LEVEL BOOK

373

F.B.568

KEUFFEL & ESSER CO.

DRAWING MATERIALS
AND
SURVEYING INSTRUMENTS.

NEW YORK.

CHICAGO. SAN FRANCISCO. ST. LOUIS.

TABLES FOR EXCAVATIONS AND EMBANKMENTS.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.
FOR SINGLE TRACK EXCAVATION.

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

Calculated by Julien A. Hall, M. Am. Soc. C. E.

MICROFILMED
OCT 1 1964

Miscellaneous Levels.

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OFFICE OF THE CITY ENGINEER
EAST SAN DIEGO CAL.

Indexed to date Feb. 4, 1918
Card " " " Mar 20, 1918.

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Cut & Fills for Water Pipe on Anna

Hyatt ⊼ Brown — Aug 12, 14

							10' Not Spl.	Curb Grade	+ or −	
				365.93	B.M.	Spike in pole N.E. Scott & Anna.				
	0.65	366.58	9.55	357.03	B.M.	" " " N.E. Wabash & Anna.				
	3.94	360.97	10.96	350.01	B.M.	" " " S.L. Anna at Alley bet. Mission & Pueblo.				
E.L. Pueblo 3+08	2.51	352.52					8.2 344.3	343.4	+0.9	Stakes set on S.P.L. Readings taken 10 North.
2+00			2.51	350.01	B.M.	" "	4.8 347.7	346.68	+1.0	
	10.24	360.25								
1+00							8.1 352.2	349.94	+2.3	
W.L. Mission 0+00							6.3 354.0	353.2	+0.8	
E.L. Mission 3+12							6.2 354.1	354.0	+0.1	
2+00							4.7 355.6	354.54	+1.1	
1+00							3.7 356.6	355.02	+1.6	
W.L. Wabash 0+00			3.25	357.00	Marked 57.03 B.M.	N.E. Wabash & Anna	4.4 355.9	355.5	+0.4	
	9.41	366.41								
2+38 E.L. Wabash							9.9 356.5	355.5	+1.0	
2+00							8.6 357.8	356.7	+1.1 ~~356.7~~	
1+00							6.6 359.8	359.85	+0.0	
W.L. Scott 0+00							3.6 362.8	363.0	−0.2 ~~363.0~~	
			0.50	365.91 Marked 365.93 .02	B.M.	Spike in pole N.E. Scott & Anna				

				365.93	B.M.
E.L. Scott. 3+00	7.57	373.50			
2+00					
1+00					
W.L. Swift. 0+00					
E.L. Swift. 3+00					
2+00			3.50	370.00	Grade Stake
				370.72	B.M.
1+00	4.50	375.22			
W.L. Wilson 0+00					
E.L. Wilson 3+00					
2+00					
				357.05	B.M.
	5.95	363.00			
1+00					
W.L. Thomas 0+00					
3+00 E.L. Thomas					

	10' N. S.W. Curb Grade		+ or −	
Spike in pole		N.E. Scott & Steiner.		
	7.9 365.3	363.8	+1.8 +1.5	
	6.7 366.8	365.4	+1.4	
	5.6 367.9	367.0	+0.9	
	4.9 368.6	368.6	0.0	
	3.8 369.7	369.1	+0.6	
S.W. Anna Pacific.	3.5 370.0	369.4	+0.6	
Railroad spike in pole N.E. Wilson & Anna.				
	4.8 370.4	369.9	+0.5	
	5.0 370.2	369.6	+0.6	
	5.5 369.7	369.2	+0.5	
	5.5 369.7	368.9	+0.8	
Spike in pole in alley East of Reed N.L. Anna.				
	6.9 356.1	358.26	−2.2	
	5.3 357.7	357.6	+0.1	
	4.9 358.1	357.6	+0.5	

							Readings to Nos. 58L.	Curb Grade			
2+00		363.00					4.7 358.3	358.17	+0.1		
1+00							3.9 359.1	358.73	+0.4		
W.L. Daley 0+00			3.27	359.73	T.P.		3.5 359.5	359.3	+0.2		
	4.85	364.58									
E.L. Daley 3+00							5.1 359.5	359.3	+0.2		
2+00							4.9 359.7	358.97	+0.7		
1+00							5.5 359.1	358.63	+0.5		
W.L. Sisson 0+00							5.9 358.7	358.3	+0.4		
E.L. Sisson 3+00							6.5 358.1	358.0	+0.1		
2+00			5.70 Marked	358.88 358.92 .04	B.M.	N.E. Sisson 4 Aura.	7.2 357.4	357.57	-0.2		

Hyatt Brown Aug 17, 14 5

Profile Of Extention of University Ave.

	+R	H.I.	−R	Elev		North	℄	South
				331.54	B.M.	Spike in white fence post N.W. University & Winona		
0+00	7.16	338.70					5.4 333.3	
1+00							4.0 334.7	
2+00							5.2 333.5	
3+00			11.00	327.70	T.P. Rock		5.6 333.1	
	3.72	331.42						
3+40							−1.5 332.9	
3+80 14								
4+00							7.0 324.4	
4+05							8.7 322.7	
5+00							10.2 321.2	
5+51						4.5 326.9 25'		
6+00 ~~6+22 47~~			8.95	322.47	T.P. Rock	5.3 326.1 25'	7.6 323.8	
A.L. 6+51 47	3.77	326.24				0.7 325.5 60'		
7+00						0.5 325.7 40'	6.1 320.1	
8+00						7.7 318.5 20'	9.8 316.4	
8+17 12			11.10	315.14	T.P. OF P.O.T.		11.1 315.1	
	1.27	316.41	11.77	304.64	T.P. Rock			
	1.93	306.57	12.42	294.15	T.P. Rock			
9+00	0.06	294.21					5.1 289.1	
9+22 2	= P.T.							

Note:— All Points taken on tan except where noted

Profile University (cont)

	+R	H.I.	-R	Elev	T.P.
10+00		294.21	11.47	282.74	T.P. Top Stake.
	7.24	289.98			
11+00					
11+21.2 = P.C.					
12+00					
13+00			2.49	287.49	T.P. Top Stake.
13+85	11.69	299.18			
14+00					
Δ R 14+31.5					
15+00					
16+00					
17+00			0.28	298.90	T.P. Top Stake.
17+41 = P.C. = P.T.	12.97	311.87			
18+00					
Δ.L. 18+71.8					
19+00					
			1.46	310.41	B.M.
20+00					
20+02.6 = P.T.	12.96	323.37			
21+00					
22+00			0.52	322.85	T.P. Rock.

North	℄	South		
	(12.1) 282.1			
	(7.5) 282.5			
	(5.0) 285.0			
	3.0 287.0		1.0 289.0 30'	
	11.9 287.3			
Steep slope up	(8.8) 291.0	Bottom Ravine 11.7 287.5	4.2 295.0 50'	Steep slope up
		Bottom Ravine 11.3 287.9 20'	10' -2.8 302.0 65	from P.I.
Steep slope up either side.	8.1 291.1		-3.1 302.3 40	
	5.2 294.0			
	0.8 298.4			
		7.2 304.7 7'	(7.8) 304.1	
		8.1 303.8 14'		
		6.1 305.8 10'	5.2 306.7	
Spike in fence post	19+50 + or -			
	9.2 314.2			
	6.7 316.7			
	1.6 321.8			

Profile University Cont.

	+R	H.I.	-R	Elev	
23+00	13.04	335.89		322.85	T.P. Rock
			0.21	335.68	T.P. Rock
24+00	8.56	344.22			
24+59 3					
25+00			12.82	331.40	T.P. Rock
	2.16	333.56			
26+00			12.55	321.01	T.P. Rock
	1.87	322.88			
ΔR 27+00					
28+00					
			4.40	318.48	B.M.
29+00	0.75	319.23			
30+00					
31+00			7.88	311.35	T.P. Top stake.
	2.68	314.03			
32+00					
33+00					
34+00					
35+00					

℄

4.9
331.0

6.3
337.9

3.3
340.9

6.7
337.5

8.3
325.3

4.9
318.0

11.6
311.3

Spike in power pole N.E. University State ℄ Douglas Ave.

12.1
307.1

13.0
306.2

8.5
310.7

9.2
304.8

12.8
301.2

13.6
300.4

12.3
301.7

Profile University (Cont.)

	+R	H.I.	−R	Elev.	Top Rike	North	℄	South
36+00		314.03	6.74	307.29	T.P.	3.7 310.3 20'	308.5 10' 7.3 306.7	
	8.81	316.10						
P.I. 36+69 8						3.5 312.6 20'		Slope from N.W. — S.E.
37+00						3.1 313.0 20'	6.6 309.5	
38+00						2.6 313.5 20'	312.5 15' 6.7 309.4	
39+00			12.34	303.76	T.P. Rock		10.00 306.1	
40+00	3.97	307.73					7.0 300.7	
41+00							20.5 287.2	
41+50							10.8 296.9	
42+00							10.2 297.5	
43+00							8.2 299.5	
44+00			~~6.53~~			0.1 307.6 50'	10 6.4 301.3	
44+83 92			6.53	301.20	B.M. on Hub PI	3.5 304.2 40'	6.5 301.2	10.0 297.7 40'
	6.27	307.47						
45+00							6.7 300.8	
46+00						−0.1 307.6 50'	7.0 300.5	
46+80							10.3 297.2	
46+87 98								
47+00							16.5 291.0	
47+13							18.9 288.6	
47+35							19.0 288.5	

Profile University (Con.)

	+R	H.I.	−R	Elev	
47+50		307.47			
48+00					
49+00					
49+91.3					
50+00					
51+00			9.77	297.70	Top Stake T.P.
	12.24	309.94			
52+00					
53+00					
54+00					
55+00					
56+00					
57+00			10.12	299.82	T.P. Rock
	12.83	312.65			
58+00					
59+00					
60+00					
61+00					
62+00					

North	℄	South
	13.7 293.8	
Gentle Slope ~~[illegible]~~		
from N.W. – S.E.	7.9 299.6	
	6.6 300.9	
	7.6 299.9	
	8.0 299.5	
	10.5 297.0	
	10.8 299.1	
	8.6 301.3	
About 10% Grade N.W.–S.E.		
	8.8 301.1	
	9.8 300.1	
	9.8 300.1	
	9.9 300.0	
	10.4 302.2	
	6.8 305.8	
	3.6 309.0	
	2.2 310.4	
	2.6 310.0	

Profile University (Cont)

								℄		
63+00		312.65	2.64	310.01	T.P.			3.2 309.4		
	12.35	322.36								
64+00								9.3 313.1		
			10.32		B.M.					
64+53			10.32	312.04	T.P.	Hub 30' S.E. ℄ Sta 64+53		7.2 315.2	4.45' N.E. ℄ Sta 64. Hyatt & Brown	Aug 18, 14.
	3.02	315.06	11.77	303.29	T.P.	Rock				
	5.66	308.95	6.16	302.79	T.P.	Rock				
	4.04	306.83	10.42	296.41	T.P.	Rock				
	8.14	307.56	3.35	301.23	B.M.	Hub PI Sta. 44+83. (Marked 301.20)				
			8.07	296.51	T.P.	Rock				
	4.98	301.49	3.13	298.36	T.P.	Rock				
	8.72	307.08	6.01	301.07	T.P.	Rock.				
	7.51	308.58	1.28	307.30	T.P.	Top of stand pipe on fence line 32+75				
	12.48	319.78	1.26	318.52	Marked 318.48 B.M.	Spike in pole N ~~W~~ University & Challas Valley Road. (Sta 28)				
	12.05	330.57	0.49	330.08	T.P.					
	2.78	332.86	12.61	320.25	T.P.	Rock.				
	2.89	323.14	5.36	317.78	T.P.	"				
	12.33.	330.11	1.09	329.02	T.P.	"				
	3.63	332.65	0.90	331.75	T.P.	"				
	12.22	343.97	3.30	340.67	T.P.	"				

Profile University (Con.)

