

W. 7  
Construction Notes

43

200

TRANSIT

W7

Table showing the difference of latitude and departure in running  
80 chains at any course from 1 to 60 minutes.

Minutes.	Links.	Minutes.	Links.
1.....	21	21.....	49
2.....	42	22.....	51
3.....	63	23.....	53
4.....	84	24.....	56
5.....	105	25.....	58
6.....	126	26.....	60
7.....	147	27.....	63
8.....	168	28.....	65
9.....	189	29.....	67
10.....	210	30.....	70
11.....	231	31.....	72
12.....	252	32.....	74
13.....	273	33.....	77
14.....	294	34.....	79
15.....	315	35.....	81
16.....	336	36.....	84
17.....	357	37.....	86
18.....	378	38.....	88
19.....	400	39.....	91
20.....	421	40.....	93
		41.....	95
		42.....	98
		43.....	100
		44.....	102
		45.....	105
		46.....	107
		47.....	109
		48.....	112
		49.....	114
		50.....	116
		51.....	119
		52.....	121
		53.....	123
		54.....	126
		55.....	128
		56.....	130
		57.....	133
		58.....	135
		59.....	137
		60.....	140

PUBLISHED BY

H. S. CROCKER COMPANY,

Drawing Paper and Material, Mathematical Instruments, etc.

STATIONERS AND PRINTERS,

215-217-219 BUSH STREET,

SAN FRANCISCO, CAL.

TABLE FOR RUNNING ON SLOPES.

In the following table the first column shows the angle; the second, the number of links to be added to a chain on the slopes, to make one chain—horizontal measurement.

Angle.	Cor. in Links.	Angle.	Cor. in Links.	Angle.	Cor. in Links.	Angle.	Cor. in Links.
°		°		°		°	
4	0.24	11	1.88	18	5.14	25	10.54
5	0.38	12	2.24	19	5.76	26	11.26
6	0.55	13	2.63	20	6.42	27	12.24
7	0.76	14	3.06	21	7.11	28	13.37
8	0.98	15	3.53	22	7.85	29	14.34
9	1.24	16	4.02	23	8.64	30	15.47
10	1.55	17	4.56	24	9.47	35	22.07

Index Continued

Levels for Tunnel	43
Laying out trolley bench on north side	43
Levels for Tunnel	44
Sag for Cable	46
Site for Curve on So. Trolley Bench	46
Levels for Elev. of Dumps	47
Levels for 150' Contour	48-49 55-57
Levels for Material in Dam	51-54
Monuments	59-61

Index

	Page
Levels for Top of Wall	1
Lines N to X	2-12
Levels from Pete McLeans to Reservoir	15-17
Derrick No 1. Barrett	18
Levels for Overflow at Barrett	19
Levels etc. for Base for Tower on North Trolley Bench	20
Levels for Road opp. 3.S. to Borrow pit	22-26
Levels for Sag at Trolley	27-28
Swinging Derrick in Borrow pit Morena	29
Levels for Wall	30
Levels over pipe line at first water trough	31-32
Levels of Res. at Pete McLeans	33-34
Line for extending curve - North Trolley Bench	35-36
Levels at Cottonwood to find 25' opp. camp	37
Levels cuts, etc. new cement house opposite Air Compressor	38-41

Levels for Top of Wall.

July 29, 1897

106		34.73	38.67
	4.73		
		3.87	32.86
4.76		35.62	
		5.62	

Top wall

Bench on Top of Boulder N Side of Stream  
 knot on summit boulder 150 + 200 up  
 stream

30.00

6 points on wall pins

Sum.

30.00

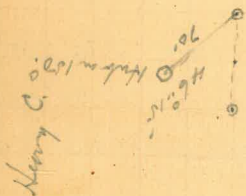
O.4 9.20			
	240		
O3- 6.80 46.35 L			
	85	N.34.15° E	N.34.2° E
O 2.5.95 51.18 L			
	1.57	N.85.33° E	N.85.2° E
O 1.440 123.38 R			
	4.40	N.38.05° W	N.38.4° W
N2-O.0 56.23 L			
		N.18.18° E	
		<hr/>	
N3.5.97			
	222	S.61.48° E	S.61.2° E
N2-3.75 99.54 R.			
	245	N.18.18° E	N.18.2° E
N1.130 108.18 R.			
107	130	N.90° W	N.90° W
N.0-0 00.			

N-Line commences at Monument No 13 Sta - 46647 = 46655 between sections 12 + 13  
 Line around between Heavy & Light Clony for plotting purposes

at 150' Contour

{ add 1000 x 40  
 in H. clony with  
 island }

Medium  
 Heavy Clony



Light C.

Jump across from Main land to island -

at 150' Contour

Light Clony

Heavy Clony

Corner post.

add 300 x 40 for heavy clony  
 North of H.3.  
 Medium

## O + P Lines

P.3 -	11.34	14° 50' L	820	S. 1° 41' W S 1 3/4 W
P.2	3.04	19° 26' R	1.40	S. 17° 45' E S. 17 1/2 E
P.1	164	80° 02' L	164	S. 62° 17' W S. 62 1/2 W
P.0 = N.1.	0	27° 43' L		N. 90° W.
Plin common at N.1 and				
O.8	9.43		125	N. 14° 31' W N. 15° W.
O.7	8.18	55° 46' R	300	N. 70° 17' W N. 70° 4 W.
O.6	5.18	93° 20' R	183	S. 16° 23' W S. 16 1/2 W
O.5	3.35	69° 10' L	335	S. 85° 33' W S. 85 1/2 W
O.1 -				N. 85° 33' E
O.2				

Return to O.1 + run west around

run to left around heavy clay

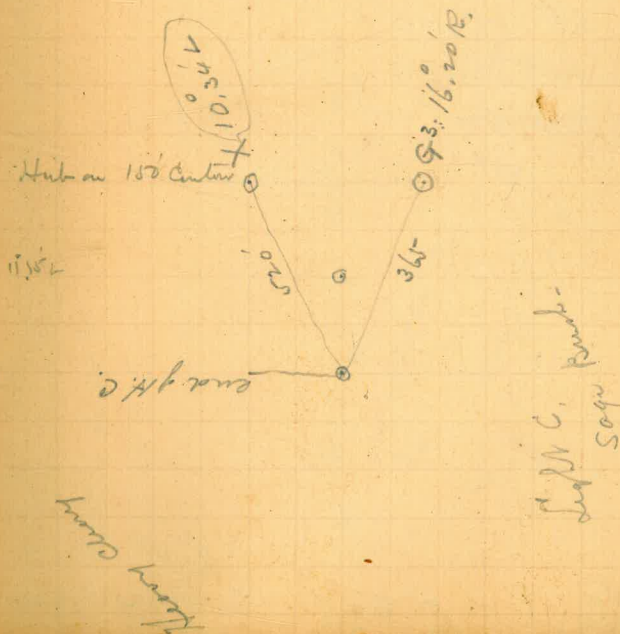
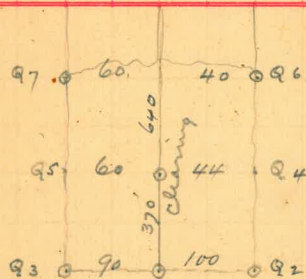
Connect with 150' Centre at Hub.

look target around westward -

south side of island -

Qxx -		640	
Qx		370	N. 38.57° E N. 38 3/4° E
Q1 -	208	110.40 R.	
		208	N. 71.43° W N. 71 3/4° W
P1-Q0	0	46.0 R	5.62.17 W
Return to P.1 + take in open space			
X			
Q.47 P.75	30,94	405	
P.6	26,89	11.15' L	
		4.30	S. 54.29° E S. 54 1/4° E
P.5	22,59	40.27' R	
		4.50	N. 85.04° E N. 84 3/4° E
P.4	18.09	81.47' L	
		6.75	S. 13.09° E S. 13 1/2° E

1134

Hub on 150 Center  
1134  
525  
365  
Q3: 16.20/R

5  
S11 - 400 81°36' R to R5.

S11. 575 94°30' R to R6.

