

W 22

MENTAL BOOK

400



# H. S. CROCKER COMPANY

DRAWING MATERIALS AND  
SURVEYING INSTRUMENTS

SAN FRANCISCO

## TABLES FOR EXCAVATIONS AND EMBANKMENTS

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING

Roadway 18 Feet Wide. Side Slopes 1 to 1.  
For Single Track Excavation.

"Copyright, 1895, by Kueffel & Esser Co."

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

Calculated by Julien A. Hall, M. Am. Soc. C. E.

MICROFILMED  
JAN 6 1965

CS

Level Book B.  
So Cal Mt Water Co.  
Induit Run.  
Dulzina to Otay  
Oct 12 07  
Nov 22 07  
R Wueste

FROM  
LORING'S BOOK STORE  
SAN DIEGO, CAL.

TA

0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36

MICROFILMED

Index  
Sta. 847 - 1129 + 50  
Seeds for Cavit # 4

1-75

76-79



Location	Subs	Continued from Book #2	Grade +40	10-1-207	Went water table
847	309 1441.45	143836	45		= last T.P. on Rk at 846+72
		3.55	1/2 hour	1437.90	Water table (cloudy)
<u>On 70</u>		4.25		1437.165	T.P. on Rk 5' ± 847+22
+49		3.60		37.85	
848		3.65	1/2 hour	37.80	
	7.14 1446.685	1905 1439.545	95	90	
+50		8.94		37.75	
849		8.99		37.70	Rock
+50		9.04	1/2 hour	37.65	Gravel
0	4.705 1442.345	9.045 1437.621	105	50	
850		4.75		37.60	
	14.935	10.950			



2.

1442.345

850 + 55

4.80

Low

Grade + 4.0

1437.55

851

4.85

37.50

0

536

1440.805

690

1435.445

65

70

+ 50

3.36

37.45

852

3.71

37.40

+ 50.6

3.46

37.35

+ 88

3.50

37.31

0

11.195

1448.50

3.50

1437.305

45

105

Count + Rock  
= Sta 857 + 88

853 + 32

11.505

1459.895

0.11

1448.39

15

+ 11.1

37.27

+ 47

7.7

52.2

+ 14.9

37.25

wt no 3

28.060

10.51

3.

1459.895  
 853 + 74 11.24 1470.385 0.85 1459.045

854 + 16 11.615 1481.24 0.66 1469.625

+ 38 11.33 1492.935 0.14 1481.10

+ 80 11.905 1503.73 0.61 1491.825

855 + 29 10.955 1514.485 0.20 1503.53

+ 46 10.72 1524.67 0.53 1513.95

+ 62 11.22 1535.40 0.49 1524.18

+ 82 11.38 1546.62 0.16 1535.24

856 + 04 10.60 1557.08 0.14 1546.48

1009.70

3.715

350335

75

30

15

15

22

8

40

20

80

30

10

25

30

10

75

10

10

10

10



	1557.08		
856 +23	1198 1568.17	089	1568.19
+40	1192 1578.315	1775	1566.395
+61	1066 1589.725	075	1578.065
+78	1074 1599.04	0425	1588.30
+98	1099 1609.85	0545	1598.495
857 +19	1185 1620.18	049	1608.995
+40	11325 1630.795	071	1619.47
+59	1151 1641.49	0815	1629.98
+81	11525 1652.60	0515	1640.975
	101.835	6415	

527 493

10 15

10 10

15 10

15 15

20 20

15 10

20 10

13 7

10 15

5.

858 +09 9.00 1652.50  
1661.275 0725 1652.275

+71 22 1659.1

859 +11 0.51 1650.395  
1139 1649.885

+48 0.505 1639.41  
1149 1639.905

+81 0.52 1678.485  
1144 1679.65

860 +15 0.13 1617.22  
1137 1617.11

+48 0.825 1606.625  
1148 1605.79

+78 0.90 1596.09  
1148 1595.19

861 +14 0.78 1585.34  
1153 1584.56

13.160 80.320

655 605

80 25

1659.1

10 25

10 25

15 25

15 20

10 20

10 20

10 25

= First Summit

Commenced 10-25-07

Waste

Water

Salt

Water

Waste

(cloudy)



6.				815	790	
		158534				
861 + 49	020	1574.09	1126	1573.88	20	25
862 + 15			102	15639		= Bottom of Ravine
+ 53	1078	1584.145	0715	1573.365	40	90
863 + 20	1110	1594.42	0825	1593.32	-50	25
864 + 14	470	1598.215	0905	1593.515	130	40
+ 77			13	15969		= Divide Bed Sulphur and lead later Drainage
866 + 42	0925	1587.66	1148	1586.735	40	100
867 + 25	1165	1577.50	11325	1576.335	25	45
+ 80	102	1566.635	1189	1565.61	25	25
	29205		49.600			

7.

1566.635

868 +24 0.40 1555.50 1153 1555.10

+66 0.545 1525.065 1098 1544.52

869 +03 0.835 1533.92 1198 1533.085

+34 1.705 1524.565 1106 1522.86

+72 0.67 1513.735 1150 1513.065

890 +02 0.835 1503.14 1153 1502.205

+36 0.345 1492.35 1135 1492.005

+67 0.905 1481.865 1139 1480.96

871 +09 0.715 1471.63 1095 1470.915  
7.055 102.06011451140

20 20

20 20

15 20

15 30

10 25

10 20

15 20

20 15

20 25 143549  
+354



8  
1471.63  
871 +43 169 1462.06 1126 1460.37

+94 089 1451.74 1121 1450.85

872 +79 3635 1444.585 1109 1440.65

Bm 72

+50

873

+50

874

+50

6.215

33.56

1290 1325

Grade +40

25 20 +24.9 14 3546

25 25 +15.5 3547

105 25 +5.3 3537

Prm Rk 20' LI 872+71

65 = 1437.95 By levels in back of Book #2

6345 1437.94

76 36.7 +1.3 3536

899 3530

904 3575

909 know 3520

Grant

914 know 3515

9.

