

Dr 12-Blackhawk
Tile Co Sec 1.

Private Tile.

1101
DIETZGEN
TRADE MARK

ENGINEERS'
LEVEL BOOK
No. 412

1101

For Single Track Embankment.

Copyright, 1914, by Eugene Dietzgen Co.

FILED

FEB 27 '23

J. W. Estlin
SPECIAL AGENT IN CHARGE

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Dir #12

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RA Rodamar

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RA Rodamar

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4

Relay

Top 42 9.32 59.32

50.00

42

3.51

48.10

55.81

7.71

+50

3.62

48.13

55.70

7.57

43

4.58

48.17

54.74

6.57

+50

5.22

48.20

53.99

5.79

44

6.11

48.24

53.21

4.97

+50

5.03

48.27

54.29

6.02

45

5.81

48.31

53.51

5.20

+50

5.45

48.34

53.87

5.53

46

6.40

48.38

52.92

4.54

$$\begin{array}{r} 59.32 \\ 9.07 \\ \hline 50.25 \\ 1.9 \\ \hline 48.35 \end{array}$$

$$\begin{array}{r} 9.07 \\ 9.32 \\ 9.07 \\ \hline .25 \end{array}$$

$$\begin{array}{r} 1.90 \\ 4/30/7 \\ \hline .35 \end{array}$$

$$\begin{array}{r} 8 \\ 4 \\ \hline .32 \end{array}$$

$$\begin{array}{r} 50.00 \\ 1.9 \\ \hline 48.10 \\ 1.9 \\ \hline 50.00 \end{array}$$

$$\begin{array}{r} 50.00 \\ 9.32 \\ \hline 40.68 \\ 4.94 \\ \hline 45.62 \end{array}$$

$$\begin{array}{r} 57.32 \\ 9.07 \\ \hline 50.25 \\ 1.90 \\ \hline 48.35 \\ 48.10 \\ \hline .25 \end{array}$$

6 Primary Road Project #164

Road Tile

— E side Hwy

HOFF
HILL

Sta 55 H.I. - 5 Elev Gr

Cut.

193/21

B.M. 6.05 942.56 936.51

Center E. wall Conc. Box Sta 475+26

H. 10.13 932.43

415+28 6.79 935.77 932.59

3.18

Gr. 7.45 935.11

415+50 7.30 935.26 932.65

2.61 Cut —

Gr 8.16 934.40

Transferred to Hwy Books

476 7.27 935.29 932.78

2.51

Gr. 7.92 934.64

476+50 6.66 935.90 932.90

3.00

Gr 7.19 935.37

477 5.50 937.06 933.03

4.03

Gr 6.02 936.57

477+50 4.66 937.90 933.15

4.75

Gr 5.28 937.28

478 3.93 938.63 933.28

5.35

Gr 4.56 938.00

478+50 3.22 939.34 933.40

5.94

Gr 3.97 938.59

East Side Hwy

Sta	B.S.	H.I.	-S	Elev	Gr	Cut
479		942.56	3.23	939.33	933.53	5.80
Gr			4.05	938.51		

22
25
11.0
00
00.60

10/3/21 HOFF
HILL

West Side Hwy

B17	6.05	942.56		936.51		Center E wall Conc Box Sta 475+26
475+28			9.90	932.66		
Gr			7.00	935.56	932.75	2.81
475+50			7.55	935.01		
Gr			8.03	934.53	932.81	1.72
476			8.70	933.86		
Gr			7.89	934.67	932.73	1.74
476+50			8.40	934.16		
Gr			6.97	935.59	933.06	2.53
477			7.97	934.59		
Gr			5.82	936.74	933.18	3.56
477+50			6.57	935.99		
Gr			4.35	938.21	933.31	4.90
			5.15	937.41		

Cut
transferred to Hwy Bridge

2.53%

West Side Hwy

Sta	BS	H.I.	- S	Elev	Gr	Cut.
478	942.56	3.78	938.78	933.43		5.35
Gr		4.25	938.31			
478+50		2.82	939.74	933.56		6.18
Gr		3.32	939.24	933.60		
479		2.82	939.74	933.68		6.06
Gr		3.47	939.09			

19/3/21 HOFF
HILL.Cut -
Transferred to Hwy Bents

West Side Hwy

Sta Go. G Elev State State Grade

State Cut G Cut

10/4/21

HOFF
HILL

BM. 8.49 (929.41) 12.63 920.92 916.78 Center E. wall Conc Box Sta 486+56

486+56 8.40 8.79 920.62 916.88 3.74

486+50 9.80 9.13 920.28 916.90 3.38

486 10.60 9.80 919.61 917.05 2.56

485+50 10.00 9.47 919.94 917.20 2.74

485 9.90 9.43 919.98 917.35 2.63

484+50 9.50 8.76 920.65 917.50 3.15

484 8.30 7.55 921.86 919.05 2.81

483+50 7.00 6.09 923.39 920.60 2.79

483 4.20 3.92 925.49 922.15 3.34

482+50 2.70 2.10 927.31 923.70 3.61

482 1.50 (941.04) 0.82 928.49 925.25 3.24

481+50 11.40 10.77 930.27 926.60 3.47

481 9.70 9.07 931.97 928.35 3.62

480+50 7.20 6.80 934.24 929.90 4.34

480 4.70 3.95 937.99 931.45 6.54

479+50 2.60 2.04 939.00 932.55 6.45

479 2.00 1.38 939.66 933.65 6.01

9/0
3/2

917.50
912.50
250.70

.06
.4
.030
.06
.018

93.587
6.26
929.61

931.50
917.50

Cut
compensate King Road

3.10
9/0

0.5
12.55

2.20%

West Side Hwy

Sta Gro. Gr. Elev Stake St. El Elev St. Cut Gr Cut

.2
40
0.80

B/M 10.74 931.66 920.92

At

11.20 916.78

486+60 11.80 11.20 920.46 916.92 3.54

926.20
917.20
9.00

487 13.30 12.34 919.32 917.00 2.32

487+50 12.90 12.10 919.56 917.10 2.46

12.00

Cut

488 12.30 11.82 919.84 917.20 2.64

+50 11.10 10.48 921.18 918.70 2.48

489 10.00 9.40 922.26 920.20 2.06

+50 8.10 7.56 924.10 921.70 2.40

490 6.30 5.74 925.92 923.20 2.72

+50 4.00 3.42 928.24 924.70 3.54

491 1.80 1.36 920.30 926.20 4.10

3.00

T.P. 8.80 939.10 1.36 930.30 927.70

+50 5.90 5.21 933.89 927.70 6.19

492 1.90 1.34 927.76 929.20 8.56

18
TILE CK BR 13/11/17 #2 DR12

BM #5	5.76	62.24	56.48
Tile top			
0+50	10" tile	5.86	
1		5.84	
+50		5.75	
2		5.68	
+50		5.66	
3		5.59	
+50		5.55	
4		5.50	
+50		5.43	
5	8'	5.47	
T.P.	4.19	60.24	6.19 56.05
5+50		3.40	
6		3.38	
+50		3.36	
7		3.28	
+50		3.25	

Used Tile Rod - Length 45.05 ^{10/5/21} Hoff
Hill
S. End E Cap Cattle pass Main #2

8	3.23
+50	3.18
9	3.12
+50	3.06
10	3.03
+50	2.88
11	2.76
+50	2.55
12	2.35
End.	2.26

TILEGK BR B-1-Maint 2-Div 12

Used tile Rod Length 5.05

10/5/21

HOFF
HILLSame
T.P. 4.19 60.24 56.05

0+50 6.1 3.53

1 3.53

+50 3.45

2 3.39

+50 3.33

3 3.23

+50 3.21

4 3.15

+50 3.13

5 3.12

+50 3.07

End
3.00

Tile CK BRA Main #2 DR #12

BM #5 4.38 60.86 56.48

0+50 6" 5.38

1 5.37

+50 5.23

2 5.12

+50 5.10

3 5.06

+50 5.08

4 5.08

+50 5.02

End 4.99

Used tile rd length 5.05'

10/5/21 Hoi = F
HILL

Tile CK BRC Main #2 DR #12

BM #5 4.38 60.86 56.48

0+10 5.22

+50 5.20

1 5.15

+50 5.11

2 5.10

+50 5.10

3 5.06

+50 5.04

End 5.00

Tile CK Main #1 Dpt 12. Cont.

