

16

FIELD BOOK

FIELD BOOK

380

W134

MICROFILMED

JH

244
—
958

1 m - (3) $\frac{530}{2}$
 6' $\frac{2}{6}$

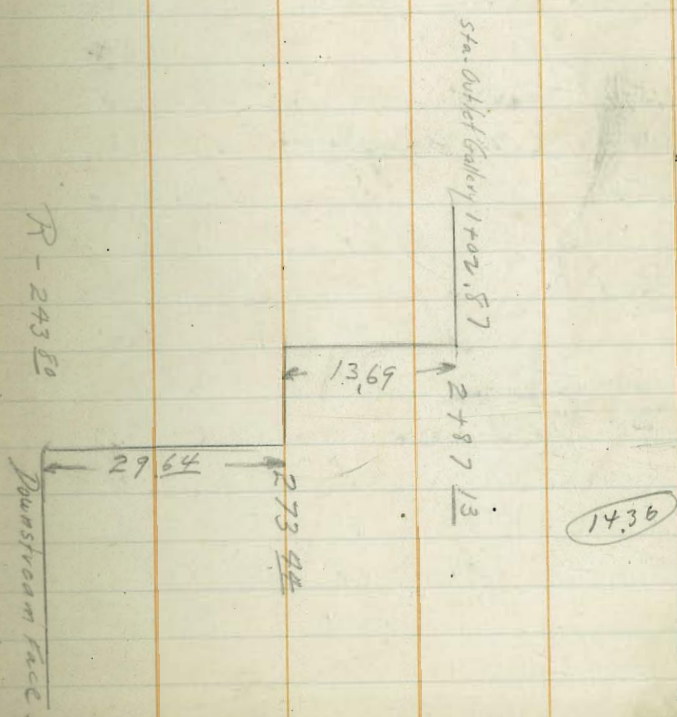
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12/23/ Grades for Tunnel lining

Bub
Fisher
Matter.
B.M. at
Tunnel Portal

2 02 1508.48 1506.46

00 = Tower

1505.00

0+07

1504.76

West Side Tower

0+09.57

1504.95

3.53

0+10

1504.95

0+15.24

1504.92

3.56

B.M.

2.06 1508.52

1506.46

0+25

1504.87

3.65
3.61

0+35

1504.72

3.70

T.P.

4.03 0844

4.11 1507.41

0+45

1504.77

3.75

Δ Left

0+55.08

1504.72

3.80

0+65

1504.67

3.44 1505

0+75

1504.62

End Lining

0+85

1504.57

0+95

1504.52

Note Grade changed
All stations = Elev
1505
~~12/23/20~~

1505.00
1504.76
1504.95
1504.95
1504.92
1504.87
1504.72
1504.77
1504.72
1504.67
1504.62
1504.57
1504.52

Grade for Tunnel lining

08.44

1+05⁰ 1504.47

1+15 1504.42

1+25 ^{1505.0} 1504.37

T.P. 4.95 9.19 4.20 04.24

1+35 1504.32

1+45 1504.27

1+55 1504.22

1+65 1504.17

1+75 1504.12

1+85 1504.07

1+85 1504.02

Note
Change of
all grade
to
1505.10
1723/20

4.89 9.13

04.24

413 1505.00

305 1509.51

1506.46

4.51 1505.00

✓ road

12/23/20
Bub.
Fisher.
Mixer.

Profile of Outlet Tunnel floor.

12/23/20

Profile of Roof Outlet Tunnel

4

OTR. 403 1505.44 1504.41

HI 08.4

0+15 438 04.06

0+15 18.6

7.1 10.5

0+25 434 04.10

0+25

2.83 11.2

0+35 409 04.35

0+35

2.2 10.6

0+45 397 04.47

0+45

2.6 11.0

0+55 392 04.52

0+55

2.4 10.8

0+65 430 04.14

0+65

1.85 10.3

0+75 424 04.20

0+75

2.2 10.6

0+85 425 04.19

0+85

2.3 10.7

0+95 431 04.13

0+95

2.3 10.7

1+05 432 04.12

1+05

3.3 11.7

1+15 430 04.14

1+15

2.7 11.1

1+25 426 04.18

1+25

2.9 11.3

1+35 418 04.26

1+35

3.6 12.0

1+45 429 04.15

1+45

2.6 11.0

1+25

2.5 10.9

1+35

2.6 11.0

1+39

2.05 10.5

1+45

1.7 10.1

1+49

1.8 10.2

1+55

2.6 11.0

✓

✓

Tunnel Line
 A+ 30.63 Sight Center for zero Az P

6.47 12.93 1506.46

Flowline

7.70 05.23

Top of Pipe

5.10 07.83

Rod 7.9	14.2	11-0	✓
1505	19.7	13-0	✓
vst 50	20.2	17-30	✓
vst 50	26.7	22-45	✓
vst 180	32.6	23-45	✓

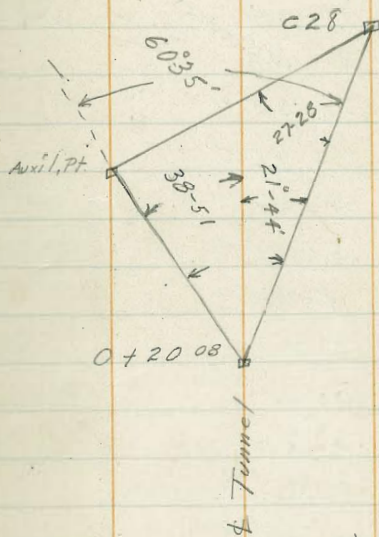
Rod 29

1510	10.0	16-30	✓
	15.1	18-45	✓
	17.2	20-40	✓
	20.2	17-30	✓

Transferred
 Book 15 page 34

121-0930
 60 34-45

21-43-30
 4327
 21-43-30



77-42
 38 51
 21 44
 60-35

54-45-30

27-28

Platted -

12/31/20

1/1/21

Upstream Form Points

6

At C46 Sight Center for 90°

Turn

42-420 ¹²	7.97	94.99	1487.02	
24-12 C43	10-44	788	88.11	Did not
30 C42	2-09		<u>5</u>	
40	2-52		9311	<u>7.19</u> ✓
50 ⁴¹	3-35			
60 ⁴⁰	4-18			
70	5-01			
80 ³⁸	5-44			
90	6-27			
100	7-10			
110	7-53			
120	8.36			
130	9-19			
132	9-27			

1/3/20
Bub
Fisher.

Elev. of Flume - To make Wall To
Tower

7.20 1513.66 1506.46

Top of
Flume.

5.14 1508.52 ✓

1/3/20

7

Inspection Gallery

At - 46-392 @ 4+54.40 Sight Center for 90°

42-420.12 5.05 92.07 grade - 1487.02

4+30.22 24.18 42.46 1-45 9.58 82.49 ✓

4+44.53

9.57 1489.576 0-43

13.63 78.44 ✓

on rock
TP BM

4+58.84
42.44 1496.695 0-19

0.74 91.33 ✓

1/3/20
Bub
Fisher

Inspection Gallery Points

At 46-392 Sight center for
90° Turn

4+30.22
24.18

1-45

8-11

0-36

7 89

0-31

23 89

18.75

10-22

See Book 8 Page 45
For Grade

✓

1/5/24
Bub
Fisher
Mixer

U. S. F. Points

At C-46 Sight Center for
90° Turn

23.19 1-39'

At C-4+75 Sight to 8 for
13-58' -

42-420" = 10.56 97.58 74.87.02

39.19 2-44 44.6 93.12

40 2-52 5.00

65 4-39 98.12

75 5-22

85 6-05

95 6-48

105 7-31

115 8-14 ✓

137.90 correct Dist 952 (error)

(137.02) correct Dist

8

4.297

2.9

38673

8594

12.4613

Dust out

6.68 ✓

23.0

7-5241

2729

8-1410

4258

8-5708

4258

9-30.06

8-14-10

125-57

1227

9.51.94

9-52.34

4.6

455

440

430

426

122-51

9.46

1/6/21

Blast Drill Holes for
Shot # 2.

