

FED.AID DIST. NO.	STATE	FED.AID PROJECT	FISCAL YEAR
	OHIO		

1  
73

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS

S.H.(I.C.H.) 24 SECS.H,K&M  
KNOX COUNTY

COLUMBUS WOOSTER ROAD

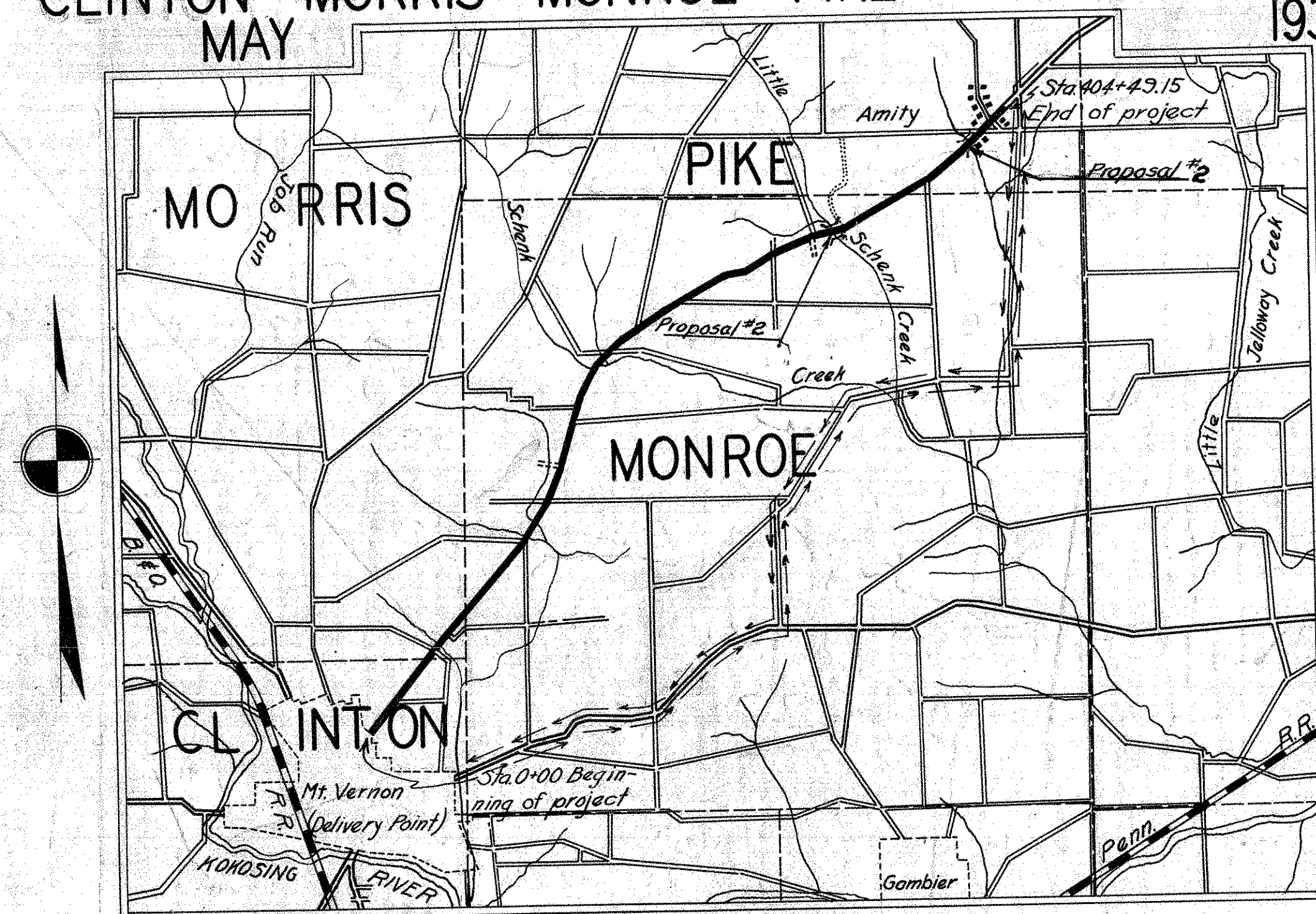
S.H. I.C.H. NO. 24 SECS.H,K&M PET. NO.  
KNOX COUNTY

The Standard Specifications of the STATE OF OHIO  
Department of Highways, in force on date of contract  
will govern this improvement.

I hereby approve these plans and declare that  
the making of this improvement will require the closing  
to traffic of the highway and that detours will  
be provided as shown on the plans and estimates.

Right of way provided by the State.

CLINTON - MORRIS - MONROE - PIKE TOWNSHIPS  
MAY 1932



LOCATION PLAN

SCALE OF MILES

PORTION TO BE IMPROVED  
DETOURS SHOWN THUS

PLAN	1"=100'
PROFILE VERTICAL	1"=10'
PROFILE HORIZONTAL	1"=100'
CROSS SECTIONS	1"=5'

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TITLE PAGE	1
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SUPPLEMENTAL PRINTS OF STRUCTURAL STANDARDS  
DRAWINGS NO. 95, 98, 100, 123, 300, 305, AC-A, ACB-31, B-30-31  
BC-A, CE-A, CW-A, FRA, RAB, SB-31

CONSTRUCTION  
BUREAU  
DEC 9 1955  
GROUND PHOTOLAB

CONVENTIONAL SIGNS

State Line	-----
County Line	-----
Township Line	-----
Section Line	-----
Property Line not fenced	-----
Center Line	-----
City or Village Line	-----
Fence	-----
Telephone or Telegraph	-----
Steam Railroad	-----
Electric Line	-----
Guard Rail	-----
Drain Pipe - new	-----
Drain Pipe - old	-----

Approved: R. E. Seering  
Date: 5/3/32 Resident District  
Deputy Director

Approved: B. H. Frasel  
Date: 5-6-32 Resident Division  
Deputy Director

Approved: Elmer Hilty  
Date: 5/16/32 Chief Engineer  
Bureau of Construction

Approved: \_\_\_\_\_  
Date: \_\_\_\_\_ Chief Engineer  
Bureau of Maintenance

Approved: J. Burkey  
Date: 5-14-32 Chief Engineer  
Bureau of Bridges

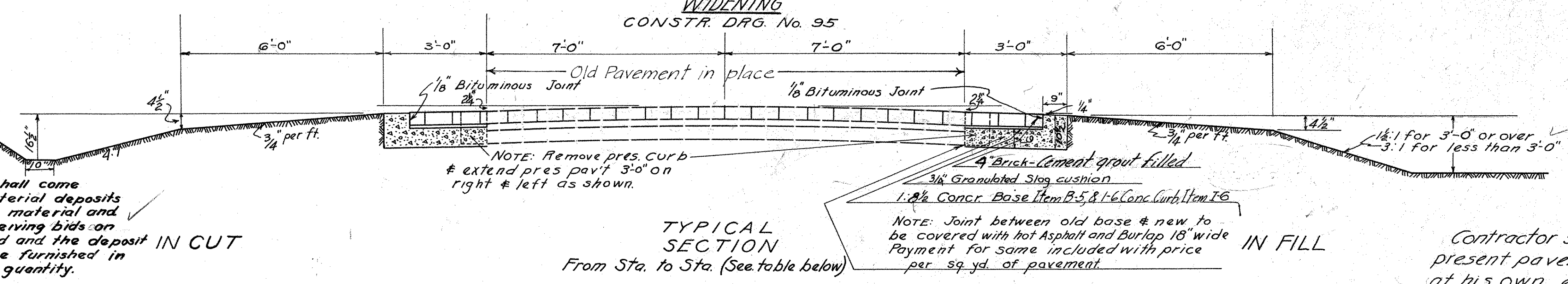
Approved: H. P. Chapman  
Date: 5-16-32 Chief Engineer of First Asst. Director

Approved: O. W. Merrill  
Date: 5-16-32 Director of Highways

OK For 4' 3-6" Conc. Base & Brick Walls,  
New 22" Brick Pav. Grids & 5-7"  
5-8" 4" Brick. Work of W. H. Frasel  
to be used on this project.  
5/16/32

*Handwritten notes:*  
C-7

**TYPE "B" WIDENING**  
CONSTR. DRG. No. 95



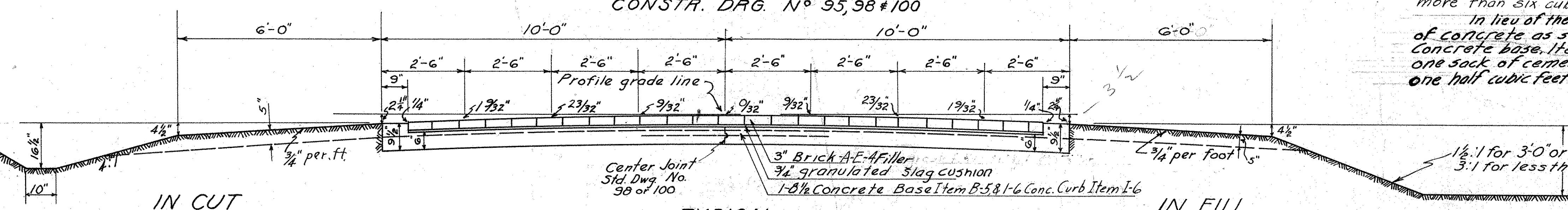
TYPICAL SECTION  
From Sta. to Sta. (See table below)

IN FILL  
NOTE: Joint between old base & new to be covered with hot Asphalt and Burlap 18" wide Payment for same included with price per sq. yd. of pavement

Contractor shall replace all cushion, under present pavement, disturbed by construction at his own expense

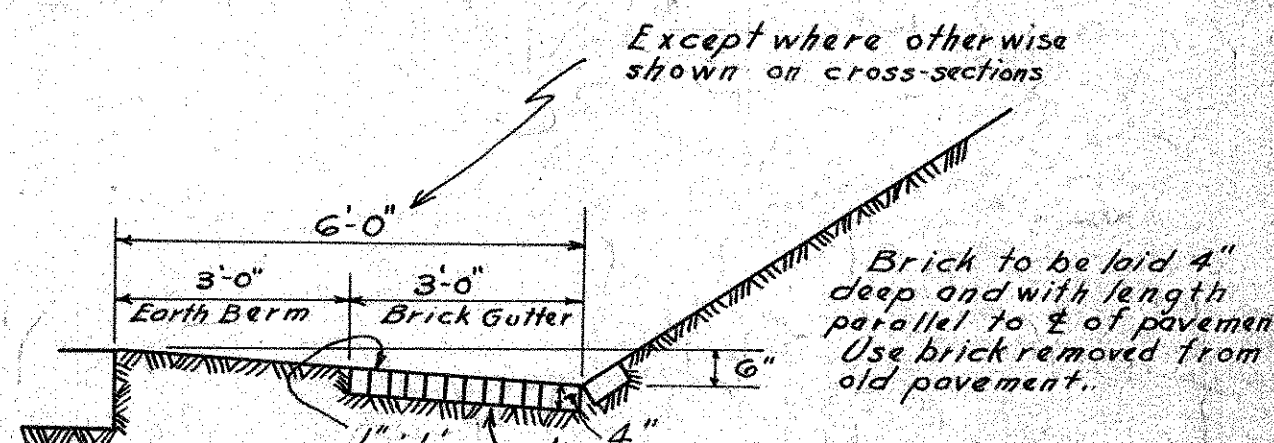
NOTE: In lieu of the provisions for the proportions of concrete for curbs and headers as set forth for Item I-6.02, the mix shall be one sack of cement to not more than six cubic feet of aggregate.  
In lieu of the provisions for the proportions of concrete as set forth for Portland Cement Concrete base, Item B-5.12, the mix shall be one sack of cement to not more than eight and one half cubic feet of aggregate.

**TYPE "B" NEW**  
CONSTR. DRG. No. 95, 98 & 100



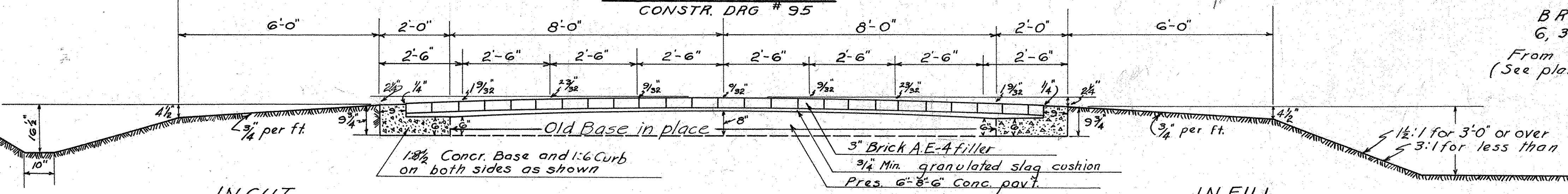
TYPICAL SECTION  
From Sta. to Sta. (See table below)

NOTE:-  
In lieu of the provisions contained in Items 7-9.24 and 7-9.25 of the General Specifications brick will be purchased per thousand, freight paid on the nearest siding, guaranteeing that 36 brick will lay an accepted sq. yd. of pavement laid 3" deep and that 40 brick will lay an accepted sq. yd. of pavement laid 4" deep. All other provisions of 7-9.24 and 7-9.25 shall apply.



BRICK GUTTER  
6, 393.0 LIN. FT.  
From Sta. to Sta.  
(See plan and summary sheets)

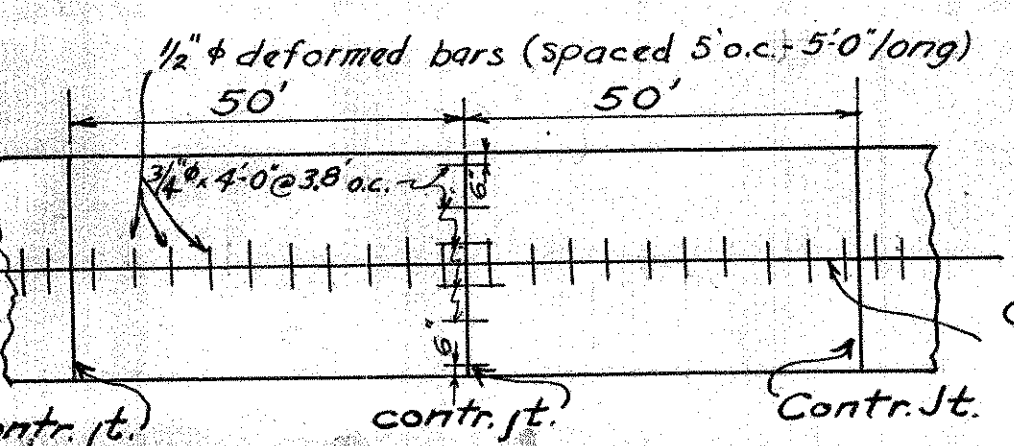
**TYPE "B" RESURFACE & WIDENING**  
CONSTR. DRG. # 95



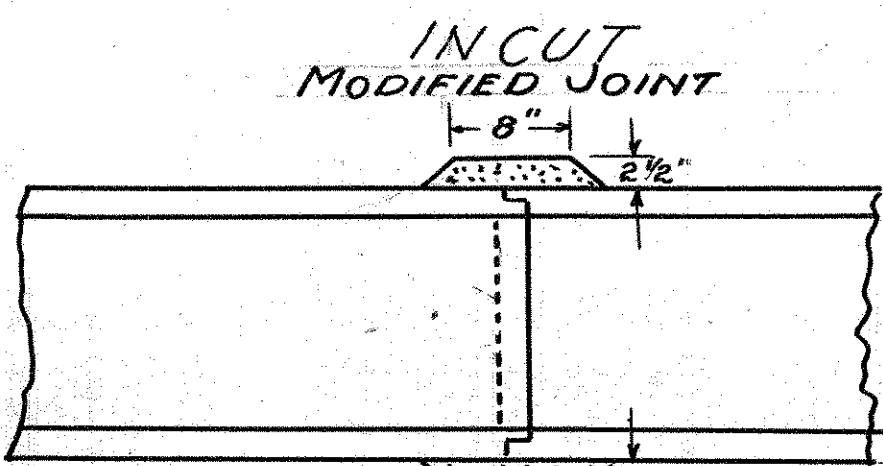
TYPICAL SECTION  
FROM STA. TO STA. (See table below)

Note:  
V.S.P. or P.C.P. side drains shall have cemented joints where drains are adjacent to trees and elsewhere as directed by the engineer.

Rough grading will be completed to the cross section indicated by the broken line for all types. All earth below the broken line for the width of the pavement and the full width of the berms shall be scarified to the depth of the sub-grade and parallel to the slope of the broken line before any excavated material is placed on the shoulders. The Sub-grade shall then be prepared as provided for in the specifications for the type of pavement to be built and the material removed from the sub grade or adjacent there to be placed on the shoulders.

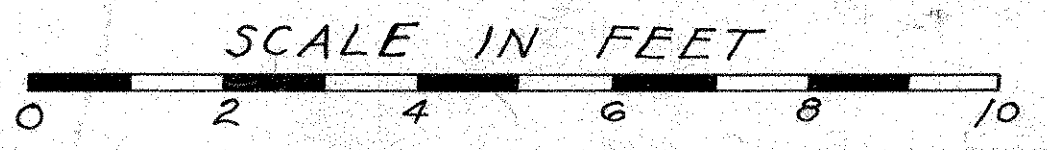


DETAIL SHOWING CENTER JOINT 98 or 100  
FREQUENCY OF CONTRACTION JT. 95



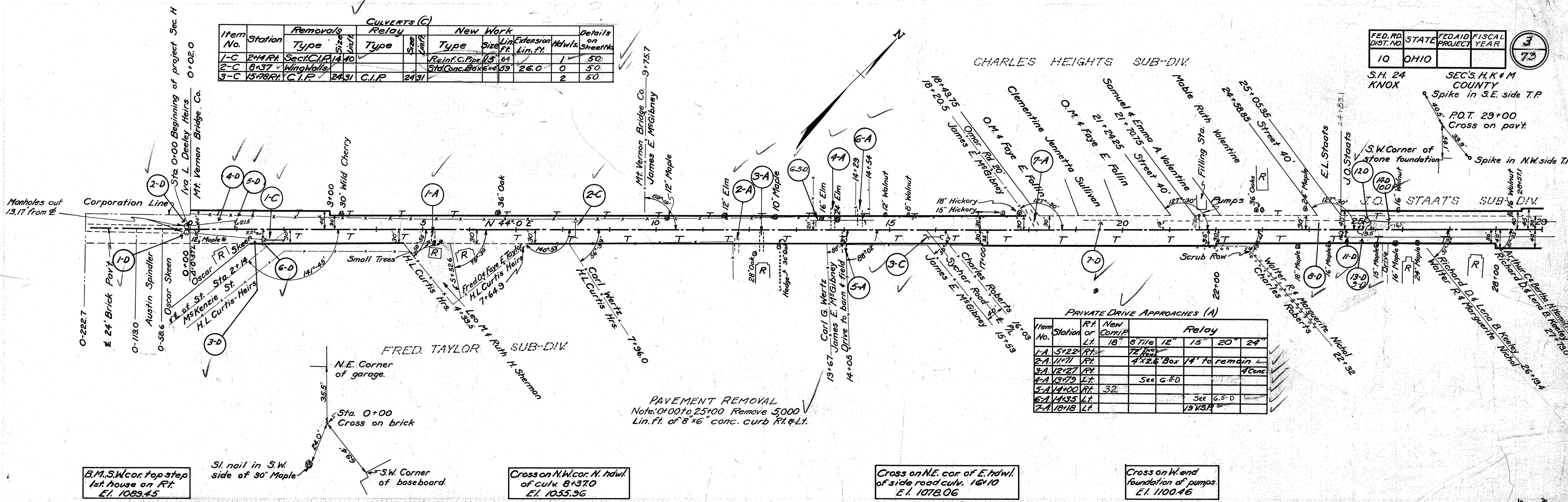
BELL & SPIGOT JOINT

Reinforced concrete pipe used as an alternate for V.S.P. encased shall be cemented as shown in the pertinent accompanying sketch. Where V.S.P. is not encased, reinf. conc. pipe will not be cemented.



STATION		TYPE "B" NEW	TYPE "B" WIDENING	TYPE "B" RESURFACE & WID.	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	LIN. FT.	
0+00	25+00		2500.0		
34+00	49+00		1500.0		
89+25	107+88.3		1863.3		
25+00	34+00	900.0			
49+00	89+25	4023.0			Ded. 2-Short Sta.
107+88.3	117+00	293.37			Ded. 18.33-for Br.
114+00	116+00	187.75			Ded. 12.25-for Br.
171+28.9	175+00	371.10			
237+50	244+50	700.0			
255+25	261+00	575.0			
271+00	280+75	975.0			
299+00	317+00	1693.30			Ded. 106.7-for Br.
336+00	341+50	550.0			
361+50	366+50	500.0			
381+50	383+80	195.60			Ded. 34.4-for Br.
402+50	404+49.15	199.15			
117+00	114+00			300.0	
116+00	171+28.9			5328.9	
175+00	237+50			6235.67	Ded. 14.33-for Br.
244+50	255+25			1,075.0	
261+00	271+00			1,000.0	
280+75	299+00			1,825.0	
317+00	336+00			1,900.0	
341+50	361+50			2,000.0	
366+50	381+50			1,500.0	
383+80	402+50			1,870.0	
TOTAL		11,163.27	5,863.3	23,294.37	

Item No.	Station	Removals		CULVERTS (C)		New Work		Details on Sheet No.
		Type	Size	Type	Size	Type	Size	
1-C	24+17	Sect. C.I.P.	14" 10'			Reinf. C. Pipe 15" 6'		50
2-C	8+37	Wingwalls				Std. Conc. Box 6" 4'	26.0	0
3-C	15+78R	C.I.P.	24" 31'	C.I.P.	24" 31'			2



PRIVATE DRIVE APPROACHES (A)

Item No.	Station	Rt. or Lt.	New Corri.F.	Relay
1-A	5+22	Rt.	18"	6" Tile 12" 15" 20" 24"
2-A	11+71	Rt.		12" Box 14' to remain
3-A	12+27	Rt.		4" Conc.
4-A	13+79	Lt.	32"	See G-5-D
5-A	14+00	Rt.		See G-5-D
6-A	14+35	Lt.		See G-5-D
7-A	18+18	Lt.		1/8" K.S.P.

B.M. S.W. cor. top step 1st. house on Rt. El. 1089.45

Sl. nail in S.W. side of 30" Maple

N.E. Corner of garage.

Sta. 0+00 Cross on brick

S.W. Corner of baseboard.

Cross on N.W. cor. N. hdwl. of culv. 8+370 El. 1055.96

PAVEMENT REMOVAL Note: 0+00 to 25+00 Remove 5,000 Lin. Ft. of 8' x 6' conc. curb Rt. & Lt.

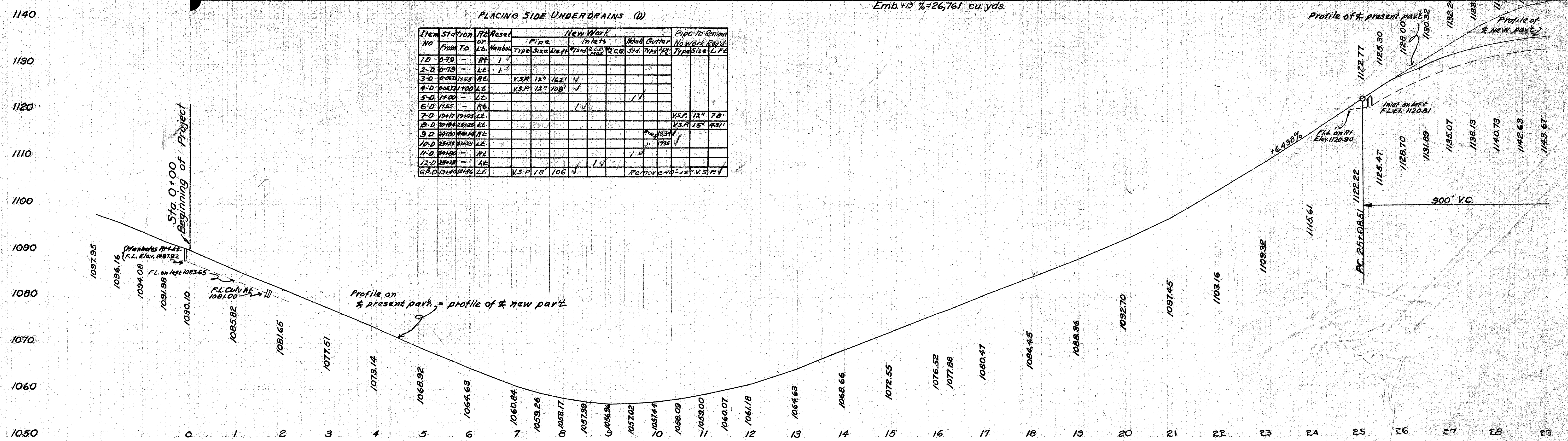
Cross on N.E. cor. of E. hdwl. of side road culv. 16+10 El. 1078.06

Cross on W. end foundation of pumps. El. 1100.46

Exc. = 26,761 cu. yds.  
Emb. +15% = 26,761 cu. yds.

PLACING SIDE UNDERDRAINS (D)

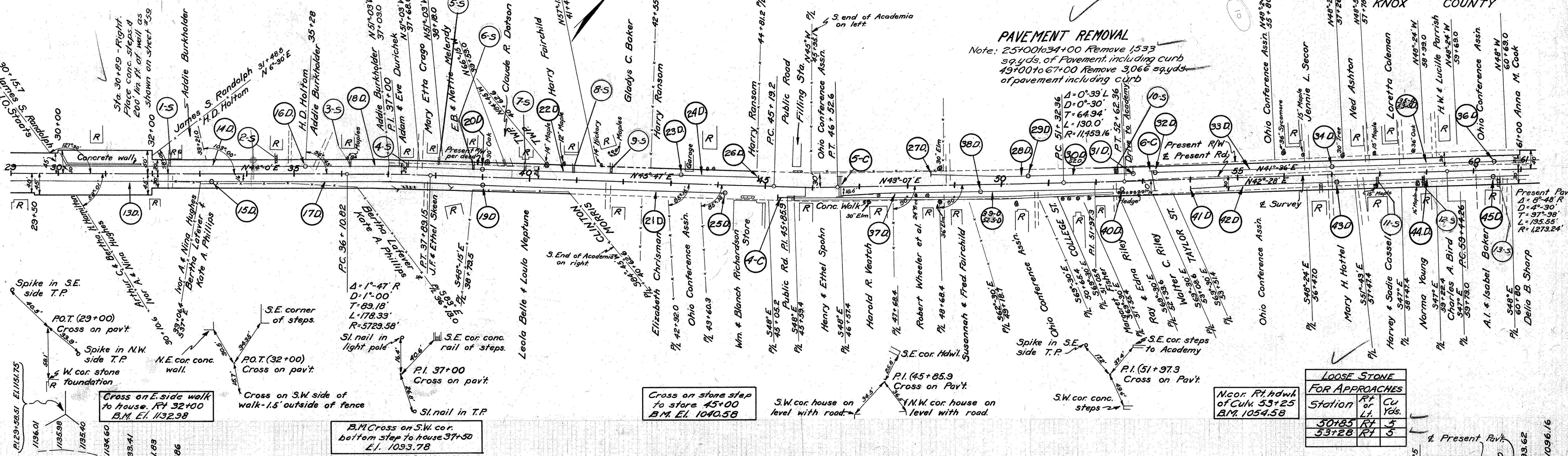
Item No.	Station	Rt. or Lt.	Resed.	New Work				Pipe to Remain	
				Pipe Type	Size	Lin. Ft.	Inlets	Manholes	Gutter
1-D	0+79	-	FL						
2-D	0+79	-	LE						
3-D	0+67	1+55	FL	V.S.P.	12"	162'	✓		
4-D	0+67	1+00	LE	V.S.P.	12"	108'	✓		
5-D	1+00	-	LE						
6-D	1+55	-	FL				✓		
7-D	1+17	1+17	LE					V.S.P.	12" 78'
8-D	1+17	1+25	LE					V.S.P.	15" 43'
9-D	1+17	1+17	FL						
10-D	1+17	1+25	LE						
11-D	1+25	-	FL						
12-D	1+25	-	LE						
6.5-D	13+70	14+46	Lt.	V.S.P.	18"	106'	✓		Remove 40'-12" V.S.P.



Item No	Station	Removals			Relay			New Work			Details of Sheet No.
		Type	Size	Unft.	Type	Size	Unft.	Type	Size	Unft.	
4-C	45+44.1	No.			Work			Conc. Arch	7'	10	None
5-C	46+54.4	No.			Work						None
6-C	53+24.9	No.			Work						None

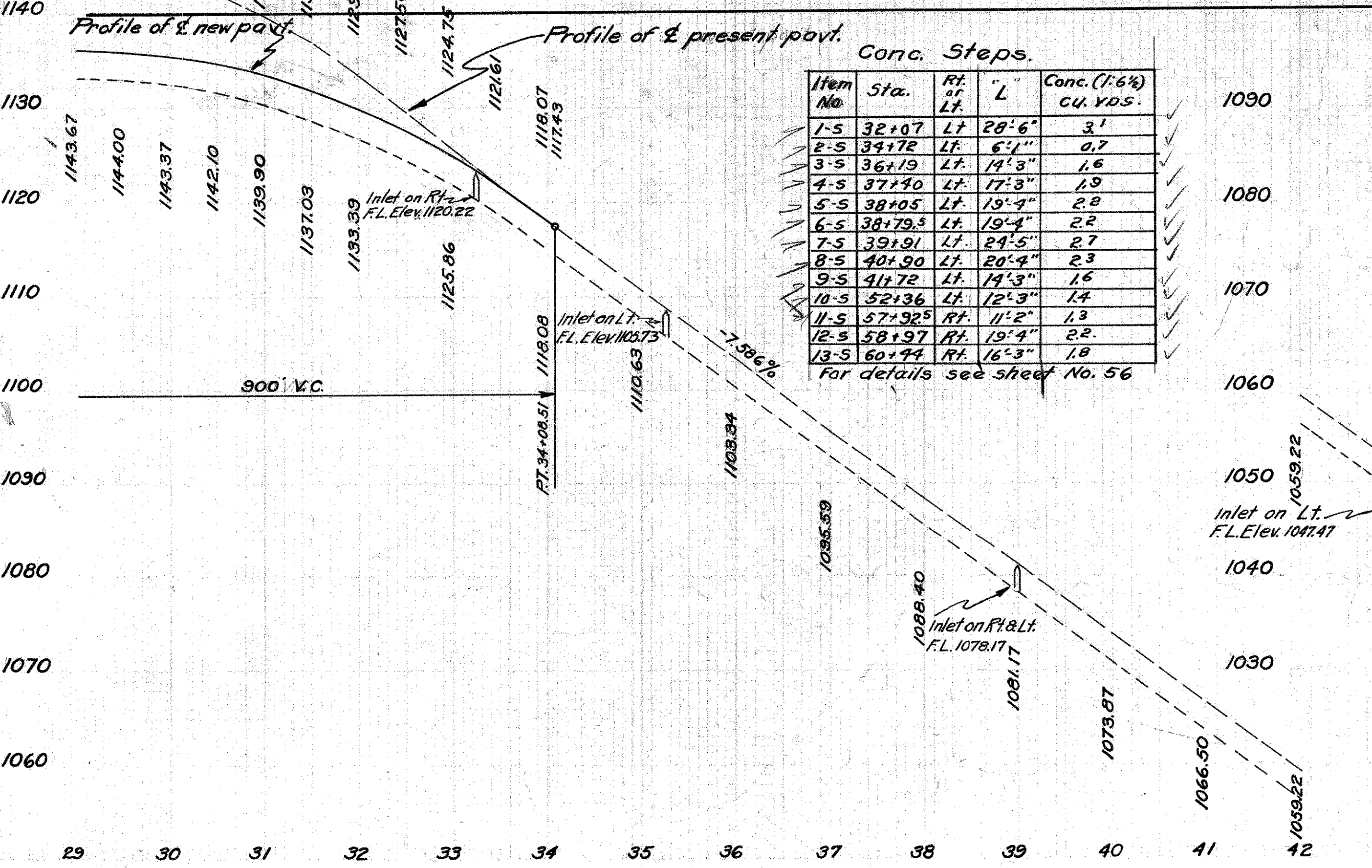
Δ = 2° 40' L  
D = 2° 00'  
T = 66.7'  
L = 133.4'  
R = 2864.73'

**PAVEMENT REMOVAL**  
Note: 25+00 to 34+00 Remove 1533 sqyds. of Pavement including curb  
49+00 to 67+00 Remove 3,066 sqyds. of pavement including curb



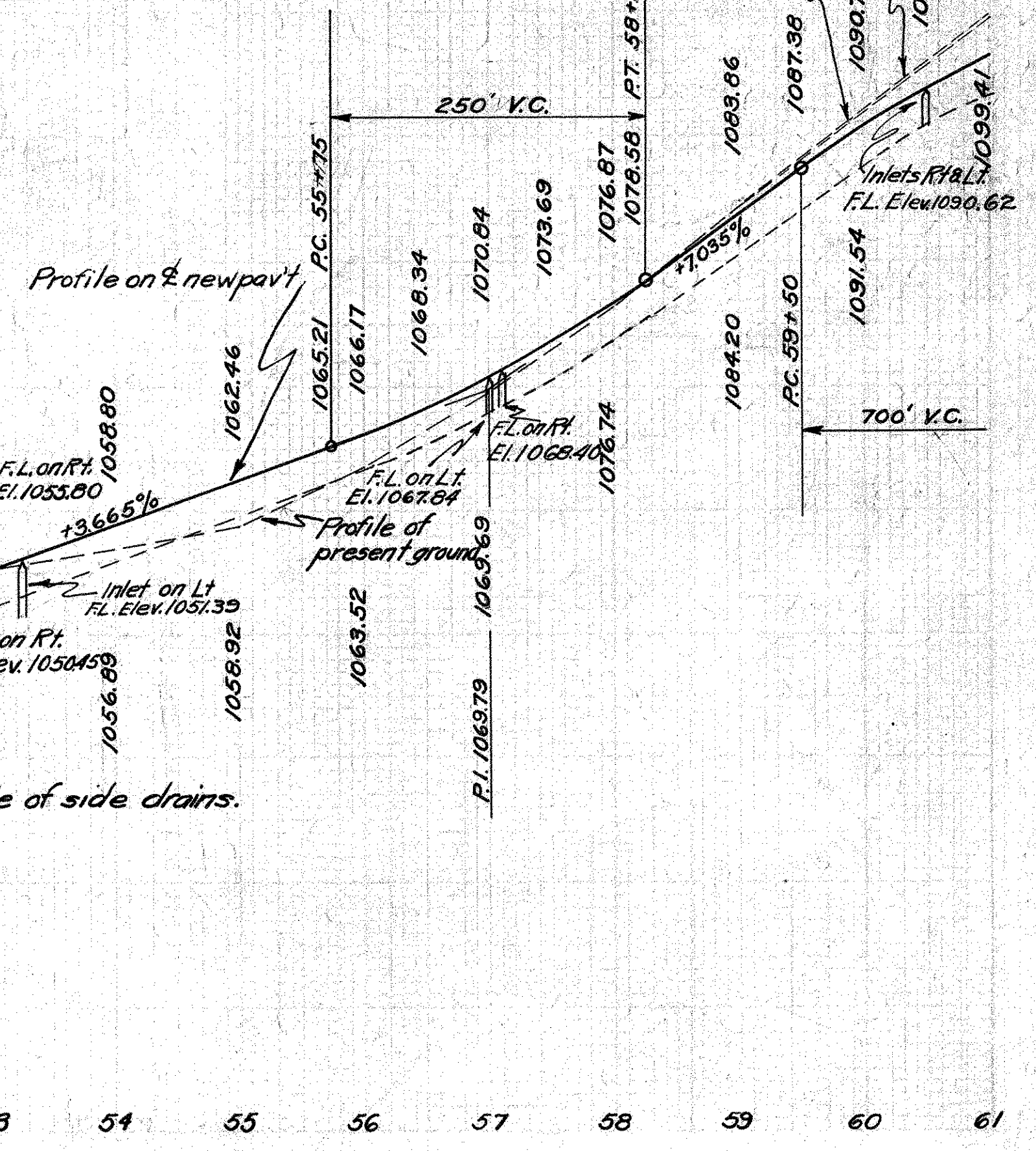
**LOOSE STONE FOR APPROACHES**

Station	Rt. or Lt.	CU Yds.
50+85	Rt	5
53+28	Rt	5



**PLACING SIDE UNDERDRAINS (D)**

Item No.	Station	Rt. or Lt.	New Work			Item No.	Station	Rt. or Lt.	New Work		
			Pipe	Size	Inlets				Pipe	Size	Inlets
13-D	24+80	33+25	RT	V.S.P. 12"	845	34-D	37+00	LT	V.S.P. 12"	850	
14-D	25+25	35+25	LT	V.S.P. 12"	1000	35-D	37+00	60+50	LT	V.S.P. 12"	850
15-D	33+25	---	---	---	---	36-D	60+50	---	---	---	
16-D	35+25	---	---	---	---	37-D	46+54	49+50	RT	V.S.P. 12"	850
17-D	33+25	39+00	RT	V.S.P. 15"	575	38-D	49+50	---	---	---	
18-D	35+25	39+00	LT	V.S.P. 18"	375	39-D	49+50	52+54	RT	V.S.P. 12"	804
19-D	39+00	---	---	---	---	40-D	52+54	---	---	---	
20-D	39+00	---	---	---	---	41-D	54+00	---	---	---	
21-D	39+00	44+14	RT	V.S.P. 18"	514	42-D	54+00	57+10	RT	V.S.P. 15"	310
22-D	39+00	43+20	LT	V.S.P. 18"	420	43-D	57+10	---	---	---	
23-D	43+20	---	---	---	---	44-D	57+10	60+50	RT	V.S.P. 15"	340
24-D	43+20	44+85	LT	V.S.P. 18"	465	45-D	60+50	---	---	---	
25-D	44+14	---	---	---	---	25+03	66+36	66+70	RT	4" x 24" x 6' 6"	Remove present pipe
26-D	44+85	---	---	---	---	33+03	66+70	---	---	---	
27-D	48+80	---	---	---	---	---	---	---	---	---	
28-D	48+30	50+50	LT	V.S.P. 12"	200	---	---	---	---	---	
29-D	50+50	---	---	---	---	---	---	---	---	---	
30-D	50+50	52+80	LT	V.S.P. 12"	230	---	---	---	---	---	
31-D	52+80	---	---	---	---	---	---	---	---	---	
32-D	53+25	---	---	---	---	---	---	---	---	---	
33-D	53+25	57+00	LT	V.S.P. 18"	375	---	---	---	---	---	



**CULVERTS (C)**

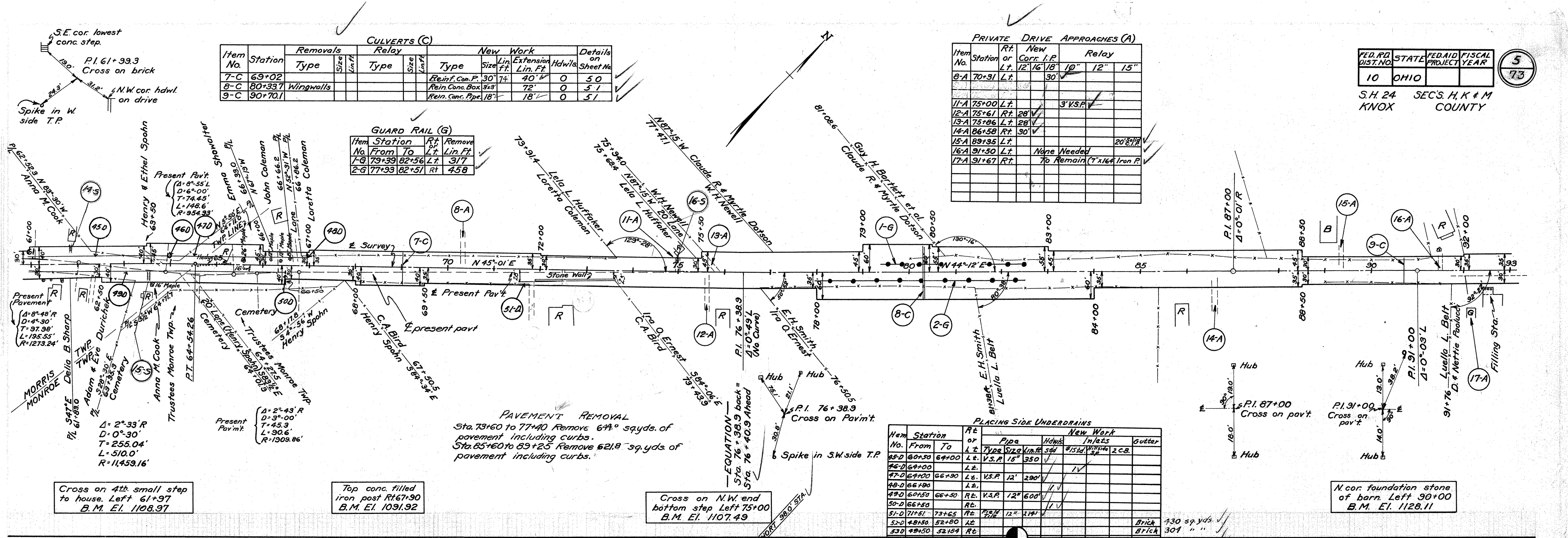
Item No.	Station	Removals		Relay		New Work		Details on Sheet No.
		Type	Size	Type	Size	Type	Size	
7-C	69+02					Rein. Con. P.	30"	50
8-C	80+33.7	Wingwalls				Rein. Con. Box	36x8	51
9-C	90+70.1					Rein. Con. Pipe	18"	51

**GUARD RAIL (G)**

Item No.	Station	Rt. or Lt.	Remove Lin. Ft.
1-G	79+39	Lt.	31.7
2-G	77+33	Rt.	45.8

**PRIVATE DRIVE APPROACHES (A)**

Item No.	Station	Rt. or Lt.	New Corr. I.P.	Relay
8-A	70+31	Lt.	12' 16" 18"	10" 12" 15"
11-A	75+00	Lt.		3' V.S.P.
12-A	75+61	Rt.	28'	
13-A	75+86	Lt.	28'	
14-A	86+58	Rt.	30'	
15-A	89+35	Lt.		20' 8" 18"
16-A	91+50	Lt.	None Needed	
17-A	91+67	Rt.		To Remain (7x16" Iron P.)



**PAVEMENT REMOVAL**  
 Sta. 73+60 to 77+40 Remove 64<sup>00</sup> sq.yds. of pavement including curbs.  
 Sta. 85+60 to 89+25 Remove 621<sup>8</sup> sq.yds. of pavement including curbs.

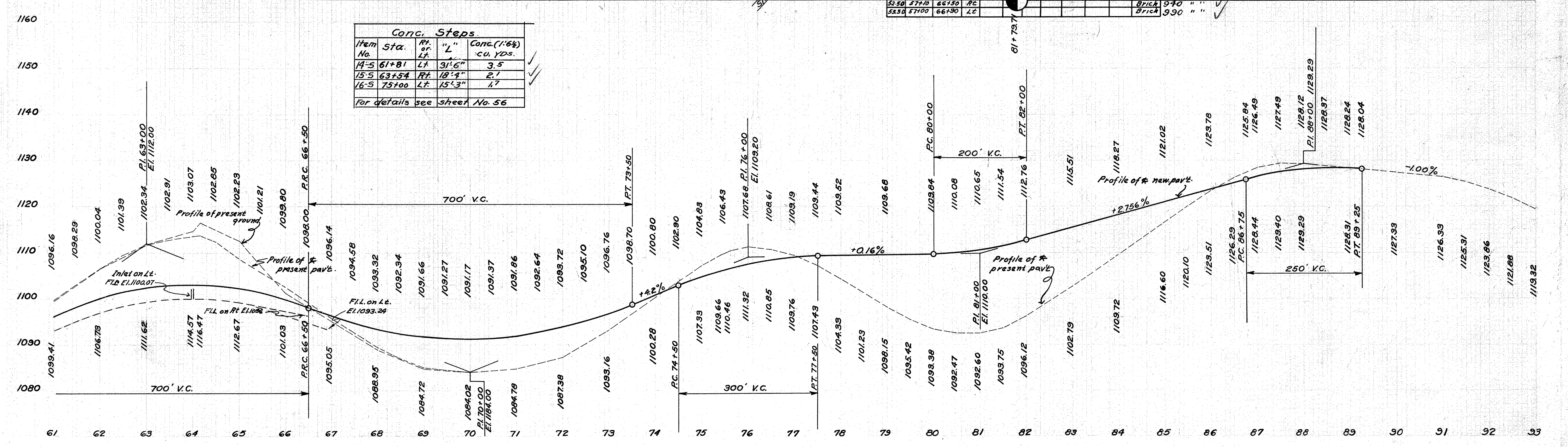
**PLACING SIDE UNDERDRAINS**

Item No.	Station	Rt. or Lt.	Pipe Type	Size	Unit	Material	Notes
45-D	60+30	Lt.	V.S.P.	18"	350'	1/2" 2x4	2 C.B.
46-D	64+00	Lt.	V.S.P.	18"	350'	1/2" 2x4	
47-D	64+00	Lt.	V.S.P.	12"	290'	1/2" 2x4	
48-D	66+80	Lt.	V.S.P.	12"	290'	1/2" 2x4	
49-D	60+50	Rt.	V.S.P.	12"	600'	1/2" 2x4	
50-D	66+80	Rt.	V.S.P.	12"	290'	1/2" 2x4	
51-D	71+51	Rt.	V.S.P.	12"	314'	1/2" 2x4	
52-D	48+50	Lt.				Brick	130 sq. yds.
53-D	49+50	Rt.				Brick	301 " "
54-D	57+10	Rt.				Brick	940 " "
55-D	57+00	Lt.				Brick	990 " "

**Conc. Steps**

Item No.	Sta.	Rt. or Lt.	"L" Lin. Ft.	Conc. (1.6%) cu. Yds.
14-S	61+81	Lt.	31' 6"	3.5
15-S	63+54	Rt.	18' 4"	2.1
16-S	75+00	Lt.	15' 3"	1.7

For details see sheet No. 56



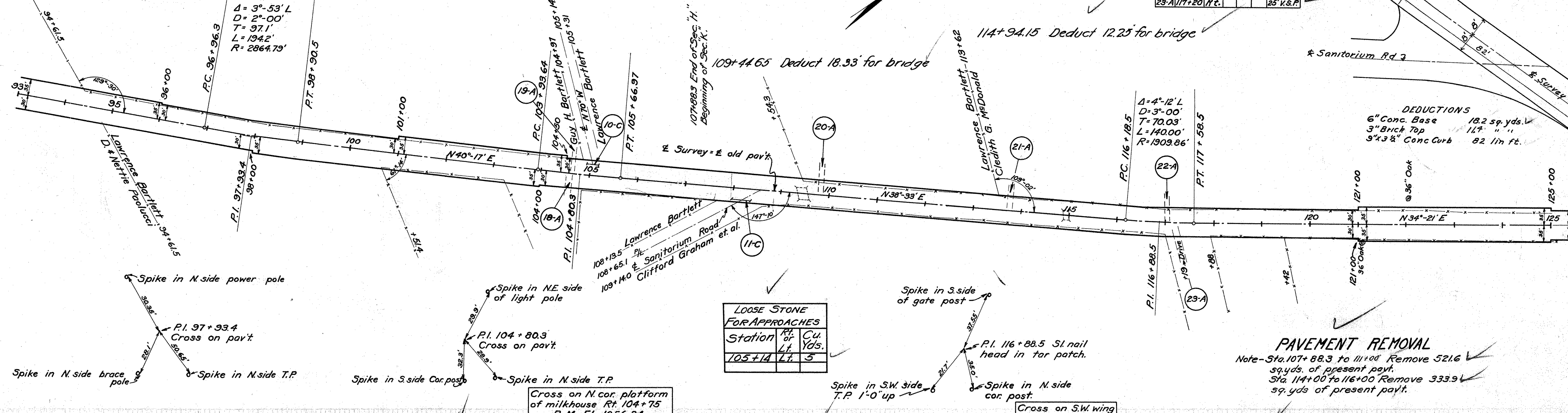
Item No.	Station	CULVERTS (C)				Details on Sheet No.
		Removals		New Work		
Type	Size	Type	Size	Type	Size	
10-C	105+04.3 L.T.	Sec. C.I.P. 18"	24"	Reinf. Con. P. 18"	24"	51
11-C	108+34.4 R.T.	Solid C.I.P. 14"	36"	Reinf. Con. P. 14"	36"	52
12-C	109+44.6	Sec. C.I.P. 14"	6"	Concr. Slab	9'-0"	62
13-C	114+94.3			Concr. Slab	12'-0"	63

$\Delta = 1^\circ 44' L$   
 $D = 1^\circ 00'$   
 $T = 86.7'$   
 $L = 173.33'$   
 $R = 5729.58'$

PRIVATE DRIVE APPROACHES (A)					
Item No.	Station	Rt. or Lt.	New Corr. I.P.	Relay	
18-A	104+60	Rt.	12" 16" 18"	12"	
19-A	104+60	Lt.	16"		
20-A	109+85	Lt.	18"		
21-A	113+73	Lt.	16"		
22-A	117+04	Lt.	16"		
23-A	117+20	Rt.		25' V.S.P.	

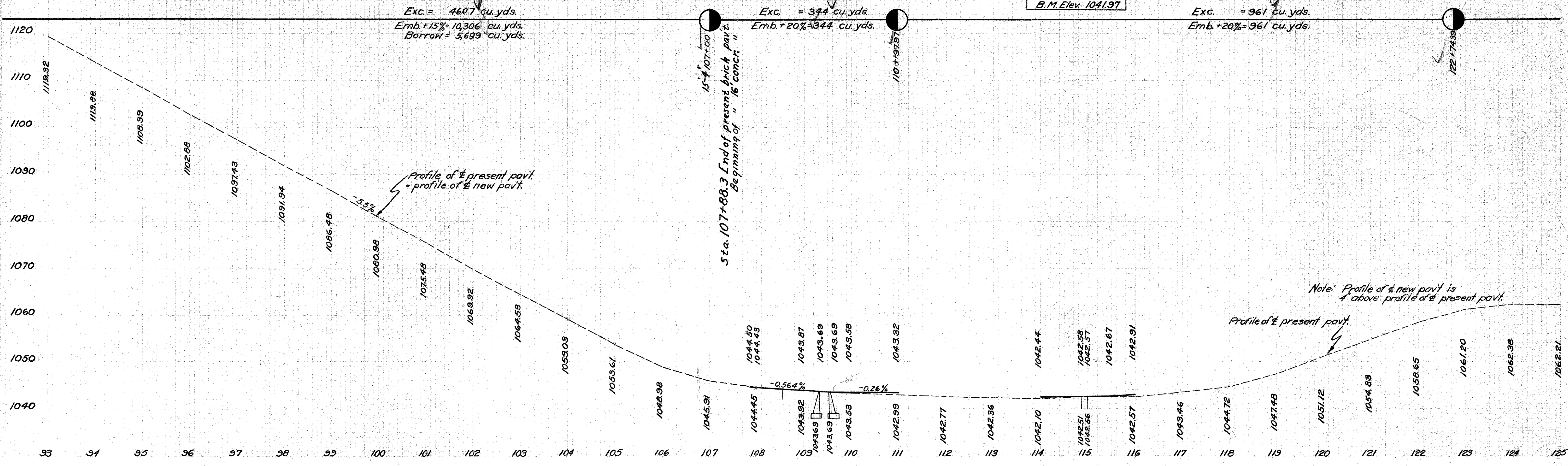
FED. RD. DIST. NO.	STATE	FED. AID PROJECT YEAR	FISCAL YEAR
10	OHIO		

S.H. 24 SEC'S H, K & M  
 KNOX COUNTY



**DEDUCTIONS**  
 6" Conc. Base 18.2 sq. yds.  
 3" Brick Top 11.7 " "  
 3"x3 1/2" Conc. Curb 82 lin. ft.

**PAVEMENT REMOVAL**  
 Note - Sta. 107+88.3 to 111+00 Remove 521.6 sq. yds. of present pavt.  
 Sta. 114+00 to 116+00 Remove 333.9 sq. yds. of present pavt.



$\Delta = 4^{\circ}56' L$   
 $D = 3^{\circ}00'$   
 $T = 82.27'$   
 $L = 164.44'$   
 $R = 1,909.86'$

$\Delta = 4^{\circ}20' L$   
 $D = 3^{\circ}00'$   
 $T = 72.27'$   
 $L = 147.44'$   
 $R = 1,909.86'$

Item No.	Station	Removals				New Work				Details on Sheet No.
		Type	Size	Lin. Ft.	Relay	Type	Size	Lin. Ft.	Ext. Hdw's	
14-C	126+25					Rein. Conc.	24"	20'	0	52
15-C	131+72.8	Tops Hdw's				"	"	22'	0	52
16-C	138+71.5					"	"	14'	0	52
17-C	139+55.4					"	"	18'	0	53
18-C	146+79.5	Tops Hdw's				"	"	14'	0	53
19-C	151+94.9					"	"	20'	0	53

PRIVATE DRIVE APPROACHES (A)

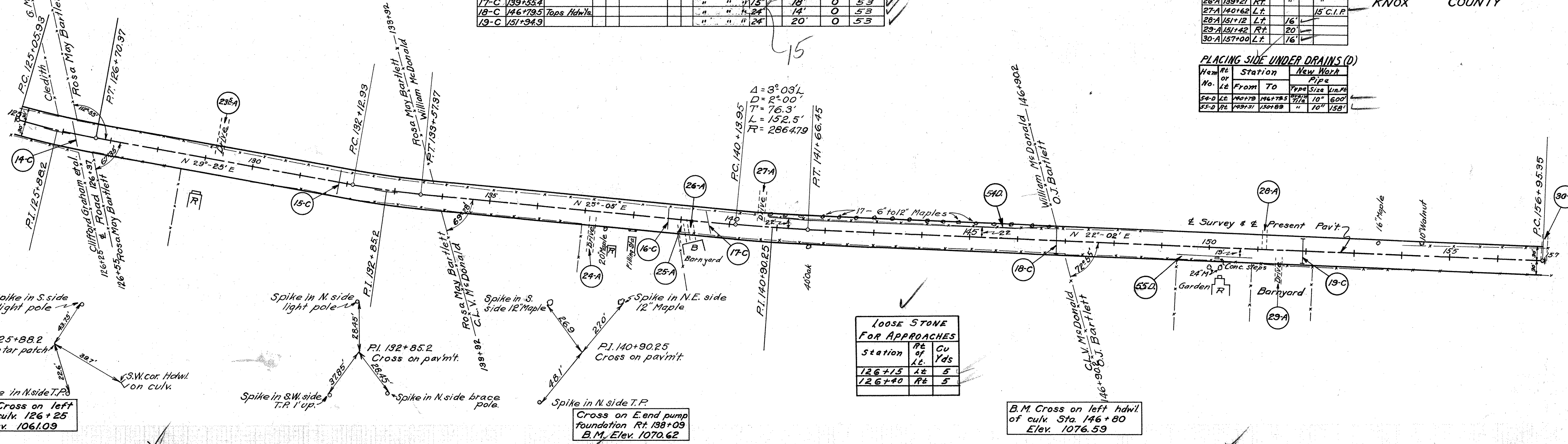
Item No.	Station or Cor.	Rt. or Lt.	New I.P.	Relay
23-A	129+23	Lt.	12"	14"
24-A	136+98	Rt.	To Remain	
25-A	138+96	Rt.	None Needed	
26-A	139+21	Rt.	"	"
27-A	140+62	Lt.	"	15' C.I.P.
28-A	151+12	Lt.	16"	
29-A	151+42	Rt.	20"	
30-A	157+00	Lt.	16"	

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S.H. 24 SEC'S. H, K & M  
KNOX COUNTY

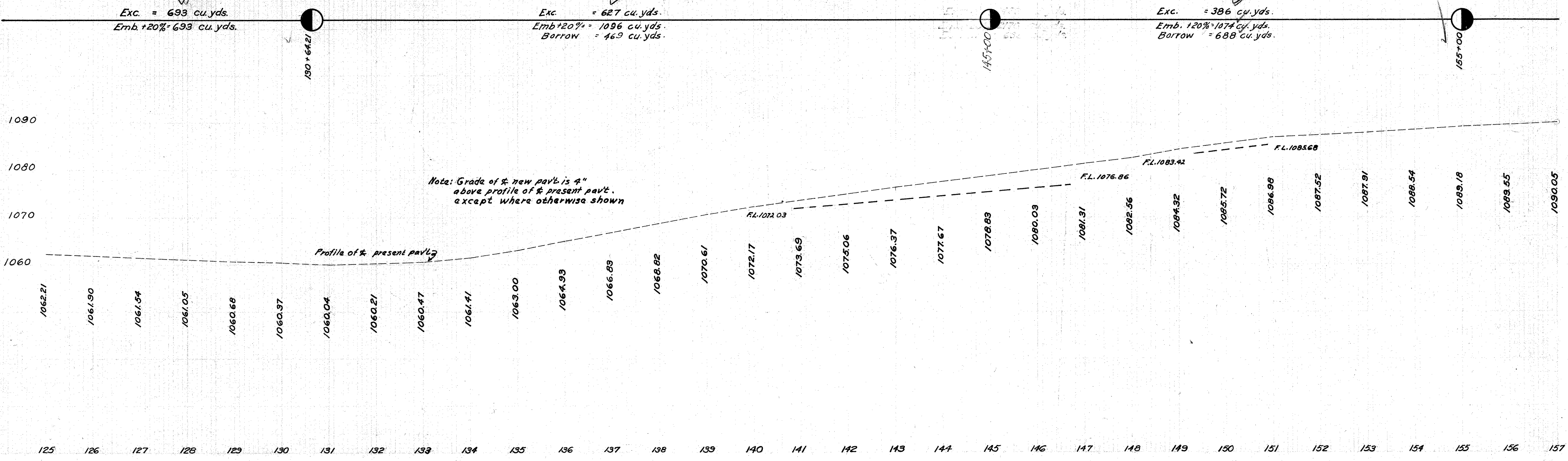
PLACING SIDE UNDER DRAINS (D)

Item No.	Station	New Work
54-D	140+79	10" 600'
55-D	149+31	10" 158'



LOOSE STONE FOR APPROACHES

Station	Rt. of L.L.	Cu Yds
126+15	Lt	5
126+40	Rt	5



Note: Grade of new pav't is 4" above profile of present pav't. except where otherwise shown

Δ = 3°-00' L  
 D = 0°-30'  
 T = 300.2'  
 L = 600.00'  
 R = 11,453.16'

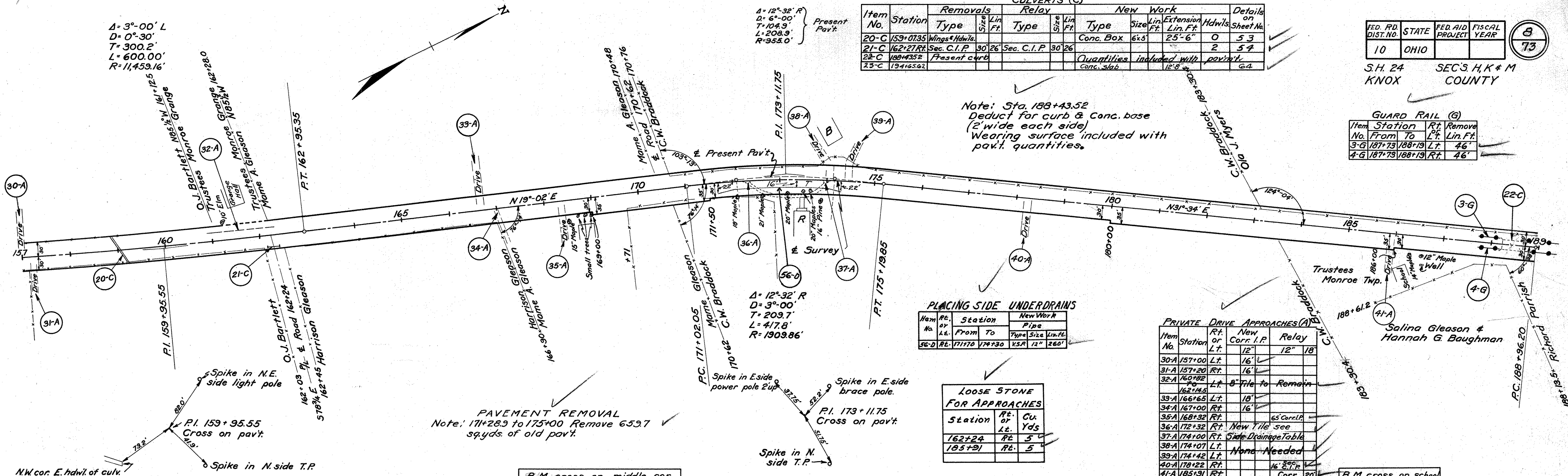
Δ = 12°-32' R  
 D = 6°-00'  
 T = 108.9'  
 L = 208.9'  
 R = 988.0'

Item No.	Station	Removals		Relay		New Work			Details on Sheet No.	
		Type	Size	Type	Size	Type	Size	Ext. Lin. Ft.		
20-C	159+07.35	Wings & Hubs				Conc. Box	6x6	25'-6"	0	53
21-C	162+27.84	Sec. C.I.P.	30" x 26"	Sec. C.I.P.	30" x 26"				2	54
22-C	188+43.52	Present curb				Quantities included with				
23-C	179+46.82					conc. slab		12'-8"		64

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		

S.H. 24 KNOX COUNTY SEC'S H, K & M

Item No.	Station	Rt.	Remove
3-G	187+73	188+19	Lt. 46'
4-G	187+73	188+19	Rt. 46'



Note: Sta. 188+43.52  
 Deduct for curb & Conc. base  
 (2' wide each side)  
 Wearing surface included with pav't. quantities.

PLACING SIDE UNDERDRAINS

Item No.	Station	New Work
56-D	171+70	174+30

LOOSE STONE FOR APPROACHES

Station	Rt. or Lt.	Cu. Yds.
162+24	Rt.	5
185+91	Rt.	5

PRIVATE DRIVE APPROACHES (A)

Item No.	Station	Rt. or Lt.	New Corr. I.P.	Relay
30-A	157+00	Lt.	16'	12" x 18"
31-A	157+20	Rt.	16'	
32-A	160+82	Lt.	8'	Tile to Remain
33-A	166+65	Lt.	18'	
34-A	167+00	Rt.	16'	
35-A	168+32	Rt.		65' Corr. I.P.
36-A	172+32	Rt.		New Tile see
37-A	174+00	Rt.		Side Drainage Table
38-A	174+07	Lt.		None Needed
39-A	174+42	Lt.		
40-A	178+22	Rt.		16' Sec. 2" T.P.
41-A	185+91	Rt.		Corr. 20'

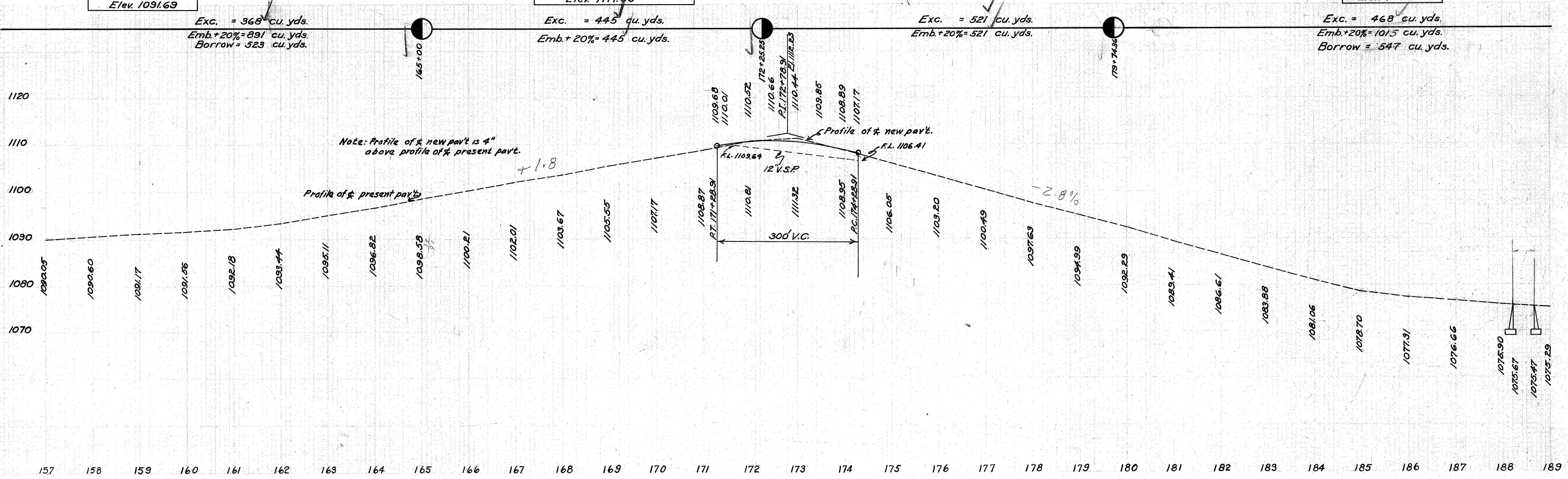
PAVEMENT REMOVAL  
 Note: 171+28.9 to 175+00 Remove 65.97 sq. yds. of old pav't.

Exc. = 368 cu. yds.  
 Emb.+20% = 891 cu. yds.  
 Borrow = 523 cu. yds.

Exc. = 445 cu. yds.  
 Emb.+20% = 445 cu. yds.

Exc. = 521 cu. yds.  
 Emb.+20% = 521 cu. yds.

Exc. = 468 cu. yds.  
 Emb.+20% = 1015 cu. yds.  
 Borrow = 547 cu. yds.



Note: Profile of new pav't. is 4" above profile of present pav't.



### PAVEMENT REMOVAL

Note - Sta 188+75 to 192+00 Remove 273.1 sq. yds of old pavt.

### PLAN OF GUTTER PAVEMENT.

EXTRA QUANTITIES FOR GUTTER PAV. 3" brick top (incl. 3/4" cushion & filler) - 421.6 sq yds  
 Concrete curb - 9" x 18" 45' lin. ft.  
 DEDUCTIONS  
 Conc. curb (9" x 3") 433' lin. ft. 7.9  
 " base (6") 96.4 sq yds

### PRIVATE DRIVE APPROACHES (A)

Item No.	Station	Rt.	New or Corr.	Relay
42-A	193+69	Rt.	16"	12" 10"
43-A	194+02	Lt.		None Needed
44-A	194+93	Rt.	16"	
45-A	195+45	Lt.		18" Corr.
46-A	195+86	Lt.	16"	
47-A	196+68	Lt.	16"	
48-A	197+27	Rt.		None Needed
49-A	197+53	Lt.		
50-A	209+38	Rt.		
51-A	209+76	Rt.		
52-A	211+01	Rt.		
53-A	211+14	Lt.	24"	
54-A	213+33	Rt.		18" Corr.
55-A	213+80	Rt.		20" "
56-A	220+00	Lt.		18" "

### LOOSE STONE FOR APPROACHES

Station	Rt or Lt.	CU. Yds.
197+26	Rt.	5
197+53	Lt.	5
215+15	Lt.	5

### GUARD RAIL (G)

Item No.	Station	Rt. or Lt.	Remove Lin. Ft.
5-G	188+63	Lt.	190
6-G	188+63	Rt.	193
7-G	205+47	Lt.	274
8-G	203+90	Rt.	528

### CULVERTS (C)

Item No.	Station	Removals		Relay		New Work		Details on Sheet No.
		Type	Size	Type	Size	Type	Size	
24-C	197+98	Tops	Hdwls.			Hillside R.C.P.	18"	16" 1 54
25-C	201+81.6					" "	18"	14" 2 54
26-C	215+29.1					" "	18"	16" 2 54

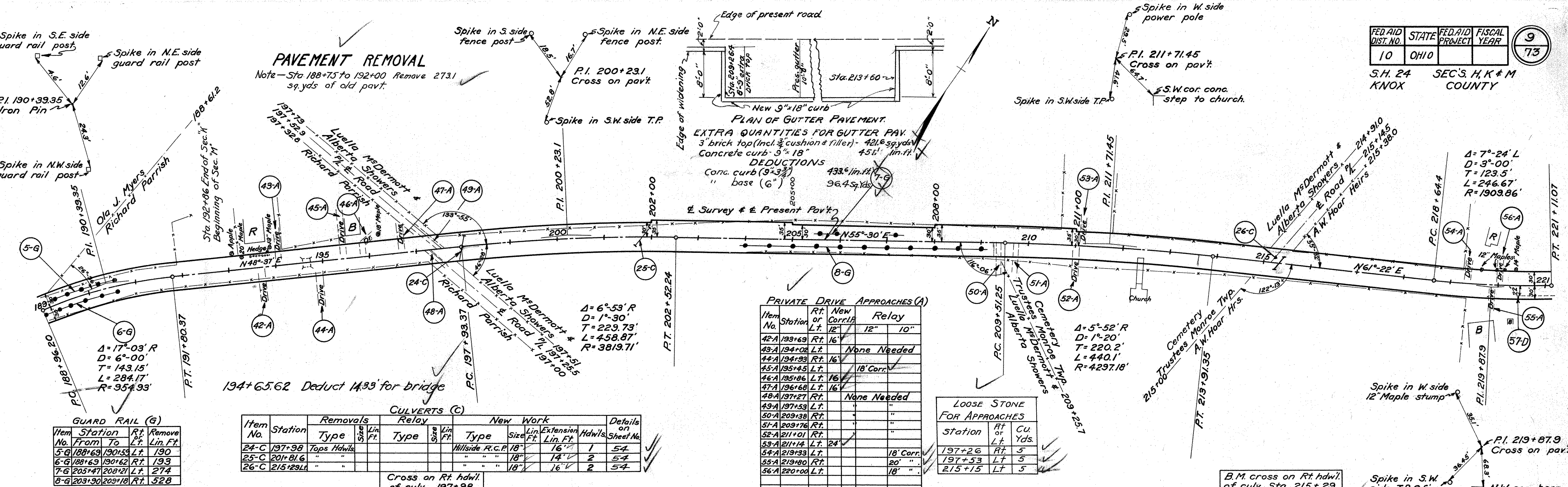
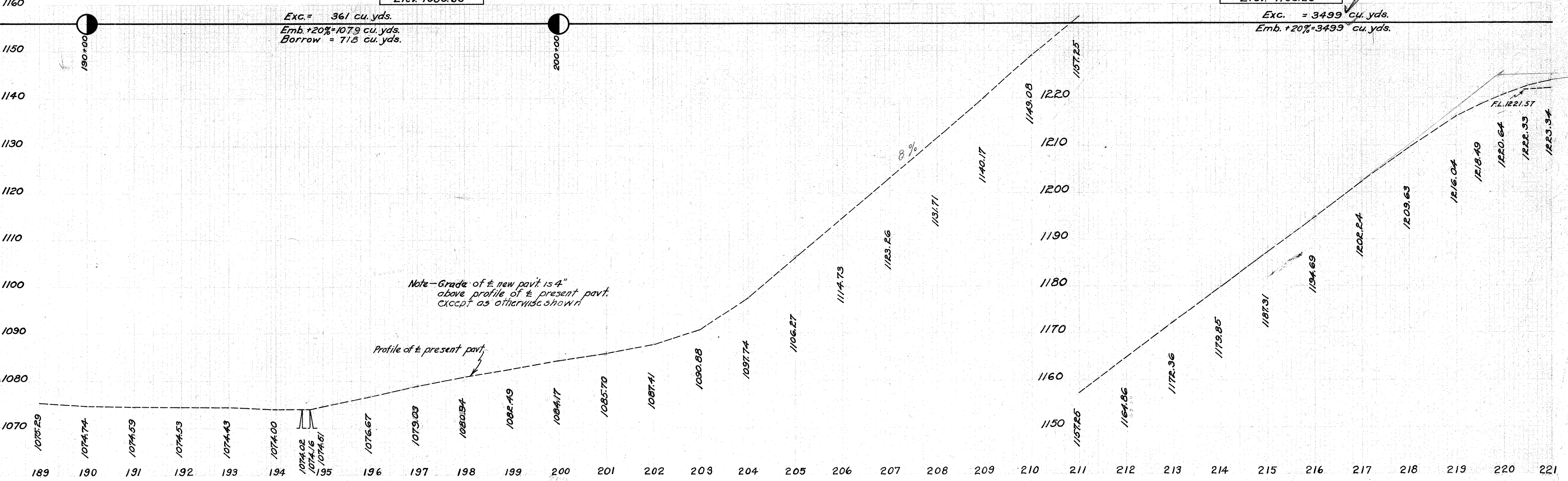
Cross on Rt. hdwl. of culv. 197+98 Elev. 1080.66

Exc. = 361 cu. yds.  
 Emb. +20% = 1079 cu. yds.  
 Borrow = 718 cu. yds.

Exc. = 3499 cu. yds.  
 Emb. +20% = 3499 cu. yds.

Note - Grade of ± new pavt is 4" above profile of ± present pavt. except as otherwise shown

Profile of ± present pavt.



PRIVATE DRIVE APPROACHES (A)

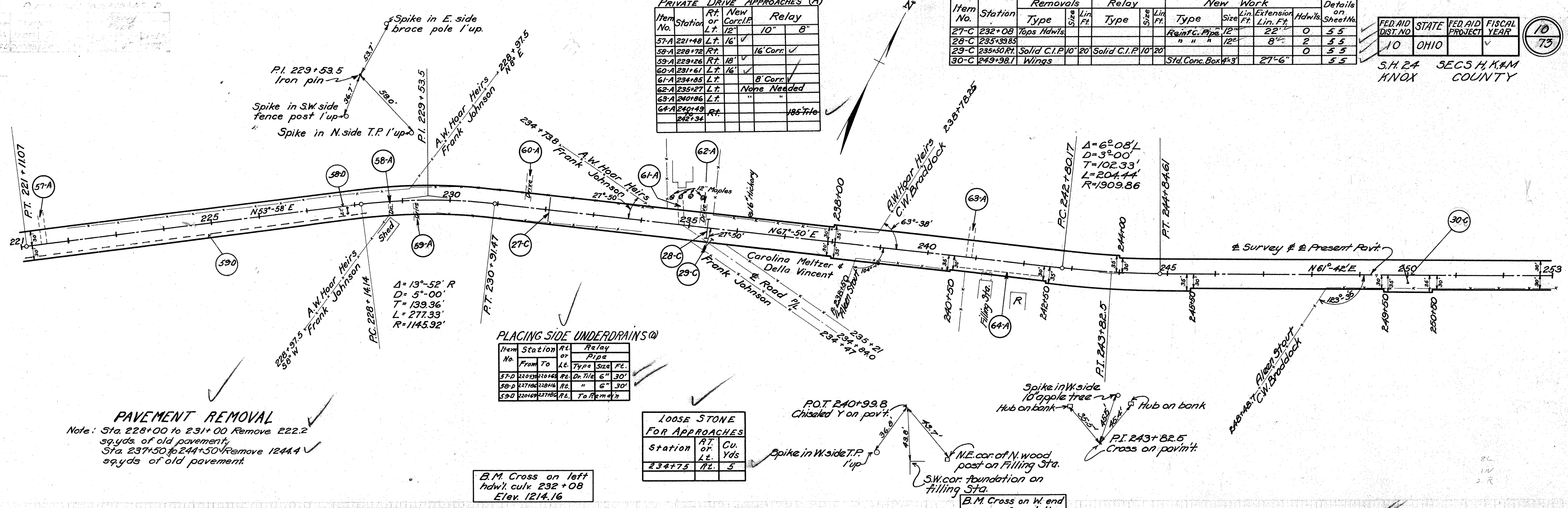
Item No.	Station	RT. or Lt.	New Corr. Ft.	Relay
			10'	8'
57-A	221+48	Lt.	16'	✓
58-A	228+72	Rt.	16'	Corr. ✓
59-A	229+26	Rt.	18'	✓
60-A	231+61	Lt.	16'	✓
61-A	234+85	Lt.	8'	Corr. ✓
62-A	235+27	Lt.		None Needed
63-A	240+86	Lt.		
64-A	240+49	Rt.		185' T/O

CULVERTS (C)

Item No.	Station	Removals		Relay		New Work			Details on Sheet No.	
		Type	Size	Type	Size	Type	Size	Ext. Lin. Ft.		
27-C	232+08	Tops Hdws				Reinf. Pipe	12"	22'	0	55
28-C	235+39.85					" " "	12"	8'	2	55
29-C	235+50 Rt.	Solid C.I.P.	10"	20'	Solid C.I.P.	10"	20'		0	55
30-C	249+98.7	Wings				Std. Conc. Box	4'x3'	27'-6"		55

FED. AID DIST. NO. 10 STATE OHIO  
 FED. AID PROJECT YEAR  
 S.H. 24 SECS. H, K, M KNOX COUNTY

10  
73



**PAVEMENT REMOVAL**  
 Note: Sta. 228+00 to 231+00 Remove 222.2 sq.yds. of old pavement;  
 Sta. 237+50 to 244+50 Remove 1244.4 sq.yds. of old pavement.

PLACING SIDE UNDERDRAINS (D)

Item No.	Station	RT. or Lt.	Relay
57-D	230+25 to 230+146	Rt.	Dr. Tile 6" 30'
58-D	237+94 to 238+146	Rt.	" " 6" 30'
59-D	238+146 to 237+182	Rt.	To Rem. of 7'

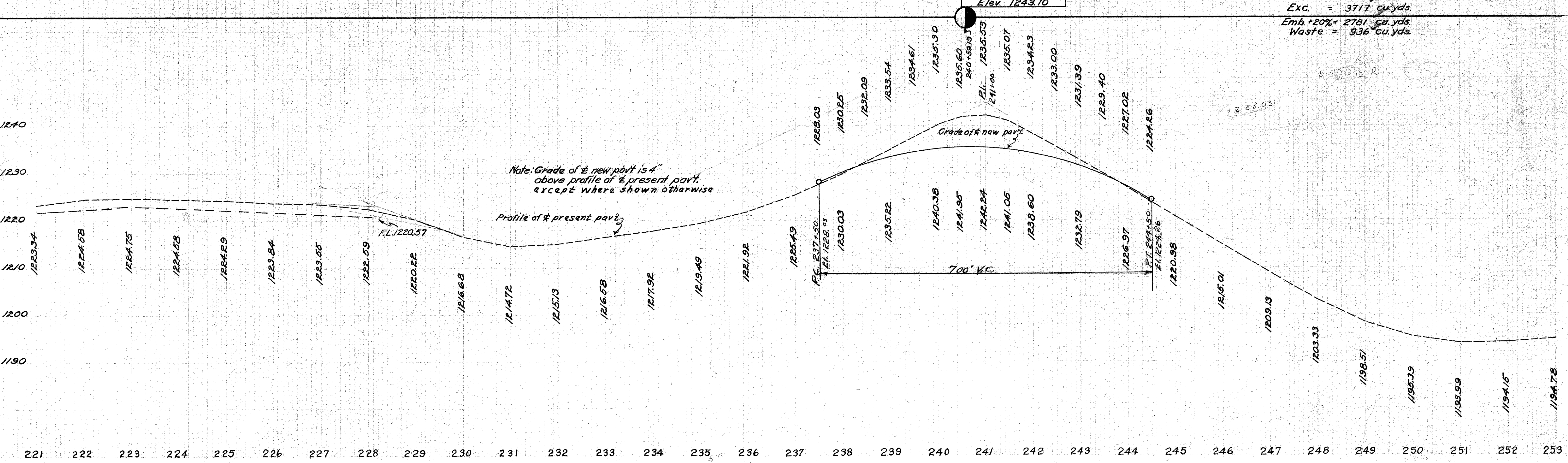
LOOSE STONE FOR APPROACHES

Station	RT. or Lt.	Cu. Yds.
234+75	Rt.	5

B.M. Cross on left hdwl. culv. 232+08 Elev. 1214.16

B.M. Cross on W. end pump foundation Elev. 1243.10

Exc. = 3717 cu.yds.  
 Emb.+20% = 2781 cu.yds.  
 Waste = 936 cu.yds.



