Miscellaneous Surveys

June & July 1889.

2

F.B.6

MICROFILMED
DEC 1 1964
Return to City Engineers Office
City Hall, San Diego, Cal.

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

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

PUBLISHED BY
EDWARD DENNY & CO.
DRAWING PAPER & MATERIAL, MATHEMATICAL INSTRUMENT
STATIONERS AND PRINTERS
SAN FRANCISCO, CAL.

Table for Running on Slopes.

In the following table the first column shows the angle, the second, the links to be added to a chain on the slopes, to make one chain, horizontal measure

Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Co
°		°		°		°	
4	0·24	11	1·88	18	5·14	25	
5	0 38	12	2·24	19	5·76	26	
6	0·55	13	2·63	20	6·42	27	
7	0·76	14	3·06	21	7·11	28	
8	0·98	15	3·53	22	7·85	29	
9	1·24	16	4·02	23	8·64	30	
10	1·55	17	4·56	24	9·47	35	

eturn to City Engineers Office
City Hall, San Diego, Cal.

Index

I Ave x sections Pages 2 – 11
Measurements from 5th to west
Line of Park – P.P. 17 – 19
B Line across Old Town flats
P.P. 20 – 25
Centre grades for St Car Co's
turack on H E Line of Front to
East Line of Columbia PP 26 – 27
B Line on sewer outlet Levels
across Old Town flats 29 – 34
C Line on sewer outlet 35 – 43
Fill in Sewer Reservoir 47
Long J.S. Survey of Lots G.H.I. Blk
277 Hontons Add – 48

X Sections of I Ave

June 12 1889

Hamlin
Oxton
Williams
Hensley.

N East		Center		S West		Sta	+	HI	−	Elev
Rod	Elev	Rod	Elev	Rod	Elev	BM				Cor Nat. & 328th
		(48.0)					1.32	58.70		57.38
							5M round & 28th		7.66	51.04 51.09
						#	3.85	51.00	11.55	47.15
						#	3.98	47.20	7.78	43.22
						#	4.75	52.64	3.31	43.89
						BM	3 pk tel 200' N ~~[illegible]~~ NW cor		6.63	46.01
							Intersection of West line I Ave with West line Topeka Ave			
			and elev 2.1 45.9	1.5	46.5	0	2.02	48.03		46.01
				10' out 1.2	46.8	+15				
			rod elev 3.8 44.2	32.5 out 0.7	47.3	+40				60.00 396.3 03.7
	Rod elev 5.5 42.5	13.6 out 4.8	43.2	0.6	47.4	+65				
	7.4 40.6	35.6 out 5.3	42.7	0.9	47.1	+80			244.4	
7.8	40.2 – Sta 0+96.6 Intersection of S line Topeka									
8.2	39.8	5.7	42.3	1.4	46.6	1+15				600. 396.3 203.7
9.0	39.0	6.0	42.0	1.7	46.3	+40				
9.3	38.7	6.2	41.8	2.0	46.0	+65				
9.7	38.3 = 1+78 intersection of N line 32nd									
9.6	38.4	6.2	41.8	2.4	45.6	+90				
10.2	37.8	7.0	41.0	3.4	44.6	2+15				
9.9	38.1	7.6	40.4	4.3	43.7	+40				
10.6	37.4 – 2+56.4			+44.4 4.5	43.5	+44.4				
	Intersection of S line of 32d									
10.8	37.2	8.0	40.0	5.5	42.5	0	S line of		St	41.01
12.2	35.8	8.9	39.1	7.0	41.0	+85				

June 12 1889
Hamlin
Orton
Williams
Hensley

3

X Sections of I Ave.

East		Center		West		Sta	+	HI	−	Elev
Rod	Elev	Rod	Elev	Rod	Elev					
			(48.0)							
3.9	35.3	10.5	37.5	8.4	39.6	0+50		48.03		
				8.8	39.2	0+57				
			(39.2)							
4.2	35.0	2.8	36.4	1.0	38.2	+75	1.37	39.21	10.19	37.84
5.8	33.4	4.4	34.8	1.9	37.3	1+0				
10.1	29.1	7.2	32.0	2.2	37.0	+25				
14.0	25.2	10.4	28.8	2.7	36.5	+50				
12.6	19.7	13.3	25.9	4.0	35.2	+75				
			(32.3)				4.87	32.32	11.76	27.45
9.1	11.9	9.6	22.7	1.9	30.4	2+0				
11.9	9.1	13.5	18.8	10.9	21.4	+25				
			(21.0)				0.39	20.96	11.75	20.57
13.8	7.2	4.7	16.3	7.9	13.1	2+5				
13.1	7.9	6.7	14.3	14.2	6.8	+75				
10.5	10.5	8.4	12.6	15.5	5.5	3+			1.04	19.92
0.9	20.1	9.5	11.5	15.9	5.1	+2				
8.9	12.1	9.2	11.8	13.0	8.0	+5				
9.1	10.9	9.3	11.7	9.6	11.4	+7				
		9.0	12.0	9.5	11.5	4+				
			(13.2)							
		1.0	12.2	1.7	11.5	+4	1.47	13.16	9.27	11.69
2.5	10.7	2.8	10.4	1.9	11.3	+5				

Sta 0+57 = intersection S Line 32nd St

Sta 4+ = spk. to get elev to start one Hill

4

X Section of J Ave

June 12 1884

Hamlin
Orton
Williams
Hensley

East		Center		West			+	H.I.	−	Elev
			(13.2)							
Rod	Elev	Rod	Elev	Rod	Elev			13.16		
32 in from E line										
2.0	11.2	2.8	10.4	3.0	10.2	9+75				
		5.3	7.9	4.8	8.4	5+6				
31 in 10.9 −1.5										
11.1	− 2.2	8.2	5.0	4.8	8.4	5+2	4.55	8.86	8.85	4.31
			(8.9)							
30 in + 2.8										
12.0	− 3.1	4.7	4.2	10.9	− 2.0	5+5				
30 in − 3.2				25 in + 3.2 16 in −0.9						
11.2	− 2.3	5.0	3.9	11.2	− 2.3	+75				
3.4 in +0.7				28 in −1.1 24 in 3.7						
11.2	− 2.3	5.1	3.8	10.7	− 1.8	6		Line of Pluto St		
12.5	−3.6	12.6	−3.7	10.6	− 1.7	+3		Pluto St End of Bridge		
14.0	−5.1	14.3	−5.4	14.0	−5.1	0		Line of Pluto St		
								BM Top of Bolt in ~~wing~~ E	6.08	2.74
								in N W wing of Bridge		

7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.4
12.2

June 12 1889.

Hamlin
Arton
Williams
Hensley.

X Section of I Ave, from Sta 3+5 on East side of St between & Pluto.

East		Center		West		Sta	+	+	H I	−	Elev
			(31.8)								
Rod	Elev	Rod	Elev	Rod	Elev		B.M.	11.80	31.72		19.92
2.9	29.9	13' in 5.8	26.0			3+5	#	6.97	37.98	0.71	31.01
		(38.0)	Rod	Elev							
1.4	36.6	16' in	3.4	34.6		3+7					
0.2	37.8	32' in	4.4	33.6		4+0					
0.4	37.6	37 in	3.0	35.0		4+2					
6.6	31.4	24 in	2.6	35.4		+3	#	0.63	26.76	11.85	26.13
			(26.8)								
6.0	20.8	17' in	2.2	24.6		+75					
			(16.7)					0.90	16.65	11.01	15.75
7.0	9.7	28' in	0.9	15.8		5+0					
		(5.2)					#	1.08	9.23	8.50	8.15
				31' in							
							B.M.			6.44	2.79
						0 =	Line Pluto St				
31' in +0.3 9.2	25' in −4.5 −4.0	1.1	4.2	31' in +3.8 7.2	25' −2.9 −2.0	+5		2.33	5.11		2.78
31' in +0.3 7.7	25' in −4.1 −2.5	4.2	1.0	31' in 0.8 8.0	25' in −1.9 −2.8	1					
31' in −0.1 8.1	25' in 4.2 −2.9	5.1	0.1	31' in 5.2 7.8	0.0 25' in 2.5 −2.6	+5					
31' in 1.2 7.6	25' in −3.4 −1.8	5.2	0.0	31' in 5.4 7.9	−0.2 25' in −2.9 −2.7	2					
31' in +3.7 7.1	25' in −4.7 −1.9	4.8	0.4	31' in −0.1 8.1	25' in −2.8 −2.9	+5					
			(5.1)				B.M.	2.31	5.09		2.78
25' in −4.0 8.7	31' in +0.4 −3.5	4.9	0.3	31' in −0.8 9.2	25' in 3.3 −4.1	3+					

