1389 c

Misc Sewer. Work

Sewer Dept.

14
19
33

INDEX

W E Bunker }
J. Symons }

3/19/30

4

Notes on 8" Sewer between Bancroft & 33 Rd on Upas St. To M.H. at Alley Between 33 Rd & Felton on Upas.

		G.R.	Read	Cut	Elev. Sewer	Elev. in Flow of M.H. bet Banc & 33.
0+00	322.20	6.20			316.00	Bancroft
+18		6.89	2.63	4.26	315.31	319.57
+43		7.85	2.97	4.88	314.35	319.23
+68		8.81	3.26	5.55	313.39	318.94
+93		9.77	3.40	6.37	312.43	318.8
1+18		10.73	3.75	6.98	311.47	318.45
+43		11.69	3.98	7.71	310.51	318.22
+68		12.65	4.24	8.41	309.55	317.96
+93		13.61	4.45	9.16	308.59	317.75
2+18		14.57	4.77	9.80	307.63	317.43
+43		15.53	5.01	10.52	306.67	317.19
+68		16.49	5.31	11.18	305.71	316.89
+93		17.45	5.51	11.94	304.75	316.69
3+18		18.41	5.75	12.66	303.79	316.45
+30		18.89	5.87	13.02	303.44 / 303.31	316.33 Flow line MH Bet 33 & Felton

Cuts to Flow Line.
3.84% GRADE.

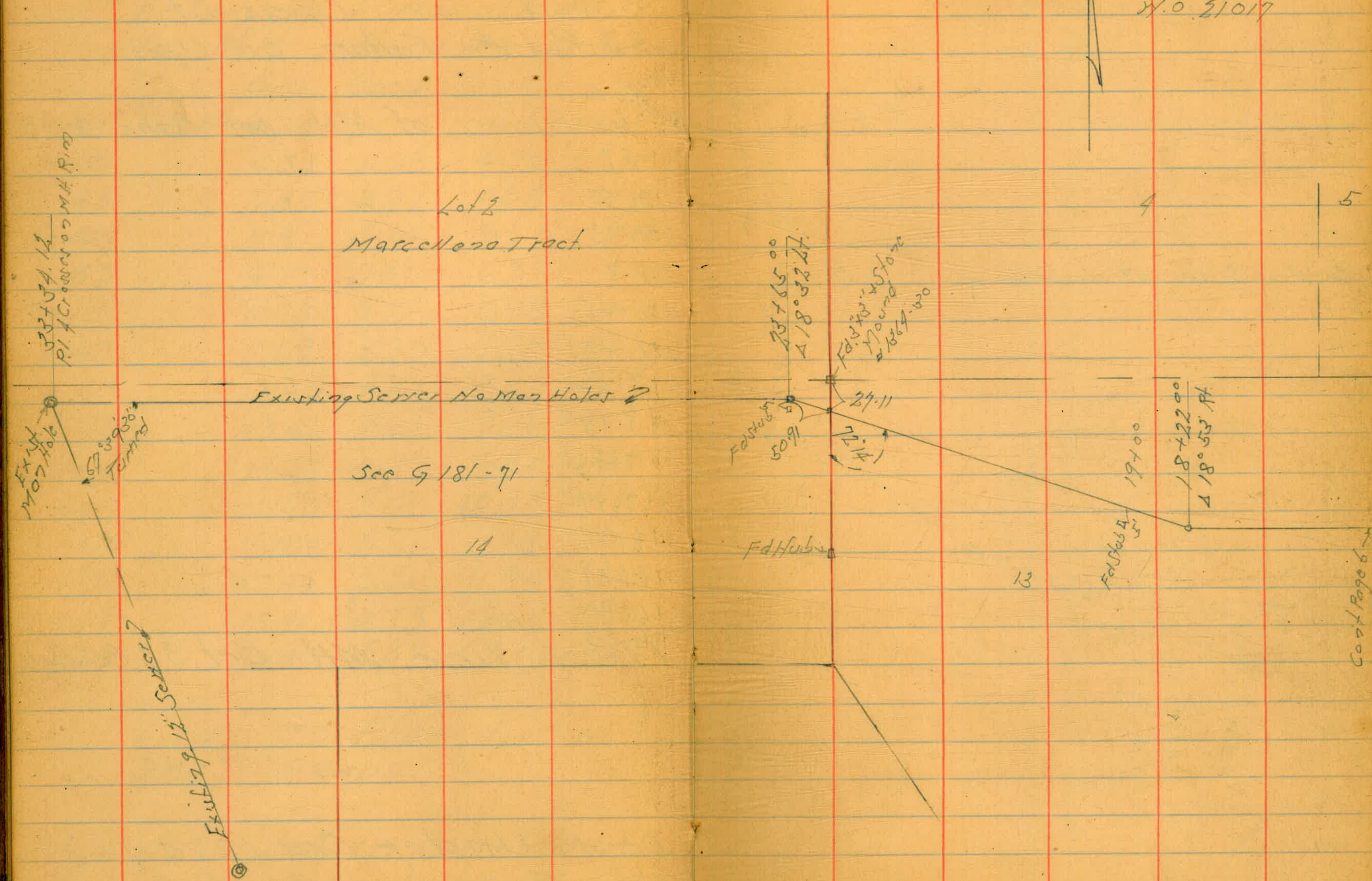
This line put in by Sewer Dept under Ord 12764-1 To relieve overloaded Main by Turning part of sewage into Wabash Canyon outfall

Location College Park Outfall Sewer
Through Marcellena Tract
Lots 14 - 13 - 17

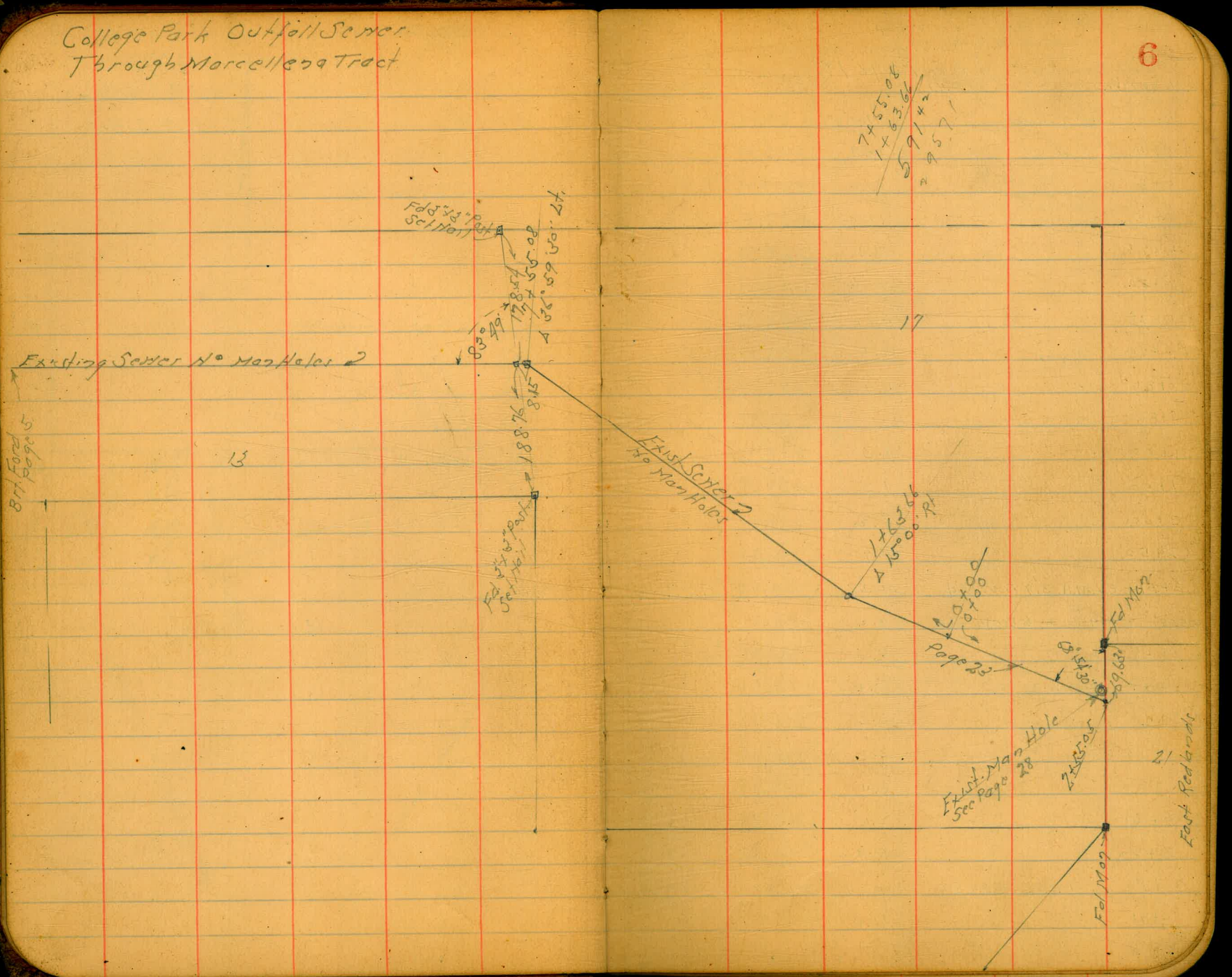
Indexed
C.S.K.

May 27-47
Sisson
Allen
Williams

W.O. 21017



College Park Outfall Sewer
Through Marcellesa Tract

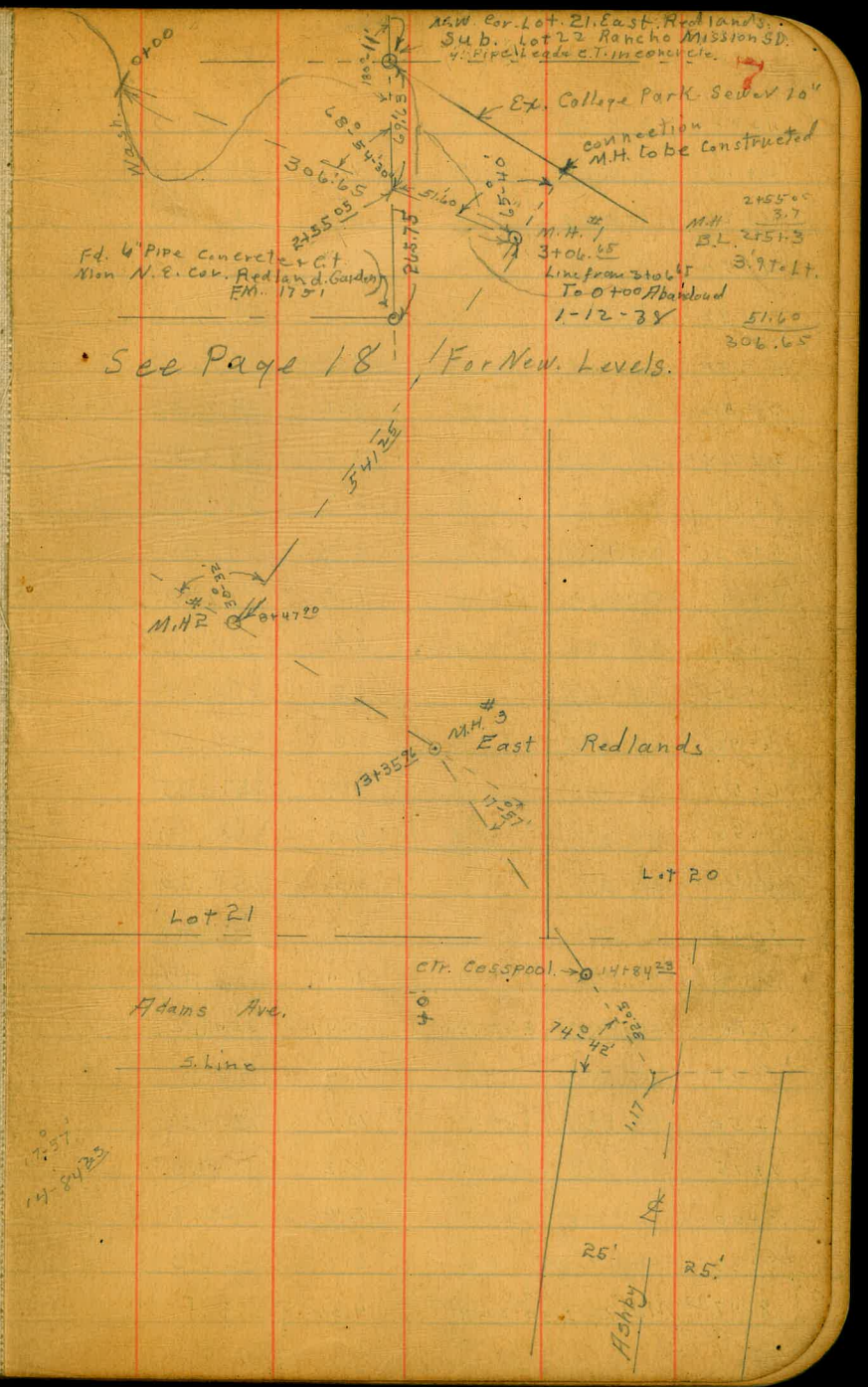


Prelim Sewer from Septic Tank
S. Line Adams. Ave at Ashby st.

9-2-31
Miller
Walker
Bliss

See Page 18.

B.M. on Pipe	6.58	342.41		Benhams B.M. 335.83	SE. Cor Lot 22, Rancho Ex Mission
0+00 = Outlet in wash			17.0	325.41	
0+4	" "		16.9	325.51	
0+6			15.0	327.41	
0+15			14.6	327.81	
0+25			13.1	329.31	
0+50			10.6	331.81	
0+73			10.2	332.21	
0+74	Wash		12.6	329.81	
0+86	"		11.9	330.51	
0+88			11.1	331.31	
1+00			10.3	332.11	
1+50			9.3	333.11	
2+00			8.2	334.21	
2+50			5.9	336.51	
2+51.3 = Ex. M.H. 3.9 ft. N. of ℄			12.68	329.73	F.L. 6"
3+06.65 = M.H. #1 ∠ 65°-40' Rt.			4.2	338.21	
3+29			4.0	338.41	
3+30	Wash		5.8	336.61	
3+40	"		6.3	336.11	
3+42			3.7	338.71	
3+50			3.4	339.01	
3+67			2.6	339.81	
3+80			0.9	341.51	
T.P.	12.72	354.59	0.54	341.87	
3+91			13.0	341.59	



		354.59		
4+00			11.3	343.29
4+15			11.1	343.49
4+28			8.6	345.99
4+50			8.5	346.09
4+92			7.5	347.09
5+00			6.7	347.89
5+50			5.1	349.49
5+75			5.0	349.59
6+01			5.6	348.99
6+03	Wash.		7.0	347.59
6+06	"		7.0	347.59
6+09			5.7	348.89
6+25			4.3	350.29
6+50			3.3	351.29
6+57			3.3	351.29
6+58			4.3	350.29
6+60			3.2	351.39
6+75			2.1	352.49
6+91			1.4	353.19
T.P.	13.08	367.20	0.47	354.12
7+05			11.4	355.8
7+50			10.1	357.1
7+75			8.3	358.9
8+00			7.4	359.8
8+33			6.3	360.9
8+47.90	M.H.*	Δ30°-32' ~~Rt.~~ Lt.	4.04	363.12

		367.20		
8+75			4.8	362.4
9+00			4.0	363.2
9+25			3.1	364.1
9+35			2.2	365.0
9+50			1.3	365.9
T.P.	12.90	379.95	0.15	367.05
9+75			13.3	366.65
9+85			14.2	365.75
10+00			13.2	366.75
10+10			12.7	367.25
10+25			10.6	369.35
10+50			8.0	371.95
10+65			7.3	372.65
10+75			5.7	374.25
11+00			4.2	375.75
11+15			3.2	376.75
11+28			3.5	376.45
11+42	Wash		7.7	372.25
11+50			8.2	371.75
11+63			7.4	372.55
11+69			5.4	374.55
11+89			2.5	377.45
12+00			0.9	379.05
T.P.	12.57	392.44	0.08	379.87
12+18			11.9	380.54
12+23			12.3	380.14

		392.44							
12+33			12.2	380.24					
12+34			13.2	379.24					
4' to Lt of 12+34 in wash			19.2	373.24					
12+40			13.2	379.24					
3' to Lt of 12+40			17.7	374.74					
12+42			11.3	381.14					
12+50			10.2	382.24					
12+75			7.3	385.14					
13+00			3.8	388.64					
13+17			1.3	391.14					
13+35.26	M.H. #3	Δ 179° 57' Rt	0.87	391.57					
T.P.	12.30	403.87	0.87	391.57					
13+50			10.4	393.47					
13+55			9.7	394.17					
14+00			9.2	394.67					
14+25			9.2	394.67					
14+35			7.9	395.97					
14+50			7.5	396.37					
14+77			7.7	396.17					
14+84.23	Top of present 6" Iron outlet Pipe		7.77	396.10	℄ Cesspool				
14+84.23	Top Iron cap on Top of cesspool.		6.99	396.88	" "				
14+84.23	on ground		5.5	398.37	" "				
3.5 to Lt. of	Cesspool on W. cnt. of Ashby ch		5.10	398.77					
T.P.	11.38	410.87	4.38	399.49					
	G. Book. 121 P.9.								
chk. BM. 25' E. Tie Hub Ashby & Adams.			3.19	407.68 = 407.78 Sisson					
			11.24						

BM. 25' S.E. Tie	3.19	410.97		407.78	Adams + Ashby
Set BM. BP.			11.24	399.73	S.W. cor Adams + Ashby

5' offset to Rt. — Sewer Cons. Lots 20 + 21 East Redlands. See Page 18

9-2-31 Miller Walker Bliss

S.E. Lot 20 Rancho Ex. Mission

B.M. on Pipe	6.58	342.41		335.83		
				5' offset stubs	Grade	+ or −
0+00 = ℄ Wash			17.15	325.26	322.73	+2.53
0+50			11.20	331.21	23.88	+7.33
1+00			10.44	331.97	25.03	+6.94
1+50			9.51			
2+00			8.10	332.90	26.18	+6.72
				334.31	27.33	+6.98
2+50			5.17	337.24	28.48	+8.76
					29.78	+8.36 outlet
3+06.65 B.M.H. 4 Δ 65+40° Rt. = 0+00			4.27	338.14	330.39	+7.75 Inlet.
3+50			3.15	339.26	32.34	+6.92
T.P.	12.72	354.59	0.54	341.87		
4+00			9.44	345.15	34.59	+10.56
4+50			6.99	347.60	34.84	+10.76
5+00			5.59	349.00	39.09	+9.91
5+50			4.30	350.29	41.34	+8.95
6+00			5.16	349.43	43.59	+5.84
6+50	offset to Rt.		3.01	351.58	45.84	+5.74
T.P.	13.08	367.20	0.47	354.12		
7+00			11.08	356.12	48.09	+8.03
7+50			8.21	358.99	50.34	+8.65
8+00			6.67	360.53	52.59	+7.94
8+47.90 M.H. 5 Δ 30°-32'-Lt.			2.02	365.18	354.75	+10.43
9+00			3.56	363.64	57.09	+6.55
9+50 T.P.	12.90	379.95	0.15	367.05	59.34	+7.71
10+00			11.58	368.37	61.59	+6.78
10+50			6.69	373.26	63.84	+9.42
11+00			2.58	377.37	66.13	+11.24

		379.95					
11+50			5.51	374.44	69.13	+5.31	New Grade Cut
T.P.	12.57	392.44	0.08	379.87			
12+00			12.22	380.22	72.13	+8.09	
12+50			7.91	384.53	75.13	+9.40	
13+00			1.87	390.57	78.13	+12.44	
T.P.	12.30	403.87	0.87	391.57			
13+35 96 M.H. #3 .A 17°-57' Rt			10.05	393.82	380.28	+13.54 00 Ct.	10.54
13+50			9.08	394.79			10.81
14+00			7.32	396.55			10.07
14+50			5.69	398.18			9.20
14+84 23 cess pool Top of Iron Cap.			6.99	396.88			

Sewer Levels & Alley Bet Birch & Cottonwood. from Existing M.H 239.2 S.E. of & Rigel. to Slough. N.W. of Rigel

1-2-32 Mille Walker Bliss

								15.28		
						6+00			4.5	8.78
B.M. Top Hydt	0.03	44.22		44.19	S.E. 35th & National	6+32	Edge Slough		16.3	-1.02
Set B.M. B.P. T.P.	2.90	37.20	9.92	34.30	N.W. 35th & Newton	T.P.	3.19	6.72	11.75	3.53
T.P. Spk Elec Pole	0.80	29.41	8.59	28.61	S.W. Rigel & Acacia	T.P.	5.73	7.35	5.10	1.62
T.P. Spk Elec Pole	4.99	25.16	9.24	20.17	S.W. Rigel & Birch	T.P.	8.47	11.94	3.88	3.47
T.P.	1.68	13.65	13.19	11.97		chk B.M. B.P. S.E. 34th & National			5.08	6.86 = 6.82
0+00 = Ex M.H	& Alley 239.2 S.E. of & Rigel		11.17	2.48	Flow Line					
0+00 = " " " " "			8.00	5.65	Top Rim					
0+15			9.2	4.45						
0+50			8.1	5.55						
0+65			7.4	6.25						
1+00			1.5	12.15						
T.P.	13.18	25.15	1.68	11.97						
1+25			9.6	15.55						
1+50			7.4	17.75						
2+00			5.4	19.7						
2+39½ = & Rigel			4.7	20.4						
3+05			8.6	21.5						
3+50			5.7	19.4						
4+00			8.8	16.3						
4+50			12.6	12.5						
T.P.	2.75	15.28	12.62	12.53						
4+65			3.7	11.58						
5+00			4.1	11.18						
5+25			4.1	11.18						
5+50			5.4	9.88						

Levels on N.E.ly line
Cottonwood St from Rigel N.W.ly
25.15 H.I. Page 12

1-2-32
miller
walker
Bliss

00 = N.W.ly Line Rigel			8.0	17.15	
0+40 N.W.			9.5	15.6	
T.P.	0.65	13.32	12.48	12.67	
1+00			00.0	13.32	
1+50			3.0	10.32	
2+00			4.5	8.8	
2+25			7.2	6.1	
2+50			13.1	.2	edge Sloughs

Elevations for New City Garage
20th & B. Sts.

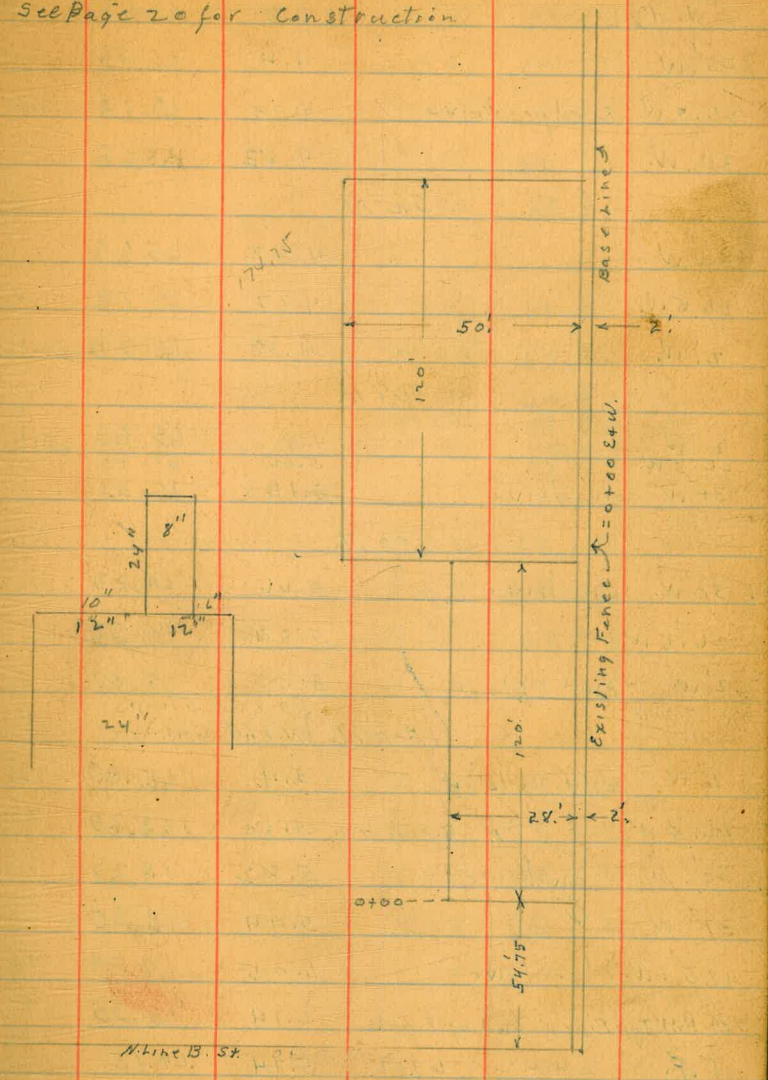
2-8-32
Meter
Bliss
Northerne
N.E. B & 18th St.

B.M.	1.37	49.44		48.07
T.P.	2.81	70.49	1.76	47.68

0+00 = 54.75 N. of N. Line B. St. = S. End New Garage

B.L. 00 E & W.	0.5	70.
2' W = E. End New Garage	0.5	70.
26.5' W	1.4	69.09
27.5' W = E. edge drive	3.07	67.42
30' W. on "	3.12	67.37
7' N		
30' W	3.34	67.15
27.5' W	3.26	67.23
26.5' W	1.7	68.79
2' W	0.7	69.79
B.L.	0.7	69.79
23' N		
B.L.	3.2	67.29
2' W	3.3	67.19
26.5' W	3.0	67.49
27.5' W	3.80	66.69
30' W	3.83	66.66
30' N		
30' W	3.97	66.52
26.5' W = E. edge drive	3.83	66.66
25' W	3.5	66.99
2' W	3.5	66.99

See Page 20 for Construction



70.49

51' N.

2' W. of BL		3.8	66.69	
25' W		4.4	66.09	
26.5 W	& edge drive	4.75	65.74	
30' W.		4.82	65.66	

52' N.

30' W		4.83	65.66	
26.5 W.		4.77	65.72	
2' W.		4.5	65.99	cmt. floor

68' N.

2' W.		4.8	65.69	cmt. floor
26.5 W		5.06	65.43	
30' W	on drive	5.16	65.33	

100' N.