+R	H.I.	-R	Elev		
			340.67	T.P.	Rock.-
3.87	344.54	8.99	335.55	T.P.	"
3.13	338.68	7.15	331.53	B.M.	Spike in white fence post N.W. University & Winona.
		Marked	331.54		

Leveling for Cut + Fill Stakes on South Line of Klauber

Pacific – Pueblo for Water pipe

Leeker
Hyatt Sept 1[illegible]

	+	H.I.	–		Grade	Rod South Pro Line	
B.M. N.E. Steiner + Pacific				361.40			
	0.49	361.89					
S.W. Cor Pacific + Klauber					351.9	9.5 352.4	+0.5
T.P.			9.45	352.44			
	1.55	353.99					
℄ Alley bet Swift + Pacific				–	344.6	5.1 348.9	+4.3
S.E. Swift + Klauber					337.3	12.9 341.1	+3.8
T.P.			12.50	341.49			
	0.87	342.36					
S.W. Cor Swift + Klauber					336.30	9.5 332.9	– 3.4
T.P.			12.72	329.64			
	0.20	329.84					
℄ bet Swift + Wabash					327.7	10.6 319.2	– 8.5
S.E. Cor Swift + Wabash					319.0	12.8 317.0	– 2.0
T.P.			12.77	317.07			
	1.05	318.12					
Int of ℄ of Wabash + St. Klauber					311.0	6.6 311.5	+ 0.5
℄ of Alley bet Wabash + Mission					310.0	9.0 309.1	– 0.9

		318.12									
T.P.			12.90	305.22							
							0				
	0.67	305.89									
S.W. Cor. of Wabash & Klauber							12.9				
						308.0	293.0	−15.0			
T.P.			12.81	293.08							
	9.12	302.20									
S.E. Cor. Mission & Klauber							10.4				
						312.0	291.8	−20.2			
S.W. Cor. Mission & Klauber							8.9				
						313.0	293.3	−19.7			
℄ of Alley bet Mission & Pueblo							+1.0				
						317.2	303.2	+14.0			
T.P.			0.48	301.72							
T.P.	11.85	313.57	0.95	312.62							
T.P.	11.59	324.21	0.39	323.82							
	10.46	334.28									
							4.9				
1						32.6	329.4	+3.4			
In Pole Pueblo & Fillmore at end of Paving. B.M. N. side			0.46	333.82	Marked 333.96						

N	S
	Fairmount
351.1	351.9
352.0	352.4
356.1	357.1
	Pauly
357.5	357.6
362.6	362.3
364.1	362.9
	Van Dyke
364.6	363.4
363.7	363.0
	Copeland
363.5	363.0
364.0	363.9
	5th

El Cajon

364⁰ 363⁹

5th

364¹ 364²

365⁴ 364⁹

Stockton

365⁶ 365¹

364⁶ 364³

Conklin

364⁸ 364³

365¹ 364⁶

Hugo

365² 364⁶

366⁵ 365⁶

4th

366¹ 365⁹

A.H. Graf
G.F. Kyell
2/8/15

Sta	Levels for culvert on N.L. Cajon +	#1	—	Elev			Elev Bottom Drain	# South of 4' offset Line	Elev 4' Offset Line
	2.81	368.31		365.50	Spike in pole S.E. Cajon & Van Dyke				
Curb N.W. Cor. Pauly & Cajon						10.82 357.49			
0+00							9.5 358.8	10'	9.5 358.8
Bottom of pipe 0-08						10.90 357.41			
0+50									7.2 361.1
0+58							8.8 359.5	10'	
1							7.8 360.5	10'	5.7 362.6
+50							Filled across		4.5 363.8
+80							6.6 361.7	11'	
2							Filled		3.8 364.5
E.L. Van Dyke +65									3.5 364.8
+80							6.2 362.1	11'	
Curb N.W. Cor Van Dyke & Cajon						3.75 364.56			
W.L. Van Dyke 0+00						0-10 Bottom culvert 5.7 362.60	5.7 362.6	13'	3.2 365.1
T.P. 0+50			3.33	364.98			5.9 362.4	13'	2.7 365.6
	4.41	369.39							
1							6.9 361.4	13'	5.0 363.3
+50							7.0 361.3	13'	5.1 363.2
2							6.6 361.7	13'	5.5 362.8

Levels culverts (Cont'd)

Sta	+	H.I	−	Elev			Elev Bottom drain	# South 4' offset line	Elev 4' offset line
E.L. Copeland							6.9		5.1
2+65		369.39					362.5	13'	364.3
Bottom culvert						7.16			
2+75						362.23			
S.E. Copeland & Cajon									
B.M.			4.17	365.22					
N.E. Copeland						5.70			
+ Cajon Curb						363.69			
N.W. Copeland						5.88			
+ Cajon Curb						363.51			
Bottom Culvert						6.86			
0-10						362.53			
W.L. Copeland							6.5		5.2
0+00							362.9	13'	364.2
							6.4		5.2
+50						0	363.0	13'	364.2
							6.2		4.9
1							363.2	12'	364.5
							6.1		5.1
+50							363.3	12'	364.3
							6.1		4.9
2							363.3	12'	364.5
E.L. Fifth							6.2		5.1
+50							363.2	13'	364.3
Bottom Culvert						6.47			
+67			5.04	364.35		362.92			
	6.06	370.41							
N.E. Fifth & Cajon						6.44			
Curb						363.97			
N.W. Fifth						6.07			
& Cajon Curb						364.34			
Bottom Culvert						7.6			
0-20						362.81			
							7.2		6.1
0+00							363.2	13'	364.3

Culvert levels (Cont'd)

Sta	+	H.I.	−	Elev
0+50		370.41		
1				
+50				
2 E.L. Stockton				
+65				
Bottom culvert +75				
N.E. Stockton + Cajon Curb				
S.E. Stockton & Cajon B.M.			4.26	(366.16) 366.15
Bottom culvert 0-09				
N.W. Stockton + Cajon curb				
W.L. Stockton 0+00				
+50				
1				
+50				
2 E.L. Conklin				
+65				
S.E. Conklin & Cajon B.M.			5.66	(364.73) 364.75
	5.54	370.27		
N.W. Conklin & Cajon Curb				

		Elev Bottom drain	# South of offset line	Elevation of offset line
		6.7		5.8
		363.7	13'	364.6
		7.2		5.8
		363.2	13'	364.6
		7.1		5.3
		363.3	13'	365.1
		7.4		5.8
		363.0	13	364.6
		6.6		5.4
		363.8	13'	365.0
	6.64			
	363.77			
	5.06			
	365.35			
	6.61			
	363.80			
	4.83			
	365.58			
		6.8		5.2
		363.6	15'	365.2
		6.7		5.4
		363.7	13'	365.0
		6.8		5.7
		363.6	14'	364.7
		6.5		5.9
		363.9	14'	364.5
		7.1		5.9
		363.3	14'	364.5
		7.0		5.7
		363.4	14'	364.7
	5.68			
	364.59			

Culvert Levels (Cont'd)

Sta	+	H.I.	−	Elev.
W.C. Conklin				
0+00		370.27		
+50				
1				
+50				
2				
E.L. Hugo				
+65				
N.E. Hugo + Cajon curb				
S.E. Hugo + Cajon B.M.			4.38	(365.92) 365.89
N.W. Hugo + Cajon Curb				
W.C. Hugo				
0+00				
+50				
1				
+50				
Bottom Pipe +42				
Bottom Pipe +20				
E.L. Fourth 2+65				
S.E. 4th + Cajon B.M.			3.62	366.65

		Elevation Bottom drain	# South 4' offset	Elevation 4' offset
		6.6		5.6
		363.7	13'	364.7
		6.7		5.3
		363.6	13'	
		6.4		5.5
		363.9	13'	364.8
		6.5		5.1
		363.8	13'	365.2
		6.5		5.1
		363.8	13'	365.2
		5.9		5.1
		364.4	13'	365.2
	5.16			
	365.17			
	4.97			
	365.30			
		6.3		5.2
		364.0	13'	365.1
		5.7		4.8
		364.6	14'	365.5
		5.6		4.6
		364.7	13'	365.7
		gutter 5.2		on curb 4.32
		365.1		365.95
	5.25			
	365.02			
	5.79			
	364.48	Bottom Culvert		
	5.24			on curb 3.64
	365.03			366.63

March 10-1915
Ford
Hyatt
Graf

Stakes For Temporary Culverts
Draining El Cajon 2nd to Paddy

Sta	+	HI	—	Elev	Grade ±	
Top curb NW Van Dyke Cajon —				364.56		
	5.47	370.03	5.41	364.62	361.2 + 3.4	Stake 31' S of N.L. Cajon + 5' E of W.L. Van Dyke
			5.40	364.63	361.0 + 3.7	" " " " " " 35' E " " " " "
Stake 31' S of NL Cajon + 35' E of WL Van Dyke	4.07	368.63	4.00	364.63	+3.63 361.0	
EL Van Dyke +25			3.70	364.93	+ 4.0 360.94	
+50			4.01	364.62	+3.75 360.87	
+75			4.16	364.47	+3.67 360.8	
1			3.96	364.67	+3.93 360.74	
+25			4.61	364.02	+3.35 360.67	
~~This Pt 28' S of NL El Cajon + 125' E of EL Van Dyke —~~ 1+50 △			5.00	363.63	+3.03 360.6	
28' 0+00 N.L. El Cajon	Alley East Van Dyke El Cajon North —		5.51	363.12	+2.80 360.32	
+50	Stakes set on West Line Alley		6.01	362.62	+2.80 359.82	
1			6.50	362.13	+2.81 359.32	
+50			7.85	360.78	+1.86 358.82	
2			9.70	358.93	+0.61 558.32	
+50			11.65	356.98		
3			12.00	356.63		

Stakes for temporary culverts drawing Cajon (Cont'd)

Sta. +	H.I.	–	Elev	
			365.30	
				364.35
4.97	370.27	5.42	364.85	+0.50
				364.20
		5.22	365.05	+0.85
			364.59	
				363.60
5.37	369.96	5.57	364.39	+0.79
				363.40
		5.61	364.35	+0.95
			365.35	
				362.90
5.18	370.53	5.27	365.26	+2.36
				362.80
		5.15	365.38	+2.58
			364.34	
				362.30
5.52	369.86	5.46	364.40	+2.10
				362.20
		5.70	364.16	+1.96
			363.51	
				361.70
6.36	369.87	5.73	364.14	+2.44
				361.60
		5.58	364.29	+2.69

Ford
Hyatt
Graf
Marvin

N.W. Cor. Hugo + E.L. Cajon Curb

Stake 31' S. of N.L. Cajon + 15' E of W.L. Hugo

" " " " " 15' W of E.L. "

N.W. Cor Conklin + Cajon Curb

Stake 31' S of N.L. Cajon + 15' E of W.L. Conklin

" " " " " 15' W of E.L. "

N.E. Cor Stockton + Cajon Curb.

Stake 31' S. of N.L. Cajon + 15' E. of W.L. Stockton.

