

1569

PRELIMINARY
SEWERS

1888

SEWERS

1888

1888

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning
Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be $30.6 + (20 - 16) \div 2$ or 2 ft. added to $30.6 = 32.6$. For slopes of 1 on $1\frac{1}{2}$ see inside of back cover.

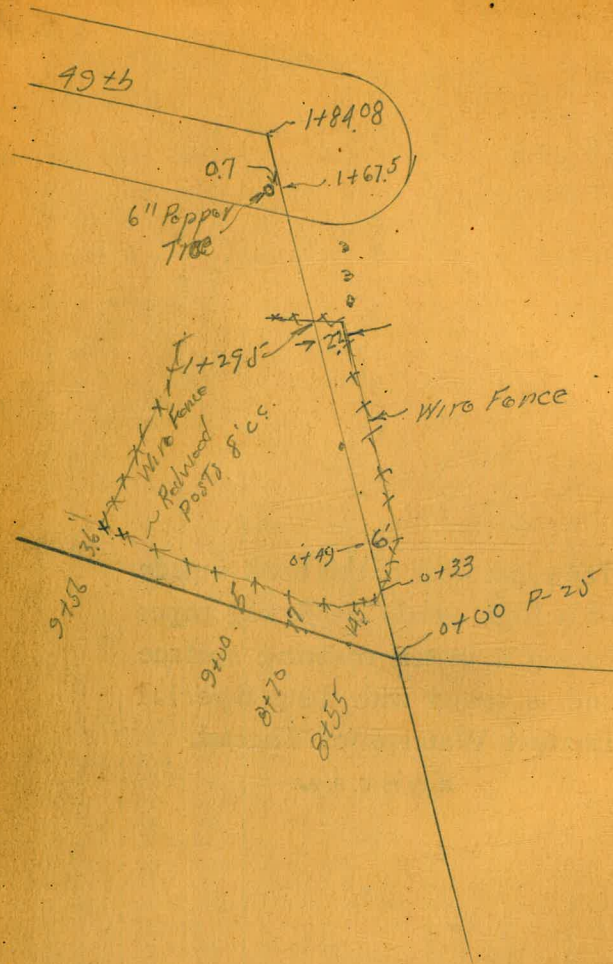
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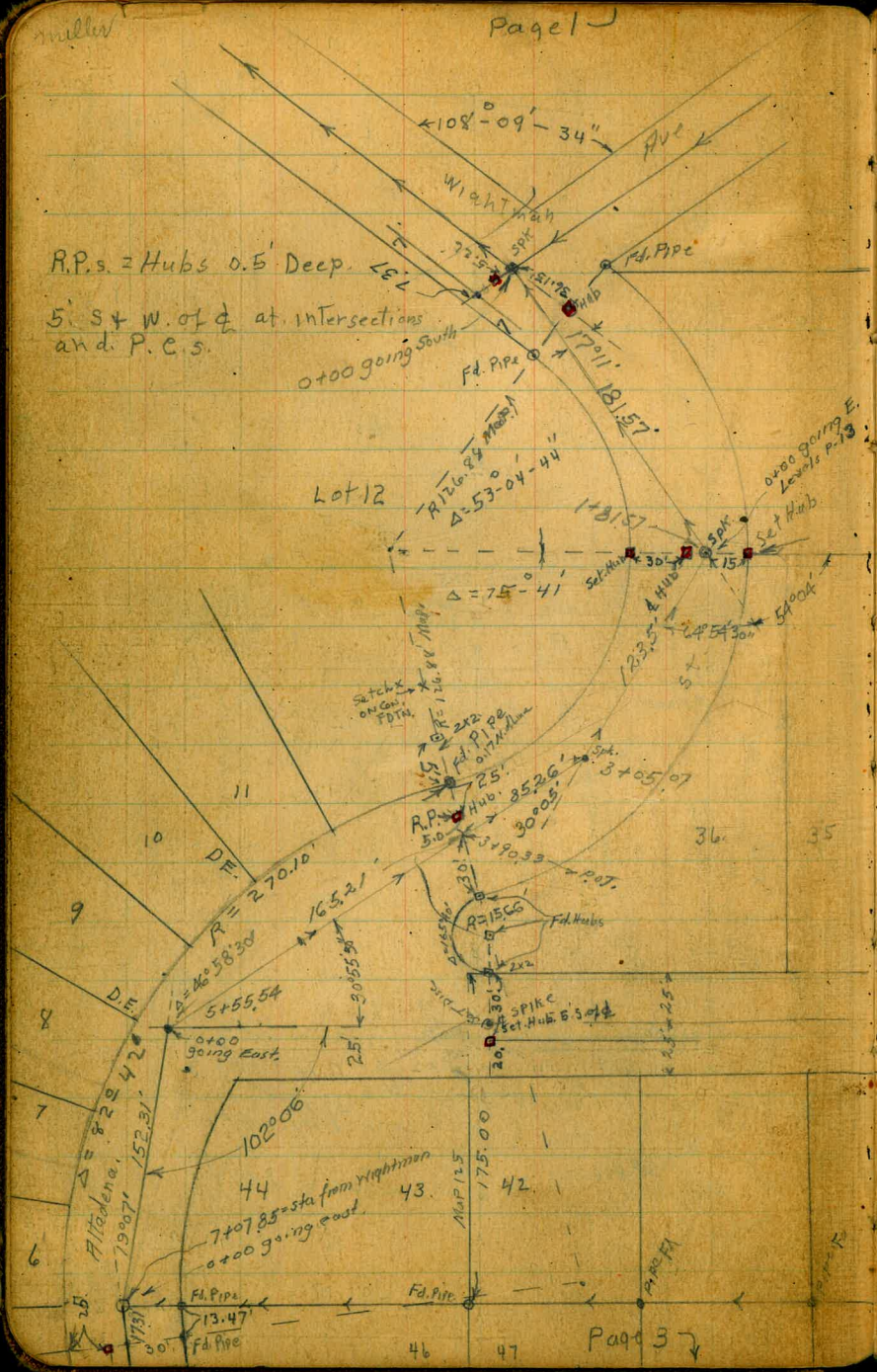
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1914
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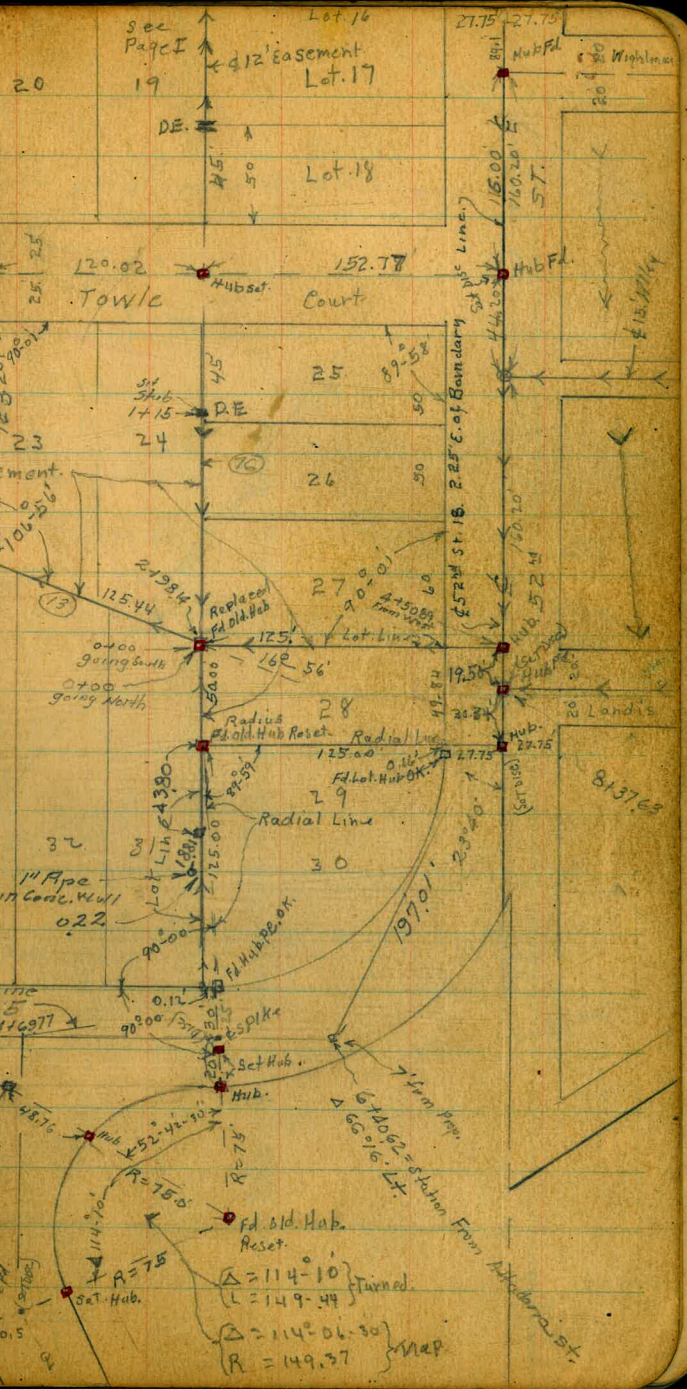
Miller

Page 1

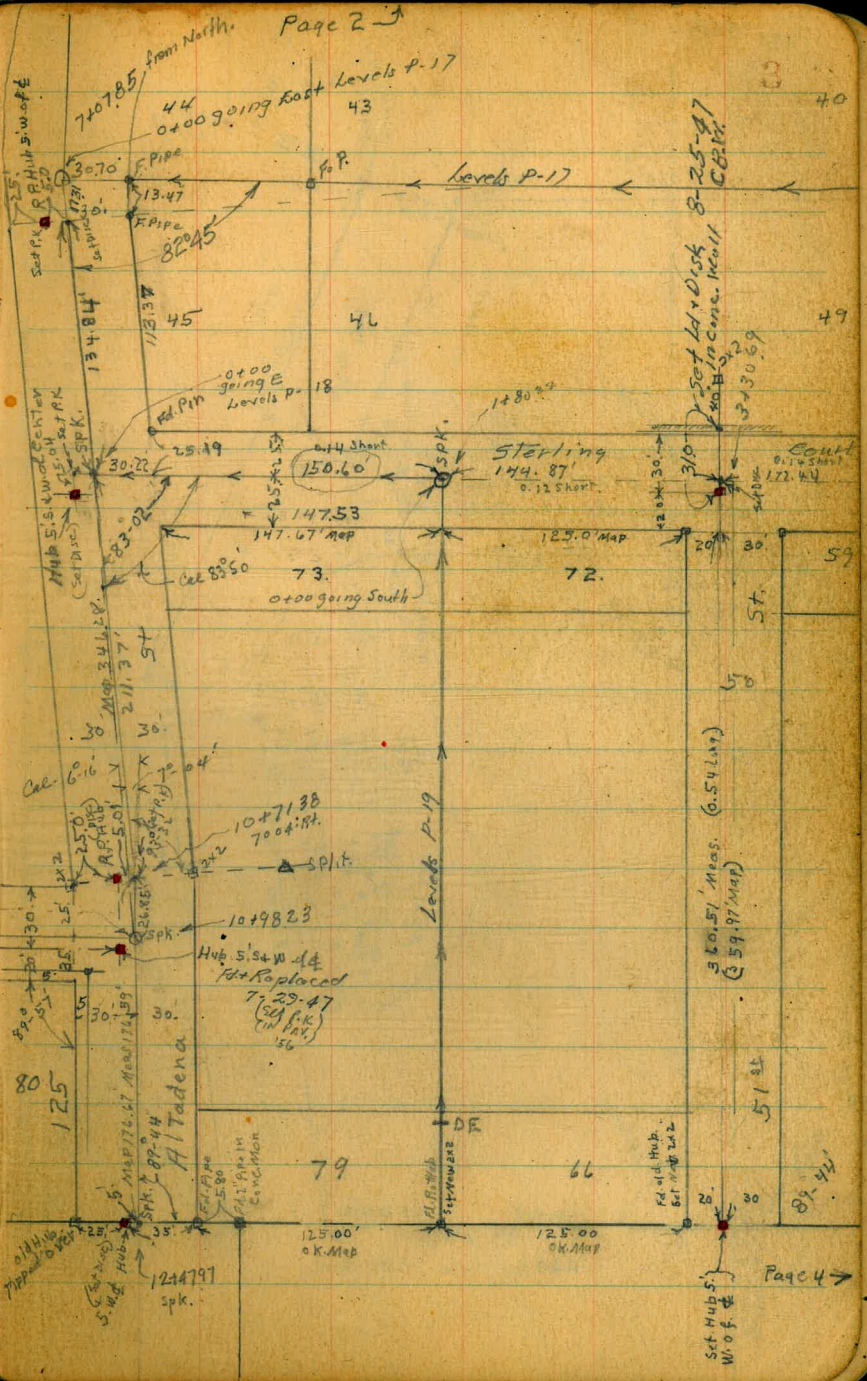
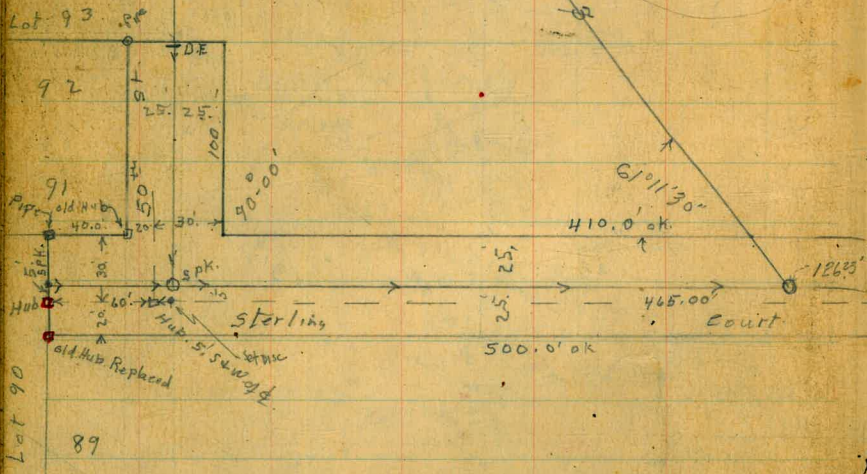
R.P.s = Hubs 0.5' Deep
5' S + W. of Δ at intersections
and P.C.s.

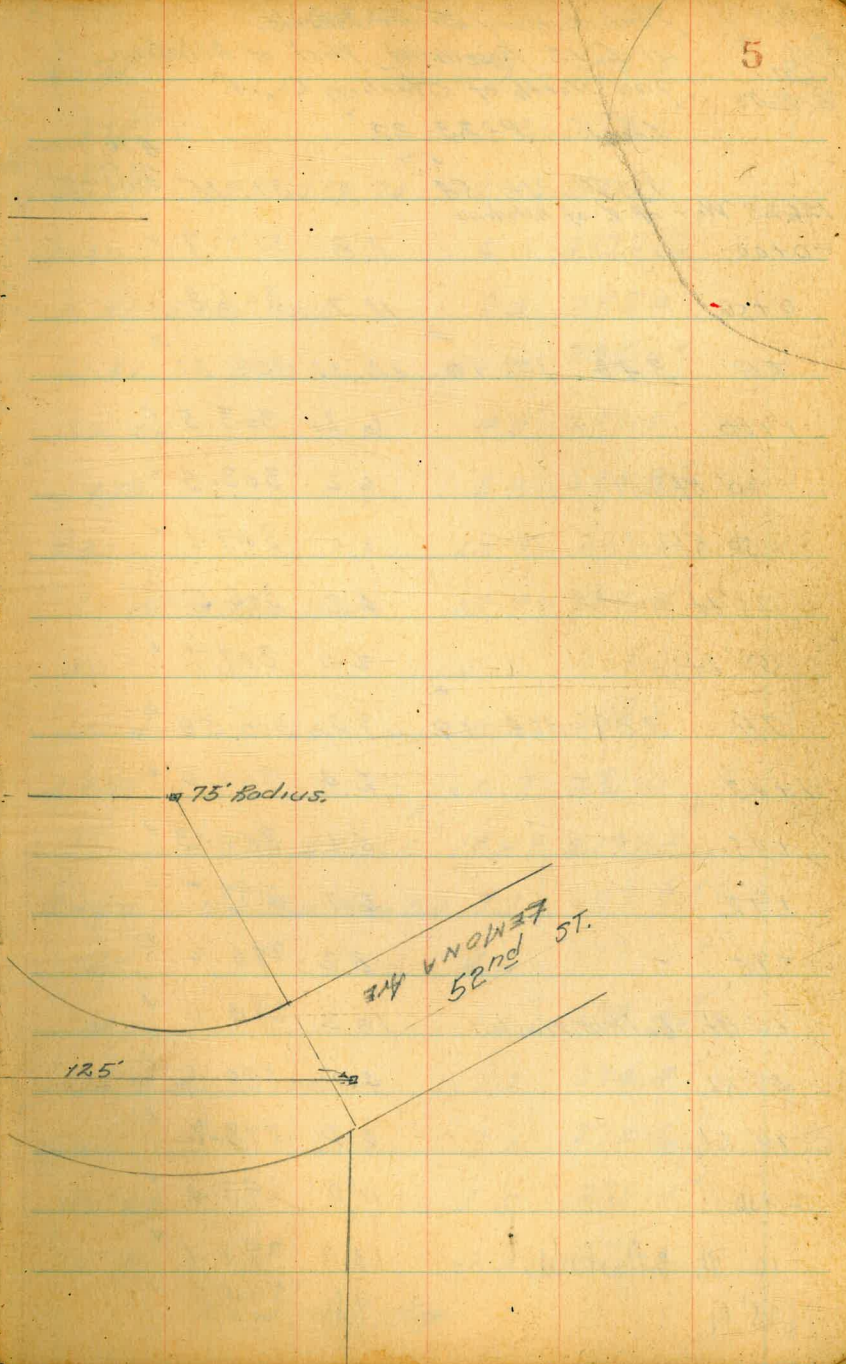
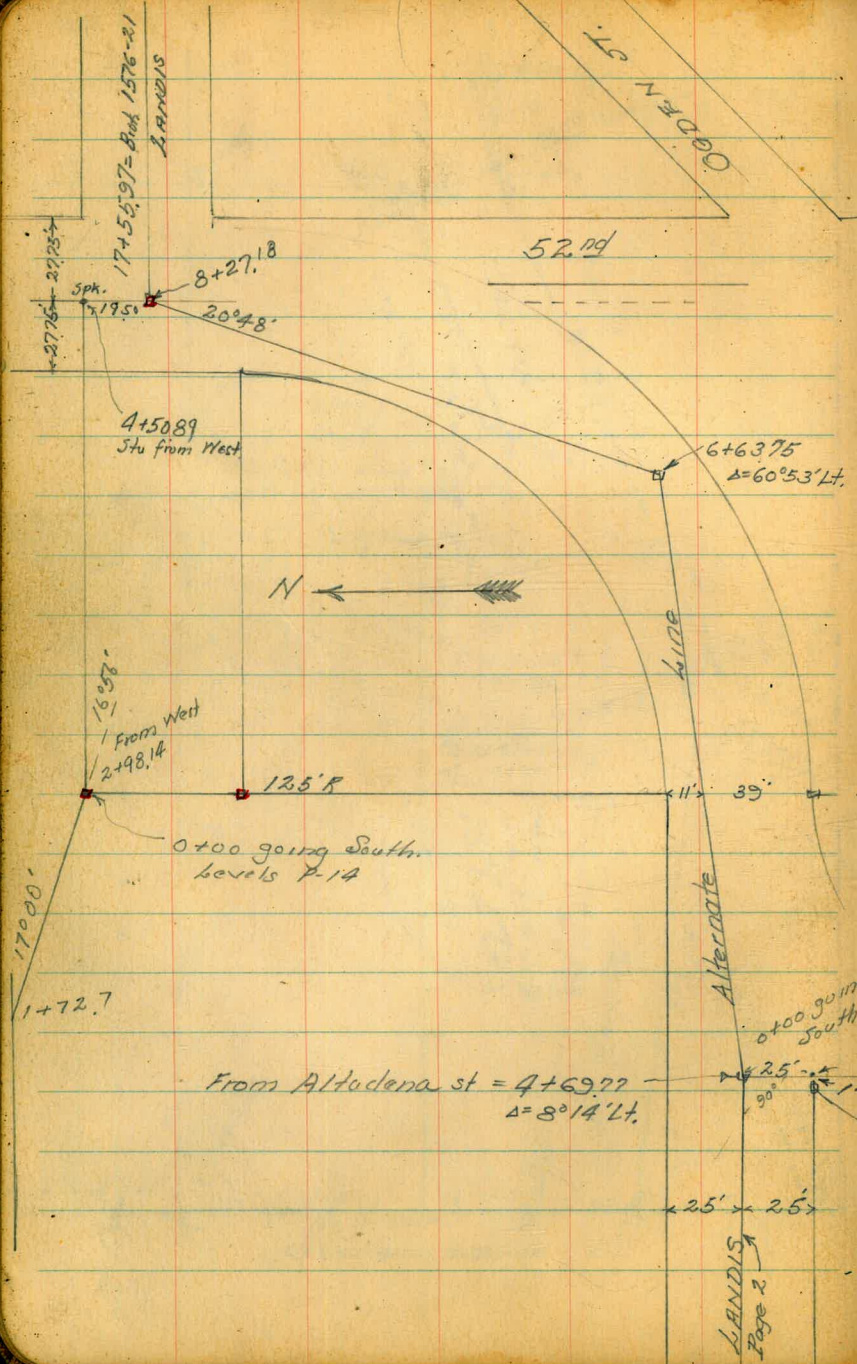


Page 3



See 2105
20 for X Sec.





LANDIS
Page 2

Walker
Bliss
Isbell
5-2-40

Preliminary Survey levels.
17 & 12' Easement, West of Altadena
and North of Sterling Court.
Location P-23-22

	1.39	318.54	317.15	
126.23 West of E of Altadena				
= 0+00 on ground		7.8	310.7	✓
0+50		11.7	306.8	✓
TP	3.48	309.70	12.32	306.22
1+00		6.2	303.5	✓
20' Rt.		6.2	303.5	✓
50' Rt.		2.4	307.1	✓
25' Lt.		4.2	305.5	✓
50' Lt.		2.0	307.7	✓
TP	3.89	304.39	9.20	300.50
1+43		2.4	302.0	✓
+45		4.1	300.3	✓
+92		6.7	297.7	✓
+95		8.2	296.2	✓
10' Rt. = Bottom Wash.		10.2	294.2	✓
50' Rt.		4.0	300.4	✓
10' Lt.		6.2	298.2	✓
2+50		11.0	293.4	✓
10' Rt. Bottom Wash.		13.3	291.1	✓
25' Rt.		9.6	294.8	✓

B.M. 3 nails
17' Pkts.
SW. Altadena
& Sterling St.

P-20

304.39 ✓

20' Lt.		5.9	298.5	✓
2+55		12.2	292.2	✓
TP	1.51	293.74	12.16	292.23
3+00		6.0	287.7	✓
6' Rt. = Bottom Wash		8.3	285.4	✓
25' Rt.		+1.3	295.0	✓
20' Lt.		4.3	289.4	✓
3+50		8.8	284.9	✓
4+00		10.7	283.0	✓
10' Rt. = Bottom Wash.		13.7	280.0	✓
40' "		5.2	288.5	✓
30' Lt.		5.2	288.5	✓
4+25		12.7	281.0	✓
TP	2.40	281.65	14.49	279.25
4+40 on Conc. Base Fence Post		3.7	277.9	✓
+42		4.6	277.0	✓
+44		3.2	278.4	✓
+75 = Bottom Wash		7.2	274.4	✓
5+00 " " "		9.0	272.6	✓
30' Lt.		3.5	278.1	✓
10' Rt.		3.5	278.1	✓

6 ✓
with
B.M.

Cont. Next Page

Cont from

281.65

5+27.89 = POT. on Hub	9.91	271.74	✓	on Alternate line
5' Lt. in Wash	11.4	270.2	✓	
5+38	7.9	273.7	✓	
+44	5.8	275.8	✓	
+62	4.9	276.7	✓	
+73	3.6	278.0	✓	
+86.76 = POT. on Hub	3.22	278.43	✓	
6+00	6.3	275.3	✓	
T.P. 4.43	274.53	11.55	270.10	✓
6+17	6.5	268.2	✓	
+29	8.3	266.2	✓	
+37	12.0	262.5	✓	
+50	13.0	261.5	✓	
+72 = Bottom Wash	13.4	261.1	✓	
6+85	12.4	262.1	✓	
7+00	12.3	261.7	✓	
+15 on Bank	13.1	261.4	✓	
+20 = Bottom Wash Cholla Sewell	16.2	258.3	✓	
+27.35 = Intersection	15.9	258.6	✓	in Wash

Levels For check cont. opp. Page.

Walker
Bliss
1.5h/lt.
5-2-40LEVELS For Sewer
"Alternate Line"
From station 5+27.89 to 8+04.59

Location P-22

281.65 = opp. Page

5+27.89 = Δ 40°53'30" Lt.	9.91	271.74	✓	
+35 = Bottom ditch	10.9	270.7	✓	
+50	10.9	270.7	✓	
3' Rt. Bottom ditch.	11.4	270.2	✓	
+60	9.7	271.9	✓	
6+00	10.4	271.2	✓	
15' Lt.	5.0	276.6	✓	
15' Rt.	13.0	268.6	✓	
6+20	10.9	270.7	✓	
+50	12.5	269.1	✓	
T.P. 4.43	274.53	11.55	270.10	✓
+93.03 on Stake	8.59	265.94	✓	
7+00	9.1	265.4	✓	
25' Lt.	7.7	266.8	✓	
25' Rt.	11.5	263.0	✓	
7+38	12.7	261.8	✓	
T.P. 2.08	263.98	12.63	261.90	✓
7+60	5.0	259.0	✓	
7+71	5.9	258.1	✓	

Cont. P. 8

26398 ✓

7+85	5.0	259.0 ✓
+96.	7.1	256.9 ✓
8+00	6.8	257.2 ✓
+04.59 Existing MH.	5.34	258.64 ✓ <small>x on King MH South edge.</small>
+D489 Flow to South & East	11.34	252.64 ✓
+04.9 " to North.	10.84	253.14 ✓

For check Above H.I. See Continuation
Levels Opposite page.

Walker Shiss Lobell 5-2-40	Preliminary levels for Sewer in Winona St. From Existing M.H.	
	at Landis & Winona, North. Location 22-21-28	
	263.98 = x from opp. Page	rim 174.
8+04.59 opp Page		
=0+00	5.34	258.64 J. edge
0+00 Flow to North	10.84	253.14 ✓
+2.	6.0	258.0 ✓
0+08 in Wash.	9.0	255.0 ✓
+20 " "	7.9	256.1 ✓
+30	5.1	258.9 ✓
+30	3.8	260.2 ✓
1+00	1.7	262.3 ✓
T.P.	12.89	276.40 ✓
1+35	11.6	264.8 ✓
10' Lt.	9.6	266.8 ✓
20' Rt.	12.3	264.1 ✓
T.P.	12.23	288.60 ✓
1+70	17.3	271.3 ✓
2+00	7.7	280.9 ✓
45' Rt.	11.8	276.8 ✓
30' Lt.	9.5	279.1 ✓
50' Lt = edge Park.	13.4	275.2 ✓

Cont. P. 9

288.60 ✓

Whitona St. Jewer

Cont. from P-8

2+20	6.3	282.3	✓
+50	2.1	286.5	✓
T.P. 12.89	301.28	0.21	288.39 ✓
+83.15 = Δ 0°35' Lt.	11.84	289.44	✓ on Hub.
3+00	10.6	290.7	✓
18' Lt. = Rim Canyon	13.5	287.8	✓
28' Lt.	17.0	284.3	✓ R. 15' Above
3+28	8.9	292.4	✓
+50	8.9	292.4	✓
3+99.6 on P.O.T. Hub.	4.33	296.95	✓
15' Lt. = Rim Canyon	11.0	290.3	✓
10' Rt.	+2.0	303.3	✓
T.P. 12.55	313.64	0.19	301.09 ✓
4+10	16.1	297.5	✓
+30	16.0	297.6	✓
4+50	12.7	300.9	✓
10' Lt.	17.8	295.8	✓
13' Rt. = West edge Graded Road	7.7	305.9	✓
	7.64		
4+75.02 = Intersection line from	50th	306.00	✓
4+82. = ^W edge Road	6.5	307.1	✓

313.64 ✓

9

5+00 in Road.	5.7	307.9	✓ All Lots on Rt. in this Block are Above 2' Elev. unless noted otherwise
+50 " "	2.0	311.6	
12' Lt.	2.1	311.5	
35' Lt.	8.0	305.6	
45' Lt.	12.6	301.0	
T.P. 12.97	326.43	0.18	313.46 ✓
6+00 in Road.	10.5	315.9	
+50 " "	6.0	320.4	
7+00 " "	2.6	323.8	
20' Lt.	4.6	321.8	
50' Lt.	9.6	316.8	
7+50 " "	0.6	325.8	
T.P. 11.87	338.09	0.21	326.22 ✓
8+08 = South edge House on Lt.	9.9	328.2	
46' Lt. = East edge House	11.8	326.3	Floor
64' " " W " "	16.2	321.9	Ground
8+50	8.9	329.2	✓
9+00 = N edge House on Lt.	7.8	330.3	✓
75' Lt. = S. side Porch	7.5	330.6	Floor
75' " on ground	10.0	328.1	at house.