30' W.	on drive	5.66	64.83	
26.5 W		5.58	64.91	
2' W	cmt. floor	5.0	65.49	

120' N. { S end Shops / W. end Garage

2' W.	cmt. floor	5.4	65.09	
26.5 W.	" " E. edge drive	5.80	64.69	
30' W	on drive	5.82	64.67	
37' W		5.94	64.55	
47.5 = W. edge drive		6.05	64.44	
Set BM. Top Pipe W. End of E. gate		2.14	68.35	
T.P.	4.42 69.17	5.74	64.75	
		94.84		

73.11
12.18
85.29
2.36
82.93
9.40
92.33
3.11
89.22
4.83
94.05
6.97
1.99
92.06
7.60
99.66
4.88
94.78

6689
6543
130

69.17

160' N.

47.5 W. = W. edge drive		5.38	63.79	
37' W		5.0	64.17	
26.5 W		4.67	64.50	
22' W		4.38	64.79	
2' W		4.26	64.91	

176' N.

2' W.		4.24	64.93	
26.5' W		4.35	64.82	
37' W		4.70	64.47	
44.5		5.12	64.05	
47.5 W = W. edge drive		5.30	63.87	

203' N.

47.5 W. = W. edge drive		5.02	64.15	
37' W.		4.59	64.58	
26.5 W		4.23	64.94	
2' W.		4.18	64.99	

240' N. = N. End Shop.

2' W		4.04	65.09	
26.5 W.		4.04	65.13	
47.5 W		4.22	64.95	
52' W. W. edge N. Shop.		4.23	64.94	
chk T.P.		1.49	67.68 ✓	
BM. Pipe	5.73 74.08		68.35	Entrance W. End E. gate To City Yards.
Set BM - B.P.		3.85	70.23	S.E. 20th & B. Sts.

Levels on Existing M.H.s. Carmel Hts. Sewer Outfall

2-18-31 Miller Walker Bliss

B.M. B.P. Top wall	0.65	256.13		255.48	S.E. Juniper & Fr.
T.P.	0.02	243.16	12.99	243.14	
#M.H. #25	in Kalmia	E. of 33rd	2.57	240.59	Top. Rim
#M.H. #25			16.47	226.69	Flow. Line
T.P.	0.13	230.44	12.85	230.31	
T.P.	0.38	217.67	13.15	217.29	
M.H. #24			4.70	212.97	Top. Rim.
M.H. #24			13.22	204.45	Flow. Line
T.P.	2.26	207.11	12.82	204.85	
M.H. #23			8.35	198.76	Top Rim
M.H. #23			14.30	192.81	Flow. Line
D.D.M.H #16	in Juniper st.		9.13	198.98	Top Rim.
" " "	" "	"	22.25	184.86	F.L. W. to M.H. #23
" " "	" "	"	23.65	183.46	F.L. N. to M.H. #17
" " "	" "	"	30.75	176.36	F.L. S. to M.H. #15
M.H. #17			11.80	195.31	Top Rim
M.H. #17			19.27	187.84	Flow. Line
set B.M. to S.			13.08	194.03	
set B.M. Nail Elec Pole 3381		{S. side Juniper E. of Gregory}	0.40	206.71	
T.P. to N.			10.38	196.73	

B.M. to S	0.43	194.46		194.03	
T.P.	2.17	183.67	12.96	181.50	
M.H. #15	S. of Juniper		6.26	177.41	Top Rim
" " "	" "	"	13.58	170.09	Flow. Line

B.M. Nails in Pole	3.27	209.98		206.71	
B.M. B.P.	{E. line Gregory. in S. curb. Juniper}		3.42	206.56	
T.P. to N	9.84	206.57		196.73	
M.H. #18			4.88	201.69	Top. Rim.
M.H. #18			10.94	195.63	Flow. Line
T.P.	8.73	215.00	0.30	206.27	
M.H. #19			4.04	210.96	Top. Rim
M.H. #19			10.22	204.78	Flow. Line
T.P.	12.10	226.96	0.14	214.86	
M.H. #20			7.66	219.30	Top. Rim
M.H. #20			14.01	212.95	Flow. Line
T.P.	12.32	238.91	0.37	226.59	
D.M.H. #21			6.63	232.28	Top. Rim
D.M.H. #21			15.33	223.58	Flow line to S Outlet.
D.M.H. #21			13.33	225.58	Flow. line To N. inlet.
T.P.	13.29	251.37	0.83	238.08	
M.H. #22			2.04	249.33	Top Rim.
M.H. #22			10.74	240.63	Flow. line
T.P.	10.87	241.18	1.04	250.31	
ch M. Rim Existing M.H. in Nutmeg st			2.91	258.27 = 258.25 G 140	
Existing M.H. in Nutmeg St			12.70	248.48	Flow. Line

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Rim. M.H. 15	4.33	181.74		177.41	
T.P.	0.42	169.52	12.64	169.10	

		169.52			
M.H. #14			1.48	168.04	Top Rim
M.H. #14			10.21	159.31	Flow. Line
M.H. #13			7.38	162.14	Top Rim
M.H. #13			17.43	152.09	Flow. Line
T.P.	1.11	158.10	12.53	156.99	
M.H. #12			4.27	153.83	Top. Rim
M.H. #12			12.94	145.16	Flow. Line
M.H. #11			10.10	148.00	Top. Rim
M.H #11			18.79	139.31	Flow. Line
T.P.	0.87	146.57	12.40	145.70	
M.H. #10			6.26	140.31	Top. Rim
M.H. #10			14.93	131.64	Flow. Line
M.H. #9			12.30	134.27	Top. Rim
M.H. #9			21.00	125.57	Flow. Line
T.P.	6.04	140.31	12.30	134.27	
M.H. #8			3.22	137.09	Top Rim
M.H. #8			22.10	118.21	Flow. Line
M.H #7			10.43		Top. Rim
T.P.	6.57	144.19	2.69	137.62	
M.H #6			10.82	133.37	Top. Rim
T.R	0.77	131.98	12.98	131.21	
T.P.	0.49	119.66	12.81	119.17	
M.H. #5			12.32	107.34	Top. Rim
M.H. #5			21.58	98.08	Flow. Line
T.P.	0.68	108.02	12.32	107.34	

Carmel H.W.S. Outfall

17

		108.02			
M.H. #4 (& Beech 20' E. of & Whaley)			8.74	99.28	Top. Rim.
M.H. #4			18.79	89.23	Flow. Line
T.P.	1.96	97.17	12.81	95.21	
M.H. #3			3.30	93.87	Top. Rim
M.H #3 & Beech			10.67	86.50	Flow. Line
M.H. #2			9.49	87.68	Top. Rim
M.H. #2			15.74	81.43	Flow. Line
T.P.	3.43	89.30	11.30	85.87	
M.H #1 & Ash & 35th			5.76	83.54	Top. Rim
M.H #1.			14.48	74.82	Flow. Line
chk. Rim. M.H.			10.39	78.91	=78.80 G.140 P.71
T.P.	4.19	85.48	8.01	81.29	
T.P.	0.21	72.77	12.92	72.56	
T.P.	1.84	63.78	10.43	61.94	
chk BM: Mon N.W. 35th & Bdw.			6.82	56.96	= 56.62
T.P. opp. Page	1.07	138.69		137.62	
M.H. Stub W. of M.H. #8			0.31	138.38	

7.16

Levels on New 6" Sewer Replacing old. Main Pages 7 & 10

B.M. Top Pipe	9.33	345.16		335.83	Flow line See Page 7 S.E. Cor Lot 22 Rancho Mission 331.37
Connection with 10" College Sewer 17.0 S. of above Connection = Orig M.H. #1. = Sta 3+04.65			13.23	331.93	Top 6" Sewer abandoned
3+36			10.70	334.46	333.90 " " "
3+86			7.84	337.32	336.76 " " "
4+37			5.32	339.84	339.28 " " "
T.P.	12.33	357.46	0.03	345.13	
4+88			15.76	341.70	341.14 " " "
5+40			13.80	343.66	343.10 " " "
5+90			12.50	344.96	344.40 " " "
6+40			10.55	346.91	346.35 " " "
6+90			8.02	349.44	348.88 " " "
7+43			5.48	351.98	351.42 " " "
T.P.	12.15	369.56	0.05	357.41	
7+91			15.02	354.54	353.98 " " "
8+46			13.27	356.29	355.73 " " "
8+47.50	Original M.H. #2 △ (30°-32' Lt.				
9+00			11.13	358.43	357.87 " " "
9+50			8.87	360.69	360.13 " " "
10+00			6.84	362.72	362.16 " " "
T.P.	11.10	379.21	1.45	368.11	
10+52			13.83	365.38	364.82 " " "
10+97			11.90	367.31	366.75 " " "
T.P. Stub	11.25	388.56	1.90	377.31	3' Rt of Ditch 372.98
12+00			15.02	373.54	Top 6" Sewer 376.05
+50			11.95	376.61	" " "
+97			9.28	379.28	378.72

776
607
1943

388.56

T.P.	9.59	397.40	0.75	387.81	381.14 Top 6" Sewer
13+35 = M.H. △ Rt.			15.70	381.70	384.59 " " "
13+83			12.25	385.15	391.03 " " "
14+68			5.81	391.59	
T.P.	7.66	403.81	1.25	396.15	
14+80 = △ Lt					
15+01 = Connection 3' North of			11.94	391.87	391.31 Ashby St. 14+84.23 Page 9
Cht. on Top Iron cap			6.89	396.92	
				396.88 = Miller	
				0.04 = diff.	

Location Garage City Barns.

BM. Pipe	3.01	71.36		68.35	Entrance Walk Gate City Yard
N. End, Paym't			6.65	64.71	64.69
S. End			3.91	67.45	
				2.74	
Top wall Machine shop.			4.12	67.24	
			3.64	67.70	
T.P.					

		#1 S.E. Cor	#2	#3 Markon wall		#4 Markon wall
	67.40	68.40			67.40	
	3.96	2.96	2.96	2.96	3.96	3.96
		1.92	4.08	2.96	3.96	00
		+1.04	-1.12	00	00	
				Tos.	Tok.	

T.P.	4.09	70.13	5.32	66.04	
	#6	#7	#8	#9	#10
	67.40	67.40	67.40	67.40	67.40
	2.73	2.73	2.73	2.73	2.73
	2.73	2.73	2.73	2.73	2.73
	00	00	00	0.0	00

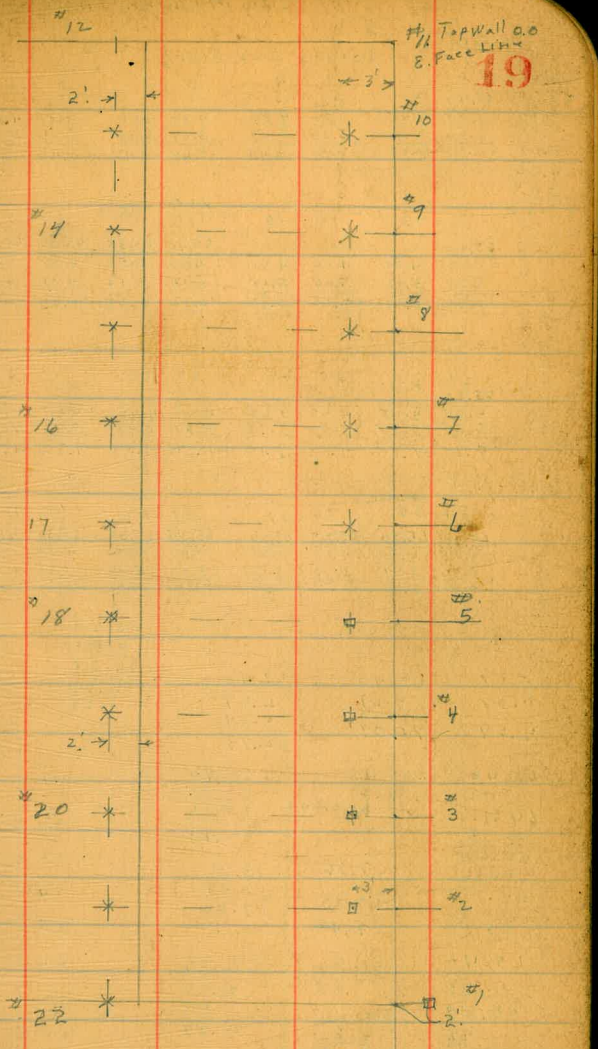
	#11 N.E. Cor	#12 N.W. Cor.	#14	#16	#18
	67.40			66.40	66.40
				3.73	3.73
				4.92	4.36
				-1.19	-0.63
				1-2 9/32"	1-9/16

	#20	#22 S.W. Cor.		Water table & Grades.	
	67.40	68.40	67.40	Top Wall 2" above Bottom	
	2.73	1.73	2.13	2.20	
	3.55	1.73	69.53	67.33 El. Top. Wall.	
	-0.82	-0.0	4.17		
	9-27/32	24.1/2	65.36	67.33 / 4.13 = 4'-1 5/8"	
	25 5/8	2'.20	6.10		
	28. 3/8		71.46		

Top Conc. Pillars Front.

67.33	El. Floor ℄	S. end floor	#20	#18	#16	#14
2.83	4.49	2.79	68.33	67.33	67.33	67.33
70.16	65.47	67.37	1.83	2.83	2.83	2.83
clearance	11.00	9.10 clearance	3.52	4.24	4.93	5.30
El Bottom Beam.	76.47		1.69 = 1-8 1/4"	-1.41 = 1'-5"	-2.10 = 2'-1 1/4"	-2.47 = 2'-5 5/8"
	33					
El. Top Post.	76.14					
	9.					
	67.14					

12	2.62	5.14		
67.33	0.56	2.69		
2.83	2.06	2.47		
		2-5 3/4		



City Machine Shop. 2-17-32
Miller
Walker
Bliss

SE. Cor

Levels For Piers

BM. Top Pipe	#1	#2	3	4	5	6	7	8	9	10	11
68.35	65.40	✓	65.40	✓	✓						65.40
1.50	4.45	4.45	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80
69.85	4.84	4.89	5.30	5.29	5.29	5.28	5.26	5.23	5.28	5.24	5.19
5.19	-0.39	-0.44	-0.50	-0.49	-0.49	-0.48	-0.46	-0.43	-0.48	-0.44	-0.39
64.66											
5.54											
70.20											

	12	13	14	15	N.E. Cor 16	stake 17	18	19	N.W. Cor 20	21	22
	65.40				65.40	65.35	65.30	65.25	65.20	65.20	65.20
	4.80	4.80	4.80	4.80	4.80	4.50	4.55	4.60	4.65	4.65	4.65
	5.20	5.07	5.06	5.18	5.12	5.19	4.79	4.86	4.89	5.16	5.37
	-0.40	-0.27	-0.26	-0.38	-0.32	-0.69	-0.24	-0.26	-0.24	-0.51	-0.72

	23	24	25	26	27	28	29	30	31	32	33
	65.20										65.20
	4.65	4.68	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65
	5.55	5.75	5.83	5.75	5.87	5.99	5.97	6.05	5.89	5.76	5.61
	-0.90	-1.10	-1.18	-1.10	-1.22	-1.34	-1.32	-1.40	-1.24	-1.11	-0.96

	34	SW. Cor. 35	36	37	38	39	40	41 (12"x12")	42	43	44
	65.20	65.20	65.25	65.30	65.35	65.35	65.30	65.25	65.25	65.30	65.35
	4.25	4.65	4.60	4.55	4.50	4.50	4.58	4.60	4.60	4.55	Not in
	5.46	5.39	5.33	5.17	5.00	5.03	5.22	5.43	5.54	5.29	
	-0.81	-0.74	-0.73	-0.62	-0.50	-0.53	-0.67	-0.83	-0.94	-0.74	

65.20
0.81
64.39
4.28
4.28

3.51
3.46
3.41
3.36
3.31

3.99
64.69
65.30
.62

3.99
.58
3.41

5.07
0.38
4.69

65.40
4.69
70.09

67.40
2.69
0.04
2..73

65.40
.49
64.91
3.76
68.67
4.56
64.11
4.00
68.11

65.40
3.27
3.31 0.04 L

65.40
04
65.36
.48

65.36
2
67.36
2.48

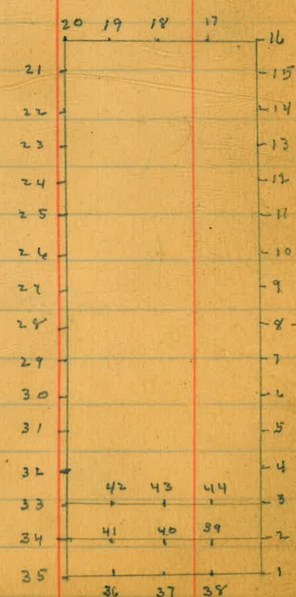
13.5
2.48
11.02

65.40
4.93
70.33
.49
69.84

11.01

66.36
.75
69.84
4.56
65.28
4.00
69.28

66.36
2.92
03
2.89

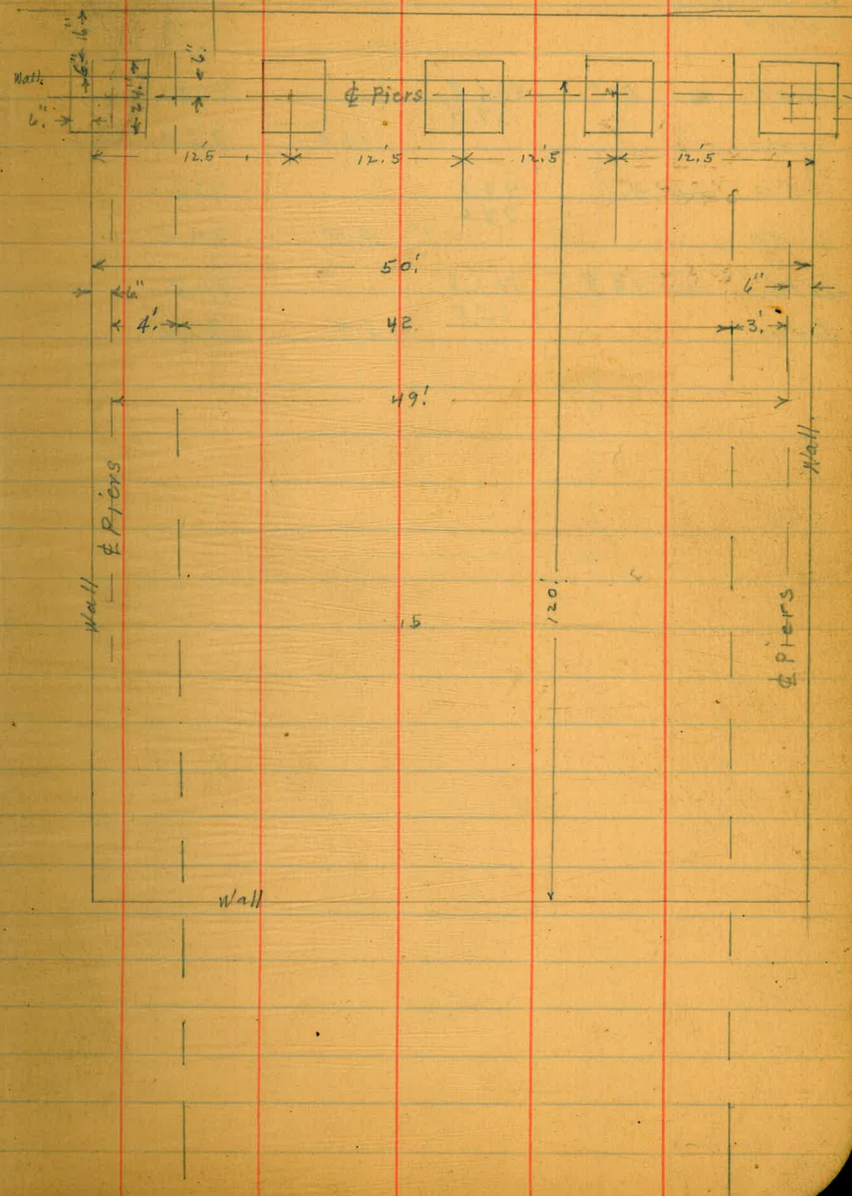


See Page 14. for X Sec.

12.5
3
9.5
.5
9.0
4.
5.0

244.2

12.5
3.
15.5
3.5
12.0



Sewer for Radio Station Balboa Park

2-29-32
Brems
& Phelps
Hand Level

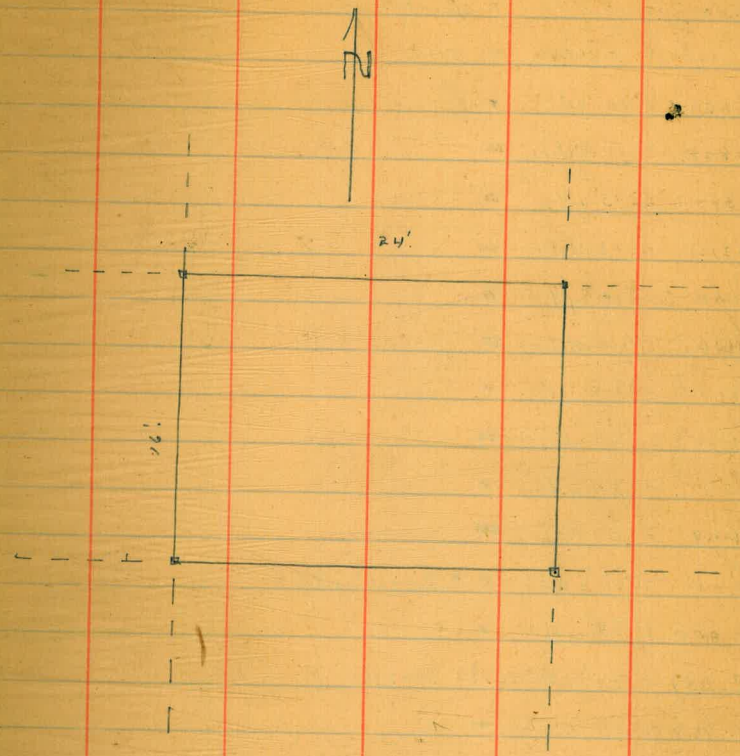
	+	HT	−	Elev	BM
N. Ecor Bldg = 0+00				Assumed as 100	
				100.0	100.00
1+00	inst 6.8	106.8		101.3	
		101.3			
2+00			11.8	95.0	
2+50	inst 4.1	99.1		93.6	
		93.6			
3+50			4.7	94.4	
4+50	inst +6.9	101.3		95.8	
		95.8			
5+40			3.4	97.9	

170
?
510

Police Radio Station Balboa Park

4-8-32
Milly
Walker
Bliss

21



4-18-33
Miles
Walker
Bliss

Municipal Swimming Pool Balboa Park

Measurements for Races

			Denoted by
15'.000	=	5 yds	● circular Hole
16'.404	=	5 Meters	▬ Slot
30'.000	=	10 yds	●
32'.808	=	10 Meters	▬
45'.000	=	15 yds	●
49'.212	=	15 Meters	▬
60'.000	=	20 yds	●
65'.616	=	20 Meters	▬
75'.000	=	25 yds.	●
82'.020	=	25 Meters	▬
90'.=	=	30 yds	●
98'.424	=	30 Meters	▬
100'.000	=	33 1/3 yds	● ● 2. circular Holes
105'.000	=	35' yds	●
109'.359	=	33 1/3 Meters	+ Cross.
114'.828	=	35 Meters	▬
120'.000	=	40 yds.	●
131'.232	=	40 Meters	N. End Pool.

S. End Pool divided into 9. equal Lanes.

9 | 65'.616 = 20 Meters

7.29

Sewer Extension
El Cerrito Hts. Line to connection
With Frisby Line at W. Line Lot 22.
Rancho Ex Mission
See F.B. 1551

7-3-33
Miller
Walker
Bliss

7+55.08 △ 36-39-30" Lt

36-59-30

15°-00

18.5

1+63.66 △ on ℄ △ 15°-00 Rt

End Pipe

5'

18.66

1+45 △ on 5' offset. Stub

19.32

0+00 Line to W.

Stub

5.0

0+00 Page

0+00 Page 7

Lot 22.

5' offset Line

Ex. Sewer

Mon. on ℄ Line
Mon. S.E. Cor. Lot 22. Rancho Ex Mission
W.E. Cor. E. Redlands

P.O.T. Stub

Lot

69-54-30

69.68

5.36

180.00

Stub

2+55.05

2+56.98

See also page 28

" " " 5

Ex. Sewer

M.H. #1 3+06.65 Page 7

D.M.H. Not constructed

indexed
C.B.M.

Frisbie Line
Sheet 67
Drawing C92

1340'

17+60 Fd. Nail

21+60 Fd. No. 1

23

190'

24+92

29+19.96 Fd. Lath Point in Top.

29+35.23 = Frisbie Line
Set Stub.

46+92.96 = △ 41°32' Lt.

34+39.5 = End of Existing Sewer

End 12" Line

Existing 12" Line

31°55'30"

33°-35'-00

Existing 24" turned

intersection 4 Crosses on Rim of MH. = ℄ △

33+34.12 = △ 31°55'30" Rt. 12"

This Line Book 1429-7

Map: 342.00

Existing MH.

80'

39.80'

112°20'30"

23+65 △ 18°32' Lt.

18+82 △ 18°-58' Rt.

17+45 P.O.T.

12+00 P.O.T.

7+55.08 △ 36°-59-30" Lt.

