

Grade

145

DIET

FIELD BOOK

No. 388

5.48
67
4.81

1693
1660
3.3

0.27
3.3
24
90

124
14
3.3
2.8
50

480

0.27
348
54
12279
68
85
84

16868
68
16730
68
16804

37
3
111

16764
82
16846
82
16928

81
8
3.00
2.00
0.00

16389
74
16375
1.1
16214

1.15
1.11
16389

461
67.011

4.76 418.14 270.47 5034

46814
20
11350
601.70
595.45
6.25

496
506
516
458
468
478

462
3
1

0.00
5.84
22
6.2

Our Leather Bound Engineers Note Books are carried in the following rulings:

No. 380 LEVEL BOOK. Left and Right Hand Page the same as Left Hand Page of this Book.

No. 382 FIELD BOOK. Left Hand Page as in this Book, Right Hand Page 4 x 4 to the inch, Center Line Red.

No. 384 MINING TRANSIT BOOK. Left Hand Page as in this Book, Right Hand Page 8x8 to the inch, Center Line Red.

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DIETERICH-POST CO.

75 NEW MONTGOMERY ST.
SAN FRANCISCO, CALIF.

AGENTS FOR

"BERGER" TRANSITS and LEVELS

"GURLEY" SURVEYING and HYDRAULIC INSTRUMENTS

"CHICAGO" STEEL TAPES, etc.

MICROFILMED

APR 8 1965

$$\begin{array}{r} 9.99 \\ \underline{2.71} \\ 7.28 \\ \underline{6.40} \\ 13.68 \\ \underline{6.84} \end{array}$$

$$\begin{array}{r} 9.99 \\ \underline{3.59} \\ 6.40 \\ 9.99 \\ \underline{7.17} \\ 2.82 \end{array} \quad \begin{array}{r} 9.99 \\ \underline{3.59} \\ 6.40 \\ 6.84 \\ \underline{33} \\ 7.17 \end{array}$$

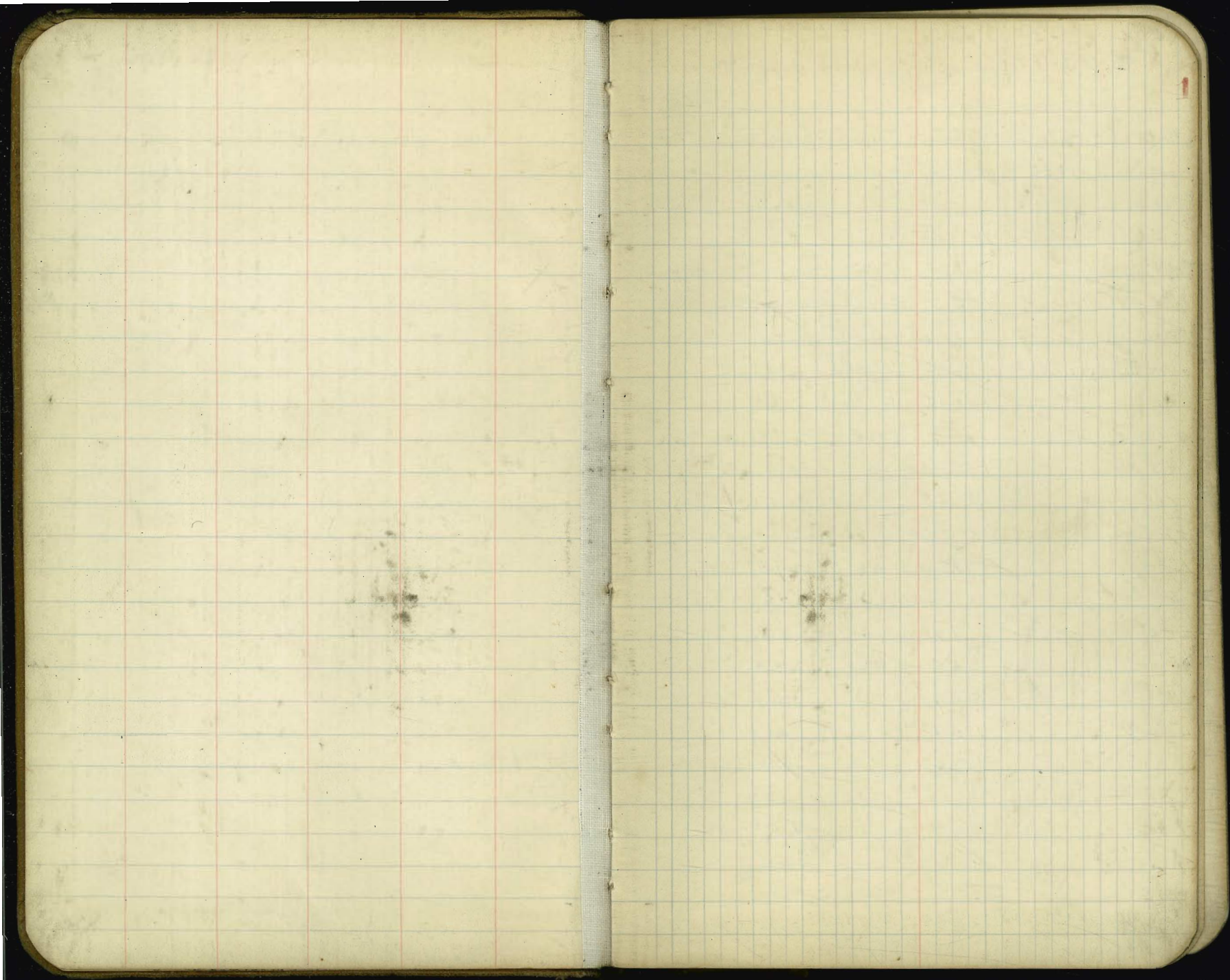
$$\begin{array}{r} 19.99 \\ \underline{8.02} \\ 1.97 \\ \underline{1.01} \\ 2.98 \\ \underline{1.49} \\ 33 \\ \underline{1.82} \end{array}$$

$$\begin{array}{r} 19.99 \\ \underline{8.98} \\ 1.01 \\ 9.99 \\ \underline{1.82} \\ 8.17 \end{array}$$

$$\begin{array}{r} 372.13 \\ \underline{370.48} \\ 1.65 \\ \underline{1.2} \\ 45 \end{array}$$

$$\begin{array}{r} 4.40 \\ \underline{.67} \\ 3.73 \end{array}$$

Indicated by ~~the~~ $\text{\textcircled{R}}$
 $\text{\textcircled{R}}$



10-25-28 Water Grades - Imperial

J.C. Bliss

Drebert Ave - Euclid to 54th

Rauner

B.M. N.W. Pole Bolt 49th & Imperial 14831

+12.43 160.74
T.P. -0.18 160.56
+12.92 173.48

13.19 186.27 ←

Sta	Grade	Cut
ct00 = 28' W of E.L. Euclid	183.2 ✓	2.76
0+50	181.5 ✓	2.23
1+00	179.7 ✓	2.67
1+50	177.9 ✓	1.92
2+00	176.1 ✓	2.20
2+47	174.54 ✓	2.30
2+94	172.98 ✓	2.71
3+41	171.42 ✓	2.46
3+88	169.86 ✓	2.52
4+35	168.30 ✓	2.23
4+82	166.74 ✓	2.69
5+29	165.18 ✓	2.70
5+76	163.62 ✓	2.97
6+23	162.26 ✓	2.32
6+70	160.5 ✓	1.53
7+10	159.3 ✓	1.21
7+50	158.5 ✓	1.54
7+90	158.2 ✓	3.90

B.M. S.W. Nails in pole Imperial & Euclid = 4.68 181.59

185.6	186.16	186.16	186.16	186.16
0.56	183.20	181.5	179.7	177.9
186.16	2.76	4.66	6.46	8.26
	0.20	2.43	3.79	6.34
	C 2.76	2.23	2.67	1.92

186.16	186.16	186.16	186.16
176.1	174.54	172.98	171.42
10.06	11.62	13.18	14.74
7.86	9.32	10.41	12.28
C 2.20	2.30	2.77	2.46

T.P. -12.37 173.79

+0.29 T 174.08

174.08	174.08	174.08	174.08	174.08
169.86	168.30	166.74	165.18	163.62
4.22	5.78	7.34	8.90	10.46
1.70	3.55	4.65	6.20	7.47
2.32	2.23	2.69	2.70	2.97

T.P. -12.20 161.88

+6.08 T 167.96

167.96	167.96	167.96	9.76
159.3	158.5	158.2	
8.66	9.46	9.76	
7.45	7.92	5.86	
C 1.21	1.54	3.90	

8+30	158.5		3.71
8+70	159.3	L	3.07
9+17	160.1	V	2.26
9+64	160.9	V	2.15
10+11	161.7	V	1.98
10+58	162.5	V	2.74
11+05	163.2	V	2.56
11+45	163.0	L	3.23
11+85	162.32	V	3.94
12+20	161.65	V	4.34
12+55	160.97	V	3.97
12+90	160.3	V	3.99
13+25	159.75	V	3.39
13+75	159.2	V	3.08
14+25	159.1	V	2.72
14+675	159.0	V	2.84
15+10	158.9	V	2.77
15+525	158.8	V	2.63
15+95	159.0	V	2.34
16+45	159.2	V	2.52
16+95	159.4	V	2.40
17+45	159.6	V	2.44
17+95	160.11	V	2.41
1	160.62	V	2.35
2	161.13	V	2.07

$$\begin{array}{r} 9.46 \\ 6.0 \\ \hline 3.46 \end{array}$$

$$\begin{array}{r} 167.96 \\ \hline 167.96 \end{array}$$

7.46	167.76	167.96	167.96	167.96
5.75	159.3	160.1	160.9	161.7
3.71	8.66	7.86	7.06	6.26
	5.59	5.60	4.91	4.28
	3.07	2.26	2.15	1.98
167.96	167.96	167.96	167.96	167.96
162.5	163.2	163.0	162.32	161.65
5.46	4.76	4.96	5.64	6.31
2.72	2.18	1.23	1.70	1.97
2.74	2.58	3.23	3.94	4.34
T.P				-2.02 165.94

+2.18

$$\begin{array}{r} 168.12 \\ \hline 168.12 \end{array}$$

168.12	168.12	168.12	168.12	168.12
160.97	160.3	159.75	159.2	159.1
7.15	7.82	8.37	8.92	9.02
5.18	3.83	4.98	5.84	6.30
3.97	3.99	3.39	3.08	2.72
168.12	168.12	168.12	168.12	168.12
159.0	158.9	158.8	159.0	159.2
9.12	9.22	9.32	9.12	8.72
6.28	6.45	6.69	6.78	6.40
2.84	2.77	2.93	2.34	2.52
168.12	168.12	168.12	168.12	168.12
159.4	159.6	160.11	160.62	161.13
8.72	8.52	8.01	7.50	7.00
6.32	6.08	5.60	5.15	4.93
2.40	2.44	2.41	2.35	2.07
168.12	168.12			
161.65	161.13			
6.47	7.00			
3.18				
3.29				

3	161.65	✓	2.32
4	162.19	✓	2.07
5	162.7	✓	2.15
2085	162.95	✓	2.27
21433.9	163.2		
21482.8			

16812

16812	16812	16812	16812	16812
<u>161.65</u>	<u>162.19</u>	<u>162.7</u>	<u>162.95</u>	<u>163.2</u>
6.47	5.93	5.42	5.17	4.92
<u>4.15</u>	<u>3.86</u>	<u>3.27</u>	<u>2.90</u>	<u>2.77</u>
2.32	2.07	2.15	2.27	2.27

16812	16812
<u>162.95</u>	<u>163.2</u>
5.17	4.92
<u>2.30</u>	<u>2.12</u>
2.87	2.80

2.90

N	φ	S
5.17	9.99	9.99
<u>2.99</u>	<u>5.67</u>	<u>6.10</u>
5.40	4.32	3.89
<u>4.59</u>		

5.42	5.93	6.47	7.00
<u>2.90</u>	<u>3.27</u>	<u>3.86</u>	<u>4.15</u>
2.52	2.66	2.61	2.85

N/G

N/G

5.58
<u>6.7</u>
4.91

414	440	412	437	4.99	4.99
389	424	459			
<u>35</u>					
4.24	5.87	5.67	5.52		

5.99
6.30
7.9

8+30

158.2

~~1028~~
497
30

10.28
5.33
4.95

8.22
2.06
10.28
5.15
5.13

5.13
5.09
5.05
5.01
4.97

5.12

10.28

5.07
4.87

4.95

10.28
5.24
5.04

16.7.96	9.44	8.66	7.86	7.06	6.26
158.2	5.54	5.60	4.91	4.28	2.72
9.76	3.87	3.06	2.95	2.78	3.54
5.75					
4.01					

5.46	4.76	4.96	5.64
2.18	1.73	1.70	1.97
3.28	3.03	3.26	3.67

16812	16812	16812	16812
16947	160.3	159.75	159.2
7.15	7.82	8.37	8.92
3.83	4.78	5.84	6.30
3.32	2.84	2.53	2.62

16812	16812	16812	16812	16812
1591	1590	1589	1588	1590
9.02	9.12	9.22	9.32	9.12
6.28	6.78	6.69	6.78	6.40
2.94	2.67	2.53	2.54	2.72

16812	16812	16812	16812
1590	1592	1596	160.11
8.92	8.72	8.52	8.01
6.32	6.08	5.60	5.15
2.60	2.54	2.92	2.86

16812	16812	16812	16812
160.62	161.13	161.65	162.19
7.50	7.00	6.47	5.93
4.93	3.18	4.15	3.86
2.57	3.82	2.32	2.07

B.M. S.W. B.P. 47 th + Woodman		116.49
+1.83	118.32	
T.P.		-1.80 110.52
+4.69	115.21	
T.P.		-1.04 114.17
+10.87	125.04	
T.P.		-0.39 124.65
+10.26	134.91	
T.P.		-1.55 133.36
+11.89	145.25	
T.P.		-3.58 141.67
830	149.97	
B.M. N.W. Bottom Bolt 49 th + Imperial	1.60	148.37
		148.31
+9.26	157.63	
		-0.15 157.48
+12.61	170.09	
		-0.04 170.05
+11.23	181.28	
		-0.05 181.23
+7.62	188.85	
B.M. S.W. Nails in Pole Euclid + Imperial	-6.97	181.88
Shot on Existing pavement above existing main	-9.60	179.25

10-29-28

J.C. Bliss

Drebert

Panner

Culvert + Drain Stakes

Alley Block 460 Winders Sub.

Sta.	Grade	Co. F.
N Tpcb	270.67	C1.59
Q Tpcb	270.67	C0.36
S Tpcb	270.67	
Catch Basin		
Grating	269.85	C1.69
Flankline	267.80	C3.74
+30	267.72	C2.17
+60	267.64	C1.47
+90	267.56	C1.45
+120	267.48	C2.30
+150 N.L. Pann.	267.40	F0.24

B.M. 269.38. N.B.P. Sutter + Middletown Line

14.80

274.18

7

274.18	3.51	274.18	274.18	274.18
270.67	3.15	269.85	267.80	267.72
3.51	C0.36	4.38	6.38	6.46
1.92		2.64	2.64	4.29
C1.59		C1.69	3.74	C2.17
274.18	T.P.		-4.58	269.60
267.64				
6.54	+5.54	275.14		
5.07				
C1.47				
275.14	275.14	275.14		
267.56	267.48	267.40	T.P. -5.58	269.80
7.58	7.66	7.74		
6.13	5.36	7.98		
C1.45	C2.30	F0.24	+7.08	276.88
276.88				
270.67				
6.21	T.P.	5.82	271.04	
6.45				
F0.24		+4.87	275.91	
B.M. 269.38. N.B.P. Sutter + Middletown Line		-6.49	269.42	

11-8-28. Stakes for 140' sewer
 J.C. Bliss North of Prospect Place and
 Drebert S.L. #40.

Routier B.M. N.W. B.P. Prospect + College 187.88.

+ 4.29 192.17 ct

F.L.M.H. Prospect + College: 180.4

0+35 180.55 5.97

0+70 180.70 5.06

1+05 180.85 3.17

1+40 Dead End side 181.0 0.94

lateral #40

0+32 181.1 1.25

0+65 181.2 5.85

192.11
 11.75
 180.42

192.17
 180.55
 11.62
 4.65
 6.97

192.17
 180.70
 11.77
 6.41
 5.06

192.17
 180.85
 11.32
 8.15
 3.17

192.17
 181.0
 11.17
 10.23
 0.94

192.17
 181.1
 11.07
 9.82
 1.25

192.17
 181.2
 10.97
 5.12
 5.85

192.17

180.94

18

7.99
 4.40
 3.59

7.99
 4.81
 3.18

5.54
 .57
 4.87

5.48
 5.18
 518

5.48
 4.51

11-19-28 Sewer Grades from Trench
 J.C. Bliss to Angle Pit on College
 Drebert
 Ranner

	Existing M.H. at Angle Point	cut
	115.0	✓
1	117.08	5.97
2	119.64	6.65
3	122.20	6.73
4	124.76	6.56
5	124.76	
6	127.32	6.73
7	129.88	7.21
8	132.44	7.86
M.H. #1	135.00	8.38
1	137.57	8.64
2	140.14	8.79
3	142.71	9.10
4	145.28	9.27
5	147.85	9.39
6	150.42	10.04
7	DMH. 153.0	
	159	

B.M. 115.73 - S.W. 50' Tie College #4194
 13.03
 128.76

9

128.76	128.76	128.76	T.P.	- 0.30	128.46
<u>11.50</u>	<u>117.08</u>	<u>119.64</u>			
13.76	17.68	9.12	+ 13.0	T	141.46
	<u>5.71</u>	<u>2.47</u>			
	65.97	6.65			
141.46	141.46	141.46	141.46		141.46
<u>122.00</u>	<u>124.76</u>	<u>127.32</u>	<u>129.88</u>		<u>132.44</u>
19.26	16.70	14.14	11.58		9.02
<u>12.53</u>	<u>10.14</u>	<u>7.41</u>	<u>4.37</u>		<u>1.15</u>
6.73	6.56	6.73	7.21		7.86
T.P.			- 0.13		141.33

129.88	154.28				
154.28	154.28	154.28	154.28		
<u>135.0</u>	<u>137.57</u>	<u>140.14</u>	<u>142.71</u>		
19.28	16.71	14.14	11.57		
<u>10.70</u>	<u>8.07</u>	<u>5.35</u>	<u>2.47</u>		
8.98	8.64	8.79	9.10		
T.P.			- 0.26		154.02

11.40	165.42				
165.42	165.42	165.42	165.42		
<u>145.28</u>	<u>147.85</u>	<u>150.42</u>	<u>153.0</u>		
20.14	17.57	15.00	12.42		
<u>10.87</u>	<u>8.18</u>	<u>4.96</u>	<u>3.42</u>		
9.27	8.39	10.04	9.00		
16.542					
<u>159.06</u>					
6.42					

B.M. N.W. 100' Tie Trench & College - 11.69 153.73

11-21-28

J.C. Bliss

Drebert

Pawnee

Sewer Lateral Cuts on High

54

Lateral	Grade	Cut
5	136.4	5.6
6	137.4	
7	138.6	6.7
2	113.8	5.0
3	116.1	5.8
4	117.9	5.1

S.M.S. W.B.P. Pearl & High

127.18

12.59

139.77

0.22

139.55

6.06

145.61

10

145.61

138.6

7.01

6.71

145.61

136.4

9.21

5.6

127.18

1.40

128.58

128.58

117.9

10.7

5.6

6.51

128.6

126.1

1.25

6.7

6.58

128.6

113.8

1.48

9.8

5.0

Cb stakes - Rushville Alley-to-Fay

T 136.12

E.L. Alley	N	Rid	5	Pod
	124.5	11.62	123.5	1262
W.L. Eads	130.0	6.12	129.0	7.12
E.L. Eads	131.0	5.12	125.8	4.72
	131.5	5.25	126.25	4.72
			130.7	1300
			542	556
				612
			T	148.17

W.L. Alley N 5

	137.2	137.1
--	-------	-------

E.L. Alley 138.2 138.2

4.20 139.4 139.6

W.L. Fay 148.0 149.0

Fern Glen Returns at Alley

B.M. Nail in Pole Rushville x Alley 123.08

1304 12612

126.12	126.12
N.W. Return 124.0	S.W. Return 124.5
4.12	4.62

126.40	126.40	126.40	2.00	126.40
124.0	123.46	124.5		123.48
2.4	2.94	1.9		2.92

B.M. S.E.B.P. Arenas x Prober

110.30
12.97
123.27

B.M. - 121.48 N.W. 100' Tie Rushville Alley

H. 123.27

T.P. - 0.19 123.08

1304 T 136.12

136.12	136.12	136.12	136.12
124.5	129.0	131.0	131.5
11.62	7.12	5.12	4.62

136.12
130.2
6.92

B.M. S.E. Top Hydrant Eads x Rushville 2.70 133.42

T.P. - 0.91 135.22

+ 12.95 T 148.17

148.17	148.17	148.17	148.17
137.1	138.2	137.2	139.4
11.07	9.97	10.97	8.77

148.17
139.6
8.57

T.P. - 0.94 147.23

16.33 T 153.56

B.M. - in N spike - Fay x Rushville - 3.59 149.97

153.56
149.97
4.59

Returns at Arenas x Alley

B.M. N.W. 100' Tie Rushville x Alley 121.48

+ 4.92 T 126.40

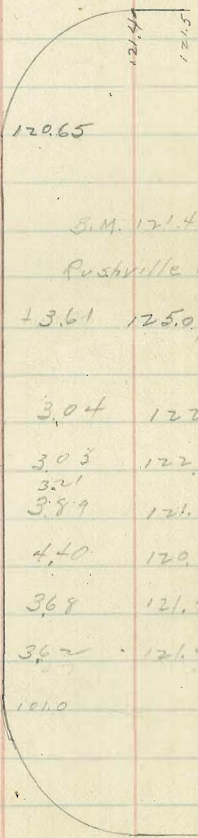
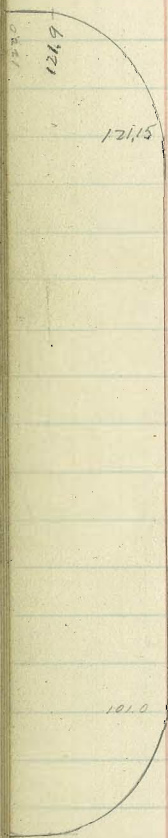
N 5

124.0 - 123.9 - 123.46 124.8 - 123.4 - 123.44

123.6

Fern Glen

Alley



B.M. 121.48 - NW 100' Tr
Rushville & Alley

13.61 125.09

3.04	122.03	3.54
3.03	122.04	3.64
3.21		
3.89	121.20	4.39
4.40	120.69	4.90
		4.54
3.68	121.41	4.19
3.62	121.47	4.09

Fern Glen

Draper

Fay

12

Corb Grades Rushville 125.0

B.M. SW. Top H/d Fads & Rushville

+ 6.45 T 139.87 133.42

133.42
6.83
134.30

149.0

139.6
137.7
137.135.2
137.7 136.7 136.2 137.1



Fads

Ave

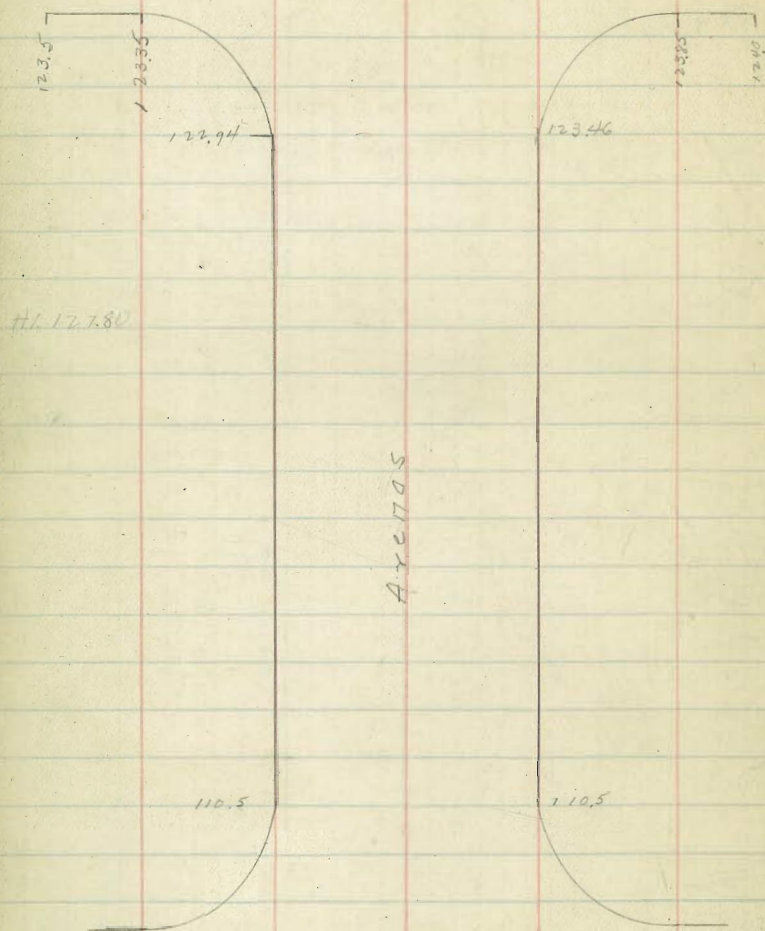


Rushville



Curb Elevations Arenas-Alley
to Draper

Alley



Draper

Sewer Lateral Extensions **13**

on Rushville

Restaked - See Next Page.