S10 512 34°40' L

S9 596 55°04' R

S8 655 27°25' L

S7 190 81°45' L

S6 524 59°32' L

S5 330

S4 293 7°57' L 49°10'655

S3 665 12°50' R 49°10'40' S5

S2 430 17°50' R

S1 285 58°05' R

Dist R7 - 204 33°35' R

R6 - R7 Base N1

N 66° E

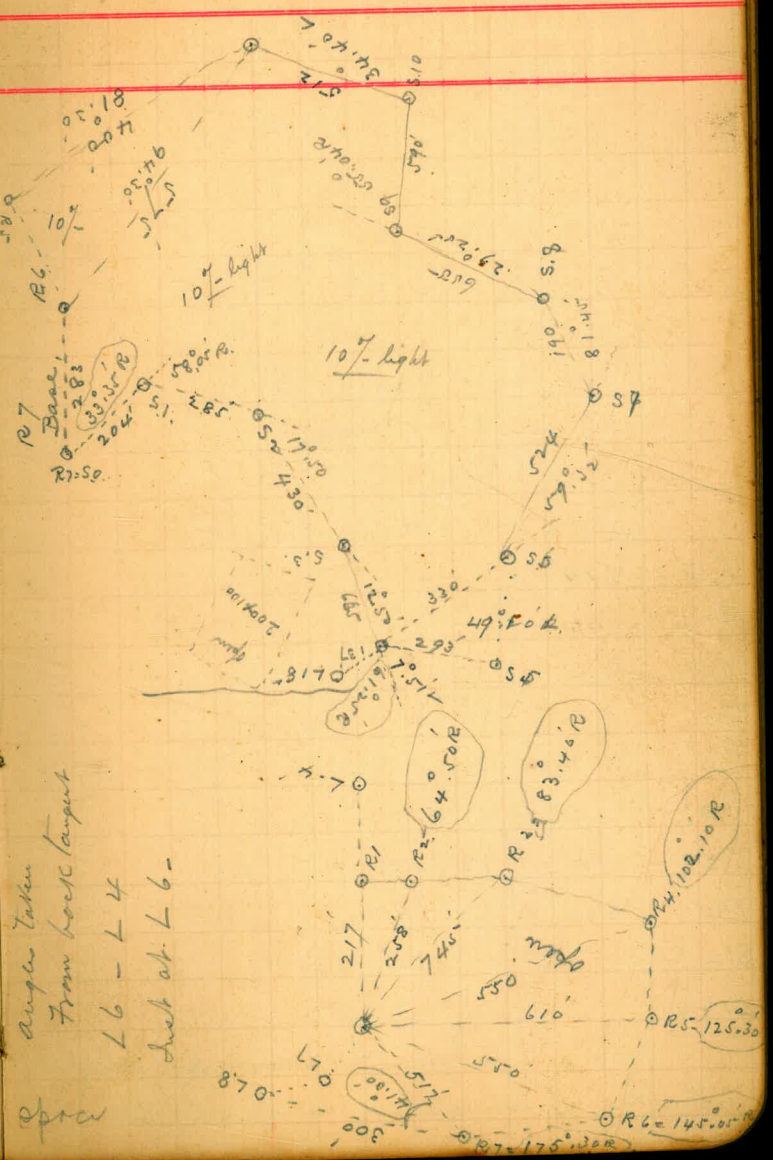
R1 = 217

217

L6 = Ro. 0 00

L4 N.N.W N.11° W

Return to L6 and run around few



Angle taken  
from back target  
L6 - L4  
Dist at L6 -

spew



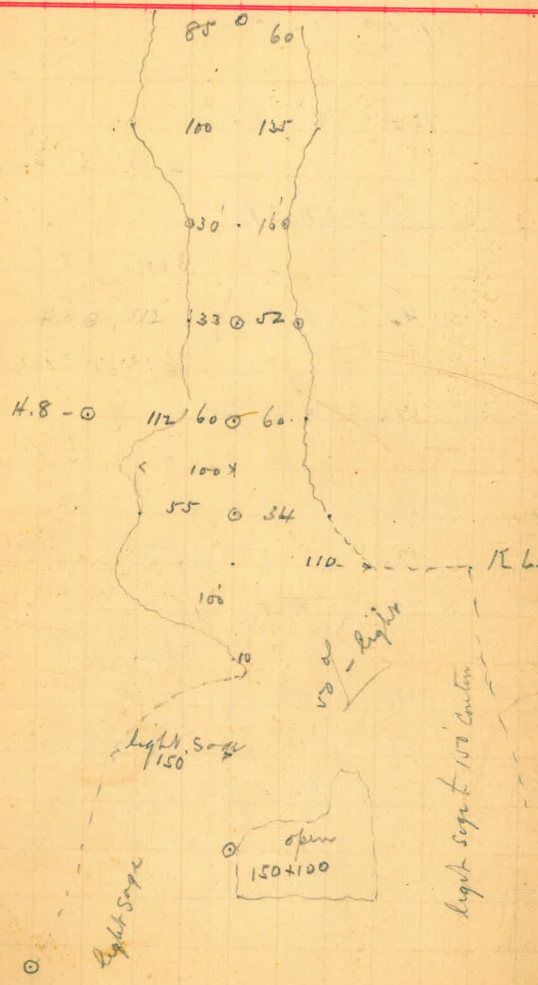


U9-	40.97	4.54L	483	S. 32.49° E S. 33 1/2° E
U8.	36.14	47.13L		
<del>U8.</del>		277	277	S 17 + 24 W, S 14 1/2 W
U7.	33.37	32.21	360	S 66.45 W S, 66 1/4 W
U6-	29.77	10.03L	544	S. 76.48° W S 76 1/2 W
U5-	24.33	84.21 R	700	S. 7.44° E S 8° E
	350			
U47				
U.45	17.33	10.48 L	570	S 30.4 W S 3° W
U3 -	11.63	1.53 R	4.00	S. 1.11° W S 1/4 W
U2	7.63	18.44 R	530	S. 17.33° E S. 17 1/2° E
U1.	2.33	78.45 R		N 83.42° E
I3-U0.	0			N 83.42° E

dusk bed.

U Line Commences at I3-U0. and follows

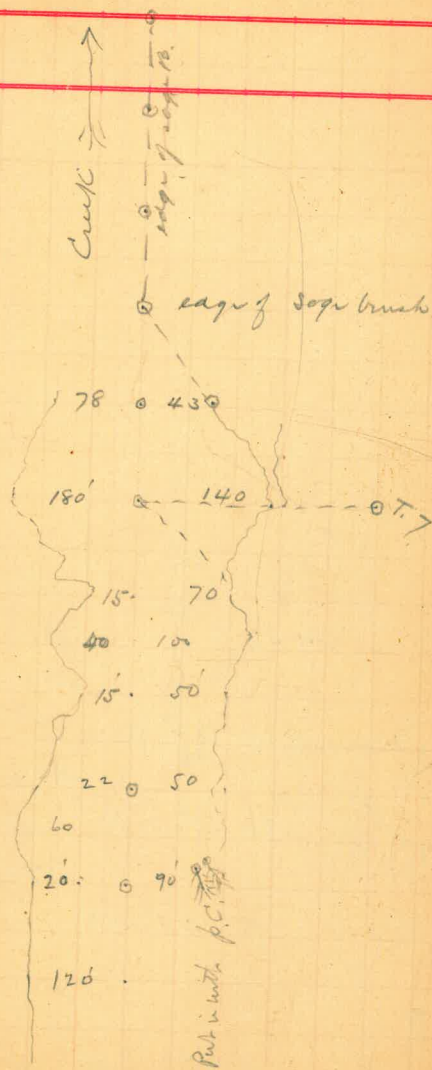
I3-I4 to center of creek then meanders down