Sewer Extension in Lot 22 Rancho Ex Mission

B.M. Top Pipe	4.73	340.56		335.83	S.E. Cor. Lot 22	
					Stub 5' S. of	
at 0+00 T.P.	2.46	330.56	12.46	328.10	℄ Pipe	
0+00 Top Sewer Pipe			6.74	Top 323.82 −0.87	F.L. 322.95	
0+00 ground			2.5	328.1		
0+50			4.2	326.4		
1+00			5.0	325.6		
1+63 ground			6.8	323.8		
1+63 66 Δ and	Δ 15°00' Rt.		8.05	322.51	Top 10" Pipe	
1+75			8.9	321.7		
1+87			7.8	322.8		
2+00			8.0	322.6		
2+25			7.6	323.0		
2+50			8.9	321.7		
3+00			10.2	320.4		
3+50			12.5	318.1		
3+75			13.6	317.0		
T.P.	2.67	320.80	12.43	318.13		
4+00			4.7	316.1		
+50			5.0	315.8		
5+00			5.6	315.2		
+50			7.0	313.8		
6+00			7.6	313.2		
+35			8.8	312.0		
+40			11.3	309.5		
+50			11.2	309.6		
+70			8.7	312.1		

320.80

7+00			8.8	312.0
7+55 08 Δ	36°-59'-30" Lt.		11.5	309.3
T.P. Hub 7+55 08	0.84	310.13	11.51	309.29
7+71			2.2	307.9
+75 Wash			6.1	304.0
8+00			4.4	305.7
+50			4.6	305.5
9+00			6.1	304.0
9+50			7.5	302.6
10+00			11.2	298.9
10+03 Wash.			13.6	296.5
+15 "			14.7	295.4
+25			13.8	296.3
+50			13.8	296.3
T.P. 113		298.23	13.03	297.10
+90 Wash.			3.9	294.3
+91			1.9	296.3
11+00			2.1	296.1
+50			4.3	293.9
12+00 P.O.T. Hub.			4.75	293.48
+50			5.9	292.3
13+00			7.6	290.6
+50			9.2	289.0
+75			10.6	287.6
+90 Wash			13.0	285.2
+98			12.5	285.7
14+00			10.8	287.4

		298.23			
14+50			12.1	286.1	
+82			13.7	284.5	
+87	Wash. E. edge		15.3	282.9	
15+04	" W "		15.5	282.7	
15+10			13.5	284.7	
T.P.	0.34	286.02	12.55	285.68	
15+50			2.2	283.8	
16+00			3.6	282.4	
+50			5.3	280.7	
+90			6.1	279.9	
+95	E. edge wash		8.0	278.0	
17+10	W " "		8.2	277.8	
+12			6.2	279.8	
+50			7.8	278.2	
18+00			8.1	277.9	
18+22	Hub △ 18-53 Rt.		8.91	277.11	
T.P. 18+22	0.84	277.95	8.91	277.11	Hub
18+50			1.3	276.7	
19+00			2.7	275.3	
+50			6.2	271.8	
20+00			7.8	270.2	
+08	= Wash		9.3	268.7	
+28	= "		9.8	268.2	
+30			8.1	269.9	
+50			8.7	269.3	
+65			9.4	268.6	

		277.95		
20+70	= Bot. Wash		11.1	266.9
21+00	= " "		12.8	265.2
T.P.	0.76	266.06	12.65	265.30
+50	= Bot. Wash		3.1	263.0
+90	= " "		3.2	262.9
22+00			1.3	264.8
+50			3.6	262.5
23+00	= △ 18°32' Lt.		4.1	262.0
+65	on stub.		6.29	259.77
24+00			7.3	258.8
+50			10.0	256.1
25+00	= Bot. Wash.		11.6	254.5
T.P.	2.89	256.51	12.44	253.62
+50	= Bot. Wash.		3.6	252.9
26+00	= " "		5.1	251.4
+50	= " "		6.2	250.3
27+00	= " "		7.8	248.7
+15	= " "		8.7	247.8
+20	= Top Bank.		6.8	249.7
+50			7.4	249.1
28+00			9.1	247.4
+50			10.9	245.6
29+00			12.9	243.6
T.P.	1.07	244.61	12.97	243.54
+13	= Top Bank.		1.2	243.4
+15	= Bot. Wash.		3.9	240.7

	244.61		
29+50 = Bot. Wash.		3.4	241.2
+98 = " "		6.2	r38.4
30+00 = top Bank.		3.8	r40.8
+50		5.9	r38.7
+75 " "		6.2	r38.4
+85 = Bot. Wash.		8.5	r36.1
31+00 " "		8.9	r35.7
+50 " "		10.0	234.6
+60 " "		10.5	r34.1
+65 = top Bank.		7.6	r37.0
32+00		9.4	r35.2
+50		11.1	r33.5
33+00		12.3	r32.3
+10 = top Bank.		12.9	231.7
+25 = Bot. Wash.		16.5	r28.1
+30 = top Bank.		13.2	r31.4
T.P. on Rim Exist. MH.	0.48 232.17	12.92	231.69
Flow line Exist. MH.		4.62	227.55
33+50		1.1	231.1
34+00		3.1	r29.1
+39.5		5.2	227.0
+39.5 00 Bot. Wash Flow line Sewer.		7.05	225.12
+50 Bot. Wash		7.3	224.9
+55 top Bank.		6.5	225.7
35+00		6.0	r26.2
+15		5.5	r26.7

	232.17			
35+50		7.5	r24.7	
36+00 = top Bank.		9.0	r23.2	
+08 = Bot. Wash.		10.3	r21.9	
+50 = " "		12.9	219.3	
+60 = top Bank.		11.3	r20.9	
37+00		10.5	r21.7	
+50		12.0	220.r	
38+00		13.5	r18.7	
T.P.	1.13 220.84	12.46	219.71	
+50		2.6	218.2	
+70 = top Bank.		2.8	218.0	
+75 = Bot. Wash		4.6	216.2	
39+00 " "		5.0	215.8	
+40 " "		5.9	r14.9	
+45 = top Bank.		4.5	r16.3	
40+00		6.7	r14.1	P.O.T. Nail
+40 top "		9.0	211.8	
+54 = Bottom Wash		11.8	r09.0	
+60 top Bank		9.8	r11.0	
41+00		10.9	r09.9	
+35 " "		10.2	210.6	
+40 = Bot. Wash		12.2	r08.6	
+50 " "		12.7	208.1	
T.P.	2.09 210.13	12.80	208.04	
42+00 Bot. Wash		3.9	206.2	
+50 " "		5.0	205.1	
+65 = " "		4.3	r05.8	

210.13

43+00 = Bot. Wash		5.5	204.6
+45 = " "		7.2	202.9
+50 = Top Bank		5.2	204.9
+85 " "		5.8	204.3
+90 = Bot. Wash N.E.		7.6	202.5
44+00 Top Bank.		6.0	204.1
+40 " "		7.3	202.8
+45 Bot. Wash.		9.7	200.4
+70 " "		10.5	199.6
45+00 " "		10.2	199.9
+50 " "		11.5	198.6
+60 Top Bank.		9.5	200.6
46+00		10.8	199.3
+50		12.1	198.0
+92.96	11.82 on stub = a 210.23	11.72	198.41
Chk. E Perry St. Ext.	17+68.02 = B.C. Hub	6.58	203.65

Sec Book 1402-9

Levels on Existing M.H.
as shown on opposite page

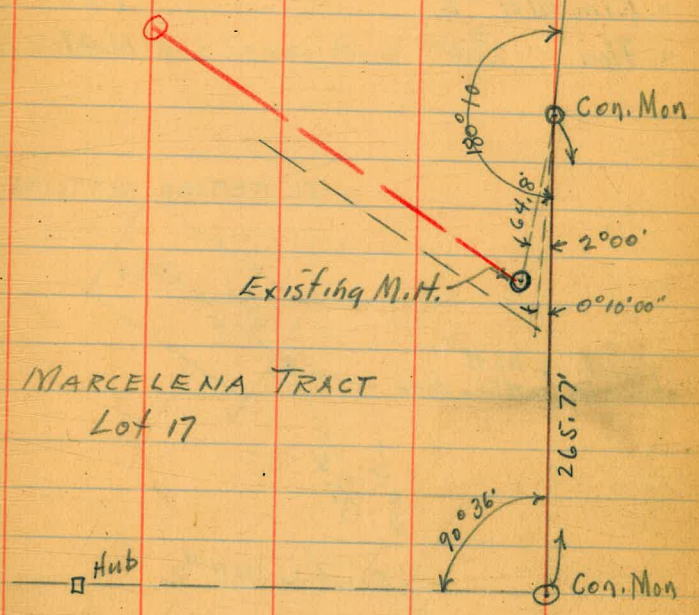
	11.27	339.37	328.10	BM on stub 5'Lt 0+00
on Rim M.H.		3.02	336.35	
" Flow Line		9.55	329.82	
			F.L. 322.70	
2+58 = New M.H.				
7-13-49 Moore Begg Sherman Sisson		W.O. 20009		
2	+50		322.92	
			15.97	
			9.48	
			C 6.49	
2			324.30	
			14.59	
			7.82	
			C 6.77	
	+50		325.68	
			13.21	
			6.97	
			C 6.24	
1			327.06	
			11.83	
			7.35	
			C 4.48	
	0+50		328.44	
			10.45	
			5.92	
			C 4.53	
Ex. M.H. =	0+00		329.82	
" Rim	2.54	338.89	336.35	B.M.

INDEXED
JUL 15 1949

28

Copied from Book 1245 p 78 G.R.H.
Walker 7-13-33

6.53



MARCELENA TRACT
Lot 17

REDLAND GARDENS

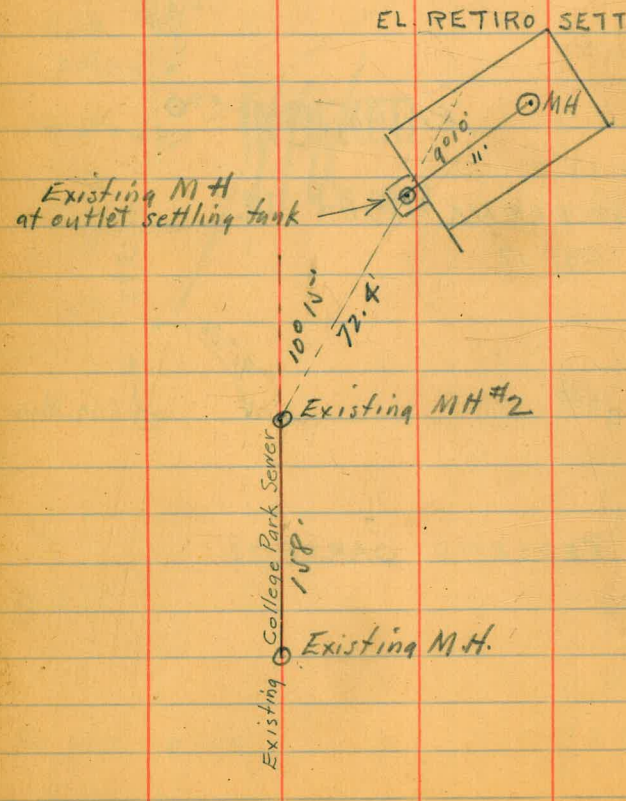
LEVELS on M.H. at
Settling Tank West of College Way
Copied from Book 1245 p 80 (G.R.H.)

Walker
7-13-33

on Rim MH outlet settling tank (396.70)		8.88	387.82
" Flow " " " "		15.37	381.33
" Rim MH #2		8.84	387.66
" Flow " #2		15.47	381.23

See Drg 4296-L Inlet pipe shown at Elev 383.00

= 381.05 on College Park Sewer Plans #395



8-3-33
Miller
Walker
Bliss

Proposed Sewer

from. Pump Sta #2 / Frisbie line to Ex Pump Sta
in. Soledad Ave. Bet. Ludington Place
& Whitefield Place

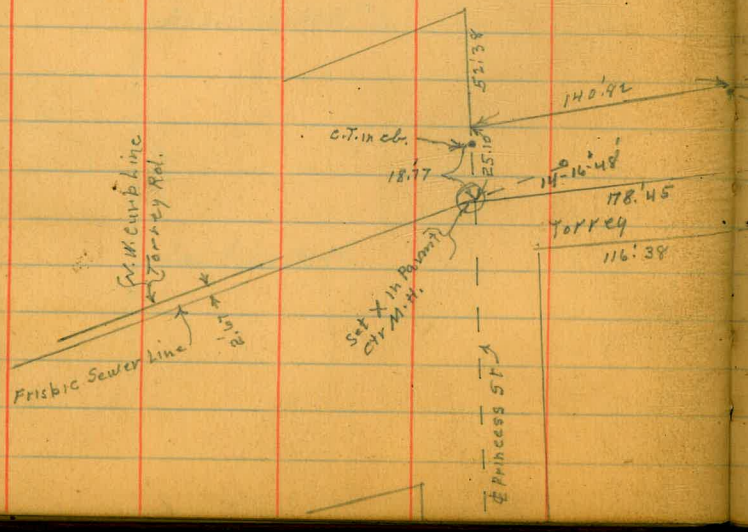
B.M. B.P.	0.57	246.40		245.83	S.E. Pepita & Exchange
T.P.	0.35	233.83	12.92	233.48	
T.P.	10.46	232.34	11.95	221.88	
B.M. B.P.			12.72	219.62	N. W. Mar & Exchange
chk.			9.46	222.88-222.8	Fire Hydt. Exchange & Soledad
T.P.	0.03	222.03	10.34	222.00	
T.P.	0.31	209.29	13.05	208.98	
B.M. B.P.			5.66	203.63	E. cb. Line Ludington Pl Produced. To S. cb. of Soledad. Ave
T.P.	0.32	196.52	13.09	196.20	
T.P.	1.54	184.98	13.08	183.44	

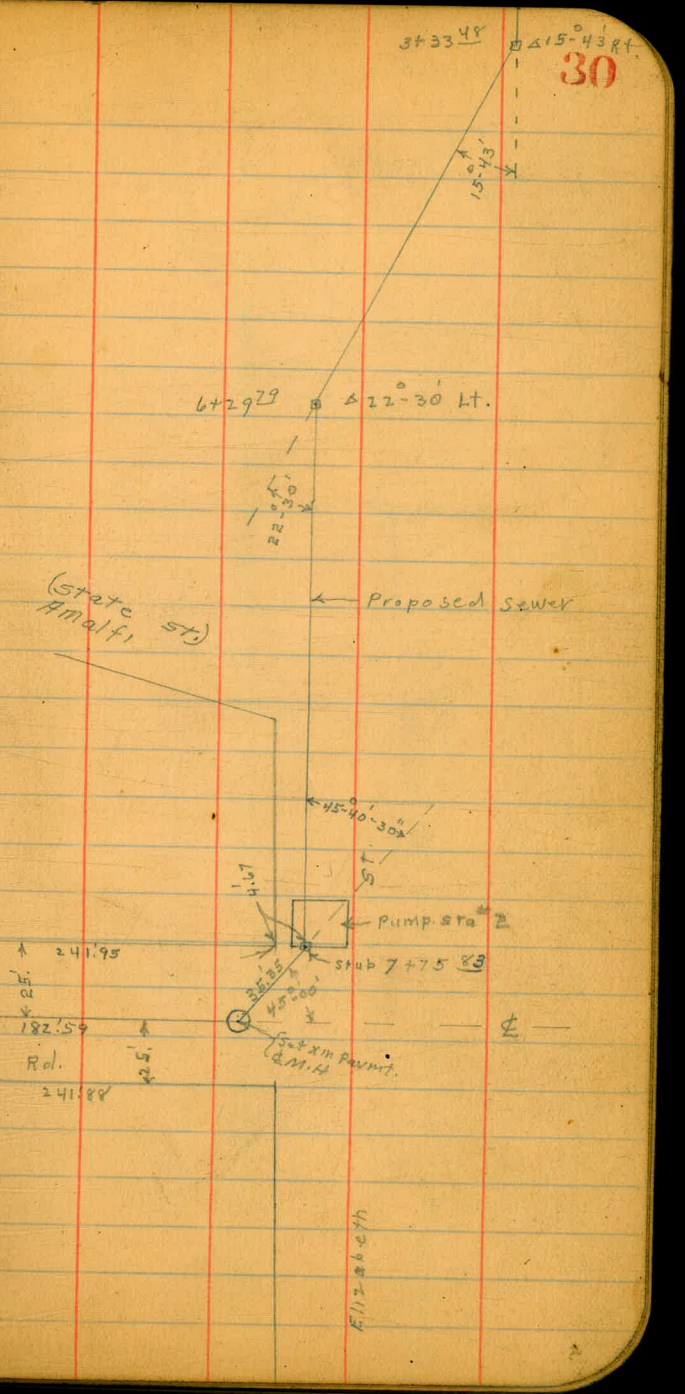
Indexed
c.s.k.

245.83

216.81 ?

222.77





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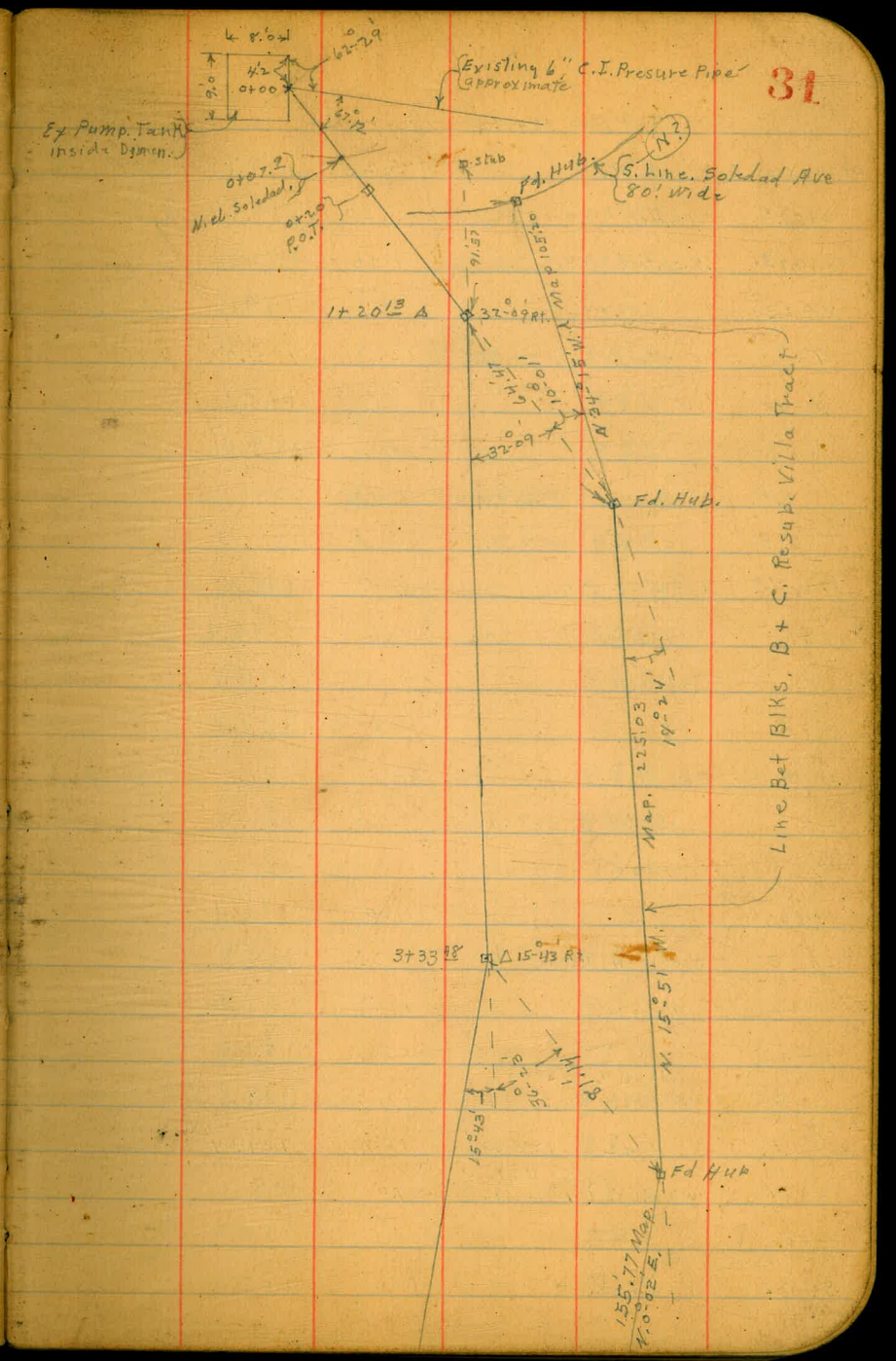

4 8.0±W
9.0'
4½
0+00
62°-29'
67°-12'
Existing 6" C.I. Pressure Pipe
Approximate
Ex Pump. Tank
Inside Dimen.
0+07.2
Nicl. Soledad
0+20
P.O.T.
P.Stub
Fd. Hub
S. Line. Soledad Ave
80' Wide
N.?
91.57
1+20.13 A
32°-09' Rt.
Map 105.40
N. 74° 51' W.
4.47
8.01
10.0
32°-09'
Fd. Hub
Line Bet BIKS. B + C. Resub. Villa Tract
Map. 225.03
18°-24'
N. 15°-51' W.
3+33.88
Δ 15°-43' Rt.
30°-0'
4.18
15°-43'
Fd Hub
155.77 Map
N. 0°-02' E.

Proposed Sewer
Resub Villa Tract

184.98 ✓ Page 30

0+00 = X on Ey.	Pump. sta.		5.23	179.75	over & outlet Pipe
0+07.8	Gutter		5.50	179.48	
0+07.9	N. cent. ch. of Soledad		4.96	180.02	
0+23			5.4	179.6	
T.P.	1.95	174.02 ✓	12.91	172.07 ✓	
0+48			8.4	165.6	
0+70			14.6	159.4	
T.P.	3.09	164.33 ✓	12.78	161.24 ✓	
T.P.	0.58	153.01 ✓	11.90	152.43 ✓	
1+20.13	Δ 32°-09' Rt.		4.33	148.68	on stub
1+27			6.6	146.4	Wash
1+53.13	P.O.T. Nail		8.9	144.1	"
1+75			16.0	137.0	"
1+85	Wash		22.0	131.0	
T.P.	5.09	148.40 ✓	9.70	143.31 ✓	
T.P.	1.37	137.37 ✓	12.40	136.00 ✓	
1+96			11.0	126.4	
2+06	Wash 4' Lt of ℄		7.6	129.8	
2+18	Wash.		12.2	125.2	
2+40	"		15.8	121.6	
2+65	Wash 6' Below. Wash is 6' Lt of ℄		17.6	119.8	
T.P.	0.42	125.06 ✓	12.73	124.64 ✓	
2+78	Wash 15 { 5' Below 4' to Lt.		7.0	118.1	
2+96			14.4	110.7	
3+02	In wash.		19.4	105.7	

125.06

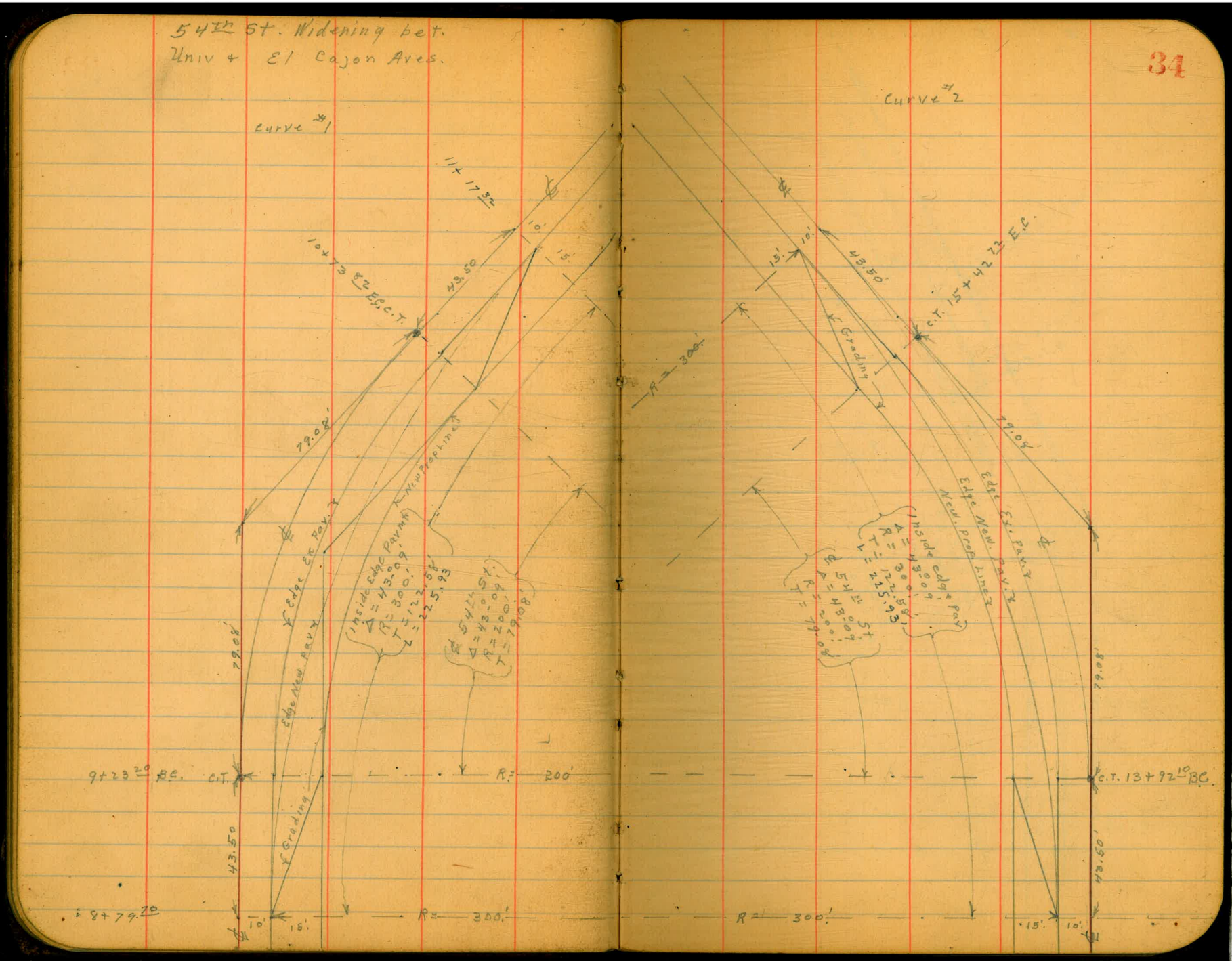
616.26

32

3+05			13.6	111.5	
3' Rt of 3+05	In Wash.		19.3	105.8	
3+33.48	Δ 15°-43' Rt.		14.14	110.92	
8' Rt of 3+33.48	In wash		23.6	101.5	
T.P.	2.96	113.88 ✓	14.14	110.92 ✓	
3+58			8.9	105.0	
3+70	ctr Wash.		14.7	99.2	
4+03			16.7	97.2	
T.P.	2.90	103.96 ✓	12.82	101.06 ✓	
4+28			7.3	96.7	
4+35	In wash		11.8	92.2	
4+75	" "		13.2	90.8	
5+41	" "		17.5	86.5	
T.P.	3.26	94.37 ✓	12.85	91.11 ✓	
5+70	Wash.		9.5	84.9	
6+13	"		12.0	82.4	
4' to Rt of 6+13	= Wash		16.0	78.4	
T.P.	5.27	87.48 ✓	12.16	82.21 ✓	
6+20			5.0	82.5	
6+29.19	Δ 22°-30' Lt		7.8	77.7	Hub.
6+57			9.8	77.7	
6+68	S. side graded Rd		5.0	82.5	
6+90	N " " "		5.4	82.1	
7+00			9.5	78.0	
7+11			13.4	74.1	
7+66			15.8	71.7	
6.5 Lt of 7+60	{ F.L. 20" Vitrified Culvert under Torrey Rd		18.9	68.6	Intake.

