9

TRANSIT

F.B.30

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

MICROFILMED
DEC 4 1964

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	2⅓	21	49	41	95⅔
2	4⅔	22	51⅓	42	98
3	7	23	53⅔	43	100⅓
4	9⅓	24	56	44	102⅔
5	11⅔	25	58⅓	45	105
6	14	26	60⅔	46	107⅓
7	16⅓	27	63	47	109⅔
8	18⅔	28	65⅓	48	112
9	21	29	67⅔	49	114⅓
10	23⅓	30	70	50	116⅔
11	25⅔	31	72⅓	51	119
12	28	32	74⅔	52	121⅓
13	30⅓	33	77	53	123⅔
14	32⅔	34	79⅓	54	126
15	35	35	81⅔	55	128⅓
16	37⅓	36	84	56	130⅓
17	39⅔	37	86⅓	57	133
18	42	38	88⅔	58	135⅓
19	44⅓	39	91	59	137⅔
20	46⅔	40	93⅓	60	140

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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	3·66	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

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

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.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
	DEGREES.		¾ DEGREE.		½ DEGREE.		¼ DEGREE.		

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- 4
10
- 19 ✓
x 44
22-33
44

Canal South of RR bridge at Old Town	3 - 4
K 8 - water pipe line level notes	10
Milton ave opening of	15 - 19 ✓
Faire Jae	21 and 44
Orange Hill pipe line level notes	22-33
Jewish Cemetery contours	34 - 44

Levels in River bed for canal South of S.F. RR

Sta	+	H.I.	−	Elev	Grade			
Sta 0 is under S.C. RR bridge								
Sta	1.20	18.20		17.0	Top of Cap	bridge		
#	5.11	15.41	7.94	10.26				
0			5.5	9.9	9.9	0.0	0.0	0.0
1			5.9	9.5	9.8		− .3	+0.5
+65			5.2	10.2	9.7		+ 0.5	10.8
2			5.0	10.4	9.7		+ 0.7	+0.9 10.8
3			6.1	9.3	9.6		− 0.3	
4			6.2	9.2	9.5		− 0.8	+0.4 9.8
+10			6.0	9.4	9.5	0.0	0.0	+0.4 9.8
5			5.4	10.0	9.4	+0.7 10.4	+0.6	+0.7 10.4
6			4.3	11.1	9.3	+2.2 13.4	+1.8	+1.5 12.0
7			4.1	11.3	9.2	+2.1 13.2	+2.1	+2.0 13.0
8			4.3	11.1	9.1	+2.1 13.2	+2.0	+2.0 13.0
#	3.50	15.02	3.89	11.52				
9			4.8	10.2	9.0	+2.0 13.0	+1.2	+1.0 11.0
10			5.3	9.7	8.9	+0.8	+0.8	+1.2 10.4
11			5.4	9.6	8.8	+0.8 10.6	+0.8	+0.6 10.2

under S.C. RR track

Sta	+	100	−	Elev	Grade		×	
12		15.02	4.5	10.5	8.7	+2.0 / 13.0	+1.8	+1.9 / 12.8
13			4.9	10.1	8.6	+1.5 / 12.0	+1.5	+1.5 / 12.0
14			5.3	9.7	8.5	+1.2 / 10.4	+1.2	+1.2 / 11.4
15			5.3	9.7	8.4	+1.3 / 11.6	+1.3	+1.3 / 11.6
16			6.2	8.8	8.3	+0.5 / 10.0	+0.5	+0.5 / 10.0
17			5.5	9.5	8.2	+0.7 / 10.4	+1.3	+1.3 / 11.6
18			6.2	8.8	8.1	+0.9 / 10.8	+0.7	+1.4 / 11.8
19			6.0	9.0	8.0	+1.0 / 11.0	+1.0	+1.0 / 11.0
20			6.7	8.3	7.9	+0.4 / 9.8	+ +0.4	+1.0 / 11.0
21			6.4	8.6	7.8	+0.8 / 10.6	+0.8	+0.8 / 10.6
21+60			7.0	8.0	7.7	+0.3 / 9.6	+0.3	+0.3 / 9.6

Sta	+	HI	−	Elev		
BM	2.53	14.85		12.32		B.M. Front & H St
2+85			2.74	12.11		East of Front St
2			2.92	11.93		West line of Front
1			3.55	11.30	✓	
0			3.97	10.88	✓	E of Union
2			4.50	10.35	✓	W of "
1			5.37	9.48	✓	
0			6.32	8.53	✓	E of State
B.M.	0.52	9.20	6.17	8.68		
2			1.40	7.80	✓	W of State
1			2.73	6.47	✓	
0			4.10	5.10	✓	E of Columbia
B.M.			3.54	5.66		
2			4.77	4.43	✓	W of Columbia
1			5.86	3.34	✓	
0			6.87	2.33		E of India
#	1.77	4.12	6.85	2.35		
2			2.46	1.66	✓	W of India
1			3.10	1.02	✓	
0			3.53	0.59	✓	E of Arctic
2			3.93	0.19		W " "

Stn	+	HO	−	Elev	
		4.12			
1			3.97	0.15	
0			4.33	−0.21	E of Calif. St
B.M.	5.90	5.02	5.00	−0.88	
2			5.21	−0.18	W of Calif St.
1			4.74	+0.28	
0			4.00	1.00	
2			1.7	3.3	West line of Atlantic St. top of wharf.

Sta	+	H.I.	-	Elev	
B.M.	2.90	15.22		12.32	
0			3.12	12.10	L
1			3.0	12.22	L
2			2.90	12.32	L
0		—	3.76	11.46	L
B.M			2.66	12.56	
1			4.43	10.79	L
2			4.96	10.26	L
0			4.90	10.32	L
B.M.			3.65	11.57	

Front of H St

W of 1st St

East of 1st St

W of 2nd St

E of " "

Cuts on S rail of track for Electric RR.

Sta	Elev	Grade	Cut		
2					West line of Atlantic tip wharf.
0					East " " "
1					
2		-0.1	-0.18	0.0	West line of Calif
0		-0.1	-0.21	0.0	East " " "
1		0.15	0.15	0.0	
2		0.28	0.19	-.09	West line of Arctic
0		0.40	0.59	+1.9	East " " "
1		0.65	1.02	+0.37	
2		0.90	1.66	+0.76	West line of Indian
0		1.15	2.33	+1.18	East " " "
1		2.53	3.34	+0.81	
2		3.90	4.43	+0.53	West line of Columbia
0		4.40	5.10	+0.70	East " " "
1		5.90	6.47	+0.57	
2		7.40	7.80	+0.40	West line of State
0		7.90	8.53	+0.63	East " " "
1		8.90	9.48	+0.58	
2		9.90	10.35	+0.45	West line of Union
0		10.40	10.88	+0.48	East " " "
1		10.90	11.30	+0.40	

Sta	Elev	Grade	Cut		
2	11.93	11.40	+0.53		West line of Trunk
0	12.10	11.40	+0.70		East " " "
1	12.22	11.65	+0.57		
2	12.32	11.90	+0.42		West line of 18th St
0	11.46	10.90	+0.56		East " " " "
1	10.79	10.28	+0.51		
2	10.26	9.65	+0.61		West line of Second
0	10.32	9.65	+0.67		East " " " "

Swlk on J St for water pipe

Sta	+	HI	−	Elev	
B.M.	3.10	105.56		102.46	
0			7.30	98.26	
1			5.82	99.74	
2			4.32	101.24	
3			2.96	102.60	
4			3.71	101.85	
5			4.33	101.23	
6			5.35	100.21	
Sta 3+30 on 25th St line			5.25	100.31	100.28'

William Ewell
Hamilton Book
Shaw Roll
Van Hook

Nov. 18 1891

Elev close within 0.10'

Spk. hole in fence past spk. out
East line of 24th St

West line of 25th St.
Old elev.

