EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

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

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

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be 30.6+(20—16)÷2 or 2 ft. added to 30.6 =32.6. For slopes of 1 on 1½ see inside of back cover.

548

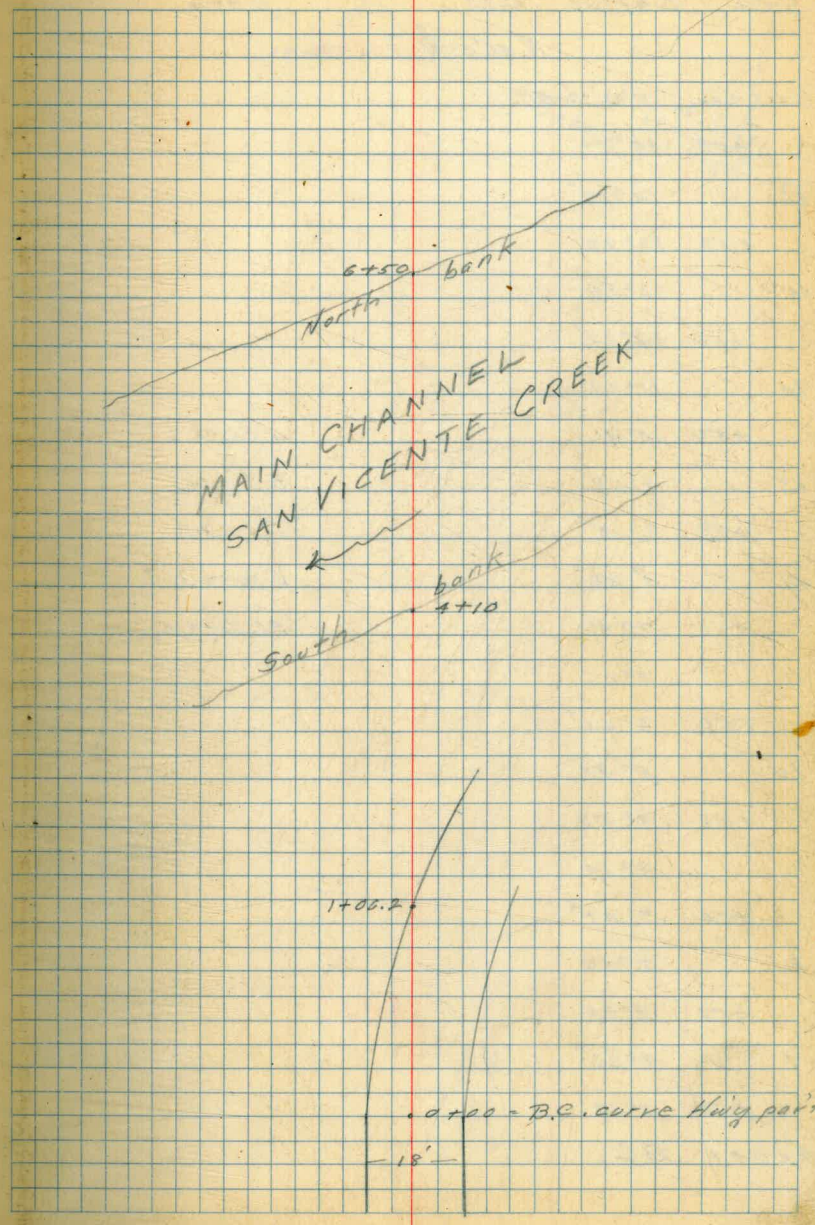
This Field Book is manufactured of a high grade **50%** Rag Paper having a **WATER RESISTING** surface.

Index

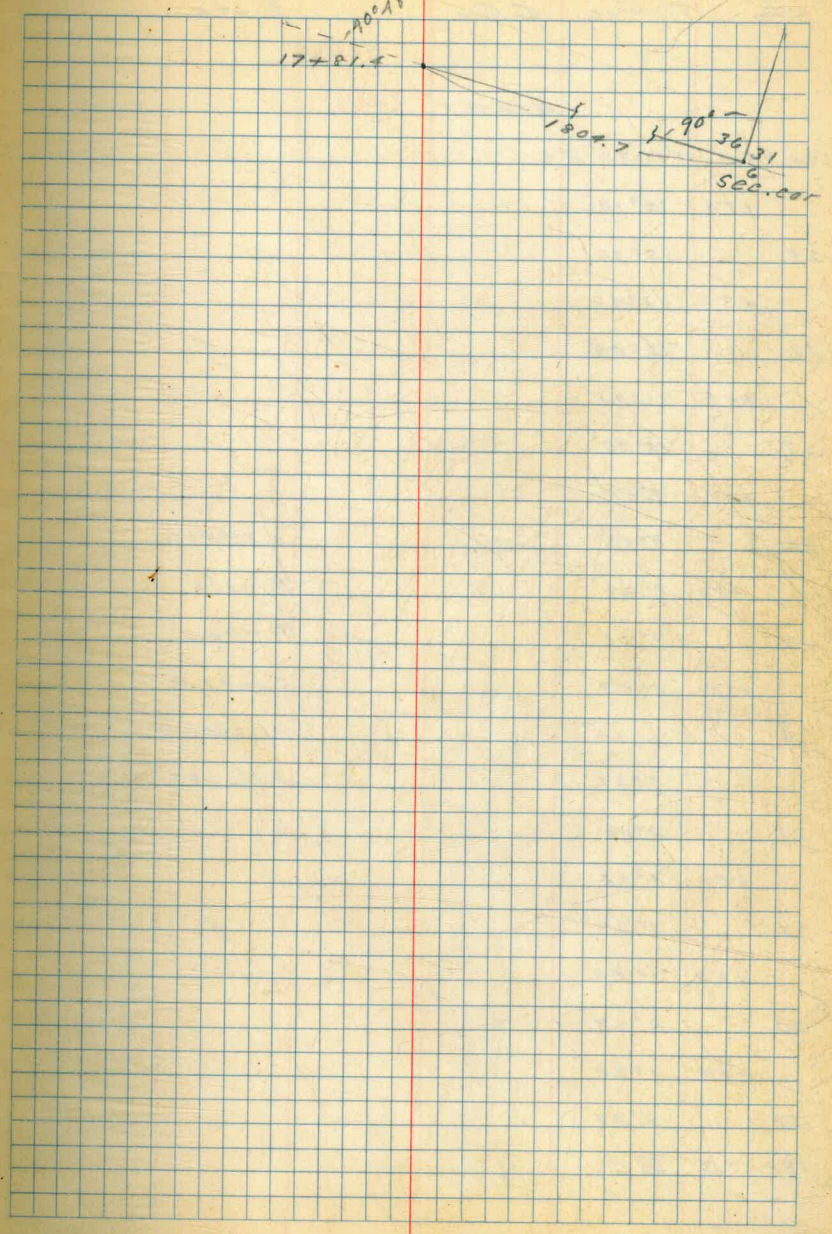
P Line - North from long hwy tong. near Foster 10/18/38

Hill
Isbell
Leahey
Brookes
clear

Sta.	Deflec.	C.C.	Curve Data
6+50	P.O.T.		
4+10	P.O.T.		
1+06.2	P.O.T.		
		N. 18°50'W. 1141.5	
0+00			



Sta.	Deflec.	C.C.	Curve Data
		N. 48°55' W 1373.6	
16+54.2	15°02'30"	E.C.	
+50	14°59'		
16	14°16'		
+50	13°33'		
15	12°50'		
+50	12°07'		
14	11°24'		
+50	10°41'		Δ 30°05' L
13	9°58'		R. 2000.
+50	9°16'		T. 537.4
12	8°32'		L. 1050.1
+50	7°49'		P.I. 11+41.5
11	7°06'		
+50	6°23'		
10	5°40'		
+50	4°57'		
9	4°14'		
+50	3°31'		
8	2°48'		
+50	2°05'		
7	1°22'		
+50	0°39'		
6+09.1	B.C.		



Sta.	Deflec.	C.C.	Curve Data
		N78°46'W 2449.0	
29+99.3	14°58'30"	E.C.	
+50	14°13'		
29	13°30'		
+50	12°47'		
28	12°04'		
+50	11°21'		
27	10°38'		
+50	9°55'		
26	9°12'		Δ 29°51'
+50	8°29'		R. 2000.
25	7°46'		T. 533.1
+50	7°03'		L 1042.0
24	6°20'		P.I. 24+90.1
+50	5°37'		Ext. 69.7
23	4°55'		
+50	4°12'		
22	3°29'		
+50	2°46'		
21	2°03'		
+50	1°20'		
20	0°37'		
19+57.3	B.C.		

Sta. Detlec c.c. Curve Data

40

38

36

34

N 78°46'W

32

Sta.	Defl.	c.c.	Curve Data
		N. 54°06'W 1406.1	
53+38.9	12°20' E.C.		
53	11°47'		
+50	11°01'		
52	10°21'		
+50	9°38'		
51	8°55'		
+50	8°12'		Δ 24°40'R
50	7°29'		R 2000.
+50	6°46'		T. 437.3
49	6°03'		L. 861.0
+50	5°20'		P.I. 49+15.2
48	4°37'		
+50	3°54'		
47	3°11'		
+50	2°28'		
46	1°45'		
+50	1°02'		
45	0°19'		
44+77.9	B.C.		
		N 78°16'W	

Sta.	Deflec.	C.C.	Curve Data
72			
68			
		N 5°48'E 1750.0	
+42.3	28°57'	EC.	
65	26°32'		
+50	23°40'		Δ 59°54' R
64	21°48'		R 500.
+50	18°56'		T. 288.1
63	16°04'		L. 522.7
+50	13°12'		PI. 63+07.7
62	10°20'		
+50	7°28'		
61	4°36'		
+50	1°45'		
60+196	BC.		
		N 54°06'W	

Sta.	Deflec.	C.C.	Curve Data
85+23.2	P.O.T.		
		N 70°48' W 1367.4	
82+77.8	35°18' LC.		
+50	36°43'		
82	33°51'		
+50	30°49'		
81	28°07'		Δ 76°36' L
+50	25°15'		R 500.
80	22°23'		T 394.9
+50	19°31'		L 668.5
79	16°39'		P.I. 80+09.2
+50	13°47'		
78	10°56'		
+50	8°04'		
77	5°12'		
+50	2°20'		
76+07.3	EC.		
		N 5°48' E	

Sta.	Deflec.	C.C.	Curve Data	
95+28.3	49°40'30"	EC (New)		
95	48°04'			
+78.3	46°48'30"	EC (old)		
+50	45°12'			
94	42°20'			
+50	39°28'			
93	36°36'		(old)	(New)
+50	33°44'	P.O.C.	Δ 93°37' R	99°21 R,
92	30°52'		R 500'	500'
+50	28°00'	P.O.C.	T 532.6	589.1
91	25°08'		L 817.0	867.0
+50	22°17'		PI. 91+93.8	PI. 92+50.3
90	19°25'			
+50	16°33'			
89	13°41'			
+50	10°49'			
88	7°57'			
+50	5°05'			
87	2°13'			
86+61.2	BC.			
85+67.6	P.O.T.			

Sta	Deflec	CC		Curve Data
		N 7°36' E	1055.0	
106+60.5	10°28'30"	EC.		
+60	10°10'			
106	8°44'			Δ 20°57'
+30	7°18'			R 1000.
105	5°53'			T 184.9
+50	4°27'			L 365.6
104	3°01'			PI 104+72.8
+50	1°35'			
103	0°09'			
102+94.9		BC.		
100				
98				
		N 28°33' E	1540.6	
96				

Sta.	Deflec.	C.C.	Curve Data
		N43°24'E 1351.°	
+32.4	17°54' EC.		
118	16°58'		
+50	15°32'		Δ 35°48' R
117	14°06'		R 1000.'
+50	12°41'		T 323.0
116	11°15'		L. 624.8
+50	9°49'		pl. 1157+30.6
115	8°23'		
+50	6°57'		
114	5°31'		
+50	4°05'		
113	2°39'		
+50	1°13'		
112+07.6	B.C.		
110			
		N. 7°36' E	
108			

Sta.	Deflec.	C.C.	Curve Data
		N 34°15' W 1376.8	
131+~~88.2~~ +90.7	38°49'30" CC		
+50	36°53'		
131	34°30'		
+50	32°06'		
130	29°43'		
+50	27°20'		
129	24°57'		Δ 77°34' L
+50	22°33'		R 600.
128	20°10'		T 482.8
+50	17°47'		L 813.1
127	15°24'		P.I. 128+60.4
+50	13°00'	P.O.C.	
126	10°37'		
+50	8°14'		
125	5°51'		
+50	3°27'		
124	1°04'		
123+77.6	P.T.		
		N 13°24' E	

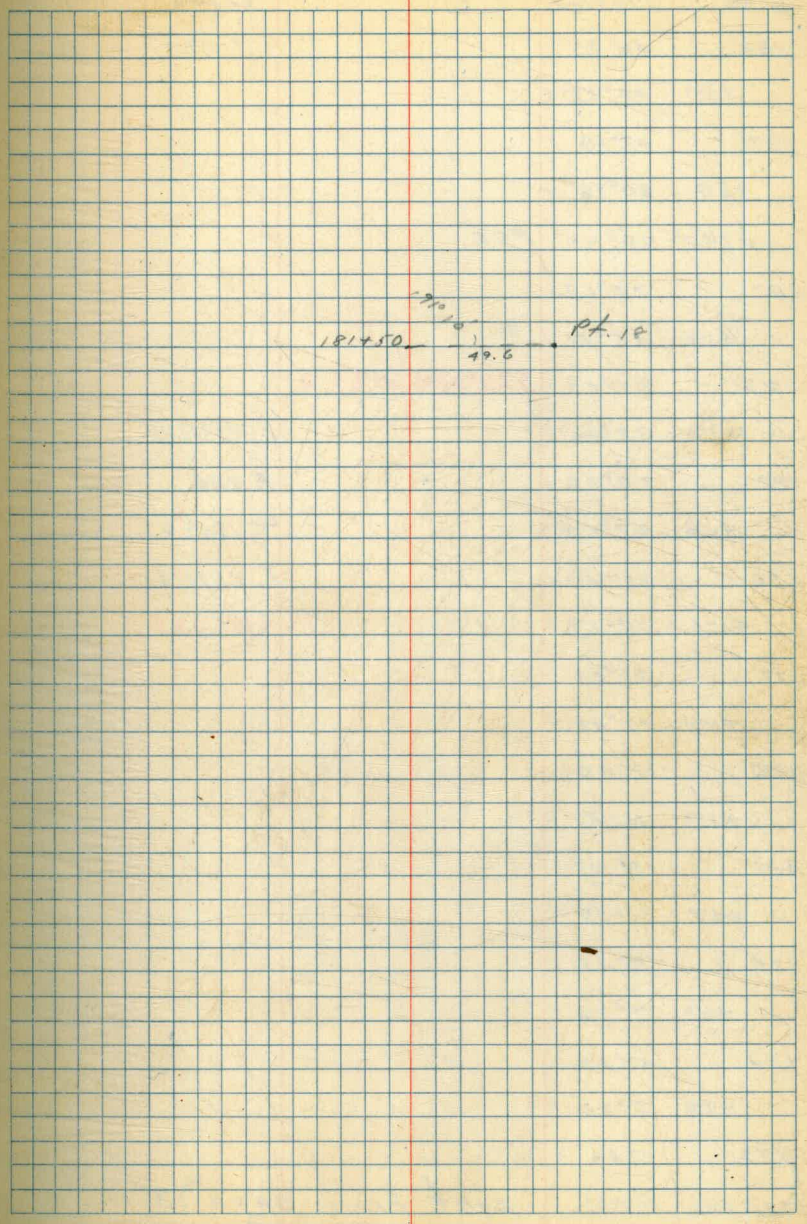
Sta.	Deflec	C.C.	Curve Data
		N 56°52'W 1347.3	
+74.3	11°18'30"		
+50	10°58'		
144	10°15"		
+50	9°32'		
143	8°49'		Δ 22°37'L
+60	8°06'		R 2000.
142	7°23'		T 399.9
+50	6°40'		L 789.5
141	5°57'	P.O.C.	P.I. 140+84.7
+50	5°14'		
140	4°31'		
+50	3°48'		
139	3°05'		
+50	2°22'	P.O.C.	
138	1°39'		
+50	0°56'		
137	0°13'		
136+84.8	P.C.		
		N 34°15'W	

Sta.	Defl.	C.C.		Curve Data
+50	6° 27'	N 35° 57' W	816.8	
160	5° 44'			Δ 21° 54' L.
+50	4° 01			R 2000.
159	4° 18'			T 386.9
+50	3° 35'			L 764.5
158	2° 52'			P.A. 159+86.2
+50	2° 10'			
157	1° 27'	N. 14° 03' W	582.9	
156+50	0° 44'			
155+99.3	21° 24' 30"	P.R.C.		Δ 42° 49' R
+50	18° 35'			R 500.
155	16° 43'			T. 196.0
+50	12° 51'			L. 373.6
154	9° 59'			P.I. 154+21.7
+50	7° 07'			
153	4° 15'			
+50	1° 24'			
152+25.7	B.C.			
150+69.7	P.O.T.			

