

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
**HOL-62-(10.00-14.10)**  
KILLBUCK TOWNSHIP  
HOLMES COUNTY

**S-141(6)**

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

1  
126

HOL-62-(10.00-14.10)

**CONVENTIONAL SIGNS**

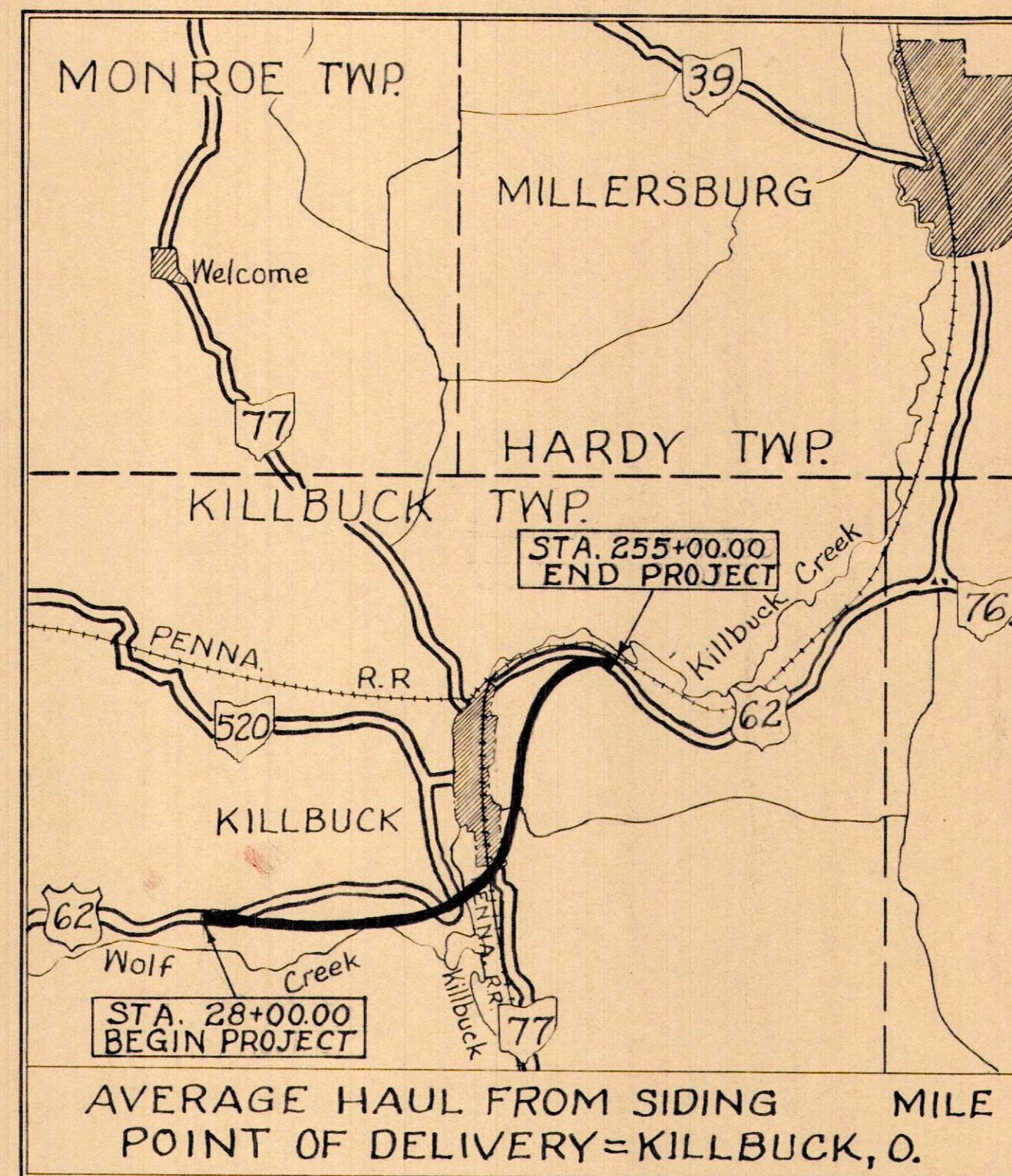
COUNTY LINE	-----
TOWNSHIP LINE	-----
SECTION LINE	-----
CORPORATION LINE	-----
CENTER LINE	-----
PROPERTY LINE	-----
POLE LINE	-----
FENCE LINE	-----
RAIL ROADS	-----
GUARD RAIL	-----
DRAIN PIPE	-----
TELEPHONE ♂ ELECTRIC ♂	-----
NEW ..... OLD .....	
NEW ----- OLD -----	

**INDEX OF SHEETS**

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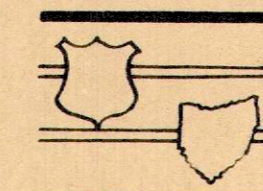
**LINE DATA**

BEGIN PROJECT -	STA. 28+00	
END PROJECT -	STA. 255+00	
GROSS LENGTH OF PROJECT	22,700.00 LIN. FT.	
DEDUCT FOR R.R. CROSSING	14.24 LIN. FT.	
NET LENGTH OF PROJECT	22,685.76 LIN. FT.	OR 4.296 MILES
ADD FOR WORK -		
STA. 27+00 to STA. 28+00	100.00 LIN. FT.	
STA. 255+00 to STA. 256+00	100.00 LIN. FT.	
APPROACH LT. STA. 192+25	388.00 LIN. FT.	
APPROACH LT. STA. 249+00	837.23 LIN. FT.	
NET LENGTH OF WORK	24,110.99 LIN. FT.	OR 4.566 MILES



**LOCATION PLAN**  
SCALE 1 IN. = 1 MI.

PORTION TO BE IMPROVED  
FEDERAL ROADS  
STATE ROADS  
OTHER ROADS



**SCALES**

PLAN	1" = 100'
PROFILE - HORIZONTAL	1" = 100'
PROFILE - VERTICAL	1" = 10'
CROSS SECTIONS	1" = 10'

The Standard Specifications of the State of Ohio, Department of Highways, including changes and Supplemental Specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for maintenance and safety of traffic will be as set forth in these plans and estimates.

The Right of Way for this improvement will be provided by the State of Ohio.

Approved: \_\_\_\_\_  
Date: \_\_\_\_\_ Division Deputy Director

Approved: \_\_\_\_\_  
Date: \_\_\_\_\_ Deputy Director of Planning and Programming

Approved: \_\_\_\_\_  
Date: \_\_\_\_\_ Engineer of Bridges.

Approved: \_\_\_\_\_  
Date: \_\_\_\_\_ Engineer of Location and Design.

Approved: \_\_\_\_\_  
Date: \_\_\_\_\_ Deputy Director of Design and Construction.

Approved: \_\_\_\_\_  
Date: \_\_\_\_\_ First Assistant Director.

Approved: \_\_\_\_\_  
Date: \_\_\_\_\_ Director of Highways.

**STANDARD DRAWINGS**

DR-1	3	I-15 N° 2	3-27 P.C.A
G-707		I-15 N° 2-A	T-35
I-1,2,3,4,5		I-15 N° 2-B	AS-1-54
I-8 C.B. 2-2-A&B		I-15 N° 3	SP-53
I-8 C.B. 2-3&2-4		L-3	
I-12		L-3-A	
I-14G		RI-1	
I-15 N° 1		3-27 P.C.3	

SUPPLEMENTAL SPECIFICATIONS	

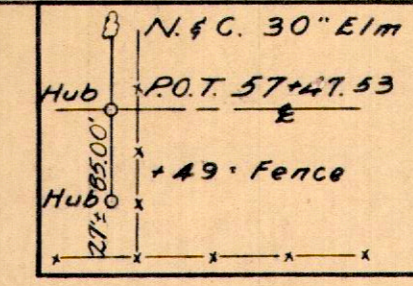
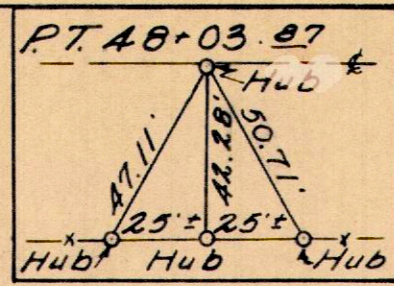
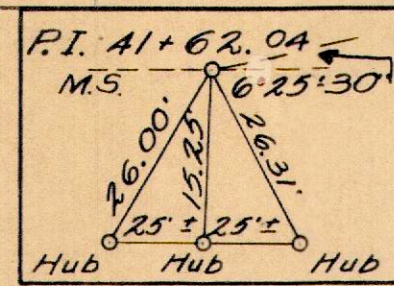
FILE NO	HOLMES COUNTY HOL-62-(10.00-14.10)
Date of Letting	195
Contract No.	

DEPARTMENT OF COMMERCE BUREAU OF PUBLIC ROADS	
APPROVED:	
DIVISION ENGINEER	DATE

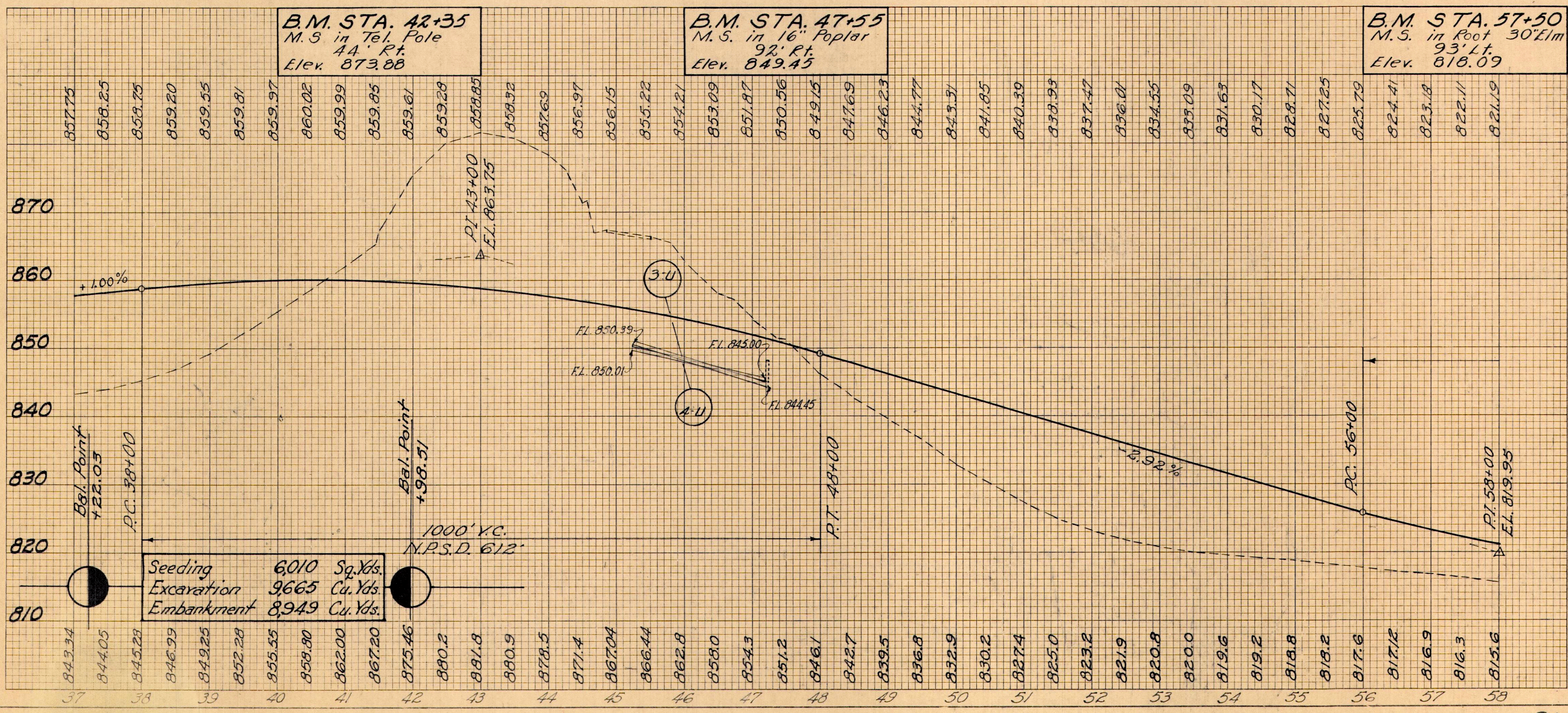
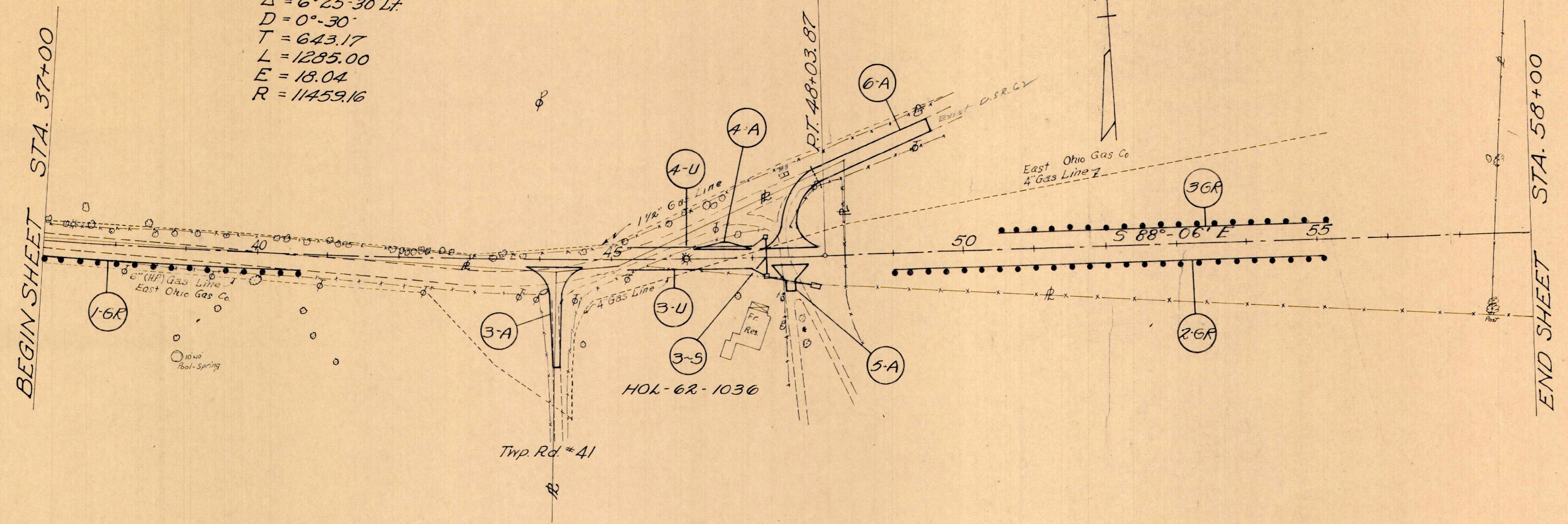








$PI = 41+62.04$   
 $\Delta = 6^\circ 25' 30'' Lt$   
 $D = 0^\circ 30'$   
 $T = 643.17$   
 $L = 1285.00$   
 $E = 18.04$   
 $R = 11459.16$



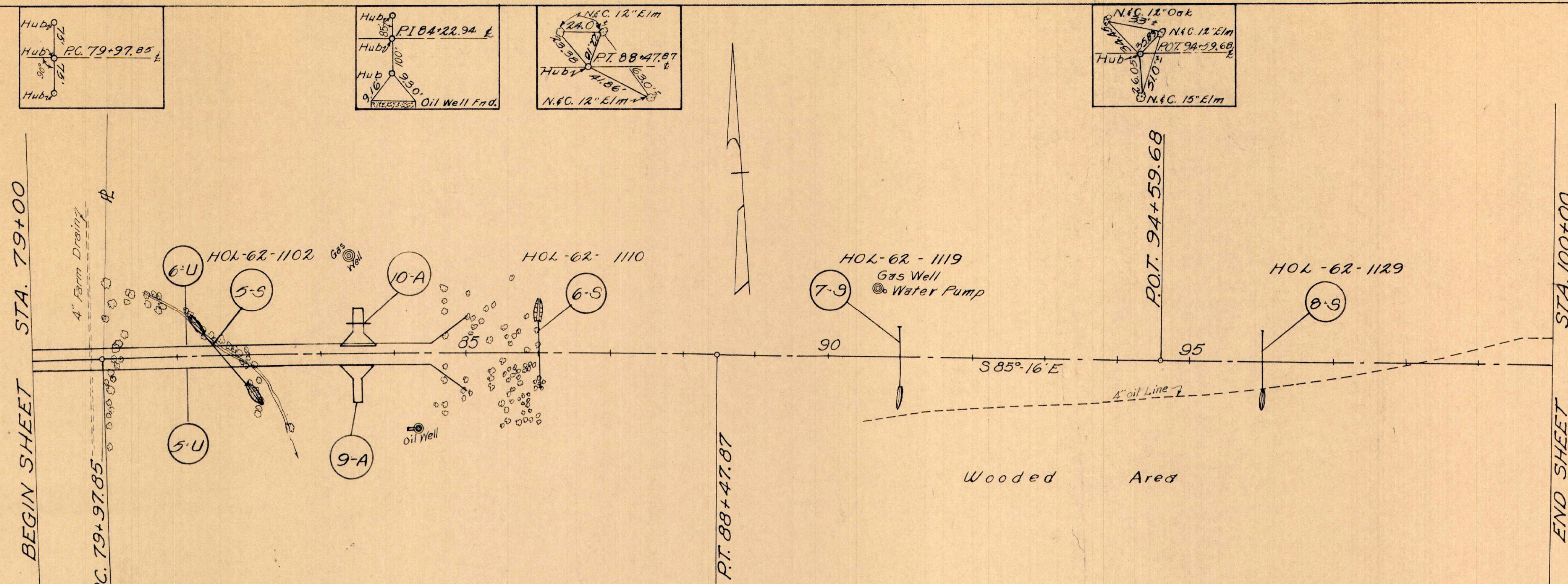
REF. NO.	STATION TO STATION	SIDE	Pipe Guard Excav for Struct Underdrain	Class A 6" Pipe R-3	24" 55' Under C.B. Mod	Unimodrain	Mod	Each	ESTIMATED QUANTITIES	SEE SHEET NO.	
3A	44+22.5	Rt								78	
4A	46+60	Lt								78	
5A	47+55	Rt								79	
6A	47+55	Lt								79	
3S	47+22									93	
16R	37+00 - 40+61.8	Rt									
26R	49+00 - 55+12.5	Rt									
36R	50+00 - 55+12.5	Lt									
3-U	45+25 - 47+22	Rt									
4-U	45+25 - 47+22	Lt									
TOTALS			34	1371.4	42	6A	408	2	56	2489	73.4

PLAN & PROFILE -- STA. 37+00 TO STA. 58+00

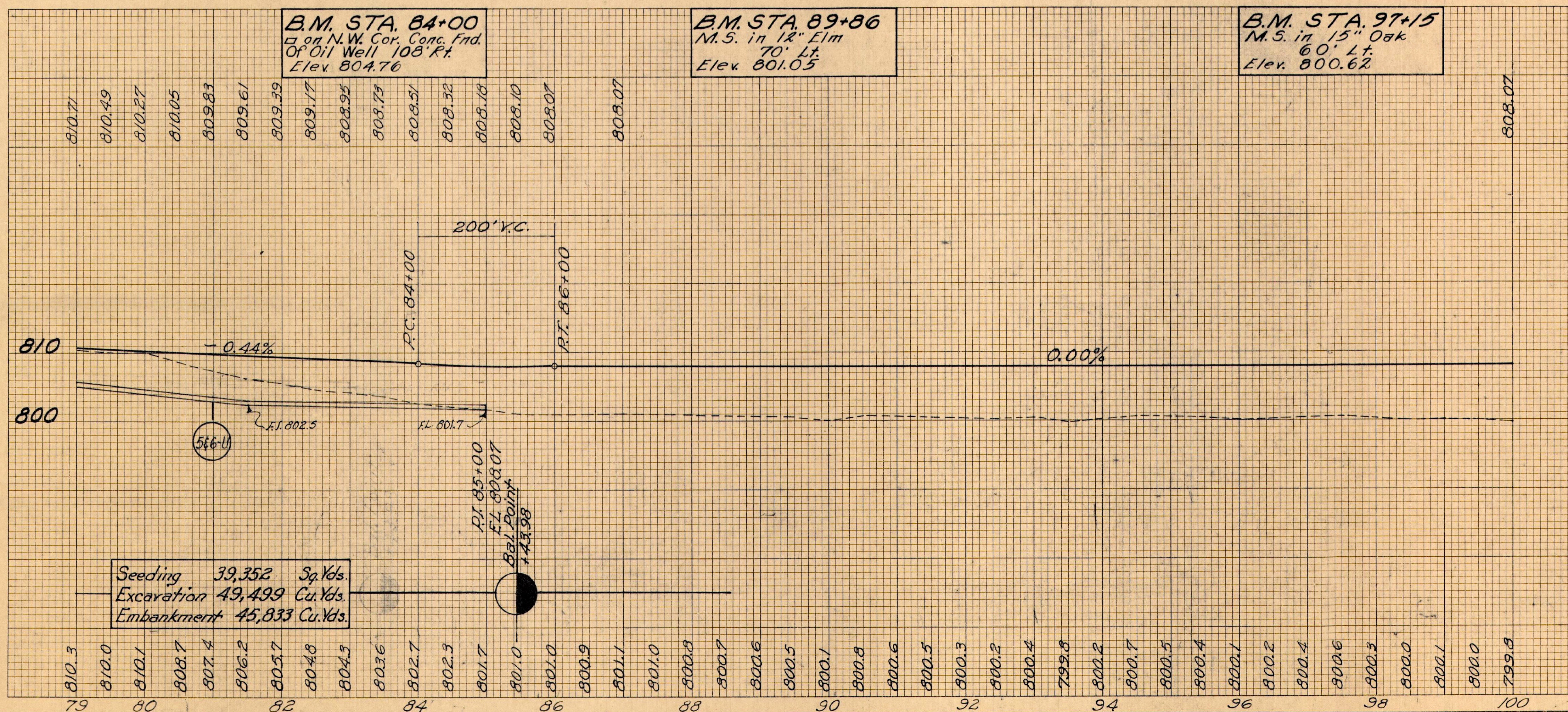








$PI = 84+22.94$   
 $\Delta = 2^{\circ}-50' RT$   
 $D = 0^{\circ}-20'$   
 $T = 425.09'$   
 $L = 850.02'$   
 $E = 5.26'$   
 $R = 17,188.91'$



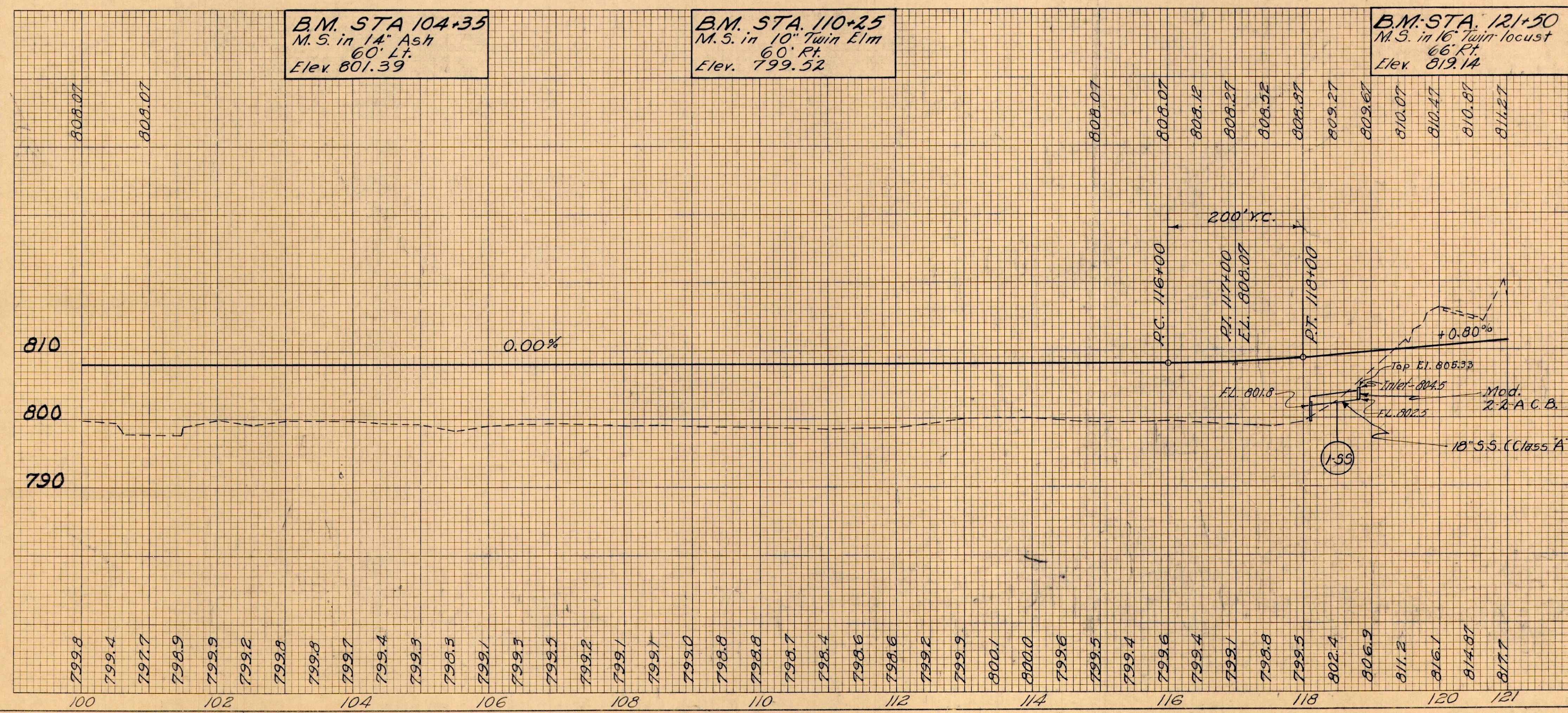
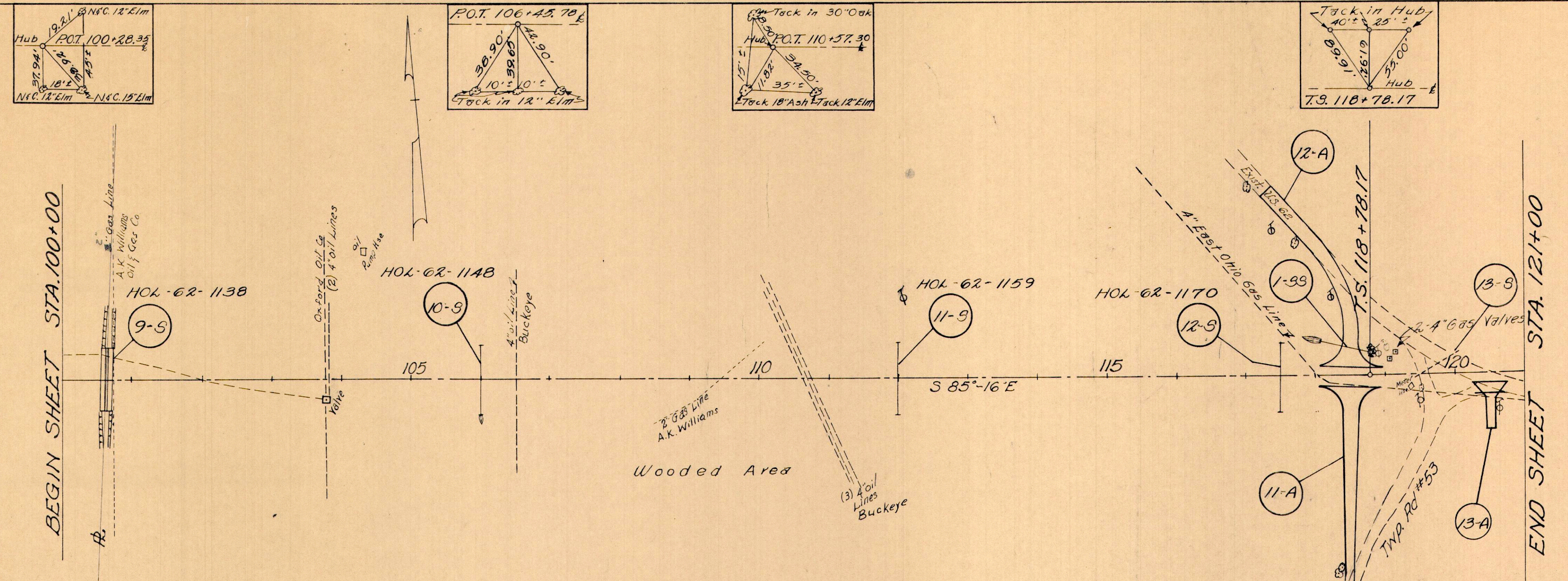
Seeding 39,352 Sq.Yds.  
 Excavation 49,499 Cu.Yds.  
 Embankment 45,833 Cu.Yds.