Used Tile Rod Length 5.05

10/5/21 HOFF
HILL

BM #2 1.87 55.20 57.33

Tile Top 30 55.54 56. 55.01 57.3 50 49.47

+50 5.60

+75 5.66

31 5.93

+25 5.76

+50 5.75

+75 5.64

32 5.45

+50 5.40

33 5.41

+50 5.31

34 5.33

+50 5.36

35 5.26

+50 5.13

TICK BRA - Main #1

BM #2 1.87 55.20 57.33

0+50 5.05

1 4.02

End 2.90

Tile CK Main #1 Cont

2.05
5.05
7.10

Gr Laid Gr Given

36	56.01	
	55.01	5.13
	7.10	
+50	48.91	5.27
		43.89
37	5.02	42.89

Recheck Main #1

B.M. #2	3.89	58.15	54.26
T.P.	5.26	7.12	
29+50		11.04	
29+75		10.92	
30		10.89	
30+25		10.93	
30+50		10.88	
30+75		10.92	
31		10.91	
31+25		10.92	
31+50		10.74	
32		10.72	
32+25		10.82	
		10.63	

29 Tile Cr Cont 10/8/21.

Tile Rod L = 5.05

13M⁴₃ 1.22 55.48 54.26

37 4.56

+50 4.54

38 4.53

+50 4.42

39 4.44

+50 4.45

40 4.42 51.06 46.01

40+50 20" 4.40

Hubs BRF Main #1 Dr #12

11.92
3.99
8.91

Sta B.S. H.I. -S Elev Gr Cut

BMX. 4.35 61.16 56.81

T.P. 7.91 67.91 1.16 60.00

T.P. 5.12 57.12 15.91 52.00

BMV 5.33 58.41 4.04 53.08
58.41

Spike Brace post 1 E N & V Gate post S. of Main 1 on E

0. 6.95 51.46 46.50 4.96 = Sta 70 Main #1

0+50 6.64 51.77 47.50 4.27

+75 6.23 52.18 48.00 4.18

1 5.75 52.66 48.50 4.16

+50 4.69 53.72 49.50 4.22

2 3.67 54.74 50.50 4.24

+50 11.80 67.99 2.22 56.19 51.50 4.69

3 10.99 57.00 52.50 4.50

+50 10.13 57.86 53.50 4.36

+75 9.62 58.37 54.00 4.37

4 9.27 58.72 54.50 4.22

+50 8.48 59.51 55.50 4.01

$$\begin{array}{r} 350 \\ 35 \overline{) 350} \\ 1750 \\ 1050 \\ \hline 12250 \end{array}$$

5		67.99	7.26	60.73	56.50	4.23	
+50			6.28	61.71	57.50	4.21	2
6			5.33	62.66	58.50	4.16	2
7			3.17	64.82	60.50	4.32	
+50			2.57	65.42	61.50	3.92	
8	11.18	77.75	1.42	66.57	62.50	4.07	
+50			9.70	68.00	64.25	3.80	
9			6.90	70.85	66.00	4.85	
10			3.94	73.81	69.50	4.81	2
+50			1.02	76.72	71.25	5.47	2
+85			0.50	77.25	72.48	4.77	

34

TICKER BR E. Main #1 DIR #12

BMX 4.20 61.01 52.81

1 7.78

2 5.60

3 2.5 3.10

4 1.60

T.P. 7.16 65.17 3.00 58.01

5 4.36

6 2.80

7 1.05 1.15

TICKER L = 5.05
- 6" T.K.19/12/21 HARR
HILL

T/L CK BR D Main #1 Dr #12

T/L Rd L = 5.05
8" Tile10/18/21 Hoff
Hill

BMX 4.20 61.01 52.81

1/435 7.72

2 6.90

2-165-2 5.20

4/10 3.12

T.P. 7.07 64.27 2.81 57.20

5- $\frac{5.80}{58.47}$ 5.71

6 4.51

7 2.53

8 2.50 55.97

9 1.70

10 0.75

T.P. 5.87 68.00 2.14 62.13

11 3.37

12 2.35

13 0.72

14

← 6" Tile

Hub 5 Br D-1. Main Dr #12

58.25

26.75

15.0

5th 135 14.1 - 5 Elev 6W Col

BM X 6.26.63.07 56.81

Tkt top

6.90 56.17 55.47

= 7+50 Br D

Hub

0 8.92 68.60 3.39 59.68 55.75 3.93

1 8.43 60.17 56.25 3.92 10

+50 8.16 60.44 56.50 3.94 1

2 7.25 61.35 56.75 4.60 2

+50 6.46 62.14 57.88 4.26

3 5.50 63.10 59.00 4.10 1

+50 4.30 64.30 60.13 4.17 2

4 3.14 65.46 61.25 4.21 2

4+38 1.75 66.85 62.11 4.74

38.25
 2.25
 38.00
 18.00
 61.50
 65.00
 45.00

40 Hubs Br D. 2 Sec 1 Dr # 12

Sta BS H. 1

O.D. 1	8.92	68.60	59.68		
Tile Top					
0			12.13	56.47	58.77
Hub					
0			8.71	59.89	56.00 3.89
1			7.38	61.22	56.75 4.47
2			7.19	61.41	57.50 3.91
3			5.79	62.81	58.25 4.56
4			4.51	64.09	60.00 4.09
5			2.17	66.43	61.75 4.68
Sta 40			2.24	66.36	62.45 3.71

1.50
140
6000
17
7000

Ditch N side Culv Sta 21 Br D 8.15
Top 8' Stand pipe 1' on 1.4 x c 10.30
2.15

Tile CK Br D-1 Dp#12

BMX 6.53 63.34 56.81

T.P. 9.45 69.18 3.61 59.73

Tile Top -
0 8.00

1 7.20

2 6.70

3 4.45

4 2.25

4+38 End 1.33 67.85 5.57 62.28 OK

Tile CK Br D-2

0 69.18 7.60

1 6.72

2 6.02

3 5.25

4 3.53

5 1.74

57 1/2 End 1.10 68.08 5.57 62.51

Tile Rod 4.97

6" Tile $\frac{6.0}{5.57}$ 11/3/2 Hoff
Mill

TICKET BRD Main #1 Dpt #12
ContTICKET 4.97
6" TIE 6.0
5.5711/3/21 HOFF
HILL

HUB	116			
25+29				
HUB				
25	3.07	94.90	91.83	
TICKET				
24+30		3.28	91.62	5.57 96.05
25		1.91	92.99	87.42 87.50 OK OKH
25720		1.05	93.85	88.28 25729 - End

BRD-3

HUB	0.63	94.41	92.42	
10+10				
HUB				
9	6.34	99.47	93.13	5.57
TICKET				
10+10		1.10	98.37	5.57 92.80
9		5.60	93.87	
8		8.62	90.85	5.57 85.28

OK OKH

Cuts for Additional Length
BRS D+E SEC 1 DR #12
13RD

BMX 0.95 57.76 56.81

0 Top of Connection $\frac{12.73}{11.93} = 45.03$

0 8.20 49.56 45.05 5.51

0 + 50 6.68 51.08 45.48 5.60

1 5.38 52.38 45.91 6.47

1 + 50 5.02 52.74 46.34 6.40

1 + 85 4.60 53.16 46.64 6.52

1 + 85 Top 8' on Rod $\frac{11.12}{6.28} = 46.64$

BRE

0 Top of Connection $\frac{12.63}{12.03} = 45.13$

0 8.70 49.06 45.15 3.91

1 7.07 50.69 46.10 4.59

1 + 70 6.21 51.55 46.77 4.78

200 Top 6' on Rod $\frac{10.64}{6.00} = 47.12$

46.64 .86 56 11/19/21
45.02 7.44 .33 0104
1.65) 1.600 88.258 10' = 80'
11480 430
1200 13.3010 55' 8" 110'
1395

Note: New Line Xes old

Main at Sta 0 + 96

185' - 110' = 75' Order 85' - 8"

85

New Line Xes old Main

at Sta H 20

4710

45.15

1.95

200' - 80' = 120' Order 125' - 6"

86

Tile Check Main #1

BM, 0.67 57.48 56.81

BM

BM 3.07 (57.41)

T.P. 5.00 54.98 7.50 49.98

Top tile 40 5.08 49.90

5.05

41 5.00 49.98

4.98

42 4.98

4.95

43 T.P. 3.79 52.72 5.05 49.93

42+80 3.70

43 3.70

+50 3.65

44 3.66

3.64

45 3.62

5/4/22

Book # 2 1948

T Briggs

off Cuto spike phone Rod Hoff.
Pole S. Side Road.