Sevels on K Street for water pipe

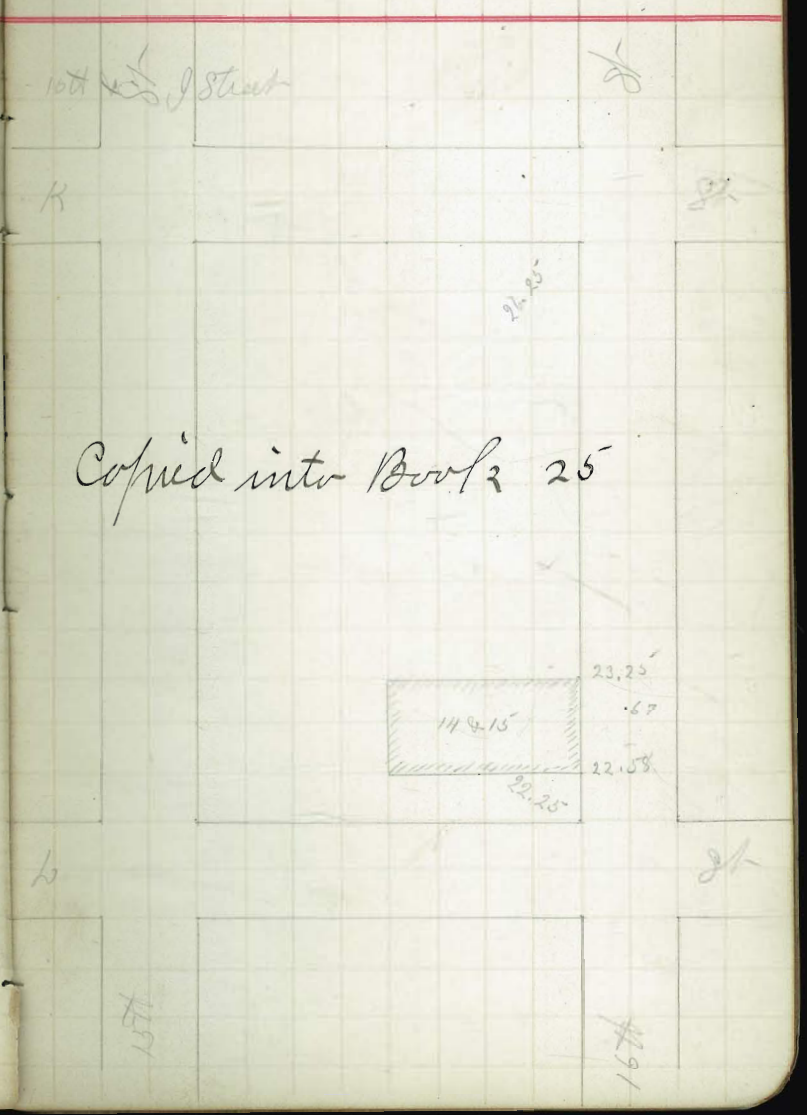
Nov 18 1881. Hamlin level
Van Hook
Shaw.

Sta	+	HI	−	Elev
B.M.	0.01	80.96		80.95
0			4.20	76.76
+27=0			3.95	77.01
1			7.32	73.64
2			9.30	71.66
3 #	7.75	78.08	10.63	70.33
4			5.68	72.40
5			4.70	73.38
6			1.67	76.41
B.M.			2.53	75.55

29th & K St
is a point about 2' East of ditch on 24th
45° left.
45° Right East line of 24th St

25th & K St

Sta	+	−	HI	Grade	Rod	Elev
B.M.	3.55		32.83			28.84
B.M. #	0.25		31.40		1.58	31.15
				23.25	8.15	
					.67	
				22.58	9.82	
				8.60	22.80	
				7.8	23.6	



Copied into Book 25

Sta	+	H I	−	Elev.	
B.M.	0.07	31.22		31.15	
			1.6	29.6	
			1.8	29.4	
			2.5	28.7	
			4.1	27.1	
2+50			4.9	26.3	
2			5.8	25.4	
1+50			6.3	24.9	
1.			6.8	24.4	
+50			7.4	23.8	
0			7.6	23.6	
B.M.			8.44	22.78	22.76
			8.9	22.3	
			7.7	23.5	
0			6.3	24.9	
+50			5.5	25.7	
1			4.5	26.7	
+50			4.2	27.0	
2			3.2	28.0	
+50			2.8	28.4	
3			1.6	29.6	

No good

K and 16th on [illegible]

S.E. Cor K & 16th
NE " " "
N.W. " " "
S W " " "

Intern. K & 16th

N.W. Cor K & 16th

S.W. " " "
S E " " "
N.E. " " "

Inter K & 16th

West Side 16th
Int K & 16

Check of B.M.'s from 12th & K to 16th & Logan

Nov., 19. 1891

Hamlin Level
Shaw Rod
Van Horn

Sta	+	HI	−	Elev.	
B.M.	1.01	22.67		21.66	
#	2.82	16.38	9.11	13.56	
B.M. 1			3.83	12.55	
B.M. #	3.41	18.44	1.35	15.03	
#	7.97	21.70	4.71	13.73	
B.M.			4.91	16.79	
#	10.80	30.93	1.57	20.13	
B.M.			0.83	30.10	
			2.14	28.79	28.84
#	3.90	28.55	6.33	24.60	
B.M.			6.83	21.72	
			6.96	21.59	
B.M. #	2.35	24.10	6.80	21.75	
B.M. #	0.66	18.80	5.96	18.14	
B.M.			5.85	12.95	12.95

12th & K shinge of hydt S.W. cor.

13th & K St. tack in water table S.W. cor.
top of nozzle of hydt S.W. cor. 14th & K

15th & K N.W. spk in tel pole

16th & K S.E. cor. shinge of hydt
B.M. 16th & L St.