7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.8
12.2

6 X section of I Ave

June 14 1889

Hamlin Book
Orton Level
Williams Rod
Hensley

6

	East		Center		West			+	H.I	−	Elev
	Rod	Elev	Rod	(5.1) Elev	Rod	Elev	S				
	25' in -4.3	31' in +0.2			31' in -0.7	25' in -4.9					
2	9.5	-4.4	5.5	-0.4	10.4	-5.3	3+				
	25' in -4.0	31' in -0.1			31' in -0.5	25' in -4.9					
	8.2	-3.1	5.1	0.0	9.6	-4.5	4+				
	25' in -3.6	31' in +0.1			31' in -0.4	25' in -3.2					
1	8.1	-3.0	5.1	0.0	7.7	-2.6	+				
	25' in -4.2	31' in +0.4			31' in +0.1	25' in -3.1					
0	7.8	-2.7	5.1	0.0	7.4	-2.3	5+				
	25' in -3.9	31' in +0.7			31' in +0.1	25' in -2.4					
0	7.7	-2.6	4.7	0.4	7.5	-2.4	+5				
	25' in -2.2	31' in +0.4			31' in +0.1	25' in -2.5					
6	7.4	-2.3	4.7	0.4	7.5	-2.4	6+	Rigel St N Line			
	25' in -1.9	31' in +0.6			31' in +0.1	25' in -2.5					
	7.4	-2.3	4.6	0.5	7.5	-2.4	+	Rigel St			
	25' in -2.5	31' in +0.6			31' in +0.2	25' in -2.0					
6	7.4	-2.3	4.6	0.5	7.2	-2.1	0	Line of Rigel St			
	25' in -2.9	31' in +0.3			31' in +0.2	25' in -2.3					
	7.3	-2.2	4.6	0.5	7.1	-2.0	T.				
	25' in -3.0	31' in +0.1			31' in +0.1	25' in -2.2					
	7.5	-2.4	4.8	0.3	7.1	-2.0	1				
	25' in -2.5	31' in +0.3			31' in +0.1	25' in -2.0					
	7.7	-2.6	4.7	0.4	7.1	-2.0	+				
7.8	25' in -2.8	31' in +0.3			31' in +0.1	25' in -2.0					
8.2	7.3	-2.1	4.7	0.4	7.1	-2.0	2		5.09		
	25' in -2.0	31' in +0.3			31' in +0.3	25' in -1.8					
9.0	6.6	-1.5	4.7	0.4	7.0	-1.9	+	2.96	5.39	2.66	2.43
				(5.4)							
9.3								M, 3 ft N Engl of Culvert		6.71	-1.32
9.7											
9.6	3.4	2.0					+6	grade			
10.2	3.7	1.7					+7	"			
9.9	7.8	-2.4					+7	"			
10.6	7.1	-1.7	2.6	2.8	7.8	-2.4	3				
10.8					3.9	1.5	+	"			
12.2					3.2	2.2	+2	"			

7 X Section of D Ave

June 10 1889

East		Center		West			+ H	HI	− Elev	
Rod	Elev	Rod	Elev (5.4)	Rod	Elev	Sta				
				6.6	− 1.2	3+30	R. Grade			
6.8	− 1.4	5.5	− 0.1	7.6	− 2.2	3+50				
6.8	− 1.4	5.8	− 0.4	7.4	− 2.0	4				
6.7	− 1.3	5.6	− 0.2	7.5	− 2.1	+5				
6.8	− 1.4	5.8	− 0.4	7.6	− 2.2	5				
7.4	− 2.0	5.9	− 0.5	7.0	− 1.6	+5				
7.0	− 1.6	5.7	− 0.3	5.7	− 0.3	6	& Line Sewer St.			
6.9	− 1.5	5.7	0.3	5.6	− 0.2	+0	Sewer St.			
6.6	− 1.2	5.4	0.0	5.4	0.0	0	Line Sewer St.			
6.2	− 0.8	4.9	0.5	4.9	0.5	+5				
6.2	− 0.8	4.4	1.0	4.4	1.0	1				
3.7	1.4	4.5	0.9	6.0	− 0.6	+5				
5.4	0.0	4.4	1.0	4.0	1.4	2				
3.7	1.7	4.6	0.8	4.4	1.0	+5				
4.0	1.4	4.5	0.9	4.3	1.1	3				
4.1	1.3	4.8	0.6	4.5	0.9	+5		5:39		
4.4	0.5	4.6	0.8	4.8	0.6	4	9.76	14.04	1.11	4.28
			(14.0)							
4.5	5.5	11.9	2.1	13.0	1.0	+3				
5.8	4.2	8.1	5.4	8.5	5.5	5				

7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.8
12.2

June 14 1883

4 X Sections I Are

East		Center		West			+	H.I.	-	Elev
			(14.0)							
Rod	Elev	Rod	Elev	Rod	Elev.			14.04		
3.3	10 7	5.3	8.7	5.1	8.9	5 +5				
2.1	11.9	3.7	10.3	4.7	9.3	6	N line Thor St			
1.6	12.2	3.4	10.6	4.1	9.9	+5	Thor St			
2.1	11.9	2.8	11.2	3.4	10.6	0	S line Thor St			
2.0	12.0	1.9	12.1	1.6	12.4	+5	On S pk 3' SE Cor Thor St		2.22	11.82
			(21.0)				±	7.58	21.04	0.88	13.16
5.9	15.1	7.0	14.0	7.0	14.0	1				
6.4	14.6	5.5	15.5	5.2	15.8	+5				
5.2	15.8	5.1	15.9	5.0	16.0	2				
5.1	15.9	5.0	16.0	4.9	16.1	+5				
5.4	15.6	4.7	16.3	4.1	16.9	3				
5.4	15.6	4.9	16.1	4.4	16.6	+5				
5.6	15.2	5.4	15.2	3.3	17.7	4				
6.5	14.5	6.4	14.6	5.5	15.5	+5				
6.8	14.2	7.2	13.8	7.0	14.0	5				
6.3	14.7	7.4	13.6	7.5	13.5	+5				
6.5	14.5	7.1	13.9	8.1	12.9	6	N line Una St			
6.0	15.0	7.5	13.5	7.7	13.3	+5	Una St			
6.2	14.8	7.6	13.4	7.9	13.1	05	S line Una St			

7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.8
12.2

9 X Section I Hve

June 14 1889

East		Center		West		+	HI	−	Elev
Rod	Elev	Rod	(18.8) Elev	Rod	Elev		21.04		
4.7	14.1	5.4	13.4	5.7	13.1	+5	m spk 3 from SW cor Vesta St.	7.93	13.11
4.5	14.3	5.2	13.6	5.8	13.0	1	5.68 18.79		
4.7	14.1	5.5	13.3	5.8	13.0	+5			
4.3	14.5	5.2	13.6	5.4	13.4	2			
3.3	15.5	5.0	13.8	4.3	14.5	+5			
2.9	15.9	4.3	14.7	6.0	12.8	3			
4.3	14.5	5.1	13.7	4.9	13.9	+5			
3.9	14.9	5.0	13.8	4.7	14.1	4			
3.4	14.9	4.3	14.5	4.7	14.1	+5			
3.4	15.4	4.3	14.5	4.5	14.3	5			
3.4	15.4	3.4	15.4	3.1	15.7	+			
1.7	17.1	2.1	16.7	2.0	16.8	6	Line Vesta St		
1.1	17.7	1.4	17.4	1.6	17.2	+5	Vesta St		
0.2	18.6	1.0	17.8	1.1	17.7	0	Line Vesta St spk 2 SW cor Vesta		
			(22.0)				m # 4.50 22.00	1.29	17.50
2.8	19.2	3.9	18.1	3.8	18.2	+5			
2.4	19.6	3.2	18.8	3.3	18.7	1			
2.1	19.9	3.1	18.9	3.3	18.7	+5			
3.1	18.9	4.3	17.7	4.1	17.9	2			
5.4	16.6	6.0	16.0	6.1	15.9	+5			

7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.8
12.2

X Section of I Ave

June 14. 1889

East		Center		West			+	HI	-	Elev
			(22.0)							
Rod	Elev	Rod	Elev	Rod	Elev			22.00		
8.5	13.5	7.9	14.1	7.1	14.9	3				
7.8	14.2	8.8	13.2	7.1	14.9	+				
7.6	14.4	9.0	13.0	9.6	12.4	4				
8.0	14.0	8.9	13.1	9.1	12.9	+				
7.5	14.5	9.2	13.8	9.7	12.3	5				
8.1	13.9	9.6	12.4	10.2	11.8	+				
8.0	14.0	9.4	13.6	9.7	12.3	6	Line Woden St			
7.8	14.2	9.3	12.7	9.8	12.2	+	Woden St			
7.6	14.4	9.2	12.8	9.7	12.3	0	Line Woden St			
			(15.5)				pk SW cor Woden st.			
							3.36	15.51	9.85	12.15
0.8	14.7	2.4	13.1	3.3	12.2	+				
3.2	12.3	3.3	12.2	2.6	12.9	1				
8.1	7.4	7.2	8.3	6.1	9.4	+				
10.8	4.7	9.5	6.0	8.0	7.5	2				
11.2	4.3	10.2	4.3	6.0	9.5	+				
10.9	4.6	11.7	3.8	9.2	6.3	3				
			(8.4)							
							2.89	8.36	10.04	5.47
5.0	3.4	5.5	2.9	4.7	3.7	+				
5.4	3.0	5.9	2.5	5.9	2.5	4				
5.3	3.1	5.6	2.8	5.6	2.8	+				

X Sections I Ave

June 14 1889

Hamlin Book
Orton Level
Williams Rod
Hensley.

East		Center		West			+	HI	−	Elev
			(8.4)							
Rod	Elev	Rod	Elev	Rod	Elev	Sta		8.86		
5.0	3.4	5.2	3.2	5.2	3.2					
4.3	4.1	5.0	3.4	5.1	3.3					
3.5	4.9	4.1	4.3	4.3	4.1	6	Line Yama St			
3.3	5.1	4.0	4.4	4.5	3.9		Yama St			
3.1	5.3	3.9	4.5	4.2	4.2		Line Yama			
3.3	5.1	3.6	4.8	4.1	4.3		+ 3/4 2 NE Cor Yama		3.56	4.40
3.5	4.9	3.4	5.0	3.9	4.5	1				
3.9	4.5	4.4	4.0	4.8	3.6					
4.0	4.4	4.6	3.8	5.1	3.3	2				
3.9	4.5	4.8	3.6	5.7	2.7					
4.3	4.1	4.3	4.1	5.4	3.8	3				
2.0	6.4	2.9	5.5	4.3	4.1					
			(13.4)				8.22	13.40	3.18	5.18
3.3	10.1	5.3	8.1	6.8	6.6					
				4.9	8.5		National City Line:			
0.4	13.0	1.6	11.8							
0.3	13.1						National City Line.			