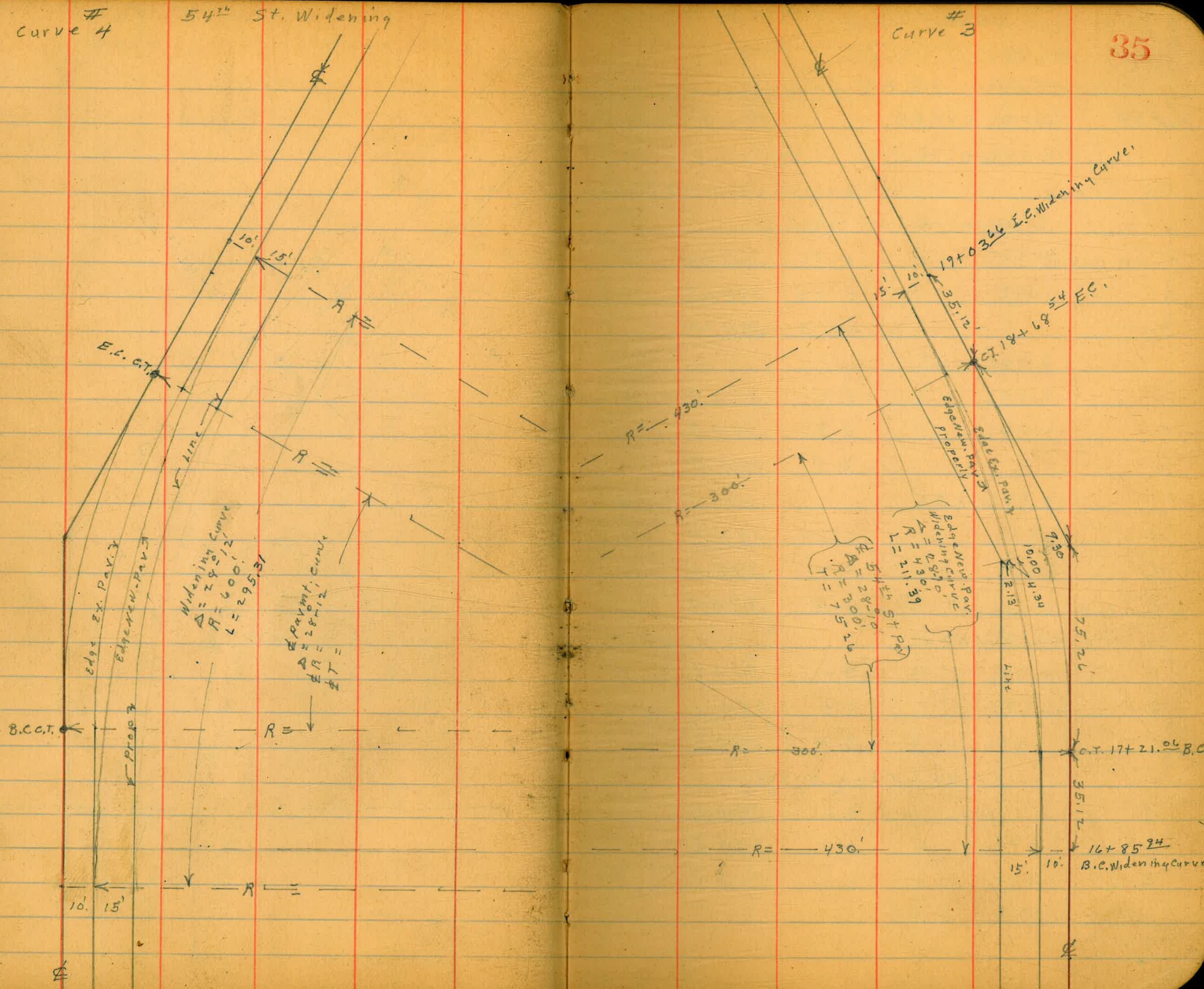
		87.48			
7+75 83 stub inlet S. side Pump. Sta.			7.00	80.48	
T.P.	6.70	89.74	4.44	83.04	
T.P	0.91	78.39	12.26	77.48	
B.M. BP.			9.48	68.91 = 69.06	S.W. Princess & Spindrift.
				69.323 ?	

54th St. Widening bet. Univ & El Cajon Aves.



Curve #4 54th St. Widening

Curve #3



9-22-34
Millr
Walker
Bliss

X See Alley Blk 24 Normal Hts

bet. Mansfield & Hawley - Adams & Collier

E. & W. Alley

B.M. BP	4.70	397.48	
		392.78	S.E. Adams & Mansfield

40' W. of E. Line Hawley

Ex. Cross. El. 288.6 Bottom Pipe

0+00 = E. Line Hawley.

N. on pavmt.	4.50	392.98
℄ " "	4.85	392.63
S " "	4.73	392.75
0+25		
S	3.5	394.0
℄	3.3	394.2
N	2.7	394.8
0+50		
N	2.6	394.9
℄	3.2	394.3
S	3.4	394.1
1+00		
S	3.4	394.1
℄	3.4	394.1
N	3.2	394.3

1+25. = W. Line N. & S. Alley

N	3.3	394.2
℄	3.3	394.2
S.	3.3	394.2

Indexed
C.S.K.

397.48 Plotted. C.S.K.

1+40 E. Line N. & S. Alley 36

S	3.8	393.7
℄	3.9	393.6
N	3.7	393.8
1+50		
N	3.4	393.7
℄	4.0	393.5
S	4.0	393.5
2+00		
S	3.9	393.6
℄	4.0	393.5
N	4.1	393.4
2+40		
N	3.9	393.6
℄	3.8	393.7
S	3.7	393.8

2+65 3 = W. Line Mansfield

S. Pav	4.64	392.84
℄ "	4.78	392.70
N "	4.76	392.72
40. E. of W. Line = Cross. T.P. 5.36	399.36	3.48 394.06

N. & S. Alley.

0+00 = N. Line E. & W. Alley

W	5.1	394.3
℄	5.4	394.0
E	5.4	394.0

399.36

0+25 N

E		5.1	394.3
℄		5.1	394.3
W		4.7	394.7

0+39 N

℄ on Top M.H.		5.18	394.18

0+60

W		4.3	395.1
℄		4.7	394.7
E		4.6	394.8

1+00

E		5.0	394.4
℄		4.8	394.6
W		4.9	394.5

1+50

W		5.2	394.2
℄		5.0	394.4
E		5.2	394.2

2+00

E		5.3	394.1
℄		5.1	394.3
W		5.2	394.2

2+25

W		5.1	394.3
℄		5.5	393.9
E		5.2	394.2

399.36

2+50

E		4.7	394.7
℄		5.2	394.2
W		5.0	394.4

2+90

W		5.6	393.8
℄		5.8	393.6
E		5.9	393.5

3+00 = S. Line Collier
3+01.5 = S. Edge cmt. Walk

No. Alleg Returns

E. on cmt. walk			6.35	393.01
℄			6.5	392.9
W on cmt. walk			6.31	393.05

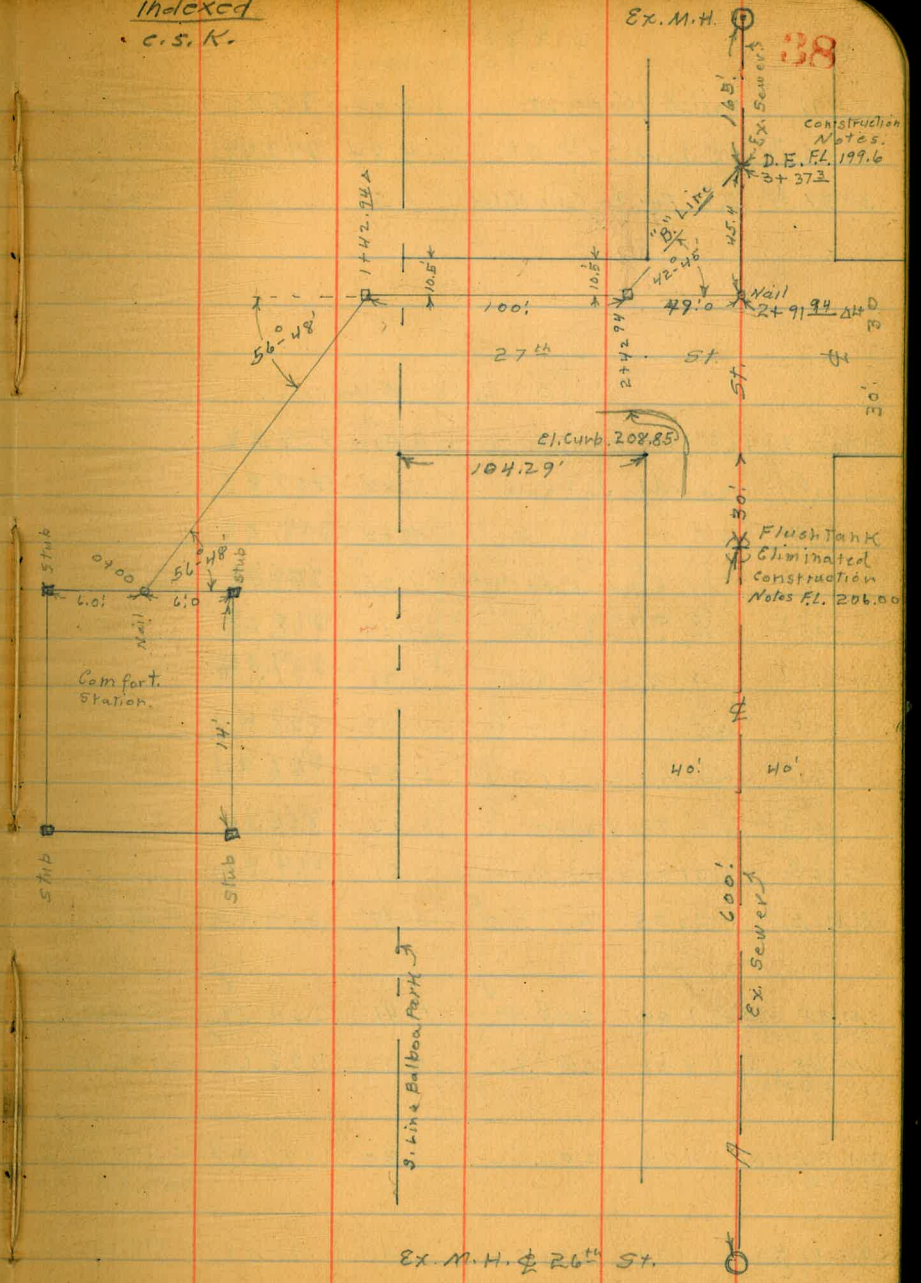
3+12 = S. el. Collier

W cmt. el.			6.77	392.59
℄			7.0	392.4
E. cmt. el.			6.64	392.72
T.P.	3.54	397.54	5.36	394.00
orig BM			4.74	392.80 = 392.78

9- -34 Sewer to Serve Club House.
Miller
Walker
Bliss
W. of 27th St. N. of S. Line Balboa Park.

Indexed
C. S. K.

B.M. B.P.	12.43	209.40		196.97	N.W. 27th + B. Sts
Set. B.M. B.P.	5.93	214.78	0.55	208.85	N.W. 27th + A. Sts
S. E. Cor.	House	on stub	1.38	213.40	
S. W "	"	" "	0.93	213.85	
N. W "	"	" "	0.70	214.08	
N E. "	"	" "	1.11	213.67	
	Sewer Levels				
0+00			1.2	213.6	
0+33. Gate in Fence			3.3	211.5	
0+50			4.5	210.3	
1+00			7.1	207.7	
1+42.94 Δ 56°-48 Rt.			8.36	206.42	
1+48.50			8.0	206.8	
3.4' West. of 1+48.50 = N. End cmt. ch.			8.01	206.77	
3.4' " " " = N. End. Pavmt			8.50	206.28	gutter
1.3' East. = w. edge cmt. Walk.			7.90	206.88	
T.P.	5.91	212.33	8.36	206.42	
1+92.74 = N. edge cmt. Walk			5.01	207.32	
1+96.74 = S " " "			4.97	207.36	
3.0' W. of 2+12.7 = Tel. Guy Pole 0-9" Diam					
2+15			4.9	207.4	
2+42.94 Stub			4.51	207.82	
2+51.94 = N. Line A St. = N. End cmt. Ret			4.36	207.97	
2+63.70 Cmt. d. Return			4.38	207.95	
2+63.80 gutter on pav.			5.01	207.32	



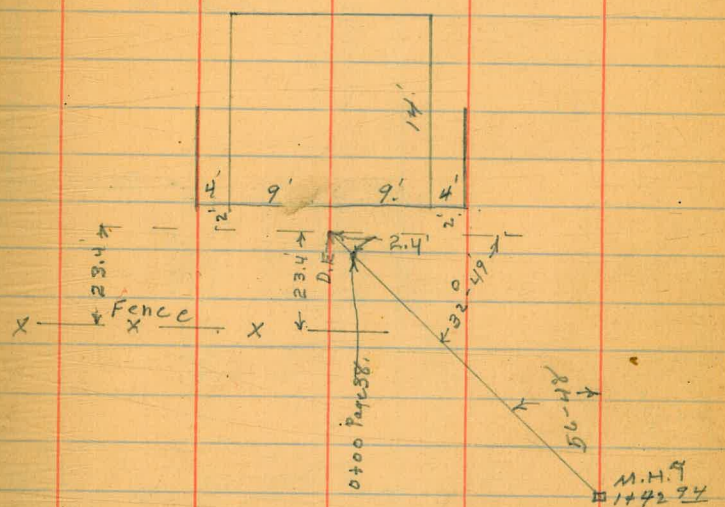
212.33

2+91 94	Nail △ 90°-00' Lt.		4.43	207.90	℄ A. St.
3+02 44	= E. Line 27th St		4.84	207.49 ✓	
3+37 30	D.E. Acc. to Cons. Notes		7.51	204.82	F.L. Acc. To Cons. Notes 199.6

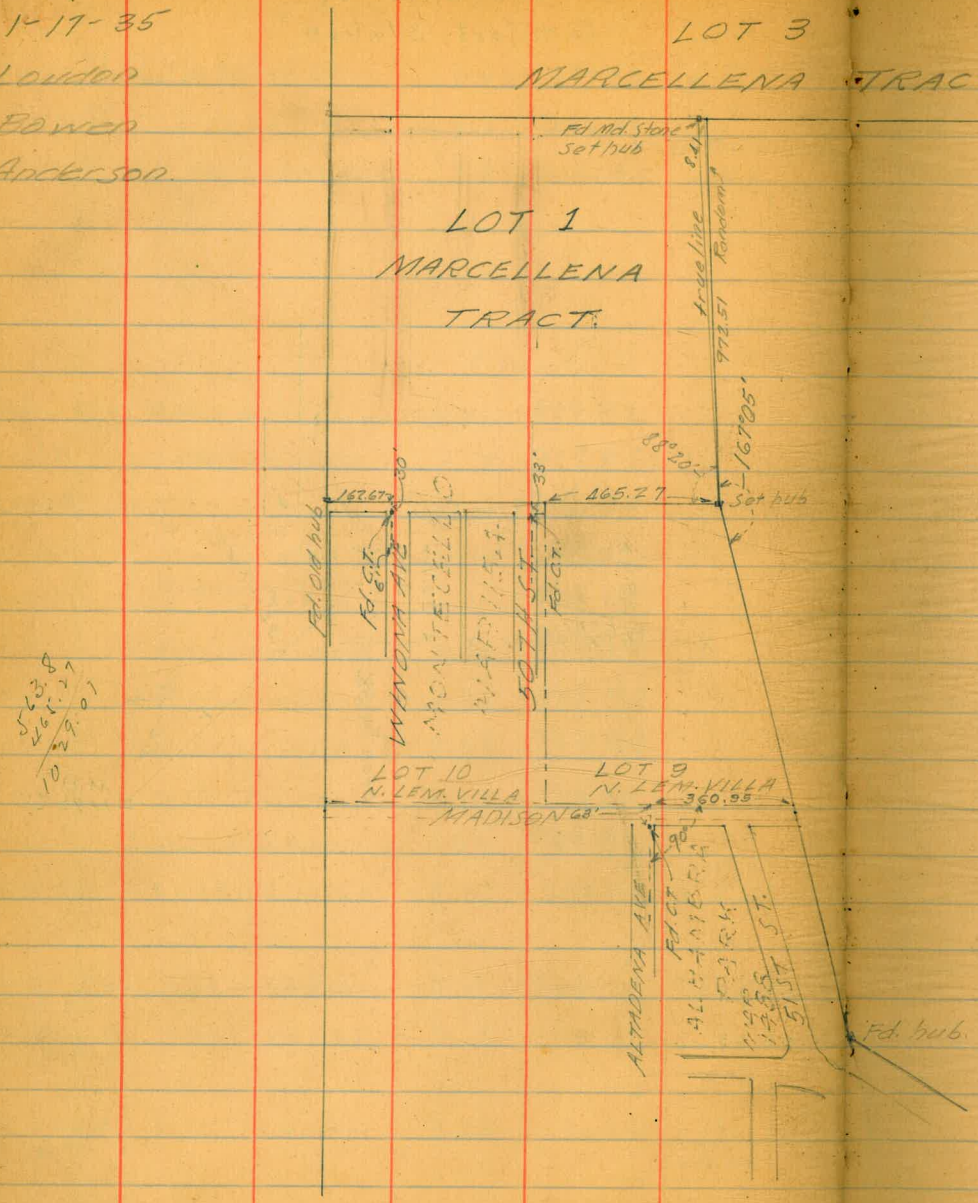
"B" Line Alternate.

0+00 = 2+42 94	Stub Main line	4.51	207.82	
0+01 8	= W. edge cmt walk	4.48	207.85	
0+09 6	= E " " "	4.33	208.00	
0+12 4	= {N. edge cmt. Return {N. Line A. St.	4.25	208.08	
0+15 4	= {E. edge cmt. Return {E. Line 27th St.	4.24	208.09	
0+17 9	= N. edge cmt. walk	4.39	207.94	
0+25	= S. edge cmt. walk	4.93	208.40	
0+31 4	= N. cmt. ch. of A. St	5.39	206.94	
0+31 5	= Gutter Pavmt.	6.13	206.20	
0+66 8	= 3+37 3 D.E. Main line	7.51	204.82 ✓	
B.M. B.P.	2.35	211.20 ✓	3.48	208.85 ✓	N.W. 27th & A. Sts.
B.M. B.P. N.W. 26th & A. Sts.	1.02	205.81 ✓	6.41	204.79 ✓	= 205.03 Error 0.24
B.M. B.P. S.W. 26th & B Sts	4.59	201.28	9.12	196.69	= 196.92 Error 0.23
B.M. B.P. N.W. 27th & B. Sts.	4.75	201.72	4.30	196.98 ✓	= 196.97 Orig. B.M.
B.M. B.P. S.W. 27th & C. St.	1.74	200.02	3.44	198.28	= 198.05
B.M. B.P. N.W. 27th & B Broadway			9.14	190.88	= 190.93

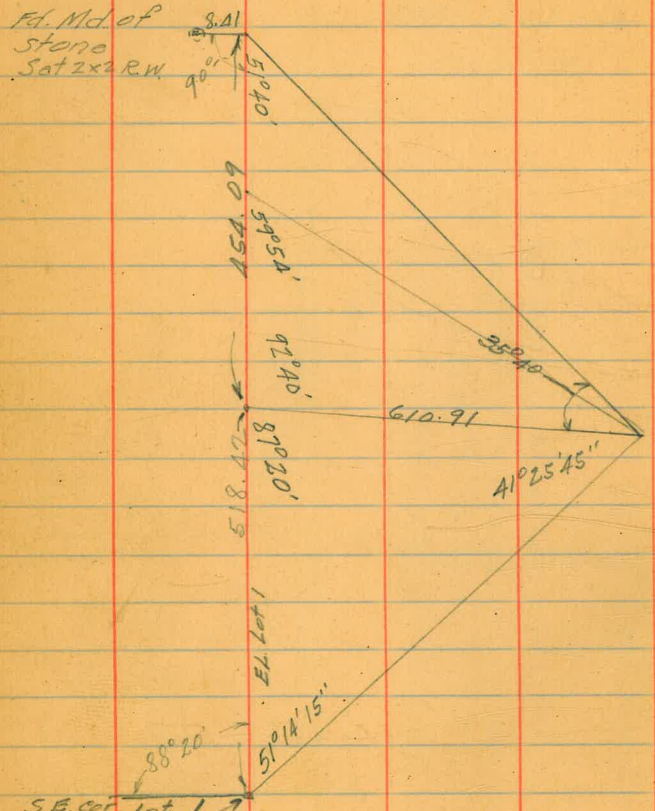
Relocation of Comfort Station



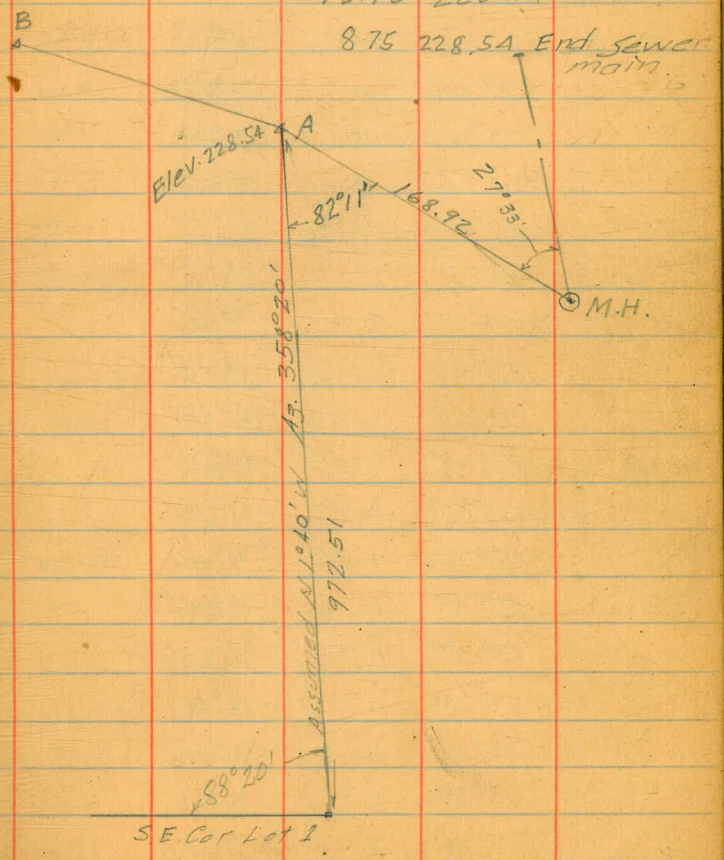
1-17-35
Loudon
Bowen
Anderson



Land ties for topog for disposal plant in Lot 2 Marcellena



17+46.28 ℄	0.69	268.59		267.9	54th St. Ext.
	1.56	258.30	11.85	256.74	
	3.84	249.52	12.62	245.68	
	-0.03	237.29	12.20	237.32	
			12.10	225.19	
			8.75	228.54	End sewer main.



Topog for disposal plant in canyon Lot 22 Marcellena.

