312

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FIELD BOOK

No. 305 F

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ENGINEERING and DRAFTING SUPPLIES

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INDEX

	Page
0+00 Kane Sp. - Julian Road to Imp. Irrig Dist West Lateral -	1-2
Profile thru. Sentenac Canyon	3-6
Stadia Line Sentenac Can. to Julian	7-21
Tie to San Bdno Meridian -	22
West End Vallecito 2000' Elev tunnel in Conejo	24-26
San Diego River Stadia Traverse, Boulder & Cedar	27-35
San Diego River Aneroid T.	36
Cedar Creek Aneroid Trav.	37
Aneroid - Elevation Location	38-41
Chariot Canyon Stadia Traverses	42-45
Aneroid - San Felipe	46
"Narrows" Stadia Traverses	47-50
Sentenac Canyon Stad. Trav's.	51-56
Lower " " "	57-58
Aneroid - Mason & Vallecito	59-60
Vallecito - Stadia Traverses	61-63
Milages	64-65

BM's on Kane Springs R.S. 452-457 in back of book

Tie to San Felipe Ranch Cor #5 from R.S 452 last page

"A" line from the beginning of the new Kane Springs - Julian Road Survey at the Pavement north of San Felipe Creek Bridge thence East to W. Lateral Survey of the Imp. Irrig. Dist. and further East to 1/4 cor. Sec. 16-15 the line being the tangent produced backward

(1)

June. 13-30
P.O.G.
Moony
Salgado
Wheeler

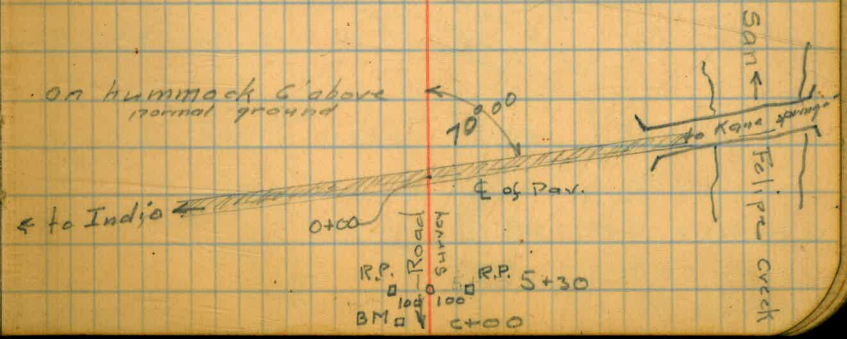
Sta	+ or - Rod	H. I	V-Δ	Dist. in 100 ft.	Elev
6-7					
5-6	-6.5		0°00	5.60	800.0
5-4@	+4.0	806.5	0°00	4.40	
4-4@	-7.1		0°00	9.90	802.5
4-3@	+4.0	809.6	0°00	6.90	
3-3@	-10.3		0°00	10.40	805.6
3-2@	+7.7	815.9	0°00	20.60	
2-2@	-19.3		0°00	10.35	808.2
2 to 1	+6.7	827.5	0°00	8.15	
0+00 to 1	-5.0		0°00	6.95	820.8
				83 v 3	
0+00 to BM	+5.7	825.8		6.05	820.09
				~~29 30~~	

on B.M. Sta. 263+11 also (hard to read) or 175+60 176+60 B.M. El. 801.71

end of washes

beginning of many washes N-E
on hummock 5' above ground - entering
Mesquite - greasewood

on hummock 6' above normal ground



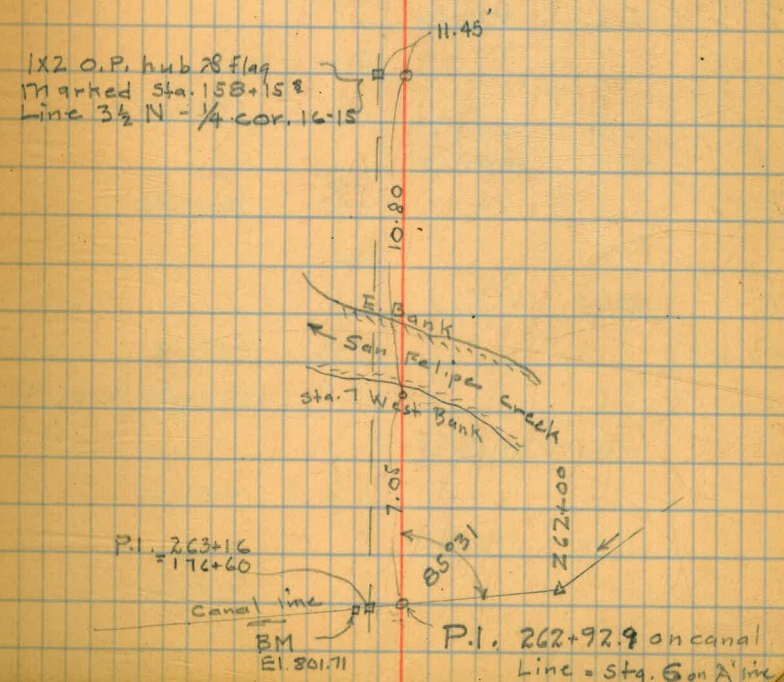
"A" line Contin.

Sta	+ or - Rod	H.I.	V-Δ	Dist.	Elev.
7-8	end of "A" line			10.80	P.I. Sec. Line
7-7a				2.45	E.B. S.F. Creek
6-7	-3.9	801.1	0°00	7.05	W.B. San Fel. Creek
6 to B.M	+ 5.0	805.0	0°00		

Kane springs 2 p.m.
102 in shade

POG.
Mooney
Salgado
Wheeler

June 13-30



Profile levels on Traverse over present traveled road thru ~~Setena~~ Sentenac Canyon upstream from Bridge

③

Sentenac Canyon

P.O.G. ⊼
Mooney Peg-notes
Salgado Notes
Wheeler

June 14-30

				1866.86	B.M.	on East abuttment top of wall
	4.65	1871.51				
P.1 28.			4.49	1867.02		
T.P.			0.65	1870.86		
	12.97	1883.83				
T.P.			0.98	1882.85		
	12.44	1895.29				
T.P.			0.10	1895.19		
	12.87	1908.06				
P.1.27			3.73	1904.33		
T.P.			0.02	1908.04		
	12.22	1920.26				
			~~0.01~~			
P̄			0.01	1920.25		
	12.97 ~~12.65~~	1933.22 ~~1932.90~~				
P̄			0.13 ~~0.10~~	1933.09 ~~1932.80~~		
P̄	12.09	1945.18				
P.1.26			11.00	1934.18		
			1.60	1943.58		P̄ left Marker
P̄	12.90	1956.48				
			0.00	1956.48		
P̄	12.39	1968.87				
			0.11	1968.76		

Sentenac Canyon cont.

P.O.C
Mooney
Salgado
Wheeler

June 14-30

				1968.76
F	12.92	1981.68		
P.I. 25			2.26	1979.42
F			0.00	1981.68
	12.15	1993.83		
F			+0.01	1993.84
	12.19	2006.03		
P.I. 24			7.13	1998.90
F			0.00	2006.03
	12.57	2018.60		
P.I. 23			10.44	2008.16
P.I. 22			4.85	2014.75
F			0.00	2018.60
	13.01	2031.61		
P.I. 21			9.86	2021.75
P.I. 20			2.43	2029.18
F			0.00	2031.61
	9.15	2040.76		
F			0.00	2040.76
	13.04	2053.80		
P.I. 19			7.45	2046.35
F			0.01	2053.79
	12.37	2066.16		
P.I. 18			10.68	2056.48
F			0.09	2066.07

Sentenac Canyon contin

P.O.C.:
Mooney
Wheeler
Salgado

June 14-30

(5)

				2066.07		
F	12.88	207895 ~~2078.04~~				
P.I. 17			5.11	2073.84		
F			0.01	2078.94		
	12.12	2091.06				
P.I. 16			2.14	2089.92		
F			0.00	2091.06		
	7.69	2098.75				
P.I. 15			5.83	2093.92		
F			0.29	2098.46	on rock	left marker to right of Road June 14
	12.00	2110.46				" 16
P.I. 14			1.42	2109.04		
F			0.11	2110.35		
	9.51	2119.86				
F			2.64	2117.22		
	11.81	2129.03				
P.I. 13			8.12	2120.91		
F			0.03	2129.00		
	12.16	2141.16				
P.I. 12			11.00	2130.16		
P.I. 11			2.77	2238.39		
F			0.01	2141.15		
	13.21	2154.36				
P.I. 10			4.90	2149.46		

Sentenac Canyon contin.

P.O.G. ⊼
Salgado Notes
Mooney Peg notes
Wheeler

June 16-30

6

				2154.36	
P			+0.01	2154.37	
	12.59	2166.96			
P.I. 9.			8.29	2158.67	
P.I. 8.			3.04	2163.92	
P			0.11	2166.85	
	7.94	2174.79			
P.I. 7			6.70	2168.09	
P			0.00	2174.79	
	10.78	2185.57			
P.I. 6			8.78	2176.79	
P			0.12	2185.45	
	12.11	2197.56			
P.I. 5			8.15	2189.41	
P			0.59	2196.97	
	11.64	2208.61			
P.I. 4			5.14	2203.47	
P			0.56	2208.05	
	9.12	2217.17			
P.I. 3			7.41	2210.76	
P.I. 2			2.12	2215.05	
P			0.92	2216.25	
	2.50	2218.75			
P.I. 1			4.76	2213.99	
P			3.17	2215.58	B.M.

Nail in Fence Post on east side of road - first post west of
on warning sign post 1000' ± N-E of Gate

Stadia Traverse from end of McGetschin

Sta.	H.I.	H-Δ	V-Δ	Dist.	Elev.
29+43.4					
5			0.000	16.00 3.8	-3.0 2254.4
21+42.6	Profile		2° 25'	8.20 4.00	2234.7
17+23.4 ⊼ at 4	4.8 2257.4	11° 43 Rt			2252.6
4		0°00	0°00	12.55 11.00	-11.5
15+98.4	profile		0°00	30'	-16.0 2248.1
15+68.4 ⊼ at 3	4.7 2264.1				2259.4
3		0°00	0°00	5.25 2.00	-2.4
12+43.4 ⊼ at 2	4.8 2261.8				2257.0
2		0°00	+1°39	13.00 4.00	
6+54.3	Profile		0°00	14.10 11.00 3.10	-11.3 2224.8
3+44.3 ⊼ at 1	5.0 2236.1				2231.1
1		9°26 Lt	2°51 ±	8.45 5.00	
⊼ at 0+00 0+00	5.0 ▽ = P.I. #1	9°26 Lt	2°51' +	8.45 5.00	2213.99

S 76°21 W

S 64°38 W

1220.0'

155.0'

325.0

899.1

344.3

backsight

◁ Line designated by letter "P"

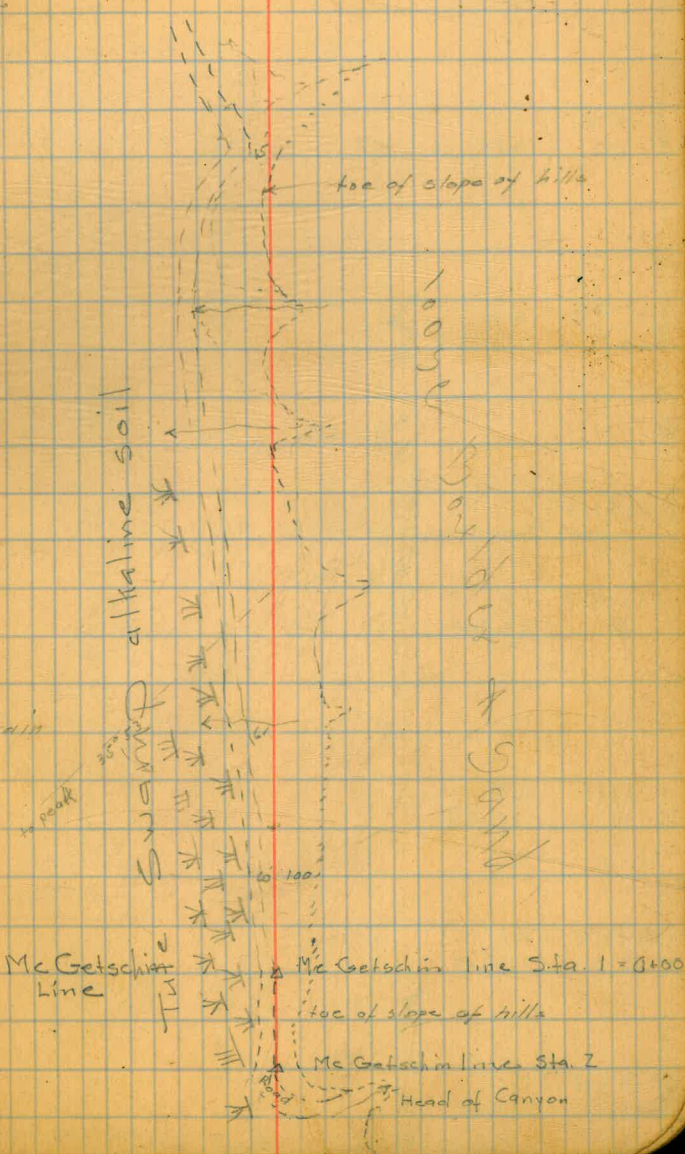
△ = P.I. #2 V

Line thru Sentenac Canyon near Cor #5 of San Felipe Ranch Co. (see last page)

(7)

R.O.G.
Salgado
Mooney
Wheeler

June 17-30



P line Sentenac Canyon
to Julian

Sta.	H.I.	H-Δ	V-Δ	Dist.	Elev.
79+61.1 ⊼ 11.	4.9 2331.9				
11		0°00	2°06+	11.05 4.	2327.0
72+56.8 ⊼ 10	5.0 2306.2	0°			2301.2
10		0°00	1°41+	12.80 3.	
62+77.8 ⊼ at 9	4.9 2278.0				2273.1
9		0°00	1°15+	15.55 5.00	
57+53.4 South Bank toe of slope			0°10+	10.3 5.0	2249.9
52+23.4 ⊼ 8	4.8 2254.9 on N-Bank of San Felipe Creek				2248.4
8		0°00	0°31+	12.05 5.00	2250.1
45+18.4 ⊼ 7	4.8 2248.6				2243.8 -13.00
7		0°00	0°00	14.55 4.00	
34+63.4 ⊼ at 6	4.9 2256.8	9°10L+			2251.9 -7.0
6		0°00	0°00	10.2 5.0	
29+43.4 ⊼ at 5	4.50 2258.9				2254.4

S67°11'W

S76°21'W

859.1

704.3

979.0

1054.5'

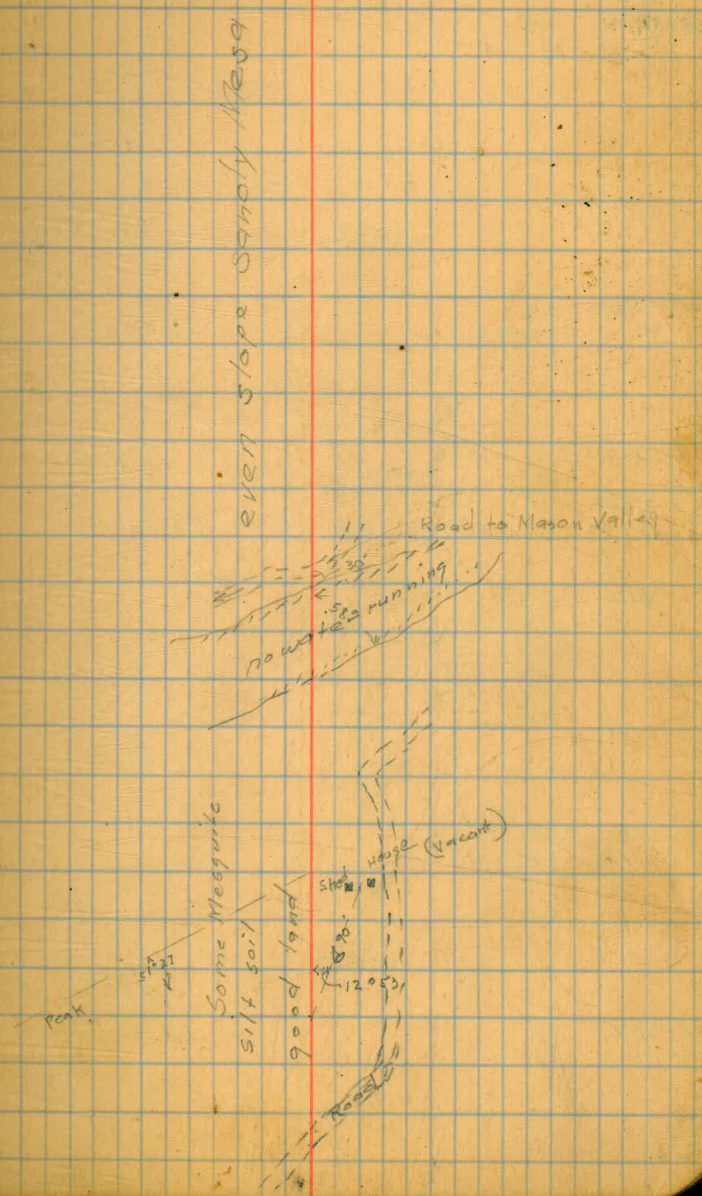
705'

1055.0'

520.0'