Note: Grade of new pavt. is 4" above profile of present pavt. except where shown otherwise

Present Pavmt.  $\Delta=25^{\circ}30'R$   
 $D=125.00'$   
 $T=108.0'$   
 $L=212.5'$   
 $R=478.34'$

PAVEMENT REMOVALS

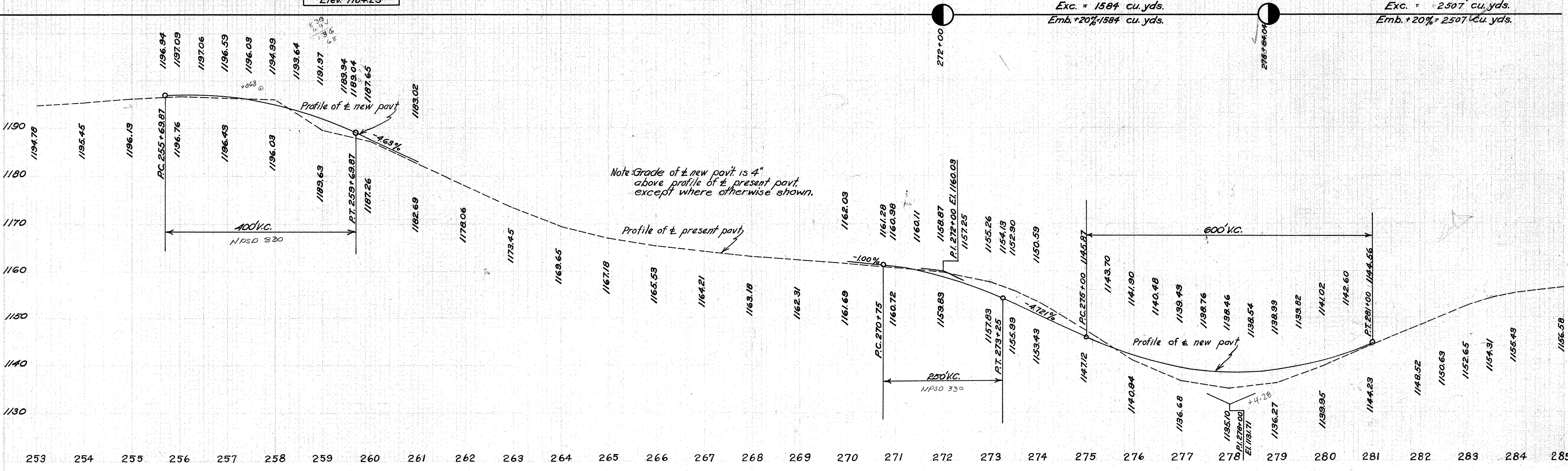
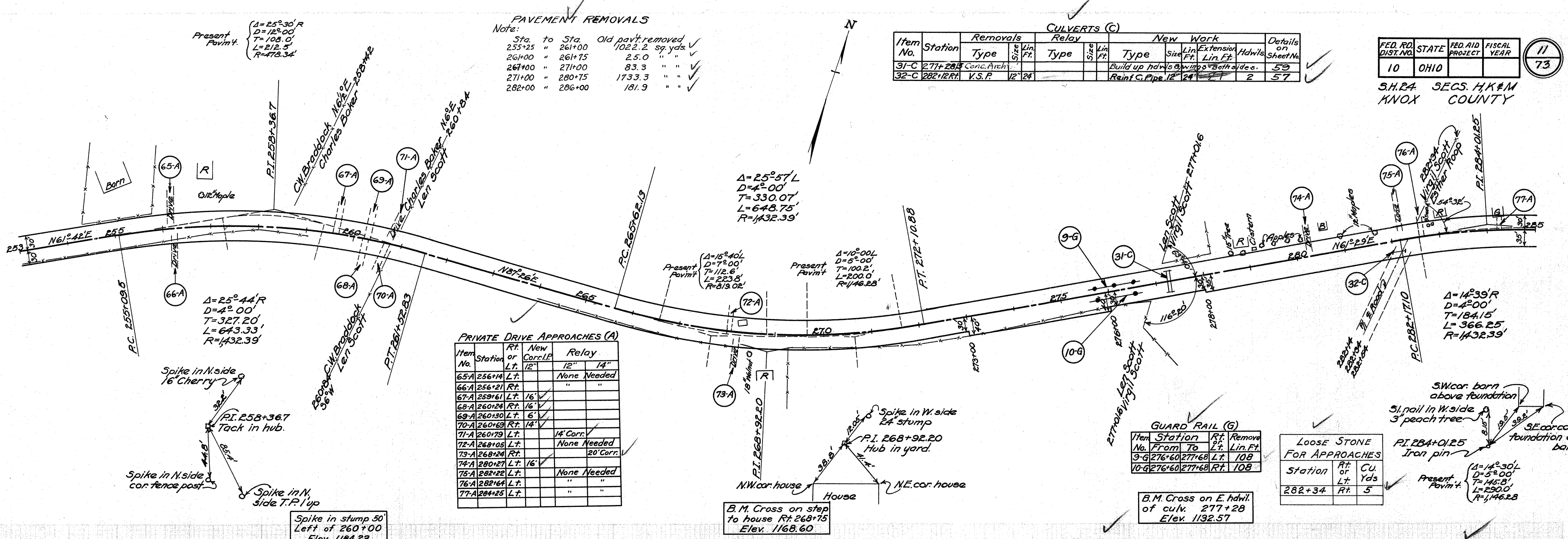
Note:

Sta. to Sta.	Old pav't removed	sq. yds.
255+25 " 261+00	1022.2	✓
261+00 " 261+75	25.0	✓
261+00 " 271+00	83.3	✓
271+00 " 280+75	1733.3	✓
282+00 " 286+00	181.9	✓

CULVERTS (C)

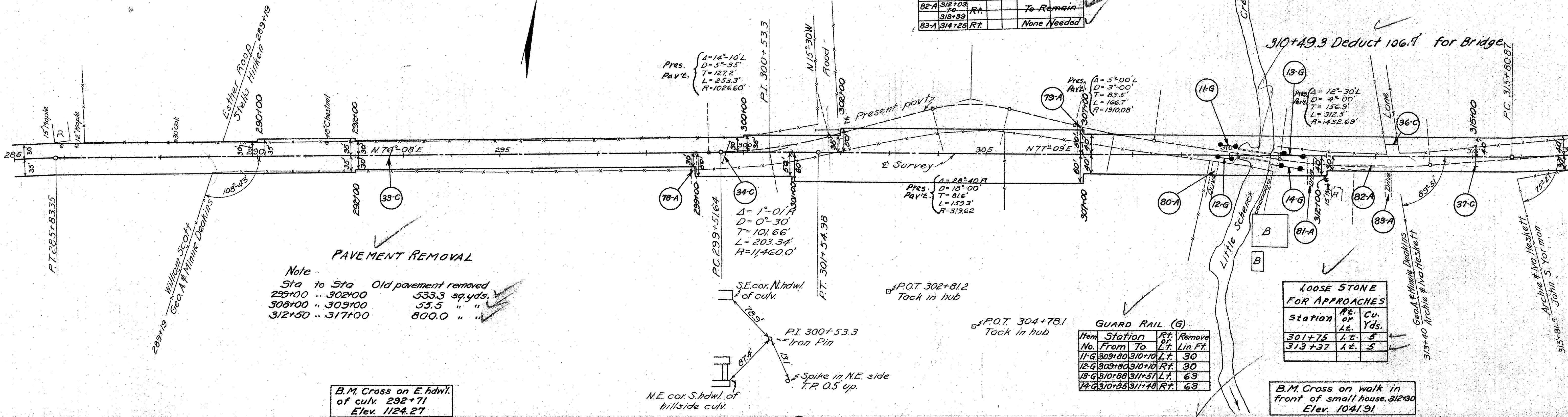
Item No.	Station	Removals		Relay		New Work		Details on Sheet No.
		Type	Lin. Ft.	Type	Lin. Ft.	Type	Size	
31-C	277+28.4	Conc. Arch	12'				Build up hdwls on both sides.	59
32-C	282+12.4	V.S.P.	12'				Reinf. C. Pipe 12" x 24"	57

FED. RD. DIST. NO. 10  
 STATE OHIO  
 FED. AID PROJECT  
 FISCAL YEAR  
 SHEET NO. 11  
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 S.H. 24 SECS. H.K.#1  
 KNOX COUNTY



Item No.	Station	Removals		Relay		New Work			Details on Sheet No.
		Type	Size	Type	Size	Type	Size	Lin. Ft.	
33-C	292+71.2	No		Work					57
34-C	299+66.5	V.S.P. (enc.)	20" 32'		Rein. C. Pipe	20" 48'		1	57
36-C	313+36.17	V.S.P.	24" 24'		" " "	24" 24'		2	57
37-C	315+07.8	Hdwls - V.S.P.	18" 12'		" " "	18" 22'		2	57
345-C	301+80				" " "	12" 30'		2	56

Item No.	Station	Rt. or Lt.	New Corr. I.F.	
			12" 18"	16" 18"
78-A	298+98	Rt.		None Needed
79-A	306+90	Lt.	30'	
80-A	309+69	Rt.	6'	24'
81-A	311+65	Rt.		18" Corr.
82-A	312+08	Rt.		To Remain
	313+39	Rt.		
83-A	314+25	Rt.		None Needed



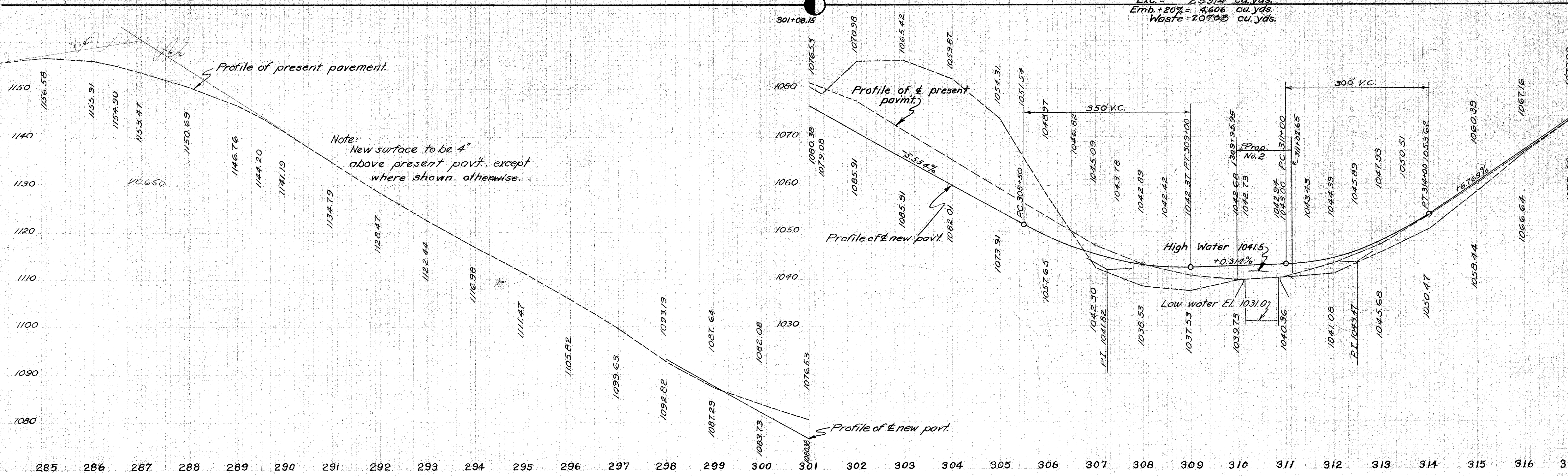
**PAVEMENT REMOVAL**  
 Note  
 Sta to Sta Old pavement removed  
 299+00 .. 302+00 533.3 sq. yds.  
 308+00 .. 309+00 53.5 " "  
 312+50 .. 317+00 800.0 " "

B.M. Cross on E. hdwl. of culv. 292+71  
 Elev. 1124.27

Station	Rt. or Lt.	Cu. Yds.
301+75	Lt.	5
313+37	Lt.	5

Item No.	Station	Rt. or Lt.	Remove Lin. Ft.
11-G	309+80	Lt.	30
12-G	309+80	Rt.	30
13-G	310+88	Lt.	63
14-G	310+88	Rt.	63

Exc. = 2531/4 cu. yds.  
 Emb. + 20% = 4606 cu. yds.  
 Waste = 20708 cu. yds.



Item No.	Station	Removals		Relay		New Work			Details on Sheet No.	
		Type	Size	Type	Size	Type	Size	Hdwls.		
38-C	321+81.4	Tops Hdws.				Rein. C. Pipe	20"	8'	2	5B
39-C	347+63.6						15"	22'	0	5B

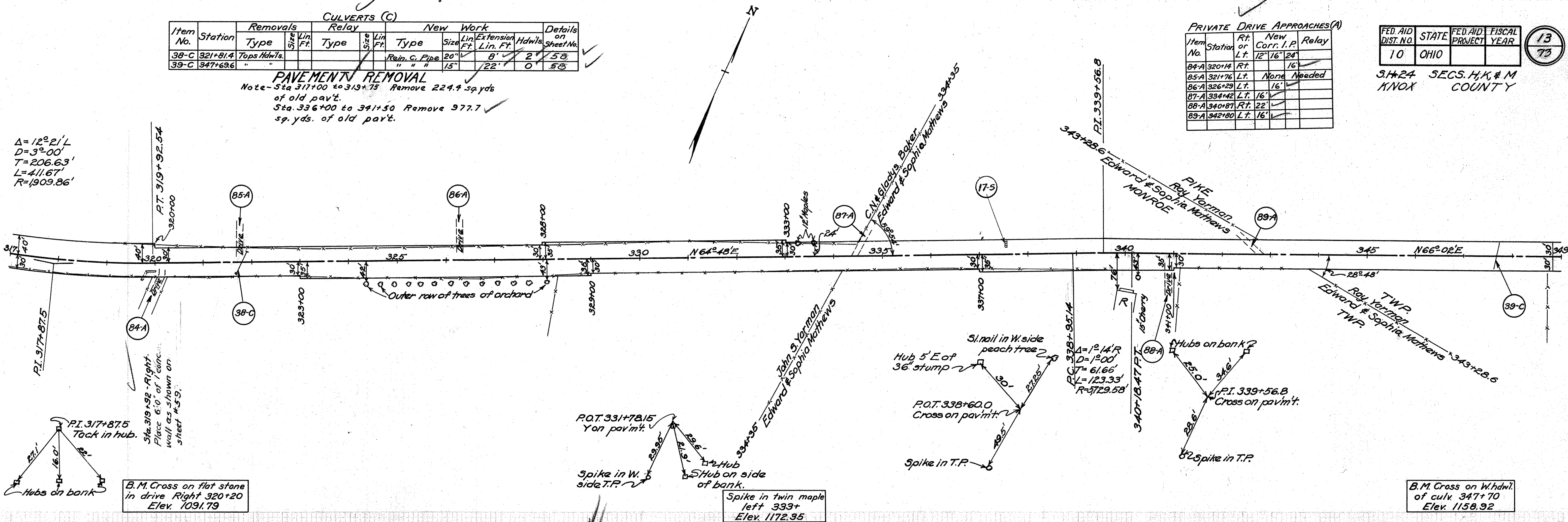
**PAVEMENT REMOVAL**

Note - Sta 317+00 to 319+75 Remove 224.4 sq yds of old pav't.  
Sta. 336+00 to 341+50 Remove 977.7 sq yds. of old pav't.

PRIVATE DRIVE APPROACHES(A)				
Item No.	Station	Rt. or Lt.	New Corr. I.P.	Relay
84-A	320+14	Rt.	12" 16" 24"	
85-A	321+76	Lt.	None	Needed
86-A	326+29	Lt.	16"	
87-A	334+42	Lt.	16"	
88-A	340+87	Rt.	22"	
89-A	342+80	Lt.	16"	

FED. AID DIST. NO. 10 STATE OHIO FED. AID PROJECT YEAR 13 73  
3,1424 SECS. H, K, & M WYNOX COUNTY

$\Delta = 12^\circ 21' L$   
 $D = 3^\circ 00'$   
 $T = 206.63'$   
 $L = 411.67'$   
 $R = 1909.86'$



B.M. Cross on flat stone in drive Right 320+20 Elev. 1091.79

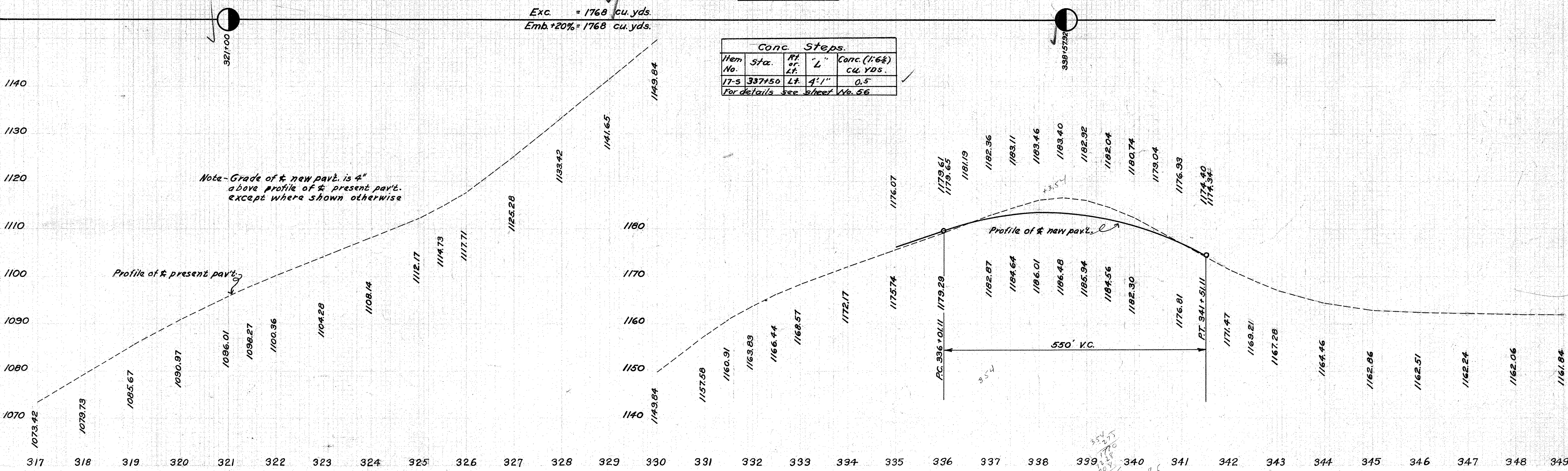
Spike in twin maple left 333+ Elev. 1172.95

B.M. Cross on W. hdwl of culv. 347+70 Elev. 1158.92

Exc. = 1768 cu. yds.  
Emb. +20% = 1768 cu. yds.

Conc. Steps.				
Item No.	Sta.	Rt. or Lt.	L	Conc. (1.6%) CU YDS.
17-5	337+50	Lt.	4' 1"	0.5

For details see sheet No. 56



Note - Grade of new pav't. is 4" above profile of present pav't. except where shown otherwise

Profile of new pav't.

550' V.C.

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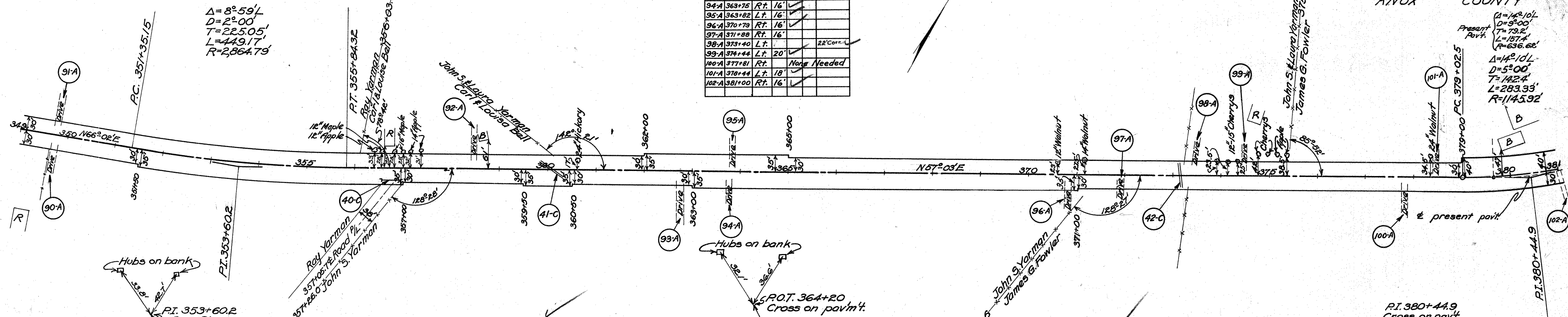
CULVERTS (C)										
Item No.	Station	Removals		Relay		New Work			Details on Sheet No.	
		Type	Size	Type	Size	Type	Size	Lin. Ft.		
40-C	356+76.4	W.S.P. (Enc)	12" x 36"			Rem. C. Pipe	18"	36'	2	58
41-C	360+08	Wing Walls				Std. Conc. Box	3' x 3'	23'	0	58
42-C	373+17.0	Wings-top Hdwls						21'	0	59

PRIVATE DRIVE APPROACHES (A)					
Item No.	Station	Rt. or Lt.	New Corr. I.P.	Relay	10"
90-A	349+71	Rt.	16'		
91-A	349+71	Lt.	16'		
92-A	358+44	Lt.	18'		
93-A	362+75	Rt.	16'		
94-A	363+75	Rt.	16'		
95-A	363+82	Lt.	16'		
96-A	370+78	Rt.	16'		
97-A	371+88	Rt.	16'		
98-A	373+40	Lt.		22' Corr.	
99-A	374+44	Lt.	20'		
100-A	377+81	Rt.		None Needed	
101-A	378+44	Lt.	18'		
102-A	381+00	Rt.	16'		

FED. AID DIST. NO. 10 STATE OHIO FED. AID PROJECT YEAR FISCAL YEAR 73  
 S.H. 24 SECS. H, K, M. KNOX COUNTY

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73

$\Delta = 8^{\circ}59'$   
 $D = 2^{\circ}00'$   
 $T = 225.05'$   
 $L = 449.17'$   
 $R = 2,864.79'$



LOOSE STONE FOR APPROACHES		
Station	Rt. or Lt.	Cu. Yds.
357+06.7	Rt.	5
378+73	Lt.	5

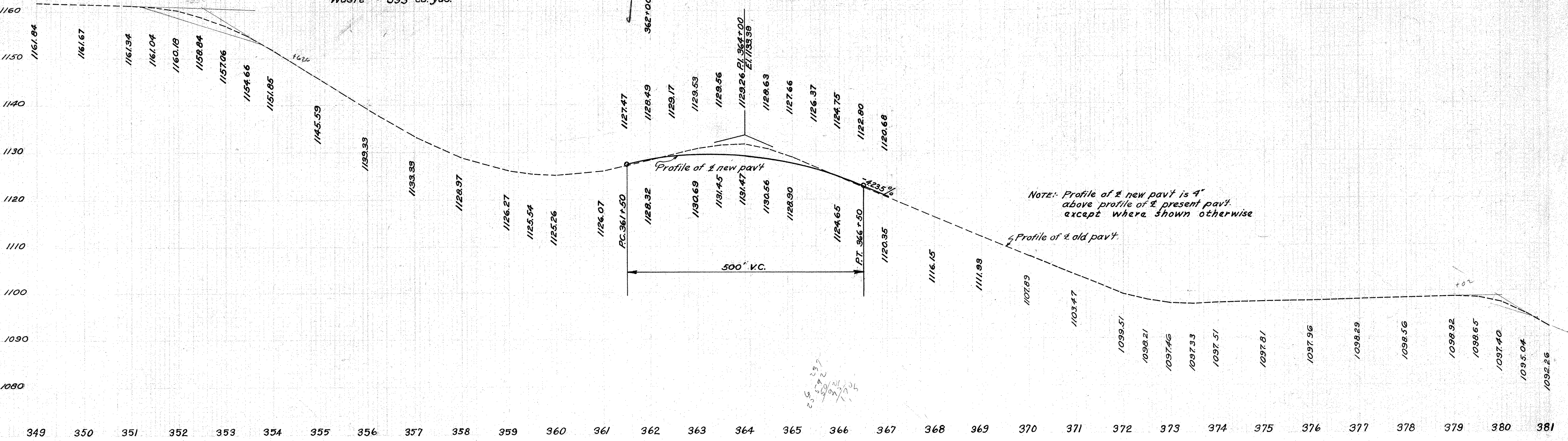
**PAVEMENT REMOVAL**  
 Note - Sta. 361+50 to 366+50 Remove 888.8 sq. yds. of old pavt.  
 Sta. 379+00 to 381+50 Remove 72.2 sq. yds. of old pavt.

B.M. Cross on S. hdwl. of side Rd. culv. 356+60 Elev. 1136.05

B.M. Cross on W. hdwl. of culv. 373+17 Elev. 1089.36

Exc. = 2042 cu. yds.  
 Emb. +20% = 164.9 cu. yds.  
 Waste = 39.3 cu. yds.

Exc. = 2065 cu. yds.  
 Emb. +20% = 2065 cu. yds.



NOTE: Profile of new pavt is 4" above profile of old pavt except where shown otherwise

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1

PRIVATE DRIVE APPROACHES (A)

Item No.	Station	Rt. or Lt.	New Corr. I.P.	Relay	FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
103A	383+85 386+30	Lt.	To Remain	24"	10	OHIO	S.H. 24	DECS. H.K.#1 M KNOX COUNTY

PLACING SIDE UNDER DRAINS (D)

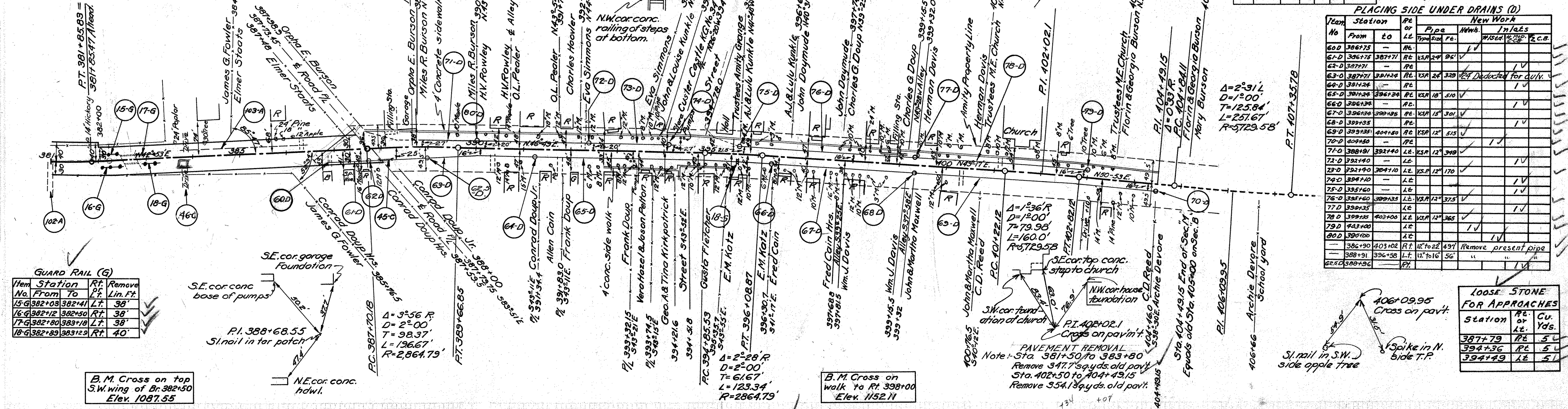
Item No.	Station	PE or LT	Pipe	Notes	Inlets	2.C.B.
60-D	386+75	—	PE		✓	
61-D	386+78	387+71	RE	15" 24" 96"	✓	
62-D	387+71	—	PE		✓	
63-D	387+71	388+48	RE	15" 24" 339"	PE Deducted for culv.	
64-D	388+24	—	PE		✓	
65-D	388+28	388+34	RE	15" 18" 510"	✓	
66-D	388+34	—	RE		✓	
67-D	388+34	389+38	PE	15" 18" 301"	✓	
68-D	389+38	—	PE		✓	
69-D	389+38	404+80	RE	12" 12" 515"	✓	
70-D	404+80	—	PE		✓	
71-D	388+81	389+40	LT	15" 12" 340"	✓	
72-D	389+40	—	LT		✓	
73-D	389+40	389+70	LT	15" 12" 170"	✓	
74-D	389+70	—	LT		✓	
75-D	389+70	—	LT		✓	
76-D	389+70	389+83	LT	15" 12" 375"	✓	
77-D	389+83	—	LT		✓	
78-D	389+83	403+00	LT	15" 12" 365"	✓	
79-D	403+00	—	LT		✓	
80-D	389+80	—	LT		✓	
—	386+90	403+02	RT	12" to 22" 497"	Remove present pipe	
—	388+91	396+58	LT	12" to 16" 56"	"	
62.5-D	388+90	—	PE		✓	

LOOSE STONE FOR APPROACHES

Station	PE or LT	Cu. Yds.
387+79	PE	5
394+36	PE	5
394+49	LT	5

CULVERTS (C)

Item No.	Station	Removals		New Work		Details on Sheet No.
		Type	Size	Type	Size	
45-C	388+10 RT	Hdw's	V.S.P. 24"	Reinf. C. Pipe	24"	59
46-C	383+80 RT			Slab Top	8' span	56



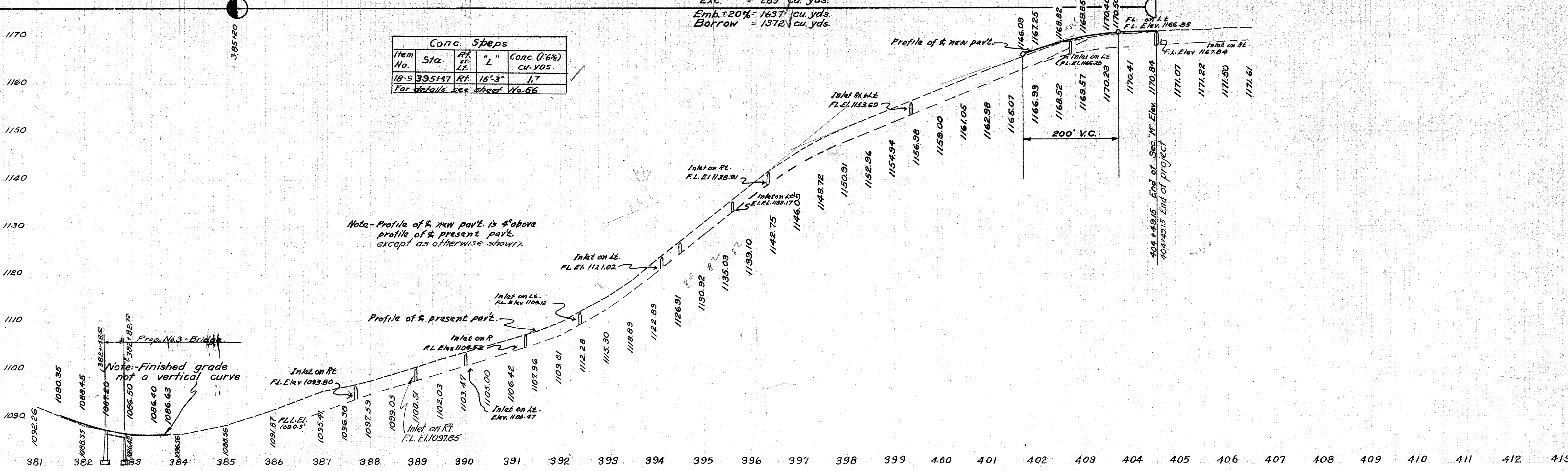
GUARD RAIL (G)

Item No.	Station	Rt. or Lt.	Remove
15-G	382+03	LT	38'
16-G	382+12	LT	38'
17-G	382+80	LT	38'
18-G	382+89	LT	40'

Conc. Steps

Item No.	Sta.	Rt. or Lt.	" L "	Conc. (1.6%)	Cu. Yds.
18-S	395+47	RT	15' 3"	1.7	

For details see sheet No. 56



Note - Profile of the new pavt. is 4' above profile of the present pavt. except as otherwise shown.

Note - Finished grade not a vertical curve

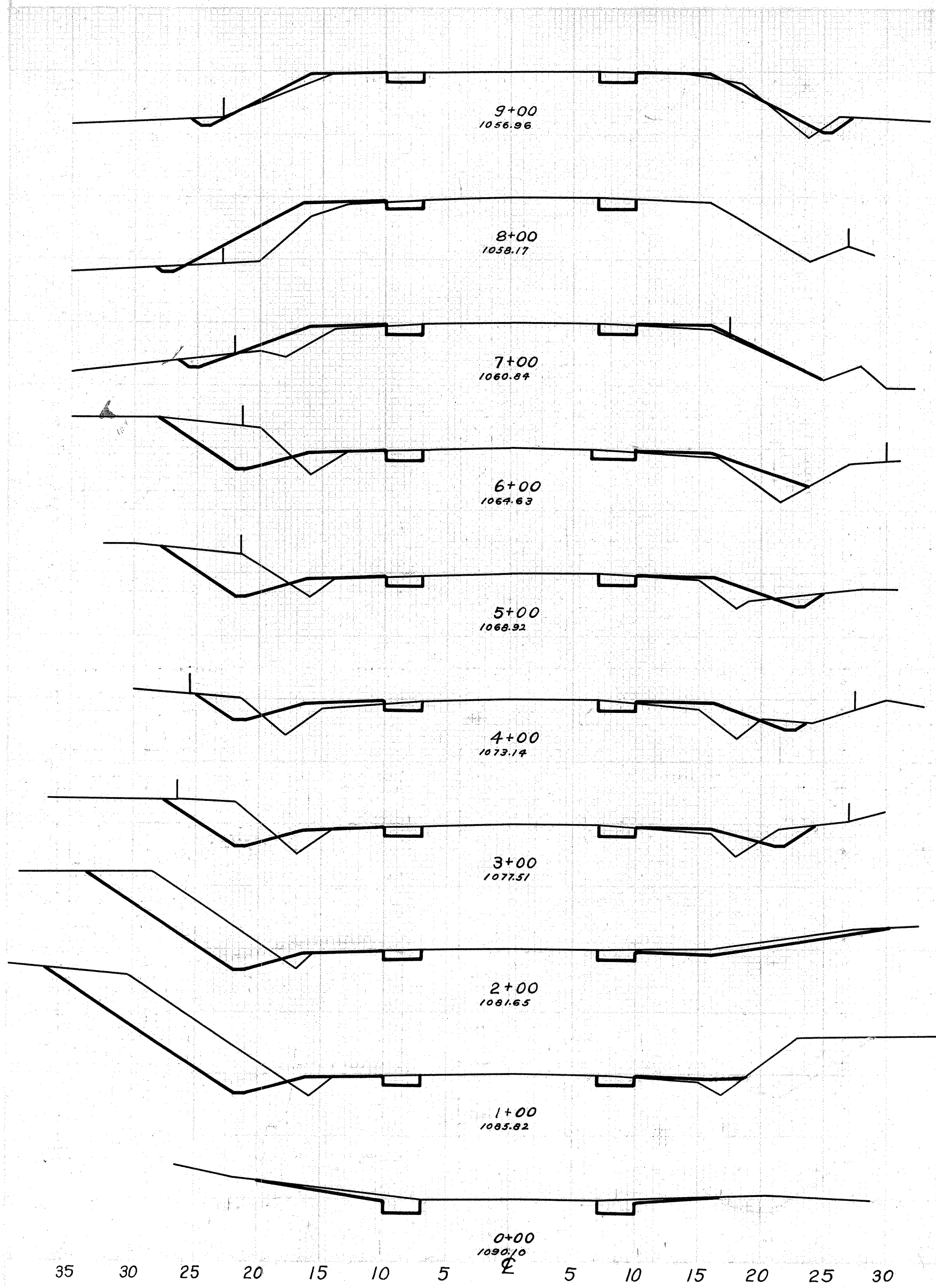




Fed Aid Dist No	STATE	Fed Aid Project	Fiscal Year
	OHIO		

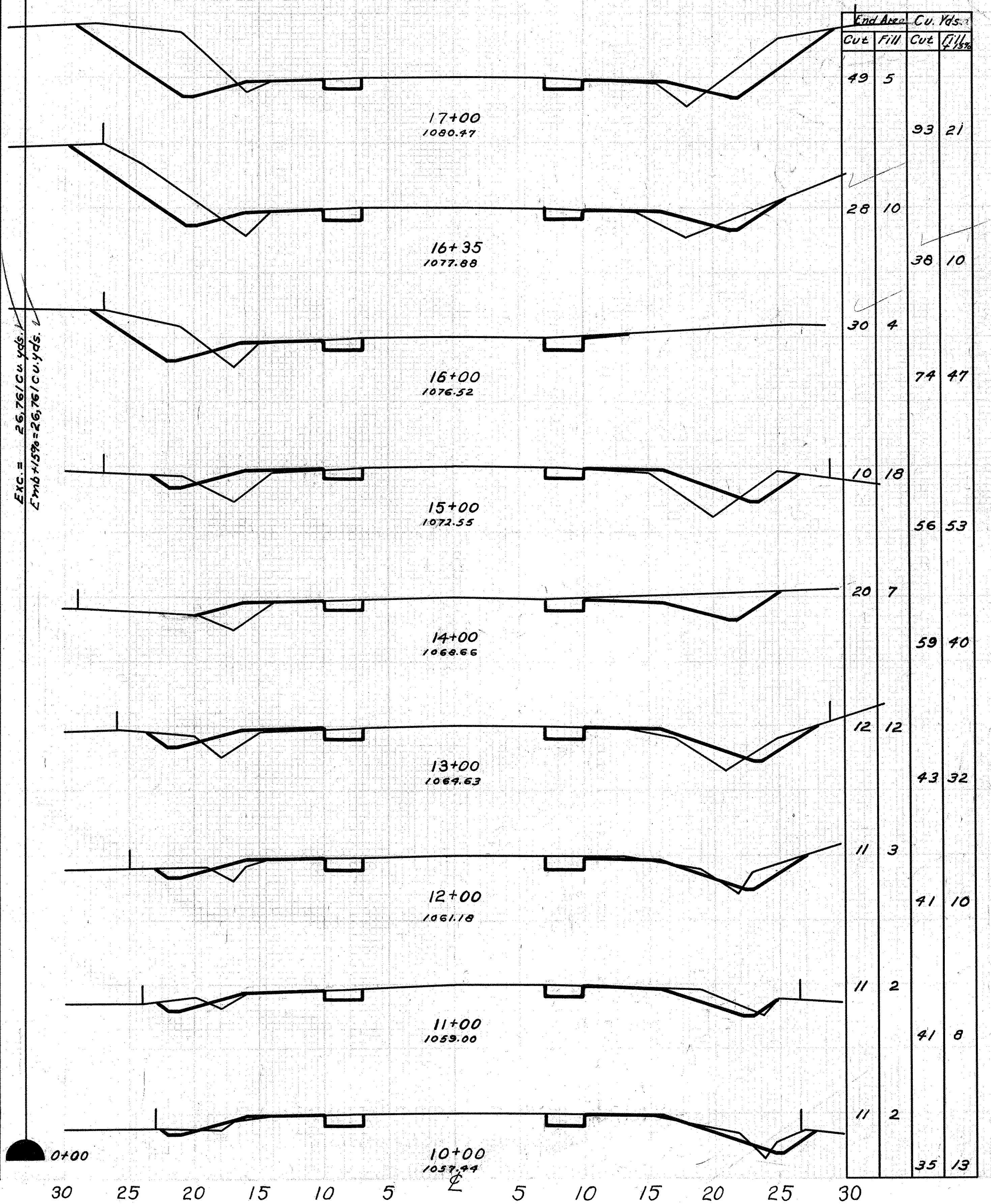
17/73

S.H.(C.H.) 24 SEC.H.K&M KNOX COUNTY



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
8	4	26	49
6	19	22	60
6	9	56	47
24	13	89	49
24	10	63	53
10	15	65	51
25	9	135	23
48	2	243	20
83	7	165	15
6	0	0	0

Exc. = 26.76/cu. yds.  
Emb. 15% = 26.76/cu. yds.

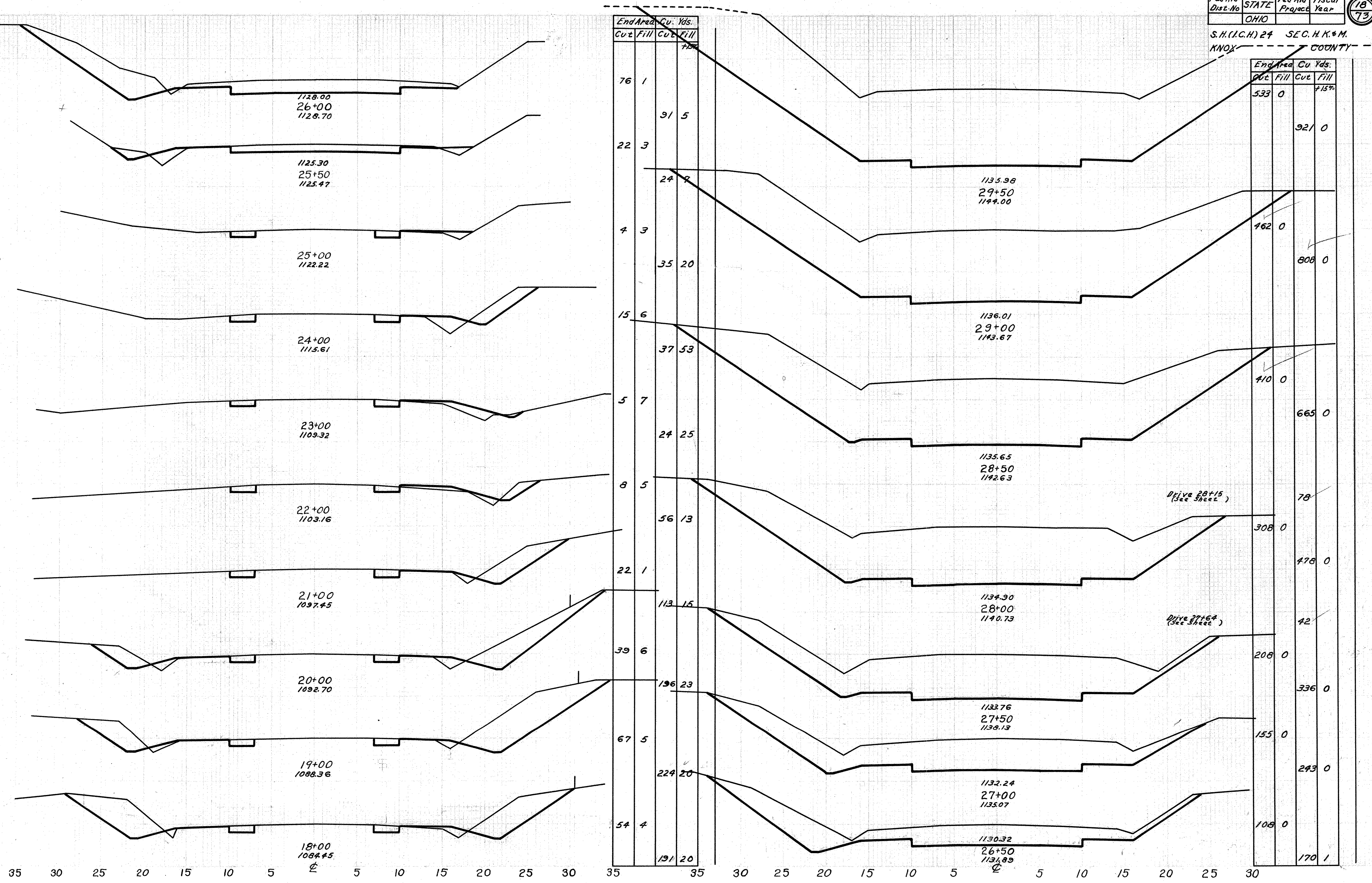


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
49	5	93	21
28	10	38	10
30	4	74	47
10	18	56	53
20	7	59	40
12	12	43	32
11	3	41	10
11	2	41	8
11	2	35	13

35 30 25 20 15 10 5 5 10 15 20 25 30

30 25 20 15 10 5 5 10 15 20 25 30

S.H.(I.C.H.) 24 SEC. H.K.\*M.  
KNOX COUNTY



Sta.	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
26+00	76	1	91	5
25+50	22	3	24	7
25+00	4	3	35	20
24+00	15	6	37	53
23+00	5	7	24	25
22+00	8	5	56	13
21+00	22	1	113	15
20+00	39	6	196	23
19+00	67	5	224	20
18+00	54	4	191	20

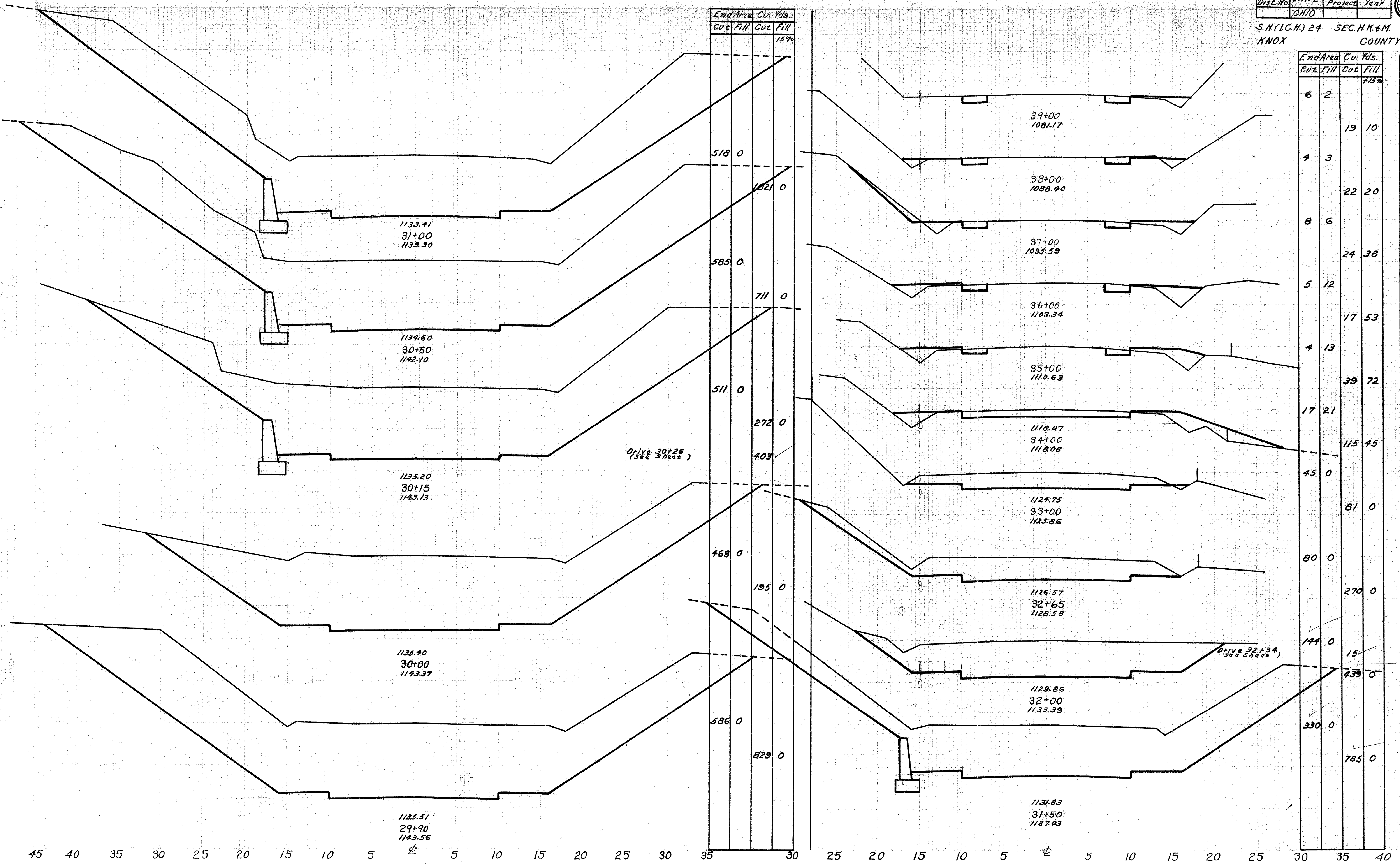
Sta.	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
26+00	533	0	921	0
25+00	462	0	808	0
24+00	410	0	665	0
23+00	308	0	78	0
22+00	478	0	42	0
21+00	208	0	336	0
20+00	155	0	243	0
19+00	108	0	170	1

Drive 28+15  
(See Sheet)

Drive 27+54  
(See Sheet)

35 30 25 20 15 10 5 5 10 15 20 25 30 35 35 30 25 20 15 10 5 5 10 15 20 25 30

S.H.(I.C.H.) 24 SEC.H.K. & M.  
KNOX COUNTY



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
			15%
518	0	1021	0
585	0	711	0
511	0	272	0
		403	
468	0	195	0
586	0	829	0

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
			15%
6	2	19	10
4	3	22	20
8	6	24	38
5	12	17	53
4	13	39	72
17	21	115	45
45	0	81	0
80	0	270	0
144	0	15	
		439	0
330	0	785	0

1133.41  
31+00  
1139.90

1134.60  
30+50  
1142.10

1135.20  
30+15  
1143.13

1135.40  
30+00  
1143.37

1135.51  
29+90  
1143.56

Drive 30+26  
(see sheet)

Drive 32+34  
(see sheet)

39+00  
1081.17

38+00  
1088.40

37+00  
1095.59

36+00  
1103.34

35+00  
1110.63

1118.07  
34+00  
1118.08

1124.75  
33+00  
1125.86

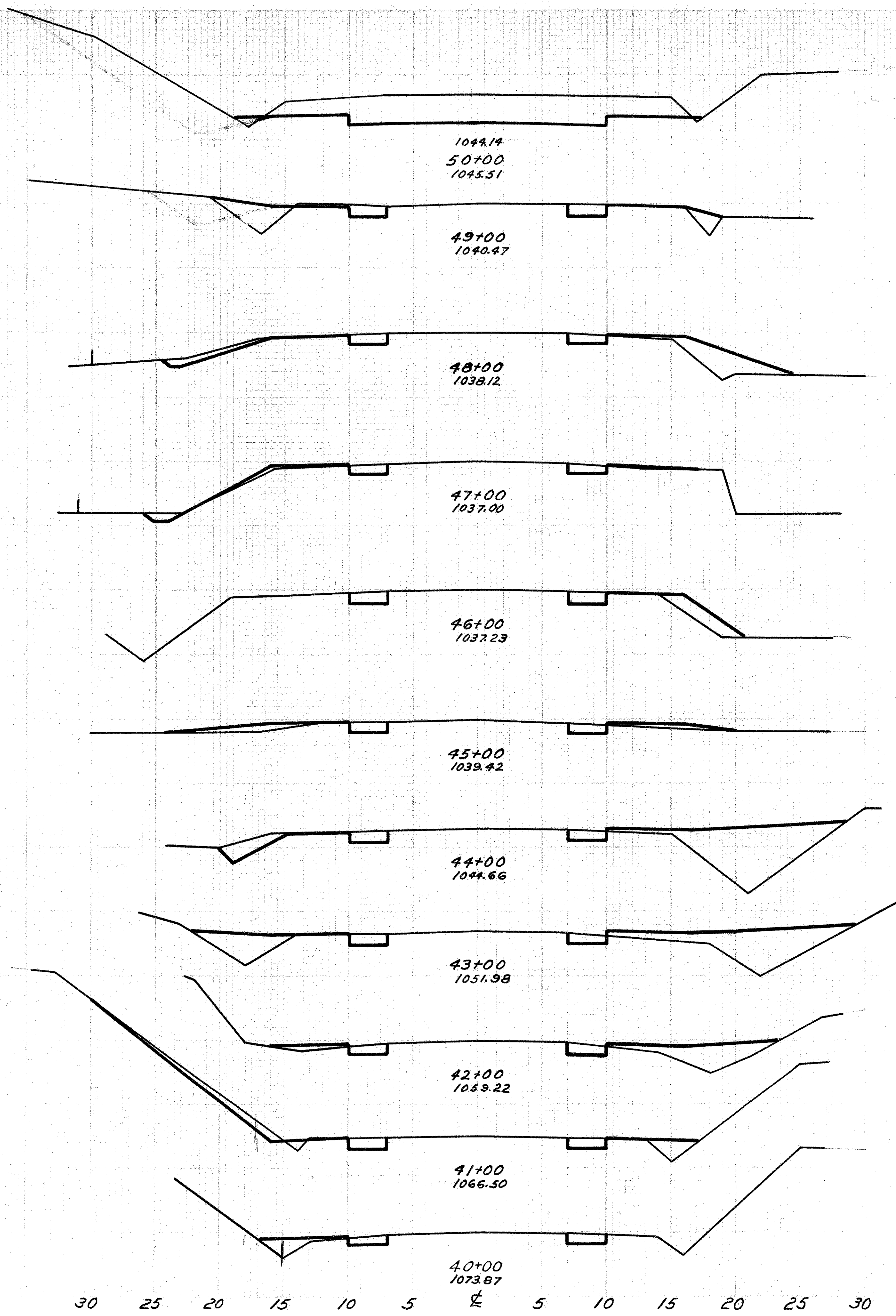
1126.57  
32+65  
1128.58

1129.86  
32+00  
1133.39

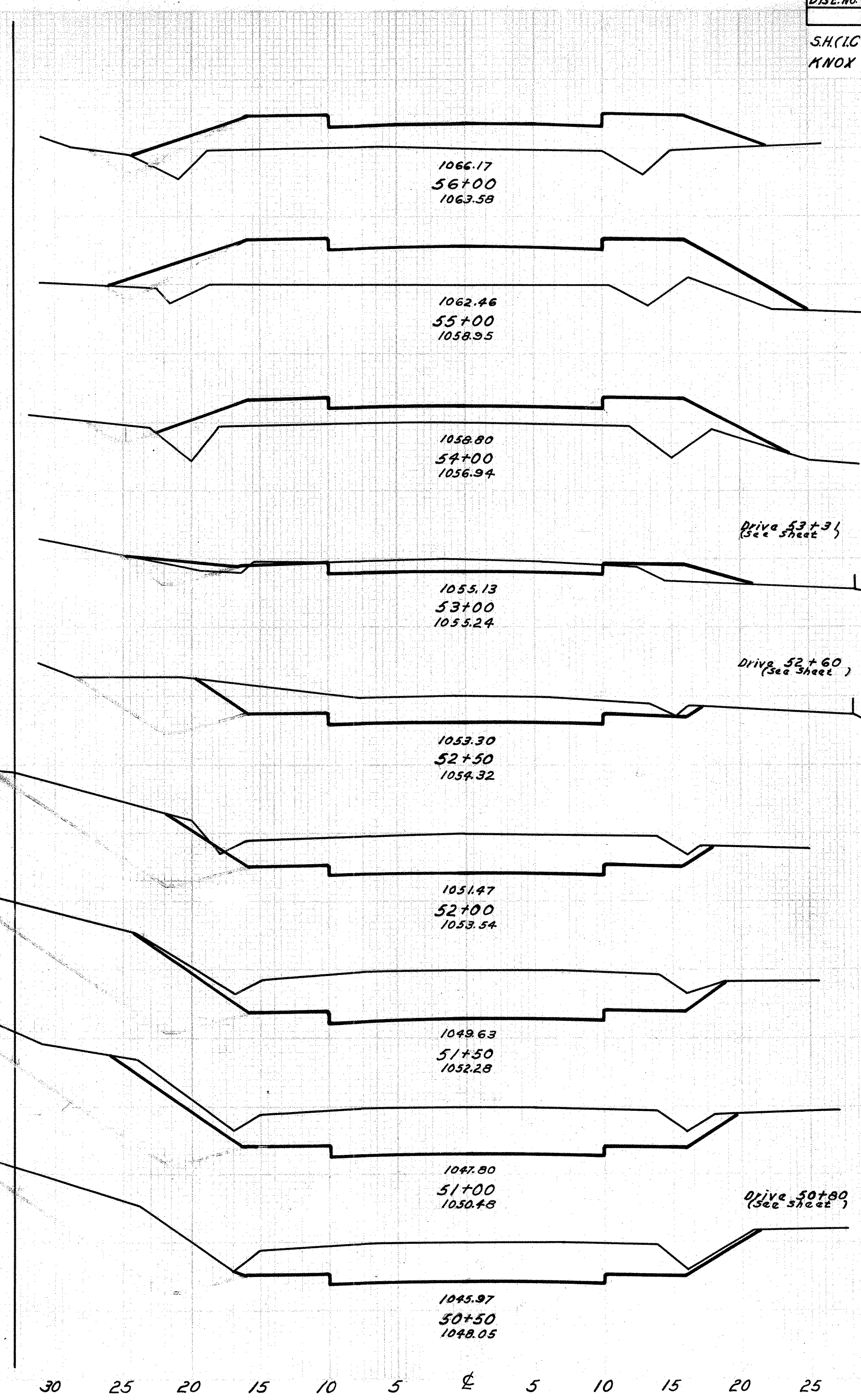
1131.83  
31+50  
1137.03

45 40 35 30 25 20 15 10 5 5 10 15 20 25 30 35 30 25 20 15 10 5 5 10 15 20 25 30 35 40

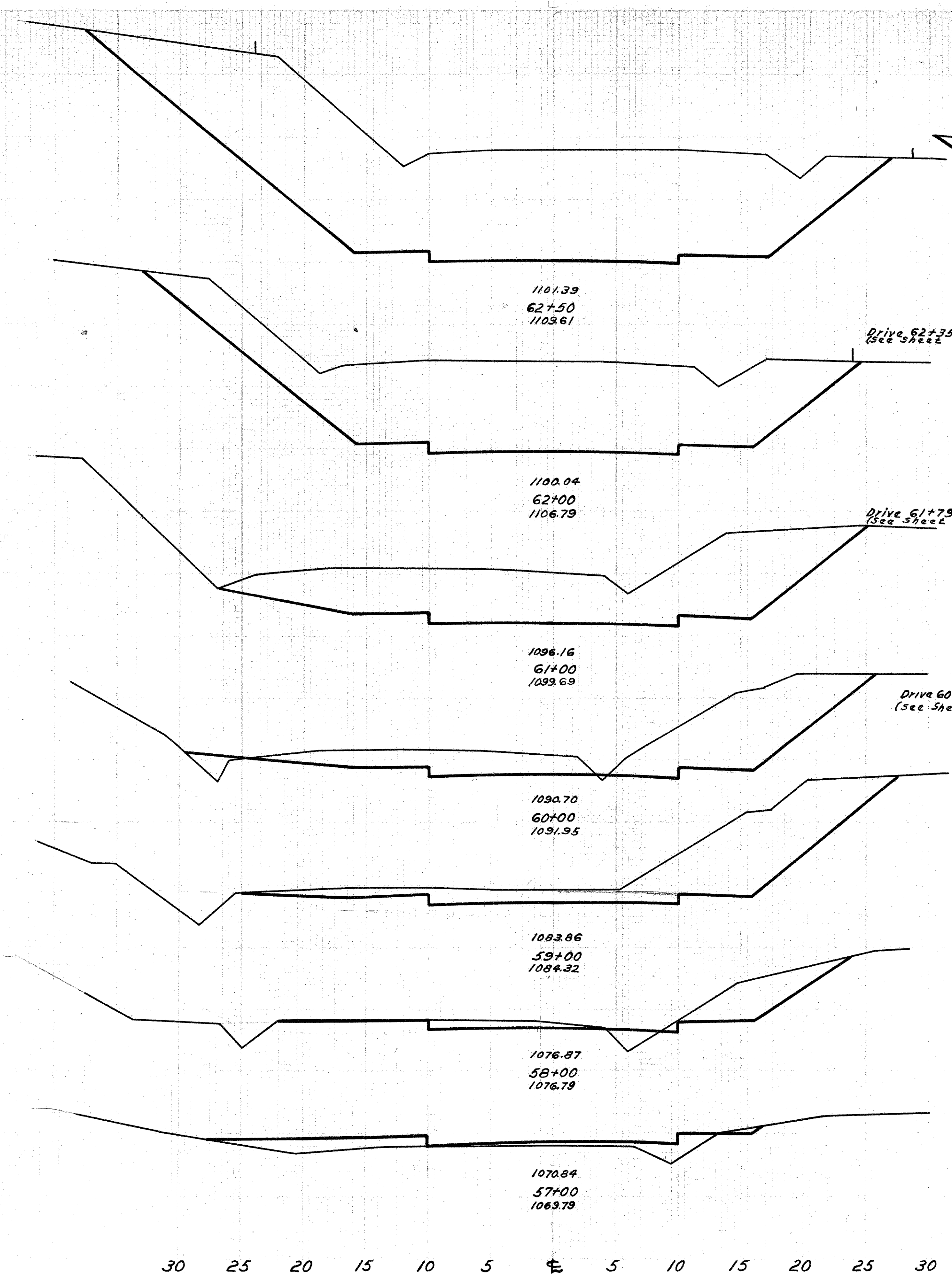
S.H.(I.C.H.)24 SEC. H.K.&M.  
KNOX COUNTY



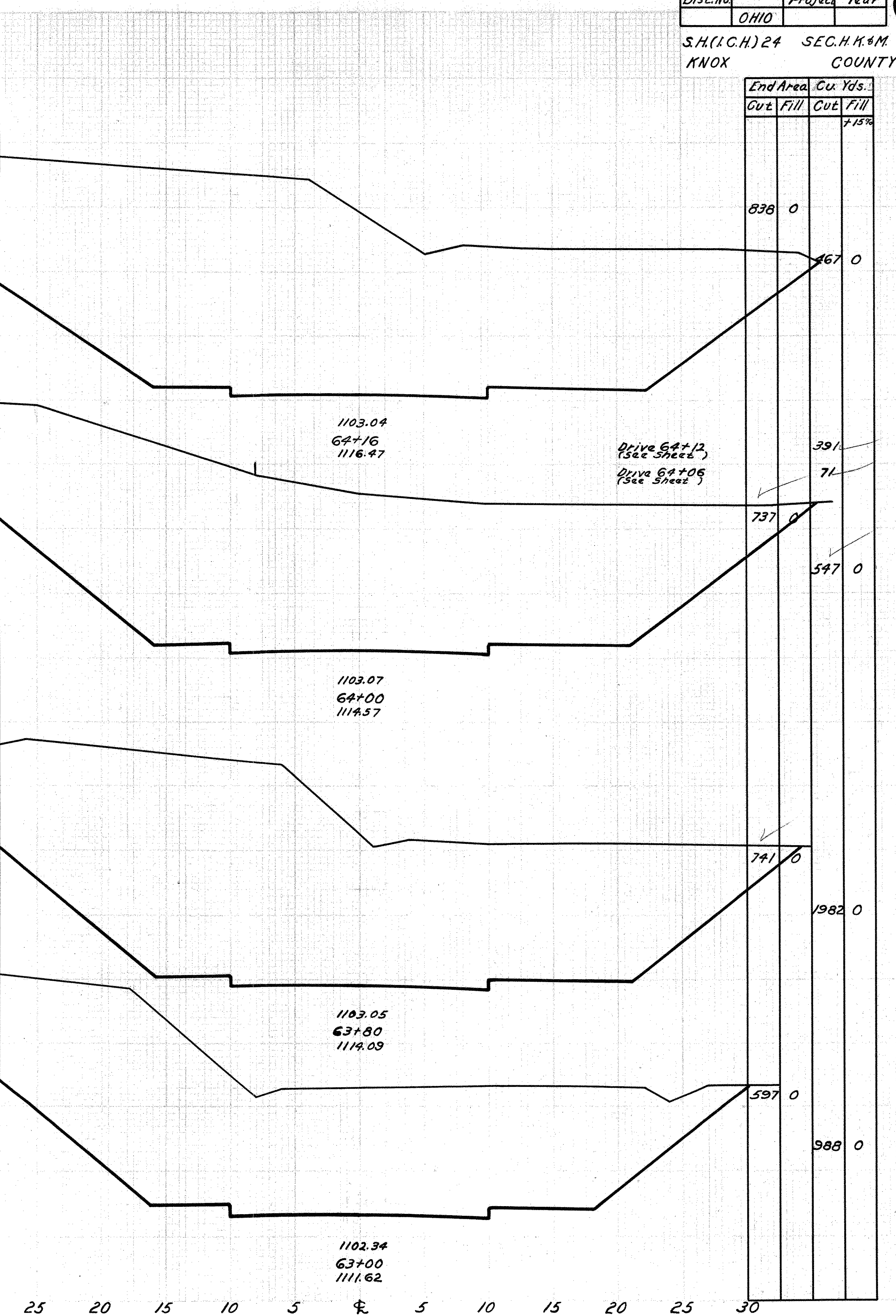
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
61	1	124	25
6	11	19	49
4	12	15	37
4	5	14	27
4	8	15	28
4	5	15	64
4	25	15	87
4	16	15	55
4	10	24	32
9	5	24	25
4	7	19	20



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	93	0	475
0	130	0	426
0	70	26	107
18	10	10	10
69	10	56	0
129	0	83	0
176	0	107	0
201	0	110	0
226	0	144	0
7	189	1	189



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
470	0	724	0
312	0	40	0
197	0	585	8
117	4	21	0
118	9	435	28
35	8	283	36
1	23	67	65
		2	247



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
838	0	988	0
467	0	391	0
737	0	71	0
597	0	597	0
741	0	1982	0

Drive 62+35  
(See Sheet)

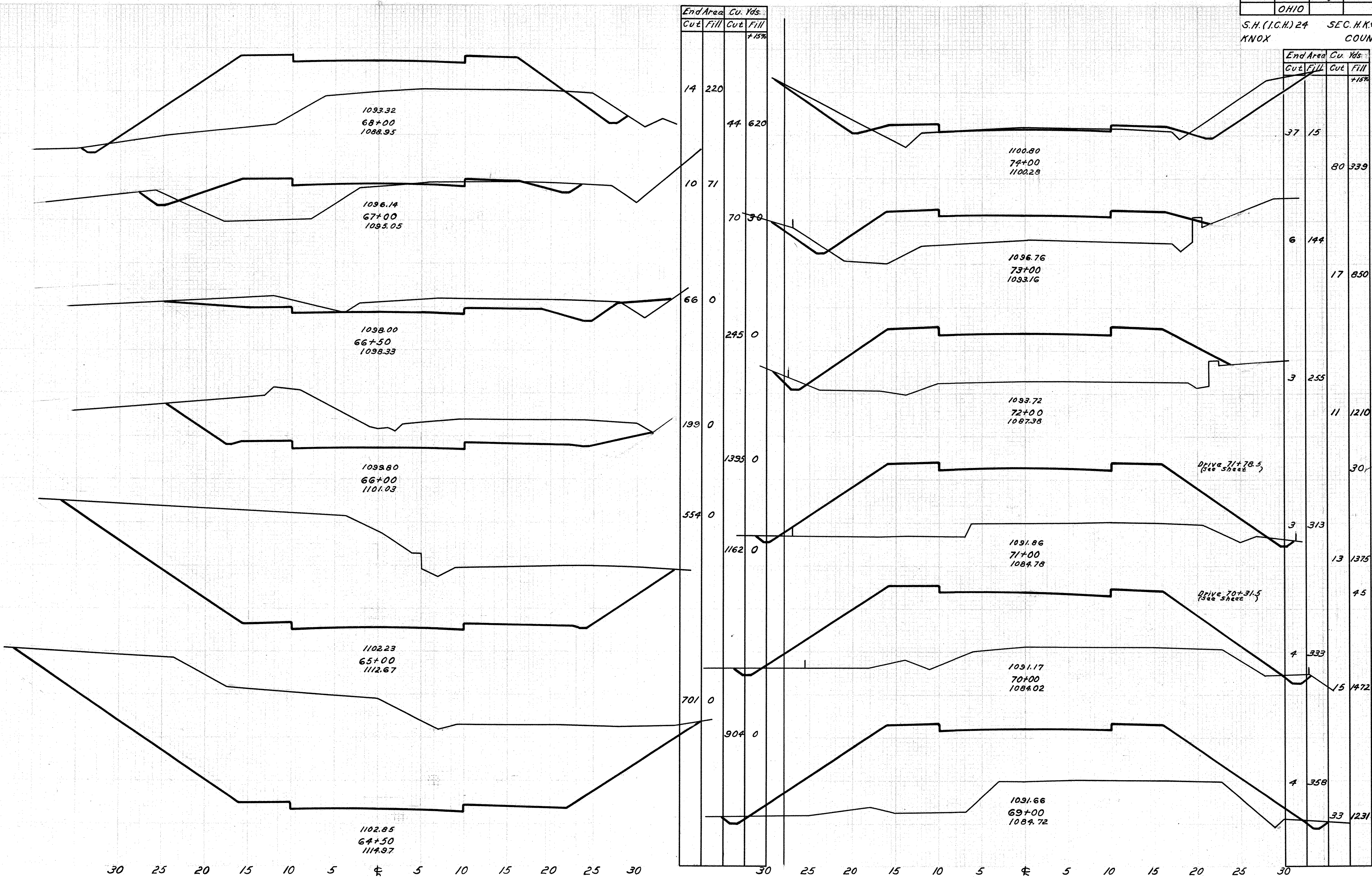
Drive 61+79  
(See Sheet)

Drive 60+67  
(See Sheet)

Drive 64+12  
(See Sheet)

Drive 64+06  
(See Sheet)

S.H. (I.G.H.) 24 SEC. H.K. & M  
KNOX COUNTY



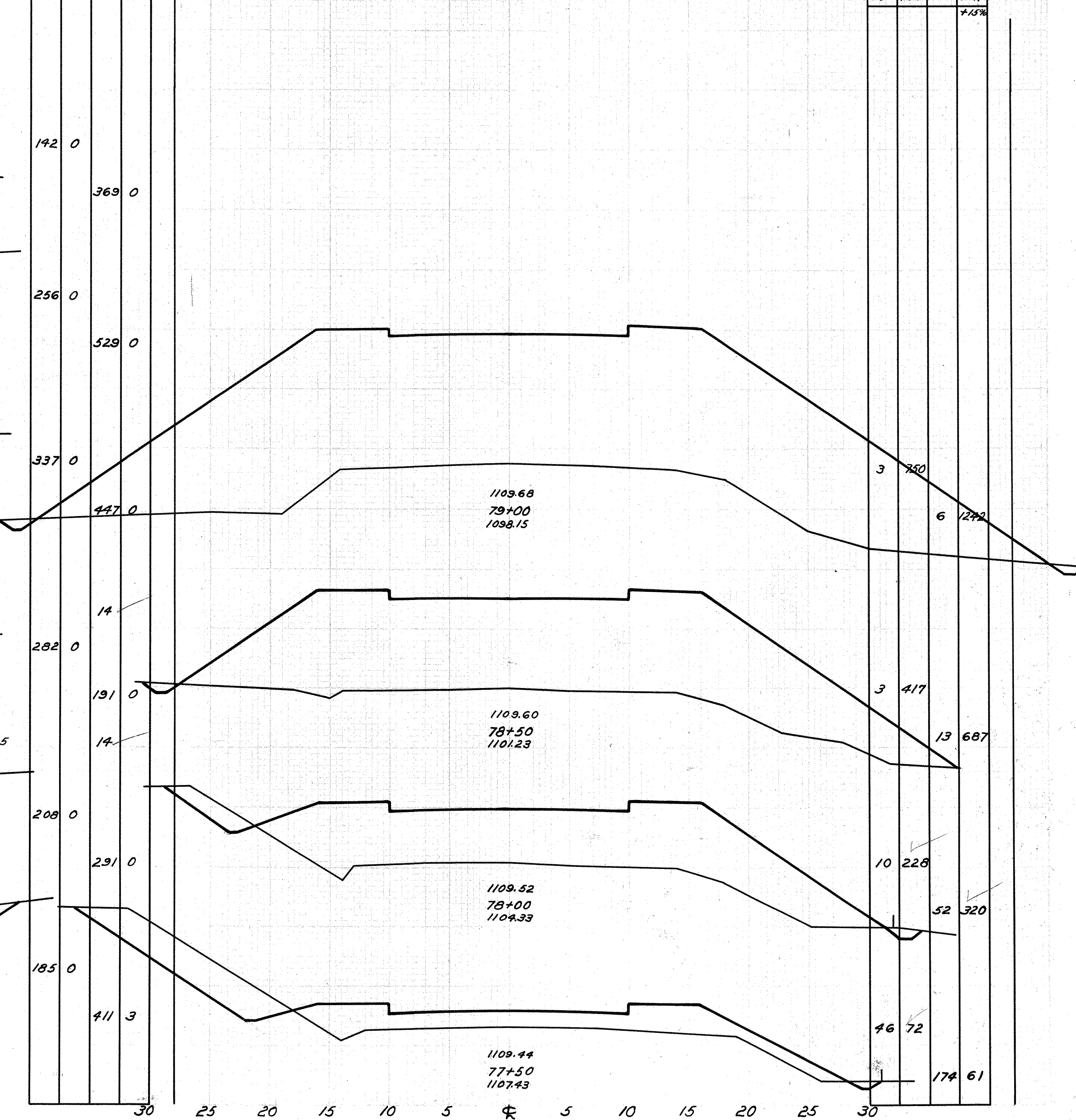
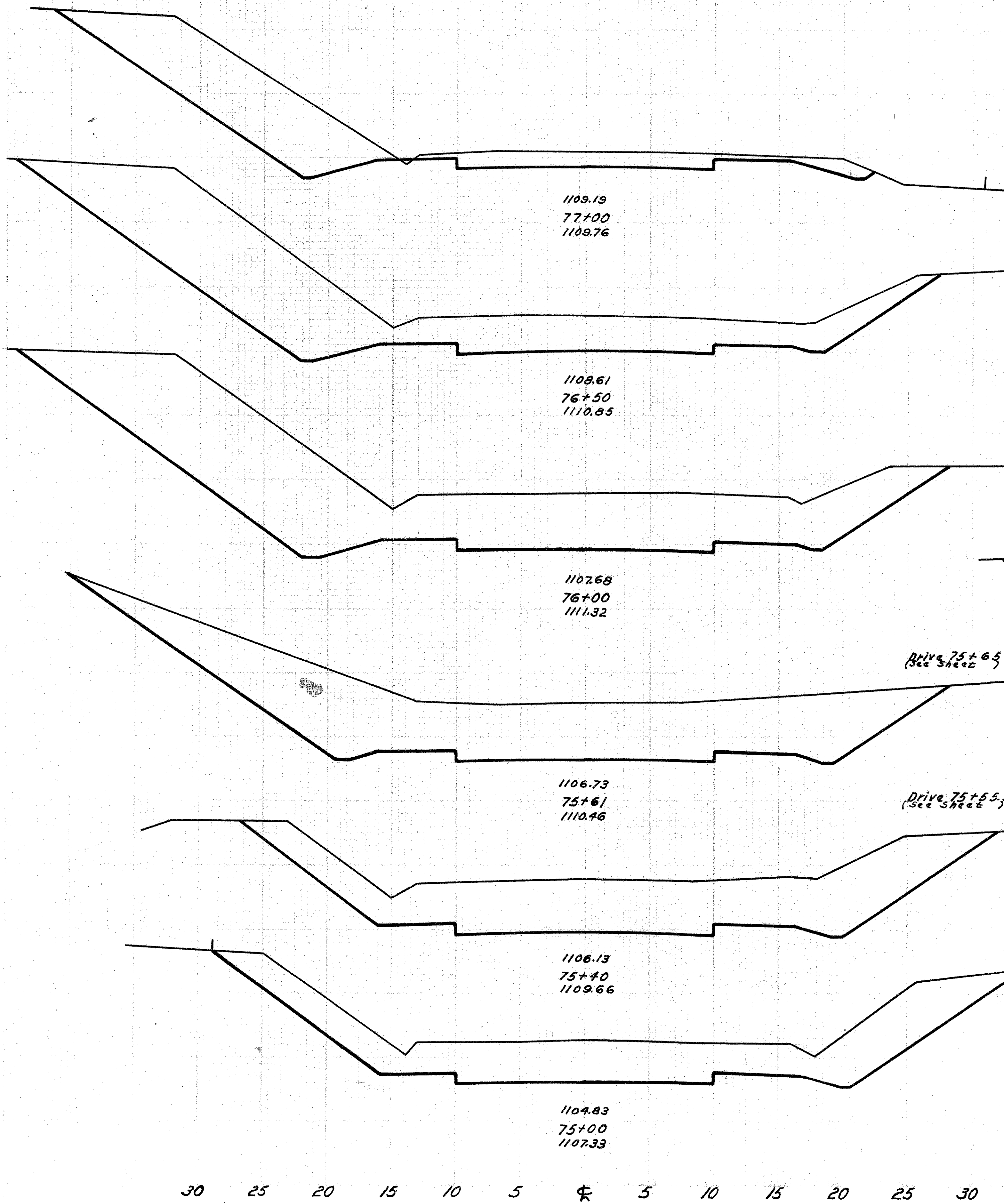
Fed Aid Dist No.	STATE	Fed Aid Project	Fiscal Year
	OHIO		

23  
73

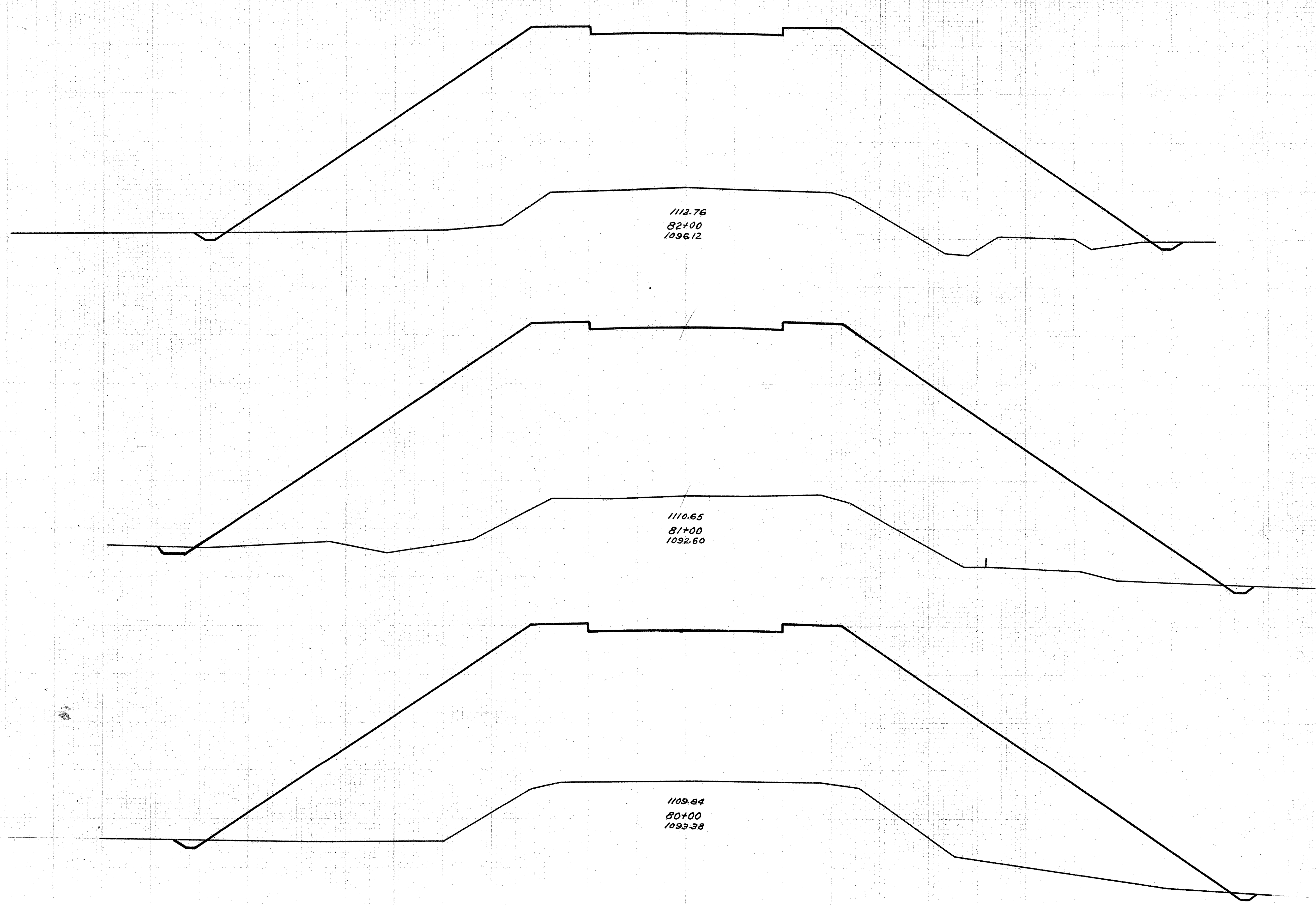
S.H.(I.C.H.)24 SEC. H.K.#M  
KNOX COUNTY

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
			15%
142	0	369	0
256	0	529	0
337	0	447	0
282	0	14	
191	0	14	
208	0	291	0
185	0	411	3

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
			+15%
3	350	6	1272
3	417	13	687
10	228	52	320
46	72	174	61



S.H.(I.C.H.) 24 SEC.H.K.+M  
KNOX COUNTY



30 25 20 15 10 5 0 5 10 15 20 25 30

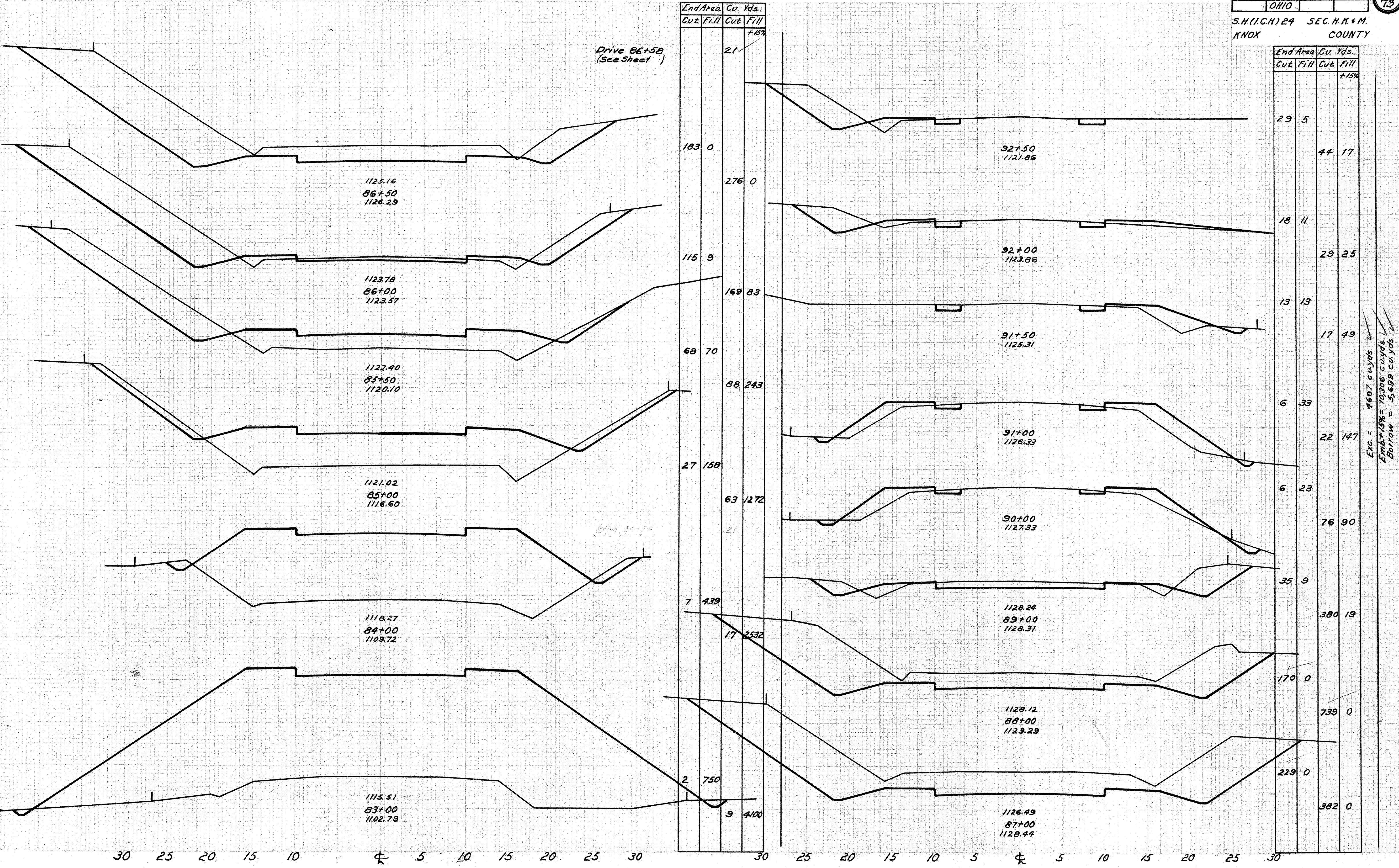
End Area	Cu. Yds.	
	Cut	Fill
3	1175	
2	1106	
11	5452	
9	4376	
3	1385	
		9 5680
2	1282	
		9 4327

81+79.71



S.H.(I.C.H.) 24 SEC. H.K. & M.  
KNOX COUNTY

Drive 86+58  
(See Sheet)

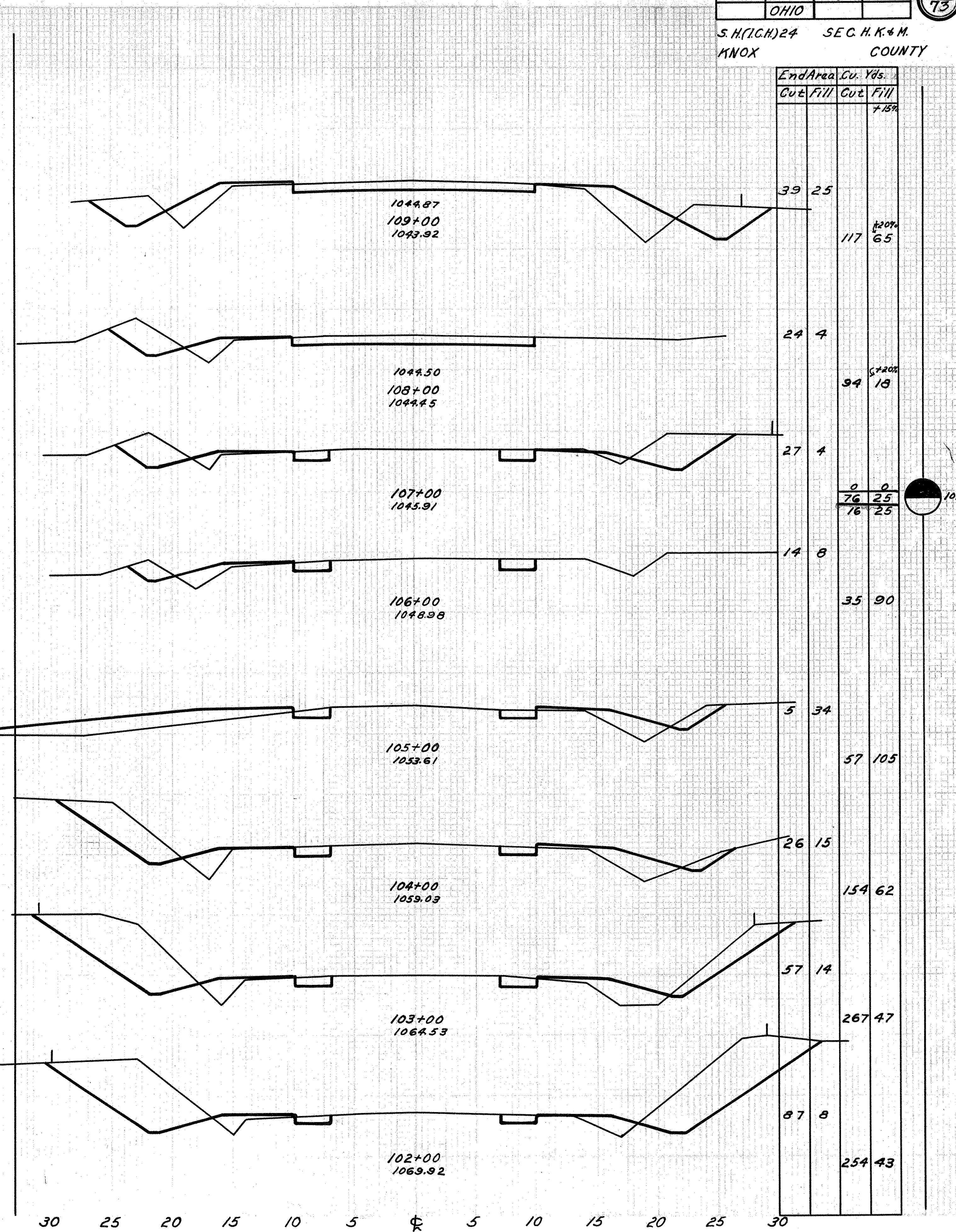
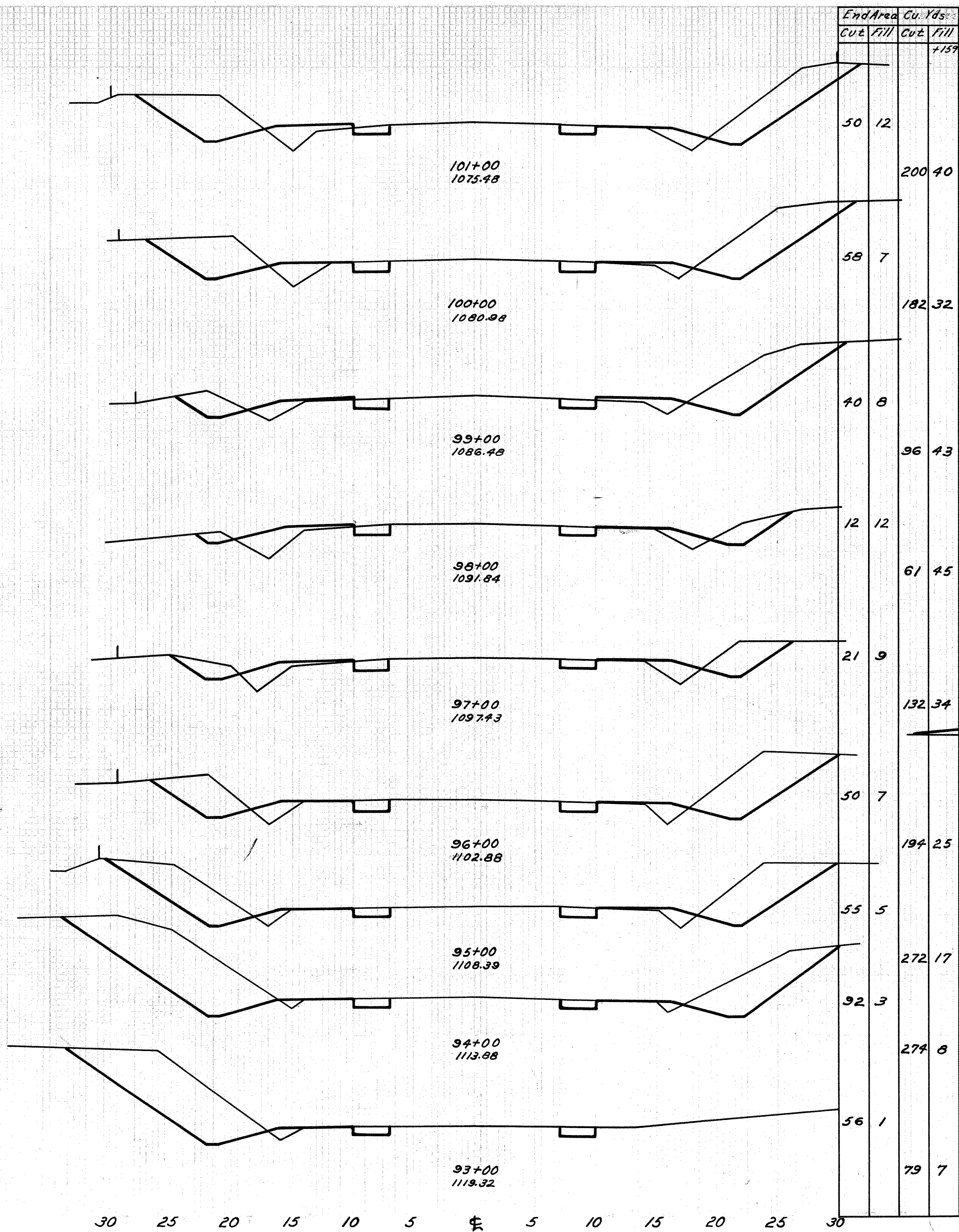


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
			+15%
		21	
183	0		
		276	0
115	9		
		169	83
68	70		
		88	243
27	158		
		63	1272
		21	
7	439		
		17	2532
2	750		
		9	4100

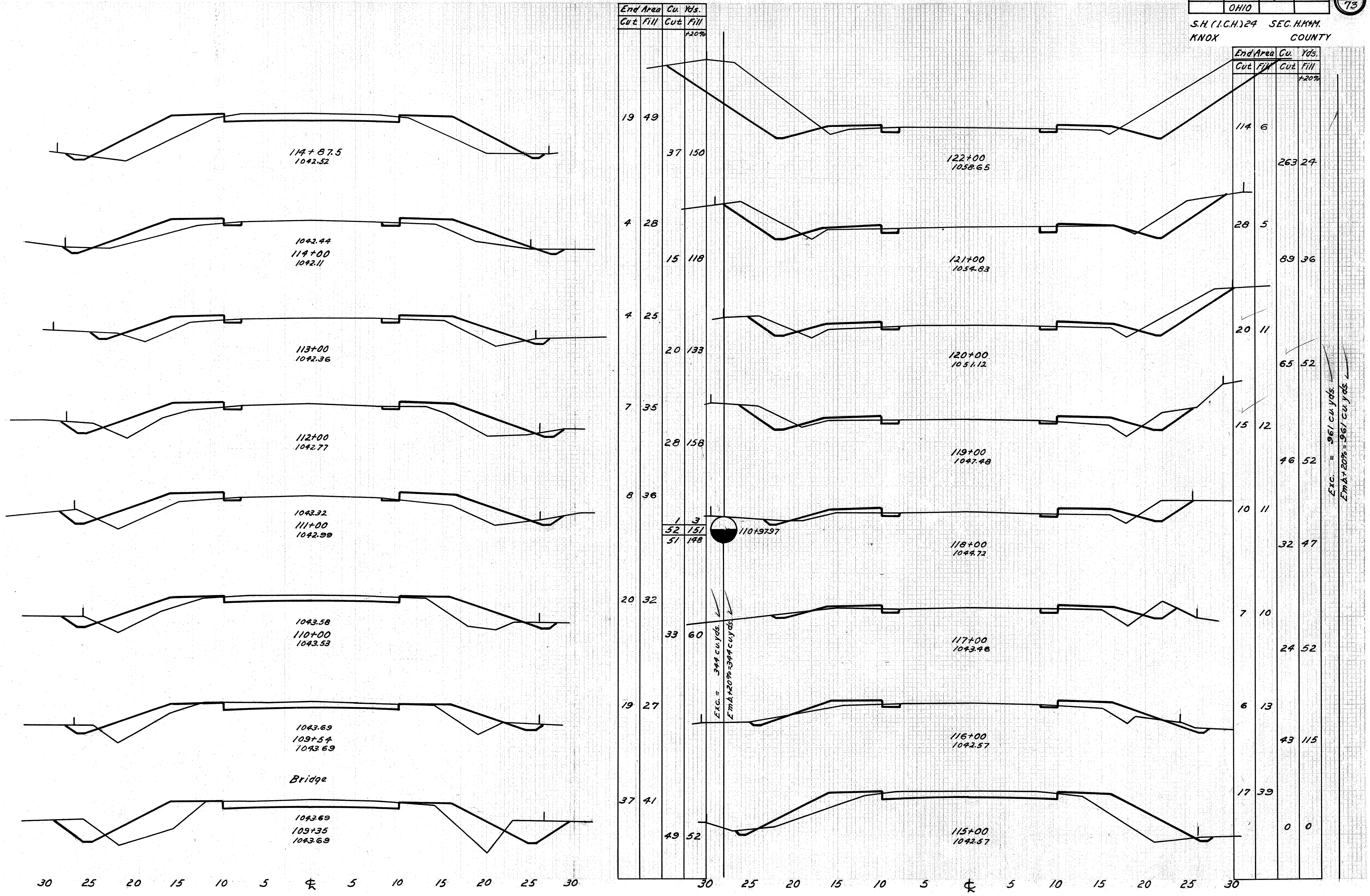
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
			+15%
29	5		
		44	17
18	11		
		29	25
13	13		
		17	49
6	33		
		22	147
6	23		
		76	90
35	9		
		380	19
170	0		
		739	0
229	0		
		382	0

Exc. = 4607 cu yds.  
Emb + 15% = 10,306 cu yds.  
Borrow = 5,699 cu yds.

