

Dr #9 Eisenbank.

Cook's

DIEZGEN
D-5

1085

No. 412

Construction.

Sec. 5-6+1

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide.

Side Slopes 1 on 1.

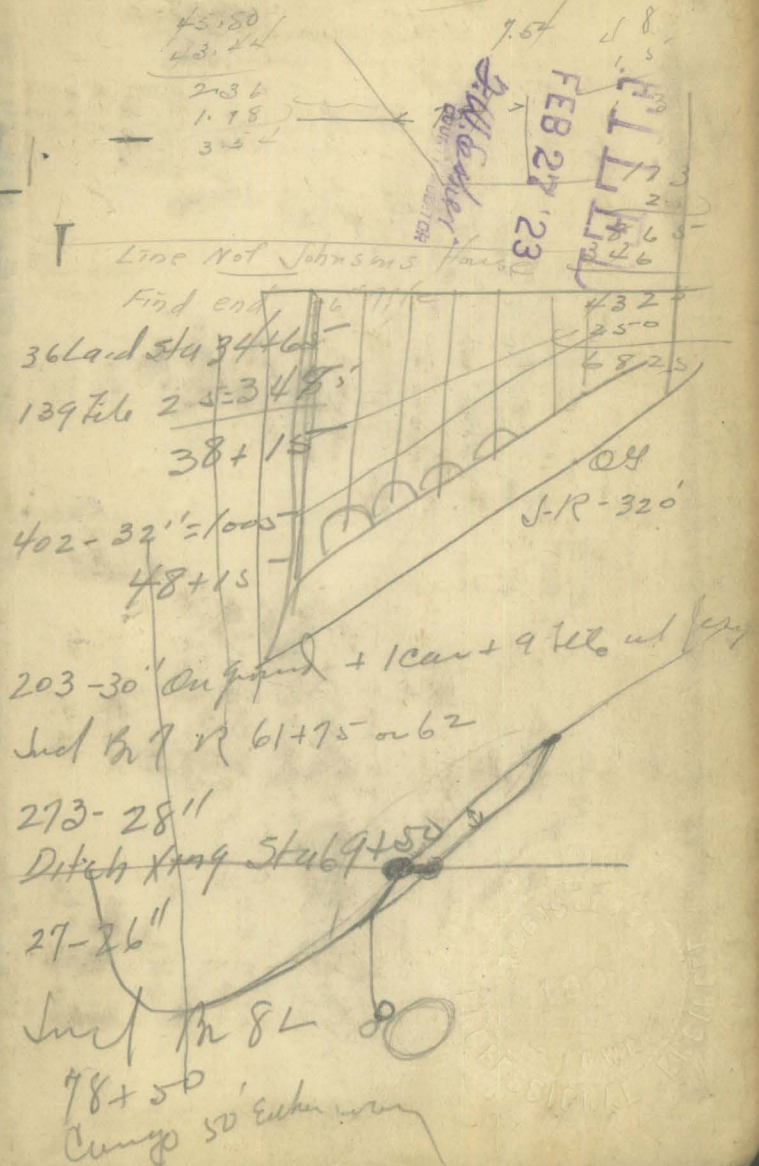
For Single Track Embankment.

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 $30.6 + (20 - 16) \div 2$ or 2 ft. added to 30.6 = 32.6. For slopes of 1 on 1½ see inside of back cover.

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30' inc 45 (1 car + 9' file)



Notes for fill at Bulwark
(District)

50' - 22' width + 3' Depth

150' - 25' " + 4 1/2' "

122 cu yd + 625 cu yd = 747 cu yd

22
3
66
50' cu yd
27 | 3300
27

60
54
60

25
46
125
100

1125

150

56200

1125

27 | 165700 (624.8 cu yd)
162

67

54

130

108

2205

216

747

30
22410

45

25

46

125

100

1125

Index

Line	Cuts	Page
	Main Open Ditch	1-15
	BR 1-L	21
	" 1-R	23-25
	" A-R	25
	BR 2-L	27-33
	BR A-L	35
	BR B-L 35-37 +	65-67
	" C-L	53-55
	BR 2-R	39-43
	BR B-R	45-49
	BR 3-R	59-61
	" C-R	62
	BR 4-R	62

Summary of Ditch lengths. - 80

Main Tile Cuts	91-130
BR 3-Left "	137 + 131
BR 5-R "	141 + 133

Tile + Open Ditch Check

BM

435 62.25

57.90

10.75

51.50

Line

Page

Main O.D

69 - 77

48.50

May 19 1921 2
Hoff
Hill
Simpson

Hubs Main O.D. Dr #9 Center

5+9 B.S H.I. -5 Elev Gr. Cut

0.68 50.68 50.00

T.P. 6.53 48.94 8.27 42.41

0 9.55 39.37

Ditch Bottom

0 8.25 40.69

H₂O Level

0 6.83 42.11 40.00

2.11 Hub

1 5.87 43.07 40.08

2.99

P.S.
1+40 6.65 42.29 40.11

2.18

1+83 4.97 43.97 40.14

3.83

2+33 4.83 44.11 40.18

3.93

2+83 5.45 47.86 6.53 42.41 40.22

2.19

3+33 3.43 44.42 40.26

4.17

3+83 in Ditch

4+23 3.96 44.10 40.34

3.76

4+75 5.51 42.35 40.38

1.97

5 5.73 42.13 40.40

1.73

May 28 - 21.4

Hoff
Simpson

Sta BS H.I. -S Elev Gr Cut

~~B.M.~~ ~~50.00~~

Traded self reading rod

Using self-read

~~6~~ ~~42.31~~

for Gladia Board

109 level rod.

B.M. 1 2.62 52.62 50.00

6 10.28 42.35 40.48 1.87

7 7.29 43.34 40.56 2.78

P.C.
7+12 7.95 44.68 40.57 4.11

162 7.52 45.10 40.61 4.49

8+12 8.57 44.06 40.65 3.41

8+62 6.50 46.13 40.69 5.44

9+12 7.87 44.76 40.73 4.03

9+62 6.58 46.05 40.77 5.28

10 9.10 43.53 40.80 2.73

11 7.72 44.91 40.88 4.03

12 7.70 53.68 66.5 45.98 40.96 5.02

13 6.40 47.25 41.04 6.24

14 6.01 47.67 41.12 6.55

15 5.95 47.73 41.20 6.53

P.C.
15+13 6.19 47.49 41.21 6.28

5

16. 40.28

17 40.36

21

108

148

6

Sta BS H.I. -5 Elev

16+10 53.68 6.99 46.69 41.29 5.40

16+63 9.50 44.18 41.33 2.85

No hub

Bot. of Ditch by guide -

17+13 10.40 43.28 41.37 1.91

" " " " " "

17+40 5.95 47.73 41.39 6.34

17+63 5.90 47.78 41.40 6.37

18+50 6.42 47.26 41.48 5.78

19 8.65 45.03 41.52 3.51

Bot. of Ditch by guide - no hub

19+50 7.78 45.90 41.56 4.34

19+75 6.80 46.88 41.58 5.30

20 8.12 45.56 41.60 3.96

4.40

20+25 7.00 46.68 41.62 5.06

13.20

20+50 7.65 46.03 41.64 4.39

8

21.20

21 10 ditch + Hwy 41.68

E Hwy A

Line changed 6/1/21

7 New Hubs Sta 18+50

To Bridge on Hwy acct New alignment

Hoff
Hill
Jimpson

6/14/21

Sta	B.S.	H.I.	-S	Elev	G	Cut
Old Hub						
18+50	5.93	53.19		47.26	41.48	—
New						
18+50			5.44	47.75	41.48	6.27
19			7.60	45.59	41.52	4.07
20			7.72	45.47	41.60	3.87
20+50			7.31	45.88	41.64	4.24
21			6.75	46.44	41.68	4.76

