYNES 53* UNIGEL	48	0-12	50* SACKS MAYNES MIX #1, 2'X8" IRECO UNIGEL	3* HOLES, HAIR ROAD, 1.2*/YD.
1 CU. YDS.	700* MAYNES 66* UNIGEL	70	0-12	50* SACKS MAYNES MIX #1, 2'X8" IRECO UNIGEL	3* HOLES, HAIR ROAD, 0.95*/YD.
1 CU. YDS.	600* MAYNES 116* UNIGEL	100	-	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" IRECO UNIGEL	3* HOLES, HAIR ROAD, 1.26*/YD.
1 CU. YDS.	1450* MAYNES 105* UNIGEL	71	0-14	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" IRECO UNIGEL	3* HOLES, SPILLWAY 1.05*/YD.
1 CU. YDS.	1425* MAYNES 98* UNIGEL	65	-	50* SACKS MAYNES MIX #1, 2 1/2'X16" & 2'X8" IRECO UNIGEL	3* HOLES, SPILLWAY 1.1*/YD.
1 CU. YDS.	1350* MAYNES 85* UNIGEL	67	0-13	50* SACKS MAYNES MIX #1, 2'X8" & 2 1/2'X16" IRECO UNIGEL	3* HOLES, SPILLWAY 1.5*/YD.
1 CU. YDS.	1850* MAYNES 125* UNIGEL	94	0-15	50* SACKS 2'X8", 2 1/2'X16"	3* HOLES, SPILLWAY 1.2*/CU. YD.
1 CU. YDS.	1500* H.P. 162, 150* MAYNES MIX 30* IRECO REMITE 62, 38* UNIGEL	35	0-14	40* SACKS 50* SACKS, 2 1/2'X16", 2'X8"	3* HOLES, SPILLWAY 1.05*/YD.
1 CU. YDS.	800* MAYNES 30* H.P. 162, 110* UNIGEL	12	0-8	50* SACKS 50* SACKS, 2'X8"	3 1/2* HOLES, SPILLWAY 0.58*/CU. YD.
1 CU. YDS.	1150* MAYNES 81* UNIGEL	61	0-12	50* SACKS 2'X8"	3* HOLES, SPILLWAY 1.36*/CU. YD.
1 CU. YDS.	1150* MAYNES 37* UNIGEL 70* UNIGEL	60	0-12	50* SACKS 2 1/2'X16", 2'X8"	3* HOLES, SPILLWAY 1.2*/CU. YD.
1 CU. YDS.	825* MAYNES 50* IRECO UNIGEL 4* IRECO 62, 10* UNIGEL	45	0-9	50* SACKS 2'X8", 2 1/2'X16", 2 1/2'X16"	3* HOLES, SPILLWAY 1.1*/CU. YD.
1 CU. YDS.	1900* MAYNES 310* UNIGEL 10* IRECO 62	30	0-10	50* SACKS 2 1/2'X16"	3 1/2* HOLES, SPILLWAY 0.82*/CU. YD.
1 CU. YDS.	20* H.P. 162, 1625* MAYNES 35* UNIGEL 60* UNIGEL	29	0-8	40* SACKS 50* SACKS 2'X8", 2 1/2'X16"	3 1/2* HOLES, SPILLWAY 0.61*/CU. YD.
1 CU. YDS.	1000* MAYNES 61.3* UNIGEL	49	0-13	50* SACKS 2'X8", 2 1/2'X16"	3* HOLES, SPILLWAY 1.11*/CU. YD.
1 CU. YDS.	1050* MAYNES 50* UNIGEL 60* UNIGEL	55	0-15	50* SACKS 2 1/2'X16", 2'X8"	3* HOLES, SPILLWAY 1.1*/CU. YD.
1 CU. YDS.	650* MAYNES 35* UNIGEL 13* UNIGEL	32	0-14	50* SACKS 2'X8", 2 1/2'X16"	3* HOLES, SPILLWAY 1.1*/CU. YD.
1 CU. YDS.	1900* MAYNES 33* UNIGEL 38* UNIMITE	34	0-12	50* SACKS 2'X8", 2 1/2'X16"	3 1/2* HOLES, SPILLWAY 0.70*/CU. YD.
1 CU. YDS.	1125* MAYNES 40* H.P. 162, 75* UNIGEL 24* UNIMITE	18	0-8	50* SACKS 40* SACKS 2'X8", 2 1/2'X16"	3 1/2* HOLES, SPILLWAY 0.78*/CU. YD.
1 CU. YDS.	1150* MAYNES 100* UNIGEL 77* UNIGEL	80	0-8	50* SACKS 2 1/2'X16", 2'X8"	3* HOLES, SPILLWAY 1.11*/CU. YD.
1 CU. YDS.	1150* MAYNES 28* UNIGEL 10* UNIGEL, 30* H.P. 162	26	0-10	50* SACKS 2'X8", 2 1/2'X16", 2 1/2'X16"	3 1/2* HOLES, SPILLWAY 0.77*/CU. YD.
1 CU. YDS.	1375* MAYNES 101* UNIGEL 10* UNIGEL, 28* UNIGEL	25	0-14	50* SACKS 2 1/2'X16", 2 1/2'X16", 2'X8"	3 1/2* HOLES, SPILLWAY 0.92*/CU. YD.
1 CU. YDS.	11475* MAYNES 35* UNIGEL 115* UNIGEL	106	0-12	50* SACKS 2 1/2'X16", 2'X8"	3* HOLES, SPILLWAY 1.0*/CU. YD.

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER-DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:		EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	
Drawn by:	V.A.B.	BLASTING SCHEDULE	
Checked by:		Scale: AS SHOWN	Sheet Number: 88
Submitted by:		Date: JUNE 1990	Plot Scale: S=0833 Station: 100,633B53.DGN