30 25 20 15 10 5 0 5 10 15 20 25 30



S.H. (I.C.H.) 24 SEC. H.W.M.  
KNOX COUNTY

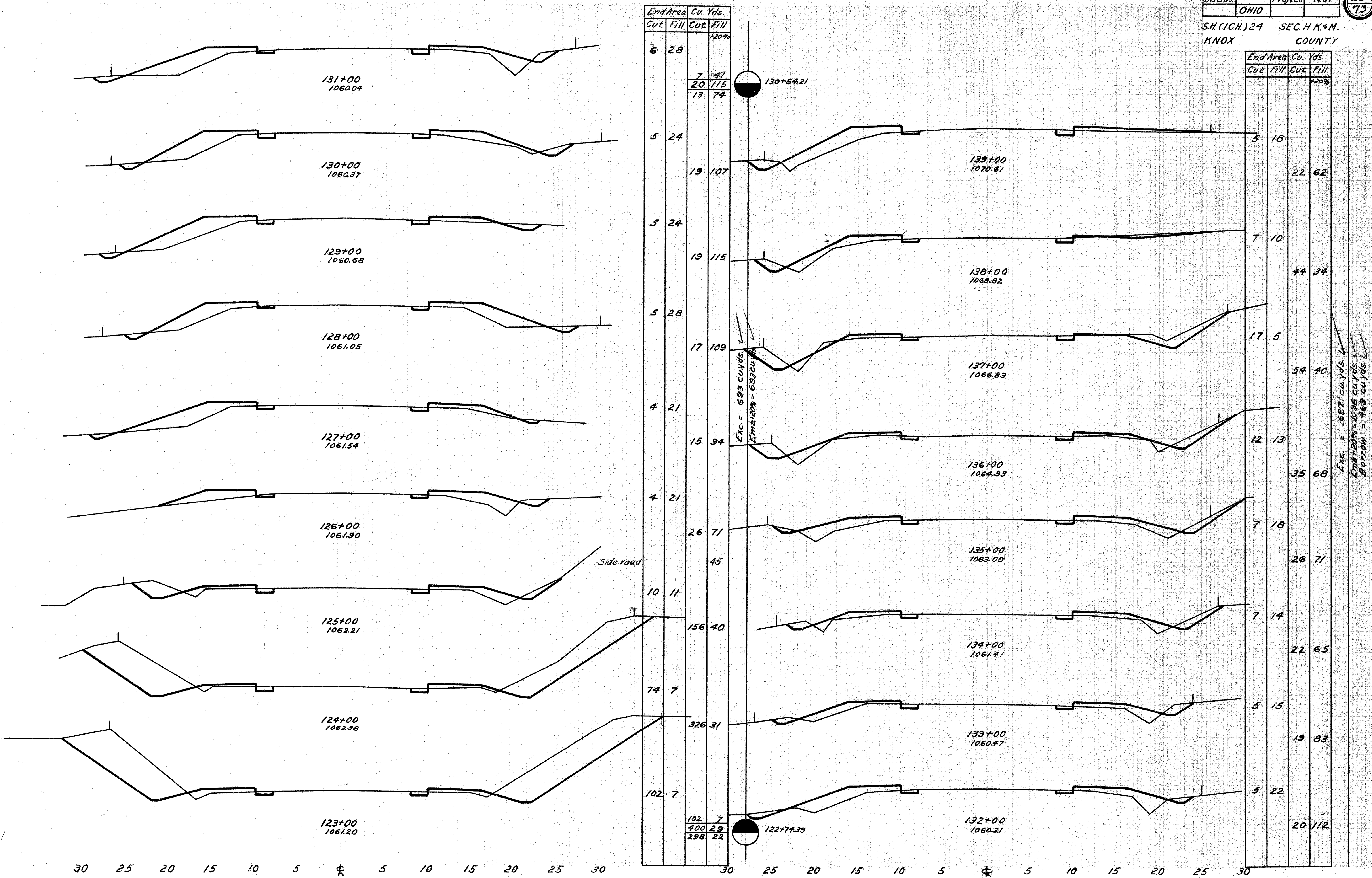


Exc. = 961 cu. yds.  
E.M.A. + 20% = 961 cu. yds.

Bridge

Exc. = 344 cu. yds.  
E.M.A. + 20% = 344 cu. yds.

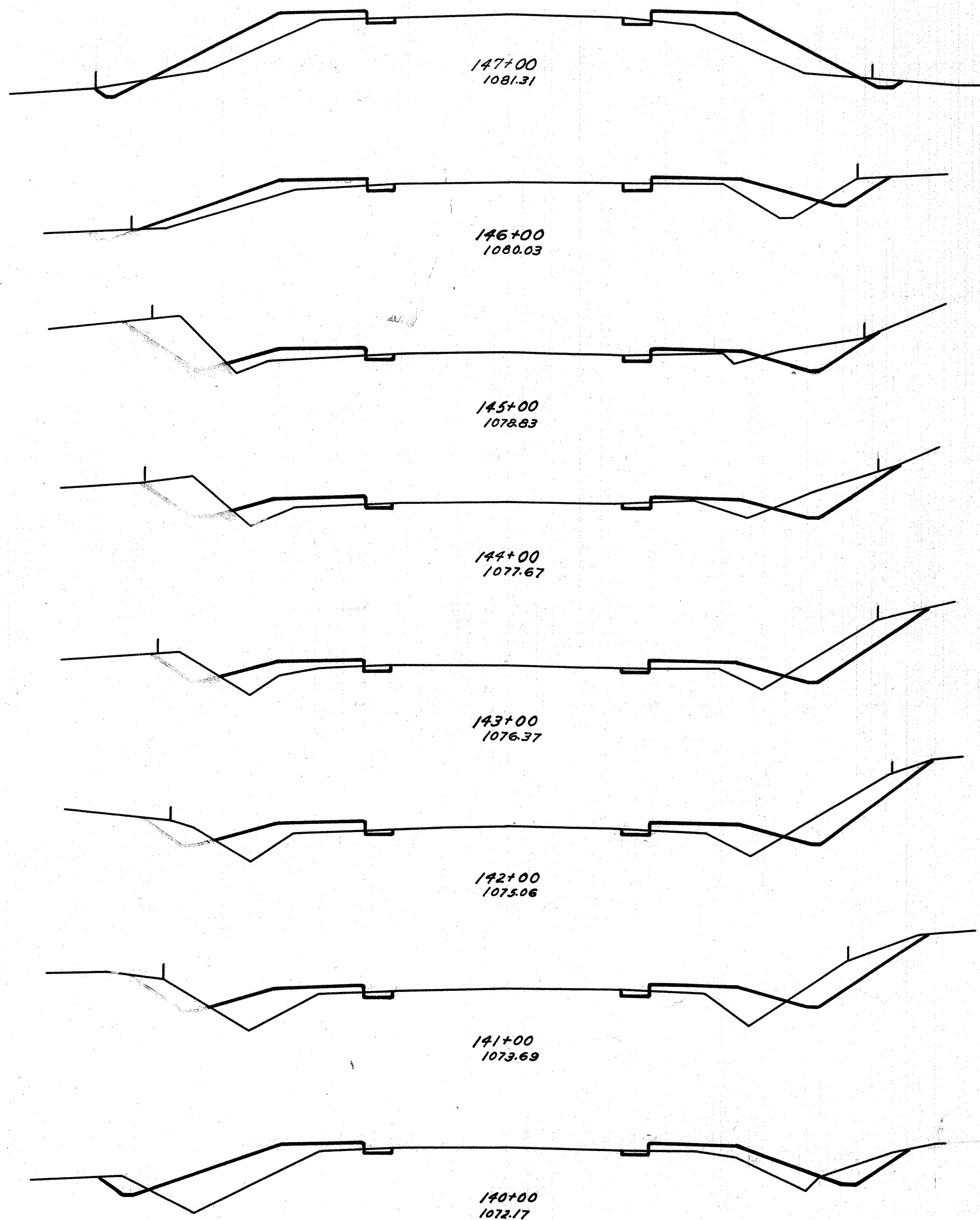
110+97.97



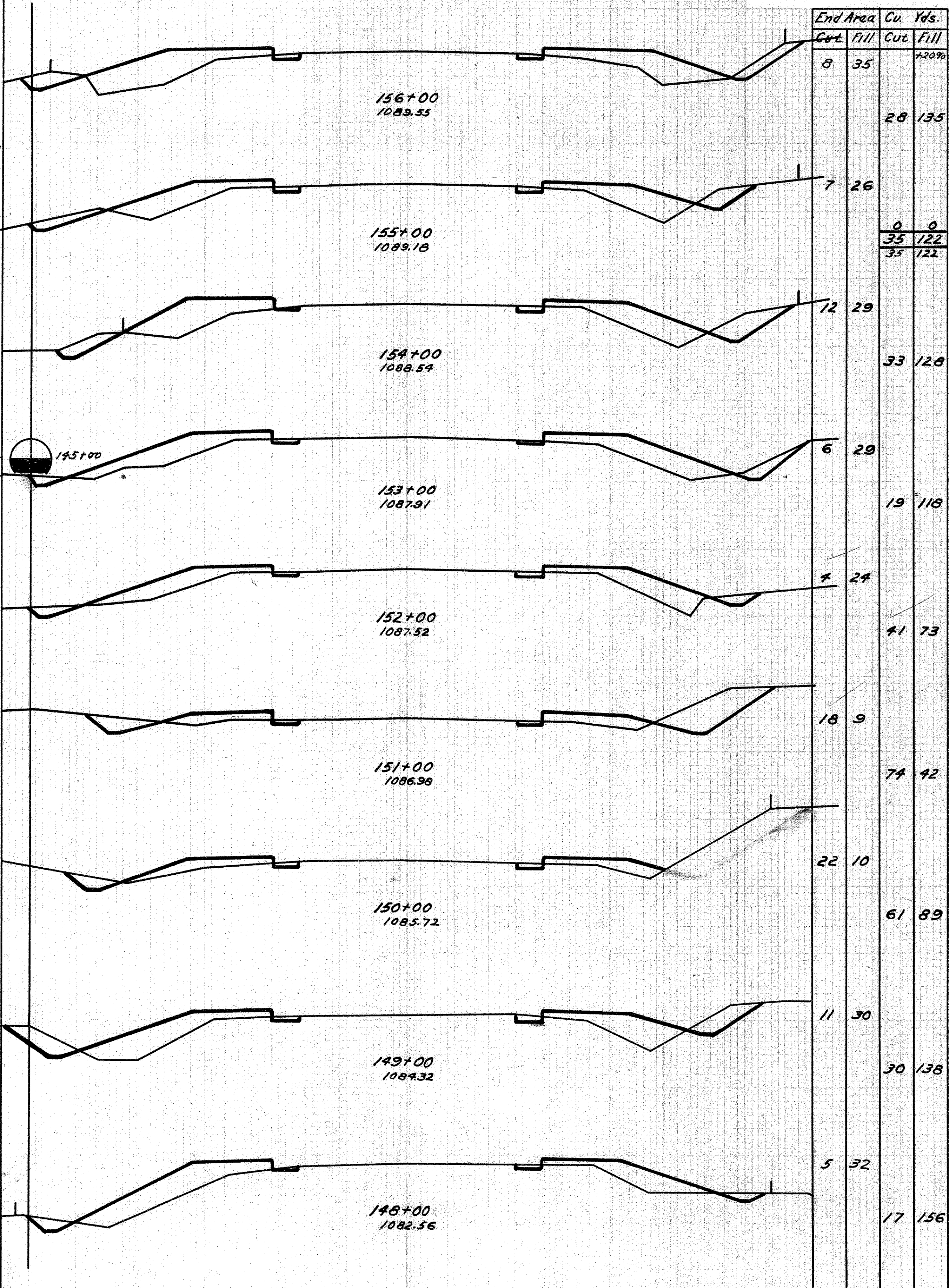
Fed Aid Dist No.	STATE	Fed Aid Project	Fiscal Year
	OHIO		

29  
73

S.H.(I.C.H.)24 SEC. H.K. & M.  
KNOX COUNTY



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
4	38	20	135
7	23	56	73
23	10	0	0
0	0	82	49
82	49	82	49
21	12	72	60
18	15	72	80
21	21	74	96
19	22	52	122
9	33	26	113



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
8	35	28	135
7	26	0	0
0	0	35	122
35	122	35	122
12	29	33	128
6	29	19	118
4	24	41	73
18	9	74	42
22	10	61	89
11	30	30	138
5	32	17	156

Exc. = 386 cu. yds.  
Emb + 20% = 1074 cu. yds.  
Borrow = 688 cu. yds.

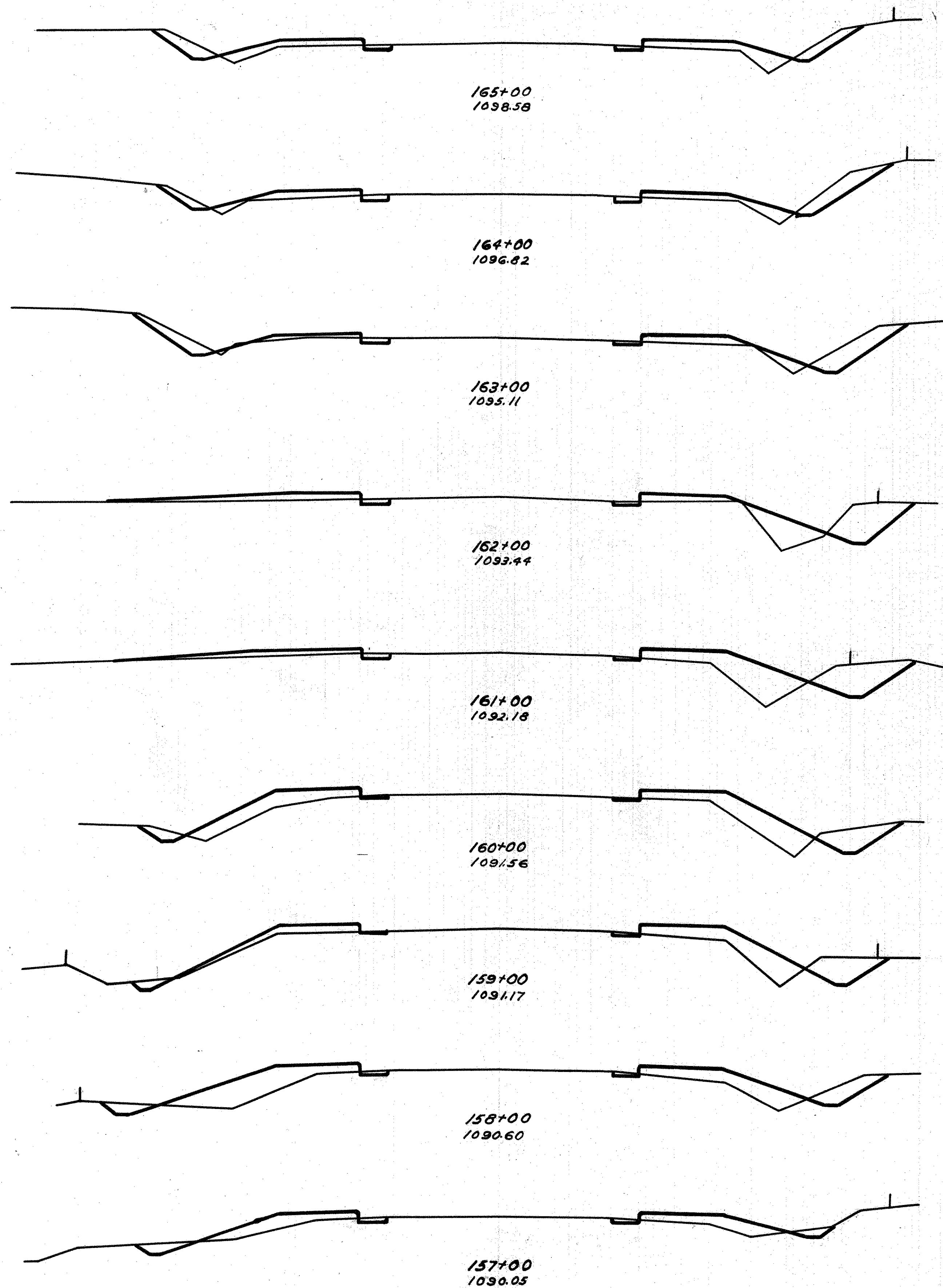
30 25 20 15 10 5 0 5 10 15 20 25 30

30 25 20 15 10 5 0 5 10 15 20 25 30

Fed Aid Dist. No.	STATE	Fed Aid Project	Fiscal Year
	OHIO		

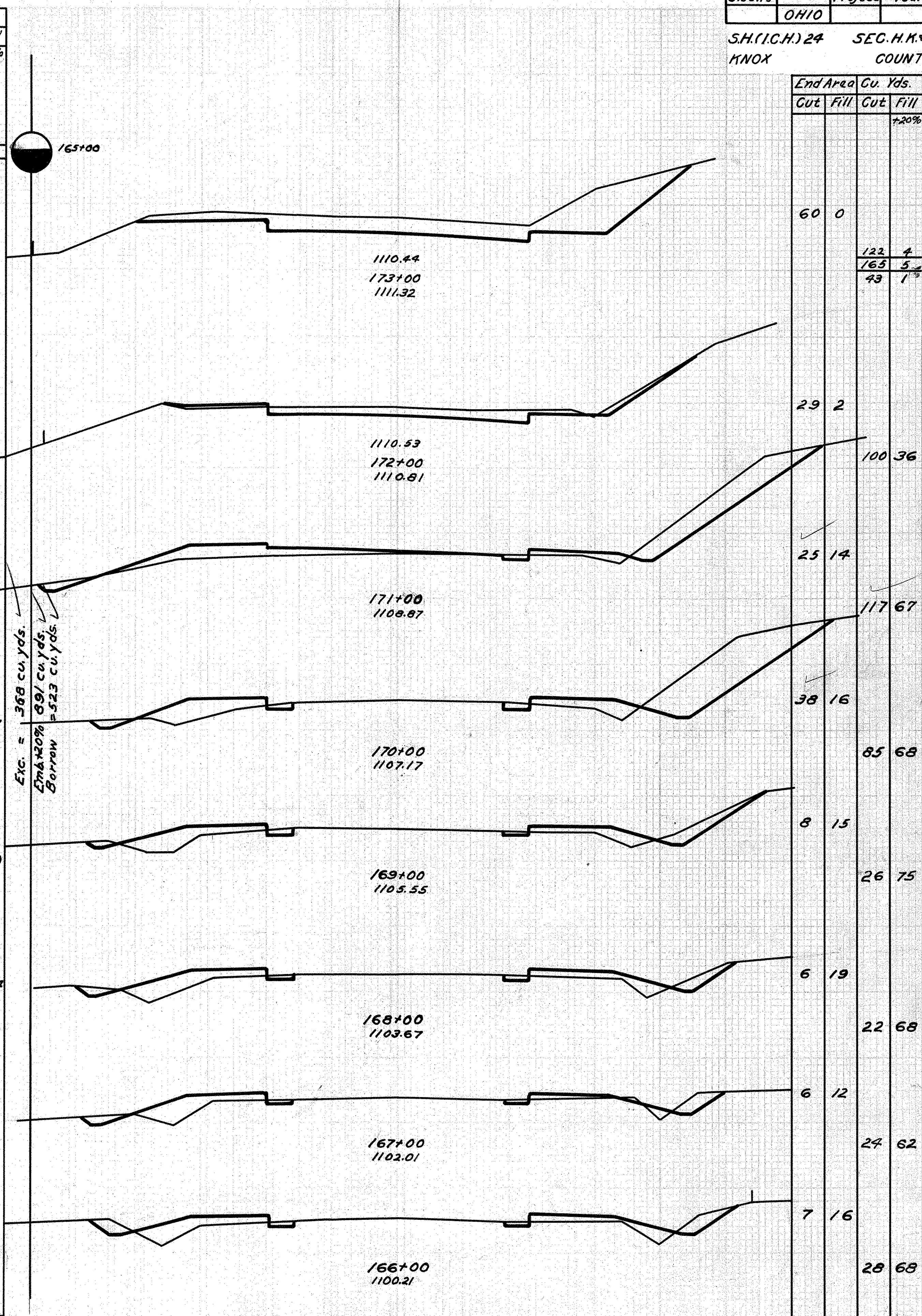
30  
73

S.H.(I.C.H.) 24 SEC. H.K.M. COUNTY  
KNOX



30 25 20 15 10 5 0 5 10 15 20 25 30

End Area	Cu. Yds.	
	Cut	Fill
8	15	0
10	11	41
12	7	44
12	16	46
13	22	44
11	26	41
11	19	37
9	28	28
6	16	26



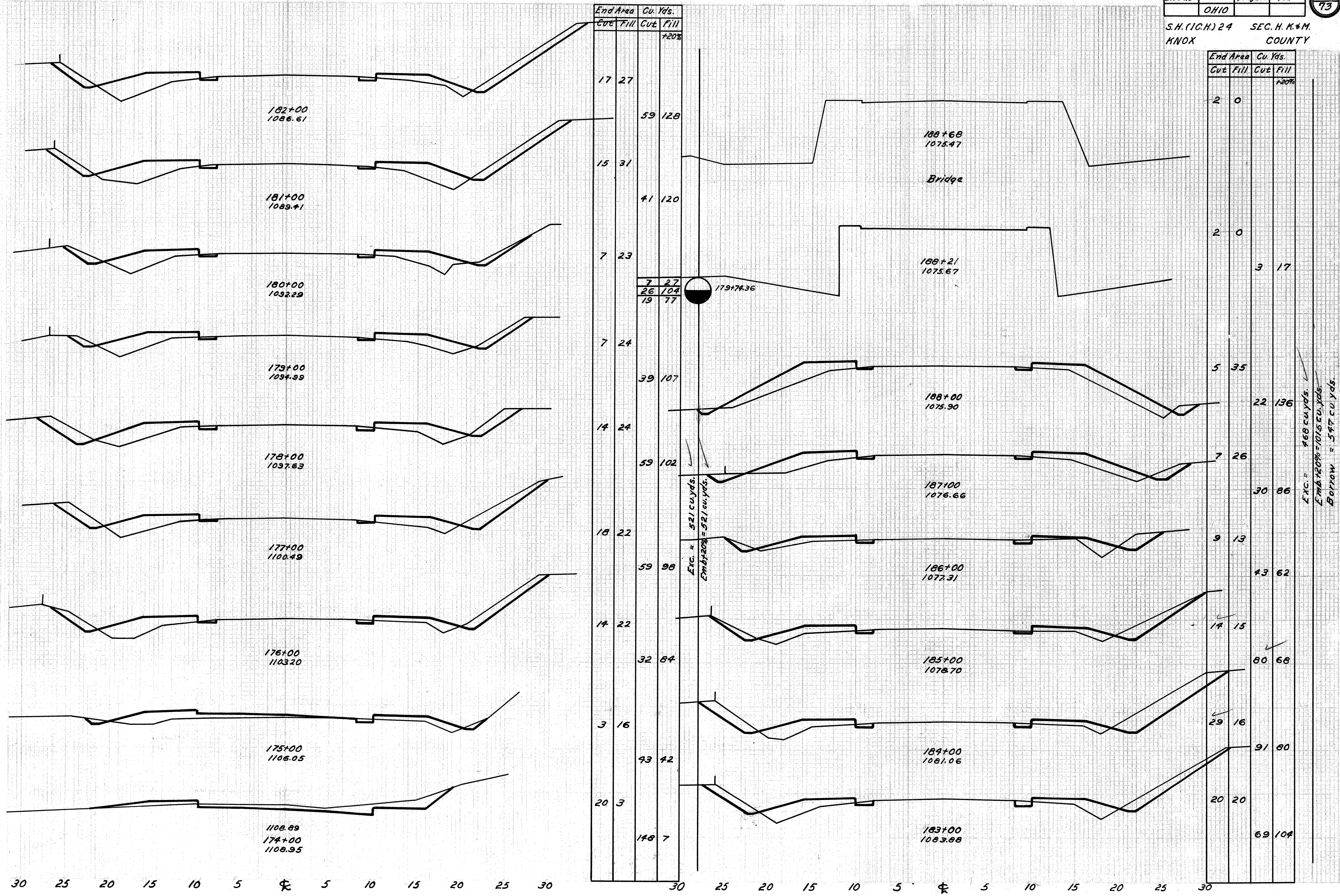
Exc. = 368 cu. yds.  
Emd 40% 89 cu. yds.  
Borrow = 523 cu. yds.

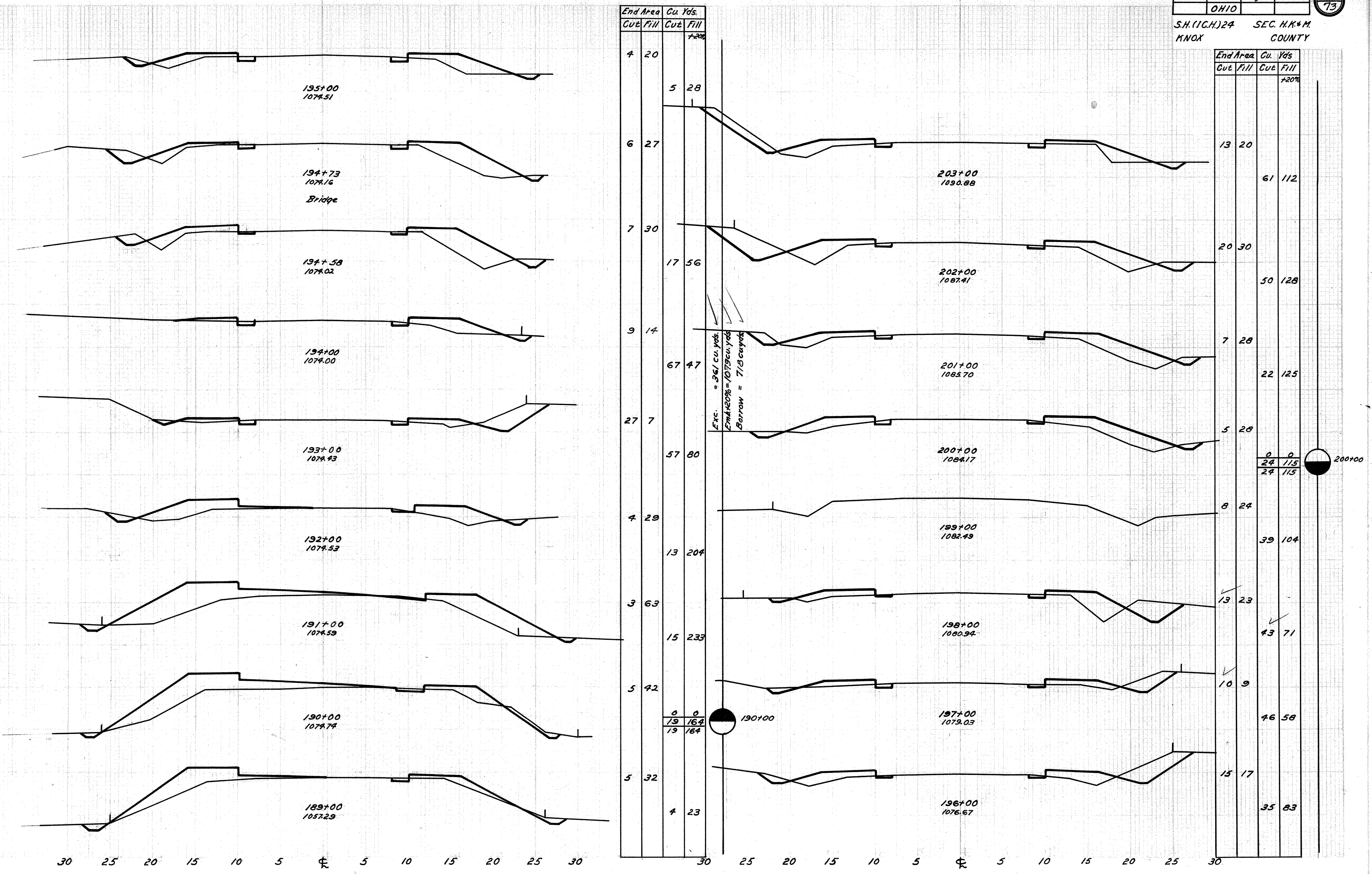
Exc. = 445 cu. yds.  
Emd 40% = 485 cu. yds.

End Area	Cu. Yds.	
	Cut	Fill
60	0	122
29	2	165
100	36	43
25	14	38
117	67	85
8	15	26
6	19	6
22	68	22
6	12	6
24	62	24
7	16	28

30 25 20 15 10 5 0 5 10 15 20 25 30

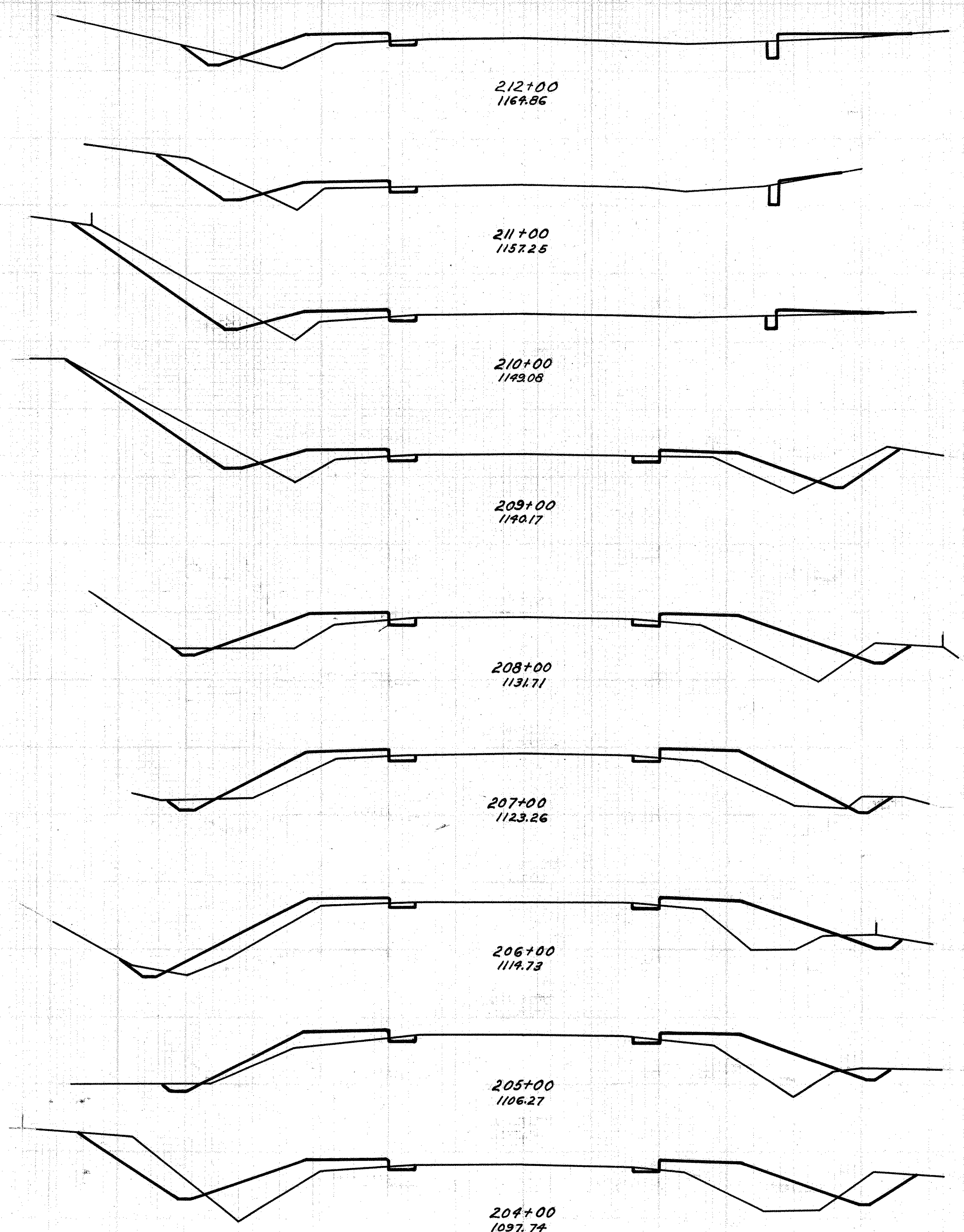
S.H. (I.C.H.) 24 SEC. H. K. & M.  
KNOX COUNTY







S.H.(C.H.)24 SEC. H.M. & M.  
KNOX COUNTY



212+00  
1164.86

211+00  
1157.25

210+00  
1149.08

209+00  
1140.17

208+00  
1131.71

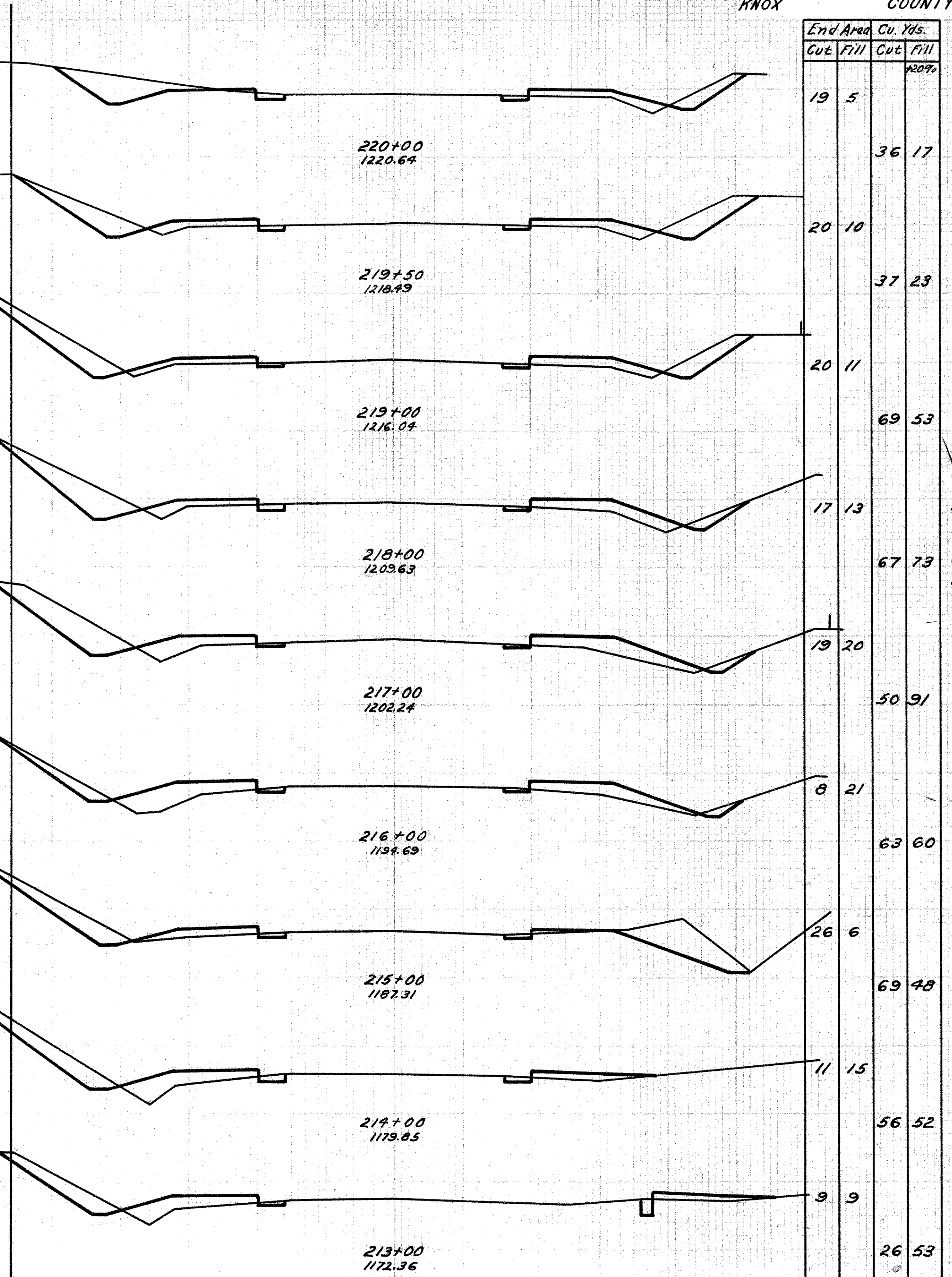
207+00  
1123.26

206+00  
1114.73

205+00  
1106.27

204+00  
1097.74

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
5	15	30	53
11	9	59	42
21	10	76	67
20	20	48	133
6	40	20	162
5	33	20	156
6	37	20	156
5	33	54	172
24	44	69	143



220+00  
1220.64

219+50  
1218.49

219+00  
1216.04

218+00  
1209.63

217+00  
1202.24

216+00  
1194.69

215+00  
1187.31

214+00  
1179.85

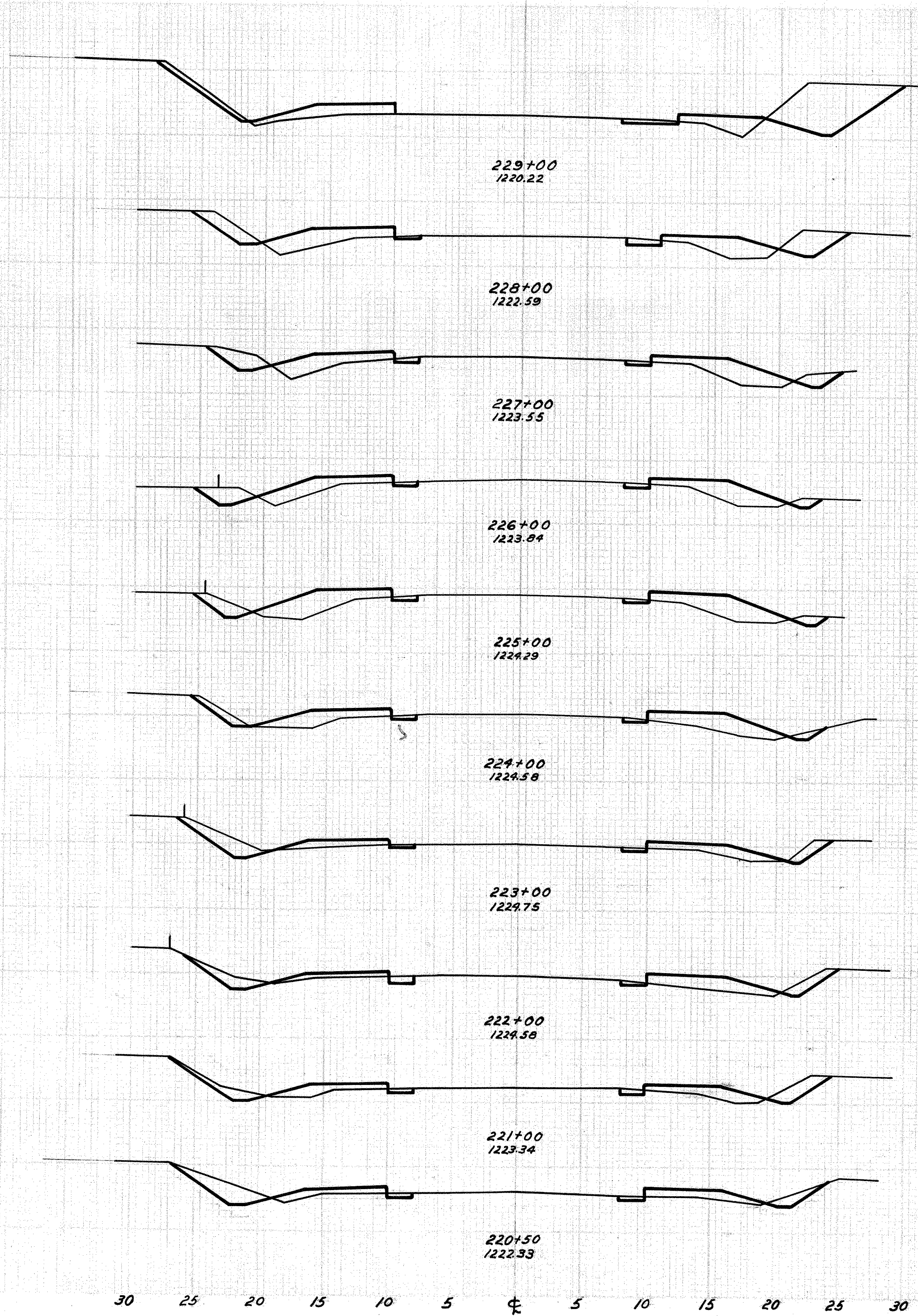
213+00  
1172.36

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
19	5	36	17
20	10	37	23
20	11	69	53
17	13	67	73
19	20	50	91
8	21	63	60
26	6	69	48
11	15	56	52
9	9	26	53

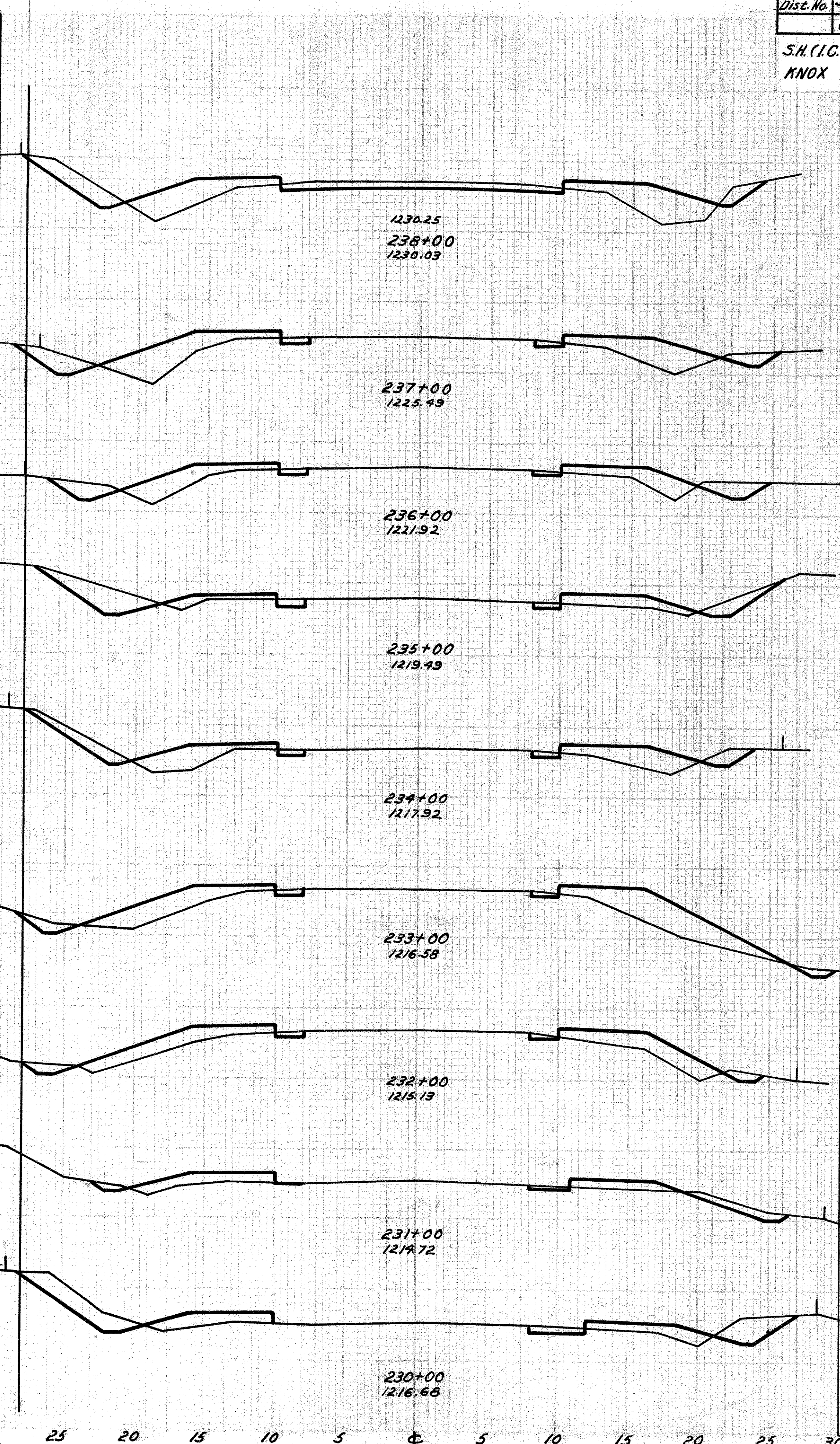
E.I.C. = 34.99 cu. yds.  
 Emb + 20% = 34.99 cu. yds.

30 25 20 15 10 5 0 5 10 15 20 25 30

30 25 20 15 10 5 0 5 10 15 20 25 30



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
29	15	74	80
11	21	35	96
8	22	28	91
7	19	24	96
6	24	20	98
5	20	28	68
10	11	35	53
9	13	35	58
10	13	20	25
12	10	28	16

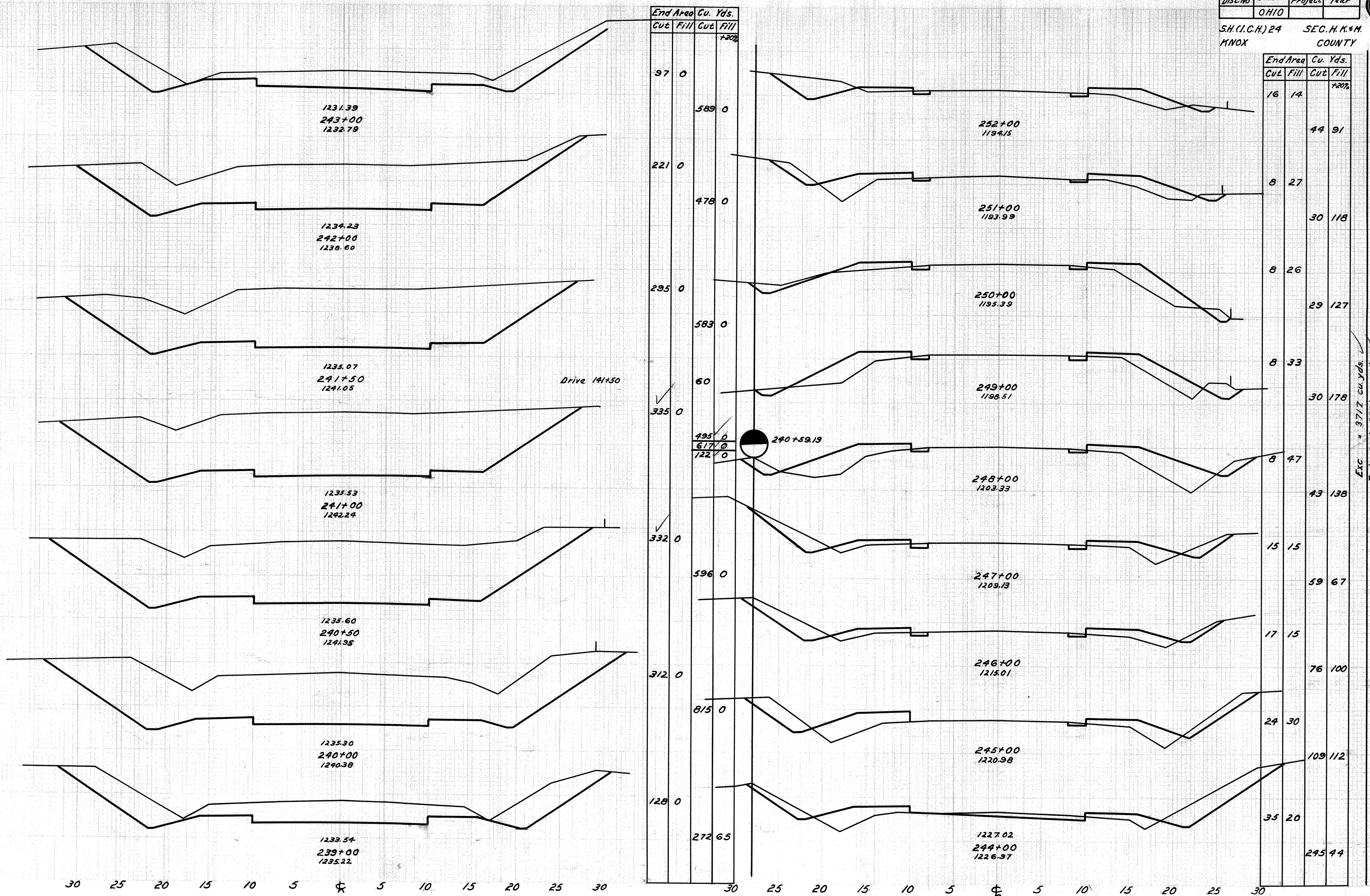


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
19	29	54	136
10	32	35	115
9	20	43	68
14	11	43	67
9	19	26	122
5	36	19	131
5	23	19	76
5	11	41	55
17	14	85	65

30 25 20 15 10 5 0 5 10 15 20 25 30

30 25 20 15 10 5 0 5 10 15 20 25 30

S.H. (I.C.H.) 24 SEC. H. K. & M.  
KNOX COUNTY



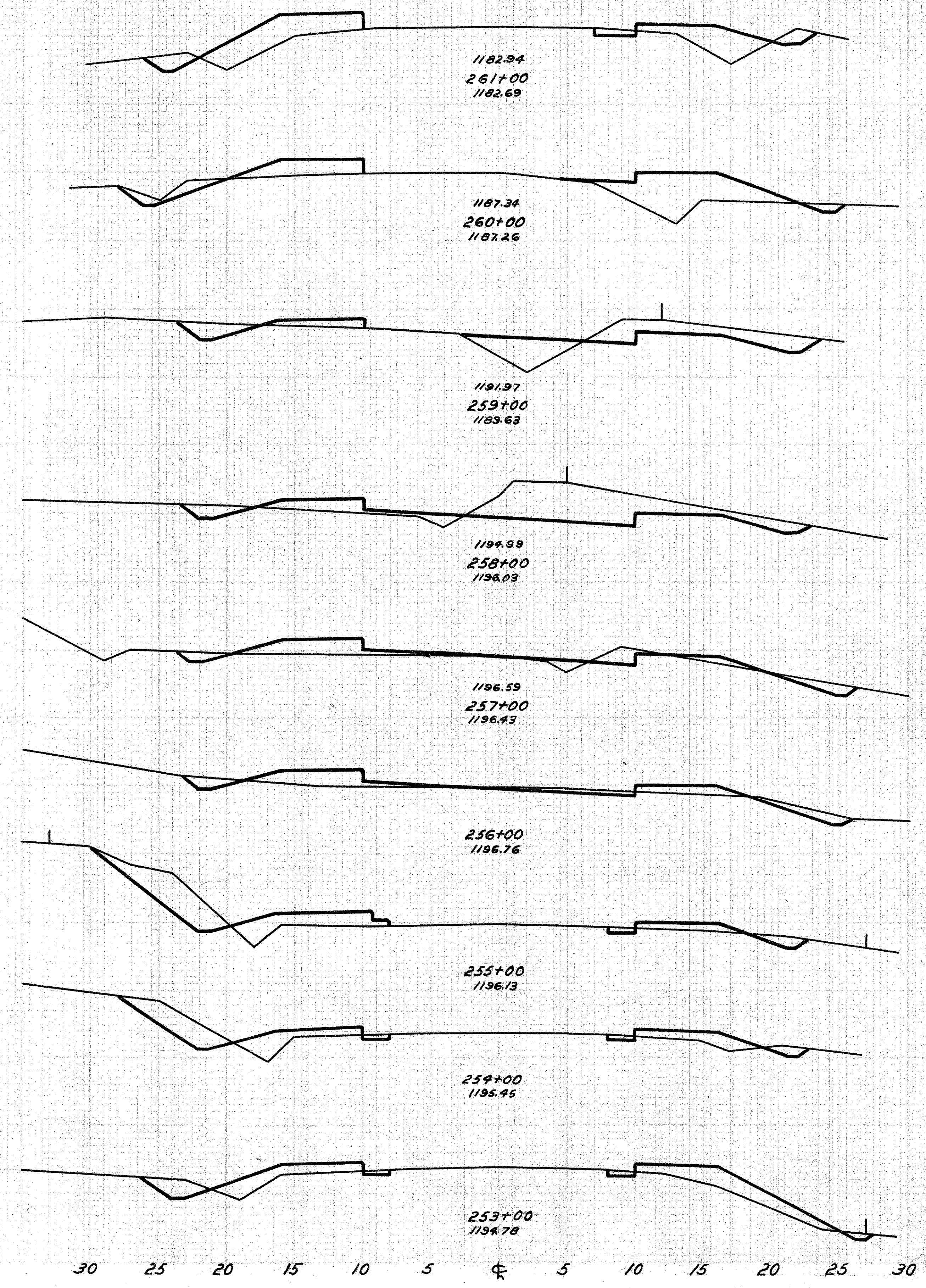
Exc. = 3717 cu. yds.  
Emb. + 20% = 2781 cu. yds.  
Waste = 836 cu. yds.

Drive 141+50

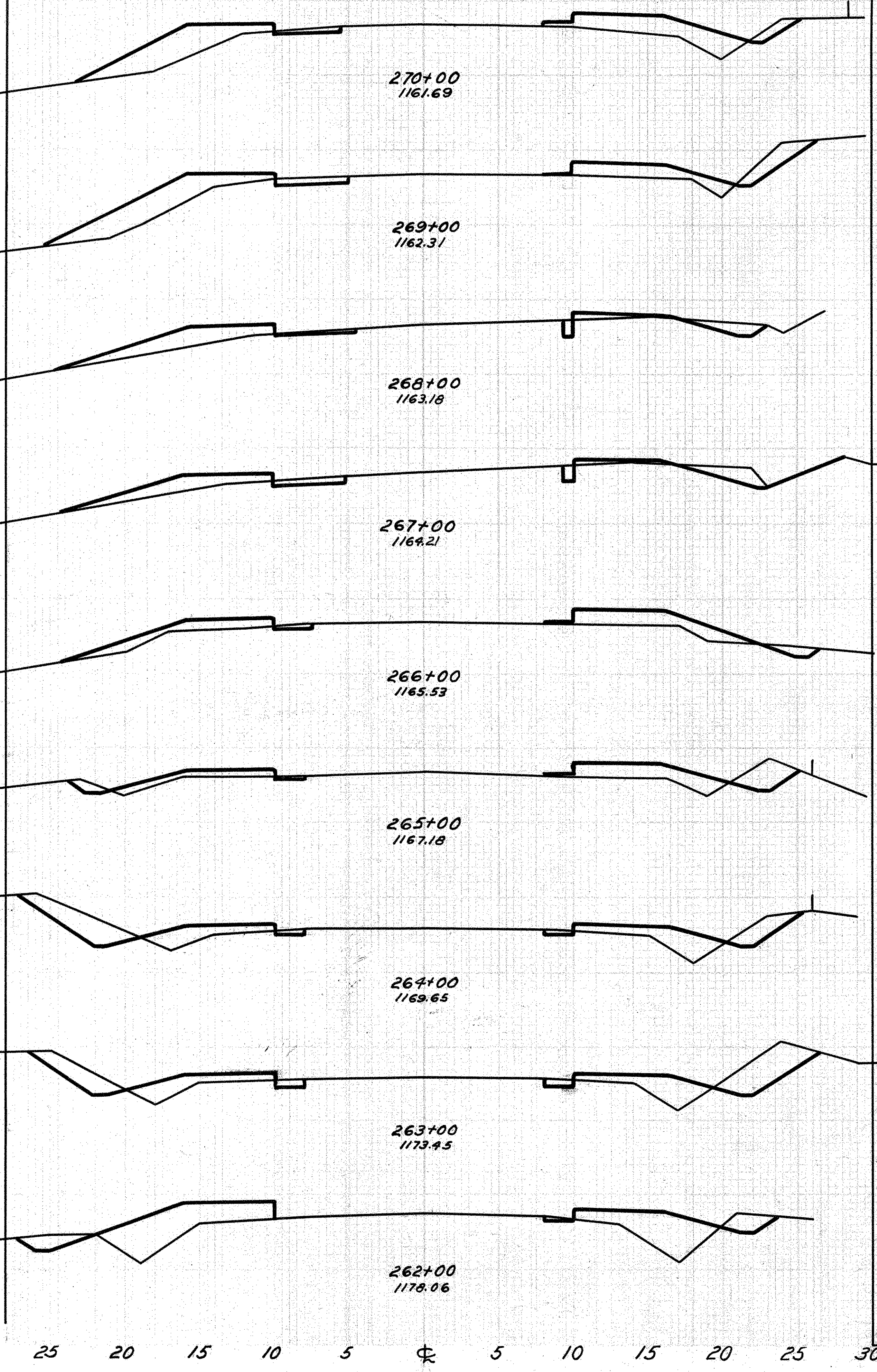
30 25 20 15 10 5 0 5 10 15 20 25 30

30 25 20 15 10 5 0 5 10 15 20 25 30

S.H.(I.G.H.)24 SEC.H.K.+M.  
KNOX COUNTY



End Area	Cu. Yds.	
	Cut	Fill
6	32	
	20	146
5	34	
	48	112
21	16	
	113	55
40	9	
	87	53
7	15	
	26	67
7	15	
	56	71
23	17	
	67	71
13	15	
	35	84
6	23	
	11	83

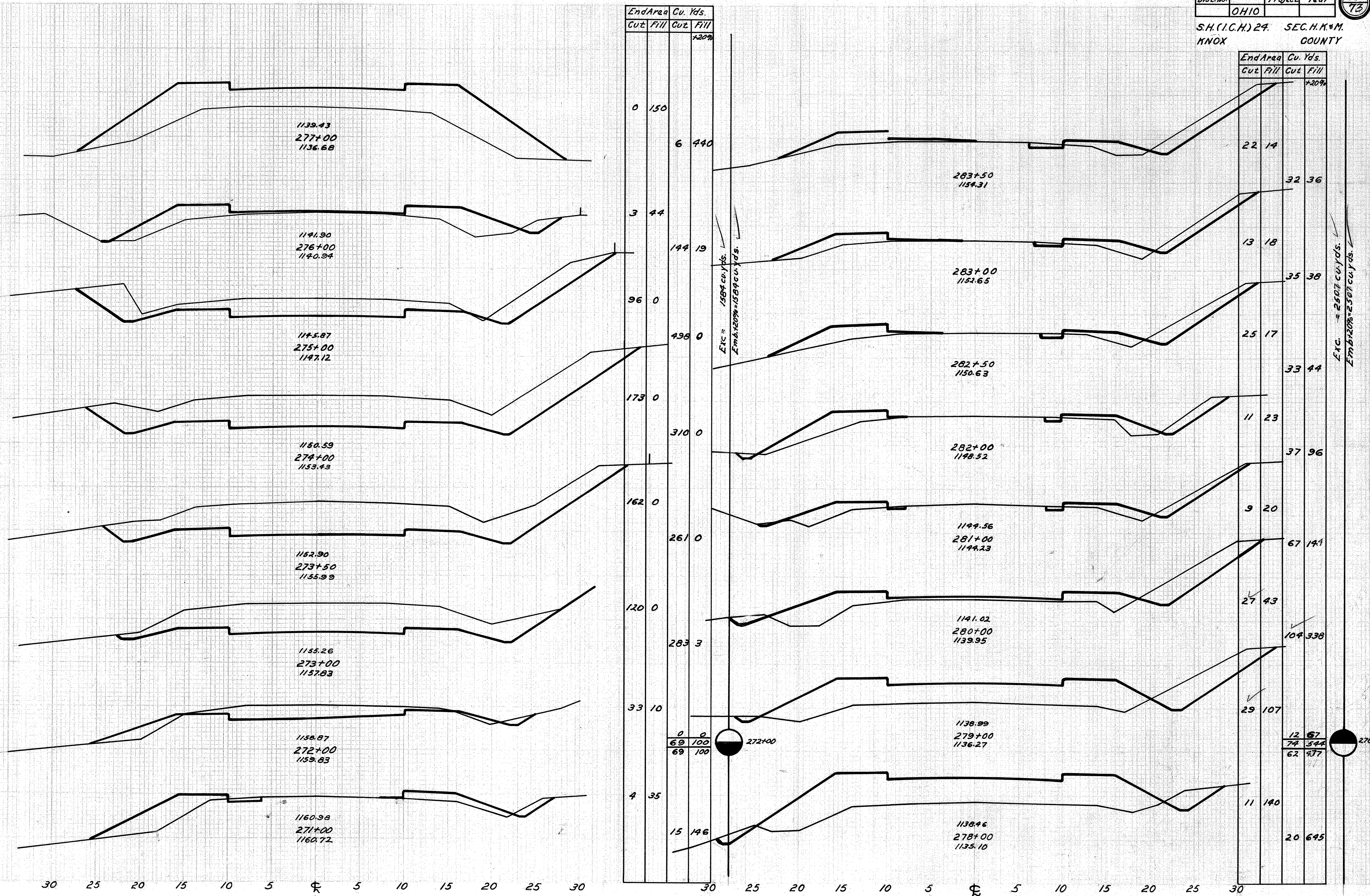


End Area	Cu. Yds.	
	Cut	Fill
4	31	
	22	128
8	27	
	24	91
5	14	
	20	53
6	10	
	15	65
2	19	
	19	78
8	16	
	43	71
15	16	
	63	73
19	17	
	44	113
5	34	
	20	146

30 25 20 15 10 5 0 5 10 15 20 25 30

30 25 20 15 10 5 0 5 10 15 20 25 30

S.H.(I.C.H.) 29 SEC. H.K.#M.  
KNOX COUNTY



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	150	6	440
3	44	144	19
96	0	498	0
173	0	310	0
162	0	261	0
120	0	283	3
33	10	0	0
69	100	69	100
69	100	0	0
4	35	15	146

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
22	14	32	36
13	18	35	38
25	17	33	44
11	23	37	96
9	20	67	191
27	43	104	336
29	107	12	67
74	544	62	477
11	140	20	645

Exc. = 1584 cu. yds.  
Emb. = 1584 cu. yds.

Exc. = 2507 cu. yds.  
Emb. = 2507 cu. yds.

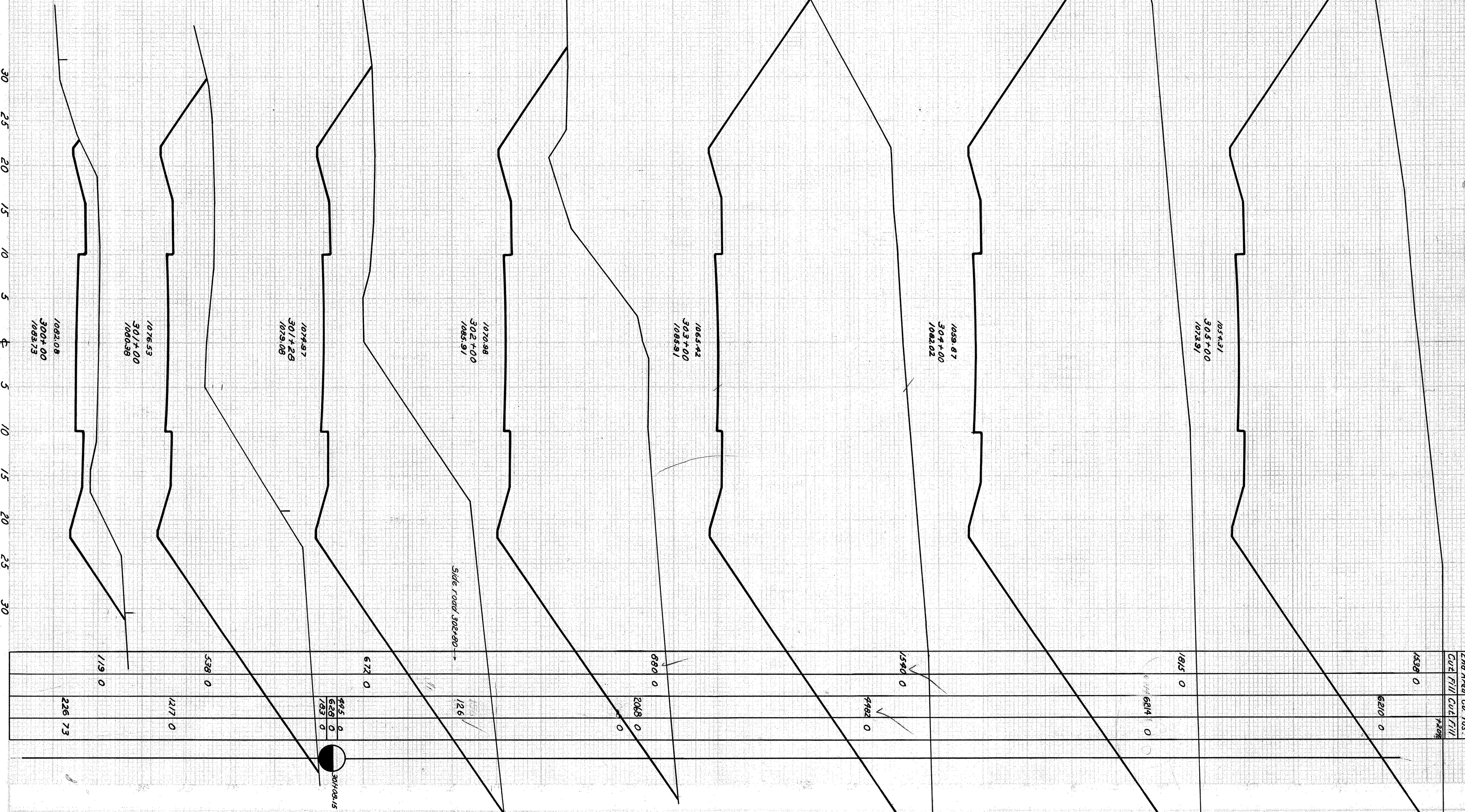
272+00

278+00

30 25 20 15 10 5 0 5 10 15 20 25 30

30 25 20 15 10 5 0 5 10 15 20 25 30

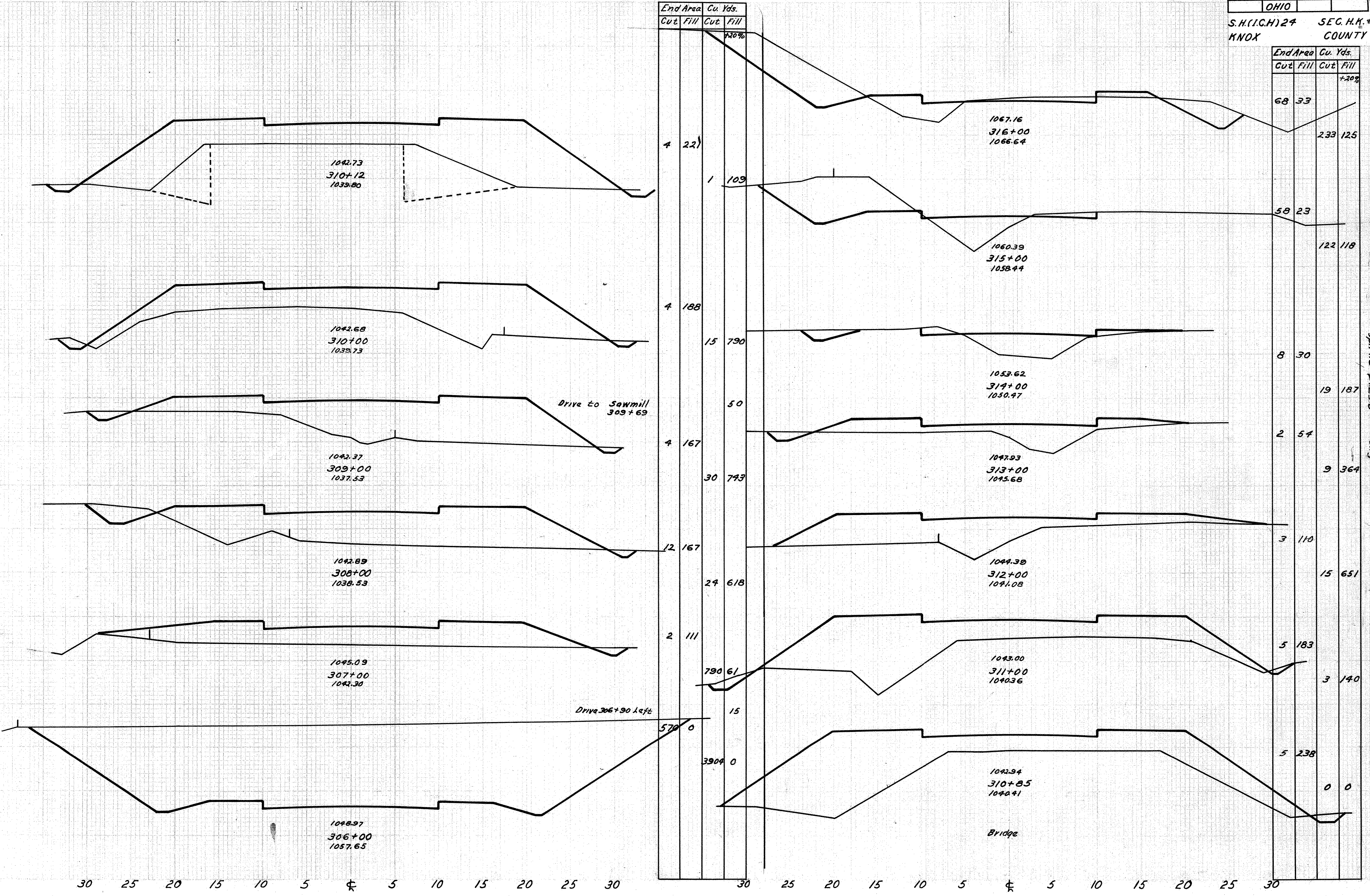




End Area Cu Yds.  
Cut Fill Cu Yds.  
+0.08

30/109.15

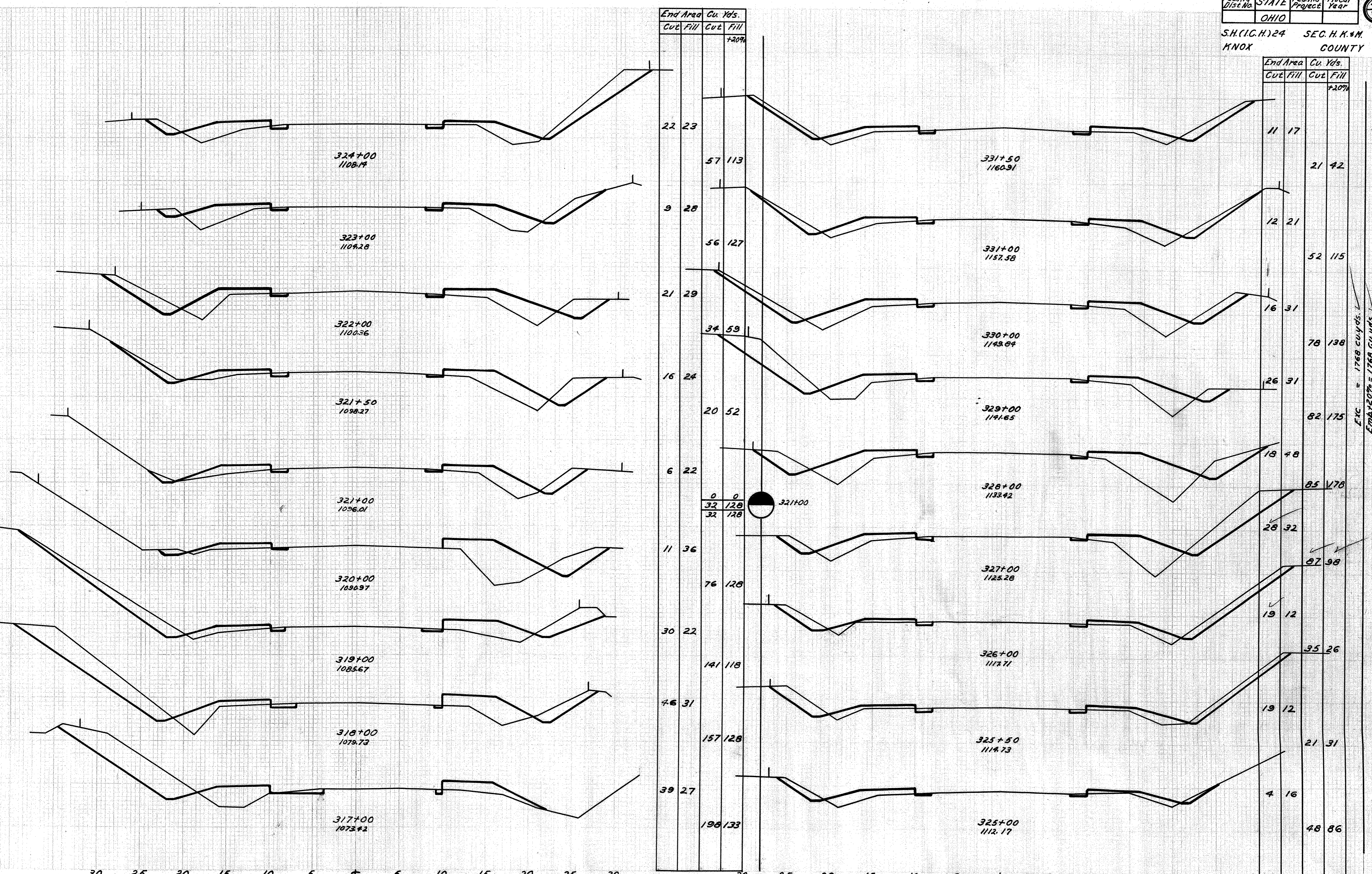
S.H.(I.C.H.) 24 SEC. H.K. 4M.  
KNOX COUNTY



Exc. = 2,531 1/4 cu. yds.  
Embl.+20% = 4606 cu. yds.  
Waste = 20,708 cu. yds.