	Az.	Stad.	V.A.	
Inst at A		B.S	SE Cor Lot 1	HI inst = 5.2
	358°20'			
"B"	271°41'	2.18	+7°33	
Inst at "B"		B.S. on A		HI inst = 5.1
	271°41			
	322°14	4.25	-6°06	
	329°30'	4.00	-5°54'	
	329°30'	4.28	-5°56'	
	338°25	3.60	-6°25'	
	347°46'	2.98	-7°13'	
	0°28'	2.69	-8°30'	
	359°14'	2.55	-9°00'	
	20°46'	2.18	-9°43'	
	21°20'	2.29	-10°03'	
	32°38'	2.05	-10°25'	
	32°52'	2.10	-10°25'	
	44°46'	1.76	-11°50'	
	45°45'	1.86	-11°46'	
	63°35'	1.74	-11°25'	
	63°35'	1.73	-12°00'	
	76°13'	1.73	-10°36'	
	75°55'	1.76	-11°51'	
	82°00'	2.00	-9°00'	
	81°16'	2.04	-10°00'	
	88°44'	2.30	-7°36'	

North = 0°0' Az. (clock-wise)

Hor. Dist.	Diff. Elev.	Elev.	
214.3	+28.40	256.9	
420.4	44.91	217.0 208.6	Top of Bank 3.4' high
395.9	40.90	212.0	up 4.0
413.6	44.00	207.9	up 5.0
355.6	39.98	213.9 210.9	up 3.0 top 3' bank
293.3	37.01	216.9 214.4	up 3.0 top 2.5 bank
263.1	39.37	217.6 216.6	top 1.0 bank
248.8	39.40	217.5 215.5	top 2' bank
211.8	36.76	220.6	
222.13	39.35	217.5	
191.0	36.40	220.5	top of bank
203.0	37.40	216.5	up 3.0 bottom of bank
168.5	35.40	221.5	
178.0	37.0	219.9	
168.0	33.75	223.1	
165.5	35.70	221.7	
167.0	31.4	225.7	
168.0	35.5	221.4	
195.0	30.9	226.0	
198.0	34.9	222.0	
216.0	30.1	226.8 225.3 (1.5)	top 1.5' bank

cont. from page 42

A_3	Stad.	V.A.
84° 15′	2.39	− 7° 41′
82° 00′	2.40	− 8° 04′
83° 55′	2.86	− 6° 25′
84° 05′	3.01	− 5° 47′
83° 20′	3.00	− 6° 14′
94° 54′	2.93	− 4° 23′
92° 22′	1.37	− 9° 52′
84° 05′	0.88	− 10° 35′
66° 48′	0.60	− 19° 40′
351° 10′	0.54	− 16° 50′
347° 58′	0.89	− 9° 28′
338° 24′	1.11	− 10° 00′
335° 00′	1.24	− 8° 15′
326° 27′	1.51	− 6° 41′
323° 27′	1.90	− 5° 50′
327° 46′	2.20	− 8° 05′
327° 15′	2.68	− 8° 03′
325° 46′	3.00	− 7° 02′
323° 38′	2.40	− 6° 11′
329° 13′	3.50	− 6° 58′
330° 47′	2.82	− 7° 51′
339° 53′	2.10	− 10° 23′
352° 46′	1.66	− 10° 30′
11° 46′	1.46	− 12° 06′
34° 55′	1.19	− 13° 28′

Hor Dist.	Diff. Elev.	Elev.		
234.7	31.67	225.2		
235.4	33.34	223.6		
282.5	31.76	225.1		top of 2.7′ bank
298.1	30.18	226.7		
296.5	32.38	224.5		flow line, end of pipe
291.3	27.37	229.6	up 5.0	
133.5	23.21	233.7		
85.0	15.9	236.0	up 5.0	
53.2	19.0	237.9		
49.5	17.1	239.8		
86.4	14.3	237.6	up 5.0	
107.5	18.95	233.9	up 5.0	
121.0	17.60	236.3	up 3.0	
149.0	17.40	233.5	up 6.0	
188.0	19.70	233.7	up 4.0	
215.0	21.6	219.3	up 6.0	
276.0	37.2	219.7		
295.5	36.46	218.4	up 2.0	
237.4	25.70	225.2	up 6.0	
345.0	27.14	214.8		
276.8	38.30	218.6		
283.0	37.30	219.6		
161.0	29.75	223.1	up 4.0	
140.0	29.90	227.0		
115.5	26.90	230.0		

cont. from page 43

A_3	Stad.	V.A.	Hor Dist	Diff Elev	Elev.				
71° 46′	1.26	−13° 11′	119.5	27.9	229.0				
90° 17′	1.71	−12° 36′	163.0	36.4	217.5		up 3.0		
101° 50′	2.03	− 3° 07′	202.0	10.5	235.4		up 11.0		
101° 46′	2.77	− 3° 44′	275.0	18.1	232.8		up 6.0		
103° 07′	3.43	− 2° 45′	341.0	16.45	235.4		up 5.0		
101° 55′	3.88	− 3° 21′	385.0	22.6	234.3				
104° 08′	1.10	−5° 10′	104.5	9.90	247.9				
104° 44′	0.63	−4° 55′	62.5	5.20	251.5				
104° 52′	0.38	−6° 00′	37.5	3.95	252.9				
310° 14′	0.40	−7° 00′	39.4	4.83	252.1				
330° 45′	−1.16	+0° 47′	116.0	+1.58	255.5		up 3.0		
322° 41′	5.00	−5° 42′	495.1	49.56	207.4				
322° 03′	5.00	−5° 54′	494.8	51.17	205.8				
328° 30′	4.35	−6° 10′	430.0	46.46	210.4				
333° 40′	4.55	−5° 34′	450.8	43.93	207.3	Top of North bank			3.1 high
338° 24′	4.20	−5° 58′	415.7	43.47	213.0				
351° 35′	3.20	−7° 20′	314.8	40.51	209.3	"	"	"	3.7 "
4° 19′	3.00	−7° 03′	295.5	36.54	213.5				
11° 57′	2.74	−7° 40′	270.1	36.21	211.4	"	"	"	2.3 "
21° 57′	2.42	−8° 50′	236.3	36.88	216.4				
28° 40′	2.25	−9° 15′	214.4	34.90	213.5	"	"	"	2.9 "
49° 34′	2.11	−9° 32′	205.4	32.46	220.7				
49° 34′	1.90	−11° 32′	187.0	39.20	218.4	"	"	"	2.5 "
63° 33′	2.05	−9° 33′	199.0	33.50	220.0				
63° 45′	2.00	−10° 50′	193.0	37.1	218.3	"	"	"	1.7 "
					222.0				
					215.9	"	"	"	4.1 "
					222.4	"	"	"	
					219.7				
					223.4	"	"	"	
					219.8				

A_3	Stad	V.A.	Hor Dist	Diff. Elev	Elev.	
76° 11′	1.90	−10° 18′	184.0	33.4	2v3.5 Top of North bank	
77° 55′	1.84	−10° 30′	178.0	32.9	2v2.0	up 2.0
79° 15′	2.32	− 7° 27′	2v8.0	29.80	2v5.1 " " " "	up 2.0
81° 25′	2.35	−8° 20′	230.0	33.70	2v3.2	
80° 30′	2.98	−5° 54′	295.0	30.6	2v7.9 " " " "	1.6 high
					16	
					2v63	

	Az.	Stadia	V.A.						
Inst at	358°20	"A"	B.S. SE Cor Lot 1			HI inst = 5.1			
"C"	33°23'	1.85	+4°06'	184.1	13.19	241.73			
Inst at "C"	B.S. on "A"					HI inst = 4.8			
	33°23'			Hor Dist.	Diff. Elev.	Elev.			
	160°53'	1.17	−7°16'	115.6	14.74	227.0	—	Top of S. Bank	
	161°20'	1.08	−5°45'	107.0	10.77	226.06	up 5.0	Bottom of Creek	
	158°20'	1.43	−4°55'	142.0	12.19	228.5 226.1	—	Top of S. Bank	1.8' H
	155°23'	1.70	−3°45'	169.3	11.09	226.6 224.6	up 4.0'	S. Bank Jct. of Creek	2.0' H
	149°56'	1.76	−3°39'	175.0	11.18	230.5 228.1	—	S.E " " " "	2.4 H
	132°10'	2.03	−2°30'	202.6	8.84	229.3 232.9	—	S Bank	3.6 H
	120°09'	2.50	−0°00'	250.0	0	232.3 234.1	up 7.0'	S. Bank	2.4 H
	123°17'	2.73	−0°12'	273.0	.94	233.3 234.8	up 6.0	S. "	1.5 H
	127°00'	3.25	−0°13'	325.0	1.23	235.5	up 5.0'	S. Brush Line	
	138°01'	2.70	−1°00'	269.9	4.71	237.0	—	S. " "	
	150°29'	3.17	+0°10'	317.0	0.92	238.8	up 3.0'	S. " "	
	146°08'	2.47	−1°45'	246.8	7.58	234.1			
	155°24'	2.18	−2°00'	217.7	7.56	233.1 230.1	up 2.0'	E Bank S. Branch	2.4 H
	157°14'	2.25	−2°22'	224.6	9.28	230.0 232.4	—	W. " S. "	2.4 H
	139°18'	2.15	−1°32'	214.9	5.75	233.0	up 3.0'		
	121°56'	2.41	−1°40'	240.8	7.01	234.7	—		
	130°55'	2.46	−1°48'	246.8	7.70	234.0	—		
	118°16'	3.75	−0°33'	375.0	3.60	238.1	—	Sewer Line	
	117°05'	3.50	+0°20'	350.0	2.04	233.7	up 4.0'	N. Bank Maine Crk	
	120°26'	3.03	−0°02'	303.0	.17	236.5	up 5.0'		

Con't from page 46

	Az.	Sta	V.A	Hor't Dist.	Diff Elev	Elev.	ups	Desc't	
						232.1			
	116°52'	2.88	+0°05'	288.0	0.42	235.3	up. 6.0'	Top. N. Bank	3.2 H
	124°55'	1.63	-2°28'	162.7	7.00	231.7	up 3.0'	N. Side Creek	
	143°40'	1.10	-5°07'	109.2	9.77	231.9		N. Side Creek	
	196°24'	0.78	-8°46'	76.2	11.75	228.0	up. 2.0'	N. side Creek	
	236°33'	1.20	-5°57'	118.8	12.37	225.3	up 4.0'		
	289°44'	1.46	-5°15'	144.8	13.30	224.4	up. 4.0'	N. of Flat.	
	266°46'	0.51	-17°05'	46.7	14.3	227.4		"	
	181°06'	0.32	-14°32'	30.0	7.5	232.2	up. 2.0'	"	
	157°08'	0.89	-7°23'	87.5	11.34	230.4			
	139°04	1.05	-4°53'	104.3	8.91	232.8			
	117°15	1.37	-0°30'	137.0	1.70	233.5	up 7.0'		
	129°29'	0.99	-3°17'	98.7	5.66	234.0	up 2.0'		
	139°26	1.49	-6°50'	146.9	17.60	224.1			
"D"	276°59'	2.60	-4°29	258.5	20.26	221.47			
	Inst at D BS on C			Ht. = 4.8					
"E"	331°21'	3.18	+2°53'	317.2	15.98	237.45			
	Inst at E BS on D			Ht. = 4.8					
						216.2			
	173°58'	1.98	-5°46'	197.1	19.79	217.76		S. Bank Cr.	1.5 H
						214.8			
	192°28'	1.67	-7°27'	164.3	21.47	216.0		S. " "	1.2 H
	219°33'	1.20	-12°00'	115.0	24.40	213.1		S. " "	
	219°00'	1.06	-14°41'	99.2	25.90	211.6		Bottom Cr.	
	234°20'	1.30	-11°36'	125.0	25.50	212.0		S. Bank Cr	
	239°50'	1.31	-12°26'	125.0	27.50	210.0		Bottom Cr	
						208.6			
	230°15'	1.52	-9°51'	147.5	25.60	211.9		S. Bank	2.3 H
						208.3			
	233°54'	2.00	-7°19'	196.9	25.76	212.2		S. "	3.9 H

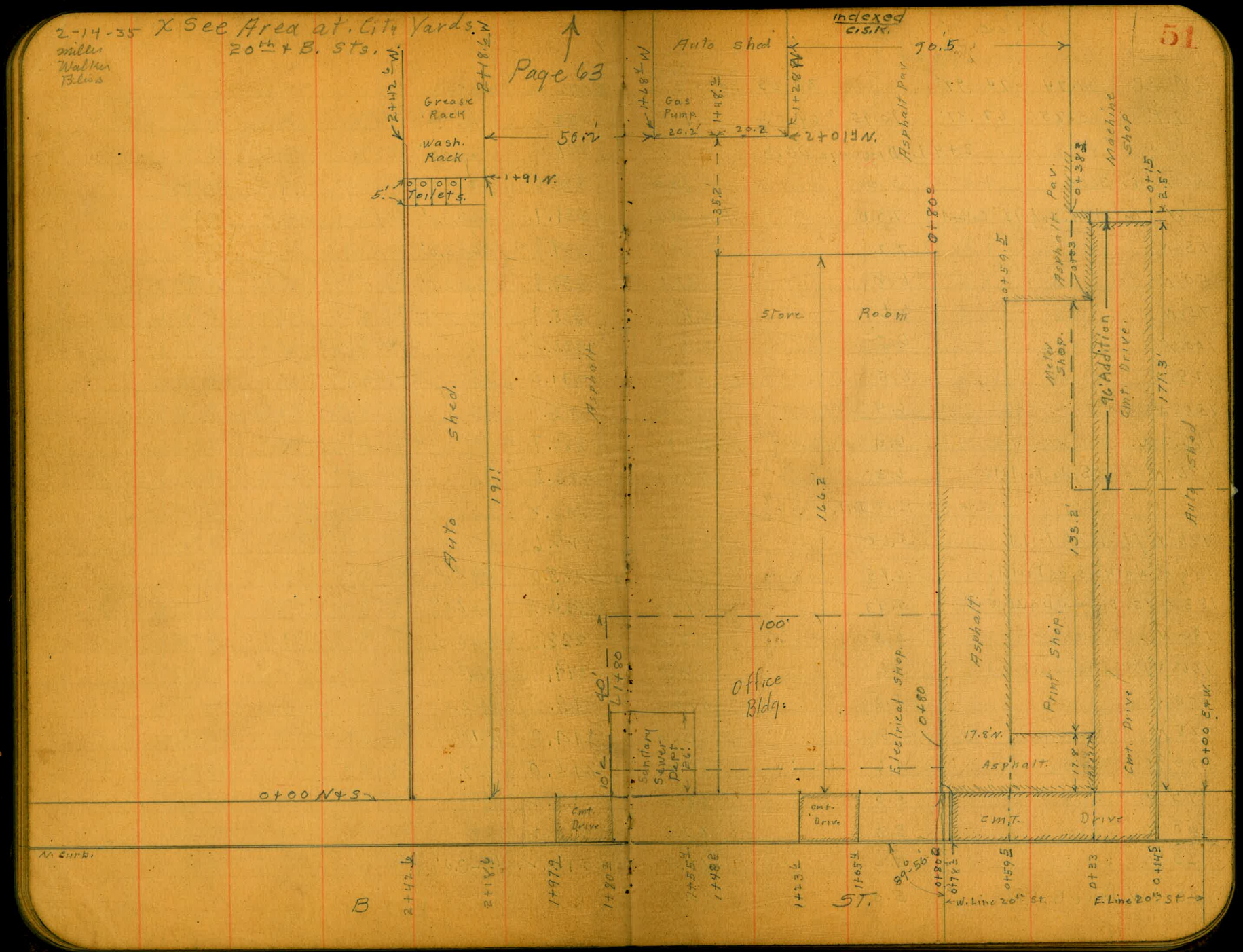
Cont'd from Page 47

Az.	Sta	V. A	Hor. Dist.	Diff Elev	Elev.				
					208.5				
239°17'	2.25	-6°17'	222.4	24.48	213.0		S Bank	Creek	4.5 H
					208.1				
245°15'	2.48	-6°27'	245.0	27.70	209.8		S "	"	1.7 H
					206.6				
258°25'	2.59	-6°39'	255.7	29.80	207.7		S "	"	1.1 H
					205.6				
267°25'	2.93	-6°08'	289.8	31.14	206.4		S "	"	0.8 H
					206.5				
270°54'	2.68	-5°27'	265.7	25.33	209.2	up 3.0'	N "	"	2.7 H
					207.7				
262°14'	2.30	-7°00'	226.6	27.87	209.7		N. "	"	2.0 H
254°20'	1.58	-8°04'	184.3	26.17	211.4		N. "	"	
253°07'	1.95	-8°22'	190.9	28.07	209.4		N. "	"	
242°02'	1.93	-5°44'	191.9	19.18	218.3		N. "	"	
238°29'	2.16	-8°02'	211.8	29.83	207.7		Bottom	"	
					207.9				
237°01'	1.48	-10°26'	143.0	26.40	211.1		N. Bank	Cr.	3.2 H
241°00'	1.12	-12°41'	103.4	24.10	213.4		N. "	"	
237°25'	1.20	-13°36'	113.5	27.20	210.1		Bottom	"	
					213.3				
240°38'	1.00	-13°27'	94.7	22.64	214.9		N. Bank	"	1.6 H
196°57'	1.02	-11°41'	97.8	20.23	214.3	up 3.0'	N. "	"	
183°24'	1.35	-9°05'	131.7	21.05	214.1	up 2.0'	N. "	"	
					214.4				
168°08'	1.52	-8°10'	149.0	21.37	216.1		N. "	"	1.7 H
					216.5				
152°28'	1.71	-4°42'	169.9	13.96	218.5	up 5.0'	N. "	"	2.0 H
190°52'	1.46	-9°18'	142.3	23.28	214.2		Island.		
176°40'	1.67	-7°42'	164.1	22.17	215.3		"		
156°17'	2.00	-4°30'	198.8	15.64	216.9	up 5.0'	"		
149°49'	2.40	-4°35'	238.5	19.17	218.4		"		
147°06'	3.08	-2°15'	307.6	17.09	220.4	up 5.0'	"		
162°32'	2.57'	-4°10'	255.7	18.62	218.9		S-Flat		
193°15'	2.14'	-5°12'	212.3	19.34	218.2		S Flat		

Az.	Sta	V. A	Hor Dist.	Diff. Elev.	Elev.		
224°50'	2.16	−6°30'	213.1	24.29	213.2		S. Flat.
238°44'	2.47	−3°42'	246.0	15.90	221.6		Side Hill
252°55'	3.28	−3°30'	321.8	19.68	217.8		" "
255°29'	3.18	−5°31'	310.2	29.96	208.5		S " Slope
221°45'	2.45	−2°22'	244.0	10.10	227.4		S " "
203°50'	2.50	−3°08'	249.0	14.80	222.7		S " "
182°55'	2.88	−2°55'	287.0	14.65	222.8		S " "
140°22'	1.62	+0°24'	162.0	1.13	230.4	up 6.0'	N. Side Slope
138°00'	1.10	+1°28'	110.0	2.81	228.7	up 6.0'	N. " "
164°14'	1.10	−7°02'	109.0	13.4	217.1	up 7.0'	Foot of n. Side Slope
175°51'	0.58	−12°35'	55.2	12.3	221.2	up 4.0'	" " N. " "
232°25'	0.68	−18°52°	61.0	20.8	216.7		" " N. " "
265°00'	1.34	−10°26°	129.5	23.9	213.7		" " N. " "
285°41'	1.27	−4°34'	126.0	10.1	217.4	up 13.0'	" N. " "
307°28'	1.01	−6°35'	100.0	11.5	218.0	up 8.0'	" N. " "
340°35'	1.04	−2°00'	103.5	3.62	221.9	up 12.0'	" N " "
351°36'	0.96	+2°02'	95.8	3.40	224.1	up 10.0'	N " "
325°13'	0.70	+0°57'	70.0	1.16	231.3	up 5.0'	N " "
288°38°	0.47	−7°48'	46.0	6.32	231.2	—	N " "
174°40'	0.26	−13°14'	24.6	5.80	231.7	"	N " "
143°15'	0.63	+1°21'	63.0	1.48	233.0	up 3.0'	N " "
336°52'	0.25	+3°20'	24.9	1.45	236.0	—	N " "
259°18'	1.03	−10°15'	99.5	18.0	219.5		
265°14'	1.20	−9°05'	116.5	18.70	218.9		
272°57'	1.13	−5°56'	112.0	11.60	219.9	up 6.0'	

Cont from page 49.

Az	Sta	V.A	Hor. Dist.	Diff. Elev	Elev.	
273°00'	0.91	-4°31'	90.1	7.75	223.2	up 7.0'
278°32'	0.69	-5°23'	68.5	6.45	227.0	up 4.0'
289°33'	0.60	-7°53	58.8	9.90	229.6	
312°50'	0.66	-2°26'	65.9	2.80	234.7	up 3.0'
328°05'	0.71	+1°21'	70.8	1.67	229.8	up 6.0'
348°01'	0.71	+1°23'	70.8	1.71	233.8	up 2.0'
314°00'	0.35	-2°35'	34.9	1.57	235.9	
288°00'	0.30	-8°00'	29.4	4.13	233.4	
253°45'	0.26	-14°50'	24.3	6.45	231.0	
250°38'	0.49	-14°05'	46.1	11.55	225.9	
261°02'	0.94	-9°51'	91.2	15.80	221.7	
254°02'	0.71	-12°26'	64.3	14.80	223.3	
239°03'	0.55	-16°51'	50.5	15.30	222.2	
215°00'	0.47	-19°41'	41.6	14.90	222.6	
195°25'	0.45	-16°52'	41.2	12.50	223.0	up 2.0'
286°20'	0.85	-4°58'	94.2	7.33	224.2	up 6.0'
290°14'	0.88	-5°15'	87.3	9.03	223.5	up 6.0'
336°15'	1.20	-2°17'	119.5	4.77	219.7	up 13.0'
306°48'	1.33	-6°58'	130.6	16.00	219.5	up 2.0'
283°05	1.40	-4°18'	139.3	10.47	214.0	up 13.0'
273°49	1.54	-6°12'	152.5	16.50	214.0	up 7.0'
263°36'	1.60	-8°51'	158.0	24.30	213.2	
263°38'	1.90	-7°25'	186.0	24.30	213.2	
284°01'	2.76	-5°05'	274.0	24.30	210.2	up 3.0'


2-14-35 X See Area at City Yards.
20th & B. Sts.
Miller Walker Bliss
Page 63
Indexed C.S.R.
51
Auto shed
70.5
Grease Rack
Wash. Rack
Toilets
50.2'
Gas Pump
20.2'
20.2
2+015 N.
Asphalt Pav.
Machine Shop
Store Room
Asphalt
Auto shed
191'
166.2'
35.2'
Motor Shop.
96' Addition
Cmt. Drive
171.3'
Print Shop.
133.2'
Office Bldg.
Electrical shop.
Sanitary sewer plant
100'
40'
10'
17.8' N.
Asphalt
Cmt. Drive
Cmt. Drive
Cmt. Drive
0+00 N & S
0+00 E & W.
N. Curb.
B
St.
W. Line 20th St.
E. Line 20th St.

Ysee City Yards.

B.M. B.P.	4.74	74.97 ✓		70.23	S.E. Cor. 20' ± B
T.P.	3.85	67.87 ✓	10.95	64.02	

2+41 = Drainage Ditch

00 = N. Line B. St		5.0	62.9
2' N	Inlet N. End 12" Culvert	7.20	FL 60.67
25' N		7.2	60.7
50' N		6.8	61.1
75' N		6.6	61.3
100' N		6.5	61.4
125' N		6.5	61.4
150' N		6.4	61.5
166.2 N.		6.4	61.5
186' N = S. Side Toilets		6.3	61.6

2 + 38 = E. of Ditch

186' N. floor of Toilets		5.60	62.3
186' N. Walk. S. of Toilets		6.15	61.72
183' N = S. Side above walk		5.93	61.94
180' N		5.5	62.4
166' N		5.6	62.3
150' N		5.5	62.4
125' N		5.5	62.4
100' N		5.6	62.3
75' N		5.5	62.4
50' N		5.3	62.6
25' N		5.2	62.7
00 = N. Line B. St.		5.0	62.9

67.87

2+20 = inside of shed

00 = N. Line B.		5.1	62.8
25' N.		5.5	62.4
50' N		5.5	62.4
75' N.		5.6	62.3
100' N.		5.9	62.0
125' N.		5.9	62.0
150' N.		5.8	62.1
166' N		5.8	62.1
183' N	S. E. Cor. walk in Front of Toilets	5.83	62.04
191' N.	N. End. Toilets	5.85	62.02

2+18.5 = E. Side Auto Shed = wedge asphalt Pav.

191' N. S. E. Cor Wash Rack		5.60	62.27 floor
183' N		6.1	61.8
166' N		6.0	61.9
150' N		6.0	61.9
125' N		6.1	61.8
100' N		6.2	61.7
75' N		5.95	61.92
50' N		5.95	61.92
25' N		5.67	62.20
00 = N. Line B. St	Inside Fence	5.37	62.50

See Page 56

2+05 W.

00 N. Line B. St		4.90	62.97
25' N		5.20	62.67
50' N		5.54	62.33
75' N		5.65	62.22
100' N		5.95	61.92

67.87

2+05 W. (con)

125' N			5.97	61.90
150' N			6.00	61.87
166' N			5.73	61.14
191' N			5.60	61.27
201.4' N.			5.53	61.34
T.P.	4.89	67.40 ✓	5.36	62.51 ✓

1+88 W.

201.4' N			4.92	61.48
191' N			5.05	61.35
166' N			5.02	61.38
150' N			5.01	61.39
125' N			5.03	61.37
100' N			4.96	61.44
75' N			4.88	61.52
50' N			4.76	61.64
25' N			4.32	63.08
00 = N. Line B. St.			3.39	64.01

1+80 = W.

00 = N. Line B. St.			3.32	64.08
5' N	floor sewer Dep		0.1	67.3
25' N			4.22	63.18
50' N			4.59	61.81
75' N			4.77	61.63
100' N			4.95	61.45
125' N			5.08	61.32
150' N			5.07	61.33
166' N			5.05	61.35

67.40

53

191' N			5.29	61.11
201.4' N.			5.62	61.78

1+48.4 W.

201.4' N	Floor S.W. Cor Gas. Pump.		4.89	61.51
201.4' N	pav. " " " " "		5.72	6168
TP	4.62	67.13 ✓	4.89	62.51 ✓

1+65 W.

195' N.	Top. on grating of 24" X 32" Catch Basin		5.54	61.59

1+60 W.

201.4' N			5.39	61.74
195' N			5.50	61,63
166' N			5.00	61.13
150' N			5.00	61.13
125' N			4.87	61.26
100' N			4.81	61.32
75' N			4.47	61.66
50' N			4.28	61.85
25' N			3.47	63.66

1+48 = W

25' N			3.30	63.83
50' N			3.64	63.49
60' N	floor Wood work shop		2.32	64.81
75' N			4.1	63.0
100' N			4.1	63.0
125' N			4.2	61.9
150' N			4.2	61.9

67.13

1+48 ± W (con)

166.2 N = N.W. cor Store Room.		4.30	62.83	
195' N		5.38	61.75	
201.4' N.		5.30	61.83	
	1+28. W			
201.4' N. = S.E. Cor. Auto Shed.		4.22	62.91	inside floor
201.4' N	" " " "	4.63	62.50	outside
197' N		4.77	62.36	
180' N		4.50	62.63	
T.P.	6.84	69.51	4.46	62.67
166.2 N			6.26	63.25
	1+14 W			
166.2 N.	Floor Store Room.		5.67	63.84
180' N			6.35	63.16
201.4 N			6.30	63.21

{E. Side Barn. 0+79.25 = gutter 0+78.5 = Pav. E. Edge gutter
0+80 = W. Edge drive}

201.4' N		5.77	63.74
187. N.		5.88	63.63
180' N		5.65	63.86
166' N.	N.E. Cor. Store Room.	5.08	64.43
151' N.	pav.	4.58	64.93
151' N.	in gutter	4.83	64.68
131" N.	floor in door way	4.47	65.04
125' N.	pav.	4.47	65.04
125' N.	gutter	4.69	64.83
100' N	"	4.34	65.17
100' N	Pav	4.12	65.39

69.51

0+92	floor in doorway		4.07	65.44
75' N	gutter		4.15	65.36
75' N	pav.		3.94	65.57
50' N	floor in Elec Shop		3.68	65.83
50' N	gutter		4.03	65.48
50' N	pav.		3.77	65.74
25' N	"		3.54	65.97
25' N	gutter		3.67	65.84
	0+70 W ± Drive			
25' N			3.30	66.71
50' N			3.50	66.01
75' N			3.73	65.78
100' N			4.03	65.48
125' N			4.22	65.29
151' N			4.41	65.10
166.2 N			4.73	64.78
180' N			5.36	64.15
185' N			5.72	63.79
192. N			5.55	63.96
201.4 N			5.66	63.85

{W. Side shed. 0+59.5 = E. Edge drive.
0+60.25 = gutter 0+61 W side gutter = Pav}

201.4' N		5.42	64.09
192. N		5.43	64.08
185' N		5.65	63.86
176 N.	Water Meter in Man Hole	5.05	64.46

69.51

0+59.5 (Con.)