Bull
Fisher
Mistral

1826.50

H1 = 46°

At # 8 Sight # 6 for Zero Az. Rt.
1831.10

9

Hole #	dist.	Hrz Angle	Vert Ang	R	Drill in El.	Ele.	Gr. Dist
Hole # 1	51.5	359°	-17.5	16.2		1814.9	49.0
	520	3°-15'	00	16.7		18174	48.6
	510	7°-0'	00	16.7		1814.4	48.5
	52.5	11°-15'	-14-35	18.6		1812.5	48.7
	540	354-30	00	14.2		1816.9	50.7
	51.0	351-35	-12-30	9.9		1841.2	51.0
	59.5	320-15	00	4.6	+5.6	1832.1	59.0
Hole # 2	29.0	354-45	+5-25	11.3		1819.8	29.0
	28.3	9-30	00	17.3		1818.8	28.3
	36.5	25-10	00	17.3		1813.4	31.0
Top of Cliff	30.0	348-0	-23°-0	11.2	-13.1	1819.9	30.0
	31.6	336-30	00	13		1819.8	31.6
	48.0	318°	+13-45	4.6	11.1	1837.6	45.5
Hole # 3	10.0	350°	00	6.0		1825.1	10.0
	10.0	27-30	00	6.6		1824.5	10.0
	16.5	340-45	-30-40	4.6	-11.6	1814.9	19.6
	10.0	327°	00	5.8		1825.3	10.0
	17.0	308-40	+16-15	4.6	+4.5	1851.0	15.7
	33.0	388-15	+16-10	4.6	13.1	1839.6	26.5
Hole # 4	10.0	178-40	00	2.4		1828.7	10.0
	14.5	133°-0	00	3.7		1827.4	12.5

Plotted from 6/19/21
M.R.B.

11/6/21

Sub
Kistler
Nichter

H1=46

At #8 Sight #6 for Zero Az Rl
183110

182650

	Dist	Hr Angle	Vert Angle	R	Diff Elev	Elev	Cor. Dist	
Top Cliff	29.0	112-30	-27-07	46	-10.1	1826.4	24.8	Top Cliff
	10.8	200-15	00	46		1829.5	10.8	
	15.5	110-10	+30-15	46	+6.7	1833.2	11.5	
	25.2	235-50	+23-10	46	+9.1	1835.6	21.3	
	39.3	248-30	+22-24	46	+13.8	1840.3	33.8	
Hole #5	31.2	179-0	+16-25	46	+8.4	1834.9	28.7	Hole covered up
	30.5	164-0	+11-15	46	+5.8	1832.3	29.6	Top cliff
	32.5	187-45	+17-30	46	+9.3	1835.8	29.5	
	35.0	194-30	+22-26	46	+12.3	1838.8	29.8	
	41.0	208-10	+22-18	46	+14.2	1840.8	35.0	
Auxil Point	60.0	179-57	+13-16	46	+13.3	1840.00 1839.80	56.8	

H1=47 At Auxil Point Sight #8 for Zero Az Rl
1844.7

Hole #6	130	37-30	00	-10.4		1834.3	130	
	16.0	46-30	00	-11.4		1833.3	16.0	
	10.4	349-15	00	-6.6		1838.1	10.4	
	10.5	341-30	00	-4.5		1840.2	10.5	
	12.4	322-15	00	-2.5		1842.2	12.4	Vert 6'
Hole #7	11.8	115-15	00	-10.8		1834.2	11.8	
	15.5	107-0	00	-10.8		1833.9	15.5	Top Cliff
	24.0	104-30	-31-30	-10.7		1829.3	17.4	
	10.5	173-0	00	-8.9		1836.7	10.5	

Platted Jan 6 1921

10

1/6/41 Blast Drill Holes for
Shot # 2

HI = 4.7

At Auxil Point Sight # 8 for zero				
Az	Rt.			18400
	1844.7			18400
75	156-0	00	2.9	1841.8
75	211-0	00	2.1	1842.6
380	230-30	+46-20	+15.0	1855.0

Cor Dist.

75				
75				vert for 6'
13.8				

HI 4.15 At # 4 Sight # 6 for zero Az Right

Auxil Pt	135.0	210-05	20-58		1742.42
BM End of P th Line	7.58	1759.25			1751.67
	1.04	4707	13.22	46.03	
Auxil Pt.			4.65	42.42	

118.0

Platted Jan 7 1921

HI 4.70

= 10

At Auxil Pt from # 4 Sight # 4 for
Zero Az, Right.

	4.70	1747.12			1742.42
42.5	327-45	00	3.5	43.6	
57.0	328-0	+7-45	+7.6	1752.0	
101.5	334-30	+13-30	+23.2	1765.4	
S.R	117.0	329-15	+16-0	+29.7	1772.1
Toe Cliff	119.0	329-30	+16-30	+32.4	1774.8

42.6				
56.0				
96.0				
104.0				
109.0				

15' Vert	121.0	318-0	+17-30	+34.8	1776.9
	117.0	318-0	+16-33	+30.5	1772.9
Bottom Cliff	103.0	318-15	+8-45	+15.5	1757.9
	76.0	313-10	+7-45	+10.1	1752.5

110.0				
103.0				
101.0				
74.5				

1/6/21 Blast Drill Holes for
 Shot # 2 = 10" 184.242
 Bub
 Fisher
 Misset
 #1 = 4.7
 At Axial Pt from #4 Sight
 #4 for Zero Az Rt.
 17471.2

	59.5	305-30	00	-35	1743.6	59.5
	70.0	291-	00	36	1743.5	70.0
Vert 7	103'	297-45	+13-20	+23.0	1765.4	97.5
Vert 7	113'	294-0	+18-55	+37.6	1780.0	110.0
	107'	286-0	+15-43	+28.0	1770.4	99.2
	97.5	284-	+9-45	+16.2	1753.6	94.5
	84.0	274-15	+00		1744.7	84.0
	101-	261-45	00		1744.4	101.0
Vert 20'	112	268-0	+8-10	+15.5	1757.9	109.5

Platted
 Jan. 7 1921.

1/13/21

Upstream Face Points

At C32 Sight C4+75 for

11°-06'

	1.28	1504.98	1503.70
7.4	0°-32'	6.78	98.20
17.7	1°-16'		5.00
32.95	2°-21'		1503.20
37.7	2°-42'		
45.04	3°-13'		
50.23	3°-35'		
60	4-18		
70	5-01		
80	5-44'		
90	6-29		

At 46-414⁰⁴ Sight Center for
Zero Az. RT.

USF 25.75 70-44'
D.S. Center ^{was} 39.0 38-21'

Platted 1/14/21

Down Stream
Form-

13

6.84
6.83
6.75
6.68
4) 2710 | 6775
24
31
28
2

Dist from
450' Radius

Dist out

6.18

Dist
from
C32

17.7	12.0
32.9	12.1
37.7	12.2
50	12.3
60	12.2
70	12.2
80	13.3
90	14.4

Plotted

At C4+75 Sight C28 for 13°-58'

Turn

39.65

2°-50'

1/15/21

Bub
Fisher
Mixer

Upstream Face Points

14

At C4+75 Sight C28- for 13° 58'

Turn

on bank
T.P. In Narrows

8.70	1504.80	1496.10
5'	0-21'	6.84
15	1-04	97.96
25	1-47	5
35	2-30	1503.0
40.9	2-56	
45		

Outcut

22

6.20

At C49 - Sight C4+75 for 1° 04'

Turn 90° Set - 49 = 392

At 49-392 = Gallery 4+83 80

Sight C49-

1263	1508.73	1496.10
25.04	1-50	
10 73	1504.24	0-47
		13.00
		1495.73

D.S. Face Pts

5.90 10.31 1504.41

327.94

41.5 11.8

T.P.

11.70 21.00 101 09.30

7.5 13.5

70 14.0

327.94

319.10

8.84

4/16/21

Fisher

Harvey

Upstream Face

At C 32 Sight ^{See page 13} 37.2 for

2°-42' - Turn

	2.40	150610	150370
20	1°-26	2.93	150317
30	2-09		1508.2
40	2-52		
52	3-43		
60	4-18		
70	5-01		
80	5-44		
90	6°-28		
170	8-36		
130	9-19		
140	10-02		
150	10-44		

4/16/21

Fisher

Stebbins

Koyk-

Location of Barn.

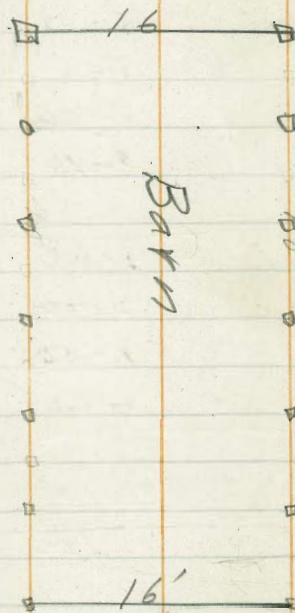
16

out out

618

= 568

The Road.



1/17/21

Upstream Face Pts.

17

At C 32 Sight C-28 fr. 2-52

43.84	3-08'		Dutout
		15082	5.68
50	3-35		
60	4-18		
70	5-01		
80	5-44		
90	6-27		
100	7-10		
114.25	8-13		
38.75	2-47		
30.73	2-12		
25.69	1-50		
20	1-26		

1/18/21 Elev of Water 8 P.M.