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	Excav for Struct. C.Y.	Chem. Excav. C.Y.	Pipe for Dr. 6\"/>
9-A	83+50	RT	19	7	30
10-A	83+50	LT	16	1	30
5-S	81+61		17	1	10
6-S	86+00		17	1	10
7-S	91+00		17	1	10
8-S	96+00		17	1	10
5-U	79+00 - 85+00	RT	69	10	30
6-U	79+00 - 85+00	LT	69	10	30
TOTALS			69	10	30
			1802	5	8
			3688	850	

PLAN & PROFILE -- STA. 79+00 TO STA. 100+00





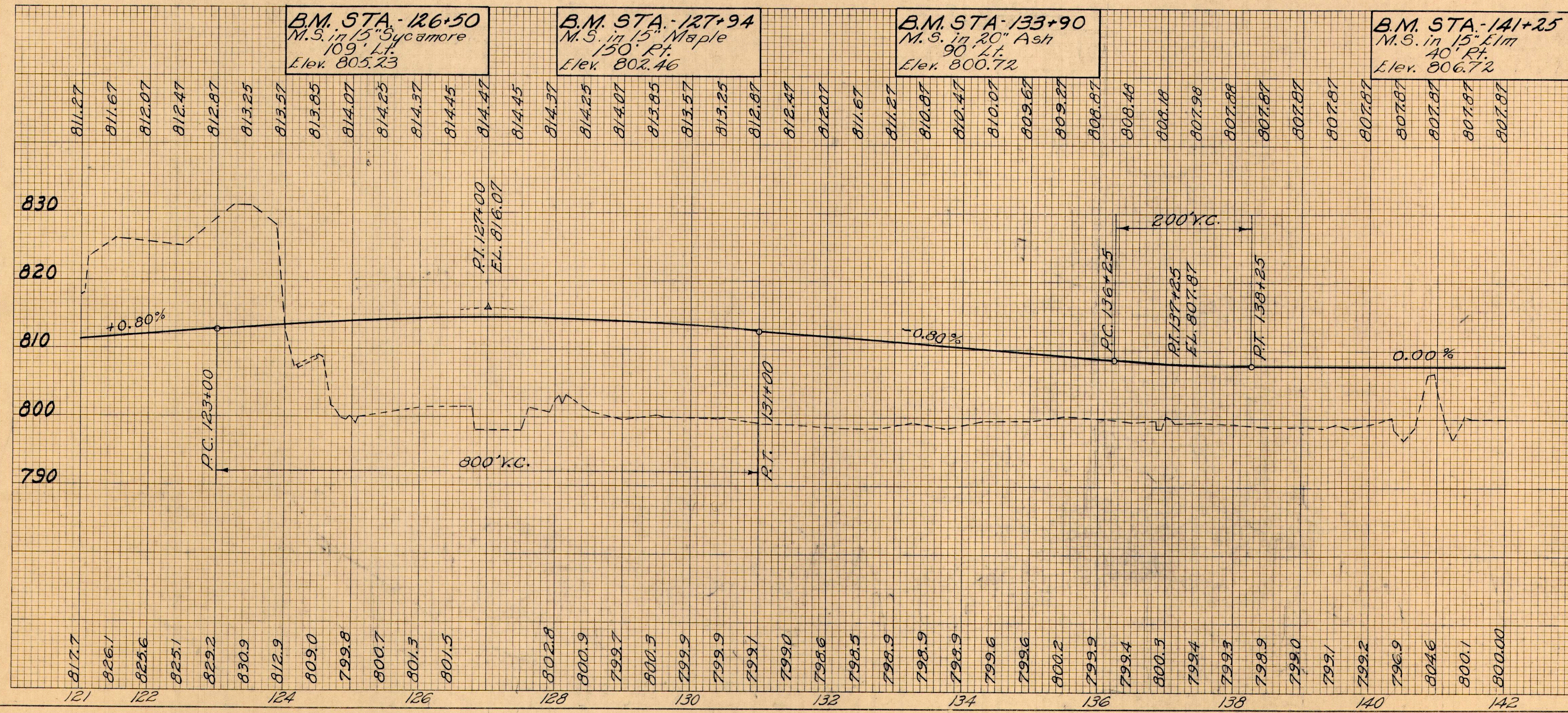
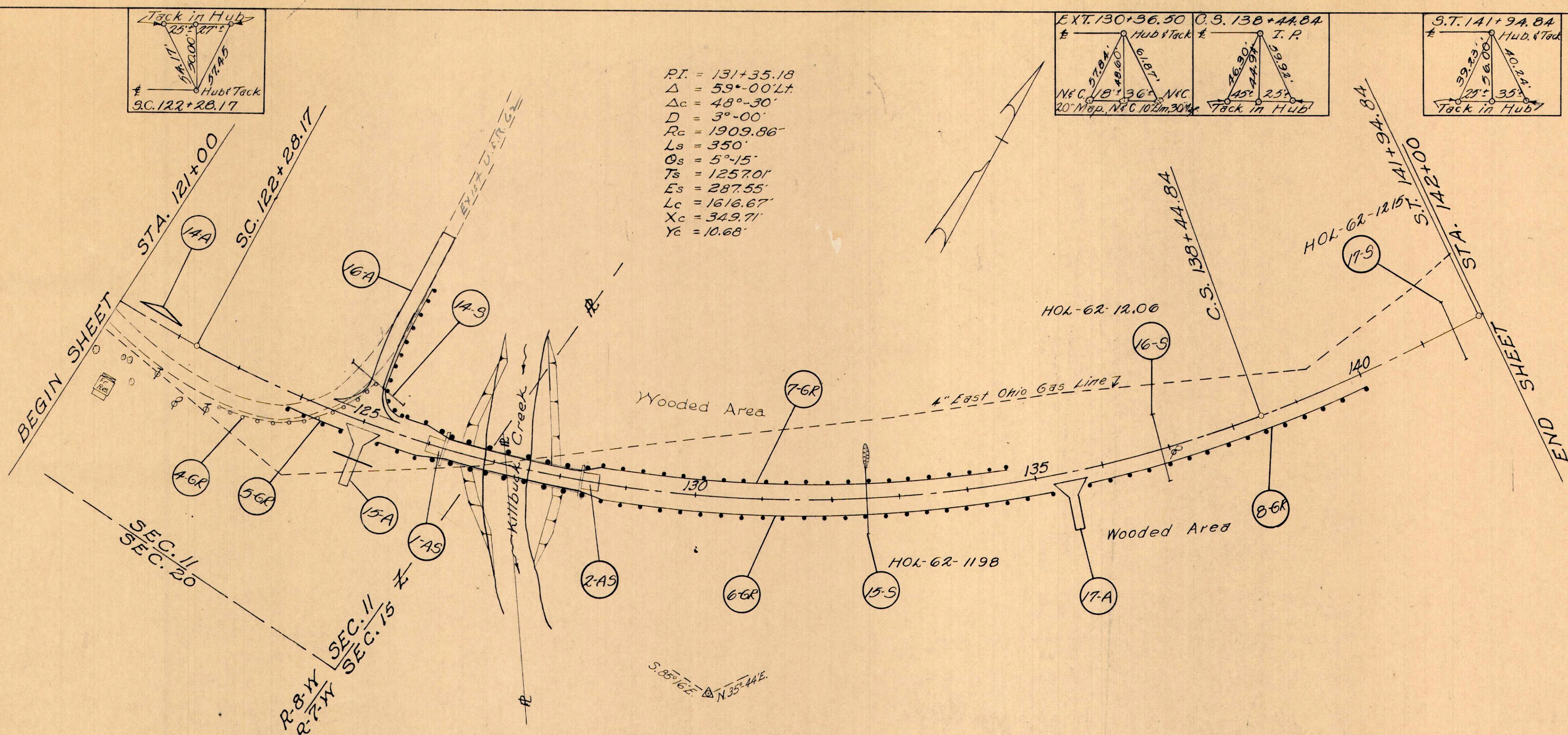
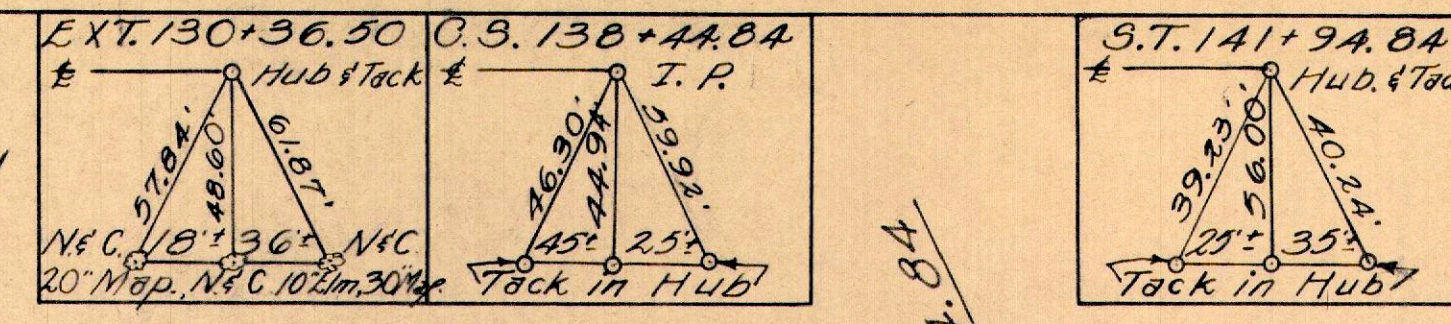
SEE SHEET NO.	7-35	7-30	B-19	ESTIMATED QUANTITIES		STATION TO STATION	SIDE
80	Cu Yd	38.6	Cu Yd	40		11-A 118+50	Rt
81	Gal	39.2	Cu Yd			12-A 118+50	Lt
98		46				13-A 120+50	Rt
99		7.5				9-5 100+00	Lt
99						10-9 105+00	Lt
99						11-9 110+00	Lt
99						12-9 115+00	Lt
99						13-9 120+00	Lt
						11-A 118+00	Lt
						12-A 118+00	Lt
						13-A 120+00	Lt
						9-5 100+00	Lt
						10-9 105+00	Lt
						11-9 110+00	Lt
						12-9 115+00	Lt
						13-9 120+00	Lt
						11-A 118+00	Lt
						12-A 118+00	Lt
						13-A 120+00	Lt
						9-5 100+00	Lt
						10-9 105+00	Lt
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						10-9 105+00	Lt
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						12-A 118+00	Lt
						13-A 120+00	Lt



HOL-62-(10.00-14.10)

1A

$P.I. = 131+35.18$   
 $\Delta = 59^{\circ}-00' Lt$   
 $\Delta c = 48^{\circ}-30'$   
 $D = 3^{\circ}-00'$   
 $R_c = 1909.86'$   
 $L_s = 350'$   
 $O_s = 5^{\circ}-15'$   
 $T_s = 125.70'$   
 $E_s = 287.55'$   
 $L_c = 1616.67'$   
 $X_c = 349.71'$   
 $Y_c = 10.68'$



**B.M. STA. 126+50**  
 M.S. in 15" Sycamore  
 109' Lt.  
 Elev. 805.23

**B.M. STA. 127+94**  
 M.S. in 15" Maple  
 150' Lt.  
 Elev. 802.46

**B.M. STA. 133+90**  
 M.S. in 20" Ash  
 90' Lt.  
 Elev. 800.72

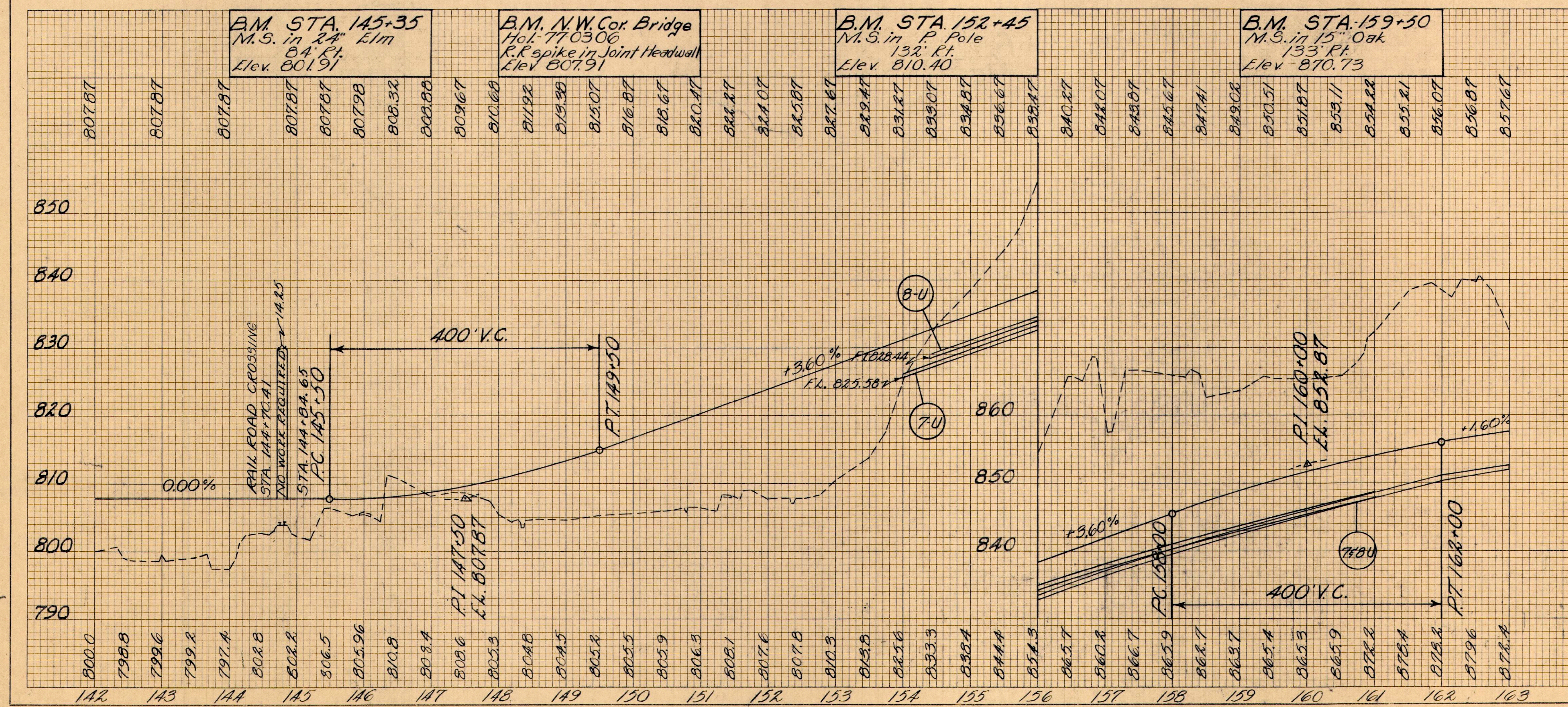
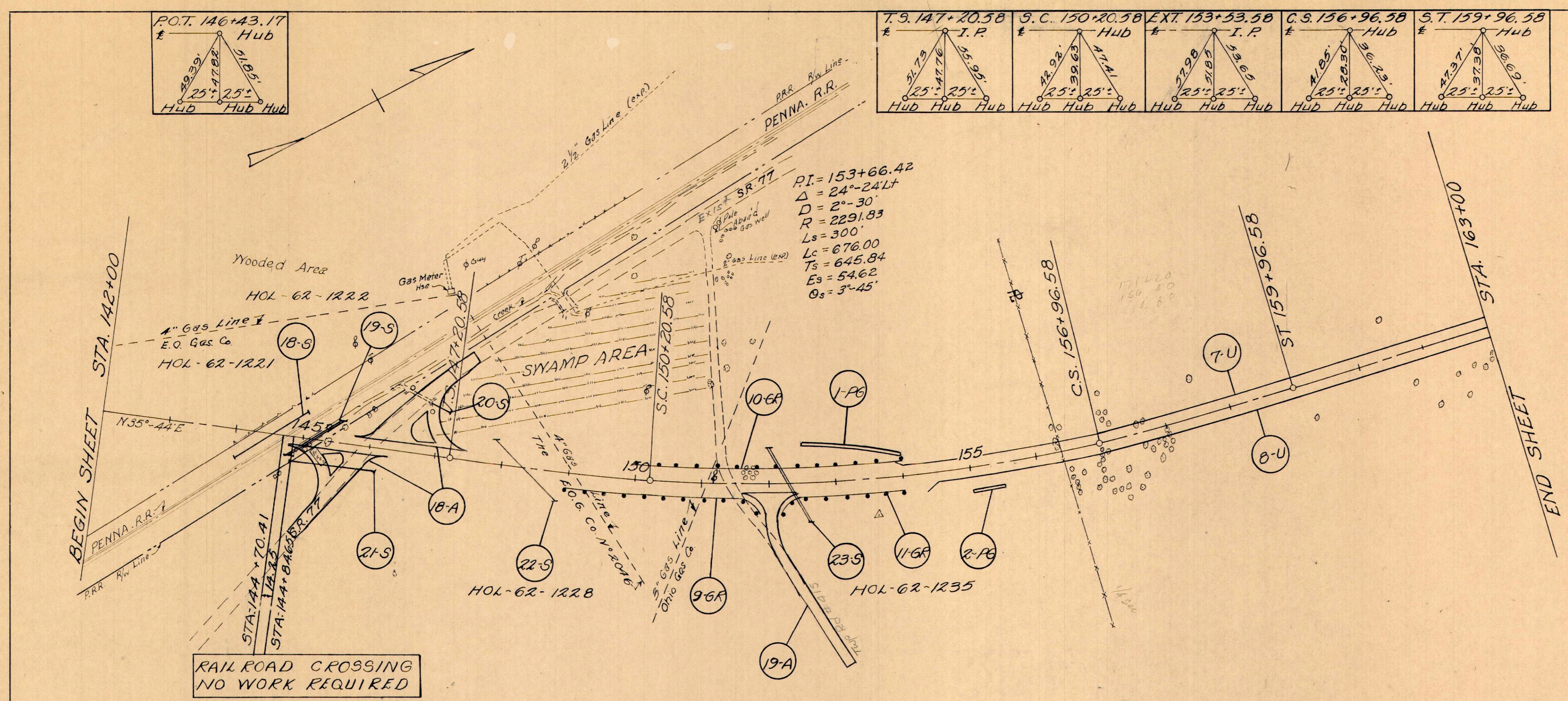
**B.M. STA. 141+25**  
 M.S. in 15" Elm  
 40' Lt.  
 Elev. 806.72

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	Excav. for Struc. C.Y.	Chan. Excav. C.Y.	Pipe for Conc. Dr. (12" Class) 12" Dia. Ft. C.Y.	Pipe for Guard Rail 18" Dia. 32' R. Str. Lin. Ft.	EST. QUANTITIES	SEE SHEET NO.	
14A	121+00	Lt							
15A	125+00	Rt							
16A	125+00	Lt							
17A	135+50	Rt							
14-5	3+35 on Appr. 16-A		18						
15-5	132+50		18						
16-5	136+50		19						
17-5	141+50		12						
1-A5	125+95.74 to 126+80.74								
2-A5	128+33.26 to 128+58.26								
4GR	125+00	Lt							
5GR	125+00	Rt							
6GR	125+00	Lt							
7GR	125+00	Rt							
8GR	125+00	Lt							
9GR	125+00	Rt							
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126GR	125+00	Lt							
127GR	125+00	Rt							
128GR	125+00	Lt							
129GR	125+00	Rt							
130GR	125+00	Lt							
131GR	125+00	Rt							
132GR	125+00	Lt							
133GR	125+00	Rt							
134GR	125+00	Lt							
135GR	125+00	Rt							
136GR	125+00	Lt							
137GR	125+00	Rt							
138GR	125+00	Lt							
139GR	125+00	Rt							
140GR	125+00	Lt							
141GR	125+00	Rt							
142GR	125+00	Lt							
TOTALS			67	1	62	3.6	92,280	23,224.96	250

PLAN & PROFILE -- STA. 121+00 TO STA. 142+00





REF. NO.	STATION TO STATION	SIDE	Excav for Shrub. C.Y.	Chain Excav C.Y.	6\" Pipe Outlet Under drain Lin. Ft.	Riprap Conc. Class C.Y.	Reinif. Steel Lbs.	Dowel Holes Lin. Ft.	Guard Rail Lin. Ft.	Pipe for Road Way Culv. Lin. Ft.	Typified Culvert C.Y.	I-22 C.Y.	B-19 C.Y.	B-35 Leveling C.Y.	SEE SHEET NO.
18A	146+00	L.H.S.													83
19A	152+00	R.H.S.													85
18S	144+58		35			0.6									102
19S	145+18		50			2.4									100
20S	142 on Apr. 18-A		4			0.7									103
21S	142+93 on Apr. 18-A		58			1.3									103
22S	146+54		50												104
23S	152+50		30												104
9-6\" Pipe 148+98.22 to 148+99.99 on 19-A (H) 10-6\" 150+00 ~ 154+03.88 Lt. 11-6\" 144+59 on 19-A to 154+03.89 Rt.															
7U	153+90 ~ 163+00 Lt.														
8-U	154+30 ~ 163+00 Rt.														
19A	152+30 ~ 154+00 Lt.														
19B	155+00 ~ 155+50 Rt.														
375.9625 400.0 57.9625															
<b>TOTALS</b>															

PLAN & PROFILE - STA. 142+00 TO STA. 163+00



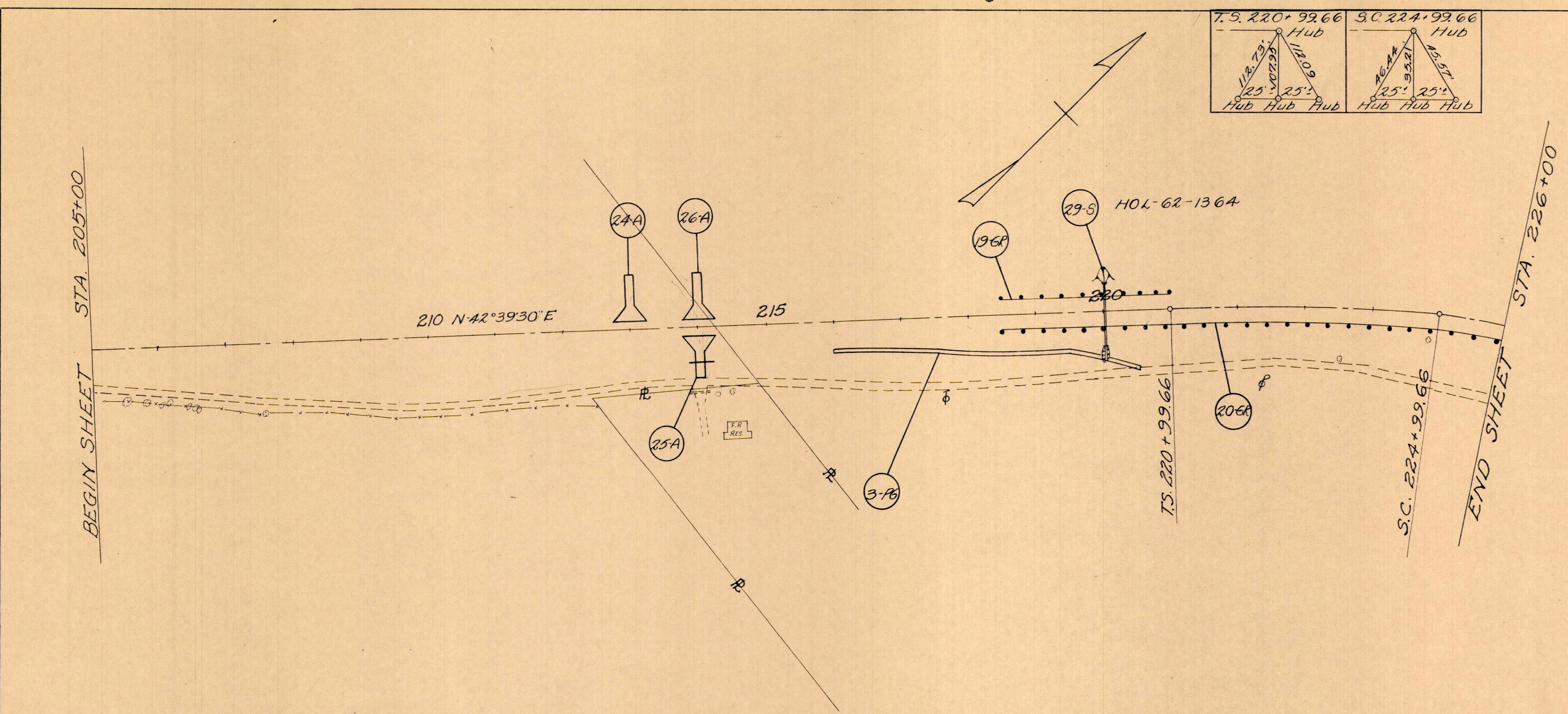








HOL-62-(10.00-14.10)



PLAN & PROFILE ~ STA. 205+00 TO STA. 226+00

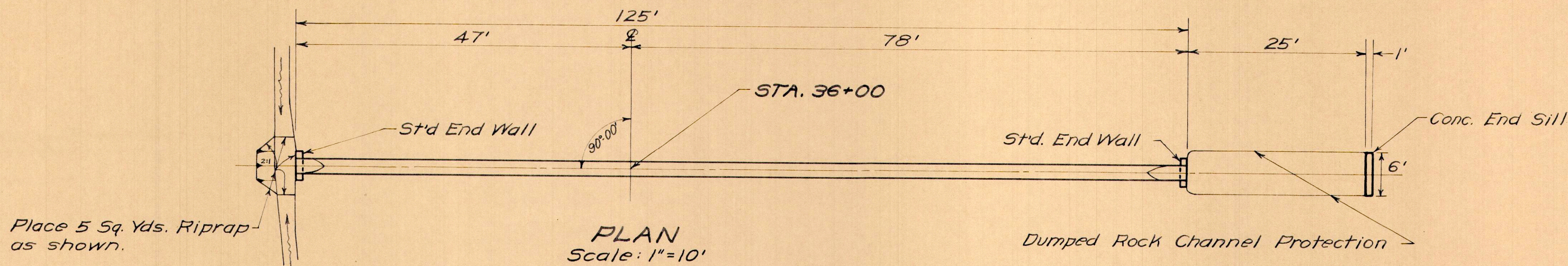










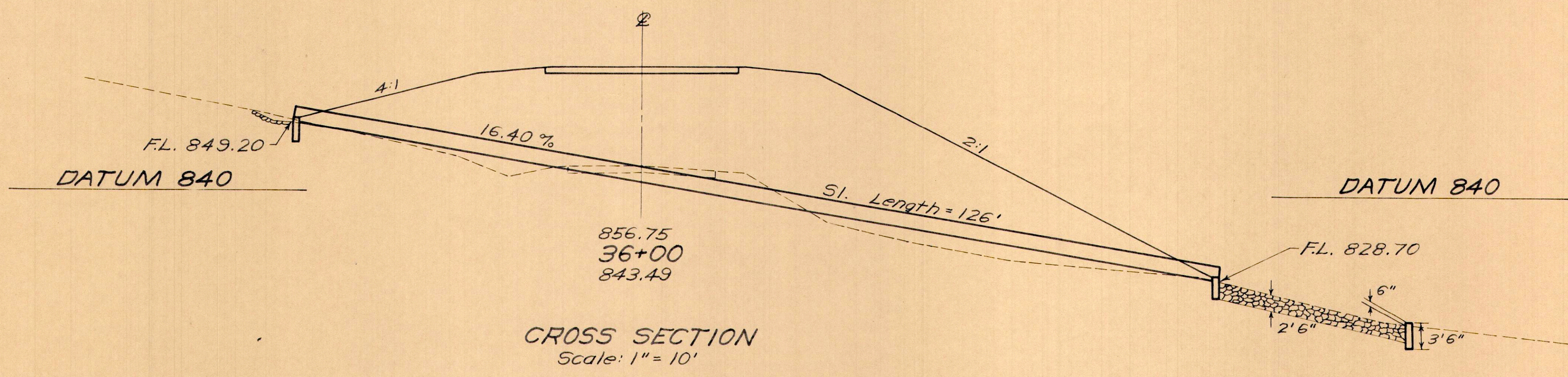


**WORK REQUIRED**  
Build Std Pipe Culvert as Shown.

**ESTIMATED QUANTITIES**  
24" Paved Bit. Coated C.M. Pipe, Sec. M-6.4 (d)  
Excavation for Structures  
Dumped Rock Channel Protection  
Concrete for Structures, Class "E"  
Riprap