166.2' N.		4.83	64.68	
151' N. = N. W. Cor Shed.	pav.	4.60	64.91	
151' N = " " " "	gutter	4.78	64.73	
125' N	pav.	4.34	65.17	
125' N	gutter	4.54	64.97	
100' N	"	4.38	65.13	
100' N	pav	4.19	65.32	
100' N	Floor of Shed.	3.78	65.73	
75' N	pav	3.90	65.61	
75' N	gutter	4.13	65.38	
50' N	"	3.95	65.56	
50' N	pav	3.73	65.78	
25' N	"	3.31	66.20	
25' N	gutter	3.51	66.0	

0+45 W.

201.4' N		5.35	64.16	
192' N		5.39	64.12	
185' N		5.48	64.03	
180' N		5.18	64.33	
166' N		4.93	64.58	
151' N	N. End Shed.	4.57	64.94	
151' N.	floor of shed.	4.24	65.27	

0+38.3 W.

188' N.	Floor. Machine Shop.	4.39	65.12	
173.8' N = S. W. Cor.	" "	5.04	64.47	pav.

69.51

0+33 W.

171.3' N. N.W. Cor. cmt. Drive.		5.09	64.42	
166.2' N.		4.93	64.58	
151' N = N. E. Cor. Shed		4.67	6484	
T.P.	5.28	71.82 ✓	2.97	66.54 ✓

0+15 W.

14' S. = {E. Edge cmt. Drive / N. el. Line}			4.44	67.38
00 = N. Line B. = E. Edge drive			3.98	67.84
17.8' N.	" " "		3.91	67.91

0+33 W.

S.E. Cor. Print Shop.

17.8' N = W. Edge Drive			4.14	67.68
00 = N. Line B. St	" " "		4.47	67.35
14' S = N. el. Line			4.77	67.05

0+45 W.

14' S = N. el. Line			5.10	67.72
00 = N. Line B. St.			4.77	67.05
7' N			4.2	67.6
17.8' N.			4.3	67.5

0+59.5 W.

17.8' N. = S. W. Cor. Print Shop.			5.38	66.44
00 = N. Line B. St.			5.19	66.63
14' S = N. el. Line			5.54	66.28

0+78.2 W.

14' S gutter			6.28	65.54
14' S. cmt. el. W. side drive			5.80	66.02
00 = N. Line B. St.			5.69	66.13
17.8' N			5.85	65.97

55

71.82

0+80 W.		
00 = N. Line B. = S. E. Cor. Elec. Shop.	5.7	66.1
0+96 W		
00 = N. Line B. St. floor Elec Shop.	5.52	66.30
1+05½ W. = E. Edge cmt. Dr		
00 = N. Line B. St.	6.07	65.75
14' S. cmt. el. to E.	6.28	65.54
14' S. gutter + Drive to W.	6.89	64.93
1+23½ W = W. edge cmt. Dr		
14' S. = gutter + Drive to E.	7.24	64.58
14' S = cmt. el. to W.	6.69	65.13
00 = N. Line B. St.	6.43	6539
1' N. dirt floor inside Barn	6.5	65.3
1+40' W.		
N. Line B = floor office	6.56	65.26
1+48½ W.		
00 = N. Line B. St.	7.0	64.8
14' S = N. cmt. el	7.15	64.67
14' S = gutter	7.76	64.06
1+60 W		
14' S = gutter	7.99	63.83
14' S = cmt. el	7.41	64.41
00 = N. Line B. St.	7.3	64.5
1+80 ± W. E. Edge cmt. Drive		
00 = N. Line B. St.	7.74	64.08
14' S. = cmt. el. to E.	7.81	64.01
14' S = gutter + drive to W.	8.48	63.34

71.82

1+88 W		
14' S = gutter	8.63	63.19
7' S.	8.01	63.81
00 = N. Line B. St.	7.81	64.01
1+97.9 = W. Edge cmt. Drive		
00 = N. Line B St	8.08	63.74
14' S = cmt. el.	8.26	63.56
14' S. gutter	8.78	63.04
2+18½ = E. Side Auto Shed.		
14' S = gutter	9.25	62.57
14' S = cmt. el.	8.59	63.23
00 = N. Line B. St. outside Fence	8.6	63.2
2+42½ = W. Side Auto shed.		
00 = N. Line B. St. outside Fence	9.3	62.5
14' S = cmt. el.	9.05	62.77
14' S = gutter	9.70	62.12
chk. BM. B.P. S. E. 20th + B St	1.60	70.22 = 70.23
T.P. 4.84	68.02	8.64 63.18
2+45. Ground. W. of Auto Shed		
00 = N. Line B. St.	5.5	66.3
50' N	5.6	66.2
100' N	4.8	67.0
150' N	4.7	67.1
200' N	3.2	68.6

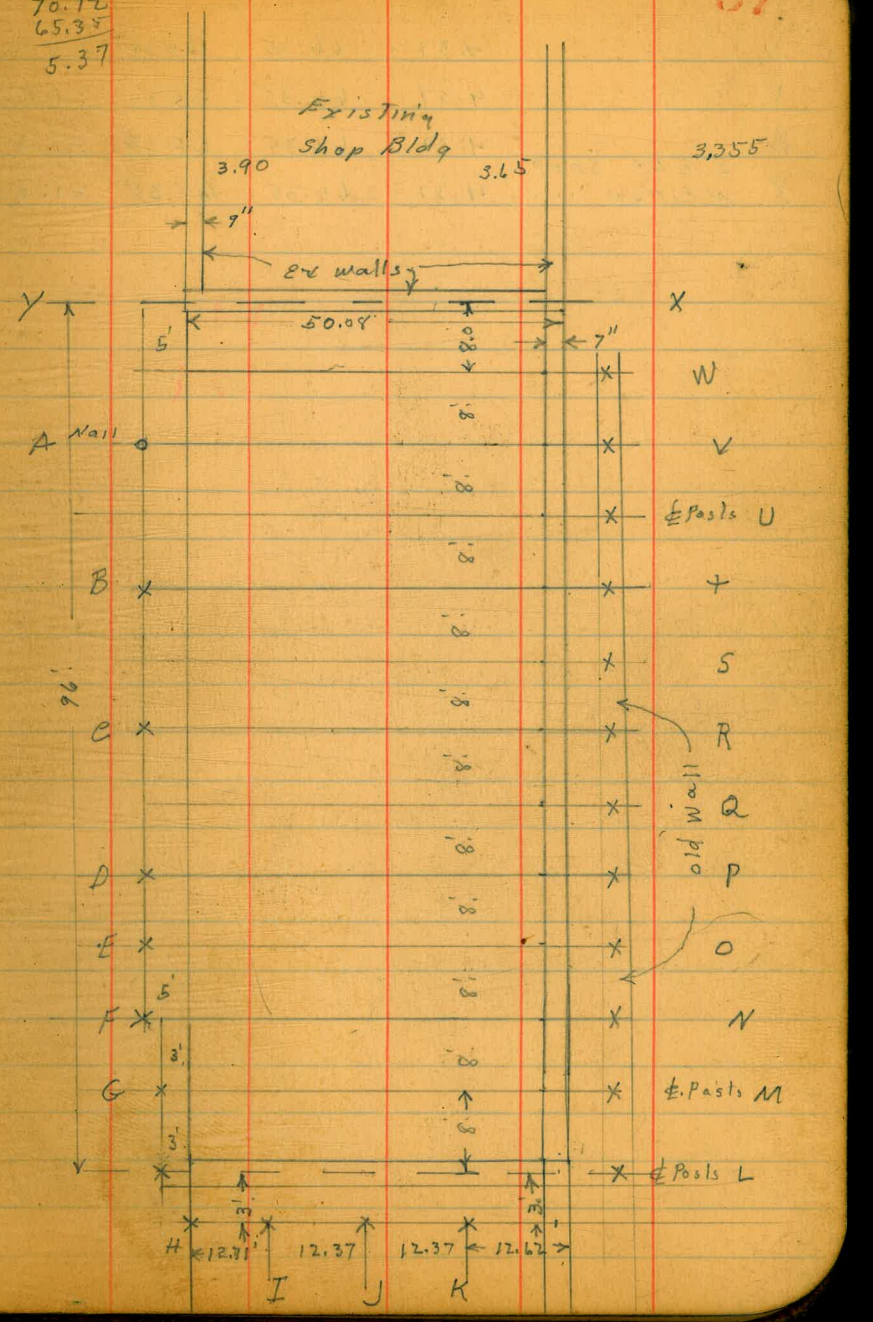
5-29-35
Miller
Walker
Bliss.

Extension of Machine Shop at City Yards. 20" + B Sts

					S.E. 20" + B Sts
B.M. B.P.	0.49	70.72		70.23	
T.P.	3.365	69.02	5.06	65.66	
Floor Ex Shop W. side			3.90	65.12	65.15
" " " E. "			3.65	65.37	65.35
y S.W. Ex shop		70.72	5.57	65.15	0.0
A			6.02	64.70	65.15 -0.45
B			5.30	65.42	65.15 +0.27
C			5.06	65.66	65.15 +0.51
D			4.82	65.90	65.15 +0.75
E			4.66	66.06	65.15 +0.91
F			4.50	66.22	65.15 +1.07
G			4.30	66.42	65.15 +1.27
H S.W. New Shop			4.06	66.66	65.15 +1.51
I			4.22	66.50	65.20 +1.30
J			3.85	66.87	65.25 +1.62
K			3.57	67.15	65.30 +1.85
L S.E. New Shop			+0.35	71.07	65.35 +5.72
M			+0.13	70.85	65.35 +5.50
N			0.04	70.68	65.35 +5.33
O			0.14	70.58	65.35 +5.23
P			1.52	69.20	65.35 +3.85
Q			4.37	66.35	65.35 +1.00
R			4.37	66.35	65.35 +1.00
S			4.37	66.35	65.35 +1.00
T			4.37	66.35	65.35 +1.00

5.57
70.72
65.35
5.37

57.

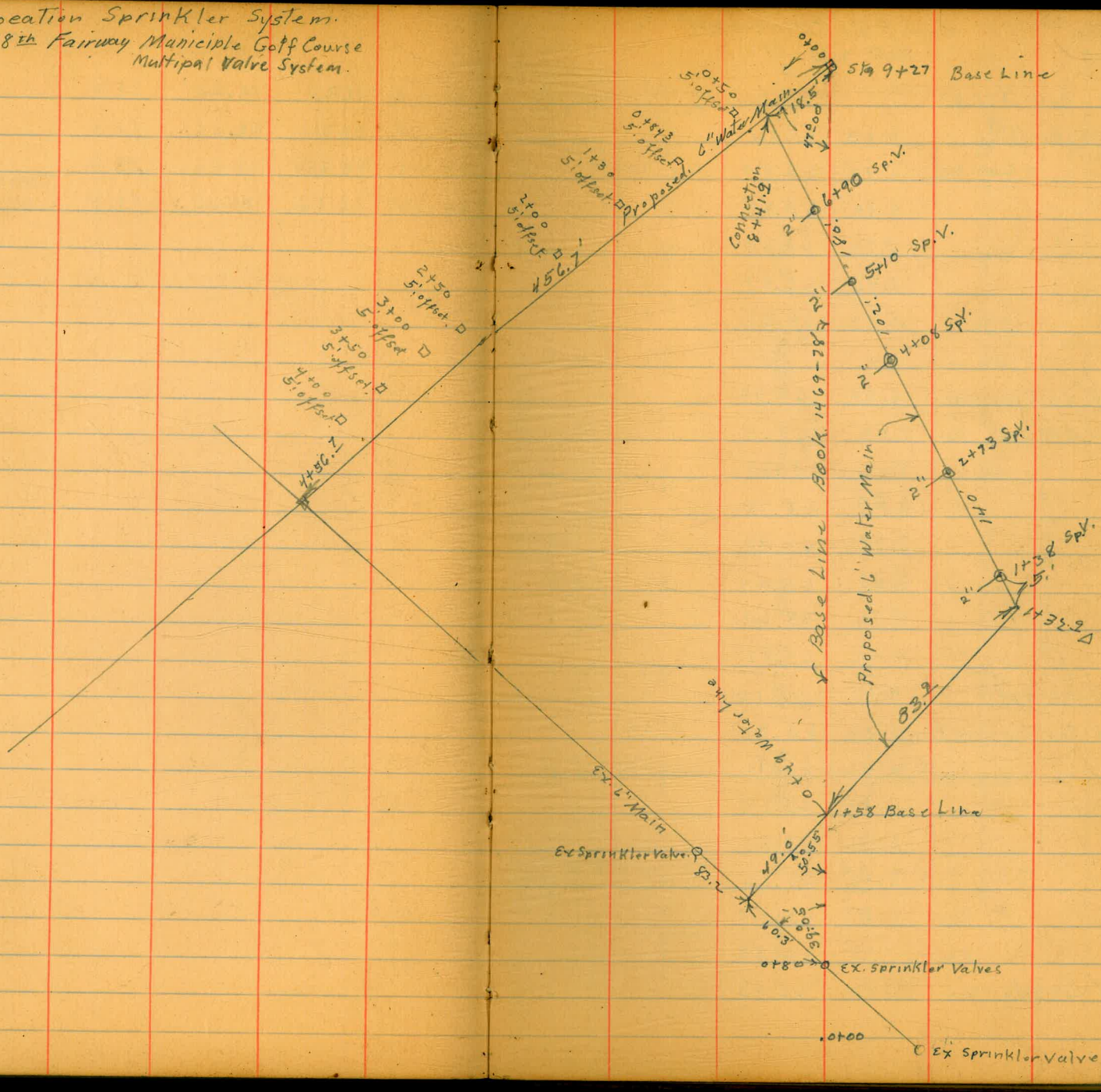


π 70.72

U		4.37	66.35	65.35	+1.00
V		4.37	66.35	65.35	+1.00
W		4.37	66.35	65.35	+1.00
X	S.E Box shop N.E. Row "	4.37	66.35	65.35	+1.00

5-31-35
Miller
Walker
Bliss

Location Sprinkler System.
18th Fairway Municiple Golf Course
Multipal Valve System.



6-26-35
Miller
Walker
Bliss

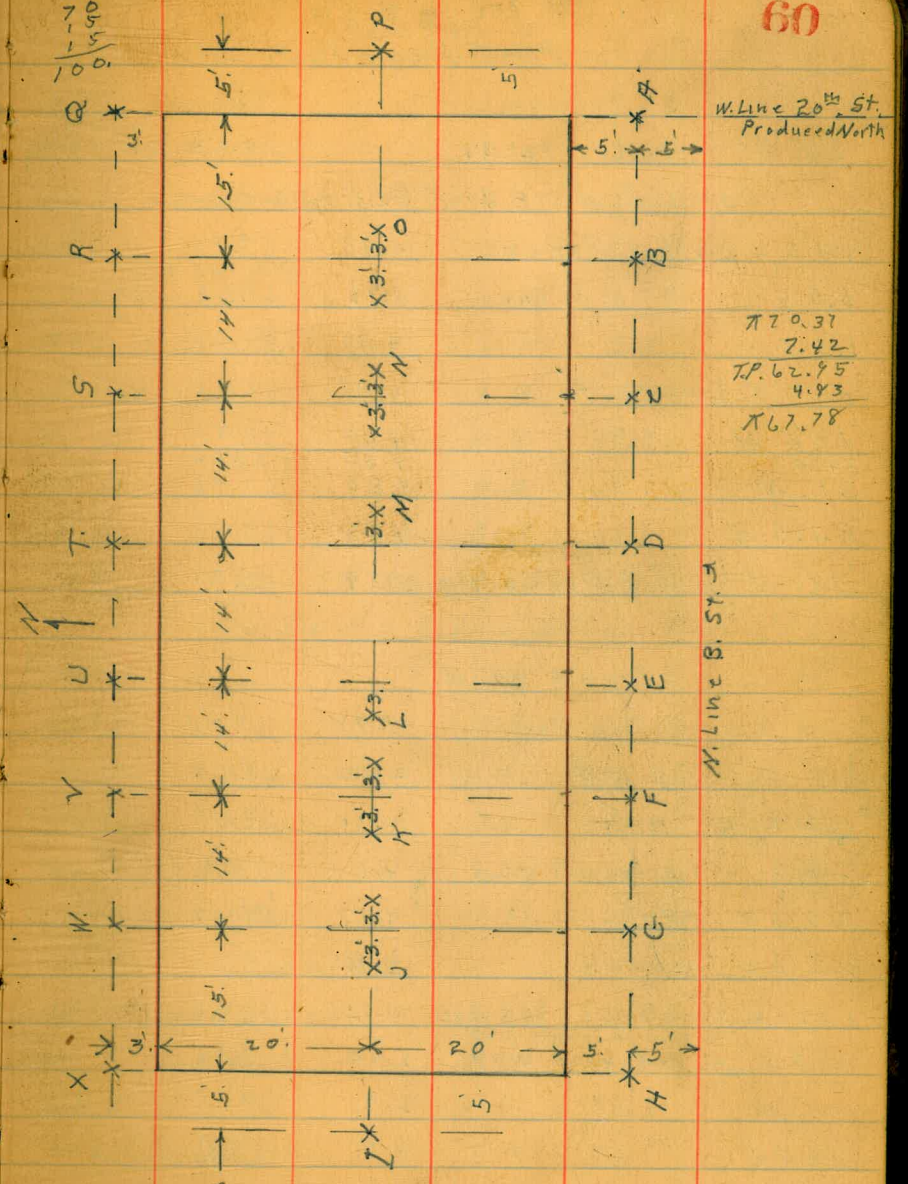
New. Bldg City Shops
20th + B Sts

B.M. B.P. 0.14 Π 70.37			70.23 Elev.	Grade	
A. = S.E. Cor. Bldg.		4.63	65.74		
B.	cmt. floor	4.48	65.89	66.20	
C.		4.88	65.49		
D.		5.73	64.64		
E.		7.96	62.41		
F.	Pav	5.76	64.61		
G.					
H. = S.W. Cor Bldg.	pav	6.54	63.83		
I. = 5' W. of W. end.	Pav	7.26	63.11		
J.	"	7.02	63.35		
K.	"	6.59	63.78		
L.		7.38	62.99		
M.		4.93	65.44		
N.		4.76	65.61		
O.		4.46	65.91		
P. 5' E. of E. End.		4.27	66.10		
Q N. E. Cor Bldg.	cmt. floor	4.46	65.91	66.20	
R	" "	4.46	65.91	66.20	
S		4.99	65.38		
T		6.56	63.81		
U		7.15	63.22		
V	Pav	6.87	63.50		
W	Pav	7.48	62.89		
X N.W. Cor. Bldg.	Pav	7.54	62.83		

S. E. 20th & B. Sts. + or −

14
5
70
15
100.

× = R.P.



Π 70.37
7.42
T.P. 62.95
4.93
Π 67.78

X. See Area at City Shops at 20th & B. Sts

Plat Page 51.

B.M. B.P.	2.16	72.39	70.23	S.E. Cor. 20th & B. Sts.
0+14.5 W = E. Line Existing Cmt. Drive				
14' S = gutter Pav		4.98	67.41	
6.5' S = Pav		4.76	67.63	
1.5' S "		4.57	67.82	
00 = N. Line B. St. "		4.58	67.81	
18.5' N "		4.45	67.94	
34' N		4.35	68.04	
51' N "		4.83	67.56	
54.5 N "		4.98	67.41	
78' N { E. edge Cmt Drive / S. End Machine shop.		5.58	66.81	
0+14' W.				
14' S = Gutter Pav.		4.98	67.41	
13' S = Top Wall		2.76	69.63	
6.5' S = " "		2.70	69.69	
6.4' S = S. side cmt. step		4.30	68.09	
1.6' S = N " " "		4.17	68.22	
1.5' S = Top. wall		2.76	69.63	
00 = N. Line B. St, Top. wall		2.75	69.64	
18.5' N. { S. End. wooden wall / N. End. cmt. wall		2.64	69.76	
51' N		2.9	69.5	
54.5 N		4.8	67.6	
78' N		5.4	67.0	

72.39

0+09 W.				
14' S = Gutter Pav.		4.94	67.45	
13.9' S Top. wall		2.46	69.73	
6.5' S = Top. wall		1.77	70.62	
6.4' S = S. side step		3.88	68.51	
1.6' S = N " "		3.78	68.61	
1.5' S. { S.W. Cor Bldg. / Top. wall		0.60	71.79	
00 = N. Line B. St.		2.0	70.4	
18.5 N,		1.8	70.6	
51' N		2.6	69.8	
54.5 N		4.6	67.8	
78' N		5.4	67.0	
T.P.	9.66	78.42	3.63	68.76
0+00 E & W. = E. Line 20th St. Produced.				
78' N			11.3	67.1
54.5 N			10.9	67.5
51' N			8.4	70.0
7' S			7.6	70.8
14.1 S. Top. wall			8.20	70.22
14' S. gutter Pav			10.39	68.03
0+12. E				
14' S = gutter Pav			7.82	70.60
14' S = Top. curb.			7.48	70.94
6.5' S			6.1	72.3
00 = N. Line B. St			5.9	72.5
18.5 N			6.3	72.1
51' N			7.2	71.2

78.42

0+10' E. (Con)

54.5 N.	9.8	68.6
78' N = S.E. Cor Machine shop	11.3	67.1

0+16' E

100' N	8.1	70.3
78' N	7.3	71.1
51' N	6.4	72.0
18.5 N	5.6	72.8
00 = N. Line B. St.	5.6	72.8
14' S = ctr.	6.47	71.95
14' S = gutter Pav.	6.87	71.55

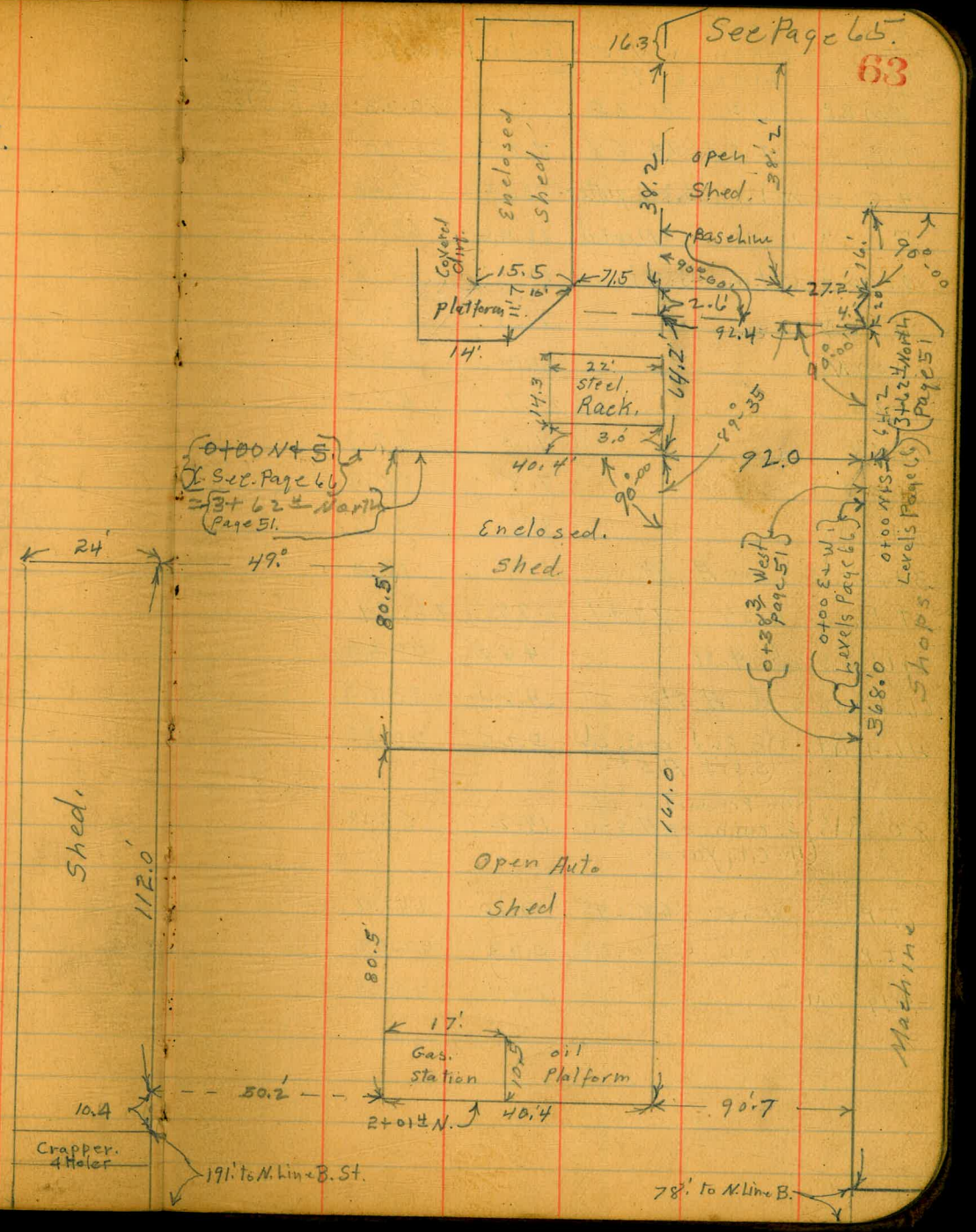
0+30' E

14' S = gutter Pav.	3.41	75.01
14' S = ctr.	3.11	75.31
00 = N. Line B. St	4.6	73.8
18.5' N	5.0	73.4
51' N	5.0	73.4
78' N	6.2	72.2
100' N	7.3	71.1
T.P. BM	8.19	70.23

Location of Sheds
City Shops. 20-16 + B. Sts.

Continued from Page 51.
" on " 65.

See Page 65.