Sta.	Deflec.	C.C.	Curve Data	
+50	~~28°13'~~			
172	~~26°37'~~	Cont. on page #15		
+66.0	25°33'	P.C.C.		
+50	25°02'			
171	23°26'	N15°09'E 2288.9		
+50	21°51'	P.O.C.	~~Δ127°50'R~~	Δ 51°06'
170	20°15'		~~R 900~~	R 900.
+50	18°40'		~~T 1838.5~~	T=430.25
169	17°04'		~~L 2008.~~	L=802.7
+50	15°29'		~~P.I. 182+02.3~~ =	
168	13°53'			
+50	12°18'			
167	10°42'			
+50	9°07'			
166	7°31'			
+50	5°56'	P.O.C.		
165	4°20'			
+50	2°45'			
164	1°09'			
163+63.8	10°57'	P.R.C. ✓		
+50	10°45'			
163	10°02'			
+50	9°19'			
162	8°36'			
+50	7°53'			
161	7°10'			

using Length of 802.2 The Central Δ Calculates
Δ 51°04'
R=900
T=429.9 ✓
L= 802.2
= 167+93.7

Sta.	Deflec.	cc.	Curve Data
183+71.8	63°55'	P.C.	
+50	63°13'		
183	61°38'		
+50	60°02'		
182	58°27'		
+50	56°51'		
181	55°16'		
+50	53°40'		
180	52°05'		
+50	50°29'		
179	48°54'		
+50	47°18'		
178	45°43'		
+50	44°07'	P.O.C.	
177	42°32'		
+50	40°56'		
176	39°21'		
+50	37°45'		
175	36°10'		
+50	34°34'		
174	32°59'		
+50	31°24'		
173	29°48'		



Sta.	Deflec	C.C.		Curve Data
183	46°25'			
+50	44°22'			
182	42°19'			
+50	40°16'			
+01.7	38°23'	P.O.C.		
181	78°13'			
+50	36°11'			
180	34°08'	S26°07E 2183.7		
+50	32°06'			Δ 138°41' R
179	30°02'			R 700.'
+50	27°59'			T 1859.0
178	25°57'			L 1695.0
+50	23°54'	P.O.C.		Pl. = 190+25
177	21°51'			
+50	19°48'			
176	17°46'			
+50	15°43'			
175	13°40'			
+50	11°37'			
174	9°35'			
+50	7°32'			
173	5°29'			
+50	3°26'			
172	1°24'			
171+66	P.C.C.	cont. from page #13		

Sta	Defl'ec.	C.C.	Curve Data
193+90.8	25°17'30"	E.C.	
+50	22°57'	S76°42'E 1294.1	
193	20°06'		Δ 50°35' L
+50	17°13'		R 500.'
192	14°22' ∨		T 236.3
+50	11°30' ∨		L 441.1
191	8°38' ∨		P.I. 191+85.7
+50	5°46' ∨		
190	2°54' ∨		
189+49.4	B.C.		
+61.	69°22'	E.C.	
+50	68°55' ∨		
188	66°52' ∨		
+50	64°50' ∨		
187	62°47' ∨		
+50	60°44' ∨		
186	58°41' ∨		
+50	56°38' ∨		
185	54°36' ∨		
+50	52°33' ∨		
184	50°30' ∨		
183+50	48°27' ∨		

Sta	Deflec	C.C.		Curve Data
206	46°00'	P.O.C.		
+50	43°09'			
205	40°17'			
+50	37°25'			
204	34°33'	N1°42'W	1295.7	
+50	31°41'			Δ 105°00' L
203	28°49'			R 500'
+50	25°57'			T 651.6
202	23°05'			L 916.3
+50	20°13'			Ex. 321.3
201	17°22'			P.I. = 204+48.6
+50	14°30'			
200	11°38'			
+50	8°46'			
199	5°54'			
198+50	3°02'			
197+97.0	B.C.			
197+51.3	P.O.T.			

201+01.2 — 15.9 ⓛ Sec. cor. & semiphore
(on curve)

Sta.	Deflec	C.C.		Curve Data
Sec Book 54.9 Pge 6 - Fon (Cont) -				
219+70.3	ΔR 0°21'	N6°23 W		
218				
213+57.1 (73 A)	ΔL 5°02'	N6°44 W	x 612.86	
210				
+13.3	5-2°30'	EC.		
207	5-1°44'			
206+50	48°5-2'			

Sta.	Defl.	C.C.	Curve Data
+50	16°34'		
326	15°08'		
+50	13°42'		
325	12°17'	P.O.C.	Δ 61°35' Lt.
+50	10°51'		R 1000.
324	9°25'		T 595.9
+50	7°59'		L 1074.8
323	6°33'		P.I. 326+67.45
+50	5°07'	P.O.C.	
322	3°41'		
+50	2°15'		
321	0°49'		
320+71.5	B.C.		
310+70.2	P.O.T.		

Relocated-see page 23

No
326+87.45 on semi tang

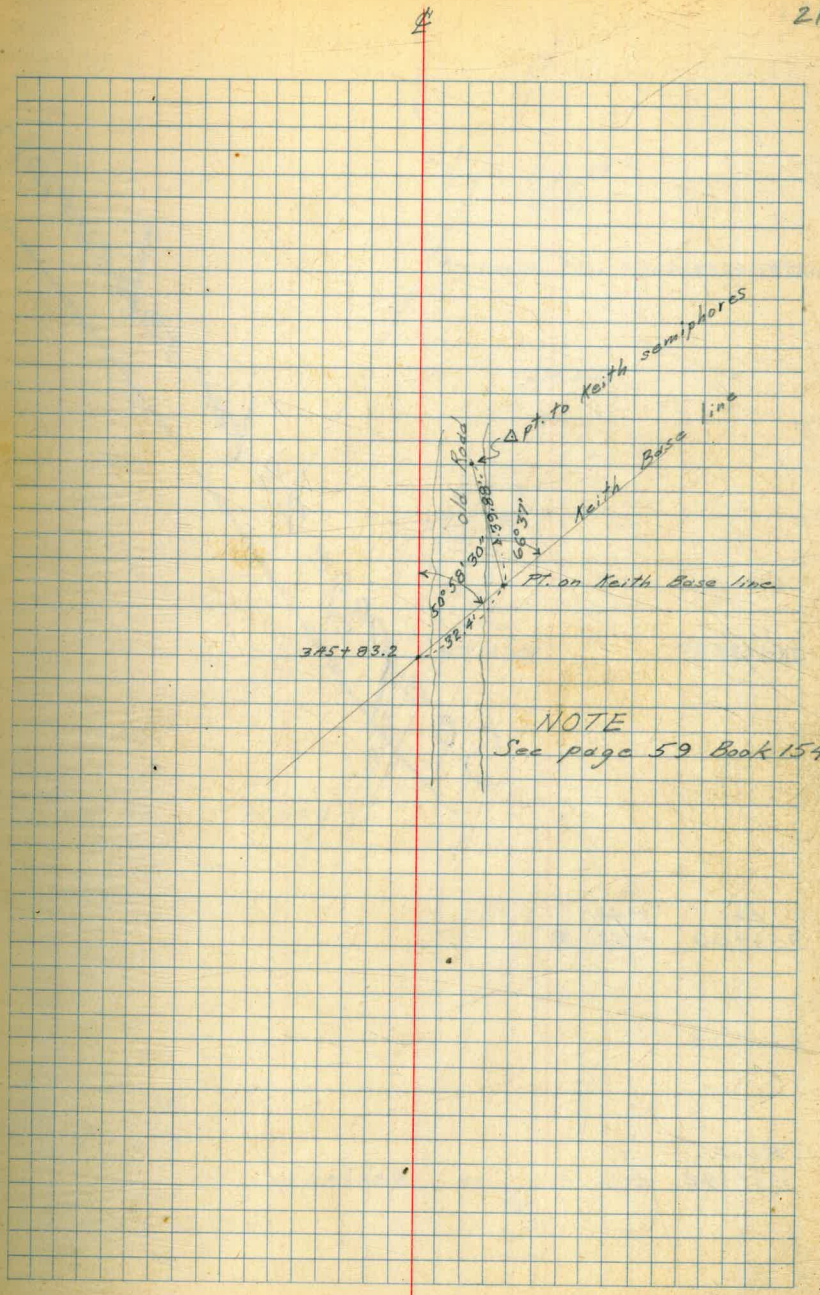
Dec. 5 - 1938
Hill
Isbell
Leakey
Brooks

Sta	Defl'ec	C.C.	Curve Data
337	10° 18'		
+50	0° 20'		
+32.1	19° 53'	P.R.C.	
336	18° 34'		
+50	16° 31'		
335	14° 29'		Δ 39° 46' L
+50	12° 26'		R 700.
334	10° 23'		T 263.2
+50	8° 20'		L 485.8
333	6° 17'		P.I. 333+99.5
+50	4° 15'		
332	2° 12'		
+50	0° 09'		
+46.3	30° 47' 30"	P.C.C.	
331	29° 28'		
+50	28° 02'		
330	26° 36'		
+50	25° 10'		
329	23° 44'		
+50	22° 18'		
328	20° 52'		
+50	19° 26'		
327	18° 00'		

See page 23

Sta.	Deflec.	C.C.	Curve Data
+6.94	6°11'	E.C.	
+5.0	6°00'		
349	5°03'		Δ 12°22' L
+5.0	4°06'		R 1500'
348	3°08'	P.O.C.	T 162.5'
+5.0	2°11'		L 323.8
347	1°14'		P.I. 347+98.1
+5.0	0°17'		
346+35.6	B.C.		
345+83.2			
+36.3	13°27'	E.C.	
343	12°46' ✓		
+5.0	11°48' ✓		
342	10°51' ✓		Δ 26°54' R
+5.0	9°53' ✓		R 1500'
341	8°56' ✓		T 358.7
+5.0	7°59' ✓		L 701.2
340	7°02' ✓		P.I. 339+90.8
+5.0	6°04' ✓		
339	5°07'		
+5.0	4°10'	P.O.C.	
338	3°12'		
+5.0	2°15'		

See page 2



NOTE
See page 59 Book 1541

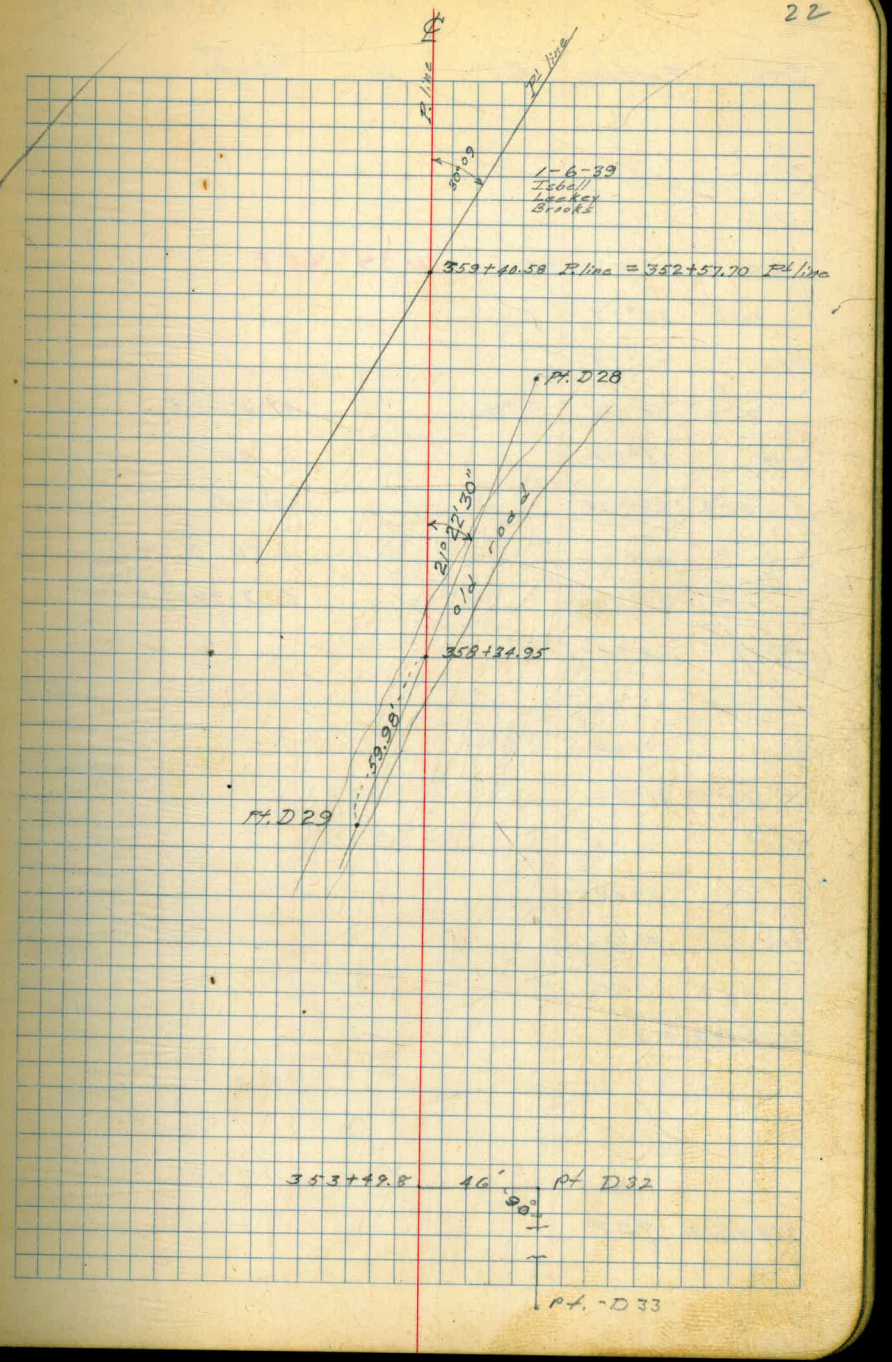
359+40.58

358+34.95

△ 356+00 3°44' 1°52' R.

P.O.T. 353+49.8

See page 23 for relocation



P' Line (Northerly saddle)

Sta.	Deflec.	C.C.	Curve Data
+91.2	37°15'30"	EC.	N 34° 41 E
+50	35°17'		
320	32°54'		
+50	30°31'	P.O.C.	Δ 74°31' L
319	28°08'		R 600.
+50	25°44'		456.4
318	23°21'		L 780.3
+50	20°58'		PI 317+67.3
317	18°35'		
+50	16°11'		
316	13°48'	P.O.C.	
+50	11°25'		
315	9°02'		
+50	6°38'		
314	4°15'		
+50	1°52'		
313+10.9	BC		
310+70.2	P.O.T.		

12/7/38 Hill
Isbell
Leakey
Brookes

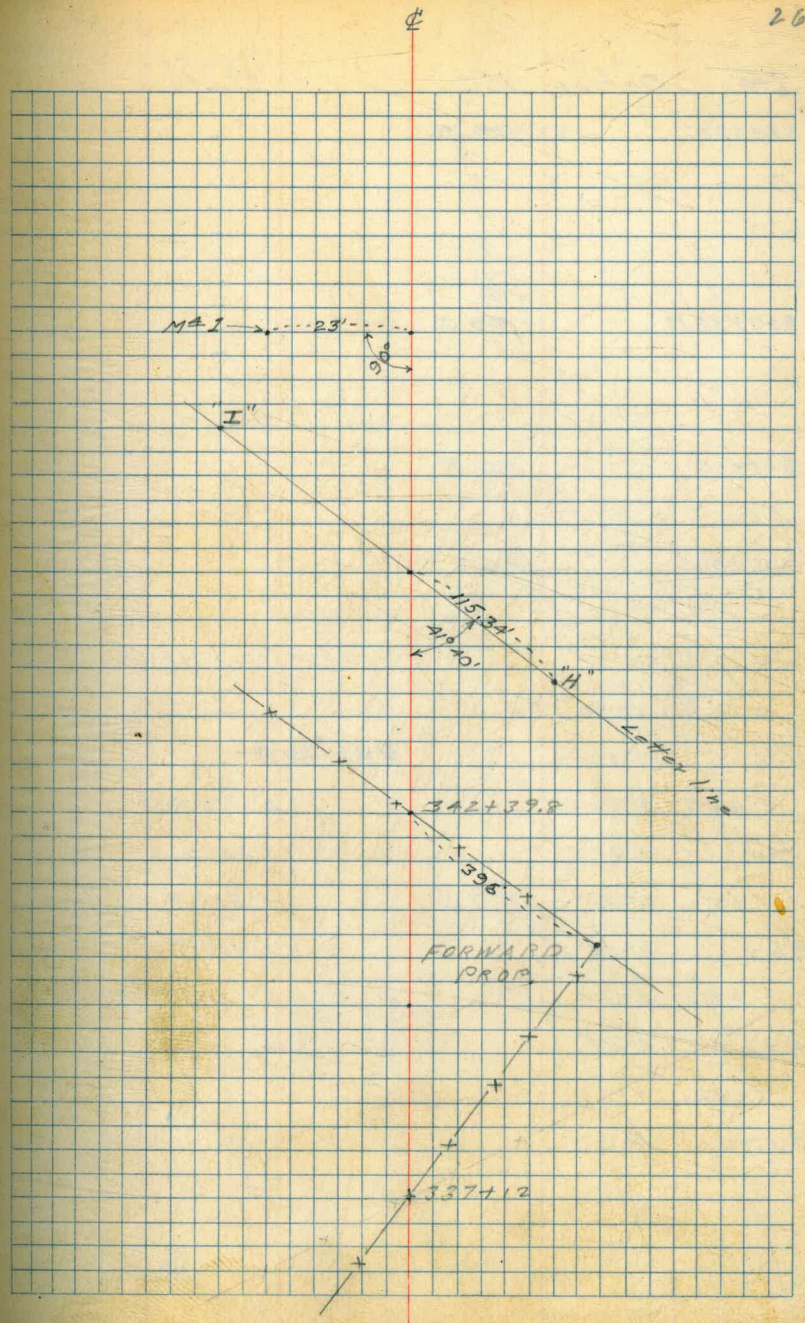
see page 25

Sta.	Deflec	E.C.	Curve Data
328+88.1 = M² 11			
+07.0	3°37'	EC.	
327	3°31'		Δ 7°14' R
+50	2°48'		R 2000.'
326	2°05'		T 126.1
+50	1°22'		L 252.5
325	0°39'		P.I. 325+80.9
324+54.5	BC		

P.I. 325+80.9 = M² 10

Sta.	Deflec	C.C.		Curve Data
336+00		P.O.T.		
+16.3	3°53'	EE	N42 27E	
327	3°39'			Δ 7°46 R
+50	2°56'			R 2000'
326	2°13'			T 135.8
+50	1°30'			L 271.1
325	0°47'			PI 325+80.9
+50	0°04'			
324+45.1	BC			

Sta	Detlec	C.C.		Curve Data
343+30		P.O.T.		
342+45.64		P.O.T.		
342+39.8		P.O.T.		
337+12		P.O.T.		

