EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning

Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be 30.6+(20—16)÷2 or 2 ft. added to 30.6 =32.6. For slopes of 1 on 1½ see inside of back cover.

12.98

Xsections for Est #9 Items 3 or 5
Month of Jan 1933

576.60

			IV3400	
4770				0.6
4780			6.1	70.5
4800			4.1	72.5
T.P.	0.36	564.33	12.63	563.97
20			2.0	62.3
40			2.3	62.0
60			4.5	59.8
80			5.5	58.8
4900			6.6	57.7
20			7.2	57.1
40			5.6	58.7
60			9.1	55.2
80			11.2	53.1
4990			13.8	50.5
			IV3420	
4990			15.2	49.1
80			14.4	49.9
60			14.8	49.5
40			11.7	52.6
20			10.0	54.3
4900			7.5	56.8
880			6.0	58.3
860			5.3	59.0
840			3.4	60.9

plotted

plotted

Feb 2 - 1933
Elliott -
Simpson -
Soper -
Remmen -

1

		564.33		
		N 3420		
4820			3.7	60.6
800			3.7	60.6
780			+3.7	68.0
760				O.G.
		N 3440		
700				O.G.
10			+6.9	71.2
40			+4.5	68.8
60			+2.3	66.6
80			0.8	63.5
4800			3.5	60.8
20			4.7	59.6
40			4.2	60.1
60			4.6	59.7
80			5.5	58.8
4900			11.8	52.5
T.R.	0.40	551.76	12.97	551.36
20			0.3	51.5
40			4.2	47.6
60			4.7	47.1
80			6.5	45.3
90			9.0	42.8

Plotted

	551.76	N3460	
4997		20.6	31.2
90		20.6	31.2
80		17.2	34.6
60		11.3	40.5
40		11.7	40.1
20		5.6	46.2
4900		1.4	50.4
	564.3		
80	plotted	10.6	53.7
60		4.2	60.1
40		6.6	57.7
20		5.2	59.1
4880		3.8	60.5
80		3.3	61.0
60		2.9	61.4
40		5.3	59.0
		N3480	
4702			575.6
04			575.6
4730		7.6	56.7
60		2.8	61.5
80		4.3	60.0
4800		4.8	59.5
20		6.5	57.8

		564.3	N3480	
4840			7.4	56.9
60			8.6	55.7
80			9.4	54.9
		551.8		
4900			1.8	50.0
20			7.5	44.3
40			15.1	36.7
60			15.4	36.4
70			15.6	36.2
75			22.9	28.9
4997			24.5	27.3

plotted

Xsections for Est. #9 Items 3 or 5

B.M.	1.97	577.02		575.05
			12.78	564.24
	2.23	566.47		
			13.08	553.39
	0.43	553.82 Level		
			N3500	
T.P.	10.45	563.84		553.39
4702				75.4
13				75.4
40			2.0	61.8
60			2.6	61.2

End Feb 2 - 1933

Start Feb 3 - 1933

		563.8	N3500	
4780			3.5	60.3
4800			4.7	59.1
20			5.6	58.2
40			7.5	56.3
60			8.4	55.4
80			9.4	54.4
		553.8		
90			0.2	53.6
4900			4.1	49.7
920	plotted		9.8	44.0
		543.1		
940			6.4	36.7
60			7.8	35.3
67			9.8	33.3
80			15.0	28.1
4997			15.0	28.1
			N3520	
4997			15.5	27.6
80			14.5	28.6
68			9.4	33.7
60			7.7	35.4
4940			4.3	38.8

	553.8	N3520	
4920		8.8	45.0
900		4.5	49.3
890		0.6	53.2
	563.8		
80		9.8	54.0
60		8.4	55.4
40		7.1	56.7
20		5.9	57.9
4800		5.1	58.7
80	plotted	3.8	60.0
60		2.9	60.9
40		1.4	62.4
19			75.1
4702			75.9
		N3540	
4702			74.2
18			75.3
40		1.6	62.2
60		2.9	60.9
80		3.8	60.0
4800		5.0	58.8
20		6.2	57.6
40		7.1	56.7
60		8.7	55.1
80		9.9	53.9

	553.8	N3540	
4890		0.7	53.1
900		5.2	48.6
20		8.1	45.7
	543.1		
40		4.8	38.3
60		8.7	34.4
70		13.1	30.0
75		14.1	29.0
4997		14.1	29.0
		N3560	
97		14.0	29.1
80		13.3	29.8
60		8.7	34.4
4940		5.0	38.1
	553.8		
4920		8.0	45.8
900		4.7	49.1
890		0.7	53.1
	563.8		
80		9.9	53.9
60		8.6	55.2
40		7.4	56.4
20		5.9	57.9

plotted

	563.8	N3560	
4800		5.1	58.7
780		4.2	59.6
60		2.5	61.3
30		0.5	63.3
14			73.4
4702			73.8
		N3580	
4702			74.9
05			75.2
4725		+2.0	65.8
60		1.7	62.1
80		3.8	60.0
4800		4.9	58.9
20		5.9	57.9
40		7.8	56.0
60		9.4	54.4
80		10.1	53.7
	553.8		
90		0.6	53.2
4900		4.4	49.4
20		8.3	45.5
40	543.1	4.1	39.0
60		6.2	36.9
70		5.9	37.2
80		13.5	29.6
97		14.1	29.0

Plotted

	543.1	N3600	
4997		13.9	29.2
80		13.9	29.2
66		4.7	38.4
60		4.7	38.4
40		4.0	39.1
	553.8		
4920		8.8	45.0
900		4.0	49.8
880		2.1	51.7
	563.8		
60	plotted	7.1	54.7
40		7.9	55.9
20		6.2	57.6
4800		4.8	59.0
780		2.9	60.9
60		2.8	61.0
40		+0.8	64.6
20		+3.8	67.6
4705		+5.7	69.5
		N3620	
4702		+9.0	72.8
20		+6.5	70.3
40		4.9	58.9
50		2.6	61.2
60		3.0	60.8

	563.8	N3620	
4780		3.8	60.0
800		4.8	59.0
20		6.4	57.4
40		8.2	55.6
60		8.5	55.3
80		9.7	54.1
	553.8		
4900		4.9	48.9
20		8.7	45.1
	543.1		
40		3.0	40.1
60		4.2	38.9
67		4.3	38.8
80		14.0	29.1
4997		14.0	29.1
		N3640	
4997		14.3	28.8
80		14.0	29.1
74		11.9	31.2
66		2.9	40.2
60		3.2	39.9
40		2.2	40.9

plotted

	553.8	N3640	
4920		7.3	46.5
900		2.3	51.5
	563.8		
880		8.7	55.1
60		8.5	55.3
40		7.8	56.0
20		6.4	57.4
4800		5.1	58.7
780		4.2	59.3
760		3.3	60.5
50		3.0	60.8
40		8.1	55.7
17		3.3	60.5
		N3660	
4730		15.3	48.5
50		2.6	61.2
60		3.6	60.2
80		4.4	59.4
4800		5.4	58.4
20		6.0	57.8
40		7.9	55.9
60		8.3	55.5
80		9.4	54.4
	553.8		
4900		2.9	50.9

plotted

15.