1444.75

1345

1395

874 +95

919

Grade +4.0

1435.10 = waterway

875 +16

= stake in waterway

+50

924 Grade

possible entrance of a possible tunnel through flat-iron hill

876

929 1/2 low

3500

932 1444.31 9795 1434.99

130 160

+50

936 1 low

3495

877

941 1 low

3490

+50

946 2 low

3485

bank

878

951 1/2 low

3480

955 1444.75 9515 1434.95

115 70

+50

1000

3475

19.275

18.810



10.

1444.75

879

+50

880

0

865 1443.46

10.15 1434.595

+50

881 + 07

+57

882

+34

+50

865

10.15

10.05

10.10

10.15

891

897

902

9.06

9.11

1590

1625

1/2 low

90

85

1 low

1/2 low

Grade +4.0

1434.70

3465

3460

3455

3449

3444

3440

3435

in gulch

cut

= stake in gulch

11.

1443.46

883

9.6

o 893 1443.23 916 1434.30  
+50

1680

17.0

Grade +4.0

1434.30

65 1.10

898

34.25

884

9.03

34.20

+50

9.08

34.15

o 428 1438.43 908 1434.15

60 80

885

4.33

34.10

+50

4.38

34.05

o 965 1443.70 438 1434.05

85 40

886

9.70

34.00

+16

= Stake in sharp angled waterway

+50

9.75

33.95

22.86

22.62

12.

1443.70

o

10.80

1444.75

9.75

1433.95

887

10.85

+50

10.90

888

10.95

+50

11.00

o

10.75

1444.525

11.00

1433.75

889

10.83

+50

10.88

140.5

890

10.93

+50

10.98

21.575

50.75

1890

1940

95

15

Grade + 40

1433.40

33.8

33.85

33.75

180

105

33.70

33.65

33.60

33.55

Commenced 196+50

10-26-'07

White  
Waterman  
Lafayette  
Dutton  
Webb

(clear)

Book

Book

Book



13.

1444.525

891

1153

1084 1444.335 1153 1433.495

+50

1089

892

1094

+16

+50

1099

893

1104

1/2 low

+50

1109

894

1114

1 Low

478 1437.965 1115 1433.185

+50

482

7165

7060

Grade +40

1433.50

170

80

3345

3340

= state in gallery

3335

3330

North

3325

3320

75

90

3315

1562

2218

14.

1437.965

895

+50

4.87

1/2 hour

Grade +4.0

1438.10

4.92

33.05

896

0

883 1441.125

497 1432.995

4.97

1.80

135

33.00

+50

8.88

32.95

897

+50

8.93

1 hour

32.90

8.98

32.85

tearth

898

+50

9.03

1/2 hour

32.80

9.08

32.75

899

883

497

9.13

32.70

1410 2130

15.

144.825

3.81

1436.505

9.19

1432.695

999 +50

366

900

391

1 1/2 hours

326

+50

391

Grade

3258

Oak to grade

Om 73

4635

1431.87

o

2.425

1433.375

5.555

1430.95

20

110

901

488

1 hour

3250

o

5.4

1437.35

1.433

1431.94

25

20

+40

489

3246

Through small

902

495

3740

+50

520

3230

o

11.36

1443.71

5.00

1432.35

95

105

23.005

21.120

2590

2365

Grade +40

80

110

1432.65

3' PE

900 + 46



16.

1443.71

903

+544

904

+50

0

1006 1442.205

11.565 1432.145

905

+50

906

+50

907

1006

11.565

1141

1146

1151

1156

1011

1016

1021

1026

1031

7812

7720

Grade +4.0

1432.30

3225

3220

3215

3210

3205

3200

3195

3190

Low

Low

130

80

Low

South of Snow Rock

	1442.205	1031	1431.895	2940	2800	Grade + 4.0
17.						
0	9.655	1441.55		175	115	
907 +50				970		1431.85
908				975	1/2 hour	31.80
+50				980		31.75 ~
909				985	1/2 hour	31.70
+50				990		31.65
0	1.04	1442.69	990	170	120	31.60
910			1431.65	1109		31.55
+50				1114	1/2 hour	31.50
911				1119		31.50
	20.695		20.31			

Lenth & Rock

18.

911 +50

1442.69

+96

912 +11

+27

B9m 74

+50

913

+50

914

1124

1129

1189

1132

781

1134

1129

1144

1149

~~3235~~ 3035

Grade in

1431.45

3140 <sup>R</sup> Flum begin

23.9 -7.5

3137 Flum end

Prm Tk 35 h<sup>t</sup> 912 +11

3135

3130

3125

3120

Small Rock



19.

1442.69

914 +50

11.54

3735

3055

Grade +4.0

143.15

915

11.59

1 hour

31.10

0

11425 1442.515

11.60

1431.09

1.60

240

+50

11.47

31.05

916

11.52

31.00

+20

11.54

1/2 hour

30.98

cut begin

+50

7.2

36.3 + 4.3

30.95

cut

917

1.6

40.9 + 1.0

30.90

+10

1.2

41.3 + 1.04

= dinner

+50

1.9

40.6 + 9.7

30.8

11425

11.60



21.

1435.545

470 1434.745 550 1430.045

922 +50

440

923

445 1 low

+50

450 1/2 low

924

455

1037 1440.565 455 1430.195

150 95

+50

1042

925

1047 1 low

+50

1052

926 +11

1058

Bm 75

032 1440.245

1507

1005

3525 3160

Grade +50

80 760

1430.35

3030

3025

3020

3015

3010

3005

3000

Rock  
Earth

= Point in waterway  
11m RR 15' L ± 926 +11



22.

1440.565

926 +50

10.62

927

10.67

+50

10.72

0

3.71

1433.565

10.72 1429.845

+95

3.76

1/2 low.

928 +23

+50

3.81

grad

929 +10

3.87

1/2 low

+50

3.91

1/2 low

930

3.96

3.71

10.72

3755

3815

grad + 1.0

1479.95

29.90

29.85

145

150

29.85

= bath in bend of hall

29.75

Rock

29.69

Gravel

29.65

29.60

23

1433.555

394

1433.535

396

1429.595

930 + 50

399

1 1/2 low

1429.55

931

404

2950

+ 50

4.09

1 low

2945

932

414

2940

+ 50

11.51

1440.905

414

1429.395

180

55

2935

933 + 11

11.62

2929

Back  
in  
end  
of  
hill

+ 50

11.66

2925

934

11.71

1/4 low

2920

15.45

8.10

3900

3965

Grade 17.0

145

105

24.