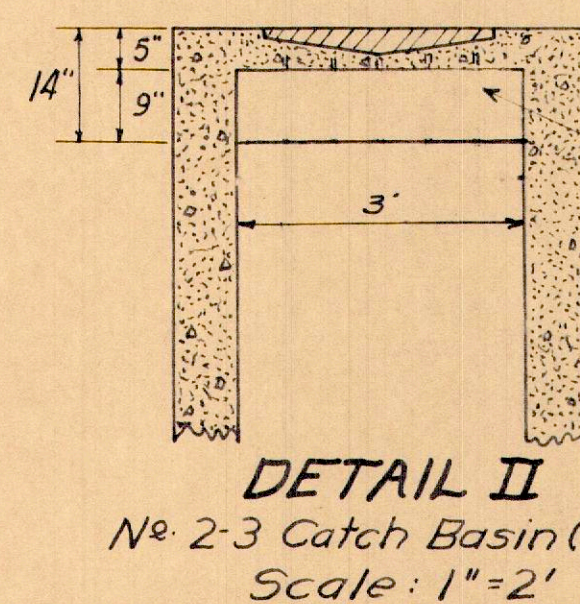
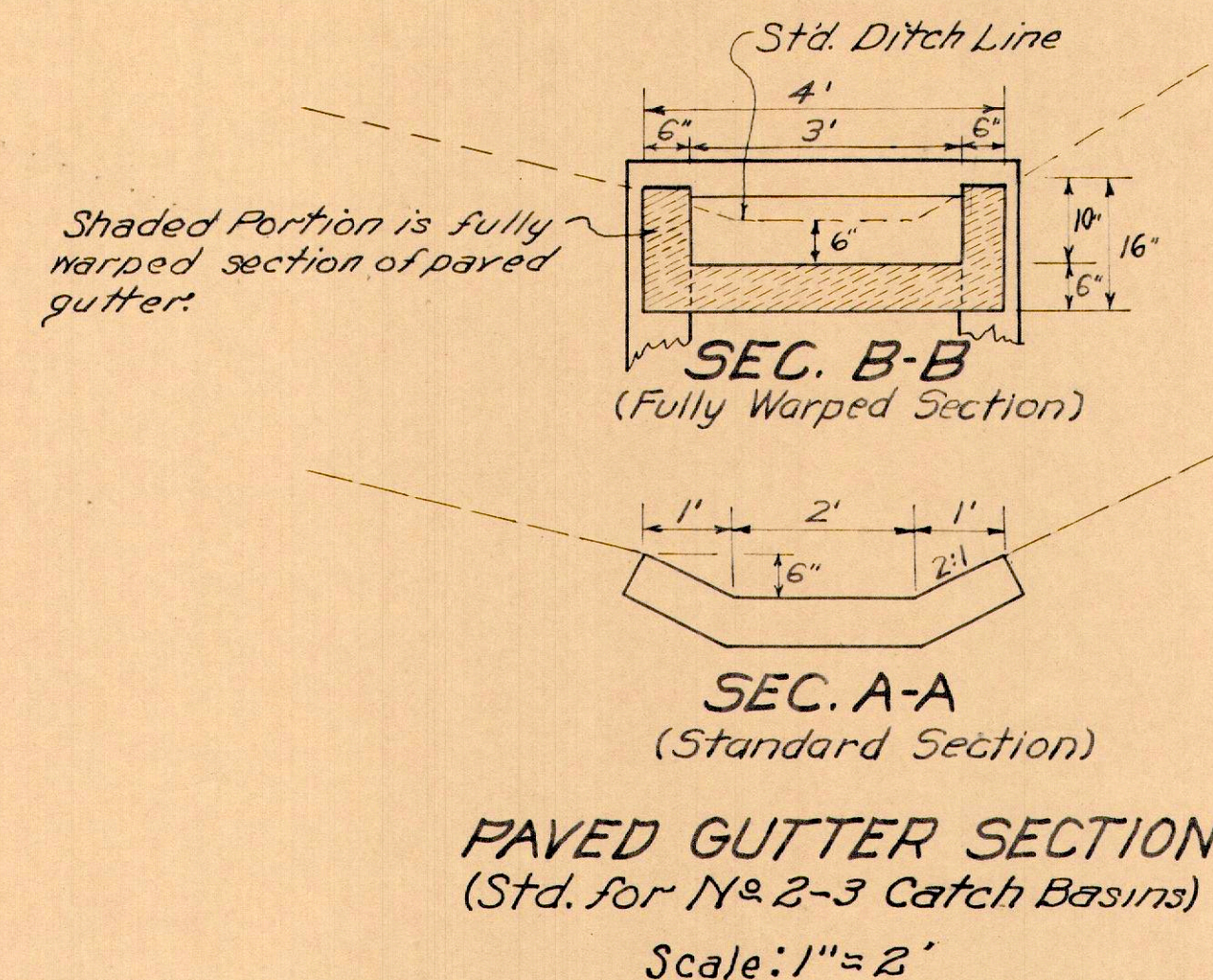
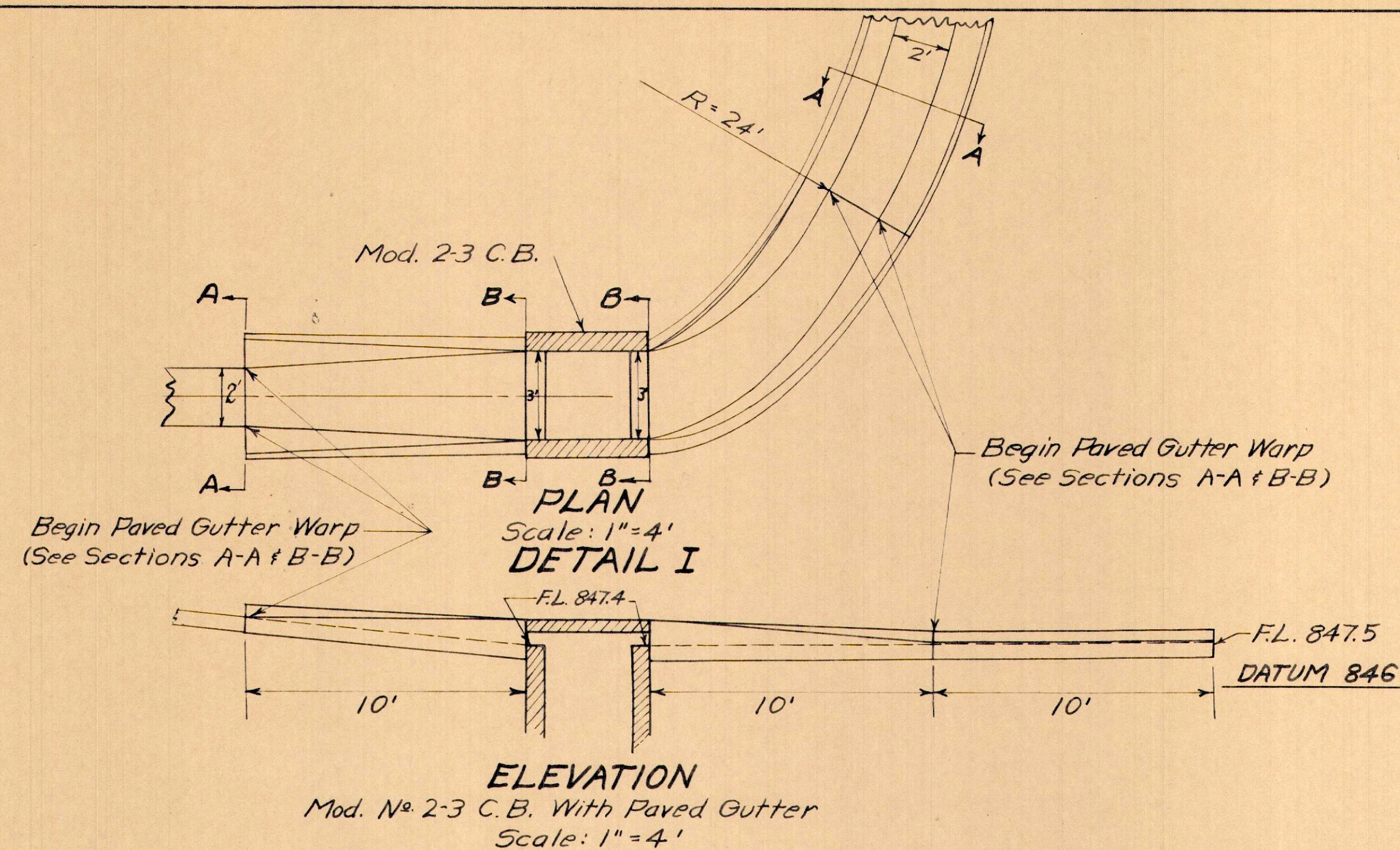
126 Lin. Ft.  
18 Cu. Yds.  
14 Cu. Yds.  
1.6 Cu. Yds.  
5 Sq. Yds.

Area: 9 acres  
Q<sub>10</sub> : 22 cfs

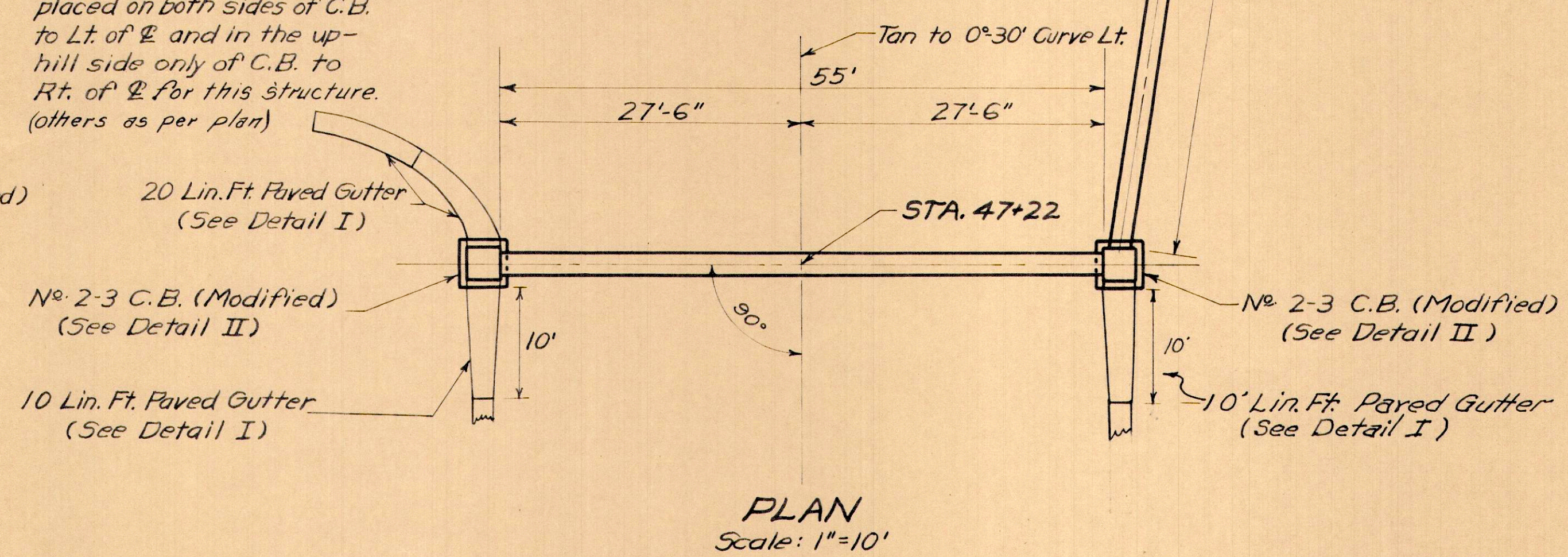


**STA. 36+00**  
**24" x 126' PIPE CULVERT**





NOTE: Window inlet 3'x9" will be placed on both sides of C.B. to Lt. of  $\Phi$  and in the up-hill side only of C.B. to Rt. of  $\Phi$  for this structure. (others as per plan)

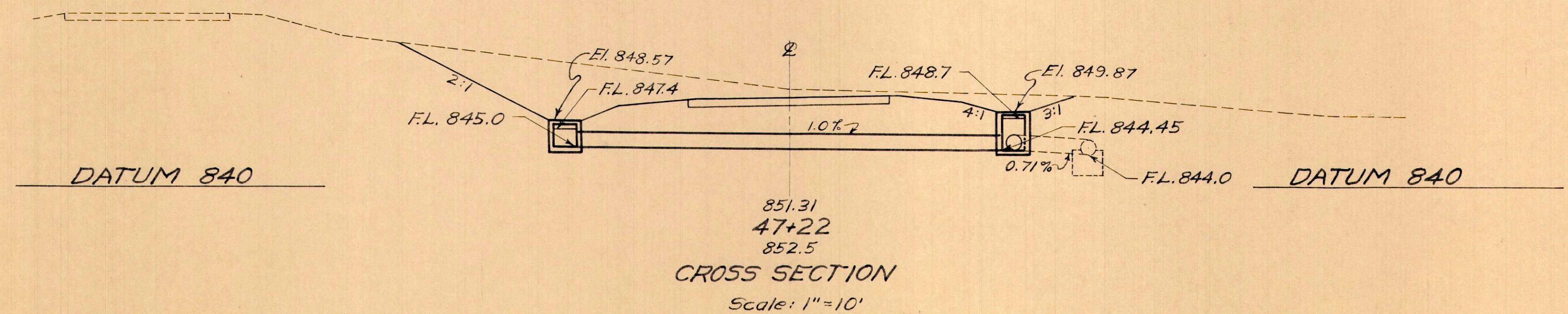


**WORK REQUIRED**  
Build Pipe Culvert and Storm Sewer as Shown.

**ESTIMATED QUANTITIES**

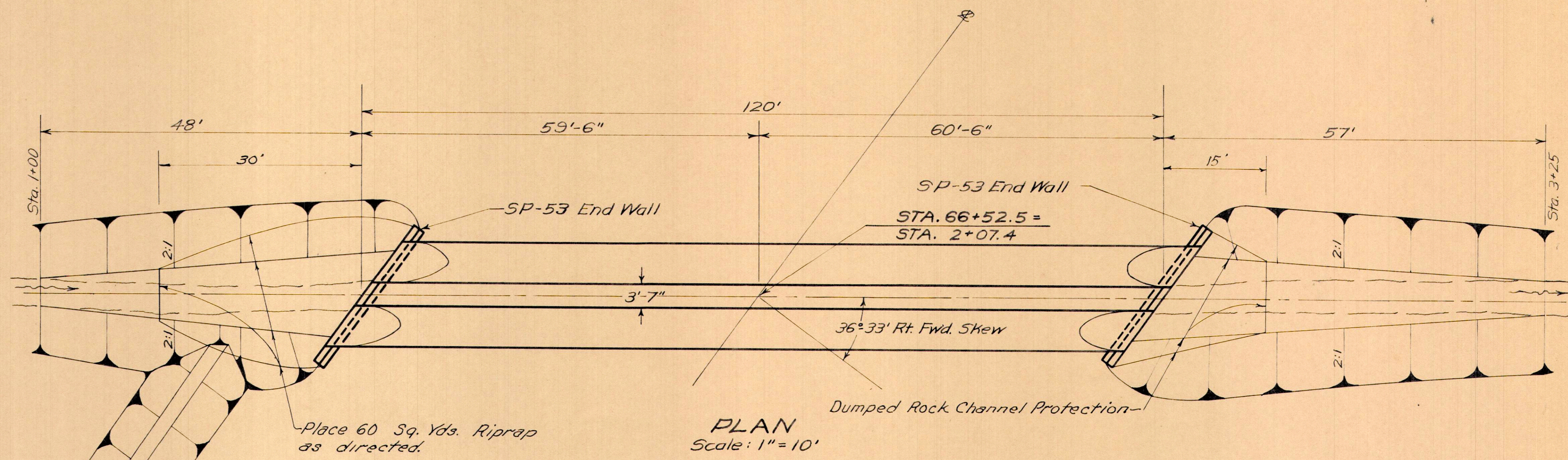
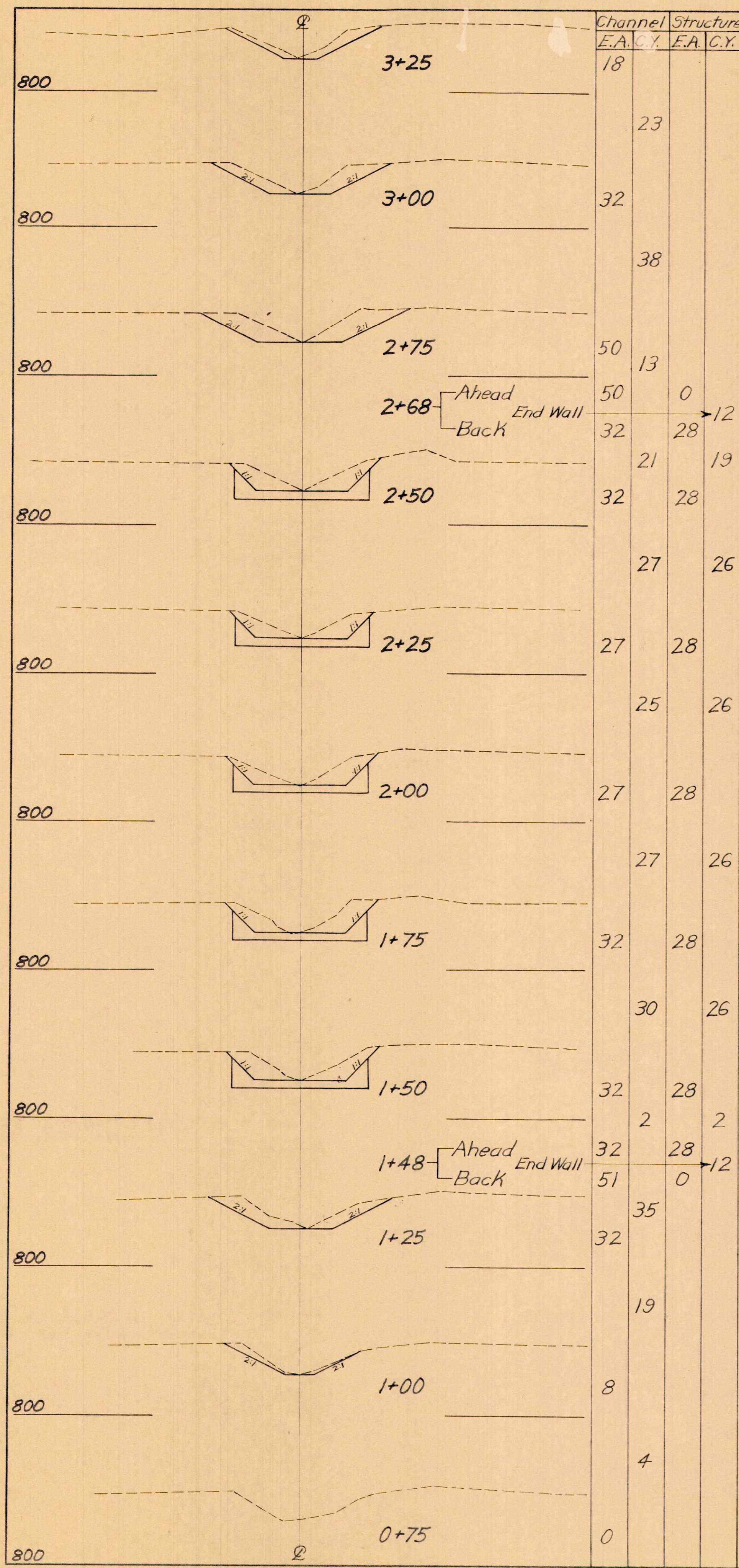
24" Pipe for Roadway Culverts	56 Lin. Ft.
No. 2-3 Catch Basin (Modified)	2 Each
24" Class "A" Storm Sewer Under Pvm't. or Appr.	64 Lin. Ft.
Excavation for Structures	42 Cu. Yds.
Concrete for Structures, Class "E"	0.4 Cu. Yds.
Dumped Rock Channel Protection	8 Cu. Yds.
Paved Gutter, Type I (Modified)	40 Lin. Ft.

Area: 8 acres  
Q10: 18 cfs



**STA. 47+22**  
**24" x 55' PIPE CULVERT**  
**24" x 64' STORM SEWER**





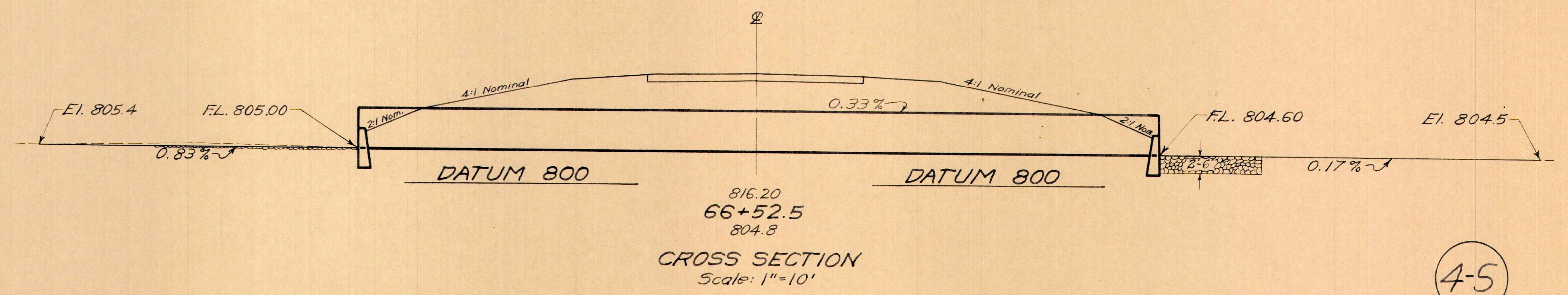
NOTE: The four end sections of this structure will be factory-cast (from Std. sections of 8 ft. length) to the given skew.

WORK REQUIRED  
Build Std Twin Pipe Culverts as Shown.

ESTIMATED QUANTITIES

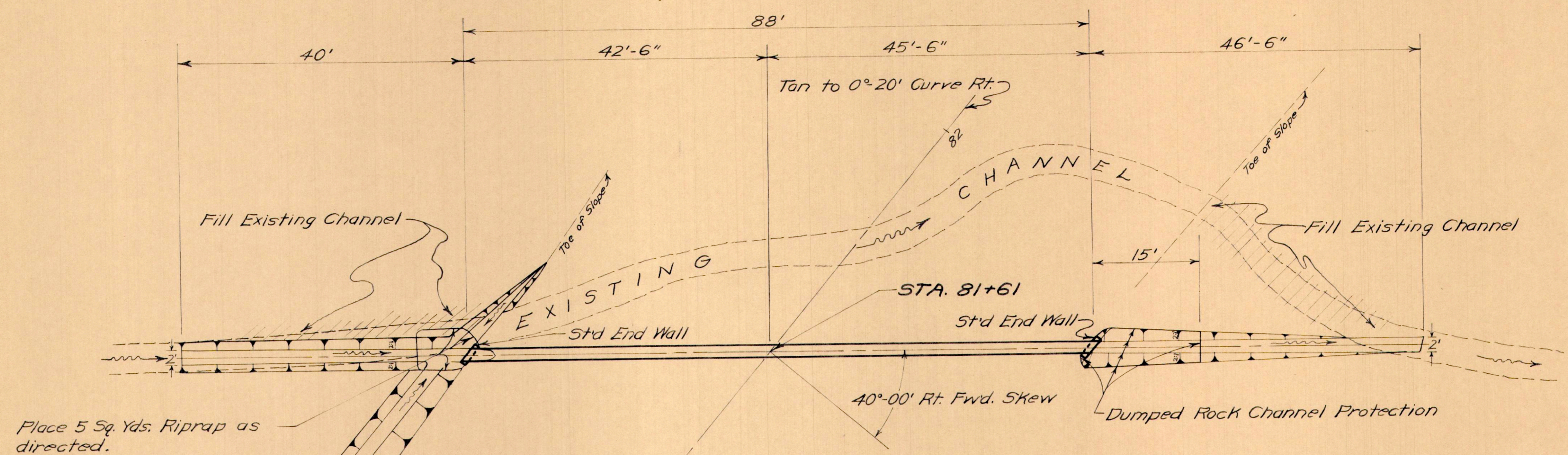
72" Std Strength Reinforced Concrete Culvert Pipe, Sec. M-6.6 (b.)	240	Lin. Ft.
Excavation for Structures	149	Cu. Yds.
Channel Excavation	264	Cu. Yds.
Concrete for Structures, Class "E"	12.1	Cu. Yds.
Riprap	60	Sq. Yds.
Dumped Rock Channel Protection	22	Cu. Yds.

Area: 698 acres  
Q<sub>10</sub>: 380 cfs



STA. 66+52.5  
TWIN 72" x 120' CONC. PIPE CULVERTS





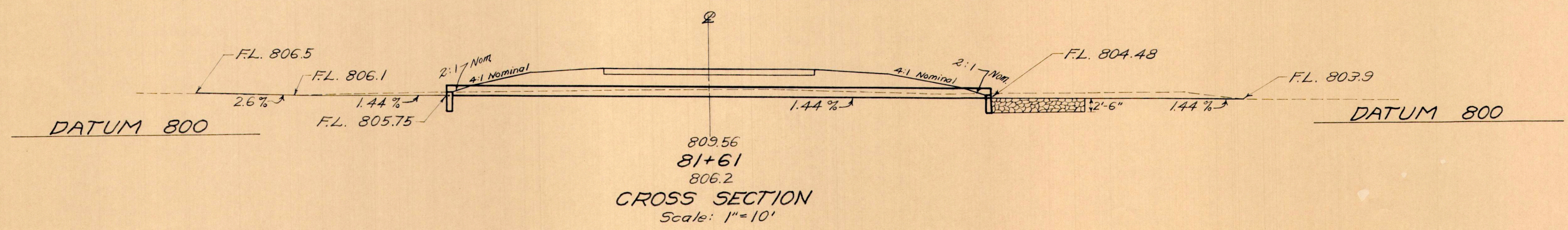
PLAN  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std Pipe Culvert as Shown.

**ESTIMATED QUANTITIES**

18" Pipe for Roadway Culverts	88	Lin. Ft.
Excavation for Structures	19	Cu. Yds.
Channel Excavation	7	Cu. Yds.
Concrete for Structures, Class "E"	0.6	Cu. Yds.
Riprap	5	Sq. Yds.
Dumped Rock Channel Protection	8	Cu. Yds.

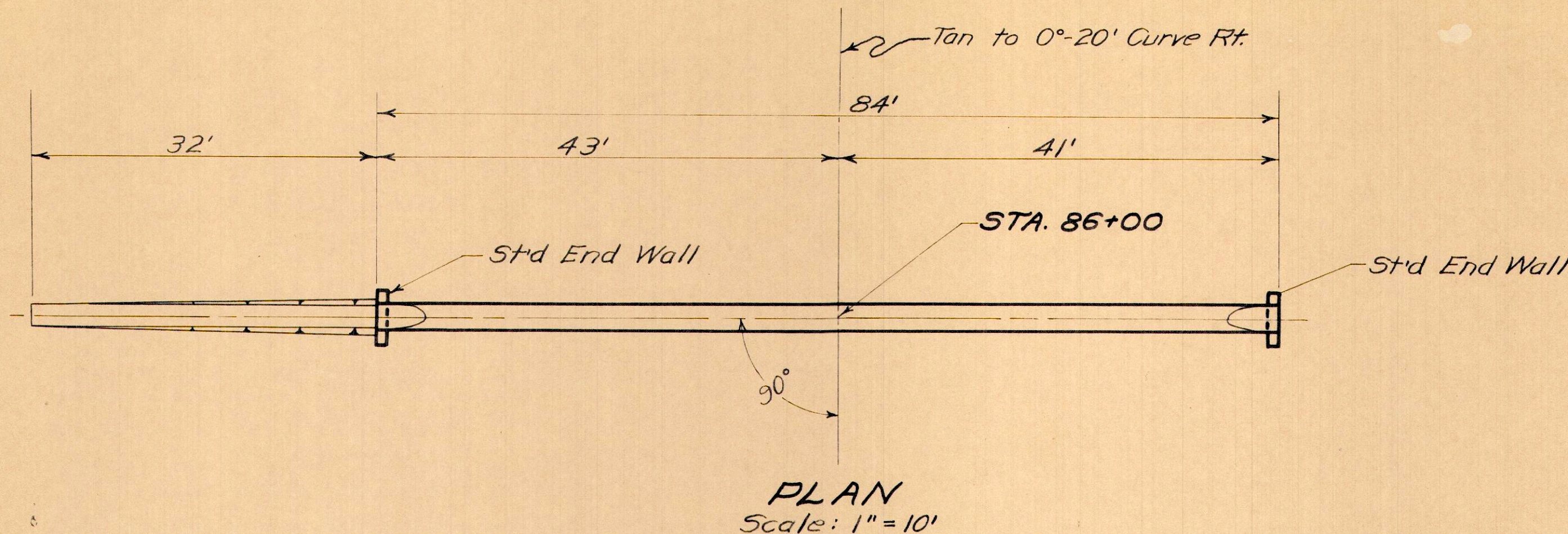
Area : 81 acres  
Q<sub>10</sub> : 93 cfs



CROSS SECTION  
Scale: 1"=10'

**STA. 81+61  
18" x 88' PIPE CULVERT**



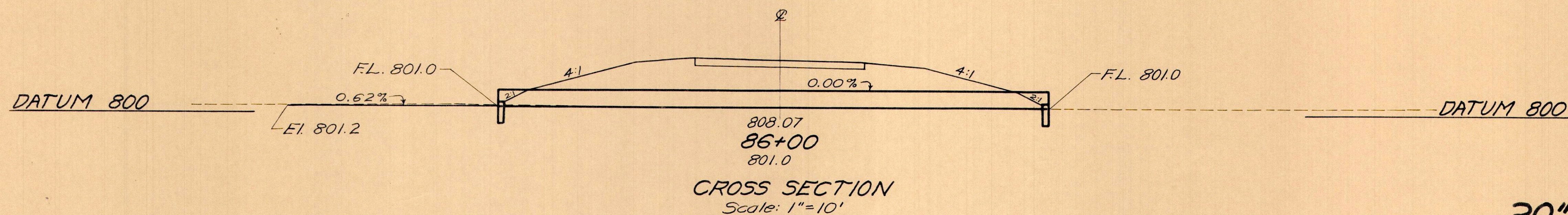


PLAN  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std Pipe Culvert as Shown.