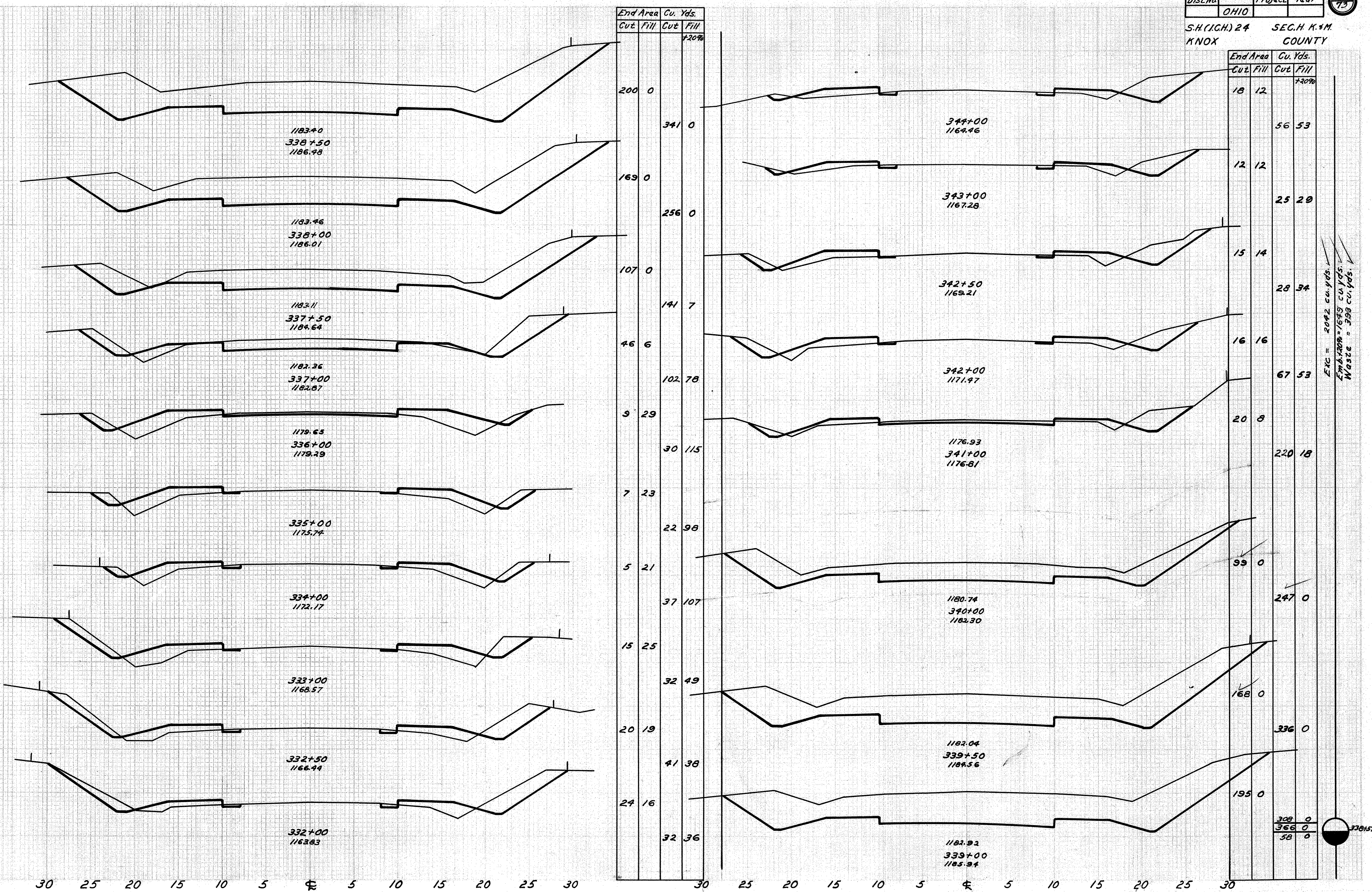


S.H.(I.C.H.)24 SEC. H. K. #M.  
KNOX COUNTY

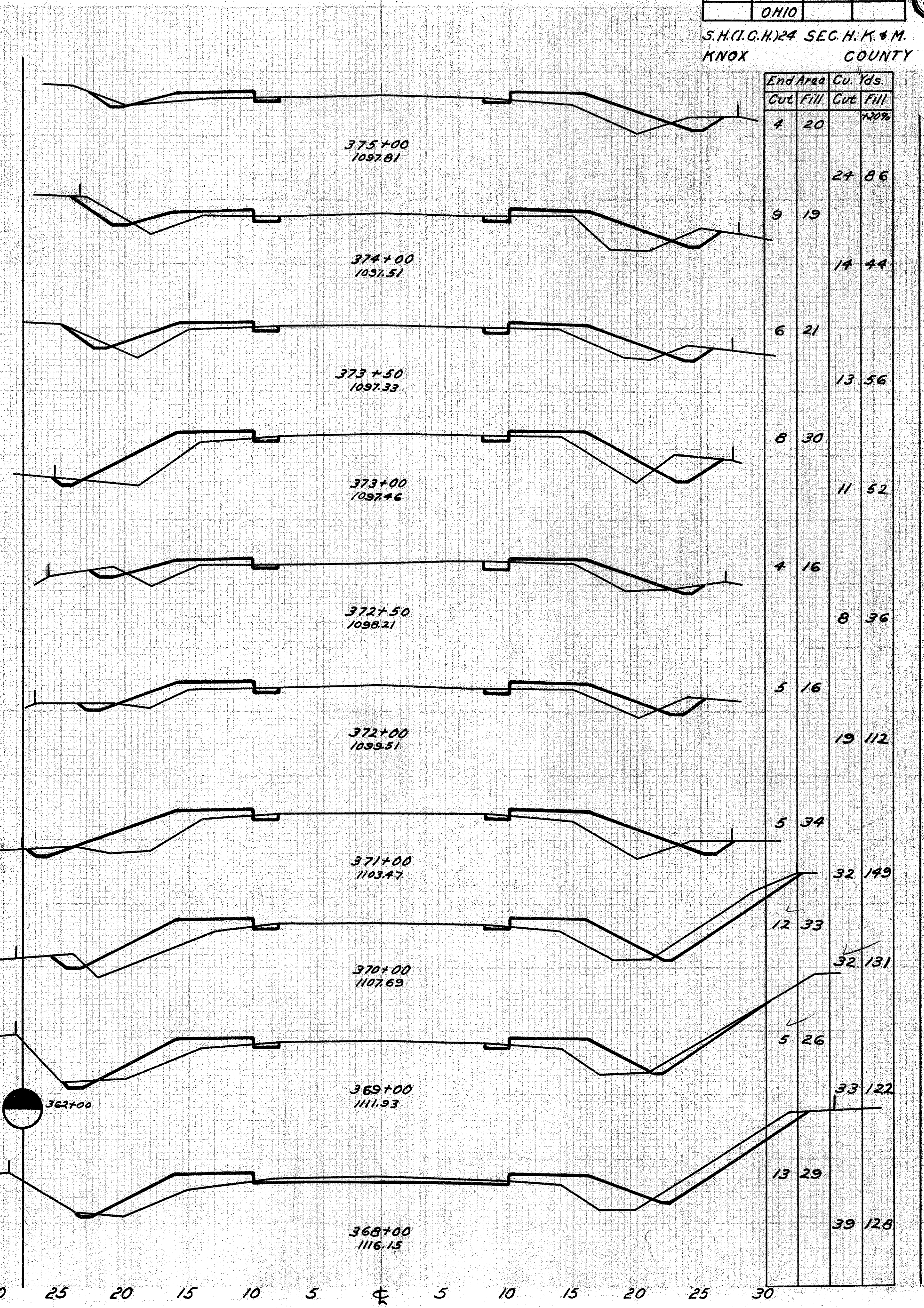
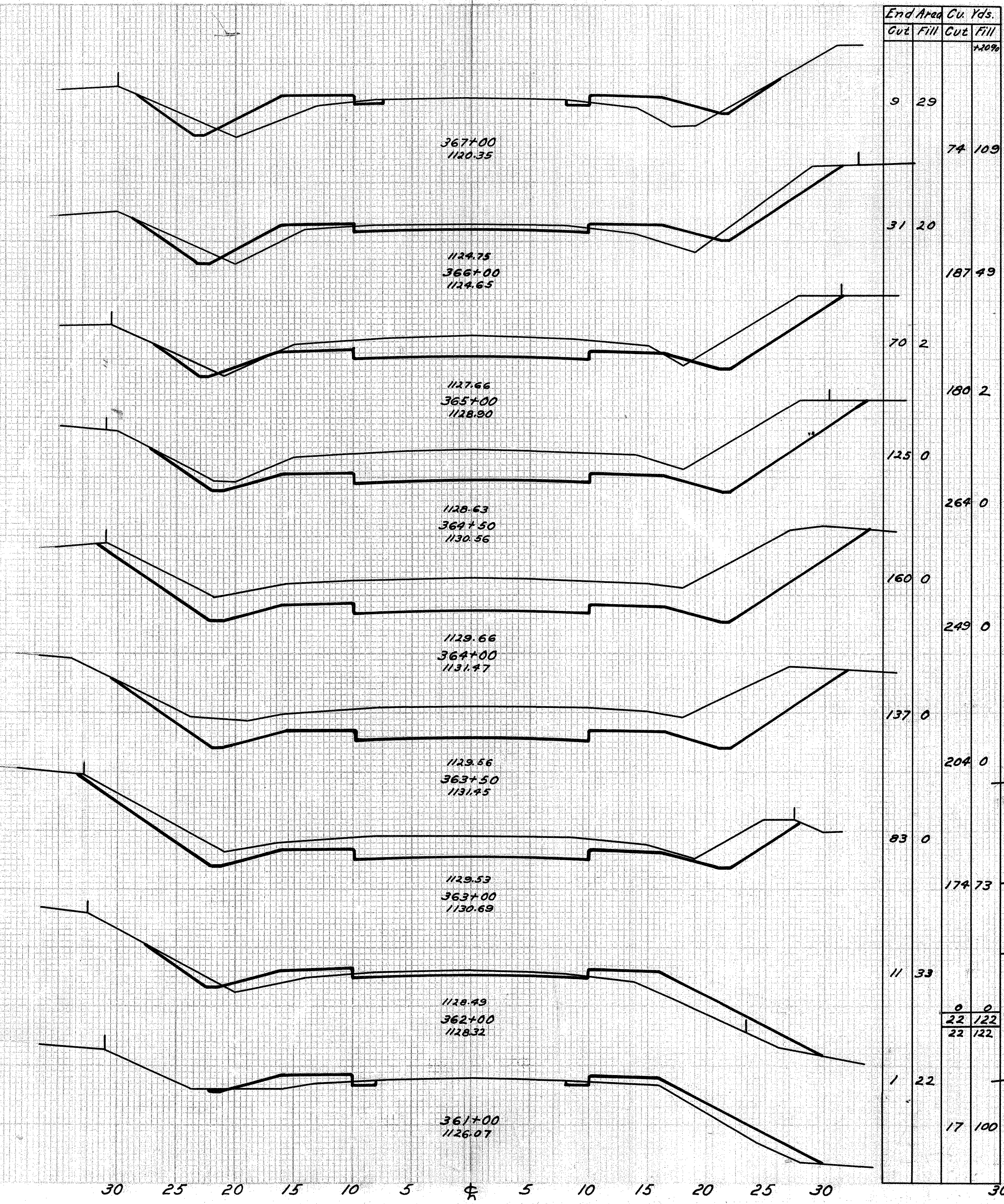


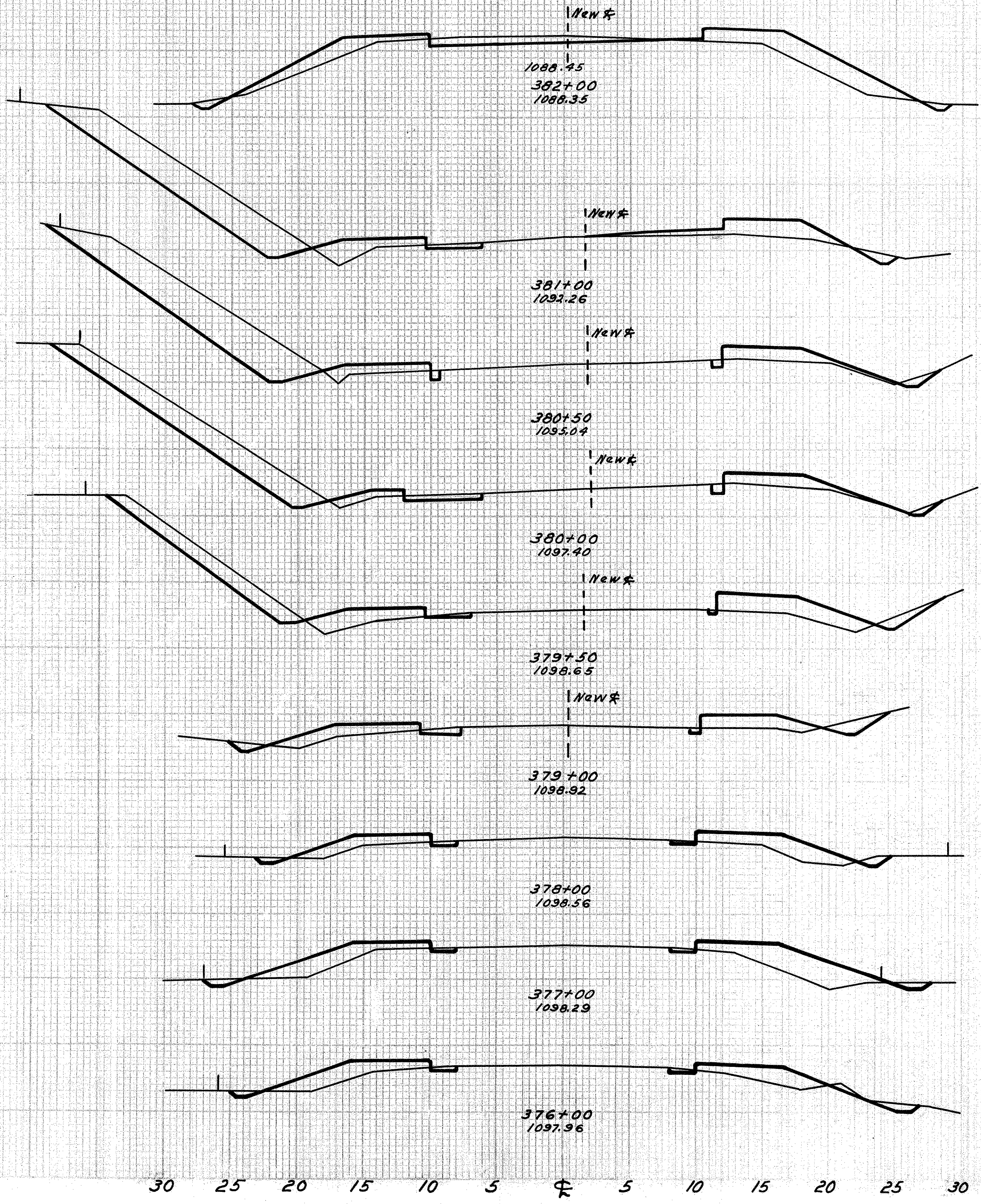
Exc = 1768 cu. yds.  
Ema x 20% = 1768 cu. yds.

S.H.(ICH.) 24 SEC. H. K. & M.  
KNOX COUNTY

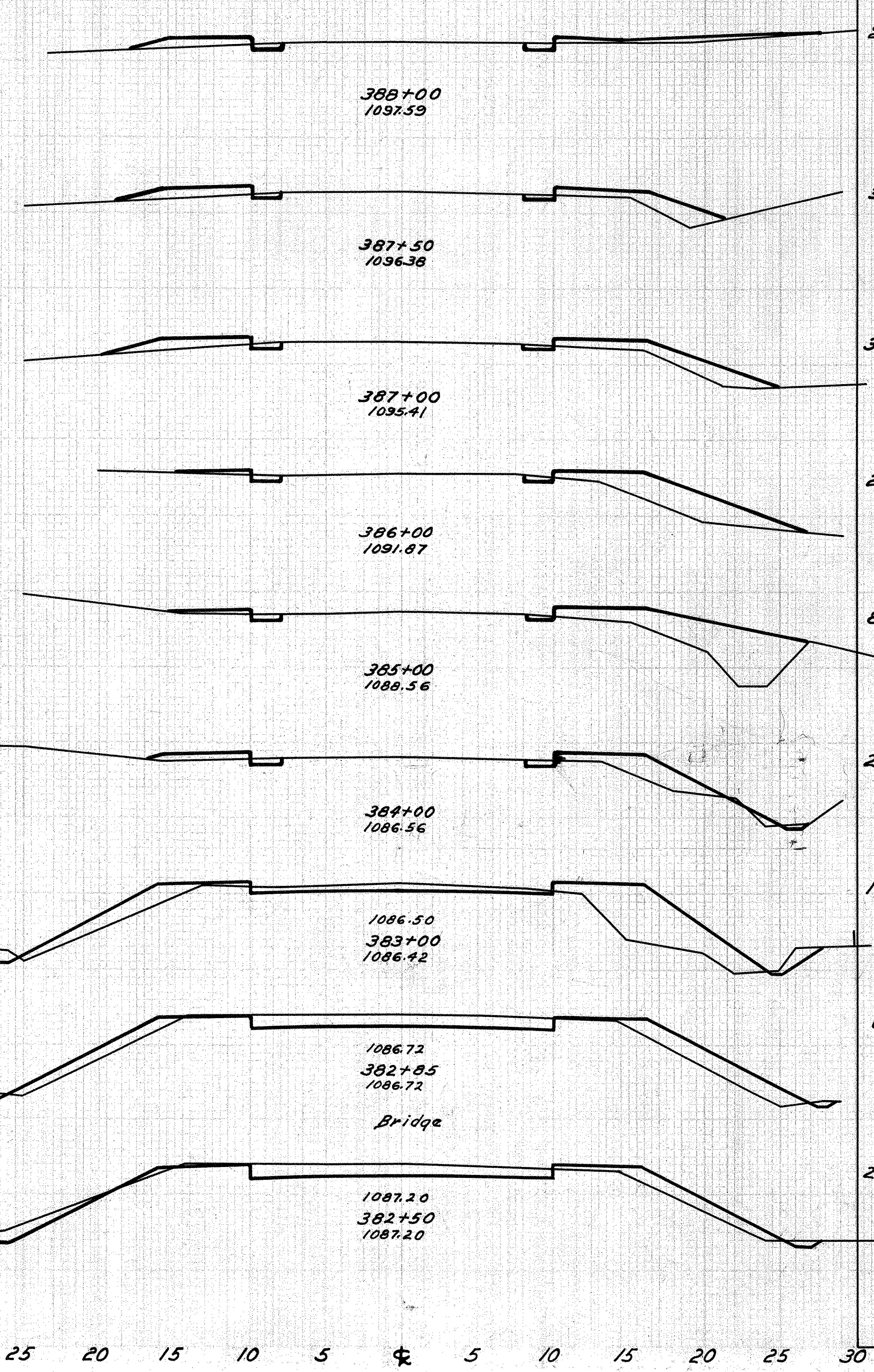








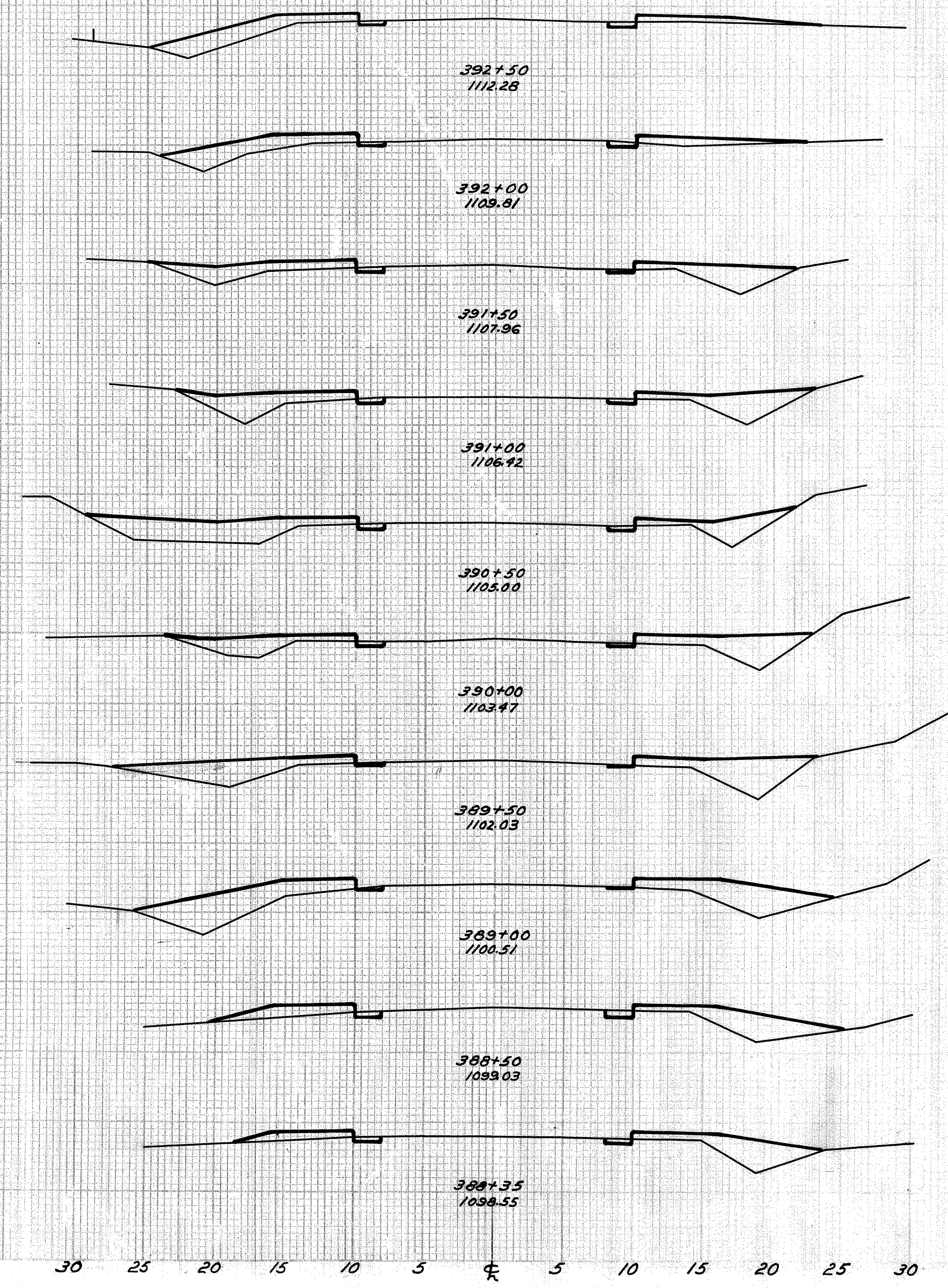
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
10	30	109	107
49	18	93	36
52	14	85	28
40	11	57	38
22	23	25	43
5	16	16	78
4	19	13	113
3	32	13	113
4	19	15	86



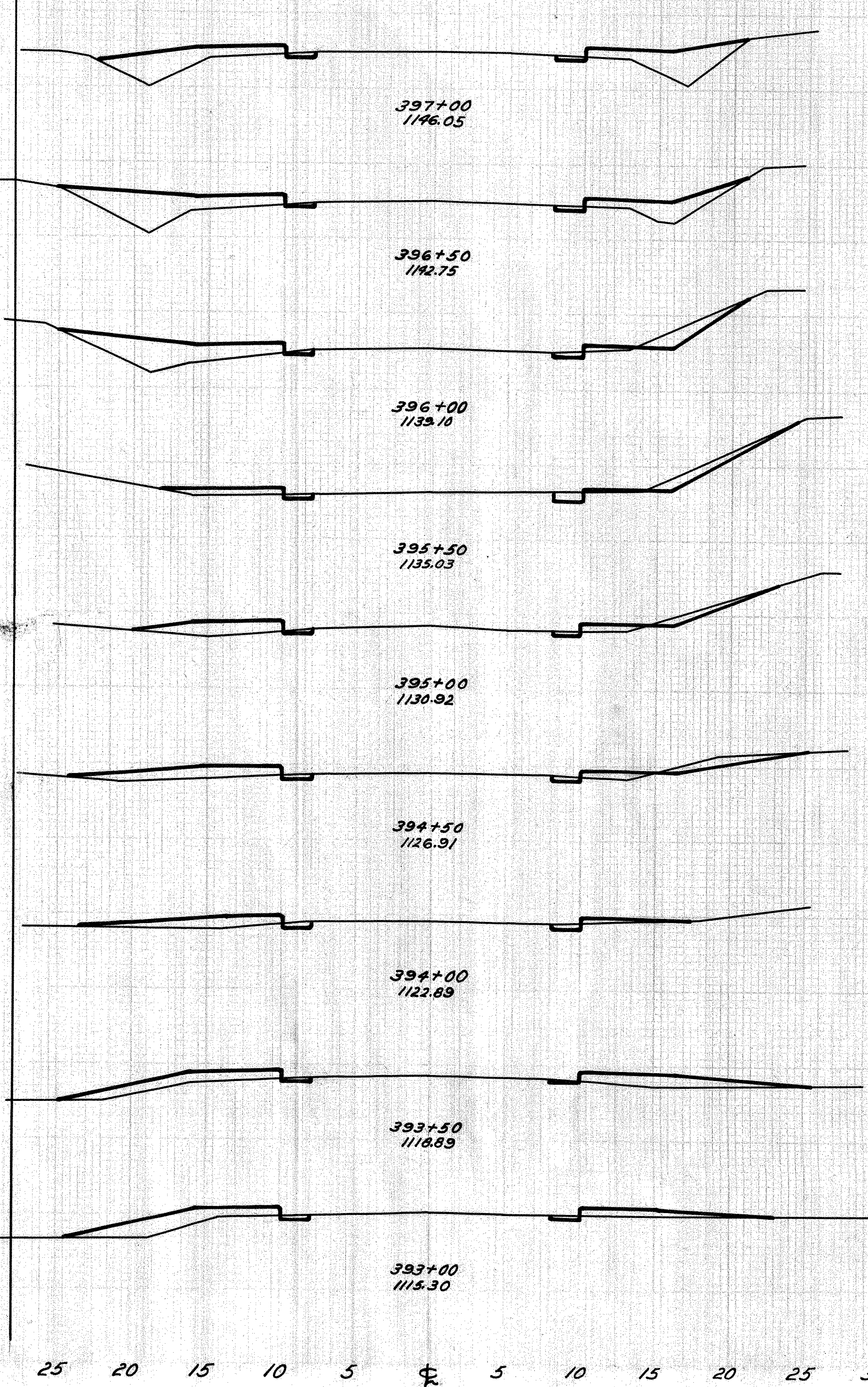
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
2	10	4	26
3	14	6	34
3	17	8	78
2	22	16	42
		19	69
		3	17
8	18	19	71
2	14	24	122
11	40	8	22
0	25		
20	8		
28	42		

Exc. = 2065 cu yds.  
 Emb. +20% = 2065 cu yds.

S. H. (I.C.H.) 24 SEC. H.K. & M.  
KNOX COUNTY



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
2	20	4	42
2	18	4	47
2	24	4	54
2	25	4	64
2	32	8	60
7	22	15	58
9	30	13	74
5	37	7	58
3	15	3	10
7	15	5	12



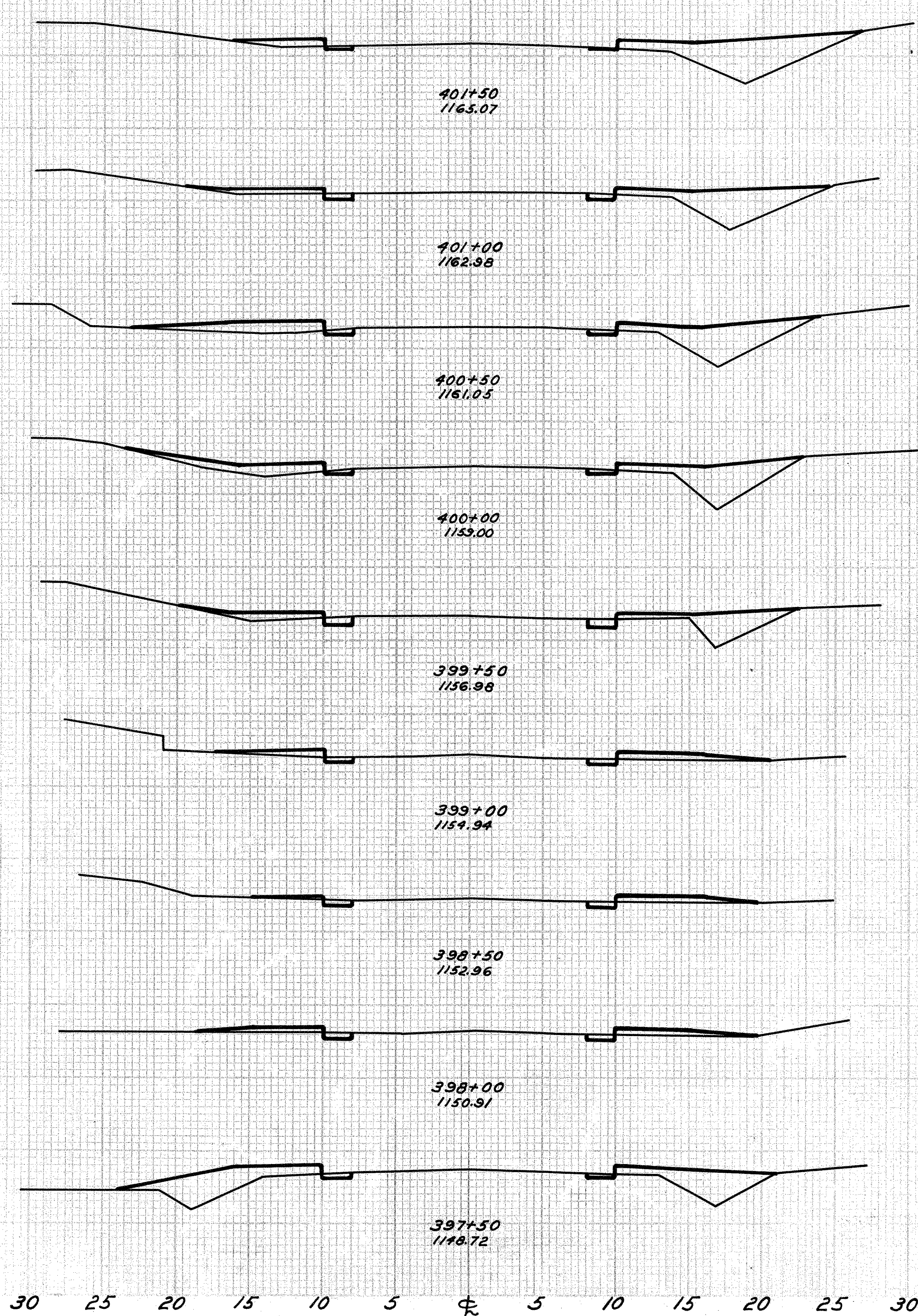
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
2	28	4	61
2	27	8	49
7	17	12	23
6	4	8	14
3	9	7	20
5	10	6	20
2	9	4	31
2	19	4	40
2	17	3	41

30 25 20 15 10 5 0 5 10 15 20 25 30

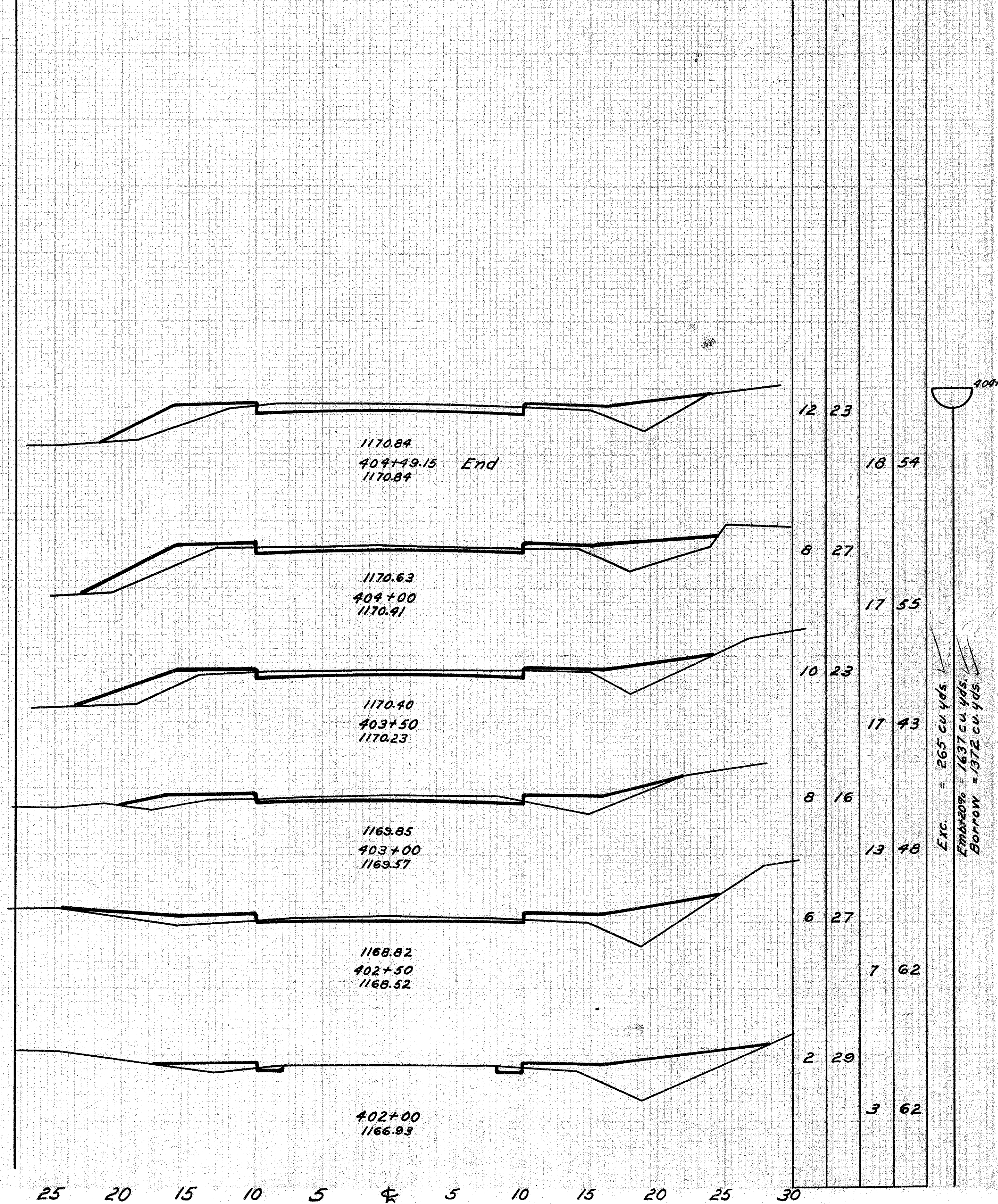
30 25 20 15 10 5 0 5 10 15 20 25 30

S.H.(I.C.H.) 24 SEC. H.K.\*M.  
KNOX COUNTY

End Area	Cu. Yds.
Cut	Fill

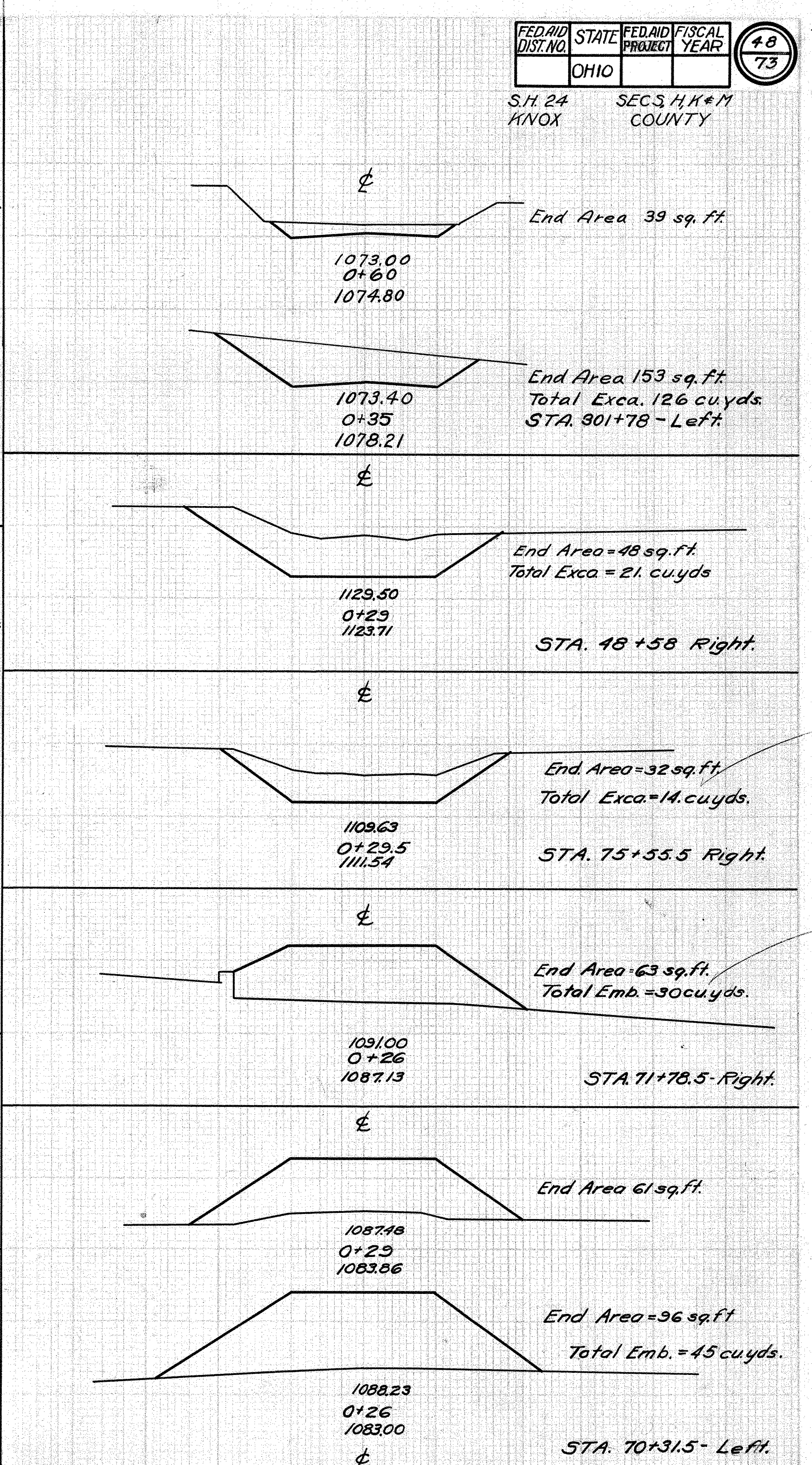
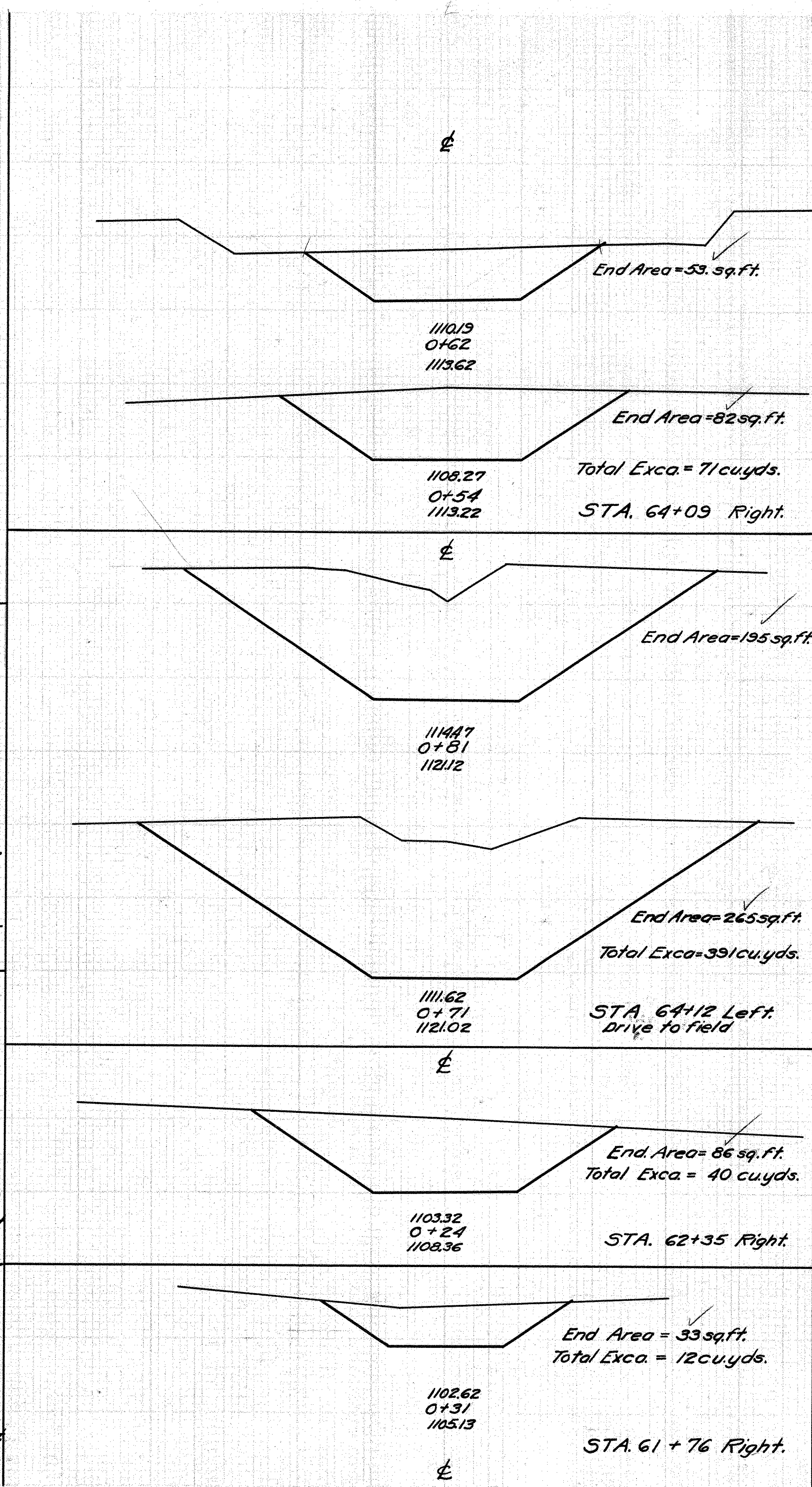
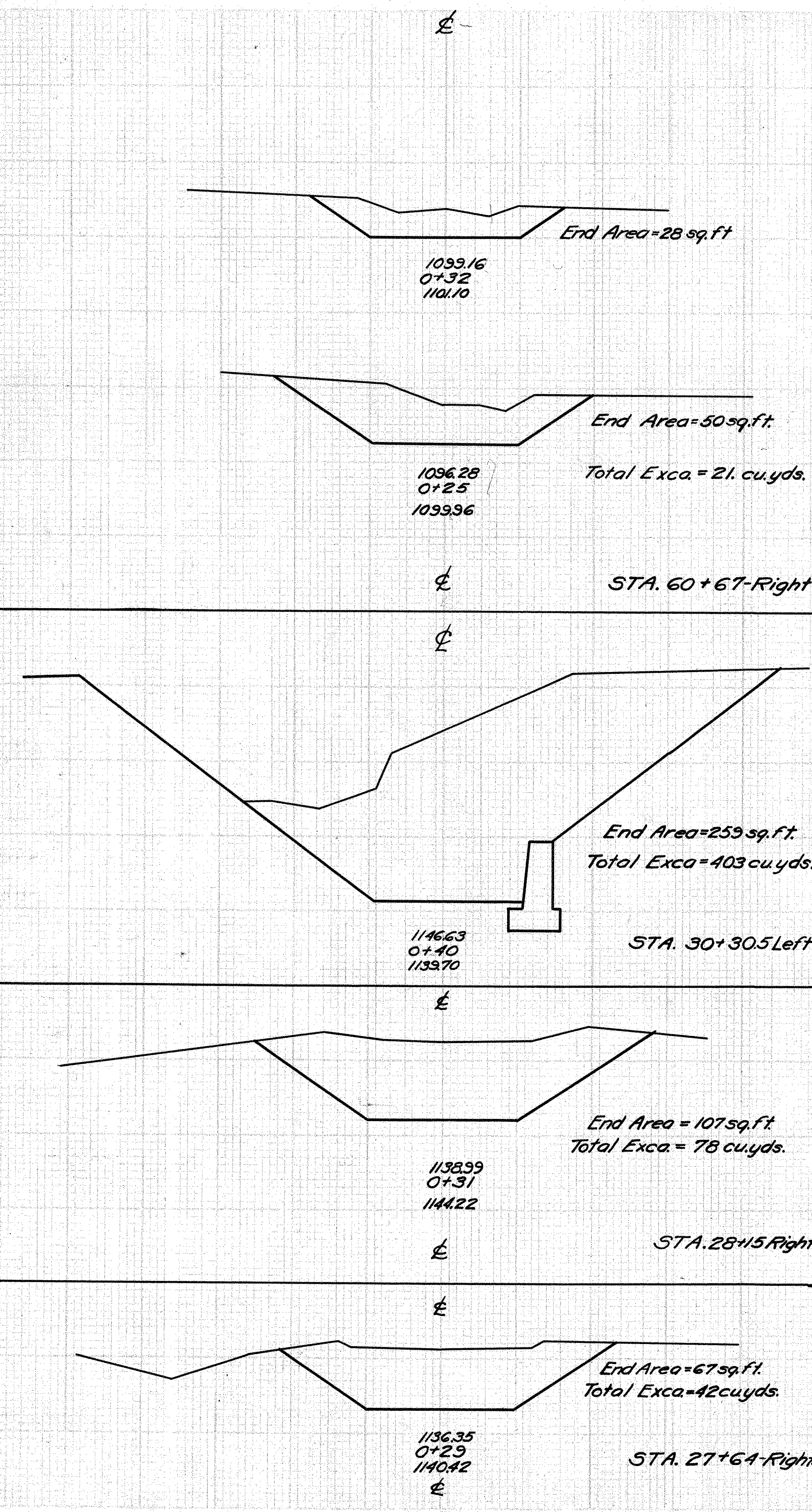


End Area	Cu. Yds.
Cut	Fill
1	27
	3 53
2	21
	3 52
2	25
	4 55
2	25
	4 46
2	16
	4 25
2	7
	3 12
2	4
	4 10
2	6
	4 38
2	29
	4 64



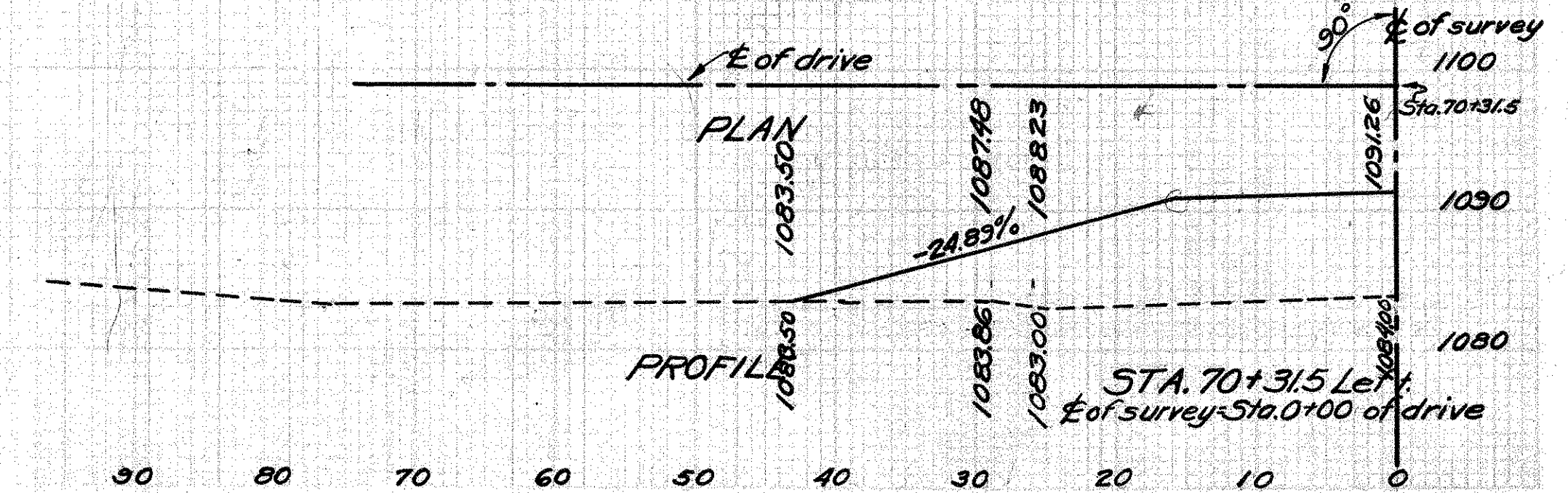
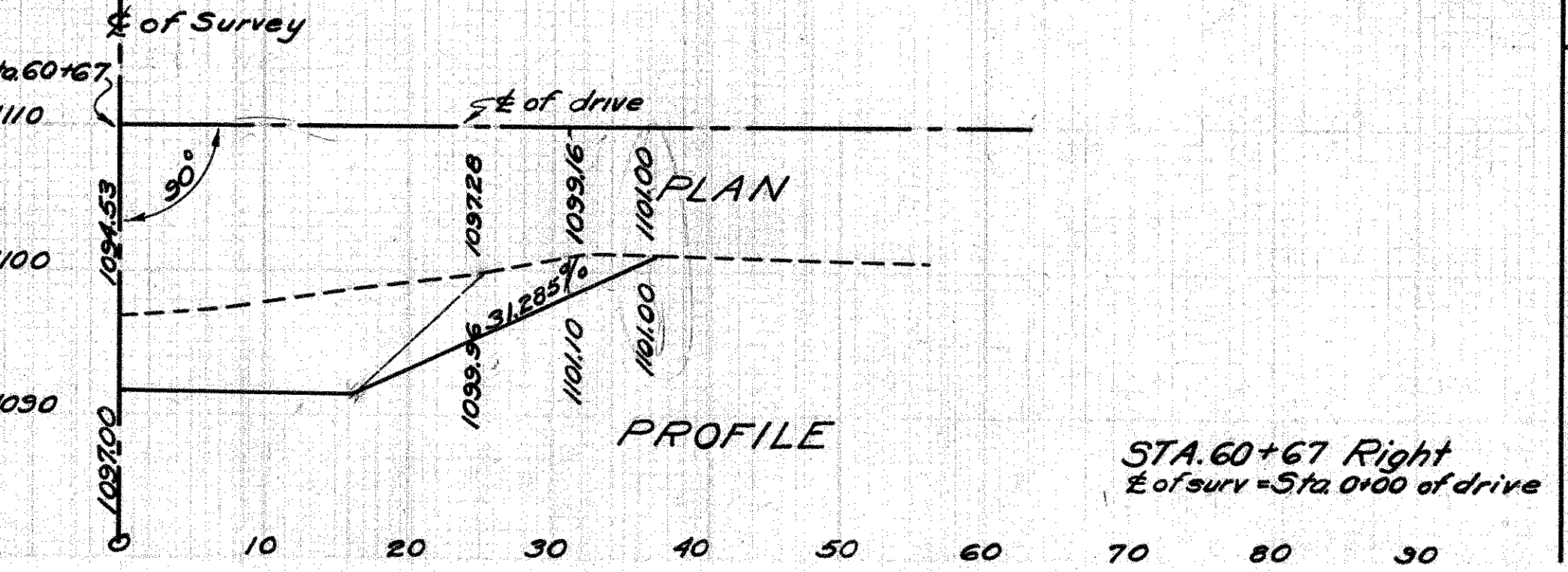
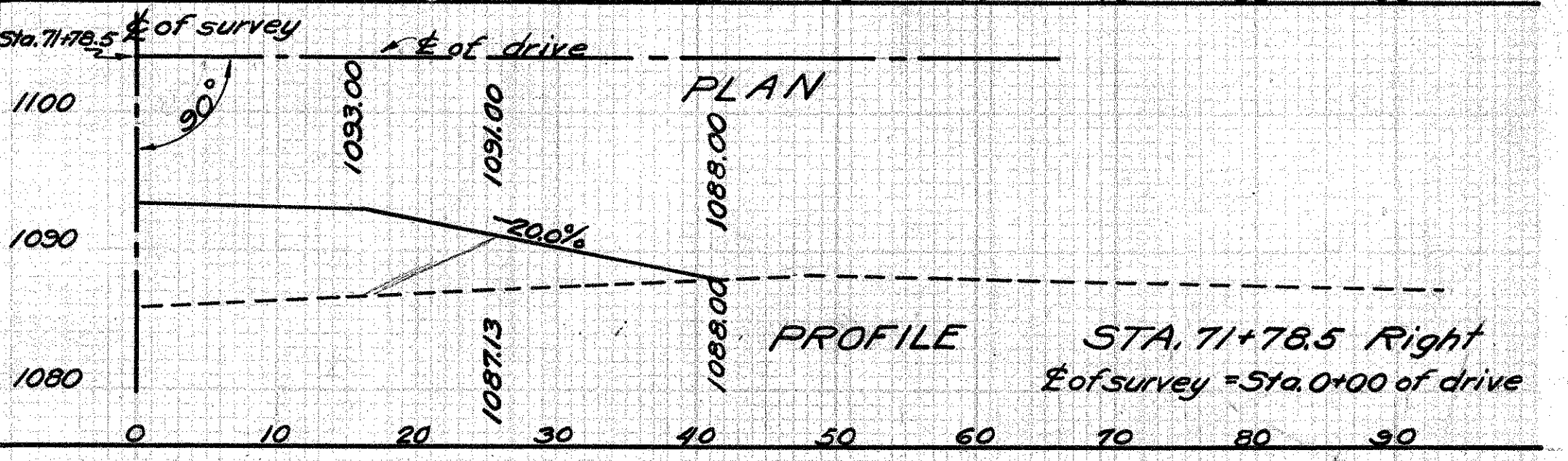
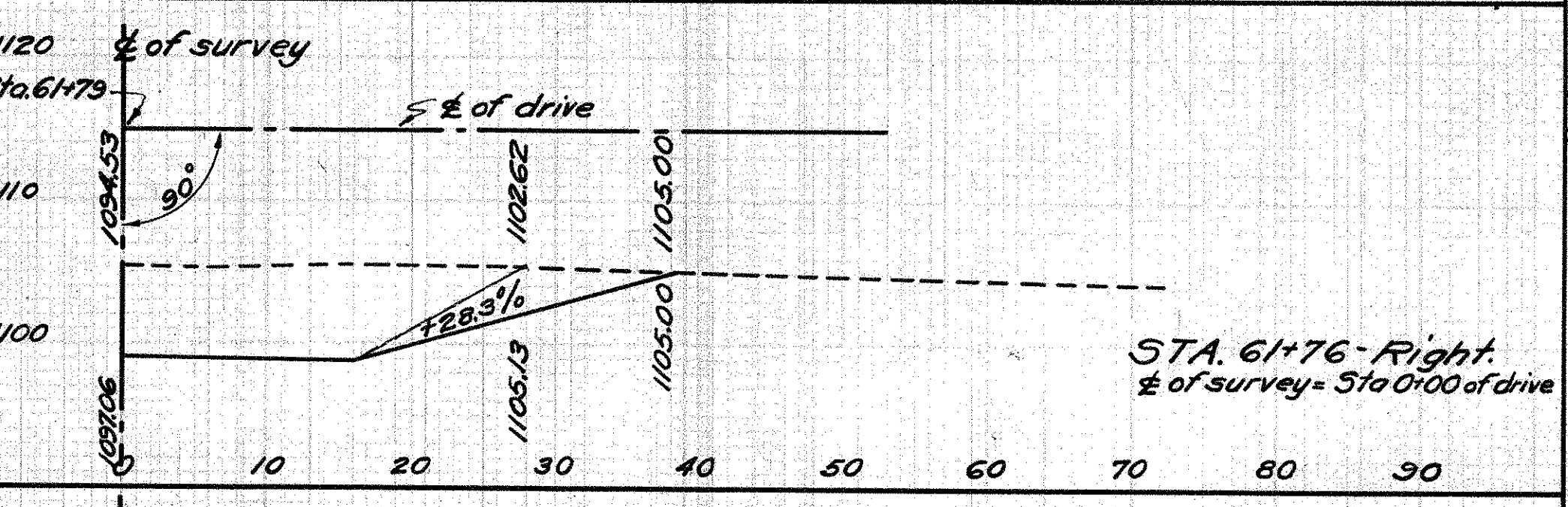
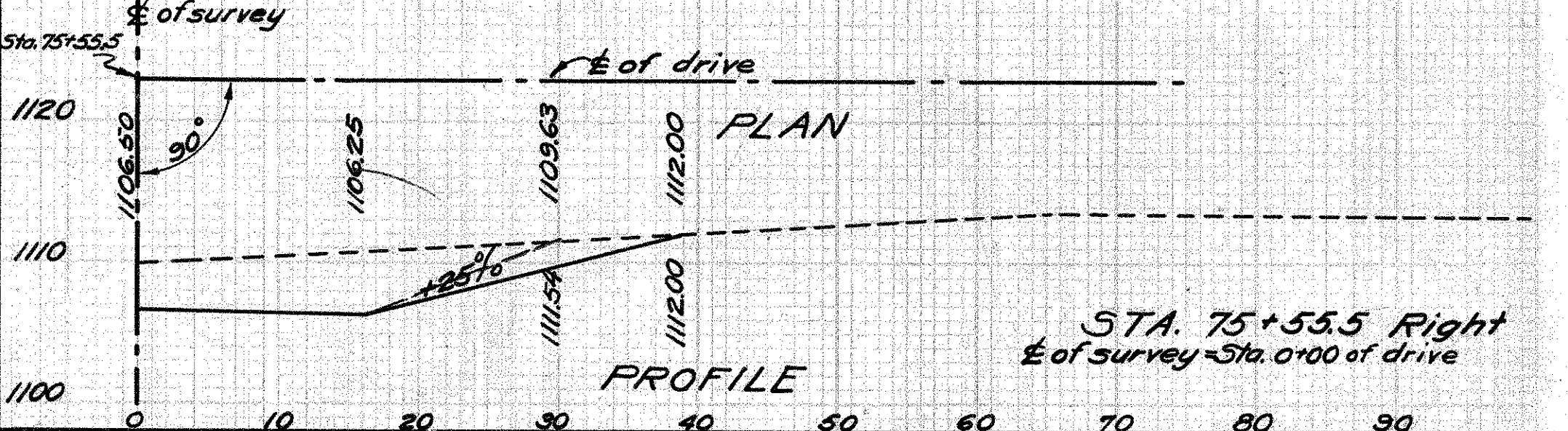
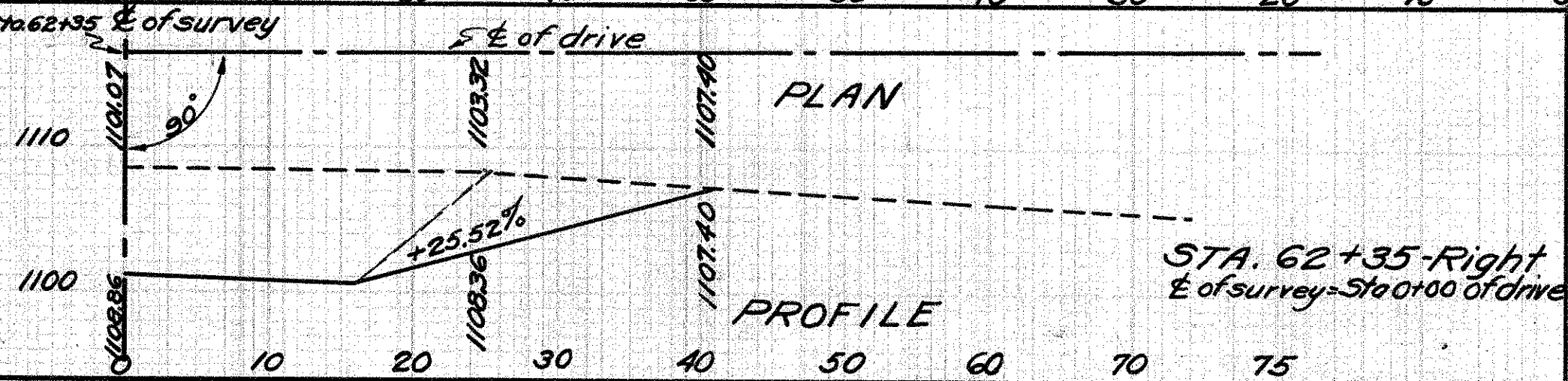
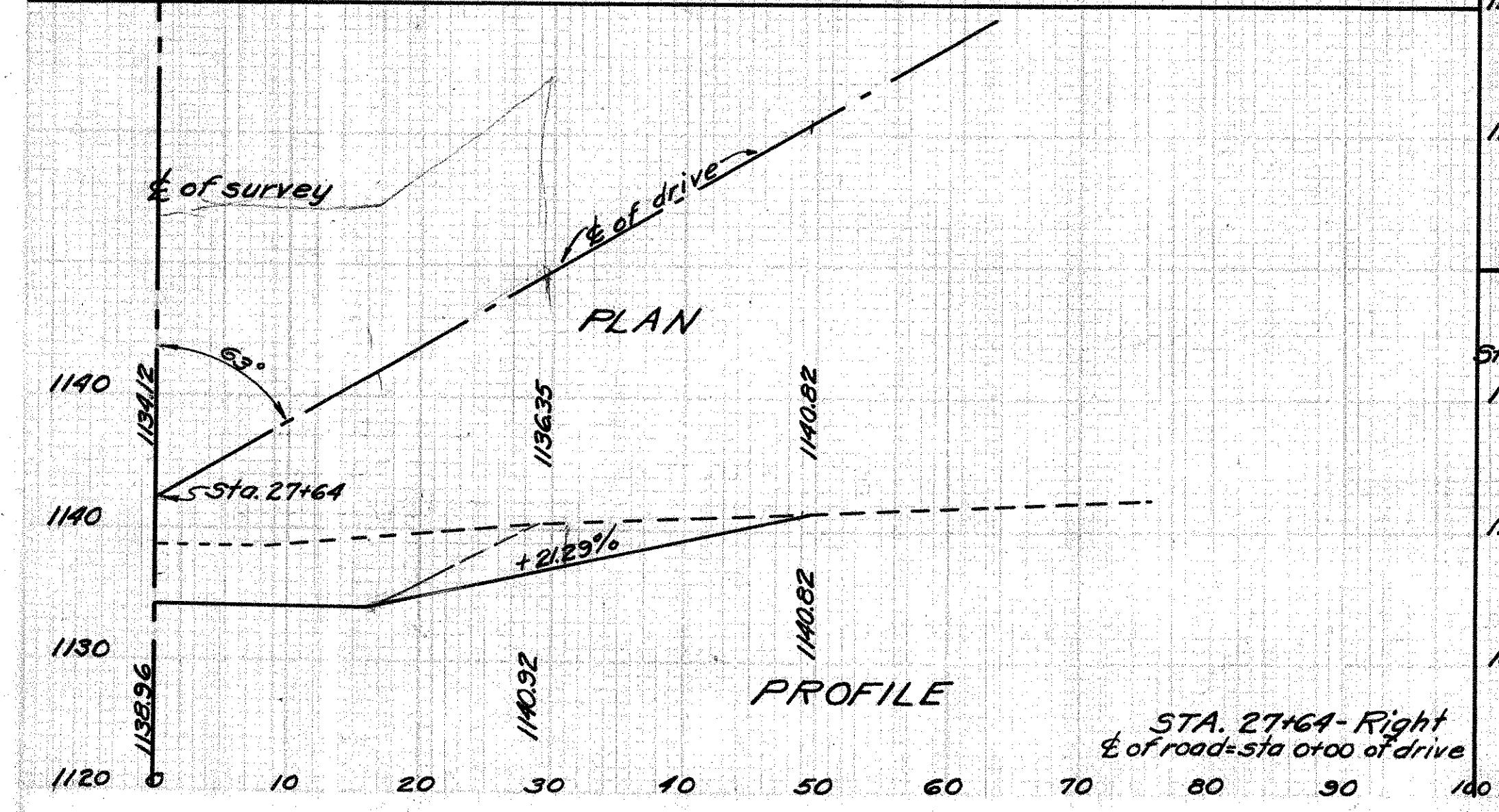
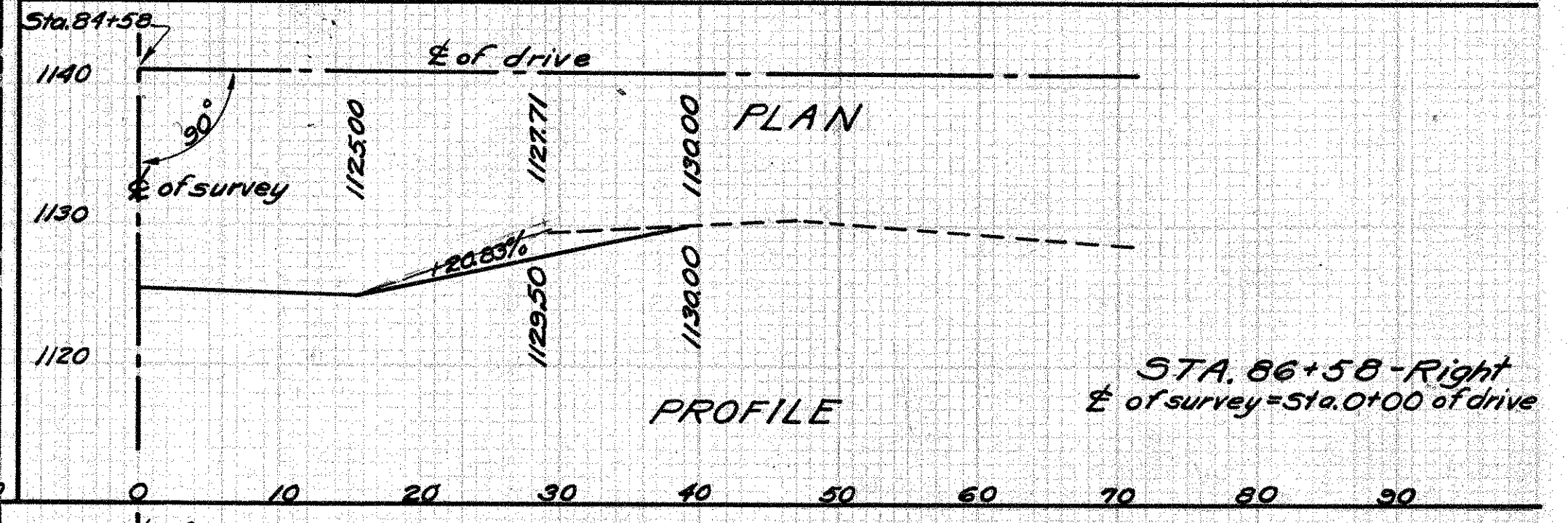
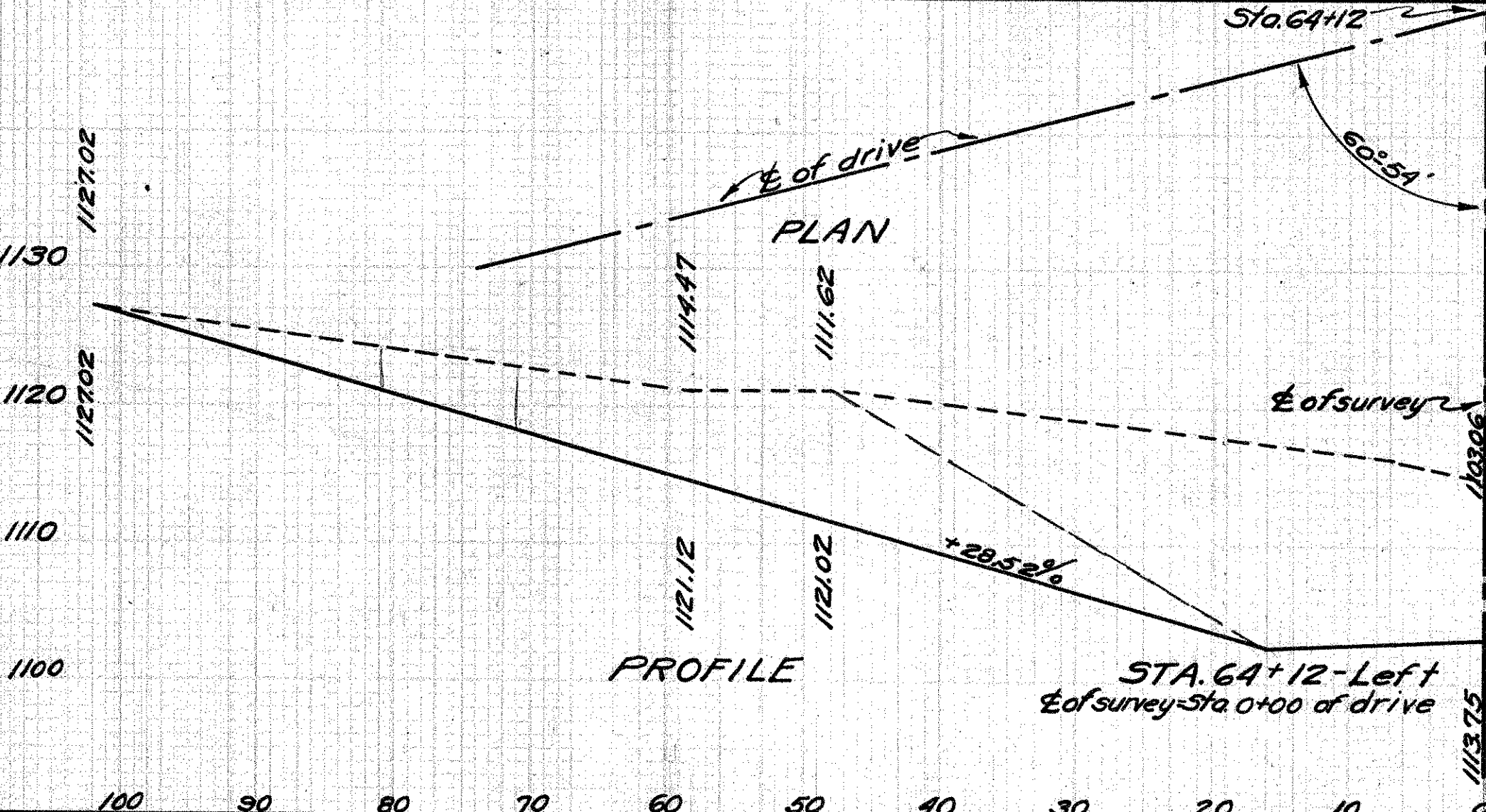
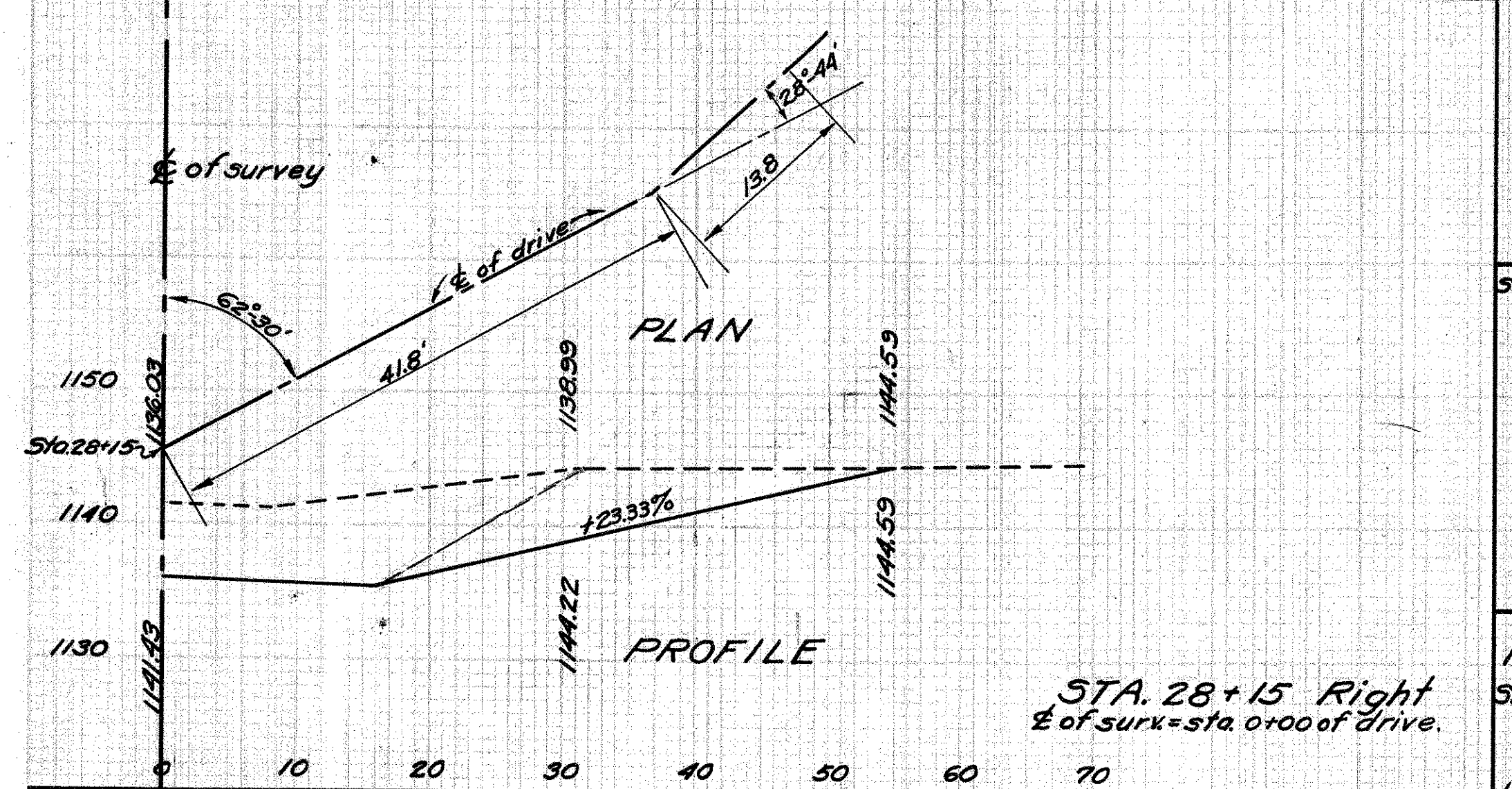
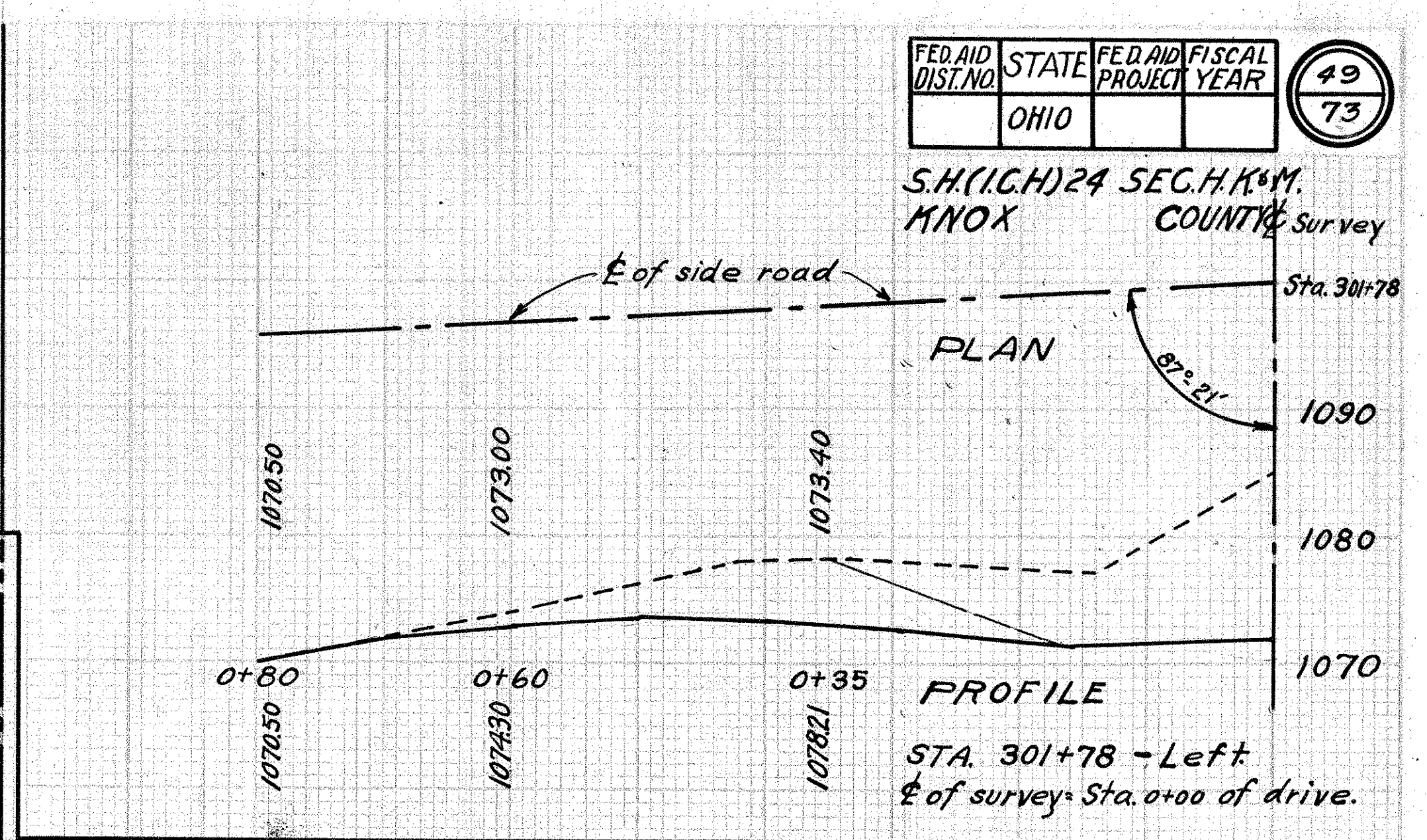
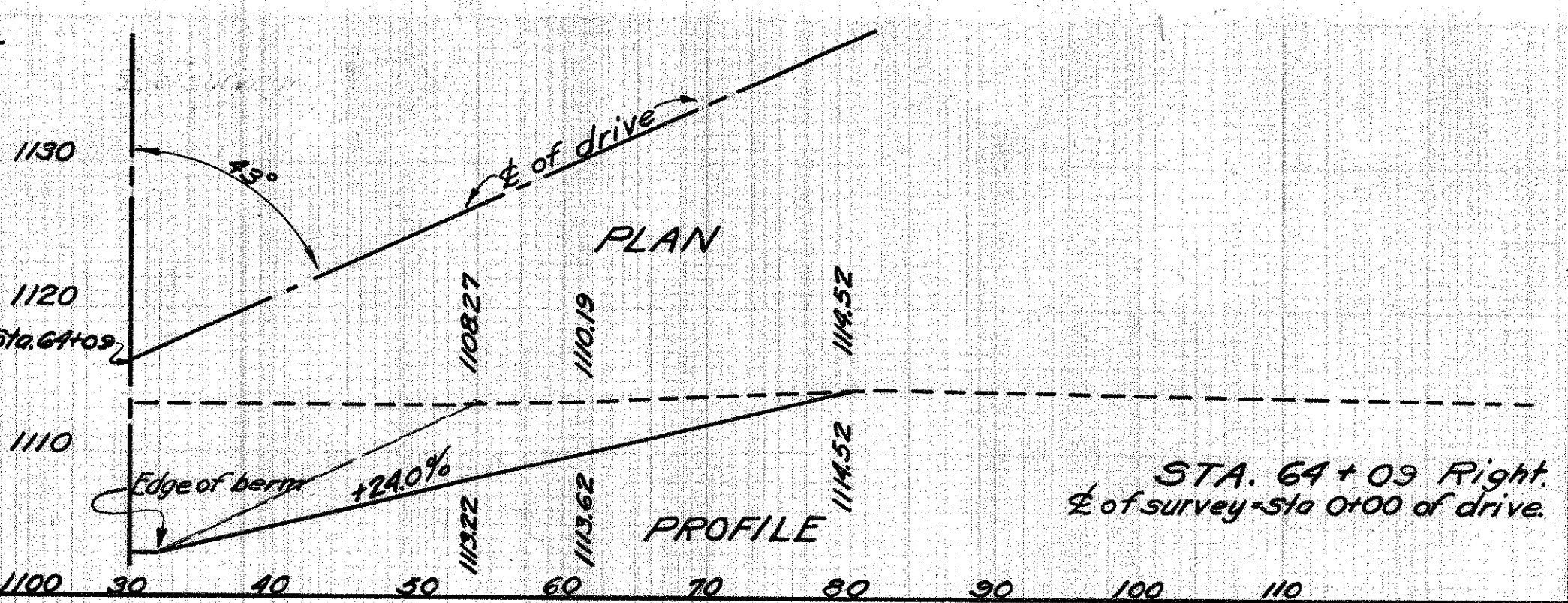
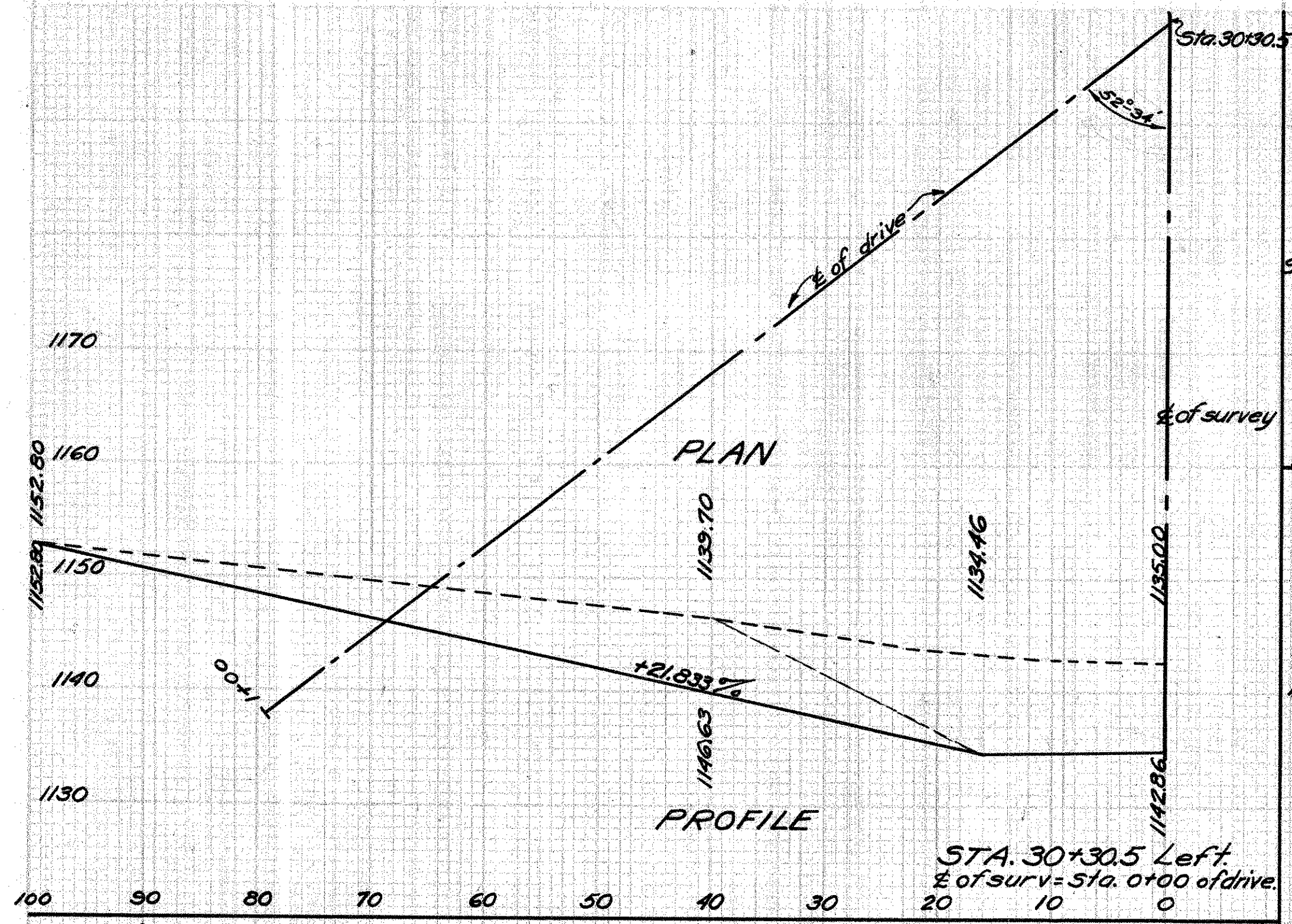
End Area	Cu. Yds.
Cut	Fill
12	23
	18 54
8	27
	17 55
10	23
	17 43
8	16
	13 48
6	27
	7 62
2	29
	3 62

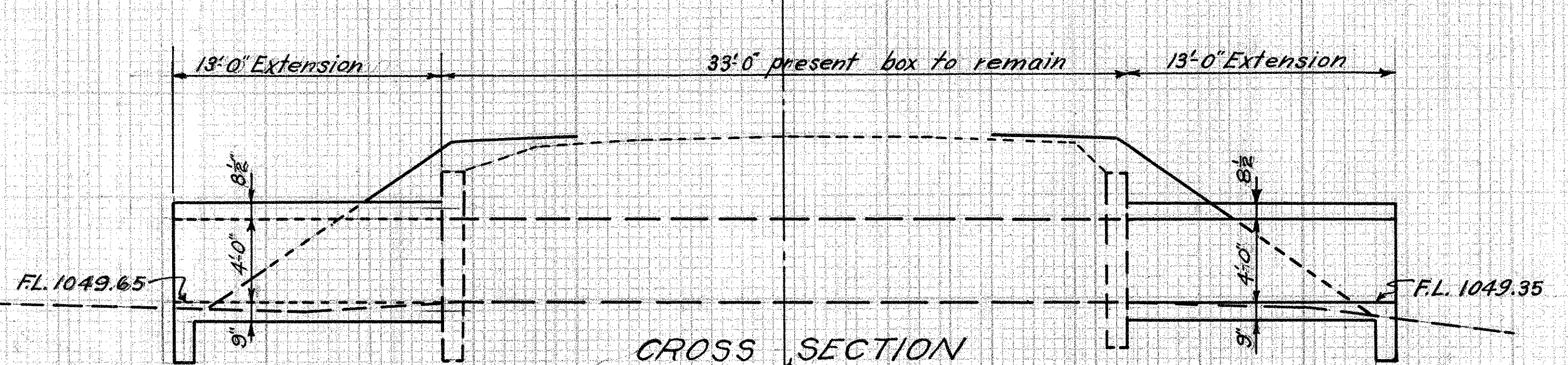
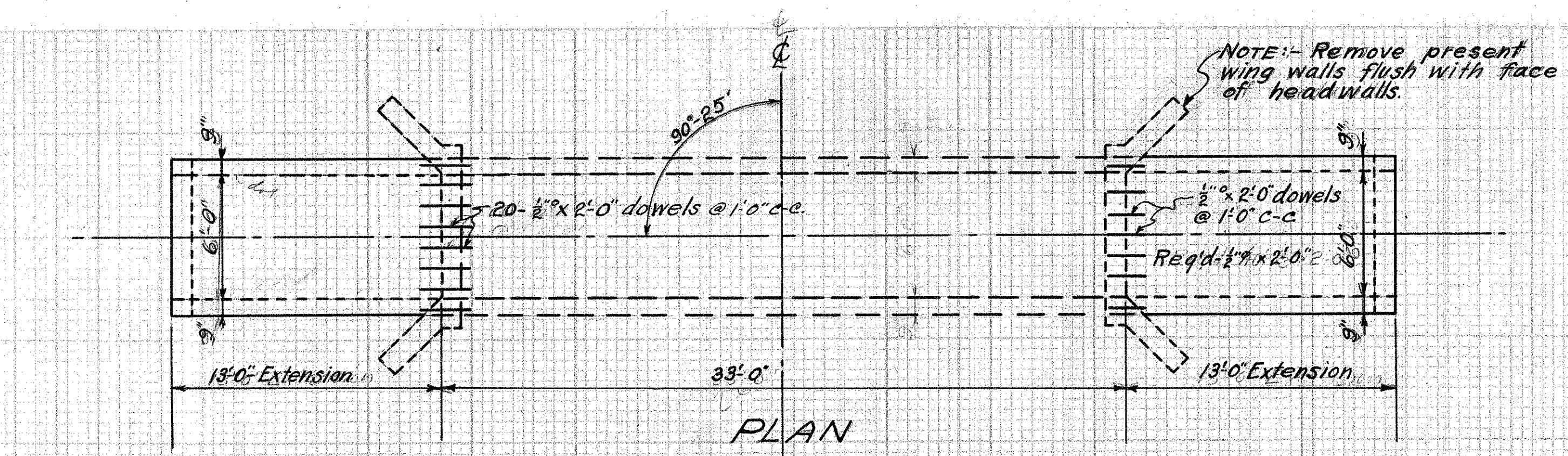
Exc. = 265 cu yds.  
Embankment = 1637 cu yds.  
Borrow = 1372 cu yds.