B.M. N.W. 100' Tie Rushville & Alley 121.48

+ (-0.10) Σ 121.38

#13 #10

	Grade	Cut	
N. L. Rushville to +100 - Flowline	109.92		
0+38.75	110.42	5.82	S
0+77.5	110.92	5.04	

#14 #13

	Grade	Cut	
S. L. Rushville to +100 - Flowline	109.87		
0+41.05	110.37	8.11	N
0+82.1	110.87	8.91	

121.38	121.38	121.38	121.38
110.42	110.92	110.37	110.87
<u>10.96</u>	<u>10.46</u>	<u>11.01</u>	<u>10.51</u>
5.14	5.42	2.90	1.00
<u>5.82</u>	<u>5.04</u>	<u>8.11</u>	<u>8.91</u>

T.P.

-10.67 110.71

+7.21 Σ 112.92

#11 #12

	Grade	Cut
N. L. Rushville to +100 - Flowline	102.72	
0+38.75	103.22	6.85
0+77.5	103.72	7.85

112.92	112.92
103.22	103.72
<u>9.70</u>	<u>9.20</u>
2.55	1.35
<u>6.85</u>	<u>7.85</u>

102.27
5.67
108.49

112.92

#11 #12 Grade. Cut

S.L. Rushville = 0+00 = Flowline 102.27
 0+41.05 102.77 5.67
 0+82.1 103.27 5.78

112.92	112.92
102.77	103.27
<hr/> 10.15	<hr/> 9.65
4.48	3.87
<hr/> 5.67	<hr/> 5.78

Rushville Sewer Lateral Extensions
 in English Village

Lateral #1	Elv. Fork	Elv. Grade	Cuts
B.M. ¹⁰⁰ 7 ¹⁰ out Hub 0+74	122.22	121.48	
TP 531	116.89	111.58	
0+00 ^{N. Line} of Rushville		102.72	Grade lateral constructed to N. line of Rushville
0+38.75	6.84	110.05	104.36 +5.69
0+77.5	5.31	111.58	106.00 +5.58
0+82.50	9.93	111.96	106.21 +5.75

#11
 116.89
 Lateral #11

S. Line 0+00 Rushville	Elv. Fork	Elv. Grade	Cuts
		102.27	Grade of lateral - S. line of Rushville
0+41.05	8.99	108.40	102.77 +5.63
0+82.10	7.88	109.01	103.27 +5.74
0+87.10	7.80	109.09	103.33 +5.76

Rushville Sewer Lateral
Extensions in English Village

Lateral # 13

cuts

BM	N. W. 100' 7th Rushville & Alley	0.74	122.22	121.98	
0+00	N. Line of Rushville				109.87
0+38	<u>75</u>		3.75	118.97	112.04
0+52	<u>50</u>		2.97	119.75	114.50

Grade of Existing Lateral N. Line of Rushville

5.6 1/2'

HZ
122.22

Lateral # 10

0+00	S. Line of Rushville			109.92	Grade of Existing Lateral S. Line of Rushville
0+41	<u>05</u>		6.01	116.21	110.41
0+82	<u>10</u>		6.31	115.91	110.92
0+87	<u>10</u>		6.27	115.95	110.98

12/10'

9.99	5.76	9.99	4.23
5.76	<u>67</u>	6.02	4.10
4.23	6.43	3.97	
.62		3.30	9.99
3.56	3.30 3.56	4.43	3.94
3.86	3.40 3.66	3.61	<u>6.03</u>
3.96	3.90 4.33 3.90	3.91	
9.99			
4.13	6.09		
3.30			

12-28-28 Grade stakes on West
 J.C. Bliss N + S Alley - Block 35 Parish +
 Drebert Loomis Sub
 Xiernan

Sta	W	C	E	C
End Verbed C	166.7	C 2.43	166.7	F 1.26
+ 60	166.35	3.0	166.35	F 1.0
S.L. EX. W Alley	166.0	2.49	166.0	F 1.28
N.L. EX. W Alley	166.0	C 3.38	166.0	F 0.25
+ 25	166.6	C 2.56	166.54	F 1.17
+ 50	167.2	C 2.72	167.08	F 2.92
+ 60	167.44	C 2.30	167.30	F 3.34
+ 90	168.16	F 1.06	167.93	F 5.06
+ 120	168.82	Grade	168.56	F 5.23

B.M. N.W. B.R. 26th E. 188.00 -
 1.27
 Tip 189.27
 13.00
 176.27
 + 0.02
 176.29
 to 10.43
 165.86
 = 7.82
 173.68

176.27
 166.7
 9.57
 1495
 2.57
 1.26

17368
 -376
 169.92
 +12.75
 182.67
 -0.14
 182.53
 + 9.15
 191.78
 -1.09
 189.09

189.09
 S.W. 26th E
 32nd Ave
 16

B.M. S.W. B.R. 26th E
 Broadway

173.68
 166.35
 7.33
 7.33
 8.32
 7.33
 F 1.0

173.68
 166.0
 7.68
 5.19
 2.49
 5.96
 7.68
 1.28
 7.93
 7.68
 F 0.25

173.68
 166.0
 7.08
 4.52
 2.56
 173.68
 166.34
 7.14
 8.91
 7.14
 1.77
 173.68
 167.08
 6.60
 9.52
 6.60
 2.92

173.68 9.70 173.68 10.81 173.68 10.55
 167.30 6.38 167.93 5.75 168.56 5.32
 6.38 3.32 5.75 45.06 3.32

173.68 173.68 173.68
 168.82 168.16 167.44
 4.86 3.52 5.52 6.24
 6.58 5.52 F 1.06 6.24
 6.24 6.24
 3.94
 2.30

173.68
 167.2
 6.48
 3.76
 2.72

12-31-28 Cb stakes - High - Pearl to
J.C. Bliss 400' South
Dreben

B.M. S.W.B.P. Pearl + High

12718

11290

14600

46.40

H.I. 133.58

Sta	E	Red	W	Red
S.L. Pearl 1280	12.80	5.58	12.70	6.58
0+30	130.40	3.18	129.40	4.18
0+50	131.70	1.88	130.70	2.88
0+70	133.00	0.58	132.00	1.58
0+90	133.90	12.10	132.90	0.68
1+10	134.80	11.20	133.80	12.20

4+00 S.W. line 144.50 1.50 143.50 2.50

Center Add.

17

-0.48

133.10

12-31-28 Curb stakes - College to Pearl
 J.C. Bliss on High
 Drebert

H. 120.36

Sta	East	Pod	West	Pod
SL College	118.0	2.36 ^v	117.0 ^v	3.36 ^v
420	117.28	3.08 ^v	116.28 ^v	4.08 ^v
440	116.69	3.67 ^v	115.69	4.67 ^v
460	116.23	4.13 ^v	115.23	5.13 ^v
480	115.89	4.47 ^v	114.89	5.47 ^v
1+00	115.67	4.69 ^v	114.67	5.69 ^v
1+20	116.63	4.73 ^v	114.63	5.73 ^v
1+40	115.63	4.73 ^v	114.63	5.73 ^v
1+60	115.80	4.56 ^v	114.80	5.56 ^v
1+80	116.10	4.26 ^v	115.10	5.26 ^v
2+00	116.51	3.85 ^v	115.51	4.85 ^v
2+20	117.06	3.30 ^v	116.06	4.30 ^v
2+40	117.74	2.62 ^v	116.74	3.62 ^v
4+90 = Hill Road	127.0	✓	126.0	✓

W.L. High 117.0 3.36^v
 E.L. High 119.0 1.36^v

18

B.M. S.W. 50' Tie College + High

115.73

4.67
 120.36

N Prop Line between 4th + 8 -
 Gutter North of 6th + L

1-2-29
J.C. Bliss
Drebert
Rauner

Curb states - High to Torrey
on College

570	N	Red	S	Red
BC	119.62	0.13		
W.L. High			117.0	
B.K. Bluebird	105.85	3.27		
E.L. Herschel			102.5	6.62
W.L. Herschel	99.21	9.91	100.50	8.62
W.L. Alley			97.13	11.99
W. Brock on Herschel	100.0	9.12		

S.E. Return Herschel + College

B.M. S.W. 50' Tie College + High. 115.73
+ 0.46 H.L. 116.19

B.M. S.E. Top Hydrant Herschel + College + H.L. 105.07
E.L. Herschel ^{rod} 102.5 ^{H.L. 106.59} 4.09
+ 6.57 102.3 4.29
+ 13.14 102.1 4.49
+ 19.71 102.0 4.59
S.L. College 102.0 4.59

105

B.M. S.W. 50' Tie College + High

115.73
4.02
~~111.975~~
T.P. 12.55
107.20
1.92
H.L. 109.12

B.M. - S.E. Top Hyd.

+ 15.2 H.L. 106.59

106.59	106.59	106.59	106.59	106.59
<u>102.5</u>	<u>102.3</u>	<u>102.1</u>	<u>102.0</u>	<u>101</u>
4.09	4.29	4.49	4.59	5.59

1/4/29 Curb stakes - College Street
J.C. Bliss High to Ironhoe

Sta	N	Pod	S	Pod
W.L. High (W)	128.50	7.48	130.0	5.98 ✓
EL. High	131.50	4.48 ✓	133.0	2.98 ✓
L.P.			121.0	7.02 ✓

High Return East 131.0
West 128.0

Sta	N	Pod	S	Pod
W.L. Ironhoe	160.50	5.90 ✓	162.0	4.40
EL. "	163.0	3.40	165.0	
EL. Magnolia			163.31	3.10
W.L. "			162.71	3.7

Ironhoe

Sta	E	W
N.L. College	162.0	4.40 ✓
		161
		5.40 ✓

N.W. Return Ironhoe & College

W.L. Ironhoe	160.5	
E.C.	160.7	6.24
E	161.1	5.84
P.C.	161.1	5.84
N.L. College	161.0	5.94 H.L. 166.94

20

B.M. 11573, 50' Tie College & High
12.29
H.L. 128.02
0.27
T.P.T. 24.75
8.23
135.98

Ironhoe & College
B.M. N.W. 100' Tie, 15.386
12.54
166.40
5.58
2.82

N.W. Return High & College

Line -	128.5	45.40	H.L. 133.90
P.C.	128.7	5.20 ✓	
+	129.1	4.80	
P.C.	129.1	4.80	
Line	129.0	4.90	

N.E. Return High & College

Line - E. High	131.51	✓
+ 1/6	131.3	2.60 ✓
+ 5/8	130.5	3.40
Line - College	130.3	3.50

N.E. Return Ironhoe & College

EL. Ironhoe	163.0
Pod	162.4
N.L. College	162.0

1-8-29 Finish grade stakes - Alley - Arenas
 S.C. Bliss to Rushville

Sta	East	Grade	West	Grade
N.L. Arenas	1238	C124		
Q Arenas	12405	C128		
S.L. Arenas	1243	Grd		
+30.	1250	Grd	1247	Grd
+50.	1253	C120	1250	Grd
+70	1252	Grd	1249	Grd
1405	1246	Grd	124.29	Grd
1440 N.L. Rushville North	1240		123.68	Grd
1460 N.L. Rushville South			1233	Grd
S.L. Rushville			12300	Grd.

Finish Grades Rushville - Draper to Alley

	North		South	
E.L. Draper	10633		1058	
+30	10681	Grd	1065	Grd
+50	1073		1071	
+70	1080	Grd	1080	Grd
+70	109.7	Grd	109.1	Grd
+70	110.6	Grd	110.5	Grd
+450	113.75	Grd	113.62	Grd
+490	116.90	Grd	116.75	Grd
+230	120.05	Grd	119.88	Grd
+270 - W. Alley	123.2		123.0	

BM 121.48

8.21				
129.69	129.69	129.69	129.69	129.69
123.3	123.68	124.19	124.6	
6.69	6.39	6.01	N.S. 4.0	5.07

129.69	129.69	129.69	129.69	129.69
125.2	124.7	125.3	125.0	124.7
E 4.94	N 4.94	E 4.59	W 4.69	4.99

129.69	129.69	129.69
1243	124.05	123.8
5.39	5.64	5.87
	4.34	4.65
	1.28	1.24

111.23	111.23	111.23	111.23
107.3	107.1	109.2	109.1
3.93	4.13	2.03	2.13

BM. S.E.B.P. Arenas Draper 110.50

46.70		41.117.00		
117.0	117.0	117.0	120.0	117.0
1058	106.33	106.8	106.5	108.0
11.2	10.67	10.2	10.54	9.0
117.0	117.0	117.0	117.0	117.0
110.5	110.6	113.75	113.62	116.75
6.5	6.4	3.25	3.39	0.25

T.P. - 0.26 116.74

+830		1125.04		
125.04	125.04	125.04	125.04	125.04
116.90	120.05	119.88	123.0	123.2
8.14	5.00	5.16	2.04	1.84

108.0
 3.23
 111.23

7-10-29
J.C. Bliss

Cb States Ironton-Torrey
to College

Sta	E		W	
N.L. College	1620		1610	
S.L. Bluebird	157.5	2.01	155.5	4.01
N.L. "	157.0	2.51	155.1	4.41
S.L. Torrey	1540	✓	1520	✓
S Alley Return	157.64	1.87	155.64	3.87
N " "	157.14	2.37	155.24	4.27

B.M. SE B.P. Ironton + Torrey

22

15203

748

41.159, 51

1-11-29 Finish Grade stakes - Alley
 J.C. Bliss Rushville to Fern Glen

Sta	East	West
S.L. Rushville Alley		123.0
St. Rushville St.	123.0	122.82
+ 37.3	122.70	122.49
+ 74.6	122.40	122.16
+ 111.9	122.10	121.83
+ 149.2 N.L. Ferguson	121.79	121.50
+ 30	121.55	
St. Fern Glen	121.3	

B.M. N.W. 100 Tie Rushville + Alley

23

121.48
 + 4.80
 126.28

126.28 123.0 3.28	126.28 122.82 3.46	126.28 122.49 3.79	126.28 122.70 3.58	126.28 122.4 3.88
126.28 124.0 4.28	126.28 121.83 4.45	126.28 122.10 4.18	126.28 121.79 4.49	126.28 121.50 4.78
126.28 121.55 4.73	126.28 121.3 4.98			
				123.5

126.28 123.5 2.78	123.5 123.15 2.46.65 123.32 123.02	3.24	123.3
		123.15	

1-14-29 Cb stakes - College - Prospect to
J.C. Bliss 350' East

Sta N
E.L. Prospect 188.0
1+40 180.30
1+60 179.00
1+80 177.40
2+00 175.30
2+20 173.00

Stakes for Dead End Curb

S.L. Intersection 159.0
+25 158.75
Catch Basin 158.5

E.L. Prospect 189.0
0+40 186.8
B.C. 181.30
+20 180.00
+40 178.20
+60 176.30
+80 174.0

S.L. College - on Prospect 191.0

Return in 4 Parts straight Grade

191.0 - 190.5 - 190.0 - 189.5 - 189.0

B.M. N.E.B.P Prospect + College

187.88
3.41
191.29

191.29	191.29	191.29
180.30	180.30	179.00
<u>188.0</u>	<u>11.00</u>	<u>12.29</u>
3.29		

T.P.

12.29 179.00

+1.30

180.30

180.30	180.30	180.30
179.00	175.30	173.00
<u>3.10</u>	<u>5.00</u>	<u>07.30</u>

B.M. Hub - south side Near Sta 3+06

145.17
1.020
165.37

165.37	165.37	165.37
158.5	158.65	158.8
<u>6.87</u>	<u>6.72</u>	<u>6.57</u>

B.M. N.E.B.P Prospect + College

187.88
4.56
192.44

192.44	1.44	1.92.44	192.44	192.44
189.0	1.94	180.8	181.30	180.00
<u>3.44</u>	<u>2.44</u>	<u>5.64</u>	<u>11.14</u>	<u>12.44</u>
	2.10			T.P. 188.00

+1.69

H.I. 181.69

181.69	181.69	181.69
178.20	176.30	174.0
<u>3.49</u>	<u>5.39</u>	<u>7.69</u>

1-17-29. Cb cuts Exchange Place to Prospect
 J.C. Bliss Place on College

S to	N Toob	Cut	S toob	T Cut
EL. Exchange	184.0	185.33	186.0	185.33
1420	190.	189.16	1920	191.16
S to	1910		1930	
W.L. Prospect	190.0		192.0	

N.W. Return College + Tranhoe

N.W. College	160.33
+ 4: End Return	166.43
+	160.75
End Return	160.03
W.L. Tranhoe	157.83

6.85	5.14	9.99	9.99
6.74	5.81	5.81	5.81
6.92		418	418
7.10			
7.20		438	435
			564

S.M.S.W.B.P. Exchange + College

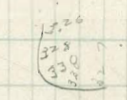
1850.1

+ 11.42			HL. 196.43	
196.43	196.43	460	196.43	3.53
185.33	194.0		1930	67
17.10	4.43		4.43	4.13
	4.60			
502			527	
629				

B.M. A.E.B.P. Prospect + College

187.88
 + 7.46
 195.34

195.34	5.32	6.11
6.11	67	25
189.23	5.99	5.86



61	61	402	407
57	105	402	403
42	5.98	3.97	3.99
6	5.91	3.92	3.87
7	5.84		
	5.78		
195.34			

N. End. N. W. Return Tranhoe + College

161.0
 5.52
 166.52

166.52	
160.33	
6.19 - 609 - 609 - 649 - 669	9.99

1-23-29 Sewer Grades - 35th Street - Wilshire
 J.C. Bliss Drive to Dead end 110' North of Mountain
 Drebert View Drive

S + D.	Grade	Cut
Dead End	378.0	6.16
+ 283	377.8	6.46
+ 56.6	377.6	6.69
D.D.M.H. #4	377.4	7.00
Flowline on 35 th	378.37	6.03
" from Wilshire	371.76	7.24
Existing 6" sewer on Wilshire	371.98	
D.E. of 56.35 th	371.63	14.83
+ 40.7	378.78	6.29
+ 81.4	379.19	6.47
+ 122.1	379.60	6.55
+ 162.8	380.00	6.63
+ 203.5	380.41	6.64
+ 244.2	380.82	6.69
+ 274.9	381.23	6.78
+ 3125.15		
M.H. # 3000	381.64	7.06
+ 45.14	382.09	6.57
+ 90.28	382.54	6.68
+ 135.42	383.00	6.67
+ 180.56	383.45	6.75
+ 225.1		
M.H. # 2000	383.9	6.63

S.W. 35th Mountain View 395.42

26

B.M. N.W. B.P. Wilshire 35th 385.54

+ 5.80					
	H.I. 391.34				
391.34	391.34	391.34	391.34	391.34	391.34
378.0	377.8	377.6	377.4	377.4	378.37
<u>13.34</u>	<u>13.54</u>	<u>13.74</u>	<u>13.94</u>	<u>13.94</u>	<u>12.97</u>
7.18	7.08	7.05	6.94		6.94
<u>6.16</u>	<u>6.46</u>	<u>6.69</u>	<u>7.00</u>		<u>6.03</u>
391.34	391.34	391.34	391.34	391.34	391.34
371.76	371.63	378.78	379.19	379.60	379.60
<u>19.58</u>	<u>19.71</u>	<u>12.56</u>	<u>12.15</u>	<u>11.74</u>	<u>11.74</u>
6.94	4.88	6.27	5.68	5.19	5.19
<u>12.64</u>	<u>14.83</u>	<u>6.29</u>	<u>6.47</u>	<u>6.55</u>	<u>6.55</u>
391.34	391.34	391.34	391.34	391.34	391.34
380.00	380.41	380.82	381.23	381.64	381.64
<u>11.34</u>	<u>10.93</u>	<u>10.52</u>	<u>10.11</u>	<u>9.70</u>	<u>9.70</u>
4.71	4.29	3.83	3.33	2.64	2.64
<u>6.63</u>	<u>6.64</u>	<u>6.69</u>	<u>6.78</u>	<u>7.06</u>	<u>7.06</u>
391.34	391.54	391.34			
382.09	382.54	383.00			
<u>9.25</u>	<u>8.80</u>	<u>8.34</u>			
2.68	2.12	1.62			
<u>6.57</u>	<u>6.68</u>	<u>6.67</u>			
+ 7.38					
			H.I. 392.05		
392.05	392.05				
388.45	388.9				
<u>13.60</u>	<u>13.15</u>				
6.85	6.52				
<u>6.73</u>	<u>6.63</u>				
			T.P.	1.67	384.67

Sta	Grade	Cut
0+46	384.36	6.49
0+92	384.82	6.40
1+38	385.28	6.45
1+84	385.74	6.52
2+90 = E		
M.H. #1 = 100	386.2	6.49
0+42	386.62	6.48
0+84	387.04	6.55
1+26	387.46	6.49
1+68	387.88	6.44
2+10 = Dead End	388.3	6.34

H.I. 397.05

397.05	397.05	397.05	397.05	397.05
<u>384.36</u>	<u>384.82</u>	<u>385.28</u>	<u>385.74</u>	<u>386.2</u>
12.69	12.23	11.77	11.31	10.85
<u>6.20</u>	<u>5.83</u>	<u>5.32</u>	<u>4.79</u>	<u>4.36</u>
6.49	6.40	6.45	6.52	6.49
397.05	397.05	397.05	397.05	397.05
<u>386.62</u>	<u>387.04</u>	<u>387.46</u>	<u>387.88</u>	<u>388.3</u>
10.43	10.01	9.59	9.17	8.75
<u>3.95</u>	<u>3.46</u>	<u>3.10</u>	<u>2.73</u>	<u>2.41</u>
6.48	6.55	6.49	6.44	6.34

