Water System.

215

F.B. 215

215

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

Minutes	Lks.	Minutes	Lks.	Minutes	Lks.
1	2⅓	21	49	41	95⅔
2	4⅔	22	51⅓	42	98
3	7	23	53⅔	43	100⅓
4	9⅓	24	56	44	102⅔
5	11⅔	25	58⅓	45	105
6	14	26	60⅔	46	107⅓
7	16⅓	27	63	47	109⅔
8	18⅔	28	65⅓	48	112
9	21	29	67⅔	49	114⅓
10	23⅓	30	70	50	116⅔
11	25⅔	31	72⅓	51	119
12	28	32	74⅔	52	121⅓
13	30⅓	33	77	53	123⅔
14	32⅔	34	79⅓	54	126
15	35	35	81⅔	55	128⅓
16	37⅓	36	84	56	130⅓
17	39⅔	37	86⅓	57	133
18	42	38	88⅔	58	135⅓
19	44⅓	39	91	59	137⅔
20	46⅔	40	93⅓	60	140

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City Hall, San Diego, Cal.

TABLE FOR RUNNING ON SLOPES.

MICROFILMED
DEC 8 1964

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

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

215

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City Hall, San Diego, Cal.

20518
1099
216.17 HI
664
209.53 grade of Pipe
28
206.73

~~845~~ 8.40
9.44 4.6
~~121~~

8.40
207.77

214.16 Juniper NW Spk Pole (Elec)
205.18 Ivy SW " " "
230.75 Katmia NE Cement Cor post

Columbia & Juniper
6479 NW Cor. Spk in first Post W of Co

State & Juniper
7935 SE Iron pin in ground.

"A"
232.66 270' E of 30th Fence Post

220.58 B St SE, Spk. in Small phone Pole

3/24/05 Davis, Lewis, Brooks

Levels for Pipe Line in 26th St - National to Grand

+	d	−		
6.98	52.13			51.15

Sta	Rod	Ground	Grade	±
00 = Soline National	3.55	48.6	45.26	+ 3.3
+50	5.9	46.2	43.72	+ 2.5
1	7.5	44.6	42.18	+ 2.4
+50	10.8	41.3	40.63	+ 0.7
2	11.1	41.0	39.09	+ 1.9
+50	11.6	40.5	37.54	+ 3.0
3 = No. Line Grand	12.6	39.5	36.00	+ 3.5

3/4/05 { Davis, Lewis, Brooks

Levels for Pipe Line on Grand Ave 26th to 32nd

+	¢	−	
7.90	47.83		39.93

Sta	Rod	Ground	Grade	±
00 E Line Grand	9.4	38.4	35.0	+3.4.
+50	9.0	38.8	35.62	+3.2.
1	7.9	39.9	36.25	+3.6.
+50	7.8	40.0	36.87	+3.1.
2	7.6	40.2	37.50	+2.7.
+50	5.8	42.0	38.12	+3.9.
3	3.8	44.0	38.75	+5.3.
+50	2.9	44.9	39.37	+5.5
4	2.9	44.9	40.0	+4.9
+50	3.1	44.7	40.62	+4.1
5	2.9	44.9	41.25	+3.7
+50	2.2	45.6	41.87	+3.7
6 W Line 27	2.8	45.0	42.5	+2.5
1				

+	ϕ	−		
9.47	53.95			44.48

Grand Ave (cont.)

Sta	Rod	Ground	Grade	±
0=E Line 27	10.9	43.9	42.95	+1.0
+50	11.7	42.2	43.33	+1.1
1	9.9	44.0	43.71	+0.3
+50	8.9	45.0	44.09	+0.9
2	11.4	42.5	44.47	−2.0
+50	10.8	43.1	44.85	−1.1
3	7.2	46.7	45.23	+1.5
+50	4.1	49.8	45.60	+4.2
4	4.4	49.5	45.98	+3.5
+50	4.8	49.1	46.36	+2.7
5	3.7	50.2	46.74	+3.5
+50	3.0	50.9	47.12	+3.8
6=WL 042+84	3.6	50.3	47.50	+2.8
+50				

7.80	57.81			50.01

Grand Ave (con.)

Sta	Rod	Ground	Grade	±
0=ELine 28	7.4	50.4	47.50	+2.9
+50	5.7	52.1	47.75	+4.4
1	7.1	50.7	48.0	+2.7
+50	8.4	49.4	48.25	+1.2
2	10.0	47.8	48.50	-0.7
+50	9.2	48.6	48.75	-0.2
3	5.2	52.6	49.00	+3.6
+50	4.8	53.0	49.25	+3.8
4	4.4	53.4	49.50	+3.9
+50	4.2	53.6	49.75	+3.9
5	4.2	53.6	50.0	+3.6
+50	5.1	52.7	50.25	+2.5
6=W.Line 29	4.0	53.8	50.50	+3.3

4.98	60.26			55.28
4.95	59.32			55.[illegible]7

Grand Ave (con)

Sta	Rod	Ground	Grade	±
0=E.L. 29	5.2	55.1	50.5	+4.6
+50	4.5	55.8	50.75	+5.1
1	4.5	55.8	51.0	+4.8
+50	5.1	55.2	51.25	+4.0
2	5.7	54.6	51.50	+3.1
+50	6.3	54.0	51.75	+2.3
3	6.5	53.8 ✓	52.0	+1.8
+50	10.2	50.1 ✓	52.25	-2.1
4	8.2	52.1 ✓	52.50	-0.4
+50	7.2	53.1 ✓	52.75	+0.4
5	10.7	49.6 ✓	53.0	-3.4
+50	8.6	51.7 ✓	53.25	-1.5
6=W.L. 30th	5.5	54.8 ✓	53.50	+1.3

8.22	63.49	55.27

Grand Ave (con.)

Sta	Rod	Ground	Grade	±
0=E.L 30st	6.1	57.4	53.50	+3.9
+50	6.6	56.9	53.75	+3.2
1	5.8	57.7	54.0	+3.7
+50	4.5	59.0	54.25	+4.75
2	4.8	58.7	54.50	+4.2
+50	4.6	58.9	54.75	+4.2
3	5.6	57.9	55.0	+2.9
+50	6.4	57.1	55.25	+1.9
4	5.4	58.1	55.50	+2.6
+50	4.5	59.0	55.75	+3.2
5	5.0	58.5	56.0	+2.5
+50	5.8	57.7	56.25	+1.5
6=W.L 315st	4.8	57.7	56.50	+2.2

79.2	66.23			58.31

Grand Ave (Con.)

Sta	Rod	Ground	Grade	±
0:EL 31.5	7.2	58.9	56.5	+2.4
+50	6.2	60.0	56.5	+3.5
1	4.6	61.6	56.5	+5.1
+50	3.6	62.6	56.5	+6.1
2	3.7	62.5	56.5	+6.0
+50	3.6	62.6	56.5	+6.1
3	3.6	62.6	56.5	+6.1
+50	4.5	61.7	56.5	+5.2
+80	5.8	60.4	56.5	+3.9
4	6.4	59.8	55.85	+4.0
+50	7.7	58.5	54.23	+4.3
5	9.5	56.7	52.62	+4.1
5+50:WL 32	11.6	54.6	51.0	+3.6

3 Davis
2 Lewis
05 Brooks

Levels for Pipe Line in Julian Ave - Beardsley to Marcey

	11.77	53.95			42.18

Sta	Rod	Ground	Grade	±
0:5L.22ND	7.0	46.95	42.0	+5.0
+50	7.9	46.0	42.6	+3.4
1	5.1	48.8	43.2	+5.6
+50	4.0	49.9	43.7	+6.2
2	4.2	49.7	44.3	+5.4
+50	4.4	49.5	44.9	+4.6
3	4.8	49.1	45.5	+3.6
+50	4.8	49.1	46.1	+3.0
4	4.1	49.8	46.7	+3.1
+50	3.8	50.1	47.2	+2.9
5	3.4	50.5	47.8	+2.7
+50	2.7	51.2	48.4	+2.8
6TH L23rd	1.9	52.0	49.0	+3.0

11.53	64.33			52.80	

Julian Ave (con.