Cont. P-31

Walker

Preliminary Levels For Sewer
 In & Rex St. Oak Park Sub., From & 52nd St.
 To West end.

& 52 nd St.	4.68	337.44	x B.M. on & Hub 11+1517 Back 1576-28 Prop on Lot 5 RT to Sta. 1+50 Level
= 0+00 on ground.	4.4	333.0	
+12	4.8	332.6	
0+50	3.4	334.0	
1+00	3.6	333.8	
+52.75 on Hub.	4.08	333.36	North and South Easement.
2+00	4.9	332.5	
75' RT.	9.4	328.0	
2+50	5.7	331.7	
3+72.75 = End St. on Hub.	7.09	330.35	
75' RT.	13.5	323.9	
50' LT.	6.1	331.3	

Note, For check out π on opposite page
 see levels for Wightman St. Page. 11

Preliminary Levels For Sewer. 10 ✓
 in & Easement in Blks. West of 52nd street.

From the SW Cor Lot 4, North of Rex Ave to
 a Dead end SW Cor Lot 17, North of

with & Towle Court. see sketch by Miller Page 1
 75' N of & Rex
 = 0+00 π from opp. Page.
 337.44 ✓

0+00 on grd.	6.3	331.1	✓
0+50 = N.L. Rex.	5.0	332.4	✓
0+75 = 1+52.75 opp Page	4.08	333.36	✓
1+00 = S.L. Rex.	4.5	332.9	✓
1+35	4.2	333.2	✓
+70	5.2	332.2	✓
2+00	5.1	332.3	✓
75' RT.	7.1	330.3	✓
70' LT.	5.8	331.6	✓
2+50	8.0	329.4	✓
3+00	11.7	325.7	✓
+10	12.4	325.0	✓
+14	14.6	322.8	✓
3+24.92 = & Wightman.	13.90	323.52	on Hub
3+40	15.2	322.2	lots on LT in this Blk. Above
3+50	13.2	324.2	✓
4+00	8.2	329.2	✓
4+49.92	6.4	331.0	✓

Walker
Isbell
Osborne
2-27-40

Prelim. levels for Sewer in Wightman St.
From E. 52nd St. To Existing N.H. #49
on the Cholla Trunk line
East of 50th St. And in Wightman St.

7 from P-10 Location R-Y
337.44 ✓

E 52nd					
= 0+00 on ground	5.2	332.2	332.2		
+27.75 = W.L. 52nd	5.6	331.8			
0+50	7.8	329.6			
1+00	10.4	327.0			
T.P. 129					
+52.75 on Hub	13.90	324.83	324.83		
2+00	4.9	319.9			
40	7.7	317.1			
2+6474 = 2 34 54' Lt.	9.13	315.70			
3+00	13.0	311.8			
T.P. 0.52	12.98	312.37	311.85		
3+50	5.9	306.5			
4+00	11.2	301.2			
T.P. 0.57	12.84	300.10	299.53		
4+50	3.4	296.7			
5+00	7.8	292.3			
5+50	12.0	288.1			
T.P. 0.96	12.66	288.40	287.44		
6+00	2.2	286.2			
+02 in travelled Roadway	3.0	285.4			

Note: All levels to Lt. and Rt. of E. are Above & below to the end of line

Page 10
3+24.92

(5' measured)

28840 ✓

11 ✓

E. Wightman And Altadena					
6+15.62 = 1 7 50' 26" Rt.	3.2	285.2			
T.P.	1.74	288.93	287.19		
6+50 in Roadway	5.1	283.8			
7+00	7.6	281.3			
T.P. 1.63					
7+66.55 = 2 20' 43' 2" 279.14	11.42	277.51			
7+80	2.4	276.7			
55' Lt. at house	2.8	276.3			
" " on Floor. house	2.4	276.7			
8+00 = J.L.Y. edge Travelled Road	3.6	275.5			
7+50	5.9	273.2			
50' Lt.	5.6	273.5			
9+00	7.6	271.5			
50' Lt.	10.0	269.1			
9+28.12 = East N.H. #49	6.52	272.62			
" " " " Flowline	15.21	263.93			
Chk B.M. B.P. in Hd Wall	6.14	273.00			
		272.93 = B.M.			
		0.07 = Error			

1/2" Iron Pipe
S.E. Wightman
& Altadena

in Gro. Book
190-6

Walker
Bliss.
Isbell
2-23-40

Preliminary levels for Sewer in Altdena St.
From E. Wightman To South Boundary
of Oak Park Annex Map #1764

Sketch P. 2-3.
8" M. Iron Pipe
Wightman & Altdena
Page 11

11.97	299.16	287.19	
6+15.62 = E. Wightman & Altdena Page 11 = 0+00	14.0	285.2	
0+50	11.0	288.2	
1+00	9.0	290.2	
1+40	6.7	292.5	
1+81.57 = Δ 64°54'30" Rt.	2.71	296.45	on SPIKE.
2+00	1.2	298.0	
T.P. 12.28 311.44	0.00	299.16	
2+50	8.5	302.9	
3+05.97 = Δ 30°05' Rt.	3.46	307.98	on SPIKE.
+50	1.1	310.3	
T.P. 11.78 323.04	0.18	311.26	
4+00	9.6	313.4	
+75	4.9	318.1	
5+00	4.3	318.7	
T.P. 3.09 322.11			x 0+00 on Kard's St. Line to East.
5+55.54 = Δ 46°58'30" Lt.	4.02	319.02	on spike.
6+00	3.4	318.7	
+50	3.8	318.3	
7+07.85 = Δ 19°07' Lt.	4.49	317.62	on spike.

322.11 ✓

13 ✓

(6+75) Not taken in order.	3.8	318.3	
60' Rt.	5.3	316.8	✓
7+30	4.9	317.2	✓
45' Rt. at house on Ground	5.3	316.8	✓
" " on Floor	4.5	317.6	✓
7+50	5.0	317.1	✓
8+00	5.2	316.9	✓
+60.01 = Pt. of Sterling Ct. on E.	6.55	315.56	on spike.
(8+61) = N. edge House on Ground	7.7	314.4	50' Rt.
" " " " Floor.	7.2	314.9	" "
9+00	6.9	315.2	✓
(9+10) = N. edge House on Rt. Floor.	8.0	314.7	50' Rt.
" " " " " Ground.	8.8	313.3	" "
9+50	7.8	314.3	✓
(9+68) = N. edge House on Rt. Floor.	8.3	313.8	50' Rt.
" " " " " Ground.	9.7	312.4	" "
10+00	8.4	313.7	✓
10+71.38 = Δ 7°04' Rt.	6.3	315.8	✓ N.L. Sterling court on West.
10+98.23 = Δ Sterling ct.	4.93	317.18	✓
11+50	3.3	318.8	✓
T.P. 7.63 329.07	0.67	321.44	
12+00	7.6	321.5	✓
+47.97 = Shine Sub.	3.1	326.0	✓

Cont. Next Page.

329.07 ✓

3 Nails in Pole With An Lamp 11.92 317.15 ✓
S.W. Cor.
Sterling ct.
+ Altadena.

chk. on spt 8+60 of p-12 13.51 315.56 ✓

For final check out see cont levels in sterling ct.
on East side of Altadena.Preliminary levels for Sewer,
E
in basement North of LANDIS ST. sketch P-2

From Altadena st. to 52nd st.

11.30	307.75	296.45	El. spike 1+8157 Page 12
1+81.57 P-2 (1")			
= 0+00 on spt.	11.30	296.45 ✓	
0+10 in Wash.	13.3	294.4 ✓	
0+20 " "	13.2	294.5 ✓	
1+00	8.3	299.4 ✓	All property on Lt. from this sta. Above E
15' Rt. in Wash.	10.6	297.1 ✓	
35' Rt.	5.6	302.1 ✓	
1+45	5.2	302.5 ✓	
15' Rt. in Wash.	7.9	299.8 ✓	
35' Rt.	2.9	304.8 ✓	
1+72.7 = Δ 17°00' Rt.	4.43	303.32 ✓	
10' Rt. in Wash.	7.1	300.6 ✓	
30' Rt.	3.4	304.3 ✓	

307.75 ✓

TP 15.44 318.76 4.43 303.32 ✓

13 ✓

2+00 14.1 304.7 ✓

8' Rt. in Wash. 17.6 301.2 ✓

28' Rt. 13.1 305.7 ✓

2+35 11.6 307.2 ✓

7' Rt. in Wash. 15.5 303.3 ✓

27' Rt. 11.6 307.2 ✓

2+60 7.2 311.6 ✓

17' Rt. in Wash. 14.0 304.8 ✓

37' Rt. 8.8 310.0 ✓

2+98.14 = Δ 16°56' Lt. 5.96 312.80 on Hub.

3+50 2.8 316.0 ✓

17' Rt. in Wash. 7.0 311.8 ✓

37' Rt. 2.7 316.1 ✓

TP 9.54 327.90 6.40 318.36 ✓

4+10 8.6 319.3 ✓

17' Rt. in Wash. 11.4 316.5 ✓

37' Rt. 6.4 321.5 ✓

4+30 in Fill ground 2.5 325.4 in Roadway

4+50.89 - Δ 52° Rt. 2.45 325.45 19.5' North Landes

chk. Hub 17+55.97 Book 1576 2.70 325.20 ✓

Preliminary levels for Sewer.
 in $\frac{1}{2}$ Easement West of 52nd
 Along the East line lot 31, Landis St.,
 and 52nd. see sketch P-5

SW. Cor lot 27 $\frac{1}{2}$ P. 13 2+98.14
 = 0+00 327.90 ✓ from West.

+18 in Wash.	21.0	306.9 ✓
+30	16.3	311.6 ✓
+50	13.2	314.7 ✓
+55	10.8	317.1 ✓
1+00	7.5	320.4 ✓
+50	2.8	325.1 ✓
TP 3.11	327.70	331.324.59 ✓
1+85	0.5	327.2 ✓
1+90 in Roadway	1.2	326.5 ✓
2+00 = $\frac{1}{2}$ Landis	0.7	327.0 ✓

Preliminary levels for Sewer.
 in $\frac{1}{2}$ LANDIS ST.

14 ✓

From Altadena to 52nd sketch P-2

$\frac{1}{2}$ from opp. Page
 327.70 ✓

chk. on 5+55.54 p. 12 8.65 319.05 ✓
 319.02 Al. P. 12

0.03 = Error.

5+55.54 p. 2	8.65	327.67	319.02	x corrected.
= 0+00	8.65		319.02	on sph.
+50	9.1		318.6	✓
1+00	10.1		317.6	✓ All prop on Rt. Above $\frac{1}{2}$
+50	11.8		315.9	✓
40' Lt.	12.8		314.9	✓
2+00	11.9		315.8	✓
+50	11.9		315.8	✓
65' Lt.	13.3		314.4	✓
3+00	12.1		315.6	✓
No. shot 60' Lt.				
(3+30) = Wedge House on N	13.0		314.7	on Floor.
" 60'	14.7		313.0	" Ground.
3+50	11.8		315.9	✓
4+00	10.8		316.9	✓
20' Lt.	10.6		317.1	✓
30' Lt.	12.4		315.3	✓
50' Lt.	12.9		314.8	✓

LANDIS St. Cont. from P. 14

327.67

4+69.77 = POT. on stub.	7.51	320.16	o. 60 line to South Sketch P-5
5+00	5.3	322.4	
75' Lt.	7.3	320.4	
5+50	2.5	325.2	
TR 9.65 337.00	0.32	327.35	
6+00	7.8	329.2	
+12 = S. edge Travelled Road.	7.1	329.9	
+33	2.2	334.8	
6+40.62 = Δ 66°16' Lt.	1.25	335.75	
6+46	1.5	335.5	
+57 = S. edge Road	5.3	331.7	
7+00	5.2	331.8	
50' Lt.	10.9	326.1	
7+50	8.2	328.8	
8+00	11.1	325.9	
+37.63 = Δ 23°40' - def Δ to Δ 52nd	11.83	325.17	Δ Landis on East

LEVELS For Alternate line

Sketch P-5

327.67 = K opposite page.

15

4+69.77 = Δ 8°14' Lt.	7.51	320.16	All prop. on R. Above Δ
5+00	5.8	321.9	
+50	1.8	325.9	
TR 9.65 337.00	0.32	327.35	
6+00	7.5	329.5	
6+63.75 = 60°53' Lt.	4.50	332.50	
(6+10) 30' Lt. at house angr.	8.9	328.1	Not taken in order
" " " " " Floor.	8.10	328.90	
7+00	5.5	331.5	
+50	9.0	328.0	
8+00	11.3	325.7	
+27.18 Δ 20°48' - def Δ to Δ 52nd	11.83	325.17	Δ Landis on East.
		325.06	
		0.11 = Error	

469.77
175
644.77

LEMONA AVE

Levels For Sewer in ~~520~~ From hands
South For 150' Sketch P-5

4+69.77 P-5 =0+00	x P-15 327.67	7.51	320.16	All prop. to East Above 4
+25		6.8	320.9	
+55		6.6	321.1	
1+00		10.0	317.7	
+50' on ground		14.5	313.2	
30' Rt. Along Easement		14.6	313.1	12' South = House on ground
" " " "		12.3	315.4	

For chk. out Above H.I. See P. 15

Walker, Hazard, Hardin 4-2-45
LEVELS - Proposed Change in Line
Preliminary Sewer Blk F. Oak Crest Park
Location See ^{Sketch} Page - 63

	12.74	(287.76)	275.02	BM. on Hub 0+00 P78
0+00 on Hub	12.19	(287.71)	275.57	
+28	3.4		284.4	
T.P.	12.17	(299.88)	0.05	(287.71)
+50			11.0	288.9
+75			6.1	293.8
1+00 on P.O.T. slab			2.95	296.93
1+13 on ground - 3" Conc. Wall			1.5	298.4
1+13 = 4" Top Conc. "			0.90	298.98

T.P.	12.02	(311.87)	0.03	(299.85)	16
(1+12)	2.5	Lt. on Cob Wall Conc.	11.0	300.9	Beginning Cobb. Wall on Lt.
(1+26)	2.45	Rt. on Landing	10.24	301.63	
(1+29)	2.45	Rt. on Hand Conc. Walk	11.10	300.77	
1+36.9	Base	3" Conc. Wall	10.4	301.5	
"	on Top	"	9.71	302.16	
1+42			9.2	302.7	
	2.5	Lt. on Cob. Wall	7.5	304.4	Steps down
"	"	"	5.9	306.0	
(1+45)	2.45	Rt. on Conc. Slab Conc. Patch	8.54	303.33	2.45' Rt.
(1+48.9)	2	Landing	6.02	305.85	
(1+55)	2.45	Rt. Hand Conc. Slab	6.68	305.19	
(1+56.1)	2.45	Lt. on Cobb. Wall	4.93	306.94	Steps Down
"	"	"	2.9	309.0	
1+57.7	on Ground	at Conc. Slab	6.6	305.3	
"	"	Conc. Slab	5.76	306.11	
1+60.8	on	" at Wall	5.65	306.22	
"	"	Conc. Wall	4.88	306.99	
(1+72.7)	2.45	Rt. on Conc. Patch Landing	2.08	309.79	
(1+78)	2.45	Rt. on Conc. Slab	2.99	308.88	
1+84.7	Base	3" Conc. Wall	2.1	309.8	
"	on	"	1.36	310.51	

Cont P-55

Walker.
Bliss
16bell
3-1-40

Preliminary Levels For Sewer.
In E Rosemont in Block Bet. Landis
And Sterling Court
From Altadena St. East.

			Fl. opt. P-12 7.07.85
	6.87	324.49	317.62
7+07.85 P-2			
=0+00	6.9	317.6	
+30.7 = E. Altadena	5.8	318.7	
+75	4.2	320.3	
1+00	5.4	319.1	
75' Rt.	6.3	318.2	
85' Lt. at back of House ground	5.2	319.3	
" " " " Floor	3.2	321.3	
1+50	5.2	319.3	
2+00	4.6	319.9	
75' Rt.	6.8	317.7	
30' Lt. at stuck (house) ground.	4.5	320.0	
" Lt " Floor.	2.6	321.9	
70' Lt.	5.5	319.0	
2+50	4.8	319.7	
3+00	5.1	319.4	
75' Rt.	8.8	315.7	
50' Lt.	4.4	320.1	
3+50	4.9	319.6	

X
324.49

17

4+00	8.0	316.5	
40' Lt.	6.0	318.5	
60' Rt.	11.0	313.5	
4+50	10.0	314.5	
12' Rt Floor House	9.2	315.3	
12' " on Ground	10.5	314.0	
4+86.85 = W.L. 52nd	10.87	313.62	on Iron Pipe.
5+01.8 = 1+50 P-16	11.3	313.2	
chk. spike 8+60.0' P-12	8.95	315.54	
		315.56	sph. P-12
		0.02	Error

14.95

Walker Preliminary levels For Sewer in & Sterling ct.

Bliss
Isbell
3-1-40

From E. Altadena to E. 51st and in

51st st. From E. Sterling Court, South.

Sketch P-3

Station	Dist	El. spk.	Remarks
8+60.01	8.95	324.51	Altadena + Sterling ct.
0+00	8.95	315.56	Above spk.
0+30.22	8.2	316.3	E. L. Altadena
0+50	7.7	316.8	
1+00	7.3	317.2	All prop on Lt. to 51st Above E. Elev.
75' Rt.	7.7	316.8	
1+50	7.4	317.1	All prop. from this station to End on Rt. Above E.
1+80.22	8.9	315.6	Easement on Rt.
2+00	9.9	314.6	
7+50	11.7	312.8	
3+00	13.6	310.9	
3+30.69	14.9	309.6	= E. 51st st. $\Delta 90^{\circ}03'20''$ Rt = Map
3+55.69	13.6	310.9	S.L. Sterling Court
4+00	9.8	314.7	
50' Lt.	14.2	310.3	
4+50	3.9	320.6	
T.P.	3.18	327.13	
5+00	2.3	324.8	
50' Lt.	7.2	319.9	

327.13

5+30	2.1	325.0	18
+70	4.6	322.5	
6+00	7.8	319.3	
+50	12.0	315.1	
50' Lt.	18.0	309.1	
7+00	18.6	308.5	
+16.2 = Sub. Line.	21.3	305.8	
T.P.	4.99	322.76	
chk. Starting B.M.	7.18	315.58	Spk. E. Altadena + Sterling ct.
		315.56	Starting B.M.
		0.22	Error
			Srv. Cor. Altadena
chk. 3 Nails in Pole	5.58	317.18	Sterling ct. to W P-13
		317.15	El 3 Nails
		0.03	Error

Walker
Bliss
Isbell
3-1-40

Preliminary Levels for Sewer in Easement,
Bet. Alhadena and 51st, From E Sterling Ct.

South, See sketch P-3

324.51 = X P-18

+80.22 P-18

= 0+00

8.9 315.6

0+25 = Sline Sterling Ct.

7.0 317.5

0+50

6.7 317.8

60 Lt.

7.6 316.9

60 Rt.

7.0 317.5

T.P. 4.27 328.22

0.56 323.95

Prop on Lt.
Above E. El.

+100

8.1 320.1

Prop on Lt.
Above E. El.

+170

7.5 320.7

60 Rt.

9.4 318.8

Prop on Lt.
Above E

+200

7.0 321.2

Prop. 60 Rt.
And Lt.
Same as E. El.

+50

5.8 322.4

Prop. on Rt.
Above E. El.
to end of line

+300

5.8 322.4

60 Lt. at house, ground

7.2 321.0

" " " " Floor,

4.6 323.6

+350

9.3 318.9

+85.72 = Sub. line

12.2 316.0

60 Lt.

17.5 310.7

T.P. 3.18 327.13

4.27 323.95

327.13

T.P. 4.99 322.76 9.86 317.77

chk opt. Alhadena & Sterling at 7.18 315.58

315.56
0.02 Error.

Note: If it is decided to construct Sewer in this block, it would be better to place the sewer 2' East of E of Easement, as there are some fences, ^{and} sheds on the ^{Lot} lines belonging to West property.

Walker, Preliminary levels for Sewer in Sterling ct
Bliss From E. Altadena st., West To end of st.
Isbell And In 50th st. From Sterling Court North
3-1-40 to North end of South Lines Lots 93-95
R.M. 3 North.
Sw. Pole p. 13
Altadena + Sterling ct.

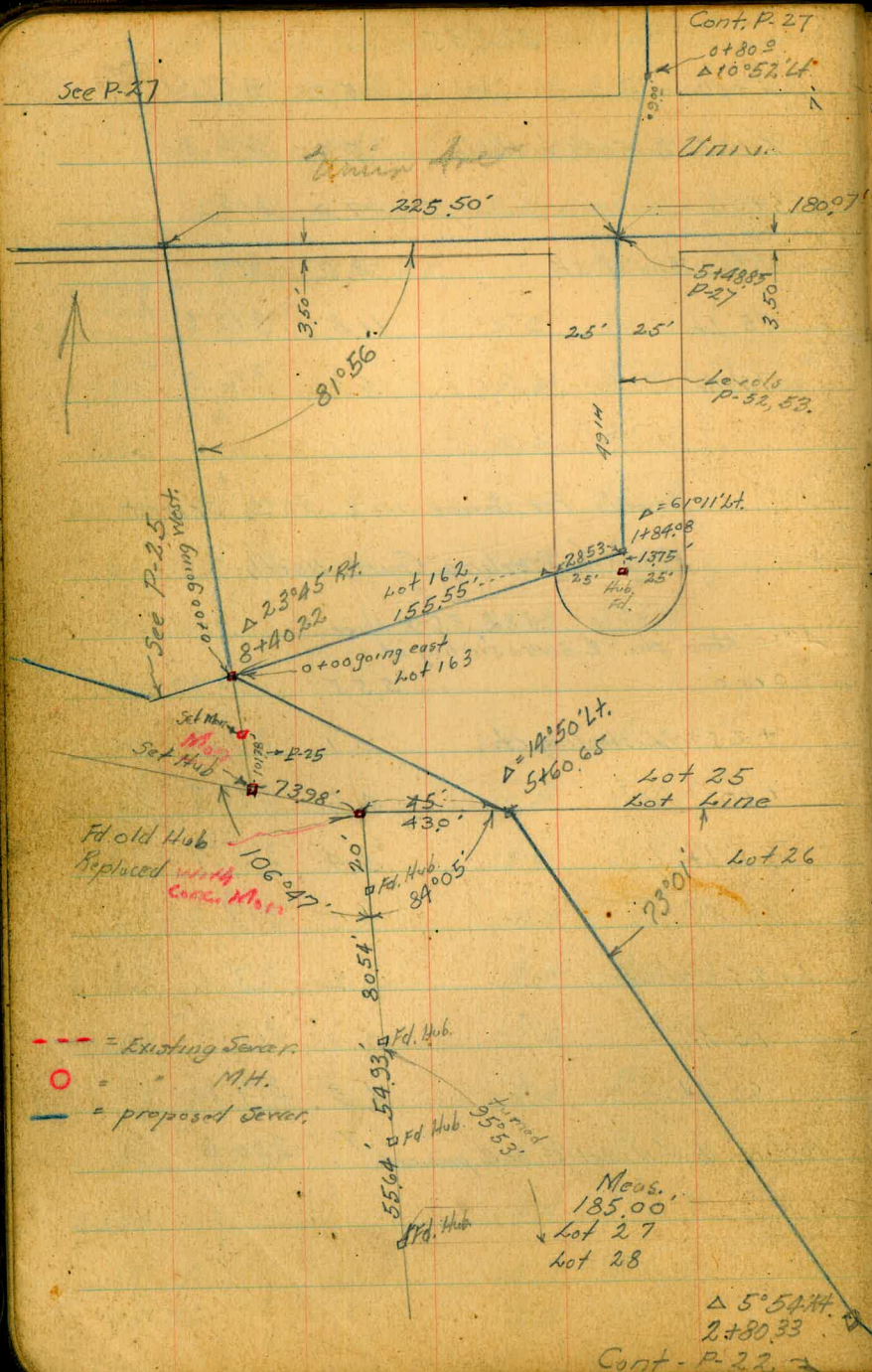
5.20	322.35	317.15	
10+98.25 p. 3 - E Altadena + Sterling ct. = 0+00		5.2	317.1 ✓
0+30		7.4	314.9 ✓ <small>All prop. on L^t Above & to Sta. 3+50</small>
+50		8.6	313.7 ✓
1+00		11.0	311.3 ✓
25' Rt.		12.0	310.3 ✓
70' Rt.		13.8	308.5 ✓
1+50		12.2	310.1 ✓
2+00		11.5	310.8 ✓
25' Rt.		13.0	309.3 ✓
50' Rt.		15.0	307.3 ✓
2+50		9.4	312.9 ✓
3+00		7.4	314.9 ✓
75' Rt.		9.1	313.2 ✓
3+50		5.3	317.0 ✓
4+00		4.4	317.9 ✓
75' Lt.		5.9	316.4 ✓
75' Rt.		4.2	318.1 ✓

	322.35		
4+50		5.2	317.1 ✓ ²⁰
4+65 = E 50th to North.		5.55	316.80 ✓
5+00		7.0	315.3 ✓
+30 = End of St.		8.2	314.1 ✓
75' Lt.		11.8	310.5 ✓
75' Rt.		6.0	316.3 ✓

Levels For Sewer in E 50th Street
From E Sterling Court, North

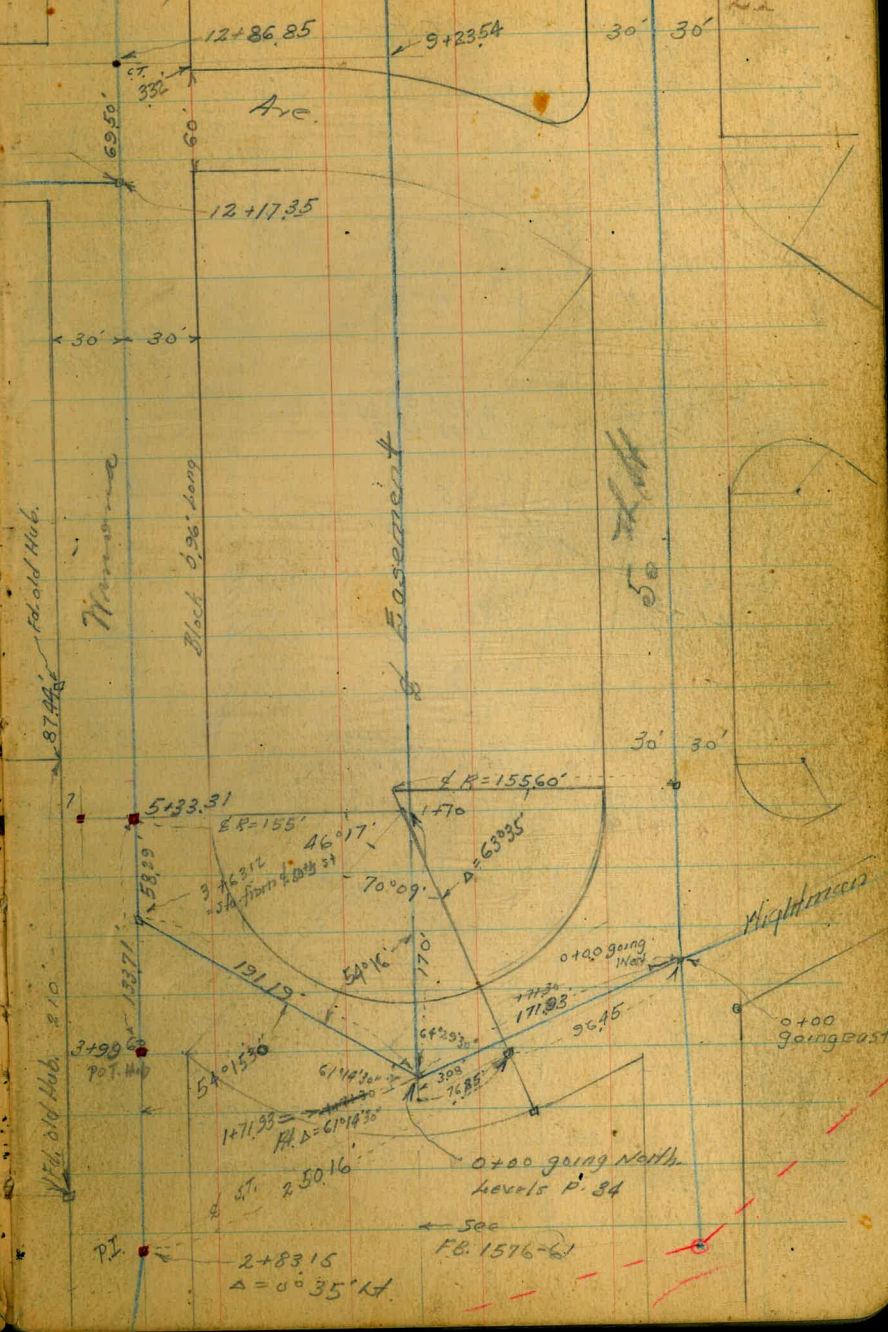
	322.35 = X Above		
4+65 Above Sta. = E 50th + Sterling ct.		5.55	316.80 ✓
= 0+00			
+25 = N.W. Sterling ct.		5.1	317.2 ✓
+50		4.6	317.7 ✓
30' Lt.		5.4	316.9 ✓
30' Rt.		4.5	317.8 ✓
1+25 = end st.		3.2	319.1 ✓
75' Rt.		5.0	317.3 ✓
60' Lt.		4.5	317.8 ✓
100' North of Mend st. on E produced		1.7	320.6 ✓