28.55
23.25
5.30

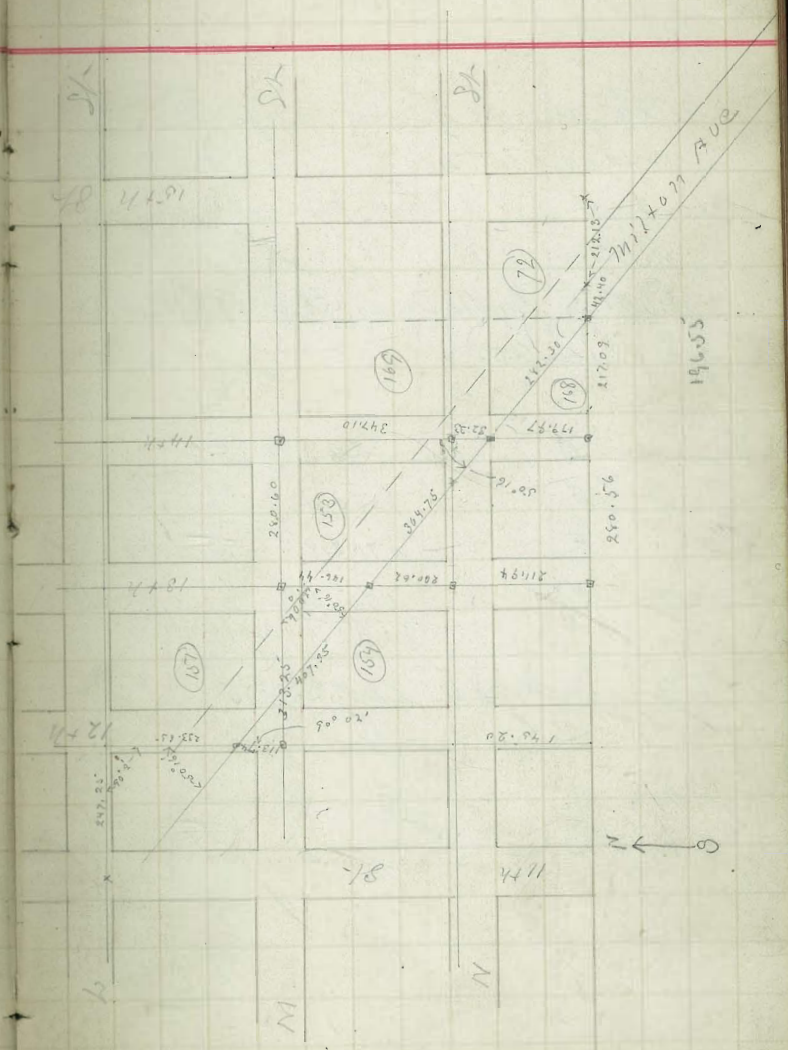
28.55
22.58
5.97
5.30
67

N.W. cor 16th & L St. spk in post
16th & M St. nozzle of hydt
South 20th & Logan Ave

Sketch showing projection of the Sweep line of Milton ave through Blks 151, 153, 154, 168, 169 Hortons add and Blk 72 Shermans add for the opening of Milton ave.

Hamlin transit
Williams } chain
Shaw }
Van Hook

Nov 30th 1891

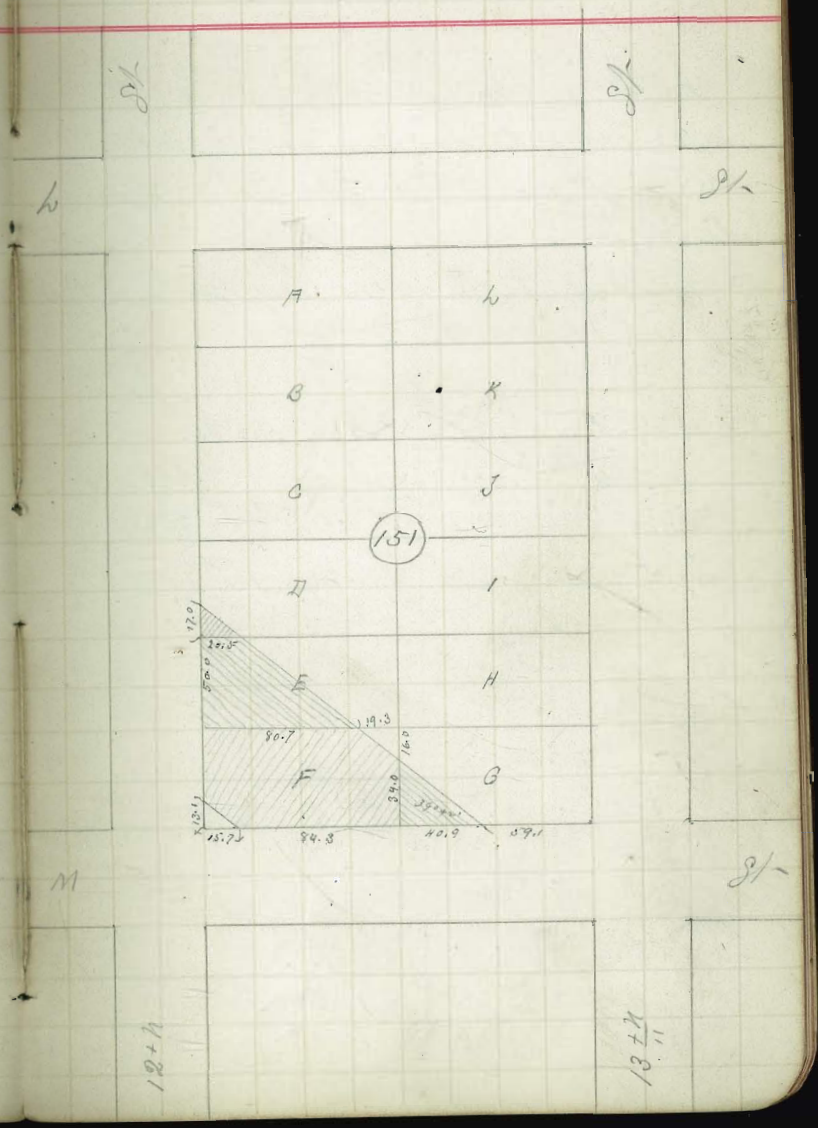


Sketch showing amount of land necessary to condemn in Blk 151 Hartnel add for the extension of Milton ave.

Shaded portion is the extension of Milton ave

In lot	D	174.3 sq ft	✓
" "	E	2530.0	✓
" "	F	4742.8	✓
" "	G	695.3	✓
		8142.4 sq ft total	

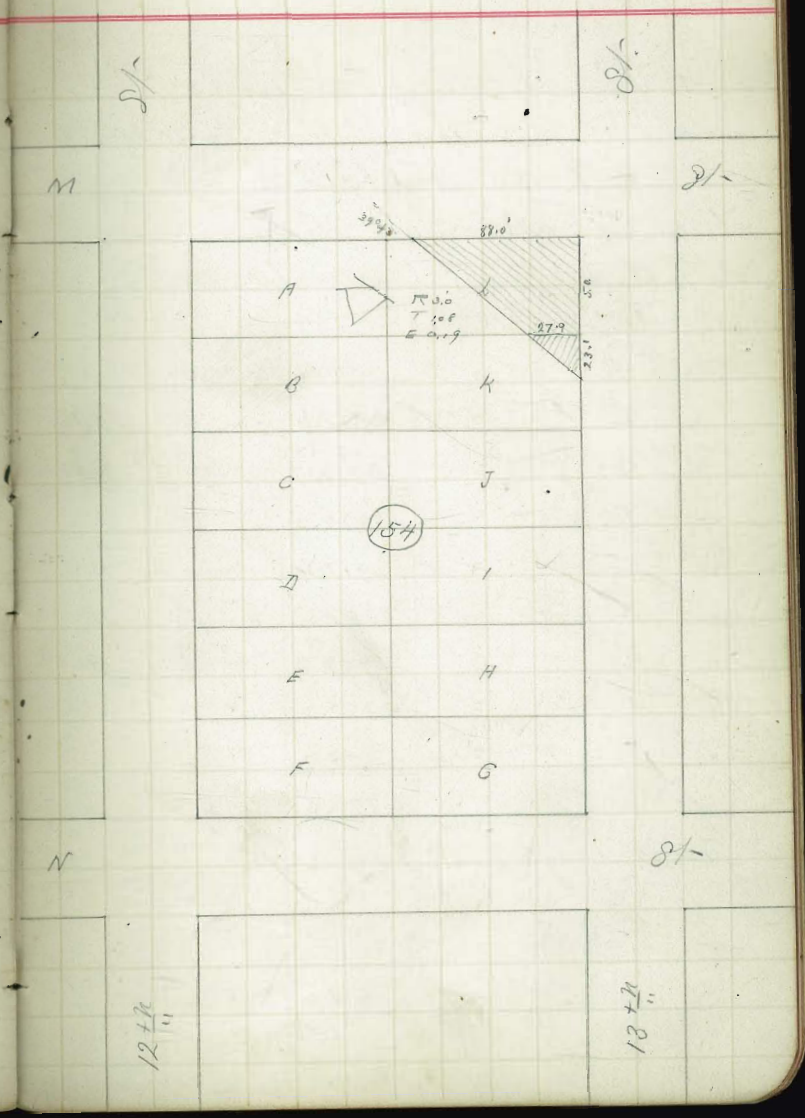
For survey see page 15



Sketch Showing amount of land necessary to condemn in Blk 154 Hartins add for the extension of Miller ave.
Shaded portion is the extension of Miller ave