At Sta 22+67 $\angle$ 25°-20' L

Sta 21+30 = $\angle$ N+5 Hwy

At Sta 44+44 $\angle$ 16°-00' L

6/15/21

B.M. 2	1.81	53.54		51.73		
21+50			6.23	47.31	41.72	5.59
P.C.						
21+81			5.06	48.48	41.74	6.74
22+31			6.49	47.05	41.78	5.29
22+81			6.06	47.48	41.82	5.66
23+31			7.45	46.09	41.86	4.23
P.T.						
23+50			6.13	47.41	41.88	5.53
24			4.92	48.62	41.92	6.70
25			4.73	48.81	42.00	6.81
26			4.50	49.04	42.08	6.96
26+36						

= W.Hwy E

= E.Hwy E

Sta B.S. H.I. - S Elev Gr. Cut.
5354

40.84
1.40

27 4.66 48.88 42.16 6.72

28 7.20 46.34 42.24 4.10

6/24/21

BM #2 4.60 56.33 51.73

29 7.50 48.83 42.32 6.51

30 6.97 49.36 42.40 6.96

31 6.86 56.63 49.77 42.48 7.29

32 7.74 48.89 42.56 6.33

33 6.32 50.31 42.64 7.67

34 6.32 50.31 42.72 7.59

= 0 Br 2 Rt

35 6.32 50.31 42.80 7.51

36 5.65 50.98 42.88 8.10

37 5.96 50.67 42.96 7.71

38 7.55 58.62 51.55 51.08 43.04 8.04

= 145 ft

38+17

39 8.85 49.79 43.12 6.66

Sta B.S. H.L. S Elev 61 Cut.

40 58.63 7.25 51.38 43.20 8.18

41 7.93 50.70 43.28 7.42

42 5.30 53.33 43.36 7.97

43 6.63 52.00 43.44 8.56

43+91 7.40 51.23 43.51 7.72

44 7.17 51.42 43.52 7.91

44+41 6.33 52.30 43.55 8.75

44+91 7.87 50.76 43.59 7.17

44+98 7.85 50.78 43.60 7.18

45+50 7.59 51.04 43.64 7.40

46 8.22 50.41 43.72 6.69

45+95 = E.W.P.

B.M. 0.74 57.89

(old)
57.90

Spike in root of willow F.G Ed Sta 46

1.71
7.91
150.2
8
639

875
232
310

= 0 BR 3TR

= 0 BR 3RT

X 0.30'

AVO

Cuts given Walker 6/24/21

8.13

Main O.D

8.18

17

Sta	B.S.	H.I.	-S	Elev	
B.M.	1.47	59.37		57.90	43.72
46			8.89	50.48	43.68 6.80
47			8.69	50.68	43.76 6.92
48			8.94	50.43	43.84 6.59

9.

7/28/21

4 1/2

4

19

50	5.48	58.43	6.12	53.25	44.00 9.25
49			6.98	51.75	43.92 7.83
51	Ditch Xing				44.08
51+50			6.26	52.47	44.12 8.35
52			5.44	53.29	44.16 9.13
53			5.87	52.86	44.24 8.62
54			5.54	53.19	44.32 8.87
55			5.00	53.73	44.40 9.33
56	7.38	60.88	5.23	53.50	44.48 9.02
57			7.24	53.64	44.56 9.08
58			6.90	53.98	44.64 9.34
59			7.90	52.98	44.72 8.26
59+75			7.21	53.67	44.78 8.89
B.M. #3			3.34	57.54	57.60

=0 BR 4 RT.

End of O.D.

BM 3.51 61.11 57.60

Waterl 14.00 + 7.11
 44.78
 2.23

Hubs on Front Line of
 Backwall of Bulk head

BM 3.51 61.11 57.60

100' E. of Center 6.95

75' " " " 6.22

50' " " " 6.60

50' W. of Center 6.44

75' " " " 6.75

100' " " " 6.73

BM 3.09 60.69 57.60
 12.70 47.99
 44.67
 3.32

15.00 57.0 59.0

Hubs on $\pm$ Bulk head
 = $\pm$ of 36" Line

BM 3.20 60.80 57.60

0+25 6.99 53.81 44.67 9.14

0+50 7.05 53.95 44.67 9.08

0+75 6.16 54.64 44.67 9.97

1. 6.00 54.80 44.67 10.13

Dist of Ditch N. side 9.10 51.70

Hwy Bridge 48.50

3.20

45.83
 1.25
 47.08

1.16
 44.67
 45.83

1.16
 57.0
 58.16
 1.16
 59.32

Inlet Eside Hwy - start - ^{N side} 6r Ditch
cut

O-Hub

16.00 10.90 4.10 4.10 0.00

5.60

2.50

9.10

8"

.8

2.5

3.5

7.05

4.50

Hwy Ditch

5.60

7.05

Hub 0+50

4.90 10.10 5.90 4.20

3.50

3.55

O-Hub

16.00 10.50 4.50 4.50 0.00

O+40

7.95 7.05 5.00 2.05

3.50

2.55

2.05

1.45

1.25

27.0

2.05

8.0

1.25

O-Hub

15.00 11.97 3.02 3.02 0.00

O

8.15 6.85 3.35 3.50

O+40 Hub

6.68 8.32 3.35 4.97

3.50

Sta 6 - E side Ditch + N side Hwy

40' Cor pipe

Sta 0 Cut = 0.00

Sta 0+40 " = 0.90

Sta. 6 E side Ditch + S side Hwy

20' Cor pipe

Sta 0 - Cut = 0.00

Sta 0+20 " = 1.40

Sta 21 - E side Hwy + N side Ditch

20'-10" Cor pipe 30' 8" S.P.

1-8"x8" T. 1-2 1/2' x 12' S.P.

Sta 0 Cut = 0.00

Sta 0+50 Cut = 4.20

Sta 21 - W. side Hwy + N side Ditch

20'-10" Cor pipe + 20' 8" S.P. 1-8"x8" T.

+ 1-12' S.P.

Cut Sta 0 = 0.00

" 0+40 = 2.05

Sta 21 -

E side Hwy + S side Ditch

20'-10" Cor pipe - 20' 8" 1-8"x8" T.

1-12' S.P.

Sta 0 - Cut = 0.00

0+40 - " = 4.97

Sta	BS	H.I	-S	Elev	Gr
BM #1	3.87	53.87		50.00	4/02
0+05				8.79	45.08 4/05
1				7.50	46.37 4/00
2				4.33	49.54 4/50
3			Hub gone.	47.00	
3+35				1.60	52.27 4/88

6/16/21

Hoff
Hill
Simpson

Cut

4.03 Sta 0 = Sta 7+10 to Main

4.37 $\times \frac{1.00\%}{}$ 5.04 $\frac{2.5\%}{}$ 8' file4.39 $\downarrow$ = End

Cuts given P. Berg 6/20/21

6/24/21

Short 35' file.