9

## U Line

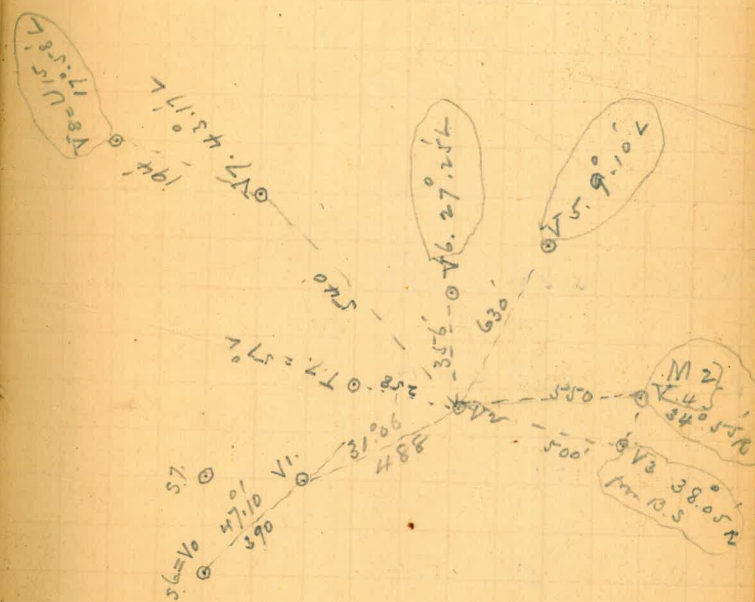
U 20	96+88		2.00	S 43.27 W S 42 1/4 W
U 19	94+88	10° 35' R		
U 19			2.30	S 32.52 W S 31 1/4 W
U 18	92+58	10° 35' R		
			4.85	S 22.17 W S 21 1/2 W
U 17	87.73	10° 09' R		
			3.18	S 12.08 W
U 16	84+55	00		
			4.65	S 12.08 W S 11 W
U 15 = T8	79+90	6.42 L		
			7.70	S 18.50 W S 17 1/4 W
U 14	72+20	13° 17' R		
	67.0		7.30	S 5° 33 W
U 13	64.90	00		
			5.33	S 5° 33 W S 4 1/4 W
U 12	58.35	30° 20' R		
			3.00	S 24.47 E S 25 1/2 E
U 11	55.35	38° 51' R		
			6.85	S 63.38 E S 64 1/4 E
U 10	48+50	35° 43' L		
U				S 27° 55' E S 28 3/4 E
U 10			7.53	
	40.97	4° 54' L		S 32.49 E



V 7	14.50		
		540	
V 2	9.10	$43^{\circ}17'$	
		520	
V 1	390	$31^{\circ}06'R$	
		390	
S6=V0-	0	$47^{\circ}10'R$	

S 7

Burst from light Sage Brush.  
 V line Commences at S6 and runs



Took angle from S6-S7 -  
 around to right dividing heavy Sage

F62 W105	31+88		
			326
W9-	28+62	23° 47' L	612
W7	22+50	2° 42' R	3,83
W6	18+67	29° 12' R	2,33
W5	16+34	14° 25' R	2,76
W4	13+58	8° 48' R	5,15
W2	8+43	3° 11' R	616
W1	227		227
T16-W0	0	65° 30' L	

T15

Cottonwood creek on R + sage brush  
W line commences at T16 and runs



ends at T16-W0 + B.S. on T15  
on left.  
around west bank of Cottonwood leaving

X 9	28.78		398	N. 56° 38' E N 56° E
X 8	24.80	69° 45' L	193	S. 53° 39' E S 54° E
X 7	22.87	84° 30' L	206	S 30° 45' W S 30° W
X 6	20.81	6° 40' L	302	S 37° 31' W S 36° 4' W
X 5	17.79	25° 01' L	200	S 62° 32' W S 61° 3/4 W
X 4	15.79	15° 45' L	4.37	S 78° 17' W S 77° 3/4 W
X 3	11.42	20° 35' L	2.42	N 76° 08' W N 76° 3/4 W
X 2	8.96	7° 15' R	344	N 83° 23' E N 83° 1/2 W
X-1 = W 7 =	552	3° 05' L	552	N 80° 18' W S 80° 1/4 W
G = X 0	20° 30' L		579.12 W	

E 28°

X line starts from G and runs across creek taking in Sage brush



12

X line

X 27				
X 21	66.12		69	N 36.16 W N 35 1/4
X 20	65.43	30.05 L	1.66	
X 19	63.77	57.05 R	142	N 66.21 E N 65 1/4 E
X 18	62.35	36.07 R	235	N. 9.16 E N 9 E.
X 17	60.90	16.46 L	160	N 26.51 W N 27 1/4 W
X 16	58.40	64.20 R	222	N 10.11 W N 11 W
X 15	56.18	66.47 L	350	N 74.31 W N 75 1/2 W
X 14	52.68	26.51 R	470	N 8.13 W N 8 1/4 W
X 13	47.98	48.57 L	273	N. 35.04 W N 35 1/2 W
X 12	45.25	122.23 L	412	N. 13.53 E N 13 1/2 E
X 11	41.13	15.37 L	6.60	S 43.44 E S 44 1/4 E
X 10	34.53	21.40 R	575	S 28.07 S 28 1/4 E
X 9	28.78	73.35 R		S 49.47 E S 50 1/4 E

Heavy  
Sage Brush

Sage Brush

13

7.2

88.75

Hub in Round  
Hub when Round  
Hub up in slope

17.5 axis



364-0

1200-

364-0

15.0 axis



14

Aug-7

2.14

2.78

35.81

33.67

33.03

Aug. 10

2.44

5.47

35.47

33.03

30.00

B.M. on large Rock North side of Canyon

B.M. on Rock at Mouth of Tunnel

prode pin



15

## Levels from Peto M.C.

## Leans to Reservoir

	5.55		105.55	100.00
		2.90		102.65
			2.00	103.55
	0.45		104.00	
	<del>9.00</del>		109.10	100.00
		6.40		102.70
		5.60		103.5
0+50		9.20		99.9
1-		9.70		99.4
1+50		10.70		98.4
2-00		10.80		98.3
			8.33	100.77
	0.91		101.68	
2+50		6.8		94.9
3.0		13.0		88.7
3+50		12.9		88.8
4+00		13.4		88.3
4+50		14.2		87.5
50		13.1		88.6

Elev of water in neck between Rocks.  
Elev. of neck when M.C. placed stream table

(Elev of outlet about 102.50)

Level of water in neck at Peto M.C. leans  
neck when M.C. put stream table  
Red chalk on Rock opposite side of stream

on Peto Road  
water level in creek  
Chalk on Rock

in bed of creek

16

## Levels from Pete Mc

5+50	1.50	101.68	100.18
+		0.82	100.86
3.95-		104.81	
6.	5.	99.8	
6+50	5.2	99.6	
7-	5.5	99.3	
7+50	6.4	98.4	
8.	7.9	96.9	
8+50	8.3	96.5	
9.	9.7	95.1	
9+50	9.45	95.4	
10.	11.30	93.5	
10+50	11.90	92.91	
		11.34	93.47
7.75-		101.22	
	10.20	91.00	
	12.20	89.0	
	1.84	99.36	
8.43		107.81	

## Leans &amp; Reservoir

in top of stake

Elev of Feed pipe at Dam = 104.70 =  $\left. \begin{array}{l} 65 \text{ feet up stream from} \\ \text{Sta 0.} \end{array} \right\}$   
 " bottom of Reservoir = 100.00  
 " Feed enters " = 100.00 = Feed enters  
 " of feed pipe between = 100.00  
 " bottom of Road = 89.00

89.00 is the bottom of Road way  
 when tank wagon stands by it

10.5	7.7	+2.80	0.0	10.5
11.7	8.9	+2.80	0+1.1	10.6
12.2	9.0	+3.20	0+1.3	10.9
12.2	8.8	+3.40	0+2.2	10.0
19.2	8.2	+3.00	0+2.1	9.1
8.5		+3.50	0+0.5	8.0

Raised 2 feet on account of getting Dam 2.7 higher -

17

			107.81
A	4.08		
B	4.56		
C	5.90		
D	5.40		
	<u>Rod 9.8</u>		
A	4.3 =		
B	5.8 =		
C	6.1		
D	4.7		
X	5.7		

11 11:00

9.00

102.7

+4.0 @ @ +5.5

+3.7 @ @ +5.1

Plug down at N.E. Corner for grade top of Reservoir

P.S.