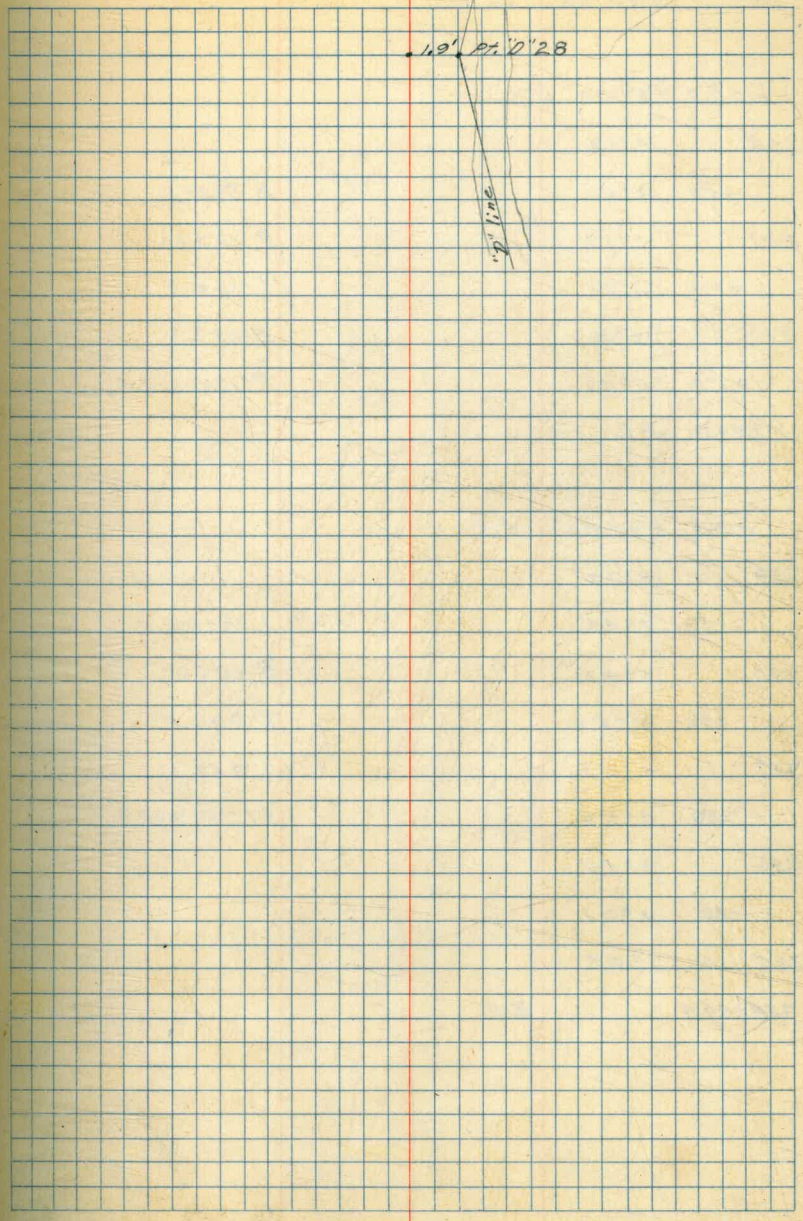


12/19/38

℄

H

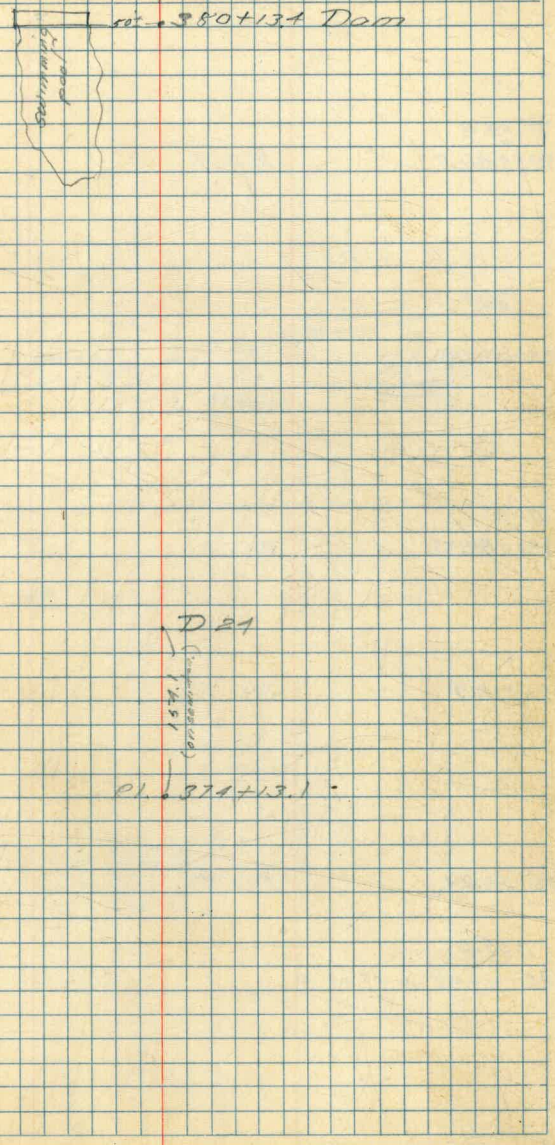
Sta.	Def/cc	CC.		Curve Data
354+98.1		P.O.T.		
350+34.17		P.O.T.		
347+00		P.O.T.		
346+00		P.O.T.		
+38.1	5°5'30"	E.C.		
345	5°27'		N45°26E	
+50	4°44'			Δ 11°59' R
344	4°01'			R 2000.
+50	3°18'	P.O.C.		T 209.9
343	2°35'			L 418.3
+50	1°52			Pl. 3434320
342	1°09'			
+50	0°26'			
341+20.1	B.C.			



Sta	Defl.	C.C.		Curve Data
				N. 62° E.
+03.0	1°55'30"	E.C.		
362	4°52'			
+50	3°35'		N62°03'E	Δ 9°51' L
361	2°58'			R 1500'
+50	2°00'			T 129.3
360	1°03'			L 257.9
+50	0°06'			P.I. 360+74.4
359+45.1	B.C.			
+13.5	8°57'30"	E.C.		
359	8°42'			
+50	7°45'		N72°28E	Δ 17°55' R
358	6°47'			R 1500'
+50	5°50'			T 236.5
357	4°53'			L 469.1
+50	3°56'			P.I. 356+80.9
356	2°58'			
+50	2°01'			
355	1°04'			
354+44.4		B.C.		

in old road

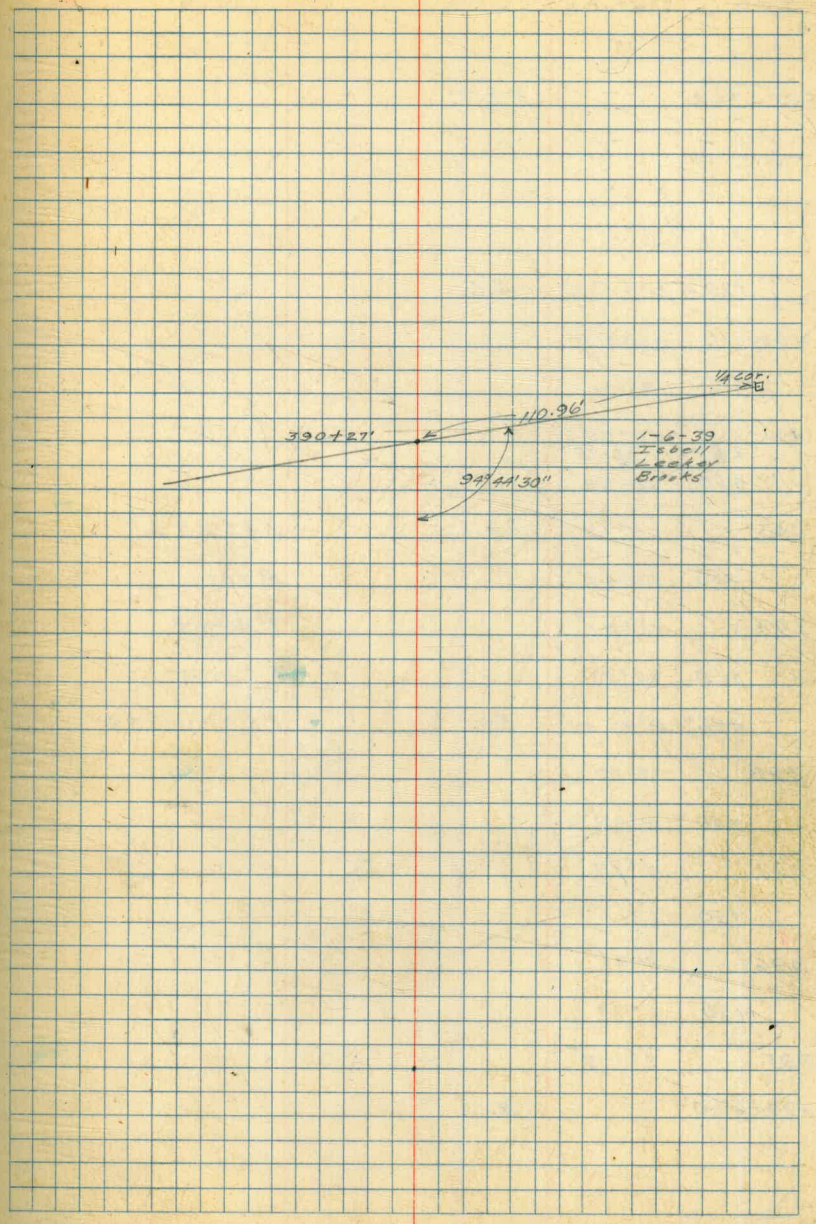
Sta.	Defloc.	C.C.	Curve Data.
D 22 A			
380+13.4		P.O.T.	
D 23 A			
=			
△ 377+53.3	20°30'	R	
+41.4	28°52'30"	EC.	
376	26°30'		
+50	23°38'		△ 57°15' L
375	20°47'	P.O.C.	R 500.
+50	17°55'		T 275.7
374	15°03'		L 501.0
+50	12°11'		Pl. 374+13.1
373	9°19'		
+50	6°27'		
372	3°35'		
+50	0°43'		
371+37.4	B.C.		



Sta	Deflec	C.C.		Curve Data
"D" 18 A. = 395+71.7				
"D" 19 A = 393+86.7		P.O.T.		
390+27.0				
"D" 21 = 386+84.75		P.O.T.		
384+68.9		P.O.T.		
382+56.24		P.O.T.		
D 21 A = 382+44.97	Δ 5° 07' R			

12/10/38

Same crew



Sta.	Deflec	C.C.		Curve Data
402+73.2		P.O.T.		
+20.4	21°31'30"	E.C.		
402	20°5-7'			
+50	19°31'			
401	18°05'			
+67	17°08'15"			
+50	16°39'			
400	15°13'	P.O.C.		Δ 43°03'
+50	13°47'			R 1000'
399	12°21'			T 394.1
+50	10°55'			L 751.4
+44.7	10°15'15"	Ex.		P.I. 398+68.31
398	9°29'			
+50	8°03'			
397	6°37'			
+50	5°11'			
396	3°45'			
+50	2°19'			
395	0°5-3'			
394+69.0		B.C.		

Sta	Deflec	C.C.		Curve Data
403+73.9				
407+10.5		P.O.T.		
404+84.3		P.O.T.		
403+38.1		P.O.T.		

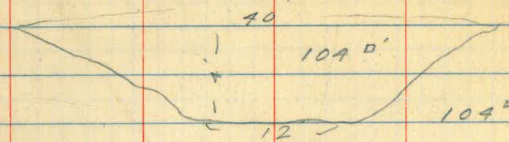
403+73.4. ℄ part at pt. of D Line

407+10.5. E.C. Part curve

Fri. 1/13/38 clear — Hill, Isbell, Leckey, Brooks.

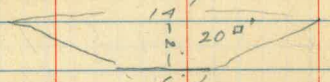
Drainage on P line - south from Shady Dell

Creek at 395+90



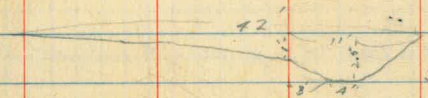
60 ✓

Creek at 384+10



20 □' ✓ 59

Creek at 377+00

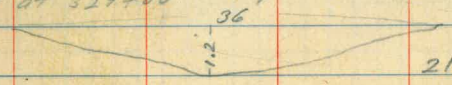


✓ 58

Creek at 337+00

✓ 57

Creek at 329+00

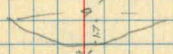
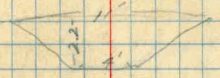
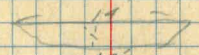


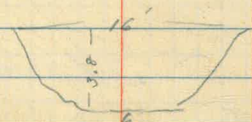
✓ 56

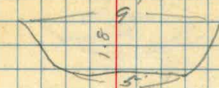
317+75 24" pipe ✓ (55)

313+85 30" (54)

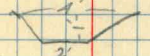
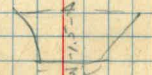
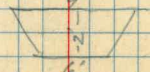
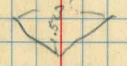
Note channel changes will unite 3 small washes at this sta.

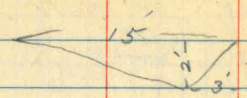
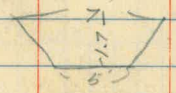
309+75	18" pipe	✓	53
305+78		3 □'	52 ✓
304+75		10.2 □' ✓	51
295+50		16.5 □'	50
292+50		3.9 □'	49
289+25		12 □'	48
287+70		4.2 □'	47
287+10		2.5 □'	46
283+10		5 □'	45
282+40		10 □'	44

Station	Section	Area	No.
280+75		58.3 □'	43
279+15		5.1 □'	42
278+60		15.0 □'	41
273+90		41.8 □	40
271+50		13 □'	39
260+~~00~~ 48		14 □'	38
248+50		15.3 □'	37

Station	Section	Area	No.
243+80		12.6 □'	36
237+50	18" culv.		35
222+50	24" culv.		34
210+10		14.5 □' — N.B. recent high water marks.	33
201+00	18" culv.		32
195 ? / 191+00 ?	24" culv.		31
187+10		1.8 □'	30
180+65		71.5 □'	29
172+75		14.1 □'	28

168+15		20'	27
164+18		4.2 D'	26
162+50	24" culv. (lit. in hill)		25
157+65		6.3 D'	24
155+10	18" culv.		23
153+25	24" culv		22
151+70	18" culv		21
146+03		6 D'	20
136+12	24" culv.		19
134+35		4 D'	18

129+00	18" culv.		17 A"
120+00	~~18"~~ culv.		17
113+25		3 D'	16
108+05		6 D'	15
102+75		2 D'	14
96+60	cross drain		13
87+60		5.3 D'	12
81+25		1.5 D'	11
74+25		25.5 D'	10
68+20	18" culv.		9
57+96		2.3 D'	8

41+50		7
40+65	18" culv.	6
38+90	18" culv.	5
37+10	18" culv.	4
35+45	18" culv.	3
29+85		(2)
21+80		(1)

Stadia road loc. from wind-mill at northerly end of Barona Res.-north.

Relocated - see page 41

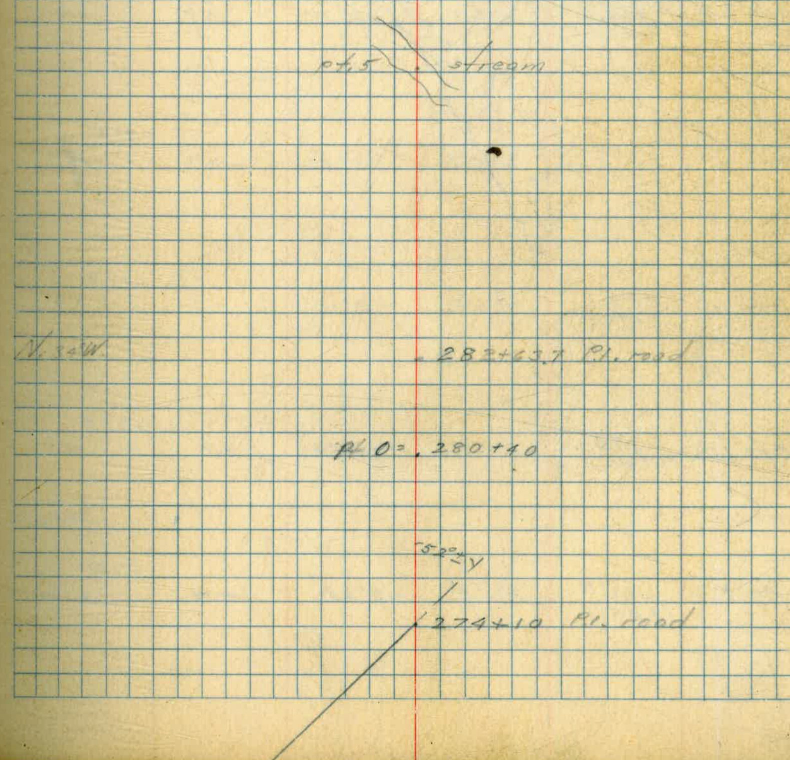
Sta.	Dist.	Hor∠	Vert∠	H.I.	Rod & Elev.
7 to 8	180.7 (181')	P.O.T.	-2°30'	4.8	-7.8 4.8
* 0 to 7	911.0 (910')	P.O.T.	-0°22'	4.9	-5.6 4.9
0 to 6	705.9 (705')	P.O.T.	-0°30'	4.9	-13.2 11.9
0 to 5	645.6 (646')	P.O.T.	-0°55'	4.9	-16.5 10.9
0 to 4	590.9 (590')	P.O.T.	-0°44'	4.9	-11.6 8.9
0 to 3	274.0 (273')	P.O.T.	-0°44'	4.9	-3.5 4.9
0 to 2	91.0 (90')	P.O.T.	+1°17'	4.9	+2.0 4.9
0 to 1 (0 = 280+40)	81.0 (80')	17°21' 8°40'00"R	-0°36'	4.9	-0.86 4.9

2/1/39.

Williams
Hill
Isbell
Soper
Remmen

Mag. B.