Sta		Ground	Grade	±
0-E.L.23rd	11.7	52.6	49.9	+2.7
+50	12.2	52.1	50.6	+1.5
1	11.5	52.8	51.3	+1.5
+50	11.0	53.3	52.0	+1.3
2	8.9	55.4	52.7	+2.7
+50	8.2	56.1	53.5	+2.6
3	7.6	56.7	54.2	+2.5
+50	6.4	57.9	54.9	+3.0
4	5.6	58.7	55.6	+3.1
+50	4.8	59.5	56.3	+3.2
5	3.8	60.5	57.0	+3.5
+50	2.8	61.5	57.8	+3.7
6-W.L.24	3.1	61.2	58.5	+2.7

8.35	70.41			62.06
12.71	81.92	1.2		69.21
6.90	87.37	1.45		80.47

Julian Ave (con)

Sta		Ground	Grade	±
0·EL. 24th	9.7	60.7	58.3	+2.4
+50	10.6	59.8	58.1	+1.7
+80	10.4	60.0	58.0	+2.0
1	10.3	60.1	58.5	+1.6
+50	9.1	61.3	59.9	+1.4
2	6.4	64.0	61.2	+2.8
+50	6.9	63.5	62.6	+0.9
3	3.0	67.4	63.9	+3.5
+40	1.2	69.2	65.0	+4.2
+50	11.3	70.6	65.5	+5.1
4	7.2	74.7	68.2	+6.5
+50	3.2	78.7	70.9	+7.8
5	1.4	80.5	73.6	+6.9
+50	5.2	82.2	76.3	+5.9
6·W.L 26th	3.3	84.1	79.0	+5.1

4.70	88.35			83.65	

Julian Ave (con)

Sta		Ground	Grade	±
0-EL.26th	4.0	84.3	80.0	+4.3
+50	4.8	83.5	79.78	+3.7
1	5.1	83.2	79.56	+3.6
+50	5.2	83.1	79.35	+3.8
2	5.2	83.1	79.14	+4.0
+50	5.5	82.8	78.93	+3.9
+80	6.0	82.3	78.8	+3.5
3	6.2	82.1	78.57	+3.5
+50	7.3	81.0	78.01	+3.0
4	9.5	78.8	77.45	+1.4
+40	10.6	77.7	77.0	+0.7
+50	10.9	77.4	77.01	+0.4
5	10.3	78.0	77.07	+0.9
+50	8.3	80.0	77.13	+2.9
6-WL.26th	8.2	80.1	77.18	+2.9

2.15	82.46	80.31

Julian Hve (cont.)

Sta	Rod	Ground	Grade	±
0=EL.26th	2.3	80.2	77.25	+3.0
+50	2.1	80.4	76.73	+3.7
1	3.0	79.4	76.21	+3.2
+50	4.2	78.3	75.69	+2.6
2	3.7	78.8	75.16	+3.6
+50	4.6	77.9	74.64	+3.3
3	5.1	77.4	74.12	+3.3
+50	6.0	76.5	73.60	+2.9
4	6.8	75.7	73.08	+2.6
+50	7.3	75.2	72.56	+2.6
5	7.6	74.9	72.04	+2.9
+50	7.4	75.1	71.52	+3.6
6=W.L 27th	8.4	74.1	71.0	+3.1

			82.46	
1.85	73.13	11.18		71.28

Julian Ave Con

Sta		Ground	Grade	±
0=E.L27	8.7	73.8	70.25	+3.6
+50	8.9	73.6	69.62	+4.0
1	10.0	72.5	69.00	+3.5
+50	11.2	71.3	68.37	+2.9
2	3.6	49.5	67.75	+1.8
+50	5.1	68.0	67.12	+0.9
+60	5.1	6.8.0	67.0	+1.0
3	4.9	68.2	66.68	+1.5
+50	4.8	68.3	66.25	+2.0
4	4.7	68.4	65.96	+2.5
+50=WL Marley	5.2	67.9	65.5	+2.4
+5 M.				
1				

3/25/05 Davis, Brooks, Shaw. Levels for Pipe Line in 30th St from National 1008 North

4.62	77.26			72.64

Sta.	Rod	Ground	Grade	±
0=No. line National	12.75	64.51	61.58	+2.9
+50	11.0	66.26	62.30	+4.0
1	9.75	67.51	63.03	+4.5
+50	8.45	68.81	63.75	+5.1
2	8.20	69.06	64.47	+4.6
+50	7.58	69.68	65.20	+4.5
3=S.L. Logan	7.47	69.79	65.92	+3.9
Ct of Logan	6.82	70.84	66.50	+4.3
No Line Logan 0=0	6.31	70.95	67.06	+3.9
+50	5.40	71.86	67.76	+4.1
1	4.78	72.48	68.46	+4.0
+50	3.65	73.61	69.17	+4.4
2	2.94	74.22	69.86	+4.5
+45	1.95	75.31	70.50	+4.8
+50	1.93	75.33	70.52	+4.8
3=S.L. Greeley	1.44	75.82	70.77	+5.1

30th St - from National Ave. - 1008' North.

Sta	Rod	Ground	Grade	±
b=N.L.Greely	2.35	74.91	70.66	+4.3
+50	2.43	74.83	70.34	+4.6
1	2.20	75.06	69.82	+5.2
+50	2.70	74.56	69.40	+5.2
+98	3.53	73.73	69.00	+4.7

Levels for Pipe Line in 30th St

4.14	198.81		194.67

"D" to "E"

Sta	Rod	Ground	Grade	±
0=N.L. "E" St	11.46	187.35	184.0	+3.35
+50	9.54	189.27	185.82	+3.45
1	7.27	191.54	187.64	+3.90
+50	5.02	193.79	189.45	+4.34
2	3.40	195.41	191.27	+4.14
+20	2.57	196.24	192.0	+4.24
+50	2.01	196.80	191.68	+5.12
3=S.L. of "D" St	4.52	194.29	191.0	+3.29

Levels for Pipe Line in

5.60	47.77			42.17
4.55	51.16			46.61

(So 22nd) Beardsley 3/15/05 {Davis, Lewis, Brooks

Sta	Rod	Ground	Grade	±
00 = No line Logan	6.25	41.6	38.5	+3.1
+50	5.7	42.1	39.25	+2.9
1	5.4	42.4	40.0	+2.4
+50	4.4	43.4	40.75	+2.7
2	3.8	44.0	41.50	+2.5
+50	3.2	44.6	42.25	+2.4
3 S.L. Kearney	2.9	44.9	43.0	+1.9
0 N.L. Kearney	6.0	45.2	43.0	+2.2
+50	6.2	45.0	42.83	+2.2
1	6.3	44.9	42.67	+2.2
+50	6.2	45.0	42.50	+2.5
2	6.3	44.9	42.33	+2.6
+50	6.4	44.8	42.17	+2.6
3 S.L. Julian	6.5	44.7	42.0	+2.7

Levels for Pipe Line in Marcy Ave.

		H.I.	Rod	Ground Elevat	Grade	Cut
2+21 of 28th St Line = 0 of Marcy	8,60			65,17		
0		73,77	4,68	69,1	66,70	2,4
+50			3,30	70,5	66,42	4,1
1	2,73	72,04	4,46	69,31	66,14	3,2
+50			4,81	67,2	65,85	1,4
2			5,04	67,0	65,57	1,4
+50			4,91	67,1	65,28	1,7
3 End			4,84	67,2	65,00	2,2

Levels for Pipe Line in 28th St

7.92	73.09		65.17

Continued on Page 41

Logan to Webster.