Sta	D.S.	H.I.	-S	Elev	Gr	Cut.	
B.M. ⁴	3.87	53.87		50.00			Sta 0 = 6 + 75 Main
0 + 05			11.17	42.70	41.00	1.70	Gr Sta 0-10 = 1.20%
0 + 50			9.65	44.22	41.60	2.62	Sta 10-End = 1.60%
.1			5.90	47.97	42.20	5.77	
2			4.43	49.44	43.40	6.04	
3			4.57	49.30	44.60	4.70	
4			3.46	50.41	45.80	4.61	
4 + 40			2.91	50.96	46.28	4.68	= 0.31 R A-R
5	10.89	62.34	2.42	51.45	47.00	4.45	
6			9.35	52.99	48.20	4.79	4/24/21
7			8.03	54.31	49.40	4.91	Tile short BR 1 RT.
8			7.08	53.26	50.60	4.66	Sta 5-12 ⁷¹⁰ 125'
9			6.60	55.74	51.80	3.94	
9 + 50			5.66	56.68	52.40	4.28	
10			3.74	58.60	53.00	5.60	
10 + 25			5.47	56.87	53.40	3.47	
11	8.59	67.78	3.15	59.19	54.60	4.59	
12			6.89	60.89	56.20	4.69	

5/9	BS	H.I.	-S	Elev	Gr.	Cut.
13		67.78	5.66	62.12	57.80	4.32
13+27			5.52	62.26	58.23	4.03

= End BR/RT.

Cuts given P Berg 6/20/21

Hub 5 BR A-R

0	12.31	63.27		50.96	46.40	4.56	= Sta 4+40 BR/RT.
1			10.49	52.75	48.10	4.68	
2			9.78	53.49	49.80	3.69	Gr = 1.70
4			7.74	55.53	50.57	4.96	
2+45			7.22	56.05	51.50	4.55	
3			5.73	57.54	53.20	4.34	
4			4.12	59.15	54.90	4.25	
5			2.33	60.84	56.60	4.24	
6			1.36	61.91	57.64	4.27	= End
6+61							Cuts given P Berg 6/20/21

27

Hubs BR 2L

$$\begin{array}{r} 1.63 \\ 2.24 \\ \hline 3.87 \end{array}$$

$$\begin{array}{r} 20.90 \\ 5.25 \\ \hline 15.65 \end{array}$$

$$\begin{array}{r} 2 \\ 1 \\ \hline .02 \end{array}$$

28

 6/21/21
 Hoff
 Hill
 Simpson

Sta BS H.I. - S Elev

BM#2 3.53 5526 51.73

T.P. 5.61 56.59 4.28 50.98 12.05

0+10 12.01 44.58 42.47 2.11

= Sta 1st 75 Main O.D.

0+50 10.21 46.38 42.55 3.83

1 10.33 46.26 42.65 3.61

Gr 0-1 = .20%

1+50 7.17 49.42 42.85 6.57

1-18 .80%

2 6.96 49.63 43.45 6.18

2+25 7.50 49.09 43.65 5.44

2+50 7.08 49.51 43.85 5.66

2+75 6.90 49.69 44.05 5.64

3 6.58 50.01 44.25 5.76

4 5.82 50.77 45.05 5.72

5 4.89 51.70 45.85 5.85

5+50 4.39 52.20 46.25 5.95

6 7.37 59.94 4.02 52.57 46.65 5.92

6+50 7.02 52.92 47.05 5.87

7 7.94 52.00 47.45 4.55

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

8 59.94 8.17 51.77 48.25 4.52

{ 9 5.59 54.35 49.05 5.30 12" }

{ 10 4.39 56.55 49.85 5.70 }

{ 11 3.60 56.34 50.65 5.69 10" }

Sta 9-10 +11 Void

Use Cuts Page 32

12 7.36 63.99 3.31 56.63 51.45 5.18

12+50 6.87 57.12 51.85 5.27

13 6.23 57.76 52.25 5.51

13+50 5.57 58.42 52.65 5.77

14 5.45 58.54 53.05 5.49

15 4.52 59.45 53.85 5.60

16 3.50 60.49 54.65 5.84

17 5.98 60.91 3.06 60.93 55.45 5.48

18 5.61 61.30 56.25 5.05

19 5.39 61.52 56.53 4.97

20 5.57 61.34 56.85 4.49

21 5.78 61.13 57.15 3.98

22 5.17 61.74 57.45 4.29

23 6.40 68.86 4.4 56.246 57.75 4.71

Sta B.5 H.1. -S E/CV

24 68.86 6.42 62.44 58.05 4.39

24+50 6.11 62.75 58.20 4.55

25 5.88 62.98 58.35 4.63

26 4.83 64.03 58.65 5.38

27 4.70 64.16 58.95 5.21

27+75 4.11 64.75 59.18 5.57

28 4.47 64.39 59.25 5.14

29 4.18 64.68 59.55 5.13

B.M. 2.99 65.87

New Hubs BR 2.L Sta 9-11

B.M. #2 6.81 58.54 51.73

T.P. 4.92 59.02 4.44 54.10

9 4.21 54.81 4.23 54.49 49.05

9+50 3.85 55.17 3.87 55.15 49.45

10 3.51 55.51 3.53 55.49 49.85

10+50 3.93 55.09 3.95 55.07 50.25

11 2.86 56.16 2.88 56.14 50.65

4 8.31 50.71 8.31 50.71

620

m

= 0 BR B.L.

Cuto Left to Sta 25 6/24/21
C.R.N.40
40
40

= 0 BR A-4

Spike in Cor Post E Sta 28+25

Sta 25 - 31 4.7%

at 31 60.15

31 - End - .8%

7/20/21
Hoff
Simpson

1.92
- .880

Sta H.I. - S Elev Gr Cut
440 78.27 2.22 - 76.05 - 71.14 - 4.91

Sta	B.S.	H.I.	-S	Elev	Gr	Cut
B.M.	4.72	70.59		65.87		
28	6.24	70.60		64.39		
29	5.92	70.60		64.68 59.53		5.13
30			4.88	65.71	59.85	5.86
31			3.93	66.66	60.65	6.01
32			3.30	67.29	61.45	5.84
33	6.82	75.17	2.24	68.35	62.25	6.10
34			6.38	68.79	63.05	5.74
35			6.17	69.00	63.85	5.15
36			5.21	69.96	64.65	5.31
37			4.70	70.47	65.45	5.02
150			4.49	70.68	65.85	4.83
38			3.92	71.25	66.25	5.00
150			3.35	71.82	66.65	5.17
39	5.94	79.27	2.84	72.33	67.05	5.28
40			5.26	73.01	67.85	5.16
41			4.94	73.33	68.65	4.68
42			4.08	74.19	69.45	4.74
43			3.25	75.02	70.25	4.77
150			3.17	75.10	70.65	4.45
44			2.69	75.58	71.05	4.53

35

Hub 5 BR A-L

.70
 .5
 .380 } 70.31
 68.43
 180

Sta 13.5 H.1 -5 Elev

0 4.12 68.87 4.12 64.95 59.35 5.40

= 29.75 BR 2 L

1 3.63 65.24 60.85 4.39 1.50%

1+20 3.48 65.39 61.15 4.24 8"

End

BR B-L

0 6.10 68.85 62.75 58.40 4.35

= 24.50 BR 2 L.