" " " " " 15' W " E.L. "

N.W. Cor. Fifth + Cajon Curb

Stake 31' S. of N.L. Cajon + 25' E. of W.L. Fifth.

" " " " " + 25' W of E.L. "

N.W. Cor. Copeland + Cajon Curb

Stake 26' S of N.L. Cajon + 15' E of W.L. Copeland

" 26' " " + 15' W of E.L. "

Sta	+	HI	−	Elev	
BM				359.10	
New BM	4.95	364.05	4.95	359.10	
Official BM				359.10	
New BM	4.78	363.88	4.10	359.78	
New BM	2.05	361.83	5.23	356.60	
New BM	2.76	359.36	7.39	351.97	
New BM	3.30	355.27	5.08	350.19	
Check BM	5.88	356.07	2.80	354.27	Should be 354.21 Book 61 - Page 8
New BM			2.19	353.88	
~~New BM~~	2.25	356.13	5.95	350.18	
			4.16	351.97	
	9.67	361.64	5.05	356.59	
			1.85	359.79	

Mar 16-1915
Ford
Graf

BM Official 4" Pipe 100' W of WL Fairmount NL Steiner

Bras Plug West Curb Pauly 4.5' N of NL Steiner
Mar. 17-1915

4" Pipe NL Steiner 100' W of WL Fairmount

Bras Plug West Curb Fairmount 4.5' N of NL Steiner

Nail Tel Pole D 3745 NE Colonial & University

Nail Tel Pole D 3748 NE Highland & University

Nail Tel Pole D 3750 NW Cabrillo & University

Nail Pole SW Chamounc & University

Nail Elec Pole (Lamp Pole) NE Chamounc & Univ.

Mar 23-1915
Ford
Graf
Hyatt

B.M's on Steiner (Fairmount Thomas)

Sta	+	HI	−	Elev	
BM Pauly				352.10	Brass Plug Curb West side Pauly 4.5' N of NL Steiner
	4.23	363.33			
New B.M Van Dyke			5.18	358.15	Brass Plug West Curb Van Dyke 4.5' N of N.L. Steiner
	3.70	361.85			
New B.M Copeland			5.08	356.77	" " " " Copeland 4.5' N of N.L. Steiner
	2.60	359.37			
New B.M Stockton			6.46	352.91	" " " " Stockton 4.5' N of N.L. Steiner
	4.26	357.17			
New B.M Conklin			3.13	354.04	" " " " Conklin 4.5' N of N.L. Steiner
	4.24	358.28	5.73	(352.49) 352.55	Spike pole N.E Hugo + Steiner
New B.M Hugo			6.28	352.00	Brass Plug West Curb Hugo 4.5 N. of N.L. Steiner
	2.66	354.66	5.08	(349.53) 349.58	Spike pole N.E Sisson + Steiner
New B.M Sisson			5.49	349.17	3/4" iron pipe 10.0' N.W. of N.W. Cor Sisson + Steiner
	2.90	352.13	4.92	(347.14) 347.21	Spike pole N.E Daley + Steiner
New B.M Daley			3.80	348.33	3/4" iron pipe 1.5' N.W of N.W. Cor Daley + Steiner
	4.85	353.18			
New B.M Thomas			5.02	348.16	3/4" iron pipe 11.0' N.E. of N.E. Thomas + Steiner

Transferred to Page 14 Book 72 + Page 52 Book 61 by A.H. Graf Apr.

Grof
Hyatt
Mar 24, 15

Checking levels on Steiner
Thomas - Pauly

				348.16	3/4" iron pipe 11.0' N.E. of N.E. Cor Thomas + Steiner
B.M.	3.61	351.77			
B.M.			3.44	348.33	3/4" iron pipe 1.5' N.W. of N.W. Cor. Daley + Steiner
B.M.			2.60	349.17	3/4" " " 10.0' N.W. of S.W. Cor Sisson + Steiner
	7.09	356.26			
B.M.			4.27	(352.00) 351.99	Brass Plug West Curb Hugo 4.5' North N.L. Steiner
B.M.			2.22	354.04	" " " Corthlin 4.5' " " "
	3.58	357.62			
B.M.			4.72	(352.90) 352.90	" " " Stockton 4.5' " " "
B.M.			8.85	356.77	" " " Copeland 4.5' " " "
	4.98	361.75			
B.M.			3.60	358.15	" " " Van Dyke 4.5' " " "
	5.12	363.27			
B.M.			4.16	(359.10) 359.11	" " " Pauly 4.5' " " "

Ford
Hyatt
Graf
Mar 30, '15
25

B.Ms on Steiner (Thomas-Swift)

Sta.	+	H.I.	−	Elev		
B.M.				348.16	63-23	3/4" Iron pipe 11.0' N.E. of N.E. Cor Thomas & Steiner
	5.18	353.34				
New B.M.			1.37	351.97		Brass Plug West Curb Reed 4.5' N of N.L. Steiner
	7.33	359.30				
New B.M.			1.88	357.48		Brass Plug West Curb Bradt 4.5' N of NL Steiner
	5.70	363.18				
New B.M.			3.81	359.37		Brass Plug West Curb Stover 4.5' N of N.L. Steiner
	5.03	364.40				
New B.M.			3.95	360.45		Brass Plug West Curb Wilson 4.5' N of N.L. Steiner
	4.69	365.14				
New B.M.			3.66	361.48		Brass Plug West Curb Pacific 4.5' N. of N.L. Steiner
	3.5[illegible]	365.05				
New B.M.			5.23	359.82		3/4" Iron pipe N.W. of N.W. Cor Swift & Steiner
				(360.14)		
B.M.			4.86	360.19		Railroad spike pole N.W. Cor Swift & Steiner
	Checking B.Ms.					
B.M.				359.82		Iron pipe N.W. of N.W. Cor Swift & Steiner
	5.89	365.71				
B.M.			4.23	361.48		Brass Plug West Curb Pacific 4.5' N of N.L. Steiner
B.M.			5.26	360.45		Wilson 4.5' N of N.L.

Transferred to page 51 Book 74 & Page 13 Book #72 by A.H. Graf Apr. 20, 1915

B.M's (Cont'd).

Sta	+	H.I.	−	Elev						
B.M				360.45		Brass Plug	West Curb	Wilson	4.5' N. of N.L.	Steiner
	3.18	363.63								
				S.B. 359.37						
B.M			4.27	(359.36)		"	"	"	Storer	4.5' N. of N.L. "
B.M.			6.15	357.48		"	"	"	Bradt	4.5' N. of N.L. "
	0.93	358.41								
				S.B. 351.97						
			6.45	(351.96)		"	"	"	Reed	4.5' N. of N.L. "
				S.B. 348.16						
			10.27	(348.14)		Iron pipe	11.0' N.E. of N.E. Cor.	Thomas + Steiner.		

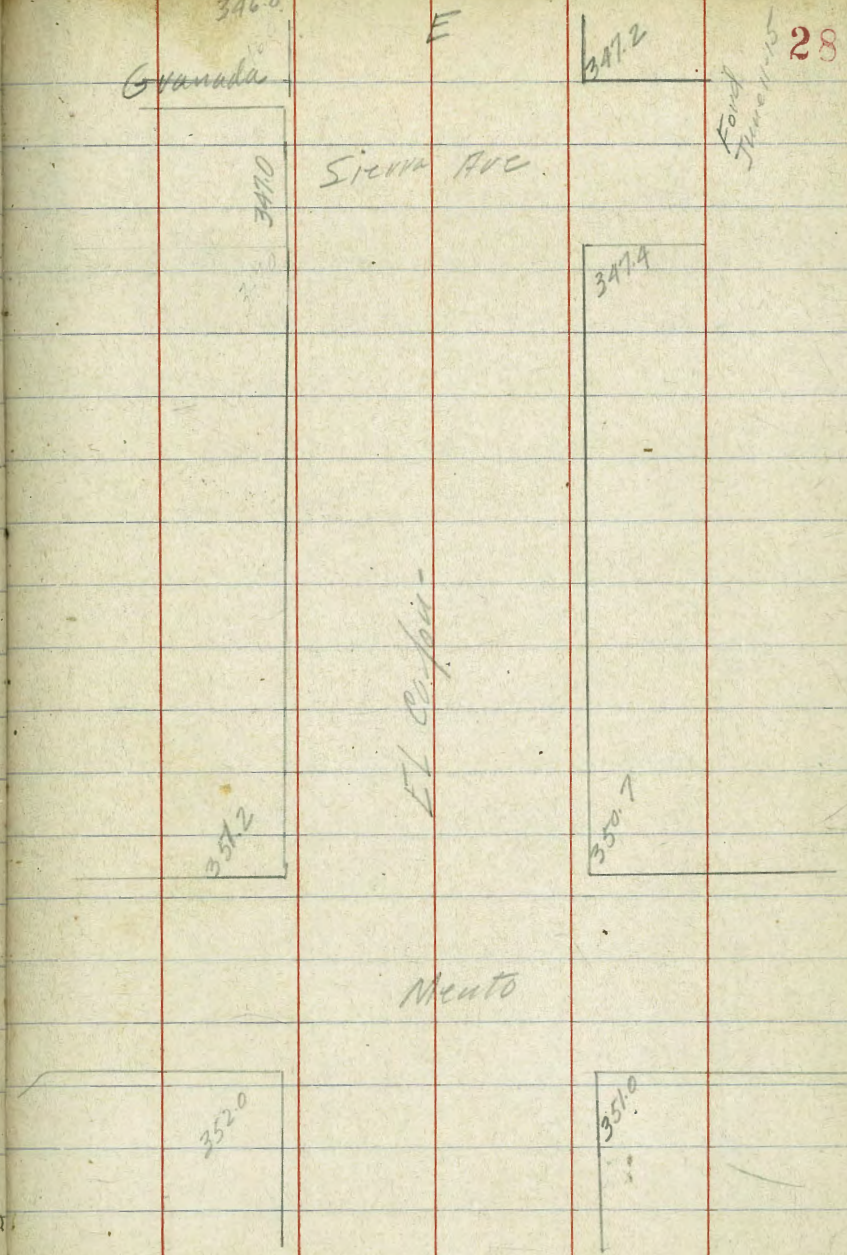
B.M's Steiner (Swift-Pueblo)

Sta.	+	H.I.	-	Elev.	
B.M.				359.82	3/4" iron pipe N.W. of N.W. Swift + Steiner
	0.65	360.47			
New B.M.			7.58	352.89	3/4" iron pipe 2+57 W of W.L. Swift + 2.0' N of N.L. Steiner
	0.38	353.27			
New B.M.			12.98	340.29	3/4" iron pipe W of W.L. Wabash + S of S.W. Cor Steiner + Wabash
	2.19	342.48			
New B.M.			11.72	330.76	3/4" iron pipe N.W. of N.W. Cor. Wabash + Fillmore
	1.94	332.70			
New B.M.			7.33	325.37	3/4" iron pipe N.W. of N.W. Cor. Mission + Fillmore
	0.49	335.86			
B.M.			2.44	S.B. 333.44 (333.42)	Brass Plug N. curb University + W.L. Pueblo. S.D.B.M.