Sta	Rod	Ground	Grade	±
0-10'S of Ctr of Logan	7.65	65.44	62.30	3.14
+50	7.10	65.99	63.28	2.71
1	6.24	66.85	64.26	2.59
+50	5.33	67.76	65.24	2.52
2	4.62	68.47	66.22	2.25

— Levels for Water Pipe on —
Irving Ave.
— 28th St to N. St —

3/27/05 { Hatch, Lambert, Wetmore

B.M.	3.98	79.82		75.84			
30' W of line on 28th			4.94	74.88		71.63	3.3
50			5.30	74.52		71.85	2.7
130			4.89	74.93		72.06	2.9
180			4.52	75.30		72.28	3.0
230			4.26	75.56		72.49	3.1
280			4.98	74.84		72.70	2.2
330			4.80	75.02		72.92	2.1
380			3.71	76.11	0.43	73.14	3.0
430			3.75	76.07		73.35	2.7
480			3.60	76.22		73.57	2.7
530			4.04	75.78		73.78	2.0
E. line 27th 580			4.96	74.86		74.00	0.9
W line 27th			4.74	75.08		74.00	1.1
50' W. of 27	10.86	86.97	3.71	76.11		74.83	1.3
100			9.82	77.15		75.67	1.5
150.			7.66	79.31		76.50	2.8

28th & Irving: N.W. Spk in Pole —

Irving Ave

3/27/00

		86.97					
200			6.03	80.94		77.33	3.6
250			5.37	81.60		78.17	3.5
300			4.75	82.22		79.00	3.2
350			3.77	83.20		79.83	3.4
400			3.34	83.63	0.9	80.66	3.0
450			2.05	84.92	1.29	81.50	3.4
500			1.30	85.67		82.33	3.4
550	5.29	91.93	0.33	86.64		83.16	3.5
E line 26th							
600			4.86	87.07		84.00	3.1
W line 26th			4.42	87.51		84.00	3.5
50' W. of 26.			4.10	87.83		83.75	4.1
100			5.52	86.41		83.50	2.9
150			5.83	86.10		83.25	2.9
200			4.62	87.31	0.5	83.00	4.3
250			3.62	88.31		82.75	5.6
300			3.82	88.11		82.50	5.6
350			4.05	87.88		82.25	5.6

91.93
2.75
89.18 check
89.19

Irving Ave.

400

450

500

550

E line 25th

600

W. line 25th

0.5 %

8200

81.75

81.50

81.25

81.00

79.00

Irving Ave

					Sta	Rod	Ground	Grade	±
2.58	54.01			51.43	0-10 Sout Ct of N	7.1	46.9	45.2	+1.7
					+50	5.5	48.5	45.38	+3.1
					1	4.33	49.67	45.55	+4.1
					+07	4.33	49.67		
					+12	8.0	46.0		
					+30	7.85	46.15		
					+38	4.10	49.95		
					+50	4.12	49.88	45.73	+4.15
					2	4.67	49.33	45.91	+3.4
					+2.4		47.0	46.0	+1.0
4.22	45.84		12.39	41.62	+50	10.8	43.2	42.82	+0.4
					3	7.5	38.34	36.71	+1.6
					+14		37.54	35.00	+2.5
					+40	11.04	34.80	35.00	-0.2
					+50	9.37	36.47	35.00	+1.5
					+54		36.60	35.00	+1.6
					4	7.15	38.69	38.22	+0.5
12.41	57.74		0.51	45.33	+50	1.60	44.24	41.72	+2.5
					5	9.33	48.41	45.22	+3.2

Irving Ave

	57.74			
11.21	66.16		2.81	54.95 BMW 54.93 ✓
12.93	78.13		0.96	65.20

Sta	Rod	Ground	Grade	±
5+50	6.63	51.11	48.72	+2.4
+54		51.42	49.0	+2.4
6	5.35	52.39	49.69	+2.7
+50	4.03	53.71	50.44	+3.3
7	2.98	54.76	51.19	+3.6
(+34-WL of 23rd)	2.43	55.31	51.70	+3.6
0:EL.23rd	10.90	55.26	52.60	+2.7
+50	10.80	55.36	53.35	+2.0
1	10.72	55.44	54.10	+1.3
+50	9.78	56.38	54.85	+1.5
+60		56.43	55.0	+1.4
2	8.33	57.83	56.4	+1.4
+50	7.77	58.39	58.15	+0.24
3	4.36	61.80	59.90	+1.9
+50	0.96	65.20	61.65	+3.6
+60		65.4	62.0	+3.4
4	9.68	68.45	63.0	+5.5
+50	5.07	73.06	64.25	+8.8

Irving Ave

					Sta	Rod	Ground	Grade	±
	78.13				5+00	0.64	77.49	65.50	+12.0
3.41	80.90		0.64	77.49	+50	3.09	77.81	66.75	+11.1
					6=W.L.24	5.22	75.68	68.0	+7.7
					=E.L.24	7.55	73.35	68.6	+4.9
					+50	8.48	72.42	67.62	+4.8
10.34	78.95		12.29	68.61	1	10.61	70.3	66.75	+3.6
					+50	12.37	66.58	65.87	+0.71
					2	12.88	66.07	65.0	+1.1
					+50	12.04	66.91	66.25	+0.66
					3	10.80	68.15	67.50	+0.65
					+50	8.72	70.23	68.75	+1.50
					4	8.14	70.81	70.0	+0.81
					+50	6.61	72.34	72.25	+0.10
					5	3.68	75.27	74.50	+0.8
12.97	Correct Ele 91.19 (91.26)		0.66	78.29	+50	0.66	78.29	76.75	+1.5
			9.34	81.85 Mon – 81.92	6=W.L.25	10.95	80.24	79.0	+1.2

Irving Ave

91.19

Sta	Rod	Ground	Grade	±
0+Et. 25	7.85	83.34	81.0	+2.3
+50	5.97	85.22	81.25	+4.0
1	4.45	86.74	81.50	+5.2
+50	4.22	86.96	81.75	+5.2
2	3.91	87.28	82.0	+5.3
+50	3.30	87.89	82.25	+5.6
3	3.07	88.12	82.50	+5.6
+50	2.85	88.34	82.75	+5.6
4	3.85	87.34	83.0	+4.3
+50	5.05	86.14	83.25	+2.9

Levels for Pipeline in N St

11.40	25.40			14.00
11.70	36.11		0.99	24.41

16th to 25th

Sta	Rod	Ground	Grade	±
0=EL 16th	14.0	11.4	8.50	+2.9
+50	12.0	13.4	10.37	+3.0
1	10.4	15.0	12.25	+2.8
+50	8.57	16.53	14.12	+2.4
2=WL 17th	6.86	18.54	16.0	+2.5
0=EL 17th	4.02	21.38	17.0	+4.4
+50	4.17	21.23	17.83	+3.4
1	3.34	22.06	18.67	+3.4
+50	2.30	23.10	19.50	+3.6
2=WL 18th	0.99	24.41	20.33	+4.1
0=EL 18th	9.97	26.14	21.67	+4.5
+50	9.55	26.56	22.50	+4.1
1	8.91	27.20	23.33	+4.9
+50	7.80	28.31	24.17	+4.1
2=WL 19th	7.03	29.08	25.0	+4.1

N St.