42-40' 2	1.22	89.04	87.82
		822	
Elev of Water			80.82
530 PM.			0.59

At C-32 Sight CR8 for - 20.52

Tuna -

PC = C 50
150 -

12-53-29

F

~~46 449.05~~

5.73 09.43

1503.70

Start

From C 48 to C 56 — 1.53

1507.90

5.71

5.00

From C 44 to C 48 —

1512.90

5.21

At C 32 sight C 28 fr
20 52'

46-832 22	8.35	1518.07	1509.72
43.84	3-08'	9.85	1508.12
50	3-35'		<u>5</u>
60	4-18		1513.12
70	5-01		
80	5-44	-	
90	6-26	-	
100	7-10	-	
114.75	8-03		

Outout
5.19

1/24/21

Inspection Gallery Pts
At C 392 Sight Center for
90° Turn

4+87.46
- 6.14

0-27

-5+02.77
+ 8.17

1519.55 0-36'

1505.00

13-6⁵/₈"

Upstream Face Pts

20

20

1'-26'

1512.62

30

2'-09'

5

4.74

40

2'-52'

1517.62

50

3'-35'

60

4-18

Center Turn

64.35

14 31

6 14

8.47

20

1/26/21
Fisher
Mixer

Burley Drill Test Holes

21

47056

6-~~11~~

Hole # 1

At (6-480) Sight 8-450 for
Zero Az Rt.

8 79 24.14 1615 35

13.0 228-22 ✓ 2.0 1622.14 ✓ 24

105
95
92
29.2

At 10-447° Sight Center for
Zero Az Right

4.08 1601 83 1597 75

Hole # 2 3.3 110-0 ✓ 4.6 1597.75 ✓ 24

12-426² 1.60 88.92 1587.32

Hole # 3 29.2 326-0 ✓ 9.30 77.62 ✓ 24

Platted
1-26/21

A/C 32-SIGHT C 28-2-52

22

46-432²²

8.32 18.04

1509.72

10

0.43

4.73 13.31

Distant

5.03

20

5.17

4.99

31

5

4.72

44

4.65

50

15.31

4.67

4.73

60

5/2412

70

4.82

80

90

100

114.25

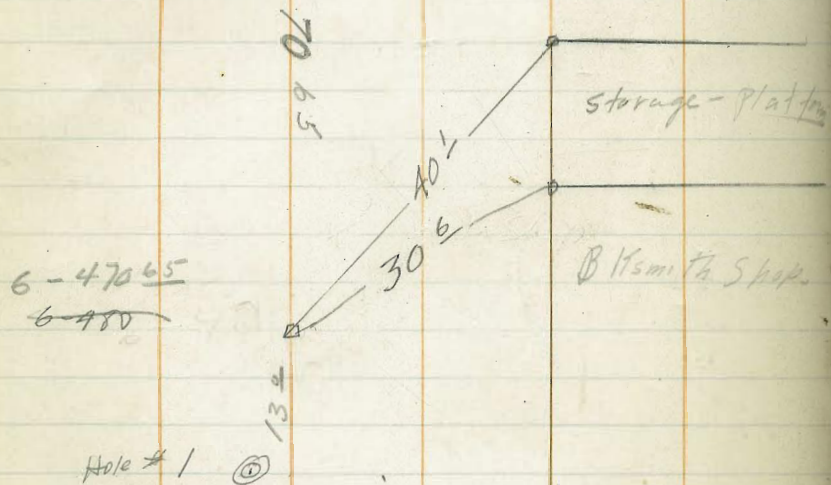
Check on Burley Hole #1
for Testing Foundation

40.74
10.00

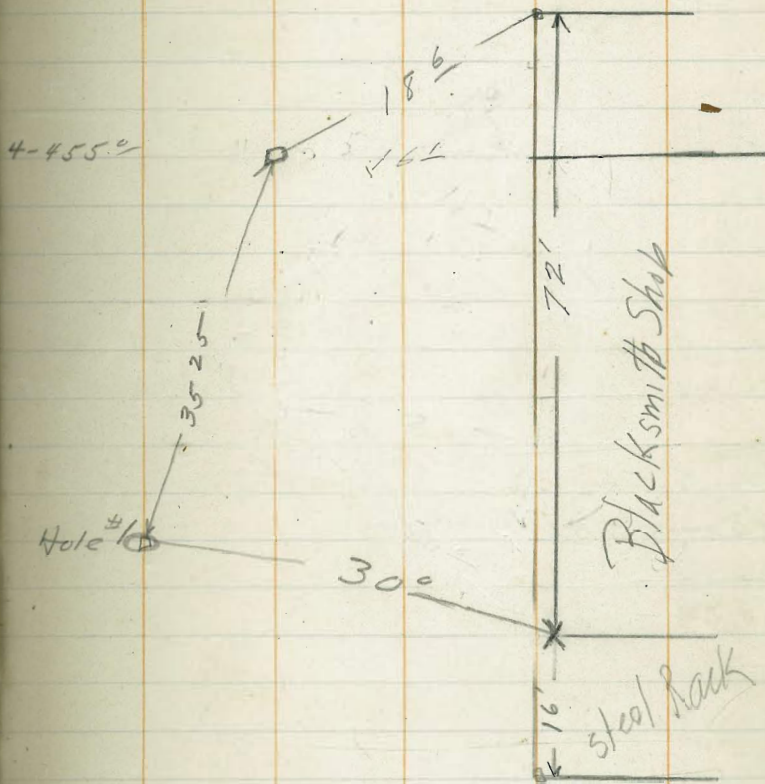
50.74
8.00

58.74
11.91 ✓

70.65 ✓
C 0.6



Check on Location
Burley Drill Hole #1 -



At C 50 Sight Tangent
for Zero Turn

B.M. east
Cont'd J # 3
Nail in Rock

	10.20	1519.58	1509.38	Start	
10	0-43		11.65	17.93	
20	1-20			5.00	
30	2-09			23.00	
40	2-52				
50	3-35				
60	4-18				
	5-01				
			12.00	07.55	
50 - to 56.				13.00	
50 - to 5.4					

Start

4.20

4.20

5.20

1793

~~0758~~

10.35

1-30

A/C 32 - Sight C 28 for 2-52
Turn

10 0-43 ✓

20.2 1-27 ✓

25.3 1-49 ✓

32.0 2-17 ✓

37.30 2-40 ✓

50. 3-35 ✓

60 4-18 ✓

70 5-01 ✓

80 5-44 ✓

90 6-27 ✓

100 7-10 ✓

1410 7-53 ✓

1420 8-36 ✓

C 50

150

170
C 249

12-10

25

Contraction Joint # 1

~~32~~

3+27.1

4+36.0

A1

216

42

209

Contraction Joints

1 3+274

2 4+36

At C.32 sight C 28 - for
2-52 - Turn

47.5 3-24

61.5 4-24

36.5

Sta on Aoo R.	Contraction Joints	Bottom Elevation
2+06.4	out.	1500 ⁰⁰
2+77.5	2+73.08	1517.8
3+27 ⁰⁰		1467 ⁰⁰
3+81 ⁵⁰		1512 ⁴⁰
4+36 ⁰⁰		1578 ⁸⁰
4+86.5		1517.0
5+50.8		1502.6
6+05.8		1517.0
2+18.43		1518.30
1+93.27		1538.5

Contraction Joints.

2/4/41

Tr 4509

Sub.

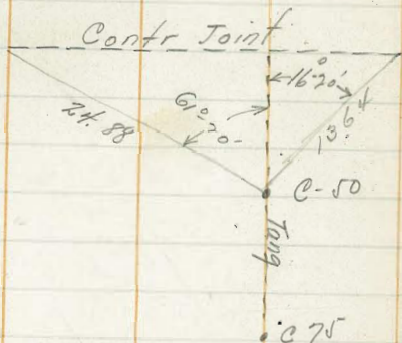
Miter

Reset C-50

Set - C-51 - C-52 - C-53

Nail in whale East firm - = 5+51.57

Contr. Joint.



Ran out 373R Curve

Set 34-373

36 - "

38 - "

40 - "

42 - "

43 - "

45 - "

47 - Rock Cont.

Gallery Set 52-392 Measured to end of gallery = 11.75'

5+20 or 100' = 5+13.60

11.75
5+01.85 Cor. Sta = 5+01.77

Set Point on 392 at 5+16.08 E1-1516.42

Dist to grade = 9'-3 1/2"

2-7-21
Fisher
Mixer

Upstream face Pts.

At C 50 sight Tangent for Zero

Turn.