For topog. 0 to 1. see page 55



Sta.	Dist.	Horiz. ∠	Vert. ∠	H.I.	Rod & Elev.
13 to 16	314.1 (315')	P.O.T.	-4°34'	4.8	-25.0 4.8
13 to 15	114.8 (116')	P.O.T.	-5°54'	4.8	-11.8 4.8
13 to 14	65.6 (69')	P.O.T.	-14°37'	4.8	-17.1 4.8
* 9 to 13	410.2 (410')	P.O.T.	-2°35'	4.9	-18.5 4.9
9 to 12	257.5 (258')	P.O.T.	-6°40'	4.9	-19.5 19.9
9 to 11	175.1 (175')	P.O.T.	-4°15'	4.9	-12.9 4.9
9 to 10	89.0 (90')	P.O.T.	-16°40'	4.9	-31.9 9.9
* 7 to 9	265.0 (264')	P.O.T.	-0°39'	4.8	-3.0 4.8

Mag. B.

N 34° W.

Sta.	Dist.	Hor. ∆	Vert ∆	H.I.	Rod & Elev
19 to 23	362.2 (377')	P.O.T.	-10°52'	4.8	-79.1 7.8
19 to 22	272.7 (283')	P.O.T.	-11°35'	4.8	-58.8 7.8
19 to 21	169.4 (179')	P.O.T.	-10°18'	4.8	-36.7 9.8
19 to 20	37.5 (37')	41°31' 20°45'30" L	-6°25'	4.8	-4.2 4.8
* 17 to 19	410.2 (414')	75°46'30" 37°53' R	-6°17'	4.8	-45.2 4.8
19 to 18	230.0 (231')	P.O.T.	-3°59'	4.9	-18.8 6.9
* 13 to 17	399.3 (399')	P.O.T.	-2°24'	4.8	-16.7 4.8

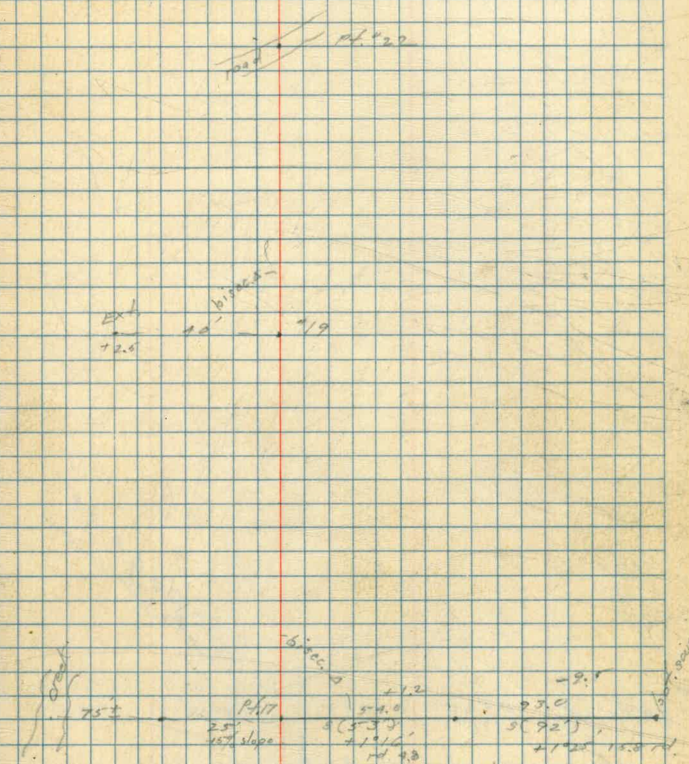
Void

see page #41

Mag. S

N15°W

N4°30'E



Sta.	Dist.	Hor.∠	Vert.∠	H.I.	Rod & Elev.	Mag.B.
* 19 to 25	846.5 (850')	P.O.T.	-4°14'	4.8	-62.6 4.8	
19 to 24	528.7 (540')	P.O.T.	-8°44'	4.8	-81.0 4.8	

Seepage #1

Void

cont. from page 37

Sta. (back)	Dist.	Horz.	Vert.	H.I.	Rod & elev.
14 to 13	164.7 (164')	P.O.T.	−2°24'	5.2	−12.4 11.2
* 9 to 14	422.3 (423')	P.O.T.	−3°41'	4.9	−27.2 4.9
9 to 12	201.8 (202')	P.O.T.	−4°33'	4.9	−16.1 4.9
9 to 11	130.4 (132')	P.O.T.	−8°07'	4.9	−18.6 4.9
9 to 10	88.6 (96')	P.O.T.	−17°12'	4.9	−29.4 6.9
* 7 to 9	264.9 (264')	P.O.T.	−0°55'	5.1	−4.2 5.1
7 to 8	180.6 (180')	6°18' 3°07'30" L	−2°51'	5.1	−9.0 5.1

Mag. B

L	℄	R
+15°/100'	Pt. 13 crk. (bend)	+1°/120' along crk.
−9°/80' crk.	Pt. 12	+16°/60' +8°/40'
+5°/100'	Pt. 12	−6°/100'
+7°/100'	Pt. 11	−7°/80'
+2°/120	Pt. 10 crk.	−2°/80'
−8°/75' crk.	Pt. 9	+6°/20' leave / 100'
−5°/70' crk.	Pt. 8	+6°/60 +15°/50'

N 36°30' W

Sta.	Dist.	Hor.∠	Vert.∠	H.I.	Rod & Elev.
24 to 21	228.6 (236')	P.O.T.	−10°57'	5.0	−44.2 / 5.0
* 14 to 24	702.0 (701')	P.O.T.	+0°02'	5.2	+0.4 / 5.2
14 to 20	395.7 (396')	P.O.T.	−3°23'	5.2	−28.4 / 10.2
14 to 19	322.8 (326')	P.O.T.	−6°36'	5.2	−39.3 / 7.2
14 to 18	277.4 (280')	P.O.T.	−6°37'	5.2	−33.1 / 7.2
14 to 17	211.0 (216')	P.O.T.	−9°35'	5.2	−39.6 / 9.2
14 to 16	144.5 (149')	P.O.T.	−8°53'	5.2	−22.5 / 5.2
14 to 15	66.0 (71')	P.O.T.	−16°48'	5.2	−19.9 / 5.2

Mag. B. — L — ℄ — R

−9°/65 crk   −26°/25'   pt. 21   +20°/30   +1°/50

+18°/80'   +3°/50   pt. 24   level/60   +9°/50   5' below top pt. w. of ridge 15' = nat. gr.

−30°/80 crk.   pt. 20   +27°/40   +5°/30'

−9°/60' crk   −26°/20'   pt. 19   +28°/50'   +10°/35'

9   −7°/75' crk   pt. 18   +23°/45'   +16°/60'

+20°/60   +2°/35'   pt. 17 crk (E. side)   +28°/100'

+15°/100'   −16°/20' crk   pt. 16   +24°/90'

N36°30W

−4°/80' crk   pt. 15   +17°/90'

Sta.	Dist.	Hor.∠	Vert.∠	H.I.	Rod & Elev.
* 29 to 30	118.5 (118')	165°36'30" 82°48' R	-3°49'	4.9	-7.9 4.9
* 24 to 29	569.5 (577')	P.O.T.	-7°09'	5.0	-71.4 5.0
24 to 28	391.5 (412')	P.O.T.	-13°17'	5.0	-96.4 9.0
24 to 27	205.9 (218')	P.O.T.	-14°13'	5.0	-52.1 5.0
24 to 26	143.0 (150')	P.O.T.	-13°24'	5.0	-34.6 5.0
24 to 25	48.1 (52')	P.O.T.	-17°46'	5.0	-25.1 15.0
24 to 23	128.8 (155')	P.O.T.	-24°43'	5.0	-63.2 9.0
24 to 22	175.7 (202')	P.O.T.	-21°32'	5.0	-69.3 5.0

Mag. B. — L — ℄ — R

N47°E.

+15° / 150 — Pt. 30 — -11° / 150'

+18° / 100 — Pt 29 — -12° / 50 — -8° / 100 (bisec. ∠)

+7° / 150' — Pt 28 — -5° / 150'

+4° / 90 — +9° / 60' — Pt. 27 — road — 10' — c'lower to ℄ road — -7° / 100

+26° / 100' — Pt. 26 — -14° / 100'

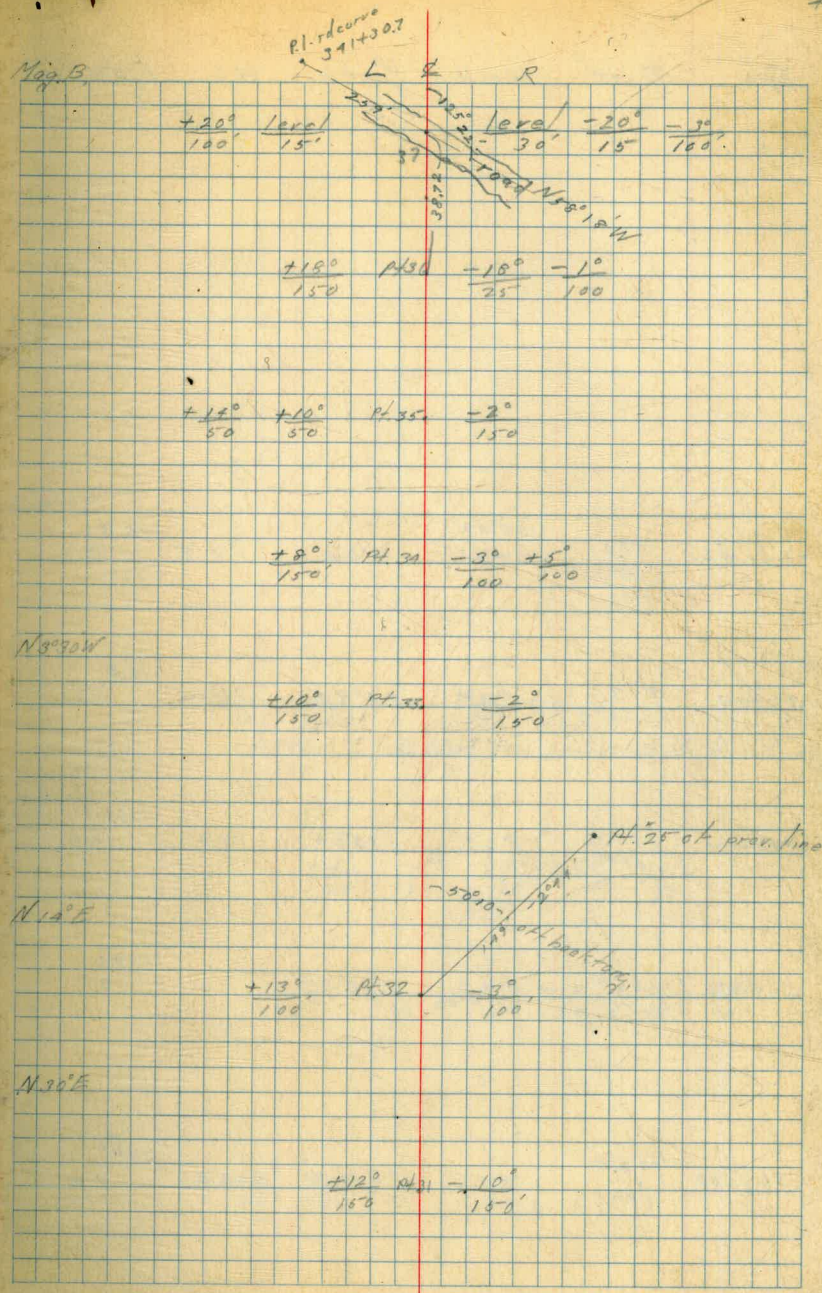
+22° / 80 — +28° / 30' — Pt. 25 — -2° / 25' — level / 100'

+4° / 150' — Pt. 23 — -2° / 70' — +2° / 40'

+2° / 100' in crk — Pt 22 crk. — -2° / 100

Sta.	Dist.	Horiz.	Vert.	H.I.	Rod + Elev.
36 to 37	38.1 (38')	P.O.T.	-9°05'	5.0	-6.1 5.0
* 32 to 36	651.7 (665')	P.O.T.	-4°42'	4.8	-53.6 4.8
32 to 35	545.6 (548')	P.O.T.	-5°12'	4.8	-51.6 6.8
32 to 34	335.1 (338')	P.O.T.	-6°03'	4.8	-39.7 6.8
32 to 33	244.7 (247')	34°09'30" 17°04'30" L	-6°42'	4.8	-33.7 9.8
* 31 to 32	242.2 (242')	33°10' 16°35' L	-3°23'	4.7	-14.3 4.7
* 30 to 31	184 (184')	32°06' 16°03' L	-4°12'	4.7	-13.5 4.7

47



Sta	Dist	Hor ∠	Vert ∠	H.I.	Rod + Elev	Mag B.
41 to 42	67.0 (66')	128°49', 64°25' L	-2°52'	4.7	-2.8 / 4.7	N.68°30'W
* 36 to 41	213.0 (212')	P.O.T.	-0°45'	5.0	-12.8 / 15.0	
36 to 40	175.6 / 180'	P.O.T.	-10°04'	5.0	-33.1 / 7.0	
36 to 39	165.9 (170')	P.O.T.	-10°03'	5.0	-27.1 / 3.0	
36 to 38	102.6 (105')	P.O.T.	-10°29'	5.0	-21.0 / 7.0	

+20° / 60 · -23° / 60' crk · Pt. 41. · +18° / 40' · +12° / 30'

-4° / 100' · E. bank crk. same elev as W. bank · +6° / 100'

-4° / 160' · crk 40 · +4° / 30' · +14° / 25 · +6° / 50

-4° / 100' · 39 W. bank crk · -12° / 25' · +13° / 25' · +6° / 100'

+16° / 60 · +5° / 50 · 38. · -10° / 80 crk

South from cattle guard at N. end Baron Valley 2/3/39 Williams Hill Isbell Soper Reniman rain

Sta	Dist	Hor.∆	Vert.∆	H.I.	Rod & Elev.
4 to 7	154.0 (155')	P.O.T.	-6°37'	4.6	-17.8 1565.8' 4.6
4 to 6	99.6 (100')	P.O.T.	-6°56'	4.6	-12.0 1572.2 7.0
4 to 5	47.8 (47')	54°44' 27°22' L	-3°50'	4.6	-3.2 1583.4 4.6
2 to 4	89.6 (90')	P.O.T.	-7°11'	4.7	-11.3 1586.6 4.7
2 to 3	52.4 (52')	P.O.T.	-6°06'	4.7	-5.6 1592.3 4.7
0 to 2	267.0 (266')	P.O.T.	-0°27'	5.0	-2.1 1597.9 5.0
0 to 1	132.9 (132')	P.O.T.	-1°43'	5.0	-3.9 1596.1 5.0

0 = nail in cattle guard elev. 1600 (assumed)

Sta	Dist	Hor.∆	Vert.∆	H.I.	Rod & Elev.
0-1	200.5 (200')	P.O.T.	-2°51'	5.0	-9.9 1590.1 5.0
0-2	350.6 (350')	∆ Pt.	-2°09'	5.0	-13.1 1586.9 5.0

Mag. B.

+4°/100' -1°/30' rd. 7. +7°/30' +3°/100'

+12°/100' level/10' 6 rd +3°/100'

S 48° E

+12°/100' Pt 5. -17°/20' rd +1°/100'

+18°/70' 4. -15°/20' rd. +3°/50'

+10°/30' +15°/70' 3. -15°/26' -10°/25' rd level/60'

+12°/50' +16°/50' 2. -16°/30' -12°/25' [illegible] level/30'

S 21° E

+17°/75' +8°/60' 1. -10°/30' rd. E. side level/50'

+7°/100' level/25' 0 level/15' +5°/50' level/50'

30' 0-1 P.I. road 13' from ℄ road

Sta.	Dist.	Hor. ∠	Vert. ∠	H.I.	Rod & El.
* 12 to 15	380.3 (382')	POT.	−4°51'	5.0	−32.4 1500.9 / 5.0
12 to 14	249.3 (250')	POT.	−4°43'	5.0	−20.6 1512.7 / 5.0
12 to 13	140.5 (141')	POT.	−6°04'	5.0	−14.9 1518.4 / 5.0
* 10 to 12	236.5 (236')	POT.	−2°16'	4.8	−13.4 1533.3 / 4.8
10 to 11	96.7 (96')	POT.	−3°21'	4.8	−5.7 1541.0 / 4.8
* 8 to 10	153.0 / 152'	POT.	+0°06'	5.0	+0.3 1546.7 / 5.0
8 to 9	79.6 (79')	27°09'30"R	−4°14'	5.0	−5.9 1540.5 / 5.0
* 4 to 8	310.0 / 313'	POT.	−6°39'	4.6	−40.2 1546.4 / 8.6

Mag. B.