See P. 27

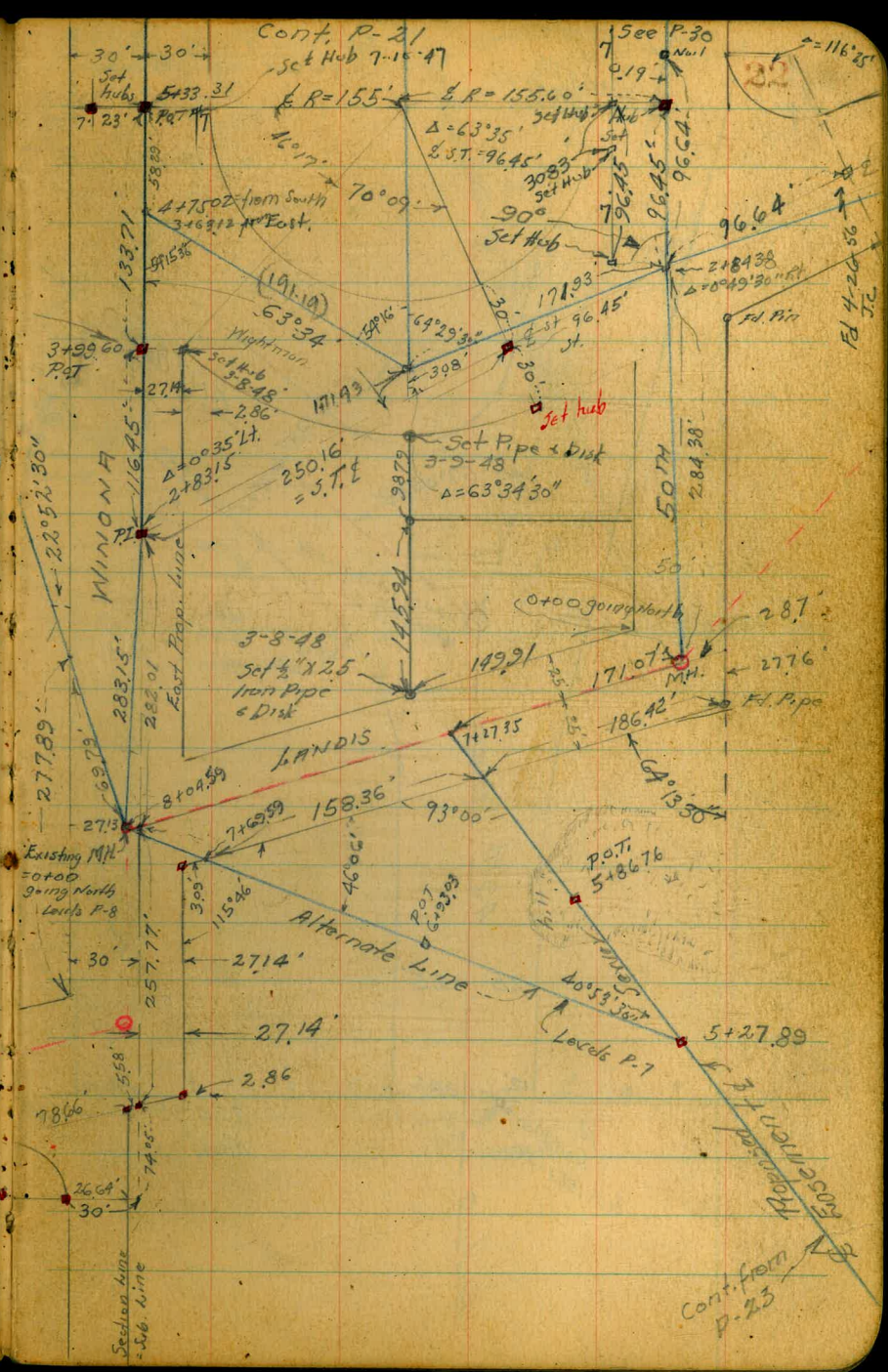
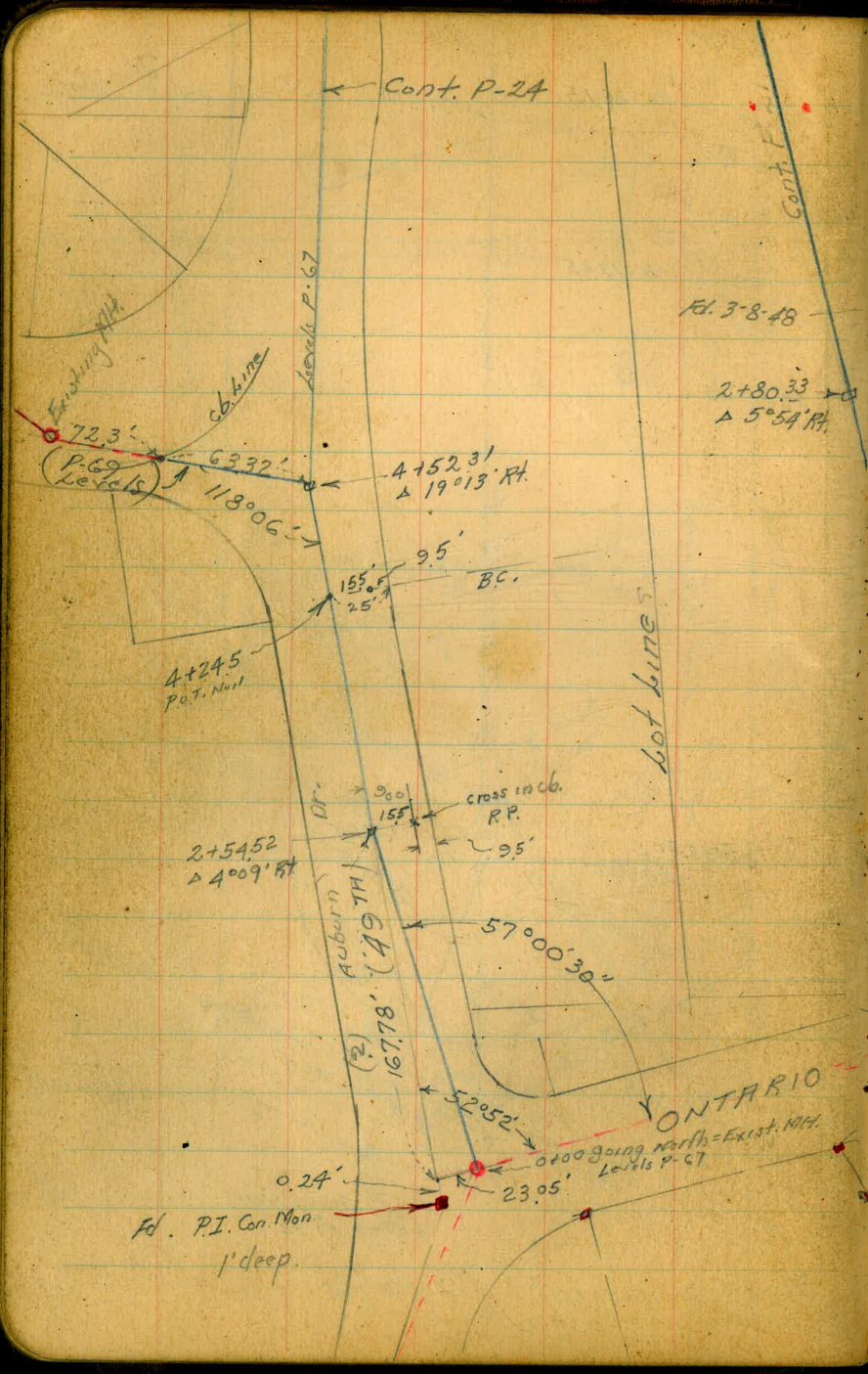


- - - Existing Sewer
- M.H.
- - - proposed sewer

Cont. P. 27



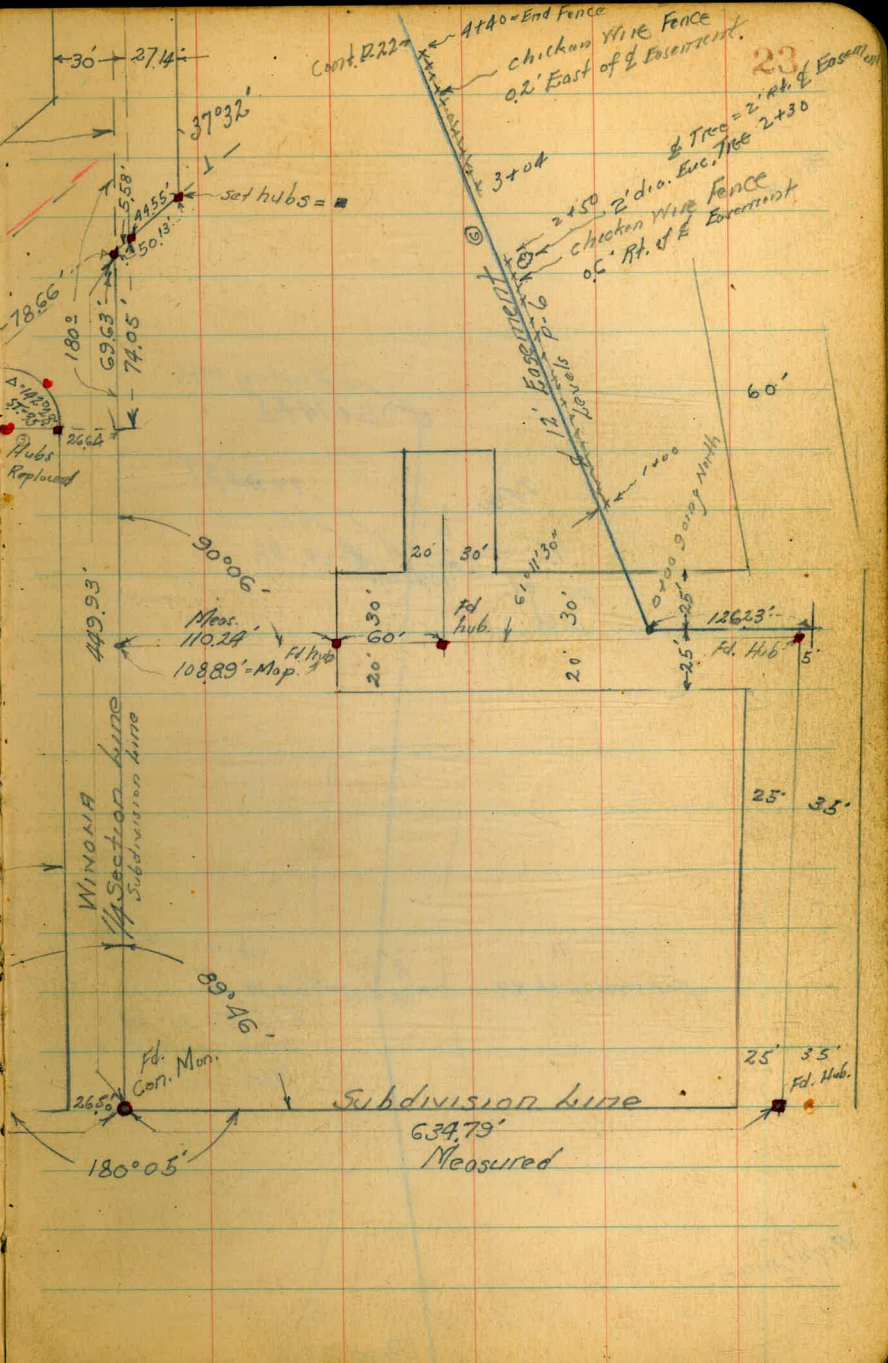
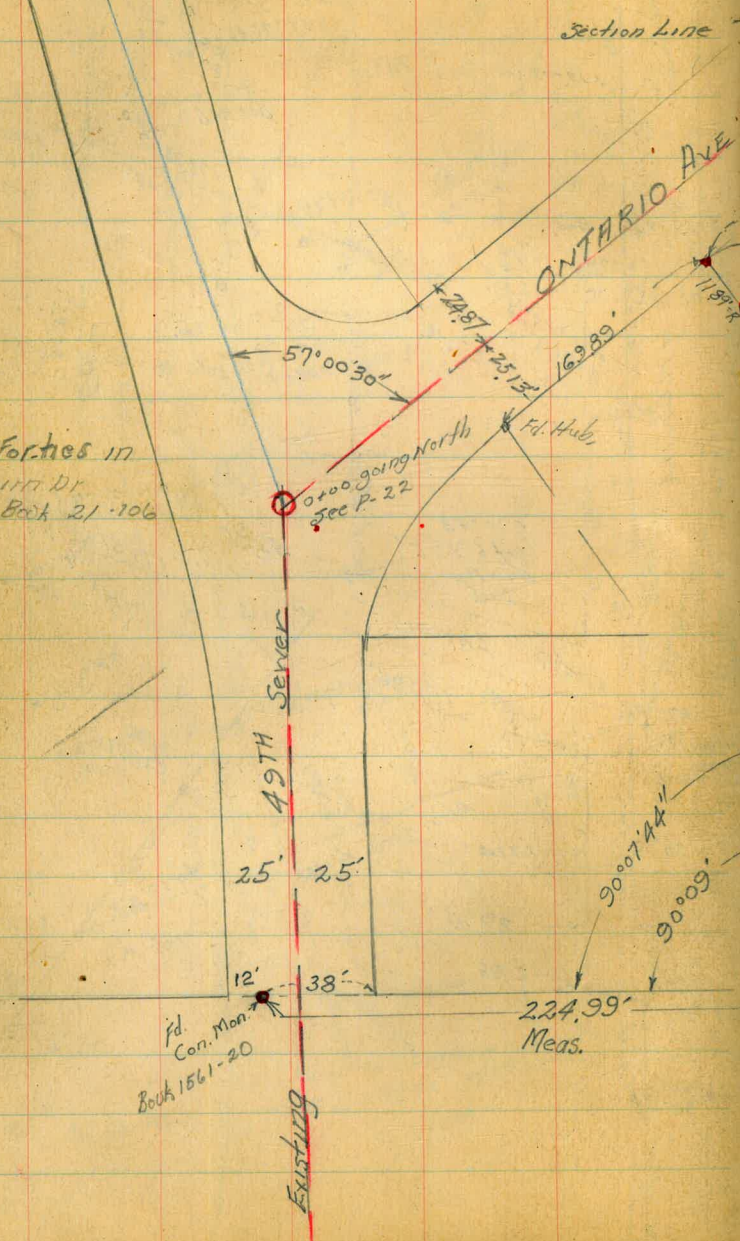
- - - Existing Sewer
- M.H.
- - - proposed sewer



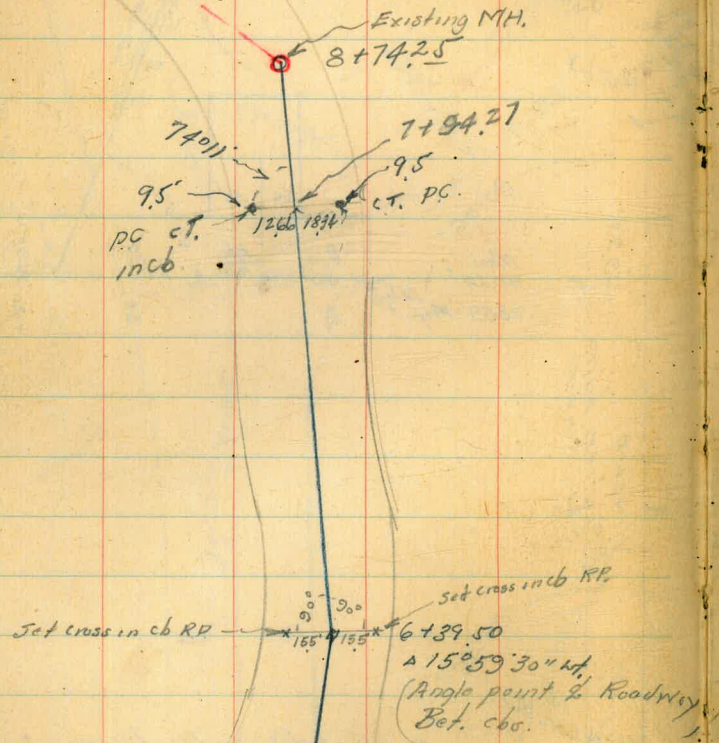
Page 22
2+5452
Δ = 4009' Rt.

Plotted T.P. 5 3644A
10-22-48 M.O.

Forces in
Auburn Dr
Sec Book 21-106



AUBURN



Wightman

UNIVERSITY

Proposed Sewer

0+00 going South
Levels P. 66

3.50'

1.00' → 24' → 25'

179.96

13+4255
Page 27

ESTRELLA

RAND Drive

2462.67
= End of Pipe

24.3
188' Garage
1571.86
16011
16011
CT. in 176'

1573.00
CT. in 176'

43.24

P.O.T. Set Hub
4-12-45 45W

Fd old Hub
Station

Fd old hub

266.35'
Measured

P. 27

going West
0+00

Cont. P. 27

Plotted - T.P.S. 3645
6-14-48 11" Q

AVE

0+00 going East

225.50'

25

180.07' →

P.O.T.
12+9829

Alternate line
Station from 50' W

3.53'

200'

3.5'

2.5'

2.5'

5+4885
P. 27

12+4374

81° 56'

154.54'

Proposed Sewer
49TH

69° 15' 30"

Δ = 61° 11' Lt.

1+84.08

1315'

2.5'

110° 44' 30"

540.32'

23045' Rt.

3+40.22

155.55'

Lot Line
= Proposed Sewer

0+00 going East, P. 52

0+00 " West, P. 51

Proposed Sewer
98.91069'

Fd old Hub
Set Mark

Turning
71° 04'

Lot lines

124.44'

540.52'

101.98'

180°

73.98'

430' ± 5'

106° 47'

84° 05'

Δ = 14° 50' Lt

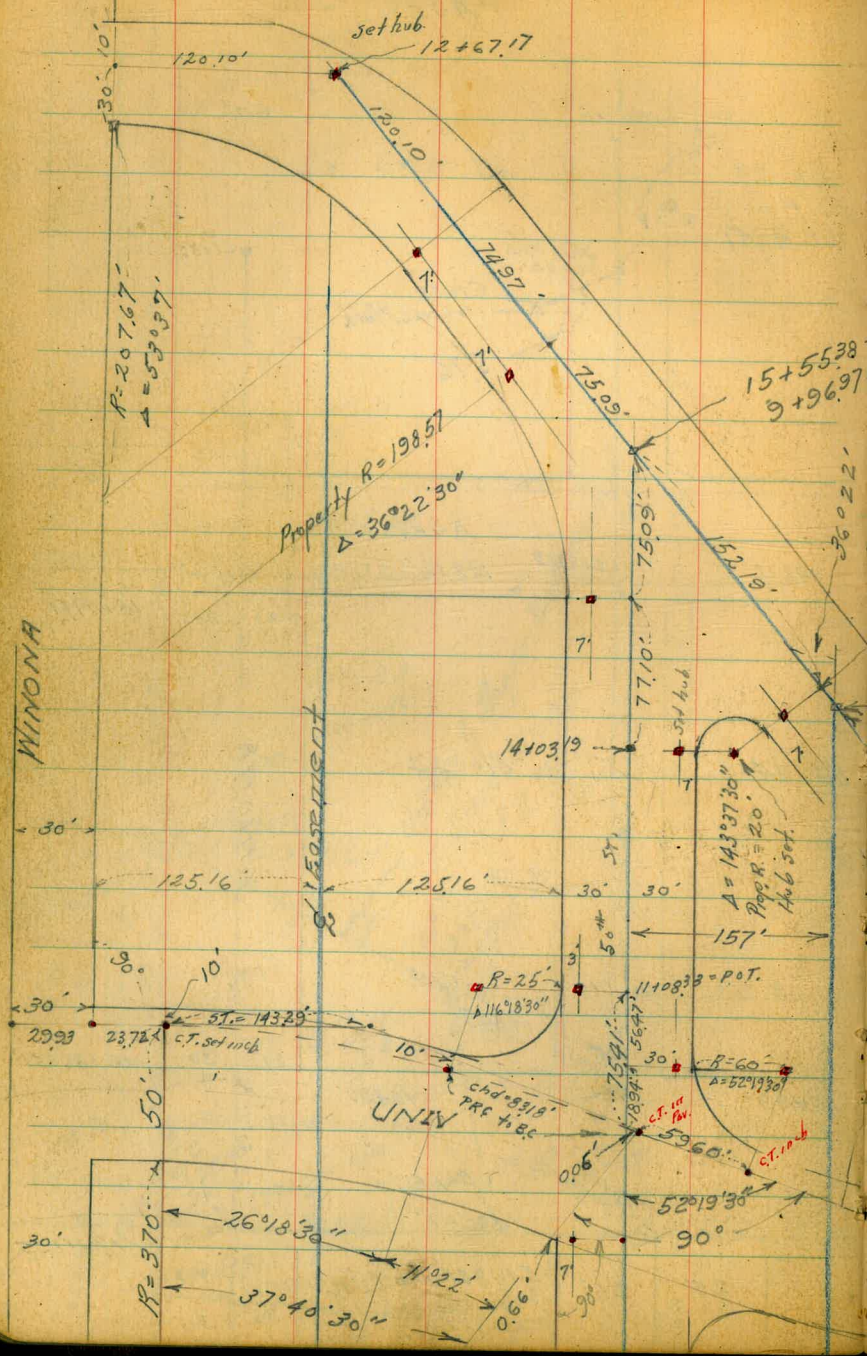
5+60.65

Lot line

730.01'

Cont. P. 21

Plotted TPG-3654-5
10-21-48-MQ



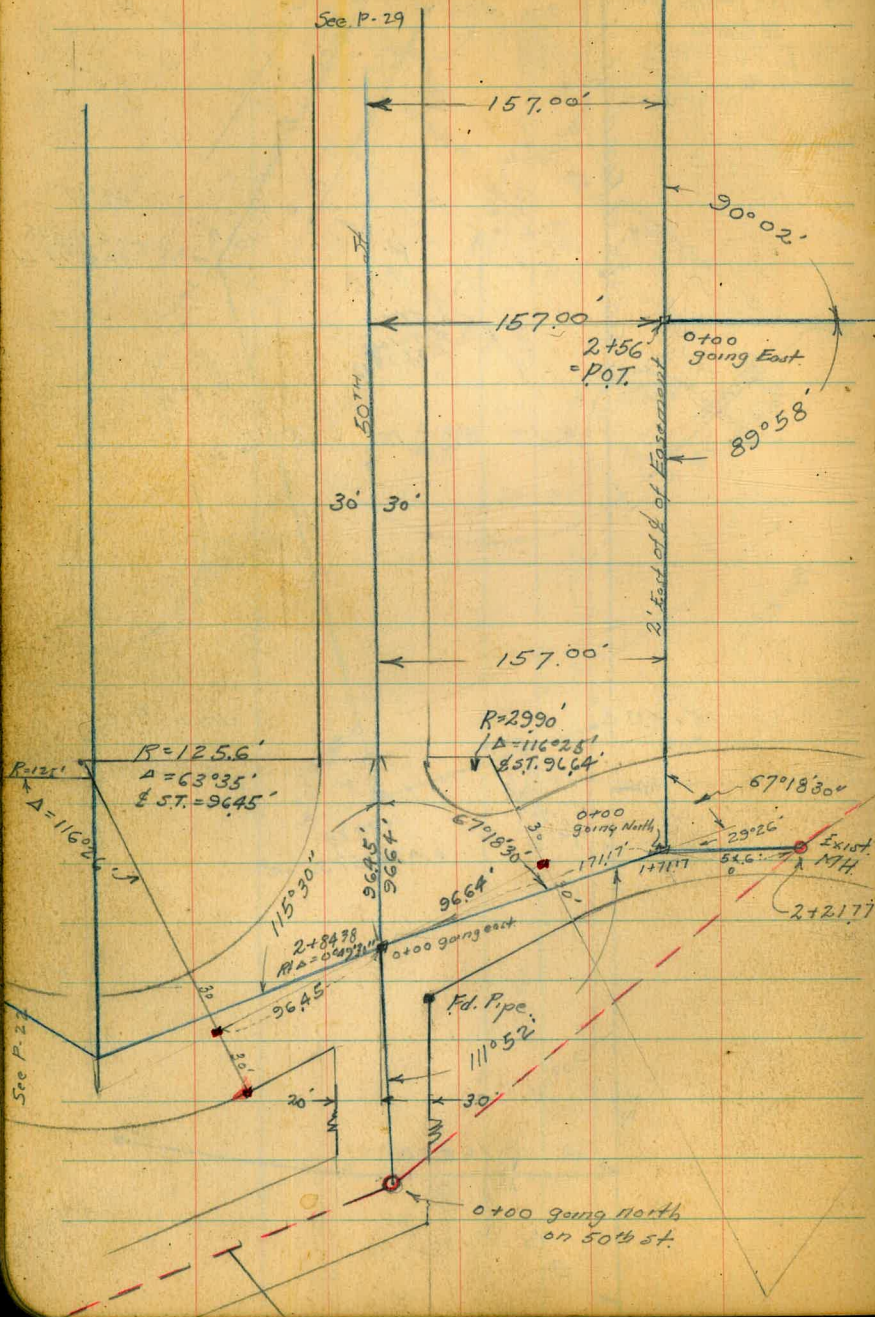
15+55.38
9+96.97 = Station 50th St line = End of line
= P.O.T. Oak Crest Line station.

8+44.78 = P.O.T.

3+92.23 = Station of line run in easement = end of line
7+32.27 = P.O.T. Oak Crest Line and Station.

4+08.95

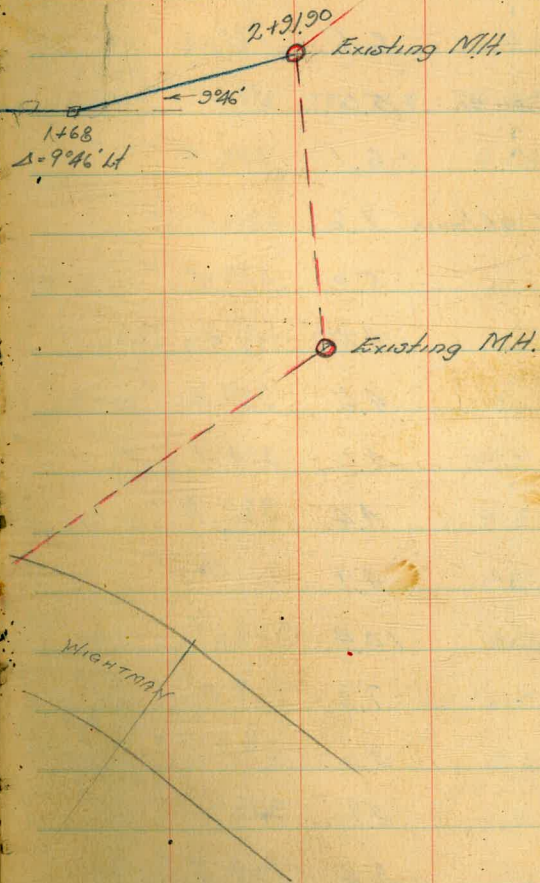
AVE.



Motted TPS 3644
10-21-48-MEQ

30

6334



Winona St. JEWEL LEVELS.