Transferred to Pg 13 Book #72 + Pg 51 Book #63 by A.H. Grant

Transferred to Pg #23 Book #72 + Pg #9 Book #63 by A.H. Grant

Sta	+	H I	–	Elev	
				355.70	Nail Pole SW Menlo Cafe
T.P.	4.40	360.10	9.01	351.09	
SE El Cafe Menlo	9.46	360.55	9.85	350.70	
SW El Cafe Sierra	1.61	352.31	4.91	347.40 (Should be)	
SW " " curb		Top curb	5.15 + .76 5.40	347.16	Set Stake To fit this curb
SE " " curb				346.91	



Finish stakes Klauber (Thomas - Dale)

Sta.	+	H.I.	−	Elev.		
				320.1	Curb E.L. of Thomas + N.L. Klauber	Graf Hyatt 9/14/15
	4.20	324.3				
Thomas S.E. Klauber			4.80	319.5		
	Finish stakes Thomas (Klauber - Castle)					Graf Hyatt 9/21/15
B.M.				315.4	M. of Ver. Cur. on W. side of Thomas	
M of Ver Cur 300' S of Klauber	2.77	318.17	3.37	314.8		
250' S of Klauber			1.77	316.4		
350' S of Klauber			6.77	311.4		
		do.				AB Graf Hyatt Sept 23 1915
W.L. Thomas 350' S of Klauber ON Stake				311.40		
T.P.	0.27	311.67	11.92	299.75		
T.P.	1.11	300.86	11.96	288.90		
	6.16	295.06	5.56	289.50		

Alley Bet Pauly & Van Dyke
Steiner N to Orange

Dec 23-1915
Ford-
Hyatt

Sta	+	H I	−	Elev				Stakes ℄ 2' W of E.P.L		
B.M.				359.10		Brass Plug NW - Pauly - University				
N.L. Steiner								4.62 4.4		
0+00	4.35	363.45	/					58.8 359.05		
0+28								4.6 358.8		
0+32								4.8 358.6		
0+50								4.3 359.1		
1								4.3 359.1		
+33								3.5 359.9		
1+50								3.7 359.7		
1+70								3.9 359.5		
2								3.8 359.6		
+25								3.6 359.8		
+35										
+50								3.1 360.3		
TP on 3										
3			2.70	360.75				2.7 360.7		
+30	6.16	366.91						5.2 361.7		
+50								5.3 361.6		
4								5.5 361.4		
+18								5.1 361.8		
+50								5.4 361.5		

4+65

+85

5

+20

+50

6

Ø

4.8
362.1
5.3
361.6
5.3
361.6
4.8
362.1
5.6
361.3
5.8
361.1
582 5.6
362.09 361.3

± Stakes in Alley bet Van Dyke + Copeland

Sta.	+	H.I.	-	Elev.
				356.77
Curb at P.L. on W.L. Alley on Steiner				
0+00	5.86	362.63	5.35	357.28
+50				
1				
+50				
2				
+50				
3				
+50				
4				
+50				
5				
+50				
Curb at P.L. on W.L. Alley on Klauber				
6			8.76	353.87

Brass Plug NW Copeland & Steiner

±	+for below -for above
0.0	-0.65
0.0	-0.3
0.0	-0.7
0.0	-0.4
0.0	-0.3
0.0	+0.2
+0.6	
+1.5	
+1.7	
+1.2	
+1.2	

Ford-Hyatt Graf. Dec. 24, '15

Ford
Hyatt
Graf
12/27/15

Sta	± Stakes Alley - Between Stapton & Copeland Steiner & Klauber - +	HI	-	Elev.
B.M.				356.77
S.L. Steiner				
0+00	2.20	358.97		
+50				
+65				
1				
+50				
2				
+10				
+50				
3				
T.P. +50			5.77	353.20
+75	5.43	358.63		
4				
+50				
5				
+20				
+50				
+60				
N.L. Klauber Top curb W.P.L. 6+00				

W.L. Alley

Brass Plug NW Copeland & Steiner

4.1	354.9
4.3	354.7
5.2	353.8
5.7	353.3
6.8	352.2
6.5	352.5
5.5	353.5
5.4	353.6
5.4	353.6
5.8	353.2
5.9	352.7
5.3	353.3
5.2	353.4
5.7	352.9
5.6	353.0
6.2	352.4
6.2	352.4
8.6	350.0

Pre-Location ENGINEERS DRIVE
To Wireless Station

Ford-Hyatt Graf
Jan 5-1916-

0+00	Redwood- Hub- Arbitrary Point-									
4+09.32	PC Right	(R=280 ch=40.64 D-4+50= 4°10' - ch=49.94 5+00=9°17')				R=300	D 4+50=	3°-53' ch=37.93	D 5+00= 8°39½' ch=46.62	D 50' 4°46.5' ch=46.62
PI 2x2 Rd W	Δ R=	26°23' - R= 300 - ST= 70.32 Length Curve=				138.14'				
5+47.46	P.T.	(52.54' to 6)								
7+00.93	PC Left	(ch=49.90 D 50' R=220 - D= 6°30.7' D 8= 13°-14')					R=200 -	ch=54.86 D 50'=7°09.7' D-100'=	ch=54.86 14°19.4'	
PI ✓	1x2 Pine	Δ Left= 46°38' R=200' ST.= 86.20 Length=				162.78				
8+63.71										
36.29										
9+61.60	PC Left									
PI ✓	1x2 Pine	ΔL 17°06½ R=300 ST. 45.12 Length=				89.58				
10+51.18	PRC									
PI	1x2 Pine	ΔR= 23°18' R=366.82 Length				149.17	ST=75.63			
12+00.35	P.T.									

12+50.57	PC Right								
PI	Δ Right 57°14'	S.T.= 54.56'	R=100	Length	99.89'	X = 13.92	1x2 Pine		
13+50.46	P.T								
14+55.34	PI East Line of the NW¼ Sec 34								
14+57.62	P.C Left								
P.I	Δ Left 14°27'	S.T.= 38.03	R= 300'	Length	75.66	X= 2.4'	1"x2" Pine		
15+33.28	P.T.								
16+49.61	P.C Left								
P.I	Δ Left 136°26'	S.T.= 75.07	R=30	Length	71.44	X= 50.84	1"x2" Pine		
17+21.05	P.T								
17+59.95	P.C Right								
P.I	Δ Rt 36°29'	S.T. 65.92	R=200	Length	127.35	X 10.58	1x2 pine		
18+87.30	P.C.C	ch = 11.5 d 19+00 = 1°43'	ch = 45.15 d 19+50 = 8°-30'						
P.I	Δ Right 25°07'	S.T. 47.02	R=211.08	Length	92.53	X= 5.37	1x2 pine		
(ch=26.97) 19+79.83	P.C.C	ch=19.04 d 20+00 = 1°36'	ch=47.39 d 20+50 = 5°-34'						
P.I.	Δ Rt. 14°56'30"	S.T. 47.44	R= 361.78	Length	94.35	X= 3.09	1x2 pine		
(ch 22.86) 20+74.18	P.C.C.	ch= 24.45 d 21+00 = 1°-59'	ch = 47.35 d 21+50 = 5°-49'						
P.I	Δ Rt 19°46'30"	S.T. 65.21	R=374.12	Length	129.12	X 5.64			

Jan 12, 1916

Ford Lockey Hyd Grol.

(ch=50.43) 22+03.30	P.T.										
22+09.83	P.C	ch=34.22 d 22+50=8°-21'		ch=42.51 d 23+00=18°-44							
P.I	Δ Rght.	47°-04'	St. 60.06	R. 137.91	Lg	113.29	X=12.51	1x2 pine			
(ch=19.74) 23+23.12	P.R.C.										
P.I	Δ Left	111°-42'-30"	St. 44.23	R=30'	Lg	58.49	X 23.45				
23+81.61	P.T.										
24+16.31	P.C	ch=24.5 d 24+50=12°-52		ch=35.94 d 25+00=31°-58							
P.I	Δ Right	81°-09'	ST. 64.23'	R=75	Length	106.23	X=23.74				
(ch=16.46) 25+22.54	P.C.C	ch=24.45' d 25+50=4°-16'		ch=44.43' d 26+00=11°-03'							
P.I	Δ Right	39°-09'	S.T=65.50'	R=184.21'	Length	125.87	X=11.30				
(ch=43.02) 26+48.41	P.T										
27+34.48	P.C	27+00 27+55.70	- 27+76.93	- 27+98.15							
	Δ Left	138°-58	S.T. 93.36	R=35'	Length	84.89	X=64.71				
28+19.37	P.T.										
28+95.68	P.C	ch=48.35 29+50 d=8°-17		30+00 ch 44.53 d=15°-54							
	Δ Right	39°-40'	S.T 67.80	R 187.99	Length	130.15					
30+25.83	P.O.C	ch=44.53' 30+50 d=23°-31'		ch=44.53 d 31+00=31°-08'							
	Δ Right	26°-35'	St. 44.41	R 187.99	Length	87.22					
(ch=11.62) 31+13.05	P.T.										

Jan. 13 1916
Frd. Lockou Hyatt Graf

31+25.20	P.C	ch=22.3' 31+50 d=3°-32'		ch=44.93 32+00 d=10°-40'					
	Δ Right	25°-55'	S.T. 46.23	R 200.92	Length	90.88			
32+16.08	P.O.C	ch=44.83 32+50 d=17°-47'		33+00	ch=44.93 d=24°-55'				
	Δ Right	35°-58'	S.T 65.28	R 200.92	Length	126.13			
33+42.21	P.C.C	ch=37.93 d 34+00 = 4°-02'		ch=54.82					
	Δ Right	12°-48	S.T. 45.96	R 409.74	Length	91.54			
34+33.75	P.C.C	ch=31.96 34+50	ch=15.55' d=1°-00	35+00	ch=47.81 d=4°-6'	35+50	ch=47.81 d=7°-12'		
	Δ Right	25°-50	S.T. 106.23	R 463.20	Length	208.85	× 1.204		
36+42.60	P.T	ch=40.77	36+00	ch=47.81 d=10°-18'					
37+56.63	P.C	37+00							
	Δ Left	10°-01'	S.T 26.29	R=300	Length	52.45	× 1.04		
38+09.08	P.T								
40+02.51	P.C	39+00	40+50	ch= 57.56 d=15°-26'	41+00	ch= 60.52 d= 31°-41'			
	Δ Left	74°-07'-30"	S.T. 69.90	R 88.14	Length	117.10			
41+19.61	P.O.C	ch=23.98	41+50	d=9°-53'	ch=37.10				
	Δ Left	54°-26	S.T 45.33	R 88.14	Length	83.73			
42+03.34	P.T.	ch=64.45							
43+37.35	P.C	42+50 43+00	43+50	ch= 7.57' d=7°-15'	44+00	ch=28.77 d=35°-54'			
	Δ Right	106°-56'	S.T. 67.49	R=50	Length	93.32	× 33.99		

ch=18.11											
44+30.67	P.T.	Note:-Set. Radial pt. no. R.P.									
		ch= 23.65		ch= 62.17							
44+81.27	P.C	45+00 d= 7°-09'		45+50 d= 26°-15'							
at PI	Δ Left	91°-35'	S.T. 77.10	R= 75'	Length	119.88	X 32.55				
ch=63.53'											
46+01.15	P.T.	8" Pipe									
		ch= 14.08'		ch= 39.56							
46+32.36	PC	46+50 d= 5°-03'		47+00 d= 19°-22'							
	Δ Right	71°-17'	S.T. 71.70	R= 100	Length	124.41	X 23.05				
ch=44.80											
47+56.77	P.T										
48+79.42	P.I Δ Left 21-47						4×4 Post Marked				
53+12.95							4×4 Post Marked	SE Cor. of N½ NE¼			
47+56.77	P.T.										
		ch= 56.99'		ch= 56.41							
47+99.50	P.C	48+50 d= 9°-39'		49+00 d= 19°-12'							
	Δ Left	56°-06'	S.T. 79.92	R= 150	Length	146.87	X 19.96				
ch=52.31											
49+46.37	P.T	50+00	50+50	51+00	51+50						
		52+00	52+50	53+00							
53+32.77	Intersection of East Line of Sec. 34					= Sta. 10+57.03 of East Line of Sec. 34. STA.					