1440.905

4225 4125

934 +50

1176

Grade + 4.0  
1429.155

935

1181

2410

0 4.82 1433.915 11.81 1429.095

65 100

+50

4.57

8 low

2905

936

492

2400

0 4.65 1433.645 497 1428.995

60 35

+50

4.70

1 low

2895

BM 76

687

1426.775

Pr on RR 15' 9" = 936 + 80

937

475

2890

0 4.795 1433.49 495 1428.695

20 55

+41

4.63

1 high

2886

low

938

4.69

1 1/2 low

2880

14.265

21.65



25.				
	1433.49			
938 +50	344 1432.52	441 1479.08	3.77	
939			3.92	
939 +50	394 1432.63	393 1428.69	3.98	
940			4.02	
+50			4.08	
941	404 1432.62	408 1428.55	4.12	
+46			4.17	
942			4.22	
	11.45	12.32		

4370	4315	Continued 940+50
		10-29-07
30	30	Grade+40
		1428.75
1 hour		2870
70	45	2865
		2860
		2855
65	75	2850
		2845
		2840

Wash  
Water  
Saker  
Walt  
Dalton  
with

Earth and Rock

26.

143262

948 + 50

427

o

421 143263 427 142835

943

433

+50

438

1/2 hour

+99

443

1 1/2 hour

944 + 50

445

945

453

1 1/2 hour

+50

458

o

414 143219 458 142805

946

419

1 1/2 hour

+55

424

1/2 hour

142

8.85

4535 4465

Grade + 4.0

142835

130

130

2830

2825

2820

2815

2810

2805

2800

2795

Count - 1/2 inch slopes

100

175

27.

1432.19

Bm 77

o

4.825 1432.77

4245 1427.45

947

+50

o

5.865 1432.805

5.83 1426.94

948

+50

949

+50

950 +05

+60

10.690

10.075

4765 4110

8.075

1424.115

40

10

4.87

1427.90

4.92

1 hour

65

85

5.01

5.06

1 hour

5.11

1/2 hour

5.16

1 hour

5.21

5.27

1/2 hour

Grad +4.0

Pr on Rk

9' RT

946 +55

Commenced 946 +55

11-4-07.

Wrest  
Waterman  
2a Rue  
with  
Webb

27.75

Rock

27.70

South and

27.65

27.60

In sharp gulch

27.54



28.

1432.805

4870 4865

951

531

Grade + 40

1427.50

+50

536

27.45

952

541

27.40

+50

546

27.35

o

3965 1430.81

546

1427.245

60

230

953

551

1/2 hour

27.30

+50

556

27.25

o

430 1431.55

556

1427.25

2nd

40

954

435

27.20

Grade deeper

+50

440

1 1/2 hour

27.15

955

445

1 hour

27.10

7765

9.03

29.

1431.55

5135

5135

955 + 55

450

Grade + 4.0  
1427.05

956

455  $\frac{3}{4}$  hour

27.00

+ 50

460

2695

0

340 1430.35 460 1426.95

90

100

957

346

2690

+ 50

351

1 hour

2685

958

356

1 hour

2680

0

560 1432.45 357 1426.75

80

60

+ 50

570

2675

South and Rock

959

570

2670

Bm 78

951 1422.94

Pr on Rk 7.9 = 958 + 60

9.70

8.17

30.

143245

53 05 5295

Grade +40

959 +50 4.00 1430.79 566 1426.79 4.14

160 60

1426.65

960 4.19

1 hour

2660

+50 4.24

1 hour

2655

961 4.29

2650

+50 4.34

2645

438 1431.825 334 1427.445

85 130

962 +05 5.44

2639

338 1430.83 438 1427.445

35 75

+50 4.48

1 hour

2635

963 4.53

1 hour

2630

548 1431.775 454 1426.29

55 40

17250

17925

South and South Rock



31.

1431.775

5580

5550

963 +50

553

Grade +40

142625

964

558

2 1/2 hours

2620

+50

563

2615

o

631 1432.36

563 1426.145

65

95

965

626

2610

+51

631

2605

o

439 1430.44

631 1426.5

90

40

966 +01

444

2600

+50

449

2595

967

454

2590

+50

459

2585

10.605

11.94

South and Sledge Rock

32.

1430.44

490.5 1430.755 4.59 1425.85

967 + 88

495

1 hour

1420.81

968 + 50

501

1/2 hour

2575

+63

969

506

2570

+50

511

2566

Bm 79

6.43 1430.09 7.10 1423.655

140

190

State in base of hill

North and George Rock

Prank 10 P.I. 969 + 74

970

449

2560

+50

454

2555

11.340

11.69

5735 5685

Grade + 40

30

115

33.

1430.09

971

4.59

1 hour

Grade + 4.2

1425.50

Common col 972 + 59

11-6-07

Wrest  
Waterman  
Sa. Pm.  
Walt  
Witte

+ 50

4.64

1/2 hour

25.45

o

4.79 1430.69

4.19 1425.90

4.0

55

972 + 14

5.30

25.39

+ 59

5.35

1 1/2 hour

25.34

Thru begin (a cross-brain d.)  
cedar creek

o

2.875 1429.55

4.0.5 1426.675

15

60

973 + 05

1.33

1.63

- 9.0

25.30

(-5.0)

+ 29

4.21

0.1 high

25.27

Thru End

o

11.04 1436.41

4.18 1425.37

10

55

Bm 80

9.995

1426.415

Pr on Pt 4.1 Pt

973 + 29

+ 53

11.40 1447.62

0.19 1436.22

10

+ 10.9

25.25

+ 71

11.02 1458.30

0.34 1447.28

10

+ 2.21

25.23

41.125

12.915



34.