B.M. S.W.B.P. 35th + Mountain View - 1.61 395.44
 Correct 395.42
 Error .02

999	999
<u>424</u>	<u>414</u>
575	585

Water stakes La Mesa Colony

Sta	Grade	Cut
1210 Acacia		
Post Line	456.2	3.3
1150	456.5	3.7
1100	456.8	4.0
1055	457.0	4.2
1000	457.2	4.2
9450	457.5	4.3
9000	457.8	4.4
8450	458.1	4.4
7987. Box	458.5	4.4
7438.5	459.0	4.0
6940	459.5	3.7
6450	459.6	
6000	459.7	3.9
5450	459.8	3.9
5000	459.9	4.0
4450	460.0	4.0
4000	460.1	4.1
3450	460.2	4.1
3000	460.3	4.1
2450	460.4	4.2
2000	460.6	4.3
1450	460.7	4.3
1000	460.8	✓
0444	460.9	

B.M. Nail in Pole Art + Cotablin 462.07

444 #146901'

468.0	468.0	468.0	468.0	468.0	468.0
456.2	456.5	456.8	457.0	457.2	457.5
<u>11.8</u>	<u>11.5</u>	<u>11.2</u>	<u>11.0</u>	<u>10.8</u>	<u>10.5</u>
8.5	7.8	7.3	6.8	6.6	6.2
<u>3.3</u>	<u>3.7</u>	<u>4.0</u>	<u>4.2</u>	<u>4.2</u>	<u>4.3</u>

468.0	468.0	468.0	468.0	468.0
457.8	458.1	458.3	459.0	459.5
<u>10.2</u>	<u>9.9</u>	<u>9.5</u>	<u>9.0</u>	<u>8.5</u>
5.8	5.5	5.1	5.0	4.8
<u>2.2</u>	<u>2.2</u>	<u>4.4</u>	<u>4.0</u>	<u>3.7</u>

468.0	8.2	8.1							
459.7	<u>4.3</u>	<u>4.1</u>							
8.3	3.9	4.0							
<u>4.4</u>									
3.9									

T.P. 27 - 3.0 - 464.39
+ 574
470.13

470.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2
460.0	<u>5.9</u>	<u>5.8</u>	<u>5.7</u>	<u>5.5</u>	<u>5.3</u>	<u>5.2</u>	<u>4.9</u>	<u>4.7</u>	
10.1	4.1	4.1	4.1	4.2	4.3	4.3			
<u>6.1</u>									
4.0									

West end return El Cajon + Cotablin - 462.153

462.53

12+50	456.0	2.9
13+00	455.7	2.8
13+50	455.5	3.2
14+00	455.2	3.2
14+50	454.9	3.5
15+00	454.7	3.5
15+50	454.4	3.9
16+00	454.2	4.2
16+50	454.0	3.8
16+50 16+50	453.8	3.9
17+50	453.2	3.5
18+00	452.9	3.5
18+50	452.2	3.6
19+00	451.9	3.1
19+63.9	451.0	3.5
19+75.9	450.8	

B.M. Nails in Pole # 75699 459.0 6

4408		H.I. 463.14			
463.1	463.1	463.1	463.1	463.1	463.1
456.0	455.7	456.5	455.2	454.9	454.7
7.1	7.4	7.6	7.9	8.2	8.4
4.2	4.6	4.4	4.7	4.7	4.9
2.9	2.8	3.2	3.2	3.5	3.5
463.1	463.1	463.1	463.1	463.1	463.1
454.4	454.2	454.0	453.8	453.2	452.7
8.7	8.9	9.1	9.3	9.9	10.4
4.8	4.7	5.3	5.4	6.4	6.9
3.9	4.2	3.8	3.9	3.5	3.5
463.1	463.1	463.1	463.1		
452.2	451.7	451.0	450.8		
10.9	11.4	12.0	12.3		
7.3	7.7	8.5			
3.6	3.7	3.5			

Grade Change Alley Block 132
U.H.

	E	W
2+80	335.4	335.1
3+15		
3+50	331.3	331.0

1
2
3
4
5

6	325.3	325.0
---	-------	-------

110

120

130

S.M. S.E. Cleveland & Tyler 312.02

112.65 324.67 W

0+00 Paving 3.65 52.6

0+10 Prop 2.48 3.77

0+20 0.56 0.37

0+30

4.52° 46'

P. 700'

L. 6447 26.23

4445
1400
1778000
4445
6223000

4445
1400

14

11
25 83

1153'

0340

1400
736000
6340
476000

Chord 47.60

Def 1053'

660
85
141743 152
73
43
42

2625

1.55° 35'

8-25-29 Water Grades in Art St.
J.C. Bliss Contactin Drive to EL Cajon

Sta	Grd	Cut
N.L. EL Cajon	459.8	
0+50	459.5	2.4
1+00	459.2	2.3
1+60	458.8	2.7
2+00	458.7	3.2
2+50	458.5	3.7
3+00	458.3	3.5
3+50	458.0	3.7
4+00	457.8	3.8
4+50	457.6	4.0
5+00	457.4	4.0
5+50	457.2	4.1
5+90.4	457.0	

Cheatan

EL Cajon	Grade	Cut	Sta	Grd.	Cut
	461.3				
+50	461.20	3.0	4+50	459.82	4.3
1+00	461.04	3.4	5+00	459.62	4.0
+50	460.88	3.5	5+55	459.5	
2+00	460.70	3.7			
+50	460.54	4.2			
3+00	460.38	4.4			
3+50	460.20	4.5			
4+00	459.98	4.5			

B. M. S. W. Nails Contactin x Art 463.07

2.91					465.98		
466.0					466.0		
457.2	8.6	8.4	8.2	8.0	458.3	7.5	7.3
8.8	4.6	4.4	4.4	4.3	7.7	4.1	4.1
4.7	4.0	4.0	3.8	3.7	4.2	3.4	3.2
4.1					3.5		
7.7	466.0	466.0	466.0	466.0	466.0		
	458.8	459.2	459.5	459.8	459.8		
	7.2	6.8	6.5	6.2			
	2.7	2.5	2.4				

B. M. S. W. Nails Art x Contactin 463.07

+ 5.96					469.03		
469.0	469.0	469.0	469.0	469.0	469.0	469.0	469.0
459.7	459.8	460.0	460.2	460.4	460.4	460.6	460.6
7.3	9.2	9.0	8.8	8.6	8.6	8.5	8.5
5.3	4.9	4.5	4.3	4.2	4.2	4.3	4.3
4.0	4.3	4.5	4.5	4.4	4.4	4.2	4.2

469.0	469.0	469.0	469.0	469.0
460.7	460.9	460.9	461.0	461.2
8.3	8.1	8.1	8.0	7.8
4.4	4.6	4.6	4.6	4.8
3.9	3.5		3.4	3.0
9.71	9.94		5.14	5.20
534	474		5.06	5.35
46.5	52.5		4.65	4.95
				5.25
				4.95 + 4.69 + 4.52

1-29-29

Water Grades Capoctin

J.C. Bliss Drive - E.L. Alvarado Hts. to N End.

Sta	Grade	Cut
1977.5g E.L. Alvarado Hts.	451.0	
20+00-B.K	450.8	3.7
20+50	450.6	8.0
21+00	450.4	2.6
21+50	450.2	2.7
22+00	450.0	2.9
22+50	449.7	2.9
23+00	449.5	2.9
23+50	449.3	3.1
24+00	449.0	3.5
24+50	448.8	3.1
2493.5 B.C.	448.6	2.8
1	448.4	2.6
2	448.2	3.1 ✓
3	448.0	3.3 ✓
4	447.9	3.4 ✓
5	448.2	3.4 ✓
6 ✓	448.5	3.5 ✓
7 ✓	448.8	4.2 ✓
8 ✓	449.0	4.6 ✓
9 ✓	449.3	4.9 ✓
10 ✓	449.6	5.3 ✓
11 ✓	449.9	5.5 ✓
12 ✓	450.2	4.7 ✓
13 ✓	450.5	4.2 ✓

24935

45050

44860

33

$$\begin{array}{r} 220 \\ 448.60 \\ \hline \end{array}$$

$$\begin{array}{r} 3.25 \\ 451.85 \text{ F.H.} \\ \hline \end{array}$$

B.M. Nails 17 Pole # 75699 459.06
+1.47 H1 460.53

460.5	460.5	460.5	10.1	10.3	10.5
<u>451.1</u>	<u>450.8</u>	<u>450.6</u>	<u>7.5</u>	<u>7.6</u>	<u>7.6</u>
7.4	9.7	9.9	2.6	2.7	2.9
<u>5.9</u>	<u>6.9</u>	<u>6.9</u>			
3.5	3.7	3.0			

T.O.P. 7.57 452.96

+ 3.97 H1 456.93

456.9	7.4	7.6	7.9	8.1	8.3
<u>449.7</u>	<u>4.3</u>	<u>4.5</u>	<u>4.4</u>	<u>5.0</u>	<u>5.5</u>
7.2	2.9	3.1	3.5	3.1	2.8
<u>4.3</u>					
2.9					

456.93	8.5	8.7	8.9	9.0	8.7
<u>451.85</u>	<u>5.7</u>	<u>5.6</u>	<u>5.6</u>	<u>5.6</u>	<u>5.3</u>
5.08	2.6	3.1	3.3	3.4	3.4
<u>5.44</u>					
F0.36					

T.O. -5.29 451.64

+ 6.52 458.16

458.2	9.7	9.4	9.2	8.9	8.6
<u>448.5</u>	<u>5.5</u>	<u>4.8</u>	<u>4.3</u>	<u>3.6</u>	<u>3.1</u>
19.7	4.2	4.6	4.9	5.3	5.5
<u>8.5</u>					

8.3	8.0
<u>3.6</u>	<u>3.8</u>
4.4	4.2

T.O. 3.76 454.40

+4.68 H1 459.08

14 = E.C.

450.8 44.0

32 + 32.6

450.9 00.88

End of line

476

B.M. 822 - SW Tap Hydrant 7th & L

1.92
10.14
4.83
5.31

538

526

10.14
5.50
4.84

10.14

25

4.33

5.81

1014

5.75

5.57

4.57

5.64

5.63

5.57

1014

520

4.94

1014

4.98

5.16

535 534
524 520

506

4.98

4.58

4.5

5.06

515

4.86

1028

520

5.13

5.06

446

435

H.I. 459.08

33

459.1 8.2
450.8 4.5
8.3 3.7
4.3
4.0

450.9
3.25
454.15

459.08
454.15
4.93
4.05
00.88

B.M. Spike in Tall Palm at Talm Palms

Ranch

- 3.23 455.85

+ 1.52 457.37

T.P.

- 5.70 451.67

+ 6.51

458.18

T.P.

- 5.08 453.10

+ 7.63

460.73

B.M. Nails in Pole # 75.199

Correct 459.08

- 1.65 459.08

Even 100

463
461 460 474

534 527

1-31-29
J.C. Bliss

Water Grades - Choctaw Drive
Catoctin to North End -

Sta	Grade	Cut
0+00 - Pipeline in Catoctin	458.5	—
0+50	458.4	3.8
1+00	458.3	4.9
1+50	458.2	4.0
2+00	458.1	4.0
2+50	458.0	4.2
3+00 Δ	458.0	4.1
3+50	457.9	4.2
4+00	457.8	4.2
4+50	457.7	4.7
5+00	457.7	4.3
5+50	457.6	4.6
6+00	457.5	4.7
6+50	457.3	4.5
7+00	457.2	4.3
7+50	457.0	5.1
8+00	456.9	5.1
8+50	456.7	4.4
9+00	456.6	4.8
9+50	456.4	5.1
10+00	456.3	4.9
10+50	456.1	5.0
11+00	456.0	5.0
11+26.5 - EC.	455.9	5.2

B. M. Abbott & Choctaw - 390 463.00
Tob. Iron Pin

34

B. M. S. W. Nails Catoctin 4A+ 463.07

Sta	Grade	Cut
43.83		
466.9	8.6	8.7
458.4	3.7	4.6
8.5	4.9	4.1
4.7		
3.8		

9.3		
4.7		
4.6		

T.P. - 466 462.24

Sta	Grade	Cut
42.28		
466.5	9.2	9.3
457.5	4.2	5.0
9.0	4.5	7.3
4.3		
4.9		

10.1	10.2	10.4	10.5	10.6
5.0	5.3	5.4	5.5	5.4
5.1	4.9	5.0	5.0	5.2

Sta	Grade	Cut
1	455.8	5.4
2	455.8	5.5
11483.5.80.	455.7	5.4
12+50	455.6	5.1
13+00	455.5	5.8
13+50	455.4	5.6
14+00	455.4	5.5
14+50	455.3	6.0
15+00	455.2	5.8
15+50	455.1	6.2
16+00	455.0	5.9
16+50	455.0	5.5
17+00	454.9	4.9
17+69.4	454.8	3.3
18+00	454.6	3.7
18+50	454.4	3.6
19+00	454.2	3.3
19+50	454.0	2.7
20+00	453.8	2.7
20+50	453.6	3.6
21+00	453.3	3.6
21+50	453.1	3.6
22+00	452.9	4.3
22+50	452.7	4.1
23+00	452.4	5.0

H.I. 466.52

35

466.5					
455.8					
<u>10.7</u>					
53					
<u>5.4</u>					
+ 502					
			46.594		
466.9	10.2	10.3	10.4	10.5	10.5
455.8	4.8	4.6	4.6	4.9	5.0
<u>10.1</u>	<u>5.4</u>	<u>5.7</u>	<u>5.8</u>	<u>5.6</u>	<u>5.5</u>
46					
<u>5.5</u>					
10.6	10.7	10.8	10.9	10.9	
4.6	4.9	4.6	5.0	5.4	
<u>6.0</u>	<u>5.8</u>	<u>6.2</u>	<u>5.9</u>	<u>5.5</u>	
T.P.					
				6.12	459.82
+ 2.85					
		H.I. 462.67			
462.7	7.9	8.15	8.3	8.5	8.7
454.9	4.6	4.4	4.7	5.2	6.0
<u>7.8</u>	<u>3.3</u>	<u>3.7</u>	<u>3.6</u>	<u>3.3</u>	<u>2.7</u>
2.9					
<u>4.9</u>					
9.1	9.4				
5.5	5.8				
<u>3.6</u>	<u>3.6</u>				
					5.77
					456.90
447.4					
			461.64		
461.6	8.7	8.9	9.2		
453.1	4.4	4.8	4.2		
<u>8.5</u>	<u>4.3</u>	<u>4.1</u>	<u>5.0</u>		
4.9					
<u>3.6</u>					

	Grade	Cut
23+50.	452.1	4.6
24+00	451.9	3.1
24+35-End Line	451.8	3.3
F.H. at 18+53.0	457.65	0.16
F.H. at North End	455.05	0.61

5+28	455.7	
5+00	455.9	4.1
4+50	456.2	4.4
4+00	456.5	4.5
3+50	456.8	6.0
3+00	457.1	4.8
2+50	457.4	4.6
2+00	457.6	4.6
1+50	457.9	4.4
1+00	458.2	4.7
0+50	458.5	4.6
0+00	458.8	

H.I. 461.64			
461.6	9.7	9.8	461.64
<u>452.1</u>	<u>6.0</u>	<u>6.5</u>	<u>455.05</u>
9.5	3.7	3.3	6.59
<u>4.9</u>			<u>5.98</u>
4.6			0.61

462.67
457.63
 5.04
4.88
 0.16

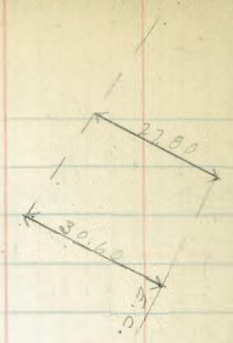
B.M. Nail in stump at End Chocataw 477 456.74
 456.87

B.M. Iron Pin Chocataw + Eric 460.92

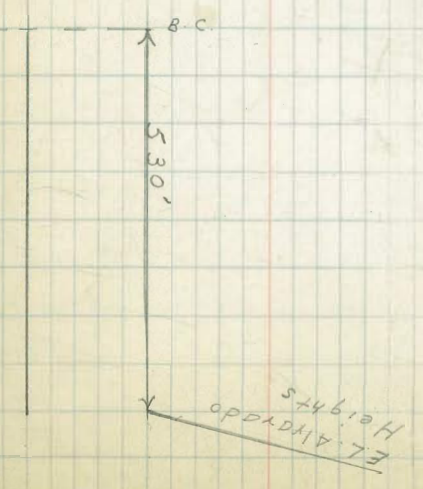
H.I. 467.34				
467.3	11.1	10.8	10.5	10.2
<u>455.9</u>	<u>6.7</u>	<u>6.3</u>	<u>4.8</u>	<u>5.4</u>
11.7	4.4	4.5	6.0	4.8
<u>6.5</u>				
4.9				
9.7	9.7	9.4	9.1	8.8
<u>5.3</u>	<u>5.1</u>	<u>5.0</u>	<u>4.4</u>	<u>4.2</u>
4.6	4.6	4.4	4.7	4.6
				3.6

Details of Curve on
Catactin Drive East of
Alvarado Hts.

Deflection - $27^{\circ} 47'$
Long Chord - 675.30



$\Delta 55^{\circ} 34'$
Radius $1224.22'$



3-15-29 Rough Grady states - Hawthorn - 29th
 J.C. Bliss to Granada - S' Back Prop line

S+0	N		S	
W.L. 29 th = 0+00	261.5		261.0	
0+20	261.9	2.7	261.4	2.6
0+40	261.9	1.9	261.4	2.1
0+60	261.6	1.1	261.1	1.5
0+80	260.9	0.7	260.4	1.3
1+00	259.7	0.9	259.2	1.1
1+20	257.9	1.1	257.4	1.3
1+40	255.9	1.1	255.2	1.7
1+60	253.28	Grade	252.78	1.9
1+80	250.86	Grade	250.36	2.3
2+04	247.94	0.1	247.44	1.9

362
 378.0
 375.8
 2.2
 78
 40

B.M. S.E. B.R. 29th v. Grobe 2509
 11.47
 262.39
 2.36
 260.03
 5.22
 265.25

H.I. 265.25				
B.M. S.W. Top Hydrant Hawthorn + 29 th - 0.23 265.02				
265.25	265.25	265.2	265.2	265.2
261.5	261.9	261.9	261.9	261.6
3.75	4.25	3.3	3.3	3.6
		0.6	1.4	2.5
		2.7	1.9	1.1
265.2	265.2	265.2	265.2	265.2
260.9	259.7	257.9	255.7	253.3
4.3	3.5	7.3	9.5	11.9
0.6	4.6	6.7	8.4	
0.7	0.9	1.1	1.1	
265.2	265.2	265.2	265.2	265.2
261.4	261.4	261.1	260.4	259.2
3.8	3.8	4.1	4.8	6.0
1.2	1.7	2.6	3.5	4.9
2.6	2.1	1.5	1.3	1.1
265.2	265.2	265.2	265.2	265.2
257.4	255.2	252.8	250.4	
7.8	10.0	12.4	14.8	
6.5	8.3	10.5	12.5	
1.3	1.7	1.9	2.3	

T.P.
 + 0.15
 H. 252.22

252.2	252.2	252.2
247.4	250.8	247.9
4.8	1.4	4.3
2.9	1.4	4.2
1.9		0.1

T.P. - S.W. Top Hydrant - Hawthorn + Granada - 12.13 240.09
 + 1.04 241.13
 B.M. S.E. B.R. Grape + Granada - 8.16 232.97
 Correct 232.95

3-18-29 Finish Grade stakes - Alley

J.C. Bliss 294.92
 Debert Block 195 U.H. 29-0.19
 Panner 294.75
 12.84
 307.57

5 Nails Alley
 * Lincoln 289.74
 5.18
 M 294.92

Sta	W.L	Cut or Fill	E.L.	Cut or Fill	HL	Prod	Et.
N.L. Univ = 0+00	316.05		312.54				
0+11	316.25	c3.93	312.54	Grade			
0+19	313.24	c6.09	313.09	Grade			
1+40	312.99	c6.00	312.83	"			
+80	311.97	c6.32	311.88	"			
1+20	310.96	c1.00	310.91	"			
+60	309.94	c1.00	309.94	"			
7+00	308.92	Grade	308.97	"			
+40 - PVC	307.90	c1.0	308.00	"			
+60 - B.A.	307.20	c1.0	307.20	"			
+80 - S.T.	306.00	c1.5	306.00	"			
3+00 - EXC.	304.60	c1.0	304.60	"			
3+39.9	301.65	c4.75	301.6	1.0	H=307.57 5.92	395	
4+9.6	298.76	c5.97	298.65	Grade	887	892	
4+19.7	295.75	c4.0	295.67	c1.0	1.82	1.90	
+59.6	292.80	c1.5	292.70	F0.94	212	222	
+99.5	289.85	c4.0	289.72	Grade	507	520	
5+39.3	286.90	c1.0	286.75		802	817	
5+49.3			286.00	F1.90		892	
+59.3	285.60	c3.00			932		
+69.3			284.80	c1.0		1010	
+79.3	284.80	c307	284.30	Grade	1014	1067	
+99.5 - 54	285.00	c2.00	283.60	"	992	1132	

336.41 = S.W. OR Univ. + Georgia

+2.28
 338.69
 - 12.70
 325.99
 +0.37
 326.36
 -7.26
 318.90
 +3.08
 321.98
 -9.46
 312.52
 +1.06
 313.58

Sta	W.L	E.L	Prod	Et.
313.58	313.58	313.58	313.58	313.58
313.08	312.83	311.88	310.91	310.91
300.60				
300.76	313.58	313.58	313.58	313.58
288.22	310.96	309.94	308.92	307.90
291.84	2.62	3.64	4.66	5.68
289.74	1.62	2.64		
	11.00	11.00		
	E.L 313.58	313.58	313.58	313.58
	309.94	308.97	308.00	308.00
	3.64	4.61	5.58	
	N.L 313.58	313.58	313.58	313.58
	307.20	306.00	304.60	304.60
	6.38	7.58	8.98	8.98
	5.38		7.98	7.98
	E.L 313.58	313.58	313.58	313.58
	307.20	306.00	304.60	304.60
	6.38	7.58	8.98	8.98
	313.58	300.76	300.76	300.76
	298.70	295.75	292.80	292.80
	4.88	5.01	7.90	7.90
	2.18	1.01	6.44	6.44
	4.75	4.00	7.50	7.50
	8.91		300.76	300.76
	5.97		292.70	292.70
			8.00	8.00
	E.L 313.58	300.76	300.76	300.76
	301.62	298.65	295.67	295.67
	11.96	2.11	5.09	5.09
	10.96		4.09	4.09
	7.10		1.00	1.00
			291.84	291.84
			284.80	285.00
			7.04	6.84
			3.95	4.50
			3.24	3.09
			6.24	6.00
			5.00	5.00
			291.84	291.84
			284.80	285.00
			7.04	7.04
			5.84	5.84
			3.24	3.24
			1.00	1.00
			291.84	291.84
			284.80	285.00
			7.04	7.04
			5.84	5.84
			3.24	3.24
			1.00	1.00
			291.84	291.84
			284.80	285.00
			7.04	7.04
			5.84	5.84
			3.24	3.24
			1.00	1.00

Lincoln

Grade Change
Alley Block 195 V.H

	W.L.	E.L.	W.L. Rod EL
N.L. University 20+00	316.05	312.54	H.L. 317.93
0+11	316.05	312.54	1.88 539
0+30	313.24	313.08	4.69 4.86
0+40	312.99	312.83	4.94 4.50
+80	312.14	312.04	2.71 2.28
+20	311.19	311.16	3.13 3.16
+60	310.27	310.28	4.05 4.04
2+06	309.35	309.40	4.97 4.91
R+32	308.60	308.70	5.72 5.55
+40 = P.V.C.	308.30	308.40	6.10 6.14
+60 = B.X	307.78	307.48	6.84 6.84
+80 = B.X	306.14	306.14	1.43 1.43
3+00 = E.V.C.	304.60	304.60	2.77 - 2.77

308.00
5.25
313.25

307.90
5.33
312.23

40

H.L. 313.25

W.L. 313.25	313.25	313.25	313.25
308.30	307.48	306.14	309.30
4.95	5.77	7.11	3.95
4.33	5.07	5.75	
0.62	6.76	1.36	

E.L. 313.25	313.25	313.25	313.26
308.40	307.48	309.34	310.16
4.85	5.77	3.91	3.09

W.L. 313.25	313.25
310.18	311.06
3.07	2.19
2.26	1.28
.81	0.91

E.L. 313.25
310.98
2.27

H 307.57	317.93	317.93	317.93	317.93
1.44	312.99	313.24	316.05	312.54
306.13	4.94	4.69	1.88	5.39
8.19				
314.32				
2.24				
312.08				
5.85				
317.93				

4-9-29 East N & S Alley Block 35
 J.C. Bliss Parish & Rooms Addition - 20' wide
 Diebert
 Ranner

F.L.