12

June 14 1889

Hamlin Level
Orton Rod
Williams
Hensley

Check Levels back over B.M.s

Sta	+	HI	-	Elev		
		13.40 → See preciding page.				
#	7.30	12.45	8.25	5.15		
BM			7.63	4.82		Yama St
#	6.24	18.08	0.61	11.84		
BM			5.91	12.17		Woden St
#	3.88	20.90	1.06	17.02		
B.M.			3.38	17.52		Vesta St
#	6.78	20.48	7.20	13.70		
BM			7.34	13.14		Una St
BM #	1.70	13.75	8.43	12.05	11.82	Thor St
#	2.61	4.80	11.56	2.19		
BM			5.80	-1.00		
BM #	6.53	19.67		13.14		Una St
BM #	2.74	14.80	7.61	12.06		Thor St
#	1.54	5.11	11.23	3.57		
B.M #	6.14	5.15	6.10	-0.99		Sevin
			2.04	3.11		Auto St

12

June 14 1889

Hamlin Level
Orton Rod
Williams
Hensley

Check Levels back over B.M.s

Sta	+	HI	−	Elev		
		13.40 → See preceding page.				
#	7.30	12.45	8.25	5.15		
BM			7.63	4.82		Yama St
#	6.24	18.08	0.61	11.84		
BM			5.91	12.17		Woden St
#	3.88	20.90	1.06	17.02		
B.M.			3.38	17.52		Vesta St
#	6.78	20.48	7.20	13.70		
BM			7.34	13.14		Una St
BM #	1.70	13.75	8.43	12.05	11.82	Thor St
#	2.61	4.80	11.56	2.19		
BM			5.80	−1.00		
BM #	6.53	19.67		13.14		Una St
BM #	2.74	14.80	7.61	12.06		Thor St
#	1.54	5.11	11.23	3.57		
B.M. #	6.14	5.15	6.10	−0.99		Sevin
			2.04	3.11		Auto St

13

Stu	+	HI	−	Elei	
BM	11.34	14.12		2.78	
#	11.10	24.53	0.69	13.43	
#	11.73	35.32	0.94	23.59	
#	9.80	43.95	1.17	34.15	
#	7.16	49.21	1.90	42.05	
BM #	6.68	52.69	3.20	46.01	Topeka
#	6.49	53.91	5.27	47.42	
#	3.27	54.10	3.08	50.83	
#	5.47	58.61	0.96	53.14	
B.M.			7.49	51.12	51.09

14

Restatumed,

SW Side Rod	SW Side Elev	Centre Rod	Centre Elev (48.0)	NE Side Rod	NE Side Elev	
1.5	46.5					Intersection of SW Side Ave S line Topeka Ave
1.2	46.8	10' left	Elev 45.9			
0.7	47.3	32.5' left	" 44.2			
0.6	47.4	4.8	43.2	−13.6	from centre left El. 42.5	
0.9	47.1	5.3	42.7	−35.6	left Elev 40.6	
				7.8	40.2	Intersection of NE line A Ave with S line Topeka
1.4	46.6	5.7	42.3	8.2	39.8	
1.7	46.3	6.0	42.0	9.0	39.0	
2.0	46.0	6.2	41.8	9.3	38.7	✓
				9.7	38.3	Intersection of NE line of I Ave with W line 32nd St
2.4	45.6	6.2	41.8	9.6	38.4	
3.1	44.6	7.0	41.0	10.2	37.8	
4.3	43.7	7.6	40.4	9.9	38.1	
4.5	43.5					Intersection of SW line of I Ave with West line 32nd St
				10.6	37.4	Intersection of NE line of I Ave " East line 32nd St
5.5	42.5	8.0	40.0	10.8	37.2	
7.0	41.0	8.9	39.1	12.2	35.8	

7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.8
12.2

S.W. Rod	Side Elev	Center Rod	Center Elev	N.E. Rod	Side Elev
			(48.5)		
8.4	39.6	10.5	47.5	3.9	35.3
8.8	39.2				
			(39.2)		
1.0	38.2	2.8	36.4	4.2	35.0
1.9	37.3	4.4	34.8	5.8	33.4
2.2	37.0	7.2	32.0	10.1	29.1
2.7	36.5	10.4	28.8	14.0	25.2
25 left Elev	38.0				
30 " "	30.1				
4.0	35.2	13.3	25.9	12.6	19.7
24' left	31.3				
31 "	26.8				
			(32.3)		
1.9	30.4	9.6	22.7	9.1	11.9
10.9	21.4	13.5	18.8	11.9	9.1
			(21.0)	21' right Elev	9.3
				36 "	14.0
7.9	13.1	4.7	16.3	13.8	7.2
				32 right Elev	8.0
				36 " "	16.0
14.2	6.8	6.7	14.3	13.1	7.9
20' left	Elev 6.1				
15.5	5.5	8.4	12.6	10.5	10.5
		9.5	11.5	15.9	5.1

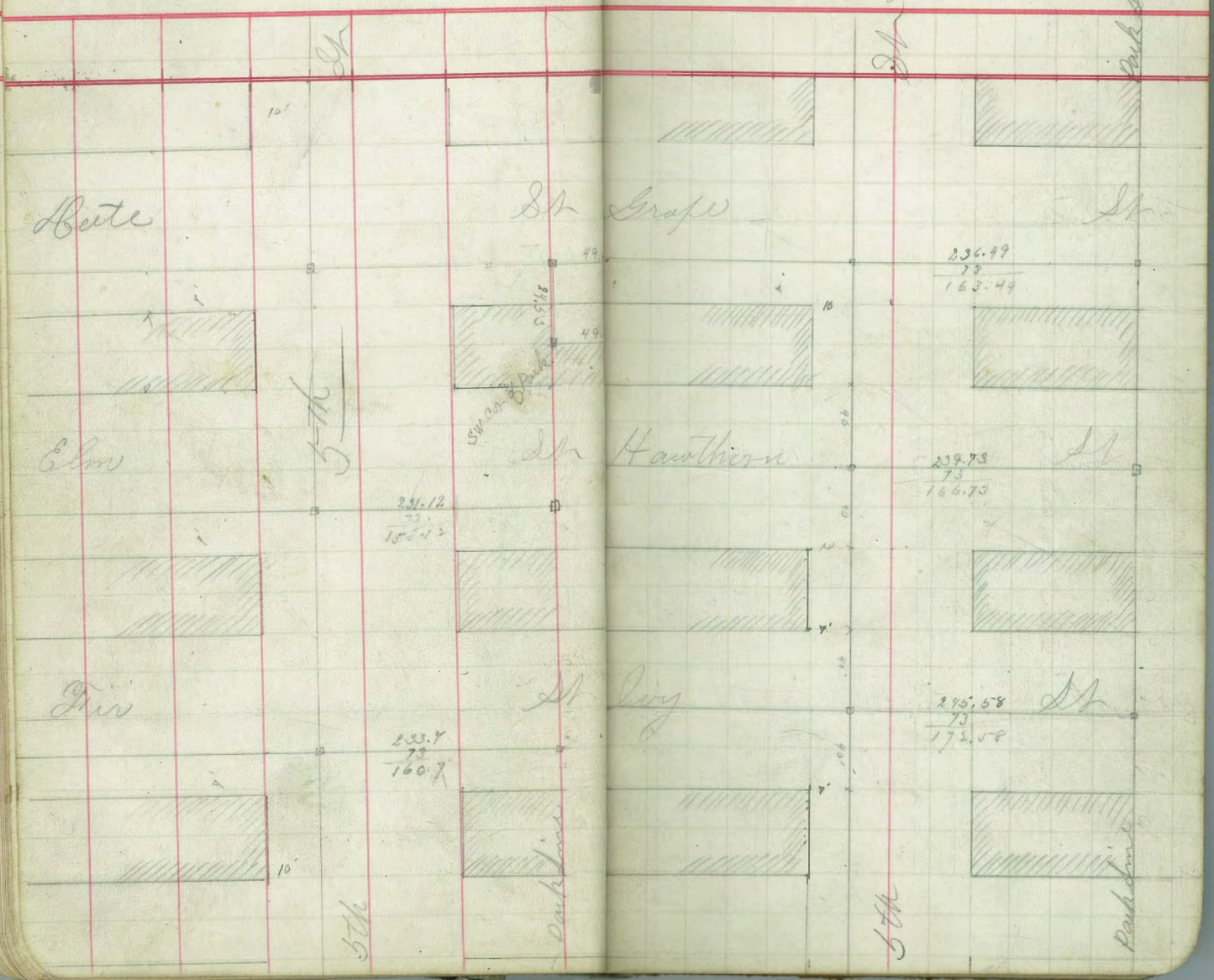
Intersection S.W. line of I Ave with East of 32nd St.