	36.11			
12.50	47.09		1.52	34.59
7.32	52.71		1.70	45.39

Sta	Rod	Ground	Grade	±
0=E.L. 19th	4.50	31.61	25.0	+6.6
+50	4.74	31.37	26.50	+4.9
1	5.31	30.80	28.00	+2.8
+50	4.96	31.15	29.50	+1.7
2=W.L 20th	13.03	34.06	31.0	+3.1
0=E.L 20th	11.45	35.64	31.0	+4.6
+50	9.82	37.27	33.0	+4.3
1	9.17	37.92	35.0	+2.9
+50	8.52	38.57	37.0	+1.6
2=W.L 21st	7.62	39.47	39.0	+0.5
0=E.L 21st	5.20	41.89	41.0	+0.9
+50	3.70	43.39	41.87	+1.5
1	3.10	43.99	42.75	+1.2
+50	1.75	45.34	43.62	+1.7
2=W.L 22nd	1.70	45.39	44.50	+0.9

"N" St

		52.71				Sta	Rod	Ground	Grade	±
						0=E.L 22nd	6.23	46.48	45.50	+1.0
						+50	5.27	47.44	45.44	+2.0
						1	5.35	47.36	45.37	+2.0
						+50	5.23	47.48	45.31	+2.2
						2	5.18	47.53	45.25	+2.3
						+50	5.14	47.57	45.19	+2.4
						3	4.82	47.89	45.12	+2.8
						+50	4.95	47.76	45.06	+2.7
	7.18	55.45		4.44	48.27	4=W.L 24th	4.45	48.26	45.0	+3.3
						0=E.L 24th	6.67	48.78	45.0	+3.8
						+50	8.04	47.41	45.50	+1.9
						1	7.84	47.61	46.0	+1.6
						+50	5.95	49.50	46.50	+3.0
						2	6.98	48.47	47.0	+1.5
						+50	6.60	48.85	47.50	+1.4

N St.

55.45

Sta	Rod	Ground	Grade	±
3	5.90	49.55	48.0	+1.6
+50	5.30	50.15	48.50	+1.6
4	3.70	51.75	49.0	+2.7
+50	3.2	52.25	49.50	+2.75
5	3.1	52.35	50.0	+2.4
+50	3.0	52.45	50.50	+2.0
6+W.L.25ft	2.6	52.85	51.0	2.85

Levels for Pipe Line in 25th St to Grant Ave thence in Grant Ave to 30th St

	12.03	99.10			87.07	Sta	Rod	Ground	Grade	±
						6+60 Est Ctr. of 30th	12.96	86.14	86.0	+0.14
						6+20 W.L.	9.76	89.34	87.33	+2.0
						6			87.98	
						+50	5.78	93.32	89.64	+3.7
						5	3.90	95.20	91.30	+3.9
						+64	3.78	95.32	92.50	+2.8
						+50	3.35	95.75	92.47	+3.3
						4	2.85	96.35	92.38	+4.0
						+50	3.60	95.50	92.30	+3.2
	6.60	102.56		3.14	95.96	3	3.14	95.70	92.22	+3.5
						+50	6.45	96.11	92.13	+4.0
						2	7.15	95.41	92.05	+3.4
						+64	7.54	95.02	92.00	+3.0
						+50	7.70	94.86	92.14	+2.7
						1	6.80	95.76	92.64	+3.1
						+50	5.78	96.78	93.18	+3.6
						00 = El. 29	4.75	97.81	93.71	+4.1

Grant Ave

1.63	103.14	1.05	101.51	

Sta.	Rod	Ground	Grade	±
12+56.4) = 00 E.L. 29th				
11+96.4 W.L.	4.25	98.31	94.33	+4.0
11+80	4.55	98.01	94.50	+3.5
+50	4.71	97.85	95.08	+2.8
11	4.00	98.56	96.05	+2.5
+50	1.84	100.72	97.03	+3.7
10	1.05	101.51	98.00	+3.5
+50	1.90	101.24	96.22	+5.0
9	3.92	99.22	94.45	+4.8
+50	6.50	96.64	92.69	+4.0
8	7.30	95.84	90.92	+4.9
+40	9.92	93.22	89.50	+3.7
+50	10.15	92.99	89.42	+3.6
7	11.72	91.42	88.96	+2.5
+50	11.38	91.76	88.49	+3.3
6	10.70	92.44	88.02	+4.4
+9 E.L. 28th	11.05	92.09	88.0	+4.0

Grant Ave

4.56	95.18		12.52	90.62 ✓
8.71	98.29		5.60	89.58

Sta	Rod	Ground	Grade	t
5+36 W.L 28th	11.80	91.34	87.44	+3.9
5	3.94	91.24	87.11	+4.1
+50	3.80	91.38	86.65	+4.7
4	4.55	90.63	86.18	+4.4
+80	5.20	89.98	86.00	+4.0
+50	6.00	89.18	86.22	+3.0
3	6.50	88.68	86.59	+2.1
+50	6.50	88.68	86.95	+1.7
2	6.56	88.62	87.32	+1.3
+50	6.45	88.73	87.69	+1.0
1	5.60	89.58	88.06	+1.5
+50	6.55	91.74	88.42	+3.3
+40	6.20	92.09	88.50	+3.6
0 = E.L 5.26th	6.70	91.59	88.38	+3.2

Grant Ave

	ϕ 98.29			
7.96	104.17	2.08	96.21	

Sta	Rod	Ground	Grade	±
6+00=W.L.26	6.0	92.29	88.20	+4.1
+50	6.1	92.19	88.05	+4.1
5	6.29	92.00	87.90	+4.1
+50	6.84	91.45	87.75	+3.7
4	7.04	91.25	87.60	+3.7
+50	6.45	91.84	87.45	+4.4
3	5.50	92.79	87.30	+5.5
+50	6.06	92.23	87.15	+5.1
2	8.77	89.52	87.00	+2.5
+50	5.75	92.54	89.50	+3.0
1	2.08	96.21	92.00	+4.2
+50	5.13	99.04	94.50	+4.5
0=EL.25	3.50	100.67	97.0	+3.7

Grant Ave

	104.17			
042	92.05		12.54	91.63

Sta	Rod	Ground	Grade	±
6+00 WL25	3.10	101.07	96.16	4.91
+50	4.30	99.87	95.47	+4.4
5	5.80	98.37	94.78	+3.6
+80	6.45	97.72	94.50	+3.2
+50	7.82	96.35	92.39	+4.0
4	11.45	92.72	88.86	+3.9
+50	3.00	89.05	85.34	+3.7
3	7.52	84.53	81.82	+2.7
+60	10.17	81.88	79.0	+2.9
+50	9.97	82.08	79.39	+2.7
2	8.24	83.81	81.33	+2.5
+50	4.80	87.25	83.28	+4.0
1	3.80	88.25	85.22	+3.0
+80	3.42	88.63	86.00	+2.6
+50	2.37	89.68	86.00	+3.7
0+EL24	2.25	89.80	86.00	+3.8

Grant Ave

0.72	89.12		3.65	88.40
0.67	78.07		11.72	77.40
0.90	66.53		12.44	65.63
2.51	56.55		12.49	54.04
			3.42	53.12

Sta	Rod	Ground	Grade	±
4+41 N.L. 24	3.65	88.40	86.0	+2.4
4+00	3.06	86.06		
+50	11.72	77.40		
3	8.80	69.27		
+50	3.60	62.93		
2	6.24	60.29		
+50	12.49	54.04		
1	4.10	52.45		
+50	6.42	50.43		
+42 = S.L. of N.	6.25	50.30		
0+	3.35	53.20		

4/10/05 { Davis, Brooks, Shaw } Franklin Ave Pipe Line "N" to 28th

				Sta	Rod	Ground	Grade	±
				0 E.L. S. 24th	14.67	61.18	57.0	+4.2
				+50	14.35	61.50	57.89	+3.6
				1	14.23	61.62	58.78	+2.8
				+50	14.35	61.50	59.68	+1.8
				2	12.62	63.23	60.57	+2.7
				+50	8.63	67.22	61.46	+5.8
				3	7.90	67.95	62.35	+5.6
				+50	6.25	69.60	63.25	+6.4
				4	5.27	70.58	64.14	+4.4
				+50	4.13	71.72	65.03	+6.7
				5	3.35	72.50	65.93	+6.6
				+50	3.3	72.55	66.82	+5.7
0.47	75.85		75.38	L. W.L. S. 25th	2.9	72.95	67.71	+5.2

Franklin Ave.