Top Intake Gate N. Side Road

Using 4'-00 Rod

20" = 2.05

42.98

4.07
380

59.72

45+50 3.50 50.22 44.22

46 3.49

46+75 3.45

47 3.40

3.37

48 3.35

3.15

49 4.56 55.18 3.10 50.62

~~5.10~~

49+15 } 4.54

49+25 } 4.75

49+35 } 4.90

49+50 } 5.00

50 on 1/6" 5.00

50+50 4.98

51 4.95

4.93

Reading on 1/6"

52 55.16 4.70 50.28 44.68 44.64

4.87

53 4.82

+50 4.77

+60 4.80

+70 4.90

+80 4.90

+90 4.80

54 4.95

+50 4.63

54+75 of 14" 4.75

55 5.04 55.38 4.84 50.34

+50 5.02

55+75 5.00

56 5.01

57 4.95

4.93

58 4.85

54

4.85

5.3

5.3

58+50 55.38 4.83

59 4.76

4.72

60 4.71

4.69

61 4.68 50.70 45.40 45.48

T.P. 5.05 55.83 4.60 50.78

62 5.03

+50 5.00

63 4.90

4.85

hole at 63+75

64 4.85

4.80

65 4.75 51.08 45.78 45.80

4.72

66 4.65

4.55

67 4.53

67+50	55.83	4.51	
68		4.50	
		4.45	
69	5.34	56.70	4.47 51.36
+50 to 70 or 10"		5.52	
70+50		5.50	
71		5.46	
71+50		5.40	
72		5.38	
		5.31	
73		5.29	
		5.36	
74		5.27	
74+25		5.26	
+50			
75		5.22	
		5.10	

76	56.70	5.08	51.62
+50		5.00	
76+80		5.00	51.70 46.74

$$\begin{array}{r}
 56.70 \\
 4.96 \\
 \hline
 51.74
 \end{array}$$

$$\begin{array}{r}
 51.70 \\
 4.96 \\
 \hline
 46.74
 \end{array}$$

6314
18
45

1.2
18
54

109
18
91

CHK BRF.

T.P.	56.70	5.60	51.10		
	10.92	62.02			
0+05		10.92			
1		9.05			
2		6.95			
3		5.05			
4		3.20			
5	9.99	70.99	1.02	61.00	56.40
6		8.15			
7		6.2	64.79	60.19	
8		4.4	66.59	61.98	

	8.20	7.45	Sta
	8.30	7.40	53+50 9.28
	8.20		9.50
	8.25	7.88	32
	8.20	7.86	35
	8.25	7.90	
	8.18		
	8.20	7.75	
44	8.24	7.75	
	8.19	} OK	
+ 50	8.15		
	8.15		
45	8.10		
45	7.45		
	7.40		
	7.38		
	7.35		

M417 5/4/22
Uncover at Curve 43+
" at 46+25 - 46+50
" and Relay 49+15 - 50+00
" " " 53+50 - 54
hole at 63+75
End of line needs attention

42 - 43
43+50 - 44
7.22
7.40
7.13

Hubs BR N-S-A

(21.00)

$$\begin{array}{r} 1.6 \\ .9 \\ \hline 1.145 \end{array}$$

Sta B.S. H.I. - S Elev Gr Evf.

5- N-S 7.05 30.65 23.60

6- N-S 6.95 ~~30.65~~ 23.69

0 6.32 24.33 21.10 3.23

+50 6.34 24.31 21.20 3.11

1 6.05 24.60 21.30 3.30

2 5.30 25.30 22.20 3.15

3 4.22 26.43 23.10 3.33

3+16 4.12 26.53 23.24 3.29

= Sta 7+14 BR N-S

BR N-S-B

(20.70)

0 30.65 6.90 23.75 20.80 2.95

+50 6.49 24.16 20.90 3.26

1 6.45 24.20 21.00 3.20

2 5.43 25.22 22.00 3.22

3 4.09 26.57 23.00 3.57

3+32 3.67 26.98 23.32 3.66

= Sta 6+36 BR N-S

BR N-5-C

(20.50)

$$\begin{array}{r} 135 \\ 49 \\ \hline 1215 \\ 540 \\ \hline 6615 \end{array}$$

5-N-5	7.05	30.62	23.60	
0		6.96	23.69	20.60 3.09
+50		6.79	23.86	20.80 3.06
1		6.30	24.35	21.00 3.35
2		5.72	24.93	21.40 3.53
3		4.25	26.40	22.75 3.65
5+49		3.52	27.13	23.41 3.72

= 5+49 BR N-5

(20.30)

BR N-5-D

5-N-5	7.10	23.55	20.50	
0		6.64	24.01	20.75 3.26
+50		6.36	24.29	21.00 3.29
1		5.56	25.09	21.50 3.59
2		4.42	26.23	22.72 3.48
3		3.40	27.25	23.59 3.66

= 5+49+75 BR N-5

$$\begin{array}{r} 125 \\ 67 \\ \hline 58 \\ 75 \\ \hline 13375 \end{array}$$

BR N-5-E

(20.00)

$$\begin{array}{r} 1.10 \\ 1.81 \\ \hline 1.10 \\ 880 \\ \hline 8910 \end{array}$$

$$\begin{array}{r} 125 \\ 81 \\ \hline 125 \\ 1000 \\ \hline 10125 \end{array}$$

5-N5 7.05 30.65 23.60

0 7.24 23.41 20.10 3.31

= 544 BR N-5

150 6.63 24.02 20.50 3.52 1.0

1 6.29 24.36 20.90 3.46 1.8

2 5.71 24.94 21.70 3.24 1.5

2 4.49 26.16 22.95 3.21 1.2

3481 3.00 27.65 23.96 3.69 1.2

BR N-5-F

(19.60)

0 30.65 7.24 23.41 20.00 3.41

= 544 3419 N-5

150 6.71 23.94 20.50 3.44

1 6.23 24.42 21.00 3.42 1.0

2 5.48 25.17 22.00 3.17 1.0

3 4.35 26.30 23.00 3.30

3499 2.80 27.85 24.00 3.82

7

~~1.40
31
280
4~~

BR N-6

17.75

4-Main N	7.16	28.74	21.58	
0		7.19	21.55	18.00 3.55
150		6.37	22.37	18.75 3.62
1		5.65	23.09	19.50 3.59
2		4.79	23.95	21.00 2.95

= sta 4+08 Main N

$$\begin{array}{r} 30 \\ 150 \\ 15 \end{array}$$

BR N-7

17.50

4 Main N				
0	28.74	7.30	21.44	18.00 3.44
150		6.65	22.09	19.00 3.09
1		5.54	23.20	20.00 3.20
2		4.22	24.52	21.00 3.52
2170		4.29	24.45	21.70 2.75