1458.30

973 +90 11.495 1469.67 0.125 1458.175

974 +09 11.905 1481.38 0.195 1469.475

+29 11.99 1493.115 0.255 1481.125

+49 11.485 1504.31 0.29 1492.825

+68 11.77 1515.75 0.33 1503.98

+87 11.35 1527.38 0.205 1515.545

975 +10 11.355 1538.385 0.35 1527.03

+30 11.435 1549.46 0.36 1538.025

+49 11.31 1560.47 0.30 1549.16

104.380

2.410

5990 6175

10 10

10 5

10 10

10 10

10 5

10 5

10 10

10 10

10 5

		156.07	
975	+70	11.955 1572.26	0.165 156.305
	+91	11.105 1582.78	0.58 1571.64
976	+11	11.645 1594.19	0.24 1582.545
	+29	10.97 1604.97	0.19 1594.00
	+47	11.71 1616.57	0.11 1604.86
	+66	11.45 1627.34	0.68 1615.89
	+86	11.295 1638.485	0.15 1627.19
977	+05	11.79 1649.595	0.68 1637.865
	+25	11.645 1661.15	0.09 1649.505
		103.565	2.885

10	5
10	5
10	10
10	5
10	10
10	5
10	10
10	5
10	10

Commenced 11-7-07  
 Wm. W. W. W.  
 Wm. W. W. W.  
 Wm. W. W. W.

36.

1661.15

977 +45 11.645 1672.28 0.55 1660.635

+65 11.65 1683.49 0.44 1671.84

+86 11.995 1694.89 0.595 1682.895

978 +23 11.675 1705.995 0.57 1694.32

+70 11.49 1717.085 0.35 1705.635

979 +16 11.545 1728.73 0.20 1716.85

+72 11.02 1739.47 0.28 1728.45

980 +19 11.275 1750.395 0.35 1739.12

+55 11.745 1761.57 0.57 1749.825

104.290

3.870

6170

6310

10

5

10

10

20

5

30

15

20

15

35

20

30

15

25

15

20

15



37

980 + 91 1129 1772.75 0.11 1761.46

981 + 24 11835 1754.02 0.58 1772.165

+ 73 11335 1795.065 0.29 1783.73

982 + 21 11255 1806.155 0.165 1794.90

+ 68 914 1814.715 0.58 1805.575

983 + 51 4.6

984 + 25 0.115 1803.895 11.635 1803.08

+ 95 0.515 1792.91 11.50 1792.395

986 + 24 1.25 1782.885 11.305 1781.605

574.85

36.170

63 70 6425

25 10 5 3

30 10 2

25 15

30 20 5

75 15

1810.1 + 3858 1424.75 = summit

20 85

55 50

25 80

38.

1782.885

986 + 71 0.805 1772.415 11.275 1771.61

+94 0.49 1761.455 11.45 1760.965

987 + 13 0.68 1751.115 11.02 1750.435

+30 0.545 1740.99 10.67 1740.445

+43 0.87 1730.925 10.935 1730.055

+61 1.215 1720.625 11.515 1719.41

+75 0.675 1709.57 11.73 1708.895

+90 1.09 1699.57 11.09 1698.48

988 + 06 0.915 1688.78 11.705 1687.865  
7.285 101.390

6655

6710

10 20

5 15

5 10

10 10

5 15

10 15

5 10

10 10

15 15

5

5

1

1

0

1

39.

		1688.78		
988	+23	0.28 1677.345	11.715	1677.065
	+40	1.79 1667.71	11.425	1665.92
	+53	0.525 1656.76	11.975	1656.235
	+68	0.245 1645.785	11.82	1645.54
	+83	2.03 1637.06	10.755	1635.03
	+94	2.00 1629.335	9.725	1627.335
989	+07	0.25 1619.19	10.395	1618.94
	+20	1.19 1609.21	11.17	1608.02
	+33	0.06 1598.345	10.935	1598.28
		8.375	98.810	

6730

6830

10 15

10 15

10 15

10 10

10 10

20 15

10 20

15 15

20 15



40.

1598.345			
989 + 46	136	1588.62	11085 1587.26
+64	082	1579.605	4.835 1578.785
+71	125	1569.755	11.015 1568.505
+92	000	1558.545	11.215 1558.34
990 + 09	149	1548.62	11.42 1547.125
+32	0.83	1537.705	11.79 1536.83
+49	0.6	1526.755	11.11 1526.595
+71	0.245	1515.325	11.675 1515.08
991 + 07	124	1505.265	11.30 1504.025
7450			100.530

6845

6960

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

Commenced 990 + 49

11-8-07.5

Waste  
Water  
Salt  
well  
with

41.

	1505265	
991 + 21	112 1494565	1182 1493945
+ 36	047 148356	11475 1483.09
+ 61	025 147220	11615 1471945
+ 84	0315 1460605	1191 146029
992 + 02	138 1451.01	1095 1449.63
<u>    </u> + <u>22</u>	0895 144074	11165 1439845
	2995 1433.83	9905 1430835

Bm 81

+42

7430      7885

6975	7060	Grade + 4.0
10	10	
10	10	
10	15	
10	10	
10	15	
10	<sup>10</sup> +16.4	142338
10	<sup>15</sup> (1430.78)	= Pr m Pr by levels page 76
9.69	1424.14	= Pr m Pr 17.17 + 992 + 42
1048		23.35

42.

1433.83

7045

7145

continued 996+00

993

1053

1 1/2 hours

grade +40

" - 9-07

o  
+50

6:25 1428.23

11:25 1422.105

25

60

142350

Waste  
Wastona  
Sabin  
Wall  
with

o

5:43 1426.385

5:31 142292

1/2 hour

232

105

45

side  
-  
Cedar trees

(Pine)

994

516

2320

+50

521

1 1/2 hour

2310

slopes

cut

995 +02

526

2310

in gully

o

2:61 1427.55

3:81 1424.545

40

35

+45

4.11

2305

Rock  
and  
Swiss  
in

996

416

2300

o

6:37 1420.365

4:16 1422995

90

50

+50

642

2295

South

997

647

3/4 hour

2290

20540

25005



43.

1429365

997 +50

652

o

646

1429545

628

1423085

+96

675

998 +50

680

999

o

095

1422490

5595

142395

+55

225

+72

152

1000 + 14

231

o

427

142576

391

142149

+50

321

1001

326

11.68

15.285

7305

7335

Grade + 100

142280

35

95

High

2280

in gully

2275

Low

2270

Bank Rock

40

100

2265

Flume Region

1409.7 - 129

2263

(-89)

2259

Flume Ends

185

55

2255

2250

44.