Intersection rock + beach

		553.8	N3660	
4920			6.1	47.7
40			10.5	43.3
60			12.1	41.7
67			11.7	42.1
		543.1		
76			12.2	30.9
80			13.2	29.9
97			14.0	29.1
			N3680	
97			11.0	32.1
80			10.8	32.3
73			9.2	33.9
		553.8		
66			10.1	43.7
60			9.4	44.4
40			7.8	46.0
20			3.7	50.1
4900			0.9	52.9
		563.8		
80			9.2	54.6
60			8.7	55.1
40			7.5	56.3

		563.8	N3680	
4820			6.0	57.8
800			5.7	58.1
780			4.5	59.3
60			3.6	60.2
50			3.0	60.8
30			13.7	50.1
			N3700	
4730			13.5	50.3
45			2.8	61.0
60			3.0	60.8
80			4.7	59.1
4800			5.3	58.5
20			5.7	58.1
40			8.5	55.3
60			8.9	54.9
80			9.4	54.4
4900			10.3	53.5
20			11.8	52.0
		553.8		
40			5.5	48.3
60			5.6	48.2
65			7.3	46.5

plotted

		543.1	N3700	
73			7.5	35.6
80			8.4	34.7
4997			8.9	34.2
			N3720	
4997			7.3	35.8
80			6.6	36.5
75			6.2	36.9
		553.8		
4966			5.3	48.5
60			3.7	50.1
40			3.3	50.5
		563.8		
20			9.6	54.2
4900			10.6	53.2
880			7.6	56.2
60			2.9	60.9
40			4.2	59.6
20			5.0	58.8
800			4.3	59.5
780			+0.9	64.7
65			0.4	63.4
47 40			12.3	51.5

		563.8	N3730	
4720			10.7	53.1
40			7.3	56.5
60			2.5	61.3
70			+ 1.4	65.2
90			+3.4	67.2
4800			0.8	64.6
20			3.6	67.4

Balance of N. 3730 and all stripping north same as Est # 8 and is Item 11,

		553.82		
			11.57	542.25
	0.87	543.12		

End Item 3 and or 5 Feb 3 - 1933

Estimate #9

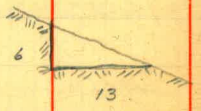
Item 3

Stripping on So. abutement for construction roads:- Material into Hydr. Fill

N 3320
E 5300 to N 3280
E 5020
300'

N 3220
E 5240 to N 3330
E 5020
230'

N 3270
E 5220 to N 3350
E 5120
100'



Feb 3 - 1933

X sections of Upstream Face of Upstream Rock Embankment
For Estimate #10 Feb 28 - 1933
(Downstream Face Complete to El. 625)

N 3280

B.M.	4.15	632.99		628.84 ✓
E5232			5.2	27.8 ✓
45		plotted.	3.4	29.6 ✓
5260			5.1	27.9

N 3300

5280			4.9	28.1 ✓
70		plotted	4.1	28.9 ✓
50			5.0	28.0 ✓
5232			4.9	28.1

N 3320

5232			5.4	27.6 ✓
50			5.4	27.6 ✓
70		plotted.	5.5	27.5 ✓
5290			5.0	28.0 ✓
5320			3.1	29.9 ✓
30			2.4	30.6

N 3340

5345			9.1	23.9 ✓
35			6.0	27.0 ✓
5280		plotted.	5.9	27.1 ✓
5232			5.8	27.2 ✓

632.99 N3360

5232		6.1	26.9 ✓
5280		6.2	26.8 ✓
5340		6.7	26.3 ✓
5362		15.3	17.7 ✓

plotted

N3380

5320		6.9	26.1 ✓
5340		6.8	26.2 ✓

plotted.

609.5

5377		9.0	00.5 ✓

633.0 N3400

5320		7.7	25.3 ✓
40		6.7	26.3 ✓

plotted.

609.5

5383		17.1	92.4 ✓
5396		15.9	93.6 ✓

633.0 N3420

5320	7.7	25.3	✓
38	7.3	25.7	✓
609.5			
70	8.0	01.5	✓
5390	8.5	01.0	✓
5420	11.4	98.1	✓
5435	16.4	93.1	✓ Complete

plotted

633.0 N3440

5320	7.8	25.2	✓
40	7.6	25.4	✓
609.5			
5374	8.9	00.6	✓
5416	12.2	97.3	✓
597.3			
5442	8.1	89.2	✓
5460	16.3	81.0	✓ Complete

Plotted

		633.0	N3480		
5320			8.5	24.5 ✓	
35			8.7	24.3 ✓	
		609.5			
5375			9.4	00.1 ✓	
5416	plotted		11.0	98.5 ✓	
		579.9			
5484			3.8	76.1 ✓	
		633.0	N3520		
5320			8.7	24.3 ✓	
35			9.9	23.1 ✓	
		609.5			
5365			9.4	00.1 ✓	
5416	plotted		11.8	97.7 ✓	
		590.4			
5458			4.7	85.7 ✓	
5487				75.4	

		633.0	N3560	
5320			9.0	24.0 ✓
32			8.9	24.1 ✓
	plotted	609.5		
5365			9.3	00.2 ✓
5416			11.4	98.1 ✓
		590.4		
5450			2.1	88.3 ✓
5491				75.0
		633.0	N3600	✓
5320			8.4	24.6 ✓
5332			9.1	23.9
	plotted.	609.5		✓
5365			9.2	00.3 ✓
5416			10.7	98.8
.		590.4		✓
5449			1.4	89.0
5478			14.5	75.9 ✓
5491				75.0

		633.0	N3640	
5320			9.8	23.2
34			10.8	22.2
	plotted	609.5		
5365			9.2	00.3
5416			9.7	99.8
		590.4		
5440			+1.5	91.9
5465			10.3	80.1
5478				75.4
		633.0	N3680	
5320			9.6	23.4
36			10.5	22.5
		609.5		
5365			8.7	00.8
5416	Plotted.		9.8	99.7
		590.4		
5456			4.1	86.3
5473				75.4

		633.0	N3720	
5320			9.2	23.8
30			9.1	23.9
		609.5		
5360			7.9	01.6
5416	plotted		9.2	00.3
		690.4		
5457			5.2	85.2
5472				75.0
		633.0	N3760	
5320			7.9	25.1
		609.5		
5355			8.0	01.5
5416	plotted.		8.9	00.6
		585.0		
5469			2.2	82.8
5478				75.0

		633.0	N3800	
5320	plotted		7.2	25.8
		609.5		
5355			8.3	01.2
5416			9.4	00.1
		585.0		
5469			2.1	82.9
5488				75.0
		633.0	N3840	
5320			7.1	25.9
		609.5		
5350			6.0	03.5
5416			8.2	01.3
		586.4		
5436	plotted		+7.6	94.0
5453			4.7	81.7
5472			4.8	81.6
5487			6.9	79.5
5494			10.8	75.6
5500			11.7	74.7

		586.4	N3860	
5500			9.9	76.5
5490			5.5	80.9
5450			4.6	81.8
		609.2		
5404			5.2	04.0
5350			3.2	06.0
		633.0		
5320			6.1	26.9
		586.4	N3880	
5450			8.2	578.2
5440			7.5	78.9
5430			3.7	82.7
		609.2		
5384			1.1	608.1
5345			+0.8	610.0
		633.0		
5320			6.1	26.9

plotted.