L	℄	R
+10°/100' level/60'	15 rd E	level/180'
level/30 +7°/60	14	−9°/25 −3°/100'
+4°/100'	13	−4°/25 level/50
+14°/100'	12	−14°/25' level/50'
+15°/50 +6°/60'	11	−6°/40' rd level/30'
−12°/50' level/25' +18°/50'	10	−18°/30' rd level/30'

S 20°30' E

L	℄	R
+8°/100'	9 rd E	−1°/50' −3°/50'
+5°/150 level/65	8 rd W	level/6' +3°/150'

Sta.	Dist	Hor.s	Vert.s	H.I.	Rod & El.	Mag.B.
15 to 17	465.7 (466')	P.O.T.	−3°05'	4.3	−25.1 1475.8 4.3	
15 to 16	96.0 (95')	P.O.T.	−0°56'	4.3	−1.6 1499.3' 4.3	+15°/65 level/10 16 rd. level/18 −10°/15 +3°/100

Stadia location from junction Barona + Mikrantz road - South

Sta.	Dist.	Hor.∠	Vert.∠	H.I.	Rod & El.	Mag. B
#4 = 3+19.6					1278.5	
1 to 4	237.6 (237')	P.O.T.	-2°31'	5.1	7.1 (-12.4)	
#3 = 2+57.7					1284.2	
1 to 3	175.7 (175')	P.O.T.	-2°11'	5.1	5.1 (-6.7)	
#2 = 2+07.8					1286.1	
1 to 2	125.8 (125')	P.O.T.	-2°13'	5.1	5.1 (-4.8)	
#1 = 0+82		79°00'			1290.9	
0 to 1	82 (81')	39°30'R	+57'	5.1	5.1 (+1.4)	
0. Junc. Barona + Mikrantz roads					1289.5	
-3+46.1					1270.6 -1272.0	
0 to -1	346.1 (346')		-3°09'	5.0	5.0 (-18.9)	

2/4/39 Hill Isbell Soper Rommen rain

L ℄ R

-1°/100 +2°/40 | 4. | -3°/75 Rd. Level/75

-3°/100 | 3. | -1°/45 Rd. -4°/95

-1°/100 | 2. | +1°/7 Rd. Level/45 -5°/50

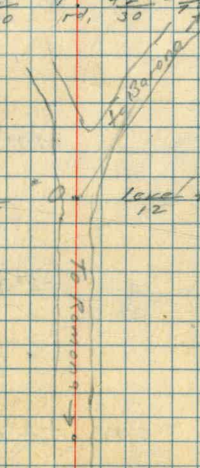
-2°/100 | 1 Rd. | +2°/30 -2°/15 -10°/30

S32°E

+6°/100 +2°/25 | 0. | level/12 +5°/50 -5°/70 -10°/50

1292.6 U.S.B.M.
+3.4
1296.0 H.I. at Pt. 1

N1?30W



Sta.	Dist.	Hor.s	Verts	H.I.	Rod & Elev.
#12 = 16+86.1					1299.8
6 to 12	1080.1 (1080')		+1°41'	4.7	4.7 (+31.8)
#11 = 14+36.0					1277.1
6 to 11	830.8 (830')		+0°50'	4.7	7.7 (+9.1)
#10 = 10+79.0					1263.9
6 to 10	473.0 (472')		-0°08'	4.7	7.7 (-4.1)
#9 = 7+43.6					1254.1
6 to 9	137.6 (138)		-5°45'	4.7	4.7 (-13.9)
#8 = 7+05.5					1249.1
6 to 8	99.5 (102')		-10°48'	4.7	4.7 (-18.9)
#7 = 6+39.3					1249.1
6 to 7	33.3 (43')		-29°39'	4.7	4.7 (-18.9)
#6 = 6+06					1268.0
1 to 6=P.O.T.	524.0 (524')		-2°30'	5.1	5.1 (-22.9)
#5 = 3+82.6					1279.2
1 to 5	300.6 (300')	P.O.T.	-2°14'	5.1	5.1 (-11.7)

Map B. L & R

+4°/100' +1°/50' 12. -6°/100'

+2°/100' -1°/50' 11. +4°/50' +1°/50'

-2°/40' level/65' 10. level/25' +3°/60'

level/100' +1°/40' 9. -2°/100'

+1°/100' 8. -1°/100'

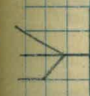
+2°/100' +1°/50' 7. N. side crk. -1°/100'

?
+32°/60' crk. 6. +2°/60' -18°/30'

level/100' 5. -5°/100' crk.

Sta.	Dist.	Hor. ∠	Vert. ∠	H.I.	Rod + Elev.
#20 = 30+50.8					1351.1
18 to 20	286.0 (285')	P.O.T.	+0°37'	4.6	4.6 (+3-)
#19 = 30+28.8					1324.9
18 to 19	264.0 (264')	P.O.T.	-3°30'	4.6	11.6 (-23-)
#18 = 27+64.8		(18°32')			1348.0
17 to 18 △	211.5 (211')	9°16' L	+2°52'	4.9	4.9 (+10-)
#17 = 25+53.3		(38°08'30")			1337.4
15 to 17 △	239.4 (239')	19°04' L	+2°52'	4.7	4.7 (+12.0)
#16 = 24+52.2					1335.3
15 to 16	138.3 (138')	19°04' L	+4°05'	4.7	4.7 (+9-)
#15 = 23+13.9		(4°05'30")			1325.4
14 to 15 △	258.4 (258)	2°03' L	+2°52'	5.0	5.0 (+13.0)
#14 = 20+55.5					1312.4
6 to 14 △	1449.5 (1450')		+1°50'	4.7	6.7 (+44-)
#13 = 18+06					1298.0
6 to 13	1200.0 (1200')		+1°46	4.7	11.7 (+30.0)

Mag.	L			℄	R	
	+12°/80	+17°/30'		20.	-13°/100	
	+14°/80'	+28°/40'	△30°R.			
	+20°/100'	+33°/35'	+16°/35'	19.	-14°/50	-6°/60
	△back to perp. +20°/125'	+26°/40'	△30°L			
S.62°30'E.		+16°/100		18.	-13°/80	-8°/50
S.53°E.	+22°/20'	+20°/80		17.	-12°/50	-8°/100
	+20°/20'	+18°/80		16.	-18°/40	-8°/100'
S.34°30'E.	+22°/50	+20°/70'		15.	-18/35	-7°/100'
		+8°/100		14.	-8°/150	Borana Ranch cor
		+7°/100		13.	-3°/50	-4°/100



B.R. cor. 2 [illegible] concr in pipe → 2.7 — 1.5 — 1.6 — sta. tank 396

Sta.	Dist.	Hor. ∠	Vert. ∠	H.I.	Rod + Elev.
#30 = 46+37.1					1441.7
26 to 30	464.9 (465')	5°10' L	+2°52'	4.8	9.8 (+18.2)
#29 = 45+53.1		on tang.			1420.0
26 to 29	380.9' (380')	26 to 30	+0°59'	4.8	14.8 (−3.5)
#28 = 44+21.2	249	"			1415.4
26 to 28	(248')	"	+0°27'	4.8	14.8 (−8.1)
#27 = 42+78.2	106'				1425.7
26 to 27	(105')	"	+1°10'	4.8	4.8 (+2.2)
#26 = 41+72.2					1423.5
* 25 to 26 △	296.3' (296')	3°30' L	+2°52'	4.7	9.3 (+10.2)
#25 = 38+75.9		1°48'30"			1413.3
* 22 to 25 △	289.1 (290')	0°54' R	+4°45'	4.8	4.8 (+24.0)
#24 = 36+85.3		on tang.			1381.9
22 to 24	98.5 (98')	22 to 25	−4°18'	4.8	4.8 (−7.4)
#23 = 37+16.5					1395.8
22 to 23	129.7 (129')	19°19' L	+2°52'	4.8	4.8 (+6.5)
#22 = 35+86.8		19°58'			1389.3
21 to 22 △	317.2 (317')	9°59'30" L	+2°52'	4.7	4.7 (+15.2)
#21 = 32+69.6		(12°59'30")			1373.4
* 18 to 21 △	504.8 (505')	6°30' L	+2°52'	4.6	4.6 (+25.4)

2/6/39 Williams, Hill, Isbell, Soper, Remmon — clear

Mag.	L	℄	R
	grade +24°/100	30	−17°/100'
	+22°/90' +15°/65	29	−12°/100'
	+18°/70 ← draw +20% +16°/50 +13°/50	28	−12°/100'
S81°E	+22°/100 +15°/30	27	−17°/30 −14°/90
	cut 5.0 +20°/100'	26	−14°/100'
S78°E			
	cut 9.6 +24°/20 +20°/80'	25	−14°/100
		24	−10°/100
	+18°/100'	23	
S79°E			
	+15°/100	22	−15°/100'
S.68°30'E.	+20°/50 +13°/80	21	−13°/30 −22°/30 −13°/70

Sta.	Dist.	Hor.∠	Vert.∠	H.I.	Rod & Elev.
#38 = 56+40.9					1486.7
36 to 38	127' (126')	P.O.T.	+0°31'	4.5	4.5 (+1.1)
#37 = 55+74.2					1469.0
36 to 37	60.3') (60')	48°04'30"R	-6°15'	4.5	14.5 (-16.6)
#36 = 55+13.9		28°53'			1485.6
* 35 to 36 △	(112.7') (112')	14°26'30"L	+2°52'	4.9	4.9 (+5.6)
#35 = 54+01.2		14°37'30"			1480.0
* 34 to 35 △	120.7' (120')	7°19'30"L	+2°52'	5.0	5.0 (+6.0)
#34 = 52+80.5		10°45'			1474.0
* 33 to 34 △	72.8' (72')	5°22'30"L	+2°52'	4.0	4.0 (+3.7)
#33 = 52+07.7		11°54'30			1470.3
* 26 to 33 △	1035.5' (1037')	5°57 R	+2°52'	4.8	9.8 (+46.8)
#32 = 50+44.1					1462.20
26 to 32	871.9' (873')	4°32'R	+2°52'	4.8	9.8 (+38.7)
#31 = 48+74.5					1453.7
26 to 31	702.3' (703')	0°55'R	+2°52'	4.8	9.8 (+30.2)

Mag. B.	L	℄	R
	-12°/3.0+ level/30' +20°/35 +45°/10'	38	-20°/15 -30°/65 -15°/20 crk
S51°E			
	+8°/80 +5°/60	37	-14°/75 -7°/40 crk
N74°E			
	+21°/100	36	-12°/60 -15°/40'
N89°30E			
	+28°/100	35	-28°/20 -14°/80
S82°E			
	+29°/70 +33°/25 +25°/30'	34	-27°/100
S76°30E			
	grade +30°/80 +28°/30	33	-26°/100
	grade +33°/100	32	-30°/100
	grade +28°/100	31	-26°/60 -30°/40

Sta.	Dist.	Hor.∠	Vert∠	H.I.	Rod+Elev.
42 = 40 to 41 on North line		27°49'39" 13°55' L			
#40=57+88.0	=(#42=43+46.1)				
#42 on North line = 39 to 40	77.7' (78')	0°34' 0°17'30" L	−7°29'	5.3	1489.3 2.3 (−7.2)
#39=57+10.3					1496.5
* 36 to 39	196.4' (196')	P.O.T.	+3°11'	4.5	4.5 (+10.9)
~~* 36 to 39~~	(160')		~~+3°02'~~	~~4.5~~	~~5.5~~

Mag. B　　L　℄　R

S. 70° E.

S 54° E

+16°/50　+20°/50'　40　−20°/75 crk　+16°/50

−12°/25　level/25　+17°/50'　39　−10°/50　level/20' crk　+10°/30

Add. topog. near windmill

see page 37

2/10/39 — Williams, Hill, Isbell, Soper, Reimmen — rain & snow

Station	Notes	Elev.	L	℄	R
5+91		988.4	+0.8/50'		-6.0/14', -0.4/26, +0.7/50
5+00	+1.0 from 5+91	989.4	+0.7/50'		+0.4/50, -0.2/65, -4.3/75 crk, +0.3/85, +1.0/100'
3+56	-4.8 from 2+74	991.7	+2.3/50'		-5.3/12 crk., -1.2/22, +0.4
2+74		996.5	-0.8/50', 0.0/25'		-1.6/25, -3.2/45, -8.7/62 crk.
0+91		1002.0	-5.3/50', -3.4/25, -3.5/3		+3.0/25, +3.6/50
EC 0+75.8	El. 999.4	999.4	-2.5/50, +0.3/24	EC	+3.8/2, +6.5/25, +7.1/50'
Ext. at P.I. 29	P.I. = pt. 0 = El. 1000.0 (assumed)	1000.0	-3.0/50, +0.3/10	Ext.	0.0/8, +3.0/10', +6.0/40, +3.0/50
BC P.I. - 75.8	1000.2	1000.2	-3.3/50, -2.3/10, -0.1/5	BC	-0.1/13, -1.4/17, -1.4/50

	=Pt. 8				985.4
9+11	=Pt. 7				994.4
7+06					986.8
6+16					983.5

L			℄	R		
		+3.3/50		+6.8/30		
	+1.7/50	+1.1/35		+1.3/25	+3.8/56	
+0.1/50	−0.5/25	−5.3/13		+3.5/50		
+1.9/50	+1.5/21	+0.6/12	ck.	+0.3/9	+1.1/17	+5.8/50

Stadia road location along south slope of hill to Poway Valley.

Sta.	Dist.	Hor. ∠	Vert. ∠	H.I.	Rod & Elev	Mag. B.
~~6 to 7~~	~~224.7~~ (225)	on back tang.	~~−4°22'~~	~~5.1~~	~~5.1~~	
~~5 to 6~~	~~419.9~~ (419)	22°45'30" ~~11°22'30" R~~	~~−1°09'~~	~~4.9~~	~~4.9~~	S 58°30' W
~~5 to 6~~	196.1 O.K. this line (197)	~~23°10' R~~	~~−4°02'~~	~~4.9~~	~~4.9~~ −13.8	
* 3 to 5	762.3 (765)	8°30' 4°15' L	−4°02'	4.7	4.7 (−53.8)	S 19° W
3 to 4	274.7 (275)	3°25' R	−4°02'	4.7	4.7 (−19.4)	
* 1 to 3	503.5 (505)	79°13'30" 39°36'30" L	−4°02'	5.2	5.2 (−35.4)	S 53° W
1 to 2	192.1 (192)	34°08' L	−4°02'	5.2	3.7 (−12.0)	
1 to 0	751.4 (757)		+4°01'	5.2	5.2 (+53.0)	

2/17/39 — Williams, Hill, Isbell, Soper, Remmen — clear, heavy wind

L ℄ R

C. 21.0

grade −20%/140 −28%/40 .6 +36%/80

−28%/100 .5 +42%/50 +36%/75

−24%/80 −40%/60 .4 +40%/35 +25%/35 level/30

−40%/125 .3 +40%/30 +27%/45 +18%/35

C. 1.5 −40%/50 −22%/20 −18%/35 .2 level/20 −70%/5 level/17 −50%/30

−10%/25 +15%/20 +60%/10 level/9 .1 level/6 — road —

Sta.	Dist.	Horz.	Vert.	HI	Rod. El.
* 11 to 14	278.9 (278')	P.O.T.	-0°57'	5.0	5.0 (-4.6)
11 to 13	195.7 (195')	P.O.T.	-2°16'	5.0	15.0 (-17.8)
11 to 12	91.0 (90')	P.O.T.	-1°00'	5.0	5.0 (-1.6)
11 to 10	165.4 (168')	back	-7°16'	5.0	5.0 (-21.1)
11 to 9	281.9 (281')	back	+1°13'	5.0	5.0 (+6.0)
* 8 X-to 11	503.2 (506')	2°38' 1°19' L	-5°03'	4.9	4.9 -44.5
* 6 to 8	427.6 (427')	P.O.T.	-1°49'	4.9	4.9 (-13.6)
6 to 7	217.3 (223')	7°25'30" 3°44'30" R	-9°16'	4.9	4.9 (-35.4)

Mag. B

	L	C	R
C. 22.1	-9% / 90	-17% / 5 .14	+17% / 135
	+15% / 60		
	-13% / 60	-23% / 30 .13	+25% / 90
	+15% / 80		
S 51°30' W			
	-22% / 120 .12	18% / 35	+14% / 45
	+8% / 80		
	-15% / 80 .10	+24% / 25	+20% / 100
	+27% / 60		
	-13% / 90	-10% / 25 .9	level / 20
	-14% / 30	+15% / 35	+26% / 100
C. 7.2	-22% / 35	-16% / 35	-10% / 45 .11
	+13% / 90	+11% / 40	+17% / 40
C. 16.4	-15% / 90	-12% / 35 .8	+10% / 90
	+22% / 80		
S 4 2° W			
	-18% / 150 .7	+34% / 125	

Sta.	Dist.	Horz Δ	Vert Δ	H.I.	Rod = El.
* 17 to 21	1050.8 (1055')	60°14'30" 30°07'30"	-4°02'	5.1	3.1 (-72.1)
17 to 20	850.8 (854')	29°39' L	-4°02'	5.1	3.1 (58.0)
17 to 19	553.3 (555')	29°08' L	-4°02'	5.1	3.1 (-37.0)
17 to 18	285.6 (286')	27°49' L	-4°02'	5.1	3.1 (-18.1)
* 15 to 17	212.7 (220')	P.O.T.	-11°14'	4.9	4.9 (-42.2)
15 to 16	46.8 (47')	P.O.T.	-9°19'	4.9	4.9 (-7.7)
* 14 to 15	149.8 (149')	30°00' R	-2°10'	5.0	5.0 (-5.7)

Mag B. L Q R

S 57°30 W grade $\frac{-15\%}{35'}$ $\frac{-25\%}{43'}$ fence . 21 $\frac{+28\%}{75'}$ $\frac{+35\%}{75'}$

$\frac{-20\%}{25'}$ $\frac{-27\%}{96'}$ fence . 20 $\frac{+30\%}{100}$

$\frac{-30\%}{100}$. 19 $\frac{+38\%}{100}$

grade $\frac{-20\%}{40}$ $\frac{-36\%}{90}$. 18 $\frac{+37\%}{90}$

F. 20 $\frac{-20\%}{100}$ $\frac{-35\%}{50}$. 17 $\frac{+35\%}{80}$

$\frac{-35\%}{50}$ $\frac{-18\%}{45'}$. 16 $\frac{+15\%}{100}$ $\frac{+25\%}{40}$

S 81°30 W C. 26.0 C. 26.9 $\frac{-26\%}{60}$. 15 $\frac{+23\%}{30}$ $\frac{+13\%}{40}$ $\frac{+20\%}{35}$

Sta	Dist	Hor∠	Vert∠	H.I.	Rod & El	Mag. B	L ℄ R
* 25 to 28	456.8 (456')	P.O.T.	-1°10'	4.7	4.7 (-9.3)	S 33°30' W.	-20%/100 -11%/30 . 28 +13%/45 +29%/60
25 to 27	251.9 (252)	P.O.T.	-1°05'	4.7	4.7 (-4.8)		+13%/50 -14%/75 . 27 +25%/100
25 to 26	143.9 (143)	33°26' 16°43' L	-1°15'	4.7	4.7 (-3.1)		+20%/60 -16%/40 Pt. 26 . +18%/45 +28%/70 — 40% — 10 ne cattle path
* 23 to 25	402.7 (402½)	P.O.T.	-1°36'	5.1	12.1 (-19.2)		+14%/75 +28%/30 -15%/25 . +15%/75
23 to 24	167.9 (167)	P.O.T.	-1°31'	5.1	12.1 (-16.5)		in crk. +11%/80 +35%/25 . 24 crk +15%/95 +12%/90
			same crew	2/18/39		S 50°30' W	
* 21 to 23	728.9 (731)	P.O.T.	-4°05'	4.8	4.8 (-51.9)		+14%/50 +8%/70 . 23 level/10 -25%/35 crk +28%/20 +7%/90
21 to 22	179.6 (179)	P.O.T.	-2°57'	4.8	4.8 (-9.3)		-6%/60 -14%/20 . 22 +14%/50 fence +28%/50

Note move line from pt 25 to pt. 31 15' W. or up hill.