S.H.(I.C.H.) 24 SEC. H.K. & M. COUNTY Survey  
MNOX



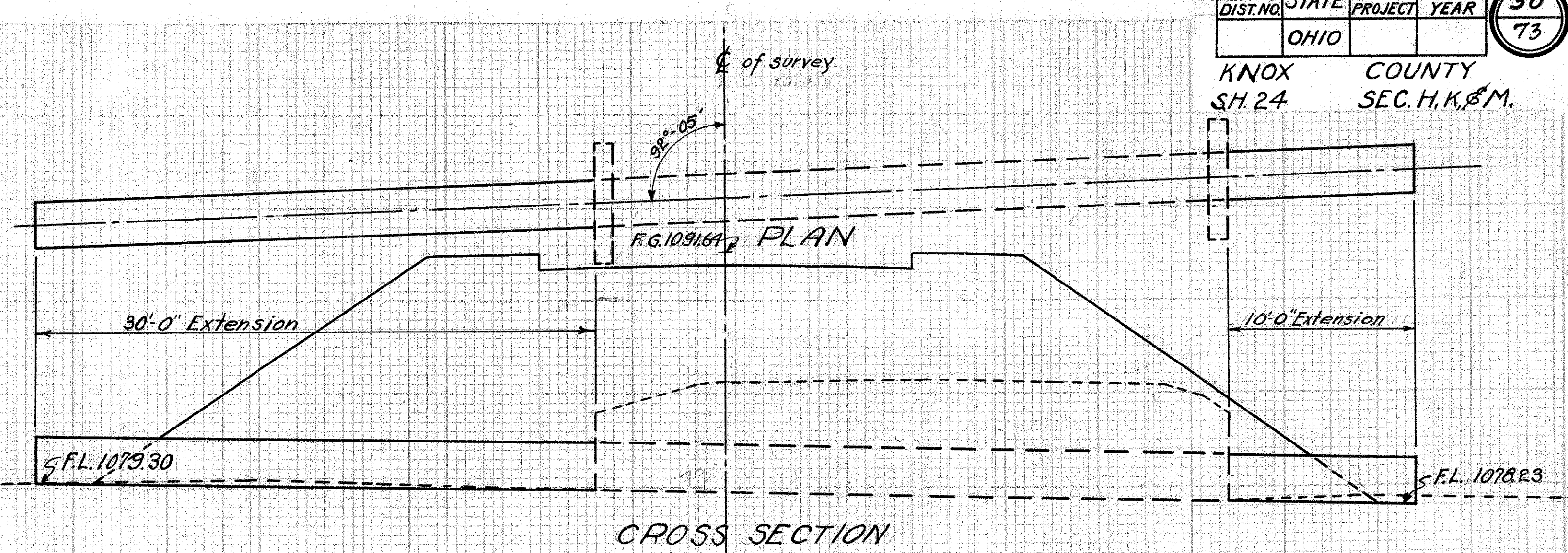


**CULVERT DATA**  
 Type:- Std. Conc. Box Culvert Extension without Headwalls.  
 Size:- 6' x 4' x 26' Extension Std. Dwg's BCA & CE-A  
 Work Req'd:- Remove present wing walls on both ends  
 Build new conc. box extensions without headwalls.  
 Payment for removal of hdwls. to be included in cost of excavation.

**ESTIMATED QUANTITIES**  
 Exc. 7.0 cu. yds. ✓  
 Conc. (1:5 1/2) 17.5 cu. yds. ✓  
 Reinf. Steel 1809 lbs. ✓  
 Dowel Holes 40 lin. ft. ✓

Drawn by C.W.McC. Date 5-7-32.  
 Checked by Date

STA. 8+37

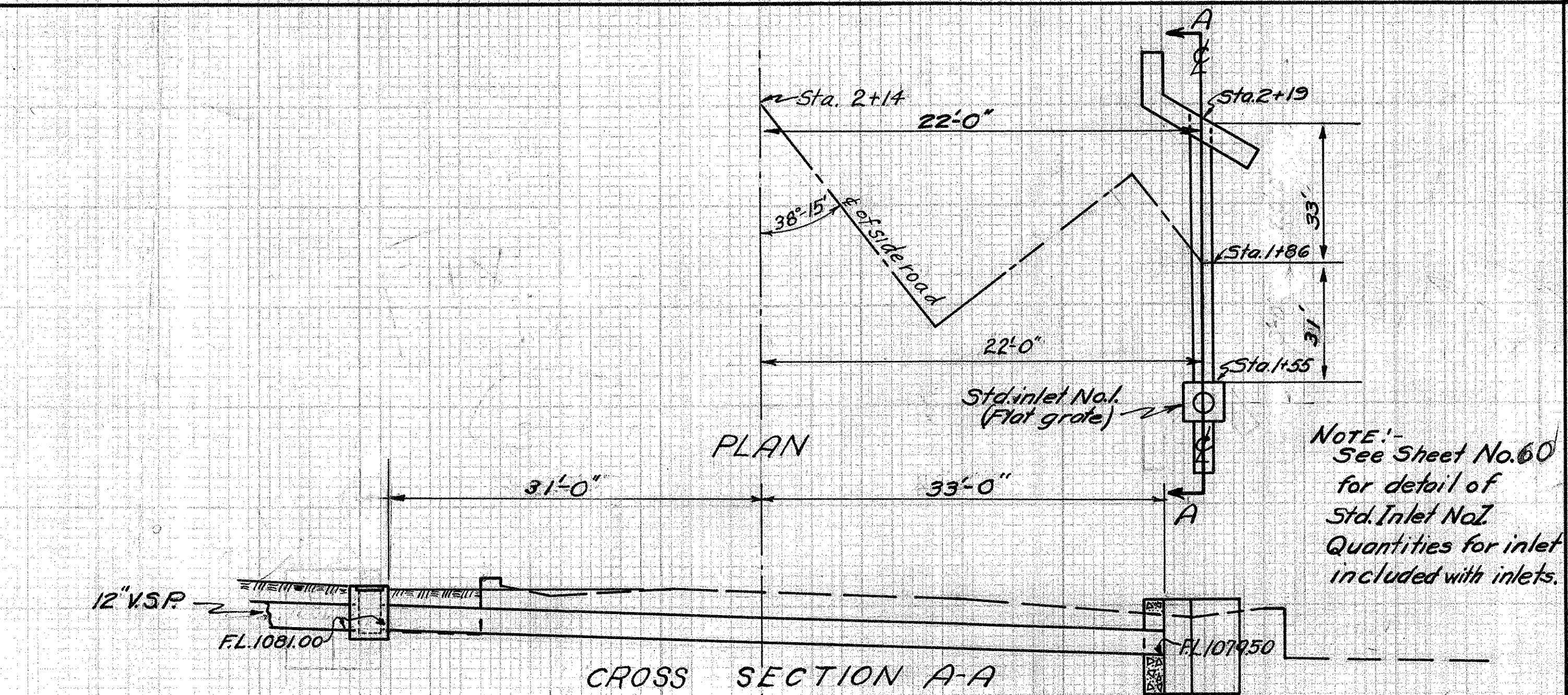


**CULVERT DATA**  
 Type:- Std. Reinf. Conc. pipe culvert - No headwalls  
 Size:- 30" x 40" Ext.  
 Work Req'd:- Extend present 30' Sect. C.I.P. as shown with 30" Reinforced Concrete pipe

**ESTIMATED QUANTITIES**  
 Exc. 2 cu. yds. ✓  
 30' Reinf. Conc. Pipe 40 lin. ft.

Drawn by C.W.McC. Date 5-7-32.  
 Checked by Date

STA. 69+02

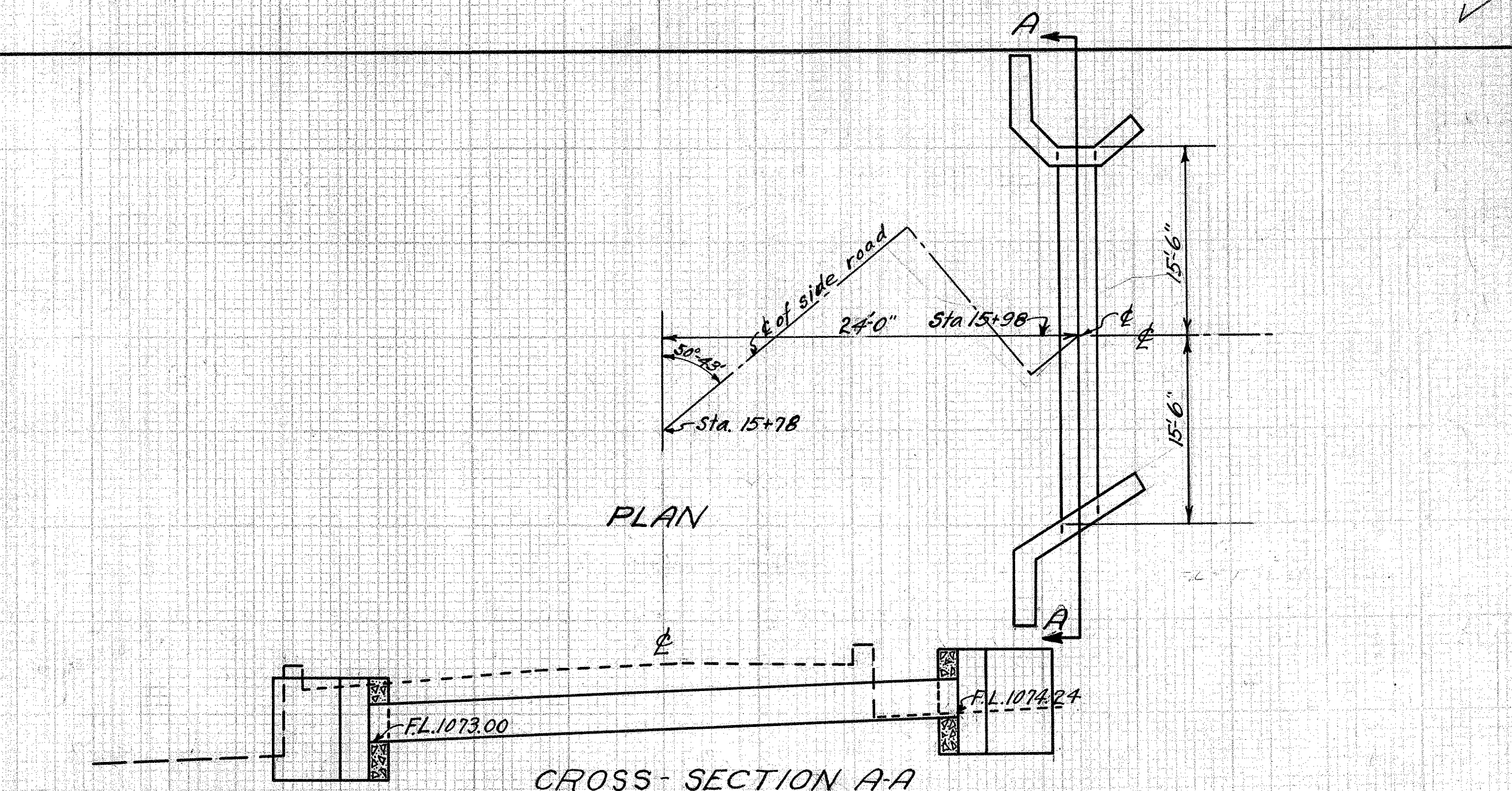


**CULVERT DATA**  
 Type:- Std. Side Road Reinf. Conc. Pipe Culvert  
 Size:- 15" x 6" Std. Dwg. #300  
 Work Req'd:- Remove present 14" x 40" Sect. C.I. Pipe  
 Build new 15" x 6" Std. Side Road R.C. Pipe Culvert, as shown, & connect to 12" side ditch tile with Std. inlet No. 1  
 Removal of present culvert to be included in cost of excavation.

**ESTIMATED QUANTITIES**  
 Exc. 10.0 cu. yds. ✓  
 Conc. (1:5 1/2) 1.5 cu. yds. ✓  
 Reinf. Steel 33 lbs. ✓  
 15" Reinf. Conc. Pipe 64.0 lin. ft. ✓

Drawn by C.W.McC. Date 4-6-32.  
 Checked by Date

STA. 2+14-Right

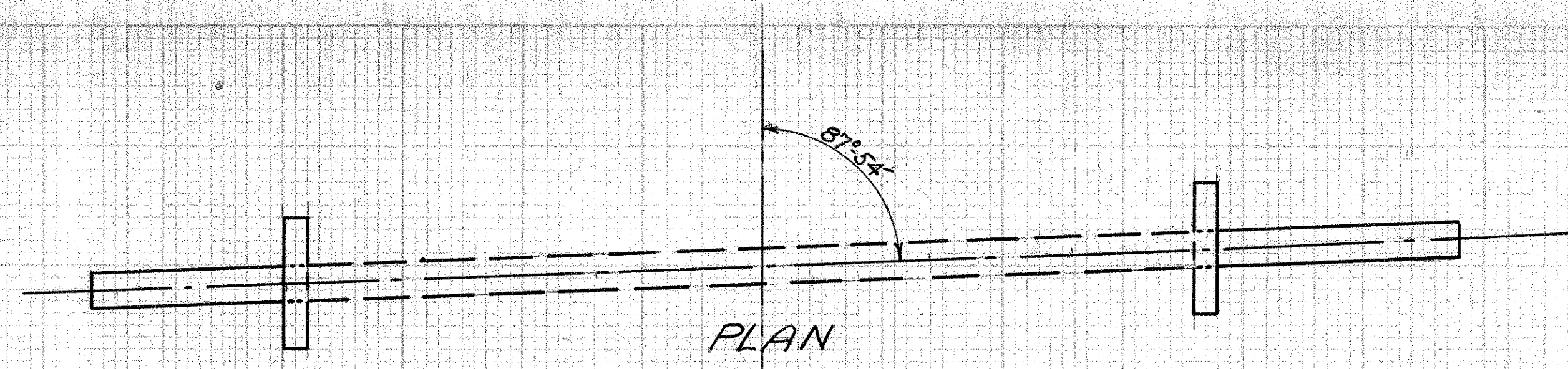


**CULVERT DATA**  
 Type:- Std. Side road C.I. Pipe Culvert - Modified Headwalls.  
 Size:- 24" x 31" Ext.  
 Work Req'd:- Remove & relay present 24" pipe & Build new headwalls.

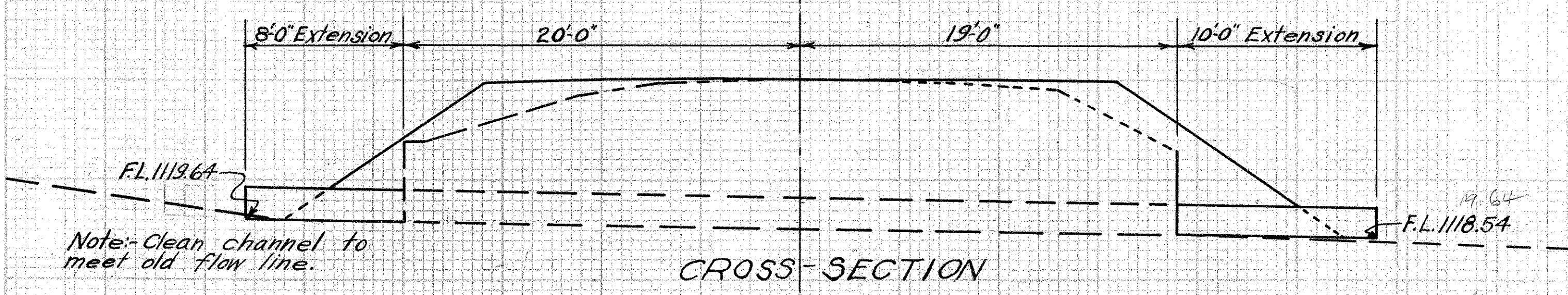
**ESTIMATED QUANTITIES**  
 Exc. 18.0 cu. yds. ✓  
 Conc. (1:5 1/2) 4.1 cu. yds. ✓  
 Reinf. Steel 85 lbs. ✓  
 24" Solid C.I.P. (relay) 31 Lin. Ft. ✓

Drawn by C.W.McC. Date 5-7-32.  
 Checked by Date

STA. 15+78 Ft.



PLAN



CROSS-SECTION

**CULVERT DATA**

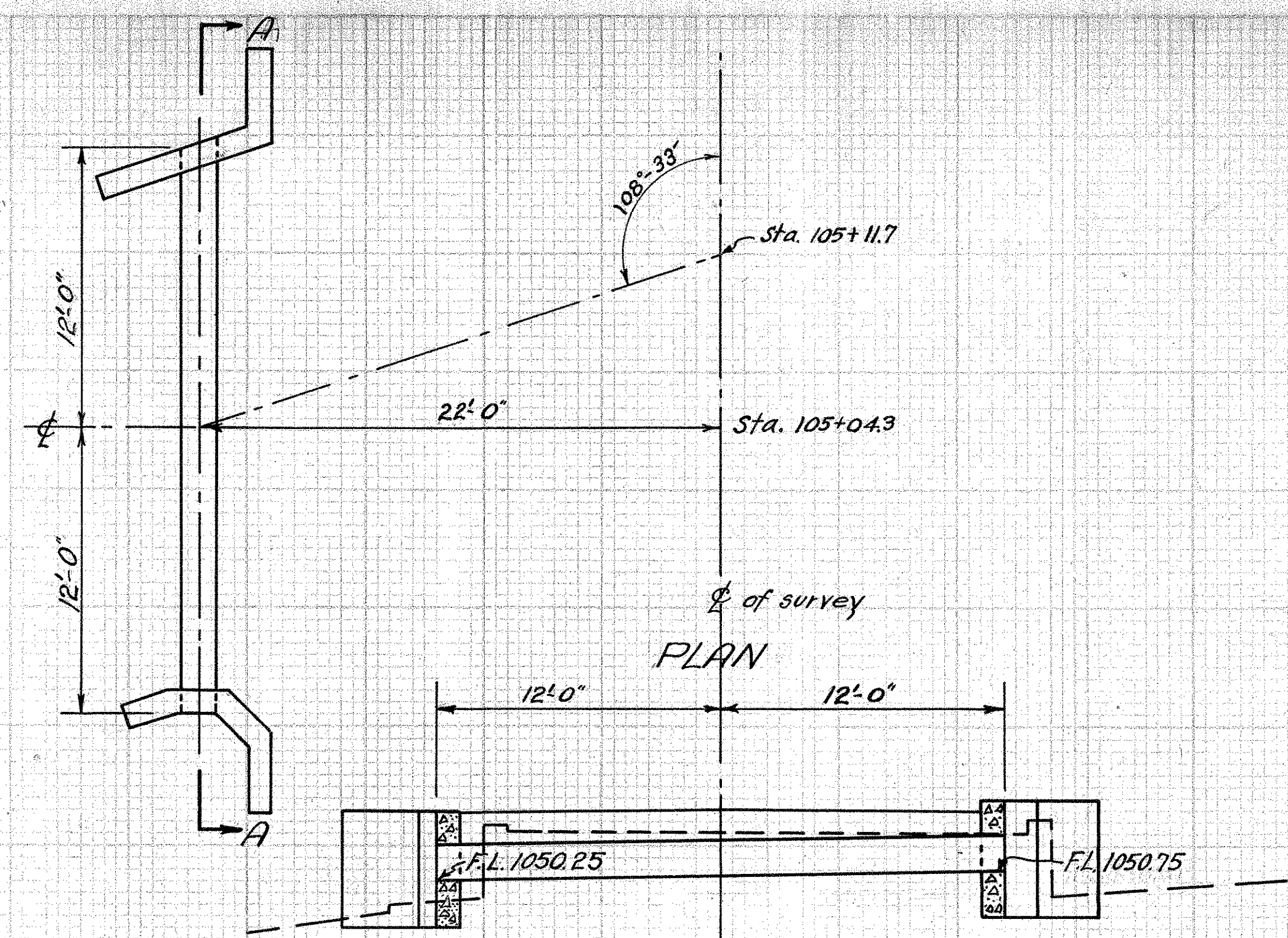
Type: Std. Reinf. Conc. Pipe Culvert Extension (No headwalls).  
 Size: 18" x 18" Extension Std. Dwg. #300 & GE-A  
 Work Req'd: Extend present 18" V.S.P. Culvert with 18" Reinf. Conc. Pipe (No headwalls).

**ESTIMATED QUANTITIES**

Exc. 3 cu. yds. ✓  
 18" Reinf. Conc. Pipe 18 lin. ft.

Drawn by C.W.M.C.  
 Date: 5-8-32  
 Checked by  
 Date:

9  
 STA. 90+70.1 ✓



PLAN

CROSS-SECTION A-A

**CULVERT DATA**

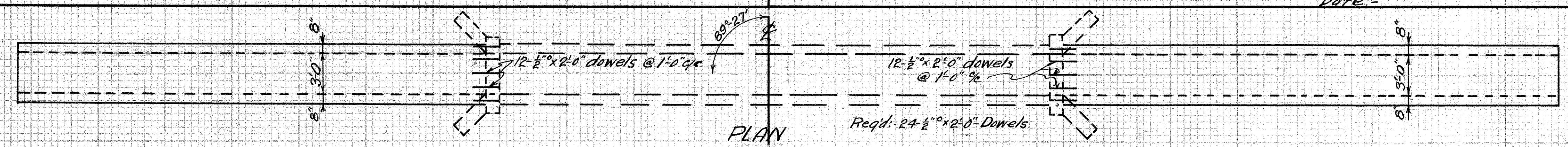
Type: Std. Reinf. Conc. Pipe Side Road Culvert.  
 Size: 18" x 24" Std. Dwg. #300  
 Work Req'd: Remove present 18" Sect. C.I.P. & headwalls. Build new Std. R.C.P. side road culvert with modified headwalls.

**ESTIMATED QUANTITIES**

Exc. 9.0 cu. yds. ✓  
 Conc. (1:5 1/2) 3.3 cu. yds. ✓  
 Reinf. Steel 70. lbs. ✓  
 18" Reinf. Conc. Pipe 24 lin. ft. ✓

Drawn by C.W.M.C.  
 Date: 5-8-32  
 Checked by  
 Date:

10  
 STA. 105+04.3 Lt. ✓



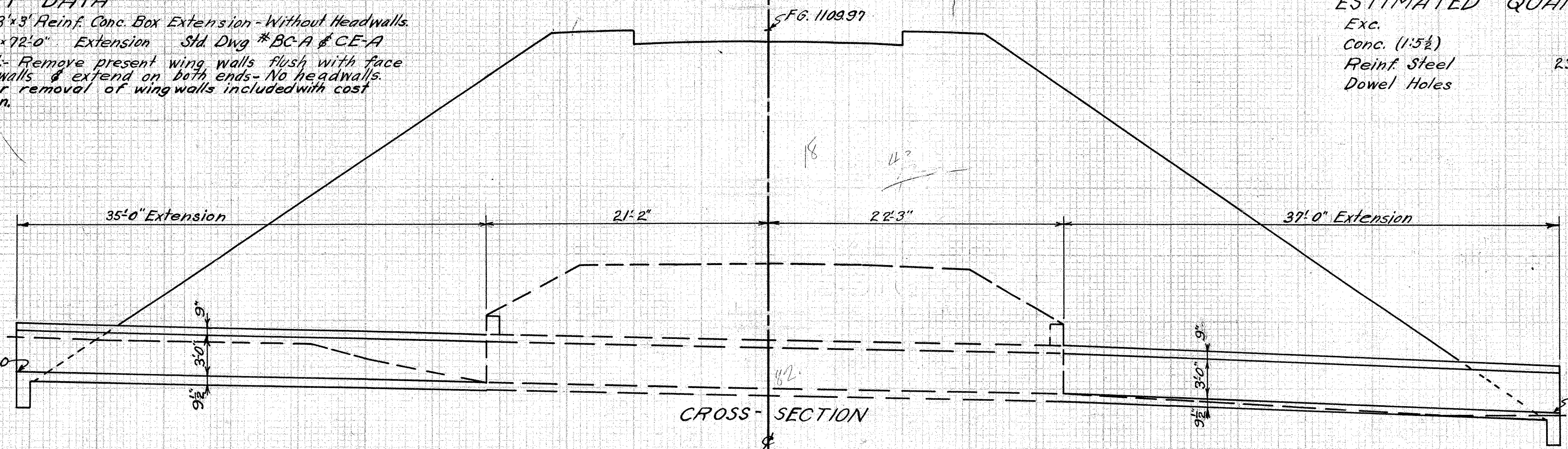
PLAN

**CULVERT DATA**

Type: Std. 3' x 3' Reinf. Conc. Box Extension - Without Headwalls.  
 Size: 3' x 3' x 72'-0" Extension Std. Dwg. #BC-A & CE-A  
 Work Req'd: Remove present wing walls flush with face of headwalls & extend on both ends - No headwalls. Payment for removal of wing walls included with cost of excavation.

**ESTIMATED QUANTITIES**

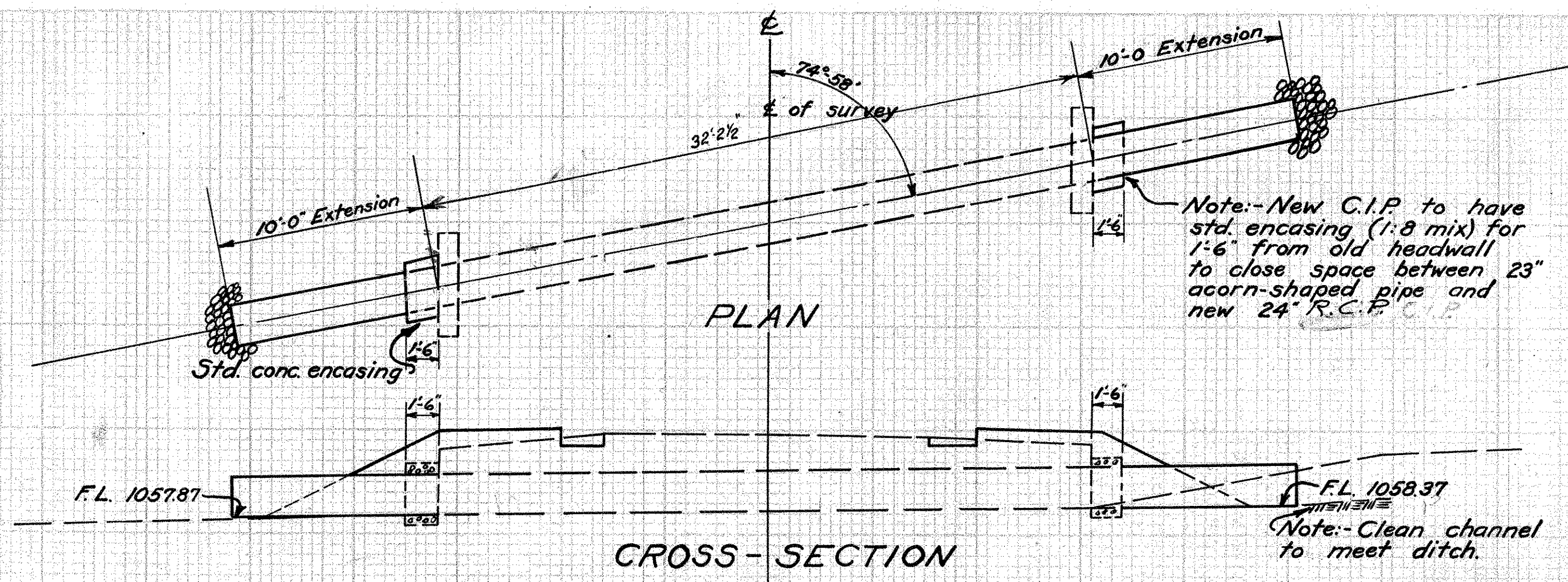
Exc. 25.0 cu. yds. ✓  
 Conc. (1:5 1/2) 29.2 cu. yds. ✓  
 Reinf. Steel 2328 lbs. ✓  
 Dowel Holes 24 lin. ft. ✓



CROSS-SECTION

Drawn by C.W.M.C.  
 Date: 5-7-32  
 Checked by  
 Date:

8  
 STA. 80+33.7 ✓



**CULVERT DATA**

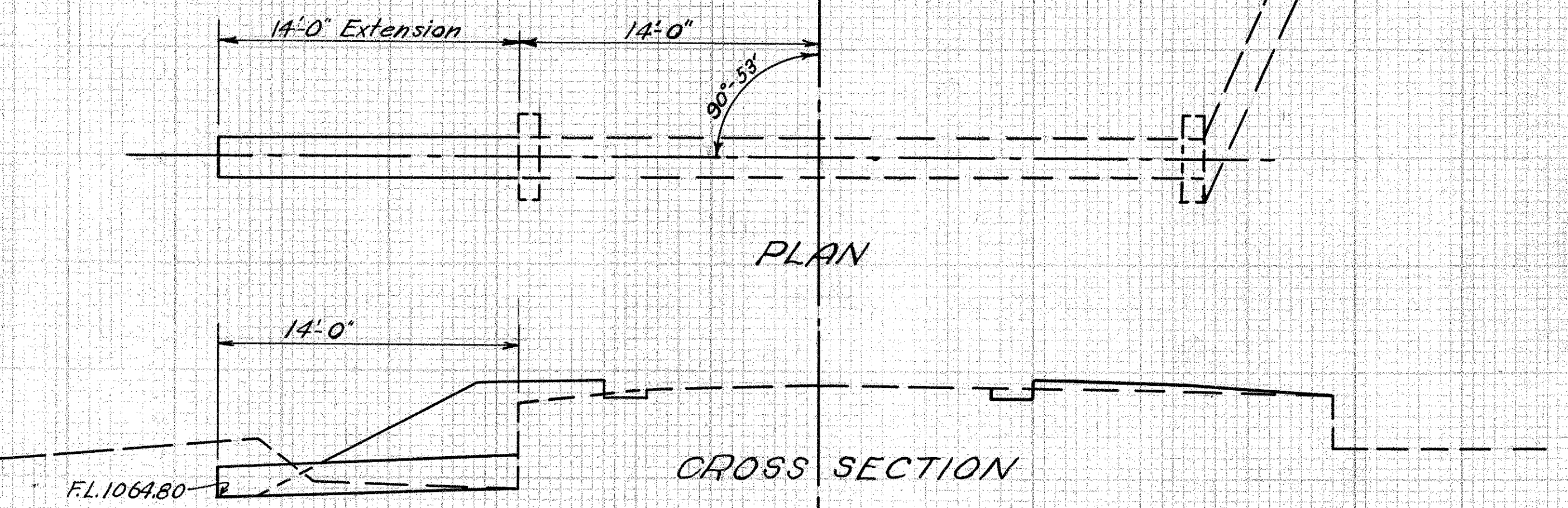
Type: - Std. Rein. Conc. Pipe extension  
 Size: - 24" x 20'-0" Std. Dwg. No. 300 and CE-A  
 Work Req'd: - Extend present 23" acorn-shaped pipe with 24" Rein. Conc. Pipe. Encase 1'-6" from headwall of new pipe. - No headwalls.

**ESTIMATED QUANTITIES**

Exc. 3° cu. yds. ✓  
 Conc. (1:8 mix) 0.62 cu. yds. ✓  
 24" Rein. Concrete Pipe 20° lin. ft. ✓  
 Rip-rap 2° sq. yds. ✓

Drawn by: C.W.MEC  
 Date: - 5-15-32  
 Checked by:  
 Date: -

14  
 STA. 126 + 25



**CULVERT DATA**

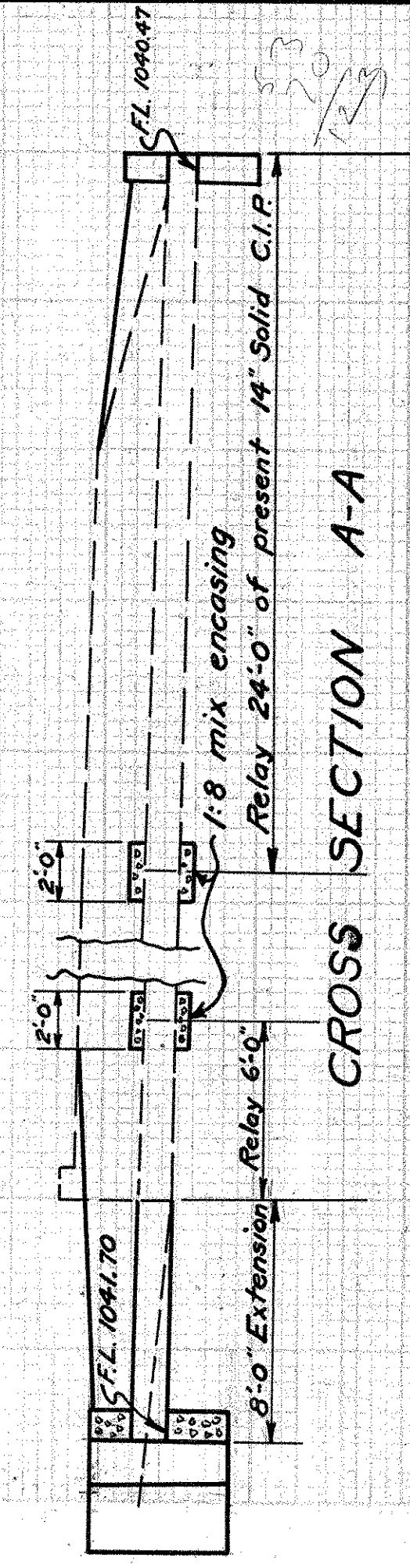
Type: - Std. Rein. C. Pipe Culvert extension - No headwalls.  
 Size: - 20" x 14'-0" Extension.  
 Work Req'd: - Extend present 20" Sect. C.I.P. on left with 20" Rein. C.P. - No headwalls.

**ESTIMATED QUANTITIES**

Exc. 2 cu. yds. ✓  
 20" Rein. Concrete Pipe 14 lin. ft. ✓

Drawn by: C.W.MEC  
 Date: - 4-9-32  
 Checked by:  
 Date: -

16  
 STA. 138 + 71.5



**CULVERT DATA**

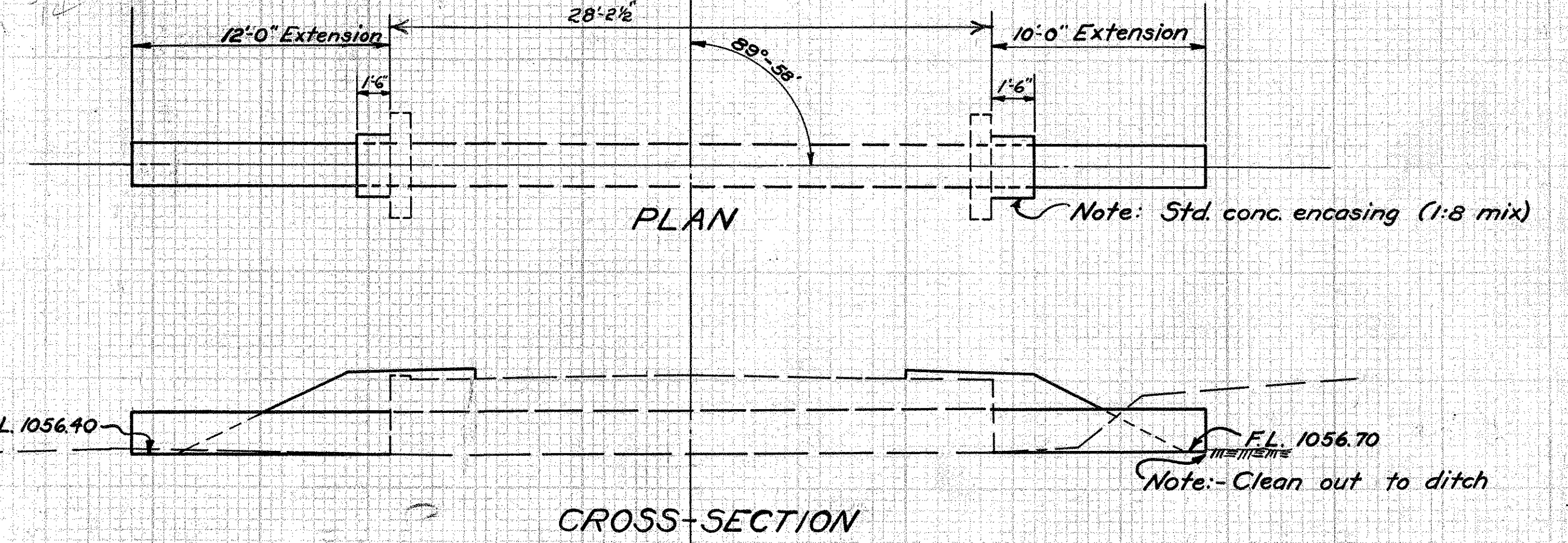
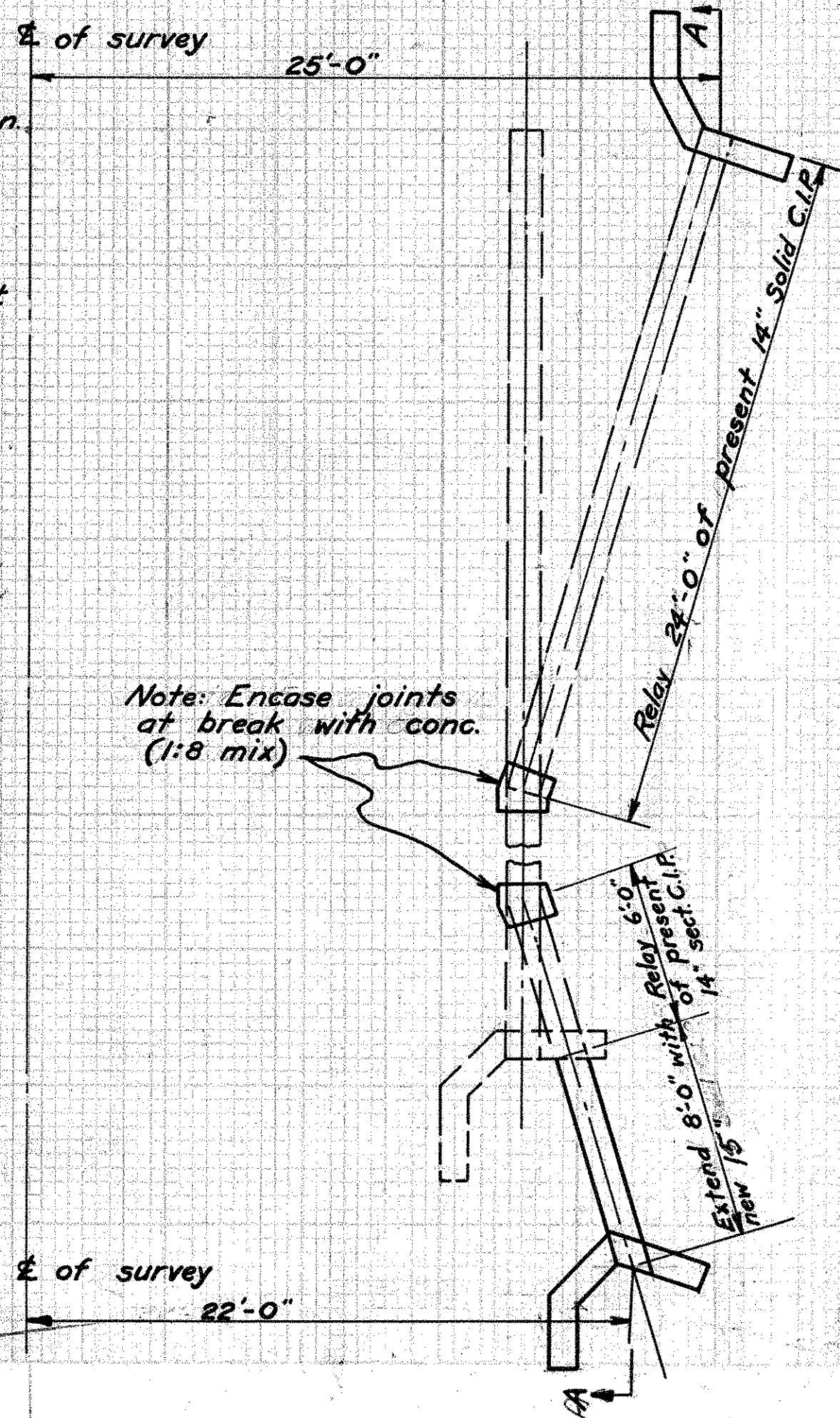
Type: - Std. Rein. Conc. Pipe side road culvert extension.  
 Size: - 15' x 8'-0" Extension.  
 Work Req'd: - Remove and relay 24' 0" lin. ft. of present 14" Solid C.I.P. on north end and build std. side road headwall.  
 Remove and relay 6' 0" lin. ft. of present 14" Sect. C.I.P. and extend 8'-0" with new R.C.P. on south end. Build std. side road headwall.  
 Encase joints at breaks with 2'-0" lin. ft. of std. encasing.

**ESTIMATED QUANTITIES**

Exc. 10° cu. yds. ✓  
 Conc. (1:5 1/2) 2° cu. yds. ✓  
 Conc. (1:8) 0.5 cu. yds. ✓  
 Reinf. Steel 65° lbs. ✓  
 15" Rein. Concrete Pipe (new) 8° lin. ft. ✓  
 14" Solid Cast Iron Pipe (relay) 30° lin. ft. ✓

Drawn by: - C.W.MEC  
 Date: - 5-18-32  
 Checked by: -  
 Date: -

11  
 STA. 108 + 34 Right



**CULVERT DATA**

Type: Std. Rein. C. P. Extension - No headwalls  
 Size: 24" x 22'-0"  
 Work Req'd: - Remove tops of present hdwls. and extend present 23" acorn-shaped Cast Iron pipe with 24" R.C. Pipe. Encase new pipe for a distance of 1'-6" from old headwall. Payment for removal of tops of hdwls included with cost of excavation.

**ESTIMATED QUANTITIES**

Exc. 3° cu. yds. ✓  
 Conc. (1:8) mix 0.62 cu. yds. ✓  
 24" Rein. Concrete pipe 22° lin. ft. ✓

Drawn by: C.W.MEC  
 Date: - 5-15-32  
 Checked by:  
 Date: -

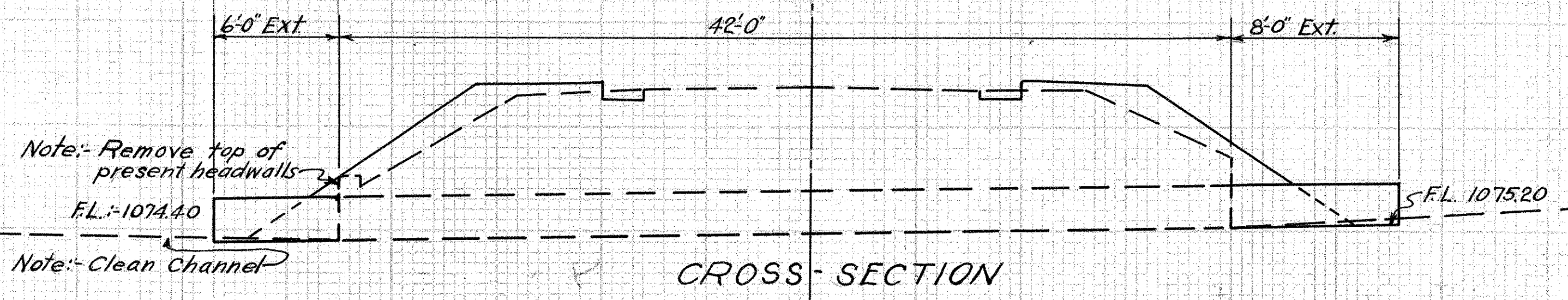
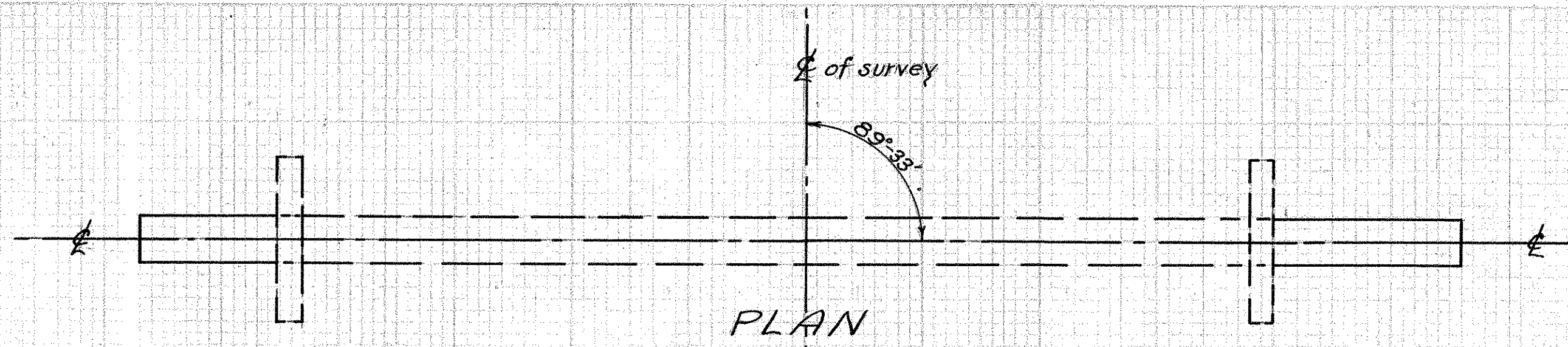
15  
 STA. 131 + 72.8

No.	Size	Qty	Spac.	Wt.
65	3/4"	7-6	55a	5.24
18	1/2"	6-3	V2a	1.0"
8	1/2"	5-6	V2b	1.0"
4	1/2"	4-6	V2c	1.0"
8	1/2"	3-5	V2d	1.0"
16	1/2"	2-3	V2e	1.0"
230	11/16"	T2a	1.0"	167
16	1/2"	4-3	K	1.0
22	1/2"	2-0	DOWELS	1.0
Total				1160

### CULVERT DATA

Type: Conc. Box Extension without headwalls.  
 Size: 6'x5'x25'6" Extension - See Std. Dwg. #BCA & CE-A  
 Work Req'd: - Remove present wing walls flush with face of headwall, remove top of present headwalls and extend on both ends with modified conc. box without headwalls.  
 Payment for removal of headwalls to be included in cost of excavation.

KNOX COUNTY  
 S.H. 24 SEC. H, K, & M.



### CULVERT DATA

Type: Std. Reinf. Conc. Pipe Extensions - No headwalls.  
 Size: 24" x 14'-0" Extensions Std. Dwg. #300 & CE-A  
 Work Req'd: - Remove tops of present hdwls. & extend present 24" Sect. C.I.P. Culvert on right & left.  
 Payment for removal of hdwls to be included in cost of excavation.

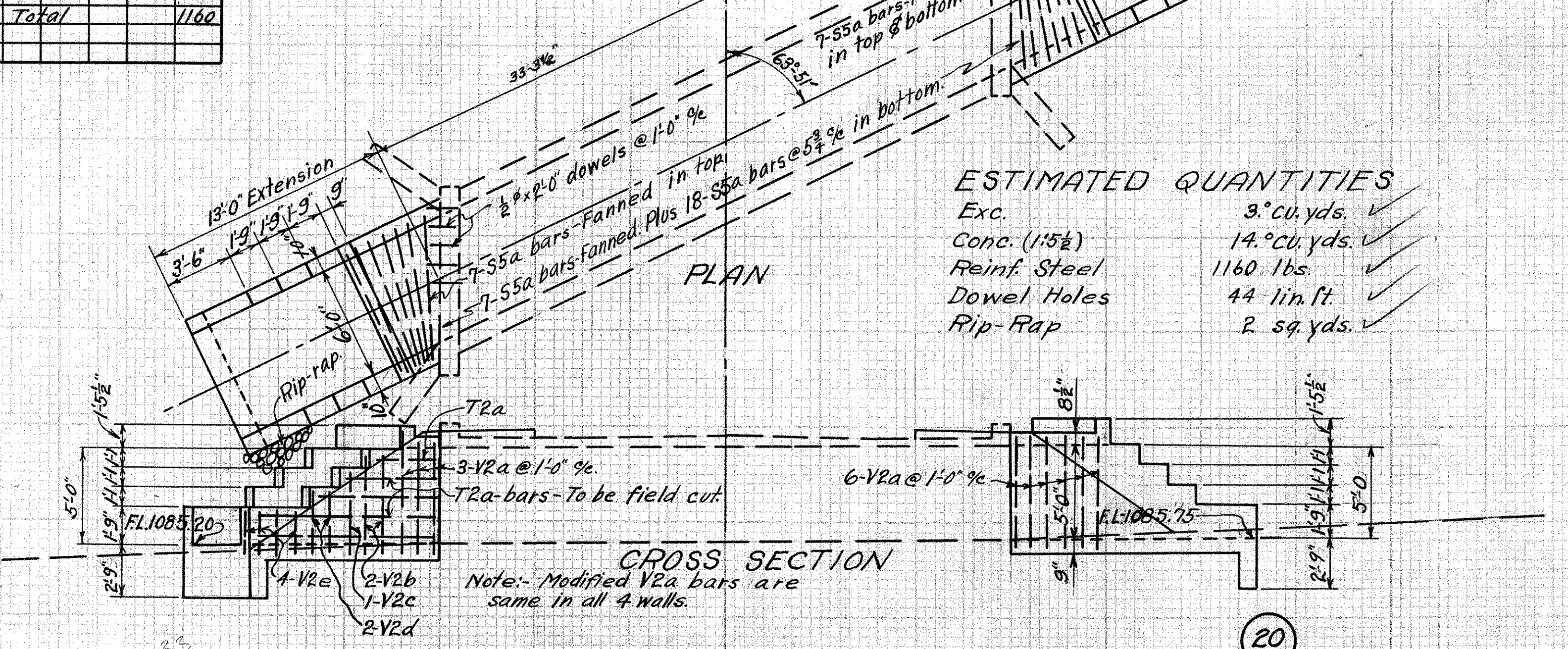
### ESTIMATED QUANTITIES

Exc. 2.0 cu. yds. ✓  
 24" Reinf. Conc. Pipe 14 lin. ft. ✓

Drawn by C.W.M.C.  
 Date: 4-9-32  
 Checked by  
 Date:

18

STA. 146+79.5

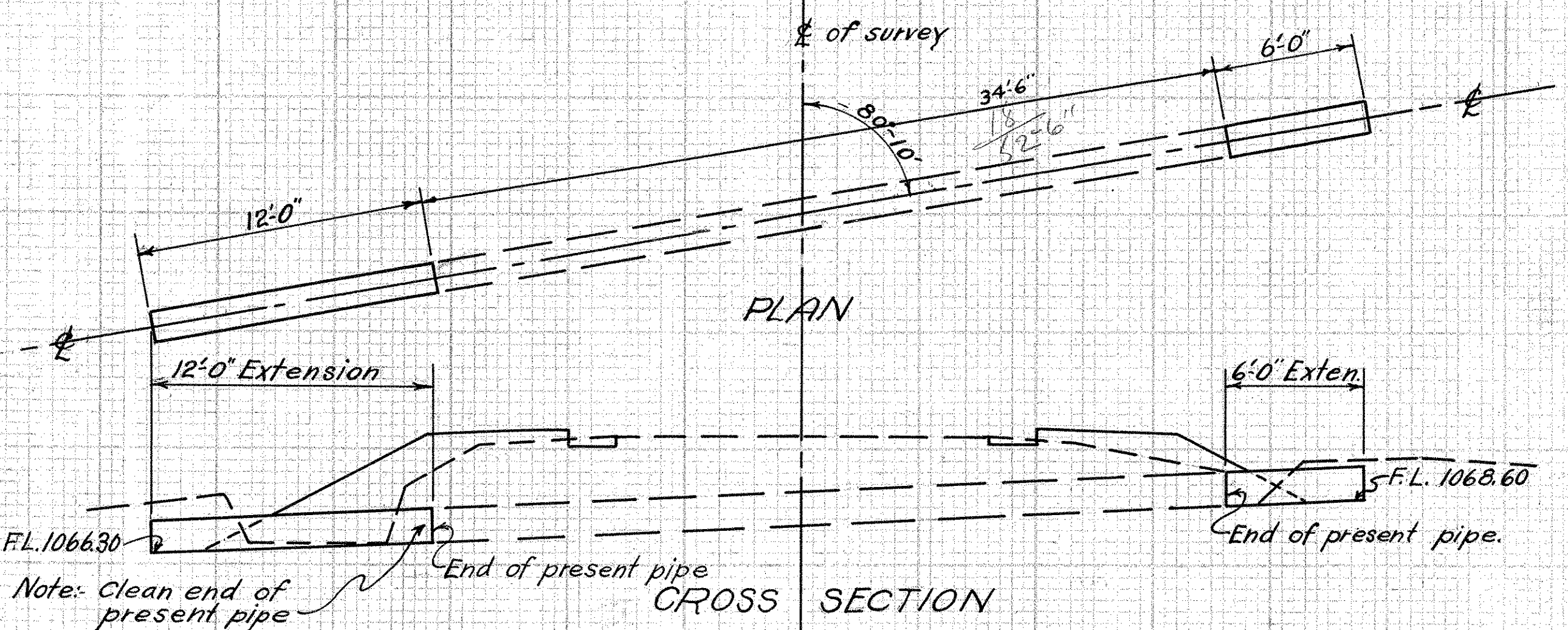


### ESTIMATED QUANTITIES

Exc. 3.0 cu. yds. ✓  
 Conc. (1:1.5) 14.0 cu. yds. ✓  
 Reinf. Steel 1160 lbs. ✓  
 Dowel Holes 44 lin. ft. ✓  
 Rip-Rap 2 sq. yds. ✓

20

STA. 159+07.35



### CULVERT DATA

Type: Std. Reinf. Conc. Pipe Exten. - No headwalls.  
 Size: 15" x 18'-0" Extension - Std. Dwg. #300 & CE-A  
 Work Req'd: - Clean ends of present 16" Sect. C.I.P. & extend 12'-0" on left & 6'-0" on right.

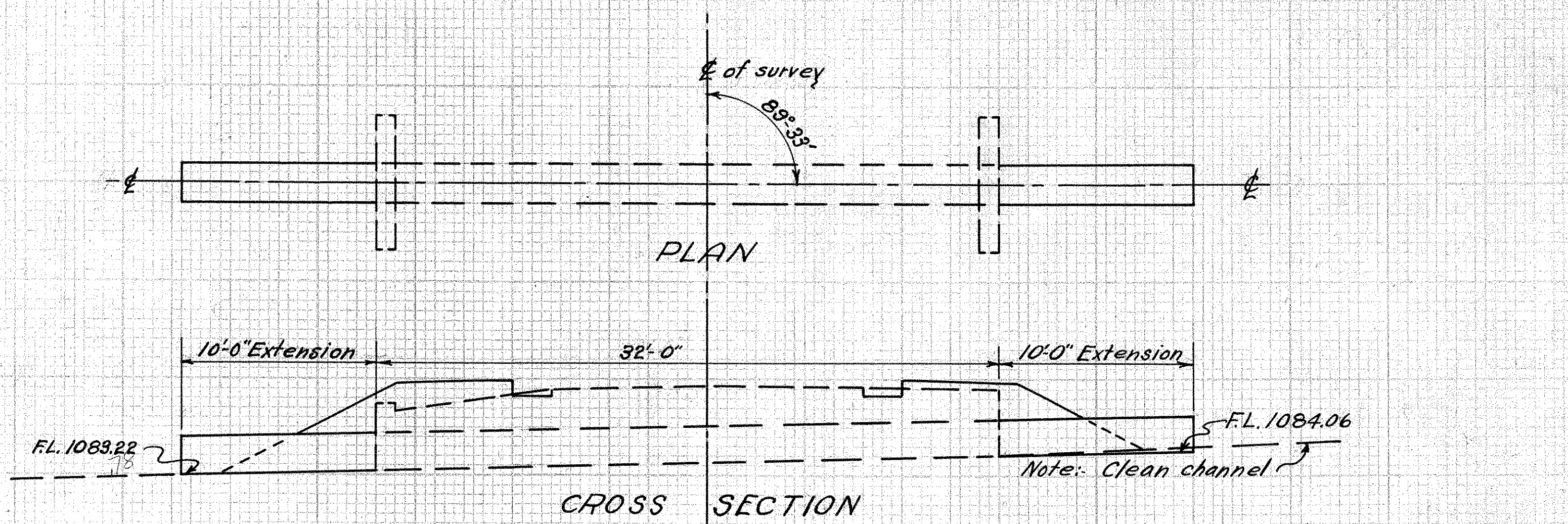
### ESTIMATED QUANTITIES

Exc. 3.0 Cu. yds. ✓  
 15" Reinf. Concrete. Pipe 18 lin. ft. ✓

Drawn by C.W.M.C.  
 Date: 4-9-32  
 Checked by  
 Date:

17

STA. 139+55.4



### CULVERT DATA

Type: Std. Reinf. C.P. Culvert extension - No headwalls  
 Size: 24" x 20'-0" Ext. Std. Dwg. #300 & CE-A  
 Work Req'd: - Clean channel & extend present 24" Sect. C.I.P. on right & left - No headwalls.

### ESTIMATED QUANTITIES

Exc. 1.0 cu. yd. ✓  
 24" Reinf. Conc. Pipe. 20' lin. ft. ✓

Drawn by C.W.M.C.  
 Date: 4-9-32  
 checked by  
 Date:

19

STA. 151+94.9

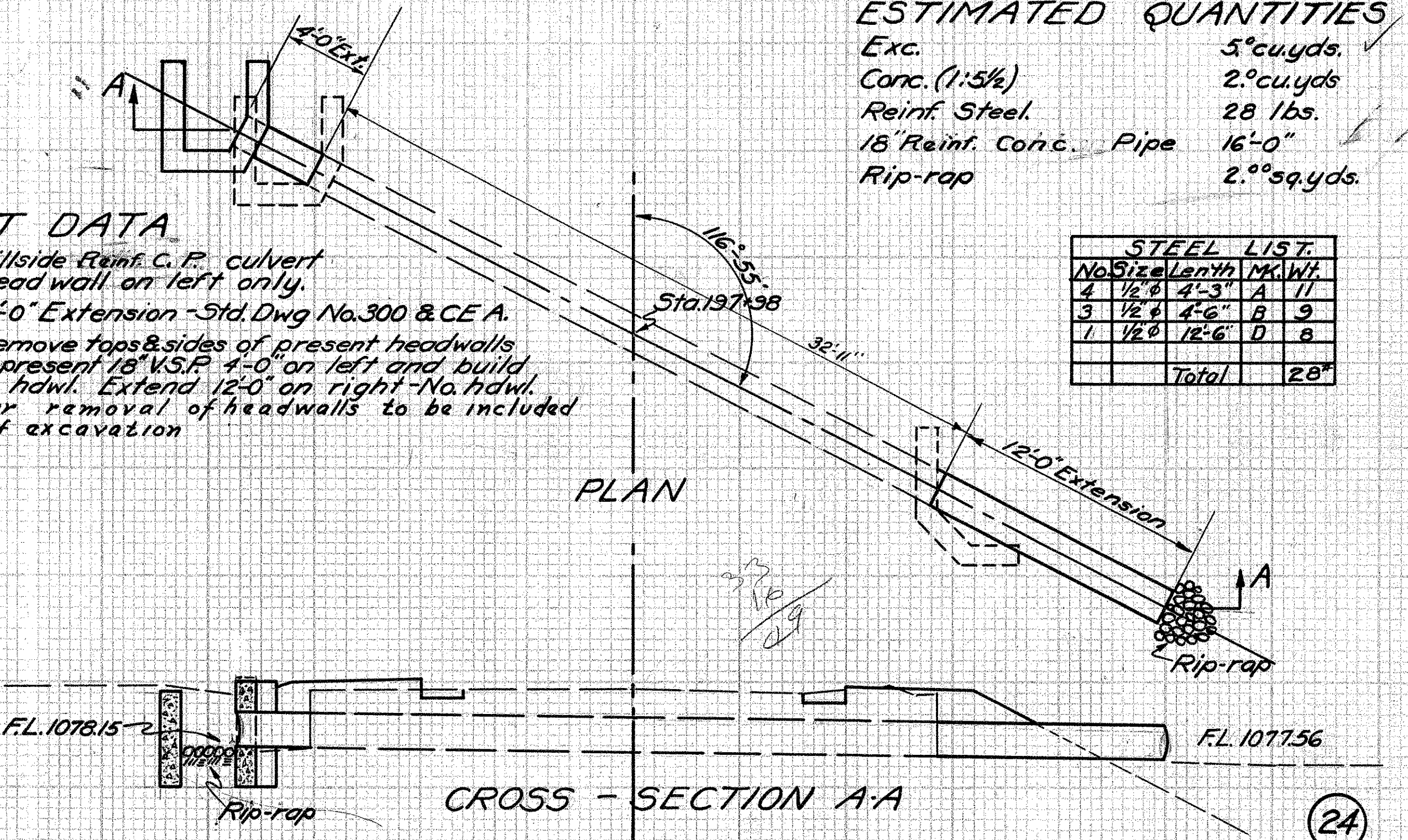
**CULVERT DATA**

Type: - Std. Hillside Rein. C.P. culvert  
 Extension: Head wall on left only.  
 Size: - 18" x 16'-0" Extension - Std. Dwg. No. 300 & CE A.  
 Work Req'd: Remove tops & sides of present headwalls and extend present 18" V.S.P. 4'-0" on left and build std. side hill hdwl. Extend 12'-0" on right - No. hdwl. Payment for removal of headwalls to be included with cost of excavation

**ESTIMATED QUANTITIES**

Exc. 5<sup>00</sup> cu.yds. ✓  
 Conc. (1:5½) 2<sup>00</sup> cu.yds. ✓  
 Reinf. Steel 28 lbs. ✓  
 18" Reinf. Conc. Pipe 16'-0" ✓  
 Rip-rap 2<sup>00</sup> sq.yds. ✓

STEEL LIST				
No.	Size	Length	Mk.	Wt.
4	1/2"	4'-3"	A	11
3	1/2"	4'-6"	B	9
1	1/2"	12'-6"	D	8
Total				28



Drawn by C.W.Mc  
 Date 5-11-32  
 Checked by  
 Date

STA 197+98

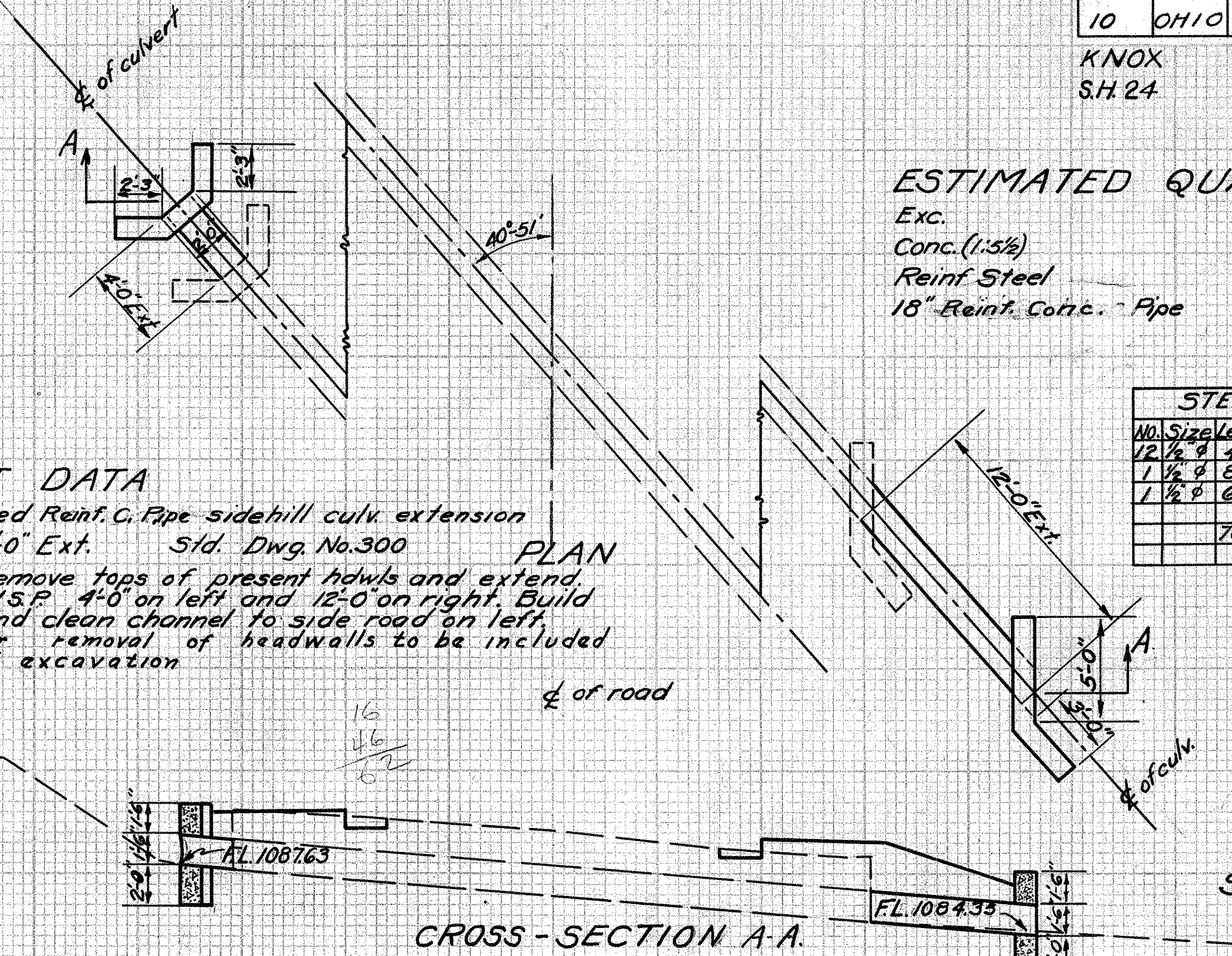
**ESTIMATED QUANTITIES**

Exc. 4<sup>00</sup> cu.yds. ✓  
 Conc. (1:5½) 2.8 cu.yds. ✓  
 Reinf. Steel 46<sup>00</sup> lbs. ✓  
 18" Reinf. Conc. Pipe 16'-0" lin.ft. ✓

STEEL LIST				
No.	Size	Length	Mk.	Wt.
12	1/2"	4'-6"	B	36
1	1/2"	8'-0"	C	5
1	1/2"	6'-6"	D	5
Total				46

**CULVERT DATA**

Type: - Modified Rein. C. Pipe sidehill culv. extension  
 Size: - 18" x 16'-0" Ext. Std. Dwg. No. 300  
 Work req'd: - Remove tops of present hdwls and extend present 18" V.S.P. 4'-0" on left and 12'-0" on right. Build new hdwls and clean channel to side road on left. Payment for removal of headwalls to be included with cost of excavation



Drawn by C.W.Mc  
 Date:  
 Checked by:  
 Date:

STA. 215+29

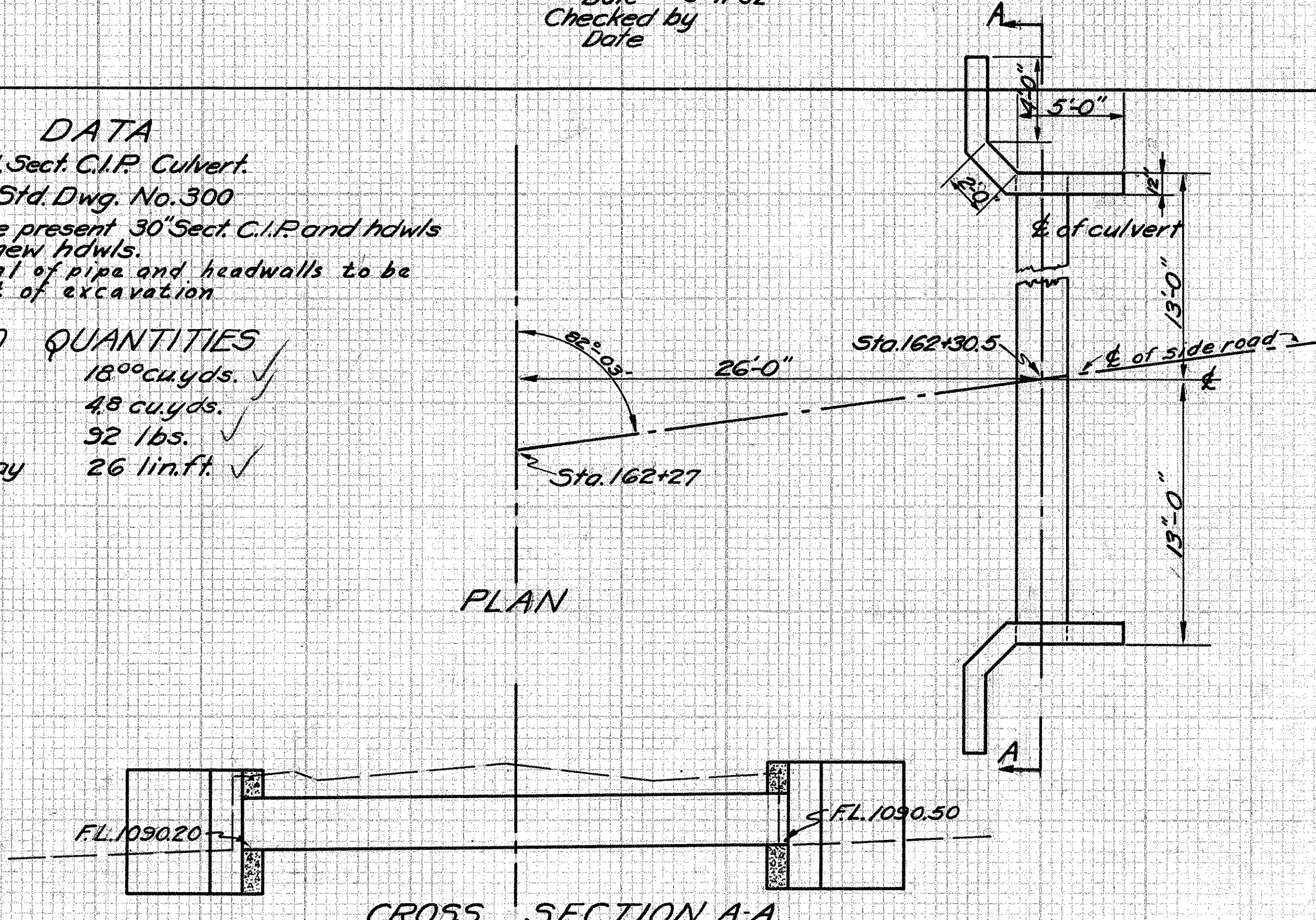
**CULVERT DATA**

Type: - Std. Side Road Sect. C.I.P. Culvert.  
 Size: 30" x 26'-0" Std. Dwg. No. 300  
 Work Req'd: Remove present 30" Sect. C.I.P. and hdwls and relay. Build new hdwls. Payment for removal of pipe and headwalls to be included with cost of excavation

**ESTIMATED QUANTITIES**

Exc. 18<sup>00</sup> cu.yds. ✓  
 Conc. (1:5½) 4.8 cu.yds. ✓  
 Reinf. Steel 32 lbs. ✓  
 30" Sec. C.I.P. Relay 26 lin.ft. ✓

STEEL LIST				
No.	Size	Length	Mk.	Wt.
2	1/2"	11'-0"	A	15
2	1/2"	12'-0"	B	16
16	1/2"	5'-9"	C	61
Total				92



Drawn by C.W.Mc  
 Date 5-11-32  
 Checked by  
 Date

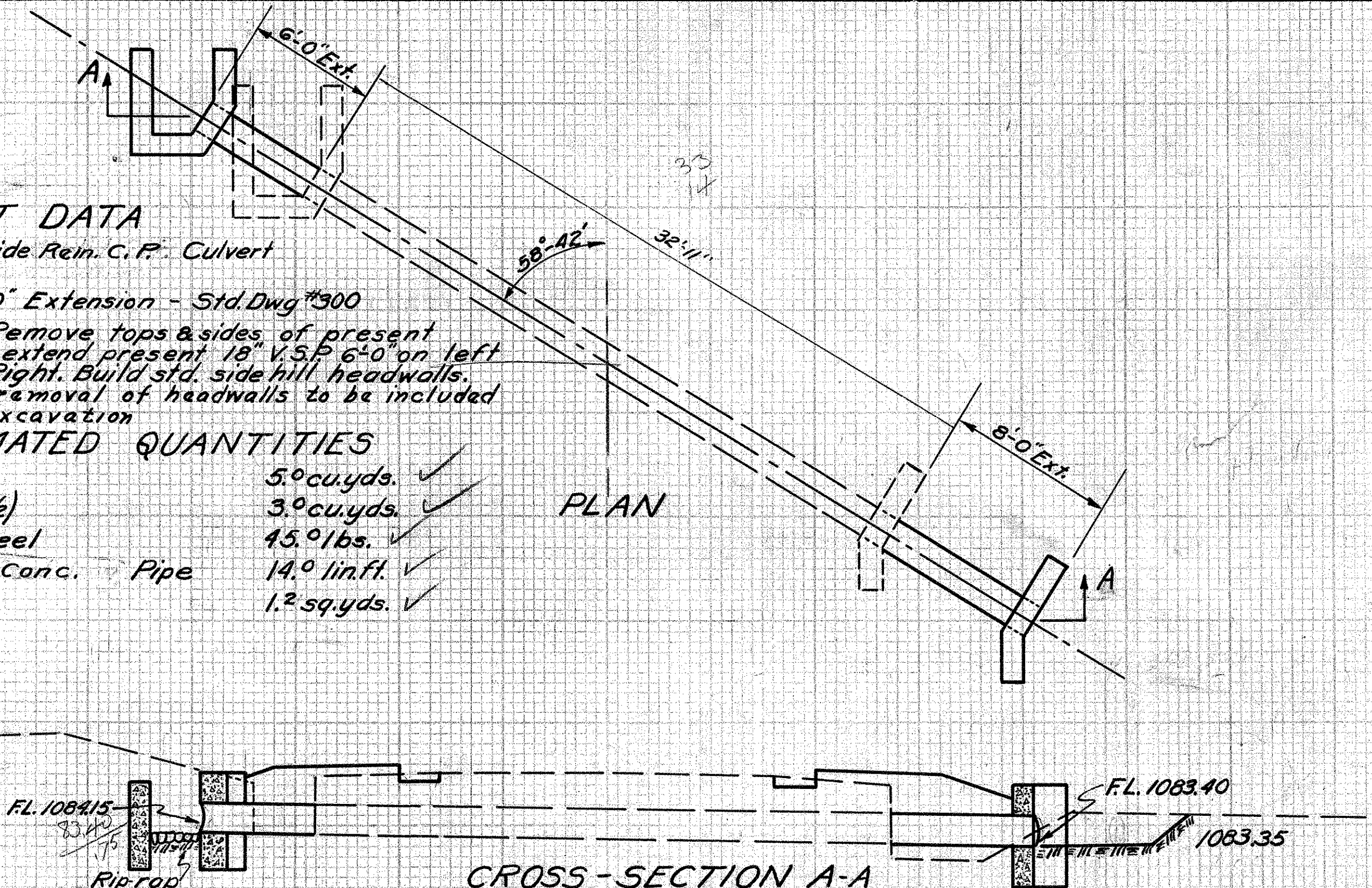
STA 162+27

**CULVERT DATA**

Type: - Std. Hillside Rein. C.P. Culvert Extension.  
 Size: - 18" x 14'-0" Extension - Std. Dwg. #300  
 Work Req'd: - Remove tops & sides of present headwalls and extend present 18" V.S.P. 6'-0" on left and 8'-0" on Right. Build std. side hill headwalls. Payment for removal of headwalls to be included with cost of excavation

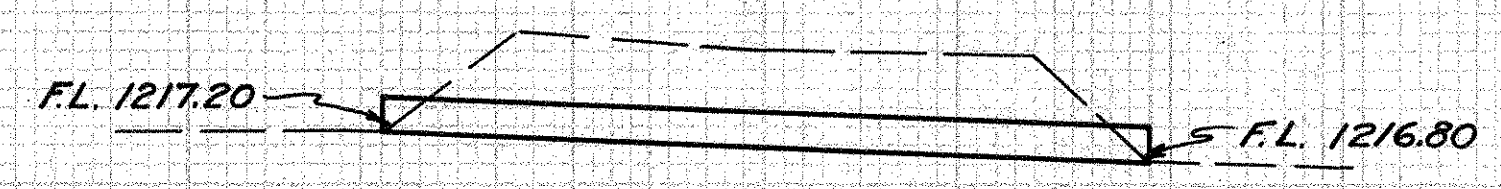
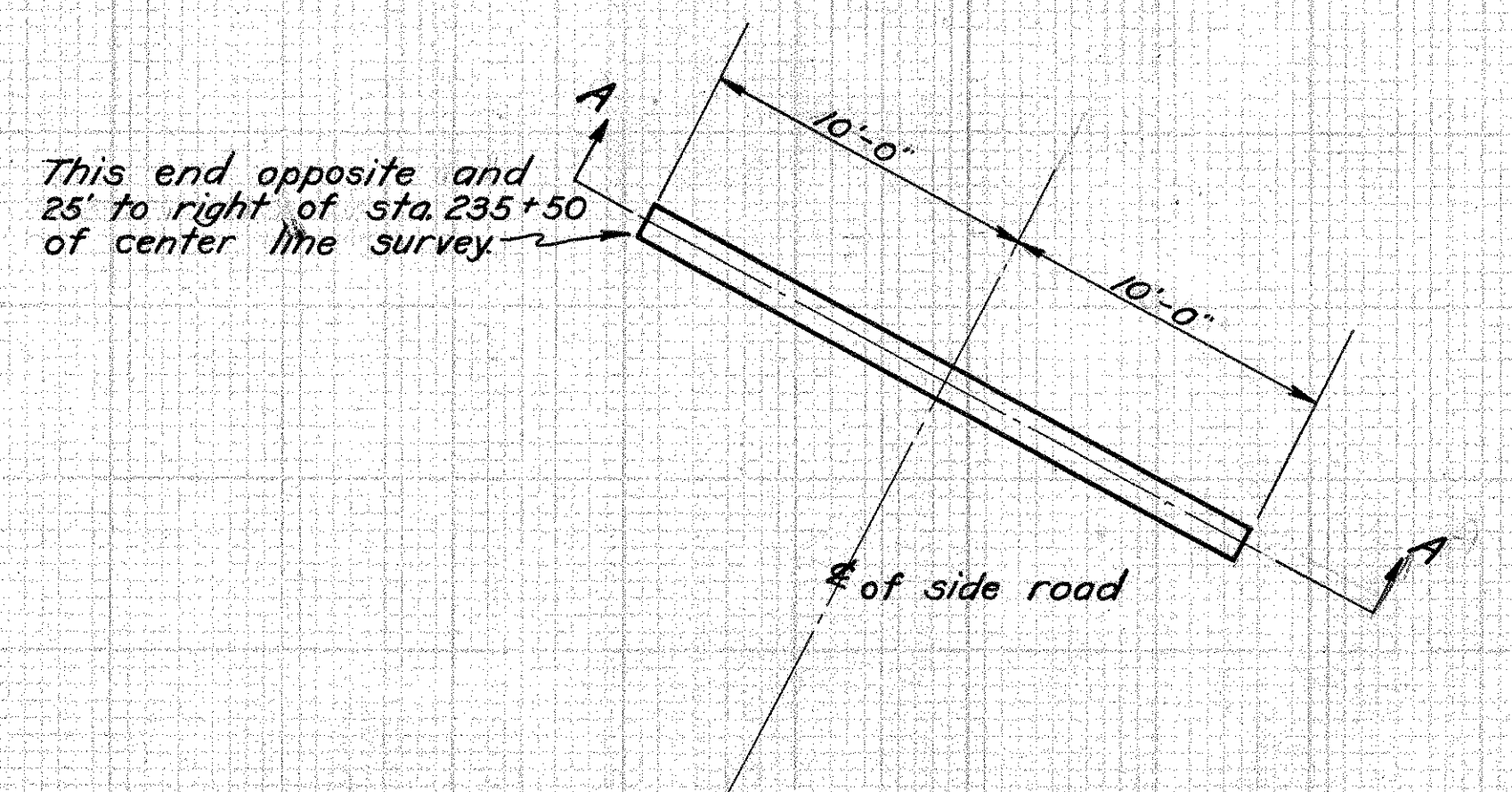
**ESTIMATED QUANTITIES**

Exc. 5<sup>00</sup> cu.yds. ✓  
 Conc. (1:5½) 3<sup>00</sup> cu.yds. ✓  
 Reinf. Steel 45<sup>00</sup> lbs. ✓  
 18" Reinf. Conc. Pipe 14<sup>00</sup> lin.ft. ✓  
 Rip-rap 1.2 sq.yds. ✓



Drawn by C.W.Mc  
 Date  
 Checked by  
 Date

STA. 201+81.6



**CULVERT DATA**  
 Type:- 10" Solid C.I.P. No Hdwls.  
 Size:- 10" x 20"  
 Work Reqd:- Remove & relay present 10" Solid C.I.P.

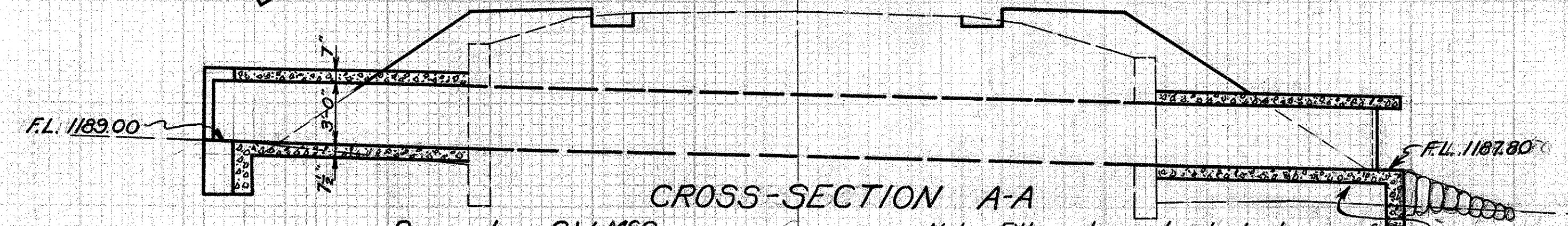
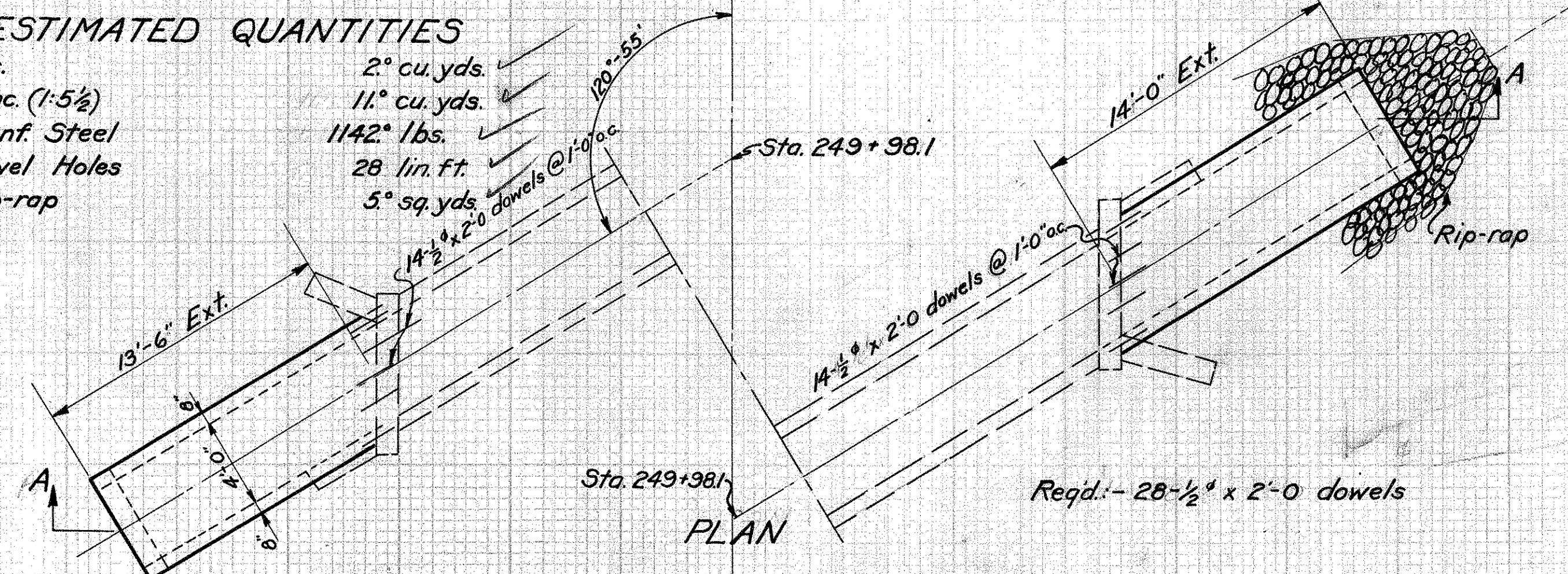
**ESTIMATED QUANTITIES**  
 Exc. 4° cu. yds. ✓  
 10" Solid C.I.P. (relay) 20 lin. ft. ✓

Drawn by:- C.W.M<sup>SC</sup>  
 Date:- 5-13-32  
 Checked by:-  
 Date:-

29  
 STA. 235 + 50

**CULVERT DATA**  
 Type:- Std. Conc. Box Extension without headwalls.  
 Size:- 4' x 3' x 27'-6" Exten. Std. Dwg. BC-A & #300.  
 Work Reqd:- Remove present wingwalls and extend present 4' x 3' conc. box 13'-6" on left & 14'-0" on right. Removal of present wings included with cost of excavation.