North of here is same as Est. #9

X sections of upstream blanket beach and hydraulic fill - Estimate #10
Mar 2 - 1933

B.M.	2.07	630.91		628.84
			N3280	
5196				625.0
5180			14.4	616.5
T.P.	0.17	618.17	12.91	618.00
			N3300	
5195				625.0
5170			9.6	608.6
			N3320	
5192				625.0
5161			14.5	603.7
T.P.	0.26	605.79	12.64	605.53
			N3340	
5192				625.0
5153			9.7	596.1
T.P.	0.50	593.32	12.97	592.82

Elliott
Simpson
Soper
Remmen

5191			593.32	
5140				

N3360

625.0		
6.6		586.4

N3380

5192		
5140		
T.P.	3.19	584.17

625.0	
8.1	585.2
12.3±	580.98

N3400

5201		
5155		
5099		

625.0		
2.1	582.1	
10.4	73.8	(W.S. water surface)

N3420

5205		
5154		
5096		

625.0		
4.2	80.0	
10.4	73.8	W.S.

N3440

5208		
5159		
5096		

625.0		
4.8	79.4	
10.4	73.8	W.S.

584.17

N3460

5213	625.0	
5162	5.1 79.1	
5095	10.4 73.8	W.S.

N3480

5215	625.0	
5163	5.4 78.8	
5094	10.4 73.8	W.S.

N3500

5216	625.0	
5164	5.5 78.7	
5098	10.4 73.8	W.S

N3520

5217	625.0	
5163	5.5 78.7	
5098	10.4 73.8	W.S

584.17

N3540

5214	625.0	
5162	5.5 78.7	
5094	10.4 73.8	W.S

N3560

5212	625.0	
5163	5.6 78.6	
5095	10.4 73.8	W.S.

N3580

5208	625.0	
5158	6.5 77.7	
5093	10.4 73.8	

N3600

5206	625.0	
5154	6.3 77.9	
5091	10.4 73.8	

584.17

N3620

5205	625.0	
5155	5.8	78.4
5091	10.4	73.8 w.s.

N3640

5199	625.0	
5150	6.2	78.0
5093	10.4	73.8 w.s

N3660

5200	625.0	
5151	5.8	78.4
5092	10.4	73.8

N3680

5199	625.0	
5158	3.6	80.6
5145	6.5	77.7
5090	10.4	73.8

584.17

N3700

5200	625.0	
5157	1.9	82.3
5140	7.0	77.2
5093	10.4	73.8 w.s

N3720

5201	625.0	
5158	2.2	82.0
5140	7.0	77.2
5095	10.4	73.8

N3740

5203	625.0	
5155	4.6	79.6
5142	6.3	77.9
5093	10.4	73.8

N3760

5208	625.0	
5161	3.0	81.2
5150	5.2	79.0
5090	10.4	73.8 w.s.

		584.17	N3780 ✓		
5212				625.0	
5163			3.0	81.2	
5145			6.3	77.9	
5093			10.4	73.8	W.S.
			N3800 ✓		
5212				625.0	
5160			5.5	78.7	
5092			10.4	73.8	W.S.
			N3820 ✓		
5210				625.0	
5159			5.5	78.7	
5093			10.4	73.8	W.S.
			N3840 ✓		
5206				625.0	
5156			6.1	78.1	
5093			10.4	73.8	W.S.

		584.17	N3860 ✓		
5205				625.0	
5152			7.1	77.1	
5111			9.1	74.5	
			N3880		
5203				625.0	
5150			4.6	79.6	
	0.00	596.70		596.70	
			N3900		
5204				625.0	
5160			0.0	96.7	
B.M.	3.55	632.18		628.63	
			N3920		
5200				625.0	
5174			21.9	10.3	

N3940

5194	632.18		625.0
5178		12.9	19.3

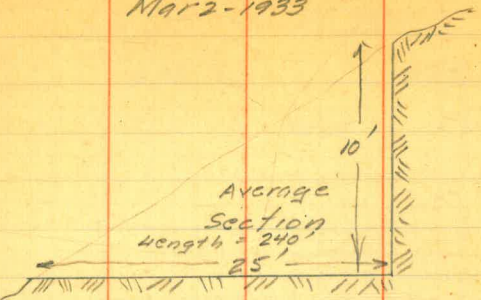
N3960

5200			625.0
5190		8.7	23.5

N3980

5199			625.0

Item 3 Stripping
on No. abutement for Est. #10
Mar 2 - 1933



N3860 N3840
E4680 to E4920 = Length 240'

N3860
E4680

3840
4920

Typical Section of Hydraulic Fill
(To be used on all sections for Est. #11)
April 1-1933

B.M.	1.62	630.46		628.84	
5232			5.5	625.0	
5210			4.5	626.0	
5204			11.9	618.6	
T.P.	0.74	618.76	12.44	618.02	
5185			4.9	613.9	
5081			13.75	605.0	W.S.
	0.5	640.6		640.1	
	1.25	628.7	13.15	627.45	
4933				605.0	W.S.
4810			14.2	614.5	
	70.6	640.7		640.1	
4786			7.5	633.2	
4752			7.8	632.9	

CROSS SECTIONS UPST. ROCK
EST. #11
April 4 - 1933

(So. of 3300 Same as Est.#10) N3320 ✓

B.M.	2.13	630.97		628.84	
5315			1.9	29.1	
5320			+2.3	33.3	
5329			0.4	30.6	Toe
			N3360 ✓		
5320			4.7	26.3	complete to toe
5329			1.5	29.1	
			N3400 ✓		
5320			6.2	24.8	complete to toe
5338			4.6	26.4	
			N3440 ✓		
5300			6.0	25.0	
20			7.9	23.1	
36			6.2	24.8	complete to toe
50			8.1	22.9	

630.97 N3480 ✓

5320			6.0	25.0
5342			8.4	22.6
5358			12.1	18.9 Complete to Elev 595
T.P.	7.69	626.94	11.72	619.25
			N3520 ✓	
5305			2.1	24.8
36			7.4	19.5
62			13.1	13.8
T.P.	1.60	615.60	12.94	614.00
T.P.	2.28	605.77	12.11	603.49
5390			6.0	99.8
5415.7			5.3	00.5 Complete to Elev. 575
		626.94	N3560 ✓	
5307			2.6	24.3
5320			5.1	21.8
5375			15.6	11.3
5390		605.8	5.6	00.2
5415.7			5.4	00.4 Complete to Elev 575

626.9 N3600 ✓

5306		2.4	24.5
5320		4.2	22.7
5370		16.4	10.5
	605.8		
5385		5.9	99.9
5415.7		5.5	00.3