2-25-36
Miller Walker Bldg

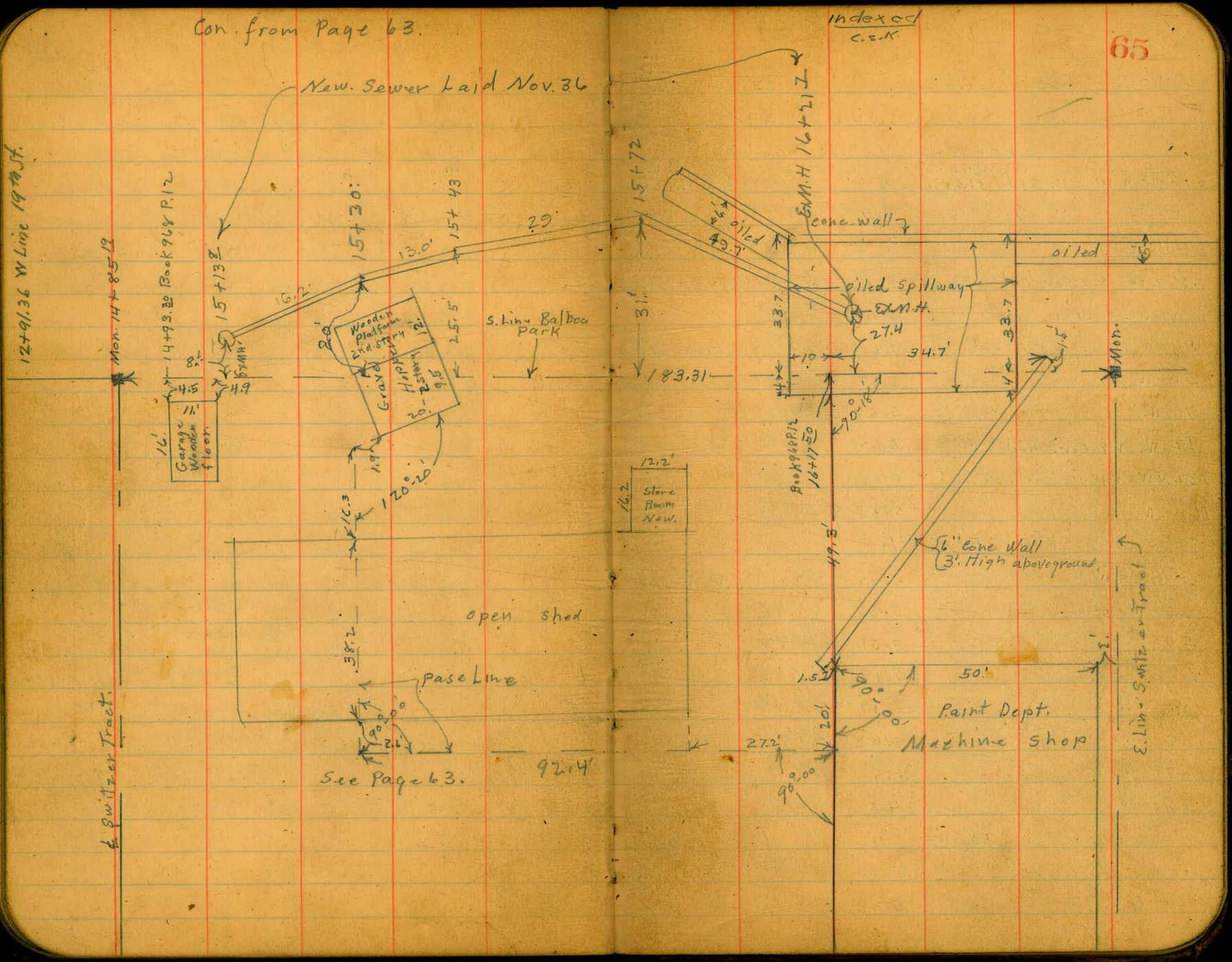
Levels for Proposed Garage 20th + B. Sts
Taken on North Production of East curb Line of 19th St.

B.M. B.P.	1.72	71.95		70.23	S.E. 20th + B Sts
T.P.	12.58	74.58	9.95	62.00	
14' S. of N. Line		B. = N gutter	13.10	61.48	
" " " "		" = N cmt. el	12.46	62.12	
0+00 = N. Line B. St.			12.1	62.5	
0+50 N			11.1	63.5	
1+00 N			11.2	63.4	
1+25			11.1	63.5	
1+85			9.3	65.3	
2+00			7.8	66.8	
2+60			3.0	71.6	
3+00 = S. Line A. St.			1.8	72.8	
T.P.	4.88	77.47	1.99	72.59	
3+14 = S. el. A. St.			4.88	72.59	
66' Lt. on s. el. A St.			4.84	72.63	
46.4' Rt. =	E. End cmt. el S. side A. St.		5.25	72.22	
80' Rt. =	on Production of S. curb of A St. th. City yard.		14.2	63.3	
T.P.	4.08	68.45	13.10	64.37	
T.P.	9.26	71.78	5.93	62.52	
orig. BM.			1.54	70.24	

Indexed
C.S.K.

Con. from Page 63.

Indexed
C.S.K.



X Sec. City Yards Plat Page 63+65 8-18-36 Miller Walker Bldg Northern

B.M.B.P.	0.65	70.88		70.23	S.E. Cor. 20" + B.
T.P	5.30	69.84	6.34	64.54	

0+00 N+S. sec Plat Page 63

0+00 E+W. = W. Side Machine shop.		4.44	65.28	Floor of Black Smith Shop
" " " " " "		4.90	64.94	yard. Pav.
25' W		5.37	64.47	" "
38.2' W	S.E. Cor catch Basin	5.63	64.21	T.P. grating
40.7' W	S W " " "	5.63	64.21	" "
39' W.		7.60	62.24	Flow. Line
50' W		5.62	64.22	yard Pav
70' W.		5.58	64.26	" "
92' W.	N.E. Cor. Shed.	5.62	64.22	" "
132.4 W.	N W " "	5.60	64.24	" "
160' N		5.8	64.0	
	25' North			
0+00 E+W		4.92	64.92	yard. pav
25' West.		5.38	64.46	" "
50' "		5.36	64.48	" "
75' "		5.19	64.65	" "
100' "		5.17	64.67	" "
125' "		5.08	64.76	" "
135 "		4.9	64.9	" "
150' "		+4.5	74.3	
	50' N.			
0+00		5.00	64.84	Yard. Pav
25' W.		5.32	64.52	" "

69.84

50 W	4.83	65.01	66 Yard Pav
75 "	4.95	64.89	" "
100 "	4.59	65.25	" "
113 "	4.5	65.3	" "
124 "	4.0	65.8	
132 "	+8.2	78.0	
150' "	+8.5	78.3	
68' North.			
138 West	+9.5	79.3	
127' West	+9.5	79.3	
116 "	2.0	67.8	
98 "	3.8	66.0	yard Pav
75' "	4.5	65.3	" "
50' "	4.6	65.2	" "
25' "	4.9	64.9	" "
0.0 E+W.	4.9	64.9	" "
" " "			Floor Paint Shop.
84 N.			
50 East N.E. Cor. Paint Shop.	3.3	66.5	
1' "	3.3	66.5	
0+00 E+W. N.W. Cor Paint. Shop.	4.7	65.2	
25' West.	3.9	65.9	
50 "	4.3	65.5	
75' "	4.1	65.7	
92 "	3.9	65.9	
114 "	2.0	67.8	

		69.84	84. N. Con.	
West				
150' "			+12.0	81.8
124' "			+11.4	81.2
		86' North		
50' E			3.3	66.5
00. E+W.			3.3	66.5
25' W.			3.9	65.9
T.P.	12.12	81.84	0.12	69.72
		107' North.		
50' East			14.8	67.0
0+00 " +West			15.1	66.7
25' West			15.6	66.2
50' "			16.0	65.8
75' "			15.4	66.4
109 "			14.2	67.6
See Page 68.				
		128' North.		
See Page 68				
94' West.			14.9	66.9
75' "			15.6	66.2
50' "			15.5	66.3
25' "			15.3	66.5

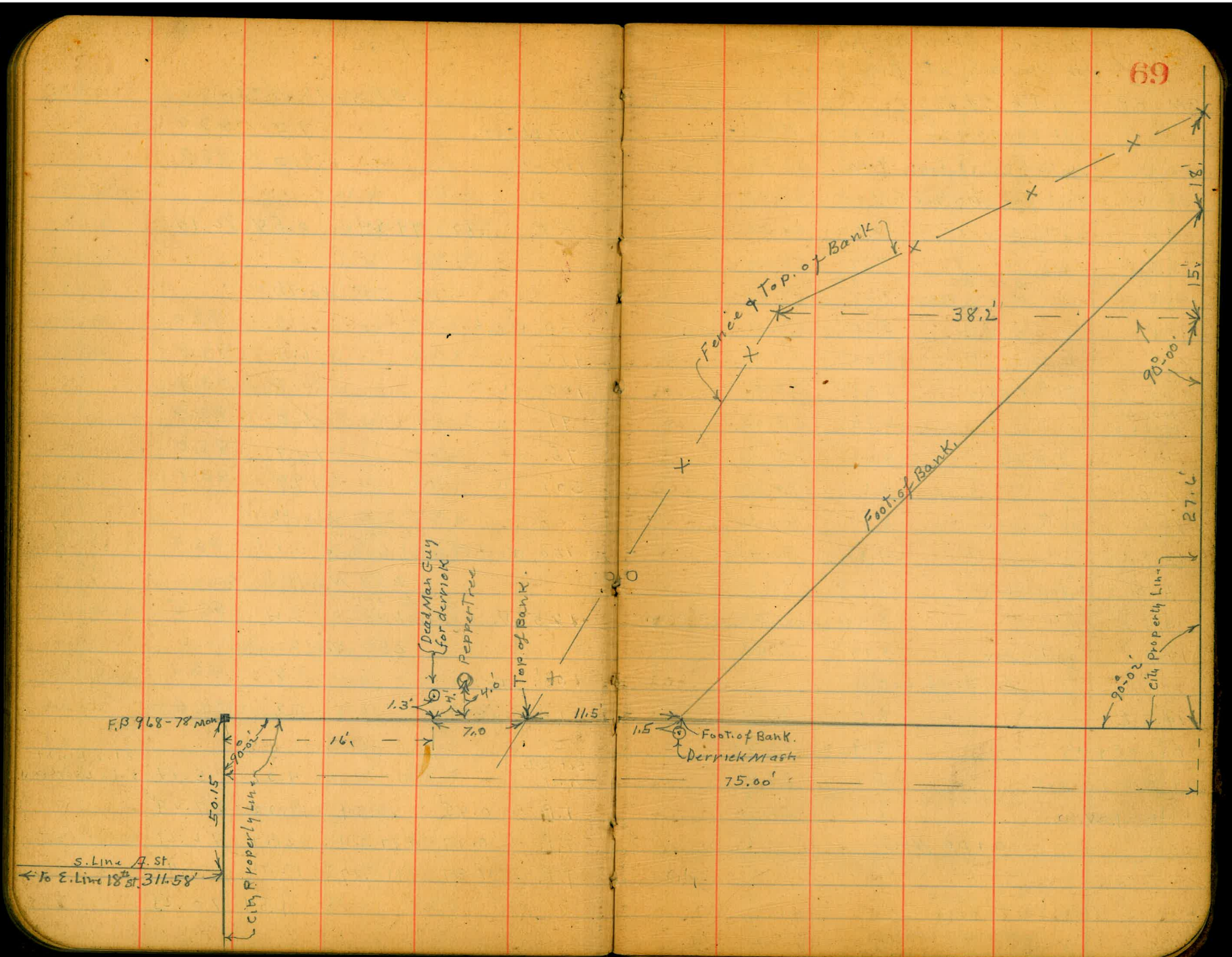
		81.84		
0+00 E+W.			14.5	67.3
50' East			14.3	67.5
		141' North		
50' East			14.1	67.7
30' "			10.4	71.4
00. " +W.			9.9	71.9
6' West			9.9	71.9
25' "			15.3	66.5
50' "			15.0	66.8
75' "			15.5	66.3
See Page 68				
		133' North = Park Line		
		155. North.		
50' East. Top of Dyke			3.8	78.0 S. side
32' " " " "			4.1	77.7 " "
28' " Spillway			5.1	76.7
0+00 E+W "			5.1	76.7
8' West			2.3	79.5
25' "			5.1	76.7
50' " "			5.1	76.7
		163' North		
50' East Top. Dyke			3.3	78.5 N. side
32' " " "			3.5	78.3 " "
28' " Spillway			4.4	77.4
0+00 E+W "			4.4	77.4
9' West			1.8	80.0

		81.84		
T.P.	12.59	92.72	1.71	80.13
		163' N. (con)		
25' W.			11.4	81.3
50' W			10.2	82.5
75' W			8.8	83.9
100' W.			6.7	86.1
125 W.			3.2	89.5
150' W.			2.2	90.5
		155' North (con.)		
75' West			9.4	81.3
85' "			7.6	84.1
100' "			7.4	84.3
125' "			4.7	88.0
150' "			3.9	88.8
		148' North		
75' West			9.8	82.8
		141' North (con)		
80' West			14.4	78.3
100' "	Floor gravel Hopper		8.4	84.3
125' "			5.6	87.1
150' "			4.8	87.9
		128' North (con)		
150' West			5.5	87.2
125' "			6.3	86.4
100' "			8.0	84.7

		92.72		
		107' North (con)		
117 West			9.3	83.4
138' "			9.0	83.7
T.P.	7.80	99.94	0.58	92.14
		200' North		
150' West.			6.9	93.0
125' "			6.5	93.4
100' "			6.7	93.2
94' "			7.0	92.9
75' "			14.9	85.0
50' "			19.8	80.1
		250' North		
150' West =	{S. Side Pavmt Pershing Dr}		3.1	96.8
		253' North		
125' West	S. Side Pav. Pershing		3.4	96.5
		250' North		
100' West			3.8	96.1
64' West			5.3	94.6
Set BM. Nails			4.07	95.87
T.P.	0.85	88.54	12.25	87.69
T.P.	0.97	77.24	12.27	76.27
T.P.	7.37	71.77	12.84	64.40
			1.54	70.23

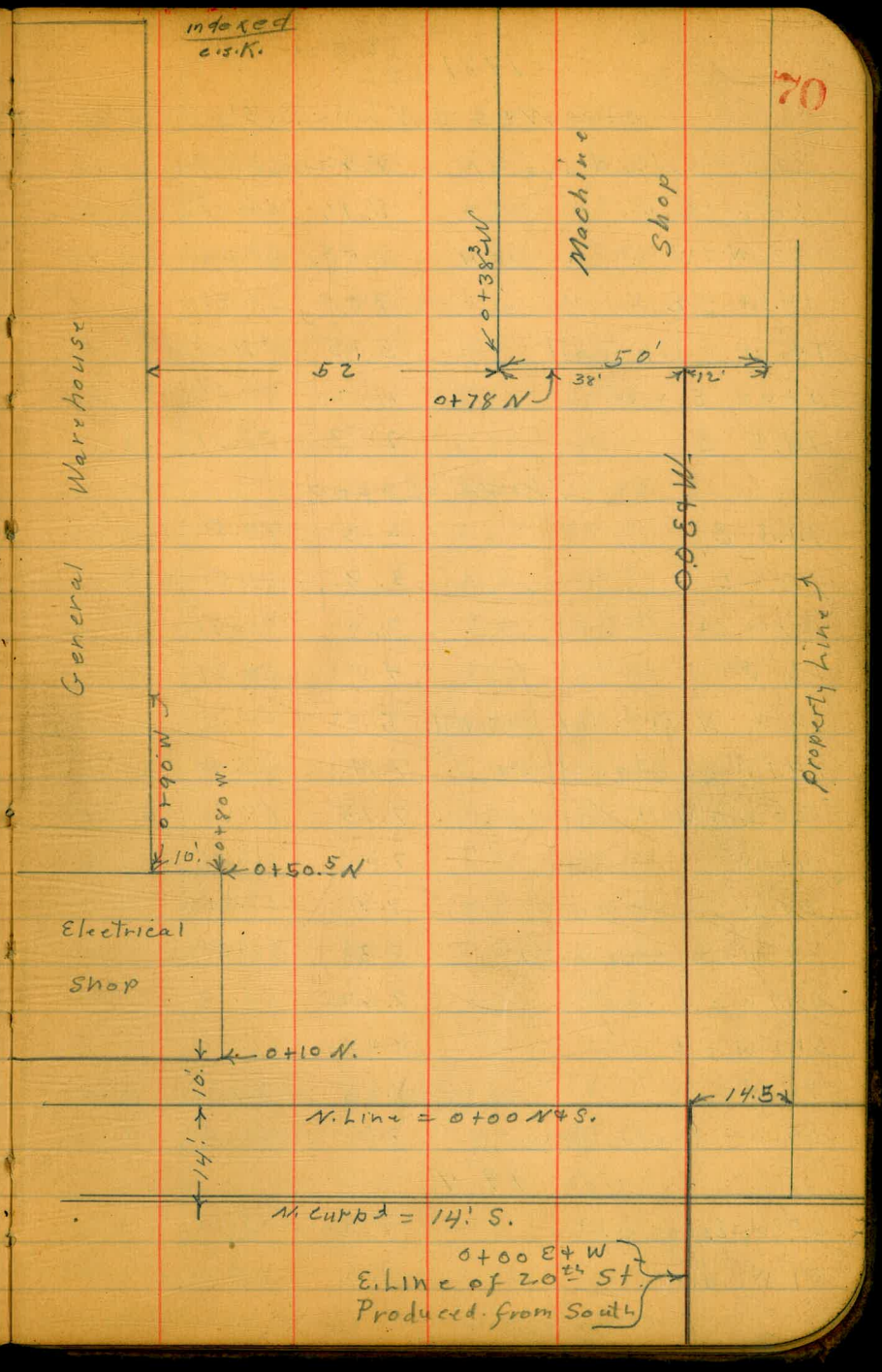
Elec light. Pole 250 N. 100' W.

250
133
117


Fence & Top. of Bank
38.2'
18'
15'
90°-00'
Foot. of Bank.
27.6'
90°-02'
City Property Line
Dead Man Guy for derrick
Pepper Tree
4.0'
4'
1.3'
Top of Bank.
11.5'
7.0
1.5
Foot. of Bank.
Derrick Mast
75.00'
F.B 968-78 Mon.
90°-00'
16'
50.15'
City Property Line
S. Line A. St.
To E. Line 18th St. 311.58'

X See Area at 20th + B.
for Pavmt. at City Shops

B.M. B.P.	4.58	74.81	70.23	S.E. 20th + B. Sts.
	14' South of W. Line B St. 0+00 N+S		= N. el. line	
80' W.	gutter W. Side Drive	9.28	65.53	
80' W =	End. emt eb. + Walk	8.78	66.03	
60' W	gutter pav	8.51	66.30	
33' W	" "	7.72	67.09	
14' W	" "	7.38	67.43	
14' W	Top. emt curb.	5.20	69.61	curb is a Wall.
8' W	" " "	5.05	69.76	
8' W	gutter pav.	7.35	67.46	
E. Line 20th 0+00 E+W	" "	6.79	68.02	
" " "	Top eb	4.62	70.19	
7' E.	" "	4.23	70.58	
7' E	gutter pav	5.57	69.24	
12' E	" "	4.35	70.46	
12' E.	Top. eb	3.85	70.96	
14.5 E	" "	3.42	71.39	E. prop
14.5 E	gutter pav	3.79	71.02	
	7' S. of 0+00			
14.5' E		2.4	72.41	
0+00 E+W.		3.9	70.91	
14' W. = Top wall		5.1	69.71	
14.1 W pav.		7.19	67.62	
	0+00 N+S.			



74.81

0+00 N+S = N. Line		B. St.
80' W. = W edge drive to N	8.82	65.99
60' W = E " " " "	8.16	66.65
33' W = W " " " N	7.45	67.36
14.1 W = E " " " "	7.00	67.81
14' W = Top wall	5.15	69.66
0+00 E+W.	4.2	70.61
14.5' E	2.3	72.51
18' N. of 0+00		
14.5' E	2.3	72.51
10' E	3.3	71.51
0+00 E+W	3.9	70.91
13' W	4.5	70.31
14' W N. End. Top. cmt. Wall	5.06	69.75
14.1 W = E edge drive	7.81	67.00
33' W = W " "	7.15	67.66
41' W	7.0	67.81
58' W	7.8	67.01
60' W = E. edge gutter	8.30	66.51
60.7' W = ℄ gutter	8.62	66.19
61.5' W = ℄ "	8.44	66.37
70' W	8.55	66.26
80' " W. edge drive	8.8	66.01
19' N.		
60' W = E edge gutter	8.30	66.51
59' W. dirt	9.3	65.51

74.81

19' N		
42' W dirt	8.8	66.01
41' " S.W. corcmt slab	7.67	67.14
34' W = S E " "	7.70	67.11
33' W = W. edge drive	7.00	67.81
34' N		
80' W = W. edge drive	8.9	65.91
70' "	8.65	66.16
61.5' W E W " gutter	8.70	66.11
60.7' W ℄ "	8.88	65.93
60' W E " "	8.60	66.21
59 W dirt	9.6	65.21
42' W "	9.0	65.81
41' W cmt-slab	7.76	67.05 ✓
34' W " "	7.77	67.04
33' W = W. edge drive	6.75	68.06
23.5' W	7.04	67.77
14' W = E. " "	6.76	68.05
13' " dirt	4.9	69.91
0+00 E+W.	3.3	71.51
14.5' E.	2.7	72.11
43' N.		
80' W floor Elec-Shop.	8.66	66.15
41.5 W ground to W + N.	9.1	65.71
41' W N.W. cor. cmt. slab	7.84	66.97
34' W ground. To N.	8.8	66.01
34' W N. E. cor cmt. slab.	7.83	66.98
33' W = W edge Drive	7.00	67.81

71

74.81

50.5' North.

14.5' E		3.1	71.71
0+00 E+W.		4.9	69.91
13' W.		5.3	69.51
14' W = E. edge drive		7.28	67.53
23.5' W ℄	"	7.50	67.31
33' W = W	" "	7.24	67.57
34' W ground		9.3	65.51
59' W "		9.7	65.11
60' W = E. edge gutter		8.96	65.85
60.7 W = ℄	"	9.23	65.58
61.5' W = W edge E "	drive.	9.02	65.79
70' W		8.79	66.02
80' W W. edge drive N.E. Cor. Elec shop.		9.10	65.71
90' W S.E "	warehouse	9.6	65.81
90' W. Wood floor at Foot. Stairs		8.62	66.19

60' N.

60 W = E. edge gutter		9.13	65.68
59 W = ground		9.7	65.11
34 W =	"	9.2	65.61
33' W = W. edge drive		7.62	67.19

61' N

60' W = E. edge gutter		9.13	65.68
59.8 W S.W. Cor. cmt. slab		7.83	66.98
33.2' W S.E "	" "	7.86	66.95
33. W = W. edge drive		7.62	67.19

74.81

55' N out of order.

14' W = E. edge drive		7.37	67.44
0+00 E+W		7.2	67.61
11' E		7.1	67.71
14.5' E		4.4	70.41

78' N = S. End. Machine Shop

14.5 E		5.6	69.21
10' E		7.4	67.41
0+00 E+W		7.9	66.91
14' W. = E. edge drive		8.01	66.80
23.5 W.		8.25	66.56
33' W	W. " N.E. cor cmt. slab	8.17	66.64
38' W	S.W. cor. Machine Shop	8.20	66.61 cmt. slab
59.8 W =	W. edge " "	8.35	66.46
60' W.	E. edge gutter	9.20	65.61
60.7	℄ "	9.49	65.32
61.5' W =	W edge E. edge drive	9.22	65.59
70' W		9.07	65.74
80' W	W. edge drive	9.26	65.55
90' W		9.3	65.51
90' W	Floor Meter Shop.	9.27	65.54

T.P.	5.39	71.98	8.22	66.59	

91' N

38' W	Floor of office	4.63	65.35	
41' W	cmt. slab	5.64	66.30	
47 W	" "	5.72	66.26	

72

71.98

91' N.			
59.8' W	cmt. slab	5.87	66.11
60' W	E. edge gutter	6.58	65.40
60.7 W	℄ " "	6.84	65.12
61.5' W	W. edge " " E " " drive	6.54	65.42
70' W		6.40	65.58
80' W =	W edge drive	6.57	65.41
90' W		6.5	65.48
93' N			
60' W	E edge gutter	6.53	65.45
59.8' W	cmt slab	5.95	66.03
47' W		5.73	66.25
46' W	dirt	6.6	65.38
38' W.	office floor	6.63	65.35
94' N.			
43' W =	S.W. cor cmt apron Front of Machine shop	6.78	65.20
38' W =	S.E. cor cmt. apron	6.69	65.29
96' N			
46' W	Pav to E. N + N.W.	6.7	65.28
47' W. =	N.E cor. cmt slab.	5.83	66.15
59.8' W N W	" " "	6.10	65.88
60' W =	E. Edge N End gutter	6.65	65.33
112 N			
90' W		6.6	65.38
80' W		5.6	66.38
78.5 W =	W edge Pav.	4.80	65.18
70' W		4.60	65.38

Pav. to W. N. + N.E.

71.98

60' W		6.75	65.23
50' W		4.60	65.38
43' W. =	W. edge cmt. apron	6.80	65.18
38' W =	Floor Machine shop.	6.64	65.30
114' N.			
90' W			
78.5 W =	W. edge pav.		
138' N			
90' W			
78.5 W =	W. edge drive		
140' N			
38' W.	Machine shop Floor	6.67	65.31
43' W	Edge cmt. apron	6.82	65.16
50' W		6.8	65.18
60' W		7.04	64.90
63' W		6.86	65.12
70' W		6.80	65.18
78.5 W =	W. edge drive	7.04	64.90
90' W		7.3	64.68
153.5 N			
85.5' N etr	3'X3' cmt. M.H.	7.17	64.81	for Oil
156' N			
82' W. =	S.E. Cor. cmt. Box	7.15	64.83	oil valve for Furnace
89' W	S.W " " "	7.10	64.88	
163.6 N.			
89' W	N.W. cor. cmt. Box	7.20	64.78	oil valve
82' W	N.E. " " "	7.17	64.81	

7.1.98

163.6

78.5 W =	W. edge Pav	7.29	64.69
70' W		7.15	64.83
60' W		7.20	64.78
50' W		7.03	64.95
43' W =	W. edge ent. apron	6.79	65.19
38' W =	Machine shop floor	6.74	65.22
	174' N		
38' W	floor shop	6.85	65.13
43' W	W. edge apron	7.00	64.98
50' W		7.40	64.58
6' W	Top M. H.	7.53	64.45
70' W		7.74	64.24
80' W		8.00	63.98
90' W		8.09	63.89
	184' N		
90' W		8.46	63.52
80' W		8.34	63.64
70' W		8.18	63.80
60' W		8.13	63.85
50'		7.83	64.15
43' W =	W. edge apron	7.12	64.86
38' W.	floor of shop	6.86	65.12

7.1.98

193' N Pav @ K

38' W		6.85	65.13
43' W		7.19	64.79
50' W		7.83	64.15
60' W		7.91	64.07
70' W		8.04	63.92
80' W		8.17	63.81
90' W		8.28	63.70
	200' N	Pav. OK	
90' W		8.30	63.68
80' W		8.20	63.78
70' W		8.12	63.86
60' W		7.88	64.10
50' W		7.86	64.12
43' W	W. edge apron.	7.24	64.74
38' W	Shop. floor.	6.86	65.12
Chk. BM.		1.75	70.23
B.M.	0.12	70.35	70.23
Floor of New Shop.		3.85	65.50

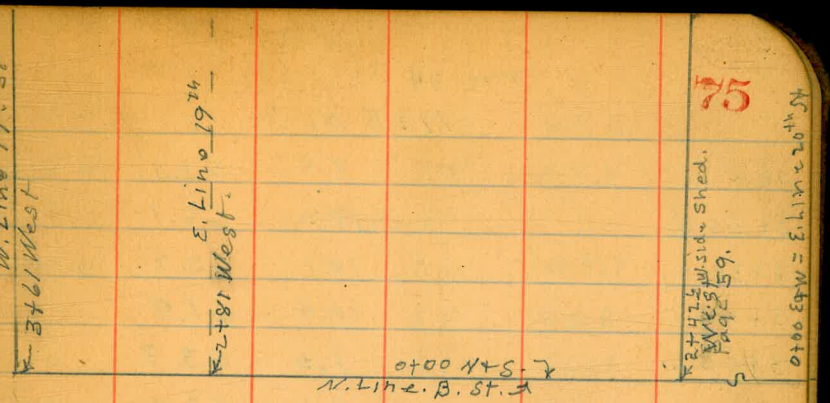
65.50
4.28
69.78
4.64
65.14

Indexed C.S.K.