**ESTIMATED QUANTITIES**

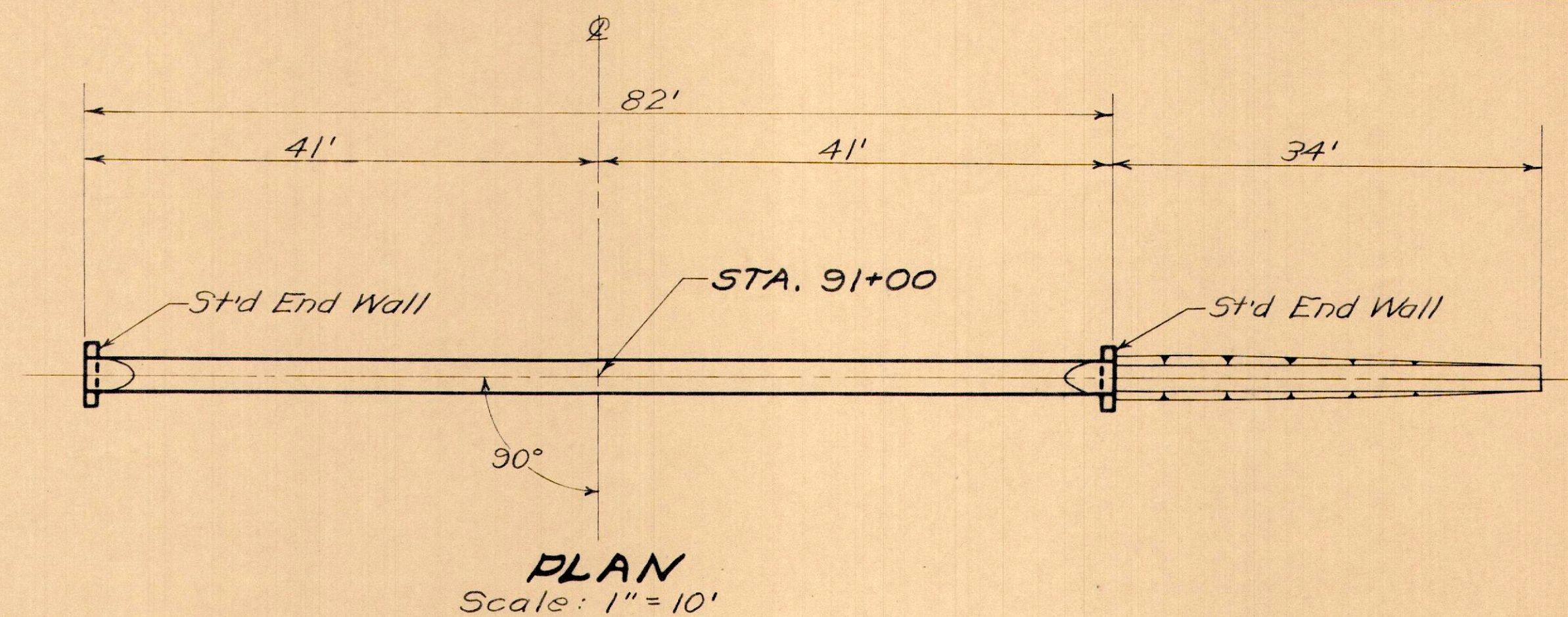
30" Pipe for Roadway Culverts	84	Lin. Ft.
Excavation for Structures	16	Cu. Yds.
Channel Excavation	1	Cu. Yds.
Concrete for Structures, Class "E"	1.0	Cu. Yds.



CROSS SECTION  
Scale: 1"=10'

**STA. 86+00**  
**30"x84' PIPE CULVERT**

6-5

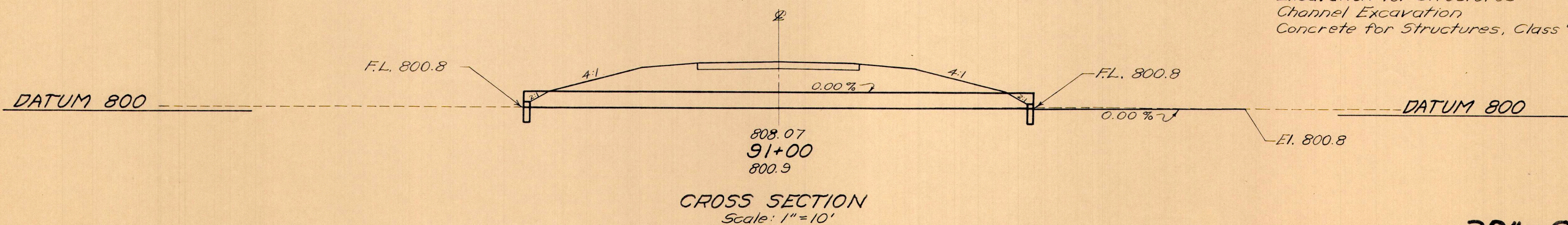


PLAN  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std Pipe Culvert as Shown.

**ESTIMATED QUANTITIES**

30" Pipe for Roadway Culverts	82	Lin. Ft.
Excavation for Structures	17	Cu. Yds.
Channel Excavation	1	Cu. Yds.
Concrete for Structures, Class "E"	1.0	Cu. Yds.

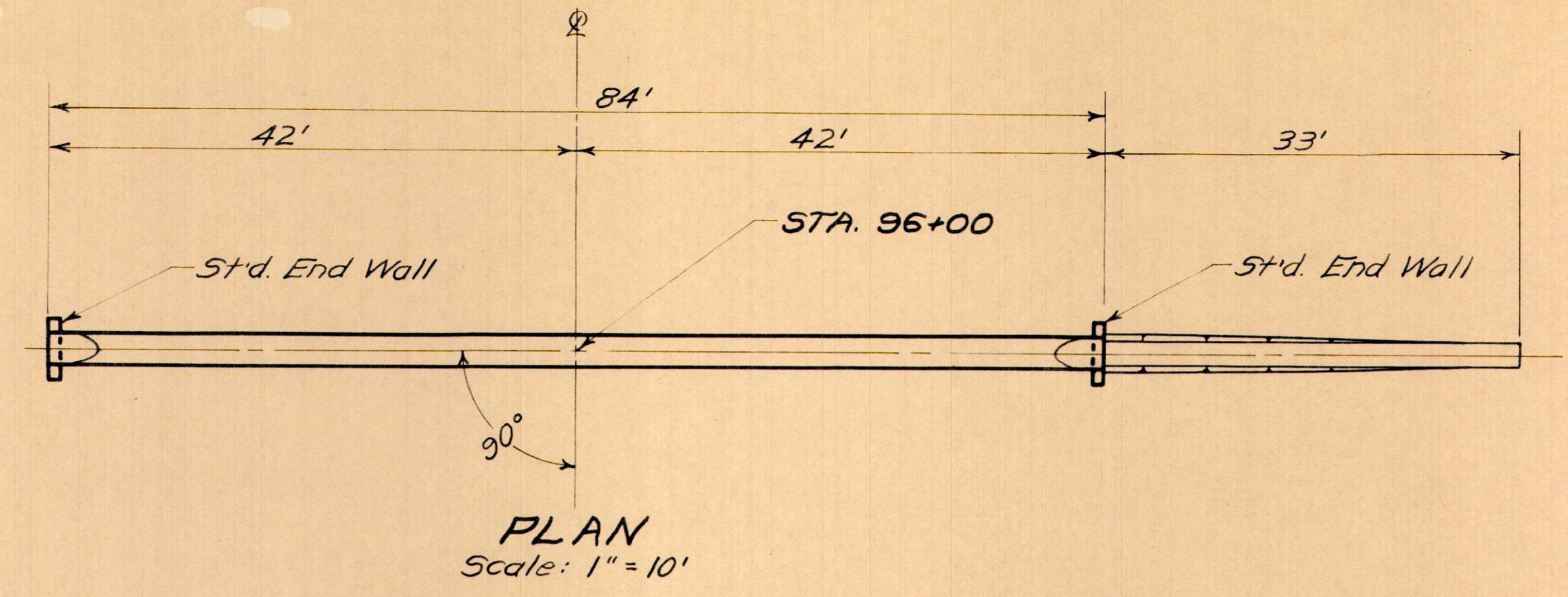


CROSS SECTION  
Scale: 1"=10'

**STA. 91+00**  
**30"x82' PIPE CULVERT**

7-5

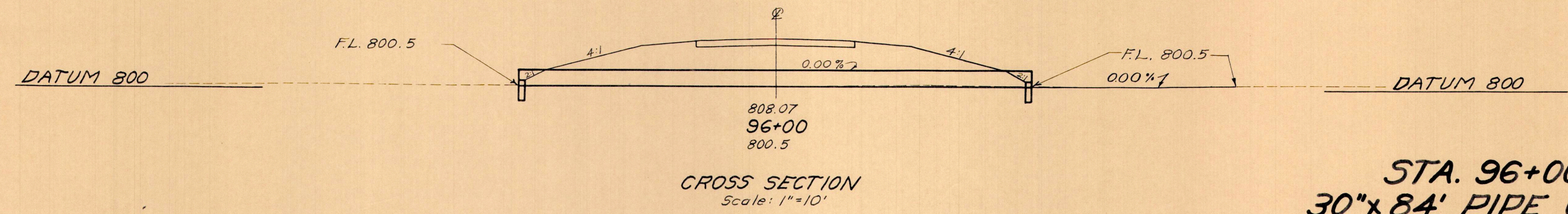




**WORK REQUIRED**  
Build Std Relief Pipe Culvert as Shown.

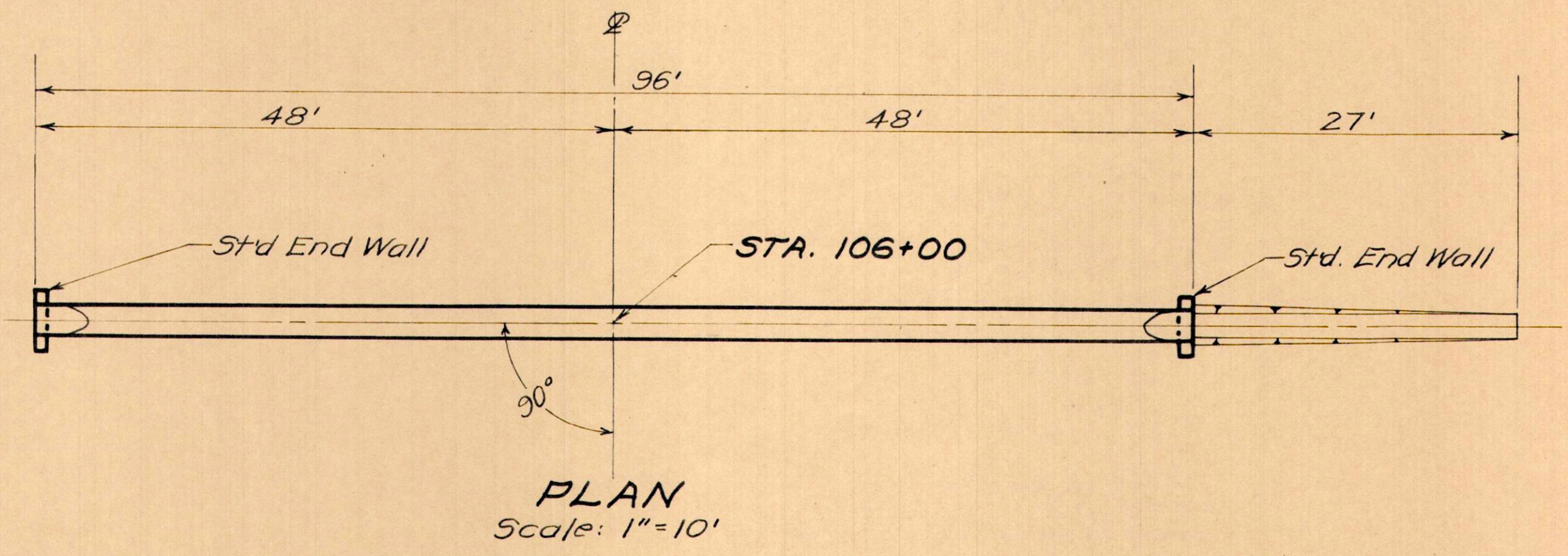
**ESTIMATED QUANTITIES**

30" Pipe for Roadway Culverts	84 Lin. Ft.
Excavation for Structures	17 Cu. Yds.
Channel Excavation	1 Cu. Yds.
Concrete for Structures, Class "E"	1.0 Cu. Yds.



**STA. 96+00  
30" x 84' PIPE CULVERT**

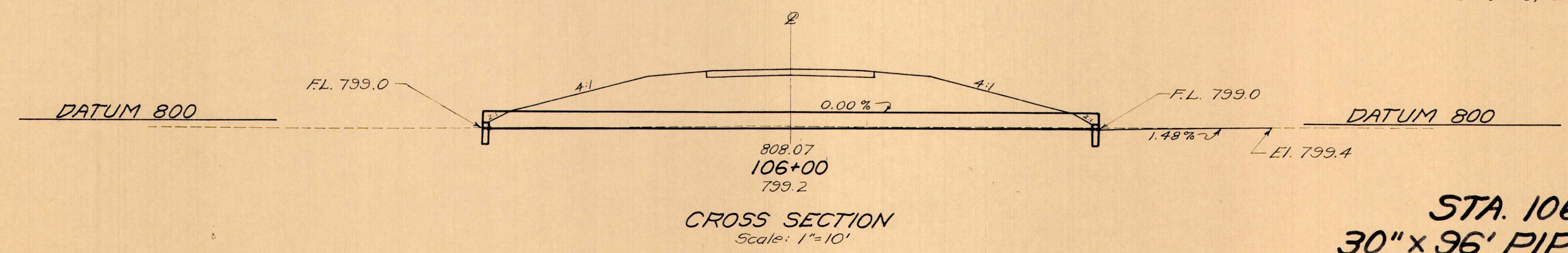
8-5



**WORK REQUIRED**  
Build Std Relief Pipe Culvert as Shown.

**ESTIMATED QUANTITIES**

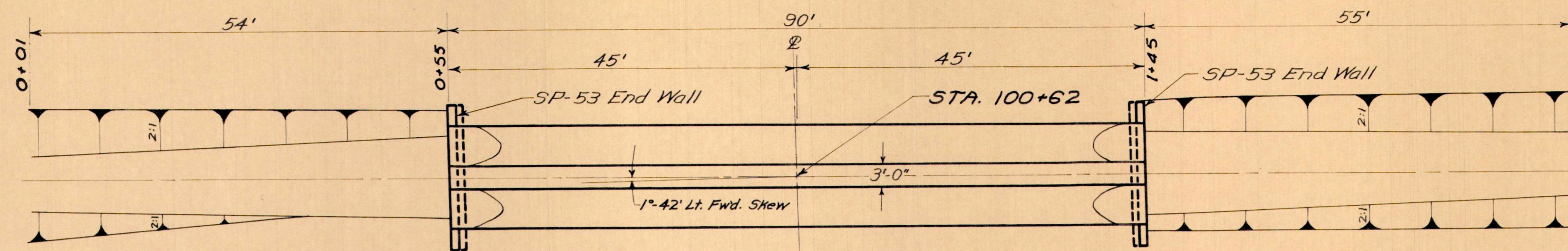
30" Pipe for Roadway Culverts	96 Lin. Ft.
Excavation for Structures	21 Cu. Yds.
Channel Excavation	1 Cu. Yds.
Concrete for Structures, Class "E"	1.0 Cu. Yds.



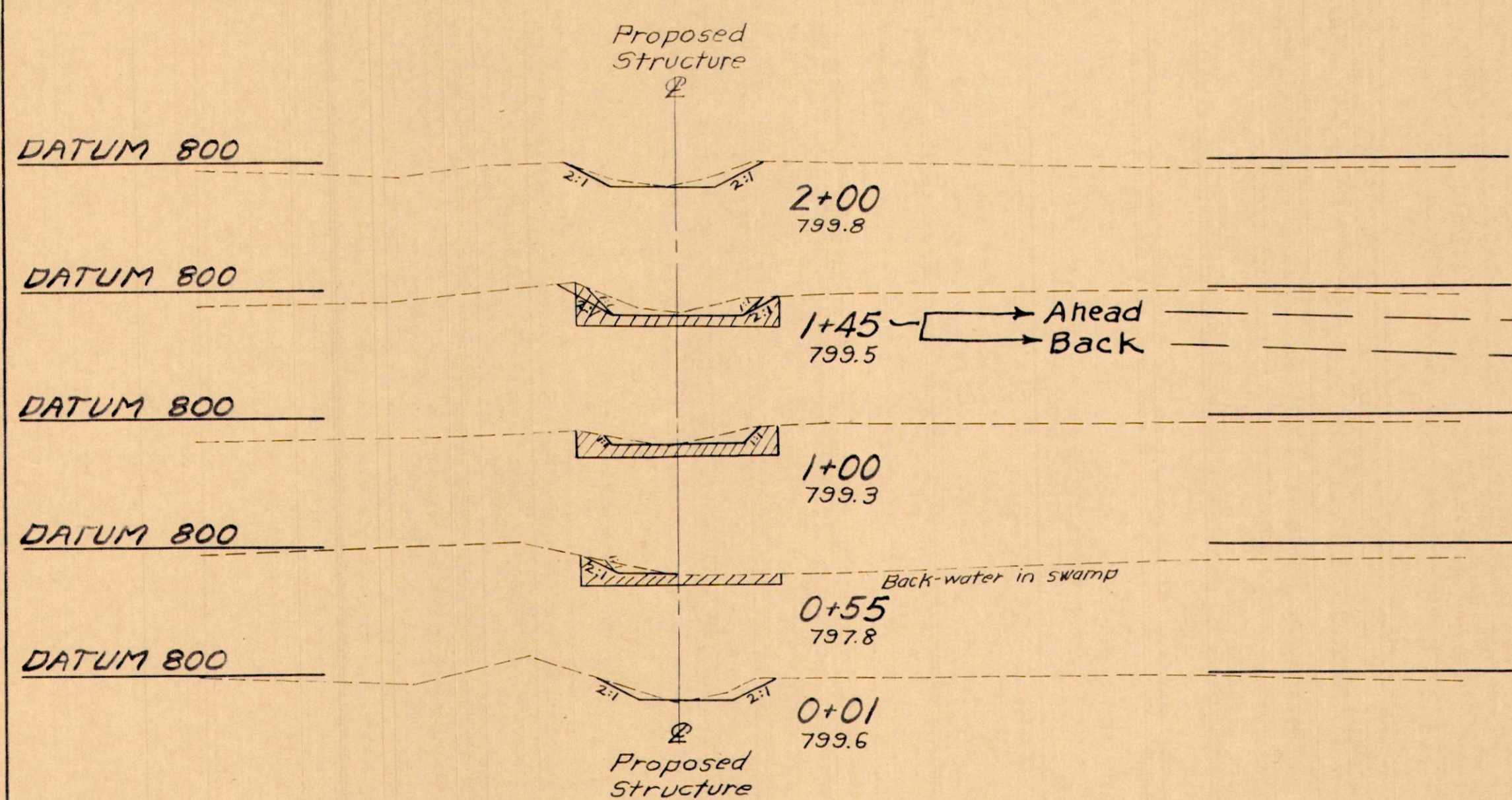
**STA. 106+00  
30" x 96' PIPE CULVERT**

10-5





PLAN  
Scale: 1"=10'



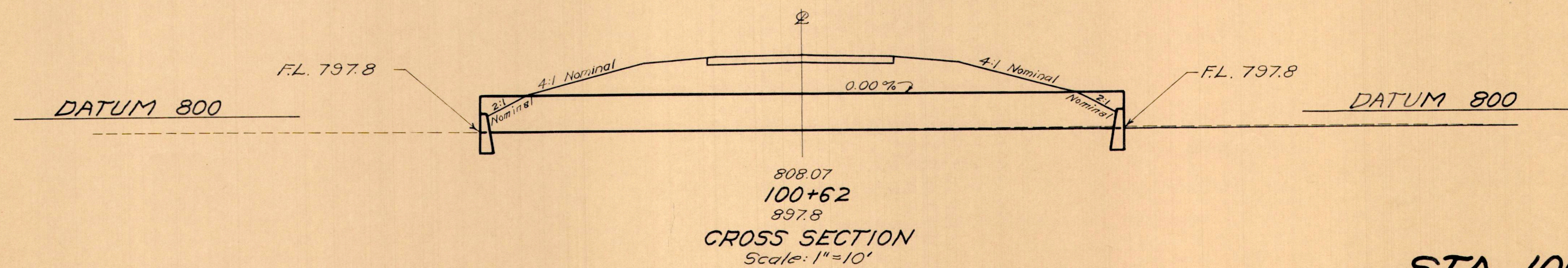
Channel		Structure	
EA	C.Y.	EA	C.Y.
9	25		
15		22	9 ← End Wall
10		35	
7	14	20	32
		18	9 ← End Wall
5	10		
	12		
7			

WORK REQUIRED  
Build Std. Twin Pipe Culverts as Shown.

ESTIMATED QUANTITIES

60" Pipe for Roadway Culverts	180	Lin. Ft.
Excavation for Structures	85	Cu. Yds.
Channel Excavation	61	Cu. Yds.
Concrete for Structures, Class "E"	9.0	Cu. Yds.

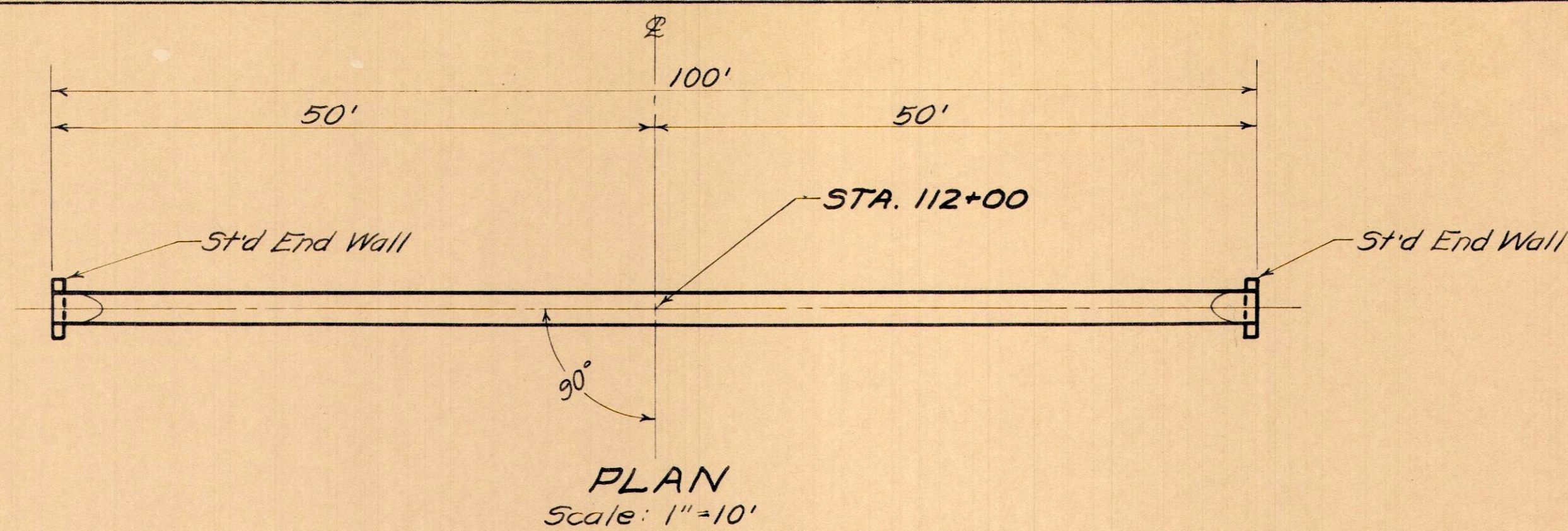
Area: 480 acres  
Q<sub>10</sub>: 302 cfs



CROSS SECTION  
Scale: 1"=10'

STA. 100+62  
TWIN 60"x90' PIPE CULVERTS

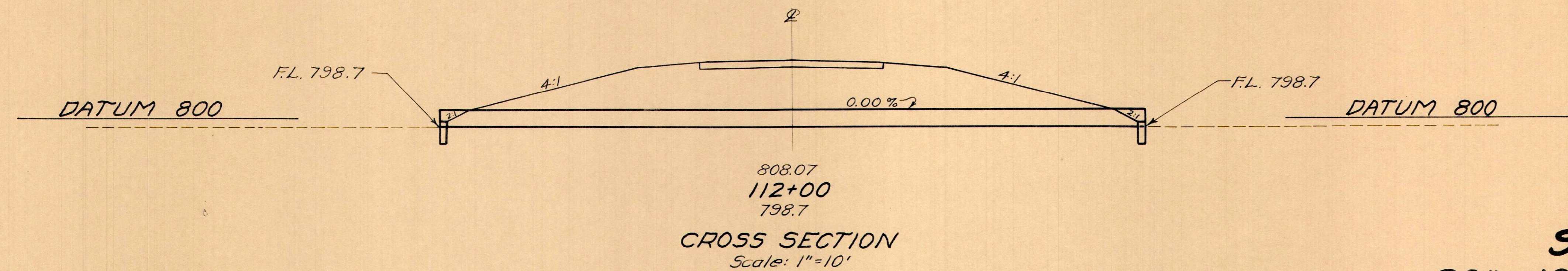




**WORK REQUIRED**  
Build Std Relief Pipe Culvert as Shown.

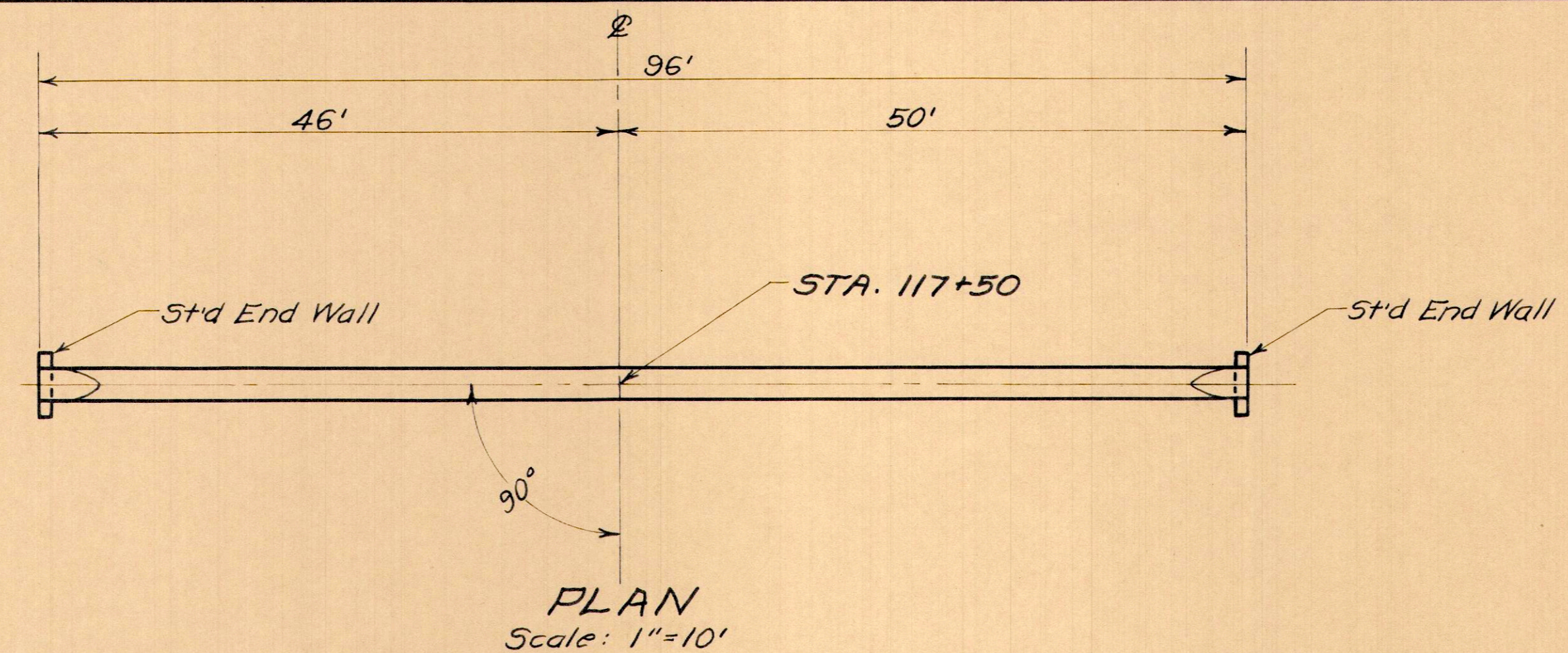
**ESTIMATED QUANTITIES**

30" Pipe for Roadway Culverts	100 Lin. Ft.
Excavation for Structures	18 Cu. Yds.
Concrete for Structures, Class "E"	1.0 Cu. Yds.