0+50 5.56 63.29 58.65 4.64

9
 Over = 58.35

1 5.37 63.48 58.90 4.58

0-5 - .5%

1+76 4.43 64.42 59.18 5.24

5-13 - 1.00%

7/20/21

13-16 - .5%

B.M. 5.90 71.76 65.87

HFB 7.32

7.33 64.43 — —

2 7.31 64.45 59.40 5.05

3 7.08 64.68 59.90 4.78

+50 6.75 65.01 60.15 4.86

+75 7.15 64.61 60.28 4.33

Sta	B.S.	H.I	-S	Elev	Gr	Cut
4		71.76	7.29	64.47	60.40	4.07
+25			7.14	64.62	60.53	4.09
+50			6.81	64.95	60.65	4.30
5	8.31	73.16	6.91	64.85	<u>60.90</u>	3.95
+50			7.53	65.63	61.40	4.23
6			6.86	66.30	61.90	4.40
7			6.09	67.07	62.90	4.17
8			5.07	68.09	63.90	4.19
9			3.92	69.24	64.90	4.34
10			3.09	70.07	65.90	4.17
11	7.62	78.54	2.24	70.92	66.90	4.02
12			6.65	71.89	67.90	3.99
13			5.42	73.12	<u>68.90</u>	4.22
14			4.45	74.09	69.40	4.69
15			3.83	74.71	69.90	4.81
16			3.76	74.78	70.40	4.38

= 0 BRC

Sta	13.5	H.I.	-5	Elev	61	Cut.
33 Main						
RP	8.80	59.11		50.31		
RP						
34 main	8.80	59.11		50.31		
0			8.80	50.31	45.10	5.21
0+50			8.93	50.18	45.40	4.78
1			8.79	50.32	45.70	4.62
2			8.95	50.16	46.39	3.86
2+50			8.77	50.34	46.60	3.74
3			7.88	51.23	46.90	4.33
3+50			7.64	51.47	47.45	4.02
4			6.22	52.89	48.00	4.89
5			4.45	54.66	49.10	5.56
6	8.71	65.17	2.65	56.46	50.20	6.26
7			7.88	57.29	51.30	5.99
8			6.76	58.41	52.40	6.01
9			5.90	59.27	53.50	5.77
10			5.13	60.07	54.60	5.44
10+50			4.49	60.68	55.15	5.53

= 34 main

} Omit Sta 0-1
 } Use Cuts P₂ 48

= 0 B R+.

Sta 0-3 1.6% 61

3-End 1.10% 70

Sta 0-3 10"

Sta 3-23 8"

Sta 23-End 6"

Sta 13.5. H.I. - S Elev

11 65.17 3.93 61.24 55.70 5.54

12 2.96 62.21 56.80 5.41

7/12/21

Cuts to Sta 12 given
Jensen 7/12/2111 7.59 ~~68.82~~ 61.24

12 6.61 68.82 62.21

13 5.69 62.13 57.90 5.23

14 4.64 64.18 59.00 5.18

14+50 4.36 64.46 59.60 4.86

15 3.84 64.98 60.10 4.88

15+50 3.40 65.42 60.70 4.72

16 2.95 65.87 61.20 4.67

17 9.06 75.91 1.97 66.85 62.30 4.55

18 8.00 67.91 63.40 4.51

19 6.48 69.43 64.50 4.93

20 5.15 70.76 65.60 5.16

21 3.93 71.98 66.70 5.28

22 3.15 72.76 67.80 4.96

23 9.38 83.42 1.87 74.04 68.90 5.14

Sta B.S. H.I. - S

24 83.42 8.25 75.17 70.00 5.17

25 6.90 76.52 71.10 5.42

26 5.86 77.56 72.20 5.36

27 4.68 78.84 73.30 5.34

28 3.82 79.60 74.40 5.20

28+69 2.81 80.61 75.16 5.45

$$\begin{array}{r}
 110 \\
 69 \\
 \hline
 990 \\
 660 \\
 \hline
 7290
 \end{array}$$

End 2 Rt.

New Hubs Br 2 Rt

Sta 9

1 5.04 55.36 50.32 45.70 4.62

0+50 4.42 50.94 45.40 5.54

0+25 5.01 50.35 45.25 5.10

0 5.03 50.33 45.10 5.22

Sta 37 Main 468 55.35 50.67 45.86

Sta BS H.I. - S Elev
3d main
R.P. 8.80 59.11 50.31

0		8.77	50.34	46.50	3.84	= 2+ 50 BIR 2 R+
0+50		7.87	51.24	47.00	4.24	
1		6.90	52.21	48.50	4.71	Cuts to 5 to 3 given Jensen 7/12/21
2		5.09	54.02	48.50	5.52	
3		3.49	55.62	49.50	6.12	
4		1.84	57.27	50.50	6.77	
4+50		1.45	57.66	51.00	6.66	
5		0.95	58.16	51.50	6.56	

7/12/21

4	7.83	65.10	57.27	—
4+50	7.43	65.09	57.66	—
5	6.87	65.03	6.87	58.22 51.50 6.72
6			5.55	59.54 52.50 7.04
7			4.68	60.41 53.50 6.91
8			3.96	61.13 54.50 6.63
9			3.49	61.60 55.50 6.10
10	6.98	69.45	2.62	62.47 56.50 5.97

Gr 0-End = 1.00%

0-10' - 10"
10-20' - 8"
20-End - 6"

5th B.S. H.I. - 2 Elev

11 69.45 6.52 62.93 57.50 5.43

12 5.70 63.75 58.50 5.25

13 5.15 64.30 59.50 4.80

14 4.16 65.29 60.50 4.79

15 2.58 66.87 61.50 5.37

16 9.56 78.03 0.98 68.47 62.50 5.97

17 8.07 69.96 63.50 6.46

18 6.69 71.34 64.50 6.84

18+50 5.43 72.60 65.00 7.60

19 6.59 71.44 65.50 5.94

20 5.77 72.26 66.50 5.76

21 5.23 72.80 67.50 5.30

21+50 4.39 73.64 68.00 5.64

21+75 4.04 73.79 68.25 5.74

22 1.64 81.87 3.80 74.23 68.50 5.73

22+50 7.11 74.76 69.00 5.76

23 6.75 74.92 69.50 5.42

Sta B.S. H.I - 5 Elev

24 81.87 6.07 75.80 70.50 5.30

25 5.20 76.67 71.50 5.17

26 4.23 77.64 72.50 5.14

27 3.39 78.48 73.50 4.98

28 2.42 79.45 74.50 4.95

29+37 1.72 80.15 74.91 5.24

End B.Rt

Sta	B.S.	H.I.	-5	Elev	Gr	Size
0	6.20	71.15		64.95	60.90	4.05
0+50			6.28	64.87	61.40	3.47
1			5.74	66.41	61.90	3.51
2			4.52	66.59	62.90	3.69
3			3.84	67.31	63.90	3.41
4			2.72	68.43	64.90	3.53
5	7.97	77.95	1.17	69.98	65.90	4.08
6			6.42	71.53	66.90	4.63
7			4.85	73.10	67.90	5.20
8			4.88	73.07	68.90	4.17
9			3.95	74.00	69.90	4.10
10	7.38	82.52	2.81	75.14	70.90	4.24
+50			6.93	75.59	71.40	4.19
+75			6.70	75.82	71.65	4.17
11+10			6.30	76.22	72.00	4.22
+25			6.07	76.45	72.15	4.30
+35			5.95	76.57	72.25	4.32

= 4+50 BR B-4

0 g. elev = 60.90

0-end 1.00%

55

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

11+50 82.52 5.80 76.72 72.40 4.32

+75 5.76 72.76 72.65 4.11

12 5.51 77.01 72.90 4.11

13 4.40 78.12 73.90 4.22

13+92 1.35 81.17 ~~74.82~~ 76.17 5.95

BM 4.18

NE Cor. N. Wall Cong. Culv Sta 11.