16

SW Bank	Side Elev	Center Bank	Center Elev	NE Bank	Side Elev	
8.0			11.8		28.9	
11.4			11.7		36.6	
11.5			12.0		37.4	
11.5			12.2		37.6	
11.3			10.4		31.9	
10.2			10.4		20.8	
8.4			7.9		9.7	
-8.4			5.0		-2.2	
-2.0			4.2		-3.1	
-2.3			3.9		-2.3	
-1.8			3.8		-2.3	NW Side Plate

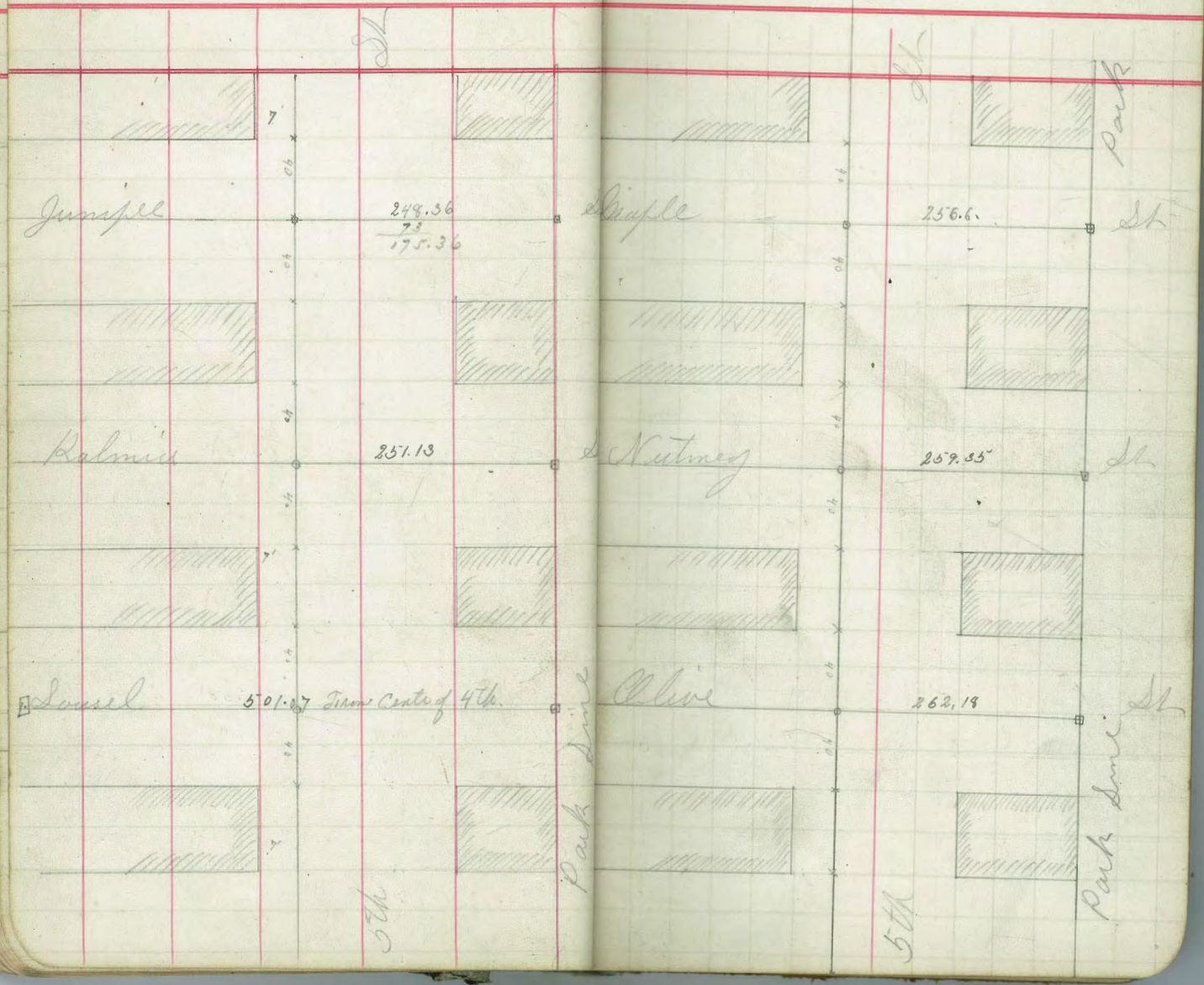
7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.4
12.2

Measurements to West line of Park from 5-th St
June 25th 1889.



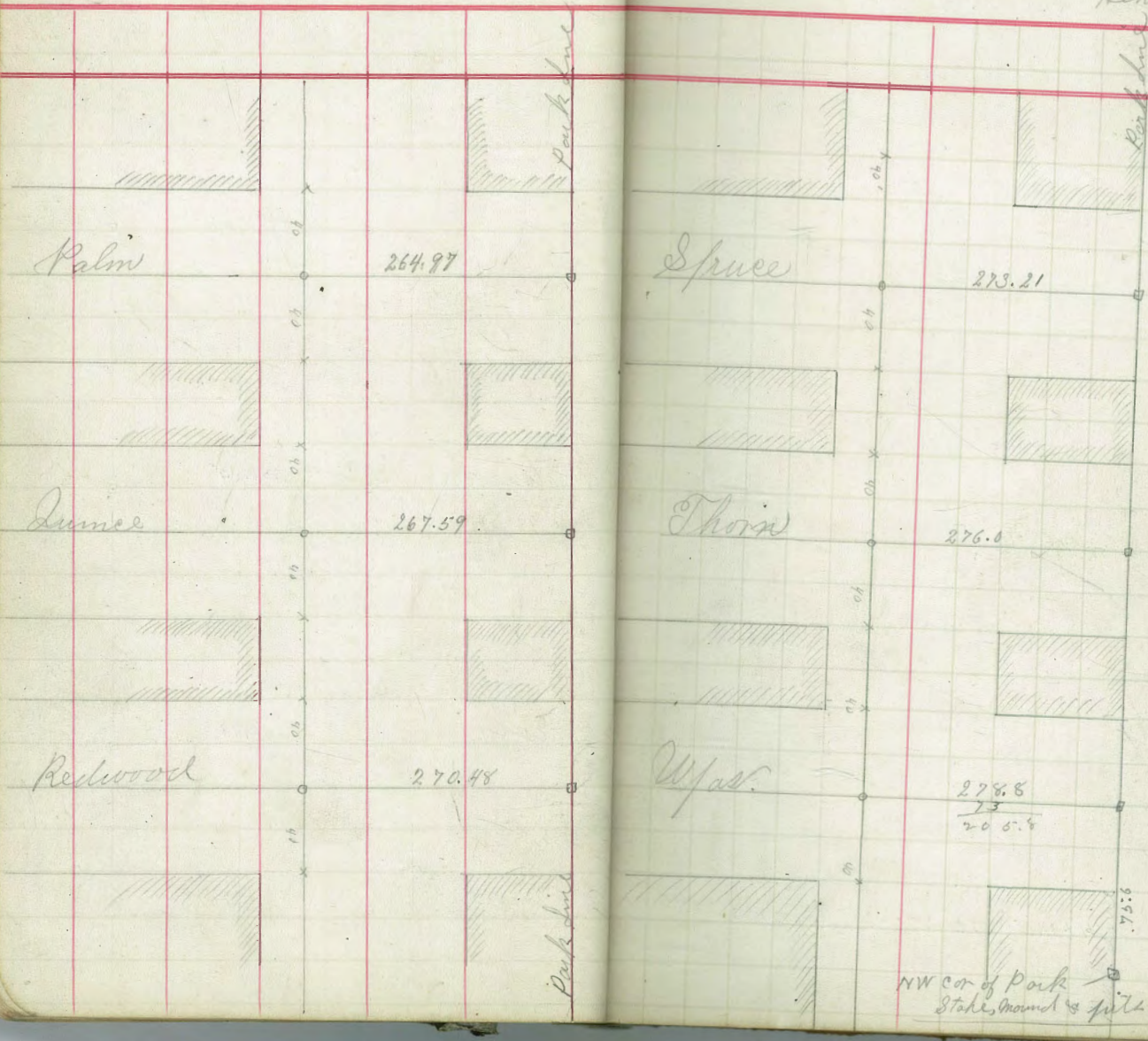
7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.4
12.2