**STA. 112+00**  
**30" x 100' PIPE CULVERT**

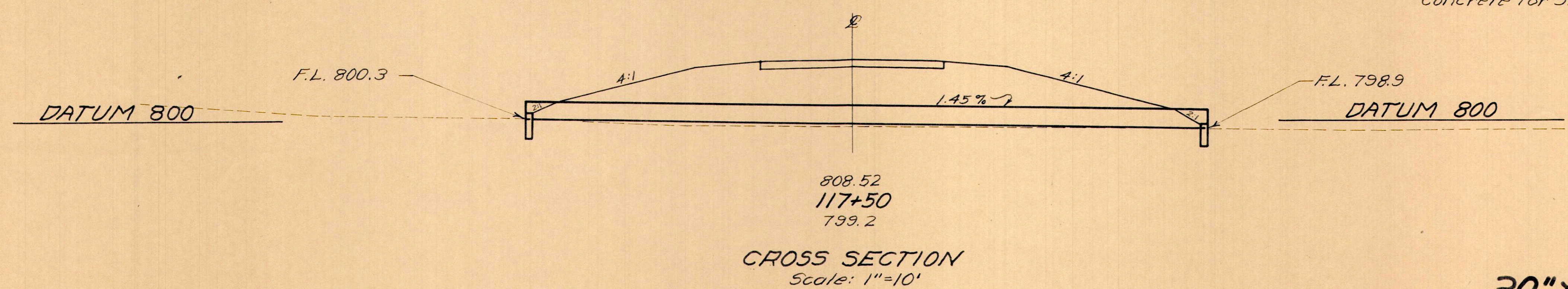
11-5



**WORK REQUIRED**  
Build Std Relief Pipe Culvert as Shown.

**ESTIMATED QUANTITIES**

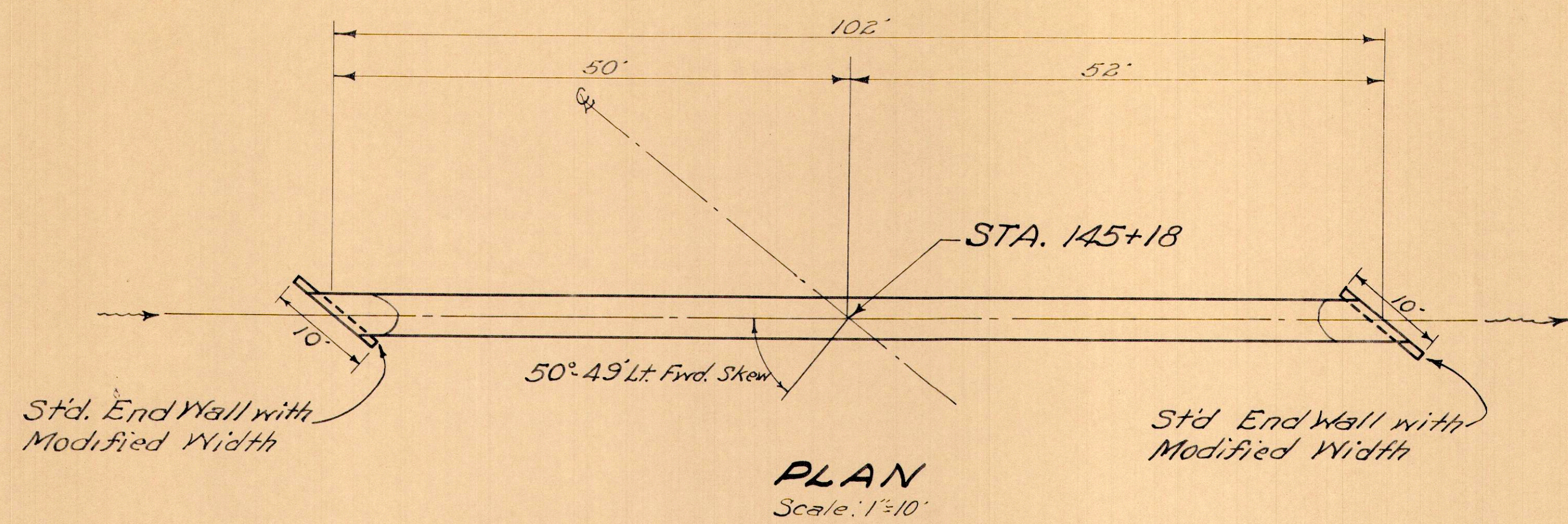
30" Pipe for Roadway Culverts	96 Lin. Ft.
Excavation for Structures	13 Cu. Yds.
Concrete for Structures, Class "E"	1.0 Cu. Yds.



**STA. 117+50**  
**30" x 96' PIPE CULVERT**

12-5





**PLAN**  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std. Relief Pipe Culvert as shown

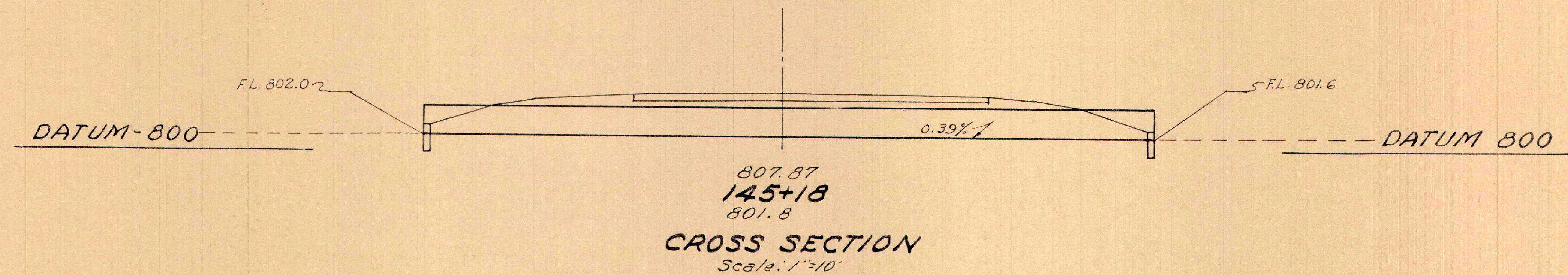
**ESTIMATED QUANTITIES**

48" Pipe For Roadway Culvert	102 Lin. Ft.
Excavation for Structures	30 Cu. Yds.
Concrete for Structures, Class "E"	2.4 Cu. Yds.

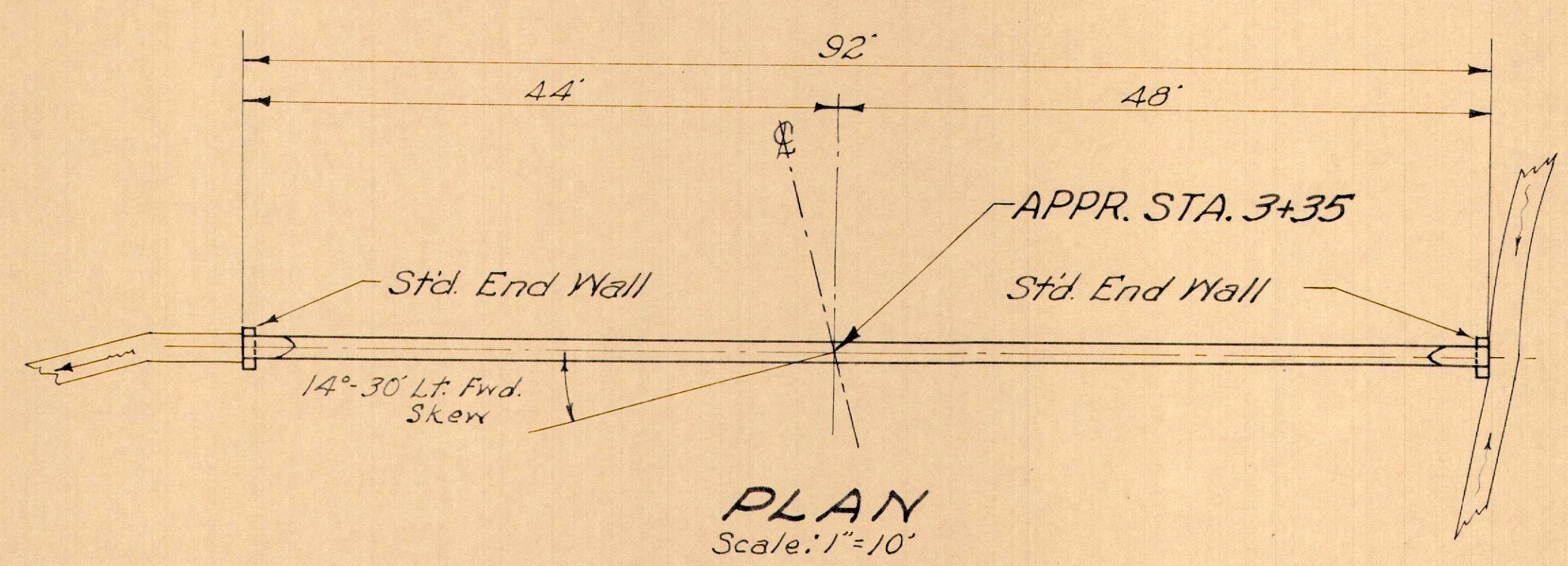
Note: If Concrete Pipe is used, the end sections of this Structure will be factory-cast (from Std. Sections of 8' Length) to the given skew.

**STA. 145+18**  
**48" x 102' PIPE CULVERT**

19-5



**CROSS SECTION**  
Scale: 1"=10'



**PLAN**  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std. Pipe Culvert as Shown

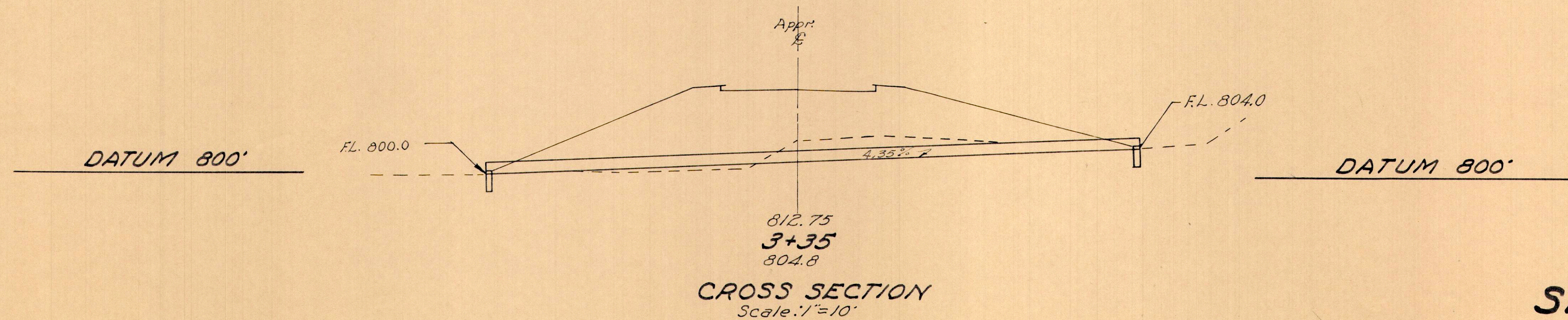
**ESTIMATED QUANTITIES**

18" Pipe For Roadway Culvert	92 Lin. Ft.
Excavation for Structures	18 Cu. Yds.
Concrete for Structures, Class "E"	0.6 Cu. Yds.

Area: 2 Acres  
Q<sub>10</sub>: 7 c.f.s.

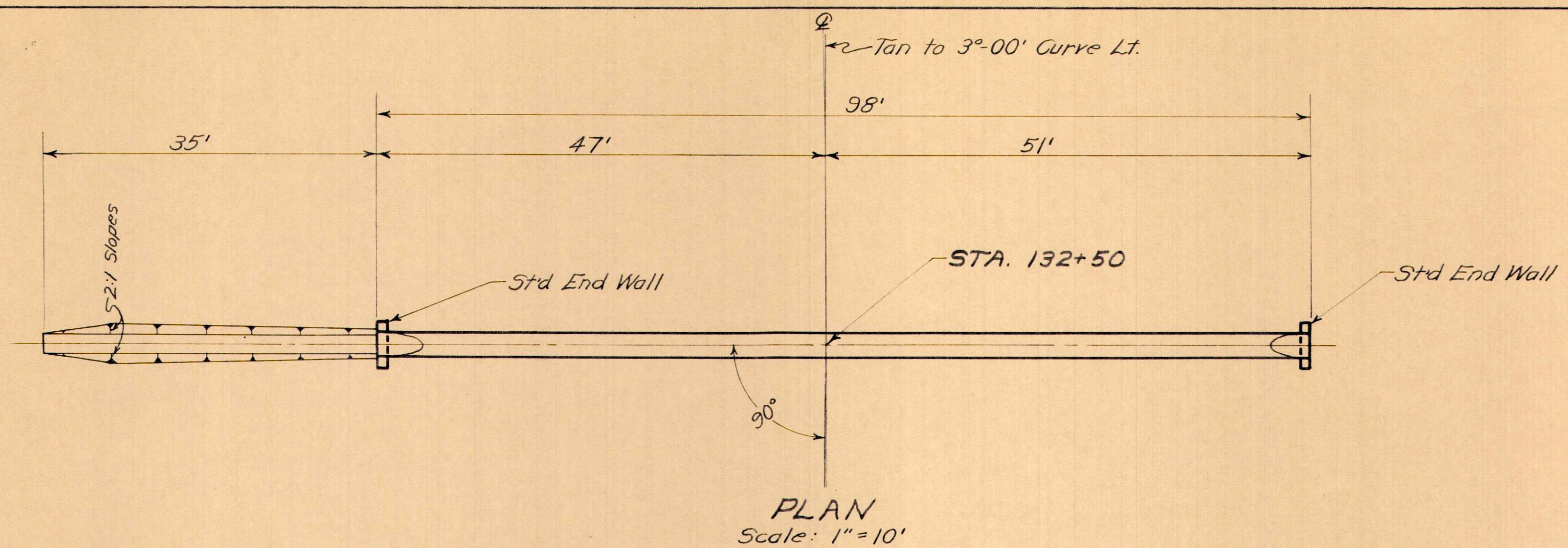
**STA. 3+35 (APPR. LT. STA. 125+00)**  
**18" x 92' PIPE CULVERT**

14-5



**CROSS SECTION**  
Scale: 1"=10'



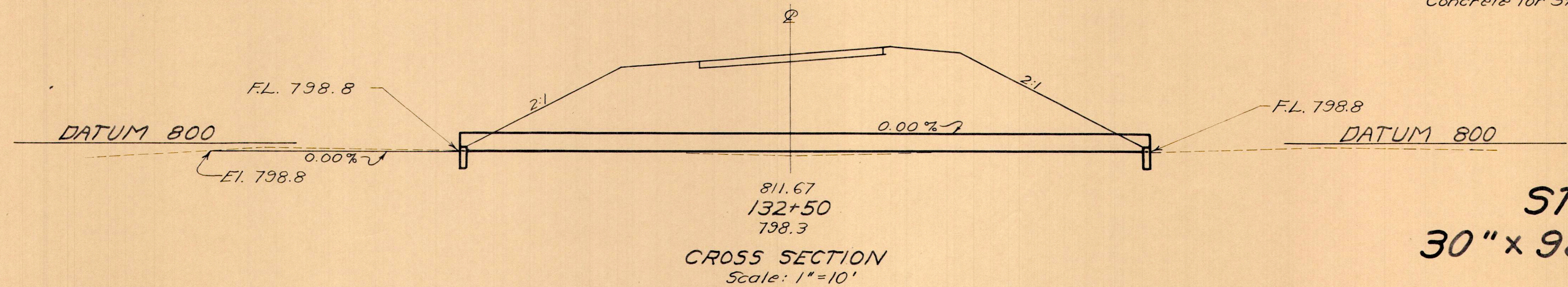


PLAN  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std Relief Pipe Culvert as Shown.

**ESTIMATED QUANTITIES**

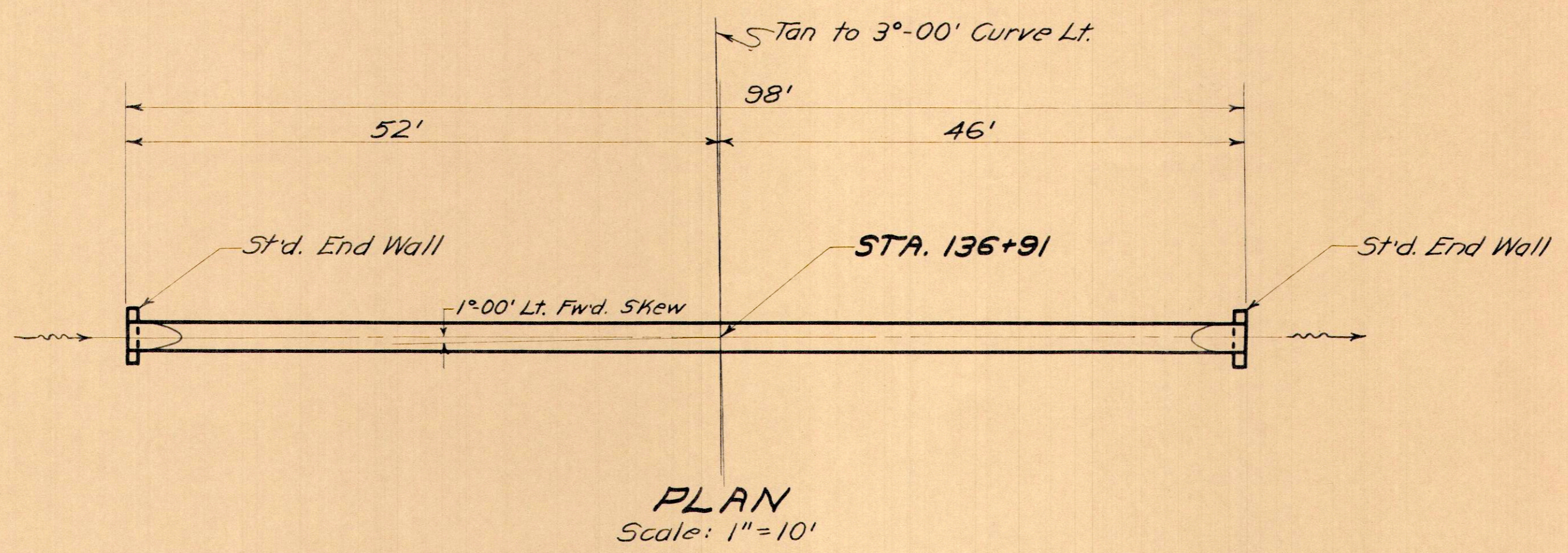
30" Pipe for Roadway Culverts	98	Lin. Ft.
Excavation for Structures	18	Cu. Yds.
Channel Excavation	1	Cu. Yds.
Concrete for Structures, Class 'E'	1.0	Cu. Yds.



CROSS SECTION  
Scale: 1"=10'

**STA. 132+50**  
**30" x 98' PIPE CULVERT**

15-S

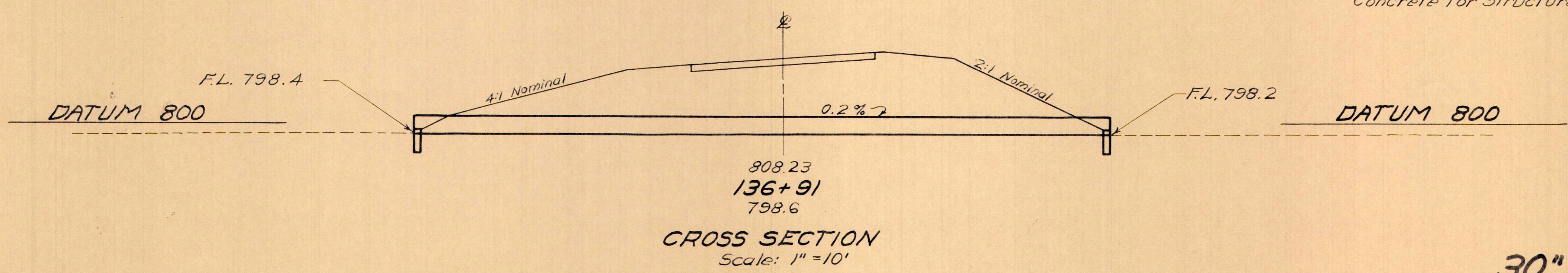


PLAN  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std. Relief Pipe Culvert as Shown.

**ESTIMATED QUANTITIES**

30" Pipe for Roadway Culverts	98	Lin. Ft.
Excavation for Structures	19	Cu. Yds.
Concrete for Structures, Class 'E'	1.0	Cu. Yds.

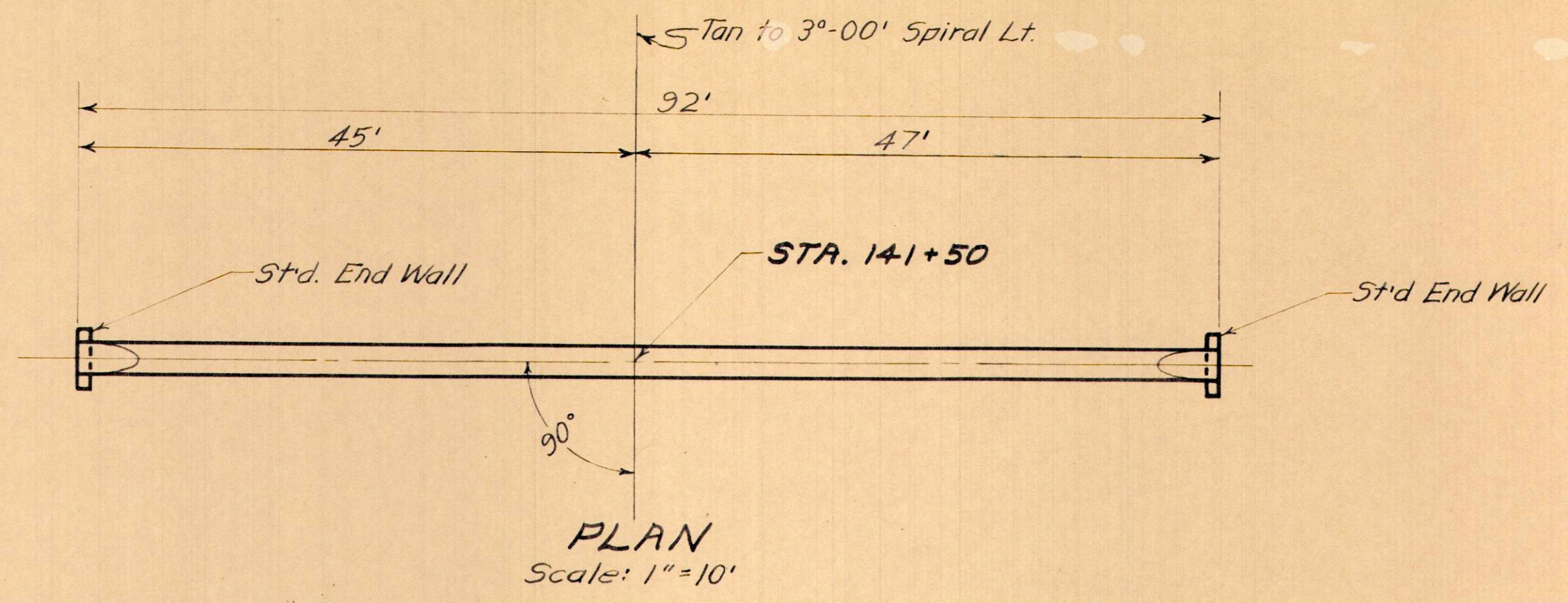


CROSS SECTION  
Scale: 1"=10'

**STA. 136+91**  
**30" x 98' PIPE CULVERT**

16-S

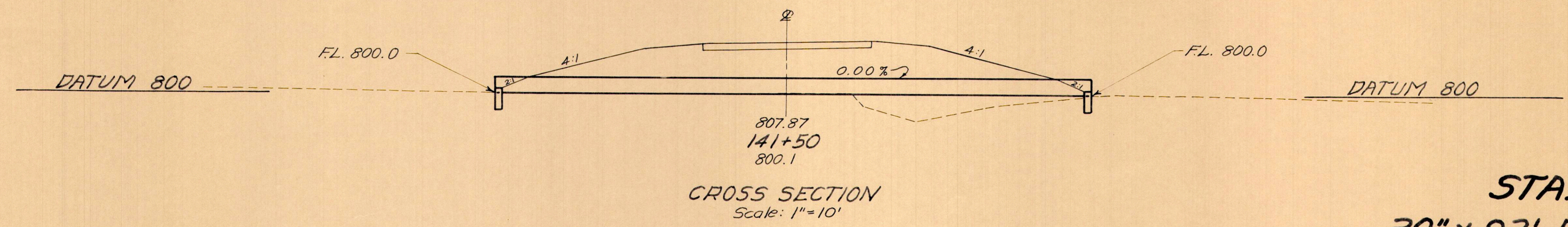




**WORK REQUIRED**  
 Build Std. Relief Pipe Culvert as Shown.

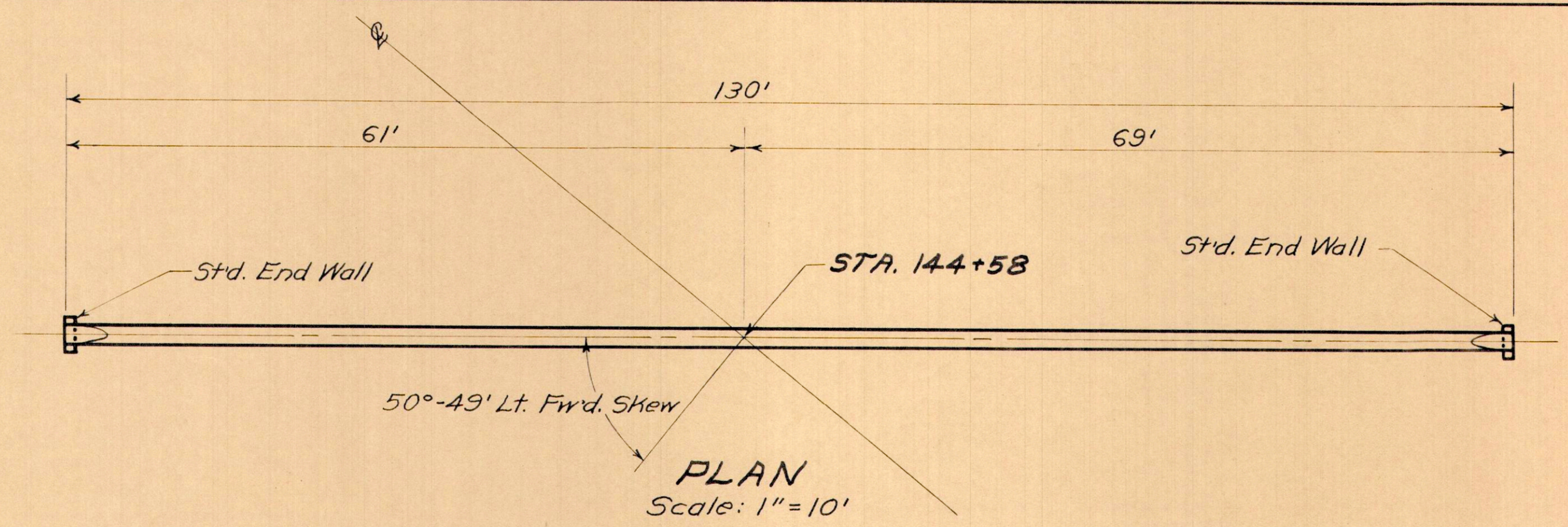
**ESTIMATED QUANTITIES**

30" Pipe for Roadway Culverts	92 Lin. Ft.
Excavation for Structures	12 Cu. Yds.
Concrete for Structures, Class "E"	1.0 Cu. Yds.