Cont. from p. 9

338.09 = T

9+35 = Hedge House on Lt.	7.0	331.1	✓
70' Lt. on Floor.	7.20	330.89	✓
70 " " Ground.	7.9	330.2	✓
9+50	6.6	331.5	✓
10+14 = Sedge House on Rt.	5.6	332.5	✓
114' Rt. on Floor	6.1	332.0	✓
114' Rt. " Ground at house	7.6	330.5	✓
10+50	5.0	333.1	✓
11+00	4.4	333.7	✓
11+19	4.6	333.5	✓
30' Lt.	4.0	334.1	✓
45' Lt.	4.4	333.7	✓
11+26	4.9	333.2	✓
45' Lt.	10.4	327.7	✓
35' Lt.	9.8	328.3	✓
20' Lt.	5.0	333.1	✓
11+50	5.9	332.2	✓
12+00	8.6	329.5	✓
+17.35 = 35' North of S. line ^{UNN.}	9.17	328.92	on stub
12+19.3 = South edge Parking	9.15	328.94	✓

338.09 ✓

31 ✓

12+29.85 = 5' out. on diag.	9.33	328.76	✓
+54.3 = 1/2 Par.	8.88	329.21	✓
+70.3 = Par. N gutter	9.16	328.93	✓
12+89 = N edge Parking.	8.83	329.26	✓
12+86.85			on ct. N T line
TP	7.28	336.43	8.94 329.15
			UNN. 4 50th
			6.18 330.25
			330.15 = Elev. as per grade book
			0.10 = Error.
			127
	10.95	340.10	329.15
			Above CT.
			12+18.85
13+00	10.5	329.6	All lots on Rt.
			in this block
			are Above & below
60' Lt.	13.3	326.8	✓
13+50	9.2	330.9	✓
14+00	8.3	331.8	✓
20' Lt.	8.2	331.9	✓
70' Lt.	14.4	325.7	✓
14+50	7.6	332.5	✓
15+00	6.6	333.5	✓
30' Lt.	7.8	332.3	✓
15' Lt.	13.3	326.8	✓
80' Lt.	11.0	329.1	✓

	340.10	Winona	
15+50		5.9	334.2 ✓
16+00		5.2	334.9 ✓
50' Lt.		2.9	337.2 ✓
16+50		3.6	336.5 ✓
17+00		1.5	338.6 ✓
T.P.	12.90	352.64	0.36 339.74 ✓
17+50		11.6	341.0 ✓
18+00		9.7	342.9 ✓
85' Lt.		10.9	341.7 ✓
85' Lt.			
18+10 = S. edge House on Lt.		9.7	342.9 Floor ✓
" " " " " " "		11.1	341.5 Ground ✓
18+50		7.9	344.7 ✓
		5.78	See P. 54 For Check ✓
+99.69 = South 7' line Polk. on West.		346.86	on Stub ✓
19+00		5.6	347.0 ✓
+12.69 = E. Polk on West.		5.2	347.4 ✓
50' Lt.		6.5	346.1 ✓
100' Lt.		7.7	344.9 ✓
150' Lt.		8.6	344.0 ✓
165' Lt. = Alley.		8.9	343.7 ✓
19+50		4.4	348.2 ✓
20+00		3.5	349.1 ✓
75' Rt.		4.1	348.5 ✓
75' Lt.		4.3	348.3 ✓

	352.64	Winona	
20+50		2.8	349.8 ✓ 32
+80		3.6	349.0 ✓
21+00		5.0	347.6 ✓
+25		6.7	345.9 ✓
+35 on POT, stub.		6.99	346.15 ✓
+50		6.5	346.1 ✓
10' Rt.		8.5	344.1 ✓
30' Rt.		6.3	346.3 ✓
75' Rt.		10.8	341.8 ✓
21+75		7.0	345.6 ✓
22+00		9.3	343.3 ✓
10' Rt.		12.7	339.9 ✓
30' Rt.		11.7	340.9 ✓
75' Rt.		18.0	334.6 ✓
South 7' line Polk. Bet. Winona + 49th			P-27
on stub 6+8403 P. 54		9.58	343.06 ✓
Left Bl. P.I. Map Notes			
(12+67.7) on Hub P. 28 + 42		4.27	348.37 ✓

Walker
Bliss
Jshell
5-3-40

Wightman St. Sewer, Prelim. Levels
From E. 50th St. to Existing M.H.

117 Wightman St. East of 50th St.

Location P. 30

17 Culvert East of 50th & 50th + Wightman = 0+00 on stub.	12.64	285.57	272.93	P-11 S. M. in Hd. W. 11
0+25	0.59	284.98		
0+50	1.1	284.5		
0+75	3.0	282.6		
30' Rt.	5.4	280.2		
10' Rt.	14.2	271.4		
1+00	5.4	280.2		
+25	7.7	277.9		
+50	10.2	275.4		
+75	11.5	274.1		
1+71.17 = Δ 29°26' Rt.	12.1	273.5		
1+71.17 on Stub.	12.26	273.31		
1+91 on Wooden Wing Wall	12.8	272.8		
+91.4 m Wash.	17.1	266.5		
2+02 = East edge Wash.	19.1	266.5		
+10	13.6	272.0		
2+27.77 = Exist M.H.	13.5	272.1	ground	
2+21.77 = " " Rim.	13.03	272.54	on Rim	
-9+28.12 Page 11 For Flow see " 11				

Wightman St. Sewer; Prelim. Levels ✓
From E. 50th to E. Winona 33

Location P. 21

285.57 = opp. Page

0+00 opposite page = 0+00 this line			0.59	284.98	on stub
T.P.	12.79	298.06	0.30	285.27	
0+50			11.9	286.2	
1+00			9.4	288.7	
+25 = West edge House on Lt.			7.1	291.0	
14' Lt.			7.0	291.1	
33' Lt.			15.4	282.7	House
55' Lt. at NW. Cor. House, on Floor	16.1	282.0			Face 50th
" " " " " " " " ground	16.7	281.4			
1+50			4.5	293.6	
1+71.93					See F.B. 1576-62
= 1+71.38 = Δ 61°19'30" Rt.	2.69	295.37			on stub
15' Lt. 10' Easement	5.3	292.8			
30' " " " "	8.8	289.3			
1+71.3 on ground	2.5	295.6			
2+00	0.7	297.4			
T.P.	11.44	308.84	0.66	297.40	
2+10			10.7	298.1	
+20			6.3	302.5	

Cont. P-34

Wightman St. Sewer

Cont. from P-33

308.84

2+25 on top stone Wall	5.0	303.8	✓
2+26	5.0	303.8	✓
2+50	3.2	305.6	✓
+838 = East edge Conc. Drive	2.59	306.25	✓
+935 = W " " "	2.46	306.38	✓
3+00	2.3	306.5	✓
3+20	3.2	305.6	✓
+50	2.1	306.7	✓
3+63.12 = 7502 P-9	2.89	305.95	✓

306.00 - P-9
0.05 = Error

Additional Side Shots for Above Levels

(2+50) 10' Lt.	4.0	304.8	✓
N edge 13' Lt. in Road.	5.6	303.2	✓
40' Lt. = S edge Road.	5.6	303.2	✓
85' Lt.	10.4	298.4	✓

Walker

Bliss

1st ball

5-3-40

Sewer not correct in this location

Preliminary Levels for Sewer

34 ✓

17 E Easement 17 Blocks -

Between Winona & 50th St.

From Wightman to Polk.

Location P-21-28

Please Check Gas Co. for location of gas line
in these two blocks.

Plot Location poles as noted in the following
level notes, as this sewer will have to be
constructed east of the E of Easement (?)

1+71.93
= 1+71.3 P-33

308.84 = X opposite page

= 0+00 this line

0+20

+25.3 = Bottom stone Wall

" " top " "

0+50

0+77.8 = toe Conc. Wall

" = on top "

TP

1+00 on Wall on E Easement
60' Rt.

0.5' Lt. = toe Wall

0.5' Rt. " "

1+03.5 = Pole Anchor = 15' Rt.

13.48 295.36

13.3 295.5

10.8 298.0

7.67 301.17

5.9 302.9

3.4 305.4

1.67 307.17

0.31 308.53

10.67 309.42

13.5 301.6

10.8 309.3 ground

12.4 307.7

0+65 to
0+80 = 3' bed
3' East of E Easement

Wall Runs North
& South.
East edge Wall
is 1.0' East of
E Easement.

320.09

1+26.3 = Pole 1.3 Rt. on ground	8.4	311.7	Both wall and shed 0.3 Lt.
1+34.3 = End Conc. Wall = Beginning shed			
" on top Wall	7.81	312.28	
1+46 = N end Shed 0.4 Lt.			
1+50	6.6	313.5	
+83 on Rt. opp plumbing in House	2.5	317.6	
32' Rt. on ground at "	5.2	314.9	
T.P. 11.85	331.90	0.04	320.05
2+15	10.5	321.4	
2+47 = Pole 1.3 Rt.	7.7	324.2	
60' Rt.	14.5	317.4	
3+00 = S edge House on Rt	5.5	326.4	
54' Rt. = West end House	11.2	320.7	ground.
" " " " "	10.8	321.1	Floor.
3+50	5.3	326.6	
4+00	5.0	326.9	
60' Rt.	11.6	320.3	
4+15 to 4+49 = Shed on Rt 1.1 Rt.			
4+45 = Pole in Easement			
4+47 to 4+98 = Fence on Lt. Built on Conc. Wall			2.6 Lt.
4+50	3.9	328.0	
2.6 Lt. on Wall	3.71	328.19	

33190

(4+50) 2' Rt.	5.2	326.7	35
4+85 = N. edge House on Rt	4.6	327.3	
16.5' Rt. on Floor	6.8	325.1	
16.5 " " ground	7.0	324.9	
4+98	5.1	326.8	
2.6 Lt. on Wall = N. end.	3.9	328.0	
60' Rt.	10.3	321.6	
5+50	4.7	327.2	
5+48 = beginning Fence to 5+97 on Rt. 15' East E			
5+68 = House 68' Rt. of E	5.7	326.2	Floor.
" " " " " "	7.7	324.2	Ground.
T.P. 9.31	335.19	6.02	325.88
West edge Wall = E. Easement.			0.3 Rt. = 2
5+96.9 to 6+46 Conc. Wall	6.25	328.94	6" Conc. Wall
6+00	7.6	327.6	
6+46 = Pole 1.4 Rt. = E. Pole.			on ground
32' Rt.			
6+40 = N. edge House	7.2	328.0	at plumbing
	4.4	330.8	
6+97 to 7+07 = Garage 0.4 Lt. of E			
7+54.7 = Pole 0.7 Lt.	2.4	332.8	
8+55.6 = Pole 3' Lt.			} Stations are ok.
11+69.5 = Pole on E			
7+58	3.5	331.7	

Cont. from P-35

335.19 ✓

7+48 to 8+17 = Fence 2' Lt.			
8+00	3.6	331.6	✓
TP	9.97	341.45	3.71 331.48 ✓
Chk. 8.M. S.W.R.P. Univ. +50 th	11.27	330.18	✓
		330.15 = B.M. P-31	
8+57 = S. cb. Univ. - top cb.	10.35	331.10	✓
" = Gut. on Parking.	10.93	330.52	✓
8+77 2 nd Univ. "	10.13	331.32	✓
+97.5 = N. cb. "	9.95	331.50	✓
9+07	8.7	332.7	✓
9+10	7.5	333.9	✓
2' Lt.	8.5	332.9	✓
9+20	4.8	336.6	✓
2' Lt.	8.9	332.5	✓
30"	9.1	332.3	✓
30' Rt.	4.8	336.6	✓
9+68	4.4	337.0	✓
3' Lt.	7.8	333.6	✓
10' Lt. = Floor garage	9.1	332.3	✓
30' Rt.	4.7	336.7	✓

341.45 ✓

36 ✓

9+70 = Pole 0.5' Lt.	4.1	337.3	✓
13' Lt.	4.1	337.3	✓
40' Rt.	4.4	337.0	✓
9+89 = Pole anchor on E. Easement.			
10+00	4.1	337.3	✓
+19.5 = Fence 0.3' Rt. to 12+19.5			
TP	10.54	348.82	3.17 338.28 ✓
10+50	10.5	338.3	✓
70' Lt.	11.2	337.6	✓
11+00	9.7	339.1	✓
+52 = N side House on Lt.	8.8	340.0	✓
70' Lt. on ground.	9.9	338.9	✓
70' " " Floor.	8.8	340.0	✓
12+00	6.8	342.0	✓
+16 = N side House on Lt.	6.5	342.3	✓
80' Lt. on ground at house / 0.5		338.3	✓
80' Lt. " Floor.	8.9	339.9	✓
12+50	5.5	343.3	✓
12+65 = N Side House on Lt.	5.0	343.8	✓
72' Lt. on ground	7.8	341.0	✓
72' " " Floor	6.5	342.3	✓

348.82 ✓ Cont. from P. 36

12+69.5 = Pole 0.8' Rt. = Beginning Fence 3.0 Lt. ¹³⁺¹⁷ = End Fence

13+02 = N. side House on Lt. 3.8 345.0 ✓

75' Lt. at House on ground. 7.6 341.2 ✓

75" Floor " 6.6 342.2 ✓

13+50 = L House on Lt. 2.5 346.3 ✓

72' Lt. Ground. 4.4 344.4 ✓

72" Floor. 5.2 343.6 ✓

13+25 to 13+69 = Fence on Rt. 2' East of L

13+69 = Pole. 13+85 = Guy 0.5' Rt.

14+00 1.8 347.0 ✓

T.P. 6.10 353.22 1.70 347.12 ✓

14+50 5.3 347.9 ✓ Lt + Rts. Level

15+00 5.0 348.2 ✓

Chk. on Pt. Heb. ^{12+67.17 P. 32} ^{9.44} 4.91 348.31 ✓

348.37 = Hub.
0.06 = d.ft.

Walker Preliminary Levels for Tower ✓
Bliss 2' East of West line 48 1/2 ft. ✓
Isbell from Station 21+31.97 Page 26 ✓
10-4-40 South to Univ.

37 197/160

And from 21+31.97 North toward Park Ave

21+31.97 - P. 26 11.50 339.22 ✓
= 0+00 going north on Park Ave. ^{Note this 0+00 as to 5 of M.H. as finally located per 1673 Page 9 on Park Ave.} 327.72 ✓
Fill ^{Filler Top cb 21+21.75 P. 49} 327.29 ✓

17' Lt. toe Fill 2.00 319.2 ✓

50" in wash 19.5 319.7 ✓

15' Rt. West edge side walk 12.02 327.2 ✓

0+35 12.4 326.8 ✓

0+50. 11.3 327.9 ✓

15' Rt. on Walk 11.23 327.99 ✓

3' Lt. on top Fill 11.7 327.5 ✓

13" " toe " 16.6 322.6 ✓

50' Lt 13.5 325.7 ✓

1+00 8.10 331.1 ✓

15' Rt. on Walk 8.1 331.1 ✓

9' Lt 8.9 330.3 ✓

40 Lt. 8.9 330.3 ✓

1+50 4.4 334.8 ✓

15' Rt 4.39 334.83 ✓

2+00 0.6 338.62 ✓

15' Rt on Walk 0.55 338.67 ✓

Cont. on Rt Page 50

Lot rises to West from here. All Lots on Lt from here observe Elev

Wulbar
Bliss
1 shaft
8-3-40

50th St. Preliminary Sewer Levels.
From handis to Polk

Location	P-30-29-28	BP in Hd (4411) 3' west of East end on South side
0.57	273.50	272.93
East M.H. handis +50 th	8.08	265.42
= 0+00 on Rim M.H.	7.59	
0+00 " Flow "	15.61	257.89
+62	8.8	264.7
+40	8.5	265.0
+42 = in channel	12.2	261.3
+50 = " "	12.2	261.3
+5.2	9.3	264.2
1+00	7.2	266.3
+50	4.0	269.5
+70	3.5	270.0
T.P. ¹¹⁷ ₃₉₇	14.54	287.47
	0.57	272.93
2+00	12.0	275.5
30' Rt.	13.3	274.2
50' Rt.	18.6	268.9
+35	6.8	280.7
+50	5.7	281.8
+65	3.2	284.3
2+84.38 - A 0°49'30" Rt.	2.48	284.99

on stub.

287.47 ✓

3+00	1.4	286.1
T.P.	12.35	299.44
3+50	7.8	291.6
4+00	2.3	297.1
26' Rt.	2.5	296.9
60' Rt.	8.6	290.8
T.P.	11.97	311.14
4+40	9.8	301.3
5+00	8.4	302.7
15' Rt. = Rim Canyon.	9.2	301.9
40' Rt. in Canyon.	18.0	293.1
5+55	6.8	304.3
60' Rt.	6.4	304.7
6+00	3.7	307.4
T.P.	12.95	323.79
6+50	11.1	312.7
+80	8.1	315.7
7+00	6.9	316.9
+50	3.6	320.2
T.P.	12.87	336.49
8+00	12.4	324.1

38 ✓

All lots on lot are Abaced unless Noted otherwise.

All lots on Rt from this sta North are Abaced & Eler unless Noted otherwise.

Cont P. 39

	336.49 ✓	50th St. Cont. from P-38 327.1 ✓
8+50	9.4	
9+00	7.4	329.1 ✓
+40	6.52	329.97 ✓
768.4 = South edge facing	6.94	329.55 ✓
+75 on Pav.	6.86	329.63 ✓
10+07 1/2 "	6.11	330.38 ✓
chk. SW. B.P. Univ. +50th	6.31	330.18 ✓
10+35 N Aut. pav.	6.52	329.97 ✓
10+45.6 N edg "	6.25	330.24 ✓
11+00	3.3	333.2 ✓
+50	0.3	336.2 ✓
TP 12.79	349.05 349.25	336.26 ✓ 336.46
12+00	9.6	339.4 ✓
30' Lt.	10.1	338.9 ✓
70' Lt.	12.0	337.0 ✓
12+45	6.8	342.2 ✓
13+00	5.4	343.6 ✓
+50	4.6	344.4 ✓
14+00	3.6	345.4 ✓
+50	2.8	346.2 ✓
15+00	2.2	346.8 ✓

	349.25 349.05 ✓	39 ✓
15+55.38 = 9+96.97 Oak Crest Line	1.75	347.30 ✓
chk. on stub, 9+96.97 "		347.50 on stub.
		347.32 P-44
		0.02 = Error

Walker
Blas
1st shift
5-3-40

Preliminary levels for Sewer
2' East of E of Easement in Blocks
East of 50th location P-30-29
From Wightman to Oak Crest Drive
8 M. 10

1+71.17 P-33	13.63	286.56	272.93	Cutwest P-38
= 0+00 this line	13.24	273.32		on stub.
0+00 ground.	13.0	273.6		
+22	13.8	272.8		
+27	15.2	271.4		
+30	14.3	272.3		
+93	14.5	272.1		
1+00	13.7	272.9		
40' Rt.	16.3	270.3		
45' Rt. in channel	19.3	267.3		
50' "	16.3	270.3		
1+25	5.6	281.0		
TP	12.52	298.78	0.30	286.26
1+47	5.7	293.1		
+80	1.7	297.1		
50' Rt. = Rim Comp. 17.	5.0	293.8		
TP	10.74	309.40	0.12	298.66
2+00	9.5	299.9		

309.40 ✓

2+25	7.1	302.3	✓	40 ✓
+50	2.1	307.3	✓	
+56 = P.O.T. on stub.	0.99	308.41	✓	0+00 going East.
TP	8.87	317.28	✓	
3+00	4.9	312.4	✓	
+45	3.7	313.6	✓	
+58	4.7	312.6	✓	
+90	6.6	310.7	✓	
5' Rt.	6.6	310.7	✓	
15' Rt.	12.2	305.1	✓	
4+00	7.6	309.7	✓	
5' Rt.	11.6	305.7	✓	
4+08	10.7	306.6	✓	
4' Rt.	10.7	306.6	✓	
7' Rt.	13.0	304.3	✓	
4+30	13.2	304.1	✓	
2' Rt.	15.9	301.4	✓	
10' Rt.	17.8	299.5	✓	
4+44 = L. Wash.	13.5	303.8	✓	
3' Rt.	15.9	301.4	✓	
4+53	12.4	304.9	✓	

317.28 ✓			
4+75		4.4	312.9 ✓
1N Lt.		9.4	307.9 ✓
TP	12.64	327.87	2.05 315.23 ✓ <small>on stub 1437.73 P 29</small>
4+92		5.6	322.3 ✓
5 Lt.		6.9	321.0 ✓
15 Lt.		11.7	316.2 ✓
5+02		3.9	324.0 ✓
5+0973 = POT. on stub.		3.70	324.17 ✓ <small>5+0973 = 0+00.9010 East.</small>
+18.83 = S. top cb.		3.56	324.31 ✓
+18.83 = S. Gut. on Pav.		4.11	323.76 ✓
+49.5 = S. Univ. Pav.		2.79	325.08 ✓
5+52.5 = Gas Valve Cover.		2.64	325.23 ✓ <small>1.25' diameter 5 Lt.</small>
+66.23 = N. Gut. on Pav.		2.61	325.26 ✓
+66.23 = N. top cb.		1.96	325.91 ✓
+72		1.1	326.8 ✓
TP	13.03	340.37	0.53 327.34 ✓
5+80		11.5	328.9 ✓
181		7.8	332.6 ✓
6+00		6.6	333.8 ✓
150		3.7	336.7 ✓
7+00		1.6	338.8 ✓

340.37 ✓			
TP	9.19	349.05	0.51 339.86 ✓ 41 ✓
7+50		8.6	340.4 ✓
8+00		6.6	342.4 ✓
+20		4.9	344.1 ✓
+30		5.1	343.9 ✓
+33		5.8	343.2 ✓
+50		5.7	343.3 ✓
9+00		4.7	344.3 ✓
+50		3.9	345.1 ✓
9+92.23 = End = 7+32.27 ✓		3.84	345.21 ✓ <small>Out crest Line.</small>
			345.20 = P-44 0.01

Wolke,
Bliss
Isbell
5-3-40

Preliminary LEVELS for Sewer.

in E. of East And West Easement

North of Wightman, East of 50th. S. Univ.

Location P-30

309.40[✓] T. P-40

2+52 P-40

0+00

0.99 308.41[✓]

0+15

3.3 306.1[✓]

2' RT.

6.4 303.0[✓]

0+35

6.7 302.7[✓]

25' RT.

8.8 300.6[✓]

0+50

8.3 301.1[✓]

0+75

12.8 296.6[✓]

T.P.

0.71

297.14

12.97 296.43[✓]

1+00

4.5 292.6[✓]

+15

6.8 290.3[✓]

T.P.

1.46

286.06

12.54 284.60[✓]

1+40

6.2 279.9[✓]

+47

10.7 275.4[✓]

+58

10.6 275.5[✓]

10' RT.

12.5 273.6[✓]

1+68 - Δ 9' 46" LT. on stud

12.92 273.14[✓]

+78

13.7 272.8[✓]

286.06[✓]

1+81 = in channel

14.9 271.2[✓]

2+00 " "

13.9 272.2[✓]

+50 " "

13.2 272.9[✓]

+91.9 on ground.

13.3 272.8[✓]

+91.9 " Rim M.H.

8.93 277.13[✓]

+91.9 " Flood "

16.35 269.71[✓]

Chk. B.M. in Hd Well

13.12 272.94[✓]

272.93

0.01 = Error.

42[✓]

Walker. Oak Crest Drive. Sewer Levels.
Bliss
Isbell From Univ. Ave. North.
5-4-40

Location P. 29-28

	(41) 327.87 - P. 40		
5+0973 P. 40			
= 0+00 this line	3.70	324.17	on stub
+50	6.9	321.0	✓
3' Lt. on cb.	6.80	321.07	✓
1+00	10.3	317.6	✓
3.6' Lt. on cb.	10.25	317.62	✓
1+3773 - Δ Lt 94°57'30"	12.4	315.5	on ground
137.73 on stub	12.64	315.23	✓
1+4575 - South top cb.	12.88	314.99	✓
145.75 - " Gut. on post.	13.13	314.44	✓
1+657 - Sunn. post.	12.84	315.03	✓
+86 = N Gut "	13.58	314.29	✓
+96 = N edge "	13.41	314.46	✓
2+00	13.2	314.7	✓
+50	6.7	321.2	✓
T.P.	12.77	340.32	0.32 327.55
3+00	12.5	327.8	✓
30' Rt.	14.0	326.3	✓
40' Rt.	10.2	330.1	✓
60' Rt. - Rim Canyon.	15.2	325.1	✓

340.32

43 ✓

3+50	7.3	333.0	✓
22' Rt.	7.2	333.1	✓
26' "	5.6	334.7	✓
35' "	6.2	334.1	✓
55' " - Rim Canyon.	13.3	327.0	✓
4+00	2.6	337.7	✓
+0895 - Δ 99°17' Lt.	2.43	337.89	on stub
+09 - House on Rt.	2.2	338.1	✓
25' Rt.	3.7	336.6	✓
Rt. - Rim Canyon.			
97' - Back of House	10.7	329.6	Floor on ground at
97' Rt. - Back. "	20.6	319.7	Plumbing.
66' Rt. W Front house	10.7	329.6	Floor.
4+50	0.0	340.3	✓
80' Rt. - Rim Canyon.	3.9	336.4	✓
T.P. 10.48	0.33	350.47	339.99
5+00	8.3	342.2	✓
+50	7.2	343.3	✓
6+00	6.5	344.0	✓
50' Rt.	6.8	343.7	✓
110' Rt. at Front House	10.6	339.9	Floor
110' " " " "	11.8	338.7	Ground

350.97

6+50	6.0	344.5	
7+00	5.4	345.1	
87' Rt. = Front of House	9.3	341.2	Floor
81' " " " " "	9.7	340.8	Ground
126' Rt. = Back " "	16.3	334.2	"
7+32.27 = POT. = 9+92.23 P-28	5.27	345.20	P-21
7+94 = N side of house on Rt.	4.7	345.8	
65' Rt. = Front of house	8.4	342.1	Ground
65' " " " " "	7.7	342.8	Floor
82' " = Back " "	14.7	335.8	Ground
8+00	4.7	345.8	
+50	4.2	346.3	
9+00	3.8	346.7	
+53 = S. side House on Rt.	3.2	347.3	
70' Rt. = Front of house	5.0	345.5	Floor
70' " " " " "	6.0	344.5	Ground
92' R = Back " "	9.8	340.7	"
9+96.97 = POT. = 15+53.38 P-39	3.15	347.32	4.50 4.7
		347.30	P-39
		0.02 = Error	
TP	5.38	352.70	3.15 347.32
10+00	5.3	347.4	

352.70

10+42 = N. Side House on Rt.	4.9	347.8	4.1 ✓
50' Rt. = Ground, of house	6.0	346.7	
87' " " " " "	9.6	343.1	
87' " Floor of " "	4.6	348.1	
11+00	4.6	348.1	
+50	4.4	348.3	
12+00	4.3	348.4	
+67.17 = PJ Hub P-37	4.42	348.28	
		348.31 = P-37	
		0.03 = Error	

Winkler

SEWER LEVELS on Lane West of
WINONA ST. from Existing MH.
IN LANDS ^{And} WINONA, Northwest.

Exist. MH in hands	Location P-22	271.69	258.64	P-8
0+00		13.05	271.69	258.64
0+02		13.6	258.1	✓
+04	in channel	16.8	254.9	✓
+17	" "	15.8	255.9	✓
+23		12.6	259.1	✓
7' Lt.		13.3	258.4	✓
10' Lt. in channel		15.7	256.0	✓
0+55		17.5	260.2	✓
+58	" "	15.4	256.3	✓
+80	" "	13.2	258.5	✓
+93		9.9	261.8	✓
10' Rt.		14.6	257.1	✓
1+11		9.8	261.9	✓
+15	in "	12.6	259.1	✓
450	" E "	13.3	258.4	✓
2+06	" "	12.4	259.3	✓
+10		7.6	264.1	✓
+23		8.6	263.1	✓

271.69 ✓

2+42		8.8	262.9	✓ 45
30' Rt.		8.0	263.7	✓
35' Rt. in channel		11.5	260.2	✓
2+50		8.0	263.7	✓
2+80 33' = Δ 5°54' Rt.		7.31	264.38	on stake
3+00		6.5	265.2	✓
+03	in channel	8.2	263.5	✓
+16	" "	8.5	263.2	✓
+19		6.0	265.7	✓
+50		4.8	266.9	✓
+70		4.8	266.9	✓
+86	in "	6.6	265.1	✓
+96		4.5	267.2	✓
4+00		3.7	268.0	✓
T.P. 12.05	281.59	2.15	269.54	✓
+50		12.4	269.2	✓
25' Rt.		12.8	268.8	✓
30' " in channel		14.8	266.8	✓
4+80		11.9	269.7	✓
5+00		9.9	271.7	✓
+60.25 = Δ 14°50' Lt.		9.15	272.44	on stub.