Complete to Elev 575

626.9 N3640 ✓

5310		3.0	23.9
35		6.0	20.9
5370		14.5	12.4
	605.8		
5385		5.4	00.4
5415.7		5.0	00.8

626.9 N3680 ✓

5303		2.8	24.1
5351		6.7	20.2
5375		15.7	11.2
	605.8		
5390		5.0	00.8
5415.7		4.9	00.9

Complete to 575

626.9 N3720 ✓

5334		3.9	23.0
5350		10.3	16.6
5366		12.2	14.7
	605.8		
5385		4.6	01.2
5415.7		4.9	00.9

Complete to 575

	626.9	N3760 ✓		
5312		2.3	24.6	
5330		4.7	22.2	
5370		14.3	12.6	
	605.8			
5385		4.1	01.7	
5400		2.2	03.6	
5415.2		5.0	00.8	Complete to 575
	626.9	N3800 ✓		
5310		1.3	25.6	
5332		4.4	22.5	
5370		14.7	12.2	
5390	605.8	5.0	00.8	
5400		2.8	03.0	
5415.2		4.9	00.9	"
	626.9	N3840 ✓		
5310		1.0	25.9	
28		2.4	24.5	
64		12.1	14.8	
	605.8			
5380		3.2	02.6	
5400		3.2	02.6	
5415.2		4.9	00.9	"

Not in Book

626.9 N3860 ✓

605.77

T.P. 5320	9.39	613.16	2.00	603.77
			+12.8	26.0
5343			+7.5	20.7
5368			7.8	05.4
5387			8.4	04.8
5400			10.6	02.6
5431			18.3	94.9

Complete to 575

N3880 ✓

626.9

5320		0.6	26.3
5328		0.8	26.1
5350	613.2	3.5	09.7
5380		5.7	07.5
5400		9.7	03.5
5415.7		19.3	93.9
5491			

Toe

		613.14	N3900 ✓		
5308			+13.2	26.4	
23			+11.3	24.5	
61			1.2	12.0	
81			4.0	09.2	
5430					Toe
			N3920 ✓		
5308			+13.5	26.7	
20			+11.3	24.5	
45			+5.4	18.6	
70			0.9	12.3	
5394			16.6	96.6	Toe
			N3940 ✓		
5385			13.0	00.2	Toe
T.P.	11.97	624.83	0.30	612.86	
5353			6.1	18.7	
5335			4.1	20.7	
5310			+1.5	26.3	

624.83 N3960 ✓

5377	15.3	09.5	Toe
60	9.7	15.1	
43	2.3	22.5	
20	0.3	24.5	
5312	+1.3	26.1	

N. of 3960 Same as Est. #10

Cross-Sections of excavation
West end of Spillway

E4470

Original Ground

E4460

B.M.	12.90	596.89		583.99	
N4040			2.7	94.2 ✓	
50			2.6	94.3 ✓	
70			5.6	91.3 ✓	
100			4.9	92.0 ✓	
20			0.8	596.1 ✓	
35			+7.0	603.9 ✓	O.G.

cont'd on next Page.

Apr. 17, 1933

Elliott
Simpson
Saper.

B.M.	12.90	596.89		583.99
			E 4440	
N 4040			3.6	93.3
045			3.2	93.7
050			5.6	91.3
066			5.7	91.2
B.M.	6.05	586.05		580.00
N 4070			1.3	584.7
80			6.7	79.3
4100			7.0	79.0
20			7.0	79.0
35			0.4	85.6
		608.88		
44			14.2	94.7
55			11.0	97.9
62			1.5	07.4 O.G.
			E 4420	
A 180			+0.4	09.3 O.G.
65			9.3	99.6
		586.05		
A 160			0.7	85.3
50			6.1	79.9
40			5.6	80.4
20			7.3	78.7
4100			6.9	79.1

Plotted 4/18/33.

Apr. 15, 1933

		586.05	E 4420	
40 70			7.7	578.3
		596.89		
062			5.3	91.6
030			4.0	92.9
			E 4400	
40 30			4.3	92.6
055			5.0	91.9
		586.05		
4060			7.5	78.5
80			8.0	78.0
100			6.8	79.2
20			7.2	78.8
40			7.3	78.7
50			6.9	79.1
60			0.2	85.8
64		608.88	13.3	95.6
82			5.4	03.5
4185			0.0	08.9 O.G.
			E 4380	
4176			1.6	07.3 O.G.
71			4.6	04.3
4170		586.05	+2.8	88.8
50			7.0	79.0
4140			7.3	78.7

Plotted 7/18/33

	586.05	E4380	
4120		7.4	578.6
100		7.4	78.6
080		7.6	78.4
065		7.8	78.2
060		5.1	80.9
	596.89		
052		5.1	91.8
040		4.6	92.3
		E4360	
4030		5.2	91.7
4049		5.2	91.7
	586.05		
4055		0.6	85.4
065		7.4	78.6
80		7.1	78.9
100		7.0	79.0
20		6.8	79.2
40		7.4	78.6
60		7.5	78.5
70		7.5	78.5
86		2.5	83.5
	608.88		
4193		1.2	07.7 O.G.

Plotted 4/18/33

	596.89	E4340	
4220		+7.3	604.2
10		0.0	596.9
03		1.6	95.3
	586.05		
4200		1.8	84.2
190		7.7	78.3
80		7.8	78.2
60		7.3	78.7
40		7.2	78.8
20		7.3	78.7
100		7.7	78.3
080		8.1	77.9
060		7.3	78.7
050		7.1	78.9
	596.89		
045		5.6	91.3
030		5.9	91.0
		E4320	
4020		8.4	88.5
4035		7.3	89.6
	586.05		
4040		7.5	78.5
60		7.9	78.1
80		7.6	78.4
100		7.5	78.5
20		7.4	78.6

Plotted 4/8/32

	586.05	E4320	
4140		7.5	578.5
60		7.5	78.5
80		7.4	78.6
95		8.0	78.0
4200		3.5	82.5
	596.89		
08		1.2	95.7
20		1.0	95.9
		E.4300	
42 20		1.2	95.7
10		1.5	95.4
	586.05		
4205		4.0	82.0
200		8.0	78.0
180		7.9	78.1
60		7.7	78.3
40		7.5	78.5
20		7.1	78.9
100		6.7	79.3
080		6.2	79.8
060		6.3	79.7
040		5.8	80.2
	596.89		
029		8.3	88.6
020		9.1	87.8

Plotted 4/18/33

	596.89	E4280	
4000		12.6	584.3
4010		10.1	86.8
	586.05		
4034		5.1	80.9
040		5.5	80.5
060		5.8	80.2
080		5.8	80.2
100		6.4	79.6
20		7.0	79.0
40		7.1	78.9
60		7.7	78.3
80		7.8	78.2
4200		8.0	78.0
05		5.0	81.0
	596.89		
10		2.4	94.5
20		1.3	95.6
		E 4260	
4220		1.8	95.1
10		2.2	94.7
	586.05		
4205		2.0	84.0
200		7.6	78.4
180		7.6	78.4
160		7.4	78.6
140		7.2	78.8