Place to take water changed up stream 85 feet getting 2.7 higher head of water

	Angle	Red	Vert	dist	
A 1	0	1.90	0	215 192	215 Big tree down stream west side
B. 2	58.10 R	2.10	+37.30	140	145 u up on Hill +12.0 + 4' higher
C.	110.° R.	1.73	+46.°	90	95 small tree upon hill near axis
(C')	139.30 R	1.44	+38.30	100	105 Tree where Notice is - +13 feet
D	181.° - R	1.83	+2.°	216 194	215 Tree up stream west side +9 ft
E	238.20 R	2.10	+2.°	190	190 on East side below Road +6 feet. big bushes
F	300.20 R	2.20	+21.°	195	195 on East side on Road -

19

Levels for overflow at

0.94		100.94	100.
	11.87	11.87	89.07
0.47		89.54	
	10.99	10.99	78.55
1.17		79.72	
	11.91	11.91	67.81
3.70		71.51	
	0.30	0.30	71.21
11.72		82.93	
	0.27	0.27	82.66
11.91		94.57	
	0.44	0.44	94.13
12.01		106.14	
	6.14	6.14	100.
<u>41.92</u>		<u>41.92</u>	
6.14		106.14	100.
	12.01	12.01	94.13
0.45		94.58	
	3.67	3.67	90.91
9.97		100.88	
	0.84	0.84	100.04

Barrett's Reservoir

Overflow of Reservoir at Barrett's {North  
Tanks

Hub put in at South Reservoir for overflow

check

check levels







Levels for Road opp. B.S. to

Burrupit.

22

8+50	16.7		116.70	100.00	00 On edge of Road lower line passing
8.		10.9		105.8	+0.5 under guy of Derrick at B.S.
7+50		2.7		114.0	+0.6
			0.20	116.50	
	11.90			128.40	
7.		7.6		120.8	+0.5
6+50		1.6		126.8	0.0
			0.0	128.40	on stump -
	11.30			139.70	
6.0		5.7		134.0	+1.0
5+50		1.5		138.2	+0.5
			0.30	139.40	
	11.7			151.10	
5.-		12.50		138.6	+0.5 raised this 3'
4.50		11.6		139.5	+1.0 raised this 6'
4.		6.6		144.5	+1.0
3+50		1.3		149.8	+1.0
+			0.80	150.30	
	12.10			162.40	
3.		10.3		152.1	0.0
2+50		8.0		154.4	0.0
			6.30	156.10	

	3.70		159.80	156.10
2-		4.5		155.3
1+50		8.4		151.4
1-		12.2		147.4
0+20		11.20		148.6

+1.00

0.0

Elev. grade of Pt -

+20	11.30		167.40	156.10
-----	-------	--	--------	--------

1-

1+50

2

2+25

2+50

3.00

7.1

2.0

4.7

12.8

12.00

160.3

165.4

162.7

154.6

155.40

+1.0

+2.5

+1.0

2.50 - 3.00 = elev 60 -

2+75 = +1.0

2.30

157.70

3+25

5.8

151.9

3+50

6.4

151.3

+75

4.7

153.0

4.0

5.7

152.0

+75

6.4

151.3

4+50		7.0	157.70	150.7
+75		6.9		150.8
5.00		7.4		150.3
+25		8.0		149.7
+50		9.7		148.0
6.75		13.1		144.6
			12.20	145.50
	3.40			148.90
6.0		8.70		140.2
+			11.70	137.20
	1.40			138.60
6+50		4.8		134.8
7.		11.5		127.1
7+50			11.0	127.60
	0.20			127.80
7+50			12.10	115.70
	0.30			116.00
8.		10.20		106.8
8+50		18.00		98.0

Sinebo in feet

0.0

20

0.2

11.4

$$\begin{array}{r} 9.0 \\ 20.4 \\ \hline 29.4 \end{array}$$

on edge of Road

Grades + Centre

2.30		35.33	33.03
	5.33		
2.40		35.43	33.03
	5.43		
2.57		35.90	33.03
	5.90		
2.99		36.02	33.03
	6.07		
2.95		35.98	33.03
	6.03		
2.40			33.03
	5.53	35.43	
2.83		35.86	33.03
	5.96		
2.54		35.57	33.03
	5.67		
2.45		35.48	33.03
	5.63		

South end - 220 from Outside  
 $\frac{1.978}{2.3}$   
 $\frac{2.68}{2.3}$

327  
 $\frac{260}{77}$   
 57  
 25

Aug. 13. Centre pins

30.00 grade

Aug 17<sup>th</sup>

30.00 grade

Aug 21

30.00 grade

Aug 26<sup>th</sup>

Bench

29.95 grade

50' -

Aug 30<sup>th</sup>

29.95 grade

Sept. 1<sup>st</sup> - 68' from Turn

29.90

Sept 6 - 83' from Angle

29.90

Sept 8 - 89' - from Angle

29.90

29.85

E 30 -		7.70	S 33.32 W 563° 2 W
E 31	23.40' R		
E 32	5.00' R	7.25	S 39.52 W 539.6 E
		6.10	S 34.52 E S 34.6 E
E 33.	3.10' L	3.80	S 38.02 W 537.2 W
E 24 -	3.00' L	4.17	S 41.07 W 540.2 W
B. 18 = E 35.	04.59' L	4.17	
B. 17			S 46.06 W
	Back up on <u>Elm</u>		
B 30 -		3.08.	N 68.37 E N 68.2 E
B 29	13.21' R	7.20	N 55.16 N 55.0 E
B 28.	8.38' R	2.55	N 46.38 E N 46.2 E
B 27 -	8.00' R	3.95	N 38.38 E N 38.5 E
B 26 -	26.10' R		N 12.28 E N 12.2 E
B 24	59.56' L	3.50'	N 7.24 E
B. 23			
B. 12			
B. 11			S. 56.02 W

Level for sag in trolley

27

Sta	B.S.	I.I.	F.S.	Cur
0	.13	345.13		345.0
			11.70	333.43
	.34	333.77		
			11.65	322.12
	1.465	323.585		
			12.0	311.585
	.34	311.925		
			11.48	300.445
	1.79	302.335		
			11.54	291.695
	1.505	293.195		
			11.53	281.665
	10.77	292.435		
			0.0	292.435

on tie. Rails .3 higher.

	1.22		34.89	33.67
- 0		57.08		29.81
1		57.77		29.12
2		8.95		25.94
-		9.89		25.00
			11.40	23.49
	0.59		24.08	
3		3.57		20.51
4		5.95		18.13
5		8.93		15.15
6		10.93		13.15
			10.45	13.63
	6.17		19.80	
7		10.70		9.10

B.M. on Road.