= sta 3+33 Main-N

$$\begin{array}{r} 20 \\ 150 \\ 15 \end{array}$$

$$\begin{array}{r} 20 \\ 150 \\ 15 \end{array}$$

$$\begin{array}{r} 150 \\ 150 \\ 150 \end{array}$$

Relay Main #1

Dist 12

BM 0.99 50.99 50.00

Top 49+15 7.17 43.82 42.12
 7.57 43.42 41.92 47.00
 43.82 41.92

49+50 3.54 47.45 41.90 5.55

50 1.42 49.57 41.95 7.62

53+50 to 54

50.00

53+50 9.50 40.50 39.00

53+75 9.57

54 9.60

9.45 40.55 39.05

53+50 2.30 46.70 39.00

53+75 3.11 46.89 39.02

54 3.57 46.48 39.05

7.577.7
 33.01
 7.57

1.7
 7.7
 7.65
 7.65
 7.74
 7.57

468

25
 8
 200

6/1/22

3.1
 2.6

1.5

7.73

7.57
 16

8.63

8.63

9.1

4.68

4.72

4.72

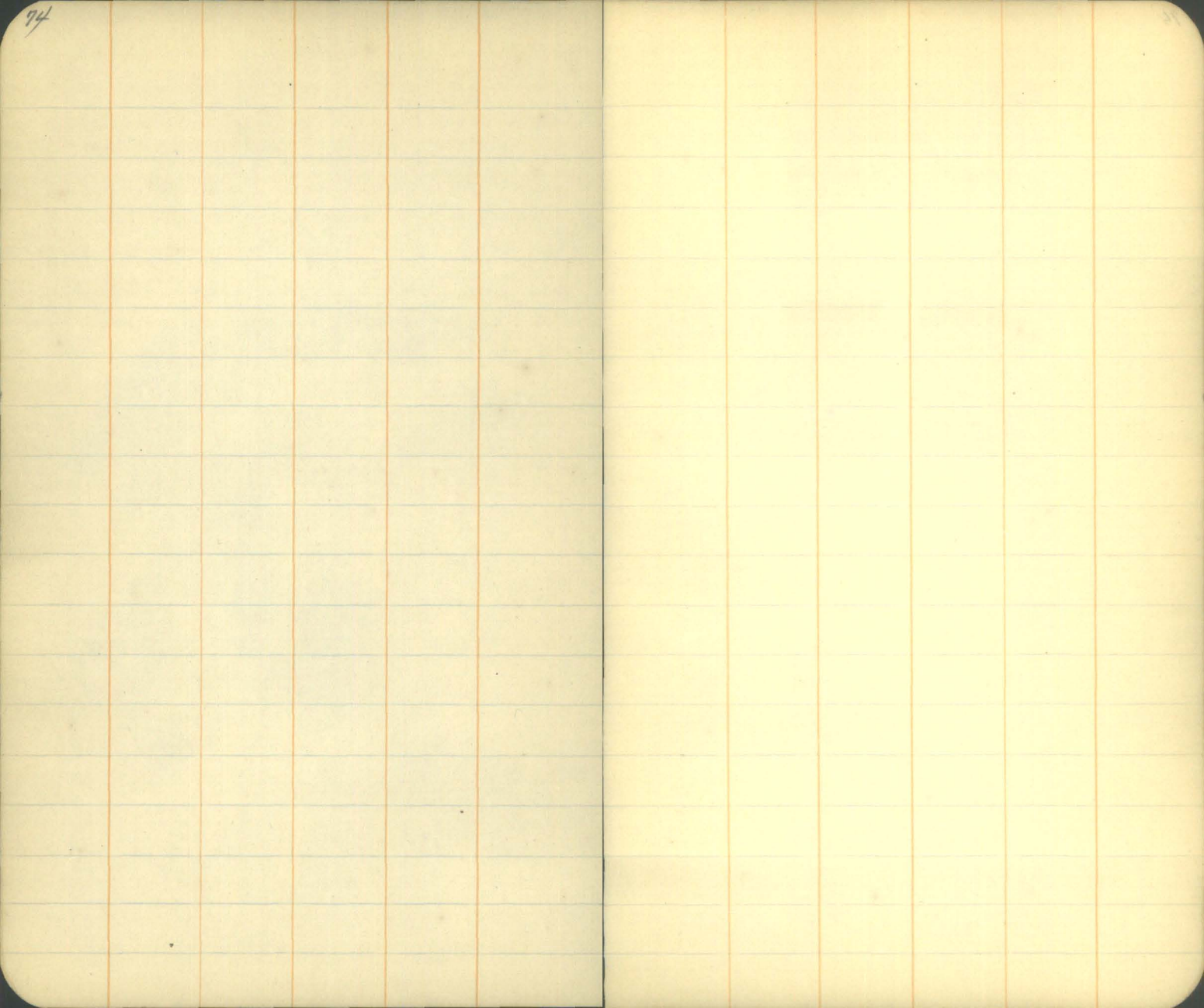
4.72

4.76

7.70

7.87

7.38



Rodamar Private
BR H-24-A

Sta BS. H. - 3 Elev Gr C. t

197/21 Hoff
S. mpsm5-H-24 6.27 ~~34.02~~ 27.75

5+42 H-24 6.05 34.01 27.96

0 5.95 28.06 24.10 3.96

= Sta 5732 BR H-2K

1 5.69 28.32 24.20 4.12

2 5.67 28.34 24.30 4.04

2+50 6.15 27.86 24.35 3.67

0 7.50 26.61

3+50 5.57 28.44 24.45 3.99

4 4.93 29.08 24.50 4.58

4+50 5.38 28.63 24.55 4.08

5 6.18 29.83 24.60 3.23

5+50 7.58 26.43 24.65 1.78

= 0 H-24-A-1

6 7.32 26.69 24.70 1.99

BR H-24-A-1

0 34.01 7.58 26.43 24.75 1.68

= 5+50 BR H-24-A

0+25 7.14 26.87 24.81 2.06

1 6.05 27.96 25.00 2.96

BR H-24-13

Sta BS HI - S Elev

34.01

0	5.57	28.44	24.00	4.44
1	5.84	28.17	24.25	3.92
^{1/2 Pond} 2	6.60	27.31	24.50	2.81
3	5.38	28.63	24.75	3.88
4	5.42	28.59	25.00	3.59
5	5.61	28.40	25.25	3.15
6	5.84	28.17	25.50	2.67

= Sta 4415 BRH-24

BRH-24-C.

Sta BS. H.I. - S Elev 6v Ed

34.01

0 6.35 27.66 24.00 3.66 $\frac{1}{10}$ = Sta 3+10 BRH-24

1 5.49 28.52 24.25 4.27

2 5.43 28.58 24.50 4.08

0 6.70 29.26

3 6.02 27.99 24.75 3.24

4 4.92 29.09 25.25 3.84

5 4.24 29.77 25.75 4.02 $\frac{50}{100}$ 6 5.04 28.97 26.00 2.97 $\frac{25}{100}$

6+92 5.38 28.63 26.23 2.40

92
5
46

BR H-25

Sta B.S. H.I. - 5 Elev Gr Cut

~~34.01~~

34.18 = H.I. Sta 0 - 3

0	7.88	26.30	22.90	3.40	
0+50	7.88	26.30	22.95	3.35	
0+73	7.85	26.33	22.97	3.36	
1	8.12	26.06	23.00	3.06	
1+85	7.47	26.71	23.52	3.19	
2	7.42	26.76	23.55	3.21	
3	6.77	6.60	27.41	24.10	3.31
4	34.01	5.12	28.89	24.65	4.24
5	5.14	28.87	25.20	3.67	
6	4.97	29.04	25.75	3.29	
7	4.45	29.56	26.30	3.26	
8	3.80	30.21	26.45	3.76	
9	4.78	29.23	26.60	2.63	
9+65	4.60	29.41	26.69	2.72	

$$\begin{array}{r} 85 \\ 55 \\ \hline 425 \\ 425 \\ \hline 5195 \end{array}$$

$$\begin{array}{r} 34.01 \\ 6.60 \\ \hline 27.41 \\ 27.41 \\ \hline 6.77 \\ 6.77 \\ \hline 11.18 \end{array}$$

= 32 + 18 1/2 H

= 0 H - 25 B

= 0 H 25 A

$$\begin{array}{r} 34.01 \\ 2.72 \\ \hline 31.29 \\ 31.29 \\ \hline 1.72 \end{array}$$

BRH-25 A

Sta BS H-1. - S

34.18

0	7.47	26.71	23.60	3.11	= Sta 1485 BRH-25
1	6.96	29.22	24.10	3.12	
2	5.26	29.92	24.60	4.32	do
3	4.61	29.57	25.10	4.47	do
4	5.32	28.86	25.60	3.26	
0	5.90	28.28			
5	4.78	29.40	26.10	3.30	—
6	4.44	29.74	26.35	3.39	
7	4.61	29.57	26.60	2.97	do
9+6.1	4.40	29.78	26.75	3.03	2.90

6.1
25.6
15.0

BR H-25-B

Sta BS H-1. -5 Elk

34.18

0 7.85 26.33 23.10 3.22 = 0 + 73.82 H-25

1 7.48 26.70 23.60 3.10

2 6.94 27.24 24.10 3.14

3 5.55 28.63 24.60 4.03 4.03

4 4.50 29.68 25.10 4.68 4.10

5 4.37 29.81 25.60 4.21

6 5.32 28.86 26.10 2.76

7 4.39 29.79 26.60 3.19

8 4.07 30.11 27.10 3.01

Sta 52 3.92 30.26 27.36 2.90

2360

= Stg 23 + 25 Mäinh

= Stg 23 + 25 Mäinh

5

2.

1

५

18

1

15

4

Sta BS H.I. - S Elev 61 Cut

3431

B.M. 4.04 3381

29.77

0 6.08 29.73 2450 3.23

= Sta 3431 Main H

1 5.65 28.16 2485 3.31

2 4.71 29.10 2520 3.90

3 4.06 29.75 2555 4.29

4 In small pond 4.31 29.50 2570 3.80

5 5.28 3554 255 30.26 2585 4.41

6 5.53 30.01 26.00 4.01

6+90 5.55 29.99 26.14 3.85

= O.H. 27-A

7+90 5.41 30.13 26.29 3.84

8+50 4.06 31.48 27.19 4.29

9 4.29 31.25 27.94 3.31

Look up pond Elev Sta 7.50

(2836)

2625

211

$$\begin{array}{r} 115 \\ .9 \\ \hline 135 \end{array}$$

$$\begin{array}{r} 150 \\ 60 \\ \hline 90.0 \end{array}$$

Hubs BRH-28

(24.80)

Sta B5 H1 -5

BM 4.04 33.81 2977

0 5.28 28.83 25.20 3.33 = sta 35+39 Maint

1 4.63 29.18 25.70 3.48

2 4.42 29.39 26.20 3.19

3 3.63 30.18 26.70 3.48

4 5.94 35.53 4.22 29.59 27.20 2.39

5 4.80 30.73 27.70 3.03

Sta 81 4.42 31.11 28.10 3.01

Edge Pond

BRH-27-A

0 35.53 5.55 29.98 26.40 3.48 3.63 + 9.69 BRH 27

0+75 Edge Pond 5.68 29.85 27.15 2.70 2.85

1 4.42 31.11 27.40 3.71 3.86

2 4.24 31.29 28.40 2.89 3.04

3 3.13 32.40 29.40 3.00 3.15

3+75 2.82 32.71 30.15 1.56 2.71

Lower Hill

75° 3

375

525
15625

Add 15 to 525

BR H - 29

Sta BS H.I. - 5 Elev Gr Int.