281.59 ✓

(5+60) 35' Rt	9.9	271.7	✓
" 40 " in channel	11.5	270.1	✓
6+00	8.3	273.3	✓
+12	8.1	273.5	✓
+14 in channel	9.7	271.9	✓
+25 " "	9.2	272.4	✓
+30	8.1	273.5	✓
+50	8.1	273.5	✓
2' Lt. "	9.7	271.9	✓
+75 in "	8.0	273.6	✓
7+00	6.0	275.6	✓
2' Rt "	6.9	274.7	✓
7+30	5.3	276.3	✓
+35	4.2	277.4	✓
+50	4.1	277.5	✓
3' Rt. in channel	6.8	274.8	✓
T.P. 10.33 288.53	3.39	278.20	✓ on both 7+45 bt. of 4
7+85	10.80	277.73	✓
+90 in channel	12.3	276.2	✓
8+00 " "	12.3	276.2	✓
+30 " "	10.7	277.8	✓

288.53 ✓

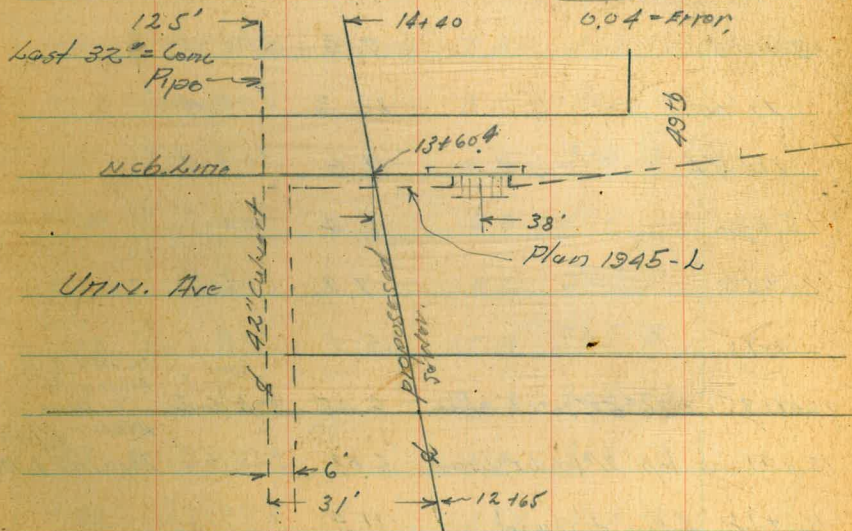
8+40.22 = 23°45' Rt. P-25	9.71	278.82	✓ at R. Wood Hub.
+42	9.0	279.5	✓
+60	8.7	279.8	✓
+90	6.8	281.7	✓
+95 = in ditch	8.8	279.7	✓
9+00	7.5	281.0	✓
+30	5.6	282.9	✓
+33 in channel	7.9	280.6	✓
+65	7.2	281.3	✓
10' Lt.	4.9	283.6	✓
5' Rt	5.0	283.5	✓
9+75	5.0	283.5	✓
2' Lt. in channel	7.5	281.0	✓
10+00	4.3	284.2	✓
3' Lt.	4.6	283.9	✓
10' Lt. in channel	7.3	281.2	✓
10+28	3.0	285.5	✓
+30 " "	5.7	282.8	✓
+40 " "	3.8	284.7	✓
+50	3.4	285.1	✓
7' Lt " "	5.9	282.6	✓

288.53 ✓

TP	10.73	295.12	4.14	284.39	✓
10+60			8.3	286.8	✓
5' Lt. in channel			10.4	284.7	✓
10+80			9.0	286.1	✓
11+00			7.8	287.3	✓
20' Lt.			9.8	285.3	✓
25' Lt. in channel			11.3	283.8	✓
11+50			7.5	287.6	✓
5' Lt. " "			8.7	286.4	✓
+70 " "			9.1	286.0	✓
+85 " "			7.2	287.9	✓
12+00			5.4	289.7	✓
1' Lt. " "			6.4	288.7	✓
6 " " "			6.4	288.7	✓
12' Rt.			5.4	289.7	✓
Alternate line P-57					✓
12+43.74 = P.O.T. on Stake.			4.14	290.98	✓ <small>Δ in Alternate A100</small>
+65 = Top of fill			1.9	293.2	✓
TP (12+65)	13.02	307.62	0.52	294.60	✓ <small>Corrugated Iron</small>
31' Lt. on Flow 42" Culvert			17.23	290.39	✓
TP	9.90	316.77	0.75	306.87	✓
12+94 on fill			4.8	312.0	✓

316.77 ✓

12+98.29 = P.O.T. Stake	4.67	312.10	✓ <small>417</small>
13+09.8 = S. cb. URIN. on top.	4.67	312.10	✓
" = S Gut. Pav.	5.33	311.44	✓
+35.1 = S. URIN. Paving.	4.81	311.96	✓
+60.4 = N. cb. line URIN. = Paving.	5.72	311.05	✓
" " " on top.	5.08	311.69	✓
38' Rt. on North cb. URIN.	6.40	310.37	✓ <small>Grating at cb. Inlet</small>
38' Rt. " Flow Culvert.	15.60	301.17	✓
chk. NE. RR. URIN. + 49th	4.45	312.32	✓

312.36 = Millers B.M. Book
6.04 = Error

13+75 in Fill	4.7	312.1	✓
+85 " "	2.6	314.2	✓
14+00 " "	2.7	314.1	✓

Cont P-48

Cont from P-47

	316.77 ✓		
14+15.54 = POT. on Stake	4.86	311.91 ✓	
+17 on Fill	5.1	311.7 ✓	
TP 6.84 310.69	12.92	303.85 ✓	
14+40 = toe of slope	11.8	298.9 ✓	
12.5' Lt. of 42" Conc. pipe	15.22	295.47 ✓	Concrete Pipe this end
14+66	9.8	300.9 ✓	
10' Lt.	12.8	297.9 ✓	
14+75	9.3	301.4 ✓	
14+87.70 = 29°42' Lt on Stake	9.83	300.86 ✓	
15+00	9.6	301.1 ✓	
16' Lt.	10.3	300.4 ✓	
10' Rt.	7.6	303.1 ✓	
15+30	6.4	304.3 ✓	
+50	7.2	303.5 ✓	
+75	5.2	305.5 ✓	
15+96.35 = 36°52'30" Lt. Stake	6.05	304.64 ✓	16+46.3 Alternate Water Line
15+91 on top 2" Water Line	6.03	304.66 ✓	Parallel to P115 by
16+14 = Bottom of Channel	11.4	299.3 ✓	
+28	10.9	300.4 ✓	
+47	10.3	300.4 ✓	

310.69 ✓

				48 ✓
+49 in channel	11.4	299.3 ✓		
+52	10.0	300.7 ✓		
+66	9.6	301.1 ✓		
17+00	8.8	301.9 ✓		
+10 = toe of Fill	7.7	303.0 ✓		
+17	5.1	305.6 ✓		
(17+17)	10.43	300.26 ✓		East end.
12' Rt. on Floor 36" Conc. Culvert				
TP 10.57 321.11	0.15	310.54 ✓		
17+31 on Fill	6.9	314.7 ✓		
+47 on Fill	7.8	313.3 ✓		
+61.53 POT. E. Estrella St.	7.20	313.91 ✓		on Sub.
+77 on Fill	8.1	313.0 ✓		
+84 " "	6.8	314.3 ✓		
+94 " "	6.9	314.2 ✓		
18+05 = on Fill	13.6	307.5 ✓		
+12 = toe "	15.3	305.8 ✓		
Flow line				
4' Rt. = 36" Conc. pipe	17.08	304.03 ✓		W. end.
+47 in Wash.	14.8	306.3 ✓		
+72 " "	14.7	306.4 ✓		
10 Lt.	12.8	308.3 ✓		
10 Rt.	14.7	306.4 ✓		

		321.11		
19+00	in Wash.	14.0	307.1	
10' Rt.		13.5	307.6	
10' Lt.		14.0	307.1	
19+20		13.4	307.7	
4' Lt.	in Wash.	14.1	307.0	
19+32.64	= Δ 0°54' Lt.	12.73	308.38	on stake
+40		14.3	306.8	
+45	Flow Line	12.5	308.6	
+45	East end, 3' square wooden Culvert			
+50	Flow 3' wooden Culvert	12.8	308.3	
1' Rt.		9.7	311.4	
4' Lt.		9.5	311.6	
20+00	Intersection SLY edge Flow.	10.6	310.5	
3' Rt.	NLY edge Flow	10.6	310.5	
1' Lt.		8.7	312.4	
4' Rt.		8.7	312.4	
20+02		8.5	312.6	
TP	11.19	331.63	0.67	320.44
19+94	14" Cypress tree	7.2	313.9	Ground at tree
20+21	14" "	5' Lt.	16.3	315.3
20+31	10" "	4' Lt.	15.6	316.0
+42	10" "	3' Lt.	15.2	316.4
20+23	4'	16.1	315.5	

		331.63		
(20+23)				
2' Rt.	= SLY edge Flow	18.1	313.5	49 ✓
5' Rt.	= NLY " "	18.1	313.5	
6' Rt.	= NLY Bank	16.4	315.2	
20+47		16.3	315.3	
4.2' Rt.	= 36" Conc. Culvert	18.72	312.91	1st 5 Cor.
		17.72	313.91	
20+55	= Toe Fill	14.1	317.5	
+73		4.9	326.7	
+75.7	= East edge side walk	4.56	327.07	48th St.
+84.4	= East cb. on top	4.26	327.37	
+84.4	= " cut on paving.	5.28	326.35	
		5.19	326.44	
+87.4	= opposite most SWLY corner Inlet Box.			outside.
13' Rt.	at corner Box.	5.21	326.42	
20'	" on Flow "	17.60	314.03	SLY edge
21+02.6	= 48th on paving.	4.71	326.92	
21+21	= W Gutter on paving	4.86	326.77	
21+21.75	= W. Top of curb	3.91	327.72	
21+23.2	= Rt L to South westerly corner outlet box	4.0 on ground	327.6	
1.9' Rt.	on Ground above corner of box	4.1	327.5	
4.9'	on flow line	15.32	316.31	
21+29.85	= West edge of walk	4.40	327.23	
21+32	Top of fill	4.3	327.3	

33163

21+47 = top fill	11.8	319.8	✓
+54.5	12.9	318.7	✓
5.3' Rt. = 36" cut short	14.19	317.50	Flow line
22+00 in Wash.	12.5	319.1	✓
10' Rt.	10.3	321.3	✓
10' Lt. " "	11.9	319.7	✓
22+30	10.6	321.0	✓
+55	10.0	321.6	✓
10' Rt.	7.2	324.4	✓
10' Lt.	10.2	321.4	✓
22+69	8.7	322.9	✓
+70.35 on top 12" Water Main on Stake	6.69	324.9	✓
+73.49 = End of Line	8.35	323.28	2' Alley = 0+00 W. South line
T.P.	11.02	341.62	1.03 330.60
chk. N.W. B.P. Univ. & Euclid.	0.86	340.76	✓

340.68 = 8' N.W.
0.08 = Error

Sewer Levels 48th St

Cont. from P-37

50

21+31.97 P-37	339.22		
= 0+00 going South.			
+33	10.2	329.0	✓
15' Lt. on Walk	10.30	328.9	✓
0+50	9.1	330.1	✓
15' Lt. " "	9.04	330.18	✓
3' Rt. = top fill	9.1	330.1	✓
12' Rt. = top "	12.1	327.1	✓
50' Rt.	11.8	327.4	✓
1+00	4.2	335.0	✓
15' Lt. on Walk	4.26	334.96	✓
9' Rt.	2.7	336.5	✓
T.P.	11.69	350.74	0.17 339.05
1+50	9.6	341.1	✓
15' Lt. on Walk	10.57	340.17	✓
2+00	5.9	344.8	✓
15' Lt. " "	6.43	344.31	✓
2+50	4.6	346.1	✓
15' Lt.	4.83	345.91	✓
3+00	5.1	345.6	✓
15' Lt. on Walk	5.08	345.66	✓
50' Rt. in Excavated Lot	6.7	344.0	✓
chk. ct. 3474.74 Page 63	7.98	342.76	✓
		342.79	0.03 Error

All Lots
from here
South are
Place & Elev
unless noted
otherwise

Levels For Sewer			
Walker, Bliss 1 shell 5-1-40			
South of Univ. And West of 19th From Sta. 8+40.22 P-25, West			
Elev. Hub. 8+40.22 Page 46			
8+40.22 P-25	13.06	291.88	278.82
= 0+00 going West.	13.06	278.82	on Hub.
+04 in channel	14.4	277.5	✓
+10 " "	14.6	277.3	✓
+13	12.2	279.7	✓
+40	11.6	280.3	✓
T.P. 12.55	304.26	0.17	291.71
+83	3.4	300.9	✓
T.P. 12.69	316.17	0.78	303.48
1+03	5.5	310.7	✓
+20	1.3	314.9	✓
T.P. 7.69	323.00	0.86	315.31
1+42	4.8	318.2	✓
+51.86 Δ 30°11' RT.	4.38	318.62	on stake
13' Lt. = Run Canyon	6.7	316.3	6' stone well
+72	5.2	317.8	✓
10' Lt.	9.4	313.6	✓
4' Lt.	8.0	315.0	✓
2+00	6.8	316.2	✓
4' Lt.	9.8	313.2	✓
10' Lt.	11.4	311.6	✓

323.00 ✓			
2+25	6.3	316.7	✓ 51
1' Rt. at S.E. Cor. Septic Tank.	6.3	316.7	✓
1' Rt. on top tank	3.37	319.63	✓ S.E. Cor.
2+33	5.7	317.3	✓
13' Rt. = S.W. Cor. Septic tank	5.3	317.7	✓
13' Rt. on top " "	3.4	319.6	✓
4' Lt. of "	8.7	314.3	✓ 2+51 11' Rt = 6' stone well
10' Lt. " "	11.1	311.9	✓
2+62.67 = End of line	3.30	319.70	✓ 10' Rt. 3' stone well on stake
4' Lt.	5.5	317.5	✓
10' Lt.	8.4	314.6	✓
T.P. - db. on stub 1+84.08	10.49	312.51	✓ P-52
		312.50 = stake	
		0.01 = Error	

Wol. Kot.
Bliss
Isbell
5-8Aa

LEVELS for SEWER from 8+40.22 P.21

Northeast to 49th, thence North in E
49th to Univ. thence North in
Alley bet. Winona & 49th to a point
North of Palk. Location 21, 27

291.88 = TP-51

8+40.22 P.25 = 0+00 going East.	13.06	278.82	on Hub
+50	10.9	281.0	
5' Rt.	12.9	279.0	
+65	8.4	283.5	
5' Rt.	10.8	281.1	
15' Rt.	12.7	279.2	
TP 12.80 304.33	0.35	291.53	
1+00	5.5	298.8	(0797) 4' Lt 2" Orange Tree Partly Dead (701) 3' Rt. Two 2" slanders
2' Rt.	7.3	297.0	
10' Rt.	8.1	296.2	
1+10	2.5	301.8	(1708) 1' Lt 2" Orange Tree 50% Dead 1717 - Orange 3" dia. 50% Dead
TP 12.36 316.27	0.92	303.91	(123) 1' Rt. 2 1/2" Plum Tree (129) 4' Rt. slander
1+35	10.6	305.7	(138) 4' Rt. slander
11' Lt. of House on ground	10.6	305.7	(145) 5' Rt. = slander (155) 6' Rt. = slander
11' " " " " Floor	5.3	311.0	
1+56	7.0	309.3	

316.27

✓
52

1+58 toe cobbles Wall	6.6	309.7	
1+59 top. " "	5.8	310.5	
1+68	5.3	311.0	
1' Lt. = 3" dia. pepper tree	5.0	311.3	
1+84.08 = 4 61° 11' Lt.	3.77	312.50	in Roadway
2+00	2.4	313.9	" "
TP 12.21 328.20	0.28	315.99	
45' Rt. - front of house	8.3	319.9	on Floor
45' " " " "	11.5	316.7	" ground.
2+50	10.2	318.0	
30' Lt.	12.0	316.2	
35' Lt.	13.0	315.2	
75' Lt. = Rim Canyon.	20.0	308.2	
3+00	7.0	321.2	
23' Lt.	8.2	320.0	
27' Lt.	9.6	318.6	
88' Lt. Rim Canyon.	16.0	312.2	
3+41	4.7	323.5	
15' Rt.	5.0	323.2	
26' Rt.	0.9	327.3	
45' Rt. at house	+1.4	329.6	on floor.
45' Rt. " "	+0.4	328.6	" ground.

328.20		49th St.	
(3+62)	29' Lt. = Front of house	6.8	321.4 ground
"	" " " " " "	6.3	321.9 Floor
(3+62)	54' Rt. at house	8.7	319.5 Ground
	62' Rt. " " plumbing	10.5	317.7 (2 Houses) Front of house
(3+80)	65' Rt. = Front House	10.0	318.2 ground
"	90' " = Back of House	9.4	318.8 on Floor Elev. Plumbing
"	90' "	14.4	313.8 on Ground
3+80		3.9	324.3
4+00		4.3	323.9 on cross Paring $\Delta 10^{\circ}52'$ Rt.
T.P.	7.30	326.76	8.74 319.46
4+37	N.E. edge House on Lt.	3.6	323.2 Footing
	18 Lt.	3.6	323.2
	25' Lt.	2.4	324.4
	80' Lt. = Front of house	10.3	316.5 ground
	80' " " " "	8.2	318.6 Floor
106	" Back " "	16.7	310.1 Ground
4+50		3.9	322.9
	+85	4.8	322.0
	51' Lt. on ground at House	3.9	322.9 of plumbing
	51' " " Floor of "	0.6	326.2
5+00		5.4	321.4
	50' Lt.	9.1	317.7

326.76		Blk 24 Fmt. Add	
5+45.6	= South edge paring	7.22	319.54 ⁵³ Univ. Ave.
5+48.85	= $\Delta 10^{\circ}52'$ Rt. Location P-27		on cross
= 0+00 going North	Elevation	7.30	319.46 in Paring
+12	on Par. S. Gut.	7.48	319.28
+37.2	1/2 Par. Univ.	6.93	319.83
+48	on "	7.00	319.76
1' Rt. = 1/2 Gas Valve Concr.		6.93	319.83 on Cover
+62.5	= N Gut. on Par.	7.45	319.31
+78	= N. edge Par. N.H. Univ.	6.98	319.78
0+80	= $\Delta 10^{\circ}52'$ Lt.	6.96	319.80
1+00		6.1	320.7
	50' Rt. Natural ground	3.7	323.6 = Fill Ground.
	22' Lt. at Bld. (ground)	8.0	318.8
	100' Lt.	12.3	314.5
	1+50 in Fill	8.6	320.2
	25' Lt.	8.4	318.4
	100' Lt.	7.6	319.2
	15' Rt.	8.4	318.4
	45' Rt.	4.0	322.8
	1+62 = End of fill section.	6.2	320.6
2+00		2.9	323.9
	20' Rt.	3.9	323.5

	326.76 ✓	Alley West of Winona North of Univ. Bldg 24 6.0 320.8 ✓ Fmt. Add.	
(2+00) 25' Rt.			
50' Rt. in Canyon.	10.8	316.0 ✓	
75' "	6.5	320.3 ✓	
TP 12.67	337.78	1.65	325.11 ✓
(2+00) 92' Lt. of House, Floor	11.2	326.6 ✓	
" " " " " ground.	14.1	323.7 ✓	
2+50	9.9	327.9 ✓	
3+00	5.9	331.9 ✓	
50' Rt.	6.5	331.3	Lt. side Above L
3+50	3.0	334.8 ✓	
4+00	1.5	336.3 ✓	
100' Lt. of house, ground	2.5	335.3 ✓	
100' " " " floor.	0.7	337.1 ✓	
TP 10.74	347.98	0.54	337.24 ✓
4+48	10.1	337.9 ✓	
95' Lt. of house, ground	12.6	335.4	S. edge
95' " " " floor.	11.1	336.9 ✓	
4+95	8.3	339.7 ✓	
85' Lt. " " ground.	11.5	336.5 ✓	
85' " " " floor.	10.3	337.7 ✓	
5+50	6.9	341.1 ✓	

	347.98 ✓	54 ✓	
5+76	6.4	341.6 ✓	
89' Lt. at N.E. Cor House	9.6	338.4 ✓	ground.
" " " " " floor	8.5	339.5 ✓	
6+00	5.8	342.2 ✓	
4+50	5.1	342.9 ✓	
90' Lt.	8.3	339.7 ✓	
6+84.03 = South 7' Line Pkt.	4.94	343.04	on stub.
Chk Stub 18+99.69 P-32	1.14	346.84	
		346.86 = stub P-32	
		0.02 = Error.	
Alley Bldg 29 Fmt Add.			
7+00	347.98 ✓	4.2	343.8 ✓
7+28		3.7	344.3 ✓
85' Lt. = S.E. Cor House, ground	6.6	341.4 ✓	
" " " " floor.	4.4	343.6 ✓	
7+50		3.1	344.9 ✓
8+00		1.8	346.2 ✓
TP 7.52	353.82	1.68	346.30 ✓
8+11		7.5	346.3 ✓
85' Lt. = N.E. Cor. House, ground	9.0	344.8 ✓	
85' " " " " floor.	8.0	345.8 ✓	
8+50		6.4	347.4 ✓

Cont. P-55

353.82 v Alley Blk. 29 Front Add

8+94	5.4	348.4	✓
82' Lt. S.E. Cor. House, ground	6.6	347.2	✓
82' " " " floor	4.8	349.0	✓
9+00	5.2	348.6	✓
750	4.0	349.8	✓
10+00	2.9	350.9	✓
750	2.3	351.5	✓

chk. stub 6+8909 P-54 10.76 343.06
 343.04 = stub P-54
 0.02 = Error

Levels Block F - Cont from P. 16

	(311.87)		
T.P. 10.92 (322.50)	0.29	(311.58)	
(1+93) 2.45' Lt.	10.73	311.97	✓
+95.3 Base Conc. Steps	10.7	311.8	✓
+99.6 = N edge Conc.	9.20	313.30	✓
(1+97.7) 2.45' Lt. on Conc. Landing	8.55	313.95	✓
2.45' Lt. on			
1+77' Blk. on Cob Wall	12.25	310.25	✓
(1+95) 5.5' Lt. on Garage Floor	7.26	315.24	✓
(2+06) 2.45' Lt. on Cob Wall	7.90	314.60	✓
2+08.67 = Δ Rt. 8' 49'	8.57	313.93	✓

(322.50) Block F - Cont

Levels for Branch Line to Serve Lots 12, 13, 14, 15 North of St. Univ. ⁵⁵

2+08.67	8.57	313.93	✓
(2+08.67) 2.45' Lt. on Cob Wall	8.11	314.39	✓
(2+08.67) 6' West on Drive	8.00	314.50	✓
14' " " "	7.50	315.00	✓

22' " = beginning Eugene Hedge

31.6" on Conc. Walk	6.22	316.28	to House
35.6" " "	6.08	316.44	" "
54' West	4.7	317.8	End Eugene Hedge
(54' ") 10' Rt. on Walk	4.82	317.68	End Side Walk (St.)

Main Line Cont.

2+17.7 on south cb.	8.72	313.78	✓
" " Gut. Conc. Pav.	(5.31)	317.19	?
2+37.7 = Δ Parking	8.68	313.80	✓
2+58.	9.34	313.16	✓
+67.9 N edge "	9.22	313.28	✓
2+85	7.6	314.9	✓
3+00	5.2	317.3	✓
T.P. 12.90 (335.32)	0.08	(322.42)	
3+35	12.4	322.9	✓
+70	7.3	328.0	✓
4+00	4.0	331.3	✓
T.P. 7.16 (342.17)	0.31	335.01	✓
4+79.30 Δ 45' 12' Lt.	4.27	337.90	✓
= 4+08.95 } Equation			

Chks. P. 79

Mulkin
Blas
Inbill
5-9-40

LEVELS for Sewer in 2 ESTRELLA ST.

bet. Union Ave & Polk.

Location P-26

Location	Elev.	Notes
17+61.53	10.09 324.00	El. Stub. 17+61.53 P-48
= 0+00 going North	10.09 313.91	
+50	11.8 312.2	
1+00	10.6 313.4	Lts on ht. Above & from 1st north
44' RT	11.4 312.6	For out on Rt North of this station
1+50	8.4 315.6	See Levels Alley Book
2+00	6.6 317.4	
(2+09) 41' RT = End 30" culvert	15.53 328.47	
+50	5.6 318.4	
3+00	4.1 319.9	
+81.7 ³ on stub. & Polk.	1.46-322.54 on stub.	
TP	9.65 332.19 1.46 322.54	
chk. stub. 3+22.96 page	0.19 332.00	

Estrella St. Sewer Levels

Location	Elev.	Notes
17+61.53 P-48		North of Union Ave Location P-26
= 0+00 going South	325.80	El. Above Stub 17+61.53
0+50	8.4 317.4	
1+00	3.6 322.2	
+50	0.0 325.8	
TP	10.81 336.34 0.27 325.53	

336.34 ✓

56 ✓

2+00	8.5 327.8	
+17.34 = N.W. Union paving	7.90 328.44	ORCT, lead plug in paving.
+29.34 = N.T. line Union	8.17 328.17	
TP	12.47 348.28 0.53 335.81	0.02 = Error
CHK. CT. lead plug 2+89.68 P-60	8.60 339.68 339.66 = P-60	
CHK. CT. " 3+74.74 P-63	5.49 342.79 342.75 = P-63	
CHK. N.W. 8P. Euclid & Union	7.52 340.76 ✓ P-50	

The above from G.M.
2.17.34' from G.M. Ave
N.W. 8P. Union Ave
237' seems to be 20' short.
As Rerun in 1576 apparently used.
Checks out. OK. ✓

Walker,
Bliss
Lobell

LEVELS for Alternate Line
Front station 12+43.74 ^{North} - West to 4th
Alley West of 43rd, North of Univ.

Location	P-27	El. Stake
12+43.74 P-27 P-27 Ked-13.02 = 12+43.74 - Δ 70° 56' Lt. 304.00		290.98 P-47
+66	11.7	292.3 ✓
+79 in channel	14.6	289.4 ✓
+85 " "	14.1	289.9 ✓
+86 = on natural ground	10.7	293.3 ✓
+9.3 " " "	10.2	293.8 ✓
13+00 " " "	8.7	295.8 ✓
+20 " " "	1.0	303.0 ✓
TP 12.75 316.59	0.16	303.84 ✓
13+42.55 = Δ 78° 59' 00" Rt.	7.00	309.6 ✓
+48 = toe of fill section	6.4	310.2 ✓
+55 on fill	5.0	311.6 ✓
+67 " "	0.5	316.1 ✓
+89 = S.C.B. Univ. top cb.	1.25	315.34 ✓
+89 = " " Gut. pipe	1.85	314.74 ✓
14+14 = " " "	1.14	315.45 ✓
+39 = N Gut	2.15	314.44 ✓
+54.21 = N.L. Univ	2.73	314.46 ✓

316.59 ✓

57 ✓

14+72 on fill ground	2.0	314.6 ✓
+85 " " "	4.0	312.6 ✓
+93 " " "	9.2	307.4 ✓
15+00	10.1	306.5 ✓
TP 12.64 316.43	12.80	303.79 ✓
15+12 = toe of fill section	16.0	300.4 ✓
+46 in Wash.	18.3	298.1 ✓
+69 " "	17.8	298.6 ✓
16+32	13.0	303.4 ✓ Not in order
16+00 " "	17.6	298.8 ✓
16+46.3		
= 15+90.35 = line cont P-48	11.82	304.6 ✓ 304.64 P-48
16+46.3 location P-27		
= 0+00 = line North on 4 th Alley, Blk 23	11.0	305.4 ✓ All data on Pt. where 0.51' from this station North
+40	7.2	309.2 ✓
+50	5.8	310.6 ✓
25' Lt.	10.3	306.1 ✓
1+00	1.0	315.4 ✓
30' Lt.	5.0	311.4 ✓
76	14.6	301.8 ✓
100' Lt.	8.1	308.3 ✓
TP 10.17 325.50	1.10	315.33 ✓
1+56	7.9	317.6 ✓
15' Lt. = S.E. Car House ground	8.7	316.8 ✓
" " " " " floor	7.6	317.9 ✓

Alley 81k 2/3 West of 49th and North of Univ.
325.50 ✓ Cont from P. 57

2+00		1.5	321.0 ✓
50' Lt.		109	314.6 ✓
80' Lt.		186	306.9 ✓
106' Lt.		187	306.8 ✓
120' Lt.		141	311.4 ✓
2+50		1.3	324.2 ✓
3+00		1.6	323.9 ✓
42' Lt.		59	319.6 ✓
64' "		126	312.9 ✓
100' "		12.3	313.2 ✓
T.P.	12.05	336.91	0.64 324.86 ✓
3+50		11.6	325.3 ✓
50' Lt.		13.2	323.7 ✓
80' Lt.		15.0	321.9 ✓
4+00		9.1	327.8 ✓
	POT.		
+13.93	= South 7' line Polk.	8.97	327.94 ✓
+26.93	= 1/2 Polk.	8.3	328.6 ✓
+37		8.2	328.7 ✓
+57		6.1	330.8 ✓
5+00		3.8	333.1 ✓

Alley 81k 30 - location P. 21
336.91 ✓ Fmt. Add. 58 ✓

5+38		1.5	335.4 ✓
84' Lt.	= S.E. Cor. House, ground	3.4	333.5 ✓
" "	" " " " " floor.	2.7	334.2 ✓
5+50		0.7	336.2 ✓
T.P.	13.23	349.92	0.22 336.69 ✓
6+00		10.9	339.0 ✓
+42		8.6	341.3 ✓
82' Lt.	= S.E. Cor. House, ground	7.4	340.5 ✓
" "	" " " " " floor.	8.1	341.8 ✓
7+00		5.9	344.0 ✓
+50		4.3	345.6 ✓
82' Lt.	N.E. Cor. House, floor.	6.0	343.9 ✓
" "	" " " " " ground.	7.4	342.5 ✓
8+00		3.0	346.9 ✓
86' Lt.	at House, ground	4.8	345.1 ✓
86' Lt.	" " " " " floor.	3.8	346.1 ✓
T.P.	8.71	350.09	8.54 341.38 ✓
Chk. S.E. B.P. in church stp.		1.67	348.42 ✓
			348.45 = B.M.
			0.03 = Error

beneath floor on Plumbing

Orange

Estrella

Walker
Bliss
Isbell
5-9-40

LEVELS for SEWER in POLK AVE.

From Alley east of Estrella. Location P-26

To Alley West " "

	9.65	332.19	322.54	x Fl. Stub. 3+8173 P-56
4+26.93 P-38				
=0+00 going West on Polk.	3.6	328.6		✓
0+50	5.3	326.9		✓
1+00	7.0	325.2		✓
1+55	9.7	322.5		✓
+64.97 = 1/2 Estrella	9.65	322.54	on stub.	✓
2+00	9.5	322.7		✓
2+50	8.0	324.2		✓
(2+30) 62' Rt = Flow Line	16.6	315.6	Ends opposite Station 2+09 P-56	✓
3+00	3.9	328.3		✓
+29.68 = 1/2 North + South Alley	0.6	331.6	3+3546 P-61	✓
chk. stub 3+22.46 P-61	0.19	332.00	South 7 1/2 size Polk. & Alley West of Estrella.	✓

164.97
164.71

Walker.
Bliss
1st Hill
5-9-40

LEVELS for SEWER
in E. Alley Blk. 22 Fairmount Add.
from station 19+32.64 location P-26
South to Univ.