P.O.G
Salgado
Mooney
Wheeler

June 17-30
hot heavy wind



Pine Sentenac Canyon to Julian

Sta	H.I.	H-Δ	V-Δ	Dist.	Elev.
Profile					
118+84.4 ⊼ at 16	4.8 2475.6				x 2470.7
16		0°00	3°24+	14.2 3.0	
16					
117+56.2 Profile		0°0	3°09+	14.9 5.0	2458.7
108+69.2 Profile		0°00	0°00	10.0 9.0	-10.1 2399.4
107+68.2 ⊼ 15	5.0 2409.4				x 2404.4
15		0°00	0°00	8.7 3.0	-4.8
105+99.2 Profile		0°00	0°49-	7.00 3.00	2398.3
104+57.4 Profile		0°00	4°39-	6.60 4.00	2383.0
101+98.2 ⊼ at 14	5.2 2409.2				x 2404.0
14		0°00	2°42+	10.5 2.0	
100+05.9 Profile		0°00	0°00	10.55 4.	-2.8 2366.1
93+50.0 ⊼ 13	4.9 2368.9				x 2364.0
13		0°00	1°19+	10.30 5.00	
88+20.2 ⊼ 12	4.9 2356.7				2351.8
12		x 0°00	1°39+	13.60 5.00	x

567°11' W

1120.0'

570.0'

848.3

529.7'

P.O.C.
Salgado
Mooney
Wheeler

June 17-30

(9)

at head of Valley - toe of slope of Ridge N-S

= 10' west of west edge Road

small knob

small drain

On Rocky Point

good sized drain
~~small drain~~

Sta 12

150'

Rocky spur

Sta. 11

P line Sentenac Canyon to Julian

R.O.G.
Salgado
Moore
Wheeler

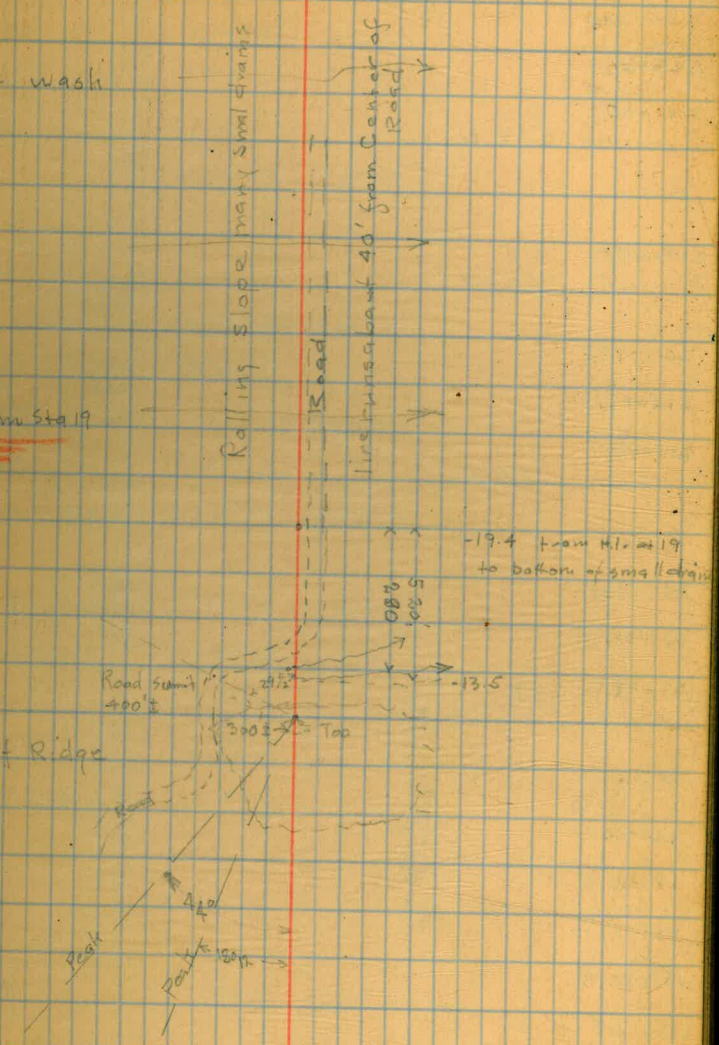
June 18-30

Sta	H.I.	H-Δ	V-Δ	Dist	Elev.
182+62.4 Profile		0°00	1°~~30~~ 15 –	11.1 5.0	2520.0
176+52.7 ⊼ at 20	4.9 2571.8				2566.9
20		0°00	1-19.–	13.2 3 10.2 x 2	
169+52.4 Profile		0°00	1°46 –	13.7 7 6.7 x 2	2572.5
154+63.7 Summit between Sta. 19 + Road			0°00	150 back	-1.2 2617.6
153+83.7 Road x sma			0°00	230 back	-63 2612.6
153+33.7 small drain			0°00	280 back	-19.4 2599.4
156+13.7 ⊼ at 19	5.0 2618.8				2613.8
19		0°00	2°40 –	15.6 9. 6.6 x 2	
146+26.4 Profile		0°00	4°10 –	9.3 6.0	2651.3
142+96.4 ⊼ at 18	5.0 2680.2				2675.2
18		0°00	3°54 +	9.1 4.0	
139+79.0 Profile		0°00	0°00	3.9 2.0	-2.4 2642.9
137+89.0 ⊼ at 17	4.7 2645.3				2640.6
17		0°00	5°06 +	12.6 3. 9.6 x 2	
130+81.8 Profile		0°00	2°50 +	15.00 9. 6. x 2	2530.0
118+84.2 ⊼ at 16	4.8 2475.5				2470.7

Wide wash

back from Sta 19

Top of Ridge



P line Sentenac Canyon – Julian

P.O.E.
Salgado
Mooney
Wheeler

June 18-30

(11)

Sta.	H.I.	H-Δ	V-Δ	Dist.	Elev.
225+30.9 Profile		0°00	0°00	6.3 2.	-1.0 2594.6
223+50.9 Profile		0°00	3°04-	15.5 13.0	+9.0 2568.3
221+00.9 ⊼ at 25	5.0 2595.6				2590.6 -2.2
25		0°00	0°00	4.6 3.0	
219+40.9 ⊼ 24	4.9 2592.8				2587.9
24		0°00	2°43+	13.8 5.0	
213+77.7 Profile			3°15+	6.15 3.0	2551.6
212+02.7 Profile				12.4 11.	72.5 2533.8
210+62.7 ⊼ 23	5.0 2557.2				2546.2 1.2 33.8
23		0°00	0°57-	11.4 4.0 7.4 x 2	
209+42.0 Profile		0°00	1°14-	13.8 7 6.8 x 2	2541.6
197+47.7 Road			3°00-	13.6 12.0	+ 6. 2556.4
195+82.7 ⊼ at 22	4.9 2575.7				2570.8 -2.8
22			0°00	13.7 9.0	
192+92.7 Profile			0°57-	13.4 10. 3.4 x 2	+11. 2546.4
200+12.7 Road x sing				16.00 12.00	-17.5 2556.1
189+12.7 Profile				11.0 8.0	-3.9 2564.7
188+17.7 Profile				14.05 12.00	-19.5 2554.1
187+32.7 Profile		0°00	0°00	8.2 7.	-7.2 2566.4
186+12.7 ⊼ at 21	4.9 2573.6				2568.7
21					
176+52.7 ⊼ at 20	2571.8	0°00	0°00	12.6 3.	-3.1 2566.9

S 67°11' W

555.0

1200.0

870.2

1480.0

970.0

bottom of gulley

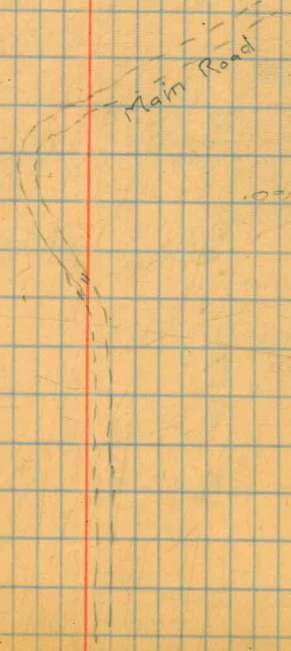
Top of Ridge

bottom of gulley

good sized drain on Road

Small drain

Small drain



P line Sentenac Canyon - Julian

Sta.	Hil.	H-Δ	V-Δ	Dist.	Elev.
255+13.3	5.0				
⊼ at 30	2638.4				2633.4
30		0°00	3°06+	11.75 / 3.	
254+65.9 Profile			3°10+	9.25 / 1.	2631.3
252+45.9 Profile		0°00	~~0°20-~~	12.05 / 6.	-8.6 / 2582.5
246+40.9	5.0				
⊼ at 29	2591.1				2586.1
29		0°00	0°14+	11.7 / 4.0	
245+30.9 Profile		0°00	0°00	8.6 / 2.	-2.5 / 2585.4
243+95.9 Profile			0°00	15.25 / 10.	-15. / 2572.9
239+90.9 Profile	242+00.9	0°00	0°00	12.3 / 9.	-10.5 / 2577.4
238+70.9	5.0				
⊼ 28	2587.9	0°00	0°00	12.2 / 11.0	-11.3 / 2576.6
28		0°00	0°00	5.35 / 2.	-3.8 / 2582.9
237+25.9 Profile			3°00-	15.9 / 14.	+10. / 2561.9
235+90.9 Profile			0°00	55'	-6.7 / 2580.0
235+35.9	4.9				
⊼ at 27	2586.7				2581.8
27		0°00	0°00	13.8 / 4.0	-9.
233+55.9 Profile		0°00		7.85 / 6.00	-7.1 / 2579.6
232+34.7 Profile		0°00	2°26-	13.8 / 8.	2561.2
228+45.9 Profile		0°00	0°00	10.9 / 9.	-10.3 / 2580.5
226+55.9	5.0				
⊼ at 26	2590.8				2585.8
26		0°00	0°30-	10.55 / 5.	

S 67°11'W

S 67°11'W

872.4'

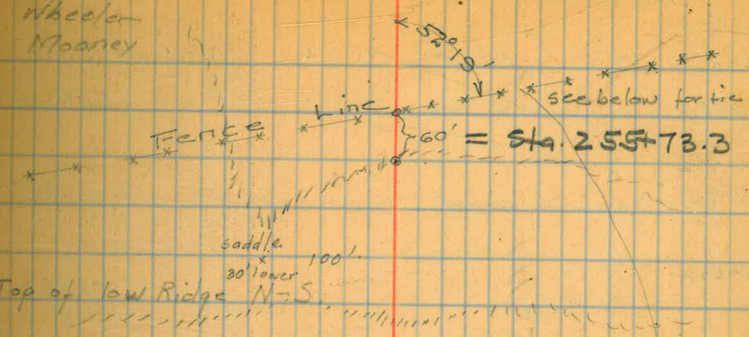
770.0'

835.0'

880.0'

P.O.G.
Salgado
Wheeler
Mooney

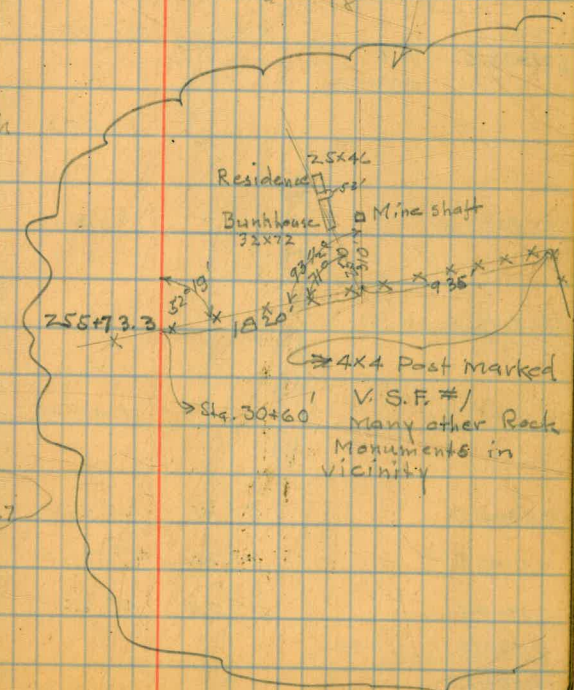
June 18-30



Top of low Ridge N-S.

toe of slope large drain →

June 19
" 18



good sized wash

gulley

back from Sta 27

P line Sentenac Canyon - Julian

P.Q.G.
Salgado
Mooney
Wheeler

June 19-30

(13)

Sta	H.I.	H-∠	V-∠	Dist.	Elev.	
277+83.3		0°00	0°00	4.6 2.0	-3.1 2597.0	West edge of Flood channel = toe of slope of high hills
275+73. 2	Running water			47'	-9.5 2590.6	to center of creek .3 x 6' Banner drainage
275+23.3 ⊼ at 33	4.9 2600.1				2595.2	2595.2 9.4 2504.6
33		0°00	0°00	13.95 13.	-13.6	
West bank 274+78.3 ℄ Road		39° Rt	0°00	5.8 3.	-4.2	
274+28.3 ⊼ at 32	4.7 = elev. 2608.8	24°30 L		50'	2604.6	
32		0°00	0°00	6.25 4.	-4.8	on west edge of Roadway
272+03.3 ⊼ at 31	4.9 2608.9				2604.0	
31			1°00 -	15.45 7. 8.45 x 2		
268+71.9			1°32 -	15.6 2.	2597.1	
268+12.0			1°35 -	15.5 9. 6.5 x 2	+14. 2583.5	
265+52.3			1°40 -	12.4 2.	2603.1	
262+11.2		0°00	2°55 -	8.0 1.0	2597.8	
261+45.1		0°00	4°05 -	11.35 5.	+11.0 2577.3	Small drain
259+10.9		0°00	4°22 -	8.0 4.	2603.0	
257+23.						
255+13.3 ⊼ at 30	2638.4	0°00	12°32 -	10.2 8.	2586.6 2633.4	Small drain

S 67°11 W

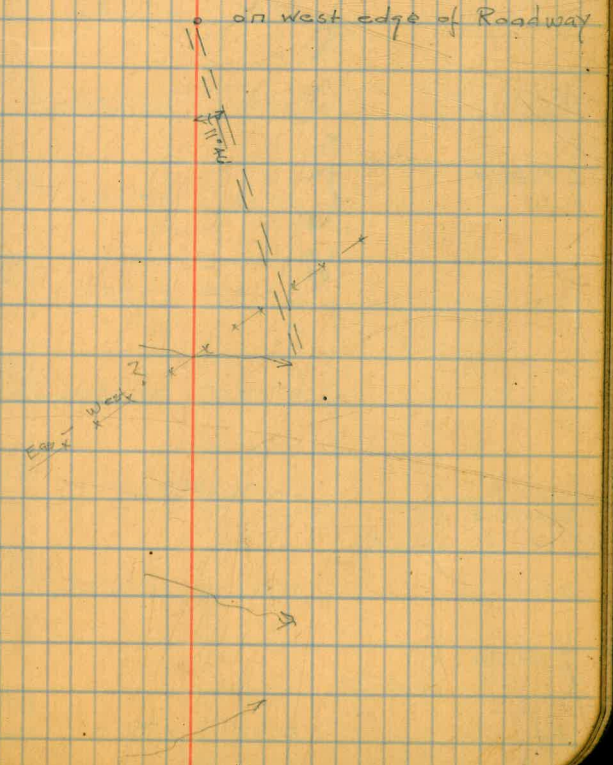
S 67°11 W

304.7

95.0

225.0

1690.0



Pline Sentenac Canyon - Julián

P.O.G.
Salgado
Mooney
Wheeler

June 19-30

Sta.	H.I.	H-Δ	V-Δ	Distance	Elev.	
		28°40 L+	1°57 −	13.9 6.		
Road		34°20 L+	2°44 −	14.6 8.		for Topography only
Ro						
Road		48°58 L+	-5°50 −	10.1 6.		
Road		69°20 L+	8°48 −	6.2 3.0		may be wrong V-Δ
283+53.3 ⊼ at 36	4.9 2693.5				2688.6	
36		0°00	6°~~24~~ 08 +	7.6 5.0		
Profile		0°00	6°21 +	6.25 4.		
282+75.7 Profile		0°00	3°18 +	6.8 5.0	2671.4	
to Road		48°37 L+	1°58 −	15.4 11.0	+10.	
to Road		78°40 L+	4°42 −	15.8 13.0	+10.	for Topography only
to Road		231°24 R+	5°55 −	16.00 12.00	+10.	
280+96.2 ⊼ at 35	4.8 2565.8				2661.0	
35		0°00	11°53 +	6.8 4.0		
278+28.0 ⊼ at 34	4.9 2609.5				2604.6	
34		0°00	1°46 +	7.05 4. 3.05'		

S 67°11 W

257.1

268.2

P line Sentenac Canyon - Julian

P.O.G.
Salgado
Mooney
Wheeler

June

(15)

Sta	H.I.	H-Δ	V-Δ	Dist.	Elev.	
		217°26 R+	12°38 −	7.5 / 3.0		
Road		213°54 R+	8°55 −		322.1	
299+36.2 ⊼ at 38	5.6 / 2788.8				2783.2	
38		0°00	2°07 −	~~8.80~~ 8.9 / 2.		
297+95.0 Profile		0°00	8°28 −	15.4 / 10.	+10. / 2720.1	small drain
296+94.9 Profile		0°00	9°20 −	7.6 / 3.0	689.3 / 2735.1	
295+60.4 Profile		0°00	16°12 −	15.4 / 12.	+10. / 2707.6	small drain
292+46.9 ⊼ at 37	5.0 / 2813.7				2808.7 / 2683 / 2783.2	
37		0°00	7°39 +	14.1 / 5.		
289+32.7 Profile			1°40 +	7.8 / 2.0	2705.5	
288+42.8 Profile			1°34 −	15.9 / 11.0	893.6 / +14. / 2661.2	small drain
284+28.3		Same elev.		75' ahead		
283+53.3 ⊼ at 36	4.9 / 2693.5			25' back	2688.6 / 2808.1	
283+28.3		Same elev.				
		17°29	0°20 −	12.9 / 1.0		
Road		29°42 L+	0°48 −	12.75 / 2.		