18 Measurements to Park Lining West Boundary



19 Measurements from West Line of Park to 5th St

Hamlin
Orton
Williams
Hensley



7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.8
12.2

20 June 28 1889

B Line, across Old Town. flat - B Line

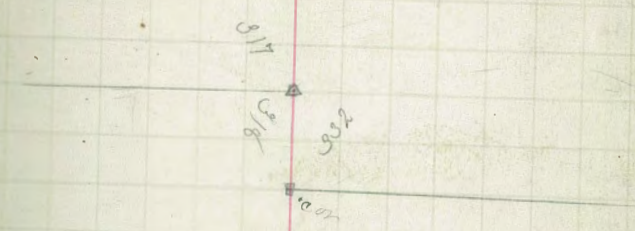
Hamlin Transit
Orton
Williams
Hensley

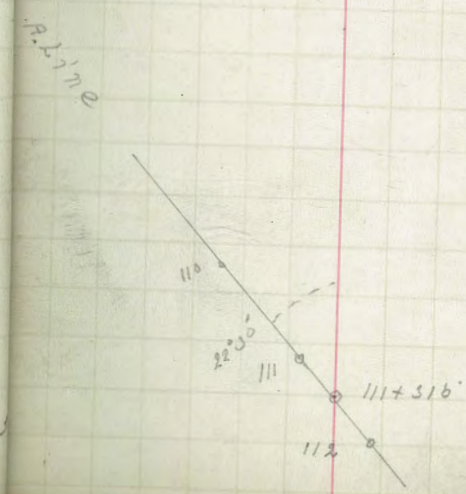
9
+16.5
8
+42
7
6
5
4
3
2
1

N 68° 0' W

O = 111+31.5 A Line Δ 22° 30' Right

B Line Beginning at Sta 11+0
on A Line In book 5

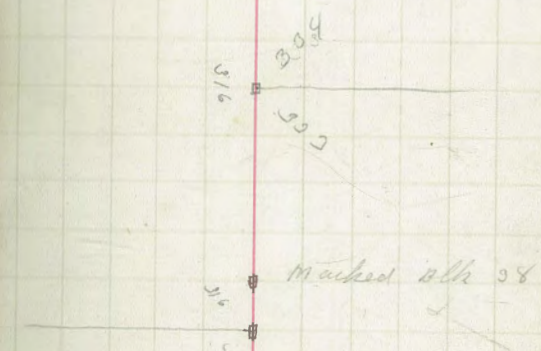




7.8
8.2
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.8
12.2

B Line E across the Old town flat

	19
9	
+	18
8	
+	17
7	+74
	16
6	
	15
5	+92.4
	+78.7
4	14
3	13
2	12
1	11
	10

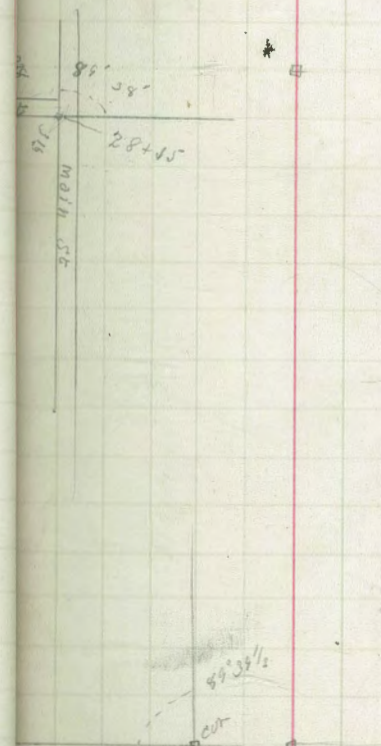


Bonnie along flat Oldtown

+15	Δ 89°	38'	Right	
28				
27				
26				
25				
24				
23				
22				
+325	Δ 89°	39½	Left	
21				
20				

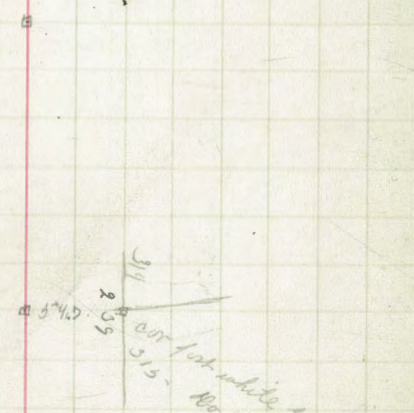
N 22° 30' E

7.8
8.1
9.0
9.3
9.7
9.6
10.2
9.9
10.6
10.4
12.2



B Line along flat Old Town.

+61	Δ 90° 0	Left	No cor Set Plug.		
38					
37					
36					
+88					
35					
34					
33					
32					
31					
30					
29					



B line along flat Old Town

57
56
52
51
50
49
48
47
46
45
44
+24 △ 90° Right.
43
42
41
40
39

N. 61° 00' W.

7.8
8.1
9.0
9.3
9.7
9.6
10.2
9.9
10.0
10.4
12.2

B Line along flat ald Town

75+54 = 28+34.5 on B Line

74
73
72
71
70
69
68
67
66
65
64
63
62
61
60
59
58
57
56
55

July 1 1889 Orton, Sevel
Williams
Hensley

Center grades on H St from East of Front to E of Columbia

Sta	+	HI	Grade	Rod	-	
B M	5.71	32.724				
0			27.25	5.47		East Line of Union
+50			27.875	4.85		
1			28.500	4.22		
+50			29.125	3.60		
2			29.750	2.97		Front St
+39.5			30.00	2.72		ntre of Front St
0			30.25	2.47		st Line of Front
	2.01	29.024				
0			23.50	5.52		st Line of State
+50			24.250	4.77		
1			25.00	4.02		
+50			25.750	3.27		
2			26.500	2.52		est Line of Union St
+35.5			26.875	2.15		nion St
0			27.25	1.77		t Line of Union St
	1.79	24.87				
0			18.20	6.67		st Line of Columbia St
+50			19.10	5.77		
1			20.00	4.87		

27

Sta	+	HO	Grade	Rod	−	
50			20.90	3.97		
2			21.80	3.07		West of State
37.5			22.65	2.22		State St —
0			23.50	1.37		st line of State

7.8
9.4
9.0
9.3
9.7
9.6
10.2
9.9
10.0
10.4
12.2

July 2 1889
Hamlin
Orton
Hensley

Levels along B Line across Old Town flats

Sta	+	HI	−	Elev		
			(6.6)			
BM	6.04	6.62		0.58		Sta 113 on A Line old #
0			8.2	− 1.6		
1			6.0	+ 0.6		= Sta 111+54.5 on A Line
2			6.9	− 0.3		
3			6.3	+ 0.3		
4			6.8	− 0.2	✓	
5			8.7	− 2.1	✓	
6			8.9	− 2.3	✓	
7			5.4	+ 1.2	✓	
		(4.6)				
#	3.31	4.62	5.31	1.31		Top of pk 6' from Sta.
8			4.50	0.1	✓	
9			3.3	1.3	✓	
10			4.5	0.1	✓	
11			4.4	−0.2	✓	
12			5.2	−0.6	✓	
13			5.2	−0.6	✓	
14			5.7	−1.1	✓	
15			5.1	−0.5	✓	
16			4.5	+0.1	✓	
#	5.54	5.89	4.27	+0.35		Top of 16
17			4.5	+ 1.4	✓	

July 2 1888

29

Levels along B line across Old Town flat

Sta	+	HI	−	Elev	
			(5.9)		
18		5.89	4.7	1.2	✓
19			5.2	0.7	✓
20			5.2	0.7	✓
21			5.9	0.0	✓
+52.5			4.5	1.4	✓
22			4.5	1.4	✓
23			5.1	0.8	✓
24			4.8	1.1	✓
25			5.1	0.4	✓
26			5.1	0.8	✓
27			5.3	0.6	✓
28			5.4	0.5	✓
+15		(5.3)	5.5	0.4	✓
#	4.21	5.27	4.43	1.06	T.J. picked Mtl & Main Sts & P.L. 238
29			5.0	0.3	✓
30			5.3	0.0	✓
31			5.5	−0.2	✓
32			5.1	+ 0.2	✓
33			5.3	0.0	✓
34			5.2	0.1	✓
35			5.0	0.3	✓

30

Levels along C Line across Old Town flats

Sta	+	H.I.	−	Elev	
		(53)			
36		5.27	5.1	0.2	✓
37			5.1	0.2	✓
#	4.22	5.41	4.08	1.19	T of Stake Sta 37
38			5.2	0.2	✓
+61			5.0	0.4	✓
39			5.1	0.3	✓
40			5.0	0.4	✓
41			5.0	0.4	✓
42			4.9	0.5	✓
43			5.0	0.4	✓
+24			5.1	0.3	✓
44			5.3	0.1	✓
45			5.0	0.4	✓
46			5.1	0.3	✓
47			4.7	0.7	✓
48			4.4	1.0	✓
#	5.10	6.64	3.87	1.54	T of Sta 48
49			5.2	1.4	✓
50			5.2	1.4	✓
51			4.9	1.7	✓
52			4.9	1.7	✓

July 2 1884

Levels along B line across Old Town flats

Sta	+	HI	−	Elev	
		6.64			
53			4.6	2.0	✓
54			4.8	1.8	✓
55		7.0	4.8	1.8	✓
#	4.61	6.95	4.30	2.34	T.P. of Sta. 55
56			4.7	2.3	✓
57			5.4	1.6	✓
58			5.0	2.0	✓
59			5.1	1.9	✓
60			5.0	2.0	✓
61			5.4	1.6	✓
62			5.4	1.6	✓
#	3.23	5.22	4.94	1.99	T.P. of Sta 62
63			3.8	1.4	✓
64			4.6	0.6	✓
65			4.8	0.4	✓
66			4.7	0.5	✓
67			4.7	0.5	✓
68			4.6	0.6	✓
69			5.3	−0.1	✓
70			5.3	−0.1	✓
71			4.5	0.7	✓

July 2 1889

Levels along B Line across Old Town flat.

Sta	+	HI	−	Elev	
		5.22			
#	7.00	8.12	4.10	1.12	Top of stake Sta 71
72			8.2	−0.1	✓
73			8.2	−0.1	✓
74			8.0	+0.1	✓
75			10.4	−2.3	✓
+54			3.1	5.1	✓
B M			2.88	5.24	

= 28 + 34.5 on A Line.

Sta 26 + 50 A Line. plug.