36	10/23/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	23+00	LT OF E	PRODUCTION	70	13.5	8	5.5	4	1285 CU. YDS.	1175* MAYNES 50* UNIGEL
37	10/24/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	24+00-23+50	LT OF E	PRODUCTION	72	8.5	7	5	4	176 CU. YDS.	825* MAYNES 50* UNIGEL
38	10/25/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	23+00-23+30	60' LT. TO E	PRODUCTION	71	12.0	8	5.5	4	590 CU. YDS.	1035* MAYNES 100* UNIGEL 1
39	10/26/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	23+00-22+30	40' LT. TO E	PRODUCTION	71	12.0	8	5.5	4	1336 CU. YDS.	1650* MAYNES 50* UNIGEL 1
40	10/28/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	23+00-22+70	E	PRODUCTION	51	12.0	8	5.5	4	976 CU. YDS.	1000* MAYNES 50* UNIGEL 6
41	10/30/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	22+80-22+60	25' LT. TO E	PRODUCTION	62	12	8	5	4	960 CU. YDS.	1300* MAYNES 30* UNIGEL 7
42	10/31/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	22+50-23+00	70' RT. TO E	PRODUCTION	26	12	8	5	4	428 CU. YDS.	1500* MAYNES 70* UNIGEL 30*
43	11/4/85	BETHANY FALLS	846	20+00-20+50	140' LT. TO E	PRODUCTION	44	22	10	8	X	871 CU. YDS.	1560* H.P. 162, 200* MAYNE
44	11/7/85	BETHANY FALLS	846	18+00	40' LT. TO E	PRODUCTION	39	21	10	8	X	2587 CU. YDS.	1360* H.P. 162, 225* MAYNES
45	11/8/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	23+11-23+30	137' RT. TO E	PRODUCTION	53	12	8	5	X	960 CU. YDS.	1025* MAYNES 10* UNIGEL 6
46	11/21/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	23+50-23+00	100' LT. TO E	PRODUCTION	34	6	5	5	4	222 CU. YDS.	1175* MAYNES 35* UNIGEL 37*
47	11/22/85	LADORE MIDDLE CREEK SWABAR	846	23+00-23+50	LT OF E	PRODUCTION	34	7.5	6	5	4	333 CU. YDS.	200* MAYNES 110* UNIGEL 4
48	11/25/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	23+00-23+55	150' LT. TO E	PRODUCTION	35	11	7	5	4	500 CU. YDS.	1600* MAYNES 40* UNIGEL
49	11/27/85	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	23+00	100' TO 150' LT. OF E	PRODUCTION	34	12	7	5	4	467 CU. YDS.	1600* MAYNES 50* UNIGEL 40
17	4/12/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	20+25-20+15	197' LT. OF E	PRE-SPLIT	23	16	2-2.5	5	4	1/2 GRAY.	1800* 200GR.
18	4/15/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	20+15-21+70	197' LT. OF E	PRE-SPLIT	48	16	2	5	4	1/2 GRAY.	1184 SQ. FT.
19	4/16/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	21+70-22+35	197' LT. OF E	PRE-SPLIT	36	8-16	2	5	4	1/2 GRAY.	953 SQ. FT.
50	3/4/86	HILL MIDDLE CREEK LADORE & SWABAR	840	14+35-14+50	50-90' LT.	PRODUCTION	27	8	7	5	2	500 CU. YDS.	425* MAYNES 55* UNIGEL
51	3/4/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	844	14+60-15+50	95-120' LT. E	PRODUCTION	40	12	8	5	2	972 CU. YDS.	625* MAYNES 55* UNIGEL
52	3/6/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	15+20-15+60	160-124' LT. OF E	PRODUCTION	50	12	8	5	2	1090 CU. YDS.	950* MAYNES 12* UNIGEL
53	3/7/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	15+40-16+40	110-144' LT. E	PRODUCTION	42	13	8	5	2	1063 CU. YDS.	850* MAYNES 40* UNIGEL
54	3/8/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	15+00-15+50	155-185' LT. E	PRODUCTION	42	12	8	5	2	907 CU. YDS.	1700* MAYNES 86* UNIGEL
55	3/17/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	15+50-15+85	155-185' LT. OF E	PRODUCTION	48	13	8	5	2	1136 CU. YDS.	1025* MAYNES 85* UNIGEL
56	3/20/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	15+50-15+80	155-185' LT. OF E	PRODUCTION	55	12.8	8	5	2	1221 CU. YDS.	1250* MAYNES 323* UNIGEL
57	3/21/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	16+00-16+50	155-185' LT. OF E	PRODUCTION	57	13	8	5.5	2	1248 CU. YDS.	1150* MAYNES 163* UNIGEL
58	3/21/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	845	23+30-23+10	50-90' LT. E	PRODUCTION	21	12	8	5	2	430 CU. YDS.	450* MAYNES 46* UNIGEL
59	3/24/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	845	23+10-22+90	100-150' LT. E	PRODUCTION	20	13	8	5	2	405 CU. YDS.	450* MAYNES 25* UNIGEL
60	3/25/86	BETHANY FALLS	846	17+20-17+00	50-122' RT. E	PRODUCTION	24	22	12	10	4	2464 CU. YDS.	1650* MAYNES 9* UNIMATE 2
61	3/27/86	BETHANY FALLS	866	17+80-18+20	195-115' RT. E	PRODUCTION	37	22	10	8	4	2205 CU. YDS.	1400* MAYNES 105* UNIGEL
62	3/29/86	BETHANY FALLS	866	18+10-18+50	130-55' LT. E	PRODUCTION	30	22.5	12	10	4	2250 CU. YDS.	2000* 100, 47* 62, 35* UNIGEL
63	4/1/86	BETHANY FALLS	866	18+70-18+30	55' LT. TO 30' RT.	PRODUCTION	29	22.5	12	10	4	2800 CU. YDS.	2050* 100, 33* UNIGEL 15*
64	4/5/86	BETHANY FALLS	866	18+50-18+80	30-124' RT. E	PRODUCTION	28	22.5	12	10	4	2800 CU. YDS.	2000* 100, 50* 62, 33* UNIGEL
65	4/7/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	23+00-22+50	25' LT. TO E	PRODUCTION	46	12.5	8	5	4	1000 CU. YDS.	1200* 100, 80* 62, 12.5* UNIGEL
67	4/9/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	21+00-21+50	55' TO 85' LT. E	PRODUCTION	45	12	8	5	4	853 CU. YDS.	800* 100, 80* 62, 12.5* UNIGEL
68	4/10/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	21+25-20+75	125' TO 135' LT. E	PRODUCTION	42	12	8	5	4	960 CU. YDS.	700* MAYNES 162* 62, 15* UNIGEL
69	4/11/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	21+00-20+50	135' TO 135' LT. E	PRODUCTION	42	12	8	5	4	830 CU. YDS.	850* MAYNES 80* 62, 12* UNIGEL
70	4/17/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846-839	22+50-22+80	197' TO 145' LT. E	PRODUCTION	50	7-12	7	5	4	425 CU. YDS.	600* MAYNES 583* UNIGEL 3
71	4/19/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	22+00-22+25	197' TO 133' LT. E	PRODUCTION	56	12.5	8	5	4	1137 CU. YDS.	1050* MAYNES 97* UNIGEL 3
72	4/19/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	21+50-22+00	100' TO 135' LT. E	PRODUCTION	53	12.5	8	5	4	1000 CU. YDS.	1100* MAYNES 165* UNIGEL
73	4/21/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	22+00-21+00	135' TO 157' LT. E	PRODUCTION	54	12.5	8	5	4	1336 CU. YDS.	1200* MAYNES 110* UNIGEL
74	4/22/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	20+25-20+75	150' TO 180' LT. E	PRODUCTION	52	12.5	8	5	4	750 CU. YDS.	1000* MAYNES 50* UNIGEL
75	4/23/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	20+25-21+10	150' TO 185' LT. E	PRODUCTION	53	12.5	8	5	4	900 CU. YDS.	1075* MAYNES 90* UNIGEL
76	4/24/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	846	21+50-22+00	185' TO 155' LT. E	PPRODUCTION	35	12.5	8	5	4	55 CU. YDS.	800* MAYNES 50* UNIGEL
77	4/25/86	BETHANY FALLS	846	17+20-17+00	E	PRODUCTION	37	8-13	9	6	4	560 CU. YDS.	600* MAYNES 90* UNIGEL
78	4/26/86	BETHANY FALLS	846	17+20-17+00	E	PRODUCTION	30	12-15	9	6	4	670 CU. YDS.	575* MAYNES 35* UNIGEL
79	4/29/86	BETHANY FALLS	846	17+20-17+00	E	PRODUCTION	39	12	9	6	4	800 CU. YDS.	825* MAYNES 45* UNIGEL
80	4/30/86	BETHANY FALLS	846	17+20-17+00	E	PRODUCTION	48	9.5-11	9	6	4	103 CU. YDS.	175* MAYNES 53* UNIGEL
81	5/1/86	BETHANY FALLS	846	17+20-17+00	E	PRODUCTION	70	7-8	9-8	5	4	802 CU. YDS.	700* MAYNES 66* UNIGEL
82	5/5/86	BETHANY FALLS	846	17+20-17+00	E	PRODUCTION	100	6.5	7	4	4	567 CU. YDS.	600* MAYNES 115* UNIGEL
83	8/9/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	844	6+50-16+76	130' RT. TO E	PRODUCTION	71	12	8	5	4	1487 CU. YDS.	1450* MAYNES 105* UNIGEL
84	8/13/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	844	16+50-16+75	E TO 120' RT.	PRODUCTION	65	12	8	5	4	1390 CU. YDS.	1425* MAYNES 95* UNIGEL
85	8/14/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	844	16+75-17+00	E TO 120' RT.	PRODUCTION	67	12	8	5	4	1290 CU. YDS.	1350* MAYNES 88* UNIGEL
86	8/18/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	844	16+75-17+00	RT OF E TO E	PRODUCTION	94	12	8	5	5	1600 CU. YDS.	1850* MAYNES 125* UNIGEL
87	8/20/86	BETHANY FALLS	865	18+30-18+10	195' RT. TO E	PRODUCTION	35	22	10	8	4	1408 CU. YDS.	1200* EP. 102, 150* MAYNES M1 X
88	8/21/86	BETHANY FALLS	865	17+50-19+00	170' LT. TO E	PRODUCTION	12	22	12	10	5	1236 CU. YDS.	800* MAYNES 30* H.P. EP. 162, 14*
89	8/22/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	865	17+00-17+25	100' RT. TO E	PRODUCTION	61	11	8	5	4	896 CU. YDS.	1150* MAYNES 67* UNIGEL
90	8/25/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	845	17+25-17+00	37-67' RT. OF E	PRODUCTION	60	12	8	5	4	1044 CU. YDS.	1150* MAYNES 3* UNIGEL 7*
91	8/26/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	845	17+00-17+75	70-130' LT. OF E	PRODUCTION	45	12	8	5	4	800 CU. YDS.	825* MAY. 50* IRECO UNIGEL
92	8/28/86	BETHANY FALLS	865	18+50-19+00	65' RT. TO 15' LT. OF E	PRODUCTION	30	21	12	10	4	2426 CU. YDS.	1850* MAYNES 33* UNIGEL 10* H.P.
93	9/2/86	BETHANY FALLS	865	18+70-19+10	15-100' LT. OF E	PRODUCTION	28	21	12	10	4	2613 CU. YDS.	20* H.P.-162, 162* MAYNES
94	9/3/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	843	21+00	E	PRODUCTION	49	12	8	5.5	4	906 CU. YDS.	1000* MAYNES 61.5* UNIGEL
95	9/4/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	843	22+00	E	PRODUCTION	55	12	8	5.5	4	970 CU. YDS.	1050* MAYNES 50* UNIGEL
96	9/5/86	HUSPUCNEY MOORE CREEK LADORE & SWABAR	843	21+00-21+50	72 160' LT. OF E	PRODUCTION	32	12	8	5	4	640 CU. YDS.	1650* MAYNES 35* UNIGEL
97	9/9/86	BETHANY FALLS	865	18+00-18+50	70-160' LT. OF E	PRODUCTION	30	21	12	10	4	2800 CU. YDS.	1800* MAYNES 33* UNIGEL 1
98	9/9/86	BETHANY FALLS	865	19+50	E	PRODUCTION	18	21	12	10	4	1563 CU. YDS.	1125* MAYNES 40* H.P. 162, 35* UNIGEL
99	7/4/87	HUSPUCNEY MOORE CREEK LADORE & SWABAR	843	16+50-17+65	181-141' RT. OF E	PRODUCTION	80	10	8	5	4	1111 CU. YDS.	1150* MAYNES 100* UNIGEL
100	7/17/87	BETHANY FALLS	860	19+00-19+50	E	PRODUCTION	26	21.5	12	10	4	2570 CU. YDS.	1750* MAYNES 25* UNIGEL 10* UNIGEL
101	7/20/87	BETHANY FALLS	867	19+50-20+00	195-135' RT. OF E	PRODUCTION	25	21.5	12	10	4	1600 CU. YDS.	1125* MAYNES 100* UNIGEL 32* UNIGEL
102	7/22/87	HUSPUCNEY MOORE CREEK LADORE & SWABAR	843	17+65-18+20	73-61' RT. OF E	PRODUCTION	106	10-12	8	5	4	1600 CU. YDS.	1475* MAYNES 36* UNIGEL 1