76.17
73.90
$$\begin{array}{r}
 92 \overline{) 2.27} \swarrow 1.02 \swarrow 47 \swarrow 56 \\
 \underline{18} \\
 430 \\
 \underline{36} \\
 620
 \end{array}$$

59

HUBS DR 3 RT

13

8

.096

1/28/21

60

Sta B.S. H.I. - S Elev
 R.P. HUB
 46-00 8.18 58.66 50.48

0+14 6.99 51.67 46.40 5.27

0+26 6.83 51.83 46.50 5.33

0+50 6.68 51.98 46.70 5.28

1 6.09 52.57 47.10 5.47

2 6.57 52.09 47.90 4.19

3 5.30 53.33 48.70 4.63

4 3.70 54.96 49.50 5.46

+25 3.44 55.22 49.70 5.52

+50 3.12 55.54 49.90 5.64

5 8.91 64.28 3.29 55.37 50.30 5.07

+50 8.72 55.56 50.70 4.86

.6 8.12 56.16 51.10 5.06

7 6.86 57.42 51.90 5.52

8 5.88 58.40 52.70 5.70

9 5.10 59.18 53.50 5.68

10 4.17 60.11 54.30 5.81

10+50 3.74 60.54 54.70 5.84

7.50

52.57

60.07

7.95

52.57

60.52

= 0 BRC RT.

N+5 E

61

62

/ 1200

8/9/21

sta B.S. H.I. - S Elev

10 8.33 ~~68.44~~ 2.75 60.11 57.30~~68.40~~10+50 7.82 ~~68.26~~ 60.52 57.70

11 7.14 61.26 55.50

5.76

8⁷⁰

12 6.19 62.21 56.30

5.90

x

13 5.45 62.95 57.30

5.65

14 4.35 64.05 58.30

5.75

15 4.05 64.35 59.30

5.05

+25 3.80 64.60 59.55

5.05

8⁷⁰

+50 3.78 64.62 59.80

4.82

16 3.51 64.89 60.30

4.69

17 8.52 74.56 2.36 66.04 61.30

4.74

18 7.75 66.81 62.30

4.51

19 6.42 68.14 63.30

4.84

20 5.17 69.39 64.30

5.09

x

21 4.06 70.50 65.50

5.00

8⁷⁰

22 2.66 71.90 66.70

5.20

8⁷⁰

+54 1.62 72.94 67.35

5.59

End

Cuts given 8/9/21 CPH

1.20
 1.54
 4.80
 6.00
 6.80

7/28/21

= 4 + 25 BR 3 Rt.

JTA	B.S.	H.I.	-S	Elev
H20-RP				
0	8.05	63.27		55.22 50.00 5.22
0+50				7.96 55.31 50.30 5.01
1				7.87 55.40 50.60 4.80
2				6.78 56.49 51.20 5.29
3				4.59 58.68 52.95 5.73
4				2.62 60.65 54.70 5.95
5				2.16 61.11 55.45 4.66
6			{ -0.10 }	63.17 58.20 4.97

6+04 = End

= End.

BR 4-Rt.

8/19/21

H644
H111

= 56 + 65 Main

58-Main	4.26	58.24		53.98
		58.25		
57-Main	4.62	58.26		53.64
0				4.75 53.50 48.00 5.50
0+12				4.79 53.46 48.07 5.39
0+24				4.60 53.65 48.14 5.51
0+34				4.84 53.41 48.32 5.09
1				5.17 53.08 48.60 4.48
1+95				4.15 54.10 49.17 4.93

End

65

BR B-L Cont

from P

66

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

15 5.60 80.37 74.71 69.90

16 5.50 80.30 74.78 70.40

17 5.03 75.27 71.15 4.12

+50 4.57 75.73 71.53 4.20

+75 4.52 75.78 71.65 4.13

18 4.25 76.05 71.90 4.15

19 3.37 76.93 72.65 4.28

20 7.70 87.67 2.33 77.97 73.40 4.57

21 8.39 79.28 74.90 4.38

22 6.65 81.02 76.40 5.62

+40 5.91 81.76 77.00 4.76

22+81 4.63 83.04 77.62 5.42

1.20
1.20
4.80

1.20

81

1.20

760

9720

75.35

76.32

1.12

4.50

600.81

1.51

1200

12151

281

1.50

14050

281

42150

73.40

77.61

End

B.M.

3.54

Sta	BS	H.I.	- S	Elev	Gr	Cut	B+W.	H.p.w
BM#1	0.13	50.18		50.00			14'	20'
Chk Bot								
0			11.50	38.63			17'	23'
1			11.20				15'	22'
2			9.85				12'	21'
3			10.60				14'	22'
4			11.00				15'	25'
5			10.90				14'	23'
6			10.70				12'	22'
BM#1	0.40	50.40		50.00			15'	23'
7			10.90				15'	23'
8			10.00				12'	24'
9			10.60				10'	24'
10			10.40				8'	22'
11			10.60				9'	21'
12			10.60	49.80			9'	21'
P.P.	4.21	49.94	4.67	45.73			7'	22'
13			10.00	49.94			9'	22'
14			9.00				10'	24'

Sta	B.S.	H.I.	-5	Elev	Gr	Cut	Bot W	Top W.
15		49.94	9.10	40.84			8	25
16			9.70				11	24
17			9.60				10	25
18			8.90				11	26
19			8.85				11	30
I.P.	4.90	53.14	1.70	48.24				
20			12.60				11	30
21			12.20	40.94			10	21
22			11.70				12	31
23			11.80				12	24
24			12.50				9	28
25			12.60				12	30
26			12.40				9	30
27			12.40				12	30
28			12.30	40.84			11	28



E.H. 1/1 E

Sta	B.S.	H.I.	-S	Elev
B.M. #2	3.50	55.23		51.73
T.P.	6.20	55.07	6.36	48.87

29 14.30 40.77

30 14.20 40.77

31 14.00 41.07

32 14.20 40.87

33 14.20 40.87

34 13.70 41.37

35 13.80

36 13.60

37 13.50

38 13.30

39 13.60

40 13.50 41.57

T.P. 2.03 53.85 3.25 51.82

41 12.20 41.65

42 11.90 41.95

T.P.W. Bot.W. 8/3/21

Hoff
Hill

31.0 11.0

31 11.0

30 12.0

32 10.6

33 10.0

34 9.0

35 11.0

33 10.0

33 10.0

31 11.0

31 11.0

34 11.0

34 11.0

34 9.0

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

Top W. Bot W

+ 52.85 to

43 11.50 42.35 43.44 32 9.0

44 10.60 43.25 43.62 32 12.0

45 10.40 43.45 43.60 30 13.0

Hubs by slope stakes for O.D. Sta 47 to End

8/24/21

B.M. 1.57 59.47 57.90

47 9.33 50.14 43.76 6.39

48 7.15 52.32 43.84 8.48

49 9.30 50.17 43.92 6.25

50 6.92 52.55 44.00 8.55

51 44.08

52 7.60 61.54 5.53 53.94 44.16 9.78

53 7.72 53.82 44.24 8.58

54 8.65 52.89 44.32 8.57

55 8.05 53.49 44.40 9.09

56 8.00 53.54 44.48 9.06

57 8.05 53.49 44.56 8.93

58 8.05 53.49 44.64 8.85

59 7.52 54.02 44.72 9.30

Summary of

As. Bid

Sec 5+6

Ditch Lengths

As Constructed.