S67°11 W

P line Sentenac Canyon - Julian

P.O.G.
Salgado
Mooney
Wheeler

June 19-30

(16)

Sta	H.I	H.Δ	V.Δ	Dist	Elev
303+52.5 4.0					2760.0
302+58.3 ⊼ 39	5.0 2756.8	37° 49 R+	5° 00 +	5.45 4.5	2751.8
39		0° 00	5° 34 -	7.25 4.	
Creek ℄		209° 09 R+	12° 30 -	13.9 7.	
Creek ℄		194° 08 R+	14° 30 -	18.9 5.	
Creek ℄		191° 25 R+	17° 44 -	15.7 11.	
Creek ℄		238° 12 R+	22° 36 -	7.65 4.	
Creek ℄		277° 33 R+	20° 04 -	7.85 4.	
Creek ℄		325° 30 R+	15° 48 -	10.4 6.0	
Creek ℄		343° 30 R+	10° 14 -	14.2 8.	
Road		315° 17 R+	4° 00 -	12.3 3.	
"		288-04 R+	7° 48 -	8.55 2.	
Road 299+36.2 ⊼ at 38	5.6 2788.8	258° 34 R+	11° 12 -	8.25 3.	2783.2

N 75° W

S 67° 11 W

94.2'

June 20-30
" 19-30

P line Sentenac Canyon - Julian

P.O.G. - Salgado Mooney Whelan

June 20-30

Sta.	H.L.	H.A	V.A	Dist.	Elev.
331+54 ±				12.95 4.	
43		0°00	3°48 +	8.95 x 2	2867.8
X Smg Banner Creek or what					
316+01.1		0°00	3°37 -	5.3 3.	2735.0
		99° Rt	9°00 +	5.0 4.0	
Road		339°30 Rt	4°00 +	15.65 4.	
Road		328°55 Rt	3°27 +	15.8 4	
Road		322°02 Rt	3°50 +	12.1 3.	
Road		304°06 Rt	3°28 +	9.15 1.	
Road	West of B. Crk	292°27	2°42 +	12.9 4.0	
Road east of Banner Crk		271°48 Rt	0°10 + ?	15.8 9. 6.8 x 2	
313+72 ±	5.0				
Tat 42	2754.5				2749.5
on R.R. near house		257°47 Rt	0°57 -	11.2 1.	
Road		262° Rt	0°47 +	7.2 1 6.2 x 2	
Road		253°40 Rt	0°30 +	15.8 2.	
Road		242°10 Rt	0°22 +	15.3 4. 11.3 x 2	
Road		223°36 Rt	0°37 -	14.3 1.	
Tat 41	5.0	for Topog. only			
42		0°00	1°23 +	7.45 5.	
311+27 ±	5.0				
Tat 41	2748.6				2743.6
41			1°13 -	9.75 3. 4.75	
303+52 ±	5.0				
Tat 40	2765.0				2760.0

N 75 W

1782.8

744.8

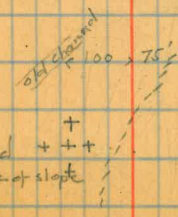
774.7

heavy growth of Oak & Sycamore Tree

at toe of slope of Bench - N-edge Flood channel

toe of slope

steep bench



toe of high hill 75' Rt

Graveyard 150 ahead

75' out at toe of slope

P line Sentenac Canyon - Julian

PCG
Mooney
Salgado
Whelan

June 20-30

(18)

Sta.	H.I.	H-Δ	V-Δ	Dist	Elev.
375+46.8		0°00	0° 52 +	12.3 4.	3499.8
backsight to 45		180°00	12°44 =	16.00 6.50 9.50 x 2	
367+16.8 ⊼ at 46	5.0 3492.3				x 3487.3
349+09.9 45		0°00	6°54 +	11.8 5.0	x 1806.9 3078.8 408.5 3487.3
345+97.8		0°00	3°50 −	16. 12.4	+14.3 2959.4
344+96.6		0°00	6°00 −	7.6 5.	2970.7
344+70.2		0°00	7°40 −	11.35 9.	670.5 3028.8
342+39.4 ⊼ at 44	5.0 3002.7				2997.7 81.1 3078.8
44		0°00	6°50 +	13.00 2.	x
339+02.6 Road Profile		0°00	3°04 +	12.75 9 3.75 x 2	+10. 2908.3
334+99.8 Profile		0°00	0°00	14.45 11.	−13.2 2859.2
		19° R+	3°00 +	12.8 3.0	
		348°35 R+	2°00 +	10.05 4.5	
43 at N-edge of Road					
Road		236°36 R+	−2°32 −	8.0 4.0	1084.6
Road	for To pag.	211°30	3°06 −	8.9 4.0	
327+68.4 back shot to toe of slope		0°00	10°38 −	16.00 12.00	2795.2
331+54.8 ⊼ at 43	4.6 2872.4				x 2867.8 129.9 2997.7

N 75° W

to of slope of steep bank

Mine Tunnel C 50'

C

June 23
" 20

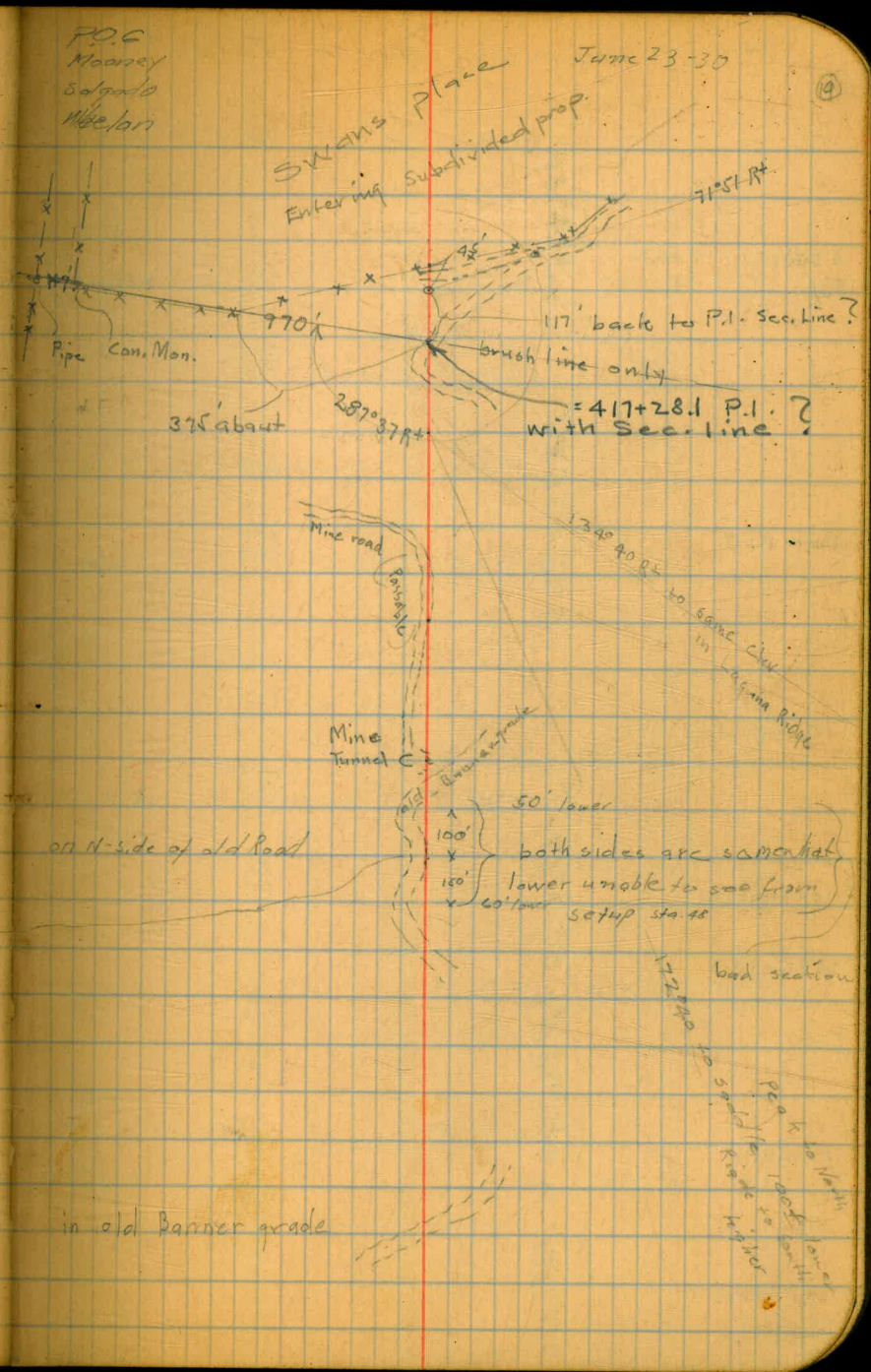
Mine Tunnel C 200'

Small drain

cabin 8'

P line Sentenac Canyon - Julian

Sta.	H.I.	H-∆	V-∆	Dist.	Elev.
		71°51 R+		10.8 7.	10.3
to Head of old Banner grade					
418+45.1	5.1				
⊼ at 53	4179.7				4191.6
					4174.6
53		27°47 L+	3°14+	15.15 3.	
406+33.7	4.9				
⊼ at 52	4111.1	27°47 L+			4123.2
					4106.2
52			6°43+	9.85 4.	
400+56.4	5.0				
⊼ at 51	4043.3				4055.3
					4038.3
51		0°00	6°31+	11.05 5.0	
394+59.8	4.8				
⊼ 50	3974.9				3987.1
					3970.1
		0°00	8°36+	4.95 4.	
393+66.9	5.2				
⊼ at 49	3961.3				3973.1
					3956.1
49		0°00	8°30+	16.00 10. 6.0 x 2	
Profile					
381+93.3	4.5			14.4 8.	-15°
⊼ at 48	3785.2	0°00	0°00		0.00
				2.55 2.00	
48		0°00	0°00		3780.7
					3756.1
381+38.3	5.1				
⊼ at 47	3720.7				3775.6
47		0°00	11°28+	15.4 8. 7.4 x 2	
378+12.3		0°00	9°19+	15.25 4.	3667.0
367+16.8	5.0				
⊼ at 41	3492.3				3487.3



P line, Sentenac Canyon - Julian

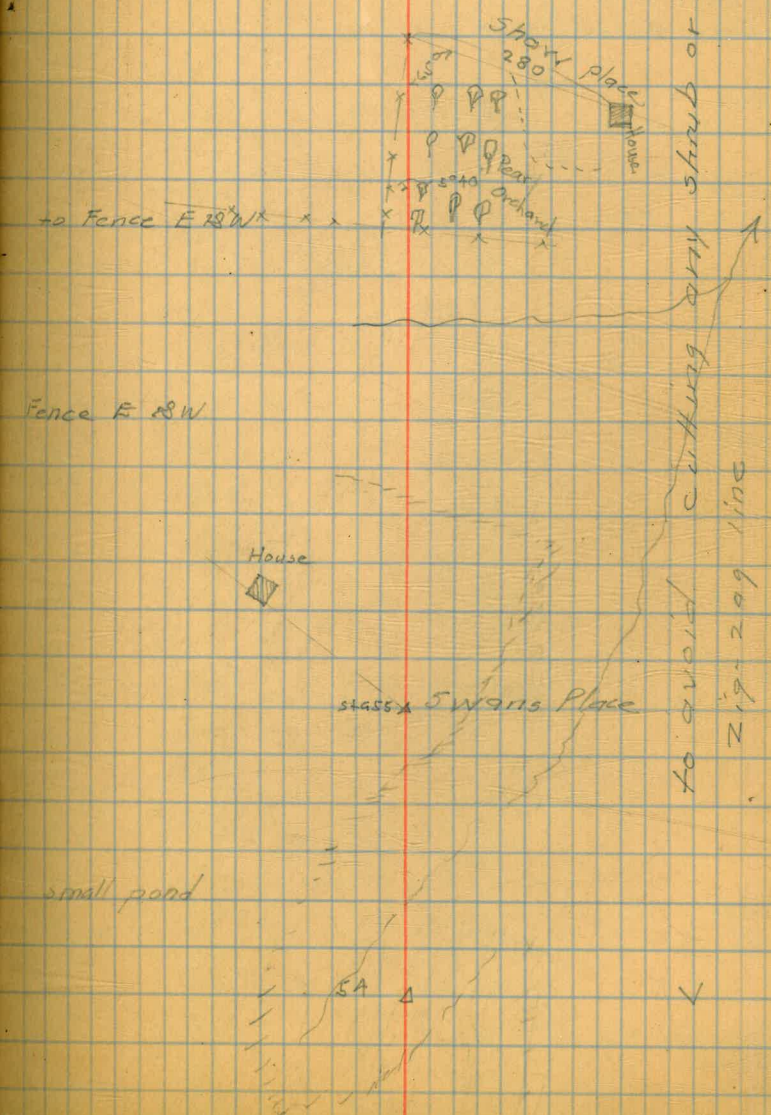
P.O.G
Mooney
Salgado
Whalon

June 24-30

(20)

Sta.	H.I.	H ∠	V ∠	Dist.	Elev.
435+15.1 ⊼ at 57	4.9 4187.6	48°48 Lt			4199.7 4182.7
57		6°53 Lt	0°46+	10.05 2.	
		6°53 Lt		410	
429+16.7 Profiles		6°53 Lt	6°26 −	15.7 13.0	4218.2
				100'	
426+50.1 ⊼ at 56	4.9 4176.0	6°53 Lt			
56		9°16 Lt	0°00	6.25 4.	-5.3 4188.1 4171.1 11.6 4182.7
to House		57°07 Lt	3°45+	5.6 4.	
424+25.1 ⊼ at 55	5.2 4176.4	9°16 Lt			4188.2 4171.2 -1.3
55		12°02 Rt	0°00	4.2 1.0	
		12°02 Rt		170'	-17.0
421+05.1 ⊼ at 54	5.2 4172.5				4184.3 4167.3 -12.4
54		0°00	0°00	4.3 3 1.3 x 2	
418+45.1 ⊼ at 53	5.1 4179.7				4191.6 4174.6

S24°18W
S73°06W
S79°59W
S89°15W
S77°13W
865'
225.0
320'

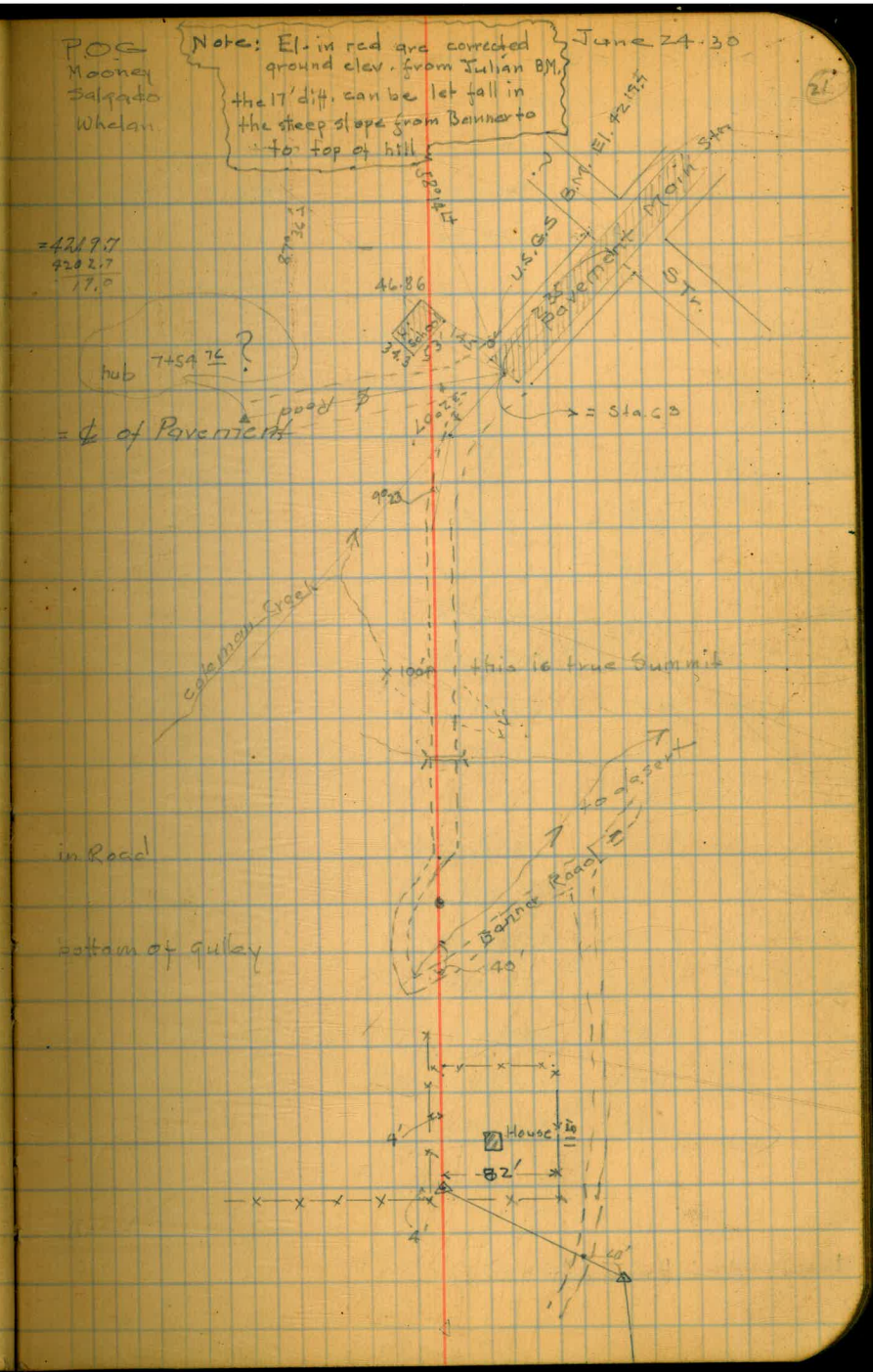


P line Sentenac Canyon - Julian

Sta	H.I.	H-L	V-L	Dist	Elev.
to B.M.					-5.0
470+64.9	5.0				4202.7
π at 64	4207.7	= end of Pavement			4219.7
					x end of line
468+84.9	4.7			6.8	-5.9
π at 63 = P.I.	4208.6	x 33°13 Rt	0°00	5.	4219.7
					4202.7
63 = P.I. 11+80.83		589°20W		8.4	-7.8
		x 9°23 Rt	0°00	7.	4220.9
					x 4203.9
467+44.9	5.0				4223.7
π at 62	4211.7				4206.7
62		0°00	0°40 +	12.2 4.0	x
459+24.9	5.2				4214.2
π at 61	4202.4				4197.2
61		0°00	0°29 +	14.75 6.	x
450+49.9	4.9				4206.8
π 60	4194.7				4189.8
60		0°00	0°21 +	10.35 3.	x
445+74.9		0°00	0°38 +	5.6 3.	4205.2
440+72.3				5.45 3.	
backsight		180°00	6°46 −		4173.6
443+14.9	5.0				4202.3
π at 59	4190.3				4185.3
59		55°39 Rt	0°00	4.55 1. ?	-9.9 x
437+59.9	5.0				4207.2
π 58	4195.2	x 55°39 Rt			4190.2
58		48°48 Lt	1°45 +	6.45 4.	x
X-sing Main Entrance to Kentwood				60'	
435+15.1					4199.7
π at 57	4187.6	x 48°48 Lt			4182.7

N57°27W

S 79°57 W



Lakeside - Benedict Ave tie to Meridian line.