Sta	Dist.	Horz.	Vert.	H.I.	Rod. El.
* 35 to 36	136.3 (136')	37°59'30" 18°5'9" R	-4°02'	4.4	4.4 (-9.6)
* 31 to 35	212.0 (212')	77°19'30" 38°40 R	-4°02'	4.6	4.6 (-14.9)
* 32 to 34	246.8 (247')	35°50' 17°55 R	-4°02'	5.0	10.0 (-22.4)
32 to 33	155.2 (155')	11°33 R	-4°02'	5.0	10.0 (-16.0)
32 to 31	113.6 (113')	back	+3°21	5.0	5.0 (+6.6)
* 28 to 32	853.1 (854')	P.O.T.	-2°43'	4.9	4.9 (-40.5)
28 to 30	527.4 (529')	P.O.T.	-4°03'	4.9	4.9 (-37.3)
28 to 29	452.8 (455')	P.O.T.	-4°56'	4.9	12.9 (-47.1)

Mag. B

L ℄ R

N70°30'W

$\frac{-16\%}{60}$ $\frac{-26\%}{50}$ $\frac{-37\%}{50}$ .36 $\frac{+52\%}{90}$

N89°30'W

$\frac{-36\%}{75}$ $\frac{-50\%}{25}$ .35 $\frac{+45\%}{100}$

S42°W

grd $\frac{-6\%}{100}$ .34 $\frac{+28\%}{125}$

$\frac{+23\%}{100}$ level rod) .33 $\frac{+30\%}{150}$

$\frac{-16\%}{90}$ $\frac{-25\%}{35}$ .31 $\frac{+25\%}{150}$ Make cut at sta. 32

$\frac{+13\%}{100}$ $\frac{-9\%}{25}$ rd. .32 $\frac{+12\%}{60}$ $\frac{+30\%}{100}$

$\frac{-16\%}{100}$ .30 $\frac{+15\%}{30}$ rd $\frac{+33\%}{100}$

S24°15'W $\frac{-16\%}{100}$ .29 $\frac{+32\%}{90}$ rd $\frac{+35\%}{100}$

Sta	Dist.	Hor. ∠	Vert. ∠	H.I.	Rod + Elev.
△ 40 to 44	219.0 (218')	(139°17'30") 69°39' Lt.	+0°29'	4.9	4.9 (+1.9)
40 to 43	162.8 (162')	"	−1°57'	4.9	4.9 (−5.5)
40 to 42	98.0 (97')	"	−1°22'	4.9	4.9 (−2.3)
40 to 41	49.4 (52')	on line 40 to 44	−12°52'	4.9	4.9 (−11.3)
				2/20/39	same crew
38 to 39	47.3 (58')	In line with pt. # 45	−26°33'	4.9	4.9 (−23.6)
* 38 to 40	108.5 (108')	105°46' 62°53' L	−4°02'	4.9	4.9 (−7.7)
* 37 to 38	195.1 (195')	20°31'30" 10°17' R	−4°02'	5.0	5.0 (−13.8)
* 36 to 37	160.2 (160')	28°26'30" 14°13' R	−4°02'	4.5	4.5 (−11.3)

Mag. B.	L			℄	R
S.12°W.	−32.6 / 137	−22.1 / 67	−8.7 / 35	.44	+10.0 / 68
	−22.5 / 130	−18.0 / 108	−9.5 / 50	.43	+9.0 / 50
	−23.0 / 108	−14.0 / 70	−15.0 / 50	.42	+11.2 / 50
S8°W			−3.5 / 50' bot. crk	90'?	
	−23.6 / 128	−14.6 / 100	−6.6 / 50	.40	+11.5 / 50
N 6°15' W?			same as 50' dist. of pt. 39 / 73'	.38	
N 5°30' W?		−26.0 / 100'	−15.0 / 50	.37	+20.0 / 50

Sta.	Dist.	Hor. ∠	Vert. ∠	H.I.	Rod & Elev.
* 49 to 52	815.4 (815')	POT	−1°39'	4.9	4.9 (−23.5)
49 to 51	520.8 (520')	POT.	−1°13'	4.9	4.9 (−11.1)
49 to 50	139.6 (140')	46°56', 23°28'30"	−5°41'	4.9	4.9 (−13.9)
* 48 to 49	117.7 (117')	POT	−2°42'	5.0	5.0 (−5.6)
△ 47 to 48	465.8 (465')	(14°27'30") 7°13'30" Rt.	−1°17'	5.0	5.0 (−10.4)
△ 44 to 47	411.9 (411')	(21°02') 10°31' Rt.	−1°03'	5.0	8.0 (−10.5)
44 to 46	161.0 (160')	"	−1°01'	5.0	5.0 (−2.9)
44 to 45	75.7 (75')	on line 44 to	−3°47'	5.0	5.0 (−5.0)

Mag. Bor.	L			℄	R	
			−10.0 / 50'	−21' − 52	+12.0 / 50'	
			−9.5 / 50'	−24' − 51	+10.0 / 50'	
S 5°45' W			−1.5 / 50'	−23' − 50	+7.0 / 50'	
			−6.0 / 50	−30' − 49	+6.5 / 50	bisecs
S. 29°30' W.			−9.5 / 50	−8' − 48	+9.0 / 50	
S. 22°15' W.			−10.5 / 50	−26' 47	+13.0 / 50	same slope 75'
	−33.5 / 141' ck.	−26.0 / 100'	−12.5 / 50'	−4' − 46	+14.5 / 50	
	−29.3 / 140 ck.	−27.8 / 90	−15.3 / 40	45	+10.5 / 50	

Sta.	Dist.	Hor. ∠	Vert. ∠	H.I.	Rod + Elev
59 along rd		90°51'30"R		5.3	5.3
58 to 59	1050.9 (1050')	169°09'30" 84°35'L	-0°49'	5.0	5.0 (-15.0)
* 56 to 58	764.4 (764')	P.O.T.	-1°43'	5.0	5.0 (-22.9)
56 to 57	256.6 (256')	82°56' 41°28'30"R	-2°13'	5.0	5.0 (-9.9)
* 54 to 56	280.1 (282')	P.O.T.	-5°35'	5.0	5.0 (-29.0)
54 to 55	83.4 (83')	72°43' 36°21'R	-4°53'	5.0	5.0 (-7.1)
* 52 to 54	133.9 (133')	P.O.T.	-1°33'	4.9	4.9 (-3.6)
52 to 53	93.6 (92')	P.O.T.	+1°02'	4.9	4.9 (+1.7)

Mag. B. L ℄ R

Hwy grade +0°23' E from 59

N89°30'W

537.2 US BM
+ 4.9
542.1
- 5.3
El. pt. 59 = 536.8

S0°30'E

S84°W

$\frac{-2.5}{50}$ 5.7 $\frac{+3.0}{50}$

$\frac{-4.0}{50}$ 56 $\frac{+4.0}{50}$ bisec ∠

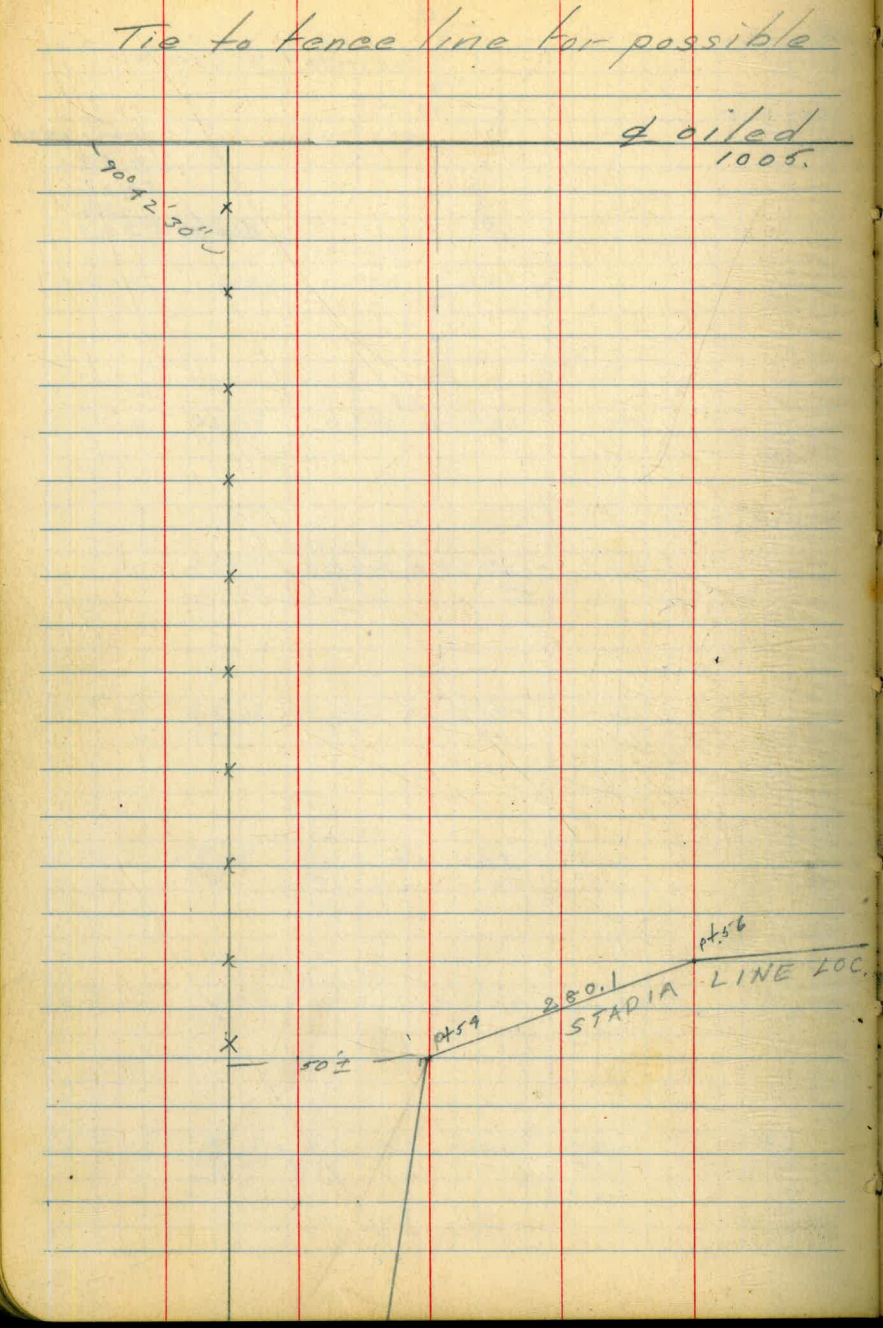
S42°30'W

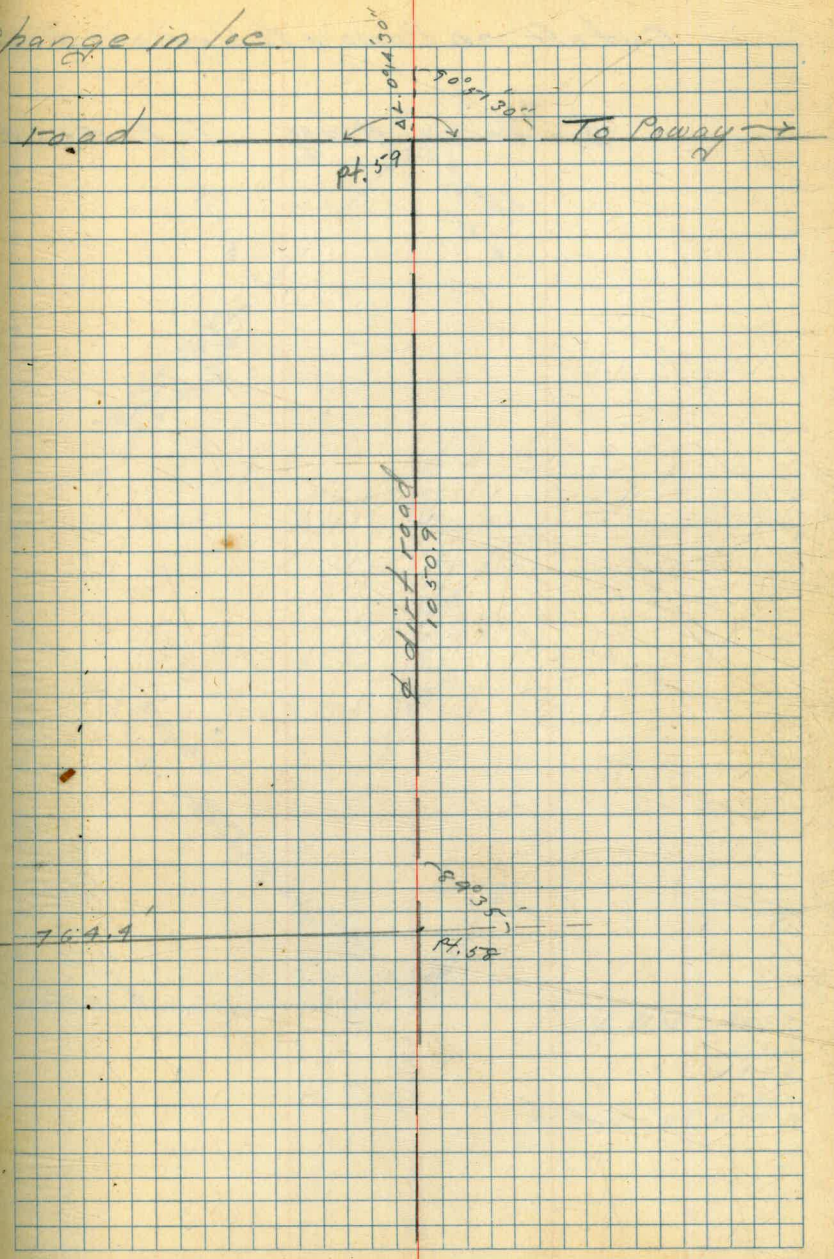
$\frac{-17.5}{50}$ $\frac{-8.0}{20}$ 54 $\frac{+10.0}{30'}$ $\frac{+19.0}{50}$

$\frac{-15.5}{50}$ — 50' — 53 $\frac{+14.5}{50'}$

Tie to fence line for possible change in loc.

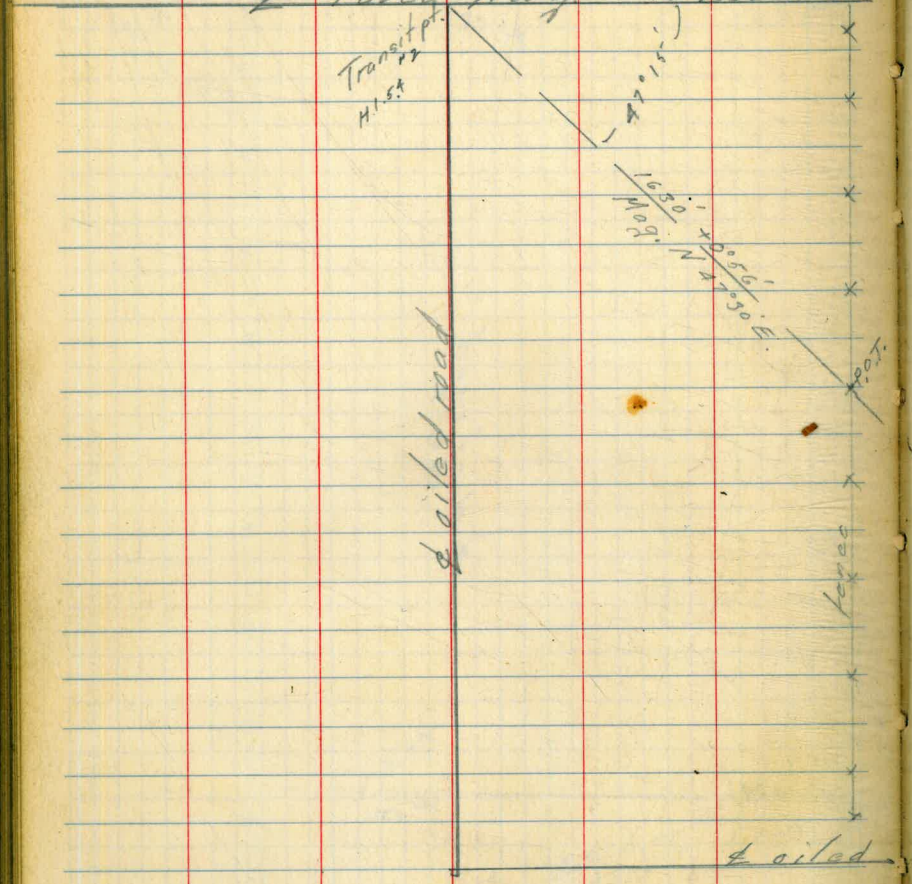
℄ oiled
1005.