5.11	80.49			75.38
8.32	87.89		0.92	79.57

Sta	Rod	Ground	Grade	±
0 EL. 25th	8.02	72.47	68.78	+3.7
+50	6.88	73.61	69.67	+3.9
1	5.79	74.70	70.56	+4.1
+50	5.00	75.49	71.46	+4.0
2	4.78	75.71	72.35	+3.4
+50	4.04	76.45	73.24	+3.2
3	2.76	77.74	74.13	+3.6
+50	2.45	78.04	75.03	+3.0
4	0.92	79.57	75.92	+3.7
+50	6.82	81.07	76.81	+4.3
5	5.15	82.74	77.70	+5.0
+50	4.05	83.84	78.60	+5.2
6 WL 26th	3.62	84.27	79.50	+4.8

Franklin Ave

(87.89)

Sta	Rod	Ground	Grade	t
0-EL.26+00	4.14	83.75	79.50	+4.3
+50	5.14	82.75	79.50	+3.3
1	6.50	81.39	79.50	+1.9
+50	6.06	81.83	79.50	+2.3
2	4.67	83.22	79.50	+3.7
+50	4.27	83.62	79.50	+4.1

Levels for Pipe Line in 28th

Logan to Webster.

No Levels Run

Cuts made from Profile

Levels for Pipe Line in 22nd St. - G to N

4/17/05 Davis, Brooks, Shaw.

8.74	60.17			51.43

Sta	Rod	Ground	Grade	±
00=No. Line "N"	10.2	50.0	45.50	+4.5
+50	8.6	51.6	46.71	+4.9
1	6.2	54.0	47.92	+6.1
+50	5.0	55.2	49.12	+6.1
2	4.8	55.4	50.33	+5.1
+50	5.3	54.9	51.54	+3.4
3=S.L. "N"	3.6	56.6	52.75	+3.9

Graded from N. St North.

Levels for Pipe Line in "L" St 25th to 32nd.

8.90	82.88		73.98	

Sta	Rod	Ground	Grade	±
39+00-W.L.-32nd	5.6	77.3	74.00	+3.3
+50	5.6	77.3	74.2	+3.1
38	5.4	77.5	74.4	+3.1
+50	4.3	78.6	74.5	+4.1
37	4.7	78.2	74.7	+3.5
+50	5.3	77.6	74.9	+2.7
+30	5.1	77.8	75.0	+2.8
36	5.2	77.7	74.8	+2.9
+50	4.7	78.2	74.5	+3.7
35	4.5	78.4	74.2	+4.2
+50	4.8	78.1	74.0	+4.1
34	5.1	77.8	73.7	+4.1
+50	5.5	77.4	73.4	+4.0
33-EL.-31st	5.7	77.2	73.1	+4.1

82.88

Sta	Rod	Ground	Grade	±
32+40 WL 31st	6.3	76.1	72.8	+3.8
32	5.0	77.9	72.5	+5.4
+50	6.8	76.1	72.2	+3.9
31	6.9	76.0	72.0	+4.0
+50	6.7	76.2	71.7	+4.5
30	7.3	75.6	71.4	+4.2
+50	7.1	75.8	71.1	+4.7
29	7.0	75.9	70.8	+5.1
+50	7.8	75.1	70.5	+4.6
28	9.0	73.9	70.2	+3.7
+50	8.9	74.0	70.0	+4.0
27	9.6	73.3	69.7	+3.6
26 +50	9.6	73.3	69.4	+3.9
E 26+47 E.L. 30th	9.6	73.3	69.3	+4.0

3.34	77.32			73.98	Sta	Rod	Ground	Grade	±
					25+82 W.L. 30th	4.5	72.8	69.0	+3.8
					+50	4.7	72.6	68.8	+3.8
					25	4.9	72.4	68.5	+3.9
					+50	5.1	72.2	68.2	+4.0
					+10	5.6	71.7	68.0	+3.7
					24	5.6	71.7	68.1	+3.6
					+50	6.1	71.2	68.9	+2.3
					23	6.5	70.8	69.6	+1.2
					+50	6.1	71.2	70.3	+0.9
					22	5.4	71.9	71.0	+0.9
					+50	4.8	72.5	71.8	+0.7
					21	4.1	73.2	72.5	+0.7
					+50	3.4	73.9	73.2	+0.7
					20	2.7	74.6	74.0	+0.6
8.99	84.71		1.60	75.72	+50	1.6	75.7	74.7	+1.0

		84.71				Sta	Rod	Ground	Grade	±
						19+30	8.6	76.1	75.0	+1.1
						19	8.2	76.5	75.3	+1.2
						+50	7.4	77.3	75.8	+1.5
						18	6.6	78.1	76.3	+1.8
						+50	5.9	78.8	76.8	+2.0
						+30	5.6	79.1	77.0	+2.1
						17	5.3	79.4	76.85	+2.6
						+50	4.7	80.0	76.60	+3.4
						16	5.3	79.4	76.35	+3.1
						+50	5.4	79.3	76.1	+3.2
						+30	5.4	79.3	76.0	+3.3
						15	5.5	79.2	75.5	+3.7
						+50	4.7	80.0	74.7	+5.3
						14	5.1	79.6	73.9	+5.7
						+50	5.4	79.3	73.1	+6.2
				4.85	B.M. Pole NE 28+2 79.86	13 +13 W.L. 28+6	6.0	78.7	72.5	+6.2

Sta	Rod	Ground	Grade	±
12+50	4.8	77.4	71.50	+5.9
12	6.6	75.6	71.5	+4.1
+50	6.8	75.4	71.5	+3.9
11	5.2	77.0	71.5	+5.5
+50	4.5	77.7	71.5	+6.2
+30	4.5	77.7	71.50	+6.2
10	5.1	77.1	71.6	+5.5
+50	7.2	75.0	71.9	+3.1
9	8.4	73.8	72.1	+1.7
+50	7.5	74.7	72.3	+2.4
8	7.1	75.1	72.5	+2.6
+50	6.5	75.7	72.8	+2.9
7	5.9	76.3	73.0	+3.3
+50	5.4	76.8	73.3	+3.5
6 W.L. 27th	5.5	76.7	73.50	+3.2

5.60 82.16 1.74 76.56

					Sta	Rod	Ground	Grade	±
					5+50	1.7	76.6	72.8	+3.8
	78.30				5	2.0	76.3	72.15	+4.1
					+50	2.6	75.7	71.51	+4.2
					4	4.3	74.0	70.9	+3.1
					+50	5.1	73.2	70.25	+3.0
					+30	5.0	73.3	70.0	+3.3
					3	4.4	73.9	69.45	+4.5
					+50	5.3	73.0	68.54	+4.5
					2	5.7	72.6	67.64	+5.0
					+50	6.8	71.5	66.73	+4.8
					+10	8.1	70.2	66.0	+4.2
					1	8.4	69.9	66.17	+3.7
					+50	8.7	69.6	67.00	+2.6
6.64	78.30			71.66	0°E. L 26th	8.4	69.9	67.83	+2.1

Water Pipe in 19th St C to N.

Sta	Rod	Ground	Grade	±
S.L.C	12.50	66.51	63.0	+3.5
2+50	5.40	73.61	66.92	+6.7
2	10.77	80.09	70.83	+9.3
+50	5.60	85.26	74.75	+10.5
1	2.96	87.90	78.67	+9.2
+50	1.50	88.36	82.58	+5.8
O.H.L.D	0.60	90.26	86.50	+3.8

Graded from D South.