From Sta 64 measured to the Rig

B M	4.0	6.0 5.99		1.99	
1			5.1	0.9 ✓	
2			4.7	1.3 ✓	
3			4.3	1.7	
4			7.1	−1.1	Gulch
5			4.7	+1.3	

Top of stake Sta 62

From Sta 64 measured left

1			4.6	1.4	
2			5.0	1.0	
3			5.0	1.0	
4			4.9	1.1	

33

Levels along B Line across Old Town flat

Sta	+	H.I.	−	Elev
		(6.0) 5.99		
5			5.0	1.0
6			5.9	0.1
7			5.5	0.5
From Sta 55 measured Right				
		(6.5)		
BM	4.09	6.43		2.34 Sta 55
1			4.2	2.2
2			3.9	2.5
3			3.7	2.7
4			3.9	2.5
5			3.6	2.8
6			3.6	2.8
7			3.2	3.2
From Sta 55 measured Left				
1			4.9	1.5
2			4.9	1.5
3			4.9	1.5
4			5.1	1.3
5			5.2	1.2
6			5.0	1.4
7			5.3	1.1
8			5.3	1.1

34

Levels along B line across Old Town flats

Sta	+	H.I.	−	Elev	
From Sta 50 measured to Right					
		(6.7)		1.54	Sta 48
B.M.	4.82	6.36			
1			4.7	1.7	
2			4.6	1.8	
3			4.5	1.9	
4			4.1	2.3	
5			4.6	1.8	
6			4.0	2.4	
7			4.6	2.4	
8					
From Sta 50 measured Left					
1			4.8	1.6	
2			5.1	1.3	
3			5.1	1.3	
4			5.5	0.9	
From Sta 46 measured Right					
		(5.7)		1.54	Sta 48
BM	4.13	5.67			
1			4.8	0.9	
2			4.7	1.0	
3			4.9	0.8	
Measured Left from Sta 46					
1			4.9	0.8	
2			5.6	0.1	

35

Line C. Preliminary pipe line to False Bay

9

8

7

6

5

S 33° 40' W

4+56 Δ 48° 14 Left

3

2

1

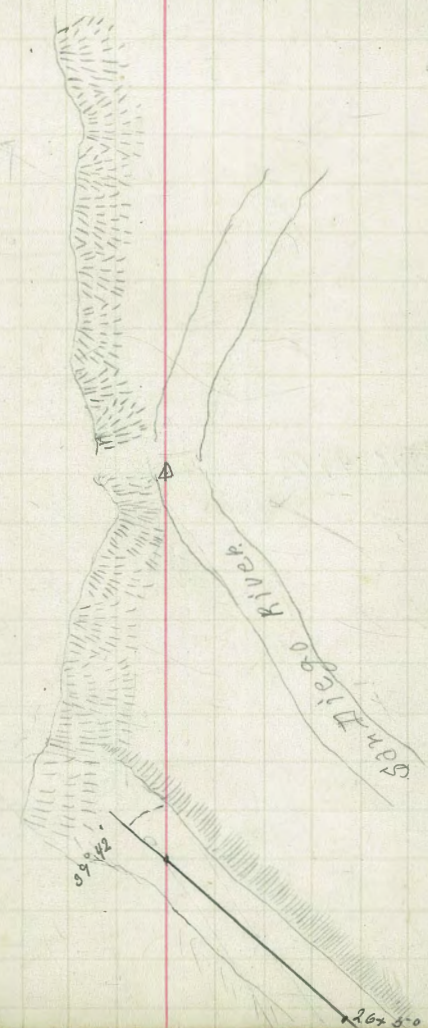
S 82° 0' W

+52 Edge of Embankment

0 Δ 39° 42' Right

0 = 34+0 on A Line. BS to

Sta 26+50 on A Line. Δ ahead 39° 4

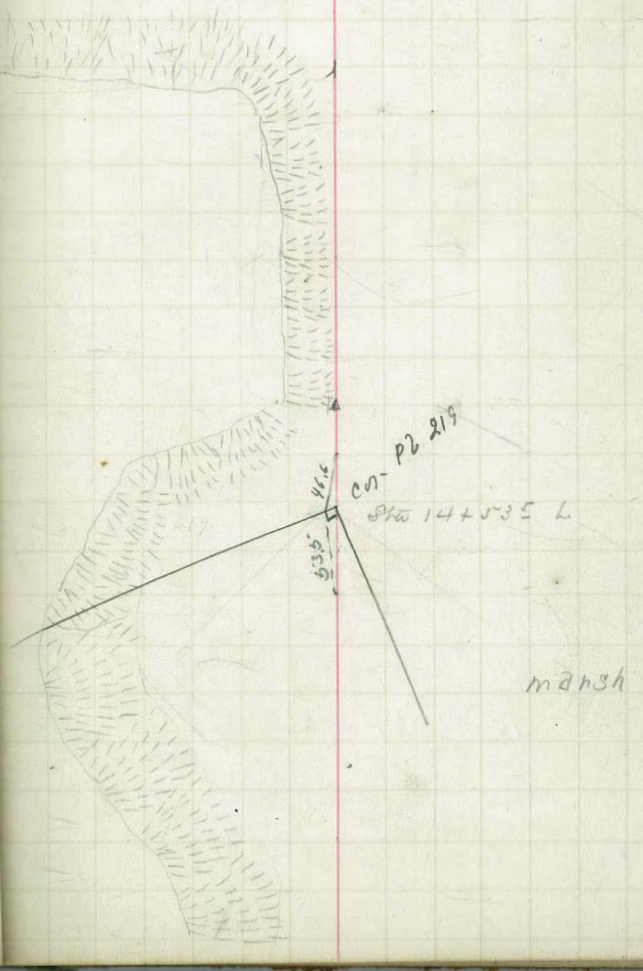


Line C. Preliminary pipe line to False Bay

20
19
18
17
16
15
14
13
12
11
10

S 11° 30 W

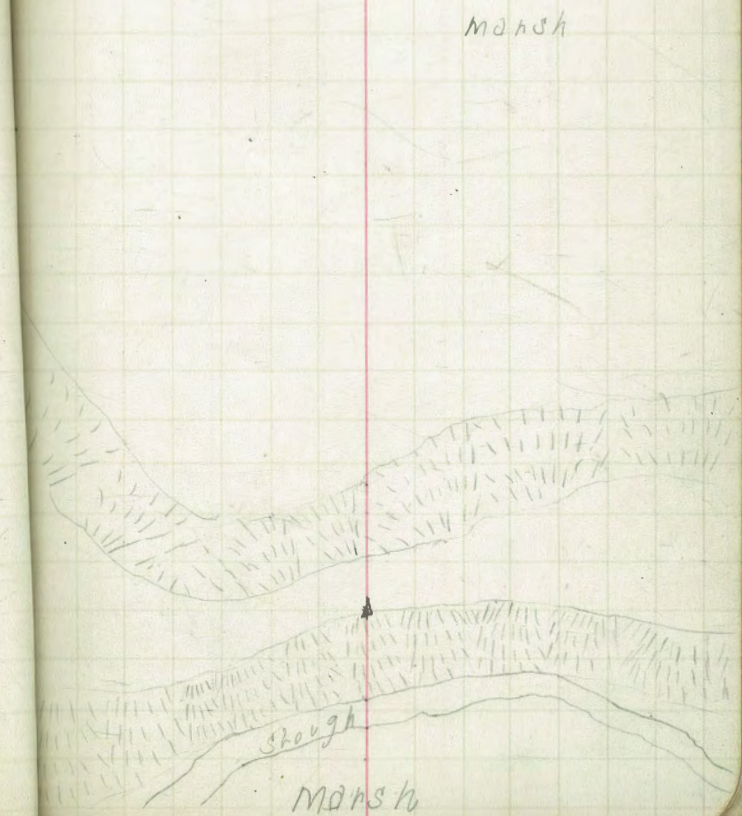
+15 Δ 37° 44 1/2 Right



37

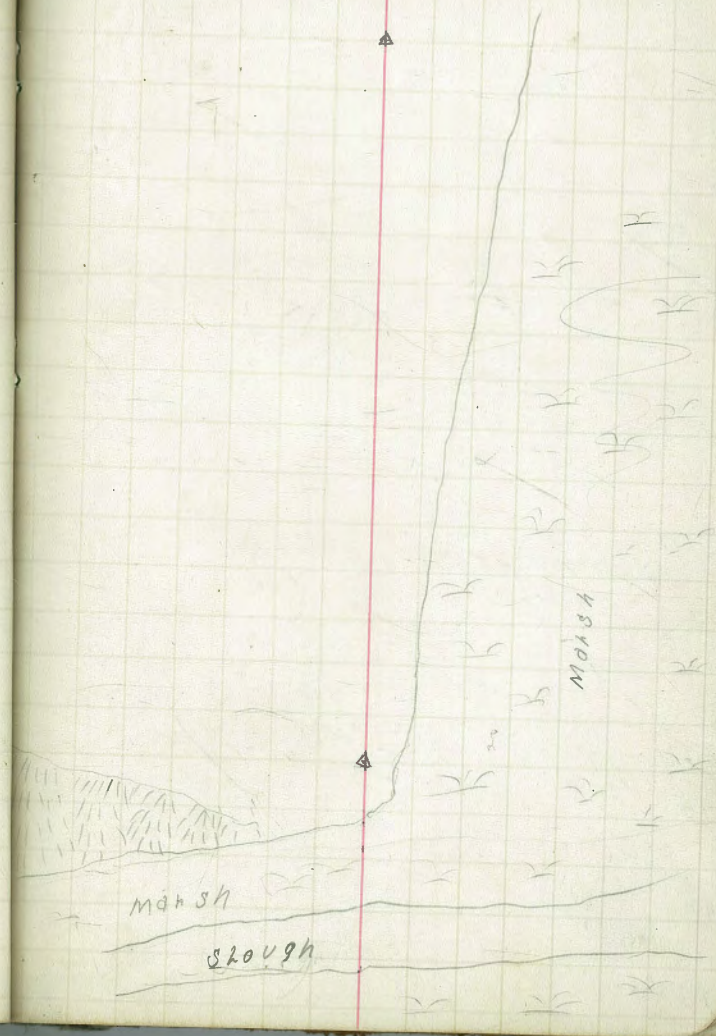
Line C. Preliminary pipeline to Fals Bay

31						
30						
29						
28						
27						
26						
25						
24	☉ 75° 05' W					
23	△ 3° 35' Right					
22						
21						