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BLUE SPRINGS DAM BLASTING

SHOT NO.	DATE	GEOLOGIC LOCATION	ELEV.	LOCATION		PURPOSE	NO. OF HOLES	DEPTH (FT.)	SPACING (FT.)	BURDEN (FT.)	STEM (FT.)	SHOT VOL.	EXPLOSIVES
				STATION	RANGE								
103	7/24/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	843	17+60-18+20	61 RT. TO 51' LT. OF E	PRODUCTION	98	10'	8'	5'	4'	1460 CU. YDS.	1325* MAYNES 50* UNIGEL 1
104	7/28/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	846	17+25-17+55	32-130' LT. OF E	PRODUCTION	90	10'	8'	5'	4'	1075 CU. YDS.	1225* MAYNES 16* UNIGEL 1
105	7/28/87	BETHANY FALLS		17+50-18+00	207-159' LT. OF E	PRODUCTION	32	21'	12'	10'	4'	3130 CU. YDS.	1950* MAYNES IREMITE #62 1
106	7/30/87	BETHANY FALLS		17+75-18+25	210-110' LT. OF E	PRODUCTION	38	21'	12'	10'	4'	3080 CU. YDS.	2150* MAYNES 40* IRECO #6
107	8/1/87	BETHANY FALLS		18+20-18+50	210' LT. TO 135' LT.	PRODUCTION	32	21'	12'	10'	4'	2415 CU. YDS.	1800* MAYNES 4* IRECO #62
20	7/10/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	843	16+94-18+00	184.4 RT. E	PRE-SPLIT	38	14'	2'	-	-	1038 SO. FT.	1300* 200GR. 80' E. CORO.
21	7/11/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	843	18+00-18+50	184.4 RT. E	PRE-SPLIT	19	14'	2'	-	-	532 SO. FT.	1500* 200GR. 45' E. CORO.
22	8/6/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	832	18+50-19+75	184.0 RT. E	PRE-SPLIT	50	13.5'	2'	-	-	1377 SO. FT.	1500* 200GR. 125' E. CORO.
23	8/31/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	748	17+00-17+70	197.0' LT. E	PRE-SPLIT	48	14'	2'	-	-	1288 SO. FT.	1600* 200GR.
24	10/19/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	7	192.0 RT. E	PRE-SPLIT	50	14'	2'	-	-	700 SO. FT.	1400* SEISMIC 50* 25GR.
25	1/28/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	847	17+30-18+70	197.0' LT. E	PRE-SPLIT	97	12'	-	-	-	2328 SO. FT.	2400* SEISMIC 200GR., 225' E.
26	4/6/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	843	20+29-19+64	186' LT. E 190 RT. E	PRE-SPLIT	44	15'	2'	-	-	1232 SO. FT.	1250* SEISMIC 200GR. 100' E.
27	4/7/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	844	18+75-19+65	192' LT. E 196 RT. E	PRE-SPLIT	60	14'	2'	-	-	1680 SO. FT.	1300* SEISMIC 200GR. 130' E.
108	8/10/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	850	18+50-18+00	183-100' RT. OF E	PRODUCTION	67	11'	8'	5'	4'	1015	1200* MAYNES 75* UNIGEL
109	8/12/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	846	18+00-18+50	100 RT. TO E	PRODUCTION	82	10.5'	8'	5'	4'	1307	1200* MAYNES 91* UNIGEL
110	8/17/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	847	18+00-18+50	E TO 125' LT.	PRODUCTION	100	10.5'	8'	5'	4'	1643	1600* MAYNES 50* UNIGEL 1
111	8/20/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	843	18+70-19+00	184-52' RT. OF E	PRODUCTION	56	12'	8'	5'	4'	1466	950* MAYNES 100* UNIGEL 8
112	8/21/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	870	18+50-19+00	135-95' LT. OF E	PRODUCTION	27	21'	12'	10'	5'	2430	40' EP. 163, 1300* MAYNES 32* IRECO
113	8/24/87	BETHANY FALLS	870	20+50-20+00	195-62' RT. OF E	PRODUCTION	49	21'	12'	10'	5'	4043	2500* MAYNES 80* IRECO 61, 80* UNIGEL
114	8/29/87	BETHANY FALLS	870	20+50-20+00	155-71' RT. OF E	PRODUCTION	39	21'	12'	10'	5'	2300	2150* MAYNES 45* UNIGEL 11
115	9/2/87	BETHANY FALLS	870	21+00	195-71' RT. OF E	PRODUCTION	37	21'	12'	10'	5'	2900	2000* MAYNES 30* IRECO 63, 119* UNIGEL
116	9/2/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	848	17+00-17+90	160-110' LT. OF E	PRODUCTION	93	11'	8'	5'	4'	1630	1550* MAYNES 105* UNIGEL 1
117	9/9/87	BETHANY FALLS	870		195-85 RT. OF E	PRODUCTION	38	21'	12'	10'	4'	3010	2300* MAYNES 70* IRECO 62, 64* UNIGEL
118	9/12/87	BETHANY FALLS	869	22+50-21+50	195-100 RT. OF E	PRODUCTION	15	21'	12'	10'	8'	6022	425* MAYNES 85* UNIGEL
118A	9/14/87	BETHANY FALLS	869	22+00-22+58	110-50' RT. OF E	PRODUCTION	5	20'	12'	10'		1170	250* MAYNES 8* UNIGEL
119	9/17/87	BETHANY FALLS	870	19+50-20+50	80-50' RT. OF E	PRODUCTION	32	21'	12'	10'		3080	1850* MAYNES 100* IRECO 6
120	9/21/87	BETHANY FALLS	870	20+50-21+50	45-60' RT. OF E	PRODUCTION	33	21'	12'	10'		2940	2130* MAYNES 24* IRECO 62
121	9/23/87	BETHANY FALLS	870	19+50-20+50	E TO 30' RT.	PRODUCTION	38	21'	12'	10'		2940	2400* MAYNES 43* UNIGEL 4*
121A	9/23/87	BETHANY FALLS	870	22+00	30-80' RT. OF E	PRODUCTION	16	21'	10'	10'		1170	575* MAYNES 11* UNIGEL
122	9/25/87	BETHANY FALLS	870	20+50-21+50	30-60' RT. OF E	PRODUCTION	27	21'	12'	10'		2520	1650* MAYNES 30* UNIGEL
123	10/1/87	BETHANY FALLS	870	19+00-21+00	20 RT. TO 30' LT. OF E	PRODUCTION	49	21'	12'	10'	4'	3850	2900* MAYNES 55* UNIGEL
124	10/2/87	BETHANY FALLS	870	18+25-19+00	40-125' LT. OF E	PRODUCTION	22	21'	12'	10'		2310	1300* MAYNES 25* UNIGEL
125	10/5/87	BETHANY FALLS	870	20+50-21+00	15 RT. TO 40' LT. OF E	PRODUCTION	13	21'	10'	8'	4'	1540	175* MAYNES 15* UNIGEL
126	10/6/87	BETHANY FALLS	870	20+00-20+50	E TO 8'	PRODUCTION	13	21'	10'	10'	4'	1360	825* MAYNES 15* UNIGEL
127	10/7/87	BETHANY FALLS	870	21+00-20+30	25' LT. TO 30' RT. OF E	PRODUCTION	13	21'	10'	10'		1540	775* MAYNES 15* UNIGEL
128	10/9/87	BETHANY FALLS	870	19+50-20+50	40' LT. TO E	PRODUCTION	24	21'	10'	10'		2500	1800* MAYNES 40* UNIGEL
129	10/13/87	BETHANY FALLS	870	18+00-20+50	25' LT. TO 10' RT. OF E	PRODUCTION	45	21'	10'	10'		3800	2100* MAYNES 50* UNIGEL
130	10/15/87	BETHANY FALLS	870	18+50-18+80	70-154' LT. OF E	PRODUCTION	22	21'	11'	10'	4'	2160	1350* MAYNES 35* UNIGEL
131	11/22/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	18+30-19+30	83-178 RT. OF E	PRODUCTION	87	12'	7'	5'		1267	1700* MAYNES 350* IRECO 16
132	11/25/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	19+50	80-170 RT. OF E	PRODUCTION	87	12'	7'	5'		1270	1950* MAYNES 262* IRECO 62
133	11/26/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	19+50-19+70	75-170 RT. OF E	PRODUCTION	71	12'	7'	5'		1067	1650* MAYNES 62* IRECO 62
134	11/29/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	19+50-20+00	75-170 RT. OF E	PRODUCTION	91	12'	7'	5'		1270	2015* MAYNES 75* IRECO 62
135	11/11/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	19+80-20+20	75-170 RT. OF E	PRODUCTION	88	12'	7'	5'		1270	2150* MAYNES 48* IRECO 62
136	11/13/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	20+20-20+60	75-170 RT. OF E	PRODUCTION	88	12'	7'	5'		1270	2150* MAYNES 48* IRECO 62
137	11/13/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	20+60-21+00	75-170 RT. OF E	PRODUCTION	90	12'	7'	5'		1267	2150* MAYNES 52* IRECO 62
138	11/16/87	BETHANY FALLS	870	19+00-20+75	110-180 LT. OF E	PRODUCTION	37	21'	12'	10'	4'	3380	2100* MAYNES 125* IRECO 62
139	11/18/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	20+56-21+00	75-170 RT. OF E	PRODUCTION	89	21'	7'	5'	4 1/2'	1270	2075* MAYNES 300* IRECO 62
140	11/19/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	21+00-21+45	75-170 RT. OF E	PRODUCTION	90	12'	7'	5'		1270	2300* MAYNES 50* IRECO 62
141	11/21/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	848	22+00-22+75	120-170 RT. OF E	PRODUCTION	78	11'	7'	5'		1000	1650* MAYNES 30* UNIGEL
142	11/21/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	18+50-19+50	55-75 RT. OF E	PRODUCTION	82	13'	7'	5'		1260	2100* MAYNES 30* UNIGEL
143	11/23/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	21+50-22+00	75-170 RT. OF E	PRODUCTION	90	12'	7'	5'		1270	2250* MAYNES 100* IREMITE 1
144	11/24/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	22+00	75 RT. E 110 RT. E	PRODUCTION	60	12'	7'	5'		844 CU. YDS.	1200* MAYNES 70* UNIGEL
145	12/1/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	21+50-22+25	75 RT. E 170 RT. E	PRODUCTION	116	11'	7'	5'		1660 CU. YDS.	2250* MAYNES 50* IREMITE 6*
146	12/2/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	19+50-21+50	55 RT. E 15 RT. E	PRODUCTION	134	11.5'	7'	5'		2081 CU. YDS.	3100* MAYNES 250* IREMITE 1
147	12/3/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	7	35 RT. E 55 RT. E	PRODUCTION	80	12'	7'	5'		1244 CU. YDS.	1850* MAYNES 10* IREMITE 9*
148	12/4/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	19+25-21+00	35 RT. E 55 RT. E	PRODUCTION	84	12'	7'	5'		1307 CU. YDS.	2100* MAYNES 15* IREMITE 8*
149	12/5/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	21+00-21+80	35 RT. E 55 RT. E	PRODUCTION	84	12'	7'	5'		1307 CU. YDS.	2100* MAYNES 15* IREMITE 8*
150	12/7/87	BETHANY FALLS	870	18+70-19+50	65' LT. E 210' LT. E	PRODUCTION	49	21'	12'	10'		4410 CU. YDS.	3700* MAYNES 55* UNIGEL
151	12/8/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	18+25-19+75	15 RT. E 35 RT. E	PRODUCTION	98	12'	7'	5'		1630 CU. YDS.	2200* MAYNES 110* UNIGEL
152	12/10/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	19+15-21+50	5 RT. E 15 RT. E	PRODUCTION	108	11.5'	7'	5'		1720 CU. YDS.	2500* MAYNES 120* UNIGEL
153	12/11/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	18+25-19+50	5 RT. E 15 RT. E	PRODUCTION	92	12'	7'	5'		1495 CU. YDS.	2050* MAYNES 50* IREMITE 8*
154	12/12/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	849	19+50-21+25	5 RT. E 15 RT. E	PRODUCTION	114	12'	7'	5'		1840 CU. YDS.	2500* MAYNES 125* UNIGEL
155	12/13/87	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	848	19+50-21+00	5 RT. E 15 RT. E	PRODUCTION	97	11'	7'	5'		1565 CU. YDS.	2100* MAYNES 100* IREMITE 6*
156	1/4/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	847	18+00-19+50	15 RT. E 35 RT. E	PRODUCTION	100	10'	7'	5'		1244 CU. YDS.	2100* MAYNES 21, 100* IREMITE 1
157	1/6/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	847	19+60-20+80	35 RT. E 55 RT. E	PRODUCTION	72	10'	7'	5'		933 CU. YDS.	1500* MAYNES 100* UNIGEL
158	1/8/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	847	18+2 19+60	35 RT. E 55 RT. E	PRODUCTION	54	10'	7'	5'		724 CU. YDS.	1100* MAYNES 55* IREMITE 8*
159	1/11/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	847	18+70	35 RT. E 55 RT. E	PRODUCTION	48	10'	7'	5'		677 CU. YDS.	1050* MAYNES 55* UNIGEL
160	1/12/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	847	19+70-20+80	55 RT. E 75 RT. E	PRODUCTION	64	10'	7'	5'		830 CU. YDS.	1250* MAYNES 70* UNIGEL 23*
161	1/13/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	847	19+70-20+70	55 RT. E 105 RT. E	PRODUCTION	93	10'	7'	5'		1065 CU. YDS.	1800* MAYNES 21, 50* IREMITE 1
162	1/15/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	848	17+80-12+80	55 RT. E 75 RT. E	PRODUCTION	117	11.5'	7'	5'		1610 CU. YDS.	2940* MAYNES 21, 130* UNIGEL
163	1/16/88	HUSHPUCNEY WOOD CREEK LAODRE & SWABAR	848	17+80-19+80	75 RT. E 95 RT. E	PRODUCTION	146	11.5'	7'	5'		1610 CU. YDS.	12500* MAYNES 21, 128* UNIGEL

VALUE ENGINEERING PAYS


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JE SPRINGS DAM BLASTING REPORT