See foll. page

Lat 32°44'30"
Long 117-04-00

Solar obser on East Line

Sec 34

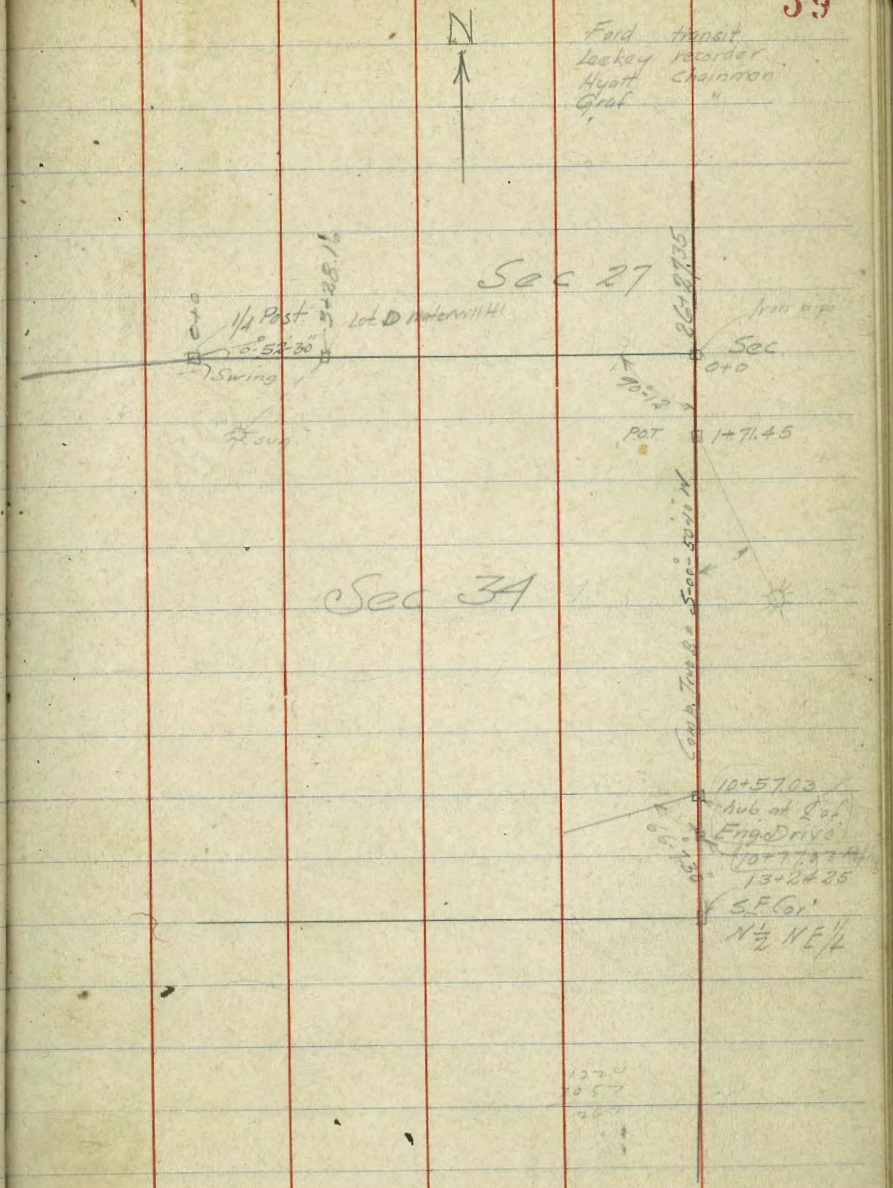
	Erect	Hor ∠	Vert L	Time	Mag. B.
Angele from E-Line	∠	32°6'45"	33-45	10-15-30	S.15-E
	Erect				15-05
" " "	∠	29°41'	35°3'00"	10-25-00	Use
	Inverse		×		
	∠	28-21	35-33-00	10-30-05	

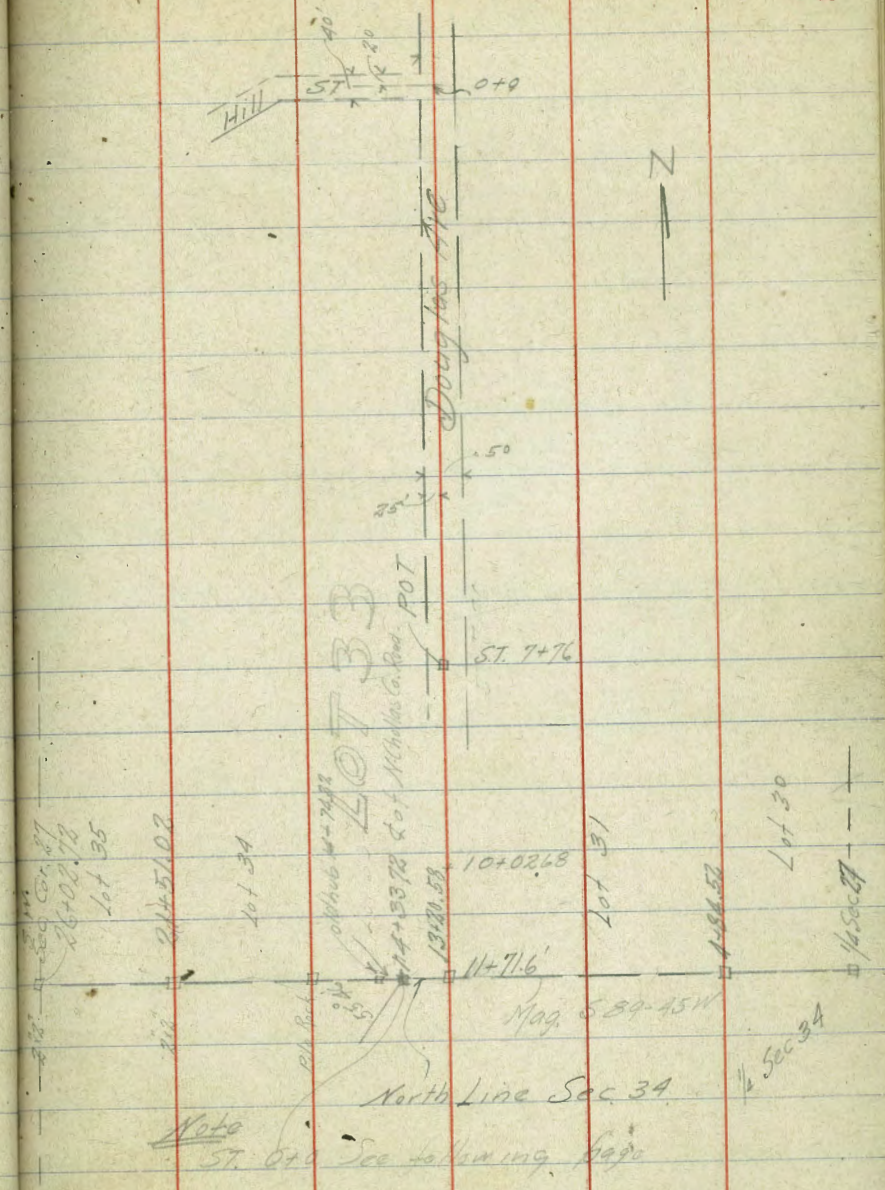
Solar obser on North line 34

St		Hor	Vert	Time	Mag Bar
△ St Lot D	Sec Cor 34			2°35'50"	N 75-05 E
	Erect				
	Sun ☼	131°13'30"	31°44' ✓		
		"	✓		
	☼	263°19'00"	27-44-30	2-39-45	Use

Feb 2, 1915

Ford transit
Leckey recorder
Hyatt chainman
Graf "




Hill
ST
0+0
N
Douglas Ave
.50
25'
POT
LOT 33
ST. 7+76
10+02.68
11+71.6'
Lot 35
Lot 34
Lot 31
Lot 30
Mag. S 89-45W
North Line Sec 34
1/4 Sec 34
Note
ST. 0+0 See following page

ENGINEERS DRIVE

Feb 1, 1916
Ford — Transit
Leckey — Recorder
Hyatt — Chainman
Graf — Flagman

0+0 See Preceeding Page — Center Line of N. Chollas Road and S. Line Lemon Villa

2+03.44 P.C. 2+09.15 ch=7.35 d=2°-13' 2+50 ch=51.09 d=17°-49'

Δ Left 71°-49' S.T. 55.06 R=75' Length 94.01

18°-07' ch=57.08
2+97.45 P.T.

3+84.25 P.C. 4+00 ch=16.75 d=1°-30' 4+50 ch=53.18 d=6°-16'

Δ Left 37°-34' S.T. 102.03 R=300 Length 196.70

2°-59' ch=32.93
5+80.95 P.T. 5+00 ch=53.18 d=11°-02' 5+50 ch=53.18 d=15°-48'

6+09.15 = 0+00 of Jan 5, 1916 Page 34 — Redwood Ave

Profile Engineers Drive

Ford ⊼
Hyatt Rod
Leakey Rec.
Graf Tapeworm

Feb 4, 16

	+	H.I	—	El			Lt	℄	Rt	
							20'		20'	
				265.22	Pole #7425					
B.M	1.43	266.65			Spike in pole	Page 61				
T.P			12.20	254.45						
	1.42	255.87								
T.P			13.01	242.86						
	2.38	245.24								
							4.5	6.1	4.9	
0+0							240.7	239.1	240.3	
							6.3	7.4	6.4	
1+00							238.9	237.8	238.6	
								8.4		
1+35								236.8		Edge of Creek
								10.3		
1+40								234.9		
							6.6	8.1	9.9	
2+03.44 PC							238.6	237.1	235.3	
							4.8	4.9	5.7	
2+50.44 MC							240.4	240.3	239.5	
			1.26	243.98						
	12.40	256.38								
							12.2	12.8	9.9	
2+97.45 PT							244.2	243.6	246.5	
							10.0	9.0	3.7	
3+84+25 PC							246.4	247.4	252.7	
							8.0	5.8	1.5	
4+82.60 MC							248.4	250.6	254.9	
T.P			1.76	254.62		P.I. South of 4+82.60				

	+	H.I.	−	El	
					P1
				254.62	
	11.72	266.34			
5+15					
5+60					
5+80.95					
5+95					℄ old Road
6+09.15 + 0.60 of Parrots Line in pole # 7425					
B.M			1.12	265.22	
0+17					
0+73					
1+00					
1+22					
T.P			1.51	264.83	
	13.02	277.85			
1+50					
2+00					
2+42					
3+00					
3+50					

	20 L	℄	20 R
		11.1	
		255.2	
		9.4	
		257.0	
		11.3	
	251.9	255.0	257.0
		12.2	
		254.1	
		9.90	
	251.0	256.44	255.2
		9.6	
		256.7	
		4.6	
		261.7	
		2.8	
	259.3	263.5	266.9
		0.6	
		265.7	
		10.2	
		267.7	
		15.0	
	257.3	262.9	273.6
		14.2	
		263.7	
		7.3	
	265.2	270.6	278.6
		5.4	
		272.5	

Contin.