Plotted.
x/18/33

	586.05	E 4260	
4120		6.3	579.7
100		5.6	80.4
080		4.8	81.2
060		5.1	80.9
040		5.1	80.9
020		4.8	81.2
4000		4.1	81.9 0.6?
		E 4240	
3980	Plotted 7/18/03	6.5	79.5
4000		5.6	80.4
020		5.1	80.9
40		4.7	81.3
60		4.9	81.1
80		4.8	81.2
100		4.6	81.4
20		5.5	80.5
40		6.7	79.3
60		6.9	79.1
80		7.4	78.6
95		6.9	79.1
205		1.3	84.7
	596.89		
10		2.7	94.2
20		2.2	94.7

		596.89	E 4220	
4220			3.0	593.9 ✓
08			3.6	93.3 ✓
		586.05		
4200			2.6	83.4 ✓
195			6.8	79.2 ✓
80			7.6	78.4 ✓
60			6.6	79.4 ✓
40	Plotted 4/18/33		6.2	79.8 ✓
20			5.2	80.8 ✓
100			5.2	80.8 ✓
090			4.4	81.6 ✓
078			+3.6	89.6 ✓
070			2.7	83.3 ✓
060			3.5	82.5 ✓
040			4.5	81.5 ✓
020			5.8	80.2 ✓
4000			6.8	79.2 ✓
3980			7.9	78.1 ✓
B.M.	5.01	585.01		580.00
			E 4200	
		596.89		
4220			3.4	93.5 ✓
4195			4.7	92.2 ✓
4186		585.01	2.9	82.1 ✓

End Apr. 15, 1933.

Apr. 17, 1933
Elliott
Simpson
Soper.

585.01

		E 4200	
4180		6.3	578.7
60		5.9	79.1
40		5.2	79.8
20		4.5	80.5
100		4.4	80.6
90		4.8	80.2
85		0.7	84.3
80		3.1	81.9
60		3.0	82.0
40		4.1	80.9
20		5.9	79.1
4000		6.9	78.1
3980		7.8	77.2

Plotted 4/18/33

		E 4180	
3980		8.2	76.8
4000		7.6	77.4
20		7.1	77.9
40		5.6	79.4
60		4.4	80.6
80		3.9	81.1
100		4.2	80.8
20		4.8	80.2
40		5.3	79.7
50		5.6	79.4

	585.01	E 4180	
4162		2.0	583.0 ✓
	596.89		
4171		4.5	92.4 ✓
4220		3.5	93.4 ✓
		E 4160	
4220		2.7	94.2 ✓
4165		3.0	93.9 ✓
4160		4.7	92.2 ✓
4149		5.1	91.8 ✓
4142	585.01	0.7	84.3 ✓
30		5.1	79.9 ✓
20		5.1	79.9 ✓
100		4.9	80.1 ✓
080		4.3	80.7 ✓
60		6.6	78.4 ✓
40		7.6	77.4 ✓
20		7.9	77.1 ✓
4000		9.0	76.0 ✓
3980		8.7	76.3 ✓
		E 4150	
3980		9.1	75.9 ✓
4000		9.0	76.0 ✓
20		8.2	76.8 ✓
40		8.1	76.9 ✓
60		6.9	78.1 ✓
80		5.7	79.3 ✓

Plotted 4/18/33

	585.01	E 4150	
4100		5.3	579.7
20		5.3	79.7
34		5.0	80.0
50		+7.7	92.7
70		4.4	80.6
90		+0.7	85.7
	596.89		
97		2.4	94.5
4220		2.8	94.1
		E 4140	
	585.01		
4220		2.2	82.8
200		3.9	81.1
180		4.7	80.3
60		5.5	79.5
40		5.1	79.9
20		5.5	79.5
100		5.6	79.4
080		6.3	78.7
60		7.6	77.4
40		8.2	76.8
20		8.7	76.3
4000		9.1	75.9
3980		9.4	75.6

Plotted 4/18/23

	585.01	E 4120	
3980		10.3	574.7 ✓
4000		9.8	75.2 ✓
20		9.7	75.3 ✓
40		9.1	75.9 ✓
60		8.5	76.5 ✓
80		9.3	75.7 ✓
95		9.3	75.7 ✓
105		6.1	78.9 ✓
20		6.0	79.0 ✓
40		6.1	78.9 ✓
60		6.0	79.0 ✓
80		5.9	79.1 ✓
200		4.7	80.3 ✓
20		3.3	81.7 ✓
		E 4100	
4220		4.0	81.0 ✓
200		4.6	80.4 ✓
180		5.2	79.8 ✓
60		5.6	79.4 ✓
40		6.6	78.4 ✓
30		6.9	78.1 ✓
20		10.2	74.8 ✓
100		10.7	74.3 ✓
085		10.3	74.7 ✓
80		8.4	76.6 ✓

Plotted 4/18/33

		585.01	E 4100	
4060			9.4	75.6
40			10.3	74.7
20			10.5	74.5
4000			11.0	74.0
3980			11.2	73.8
			E 4080	
3980			12.3	72.7
4000			11.6	73.4
20			10.3	74.7
40			9.3	75.7
60			9.8	75.2
80			9.2	75.8
100			7.9	77.1
05			11.2	73.8
20			11.4	73.6
40			11.5	73.5
60			12.1	72.9
70			8.8	76.2
			E 4060	
		Original Ground.		
T.P.	12.90	596.89	1.02	583.99
	12.59	608.88	0.60	596.29

Plotted 4/18/33

End Apr. 17, 1933

Item 3 X Sections for No. Estimate #12
May 1 - 1933

Stripping on South Abut.

B.M.	12.76	671.28		658.52
	8.92	679.80	0.40	670.88

✓ N3120 (N3115 is O.G For this section)

690.6

5020			O.G
5010		4.2	86.4
5000		2.8	87.8
4990		1.5	89.1
4990			O.G

✓ N3130 (For this section N3120 is O.G.)

679.80

5210			O.G
5200		1.5	78.3
190		1.5	78.3
180		2.4	77.4
5160		5.2	74.6
5140		6.8	73.0
5120		6.7	73.1
5110			O.G
↑ O.G ↓	690.6		
5030			O.G
5025		8.0	82.6

Elliott
Simpson
Soper
Remmen

		690.6	✓ N3130	
5010			9.7	80.9
5000			13.3	77.3
4993			7.1	83.5
4978			3.0	87.6
4970				0.G
		✓ N3140		
		679.80		
5225				0.G
20			7.2	72.6
5200			7.8	72.0
5180			7.7	72.1
60			8.8	71.0
40			10.9	68.9
	0.40	671.28	8.92	670.88
20			3.4	67.9
5110			1.6	69.7
5100 ↑				0.G
0.G		677.9		
5035 ↓				0.G.
30			3.6	74.3
20			6.9	71.0
5000			6.8	71.1