25.00 prods

-4.5	=	4.6	7.8"
-6.87	=	6.10 $\frac{1}{2}$	7.9
-9.85	=	9.10 $\frac{1}{2}$	8
-11.85	=	11-10 $\frac{1}{2}$	8.15
-15.90	=	15.11	

	Angle	Rod	Vert.	
A.1	0	1.40	+27.40	175.
2	53.20'	1.65	+40.00	105.
3	113.-	1.08	+32.00	170-
4	179.40'	6.20	-9.25'	640
5	240.40'	4.10	+0.20'	425
6.	292.30'	6.10	-1.30'	630.

60 ft further out and 5 ft higher - add 2'

85 ft further out and 15 ft higher

On Rock above when next derrick  
is to be -

add 3'



# Levels for Hall

30

Sta	B.S.	I.S.	F.S.	mb	Bar
	1.945	34.975			33.03
			11.24		
1	.785	23.785	3.07	3.07	20.715
			7.42	9.42	14.365
			9.45		
	4.55	19.185			
			2.17	2.17	9.585
		Aug 20			
	1.30	34.97			33.67
			12		22.97
	.315	23.285			
			12		
	5.49	16.275		11.775	- 5
				6.775	- 10
	.94	5.94	11.775		

Bench

Bench

Levels over pipe line at

first Water trough

31

Two	7.46	37.46		30	
1.				9.65	27.81
+ 50				10.35	27.11
2				12.3	25.16
	4.35	30.46	11.35		
+ 50				6.90	23.56
3				7.04	23.42
	5.80	28.01	8.25		
+ 50				6.75	21.26
4				7.45	20.56
	2.14 <sup>5</sup>	24.30	6.85		
+ 50				2.96	21.34
5				4.0	20.30
+ 50				6.32	17.98
6				6.60	17.70
	3.62	21.27	6.65		
+ 50				5.0	16.77
7				6.57	14.7
+ 50				7.02	14.25
8				9.35	11.92
+ 50				11.15	10.25

water 2" above steamer

9  
750

1.05 11.17  
7.70 13.57

15.53' face to within 50 ft of trough  
16.43' face to top of trough

Cement work still to do.  
Sept 3. 1897

1.88  
0.95  
10.30  
34.91 33.03  
24.61  
25.56

Average  
Elev.

Height  
Width at bottom  
Average width

10.5	832 - 812		
30.5	830 - 806		
50.5	8.21 - 784		
70.5	7.83 - 790		
96.5	7.55 - 757		
113.5	3.80 - 2.50 - 1.00		
9.57		0.81	34.32 24.75
113.5	9.15 - 840.687		
	49 - 49 - 5.30		

8.22	=	17.34	~	30.00	=	12.66	=	12.84	=	12.42
8.18	=	17.38	~	30.00	=	12.62	=	12.84	=	12.42
8.03	=	17.53	~	"	=	12.47	=	12.83	=	12.42
7.87	=	17.69	~	"	=	12.31	=	12.82	=	12.41
7.56	=	18.00	~	"	=	12.00	=	12.80	=	12.40
2.43	=	23.13	~	"	=	6.87	=	12.46	=	12.32
8.14	=	26.18	~	"	=	3.82	=	12.25	=	12.15
5.02	=	29.30	~	"	=	0.60	=	12.04	=	12.15

$\frac{10.5}{3} \times 12.66 \times 12.42 =$	550.340	} Less 113 x 5 x 1/6 = 21.5 yds.
$20 \times 12.64 \times 12.42 =$	3139.776	
$20 \times 12.55 \times 12.42 =$	3117.420	
$20 \times 12.39 \times 12.41 =$	3075.200	
$26 \times 12.16 \times 12.40 =$	3920.384	} Less 113 x 5 x 1/6 = 21.5 yds.
$17 \times 9.44 \times 12.22 =$	1977.113	
$11 \times 2.21 \times 12.15 =$	295.366	
$16075.600 =$		595.5 yds.
		574.0 yds.

Levels reservoir at Peto

McLeans.

33

6.53	36.53			30
2.47	31.37	7.63	8.83	22.54

7.6' diff. of elev. bet bottom of reservoir  
and pt on road. stand pipe 9.35'  
above pts on road

9.35' pt is .9 in below road bed  
7.46  
1.89' top of stand pipe above bottom  
of reservoir

3.3' in reservoir when we left  
1" below overflow

Levels on wall for

25 ft contour

Sept.

1.63		34.66	33.03
	9.66		25.00

= level of bottom of trough

55.3    26'  
 46    15.1  
 9.3

	7.98	9.98		2	2
			8.30	8.30	165
			6.90	3.08	
	0.0			350.00	350.00
A		4.10			345.90
			0.10		349.90
	11.90			361.80	
B		9.80			352.00
C		6.50			355.30
E			0.65		361.15
	6.65			367.80	
D		2.50			365.30

4 1/4"  
 13"

top of stringers of car north valley -  
 = 346.00

A 0    14    0 B + 6.00  
 C    15    0 D + 19.3  
 E

Line for Extending Curve  
Curve =  $5^{\circ}.44$

North Trolley Bench

Sept 2/99

35

0			
+25	0.43	✓	
+50.51	1.26	✓	1.27 <sup>10</sup>
+75	2.09	✓	
1+00 99	2.53	✓	2.53 <sup>10</sup>
1+20	3.26	✓	

= BC. of Curve

17"  $1\frac{1}{4}$ "  
42"  $8\frac{1}{4}$ " } distance of Center of  
51" 2" } Rails South Bench

} do. North Bench

E 28

E 27

E 26-

E 24

EX2 = E21-

222

EX1. 49°44' R.

122

E7 = EX 50°15' L

go to E7 + B.S. on E8

DX4 = EB

463

DX3. 90°05'

141

E11 = DX2. 74°07'

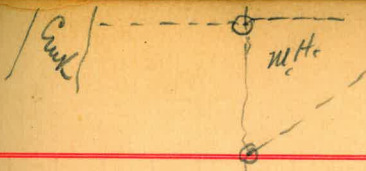
7.77

DX-1 85°46' L

154

D21 24° L

commencing at D21 + turn 24° L



36

163			34.66	33.03
	4.66			
	<u>Levels up Contour</u>			
2.40			36.07	33.67
	11.00			
		11.00		25.07
0.83			25.90	
		2.78		23.12
6.02			29.14	
	5.50			23.74
	4.00			25.14
		4.12		<u>25.02</u>
<u>5.91</u>			30.93	
9.57		<del>93</del>	34.39	30.00
	4.57			30.00
11.49		0.83	45.25	33.76
8.84		0.91	53.18	44.34

- 30.00. -

to find 25.00 Elev opp Camp -

B.M. on Rock

= Elev of wall

Turn to big Rock west side of R.