Sta	Grade	Cor F	180.05	180.05	180.05
S.L. Broadway	178.5		$\frac{178.5}{1.35}$ 1.11	$\frac{175.0}{5.05}$ +4.33	$\frac{172.2}{7.85}$ +5.30
+20	175.0	C4.53	$\frac{180.05}{169.6}$ 10.45	$\frac{180.05}{167.4}$ 12.65	$\frac{171.15}{165.5}$ 5.65
+40	172.2	C5.30	$\frac{169.6}{4.46}$ +6.00	$\frac{126.5}{6.35}$ 6.29	$\frac{5.03}{C0.62}$
+60	169.6	C6.00			
+80	167.4	C6.29	$\frac{171.15}{163.9}$ 7.25	$\frac{171.15}{162.3}$ 8.85	$\frac{171.15}{162.0}$ 9.15
+100	165.5	C0.62	$\frac{164.4}{163.7}$ 163.4	$\frac{5.18}{4.21}$ 4.21	$\frac{3.50}{5.65}$
+20		C2.07	$\frac{163.4}{163.3}$ 171.15	$\frac{4.21}{4.21}$ 171.15	$\frac{5.65}{5.65}$ 162.80
+40		C4.21	$\frac{163.3}{160.25}$ 10.90	$\frac{4.21}{7.26}$ 158.5	$\frac{5.65}{6.10}$ 156.7
+60	162.0	C5.65	$\frac{10.90}{4.85}$ 6.05	$\frac{7.26}{5.39}$ 7.26	$\frac{6.10}{4.26}$ 7.84
+80	160.25	C6.05			
+200	158.5	C7.26	$\frac{162.80}{156.1}$ 6.70	$\frac{162.80}{155.5}$ 7.30	$\frac{162.80}{155.4}$ 7.40
+35	156.7	C1.84	$\frac{156.1}{2.28}$ 4.42	$\frac{7.30}{3.14}$ 4.15	$\frac{7.40}{3.30}$ 4.10
+57.5	156.1	C4.42			
+80	155.5	C4.16	$\frac{162.80}{155.5}$ 7.30	$\frac{162.80}{155.8}$ 7.00	$\frac{162.80}{156.3}$ 6.50
+85	155.4	C4.10	$\frac{7.30}{3.44}$ 3.86	$\frac{7.00}{3.87}$ 3.13	
+90	155.5	C3.86			
+95	155.8	C3.13			
3100-N.L.E	156.3	V	$\frac{171.15}{164.4}$ 6.75	$\frac{171.15}{163.4}$ 7.75	$\frac{171.15}{156.3}$ 5.50
			$\frac{6.75}{5.18}$ 1.57	$\frac{7.75}{4.64}$ 3.11	

190.93-N.W.B.P. 27th & Broadway
 180.05 171.15 160.13
 180.05 171.15 13.07
 171.07 162.10 173.20
 13.25 162.10 0.82
 171.82 162.80 172.38
 4.23 171.15 11.27
 180.05 160.13 183.65
 180.05 180.01 5.89

41

Sta	Grade	Cor F	180.05	180.05	180.05
S.L. Broadway	177.5		$\frac{180.05}{177.5}$ 2.55	$\frac{180.05}{172.2}$ 7.85	$\frac{180.05}{172.38}$ 11.27
+5	179.2	F0.78			
+20	175.0	F0.84	$\frac{10.19}{7.85}$ 2.34	$\frac{171.15}{169.6}$ 1.55	$\frac{171.15}{167.4}$ 3.75
+40	172.2	F2.34	$\frac{7.85}{3.75}$ 3.62	$\frac{1.55}{3.75}$ 3.75	$\frac{3.75}{11.16}$ 8.85
+60	169.6	F3.82			
+80	167.4	F3.62	$\frac{9.15}{6.3}$ 2.85	$\frac{10.90}{10.82}$ 0.08	$\frac{162.80}{158.5}$ 4.30
+100	165.5	F3.72	$\frac{164.4}{163.7}$ 163.4	$\frac{4.30}{4.46}$ F0.16	
+20		F2.96	$\frac{6.23}{6.19}$ F0.13	$\frac{6}{6.13}$ C0.57	
+40	162.3	F2.31			
+60	162.0	C2.52			
+80	160.25	C0.08	$\frac{162.80}{155.2}$ 7.60	$\frac{162.80}{154.5}$ 8.30	$\frac{162.80}{153.0}$ 9.80
+200	158.5	F0.16	$\frac{7.60}{7.12}$ 0.48	$\frac{8.30}{7.87}$ C0.43	
+35	156.7	F0.13			
+225	156.1	C0.57			
+90	155.2	C0.48			
+95	154.5	C0.43			
3400	155.0	V			

lateral 22

B.M. N.W. B.P. 27th & Broadway 190.93
 +0.50 191.43
 4th Eye L. Alley 172.0
 1st N. & E. Alley 168.5
 191.43 191.43
 172.0 168.5
 19.43 9.20
 9.20 10.23
 22.93 13.16
 9.77

4-18-29 Catch Basin & Stairway Stokes
J.C. Bliss Hawthorn & Granada

Curb grade Top of Catch Basin 248.0
Grade of Walk at Top of Stairs 248.1

Stake 3' South of S.L. Steps - C 1.03
" 1' North of N.L. " = F 1.29
" 3' West South end Inlet = F 1.00
" " " North " " = F 1.00

Cb stakes

Sta	N.L.	Red	S.L.	Red
0+00				
0+20	261.9	3.65 ✓	261.4	4.15 ✓
0+40	261.9	3.65 ✓	261.4	4.15 ✓
0+60	261.6	3.95 ✓	261.1	3.96 ✓
0+80	260.9	4.65 ✓	260.4	4.66 ✓
1+00	259.7	5.85 ✓	259.2	5.86 ✓
+20	257.9	7.65 ✓	257.4	7.66 ✓
+40	255.7	9.85 ✓	255.2	9.86 ✓
+60	253.28	11.78	252.78	12.28
+80	250.86	3.07 ✓	250.36	3.57 ✓
2+00	248.3	5.63	248.0	

B.M. S.W. Top Hydrant Hawthorn & Granada

240.09
40.08
250.17

42

250.17	3.36	250.17
248.1	2.07	248.0
	F 1.29	2.17
	1.04	3.17
	1.03	1.00

B.M. S.E. Top Hydrant Hawthorn

40.53

H.I. 265.55

265.02

265.55
261.4
261.5

265.55
261.1
261.5

265.55
261.9
261.5

265.55
261.6
261.6
252.00
1.93
253.93

265.06
260.4
260.4

265.06
259.2
259.2

265.06
257.4
257.4

265.55
260.9
260.9

265.55
257.9
257.9

265.06
255.2
255.2

265.06
261.1
261.1

265.06
252.78
252.78

265.55
257.9
257.9

265.55
255.7
255.7

253.93
250.36
250.36

253.93
249.9
249.9

253.93
12.28
12.28

265.06
253.28
253.28

253.93
250.86
250.86

248.3

253.93
248.3
248.3

3.07

Grade Change W.L. E. N 45
 Alley Block 35 - Parish & Leominster

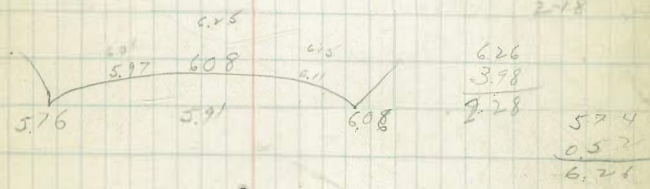
1420	164.2	Grade
1435	163.3	Grade
1440	162.75	
1450	162.25	
1460	161.95	

171.15	168.12	168.12	168.12
6.63	164.2	163.3	162.75
164.52	3.92	4.82	5.37
+3.60			
<u>168.12</u>			

168.12	168.12
162.25	161.95
<u>5.87</u>	<u>6.17</u>

3780	6.22	5.16
375.8	18	6.7
<u>2.2</u>	<u>24</u>	<u>4.49</u>
	375.8	
	<u>2.8</u>	3780
	373.0	<u>28</u>
		<u>375.2</u>

1186	4.56	6.26
6.11	5.97	<u>4.08</u>
<u>5.754</u>	<u>5.89</u>	2.18



9.99 9.99

352	618
<u>67</u>	
2.85	



6.26	6.26
2.28	4.64
<u>1.98</u>	<u>1.62</u>
4.46	

4-30-29
J.C. Bliss

Cb cuts - Howthorn - 29th to Granada

Sta	N	Red	S	Red
W.L. 29 th - 0100	261.02		260.65	
0420	261.5	4.85	261.0	5.35
0440	261.5	4.85	261.0	5.35
0460	261.2	5.15	260.7	5.65
0480	260.5	5.85	260.0	6.35
1400	259.3	7.05	258.8	7.55
1420	257.5	8.85	257.0	9.35
1440	255.3	11.05	254.8	11.55
1480	250.44		249.94	5.65
2400	247.9		247.6	

B.M. SE Top Hydant 29th + Howthorn

44

265.02	266.35		
7.33	12.67		
<u>266.35</u>	<u>253.68</u>		
	7.91		
	<u>235.39</u>		
N			S
420			
266.35	266.35	266.35	266.35
<u>261.5</u>	<u>261.2</u>	<u>261.0</u>	<u>261.0</u>
4.85	5.15	5.35	5.35
266.35	266.35	266.35	266.35
<u>260.5</u>	<u>259.3</u>	<u>260.7</u>	<u>260.0</u>
5.85	7.05	5.65	6.35
266.35	266.35	266.35	266.35
<u>257.5</u>	<u>255.3</u>	<u>258.8</u>	<u>257.0</u>
8.85	11.05	7.55	7.35
255.59	255.59	266.35	255.59
<u>250.44</u>	<u>247.9</u>	<u>254.8</u>	<u>249.94</u>
5.15	7.69	11.55	5.65

420 427 435 437 424 439 425
430 429

Bliss
5-11-29

Sewer stakes Mechanic

5fa
Existing M.H. Nend. Mechanic
5+0+00
0+00 - Flowline M.H. 370.81 actual Flowline
0+39.33 371.08 5.03
0+78.66 371.36 5.00
1+18 371.63 5.50
1+57.33 371.90 5.44
1+96.66 372.18 5.43
2+36 -D.E. 372.46

Water Stakes

0+00 373.0
0+50 373.3 2.9
1+00 373.7 3.1
1+50 374.1 3.3
2+00 374.5 3.3
2+50 374.8 3.2
3+00 375.3
3+45

374.25 B.M. S.W. B.P. 33rd & El Cajon

+ 4.75
379.00
- 3.23
375.77
6.54
382.31
370.81
33
H.I. 382.31
382.31 382.31 382.31 382.31 382.31
371.08 371.36 371.63 371.90 372.18
11.23 10.95 10.68 10.41 10.13
6.20 5.95 5.18 4.97 4.70
5.03 5.00 5.50 5.44 5.43
382.31
372.46
9.85
4.46
4.39
H.I. 382.31
382.3 382.3 382.3 382.3 382.3 382.3
374.8 374.5 374.1 373.7 373.3 373.0
7.5 7.8 8.2 8.6 9.0 9.3
4.3 4.5 4.9 5.5 6.1 6.5
3.2 3.3 3.3 3.1 2.9 2.8

B.M. Top 1st Prop Pipe on East -606 376.25
B.M. Top Gas Lead Plug & N.E. Return -378 376.53
Meade + Boncroft

5-13-29 Rough Grade States - Mechanics
J.C. Bliss

North end Mechanic = 0+00

Sta	Grade	Cut	Grade	W.L	Cut
0+00	375.8	✓	375.8	✓	
0+50.6	376.16	Grade	376.11		0.3
1+01.2	376.53	C0.4	376.43		0.6
1+51.8	376.90	C0.7	376.75		0.8
2+02.4	377.25	C0.5	377.06		0.6
2+53	377.63	C0.3	377.38		0.6
3+03.5 =	378.0		377.7		

S.L. Meade

Senior Laterals

#1	372.8	5.1
2	372.3	5.2
3	371.9	4.7
4	371.5	4.6
5	372.8	5.2
6	372.3	5.1
7	371.9	4.7
8	371.5	4.5

46

B.M. 376.25 - Prop Pipe East Side

6.00
H1 382.25

S.L.#4		S.L.#3		E.L.	
382.2	382.2	382.2	382.2	382.2	382.2
376.2	371.5	371.9	374.5	378.9	
5.0	10.7	10.3	5.7	5.3	
5.9	6.1	5.6	5.3	4.6	
0.0	4.6	4.7		60.7	
S.L.#2		S.L.#1	C0.7		
382.2	382.2	382.2	382.2	382.25	
372.3	377.3	372.8	377.6	378.0	
9.9	4.9	9.4	4.6	4.25	
4.7	4.4	4.3	4.1		
5.2	C0.5	5.1	C0.3		

W.L.

S.L.#5		S.L.#6	
382.2	382.2	382.2	382.2
377.4	372.8	377.1	372.3
4.8	9.4	5.1	9.9
4.2	4.2	4.5	4.8
C0.6	5.2	C0.6	5.1

382.2	382.2	382.2	382.2
376.4	371.9	376.1	371.5
5.8	10.3	6.1	10.7
5.2	5.3	5.8	6.2
0.6	4.7	C0.3	4.5

378.53 - N.W. Mechanic + Meade

4.52
383.05

S.E.
388.05
5.09
377.86
377.96

S.W.

383.05
5.38
377.67

377.77 377.87

5-23-29 Sewer Sydney Place - Raymond
 J.C. Bliss Place - Eugene Place.

5+0	Grade	Cut
D.E. Sydney - E of Mt. View	386.9	5.76
+43.33	386.25	5.67
+86.66	385.60	5.65
1+30	384.95	5.81
1+73.33	384.30	6.06
2+16.66	383.65	6.01
2+60 = M.H. #1	383.0	6.17
+34	382.77	6.12
-68	382.53	6.28
1+02.1 = M.H. #2 - 0+10	382.29	6.73
+39.5	382.01	7.01
+79.0	381.74	7.27
1+18.5	381.46	7.91
1+58.0	381.18	8.29
1+97.5	380.91	8.73
2+33.0	380.63	9.15
2+76.6 = M.H. #3 = 0+100	380.35	9.11
+42.74	380.05	8.81
+85.48	379.75	8.89
1+28.22	379.45	8.86
1+70.96	379.15	8.72
2+13.70 = M.H. #5 = 0+100	378.85	8.85
+50	377.35	9.72
1+00	375.85	10.25

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393.98 - S.E. B.P. Sydney & Mt. View Drive

T.P. 389.03	396.39	396.39	396.39	
+ 6.90	386.2	386.25	385.60	
T.P. 395.93	7.49	10.14	10.79	
- 6.31	5.73	4.47	5.14	
T.P. 389.62	45.76	45.67	5.65	
+ 0.49				
390.11	396.39	396.39	396.39	396.39
T.P. 389.62	384.95	384.30	383.65	383.00
+ 5.46	11.44	12.09	12.74	13.39
395.08	5.63	6.03	6.73	7.22
- 1.55	5.81	6.06	6.01	6.17
T.P. 393.53	396.39	395.93	395.93	395.93
+ 4.38	382.77	382.53	382.29	382.01
397.91	13.62	13.40	13.64	13.92
3.94	7.50	7.12	6.91	6.51
393.97 - C...	6.12	6.28	6.73	7.00
T.P. 389.62	395.93	395.93	395.93	395.93
+ 4.87	381.74	381.46	381.18	380.91
394.49	14.19	14.47	14.75	15.02
+ 4.62	6.92	6.56	6.46	6.29
389.87	7.27	7.91	8.29	8.73
B.M. N.M.B.P. Eugene Place	395.93	395.93	390.11	390.11
+ Raymond Place	380.63	380.35	380.05	379.75
	15.30	15.58	16.06	16.36
	6.15	6.47	1.25	1.47
	9.15	9.11	8.81	8.89
	390.11	390.11	390.11	390.11
	379.45	379.15	378.85	377.35
	10.66	10.96	11.26	12.76
	1.80	2.24	2.41	3.04
	8.86	8.72	8.85	9.72
	390.11			
	375.85			
	14.26			
	4.01			
	10.25			

Sta	Grade	Cut	390.11	390.11	390.11	390.11	
1+50	374.35	9.68	<u>374.35</u>	<u>372.85</u>	<u>371.35</u>	<u>369.85</u>	
2+00	372.85	8.62	15.96	17.26	18.76	20.26	
			<u>6.08</u>	<u>8.64</u>	<u>11.36</u>	<u>13.50</u>	
2+50	371.35	7.40	9.68	8.62	7.40	6.76	
3+00= Plug End	369.85	6.76	395.08	395.08	395.08	395.08	395.08
			<u>380.78</u>	<u>381.21</u>	<u>381.64</u>	<u>382.07</u>	<u>382.5</u>
			14.30	13.87	13.44	13.01	12.58
			<u>5.38</u>	<u>5.29</u>	<u>5.10</u>	<u>5.05</u>	<u>4.80</u>
			8.92	8.58	8.34	7.96	7.78
M.H. #3=0+00	380.35						
+43	380.78	8.92	395.08	395.08	395.08	395.08	
+86	381.21	8.58	<u>382.93</u>	<u>383.36</u>	<u>383.79</u>	<u>384.22</u>	
			12.15	11.72	11.29	10.86	
1+29	381.64	8.34	<u>4.62</u>	<u>4.47</u>	<u>4.39</u>	<u>4.23</u>	
			7.53	7.25	6.90	6.63	
1+72	382.07	7.96	395.08				
2+15=M.H. #4=0+00	382.5	7.78	<u>384.65</u>				
+43	382.93	7.53	10.43				
+86	383.36	7.25	3.90				
			<u>6.53</u>				
1+29	383.79	6.90					
1+72	384.22	6.63	389.87	N.W.B.P. Eugene v Raymond	393.17	383.15	
			<u>+ 5.30</u>		<u>378.0</u>	<u>362.75</u>	
			57.377		21.17	20.40	
			<u>- 1.237</u>		<u>12.37</u>	<u>11.70</u>	
2+15=D.E	384.65	6.53	380.80		8.80	8.70	
			<u>+ 2.35</u>				

Culvert #4

Sta	Grade	Cut				
N.E. End Sydney = 0+00	372.0	8.8	383.75	M. Top east end rock in wall	371.4	358.12
			<u>- 0.51</u>	N side Sydney	<u>353.50</u>	<u>344.25</u>
+26.75	362.75	8.7	382.64		<u>17.64</u>	<u>13.87</u>
			<u>4383.15</u>		<u>13.55</u>	<u>9.70</u>
+53.5	353.50	4.1	1.265		<u>4.09</u>	<u>4.17</u>
			370.50			
+80.25	344.25	4.2	0.54			
			371.74			
1+0.7	335.0	3.7	<u>- 13.02</u>			
			358.127			
			<u>+ 0.00</u>			
			358.127			

5-27-29
J.C. Bliss

Culverts # 1-2-3-East end
Eugene Place

Sta	Grade	Cut
Top cb-North side	376.91	
Flowline	370.91	6.00
Top cb-South side	376.82	
Flowline	367.82	9.00
Top Cleanout	355.91	F0.5
Flowline	351.91	3.50
+18-End #3	349.91	

Cb + Catch Basin N.E. End Sydney Place

BM Top Rock Endwall North side	382.64	
+ "	+ "	
Top cb-catch Basin	380.5	
cb-13' We. side of E-end Sydney	381.36	381.1
End of return West side	381.25	381.0
" " of cb inlet	380.5	380.5
" " " N.E. End	380.55	380.55

BM A.W.B.P. Eugene +Raymond

49

387.82				
<u>12.52</u>				
375.30				
<u>13.11</u>				
379.28			381.90	381.90
<u>26.00</u>			<u>376.00</u>	<u>5.08</u>
381.90			376.84	
<u>0.98</u>				
380.92	BM Nails in Pole South side		381.90	
	Eugene Place		<u>367.82</u>	
381.90			<u>14.08</u>	
<u>12.95</u>			<u>5.08</u>	
368.95			<u>29.00</u>	
<u>10.26</u>				
369.21		357.06	357.06	357.06
<u>-12.55</u>		<u>355.91</u>	<u>351.91</u>	<u>349.91</u>
356.66		<u>1.15</u>	<u>5.15</u>	<u>7.15</u>
<u>0.41</u>		<u>1.65</u>	<u>1.65</u>	<u>6.01</u>
357.06		<u>35-05</u>	<u>3.50</u>	<u>1.14</u>

5-29-29 Culverts on L St. between
J.C. Bliss 5th & 7th Sts.