142576

1001 +50

331

1 hour

Grad +4.0

142245

1002

336

3/4 hour

224

+50

341

2235

o

250 1425.18

308 1422.68

80

60

1003

288

1 hour

2230

+50

293

2 1/2 hours

2225

1004

298

2220

o

475 1426.15

291 1422.20

50

80

+30

475

1 1/2 hours

2217

Bm 12

695

1420.00

Promix

19.75

1004 +47

+48

477

2215

1 kmu begins

7215

6.06

45.

1426.95

1004 +72

14.6

7653

7753

Commenced 1004+30

grad 4.0

11-11-07

12.3

- 9.8

1422.3

(-58)

Wrest  
Wattina  
Sakun  
Webb  
Witte

+85

4.8

2212 Film Ends

0

1.94

1424.32

4535

1422.38

95

45

(Clear)

0

7.89

1426.09

612

1418.20

50

20

1005 +50

4.04

2 low

2205

1006

4.09

1 low

2200

0

5245

1426.86

4475

1421.615

120

50

+50

4.91

1 1/2 low

2195

1007

4.96

2190

+48

5.01

3 high

2185

1008

5.06

2180

Good Slope - Earth and Rock

15.075

15.130



46

1426.86

1008 +48

511

0

4055 1425.805

511

1421.75

1009

411

+50

416

1 1/2 hours

1010

421

1 1/2 hours

+50

426

0

3575 1425.12

426

1421.545

1011

362

0

414 1425.535

3725

1421.395

+50

409

+90

413

0

296 1423.405

509

1420.445

1012 +30

204

14.730

18.185

79.0

78.40

Grade + 4.0

1421.75

135

95

21.70

21.65

Earth

21.60

21.55

25

70

21.50

40

75

21.45

Rock

21.40

= both in gully

30

50

Earth

21.37

= both in gully

47

1423.405

1012 + 64

2.07

7525 425.53 540 1418.005

1013 + 05

4.22

1/2 hour

2130

+ 50

4.22

2125

in gully

389 1425.14 428 1422.25

45

50

1014

3.94

1/2 hour

2120

+ 53

3.99

2115

Rock

on waterway

Item 83

5.67

1419.465

Prank

77

1014 + 24

o

4085 1425.27 3955 1421.185

60

65

1015

4.17

2110

feath and

+ 50

4.22

1/2 hour

2105

o

4945 1425.855 436 1420.91

80

60

1016

4.80

2100

20445

17995

8140 8080

Commenced 1014 + 53

Grabb + 40

11-12-07

1421.34

Waste  
Water  
Sap  
Wet  
with

(clean)

48.

1425.855

1016 +50

491

1017

496

o

595 1426.70

5105 1420.75

35

60

+41

584

2090

1018

590

o

541 1426.21

590 1420.80

60

45

+50

546

Show

2075

1019

551

o

676 1435.28

7.19 1419.02

85

50

+50

4.62

2065

South and Rock

+95

4.65

Show

2060

1020 +50

4.73

2055

17.62

18.195

4365 8280

Grade +4.00

142095



1021

360 1425.38  
1424.95 443 1420.85

1021

+55

1022

527 1425.67  
1420.90 405

+50

1023

301 1425.04  
1421.96 371

+30

+69

544 1425.67  
1420.28 481

Bm 84

17.39

17.00

6.56

1419.11

8545 8435

Grade +4.0

65 85

1 hour

1420.50

4.00

2045

4.05

2040

65 50

5.32

2035

5.37

2030

45 40

4.77

2027

4.81

2023

20 25

feather and roots

From Bm 2091 1003+35

Commenced 1022-100

11-13-07

Went  
water  
Saker  
wall  
Witte

50

142567

1024 + 05

547

0

3085 1424.505 425 1421.72

40

40

+ 50

4.20

+ 92

440

0

4.15 1424.255 440 1420.105

45

25

1025 + 50

421

1 low

2005

1026

426

1 1/2 low

2000

549 142547 4275 1419.98

50

65

+ 40

551

1/2 low

1996

+ 89

556

1991

1027 + 50

562

1985

0

2.18 1422.745 4905 1420.565

65

85

1028

2.95

1980

14905

17.830

8740

8635

Grade + 40 0

142020

2015

2011

Rock  
Mouth

Station	1422795	448 142295	4775 141797	8940	8850	Grade + 4.0	Commenced 1030+50
1028 +50				300	3 hour	1419.75	" - 14 - '07.
o					80	45	Waste water same with with
1029				275	1 hour	1970	
+50				290	1/2 hour	1965	
1030				285	1 hour	1960	
+50				290		1955	
o	504	1424.59	290	1419.55	40	90	
1031				509	3 hour	1950	
+32				512	1/2 hour	1947	In Pond of hill
o	5435	1423.925	610	1418.49	30	40	
+70				450	1 hour	1943	
1032				453		1940	
	14955		13.775				

Gravel and rock



52.

1423925

3755 422.83 485 1419.075

1032 +50

348

1033

353

Bm 85

2795 1420.39 5235 1417.595

+20

112

1034

119

436 425.37

538 1417.01

+50

622

1035

627

+50

632

14910

13465

9090 9075

grade +4.0

45

75

2 hours

141935

17.30

45

45

Plan R

5' R

1033 +23

19.27

Rock

19.20

South

19.15 \*

19.10

19.05

South

Continued 103480

11-15-07

wrote  
waterman  
Satin  
Webb  
with

(Hazy-Rainy)

53.

142537

1036

635

0

4945 1422.52

7795 1417.575

+50

357

1037 +05

362

+50

367

0

323 1422.08

367 1418.85

1038

328

+50

333

0

7945 1426.645

333 1418.75

1039

800

+50

805

1040

16120

14.795

830

9280

9180

Grade +4.0

1419.00

80

100

1895

1890

1885

65

55

1880

1875

200

40

1870

1865

1860

South and Beck

54.