Line	Sta - Sta	Length	Size	Sta - Sta	Length	Size	Shorage	Over Run
Main. D.D.	0 - 61+35	6135'	8" Bot	0 - 60+75	6075			
BR1-R4	0 - 12+88	¹³²⁷ 1288	8"	0 - 13+27	1327	8"	—	39'
" A-R4	0 6+16	616'	6"	0 6+61	661	6"	—	45'
" 2-R4	0 3	300'	10"	0 3	300	10"	—	—
	3 23+81	2000'	8"					
	23 ⁶⁹ 28+81	531'	6"	28+69		6"		38'
BR BR	0 10	1000	10"					
	10 20	1000	8"					
	20 28+89	889'	6"	28+37		6"	52'	—
BR3-R4	0 5	500'	10"					
	5 23+19	1819	8"					
" C-R4	0 6+59	659'	8"	0 - 6+04	604	8"	53'	—
BR4-R4	0 2+21	221	6"					

Line	Sta - Sta	Length	Size	Sta	Sta	Length	Size	Shortage over run
BR 1-L	0 - 4	400'	8"	0	9+85	335'	8"	65' -
" 2-L	0 - 2	200'	16"	0	2	200'	16"	- -
	2 - 10	800'	12"	2	10	800'	12"	- -
	10 - 18	800'	10"	10	18			
	18 - 31	1300'	12"					
	31 - 45+11	1411'	8"	31	44+11	1311'	8"	100' -
BR A-L	0 - 0+98	98'	8"	0	1+20	120'	8"	- 22'
BR B-L	0 - 21+35	2135'	8"	0 -				
" C-L	0 - 13+20	1320'	8"	0 - 14+	1392'	8"		- 72'

11/5/21 changes ordered in amounts of Material
Secs 1-3 & 4 - today.

BR 3-Left 1050' 24" + 550' 22" instead of amt's Contracted

BR 5 Rt 2200' 20" " " " "

Main 3800' 36" " " " "

" Main 1400' 30" " " " "

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

B.M. 47.0 62.30 57.60
 Hub-7-34
 T.P. 5.27 62.34 4.23 58.07

Br H-Left

R.P. 63.34 4.83 58.57

Hub-P.I.-#1 BR 3L = 51910 + 28 BR 3-Left.

0		5.01	58.33	52.35	5.98	
0+50		5.03	58.31	52.73	5.58	
1		4.57	58.77	53.10	5.67	
2		2.80	60.51	53.85	6.69	
3	7.00	67.37	2.97	60.37	54.60	5.77
3+89		6.58	60.79	55.27	5.52	
4+50		6.55	60.82	55.73	5.09	
5		5.87	61.50	56.10	5.40	
6		4.91	62.46	56.85	5.61	
450		5.05	62.32	57.23	5.09	
7		4.51	62.86	57.60	5.26	
425'		4.43	62.94	57.79	5.15	

Out-

8/27/21

16th
 Mill
 Spike S. end E. Cap Hwy Bridge by Bulkr
 head

48.00
 3.20
 51.30

89
 70

623

89
 75
 67.45
 623

6675

61
 75
 650
 4575

Sta	H.I	E.I
7+50	67.37	4.70 62.67 57.98 4.69
+75		4.82 62.55 58.17 4.38
8	10.67	72.50 4.54 62.83 58.35 4.48
9		9.38 64.12 59.15 4.97
10		8.60 64.90 59.95 4.95
10+58		8.57 64.93 60.41 4.52
11		6.32 67.18 60.75 6.43
+125		6.92 66.58 60.98 5.63
+150		6.52 66.98 61.15 5.83
12		6.46 67.04 61.55 5.49
BM		3.97 69.53

61.15

NE Cor Ewing Camp Col 12 Sta 11

Cent

Elev tile in Bulkhead

BM 1.96 59.56 57.60
 0+50 5.78 53.78 53.75
 5.72 53.84
 7.73 51.83

Open ditch Grade

B.M. 1.71 59.51 57.60
 Top Approx 13.50 46.01
 Bot. Open D. 15.50 44.01
 5.66 53.71 9.30
 T.P. 3.57 58.00 5.08 54.43
 0.77 57.10 1.87 56.13
 11.90 45.20

51.83 51.83
 48.00 47.10
 3.83 4.73

43.91 9.05
 53.91 4.45
 9.50
 44.41

Briggs

9/23/21

Hubs Main 36" line

9/7/21

Briggs

B.M. 3.22 60.83 57.60

0-Invert 13.79 47.04

= Gr Elev of tile in Bullhead.

0+50 7.30 53.53 47.20 6.33

1 6.11 54.72 47.30 7.42

+50 5.60 55.23 47.40 7.83

2 5.40 55.43 47.50 7.93

3 5.84 54.99 47.70 7.29

4 6.19 57.64 47.90 6.74

7.5
19.002 5.80 ~~60.79~~ 54.99 47.704 6.11 ~~60.79~~
~~60.75~~ 6.11 54.68 47.90 6.78

5 5.26 55.53 48.10 7.43

6 5.50 55.29 48.30 6.99

7 4.43 56.36 48.50 7.86

~~7+95 3.34 57.45 ~~48.69~~ 8.76~~

Cut from Sta 7

~~8+45 5.33 57.46 48.79 8.67~~~~8+95 3.05 57.74 48.99 8.75~~

93

3.72

$$\begin{array}{r} 10.00 \\ 5.95 \\ \hline 4.05 \end{array}$$

1178

54.65

$$\begin{array}{r} 3.72 \\ 5.95 \\ \hline 9.67 \\ 33 \\ \hline 1000 \end{array}$$

$$\begin{array}{r} 54.99 \\ 10.00 \\ \hline 72.5 \\ 2.75 \\ \hline 78.9 \\ 2.11 \end{array}$$

$$\begin{array}{r} 10.00 \\ 7.84 \\ \hline 2.16 \end{array}$$

$$\begin{array}{r} 10.00 \\ 6.72 \\ \hline 3.28 \\ 1.00 \\ \hline 4.28 \end{array}$$

24

B.M. 2.19 59.79 57.60

2 4.40 55.39 47.50 7.89

3 4.78 55.01 47.70 7.81

$$\begin{array}{r} 3.72 \\ 5.95 \\ \hline 9.67 \\ 3 \\ \hline 9.77 \end{array}$$

B.M. 2.32 59.92 57.60

OK

Hub 2 4.52 55.39 47.50 7.89 2.11

" 3 4.77 54.75 47.70 ~~7.25~~ ~~2.75~~

" 4 5.30 54.62 47.90 6.72

11.78 48.14 47.84

Hub 4.68 55.24 47.70 7.54 2.46

9/19/21

B.M. 2.37 59.97 57.60

4 5.34 54.63 47.90 6.73

5 4.44 55.53 48.10 7.48

6 4.77 55.20 48.30 6.90

7 3.74 56.23 48.50 7.73

BRICK

3	4.91	55.06
2.00	4.81	55.16
2	4.62	55.36
1.50	5.40	54.57

99

Hubb Main - 36" - New

9/29/21

100

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

HOFF-GABLE.