19+32.64 P-48	11.66	320.04	308.38	El. Stake 19+32.64 P-48
= 0+100 going South	11.66	308.38	308.38	on stake
0+17. in. Wash.	11.2	308.8	308.8	
+39	5.4	314.6	314.6	All property on Rt. thru E. to Univ.
TP 12.38	0.92	331.50	319.12	
0+53	9.2	322.3	322.3	
+80	2.0	329.5	329.5	
TP 13.19	0.27	344.42	331.23	
55' Lt.	19.6	324.8	324.8	
1+00	12.7	331.7	331.7	
+50	7.2	337.2	337.2	
75' Lt.	13.3	331.1	331.1	
(+80) 75' Lt.	10.4	334.0	334.0	
2+00	3.2	341.2	341.2	
75' Lt. in Excavated Lot.	13.3	331.1	331.1	
15' Lt.	8.1	336.3	336.3	
9' Lt.	3.4	341.0	341.0	
2+50	0.8	343.6	343.6	
8' Lt.	1.2	343.2	343.2	

344.42 ✓

16' Lt. (2+50)	6.0	338.4	338.4	60 ✓
75' " "	11.1	333.3	333.3	
TP 10.62	348.86	6.18	338.24	
2+79	4.3	344.6	344.6	
+80	8.5	340.4	340.4	
+82.68 = N.H. Univ. fire pav.	9.06	339.80	339.80	
+89.68 = N.H. back of Univ.	9.20	339.66	339.66	
		339.68 = P-56		
		0.02 = Error		

LEVELS in Above Alley North of station

19+32.64 P-48 - location P-26

12.70	321.08	308.38	308.38	El. Stake 19+32.64 P-48
19+32.64 P-48				
= 0+100 going North	12.70	308.38	308.38	
+17	9.1	312.0	312.0	
+40	4.3	316.8	316.8	
+53	1.5	319.6	319.6	
TP 15.50	336.30	0.28	320.80	
0+80	12.3	324.0	324.0	
1+00	10.6	325.7	325.7	
75' Lt.	9.5	326.8	326.8	
1+17	9.6	326.7	326.7	

Cont. P-61

Alley Alley Blks 22-31

Cont. from P-60

336.30

1+50	5.0	331.3	✓	
75' Rt.	8.7	327.6	✓	
2+00	2.1	334.2	✓	
75' Rt.	8.7	327.6	✓	
T.P. 3.72	339.26	0.76	335.54	x
2+25	2.9	336.4	✓	
+45	2.5	336.8	✓	
78' Rt. SW. Cor House ground	11.3	328.0	ground higher than house floor	
79' " " " " Floor.	12.7	326.6	✓	
2+75	2.4	336.9	✓	
3+00	3.7	335.6	✓	
+14	5.1	334.2	✓	
+22.46 = South 7' line post.	7.26	332.00	P-59	
+28	7.7	331.6	✓	
+35.46 = E. Post.	7.7	331.6	P-59	
+50	7.9	331.9	✓	
4+00	9.0	330.3	✓	
75' Rt. = Rim Canyon.	14.8	324.5	✓	
4+50	10.9	329.0	✓	
55' Rt. edge Canyon.	14.0	325.3	✓	

339.26

5+00	12.7	326.6	61 ✓	
5+49 = 4'x3' Cleanout Box.	13.85	325.41	on grating on Flow line	
" " " "	18.18	321.08	24" Conc. pipe	
6+00	9.0	330.3	✓	
+25	6.6	332.7	✓	
+50	5.7	333.6	✓	
7+00	4.3	335.0	✓	
+50	2.1	337.2	✓	
T.P. 11.34	348.87	1.73	337.53	x
7+80	10.8	338.1	✓	
8+00	9.5	339.4	✓	
+50	6.9	342.0	✓	
+73.33 on POT, Stub.	5.68	343.19	✓	
+93 = End.	5.0	343.9	✓	
9+32.69 = S.L. Orange.	4.4	344.5	✓	
Chk. S.E. B.P. Church step	0.38	348.49	Orange & Restella P-58	

348.42 P-58

0.97 = Error

Note: Line changed - from 3+35.46 to 7+20.69

Sketch of location Sec P-26

No change of Ground Profile this line and Above Levels

Walker.
Bliss
Isbell
59-40

LEVELS for SEWER
117 1/2 Alley Block. - 21-Fairmount Add.
Location P-26

Det. Univ. & Polk. Euclid 480

	12.07	335.35	323.28	Elev. Stake 22+7349 P-50
22+7349 P-50				
= 0+00 going North.	12.07		323.28	on stake
+15 = toe New fill	8.6		326.7	this fill made within the last day or two
+30	2.1		333.2	
7' Rt. on natural ground.	7.4		327.9	
9' Lt.	+5.0		340.3	
0+50	+2.5		337.8	
6' Lt. on top of fill.	+5.0		340.3	
8' Rt. toe of "	3.3		332.0	
75' Rt.	6.2		329.1	
TP 10.35	1.40	344.30	333.95	
0+65	3.4		340.9	
8' Rt. toe fill	8.9		335.4	
0+80 = End of New fill.	5.2		339.1	on Natl ground
0+97	4.4		339.9	
72' Rt. S.W. Cor House	7.7		336.6	ground
72' " " " "	5.3		339.1	floor
TP 9.66	0.38	353.58	343.92	
1+35	9.0		344.6	

353.58

62

1+45	8.0		345.6	
25' Rt. = Back of House	8.0		345.6	floor
" " " " "	9.2		344.4	Ground
2+00	5.5		348.1	
+50.6 Existing MH & Polk.	5.09		348.49	on Rim
+50.6 " " "	13.10		335.39	Flow to South
+50.6 " " "	18.19		335.39	Flow
+50.6 " " "	19.05		334.53	to West & North
chk. Stub 1+94.59	9.53		344.05	P-63

Levels Above Alley South of 22+7349
Block 21 - Frmt. Add.

	9.52		332.80	22+7349 Stub P-48
22+7349 P-48				
= 0+00 going South.	9.52		323.28	
+10 in channel	11.0		321.8	
+28 " "	12.0		320.8	
+50	7.5		325.3	
+75	5.7		327.1	
1+00	1.6		331.2	
75' Lt.	4.2		328.6	
TP 12.60	0.20	345.20	332.60	
1+25	9.3		335.9	

Walker
8/10/10
13bell
5-10-10

UNIV. AVE SEWER LEVELS
Bet. Winona And Euclid.

3.5' North of S. line. location 28-25
 El. stub. 12+1735 P.31
 328.92
 Elev stub. 12+9829 P.47
 312.10

883 320.93
 12+9829 P-47-28
 =0+100 going East in fill section 8.83 312.10 on stub.

+50 in fill section. 8.4 312.5

11.5' Lt. on top cb. 8.95 311.98

1+00 = End of fill section. 7.5 313.4

11.5 Lt. on cb. 7.78 313.15

1+21 = West edge private walk ^{conc.} 6.65 314.28

+24 = E. " " " 6.61 314.32

1+50 5.5 315.4

11.5' Lt. on cb. 5.56 315.37

2+00 2.1 318.8

11.5 Lt. on cb. 2.27 318.66

2+10.5 = W cb. 49th on South. 2.21 318.72

" " " Gut. on par. 2.79 318.14

2+25.5 = E. 49th on cross in par. 1.48 319.45

+40.5 = E. cb. " Gut par. 1.40 319.53

" = E. top cb. 0.68 320.25

2+50.5 = E.L. 49th 0.7 320.7

11.5' Lt. on cb. 0.35 320.58

32093 UNIV. AVE.
 T.P. 9.23 329.86 0.30 320.63 64 ✓

3+00 6.2 323.7 ✓

11.5' Lt. on cb. 5.98 323.88 ✓

3+50 3.5 326.4 ✓

11.5 Lt. on cb. 3.10 326.76 ✓

3+75.57 = W.L. Winona 2.0 327.9 ✓

11.5' Lt. on cb. 2.02 327.84 ✓

+87.57 = W cb. Winona on cb. 1.81 328.05 ✓

" " on gutter par. 2.34 327.52 ✓

4+05.57 = S. Winona on stub. 0.98 328.88 ✓
 12+1735 P-47
 El. stub. 12+1735 P-47
 328.92
 0.4 Error

Univ. Ave. West from 12+9829 opposite Page
 10.11 322.21
 12+9829 P-47-28
 Elev. 12+9829 P-47
 312.10
 =0+100 going West. 10.11 312.10 on stub.

+50 in fill section. 8.7 313.5 ✓

11.5' Lt. on cb. 8.93 313.28 ✓

1+00 in fill section. 5.7 316.5 ✓

11.5' Lt. on cb. 6.16 316.05 ✓

1+30 = End of fill section. 3.0 319.2 ✓

+50 1.1 321.1 ✓

			Univ. Ave	
		322.21 ^x		
TP	12.90	334.08	0.43	321.78 ^x
1+79.97	Ph & S.A. Cor. prop. - E.L. Estrella		10.1	324.0 ^v
	11.5	Rt. to sewer on cb.	10.03	324.05 ^v
1+89.7	E. cb. Estrella		9.37	324.71 ^v
		" Gut. paving.	9.98	324.10 ^v
2+05.22	G. paving.		8.92	325.16 ^v
2+20.3	- W Gut.		8.83	325.25 ^v
		" W top cb.	8.07	326.01 ^x
2+29.46	- 1' E.E.L. Estrella produced.		7.81	326.27 ^v
	Chk. S.E. B.P. Univ. & Estrella		7.36	326.72 ^x
				326.67 - B.M. 0.05 = Error.
2+50			6.4	327.7 ^v
	11.5	Rt. on cb.	6.13	327.95 ^v
3+00			2.4	331.7 ^v
	10.5	Rt. on cb.	2.50	331.58 ^v
TP	13.23	347.07	0.24	333.84 ^x
3+50			11.5	335.6 ^v
4+00			7.7	339.4 ^v
	11.5	Rt. on cb.	8.22	338.85 ^v

		347.07 ^v	Univ. Ave.	
4+05			7.6	339.5 ^v 65
	1.5	Rt. on edge Sid. Walk East Side.	7.60	339.47 ^v
4+06	on Conc. Drive.		7.25	339.82 ^v
	7.19 ²	" West side "	6.71	340.36 ^v
	7.29 ⁵	on E. edge Private Walk	5.70	341.37 ^v
	7.34 ⁵	" W " " "	5.47	341.60 ^v
4+55.5 ⁵			4.0	343.1 ^v
	1.5	Rt. on Walk.	4.00	343.07 ^v
	11.5	" " " cb.	4.24	342.83 ^v
5+00			2.3	344.8 ^v
	11.5	Rt. on cb.	2.07	345.00 ^v
5+50			1.4	345.7 ^v
	11.5	Rt. on cb.	1.48	345.59 ^v
5+93	- End on Stub.		1.65	345.42 ^v
	11.5	Rt. on cb.	1.99	345.08 ^v
				x 2+8968
Chk. 7 Jack Alley Blk 22			7.42	339.65 P-60
				339.66 - Jack P-60 0.01 = Error.

Walker. ESTRELLA AVE JEWEL LEVELS

Bliss
Isbell
5-10-40

From Univ. Ave. - South.

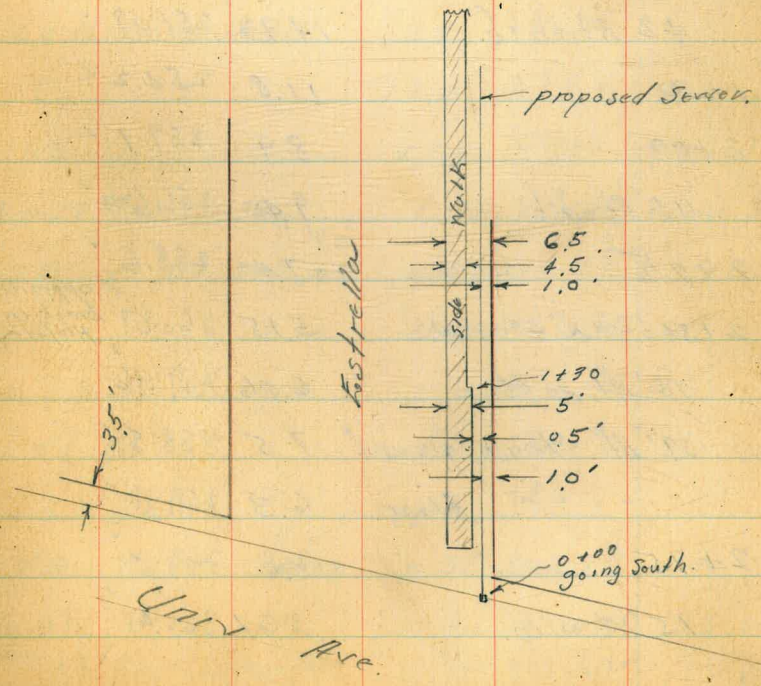
335.39

66

Location	P-25	Elev.	Notes
2+29.96-P.65	9.12	335.39	↗ E. Stub. 2+29.96 P-65
= 0+00 going South.	9.12	326.27	on stub.
0+04.3 = beginning side Walk	9.2	326.2	
0.5' Lt. on Walk	9.25	326.14	
0+30	7.9	327.5	
0.5' Lt. on Walk	7.95	327.44	
9' " " cb.	8.12	327.27	
0+50	7.2	328.2	
1+00	6.0	329.4	
0.5' Lt. on Walk	6.06	329.33	
9' " " cb.	6.24	329.15	
(1+50) 0.5' Lt.	5.63	329.76	
1+50	5.6	329.8	
(2+00) 0.5' Lt. on Walk	4.88	330.51	
9' Lt. " cb.	4.97	330.42	
2+33 0.5' Lt. on Walk	4.27	331.12	
9' on cb.	4.33	331.06	
0.6' Rt. at Base of Wall	4.2	331.2	
(2+34) = beginning cobble Wall	4.2	331.2	
" 0.6' Rt. on top Wall	2.6	332.8	

2+50	3.8	331.6
1' Lt. on Walk.	3.70	331.69
3+00	1.6	333.8
1' Lt. " "	1.76	333.63
9' " " cb.	1.89	333.50
0.6' Rt. on Wall	0.2	335.2
2+89.4 = End of Line.	2.2	333.2
1' Lt. on Walk.	2.23	333.16
9' " " cb.	2.40	332.99
0.6' Rt. on Wall.	0.8	334.6

Not taken in order.



W. Kor.
Bliss
Hubell
5-11-40

Sewer Levels 49th Street
From Exist M.H. Ontario & ~~47th~~ North St.

Location. - 22-24

X Fl. Rim MH

Exist. MH	7.38	266.02	258.64	P-8
=0+00 on Rim.		14.66	251.36	
" " Floor.		21.90	244.12	
0+00 on ground.		14.8	251.2	
+50		14.5	251.5	
+70		15.0	251.0	
+80 in Wash.		16.0	250.0	
1+00		15.0	251.0	
42' Rt. on cb.		14.93	251.09	
1+50		11.8	254.2	
2+00		8.9	257.1	
11.6' Rt. on cb.		9.40	256.62	
2+25		7.4	258.6	
2+54.52 = Δ 4°09' Rt.		5.15	260.87	opposite brook in cb profile
15' Rt. on cb.		6.06	259.96	
39' Rt. = House, ground		7.5	258.5	
" " " floor.		6.3	259.7	
2+75		2.8	263.2	
15' Rt. on cb.		3.6	362.41	

266.02 ✓

TP	12.50	278.12 ⁴	0.38	265.62 ⁴	67 ✓
3+00		11.5	266.6		
15' Rt. on cb.		11.89	266.25		
35' Rt.		12.0	266.1		
50' Rt.		17.6	260.5		
3+50		4.1	274.0		
		14.1	264.0		See sketch of H. profile
12' Rt. on Con. gut.		4.55	273.59		
TP	12.74	290.67 ³	0.25	277.87 ⁹	
4+00		9.2	281.4		
12' Rt. on Con. gut.		9.71	280.92		
63' Rt. = S.W. Cor. House		8.4	282.2		Main floor
" " " "		17.0	273.6		Basement floor
63' " " "		17.0	273.6		ground
4+52.31 = Δ 19°13' Rt		1.00	289.63		on slab.
TP	12.27	302.48 ⁵⁰	0.40	290.28 ³	
5+00		5.0	297.5		
63' Rt. con. gut		5.6	296.9		
27' Rt.		7.6	294.9		
52' Rt.		15.9	286.6		
TP	12.85	314.98 ^{5.00}	0.35	302.13 ⁵	
5+50		10.6	304.4		
82' Rt. = Con. gutter.		11.33	303.67		

Auburn Drive ~~49th~~ St. Cont. from P-67

315.00
314.98

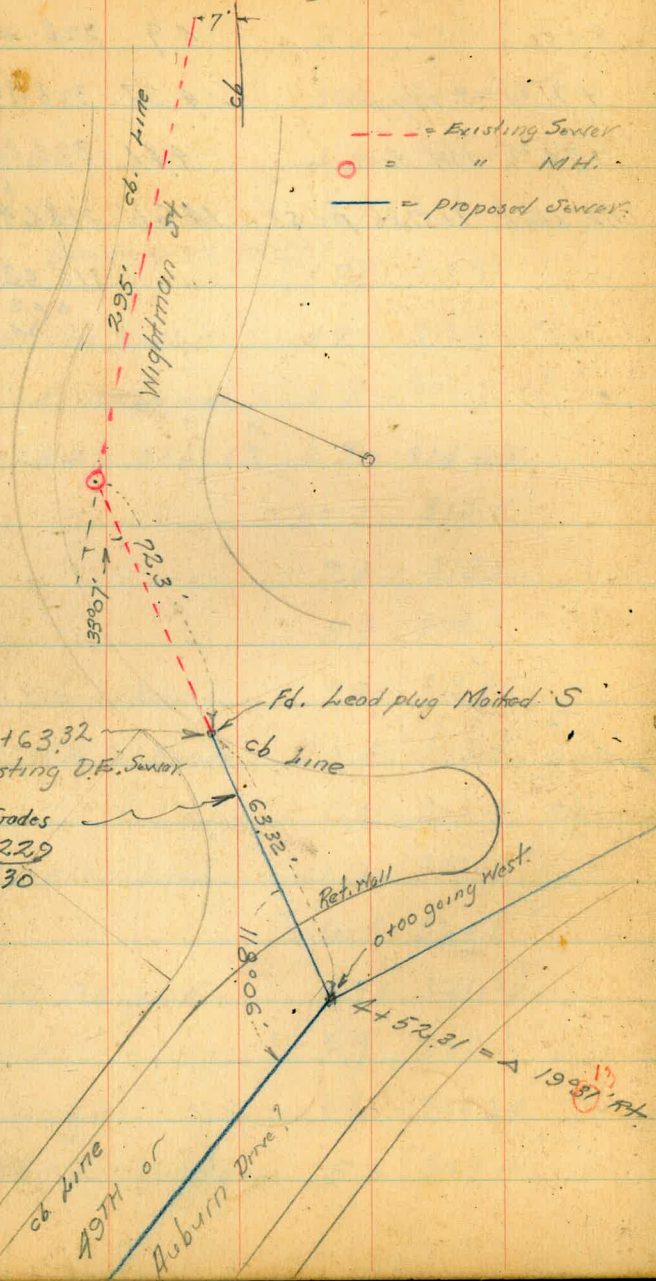
5+70	8.1	306.9	✓
6+00	5.0	310.0	✓
16' Rt. = Con. gutter	5.6	309.4	✓
63' Rt. = Rim Canyon	9.7	305.3	✓
6+39.5 = Δ <small>See page 24 for angle</small>	1.09	313.91	✓
11.7' Rt. con gutter	1.79	313.21	✓
75' " Rim Canyon	8.7	306.3	✓
TP 13.49	328.17	0.30	314.68
6+50	12.7	315.5	✓
7+00	9.4	318.8	✓
+10	8.9	319.3	✓
5' Rt. con gutter	9.44	318.75	✓
44' " = N.W. Cor House	10.4	317.8	ground
" " " " "	6.8	321.4	flack
55' Rt. plumbing	11.2	317.0	✓
7+50	6.4	321.8	✓
6.4' Rt. Con. gut.	6.93	321.26	✓
8+00	2.9	325.3	✓
16' Rt. con. gut.	3.95	324.24	✓
62' Rt. = Rim Canyon	5.6	322.6	✓

328.17⁹ ✓

TP 5.75	333.25 ⁷	0.67	327.57 ²	68 ✓
8+50		4.9	328.4	✓
+71.65 = S. edge pav.		4.37	328.90	✓
+74.25 = N.H. Rim		4.41	328.86	✓
chk. stub. 1+51.86 p-51		14.61	318.67 ⁶	✓
			318.62 = stake P-51	
			0.04 = Error	
			.04	

Walker.
Bliss
1 sheet
5-11-40

Wightman St. Sewer levels
from 49th St., West.



--- Existing Sewer
○ = " M.H.
— proposed Sewer.

302⁵⁰¹78-T P-67

4+52.31			
= 0+00 going west.	12.85	289.65	✓
+0.8 = conc. gutter.	12.78	290.22	✓
+1.3 " "	12.40	290.10	✓
+13.2 = top wall	8.07	294.43	✓
+13.9 = " " Wedge	8.03	294.47	✓
+20		5.5	297.0 ✓
		315.00	
T.P.	12.85	314.98	0.35 302.18 ⁵ ✓
+42		7.8	307.2 ✓
+63.32 top cb.		4.81	310.19 ✓
+63.7 Gut on pot		5.39	309.61 ✓

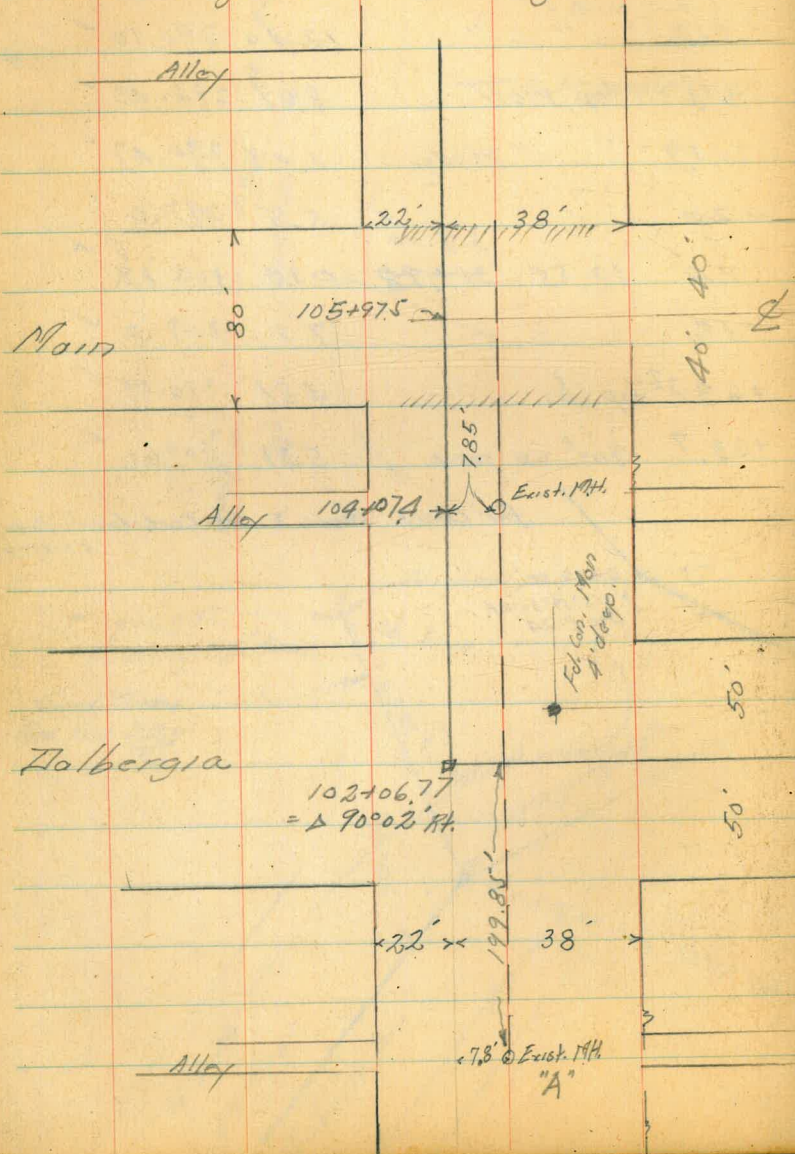
for check Moore & See Cont. Records Pages 67-68-69

6+39.50
Δ = 15° 59' 30" N. E.
See P-24

4+52.31 = Δ 19° 58' N. E.

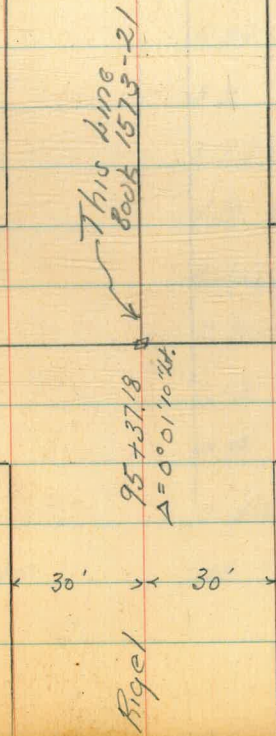
Walker
Bliss
Isbell
1-5-40

Preliminary location
Chollas Valley Trunk Sewer
Proposed Change in Alignment
From Rigel St. and Dalbergia



(LEVELS Page 72)

Note. These notes have been copied into
Book 1573 at page 25 et. seq.
G.R.H.



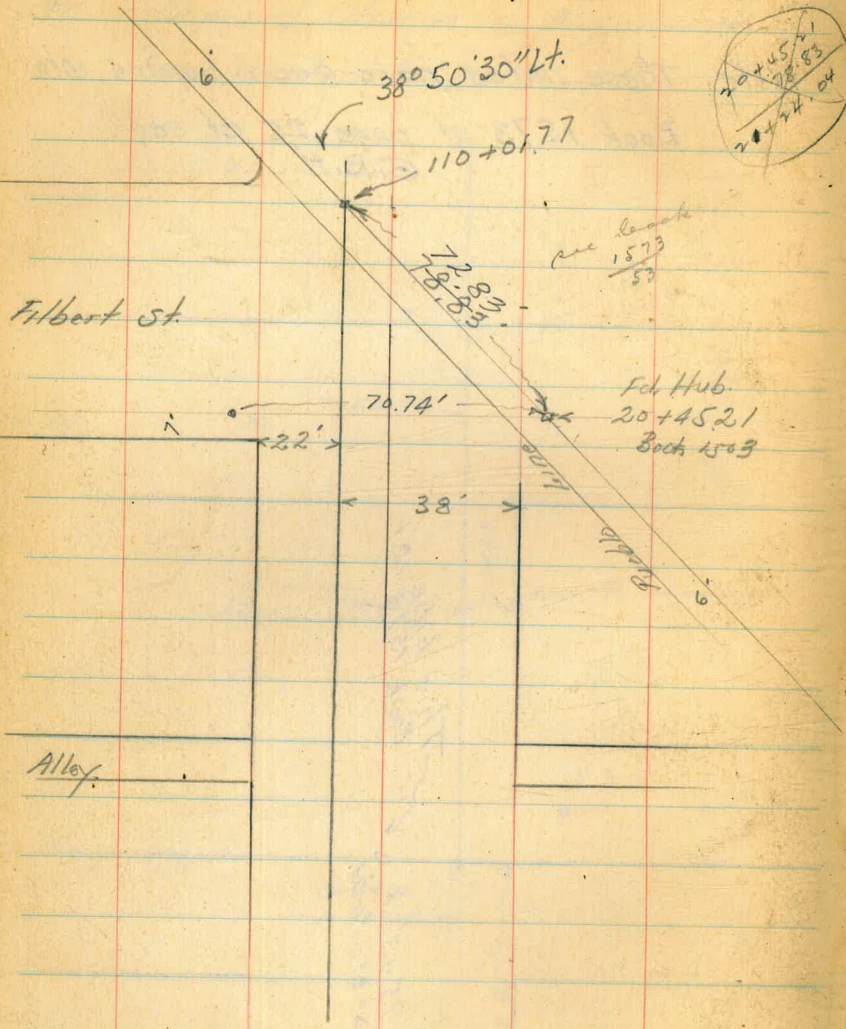
Preliminary Levels for Sewer

Cont. from P-79

72

308.92

1+71.84 = A 36°08' Pt on stud	6.33	302.59 ✓
1+72	6.0	302.9 ✓
9' Lt. of 1+72 on cb	6.30	302.62 ✓
2+00	4.1	304.8 ✓
9' Lt. on cb.	4.35	304.57 ✓
2+48.55 = B.C. of sewer R=371'	1.1	307.8 ✓
9' Lt. on cb.	1.38	307.54 ✓
TP 9.10 316.64	1.38	307.54 ✓
2+92.85 = Intersection	5.5	311.1 ✓
9' Lt. on cb.	5.89	310.75 ✓
3+25	3.3	313.3 ✓
9' Lt. on cb.	3.77	312.87 ✓
3+50	1.8	314.8 ✓
9' Lt. on cb.	2.26	314.38 ✓
+75	0.8	315.8 ✓
9' Lt. on cb.	1.12	315.52 ✓
4+00	0.9	316.24 ✓
9' Lt. on cb.	0.53	316.11 ✓
Chk. N.V. BM BP	1.11	315.53 +52.00
		315.57 - BM
		0.04 Error



Filbert St

Alley

Fd Hub.
20+45.21
Back 1503

length
1573
53

LEVELS For Sewer.
As per Location Page 70

9.74

72

Book 1573
p. 19
Chk. Hub.
12+98.55
1503-

B.M. on Hub.
98+89.94

8.25	9.74	149
	8.75	
95+90	12.1	in ditch.
96+00	9.7	
+20	7.5	
+50	6.0	
97+00 on R.R. Fill	3.3	
20' Rt. on Nat. Ground	9.3	
10' Lt. in Bottom ditch	12.0	
97+50 on R.R. Fill	2.7	
98+00	4.3	
6' Rt. on Nat. Ground	7.5	
6' Lt. " R.R. Fill	1.7	
20' Lt. in ditch.	11.5	
98+15 Nat. Ground	7.0	
+65 " "	6.9	
99+00	6.2	
6' Rt. Nat. Ground	7.2	
6' Lt. on R.R. Fill	2.6	
99+50	5.0	

100+00	5.5	
12' Rt. Nat. Ground	7.7	
5' Lt. on R.R. Fill	2.5	
100+50	5.2	
101+00	3.4	
7' Rt. Nat. Ground	6.3	
4' Lt. on R.R. Fill	1.8	
101+50	4.2	
102+06.77 = 2 90° 02' Rt.	3.6	
3' Lt. on R.R. Fill	2.0	
13' " in ditch	10.3	
102+10 Nat. Ground	7.0	
+50 " "	7.0	
103+00 " "	6.9	
+50 " "	7.0	
104+00	7.2	
+074 = Exist. MH 7.8' Rt.	9.36	Rim
" = Flow to East	7.25 16.61	
" = Flow Main line	17.41	
Rim MH "A"	6.27	
Flow " "A"	10.15 16.42	

104+50	7.8	
105+00	8.3	
+45	8.2	
+52	4.6	
T.P. 0.53 7.31	2.96	6.78
105+57.5=N.H. Main. par.	2.61	
+69.5 N.cb. " "	2.77	
+97.5=g. Main on par.	2.29	
106+25.5=S.cb. " " "	2.56	
+37.5-S.L. " " "	2.55	
107+00	6.3	
+50	6.8	
108+00	6.6	
+50	6.8	
109+00	7.0	
+50	6.8	
110+01.77= Δ 38°50'30" Lt.	6.53	0.78
Chk. Hub. ^{Book. 1.053} 20+45 E1	7.31	

Walker. LEVELS for JEWEL in S. Alley, West of 43rd St.