Top of concrete
Fillet near Tower

	8,30	1526.99		1518.69	
C 57			4.23	22.76	
C 52					
C 53					
C 54 Form			9.25	17.74	
C 54+92					
C 50		00			
C 49 ¹⁰	0-43' ✓		4.04	22.95	
C 48 ²⁰	1-26' ✓			3.00	
C 47 ³⁰	2-09' ✓			27.95	
C 46 ⁴⁰	2-52' ✓				
C 45 ⁵⁰	3-35' ✓				
C 44 ⁶⁰	4-18' ✓				
C 43 ⁷⁰	5-01' ✓				
C 42 ⁸⁰	5-44' ✓				
C 41 ⁹⁰	6-27' ✓				
C 40 ¹⁰⁰	7-10' ✓				
C 39 ¹¹⁰	7-53				
C 38 ¹²⁰	8-36				
118.5	8-27				

39

35.5

29

65.00
22.76
42.24

65.00
17.74
47.26

65.00
27.95
37.05

4.277

34.376

-20.56

7-52.41

34.20

8-27.61

3.70

4.07

3.96

4.10

4.13

4.30

6.2446

4.04

4.30

4.38

4.26

112.94

4.73

3.70 9.33

↓ 1 9.20

9.22

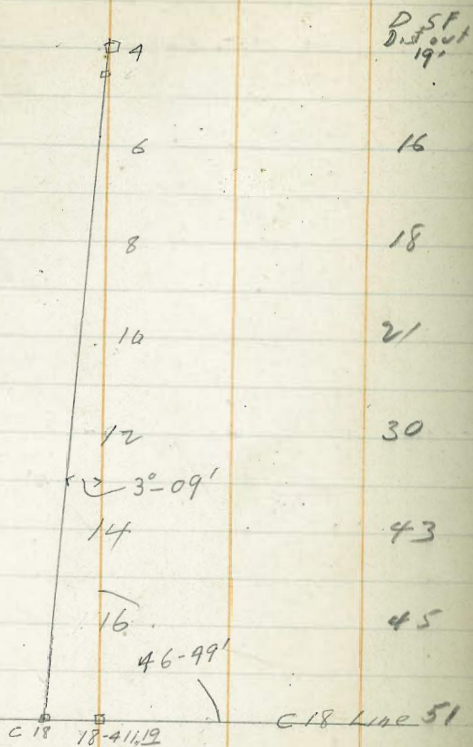
18.75

9.25

New Location of West Tangent

Tie to New Location West Tangent:

15-
30



D.S.P.
Dist out
19'

16

18

21

30

43

45

C18 Line 51

18 Line

93-39

46-49-30

411.9
18-419

46-49+

12-502.08

114-16-30
57-08-15

57-08-30

36-16

36-68

Auxil #1 from
502.09

2-10-21
Fisher
Mixer

Elev of Pipe Outlet Tower

Nail in Stump Near-16-468 ^g	0.29	73.28		1572.94
T.P. on Rock	1.04	1561.50	12.77	60.46
on Rock	1.33	11.40	11.43	50.07
on Rock	3.39	43.12	11.67	39.73
Pipe - Center Outlet Tower			10.16	32.98

Bell of Pipe = 1533.02

Top of Outlet Pipe Tower	2.02	1532.98		1533.01
		1535.05		1535.05

$$\begin{array}{r} 153276 \\ \underline{5} \\ 3301 \end{array}$$

Top of (0. Tape)	10.16	43.12	12.42	1533.02
				1532.96

Top of Anchor Bolt	12.42	53.52	2.02	41.10
Top of Rock	12.55	64.77	1.28	52.27
Rock	9.46	73.08	1.17	63.62
Nail in Stump B.M. 16-468			0.19	72.94

See Book 5
Page 49

2-10-21

Bub
Fisher
Mixer

D.S. Face -
New Location West Tangent

32

Narlin Stone
20' NE Blk. P

At C 4 Turn 90° -

4.0

1621.93

1617.93

C 4 -

C 6

C 8

C 10

C 12

C 14

C 16

C 18

07

1596

Dist. out.

19.0

~~19.0~~

18.

21

~~29~~^{30.4}

43

45

54.5

2-13-21

Bv6
FisherLocation of Toe for
Blast Hole - Shot # 2

#148

At #10 Sight #4 for Zero Az Right

D 10

4.80 47.22

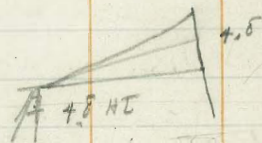
1742 ft

Dist	Hor. Angle	Vert. Angle	R. Diff. in Elev	Elev	Corr. Dist.
------	------------	-------------	------------------	------	-------------

#1 Line

✓	82.0	13-15	00	3.6	43.6	82.0
✓	92.0	349-45	+3-16	4.8	47.6	91.0
✓	90.5	338-45	00	2.7	44.5	90.5
✓	86.7	287-15	00	2.3	44.9	86.7
✓	101.0	271-20	00	1.5	45.7	101.0
✓	150.0	261-20	00	1.2	46.0	150.0
#2 ✓	158.0	267-30	+7-23	4.8	66.5	155.0
✓	147.0	270-0	+9-28	4.8	65.2	143
✓	136.0	278-0	+10-52	4.8	67.7	131.0
vert 9 ✓	123	280-40	+7-12	4.8	57.7	121
vert 8 ✓	115	283-30	+6-33	4.8	55.4	114
✓	102	291-30	+12-40	4.8	64.4	97
✓	103.5	299-40	+11-45	4.8	63.1	99
vert 6 ✓	99.5	307-15	+10-20	4.8	60.0	96
✓	102.0	322-15	+9-30	4.8	59.1	99.5
✓	112.5	324-30	+9-27	4.8	61.0	109.5
✓	112.5	334-0	+9-57	4.8	61.6	109.0

Plat Hod 2-14-21



HI 4.5
1747.22

1742.4

3 Line

	Dist	Hor Angl	vert Angl	Rtd.		
Vnt 13	120.5	311-40	+15-09	4.8 ^{+30.7}	73.1	112 ✓
	118.5	303-0	+16-41	4.8 ^{+32.5}	74.9	108 ✓
	123.5	293-20	+15-36	4.8 ^{+32.0}	74.4	115 ✓
	122.5	290-15	+14-44	4.8 ^{+30.9}	72.4	114 ✓
	127.5	286-10	same Elev as	4.8	72.4	119 ✓

4 Line

	140-0	299-15	+20-06	4.8 ^{+45.2}	87.4	123 ✓
	+7 135	311-0		7' higher	94.4	135 ✓
	146.5	291-30	+20-56	4.8 ^{+45.7}	91.1	127 ✓
	148-0	287-0	+21-02	4.8 ^{+49.5}	91.9	129 ✓
	154	287-0	+22-26	4.8 ^{+54.0}	96.4	131 ✓
	156-	290-30	-22-05	4.8 ^{+54.3}	96.7	138 ✓
Vnt 7	149.5	296-0	+22-10	4.8 ^{+50.3}	92.6	130 ✓
	149.	301-30	+22-0	4.8 ^{+51.3}	93.6	127 ✓

	112-0	13-30	+15-41	4.8 ^{+29.2}	71.4	104
	124-0	6-0	+18-42	4.8 ^{+37.5}	79.9	111 ✓
	136-0	359-0	+21-0	4.8 ^{+45.5}	87.9	118 ✓
	142-0	350-0	+22-13	4.8 ^{+49.5}	91.9	121 ✓
	144	339-0	+24-30	4.8 ^{+54.3}	96.7	119 ✓
	115	348-10	+20-27	4.8 ^{+39.2}	81.6	101 ✓
	157	336-15	+27-16	4.8 ^{+64.0}	16006.4	124
	159	332-15	+26-43	4.8 ^{+63.2}	1606.0	127

Plotted 2-12-21

42.42

Dist	Hor - A	Vent	Ref	Elev
167	328-0	27-12	48 ⁺⁶⁷⁸	1610.0
				132-0

Top of Cliff

Hole # 1	4.0'	
#2	8.0'	8' on #2 13' Vent
3	00'	1/4 to 1 for 20'
4	4.0'	
#5	7.0'	
#6	5.0'	
#7	7.0'	

Top of Cliff

Platted 2-13-24

2-18-21

Bub
Fisher
Mixer

U.S. F. Pts.

A+C 51 Sight East Tangent
for zero channel

B-48

10-42 23.20

1512.78

10 C52

Dist out

20 C53

0.36 22.74

4.22

15.2

37.06

.48

52.74

51.17

6+03.91

~~30 C~~

30' C54

4

41.22 5+58.2

from

6+03.91

15.20

5+88.71

2-18-21

Bub
Fisher
Mixer

U.S. F. Pts.

A+C 50 Sight East Tangent

B-48

Tern 12.90 25.68

1512.78

Dist out

C 49

0.43

7.7

2.87 22.91

C 51

5

C 52

27.81

3.72

C 53

C 54

5+51.2 Nail in Whale

6+03.91
C-55

X in Rock

25' to D.S.F.

5+88.71 = Nail in Rock. P.O.T.

2-18-2/
Sub
Tracer
Mixer.

At C 6 + 03.1 ^{15 page 62} Sight C 50
for zero. Az ^{to Right}

Aug. 1-B

38.5 ^{Picked} 11-0 ✓ 14.0
33.0 ¹¹⁻¹⁵ 297-15 ✓ 12.8

Inspection Gallery Pt -

At C 53 Sight East Tangent - Turned
90° chained 82 = Sta 5+23.6
on 392 Radius - ~~7~~

B-48-
Gallery Pt
5+30.39

12, 53 25.31 1512.71
1532.86 2, 89 22, 42

Fill

1044 = 10-5 1/4

A163-392 Sight - C 53 for zero
Turn 90° - chained

Feb 24 1941
Sub
Winter

Up S Face Lt Abut.