SHOT VOL.	EXPLOSIVES (LBS.)	NO. OF CAPS	DELAYS IN MIL/SEC	CARTRIDGE STRENGTH	REMARKS
1460 CU. YDS.	11325* MAYNES 50* UNIGEL 109* UNIGEL	98	0-10	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.0*/CU. YD.
1075 CU. YDS.	1225* MAYNES 16* UNIGEL 100* UNIGEL	90	0-10	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.2*/CU. YD.
3130 CU. YDS.	1850* MAYNES IREMITE #52 UNIGEL	32	0-10	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.86*/CU. YD.
3080 CU. YDS.	2150* MAYNES 40* IRECO #62, 30* UNIGEL	38	0-20	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.72*/CU. YD.
2415 CU. YDS.	1800* MAYNES 4* IRECO #62, 36* UNIGEL	32	0-8	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.72*/CU. YD.
038 SO. FT.	1300* 200GR. 40' E. CORD.	1	0	PRIMACORD	3/4 HOLE 3/4" ANGLE
532 SO. FT.	580* 200GR. 45' E. CORD.	1	0	PRIMACORD	3/4 HOLE 3/4" ANGLE
1371 SO. FT.	1500* 200GR. 125' E. CORD.	1	0	PRIMACORD	3/4 HOLE 3/4" ANGLE
1288 SO. FT.	11600* 200GR.	1	0	PRIMACORD	3/4 HOLE 3/4" ANGLE
700 SO. FT.	1400* SEISMIC 50' 25GR.	1	0	PRIMACORD	3/4 HOLE 3/4" ANGLE
2328 SO. FT.	2400* SEISMIC 200GR., 225' E. CORD.	2	10.7	PRIMACORD	3/4 HOLE 3/4" ANGLE
1232 SO. FT.	1250* SEISMIC 200GR. 100' E. CORD.	1	0	PRIMACORD	3/4 HOLE 3/4" ANGLE
1680 SO. FT.	1300* SEISMIC 200GR. 130' E. CORD.	1	0	PRIMACORD	3/4 HOLE 3/4" ANGLE
1015	1200* MAYNES 75* UNIGEL	67	0-9	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 1.03*/CU. YD.
1307	1200* MAYNES 91* UNIGEL	82	0-10	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.99*/CU. YD.
1643	1600* MAYNES 50* UNIGEL 110* UNIGEL	100	0-10	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.07*/CU. YD.
1466	950* MAYNES 100* UNIGEL 65* UNIGEL	55	0-8	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.8*/CU. YD.
2430	40' E.P. 150' 1350* MAYNES 30* IRECO 62, 20* UNIGEL 30* UNIGEL	27	0-8	50* SACKS 2 1/2 X 16, 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.60*/CU. YD.
4043	1520* MAYNES 40* IRECO 62, 80* UNIGEL 55* UNIGEL	49	0-10	50* SACKS 2 1/2 X 16, 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.68*/CU. YD.
2900	2150* MAYNES 45* UNIGEL 10* IRECO 62	83	0-10	50* SACKS 2 X 8, 2 1/2 X 16	3/4 HOLES, SPILLWAY 0.75*/CU. YD.
2900	2000* MAYNES 30* IRECO 62, 18* UNIGEL 45* UNIGEL	37	0-12	50* SACKS 2 1/2 X 16, 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.71*/CU. YD.
1630	1550* MAYNES 105* UNIGEL 6* UNIGEL	93	0-11	50* SACKS 2 X 8, 2 1/2 X 16	3/4 HOLES, SPILLWAY 1.02*/CU. YD.
3010	2300* MAYNES 70* IRECO 62, 6* UNIGEL 45* UNIGEL	38	0-12	50* SACKS 2 1/2 X 16, 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.02*/CU. YD.
6022	1275* MAYNES 85* UNIGEL	75	0-8	50* SACKS	3/4 HOLES, SPILLWAY 0.72*/CU. YD.
1170	40* MAYNES 6* UNIGEL	5	0-2	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.25*/CU. YD.
3080	1850* MAYNES 100* IRECO 62, 40* UNIGEL	32	0-8	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.65*/CU. YD.
2940	2100* MAYNES 24* IRECO 62, 40* UNIGEL	33	0-7	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.73*/CU. YD.
2940	2400* MAYNES 43* UNIGEL 4* IRECO 62	39	0-9	50* SACKS 2 X 8, 2 1/2 X 16	3/4 HOLES, SPILLWAY 0.8*/CU. YD.
1170	1575* MAYNES 11* UNIGEL	10	0-5	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.5*/CU. YD.
2520	1650* MAYNES 30* UNIGEL	27	0-5	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.67*/CU. YD.
3550	2900* MAYNES 55* UNIGEL	51	0-5	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.76*/CU. YD.
2310	1300* MAYNES 25* UNIGEL	22	1-5	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.6*/CU. YD.
1540	1775* MAYNES 15* UNIGEL	14	0-6	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.51*/CU. YD.
1350	825* MAYNES 15* UNIGEL	13	0-5	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.51*/CU. YD.
1540	1775* MAYNES 15* UNIGEL	13	0-7	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.51*/CU. YD.
2500	1800* MAYNES 40* UNIGEL	24	0-5	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.74*/CU. YD.
3800	2100* MAYNES 50* UNIGEL	46	0-5	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.72*/CU. YD.
2160	1350* MAYNES 25* UNIGEL	22	1-7	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 0.63*/CU. YD.
1267	1700* MAYNES 350* IRECO 162, 95* UNIGEL	88	0-10	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.70*/CU. YD.
1270	1950* MAYNES 262* IRECO 62, 100* UNIGEL	87	0-10	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.8*/CU. YD.
1067	1650* MAYNES 62* IRECO 62, 90* UNIGEL	71	0-12	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.70*/CU. YD.
1270	2075* MAYNES 75* IRECO 62, 100* UNIGEL	91	0-12	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.8*/CU. YD.
1270	2150* MAYNES 48* IRECO 62, 41* UNIGEL	88	0-12	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.8*/CU. YD.
1270	2150* MAYNES 48* IRECO 62, 97* UNIGEL	88	0-12	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.8*/CU. YD.
1267	2150* MAYNES 52* IRECO 62, 100* UNIGEL	90	0-15	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.8*/CU. YD.
3380	2100* MAYNES 125* IRECO 62, 41* UNIGEL	37	0-7	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 0.67*/CU. YD.
1270	2075* MAYNES 300* IRECO 62, 100* UNIGEL	89	0-15	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.8*/CU. YD.
1270	2300* MAYNES 30* IRECO 62, 100* UNIGEL	90	0-14	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.72*/CU. YD.
1000	1650* MAYNES 85* UNIGEL	78	0-12	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 1.7*/CU. YD.
1260	2100* MAYNES 30* UNIGEL	82	0-12	50* SACKS 2 X 8	3/4 HOLES, SPILLWAY 1.7*/CU. YD.
1270	2250* MAYNES 100* IREMITE 62, 100* UNIGEL	90	0-12	50* SACKS 2 1/2 X 16, 2 X 8	3/4 HOLES, SPILLWAY 1.7*/CU. YD.
844 CU. YDS.	1800* MAYNES 70* UNIGEL	60	1-12	50* SACKS MAYNES MIX #1, 2 1/2 X 16 IRECO UNIGEL	1.5*/YD. 3/4" VERTICAL HOLES SPILLWAY
660 CU. YDS.	2580* MAYNES 50* IREMITE 62, 125* UNIGEL	116	0-9	50* SACKS MAYNES MIX #1, 2 1/2 X 16 IRECO IREMITE 62, 2 X 8 IRECO UNIGEL	1.6*/YD. 3/4" VERTICAL HOLES SPILLWAY
1087 CU. YDS.	3100* MAYNES 250* IREMITE 62, 145* UNIGEL	134	0-15	50* SACKS MAYNES MIX #1, 2 1/2 X 16 IRECO IREMITE 62, 2 X 8 IRECO UNIGEL	1.7*/YD. 3/4" VERTICAL HOLES SPILLWAY
144 CU. YDS.	1950* MAYNES 10* IREMITE 62, 90* UNIGEL	80	0-15	50* SACKS MAYNES MIX #1, 2 1/2 X 16 IRECO IREMITE 62, 2 X 8 IRECO UNIGEL	1.6*/YD. 3/4" VERTICAL HOLES SPILLWAY
301 CU. YDS.	2100* MAYNES 15* IREMITE 62, 90* UNIGEL	84	0-15	50* SACKS MAYNES MIX #1, 2 1/2 X 16 IRECO IREMITE 62, 2 X 8 IRECO UNIGEL	1.7*/YD. 3/4" VERTICAL HOLES SPILLWAY
107 CU. YDS.	2100* MAYNES 15* IREMITE 62, 90* UNIGEL	84	1-12	50* SACKS MAYNES MIX #1, 2 1/2 X 16 IRECO IREMITE 62, 2 X 8 IRECO UNIGEL	1.7*/YD. 3/4" VERTICAL HOLES SPILLWAY
630 CU. YDS.	2200* MAYNES 110* UNIGEL	98	0-15	50* SACKS MAYNES MIX #1, 2 X 8 IRECO UNIGEL	1.4*/YD. 3/4" VERTICAL HOLES SPILLWAY
730 CU. YDS.	2500* MAYNES 120* UNIGEL	108	0-15	50* SACKS MAYNES MIX #1, 2 X 8 IRECO UNIGEL	1.5*/YD. 3/4" VERTICAL HOLES SPILLWAY
495 CU. YDS.	2050* MAYNES 50* IREMITE 62, 101* UNIGEL	92	0-15	50* SACKS MAYNES MIX #1, 2 1/2 X 16 IRECO IREMITE 62, 2 X 8 IRECO UNIGEL	1.5*/YD. 3/4" VERTICAL HOLES SPILLWAY
840 CU. YDS.	2500* MAYNES 125* UNIGEL	114	0-14	50* SACKS MAYNES MIX #1, 2 X 8 IRECO UNIGEL	1.4*/YD. 3/4" VERTICAL HOLES SPILLWAY
565 CU. YDS.	2100* MAYNES 100* IREMITE 62, 110* UNIGEL	97	0-13	50* SACKS MAYNES MIX #1, 2 1/2 X 16 IRECO IREMITE 62, 2 X 8 IRECO UNIGEL	1.5*/YD. 3/4" VERTICAL HOLES SPILLWAY
244 CU. YDS.	2100* MAYNES 11, 100* IREMITE 110* UNIGEL	100	0-13	50* SACK MAYNES 2 1/2" 6" IRECO IREMITE 2 X 8 IRECO UNIGEL	3/4" HOLE VERTICAL 1.86*/YD. SPILLWAY
313 CU. YDS.	1500* MAYNES 100* UNIGEL	72	0-15	50* SACK MAYNES 2 X 8 IRECO UNIGEL	1.71*/YD. 3/4" HOLE VERTICAL SPILLWAY
726 CU. YDS.	1100* MAYNES 55* IREMITE 62, 60* UNIGEL	54	0-15	50* SACK MAYNES #1, 2 1/2 X 16 IRECO IREMITE 2 X 8 IRECO UNIGEL	1.61*/YD. 3/4" VERTICAL HOLE SPILLWAY
577 CU. YDS.	1050* MAYNES 55* UNIGEL	48	0-12	50* SACKS MAYNES #1, 2 X 8 IRECO UNIGEL	1.68*/YD. 3/4" VERTICAL HOLES SPILLWAY
130 CU. YDS.	1750* MAYNES 70* UNIGEL 23* IREMITE	64	0-15	50* SACKS MAYNES MIX #1, 2 X 8 IRECO UNIGEL 2 1/2 X 16 IRECO IREMITE 62	1.4*/YD. 3/4" VERTICAL HOLE SPILLWAY
85 CU. YDS.	1800* MAYNES #1, 50* IREMITE 62, 102* UNIGEL	93	0-12	50* SACKS MAYNES MIX 2 1/2 X 16 IRECO IREMITE 2 X 8 IRECO UNIGEL	1.8*/YD. 3/4" VERTICAL HOLES SPILLWAY
670 CU. YDS.	2250* MAYNES #1, 130* UNIGEL	117	0-15	50* SACKS MAYNES MIX 2 X 8 IRECO UNIGEL	1.6*/YD. 3/4" VERTICAL HOLE SPILLWAY
6.0 CU. YDS.	2500* MAYNES #1, 12* UNIGEL	116	0-15	50* SACKS MAYNES MIX #1, 2 X 8 IRECO UNIGEL	1.65*/YD. 3/4" VERTICAL HOLE SPILLWAY

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	A	
Drawn by:		V.A.B.	
Checked by:	BLASTING SCHEDULE		
Submitted by:	Scale:	AS SHOWN	Sheet number: 89
	Date:	JUNE 1990	
	Design File:	000.63354.DGN	File No:
	Dwg. No:	RBL-2-1309	