**STA. 141+50**  
**30" x 92' PIPE CULVERT**

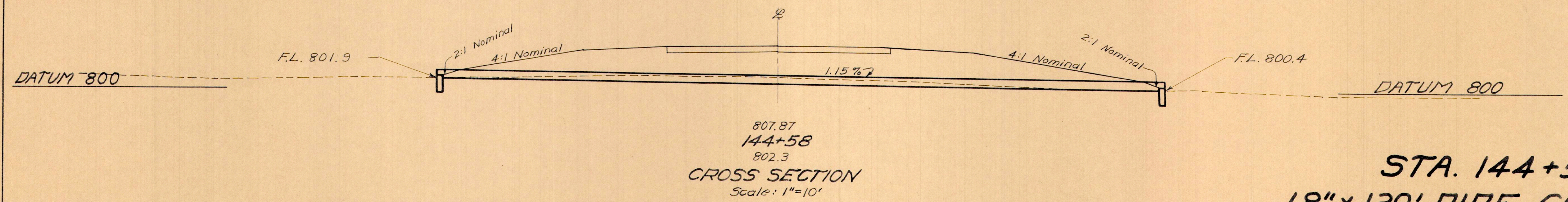
17-5



**WORK REQUIRED**  
 Build Std. Relief Pipe Culvert as Shown.

**ESTIMATED QUANTITIES**

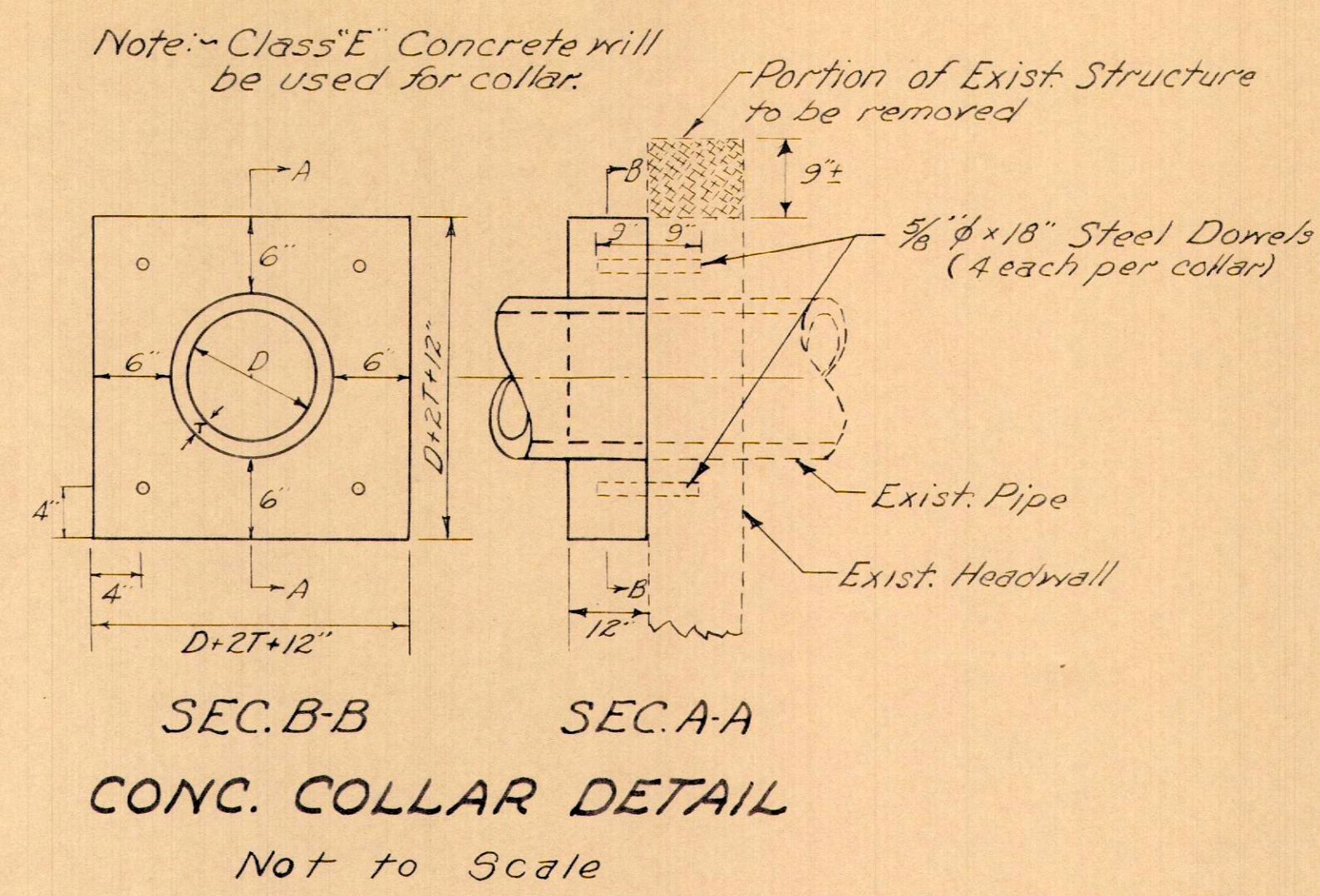
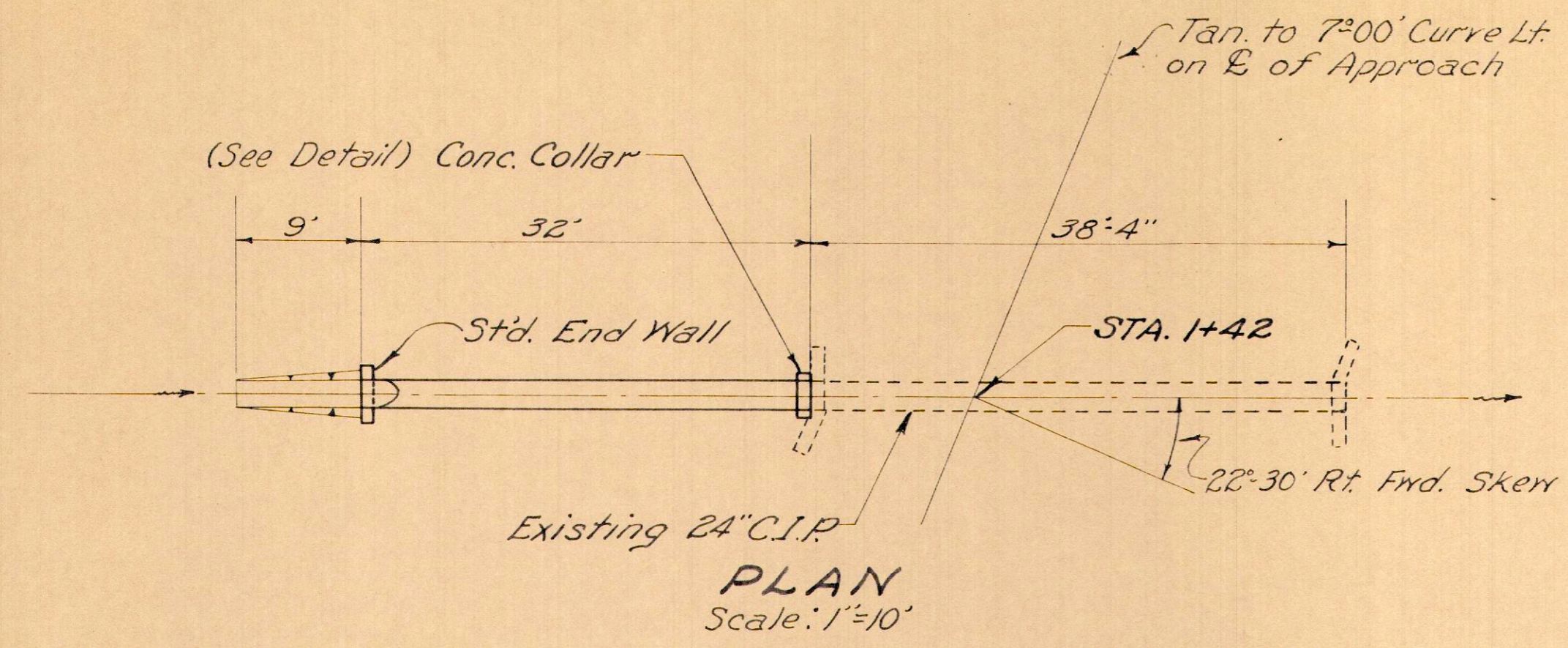
18" Pipe for Roadway Culverts	130 Lin. Ft.
Excavation for Structures	23 Cu. Yds.
Concrete for Structures, Class "E"	0.6 Cu. Yds.



**STA. 144+58**  
**18" x 130' PIPE CULVERT**

18-5

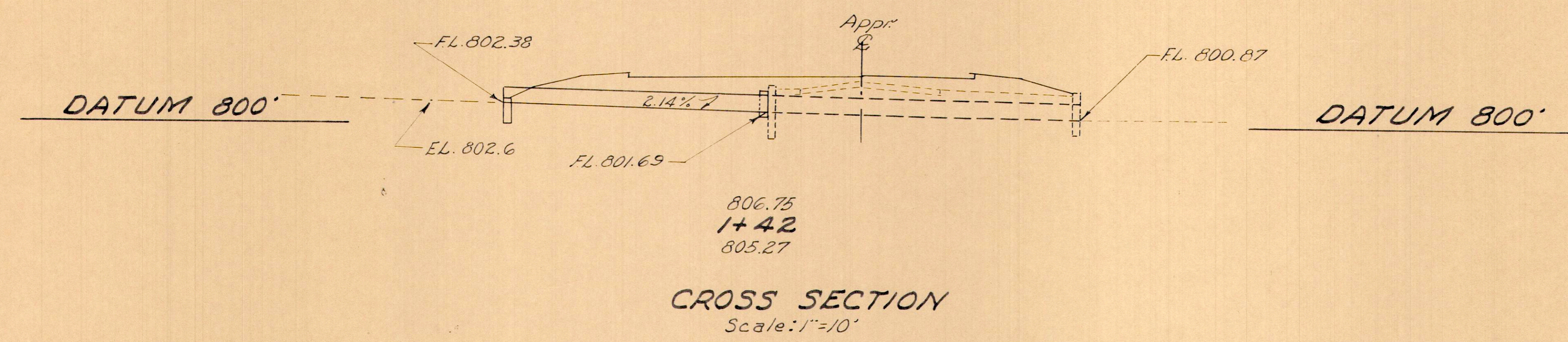




**WORK REQUIRED**  
 Build Std. Pipe Culvert Extension as Shown

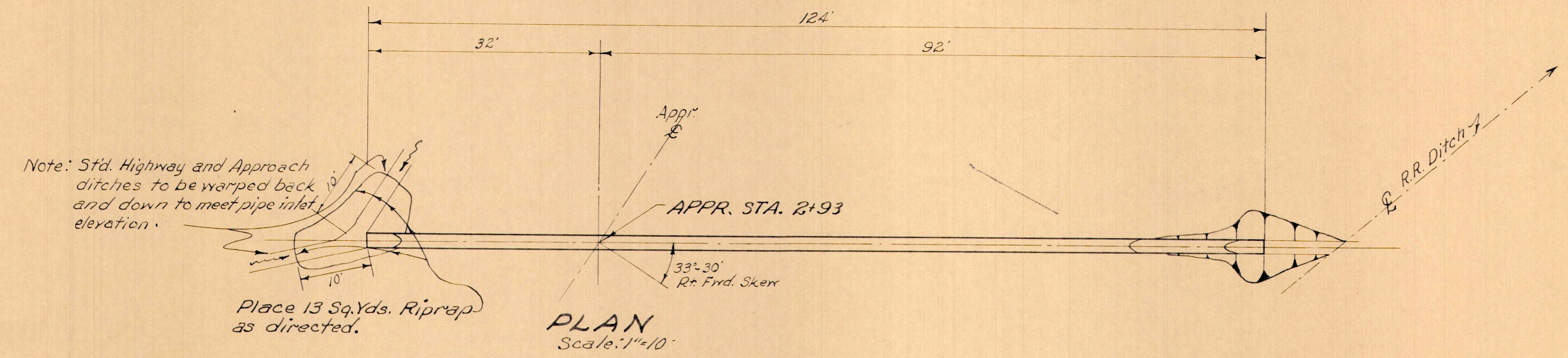
**ESTIMATED QUANTITIES**

24" Pipe for Roadway Culvert	32 Lin. Ft.
Excavation for Structures	4 Cu. Yds.
Concrete for Structures "Class E"	0.7 Cu. Yds.
Channel Excavation	1 Cu. Yds.
Removal of Portions of Existing Structures	0.2 Cu. Yds.
Dowel Holes	3 Lin. Ft.
Reinforcing Steel, 5/8" $\phi$	7 Lbs.



20-S

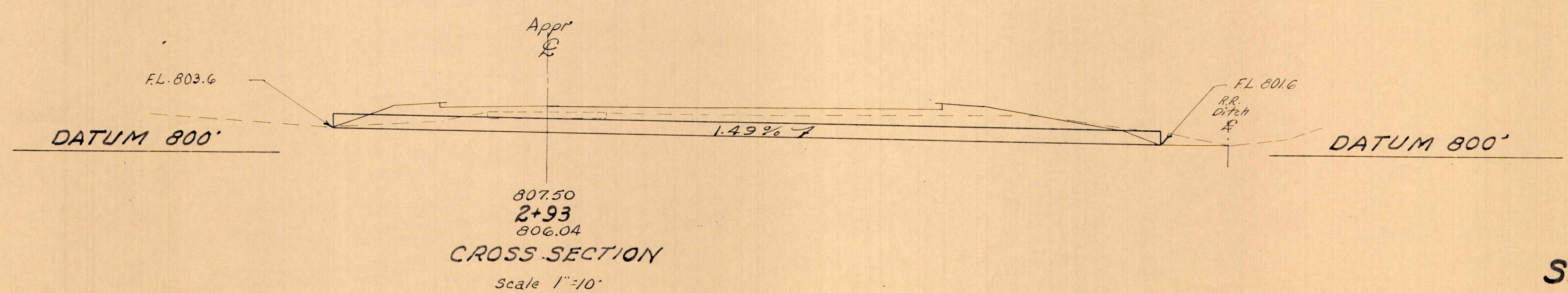
**STA. 1+42 (APPR. LT. STA. 146+00)**  
**24" x 32' PIPE CULVERT EXTENSION**



**WORK REQUIRED**  
 Build Std. Relief Culvert as Shown

**ESTIMATED QUANTITIES**

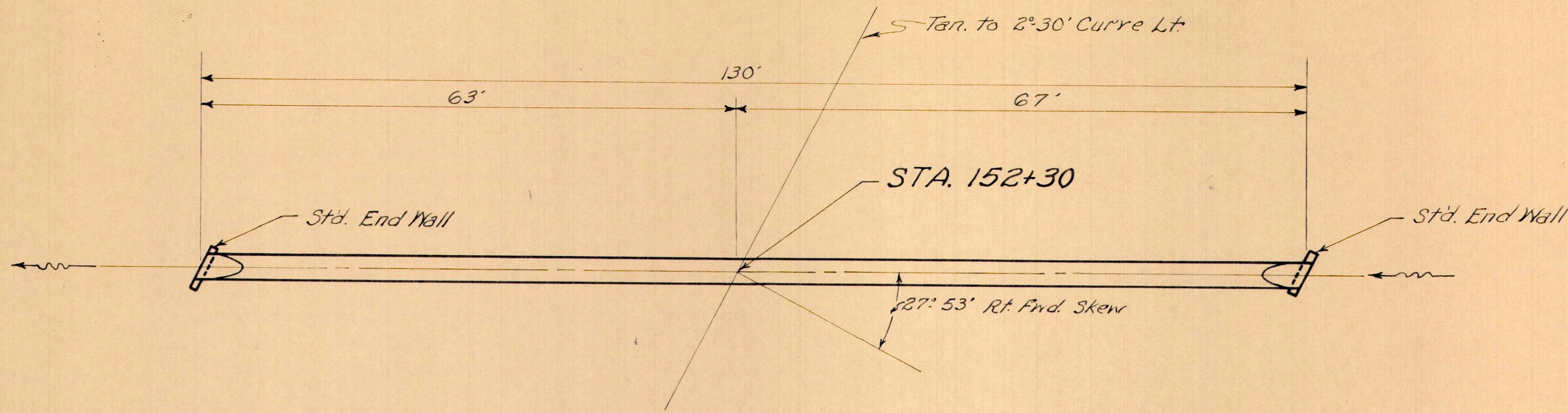
24" Pipe for Roadway Culvert	124 Lin. Ft.
Excavation for Structures	58 Cu. Yds.
Channel Excavation	6 Cu. Yds.
Riprap	13 Sq. Yds.



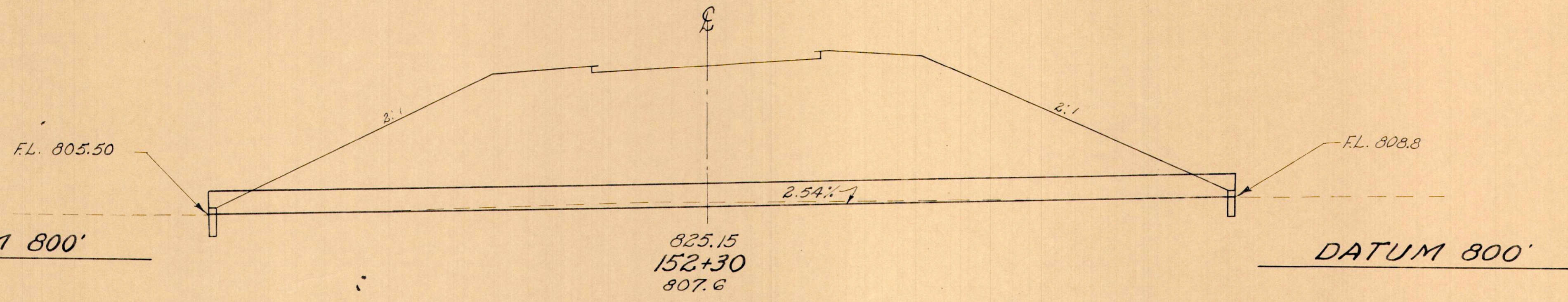
21-S

**STA. 2+93 (APPR. RT. STA. 146+00)**  
**24" x 124' PIPE CULVERT**





PLAN  
Scale: 1"=10'



CROSS SECTION  
Scale: 1"=10'

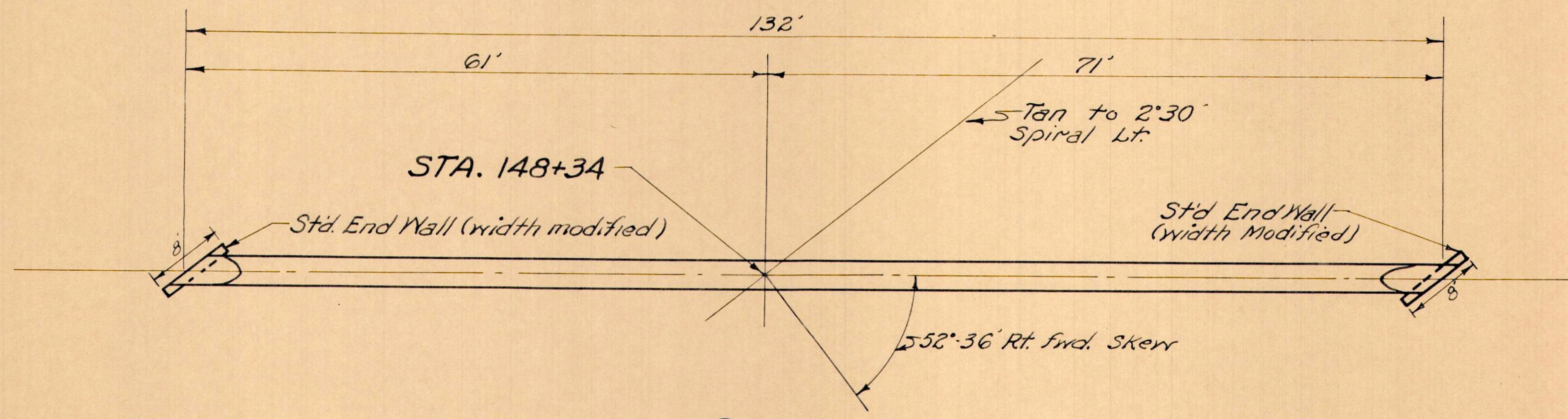
**WORK REQUIRED**  
Build Std. Relief Pipe Culvert as Shown

**ESTIMATED QUANTITIES**

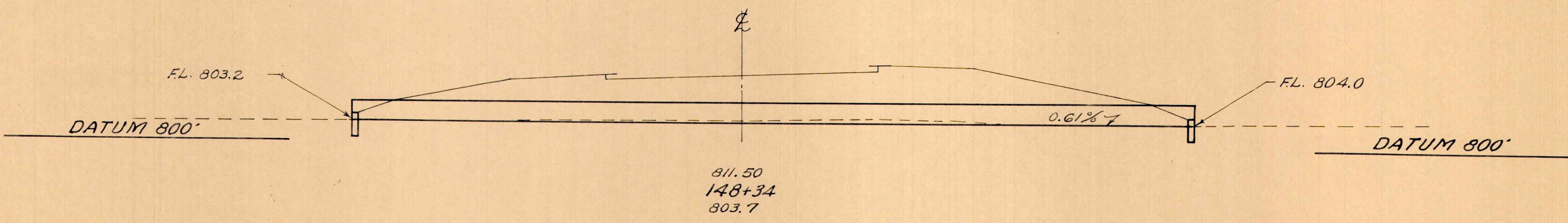
36" Pipe for Roadway Culvert	130 Lin. Ft.
Excavation for Structures	30 Cu. Yds.
Concrete for Structures, Class "E"	1.2 Cu. Yds.

23-5

**STA. 152+30**  
**36"x130' PIPE CULVERT**



PLAN  
Scale: 1"=10'



CROSS SECTION  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std. Relief Pipe Culvert as Shown

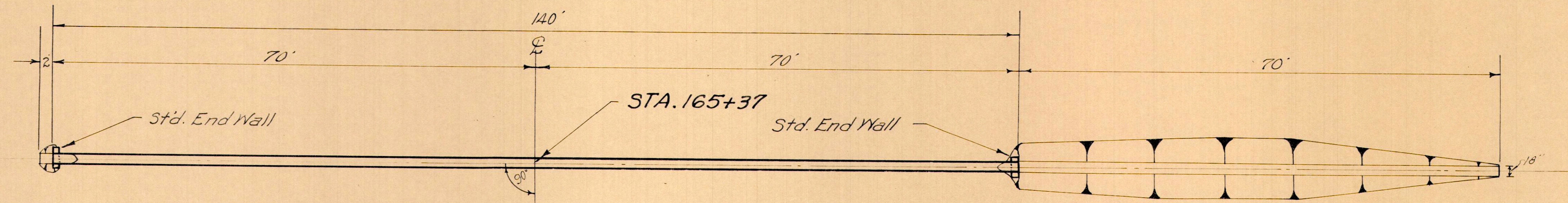
**ESTIMATED QUANTITIES**

36" Pipe for Roadway Culverts	132 Lin. Ft.
Excavation for Structures	35 Cu. Yds.
Concrete for Structures, Class "E"	2.0 Cu. Yds.

22-5

**STA. 148+34**  
**36"x132' PIPE CULVERT**





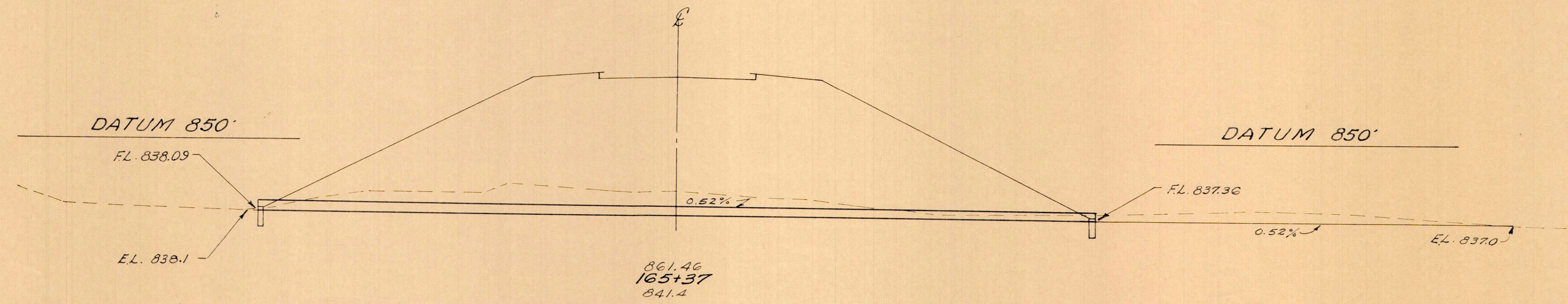
PLAN  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std. Pipe Culvert as Shown

**ESTIMATED QUANTITIES**

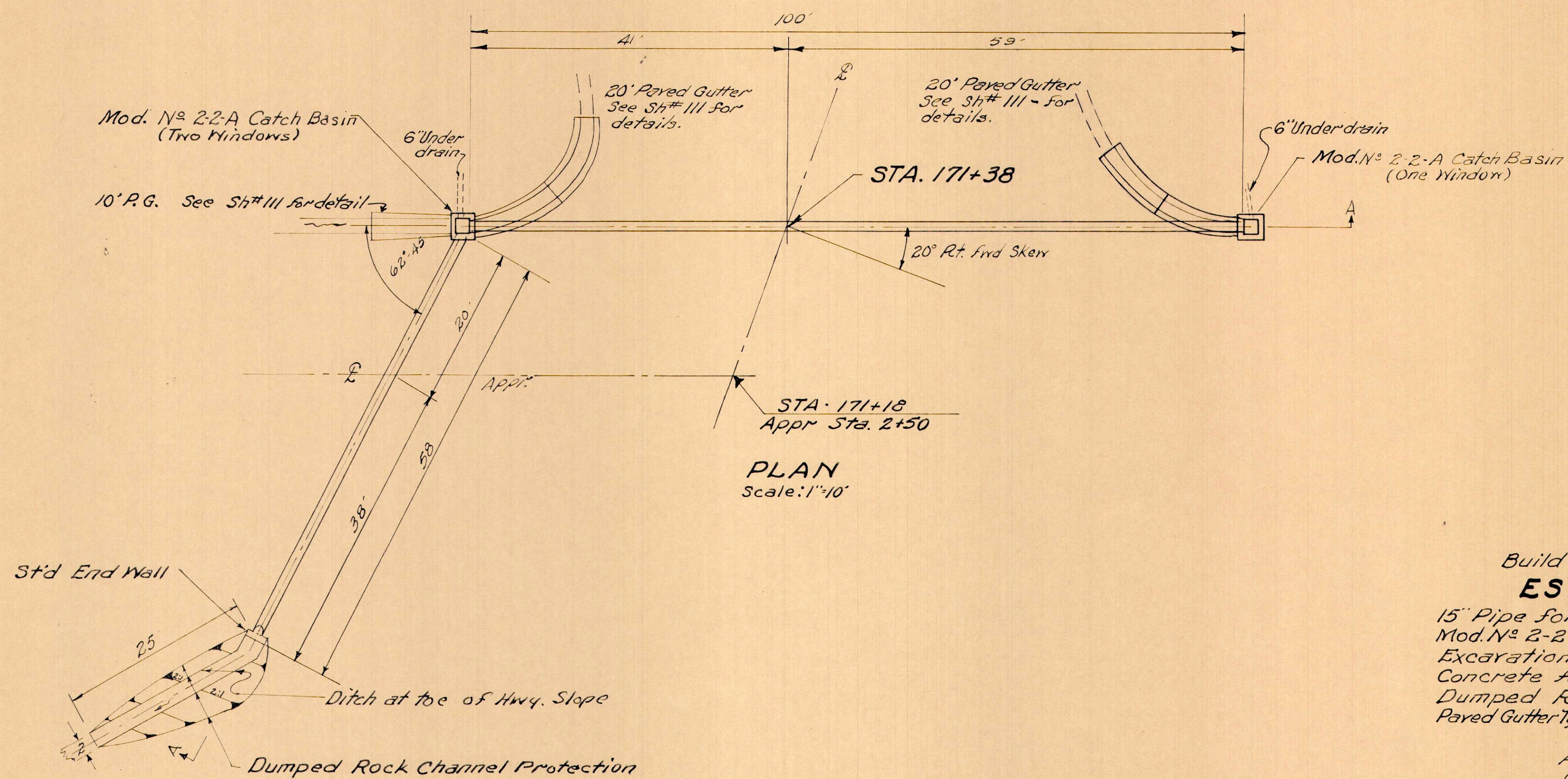
18" Pipe for Roadway Culverts - M-6.6(e) or M-6.4(d)	140 Lin. Ft.
Excavation for Structures	55 Cu. Yds.
Channel Excavation	18 Cu. Yds.
Concrete for Structures "Class E"	0.6 Cu. Yds.

Area: 2 Acres  
Q<sub>10</sub>: 7 c.f.s.



CROSS SECTION  
Scale: 1"=10'





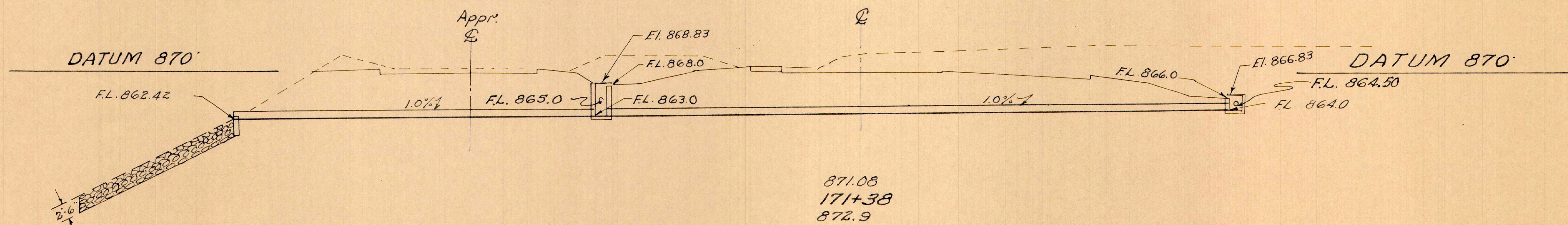
**WORK REQUIRED**

Build Std. Pipe Culvert as Shown

**ESTIMATED QUANTITIES**

15" Pipe for Roadway Culvert	158 Lin. Ft.
Mod. N° 2-2 A Catch Basin	2 Each
Excavation for Structures	98 Cu. Yds
Concrete for Structures, Class "E"	0.3 Cu. Yds
Dumped Rock Channel Protection	14 Cu. Yds
Paved Gutter Type I (Mod.) as per plan	50 Lin. Ft.

Area: 1 A<sup>2</sup>  
 Q<sub>10</sub>: 4 c.f.s.