BMD 5.36 35.13 29.77

0	6.01	29.12	25.75	3.37	↗ Sta 36-44 Main H ↓ 5.16 ↓ 3.59 ↓ Long spot 31.50 ↓
1	5.60	29.53	26.10	3.43	
2	4.92	30.21	26.45	3.76	
3	4.74	30.39	26.85	3.59	
0	5.60	29.53			
4	4.52	30.61	27.15	3.46	
5	3.88	31.25	27.50	3.75	
5+13	4.00	31.13	27.55	3.58	

$$\begin{array}{r} 13 \\ 13.5 \\ 13.5 \\ 13.5 \\ 13.5 \\ 13.5 \\ 13.5 \end{array}$$

BR H - 30

35.13

0	5.09	30.04	26.75	3.29	= Sta 37-40 Main H ↓ 2.92 ↓ 3.22 ↓ 3.28 ↓ 3.95 ↓ 3.19
1	5.06	30.07	27.15	2.92	
2	4.36	30.77	27.55	3.22	
3	3.90	31.23	27.95	3.28	
4	2.83	32.30	28.35	3.95	
4+2	3.42	31.71	28.52	3.19	

$$\begin{array}{r} 4240 \\ 1680 \end{array}$$

BRH-31

BMB 1.77 29.32

27.55

0

3.29 26.03 22.00 4.03

= 5 + 4 27 + 46 M in H

0 + 50

3.36 25.96 22.20 3.76

1

3.52 25.80 22.40 3.40

1490

3.84 25.48 22.76 2.72

$$\begin{array}{r} 3.29 \\ 3.36 \\ 3.52 \\ 3.84 \end{array}$$

13R H-32

BMB 177 29.32 27.55

0 4.04 25.28 20.20 5.08

1 4.47 24.85 20.40 4.45

1+70 5.07 24.25 20.54 3.71

2 5.52 23.80 20.60 3.20

2+40 5.56 23.76 20.64 3.08

2+50 End 5.75 6 No Hub 20.70

= Sta 20+90 Main H

= 0 H-22-13

= 0 H-22-A

BRH-32-A

0 29.32 5.56 23.76 20.75 3.01

1+10 4.80 24.52 21.00 3.52

2 4.72 24.60 21.25 3.35

3 4.29 25.03 21.50 3.53

4 3.90 25.42 21.85 3.57

5 3.77 25.53 22.20 3.35

6 3.38 25.94 22.55 3.39

6+50 3.58 25.74 22.73 3.01

= Sta 24+13R H-32

= 0 H-32-13

BRH-32-A Extended
to Sta 9+80 apt

135 H 32 B

Sta 135 H1 - S Elev

135 H 1.77 29.32 27.55

0 5.07 24.25 20.75 3.50

= Sta 1470 135 H 32

0+50 5.26 24.06 20.88 3.18

1 4.66 24.66 21.00 3.66

+50 4.46 24.86 21.13 3.73

2 4.34 24.98 21.25 3.73

+50 4.70 24.62 21.38 3.24

3 5.00 24.32 21.50 2.82

+50 5.21 24.11 21.63 2.48

4 4.29 25.03 21.75 3.28

5 3.82 25.50 22.25 3.25

5785 3.20 26.12 22.08 3.44 5%

85-2
32-5070
N
5

104

Hubs Main J10/20/21 Hoff
Simpson

Sta	B.S.	H.I.	-5	Elev	Gr	Cut.	
B.M. B	2.57	30.12		27.55			
0			6.54	23.58	20.80	2.78	= Sta 25+25 Main H
0+50			5.71	24.41	20.93	3.48	
1			5.36	24.76	21.05	3.71	
2			5.61	24.57	21.30	3.27	
3			5.12	25.00	21.55	3.45	
4			4.89	25.23	21.80	3.43	
5			4.62	25.50	22.05	3.45	
6			4.11	26.01	22.70	3.31	
7	6.16	32.81	3.47	26.65	23.35 ₃₃	3.30	
7+50			5.76	27.05	23.68	3.37	
8		E	4.76	28.05	24.00	4.05	
9			4.25	28.56	24.65	3.91	
10			4.00	28.81	24.85	3.96	
11			4.07	28.74	25.05	3.69	
12	5.05	34.44	3.42	29.37	25.25	4.14	
13			4.57	29.87	25.45	4.42	

3) 5.70
 1.70
 3.20
 1.00
 3.00

4
 3
 2
 1
 0

8

9
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 7
 6
 5
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 0

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 2
 1
 0

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 5
 4
 3
 2
 1
 0

Hubs Main N Cont.

14	3444	5.12	29.32	25.65	3.67
----	------	------	-------	-------	------

15		4.63	29.81	25.85	3.96
----	--	------	-------	-------	------

16		4.42	30.02	26.05	3.97
----	--	------	-------	-------	------

16+50		4.47	29.97	26.25	3.72
-------	--	------	-------	-------	------

17		4.11	30.33	26.45	3.88
----	--	------	-------	-------	------

18	5.70	36.38	3.76	30.68	26.85	3.83
----	------	-------	------	-------	-------	------

19		5.07	31.31	27.25	4.06
----	--	------	-------	-------	------

20		4.41	31.97	27.65	4.32
----	--	------	-------	-------	------

21		4.61	31.77	28.05	3.72
----	--	------	-------	-------	------

22		4.26	32.12	28.45	3.67
----	--	------	-------	-------	------

23		4.16	32.22	28.85	3.37
----	--	------	-------	-------	------

BMF		3.58	32.80		
-----	--	------	-------	--	--

24	6.43	39.08	3.73	32.65	29.25	3.40
----	------	-------	------	-------	-------	------

25		5.99	33.09	29.65	3.44
----	--	------	-------	-------	------

150		5.50	33.58	29.90	3.68
-----	--	------	-------	-------	------

26		5.24	33.84	30.15	3.69
----	--	------	-------	-------	------

Hub in Fence Cor North of Sta 23 Main J

6

26+25	39.08	5.15	33.93	30.28	3.65	
+50		5.12	33.96	30.40	3.56	
27		4.87	34.21	30.65	3.52	
28		4.46	34.62	31.15	3.47	
29	6.22	41.57	4.03	35.05	31.65	3.40
30		6.04	35.53	32.15	3.38	
31		5.46	36.11	32.65	3.46	
32		5.11	36.46	33.15	3.31	
33		4.65	36.92	33.65	3.27	
33.99		4.58	36.99	34.15	2.84	
0		6.15	35.42			

F.H. D. E end culv.

Hubs Main R

$$\begin{array}{r} 30.20 \\ 60 \\ \hline 1.20 \end{array}$$

$$\begin{array}{r} 22.70 \\ 1.20 \\ \hline 22.00 \end{array}$$

$$\begin{array}{r} 22.00 \\ 18.25 \\ \hline 3.75 \end{array}$$

B.M.E	5.29	28.34	22.05	Hub 10'E Sta 9 Main # + 10' N Sta 0 Bx 7-B
0		5.64	22.70	18.25 4.45 = Sta 0 + 85 Bx 7-B
0+50		5.33	23.01	18.40 4.61
1		4.96	23.38	18.55 4.83
2		4.97	23.37	18.85 4.52
3		4.94	23.40	19.15 4.25
4		4.76	23.58	19.45 4.13
5		4.46	23.88	19.75 4.13
6		4.14	24.20	20.05 4.15
7	5.59	29.91	4.02	24.32 20.35 3.99
8		5.48	24.48	20.65 3.78
9		5.30	24.61	20.95 3.66
10		4.96	24.95	21.25 3.70
11		4.60	25.31	21.55 3.76
12.5		4.50	25.41	21.68 3.78
12		4.91	25.00	21.45 3.15
13		5.73	24.18	22.15 2.03
13+20		5.97	23.94	22.21 1.73

$$1+07=0K-7$$

$$2+48=0K-6$$

$$3+72=0K-5$$

$$5+05=0K-4$$

$$6+48=0K-3$$

$$8=0K-2$$

$$9+66=0K-1$$

3.99

Hubb BRK-1

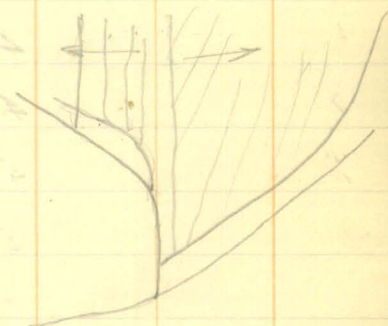
12
20
10240

Sta 135 H.I. - 5 Elev

7-Main	5.59	29.91	24.32	
0	5.06	24.88	21.50	3.35
0+50	4.88	25.08	21.60	3.43
1	4.71	25.20	21.70	3.50
2	4.52	25.39	21.90	3.49
3	5.13	24.78	22.10	2.68
3+12	5.35	24.56	22.12	2.44