#1
Sto Grade Cot
Catch basin #1-Flowline -0.39
+34 -1.8 3.78
+6.8 Existing 30" Culvert -3.2 5.10

#2
N.L. L St -0.2
+40 -0.55 3.0
S.L. L St -0.9 3.12

#4
N.L. L St 2.2
+40 1.8 3.4
S.L. L St 1.3 3.9

#5
Flowline Catch basin 40+ 2.22

#6
Flowline Catch basin 2.1

Catch basin 5th & N.W. Grating 1.65

6.65
5.49
1.16

6.65
4.78
1.87

6.65
4.49
2.16

8.95
-3.2
12.15
7.05
5.10

8.95
1.8
10.75
6.97
3.78

7.32
0.59
7.71
5.88
1.83

7.32
-0.9
8.32
5.20
3.12

7.32
-0.55
7.87
4.87
3.00

7.32
0.2
7.52

9.99
-1.8
8.19
4.78
3.41

9.99
1.3
8.69
4.78
3.91

10.31
4.02
6.29
3.83
2.44

10.31
2
8.21
6.54
3.67

10.31
2.20
8.11
3.83
4.28

11.05
2.00
9.05
5.17
3.88

10.31
1.7
8.61
4.54
4.07

19.68 B.M. S.E. Top Hydrant 9th & L
+0.56
20.24
-5.25
14.99 B.M. N.W. B.P. 6th & L
+2.83
17.82
-6.74
11.08 -B.M. N.W. B.P. 7th & L
+3.62
14.70
7.70
7.00 -B.M. S.E. B.P. 6th & L
+3.89
10.89
5.91
4.98 -B.M. S.W. B.P. 5th & L
3.97
8.95
6.96
1.99
5.33
7.32
4.47
2.85
7.14
4.29

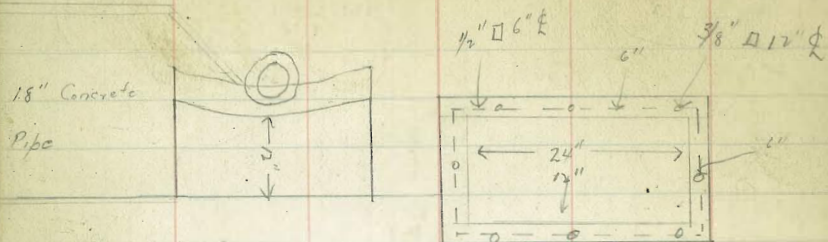
1.77
8.22 B.M. S.W. Top Hydr. 7th & L
9.99
2.00
7.99
5.75
13.74
2.83

10.91 -B.M. S.E. Top Hydrant 8th & L
+13.74
-3.26
10.48
7.66
78.14
3.74

14.40 -B.M. N.E. Top Hydrant 9th & L
+18.14
1.70
16.44
4.61
21.05
1.37
19.68 -B.M. S.E. Top Hydrant 9th & L

2.45 -B.M. N.W. B.P. 6th & L

50



	Jewer Laterals	c
#3	2.75	
#4	2.50	4.40
#5	5.5	5.00

5.74	N.E. Top Hydrant 6 th x L	
0.91		
<u>6.65</u>		
465		
424		
<u>1.91</u>		
S.W. 6 th	1.8	
S.E. 5 th	1.30	

1.38 = gutter opposite Grating

665		
1.39		
<u>3.26</u>		
4.75		
<u>0.31</u>	Top Grating S.E. 5 th x L	

8.22 - B.M. S.W. Top Hydrant 7 th x L			
2.47			
<u>10.69</u>	19.69	1069	10.69
1.90	895	184	
<u>8.79</u>	<u>1.74</u>	<u>8.85</u>	
	1061		
	<u>162</u>		
	9.07		
170		8.00	7.80
8.22	1050		514
<u>230</u>	<u>534</u>		<u>2.86</u>
10.52	5.18		
6.00	60		
<u>4.52</u>	<u>4.52</u>		

10.91 - S.E. Top Hydrant 8 th x L	5	4	3
2.23	13.14	13.14	13.14
<u>13.14</u>	5.5	2.50	2.75
	<u>1.67</u>	<u>10.64</u>	<u>10.39</u>
	265	6.24	402
	<u>5.00</u>	<u>4.40</u>	<u>6.37</u>

7.00 - S.E. B.P. 6 th x K	7.95	7.95	7.95
1.35	3.00	2.87	7.15
<u>8.35</u>	<u>2.75</u>	<u>5.58</u>	<u>0.80</u>
2.61			
<u>5.74</u>	N.W. Top Hydrant 6 th x L		
2.21	5.07		4.70
<u>7.95</u>	5.03		
	67		

8.22 - S.W. Top Hydrant 7 th x L	11.12	11.12	11.12
2.90	5.00	1.80	
<u>11.12</u>	6.12	<u>9.32</u>	
	496	424	
	<u>57</u>	<u>6.83</u>	
	11.12	5.60	
	<u>1.00</u>	<u>3.66</u>	
6.12	6.12	6.12	
<u>523</u>	<u>530</u>	<u>537</u>	
8.37	8.32	7.51	

6-8-1929 Construction - Alley Blocks City
 J.C. Bliss Hts Annex

359.74 - N.W.B.R. Fairmount & University

53

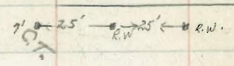
Sta	E.L.	C	W.L.	C
S.L. University - 100	354.95		355.23	
0440	355.30	2.54	355.40	1.37
0480	355.40	1.00	355.50	1.07
1420	355.30	0.93	355.30	0.52
1460	355.00	0.43	355.00	1.00
1495	354.70	2.00	354.70	0.84
2430	354.40	0.21	354.40	0.46
2465	354.10	0.19	354.10	0.18
3400	353.80	0.37	353.80	1.02
+33.3	353.65	0.04	353.65	0.69
466.6	353.49	0.11	353.49	0.09
4400	353.33	1.00	353.33	0.31
+33.3	353.17	1.00	353.17	0.07
+66.6	353.02	0.20	353.02	0.75
5400	352.86	0.41	352.86	1.75
+33.3	352.71	0.38	352.71	1.55
+66.6	352.55	1.06	352.55	2.36
6400 = N.L. Nightman	352.40		352.40	

360.99		360.99			
E.L.	W.L.	E.L.	W.L.	E.L.	W.L.
362.54		360.99	360.99	360.99	360.99
7.40		355.30	355.40	355.40	355.50
358.14		5.69	5.59	5.59	5.40
585		4.13	3.15	4.22	5.17
360.99		354.41	354.41	354.41	354.41
-6.86		388	569	360.99	599
354.13		358.29	476	355.00	6.79
441		385	473	5.99	6.59
358.54		354.47	385	5.56	1.05
4.13		386	360.99	0.43	5.99
354.41		388	354.70	4.44	4.74
388		388	6.29	6.59	4.89
358.29		385	4.29	6.38	4.26
385		354.71	5.46	0.21	3.72
354.47		360.17	3.55	358.54	1.02
386		356.62	6.03	358.54	5.05
358.10		342.5	4.44	354.10	4.96
339		293	4.75	353.80	4.65
354.71		359.72	4.77	4.77	5.27
5.46		358.54	4.44	4.77	5.43
360.17		353.65	4.89	4.77	4.52
355		4.89	4.85	4.37	3.68
356.62		0.04	0.04	0.37	0.75
6.03		358.29	358.54	0.75	1.75
342.5		353.65	353.49	0.75	1.75
293		4.89	5.05	0.75	1.75
359.72		4.85	4.94	0.75	1.75
358.54		0.04	0.11	0.75	1.75
354.10		358.29	358.54	0.75	1.75
353.80		353.65	353.49	0.75	1.75
4.44		4.89	5.05	0.75	1.75
4.75		4.85	4.94	0.75	1.75
4.77		0.04	0.11	0.75	1.75
4.77		358.29	358.54	0.75	1.75
5.27		353.65	353.49	0.75	1.75
5.43		4.89	5.05	0.75	1.75
4.52		4.85	4.94	0.75	1.75
3.68		0.04	0.11	0.75	1.75
0.75		358.29	358.54	0.75	1.75
1.75		353.65	353.49	0.75	1.75
		4.89	5.05	0.75	1.75
		4.85	4.94	0.75	1.75
		0.04	0.11	0.75	1.75
		358.29	358.54	0.75	1.75
		353.65	353.49	0.75	1.75
		4.89	5.05	0.75	1.75
		4.85	4.94	0.75	1.75
		0.04	0.11	0.75	1.75
		358.29	358.54	0.75	1.75
		353.65	353.49	0.75	1.75
		4.89	5.05	0.75	1.75
		4.85	4.94	0.75	1.75
		0.04	0.11	0.75	1.75
		358.29	358.54	0.75	1.75
		353.65	353.49	0.75	1.75
		4.89	5.05	0.75	1.75
		4.85	4.94	0.75	1.75
		0.04	0.11	0.75	1.75

7th

5+

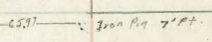
5+



8th

5+

7

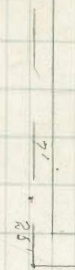


9th

5+



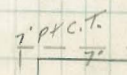
5th



10'

6th

5+



7'

Rough Grades L 5th 9th to

5th

Sta	H	C	S	C
W.L. 9 th	11.5	✓	10.5	
+25	11.25	1.00	10.25	Grade
+50	11.00	1.00	10.00	Grade
+75	10.75	1.00	9.75	1.00
+100	10.50	1.00	9.50	1.00
+26	10.25	1.00	9.25	1.00
+50	10.00	0.45	9.00	1.00
+75	9.75	1.00	8.75	1.00
2+00=EL 8 th	9.5	✓	8.5	
W.L. 8 th	9.0	✓	7.5	✓
+25	8.70	1.00	7.31	1.00
+50	8.39	1.00	7.13	1.00
+75	8.06	1.00	6.94	1.00
+100	7.75	1.00	6.75	0.50
+25	7.43	1.00	6.57	0.50
+50	7.12	1.00	6.38	Grade
+75	6.81	1.50	6.19	0.50
2+00=EL 7 th	6.5	✓	6.0	✓

B.M. 1440 - NE Top Hydrant 9th 7th

+ 1.58
7.578

55

B.M. 10.91 - SE Top Hydrant 8th 4th 15.98 15.98
0.90 11.50 10.50
11.81 4.48 5.482

N		S	
15.98	15.98	5.73	5.78
11.25	11.02	6.23	6.48
4.73	4.78	5.98	5.98
3.73	3.78	5.23	5.48
15.98	15.98	1.00	1.00
10.75	10.50		
5.23	5.48	6.73	6.98
4.23	4.48	5.73	5.98
15.98	15.98	1.00	1.00
10.25	10.00		
5.73	5.98	7.23	7.48
4.73	4.98		
1.00	0.45		
15.98			
9.75			
6.23			

B.M. 922 - S.W. Top Hydrant 7th 4th
4.85
13.07

11.81	11.81	11.81	11.81	11.81	11.81
9.0	8.70	8.39	7.5	7.31	7.13
2.81	3.11	3.42	4.31	4.31	4.68
			3.51	3.51	
			1.00	1.00	
13.07	13.07	13.07	11.81	11.81	11.81
6.5	6.81	7.12	6.94	6.75	6.38
6.57	6.26	5.95	4.87	5.06	5.23
	4.76	2.95	3.87	4.56	4.74
	1.50	1.00	1.00	0.50	0.50
13.07	13.07	13.07	11.81		
7.43	7.75	8.06	6.19		
5.64	5.32	5.01	5.62		
4.64	4.32	4.01	5.12		
1.00	1.00		0.50		
13.07	13.07				
8.39	8.70				
4.68	4.37				
3.88	3.37				
1.00	1.00				

	A	C	S	C	
W.L. 776	50	✓	50	1.00	
475	475	1.50	387 475	1.00	
450	450	2.00	376 450	1.00	
475	475	1.00	362 475	1.00	
1400	400	1.00	350 400	0.50	
475	375	1.50	337 375	0.50	
450	350	1.42	328 350	0.50	
475	325	1.00	312 325	0.50	
W.L. 674	3.0	✓	3.0	0.00	574
W.L. 674	2.5	✓	2.5		948
475	248.247	1.50	243		6.22
450	245.244	0.50	237		247
475	242.240	1.00	231	6.22	378
1400	240.236	0.50	225	2.20	382
475	237.232	0.50	218	7.02	386
450	235.228	3.00	212		390
475	233.224	3.00	206	6.22	394
2400	2.20	0.50	20	2.24	
215				4.98	
218					

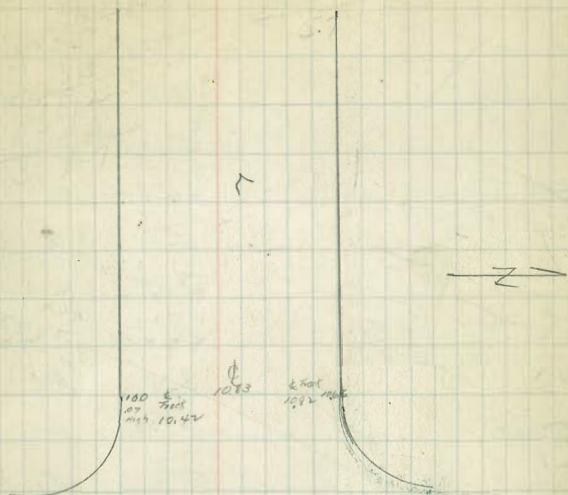
B.M. 822 - S.W. Top Hydrant 77746
1.10
79.32

B.M. 574 - N.E. Top Hydrant 67446
1.77
7.51

	A	S	S	S	S
	9.32	9.32	9.32	9.32	9.32
	4.75	4.50	4.25	4.00	3.87
	4.57	4.82	5.07	5.32	5.45
	3.07	2.82	4.07	4.32	4.57
	1.50	2.00	1.00	1.00	1.00
	9.32	9.32	9.32	9.32	9.32
	4.00	3.75	3.50	3.62	3.50
	5.32	5.57	5.82	5.70	5.82
	4.32	4.07	4.40	4.70	5.32
	1.50	1.50	1.42	1.00	0.50
	9.32	9.32	9.32	9.32	9.32
	3.25	3.00	3.25	3.12	3.00
	6.07	6.32	6.50	4.26	4.39
	5.07	5.07	5.07	3.76	3.89
	1.00	1.00	1.00	0.50	0.50
	7.51	7.51	7.51	8.45	8.45
	2.50	2.48	2.45	5.00	5.45
	5.01	5.03	5.06	3.45	3.70
		4.53	4.56		3.95
		7.50	0.50		
	7.51	7.51	7.51	4.20	4.20
	2.42	2.40	2.37	4.45	4.45
	5.09	5.11	5.14		
	4.09	4.61	4.64	4.70	4.70
	1.00	0.50	0.50		
	7.51	7.51	7.51	4.95	4.95
	2.35	2.33	2.3	5.20	5.20
	5.16	5.18	5.21		
	2.16	2.18	4.71	5.45	5.45
	3.00	3.00	0.50		

Slope stakes Winnett Ave - E.L. - N.L.
 Tooley to S.W. Lemon Grove Blvd

Sta	Grade	F - C
N.H. Tooley 20000	412.4	C 6.0 L
+25	411.4	C 6.9 L
+50	410.1	C 6.6 L
+75	408.3	C 7.2 L
+100	405.9	C 4.5 L
+125	402.9	C 2.9 L
+150	399.5	C 1.9 L
+175	395.9	C 2.9 L
+200	392.3	C 1.2 L
+225	388.7	C 1.3 L
+250	385.1	F 0.4 L
+275	381.5	F 2.8 L
+300	378.0	F 3.3 L
+325	374.4	F 1.6
+350	370.8	F 10.1
+375	367.4	F 7.4
+400	363.9	F 6.0 L
+425	360.7	F 6.2 L
+450	357.7	F 6.9 L
+475	355.0	F 5.2 L
+500	352.5	F 4.1 L
+525	350.0	F 4.7 L
+550	347.5	F 4.2 L
+575	345.0	F 3.2 L
+600	342.5	F 4.1 L



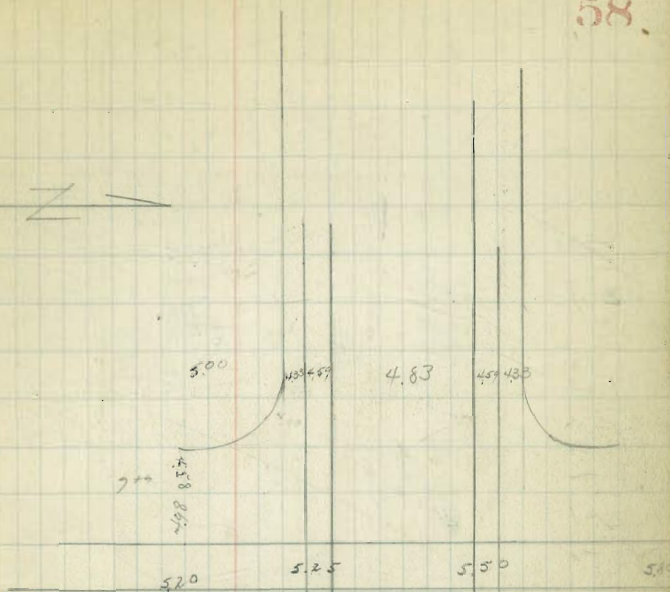
974

N.L. 7th at K.

SW. Top Hydrant 7th & L	822	845	845
	0.23	4.85	
	8.75	3.62	
	4.33		
	2.1		

675	340.0	38
+50	337.5	28
+75	335.0	3.3
7+00	332.5	2.7L
+25	330.0	2.6
+50	327.5	2.9
+75	325.2	3.7
8+00	323.1	4.1
+25	321.2	4.6
+50	319.6	5.7
+75	318.1	6.6
9+00	316.8	8.9
+25	315.7	9.3
+50	314.50	7.5
+75	313.46	6.9
10+00	312.1	5.1
+25	310.4	5.4
+50	308.7	7.1
+75	306.5	7.6
11+00	304.0	7.4
+25	301.2	5.7
+50	298.0	5.5
+75	294.8	4.4
12+00	291.6	2.7
+25	288.4	0.8

Track Grades 7" $\frac{1}{2}$ "



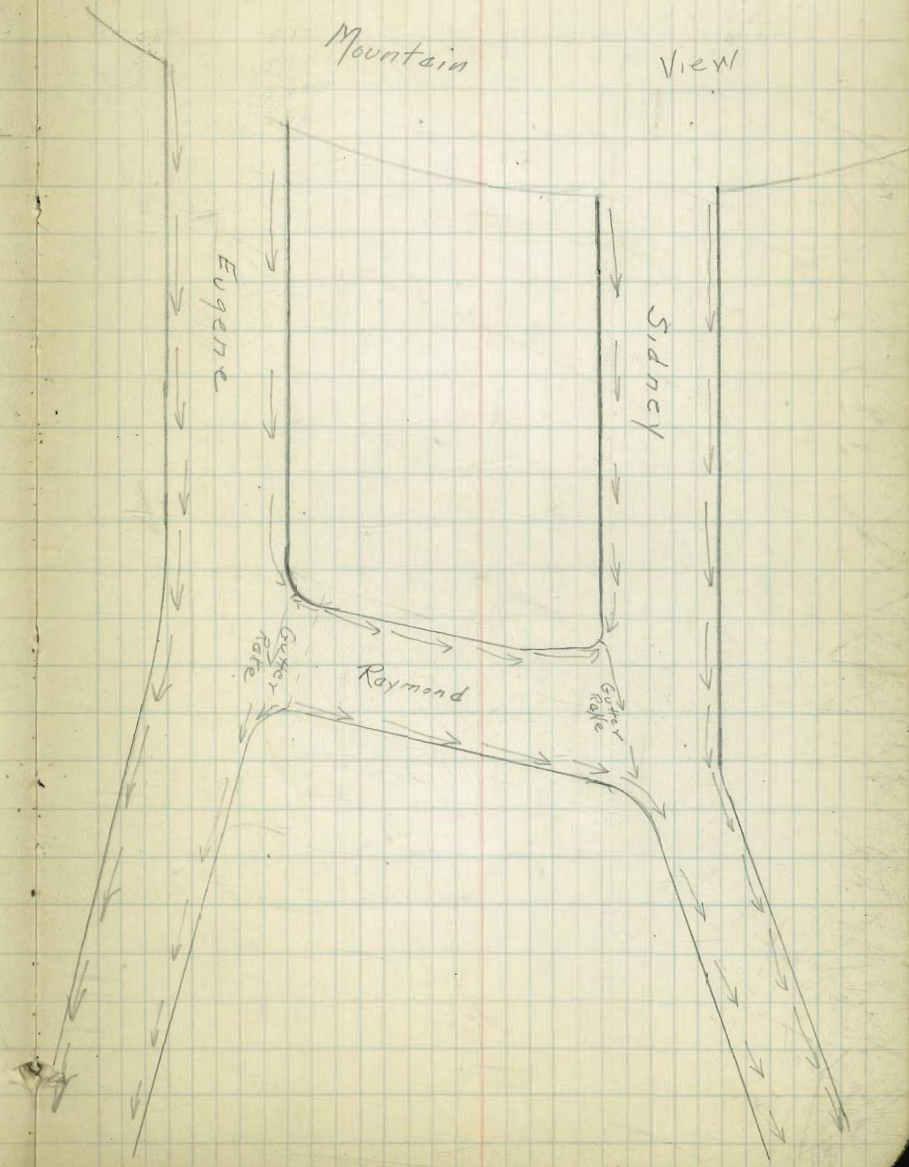
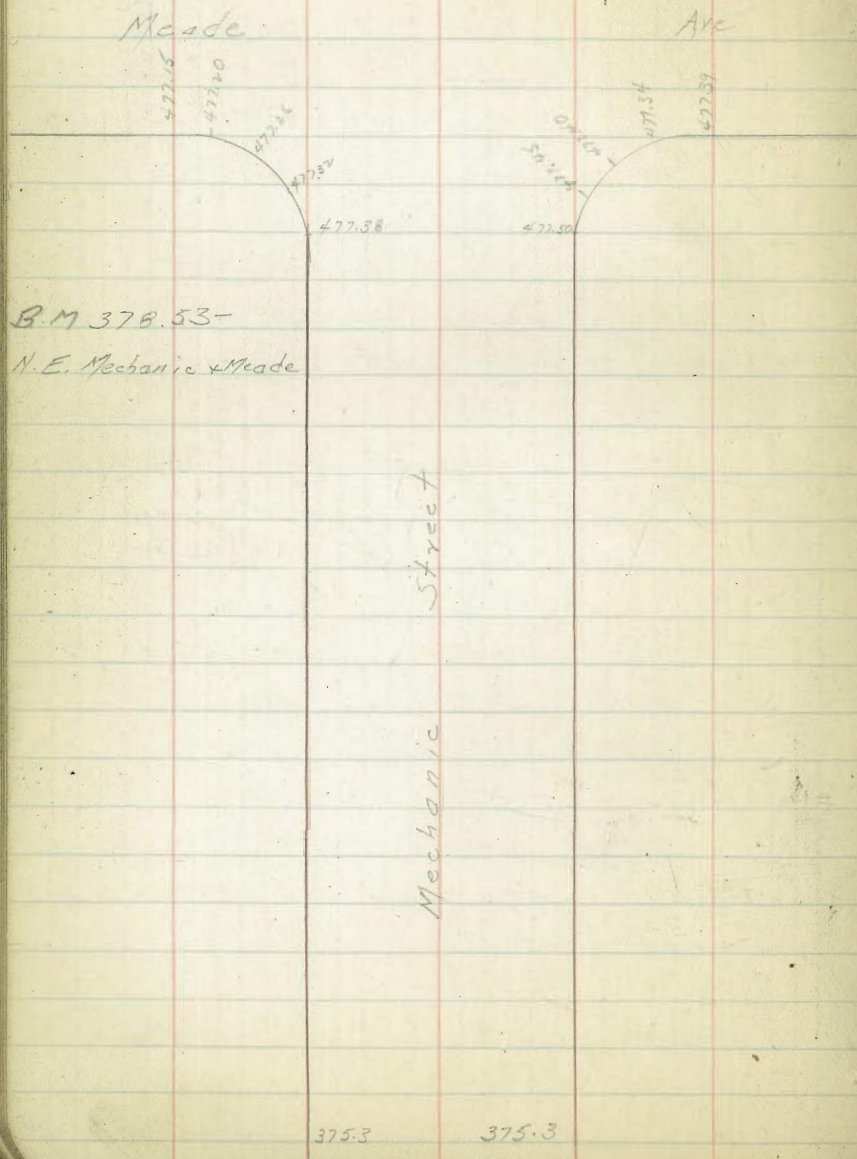
J.C. Bliss U.H.