**CROSS SECTION**  
 Scale: 1"=10'

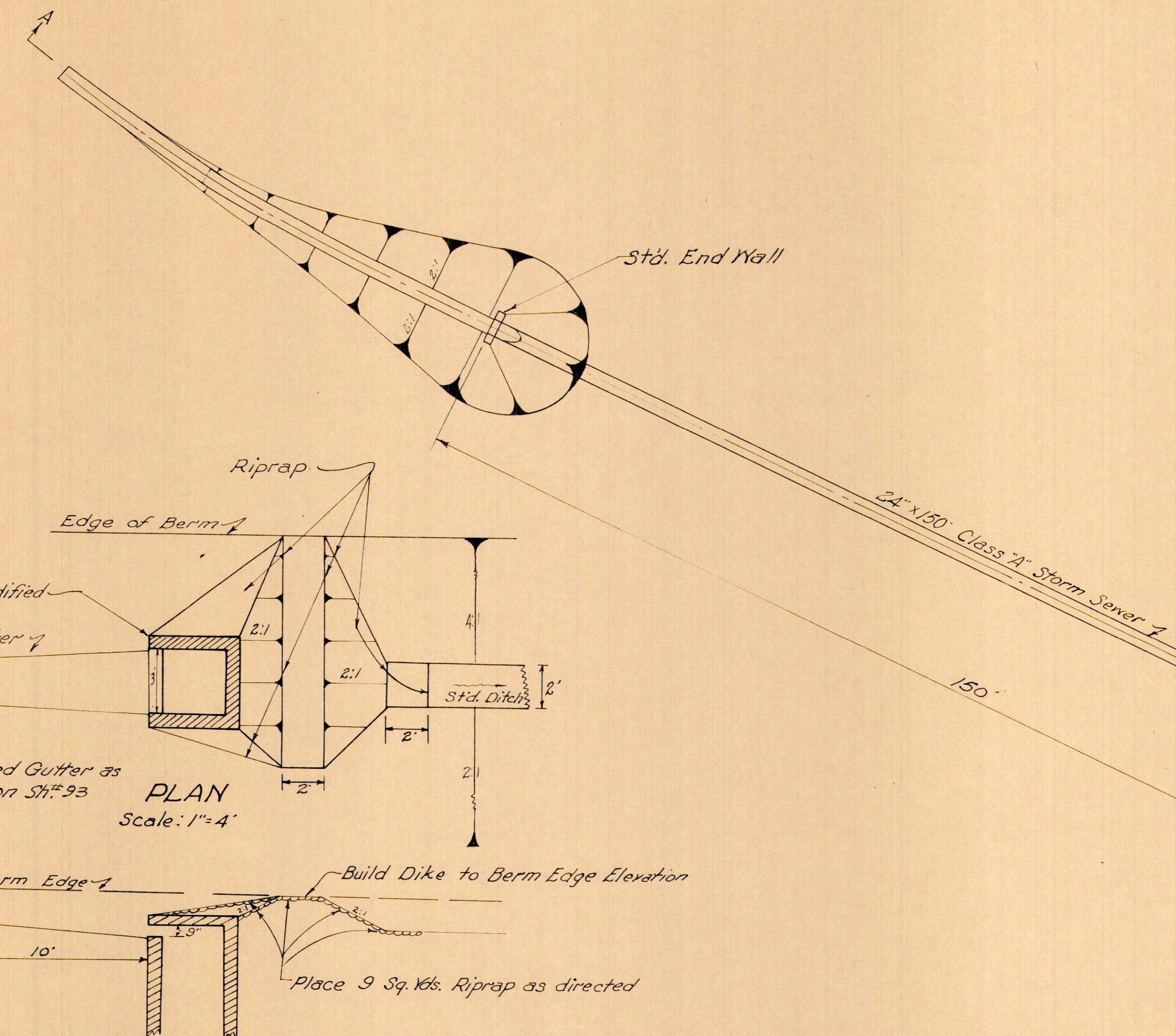
**STA. 171+38**  
**15"X158' PIPE CULVERT**



**WORK REQUIRED**  
 Build Std. Pipe Culvert as Shown  
**ESTIMATED QUANTITIES**

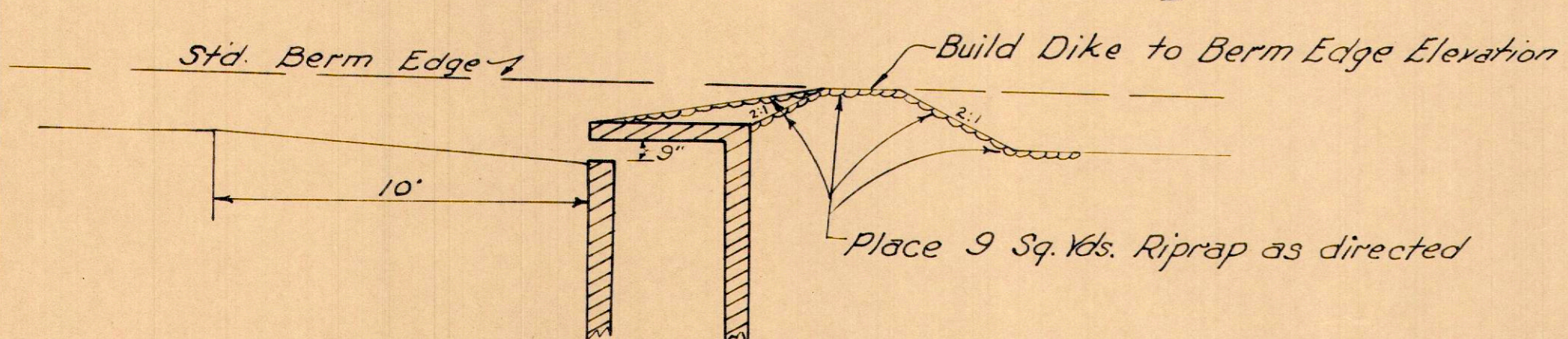
24" Pipe for Roadway Culverts	56 Lin. Ft.
24" Class "A" Storm Sewer	150 Lin. Ft.
N <sup>o</sup> 2-3 Catch Basins (Modified)	2 Each
Excavation for Structures	50 Cu. Yd.
Channel Excavation	51 Cu. Yd.
Concrete for Structures, Class "E"	0.4 Cu. Yd.
Riprap	18 Sq. Yd.
Paved Gutter-Type I (Mod.) as per plan	20 Lin. Ft.

Area: 12 Acres  
 Q<sub>10</sub>: 25 c.f.s.



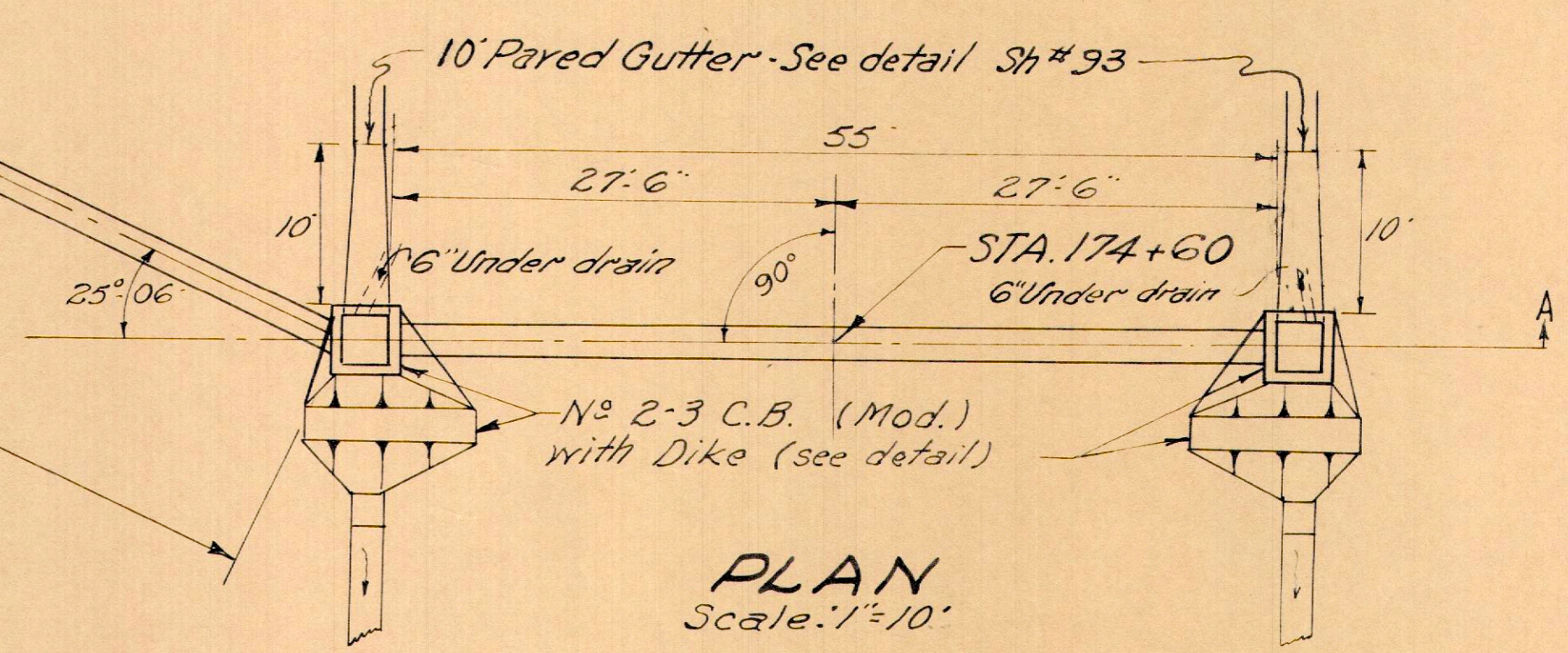
**PLAN**  
 Scale: 1"=4'

Note: Warp Paved Gutter as shown in detail on Sh.# 93

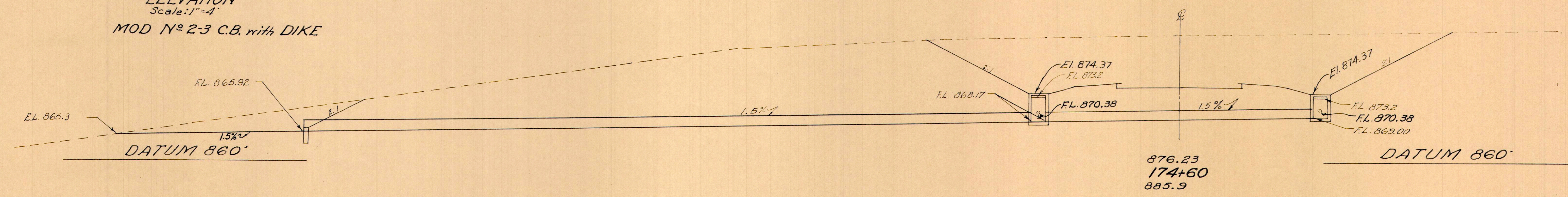


**ELEVATION**  
 Scale: 1"=4'

MOD N<sup>o</sup> 2-3 C.B. with DIKE



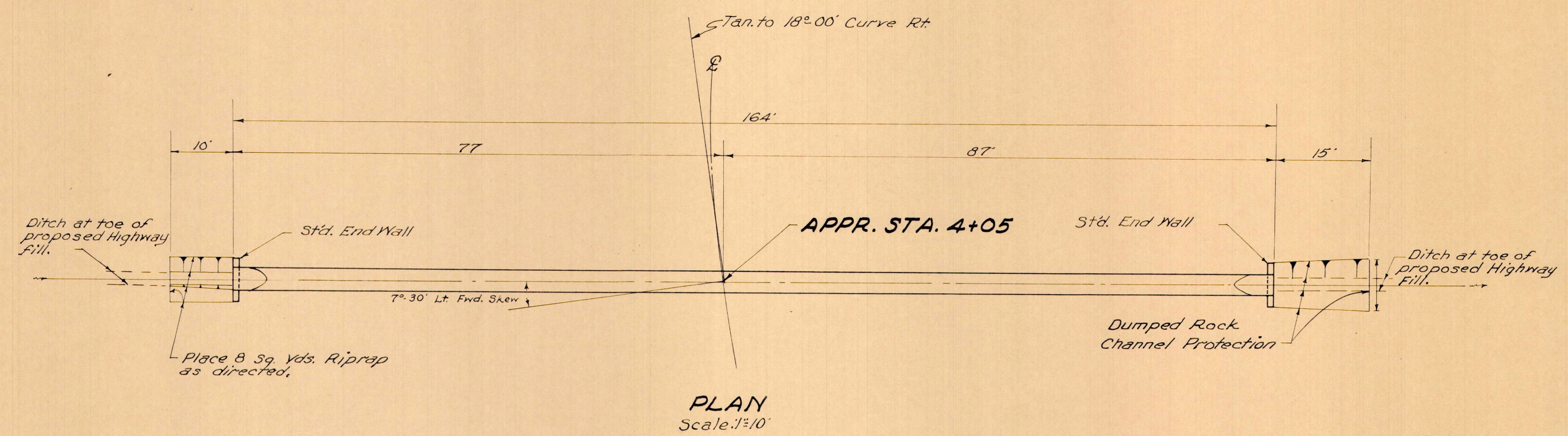
**PLAN**  
 Scale: 1"=10'



**CROSS SECTION-AA**  
 Scale: 1"=10'

**STA. 174+60**  
**24"x55' PIPE CULVERT**  
**24"x150' STORM SEWER**



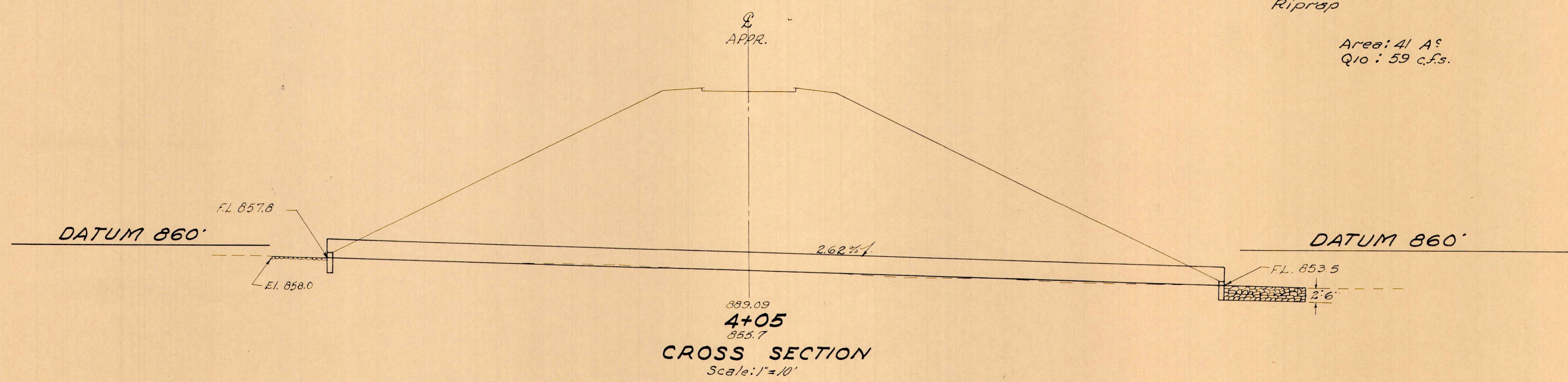


**WORK REQUIRED**  
Build Std. Pipe Culvert as Shown

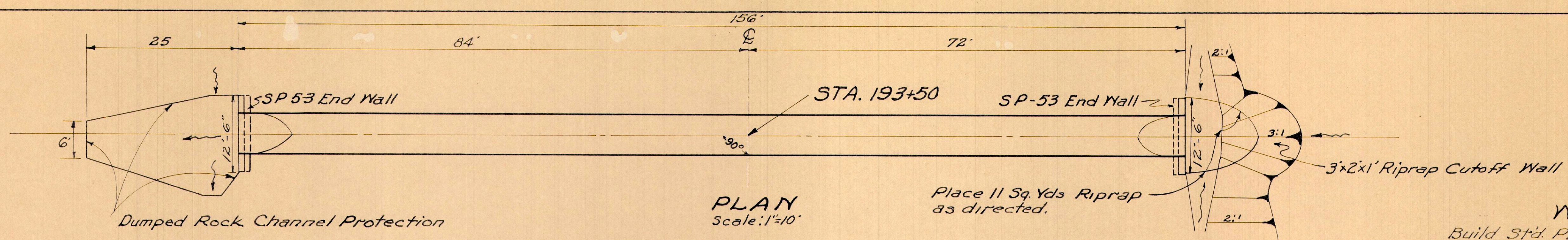
**ESTIMATED QUANTITIES**

42" C.M. Pipe, Sec. M-6.4(d) Gage 10	164 Lin. Ft.
Excavation for Structures	22 Cu. Yds.
Concrete for Structures, Class "E"	1.5 Cu. Yds.
Dumped Rock Channel Protection	11 Cu. Yds.
Riprap	8 Sq. Yds.

Area: 41 A<sup>s</sup>  
Q<sub>10</sub>: 59 c.f.s.







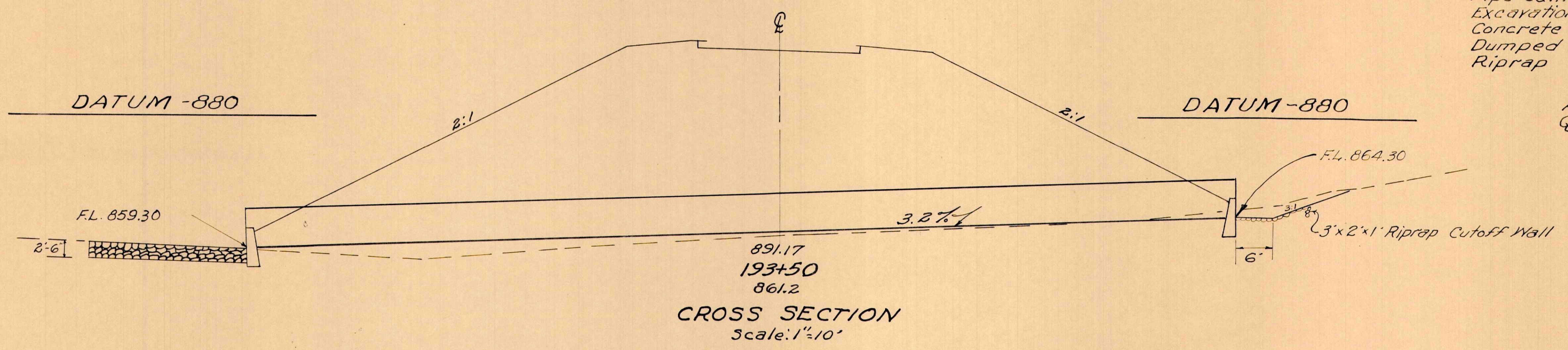
**PLAN**  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std. Pipe Cattle Pass Structures as Shown

**ESTIMATED QUANTITIES**

Pipe Cattle Pass Structure, Design-A-6, B-5, or C-3.	156 Lin. Ft.
Excavation for Structures	37 Cu. Yd.
Concrete for Structures, Class "E"	6.0 Cu. Yd.
Dumped Rock Channel Protection	28 Cu. Yd.
Riprap	11 Sq. Yd.

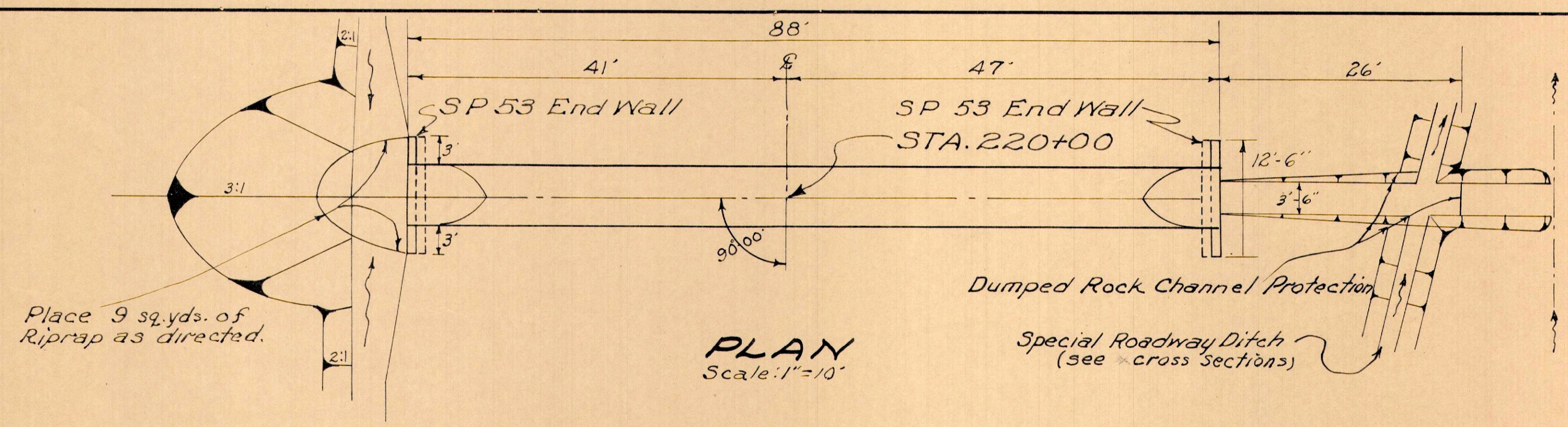
Area: 40 Acres  
Q10: 59 c.f.s.



**CROSS SECTION**  
Scale: 1"=10'

**STA. 193+50**  
**156' PIPE CATTLE PASS**

28-S



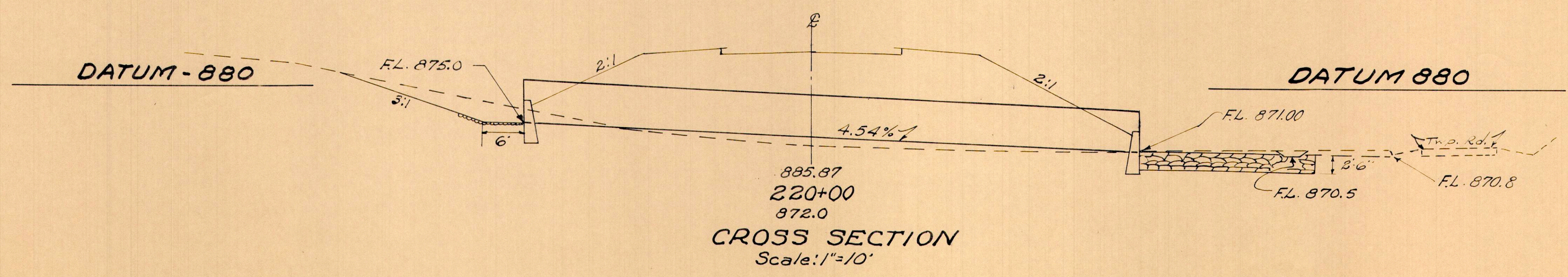
**PLAN**  
Scale: 1"=10'

**WORK REQUIRED**  
Build Std. Pipe Cattle Pass Structure as Shown

**ESTIMATED QUANTITIES**

Pipe Cattle Pass Structure, Design A-2, B-1 or C-1.	88 Lin. Ft.
Excavation for Structures	50 Cu. Yds.
Channel Excavation	20 Cu. Yds.
Concrete for Structures, Class "E"	6.0 Cu. Yds.
Riprap	9 Sq. Yds.
Dumped Rock Channel Protection	12 Cu. Yds.

Area: 13 Acres  
Q10: 28 C.F.S.

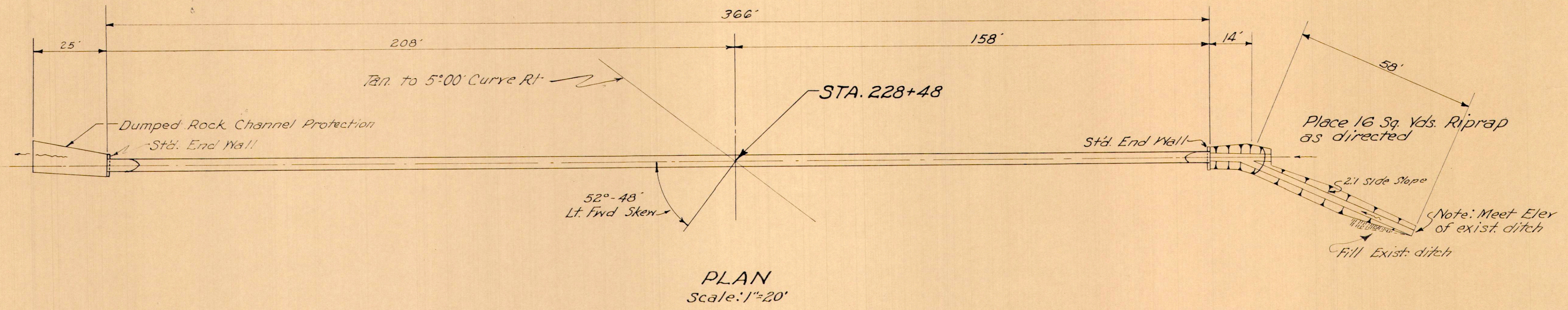


**CROSS SECTION**  
Scale: 1"=10'

**STA. 220+00**  
**88' PIPE CATTLE PASS**

29-S





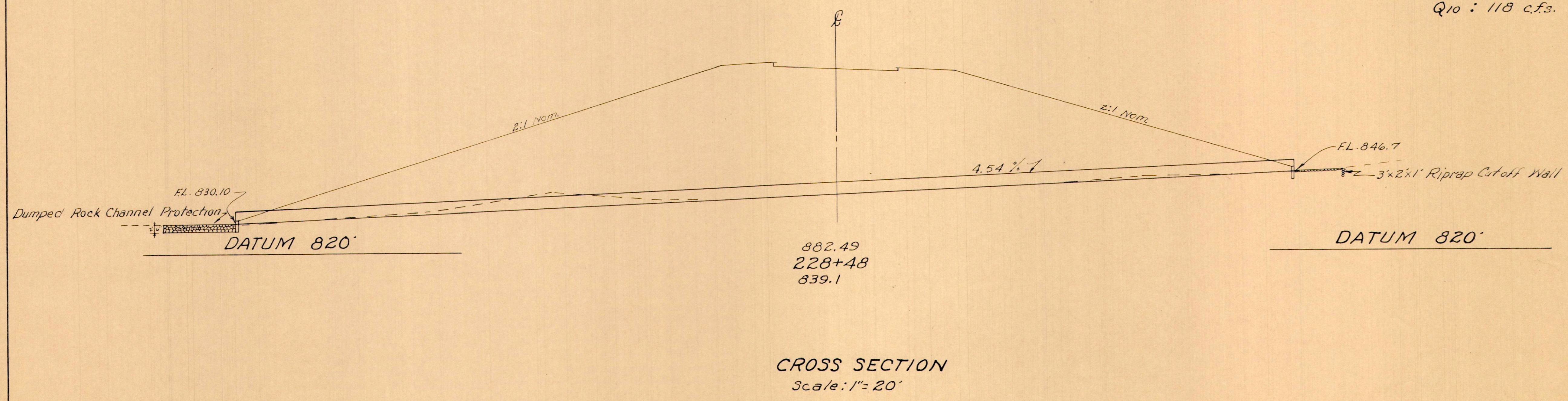
Note: The 48" corrugated metal pipe shall be shop strutted by use of horizontal wires to produce and maintain a 5% vertical elongation. The wire struts shall be satisfactorily removed from the inside of the pipe immediately after completion of the over lying embankment construction.

**WORK REQUIRED**  
Build Std. Pipe Culvert as Shown

**ESTIMATED QUANTITIES**

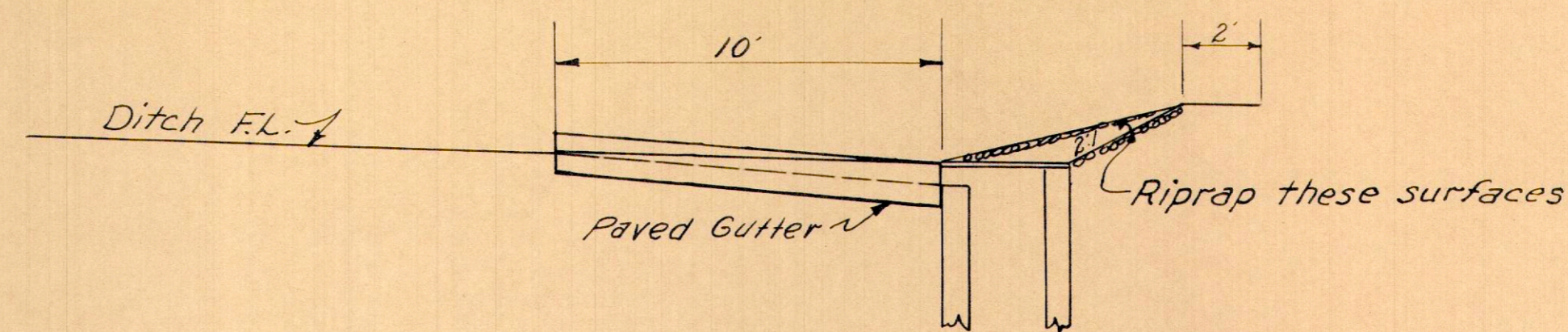
48" Paved Bituminous Coated Corrugated Metal Pipe, Sec. M-6.4(d) Gage 8 - Strutted.	366 Lin. Ft.
Excavation for Structures	93 Cu. Yds.
Channel Excavation	12 Cu. Yds.
Concrete for Structures, Class "E"	1.7 Cu. Yds.
Dumped Rock Channel Protection	21 Cu. Yds.
Riprap	16 Sq. Yds.