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NO	DATE	DESCRIPTION	TIME	TYPE	PRE-SPLIT	50	15'	2'	1377 SO FT.	1500' 200GR. 125' E.	
24	10/19/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	748	17+00-11+70	197.0' LT. €	PRE-SPLIT	48	14'	2'	1288 SO. FT.	1600' 200GR.
25	1/28/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	847	17+30-18+70	197.0' LT. €	PRE-SPLIT	50	14'	2'	700 SO. FT.	1400' SEISMIC 50' 2'
26	4/6/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	843	20+29-19+64	186' LT. € 190' RT. €	PRE-SPLIT	44	15'	2'	2328 SO. FT.	2400' SEISMIC 200GR
27	4/7/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	844	18+75-19+65	183' LT. € 196' RT. €	PRE-SPLIT	60	14'	2'	1232 SO. FT.	1250' SEISMIC 200GR
108	8/10/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	850	18+50-18+00	100' RT. TO €	PRODUCTION	67	11'	8'	1680 SO. FT.	1700' MAYNES 35'
109	8/12/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	846	18+00-18+50	€ TO 125' LT.	PRODUCTION	82	10.5'	8'	1015	1200' MAYNES 31'
110	8/17/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	847	18+00-18+50	€ TO 125' LT.	PRODUCTION	100	10.5'	8'	1307	1600' MAYNES 50'
111	8/20/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	843	18+70-19+00	184'-85' RT. OF €	PRODUCTION	55	12'	8'	1466	950' MAYNES 100'
112	8/21/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	870	18+50-19+00	135'-95' LT. OF €	PRODUCTION	27	21'	12'	2450	40' EP. 162.1350' MAIN
113	8/24/87	BETHANY FALLS	870	20+50-20+00	195'-62' RT. OF €	PRODUCTION	49	21'	12'	4043	250' MAYNES 85' RECO
114	8/29/87	BETHANY FALLS	870	20+50-20+00	195'-71' RT. OF €	PRODUCTION	38	21'	12'	2900	2150' MAYNES 45' L
115	9/2/87	BETHANY FALLS	870	21+00	195'-71' RT. OF €	PRODUCTION	37	21'	12'	2900	2000' MAYNES 30' RECO
116	9/2/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	848	17+00-17+90	160'-110' LT. OF €	PRODUCTION	93	11'	8'	1630	1550' MAYNES 105'
117	9/9/87	BETHANY FALLS	870		195'-85' RT. OF €	PRODUCTION	38	21'	12'	3010	2300' MAYNES 80' RECO
118	9/12/87	BETHANY FALLS	869	22+50-21+50	195'-100' RT. OF €	PRODUCTION	75	21'	12'	6022	4250' MAYNES 85' UNCO
118A	9/14/87	BETHANY FALLS	869	22+00-22+58	110'-50' RT. OF €	PRODUCTION	5	20'	12'	1170	250' MAYNES 6' UNCO
119	9/17/87	BETHANY FALLS	870	19+50-20+50	80'-50' RT. OF €	PRODUCTION	32	21'	12'	3080	1800' MAYNES 100'
120	9/21/87	BETHANY FALLS	870	20+50-21+50	45'-60' RT. OF €	PRODUCTION	33	21'	12'	2940	2150' MAYNES 24' L
121	9/23/87	BETHANY FALLS	870	19+50-20+50	€ TO 30' RT.	PRODUCTION	38	21'	12'	2940	2400' MAYNES 43' L
121A	9/23/87	BETHANY FALLS	870	22+00	30'-80' RT. OF €	PRODUCTION	10	21'	10'	1170	515' MAYNES 114' UN
122	9/25/87	BETHANY FALLS	870	20+50-21+50	30'-60' RT. OF €	PRODUCTION	23	21'	12'	2520	1650' MAYNES 30' L
123	10/1/87	BETHANY FALLS	870	19+00-21+00	20' RT. TO 50' LT. OF €	PRODUCTION	49	21'	12'	3850	2300' MAYNES 55' L
124	10/2/87	BETHANY FALLS	870	18+25-19+00	40'-125' LT. OF €	PRODUCTION	22	21'	12'	2310	1300' MAYNES 28' L
125	10/5/87	BETHANY FALLS	870	20+50-21+00	15' RT. TO 50' LT. OF €	PRODUCTION	13	21'	10'	1540	775' MAYNES 15' UN
126	10/6/87	BETHANY FALLS	870	20+00-20+50	€ *	PRODUCTION	13	21'	10'	1380	825' MAYNES 15' UN
127	10/7/87	BETHANY FALLS	870	21+00-20+50	25' LT. TO 30' RT. OF €	PRODUCTION	13	21'	10'	1540	775' MAYNES 15' UN
128	10/9/87	BETHANY FALLS	870	19+50-20+50	40' LT. TO €	PRODUCTION	24	21'	10'	2500	1800' MAYNES 40' UN
129	10/13/87	BETHANY FALLS	870	19+00-20+50	25' LT. TO 10' RT. OF €	PRODUCTION	46	21'	10'	3800	2700' MAYNES 50' L
130	10/15/87	BETHANY FALLS	870	18+50-18+80	70'-54' LT. OF €	PRODUCTION	22	21'	11'	2160	1350' MAYNES 25' L
131	11/2/87	HUSPUCKEYN WOODS CREEK LA & SWABAR	849	18+30-19+30	83'-178' RT. OF €	PRODUCTION	87	12'	7'	1267	1700' MAYNES 350'
132	11/5/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	19+50	80'-170' RT. OF €	PRODUCTION	87	12'	7'	1270	1650' MAYNES 262'
133	11/6/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	19+50-19+70	75'-170' RT. OF €	PRODUCTION	71	12'	7'	1067	1650' MAYNES 62' IF
134	11/9/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	19+50-20+00	75'-170' RT. OF €	PRODUCTION	91	12'	7'	1270	2075' MAYNES 75' IR
135	11/11/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	19+80-20+20	75'-170' RT. OF €	PRODUCTION	88	12'	7'	1270	2150' MAYNES 48' IR
136	11/13/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	20+20-20+60	75'-170' RT. OF €	PRODUCTION	88	12'	7'	1270	2150' MAYNES 48' IR
137	11/13/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	20+60-21+00	75'-170' RT. OF €	PRODUCTION	90	21'	7'	1267	2150' MAYNES 52' IR
138	11/16/87	BETHANY FALLS	870	19+00-20+75	110'-180' LT. OF €	PRODUCTION	37	21'	12'	3380	2100' MAYNES 125' L
139	11/18/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	20+56-21+00	75'-170' RT. OF €	PRODUCTION	89	21'	7'	1270	2075' MAYNES 300'
140	11/19/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	848	21+00-21+45	75'-170' RT. OF €	PRODUCTION	90	12'	7'	1270	2300' MAYNES 50' IR
141	11/21/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	848	22+00-22+75	120'-170' RT. OF €	PRODUCTION	78	11'	7'	1000	1650' MAYNES 85' UN
142	11/21/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	18+50-19+50	55'-75' RT. OF €	PRODUCTION	82	3'	7'	1260	2100' MAYNES 90' UN
143	11/23/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	21+50-22+00	75'-170' RT. OF €	PRODUCTION	90	12'	7'	1270	2250' MAYNES 100' L
144	11/24/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	22+00	15' RT. € 170' RT. €	PRODUCTION	60	12'	7'	844 CU YDS.	1200' MAYNES 70' UN
145	12/1/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	21+50-22+25	75' RT. € 170' RT. €	PRODUCTION	116	11'	7'	1660 CU YDS.	2550' MAYNES 50' IR
146	12/2/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	19+50-21+50	55' RT. € 75' RT. €	PRODUCTION	134	11.5'	7'	2087 CU YDS.	3100' MAYNES 250' IF
147	12/3/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	?	35' RT. € 55' RT. €	PRODUCTION	80	12'	7'	244 CU YDS.	1850' MAYNES 10' IR
148	12/4/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	19+25-21+00	35' RT. € 55' RT. €	PRODUCTION	84	12'	7'	1307 CU YDS.	2100' MAYNES 15' IR
149	12/5/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	21+00-21+80	35' RT. € 55' RT. €	PRODUCTION	84	12'	7'	1307 CU YDS.	2100' MAYNES 15' IR
150	12/7/87	BETHANY FALLS	870	18+70-19+50	65' LT. € 210' LT. €	PRODUCTION	49	21'	12'	4410 CU YDS.	3100' MAYNES 55' UN
151	12/8/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	18+25-19+75	15' RT. € 35' RT. €	PRODUCTION	98	12'	7'	1630 CU YDS.	2200' MAYNES 110' U
152	12/10/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	19+75-21+50	5' RT. € 15' RT. €	PRODUCTION	108	11.5'	7'	1730 CU YDS.	2500' MAYNES 120' U
153	12/11/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	18+25-19+50	5' LT. € 15' RT. €	PRODUCTION	92	12'	7'	1495 CU YDS.	2050' MAYNES 50' IR
154	12/12/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	849	19+50-21+25	5' LT. € 15' RT. €	PRODUCTION	114	12'	7'	1840 CU YDS.	2500' MAYNES 125' UP
155	12/13/87	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	848	19+50-21+00	5' LT. € 15' LT. €	PRODUCTION	97	11'	7'	1565 CU YDS.	2100' MAYNES 100' IF
156	1/4/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	847	18+00-19+50	15' LT. € 35' LT. €	PRODUCTION	100	10'	7'	1244 CU YDS.	2100' MAYNES *1, 100
157	1/6/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	847	19+60-20+80	35' LT. € 55' LT. €	PRODUCTION	72	10'	7'	933 CU YDS.	1500' MAYNES 100' UN
158	1/8/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	847	18+7-19+60	35' LT. € 55' LT. €	PRODUCTION	54	10'	7'	725 CU YDS.	1100' MAYNES 35' IR
159	1/11/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	847	18+70	35' LT. € 55' LT. €	PRODUCTION	48	10'	7'	677 CU YDS.	1050' MAYNES 55' UN
160	1/12/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	847	19+70-20+80	55' LT. € 75' LT. €	PRODUCTION	64	10'	7'	830 CU YDS.	1250' MAYNES 70' UN
161	1/15/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	847	19+70-20+70	55' LT. € 105' LT. €	PRODUCTION	93	10'	7'	1065 CU YDS.	1800' MAYNES *1, 50'
162	1/15/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	848	17+80-12+80	55' LT. € 75' LT. €	PRODUCTION	117	11.5'	7'	1670 CU YDS.	2550' MAYNES *1, 130'
163	1/16/88	HUSPUCKEYN WOODS CREEK LADORE & SWABAR	848	17+80-19+80	75' LT. € 95' LT. €	PRODUCTION	116	11.5'	7'	1670 CU YDS.	2500' MAYNES *1, 125'