	+	H.I.	−	Elev.
4+00				
4+09.32				
Hub at T.P. St 4+09.32			2.44	275.41
	11.78	287.19		
4+78.39				
5+17.46 P.T.				
6+00				
T.P.			0.67	286.52
	11.58	298.10		
6+50				
7+00.93 P.C.				
7+33				
7+40				
7+45				
7+67				
7+82.32 M.C.				
8+63.71 P.T.				
T.P. at St 8+63.71			0.83	297.27
	12.16	309.43		

	70 L	C	80 R	G
		2.6		
	271.0	275.3	280.2	
		2.4		
		275.5		
		7.9		
	278.7	279.3	283.7	
		5.2		
	278.2	282.0	286.3	
		2.8		
	279.9	284.4	289.0	
		10.2		
		287.9		
		5.8		
	285.8	289.3	292.1	
		12.6		
		285.5		
		15.4		
	281.0	282.7	285.1	
		11.0		
		287.1		
		6.2		
		291.9		
		5.5		
	289.7	292.6	293.7	
		0.8		
	294.1	297.3	299.9	

Cont.	+	H.I.	—	El		20' Lt	℄	20' Rt
		309.43						
							10.5	
9+00						295.4	298.9	302.7
							6.8	
9+61.6						297.8	302.6	306.7
							5.1	
10+06.39						299.2	304.3	309.9
							2.7	
10+51.18 PRC						301.0	306.7	312.1
							1.5	
10+67							307.9	
T.P. Manhole/Lane			0.51	308.92				
	12.25	321.17						
							11.1	
11+25.76						303.9	310.1	315.5
							6.7	
12+00.35						308.3	314.5	320.7
							4.3	
12+50.57						310.7	316.9	322.5
							2.2	
12+78							319.0	
							1.5	
13+00.51						314.0	319.7	324.7
T.P			1.90	319.27				
	12.09	331.36						
							9.6	
13+16							321.8	
							8.9	
13+50.45 PT						318.2	322.5	327.2
							7.2	
13+75							324.2	
							7.0	
14+00						319.5	324.4	328.2
							7.4	
14+31							324.0	

	+	H.I.	−	Elev	20' Lt	℄	20' Rt
						5.0	
14+47						326.4	
						5.1	
14+57.52 PC					323.0	326.3	329.6
						4.0	
14+95.45					324.1	327.4	331.2
						4.6	
15+12						326.8	
						3.4	
15+33.28 PC					323.6	328.0	332.4
						0.3	
16+00					326.8	331.1	335.8
						1.4	
16+85.33					324.0	330.0	334.0
T.P.			0.09	331.27			
	11.50	342.77					
						8.2	
16+33						334.6	
						8.4	
16+49.51 PC					329.1	334.4	339.0
						9.6	
17+21.05					327.0	333.2	339.2
						9.5	
17+46						333.3	
						10.0	
17+59.95 PC					326.8	332.8	337.8
						10.7	
18+23.63					327.6	332.1	336.3
						10.0	
18+43						332.8	
						10.5	
18+87.3 PC					328.6	332.3	337.3
						8.3	
19+33.56					329.4	334.5	339.3
						6.0	
19+59						336.8	

	+	HI	−	EI
19+79.83 PC		342.77		
20+27				
20+57				
20+74.18 PCC				
T.P.				
20+74.18 PCC			1.96	340.81
	1274	353.55		
20+91				
21+14				
21+38.76				
21+75				
22+03.36				
22+09.83 PC				
22+66.47				
22+85				
24+16.31				
T.P.				
24+16.31 PC			0.26	353.29
	624	359.53		
23+23.12				
23+52.36				

20 Lt	℄	20 Rt
	6.4	
331.5	336.7	341.4
	3.2	
333.3	339.8	346.0
	3.8	
	339.0	
	1.9	
333.7	340.9	348.5
	11.98	
	341.5	
	12.8	
	340.8	
	10.2	
335.7	343.4	351.5
	7.7	
	345.9	
	6.1	
339.3	347.5	355.9
	5.9	
339.3	347.7	355.9
	2.4	
343.5	351.8	359.0
	1.5	
	353.1	
	0.26	
345.7	353.3	361.8
	7.7	
343.0	351.8	359.5
	11.3	
340.8	348.2	350.8

	+	H.I.	−	Elev	
23+55					
23+81.61 PT					
23+98					
24+69.43					
25+22.54 PCC					
T.P 25+22.54 PCC			2.97	356.56	
	12.65	369.21			
25+85.47					
26+48.41					
27+00					
27+34.48 PC					
27+76.93 MC					
28+19.37 PT					
T.P 28+19.37			0.33	368.88	
	11.02	379.91			
28+64					
28+95.58 PC					
29+60.75					
30+25.83 POC					

	H	℄	RL
		12.8	
		346.7	
		7.5	
	344.4	357.0	359.6
		5.6	
		353.9	
		4.0	
	348.4	355.5	362.6
		2.97	
	349.5	356.0	363.2
		7.6	
	353.6	361.6	369.0
		5.9	
	355.3	363.3	370.9
		5.3	
	355.3	363.9	371.1
		3.2	
	358.2	366.0	372.8
		7.8	
	359.1	361.4	364.7
		0.33	
	360.5	368.9	376.2
		9.0	
		370.9	
		9.0	
	363.0	370.9	376.2
		6.6	
	368.5	373.3	379.3
		4.6	
	368.5	375.3	382.1

	+	H.I	−	Elev.	20' Lt	℄	20' Rt
						41	
30+69.44					369.2	375.8	382.0
						40	
31+13.05 PT					370.1	375.9	382.5
						405	
31+25.80 PC					369.6	375.8	382.6
T.P.							
31+25.80			405	375.86			
	13.08	388.94					
						124	
31+70.64					370.1	376.5	383.1
						103	
32+16.08					371.1	378.6	386.3
						87	
32+79.15					375.8	380.2	387.6
						54	
33+42.31 PCC					377.3	383.5	391.4
P.T.							
P.T. opp St 33+87.98			667	382.27			
	11.97	394.24					
						1100	
33+87.98					375.5	383.2	390.9
						107	
34+33.75					375.7	383.5	390.3
						81	
34+85.97					379.7	386.1	394.4
						56	
35+38.18					383.2	388.6	396.1
						62	
35+90.39					380.9	388.0	394.2
						73	
36+42.60 P.T.					379.8	386.9	393.8
						62	
37+00					384.7	388.0	391.0
						52	
37+56.63 PC					386.7	389.0	391.4

Station	+	H.I.	−	Elev.
38+09.08				
39+00				
40+02.51 PC				
T.P. 40+02.51 PC			0.25	393.99
	11.30	405.29		
40+61.06				
41+19.61 POC				
41+61.48				
42+03.34 PT				
43+00				
43+37.35 PC				
43+82.01				
T.P.			0.95	404.34
	11.63	415.97		
44+30.67				
44+81.27				
45+41.21				
46+01.15				
46+32.36 PC				

20' Lt	℄	20' Rt
	5.2	
38.7.2	389.0	392.1
	3.8	
388.1	390.4	392.7
	0.25	
391.0	394.0	396.6
16.8	13.6	9.9
388.5	391.7	395.4
14.5	12.2	9.0
390.8	393.1	396.3
12.8	9.0	6.1
392.5	396.3	399.2
9.9	7.7	5.2
395.4	397.6	400.1
7.7	4.2	
397.6	401.1	404.6
6.1	3.2	
399.2	402.1	407.0
6.0	0.1	
399.3	405.2	408.8
15.5	10.3	5.8
405.5	405.7	410.2
11.2	7.6	3.8
408.8	408.4	412.2
9.6	6.7	4.2
406.4	409.3	411.8
10.0	4.0	0.0
406.0	412.5	416.0
8.8	3.5	
407.2	412.5	417.3

	+	H.I.	−	El	20' ℄	℄	20' ℞
T.P							
PI opp 46+94.56			2.77	413.20			
	12.38	425.58					
					12.0	8.8	6.3
46+94.56					413.6	416.8	419.3
					11.0	8.5	6.0
47+56.71 PT					414.6	417.1	419.6
					10.0	7.2	4.7
47+99.50 PC					415.6	418.4	420.9
					6.0	4.0	2.0
48+72.93					419.6	421.6	423.6
T.P.			0.66	424.92			
	12.25	437.17					
					10.7	8.8	8.9
49+46.37 PT					426.5	428.4	428.3
					9.7	8.8	9.1
49+64.					427.5	428.4	428.1
					5.4	6.1	4.3
50+00					431.8	431.1	432.9
T.P.			0.51	436.66			
	12.20	448.86					
					12.2	10.9	10.7
51+00					436.7	438.0	438.2
						7.4	
51+28						441.5	
						6.1	
51+70						442.8	
					4.0	2.0	2.1
52+00					444.9	446.9	446.8
						2.2	
52+25						446.7	

Feb 4, 1916
Ford - π
Hyatt = Rod
Leckey - Rec.
Graf - Tape.

T.P.			1.85	447.01							
	9.64	456.65									
								4.8			
52+74								451.9			
							54-	4.8		4.9	
53+00							451.3	451.9		451.8	
							1.8	3.7		2.7	
53+32.77							454.9	453.0		454.0	
B.M.			5.43	451.22	2" Pipe at Cor. of fence on east Line of 34 Mark SE Cor. N½ NE¼						

Wm J Leakey
E P Ford

Solar Obser. Feb. 14, 1916

Hor	Vert	Time	Mag.
136-40	32-24-30	9-38	N15° 40W
42-27-30	33-00-30	9-48	

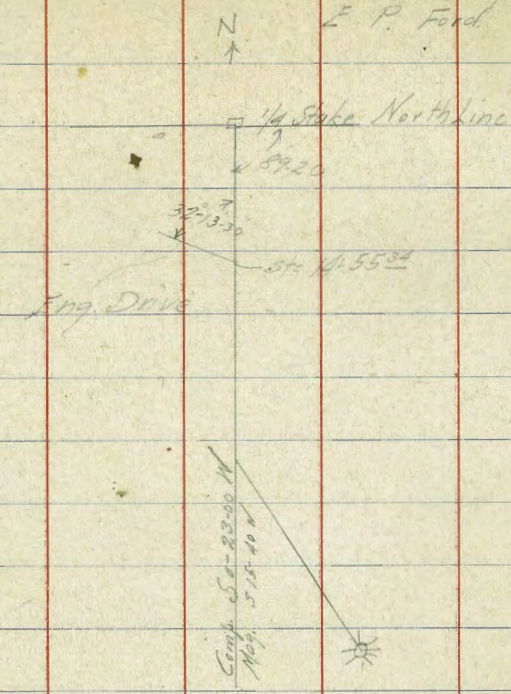
Lat 32-44-30
Long. 117-04-00

Computed Bearing of Line S-0-23-00 W

Inter. of Eng. Drive

Inter. Eng. Drive at St. 14+55 34
angle of 32° 13-30" from N 1/4 line

Angle at N 1/4 and St 14+55 34
89° 20' Rigth See Sketch



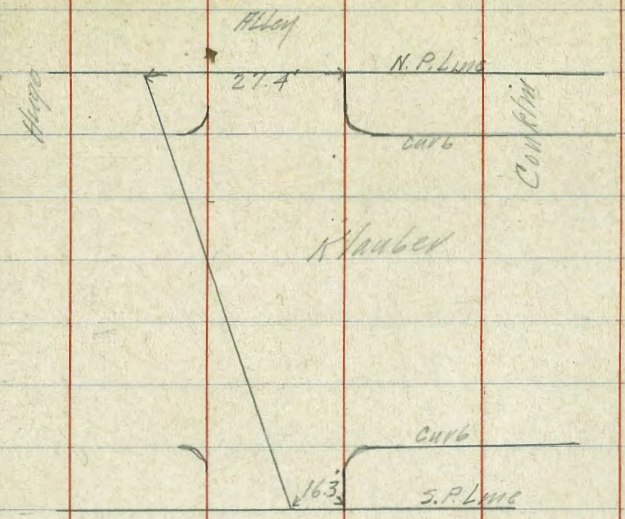
Culvert across Winona
S of Orange

Sta	+	HI	—	Elev	
	4.45				Bot Pipe Orange NW End Pipe 2'
			5.04		
			5.79		

Ford Hyatt Mar 30-16

3" Pipe Across Klauber

Sta	+	HI	−	Elev	Rod Grade
B.M.					8.2
Water	1.63		6.7		+1.5
					8.4
0+10			4.5		+3.9
					8.6
+20			5.1		+3.5
					9.0
+40			5.1		+3.9
					9.4
+60			5.7		+3.7
					9.8
+80			6.0		+3.8
Bottom Ditch					10.0
+90			9.8		