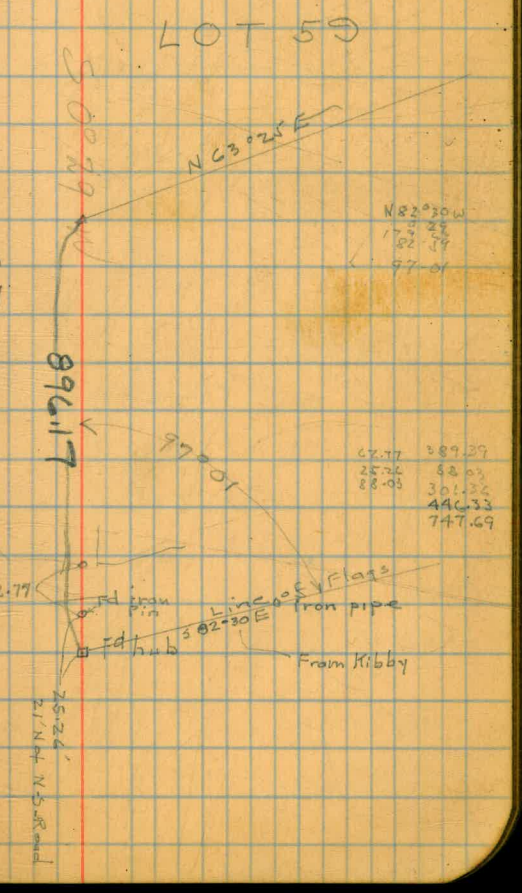
				392.6	Top of rail
	4.65	397.25			
Top of Bank South			5.1	5.1	-40'
Foot of Bank			7.7	7.7	
			10.3	10.3	-150'
Island			7.3	7.3	-340'
to S-E cor Lot			9.2	388.05	+800
	4.9	392.95			
1	295'	302°55 Rt			
2	305'	320°52 Rt			
3	330'	334°47 Rt	line of Brush rip-rap		
4	395'	358°00 Rt	Levee		
5	340	0°00			
6	370				
7	375'	15°10 Rt			
8	580'	27°40 Rt	N-Edge		
9	690'	52°43 Rt	S-Edge of Channel		
10	430'	65°38 Rt			
11	400	78°39 Rt			
12	250	108°00 Rt			
13	350	164°31 Rt			

P.O.C
Salgado
Mooney

July 1-30

All Angles turned from N0°29E clockwise

Alignment Notes from Kibby



July 8. 1936.

West end Vallecito 2000 elev.
Tunnel in Conejos Creek.
Aneroid.

Set on State Highway B.M. where new Highway leaves old alignment west of Viejas Creek bridge. Elev. 2221.0 9 A.M.

Set on rock on east side Tule Springs road about 100' north of junction with Conejos Creek road. Elev. 1685. 9.30 A.M.

Bottom of South Fork or Conejos Creek road crossing to Tule Springs. 1670.

Check on U.S.G.S. B.M. Disc on west face of small adobe foundation about 10' east of small gate to Blattner yard at Tule Springs. U.S.G.S. elev. : 2415.
Aneroid reading 2400. 11 A.M.

Check on rock at Conejos Creek. 11.30 A.M.
Aneroid reading = 1695.

Set in Conejos Creek near old house at N.E. Cor. 28. T. 14 S. R 3 E. Elev. 2250.
12.45 P.M.

Set in Conejos Creek at jct. of draw to north. N.E. 1/4 Sec. 28. T. 14 S. R. 3 E.
Elev. 2130. 1.15 P.M.

Set in Conejos Creek at jct. of draw to south. About center of S. 1/2 S. 28. T. 14 S. R. 3 E. Elev. 2060. 1.35 P.M.

Check on rock at Conejos Creek. 2. P.M.
Aneroid reading 1720

Set in Conejos Creek below most easterly Indian houses on Reservation
Elev. 1770. 2.20 P.M.

Set in Conejos Creek at jct. with draw to south. N.E. Cor. Reservation Elev. 1830. 2.35 P.M.

Set in Conejos Creek at about N.E. Cor. Reservation. No corner found. Elev. 1880. 2.50 P.M.

Set in Conejos Creek below draw from north
2000 elevation 3.30 P.M.

Check on rock at Conejos Creek 3.45 P.M.
Aneroid reading 1730.

Check on starting B.M. at Viejas. 4.30 P.M
Aneroid 2265. Correct elev. 2221.

July 9. 1936.

Set on Highway B.M at Viejas. 7.50 A.M.
Elev. 2221.

Check on rock at Conejos Creek. 8.20 A.M.
Elev. 1685. Same as previous day.

Check near old house at N.E. Cor. Sec. 28.
Elev. 2220. Previous day 2250. 9.30 A.M.

Check on point set for 2000 elev. yesterday and found new reading of 1960. So moved flag upstream to 2000 and set flag alongside road for marker. 2000 elev. is in steep canyon about 50 ft. lower than road. 10.10 A.M.

Check on rock at Conejos Creek 10.40 A.M.
Previous elev. = 1685. This reading 1670.

Check on U.S.G.S. B.M. at Tule Springs 11.0 A.M.
Elev. 2415. Aneroid 2380

Reset aneroid to 2415 at Tule Springs.

Junction of roads to San Diego River - Boulder Creek - Tule Springs.
11.15 A.M. Aneroid 2515.

On west post of gate to Ranger Station
2.15 P.M. Aneroid 3665

On Cedar Creek bridge. Aneroid 3500.

At Julian on west gate post of High School
U.S.G.S. B.M. not found. Aneroid 4260.

At Santa Ysabel. U.S.G.S. B.M. Elev. 2984
Aneroid 3040.

July 10. 1936.

Set on U.S.G.S. B.M. on Lakeside Bank bldg. 7.30 A.M. Elev. 406.0

Check on U.S.G.S. B.M. South of San Vicente Creek bridge. 7.50 A.M.
Elev. 542.0 Aneroid 530.0

Jct. of Barona, El Capitan, San Diego River and San Vicente Valley roads. 8.45 A.M. Aneroid 1800.

La Mesa Irrigation Districts diverting dam. 9.15 A.M. Aneroid reading 770. Elev. top dam 21' above flume bottom at lower end thru diverting dam. Elev. 812
21
Top dam = 833.

Reset aneroid to elev. 833.

July 13, 1936.

Reset aneroid at Elev. 542 at San Vicente U.S.G.S.B.M.

Check on Diverting Dam 8.30 A.M. Elev. 833. Aneroid reading ~~780~~ 810

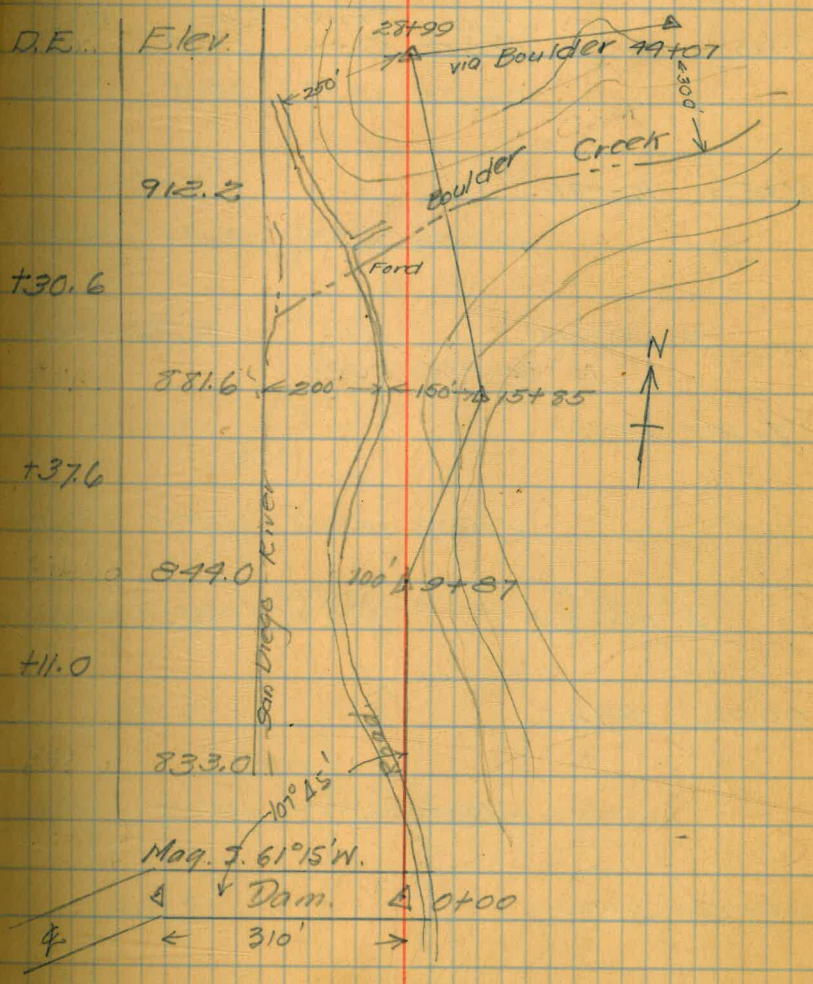
Stadia traverse up San Diego River from Diverting Dam to determine exit ends of 1000 and 2000 elevation tunnels.

July 10, 1936.

Cloudy and Warm

Converse, G.; ch, π
Nasi, K.; notes
Kanegy, E. ϕ
Menocal, M. ϕ

Station	Hor. ∠	*Magnetic	Stadia Dist.	Corr. Dist.	Vert. Angle	D.E.	Elev.
28+99	100-56R						912.2
		N16°40'W	1315	1314	+1°20'	+30.6	
15+85	32-25L						881.6
		N15°50'E	600	598	+3°36'	+37.6	
9+87	26-55R						849.0
		N11°0'W	987	987	+0°38'	+11.0	
0+00	107-45R						833.0

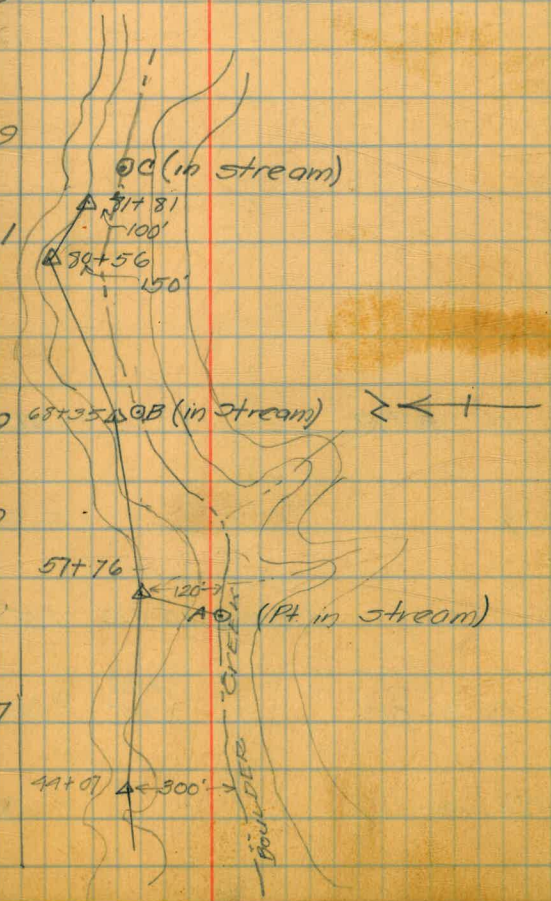


*Bearings are magnetic - no decl. corr. has been applied.

Stadia Traverse up San Diego River (Continued)

(28+99 - 97+17) ; via Boulder Creek

Sta.	Hor. ∡	Mag. Bear.	Stadia Dist.	Corr. Dist.	Vert. ∡	D.E.	Elev.
		S61-15E	135	125	-15°51'	-35.5	
80+56	76-28R						1131.6
		N41-40E	1235	1221	+6°09'	+131.5	
B	86-00R		(+15) 100	106.3	-17°10'	(-2) -28.2	969.9
68+35	38-19L						1000.1
		N80°E	1060	1059	+0°30'	+9.2	
A	105-00R		(-40') 150	117	-20°55	(-6) -60.0	924.9
57+76	8-19L						990.9
		N87.50'E	1370	1369	+1°31'	+32.2	
44+07	3-34R						958.7
		N85°10'E	1510	1508	+1°46'	+46.5	
28+99	100-56'R	(Via Boulder Creek)					



Stadia Traverse up San Diego River (Continued)
(Via Boulder Creek)

Sta.	Hor ∡	Mag Bear	Stadia Dist.	Corr. Dist.	Vert ∡	D.E	Elev.
D	90° R			300'			1160.0
97+17							1289.2
97+17							
		N77-10E	1560	1536	+7°10'	+193.1	
C	0-00		(+10) 105	104	-18°50'	(-10) -32.1	1054.0
81+81	41-36 L						1096.1

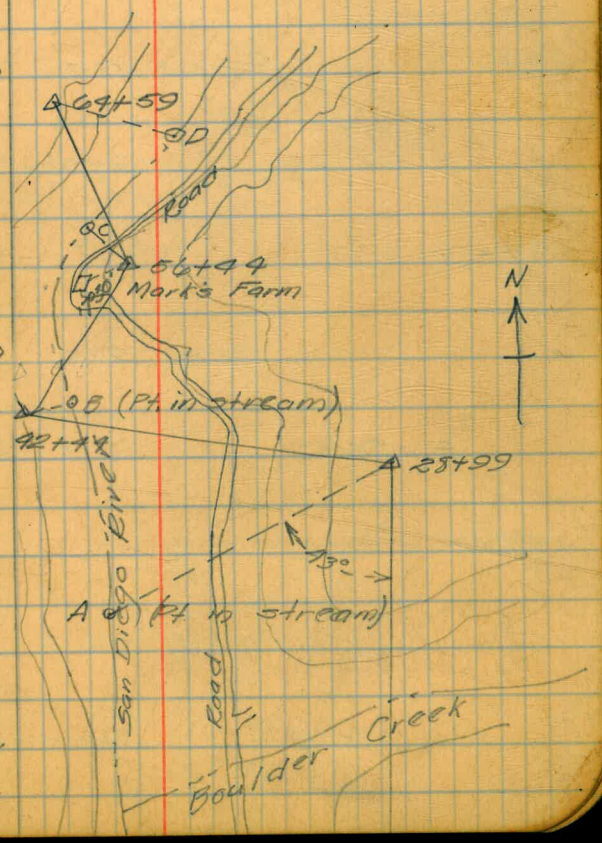
Stadia Traverse up San Diego River (Continued) July 13, 1936
(28+99 - 99+90; via San Diego River