		677.9	✓N 3140		
4990			1,1	76.8	
	12.7	690.6	0.0	677.9	
4980			7.1	83.5	
75			6.0	84.6	
70				0.G	
			✓N 3150		
		671.28			
5180			+ 0,7	72.0	
60			0,4	70.9	
40			3,4	67.9	
20			5,7	65.6	
5105			7,6	63 7	
5100			6.2	65 1	
5090			2,4	68.9	
5080			2.8	68. 5	
70			+ 6,3	77.6	
60			+ 1.7	73. 0	
40			+ 4,6	75. 9	
	10.43	677 .92	3.79	667 .49	
30			9.8	68. 1	
5010			11, 9	66.0	
5000			11,3	66, 6	
4982			4.4	73.5	
80			0, 9	77.0	
70			+ 4.8	82.7	
70					0.G

	677.92	✓ N3160	
4965			0.G
4970		5.7	72.2
80		7.3	70.6
5000		13.0	64.9
20		12.4	65.5
40		11.3	66.6
60		10.6	67.3
	671.3		
80		7.4	63.9
5100		8.8	62.5
5120			0.G
		✓ N3170	
5170			0.G
5165		13.0	58.3
40		15.1	56.2
20		13.6	57.7
5100		11.7	59.6
5080		8.0	63.3
60		3.4	67.9
	677.9		
40		11.3	66.6
20		12.0	65.9
5000		13.0	64.9

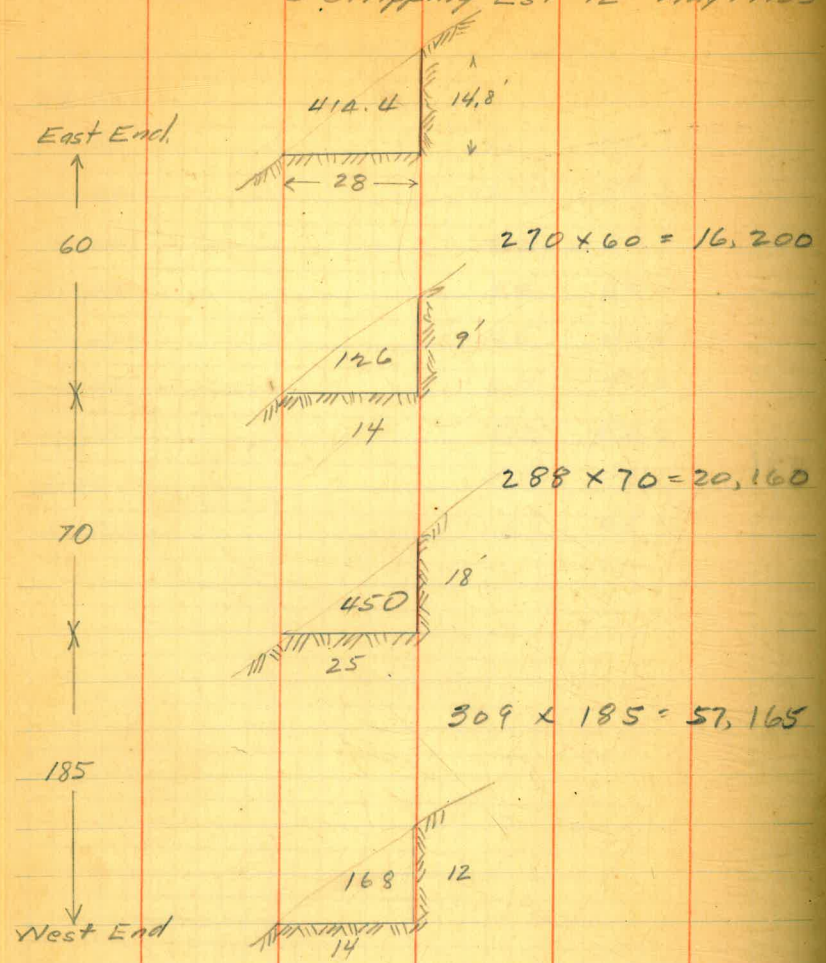
		677.9	✓N3170	
4980			12.6	65.3
60			3.4	74.5
55				O.G
			✓N3180	
4950				O.G
60			11.6	66.3
80			13.1	64.8
5000			12.7	65.2
20			11.8	66.1
40				O.G
		671.28		
T.P.	0.13	658.70	12.71	658.57
5100				O.G
5120			3.4	55.3
5140			7.4	51.3
5160			7.6	51.1
5180			9.6	49.1
5180	again			O.G.
			✓N3190	
5090				O.G.
5100			5.5	53.2
20			6.8	51.9
40			7.4	51.3
60			10.5	48.2
80			14.5	44.2

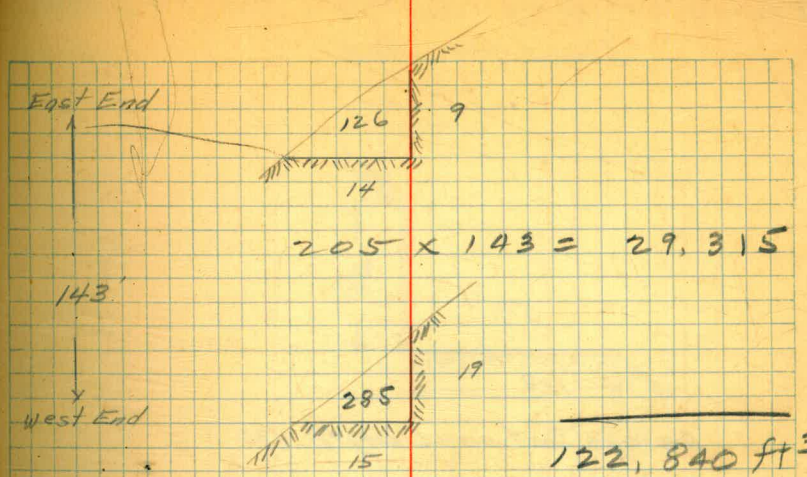
		658.70	✓N3190	
5195			15.7	43.0
5200				0.G
			✓N3200	
T.P.	1.73	647.37	13.06	645.64
5220				0.G
10			6.6	40.8
200			7.4	40.0
5180			4.0	43.4
60			0.1	47.3
40			1.8	45.6
20			2.7	44.7
5100			1.9	45.5
5080			+ 1.5	48.9
			✓N3210	
5080			2.4	45.0
5100			4.1	43.3
20			3.7	43.7
40			4.9	42.5
60			5.7	41.7
80			5.4	42.0
5200			8.2	39.2
5220			10.7	36.7
35				0.G
	0.30	635.03	12.64	634.73
			12.20	622.83

647.37 N3220

52 35		0.6
30	13.5	33.9
20	12.7	34.7
5200	10.5	36.9
5180	8.4	39.0
60	5.6	41.8
40	6.0	41.4
20	5.2	42.2
5100	4.3	43.1
5080	1.5	45.9

Construction Road on No. Abut.
Item 3 Stripping Est #12 May 1 1933





122,840 ft^3
= 4,550 C.Y.

Construction Road on No. abut.
Item 3 Stripping Est #14 - June 29 - 1933
About 700 Elev.