1426.95

1040 +36

8.14

1041

8.20

1 1/2 hour

+50

8.25

1/2 hour

1042

8.30

0

5975 1422.57

10.10 1416.595

40

105

+50

4.22

18.35

1043

4.27

1 1/2 hour

18.30

+50

4.32

18.25

0

2.835 1470.235

5.17 1417.40

55

90

1044

2.04

1 hour

18.20

+50

2.00

18.15

8.810

15.27

9625 9375

Grade +40

1418.56

In gulch

18.50

18.45

18.40

18.35

18.30

18.25

18.20

18.15

South end Rock (around)



55

1420.235

0

3655 1420.955

2935 1417.30

1045

286

+50

291 1/2 hour

0

1010 1417.615

324 1417.715

80

90

1046

982

1800

cedar - quarter

20

+16

= lath in narrow gable

+63

988

1794

Rock - stump

1047

992

1/2 hour

1790

South + edge of Rock - stump  
Trench 15 ft

Bm 8

323 1420.93

1417.75

= 15' just above

9735

1412.21

1045 + 75

+40

997

1/2 hour

1785

13.755

6.175

9770

9570

Grade + 10

25

90

1418.0

1805

1800

56.				9825	9715	Commented
1048	288	1427.80	1004 1417.75	1 1/2 low	1417.80	1049+00
+50				291	70	11-16-07.
1049	289	1419.84	3705 1416.93	3 low	17.70	Wrestle
+50				219	90	Sadly
1050				224		with
+50				229		(Clean)
1051	536	1421.77	343 1416.41	1 low	17.60	
+50				427		
1052				432		
	11.13			437		
		17.175				

South and Moose Flck

57.

1421.77

462 1421.985 4405 1417.365

1052 + 50

464

1053

469 by hand

+ 50

474 by hand

1054

479

2785 1419.98

479 1417.195

+ 50

283 1 hour

1055

288 1 hour

Bm 87

+ 50

299 1417.69

set from 1054

293 1 hour

1056

298 1 hour

338 1419.87

349 1416.49

10.785

12.685

9995 9960

Grade + 40

105 110

1417.35

17.30

17.25

17.20

130 70

17.15

17.10

17.05

17.00

45 100

Grade and Outcrop - gentle slopes

From Pk 5 R+ 1055 + 20





59.

1418485

1061

+50

252 1421.25 0755 1417.73

1062 +12

223 1421.55 193 1419.32

+50

1063

+50

471 1420.96 530 1416.25

1064

Bm 88

+47

1046

7985

10485 10450

Grade +4.0

199

1 hour

1416.50

204

1645

55

100

486

1639

85

15

520

1635

525 know

1630

530

1625

60

60

476

1620

900 1411.96

481

1615

South Rock

In gulch of ledge rock

South and large loose Rock

spring N.E.

Prank 1064 + 00





61. 1424065

1068 + 50 832

+ 98 839

950 1425.375 819 1415.875

1069 + 50 9.8 1/4 low

430 1420.055 962 1415.755

1070 2.46

+ 52 4.5

1071 4.56

+ 35 4.59

242 1420.97 1505 1418.55

1072 5.57

+ 61 5.63

16.22 19.815

10655 10770

Grade + 4.0

1415.75

15.70

25 900

15.65

110 30

15.60

15.55

15.50

15.47

30 80

15.40

15.34 x 10m laminar further west

around rocky Run in area

Reminds of the top of Rock

62.

14209

o

0.43 1417.545 3855 1417.115

1073

2.25

+50

2.30

1074

2.35

o

11095 1426.285 2355 1415.19

+50

11.14

1075

11.19

+55

11.24

1076

11.29

o

4.875 1420.50 1066 1415.625

Bm 89

16400

16870

10795

1400.705

11020

10980

Opad + 4.0

70

75

1415.30

2 hour

1525

1/2 hour

1520

90

70

3/4 hour

1515

1/2 hour

1510

1505

Stop site - hills facing south

Bend in Pathway

1500

100

180

Pran Pt 109 ± 1076 ± 18

63.

1420.50

1076 + 50

555

1077

560 low

+50

565

1078

570

+50

575

1079

580

o  
+50

1035 1419.77 1108 1409.42

115 220

512 low

1080

517

+45

522

1035

1108

11280 11245

Grade + 4.0

1414.95

1490

1485

1480

1475

1470

1465

1460

1455

Note: Line cuts at base of rock bluff

Other 1076 - 1077 + 25

Slip & Rocky - facing south



64.

1081

+50

1082

+16

+50

1083

+50

1084

Bm 90

1419.77

7.66 1422.16

52.7 1414.50

4.875 1419.075

7.96 1414.20

12.535

13.23

52.7

7.71

7.76

7.81

7.6

7.91

7.76

8.46

11305 11465

Grade +4.0

1414.50

50

1445

slip

1440

1435

1430

1425

1420

1 low

190

1 low

2 1/2 low

X

1410.615

95

X

Commenced sta 1084

11-20-07

Waste  
same  
well  
with  
Rogers.

(cloudy)

X bath in waterway

2 with small cross back

Prumk 13' P 1083+97

65.

1419.175

10.435 1424.135 487 1414.20

1084 +50

1049

1085

1054

+50

1059

10.701 1424.745 1059 1414.045

1086

1075

+50

1080

1087

1085

547 1420.135 1008 1414.665

+50

6.29

1088

6.39

26605

25545

11585 11610

Grade + 40

65

X

1414.15

1410

1405

55

65

1400

1395

1390

65

100

1385

1380

Grade + 40  
Small South Rock - gentle slope

66.

1420.35

1088 + 50

639

0

1084.5 + 22.90 = 807.5 1412.06

921

1089

+ 50

921

0

1175 1424.05 926 1413.64

1122

1090

+ 44

1137

1091

1132

+ 49

1137

1092 + 05

1142

+ 50

1147

22.020

17.340

~~1170~~ ~~1175~~

Grade + 4.0

1413.75

50

95

1370

1365

140

30

1360

1355

1350

1345

1340

1335

Grade slope  
Ditch

In gully

Stump - south of Rock  
gully



67.