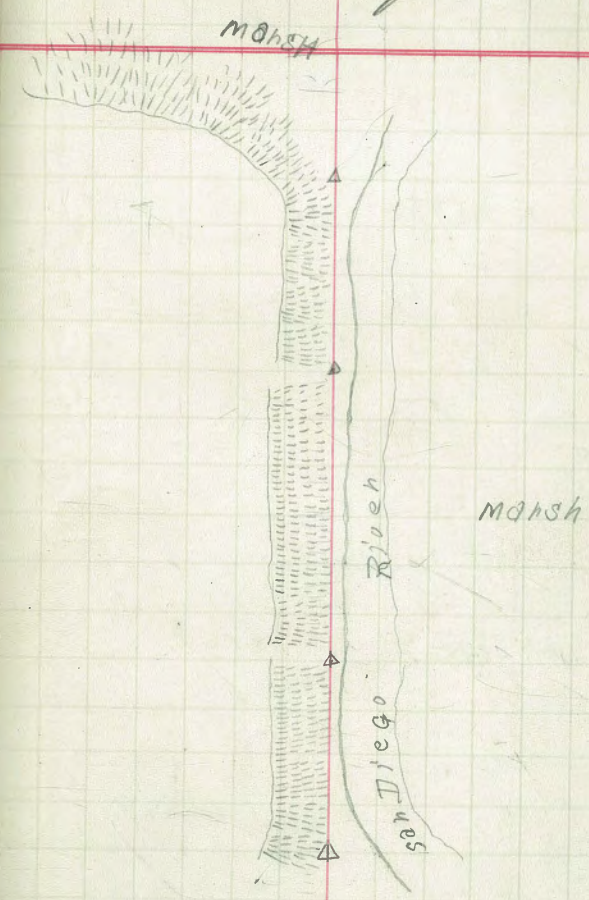
Line C Preliminary for pipe line to Dale Bay

42
41
40
39
38
37
36
35
+12
34
+10
33
+40
32



Line C Preliminary pipe line to Fals Bay

52	S 26° 50' W	Δ 25° 59 Left
51	S 52° 45' W	
+33		Δ 14° 55 Left 21° 05 ✓
50		
49		
48	S 74° 0' W	
+88		Δ 17° 40 Right ✓ ✓
47		
46	S 56° 05' W	
+02		Δ 19° 0' Left ✓ ✓
45		
44		
43		

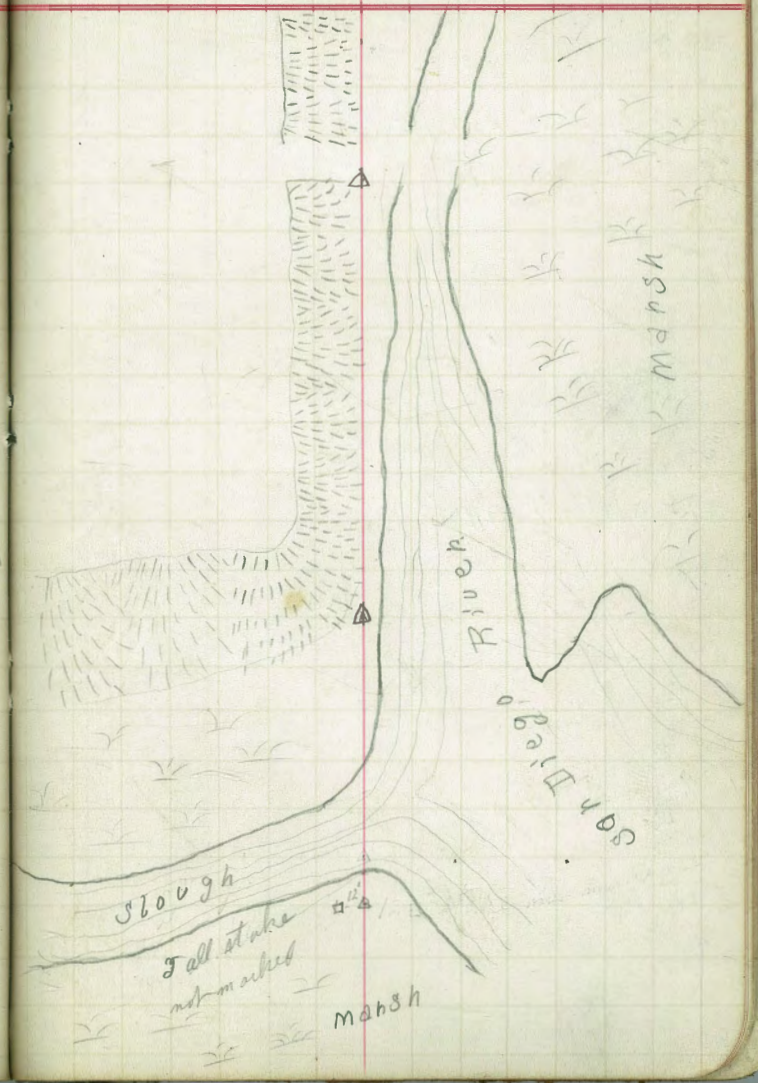


July 10 1889

Hamlin
Orton
Williams
Hensley

Line Co. Preliminary pipe line to Fals Bay

62	S 69° 05'	
+70		Δ 10° 0' Right ✓
61		
60		
59		
58	S 59° 05' W	
+64		Δ 21° 0' Left
57		
56		
55+53	S 59° 05' W	
+53		51° 10' Right
54		
53		



Line C Preliminary

N 29° 30' W

+50 Δ 12° 20' Right

72

71

70

S 88° 10' W

69

+90 Δ 14° 40' Right

68

67

66

S 82° 35' W

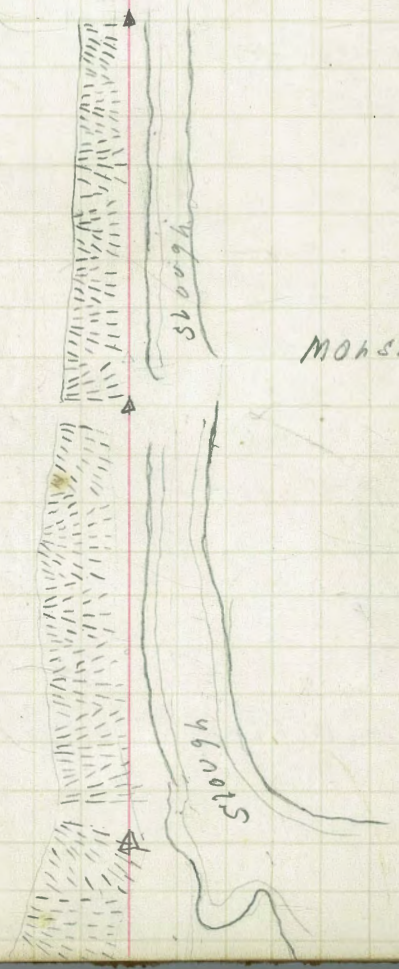
65

+90 Δ 4° 24' Right

64

63

Line to Falls Bay



Line C. Preliminary [illegible] line to Fals Bay

N 23° 10' W

82

+50 Δ 21° 56' Right

81

80

S 85° 0' W

79

+30 Δ 18° 53' Left

78

N 76° 10' W

77 Δ 11° 0' Left

76

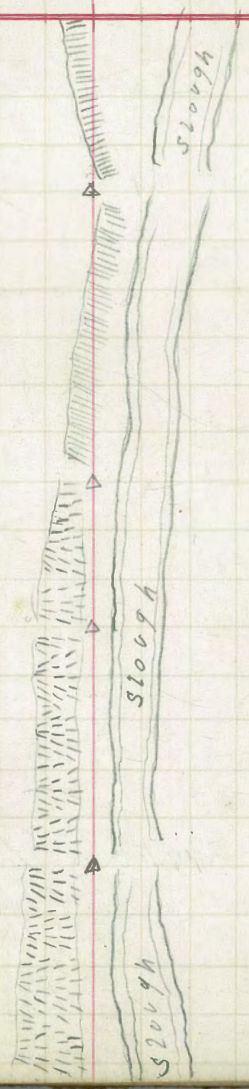
N 65° 10' W

75

+90 Δ 14° 12' Right

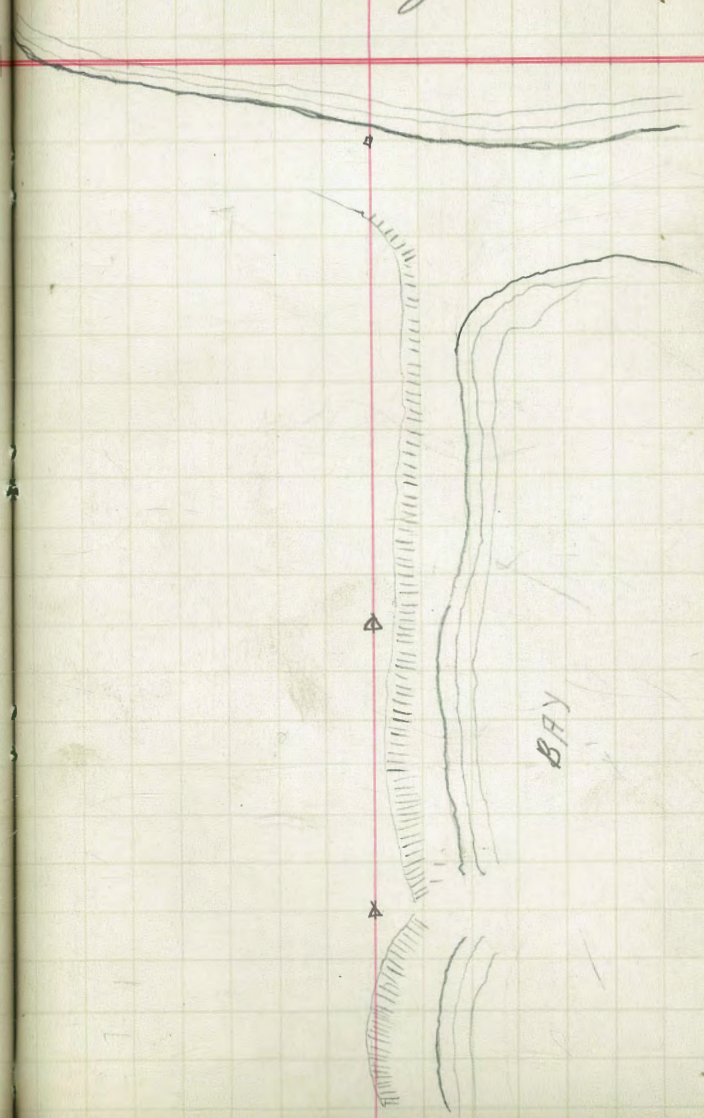
74

73



Line C Preliminary pipeline to False Bay

92		
91		
90		
89	N 69° 10' W	
88		
+40	Mouth of False Bay	
+20	Δ 34° Left	
87		
86	N 25° 20' W	
85		
+30	Δ 47° 47' Right	
84	84+9 fence probably Ine 204	
83		