Sta	Grade	C-F	Grade	C-F
	E.L.		W.L.	
N.L. Lincoln	363.17	✓	363.07	✓
0+40	363.39	C 0.31	363.33	Grade
0+80-B&K	363.6	C 0.30	363.6	C 0.56
1+20	364.15	C 0.28	364.15	C 0.26
1+60	364.70	C 0.35	364.70	C 0.31
2+00	365.25	C 0.50	365.25	C 0.09
2+40	365.80	C 0.41	365.80	C 0.19
2+80	366.35	C 1.00	366.35	C 0.18
3+20	366.90	C 1.00	366.90	F 0.06
3+60	367.45	C 1.00	367.45	C 1.00
4+00-B&K	368.0	C 0.60	368.0	C 1.00
4+40	368.16	C 0.63	368.2	C 1.50
4+80	368.32	C 1.50	368.4	C 1.00
5+20	368.48	C 0.57	368.6	C 0.66
5+60	368.64	C 0.24	368.8	1.00
6+00-SL. P&K	368.8		369.0	

E		W	
364.67	368.45	368.45	368.45
- 7.54			
372.21	368.17	363.39	368.07
2.91	5.28	5.06	5.38
369.30		4.75	
4.24		0.37	
373.54	372.21	372.21	861
- 3.41			806
370.13	363.6	364.15	751
3.95	8.61	8.06	696
374.08	8.31	7.78	805
4.12	0.30	C 0.28	780
369.96			720
			687
			0.31
			0.09
			641
			586
			531
			476
			622
			568
			537
			376
			0.18
			0.19
			0.18
			0.06
			1.00
	372.21	372.21	554
	364.70	365.25	373.54
	7.51	6.96	373.54
	7.16	6.46	454
	0.35	0.50	1.00
			368.2
			368.4
			5.34
			5.74
			3.84
			4.14
			1.50
			1.00
	372.21	372.21	374.08
	365.80	366.35	374.08
	6.41	5.86	368.6
	6.00	4.86	368.8
	0.41	1.00	369.0
			5.28
			5.08
			5.48
			4.28
			4.82
			0.66
	372.21	372.21	
	366.90	367.45	
	5.31	4.76	
	4.31	3.76	
	1.00	1.00	
	373.54	373.54	
	368.0	368.16	
	5.54	5.38	
	4.94	4.75	
	0.60	0.63	
	373.54	374.08	
	368.32	368.48	
	5.22	5.60	
	3.77	5.03	
	1.50	0.57	
	374.08	374.08	
	368.64	368.8	
	5.44	5.28	
	5.20		
	0.24		

7-8-27
J.C. Bliss

Drainage - Eugene - Sidney
Raymond 61



375.3

375.3

7-11-27 Curb cuts Bernice Drive -
J.C. Bliss La Cresta to Wobas Ka
Crest

20



Breaks located &
curbs cut according
to plan

Wobas Ka

Drive

7-12-29 Curb cuts Poe St. - La Cresta
J.C. Bliss to Chatsworth - according to
Plan

62

La Cresta

Chatsworth



7-15-29 Retaining walls on North
J.C. Bliss end 10th St.

Sta	Grade	C-F
#1		
South end wall	283.6	F0.65
+ 6.72	283.7	F0.37
+ 13.44 - E.C. - B.K.	283.8	F0.35
E.C. + 27.00 - B.K.	284.05	F0.9V
E.C. + 47.06 = End Wall	284.2	F0.60
#2		
South end Wall	283.95	F0.47
+ 9.61	283.80	F0.51
+ 19.22	283.45	F0.38
+ 28.83	283.1	F0.42
+ 38.44 - E.C.	282.6	F0.51
+ 54.94	281.5	F0.25
+ 71.54	280.4	F0.18
+ 79.92	279.76	F0.31
+ 88.30	279.13	F0.39
+ 96.68	278.5	0.58
#3		
South end Wall	273.97	F0.55
E.C.	273.7	F0.53
North end	273.47	F0.24
#4		
South end Wall	272.6	C0.27
+ 10.47 -	272.05	C0.13
E.C.	271.5	Grade
+ 4	271.23	C0.35

B.M. 280.97 - SW. BR. End 10th

4.90					
285.87			#1		04
285.87	285.87	285.87	285.87	285.87	
283.6	283.7	283.85	284.05		
2.17	2.17	2.07	1.82		
2.82	2.54	2.42	2.74		
F0.65	F0.37	0.35	1.82		
			0.92		
285.87	2.27				
284.2	1.67	0.60	#2		
285.87	2.39	285.87 2.58	285.87 2.80	285.87 3.09	
283.95	1.92	283.80 2.07	283.45 2.42	283.1 2.67	
1.92	0.47	2.07 0.51	2.42 0.38	2.67 0.42	
285.87	3.68	285.87 4.62	285.87 5.65	285.87 6.42	
282.6	3.17	281.5 4.37	280.4 5.47	279.76 6.11	
	0.51	0.25	0.18	0.31	
285.87	7.13	285.87 7.95			
279.13	6.24	278.5 7.37			
6.74	0.39	7.37 0.58			
#3					
285.87	12.45	285.87 12.70	285.87 12.64		
273.97	11.90	273.7 12.17	273.47 12.40		
11.90	0.55	12.17 0.53	12.40 0.24		
285.87					
- 17.54					
273.47		273.47	273.47	273.47	
272.6		272.05	271.5	271.23	
+ 0.16		0.87	1.97	2.28	
273.47		0.60	1.42	1.89	
- 11.45		C0.27	1.96	C0.35	
272.02					
1.29					
263.30					
8.98					
B.M. 273.32					
+ 9.38					
263.70					
1.02					
262.68					
East 20th R.R. Tie					

7-23-29 Catch basin & Culvert # North
 J.C. Bliss End 10th St.

Sta	Grade	Culvert
Top curb over inlet	2.541	F 0.92
Flowline take Box	2.521	C 1.08
Flowline Pipe start		
Culvert	2.4630	Grade

B.M. 25430 - San Jo Radius Hub
 $\begin{array}{r} + 1.90 \\ \hline 25620 \end{array}$

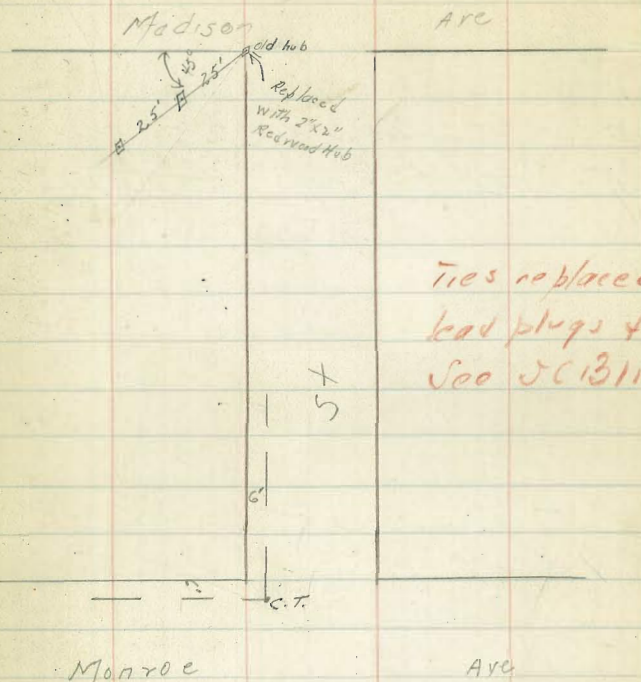
65

2.5622	304?	2.5622	2.5622	2.5622
<u>2.541</u>	<u>212</u>	<u>2.521</u>	<u>2.474</u>	<u>2.522</u>
2.12	F 0.92	4.12	8.8222	8.30
		<u>304</u>	9.92	
		C 1.08		

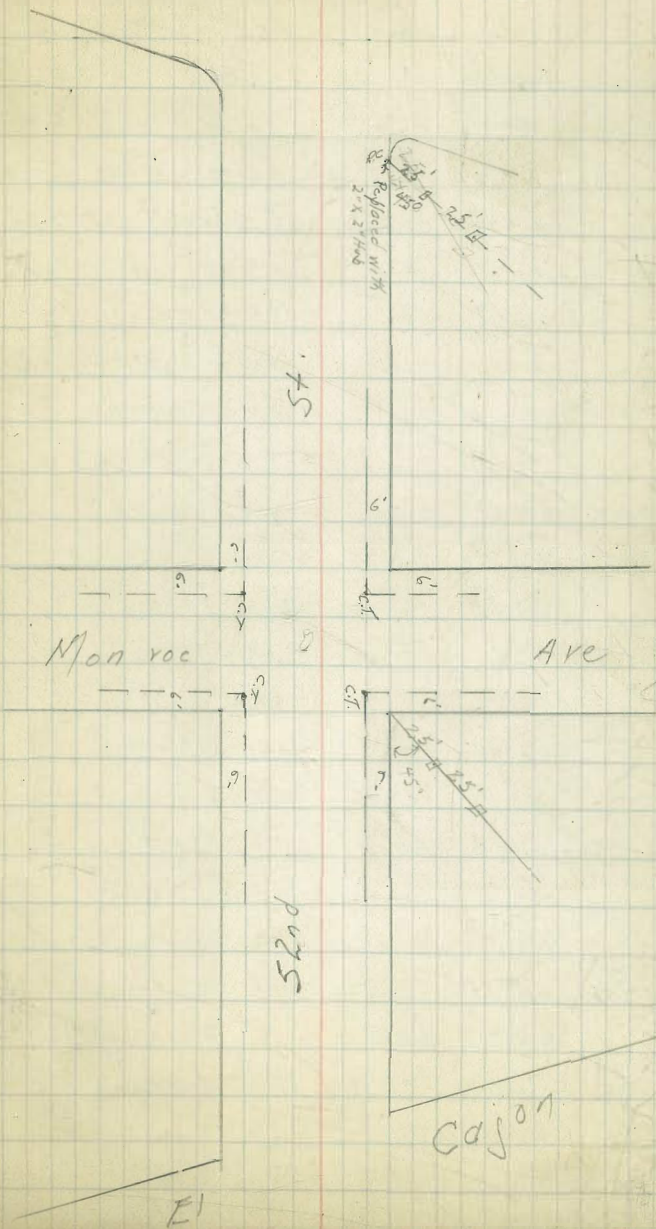
7-29-29 Ties 51st - 52nd - Madison - Contour

J.C. Bliss
Probert
Raney

66



Ties replaced by
lead plugs & c.t.'s
See J.C. Bliss.



7-29-29 Rough Grades - 51st - El Cajon
 C. Bliss
 Drebert to Madison
 Rauner

Sta	E.L.	C-F	W.L.	C-F
N. L. El Cajon	386.1		387.2	
+50	385.90	C0.2	386.81	C1.0
+100	385.69	C0.3	386.50	C1.0
+50	385.48	C0.8	386.19	C1.2
+200	385.28	C1.5	385.88	C1.8
+50	385.07	C2.1	385.57	C1.7
+200	384.86	C2.4	385.26	C1.9
+50	384.65	C2.9	384.95	C2.3
+400	384.44	C2.9	384.64	C2.5
+50	384.23	C3.4	384.33	C3.0
5100	384.02	C3.2	384.02	C3.0
+50	383.81	C2.9	383.71	C2.8
+99.09 = S.W. 1/4	383.6		383.4	
N. Madison = 0+00	383.6		383.4	
+50	383.84	C1.0	383.69	C0.7
+100	384.07	C0.4	383.98	0.0
+50	384.31	F0.2	384.27	F0.3
+200	384.55	C0.4	384.56	F0.2
+50	384.79	C0.6	384.85	F0.3
+300	385.02	C0.6	385.14	C0.3
+50	385.26	C1.8	385.43	C0.4
+400	385.50	C2.0	385.71	C0.9
+50	385.83	C1.8	386.00	C1.1
+600	386.07	C1.8	386.29	C1.0

B.M. S.W. 1/4 51st & El Cajon

67

Sta	E.L.	W.L.	C-F	W.L.	C-F
	386.82				
	+ 5.31				
	392.13	392.1	392.13	392.1	392.11
	4.88	386.1	385.9	387.2	386.5
	387.25 T.P.	6.03	6.2	4.93	5.6
	1.36		6.0	5.3	4.6
			C0.2	4.3	4.6
	388.61 T.P.			C1.0	C1.0
	-5.14	392.1	392.1	392.1	392.1
	383.47	385.7	385.5	386.2	385.9
	388.61 T.P.	6.4	6.6	5.9	6.2
	-2.14	6.1	5.8	4.7	6.5
	386.47 T.P.	6.03	6.0	1.2	4.4
	5.61		C0.8	7.8	4.8
	392.08	392.1	392.1	392.1	392.1
	4.20	385.3	384.9	385.3	384.9
	389.88	6.8	7.0	6.8	7.2
	S.W. 1/4	5.3	4.9	4.9	4.9
		1.5	2.1	2.4	2.3
	51st + Madison				
	392.1	392.1	392.1	392.1	392.1
	382.88	384.7	384.4	384.6	384.3
	6.77	7.4	7.7	7.5	7.8
	385.31 T.P.	4.5	4.8	5.0	4.8
	4.31	2.9	2.9	2.5	3.0
	389.68				
	7.28	388.6	388.6	388.6	388.6
	387.40	384.0	383.8	383.7	383.4
	8.52	4.6	4.8	4.9	5.2
	390.92	1.4	1.9	2.1	2.3
	3.42	3.2	2.9	2.8	3.0
	387.50	388.4	388.6	388.6	388.6
	4.57	383.8	384.1	384.3	384.3
	393.37	7.8	7.5	7.6	7.3
	6.52	3.8	3.7	4.6	4.3
	386.85	C1.0	C0.4	C0.2	C0.3
		388.6	388.6	388.6	388.6
		384.5	384.8	384.9	385.1
		4.1	3.8	3.7	3.3
		3.7	3.2	4.0	3.7
		C0.4	C0.6	C0.3	C0.3
		388.6	392.1	388.7	392.1
		385.3	385.5	385.7	386.0
		3.3	3.7	3.0	3.3
		1.5	4.6	4.5	5.0
		7.8	2.1	2.1	5.8
			2.0	1.8	4.8
					C1.0

Sta	EL	G.F	W.L	C.F	
+50	386.31	C1.7	386.58	C1.1	$\frac{393.21}{387.2}$ 6.01
+600	386.51	C2.3	386.87	C1.6	$\frac{393.21}{386.7}$ 6.51
+50.5 - S.W. Madison	386.7	C1.4	387.2	C1.1	

	EL.		W.L		
3921	3921	3921	3921	3921	3921
3863	3865	3867	3866	3869	3872
58	56	54	55	52	49
41	33	40	44	36	38
1.7	2.3	1.4	C1.1	C1.6	C1.1

52nd Street

N.L. El Cajon	374.8		375.0		
5+41.87					
5+52.27					
4+90	375.37	F0.3	375.75	1.3	
4+40	375.93	F0.8	376.37	C1.6	
3+90BK	376.5	C0.3	377.0	C1.9	
3+34	377.9	C0.5	378.3	C2.7	
2+78	379.3	C0.9	379.6	C2.2	
2+22	380.7	C1.5	380.9	C2.3	
1+66	382.1	C1.5	382.2	C2.1	
1+10BK	383.5	C1.1	383.5	C3.1	
455	384.75	C1.3	384.0	C3.4	
S.L. Monroe - 0400	385.0	C1.1	384.7		
N.L. Monroe - 0200	385.2	C0.5	384.9		
1	385.43	C0.1	385.18	C0.5	
2	385.66	C0.5	385.46	F0.7	
3	385.89	C0.3	385.74	0.0	
4	386.12	C0.7	386.02	0.0	
5	386.35	C0.8	386.30	C0.2	
3+10BK	386.6	C1.0	386.6	C0.5	

Fire Hydrant stakes miller

B.M. 387.88 - S.W. 50' Tie 51st + Madison

2.70			
390.58		B.M. 385.30	384.98
3.43		5.37	5.69
B.M. 387.15 - S.E. 25' Tie 52nd + Contour		390.67	0.0
390.58			
3.11		S.E. 52nd + Contour Blvd	
387.47			
4.05		B.M. 387.15	384.50
391.52		2.39	5.04
6.22		387.54	0.0
B.M. 385.30 - S.E. 50' Tie 52nd + Monroe			
391.52	4.9	S.E. 51st + Madison	
6.38	3.5		
385.14		B.M. 387.88	386.68
2.00		3.71	4.91
387.14		391.59	0.0
11.40			
B.M. 375.74 - S.W. Nails 52nd El Cajon			

387.1	387.1	387.1	387.1	387.1	387.14
377.9	376.5	375.9	375.4	375.8	375.6
9.2	10.6	11.2	11.7	11.3	12.1
0.5	10.3	12.0	12.0	10.0	1.3
	20.3	10.8	10.3		
36	387.1	387.1	387.1	387.1	387.1
25	382.1	380.7	379.3	374.6	372.0
1.1	3.0	6.4	7.8	7.3	8.8
	3.5	5.9	6.9	5.3	6.6
	1.5	1.5	0.9	3.7	2.2
391.5	391.5	391.5	391.5	391.5	387.1
385.2	385.0	384.2	384.0	383.5	382.2
6.3	6.5	7.3	7.5	3.6	4.9
5.8	5.4	6.0	4.1	0.5	2.3
0.5	7.1	1.3	3.7	0.3	2.6
391.5	391.5	391.5	391.5	391.5	391.5
385.9	385.7	385.4	385.7	385.5	385.2
5.6	5.8	6.1	5.8	6.0	6.3
5.3	5.3	6.0	5.8	6.0	5.8
0.3	0.5	0.1	5.8	6.2	0.5
49	391.5	391.5	391.5	391.5	391.5
3.9	386.5	386.1	386.6	386.3	386.0
1.8	5.2	5.4	4.9	5.2	5.5
	4.4	4.5	4.4	5.0	5.5
	0.8	0.7	0.5	0.2	5.5

	EL.		W.L.	
3+50.25	386.7	C1.2	386.7	C0.5
3+90.50	386.3	C1.6	386.7	C0.7
4+30.50	385.6	C1.9	385.5	C0.3
4+70	384.9	C2.2	384.65	C0.7
4+94.88-50	384.5	C2.0		
EC	384.5	C2.0		
5+25.00			383.55	F0.5
EC			383.5	F1.4

	EL		W.L.	
390.6	390.6	390.6	390.6	^{7.6} 390.6
384.5	384.9	385.6	383.5	F0.5 384.6
6.1	5.7	5.0	7.1	6.0
4.1	3.5	3.1	8.5	5.3
2.0	C2.2	C1.9	F1.4	C0.7
391.5	391.5		390.6	391.5
386.3	386.7		385.5	386.2
5.2	4.8		5.1	5.3
3.6	3.6		4.8	4.6
C1.6	C1.2		C0.3	C0.7

Sewer Construction 52nd St.

0+00 = N.L. EIC junction	363.53	16.76 5.36 F11.11	B.M. 52nd St. 524 EIC junction
1+34.02	362.87	15.92 2.02 4 18.94	See P. 68. 375.74
1+08.04	364.41	4.13 7 11.25	4.03 371.71
1+62.07 = B.M.	364.95	1 1.84 1 1.24	
EL. = E Alley Bk 2	365.25	41.54 2.84 F13.17	
W.L.	371.6	0.19 0.78	
W. Entrance to B.M.	371.0	37.46 5.74 3.22 43.55	

7-31-29 Rough Grades 10th St. Johnson +0
 J.C. Bliss North end

Sto.	288.0	288.0	W.L.	C-F	
B.C.	281.2	282.0	281.0		
+26	6.8	6.0			
	4.6	3.9			
	2.2	2.1			
E.C.	288.0	288.0	281.2	C.2.2	
+40.8V	282.8	283.0	282.0	C2.1	263.5
+78.72E	5.2	5.0			258.8
+81.64 W.B.C.	6.2	7.3	282.8	F1.0	4.7
	F1.0	F2.3			8.8
+14.8	288.0	288.0	282.95	F2.3	F4.1
	4.9	4.9			263.5
E.C.	283.1	283.4	283.1	F3.6	257.3
	4.9	4.6			6.2
+21.71 W.L.	288.0	284.2	283.35	F4.3	10.4
	283.6	278.5			F4.2
B.C. Wall in	4.4	5.7	283.6		263.5
					255.8
+196.1	284.2	284.2			7.7
	276.8	285.0	278.5	L	1.28
	7.4	9.2			
EC End Wall					
+23.4V	284.2	284.2	276.75	F3.6	
	274.6	274.2			
+46.85=BC	7.6	7.0	275.0	F3.4	
	3.9	FR7			
BC + 136V	274.7	274.7	274.6	F3.9	
	273.1	271.23			
EC-PRC	1.6	3.47	274.2	F2.7	
	4.7				
BC	274.7	274.7	273.1	F4.7	
	269.8	268.0			
EC Wall in	4.9	6.7	271.5		
+26.37	5.5	9.8	269.75	F0.6	
	F0.6	3.1			
+57.14-LP4	265.8	263.5	268.0	F3.1	
	263.5	263.6			
Lot + 238.9	2.2.3	0.1	265.8	F5.3	
	3.0	4.5			
+57.78=BC	F5.3	F4.6	263.6	F4.6	
			261.4	F3.9	
E.C.	263.5	263.5	261.4	F3.9	
	262.5	261.4			
+24.5=BC	1.0	2.1	258.8	F4.1	
	5.2	6.0	257.3	F4.2	
	F4.2	F3.9	255.8	F5.1	
+268.2=PRC					

10th Continued on page 72

Sto	E.L.	C.F	288.0	288.0	288.0
BC	281.0	L	281.5	282.0	282.5
E.C	281.5	F0.1	6.5	6.0	5.5
			6.6	2.8	5.5
			F0.1	3.2	6.0
+39.86	282.0	C3.2	288.0	288.0	288.0
B.C.	282.5	0.0	282.2	283.6	283.8
E.C	282.7	F0.2	5.3	4.4	4.2
			5.8	4.2	3.7
			F0.2	20.2	20.5
+31.64=BC	283.6	C0.2	288.0	288.0	288.0
+192.0=E.C.	283.8	C0.5	284.1	284.2	284.1
			8.9	3.8	3.9
+270.98E	284.05	F0.7	4.6	3.8	4.2
			F0.7	0.0	10.5
+42.09	284.2	0.0	284.2	284.2	284.2
+57.09=BC	284.1	F0.3	283.5	283.1	282.6
			0.4	1.1	1.6
			0.4	0.8	1.0
			0.0	0.3	0.6
+24.72	283.8	0.0	284.2	284.2	284.2
+48.24	283.1	C0.3	280.4	279.5	278.6
			3.8	4.7	5.6
+57.00=EC	282.6	C0.6	2.5	4.5	4.5
			1.3	0.2	1.1
+33=BC	280.4	C1.3	284.2	284.2	284.2
+11.73	279.5	C0.2	276.8	274.9	274.3
			7.4	9.3	9.9
+23.47=EC	278.6	C1.1	7.2	1.0	10.0
			284.2	274.7	274.7
+24.93	276.75	C0.2	273.7	273.1	272.3
			10.5	1.6	2.4
+49.82=BC	274.9	F0.7	10.5	0.2	0.5
			20.4	C.1.4	C.1.9
EC	274.3	F0.1	274.7	274.7	274.7
+19.94	273.7	C0.4	271.5	269.8	268.0
			3.2	4.9	6.7
+39.84=BC	273.1	C1.4	0.8	2.2	4.9
			2.4	2.7	1.9
+18.48	272.3	C1.9			
+36.97=EC	271.5	C2.4			
+25.98	269.75	C2.7			
+51.96-LP4	269.0	C1.9			