= at Road crossing

= 25' Contour where Blank Walk is off. Barn

= 225' above Powder house

on edge of bank near Cook house



Sep. 9. 1897

38

Levels + cuts for Excavation line for New Cement House opposite

Air Compressor

10.15

9.85

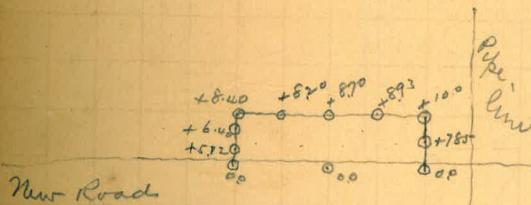
+5.12	+6.40	+8.40
5.03	3.75	1.75

+8.20
1.95
+8.70
1.45

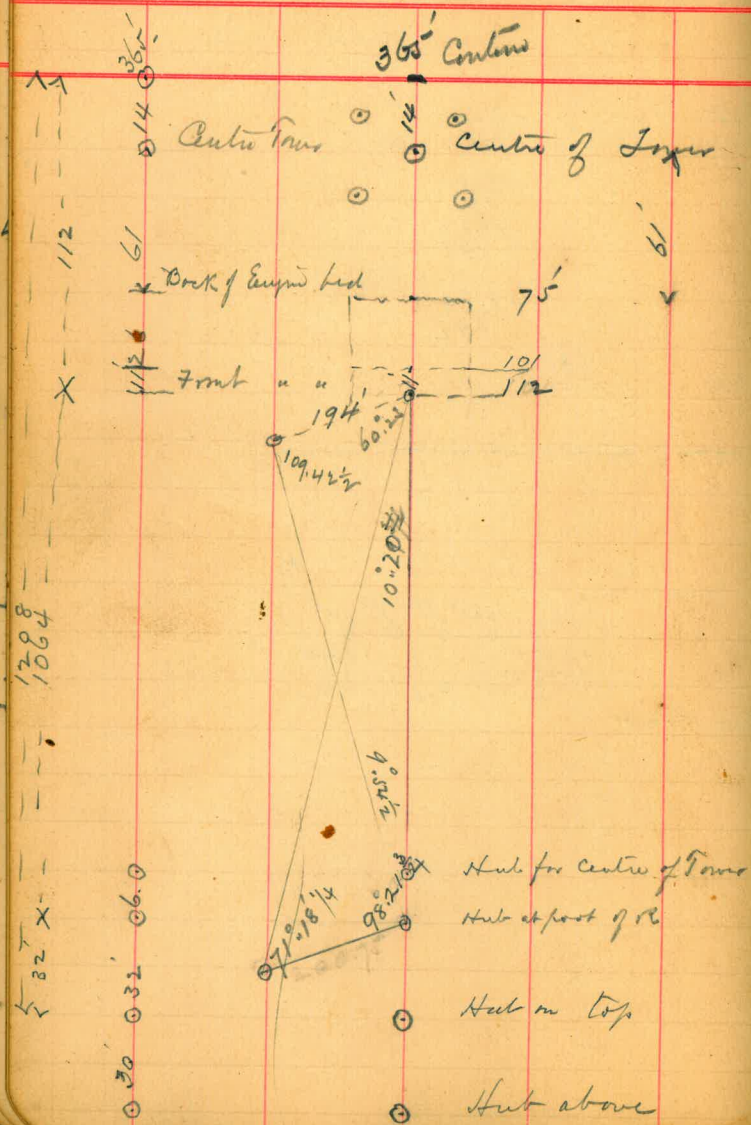
+8.93
0.92

0.0	7.85	10.0
	-2.00	+0.15

9.55  
10.25



South side



38

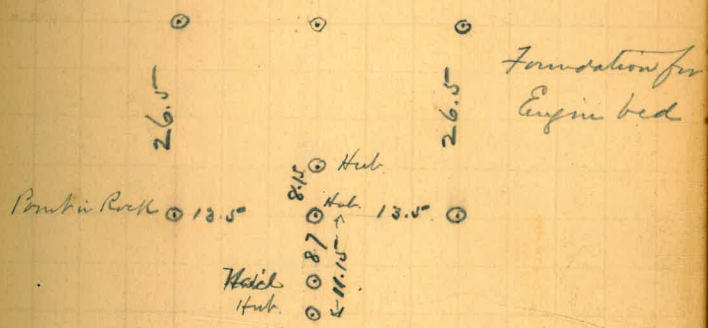
98.25

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9.54

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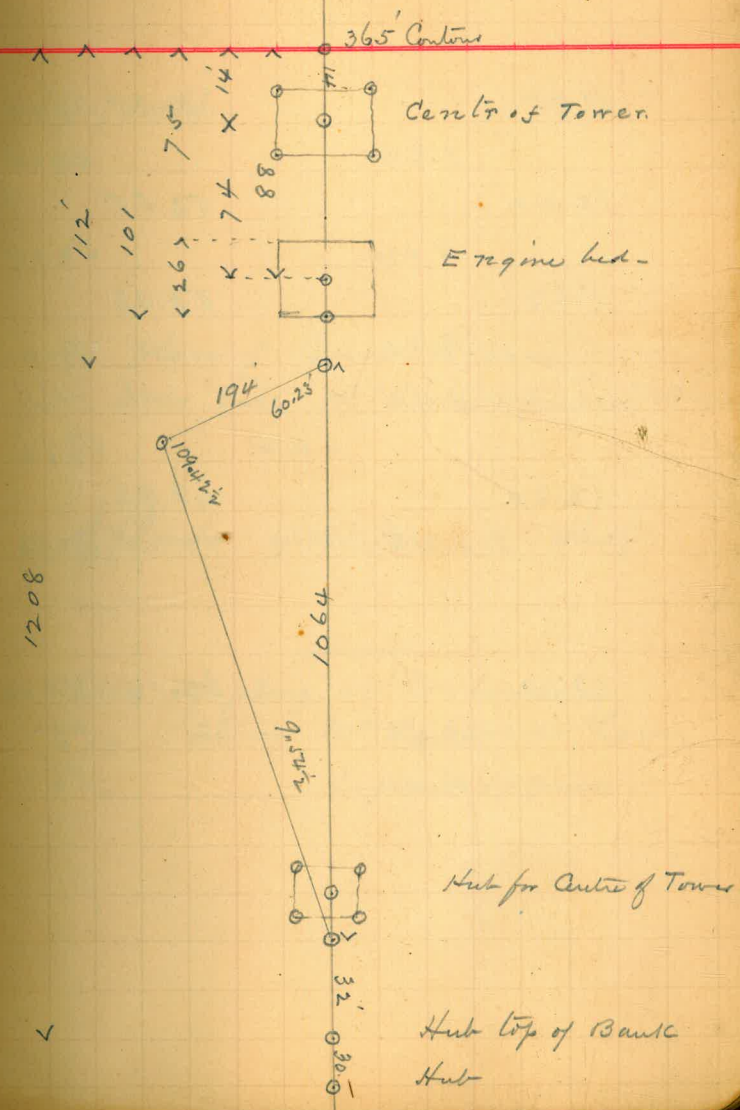
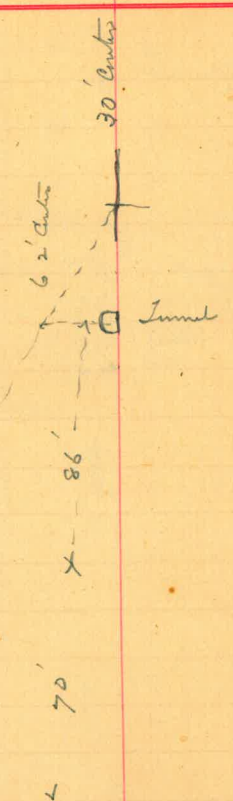
71.18



Foundation for  
Engine bed

Face of cliff  
170'

Lower Bank East to  
130'



## Levels for Elevation of Cement House etc.

11.95		41.95	30.00
	1.60		40.35
12.20		52.55	
	0.10		52.45
5.63		58.08	
	7.10		51.0
	3.45		54.63
		1.42	56.66
12.30		68.96	
	1.26		67.70
10.10		60.10	50.00
	3.35		56.7
	4.00		56.1

top of wall

= floor of Cement House  
 door sill of Air Compressor House

center floor of Blacksmith shop.

Elev. of plug at Commissary  
 " Stoop Mr Babcock's house  
 " " Engine Office

Levels for Tunnel.