Grades for Wireless Road
Copied from profile

Sta.	Left	℄	Right
Section II			
0+00 = 6+09.15		256.0	
		4.69%	
13+50.46		322.0	
		3.80%	
16+40		333.0	
		1.74%	
21+00		341.0	
		4%	
27+00		365.0	
		2.74%	
35+40		388.0	
		1.03%	
41+20		394.0	
		3.75%	
48+40		421.0	
		6.49%	
53+32.77		453.0	
Section I			
2+09.15		238 Temporary grade	
6+09.15 = 0+00 Section II		256.0	

Slope + Stakes on Ever

Ford - Hyatt Yeomans
Oct 27 - 1916 -

Sta	+	H.I.	-	Elev	Grade				Right	out from 10' line
B.M.				265.25		Spike in Pile # 7425				
0+00	5.29	270.54	14.54		256.00	Nov 1			+07 / 1' out	Nov 1 / +4.0
TP			0.72	269.82		0.0			+6.1 / 9.2	
1			9.65		260.89	+0.8				
2	11.40	281.22	15.44		265.78				+13.8 / 20.7	GR -
3				275.41	270.67				+9.5 / 14.2	
4	10.96	286.37		10.80	275.56				+3.2 / 4.8	
				275.41		4+09	℄			
4+50	12.65	288.06	10.1		278.00				+4.2 / 6.3	
5			7.61		280.45				+2.9 / 4.4	
+47.46			5.17		282.89				+2.0 / 3.0	
TP			15.2	286.54						
6	12.59	299.13	13.8		285.34				+2.4 / 3.6	
+50			11.3		287.78				+2.8 / 4.2	
7			8.90		290.23				+1.2 / 1.8	
+50	18" culvert	60'	6.46		292.67	F 14' ±			-6.7 / 10'	
8			3.90		295.23				-0.9 / 1.3	
8+63.71			1.80	297.33		SB 297.27				
"	7.38	304.65	6.1		298.5				+0.6 / 0.6 out	

265.25
4.44
269.69
Nov 1 260.89
8.8 +
1+50 GR = 5.3

	Grades				Grade
8+00					295.12
9+00					300.01
9+61.60					303.02
10+00					304.90
10+51.18					307.40
11+00					309.79
11+50					312.23
12+00.35					314.70
12+50.57					317.16
13+00					319.57
13+50.46					322.0
14+00					323.88
14+57.62					326.07
15+00					327.68
15+33.28					328.94
16+00					331.48
16+40					333.00

Oct 31 - 1916
Ford - Hyatt Brown
℄ Slope 1:1 Right

Sta	+	Slope Stakes H+	Grade Rod —	Elev	Grade					
BM				297.27		8+63.71 ℄				
9	12.57	309.84	9.8		300.				+1.0	
+61.6			6.8		303.02				+2.6	
T.P.	~~2.04~~	~~2 23~~	2.04	307.80					/	
10:00	13.00	320.80	15.9	∓	304.90				+2.9	
10+57.18			13.4		307.4				+3.2	
11			11.0		309.79				+4.0	
+50			8.6		312.23				+4.0	
			0.80	320.00	~~320.00~~				~~+4.9~~	
12+00.35	12.73	332.73	18.0		314.7				+4.9	
12+50.57			15.57		317.16				+4.0	
13+00			13.1		319.57				+3.9	
+50.46			10.7		322.0				+4.0	
14+00			8.85		323.88				+3.3	
14+57.62			6.66		326.07				+2.2	
TP on 11 PL Right			2.80	329.93						
15+00	11.74	341.67	14.0		327.68				+1.5	
+33.28			12.7		328.94				+1.3	
16+00			10.2		331.48				+2.4	

Graf
Hyatt
Jan. 12, 1916

Levels from 19+50 Univ. Extension to 0+00 Engineers D.

Sta	+	H.I.	−	Elev.	
B.M.				310.41	Spike in fence post Sta. 19+50+01 – Univ. Extension
T.P. on Rock	12.47	322.88	1.41	321.47	
T.P. on Rock	11.29	332.76	10.54	322.22	
B.M.	3.37	325.59	7.08	S.B. 318.48 (318.51)	Spike in power pole N.W. University & Douglas Aves.
T.P. on Tree stump	0.06	318.54	12.32	306.22	
T.P. on Rock	0.92	307.14	12.28	294.26	
T.P. on Rock	0.78	295.04	11.32	283.72	
T.P. on Rock	1.22	285.04	12.67	272.37	
T.P. on Rock	0.14	272.51	12.85	259.66	
T.P. on Rock	0.34	260.00	12.40	247.60	
T.P. on Rock	0.48	248.08	9.56	238.52	
T.P. on Rock	9.73	248.25	1.81	246.44	
Engineers Drive 0+00 T.P.	11.40	258.34	1.95	256.39	
B.M.	10.43	267.12	1.90	265.22	Spike in pole #7425 70'± S.W. of 0+00 Engineers Drive.

Oct 31 –
41 Hyatt Brown

Sta	+	HI	–	Elev	Grade				℄ Right Slope 1:1	
16+40		341.67			333.00					
16+49.61			8.50		333.17				+4.8	
16+67.47			8.2		333.46				+2.0	
16+85.33			7.9			–10' / 15'	38'-18" D.S.		+1.4 / 2.0	
17+03.19			7.6						+3.0	
Sta 17+21.05 TPm ℄ L.R.			2.16	339.51						
17+21.05	9.04	Nov 3 34855	14.1		334.41				+3.0	
+59.95			13.5		35.09				+1.0	
18			12.8		35.79					
+50			11.9		36.66					
+87.30			11.24		37.31					
19			11.02		37.53					
+50			10.15		38.40					
+79.83			9.62		38.93				+1.0	
T.P.			1.96	346.59						
20	8.37	354.96	15.69		339.27				+2.7	
+50			14.8		40.14				+8.2	
+74.18			14.41		40.55				+7.9	
				340.78						

Grade –

16+40			333.00	
17+21.05			334.41	
17+59.95			335.09	
18			335.79	
+50			336.66	
+87.30			337.31	
19			337.53	
+50			338.40	
+79.83			338.93	
20			339.27	
+50		1.74	340.14	
+74.18			340.55	
21			341.00	
+50			343.00	
22+03.30			345.13	
+50			347.00	
23		4.16	349.00	
+23.12			349.42	
+37.74		50 x .7	350.51	

Grades

23+52.37				351.1
+66.99		R=30		351.8
+81.61	PT			352.26
24+16.31				353.65
24+50				355.00
25+00				357.00
25+22.54				357.90
25+50				359.00
26+00				361.00
26+48.41				362.94
27+00				365.00
27+34.48				365.94
27+55.70				366.52
27+76.93				367.10
27+98.15				367.68
28+19.37				368.26
28+95.68				370.35
29+50				371.85
30+00				373.22

Grades

	Grade
30+50	374.59
31+00	375.96
31+13.05	376.32
31+25.20	376.65
31+50	377.33
32+00	378.70
32+50	380.07
33+00	381.44
33+42.21	382.60
34+00	384.18
34+33.75	385.10
34+50	385.54
35+00	386.91
35+50	388.10
36+00	388.62
36+42.60	389.06
37+00	389.65
37+56.6	390.23
38+09.08	390.67
39+00	391.71

	Grade
40+02.51 PC	392.77
40+50	393.26
41+00	393.77
41+19.61	394.00

Sta	Grade	Sta	Grade
41+50	395.12	47+00	415.74
42+03.34	397.12	47+56.77	417.87
42+50	398.87	47+99.50	419.47
43+00	400.75	48+50	421.65
43+37.35	402.14	49+00	424.89
43+50	402.62	49+46.37	427.90
44+00	404.49	50+00	431.38
44+30.67	405.64	50+50	434.62
44+81.27	407.54	51+00	437.87
45+00	408.24	51+50	441.11
45+50	410.11	52+00	444.36
46+01.15	412.03	52+50	447.60
46+32.36	413.20	53+00	450.85
46+50	413.86	53+32.77	453.00

Sta	+	H1 Page 62	–	Elev	Grade					
21		354.96	13.96		341.00				+8.2	
+50			11.96		343.00				+10.9	
TP on 21+50-10.9 out			1.04	353.92					+	
22+03.3	6.94	360.86	15.73		345.13				+12.1	
+50			13.86		347.0				+13.7	
23			11.86		349.0				+9.7	
+23.12			11.0		49.92				+9.8	
+37.74			10.35		50.51				+8.0	
+52.37			9.8		51.1				~~+12.6~~	00-00
+66.99			9.1		51.8				~~00-00~~	+2.6
+81.61			8.6		52.26				+7.0	
TP on 81.61	PL - 20' R of ℄		0.38	360.48						
24+16.31 ℄	check	BM	7.53	353.33	S.B. 353.29					
T.P.			9.62	351.24	/					
+52.37 Left	0.50	351.74	0.6		351.1		42' -	16"	D.S. Culvert	
				360.48						
24+16.31	10.15	370.59	16.94		53.65				+7.0	
+50			15.6		35.50				+9.0	
25			13.6		35.70				+2.3	

Slope Stakes Engr Drive

Nov 6 - 1916
48 - Hyatt - Brown -

Sta	+	HI	−	Elev	Grades					
25+22.54		370.59	12.7		357.90				+3.6	
+50			11.6		359.0				+7.0	
26			9.6		361.0					
T.P.			4.14	366.45						
26	10.17	376.62	15.6	15.6	361.0				+7.6	
+48.41			13.7		362.94				+7.7	
27			11.6		365.0				+3.3	
+34.48			10.7		365.94				+7.0	
+55.70			10.1		366.52				+2.1	
+76.93			9.52		367.10	−8.5 / 12.8	38'-16" DS.		−3.1 / 4.6	
New BM			9.52	367.10		on stake bottom Draw			33.5' S of ℄	
27+98.15			9.0		367.68				+1.8	
28+19.37			8.36		368.26				+7.2	
28+19.37 ℄ Check BM			7.80	368.80	SB 36888				+8.6	
28+95.68			6.27		371.35					
T.P.			3.33	373.29						
28+95.68	12.20	+0.08 38557	15.22		371.35				+5.0	
29+50			13.72		371.85				+5.0	
30+00			12.35		373.22				+8.6	