7-16-29
J.C. Bliss

Construction - Alley Block 62
Park Villas - 15' wide

Sta	E.L.	C-F	W.L	C-F
52. University	343.77	✓	343.56	✓
+30-B.R.	3441	C0.83	3441	Grade
450-B.R.	3442	C0.57	3442	F0.13
+75	34405	C0.30	34405	F0.31
14.00	343.89	C0.63	343.89	F0.09
+25	343.74	Grade	343.74	F0.70
150	343.58	F0.05	343.58	F0.06
175	343.42	C0.94	343.42	F0.04
200	343.26	C1.08	343.26	C0.65
+25	343.10	C1.00	343.10	C0.86
+50 N.W.	34294		34285	

G. Wiestman

B.M. B.P. End 117

280.97	263.54
7.05	9.19
π 288.02	254.35 - B.M. Barge Radius Hub
4.72	
π 283.30	
0.90	
π 284.20	
10.74	
π 273.46	
1.21	
π 274.67	
11.61	
π 263.06	
0.48	
π 263.54	
12.55	
π 250.99	

346.05 = B.M. N.W.B.P. 28th + University
2.98

71

Sta	E.L.	W.L
347.03		
5.21		
347.74		
347.74		
347.03	349.03	349.03
4.93	483	498
348.77	344.1	344.2
5.26	4.93	4.83
	4.10	4.26
	C0.83	C0.57
349.03	349.03	349.03
5.14	347.74	4.16
34405	343.89	343.74
4.98	5.23	343.74
4.68	F0.09	4.00
C0.30		4.70
347.74	347.74	347.74
4.32	4.32	432
343.58	343.42	343.26
4.76	4.32	4.36
4.21	3.38	F0.04
F0.05	C0.94	1.08
347.74	347.74	347.74
343.10	342.94	9.85
4.64	4.80	
3.64		337.89
C1.00		

250.99	π 199.90	138.25
0.01	13.05	0.05
π 251.00	π 178.685	π 138.30
12.51	0.38	13.09
π 238.49	π 187.23	
0.15	12.87	π 125.21
π 238.64	π 174.36	0.20
12.91	0.43	π 125.41
π 225.73		12.25
0.13	π 174.79	π 113.16
π 225.86	12.08	0.84
13.05	π 162.71	π 114.00
	0.35	
212.81	π 163.06	7.92
0.03	13.05	B.M. 06.08 - West Rim M.H. at Buchanan
π 212.84	π 150.03	
13.13	0.49	π 114.00
π 199.71	π 150.52	14.12
0.19	12.27	99.88 - Flare Line M.H. - Profile 100.0
π 199.90	138.25	

Sta	W.L	C-F
PRC+968	2547	263.5
+198-C.I.H.	2541	<u>254.1</u>
		9.4
+29.04	2541	
+38.71	2542	

72

Sta	E.L	C-F			
294+285	265.8	02.6	274.7	274.7	274.7
+57.80	263.6	00.8	<u>265.8</u>	<u>263.6</u>	<u>262.5</u>
			8.9	11.1	12.2
+13.38	262.5	02.4	<u>6.3</u>	10.3	9.8
			2.6	<u>0.8</u>	2.4
+26.77-PC	261.4	02.1	274.7	263.5	263.5
+24.5-80	258.8	01.5	<u>261.4</u>	258.8	<u>257.5</u>
			13.3	4.7	6.0
+13.41	257.45	01.9	<u>11.2</u>	3.2	4.1
			2.1	<u>1.5</u>	0.9
+26.82-PRC	256.1	02.7	263.5	263.5	263.5
+9.68	255.3		<u>256.1</u>	<u>254.8</u>	<u>254.2</u>
			7.4	8.7	9.3
+19.36	254.8V	00.4	<u>4.7</u>	8.3	10.5
			2.7	<u>0.4</u>	
+38.71	254.2V	01.2			

7-31-29 Sewer Grades in 10th St. Johnson

J.C. Bliss to North end

Sta	Grade	C
D.E.	277.0	
+32.5		
+65.0 = ♀ M.H. #1	275.7	
+48.76	272.8	
+97.52	269.9	
1+46.28 = ♀ M.H. #2	267.0	✓
+48.22	264.25	
+96.44	261.50	
+144.66	258.75	
1+92.88 = ♀ M.H. #3	256.0	
+44.35	251.85	
+88.70 = ♀ M.H. #4	247.7	6.00
+31.5	247.05	9.39
+63.0 = B.r.k.	246.4	8.52
+33	231.8	10.00
+66 B.r.k.	217.2	4.00
+27	198.8	6.79
+53	180.4	5.83
+79 B.r.k.	162.0	7.50
+27	146.0	6.30
+54	130.0	6.30
+81.5 B.r.k.	114.0	6.80
411 B.r.k.	101.3	14.03
Existing M.H. Buchanan	100.0	

28097
 6.75
 287.12
 18.20
 278.92
 3.12
 275.80
 11.95
 263.85
 2.75
 261.10
 24.79
 236.31
 3.12

263.54	263.54	263.54	251.00
247.7	247.05	246.4	2318
15.84	16.49	17.14	19.20
9.85	7.10	8.62	9.20
66.00	9.39	8.52	10.00
225.86	212.84	187.23	174.79
217.2	198.80	180.4	162.0
8.66	14.04	6.83	12.79
2.68	7.25	1.00	5.29
6.00	6.79	5.83	7.50

163.06	13830	125.41	125.41
146.0	130.00	114.0	101.3
17.06	8.30	11.41	24.11
10.76	2.00	4.60	10.08
6.30	6.30	6.81	14.03

251.85	256.0	259.0	262.0	267.82	263.62	264.46
13.34	20.41	17.41	14.41	13.02	12.77	14.95
7.12	11.95	6.79	5.83	3.32	3.32	2.95
6.15	7.42	10.12	19.59	19.56	19.71	17.00
EC		M.H. #4	PC		EC	
265.27	207.0	269.46	270.16	270.86	273.78	
14.17	36.12	17.62	12.76	16.26	13.84	
2.36	13.33	16.23	8.25	8.25	5.22	
8.28	7.25	17.45	18.01	18.01	18.56	
275.70 = M.H. #1	276.35	277.0 = DE				
11.40	10.77	10.70				
4.00	3.52	3.78				
27.42	42.97	48.34				

73

check 253
 det = 29.31(37)

8-8-29 Finish States L St - according
 J.C. Bliss to sketch next page - first st

7th to 8th

1691 B.M. S.E. Top Hydrant 8th & L

0.95
 11.86 Rod

W.L. - 8th

South Gutter 6.90 4.96

816 3.70

North gutter 832 3.54

E.L. 7th

North Gutter 5.83 6.02 ✓

4 6.08 5.78

South Gutter 5.33 6.53

S.L. L.

E.L. 7th 60 5.86

+25 619 5.67 ✓

+50 638 5.48 ✓

+75 657 5.29 ✓

+100 675 5.10 ✓

+25 694 4.92 ✓

+50 713 4.73 ✓

+75 731 4.55

2+000 W.L. 8th 75 4.36

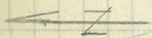
N.L. L

E.L. 7th +25 6.81 5.05

W.L. 8th +25 8.70 3.15

10.91
 276
 1361
 + 00
 401

74



L
 St.

Grating 8.77
 950

920

900

892

270 - Grating
 846

8.80

8.95

8th St.

854

7.90

832

878

818

842

200
 4440

8-7-29
 J.C. Bliss
 Drebert
 Roney

Construction Alley - from
 Arch + Meade - Between Lots 264 to 285
 inc. in the Resub. of Part of Pueblo Lots D-1117
 15' wide

Stake	E.L.	C-F	W.L.	C-F
W.L. Meade 2000	305.48		305.14	
+14 B.K.	306.5	C2.00	306.3	C0.12
+49	309.1	C0.74	308.9	F0.39
+84 B.K.	311.7	C0.47	311.5	Grade
+104	313.1	C1.03	312.9	F1.40
+124	314.0	C0.63	313.8	F1.16
+144	314.5	142	314.3	F0.12
+164	315.1	C3.0	314.9	Grade
+184	316.0	C3.0	315.8	C0.07
+204	317.4	2.75	317.2	F0.59
+54	321.5	C2.17	321.3	F0.27
+74	323.0	C1.70	322.8	F0.20
+94	324.3	C1.29	324.1	F0.25
+314	325.3	C1.25	325.1	F0.10
+34	326.3	C0.97	326.1	F0.20
+74	327.9	C1.34	327.7	F0.21
+94	328.5	C2.40	328.3	F0.13
+114	329.0	C1.46	328.8	F0.21
+134	329.4	C1.70	329.235	C0.05
+154	329.4	C2.41	329.2	C0.12
+164	329.3	C3.04	329.1	C1.49
+174			328.6	C2.37
+174 = S.L. Arch	329.3		328.14	

329.38 E top of S.L. Arch

349
 332.87
 -12.91
 319.96
 -0.69
 320.65
 -6.23
 314.42 + P
 -2.08
 316.50

316.50
 395.48
 97.02

316.50
 311.7
 4.80
 4.33
 20.47
 316.50
 314.50
 2.00
 0.58
 1.42

320.65
 317.4
 3.25
 0.50
 2.75
 332.87
 324.3
 8.57
 7.28
 1.29

332.87
 327.9
 4.97
 3.63
 1.34

332.87
 326.3
 6.57
 5.60
 0.97

332.87
 328.5
 4.37
 332.87
 326.8
 6.07
 3.63
 2.44

332.87
 328.5
 4.37
 1.41
 1.96

75
 W.L.

316.50
 10.67
 305.81

316.50
 305.14
 11.36

316.50
 306.5
 10.00
 7.60
 0.39
 316.50
 314.0
 2.50
 1.87
 0.63

320.65
 316.0
 4.65
 1.65
 3.00

332.87
 326.3
 6.57
 5.60
 0.97

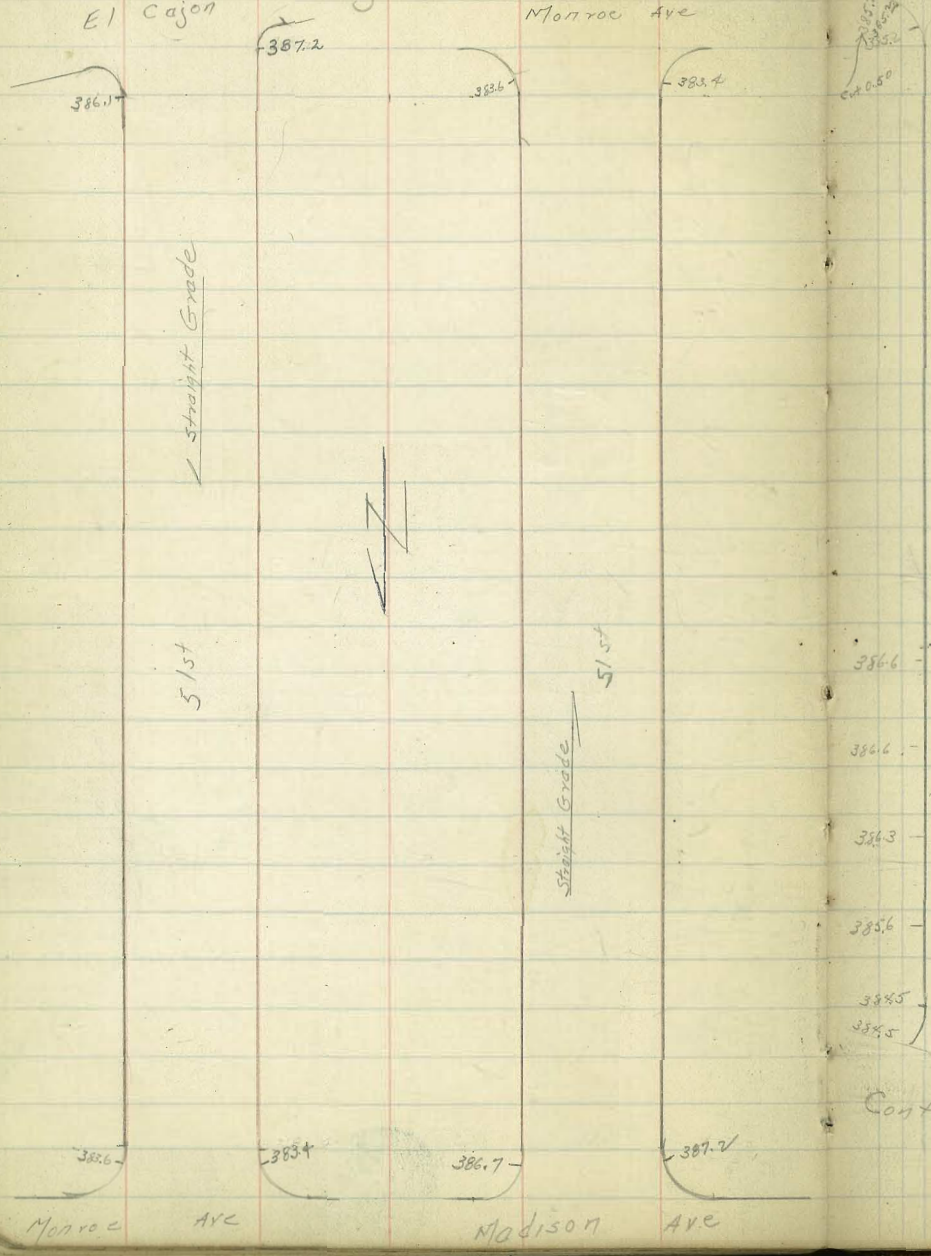
332.87
 326.8
 6.07
 3.63
 2.44

332.87
 328.5
 4.37
 1.41
 1.96

332.87
 328.5
 4.37
 1.41
 1.96

9-11-29 Curb Grades 51st St.
 J.C. Bliss
 El Cajon to Madison
 Monroe Ave

Monroe



385.1

387.15
 0.28
 + 387.43

387.43 387.43
 384.5 388.5
 2.93 3.93

385.30 = B.M. - SE. 50' Tie 52 Monroe
 6.04
 + 391.34 391.34 391.34 391.34
 6.45 385.0 385.1 385.2
 6.34 6.24 6.14
 384.89 5.64

387.15 - SE. 25' Tie 52 + Contour

386.6 386.6 386.6
 4.00
 + 391.15 391.15 391.15
 391.15 391.15 391.15
 - 386.6 386.3 385.6
 4.55 4.85 5.55
 391.15 391.15 391.15
 - 386.2 385.5 386.2
 7.45 5.65 4.95

385.5
 383.2
 383.5
 383.5

Contour
 Bird

Monroe Ave Madison Ave

El Cajon

385.30 = SE. 50' to 52nd & Monroe

356
+ 388.86

388.86	388.86	388.86
384.9	388.0	385.1
ca. 10 3.96	3.86	3.76
	3.50	1.00
	3.36	2.76

18.57

375

3770 388.96	388.96
384.3	384.6
4.26	4.36

52nd

BM 375.74 = 51' to 52nd - El Cajon

890	384.64	384.64
738.764	376.5	377.0
	8.14	7.64

384.64
383.5
1.14

383.5

383.5

ca. 50' → 384.9
ca. 10 → 385.1

384.6
384.7
384.8

Monroe

6-6-1929

Profile Levels on Line 5' East
of Alley Between 40th & Central. S.L.
Landis to 125' South

78

B.M.N.W.B.P. 40 th & Landis		330.28
+147	H.I. 331.75	
2' North S.L. Landis	5.08	326.67
S.L. Landis = 0+00	6.70	325.05
0+10	13.12	318.63
T.P.		-12.84 318.91
+0.35	H.I. 319.26	
0+20	7.02	312.24
0+30	12.73	306.53
T.P.		-12.84 306.42
+3.59	H.I. 310.01	
0+35	6.54	303.47
0+51.	9.54	300.47
0+55	1.85	308.16
T.P.		-0.82 309.19
+11.09	H.I. 320.28	
0+68	1.98	318.30
T.P.		-0.51 319.77
+12.14	H.I. 331.91	
0+85	7.86	324.05
+00	3.83	328.08
+10	2.62	329.29
+25	2.01	329.9
B.M.N.W.B.P. 40 th & Landis		-1.65 330.26
		Correct 330.28

15.86
18

58
53

5.55
5.9
6.55
5.80
75

8.22
2.85
11.05
5.08
5.97

11.05
5.45
5.60

9.35

11.05
270
8.35

5.80
4.30
1.50

5.05
50
5.55

11.05
5.25
5.80

11.05
9.32
1.73

150

200

11.05
5.40
5.65

11.05
6.80
4.25

100.00	90.00
1.47	0.51
101.47	89.49
12.84	12.14
88.63	101.63
0.35	1.66
88.98	
12.84	
76.14	
3.59	
79.73	
0.82	
78.91	
11.09	
90.00	

31308
30870
21300/4.38

0.20
213
2.60
42.60
2.63

0.20
37
40
60
640

308.2
308.2
308.95
308.90

323.29
312.79
317.46
317.25

IMPROVED TABLES

AND

INFORMATION

313.24
308.60
464

309.34
82

31016
31108032

310.16
310.98
311.80
312.62

309.80
310.88
310.18
311.06
311.89
317.97

80
592
4.57
1.35

50
50
6.0
43
1.7

46
3
4.57

DIRECTIONS FOR USE OF TABLES

592
3
5.22
5.30

TABLE No. 1.

Distance of slope stake from side or shoulder stake for any width roadway, slope 1½ to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

TABLE No. 9.

To find Tangent and External for curve of any other degree, divide by degree of curve and add correction found in column of corrections.

Degree of curve with a given I may be found by dividing tangent, (or external), opposite I by given tangent, (or external).

The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.

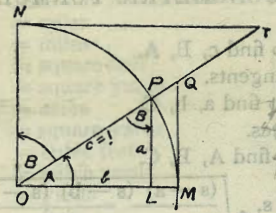


TABLE II
TRIGONOMETRIC FORMULÆ.

464
1.8
6.44

999 999
5.02 4.56
4.97 5.73

∠A = ∠MOP ∠B = ∠PON = ∠OPL
R = OB = c = 1

sin A = $\frac{a}{c} = \frac{a}{1} = a = \cos B = LP$

cos A = $\frac{b}{c} = \frac{b}{1} = b = \sin B = OL$

tan A = $\frac{a}{b} = \frac{MQ}{OM} = \frac{MQ}{1} = MQ = \cot B = MQ$

cot A = $\frac{NT}{ON} = \frac{NT}{1} = NT = \tan B = NT$

sec A = $\frac{OQ}{OM} = \frac{OQ}{1} = OQ = \csc B = OQ$

csc A = $\frac{OT}{ON} = \frac{OT}{1} = OT = \sec B = OT$

vers A = $\frac{LM}{OP} = LM = \text{covers B} \#$

covers A = $\frac{OP - LP}{OP} = OP - LP = \text{vers B}$

exsec A = PQ = coexsec B

coexsec A = PT = exsec B

sin ½ A = $\sqrt{\frac{1 - \cos A}{2}}$ cos ½ A = $\sqrt{\frac{1 + \cos A}{2}}$

sin 2A = 2 sin A cos A cos 2A = cos² A - sin² A

Law of Sines $\frac{\sin A}{a} = \frac{\sin B}{B} = \frac{\sin C}{C}$

Law of Cosines $c² = a² + b² - 2 ab \cos C$

Law of Tangents $\frac{a+b}{a-b} = \frac{\tan \frac{1}{2}(A+B)}{\tan \frac{1}{2}(A-B)}$

0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010
0.0011	0.0012	0.0013	0.0014	0.0015	0.0016	0.0017	0.0018	0.0019	0.0020
0.0021	0.0022	0.0023	0.0024	0.0025	0.0026	0.0027	0.0028	0.0029	0.0030
0.0031	0.0032	0.0033	0.0034	0.0035	0.0036	0.0037	0.0038	0.0039	0.0040
0.0041	0.0042	0.0043	0.0044	0.0045	0.0046	0.0047	0.0048	0.0049	0.0050
0.0051	0.0052	0.0053	0.0054	0.0055	0.0056	0.0057	0.0058	0.0059	0.0060
0.0061	0.0062	0.0063	0.0064	0.0065	0.0066	0.0067	0.0068	0.0069	0.0070
0.0071	0.0072	0.0073	0.0074	0.0075	0.0076	0.0077	0.0078	0.0079	0.0080
0.0081	0.0082	0.0083	0.0084	0.0085	0.0086	0.0087	0.0088	0.0089	0.0090
0.0091	0.0092	0.0093	0.0094	0.0095	0.0096	0.0097	0.0098	0.0099	0.0100

TABLE II—Continued
TRIGONOMETRIC FORMULAE (continued)

In any triangle:

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

Use Law of Tangents.

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

Use Law of Sines.

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

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

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

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

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

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

Area of a triangle:

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

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

PRISMOIDAL FORMULA.

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

h = altitude; b, B = bases; M = midsection

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

	0	1	2	3	4	5	6	7	8	9	10	11
$\frac{1}{16}$	.0052	.0885	.1719	.2552	.3385	.4219	.5052	.5885	.6719	.7552	.8385	.9219
$\frac{1}{8}$	.0104	.0938	.1771	.2604	.3438	.4271	.5104	.5938	.6771	.7604	.8438	.9271
$\frac{3}{16}$	.0156	.0990	.1823	.2656	.3490	.4323	.5156	.5990	.6823	.7656	.8490	.9323
$\frac{1}{4}$	.0208	.1042	.1875	.2708	.3542	.4375	.5208	.6042	.6875	.7708	.8542	.9375
$\frac{5}{16}$	.0260	.1094	.1927	.2760	.3594	.4427	.5260	.6094	.6927	.7760	.8594	.9427
$\frac{3}{8}$	.0313	.1146	.1979	.2813	.3646	.4479	.5313	.6146	.6979	.7813	.8646	.9479
$\frac{7}{16}$	.0365	.1198	.2031	.2865	.3698	.4531	.5365	.6198	.7031	.7865	.8698	.9531
$\frac{1}{2}$	.0417	.1250	.2083	.2917	.3750	.4583	.5417	.6250	.7083	.7917	.8750	.9583
$\frac{9}{16}$	.0469	.1302	.2135	.2969	.3803	.4635	.5469	.6302	.7135	.7969	.8802	.9635
$\frac{5}{8}$	.0521	.1354	.2188	.3021	.3854	.4688	.5521	.6354	.7188	.8021	.8854	.9688
$\frac{11}{16}$	.0573	.1406	.2240	.3073	.3906	.4740	.5573	.6406	.7240	.8073	.8906	.9740
$\frac{3}{4}$	.0625	.1458	.2292	.3125	.3958	.4792	.5625	.6458	.7292	.8125	.8958	.9792
$\frac{7}{8}$	.0677	.1510	.2344	.3177	.4010	.4844	.5677	.6510	.7344	.8177	.9010	.9844
$\frac{15}{16}$	.0729	.1563	.2396	.3229	.4063	.4896	.5729	.6563	.7396	.8229	.9063	.9896
$\frac{1}{1}$	.0781	.1615	.2448	.3281	.4115	.4948	.5781	.6615	.7448	.8281	.9115	.9948
	.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167	1.0000
	0	1	2	3	4	5	6	7	8	9	10	11

TABLE IV
USEFUL RELATIONS.