Converse, G. chief
Nosi, K. notes
Kanegy, R. ϕ
Menocal, M. ϕ

Hot and sunny

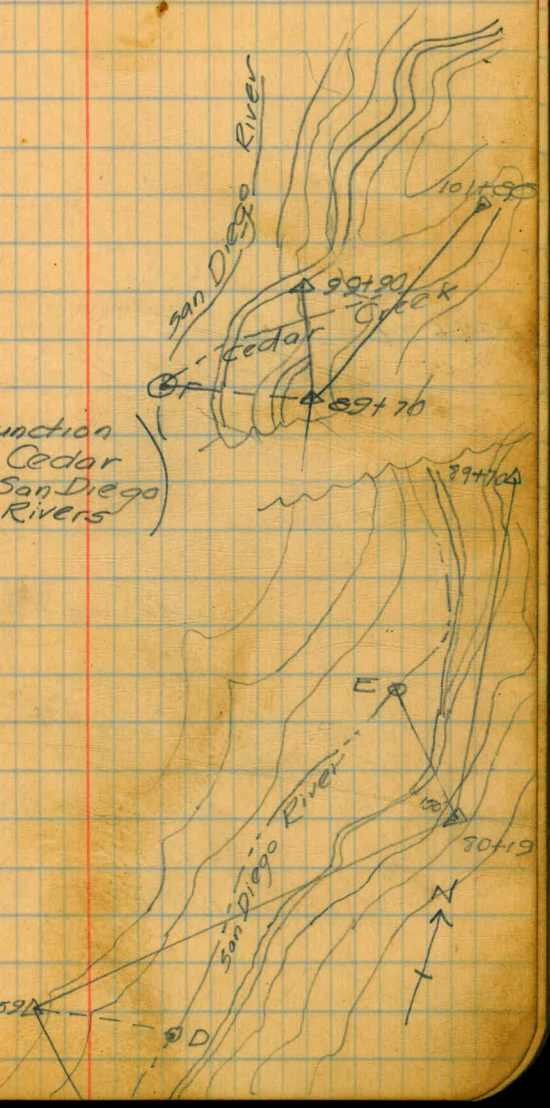
Sta.	Hor. ∡	Mag Bear.	Stadia Dist.	Corr Dis.	Vert. ∡	D.E	Elev
64+59	78-18 R						936.9
	11-20L	N34°30W	815	815	+0°16'	+3.8	
C	43-45L		187	167	-19°00'	-57.5	875.6
House	17°30'			250	Mark's		
56+44		N22-45W	1900	1900	+0°53'	+21.7	933.1
B	108° R		220	210	-16°41'	-60.5	850.9
42+44	68°58'R						911.4
		S89°W	1345	1345	-0°02'	0.8	
A	43°00'		+20 60.5	616	-6°48'	-4 71.1	837.1
28+99	74-44L						912.2

(Via San Diego River)



Stadia Traverse up San Diego River (Continued)

Sta.	Hor ∡	Mag. Bear.	Stadia Dist.	Corr. Dis.	Vert ∡	D.E	Elev	
101+88	30-38R	N52E	1225	1218	-4°15'	-90.6	997.6	
99+90		N14-10E	1030	1020	-5°37'	-100.5	987.7	
F	75-L		650	608	-14°43'	-159.0	929.2	(Junction of Cedar & San Diego Rivers)
89+70	7-33L						1088.2	
		N21°40E	970	951	+7°48'	+130.4		
E	90°L		+200 320	515	-7°23'	-13 40.7	904.1	
80+19	23-10L						957.8	
		N45-30E	1560	1560	+0°46'	+20.9		
D	113°45'R		+150 365	508	-7°27'	-2 -47	887.9	

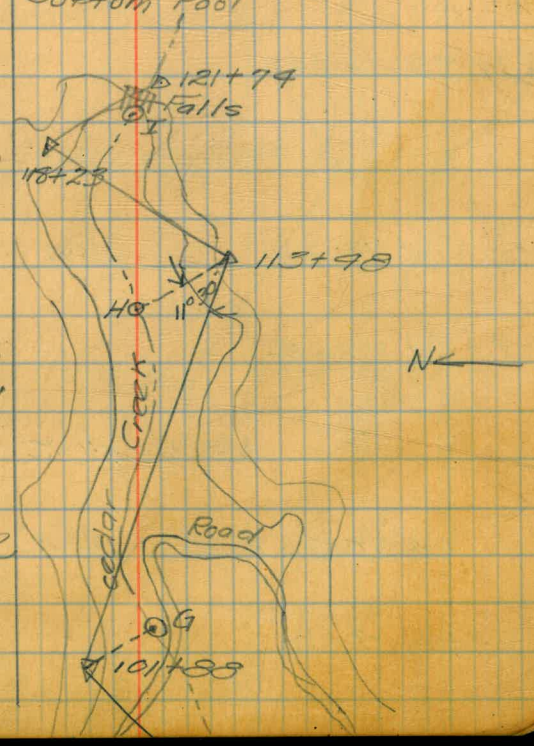


Stadia Traverse up San Diego River (Continued)

(101+88 to 121+74) via Cedar Creek

Sta.	Hor. ∡	Mag Bear	Stadia Dist.	Corr Dist.	Vert ∡	D.E	Elev	
121+74							1149.1	Edge of (Lower) Cedar Falls Bottom Pool
	I 128R		190	186	-8°30'	-12 27.8	1028.1	
		N79-30E	370	351	+13°	+81.2		
118+23	105-15R						1067.9	
		N23-50W	475	475	-0°37'	-5.2		
	H 11-30		197	173	-20°25'	-64.5	1008.6	
113+48	121-30L						1073.1	
		S81-45E	1165	1160	+3°41'	75.5		
	G 100-00R		98	72.5	-24°43'	-33.4	969.2	
101+88	95-25R						997.6	

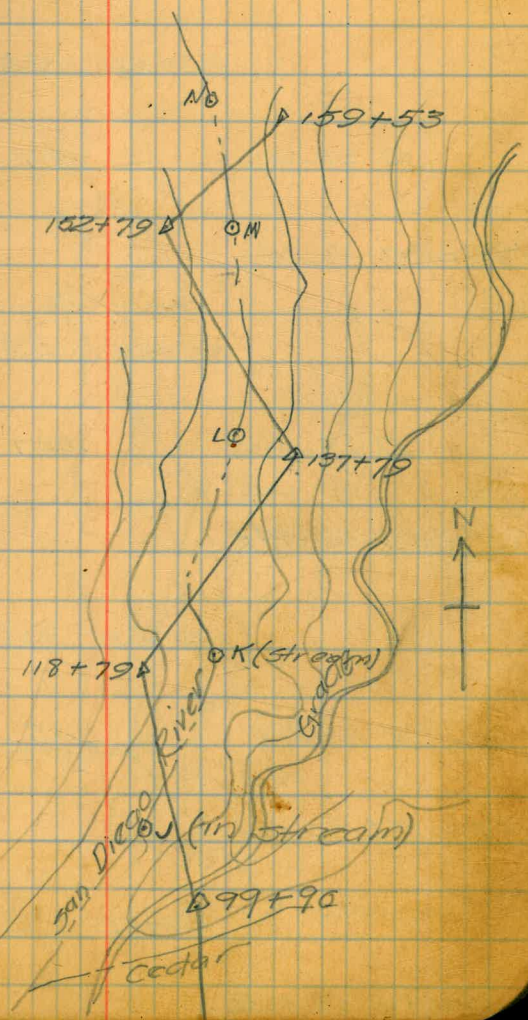
(Via Cedar Creek)



Stadia Traverse up San Diego River (Cont.) July 14, 1936
(Sta 99+90 to 209+95) via S.D.R. Sunny and hot Converse
Nasi
Menocal
Kanegy

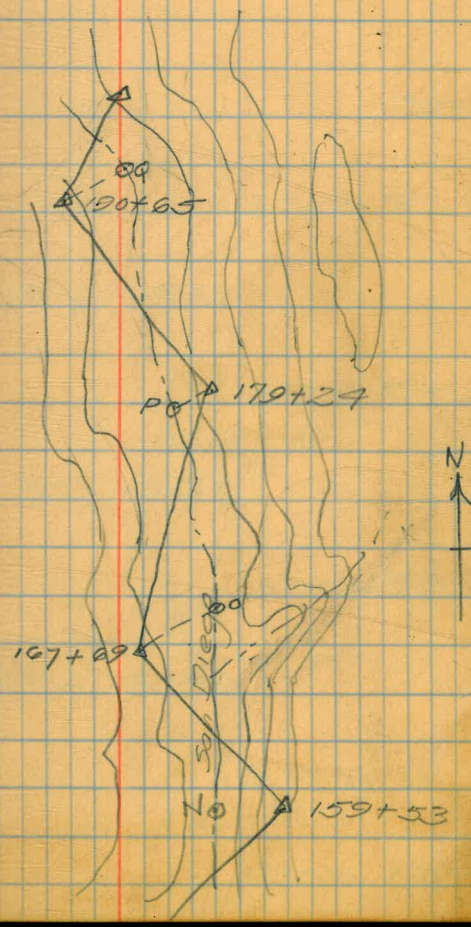
Sta.	Hor. ∡	Mag Bear	Stadia Dist.	Corr. Dist.	Vert. ∡	D.E	Elev.
M	99° R		280	258	-16°04'	-74.3	1021.3
152+79	55-57 R						1095.6
		N2°50'E	1506	1500	+2°28'	+64.7	
L	8-10 L		225	218	-10°36'	-40.6	990.3
137+79	19-55 L						1030.9
		N21-15E	1900	1900	-0°14'	-7.8	
K	59-15 R		370	352	-12°43'	-79.5	959.2
118+79	12-16 R						1038.7
		N9°30'E	1890	1889	+1°33'	+51	1038.7
J	37-15 L	N25 W	305	295	-10°35'	-55.1	932.6
99+90	4-50 L						987.7

Via San Diego River



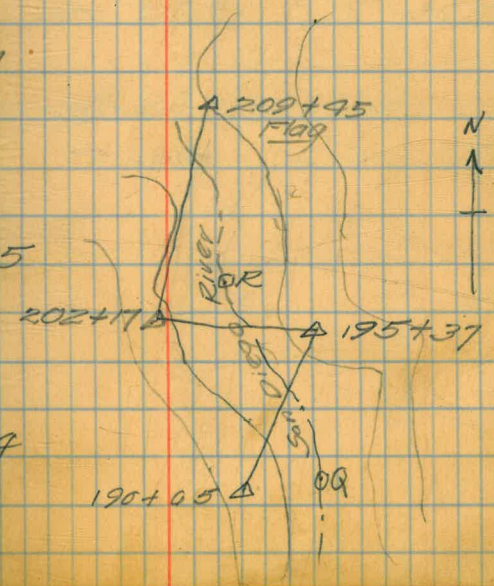
Stadia Traverse up San Diego River (Continued)

Sta.	Hor. ∡	Mag. Bear.	Stadia Dist.	Corr. Dist.	Vert. ∡	D.E.	Elev.
190+65	56-24R						1157.8
		N22-10W	1145	1141	+2°34'	+51.3	
P	112-50L		147	138	-14°17'	-35.2	1071.3
179+24	51-24L						1106.5
		N29-30E	1155	1155	+0°10'	+3.4	
O	63-30R		207	194	-14°30'	50.2	1052.9
167+69	59-54R		—				1103.1
—		N30-10W	818	816	+2°42'	+38.6	
N	115-10L		115	105	-17°15'		1031.9
159+53	88-08'L						1064.5
		N58-15E	675		-2°39'		
152+79	55-57R						



Stadia Traverse up San Diego River (Continued)

Sta	Hor. ∡	Mag. Bear.	Stadia Dist	Corr. Dist.	Vert. ∡	D.E.	Elev.
209+95							1171.9 Flag
R	171-30R		60		-19°55'		
		N5-45E	728	728	+0°43'	+9.2	
202+17	92-45R						1162.7
		N36-40W	683	680	+3°18'	+39.2	
195+37	121°00'L						1123.5
		N34-30E	475	472	-4°09'	-34.3	
Q	82-45R		170	149	-20°43'	-56.4	1101.4
190+65	56-24R						1157.8



Aneroid Location of Elevations and Contours on bottom of San Diego River in conjunction with Areal Photos and Gov't Topographical Map.

July 15, 1936
Hot and sunny
Converse, G.
Nasi, K.W.

1. Established aneroid elevation @ Sta 99+90; Elev. 987.7
2. Established B.M. on blue rock around which an oak has grown located at mouth of large canyon to east meets San Diego River valley - S.E. 1/4 of Sec. 8, T 13S, R 3E San Bernardino Meridian Elev--- 1690 ft.

Established B.M. next to prospector's monument on west side of S.D. River valley (canyon mouth to east) - monum locates NE 1/4 of SE 1/4 of Sec 4, T 13S, R 3E SBM Elev. -- 2000 ft.

Checked aneroid reading @ Julian B.M. in evening. Elevation -- 4015

Aneroid Location of Elevations and 3000' Contour in Cedar Creek Valley.

July 16, 1936
Converse, G
Kanegy, R
Manocal, M
Nasi, K

Established elevation on aneroid @ Julian B.M
Elevation -- 4219 ft.

Elev. @ junction of Forest Meadow Camp road and Eagle Peak Road. Elev. -- 4060

Elevation @ Cedar Creek Bridge. Elev. -- 3490'

Checked aneroid on west post of gate of Ranger Sta. 8:50 A.M. Elevation --- 3650.

* note on full size areal photos proper location of mouth of Dehr Creek with Cedar Creek.

Established 3000' Contour in Cedar Creek and took elevations at mouths of branch creeks in valley. Took elevations down to 2900.

Checked in aneroid on west post of gate of Ranger Sta. Elev. -- 3620

Checked in on Julian B.M. Elev. -- 4150

Aneroid Location of Elevations July 17, 1936
and 3000 ft. Contour in creek South- Converse
west of L.B. Williams Ranch which flows Nasi
into San Diego River @ SW¼ of Sec 4, T13S, R3E; Menacal
Established elevation on aneroid @ Julian B.M. Kanegy
Elevation ___ 4219.

*note: Check photos 43F4, 43F5 for 3000' elevation

Established B.M. on rock in NW¼ of Sec 2 T 13S
R3E. Elevation - 3700

Established and set flag on 3000' Contour.

Checked aneroid on rock B.M. Elev. - 3720 feet

Checked aneroid on spot of previous U.S.G.S.
B.M. U.S.G.S elev - 3654 Aneroid reading - 3660.
B.M. @ Wynola Crossroads.

Aneroid Location of Elevations and 3000 Foot Contour in Creek running west into San Diego River in North Half of Sections 3 and 4; T 13S; R3E; S.B.M.

July 20, 1936
Converse
Nasi
Menocal
Hanegy

Established elevation on aneroid @ Wynola crossroads U.S.G.S B.M. Elevation 3654

Checked aneroid on rock B.M. in NW¼ of Sec 2 T13S R3E Elevation 3720

Made several elevation determinations and established 3000 ft contour in creek which runs west into San Diego River in North ½ of Secs 3 & 4; T13S; R3E; S.B.M.

Rechecked aneroid on rock B.M in NW¼ of Sec 2 T13S R3E Elevation 3700.

Aneroid Location of Elevations July 21, 1936
and 2000 and 3000 Ft. Contours in Converse
Creek running west into San Diego Naji
River in Secs 8, 9 & 10; T.13S, R.3E, S.B.M. Menocal
Kanegy

Established elevation on aneroid on rock B.M in NW¼
of Sec 2, T.13S; R.3E S.B.M. Elevation--- 3700.

Established 3000 ft. Contour in creek running west
into the San Diego River. Located in SW¼ of Sec 10
T.13S; R.3E; S.B.M.

Established 2000 ft. Contour in creek running
west into San Diego River

Checked elevation on rock BM in NW¼ of Sec 2
T.13S; R.3E, S.B.M. Elevation-- 3710.

Aneroid Location of Elevations in Chariot and "Westerly" Canyons Nos 1, 2, and 3.

July 22, 1936
Converse
Nasi
Kanegy
Menocal

Established elevation on aneroid at Julian B.M. Elevation ____ 4219

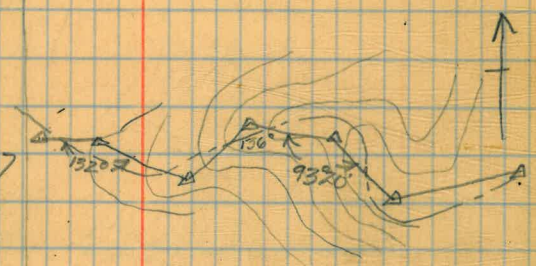
Checked elevation on B.M. #34 in Banner (Nail on east side large oak tree 23' left Sta. 461+70) Elevation ___ 2755. Aneroid reading ___ 2810. Reset aneroid to 2755.