Average Section - Length 130'

54 X 130 = 7,020 ft³

= 260 Cubic Yards

Item 3 Stripping So. Abut.
For Est. #14 June 29-1933
Elliott-Simpson-Soper-Remmen

N3180 ✓

H.I. from Wall
671.5

5110	14.7	56.8
5090	10.1	61.4
5080	8.1	63.4
5060	7.0	64.5
5040	4.0	67.5
5020	5.7	65.8
5005	12.7	58.8
5003	17.3	54.2

N3160 ✓

5003	14.9	56.6
5006	11.8	59.7
5014	6.2	65.3
5020	5.1	66.4
5040	4.9	66.6
5060	4.5	67.0
5080	7.7	63.8
5100	9.0	62.5
5120	6.1	65.4
5140	3.4	68.1

N3150 ✓

5220			0.G
5200	+1.3	72.8	
5180	+0.8	72.3	

N3150 ✓

671.5

5160	0.3	71.2
5140	3.3	68.2
5120	5.7	65.8
5100	7.9	63.6
5085	+0.4	71.9
5070		0.G.
↑ 0.G Here to Here ↓		
5035		0.G
5030	4.9	66.6
5012	6.1	65.4
5003	14.2	57.3

N3140 ✓

5003	10.2	61.3
5010	3.7	67.8
5020	2.1	69.4
5030	+0.2	71.7
5035		0.G
↑ 0.G Here To Here ↓		
5100		0.G
5110	1.6	69.9
5120	4.8	66.7
5140	3.0	68.5
5160	0.1	71.4
5180	+0.9	72.4

N3140 ✓

671.5

5200	+1.8	73.3
5220	+2.1	73.6
5230		O.G.

N3130 ✓

5220		O.G.
5180	+5.0	76.5
5160	+3.9	75.4
5140	+1.5	73.0
5120	+2.0	73.5
5110		O.G.
O.G ↑ Here		
To Here		
↓ 5035		O.G.
5028	+10.6	82.1
5020	+7.0	78.5
5010	+6.6	78.1
5003	3.0	74.5

(N3120 is O.G. for N3130)

N3220 ✓

H.I. from Wolff 666.5

4960	14.8	51.7
50	12.2	54.3
4940		O.G

N3200 ✓

4960	4.3	62.2
4940	4.5	62.0
4920	+0.2	66.7
4915		O.G.

N3180 ✓

4997	15.5	51.0
93	9.2	57.3
80	3.4	63.1
60	1.0	65.5
40	+8.8	75.3
4930		O.G.

N3160 ✓

New H.I 671.0

4997	13.2	57.8
94	7.1	63.9
80	5.3	65.7
73	0.5	70.5
4965		O.G

N3150 ✓

671.0

4997		11.3	59.7	
95		7.5	63.5	
83		2.3	68.7	
	686.0			
78		8.2	77.8	
73		5.8	80.2	
70				O.G.

N3140 ✓

671.0

4997		8.9	62.1	
94		3.5	67.5	
	686.0			
90		9.5	76.5	
80		4.1	81.9	
75		2.8	83.2	
70				O.G.

N3130 ✓

671.0

4997		5.0	66.0	
	686.0			
94		5.3	80.7	
80		+1.4	87.4	
4975				O.G.

(N3120 is O.G. for 3130)

Typical Section of Hyd. fill
for Est. #14 - July 1 - 1933
Elliott-Soper-Remmen
N3620

650.3

5220	2.6	47.7	
5200	2.3	48.0	
5186	12.4	37.9	
5069		629.4	W.S

plotted July 3.
F.O. & R.E.L.

4928		629.4	W.S
4790	9.9	40.4	
4780	2.4	47.9	
4760	2.4	47.9	

X sections for Est 15
July 31 - 1933

		685.90	✓N 3130	
5003			10.0	75.9
20			8.5	77.4
T.P.	11.24	696.98	0.16	685.74
35			7.8	89.2
50			10.8	86.2
		685.9		
60			0,5	85.4
80			3.1	82.8
5100			6.8	79.1
20			9.4	76.5
40			9.0	76.9
60			8.8	77.1
80			7.1	78.8
5200			10.4	75.5
20			12.7.	73.2
40			0.9.	
		696.98	✓N 3110	
5170			0.6	
60			12.3	84.7
40			9.6	87.4
20			5.6	91.4
5100			2.5	94.5
T.P			0.98	696.00
	12.43	708.43 ✓		

	708.43	✓ N 3110	
5080		13.8	94.6
60		12.6	95.8
50		12.0	96.4
30		5.6	02.8
20		12.1	96.3
15		11.0	97.4
		✓ N 3100	
5020		3.9	04.5
40		1.2	07.2
60		4.5	03.9
80		9.2	99.2
5100		12.9	95.5
20		16.7	91.7
40		20.0	88.4
57		0.G.	
		✓ N 3090	
5110		0.G	
100		11.8	96.6
80		8.7	99.7
60		4.7	03.7
40		0.8	07.6
20		0.2	08.2
15		2.2	06.2

		708.43	✓N3080	
5010			0.1	08.3
20			+0.6	09.0
30			0.G	
			✓N3070	
5010			+4.8	13.2
20			+5.4	13.8
30			0.G.	
			✓N3060	
5020			0.G	
5010			+8.4	16.8
4990			+9.6	18.0
4980			0.G.	
T.P.	9.02	✓713.43	4.02	704.41
			N3060 also	
5020			0.G	
5010			0.G	
5000			0.G	
4990			0.G	
4980			0.G	
			✓N3070	
4990			0.4	713.0
80			+2.2	15.6
4980 also			0.G	

713.43

	✓N3080	
4990	4.4	709.0
82	2.2	11.2
78.	0.6	
	✓N3090	
4990	7.2	06.2
80	4.5	08.9
60	4.1	09.3
40	0.6	

Xsections of upstream spoil
Arco Fox Est. #15 — Aug 3 - 1933

B.M.	14.22	709.82	695.60	

N3940 is O.G.

N3920

6162		16.5	693.3	O.G
6175		8.9	700.9	
6245		4.8	05.0	
6260				O.G

N3900

6285				O.G
6255		2.4	07.4	
6195		5.9	03.9	
6150				O.G

N3880

6150				O.G
6220		3.7	06.1	
6280		1.4	08.4	
6314				O.G

N3860

6350				O.G.
6310		1.6	08.2	
6260		2.0	707.8	
6228		12.0	697.8	
6152				O.G

709.82

6162			
6245			
6295			
6345			
6367			

New H.I. →

6170			
6290			
6340			
B.M.	4.41	697.71	
6365			
6400			

N3840

			O.G
20.3		689.5	
2.8		707.0	
1.8		08.0	
			O.G

N3820

			O.G
10.3		699.5	
1.6		708.2	
	693.30		
4.5		693.2	
			O.G

N3800

6173			O.G.
6293		19.0	78.7
6345		4.1	93.6
6382		4.7	93.0
6395			O.G.

N3780

6165			O.G
6360		9.8	87.9
6390		5.7	92.0
6420			O.G

6420

697.71

New H.I.