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

$$360^\circ = 21600' = 1296000''$$

$$\text{Radius} = \text{arc of } 57.2957790''$$

$$\text{Arc of } 1^\circ (\text{radius} = 1) = .017453292$$

$$\text{Arc of } 1' (\text{radius} = 1) = .000290888$$

$$\text{Arc of } 1'' (\text{radius} = 1) = .000004848$$

$$\pi = 3.141592654 \quad \sqrt{\frac{1}{4}} = 0.564190$$

$$\frac{\pi}{4} = 0.785398163 \quad \sqrt{\frac{6}{\pi}} = 1.240700982$$

$$\frac{\pi}{6} = 0.523598776 \quad \pi^2 = 9.869604401$$

$$\sqrt{\frac{4}{\pi}} = 1.128379167 \quad \frac{1}{\pi^2} = 0.101321184$$

$$\frac{\pi}{6} = 0.523598776 \quad \sqrt{\pi} = 1.772453851$$

$$\frac{4\pi}{3} = 4.188790205 \quad \frac{1}{\pi} = 0.3183099$$

Curvature of Earth's surface = about 0.7 feet in 1 mile

Curvature in feet = 0.667 (Dist. in miles)²

Difference between arc and chord length, 0.05 feet in 11½ miles

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

Error in chaining of 0.01 feet in 100 feet:

Due to—

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

STADIA REDUCTION FORMULAE.

Horizontal Distance = $R - R \sin^2 a + C \cos a$

Vertical Distance = $R \frac{1}{2} \sin 2a + C \sin a$

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

C = distance from Object glass to cross hairs + distance from Object glass to center of instrument.

a = angle of elevation for mid Reading

00019
25
00090
00038
000795

TABLE VI
SINES, COSINES, TANGENTS, COTANGENTS

deci	sin 0'	tan 0'	sin 10'	tan 10'	sin 20'	tan 20'	sin 30'	tan 30'	sin 40'	tan 40'	sin 50'	tan 50'	deci
0	0000	0000	0029	0029	0058	0058	0087	0087	0116	0116	0145	0145	89
1	175	0375	0204	0204	0233	0233	0262	262	291	291	320	320	88
2	349	349	378	378	407	407	436	437	465	466	494	495	87
3	523	524	552	553	581	582	610	612	640	641	669	670	86
4	698	699	727	729	756	758	785	787	814	816	843	844	85
5	872	875	901	904	929	934	958	963	987	992	1016	1022	84
6	1045	1051	1074	1080	1103	1110	1132	1139	1161	1169	1190	1198	83
7	219	228	248	257	279	287	305	317	334	346	363	376	82
8	392	405	421	435	449	465	478	495	507	524	536	554	81
9	564	584	593	614	622	644	650	673	679	703	708	733	80
10	736	763	765	793	794	823	822	853	851	883	880	914	79
11	908	944	937	974	965	2004	994	2035	2022	2065	2051	2095	78
12	2079	2126	2108	2156	2136	186	2164	217	193	247	221	278	77
13	250	309	278	339	306	370	334	401	363	432	391	462	76
14	419	493	447	524	476	555	504	586	532	617	560	648	75
15	588	679	616	711	644	742	672	773	700	805	728	836	74
16	756	867	784	899	812	931	840	962	868	994	896	3026	73
17	924	3057	952	3089	939	3121	3007	3153	3035	3185	3062	217	72
18	3090	249	3118	281	3145	314	173	346	201	378	228	411	71
19	256	443	283	476	311	508	338	541	365	574	393	607	70
20	420	640	448	673	475	706	502	739	529	772	557	805	69
21	584	839	611	872	638	906	665	939	692	973	719	4006	68
22	746	4040	773	4074	800	4108	827	4142	854	4176	881	210	67
23	907	245	934	279	961	314	987	348	4014	383	4041	417	66
24	4067	452	4094	487	4120	522	4147	557	173	592	200	628	65
25	226	663	253	699	279	734	305	770	331	806	358	841	64
26	384	877	410	913	436	950	462	986	488	5022	514	5059	63
27	540	5095	566	5132	592	5169	617	5206	643	243	669	280	62
28	695	317	720	354	746	392	772	430	797	467	823	505	61
29	848	543	874	581	899	619	924	658	950	696	975	735	60
30	5000	774	5025	5812	5050	851	5075	890	5100	930	5125	969	59
31	150	6009	175	6048	200	6088	225	6128	250	6168	275	6208	58
32	299	249	324	289	348	330	5373	371	398	412	422	453	57
33	446	494	471	536	495	577	519	619	544	661	568	703	56
34	592	745	616	787	640	830	664	873	688	916	712	959	55
35	736	7002	760	7046	783	7089	807	7133	831	7177	854	7221	54
36	878	265	901	310	925	355	948	400	972	445	995	490	53
37	6018	536	6041	581	6065	627	6088	673	6111	720	6134	766	52
38	157	813	180	860	202	907	225	954	248	8002	271	8050	51
39	293	8098	316	8146	338	8195	361	8243	383	292	406	342	50
40	428	391	450	441	472	491	494	541	517	591	539	642	49
41	561	693	583	744	604	796	626	847	648	899	670	952	48
42	691	9004	713	9057	734	9110	756	9163	777	9217	799	9271	47
43	820	325	841	380	862	435	884	490	905	545	926	601	46
44	947	657	967	713	988	770	7009	827	7030	884	7050	942	45
45	7071	1.0000	7092	1.0058	7112	1.0117	133	1.0176	153	1.0235	173	1.0295	44
deci	60'	60'	50'	50'	40'	40'	30'	30'	20'	20'	10'	10'	deci
cos	cot	cos	cot	cos	cot	cos	cot	cos	cot	cos	cot	cos	cot

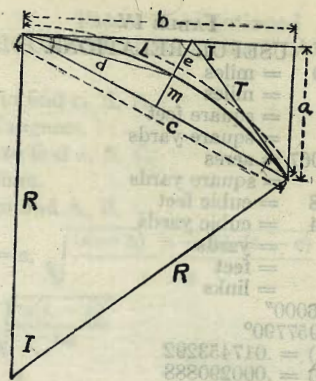


TABLE V
CURVE FORMULAE FOR SIMPLE CURVES
COMPILED BY J. CALVIN LOCKE, C.E.

- (1) $c = \sqrt{2Ra}$ (2) $c = \sqrt{a^2 + b^2}$
 (3) $c = \sqrt{2R(R - \sqrt{(R+b)(R-b)})} = \sqrt{2R(R - \sqrt{R^2 - b^2})}$
 (4) $c = 2\sqrt{m(2R - m)}$
 (5) $c = 2R \sin \frac{1}{2} I$ (6) $c = 2T \cos \frac{1}{2} I$
 (7) $e = R \operatorname{exsec} \frac{1}{2} I$
 (8) $e = R \tan \frac{1}{2} I \tan \frac{1}{4} I$ (9) $e = T \tan \frac{1}{4} I$
 (10) $b = \sqrt{a(2R - a)}$
 (11) $b = \sqrt{(c + \frac{c^2}{2R})(c - \frac{c^2}{2R})} = \sqrt{c^2 - \frac{c^4}{4R^2}}$
 (12) $b = R \sin I$ (13) $b = a \cot \frac{1}{2} I$
 (14) $R = \frac{a^2 + b^2}{2a} = \frac{c^2}{2a}$ (15) $R = \frac{d^2}{2m} = \frac{c^2 + 4m^2}{8m}$
 (16) $d = \sqrt{R(2R - \sqrt{(2R+c)(2R-c)})} = \sqrt{R(2R - \sqrt{4R^2 - c^2})}$
 (17) $d = \sqrt{2Rm}$ (18) $d = 2R \sin \frac{1}{4} I$ (19) $m = \frac{d^2}{2R}$
 (20) $m = R \mp \sqrt{(R + \frac{c}{2})(R - \frac{c}{2})} = R \mp \sqrt{R^2 - \frac{c^2}{4}}$
 (21) $m = R \operatorname{vers} \frac{1}{2} I$ (22) $m = R \sin \frac{1}{2} I \tan \frac{1}{4} I$ (23) $m = \frac{1}{2} c \tan \frac{1}{4} I$
 (24) $a = \frac{c^2}{2R}$ (25) $a = R - \sqrt{(R+b)(R-b)} = R - \sqrt{R^2 - b^2}$
 (26) $a = 2R(\sin^2 \frac{1}{2} I)$ (27) $a = R \operatorname{vers} I$ (28) $a = R \sin I \tan \frac{1}{2} I$
 (29) $a = b \tan \frac{1}{2} I$ (30) $a = T \sin I$ (31) $T = R \tan \frac{1}{2} I$
 (32) $I = \frac{L}{R} \times 57.295780$ (33) $R = \frac{L}{I} \times 57.295780$
 (34) $L = IR \times 0.01745329$ (35) $L = \frac{8d - c}{3}$
 (36) $\text{Area Seg.} = \frac{LR - R^2 \sin I}{2} = \frac{LR - Rb}{2}$

TABLE IX. TANGENTS AND EXTERNALS TO A 1° CURVE

Table with columns for angle (I), tangent (T), external (E), and other values for angles from 1° to 30°. It includes sub-columns for angles like 10°, 20°, 30°, 40°, 50° and values for I=10°, I=20°, I=30°.

T = R tan 1/2 I

E = R exsec 1/2 I

TABLE IX. TANGENTS AND EXTERNALS TO A 1° CURVE

Table with columns for angle (I), tangent (T), external (E), and other values for angles from 31° to 60°. It includes sub-columns for angles like 10°, 20°, 30°, 40°, 50° and values for I=40°, I=50°, I=60°.

T = R tan 1/2 I

E = R exsec 1/2 I

Handwritten notes: 304, 262, 237

TABLE X.
MIDDLE ORDINATES OF RAILS
Length of Rail (feet)

C	R	30	28	26	24	22	20	C	R	30	28	26	24	22	20
o /	Feet	Inch	Inch	Inch	Inch	Inch	Inch	o	Feet	Inch	Inch	Inch	Inch	Inch	Inch
0-20	17189	.08	.07	.06	.05	.04	.03	8	716.8	1.88	1.64	1.42	1.20	1.01	.84
0-40	8594	.16	.14	.12	.10	.08	.07	9	637.3	2.12	1.84	1.60	1.35	1.14	.94
1-0	5730	.24	.20	.18	.15	.13	.10	10	573.7	2.36	2.05	1.78	1.50	1.27	1.04
1-20	4297	.31	.27	.23	.20	.17	.13	11	521.7	2.59	2.26	1.95	1.65	1.39	1.15
1-40	3438	.39	.34	.29	.25	.21	.17	12	478.3	3.83	2.47	2.15	1.81	1.54	1.26
2-0	2865	.47	.41	.35	.30	.25	.20	13	441.7	3.05	2.66	2.30	1.96	1.66	1.36
2-20	2456	.55	.48	.41	.35	.29	.23	14	410.3	3.30	2.87	2.48	2.10	1.78	1.46
2-40	2149	.63	.55	.47	.40	.33	.27	15	383.1	3.54	3.08	2.68	2.26	1.91	1.57
3-0	1910	.71	.62	.53	.45	.38	.31	16	359.3	3.76	3.28	2.83	2.40	2.04	1.67
3-20	1719	.78	.68	.59	.50	.42	.35	17	338.3	4.00	3.48	3.02	2.57	2.16	1.78
3-40	1563	.86	.75	.65	.55	.46	.38	18	319.6	4.21	3.67	3.18	2.70	2.28	1.87
4-0	1433	.94	.82	.71	.60	.50	.42	19	302.9	4.45	3.89	3.36	2.86	2.41	1.98
4-20	1323	1.02	.89	.77	.65	.55	.45	20	287.9	4.70	4.09	3.55	3.00	2.54	2.09
4-40	1228	1.10	.96	.83	.70	.59	.48	22	262.0	5.16	4.44	3.84	3.30	2.80	2.29
5	1146	1.18	1.03	.89	.75	.63	.52	24	240.5	5.64	4.92	4.20	3.59	3.04	2.50
6	955.3	1.41	1.23	1.06	.90	.76	.62	26	222.3	6.07	5.29	4.58	3.88	3.29	2.70
7	819.0	1.65	1.44	1.24	1.05	.89	.73								

TABLE XI.
SHORT RADIUS CURVES

Radius Feet	Chord Feet	Central Angle	Deflection Angle	Deflection for 1 Foot
35	10	16-26	8-13	49.3
45	10	12-46	6-23	38.3
50	15	17-16	8-38	34.5
60	15	14-22	7-11	28.8
75	15	11-30	5-45	23.0
100	20	11-30	5-45	17.3
120	20	9-34	4-47	14.3
150	20	7-39	3-49	11.5
190	25	7-32	3-46	9.15
200	25	7-10	3-35	8.6
225	25	6-25	3-12	7.7
240	25	5-58	2-59	7.2
250	25	5-44	2-52	6.9
275	25	5-12	2-36	6.2
288	50	9-58	4-59	6.0
300	50	9-32	4-46	5.7
350	50	8-12	4-06	4.9
376	50	7-40	3-50	4.6
400	50	7-10	3-35	4.3
410	50	7-00	3-30	4.2

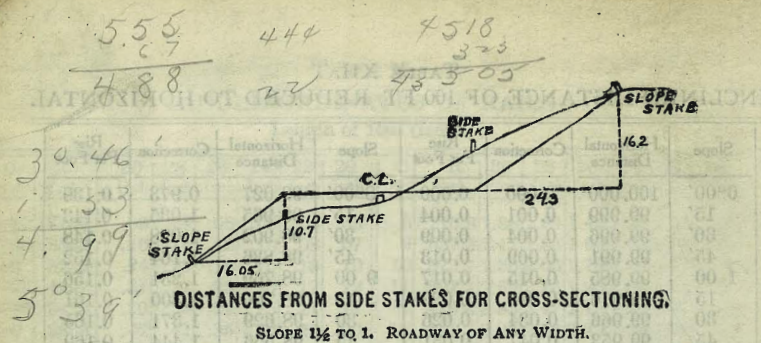
To find length of curve divide angle from P. C. to P. T. by central angle of chord, and multiply by length of chord.

TABLE XII.
INCLINED DISTANCE OF 100 FT. REDUCED TO HORIZONTAL

Slope	Horizontal Distance	Correction	Rise Per Foot	Slope	Horizontal Distance	Correction	Rise Per Foot
0°00'	100.000	0.000	0.000	8°00'	99.027	0.973	0.139
15'	99.999	0.001	0.004	15'	98.965	1.035	0.143
30'	99.996	0.004	0.009	30'	98.902	1.098	0.148
45'	99.991	0.009	0.013	45'	98.836	1.164	0.152
1 00	99.985	0.015	0.017	9 00	98.769	1.231	0.156
15	99.976	0.024	0.022	15	98.700	1.300	0.161
30	99.966	0.034	0.026	30	98.629	1.371	0.165
45	99.953	0.047	0.031	45	98.556	1.444	0.169
2 00	99.939	0.061	0.035	10 00	98.481	1.519	0.174
15	99.923	0.077	0.039	15	98.404	1.596	0.178
30	99.905	0.095	0.044	30	98.325	1.675	0.182
45	99.885	0.115	0.048	45	98.245	1.755	0.187
3 00	99.863	0.137	0.052	11 00	98.163	1.837	0.191
15	99.839	0.161	0.057	15	98.079	1.921	0.195
30	99.813	0.187	0.061	30	97.992	2.008	0.199
45	99.786	0.214	0.065	45	97.905	2.095	0.204
4 00	99.756	0.244	0.070	12 00	97.815	2.185	0.208
15	99.725	0.275	0.074	15	97.723	2.277	0.212
30	99.692	0.308	0.078	30	97.630	2.370	0.216
45	99.657	0.343	0.083	45	97.534	2.466	0.221
5 00	99.619	0.381	0.087	13 00	97.437	2.563	0.225
15	99.580	0.420	0.092	15	97.338	2.662	0.229
30	99.540	0.460	0.096	30	97.237	2.763	0.233
45	99.497	0.503	0.100	45	97.134	2.866	0.238
6 00	99.452	0.548	0.105	14 00	97.030	2.970	0.242
15	99.406	0.594	0.109	15	96.923	3.077	0.246
30	99.357	0.643	0.113	30	96.815	3.185	0.250
45	99.307	0.693	0.118	45	96.705	3.295	0.255
7 00	99.255	0.745	0.122	15 00	96.593	3.407	0.259
15	99.200	0.800	0.126	15	96.479	3.521	0.263
30	99.144	0.856	0.131	30	96.363	3.637	0.267
45	99.087	0.913	0.135	45	96.246	3.754	0.271

TABLE XIII.
MINUTES IN DECIMALS OF A DEGREE.

0 30"	.00833	10' 30"	.17500	20' 30"	.34167	30' 10"	.50833	40' 30"	.67500	50' 10"	.84167
1 00	.01667	11 00	.18333	21 00	.35000	31 00	.51667	41 00	.68333	51 00	.85000
30	.02500	30	.19167	30	.35833	30	.52500	30	.69167	30	.85833
2 00	.03333	12 00	.20000	22 00	.36667	32 00	.53333	42 00	.70000	52 00	.86667
30	.04167	30	.20833	30	.37500	30	.54167	30	.70833	30	.87500
3 00	.05000	13 00	.21667	23 00	.38333	33 00	.55000	43 00	.71667	53 00	.88333
30	.05833	30	.22500	30	.39167	30	.55833	30	.72500	30	.89167
4 00	.06667	14 00	.23333	24 00	.40000	34 00	.56667	44 00	.73333	54 00	.90000
30	.07500	30	.24167	30	.40833	30	.57500	30	.74167	30	.90833
5 00	.08333	15 00	.25000	25 00	.41667	35 00	.58333	45 00	.75000	55 00	.91667
30	.09167	30	.25833	30	.42500	30	.59167	30	.75833	30	.92500
6 00	.10000	16 00	.26667	26 00	.43333	36 00	.60000	46 00	.76667	56 00	.93333
30	.10833	30	.27500	30	.44167	30	.60833	30	.77500	30	.94167
7 00	.11667	17 00	.28333	27 00	.45000	37 00	.61667	47 00	.78333	57 00	.95000
30	.12500	30	.29167	30	.45833	30	.62500	30	.79167	30	.95833
8 00	.13333	18 00	.30000	28 00	.46667	38 00	.63333	48 00	.80000	58 00	.96667
30	.14167	30	.30833	30	.47500	30	.64167	30	.80833	30	.97500
9 00	.15000	19 00	.31667	29 00	.48333	39 00	.65000	49 00	.81667	59 00	.98333
30	.15833	30	.32500	30	.49167	30	.65833	30	.82500	30	.99167
10 00	.16667	20 00	.33333	30 00	.50000	40 00	.66667	50 00	.83333	60 00	1.00000



	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0 00	0 15	0 30	0 45	0 60	0 75	0 90	1 05	1 20	1 35	0
1	1 50	1 65	1 80	1 95	2 10	2 25	2 40	2 55	2 70	2 85	1
2	3 00	3 15	3 30	3 45	3 60	3 75	3 90	4 05	4 20	4 35	2
3	4 50	4 65	4 80	4 95	5 10	5 25	5 40	5 55	5 70	5 85	3
4	6 00	6 15	6 30	6 45	6 60	6 75	6 90	7 05	7 20	7 35	4
5	7 50	7 65	7 80	7 95	8 10	8 25	8 40	8 55	8 70	8 85	5
6	9 00	9 15	9 30	9 45	9 60	9 75	9 90	10 05	10 20	10 35	6
7	10 50	10 65	10 80	10 95	11 10	11 25	11 40	11 55	11 70	11 85	7
8	12 00	12 15	12 30	12 45	12 60	12 75	12 90	13 05	13 20	13 35	8
9	13 50	13 65	13 80	13 95	14 10	14 25	14 40	14 55	14 70	14 85	9
10	15 00	15 15	15 30	15 45	15 60	15 75	15 90	16 05	16 20	16 35	10
11	16 50	16 65	16 80	16 95	17 10	17 25	17 40	17 55	17 70	17 85	11
12	18 00	18 15	18 30	18 45	18 60	18 75	18 90	19 05	19 20	19 35	12
13	19 50	19 65	19 80	19 95	20 10	20 25	20 40	20 55	20 70	20 85	13
14	21 00	21 15	21 30	21 45	21 60	21 75	21 90	22 05	22 20	22 35	14
15	22 50	22 65	22 80	22 95	23 10	23 25	23 40	23 55	23 70	23 85	15
16	24 00	24 15	24 30	24 45	24 60	24 75	24 90	25 05	25 20	25 35	16
17	25 50	25 65	25 80	25 95	26 10	26 25	26 40	26 55	26 70	26 85	17
18	27 00	27 15	27 30	27 45	27 60	27 75	27 90	28 05	28 20	28 35	18
19	28 50	28 65	28 80	28 95	29 10	29 25	29 40	29 55	29 70	29 85	19
20	30 00	30 15	30 30	30 45	30 60	30 75	30 90	31 05	31 20	31 35	20
21	31 50	31 65	31 80	31 95	32 10	32 25	32 40	32 55	32 70	32 85	21
22	33 00	33 15	33 30	33 45	33 60	33 75	33 90	34 05	34 20	34 35	22
23	34 50	34 65	34 80	34 95	35 10	35 25	35 40	35 55	35 70	35 85	23
24	36 00	36 15	36 30	36 45	36 60	36 75	36 90	37 05	37 20	37 35	24
25	37 50	37 65	37 80	37 95	38 10	38 25	38 40	38 55	38 70	38 85	25
26	39 00	39 15	39 30	39 45	39 60	39 75	39 90	40 05	40 20	40 35	26
27	40 50	40 65	40 80	40 95	41 10	41 25	41 40	41 55	41 70	41 85	27
28	42 00	42 15	42 30	42 45	42 60	42 75	42 90	43 05	43 20	43 35	28
29	43 50	43 65	43 80	43 95	44 10	44 25	44 40	44 55	44 70	44 85	29
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31	46 50	46 65	46 80	46 95	47 10	47 25	47 40	47 55	47 70	47 85	31
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35	52 50	52 65	52 80	52 95	53 10	53 25	53 40	53 55	53 70	53 85	35
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45	67 50	67 65	67 80	67 95	68 10	68 25	68 40	68 55	68 70	68 85	45
46	69 00	69 15	69 30	69 45	69 60	69 75	69 90	70 05	70 20	70 35	46
47	70 50	70 65	70 80	70 95	71 10	71 25	71 40	71 55	71 70	71 85	47
48	72 00	72 15	72 30	72 45	72 60	72 75	72 90	73 05	73 20	73 35	48
49	73 50	73 65	73 80	73 95	74 10	74 25	74 40	74 55	74 70	74 85	49
50	75 00	75 15	75 30	75 45	75 60	75 75	75 90	76 05	76 20	76 35	50

Computed by L. Leland Locke.

445 0.437
4.55 79
5.00

5 0.85
3.50

1210
10585
15.15

25868
15
273.7

445
5.50
4.45
1.05

25473
38
73.7.38

14 2'

477

49
4.71
5.10
5.50

79
28

138

458
3.90
68

5 138

440

5
5.08

4.58
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5.85 88

88 0.79
11.7.00
88
290
262

92.70

420
4.64
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88

0.59
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377 436 1222
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 378 42 5.00
 426 1674 1143 12138
 476 82 41.51
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 8351 1143
 3875 263 10227 1143
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 146 36 346 11456
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 10.00 372 785 21875
 11155 335 10373 14375
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 210 56174 10272
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 5.6 825 4630 10436
 4125 164
 5050 10600
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 423
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104 923
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 123 12.05
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