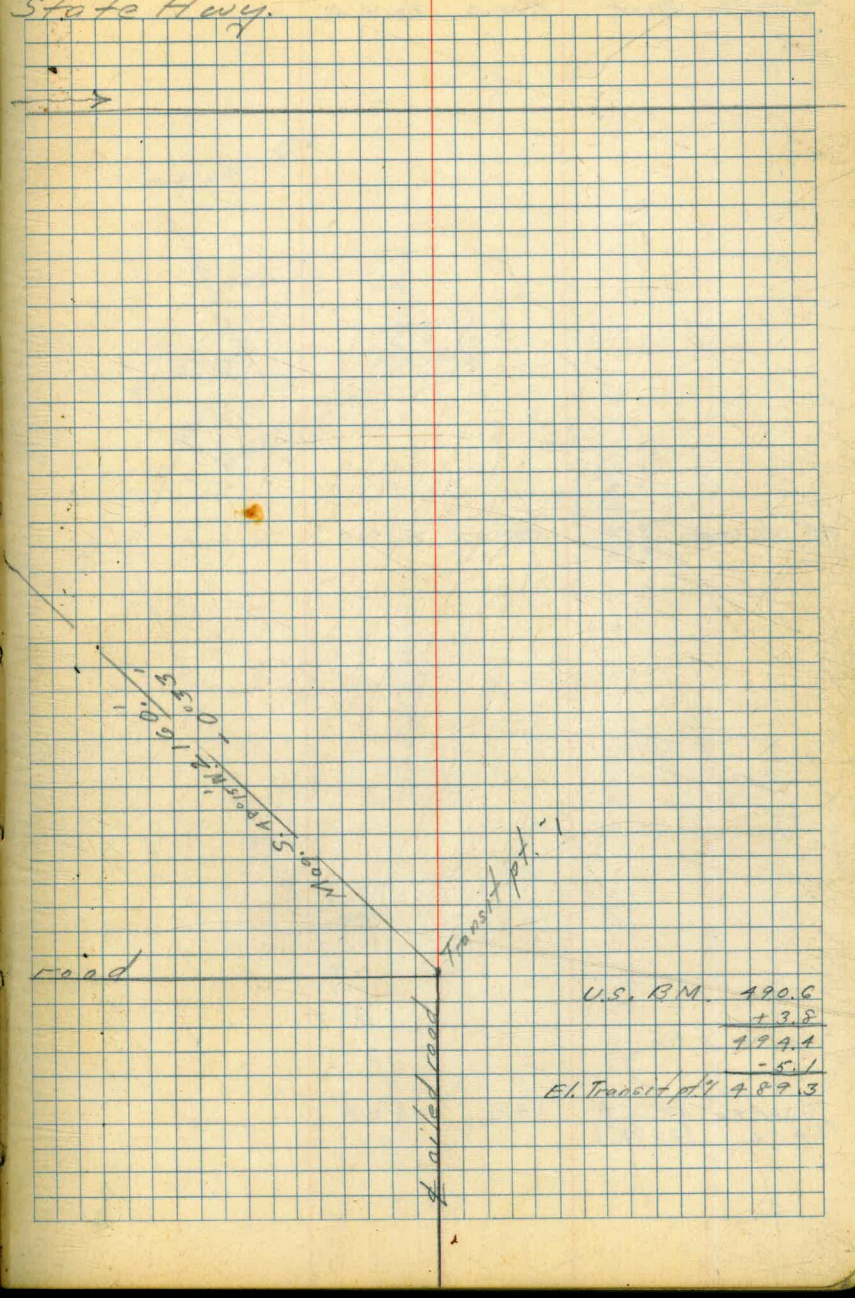




Cutoff on Poway Valley road to State Hwy.

℄ Paved Hwy To Escondido





U.S. B.M.	490.6
	+ 3.8
	494.4
	- 5.1
El. Transit pt. 1	489.3

Tie from 1/4 cor on N. line of sec. 17 to sec. cor at N.E. cor of sec. 17

Hill
Soper
Brooks

7/8/40

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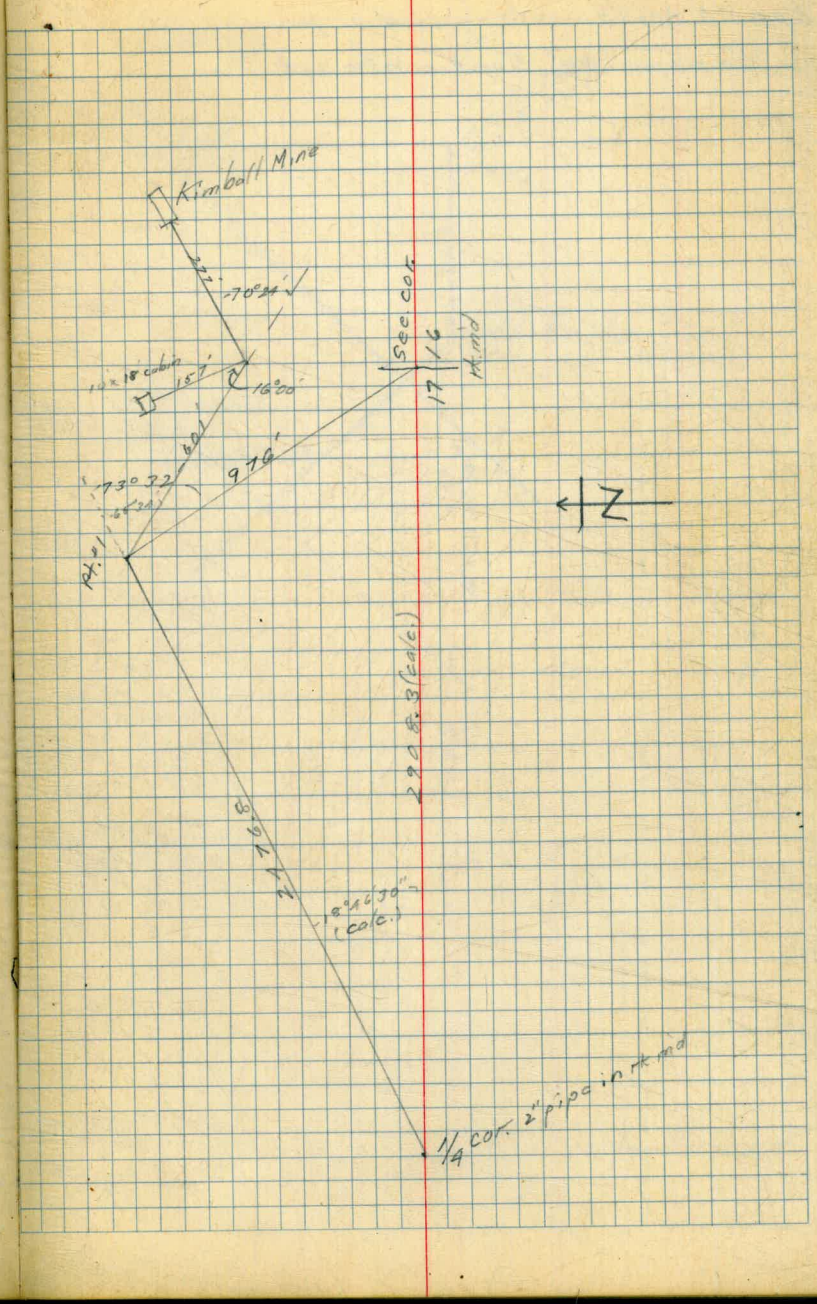
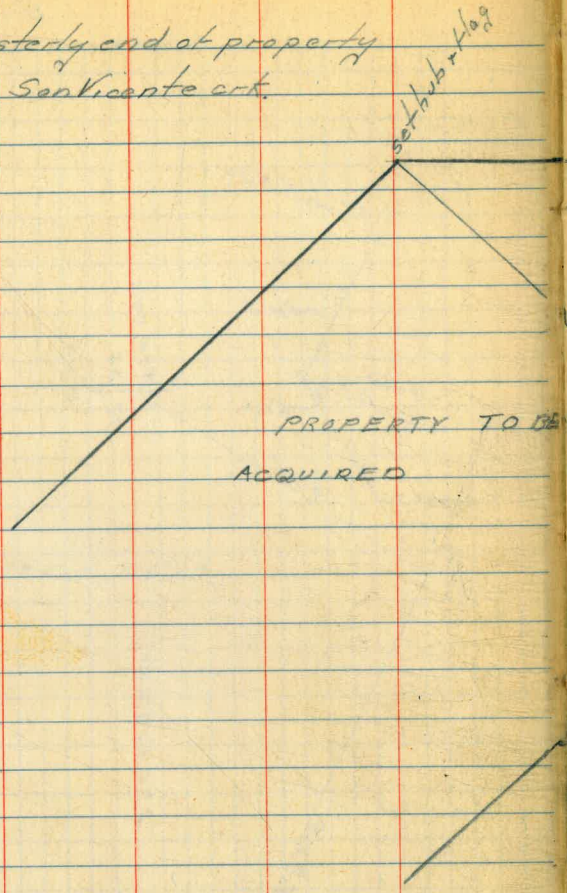
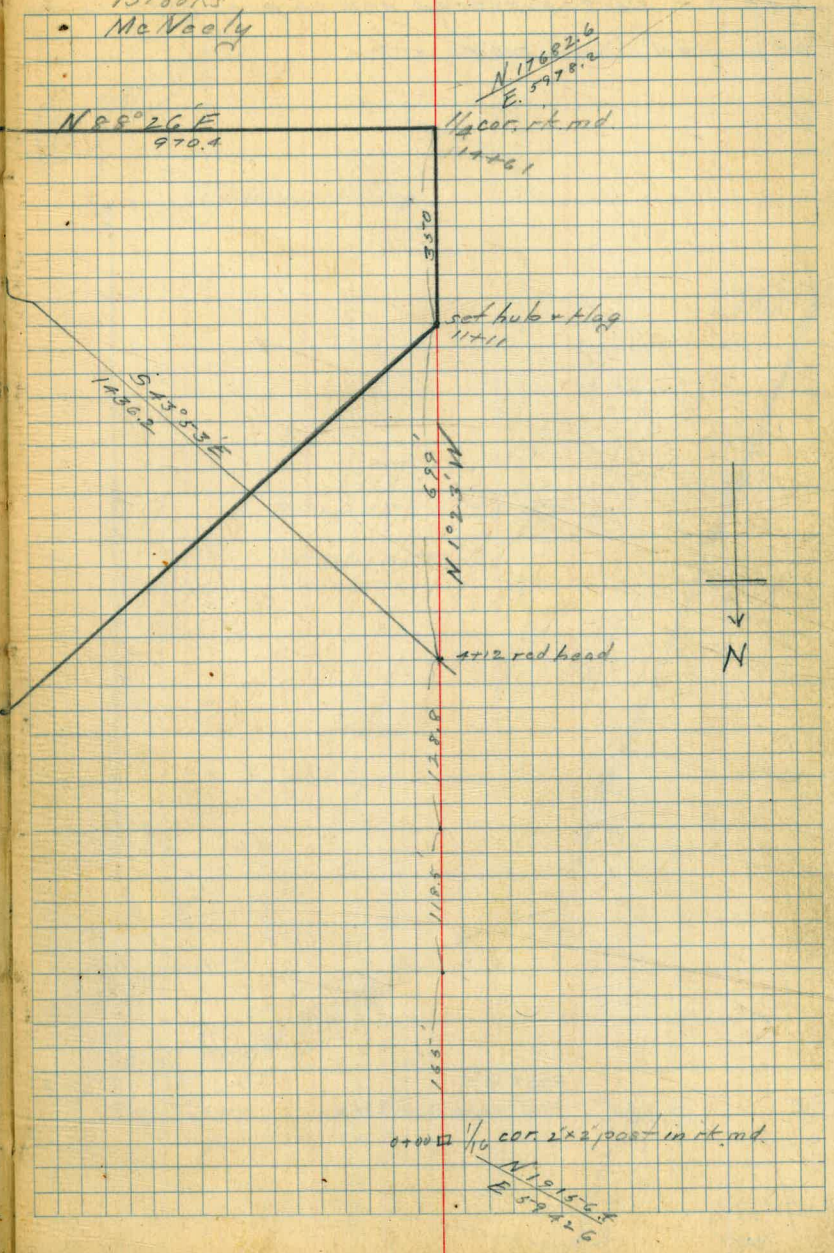
Pt. to Pt.	Dist.	Hor. ∠	Vert. ∠
Pt. #1 to sec. cor.	976' (975')	73°32' R	+0°44'
1/4 cor. to Pt. #1	2476.8 (2486')		+3°49'



Loc. of southwesterly end of property to be acquired. San Vicente crk.



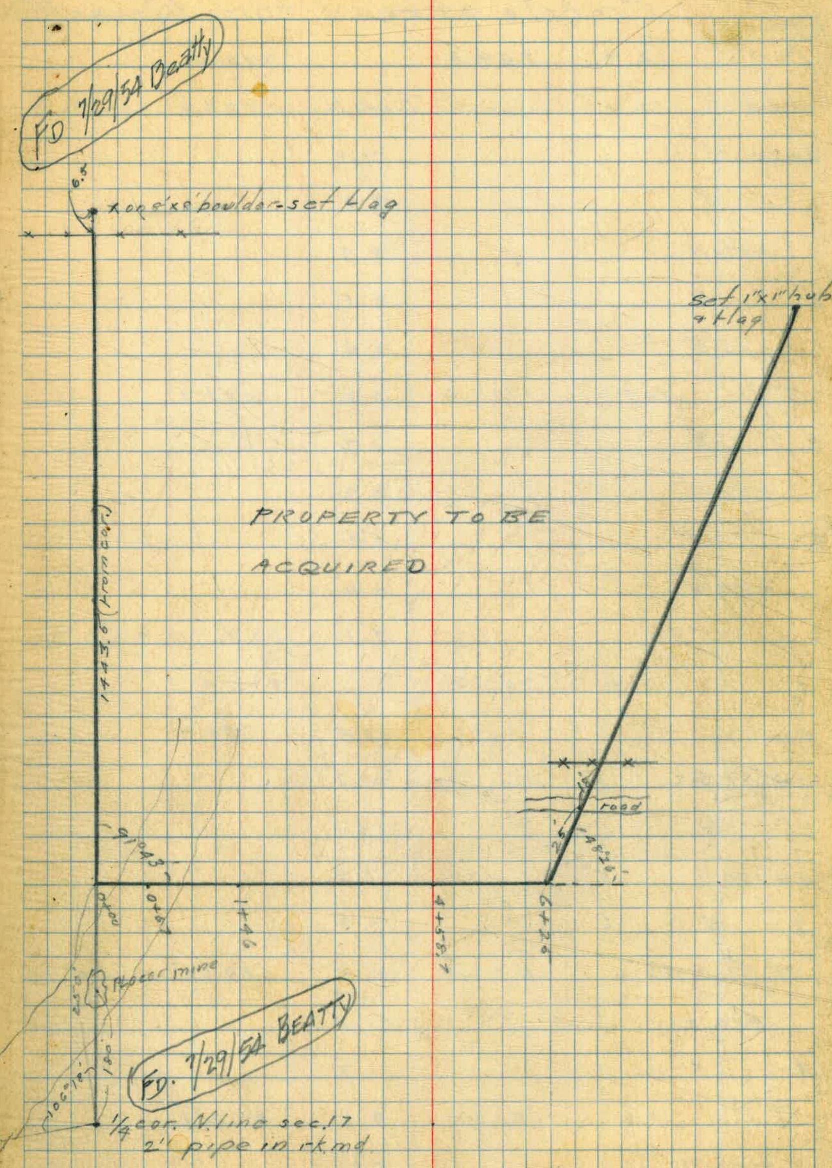
Williams 7/9/40
Hill
Sooer
Brooks
McVeety



Loc. of northeasterly end of property to be acquired San Vicente crk

1/4 cor. 1443.5' (1450') 106°18'R ~~105°33'30"R~~ +3°50'

see page 47 lot 1



Profile of road thru Kimball

775 contour Point	12.9	787.9		775-0
0+00			14.0	773.9
0+50 N			8.9	
1 N			7.9	
+50 N			7.3	
2 N			3.1	
+50 N			2.0	
T.P.	10.30	798.0	0.2	787.7
3 N			8.3	
+50 N			6.9	
4 N			5.5	
+50 N			4.0	
4+27 N			3.1	
	12.3	787.3		775-0
0+00			13.4	773.9
0+50 S			10.1	
1 S			10.4	
1+50 S			7.2	
2 S			2.3	
T.P.	16.2	802.7	0.8	786.5
+50 S			11.0	
3 S			1.7	
T.P.	9.8	812.0	0.5	802.2
+50 S			5.3	
4+12 S			1.9	

7/10/40 Williams Hill Soper Brooks

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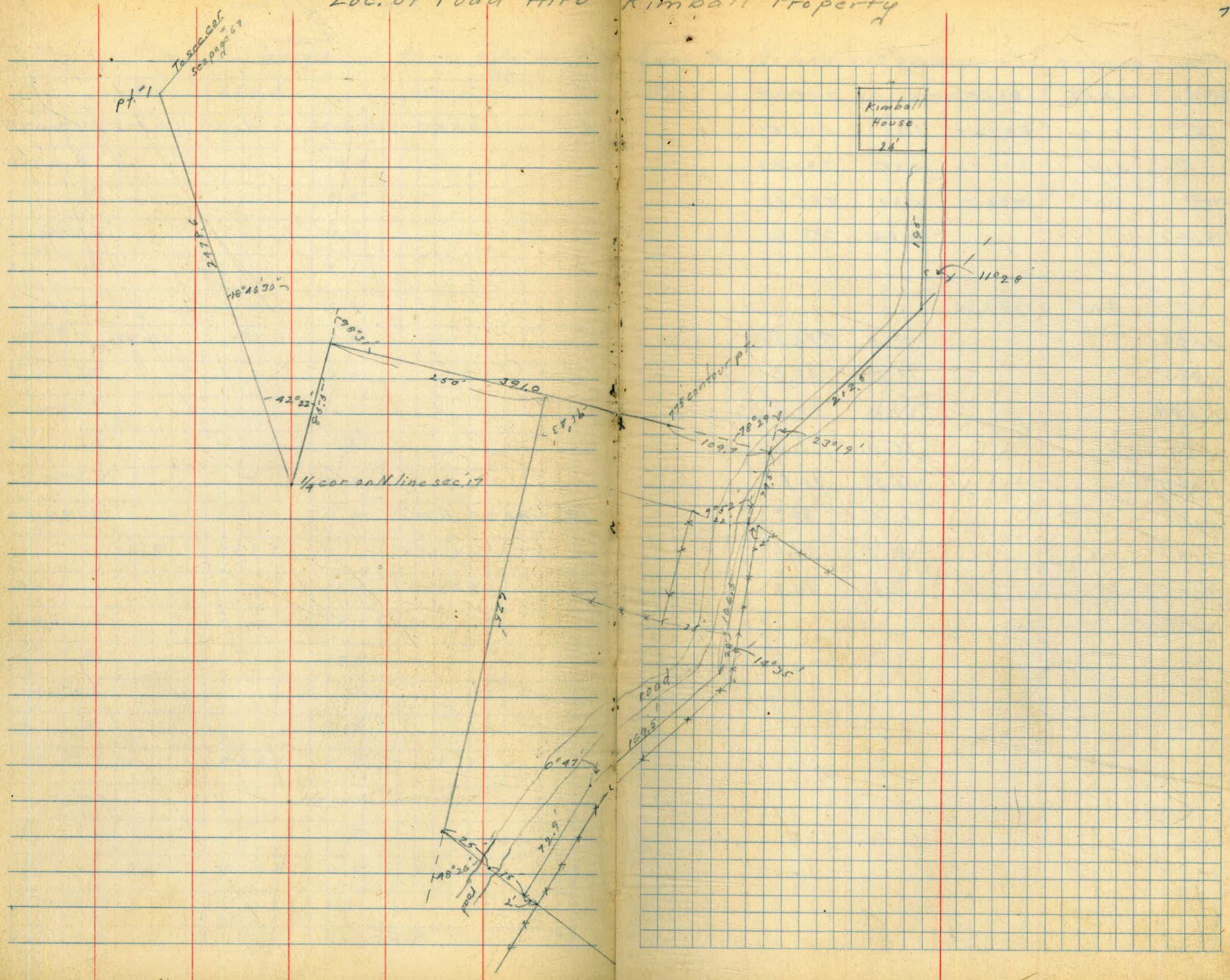
Property

℄ of road in stream bed = 16' dist. of ℄ 775 contour pt

W. line of R.W.

Kimball house

Loc. of road thru Kimball Property



Elevs across streambed (San Vicente) E. from 1/4 cor. on N. line sec. 17

Nail in base of oak tree, W. bank, ½ mile N. of house

BM.	12.15	810.52		798.37
TP	1.00	807.57	3.95	806.57
TP	1.04	798.26	10.35	797.22
TP	3.15	794.51	6.90	791.36
BM			0.86	793.65
	3.65	797.30		
0+53			13.5	783.8
0+64			18.5	78.8
0+84			21.0	76.3
1+80			16.0	81.3
2+95			16.5	80.8
3+45			15.5	81.8
3+94			11.7	85.6
4+05			7.1	90.2

0+00 = 1/4 Cor.