Sta	+	HI	−	Elev	Grade
30+50		385.57	11.0		374.59
31			9.6		375.96
+13.05			9.2		76.32
+25.20			8.9		76.65
31+25.80 ℄ Ck BM			9.1	375.86	SB 375.86
TP			2.76	382.81	
31+25.80	11.08	393.89	17.24		376.65
+50			16.56		77.33
32			15.2		78.70
+50			13.8		80.07
33			12.4		81.44
+42.21			11.3		82.6
20' R on 33+42.21			1.96	391.93	
34	9.94	401.87	17.7		384.18
+33.75			16.8		385.10
+50			16.3		85.54
35			15.0		86.91
+50			13.8		88.10
36			13.2		88.62

			+7.0		
			+5.8		
			+4.6		
			+3.6		
			+1.6		
			+5.6		
			+5.0		
			+7.0		
			+9.3		
			+9.3		
			+3.0		
			+3.7		
			+9.2		
			+5.4		
			+2.4		

Sta	+	HI	Grade Rod −	Elev	Grade	℄ Right
36+42.60		401.87	12.8	389.06		+2.5
37			12.2	389.65		00
+56.6			11.64	390.23		00
20' Rot ℄ +56.63 T.P.			10.25	391.62		
38+09.08	10.65	402.27	11.60	390.67		00
39			10.6	391.71		00
40+02.51			✓ 9.5	392.77		+3.3
+50			9.0	9326		+2.4
41			8.5	93.77		−0.2
+19.61			8.3	394.0		0.0
Check BM 40+02.51			8.29	393.99	513.313.99	

Levels on Engineers Drive
From Sta 41+19.61 to 53+32

Nov 9.16 Hyatt W. Brown.

Sta	+	H.I.	−	Elev.	Grade	
B.M. 40+02.51				393.99		Old B.M. on P.C. ℄
41+19.61	10.16	404.15	7.5	396.6	394.0	+2.6
41+50			6.6	397.5	395.12	+2.4
42+03.34			3.8	400.3	397.12	+3.2
42+50			1.8	402.3	398.87	+3.4
T.P. Rock			0.63	403.52		
43+00	11.28	414.80	10.0	404.8	400.75	+4.0
43+37.35	P.C.		7.3	407.5	402.14	+5.4
43+50			6.8	408.0	402.62	+5.4
44+00			4.2	410.6	404.49	+6.1
44+30.67	P.T.		4.4	410.4	405.64	+4.8
44+81.27			2.4	412.4	407.54	+4.9
45+00			1.5	413.3	408.24	+5.1
45+50			2.8	412.0	410.11	+1.9
T.P. Rock			0.64	414.16		
P.T. 46+01.15	13.00	427.16	11.0	416.2	412.03	+4.2
46+32.36			9.7	417.5	413.2	+4.3
46+50			9.6	417.6	413.86	+3.7
47+00			7.8	419.4	415.74	+3.7

Sta	+	H.I.	−	Elev		
47+56.77		427.16	7.5	419.7	417.87	+1.8
47+99.50			6.0	421.2	419.47	+1.7
48+50			5.4	421.8	421.65	+0.2
49+00			3.0	424.2	424.89	−0.7
T.P. Rock			0.52	426.64		
P.T. 49+46.37	12.78	439.42	11.1	428.3	427.9	+0.4
50+00			6.5	432.9	431.4	+1.5
50+50			3.8	435.6	434.6	+1.0
T.P. 51+00			1.26	438.16	437.9	+0.3 2x2 pine Stake.
51+50	12.47	450.63	8.4	442.2	441.1	+1.1
52+00			3.7	446.9	444.4	+2.5
T.P. Rock			0.25	450.38		
52+50	9.73	460.11	8.9	451.2	447.6	+3.6
53+00			8.1	452.0	450.8	+1.2
53+32.77			4.6	455.5	453.0	+2.5
B.M.			8.32	451.29	S.B. 451.22	

Grades for section I
Engineer's Drive

Figured by G.F.H.
Nov 24, 1916.

	℄
2+09.15	238.0
2+50	239.84
2+97.45	241.98
3+50	244.34
3+84.25	245.88
4+00	246.59
4+50	248.84
5+00	251.09
5+50	253.34
5+80.95	254.73
6+09.15	256.0

Cut + Fill Stakes Section I

Sta.	Engineers +	H.I.	Drive −	Elev	Grade	
T.P.				254.62		P.I. South of 4+82.6
2+50	0.57	255.19	15.5	239.7	239.84	−0.1
2+97.45			7.5	247.7	241.98	+5.7
3+50			5.3	249.9	244.34	+5.6
3+84.25 T.R			2.4	252.8	245.88	+6.9
4+50			1.13	254.06	248.84	+5.3
4+00	9.44	263.50	10.5	253.0	246.59	+6.4
5+00			7.2	256.3	251.09	+5.2
5+50			5.7	257.8	253.34	+4.5
5+80.95 T.P.			6.5	257.0	254.73 S.B.	+2.3
6+09.15			7.09	256.41	256.39	

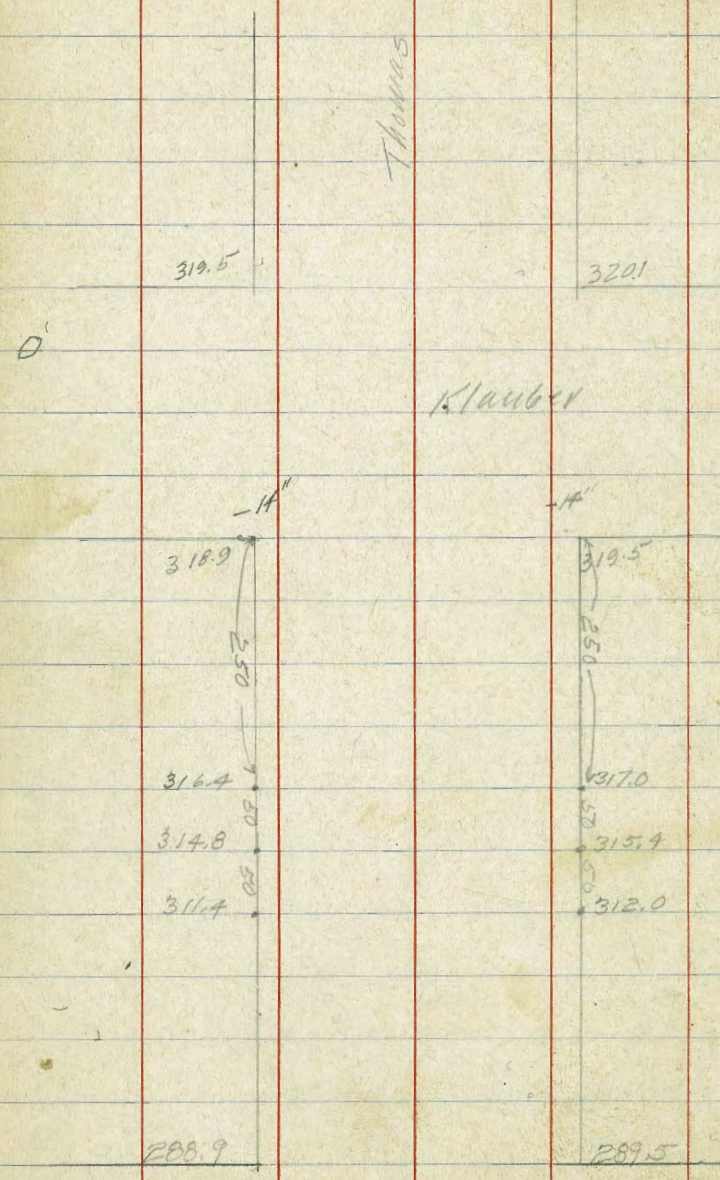
Bench Marks Engineers Drive

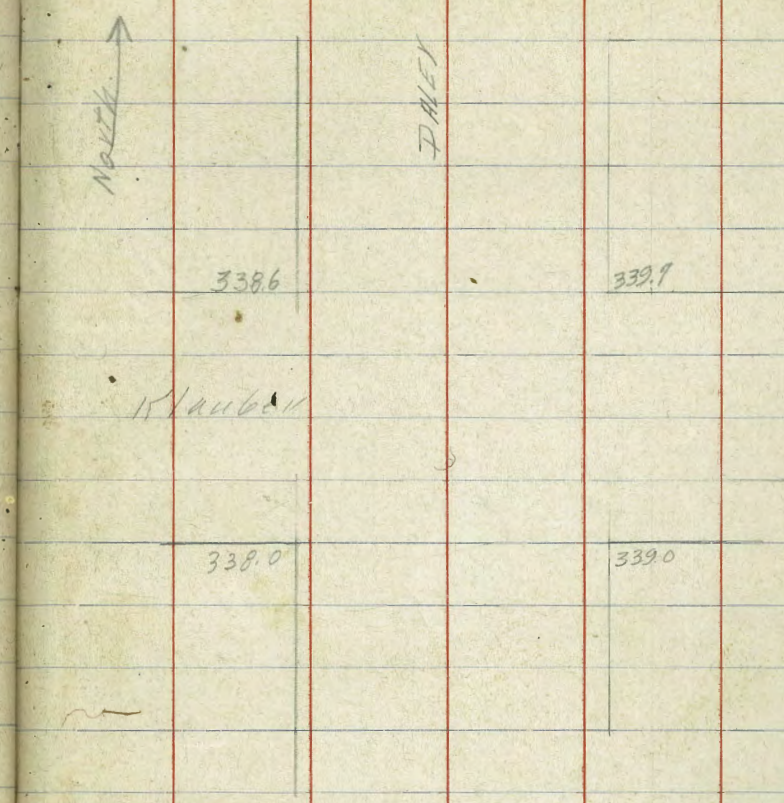
	+	H.I.	−	Elev	
B.M.				265.22	Bolt head in pole # 7425
T.P.	9.50	274.72	0.80	273.92	Peg.
B.M.	11.95	285.87	1.63	284.24	Iron pipe 30' Right ℄ Sta. 4+09.32 P.C.

Levelson Series From Filter Plant for Flushing Filter

Ellis
Walker
Preston

	+	π	−		Elev	
54a						
	6.34				359.10	BM. NWC Pauly + Univer. Ave
		365.44	5.50			
T.P.	3.71				359.94	
		363.65	3.76			T.P. SWC. Romo + Pauly Ave
T.P.	3.50				359.89	
		363.39	.676			
T.P.	8.88				357.63	
		365.51				
			6.26		359.25	Elev. of Pipe ℄ of El Cajon at 45° Bend.
			5.40		360.11	" " " at Curb line
			3.66		361.85	" " " at Bldg. line
			2.86		362.65	" " " at End of Sewer pipe at Filter Plant.
						3.75% Grade From 45° Bend. to M.H.
						293' East of Bend.
	7.04					


Thomas
319.5
320.1
0'
Klauber
-14"
-14"
318.9
319.5
250
250
316.4
317.0
50
50
314.8
315.4
50
50
311.4
312.0
288.9
289.5


North
DALEY
338.6
339.9
Klauber
338.0
339.0

ENGINEERING DEPARTMENT,
CITY OF EAST SAN DIEGO,
CALIFORNIA.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES 1½ TO 1.

FOR SINGLE TRACK EMBANKMENT.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

MADE IN GERMANY.