X. Sec. Area West of Present City Barns.

10-3-36 Miller Walker Bliss.

BM. B.P.	0.57	70.80		70.23	S.E. Cor B+ 20th Sts.
BM. B.P.	9.23	72.34	7.69	63.11	N.W. Cor. B + 19th St.
		14' South. = N. ch. Line B. St.			
3+61 W. = W. Line 19th st			10.00	62.34	gutter
3+30 W			10.46	61.77	"
3+30 W			9.77	62.57	cent. ch
3+00 W			10.14	62.20	" "
3+00 W			10.80	61.54	gutter
2+80 W & 6' Curb. Inlet.			11.04	61.28	"
2+80 W			10.25	62.09	cent. ch
2+70 W			10.15	62.19	"
2+70 W			10.90	61.44	gutter
2+45 W			10.36	61.98	"
2+45 W			9.66	62.68	cent. ch
		9+00 N+S = N. Line B. St			
2+43 W.			9.7	62.6	
2+70 "			9.7	62.6	
3+00 "			10.0	62.3	
+30 "			9.6	62.7	
+61 "			9.3	63.0	
		0+25 North.			
3+60 W			9.2	63.1	
3+30 "			9.2	63.1	
3+00 "			9.5	62.8	
2+70			9.3	63.0	
2+43			9.7	62.6	



75

	72.34		
	0+50' North.		
2+43 W.	9.4	62.9	
2+70 "	9.0	63.3	
3+00 "	9.0	63.3	
3+30 "	8.9	63.4	
3+60 "	8.8	63.5	
	0+75 North.		
3+60 W.	8.7	63.6	
3+30 "	8.6	63.7	
3+00 "	9.0	63.3	
2+70 "	9.0	63.3	
2+43 "	9.2	63.1	
	1+00 North.		
2+43 W.	8.8	63.5	
2+70 "	8.9	63.4	
3+00 "	8.9	63.4	
3+30 "	8.7	63.6	
3+60 "	9.1	63.2	

72.34		
1+25 North		
3+60' W	8.8	63.5
3+50 W.	10.2	62.1
3+30 "	10.1	62.2
3+04 "	10.4	61.9
3+00 "	9.0	63.3
2+70 "	8.6	63.7
2+45 "	8.8	63.5
1+50 North		
2+45 W.	8.5	63.8
2+70 "	8.3	64.8
3+00 "	8.6	63.7
3+06 "	9.2	63.1
3+07 "	10.4	61.9
3+30 "	10.2	62.2
3+50 "	10.7	61.6
3+51 "	9.0	63.3
3+60 "	6.7	65.6
1+81 North		
3+60 W.	3.8	68.5
3+51 "	4.2	68.1
3+50 "	10.0	62.3
3+30' "	10.0	62.3
3+07 "	10.3	62.0
3+06 "	7.5	64.8
3+00 "	7.5	64.8

72.34		
2+70 W	7.0	65.3
2+45 W.	7.8	64.5
1+88 North		
2+45 W	7.6	64.7
2+50 "	5.5	66.8
2+70 "	6.1	66.2
2+88 "	5.6	66.7
2+94 "	7.1	65.2
3+00 "	7.3	65.0
3+30 "	4.5	67.8
3+60 W	3.1	69.2
→ out of place	1+83' North	
3+50 W.	4.5	67.8
3+30 "	6.2	66.1
3+07 "	7.6	64.7
2+00 North		
3+60 W.	2.7	69.6
3+30 W	4.1	68.2
3+00 "	5.6	66.7
2+70 "	5.0	67.3
2+50 "	5.0	67.3
2+45 "	7.5	64.8
2+25 North.		
2+43 W.	7.5	64.8
2+50 "	5.0	67.3
2+70 "	4.3	68.0
3+00 "	4.0	68.3

72.34

2+25 North

3+30 W.			2.4	69.9
3+60 W			0.0	72.3
2+21 North	3+25 W.	Eucalyptus Tree	12" Diam.	
2+10 "	3+24 W	"	" 15" "	
2+19 "	3+36 W	"	" 26" "	
T.P.	5.84	7733	0.85	71.49

2+50 North.

3+60 W			5.3	72.0
3+30 W			5.6	71.7
3+00 W			6.7	70.6
2+70 "			7.3	70.0
2+50 "			8.3	69.0
2+43 "			11.3	66.0
2+49 West	2+87 North	Eucalyptus Tree	16" Diam	
2+48 "	2+93 "	"	" 16" "	
2+93 "	3+00 "	"	" 16" "	
3+05 "	3+06 "	Pepper	" 8" "	

2+75 North

2+43 W		10.1	67.2
2+50 "		6.1	71.2
2+70 "		5.8	71.5
3+00 "		5.4	71.9
3+30 "		5.2	72.1
3+60 "		5.0	72.3

77.33

3+00 North = S. Line A. St.

77

3+60 W.			4.2	73.1
3+30 "			4.1	73.2
3+00 "			4.5	72.8
2+70			4.6	72.7
2+50			5.1	72.2
2+43 W of shed.			7.0	70.3

3+14 North = S. curb Line A.

2+17 W drive in city yard.			13.7	69.6
2+33 W			8.8	68.5
2+50 " = E. End. emt. el			5.15	72.18
2+50 " = " " " "			5.9	71.4
2+70 "			5.7	71.6
2+70 "			4.96	72.37
3+00 "			4.74	72.59
3+00 "			5.2	72.1
3+50 W = W. end emt. el			4.5	72.8
3+50 "			4.10	73.23
T.P.	5.92	70.91	12.34	64.99
chk orig BM			0.69	70.23

Top. el gutter
" "
Top. el
" "
gutter
"
emt. el.

Grades on Above Area.

3+00 S. Line A St.				366.50
2+50	BM. N.W. 19+8 63.11	365.5	364.0	
2+00				365.0
1+50				364.5
1+00			364.0	
0+50		363.50		
0+00 = N. Line of B St				

Change in grade.

N. G.

Grades on Area W. of old City Shops see Page 75

Grade Raised.

11-4-36

Page 77.

			E.	℄	W.
T.P.	7.71		72.70		64.99
0+00 = N Line B St			63.5	63.5	63.5
			9.2	9.2	9.2
			✓	10.4	9.7
			0.0	-1.2	
0+50			64.0	64.0	64.0
			8.7	8.7	8.7
			✓	9.3	9.5
			0.0	-0.6	-0.8
1+00			64.5	64.5	64.5
			8.2	8.2	8.2
			✓	9.3	9.3
			0.0	-1.1	-1.1
1+50			65.0	65.0	65.0
			7.7	7.7	7.7
			✓	8.9	11.0
			0.0	-1.2	-3.3
2+00			65.5	65.5	65.5
			7.2	7.2	7.2
			✓	7.5	3.9
			0.0	-0.3	+3.3
TP	5.10		76.60	1.20	71.50
2+50			66.0	66.0	66.0
			10.6	10.6	10.6
			7.6	6.0	5.0
			+3.0	+4.6	+5.6
3+00 = S Line A St.			66.5	66.5	66.5
			10.1	10.1	10.1
			6.1	3.8	3.3
			+4.0	+6.3	6.8

72.7
4.4

New Grades G.177-55

11-14-36

X Sec. A St. 18th St. East

Plat F.B. 968 - P. 14

N.E. 18th & B. St.

B.M. B.P	11.81	79.88		68.07
T.P.	10.26	89.24	0.90	78.98
14' W. of E. Line = E. el. Line of 18th St.				
S.	cmt. el.		3.78	85.46
S.	Pav		4.44	84.80
+14 = el	"		4.02	85.22
+27 = ℄	"		3.77	85.47
+40 = el	"		3.72	85.52
+53 = ℄	"		3.79	85.45
+66 = N. el	"		4.01	85.23
+80 N.	"		3.84	85.36
+80 N.	cmt. el.		3.41	85.83
0+00 = {E. Edge Pav. / E. Line 18th St.				
N. cmt. el			3.75	85.49
Gutter			4.36	84.88
℄			4.06	85.18
℄			3.89	85.35
℄			4.02	85.22
gutter			4.40	84.84
S. el.			3.77	85.47
0+50 E				
S. el			6.98	82.26
G			7.6	81.6
℄			7.4	81.8
G			7.5	81.7
N el			7.24	82.00
T.P.	1.09	79.48	10.85	78.39

79.48

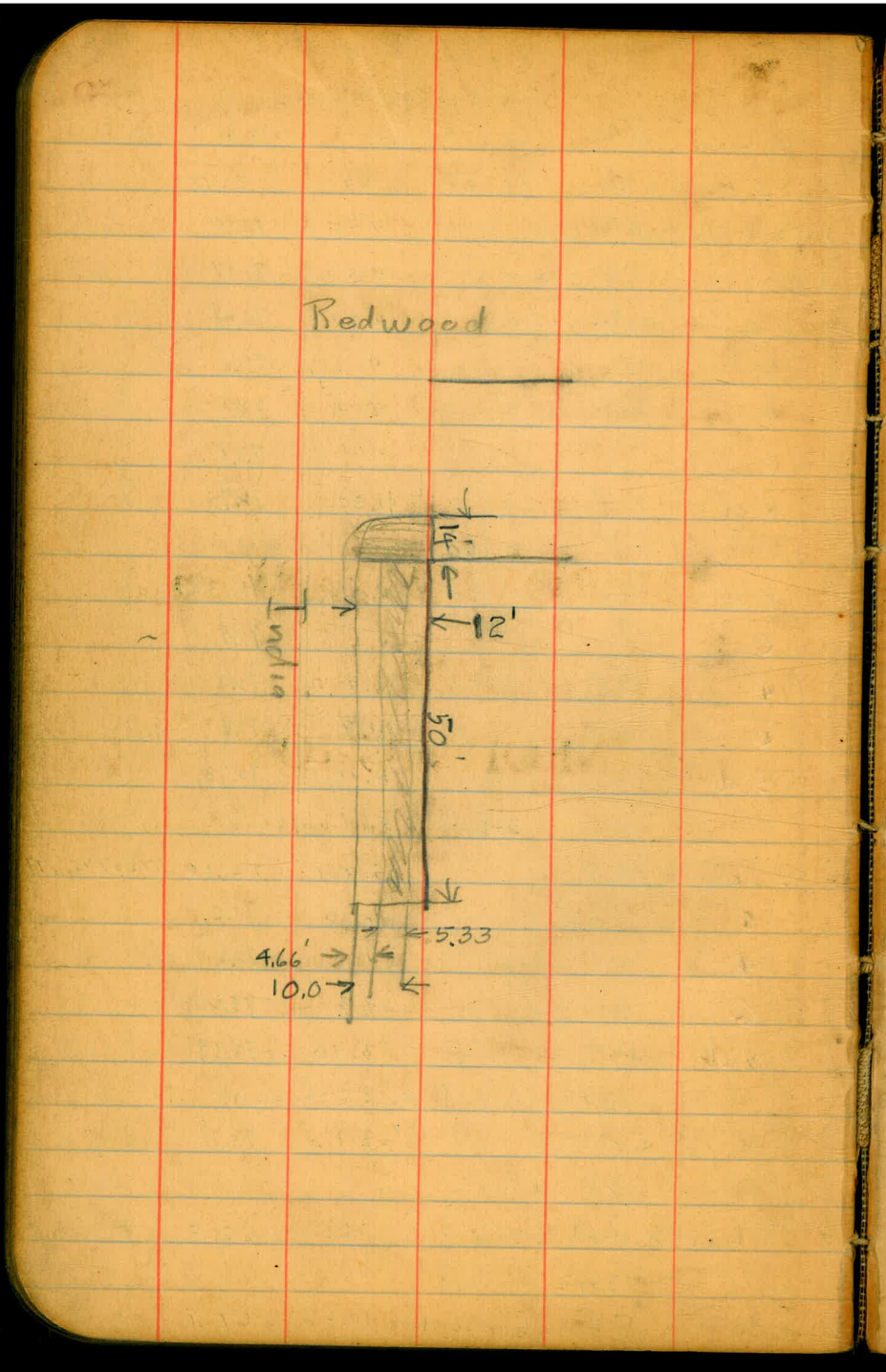
	1+00	
N. el	1.05	78.43
G	1.5	78.0
℄	1.1	78.4
G	1.2	78.3
S. el	0.43	79.05
1+11		
S. el. OK	1.20	78.28
1+23		
S. el. sunk.	2.22	77.26
1+35		
S. el. O.K.	2.90	76.68
1+50		
S. el	3.65	75.83
Gutter	4.3	75.2
℄	4.5	75.0
Gutter	4.9	74.6
N. el	4.47	75.01
2+00 No return on S. wall on North		
N. el	7.76	71.72
N gutter	6.1	73.4
N. el. Line S. End. Cone. Wall.	6.04	73.44
℄	6.2	73.3
G	6.5	73.0
S. el.	6.96	72.52
+4.4' - N. Edge E. End. walk.	6.75	72.73
+9.4 S. " " " "	4.75	72.73
S. Line	6.3	73.2

79.48

2+11± on N. } W. End Curb + walks.
2+12 " S. }

79

S. Line			6.3.	73.2
T.P.	4.38	77.49	6.37	73.11
+4.3 - S. edge walk W. End			4.35	73.14
+9.3 = N " " W. End.			4.32	73.17
S. el	"	"	4.31	73.18
G			4.5	73.0
℄			4.4	73.1
G			4.4	73.1
N el.			4.57	72.92
		2+50		
N. el			4.36	73.13
G			4.6	72.9
℄			4.7	72.8
G			4.9	72.6
S. el.			4.76	72.73
		3+12	E. End. walk + el.	
S. el. E. End			5.29	72.20 = 72.18 Page 77
G			6.0	71.5
℄			4.9	72.6
G			4.3	73.2
N. el			3.90	73.59
.329 = E. End. walk + el. on N.				
N. el + Gutter			3.71	73.78
3+24				
Level of yard to East.			14.0	63.5
3+12				
30' S. of S. Line Garage floor			10.4	67.1



IMPROVED TABLES AND INFORMATION

Table II—Continued
TRIGONOMETRIC FORMULAE (continued)

In any triangle:

Given a, b, C; to find c, B, A.
Use Law of Tangents.

Given A. B. c; to find a, b, C.
Use Law of Sines.

Given a, b, c; to find A, B, C.

$$\text{Let } \frac{a+b+c}{2} = s, \sqrt{\frac{(s-a)\ (s-b)\ (s-c)}{s}} = r$$

$$\cos \tfrac{1}{2} A = \sqrt{\frac{s(s-a)}{bc}}$$

$$\tan \tfrac{1}{2} A = \frac{r}{s-a}$$

$$\tan \tfrac{1}{2} B = \frac{r}{s-b}$$

$$\tan \tfrac{1}{2} C = \frac{r}{s-c}$$

Area of a triangle:

$$\text{Area} = \tfrac{1}{2} ab \sin C$$

$$\text{Area} = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

PRISMOIDAL FORMULA.

$$\text{Vol.} = \frac{h}{6}(B+b+4M)$$

h = altitude: b. B = bases; M = midsection

Table III
INCHES AND FRACTIONS OF AN INCH IN DECIMALS OF A FOOT

	0	1	2	3	4	5	6	7	8	9	10	11	
1/16	.0052	.0885	.1719	.2552	.3385	.4219	.5052	5885	.6719	.7552	.8385	.9219	1/16
1/8	.0104	.0938	.1771	.2604	.3438	.4271	.5104	.5938	.6771	.7604	.8438	.9271	1/8
3/16	.0156	.0990	.1823	.2656	.3490	.4323	.5156	.5990	.6823	.7656	.8490	.9323	3/16
1/4	.0208	.1042	.1875	.2708	.3542	.4375	.5208	.6042	.6875	.7708	.8542	.9375	1/4
5/16	.0260	.1094	.1927	.2760	.3594	.4427	.5260	.6094	.6927	.7760	.8594	.9427	5/16
3/8	.0313	.1146	.1979	.2813	.3646	.4479	.5313	.6146	.6979	.7813	.8646	9479	3/8
7/16	.0365	.1198	.2031	.2865	.3698	.4531	.5365	.6198	.7031	.7865	.8698	.9531	7/16
1/2	.0417	.1250	.2083	.2917	.3750	.4583	.5417	.6250	.7083	.7917	.8750	.9583	1/2
9/16	.0469	.1302	.2135	.2969	.3803	.4635	.5469	.6302	.7135	.7969	.8802	.9635	9/16
5/8	.0521	.1354	.2188	.3021	.3854	.4688	.5521	.6354	.7188	.8021	.8854	9688	5/8
11/16	.0573	.1406	.2240	.3073	.3906	.4740	.5573	.6406	.7240	.8073	.8906	.9740	11/16
3/4	.0625	.1458	.2292	.3125	.3958	.4792	.5625	.6458	.7292	.8125	.8958	.9792	3/4
13/16	.0677	.1510	.2344	.3177	.4010	.4844	.5677	.6510	.7344	.8177	.9010	.9844	13/16
7/8	.0729	.1563	.2396	.3229	4063	.4896	.5729	.6563	.7396	.8229	.9063	.9896	7/8
15/16	.0781	.1615	.2448	.3281	.4115	4948	.5781	.6615	.7448	.8281	.9115	.9948	15/16
1	.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167	1.000	1
	0	1	2	3	4	5	6	7	8	9	10	11	

Table IV
USEFUL RELATIONS.

Lineal feet	×.00019	= miles
Lineal yards	×.0006	= miles
Square inches	×.007	= square feet
Square feet	×.111	= square yards
Square yards	×.0002067	= acres
Acres	×4840	= square yards
Cubic inches	×.00058	= cubic feet
Cubic feet	×.03704	= cubic yards
Links	×.22	= yards
Links	×.66	= feet
Feet	×1.5	= links

360° = 21600′ = 1296000″
Radius = arc of 57.2957790°
Arc of 1° (radius = 1) = .017453292
Arc of 1′ (radius = 1) = .000290888
Arc of 1″ (radius = 1) = .000004848

$\pi = 3.141592654$

$\sqrt{\frac{1}{\pi}} = 0.564190$

$\frac{\pi}{4} = 0.785398163$

$\sqrt[3]{\frac{6}{\pi}} = 1.240700982$

$\frac{\pi}{6} = 0.523598776$

$\pi^2 = 9.869604401$

$\sqrt{\frac{4}{\pi}} = 1.128379167$

$\frac{1}{\pi^2} = 0.101321184$

$\frac{\pi}{6} = 0.523598776$

$\sqrt{\pi} = 1.772453851$

$\frac{4.\pi}{3} = 4.188790205$

$\frac{1}{\pi} = 0.3183099$

Curvature of Earth's surface = about 0.7 feet in 1 mile
Curvature in feet = 0.667 (Dist. in miles)²
Difference between arc and chord length, 0.05 feet in 11½ miles

Probable error of a single observation $= 0.6754\sqrt{\frac{Mv^2}{n-1}}$

Error in chaining of 0.01 feet in 100 feet:
Due to—

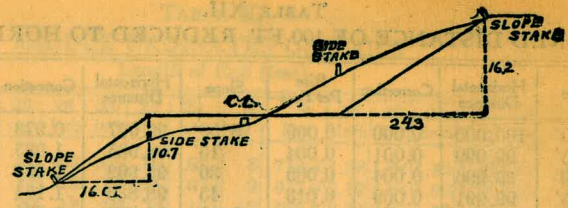
1. Length of tape error of 0.01 feet
2. Alignment. One end 1.4 feet out of line
3. Sag of tape at centre of 0.61 feet.
4. Temperature difference of 15°
5. Difference of pull of 15 lbs.

STADIA REDUCTION FORMULÆ.

Horizontal Distance = $R - R \sin^2 a + C \cos a$
Vertical Distance = $R\ \tfrac{1}{2} \sin 2a + C \sin a$

$$R = \text{Reading} \times \frac{\text{distance from Object glass to cross hairs}}{\text{distance between cross hairs}}$$

C = distance from Object glass to cross hairs + distance from Object glass to center of instrument.
a = angle of elevation for mid Reading



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.

SLOPE 1½ TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0 00	0 15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1 65	1 80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3 45	3.60	3 75	3.90	4.05	4.20	4 35	2
3	4.50	4 65	4.80	4.95	5 10	5 25	5 40	5.55	5.70	5.85	3
4	6.00	6 15	6.30	6.45	6.60	6 75	6.90	7.05	7.20	7.35	4
5	7 50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9 00	9 15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10 65	10.80	10.95	11.10	11.25	11.40	11.55	11 70	11.85	7
8	12.00	12 15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13 50	13 65	13 80	13 95	14.10	14.25	14.40	14 55	14.70	14.85	9
10	15.00	15 15	15 30	15 45	15.60	15.75	15.90	16.05	16.20	16 35	10
11	16 50	16 65	16 80	16.95	17 10	17.25	17.40	17.55	17.70	17.85	11
12	18 00	18 15	18.30	18 45	18.60	18 75	18.90	19.05	19.20	19 35	12
13	19 50	19 65	19.80	19.95	20.10	20.25	20 40	20.55	20.70	20.85	13
14	21.00	21 15	21.30	21.45	21 60	21.75	21.90	22 05	22 20	22 35	14
15	22 50	22 65	22 80	22 95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24 15	24 30	24 45	24.60	24.75	24 90	25 05	25.20	25.35	16
17	25.50	25 65	25.80	25 95	26.10	26 25	26 40	26.55	26.70	26.85	17
18	27.00	27 15	27.30	27 45	27.60	27.75	27.90	28.05	28 20	28.35	18
19	28 50	28 65	28 80	28.95	29.10	29.25	29 40	29.55	29.70	29.85	19
20	30 00	30 15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31 50	31 65	31.80	31.95	32 10	32 25	32.40	32.55	32 70	32 85	21
22	33 00	33 15	33 30	33 45	33.60	33 75	33.90	34.05	34.20	34.35	22
23	34 50	34 65	34.80	34.95	35.10	35 25	35 40	35.55	35.70	35 85	23
24	36.00	36 15	36.30	36 45	36.60	36.75	36.90	37.05	37 20	37.35	24
25	37.50	37.65	37 80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39 00	39 15	39 30	39 45	39 60	39.75	39.90	40.05	40.20	40.35	26
27	40 50	40 65	40 80	40.95	41.10	41.25	41 40	41.55	41.70	41.85	27
28	42 00	42 15	42.30	42.45	42.60	42 75	42.90	43.05	43.20	43.35	28
29	43 50	43 65	43.80	43 95	44.10	44 25	44 40	44.55	44.70	44 85	29
30	45 00	45 15	45.30	45 45	45.60	45.75	45.90	46.05	46 20	46.35	30
31	46.50	46.65	46.80	46 95	47.10	47 25	47.40	47.55	47.70	47.85	31
32	48 00	48.15	48.30	48 45	48.60	48 75	48.90	49.05	49 20	49.35	32
33	49 50	49 65	49.80	49.95	50.10	50.25	50.40	50.55	50 70	50.85	33
34	51 00	51.15	51.30	51.45	51.60	51 75	51.90	52.05	52.20	52.35	34
35	52 50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54 00	54 15	54.30	54 45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55 50	55 65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57 00	57.15	57.30	57 45	57.60	57 75	57.90	58.05	58.20	58 35	38
39	58 50	58.65	58 80	58.95	59.10	59 25	59.40	59 55	59.70	59.85	39
40	60 00	60 15	60 30	60 45	60 60	60.75	60 90	61.05	61 20	61.35	40
41	61.50	61 65	61 80	61 95	62 10	62 25	62.40	62 55	62 70	62.85	41
42	63 00	63.15	63 30	63 45	63 60	63 75	63 90	64 05	64 20	64.35	42
43	64.50	64 65	64 80	64.95	65.10	65 25	65 40	65.55	65.70	65.85	43
44	66 00	66 15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67 50	67 65	67 80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69 00	69 15	69 30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70 50	70 65	70 80	70 95	71.10	71.25	71 40	71.55	71.70	71.85	47
48	72.00	72 15	72.30	72.45	72.60	72.75	72.90	73 05	73.20	73 35	48
49	73 50	73 65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

Computed by L. Leland Locke.

70.23
0.65
70.88
6.34
64.54
5.30
69.84
0.12
69.72
12.12
81.84
1.71
80.13
12.59
92.72
0.46
92.26
7.81
100.07
12.34
87.69
0.85
88.54
12.27
76.27

94.03
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925.31
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85.5
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49265
78824
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24.01

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228
114

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134.3

9088
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311.54

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696
7424

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62.3
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16 68.6
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16 17.5 — 51.05 Nail
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1617.5

Nail + 6.3

14+87
63
14+93.3

16.00
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15.67

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75

50
28
22

1.45
47.72

78

9 7/8 75

73.13

54.6
51.6
5.0

137.6
133.2
201.4
6.4
195.0N
1+65
2.B

358-20
278 41
80-01
148.4
41
189.4
41

397.54
392.78
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5200.

78
12
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360
96

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14

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218.4
189
52.7
241.7

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1.5

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33.7