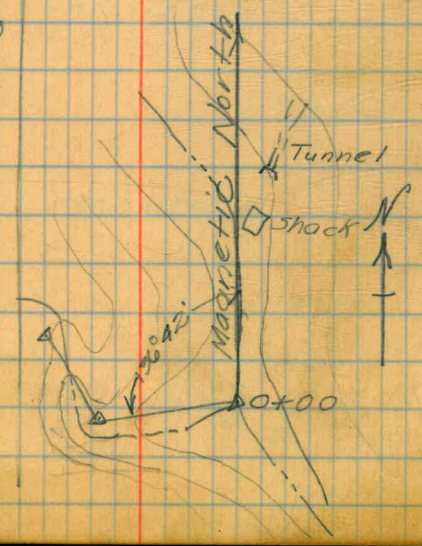
Established 3000' Contours in Westerly canyons #1, 2 and 3. of Chariot canyon. (In conjunction with stadia traverses, see next few pages) (0+00 etc

Stadia Traverse up Westerly Canyon No 1 of Chariot Canyon

July 23, 1956
Converse chf
Nasi, notes
Kaneen, ϕ
Menocal ϕ

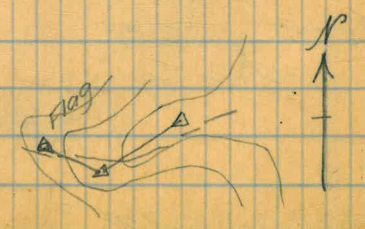
Sta.	Hor ∠	Mag Bear.	Stadia Dis.	Corr. Dis.	Vert ∠	D.E.	Elev
		S73-30N	107	109	+9°10'	+16.8	
4+75	86°35'						2932.4 2930
		S20-10E	69	63	+7°57'	+8.7	
4+12	136-00						2923.7 2920
		S23-40W	63	63	+5°13'	+5.7	
3+49	93°20'						2918.0 2920
		N69-40W	125	121	+8°52'	-7 19.0	
2+28	67-10R						2906.0 2910
		S43-10N	235	229	+10°11'	+40.9	
0+00	136°42'						2865.0





Stadia Traverse (Continued) July 22, 1936

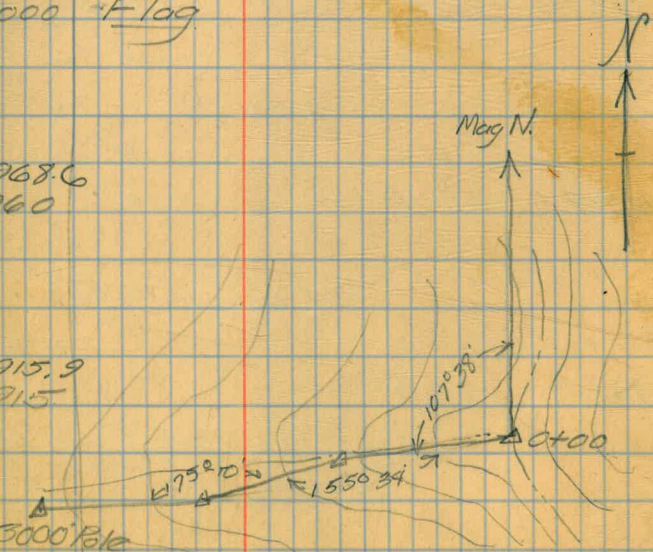
Sta	Hor. ∠	Mag Bear	Stadia Dis.	Corr.' Dis.	Vert. ∠	DE	Elev.
							2969.4 3000.0 Flag
		S53°30'W	80	79	+7°36'	+10.5	
6+97	140°07'						2958.9 2970
		N85°30'W	80	80	+4°31	+6.3	
6+17	111°13'						2952.6 2960
		S26°W	38	38	+5°7		
5+79	132°15'						2949.2 2950



Stadia Traverse up
Westerly Canyon No. 2. of Chariot
Canyon

July 22, 1936
Converse Cht.
Nasi. Notes
Kanegy ϕ
Menocal ϕ

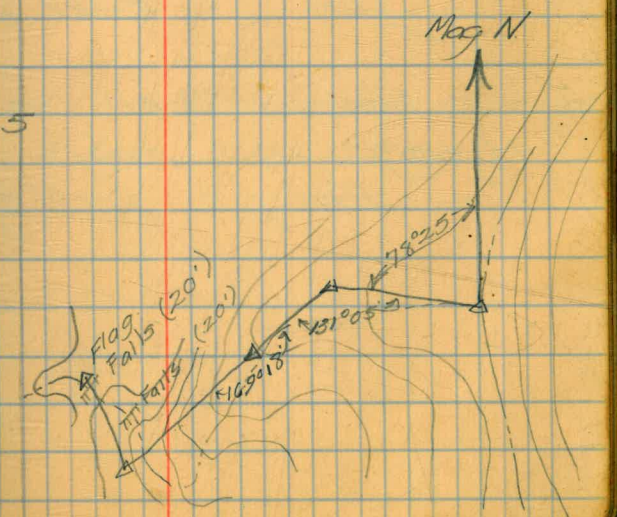
Sta.	Hor. ∡	Mag Bear	Stadia Dis.	Corr Dis.	Vert ∡	D.E.	Elev.	
6+57							3020.8 3000	Flag
		S 53°W	191	175	+16°36'	+52.2		
4+82	175°10'						2968.6 2960	
		S 48°15'W	195	179	+16°23	+52.7		
3+03	155°34						2915.9 2915	
		S 72°50'W	325	303	+14°55	+80.9		
0+00	107°38						2835	Junction of Chariot Creek and Canyon #2



Stadia Traverse up Westerly Canyon No. 3. of Chariot Canyon

July 22, 1936

Sta.	Hor. ∡	Mag Bear	Stadia Dist.	Corr Dist.	Vert ∡	D.E	Elev
10+42							3034.9 3010 Flag
		N67W	135	128	+13°25'	+30.4	
9+14	109°						3004.5
		S42-10W	305	266	+20°37'	+102	
6+48	169°18'						2902.5 2890
		S52-45W	268	264	+6°38'	+30.7	
3+84	131°05'						2871.8 2870
		N78-30W	393	384	+8°24'	+56.8	
0+00	78°25'						2815



Aneroid Location of Elevations in San Felipe valley, Sentenac canyon, and Narrows.

July 23, 1936
Converse
Nosi
Kanegy
Mendocal

Established elevation on aneroid @ Julian B.M.
Elevation - - 4219.

Reset aneroid on abutement of bridge in Sentenac Canyon Elev. - - 1867.

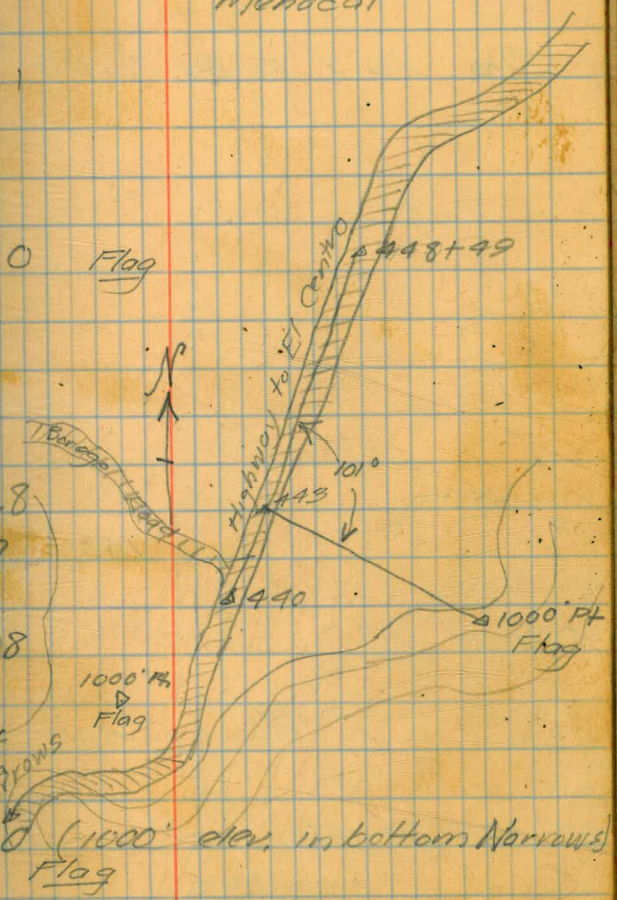
Established a B.M. @ Crossroads of Julian-Kane Spgs Hiway and road to Mason Valley Elev. - - 2260
(San Felipe Valley intersection)

Stadia Traverse to Locate 1000 Elev. tunnel @ Narrows (Kane Springs Route)

July 23, 1936
Converse
Nasi
Haney
Menocal

Sta	Hor ∠	Mag Bear	Stadia Dis.	Corr. Dis	Vert ∠	D.E.	Elev.	
			493	493	+1°18'	+11.3	1000.0	Flag
493	101°							
448+49			850	849	-1°30'	-22.2	974.8	
493			300		0°		988.7	
A		S44-45W	1455	1453	+2°41'	+68.8	1065.8	
	21-30R		1270	1270	+0°50'	+18.4	1015.4	
	(1000' Contour)						1000.0	(1000' elev. in bottom Narrows) Flag
	17°30'R		695		0°	(Level shot)		
440+00	8-16R						997.0	

(Established elev. of 440 from B.M. #44, R.S. 452)

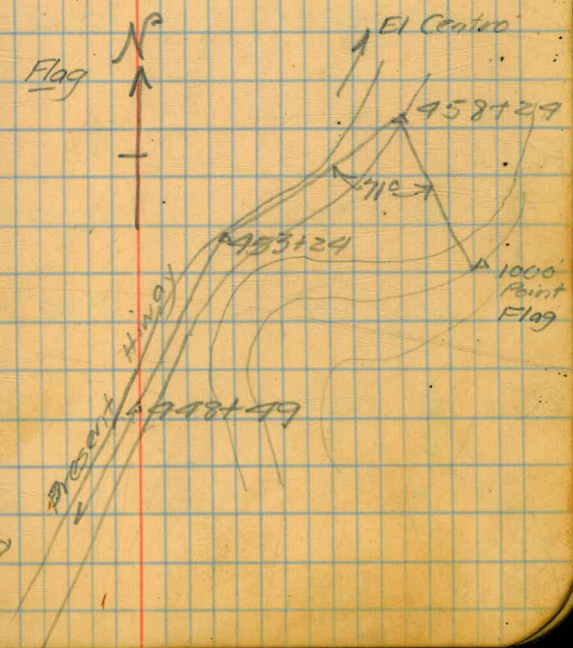


Backline 440+00 to 448+49 (℄ road)
- recorded bearing N 54°45' E

Stadia Traverse beyond "Narrows"
Establishing 1000' Contour from Sta 458+24
(established on edge of Hiway, from Sta 440)

July 23, 1936
Converse
Nasi
Kanegy
Menoeal

Sta	Hor. ∡	Mag Bear	Sta. Dist.	Corr. Dis	Vert. ∡	D.E	Elev.
			735	731	+3°56	+50.2	1001.8 Flag
458+24	71°						951.6
		N66-40E	500	500	-1°32'	-13.4	
453+24	24-27R						965.0
		N42E	475	475	-1°11'	-9.8	
448+49	6°1'R						974.8

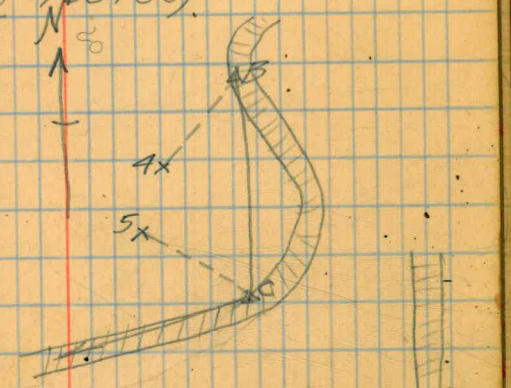


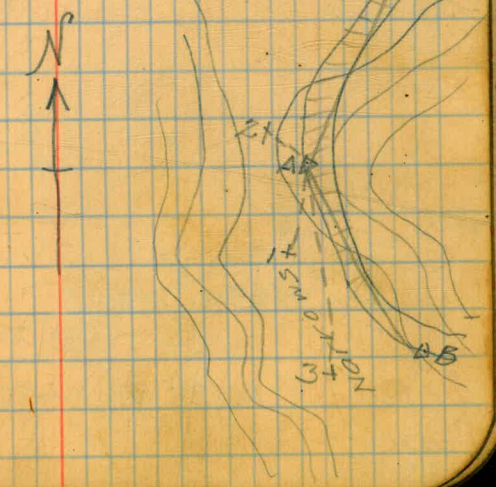
Stadia Traverse Thru "Narrows"
Taking various shots in bottom of valley.

July 23, 1936
Converse
Nasi
Kanegy
Menocal

Sta	Hor. ∡	Mag Bear.	Stadia Dist.	Corr Dis.	Vert ∡	D.E.	Elev
D	68°45'R	57.6°W	750	750	+1°37'	+18.3	(℄ @ 490+00).
⑤	49°50'		615	615	-0°29'	-5.2	1054.3
C	(40ft left of 407+20)						1059.5
C		57W	1180	1180	-0°41'	-14.1	1059.5
④	36°03R		460	457	-4°08'	-33.1	1090.5
B	3-28R						1073.6
③	17°10'L		470	468	-3°47'	-31.0	1039.8
②	58°		375	368	-7°21'	-47.6	1018.2
①	125°		195	186	-12°33'	-41.4	1029.4
B		51-30W	360	360	+1°14'	+7.8	1073.6
A	92°-22'L						1065.8

Pts. in Narrows

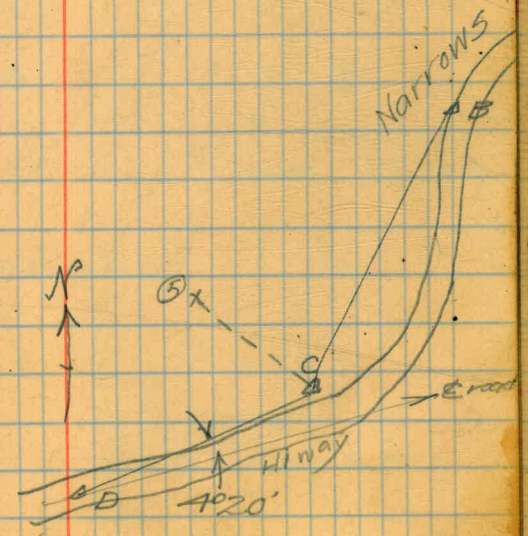




Stadia Traverse (Continued)

July 23, 1936

Sta	Hor. ∠	Mag Bear.	Stadia Dist	Corr Dis	Vert. ∠	D.E	Elev.
℄	4°20'	N82E					
D	(℄ @ 900+00)						



1077.8

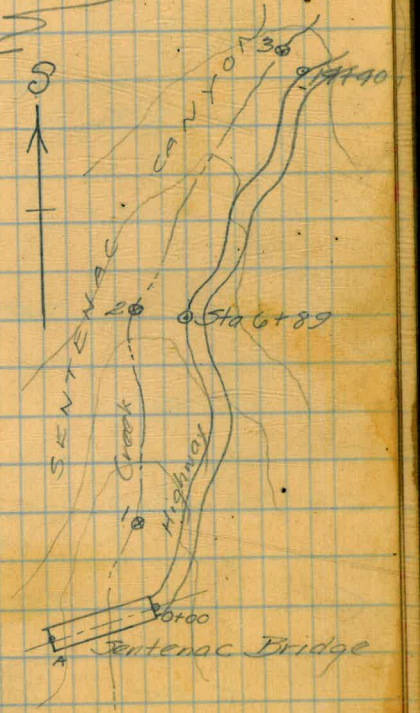
Stadia Traverse up Sentenac Canyon — July 24, 1936

From Sentenac Bridge to [illegible]

Converse ⊼ chf.
Nasi notes
Menocal ⊕
Kanegy ⊕

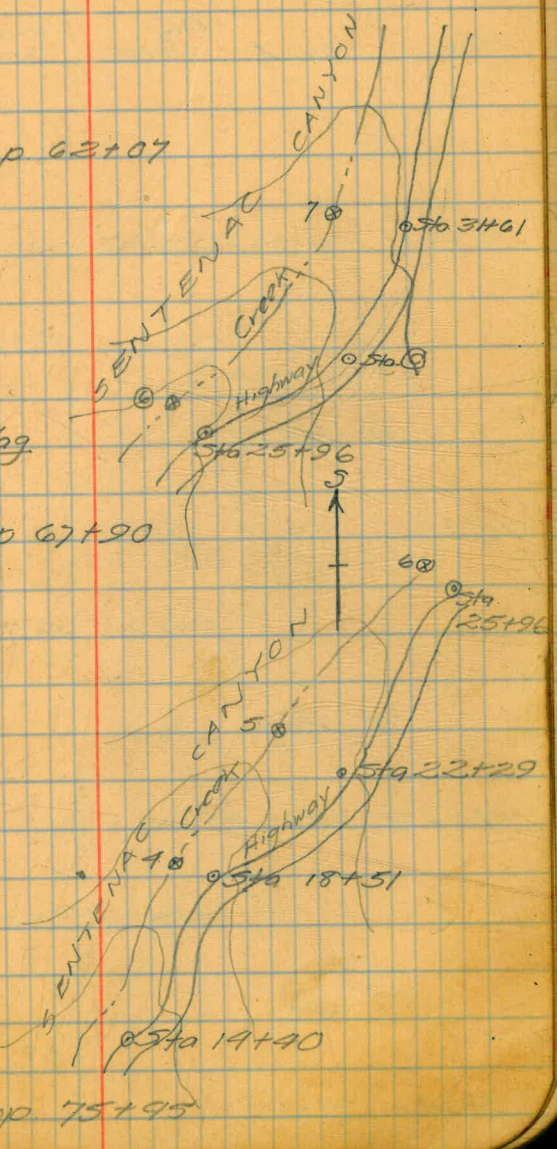
Sta.	Hor. ∡	Mag Bear	Stadia Dist.	Corr. Dist	Vert. ∡	D.E.	Elev	
		S36°20'W	412	411	+3°32'	+25.4		
③	90°L		50	41.6	-24°10'	-18.7	1939.7	
14+40	4°23'R						1958.4 1930	*opp. 79+60
		S31-50N	754	751	+3°53'	+50.9		
②	90°L		63	59	-15°07'	-15.9	1891.6	
6+89	14°02'R						1907.5 1900	opp. 87+15
		S16-40W	690	689	+3°22'	+40.5		
①	63-00L		85	81	-13°02'	-18.7	1847.3	
A		S73-40W	110		0°00'			
0+00	57°02'L						1867.0	West end Sentenac Bridge (94+20 on State alignment)

*note: Stationing refer to State alignment put in for road widening purposes



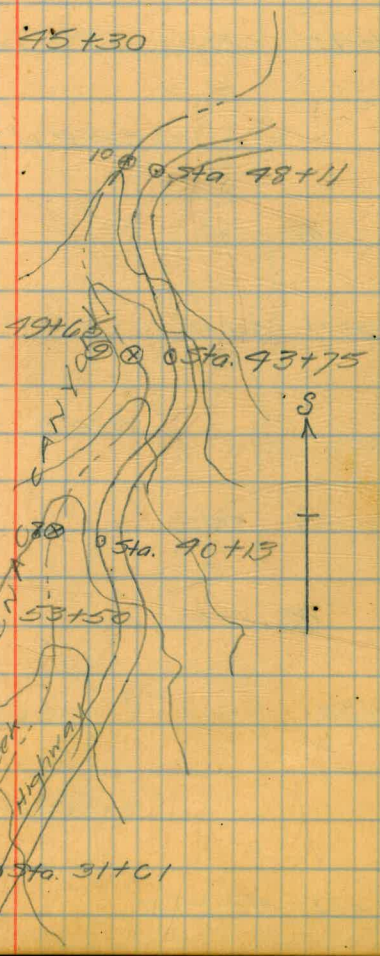
Stadia Traverse (Continued)