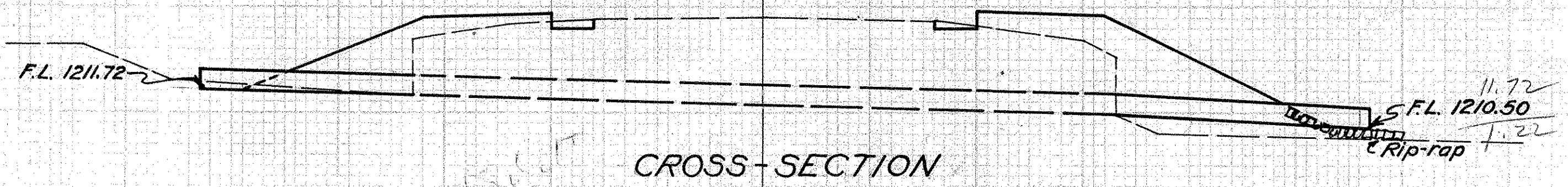
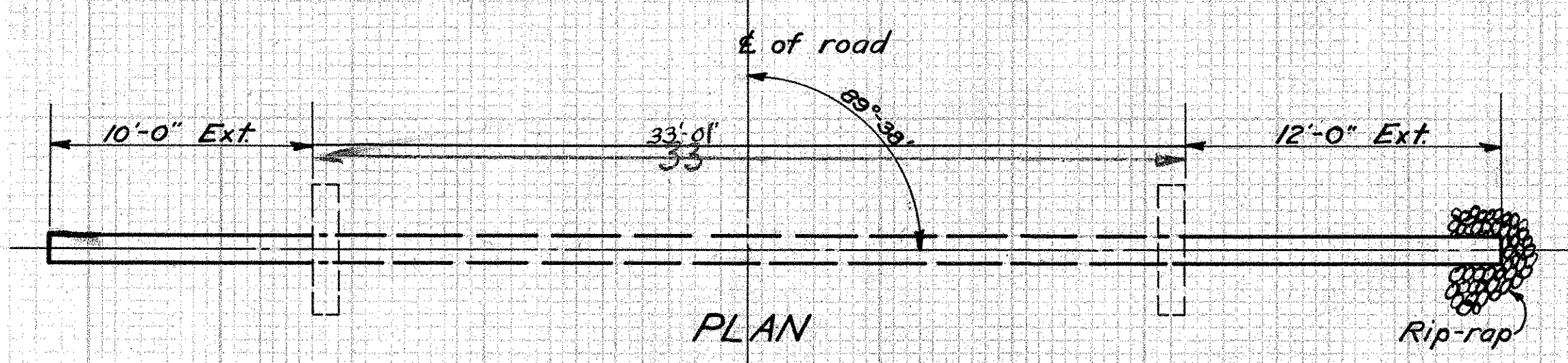
**ESTIMATED QUANTITIES**  
 Exc. 2° cu. yds. ✓  
 Conc. (1:5½) 11° cu. yds. ✓  
 Reinf. Steel 1142° lbs. ✓  
 Dowel Holes 28 lin. ft. ✓  
 Rip-rap 5° sq. yds. ✓



Drawn by:- C.W.M<sup>SC</sup>  
 Date:- 5-13-32  
 Checked by:-  
 Date:-

Note: Fill under culvert to be carefully placed in layers not to exceed six (6) inches and thoroughly tamped before concrete is poured.

30  
 STA. 249 + 98.1

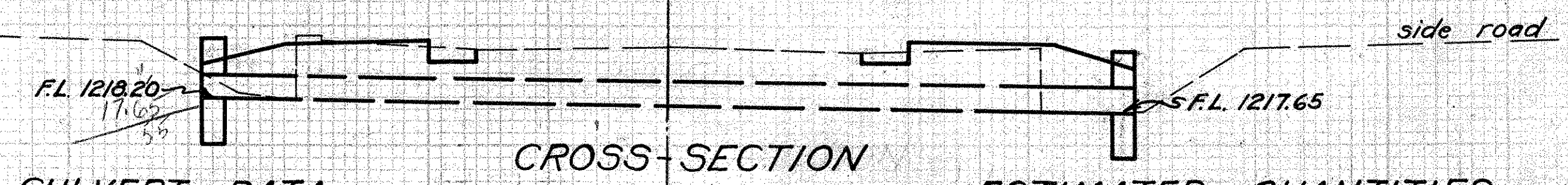
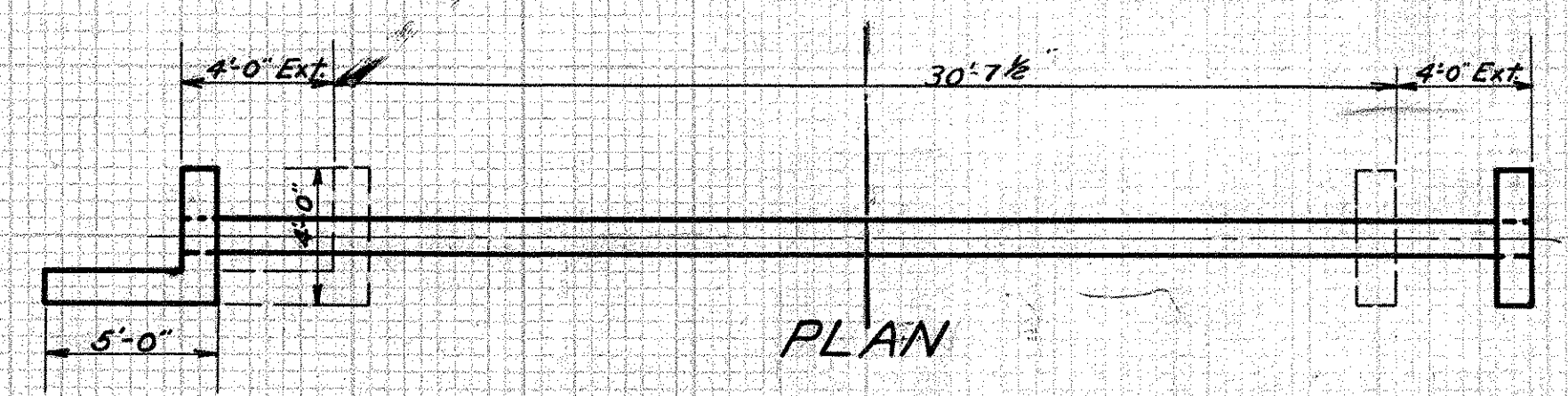


**CULVERT DATA**  
 Type:- Std. Reinf. C.P. Extension-No headwalls  
 Size:- 12" x 22'-0" Ext. Std. Dwg. No. 300 & CE-A  
 Work Reqd:- Extend present 12" V.S.P. with 12" Reinf. C. Pipe. No headwalls.

**ESTIMATED QUANTITIES**  
 Exc. 1° cu. yds. ✓  
 12" Reinf. Conc. Pipe 22 lin. ft. ✓  
 Rip-rap 1° sq. yd. ✓

Drawn by:- C.W.M<sup>SC</sup>  
 Date:- 5-13-32  
 Checked by:-  
 Date:-

27  
 STA. 232 + 08



**CULVERT DATA**  
 Type:- Std. R.C. Pipe culv. extension with modified headwall on left end.  
 Size:- 12" x 8'-0" Ext. Std. Dwg. No. 300  
 Work Reqd:- Remove top of headwalls and extend 4'-0" on right & left. Build hdwls as shown. Clean ditch on right to meet side road culvert and clean ditch on left. Payment for removal of tops of hdwls, included with cost of excavation.

**ESTIMATED QUANTITIES**  
 Exc. 6° cu. yds. ✓  
 Conc. (1:5½) 2° cu. yds. ✓  
 Reinf. Steel 76 lbs. ✓  
 12" Reinf. Conc. Pipe, 8 lin. ft. ✓

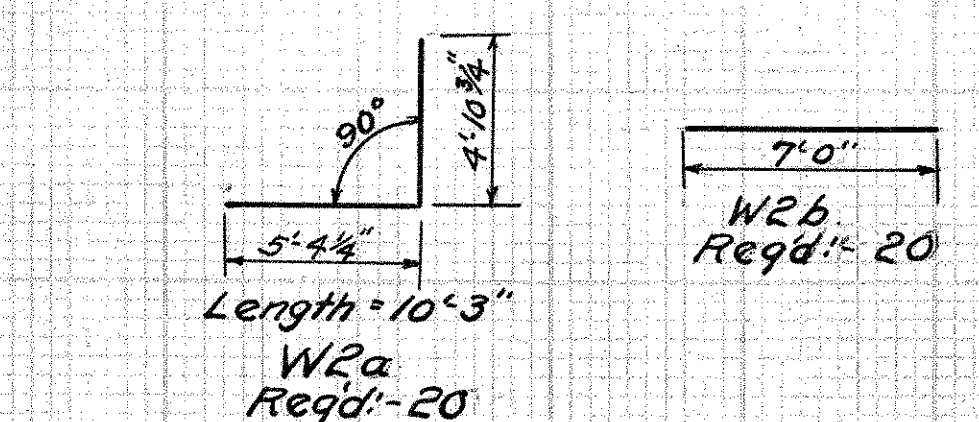
Drawn by:- C.W.M<sup>SC</sup>  
 Date:- 5-13-32  
 Checked by:-  
 Date:-

28  
 STA. 235 + 39.85

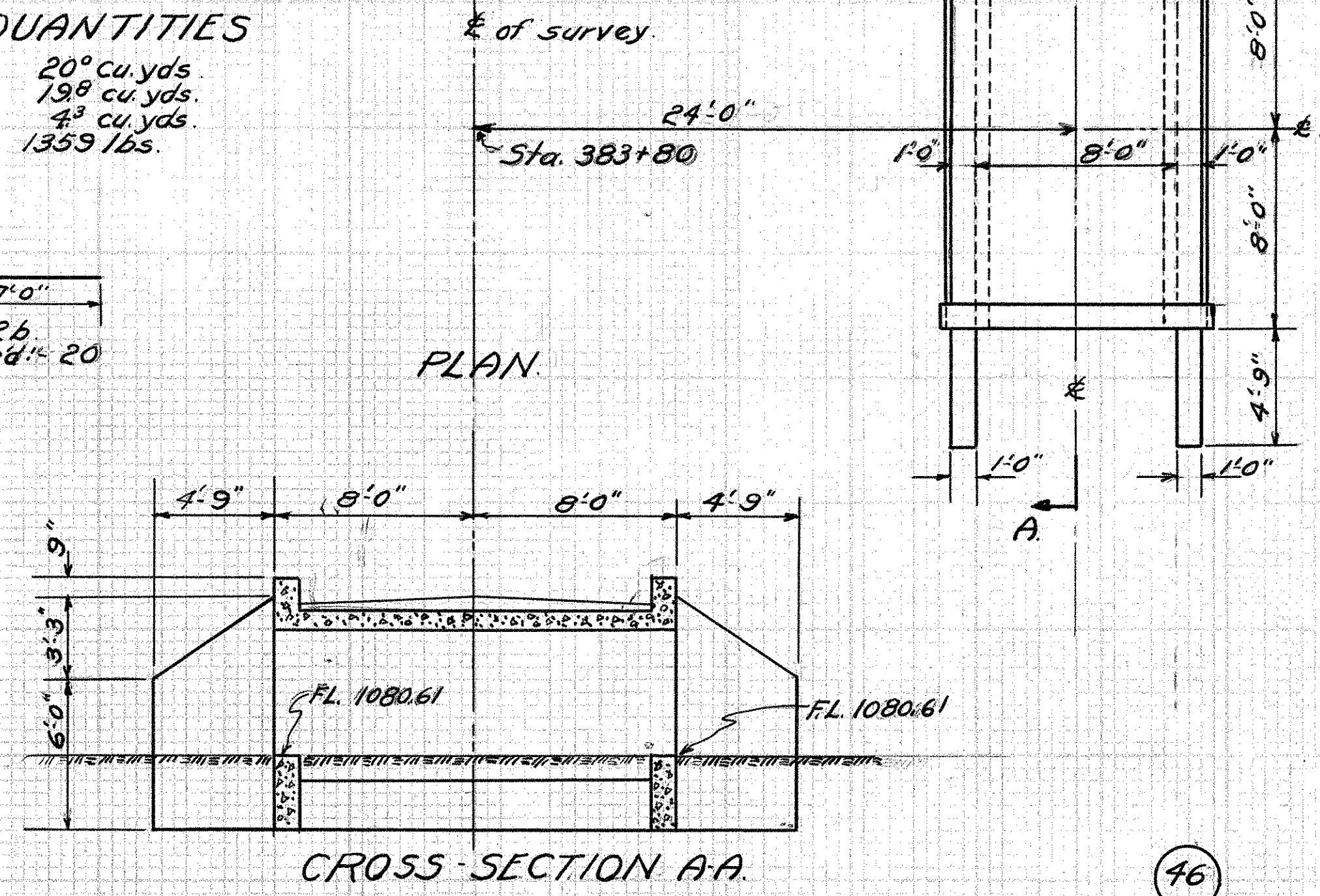
No.	Size	Length	Mk.	Wt.
13	½"	4'-0"	A	45
4	½"	3'-6"	B	9
2	½"	7'-9"	C	10
2	½"	8'-6"	D	12
Total				76

**CULVERT DATA**  
Type: Std. Conc. Slab Top Culvert - Std. Dwg. No. SC-A  
Size: 8'x5'x16'-0"  
Work Req'd: Remove present 6' span plank culvert & build new std. conc. slab culvert as shown.

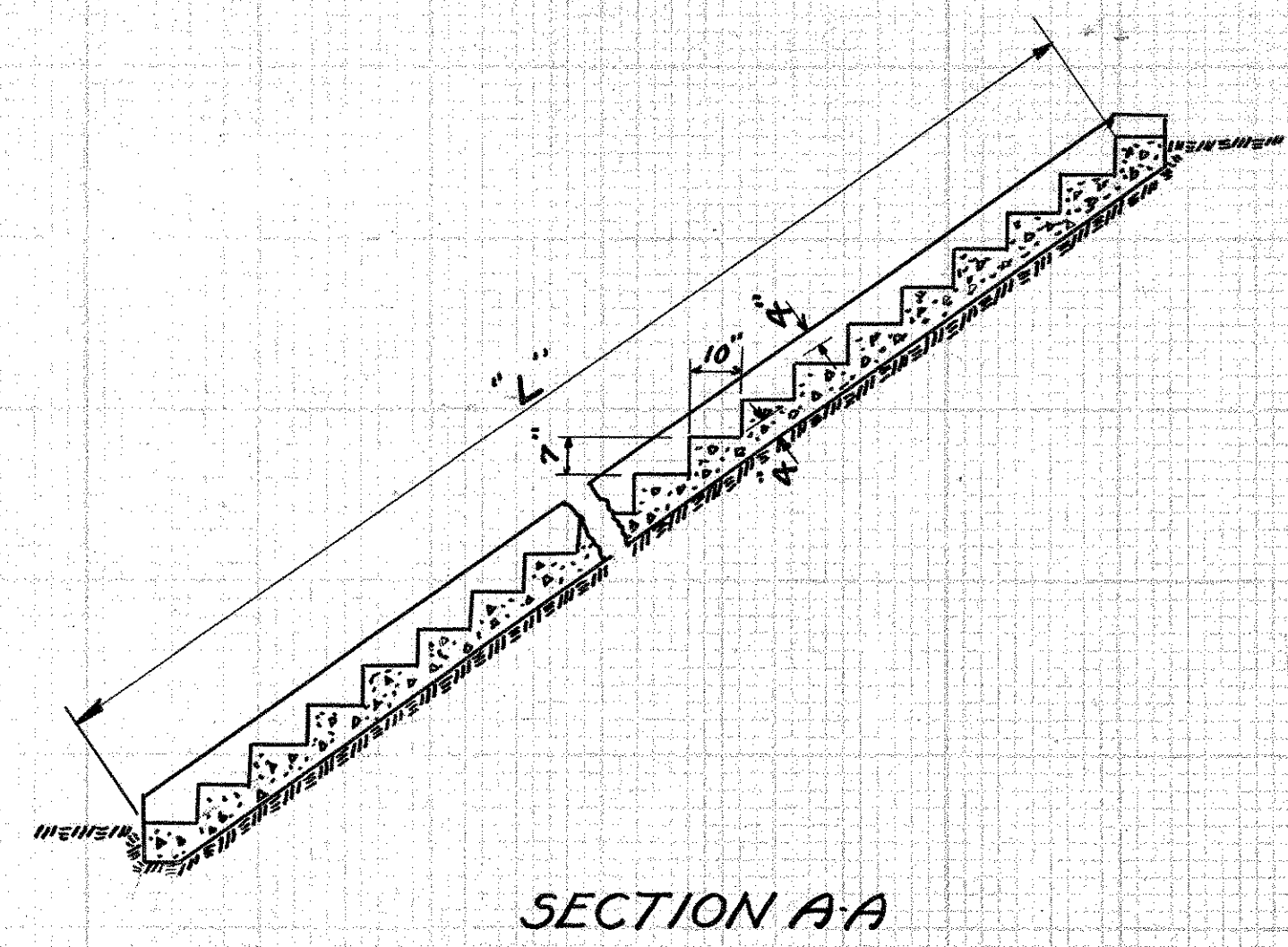
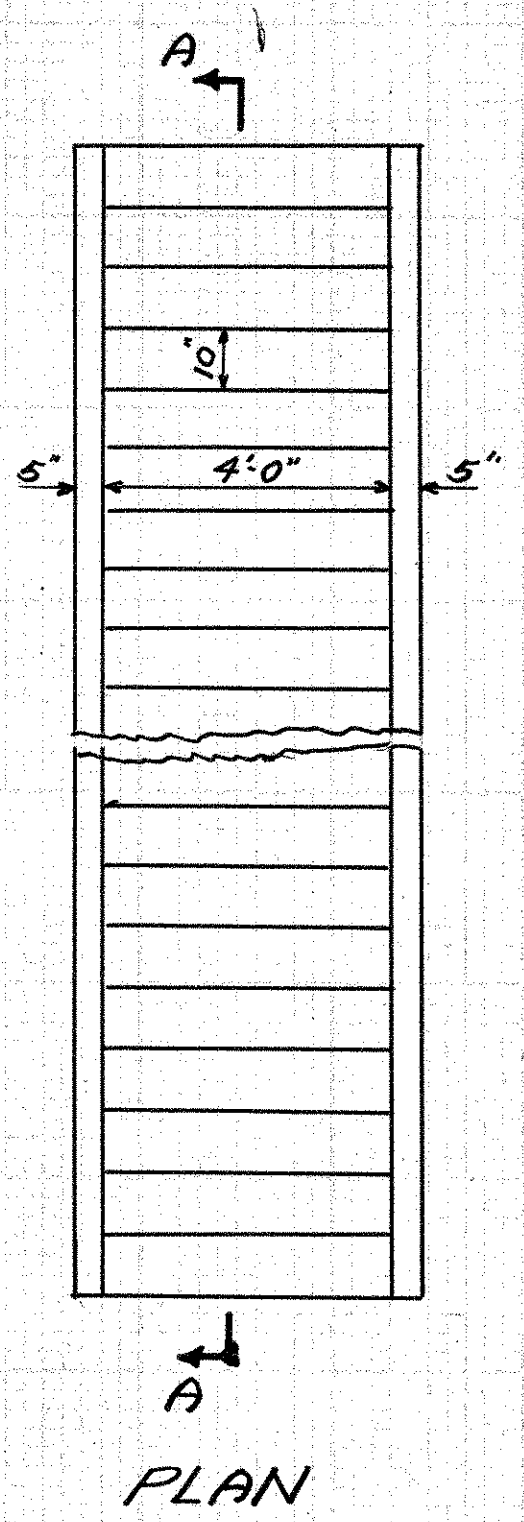
**ESTIMATED QUANTITIES**  
Exc. 20<sup>0</sup> cu. yds.  
Conc. (1:5½) 198 cu. yds.  
Conc. (1:6½) 4<sup>3</sup> cu. yds.  
Reinf. Steel 1359 lbs.



NOTE: All steel is the same as std. SC-A except W2a & W2b as shown.

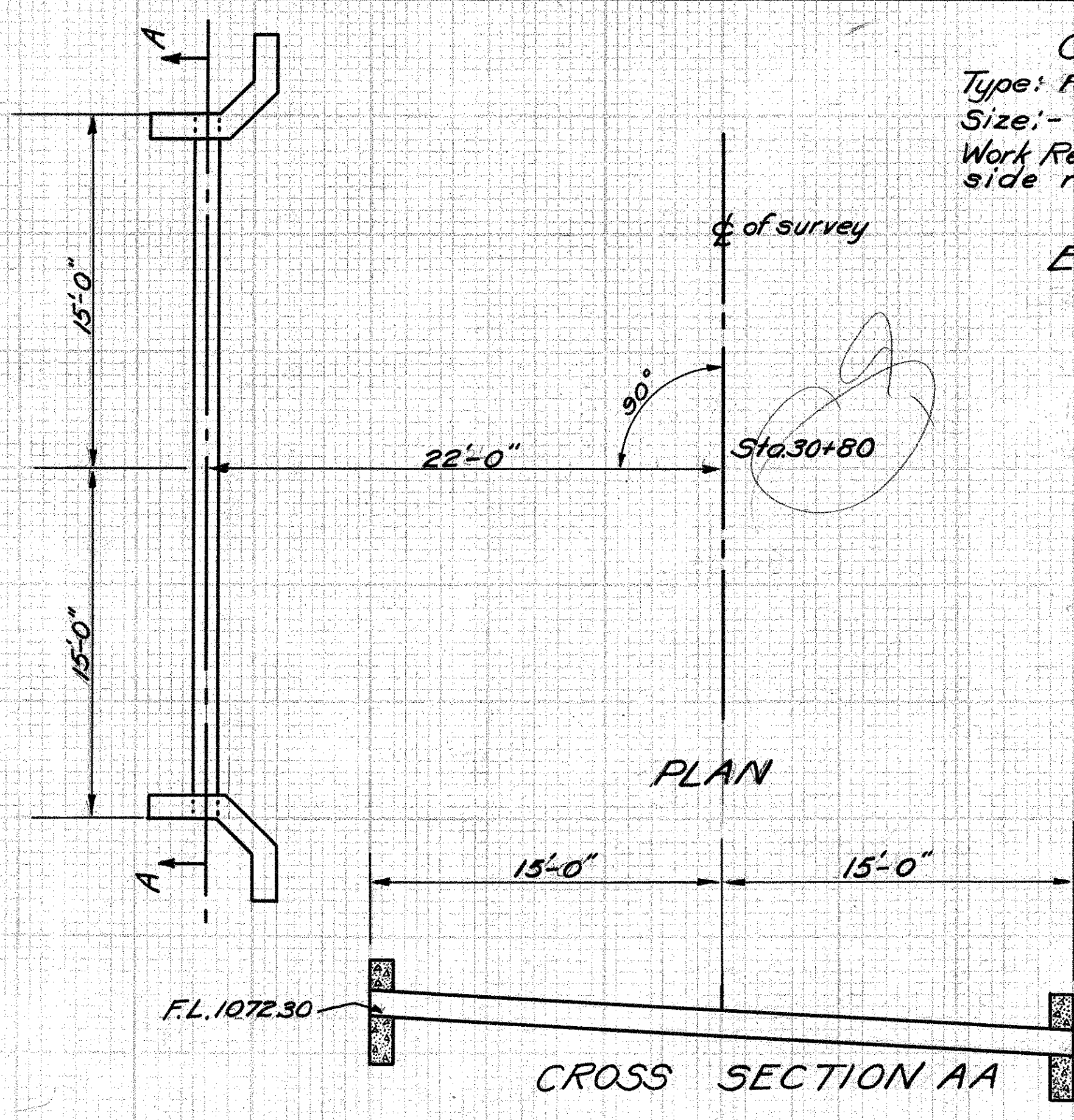


46  
STA. 383+80 Right



STEP DETAILS & QUANTITIES				
Sta.	Rt. or Lt.	L.	Conc. (1:6½) CU. YDS.	Remarks
32+07	Lt.	28'-6"	3.1	Remove pres. steps - build new
34+72	Lt.	6'-1"	0.7	" " " " "
36+19	Lt.	14'-3"	1.6	" " " " "
37+40	Lt.	17'-3"	1.9	" " " " "
38+05	Lt.	19'-4"	2.2	" " " " "
38+75	Lt.	19'-4"	2.2	" " " " "
39+91	Lt.	24'-5"	2.7	" " " " "
40+90	Lt.	20'-4"	2.3	" " " " "
41+72	Lt.	14'-3"	1.6	" " " " "
52+36	Lt.	12'-3"	1.4	" " " " "
57+32	Rt.	11'-2"	1.3	" " " " "
58+97	Rt.	19'-9"	2.2	" " " " "
60+44	Rt.	16'-3"	1.8	" " " " "
61+81	Lt.	31'-6"	3.5	" " " " "
63+54	Rt.	18'-4"	2.1	" " " " "
75+00	Lt.	15'-3"	1.7	" " " " "
337+50	Lt.	4'-1"	0.5	" " " " "
395+47	Rt.	15'-3"	1.7	" " " " "
Total			34.5	

NOTE: All excavation included in price of concrete for payment.

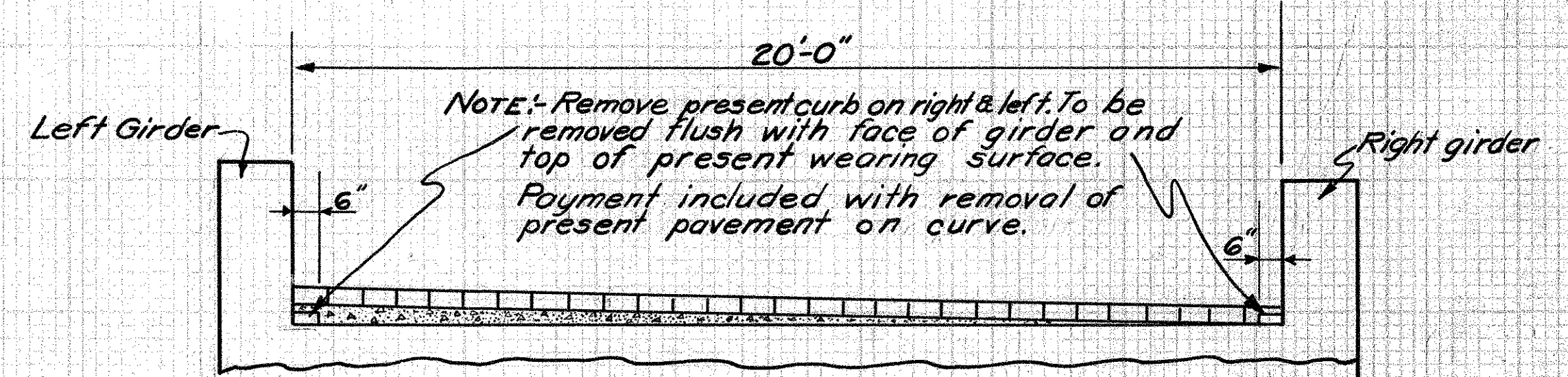


Drawn by C.W.M.  
Date - 4-30-30  
Checked by  
Date: -

3450  
STA. 301+80

**CULVERT DATA**  
Type: Reinf. Conc. Pipe side road culvert  
Size: 12" x 30'-0"  
Work Req'd: Build new std. 12" Reinf. Conc. Pipe side road culvert.

**ESTIMATED QUANTITIES**  
Exc. 4.0 cu yd ✓  
Conc. 2.6 cu. yds ✓  
Reinf. Steel 60.0 lbs ✓  
12" Reinf. Conc. Pipe 30.0 lin. ft ✓



NOTE: Brick wearing surface & concrete wedge course included with pavement quantities for payment.

Quantity Deductions:  
Concrete Base 20.2 sq. yds. ✓  
9x3¾ Concrete Curb 90.9 lin. ft. ✓

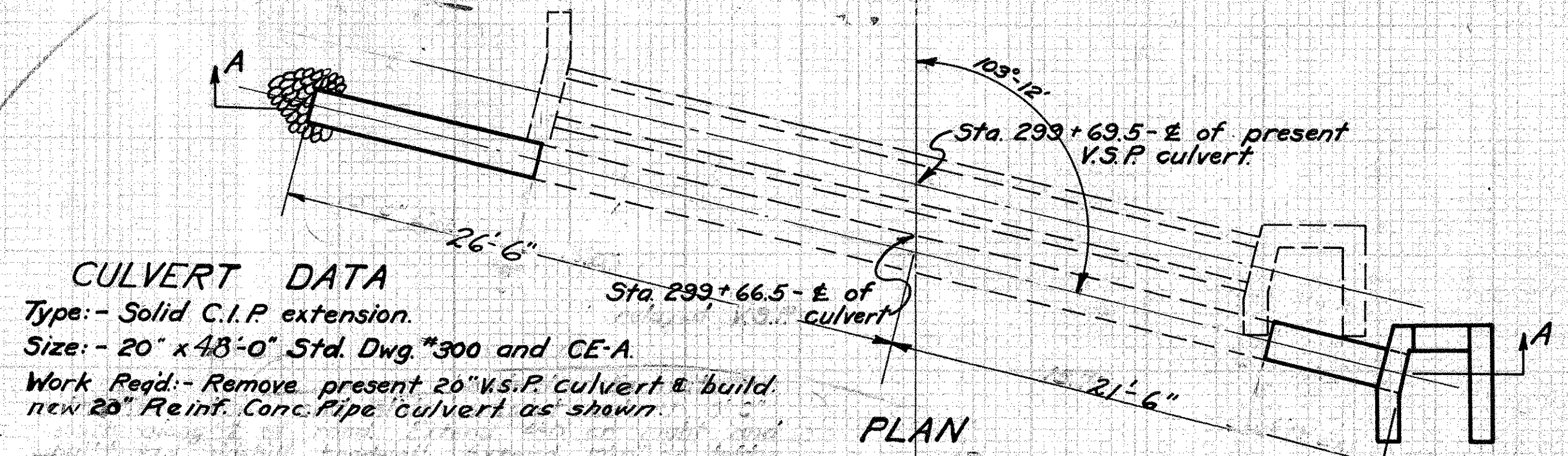
SECTION OF GIRDER BRIDGE  
STA. 188+43.52

22  
STA. 188+43.52



**ESTIMATED QUANTITIES**

Exc. 30° cu. yds.  
 Conc. (1:5½) 2° cu. yds.  
 Reinf. Steel 28 lbs.  
 20" Reinf. Conc. Pipe 48.0 lin. ft.  
 Rip-rap 2° sq. yds.

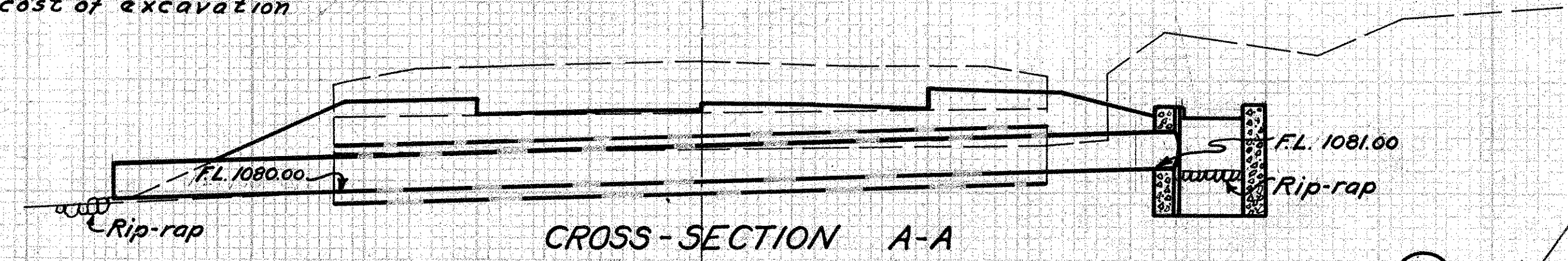


**CULVERT DATA**

Type: - Solid C.I.P. extension.  
 Size: - 20" x 48'-0" Std. Dwg. #300 and CE-A.  
 Work Req'd: - Remove present 20" V.S.P. culvert & build new 20" Reinf. Conc. Pipe culvert as shown.

Payment for removal of culvert to be included with the cost of excavation.

PLAN



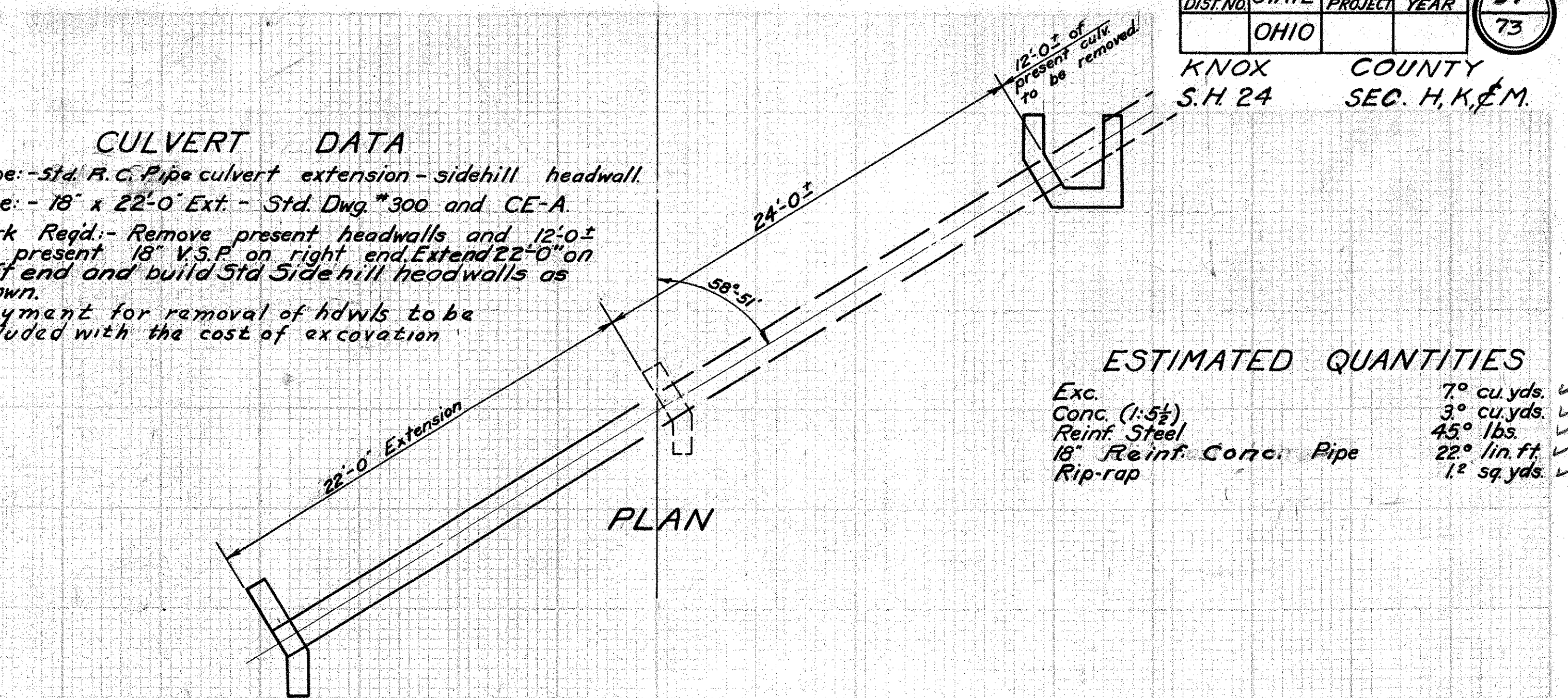
CROSS-SECTION A-A

Drawn by: - C.W.MSC  
 Date: - 5-14-32  
 Checked by: -  
 Date: -

34  
 STA. 299 + 66.5

**CULVERT DATA**

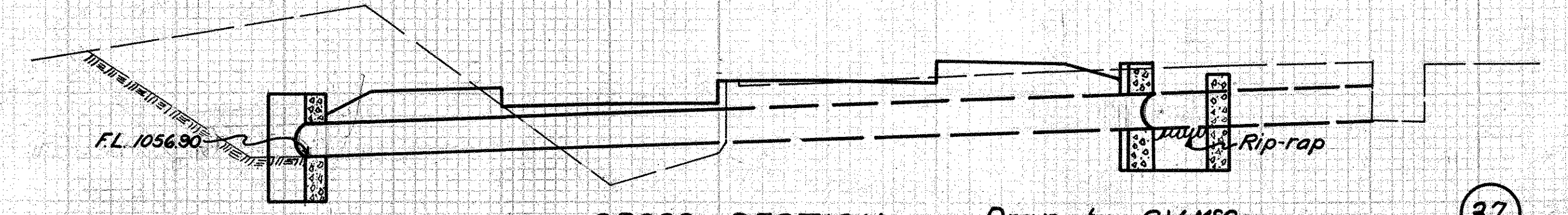
Type: - Std. R.C. Pipe culvert extension - sidehill headwall.  
 Size: - 18" x 22'-0" Ext. - Std. Dwg. #300 and CE-A.  
 Work Req'd: - Remove present headwalls and 12'-0" of present 18" V.S.P. on right end. Extend 22'-0" on left end and build Std. Sidehill headwalls as shown.  
 Payment for removal of hdwls to be included with the cost of excavation.



PLAN

**ESTIMATED QUANTITIES**

Exc. 7° cu. yds. ✓  
 Conc. (1:5½) 3° cu. yds. ✓  
 Reinf. Steel 45° lbs. ✓  
 18" Reinf. Conc. Pipe 22° lin. ft. ✓  
 Rip-rap 1° sq. yds. ✓



CROSS-SECTION

Drawn by: - C.W.MSC  
 Date: - 5-14-32  
 Checked by: -  
 Date: -

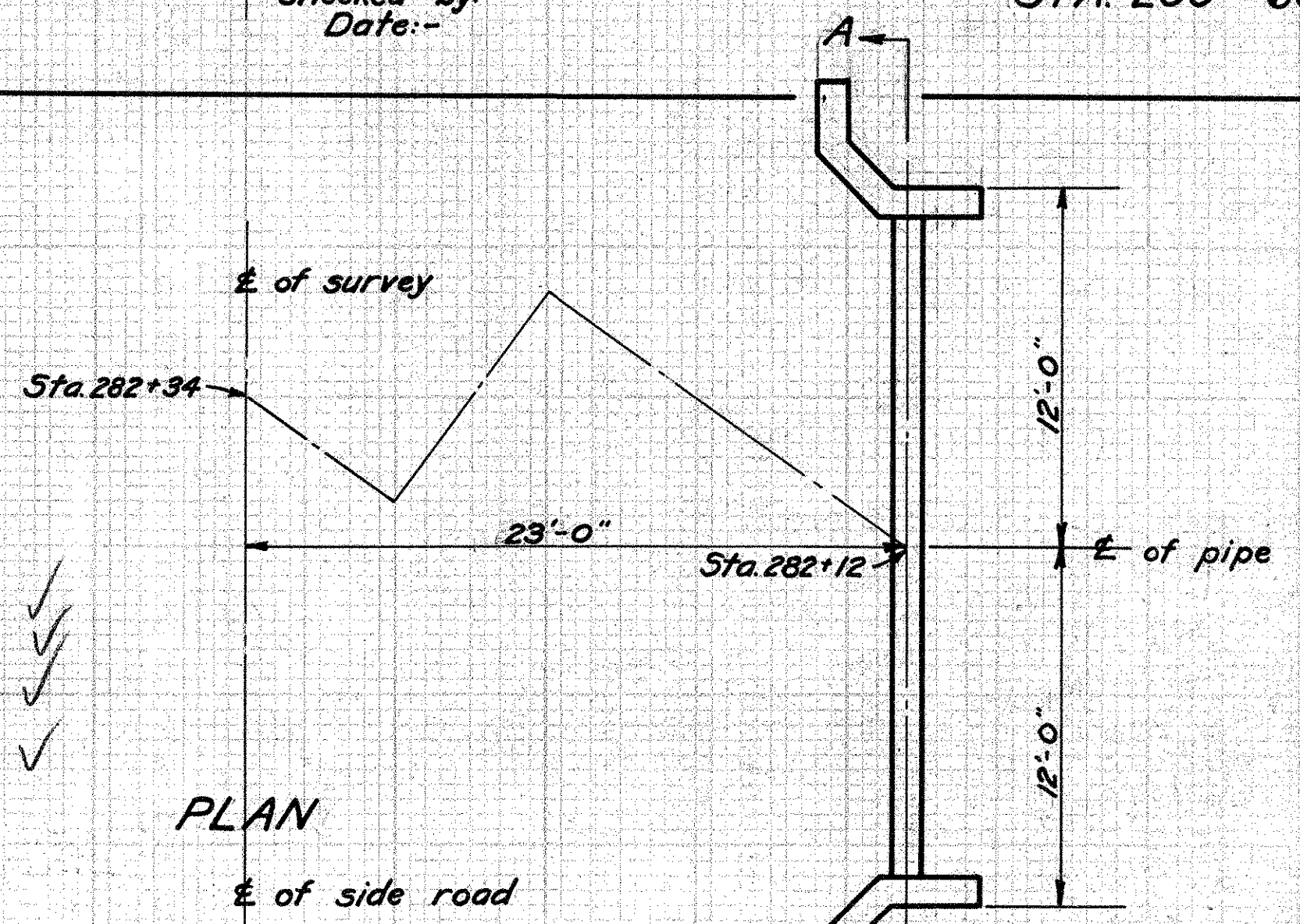
37  
 STA. 315 + 07.8

**CULVERT DATA**

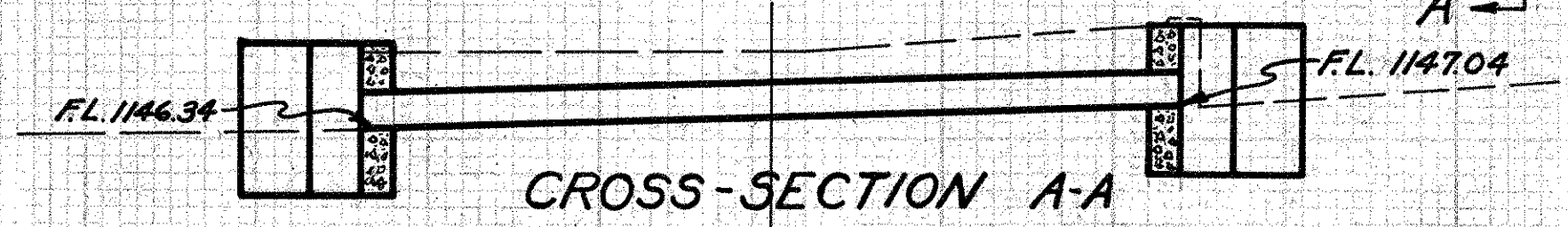
Type: - Std. Reinf. C.P. side road culvert.  
 Size: - 12" x 24'-0" Std. Dwg. No. 300.  
 Work Req'd: - Remove present 12" V.S.P. side road culvert.  
 Build new Reinf. C.P. culvert.

**ESTIMATED QUANTITIES**

Exc. 6° cu. yds. ✓  
 Conc. (1:5½) 2° cu. yds. ✓  
 Reinf. Steel 60 lbs. ✓  
 12" Reinf. Conc. Pipe 24° lin. ft. ✓



PLAN



CROSS-SECTION A-A

Drawn by: - C.W.MSC  
 Date: - 5-14-32  
 Checked by: -  
 Date: -

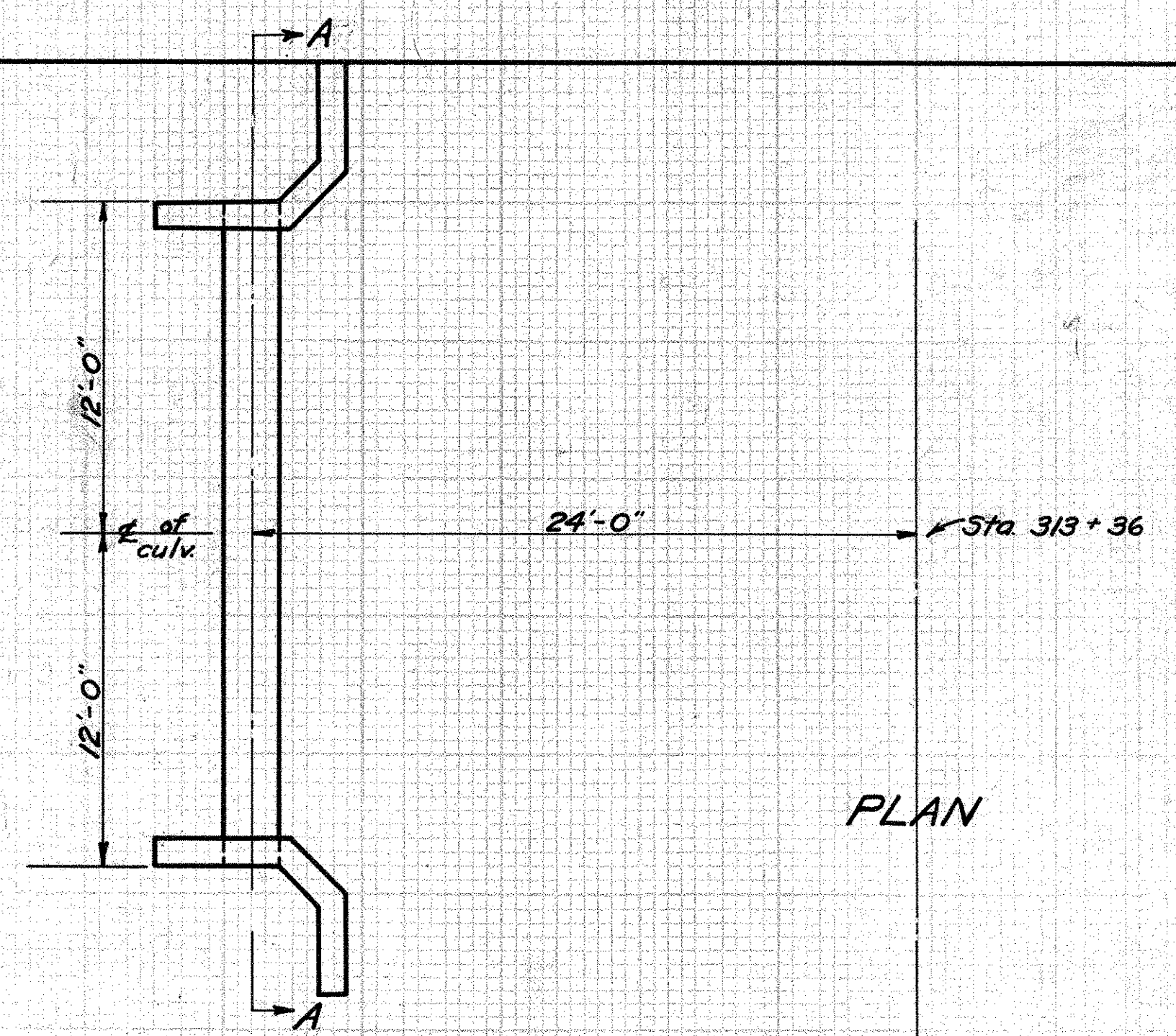
32  
 STA. 282 + 12 Right

**CULVERT DATA**

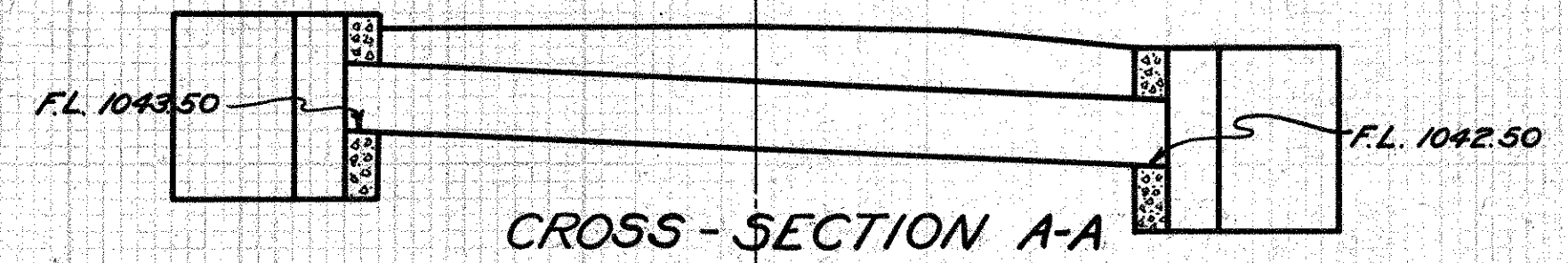
Type: - Std. Reinf. C.P. side road culvert.  
 Size: - 24" x 24'-0"  
 Work Req'd: - Remove present 24" V.S.P. side road culvert.  
 Build new R.C.P. side road culvert.

**ESTIMATED QUANTITIES**

Exc. 5° cu. yds. ✓  
 Conc. (1:5½) 4l cu. yds. ✓  
 Reinf. Steel 85 lbs. ✓  
 24" Reinf. Conc. Pipe 24'-0" lin. ft. ✓



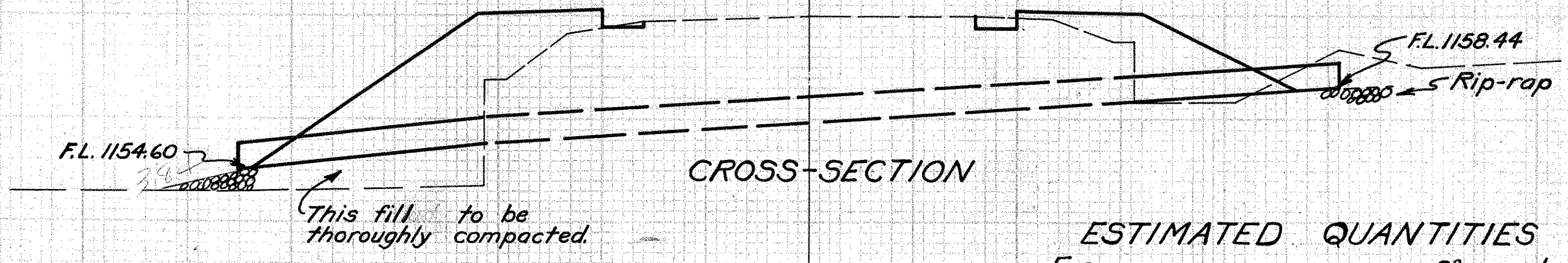
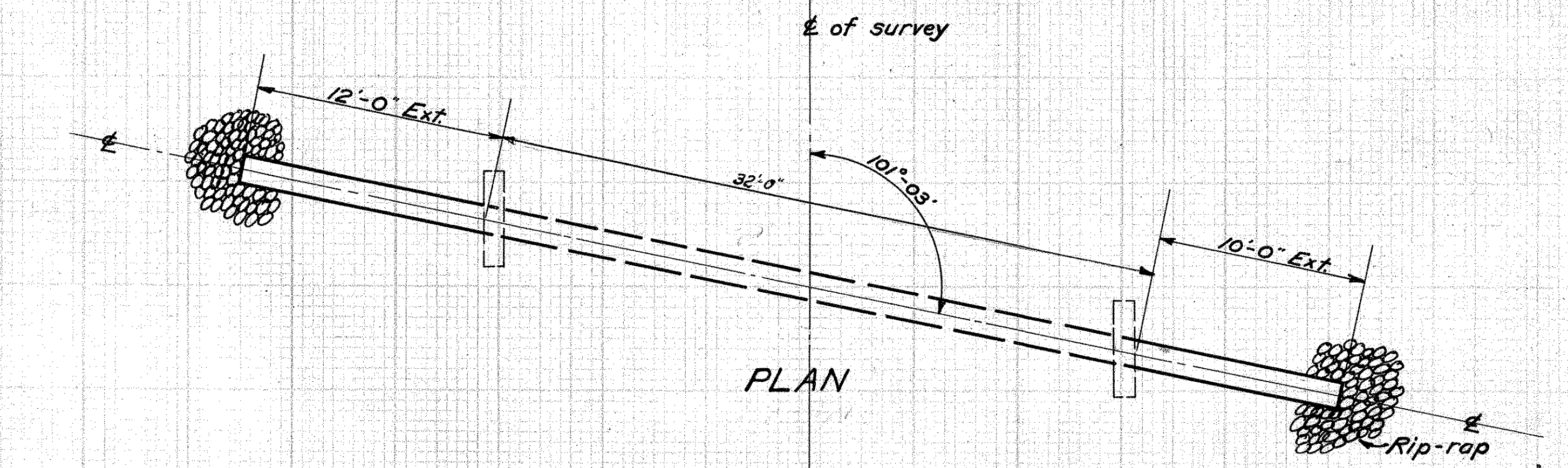
PLAN



CROSS-SECTION A-A

Drawn by: - C.W.MSC  
 Date: - 5-14-32  
 Checked by: -  
 Date: -

36  
 STA. 313 + 36



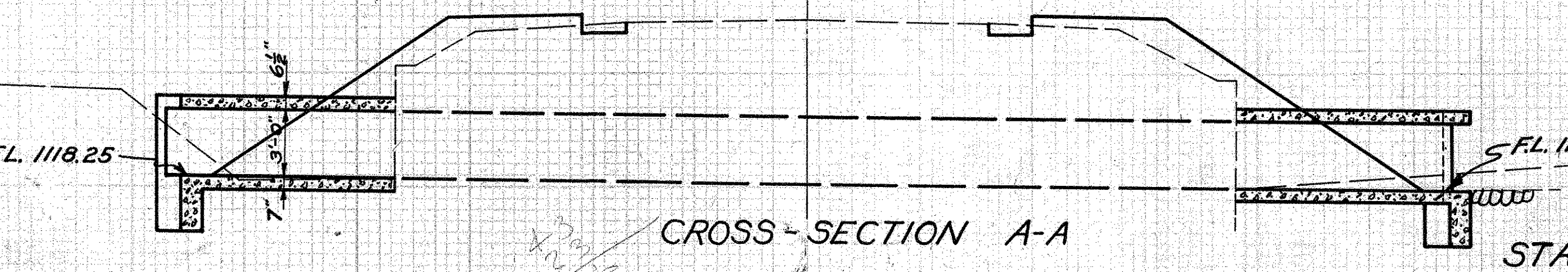
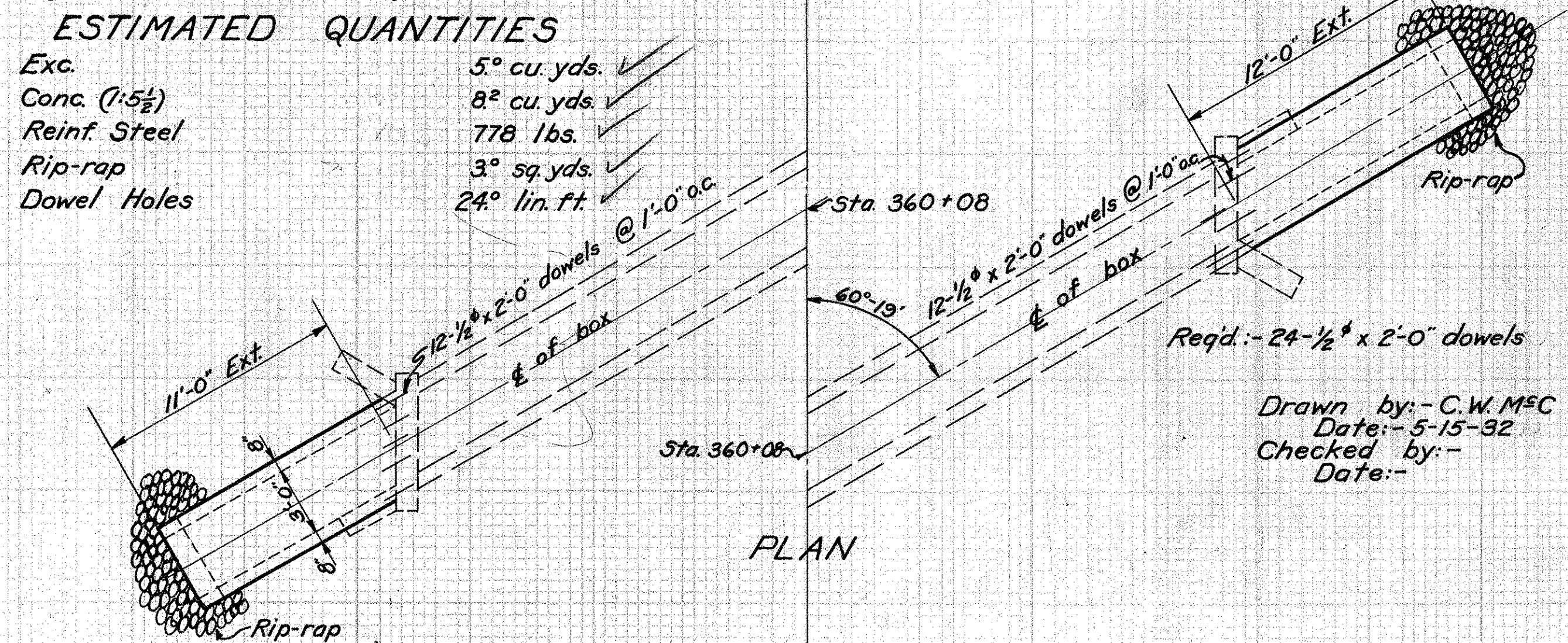
**CULVERT DATA**  
 Type: - Std. R.C.P. extension - No hdw's.  
 Size: - 15" x 22'-0" Ext.  
 Work Req'd: - Ext. present 15" V.S.P. 12'-0" on left and 10'-0" on right with R.C. Pipe. - No hdw's.

**ESTIMATED QUANTITIES**  
 Exc. 2° cu. yds. ✓  
 15" Reinf. Conc. Pipe 22° lin. ft. ✓  
 Rip-rap 5° sq. yds. ✓

Drawn by: - C.W.M<sup>SC</sup>  
 Date: - 5-15-32  
 Checked by: -  
 Date: -

39  
 STA. 347 + 69.6

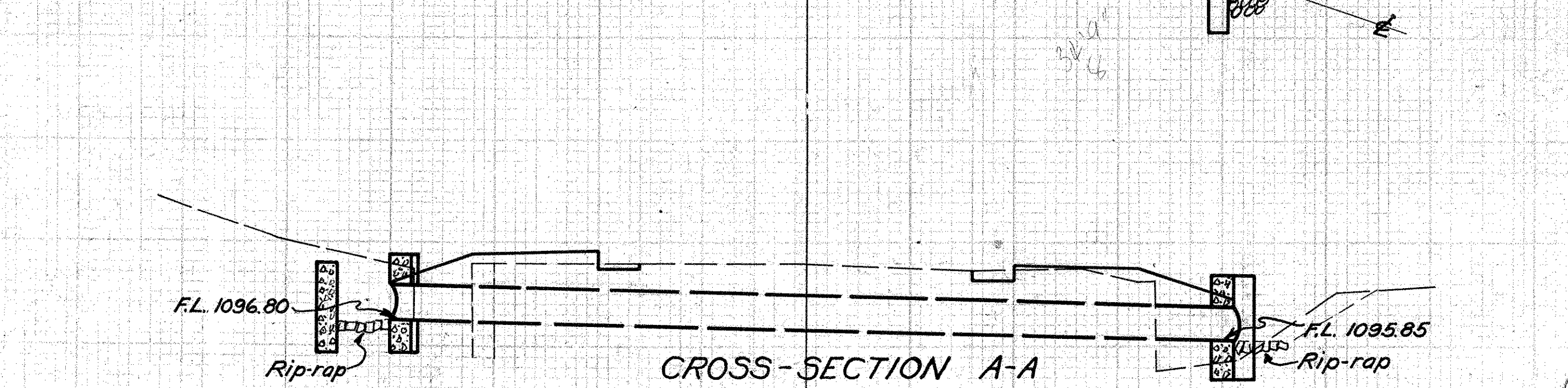
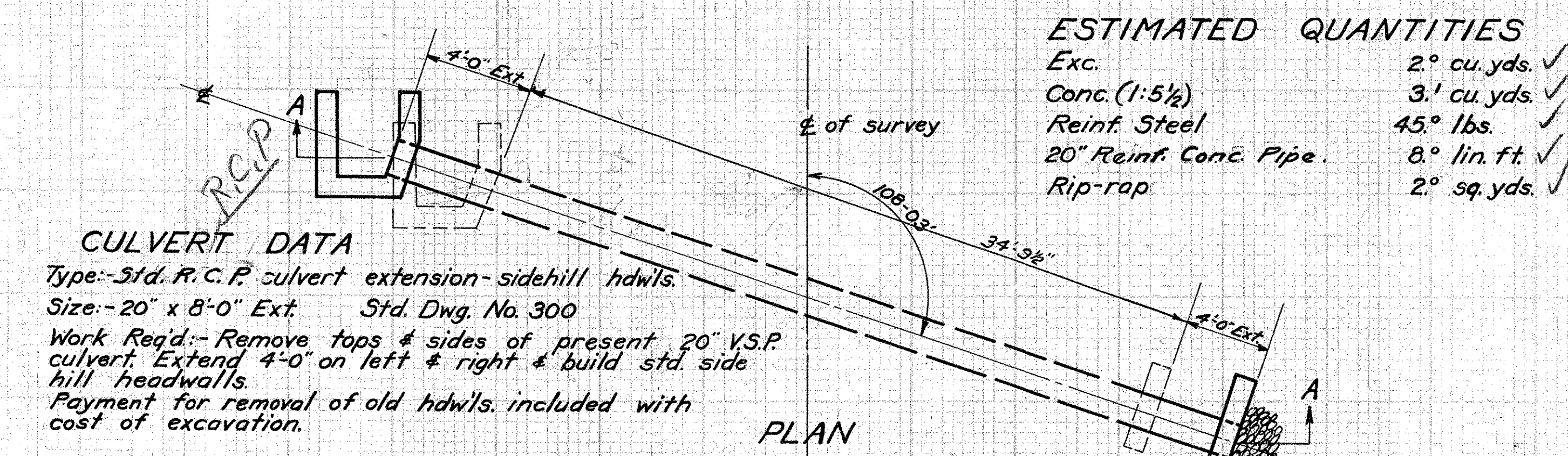
**CULVERT DATA**  
 Type: - Std. conc. box extension without hdw's.  
 Size: - 3' x 3' x 23'-0" Ext. Std. Dwg. No. BC-A & CE-A  
 Work Req'd: - Remove present wingwalls and extend 11'-0" on left & 12'-0" on right. No hdw's.  
 Payment for removal of wings included with cost of excav.



**ESTIMATED QUANTITIES**  
 Exc. 5° cu. yds. ✓  
 Conc. (1:5 1/2) 8° cu. yds. ✓  
 Reinf. Steel 778 lbs. ✓  
 Rip-rap 3° sq. yds. ✓  
 Dowel Holes 24° lin. ft. ✓

Drawn by: - C.W.M<sup>SC</sup>  
 Date: - 5-15-32  
 Checked by: -  
 Date: -

41  
 STA. 360 + 08



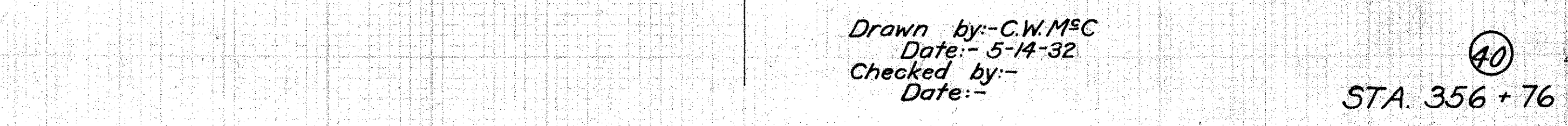
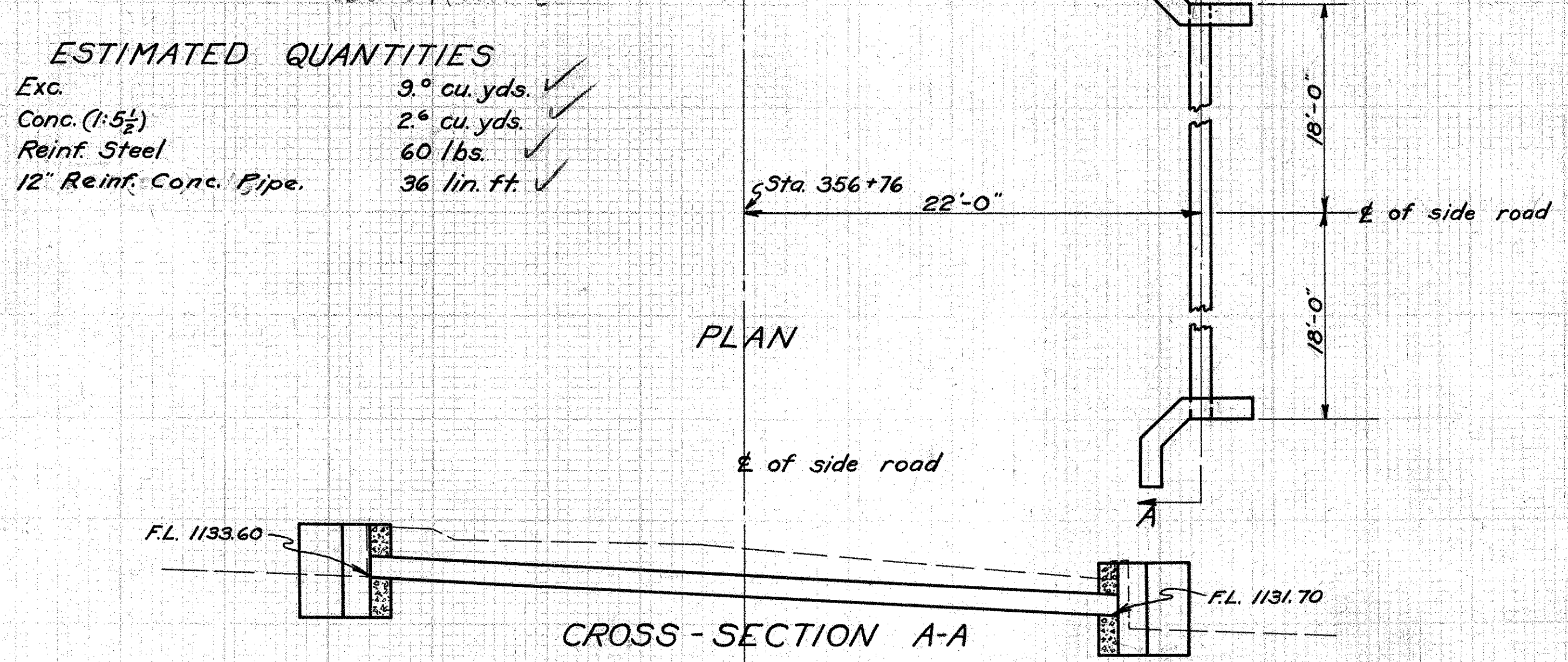
**CULVERT DATA**  
 Type: - Std. R.C.P. culvert extension - sidehill hdw's.  
 Size: - 20" x 8'-0" Ext. Std. Dwg. No. 300  
 Work Req'd: - Remove tops & sides of present 20" V.S.P. culvert. Extend 4'-0" on left & right & build std. side hill headwalls.  
 Payment for removal of old hdw's. included with cost of excavation.

**ESTIMATED QUANTITIES**  
 Exc. 2° cu. yds. ✓  
 Conc. (1:5 1/2) 3.1 cu. yds. ✓  
 Reinf. Steel 45° lbs. ✓  
 20" Reinf. Conc. Pipe 8° lin. ft. ✓  
 Rip-rap 2° sq. yds. ✓

Drawn by: - C.W.M<sup>SC</sup>  
 Date: - 5-14-32  
 Checked by: -  
 Date: -

38  
 STA. 321 + 81.4

**CULVERT DATA**  
 Type: - Std. 12" R.C.P. side road culvert.  
 Size: - 12" x 36'-0" - Std. Dwg. No. 300  
 Work Req'd: - Remove present 12" V.S.P. (encased). Build std. side road R.C.P. Culvert.



**ESTIMATED QUANTITIES**  
 Exc. 3° cu. yds. ✓  
 Conc. (1:5 1/2) 2° cu. yds. ✓  
 Reinf. Steel 60 lbs. ✓  
 12" Reinf. Conc. Pipe 36 lin. ft. ✓

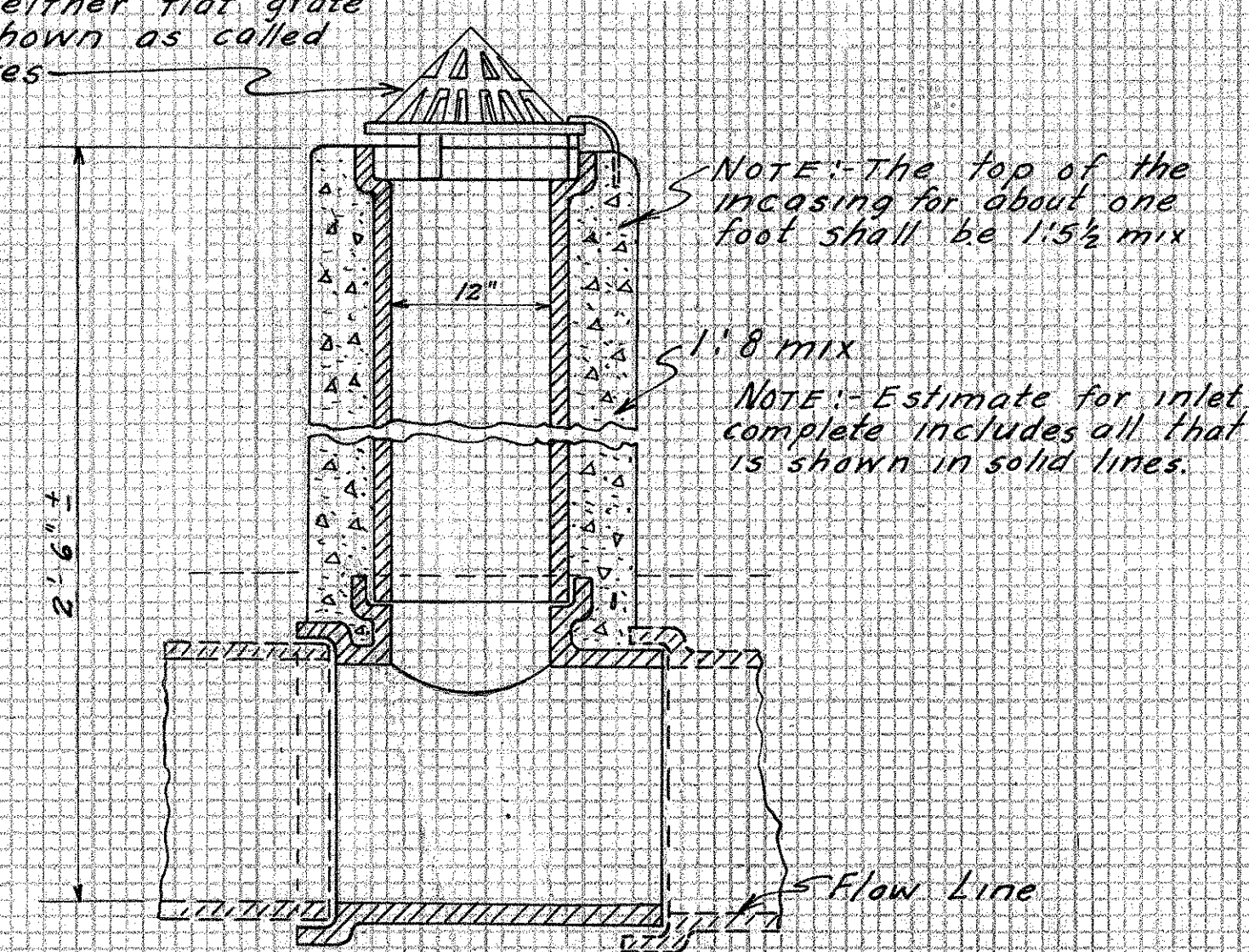
Drawn by: - C.W.M<sup>SC</sup>  
 Date: - 5-14-32  
 Checked by: -  
 Date: -

40  
 STA. 356 + 76



S.H. 24 SEC'S. H, K & M KNOX COUNTY

NOTE: Use either flat grate or type shown as called for in notes

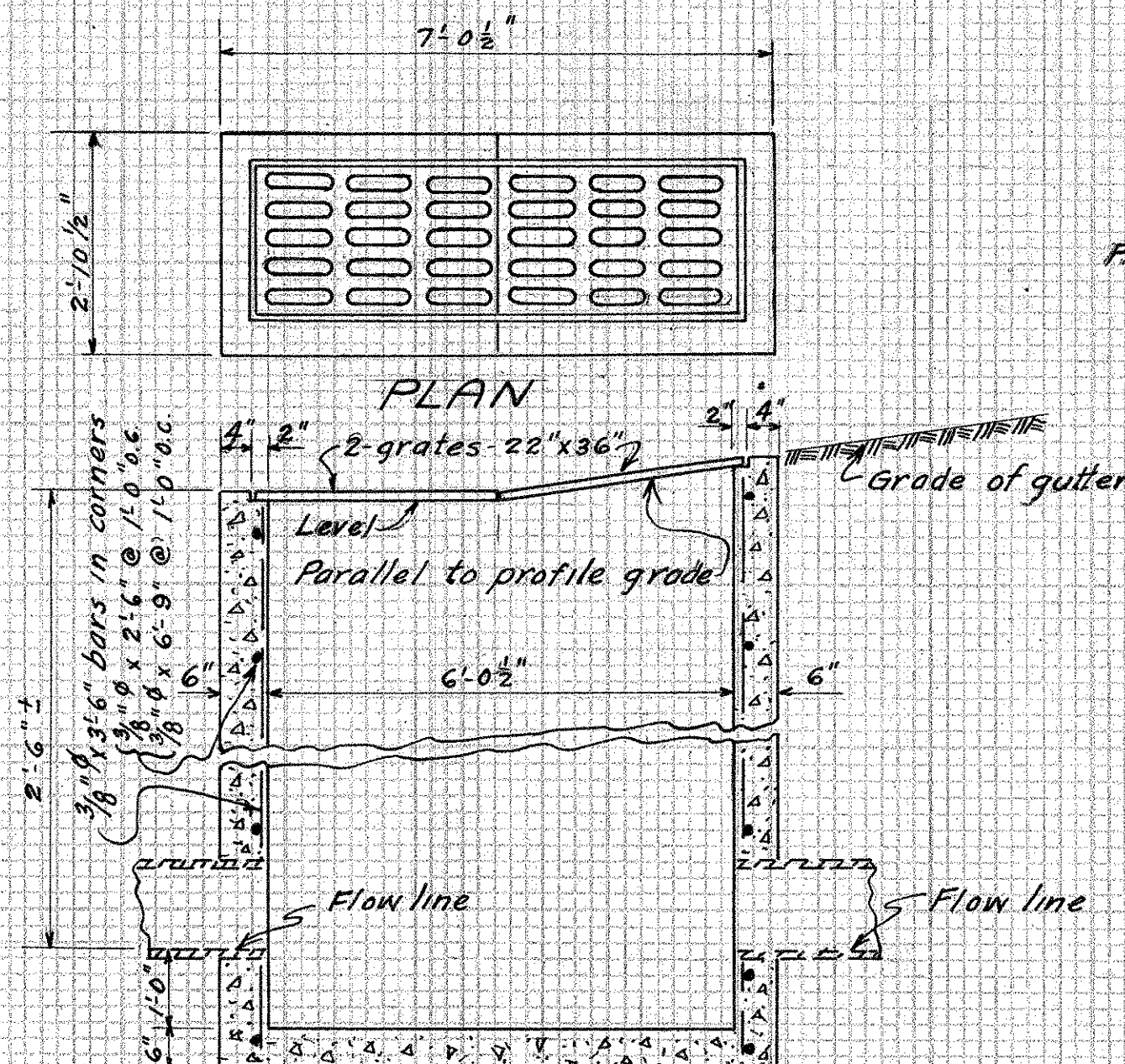


STD. INLET NO. 1  
For further details see std. dwg. # 305

Station	Item No.	Flowline	Pipe Increase size	Type of Grate	No. Reqd.	Remarks
1+55-Right	6-D	1081.00	12" 12" to 14"	Flat	1	
49+50-Right	38-D	1039.20	12"	Flat	1	
50+50-Left	29-D	1042.97	12"	Flat	1	
52+54-Right	40-D	1050.45	12"	Flat	1	Place header in end
52+80-Left	31-D	1051.40	12"	Flat	1	Place header in end
64+00-Left	46-D	1100.07	12" 15" to 12"	Flat	1	
390+00-Left	80-D	1100.47	12"	Flat	1	
404+50-Right	70-D	1167.89	12"	Cone	1	Place header in end

OLD PIPE REMOVALS

Station	From	To	Size	Lin Ft.
25+64	66+36	Rt.	4" to 24"	890
33+03	66+70	Lt.	4" to 24"	648
386+90	403+02	Rt.	12" to 22"	497
388+91	396+58	Lt.	12" to 16"	56

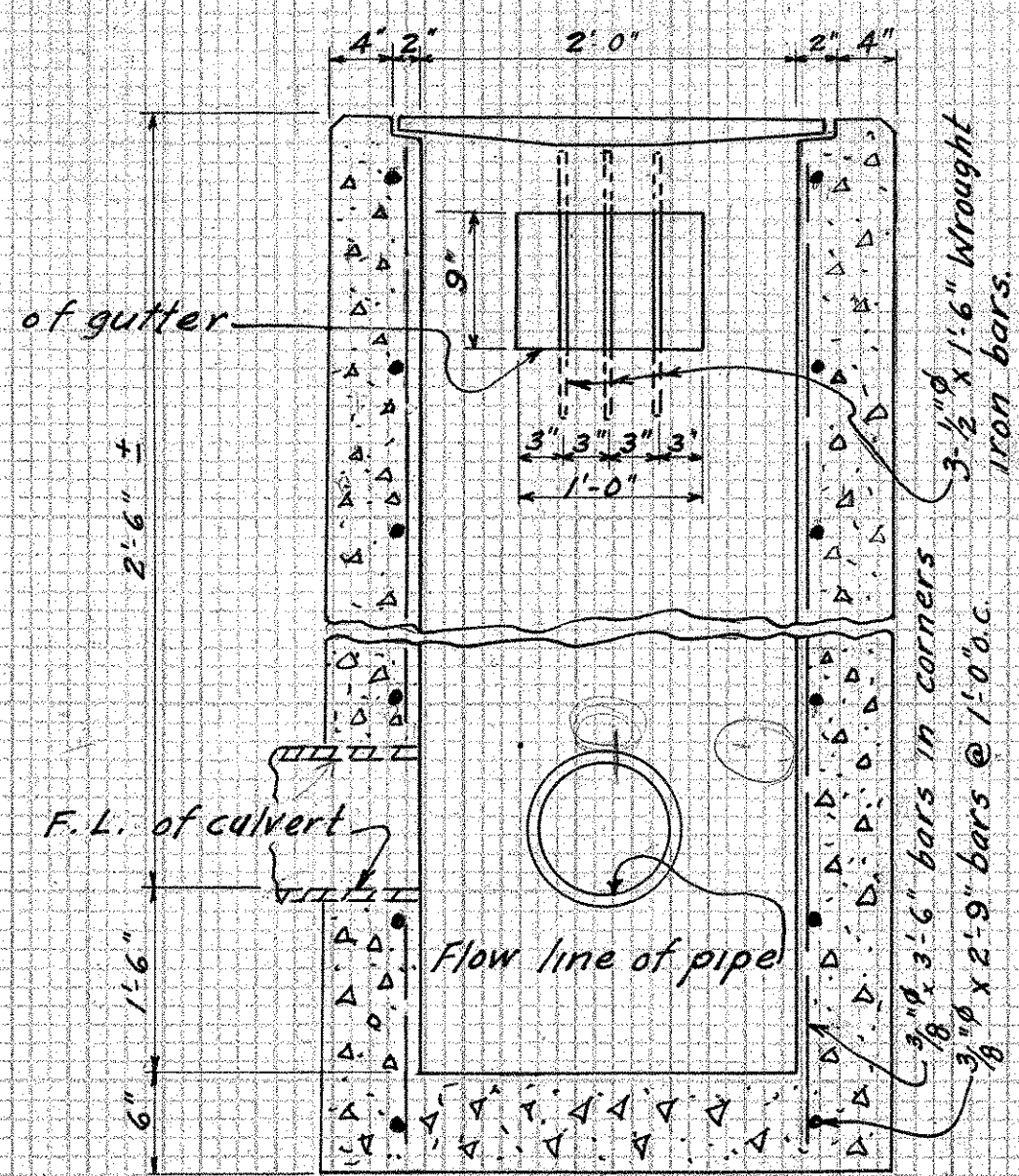


CROSS SECTION  
INLET CATCH BASIN  
No. 2-C.B. MODIFIED

Station	Item No.	Flowline	Pipe size inlet end	Pipe size outlet end	No. Reqd.
25+25-Left	12-D	1120.81	12"	15"	1
33+25-Right	15-D	1120.22	12"	15"	1
35+25-Left	16-D	1105.73	12"	18"	1
39+00-Right	19-D	1078.17	15"	18"	1
39+00-Left	20-D	1078.17	18"	18"	1
43+20-Left	23-D	1047.47	18"	18"	1
44+14-Right	25-D	1040.60	18"	24"	1
57+00-Left	34-D	1067.84	18"	18"	1
57+10-Right	43-D	1068.40	15"	15"	1
60+50-Right	45-D	1090.62	15"	12"	1
60+50-Left	36-D	1090.62	18"	12"	1
308+96 Rt	62.5-D	1097.85	24"	24"	1
387+71-Right	62-D	1093.80	24"	24"	1
391+24-Right	64-D	1104.52	18"	24"	1
392+40-Left	72-D	1107.12	12"	12"	1
394+10-Left	74-D	1121.02	12"	12"	1
395+60-Left	75-D	1133.17	12"	12"	1
396+34-Right	66-D	1138.91	15"	18"	1
399+35-Right	68-D	1153.69	12"	15"	1
399+35-Left	77-D	1153.69	12"	12"	1

Note: 25+25 outlet end joins present 15" V.S.R.

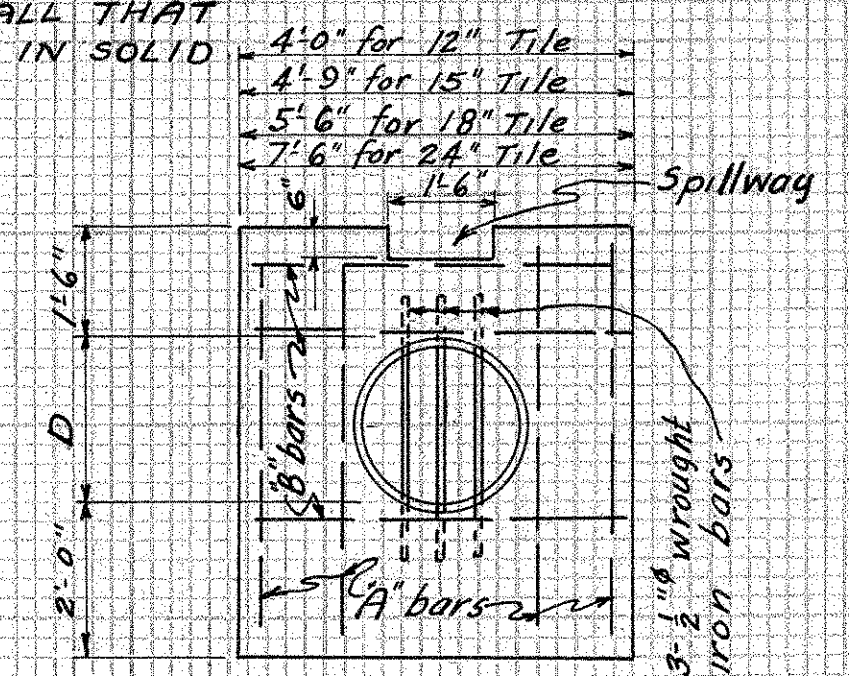
Note: sta. 391+24 right present 20" tile at right from yard to spill into box also.  
Note: sta. 395+60 left-outlet end of inlet to be connected with present 12" tile - 21.5' from E of survey.



SIDE INLET CATCH BASIN  
No. 2 C.B.  
For details not shown see std. dwg. No. 305

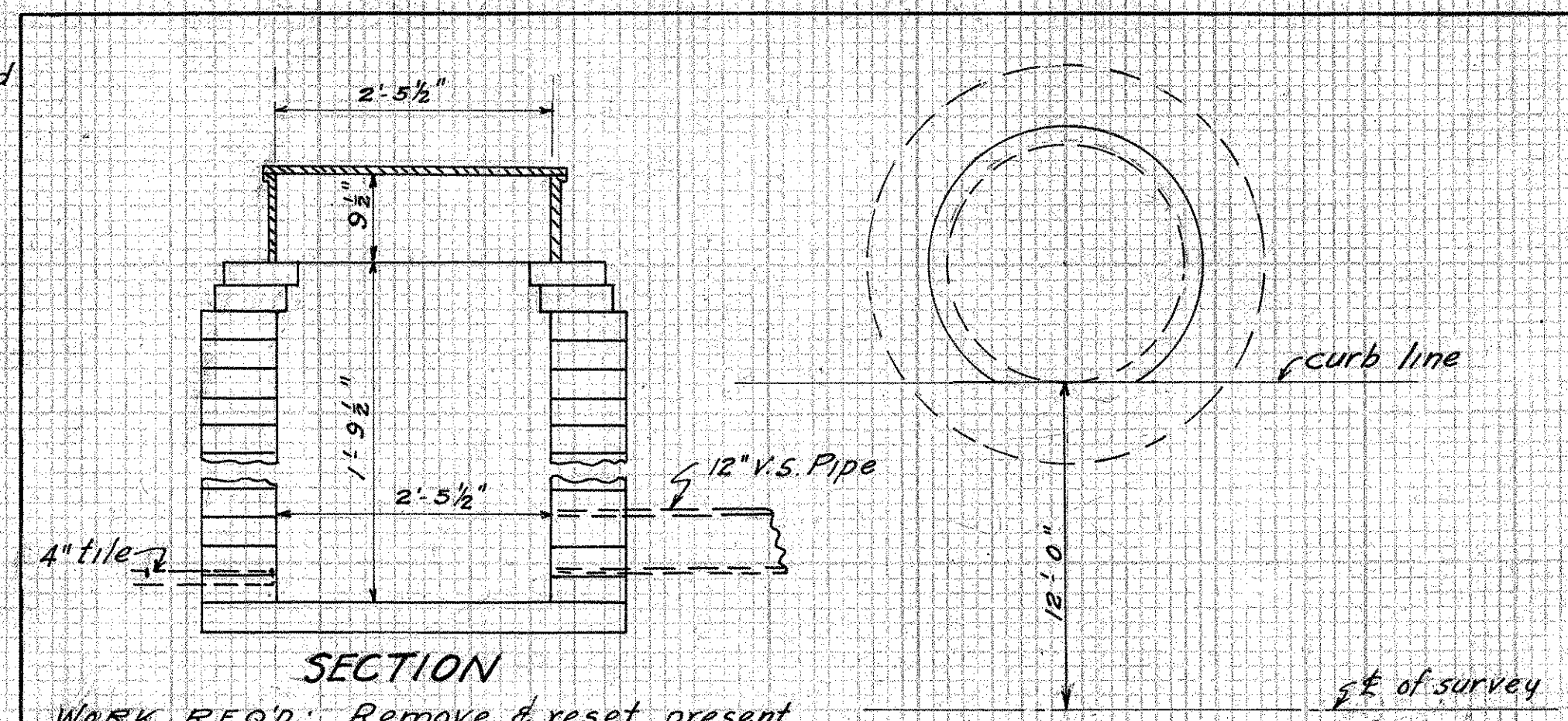
Station	Item No.	Pipe Size	Culv. Size	F.L. of pipe	Work Reqd.	No. Reqd.
53+25 Left	32-D	18"	30"	1051.39	Remove present hdwl. & build std #2-C.B. inlet	1

NOTE: ESTIMATE FOR ALL INLETS, CATCH-BASINS & HEADERS INCLUDED ALL THAT IS SHOWN IN SOLID LINES.