In lot L	2887.5 sq ft	✓
" " K	322.3	✓
	3219.8 total sq ft	

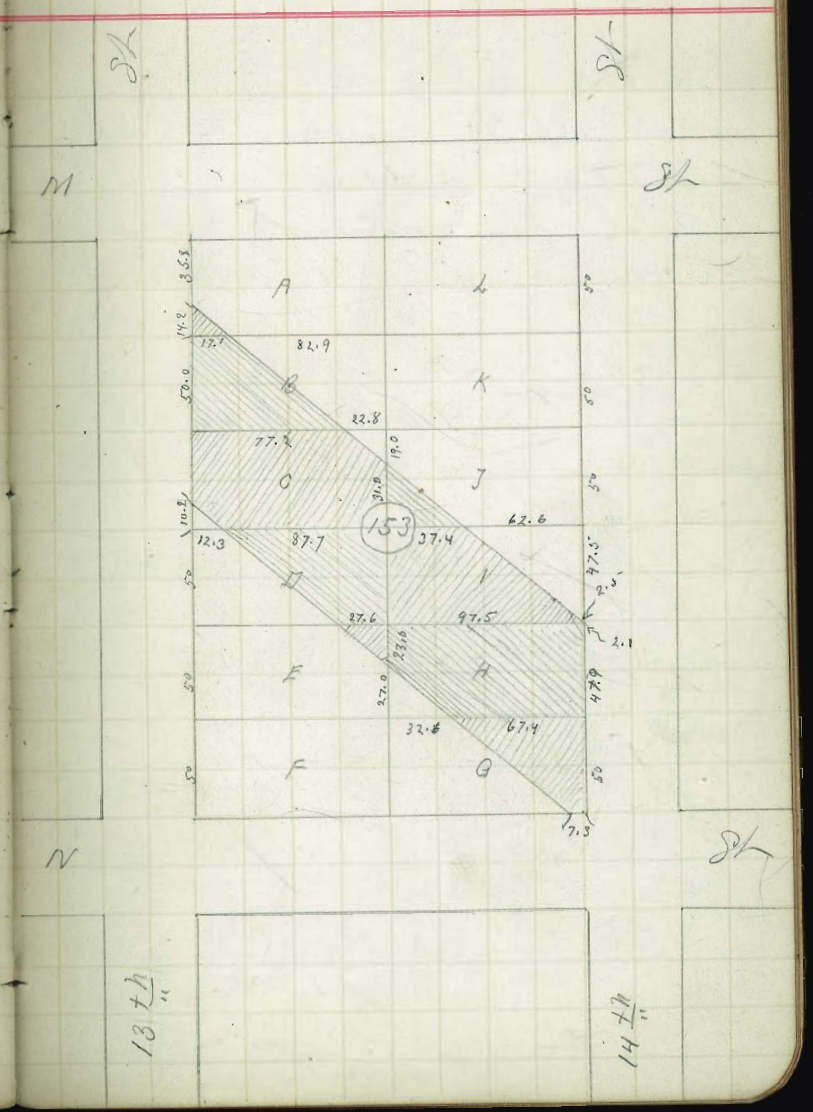
For survey see page 16



Sketch showing the amount of land necessary to condemn in Blk 153 Hoffman add for the extension of Milton ave
Shaded portion represent Milton ave

Lot A	=	121.4	Sq ft	✓
" B	=	2357.5	" "	✓
" C	=	4720.7	" "	✓
" D	=	2882.5	" "	✓
" E	=	317.4	" "	✓
" G	=	1867.5	" "	✓
" H	=	4557.3	" "	✓
" I	=	3372.5	" "	✓
" J	=	579.7	" "	✓
		20,776.5	Sq ft	

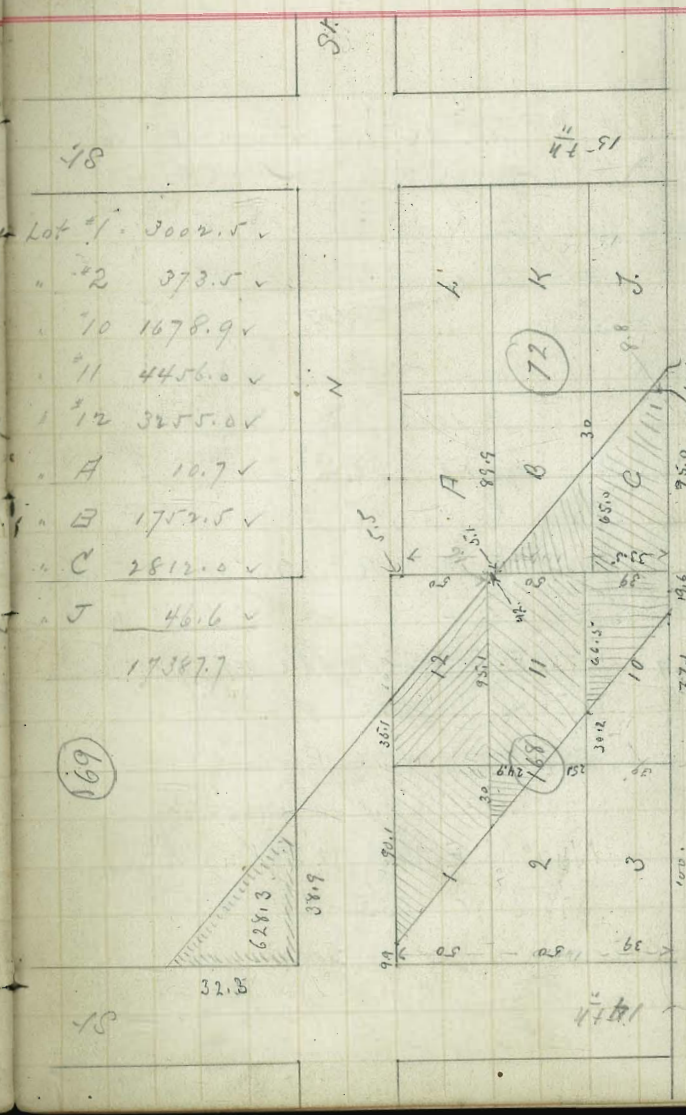
Re-survey See page 15



Sketch showing amount of land necessary to condemn in blk 168 Hartins add and blk 72 Shermans add for the opening of Miller ave