5/10/05 { Davis, Brooks, Shaw

12.23	79.01			66.78
12.15	90.86	0.30		78.71

Levels for 10" Pipe 17

0.33	48.53		48.20
2.70	40.11	11.12	37.41
9.81	49.37	0.55	39.56
13.01	61.21		48.20
10.48	71.44	0.25	60.96
12.81	82.58	1.67	69.77

Juniper St - Arctic to 5th

Sta	Rod	Ground (40.11)	Grade	±
0 E.L. Arctic	11.4	28.7	25.0	+3.7
+50	9.3	30.8	29.62	+1.2
1	5.7	34.4	34.25	+0.15
+50	0.50	39.6	38.87	+0.7
2 W.L. India	2.8	46.6	43.50	+3.1
0 E.L. "	10.6	50.6	45.50	+5.1
+50	7.9	53.3	48.87	+4.4
1	6.1	55.1	52.25	+2.9
+50	4.7	56.5	55.62	+0.9
2 W.L. Col.	8.7	62.7	59.0	+3.7
0 E.L. "	5.8	65.6	61.64	+4.0
+50			63.40	
1			65.16	
+50			66.92	
2 W.L. State			68.68	
+45 Ctr "	7.2	75.4	70.0	+5.4

Juniper St

		¢ 82.58		
	12.60	93.84	1.34	81.24
TP. Stake W.L. Union	12.49	105.88	0.45	93.39
	12.65	117.48	1.05	104.83 +42
	12.83	129.63	0.68	116.80
	11.63	141.12	0.14	129.49

6/8/06 { Davis, Brooks, Haslam

Sta.	Rod.	Ground	Grade	±
0=E.L. Stat-o	4.3	78.3	73.38	+4.9
+50	10.7	83.1	77.89	+5.2
1	7.8	86.0	82.39	+3.6
+40	5.0	88.8	86.00	+2.8
+50	4.0	89.8	86.69	+3.1
2=W.L. Union	0.4	93.4	90.14	+3.3
+50	8.7	97.2	93.59	+3.6
3	4.9	101.0	97.04	+4.0
E.L. Curlew-00	1.0	104.8	100.0	+4.9
+29	10.6	106.9	103.44	+3.5
+50	9.0	108.5	105.93	+2.6
1	2.3	115.2	111.88	+3.3
+50	9.8	118.8	117.82	+1.0
2+02 W.L. Brant	2.2	127.4	124.0	+3.4

"Juniper St"

12.65	153.68	0.09	141.03
12.61	166.20	0.09	153.59
12.29	177.52	0.97	165.23
12.22	189.02	0.72	176.80

6/8/05 { Davis, Brooks, Haslam

Sta	Rod	Ground	Grade	±
0=E.L. Brant	8.6	(141.12) 132.5	126.00	+6.5
+50	7.0	(153.68) 146.7	133.73	+13.0
1	3.0	150.7	141.45	+9.3
+50	12.0	(166.2) 154.2	149.18	+5.0
2=W.L. Alb.	7.1	159.1	156.91	+2.2
+20	5.4	160.8	160.0	+0.8
0=E.L. Alb	8.3	169.2	164.5	+4.7
+50	11.3	177.7	169.0	+8.7
1	5.7	183.3	173.5	+9.8
+50	3.5	185.5	178.0	+7.5
2=W.L. Front	3.3	185.7	182.50	+3.2
0=E.L. Front			184.00	
+50			187.12	
1			190.25	
+50			193.37	
2=W.L. 1st			196.50	

Graded

Juniper St

10.12	212.69		202.57
11.12	223.71	0.10	212.59

Sta	Rod	Ground	Grade	±
0=E.L.1st	10.6	202.1	198.50	+3.6
+50	8.9	203.8	200.12	+3.7
1	7.9	204.8	201.75	+3.1
+50	6.6	206.1	203.37	+2.7
2=W.L.2nd	4.7	208.0	205.0	+3.0
0=E.L.2nd	3.9	208.8	205.0	+3.8
+50	1.2	211.5	205.75	+5.8
1	7.8	215.9	206.50	+9.4
+50	4.0	219.7	207.25	+12.5
2=W.L.3rd	7.3	216.4	208.0	+8.4

Juniper St

1.19	241.14		239.95
2.65	232.49	11.30	229.84
1.57	222.45	11.61	220.88

Sta	Rod (222.45)	Ground	Grade	±
0 E.L. 4th	9.4	213.1	210.0	+3.1
+50	5.2	217.3	213.87	+3.4
1 (232.49)	8.1	224.4	217.75	+6.7
+50	3.6	228.9	221.62	+7.3
2 W.L. 5th	2.65	229.8	225.50	+4.3

Levels for Pipe Line in
"A" St - 24th to 30th

4.31	184.10			179.79
11.96	195.41	0.65		183.45
10.11	204.90	0.62		194.79

4/14/05 { Davis, Brooks, Haslam

Sta	Rod	Ground	Grade	±
0=E.L.24th	7.1	177.0	175.18	+1.8
+50	3.9	180.2	177.98	+2.2
1	11.7	183.7	180.78	+2.9
+50	8.7	186.7	183.58	+3.1
2	5.8	189.6	186.39	+3.2
+50	3.0	192.4	189.20	+3.2
3	9.4	195.5	192.00	+3.5
+50	6.7	198.2	194.80	+3.4
+80	5.5	199.4	196.50	+2.9
4	4.8	200.1	196.7	+3.4
+50	4.8	200.1	197.3	+2.8
5	4.5	200.4	197.8	+2.6
+50	4.4	200.5	198.4	+2.1
6=W.L.25th	3.8	201.1	199.0	+2.1

"A" St

9.44	213.37			203.93
3.62	216.04	0.95		212.42

Sta	Rod.	Ground	Grade	±
0=EL.26th	11.4	202.0	199.0	+3.0
+50	9.5	203.9	200.3	+3.6
1	7.9	205.5	201.6	+3.9
+50	5.6	207.8	203.0	+4.8
2	4.1	209.3	204.3	+5.0
+50	2.9	210.5	205.6	+4.9
3	1.1	212.3	207.0	+5.3
+20	2.5	213.5	207.5	+6.0
+50	2.0	214.0	206.8	+7.2
4	6.5	209.5	205.6	+3.9
+50	9.8	206.2	204.5	+1.7
5	12.2	203.8	203.3	+0.5
+60=WL.26th	13.1	202.9	202.0	+0.9

"A" St

8.70	212.79	11.95		204.09
6.58	218.22	1.15		211.64
		B.M. Plg 13' S & W of Str 27		
		6.98		211.24

Sta	Rod	Ground	Grade	±
0 E.L. 26th	8.7	204.1	202.0	+2.1
+50	8.8	204.0	202.6	+1.4
1	7.5	205.3	203.2	+2.1
+50	7.2	205.6	203.9	+1.7
2	5.5	207.3	204.5	+2.8
+50	4.4	208.4	205.1	+3.3
3	4.4	208.4	205.7	+2.7
+50	3.2	209.6	206.4	+3.2
4	2.1	210.7	207.0	+3.7
+50	5.7	212.5	207.6	+4.9
5	4.7	213.5	208.2	+5.3
+50	4.9	213.3	208.9	+4.4
6 N.L. 27th	6.3	211.9	209.5	+2.4

A St 6/21/05 {Davis, Brooks, Hadam

Sta	Rod	Ground	Grade	±	
T.P.	1.34	212.58			211.24
0=E.L.27th	3.0	209.6	207.0	+2.6	
+50	10.0	202.6	200.2	+2.4	
T.P	1.97	202.39	12.16		200.42
1	8.0	194.4	193.5	+1.0	
T.P	0.65	189.81	13.23		189.16
1+50	1.0	188.8	186.7	+2.1	
2	6.5	183.3	180.0	+3.3	
Trestle					
3+20	10.5	179.3	180.0	-0.7	
+50	7.1	182.7	182.8	0.0	
4	1.2	188.6	187.6	+1.0	
T.P.	13.00	201.60	1.21		188.60
+50	7.2	194.4	192.4	+2.0	
5	2.4	199.2	197.2	+2.0	
T.P	11.71	212.19	1.12		200.48
5+40	9.5	202.7	201.0	+1.7	