38

Set on 5+88⁷¹ 11 in R meas 8⁷¹
Wast for 5+80 - set 5+70, 5+60,

832 +
28.71
48.
37.51 dist to Nail in upper Whale.

5+88⁷¹
37.51
5+51.20 = 5+51'12" @

Meas. East 1²⁹ for 5+90 set 6+00
and 6+10 - out off Nail in Rock Face

B74 Nail in Rock

B 48 1188 1524.66 1512.78
R Rock 398 15.70 1294 11.72
Bm Nail in Rock South of #3 Cuts grade 638 1509.32 1509³²

5+60 444 1511.26 537 out
5+80 804 07.66 573 out
5+90 564 10.06 549 out

5+97⁴⁰ 444 1513.74 1509.32
179 11.95 530

Feb 22
Dub
Mixer

Concrete Outline + form lines

At 5+88.71 Sight Tang West
for Zero Az. RL

1513.74

Top Fillet at top str. face	38.7	8°-11'	3.1	10.6
Bottom Fillet OSF	38.7	8°-53'	9.0	4.7
Rock Cut Bottom Fillet	39.9	13°-15'	9.0	4.7
Top F. R. Cond	40.1	17°-10'	3.5	10.2
	34.5	17°-15'	3.3	10.4
	30.3	18°-50'	3.0	10.7
	23.2	26°	3.6	10.1
	16.5	36°	6.0	7.7
	9.9	61°-45'	6.0	7.7
	4.6	47°-15'	6.0	7.7
	4.0	347°-30'	6.3	7.4
	2.5	286°-15'	5.5	8.2
	8.5	135°-0'	6.3	7.4
	71.7	183°-10'	7.3	6.4
	74.7	192°-15'	7.3	6.4
	21.8	213°-30'	7.3	6.4
	21.0	284°-15'	7.5	6.2
Top Fillet End Form	30.5	257	81	5.6
	29.5	279°-15'	6.8	6.9
EXD Form R. Cond. Top Fill	33.6	300°-30'	6.8	6.9
	35.8	304°-45'	6.4	7.3
	36.1	314	6.0	7.7
	36.7	311°-20'	5.9	7.8

At 5+88.21 Continued

1513.74

End F. R. Cond	41.3	313°-15'	5.7	08.0
Top Fillet at top str. face	44.8	326°	5.8	7.9
Bottom Fillet	41.9	317	7.0	6.7
R. Cond.	43.9	320	7.1	6.6
"	46.0	319	7.1	6.6
Face Cond Joint	48.0	320-45	7.1	6.6

Upstream
Points

Set on Cr 50
Set Nail on Arm 1313 West. = Sta 4+8687
Defl. 1313 = 56.25"
Set C-48-C47-C46-C45-End
C 4+34.50 Nail in form.

T.P. Rock	16.39	281.1	1511.72
Top Form		0.4	27.71
" "		0.2	27.91

Av. EI = $\frac{27.8}{32.8}$

$\frac{1465}{32.8}$
 $\frac{32.8}{3.22}$

2/23/71
 Bob
 Mittal
 Stebbins
 H1 = 485
 E1 = 4727

Quarry toe
 Location of toe

At 10 Sight 24
 for zero Az Rt. 174747

	485	1747.27				
110'	285-45	00	1.6	45.7	110'	
105	291-20	+6°-5'	48	11.0	53.5	104'
100	298	+6°-6'	48	10.5	52.9	99'
94	308-50	+4-13	48	10.2	49.8	91'
97	316-45	+7-10	48	10.0	54.4	95'
100	323-35	+6-47	48	11.7	54.1	98'
111	325-40	+8°-43'	48	16.5	58.9	108'
110	331-25	+9°-26'	48	16.4	58.8	107'
108	326-	+7-56	48	12.7	57.1	106'
98	342-25	+6-45	48	11.4	53.8	97'
91	5°-30'	00	2.1	45.3	91	

①

120	280°	00	1.0	46.3	120'	
134	277-30	+6°-15'	48	14.3	56.3	130'
138	275	+6°-53'	48	18.4	58.8	136'
138	270-15	+5°-20'	48	14.8	55.7	137'

Orbit

110' ✓
 104' ✓
 99' ✓
 91' ✓
 95' ✓
 98' ✓
 108' ✓
 107' ✓
 106' ✓
 97' ✓
 91' ✓

②

2/24/21

41

Bub Mitter Upstream Point Blocker
Set on C-3 ✓

Sections Top Block # ✓
32.47

Nail in Forms West End Block Dist 61.62
= C 38 + 16.2 = 3 + 81.62

3 + 84 line

Nail in Forms East End Block - 4 + 35.10

BM Nail in
Pillet Tower

8.17 32.47 1524.30

Top form

380 28.67
403 28.44

Forms set for E1 28.55 + 5

15.65

33.55

31.45 dist out.

400 + 3.8
400 R.
400 - 13
400 - 21.6

3 + 90 line

400 + 3.8
400 R.
400 + 10
400 - 16
400 - 21.7

Transfer
Book
page 46

4 + 00

400 + 3.8
400 R.
400 - 13
400 - 22.2

4 + 10

400 + 3.8
400 R.
400 - 10
400 - 22.6

54. 27.1
54 27.1
4.8 27.7
4.5 28.0

58 26.7 ✓
5.7 26.8 ✓
5.7 26.8 ✓
5.1 27.4 ✓
4.8 27.7 ✓

6.1 26.4 -
6.1 26.4 ✓
5.6 26.9 ✓
5.3 27.2 ✓

5.8 26.7 ✓
5.7 26.8 ✓
5.5 27.0 ✓
5.1 27.4 ✓

Copy

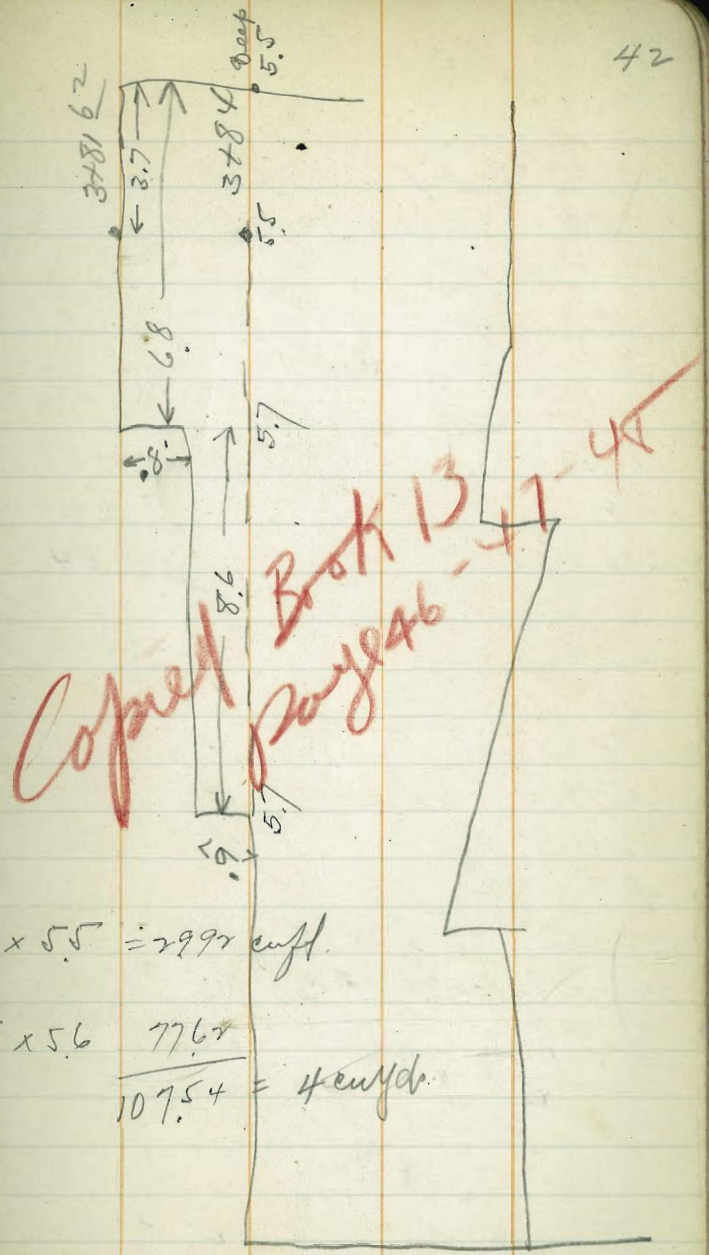
✓

	A+20			
400+3.8		32.47	55	27.0'
400 R			55	27.0'
400-13			52	27.31
400-22.8			5.0	27.5'
	A+30			
400+3.8			54	27.1'
400+00			55	27.0'
400+10			54	27.1'
400-22.7			5.0	27.5'

Subtract
 width 1.1
 length 10.4
 height 2.75 - 2
 see Ed notes

Add 4 cu yds West End
 Block # 2

Copied Book 7
Page 8



$$.8 \times 6.8 \times 5.5 = 29.92 \text{ cu ft.}$$

$$.9 \times 15.4 \times 5.6 = 77.62$$

$$\frac{77.62}{107.54} = 4 \text{ cu yds.}$$

2-25-21

Fisher
Mixer.