81165

15ball

6-25-40

From NEWTON to NATIONAL AVE.

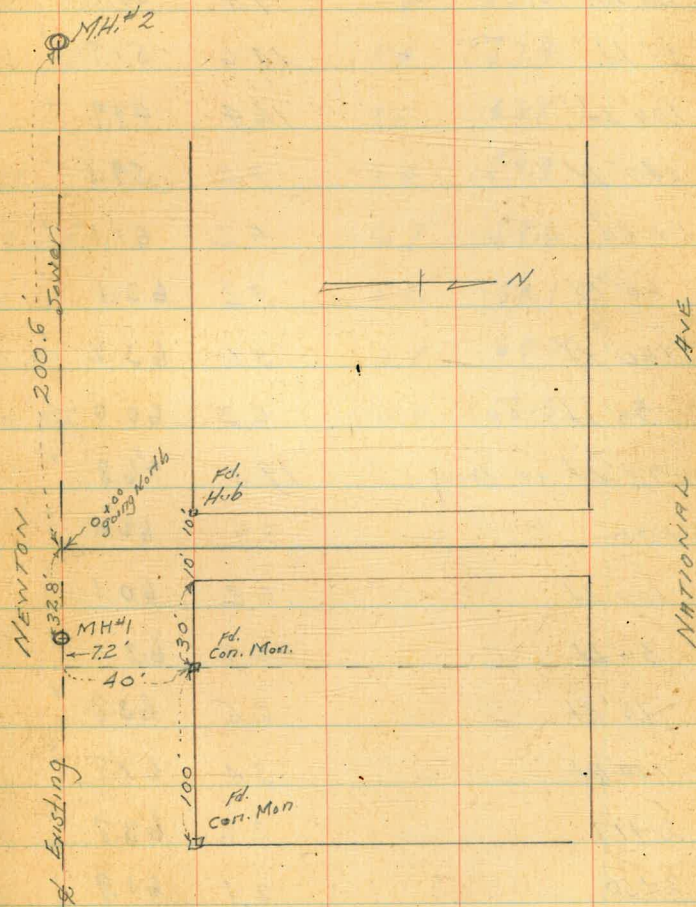
BM NW. B.P.
Keeler & Highland - 432
Book 1577-39
on Cor. Mon.

0.63	73.11	72.48	
T.P. 4.56	66.27	11.40	61.71 ✓
0+00-going North in S. Alley.			
= Existing Sewer			
32.8' Rt. on Pitt M.H. #1	3.83	62.44	✓
" " " Flow " #1	9.23	57.04	✓
50' Lt. of 0+00	5.8	60.5	✓
100' " " "	6.4	59.9	✓
150' " " "	7.2	59.1	✓
199' " " "	7.8	58.5	✓
200.6' " " on Pitt M.H. #2	7.12	59.15	✓
" " " " Flow " #2	17.97	48.30	✓
0+40	6.0	60.3	✓
40' Rt.	4.6	61.7	✓
100' Rt.	2.9	63.4	✓
50' Lt.	6.6	59.7	✓
100' Lt.	6.7	59.6	✓
0+60	7.3	59.0	✓
15' Lt.	9.2	57.1	✓
45' Lt.	7.1	59.2	✓
90' Lt.	14.0	52.3	✓
140' Lt.	5.9	60.4	✓

Cont 75

INDEXED
EPB.

74



6627

200' Lt. of 60	6.3	60.0	✓
1+00	7.2	59.1	✓
60' Rt.	5.0	61.3	✓
20' Lt.	9.4	56.9	✓
30' Lt.	14.6	51.7	✓
100' Lt.	16.4	49.9	✓
140' Lt.	7.2	59.1	✓
1+50	5.2	61.1	✓
60' Rt.	3.2	63.1	✓
100' Rt.	3.1	63.2	✓
30' Lt.	6.3	60.0	✓
95' Lt. in Draw	19.5	46.8	✓
2+00	3.9	62.4	✓
100' Lt.	6.2	60.1	✓
30' Lt.	3.3	63.0	✓
75' Rt.	2.5	63.8	✓
100' Rt.	3.4	62.9	✓
2+17	2.6	63.7	✓
2+50	2.4	63.9	✓
30' Rt.	1.5	64.8	✓
100' Rt.	5.4	60.9	✓
100' Lt.	4.6	61.7	✓

6627

3+00	2.2	64.1	75
100' Lt.	6.7	59.6	✓
60' Lt.	2.8	63.5	✓
50' Rt.	3.3	63.0	✓
100' Rt.	8.4	57.9	✓
3+10	3.5	62.8	✓
3+33	6.4	59.9	✓
50' Lt.	6.7	59.6	✓
100' Lt.	8.2	58.1	✓
40' Rt.	6.1	60.7	✓
100' Rt.	10.0	56.3	✓

Walker
Bliss
Isbell
10-3-40

Preliminary levels for Sewer
in E. Easement Lots 27, 26, 25
South of Towle Court
And West of 52ND, sketch P-2

Elev Hub			B.M. on Hub
2+98.14 P-13	14.01	326.81	312.80
2+98.14			
= 0+00 going north	14.01	312.8	
+4	12.7	314.1	
+15	10.5	316.3	
+25	9.1	317.7	
+50	6.7	320.1	
25' Lt.	8.4	318.4	
0+75	4.7	322.1	
1+00	2.3	324.5	
+15 on stub - end line	0.95	325.8x6	

From Rex to Univ. Cont from Page on Rt.
337.25

(2+40) 90' Lt.	29.0	308.3	
(2+40) 105' Lt.	32.2	305.1	
(2+40) 120' Lt.	35.1	302.2	
2+69 - edge Bank	10.9	326.4	
TP	10.4	325.31	12.98 324.27
TP	4.73	317.23	12.81 312.50
2+73	6.3	310.9	
2+81 = 2+337 P-77	6.4	310.8	
Chk. NW BR Univ. + 52nd	1.62	315.61	
Book 1576-60		315.57 = B.M.	
		0.04 = Error	

Walker
Bliss
Isbell
10-3-40

Preliminary levels for Sewer
in E. Easement West of 52nd St.
from E. Rex Ave. to Univ. Ave.
Sketch P-1

10/1/40
76

			Elev. Hub 2+75-P-10
3.89	337.25		333.36
E. Rex = 0+00		3.89	333.36
+50		5.3	332.0
75' Lt.		8.4	328.9
120' Lt. = W.L. Lot 7		11.5	325.8
1+00		6.7	330.6
85' Lt. - Break		12.0	325.3
120' Lt. - West from Lot 7		15.7	321.6
1+50		7.8	329.5
35' Lt.		10.5	326.8
70' Lt.		15.2	322.1
120' Lt. = W.L. Lot 7		24.5	312.8
2+00		8.3	329.0
35' Lt.		12.3	325.0
60' Lt.		17.4	319.9
120' Lt. = W.L. Lot 7		30.7	306.6
2+40		9.0	328.3
+65 on POT, stub.		10.55	326.70
(2+40) 30' Lt.		13.6	323.7
(2+40) 75' Lt.		25.2	312.1
		Cont on Lower Left Page	

All Lots on Rt
are above
% B.L. of

Walker
Ellis
Isbell
10-3-40

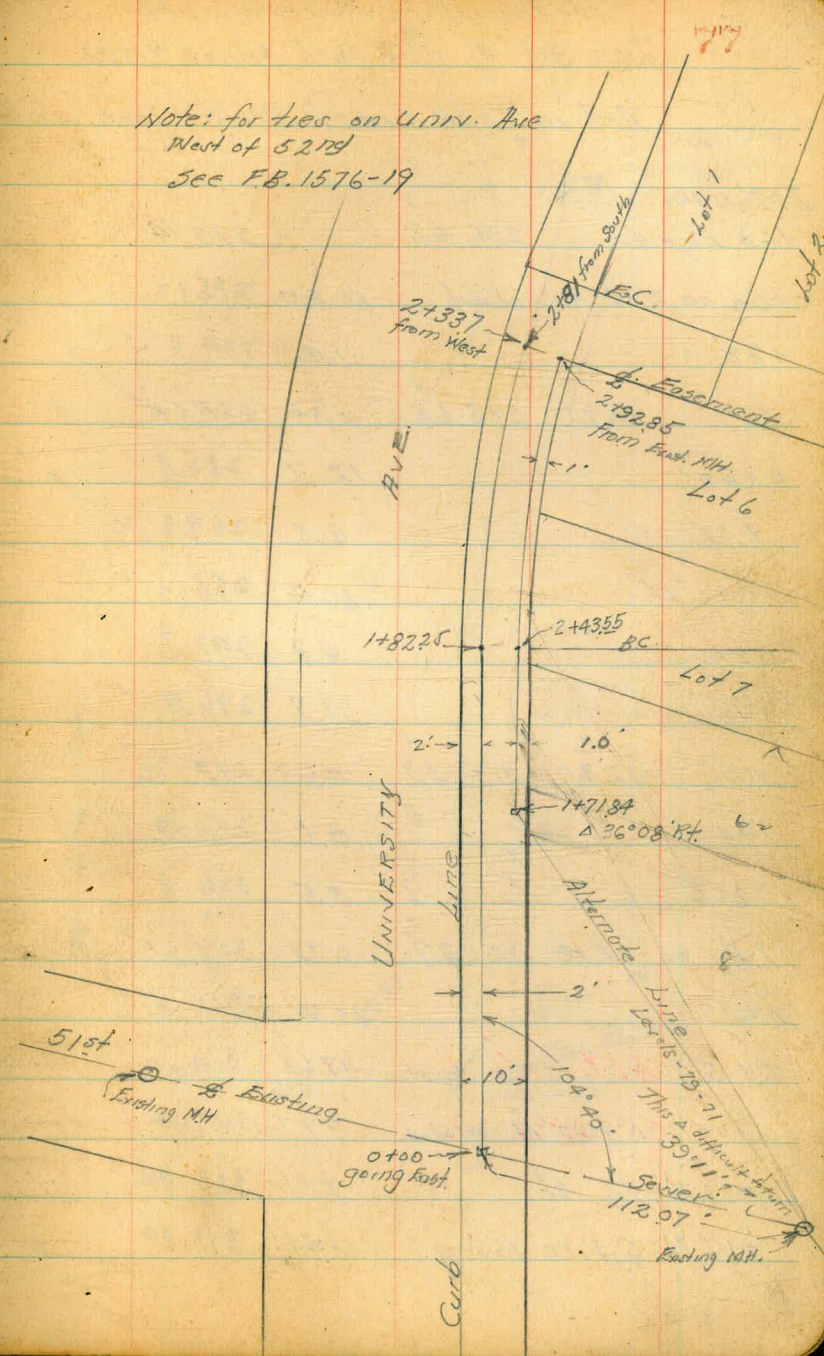
Preliminary Sewer Levels
on Univ. Ave Bet. 51st & 52nd Sts.
As per sketch P-77

P-76

				11/1/82 Univ. Ave + 52nd
	1.62	317.19		315.57
0+00 on slab		19.57	297.62	✓
2' Lt. on cb.		19.90	297.29	✓
0+50		18.5	298.7	✓
1+00		15.2	302.0	✓
2' Lt. on cb.		15.24	301.95	✓
1+42 = 2' Pole 0.3' Rd = 14" Pole Used by Gas Co & Tel. Co				
1+50		11.8	305.4	Put Sewer below Bottom Pole
2' Lt. on cb.		11.86	305.33	✓
1+82.25 = B.G. Prop.		10.1	307.1	✓
2' Lt. on cb.		10.03	307.16	✓
2+00		8.5	308.7	✓
2' Lt.		8.49	308.70	✓
2+33.7 = 2+81 from South P-76		6.3	310.9	✓
2' Lt. on cb.		6.40	310.79	✓

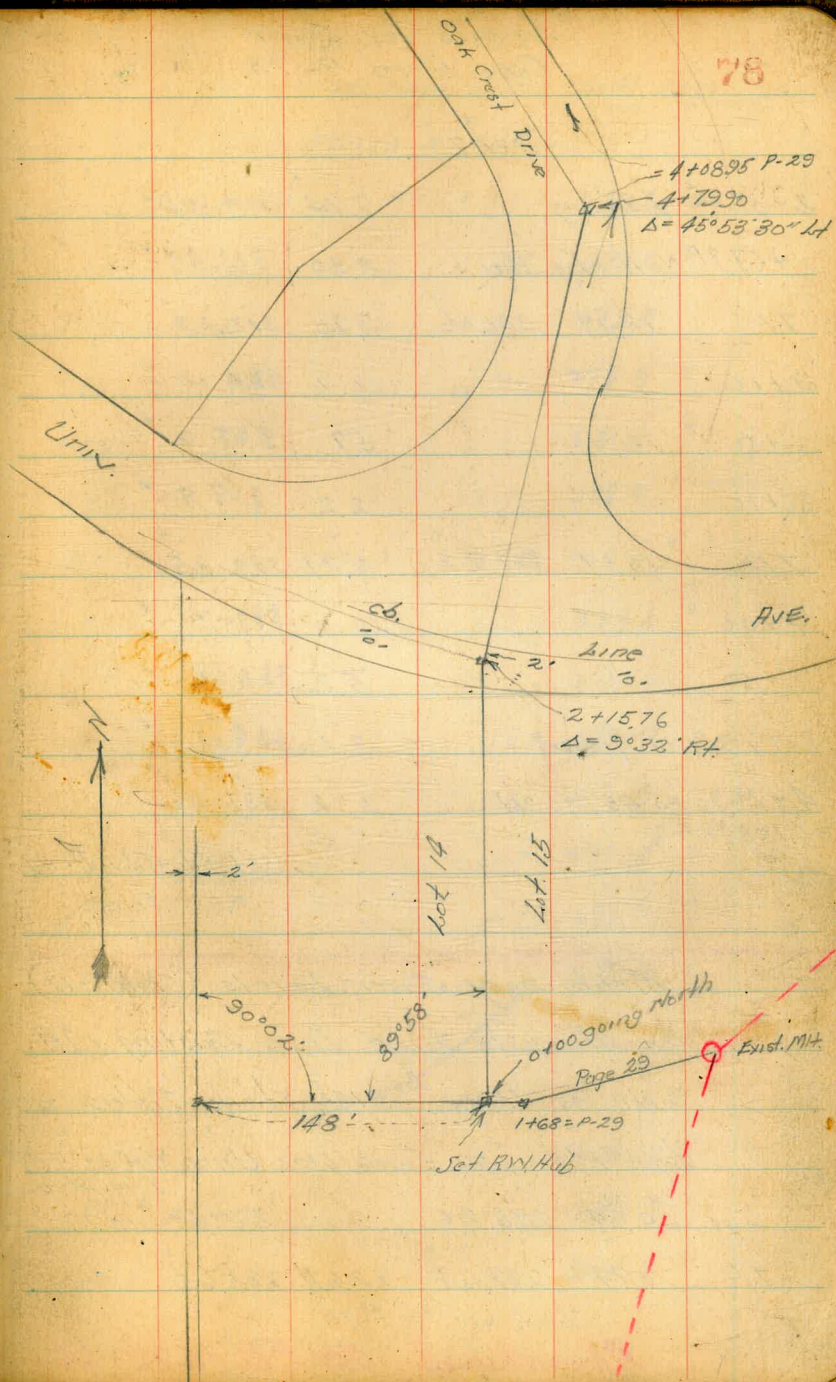
Alternate line re-run see
FB 1576-66

Note: for ties on Univ. Ave
West of 52nd
see FB. 1576-19



Preliminary Sewer Levels
 17 Blk. F Oak Park Annex #1732
 And in Oak Crest Drive (Sketch on Pt.)

BM on Hub 1288	π	✓	
1+68 Page 42	286.02		273.14
0+00 on 2"x2" Redwood Hub	11.00		275.02 ✓
+28	1.4		284.6 ✓
TP 1292	298.60	0.34	285.68 ✓
0+40	12.7		285.9 ✓
+55	8.8		289.8 ✓
20' H	10.4		288.2 ✓
0+75	4.9		293.7 ✓
1+00	1.7		296.9 ✓
TP 1241	310.33	0.68	297.92 ✓
1+40	8.1		302.2 ✓
+65	3.5		306.8 ✓
TP 1218	321.79	0.72	309.61 ✓
1+95	10.2		311.6 ✓
2+05	7.6		314.2 ✓
2+1576 Δ 9°32' Rt. on stub	7.77		314.02 ✓
+17.76 = Top cb.	7.81		313.98 ✓
+17.76 = Gut. on Paving.	8.40		313.39 ✓



Levels for Sewer
Cont. from P-78

		321.79		
2+37.66 = 2' Paring	7.74	314.05	✓	
+67.91' North edge Paring	8.30	313.49	✓	
TP 12.97	331.06	370	318.09	
3+16	11.1	320.0	✓	
+50	5.9	325.2	✓	
+75	2.2	328.9	✓	
TP 10.37	341.22	0.21	320.85	
4+00	10.0	331.0	✓	
+50	5.2	336.0	✓	
+79.2 on ground	3.1	338.1	✓	
4+79.90 = Δ 45° 53' 30" Lt	3.32	337.90	✓	
= 4+08.95 P. 29				
		337.89	= Elev. P. 43	
		0.01	= Error	

~~Preliminary Sewer Levels (Sketch-77)~~

~~For Alternate Line from Existing MH
South of Univ. 51st St. to Intersection~~

~~Auto 1 and 6 on South side Univ. West of 52nd~~

~~0.64 298.26 297.62~~

~~Elev. stub
4+00
P-77~~

TP 1.99 287.64 12.61 285.65

Cont. on Rt. Page

Abandoned, see FB. 1576-66

JEWEL LEVELS

Cont. from Lower Left Page

		287.64		
0+00 on Rim MH	5.83	281.81	✓	
0+00 on Ground	8.5	279.1	✓	
+0.9 in Wash	11.8	275.8	✓	
+16 " "	11.7	275.9	✓	
+22	6.1	281.5	✓	
+32	1.7	285.9	✓	15' Lt -bottom Wash = 276.0
TP 12.12	299.09	0.67	286.97	
0+50	9.3	289.8	✓	
17' Lt = Too slope	16.1	283.0	✓	
0+62.36 = POT. stub.	5.63	293.46	✓	
+85	5.8	293.3	✓	
21' Lt = Toe slope	11.7	287.2	✓	
1+00	5.2	293.9	✓	
+20	3.2	295.9	✓	
16 Lt = Too slope	8.0	291.1	✓	
TP 13.05	308.92	3.22	295.87	
1+50	9.6	299.3	✓	
7' Lt = Toe slope	10.2	298.7	✓	
1+65	6.6	302.3	✓	

Cont. on P-71

Dec 16-39
Bliss
J. Stoll
Chapman

+ Levels on Sewer Man. Holes

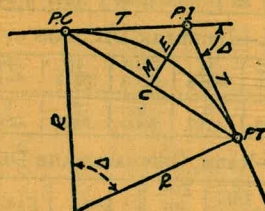
80

47 th + Euclid on El. Cajon	Elev.
S.W. End	
BM B. p. El. Cajon	519
Flow Line	12.95
New M.H.	12.32
Flow Line	12.32
New Piece of Pipe	
Flow Line	12.09
Existing M.H.	
Set Grade Stake 35° 30'	12.27
of Existing Sewer M.H.	



DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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CURVE FORMULAS

- Radius = $R = \frac{50}{\sin \frac{D}{2}}$ (1) Degree of Curve = D and $\sin \frac{D}{2} = \frac{50}{R}$ (2)
- Tangent = $T = R \tan \frac{\Delta}{2}$ (3) Length of Curve = $L = 100 \frac{\Delta}{D}$ (4)
- Middle ordinate = $M = R(1 - \cos \frac{\Delta}{2})$ (5) = $R \text{vers} \frac{\Delta}{2}$ (6)
- External = $E = T \tan \frac{\Delta}{4} = R \div \cos \frac{\Delta}{2} - R$ (8) = $R \text{exsec} \frac{\Delta}{2}$ (9)
- Long Chord = $C = 2 R \sin \frac{\Delta}{2}$ (10) Δ = Central Angle

EXPLANATION AND USE OF TABLES

Stations.—Given P. I. = Sta. 161 + 60.35 to find Sta. of P. C. and P. T. $\Delta = 62^\circ 10'$ $D = 8^\circ 20'$. From Table IV for 1° curve $T = 3454.1$ and $\div 8 \frac{1}{3} = 414.49$ ft. From Table V correction = .36 or $T = 414.85$ ft. P. C. = Sta. P. I. - $T = 157 + 45.50$. Also from (4) $L = 746.00$ and P. T. = Sta. P. C. + $L = 164 + 91.50$.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft. = 7.27 ft. Distance = $158 - \text{Sta. P. C.} = 54.50$, hence offset = $7.27 (54.50 \div 100)^2 = 2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26) = 2.16$ ft.

Deflections.—Deflection angle = $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft. = (in minutes) $.3 \times C \times D^2$ or = defl. for 1 ft. from Table III $\times C$. For Sta. 158 of above curve = $.3 \times 54.5 \times 8 \frac{1}{3} = 136.2'$ or $2^\circ 16.2'$, or = $2.50 \times 54.5 = 136.2'$ from Table III. For Sta. 159 deflection angle = $2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8 \frac{1}{3} = 91.27$ and from Table V correction = .10 or $E = 91.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

TABLE I.—MINUTES IN DECIMALS OF A DEGREE.

Table with 12 columns representing minutes from 1' to 12' and 10 rows representing decimal values from .0167 to 1.0000.

TABLE II.—INCHES IN DECIMALS OF A FOOT.

Table with 11 columns representing inches from 1 to 11 and 10 rows representing decimal values from .0052 to .9167.

TABLE III.—RADI, ORDINATES AND DEFLECTIONS.

Large table with 12 columns: Deg., Radius, Mid. Ord., Tan. Offset, Def. for 1 Foot, and repeated for degrees 7 to 30.

Note. Chord Deflection=2 times tangent deflection.

Handwritten numbers: 225.50, 180.07, 405.57, 766.55, 161.57, 942.12, 533.31, 58.29, 475.02

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Table with 9 columns: Central Angle, Tangent, External, and repeated for angles 11 to 30.