A St

Sta	Rod	Ground	Grade	±	
5+50	9.0	203.2	201.4	+1.8	
6=W.L.28th	6.7	205.5	203.5	+2.0	
+10=2W of EL.	4.5	207.7	207.0	+0.7	
0=E.L.28th	3.7	208.5	207.0	+1.5	
+50	3.1	209.1	207.0	+2.1	
1	4.1	208.1	207.0	+1.1	
+40	4.5	207.7	207.0	+0.7	
+50	4.4	207.8	206.75	+1.1	
2	4.6	207.6	205.50	+2.1	
T.P.	0.89	208.48	4.60		207.59
2+50	1.8	206.7	204.25	+2.5	
3	2.8	205.7	203.0	+2.7	
+50	6.0	202.5	200.5	+2.0	
+80	9.7	198.8	199.0	-0.2	Spk in fence opp Sta 3+80
T.P	0.95	197.26	12.17		196.31
4	3.8	193.5	191.4	+2.1	
T.P.	7.48	193.49	11.25		186.01

A 54

Sta	Rod	Ground 193.49	Grade	±	
4+30	10.3	183.2	180.0	+3.2	
Trestle					
4+95	16.8	176.7	180.0	-3.3	
5+50	5.9	187.6	186.2	+1.4	
5+60 W.L.29	4.9	188.6	187.3	+1.3	
6+20 W of EL	0.4	193.1	194.0	-0.9	
0=E.L.29+	0.1	193.4	193.8	-0.4	
+50	4.2	189.3	193.4	-4.1	
1+00	5.8	187.7	193.0	-5.3	
T.P.	10.58	202.64	1.43		192.06
1+50	13.9	188.7	194.0	-5.3	
T.P.	10.35	211.45	1.54		201.10
2	12.3	199.2	195.0	+4.2	
+50	0.9	210.6	204.2	+6.4	
T.P	12.97	224.25	0.17		211.28
2+80	9.0	215.3	210.0	+5.3	
3	7.0	217.3	211.7	+5.6	

Sta	Rod	Ground	Grade	±	
3+50	5.1	219.2	215.8	+3.4	
4	2.7	221.6	220.0	+1.6	
+50	0.6	223.7	221.2	+2.5	
T.P	9.90	233.70	0.45		223.80
5	9.0	224.7	222.5	+2.2	
+50	7.4	226.3	223.7	+2.6	
L.W.L 30+	7.2	226.5	225.0	+1.5	
E.L. 30+	6.5	227.2	226.0	+1.2 B.M. 309A	
			0.95		232.75

10th St. 4" main.

		HI	Rod	Ground	Grade.
B.M.	4.62	126.60			121.98
Sh. Cedar			3.7	122.9	121.0
50					121.25
100					121.50
150					117.88
200					114.25
250					110.63
N.L. Beech					107.0

107

6.23	285.62			279.39
9.73	291.49	3.86		281.76

Ivy Lane

7/24/05 { Davis, Brooks, Haslam

61

Sta	Rod	Ground	Grade	±
0=E.L.5th	9.7	281.8	279.9	+2.0
+50	11.5	280.0	280.7	-0.7
1	11.0	280.5	281.5	-1.0
+50	6.6	284.9	282.3	+2.6
2	3.5	288.0	283.1	+4.9
+26.10' E Ctr 6th	2.7	288.8	283.5	+5.3

6th St No. of Ivy Lane

0=10' E of Ctr 6th	2.7	288.8	283.5	+5.3
+50	5.0	286.5	281.8	+4.7
1	8.5	283.0	280.1	+3.0
+50	10.0	281.5	278.5	+3.0
+88	10.5	281.0	277.2	+3.8

Brooks St. 269.5

6th St So of Ivy Lane 7/ Davis
26/ Brooks
05/ Haslam

Sta	Rod	Ground	Grade	±
0=10' S & E of Ctr 6th	2.7	288.8	283.5	+5.3
+50	2.1	289.4	283.8	+5.6
1	2.2	289.3	284.2	+5.1
+50	2.9	288.6	284.5	+4.1
2	3.2	288.3	284.9	+3.4
+19	3.4	288.1	285.0	+3.1
Upas St			286.5	

13th Street. 4" Main. Hole

Stat 0 = 10' So of Center of H St.

0+60	No. Line of H.
3+60	So Line of G.
4+40	No. Line of G.
7+40.2	So Line of F.
8+20.2	No. " " "
11+20.2	So Line of E
12+00.2	No " " "
15+00.7	So Line of D.
15+80.7	No. Line of D.
18+81	So Line of C.
19+61	No Line of C.

7/27/05 - Hutchison
Evans
Thomas

Levels for 4" Pipe in "A" St. 15th to 18th

12.59	86.31			73.72
11.51	97.68	0.14		86.17
12.73	110.26	0.15		97.53
12.23	122.10	0.39		109.87
0.55	111.87	10.78		111.32
0.52	99.58	12.81		99.06

Sta	Rod	Ground	Grade	±
0=E.L. 15th	1.1	85.2	83.00	+2.2
+60	9.1	88.6	87.00	+1.6
1	2.1	95.6	93.00	+2.6
+50	2.9	107.4	100.50	+7.0
2=W.L. 16th	9.6	112.5	108.0	+4.5
00=E.L. 16th	7.3	114.8	111.0	+3.8
+50	0.4	121.7	109.4	+12.3
1	2.2	119.9	107.7	+12.2
+50	6.1	116.0	106.1	+9.9
2=W.L. 17th	10.8	111.3	104.50	+6.8
00=E.L. 17th	11.7	100.2	97.00	+3.2
+50	6.0	93.6	93.9	-0.3
1	8.3	91.3	90.7	+0.6
+50	10.9	88.7	87.6	+1.1
2=W.L. 18th	15.0	84.6	84.50	

209.53 Grade at East
207.77 " " West

		(216.17)	El.	207.77	
1	HI	13.0	203.17	207.87	4.7
T.P. 0.32	203.60	12.89	203.28		
2		7.00	196.60	207.97	11.4
3		12.75	190.85	208.07	(18) 17.2
T.P. 0.98	192.23	12.35	191.25		
4		5.90	186.33	208.17	(24) 21.9
5		10.45	181.78	208.27	(28) 26.5
T.P. 4.23	184.64	11.81	180.41		
6		7.20	177.44	208.37	31.0
7		10.60	174.04	208.47	34.5
8		10.65	174.00	208.57	(36) 34.6
9		10.65	174.00	208.67	(33.6) 34.7
10		9.10	175.54	208.77	(31) 33.3
11		8.30	176.34	208.87	(29.6) 32.6
12		8.0	176.64	208.97	(30.6) 32.4
13		4.45	180.20	209.08	(30.6) 28.9
T.P. 10.72	194.96	0.40	184.24		
14		8.4	186.56	209.18	(27.6) 22.6

	194.96	R.			
15		0.7	194.26	209.29	15.9
T.P. 11.69	201.61	0.04	194.92		
16		3.7	202.90	209.40	6.5
				299.53	

205.18 BM Ry & 4th
8.26
213.44
0.76
212.68 BM. Spk – Elec Pole at E. end of trestle.
0.36
213.04 HI
3.50
209.53

Trestle #2 3d-4th on Juniper

209.53 Grade East end

207.77 " West "

Bent											
1)	8.59	203.81 / 212.15	0.25	Elev. 203.56	Grade 207.88	- 432					
			9.41	207.74	207.77						

(Bent)

Station	+	213.04	Rod	Elev'	Grade	check -Diff-	209.49 / 209.53 } lost 0.04			Note - Bent #1 is on West end
					209.53					
16			10.89	202.15	209.43	7.28				
	0.21	201.26	11.99	201.05						
15			7.73	193.53	209.33	15.80				
	0.17	190.61	10.82	190.44						
14			4.92	185.69	209.22	23.53				
		Stake about 1' high								
13	4.44	184.66	10.39	180.22	209.12	28.90				
12			7.70	176.96	209.02	32.06				
11			8.19	176.47	208.91	32.44				
10			9.13	175.53	208.81	33.28				
9			10.52	174.14	208.71	34.57				
8			10.47	174.19	208.60	34.41				
7			10.39	174.27	208.50	34.23				
6			7.01	177.65	208.40	30.75				
5	11.03	193.04	2.65	182.01	208.29	26.28				
4			6.44	186.60	208.19	21.59				
3	12.76	203.81	1.99	191.05	208.09	17.04				
2			6.79	197.02	207.99	10.97				