BM 2.16 59.76 57.60

3.64 56.12 48.30 7.82

7 3.47 56.29 48.50 7.79

+50 2.73 57.03 48.60 X 8.43

8 5.92 63.18 2.50 57.26 48.70 8.56

+50 5.54 57.64 48.80 8.84

9 5.44 57.74 48.90 8.84

+50 5.14 58.04 49.00 9.04

10 4.72 58.46 49.10 9.36

+50 4.44 58.74 49.20 9.54

11 4.32 58.86 49.30 9.56

+50 4.36 58.82 49.40 9.42

12 4.65 58.53 49.50 9.03

+50 5.60 57.58 49.60 7.98

+75 7.38 55.80 49.65 6.15

13+25 7.82 55.35 49.15 5.60

13+50 7.40 55.78 49.80 5.98

Out

.20%
36"

1.37

144

Hubs Main

B.M. 2.01 59.61 57.60

5 4.06 55.55

6 6.12 62.32 3.41 56.20 48.30 7.90 2.10

7+50 5.12 57.20 48.60 8.60 1.40

8 4.90 57.42 48.70 8.72 1.28

8+50 4.52 57.79 48.80 8.99 1.01

6 6.12 56.20

Tile Check

Tile 6 62.32 10.33 51.99 48.39 48.30

6+50 10.17 52.15 48.55 48.40

7+10 10.23 52.09 48.49 48.50

7+10 9.74 52.38 48.78 x

7 10.06 52.26 48.66

3.40 ^{10.00}
 52.09 ⁸⁹⁹
 360 ^{1.01}
 48.59

48.50

Raise Grade
 3 Sta. 7+00

103

6

62.32

56.20 48.60

7.60 2.40

7+50

57.20 48.90

8.30 1.70

8

57.42 49.00

8.42 1.58

8+50

57.79 49.10

8.69 1.31

9

4.45 57.87 49.20

8.67

9+50

4.17 58.15 49.30

8.85

10.00	10.00	10.00
8.42	7.60	8.30
1.58	2.40	1.70
	10.00	
	8.69	
	1.31	

104

Out

New Levels Oct 1st

Hoff - Hill

B.M.

2.36 59.96

57.60

6

3.79 56.17 48.60

7.57

T.P.

5.72 62.91

2.77 57.19

~~7+50~~

7+50

4.45 58.46 48.90

9.56

8

5.62 57.29 49.00

8.29

+50

5.21 57.70 49.10

8.60

9

5.14 57.80 49.20

8.60

+50

4.81 58.10 49.30

8.80

10

4.41 58.50 49.40

9.10

+50

4.15 58.76 49.50

9.26

11

4.05 58.86 49.60

9.26

11+50	62.91	4.11	58.80	49.70	9.10
12		4.41	58.50	49.80	8.70
R.P.		2.48	60.48		
^{Same} T.P.	2.82	60.01	5.72	57.19	
B.M.		2.42	57.59		

2 x 7 Hub on Knoll between Sta 12 Min + Sta 12
B.R. ST+

Same R.P.	2.84	63.27		60.43	
tile top			10.85	57.42	
7+60				5.48	57.79
9				4.76	58.07
12					

$$\begin{array}{r} 48.90 \\ 3.60 \\ \hline 52.50 \end{array}$$

10/6/21 Hoff-Hill

Same R.P.	2.62	63.05		60.43	
-----------	------	-------	--	-------	--

12				49.80	
12+50		5.52	57.58	49.90	7.63
12+75		7.28	55.77	49.95	5.82
13+25		7.76	53.29	50.05	5.24
13+50		7.31	53.74	50.10	5.64

Good Use

14 63.05 7.44 55.61 50.20 5.41

150 7.50 55.55 50.30 5.25

15 6.59 56.46 50.40 6.06

150 6.24 56.81 50.50 6.31

16 4.66 61.72 57.99 57.06 59.60 6.46

150 4.49 57.23 59.70 6.53

17 5.00 56.72 50.80 5.92

150 4.65 57.07 50.90 6.17

18 4.57 57.15 51.00 6.15

150 5.00 56.72 51.10 5.62

~~19~~

19+50 4.97 56.75 51.30 5.45

20 4.85 56.87 51.40 5.47

1.60
49.50
51.40

10/13/21

HOFF

Sta	BS	H.I.	-S	Elev	GV	Cut
19+50	6.00	62.45		56.75		
20	5.85	62.74 62.72		56.87	51.40	5.48
21			4.42	58.32	51.60	6.72
22			4.09	58.65	51.80	6.85
23			4.94	57.80	52.00	5.80
24			4.52	58.22	52.20	6.02
25			4.51	58.23	52.40	5.83

 $\frac{20\%}{36}$

24	4.89	63.11		58.22	52.20	6.02
25	4.85	63.09 63.08		58.23	52.40	5.83
26			4.56	58.53	52.60	5.93
27			3.56	59.53	52.80	6.73
28			2.37	59.72	53.00	6.72
29	5.67	65.28	3.48	59.61	53.20	6.41
30			6.02	59.26	53.40	5.86
31			5.55	59.73	53.60	6.13
32			4.96	60.32	53.80	6.52

10/14/21

HOFF-Hill

33 65.28 4.60 60.68 57.00 6.68

34 4.17 61.11 57.20 6.91

~~35 4.73 60.55 57.40 6.15~~

R.P. 3.64 61.64 Highest pt largest Rock E of F. Cor 50' N Sta 35

33 4.60 ~~65.28~~ 60.68

34 4.16 65.27 61.11 57.20 6.91

34+50 4.52 60.75 57.30 6.45

35 4.71 60.56 57.40 6.16

+50 4.39 60.88 57.50 6.38

36 4.34 60.93 57.60 6.33

+50 4.52 60.75 57.70 6.05

37 4.09 61.18 57.80 6.38

+50 4.06 61.21 57.90 6.31

38 3.90 61.37 55.00 6.37

Same R.P. 3.63 61.64

35
7.0
47.10
54.10
30

End 36' = 0 BR 6 R.

RR	3.71	65.35	61.64		
34+50 Tile top			7.28	58.87	3.60
34+50			4.60	60.73	
35			4.79	60.56	
+50			4.40	60.95	52.5
36			4.40	60.95	
+50			4.58	60.77	
37			4.17	61.15	
+50			4.14	61.21	
+90			3.96	61.89	
38			3.99	61.36	

check

Hoff
Schoenlein

$\frac{4.57}{6.27} = .80$
 ✓

11/7/21

HOFF
HILL

R.P.	4.65	66.29	61.64	
38	4.88	61.41	55.00	6.39
150	4.60	61.69	55.10	6.59
39	4.23	61.76	55.20	6.56
39+25	4.45	61.84	55.05	6.79
40	4.38	61.91	55.40	6.51
41	4.27	62.02	55.60	6.42
42	6.67	69.22	3.74	62.55 55.80 6.75
43	6.31	62.91	56.00	6.91
44	6.19	63.03	56.20	6.83
150	6.95	62.27	56.30	5.97
45	4.65	64.57	56.40	8.17
46	4.51	64.71	56.60	8.11
150	5.10	64.12	56.70	7.42
47	5.41	63.81	56.80	7.01
150	5.85	63.37	56.90	6.41
48	5.91	63.31	57.00	6.31
B.M.	3.95	65.27		

36" Tile Laid to 38+30
 20'
 32'