43

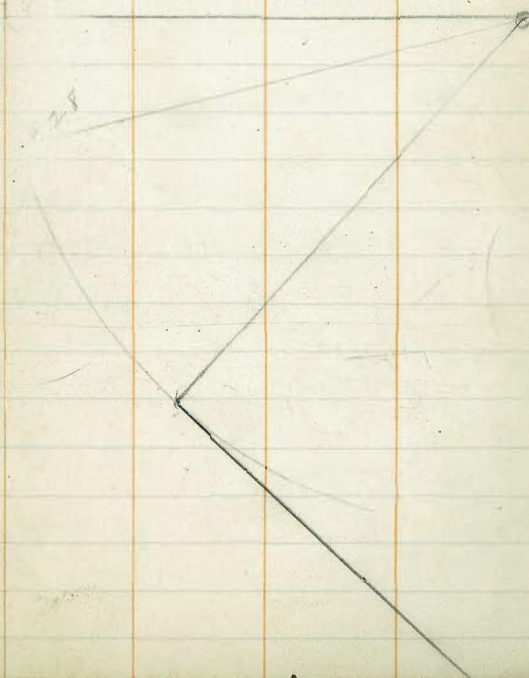
At C-6 - Sight West Tangent Turn 90°
 chained 43.47 North = 6-4 + 43.47

43.47
 41.40
 2.07

At 6-6-443.47 Sight C-6 - Turn
 $75-40^\circ =$

Dist out

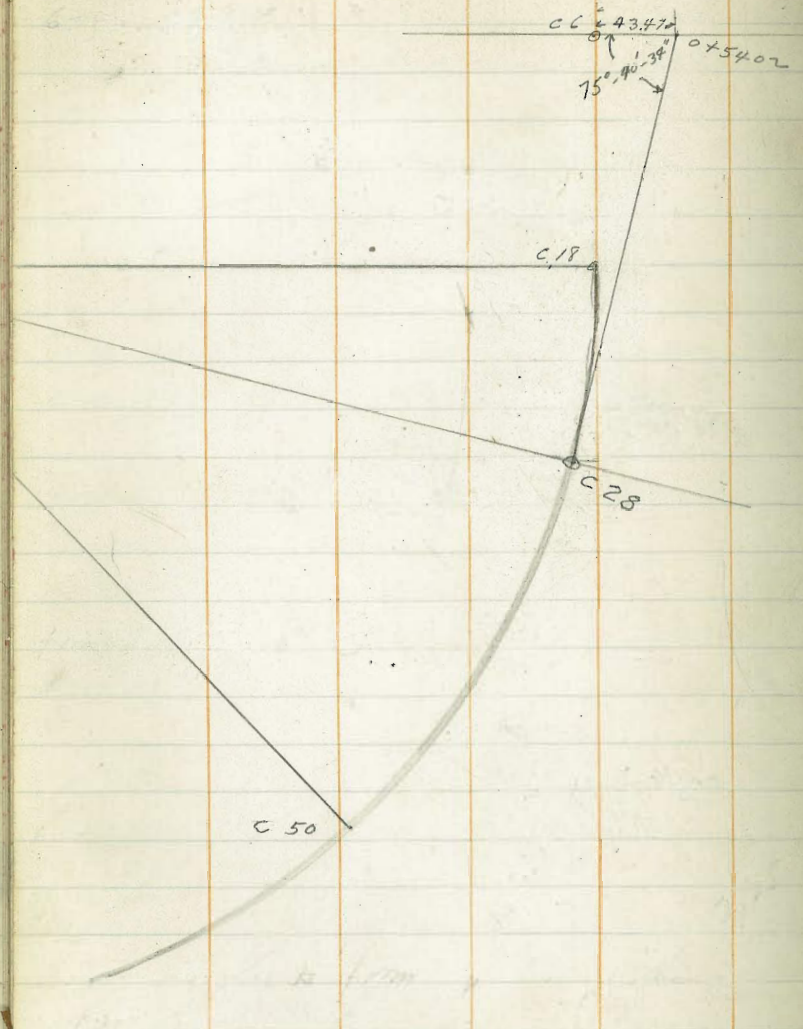
18-438	7.53	59.65	1554.12	
C 16 D.S.F.			5.5	53.2
C 16 D.S.F.			9.0	47.7
C 14			1.0	57.7
				47.0
10-350	8.80	85.8	1576.97	
C 12 D.S.F.			18.4	67.4
C 12 D.S.F.			19.7	66.0
				42.0
10-350	18.6	95.6	7697	
C 10 D.S.F.			19.5	76.1
C 8 D.S.F.				81.0
Nail in Stump.				30.0
8-440	0.0	1600.7	1600.70	30.0
			6.0	94.7
				22.0
8-450	4.7	06.6	160189	
			1.4	05.0
C 6				21.0
				17



2/25/21

New Location West Tangent -

Bub
Fisher
Mixer.



2/25/21

Fisher
Mixer

Gallery Pt -

44

Reset -

At 397 - 5+2.360 chained
6.79 set nail at 5+30.39 ✓
for Gallery Pt.

8-48	12.63	25.41	1512.78
			2.12 23.29
	Grade.		
5+30.39	32.86	-	
	2.3.29		
2-25-21	$9.57 = 9.6 \frac{7}{8}$ "		
Location of Test Holes Rt Abut.			
c 6			

⊙ Hole #4

6-4+3+7.

Avril B" from 12-502.09

⊙ Hole #5

Flatted 2/25
F.A.B

Avril A from 12-502.09

2-26-21

Bvb
Fisher
Mixer

At C 50 Sight RP E. Tangent fr
Zero - Turin

From 15.5 249-15

Nail in whale
12102

0-51'
~~11-0~~

13.35

1-07

45,
20

1-26

14.5

517

525

1025

512

52-46811

At C 48 Sight C 50 fr 1-26

5.19 38.02

153283

~~446~~
C 47

0-43

14.3

512

46

0-26

3290

145

45

2-09

5
3790

221 out 14.4

(40) 44

2-52

14.3

(45)

3-13

14.1

43

3-20

2-27-21

Sub
Fisher

Upstream face Pts

46

At C 32 Sight C 28 for 2-52
Turn-

3+80.2
60.2

4-19'

14.5 ✓

70 C 39

5-01

15.0 ✓

SW cor Turn
center Fillet
C 39
10

At C 39 Sight C 28 for 7-53

14.57 38.75

1524.15 Distout

0-43

548 33.27

15.2 ✓

20 C 41

1-26

38.3 2.67

15.12 ✓

30 C 42

2-09

14.8 ✓

40 C 43

2-52

455

3-16

14.1

Triplet
2. ft 4

87 30.0 ✓

Platted
2-27-21

2-27-24
Bub
Fishov.

C 28

3,08 2131

1518,23

Bottom
wier.

Platted 2-27-24 (51)

12.7

0.8.6

7.6

7.5

7.1

6.9

301

7.3

7.5

13.80

12,38

153045

2-28-21

Bub
Fisher
Mixed

At C 50 Sight RP. East Tangent
Turn

11.8 0-51

13.56 0-57

20⁼⁴⁸ 1-26

52-468" 9.70 42.53 1532.83

10 0-43

20 1-26

30 2-09

40 2-52

50 3-35

4.61 37.92

42.90 2, 21

Detroit

4.68

4.63

4.50

13.81

4.68

62

4

43.5

48

11.8

13.56

13.56

6.44

At C 28 Sight C 32 for 2-52'

Turn

check 35V

100'

7-10

101.45

7-16

110 (39)

7-53

120 (40)

8-36

130 (41)

9-19

140

10-02

543

527

528

513

4 (24' 17')

528

52-468'

1076 43.59

1532.83 Distant

2.17

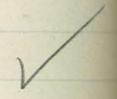
0.43

528 371

43.31

7P

4.79 38.80'



3-1-21

Bob
Fisher
Mixer.