In blk 168 HA
lot 1, 3002.5 sqft Lot 2 373.5 sqft
Lot 11 4456.0 sqft Lot 10 1678.9 sqft
Lot 12 3255 sqft.
In blk 72 Sherman Add
Blk A 10.7 sqft blk B 1752.5 sqft
Blk C 2812.0 sqft blk J 46.6 sqft

In blk 169 Hartins Add
Lot 6 628.3



Set up over large scarf stake the S.E. cor of Blk 36 in Park add

From this point a scarf stake on the west line of St Bears N 13° 55' W,

The cor of Pueblo Bears N 76° 58' E mag (57' - 24° Stadia) from this point N 74° 56' E mag (704.0' + 1° 30' Stadia) East line of 33rd St

Thence same course (246.5' + 2° Stadia)

Set up at 1/4 cor East of Morse add 40.7 N 76° E to cor of Blk 57 NW cor Palo Alto & Morse St.

thence from cor N 76° E 234 + 10° 30.

thence N 78° 45' E 0.0° 991.0

thence N 47° 10' E mag 92' to 1/4 cor

thence S 75° 30' W 73.3' to stake marked Palo Alto & Wilde Blk 140.

Set up on 1/4 cor thence N 76° E 164' sep point

- 4° 496'

- 7° 30 400. to 3 x 3" stake not marked probably on P.L. (N 82° 30' E

- 9° 30' 315 to S.E. cor of Blk 169 in Choates add. (N 74° 30' E

Grades for center of St. bet. 7th & 8th 100' East of 7th

Dec 10 1881

Hamilin level
Van Hook Rod
Shaw stake

Sta	+	-	H.I.	Grade	Rod.	Elev	
B.M.	3.36		58.17			54.81	7th & Mf.
0				54.00	4.17	+ 0.1	
4.25				54.25	3.92 (.25)	+ 0.15	
+50				54.50	3.67 (.25)	+ 0.15	track } Center of St.
+75				54.75	3.42 (.25)	+ 0.10	
1				55.00	3.17 (.25)	+ 0.15	
					—	Rod	
0				52.83	5.34	5.30	
+25				53.08 (.25)	5.09 (.25)	5.00	Gutter on S side of St.
+50				53.33 (.25)	4.84 (.25)	5.00	
+75				53.58 (.25)	4.59 (.25)	4.80	
1				53.83 (.25)	4.34 (.25)	4.50	
B.M.					0.39	57.78	8th & M

Levels on 30 in Hill water pipe line (located) looking up from Sta 137

Sta	+	HI	−	Elev.		
Sta 124	3.45	236.33		232.88		124
123			4.54	231.79		
122			7.49	228.84		
121			8.75	227.58		
120 #	11.73	237.30	10.76	225.57		
119+70			12.6	224.7		
119			11.39	225.91		
Bm.			9.31	227.99	228.28	cut tack top white at the marker Blk 5 about 50 W of Sta 119
118			5.97	231.33		
#	11.52	247.90	0.92	236.38		
117			9.23	238.67		
116			5.82	242.08		
115			1.78	246.12		
#	8.63	255.97	0.56	247.34		
114			7.70	248.27		
113			10.36	245.61		
112			9.93	246.04		
111+85			12.4	243.57		
111+15			5.8	250.2		
111			3.76	252.21		
#	11.64	266.60	1.01	254.96		

Levels on ~~Orange Hill~~ Both water pipe line (located) looking up from Sta 137

Sta	+	HI	−	Elev	
110		266.60	8.43	258.17	
109			4.38	262.22	
108 #	11.14	276.52	1.22	265.38	
107			8.26	268.26	
106+21			6.30	270.22	angle Point
106			6.07	270.45	
105			1.55	274.97	
104+95.5			1.43	275.09	angle Point
104 #	10.62	286.91	0.23	276.29	
103			11.43	275.48	
102			11.90	275.01	
101			11.00	275.91	
100			9.37	277.54	
99			6.62	280.29	
98			5.54	281.37	
97 #			4.04	282.87	
96 #	11.48	294.62	3.77	283.14	
95			11.58	283.04	
94			10.01	284.61	
B.M.			9.49	285.13	285.35 13/22 Biddle and Shepard plg N.W. cor
93			9.13	285.49	

Levels on ~~Orange Hill~~ 3000 St. water pipe line (located) backing up from Sta 137

Sta	+	HI	−	Elev		
92+13.6		294.62	5.40	289.22		Angle Point
92			5.07	289.55		
91			4.51	290.11		
90			4.71	289.91		
89			5.23	289.39		
88+30			4.30	290.32		
88			3.11	291.51		
87+30			3.22	291.40		
87 #	4.72	294.90	4.44	290.18		
86			4.37	290.53		
85			3.87	291.03		
B.M.			4.09	290.81	291.03	
B.M.			3.85	291.05		Spk in ground about 20' west of Sta 85
84+50			4.80	290.10		
84			9.90	285.00		
#	0.00	282.99	11.91	282.99		
#	1.63	272.72	11.90	271.09		
#	0.26	261.41	11.57	261.15		
#	0.39	250.45	11.35	250.06		
83			4.90	245.55		
"			6.40	244.05		3' left

Levels on ~~drainage~~ Hill pipe line located 8 Oct 81

79+42

Sta	+	HI	−	Elev	
		250.45			
#	0.28	238.95	11.78	238.67	
#	0.20	227.35	11.80	227.15	
82+15			10.5	216.9	Bottom of gulley
82			8.86	218.49	
81+80			7.4	220.0	Top of ridge
#	0.20	215.57	11.98	215.37	
81+30			1.6	214.0	
81			5.25	210.32	
80+70			10.0	205.6	Base of hill
80+48			11.0	204.6	trail up canon
80+20			11.50	204.1	South Bank
80+16			13.6	202.0	Bottom
80+10			11.1	204.5	North bank
80			9.48	206.09	
79+64			4.9	210.7	foot of small ridge
#	10.45	226.01	0.01	215.56	
79+45			8.1	217.9	
79+27			9.9	216.1	
79			8.65	217.36	
78+73.7			5.21	220.80	angle point

Levels on ~~Orange Hill~~ pipe line located 50th St

Sta	+	HI	−	Elev		
		226.01				
#	11.57	237.23	0.35	225.66		
B.M.			0.67	236.56	236.86	top of 1st drift bolt N side of Bridge
78+25			2.8	234.4		East end.
" "			1.4	235.8		3' left of line
#	11.26	248.47	0.02	237.21		
78			7.00	241.47		
"			6.00	242.47		3' left of line
#	9.25	257.64	0.08	248.39		
77+70			8.0	249.6		5' left of line
77+40			7.33	250.31		angle point
" "			6.1	251.5		5' left
77+22			9.4	248.2		" "
#	10.36	267.99	0.01	257.63		
77			7.66	260.33		
#	11.97	279.57	0.39	267.60		
76+69			5.6	274.0		3' left of line
#	10.45	289.52	0.50	279.07		
76			6.22	283.30		
"			5.7	283.8		3' left of line
#	11.09	300.61	0.0	289.52		

Levels on ~~Orange Hill~~ pipe line located 3rd St

Sta	+	HI	−	Elev	
75+50		300.61	8.5	292.1	3' west line
75			3.64	296.97	
#	11.93	311.16	1.38	299.23	
74			8.95	302.21	
73			5.51	305.65	
72			3.14	308.02	
#	8.25	317.48	1.93	309.23	
71			7.67	309.81	
B.M.			7.72	309.76	about 20' west of Sta 71.
70			6.78	310.70	
69			6.05	311.43	
68+40			4.7	312.8	
68			5.22	312.26	
B.M.			5.85	311.65	311.80
67			6.93	310.55	
#	0.53	306.39	11.62	305.86	
66			1.54	304.85	
65+90			2.1	304.29	3' left
65+90			3.3	303.09	" "
#	0.06	294.86	11.59	294.80	
65+20			6.5	288.36	3' left.