Sta	Hor. ∡	Mag. Bear.	Stadia Dis.	Corr. Dis.	Vert. ∡	D.E.	Elev.	
							2032.5	
31+61	34-21 L							opp 62+07
		359°W	565	565	+2°17'	+22.6		
ⓒ	25-20 R		940	939	+2°30'	+19.2	2029.1	
⑥	90 L			30		-11	1998.9	Flag
							2009.9	
25+96	17-42 R							opp 67+90
		S42-20W	367	367	+1°52'	+12.0		
⑤	90° L			40		-8	1989.9	
							1997.9	
22+29	10°44' L						1960	
		S52-50W	380	378	+2°08'	+19.1		
④	90° L			20		-15.0	1968.8	
							1983.8	
18+51	16°33' R						1995	opp 75+95



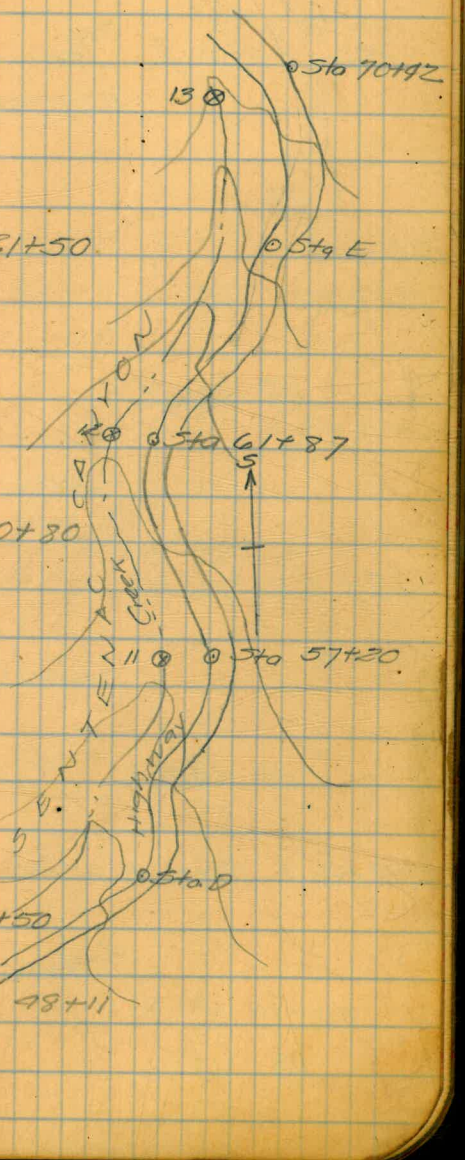
Stadia Traverse (Continued)

Sta.	Hor. ∠	Mag. Bear.	Stadia Dist.	Corr. Dist.	Vert. ∠	D.E	Elev.
(10)				40		-1.1	2084.7
48+11	40-55 R						2095.7 opp 45+30
		S 11-20 W	937	436	+2°15'	+17.2	
(9)	90° L			40		-9.0	
43+75	37-32 L						2078.5 opp 49+62
		S 49-30 W	364	362	+3°16'	+20.7	
(8)	90° L			20		-1.1	2046.8
40+13	23°30' R						over. 2005 2057.8 opp 53+50
		S 25-20 W	852	852	+1°42'	+25.3	
(7)	90° L			30		-1.2	2020.5
31+61	34-21 L						2032.5



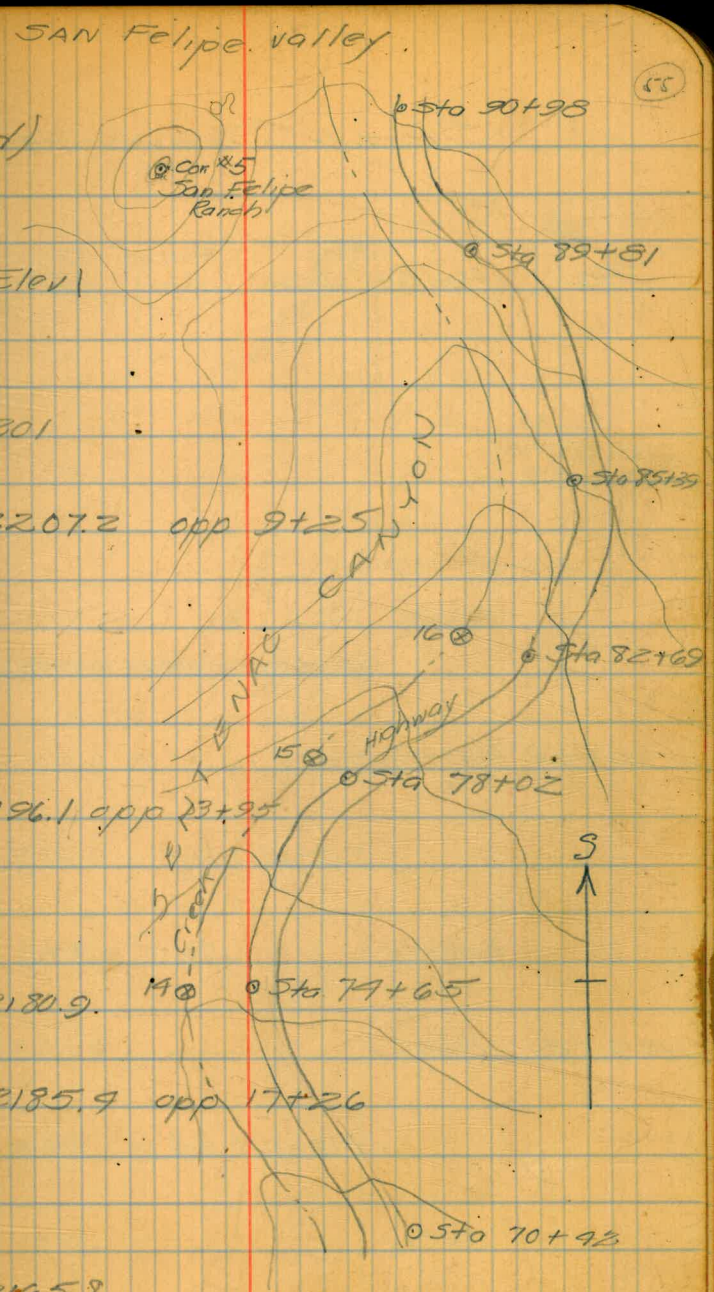
Stadia Traverse (Continued)

Sta.	Hor. ∡	Mag Bear	Stadia Dist	Corr Dist.	Vert ∡	D.E	Elev
(E)	21°36'		390	390	−1°43'	−4.9	2170.9
70+42	61°52' L						
							2175.8 opp 21+50
		S24°30W	858	855	+2°31'	+38.3	
(12)				25		−15	2122.5
61+87	44-46 R						
							2137.5 opp 30+30
		S20°E	467	467	+1°45'	+14.3	
(11)	90° L			30		−12	2111.2
(D)	14°30'		410	410	−1°23'	−9.8	2113.4
57+20	72-13 L						
							2123.2 opp 35+50
		S52°30W	910	909	+1°44'	+27.5	
48+11	40-55 R						
							2095.7 Flag



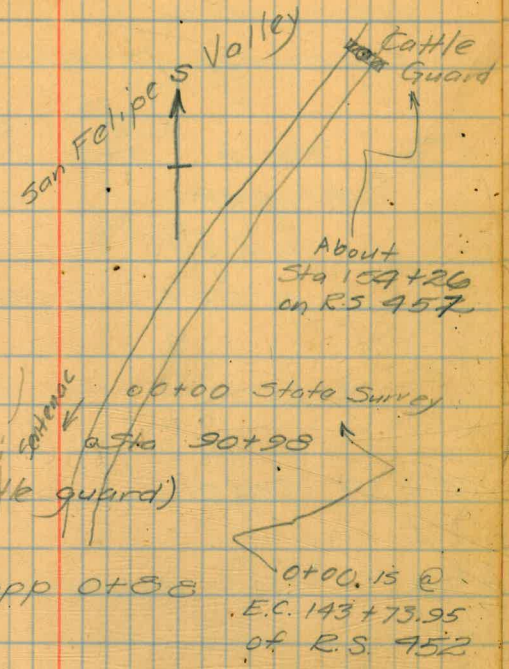
Stadia Traverse (Continued)

Sta	Hor ∠	Mag Bear.	Stadia Dist.	Corr. Dis.	Vert ∠	D.E.	Elev.
		S38-30W	270	270	+1°10'	+5.5	
(16)				60		-6	2201
82+69	10°26' L						2207.2 opp 9+25
(15)	90 L			20		-8	
		S49°W	467	467	+1°22'	+11.1	
78+02	37-33 R						2196.1 opp 23+95
		S11-30W	337	337	+1°49'	+10.7	
(14)	46-30 L			95		-4.5	2180.9
74+65	48-30 R						2185.4 opp 17+26
		S37-10E	423	423	+1°18'	+9.6	
(13)	115° L			123		-10	2165.8



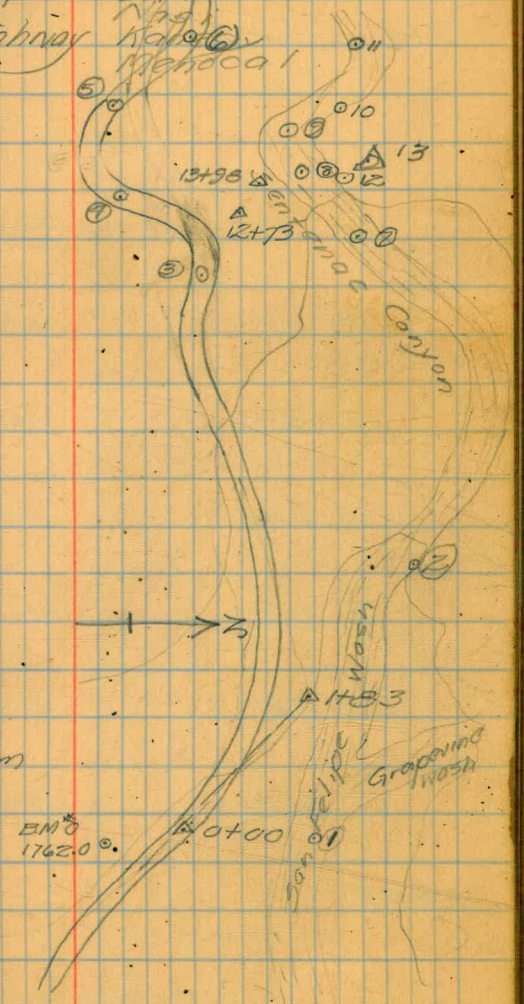
Stadia Traverse (Continued)

Sta.	Hor. ∠	Mag Bear.	Stadia Dis.	Corr. Dis.	Ver. ∠	D.E.	Elev.
		S 45-40 W	1140	1140	+0°38'	+12.6	2234.9 (Cattle guard)
90+98	34°35' R						
							2222.3 opp 0+88
		S 21° W	117	117	+0°45'	+1.5	
	117°39' L		360	346	+11°01'	+67.5	2288.3 (Cor #5 San Felipe Ranch) Iron pipe in mound of rocks
89+81	192' R						
							2220.8 opp 3+00
		S 18-50 W	442	442	+1°03'	+8.1	
	90° L			50		-7.0	
85+39	18-58 L						
							2212.7 opp 6+50



Stadia Traverse up Sentenac Canyon July 27, 1936
from Sta 0+00 of R.S. 452 and 457. Converse
Locating points in San Felipe creek and Highway Kanaly Menocal

Sta	Hor. ∡	Mag Bear	Stadia Dist	Corr. Dist	Vert. ∡	D.E	Elev.
⑤	100°-15'	Interior ∡s	585	585	+1°30'	+15.3	1848.8
④	91°15'		363	362	+2°13'	+13.9	1847.4
③	29°30'		76	76	-0°38'	-0.8	1832.7
12+73	18°00'R						1833.5
		S62-40W	1127	1090	+3°15'	+63.4	
②	8°20'L		880	875	-4°16'	-65.4	1704.7
①	22-15R		245	218	-19°17'	-76.1	1694.0 Bottom
1+83	44°-42'L						1770.1
		N72-40W	184	183	+4°05'	+13.1	1770.1
B.M.O			60	59	+4°48'	+5.0	1762.0
0+00	0°00'						1757.0



0+00 of R.S. 452
and R.S. 457

Stadia Traverse (Continued)

Sta	Hor ∡	Mag Bear	Stadia Dis.	Corr Dis.	Vert ∡	D.E.	Elev	
12	23° L		265	256	-10°44'	-48.5	1759.2	Flag
2	23° L		238	209	-20°28'	-78.0	1729.7	
11	64°35' L		1020	1017	-3°40'	-65.0	1742.7	
10	71-45 L		590	530	-7°32'	-76.6	1731.1	
9	89° L		410	399	-11°30'	-80	1727.7	
8	23° L		225	182	-26°02'	-88.8	1718.9	
7	36°15' R		342	314	-16°28'	-93.0	1714.7	
13+98							1807.7	
		S80-40W	130	125	-11°42'	-25.8		
6	114°45'		775	775	+1°22'	+18.9	1851.9	

Aneroid Location of Elevations in Mason and Vallecito valleys. July 28, 1936

Established aneroid elevation @ Banner B.M.
Elevation --- 2764

Checked elevation at intersection Julian-Kane Sprgs. and Mason Valley roads. Elevation --- 2260

Mile	Elevation	Remarks
12.1	2260	Intersection Julian-Kane Sprgs & Vallecitos Roads
18.0	2510	Low summit north of Dry Lake
20.7	2580	Summit west of Dry Lake, head of Corriso Cr.
24.4	2050	Fork of roads in Mason valley (Took road west)
25.1	2160	Gate in Fence (Game refuge)
26.5	2450	Ranchyard (Honey)
24.4	2050	Fork of roads in Mason valley (Road south)
25.8	2020	Summit of narrow ridge, Drop into wide valley
26.5	1750	Fork, Road to Cambell's Ranch
27.0	1770	Cambell's Ranch

Located section corners in Mason and Vallecita valleys with Campbells aid. (E. Campbell of Campbell's Ranch in Vallecita Valley.)

Aneroid Elevations (Continued)

SW Cor. Sec. 1 T14S, R5E	Elev.	2030
SE 1/4 of NE 1/4 Sec 12; T 14S; R5E		1780 (Campbell's house)
SE Cor. Sec 12 T 14S, R5E		1820
South Quarter Cor Section 12		1870
NE Cor Sec 18; T14S; R6E		1740
SE Cor Sec 18 " "		1785
South Quarter Sec 18		1820
SW Cor Sec 18		1980
South Quarter Sec 12 T14S R5E		2100
NE Corner Sec. 12 " "		2030

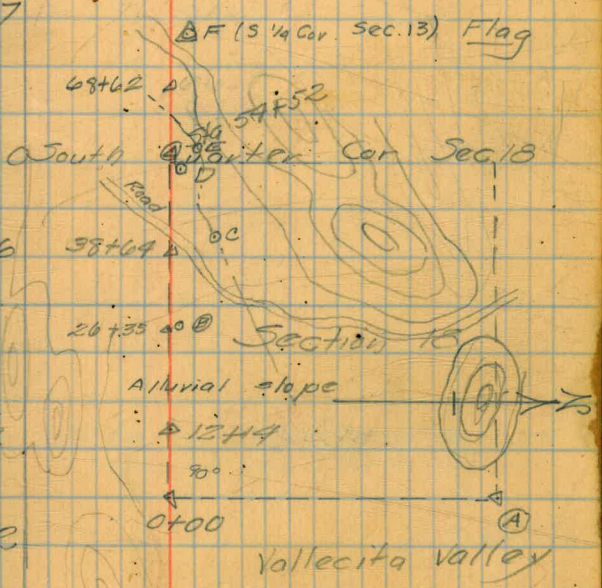
July 29, 1936

Established aneroid elevation @ Crossroads in San Felipe Valley Elev. 2260

Low summit north of Dry Lake Elev. - 2530
Summit north of Vallecito & south of Mason valleys - 2030
Crossroads, branch to Campbell ranch - 1750
Established elev. of SE Cor Sec 18 @ 1785.0
" " " South 1/4 Cor Sec 12 @ 1870.0

Stadia Traverse up South side of July 29, 1936
Section 18; T14S; R6E in Vallecito Converse
Valley. Establishing Flag @ Base of hill @ South Nos. Menocal
Quarter Corner Section 13; T14S; R5E. Kanegy

Sta	Hor. ∡	Mag Bear	Stadia Dis.	Corr. Dis	Vert ∡	D.E	Elev	
Ⓓ	56°35'	(Int ∡)	156	155	-4°17'	-11.6	1982.4	S.W. Cor. Section 18
54+52							1994.0	
			1590	1588	+2°19'	+64.3		
Ⓒ	65°R		820	819	-1°54'	-26.1	1903.6	
38+64							1929.7	
			1230	1229	+2°54'	+62.1		
Ⓑ	48-30 R		80			+3.4	1870.0	South Quarter Cor. Sec. 18
26+35	0°00'						1867.6	
			1425	1421	+2°16'	+56.4		
1214	0°00'						1811.2	
		S 79°50' W	1215	1214	+1°14'	+26.2	1811.2	
Ⓐ	0°00'	N 15-15 W						NE Cor. Section 18
0+00	90°R						1785.0	S.E. Cor. Sec 18 T14S, R6E