T. P.

Sections for Concrete Est Feb - 1921

88 4660

3880

10 + 20

6.3 to Joint

00

8.0

13.7

00

9.0

15

00

16.2

00

9.0

16.1

Center Joint

5.5

00

8.0

16.0

Transferred Bolt 13 Page 42

30

40

50

5.0

5.2

4.8

5.3

5.2

5.1

5.5

5.8

6.4

6.1

6.5

6.7

7.0

7.0

from 400

74

150

388

77

00

3.9

7.3

14.2

2.7

4.1

9.1

1.1

14.9

-2.7

00

5.0

14.2

2.7

00

11.2

15.3

140

1.31

1+20

4+150

7.6

7.6

7.2

5.7

5.7

7.8

7.0

6.1

5.1

5.2

7.9

7.7

6.0

5.1

7.9

7.6

5.4

5.3

Transferred Bolt 13 Page 41

1+

1+10

27

50

114

15.3

27

50

47

76

107

147

74

73

51

50

Couch Trunk

72

72

67

52

46

47

Transferred Box 13 - Page 41

1401

45

3-2-21

Bub
Fisher
Mixer

Upstream face Pts

At C 28 Sight C 32 for
2°-52' - Turn

101.52 7-16

1710 (39) 7-53

~~1120~~ ✓

659

680

690

690

2719

689

At C 39 Sight C 28 for 110'
7°-53' - Turn

of Turned

0 + 20.5

10

C 40

C 41 20

C 42 30

C 43 40

C 44 50

C 45 60

C 46 70

C 47 80

48 90

486 = 962

1710

7-16

7-53

7-11

7-53

9.08 50.19

0-43

1-26

2-09

2-52

3-35

4-18

5-01

5-44

6-53

7-11

7-53

1541.11

659

679

680

690

709

2.11 48.07

Outout

1.66

6

~~48.46~~

Outout

1.69

62845

62638

65323

204

209

211

219

843

211

211

3-3-31

Bub
Fisher
Mixer

Gallery Pt-

A/C 5+88.71 Chained Toward

✓ 0.50 - 46.27 = 5+42.44

5+51.04
Nail in Whale

46-2.50

11.59 31.58

1519.99^v

{ 392-R
{ 5+30.39

32.86

4.82 26.76

.6.10 = 6-1 1/4"

A+ 5+42.44 - Chained

5.95 = 5+36.49 = which is 0.30

Toofal - -

$$\begin{array}{r}
 32.86 \\
 26.76 \\
 \hline
 61.0 =
 \end{array}$$

3-4-21

But
Fisher
Miller.

Upstream face pts
At 5+36.49 Sight R.P. East Tangent
Chained in - C 53+42.4 -

46 - 250

Neck center point

B.M. 4+81

12.89 32.88

1519.99

2.43 30.45

Top of form

5.07 27.51

Outlet

5+26.49

10 -

5.00

32.51

3.22

5.13

573

584

1520

507

20'
5+16.49

Elev 32.87

30

5+06.49

40

4+96.49

372

50

322

A+C 28 sight C 32 fm 2-52

101°55' 7-16
110-0 7-53

A+C 39 sight C 28 fm 7-53'

Time	12.70	53	23.81	1541.11
46 0	32-17'		0.67	50.0
10	0-43			
20	1-26			
30	2-09			
40	2-52			
50	3-36'	0.71		53.10
60	4-18'			
70	5-01'			
80	5-44'			
90	6-27'			
9 61	6-54			
	7-10			
T.P.	0.37	48.34	5.84	47.97
Form 47512			4.90	43.44
45.12	3-14'			

4344
8
48.44

63
72
78
1713
21

41.11
270
350

4895
1469
12
26
29
22

474
489
504
1469
489

3-7-21

Bub
Fisher

Upstream facepts.

At C 50 chained west 13.57 -
Set nail in Concrete on Tangent.

At C 50 chained East

$4942 = 54942$ Nail in form
1.08

$50.50 = 54505$ Nail in Whale -

Near Cont. Joint
Nail in field 7781

7.09 37.54 1530-45

Average Elev of Lift

5.96 3158

3.68 3386 3.61 -

3.11



Bv6
Fisher
Mixed

Grade for Tramway

57

Grade at Mixer	1.69	1601.69	1600	
T.P.	2.84	9388	10.65	91.04
Top of outburst			2.68	91.20
			8.4	C10
57 -			9.40	84.8
			7.8	86.0
			10.0	83.8
26.0	84.54		8.34	85.54 C10
50	84.3		9.58	84.3
71.0	84.09		4.80	89.88 C4.2
			9.79	84.09 07
120	83.8		7.24	86.64 C2.8
1400			10.08	83.8

3/8/21

Bub
Eisher
Mitter
Nail in footing
about level with road

Elevations of West
Tangent Line

	13.01	47.67	1634.66
C-20		10.58	37.09
C-40		6.03	41.64
Stake T.P.	12.23	59.68	0.22 47.45
C-60		5.30	54.38
T.P.		0.22	59.46

See Book 15- Page 65
for
Est. Sections



3/9/21

Bub
Mitter
Set Nail 0.46 East of Nail in
Whale set 3/7/21 = $5+50 \frac{50}{.46}$

Nail in Bottom $5+50.96$

Nail in Rock Auxil from 5+88.71	461	151747	151286
Top forms		451	1296
		452	1295
		455	1292

Average El $1294 + 5 = 17.94$ Dist net = 4.71

58

Dist to form front face

1st nail $5+50.96$ ———— 5.40
1580

2nd " $5+66.76$ ———— 5.45
2720

2nd " $5+78.16$ ———— 5.53
3860

$5+89.56 =$ Ed from El 1294 - 5.55

Elevations on Bottom from front face.

456	17.52	151296
5+83.5	9.1	8.4
5+75	9.4	8.1
5+71	7.7	9.8
5+66	6.4	11.1
5+62	6.3	11.2
Top fillet on Constr joint 5+49 ⁴²	6.9	10.6

H1 = 47² Location Rear form D.S.F. El = 151286
H2 = 1758 Set on Auxil from 5+88⁷¹
Sight Nail in Whale $5+50 \frac{5}{.46}$ for 00 ART. 151286
1758

El. Bottom against Rock.	7.6	1510.0
End form	12.3	102°-40'
W. End form	53.5	338'-40'

Bob
Minter.

3/9/21 Point for Inspection Gallery
End of Gallery projected beyond
lift so point was set for 8' section.
dist. 7.15 rise 3.578

Stam 400 R = 5+00

Sta. 392 = $\frac{4+93.6}{6.4} = \text{diff.}$

Stam 392 for 1-8' Sect = $\frac{5+37.55}{6.40}$

" on 400 R " " " = $\frac{5+43.95}{6.40}$

Grade = $1536 \frac{438}{44}$ for (Sta 5+43.95) = $5+37 \frac{55}{44}$

On Rear Lift 4+81.
Nail near Crank Joint. 7.71 38.16 1530.45
 $1536 \frac{44}{44}$ F = $4.02 = 4 \frac{1}{4}$ 5.74 32.42

3-10-21

Bub
Fisher
Mixer

Upstream face Pts.

At C5150± chained—

5+70
19.5

5+70
29.5

5+90
39.5

6+05.81
55.31

Contraction Joint

9.95 22.81

1512.86

4.89 17.92

5

22.92

Dustout

4.21

4.88

4.89

3-12-21

Bub
Fisher
Mixer

New Tangent - C28 to C23 -
At C 28 - Sight Center for Zero
Turn 90° - Set -

1.12 09.79 1508.67

C 27

Fillet near
Tower

2.82

06.97

Bottom near Tower

4.43 13.12 1518.69

3-13-21

Bryson
Fisher

U.S. Fair pt.

Distant

5+50 To 6+00 -

5.76 1536.21 1530.45

8.41 1527.80 3.72

Bryson 3-14-21
Fisher
Mixer

U.S. F. Pts 4+86 To 5+51 -

12.48 42.93 1530.45

4.94 37.99

5.00

42.99

5.03

4.92

4.92

14.87

4.94

3-15-21

Bub
Fish
Mixer

U.S.F. Pts

Chained from C 5152 $\frac{1}{2}$ Nail in whale

whale 5.94 36.39 1530 45

5+60
9.5

8.54 27.85

Dust out

865

849

849

5+70
Nail in Fish
6+0564

5

32.85

321 \rightarrow 12363

8.54

6+0667

6+00

T.P.

1154 24.85

Elevation of Coordinate Points

Reference Points

Station Elev

Station Elev.

455 ⁷⁹ "B" Line

450 "B" Line East Tangent

12

56 1550.34

14

58 1559.53

16 out
1557.81

60 1568.41

18 out

62 1579.43

20 1545.11

64 1588.64

22 1534.73

66 1603.56

24 1525.20

68 1617.48

26 1503.85

70 1624.03

28 1488.45

74 1650.44

30 1472.35

Hub with with
about 74 60 1649.80
B.M. N.S.E.
of 52-468" 1537.77

32

34

36

38 1470.30

East Tangent

40 1473.85

325 Line

42 1480.64

60 1571.25

44 1489.94

62 1582.59

46 1502.68

64 1591.57

48 1512.78

66 1602.58

50 No Elev

68 1612.62

52-468" 1532.83

70 1623.02

54-468"

72 1633.50

Station Elev.