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BLUE SPRINGS DAM BLASTING

SHOT NO.	DATE	GEOLOGIC LOCATION	ELEV.	LOCATION		PURPOSE	NO. OF HOLES	DEPTH (FT.)	SPACING (FT.)	BURDEN (FT.)	STEM (FT.)	SHOT VOL.	EXPLOSIV.
				STATION	RANGE								
164	1/18/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	848	17*80-18*80	95 LT. E 115' LT. E	PRODUCTION	59	11.5'	7'	5'	894 CU. YDS.	1350* MAYNES 65* UNIGEL	
165	1/21/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	848	18*70-19*45	95 LT. E 115' LT. E	PRODUCTION	48	11.5'	7'	5'	716 CU. YDS.	1050* MAYNES 150* IREM	
166	1/21/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	848	17*70-18*70	115 LT. E 135' LT. E	PRODUCTION	60	11.5'	7'	5'	835 CU. YDS.	110* MAYNES 50* IREMIT	
167	1/23/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	848	18*70-19*55	115 LT. E 135' LT. E	PRODUCTION	48	11.5'	7'	5'	716 CU. YDS.	1200* MAYNES 150* IREM	
168	1/23/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	848	17*60-18*65	115 LT. E 135' LT. E	PRODUCTION	48	11.5'	7'	5'	855 CU. YDS.	1350* MAYNES 100* IREM	
169	1/25/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	849	18*65-19*50	115 LT. E 125' LT. E	PRODUCTION	45	11.5'	7'	5'	716 CU. YDS.	1050* MAYNES 50* UNIGEL	
170	1/25/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	849	18*10-19*40	140' LT. E 160' LT. E	PRODUCTION	62	11.5'	7'	5'	906 CU. YDS.	1400* MAYNES 70* UNIGEL	
171	1/29/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	847	17*50-18*50	160' LT. E 185' LT. E	PRODUCTION	85	10.0'	7'	5'	1037 CU. YDS.	1400* MAYNES 95* UNIGEL	
172	2/2/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	847	16*00-17*00	160' LT. E 185' LT. E	PRODUCTION	106	10'	7'	5'	1426 CU. YDS.	1875* MAYNES 75* IREMIT	
173	2/3/88	BETHANY FALLS	868	20*50-21*00	?	PRODUCTION	12	21'	10'	10'	1190 CU. YDS.	100* MAYNES 10* UNIGEL	
174	2/5/88	BETHANY FALLS	868	19*50-20*50	10' LT. E 120' LT. E	PRODUCTION	24	21'	10'	10'	3500 CU. YDS.	1550* MAYNES 27* UNIGEL	
175	2/9/88	BETHANY FALLS	868	19*50-20*00	10' LT. E 155' LT. E	PRODUCTION	32	21'	12'	8'	3584 CU. YDS.	2050* MAYNES 36* UNIGEL	
176	2/19/88	BETHANY FALLS	868	18*50-19*80	104' LT. E 210' LT. E	PRODUCTION	73	21'	12'	8'	5600 CU. YDS.	4875* MAYNES 150* IREM	
177	3/1/88	CRITZER PLEASANTON A	829	14*00-19*00	60' RT. E 80' RT. E	PRODUCTION	246	4-6.5'	5-7'	4-5'	1385 CU. YDS.	1075* MAYNES 285* UNIGEL	
178	3/2/88	CRITZER PLEASANTON A	828	18*00-20*50	60' RT. E 80' RT. E	PRODUCTION	175	4-6.5'	6'	5'	1059 CU. YDS.	850* MAYNES 192* UNIGEL	
179	3/7/88	CRITZER PLEASANTON A	828	20*50-21*00	85' RT. E 80' RT. E	PRODUCTION	45	4'	5'	4'	167 CU. YDS.	50* MAYNES 100* IREMIT	
180	3/7/88	CRITZER PLEASANTON A	829	19*20-21*10	40' RT. E 60' RT. E	PRODUCTION	136	5.25'	6'	5'	796 CU. YDS.	550* MAYNES 150* UNIGEL	
181	3/8/88	CRITZER PLEASANTON A	829	15*80-19*20	40' RT. E 60' RT. E	PRODUCTION	177	5.7'	6'	5'	1436 CU. YDS.	1300* MAYNES 165* UNIGEL	
182	3/9/88	CRITZER PLEASANTON A	829	14*00-16*85	20' RT. E 40' RT. E	PRODUCTION	260	4-6.5'	6'	5'	915 CU. YDS.	850* MAYNES 285* UNIGEL	
183	3/10/88	CRITZER PLEASANTON A	829	14*00-15*85	20' RT. E 40' RT. E	PRODUCTION	138	?	5-6'	4-5'	685 CU. YDS.	500* MAYNES 158* UNIGEL	
184	3/11/88	CRITZER PLEASANTON A	829	17*00-19*70	20' RT. E 40' RT. E	PRODUCTION	144	5 5'-7'	5'-6'	5'	1340 CU. YDS.	1200* MAYNES 158* UNIGEL	
185	3/12/88	CRITZER PLEASANTON A	828	19*70-20*90	20' RT. E 40' RT. E	PRODUCTION	84	5'	6'	5'	444 CU. YDS.	375* MAYNES 93* UNIGEL	
186	3/14/88	CRITZER PLEASANTON A	827	21*10-21*50	20' RT. E 60' RT. E	PRODUCTION	120	4'	5'	4'	356 CU. YDS.	250* MAYNES 132* UNIGEL	
187	3/14/88	CRITZER PLEASANTON A	830	18*00-19*00	4' LT. E 20' LT. E	PRODUCTION	62	7.5'	9'	6'	793 CU. YDS.	650* MAYNES 68* UNIGEL	
188	3/15/88	CRITZER PLEASANTON A	830	15*75-18*00	5' LT. E 20' RT. E	PRODUCTION	110	7'	8'	5'	1640 CU. YDS.	1400* MAYNES 190* UNIGEL	
189	3/16/88	CRITZER PLEASANTON A	828	14*50-15*75	5' LT. E 20' RT. E	PRODUCTION	70	5'	5'	5'	277 CU. YDS.	250* MAYNES 80* UNIGEL	
190	3/16/88	CRITZER PLEASANTON A	831	16*00-18*50	4' LT. E 30' LT. E	PRODUCTION	142	7.5'	8'	6'	1736 CU. YDS.	1400* MAYNES 156* UNIGEL	
191	3/17/88	CRITZER PLEASANTON A	828	14*50-15*15	4' LT. E 30' LT. E	PRODUCTION	75	5.5'	6'	5'	400 CU. YDS.	500* MAYNES 83* UNIGEL	
192	3/18/88	CRITZER PLEASANTON A	828	14*35-15*00	4' LT. E 30' LT. E	PRODUCTION	65	6'	5'	5'	300 CU. YDS.	500* MAYNES 73* UNIGEL	
193	3/18/88	CRITZER PLEASANTON A	823	18*30-19*00	20' LT. E 45' LT. E	PRODUCTION	65	5'	7'	5'	1393 CU. YDS.	1150* MAYNES 72* UNIGEL	
194	3/21/88	CRITZER PLEASANTON A	831	15*80-18*30	20' RT. E 45' RT. E	PRODUCTION	129	5.9'-8.2'	9'	5'	1643.5 CU. YDS.	1475* MAYNES 123* UNIGEL	
195	3/22/88	CRITZER PLEASANTON A	828	14*50-15*80	20' RT. E 45' RT. E	PRODUCTION	88	4.5'	9'	5'	541.7 CU. YDS.	350* MAYNES 88* UNIGEL	
196	3/22/88	CRITZER PLEASANTON A	831.5	17*00-18*70	2' RT. E 45' RT. E	PRODUCTION	90	8.5'	9'	5'	1338 CU. YDS.	1400* MAYNES 90* UNIGEL	
197	3/23/88	CRITZER PLEASANTON A	830.6	14*50-15*80	9' LT. E 18' RT. E	PRODUCTION	124	6.9'	10'	6'	897 CU. YDS.	1000* MAYNES 124* UNIGEL	
198	3/24/88	CRITZER PLEASANTON A	832.6	15*80-18*80	9' LT. E 27' LT. E	PRODUCTION	138	9.6'	10'	6'	1660 CU. YDS.	2400* MAYNES 134* UNIGEL	
199	3/25/88	CRITZER PLEASANTON A	828.5	14*50-15*80	9' LT. E 27' LT. E	PRODUCTION	56	6.5'	8'	5'	563 CU. YDS.	500* MAYNES 56* UNIGEL	
200	3/25/88	CRITZER PLEASANTON A	831.6	16*75-18*20	27' LT. E 45' LT. E	PRODUCTION	80	8.6'	10'	6'	1003 CU. YDS.	1650* MAYNES 80* UNIGEL	
201	3/26/88	CRITZER PLEASANTON A	830	14*50-16*75	27' LT. E 45' LT. E	PRODUCTION	108	7.2'	9'	6'	1500 CU. YDS.	1250* MAYNES 119* UNIGEL	
202	3/28/88	CRITZER PLEASANTON A	830	16*00-19*00	126' LT. E 156' LT. E	PRODUCTION	130	9.2'	9'	6'	3393 CU. YDS.	3325* MAYNES 143* UNIGEL	
203	3/30/88	CRITZER PLEASANTON A	830	15*00-16*00	126' LT. E 150' LT. E	PRODUCTION	116	7'	9'	6'	1322 CU. YDS.	1100* MAYNES 128* UNIGEL	
204	3/31/88	CRITZER PLEASANTON A	828	19*50-20*00	10' RT. E 10' LT. E	PRODUCTION	36	5'	6'	5'	164 CU. YDS.	615* MAYNES 106* UNIGEL	
205	4/4/88	CRITZER PLEASANTON A	827	21*00	10' RT. E 10' LT. E	PRODUCTION	28	4.2'	5'	5'	191 CU. YDS.	160* MAYNES 31* UNIGEL	
206	4/8/88	MOUND CITY CRITZER PLEASANTON	833	18*25-18*75	30' LT. E 150' LT. E	PRODUCTION	141	11'	9'	7'	2648 CU. YDS.	2425* MAYNES 155* UNIGEL	
207	4/9/88	MOUND CITY CRITZER PLEASANTON	830	19*30-20*70	10' LT. E 55' LT. E	PRODUCTION	146	6'-8'	8.5'	7'	1578 CU. YDS.	1450* MAYNES 160* UNIGEL	
208	4/11/88	MOUND CITY CRITZER PLEASANTON	826	20*50-21*30	10' LT. E 60' LT. E	PRODUCTION	147	5'	5.5'	5'	740 CU. YDS.	550* MAYNES 150* UNIGEL	
209	4/12/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	846	18*50-19*80	76' LT. E 197' LT. E	PRODUCTION	18	11'-14'	10'	7'	554 CU. YDS.	425* MAYNES 23* IREMIT	
210	4/13/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	846	18*80-19*60	84' LT. E 194' LT. E	PRODUCTION	69	11'-22'	10'	7'	3120 CU. YDS.	3925* MAYNES 76* UNIGEL	
211	4/14/88	HUSHUCKNEY WOOD CREEK LADORE & SWABAR	846	19*60-19*90	84' LT. E 194' LT. E	PRODUCTION	64	11'-22'	10'	7'	2870 CU. YDS.	3450* MAYNES 80* ?	
212	4/15/88	MOUND CITY CRITZER PLEASANTON	?	?	?	PRODUCTION	67	9'-21'	?	?	?	3350* MAYNES 100* IREM	
213	4/20/88	?	?	?	?	PRODUCTION	67	9'-22'	?	?	?	3350* MAYNES 67* IREMIT	

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VALUE ENGINEERING PAYS

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E SPRINGS DAM BLASTING REPORT

SHOT VOL.	EXPLOSIVES (LBS.)	NO. OF CAPS	DELAYS IN M/SEC	CARTRIDGE STRENGTH	REMARKS
894 CU. YDS.	11350* MAYNES 65* UNIGEL 15* IREMITE	59	0-12	50* SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITE 62	1.6"/YD. 3/4" VERTICAL HOLES SPILLWAY
716 CU. YDS.	10500* MAYNES 150* IREMITE 53* UNIGEL	48	0-11	50* SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITE 62, 2" X 8" IRECO UNIGEL	1.75"/YD. 3/4" VERTICAL HOLES SPILLWAY
835 CU. YDS.	1100* MAYNES 50* IREMITE 66* UNIGEL	60	0-11	50* SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.46"/YD. 3/4" VERTICAL HOLES SPILLWAY
16 CU. YDS.	1200* MAYNES 150* IREMITE 53* UNIGEL	?		50* SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITE 62, 2" X 8" IRECO UNIGEL	1.96"/YD. 3/4" VERTICAL HOLES SPILLWAY
855 CU. YDS.	1350* MAYNES 100* IREMITE 70* UNIGEL	62	0-12	50* SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITE 62, 2" X 8" IRECO UNIGEL	1.77"/YD. 3/4" VERTICAL HOLES SPILLWAY
8 CU. YDS.	1050* MAYNES 50* UNIGEL	45	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.5"/YD. 3/4" VERTICAL HOLES SPILLWAY
306 CU. YDS.	1400* MAYNES 70* UNIGEL	62	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.6"/YD. 3/4" VERTICAL HOLES SPILLWAY
037 CU. YDS.	1400* MAYNES 95* UNIGEL	85	0-14	50* SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITE 62, 2" X 8" IRECO UNIGEL	1.44"/YD. 3/4" VERTICAL HOLES SPILLWAY
426 CU. YDS.	1875* MAYNES 75* IREMITE 120* UNIGEL	106	0-12	50* SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITE 62, 2" X 8" IRECO UNIGEL	1.45"/YD. 3/4" VERTICAL HOLES SPILLWAY
90 CU. YDS.	700* MAYNES 10* UNIGEL	12	0-6	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.5"/YD. 3/4" VERTICAL HOLES SPILLWAY
3500 CU. YDS.	1550* MAYNES 27* UNIGEL	26	0-8	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.5"/YD. 3/4" VERTICAL HOLES SPILLWAY
3584 CU. YDS.	2050* MAYNES 36* UNIGEL	33	0-7	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.58"/YD. 3/4" VERTICAL HOLES SPILLWAY
5600 CU. YDS.	4875* MAYNES 150* IREMITE 80* UNIGEL	81	0-11	50* SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITE 62, 2" X 8" IRECO IREMITE	0.91"/YD. 3/4" VERTICAL HOLES SPILLWAY
385 CU. YDS.	1075* MAYNES 285* UNIGEL	246	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.98"/YD. 3/4" VERTICAL HOLES SPILLWAY
059 CU. YDS.	850* MAYNES 192* UNIGEL	175	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.92"/YD. 3/4" VERTICAL HOLES SPILLWAY
67 CU. YDS.	50* MAYNES 100* IREMITE	45	0-9	50* SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITE 62	0.9"/YD. 3/4" VERTICAL HOLES SPILLWAY
76 CU. YDS.	550* MAYNES 150* UNIGEL	136	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.88"/YD. 3/4" VERTICAL HOLES SPILLWAY
436 CU. YDS.	1300* MAYNES 166* UNIGEL	177	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1"/YD. 3/4" VERTICAL HOLES SPILLWAY
175 CU. YDS.	850* MAYNES 285* UNIGEL	260	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.2"/YD. 3/4" VERTICAL HOLES SPILLWAY
655 CU. YDS.	500* MAYNES 158* UNIGEL	138	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.9"/YD. 3/4" VERTICAL HOLES SPILLWAY
340 CU. YDS.	1200* MAYNES 158* UNIGEL	144	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.01"/YD. 3/4" VERTICAL HOLES SPILLWAY
444 CU. YDS.	315* MAYNES 93* UNIGEL	84	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.05"/YD. 3/4" VERTICAL HOLES SPILLWAY
356 CU. YDS.	250* MAYNES 132* UNIGEL	120	0-9	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.07"/YD. 3/4" VERTICAL HOLES SPILLWAY
793 CU. YDS.	650* MAYNES 68* UNIGEL	62	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.9"/YD. 3/4" VERTICAL HOLES SPILLWAY
640 CU. YDS.	1400* MAYNES 190* UNIGEL	170	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.95"/YD. 3/4" VERTICAL HOLES SPILLWAY
277 CU. YDS.	250* MAYNES 80* UNIGEL	7		50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.2"/YD. 3/4" VERTICAL HOLES SPILLWAY
736 CU. YDS.	1400* MAYNES 156* UNIGEL	142	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.9"/YD. 3/4" VERTICAL HOLES SPILLWAY
400 CU. YDS.	500* MAYNES 51* UNIGEL	75	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.45"/YD. 3/4" VERTICAL HOLES SPILLWAY
800 CU. YDS.	215* MAYNES 13* UNIGEL	65	0-10	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.16"/YD. 3/4" VERTICAL HOLES SPILLWAY
393 CU. YDS.	1150* MAYNES 72* UNIGEL	65	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.14"/YD. 3/4" VERTICAL HOLES SPILLWAY
415 CU. YDS.	1475* MAYNES 125* UNIGEL	129	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.98"/YD. 3/4" VERTICAL HOLES SPILLWAY
417 CU. YDS.	350* MAYNES 88* UNIGEL	88	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.81"/YD. 3/4" VERTICAL HOLES SPILLWAY
338 CU. YDS.	1400* MAYNES 90* UNIGEL	90	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.11"/YD. 3/4" VERTICAL HOLES SPILLWAY
397 CU. YDS.	1000* MAYNES 124* UNIGEL	124	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.25"/YD. 3/4" VERTICAL HOLES SPILLWAY
960 CU. YDS.	2400* MAYNES 138* UNIGEL	138	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.52"/YD. 3/4" VERTICAL HOLES SPILLWAY
63 CU. YDS.	500* MAYNES 56* UNIGEL	56	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.98"/YD. 3/4" VERTICAL HOLES SPILLWAY
103 CU. YDS.	1650* MAYNES 80* UNIGEL	80	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.12"/YD. 3/4" VERTICAL HOLES SPILLWAY
500 CU. YDS.	1250* MAYNES 119* UNIGEL	108	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.91"/YD. 3/4" VERTICAL HOLES SPILLWAY
393 CU. YDS.	3325* MAYNES 143* UNIGEL	130	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.02"/YD. 3/4" VERTICAL HOLES SPILLWAY
322 CU. YDS.	1100* MAYNES 128* UNIGEL	116	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	0.93"/YD. 3/4" VERTICAL HOLES SPILLWAY
64 CU. YDS.	615* MAYNES 106* UNIGEL	96	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.02"/YD. 3/4" VERTICAL HOLES SPILLWAY
91 CU. YDS.	150* MAYNES 31* UNIGEL	28	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.02"/YD. 3/4" VERTICAL HOLES SPILLWAY
348 CU. YDS.	2425* MAYNES 155* UNIGEL 25* IREMITE	141	0-14	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL 2 1/2" X 16" IRECO IREMITE 62	0.88"/YD. 3/4" VERTICAL HOLES SPILLWAY
8 CU. YDS.	1450* MAYNES 160* UNIGEL 15* IREMITE	146	0-15	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL 2 1/2" X 16" IRECO IREMITE 62	1.02"/YD. 3/4" VERTICAL HOLES SPILLWAY
41 CU. YDS.	550* MAYNES 150* UNIGEL	147	0-12	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL	1.05"/YD. 3/4" VERTICAL HOLES SPILLWAY
14 CU. YDS.	425* MAYNES 23* IREMITE 20* UNIGEL	18	0-10	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL 2 1/2" X 16" IRECO IREMITE 62	0.84"/YD. 3/4" VERTICAL HOLES SPILLWAY
14 CU. YDS.	3925* MAYNES 76* UNIGEL 15* IREMITE	69	0-10	50* SACKS MAYNES MIX #1, 2" X 8" IRECO UNIGEL 2 1/2" X 16" IRECO IREMITE 62	1.3"/YD. 3/4" VERTICAL HOLES SPILLWAY
70 CU. YDS.	3450* MAYNES 80* ?	64	0-11	50* SACKS MAYNES MIX #1	1.2"/YD. 3/4" VERTICAL HOLES SPILLWAY
?	3350* MAYNES 100* IREMITE 67* UNIGEL	67	0-12	50* SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITE 62, 2" X 8" IRECO UNIGEL	3/4" VERTICAL HOLES SPILLWAY
?	3350* MAYNES 67* IREMITE 62	67	1-10	50* SACKS MAYNES MIX #1, 2" X 8" IRECO IREMITE 62	3/4" VERTICAL HOLES SPILLWAY