2/0

= 9+66 Main K



BRK-2

0	29.91	5.50	24.41	20.80	3.61
0+50		5.51	24.40	21.00	3.40
1		5.35	24.56	21.20	3.36
2		4.73	25.18	21.60	3.58
3		4.40	25.51	22.00	3.51
4 on Main		3.62	26.29	22.40	3.59
4+33		4.25	25.66	22.80	2.86

1/

= Sta 8 Main K

Hubs Br K-3

Sta BS H1 - S Elev

29.91

0	5.65	24.26	21.00	3.26	= Sta 6+48 Main K
---	------	-------	-------	------	-------------------

1	4.93	24.98	21.60	3.48	S
---	------	-------	-------	------	---

2	4.65	25.26	21.00	3.26	—
---	------	-------	-------	------	---

3	4.44	25.47	22.25	3.22	1
---	------	-------	-------	------	---

4	4.20	25.71	22.50	3.21	N
---	------	-------	-------	------	---

5	3.79	25.12	22.75	3.37	
---	------	-------	-------	------	--

Sta 0	4.06	25.85	22.85	3.00	
-------	------	-------	-------	------	--

Br K. 4

S Main K 5.80 29.68 23.88

0	5.80	23.88	20.50	3.38	= Sta 5+05 Main K
---	------	-------	-------	------	-------------------

1	5.28	24.40	21.00	3.40	6/0
---	------	-------	-------	------	-----

2	4.71	24.97	21.50	3.47	5
---	------	-------	-------	------	---

3	4.34	25.34	22.50	3.34	—
---	------	-------	-------	------	---

4	4.25	25.43	22.25	3.18	
---	------	-------	-------	------	--

5	4.06	25.62	22.50	3.12	N
---	------	-------	-------	------	---

6	3.98	25.70	22.75	2.95	
---	------	-------	-------	------	--

6+35	3.99	25.69	22.84	2.85	
------	------	-------	-------	------	--

$$\begin{array}{r} 25 \\ 4 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 35 \\ 40 \\ \hline 1400 \end{array}$$

$$\begin{array}{r} 25 \\ 35 \\ \hline 125 \\ 75 \\ \hline 10875 \end{array}$$

Bip K - 5

5 Main K d: 80 29.68

23.88

0 6.04 23.64 20.00 3.64

= 5 + 43 + 72 Main K

1 5.95 23.73 20.50 3.23

2 5.37 24.31 21.00 3.31

3 4.82 24.86 21.50 3.36

4 4.23 25.45 22.00 3.45

5 4.18 25.50 22.25 3.25

6 4.61 25.07 22.50 2.57

7 4.29 25.39 22.75 2.64

7+20 4.06 25.62 22.80 2.82

25
20
500

Br. 15-6

Sta

Sta Mark 5.80 29.68

2388

0 6.60 23.08 19.75 3.33

= Sta 2481 Mark

1 5.99 23.71 20.00 3.71

2 6.16 23.52 20.25 3.27

3 5.67 24.0 20.50 3.51

4 5.00 24.68 21.00 3.68

5 4.70 24.98 21.50 3.48

6 4.45 25.23 22.00 3.23

7 4.41 25.27 22.25 3.02

8 3.80 25.68 22.50 3.18

8+05 3.80 25.68 22.51 3.17

BR 15.7

5 Main K	5.80	29.68	23.88		
0		6.40	23.28	19.50	3.78 = Sta 1401 Main K
1		6.22	23.46	19.75	3.81
2		5.94	23.74	20.00	3.74
3		6.19	23.49	20.25	3.24
4		5.76	23.92	20.50	3.42
5		4.78	24.90	21.25	3.65
6		3.96	25.72	22.00	3.72
7		3.83	25.85	22.25	3.60
8		3.86	25.82	22.50	3.32
8+88		3.64	26.04	22.72	3.32

88.

.5

4.00

Hubs Br K-8

Sta BS H1 - S Elev Gr Cut.

BM-E 5.22 28.27 23.05

0 5.29 22.98 19.00 3.98 = Old Main K

1 5.11 23.16 19.50 3.66

2 4.93 23.34 20.00 3.34

3 4.76 23.51 20.25 3.26

4 4.42 23.85 20.50 3.35

5 4.06 24.21 20.75 3.46

6 6.98 32.21 3.04 25.23 21.15 3.78

7 6.73 25.48 22.15 3.33

8 6.08 26.13 22.85 3.28

8+58 6.15 26.06 23.26 2.80

58
 60
 3 58
 75
 58
 2 600
 375
 4350

58
 70
 4060

124

BRK 8-A

Sta 135 H1 -5 Elev
BME 5.22 28.29 23.05

0		4.82	23.45	20.00	3.45	10	= 1406 BRK 8
1		4.76	23.51	20.15	3.36	1	
2		4.60	23.67	20.30	3.37	1	
3		4.78	23.49	20.45	3.04		
4		3.47	24.80	20.95	3.85		
5	6.83	32.26	2.84	25.43	21.45	3.98	10
6		6.68	25.58	21.95	3.63	0	
7		6.23	26.03	22.45	3.59	0	
8		5.83	26.43	22.95	3.48	0	
8+09		5.94	26.32	23.00	3.32		

BRK 8-13

0	28.27	4.86	23.41	20.25	3.16		= 2145 BRK 8
1		5.04	23.23	20.40	2.88	10	
2		4.62	23.65	20.55	3.10	1	
3		3.42	24.84	21.30	3.64		
4	6.71	32.24	2.74	25.53	22.05	3.48	10
5		6.06	26.18	22.80	3.38	1	
6		5.48	26.76	23.55	3.21		
6+61		5.36	26.98	24.01	2.85		

75
61
75
450
4575

BR K-8-C

BME 5.22 28.27

23.05

0

4.46 23.81 21.00 2.81

= 3487 BR K-8

1

4.19 24.08 21.15 2.93

1%

2

7.33 32.25 3.35 24.92 21.30 3.62

3

7.06 25.19 22.15 3.04

5)3

4

6.02 26.23 23.00 3.23

8%

5

4.93 27.32 23.85 3.47

24.00

21.30

3 | 270
80

5710

5.04 27.21 23.94 3.27

BR K 8-D

0

32.25 7.87 24.38 21.00 3.38

= 34527 BR K-8

1

7.03 25.22 21.70 3.52

1%

2

6.59 25.66 22.40 3.26

3

5.76 26.49 23.10 3.39

3458

5.05 27.20 23.50 3.70

58
7
406

Br 15-8-F

Sta

32.25

0	7.10	25.15	22.15	3.00	90 = Sta 6+67 Br 15-8
1	6.30	25.95	22.65	3.30	
2	5.18	27.01	23.55	3.52	90
2+08	5.26	26.99	23.62	3.37	

90
08
0720

Hubs Main L

Sta	BS	HI	-S	Elev	Gr	Cut	
BME	5.22	28.27		23.05			
0			4.86	23.41	19.50	4.41	$\frac{0.15}{100} = 2+50 \text{ Br } 7-13$
1			4.85	23.39	19.75	3.64	$= 0 \text{ BRL-1}$
2			4.31	23.96	20.20	3.76	
3			4.12	24.15	20.65	3.50	$\frac{0.15}{100}$
4	7.87	32.29	3.85	24.42	21.10	3.32	$\frac{0.15}{100}$
5			7.40	24.89	21.55	3.34	
6			6.69	25.60	22.00	3.60	
7			6.44	25.85	22.45	3.40	
7+29			6.50	25.79	22.58	3.21	