Station Elev.

300 Line

C Line -

East Tangent

West Tangent out

38

40

50 1524.46

60 1571.50

275 Line

East Tangent

60 1567.79

62 1579.68

64 1588.49

66 1600.42

68 1614.82

70 1622.85

72 1633.30

250 Line

38 1491.47

40 1496.25

42 1507.15

44 1513.11

46 1519.99

48 1526.28

60 1568.21

50 1522.70

52 1526.16

54 1534.24

56 1545.01

58 1553.96

60 1564.03

62 1573.16

64 1581.73

66 1591.73

68 1602.37

70 1613.50

72 1624.59

74 1635.09

75 1640.96

B.M. 7+60 1649.80

Elevation of Coordinate Reference Points

Station	Elev.	Station	Elev.
		Miscellaneous	
00		12-	
00-330	out	14	
00-429	out	14-319	1551.74
2-		14-350 ⁷²	1556.70
2-		14-417 ⁹²	1574.98
2-		14-436 ³⁸	1574.96
4-350	1 out	14-495 ¹	1588.87
4-455	1615.92	14	
4-		16-	
6-		14-309	1539.58
6-		16-333 ⁹⁰	1569.42
6-480	1615.3	16-446 ¹⁷	1567.78
8		16-490 ⁰⁴	
8-45	160.5	16-	
10-		18-411.19	
10-315	1573.77	18-303 ⁰	1529.40
10-442	1596.95	18-488 ⁰	1561.08
10-447	1597.75	18-470 ²⁵	Nail in Rock
10		18-502 ¹⁷	Nail in Rock
12-437	1588.34	18-438 ⁰⁹	Hub
12-340	1569.42	20	
12-315	1561.72	20-505	1549.50
12-426 ³²	1587.32	20-421 ²¹	1541.71
12-502.09	1600.80	20	

See Page 71 For Elev's West pt Tower.

Elevation of Coordinate Reference Points 70

Station	Elev.	Station	Elev.
		Miscellaneous	
22		34	
22-409 ²⁴		34-118 ⁶⁶	(B-Dist) ²⁸ Line
22-499 ⁴⁰		about	
24-432	1525.75	34-150	RP
B.M. About		34-274 ¹⁴	1467.05 Nail in Concrete
24		34-328 ⁷³	
24-505 ²⁹		Nail in Stump. RP Line 34	
Point Mark on Rock for Line -		RP - 100' up Stream	
24-800		34-	
24-750	1464.73	36	
26		36	
26-471 ⁹⁰	1510.42	36	
pen. beyond Gut.		38-229 ⁵⁴	1509.45 P.O.R.
26-570		38-325	Nail in Concrete
26		38-350	
28		38-1000	R.P. up stream.
28-481 ⁷⁷	1503.57	38-480.41	1477.56 out
+ Nail		38-358.75	out.
on Rock across		40	
Point Mark + Hub		40-219.10	1513.09 P.O.R.
about 28-110		40-413 ⁹⁸	1482.74 out
B.M. Near B-30	1471.73	40-679	out.
30-431.23	out	42	
30-282.36	1463.59	42-217 ¹¹	1514.56
30		42-412 ⁶⁷	1486.04 out
31-430	1461.29	42-420 ¹²	1487.02 out.
32-			
32-			

Elevation of Coordinate-Reference Pts

Station Elev. Station Elev.

Miscellaneous.

42-434²² 1491.70
 42-^{about} 624 R.P. on Rock
 42
 44-218²⁰ 1517.70
 44-414⁴⁹ 1491.53
 44-422
 44-^{about} 670 R.P.
 44-
 46-338²⁰ 1481.42
 46-414⁰⁴ 1503.70
 46-432²¹ 1509.72
 46-
 46-
 48-
 48-416.05 Pion Derrick
 50-371²⁹ Nail in Rock
 50-171.36
 50-345.65 + on Rock
 52-314
 52-468"
 54-68"
 54-321
 56-321
 58-325

Hub-
 62-428
 Hub
 64-429

Elevations of Coordinate
 +
 Reference Points
 West Tangent.

71

6-470⁶⁵ 1615.38 Hub 18411.19 1548.30 Hub
 18-438⁰⁹ 1554.12 Hub.
 8-450 1601.89 Hub 18-470⁷⁵ 1561.57 Nail in rock,
 18-488²⁰ 1561.11 Hub.
 10-446⁵⁸ 1597.77 End of steel concrete
 Pipesewer Joint 18-502¹¹ 1564.95
 10-350 1576.97 Hub.
 B.M. 17-330 1570.96 Nail in stump & Tunnel
 0+20⁰⁰ 1541.11 Hub & outlet Tunnel
 12-426³² 1587.35 Nail in SW corner
 outlet Tower 1524.18 Nail in concrete
 12-437⁰⁰ 1588.38 Nail in NW corner
 outlet Tower Filled 1524.30 Nail in concrete,
 12-455⁷⁹ 1587.34 Nail in Rock.
 12-502⁰⁹ 1600.83 Nail in rock.
 14-417.92 1578⁵⁰ + on rock
 14-436²⁸ 1574.94 + on rock
 14-455⁷⁹ 1577.19 Hub.
 14-495.10 1588.91 Nail in rock.
 R.P. & outlet
 Tower 1581.45 Hub.
 16-446¹² 1567.82 Nail in rock.
 B.M. 16-468 1572.94 Nail in stump.
 16-490⁰⁹ 1577.99 Nail in rock.

List of B.M. 1626.33

Harris B.M. U.S.G.S.	Iron Pin Set in Top of Boulder 40' south of Conveyor #2	Barrett Dam Datum.	
	End of "P" Line above Quarry Road	1751.67	
	Nail in Rock (West cableway) 30' N 3+00	1764.33	
out.	Nail in 2x8" (North side Tunnel - "P" Line.)	1650.97	
out.	Nail in Stump about 10-340	1579.55	
	End Steel Pipe	1597.27	
	Nail 10-446 Concrete Sewer Joint	1570.96	
	Nail in Stump about 12-330	1570.96	
	Nail in Stump about 16-468	1572.94	
out	Nail in Stump about 17-470	1550.96	
out	Nail in Rock about 24-432	1525.15	
Underwater	Nail in Stump near B-30	1471.73	
T.P.	44-385 + on Rock	1474.77	
	Nail in Stump S.E. 11' of 32-468 "	1537.77	
T.P. Rock -	44-385	1474.44	
	Plumb		
	Top of Rock 14' East of 34-327	1472.82	
B.M.	Nail in Rock near 24-250	1464.73	
B.M.	Nail in Concrete Outlet front ^{Open}	1506.46	
	Top of Concrete	1485.69	
	50-345 65 + in Rock -	1506.25	
	Nail in Rock		
B.M.	East of Cont. Joint #3	1509.38	
use for Elev- on Top of Dam	SW Cor. Outlet Tower Fillet.	1524.18	

72

E. unsk.

DIRECTIONS FOR USE OF TABLES

TABLE No. 1

360

00'

270

90

Distance of slope stake from side or shoulder
 stake for any width roadway. To find
 If ground is nearly level, the cut or fill at side
 stake is located by the double entry method in
 left column and top row. The number in body
 of table in same row and column gives distance
 level estimate the difference in elevation between
 the side stake and level stake or target by this
 amount if cut, elevate it fill. Add this amount
 to cut. If the ground is not nearly level, cut
 target. If it does not make the slight adjustment
 necessary.

IMPROVED TABLES AND INFORMATION

R/171887

To find Tangent and External for curve of
 any other degree, divide by degree of curve and
 add correction found in column of corrections.
 Degree of curve with a given I may be found
 by dividing tangent (or external), opposite I by
 given tangent (or external).
 The distance from a point on the tangent to
 the curve is very nearly the square of the tangent
 length divided by twice the radius.

$$\begin{array}{r} 89 \\ 73 \\ \hline 16 \end{array}$$

9.35 DMF -

$$\begin{array}{r} 3+81.5 \\ 54.5 \\ \hline 3+27.0 \\ 54.5 \\ \hline 2+77.5 \end{array}$$

$$\begin{array}{r} 3+27.1 \\ 54.5 \\ \hline 2+77.6 \end{array}$$

$$\begin{array}{r} 3+20 \\ 2+72.5 \\ \hline 47.5 \end{array}$$

24

$$\begin{array}{r} 80 \rightarrow \\ 345.65 \\ \hline 15.35 \end{array}$$

8-45-

$$\begin{array}{r} 50 \\ 380.30 \\ 371.29 \\ \hline 9.01 \end{array}$$

$$\begin{array}{r} 1.8 \\ 4 \\ \hline 140 \end{array}$$

2871

$$\begin{array}{r} 275 \\ 212 \\ \hline 20 \end{array}$$

□ #6 = 1812 59