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Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT		
Drawn by:	V.A.B. BLASTING SCHEDULE		
Checked by:			
Submitted by:	Scale:	AS SHOWN	Sheet number:
	Date:	JUNE 1990	90
	Plot Scale:	S=0.833	Design File:
	Dwg. No.:		RBL-2-1310

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168	1/23/88	HUSPUCNEY WOOD CREEK LAORE & SNABAR	848	17+60-18+65	5' LT. E 135' LT. E	PRODUCTION	48	11.5	7	5	716 CU. YDS.	1200* MAYNES 1
169	1/25/88	HUSPUCNEY WOOD CREEK LAORE & SNABAR	849	18+65-19+50	11.5 LT. E 125' LT. E	PRODUCTION	45	11.5	7	5	855 CU. YDS.	1350* MAYNES 1
170	1/26/88	HUSPUCNEY WOOD CREEK LAORE & SNABAR	849	18+10-19+40	140' LT. E 160' LT. E	PRODUCTION	62	11.5	7	5	716 CU. YDS.	1050* MAYNES 5
171	1/29/88	HUSPUCNEY WOOD CREEK LAORE & SNABAR	847	17+50-18+50	160' LT. E 185' LT. E	PRODUCTION	85	10.0	7	5	906 CU. YDS.	1400* MAYNES 7
172	2/2/88	HUSPUCNEY WOOD CREEK LAORE & SNABAR	847	16+00-17+00	160' LT. E 185' LT. E	PRODUCTION	106	10'	7'	5'	1037 CU. YDS.	1400* MAYNES 9
173	2/3/88	BETHANY FALLS	868	20+50-21+00	?	PRODUCTION	12	21'	10'	10'	1426 CU. YDS.	1875* MAYNES 7
174	2/5/88	BETHANY FALLS	868	19+50-20+50	70' LT. E 120' LT. E	PRODUCTION	24	21'	10'	10'	1190 CU. YDS.	100* MAYNES 10
175	2/9/88	BETHANY FALLS	868	19+50-20+00	110' LT. E 155' LT. E	PRODUCTION	32	21'	12'	8'	3500 CU. YDS.	1550* MAYNES 21
176	2/19/88	BETHANY FALLS	868	18+50-19+80	104' LT. E 210' LT. E	PRODUCTION	73	21	12'	8'	5600 CU. YDS.	8815* MAYNES 16
177	3/1/88	CRITZER PLEASANTON A	829	14+00-19+00	60' RT. E 80' RT. E	PRODUCTION	246	4-6.5'	5-7'	4-5'	1426 CU. YDS.	1875* MAYNES 7
178	3/2/88	CRITZER PLEASANTON A	828	18+00-20+50	60' RT. E 80' RT. E	PRODUCTION	175	4-6.5'	6'	5'	3500 CU. YDS.	1550* MAYNES 21
179	3/7/88	CRITZER PLEASANTON A	828	20+50-21+00	85' RT. E 80' RT. E	PRODUCTION	45	4'	5'	4'	1059 CU. YDS.	850* MAYNES 19
180	3/7/88	CRITZER PLEASANTON A	829	19+20-21+10	40' RT. E 60' RT. E	PRODUCTION	136	5.25'	6'	5'	167 CU. YDS.	50* MAYNES 100
181	3/8/88	CRITZER PLEASANTON A	829	15+80- 9+20	40' RT. E 40' RT. E	PRODUCTION	177	5.7'	6'	5'	796 CU. YDS.	550* MAYNES 15
182	3/9/88	CRITZER PLEASANTON A	829	14+00-16+85	20' RT. E 40' RT. E	PRODUCTION	260	4-6.5'	6'	5'	1436 CU. YDS.	1300* MAYNES 11
183	3/10/88	CRITZER PLEASANTON A	829	14+00-15+85	20' RT. E 40' RT. E	PRODUCTION	144	5.5-7'	5-6'	4-5'	915 CU. YDS.	850* MAYNES 28
184	3/11/88	CRITZER PLEASANTON A	829	1*00-19+70	20' RT. E 40' RT. E	PRODUCTION	139	7	5-6'	5'	685 CU. YDS.	500* MAYNES 15
185	3/12/88	CRITZER PLEASANTON A	828	19+70-20+90	20' RT. E 40' RT. E	PRODUCTION	120	4'	6'	5'	1340 CU. YDS.	1200* MAYNES 15
186	3/14/88	CRITZER PLEASANTON A	827	21+10-21+50	20' RT. E 60' RT. E	PRODUCTION	-120	4'	5'	4'	444 CU. YDS.	315* MAYNES 93*
187	3/14/88	CRITZER PLEASANTON A	830	18+00-19+00	4' LT. E 20' LT. E	PRODUCTION	62	7.5'	9'	6'	356 CU. YDS.	250* MAYNES 132
188	3/15/88	CRITZER PLEASANTON A	830	15+75-18+00	5' LT. E 20' RT. E	PRODUCTION	170	7'	8'	5'	1385 CU. YDS.	1075* MAYNES 28
189	3/16/88	CRITZER PLEASANTON A	828	14+50-15+75	5' LT. E 20' RT. E	PRODUCTION	70	5'	5'	5'	1059 CU. YDS.	850* MAYNES 19
190	3/16/88	CRITZER PLEASANTON A	831	16+00-18+50	4' LT. E 30' LT. E	PRODUCTION	142	7.5'	8'	6'	1436 CU. YDS.	1300* MAYNES 11
191	3/17/88	CRITZER PLEASANTON A	828	14+50-15+75	4' LT. E 30' LT. E	PRODUCTION	75	5.5'	6'	5'	915 CU. YDS.	850* MAYNES 28
192	3/18/88	CRITZER PLEASANTON A	828	14+35-15+00	4' LT. E 30' LT. E	PRODUCTION	65	6'	5'	5'	685 CU. YDS.	500* MAYNES 15
193	3/18/88	CRITZER PLEASANTON A	823	18+30-19+00	20' LT. E 45' LT. E	PRODUCTION	65	5'	2'	5'	1340 CU. YDS.	1200* MAYNES 15
194	3/21/88	CRITZER PLEASANTON A	831	15+80-18+30	20' RT. E 45' RT. E	PRODUCTION	129	5.9-8.2'	9'	5'	444 CU. YDS.	315* MAYNES 93*
195	3/22/88	CRITZER PLEASANTON A	828	14+50-15+80	9' LT. E 18' RT. E	PRODUCTION	88	4.5'	9'	5'	356 CU. YDS.	250* MAYNES 132
196	3/22/88	CRITZER PLEASANTON A	831.5	17+00-18+70	20' RT. E 45' RT. E	PRODUCTION	90	8.5'	9'	5'	193 CU. YDS.	650* MAYNES 68*
197	3/23/88	CRITZER PLEASANTON A	830.6	14+50-15+80	9' LT. E 18' RT. E	PRODUCTION	124	6.9'	10'	6'	1640 CU. YDS.	2400* MAYNES 19
198	3/24/88	CRITZER PLEASANTON A	832.6	15+80-18+80	9' LT. E 27' LT. E	PRODUCTION	138	9.6'	10'	6'	277 CU. YDS.	200* MAYNES 80
199	3/25/88	CRITZER PLEASANTON A	829.5	14+50-15+80	9' LT. E 27' LT. E	PRODUCTION	56	6.5'	8'	5'	1736 CU. YDS.	1400* MAYNES 15
200	3/25/88	CRITZER PLEASANTON A	831.6	16+75-18+50	27' LT. E 45' LT. E	PRODUCTION	80	8.6'	10'	6'	400 CU. YDS.	500* MAYNES 83*
201	3/26/88	CRITZER PLEASANTON A	830	14+50-16+75	27' LT. E 45' LT. E	PRODUCTION	108	7.2'	9'	6'	300 CU. YDS.	215* MAYNES 72*
202	3/28/88	CRITZER PLEASANTON A	830	16+00-19+00	126' LT. E 156' LT. E	PRODUCTION	130	9.2'	9'	6'	1393 CU. YDS.	1150* MAYNES 12
203	3/30/88	CRITZER PLEASANTON A	830	15+00-16+00	126' LT. E 156' LT. E	PRODUCTION	116	7'	9'	6'	1643.5 CU. YDS.	1415* MAYNES 11
204	3/31/88	CRITZER PLEASANTON A	828	19+50-20+00	10' RT. E 10' LT. E	PRODUCTION	96	5'	6'	5'	541.7 CU. YDS.	350* MAYNES 88*
205	4/4/88	CRITZER PLEASANTON A	827	21+00	10' RT. E 10' LT. E	PRODUCTION	28	4.2'	5'	5'	1338 CU. YDS.	1000* MAYNES 90
206	4/8/88	MOUND CITY CRITZER PLEASANTON	833	18+25-18+75	30' LT. E 150' LT. E	PRODUCTION	141	11'	9'	7'	897 CU. YDS.	1000* MAYNES 13
207	4/9/88	MOUND CITY CRITZER PLEASANTON	830	19+30-20+70	10' LT. E 55' LT. E	PRODUCTION	146	6-8'	8.5'	7'	1660 CU. YDS.	2400* MAYNES 19
208	4/11/88	MOUND CITY CRITZER PLEASANTON	826	20+50-21+30	10' LT. E 60' LT. E	PRODUCTION	147	5'	5.5'	5'	563 CU. YDS.	500* MAYNES 56*
209	4/12/88	HUSPUCNEY WOOD CREEK LAORE & SNABAR	846	18+50-18+80	176' LT. E 197' LT. E	PRODUCTION	18	11'-14'	10'	7'	1003 CU. YDS.	1650* MAYNES 80
210	4/13/88	HUSPUCNEY WOOD CREEK LAORE & SNABAR	846	18+80-19+60	84' LT. E 194' LT. E	PRODUCTION	69	11'-22'	10'	7'	1500 CU. YDS.	1250* MAYNES 11
211	4/14/88	HUSPUCNEY WOOD CREEK LAORE & SNABAR	846	19+60-19+90	84' LT. E 194' LT. E	PRODUCTION	64	11'-22'	10'	7'	3393 CU. YDS.	3325* MAYNES 14
212	4/15/88	?	?	?	?	PRODUCTION	67	9'-21'	?	?	1322 CU. YDS.	1100* MAYNES 12
213	4/20/88	?	?	?	?	PRODUCTION	67	9'-22'	?	?	764 CU. YDS.	615* MAYNES 106