42

	2.51		35.54	33.03
		4.69		30.85
	4.40		35.25	
		5.83		29.42
	4.97		34.39	
		4.75		29.64
		4.74		
		4.72		
		<u>4.69</u>		
	2.54		33.57	33.03
		4.71		30.86
	4.16		35.02	
		5.24		29.78
	61' - 4.75		34.53	
		4.82		
		4.80		
106.		4.78		
126		4.76		
136		4.75		
154		4.73		

Sept 29. 1897

Grade at low end of Tunnel -

"	
"	
"	7.10
"	7.9
"	7.9
"	7.7 1/2
"	8.1
"	8.0
29.7	34.53
29.71	29.71
29.73	4.82
29.75	
	7.10
	7.6
	7.6 1/2 place 3/8" low
	3 1/2" high = 7.9 1/2
	8.0
	7.6

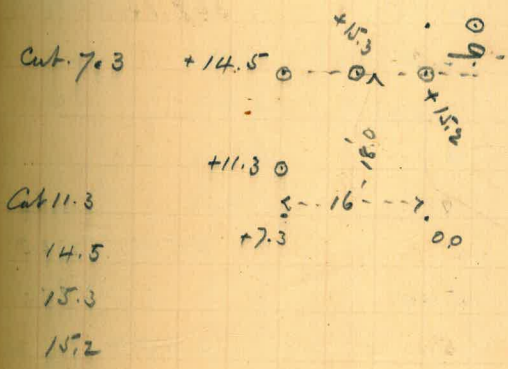
Laying out Jolly Bench on West side

Sep. 29. 1897

73

8.07		358.10	350.
	0.50		358.6
		0.20	357.9
11.20		369.10	
	3.8		365.3
		0.0	369.10
9.2		378.30	
	9.0		369.3
	5.8		272.5
	5.0		373.3
	5.1		133.2

= W. 1/2 Corner of bench = Grade of bench



Levels for Tunnel

44

	2.52		35.55	33.03
		4.67		30.88
	3.69		34.57	
178		4.75		29.82
193		4.74		
208		4.72		
221		4.71		
230		4.70		
	2.38		35.41	33.03
		5.49		29.92
	5.00		34.92	
239		5.04		29.88
246		5.03		
262		5.02		
279		5.00		
288		4.99		
302		4.98		
313		4.96		
322		4.95		
329		4.94		
337		4.94		
347	4.94	4.93	4.64	35.22
358		5.02		29.28
365		"		
376		"		

Bill,

grade = 76

" 76 1/2

7.9 1/2

7.5 1/2

8.4

Roof above

grade

30.00
36
29.64
.154
29.794
154 =
27
178
29.64
18
29.82

30.00
29.64
24
29.88
24.92
29.88
5.04

77

7.7 1/2 Roof above

8.00 grade

7.8

7.8

7.9

7.7 1/2

7.8

7.7 1/2

8.7

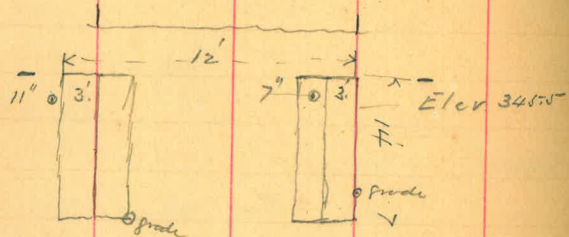
8.00

8.4

7.11

7.6

45



Begin bed 24 back of 112 }  
 + 5-6 down stream of 112 }



Sag for cable  
Feb 10<sup>th</sup> 98

416

P.S.	F.S.	T.S.	Elev.
.05		300.00	310
	11.90		
.71		288.86	288.15
0		40	40
	.29		39.71
11.33		57.04	
	3.015		48.025

1235 from Dining Room to dard

Elev. at point midway bet supports =  
352'

$\frac{291.975}{60.025}$  Sag in  $7\frac{1}{2}$ " cable with no strain

Feb 14<sup>th</sup> 98

Line for Curve on South  
Curve 5° 44'

P.C. 0	
+20	34'24"L
+40	108'48"L
+60	1°43'12"L

Trolley Bench

Inside rails measured in

2 track	17 $\frac{1}{4}$ "	} distance of center rails
3 "	42 $\frac{83}{8}$ "	
4 "	57 $\frac{37}{8}$ "	

Levels of damps

Feb. 27 1898

47

6.21	3531			301
		.03		35.76
10.41	4569			
		.19		45.5
9.06	54.56			
			4.33	52.23
			7.45	47.11
		.03		
9.85	6438		.01	64.37
		2.05		
8.80	7113			
		0.0		
11.53	82.68			
		6.5		
11.58	9361			
		.12		
14.06	102.55			
		2.88		100.67

B.M.

Bar. on 1st damp

" in hollow

" on 2d damp

Bar. of highest damp.

Levels for 150' Contour  
Set 1898

48

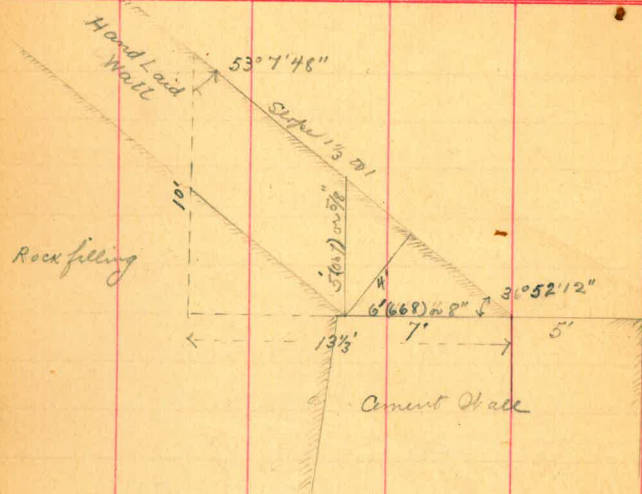
11.73	41.83		30.1
		.15	
11.11	52.79		
		0.0	
11.69	64.48		
		0.1	
11.09	75.47		
		0.0	
11.47	86.94		
		.77	
11.35	97.52		
		0.0	
11.30	108.82		
		.11	
10.83	119.54		
		.22	
10.96	130.28		
		.24	
11.12	141.16		
		.05	
10.48	157.59		

Level for 150' Contours Feb 1898

		11		
11.21	162.69			
		.09		
11.00	173.60			
		.50		
11.91	185.41			
		.06		
11.90	196.61			
		10.95		
5.86	191.52			
		11.6		
11.44	181.36			
		12.0	169.36	
.80	170.16			
		11.63		
1.0	159.53			
		6.85	152.68	
		29.4	151.59	

foundation of denud on South side

on shelf of rocks  
on top of red mark (no stake) (on axis)



Level of Material in Dams

Mar 6

51

0	11.90	41.90		30
1			11.68	30.22
2			7.85	34.15
3			7.1	34.8
4			.03	41.87
T.P.			.3	41.6
	11.37	52.97		
5TP			4.40	41.87
	11.79	60.36		
6			4.46	55.9
7			2.1	58.26
T.P.			.45	
	11.02	70.93		
8			6.6	64.33
T.P.			0.0	
	10.55	81.48		
9			7.40	74.02
10			2.55	78.93
15			.2	81.24
T.P.			.15	
	1.77	83.1		

actual slope 3 lower than linear

on boundary

3' above - 8.8 1/2 may det.

on top of dump

11.			2.36	80.14
T.P.			11.62	
	2.97	71.49		
12.			5.9	65.59
T.P.			12.0	
	1.51	61.00		
13			3.55	57.45
14			10.27	48.73
T.P.			11.90	
	1.77	50.57		
15.			4.35	46.52
T.P.			11.60	
	2.20	41.47		
16.			3.1	38.37
17.			4.96	33.57
18			7.16	34.31
19			6.35	35.12
T.P.			.11	
	10.80	52.16		
20			7.66	44.5
T.P.			8.5	

rough of rock 2' high

	7.03	58.34		
21			6.	52.34
22			2.62	55.72
T.P.			11.98	
	1.62	47.98		
23			6.83	41.15
T.P.			11.91	
	1.0	37.27		
24			3.76	33.51
25			11.08	26.19
T.P.			11.9	
	1.06	26.43		
26			.33	26.1
27			8.60	17.83
T.P.			14.70	
	2.4	14.97		
28			3.40	11.57
29			6.72	8.25
30			5.15	9.82
31			6.54	8.49
32			10.2	4.77

highest pt 4' higher

on rock pt of slope 3' lower



33			12.2	2.77
r.p.			10.92	
	2.0	6.05		
34			4.97	1.05
35			3.5	2.55
36			8.8	-2.75
37			7.0	-.95
38			7.3	-1.25
39			10.	-3.95
40			7.5	-1.45
41			8.1	-2.05
			3.96	3.09