BRL-1-A

0	28.27	4.60	23.67	20.40	3.27	$\frac{0.10}{100} = \text{Sta } 1 \text{ Br } L-1.$
1		4.78	23.49	20.50	2.99	
2	8.11	32.26	4.12	24.15	21.00	3.15
3			7.38	24.88	21.50	3.38
4			6.92	25.34	22.00	3.34
5			6.56	25.70	22.50	3.20
568			6.27	25.99	22.84	3.15

$$\begin{array}{r} 68 \\ 307 \\ \hline 3600 \end{array}$$

BR L-1

BNE		5.22	28.27	23.05			
0				488	23.39	19.80	3.59
1				460	23.67	20.30	3.37
1+75				481	23.46	20.38	3.08
2				488	23.39	20.40	2.99
3				440	23.87	20.50	3.37
4	7.82	32.27	3.81	24.46	21.00		3.46
5				7.27	25.00	21.50	3.50
6				6.50	25.77	22.00	3.77
7				6.79	25.48	22.50	2.98
7+21				6.86	25.41	22.60	2.81

5%

= stat Marl L

= O L-1-A

10%

1/2

Hubs Main M

Sta	BS	HI	-S	Elev	Cor	ZL+
5-Br L-1	6.04	31.04		25.00		
0			7.65	23.39	19.75	3.64 = Sta 5+69 Br 7-B
1			7.40	23.64	20.20	3.44
2			6.76	24.28	20.65	3.63
3			6.49	24.55	21.10	3.45
4			5.94	25.10	21.55	3.55
5			5.95	25.09	22.00	3.09
5780			5.54	25.50	22.36	3.14

BR M-1

0	31.04	7.53	23.51	20.25	3.26	= Sta 0+72 Main M
1		6.50	24.54	20.85	3.69	
2		5.95	25.09	21.45	3.64	
3		5.52	25.52	22.05	3.47	
4		5.16	25.98	22.65	3.23	
477		4.39	26.65	23.11	3.54	

17
60
420

BR M-2

5BR L-1	6.04	31.04	25.00			
0		6.92	24.12	20.70	3.42	= Sta / +50 Main M
1		6.18	24.86	21.60	3.26	9%
2		5.00	26.04	22.50	3.54	
3		4.90	26.14	23.00	3.14	dp
4		4.42	26.62	23.50	3.12	?
4+65		3.74	27.30	23.83	3.47	
<u>50</u>						
3250						

BR M-3

0	31.04	6.74	24.30	21.00	3.30	= Sta 2+25 Main M
1		5.91	25.13	21.85	3.28	8%
2		4.77	26.27	22.70	3.57	
3		4.09	26.95	23.55	3.40	
4		3.80	27.24	24.13	3.09	60%
4+58		3.16	27.88	24.50	3.38	

3.8
 27.0
 24.4
 4930

58
 45
 23.90
 23.2
 26.10

56
 60
 3.80

BR M-4

5-L-1	6.04	31.04	25.00			
0		6.49	24.55	21.25	3.30	= 549 3+00 417 M
1		5.70	25.34	22.05	3.29	
2		4.93	26.11	22.85	3.26	1870
3		4.03	27.01	23.65	3.36	—
4		3.08	27.96	24.65	3.31	1.50
4+48		2.05	28.99	25.63	3.86	

BR M-5

0	31.04	5.90	25.14	21.75	3.39	= 3178 Main M
1		5.65	25.39	22.00	3.39	1257
2		4.79	26.25	23.05	3.25	—
3		3.60	27.44	24.00	3.44	1.50
4		2.44	28.60	25.00	3.60	—
4+40		1.32	29.72	26.20	3.52	3.00

13R-M-6

5-L-1 6.04 31.04

0	5.91	25.13	22.00
1	5.06	26.98	22.60
2	4.25	26.79	23.20
3	2.89	28.15	24.40
4	1.39	29.65	26.70

3.13

= 5494 + 55 Main M

3.38

1.6%

3.59

3.45

3.45

1.1%

13R-M-7

0	31.04	5.62	25.42	22.25
1		4.72	26.31	23.00
1457		4.20	26.84	23.43

3.17

= 549731 Main M

3.31

3.41

1.7%

7.5
 5.7
 5.2
 5.5
 3.7
 4.2
 5

Hubs Main N

8 12/15 2

Sta 55 H.I. -5 Elev 60

Cut 15.15

B/M 27 3.74 26.45 22.71

0			6.13	20.32	16.00
1			6.54	19.91	16.40
2			5.46	20.99	16.80
3			6.01	20.44	17.20
+50			4.80	21.65	17.45
4			4.87	21.58	17.60
+50			4.80	21.65	17.80
5			4.57	21.91	18.00
6	5.83	28.55	3.73	22.72	18.50
7			5.07	23.48	19.00
8			5.77	22.78	19.30
9			5.62	22.93	19.60
+50			5.71	22.84	19.75
10			5.64	22.91	19.90
11			4.95	23.60	20.20
12	End		4.91	23.64	20.50

End of 4.86 23.69

4.32	0 = 54 15 + 10	Br-7-
3.51		
4.19		
3.24	2 + 33 = 0	N-7 24.70
4.25		
3.98	4 + 0.8 = 0	N-6 24.00
3.85		
3.91	4.190	0 N-5 24.48
4.22	5.780	0 N-4 6+57
4.48	6 + 6.8 = 0	N-3 5+62
3.48	7 + 6.0 = 0	N-2 4+69
3.33	8 + 5.0 = 0	N-1 3+74
3.09		
2.0		
3.40		
2.14		

3290
 2992
 6282
 825
 5457

144

Hubs Br N-5

Sta	B.S.	H.I.	-S	Elev	Cor
6-Main N	5.83	28.55		22.72	
0			6.69	21.86	18.00
+50			6.05	22.50	18.25
1			5.66	22.89	18.50
2			5.52	23.03	19.00
3			5.31	23.24	19.50
4			5.14	23.41	20.00
5			4.95	23.60	20.30
6			4.86	23.69	20.60
7			4.30	24.25	20.90
7+48			4.14	24.41	21.05

$\frac{148}{13}$
 $\frac{13}{134}$

Cut

	$\checkmark = \text{Sta } 4+90 \text{ Main N.}$	
3.86	$\uparrow$	
4.25		End Sta
4.39	$\downarrow$	1+60 = O-N-S-H 4+32
4.03	$\downarrow$	2+39 = O-N-S-G 4+16
3.74	$\downarrow$	3+69 = O-N-S-F 3+99
3.41	$\downarrow$	4+00 = O-N-S-E 3+81
3.30	$\downarrow$	4+75 = O-N-S-D 3+67
3.09	$\downarrow$	5+56 = O-N-S-C 3+49
3.35	$\downarrow$	6+36 = O-N-S-B 3+32
3.36	$\downarrow$	7+14 = O-N-S-A 3+16

2992

46

Hubs BR N-1

(1950)

74

Sta B.S. H.I. -S E/W Gr

Cut

BME 5.59 28.64 23.05

0 5.71 22.93 19.75

3.18 = 8150 Main N

0+50 5.30 23.34 19.90

3.44

1 5.04 23.60 20.05

3.55

3.00
5.11

2 4.76 23.89 20.35

3.63

3 4.65 23.99 20.65

3.34

3+74 4.93 23.71 20.85

2.86

BR N-2

(1925)

0 28.64 5.62 22.92 19.50

3.42 = 7460 Main N

0+50 5.34 23.30 19.58

3.72

1 4.95 23.69 19.75

3.94

3.00
5.11

2 4.68 23.96 20.00

3.96

3 5.06 23.58 20.25

3.33

4 4.79 23.85 20.50

3.35

4+69 5.10 23.54 20.68

2.86

85
7
12.00

BME 5.59 28.64

23.05

0

5.16 23.48 19.75

2.73

= 6468 1741.7/V

150

5.10 23.54 19.82

3.71

1

5.06 23.58 19.90

3.68

2

4.76 23.88 20.05

3.85

3

4.64 24.00 20.20

3.80

4

4.90 23.74 20.35

3.39

5

5.15 23.49 20.50

2.99

5762

5.06 23.58 20.60

2.98

162

15

310

42

BME 5.59 28.64

23.05

0

6.15 22.49 19.20

3.49

= 5+80 main N

1.50

5.62 23.02 19.25

3.77

6.0

1

5.29 23.35 19.50

3.85

1.0

2

5.28 23.36 20.00

3.36

3

5.02 23.62 20.15

3.47

1.0

4

5.10 23.54 20.30

3.24

1.0

5

5.10 23.54 20.45

3.09

6

4.78 23.86 20.60

3.26

W57

4.70 23.94 20.69

3.25

$$\begin{array}{r} 11.5 \\ 28.5 \\ 37 \\ \hline 083.5 \end{array}$$

N system cont ahead of

Dir #1 H-24

Total Shortage 130'-6" + 120'-14" =

On ground 1 pc 18" 1 pc 12"