✓N3760

T.P.	1.11	686.91	11.91	685.80	
6235					O.G
6320			28.0	58.9	
6340			19.0	67.9	
6380			10.9	76.0	
6420					O.G

✓N3740

B.M.	8.47	664.96		656.49	
6272					O.G.
6340			11.4	53.5	
6410					O.G

N3720 is O.G.

Typical Section of Hydraulic Fill For Monthly est. #16
Sept. 1-1933

B.M.	0.00	682.00		682.00	
			N 3620		
E 5170			4.8	677.2	
5145			4.8	677.2	
5135			12.8	669.2	
5075				665.0	W.S.
5053				659.0	
5050				658.0	
				654.0	
5000	5000				
4938				665.0	W.S.
4900			15.0	667.0	
4850			11.3	670.7	
4840			5.9	676.1	
4820			6.0	676.0	

Typical Section of upstream Rock Embankment for est. #16 - Sept. 1-1933

	0.0	681.2		681.2	
			N 3740		
5180			4.2	677.0	
5200			4.2	677.0	
5225			19.4	661.8	662
5240				662.0	

Typical Section of Hydraulic Fill And Rock Emb. For Est. #18:

687.50

N3620

5120	+13.0	00.5	
5105	+13.0	00.5	= Shoulder
5080	5.0	82.5	= Toe of
5060	5.6	81.9	
5058	7.3	80.2	= W.S.
	680.2		
49	3.6	76.6	
46	5.3	74.9	
40	6.4	73.8	
30	7.6	72.6	
20	8.9	71.3	
10	9.9	70.3	
5000	9.4	70.8	
4990	8.4	71.8	
80	8.0	72.2	
70	7.4	72.8	
60	5.8	74.4	
57	5.0	75.2	
53	2.8	77.4	
	687.50		
48	7.3	80.2	
44	5.8	81.7	

Rock South to N3320 Elev. 700 N3310 = toe

of Blanket

Blanket, No Blanket South of N3490

	687.50			
4910		4.3	83.2	
4890		3.6	83.9	
80		2.3	85.2	
72		+2.6	90.1	= Toe of Rock Lift.
60		+11.6	99.1	= Shoulder of Rock Lift.
34		+11.1	98.6	
4812			688.0	= Finished Rock.

Cross-sections of stripping on North abutment, both sides of core wall, for Monthly Est. #18

B.M.	7.70	710.29		702.59
			N4020 ✓	
4960			O.G.	
70			2.5	07.8
84			5.8	04.5
92			12.1	98.2
95			17.0	93.3
97			19.8	90.5
	10.21	712.80		702.59
5003			20.7	92.1
10			21.4	91.4
20			20.2	92.6
		710.29	N4030 ✓	
4965			O.G.	
75			1.6	08.7
80			4.0	06.3
90			6.7	03.6
95			8.6	01.7
4997			15.1	95.2
		712.80		
5003			17.8	95.0

712.80 N4030 ✓

5010	17.4	95.4
20	15.3	97.5

710.29 N4040 ✓

4975	O.G.	
85	3.1	07.2
90	4.2	06.1
97	8.1	02.2
712.80		
5003	13.9	98.9
06	11.0	01.8
10	6.4	06.4
15	5.0	07.8
25	4.9	07.9

N4050 ✓

710.29

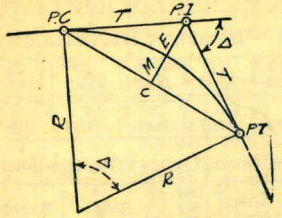
4978	O.G.	
86	0.0	10.3
95	4.9	05.4
97	7.9	02.4
712.80		
5003	10.1	02.7
05	9.1	03.7
10	5.3	07.5
20	5.4	07.4
30	5.3	07.5

		710.29	N4060 ✓	
4980			O.G.	
92			2.2	08.1
97			4.7	05.6
5003		712.80	7.1	05.7
10			5.4	07.4
20			5.3	07.5
30			5.5	07.3
T.P.	9.0	716.2	3.1	707.2
			N4070 ✓	
4983			O.G.	
89			0.0	16.2
96			8.0	08.2
97			10.5	05.7
5003		712.80	7.0	05.8
07			5.4	07.4
11			3.8	09.0
20			2.6	10.2
30			3.1	09.7
		716.2	N4080 ✓	
4987			O.G.	
93			+9.5	25.7
97			6.0	10.2
5003		712.80	6.4	06.4
06			3.8	09.0
10			3.2	09.6
15			+3.0	15.8
5025			O.G.	

	726.4	N4090 ✓	
4985		O.G.	
95		+7.6	34.0
98		+0.6	27.0
5000		0.0	26.4
07		0.0	26.4
13		+3.5	29.9
17		O.G.	

N4100 is O.G.

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES



CURVE FORMULAS

Radius=R=$\frac{50}{\text{sin. } D/2}$ (1) Degree of Curve=D and sin. $\frac{D}{2}=\frac{50}{R}$ (2)

Tangent=T=Rtan$\frac{\Delta}{2}$ (3) Length of Curve=L=100$\frac{\Delta}{D}$ (4)

Middle ordinate=M= R(1—cos. $\frac{\Delta}{2}$) (5) =Rvers $\frac{\Delta}{2}$ (6)

External=E=Ttan$\frac{\Delta}{4}$- (7) =R÷cos.$\frac{\Delta}{2}$—R (8)=Rexsec$\frac{\Delta}{2}$ (9)

Long Chord=C=2 R sin.$\frac{\Delta}{2}$ (10) Δ=Central Angle

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T. Δ=62° 10′ D=8° 20′. From Table IV for 1° curve T=3454.1 and÷8⅓=414.49 ft. From Table V correction=.36 or T=414.85 ft. P. C.=Sta. P.I.—T=157+45.50. Also from (4) L=746.00 and P. T.=Sta. P. C.+L=164+91.50.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft.=7.27 ft. Distance=158—Sta. P. C.=54.50, hence offset=7.27 (54.50÷100)²=2.16 ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus (54.50)²÷(2 x 688.26)=2.16 ft.

Deflections.—Deflection angle=½ D for 100 ft., ¼ D for 50 ft., etc. For c ft.=(in minutes) .3 x C x D° or=defl. for 1 ft. from Table III x C. For Sta. 158 of above curve=.3 x 54.5 x 8⅓=136.2′ or 2° 16.2′, or=2.50 x 54.5=136.2′ from Table III. For Sta. 159 deflection angle=2° 16.2′+8° 20′÷2=6° 26.2′, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve E=960.6 for 8° 20′=960.6÷8⅓=91.27 and from Table V correction=.10 or E=91.37 ft. Or suppose Δ=32° and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and÷42=5.5 or D=5° 30′.

5415.67
75
5490.7

B.M. 603.13

609.53
12.58
596.95
.38
597.33

60

575.0
11.42
586.42

575.00
9.98
584.98

575.0
4.90
579.90
- 0.18
579.72
10.70
590.4

600.78
8.45
609.18

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	25.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9 + (20—16) ÷ 2 or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.

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