Levels on ~~Orange~~ Hill pipe line located 30th St

Sta	+	HI	−	Elev	
65		294.86	6.93	287.93	
"			8.3	286.6	3' left
#	5.31	290.00	10.17	284.69	
64+40			13.5	276.5	3' left in bottom of canon
64			10.73	279.27	
63+63			7.4	282.6	3' left line
#	11.57	300.93	0.64	289.36	
#	10.63	311.22	0.34	300.59	
63+23			8.9	302.3	3' left
63+06			4.0	307.2	" "
63			3.12	308.10	
#	11.05	321.38	0.89	310.33	
62			5.70	315.68	
61			4.20	317.18	
#	10.39	329.28	2.49	318.89	
60			10.37	318.91	
59			9.63	319.65	
58			7.87	321.41	
57			6.56	322.72	
56			5.30	323.98	
55			4.40	324.88	

Levels on ~~Orange Hill~~ pipe line located 3-24-82

Sta	+	HI	-	Elev	
		329.28			
54 #	10.16	335.84	3.60	325.68	
53+41			8.93	326.91	E.C.
53+25			8.64	327.20	
53			8.43	327.41	
52+75			7.82	328.02	
52+50			7.60	328.24	
52+41			7.33	328.51	P.R.C
B.M.			6.65	329.19	top scarf stake 1.5' East of Sta 52+41
52+25			7.23	328.61	
52			7.37	328.47	
51+75			7.10	328.74	
51+50			6.74	329.10	
51+41			6.64	329.20	B.C.
51			6.40	329.44	
50			4.99	330.85	
49			4.46	331.38	
48 #	5.09	338.18	2.74	333.10	
47			4.50	333.68	
46			5.92	332.26	
45			6.31	331.87	
44			7.18	331.00	

Levels on ~~Orange Hill~~ pipe line located ~~Bothgh~~

Sta	+	HI	−	Elev
43		338.18	7.17	331.01
4 35			7.4	330.8
42			6.52	331,66
41			4.81	333.37
40 #	10.21	346.41	1.98	336.20
39			8.13	338,28
38			6.66	339,81
37			6.44	339,97
36			5.42	340.99
35 #	9.96	352.43	3.94	342.47
34			8.56	343.87
33			7.20	345.23
32			5.10	347,33
#	9.65	360,79	1.29	351.14
31			10.60	350.19
30			8.52	352.27
29			7.74	353,05
28			6.55	354,24
27			5.36	355.43
26			5.52	355.27
25+76			5.38	355 41

angle pipe

Levels on ~~Orange Hill~~ pipe line located 3084 31

Sta	+	HI	−	Elev	
25		360.79	5.34	355.45	
24+29.5			5.35	353.44	
24			5.08	355.71	
23			4.46	356.33	
22 #			3.13	357.66	
# #	9.90	369.41	1.28	359.51	
21			9.63	359.78	
20			8.58	360.83	
19			6.62	362.79	
18+90			7.62	361.79	
18			6.14	363.27	
B.M.			4.37	365.04	364.88
17			6.13	363.28	
16			5.17	364.24	
15			5.17	364.24	
14			4.20	365.21	
13			4.71	364.71	
12+15			4.90	364.51	
12 #	7.58	373.65	3.34	366.07	
11+70			9.0	364.65	
B.M.			8.83	364.82	

angle pt.

364.71
8.97
373.68
8.83
364.85

364.71
7.58
357.13

369.41
357.13
2.28

Levels on ~~Orange Hill~~ pipe line located 30th St

Sta	+	HI	−	Elev
11.		373.65	8.46	365.19
10			6.63	367.02
9			5.46	368 19
8			5.24	368,41
7			5.54	368.11
6			7.10	366.55
5 #	4.84	369.35	9.14	364,51
4+27			6.5	362.9
4			4.91	364,44
3+86			7.06	362.29
3			6.52	362.83
2			6.08	362.27
1+27			5.8	363.55
1			2.83	366.52
0+85			6.05	363.30
0			4.79	364.56
B M			5.72	363.63

Pipe line on Wnw
Ohio & Wnw

Grades for paving on D St
bet 7th & 8th for J Fabre

Sta	+	HI	Grade	Rod	Elev.
BM	4.23	59.04			54.81
0			54.00	5.04	✓
+25			54.25	4.79 (.25)	✓
+50			54.50	4.54	✓
+75			54.75	4.29	✓
1			55.00	4.04	✓
0			52.85	6.09	✓
+25			53.20	5.84 (.25)	✓
+50			53.45	5.59 (.25)	✓
+75			53.70	5.34 (.25)	✓
1			53.95	5.09 (.25)	✓
0			52.83	6.21	✓
+25			53.08	5.96 (.25)	✓
+50			53.33	5.71 (.25)	✓
+75			53.58	5.46 (.25)	✓
1			53.83	5.21 (.25)	✓
				1.27	57.77

Elev SE cor 7th & D 53.5 0.05 high
" SW " 8th & D 53.5 OK

7th & D St.
East line of 7th St

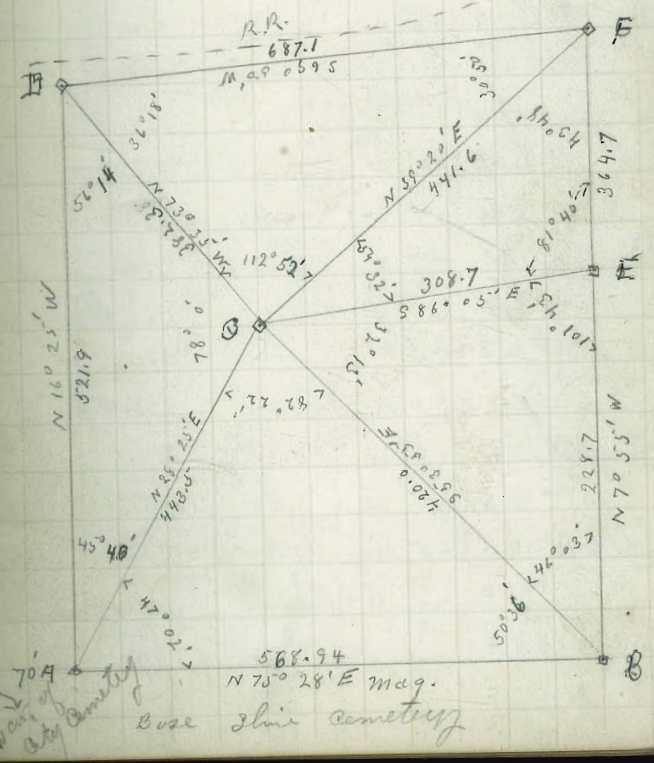
53.5
55.5
3109.0
54.5

59.04
54.50
4.54

Contours in Jewish Cemetery

Sta	+	HI	−	Elev

Sta 2 is 1' West of S.W. cor of cemetery fence. there is a stake marked Blk 3 on S and 37'St on W 50' East of cor fence.
80' West to cor of fences.