BRF 126 pss 6" 815 = 252

6" Tile 838

BRD - 1.0-4+38

" 1.2-0-5+40

BRD Laid 14+20

11 of

End 25+29

1056" Tile on ground 52' short

BRD - 4 0-10+10 - 274

368 736

198- 16" On ground = 5' short

21 990 996 490 327 438 240 130 10150

133 x 2 = 266'

406 - 14' x 2 1/2 = 1015'

1981

1208 short

QY 702' - 10''

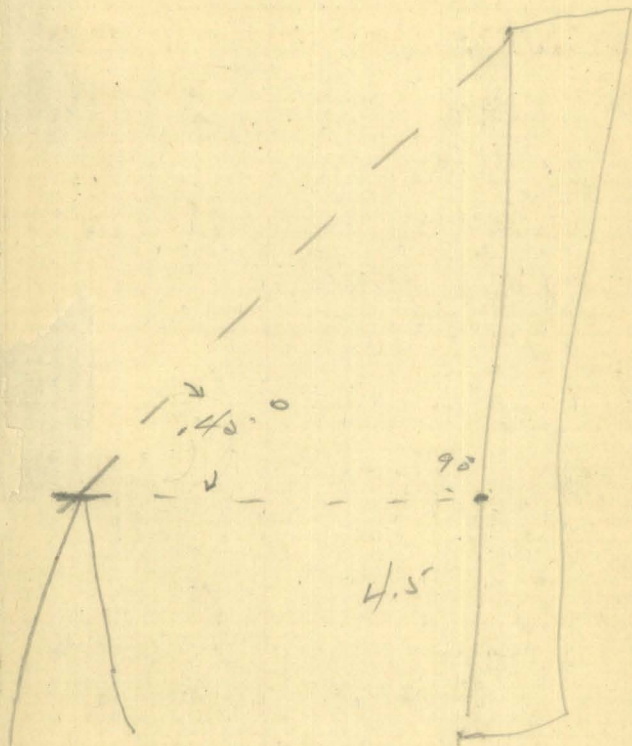


TABLE IX.—CALCULATION OF EARTHWORK.

Width	HEIGHT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.02	.04	.06	.07	.09	.11	.13	.15	.17	.18	.20	.22	.24	.26	.28
2	.04	.07	.11	.15	.18	.22	.26	.30	.33	.37	.41	.44	.48	.52	.56
3	.06	.11	.17	.22	.28	.33	.39	.44	.50	.56	.61	.67	.72	.78	.83
4	.07	.15	.22	.30	.37	.44	.52	.59	.67	.74	.81	.89	.96	1.04	1.11
5	.09	.19	.28	.37	.46	.56	.65	.74	.83	.93	1.02	1.11	1.20	1.30	1.39
6	.11	.22	.33	.44	.56	.67	.78	.89	1.00	1.11	1.22	1.33	1.44	1.55	1.67
7	.13	.26	.39	.52	.65	.78	.91	1.04	1.16	1.30	1.42	1.55	1.68	1.81	1.94
8	.15	.30	.44	.59	.74	.89	1.04	1.19	1.33	1.48	1.63	1.78	1.92	2.08	2.22
9	.17	.33	.50	.67	.83	1.00	1.17	1.33	1.50	1.67	1.83	2.00	2.17	2.33	2.50
10	.18	.37	.56	.74	.93	1.11	1.30	1.48	1.67	1.85	2.04	2.22	2.41	2.59	2.78
11	.20	.41	.61	.82	1.02	1.22	1.43	1.63	1.83	2.04	2.24	2.44	2.65	2.85	3.06
12	.22	.44	.67	.91	1.11	1.33	1.56	1.78	2.00	2.22	2.44	2.67	2.89	3.11	3.33
13	.24	.48	.72	.96	1.20	1.44	1.68	1.92	2.16	2.41	2.65	2.89	3.13	3.37	3.61
14	.26	.52	.78	1.04	1.30	1.55	1.81	2.06	2.33	2.59	2.85	3.11	3.37	3.63	3.89
15	.28	.56	.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	3.06	3.33	3.61	3.89	4.17
16	.30	.59	.89	1.18	1.48	1.78	2.07	2.37	2.67	2.96	3.26	3.56	3.85	4.15	4.44
17	.31	.63	.94	1.26	1.57	1.89	2.20	2.52	2.83	3.13	3.46	3.78	4.09	4.41	4.72
18	.33	.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.67	4.00	4.33	4.67	5.00
19	.35	.70	1.06	1.41	1.76	2.11	2.46	2.82	3.17	3.52	3.87	4.22	4.57	4.92	5.28
20	.37	.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	4.07	4.44	4.81	5.18	5.56
21	.39	.78	1.17	1.55	1.94	2.33	2.72	3.11	3.50	3.89	4.28	4.67	5.06	5.44	5.83
22	.41	.81	1.22	1.63	2.04	2.44	2.85	3.26	3.67	4.07	4.48	4.89	5.30	5.70	6.11
23	.43	.85	1.28	1.70	2.13	2.56	2.98	3.41	3.83	4.26	4.68	5.11	5.54	5.96	6.39
24	.44	.89	1.33	1.78	2.22	2.67	3.11	3.56	4.00	4.44	4.89	5.33	5.78	6.22	6.67
25	.46	.92	1.39	1.85	2.31	2.78	3.24	3.70	4.17	4.63	5.09	5.56	6.02	6.48	6.94
26	.48	.96	1.44	1.92	2.41	2.89	3.37	3.85	4.33	4.82	5.30	5.78	6.26	6.74	7.24
27	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
28	.52	1.04	1.55	2.07	2.59	3.11	3.63	4.15	4.67	5.18	5.70	6.22	6.74	7.26	7.78
29	.54	1.07	1.61	2.15	2.68	3.22	3.76	4.30	4.83	5.37	5.91	6.44	6.98	7.52	8.06
30	.56	1.11	1.67	2.22	2.78	3.33	3.89	4.44	5.00	5.55	6.11	6.67	7.22	7.78	8.33
31	.57	1.15	1.72	2.30	2.87	3.44	4.02	4.59	5.17	5.74	6.32	6.89	7.46	8.04	8.61
32	.59	1.18	1.78	2.37	2.96	3.56	4.15	4.74	5.33	5.92	6.52	7.11	7.70	8.30	8.89
33	.61	1.22	1.83	2.44	3.05	3.67	4.28	4.89	5.50	6.11	6.72	7.33	7.94	8.55	9.17
34	.63	1.26	1.89	2.52	3.15	3.78	4.40	5.04	5.67	6.29	6.93	7.56	8.18	8.81	9.44
35	.65	1.30	1.94	2.59	3.24	3.89	4.53	5.18	5.83	6.48	7.13	7.78	8.42	9.08	9.72
36	.67	1.33	2.00	2.67	3.33	4.00	4.66	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.00
37	.68	1.37	2.06	2.74	3.42	4.11	4.79	5.48	6.17	6.85	7.54	8.22	8.91	9.59	10.28
38	.70	1.41	2.12	2.82	3.52	4.22	4.92	5.63	6.33	7.03	7.74	8.44	9.15	9.85	10.56
39	.72	1.44	2.17	2.89	3.61	4.33	5.05	5.78	6.50	7.22	7.95	8.67	9.39	10.11	10.83
40	.74	1.48	2.22	2.96	3.70	4.44	5.18	5.92	6.67	7.41	8.15	8.89	9.63	10.37	11.11

Table gives cu. yds. in 1 ft. of a triangle of given width and height. Corrections for tenths of width are one tenth the values found under each height considering the widths from 1 to 9 as tenths and similarly the corrections for tenths of height are one tenth the figures opposite width considering the heights from 1 to 9 as tenths. Thus if $w = 16.2$ and $h = 5.3$, cu. yds. $= 1.48 + .028 + .089 = 1.597$ cu. yds. or practically 160 cu. yds. per 100 ft. If w exceeds 40 ft., use one half and multiply result by 2, if both w and h are large use one half of each and multiply result by 4. Any cross-section may be divided into triangles by the following rule. To the triangle of the sum of the outside cuts (or fills) $= h$, and $\frac{1}{2}$ the roadbed $= w$, add the triangles formed by taking the distance out to each break in turn ($= w$'s) by the difference between the cuts (or fills) on each side of it ($= h$'s) always subtracting the outer from the inner.

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	26.2	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 $41.9 + (20 - 16) \div 2$ or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.