Bulls-eye on rock on heel of dam

Levels for 150' Coulter

Mar

55

1.722	35.392		33.67
		.055	35.337
9.786	45.073		
		.27	44.803
8.54	53.343		
		.065	53.278
10.75	64.028		
		.34	63.688
11.17	74.958		
		.12	74.738
11.145	85.883		
		0.0	85.883
10.81	96.693		
		.36	96.333
10.79	107.123	(0.37)	100.75
		.22	106.903
11.34	118.243		
		0.0	118.243
11.23	129.473		
		2.265	127.208
11.365	138.573		

Elev of dump by air device

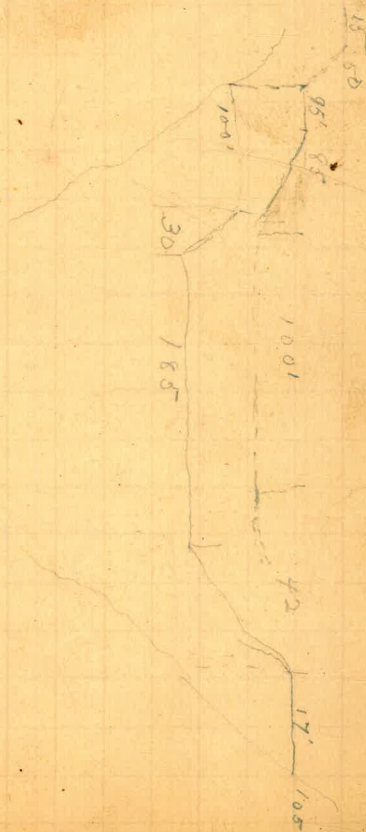


Mar. 16<sup>th</sup>

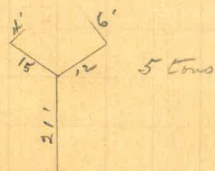
57

11.67				30
	41.67	.07		
11.65				
	53.25	.2		
11.85				
	64.95	.00		
11.61				
	76.51	.03		
11.91				
	88.39		1.06	87.33
			5.67	82.12
				<del>170.85</del>
				85.02

average fill.



54



Apr 8<sup>th</sup> 1898

- ✓ Set 4x4 pine post for cor to sec 1, 2, 11 + 12  
 of 17 S. R. + Cor  
 H. Cor bears N 30° E 1.37 links
- ✓ Set 4x4 pine post for center of Sec 12  
 Harris Cor bears N 30° E 1.37 links
- ✓ Set 4x4 pine post cor to sec 7, 12, 13, 18,  
 H. Cor bears S 65° E 57 links
- ✓ Set 2x4 pine post in bed of creek for 1/4 sec  
 cor bet 13 + 18. (Set W.P. at bank 2 chs E)
- ✓ Set 4x4 pine post to cor 13, 18, 19 + 24. W  
 Range line bet R 4 + 5 H. Cor bears N 5° E 2.69
- ✓ Set 1/2 cor bet 13 + 24 Pine post 2"x4"  
 H. Cor bears N 32° E 1 ch + N 104° W  
 2 chs 20 links - True cor S 23° W dist 3.20
- ✓ Set 4x4 pine post for center 13  
 H. Cor bears N 18 1/2° E dist 1.58
- ✓ Set 1/4 post (pines) bet 12 + 13 (2"x4")  
 H. Cor bears N 65° E dist. 1.43
- ✓ Set 2x4 pine post for 1/4 cor bet 11 + 12  
 H. Cor bears N 62 1/4° E - 1.97 (43 stone m 3)
- ✓ Set 4x4 Redwood post for cor 11, 12, 13, + 14  
 H. Cor bears N 62° 30' E - 1.80

✓ Set 2" x 4" pine post 1/4 cor 13, + 14

Z. Cor N 55° 45' E dist 2.06 chs.

✓ Set 2 x 4 Pine post 1/4 cor 20 + 24

N. Cor bears N 62° 30' E 3.15

N ~~55°~~<sup>30°</sup> 15' E - 60

Set Apr 9<sup>th</sup>

Set 2 x 4 pine post for 1/2 cor bet 19 + 24

✓ Set 2" x 4" pine post for center 18

180' cor stake N 84° 30' W. - 3.15

✓ Set 2 x 4 pine post 1/2 cor bet 7 + 18

✓ Set 2 x 4 " " 1/2 " " 7 + 12

Z. cor bears N 58° E 85 links

✓ Set 2 x 4 pine post 1/4 cor 1 + 12

✓ Set 2 x 4 pine post 1/4 cor 7 + 8

Contour stake N 29° + 45 bears S 59° 45' W. 1.75

✓ Set 4 x 4 pine post for cor to Sec 7, 8, 17 + 18

✓ Set 4 x 4 " " " " " 13 14 23 24

monument on contour bears S 52° 15' E - 3.12

Set 2" x 4" Redwood post for 1/4 cor 1 + 23

monument <sup>31</sup> 7<sup>31</sup> 31 on Contour bears N 51° 15' W 5.59

Z. Cor bears S 27° 15' E - 1.23 (1/4 1/4 cor 250' East  
of 4" x 4" contour post)

Set 417 Pine Point center to Sec 20  
monument No. 25720 bears N 41° 45' E - 3.37





63

20.6  
14-11 3/8  
30-5 3/8  
10.19 4/4  
71.18  
98.21 1/2  
179.59 1/4

20-7-1/8  
14-11 3/8  
30-6 1/2  
10.20  
71.18 1/4  
98.21 3/4  
180.00

109.42 1/2  
60.23  
9.57 1/2

22.8  
320  
20  
25.7  
388.5

180.00

# TRAVERSE TABLE FOR TRANSIT BOOK.

From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0			100.00	0.44	100.00	0.87	99.99	1.31	89
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	88
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	87
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	86
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	85
5	99.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	84
6	99.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	83
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	82
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	81
9	98.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	80
10	98.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	79
11	98.16	19.08	98.08	19.51	97.99	19.94	97.90	20.36	78
12	97.81	20.79	97.72	21.22	97.63	21.64	97.53	22.07	77
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	76
14	97.03	24.19	96.92	24.62	96.81	25.04	96.70	25.46	75
15	96.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	74
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.82	73
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	72
18	95.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	71
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	70
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	69
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	68
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	67
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	66
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	65
25	90.63	42.26	90.45	42.66	90.26	43.05	90.07	43.44	64
26	89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	63
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	62
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	61
29	87.46	48.48	87.25	48.86	87.04	49.24	86.82	49.62	60
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	59
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	58
32	84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	57
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	56
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	55
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	54
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	53
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	52
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	51
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	50
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	49
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	48
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	47
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	46
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	45
45	70.71	70.71							
Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees.
	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	

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Handwritten calculations and notes on the left page of the notebook. Includes various numbers, fractions, and some diagrams. Notable entries include:

- 70.12
- 20.50
- 99.42
- 80.18
- 30 = 4.5
- 60 = 1.80
- 80 = 3.2
- 100 = 5.0
- 120 = 7.2
- 150 = 11.25
- 100 = 10.0
- 79.48
- 109.43
- 10.19
- 20.39
- 30.59
- 41.19
- 60.24
- 120.45
- 181.08
- 241.31
- 109.43
- 219.25
- 329.08
- 109.45
- 241.31
- 60.73