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
31°	1589.0	216.3	41°	2142.2	387.4	51°	2732.9	618.4
10'	1598.0	218.7	10'	2151.7	390.7	10'	2743.1	622.8
20	1606.9	221.1	20	2161.2	394.1	20	2753.4	627.2
30	1615.9	223.5	30	2170.8	397.4	30	2763.7	631.7
40	1624.9	226.0	40	2180.3	400.8	40	2773.9	636.2
50	1633.9	228.4	50	2189.9	404.2	50	2784.2	640.7
32°	1643.0	230.9	42°	2199.4	407.6	52°	2794.5	645.2
10	1652.0	233.4	10	2209.0	411.1	10	2804.9	649.7
20	1661.0	235.9	20	2218.6	414.5	20	2815.2	654.3
30	1670.0	238.4	30	2228.1	418.0	30	2825.6	658.8
40	1679.1	241.0	40	2237.7	421.4	40	2835.9	663.4
50	1688.1	243.5	50	2247.3	425.0	50	2846.3	668.0
33°	1697.2	246.1	43°	2257.0	428.5	53°	2856.7	672.7
10	1706.3	248.7	10	2266.6	432.0	10	2867.1	677.3
20	1715.3	251.3	20	2276.2	435.6	20	2877.5	682.0
30	1724.4	253.9	30	2285.9	439.2	30	2888.0	686.7
40	1733.5	256.5	40	2295.6	442.8	40	2898.4	691.4
50	1742.6	259.1	50	2305.2	446.4	50	2908.9	696.1
34°	1751.7	261.8	44°	2314.9	450.0	54°	2919.4	700.9
10	1760.8	264.5	10	2324.6	453.6	10	2929.9	705.7
20	1770.0	267.2	20	2334.3	457.3	20	2940.4	710.5
30	1779.1	269.9	30	2344.1	461.0	30	2951.0	715.3
40	1788.2	272.6	40	2353.8	464.6	40	2961.5	720.1
50	1797.4	275.3	50	2363.5	468.4	50	2972.1	725.0
35°	1806.6	278.1	45°	2373.3	472.1	55°	2982.7	729.9
10	1815.7	280.8	10	2383.1	475.8	10	2993.3	734.8
20	1824.9	283.6	20	2392.8	479.6	20	3003.9	739.7
30	1834.1	286.4	30	2402.6	483.3	30	3014.5	744.6
40	1843.3	289.2	40	2412.4	487.2	40	3025.2	749.6
50	1852.5	292.0	50	2422.3	491.0	50	3035.8	754.6
36°	1861.7	294.9	46°	2432.1	494.8	56°	3046.5	759.6
10	1870.9	297.7	10	2441.9	498.7	10	3057.2	764.6
20	1880.1	300.6	20	2451.8	502.5	20	3067.9	769.7
30	1889.4	303.5	30	2461.7	506.4	30	3078.7	774.7
40	1898.6	306.4	40	2471.5	510.3	40	3089.4	779.8
50	1907.9	309.3	50	2481.4	514.3	50	3100.2	784.9
37°	1917.1	312.2	47°	2491.3	518.2	57°	3110.9	790.1
10	1926.4	315.2	10	2501.2	522.2	10	3121.7	795.2
20	1935.7	318.1	20	2511.2	526.1	20	3132.6	800.4
30	1945.0	321.1	30	2521.1	530.1	30	3143.4	805.6
40	1954.3	324.1	40	2531.1	534.2	40	3154.2	810.9
50	1963.6	327.1	50	2541.0	538.2	50	3165.1	816.1
38°	1972.9	330.2	48°	2551.0	542.2	58°	3176.0	821.4
10	1982.2	333.2	10	2561.0	546.3	10	3186.9	826.7
20	1991.5	336.3	20	2571.0	550.4	20	3197.8	832.0
30	2000.9	339.3	30	2581.0	554.5	30	3208.8	837.3
40	2010.2	342.4	40	2591.0	558.6	40	3219.7	842.7
50	2019.6	345.5	50	2601.1	562.8	50	3230.7	848.1
39°	2029.0	348.6	49°	2611.2	566.9	59°	3241.7	853.5
10	2038.4	351.8	10	2621.2	571.1	10	3252.7	858.9
20	2047.8	354.9	20	2631.3	575.3	20	3263.7	864.3
30	2057.2	358.1	30	2641.4	579.5	30	3274.8	869.8
40	2066.6	361.3	40	2651.5	583.8	40	3285.8	875.3
50	2076.0	364.5	50	2661.6	588.0	50	3296.9	880.8
40°	2085.4	367.7	50°	2671.8	592.3	60°	3308.0	886.4
10	2094.9	371.0	10	2681.9	596.6	10	3319.1	892.0
20	2104.3	374.2	20	2692.1	600.9	20	3330.3	897.5
30	2113.8	377.5	30	2702.3	605.3	30	3341.4	903.2
40	2123.3	380.8	40	2712.5	609.6	40	3352.6	908.8
50	2132.7	384.1	50	2722.7	614.0	50	3363.8	914.5

12786 35
6 12 50
18799 19

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
61°	3375.0	920.2	71°	4088.9	1308.2	81°	4893.6	1805.3
10'	3386.3	925.9	10'	4099.5	1315.6	10'	4908.0	1814.7
20	3397.5	931.6	20	4112.1	1322.9	20	4922.5	1824.1
30	3408.8	937.3	30	4124.8	1330.3	30	4937.0	1833.6
40	3420.1	943.1	40	4137.4	1337.7	40	4951.5	1843.1
50	3431.4	948.9	50	4150.1	1345.1	50	4966.1	1852.6
62°	3442.7	954.8	72°	4162.8	1352.6	82°	4980.7	1862.2
10	3454.1	960.6	10	4175.6	1360.1	10	4995.4	1871.8
20	3465.4	966.5	20	4188.5	1367.6	20	5010.0	1881.5
30	3476.8	972.4	30	4201.2	1375.2	30	5024.8	1891.2
40	3488.3	978.3	40	4214.0	1382.8	40	5039.5	1900.9
50	3499.7	984.3	50	4226.8	1390.4	50	5054.3	1910.7
63°	3511.1	990.2	73°	4239.7	1398.0	83°	5069.2	1920.5
10	3522.6	996.2	10	4252.6	1405.7	10	5084.0	1930.4
20	3534.1	1002.3	20	4265.6	1413.5	20	5099.0	1940.3
30	3545.6	1008.3	30	4278.5	1421.2	30	5113.9	1950.3
40	3557.2	1014.4	40	4291.5	1429.0	40	5128.9	1960.2
50	3568.7	1020.5	50	4304.6	1436.8	50	5143.9	1970.3
64°	3580.3	1026.6	74°	4317.6	1444.6	84°	5159.0	1980.4
10	3591.9	1032.8	10	4330.7	1452.5	10	5174.1	1990.5
20	3603.5	1039.0	20	4343.8	1460.4	20	5189.3	2000.6
30	3615.1	1045.2	30	4356.9	1468.4	30	5204.4	2010.8
40	3626.8	1051.4	40	4370.1	1476.4	40	5219.7	2021.1
50	3638.5	1057.7	50	4383.3	1484.4	50	5234.9	2031.4
65°	3650.2	1063.9	75°	4396.5	1492.4	85°	5250.3	2041.7
10	3661.9	1070.2	10	4409.8	1500.5	10	5265.6	2052.1
20	3673.7	1076.6	20	4423.1	1508.6	20	5281.0	2062.5
30	3685.4	1082.9	30	4436.4	1516.7	30	5296.4	2073.0
40	3697.2	1089.3	40	4449.7	1524.9	40	5311.9	2083.5
50	3709.0	1095.7	50	4463.1	1533.1	50	5327.4	2094.1
66°	3720.9	1102.2	76°	4476.5	1541.4	86°	5343.0	2104.7
10	3732.7	1108.6	10	4489.9	1549.7	10	5358.6	2115.3
20	3744.6	1115.1	20	4503.4	1558.0	20	5374.2	2126.0
30	3756.5	1121.7	30	4516.9	1566.3	30	5389.9	2136.7
40	3768.5	1128.2	40	4530.4	1574.7	40	5405.6	2147.5
50	3780.4	1134.8	50	4544.0	1583.1	50	5421.4	2158.4
67°	3792.4	1141.4	77°	4557.6	1591.6	87°	5437.2	2169.2
10	3804.4	1148.0	10	4571.2	1600.1	10	5453.1	2180.2
20	3816.4	1154.7	20	4584.8	1608.6	20	5469.0	2191.1
30	3828.4	1161.3	30	4598.5	1617.1	30	5484.9	2202.2
40	3840.5	1168.1	40	4612.2	1625.7	40	5500.9	2213.2
50	3852.6	1174.8	50	4626.0	1634.4	50	5517.0	2224.3
68°	3864.7	1181.6	78°	4639.8	1643.0	88°	5533.1	2235.5
10	3876.8	1188.4	10	4653.6	1651.7	10	5549.2	2246.7
20	3889.0	1195.2	20	4667.4	1660.5	20	5565.4	2258.0
30	3901.2	1202.0	30	4681.3	1669.2	30	5581.6	2269.3
40	3913.4	1208.9	40	4695.2	1678.1	40	5597.8	2280.6
50	3925.6	1215.8	50	4709.2	1686.9	50	5614.2	2292.0
69°	3937.9	1222.7	79°	4723.2	1695.8	89°	5630.5	2303.5
10	3950.2	1229.7	10	4737.2	1704.7	10	5646.9	2315.0
20	3962.5	1236.7	20	4751.2	1713.7	20	5663.4	2326.6
30	3974.8	1243.7	30	4765.3	1722.7	30	5679.9	2338.2
40	3987.2	1250.8	40	4779.4	1731.7	40	5696.4	2349.8
50	3999.5	1257.9	50	4793.6	1740.8	50	5713.0	2361.5
70°	4011.9	1265.0	80°	4807.7	1749.9	90°	5729.7	2373.3
10	4024.4	1272.1	10	4822.0	1759.0	10	5746.3	2385.1
20	4036.8	1279.3	20	4836.2	1768.2	20	5763.1	2397.0
30	4049.3	1286.5	30	4850.5	1777.4	30	5779.9	2408.9
40	4061.8	1293.6	40	4864.8	1786.7	40	5796.7	2420.9
50	4074.4	1300.9	50	4879.2	1796.0	50	5813.6	2432.9

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
91°	5830.5	2444.9	101°	6950.6	3278.1	111°	8336.7	4386.1
10'	5847.5	2457.1	10'	6971.3	3294.1	10'	8362.7	4407.6
20	5864.6	2469.3	20	6992.0	3310.1	20	8388.9	4429.2
30	5881.7	2481.5	30	7012.7	3326.1	30	8415.1	4450.9
40	5898.8	2493.8	40	7033.6	3342.3	40	8441.5	4472.7
50	5916.0	2506.1	50	7054.5	3358.5	50	8468.0	4494.6
92	5933.2	2518.5	102	7075.5	3374.9	112	8494.6	4516.6
10	5950.5	2531.0	10	7096.6	3391.2	10	8521.3	4538.8
20	5967.9	2543.5	20	7117.8	3407.7	20	8548.1	4561.1
30	5985.3	2556.0	30	7139.0	3424.3	30	8575.0	4583.4
40	6002.7	2568.6	40	7160.3	3440.9	40	8602.1	4606.0
50	6020.2	2581.3	50	7181.7	3457.6	50	8629.3	4628.6
93	6037.8	2594.0	103	7203.2	3474.4	113	8656.6	4651.3
10	6055.4	2606.8	10	7224.7	3491.3	10	8684.0	4674.2
20	6073.1	2619.7	20	7246.3	3508.2	20	8711.5	4697.2
30	6090.8	2632.6	30	7268.0	3525.2	30	8739.2	4720.3
40	6108.6	2645.5	40	7289.8	3542.4	40	8767.0	4743.6
50	6126.4	2658.5	50	7311.7	3559.6	50	8794.9	4766.9
94	6144.3	2671.6	104	7333.6	3576.8	114	8822.9	4790.4
10	6162.6	2684.7	10	7355.6	3594.2	10	8851.0	4814.1
20	6180.2	2697.9	20	7377.8	3611.7	20	8879.3	4837.8
30	6198.3	2711.2	30	7399.9	3629.2	30	8907.7	4861.7
40	6216.4	2724.5	40	7422.2	3646.8	40	8936.3	4885.7
50	6234.6	2737.9	50	7444.6	3664.5	50	8965.0	4909.9
95	6252.8	2751.3	105	7467.0	3682.3	115	8993.8	4934.1
10	6271.1	2764.8	10	7489.6	3700.2	10	9022.7	4958.6
20	6289.4	2778.3	20	7512.2	3718.2	20	9051.7	4983.1
30	6307.9	2792.0	30	7534.9	3736.2	30	9080.9	5007.3
40	6326.3	2805.6	40	7557.7	3754.4	40	9110.3	5032.6
50	6344.8	2819.4	50	7580.5	3772.6	50	9139.8	5057.6
96	6363.4	2833.2	106	7603.5	3791.0	116	9169.4	5082.7
10	6382.1	2847.0	10	7626.6	3809.4	10	9199.1	5107.9
20	6400.8	2861.0	20	7649.7	3827.9	20	9229.0	5133.3
30	6419.5	2875.0	30	7672.9	3846.5	30	9259.0	5158.8
40	6438.4	2889.0	40	7696.3	3865.2	40	9289.2	5184.5
50	6457.3	2903.1	50	7719.7	3884.0	50	9319.5	5210.3
97	6476.2	2917.3	107	7743.2	3902.9	117	9349.9	5236.2
10	6495.2	2931.6	10	7766.8	3921.9	10	9380.5	5262.3
20	6514.3	2945.9	20	7790.5	3940.9	20	9411.3	5288.6
30	6533.4	2960.3	30	7814.3	3960.1	30	9442.2	5315.0
40	6552.6	2974.7	40	7838.1	3979.4	40	9473.2	5341.5
50	6571.9	2989.2	50	7862.1	3998.7	50	9504.4	5368.2
98	6591.2	3003.8	108	7886.2	4018.2	118	9535.7	5395.1
10	6610.6	3018.4	10	7910.4	4037.8	10	9567.2	5422.1
20	6630.1	3033.1	20	7934.6	4057.4	20	9598.9	5449.2
30	6649.6	3047.9	30	7959.0	4077.2	30	9630.7	5476.5
40	6669.2	3062.8	40	7983.5	4097.1	40	9662.6	5504.0
50	6688.8	3077.7	50	8008.0	4117.0	50	9694.7	5531.7
99	6708.6	3092.7	109	8032.7	4137.1	119	9727.0	5559.4
10	6728.4	3107.7	10	8057.4	4157.3	10	9759.4	5587.4
20	6748.2	3122.9	20	8082.3	4177.5	20	9792.0	5615.5
30	6768.1	3138.1	30	8107.3	4197.9	30	9824.8	5643.8
40	6788.1	3153.3	40	8132.3	4218.4	40	9857.7	5672.3
50	6808.2	3168.7	50	8157.5	4239.0	50	9890.8	5700.9
100	6828.3	3184.1	110	8182.8	4259.7	120	9924.0	5729.7
10	6848.5	3199.6	10	8208.2	4280.5	10	9957.5	5758.6
20	6868.8	3215.1	20	8233.7	4301.4	20	9991.0	5787.7
30	6889.2	3230.8	30	8259.3	4322.4	30	10025.0	5817.0
40	6909.6	3246.5	40	8285.0	4343.6	40	10059.0	5846.5
50	6930.1	3262.3	50	8310.8	4364.8	50	10093.0	5876.1

TABLE V.—CORRECTIONS FOR TANGENTS AND EXTERNALS.

These corrections are to be added to the approximate values, found by dividing the tangent, or external, for a 1° curve (Table IV) by the degree of curve, in order to obtain the true tangents, or externals. Intermediate values may be obtained by interpolation.

FOR TANGENTS ADD

Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.03	.06	.09	.13	.16	.19	.22	.25	.28	.31	.34	.38	.42	.46
15°	.04	.10	.14	.19	.24	.29	.34	.39	.45	.51	.53	.58	.63	.68
20°	.06	.13	.19	.26	.32	.39	.45	.51	.58	.65	.72	.79	.84	.90
25°	.08	.16	.24	.33	.40	.49	.58	.67	.75	.83	.90	.99	1.06	1.14
30°	.10	.19	.29	.39	.49	.59	.69	.79	.89	.99	1.09	1.20	1.29	1.39
35°	.11	.22	.34	.47	.58	.69	.79	.81	.92	1.04	1.29	1.42	1.54	1.66
40°	.13	.26	.40	.53	.67	.80	.93	1.06	1.20	1.34	1.49	1.64	1.79	1.94
45°	.15	.30	.44	.60	.76	.91	1.06	1.21	1.37	1.52	1.70	1.87	2.04	2.21
50°	.17	.34	.51	.68	.85	1.02	1.19	1.36	1.54	1.72	1.91	2.10	2.29	2.43
55°	.19	.38	.57	.76	.95	1.14	1.32	1.52	1.72	1.92	2.14	2.35	2.56	2.77
60°	.21	.42	.63	.84	1.05	1.27	1.49	1.71	1.94	2.17	2.38	2.60	2.83	3.07
65°	.23	.46	.69	.93	1.16	1.40	1.64	1.88	2.13	2.38	2.63	2.88	3.13	3.39
70°	.25	.51	.76	1.02	1.28	1.54	1.80	2.06	2.33	2.60	2.88	3.16	3.44	3.72
75°	.27	.56	.83	1.12	1.40	1.69	1.98	2.27	2.57	2.87	3.16	3.47	3.78	4.09
80°	.30	.61	.91	1.22	1.53	1.84	2.15	2.46	2.78	3.10	3.44	3.78	4.12	4.46
85°	.33	.66	1.00	1.33	1.68	2.02	2.36	2.70	3.05	3.40	3.77	4.14	4.55	4.89
90°	.36	.72	1.09	1.45	1.83	2.20	2.57	2.94	3.32	3.70	4.10	4.50	4.91	5.32
95°	.39	.79	1.19	1.55	2.00	2.40	2.80	3.20	3.61	4.02	4.40	4.98	5.38	5.83
100°	.43	.86	1.30	1.74	2.18	2.62	3.06	3.50	3.95	4.40	4.88	5.37	5.85	6.34
110°	.51	1.03	1.56	2.08	2.61	3.14	3.67	4.21	4.76	5.31	5.86	6.43	7.01	7.60
120°	.62	1.25	1.93	2.52	3.16	3.81	4.45	5.11	5.77	6.44	7.12	7.80	8.50	9.22

FOR EXTERNALS ADD

Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.001	.003	.004	.006	.007	.008	.009	.011	.012	.014	.015	.017	.018	.020
15°	.003	.007	.010	.014	.018	.023	.027	.032	.037	.043	.049	.053	.058	.061
20°	.006	.011	.017	.022	.028	.034	.038	.045	.051	.057	.063	.070	.076	.083
25°	.009	.018	.027	.036	.046	.056	.065	.074	.083	.093	.106	.120	.127	.135
30°	.013	.025	.038	.051	.065	.078	.090	.103	.116	.129	.149	.170	.179	.188
35°	.018	.035	.054	.072	.086	.109	.131	.153	.175	.197	.213	.230	.247	.264
40°	.023	.046	.070	.093	.117	.141	.172	.203	.234	.265	.277	.290	.315	.341
45°	.030	.060	.093	.119	.153	.184	.216	.254	.289	.325	.351	.378	.411	.445
50°	.037	.075	.116	.151	.189	.227	.266	.305	.345	.384	.425	.467	.508	.550
55°	.046	.093	.142	.188	.236	.283	.332	.381	.420	.479	.530	.582	.641	.700
60°	.053	.112	.168	.225	.283	.340	.398	.457	.516	.575	.636	.697	.774	.851
65°	.067	.135	.204	.273	.343	.412	.483	.554	.625	.697	.771	.845	.922	1.01
70°	.080	.159	.240	.321	.403	.485	.568	.652	.735	.819	.906	.994	1.08	1.17
75°	.095	.182	.266	.353	.438	.528	.618	.707	.797	.877	.977	1.07	1.18	1.29
80°	.110	.220	.332	.445	.558	.671	.787	.903	1.02	1.13	1.25	1.38	1.50	1.62
85°	.128	.259	.391	.524	.657	.790	.926	1.06						

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Table with columns for Angle, Sine, Tan., Cotg., and Cosin. for angles 0 to 90 degrees. Includes a bottom row with Cosin., Cotg., Tan., Sine, and Angle.

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Table with columns for Angle, Sine, Tan., Cotg., and Cosin. for angles 16 to 67 degrees. Includes a bottom row with Cosin., Cotg., Tan., Sine, and Angle. Handwritten numbers 14197, 14201, 28396, 4298 are at the top right.

Handwritten calculations and numbers: 1584, 35, 7720, 4752, 55490, 326.05.

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Angle	Sine.	Tan.	Cotg.	Cosin.		Angle	Sine.	Tan.	Cotg.	Cosin.	
°						°					
32	.5299	.6249	1.600	.84805	58	30	.6225	.7954	1.257	.78261	
10	.5324	.6289	1.590	.84650	50	40	.6248	.8002	1.250	.78079	
20	.5348	.6330	1.580	.84495	40	50	.6271	.8050	1.242	.77897	
30	.5373	.6371	1.570	.84339	30	39	.6293	.8098	1.235	.77715	
40	.5398	.6412	1.560	.84182	20	10	.6316	.8146	1.228	.77531	
50	.5422	.6453	1.550	.84025	10	20	.6338	.8195	1.220	.77347	
33	.5446	.6494	1.540	.83867	57	30	.6361	.8243	1.213	.77162	
10	.5471	.6536	1.530	.83708	50	40	.6383	.8292	1.206	.76977	
20	.5495	.6577	1.520	.83549	40	50	.6406	.8342	1.199	.76791	
30	.5519	.6619	1.511	.83389	30	40	.6428	.8391	1.192	.76604	
40	.5544	.6661	1.501	.83228	20	10	.6450	.8441	1.185	.76417	
50	.5568	.6703	1.492	.83066	10	20	.6472	.8491	1.178	.76229	
34	.5592	.6745	1.483	.82904	56	30	.6494	.8541	1.171	.76041	
10	.5616	.6787	1.473	.82741	50	40	.6517	.8591	1.164	.75851	
20	.5640	.6830	1.464	.82577	40	50	.6539	.8642	1.157	.75661	
30	.5664	.6873	1.455	.82413	30	41	.6561	.8693	1.150	.75471	
40	.5688	.6916	1.446	.82248	20	10	.6583	.8744	1.144	.75280	
50	.5712	.6959	1.437	.82082	10	20	.6604	.8796	1.137	.75088	
35	.5736	.7002	1.428	.81915	55	30	.6626	.8847	1.130	.74896	
10	.5760	.7046	1.419	.81748	50	40	.6648	.8899	1.124	.74703	
20	.5783	.7089	1.411	.81580	40	50	.6670	.8952	1.117	.74509	
30	.5807	.7133	1.402	.81412	30	42	.6691	.9004	1.111	.74314	
40	.5831	.7177	1.393	.81242	20	10	.6713	.9057	1.104	.74120	
50	.5854	.7221	1.385	.81072	10	20	.6734	.9110	1.098	.73924	
36	.5878	.7265	1.376	.80902	54	30	.6756	.9163	1.091	.73728	
10	.5901	.7310	1.368	.80730	50	40	.6777	.9217	1.085	.73531	
20	.5925	.7355	1.360	.80558	40	50	.6799	.9271	1.079	.73333	
30	.5948	.7400	1.351	.80386	30	43	.6820	.9325	1.072	.73135	
40	.5972	.7445	1.343	.80212	20	10	.6841	.9380	1.066	.72937	
50	.5995	.7490	1.335	.80038	10	20	.6862	.9435	1.060	.72737	
37	.6018	.7536	1.327	.79864	53	30	.6884	.9490	1.054	.72537	
10	.6041	.7581	1.319	.79688	50	40	.6905	.9545	1.048	.72337	
20	.6065	.7627	1.311	.79512	40	50	.6926	.9601	1.042	.72136	
30	.6088	.7673	1.303	.79335	30	44	.6947	.9657	1.036	.71934	
40	.6111	.7720	1.295	.79158	20	10	.6967	.9713	1.030	.71732	
50	.6134	.7766	1.288	.78980	10	20	.6988	.9770	1.024	.71529	
38	.6157	.7813	1.280	.78801	52	30	.7009	.9827	1.018	.71325	
10	.6180	.7860	1.272	.78622	50	40	.7030	.9884	1.012	.71121	
20	.6202	.7907	1.265	.78442	40	50	.7050	.9942	1.006	.70916	
							.7071	1.	1.	.70711	
										°	
	Cosin.	Cotg.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Tan.	Sine.	Angle.

9545
155
47725
47725
9545
177.9
155
27.14
127.86

31 60
22 60
18 30

TABLE IX.—CALCULATION OF EARTHWORK.

Width	HEIGHT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.02	.04	.06	.07	.09	.11	.13	.15	.17	.18	.20	.22	.24	.26	.28
2	.04	.07	.11	.15	.18	.22	.26	.30	.33	.37	.41	.44	.48	.52	.56
3	.06	.11	.17	.22	.28	.33	.39	.44	.50	.56	.61	.67	.72	.78	.83
4	.07	.15	.22	.30	.37	.44	.52	.59	.67	.74	.81	.89	.96	1.04	1.11
5	.09	.19	.28	.37	.46	.56	.65	.74	.83	.93	1.02	1.11	1.20	1.30	1.39
6	.11	.22	.33	.44	.56	.67	.78	.89	1.00	1.11	1.22	1.33	1.44	1.55	1.67
7	.13	.26	.39	.52	.65	.78	.91	1.04	1.16	1.30	1.42	1.55	1.68	1.81	1.94
8	.15	.30	.44	.59	.74	.89	1.04	1.19	1.33	1.48	1.63	1.78	1.92	2.08	2.22
9	.17	.33	.50	.67	.83	1.00	1.17	1.33	1.50	1.67	1.83	2.00	2.17	2.33	2.50
10	.18	.37	.56	.74	.93	1.11	1.30	1.48	1.67	1.85	2.04	2.22	2.41	2.59	2.78
11	.20	.41	.61	.82	1.02	1.22	1.43	1.63	1.83	2.04	2.24	2.44	2.65	2.85	3.06
12	.22	.44	.67	.89	1.11	1.33	1.56	1.78	2.00	2.22	2.44	2.67	2.89	3.11	3.33
13	.24	.48	.72	.96	1.20	1.44	1.68	1.92	2.16	2.41	2.65	2.89	3.13	3.37	3.61
14	.26	.52	.78	1.04	1.30	1.55	1.81	2.08	2.33	2.59	2.85	3.11	3.37	3.63	3.89
15	.28	.56	.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	3.06	3.33	3.61	3.89	4.17
16	.30	.59	.89	1.18	1.48	1.78	2.07	2.37	2.67	2.96	3.26	3.56	3.85	4.15	4.44
17	.31	.63	.94	1.26	1.57	1.89	2.20	2.52	2.83	3.15	3.46	3.78	4.09	4.41	4.72
18	.33	.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.67	4.00	4.33	4.67	5.00
19	.35	.70	1.06	1.41	1.76	2.11	2.46	2.82	3.17	3.52	3.87	4.22	4.57	4.92	5.28
20	.37	.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	4.07	4.44	4.81	5.18	5.56
21	.39	.78	1.17	1.55	1.94	2.33	2.72	3.11	3.50	3.89	4.28	4.67	5.06	5.44	5.83
22	.41	.81	1.22	1.63	2.04	2.44	2.85	3.26	3.67	4.07	4.48	4.89	5.30	5.70	6.11
23	.43	.85	1.28	1.70	2.13	2.56	2.98	3.41	3.83	4.26	4.68	5.11	5.54	5.96	6.39
24	.44	.89	1.33	1.78	2.22	2.67	3.11	3.56	4.00	4.44	4.89	5.33	5.78	6.22	6.67
25	.46	.92	1.39	1.85	2.31	2.78	3.24	3.70	4.17	4.63	5.09	5.56	6.02	6.48	6.94
26	.48	.96	1.44	1.92	2.41	2.89	3.37	3.85	4.33	4.82	5.30	5.78	6.26	6.74	7.24
27	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
28	.52	1.04	1.55	2.07	2.59	3.11	3.63	4.15	4.67	5.18	5.70	6.22	6.74	7.26	7.78
29	.54	1.07	1.61	2.15	2.68	3.22	3.76	4.30	4.83	5.37	5.91	6.44	6.98	7.52	8.06
30	.56	1.11	1.67	2.22	2.78	3.33	3.89	4.44	5.00	5.55	6.11	6.67	7.22	7.78	8.33
31	.57	1.15	1.72	2.30	2.87	3.44	4.02	4.59	5.17	5.74	6.32	6.89	7.46	8.04	8.61
32	.59	1.18	1.78	2.37	2.96	3.56	4.15	4.74	5.33	5.92	6.52	7.11	7.70	8.30	8.89
33	.61	1.22	1.83	2.44	3.05	3.67	4.28	4.89	5.50	6.11	6.72	7.33	7.94	8.55	9.17
34	.63	1.26	1.89	2.52	3.15	3.78	4.40	5.04	5.67	6.29	6.93	7.56	8.18	8.81	9.44
35	.65	1.30	1.94	2.59	3.24	3.89	4.53	5.18	5.83	6.48	7.13	7.78	8.42	9.08	9.72
36	.67	1.33	2.00	2.67	3.33	4.00	4.66	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.00
37	.68	1.37	2.06	2.74	3.42	4.11	4.79	5.48	6.17	6.85	7.54	8.22	8.91	9.59	10.28
38	.70	1.41	2.11	2.82	3.52	4.22	4.92	5.63	6.33	7.03	7.74	8.44	9.15	9.85	10.56
39	.72	1.44	2.17	2.89	3.61	4.33	5.05	5.78	6.50	7.22	7.95	8.67	9.39	10.11	10.83
40	.74	1.48	2.22	2.96	3.70	4.44	5.18	5.92	6.67	7.41	8.15	8.89	9.63	10.37	11.11

Table gives cu. yds. in 1 ft. of a triangle of given width and height. Corrections for tenths of width are one tenth the values found under each height considering the widths from 1 to 9 as tenths and similarly the corrections for tenths of height are one tenth the figures opposite width considering the heights from 1 to 9 as tenths. Thus if w = 16.2 and h = 5.3, cu. yds. = 1.48 + .028 + .089 = 1.597 cu. yds. or practically 160 cu. yds. per 100 ft. If w exceeds 40 ft., use one half and multiply result by 2, if both w and h are large use one half of each and multiply result by 4. Any cross-section may be divided into triangles by the following rule. To the triangle of the sum of the outside cuts (or fills) = h, and 1/2 the roadbed = w, add the triangles formed by taking the distance out to each break in turn (=w's) by the difference between the cuts (or fills) on each side of it (=h's) always subtracting the outer from the inner.

1064
489
1553

1061
489
1550

1193
?)
?

G-18666 Loral Tripod

1217.35
833.31

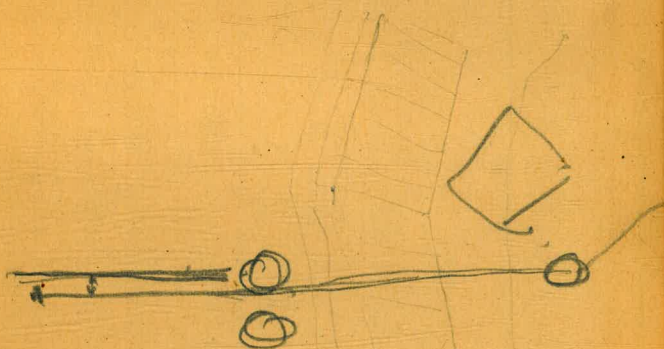
15219
7509
22728

S.E.P. Pipe
52 of Loris
327.22

116026
4617
70009

18015
19469
37470
7
36770

20367
83
211817



1286.85
 1217.35
 69.5 ✓

POT. Stub Book 1576-4
 216.3' S. orange Blk. 29.
 220 - - - - - 8 1/2 - 30 1/2

1730
 670
 6128 ✓
 9
 6038 ✓
 90

94°57'
 199.655
 94 57 30
 1136
 128
 13.14

6838 ✓
 22017
 70.09
 63.25
 1100.45
 50.84 ✓
 179°51'

13.8
 2.75
 16.6
 1045.6
 968.4
 80.2
 401

22489
 110°44'30"
 22489
 96.60
 32153
 65.65
 15186
 11081
 216267
 25558
 248600

1068.5
 146.55
 146.56
 40
 333.11
 1026
 337
 14.63
 1363

37026
 29°42'
 174315
 2498
 1746153
 470
 12193
 348.77
 470
 12822
 13.47

198
 75.18
 270.45
 323.16
 270.18
 852
 7159
 7159
 150
 40
 333.16

37474
 194.59
 180.15
 7005
 7002
 134797
 129888
 109.74
 67°18'30"
 111.52
 179.1030
 178.5860
 0°08'30"

0.53
 1309.47
 1718
 129829
 11219
 14110.49
 1162
 238
 14.01

4553'30"
 4+79.90

4400
 130
 24200
 534
 550
 1084
 1217.35
 695
 1286.85
 3335
 1162
 1423

DISTANCES FROM CENTER OF ROADWAY FOR
 CROSS-SECTIONING.
 Roadway 16 feet wide. Side Slopes 1 on 1 1/2
 For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9 + (20 - 16) ÷ 2 or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.