HEADWALL FOR SIDE DRAINAGE  
Other details than those shown are the same as for std. pipe culvert hdwl.  
See std. Dwg. No. 300

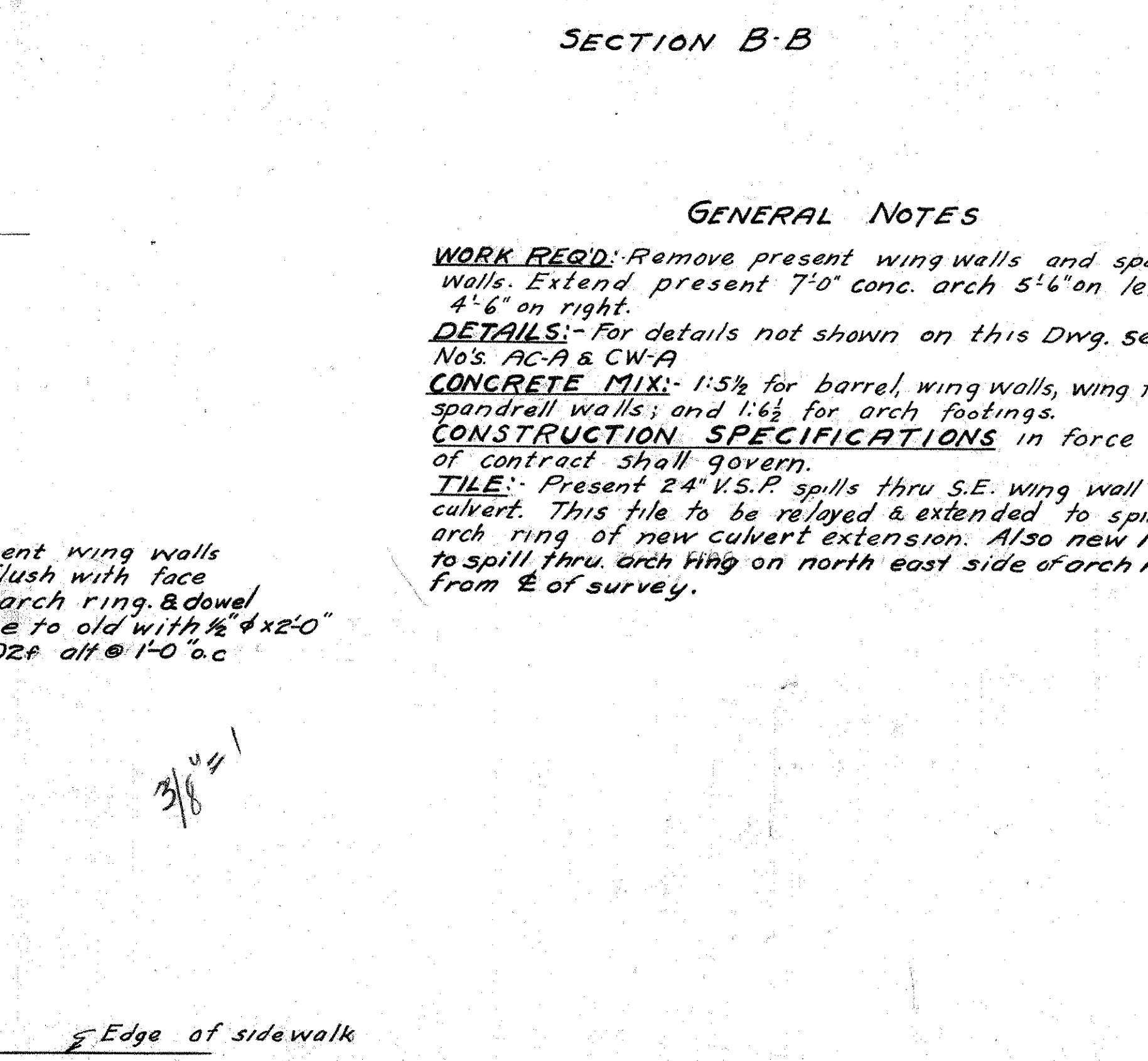
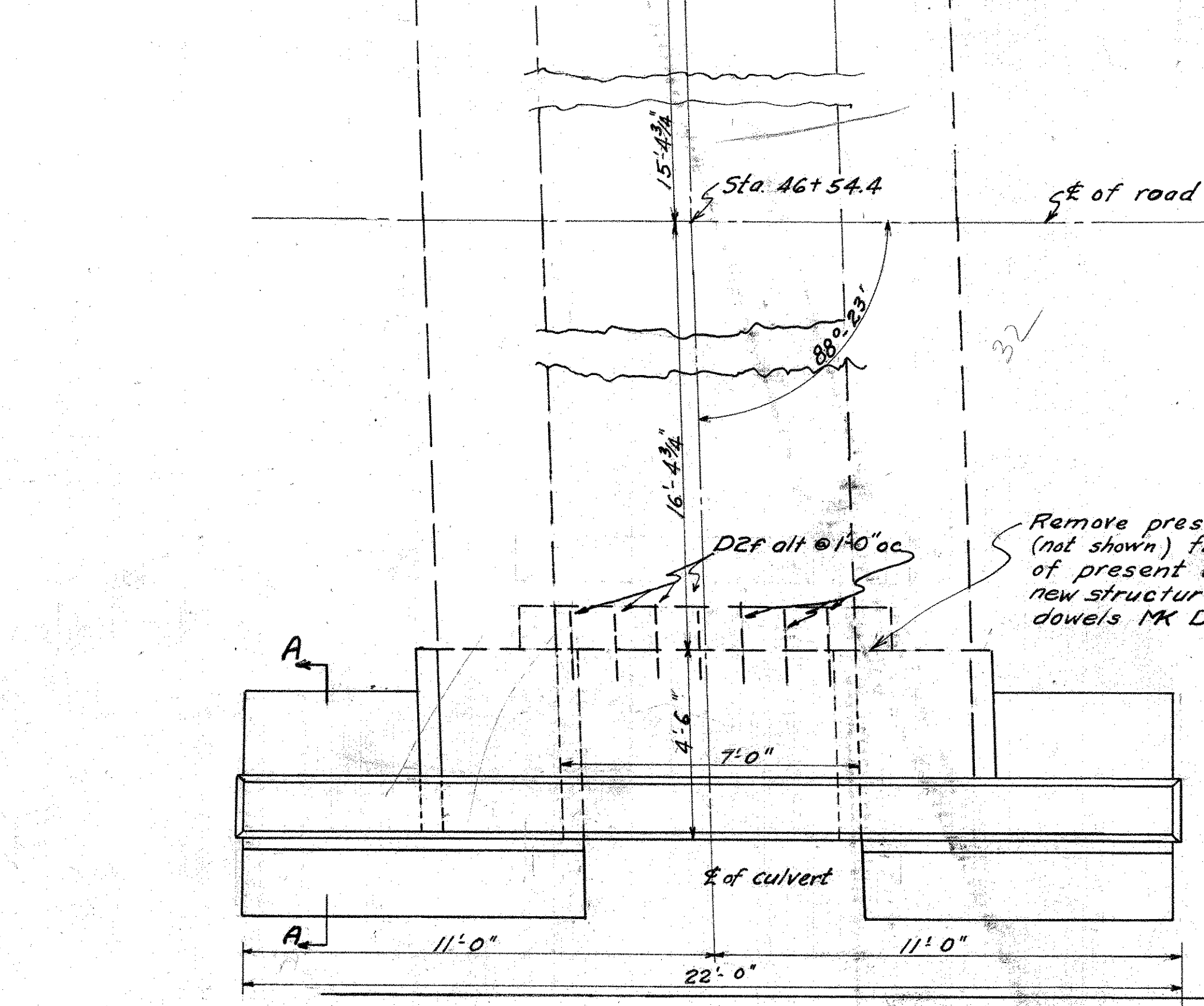
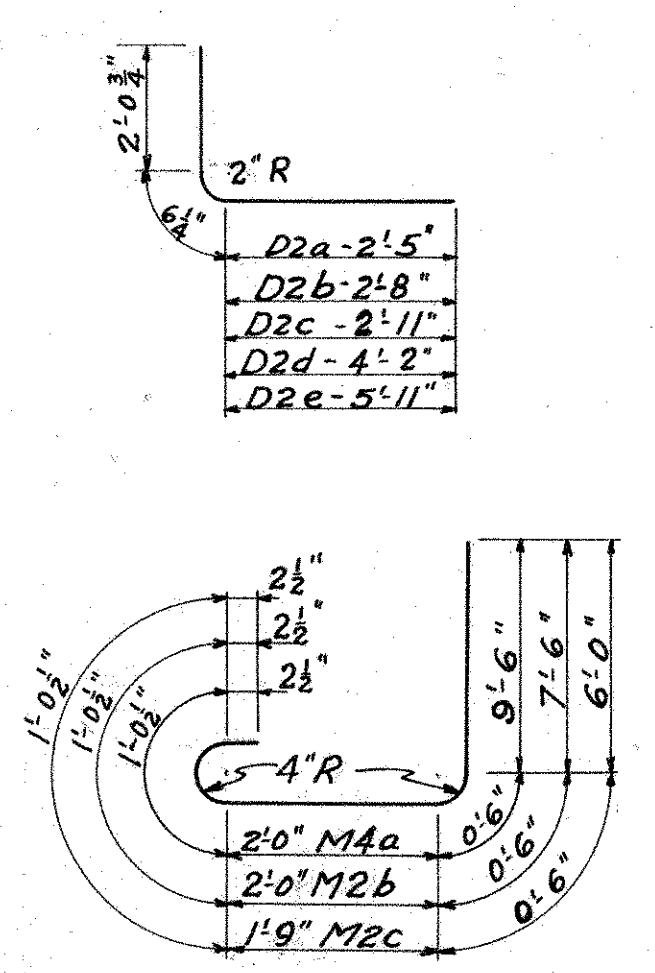
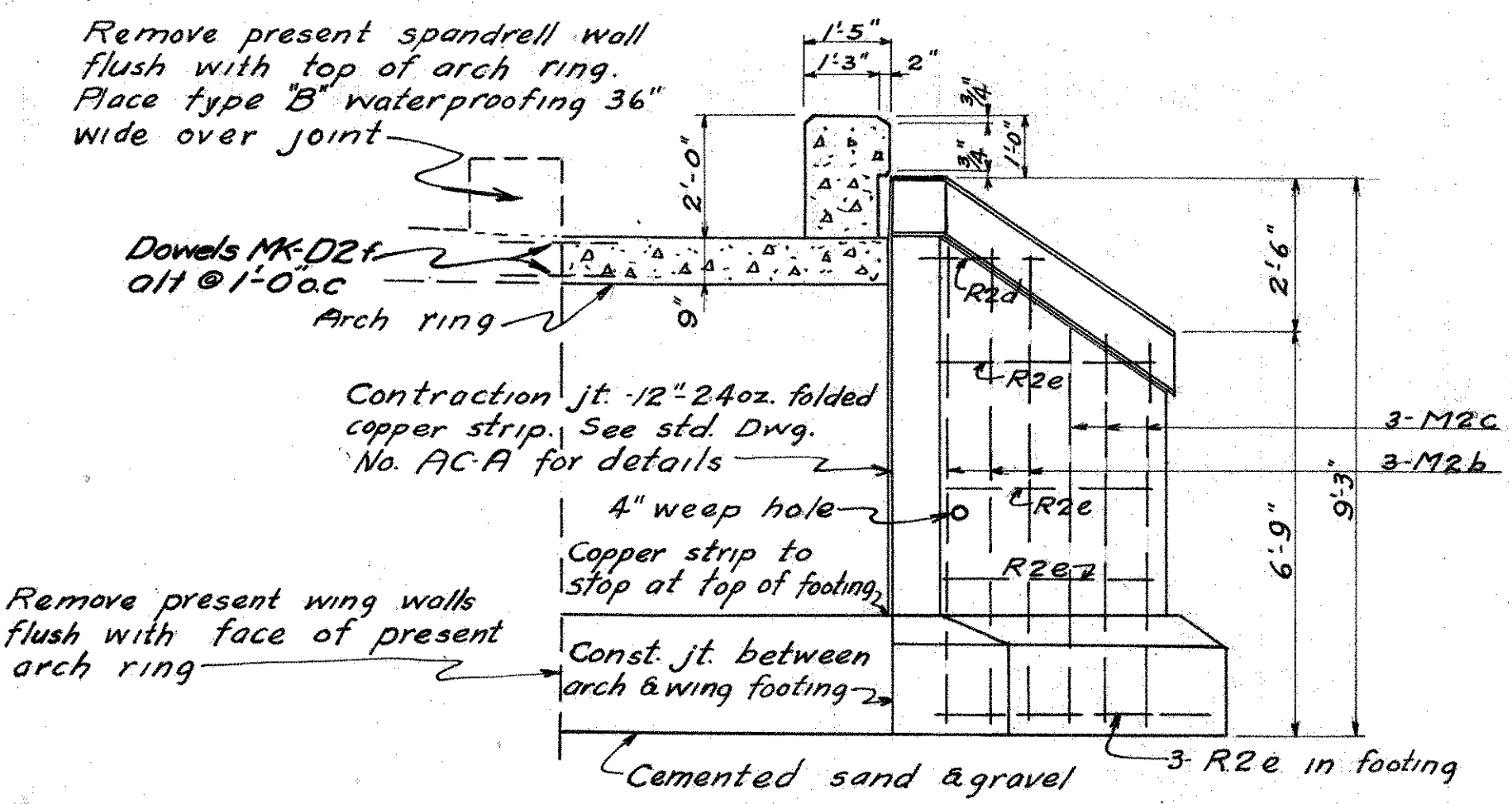
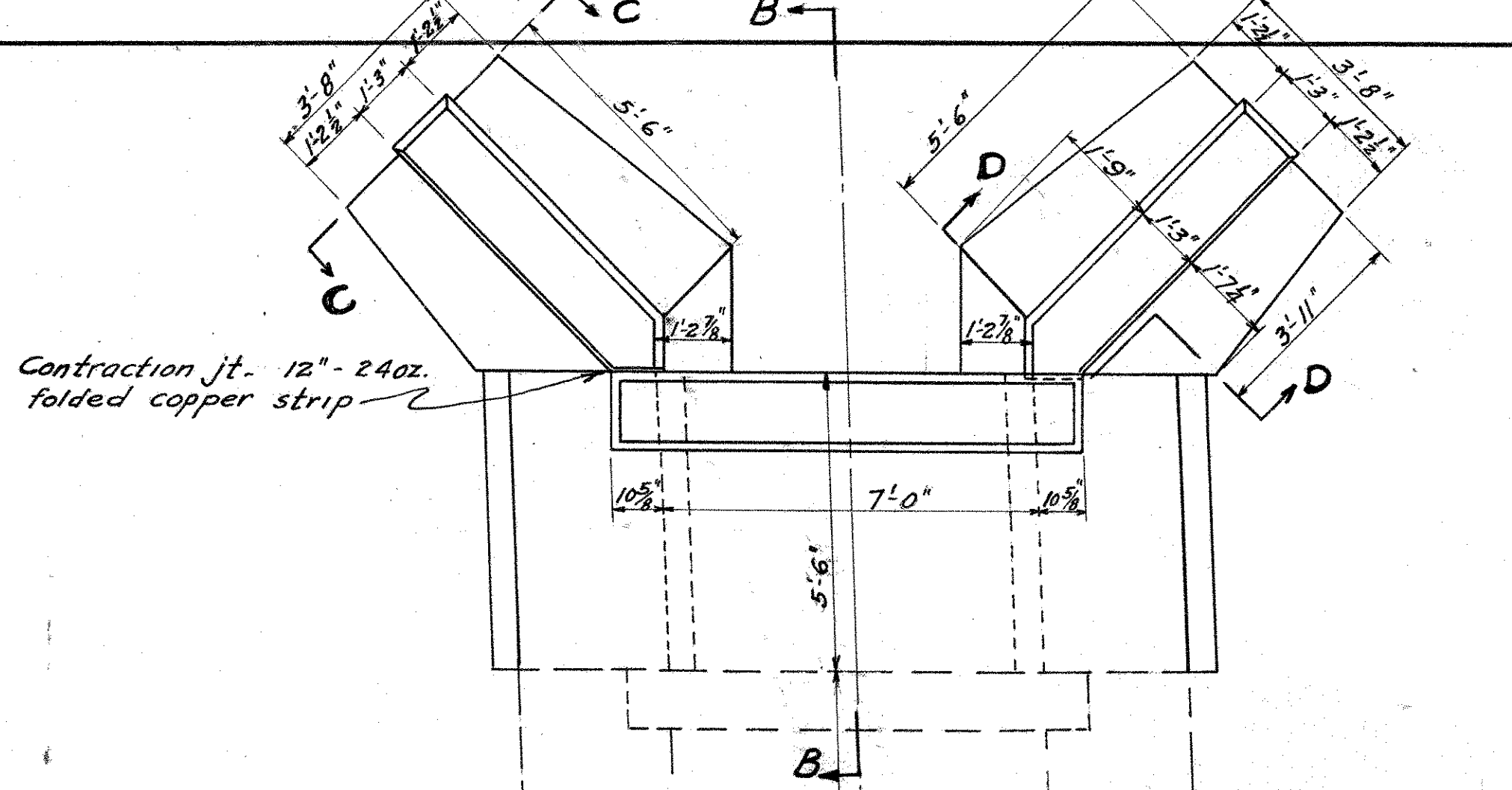
Station	Item No.	Size of Pipe	Flow Line	No. Reqd.
11+00 Left	5-D	12"	1085.65	1
24+80 Right	11-D	12"	1120.90	1
44+85 Left	26-D	18"	1047.18	1
48+50 Left	27-D	12"	1036.02	1
54+00 Right	41-D	15"	1055.80	1
66+50 Right	50-D	12"	1096.50	1
66+90 Left	48-D	12"	1093.24	1
386+75 Right	60-D	24"	1090.50	1
403+00 Left	79-D	12"	1166.85	1



WORK REQ'D: Remove & reset present manholes on right & left at station 0-7.9. Relay present tile emptying in on the south side. Place inlet 12'-0" from E of road. Details to conform to details of present manholes.

PLAN  
STA. 0-7.9

QUANTITIES  
Resetting two (2) manholes



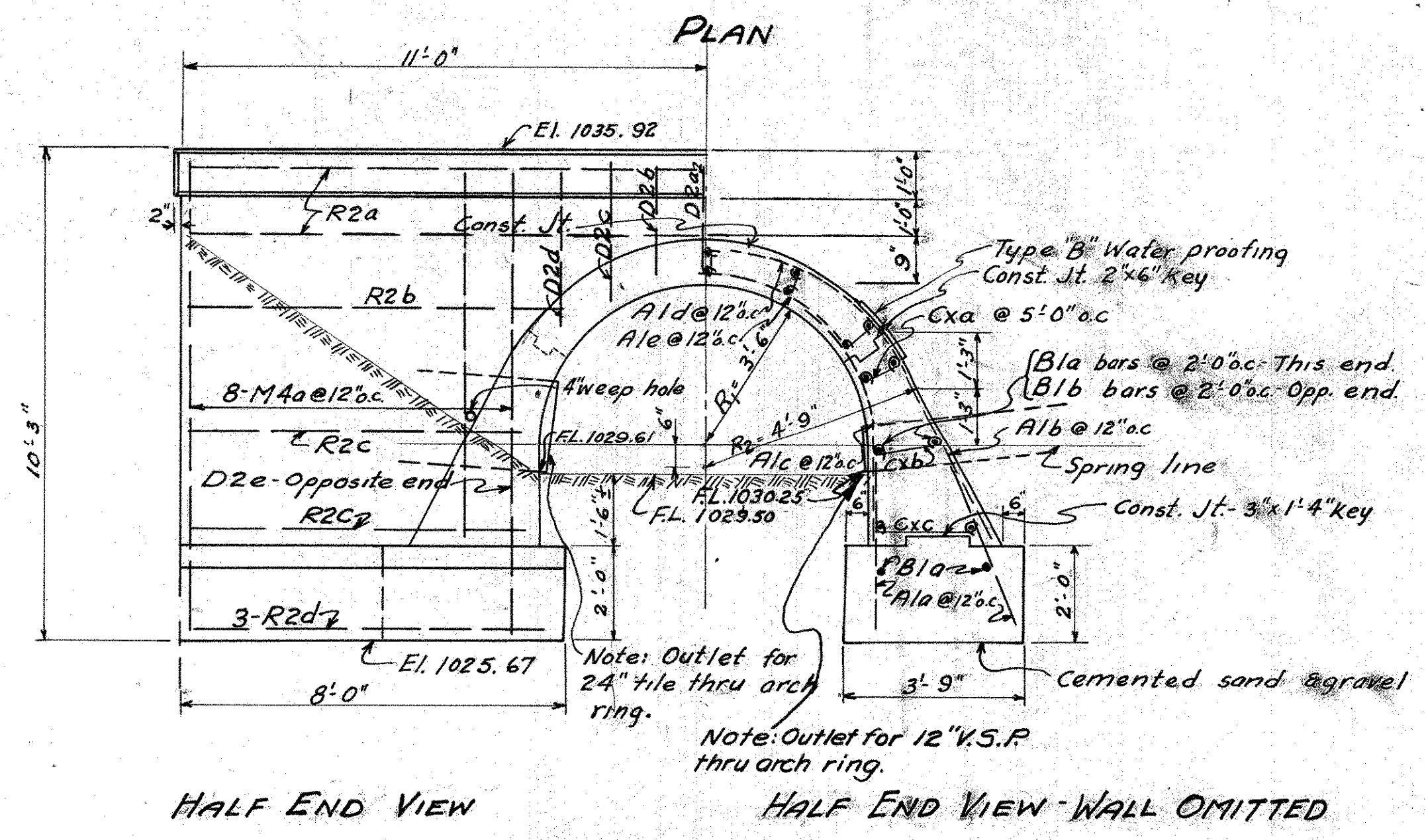
**GENERAL NOTES**

**WORK REQD:** Remove present wing walls and spandrell walls. Extend present 7'-0" conc. arch 5'-6" on left & 4'-6" on right.  
**DETAILS:** For details not shown on this Dwg. see std. Dwg. No's AC-A & CW-A  
**CONCRETE MIX:** 1:5 1/2 for barrel, wing walls, wing footings and spandrell walls; and 1:6 1/2 for arch footings.  
**CONSTRUCTION SPECIFICATIONS** in force on date of contract shall govern.  
**TILE:** Present 24" V.S.P. spills thru S.E. wing wall of present culvert. This tile to be relayed & extended to spill thru arch ring of new culvert extension. Also new 12" V.S.P. to spill thru arch ring on north east side of arch ring 18.5' from  $\mathcal{E}$  of survey.

STEEL LIST					
No	Size	Length	Mark	Spac.	Wt.
40	3/8"	4'-0"	A1a	12"	60
20	3/8"	7'-3"	A1b	12"	55
20	3/8"	6'-0"	A1c	12"	45
20	3/8"	7'-0"	A1d	12"	53
20	3/8"	6'-0"	A1e	12"	45
28	3/8"	4'-0"	B1a	24"	42
28	3/8"	5'-0"	B1b	24"	53
28	1/4"	1'-3"	Cxa	5'-0"	6
8	1/4"	2'-0"	Cxb	5'-0"	3
8	1/4"	2'-9"	Cxc	5'-0"	4
2	1/2"	5'-0"	D2a	12"	7
4	1/2"	5'-3"	D2b	12"	14
4	1/2"	5'-6"	D2c	12"	15
4	1/2"	6'-9"	D2d	12"	18
16	3/8"	13'-3"	M2a	12"	221
2	1/2"	21'-3"	R2a	12"	28
2	1/2"	8'-6"	R2b		11
4	1/2"	7'-0"	R2c		19
6	1/2"	7'-6"	R2d		10
2	1/2"	8'-6"	R2e	12"	11
6	1/2"	11'-3"	M2b	12"	45
6	1/2"	9'-6"	M2c	12"	38
12	1/2"	5'-0"	R2e		40
2	1/2"	2'-6"	R2d		3
38	1/2"	2'-0"	D2f	12"	51
<b>TOTAL</b>					<b>897</b>

**ESTIMATED QUANTITIES**

EXCAVATION	30.0 cu.yds.
REINF. STEEL	897 LBS
CONC. (1:5 1/2)	31.4 cu.yds.
CONC. (1:6 1/2) Arch Footings only	5.8 cu.yds.
12" 24oz. FOLDED COPPER STRIP	15.5 LIN. FT.
REMOVING PRESENT WING WALLS INCLUDED WITH AND SPANDRELL WALLS	EXCAV. FOR PAYMENT.
TYPE B WATERPROOFING-36" WIDE	20 SQ. YDS.
24" R.C.P.	4.0 LIN. FT.
Dowel Holes	38.0 LIN. FT.



SECTION A-A      SECTION C-C      SECTION D-D

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
BUREAU OF BRIDGES

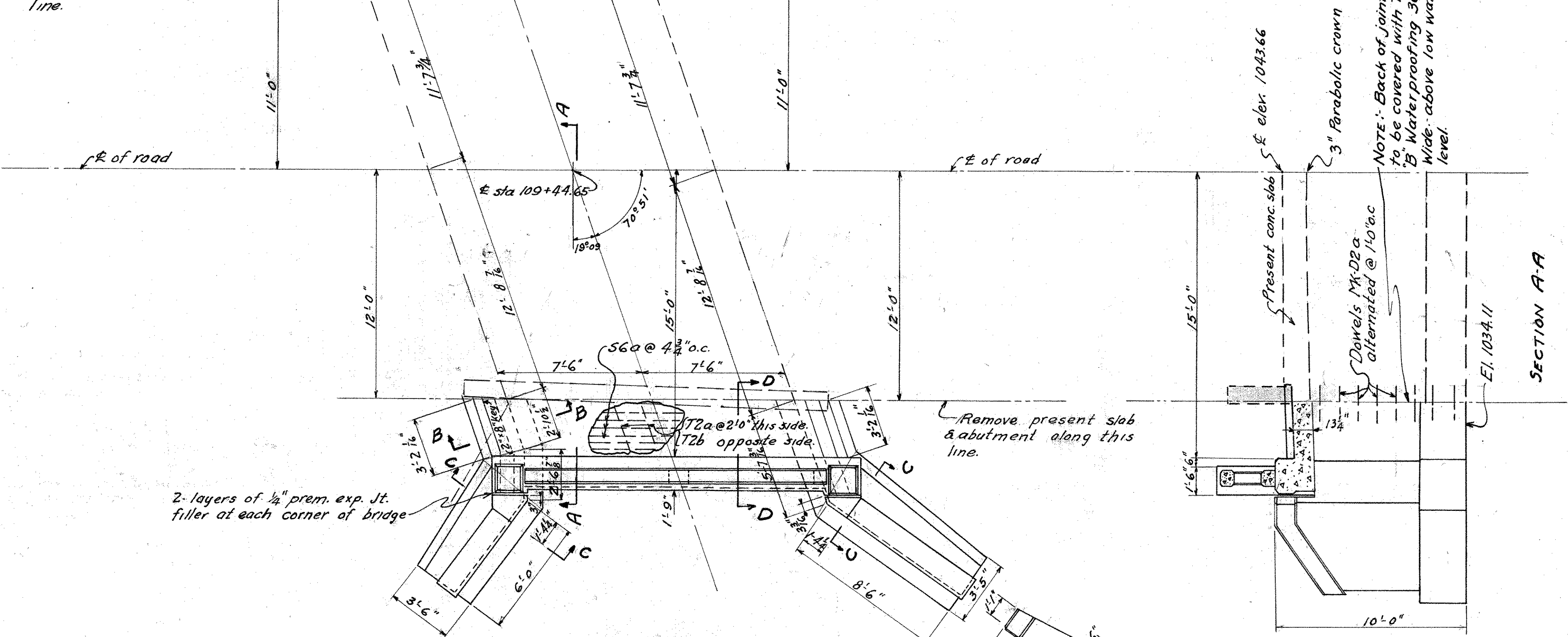
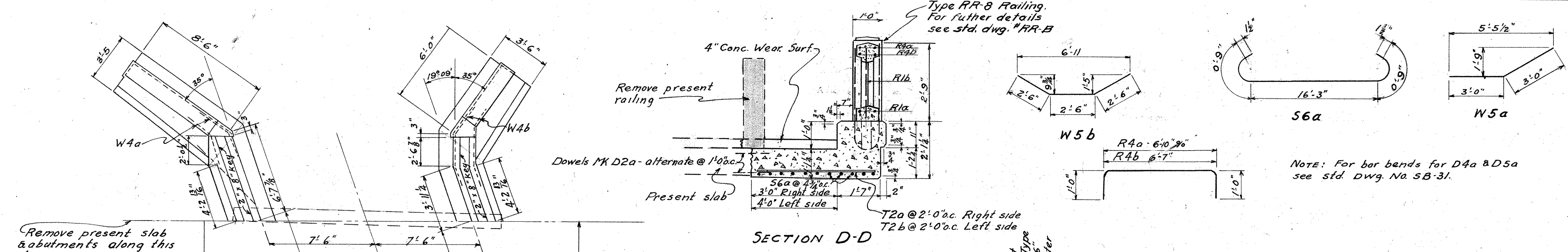
**CONSTRUCTION PLAN**

BRIDGE OVER \_\_\_\_\_

S. H. 24      KNOX COUNTY  
SECTION H, K & M      STA. 46+54.4

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.W.M.	C.W.M.	R.S.P.				
4-18-32	4-18-32					

STEEL LIST					
No	Size	Length	Mk.	Spac.	Wt.
<b>SUPERSTRUCTURE</b>					
26	7/8"	18'-0"	S6a	4'3"	957
8	1/2"	4'-6"	T2a	2'-0"	24
8	1/2"	5'-6"	T2b	2'-0"	29
30	1/2"	2'-0"	D2a	1'-0"	40
8	3/4"	8'-3"	D5a		99
12	3/8"	9'-0"	D4a		113
SUB-TOTAL					1262
<b>SUBSTRUCTURE</b>					
32	5/8"	4'-6"	F4a	1'-6"	150
32	1/2"	2'-0"	D2a	1'-0"	43
8	5/8"	6'-0"	W4a	1'-6"	50
8	5/8"	7'-6"	W4b	1'-6"	63
26	5/8"	2'-0"	K4a	1'-0"	54
SUB-TOTAL					360
TOTAL					1622
<b>RAILING STEEL</b>					
8	5/8"	8'-10"	R4a		
8	5/8"	8'-7"	R4b		
8	3/8"	6'-10"	R1a		
28	3/8"	2'-6"	R1b		



**GENERAL NOTES**

**WORK REQ'D:** Remove present slab & abut. along line indicated. Extend present bridge to 30'-0" clear roadway as shown. New structure to be doweled to old with 1/2" alternated @ 1'-0" o.c.

**EXCAVATION:** All excavation below Elev. 1037.80 shall be considered wet. All above to be considered dry.

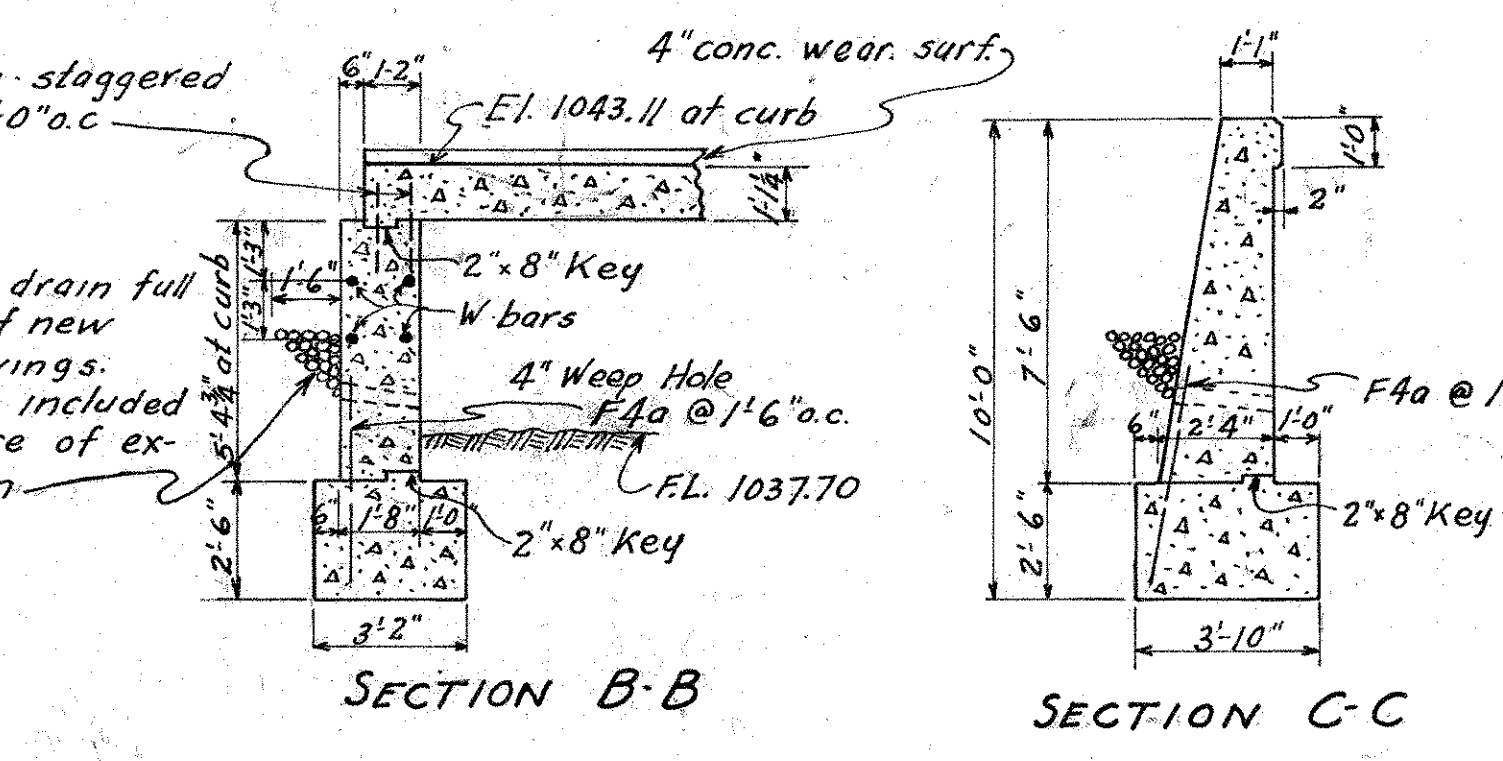
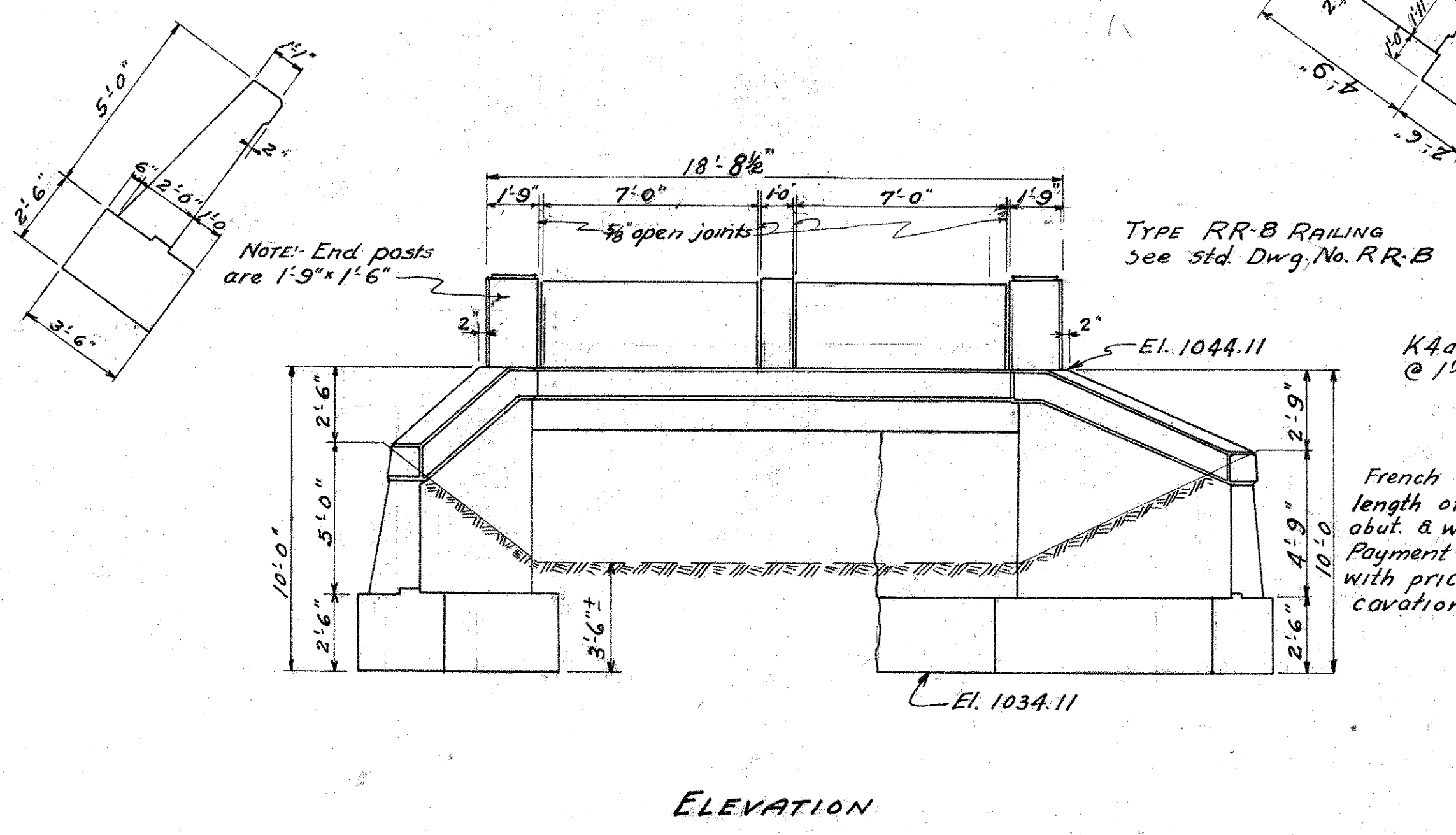
**CONCRETE:** All concrete in superstructure to be 1:1.5:2 mix; All concrete in substructure 1:1.6:2 mix.

**CONSTRUCTION SPECIFICATIONS** in force on date of contract shall govern.

**DETAILS:** For details not shown on this sheet see std. Dwg. Nos. SB-31 & RR-B.

**ESTIMATED QUANTITIES**

Excavation (Dry)	10.0 cu.yds.
Excavation (Wet)	30.0 cu.yds.
Reinforcing Steel	1622 lbs.
Conc. (1:1.5:2) Superstructure	9.7 cu.yds.
Conc. (1:1.6:2) Walls	17.9 cu.yds.
Conc. (1:1.6:2) Footings	16.1 cu.yds.
Type RR-B Railings	37.4 lin.ft.
4" Conc. Wearing surf. (1:1.5:2 conc)	15.0 sq.yds.
1/4" Prem. Exp. Jt. Filler	35.0 sq.ft.
Removing Wing walls & ends of slab	Lump Sum
Dowel Holes	62 lin.ft.
Cofferdams, Sheeting & Pumping	Lump Sum
Timber Piling (to establish unit price)	1 Lin.ft.
Type B Waterproofing 36" Wide	6.0 sq.yds.



BRIDGE No. KN-3-198-A

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
BUREAU OF BRIDGES

**CONSTRUCTION PLAN**

BRIDGE OVER S. BR. OF CENTER RUN

S. H. 24 SECTION H, K & M KNOX COUNTY STA. 109+44.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.W. [Signature]	C.W. [Signature]	A.L.G.				
#20-32	#20-32	1				

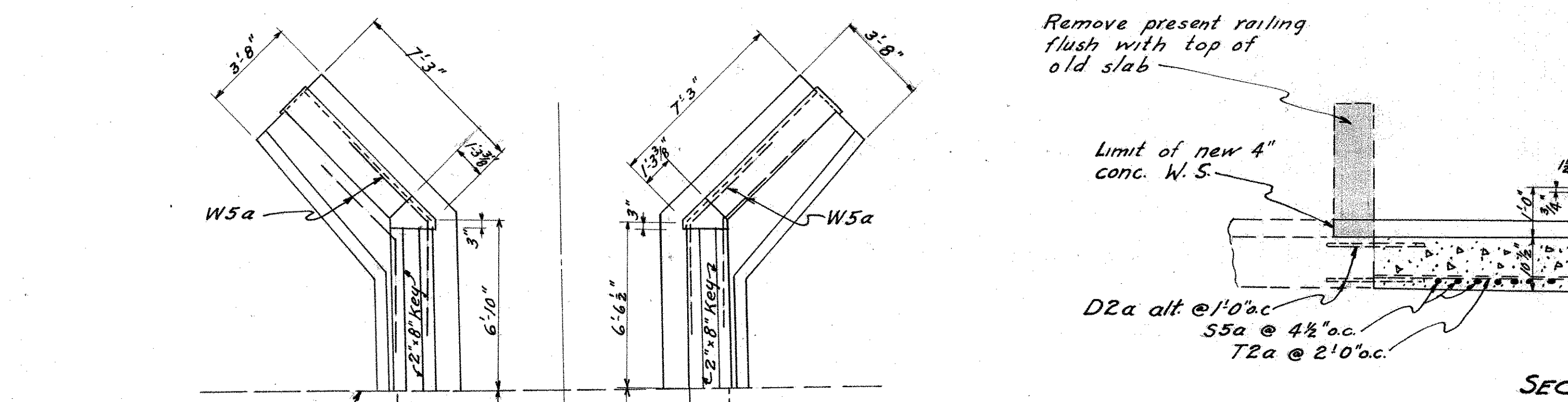
KNOX COUNTY  
S.H. 24 SEC. H, K & M

**STEEL LIST**

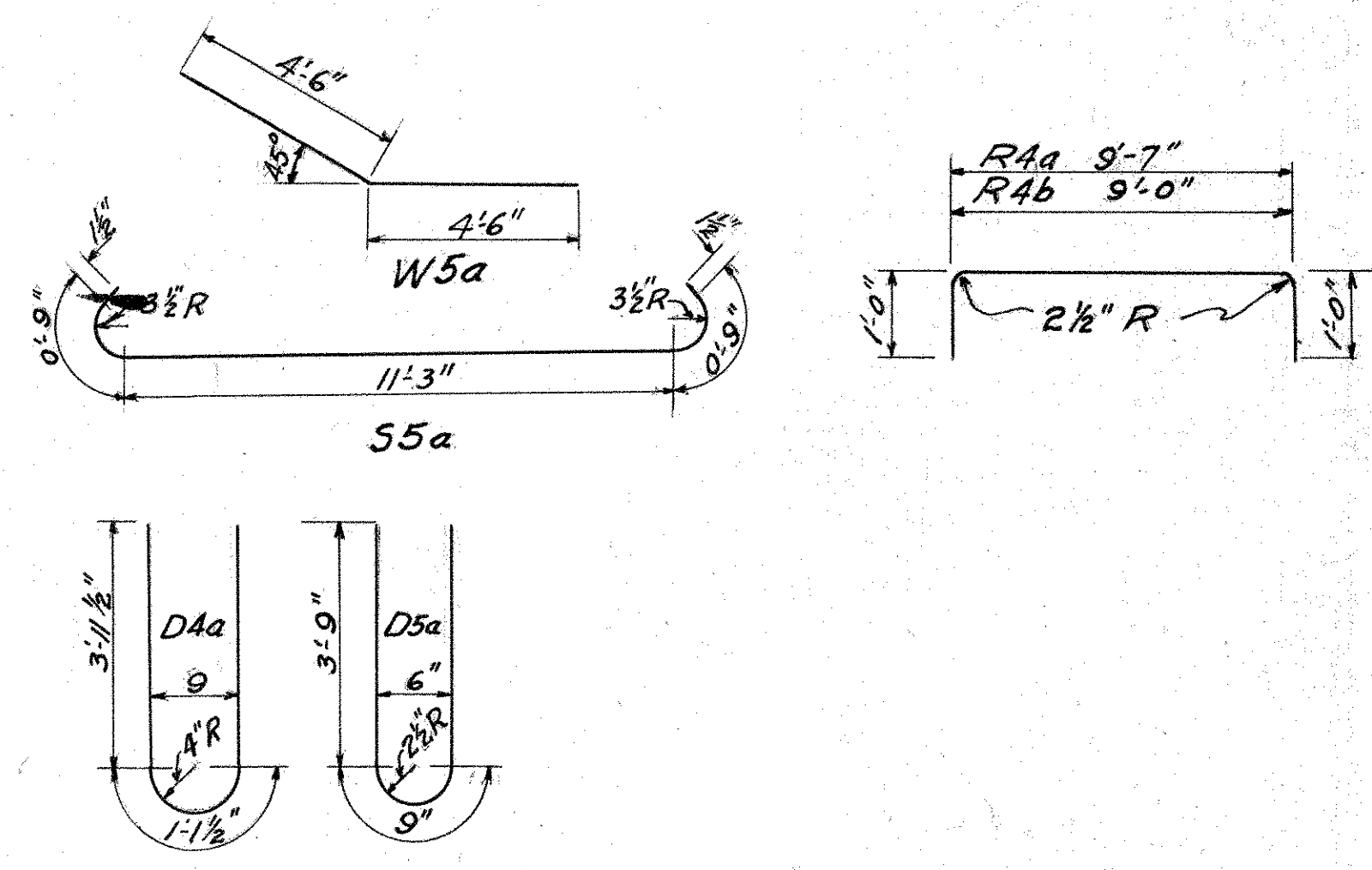
No	Size	Len <sup>th</sup>	Mk	Spac	Wt
<b>SUPERSTRUCTURE</b>					
64	3/4"	13'-0"	S5a	4 1/2"	1250
12	1/2"	5'-6"	T2a	2'-0"	44
26	1/2"	2'-0"	D2a	1'-0"	35
8	5/8"	9'-0"	D4a		75
12	3/4"	8'-3"	D5a		149
Total					1533
<b>SUBSTRUCTURE</b>					
36	5/8"	4'-6"	F4a	1'-6"	169
28	5/8"	2'-0"	K4a	1'-0"	58
16	3/4"	9'-0"	W5a	1'-3"	216
36	1/2"	2'-0"	D2a	1'-0"	48
SUB-TOTAL					491
TOTAL					2044
<b>RAILING STEEL</b>					
4	5/8"	11'-7"	R4a		
4	5/8"	11'-0"	R4b		
4	3/8"	8'-7"	R1a		
Included with price per lin. ft. of railing					

**ESTIMATED QUANTITIES**

Excavation (Dry)	8.0 cu. yds.
Excavation (Wet)	25.0 cu. yds.
Reinforcing Steel	2044.0 lbs.
Conc. 1:5 1/2 (Superstructure)	6.9 cu. yds.
Conc. 1:6 1/2 (Walls)	25.3 cu. yds.
Conc. 1:6 1/2 (Footings)	20.8 cu. yds.
Type RR-8 Railing	26.0 lin. ft.
4" Conc. Wear. Surf.	13.7 sq. yds.
1/4" Prem. Exp. Jt. Filler	26.0 sq. ft.
Type B Waterproofing - 36" Wide	9.37 yds.
Dowel Holes	62 Lin. ft.
Cofferdam sheeting & pumping	Lump Sum
Timber piling (to establish unit price)	1 lin. ft.
Removing present wings	Lump Sum

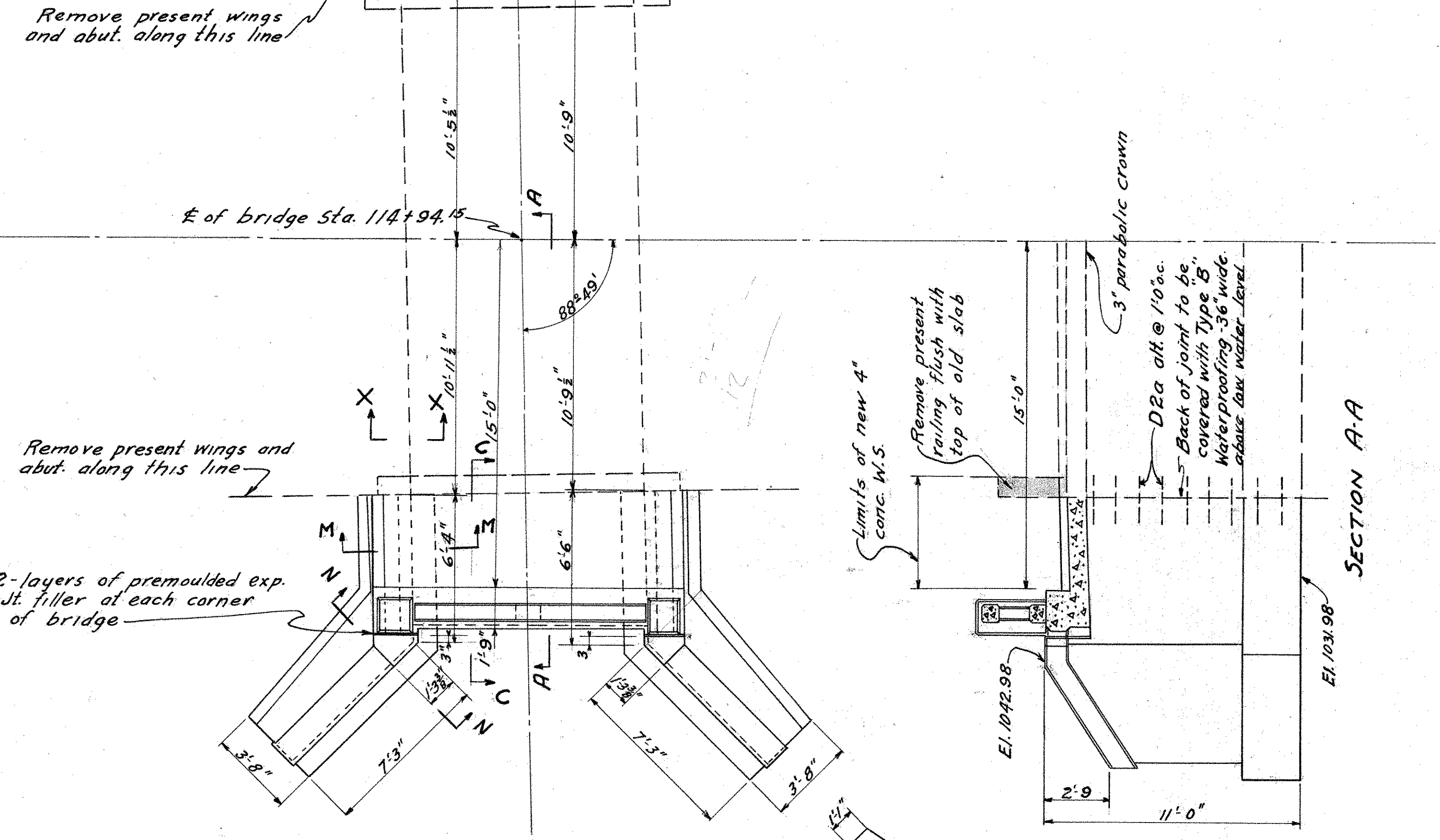


SECTION C-C

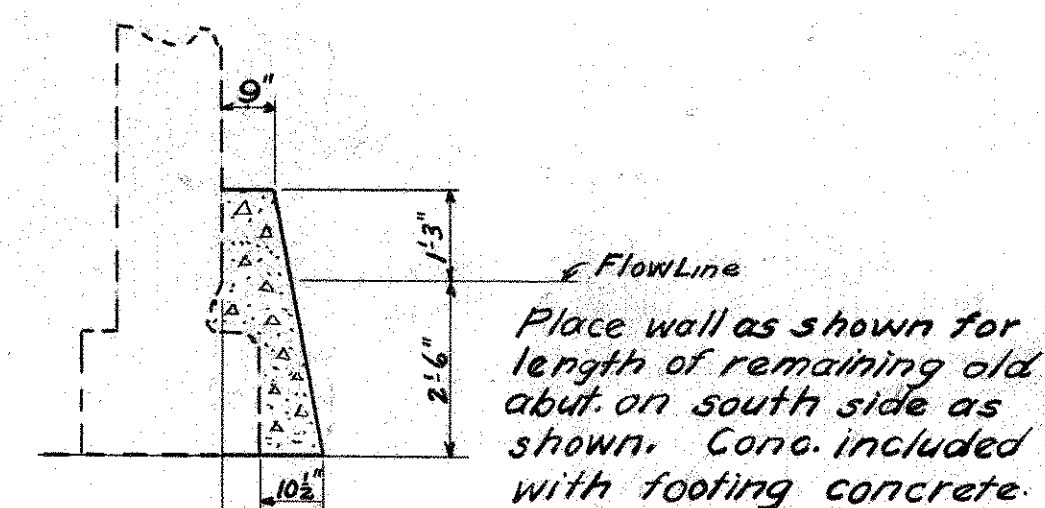


**GENERAL NOTES**

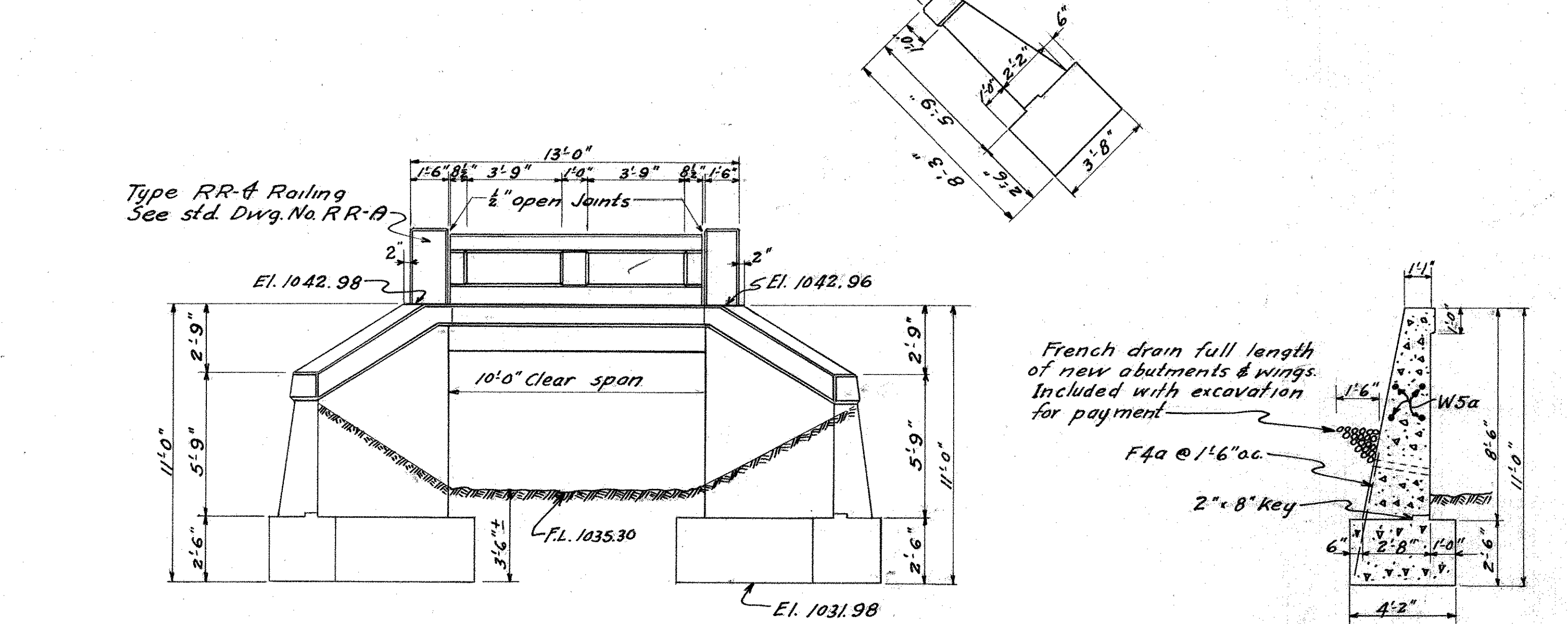
**WORK REQ'D:** Remove present wings along line indicated. Extend present bridge to 30'-0" Rdwy. as shown. New structure to be doweled to old with 1/2" alt. @ 1'-0" o.c.  
**EXCAVATION:** All excavation below Elev. 1035.40 shall be considered wet. All above to be considered Dry.  
**CONCRETE:** All concrete in superstructure to be 1:5 1/2 mix. All concrete in substructure to be 1:6 1/2 mix.  
**CONSTRUCTION SPECIFICATIONS** in force on date of contract shall govern.  
**DETAILS:** For details not shown on this sheet see std. dwg. no. RR-B & SB-31



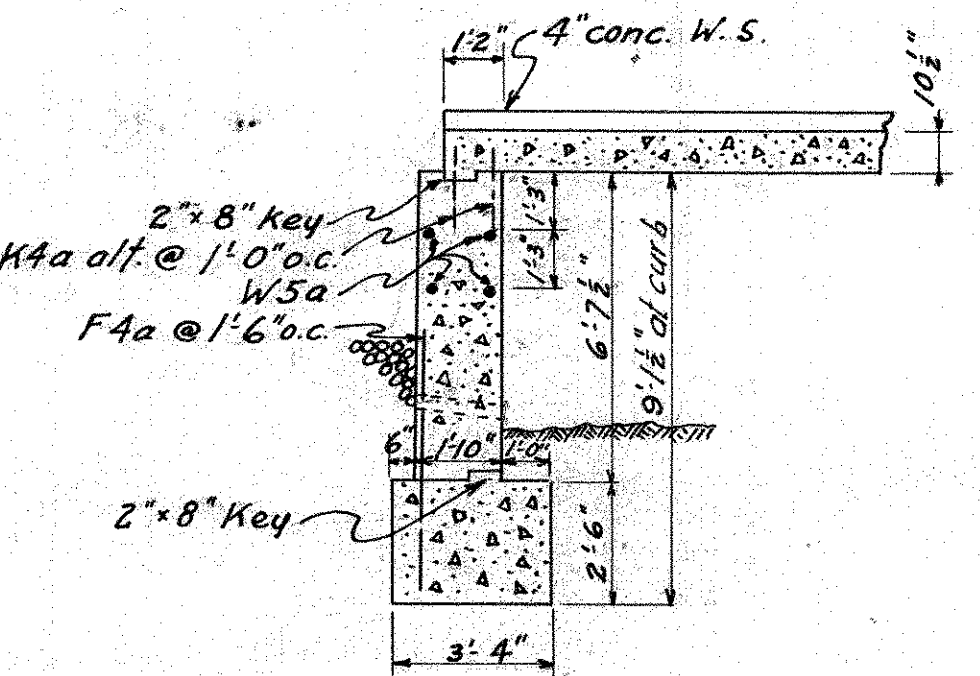
SECTION A-A



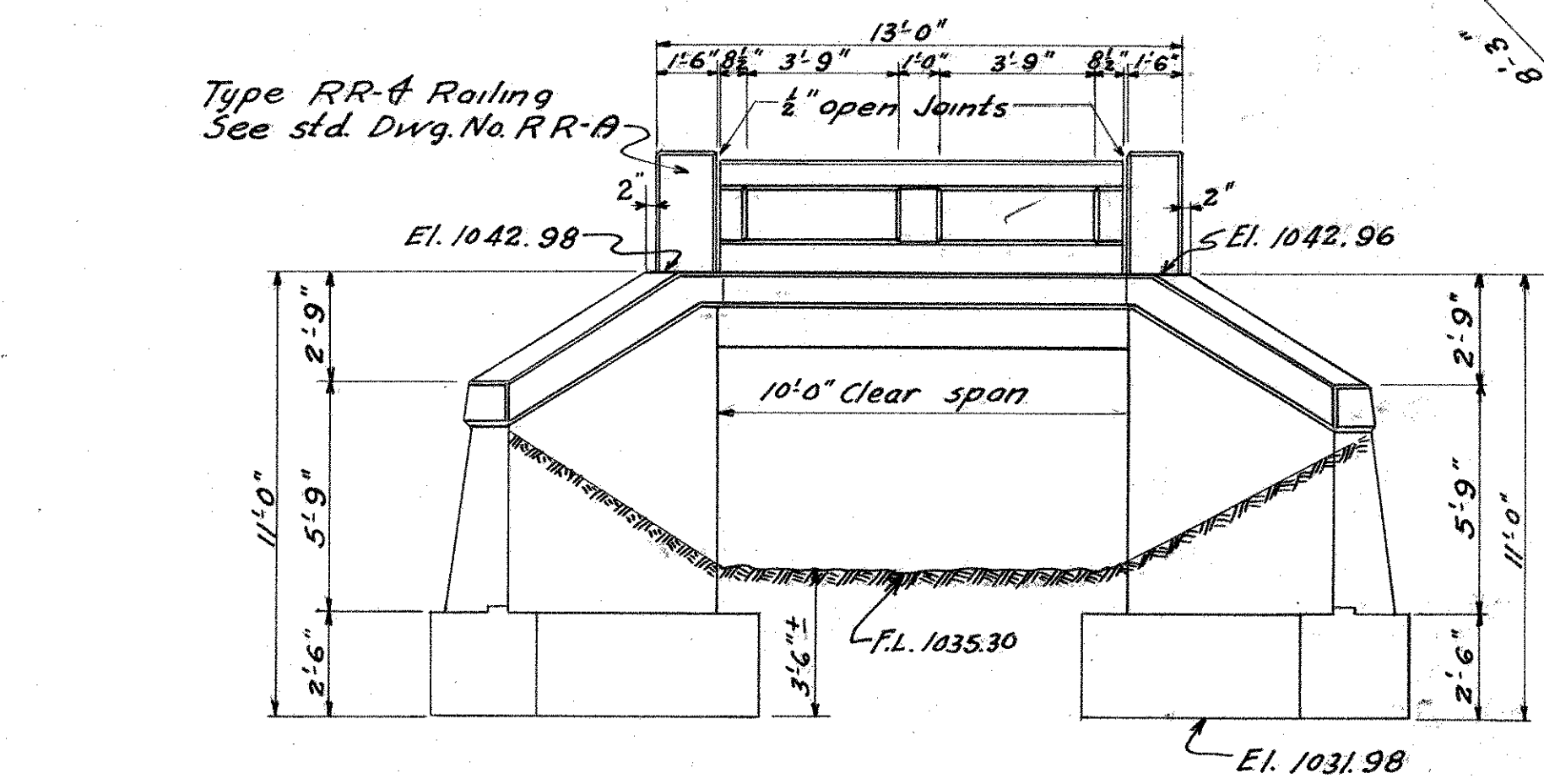
SECTION X-X



SECTION N-N



SECTION M-M



ELEVATION

BRIDGE No. KN-3-199

STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES						
<b>CONSTRUCTION PLAN</b>						
BRIDGE OVER N. BR. OF CENTER RUN						
S.H. 24			KNOX COUNTY			
SECTION H, K, & M			STA. 114+94.15			
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CW/M	CW/M	W/A				
4-22-32	4-22-32					

KNOX COUNTY  
S.H. 24 SEC. H, K, #M.

**STEEL LIST**

No.	Size	Length	MT	Spec.	WT.
<b>SUPERSTRUCTURE</b>					
52	1/2"	15'-0"	560	5/8"	1594
14	1/2"	5'-6"	720	2'-0"	51
28	3/8"	2'-0"	226	1'-0"	58
8	3/8"	3'-0"	440		75
12	3/4"	8'-3"	250		149
Total:-					1927

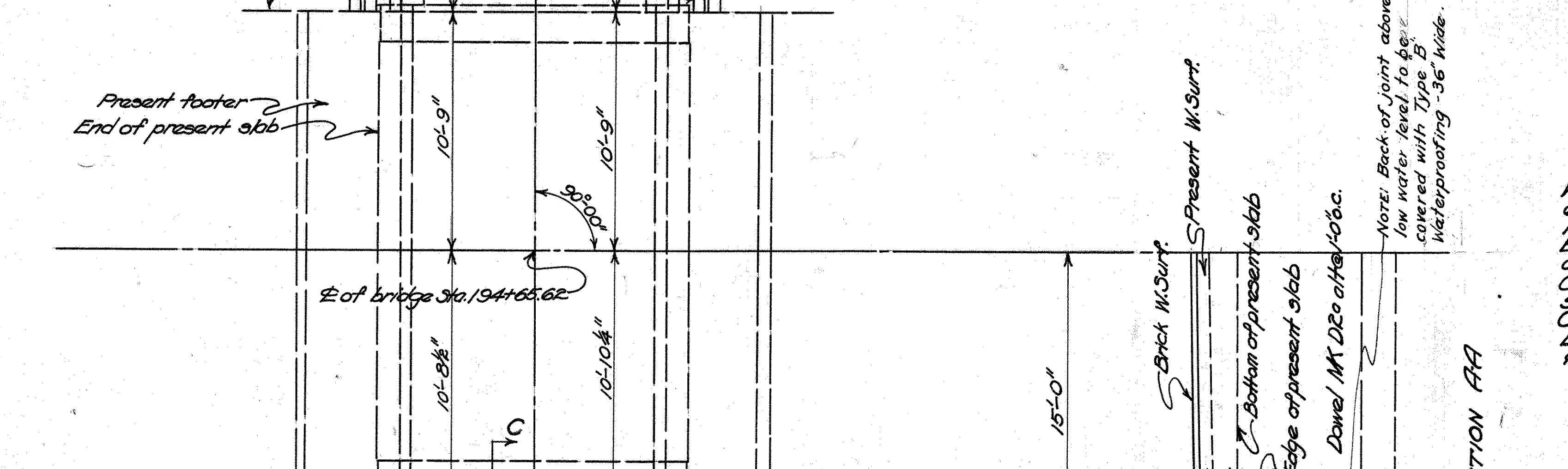
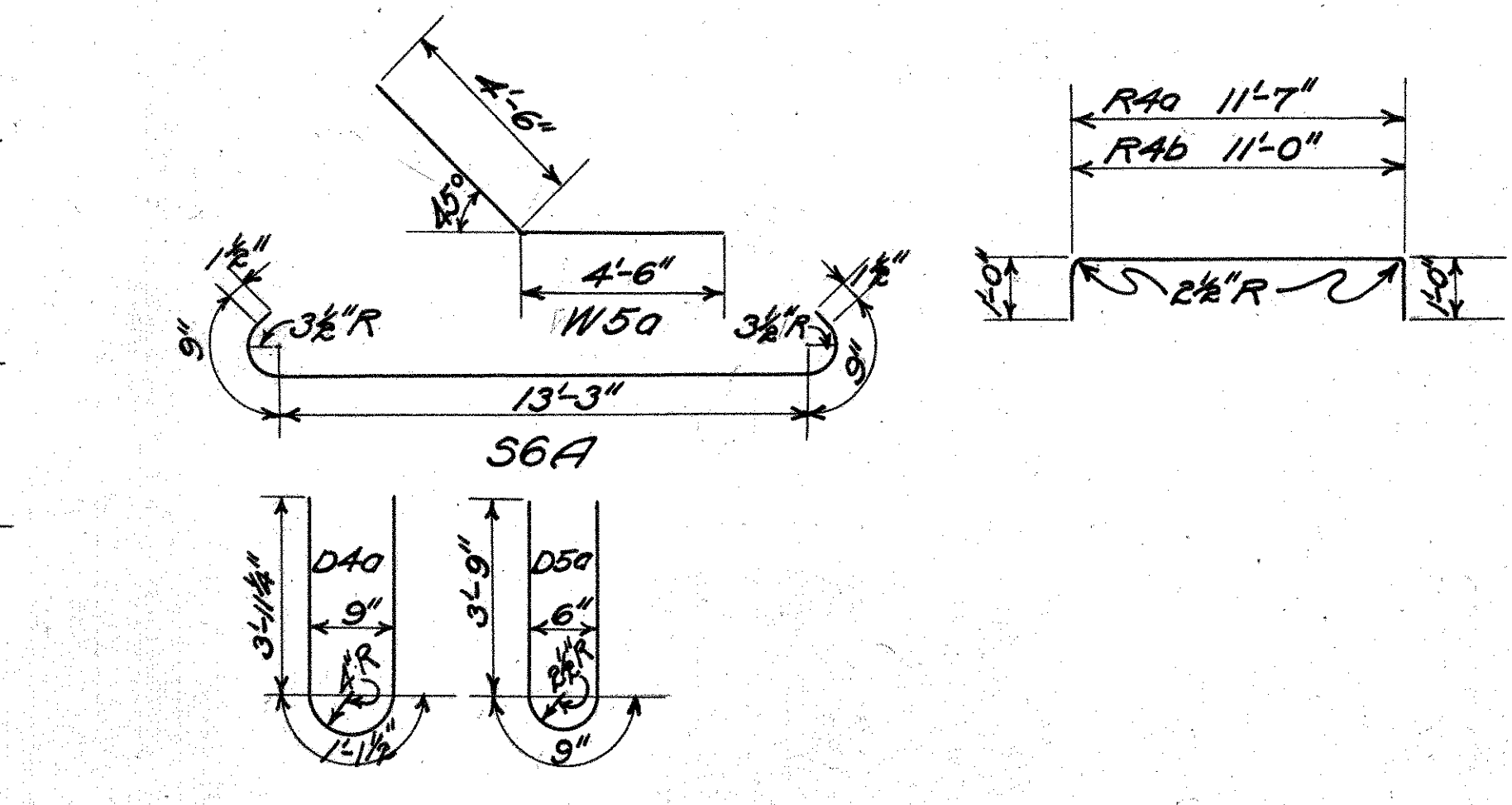
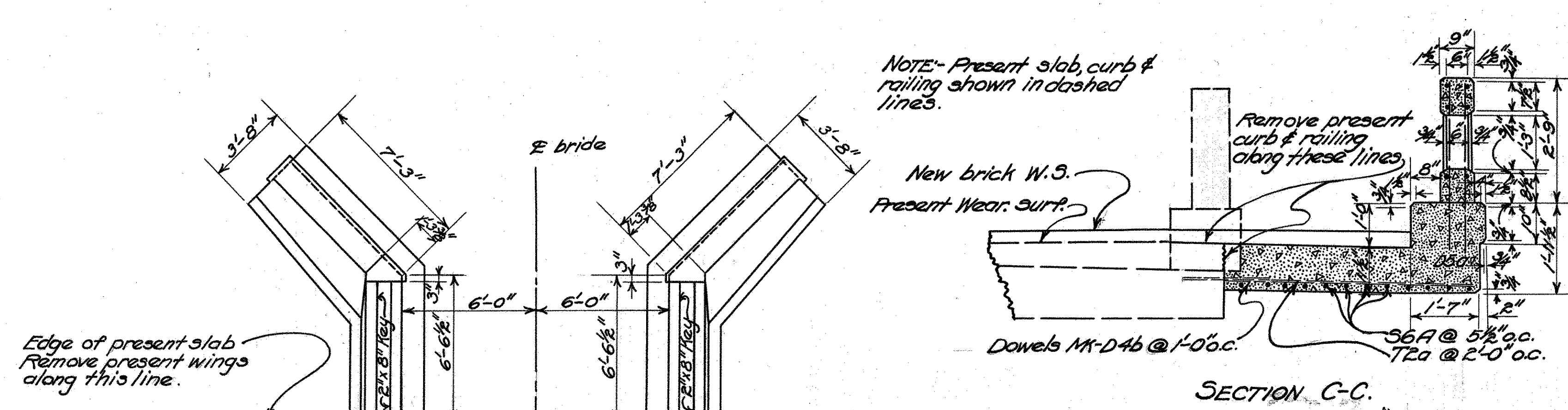
<b>SUBSTRUCTURE</b>					
36	3/8"	4'-6"	140	1'-6"	169
28	3/8"	2'-0"	140	1'-0"	58
16	3/4"	9'-0"	W50	1'-3"	216
36	1/2"	2'-0"	226	1'-0"	48
SUBTOTAL					491
TOTAL					2418

<b>RAILING STEEL</b>					
4	3/8"	13'-7"	RA4		
4	3/8"	13'-0"	RA6		
4	3/8"	11'-7"	RA0		

Included with price per lin. ft. of railing.

**ESTIMATED QUANTITIES**

Excavation (Dry)	10.0 cu. yds.	✓
Excavation (Wet)	30.0 cu. yds.	✓
Reinforcing Steel	2418 lbs.	✓
Conc. (1:5%) Superstructure	8.5 cu. yds.	✓
Conc. (1:6%) Walls	25.3 cu. yds.	✓
Conc. (1:6%) Footings	18.0 cu. yds.	✓
Type RR-4 Railing	30.0 lin. ft.	✓
Brick Wearing Surf.	46.7 sq. yds.	✓
1/4" Prem. Exp. Jt. Filler	27.0 sq. ft.	✓
Type B Waterproofing - 36" Wide	7.0 sq. yds.	✓
Dowel Holes	62.0 lin. ft.	✓
Coffer dams, sheeting & pumping	Lump Sum	✓
Timber piling to establish unit price	1 lin. ft.	✓
Removing present wings	Lump Sum	✓



**GENERAL NOTES**

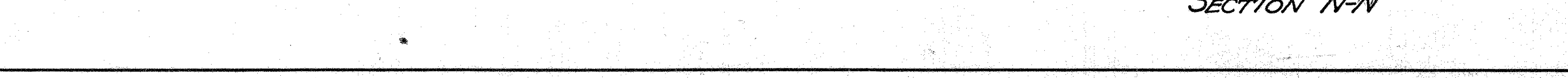
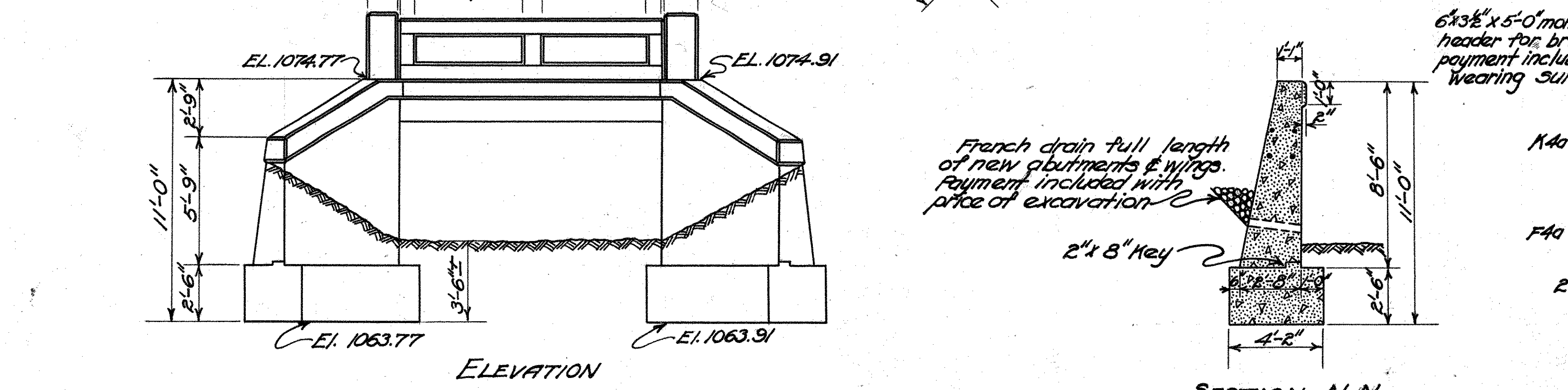
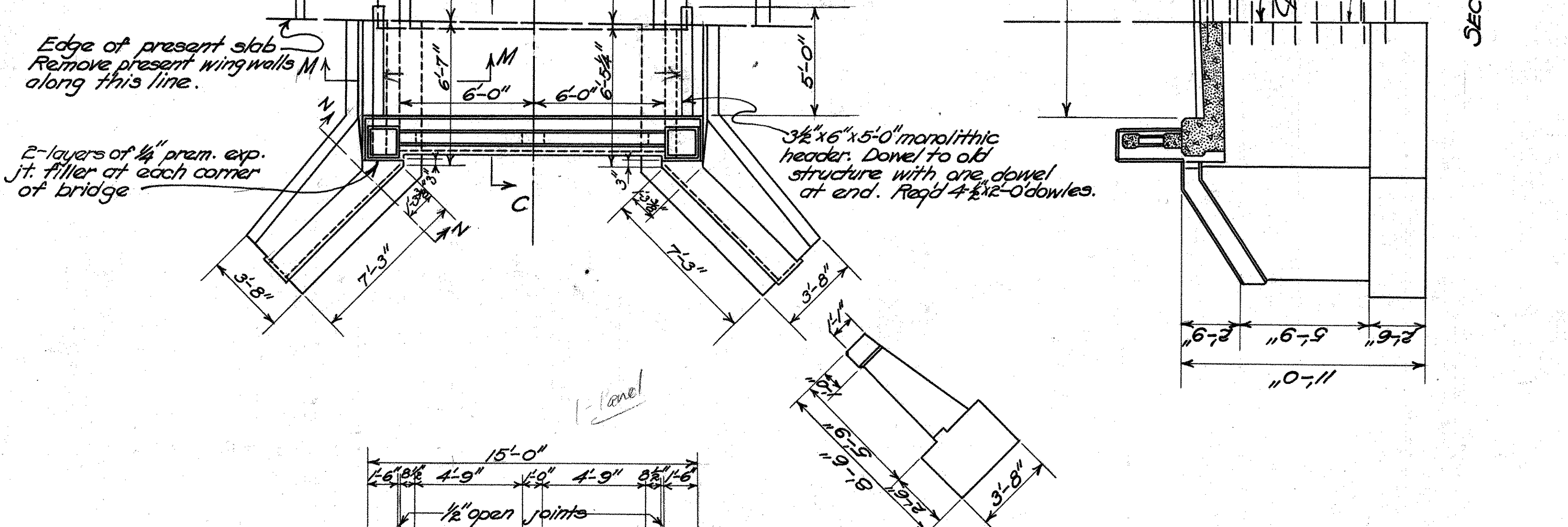
WORK REQ'D: Remove present, wings & curb along lines indicated and extend present bridge to 30'-0" Rdwy. Dowel new structure to old as shown in Sec. A-A & C-C.

EXCAVATION: All excavation below Elev. 1068.00 shall be considered "wet." All above to be considered "Dry."

CONCRETE: All concrete in superstructure to be 1:5% mix. All concrete in substructure to be 1:6% mix.

CONSTRUCTION SPECIFICATIONS in force on date of contract shall govern.

DETAILS: For details not shown on this sheet see std. dwgs no. RR-A & SB-31.



STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
BUREAU OF BRIDGES

**CONSTRUCTION PLAN**  
BRIDGE OVER BR. OF SCHENCK CREEK

S. H. 24 SECTION H, K & M KNOX COUNTY  
STA. 194+65.62

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.W.Mc.	C.W.Mc.	O.N.G.				
5-22-32	5-22-32	4-29-32				



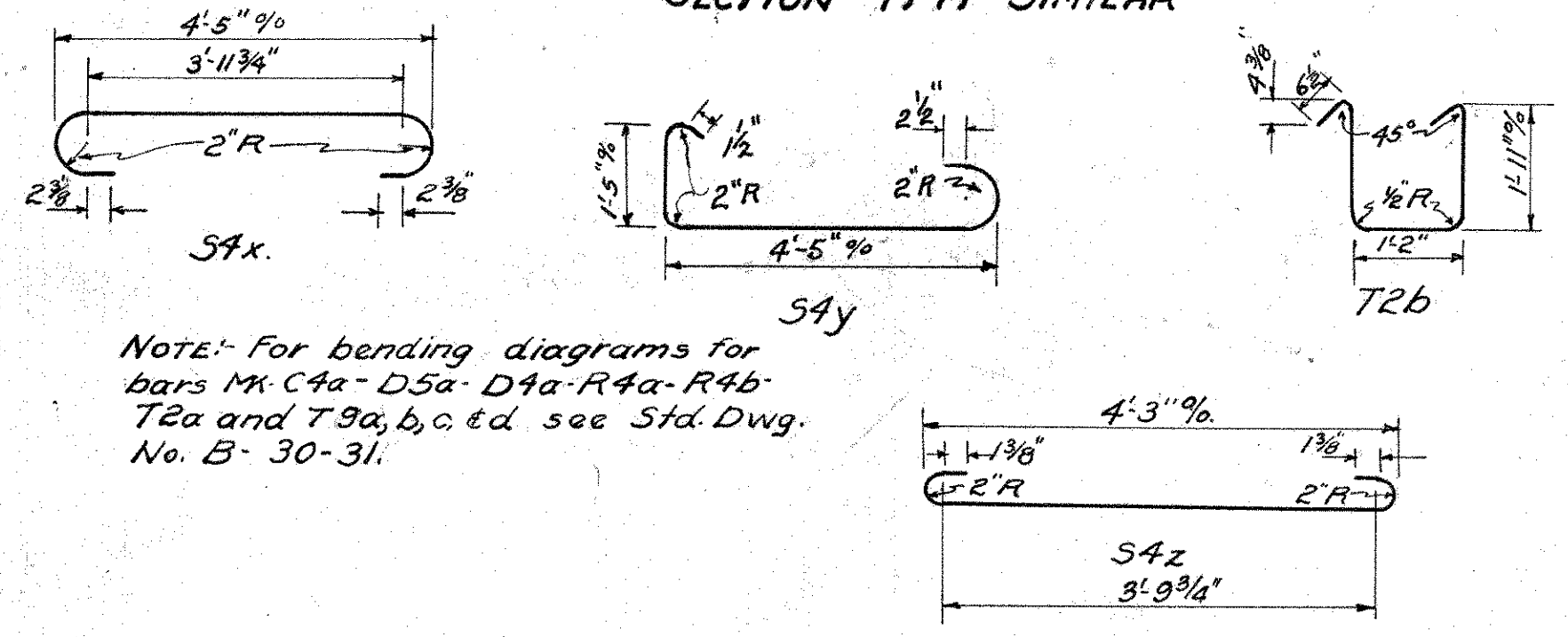
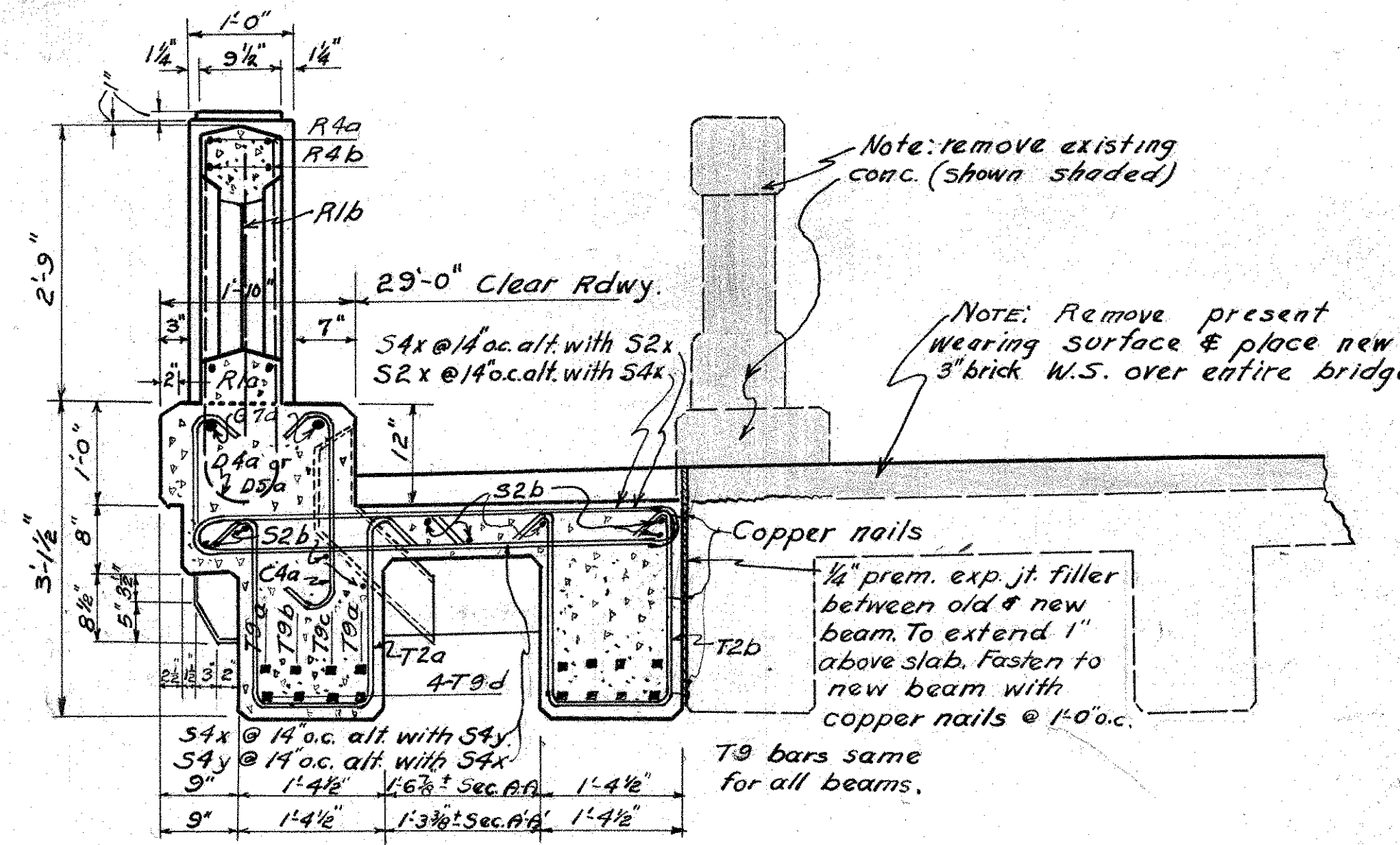
**ESTIMATED QUANTITIES SUPERSTRUCTURE**

Conc. (1:1.5:4)	22.5 cu. yds.
Reinf. Steel	7846 lbs.
1/2" prem. ext. jt. filler	175 sq. ft.
3/8" prem. ext. jt. filler	92 sq. ft.
1/8" phos. bronze plates	35 lbs.
Cast Iron Scrupers (B-31)	4 pcs.
Railing Type RR-10	68.0 lin. ft.
Wearing Surf. Type B	111 sq. yds.
Removal of present wearing surface, curb & railing	Lump Sum

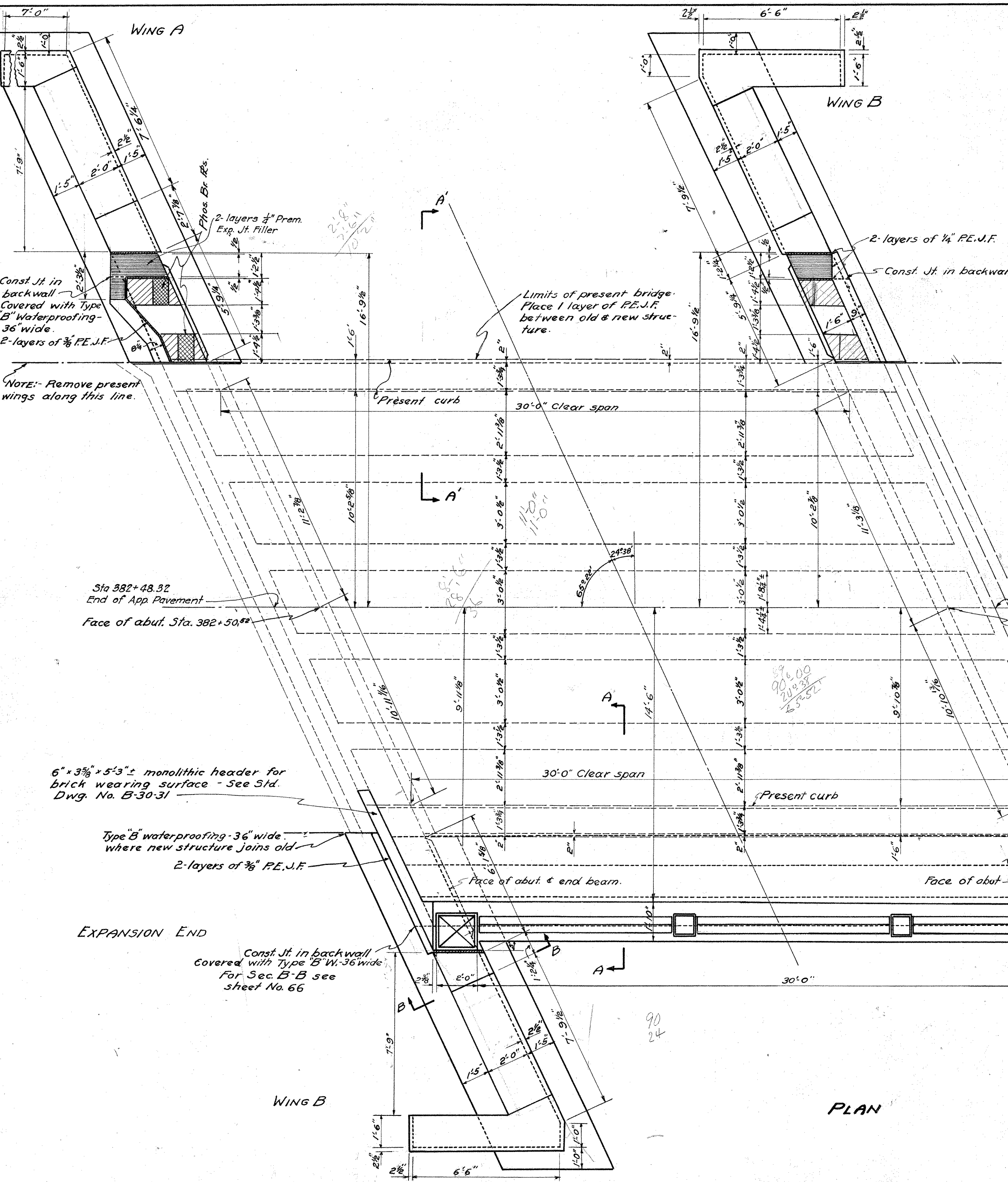
⊕ Brick wearing surface, wire cut lug type or repressed lug type, laid 3" deep, with asphalt emulsions AE4 filler on 3/4" cushion.

**STEEL LIST**

No.	Size	Length	Mk	Spac.	Wt.
<b>SUPERSTRUCTURE</b>					
8	1 1/2"	36'-0"	T9a		1240
4	1 1/2"	30'-9"	T9b		530
4	1 1/2"	26'-9"	T9c		461
16	1 1/2"	35'-0"	T9d		2412
76	1/2"	6'-1"	T2a		309
76	1/2"	6'-1"	T2b		309
4	1"	33'-6"	CTa		356
66	5/8"	2'-9"	CAa		189
60	5/8"	5'-7"	SAx	14"	350
60	5/8"	6'-9"	SAy	14"	423
40	5/8"	5'-3"	SAz		219
60	1/2"	4'-5"	S2x	14"	177
18	1/2"	32'-9"	S2b		615
12	3/4"	7'-3"	D5a		131
16	5/8"	7'-6"	D4a		125
<b>TOTAL</b> 7846					
12	5/8"	11'-0"	R4a	Included for	
12	5/8"	10'-9"	R4b	payment with	
12	3/8"	9'-2"	R1a	railing	
60	3/8"	2'-6"	R1b		



NOTE: For bending diagrams for bars M: C4a-D5a-D4a-R4a-R4b-T2a and T9a, b, c, d see Std. Dwg. No. B-30-31.

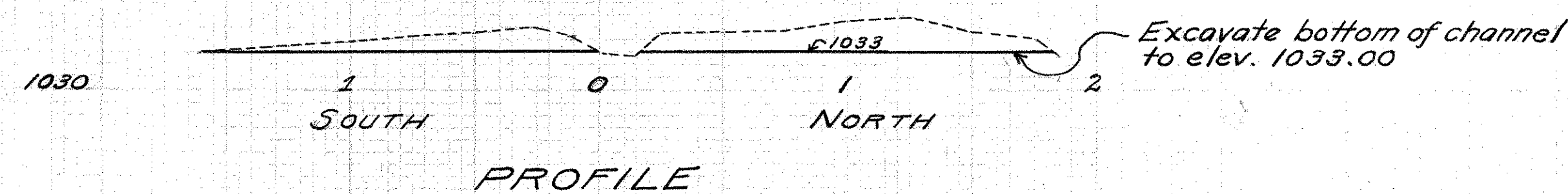
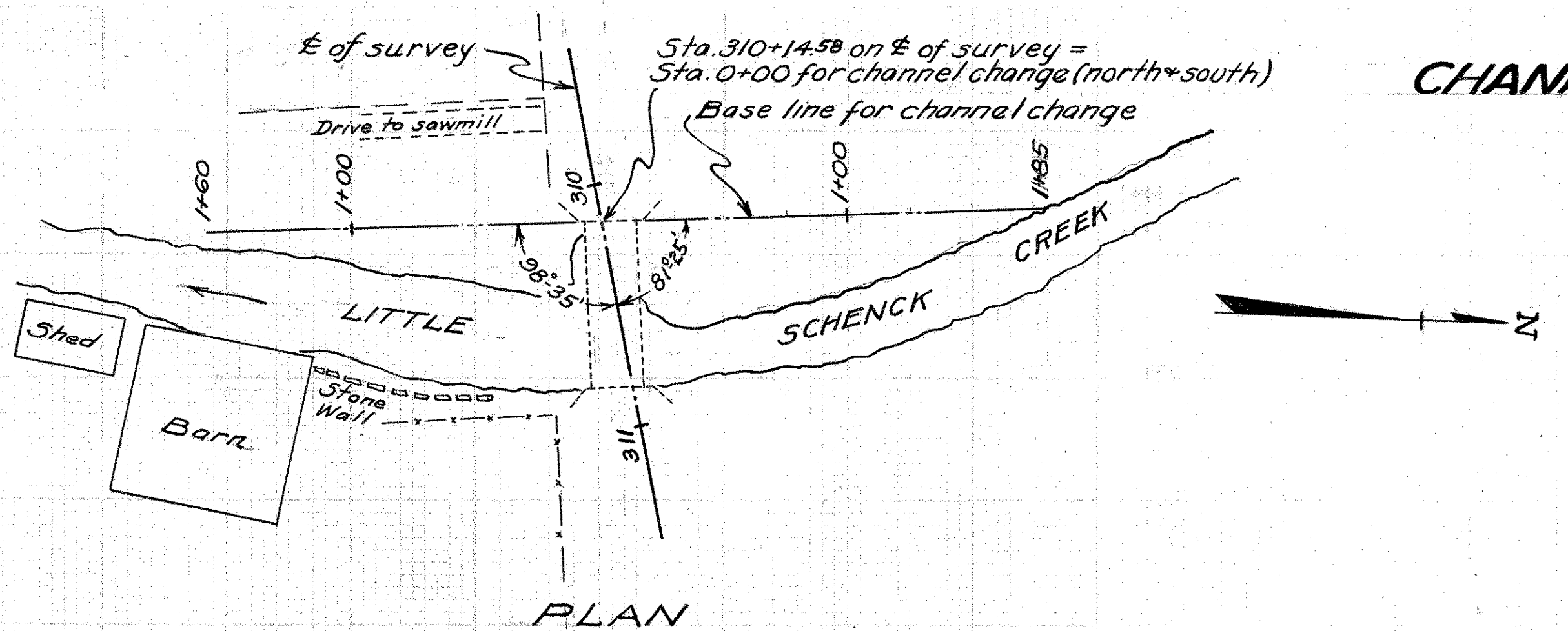


**PART PROPOSAL NO 2**  
**BRIDGE No. KN-3-250**

STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES						
<b>CONSTRUCTION PLAN</b>						
BRIDGE OVER COLEMAN BR. OF SCHENCK CRK.						
S. H. 24 SECTION H, K, & M			KNOX COUNTY STA. 382+65.52			
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
4-30-32	4-30-32	5-2-32	V.A.E.	K.M.C.	5/14/32	



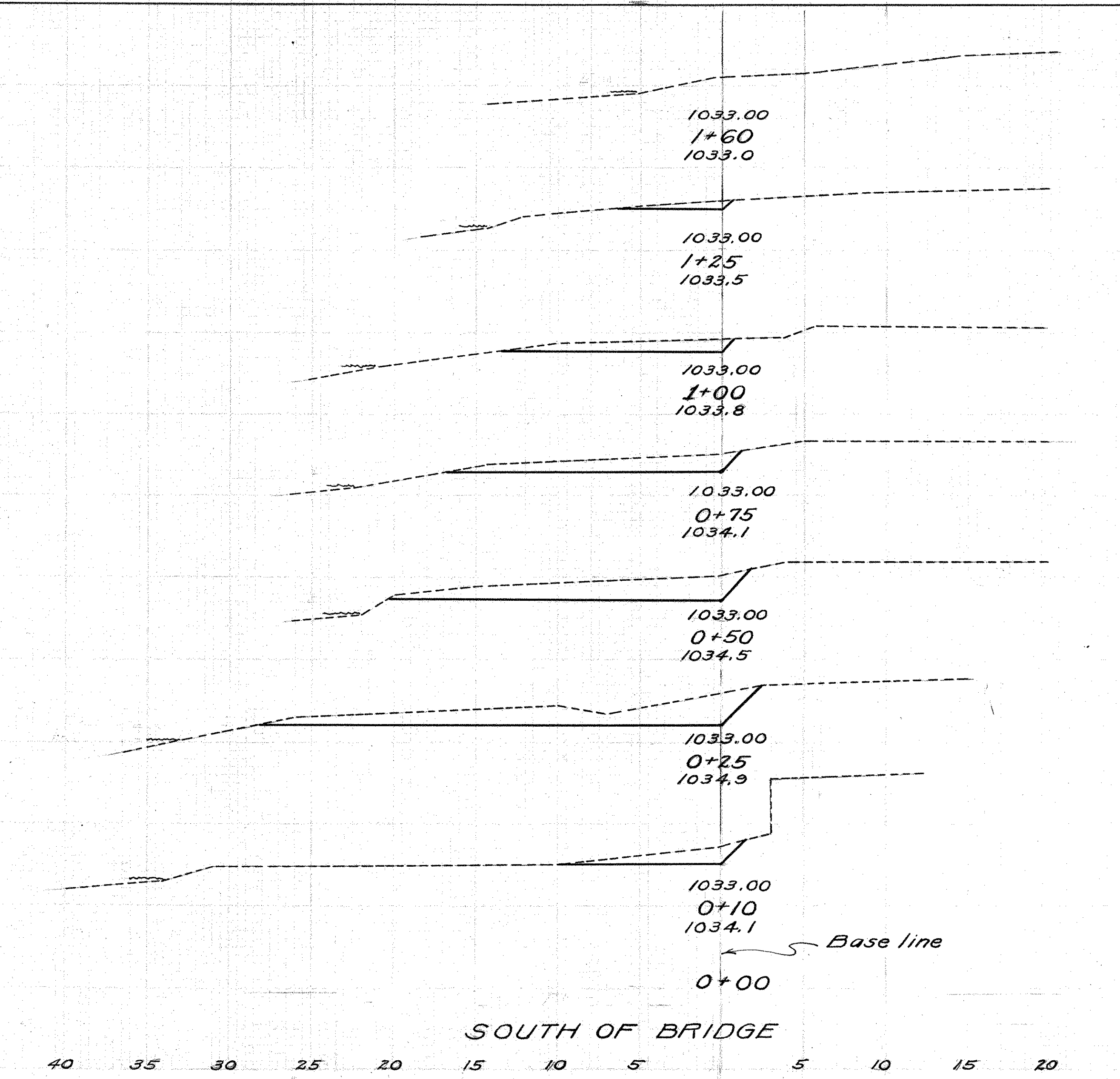
### CHANNEL EXCAVATION AT BRIDGE STA. 310+49.3



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill

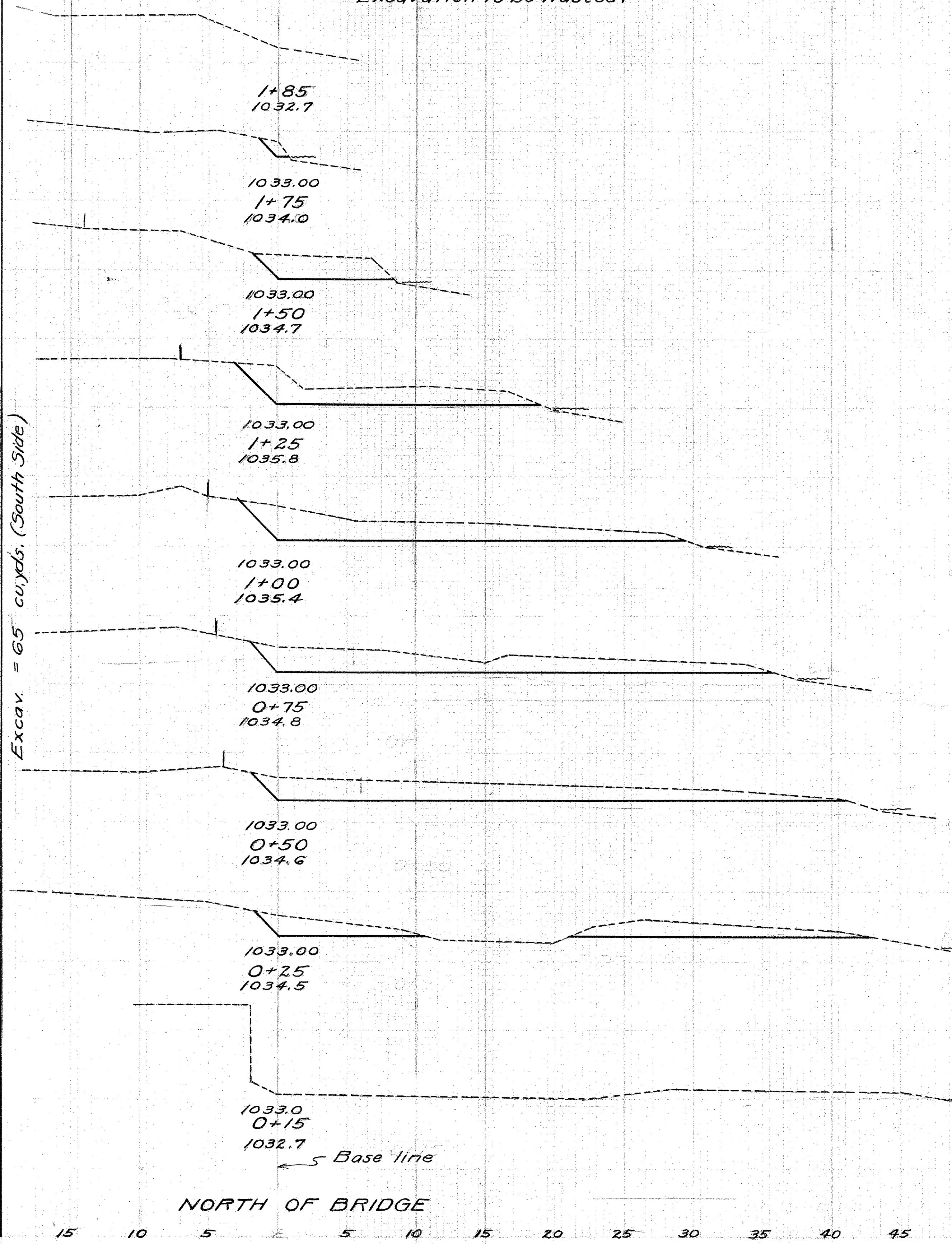
TOTAL CHANNEL EXCAV. (BOTH SIDES) = 235 cu. yds.  
Excavation to be wasted.

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill



0			
1			
2			
5			
8			
9			
12			
16			
22			
23			
29			
10			
7			
1			

Excav. = 65 cu. yds. (South Side)



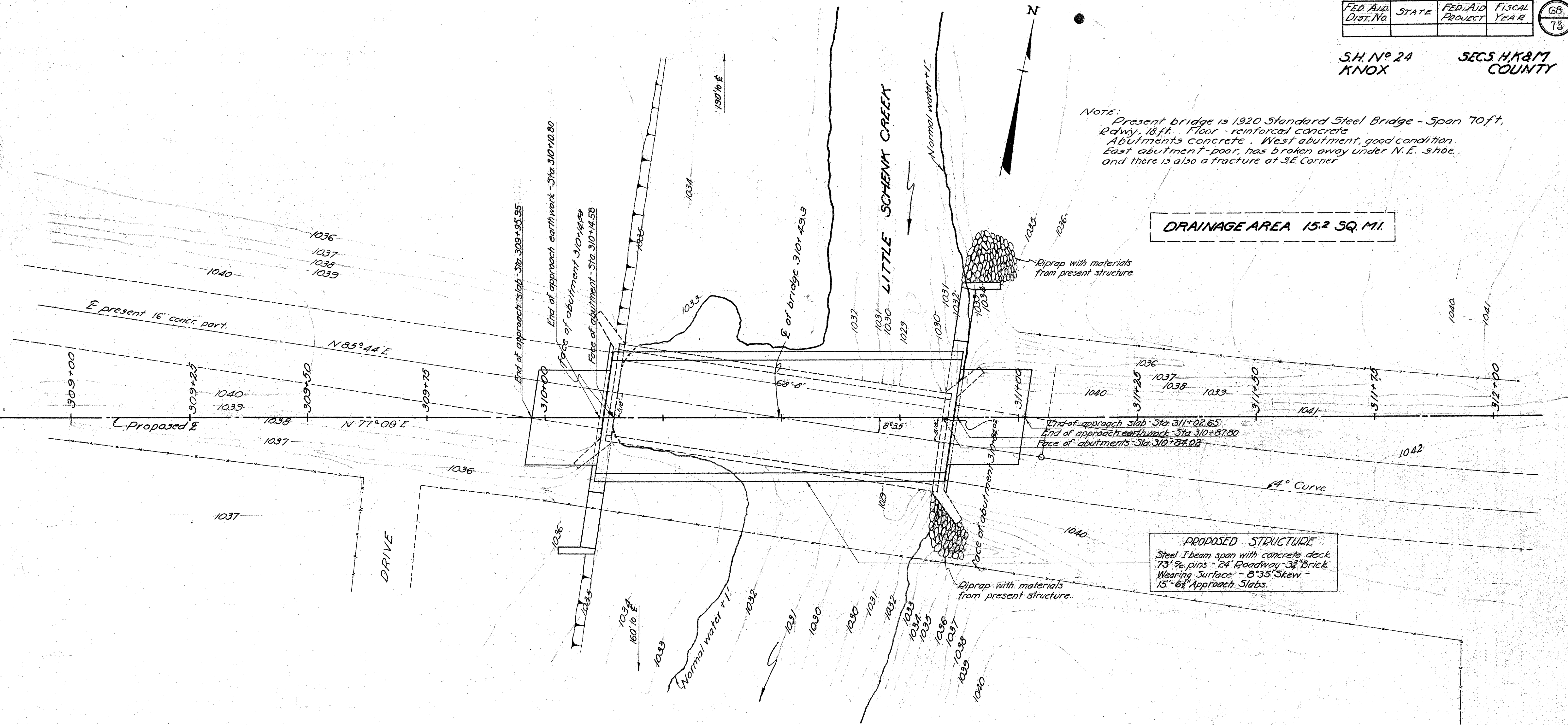
Excav. = 170 cu. yds. (North side)

0			
1			
14			
19			
27			
30			
38			
37			
43			
40			
43			
32			
27			
5			
0			

NOTE:  
Present bridge is 1920 Standard Steel Bridge - Span 70 ft.  
Rdwy. 18 ft. Floor - reinforced concrete  
Abutments concrete. West abutment, good condition.  
East abutment - poor, has broken away under N.E. shoe,  
and there is also a fracture at S.E. Corner

DRAINAGE AREA 15.2 SQ. MI.

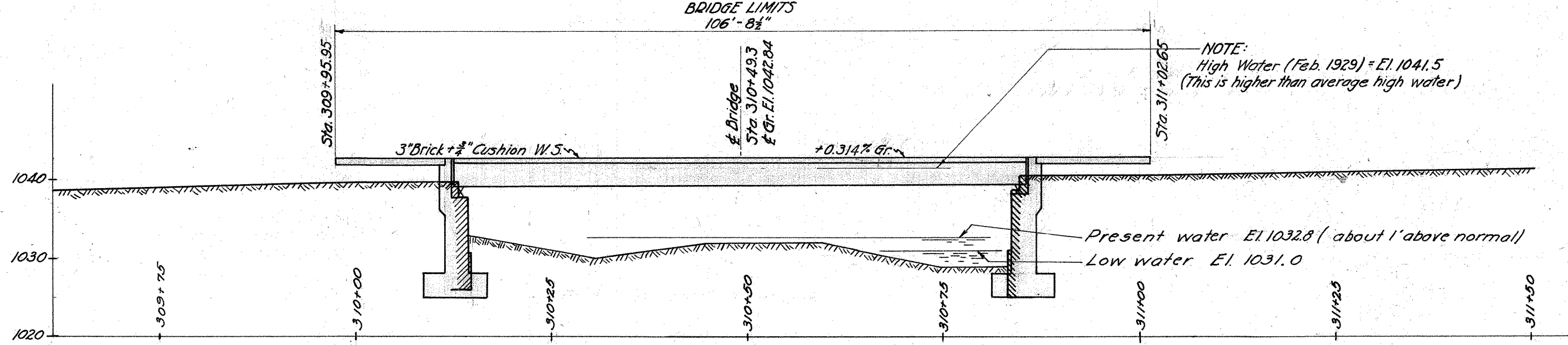
PROPOSED STRUCTURE  
Steel I-beam span with concrete deck  
73' 9" pins - 24' Roadway - 3" Brick  
Wearing Surface - 8°35' Skew -  
15' 6" Approach Slabs.



Note:- This test hole information was obtained by diligent effort and is believed to correctly represent the character and location of the sub-soil materials; but the State of Ohio does not guarantee its accuracy.

Sta.	Elev.	Description
309+75	1032.99	Top Soil
309+75	1028.35	Flow Line
309+75	1021.50	Sand & Gravel
310+00	1031.00	Top Soil
310+00	1026.23	Flow Line
310+00	1021.50	Sand & Gravel
310+25	1033.23	Top Soil
310+25	1028.35	Flow Line
310+25	1021.50	Sand & Gravel
310+50	1034.33	Top Soil
310+50	1028.35	Flow Line
310+50	1021.50	Sand & Gravel

TEST HOLE DATA

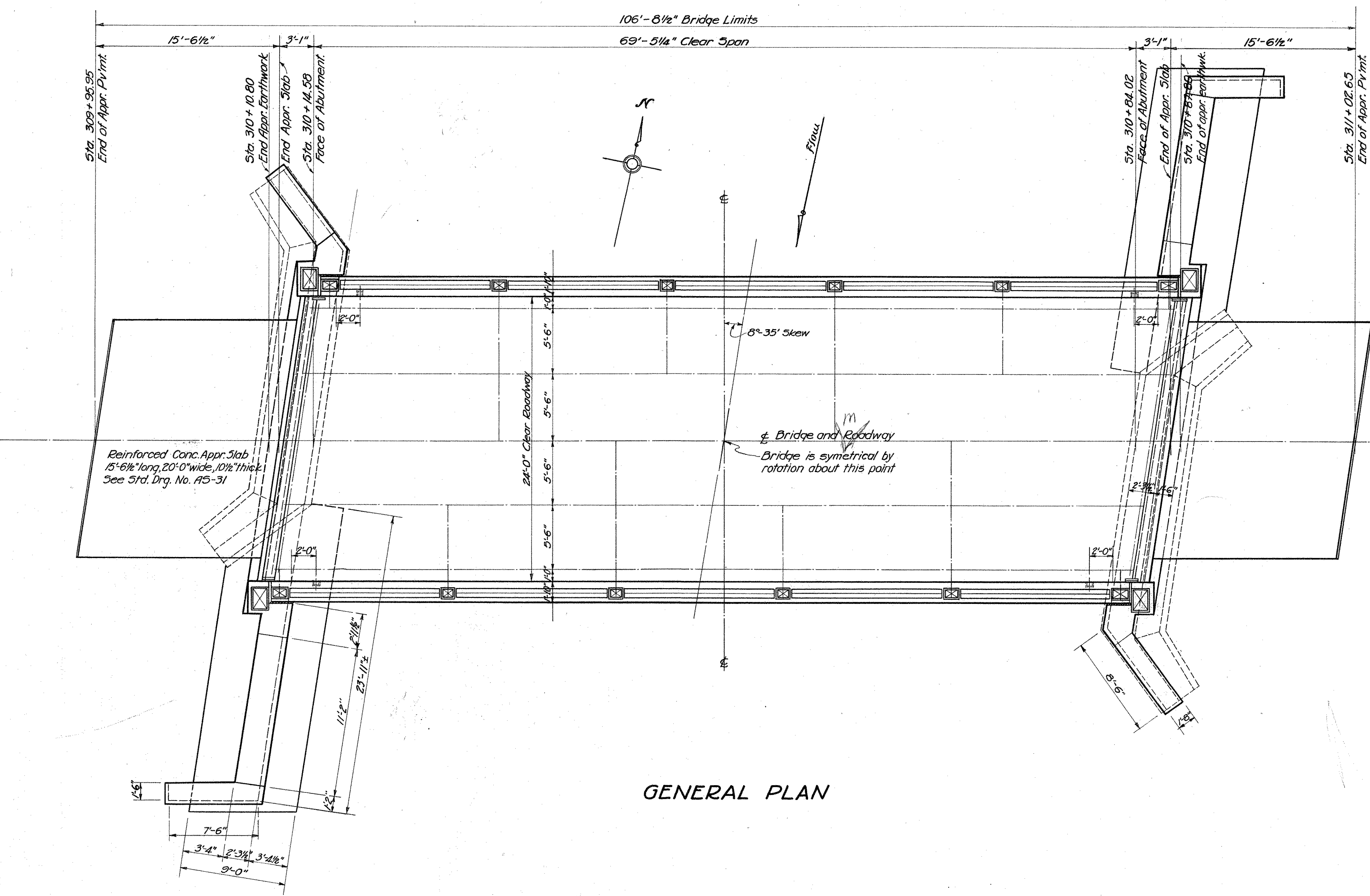


NOTE:  
High Water (Feb. 1929) = El. 1041.5  
(This is higher than average high water)

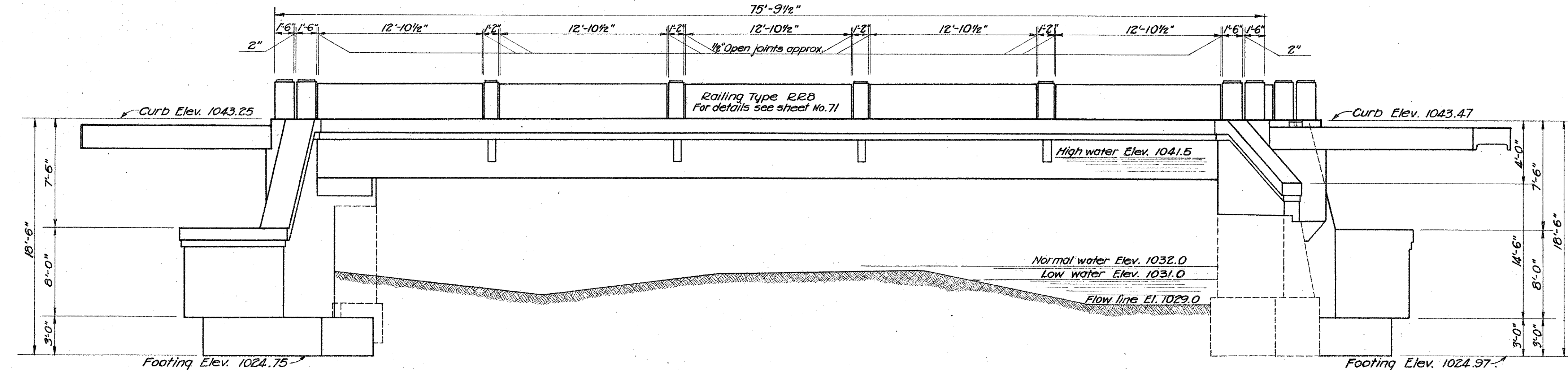
PROPOSAL No. 2 (Part)

SITE PLAN  
S.H. No. 24 SECS. H, K, M  
LITTLE SCHENK CREEK  
No. KN-3-237  
KNOX COUNTY  
STATE OF OHIO

SCALE 1"=10'		STA. 310+49.0			
Pres. Topography		Proposed Work			
Surveyed	Drawn	Des.	Drn.	CK'd	Rev.
G.L.		R.T.Z.	W.T.H.	C.P.S.	K.H.G.



GENERAL PLAN



GENERAL ELEVATION

NOTES

ALL EXCAVATION below elevation 1032 shall be classified as Foundation Excavation, Wet. All excavation above elevation 1032 not included in Channel Excavation shall be classified as Foundation Excavation, Dry. Channel Excavation shall be made as shown on Site Plan and Channel Cross-sections.

ANCHOR BOLT HOLES shall be drilled after masonry plates are located. Core shall be taken in placing concrete reinforcing bars so that they will not be cut when holes are drilled.

5"x3"x3/8" L on backwall included with structural steel for payment.

CONCRETE MIX shall be 1:6 1/2 mix for footings and abutment walls and 1:5 1/2 mix for approach slabs, superstructure and railing.

REINFORCING BARS located in footings shall be securely fastened in proper position before footing concrete is placed.

THE TOP OF FOOTINGS shall be thoroughly cleaned before wall concrete is placed.

EXISTING SUPERSTRUCTURE shall be carefully dismantled and hauled to the State Highway Garage at Mt. Vernon.

CHAMFER all exposed edges 3/4" unless otherwise shown.

PRESENT N.E. & S.W. WINGS shall be removed and used for riprap at N.E. & S.E. corners of bridge as directed by Engineer.

NO HORIZONTAL CONSTRUCTION JOINTS other than those shown will be permitted. Vertical construction joints allowed only by special permission of the Engineer. All construction joints in abutments above low water elevation shall be sealed on the back with Type "B" water proofing 36" wide.

ESTIMATED QUANTITIES

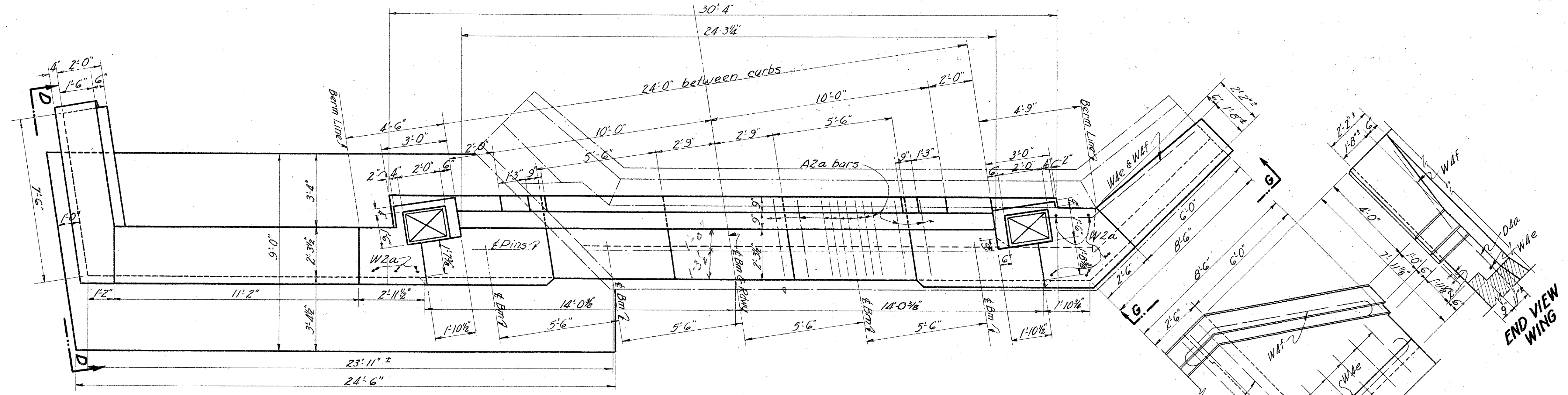
Cofferdams Sheeting & Pumping	Lump Sum
Foundation Excavation, Dry	30 Cu. Yds.
Foundation Excavation, Wet	135 Cu. Yds.
Channel Excavation	235 Cu. Yds.
Concrete, 1:5 1/2 mix, Superstructure	50 Cu. Yds.
Concrete, 1:6 1/2 mix, Walls	90 Cu. Yds.
Concrete, 1:6 1/2 mix, Footings	46 Cu. Yds.
Waterproofing, Type "B" 36" wide	50 Sq. Yds.
Reinforcing Steel	15,110 Lbs.
Reinforced Concrete Railing, Type RR-8, 1:5 1/2 mix	151.6 Lin. Ft.
Structural Steel	105,000 Lbs.
1/4" Preformed Expansion Joint Filler	25 Sq. Ft.
Reinforced Concrete Approach Slabs, 10 1/2" thick, 1:5 1/2 mix	69.1 Sq. Yds.
First Test Pile	Lump Sum
Timber Piling (to establish unit price applying to any quantity from 0 Lin. Ft. to 1000 Lin. ft.)	1 Lin. Ft.
Removal of Portions of Existing Masonry	15 Cu. Yds.
Dowel Holes	84 Lin. Ft.
Removal of Existing Bridge	Lump Sum
Hand Laid Riprap	22 Sq. Yds.
Brick Wearing Surface, wire cut lug type, or repressed lug type, laid 3" depth on 3/4" cushion	256.2 Sq. Yds.

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
BUREAU OF BRIDGES

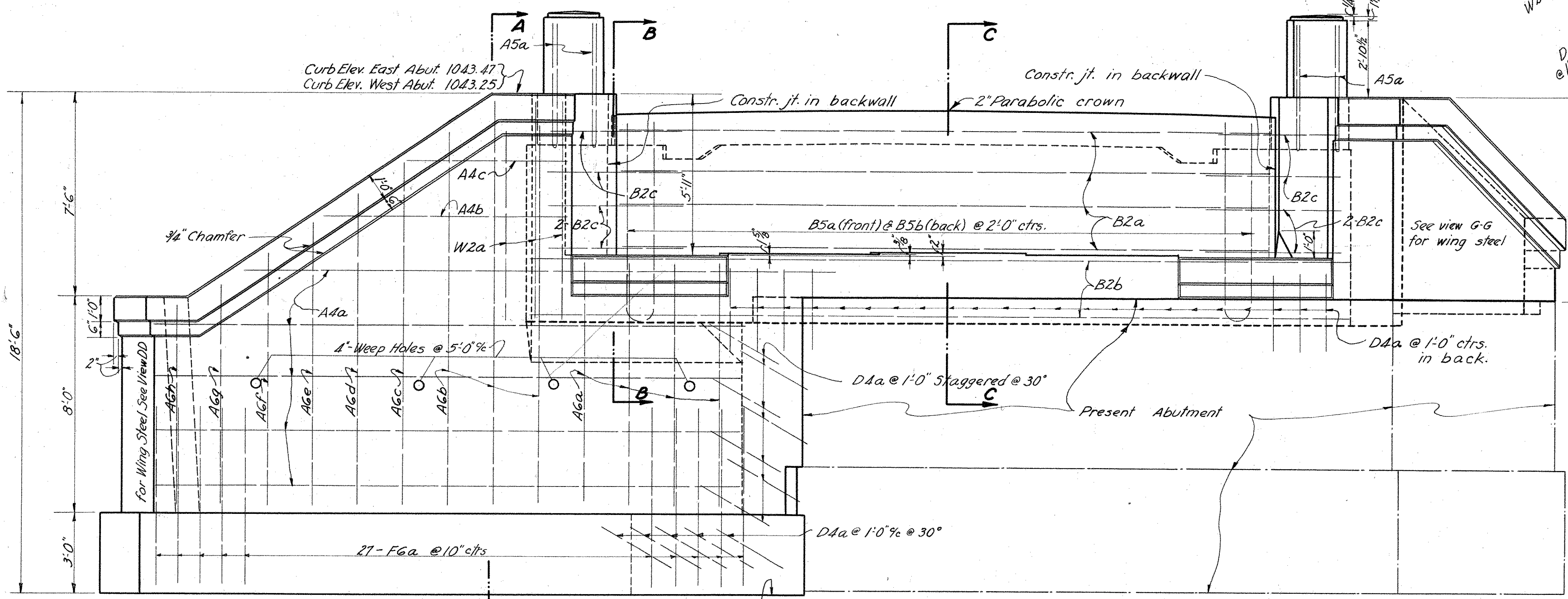
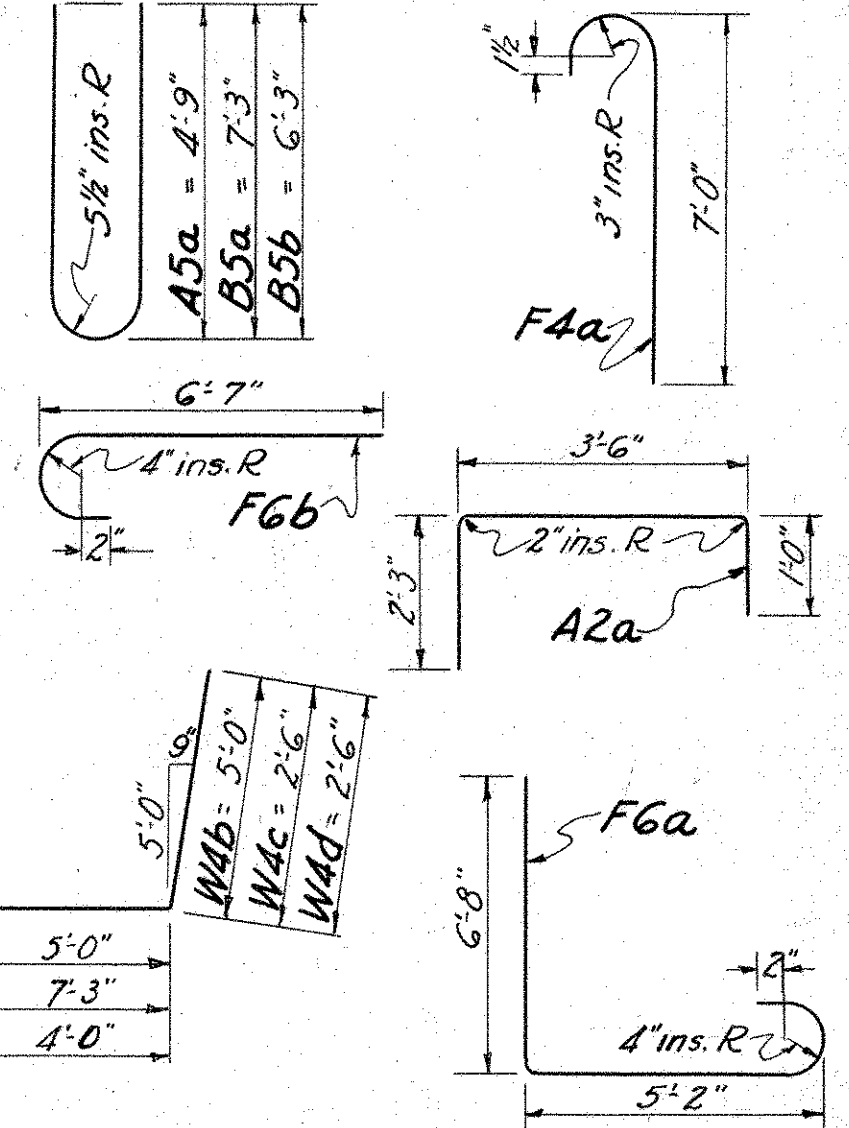
**GENERAL PLAN & ELEVATION**  
**BRIDGE NO. Kn-3-237**  
**OVER LITTLE SCHENK CREEK**  
KNOX COUNTY · · · S. H. 24  
SEC. H. K. & M · · · STA. 310+49.3

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.J.A.	L.J.A.	R.H.	A.E.D.	W.H.B.	5/14/22	

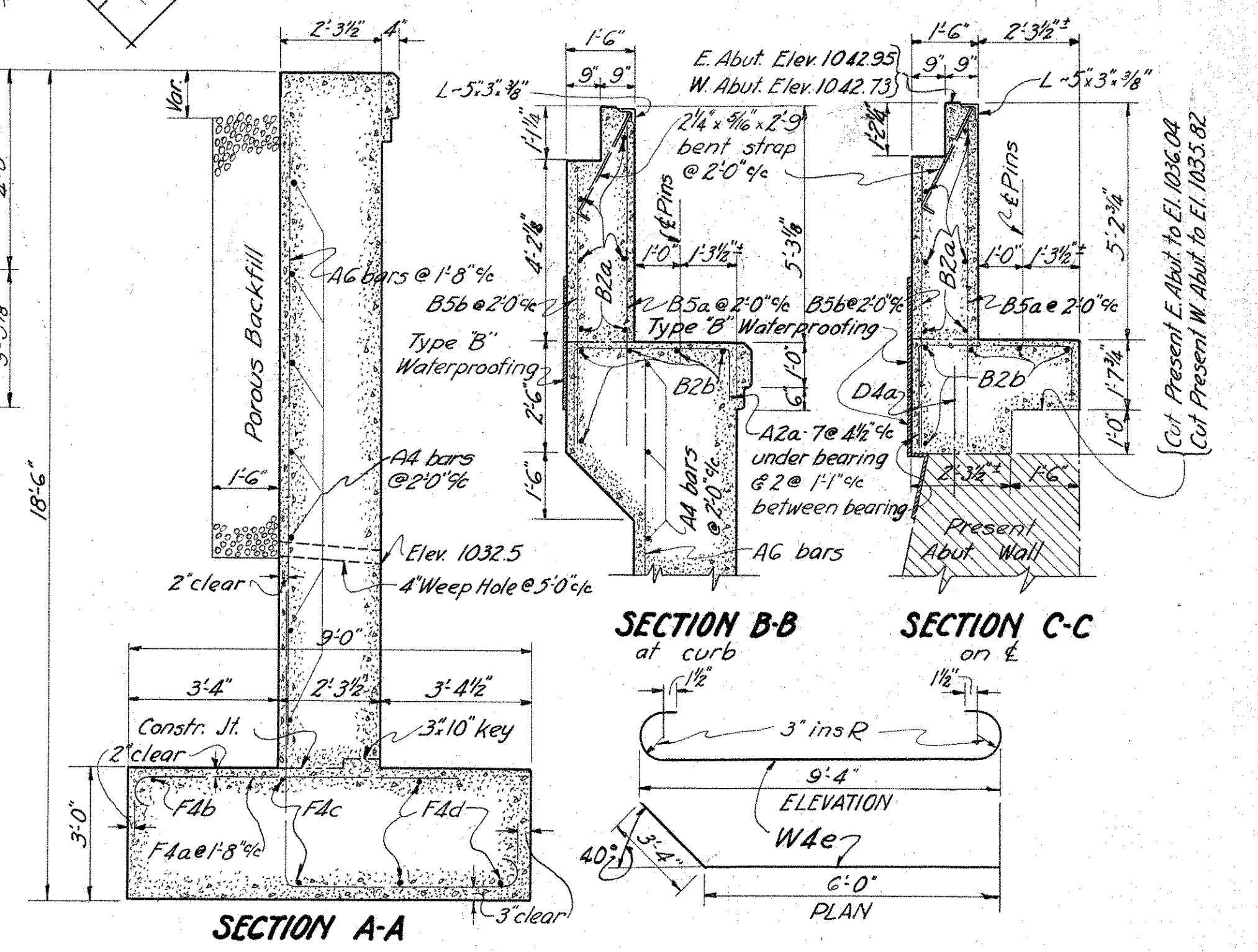
KNOX COUNTY  
S.H. 24 SEC. H.K.&M



ABUTMENT PLAN



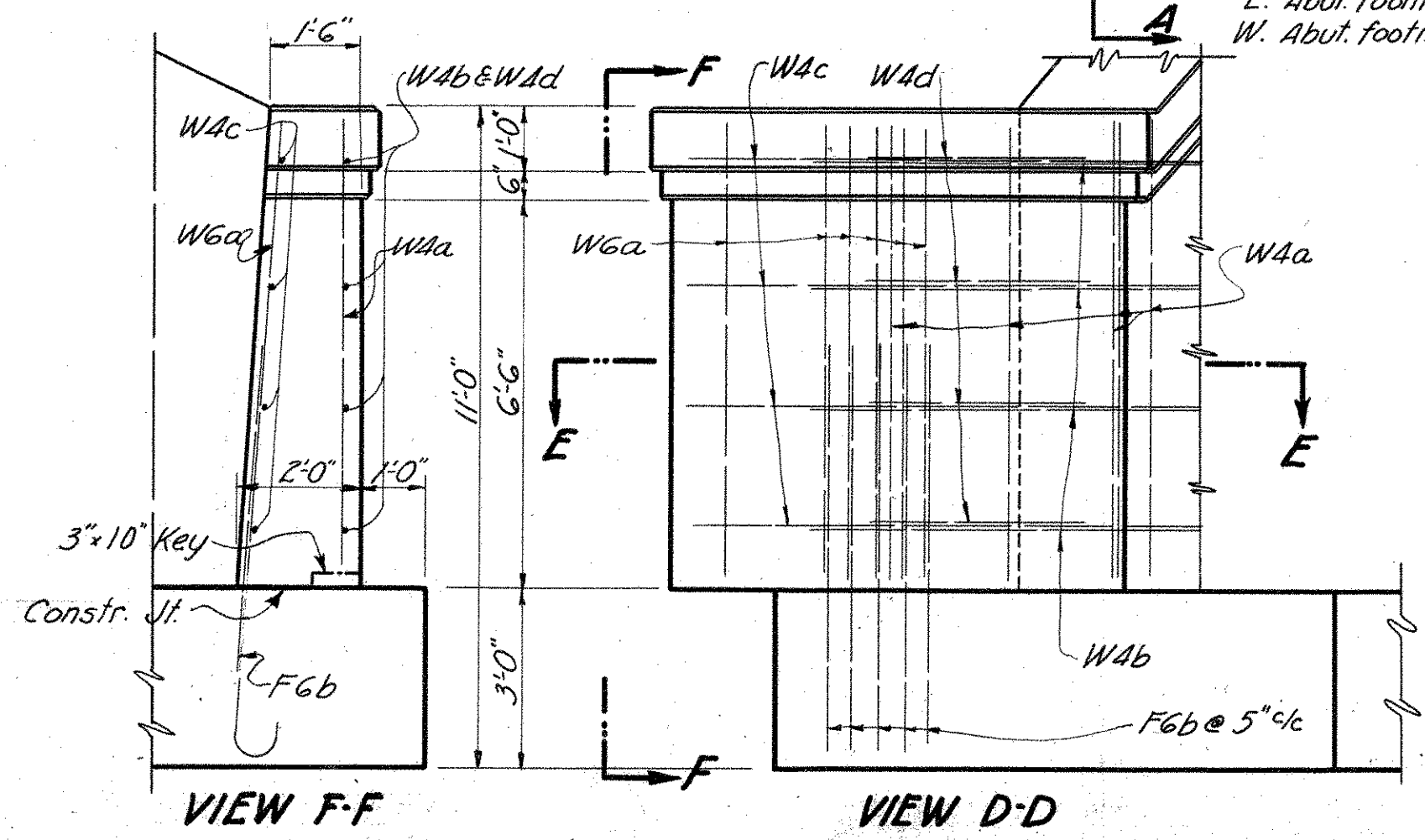
ABUTMENT ELEVATION



SECTION A-A

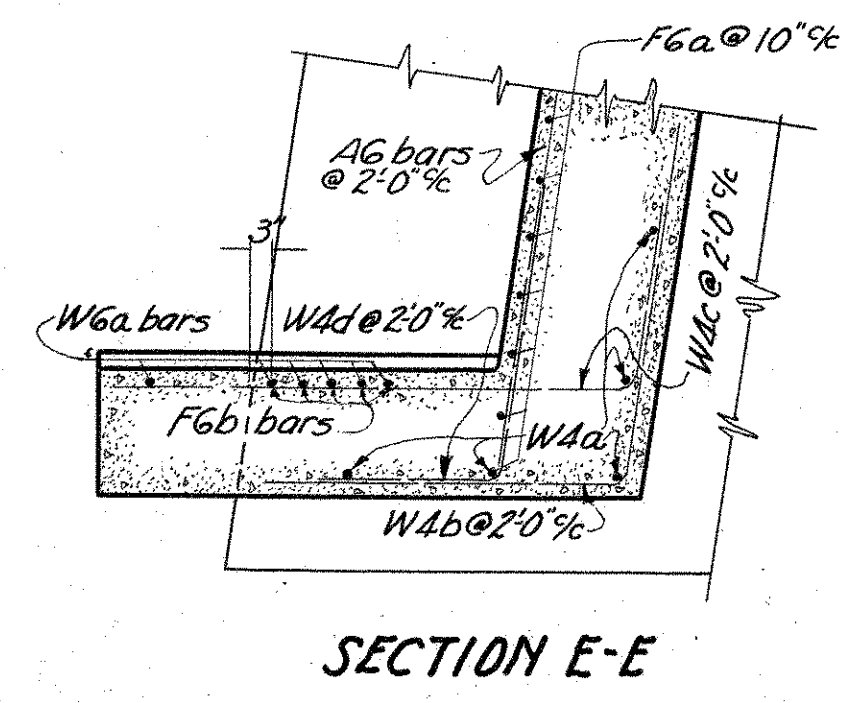
SECTION B-B at curb

SECTION C-C on E



VIEW F-F

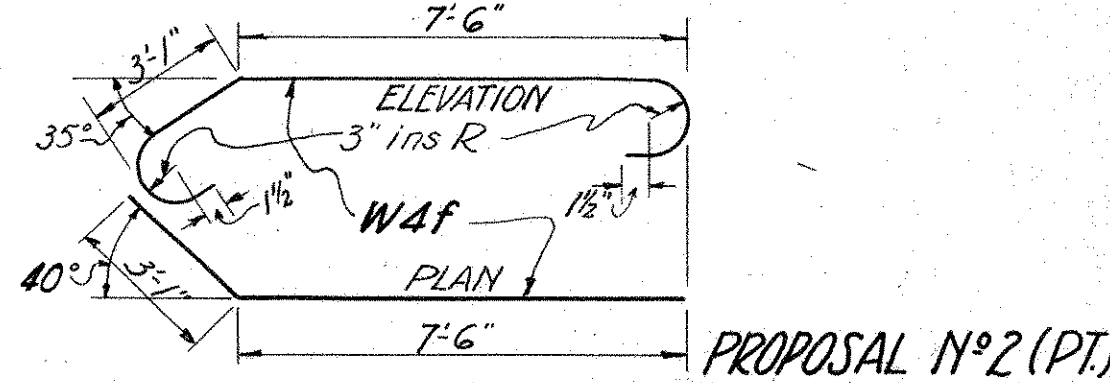
VIEW D-D



SECTION E-E

SUBSTRUCTURE STEEL LIST					
MARK	SIZE	N <sup>o</sup>	SHAPE	LENGTH	WEIGHT
A6a	7/8"	8	Str't.	9'-3"	152
A6b	7/8"	6	Str't.	14'-0"	172
A6c	7/8"	2	Str't.	12'-9"	52
A6d	7/8"	2	Str't.	11'-9"	48
A6e	7/8"	2	Str't.	10'-6"	43
A6f	7/8"	2	Str't.	9'-6"	39
A6g	7/8"	2	Str't.	8'-3"	34
A6h	7/8"	2	Str't.	7'-6"	31
A5a	3/4"	8	Bent	10'-0"	120
A4a	3/8"	10	Str't.	21'-9"	227
A4b	3/8"	2	Str't.	9'-0"	19
A4c	3/8"	2	Str't.	6'-0"	13
A2a	1/2"	86	Bent	6'-9"	388
B5a	3/4"	24	Bent	15'-0"	541
B5b	3/4"	24	Bent	13'-0"	469
B2a	1/2"	12	Str't.	24'-0"	192
B2b	1/2"	10	Str't.	30'-0"	201
B2c	1/2"	24	Str't.	5'-0"	80

STEEL LIST (Continued)					
MARK	SIZE	N <sup>o</sup>	SHAPE	LENGTH	WEIGHT
D4a	3/8"	84	Str't.	3'-0"	263
F6a	7/8"	54	Bent	12'-9"	1409
F6b	7/8"	10	Bent	7'-6"	153
F4a	5/8"	26	Bent	7'-9"	211
F4b	5/8"	2	Str't.	19'-6"	41
F4c	5/8"	4	Str't.	22'-0"	92
F4d	5/8"	6	Str't.	24'-3"	152
W6a	7/8"	12	Str't.	7'-6"	184
W2a	1/2"	16	Str't.	8'-0"	86
W4a	3/8"	10	Str't.	7'-6"	78
W4b	5/8"	8	Bent	10'-0"	84
W4c	5/8"	8	Bent	9'-9"	81
W4d	5/8"	8	Bent	6'-6"	54
W4e	5/8"	2	Bent	10'-9"	22
W4f	3/8"	2	Bent	12'-0"	26
TOTAL			Substructure Steel		5757

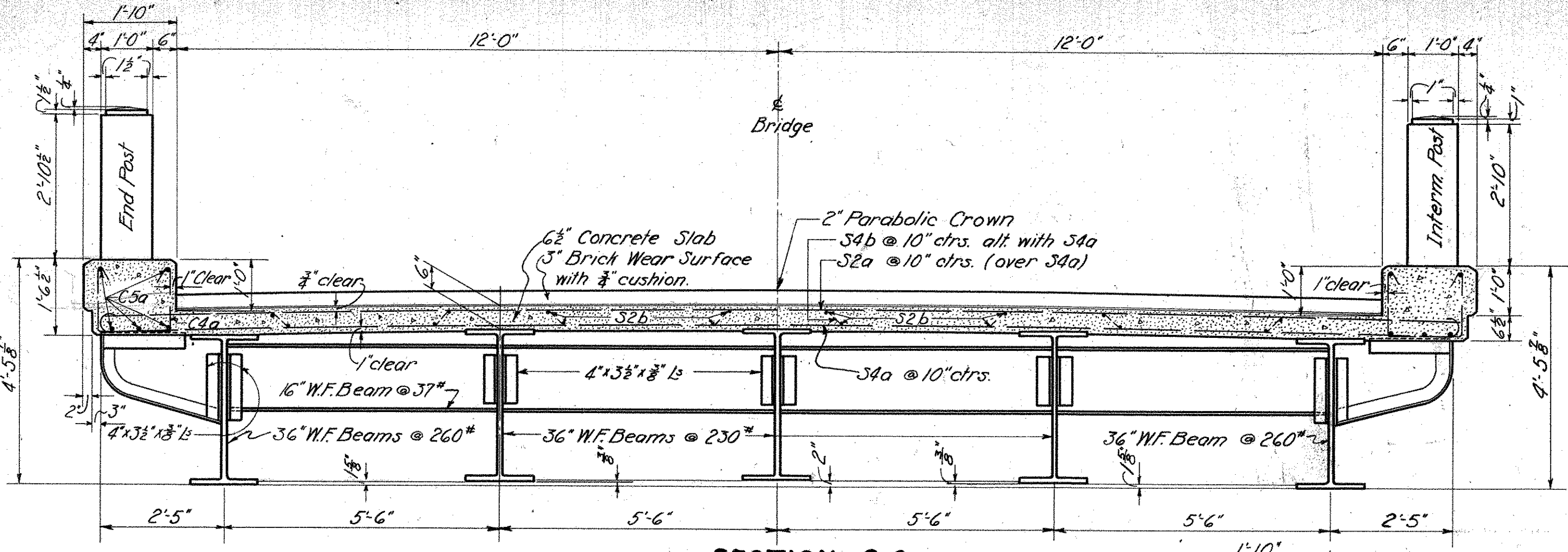


PROPOSAL NO 2 (PT)

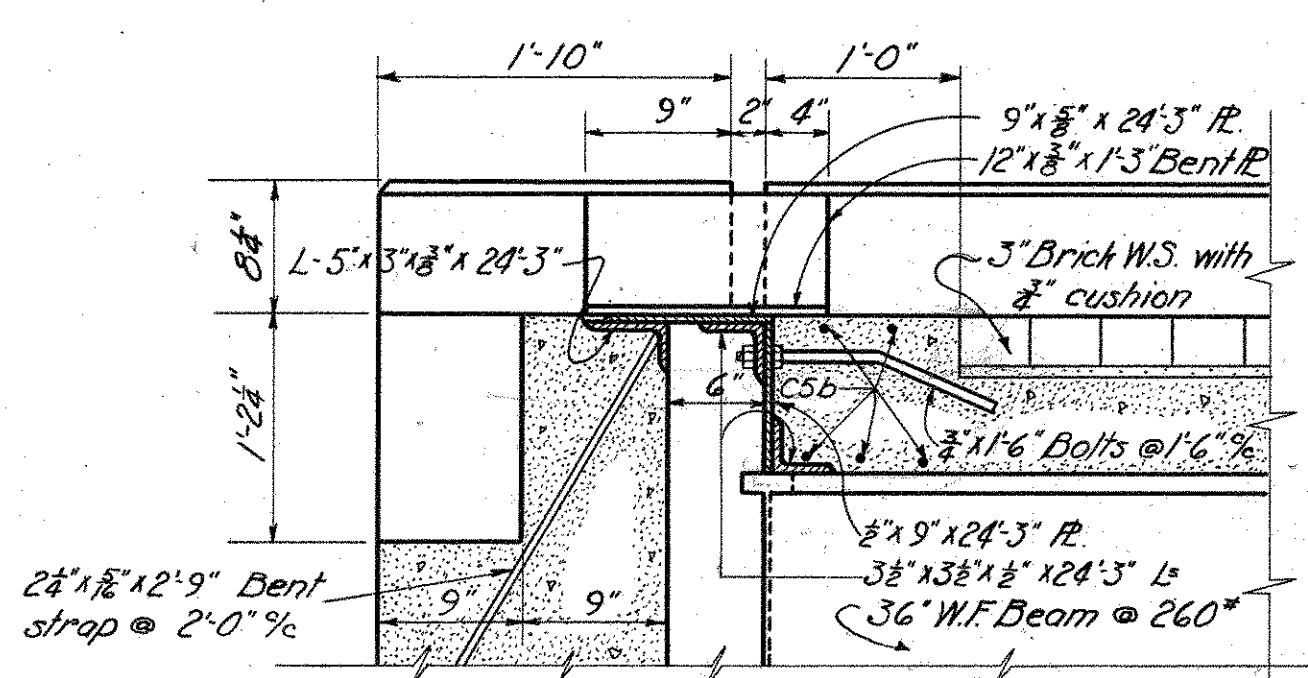
STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
BUREAU OF BRIDGES

**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. Kn-3-237  
OVER LITTLE SCHENK CREEK  
KNOX COUNTY S.H. 24  
SEC. H.K.&M STA. 310+49.3

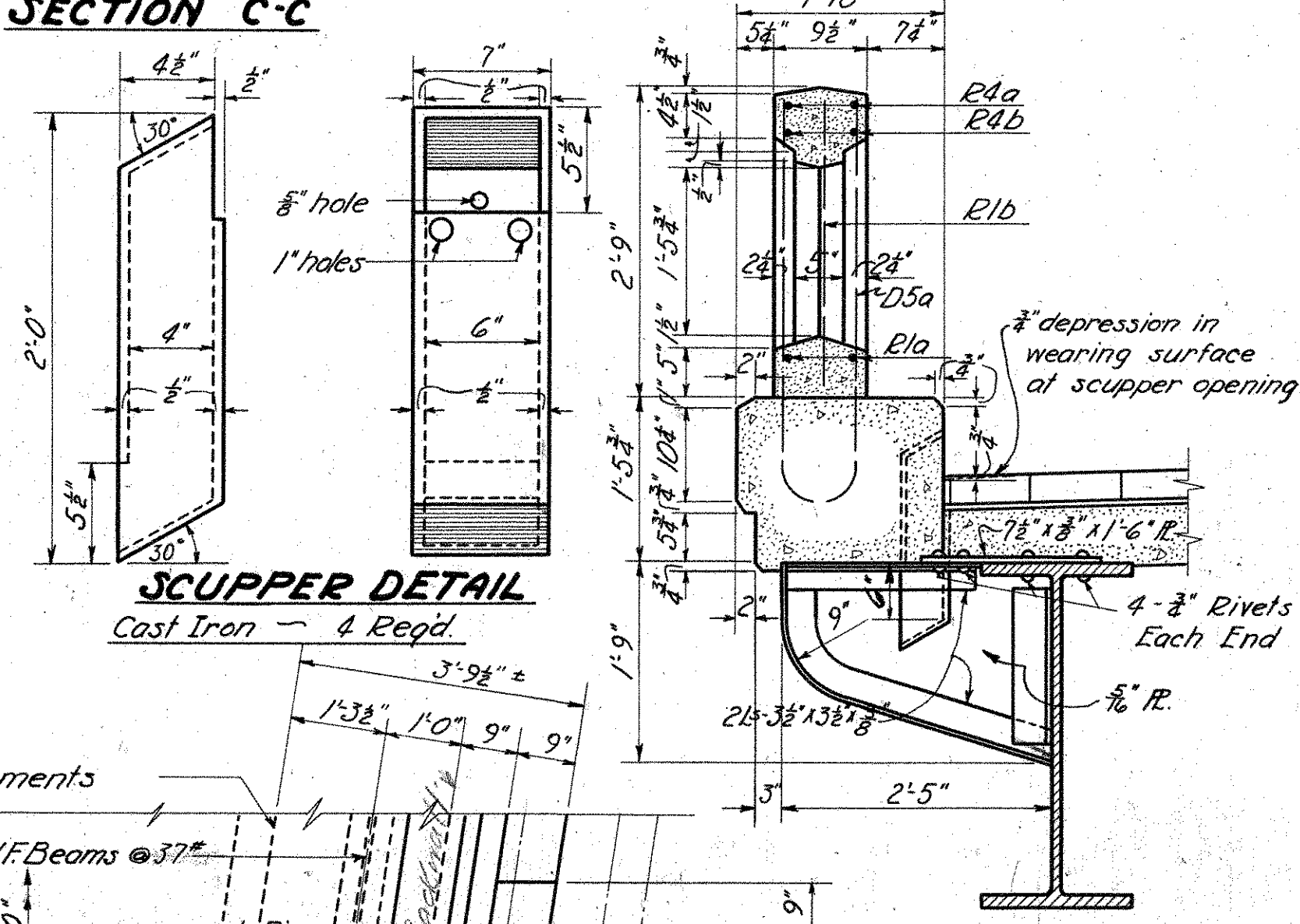
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J. J. O.	L. J. O.	P. E. P.	C. E. B.	W. H. R.	5/14/32	



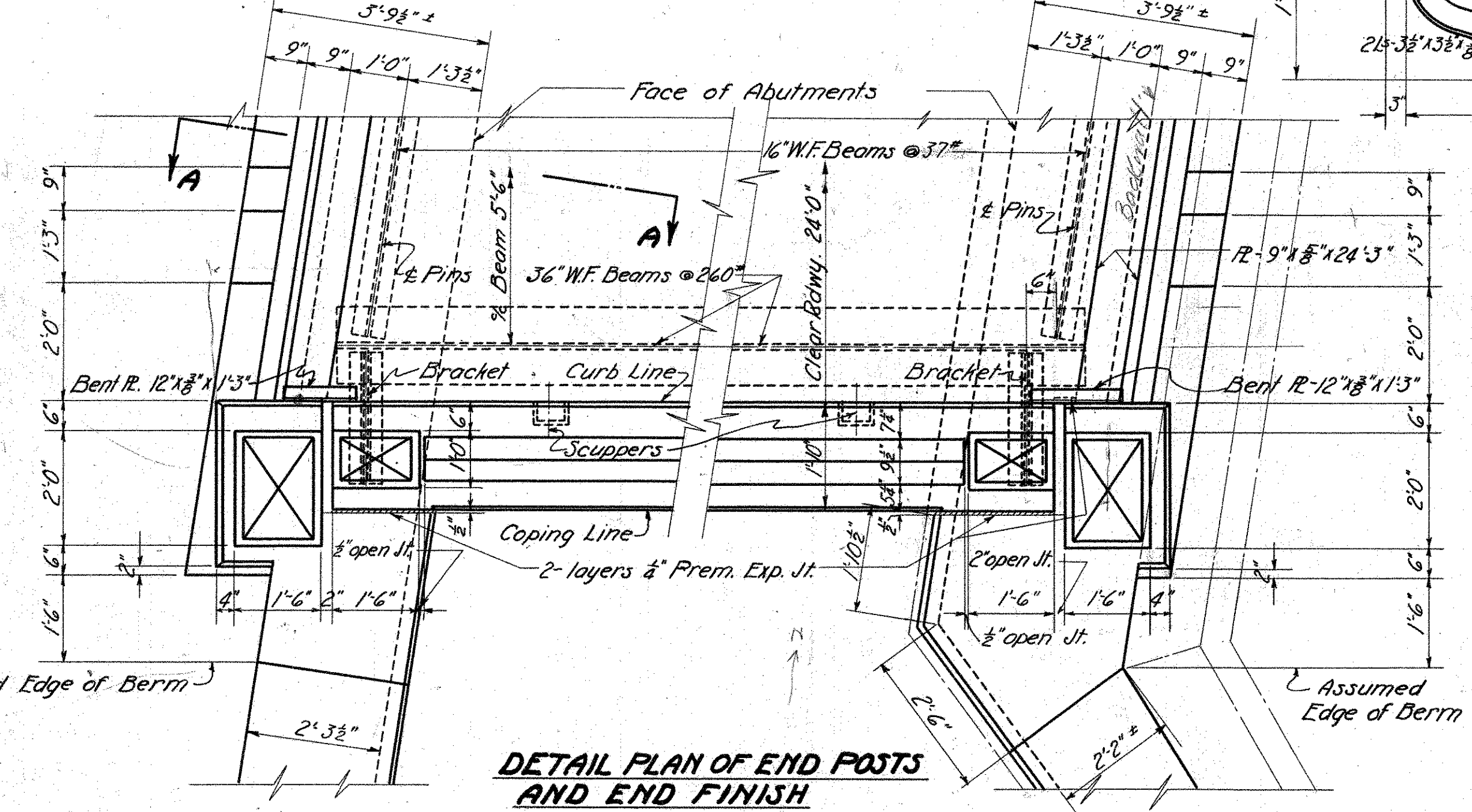
SECTION C-C



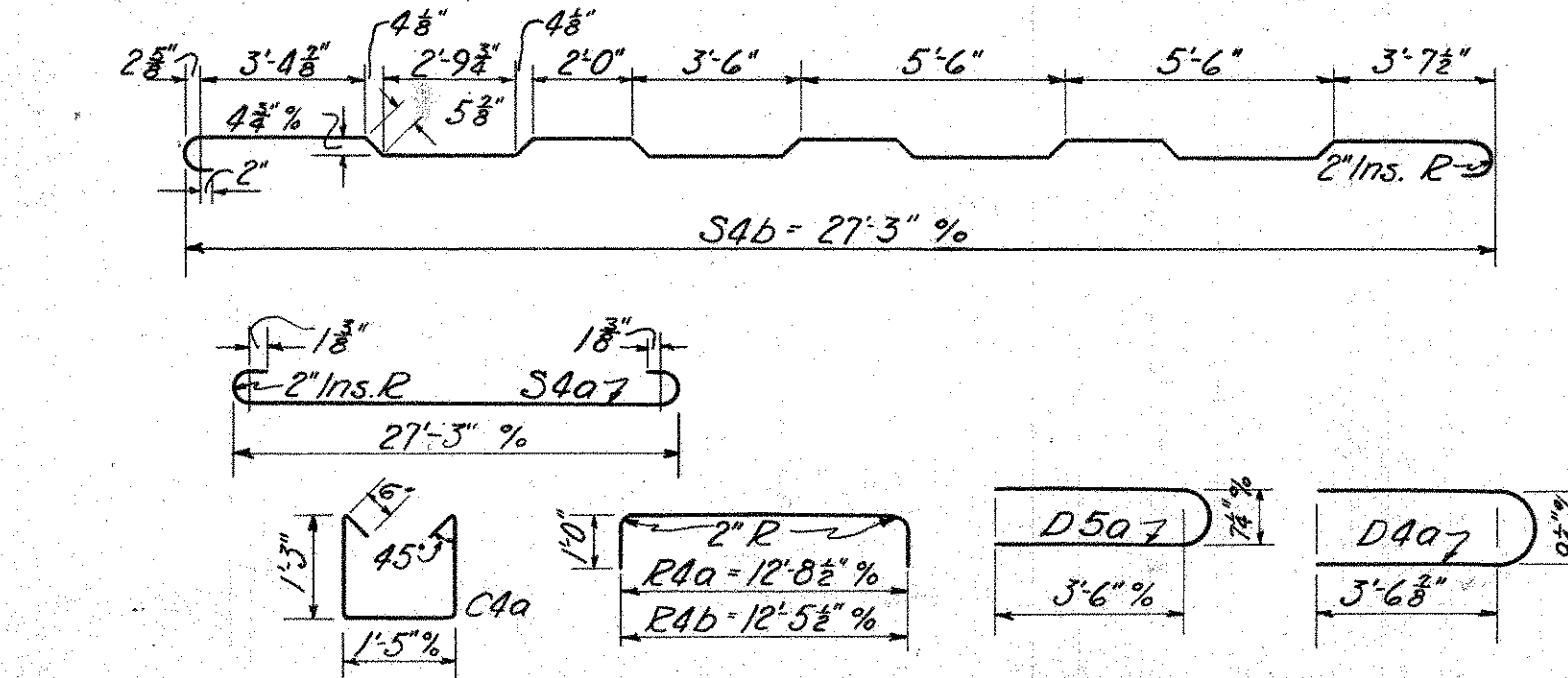
SECTION A-A



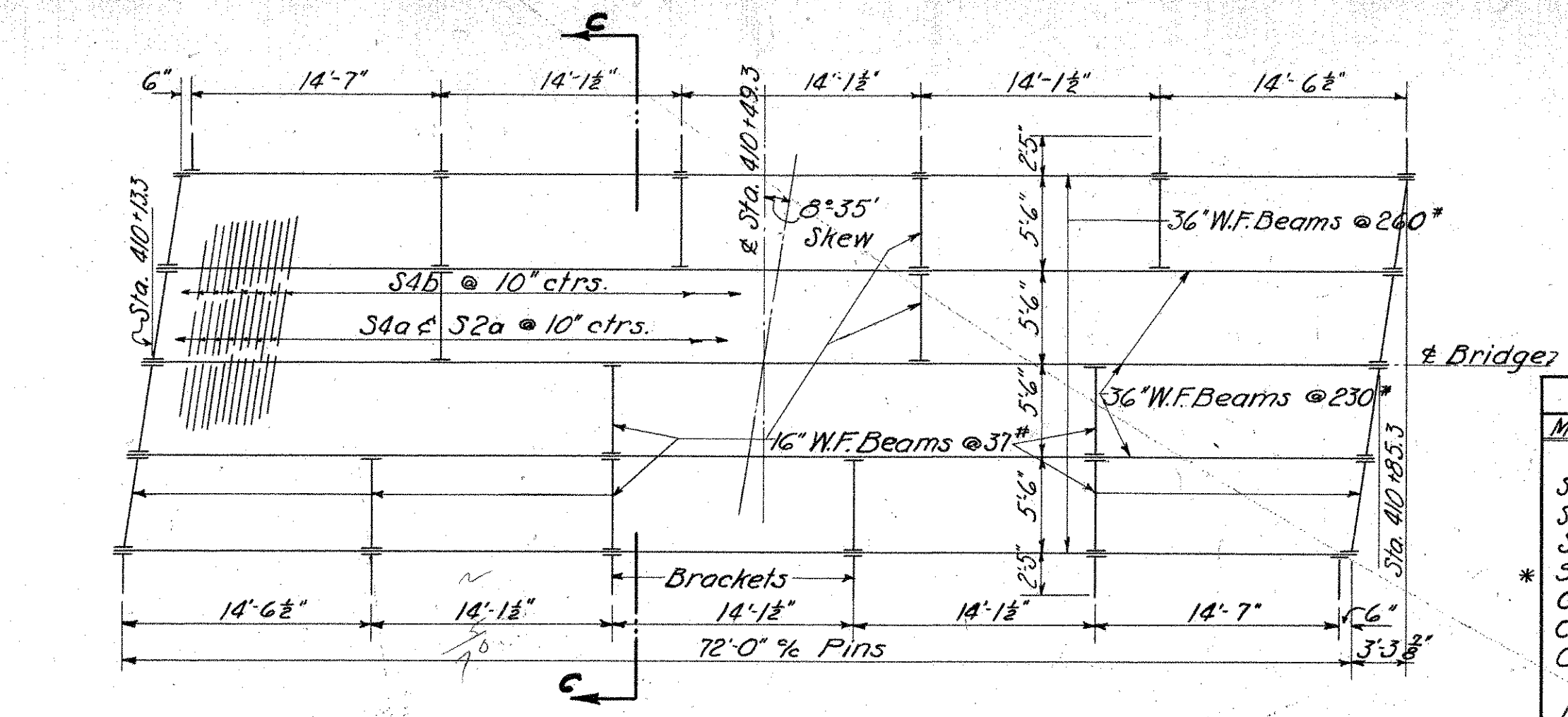
SCUPPER DETAIL  
Cast Iron - 4 Req'd.



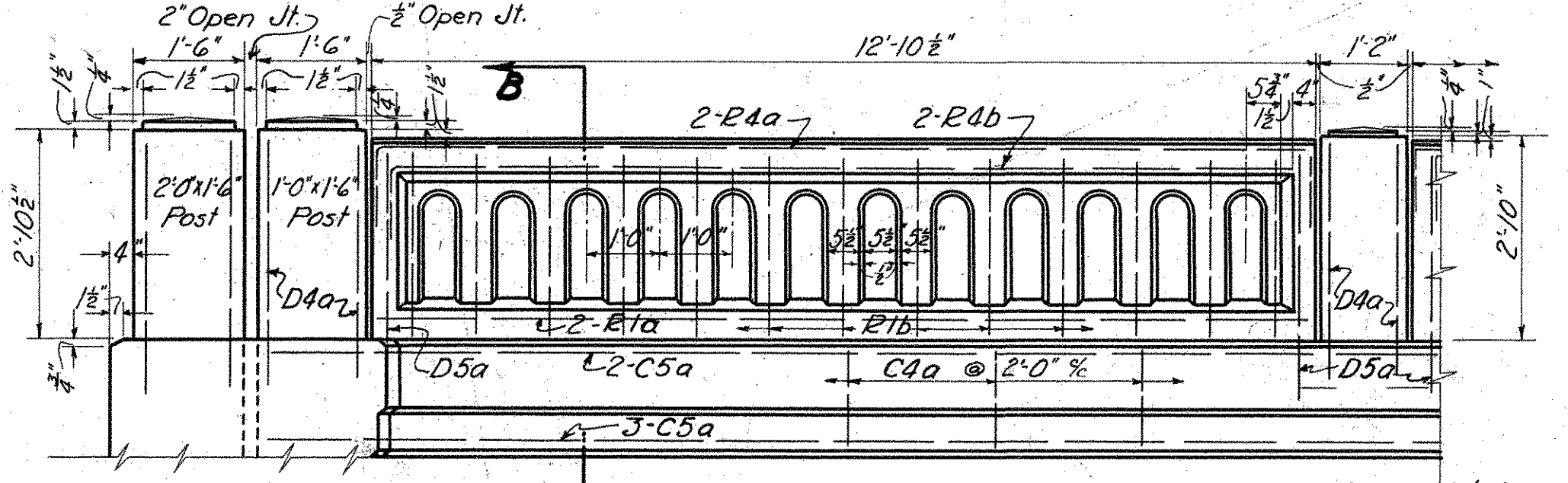
DETAIL PLAN OF END POSTS AND END FINISH



BAR BENDING DIAGRAMS



TYPICAL RAILING PANEL AND END POST  
(Type R.R.-8)



SECTION B-B

**NOTES**

LOADING: This bridge is designed for H-15 loading.

RIVETS: Shall be 3/4"

ANCHOR BOLTS: Shall be 1 1/2" set 1'-0" in masonry.

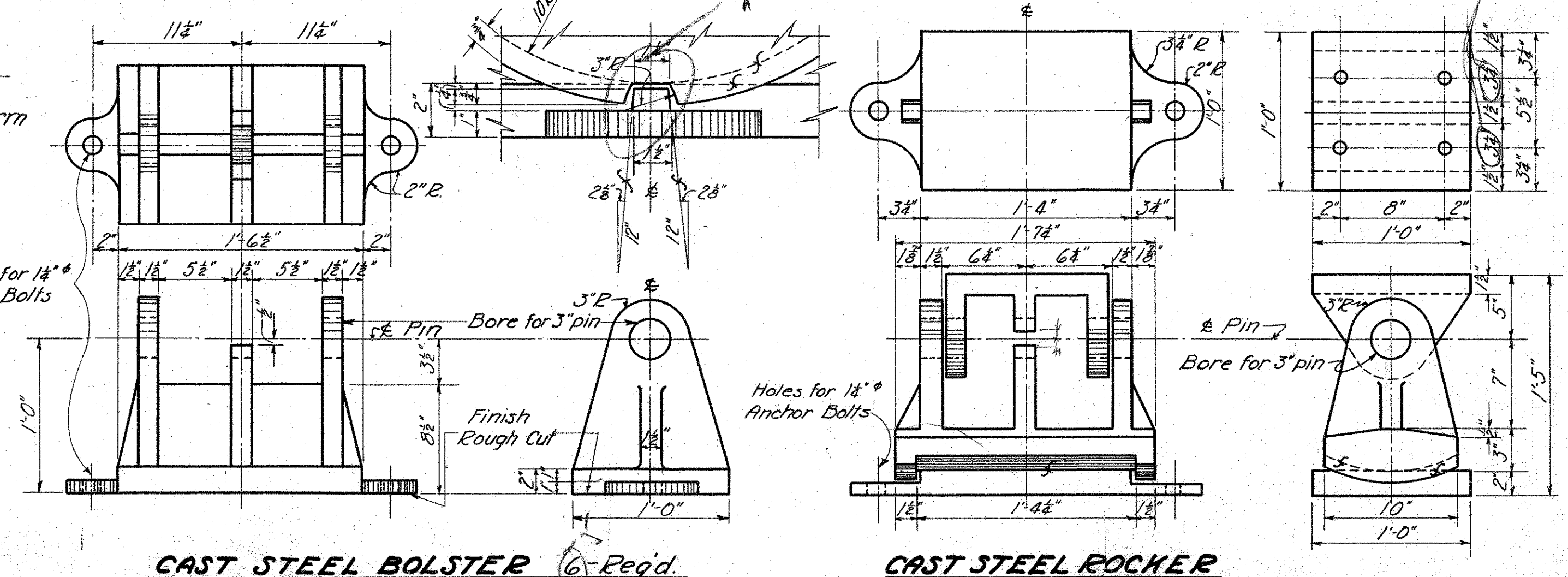
PLACING SLAB: Concrete slab on superstructure shall be placed full width out to out of curbs between transverse construction joints approved by Engineer.

SETTING ROCKERS: The rockers shall be so placed that when the bridge is completed the rockers will stand in a vertical position at average temperature. Place a 1/2" thickness of sheet lead under each bolster and rocker base plate.

END FINISH: Shall be used as a template for top of back wall. Back wall shall be built after structural steel has been erected.

CAMBER: All 36" rolled beams shall have a camber of 2" under no load.

SUPERSTRUCTURE STEEL					
Mark	Size	No.	Shape	Length	Weight
S4a	8"	84	Bent	28'-3"	2478
S4b	8"	83	Bent	29'-6"	2556
S2a	8"	84	Str't.	27'-3"	1529
S2b	8"	48	Str't.	26'-3"	840
C5a	3/4"	30	Str't.	26'-3"	1184
C5b	3/4"	10	Str't.	27'-3"	410
C4a	3/4"	72	Bent	6'-0"	452
D5a	3/4"	20	Bent	8'-0"	240
D4a	3/4"	24	Bent	8'-3"	207
E4a	3/4"	20	Bent	14'-9"	Included in railing for payment.
E4b	3/4"	20	Bent	14'-6"	
R1a	3/4"	20	Str't.	12'-6"	
R1b	3/4"	130	Str't.	2'-6"	
Total					9896
REPLACEMENT BARS					
Rep 6	3/4"	2		5'-6"	23
Rep 5	3/4"	2		5'-0"	15
Rep 4	3/4"	2		5'-6"	11
Rep 2	3/4"	2		4'-0"	5
Rep 1	3/4"	2		3'-6"	3
Total					57



CAST STEEL BOLSTER (6) Req'd.

CAST STEEL ROCKER (6) Req'd.

CAST STEEL UPPER SHOE (10) Req'd.

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
BUREAU OF BRIDGES

**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. KN-3-237  
OVER LITTLE SCHENK CREEK  
S.H. 24 KNOX COUNTY  
SEC. H, K & M Sta. 310+49.3

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J. J. G.	J. J. G.	M. C. B.	A. E. B.	M. W. R.	5/1/52	26-3-52