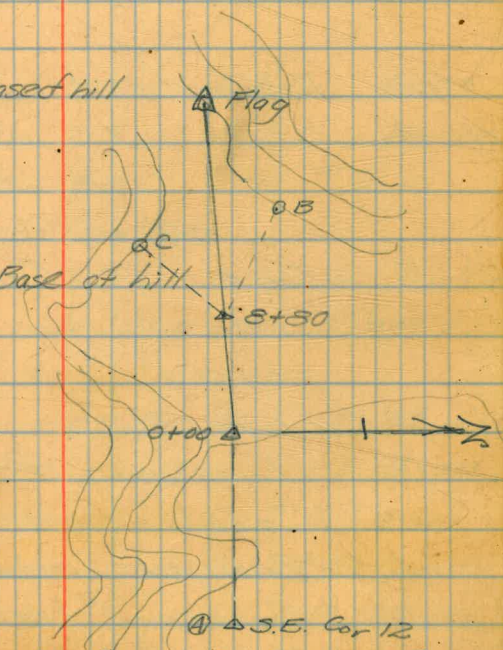


Stadia Traverse (Continued) July 29, 1936

Sta.	Hor. ∡	Mag Bear	Stadia Dis.	Corr Dis.	Vert. ∡	D.E.	Elev.	
	⊙ 10°15' R		1220	1219	+2°27'	+52.1	2105.6	S. 1/4 Cor. Sec 13 T14S R5E Mound of rock (Put in flag)
68+62							2053.5	
			1415	1410	+2°25'	+59.5	2053.5	
	⊙ 63° R		630		−1°08'	−12.5	1981.5	

Stadia Traverse beginning @ South Quarter Corner Section 12, T 14 S, R 5 E in Vallecito Valley; Establishing Flag @ base of western foothills July 29, 1936 Converse Nasi Kanegi Menecal

Sta	Hor. ∠	Mag Bear.	Stadia Dis.	Corr. Dis.	Vert. ∠	D.E.	Elev.	
ⓒ	30°30' L		520	516	+4°37'	+41.7	1974.2	Based hill
Flag			132.5	1319	+4°27'	+102.5	2035.0	
ⓑ	33°20 R		525	524	+3°31'	+32.2	1964.7	Base of hill
8+75	0°00'						1932.5	
		S63°30'W	880	875	+4°05'	+62.5	1932.5	
Ⓐ	0°00	S71-45W						
0+00	6°43' L						1870.0	South Quarter Corner Sec 12 T 14 S, R 5 E



Milages from Abandoned Borego Hotel July 30, 1956
along Kane-Springs - Julian Highway
to the various landmarks and portals.

1. Distance from Borego Hotel and Townsite (Elev. 90') to 1000' Elev. Portal @ Narrows is 10.6 miles.

2. Distance from Borego Hotel to Portal @ bottom of Sentenac Canyon (Elevation 1759.2; see pg. 59) is 19.5 miles

3. Distance to Sentenac Bridge (Elev. 1867.0) is 20.1 miles

4. Distance to 2000' Portal in Sentenac Canyon is 20.6 miles
5. " " 2100' " " " is 21.1 miles
6. " " Head of Sentenac Canyon opposite Cor #5 of San Felipe Ranch is 21.9 miles
7. Dist. to Cattle guard across hiway is 22.2 miles
8. Dist. to junction of Kane Sprgs - Julian and Warners roads is 23.0 miles.
9. Dist to bridge crossing San Felipe creek is 23.1 mi.
10. Junction Kane Sprgs - Julian and Vallecito roads -- 23.15 mi.
11. Cattle guard @ west side San Felipe Ranch - - 27.0 mi
12. Banner store - - - - - - - - - - 28.0 mi
13. Golden Chariot Canyon - - - - - - - - 28.55 mi
14. 3000' Portal in Banner Canyon - - - - - - 30.3 mi
15. Julian Junction - - - - - - - - - 35.1 mi

Milages (Continued) Using new origins. July 30, 1936

Mile	Elev.	Remarks
0.0	2260	Junction Kane Springs - (in San Felipe valley) Julian & Vallecito roads
5.8	2550	Low summit north of Dry Lake
9.7	2320	Junction of Vallecito - Oriflamme roads
12.2	2000	Junction of Vallecito - Mason Valley Bee Ranch roads
13.75	2020	Divide between Mason and Vallecito valleys
14.45	1760	Junction to Campbell's Ranch on Vallecito road
16.5	1640	Road crossing Vallecito Creek
18.5	1570	Vallecito Stage Station

0.0	2320	Junction of Vallecito - Oriflamme roads (in Mason valley)
1.0	2370	Road crossing Oriflamme Creek
2.55	2670	Former C.C.C. Camp Hard. (Urquhart Ranch)

La Mesa Irr. Dist. diverting dam.
U.S.G.S. Outlet thru diverting dam
lower side flume bottom. Elev. 811.67

Cuyamaca Dam. Spillway elevation
U.S.G.S. 4637.0

Ballena. 60 ft. south of school house at east side of gate Iron post stamped 2470 T. Elev. 2470.61

Witch Creek. In school yard at north side of gate Iron post. Elev. 2764.74

Wynola. Iron post at N.E. Cor. road intersection Elev. 3654.60

Alpine. Spike in back side 20" gum tree 24' ft. Sta. 0-00. Near small school house west of store. Elev. 1840.95
Pavement elevation = 1840.56

Viejas. Spike in 36" oak 83' R. 148+75 where new highway alignment leaves old about 500' west of bridge across Viejas Creek. Elev. 2221.06
Pavement elevation = 2224.0

West end Viejas Creek Bridge on pavement = 2230.0

U.S.G.S. Bench Marks.

County Court House. On east face of foundation wall on Front St. side 20.75 ft. north of S.E. cor. of east wing. Standard disc. Elev. 47.34

Lakeside. N.E. Cor. Bank Bldg. Standard disc. Elev. 406.08.

San Vicente. 200 ft. south of end of San Vicente Creek Bridge at road fork about 50 ft. east of Julian road. In top of large boulder. Elev. 541.67.

Ramona. S.E. Cor. Bank Bldg. about 1.5' above sidewalk. Disc set in concrete foundation. Elev. 1447.47.

Santa Ysabel. West of Inn and 180 ft. west of road junction and 30 ft. south of edge pavement. Standard disc set in top concrete post. Elev. 2983.87

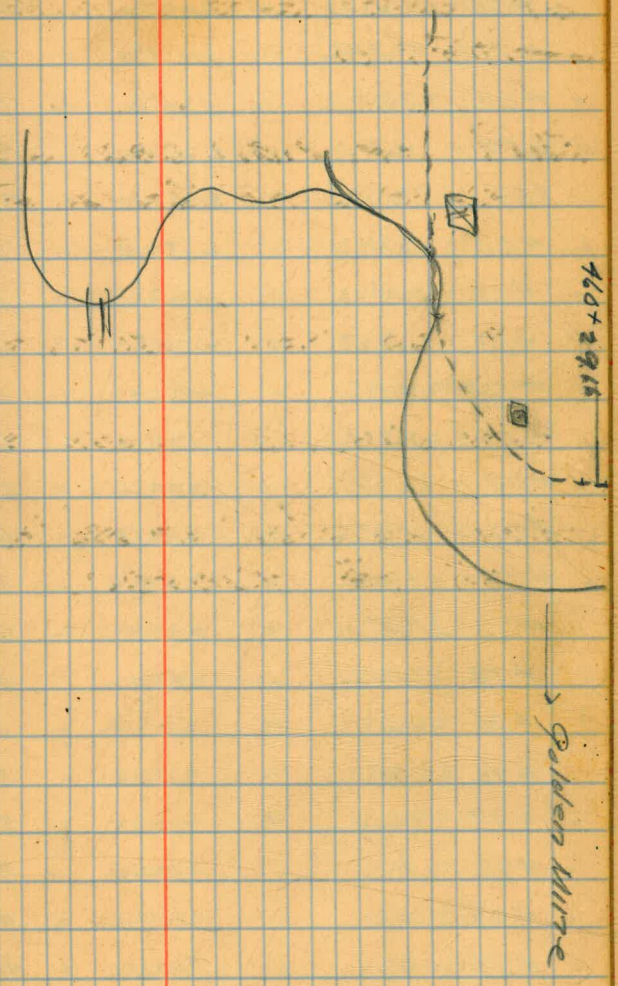
1809

~~Elev. Floor of Bridge, Truss, at lower end Santenac Canyon 1849.0~~

B.M. #34. Nail east side large oak tree 23 L. Sta. 461+70
Elev. 2755.48. Banner.

B.M. #35. Nail in live oak 21' Rt. Sta. 465+57.
Elev. 2763.75. Banner.

B.M. #36. Nail in Walnut Tree 68' Rt. 470+00
Elev. 2745.27. Banner.



BMs on Kane Spring Route

BM #59	40 Rt	Sta. 590	iron pin	818.40	Elev.
" #60	"	" 600	" "	803.42	"
" #61	"	" 610	" "	783.53	"
" #62	"	" 620	" "	769.13	"
" #63	"	" 630	" "	749.27	"
" #64	"	" 640	" "	730.10	"
" #65	"	" 650	" "	714.34	"
" #66	"	" 660	" "	702.13	"
" #67	"	" 670	" "	692.69	"
" #68	"	" 680	" "	680.85	"
" #69	"	" 690	" "	666.76	"
" #70	"	" 700	" "	648.71	"
" #71	"	" 710	" "	636.41	"
" #72	"	" 720	" "	619.25	"
" #73	"	" 730	" "	603.00	"
" #74	"	" 740	" "	594.25	"
" #75	"	" 750	" "	577.14	"
" #76	"	" 760	" "	550.84	"
" #77	"	" 770	" "	520.12	"
" #78	"	" 780	" "	505.92	"
" #79	"	" 790	" "	490.15	"
" #80	"	" 800	" "	468.37	"
" #81	"	" 810	" "	450.24	"
" #82	"	" 820	" "	428.80	"
" #83	"	" 830	" "	410.28	"
" #84	"	" 840	" "	398.64	"

BMs on Kane Spring Route

BM #85	40 Rt	Sta 850	iron pin	381.01	Elev
" #86	" "	" 860	" "	364.06	"
" #87	"	870	" "	347.59	"
" #88	"	880	" "	334.37	"
" #89	"	890	" "	319.21	"
" #90	"	900	" "	301.89	"
" #91	"	910	" "	299.35	"
" #92	"	920	" "	289.96	"
" #93	"	930	" "	269.62	"
" #94	"	940	" "	231.45	"
" #95	"	950	" "	214.34	"
" #96	"	960	" "	181.39	"
" #97	"	970	" "	159.16	"
" #98	"	980	" "	160.32	"
" #99	"	990	" "	157.72	
" #100	"	1000	" "	164.49	
" #101	"	1010	" "	172.40	
" #102	"	1020	" "	174.33	
" #103	"	1030	" "	160.97	
" #104	"	1040	" "	158.00	
" #105	"	1050	" "	153.08	"
" #106	"	1060	" "	157.43	"
" #107	"	1070	" "	133.07	"
" #108	"	1080	" "	125.01	"
" #109	"	1090	" "	125.00	"
" #110	"	1100	" "	108.47	

see last page for caukin.

BMs on Kane Spring Route
R.S. 452

BM #9		Sta 90+	iron pin	1562.67	Elev
" #10		" 100+	" "	1536.06	"
" #11		" 110+	" "	1532.61	"
" #12		120+	" "	1539.82	"
" #13		130+	" "	1489.21	"
" #14		140+	" "	1476.51	"
" #15		150+	" "	1439.65	"
" #16		160+	" "	1432.07	"
" #17		170+	" "	1408.36	"
" #18		180+	" "	1394.39	"
" #19	178' Lt. in S.S.R. #A-684			1371.89	"
" #20	40' Rt.	200+00	" "	1368.03	"
" #21	"	210+00	" "	1357.15	"
" #22	"	220+00	" "	1346.93	"
" #23	"	230+00	" "	1336.52	"
" #24	"	240+00	" "	1317.61	"
" #25	"	250+00	" "	1304.76	"
" #26	"	260+00	" "	1290.68	"
" #27	"	270+00	" "	1257.47	"
" #28	"	280+00	" "	1252.32	"
" #29	"	290+00	" "	1256.38	"
" #30	"	300+00	" "	1251.06	"
" #31	"	310+00	" "	1234.23	"
" #32	"	320+00	" "	1200.23	"
" #33	"	330+00		1174.42	"

BMs on Kane Springs Route

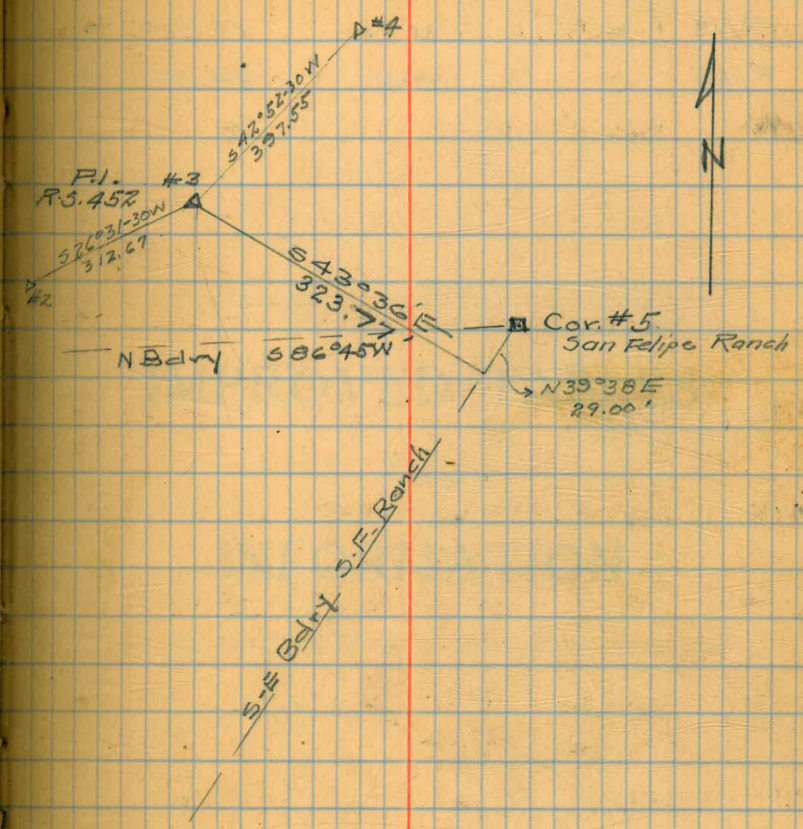
BM #34	40' Rt.	Sta. 340+00	iron pin	1154.83	Elev.
" #35	"	" 350	" "	1161.32	"
" #36	"	" 360	" "	1182.27	"
" #37	"	" 370	" "	1137.21	"
" #38	"	" 380	" "	1129.24	"
" #39	"	" 390	" "	1100.28	"
" #40	"	" 400	" "	1075.75	"
" #41	"	" 410	" "	1065.37	"
" #42	"	" 420	" "	1042.65	"
" #43	"	" 430	" "	1024.88	"
" #44	"	" 440	" "	1010.91	"
" #45	"	450	" "	982.44	"
" #46		460+00	" "	1000.24	"
" #47	68' Rt.	469+65	" "	944.29	"
" #48	40' Rt.	480	" "	919.76	"
" #49	"	490	" "	908.17	"
" #50	"	500	" "	888.91	"
" #51	"	510	" "	898.80	"
" #52	60' Rt.	520	" "	940.60	"
" #53	40' Rt.	530	" "	965.42	"
" #54	"	540	" "	920.86	"
" #55	"	550	" "	896.22	"
" #56	"	560	" "	875.67	"
" #57	"	570	" "	854.03	"
" #58	"	580	" "	834.29	"

B.M^s on Kane Springs Route

Setenac Canyon

R.S. 457 BM # 7	Extreme right end Top of abutment S-Eeor of Bridge Sta. 48+80±	1866.86	Elev.
BM # 6	Sta. 45+00	1859.73	"
BM # 5	2x2 Rnd 38' Rt Sta. 36+75 near large Boulder	1855.57	"
BM # 4	2x2 Rnd in rockledge 29' Rt 30+20	1852.23	"
BM # 3	2x2 Rnd 40' Rt Sta. 24+50	1848.48	"
BM # 2	2x2 Rnd 28' Rt Sta 14+90	1842.85	"
BM # 1	8" spike 22.5 Lt Sta. 8+97	1811.57	"
BM # 0	iron pin 38' Rt Sta. 0+50	1761.99	"
	R.S. 452		
BM # 1	50' Rt 10+00 iron pin	1703.17	"
" # 2	50' Rt 20+00 " "	1692.00	"
" # 3	30+ " "	1663.98	"
" # 4	40+ " "	1636.40	"
" # 5	50+ " "	1625.05	"
" # 6	60+ " "	1610.89	"
" # 7	70+ " "	1587.14	
" # 8	80+ " "	1577.17	"

Tie to San Felipe Ranch cor. #5 from R.S. 452 in N-W 1/4 Sec. 27-T12S R5E



B.M at Julian in yard of High school at North-side of gate iron post "4219 T" 4219.765 El.

BM S on Kane Springs Route

BM #111	40 Rt	Sta	1110+00	iron pin	100.70	Elev
" #112	"	"	1120	" "	96.99	"
" #113	"	"	1130	" "	88.66	"
" #114	"	"	1140+00	" "	84.20	"

IMPROVED TABLES

AND

INFORMATION

739938

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

C ° ′	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 Inch	C °	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 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

2690000
5000
538