Area: 125 Acres  
Q<sub>10</sub>: 118 c.f.s.

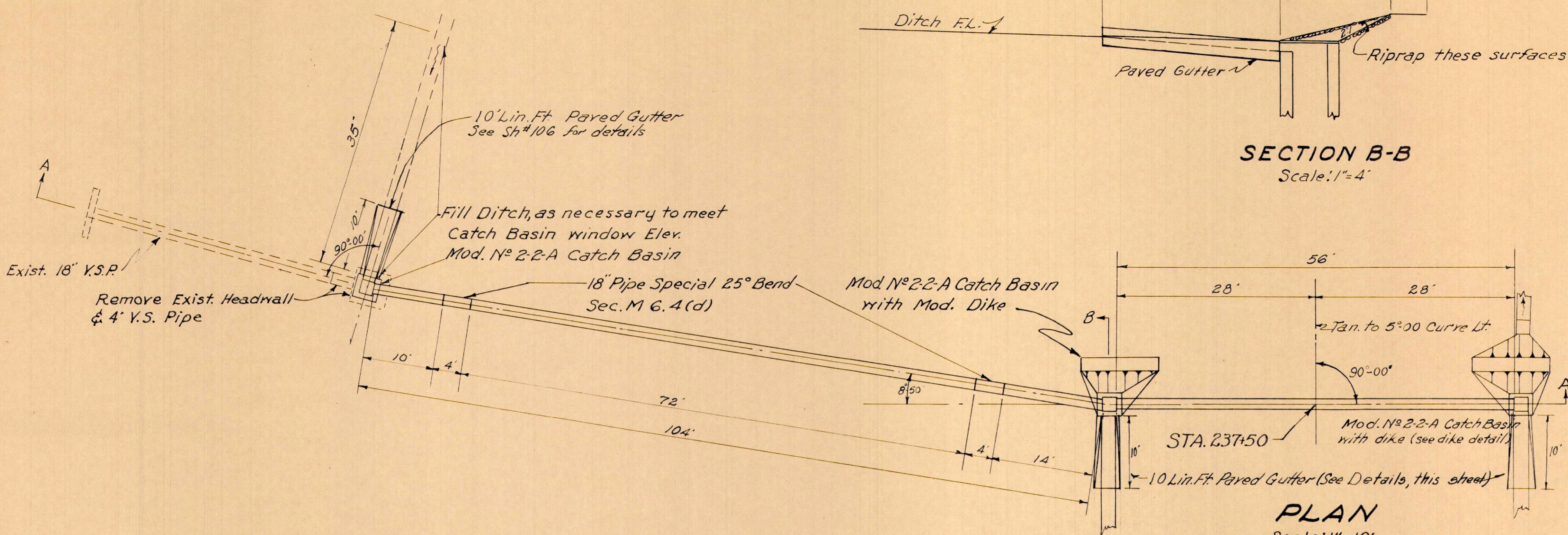


**STA. 228+48**  
**48'x366' PIPE CULVERT**

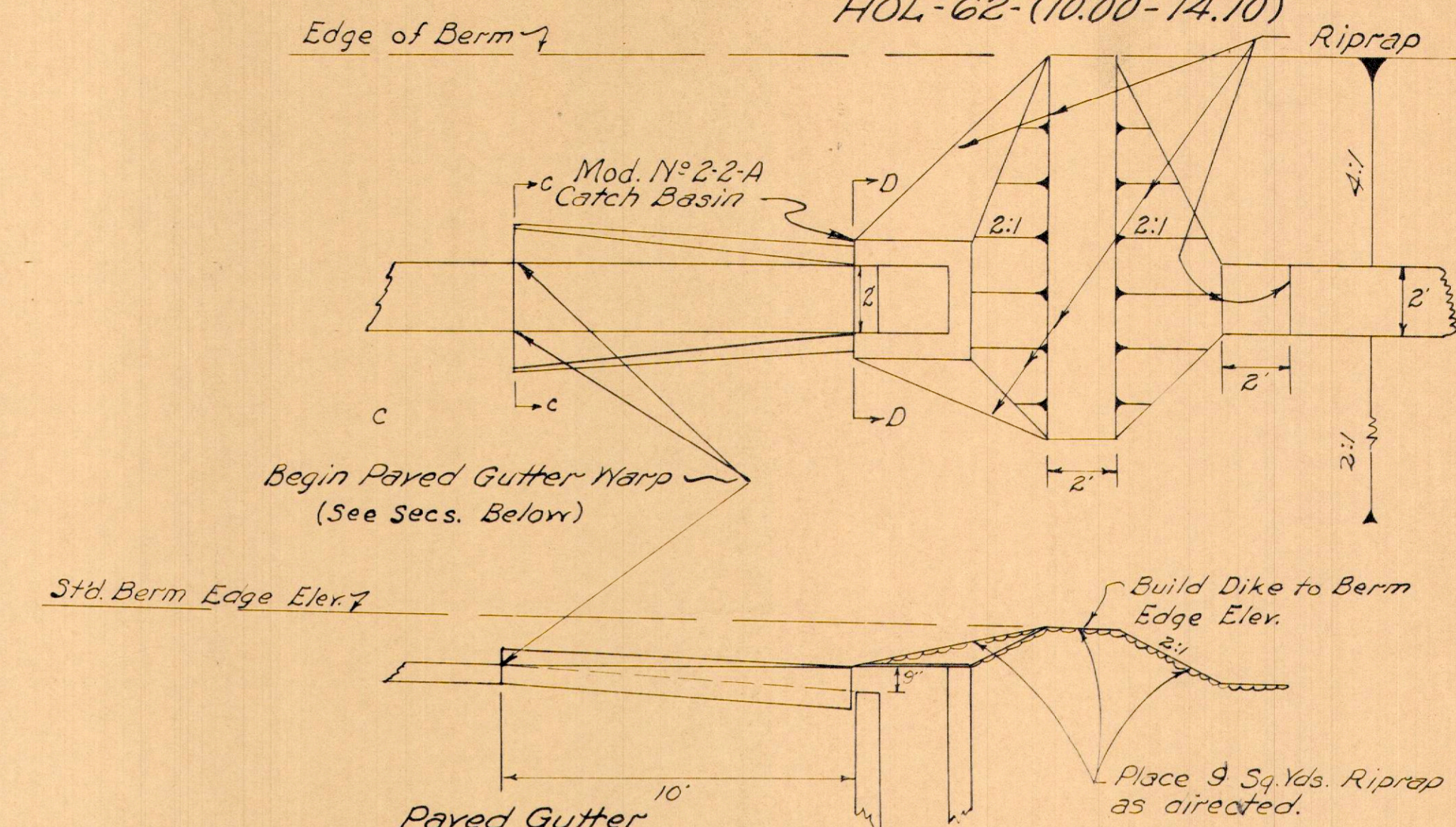




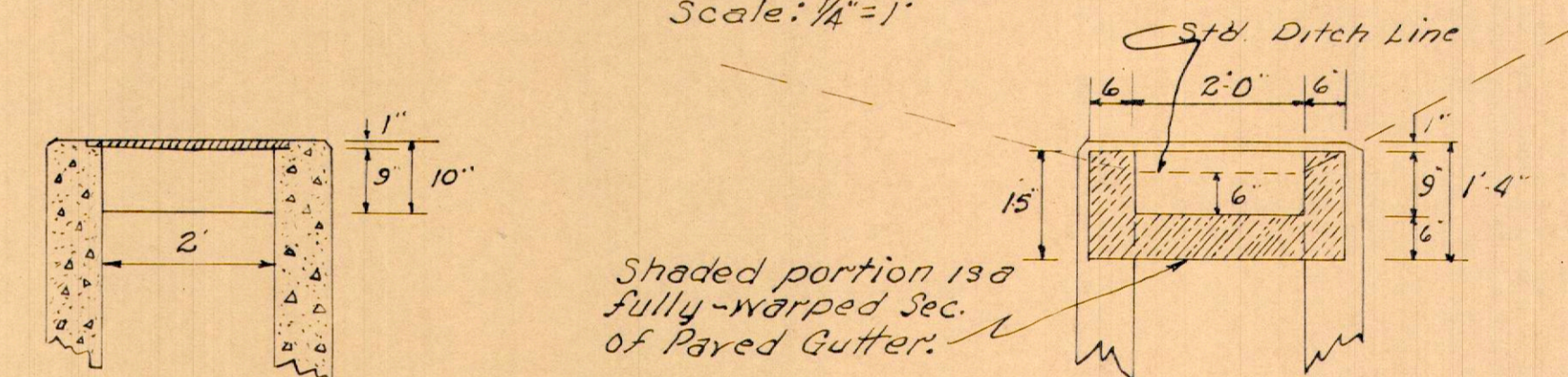
**SECTION B-B**  
Scale: 1"=4'



**PLAN**  
Scale: 1"=10'



**MOD. No. 2-2-A C.B. with Dike**  
Scale: 1/4"=1'



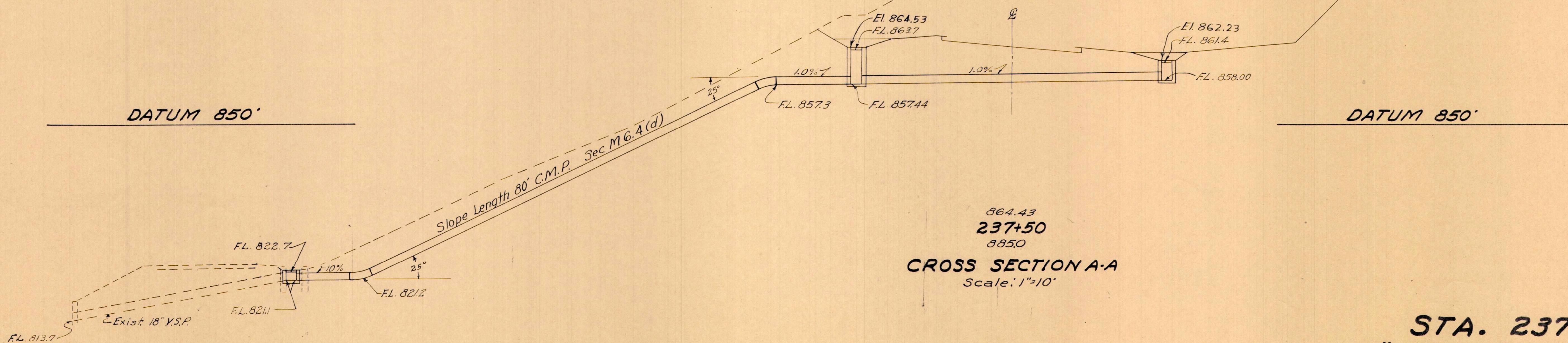
**MOD. No. 2-2-A CATCH BASIN**  
Scale: 1/2"=1'

**SEC. D-D**  
Scale: 1/8"=1'

**WORK REQUIRED**

Build Pipe Culvert System as Shown  
**ESTIMATED QUANTITIES**

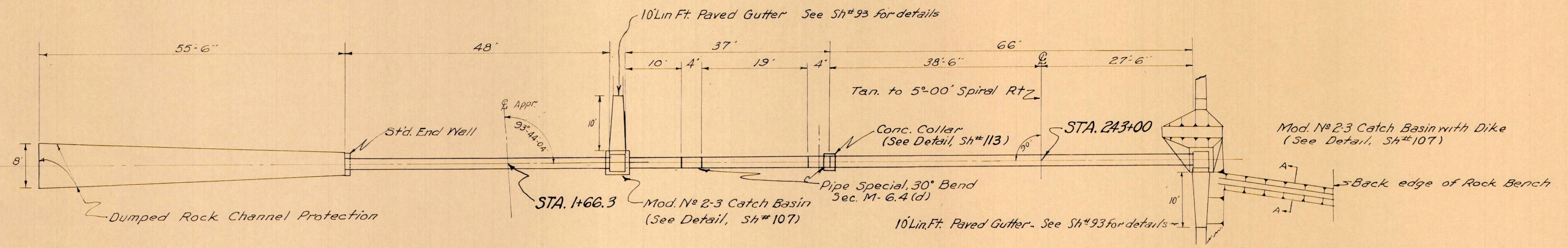
18" Pipe for Roadway Culvert	56 Lin. Ft.
18" Paved Bituminous Coated Corrugated Metal Pipe, Sec. M-6.4 (d)	104 Lin. Ft.
18" Pipe Special, 25° Bend, Sec. M-6.4 (d)	2 Each
18" V.S. Pipe, Sec. M-6.8 (b)	4 Lin. Ft.
Mod. No. 2-2-A Catch Basin	3 Each
Riprap	15 Sq. Yds
Removal of Portions of Existing Structures	2.4 Cu. Yds
Excavation for Structures	101 Cu. Yds.
18" Pipe Removed	4 Lin. Ft.
Paved Gutter, Type I (Mod) as per plan	30 Lin. Ft.
Area: 4 Acres	
Q <sub>10</sub> : 12 c.f.s.	



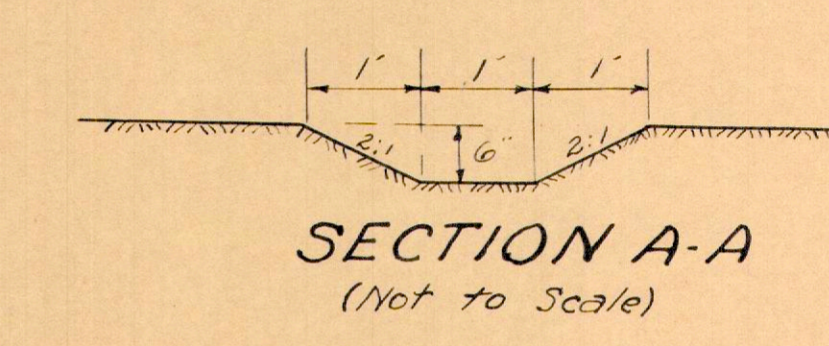
**CROSS SECTION A-A**  
Scale: 1"=10'

**STA. 237+50**  
**18" x 168' PIPE CULVERT**





PLAN  
Scale: 1"=10'

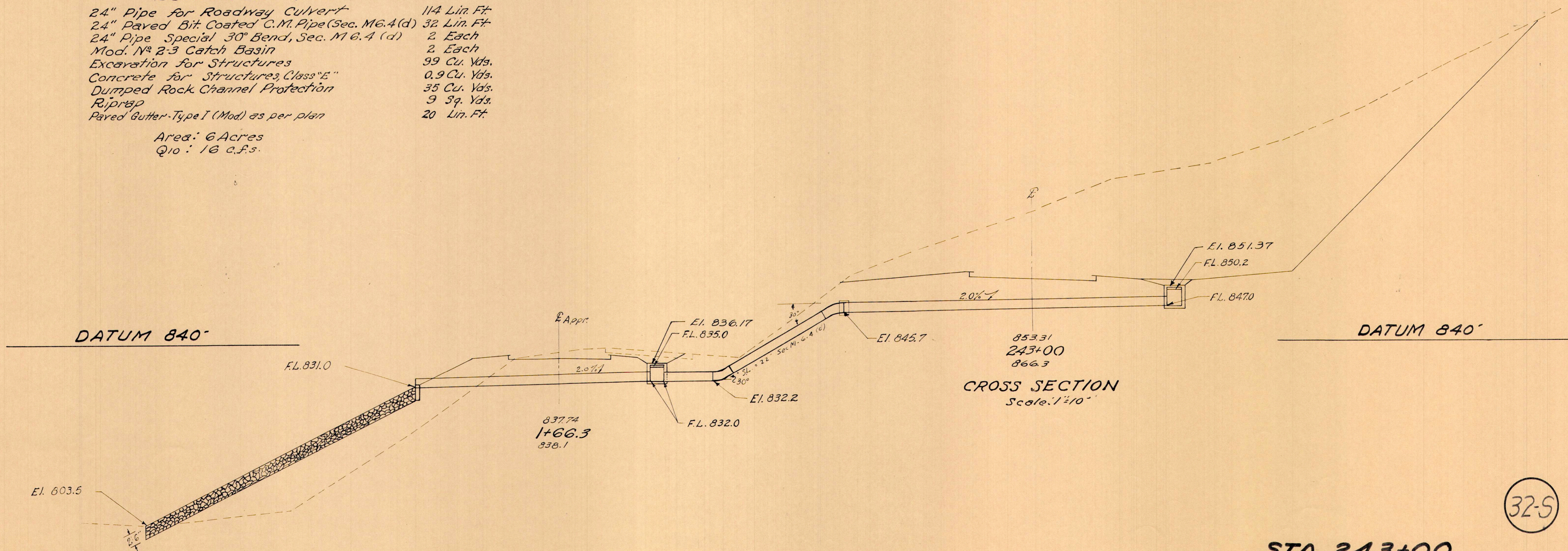


**WORK REQUIRED**  
Build Pipe Culvert System as Shown

**ESTIMATED QUANTITIES**

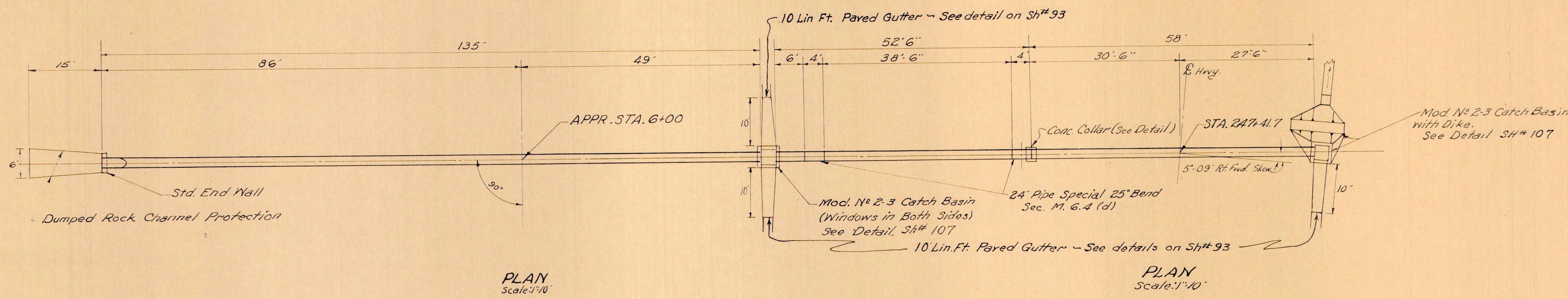
24" Pipe for Roadway Culvert	114 Lin. Ft.
24" Paved Bit. Coated C.M. Pipe (Sec. M6.4(d))	32 Lin. Ft.
24" Pipe Special 30° Bend, Sec. M6.4(d)	2 Each
Mod. No 2-3 Catch Basin	2 Each
Excavation for Structures	99 Cu. Yds.
Concrete for Structures, Class "E"	0.9 Cu. Yds.
Dumped Rock Channel Protection	35 Cu. Yds.
Riprap	9 Sq. Yds.
Paved Gutter-Type I (Mod) as per plan	20 Lin. Ft.

Area: 6 Acres  
Q<sub>10</sub>: 16 c.f.s.



**STA. 243+00  
24"x154' PIPE CULVERT**



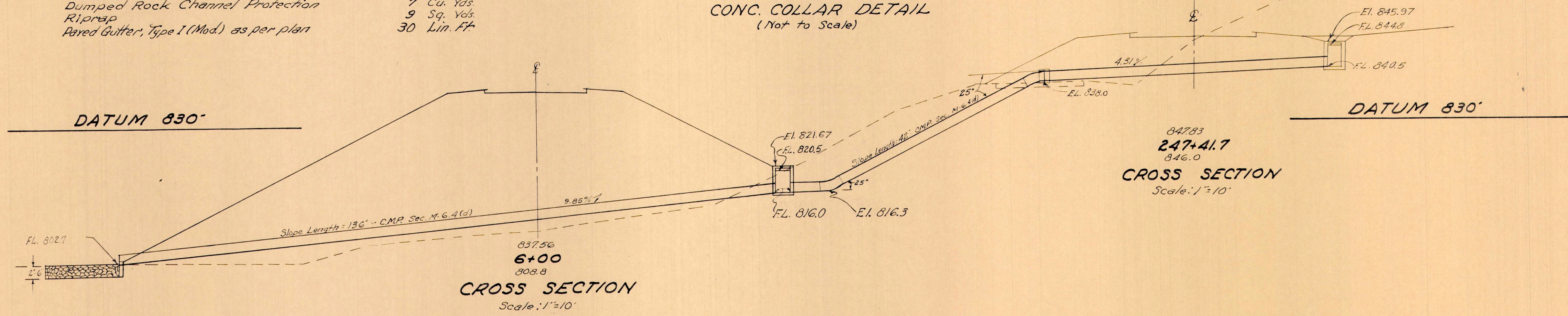
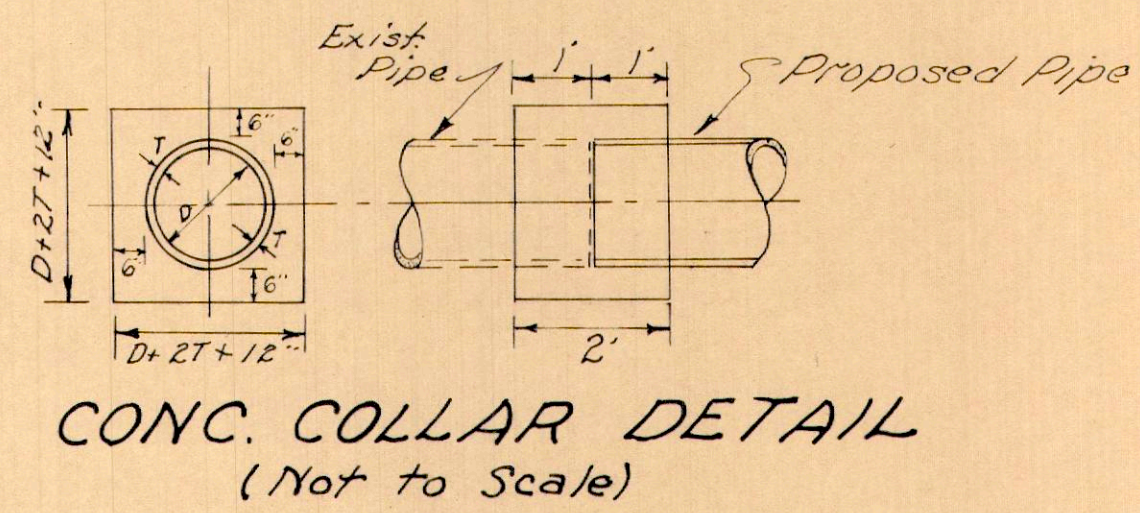


**WORK REQUIRED**  
Build Pipe Culvert System as Shown

**ESTIMATED QUANTITIES**

24" Pipe for Roadway Culvert	58 Lin. Ft.
24" Paved Bit. Coated C.M. Pipe Sec. M-G.4 (d)	184 Lin. Ft.
24" Pipe Special 25° Bend, Sec. M-G.4 (d)	2 Each
Mod. No 2-3 Catch Basin	2 Each
Excavation for Structures	78 Cu. Yds.
Concrete for Structures Class "E"	0.9 Cu. Yds.
Dumped Rock Channel Protection	7 Cu. Yds.
Riprap	9 Sq. Yds.
Paved Gutter, Type I (Mod.) as per plan	30 Lin. Ft.

Note: Concrete for Collar shall be Class "E"

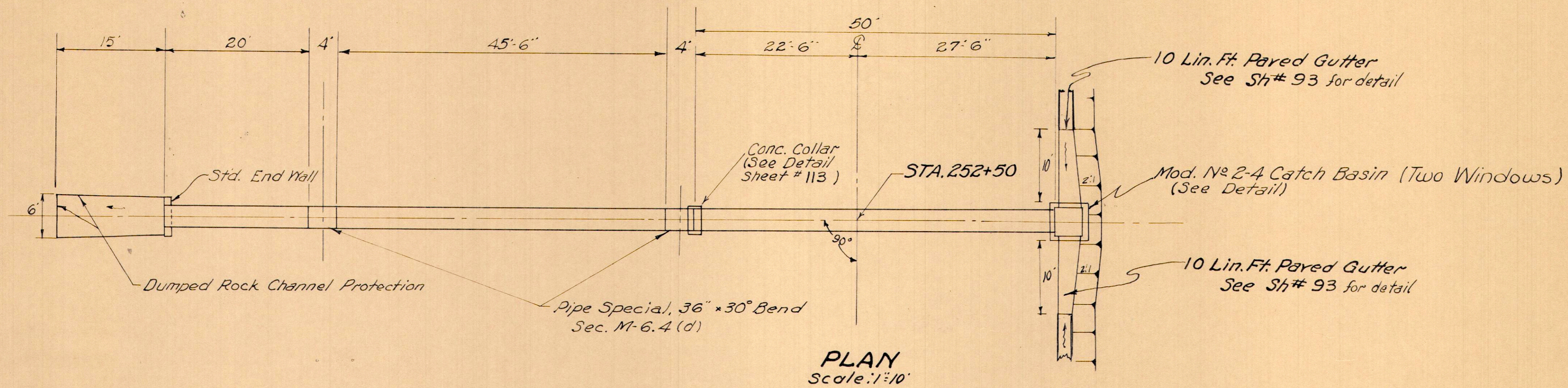


Area 11 Acres  
Q<sub>10</sub> 25 CFS.

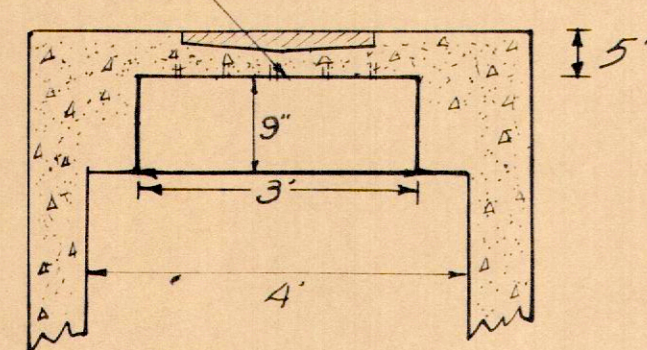
35-S

**STA. 247+41.7**  
**24" x 250' PIPE CULVERT**





Note: Windows will be placed on both sides of basin



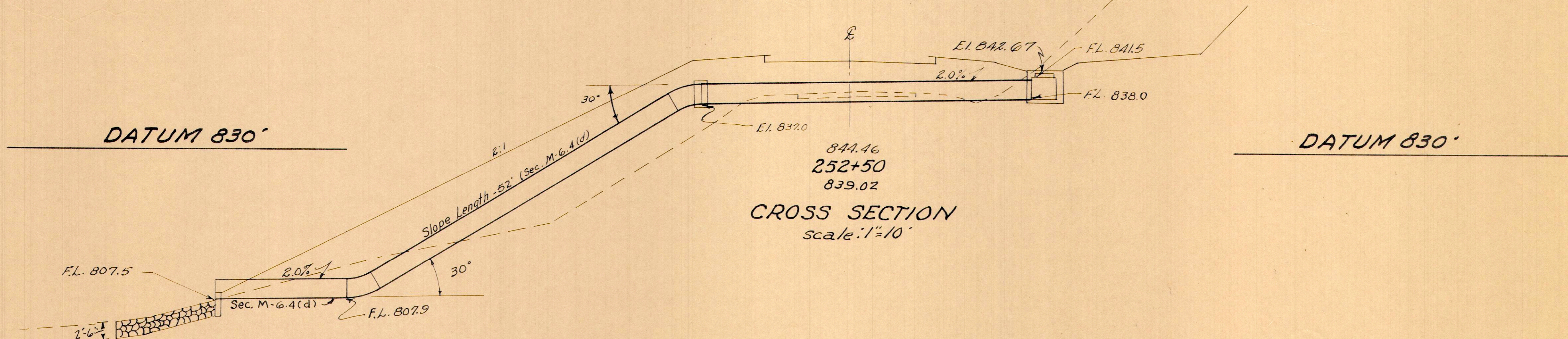
MOD. NO. 2-4 CATCH BASIN  
Scale: 1"=2'

**WORK REQUIRED**  
Build Std. Pipe Culvert as Shown

**ESTIMATED QUANTITIES**

36" Pipe for Roadway Culverts	50 Lin. Ft.
36" Paved Bit. Coated C.M. Pipe Sec. M-6.4(d)	72 Lin. Ft.
36" Pipe Special 30° Bend, Sec. M-6.4(d)	2 Each
Mod. No. 2-4 Catch Basin	1 Each
Excavation for Structures	42 Cu. Yds.
Concrete for Structures, Class "E"	1.4 Cu. Yds.
Dumped Rock Channel Protection	8 Cu. Yds.
Paved Gutter, Type I (Mod.) as per plan	20 Lin. Ft.

Area: 15 AS  
Q10: 30 c.f.s.



37-5

STA. 252+50  
36"x130' PIPE CULVERT