Contours in the Jewish Cemetery

Sta C 100' contour

Sta	Bearing	Vert angle	Stadia	Hor dist.	Needle	
1 ✓	S21° 10' W	+0° 40'	4.00	401.0		on south line
2 ✓	S27° 0' W	+0° 40'	3.79	380.0		
3	S12° 20' W	+0° 40'	3.45	346.0		
4	South.	+0° 30'	3.55	356.0		
5	S9° 15' E	+0° 30'	3.82	383.0		
Sta C 95' contour..						
1	S32° 0' W	+0° 30'	4.72	473.0		South line
2	S32° 25' W	+0° 30	4.00	401.0		
3	S27° 45' W	+0° 30	3.24	325.0		
4	S15° 25' W	+0° 30	3.00	301.0		
5	S2° 30' W	+0° 30'	2.54	255.0		
6	S15° 10' E	+0° 30'	2.53	254.0		
7	S29° 20' E	+0° 30'	2.67	266.0		
8	S39° 10' E	+0° 30	2.10	211.0		
9	S44° 45' E	+0° 30	2.64	265.0		
10	S51° 30' E	+0° 30'	3.30	331.0		
11	S68° 30' E	+0° 30	2.93	294.0		
12	S78° 10' E	+0° 30'	2.70	271.0		
13	S82° 45' E	+0° 30	3.11	312.0		Cemetery fence
14	N57° 0' W	0° 0	0.16	17.0		
15	S23° 15' E	"	0.10	11.0		
16	N43° 0' E	"	0.08	9.0		
17	N20° W	"	0.24	25.0		

Contours in the Jewish Cemetery

Sta C 90' contour

Sta	Bearing	Vert angle	Stadia	Hor Dist	
1	N 89° 30' E	-0° 30'	3.18	319.0	along west fence of cemetery
2	N 89° 30' E	-0° 40'	2.67	268.0	
3	S 79° 30' E	-0° 40	2.36	237.0	
4	S 53° 15' E	-0° 50'	2.30	231.0	
5	S 50° 30' E	-0° 30	1.54	155.0	
6	S 72° 15' E	-0° 30	0.87	88.0	
7	N 34° 35' E	+0° 20'	0.47	48.0	
8	N 33° 0' W	0° 0'	0.74	75.0	
9	N 45° 45' W	+0° 10'	0.85	86.0	
10	N 86° 30' W	+0° 0'	0.42	42.0	
11	S 3° 40' E	0.0	0.49	50.0	
12	S 30° 30' E	0.0	1.20	121.0	
13	S 33° 0' E	0.0	1.74	175.0	
14	S 24° 0' E	-0° 20'	2.17	218.0	
15	S 9° 30' E	-0° 20'	2.19	220.0	
16	S 3° 0' W	-0° 20'	2.18	219.0	
17	S 13° 40' W	-0° 20'	2.21	222.0	
18	S 19° 10' W	-0° 20'	2.43	244.0	
19	S 21° 30' W	-0° 10'	2.74	275.0	
20	S 23° 40' W	-0° 10'	2.88	289.0	
21	S 30° 0' W	-0° 10'	3.05	306.0	

Contours in the Jewish Cemetery

Sta C 90' contour.

Sta	Bearing	vert angle	Stadia	Hor dist	
22	S 34° 50' W	-0° 10'	3.17	318.0	
23	S 38° 45' W	-0° 10'	3.42	343.0	
24	S 37° 20' W	-0° 10'	4.03	405.0	
25	S 36° 50' W	+0.0	4.52	453.0	
26	S 31° 40' W	+0° 10'	4.77	478.0	along fence west

Station II. 80' contour

1	S 8° 30' E	+4° 30'	4.31	429.3	along west fence
2	S 15° 45' E	+4° 40'	3.73	371.5	
3	S 20° 30' E	+5° 10'	3.43	341.2	
4	S 30° 0' E	+4° 20'	3.88	386.8	
5	S 38° 20' E	+4° 20'	4.18	416.6	
6	S 47° 0' E	+3° 50'	4.35	435.0	
7	S 54° 10' E	+3° 50	4.56	455.9	
8	S 58° 15' E	+4° 10'	4.24	421.8	
9	S 61° 0' E	+4° 50'	3.65	363.5	
10	S 68° 0' E	+5° 20'	3.10	308.3	
11	S 77° 40' E	+6° 20'	2.84	281.5	
12	S 85° 0' E	+6° 10'	2.79	275.8	
13	S 87° 20' E	+6° 0'	3.01	298.7	at point of hill

Contours in the Jewish Cemetery

Sta D 70' Contour.

Sta	Bearing	Vert angle	Stadia	Hor Dist	
1	N 88° 40' E	+4° 20'	2.52	250.4	at point of hill
2	S 85° 40' E	+4° 30'	2.47	246.5	
3	S 73° 40' E	+4° 30'	2.58	257.4	
4	S 60° 0' E	+3° 30'	2.97	297.4	
5	S 53° 30' E	+3° 0'	3.63	363.6	
6	S 46° 40' E	+3° 0'	3.91	391.5	
7	S 37° 50' E	+3° 0'	3.74	374.5	
8	S 29° 15' E	+3° 30'	3.28	328.6	
9	S 21° 30' E	+3° 30'	3.00	300.4	
10	S 6° 30' E	+3° 20'	3.27	328.6	along fence on west side

Station D 60' Contour.

1	S 4° 30' E	+1° 40'	2.67	268.0	along fence on west side
2	S 18° 50' E	+1° 40'	2.67	268.0	
3	S 32° 30' E	+1° 30'	3.00	301.0	
4	S 43° 30' E	+1° 30'	3.24	325.0	
5	S 48° 30' E	+1° 30'	3.04	305.0	
6	S 55° 40' E	+1° 40'	2.65	266.0	
7	S 70° 0' E	+2° 10'	2.29	228.9	
8	S 86° 20' E	+2° 0'	2.15	215.9	
9	N 86° 0' E	+2° 0'	2.25	224.8	at Point of hill

Contour in the Jewish Cemetery

Station D 50 contour

Sta	bearing	vert angle	stadia	Hor Dist	
1	N 88° 0' E	- 0° 50'	1.76	177.0	at point of hill along cut
2	S 67° 0' E	+ 0° 50'	1.79	180.0	
3	S 50° 0' E	- 0° 30	2.23	224.0	
4	S 39° 0' E	- 0° 30'	2.52	253.0	
5	S 26° 0' E	- 0° 30'	2.49	250.0	
6	S 20° 15' E	- 0° 30'	2.53	254.0	
7	S 7° 15' E	- 0° 30'	2.37	238.0	
8	S 3° 20' E	- 0° 30'	2.40	241.0	along fence on west side
	Station B 40' contour.				
1	S 1° 30' E	- 2° 30'	2.00	200.8	
2	S 13° 30' E	- 2° 30	2.21	201.8	
3	S 22° 0' E	- 2° 30'	2.38	238.8	
3	S 27° 30' E	- 2° 0'	1.70	170.8	
4	S 11° 30' E	- 2° 0'	1.91	191.8	
5	S 0° 10' W	- 2° 0'	1.78	178.8	
	South	- 2° 30'	1.90	1.91.0	point where cut crosses west line
	S 17° 30' W	- 2° 40'	0.97	98.0	point where road crosses creek
	S 80° 0' E	- 2° 30	1.02	103.0	" " " creek.
	N 71° 50' E	- 1° 0'	2.15	216.0	trail