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894 CU. YDS.	1350° MAYNES 55° UNIGEL 15° IREMITÉ	59	0-12	50° SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITÉ 62	1.6"/YD. 3/2" VERTICAL HOLES SPILLWAY
716 CU. YDS.	1050° MAYNES 150° IREMITÉ 53° UNIGEL	48	0-11	50° SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITÉ 62, 2" X 8" IRECO UNIGEL	1.75"/YD. 3/2" VERTICAL HOLES SPILLWAY
835 CU. YDS.	110° MAYNES 50° IREMITÉ 66° UNIGEL	60	0-11	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.46"/YD. 3/2" VERTICAL HOLES SPILLWAY
716 CU. YDS.	1200° MAYNES 150° IREMITÉ 53° UNIGEL	7		50° SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITÉ 62, 2" X 8" IRECO UNIGEL	1.96"/YD. 3/2" VERTICAL HOLES SPILLWAY
555 CU. YDS.	1350° MAYNES 100° IREMITÉ 70° UNIGEL	62	0-12	50° SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITÉ 62, 2" X 8" IRECO UNIGEL	1.77"/YD. 3/2" VERTICAL HOLES SPILLWAY
716 CU. YDS.	1050° MAYNES 50° UNIGEL	45	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.5"/YD. 3/2" VERTICAL HOLES SPILLWAY
506 CU. YDS.	1400° MAYNES 70° UNIGEL	62	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.6"/YD. 3/2" VERTICAL HOLES SPILLWAY
1037 CU. YDS.	1400° MAYNES 95° UNIGEL	85	0-14	50° SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITÉ 62, 2" X 8" IRECO UNIGEL	1.44"/YD. 3/2" VERTICAL HOLES SPILLWAY
1428 CU. YDS.	1875° MAYNES 75° IREMITÉ 20° UNIGEL	106	0-12	50° SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITÉ 62, 2" X 8" IRECO UNIGEL	1.45"/YD. 3/2" VERTICAL HOLES SPILLWAY
1190 CU. YDS.	1700° MAYNES 10° UNIGEL	12	0-6	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.45"/YD. 3/2" VERTICAL HOLES SPILLWAY
3500 CU. YDS.	1550° MAYNES 21° UNIGEL	26	0-8	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.5"/YD. 3/2" VERTICAL HOLES SPILLWAY
3584 CU. YDS.	2050° MAYNES 35° UNIGEL	33	0-7	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.58"/YD. 3/2" VERTICAL HOLES SPILLWAY
5600 CU. YDS.	1875° MAYNES 150° IREMITÉ 80° UNIGEL	81	0-11	50° SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITÉ 62, 1 1/2" X 8" IRECO IREMITÉ	0.91"/YD. 3/2" VERTICAL HOLES SPILLWAY
1395 CU. YDS.	1075° MAYNES 285° UNIGEL	246	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.98"/YD. 3/2" VERTICAL HOLES SPILLWAY
1059 CU. YDS.	850° MAYNES 192° UNIGEL	175	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.92"/YD. 3/2" VERTICAL HOLES SPILLWAY
167 CU. YDS.	50° MAYNES 100° IREMITÉ	45	0-9	50° SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITÉ 62	0.9"/YD. 3/2" VERTICAL HOLES SPILLWAY
796 CU. YDS.	550° MAYNES 150° UNIGEL	136	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.88"/YD. 3/2" VERTICAL HOLES SPILLWAY
1436 CU. YDS.	1300° MAYNES 160° UNIGEL	177	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1"/YD. 3/2" VERTICAL HOLES SPILLWAY
978 CU. YDS.	850° MAYNES 285° UNIGEL	260	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.2"/YD. 3/2" VERTICAL HOLES SPILLWAY
685 CU. YDS.	500° MAYNES 158° UNIGEL	138	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.9"/YD. 3/2" VERTICAL HOLES SPILLWAY
1340 CU. YDS.	1200° MAYNES 158° UNIGEL	144	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.01"/YD. 3/2" VERTICAL HOLES SPILLWAY
444 CU. YDS.	375° MAYNES 93° UNIGEL	84	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.05"/YD. 3/2" VERTICAL HOLES SPILLWAY
356 CU. YDS.	250° MAYNES 132° UNIGEL	120	0-9	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.07"/YD. 3/2" VERTICAL HOLES SPILLWAY
793 CU. YDS.	650° MAYNES 68° UNIGEL	62	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.9"/YD. 3/2" VERTICAL HOLES SPILLWAY
1640 CU. YDS.	1400° MAYNES 190° UNIGEL	170	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.95"/YD. 3/2" VERTICAL HOLES SPILLWAY
277 CU. YDS.	250° MAYNES 80° UNIGEL	7		50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.2"/YD. 3/2" VERTICAL HOLES SPILLWAY
1736 CU. YDS.	1400° MAYNES 156° UNIGEL	142	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.9"/YD. 3/2" VERTICAL HOLES SPILLWAY
400 CU. YDS.	500° MAYNES 83° UNIGEL	75	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.45"/YD. 3/2" VERTICAL HOLES SPILLWAY
300 CU. YDS.	275° MAYNES 73° UNIGEL	65	0-10	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.16"/YD. 3/2" VERTICAL HOLES SPILLWAY
1393 CU. YDS.	1150° MAYNES 72° UNIGEL	65	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.14"/YD. 3/2" VERTICAL HOLES SPILLWAY
6435 CU. YDS.	1475° MAYNES 128° UNIGEL	129	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.98"/YD. 3/2" VERTICAL HOLES SPILLWAY
5417 CU. YDS.	350° MAYNES 89° UNIGEL	88	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.81"/YD. 3/2" VERTICAL HOLES SPILLWAY
1338 CU. YDS.	1400° MAYNES 90° UNIGEL	90	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.11"/YD. 3/2" VERTICAL HOLES SPILLWAY
897 CU. YDS.	1000° MAYNES 124° UNIGEL	124	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.25"/YD. 3/2" VERTICAL HOLES SPILLWAY
1660 CU. YDS.	2400° MAYNES 138° UNIGEL	138	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.52"/YD. 3/2" VERTICAL HOLES SPILLWAY
563 CU. YDS.	50° MAYNES 56° UNIGEL	56	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.98"/YD. 3/2" VERTICAL HOLES SPILLWAY
1003 CU. YDS.	1650° MAYNES 80° UNIGEL	80	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.72"/YD. 3/2" VERTICAL HOLES SPILLWAY
1500 CU. YDS.	1250° MAYNES 119° UNIGEL	108	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.91"/YD. 3/2" VERTICAL HOLES SPILLWAY
3393 CU. YDS.	3325° MAYNES 143° UNIGEL	130	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.02"/YD. 3/2" VERTICAL HOLES SPILLWAY
1222 CU. YDS.	1100° MAYNES 128° UNIGEL	116	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	0.93"/YD. 3/2" VERTICAL HOLES SPILLWAY
764 CU. YDS.	875° MAYNES 106° UNIGEL	96	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.02"/YD. 3/2" VERTICAL HOLES SPILLWAY
191 CU. YDS.	1180° MAYNES 31° UNIGEL	28	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.02"/YD. 3/2" VERTICAL HOLES SPILLWAY
2648 CU. YDS.	2425° MAYNES 155° UNIGEL 25° IREMITÉ	141	0-14	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL 2 1/2" X 16" IRECO IREMITÉ 62	0.98"/YD. 3/2" VERTICAL HOLES SPILLWAY
1578 CU. YDS.	1450° MAYNES 160° UNIGEL 15° IREMITÉ	146	0-15	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL 2 1/2" X 16" IRECO IREMITÉ 62	1.02"/YD. 3/2" VERTICAL HOLES SPILLWAY
740 CU. YDS.	550° MAYNES 150° UNIGEL	147	0-12	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL	1.05"/YD. 3/2" VERTICAL HOLES SPILLWAY
554 CU. YDS.	425° MAYNES 23° IREMITÉ 20° UNIGEL	18	0-10	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL 2 1/2" X 16" IRECO IREMITÉ 62	0.84"/YD. 3/2" VERTICAL HOLES SPILLWAY
5120 CU. YDS.	3925° MAYNES 76° UNIGEL 15° IREMITÉ	69	0-10	50° SACKS MAYNES MIX #1, 2 1/2" IRECO UNIGEL 2 1/2" X 16" IRECO IREMITÉ 62	1.3"/YD. 3/2" VERTICAL HOLES SPILLWAY
870 CU. YDS.	3450° MAYNES 80° ?	64	0-11	50° SACKS MAYNES MIX #1	1.2"/YD. 3/2" VERTICAL HOLES SPILLWAY
7	3350° MAYNES 100° IREMITÉ 61° UNIGEL	67	0-12	50° SACKS MAYNES MIX #1, 2 1/2" X 16" IRECO IREMITÉ 62, 2" X 8" IRECO UNIGEL	3/2" VERTICAL HOLES SPILLWAY
7	3350° MAYNES 61° IREMITÉ 62	67	1-10	50° SACKS MAYNES MIX #1, 2 1/2" IRECO IREMITÉ 62	3/2" VERTICAL HOLES SPILLWAY

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by	 EAST FORK LITTLE BLUE RIVER, MISSOURI BLUE SPRINGS LAKE CONSTRUCTION FOUNDATION REPORT	BLASTING SCHEDULE	
Drawn by		V.A.B.	
Checked by			
Submitted by	Scale: AS SHOWN Date: JUNE 1990 Draw No.:	Sheet number: 90	Plot Scale: S=0.833 Design File: (100.63)855.DGN. File No.: RBL-2-1310

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PLATE NO. 90