1424.85

1092 + 81

1093

+50

+95

0

11405 1424.60

1162 1413.95

1094 + 50

1095

+45

Bm 91

1096

0

11525 1422.82

11605 1412.95

21.230

23.225

11960

11900

Grade + 4.0

2

= lat in gully

1413.30

1325

1320

160

180

1145

1 low

1315

1150

1/2 low

1310

1155

1305

1412.95

= Sta 1096 + 0.0

1165

1409.285

1160

1/2 low

1109.75

10.95 + 35

1300

110

40

Sweeney's lat in gully + gully

68.

1422.82

1096 +50

987

1097

992

1 hour

+50

997

1098

1002

+50

1007

40

120

o

487 1417.62

1007 1412.75

1099

992

+50

997

o

3535 1416.85

997 1412.65

1100

359

+50

364

8405

15.04

12230

12120

Grad +40

1412.95

1290

1265

1280

1270

1270

1265

1260

1255

Rocky Outcrop facing east

South Rock

Common w/ Sta. 098 +50

11-21-07

Wueste

Sabin

Webb

Witt

Rogers

(dian)

+7.5 = above saddle

69.

1416.85

1101 +07

0

+23

6455 1417.94

3.70 1412.485

+39

1102

+41

BM 92

1103

+35

1104

6455

3.70

3.70

162

6.48

6.54

6.58

9.90

6.64

6.68

6.74

12335

12320

grad +1.0

1412.49

135

100

027

- 9.8

12.5-

-5.8

X

1246 Flume ends

1240

1236

1230

1226

1220

Flume begin

P - facing east  
10' P slope and bed

P  
10' P

Almost continuous outcrop  
of ledge rock

1102 +65



70.

141894

1104 +50

679

show

Grade +4.0

1412.15 x

0

1106 1423205 6795 1412.145

105

195

1105

1111

12.10

+50

1116

show

12.05

slump

1106

1121

12.00

+62

1127

1194

in rocky chute  
Possible flume

1107

1131

show

1190

Rock and

0

10985422865 11325141188

105

185

+50

1102

1185

earth

1108

1107

1180

+55

1112

1175

22.045

18.120

17470 17420

71.

1422.865

1109

+50

0

1032 1421.955 1123 1411.63

1110

+50

1111

+50

0

1041 1421.86 1051 1411.445

+99

+50

0

2.13 1414.29 9.70 1412.16

1113

22.870

3.445

12680 12740

grad +40

1107 1 hour

1411.70

1122 1 1/2 hour

11.65

135 140

1036

11.60

1041 1 hour

11.55

1046 1 1/2 hour

11.50

1051

11.45

50 65

1046 1 hour

11.40

1051

11.35

200 45

2.99

11.30

Grath and Rock Outcrop - Retup

72

1414.29

1113 +55

304

1114

309

Bm 93

+50

11645 1402.645

314

1 low

1115

319

+50

324

⊙

1148 1422.53 324 1411.05

105 110

1116

1153

+50

1158

1117

1163 1/2 low

1148

324

13065 17990

Grade + 10

1411.25

1120

Commenced

1115 + 50

11-22-67

Waste

Sabine

Well

with

Coeyn-

(clean-dry)

1114 + 41

Outcrop - clear

11 on R 14.71

South & Rock

1110

1110

1105

1100

1095

1090

South & low - rock - gully slope



73.

142253

1117 +50

o

342 1414.27

1168 1410.85

1118

+50

1119

o

1088 1421.84

331 1410.96

+50

1120 +03

+50

1121

+50

14.30

14.99

13170 13100

Grade +0

1410.85

100

70

347

10.85

352

10.75

In gully

357

10.70

90

75

11.19

10.65

Rock

1124

10.60

North end gully

1129

10.55

1134 show

10.50

1139

10.45

74

1421.84

0

10445 1420.81

11475 1410.365

1122

10.41

+50

1046

Y how

1123

1051

+37

88

12.0

+1.7

1026

Bm 94

897

1411.84

1124

1061

0

491 1415.11

1061 1410.20

80

80

+50

496

1015

1125

501

1010

15355

22085

13360 13245

Grade +4.0

110

150

1410.40

1035

1030

Sooner Rock - Almost Flat.

From Pit

11 Pit

1123 +46

South and Small

75.

1415.11

13550 13775

Grade +40

1125 +50

506

1410.05

1126

511

10.00

0

400

1414.23

488

1410.23

75

175

+50

428

09.95

1127

433

09.90

+50

438

09.85

1128

443

09.80

0

606

1415.86

443

1409.80

105

80

+32

609

13730

13730

09.77

1129

616

09.70

+50

621

09.65

0

1006

621

1409.65

30

Continued in Book 4

South and Small. Swiss Rock - good slopes



76

398	1441.89	11.26	1430.425
5.55	1433.955	5.605	1428.86
10.99	1433.885	10.56	1423.395
6.17	1431.31	8.69	1425.19
7.96	1428.435	10.84	1420.47
10.96	1429.01	10.38	1418.05
10.625	1439.575	0.06	1428.95
9.16	1436.92	10.815	1428.76
		6.14	1430.78

63.705

74.565

7545    7335

10	25
10	150
75	55
10	40
25	170
60	55
45	10
45	185
	10

2825

2975

per at month galley  
 10-31-07  
 Wurst  
 Wastma  
 Pis no of mogaly Sabu

Pis no of 00 galley

77

Sum of tw writ + cont.

	1617.65		
117	1607.205	11.615	1606.035
263	1598.525	11.59	1595.615
174	1588.815	11.67	1586.575
172	1578.27	11.865	1576.75
1615	1568.575	11.57	1566.96
0745	1557.50	11.82	1556.755
0.53	1546.635	11.395	1546.105
0.75	1535.935	11.45	1535.185
147	1525.725	11.68	1524.255
0945	1515.14	11.53	1514.195
0675	1504.05	11.715	1503.425
238	1495.14	11.79	1492.76
0385	1484.65	11.06	1484.09
131	1474.13	11.645	1472.82
136	1462.68	11.81	1462.32
1.045	1453.575	11.15	1452.53
0.17	1441.89	11.805	1441.77

2054

19630

2365 2065

	10	15
	10	20
	15	20
	10	50
	10	15
	10	15
	10	10
	10	15
	10	15
	10	15
	10	15
	10	20
	10	10
	10	15
	10	20

78.

Sims for Evir. 2. cont.