44

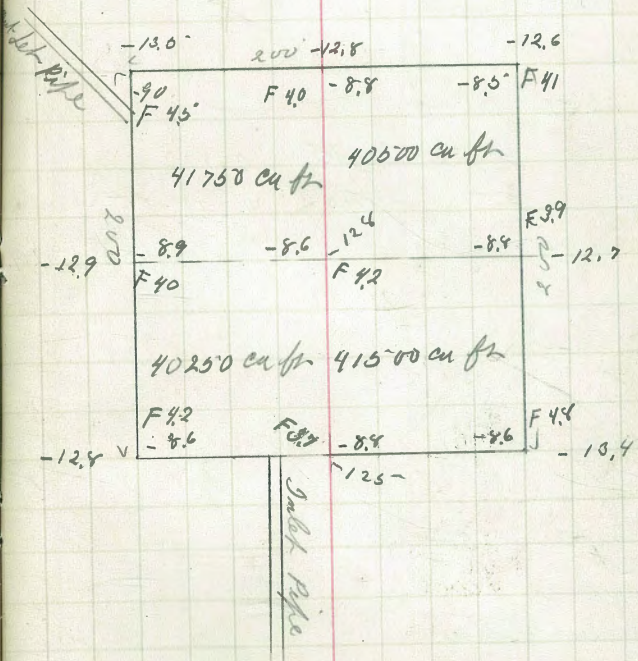
45

45

47 July 2 1889

Calculation of fill in receiving Reservoir for Sewer

The soundings were to Rock to the bottom before the fill was made Hamlin



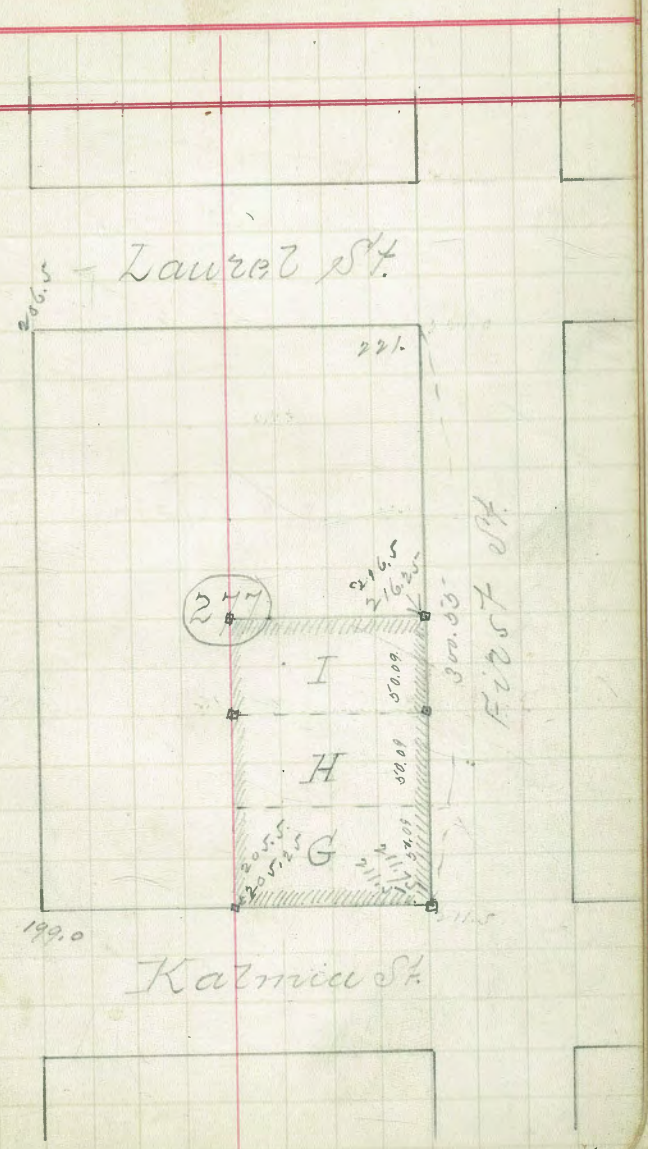
Total 6074 Cu yds Fill

Ordered by H. L. Wright.

B.M.	+	H.I.	Grade Rod		
			Survey for J. S. Long of Lots G. H. & I Blk 277 H.A. with Grades		
			Point set as indicated in diagram		
213.46	2.51	215.97			
			205.50	10.47	
			211.75	4.22	— Elev
	11.74	226.72			1.03 214.9
			216.50	10.22	
225.42					1.30

Completed July 9 1889

Hamlin Book
Orton Level
Hensley Rod
Williams "



49

	+	H. I	−	Top Elev	Sewer Bottom	B.M.		
State + I.	2.48	11.11				8.62		
			8.61	2.50	−6.00	−(5.[illegible]	20' N of N. Line of I. St.	8.1
								8.61
								16.71
								10.71
								6.00
First + I	2.26	13.67				11.4[illegible]		
			5.14	8.53	−4.41	−(4.[illegible]	20' W of W Line of First St.	12.94
I	1.55	12.96				11.4[illegible]		
			4.94	8.02	4.36	−(−4.[illegible]	32' S of S Line of First St.	12.38
2nd + J	4.76	8.17				3.41		
			5.22	2.95	3.45	−(3.3[illegible]	30' E of E. Line of 2nd St.	6.40
	5.12	8.53				3.[illegible]		
			6.08	2.45	−3.30	−(3.[illegible]	35' W of W. Line 3rd St.	5.75
3rd + K	3.06	6.50				3.44		
			5.87	0.63	−2.72	−(−2.64)	35' N of North Line of K St.	3.35
5th + K	2.77	10.15				7.38		
			5.12	5.03	1.82	−(−1.8[illegible]		6.85

51. July 9th/89.

Atlantic

	+	H.S.	−	Sub Elev	Bottom Elev	Bm
	6.91	6.67				-0.24
E.			6.11	0.56	-5.67	
D.	0.14	7.78				7.64
			6.27	1.51	-5.06	
B	3.10	8.74				5.64
			6.30	2.44	-4.01	
A	0.44	9.86				9.42
			8.17	1.74	-3.46	
Ass.	0.90	12.25				11.35
			10.76	1.49	-2.59	
Beech						
Cedar						

90° 24'

S 67° 50 E

30° 15'
17
21° 5'

Return to City Engineers Office
City Hall, San Diego, Cal.

RAVERSE TABLE FOR TRANSIT BOOK,

From 1° to 90° for a distance of 100.

Return to City Engineers Office
City Hall, San Diego, Cal.

DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees
Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
		100.00	0.44	100.00	0.87	99.99	1.31	8
9.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	8
9.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	8
9.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	8
9.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	8
9.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	8
9.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	8
9.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	8
9.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	8
8.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	8
8.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	7
8.16	19.08	98.08	19.51	97.99	19 94	97.90	20.36	7
7.81	20.79	97.72	21.22	97.63	21.64	97.53	22.07	7
7.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	7
7.03	24.19	96.92	24.62	96.81	25.04	96.70	25.46	7
6.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	7
6.13	27.56	96.00	27.98	95.88	28.40	95.76	28.82	7
5.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	7
5.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	7
4.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	7
3.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	6
3.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	6
2.72	37.46	92.55	37 86	92.39	38.27	92.22	38.67	6
2.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	6
1.35	40.67	91 18	41.07	91.00	41.47	90.81	41.87	6
0.63	42.26	90.45	42.66	90 26	43.05	90.07	43 44	6
89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	6
89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	6
88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	6
87.46	48.48	87.25	48.86	87.04	49 24	86.82	49.62	6
86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	5
85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	5
84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	5
83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	5
82.90	55.92	82 66	56.28	82.41	56.64	82.16	57.00	5
81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	5
80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	5
79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	5
78.80	61.57	78.53	61.91	78 26	62.25	77.99	62.59	5
77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	5
76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	4
75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	4
74.31	66.91	74.02	67.24	73.73	67.56	73.43	67 88	4
73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	4
71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	4
70.71	70.71							
Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
DEGREES.		¾ DEGREE.		½ DEGREE.		¼ DEGREE.		

ed by Edward Denny & Co., Stationers, Drawing Materials,
Mathematical Instruments, Etc., San Francisco.