Williams Hill Soper Brooks McNeely 7/12/40

Line from sec cor. E. to 1/4 cor. along S. line of sec 24

Sta.	Dist.	Hor. ∠	Vert ∠	
0 to 1	639.7 (709)	0°28' Rt	+18°26	
1 to 2	81.9 (97')	0	-24°03'	
1 to 3	1675.8 (1860)	0°05' Rt	-18°29'	Pt. 3 = 1" iron pipe at edge of road (exist)
1 to 4	1807.3 (1956)		-16°09'	Pt. 4 = exist hub
4 to 5 (5 = 1/4 cor)	223.6 (237')		+21°14	Pt. 5 = 1/4 cor. iron pipe in rock md.

See sketch Page 14

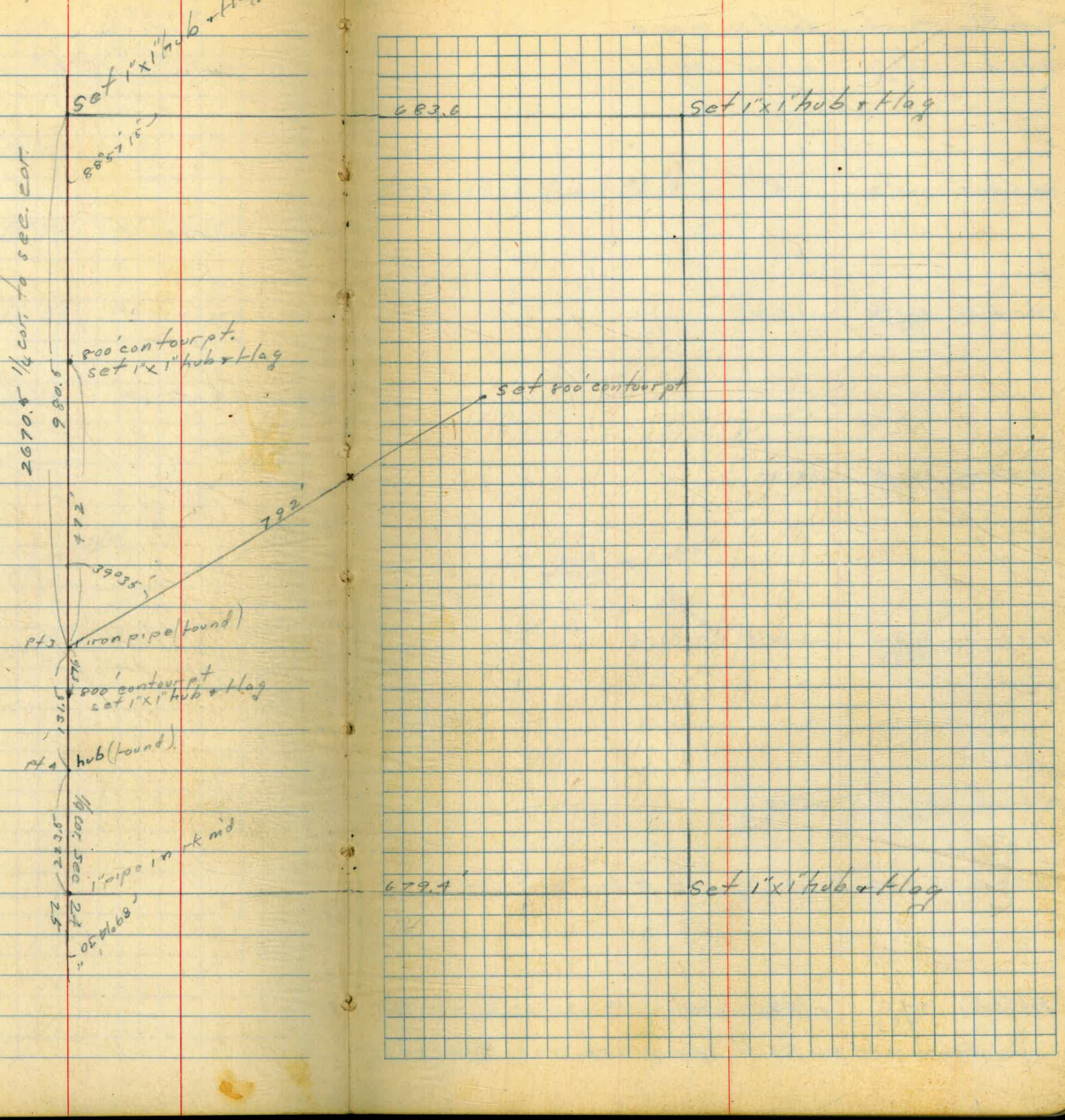
0 = Sect. Cor 24-25

Pt. 3 = 1" iron pipe

Pt. 4. 1"x4' hub with lath marker

Pt. 5 - S 1/4 cor. sec 24 1" iron pipe in rock mound

Loc. of property to be acquired at southerly side of Sec. 24.



Loc. of prop. to be acquired in N.E 1/4 of sec. 25

Pt. to Pt.	Dist	Vert ∆	Hor. ∆
Pt. 7 to 8	67.0 (67')	+1°21'	90°30' L
Pt. 6 to 7	5.2	0°	
Pt. 5 to 6	117.2 (127')	-16°12'	
Pt. 4 to 5	161.2 (164')	-7°32'	
Pt. 3 to #4	378.0 (379')	+3°06'	90°47' R
Pt. 1 to 2	602.1 (615')	+8°29'	

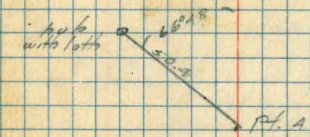
—81' back

Pt #3 = pt 638.' E. of 1/4 cor. N. line sec. 25

Pt "0 to "1	44.0 (46')	+11°45'	0°

Backsight on Keith semiphore 2000'± west

Pt. 7 = 661.6 S. of Pt. #3



Pt. 0 = 1/4 cor. on N. line sec. 25

(cont.)

Pt. to Pt.	Dist	Vert. ∠	Hor. ∠
Pt. 5 to 6	258.2 (271)	-12°37	
4 to 5	227.2 (235)	-10°32	
2 to 4	540.7 (541)	-1°20'	
2 to 3	416.0 (416.5)	-2°02'	
1 to 2	91.4 (93)	+7°39'	POT.
0 to 1 Pt. 0 = ¼ cor. on E. line sec 25 San Ber. Mer.	159.4 (192)	+21°22'	4°06' L

Backsight on triang. pt. on island.

8 to 9	1231.0 (1231)	+0°26'	
Pt. 10			

Pt. 6 on fence line

Pt. 3 = 666.8 W. of ¼ cor. on E. line sec. 25

Pt. 10 = 1290.4 E. of Pt. "7"

Loc. of prop. to be acquired in N.W. 1/4 sec. 25

Pt. to Pt.	Dist.	Vert. ∠	Hor. ∠
Pt 6 = 1312.4 E. of pt. #3			
4 to 5	451.0 451'	-0°53'	
pt. 3 to 4	810.8 (876)	+15°52'	90°05'30" R
pt #3 = 644.5 N. of 1/4 cor			
Pt. 1 to 2	530.9 (557)	-4°22'	0°
0 to 1	102.7 (120)	-22°20'	89°38' R

Backsight on flag at fence line 3/4 mile E.

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McNeely

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Pt. 0 = 1/4 cor. on W line sec. 25

Loc. of prop. to be acquired in S.W. 1/4 of sec. 25

Pt. to pt.	Dist.	Vert Δ	Hor. Δ
Pt. 6 to 5	123.6 (125')	-6°00'	89°56'
E. cor. = 1/16 cor.			
W. cor.			
Pt 6 to 7	256.2 296'	+21°37'	90°04' L
5 to 6	6.8	0°	Pt 6 = 1333'. N. of S. line sec 25
4 to 5	66.2 (69')	-11°39'	0°
Pt. 2 to 4	1257.6 (1261')	-3°02'	90°25' R
Pt. 2 to 3	281.8 (284')	+5°06'	
Point = 1713.6' W. of 1/4 cor.			
Pt. 1 to 2	513.0 (519')	+6°11'	0°
1/16 cor.			
Pt. 0 to 1	921.8 (961')	+11°44	90°17'30" L (on N. fence line)
Pt. 0 = 1/4 cor. on S. line sec. 25			

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7/17/40

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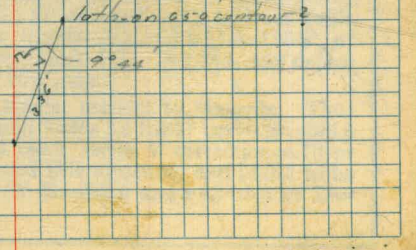
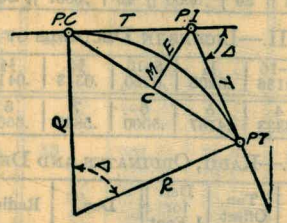


Isbell 30-50 Trailer Camp
5050 El Cajon Ave
Phone Under Foster
Randolph 15-37
N.B. can be reached at sisters
Randolph 3007

Leckey 4372 Bancroft

Williams Jackson 5686

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES



CURVE FORMULAS

Radius=R=$\frac{50}{\text{sin. } D/2}$ (1) Degree of Curve=D and sin. $\frac{D}{2}=\frac{50}{R}$ (2)

Tangent=T=R tan $\frac{\Delta}{2}$ (3) Length of Curve=L=100$\frac{\Delta}{D}$ (4)

Middle ordinate=M= R(1—cos. $\frac{\Delta}{2}$) (5) =R vers $\frac{\Delta}{2}$ (6)

External=E=T tan $\frac{\Delta}{4}$ (7) =R÷cos. $\frac{\Delta}{2}$—R (8)=R exsec $\frac{\Delta}{2}$ (9)

Long Chord=C=2 R sin. $\frac{\Delta}{2}$ (10) Δ=Central Angle

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161 +60.35 to find Sta. of P. C. and P. T. Δ=62° 10′ D=8° 20′. From Table IV for 1° curve T=3454.1 and ÷8⅓=414.49 ft. From Table V correction=.36 or T=414.85 ft. P. C.=Sta. P.I.—T=157 +45.50. Also from (4) L=746.00 and P. T.=Sta. P. C. +L=164 +91.50.

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

Deflections.—Deflection angle=½ D for 100 ft., ¼ D for 50 ft., etc. For c ft.=(in minutes) .3 x C x D° or=defl. for 1 ft. from Table III x C. For Sta. 158 of above curve=.3 x 54.5 x 8⅓=136.2′ or 2° 16.2′, or=2.50 x 54.5=136.2′ from Table III. For Sta. 159 deflection angle=2° 16.2′ +8° 20′ ÷2=6° 26.2′, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve E=960.6 for 8° 20′=960.6÷8⅓=91.27 and from Table V correction=.10 or E=91.37 ft. Or suppose Δ=32° and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and ÷42=5.5 or D=5° 30′.

1

1600
860
710
2
1480

+7°48'
982
393
79
1454
1
1455

92.2
18.5
6.5
117.2

1807.3
639.7
223.5
2670.5

1335.2
223.5
1111.5

.6142
1112) 6830
6672
1580
1112
4680
4448
2320

600

126'

378.0
161.2
539.2
117.2
656.4

661.6
656.4
5.2

940
400
540

5281.2
2588.7
2672.5

5231.2
37
5268.2

1600
875
725
8
2
1450

287
-9°37'

280
7
19.60

47.8
19.6
27.9
21.0
6.9

428.
7
2996

-13.6

300
13.6
16.4

-4.6

279
7
19.53
4.6
14.9
7.2
22.1

287
+3°03'

287
62
349

137

150
7
10.50
5.7
4.8
22.1
26.9

219
7
15.33

211
14.77

720
2
1440

41.8
18.8
23.0

137' -15°07'
121' +8°26'
166' -4°35'

1600
880
720
2
1440

118.5
165
283.5

1600
880
720
2
1440

.00292
5670
25516
5670
.827820

1474) .00292
4.40000
2948
14520
13266
2540

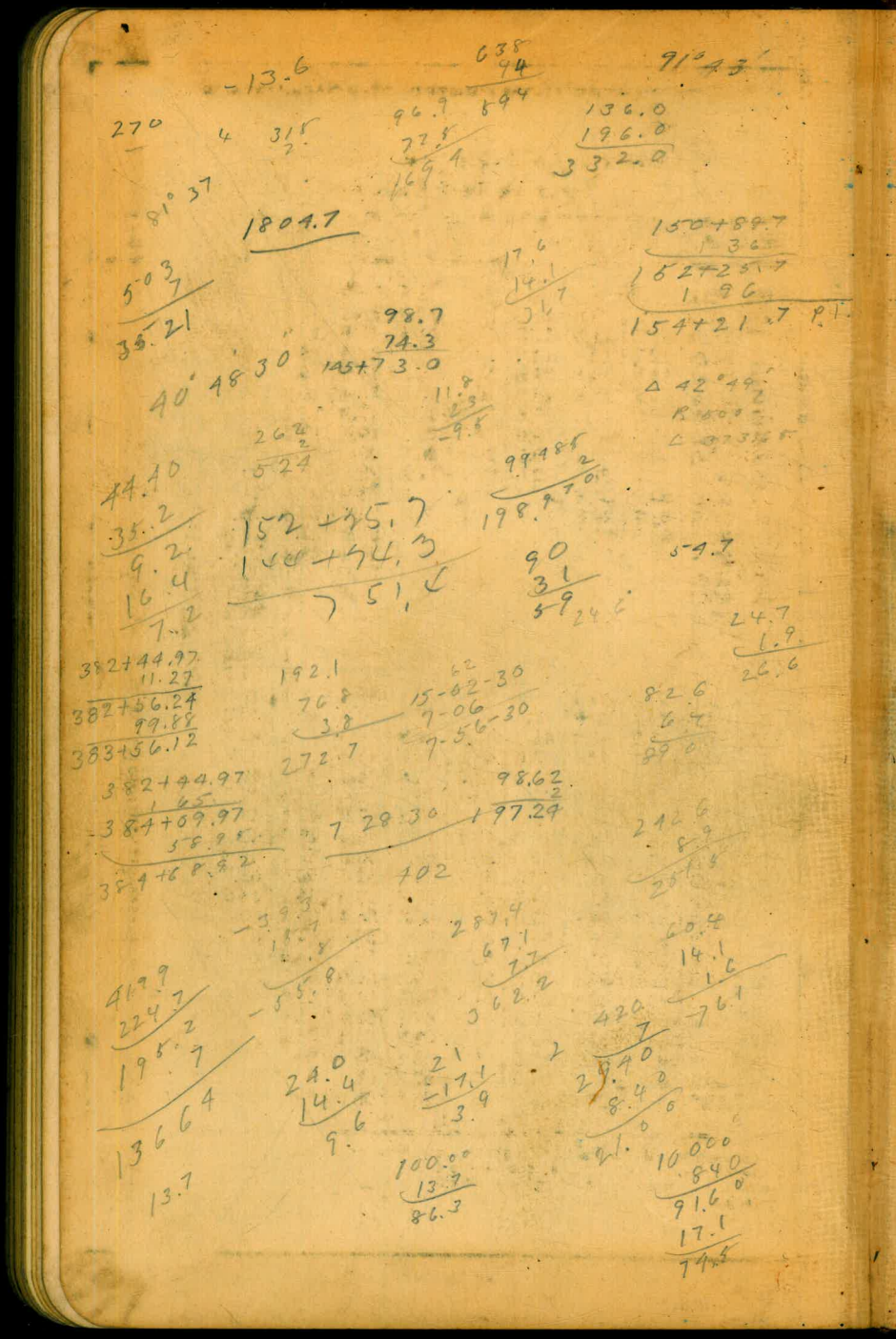
4.40
83
3.57

995
448
1443.4

625
146
479

165
3
.495

4.40
49
3.91



DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½.

For Single Track Embankment.

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

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