	1607.85		
11.545	1618.74	0.59	1607.195
10.79	1627.97	1.56	1617.18
10.68	1638.25	0.40	1627.57
11.595	1649.455	0.39	1637.86
12.01	1660.79	0.675	1648.78
11.825	1671.62	0.995	1659.795
11.93	1683.37	0.18	1671.44
11.615	1694.485	0.50	1682.87
11.70	1704.165	2.02	1692.465
0.625	1693.205	11.545	1692.58
10.4	1682.785	11.49	1681.715
0.32	1671.755	11.35	1671.485
0.52	1660.58	11.695	1660.06
0.38	1649.97	10.99	1649.59
0.27	1638.765	11.475	1638.495
0.715	1628.105	11.375	1627.39
0.88	1617.65	11.335	1616.77
108.470		98.605	

1925

1665

35	10
40	10
20	10
25	10
15	20
15	10
30	15
35	20
90	15
30	180
10	20
10	15
10	15
10	15
10	15
5	10
10	10

10-30-07

White  
Water  
Sea Run  
(cloudy)

Haggard in dim



79.2

Sends for Envir # 4

7.13 14250.75 14279.45

10.865 1444.59 135 1433.725

11.36 1455.52 0.43 1444.16

11.24 1466.32 0.44 1455.08

11.12 1477.245 0.95 1466.125

11.28 1488.165 0.36 1476.585

11.17 1498.825 0.51 1487.655

7.445 1505.58 0.69 1498.135

10.68 1514.605 1.55 1503.925

11.76 1525.49 0.88 1513.725

11.68 1536.215 0.95 1524.535

11.53 1547.705 0.34 1533.875

9.22 1556.195 0.735 1546.97

11.355 1567.00 0.56 1553.645

11.08 1577.715 0.365 1566.635

11.985 1589.33 0.37 1577.345

11.325 1596.495 4.16 1585.17

11.825 1607.785 0.355 1595.94

194380

14540

865

20 1125

20 10

25 15

20 35

35 30

45 20

475 25

70 10

40 40

45 10

35 20

40 10

25 10

15 10

100 15

60 280

40 10

- old 946 + 55

10 29.07

White

Water

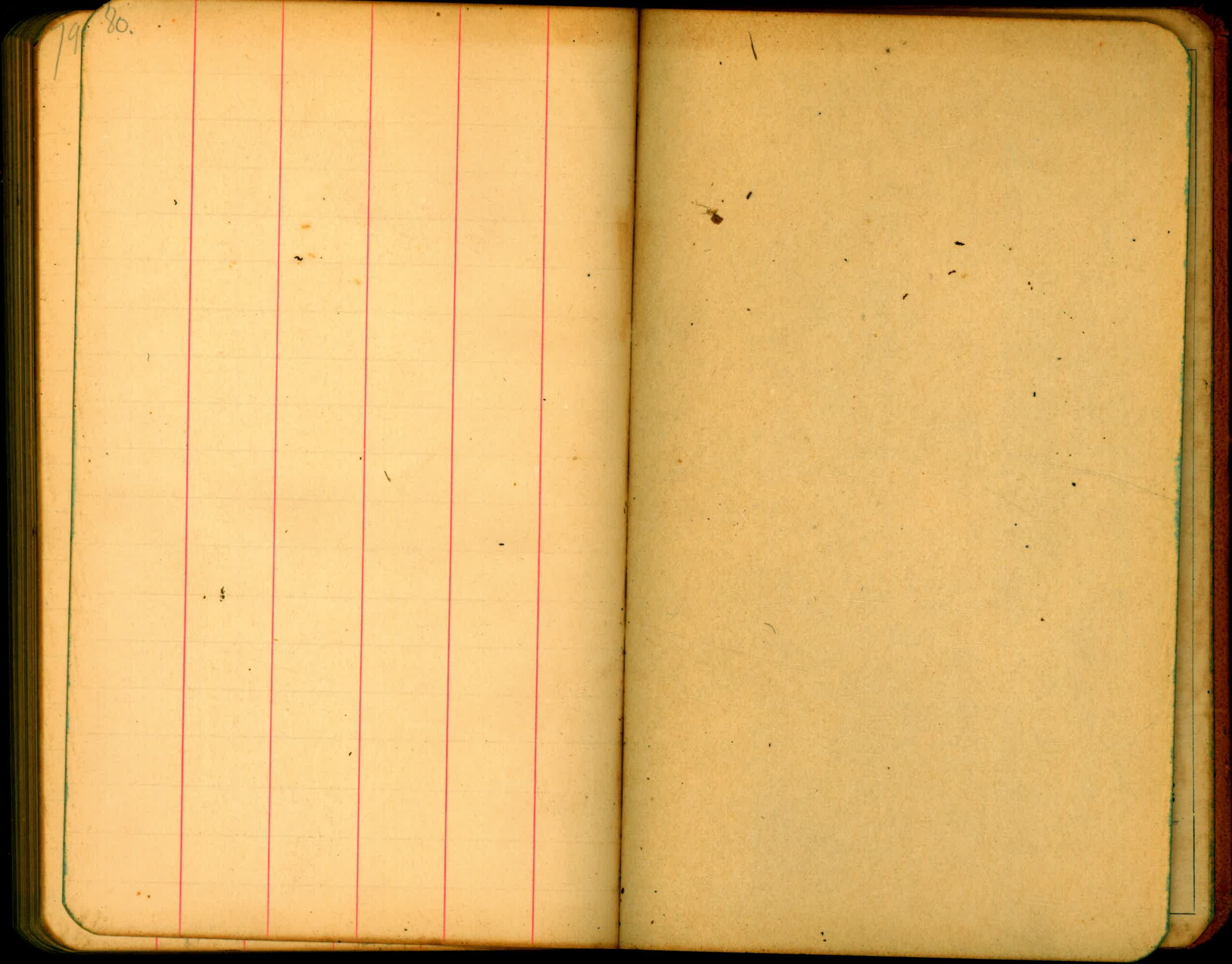
Salt

10

26

46

79  
80.





DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

FOR SINGLE TRACK EMBANKMENT.

ROADWAY 14 FEET WIDE. SIDE SLOPES  $1\frac{1}{2}$  TO 1.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.