36" Tile Laid to 38+30

Note: - Main Line is approx. 15' higher at end of 32' than designed

Grade from End 32' to end of 18' 1300' above datum
May 15, 25%

End 32' TIE

spike top 5 end Leap BR Est 44+50

2.64
 5.30

Hoff-Jensen 9/29/21

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

BM 4.13 61.73 57.60

5 5.08 56.65 49.65 7.00

6 5.61 63.18 4.16 57.57 49.98 7.59

7 4.98 58.20 50.31 7.89

8 5.59 57.59 50.64 6.95

9 4.98 58.20 50.97 7.23

~~10 4.82 58.36 51.14 7.22~~~~10 4.71 58.47 51.30 7.17~~~~11 4.53 58.65 51.47 7.18~~~~11 5.82 59.85 51.63 5.72~~Out from Sta 9
Continue Book #8
$$\begin{array}{r} 21.40 \\ 21.00 \\ \hline 1.40 \end{array}$$

$$\begin{array}{r} 51.40 \\ 51.10 \\ \hline 2.10 \end{array}$$

.83%

.83%

24.11

24.23

133 413

BR 5 RT

134

Sta B.S. H.I. - 5 Elev Cor Cut
 BM 2 2.18 59.78 57.60

5 4.85 57.93 49.30 5.43

+50 3.92 55.83 49.43 6.40

6 3.43 56.35 49.56 6.79

7 5.56 63.27 2.07 57.71 49.82 7.89

8 4.87 58.40 50.08 8.32

9 4.42 59.85 50.34 8.51

10 4.31 58.96 50.60 8.36

11 4.40 58.87 50.86 8.01

R.P. 4.77 58.50 51.12 7.38

12

5. RT.

Hub 9 3.58 62.43 58.85

" 8 4.01 62.41 58.40

62.42

NEW 4.75 57.67 49.82 7.85

3 7
 6
 3

9/26/21

Hoff

H. 11

Cont BR #8

135

Same holes 3P.

Bajo.

B/M 4.42 62.02 57.60

3 7.02 55.00 54.98

2+50 7.03 54.77 55.08

1+50 7.45 54.57 54.57

2+50 6.95 55.07 55.08

2 6.82 55.20 48.52 6.68

The CX BPSRT

Grade Line

Outside Dia 2.60

B/M
The Top
0+25 9.66

+50 9.60

+75 9.49

1 9.32

+25 9.28

+50 9.25

137

Hub 5 Br 3-Left

10 LL 138
 25-6
 13.00

33%

BM 3.23 60.83 57.60

O. Invert

13.00

47.83

= Gr Elev of file in B. Head

0+37 7.42 53.41 48.12 5.29

+62 6.46 54.37 48.20 6.17

+87 6.12 54.71 48.29 6.42

1+12 6.26 54.57 48.37 6.20

1+37 5.50 55.33 48.45 6.88

1+62 5.09 55.74 48.53 7.21

1+87 6.17 54.66 48.62 6.04

1+98 6.06 54.75 48.65 6.10

2+50 5.52 55.31 48.83 6.48

3 4.99 55.84 48.99 6.85

4 4.33 56.50 49.32 6.18

5 4.26 56.57 49.65 6.92

48 37
 33
 111
 111

33
 20
 33
 186

33
 27
 62
 186
 2046

87 81
 33
 261
 261

66
 17
 83
 2871
 33
 12

66
 33
 0396

139

Check Hubs Br 3-L

140

BM	2.93	60.53	57.60
0+37		7.20	53.33 48.12
0+62		6.19	54.34 48.20
0+87		5.86	54.67 48.29
1+37		5.21	55.32 48.45

New Hubs Br 3-Left

BM	3.03	60.63	57.60
2		5.68	54.95 48.66
2+50		4.96	55.67 48.83
3		3.96	56.67 48.99
3+50		3.67	56.96 49.16
4		3.51	57.12 49.32

5.21

6.14

6.38

6.87

9/22/21

6.29

6.84

7.68

7.80

7.80

Hub	End	5	Intake	8.33	52.30
"	"	N	"	9.00	51.61

3/45 8+45+8+95
Marked 7+45+7+95
correct from 5+97 on.

50.

52.30	57.70
51.70	1.52
60	549.32

1.560.20
549.32

48.52

80

.88

49.32

48.82

60

49.32

1.50

50.82 El of Grate

141	Hub 5 BR 5 Rt.					Top 26 50 9.25	142
Sta	BS	H.I.	- 5	Elev	Gr	Cut	$ \begin{array}{r} 59.78 \\ 7.25 \\ \hline 50.53 \end{array} $
BM	2.18	59.78		57.60			$ \begin{array}{r} 48.20 \\ 2.60 \\ \hline 50.80 \end{array} $
G.O.		12.25	47.53				= Bottom inside 1 st Tile in BR head
0+50		4.04	55.74	48.13	7.61		48.50
+75		4.58	55.20	48.20	7.00	2.6	48.50
1		4.75	55.03	48.26	6.77	1.1	1.3 = center
1+50		5.21	54.57	48.39	6.18	1.6	48.50
2		4.46	55.32	48.52	6.80		51.70
+50		4.70	55.08	48.65	6.43		1.40
3		4.80	54.98	48.78	6.20		50.30
+50		4.80	54.98	48.91	6.07		
4		5.54	54.24	49.04	5.20		
+50		4.87	54.91	49.17	5.74		
5		4.70	55.08	49.30	5.78		
BM	3.03	60.63		57.60			
Tile Top		7.88	50.75	2.60	48.15		
Hub 1+50		6.12	54.51	48.39	6.12		

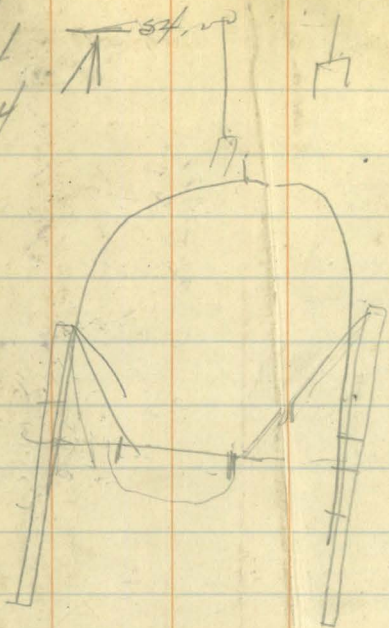
Cont Prof.
133



143

8.02

8.24



48.50

1.30

49.80 = center 36' hole

5

49.30 = Body

fall a

ditch lead

50

49.80 = Gr at

ditch

1.00

50.80 = Top of body & ditch

48.50

50.00

H. B. Sherman
 - Phone 99 -
 Jacob Jones

6/45/0
 7.50

7.50
 1.5
 37.50
 75.0
 112.50
 112.5
 225.0
 0
 305.0

1/2
 7.50
 37.5
 112.5

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	.89	1.11	1.33	1.56	1.78	2.00	2.22	2.44	2.67	2.89	3.11	3.35
13	.24	.48	.72	.96	1.20	1.44	1.68	1.92	2.16	2.40	2.65	2.89	3.13	3.37	3.61
14	.26	.52	.78	1.04	1.30	1.55	1.81	2.08	2.33	2.59	2.85	3.11	3.37	3.65	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	3.15	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	5.13	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	2.42	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	2.11	2.82	3.52	4.24	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 $h=3.3$, 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 ($=w$) by the difference between the cuts (or fills) on each side of it ($=h$) 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	55.2	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.