8/4/03 - Hatch
Metnore
Thomas

Tie-out Pts. on T. # 2 (water)

Bent.	N.	S.
16	29 5'	20'
15	35'	28 9'
14	47 5'	32'
13	52'	36 8'
12	20 3'	20'
11	10 1'	20'
10	9 9'	20 1'
9	10'	29 9'
8	15'	20'
7	20'	10 1'
6	15'	10'
5	15'	10
4	14 9'	15 1'
3	15'	13'
2	10'	10'
1	10 1'	10'

6793
6269
6.17

7' Bent over

	4.46	69.25		64.79		
Bottom of Pipe West			6.56	62.69	62.69	
1			7.9	61.4	62.91	1.5 ✓
2			9.5	59.8	63.24	3.4 ✓
3			10.6	58.7	63.57	4.9 ✓
4			11.5	57.8	63.90	6.1 ✓
5			12.7	56.6	64.22	7.6 ✓
6			12.7	56.6	64.55	8.0 ✓
7			13.2	56.1	64.88	8.8 ✓
8			13.6	55.7	65.21	9.5 ✓
9			12.6	56.7	65.54	8.8 ✓
10			11.5	57.8	65.86	8.1 ✓
11			10.2	59.1	66.19	7.1 ✓
12			8.9	60.4	66.52	6.1 ✓
13			7.4	61.9	66.85	5.0 ✓
14			5.5	63.8	67.18	3.4
15			3.0	66.3	67.51	1.2 ✓
Bottom of Pipe East			1.42	67.83		

Trestle #1 Water. Juniper St.

Tie out Pts. {Bent #1 is at West end}

	N	S
15	10'	10'
14	10'	10'
13	10'	10'
12	10'	10'
11	10'	10'
10	Tack	10'
9	"	10'
8	"	10'
7	"	10'
6	"	10'
5	10'	10'
4	10'	10'
3	10'	10'
2	10'	10'
1	10'	10'

8/5/05 {Hatch, Wetmore, Evans, Thomas}

Trestle #1 (Water) Juniper St.

8/5/63 { Hatch, Wetmore, Evans, Thomas.

	3.25	68.04		64.79	
W. End of Pipe (bottom)				62.69	62.69
1			6.78	61.26	
2			8.26	59.78	
3			9.22	58.82	
4			10.25	57.79	
5			11.50	56.54	
6			11.41	56.63	
7			12.00	56.04	
8			12.29	55.75	
9			11.41	56.63	
10			10.30	57.74	
11			9.02	59.02	
12			7.75	60.29	
13			6.22	61.82	
14			4.28	63.76	
15			1.88	66.16	
Bottom of pipe at East end.					67.83

Trestle #5 (Water) A St. — Bent #1 is East end —

8/7/03 { Hatch Frame Planus.

BM.	919	179.23		172.04	180.0	Spk. in Top of Fence Post (Cor)			
1			2.34	176.89	180.0	(2-6) 3.11	N 10'	(Tie-out pts)	S 10'
2			5.56	174.67	180.0	(5-6) 5.33	10'		10'
3			11.31	167.92	180.0	(12) 12.08	10'		10'
4			11.32	167.91	180.0	(12) 12.09	10'		10'
5			9.48	169.75	180.0	(8-6) 10.25	10'		10'
6			6.60	172.63	180.0	(8) 7.37	10'		10'
7			3.35	175.88	180.0	(4) 4.12	10		10

8/7/05 { Hatch Evans Thomas

Trestle #6 (Water)

Bent #1 is at E. end

B.M.	2.31	204.17		201.86	
	0.42	191.91	12.68	191.49	
B.M.			2.27	189.64	
	3.59	183.86	11.64	180.27	
1			8.41	175.45	180 –
2			10.79	173.07	
3			12.25	171.61	
4			11.57	172.29	
5			6.82	177.04	180 –

Spp. – Cir Fence Post

	N	(Tie-out Pts)	S
(4) 4.55	10'		10'
(6) 6.93	10'		10'
(9) 8.39	10'		10'
(7) 7.71	10'		10'
(2-6) 2.96	10'		10'

Sept. 16. 1905

Childs
Brooks
Hawkins

Vermont Street

Sta.	Grade	H.I.	Rod	Elev.	cut
So. line U. ave.	286.79	293.80	4.2	289.6	2.8
50' So.	286.66		4.0	289.8	3.1
100' So.	286.53		3.9	289.9	3.4
150' So.	286.39		4.5	289.3	2.9
200' So.	286.26		5.2	288.6	2.3
260' So. (N. line Essex)	286.10		5.2	288.6	2.5
Cross 10' So. center	285.97		5.7	288.1	2.1
So. line Essex	285.89		5.0	288.8	2.9
50' So.	285.76		5.1	288.7	2.9
100' So.	285.63		5.5	288.3	2.7
150' "	285.50		4.9	289.9	3.4
200' "	285.07		5.0	288.8	3.7
250' "	284.63		4.4	289.4	4.8
300' " (N. line Rob)	284.19		4.6	289.2	5.0

Sept. 18. 1905

Sta.	Grade	H.I.	Rod	Elev	cut	
Cross 10' So. Center	283.75	293.80	6.1	287.7	4.0	
So. line Robinson	283.49		6.6	287.2	3.7	
50' So.	283.06		7.2	286.6	3.5	
100' So.	282.62		8.3	285.5	2.9	
150' "	282.29		8.1	285.7	3.4	
200' "	281.75		8.7	285.1	3.4	
250' "	281.31		8.7	285.1	3.8	
300' " N. line Thos.	280.87		9.13	284.7	3.8	
Cross 10' So. Center	280.44	287.79	4.0	283.8	3.4	B.M. N.E. cor. sp in pole 287.02
So. line Thornton	280.17		4.0	283.8	3.6	
20' So.	280.0					
50' So.	279.7		3.8	284.0	4.3	
100' "	279.2		3.5	284.3	5.1	
150' "	278.7		3.7	284.1	5.4	
200' "	278.2		4.4	2884	5.2	
220' "	278.0		5.0	282.8	4.8	
250' "			6.5	281.3		
300' " (N. line Cypp.)		280.17	10.0	270.2		
Cross 10' So. Center		273.78	10.14	263.6		

Pipe Lane in Riley St. Old Town
no lock run.

4.00	~~14.~~ 212.16	208.16

Levels for 4" C.I. Pipe in A St
Dot 28th & Bean
Pipe 3' below St Grade

Sta	~~14.~~ Rod 212.16	Ground	Grade	±
0 = E.L. 28th	6.20	205.96	202.10	+ 3.86
+50	3.64	208.52	201.67	+ 6.85
	4.44	207.72	201.24	+ 6.48
+50	4.63	207.53	200.81	+ 6.72
+74 = W.L. Bean	4.63	207.53	200.60	+ 6.93
+40	5.06	207.10	200.60	+ 6.50
+80 = E.L. Bean	5.70	206.46	200.60	+ 5.86

208.16

58 Ivy lane 282.4
64 " 286.0
64 Upse 289.0
64 Brooks 272.0

279.39 - B.M N.E. Spk in phone

2.80	233.29		230.49
0.225	221.94	11.585	221.705
5.68	217.85	9.77	212.17
		4.94	212.89

28th St Line

26+31.6 = S.L Webster

22+51.5 = S.L Clay

73.98 - N.E 30 ft L - Phone Pole

71.66 - N.E. 26 ft L - Spk in Pole

= BM S.E Jumper & 4th

290.71 Vermont N.E. Sp. E.P.

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TRAVERSE TABLE FOR TRANSIT BOOK.

From 1° to 90° for a distance of 100.

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

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