Contours in the Jewish Cemetery

Sta F 80' contour

Sta	Bearing	Vert angle	Stadia	Dist	
1	S 48° 30' W	+3° 30'	3.77	377.3	
2	S 39° 0' W	+4° 0'	3.53	352.3	
3	S 31° 50' W	+4° 0'	3.67	366.2	
4	S 24° 20' W	+3° 30'	3.88	388.7	
5	S 17° 35' W	+3° 20'	4.13	413.3	
6	S 12° 30' W	+4° 10'	3.26	324.8	
7	S 1° 45' W	+4° 40'	3.07	306.0	
8	S 6° 50' E	+4° 50'	3.00	298.9	along cemetery fence
	Sta F 70' Contour.				
1	S 6° 45' E	+2° 50'	2.76	276.7	along cemetery fence
2	S 1° 35' W	+2° 50'	2.71	272.0	
3	S 16° 0' W	+2° 30'	2.97	298.0	
4	S 20° 55' W	+2° 10'	3.50	351.0	
5	S 30° 05' W	+2° 20'	3.28	328.8	
6	S 43° 45' W	+2° 20'	3.27	327.8	
7	S 52° 30' W	+2° 0'	3.60	360.9	
8	S 55° 15' W	+2° 0"	3.86	386.7	
	Sta F 60' Contour				
1	S 56° 20' W	+0° 40'	3.43	344.0	
2	S 50° 0' W	+0° 30'	3.07	308.0	
3	S 36° 0' W	+0° 30'	2.92	293.0	

Contours in the Jewish Cemetery

Sta	Bearing	Vert Angle	Stadia	Hor Dist	
4	S 26° 0' W	+0° 40'	2.88	289.0	
5	S 16° 45' W	+0° 30'	2.61	262.0	
6	S 8° 30' W	+0° 30'	2.48	248.0	
7	S 0° 30' E	+0° 30'	2.44	245.0	
8	S 6° 50' E	+0° 30'	2.46	247.0	
	Sta F 50' Contour				
1	S 8° 15' E	-0° 40'	2.05	206.0	along west of cemetery fence
2	S 5° 30' W	" "	2.27	228.0	
3	S 14° 30' W	" "	2.44	245.0	along S bank of creek
4	S 28° 30' W	" "	2.29	230.0	
5	S 46° 50' W	" "	2.55	256.0	
6	S 57° 50' W	" "	2.68	268.0	
7	S 61° 30' W	" "	3.32	333.0	
8	S 63° 50' W	" "	3.57	358.0	
9	S 65° 0' W	" "	4.13	414.0	
	S 60° 45'	-2° 0'	2.47	248.0	point where creek crosses road
	S 27° 45' E	-6° 0'	0.175	17.2'	" " fence " cemetery fence

Measurements along the South line of Mt Hope cemetery and the West line of Masonic Cem.

Begining at the S.E. cor of the Mt Hope cemetery measured west 990' to the S.E. cor of the Masonic Cemetery thence west along the south line of said tract 900.5 to the S.W. cor thereof thence North 557' (N 17°30' W Mag) to the NW cor thereof stuck 1' West of Cor The S.W. cor of fence is 123.5' West of S.W. Cor of Masonic Cemetery.

Contours in the Mt Hope Cem.

Sta F 60' Contour

No	Bearing	Vert angle	Stadia	Dist
1	S10°30'E	0.0	2.30	214
2	S22°30'E	" "	2.14	2.15
		70' Contour		
1	S20°0'E	+2°10'	2.37	2.38.0
2	S18°0'E	" "	2.50	257.0
3	S 14°10'E	" "	2.86	287.0
		80' Contour		
1	S14°10'E	+4°10'	3.15	314.5
2	S18°30'E	" "	3.32	331.5
		90' Contour		
1	S16°0'E	+5°30'	3.92	389.0
2	S10°20'E	+5°30'	3.63	361.0
		95' Contour		
1	S12°45'E	5°30'	4.54	451.0

Check of Paving at H St bet 7th & 8th for Joe Fawne

Sta	+ -	HI	-	Elev	Grade
BM	3.93	58 74		54.81	
0			5.90	52.84	52.83
+25			5.68	53.06	53.08
+50			5.48	53.26	53.33
+75			5.19	53.55	53.58
1			4.90	53.84	53.83
1			3.83	54.91	55.92
+75			4.09	54.65	54.67
+50			4.37	54.37	54.42
+25			4.61	54.13	53.17
0			4.83	53.91	53.91
BM			0.96	57.78	

7th & H

Gutter

"

"

"

"

40
14
26

54
32.83
13) 1.17 (8
104
13

Sta	+	HI	−	Elev
Sta 85	4.19	295.22	4.19	291.03
84+50			5.11	290.11
B.M.			4.06	291.06

Sta	+	HI	−	Elev
64	7.70	286.97		279.27
64+40			8.24	278.73
63+60			2.32	284.65
	Elev where line was changed on account of RR of Way			
53+41	7.30	334.21		326.91
53+25			7.16	327.05
52			6.83	327.38
52+75			6.37	327.84
52+50			6.16	328.05
52+41			5.53	328.68
52+25			5.57	328.64

B.M. Cur Cem 99.92

8.0
12.5
67.5

on 1st St	42.95	South	} 7' joint	
" 1st "	43.06	North		
2nd St	42.88	South	} 7' joint	
" "	43.13	North		
3rd St	42.97	South	} 7' joint	
"	43.03	North		
4th St	43.00	} tack in bitumen		
" "	43.00			
Calif St			N	
" "			S	
Arctic		42.97	N	
"		43.00	S	
India		43.00	N	
"		43.00	S	
Colun		43.[illegible]	N	
"		42.97	S	

State	43.	N
"	43	S
Union	43	N
"	43	S
Front	43	
	43.	

offset BS W .68 on E of Front

cap tack to of Post marked Blk 5
Elev. 228.28
227.99
.29

B.M.S on H St

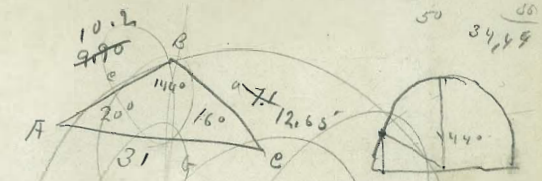
-0.39	S.E.	spk tel pole			Att
-0.96	N.E.	spk in compost			Col
0.79	N.W.	spk in tel pole			Arctic
2.11	S.E.	spk tel pole			India
5.66	N.E.	cor spk tel			Colum
8.63					Stat

~~B.M.~~ cor ~~S.W.~~ of cemetery fence
86.40

99.92 SW cor of cemetery.

20
16
36
180
144
90
50

110
36
34,44



a : b : Sin 20° : Sin 54° = ~~54° x b : Sin 20~~

c : b : Sin 16° : Sin 54°

$\frac{b\,x}{54°} \times 20$

9.9 : x :: ~~16~~ : 54

b : Sin 54° :: a : Sin 20° . 12.65

c : Sin 16° :: b : Sin 54°

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

Sta 0 = 9.0

Take 50' E of S&AR etc. on S. side fence marked B.3 37th St in West.

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

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	65.26	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	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees
	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		

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